

**Croudace Homes Ltd**

**Bird in Eye Farm, Uckfield**

**Flood Risk Assessment and Drainage Strategy**

**REPORT REF.  
2401070-ACE-XX-XX-RP-C-0301\_A**

**July 2024**

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## Document Control Sheet

| REV | ISSUE PURPOSE            | AUTHOR | CHECKED | APPROVED | DATE     |
|-----|--------------------------|--------|---------|----------|----------|
| -   | DRAFT                    | GA     | AW      | DRAFT    | 17-07-24 |
| -   | FINAL                    | GA/NC  | AW      | DM       | 26-07-24 |
| A   | Updated to suit comments | GA/NC  | AW      | DM       | 29-07-24 |

## Distribution

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## **1. Introduction**

- 1.1. This 'Flood Risk Assessment and Drainage Strategy' has been prepared by Ardent Consulting Engineers (hereafter referred to as "Ardent") to accompany an outline planning application for the proposed development at 'Land at Bird in Eye Farm South of Bird in Eye Hill, Uckfield (hereafter referred to as 'The Site'). The application is submitted on behalf of Croudace Homes Ltd.
- 1.2. This FRA has been prepared with specific reference to the requirements of the National Planning Framework (NPPF – December 2023) and the Planning Practice Guidance (March 2014 – flood risk section updated in August 2022). The report demonstrates that the site can be suitably redeveloped whilst complying with the requirements of the NPPF in terms of Flood Risk.

## 2. Site Characteristics

### Site Location

- 2.1. The Site is located at Land at Bird in Eye Farm, to east of Uckfield in East Sussex County (approximate Ordnance Survey (OS) grid reference 548301m E, 120692m N). The town of Uckfield lies within the administrative boundary of Wealden District Council (WDC).
- 2.2. The site consists of agricultural land surrounding the Bird in Eye Farm complex. The site is bound by the B2102 Bird in Eye Hill to the north, by Framfield Stream to the west, by Bird in Eye Shaw to the south, and by agricultural land to the east. Access to the site is via the B2102 Bird in Eye Hill. See **Figure 2-1** for details.

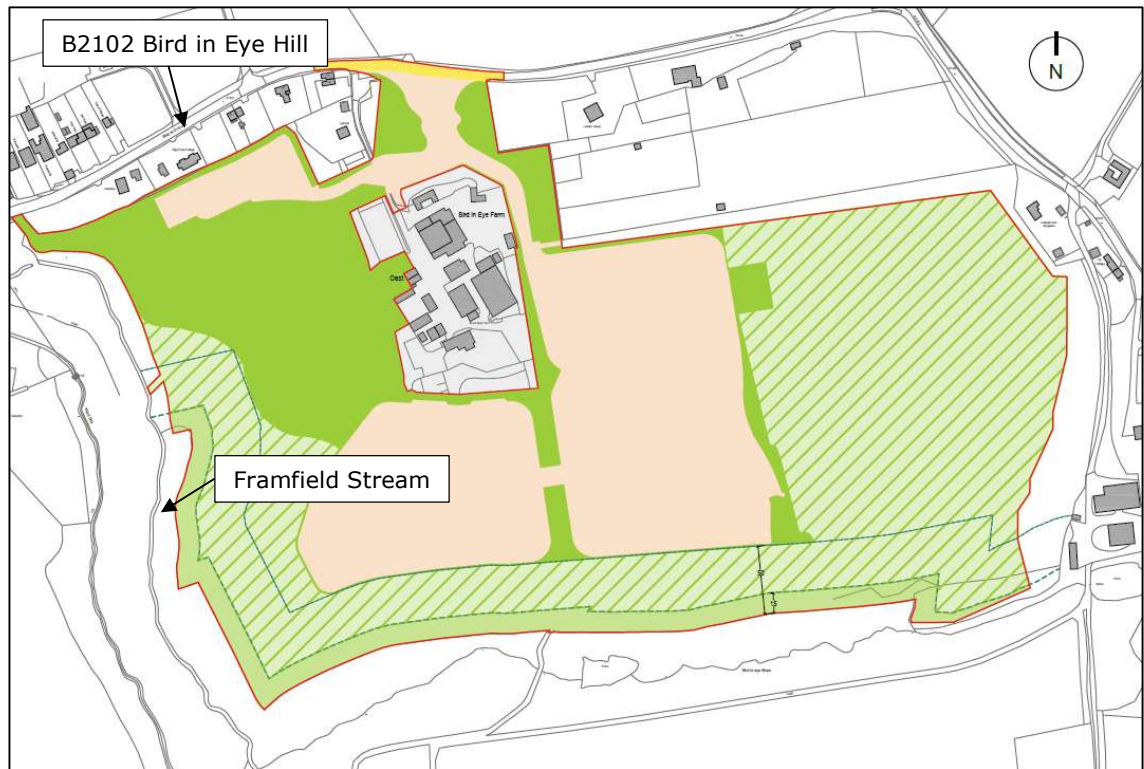


Figure 2-1: Site Location

## Development Proposal

2.3. The proposal is for an outline planning application for the erection of up to 190 dwellings, with associated works, parking, landscaping, publicly accessible open space and SANG provision, with access from the B2102.

2.4. The proposed layout is shown in **Figure 2-2** and **Appendix A**.

2.5. The development is classified as 'More Vulnerable' within the NPPF.



Figure 2-2: Proposed development

## Geology

2.6. Geological information for the site was gathered from the British Geological Survey (BGS) 'Geology of Britain Viewer'.

2.7. The BGS describes the bedrock of the proposed site as Lower Tunbridge Well Sand – Sandstone. See **Figure 2-3** for details.

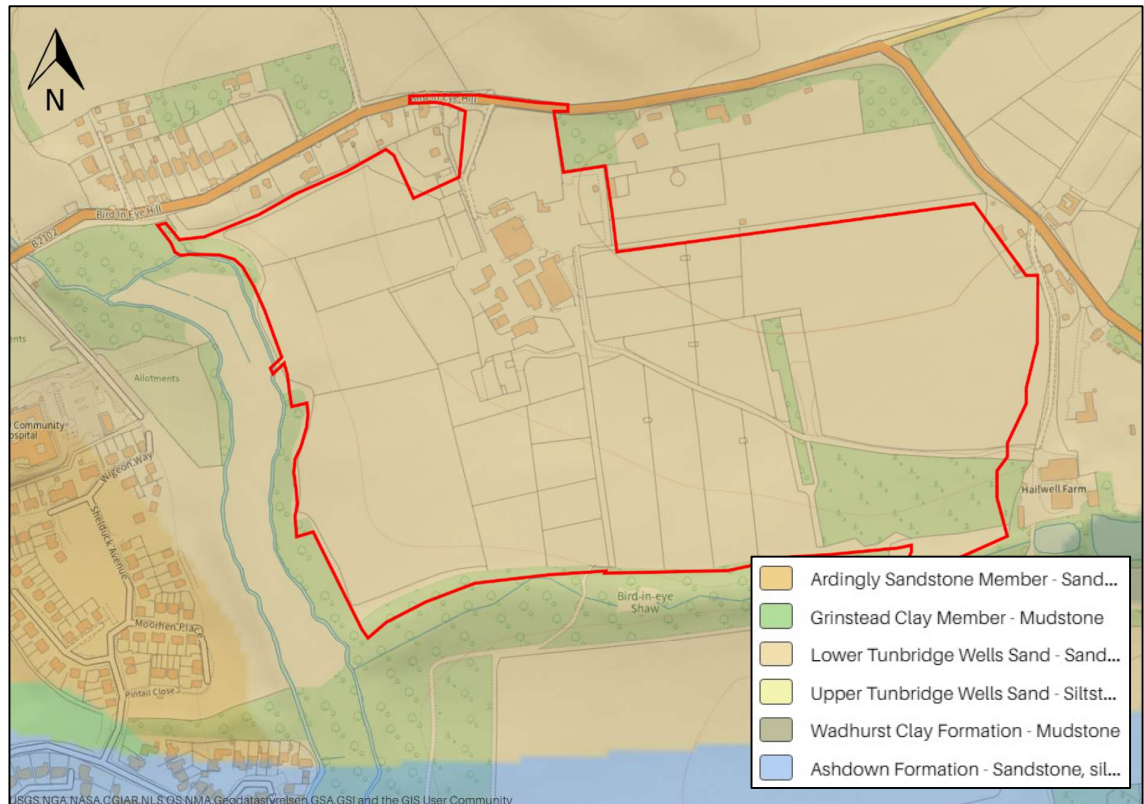


Figure 2-3: Bedrock geology at the proposed site location (Source: BGS)

2.8. The area surrounding the watercourse has superficial deposits of Alluvium – Clay, Silt, Sand and Gravel. See **Figure 2-4** for details.

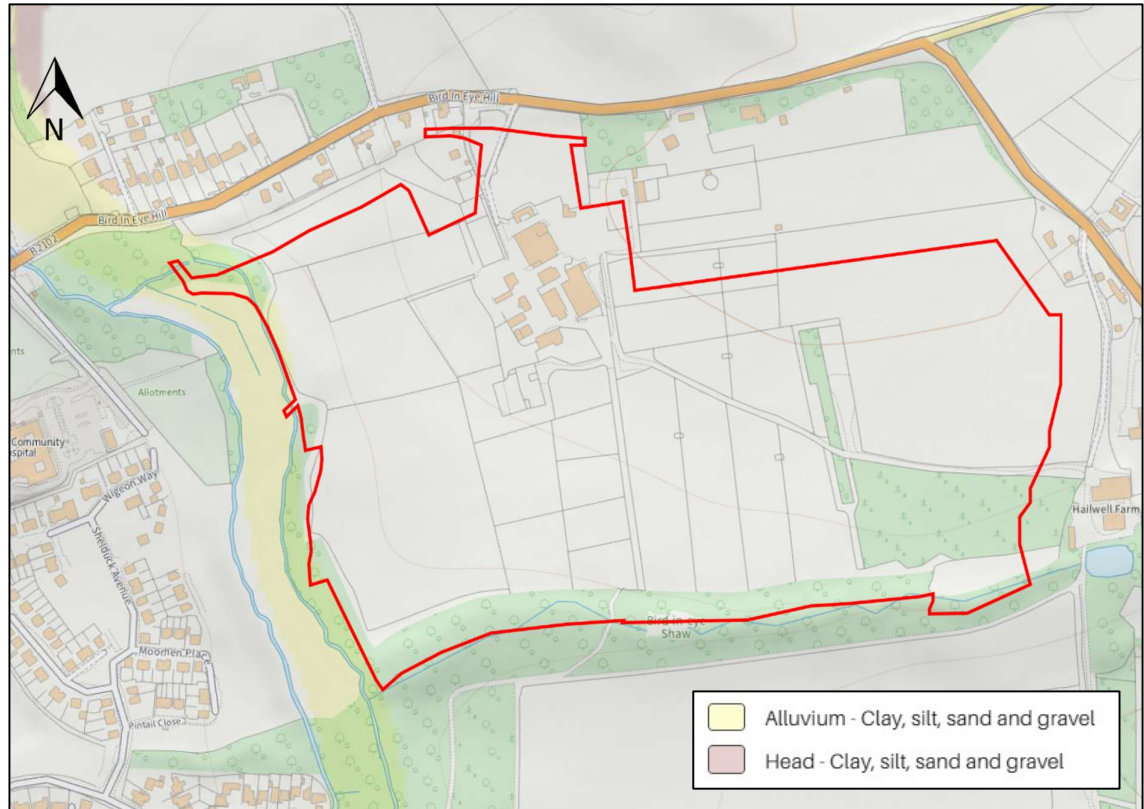


Figure 2-4: Superficial deposits at the proposed site location (Source: BGS)

2.9. The SWMP mapping (refer to **Figure 2-5** below) indicates that the majority of the site is suggested to have very low potential for groundwater flooding to occur, however the south western part of the site, along the site boundary, lies in an area of higher groundwater depth. Also, the site does not lie within a Source Protection Zone.

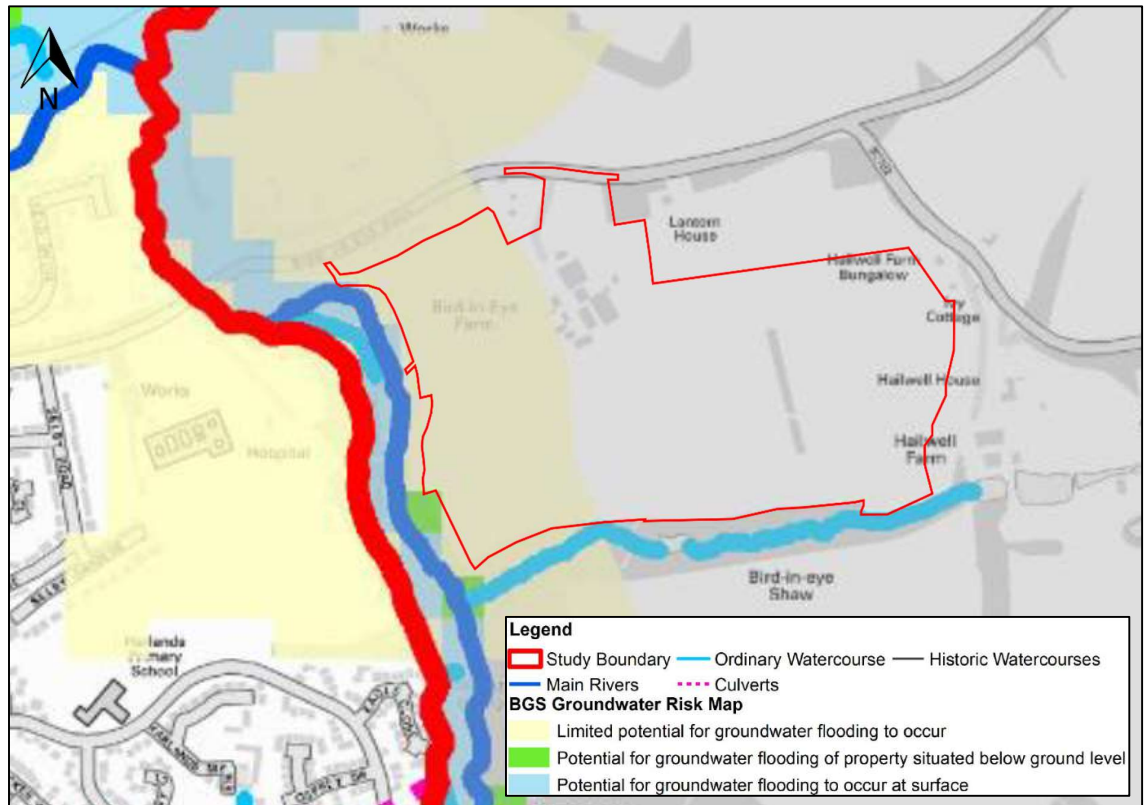


Figure 2-5: Groundwater Flood Risk (Source: Uckfield SWMP)

### Existing Elevations

- 2.10. A review of the topo survey has been undertaken and shows that ground levels slope towards Framfield stream to the west, and towards the unnamed stream in Bird-in-Eye Shaw crossing the centre of the site.
- 2.11. The site generally slopes from a high point of 54m AOD, on the north east corner of the site, towards a low point of 21.0m AOD on the western boundary, which equates to an average gradient across the site of 1:15. Steeper grades are noted along the western boundary which is as steep as 1:6.

### Existing Sewer Infrastructure

2.12. **Figure 2-6** below displays an extract of Southern Water sewer records whilst a full copy is included in **Appendix B**.

2.13. A 150mm foul pipe is running east to west along Bird in Eye Hill, which then connects to a rising main further west.

2.14. Surface water pipes are located further west, away from the site boundary.

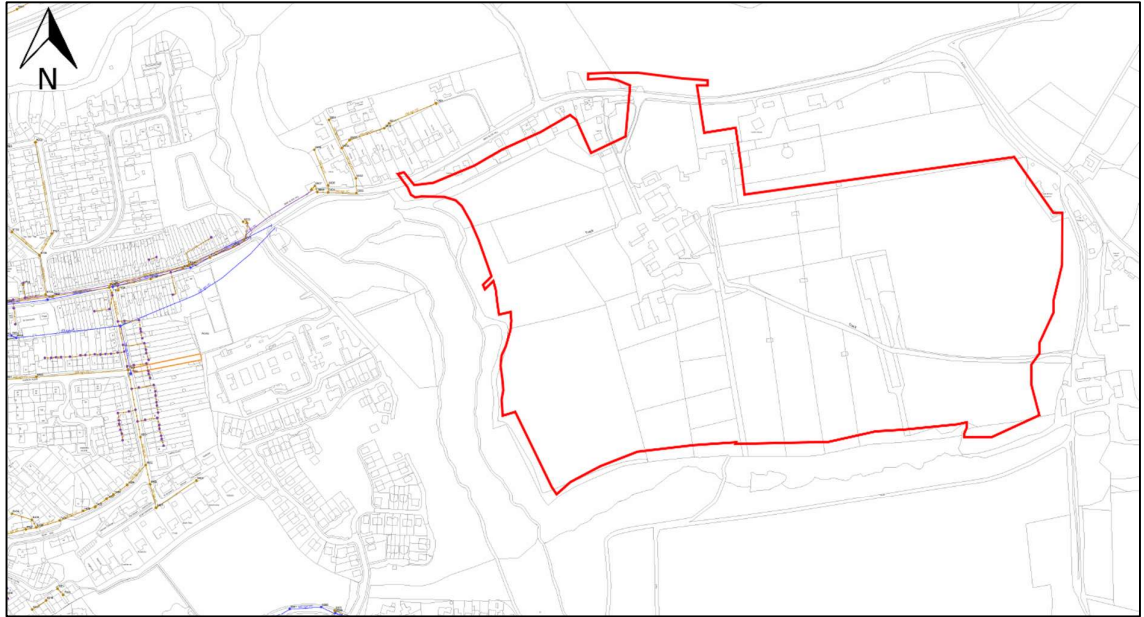


Figure 2-6: Asset Location Plan

### **3. Policy Context**

#### **National Planning Policy Framework (December 2023)**

3.1. The National Planning Policy Framework (NPPF) was introduced on 27 March 2012. This document was revised most recently in December 2023; where paragraphs 165 to 175 inclusive, establish the Planning Policy relating to flood risk management. The Technical Guide to the NPPF was superseded by the Planning Practice Guidance (PPG) in March 2014, and most recently updated in August 2022.

3.2. It states all plans should apply a sequential, risk-based approach to the location of development – taking into account all sources of flood risk and the current and future impacts of climate change – so as to avoid, where possible, flood risk to people and property. They should do this and manage residual risk, by:

- applying the sequential test and then, if necessary, the exception test as set out below;
- safeguarding land from development that is required, or is likely to be required, for current or future flood management;
- using opportunities provided by new development and improvements in green and other infrastructure to reduce the causes and impacts of flooding, (making as much use as possible of natural flood management techniques as part of an integrated approach to flood risk management); and,
- where climate change is expected to increase flood risk so that some existing development may not be sustainable in the long-term, seeking opportunities to relocate development, including housing, to more sustainable locations.

3.3. The Planning Practice Guidance (PPG) provides the methodology required to undertake the Sequential and Exception Tests.

## **National Flood and Coastal Erosion Risk Management Strategy for England (2021)**

3.4. The Flood and Water Management Act (FWMA 2010) places a statutory duty on the Environment Agency to develop a National Flood and Coastal Erosion Risk Management (FCERM).

3.5. This strategy describes what needs to be done by all risk management authorities involved in flood and coastal erosion risk management for the benefit of people and places.

3.6. This strategy seeks to better manage the risks and consequences of flooding from rivers, the sea, groundwater, reservoirs, ordinary watercourses, surface water and sewers and coastal erosion.

3.7. This strategy's long-term vision has three ambitions, underpinned by evidence about future risk and investment needs:

- Climate resilient places: working with partners to bolster resilience to flooding and coastal change across the nation, both now and in the face of climate change.
- Today's growth and infrastructure resilience in tomorrow's climate: making the right investment and planning decisions to secure sustainable growth and environmental improvements, as well as resilient infrastructure.
- A nation ready to respond and adapt to flooding and coastal change: ensuring local people understand their risk to flooding and coastal change, and know their responsibilities and how to take action.

3.8. Risk management authorities will work with partners to:

- Put greater focus on providing timely and quality planning advice that helps avoid inappropriate development in areas at risk of flooding and coastal change
- Leave the environment in a better state by contributing to environmental net gain for new development proposals
- Ensure that spending on flood and coastal resilience contributes to job creation and sustainable growth in local places

- Mainstream property flood resilience measures and to 'build back better' after flooding to reduce damages and enable faster recovery for local communities
- Provide expert advice on how infrastructure providers can ensure their investments are more resilient to future flooding and coastal change avoiding disruption to peoples' lives and livelihoods

### **The Environment Agency's approach to groundwater protection (2018)**

- 3.9. The Environment Agency's approach to groundwater protection (Environment Agency, 2018) contains information about the Environment Agency's approach to managing and protecting groundwater and details how the Environment Agency delivers Government policy for groundwater and adopts a risk-based approach where legislation allows. Many of the approaches set out in the position statements are not statutory but may be included in, or referenced by, statutory guidance and legislation.
- 3.10. Developers and operators are expected to provide adequate information when submitting proposals so the potential impact on groundwater resources and quality can be adequately assessed. They are also expected to assess and mitigate the potential impact on groundwater throughout the planning, construction, operation and decommissioning phases of the development or operation.

### **Flood and Water Management Act (2010)**

- 3.11. The Flood and Water Management Act places a duty on all flood risk management authorities to co-operate with each other. The Act also provides lead local flood authorities and the Environment Agency with a power to request information required in connection with their flood risk management functions.
- 3.12. The LLFAs are responsible for developing, maintaining, and applying a strategy for local flood risk management in their areas, and for maintaining a register of flood risk assets. They also have lead responsibility for managing the risk of flooding from surface water, groundwater, and ordinary watercourses.

### **Sustainable Drainage Systems - Non-statutory technical standards for sustainable drainage systems (March 2015)**

- 3.13. The Non-statutory technical standards for sustainable drainage systems were published in March 2015. They should be used in conjunction with the Planning Practice Guidance.
- 3.14. The Local Planning Authority (LPA) may set local requirements for planning permission that have the effect of more stringent requirements than these non-statutory technical standards.
- 3.15. In addition, SuDS should be designed in accordance with CIRIA 753 "The SuDS Manual", which represents current best practice.

### **Flood Risk Management Plans 2021 – 2027**

- 3.16. On 12 December 2022 the Environment Agency published updated flood risk management plans (FRMPs) for England to cover the period from 2021- 2027.
- 3.17. The plan will:
- identify measures (actions) that will reduce the likelihood and consequences of flooding;
  - improve resilience, which is the capacity of people and places to plan for, better protect, respond to, and to recover from flooding and coastal change, while informing the delivery of existing flood programmes;
  - work in partnership to deliver wider resilience measures. These include nature-based solutions, property flood resilience and sustainable drainage systems; and,
  - plan and adapt to a changing climate through developing longer-term, adaptive approaches.

- 3.18. In many cases the measures (actions) in the plans help contribute to wider benefits for local places including climate mitigation and adaptation, nature recovery as well as integrated water management. The 'flood plan explorer' includes maps showing the extents of the catchment areas was developed to support each plan.

### **Wealden Flood Risk Assessment, Level 1 (May, 2022)**

3.19. The SFRA replaces the 2017 Level 1 SFRA for the study area. This study provides a comprehensive and robust evidence base to support the new Wealden District Local Plan. The key objectives are:

- To update and supersede the Council's 2017 SFRA.
- To consider the requirements of the NPPF (2021); climate change scenarios from the Environment Agency; planning guidance on flood risk management and projects being undertaken by East Sussex County Council as the Lead Local Flood Authority.
- To identify updates related to new datasets, including the Risk of Flooding from Surface Water (RoFSW), any local flood risk management strategies and any risks from groundwater flooding.
- To inform decisions in the emerging Local Plan, including the selection of development sites and planning policies.
- To provide evidence to support the application of the Sequential Test for the allocation of new development sites, to support the Council's preparation of the Local Plan.
- To provide a comprehensive set of maps presenting flood risk from all sources that can be used as an evidence base for use in the emerging Local Plan.
- To provide advice for applicants carrying out site-specific Flood Risk Assessments and outline specific measures or objectives that are required to manage flood risk.
- Dependent on the outcome of the Level 1 SFRA, to provide a Level 2 SFRA that is sufficiently detailed to allow Wealden District Council to apply the Exception Test to their site allocations.

### **Wealden District Core Strategy Local Plan (February, 2013)**

3.20. The Core Strategy is the overarching planning policy document for the Wealden District Area, setting out our vision for the future development of the area over the period to 2027. It sets down a number of strategic objectives, and key planning policies for the area together with the broad locations, amounts and types of development that will take place within Wealden over the next 14 years. It covers the whole of Wealden District and has been prepared and adopted by both Wealden

District Council and the South Downs National Park Authority which is the Local Planning Authority for part of south Wealden.

3.21. Wealden's relevant spatial planning objectives:

**SPO10:** We will seek to ensure the safety of residents and reduce the economic impact of flooding events by avoiding the allocation of land for employment and housing growth in areas subject to medium and high flood risk, taking into account the predicted impact of climate change.

3.22. Wealden District Council is preparing a new Local Plan. The Local Plan will be the key planning document for Wealden District, excluding the area covered by the South Downs National Park Authority. The South Downs National Park has planning powers for its own area. The Wealden Local Plan looks ahead to 2040.

**Wealden District Surface Water Management Plan (June, 2016)**

3.23. The Surface Water Management Plan for Uckfield (Stage 1) is led by a partnership of flood risk management authorities who have responsibilities for aspects of local flooding, including the County Council, District Council, sewerage undertaker, Internal Drainage Boards, and other relevant authorities. The plan is a study to understand the flood risk that arises from surface runoff, groundwater and ordinary watercourses. Using a Source-Pathway-Receptor model hotspots were identified in the plan, where there were repeated incidents and/or multiple flood mechanisms along with areas of predicted flood risk.

## 4. Climate Change

4.1. The Planning Practice Guidance states that to allow for the predicted impacts of climate change on sea level rise within the Adur and Ouse Management Catchment, the following increases detailed in Table 4-1 below should be allowed for. The Central allowance should be used as the design event for More Vulnerable Development.

|       | Central | Higher | Upper |
|-------|---------|--------|-------|
| 2020s | 16%     | 23%    | 40%   |
| 2050s | 18%     | 28%    | 57%   |
| 2080s | 37%     | 55%    | 107%  |

Table 4-1: Adur and Ouse Management Catchment Peak River Flow Allowances

4.2. The Planning Practice Guidance states that to allow for the predicted impacts of climate change on surface water runoff within the Adur and Ouse Management Catchment the following increases detailed in Table 4-2 rainfall intensity should be allowed for. For development with a lifetime beyond 2100, the upper end allowances should be used.

|                                              | Central | Upper |
|----------------------------------------------|---------|-------|
| <b>3.3% annual exceedance rainfall event</b> |         |       |
| 2050s                                        | 20%     | 35%   |
| 2070s                                        | 20%     | 40%   |
| <b>1% annual exceedance rainfall event</b>   |         |       |
| 2050s                                        | 20%     | 45%   |
| 2070s                                        | 25%     | 45%   |

Table 4-2: Adur and Ouse Management Catchment peak rainfall allowances

4.3. Therefore, under the NPPF an allowance of 45% for the effects of climate change for the 1% annual exceedance rainfall event would achieve the policy requirements in designing the drainage elements for the proposed residential redevelopment.

## 5. Sequential and Exception Tests

### Sequential Test

5.1. Based on the Environment Agency Flood Map for Planning, refer to **Figure 5-1** below, the site is located within a Flood Zone 1.

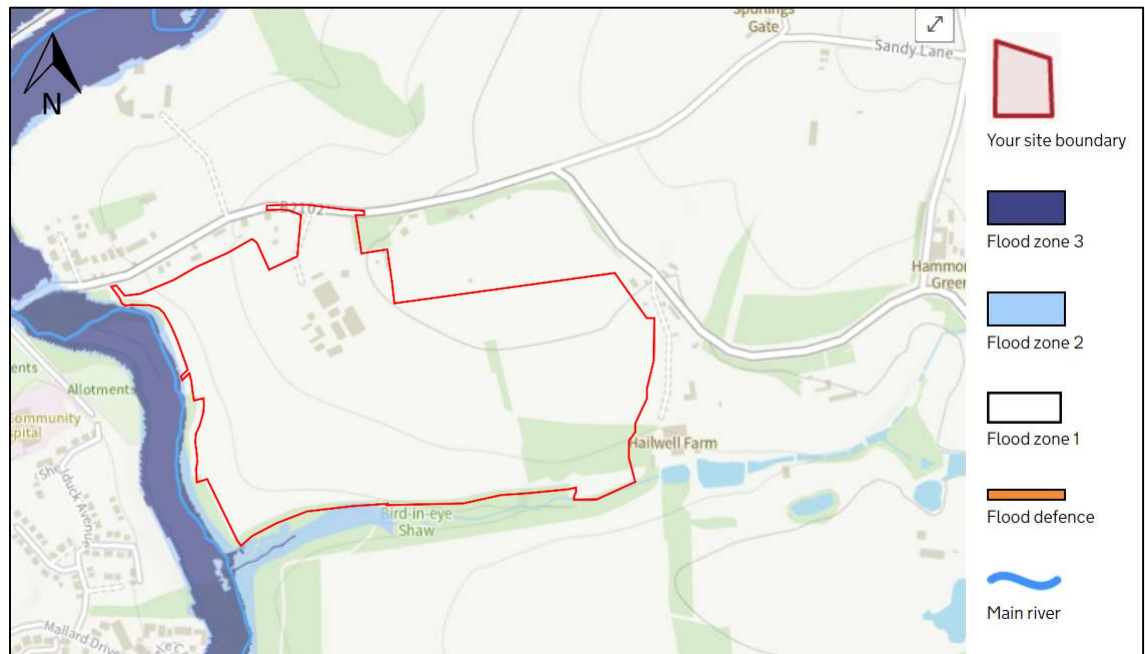


Figure 5-1: EA Flood Map for Planning

5.2. The objective of the Sequential Test is to steer new developments toward areas with the lowest probability of flooding. Where there are no reasonably available sites in lower flood risk areas, local planning authorities in their decision making should take into account the flood risk vulnerability of land uses and consider reasonably available sites in higher flood risk areas.

5.3. As the site is located within Flood Zone 1 (and also at low risk from other flood risk sources) it is not necessary for the site to pass the Sequential Test.

### Exception Test

5.4. Table 2 (Flood risk vulnerability classification) of the PPG classes the proposed development as 'More Vulnerable'. As noted in the PPG, 'Some developments may contain different elements of vulnerability and the highest vulnerability category should be used, unless the development is considered in its component parts'.

5.5. According to Table 3 (refer to Table 5-1 below) of the Planning Practice Guidance, as the proposed development is classified as 'More Vulnerable' and the Site is located in Flood Zone 1, the Exception Test is not required.

| Flood Zones                                                                   | Flood Risk Vulnerability Classification |                         |                         |                 |                  |
|-------------------------------------------------------------------------------|-----------------------------------------|-------------------------|-------------------------|-----------------|------------------|
|                                                                               | Essential Infrastructure                | Highly vulnerable       | More vulnerable         | Less vulnerable | Water compatible |
| <b>Zone 1</b>                                                                 | ✓                                       | ✓                       | ✓                       | ✓               | ✓                |
| <b>Zone 2</b>                                                                 | ✓                                       | Exception Test Required | ✓                       | ✓               | ✓                |
| <b>Zone 3a</b>                                                                | Exception Test Required                 | X                       | Exception Test Required | ✓               | ✓                |
| <b>Zone 3b</b>                                                                | Exception Test Required                 | X                       | X                       | X               | ✓                |
| ✓ - Exception Test is not required<br>X - Development Should not be permitted |                                         |                         |                         |                 |                  |

Table 5-1: Planning Practice Guidance vulnerability classification

5.6. The NPPF states that "A site-specific flood risk assessment should be provided for all development in Flood Zones 2 and 3. In Flood Zone 1, an assessment should accompany all proposals involving: sites of 1 hectare or more; land which has been identified by the Environment Agency as having critical drainage problems; land identified in a strategic flood risk assessment as being at increased flood risk in future; or land that may be subject to other sources of flooding, where its development would introduce a more vulnerable use."

5.7. For the NPPF Exception Test to be passed:

- *"the development would provide wider sustainability benefits to the community that outweigh the flood risk; and*
- *the development will be safe for its lifetime taking account of the vulnerability of its users, without increasing flood risk elsewhere, and, where possible, will reduce flood risk overall."*

5.8. Both elements of the exception test should be satisfied for development to be allocated or permitted. This Flood Risk Assessment forms the second part of the exception test.

## **6. Sources of Flooding**

6.1. The NPPF requires flood risk from the following sources to be assessed, each of which are assessed separately below:

- Fluvial sources (river flooding);
- Tidal sources (flooding from the sea);
- Pluvial sources (flooding resulting from overland flows);
- Groundwater sources;
- Sewer Flooding;
- Historic Flooding;
- Artificial sources, canals, reservoirs etc.; and,
- It also requires the risk from increases in surface water discharge to be assessed (surface water management).

### **Fluvial / Tidal Flood Risk – Flood Zone Designation**

6.2. Flood Zones refer to the probability of river and sea flooding, ignoring the presence of defences. The NPPF Planning Practice Guidance defines Flood Zones as follows:

- Flood Zone 1: Low Probability. Land having a less than 0.1% annual probability of river or sea flooding.
- Flood Zone 2: Medium Probability. Land having between a 1% and 0.1% annual probability of river flooding; or land having between a 0.5% and 0.1% annual probability of sea flooding.
- Flood Zone 3a: High Probability. Land having a 1% or greater annual probability of river flooding; or Land having a 0.5% or greater annual probability of sea.
- Flood Zone 3b: The Functional Floodplain. This zone comprises land where water from rivers or the sea has to flow or be stored in times of flood. The identification of functional floodplain should take account of local circumstances and not be defined solely on rigid probability parameters. Functional floodplain will normally comprise:

- i. and having a 3.3% or greater annual probability of flooding, with any existing flood risk management infrastructure operating effectively; or
- ii. land that is designed to flood (such as a flood attenuation scheme), even if it would only flood in more extreme events (such as 0.1% annual probability of flooding).

### **Fluvial/ Tidal Flood Risk**

- 6.3. Based on the Environment Agency Flood Map for Planning, refer to **Figure 5-1** above, the site is located within Flood Zone 1.
- 6.4. A data request was issued to the EA as part of this FRA, however, the information is yet to be received. A review of the previous FRA, available in the planning portal, indicates that the 100yr +45% CC undefined max level within the Framfield Stream is 21.95m AOD. It is not clear what allowance has been made for the defended scenario but the 100yr CC max level is 21.79m AOD. It is worth noting that the Climate Change uplift is now 37% and therefore the above levels are conservative.
- 6.5. The above data were taken from the River Uck Flood Risk Mapping Study, completed in Summer 2012 and is a 1D-2D ISIS TUFLOW model.

### **Pluvial Flooding**

- 6.6. The Environment Agency's Risk of Flooding from Surface Water map, displayed on **Figure 6-1** indicates that most of the site is categorized as having a 'very low' risk of surface water flooding.

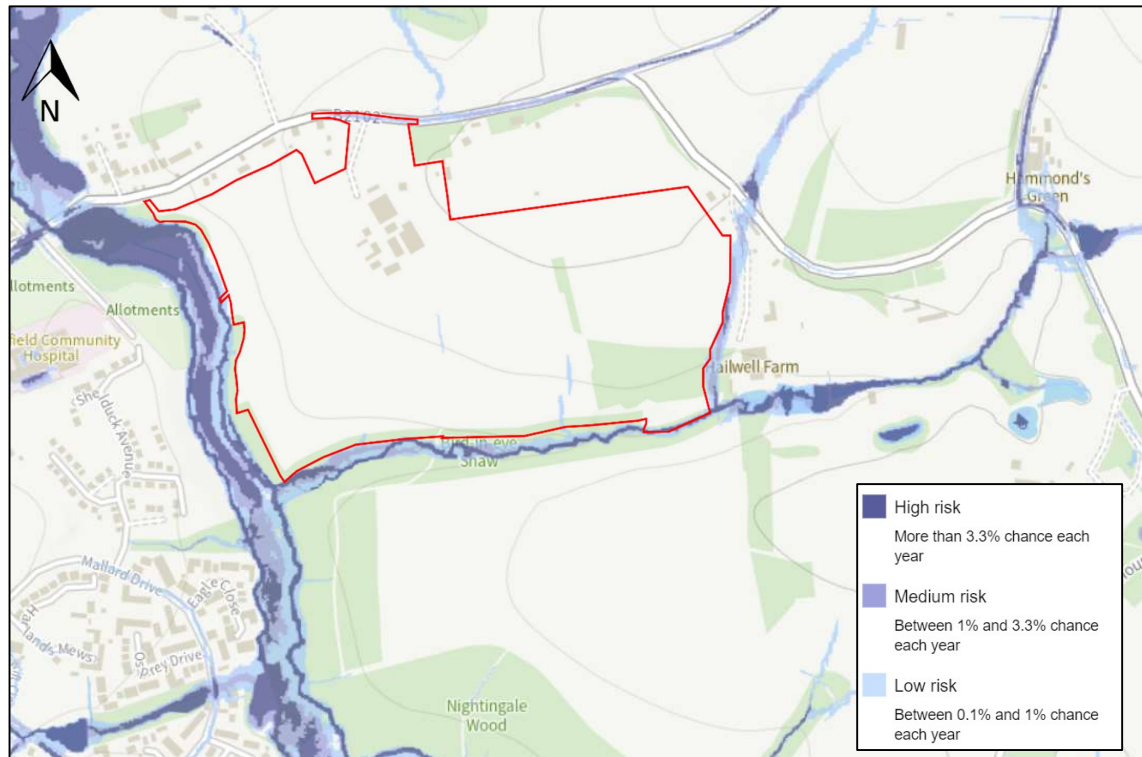


Figure 6-1: Environment Agency Flood Map for Surface Water

6.7. Based on the above, the risk of pluvial flooding to the Site is assessed as low.

### Historic Flooding

6.8. According to the Uckfield SWMP there are 4 reported incidents of internal property flooding in 2014 and 2 incidents of highway flooding along Framfield Road (approx. 1km west of the site).

6.9. The EA 'Historic Flood Map' shows that historic events have affected the western boundary of the site on the land adjacent to the watercourse.

6.10. The records of flooding along the western boundary from 12th to 14th October 2000 are as a result of channel capacity exceedance.

### Groundwater Flooding

6.11. No records of groundwater flooding have been identified within the site boundary, as part of the information gathering for this FRA.

6.12. The SFRA highlights there to be one historic record of groundwater flooding in the Uckfield area.

6.13. The PFRA, LFRMS and SWMP hotspot mapping shows the site lies in an areas of moderate/low groundwater flood risk.

#### **Sewer Flooding**

6.14. No records of sewer flooding have been identified within the site boundary, as part of the information gathering for this FRA.

#### **Artificial Sources**

6.15. According to the Environment Agency's Flood risk from reservoirs map, the Site is not in an area at risk of flooding from a reservoir breach. The Site is therefore considered to be at negligible risk of flooding from artificial sources.

## **7. Flood Risk Management**

- 7.1. This site-specific flood risk assessment aims to demonstrate that the development will be safe for its lifetime taking account of the vulnerability of its users, without increasing flood risk elsewhere, and, where possible, will reduce flood risk overall.

### **Finished Floor Levels**

- 7.2. The proposed development will be located away from the predicted fluvial flood extents and therefore it's not required to raise FFLs.
- 7.3. The proposed development will be located at least 8m away from the top of bank.

### **Floodplain Compensation**

- 7.4. There is no land raising proposed within the fluvial flood extents and therefore floodplain compensation will not be necessary.

## 8. Drainage Strategy

- 8.1. The existing site is greenfield, therefore is treated as 100% permeable. The total site area is 20.89ha, with a development parcel area of 6.13ha which has been used to calculate the greenfield run-off rates.
- 8.2. Existing greenfield runoff rates for the site were determined used ICP SuDS method from the Micro Drainage Source Control module and is presented in **Table 6-1** below.

**Table 6-1: Greenfield Runoff Rates**

| Return Period | Rate (l/s) |
|---------------|------------|
| 1 in 1 year   | 26.8       |
| QBar          | 31.5       |
| 1 in 10 year  | 71.4       |
| 1 in 100 year | 100.4      |

### Drainage Hierarchy Consideration

- 8.3. DEFRA's Non-statutory technical guidance for Sustainable Drainage Systems and CIRIA Guidance C753 "The SuDS Manual" have been used to determine the appropriate SuDS Strategy, which considers the spatial and environmental constraints of the Site.
- 8.4. Under the NPPF an allowance of 45% for the effects of climate change will achieve the policy requirements for the proposed development.

### Proposed Sustainable Drainage Systems

- 8.5. In accordance with the NPPF Planning Practice Guidance, surface water runoff should be disposed of according to the following hierarchy:
1. Store rainwater for later use (for example rainwater harvesting, blue roofs for irrigation);
  2. Use infiltration techniques, such as porous surfaces in non-clay areas;
  3. Rainwater attenuation in green infrastructure features for gradual release;
  4. Discharge rainwater direct to a watercourse;
  5. Controlled discharge to a surface water sewer/drain; and

6. Controlled discharge to the combined sewer.

Infiltration

- 8.6. As discussed in *Section 2*, BGS data indicates that the Site geology consists of Lower Tunbridge Wells Sand Member (clay, silt, sand and gravel), which is incompatible with the use of infiltration systems.
- 8.7. Land Science produced a 'Land Contamination Assessment' in May 2020 which highlighted that the site is contaminated by organic matter due to its use as a working farm. Soils and groundwater have been identified as High/Very High risk rating for impacting conditions to various areas, such as groundwater (receptor), surface water and soft landscaping. The report recommends the site should undertake basic ground investigation works.
- 8.8. Due to the soil strata and risk of contamination within the soil, infiltration on site has not been pursued.

To a Surface Water Body

- 8.9. Based on the characteristics of the site, it is proposed to discharge surface water runoff into the existing water course (Framfield Stream) located to the western site boundary. Surface water will be attenuated within sustainable drainage systems (SuDS) prior to being discharged at a flow rate matching the Q-Bar greenfield runoff rate for the developable area of the Site. Discharge has been limited to the current Q-Bar greenfield rate which will help alleviate local flooding by reducing the discharge rates during more intense storm events.

To a Surface Water Sewer

- 8.10. As a suitable watercourse has been identified as a discharge location, discharge to existing surface water sewers have been discounted as a suitable outfall.

To a Combined Sewer

- 8.11. There are no existing combined sewers within the vicinity of the site.

## Sustainable Drainage Systems (SuDS) Consideration

8.12. In accordance with CIRIA guidance C753 (The SuDS manual), the use of sustainable drainage systems (SuDS) to attenuate and control surface water volume has been considered in the below hierarchy:

- Use surface water runoff as a resource; e.g. Rainwater Harvesting
- Attenuate rainwater by storing in tanks or sealed water feature for gradual release to the site's surface water network;

Store rainwater for later use

8.13. The potential to re-use all rainwater from the development is not feasible and so is not considered as the primary method of SuDS, and as such it has been discounted from surface water storage calculations. This is because there is unpredictable amount of storage available within them and cannot be used within the storage calculations. Water Butts may be reviewed at detail design stage.

Attenuate rainwater by storage in tanks or sealed water feature for gradual release to the site's surface water network

8.14. The proposed surface water network on the site consists of four attenuation basins, swales and highway swales.

8.15. A flow control will be implemented at the outfall manhole of the site, to restrict rates to the Q-Bar greenfield rate. Additional flow controls will also be located within the network to optimise storage capacity.

8.16. The constraints and opportunities for the use of SuDS techniques are appraised using the Management Train approach outlined in CIRIA C753 'The SuDS Manual' in **Table 6-2** below.

**Table 6-2: C753 SuDS Management Train Approach**

|                |                                                                                                                                                                                                                                           |
|----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Type:          | <b>Infiltration Devices</b> (Source Control)                                                                                                                                                                                              |
| Constraints:   | Considering the presumably restricted infiltration potential caused by the geology, infiltration is not regarded as a surface water discharge option.                                                                                     |
| Opportunities: | None.                                                                                                                                                                                                                                     |
| Type:          | <b>Lined Permeable Paving</b> (Source Control)                                                                                                                                                                                            |
| Constraints:   | It is not possible to provide infiltrating permeable paving/permavoid due to site characteristics (as per infiltration devices above).                                                                                                    |
| Opportunities: | Permeable paving wrapped in geo-membrane could be used to provide surface water attenuation and a stage of treatment where required.                                                                                                      |
| Type:          | <b>Rainwater Harvesting</b> (Source Control)                                                                                                                                                                                              |
| Constraints:   | The benefits of rainwater harvesting on a specific design storm event cannot be quantified, due to the seasonal availability of storage within the structure.                                                                             |
| Opportunities: | Opportunities in amenity areas to provide harvesting features such as water butts exist. However, it is difficult to quantify contribution, and therefore not included within calculations within this surface water management strategy. |
| Type:          | <b>Swales, etc.</b> (Permeable Conveyance)                                                                                                                                                                                                |
| Constraints:   | In order to provide practicable attenuation benefits 1:3 side-slope swales tend to require a significant land requirement.                                                                                                                |
| Opportunities: | Due to site topography and existing levels, there is limited area to the south of the site available for swales. Therefore, a swale and shallow highway swales will be utilised where possible.                                           |
| Type:          | <b>Tree Pits/Rain gardens</b>                                                                                                                                                                                                             |
| Constraints:   | Subject to Landscape Architect's design.                                                                                                                                                                                                  |
| Opportunities: | There may be opportunities to use landscaped space to incorporate tree pits where additional treatment is required.                                                                                                                       |
| Type:          | <b>Green Roofs</b>                                                                                                                                                                                                                        |
| Constraints:   | The benefits of green roofs are limited in terms of surface water treatment management and/or attenuation. Due to the pitch of the roofs, the potential to incorporate greenroofs are limited.                                            |
| Opportunities: | It is not possible to incorporate greenroofs within the development due to the pitch of the roofs.                                                                                                                                        |
| Type:          | <b>Attenuation Ponds/Basin</b> (end of pipe treatment)                                                                                                                                                                                    |
| Constraints:   | In order to provide practicable attenuation benefits 1:3 side-slope ponds tend to require a significant land requirement.                                                                                                                 |
| Opportunities: | There is space within the development layout in the south-western edge of the site to accommodate attenuation basins.                                                                                                                     |
| Type:          | <b>Attenuation Tanks</b> (end of pipe treatment)                                                                                                                                                                                          |
| Constraints:   | Attenuation tanks can only be located within private areas.                                                                                                                                                                               |
| Opportunities: | Additional attenuation for the site can be achieved by use of oversized sewers or buried storage attenuation if additional storage is required.                                                                                           |

8.17. After consideration of the CIRIA C753 SuDS Management Train approach, the most viable SuDS options for this site is a solution using attenuation basins, swales and highway swales wherever possible to provide additional source control.

#### Proposed Surface Water Discharge Rates

8.18. Based upon measuring the masterplan, 6.13Ha of the development will be impermeable, including an allowance of 10% to private curtilages for urban creep. This equates to 65% of the development area (3.98Ha).

8.19. As per the East Sussex County Council's Sustainable Drainage System Design Guide (Water. People. Places), discharge should be restricted to match existing greenfield runoff rates.

8.20. A 45% allowance for climate change was applied to the rainfall intensities, as outlined in Section 2.

8.21. Refer to **Appendix C** for the proposed Drainage Strategy, showing the mentioned attenuation, volumes, outfall location and the indicative drainage network.

**Table 6-3: Proposed Discharge Rates**

| Return Period | Existing rate (l/s) | Proposed Rate (l/s) | Reduction in Rate (%) |
|---------------|---------------------|---------------------|-----------------------|
| 1:1           | 26.8                | 31.5                | 17 (addition)         |
| 1:30          | 71.4                | 31.5                | 56                    |
| 1:100         | 100.4               | 31.5                | 69                    |
| Q-Bar         | 31.5                | 31.5                | 0                     |
| 1:100+45% CC  | n/a                 | 31.5                | n/a                   |

8.22. A summary of the surface water attenuation calculations for the site is provided in **Appendix D**.

**Table 6-4: Summary of Surface Water Attenuation feature (for 1 in 100 year +45%CC)**

| Attenuation Type | Attenuation Volume Provided (m <sup>3</sup> ) | Additional Notes                                                                                 |
|------------------|-----------------------------------------------|--------------------------------------------------------------------------------------------------|
| Basin 1          | 1,678                                         | Restricted to 58.5l/s<br>Effective area 1,821m <sup>2</sup> (excl. 300mm Freeboard) by 1.2m deep |
| Basin 2          | 1,785                                         | Restricted to 34l/s<br>Effective area 1,868m <sup>2</sup> (excl. 300mm Freeboard) by 1.2m deep   |
| Basin 3          | 437                                           | Restricted to 58.5l/s<br>Effective area 1,821m <sup>2</sup> (excl. 300mm Freeboard) by 1.2m deep |
| Basin 3          | 448                                           | Restricted to 58.5l/s<br>Effective area 1,821m <sup>2</sup> (excl. 300mm Freeboard) by 1.2m deep |

#### Long Term Storage

8.23. It is proposed to restrict discharge rates from the development site to a discharge rate equal to the Q-Bar greenfield rates for the proposed catchments. As such, the Long-Term Storage would not be required in accordance with the recommendations of The SuDS Manual (C753).

#### Surface Water Runoff Quality

8.24. An assessment of the water quality of surface water runoff has been carried out in line with CIRIA C753 requirements.

8.25. In determining the necessary SuDS treatment methods, reference is made to Table 26.2, Table 26.3 and Table 26.4 of the SuDS Manual (CIRIA C753), which have been duplicated in **Appendix E**. The tables outline the 'Simple Index Approach' which sets out the water treatment criteria for land use and SuDS performance evidence. To ensure sufficient treatment is proposed for surface waters, the total pollution mitigation index of the selected SuDS methods must equal or exceed the pollution hazard index for the site.

- 8.26. Based upon the proposed estate road layout, it is anticipated that the main access road within the site will accommodate more than 300 traffic movements per day. Therefore, the site has been assigned the 'Medium Risk' pollution hazard level.
- 8.27. In accordance with the SuDS Manual the cascading attenuation basins are considered to provide suitable pollution control mitigation for the development; Refer to **Appendix E**.

#### Exceedance Routes

- 8.28. As a result of heavy or extreme storm events, it is sometimes unavoidable for the capacity of sewers and other drainage systems to be exceeded. Drainage exceedance will occur when the rate of surface water runoff exceeds the inlet capacity of the drainage system, when the receiving water or pipe system becomes overloaded, blocked or when the outfall is restricted due to flood levels in the receiving water.
- 8.29. The proposed attenuation features will be located towards the lowest-lying areas of the site, to ensure the internal access roads flow away from residential units. The routes will ultimately mimic the current flow routes associated with the existing site as a result of the topography.
- 8.30. To assess the impact of exceedance route, a plan has been prepared which is based on the proposed layout. Refer to the Drainage Strategy in **Appendix C**.

#### Future Maintenance

- 8.31. It is intended that the SuDS components and connecting pipework employed throughout the drainage strategy will be conveyed to the Management Company for maintenance.
- 8.32. A maintenance plan is also included in **Appendix F**. These have been informed by the guidance outline within CIRIA C753 and would be supplemented by manufacturer's specifications.

#### Foul Water Drainage Strategy

- 8.33. The Site is currently greenfield and has no existing foul water connection.
- 8.34. It is proposed that foul flows from the development will discharge by a gravity main network to the existing 150mm foul Southern Water network, located within Bird in Eye Hill.

- 8.35. A pre-development enquiry has been submitted to Southern Water and currently has not been agreed. Southern Water advise that an additional assessment for connection is required following granting of outline planning permission **Appendix G.**

## 9. Hydrology

- 9.1. The hydrological regime of the site and adjacent ancient woodland has previously been considered by Stantec in August 2023, with a Technical Note outlining this provided within **Appendix H** and findings outlined within the following.

### Existing Conditions

- 9.2. The site, including the SANG forms approximately 25% of the catchment draining to the ordinary watercourse flowing east-west through the centre of the site. The area of the site proposed for residential development, would comparatively form approximately 7.5% of the ordinary watercourse catchment.
- 9.3. Under existing conditions and during a non-extreme rainfall event, precipitation landing on the site would flow to the woodland either as runoff (along the surface) or through the slower means of interflow (through the soils).
- 9.4. Under an extreme rainfall event, the site would runoff or interflow into the ordinary watercourse and Framfield Stream which pass through the woodland in an east-west and south-north direction, respectively.

### Post-Development Conditions

- 9.5. Following development, the hydrological processes from most of the site, and in-particular the SANG and areas of public open space between the residential development and woodland, would remain in-principle unchanged.
- 9.6. The hydrological process from the proposed residential area that forms approximately 7.5% of the ordinary watercourse catchment will alter, with managed draining of this rainfall. Despite the development, the quality of water reaching the woodland and water environment would be considered to bring no detriment, due to the SuDS treatment measures proposed.
- 9.7. Under non-extreme rainfall events and through infiltration with the provision of ground level SuDS such as swales and basins to drain the residential development, the volume of water reaching the woodland and ordinary watercourse from this area will be comparative to the existing situation. However, unlike the existing situation, most of the water will reach through slower interflow, with a much-reduced proportion by surface runoff.
- 9.8. Under an extreme rainfall event, most of the precipitation landing on the residential site would pass through the managed drainage network, with only a small

proportion of this volume infiltrating and conveying to the woodland and ordinary watercourse by interflow. In such cases, most of the precipitation from the residential area will pass to the basin for controlled release to the Framfield Stream, downstream of the woodland.

9.9. As these events are extremely rare, and with the managed runoff being from only a small proportion of the overall catchment of the watercourses and woodland, impacts upon the water table and/or water availability for the vegetation within the woodland would be considered negligible.

## 10. Summary

- 10.1. This 'Flood Risk Assessment and Drainage Strategy' has been prepared by Ardent Consulting Engineers to accompany an outline planning application for the proposed development at 'Land at Bird in Eye Farm South of Bird in Eye Hill, Uckfield.
- 10.2. This FRA considers the current policy relating to flood risk, including the National Planning Policy Framework and local flood risk policy.
- 10.3. According to the EA flood maps, the Site is located within Flood Zone 1.
- 10.4. A data request was issued to the EA as part of this FRA, however, the information is yet to be received. A review of the previous FRA, available in the planning portal, indicates that the 100yr +45% CC undefined max level within the Framfield Stream is 21.95m AOD. It is not clear what allowance has been made for the defended scenario but the 100yr CC max level is 21.79m AOD. It is worth noting that the Climate Change uplift is now 37% and therefore the above levels are conservative.
- 10.5. The Environment Agency's Risk of Flooding from Surface Water map indicates that most of the site is categorized as having a 'very low' risk of surface water flooding.
- 10.6. The remaining potential sources of flood risk discussed in the report are considered low/ negligible.
- 10.7. The proposed development will be located away from the predicted fluvial flood extents and therefore it's not required to raise FFLs.
- 10.8. The proposed development will be located at least 8m away from the top of bank.
- 10.9. There is no land raising proposed within the fluvial flood extents and therefore floodplain compensation will not be necessary.
- 10.10. In conclusion, this FRA demonstrates that the proposals are consistent with the aims of the NPPF and the Planning Practice Guidance to the NPPF along with the aims of local flood risk policy. The Site will not be at significant risk of flooding or increase the flood risk to others.
- 10.11. The site has been measured to have an impermeable area of 3.98ha, 65% of the developable area. This includes 10% urban creep on house and garage roofs and private driveways.

- 10.12. With the proposed discharge rates limited to the Q-Bar greenfield rates of 31.5l/s, up to and including the 1 in 100 year plus 45% climate change event. At these rates, the attenuation basin.
- 10.13. The surface water drainage strategy will reduce flood risk by restricting surface water flows in accordance with the East Sussex County Council's requirements. A sustainable drainage system has been designed to incorporate attenuation basins, swales and highway swales. Storm water attenuation is provided for all storms up to and including the 1 in 100-year critical event (including a 45% allowance for climate change).
- 10.14. The development would be considered to bring negligible impact on the hydrological regime of the woodland, whilst the quality of water reaching the woodland would be assured through the provision of SuDS treatment measures.

## **APPENDIX A**

### Site Layout



**KEY**

- Application Site Boundary
- Area of land retained for Bird in Eye Farm
- Area of land for SANG with 2.5Km circular walk
- Ancient Woodland
- Ancient Woodland buffer - 15M
- Ancient Woodland buffer - 50M
- Existing Hedges with 5M buffer zone
- Existing watercourses
- Existing overhead electricity cables
- Location of Listed Oast
- Proposed upgraded main site access
- Proposed pedestrian/cycle access to connect to existing F.P. network
- Proposed 5M landscaped buffer to farm & existing adjacent housing
- Proposed Open Space area
- Proposed Local Area of Play and Equipped Area of Play
- Proposed footpath/cycleway

**NOTE:**  
Housing Quantity and Density:  
Net Developable Area providing up to 190 dwellings at circa 17 dwellings/ Ha.

Rev/K 25/07/2024 Key updated to up to 190 dwellings.  
Rev/J 19/07/2024 Red line revised to omit Oast.  
Rev/H 15/07/2024 Parcel reference letters omitted.  
Rev/G 12/07/2024 Drainage basins added. General updates to layout. LEAP Play area repositioned. LAP play area added.  
Rev/F 09/07/2024 Red line revised along southern boundary and around the Bird in Eye Farm/Oast.  
Rev/E 04/07/2024 Red line revised along south-west and eastern boundaries. Circular walking route adjusted to suit.  
Rev/D 02/07/2024 Roundabout access revised. Red line boundary updated to include s.w. drain outlet. Active travel route across open space revised. Mobility Hub added.  
Rev/C 20/06/2024 Extent of flood zone shown. Red line boundary updated to avoid flood zone and ancient woodland. Parcel A (10 units) added bringing total to 181 dwellings.  
Rev/B 10/06/2024 Updated to include additional footpath/cycleway connection. SANG footpath routes extended.  
Rev/A 07/06/2024 Updated to respond to Pre-App advice. Numbers reduced and parking courts omitted. Layout adjusted in Parcel H to avoid flood area

## **APPENDIX B**

### Southern Water Asset Location Plan





## **APPENDIX C**

### Levels and Drainage Strategy Plans



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KEY

- + 46.46 INDICATIVE PROPOSED LEVEL
- PROPOSED HIGHWAY CONTOURS
- 1:15 PROPOSED ROAD GRADIENT
- SITE BOUNDARY
- DEVELOPMENT BOUNDARY
- ROOT PROTECTION AREA
- ANCIENT WOODLAND EXTENTS
- 15m ANCIENT WOODLAND BUFFER ZONE
- INDICATIVE EARTHWORK EXTENTS
- 1:15 INDICATIVE PARCEL GRADIENTS

KEY PLAN

HIGHWAY LEVELS AND GRADIENTS SUBJECT TO AGREEMENT WITH ESCC HIGHWAYS.

| INFORMATION SUMMARY  |                                 |              |                  |
|----------------------|---------------------------------|--------------|------------------|
| INFORMATION TYPE     | SOURCE                          | REFERENCE    | REVISION & DATE  |
| SITE LAYOUT          | PAUL BROWN CHARTERED ARCHITECTS | PRB/BIE/202  | JULY 2024, REV K |
| TOPOGRAPHICAL SURVEY | STUART MICHAEL ASSOCIATES       | 2007.954.060 | JAN 2007, REV -  |
| OS                   | PAUL BROWN CHARTERED ARCHITECTS | PRB/BIE/202  | JAN 2024, REV -  |
| TREE SURVEY          | BARTON HYETT                    | PRB/BIE/202  | JULY 2024, REV B |
| ANCIENT WOODLAND     | PAUL BROWN CHARTERED ARCHITECTS | PRB/BIE/202  | JULY 2024, REV E |

0m 5m 25m

Scale: 1:500 @ A1

NOT FOR CONSTRUCTION

NOT YET APPROVED

|     |                                |     |     |     |            |
|-----|--------------------------------|-----|-----|-----|------------|
| 21  | ISSUED FOR PLANNING.           | NC  | CH  | DM  | 29.07.2024 |
| 13  | UPDATED TO SUIT LATEST LAYOUT. | TP  | CH  | DM  | 25.07.2024 |
| 12  | DRAFT ISSUE.                   | AA  | CH  | DM  | 19.07.2024 |
| 11  | DRAFT ISSUE.                   | TKH | AW  | DM  | 20.05.2024 |
| Rev | Description                    | Drn | Chk | App | Date       |

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SSIP  
SAFETY PARTNER  
OF THE

Client

CROUDACE HOMES

Project Title:

BIRD IN EYE FARM, UCKFIELD

Drawing Title:

PROPOSED LEVELS STRATEGY  
SHEET 1 OF 2

|                |                             |            |          |             |     |
|----------------|-----------------------------|------------|----------|-------------|-----|
| Drawn by       | TKH                         | Checked by | AW       | Approved by | DM  |
| A1 Scale       | 1:500                       | Date       | MAY 2024 | Revision    | 2.1 |
| Drawing Number | 2401070-ACE-XX-XX-DR-C-0151 |            |          |             |     |



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- SITE BOUNDARY
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- ANCIENT WOODLAND EXTENTS
- 15m ANCIENT WOODLAND BUFFER ZONE
- INDICATIVE EARTHWORK EXTENTS
- 1:15 INDICATIVE PARCEL GRADIENTS

KEY PLAN

HIGHWAY LEVELS AND GRADIENTS SUBJECT TO AGREEMENT WITH ESCC HIGHWAYS.

INFORMATION SUMMARY

| INFORMATION TYPE     | SOURCE                          | REFERENCE    | REVISION & DATE  |
|----------------------|---------------------------------|--------------|------------------|
| SITE LAYOUT          | PAUL BROWN CHARTERED ARCHITECTS | PRB/BIE/202  | JULY 2024, REV K |
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| OS                   | PAUL BROWN CHARTERED ARCHITECTS | PRB/BIE/202  | JAN 2024, REV -  |
| TREE SURVEY          | BARTON HYETT                    | PRB/BIE/202  | JULY 2024, REV B |
| ANCIENT WOODLAND     | PAUL BROWN CHARTERED ARCHITECTS | PRB/BIE/202  | JULY 2024, REV E |

0m 5m 25m  
Scale: 1:500 @ A1

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|-----|--------------------------------|-----|-----|-----|------------|
| 2.1 | ISSUED FOR PLANNING.           | NC  | CH  | DM  | 29.07.2024 |
| 1.3 | UPDATED TO SUIT LATEST LAYOUT. | TP  | CH  | DM  | 25.07.2024 |
| 1.2 | DRAFT ISSUE.                   | AA  | CH  | DM  | 19.07.2024 |
| 1.1 | DRAFT ISSUE.                   | TKH | AW  | DM  | 20.05.2024 |
| Rev | Description                    | Drm | Chk | App | Date       |

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Client  
**CROUDACE HOMES**

Project Title  
**BIRD IN EYE FARM, UCKFIELD**

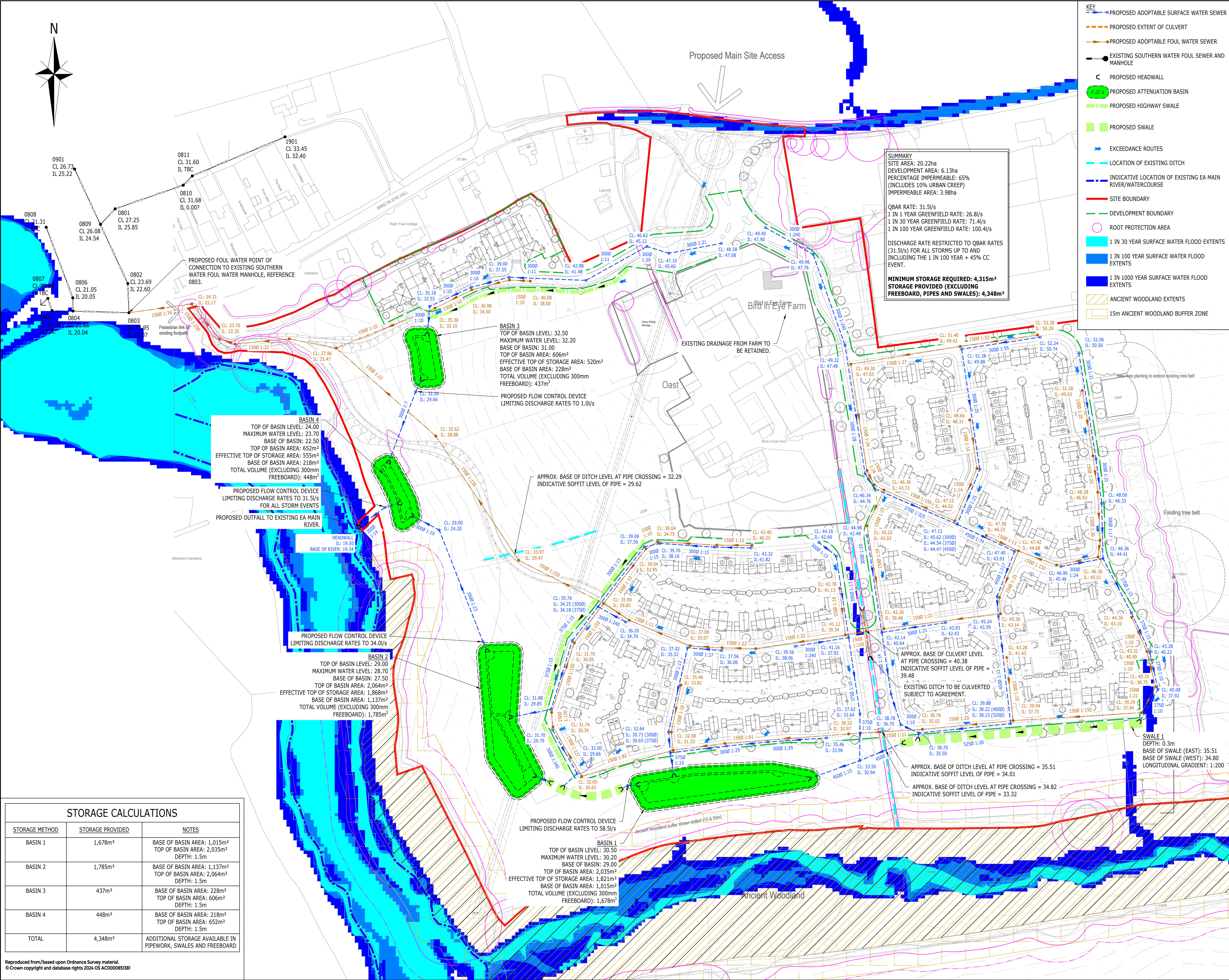
Drawing Title  
**PROPOSED LEVELS STRATEGY  
SHEET 2 OF 2**

|                   |                  |                   |
|-------------------|------------------|-------------------|
| Drawn by<br>TKH   | Checked by<br>AW | Approved by<br>DM |
| A1 Scale<br>1:500 | Date<br>MAY 2024 | Revision<br>2.1   |

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|--------------------------------|---------------------------------|--------------|-----------------------|
| INFORMATION TYPE               | SOURCE                          | REFERENCE    | REVISION & DATE       |
| SITE LAYOUT                    | PAUL BROWN CHARTERED ARCHITECTS | PRB/BIE/202  | JULY 2024, REV K      |
| TOPOGRAPHICAL SURVEY           | STUART MICHAEL ASSOCIATES       | 2007.954.060 | JAN 2007, REV -       |
| OS                             | PAUL BROWN CHARTERED ARCHITECTS | PRB/BIE/202  | JAN 2024, REV -       |
| FLOOD DATA                     | DEFRA SURFACE WATER FLOOD DATA  | RoFSW-tq42   | DOWNLOADED 18/03/2024 |
| TREE SURVEY                    | BARTON HYTTE                    | PRB/BIE/202  | JULY 2024, REV B      |
| ANCIENT WOODLAND               | PAUL BROWN CHARTERED ARCHITECTS | PRB/BIE/202  | JULY 2024, REV E      |
| EXISTING SOUTHERN WATER SEWERS | SOUTHERN WATER                  | 1419137-1    | 12/03/2024            |

ALL DRAINAGE INFORMATION IS SUBJECT TO LEVELS DESIGN.

0m 10m 50m  
Scale: 1:1000 @ A1

NOT FOR CONSTRUCTION  
NOT YET APPROVED

|     |                                |     |     |     |            |
|-----|--------------------------------|-----|-----|-----|------------|
| 21  | ISSUED FOR PLANNING.           | NC  | CH  | DM  | 29.07.2024 |
| 13  | UPDATED TO SUIT LATEST LAYOUT. | TP  | CH  | DM  | 25.07.2024 |
| 12  | DRAFT ISSUE.                   | ASA | CH  | DM  | 19.07.2024 |
| 11  | DRAFT ISSUE.                   | AW  | AW  | DM  | 24.04.2024 |
| Rev | Description                    | Drn | Chk | App | Date       |

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E-mail: [enquiries@ardent-ce.co.uk](mailto:enquiries@ardent-ce.co.uk)

Client

**CRoudACE HOMES**

Project Title:

**BIRD IN EYE FARM, UCKFIELD**

Drawing Title:

**PROPOSED DRAINAGE STRATEGY**

|          |            |             |
|----------|------------|-------------|
| Drawn by | Checked by | Approved by |
| AW       | AW         | DM          |
| A1 Scale | Date       | Revision    |
| 1:1000   | APRIL 2024 | 2.1         |

Drawing Number  
**2401070-ACE-XX-XX-DR-C-0601**

| STORAGE CALCULATIONS |                  |                                                                          |
|----------------------|------------------|--------------------------------------------------------------------------|
| STORAGE METHOD       | STORAGE PROVIDED | NOTES                                                                    |
| BASIN 1              | 1,678m³          | BASE OF BASIN AREA: 1,015m²<br>TOP OF BASIN AREA: 2,035m²<br>DEPTH: 1.5m |
| BASIN 2              | 1,785m³          | BASE OF BASIN AREA: 1,137m²<br>TOP OF BASIN AREA: 2,064m²<br>DEPTH: 1.5m |
| BASIN 3              | 437m³            | BASE OF BASIN AREA: 228m²<br>TOP OF BASIN AREA: 606m²<br>DEPTH: 1.5m     |
| BASIN 4              | 448m³            | BASE OF BASIN AREA: 218m²<br>TOP OF BASIN AREA: 652m²<br>DEPTH: 1.5m     |
| TOTAL                | 4,348m³          | ADDITIONAL STORAGE AVAILABLE IN PIPEWORK, SWALES AND FREEBOARD           |

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## **APPENDIX D**

### Surface Water Attenuation Calculations

|                                                                          |                     |                                                                                     |
|--------------------------------------------------------------------------|---------------------|-------------------------------------------------------------------------------------|
| Ardent Consulting Engineers                                              |                     | Page 1                                                                              |
| Suite 9, 10 Churchill Square ...<br>Kings Hill<br>West Malling, ME19 4YU |                     |  |
| Date 15/07/2024 12:06                                                    | Designed by jjenner |                                                                                     |
| File 2401070-Source Control M...                                         | Checked by          |                                                                                     |
| XP Solutions                                                             |                     | Source Control 2020.1                                                               |

ICP SUDS Mean Annual Flood

Input

|                       |       |           |       |               |          |
|-----------------------|-------|-----------|-------|---------------|----------|
| Return Period (years) | 1     | SAAR (mm) | 800   | Urban         | 0.000    |
| Area (ha)             | 6.130 | Soil      | 0.450 | Region Number | Region 6 |

**Results    1/s**

|            |       |
|------------|-------|
| QBAR Rural | 31.5  |
| QBAR Urban | 31.5  |
|            |       |
| Q1 year    | 26.8  |
|            |       |
| Q1 year    | 26.8  |
| Q30 years  | 71.4  |
| Q100 years | 100.4 |

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|                                                                          |               |                                                                                 |                       |                  |                                                                                     |
|--------------------------------------------------------------------------|---------------|---------------------------------------------------------------------------------|-----------------------|------------------|-------------------------------------------------------------------------------------|
| Ardent Consulting Engineers                                              |               |                                                                                 |                       | Page 1           |                                                                                     |
| Suite 9, 10 Churchill Square ...<br>Kings Hill<br>West Malling, ME19 4YU |               | Bird in Eye Farm, Uckfield<br>SW Source Control Model<br>1 in 100 year + 45% CC |                       |                  |  |
| Date 10/05/2024                                                          |               | Designed by AW                                                                  |                       |                  |                                                                                     |
| File zONE Z - CAT C TANK C+45...                                         |               | Checked by DM                                                                   |                       |                  |                                                                                     |
| XP Solutions                                                             |               | Source Control 2020.1                                                           |                       |                  |                                                                                     |
| <u>Cascade Summary of Results for 2401070-Basin 1.SRCX</u>               |               |                                                                                 |                       |                  |                                                                                     |
| Upstream Structures                                                      |               | Outflow To                                                                      |                       | Overflow To      |                                                                                     |
| (None)                                                                   |               | 2401070-Basin 2.SRCX                                                            |                       | (None)           |                                                                                     |
| Storm Event                                                              | Max Level (m) | Max Depth (m)                                                                   | Max Control (l/s)     | Max Volume (m³)  | Status                                                                              |
| 15 min Summer                                                            | 29.622        | 0.622                                                                           | 58.5                  | 748.9            | O K                                                                                 |
| 30 min Summer                                                            | 29.790        | 0.790                                                                           | 58.5                  | 994.3            | O K                                                                                 |
| 60 min Summer                                                            | 29.943        | 0.943                                                                           | 58.5                  | 1235.2           | O K                                                                                 |
| 120 min Summer                                                           | 30.053        | 1.053                                                                           | 58.5                  | 1418.0           | O K                                                                                 |
| 180 min Summer                                                           | 30.080        | 1.080                                                                           | 58.5                  | 1464.5           | O K                                                                                 |
| 240 min Summer                                                           | 30.078        | 1.078                                                                           | 58.5                  | 1462.2           | O K                                                                                 |
| 360 min Summer                                                           | 30.066        | 1.066                                                                           | 58.5                  | 1441.8           | O K                                                                                 |
| 480 min Summer                                                           | 30.045        | 1.045                                                                           | 58.5                  | 1404.6           | O K                                                                                 |
| 600 min Summer                                                           | 30.018        | 1.018                                                                           | 58.5                  | 1358.6           | O K                                                                                 |
| 720 min Summer                                                           | 29.987        | 0.987                                                                           | 58.5                  | 1308.0           | O K                                                                                 |
| 960 min Summer                                                           | 29.921        | 0.921                                                                           | 58.5                  | 1199.5           | O K                                                                                 |
| 1440 min Summer                                                          | 29.773        | 0.773                                                                           | 58.5                  | 968.7            | O K                                                                                 |
| 2160 min Summer                                                          | 29.582        | 0.582                                                                           | 58.5                  | 693.1            | O K                                                                                 |
| 2880 min Summer                                                          | 29.440        | 0.440                                                                           | 58.4                  | 504.8            | O K                                                                                 |
| 4320 min Summer                                                          | 29.298        | 0.298                                                                           | 55.1                  | 328.2            | O K                                                                                 |
| 5760 min Summer                                                          | 29.254        | 0.254                                                                           | 45.6                  | 276.3            | O K                                                                                 |
| Storm Event                                                              | Rain (mm/hr)  | Flooded Volume (m³)                                                             | Discharge Volume (m³) | Time-Peak (mins) |                                                                                     |
| 15 min Summer                                                            | 136.286       | 0.0                                                                             | 790.9                 | 25               |                                                                                     |
| 30 min Summer                                                            | 91.635        | 0.0                                                                             | 1067.1                | 39               |                                                                                     |
| 60 min Summer                                                            | 58.739        | 0.0                                                                             | 1379.4                | 68               |                                                                                     |
| 120 min Summer                                                           | 36.288        | 0.0                                                                             | 1705.5                | 124              |                                                                                     |
| 180 min Summer                                                           | 26.937        | 0.0                                                                             | 1899.6                | 180              |                                                                                     |
| 240 min Summer                                                           | 21.660        | 0.0                                                                             | 2037.0                | 214              |                                                                                     |
| 360 min Summer                                                           | 15.950        | 0.0                                                                             | 2250.4                | 276              |                                                                                     |
| 480 min Summer                                                           | 12.815        | 0.0                                                                             | 2411.0                | 344              |                                                                                     |
| 600 min Summer                                                           | 10.804        | 0.0                                                                             | 2541.1                | 412              |                                                                                     |
| 720 min Summer                                                           | 9.393         | 0.0                                                                             | 2651.0                | 482              |                                                                                     |
| 960 min Summer                                                           | 7.524         | 0.0                                                                             | 2831.5                | 620              |                                                                                     |
| 1440 min Summer                                                          | 5.493         | 0.0                                                                             | 3099.8                | 874              |                                                                                     |
| 2160 min Summer                                                          | 4.002         | 0.0                                                                             | 3394.6                | 1236             |                                                                                     |
| 2880 min Summer                                                          | 3.192         | 0.0                                                                             | 3609.5                | 1564             |                                                                                     |
| 4320 min Summer                                                          | 2.316         | 0.0                                                                             | 3925.2                | 2212             |                                                                                     |
| 5760 min Summer                                                          | 1.843         | 0.0                                                                             | 4171.7                | 2944             |                                                                                     |
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|                                                                          |               |                                                                                 |                       |                  |                                                                                     |
|--------------------------------------------------------------------------|---------------|---------------------------------------------------------------------------------|-----------------------|------------------|-------------------------------------------------------------------------------------|
| Ardent Consulting Engineers                                              |               |                                                                                 |                       |                  | Page 2                                                                              |
| Suite 9, 10 Churchill Square ...<br>Kings Hill<br>West Malling, ME19 4YU |               | Bird in Eye Farm, Uckfield<br>SW Source Control Model<br>1 in 100 year + 45% CC |                       |                  |  |
| Date 10/05/2024                                                          |               | Designed by AW                                                                  |                       |                  |                                                                                     |
| File zONE Z - CAT C TANK C+45...                                         |               | Checked by DM                                                                   |                       |                  |                                                                                     |
| XP Solutions                                                             |               | Source Control 2020.1                                                           |                       |                  |                                                                                     |
| <u>Cascade Summary of Results for 2401070-Basin 1.SRCX</u>               |               |                                                                                 |                       |                  |                                                                                     |
| Storm Event                                                              | Max Level (m) | Max Depth (m)                                                                   | Max Control (l/s)     | Max Volume (m³)  | Status                                                                              |
| 7200 min Summer                                                          | 29.227        | 0.227                                                                           | 38.9                  | 245.2            | O K                                                                                 |
| 8640 min Summer                                                          | 29.207        | 0.207                                                                           | 33.9                  | 223.1            | O K                                                                                 |
| 10080 min Summer                                                         | 29.193        | 0.193                                                                           | 30.2                  | 206.5            | O K                                                                                 |
| 15 min Winter                                                            | 29.689        | 0.689                                                                           | 58.5                  | 844.2            | O K                                                                                 |
| 30 min Winter                                                            | 29.874        | 0.874                                                                           | 58.5                  | 1123.8           | O K                                                                                 |
| 60 min Winter                                                            | 30.040        | 1.040                                                                           | 58.5                  | 1396.4           | O K                                                                                 |
| 120 min Winter                                                           | 30.163        | 1.163                                                                           | 58.5                  | 1611.6           | O K                                                                                 |
| 180 min Winter                                                           | 30.199        | 1.199                                                                           | 58.5                  | 1675.9           | O K                                                                                 |
| 240 min Winter                                                           | 30.200        | 1.200                                                                           | 58.5                  | 1678.7           | Flood Risk                                                                          |
| 360 min Winter                                                           | 30.180        | 1.180                                                                           | 58.5                  | 1641.9           | O K                                                                                 |
| 480 min Winter                                                           | 30.151        | 1.151                                                                           | 58.5                  | 1589.7           | O K                                                                                 |
| 600 min Winter                                                           | 30.113        | 1.113                                                                           | 58.5                  | 1522.4           | O K                                                                                 |
| 720 min Winter                                                           | 30.070        | 1.070                                                                           | 58.5                  | 1447.4           | O K                                                                                 |
| 960 min Winter                                                           | 29.974        | 0.974                                                                           | 58.5                  | 1286.3           | O K                                                                                 |
| 1440 min Winter                                                          | 29.745        | 0.745                                                                           | 58.5                  | 926.3            | O K                                                                                 |
| 2160 min Winter                                                          | 29.464        | 0.464                                                                           | 58.5                  | 534.9            | O K                                                                                 |
| 2880 min Winter                                                          | 29.309        | 0.309                                                                           | 56.3                  | 342.3            | O K                                                                                 |
| 4320 min Winter                                                          | 29.241        | 0.241                                                                           | 42.5                  | 261.1            | O K                                                                                 |
| 5760 min Winter                                                          | 29.208        | 0.208                                                                           | 34.0                  | 223.3            | O K                                                                                 |
| Storm Event                                                              | Rain (mm/hr)  | Flooded Volume (m³)                                                             | Discharge Volume (m³) | Time-Peak (mins) |                                                                                     |
| 7200 min Summer                                                          | 1.545         | 0.0                                                                             | 4370.2                | 3672             |                                                                                     |
| 8640 min Summer                                                          | 1.338         | 0.0                                                                             | 4539.7                | 4408             |                                                                                     |
| 10080 min Summer                                                         | 1.184         | 0.0                                                                             | 4685.6                | 5136             |                                                                                     |
| 15 min Winter                                                            | 136.286       | 0.0                                                                             | 887.1                 | 25               |                                                                                     |
| 30 min Winter                                                            | 91.635        | 0.0                                                                             | 1196.3                | 39               |                                                                                     |
| 60 min Winter                                                            | 58.739        | 0.0                                                                             | 1545.6                | 66               |                                                                                     |
| 120 min Winter                                                           | 36.288        | 0.0                                                                             | 1910.9                | 122              |                                                                                     |
| 180 min Winter                                                           | 26.937        | 0.0                                                                             | 2128.3                | 178              |                                                                                     |
| 240 min Winter                                                           | 21.660        | 0.0                                                                             | 2282.1                | 232              |                                                                                     |
| 360 min Winter                                                           | 15.950        | 0.0                                                                             | 2521.1                | 292              |                                                                                     |
| 480 min Winter                                                           | 12.815        | 0.0                                                                             | 2701.0                | 368              |                                                                                     |
| 600 min Winter                                                           | 10.804        | 0.0                                                                             | 2846.7                | 446              |                                                                                     |
| 720 min Winter                                                           | 9.393         | 0.0                                                                             | 2969.9                | 522              |                                                                                     |
| 960 min Winter                                                           | 7.524         | 0.0                                                                             | 3172.0                | 672              |                                                                                     |
| 1440 min Winter                                                          | 5.493         | 0.0                                                                             | 3473.1                | 932              |                                                                                     |
| 2160 min Winter                                                          | 4.002         | 0.0                                                                             | 3802.6                | 1264             |                                                                                     |
| 2880 min Winter                                                          | 3.192         | 0.0                                                                             | 4043.3                | 1536             |                                                                                     |
| 4320 min Winter                                                          | 2.316         | 0.0                                                                             | 4397.7                | 2216             |                                                                                     |
| 5760 min Winter                                                          | 1.843         | 0.0                                                                             | 4672.6                | 2944             |                                                                                     |
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| Ardent Consulting Engineers                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                     |                                                                                 |                             | Page 3                |                                                                                     |                |                     |                     |                         |                       |        |                 |        |       |      |       |     |                 |        |       |      |       |     |                  |        |       |      |       |     |                |                 |                           |                             |                     |                 |       |     |        |      |                 |       |     |        |      |                  |       |     |        |      |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|---------------------------------------------------------------------------------|-----------------------------|-----------------------|-------------------------------------------------------------------------------------|----------------|---------------------|---------------------|-------------------------|-----------------------|--------|-----------------|--------|-------|------|-------|-----|-----------------|--------|-------|------|-------|-----|------------------|--------|-------|------|-------|-----|----------------|-----------------|---------------------------|-----------------------------|---------------------|-----------------|-------|-----|--------|------|-----------------|-------|-----|--------|------|------------------|-------|-----|--------|------|
| Suite 9, 10 Churchill Square ...<br>Kings Hill<br>West Malling, ME19 4YU                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                     | Bird in Eye Farm, Uckfield<br>SW Source Control Model<br>1 in 100 year + 45% CC |                             |                       |  |                |                     |                     |                         |                       |        |                 |        |       |      |       |     |                 |        |       |      |       |     |                  |        |       |      |       |     |                |                 |                           |                             |                     |                 |       |     |        |      |                 |       |     |        |      |                  |       |     |        |      |
| Date 10/05/2024                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                     | Designed by AW                                                                  |                             |                       |                                                                                     |                |                     |                     |                         |                       |        |                 |        |       |      |       |     |                 |        |       |      |       |     |                  |        |       |      |       |     |                |                 |                           |                             |                     |                 |       |     |        |      |                 |       |     |        |      |                  |       |     |        |      |
| File zONE Z - CAT C TANK C+45...                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                     | Checked by DM                                                                   |                             |                       |                                                                                     |                |                     |                     |                         |                       |        |                 |        |       |      |       |     |                 |        |       |      |       |     |                  |        |       |      |       |     |                |                 |                           |                             |                     |                 |       |     |        |      |                 |       |     |        |      |                  |       |     |        |      |
| XP Solutions                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                     | Source Control 2020.1                                                           |                             |                       |                                                                                     |                |                     |                     |                         |                       |        |                 |        |       |      |       |     |                 |        |       |      |       |     |                  |        |       |      |       |     |                |                 |                           |                             |                     |                 |       |     |        |      |                 |       |     |        |      |                  |       |     |        |      |
| <p style="text-align: center;"><u>Cascade Summary of Results for 2401070-Basin 1.SRCX</u></p> <table><tr><th>Storm<br/>Event</th><th>Max<br/>Level<br/>(m)</th><th>Max<br/>Depth<br/>(m)</th><th>Max<br/>Control<br/>(l/s)</th><th>Max<br/>Volume<br/>(m³)</th><th>Status</th></tr><tr><td>7200 min Winter</td><td>29.186</td><td>0.186</td><td>28.5</td><td>199.4</td><td>O K</td></tr><tr><td>8640 min Winter</td><td>29.171</td><td>0.171</td><td>24.8</td><td>182.3</td><td>O K</td></tr><tr><td>10080 min Winter</td><td>29.160</td><td>0.160</td><td>22.0</td><td>169.3</td><td>O K</td></tr></table><br><table><tr><th>Storm<br/>Event</th><th>Rain<br/>(mm/hr)</th><th>Flooded<br/>Volume<br/>(m³)</th><th>Discharge<br/>Volume<br/>(m³)</th><th>Time-Peak<br/>(mins)</th></tr><tr><td>7200 min Winter</td><td>1.545</td><td>0.0</td><td>4895.1</td><td>3680</td></tr><tr><td>8640 min Winter</td><td>1.338</td><td>0.0</td><td>5085.3</td><td>4408</td></tr><tr><td>10080 min Winter</td><td>1.184</td><td>0.0</td><td>5249.8</td><td>5136</td></tr></table> |                     |                                                                                 |                             |                       |                                                                                     | Storm<br>Event | Max<br>Level<br>(m) | Max<br>Depth<br>(m) | Max<br>Control<br>(l/s) | Max<br>Volume<br>(m³) | Status | 7200 min Winter | 29.186 | 0.186 | 28.5 | 199.4 | O K | 8640 min Winter | 29.171 | 0.171 | 24.8 | 182.3 | O K | 10080 min Winter | 29.160 | 0.160 | 22.0 | 169.3 | O K | Storm<br>Event | Rain<br>(mm/hr) | Flooded<br>Volume<br>(m³) | Discharge<br>Volume<br>(m³) | Time-Peak<br>(mins) | 7200 min Winter | 1.545 | 0.0 | 4895.1 | 3680 | 8640 min Winter | 1.338 | 0.0 | 5085.3 | 4408 | 10080 min Winter | 1.184 | 0.0 | 5249.8 | 5136 |
| Storm<br>Event                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Max<br>Level<br>(m) | Max<br>Depth<br>(m)                                                             | Max<br>Control<br>(l/s)     | Max<br>Volume<br>(m³) | Status                                                                              |                |                     |                     |                         |                       |        |                 |        |       |      |       |     |                 |        |       |      |       |     |                  |        |       |      |       |     |                |                 |                           |                             |                     |                 |       |     |        |      |                 |       |     |        |      |                  |       |     |        |      |
| 7200 min Winter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 29.186              | 0.186                                                                           | 28.5                        | 199.4                 | O K                                                                                 |                |                     |                     |                         |                       |        |                 |        |       |      |       |     |                 |        |       |      |       |     |                  |        |       |      |       |     |                |                 |                           |                             |                     |                 |       |     |        |      |                 |       |     |        |      |                  |       |     |        |      |
| 8640 min Winter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 29.171              | 0.171                                                                           | 24.8                        | 182.3                 | O K                                                                                 |                |                     |                     |                         |                       |        |                 |        |       |      |       |     |                 |        |       |      |       |     |                  |        |       |      |       |     |                |                 |                           |                             |                     |                 |       |     |        |      |                 |       |     |        |      |                  |       |     |        |      |
| 10080 min Winter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 29.160              | 0.160                                                                           | 22.0                        | 169.3                 | O K                                                                                 |                |                     |                     |                         |                       |        |                 |        |       |      |       |     |                 |        |       |      |       |     |                  |        |       |      |       |     |                |                 |                           |                             |                     |                 |       |     |        |      |                 |       |     |        |      |                  |       |     |        |      |
| Storm<br>Event                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Rain<br>(mm/hr)     | Flooded<br>Volume<br>(m³)                                                       | Discharge<br>Volume<br>(m³) | Time-Peak<br>(mins)   |                                                                                     |                |                     |                     |                         |                       |        |                 |        |       |      |       |     |                 |        |       |      |       |     |                  |        |       |      |       |     |                |                 |                           |                             |                     |                 |       |     |        |      |                 |       |     |        |      |                  |       |     |        |      |
| 7200 min Winter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 1.545               | 0.0                                                                             | 4895.1                      | 3680                  |                                                                                     |                |                     |                     |                         |                       |        |                 |        |       |      |       |     |                 |        |       |      |       |     |                  |        |       |      |       |     |                |                 |                           |                             |                     |                 |       |     |        |      |                 |       |     |        |      |                  |       |     |        |      |
| 8640 min Winter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 1.338               | 0.0                                                                             | 5085.3                      | 4408                  |                                                                                     |                |                     |                     |                         |                       |        |                 |        |       |      |       |     |                 |        |       |      |       |     |                  |        |       |      |       |     |                |                 |                           |                             |                     |                 |       |     |        |      |                 |       |     |        |      |                  |       |     |        |      |
| 10080 min Winter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 1.184               | 0.0                                                                             | 5249.8                      | 5136                  |                                                                                     |                |                     |                     |                         |                       |        |                 |        |       |      |       |     |                 |        |       |      |       |     |                  |        |       |      |       |     |                |                 |                           |                             |                     |                 |       |     |        |      |                 |       |     |        |      |                  |       |     |        |      |
| ©1982-2020 Innovyze                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                     |                                                                                 |                             |                       |                                                                                     |                |                     |                     |                         |                       |        |                 |        |       |      |       |     |                 |        |       |      |       |     |                  |        |       |      |       |     |                |                 |                           |                             |                     |                 |       |     |        |      |                 |       |     |        |      |                  |       |     |        |      |

|                                                                          |                                                                                 |                                                                                     |
|--------------------------------------------------------------------------|---------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Ardent Consulting Engineers                                              |                                                                                 | Page 4                                                                              |
| Suite 9, 10 Churchill Square ...<br>Kings Hill<br>West Malling, ME19 4YU | Bird in Eye Farm, Uckfield<br>SW Source Control Model<br>1 in 100 year + 45% CC |  |
| Date 10/05/2024                                                          | Designed by AW                                                                  |                                                                                     |
| File zONE Z - CAT C TANK C+45...                                         | Checked by DM                                                                   |                                                                                     |
| XP Solutions                                                             |                                                                                 | Source Control 2020.1                                                               |

Cascade Rainfall Details for 2401070-Basin 1.SRCX

|                       |                   |                       |       |
|-----------------------|-------------------|-----------------------|-------|
| Rainfall Model        | FSR               | Winter Storms         | Yes   |
| Return Period (years) | 100               | Cv (Summer)           | 0.750 |
| Region                | England and Wales | Cv (Winter)           | 0.840 |
| M5-60 (mm)            | 20.000            | Shortest Storm (mins) | 15    |
| Ratio R               | 0.348             | Longest Storm (mins)  | 10080 |
| Summer Storms         | Yes               | Climate Change %      | +45   |

Time Area Diagram

Total Area (ha) 3.146

| Time (mins) | Area  | Time (mins) | Area  | Time (mins) | Area  |
|-------------|-------|-------------|-------|-------------|-------|
| From: To:   | (ha)  | From: To:   | (ha)  | From: To:   | (ha)  |
| 0 4         | 1.049 | 4 8         | 1.049 | 8 12        | 1.049 |

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| Ardent Consulting Engineers                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                            |                                                                                 | Page 5                    |                                                                                     |            |           |            |           |           |           |           |       |        |       |        |       |        |                |                            |                 |       |                   |      |            |            |           |                           |             |         |                |     |               |     |                  |        |                                   |     |                                 |      |                |          |            |                |          |            |                           |       |      |           |       |      |            |       |      |                           |   |      |           |            |           |            |           |            |           |            |       |     |       |      |       |      |       |       |       |      |       |      |       |      |       |       |       |      |       |      |       |       |       |       |       |      |       |      |       |       |       |       |       |      |       |      |       |       |       |       |       |      |       |      |       |       |       |       |       |      |       |      |       |       |  |  |       |      |       |      |       |       |  |  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|---------------------------------------------------------------------------------|---------------------------|-------------------------------------------------------------------------------------|------------|-----------|------------|-----------|-----------|-----------|-----------|-------|--------|-------|--------|-------|--------|----------------|----------------------------|-----------------|-------|-------------------|------|------------|------------|-----------|---------------------------|-------------|---------|----------------|-----|---------------|-----|------------------|--------|-----------------------------------|-----|---------------------------------|------|----------------|----------|------------|----------------|----------|------------|---------------------------|-------|------|-----------|-------|------|------------|-------|------|---------------------------|---|------|-----------|------------|-----------|------------|-----------|------------|-----------|------------|-------|-----|-------|------|-------|------|-------|-------|-------|------|-------|------|-------|------|-------|-------|-------|------|-------|------|-------|-------|-------|-------|-------|------|-------|------|-------|-------|-------|-------|-------|------|-------|------|-------|-------|-------|-------|-------|------|-------|------|-------|-------|-------|-------|-------|------|-------|------|-------|-------|--|--|-------|------|-------|------|-------|-------|--|--|
| Suite 9, 10 Churchill Square ...<br>Kings Hill<br>West Malling, ME19 4YU                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                            | Bird in Eye Farm, Uckfield<br>SW Source Control Model<br>1 in 100 year + 45% CC |                           |  |            |           |            |           |           |           |           |       |        |       |        |       |        |                |                            |                 |       |                   |      |            |            |           |                           |             |         |                |     |               |     |                  |        |                                   |     |                                 |      |                |          |            |                |          |            |                           |       |      |           |       |      |            |       |      |                           |   |      |           |            |           |            |           |            |           |            |       |     |       |      |       |      |       |       |       |      |       |      |       |      |       |       |       |      |       |      |       |       |       |       |       |      |       |      |       |       |       |       |       |      |       |      |       |       |       |       |       |      |       |      |       |       |       |       |       |      |       |      |       |       |  |  |       |      |       |      |       |       |  |  |
| Date 10/05/2024                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                            | Designed by AW                                                                  |                           |                                                                                     |            |           |            |           |           |           |           |       |        |       |        |       |        |                |                            |                 |       |                   |      |            |            |           |                           |             |         |                |     |               |     |                  |        |                                   |     |                                 |      |                |          |            |                |          |            |                           |       |      |           |       |      |            |       |      |                           |   |      |           |            |           |            |           |            |           |            |       |     |       |      |       |      |       |       |       |      |       |      |       |      |       |       |       |      |       |      |       |       |       |       |       |      |       |      |       |       |       |       |       |      |       |      |       |       |       |       |       |      |       |      |       |       |       |       |       |      |       |      |       |       |  |  |       |      |       |      |       |       |  |  |
| File zONE Z - CAT C TANK C+45...                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                            | Checked by DM                                                                   |                           |                                                                                     |            |           |            |           |           |           |           |       |        |       |        |       |        |                |                            |                 |       |                   |      |            |            |           |                           |             |         |                |     |               |     |                  |        |                                   |     |                                 |      |                |          |            |                |          |            |                           |       |      |           |       |      |            |       |      |                           |   |      |           |            |           |            |           |            |           |            |       |     |       |      |       |      |       |       |       |      |       |      |       |      |       |       |       |      |       |      |       |       |       |       |       |      |       |      |       |       |       |       |       |      |       |      |       |       |       |       |       |      |       |      |       |       |       |       |       |      |       |      |       |       |  |  |       |      |       |      |       |       |  |  |
| XP Solutions                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                            |                                                                                 | Source Control 2020.1     |                                                                                     |            |           |            |           |           |           |           |       |        |       |        |       |        |                |                            |                 |       |                   |      |            |            |           |                           |             |         |                |     |               |     |                  |        |                                   |     |                                 |      |                |          |            |                |          |            |                           |       |      |           |       |      |            |       |      |                           |   |      |           |            |           |            |           |            |           |            |       |     |       |      |       |      |       |       |       |      |       |      |       |      |       |       |       |      |       |      |       |       |       |       |       |      |       |      |       |       |       |       |       |      |       |      |       |       |       |       |       |      |       |      |       |       |       |       |       |      |       |      |       |       |  |  |       |      |       |      |       |       |  |  |
| <p style="text-align: center;"><u>Cascade Model Details for 2401070-Basin 1.SRCX</u></p> <p style="text-align: center;">Storage is Online Cover Level (m) 30.500</p> <p style="text-align: center;"><u>Tank or Pond Structure</u></p> <p style="text-align: center;">Invert Level (m) 29.000</p> <table><tr><th>Depth (m)</th><th>Area (m²)</th><th>Depth (m)</th><th>Area (m²)</th><th>Depth (m)</th><th>Area (m²)</th></tr><tr><td>0.000</td><td>1015.0</td><td>1.200</td><td>1821.0</td><td>1.500</td><td>2035.0</td></tr></table> <p style="text-align: center;"><u>Hydro-Brake® Optimum Outflow Control</u></p> <table><tr><td>Unit Reference</td><td>MD-SHE-0312-5850-1200-5850</td></tr><tr><td>Design Head (m)</td><td>1.200</td></tr><tr><td>Design Flow (l/s)</td><td>58.5</td></tr><tr><td>Flush-Flo™</td><td>Calculated</td></tr><tr><td>Objective</td><td>Minimise upstream storage</td></tr><tr><td>Application</td><td>Surface</td></tr><tr><td>Sump Available</td><td>Yes</td></tr><tr><td>Diameter (mm)</td><td>312</td></tr><tr><td>Invert Level (m)</td><td>29.000</td></tr><tr><td>Minimum Outlet Pipe Diameter (mm)</td><td>375</td></tr><tr><td>Suggested Manhole Diameter (mm)</td><td>2100</td></tr></table> <table><tr><th>Control Points</th><th>Head (m)</th><th>Flow (l/s)</th><th>Control Points</th><th>Head (m)</th><th>Flow (l/s)</th></tr><tr><td>Design Point (Calculated)</td><td>1.200</td><td>58.5</td><td>Kick-Flo®</td><td>0.913</td><td>51.2</td></tr><tr><td>Flush-Flo™</td><td>0.488</td><td>58.5</td><td>Mean Flow over Head Range</td><td>-</td><td>47.8</td></tr></table> <p>The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake® Optimum as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated</p> <table><tr><th>Depth (m)</th><th>Flow (l/s)</th><th>Depth (m)</th><th>Flow (l/s)</th><th>Depth (m)</th><th>Flow (l/s)</th><th>Depth (m)</th><th>Flow (l/s)</th></tr><tr><td>0.100</td><td>9.4</td><td>1.200</td><td>58.5</td><td>3.000</td><td>91.1</td><td>7.000</td><td>137.8</td></tr><tr><td>0.200</td><td>32.0</td><td>1.400</td><td>63.0</td><td>3.500</td><td>98.2</td><td>7.500</td><td>142.5</td></tr><tr><td>0.300</td><td>55.5</td><td>1.600</td><td>67.2</td><td>4.000</td><td>104.8</td><td>8.000</td><td>147.1</td></tr><tr><td>0.400</td><td>58.0</td><td>1.800</td><td>71.1</td><td>4.500</td><td>111.0</td><td>8.500</td><td>151.5</td></tr><tr><td>0.500</td><td>58.5</td><td>2.000</td><td>74.9</td><td>5.000</td><td>116.9</td><td>9.000</td><td>155.8</td></tr><tr><td>0.600</td><td>58.0</td><td>2.200</td><td>78.4</td><td>5.500</td><td>122.5</td><td>9.500</td><td>160.0</td></tr><tr><td>0.800</td><td>55.1</td><td>2.400</td><td>81.8</td><td>6.000</td><td>127.8</td><td></td><td></td></tr><tr><td>1.000</td><td>53.6</td><td>2.600</td><td>85.0</td><td>6.500</td><td>132.9</td><td></td><td></td></tr></table> |                            |                                                                                 |                           |                                                                                     |            | Depth (m) | Area (m²)  | Depth (m) | Area (m²) | Depth (m) | Area (m²) | 0.000 | 1015.0 | 1.200 | 1821.0 | 1.500 | 2035.0 | Unit Reference | MD-SHE-0312-5850-1200-5850 | Design Head (m) | 1.200 | Design Flow (l/s) | 58.5 | Flush-Flo™ | Calculated | Objective | Minimise upstream storage | Application | Surface | Sump Available | Yes | Diameter (mm) | 312 | Invert Level (m) | 29.000 | Minimum Outlet Pipe Diameter (mm) | 375 | Suggested Manhole Diameter (mm) | 2100 | Control Points | Head (m) | Flow (l/s) | Control Points | Head (m) | Flow (l/s) | Design Point (Calculated) | 1.200 | 58.5 | Kick-Flo® | 0.913 | 51.2 | Flush-Flo™ | 0.488 | 58.5 | Mean Flow over Head Range | - | 47.8 | Depth (m) | Flow (l/s) | Depth (m) | Flow (l/s) | Depth (m) | Flow (l/s) | Depth (m) | Flow (l/s) | 0.100 | 9.4 | 1.200 | 58.5 | 3.000 | 91.1 | 7.000 | 137.8 | 0.200 | 32.0 | 1.400 | 63.0 | 3.500 | 98.2 | 7.500 | 142.5 | 0.300 | 55.5 | 1.600 | 67.2 | 4.000 | 104.8 | 8.000 | 147.1 | 0.400 | 58.0 | 1.800 | 71.1 | 4.500 | 111.0 | 8.500 | 151.5 | 0.500 | 58.5 | 2.000 | 74.9 | 5.000 | 116.9 | 9.000 | 155.8 | 0.600 | 58.0 | 2.200 | 78.4 | 5.500 | 122.5 | 9.500 | 160.0 | 0.800 | 55.1 | 2.400 | 81.8 | 6.000 | 127.8 |  |  | 1.000 | 53.6 | 2.600 | 85.0 | 6.500 | 132.9 |  |  |
| Depth (m)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Area (m²)                  | Depth (m)                                                                       | Area (m²)                 | Depth (m)                                                                           | Area (m²)  |           |            |           |           |           |           |       |        |       |        |       |        |                |                            |                 |       |                   |      |            |            |           |                           |             |         |                |     |               |     |                  |        |                                   |     |                                 |      |                |          |            |                |          |            |                           |       |      |           |       |      |            |       |      |                           |   |      |           |            |           |            |           |            |           |            |       |     |       |      |       |      |       |       |       |      |       |      |       |      |       |       |       |      |       |      |       |       |       |       |       |      |       |      |       |       |       |       |       |      |       |      |       |       |       |       |       |      |       |      |       |       |       |       |       |      |       |      |       |       |  |  |       |      |       |      |       |       |  |  |
| 0.000                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 1015.0                     | 1.200                                                                           | 1821.0                    | 1.500                                                                               | 2035.0     |           |            |           |           |           |           |       |        |       |        |       |        |                |                            |                 |       |                   |      |            |            |           |                           |             |         |                |     |               |     |                  |        |                                   |     |                                 |      |                |          |            |                |          |            |                           |       |      |           |       |      |            |       |      |                           |   |      |           |            |           |            |           |            |           |            |       |     |       |      |       |      |       |       |       |      |       |      |       |      |       |       |       |      |       |      |       |       |       |       |       |      |       |      |       |       |       |       |       |      |       |      |       |       |       |       |       |      |       |      |       |       |       |       |       |      |       |      |       |       |  |  |       |      |       |      |       |       |  |  |
| Unit Reference                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | MD-SHE-0312-5850-1200-5850 |                                                                                 |                           |                                                                                     |            |           |            |           |           |           |           |       |        |       |        |       |        |                |                            |                 |       |                   |      |            |            |           |                           |             |         |                |     |               |     |                  |        |                                   |     |                                 |      |                |          |            |                |          |            |                           |       |      |           |       |      |            |       |      |                           |   |      |           |            |           |            |           |            |           |            |       |     |       |      |       |      |       |       |       |      |       |      |       |      |       |       |       |      |       |      |       |       |       |       |       |      |       |      |       |       |       |       |       |      |       |      |       |       |       |       |       |      |       |      |       |       |       |       |       |      |       |      |       |       |  |  |       |      |       |      |       |       |  |  |
| Design Head (m)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 1.200                      |                                                                                 |                           |                                                                                     |            |           |            |           |           |           |           |       |        |       |        |       |        |                |                            |                 |       |                   |      |            |            |           |                           |             |         |                |     |               |     |                  |        |                                   |     |                                 |      |                |          |            |                |          |            |                           |       |      |           |       |      |            |       |      |                           |   |      |           |            |           |            |           |            |           |            |       |     |       |      |       |      |       |       |       |      |       |      |       |      |       |       |       |      |       |      |       |       |       |       |       |      |       |      |       |       |       |       |       |      |       |      |       |       |       |       |       |      |       |      |       |       |       |       |       |      |       |      |       |       |  |  |       |      |       |      |       |       |  |  |
| Design Flow (l/s)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 58.5                       |                                                                                 |                           |                                                                                     |            |           |            |           |           |           |           |       |        |       |        |       |        |                |                            |                 |       |                   |      |            |            |           |                           |             |         |                |     |               |     |                  |        |                                   |     |                                 |      |                |          |            |                |          |            |                           |       |      |           |       |      |            |       |      |                           |   |      |           |            |           |            |           |            |           |            |       |     |       |      |       |      |       |       |       |      |       |      |       |      |       |       |       |      |       |      |       |       |       |       |       |      |       |      |       |       |       |       |       |      |       |      |       |       |       |       |       |      |       |      |       |       |       |       |       |      |       |      |       |       |  |  |       |      |       |      |       |       |  |  |
| Flush-Flo™                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Calculated                 |                                                                                 |                           |                                                                                     |            |           |            |           |           |           |           |       |        |       |        |       |        |                |                            |                 |       |                   |      |            |            |           |                           |             |         |                |     |               |     |                  |        |                                   |     |                                 |      |                |          |            |                |          |            |                           |       |      |           |       |      |            |       |      |                           |   |      |           |            |           |            |           |            |           |            |       |     |       |      |       |      |       |       |       |      |       |      |       |      |       |       |       |      |       |      |       |       |       |       |       |      |       |      |       |       |       |       |       |      |       |      |       |       |       |       |       |      |       |      |       |       |       |       |       |      |       |      |       |       |  |  |       |      |       |      |       |       |  |  |
| Objective                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Minimise upstream storage  |                                                                                 |                           |                                                                                     |            |           |            |           |           |           |           |       |        |       |        |       |        |                |                            |                 |       |                   |      |            |            |           |                           |             |         |                |     |               |     |                  |        |                                   |     |                                 |      |                |          |            |                |          |            |                           |       |      |           |       |      |            |       |      |                           |   |      |           |            |           |            |           |            |           |            |       |     |       |      |       |      |       |       |       |      |       |      |       |      |       |       |       |      |       |      |       |       |       |       |       |      |       |      |       |       |       |       |       |      |       |      |       |       |       |       |       |      |       |      |       |       |       |       |       |      |       |      |       |       |  |  |       |      |       |      |       |       |  |  |
| Application                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Surface                    |                                                                                 |                           |                                                                                     |            |           |            |           |           |           |           |       |        |       |        |       |        |                |                            |                 |       |                   |      |            |            |           |                           |             |         |                |     |               |     |                  |        |                                   |     |                                 |      |                |          |            |                |          |            |                           |       |      |           |       |      |            |       |      |                           |   |      |           |            |           |            |           |            |           |            |       |     |       |      |       |      |       |       |       |      |       |      |       |      |       |       |       |      |       |      |       |       |       |       |       |      |       |      |       |       |       |       |       |      |       |      |       |       |       |       |       |      |       |      |       |       |       |       |       |      |       |      |       |       |  |  |       |      |       |      |       |       |  |  |
| Sump Available                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Yes                        |                                                                                 |                           |                                                                                     |            |           |            |           |           |           |           |       |        |       |        |       |        |                |                            |                 |       |                   |      |            |            |           |                           |             |         |                |     |               |     |                  |        |                                   |     |                                 |      |                |          |            |                |          |            |                           |       |      |           |       |      |            |       |      |                           |   |      |           |            |           |            |           |            |           |            |       |     |       |      |       |      |       |       |       |      |       |      |       |      |       |       |       |      |       |      |       |       |       |       |       |      |       |      |       |       |       |       |       |      |       |      |       |       |       |       |       |      |       |      |       |       |       |       |       |      |       |      |       |       |  |  |       |      |       |      |       |       |  |  |
| Diameter (mm)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 312                        |                                                                                 |                           |                                                                                     |            |           |            |           |           |           |           |       |        |       |        |       |        |                |                            |                 |       |                   |      |            |            |           |                           |             |         |                |     |               |     |                  |        |                                   |     |                                 |      |                |          |            |                |          |            |                           |       |      |           |       |      |            |       |      |                           |   |      |           |            |           |            |           |            |           |            |       |     |       |      |       |      |       |       |       |      |       |      |       |      |       |       |       |      |       |      |       |       |       |       |       |      |       |      |       |       |       |       |       |      |       |      |       |       |       |       |       |      |       |      |       |       |       |       |       |      |       |      |       |       |  |  |       |      |       |      |       |       |  |  |
| Invert Level (m)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 29.000                     |                                                                                 |                           |                                                                                     |            |           |            |           |           |           |           |       |        |       |        |       |        |                |                            |                 |       |                   |      |            |            |           |                           |             |         |                |     |               |     |                  |        |                                   |     |                                 |      |                |          |            |                |          |            |                           |       |      |           |       |      |            |       |      |                           |   |      |           |            |           |            |           |            |           |            |       |     |       |      |       |      |       |       |       |      |       |      |       |      |       |       |       |      |       |      |       |       |       |       |       |      |       |      |       |       |       |       |       |      |       |      |       |       |       |       |       |      |       |      |       |       |       |       |       |      |       |      |       |       |  |  |       |      |       |      |       |       |  |  |
| Minimum Outlet Pipe Diameter (mm)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 375                        |                                                                                 |                           |                                                                                     |            |           |            |           |           |           |           |       |        |       |        |       |        |                |                            |                 |       |                   |      |            |            |           |                           |             |         |                |     |               |     |                  |        |                                   |     |                                 |      |                |          |            |                |          |            |                           |       |      |           |       |      |            |       |      |                           |   |      |           |            |           |            |           |            |           |            |       |     |       |      |       |      |       |       |       |      |       |      |       |      |       |       |       |      |       |      |       |       |       |       |       |      |       |      |       |       |       |       |       |      |       |      |       |       |       |       |       |      |       |      |       |       |       |       |       |      |       |      |       |       |  |  |       |      |       |      |       |       |  |  |
| Suggested Manhole Diameter (mm)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 2100                       |                                                                                 |                           |                                                                                     |            |           |            |           |           |           |           |       |        |       |        |       |        |                |                            |                 |       |                   |      |            |            |           |                           |             |         |                |     |               |     |                  |        |                                   |     |                                 |      |                |          |            |                |          |            |                           |       |      |           |       |      |            |       |      |                           |   |      |           |            |           |            |           |            |           |            |       |     |       |      |       |      |       |       |       |      |       |      |       |      |       |       |       |      |       |      |       |       |       |       |       |      |       |      |       |       |       |       |       |      |       |      |       |       |       |       |       |      |       |      |       |       |       |       |       |      |       |      |       |       |  |  |       |      |       |      |       |       |  |  |
| Control Points                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Head (m)                   | Flow (l/s)                                                                      | Control Points            | Head (m)                                                                            | Flow (l/s) |           |            |           |           |           |           |       |        |       |        |       |        |                |                            |                 |       |                   |      |            |            |           |                           |             |         |                |     |               |     |                  |        |                                   |     |                                 |      |                |          |            |                |          |            |                           |       |      |           |       |      |            |       |      |                           |   |      |           |            |           |            |           |            |           |            |       |     |       |      |       |      |       |       |       |      |       |      |       |      |       |       |       |      |       |      |       |       |       |       |       |      |       |      |       |       |       |       |       |      |       |      |       |       |       |       |       |      |       |      |       |       |       |       |       |      |       |      |       |       |  |  |       |      |       |      |       |       |  |  |
| Design Point (Calculated)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 1.200                      | 58.5                                                                            | Kick-Flo®                 | 0.913                                                                               | 51.2       |           |            |           |           |           |           |       |        |       |        |       |        |                |                            |                 |       |                   |      |            |            |           |                           |             |         |                |     |               |     |                  |        |                                   |     |                                 |      |                |          |            |                |          |            |                           |       |      |           |       |      |            |       |      |                           |   |      |           |            |           |            |           |            |           |            |       |     |       |      |       |      |       |       |       |      |       |      |       |      |       |       |       |      |       |      |       |       |       |       |       |      |       |      |       |       |       |       |       |      |       |      |       |       |       |       |       |      |       |      |       |       |       |       |       |      |       |      |       |       |  |  |       |      |       |      |       |       |  |  |
| Flush-Flo™                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 0.488                      | 58.5                                                                            | Mean Flow over Head Range | -                                                                                   | 47.8       |           |            |           |           |           |           |       |        |       |        |       |        |                |                            |                 |       |                   |      |            |            |           |                           |             |         |                |     |               |     |                  |        |                                   |     |                                 |      |                |          |            |                |          |            |                           |       |      |           |       |      |            |       |      |                           |   |      |           |            |           |            |           |            |           |            |       |     |       |      |       |      |       |       |       |      |       |      |       |      |       |       |       |      |       |      |       |       |       |       |       |      |       |      |       |       |       |       |       |      |       |      |       |       |       |       |       |      |       |      |       |       |       |       |       |      |       |      |       |       |  |  |       |      |       |      |       |       |  |  |
| Depth (m)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Flow (l/s)                 | Depth (m)                                                                       | Flow (l/s)                | Depth (m)                                                                           | Flow (l/s) | Depth (m) | Flow (l/s) |           |           |           |           |       |        |       |        |       |        |                |                            |                 |       |                   |      |            |            |           |                           |             |         |                |     |               |     |                  |        |                                   |     |                                 |      |                |          |            |                |          |            |                           |       |      |           |       |      |            |       |      |                           |   |      |           |            |           |            |           |            |           |            |       |     |       |      |       |      |       |       |       |      |       |      |       |      |       |       |       |      |       |      |       |       |       |       |       |      |       |      |       |       |       |       |       |      |       |      |       |       |       |       |       |      |       |      |       |       |       |       |       |      |       |      |       |       |  |  |       |      |       |      |       |       |  |  |
| 0.100                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 9.4                        | 1.200                                                                           | 58.5                      | 3.000                                                                               | 91.1       | 7.000     | 137.8      |           |           |           |           |       |        |       |        |       |        |                |                            |                 |       |                   |      |            |            |           |                           |             |         |                |     |               |     |                  |        |                                   |     |                                 |      |                |          |            |                |          |            |                           |       |      |           |       |      |            |       |      |                           |   |      |           |            |           |            |           |            |           |            |       |     |       |      |       |      |       |       |       |      |       |      |       |      |       |       |       |      |       |      |       |       |       |       |       |      |       |      |       |       |       |       |       |      |       |      |       |       |       |       |       |      |       |      |       |       |       |       |       |      |       |      |       |       |  |  |       |      |       |      |       |       |  |  |
| 0.200                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 32.0                       | 1.400                                                                           | 63.0                      | 3.500                                                                               | 98.2       | 7.500     | 142.5      |           |           |           |           |       |        |       |        |       |        |                |                            |                 |       |                   |      |            |            |           |                           |             |         |                |     |               |     |                  |        |                                   |     |                                 |      |                |          |            |                |          |            |                           |       |      |           |       |      |            |       |      |                           |   |      |           |            |           |            |           |            |           |            |       |     |       |      |       |      |       |       |       |      |       |      |       |      |       |       |       |      |       |      |       |       |       |       |       |      |       |      |       |       |       |       |       |      |       |      |       |       |       |       |       |      |       |      |       |       |       |       |       |      |       |      |       |       |  |  |       |      |       |      |       |       |  |  |
| 0.300                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 55.5                       | 1.600                                                                           | 67.2                      | 4.000                                                                               | 104.8      | 8.000     | 147.1      |           |           |           |           |       |        |       |        |       |        |                |                            |                 |       |                   |      |            |            |           |                           |             |         |                |     |               |     |                  |        |                                   |     |                                 |      |                |          |            |                |          |            |                           |       |      |           |       |      |            |       |      |                           |   |      |           |            |           |            |           |            |           |            |       |     |       |      |       |      |       |       |       |      |       |      |       |      |       |       |       |      |       |      |       |       |       |       |       |      |       |      |       |       |       |       |       |      |       |      |       |       |       |       |       |      |       |      |       |       |       |       |       |      |       |      |       |       |  |  |       |      |       |      |       |       |  |  |
| 0.400                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 58.0                       | 1.800                                                                           | 71.1                      | 4.500                                                                               | 111.0      | 8.500     | 151.5      |           |           |           |           |       |        |       |        |       |        |                |                            |                 |       |                   |      |            |            |           |                           |             |         |                |     |               |     |                  |        |                                   |     |                                 |      |                |          |            |                |          |            |                           |       |      |           |       |      |            |       |      |                           |   |      |           |            |           |            |           |            |           |            |       |     |       |      |       |      |       |       |       |      |       |      |       |      |       |       |       |      |       |      |       |       |       |       |       |      |       |      |       |       |       |       |       |      |       |      |       |       |       |       |       |      |       |      |       |       |       |       |       |      |       |      |       |       |  |  |       |      |       |      |       |       |  |  |
| 0.500                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 58.5                       | 2.000                                                                           | 74.9                      | 5.000                                                                               | 116.9      | 9.000     | 155.8      |           |           |           |           |       |        |       |        |       |        |                |                            |                 |       |                   |      |            |            |           |                           |             |         |                |     |               |     |                  |        |                                   |     |                                 |      |                |          |            |                |          |            |                           |       |      |           |       |      |            |       |      |                           |   |      |           |            |           |            |           |            |           |            |       |     |       |      |       |      |       |       |       |      |       |      |       |      |       |       |       |      |       |      |       |       |       |       |       |      |       |      |       |       |       |       |       |      |       |      |       |       |       |       |       |      |       |      |       |       |       |       |       |      |       |      |       |       |  |  |       |      |       |      |       |       |  |  |
| 0.600                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 58.0                       | 2.200                                                                           | 78.4                      | 5.500                                                                               | 122.5      | 9.500     | 160.0      |           |           |           |           |       |        |       |        |       |        |                |                            |                 |       |                   |      |            |            |           |                           |             |         |                |     |               |     |                  |        |                                   |     |                                 |      |                |          |            |                |          |            |                           |       |      |           |       |      |            |       |      |                           |   |      |           |            |           |            |           |            |           |            |       |     |       |      |       |      |       |       |       |      |       |      |       |      |       |       |       |      |       |      |       |       |       |       |       |      |       |      |       |       |       |       |       |      |       |      |       |       |       |       |       |      |       |      |       |       |       |       |       |      |       |      |       |       |  |  |       |      |       |      |       |       |  |  |
| 0.800                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 55.1                       | 2.400                                                                           | 81.8                      | 6.000                                                                               | 127.8      |           |            |           |           |           |           |       |        |       |        |       |        |                |                            |                 |       |                   |      |            |            |           |                           |             |         |                |     |               |     |                  |        |                                   |     |                                 |      |                |          |            |                |          |            |                           |       |      |           |       |      |            |       |      |                           |   |      |           |            |           |            |           |            |           |            |       |     |       |      |       |      |       |       |       |      |       |      |       |      |       |       |       |      |       |      |       |       |       |       |       |      |       |      |       |       |       |       |       |      |       |      |       |       |       |       |       |      |       |      |       |       |       |       |       |      |       |      |       |       |  |  |       |      |       |      |       |       |  |  |
| 1.000                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 53.6                       | 2.600                                                                           | 85.0                      | 6.500                                                                               | 132.9      |           |            |           |           |           |           |       |        |       |        |       |        |                |                            |                 |       |                   |      |            |            |           |                           |             |         |                |     |               |     |                  |        |                                   |     |                                 |      |                |          |            |                |          |            |                           |       |      |           |       |      |            |       |      |                           |   |      |           |            |           |            |           |            |           |            |       |     |       |      |       |      |       |       |       |      |       |      |       |      |       |       |       |      |       |      |       |       |       |       |       |      |       |      |       |       |       |       |       |      |       |      |       |       |       |       |       |      |       |      |       |       |       |       |       |      |       |      |       |       |  |  |       |      |       |      |       |       |  |  |
| ©1982-2020 Innovyze                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                            |                                                                                 |                           |                                                                                     |            |           |            |           |           |           |           |       |        |       |        |       |        |                |                            |                 |       |                   |      |            |            |           |                           |             |         |                |     |               |     |                  |        |                                   |     |                                 |      |                |          |            |                |          |            |                           |       |      |           |       |      |            |       |      |                           |   |      |           |            |           |            |           |            |           |            |       |     |       |      |       |      |       |       |       |      |       |      |       |      |       |       |       |      |       |      |       |       |       |       |       |      |       |      |       |       |       |       |       |      |       |      |       |       |       |       |       |      |       |      |       |       |       |       |       |      |       |      |       |       |  |  |       |      |       |      |       |       |  |  |

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|--------------------------------------------------------------------------|---------------|---------------------------------------------------------------------------------|-----------------------|------------------|-------------------------------------------------------------------------------------|
| Ardent Consulting Engineers                                              |               |                                                                                 |                       | Page 1           |                                                                                     |
| Suite 9, 10 Churchill Square ...<br>Kings Hill<br>West Malling, ME19 4YU |               | Bird in Eye Farm, Uckfield<br>SW Source Control Model<br>1 in 100 year + 45% CC |                       |                  |  |
| Date 10/05/2024                                                          |               | Designed by AW                                                                  |                       |                  |                                                                                     |
| File zONE Z - CAT C TANK C+45...                                         |               | Checked by DM                                                                   |                       |                  |                                                                                     |
| XP Solutions                                                             |               | Source Control 2020.1                                                           |                       |                  |                                                                                     |
| <u>Cascade Summary of Results for 2401070-Basin 2.SRCX</u>               |               |                                                                                 |                       |                  |                                                                                     |
| Upstream Structures                                                      |               | Outflow To                                                                      |                       | Overflow To      |                                                                                     |
| 2401070-Basin 1.SRCX                                                     |               | 2401070-Basin 4.SRCX                                                            |                       | (None)           |                                                                                     |
| Storm Event                                                              | Max Level (m) | Max Depth (m)                                                                   | Max Control (l/s)     | Max Volume (m³)  | Status                                                                              |
| 15 min Summer                                                            | 27.825        | 0.325                                                                           | 33.6                  | 398.1            | O K                                                                                 |
| 30 min Summer                                                            | 27.924        | 0.424                                                                           | 34.0                  | 531.2            | O K                                                                                 |
| 60 min Summer                                                            | 28.025        | 0.525                                                                           | 34.0                  | 673.4            | O K                                                                                 |
| 120 min Summer                                                           | 28.144        | 0.644                                                                           | 34.0                  | 849.2            | O K                                                                                 |
| 180 min Summer                                                           | 28.222        | 0.722                                                                           | 34.0                  | 968.4            | O K                                                                                 |
| 240 min Summer                                                           | 28.278        | 0.778                                                                           | 34.0                  | 1056.6           | O K                                                                                 |
| 360 min Summer                                                           | 28.364        | 0.864                                                                           | 34.0                  | 1194.7           | O K                                                                                 |
| 480 min Summer                                                           | 28.420        | 0.920                                                                           | 34.0                  | 1288.7           | O K                                                                                 |
| 600 min Summer                                                           | 28.458        | 0.958                                                                           | 34.0                  | 1353.3           | O K                                                                                 |
| 720 min Summer                                                           | 28.489        | 0.989                                                                           | 34.0                  | 1405.0           | O K                                                                                 |
| 960 min Summer                                                           | 28.535        | 1.035                                                                           | 34.0                  | 1486.2           | O K                                                                                 |
| 1440 min Summer                                                          | 28.553        | 1.053                                                                           | 34.0                  | 1518.5           | O K                                                                                 |
| 2160 min Summer                                                          | 28.502        | 1.002                                                                           | 34.0                  | 1427.8           | O K                                                                                 |
| 2880 min Summer                                                          | 28.428        | 0.928                                                                           | 34.0                  | 1301.0           | O K                                                                                 |
| 4320 min Summer                                                          | 28.209        | 0.709                                                                           | 34.0                  | 948.5            | O K                                                                                 |
| 5760 min Summer                                                          | 28.019        | 0.519                                                                           | 34.0                  | 664.6            | O K                                                                                 |
| Storm Event                                                              | Rain (mm/hr)  | Flooded Volume (m³)                                                             | Discharge Volume (m³) | Time-Peak (mins) |                                                                                     |
| 15 min Summer                                                            | 136.286       | 0.0                                                                             | 868.3                 | 187              |                                                                                     |
| 30 min Summer                                                            | 91.635        | 0.0                                                                             | 1178.1                | 273              |                                                                                     |
| 60 min Summer                                                            | 58.739        | 0.0                                                                             | 1548.0                | 378              |                                                                                     |
| 120 min Summer                                                           | 36.288        | 0.0                                                                             | 1916.2                | 496              |                                                                                     |
| 180 min Summer                                                           | 26.937        | 0.0                                                                             | 2135.2                | 570              |                                                                                     |
| 240 min Summer                                                           | 21.660        | 0.0                                                                             | 2290.1                | 626              |                                                                                     |
| 360 min Summer                                                           | 15.950        | 0.0                                                                             | 2530.4                | 728              |                                                                                     |
| 480 min Summer                                                           | 12.815        | 0.0                                                                             | 2710.9                | 808              |                                                                                     |
| 600 min Summer                                                           | 10.804        | 0.0                                                                             | 2856.9                | 884              |                                                                                     |
| 720 min Summer                                                           | 9.393         | 0.0                                                                             | 2980.1                | 952              |                                                                                     |
| 960 min Summer                                                           | 7.524         | 0.0                                                                             | 3181.5                | 1078             |                                                                                     |
| 1440 min Summer                                                          | 5.493         | 0.0                                                                             | 3477.3                | 1286             |                                                                                     |
| 2160 min Summer                                                          | 4.002         | 0.0                                                                             | 3833.4                | 1576             |                                                                                     |
| 2880 min Summer                                                          | 3.192         | 0.0                                                                             | 4074.7                | 1904             |                                                                                     |
| 4320 min Summer                                                          | 2.316         | 0.0                                                                             | 4422.8                | 2600             |                                                                                     |
| 5760 min Summer                                                          | 1.843         | 0.0                                                                             | 4716.5                | 3280             |                                                                                     |
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|                                                                          |  |                                                                                 |                                    |                                                                                     |                                |               |
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| Ardent Consulting Engineers                                              |  |                                                                                 |                                    | Page 2                                                                              |                                |               |
| Suite 9, 10 Churchill Square ...<br>Kings Hill<br>West Malling, ME19 4YU |  | Bird in Eye Farm, Uckfield<br>SW Source Control Model<br>1 in 100 year + 45% CC |                                    |  |                                |               |
| Date 10/05/2024                                                          |  | Designed by AW                                                                  |                                    |                                                                                     |                                |               |
| File zONE Z - CAT C TANK C+45...                                         |  | Checked by DM                                                                   |                                    |                                                                                     |                                |               |
| XP Solutions                                                             |  | Source Control 2020.1                                                           |                                    |                                                                                     |                                |               |
| <u>Cascade Summary of Results for 2401070-Basin 2.SRCX</u>               |  |                                                                                 |                                    |                                                                                     |                                |               |
| <b>Storm<br/>Event</b>                                                   |  | <b>Max<br/>Level<br/>(m)</b>                                                    | <b>Max<br/>Depth<br/>(m)</b>       | <b>Max<br/>Control<br/>(l/s)</b>                                                    | <b>Max<br/>Volume<br/>(m³)</b> | <b>Status</b> |
| 7200 min Summer                                                          |  | 27.883                                                                          | 0.383                              | 33.9                                                                                | 475.8                          | O K           |
| 8640 min Summer                                                          |  | 27.796                                                                          | 0.296                              | 33.3                                                                                | 360.9                          | O K           |
| 10080 min Summer                                                         |  | 27.748                                                                          | 0.248                              | 32.4                                                                                | 298.9                          | O K           |
| 15 min Winter                                                            |  | 27.860                                                                          | 0.360                              | 33.8                                                                                | 444.7                          | O K           |
| 30 min Winter                                                            |  | 27.967                                                                          | 0.467                              | 34.0                                                                                | 590.8                          | O K           |
| 60 min Winter                                                            |  | 28.080                                                                          | 0.580                              | 34.0                                                                                | 753.9                          | O K           |
| 120 min Winter                                                           |  | 28.222                                                                          | 0.722                              | 34.0                                                                                | 968.2                          | O K           |
| 180 min Winter                                                           |  | 28.313                                                                          | 0.813                              | 34.0                                                                                | 1112.4                         | O K           |
| 240 min Winter                                                           |  | 28.380                                                                          | 0.880                              | 34.0                                                                                | 1221.7                         | O K           |
| 360 min Winter                                                           |  | 28.472                                                                          | 0.972                              | 34.0                                                                                | 1377.1                         | O K           |
| 480 min Winter                                                           |  | 28.532                                                                          | 1.032                              | 34.0                                                                                | 1480.1                         | O K           |
| 600 min Winter                                                           |  | 28.573                                                                          | 1.073                              | 34.0                                                                                | 1552.4                         | O K           |
| 720 min Winter                                                           |  | 28.601                                                                          | 1.101                              | 34.0                                                                                | 1604.2                         | O K           |
| 960 min Winter                                                           |  | 28.644                                                                          | 1.144                              | 34.0                                                                                | 1682.1                         | O K           |
| 1440 min Winter                                                          |  | 28.694                                                                          | 1.194                              | 34.0                                                                                | 1774.6                         | O K           |
| 2160 min Winter                                                          |  | 28.610                                                                          | 1.110                              | 34.0                                                                                | 1619.6                         | O K           |
| 2880 min Winter                                                          |  | 28.465                                                                          | 0.965                              | 34.0                                                                                | 1365.3                         | O K           |
| 4320 min Winter                                                          |  | 28.097                                                                          | 0.597                              | 34.0                                                                                | 778.2                          | O K           |
| 5760 min Winter                                                          |  | 27.847                                                                          | 0.347                              | 33.8                                                                                | 427.5                          | O K           |
| <b>Storm<br/>Event</b>                                                   |  | <b>Rain<br/>(mm/hr)</b>                                                         | <b>Flooded<br/>Volume<br/>(m³)</b> | <b>Discharge<br/>Volume<br/>(m³)</b>                                                | <b>Time-Peak<br/>(mins)</b>    |               |
| 7200 min Summer                                                          |  | 1.545                                                                           | 0.0                                | 4939.5                                                                              | 3936                           |               |
| 8640 min Summer                                                          |  | 1.338                                                                           | 0.0                                | 5128.3                                                                              | 4584                           |               |
| 10080 min Summer                                                         |  | 1.184                                                                           | 0.0                                | 5285.1                                                                              | 5216                           |               |
| 15 min Winter                                                            |  | 136.286                                                                         | 0.0                                | 976.4                                                                               | 214                            |               |
| 30 min Winter                                                            |  | 91.635                                                                          | 0.0                                | 1322.7                                                                              | 313                            |               |
| 60 min Winter                                                            |  | 58.739                                                                          | 0.0                                | 1735.7                                                                              | 428                            |               |
| 120 min Winter                                                           |  | 36.288                                                                          | 0.0                                | 2148.1                                                                              | 552                            |               |
| 180 min Winter                                                           |  | 26.937                                                                          | 0.0                                | 2393.2                                                                              | 632                            |               |
| 240 min Winter                                                           |  | 21.660                                                                          | 0.0                                | 2566.5                                                                              | 694                            |               |
| 360 min Winter                                                           |  | 15.950                                                                          | 0.0                                | 2835.4                                                                              | 788                            |               |
| 480 min Winter                                                           |  | 12.815                                                                          | 0.0                                | 3037.4                                                                              | 868                            |               |
| 600 min Winter                                                           |  | 10.804                                                                          | 0.0                                | 3200.7                                                                              | 944                            |               |
| 720 min Winter                                                           |  | 9.393                                                                           | 0.0                                | 3338.4                                                                              | 1014                           |               |
| 960 min Winter                                                           |  | 7.524                                                                           | 0.0                                | 3563.3                                                                              | 1144                           |               |
| 1440 min Winter                                                          |  | 5.493                                                                           | 0.0                                | 3893.4                                                                              | 1350                           |               |
| 2160 min Winter                                                          |  | 4.002                                                                           | 0.0                                | 4295.1                                                                              | 1612                           |               |
| 2880 min Winter                                                          |  | 3.192                                                                           | 0.0                                | 4565.8                                                                              | 2004                           |               |
| 4320 min Winter                                                          |  | 2.316                                                                           | 0.0                                | 4958.4                                                                              | 2704                           |               |
| 5760 min Winter                                                          |  | 1.843                                                                           | 0.0                                | 5283.7                                                                              | 3288                           |               |
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| Ardent Consulting Engineers                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                     |                                                                                 |                             | Page 3                                                                              |        |                |                     |                     |                         |                       |        |                 |        |       |      |       |     |                 |        |       |      |       |     |                  |        |       |      |       |     |                |                 |                           |                             |                     |                 |       |     |        |      |                 |       |     |        |      |                  |       |     |        |      |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|---------------------------------------------------------------------------------|-----------------------------|-------------------------------------------------------------------------------------|--------|----------------|---------------------|---------------------|-------------------------|-----------------------|--------|-----------------|--------|-------|------|-------|-----|-----------------|--------|-------|------|-------|-----|------------------|--------|-------|------|-------|-----|----------------|-----------------|---------------------------|-----------------------------|---------------------|-----------------|-------|-----|--------|------|-----------------|-------|-----|--------|------|------------------|-------|-----|--------|------|
| Suite 9, 10 Churchill Square ...<br>Kings Hill<br>West Malling, ME19 4YU                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                     | Bird in Eye Farm, Uckfield<br>SW Source Control Model<br>1 in 100 year + 45% CC |                             |  |        |                |                     |                     |                         |                       |        |                 |        |       |      |       |     |                 |        |       |      |       |     |                  |        |       |      |       |     |                |                 |                           |                             |                     |                 |       |     |        |      |                 |       |     |        |      |                  |       |     |        |      |
| Date 10/05/2024                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                     | Designed by AW                                                                  |                             |                                                                                     |        |                |                     |                     |                         |                       |        |                 |        |       |      |       |     |                 |        |       |      |       |     |                  |        |       |      |       |     |                |                 |                           |                             |                     |                 |       |     |        |      |                 |       |     |        |      |                  |       |     |        |      |
| File zONE Z - CAT C TANK C+45...                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                     | Checked by DM                                                                   |                             |                                                                                     |        |                |                     |                     |                         |                       |        |                 |        |       |      |       |     |                 |        |       |      |       |     |                  |        |       |      |       |     |                |                 |                           |                             |                     |                 |       |     |        |      |                 |       |     |        |      |                  |       |     |        |      |
| XP Solutions                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                     | Source Control 2020.1                                                           |                             |                                                                                     |        |                |                     |                     |                         |                       |        |                 |        |       |      |       |     |                 |        |       |      |       |     |                  |        |       |      |       |     |                |                 |                           |                             |                     |                 |       |     |        |      |                 |       |     |        |      |                  |       |     |        |      |
| <p style="text-align: center;"><u>Cascade Summary of Results for 2401070-Basin 2.SRCX</u></p> <table><tr><th>Storm<br/>Event</th><th>Max<br/>Level<br/>(m)</th><th>Max<br/>Depth<br/>(m)</th><th>Max<br/>Control<br/>(l/s)</th><th>Max<br/>Volume<br/>(m³)</th><th>Status</th></tr><tr><td>7200 min Winter</td><td>27.743</td><td>0.243</td><td>31.7</td><td>292.7</td><td>O K</td></tr><tr><td>8640 min Winter</td><td>27.715</td><td>0.215</td><td>27.7</td><td>257.2</td><td>O K</td></tr><tr><td>10080 min Winter</td><td>27.696</td><td>0.196</td><td>24.6</td><td>233.6</td><td>O K</td></tr></table><br><table><tr><th>Storm<br/>Event</th><th>Rain<br/>(mm/hr)</th><th>Flooded<br/>Volume<br/>(m³)</th><th>Discharge<br/>Volume<br/>(m³)</th><th>Time-Peak<br/>(mins)</th></tr><tr><td>7200 min Winter</td><td>1.545</td><td>0.0</td><td>5533.9</td><td>3808</td></tr><tr><td>8640 min Winter</td><td>1.338</td><td>0.0</td><td>5746.2</td><td>4504</td></tr><tr><td>10080 min Winter</td><td>1.184</td><td>0.0</td><td>5925.0</td><td>5208</td></tr></table> |                     |                                                                                 |                             |                                                                                     |        | Storm<br>Event | Max<br>Level<br>(m) | Max<br>Depth<br>(m) | Max<br>Control<br>(l/s) | Max<br>Volume<br>(m³) | Status | 7200 min Winter | 27.743 | 0.243 | 31.7 | 292.7 | O K | 8640 min Winter | 27.715 | 0.215 | 27.7 | 257.2 | O K | 10080 min Winter | 27.696 | 0.196 | 24.6 | 233.6 | O K | Storm<br>Event | Rain<br>(mm/hr) | Flooded<br>Volume<br>(m³) | Discharge<br>Volume<br>(m³) | Time-Peak<br>(mins) | 7200 min Winter | 1.545 | 0.0 | 5533.9 | 3808 | 8640 min Winter | 1.338 | 0.0 | 5746.2 | 4504 | 10080 min Winter | 1.184 | 0.0 | 5925.0 | 5208 |
| Storm<br>Event                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Max<br>Level<br>(m) | Max<br>Depth<br>(m)                                                             | Max<br>Control<br>(l/s)     | Max<br>Volume<br>(m³)                                                               | Status |                |                     |                     |                         |                       |        |                 |        |       |      |       |     |                 |        |       |      |       |     |                  |        |       |      |       |     |                |                 |                           |                             |                     |                 |       |     |        |      |                 |       |     |        |      |                  |       |     |        |      |
| 7200 min Winter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 27.743              | 0.243                                                                           | 31.7                        | 292.7                                                                               | O K    |                |                     |                     |                         |                       |        |                 |        |       |      |       |     |                 |        |       |      |       |     |                  |        |       |      |       |     |                |                 |                           |                             |                     |                 |       |     |        |      |                 |       |     |        |      |                  |       |     |        |      |
| 8640 min Winter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 27.715              | 0.215                                                                           | 27.7                        | 257.2                                                                               | O K    |                |                     |                     |                         |                       |        |                 |        |       |      |       |     |                 |        |       |      |       |     |                  |        |       |      |       |     |                |                 |                           |                             |                     |                 |       |     |        |      |                 |       |     |        |      |                  |       |     |        |      |
| 10080 min Winter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 27.696              | 0.196                                                                           | 24.6                        | 233.6                                                                               | O K    |                |                     |                     |                         |                       |        |                 |        |       |      |       |     |                 |        |       |      |       |     |                  |        |       |      |       |     |                |                 |                           |                             |                     |                 |       |     |        |      |                 |       |     |        |      |                  |       |     |        |      |
| Storm<br>Event                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Rain<br>(mm/hr)     | Flooded<br>Volume<br>(m³)                                                       | Discharge<br>Volume<br>(m³) | Time-Peak<br>(mins)                                                                 |        |                |                     |                     |                         |                       |        |                 |        |       |      |       |     |                 |        |       |      |       |     |                  |        |       |      |       |     |                |                 |                           |                             |                     |                 |       |     |        |      |                 |       |     |        |      |                  |       |     |        |      |
| 7200 min Winter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 1.545               | 0.0                                                                             | 5533.9                      | 3808                                                                                |        |                |                     |                     |                         |                       |        |                 |        |       |      |       |     |                 |        |       |      |       |     |                  |        |       |      |       |     |                |                 |                           |                             |                     |                 |       |     |        |      |                 |       |     |        |      |                  |       |     |        |      |
| 8640 min Winter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 1.338               | 0.0                                                                             | 5746.2                      | 4504                                                                                |        |                |                     |                     |                         |                       |        |                 |        |       |      |       |     |                 |        |       |      |       |     |                  |        |       |      |       |     |                |                 |                           |                             |                     |                 |       |     |        |      |                 |       |     |        |      |                  |       |     |        |      |
| 10080 min Winter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 1.184               | 0.0                                                                             | 5925.0                      | 5208                                                                                |        |                |                     |                     |                         |                       |        |                 |        |       |      |       |     |                 |        |       |      |       |     |                  |        |       |      |       |     |                |                 |                           |                             |                     |                 |       |     |        |      |                 |       |     |        |      |                  |       |     |        |      |
| ©1982-2020 Innovyze                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                     |                                                                                 |                             |                                                                                     |        |                |                     |                     |                         |                       |        |                 |        |       |      |       |     |                 |        |       |      |       |     |                  |        |       |      |       |     |                |                 |                           |                             |                     |                 |       |     |        |      |                 |       |     |        |      |                  |       |     |        |      |

|                                                                          |                                                                                 |                                                                                     |
|--------------------------------------------------------------------------|---------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Ardent Consulting Engineers                                              |                                                                                 | Page 4                                                                              |
| Suite 9, 10 Churchill Square ...<br>Kings Hill<br>West Malling, ME19 4YU | Bird in Eye Farm, Uckfield<br>SW Source Control Model<br>1 in 100 year + 45% CC |  |
| Date 10/05/2024                                                          | Designed by AW                                                                  |                                                                                     |
| File zONE Z - CAT C TANK C+45...                                         | Checked by DM                                                                   |                                                                                     |
| XP Solutions                                                             |                                                                                 | Source Control 2020.1                                                               |

Cascade Rainfall Details for 2401070-Basin 2.SRCX

|                       |                   |                       |       |
|-----------------------|-------------------|-----------------------|-------|
| Rainfall Model        | FSR               | Winter Storms         | Yes   |
| Return Period (years) | 100               | Cv (Summer)           | 0.750 |
| Region                | England and Wales | Cv (Winter)           | 0.840 |
| M5-60 (mm)            | 20.000            | Shortest Storm (mins) | 15    |
| Ratio R               | 0.348             | Longest Storm (mins)  | 10080 |
| Summer Storms         | Yes               | Climate Change %      | +45   |

Time Area Diagram

Total Area (ha) 0.415

| Time (mins)    | Area | Time (mins)    | Area | Time (mins)    | Area |
|----------------|------|----------------|------|----------------|------|
| From: To: (ha) |      | From: To: (ha) |      | From: To: (ha) |      |
| 0 4 0.138      |      | 4 8 0.138      |      | 8 12 0.138     |      |

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| Ardent Consulting Engineers                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                            |                                                                                 | Page 5                    |                                                                                     |            |           |            |           |           |           |           |       |        |       |        |       |        |                |                            |                 |       |                   |      |            |            |           |                           |             |         |                |     |               |     |                  |        |                                   |     |                                 |      |                |          |            |                |          |            |                           |       |      |           |       |      |            |       |      |                           |   |      |           |            |           |            |           |            |           |            |       |     |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |  |  |       |      |       |      |       |      |  |  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|---------------------------------------------------------------------------------|---------------------------|-------------------------------------------------------------------------------------|------------|-----------|------------|-----------|-----------|-----------|-----------|-------|--------|-------|--------|-------|--------|----------------|----------------------------|-----------------|-------|-------------------|------|------------|------------|-----------|---------------------------|-------------|---------|----------------|-----|---------------|-----|------------------|--------|-----------------------------------|-----|---------------------------------|------|----------------|----------|------------|----------------|----------|------------|---------------------------|-------|------|-----------|-------|------|------------|-------|------|---------------------------|---|------|-----------|------------|-----------|------------|-----------|------------|-----------|------------|-------|-----|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|--|--|-------|------|-------|------|-------|------|--|--|
| Suite 9, 10 Churchill Square ...<br>Kings Hill<br>West Malling, ME19 4YU                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                            | Bird in Eye Farm, Uckfield<br>SW Source Control Model<br>1 in 100 year + 45% CC |                           |  |            |           |            |           |           |           |           |       |        |       |        |       |        |                |                            |                 |       |                   |      |            |            |           |                           |             |         |                |     |               |     |                  |        |                                   |     |                                 |      |                |          |            |                |          |            |                           |       |      |           |       |      |            |       |      |                           |   |      |           |            |           |            |           |            |           |            |       |     |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |  |  |       |      |       |      |       |      |  |  |
| Date 10/05/2024                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                            | Designed by AW                                                                  |                           |                                                                                     |            |           |            |           |           |           |           |       |        |       |        |       |        |                |                            |                 |       |                   |      |            |            |           |                           |             |         |                |     |               |     |                  |        |                                   |     |                                 |      |                |          |            |                |          |            |                           |       |      |           |       |      |            |       |      |                           |   |      |           |            |           |            |           |            |           |            |       |     |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |  |  |       |      |       |      |       |      |  |  |
| File zONE Z - CAT C TANK C+45...                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                            | Checked by DM                                                                   |                           |                                                                                     |            |           |            |           |           |           |           |       |        |       |        |       |        |                |                            |                 |       |                   |      |            |            |           |                           |             |         |                |     |               |     |                  |        |                                   |     |                                 |      |                |          |            |                |          |            |                           |       |      |           |       |      |            |       |      |                           |   |      |           |            |           |            |           |            |           |            |       |     |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |  |  |       |      |       |      |       |      |  |  |
| XP Solutions                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                            |                                                                                 | Source Control 2020.1     |                                                                                     |            |           |            |           |           |           |           |       |        |       |        |       |        |                |                            |                 |       |                   |      |            |            |           |                           |             |         |                |     |               |     |                  |        |                                   |     |                                 |      |                |          |            |                |          |            |                           |       |      |           |       |      |            |       |      |                           |   |      |           |            |           |            |           |            |           |            |       |     |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |  |  |       |      |       |      |       |      |  |  |
| <p style="text-align: center;"><u>Cascade Model Details for 2401070-Basin 2.SRCX</u></p> <p style="text-align: center;">Storage is Online Cover Level (m) 29.000</p> <p style="text-align: center;"><u>Tank or Pond Structure</u></p> <p style="text-align: center;">Invert Level (m) 27.500</p> <table><tr><th>Depth (m)</th><th>Area (m²)</th><th>Depth (m)</th><th>Area (m²)</th><th>Depth (m)</th><th>Area (m²)</th></tr><tr><td>0.000</td><td>1137.0</td><td>1.200</td><td>1868.0</td><td>1.500</td><td>2064.0</td></tr></table> <p style="text-align: center;"><u>Hydro-Brake® Optimum Outflow Control</u></p> <table><tr><td>Unit Reference</td><td>MD-SHE-0248-3400-1200-3400</td></tr><tr><td>Design Head (m)</td><td>1.200</td></tr><tr><td>Design Flow (l/s)</td><td>34.0</td></tr><tr><td>Flush-Flo™</td><td>Calculated</td></tr><tr><td>Objective</td><td>Minimise upstream storage</td></tr><tr><td>Application</td><td>Surface</td></tr><tr><td>Sump Available</td><td>Yes</td></tr><tr><td>Diameter (mm)</td><td>248</td></tr><tr><td>Invert Level (m)</td><td>27.500</td></tr><tr><td>Minimum Outlet Pipe Diameter (mm)</td><td>300</td></tr><tr><td>Suggested Manhole Diameter (mm)</td><td>1800</td></tr></table> <table><tr><th>Control Points</th><th>Head (m)</th><th>Flow (l/s)</th><th>Control Points</th><th>Head (m)</th><th>Flow (l/s)</th></tr><tr><td>Design Point (Calculated)</td><td>1.200</td><td>34.0</td><td>Kick-Flo®</td><td>0.872</td><td>29.2</td></tr><tr><td>Flush-Flo™</td><td>0.420</td><td>34.0</td><td>Mean Flow over Head Range</td><td>-</td><td>28.5</td></tr></table> <p>The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake® Optimum as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated</p> <table><tr><th>Depth (m)</th><th>Flow (l/s)</th><th>Depth (m)</th><th>Flow (l/s)</th><th>Depth (m)</th><th>Flow (l/s)</th><th>Depth (m)</th><th>Flow (l/s)</th></tr><tr><td>0.100</td><td>8.1</td><td>1.200</td><td>34.0</td><td>3.000</td><td>52.9</td><td>7.000</td><td>79.7</td></tr><tr><td>0.200</td><td>25.3</td><td>1.400</td><td>36.6</td><td>3.500</td><td>56.9</td><td>7.500</td><td>82.5</td></tr><tr><td>0.300</td><td>33.3</td><td>1.600</td><td>39.0</td><td>4.000</td><td>60.8</td><td>8.000</td><td>85.1</td></tr><tr><td>0.400</td><td>34.0</td><td>1.800</td><td>41.3</td><td>4.500</td><td>64.3</td><td>8.500</td><td>87.7</td></tr><tr><td>0.500</td><td>33.8</td><td>2.000</td><td>43.5</td><td>5.000</td><td>67.7</td><td>9.000</td><td>90.1</td></tr><tr><td>0.600</td><td>33.3</td><td>2.200</td><td>45.5</td><td>5.500</td><td>70.9</td><td>9.500</td><td>92.5</td></tr><tr><td>0.800</td><td>31.1</td><td>2.400</td><td>47.4</td><td>6.000</td><td>74.0</td><td></td><td></td></tr><tr><td>1.000</td><td>31.2</td><td>2.600</td><td>49.3</td><td>6.500</td><td>76.9</td><td></td><td></td></tr></table> |                            |                                                                                 |                           |                                                                                     |            | Depth (m) | Area (m²)  | Depth (m) | Area (m²) | Depth (m) | Area (m²) | 0.000 | 1137.0 | 1.200 | 1868.0 | 1.500 | 2064.0 | Unit Reference | MD-SHE-0248-3400-1200-3400 | Design Head (m) | 1.200 | Design Flow (l/s) | 34.0 | Flush-Flo™ | Calculated | Objective | Minimise upstream storage | Application | Surface | Sump Available | Yes | Diameter (mm) | 248 | Invert Level (m) | 27.500 | Minimum Outlet Pipe Diameter (mm) | 300 | Suggested Manhole Diameter (mm) | 1800 | Control Points | Head (m) | Flow (l/s) | Control Points | Head (m) | Flow (l/s) | Design Point (Calculated) | 1.200 | 34.0 | Kick-Flo® | 0.872 | 29.2 | Flush-Flo™ | 0.420 | 34.0 | Mean Flow over Head Range | - | 28.5 | Depth (m) | Flow (l/s) | Depth (m) | Flow (l/s) | Depth (m) | Flow (l/s) | Depth (m) | Flow (l/s) | 0.100 | 8.1 | 1.200 | 34.0 | 3.000 | 52.9 | 7.000 | 79.7 | 0.200 | 25.3 | 1.400 | 36.6 | 3.500 | 56.9 | 7.500 | 82.5 | 0.300 | 33.3 | 1.600 | 39.0 | 4.000 | 60.8 | 8.000 | 85.1 | 0.400 | 34.0 | 1.800 | 41.3 | 4.500 | 64.3 | 8.500 | 87.7 | 0.500 | 33.8 | 2.000 | 43.5 | 5.000 | 67.7 | 9.000 | 90.1 | 0.600 | 33.3 | 2.200 | 45.5 | 5.500 | 70.9 | 9.500 | 92.5 | 0.800 | 31.1 | 2.400 | 47.4 | 6.000 | 74.0 |  |  | 1.000 | 31.2 | 2.600 | 49.3 | 6.500 | 76.9 |  |  |
| Depth (m)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Area (m²)                  | Depth (m)                                                                       | Area (m²)                 | Depth (m)                                                                           | Area (m²)  |           |            |           |           |           |           |       |        |       |        |       |        |                |                            |                 |       |                   |      |            |            |           |                           |             |         |                |     |               |     |                  |        |                                   |     |                                 |      |                |          |            |                |          |            |                           |       |      |           |       |      |            |       |      |                           |   |      |           |            |           |            |           |            |           |            |       |     |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |  |  |       |      |       |      |       |      |  |  |
| 0.000                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 1137.0                     | 1.200                                                                           | 1868.0                    | 1.500                                                                               | 2064.0     |           |            |           |           |           |           |       |        |       |        |       |        |                |                            |                 |       |                   |      |            |            |           |                           |             |         |                |     |               |     |                  |        |                                   |     |                                 |      |                |          |            |                |          |            |                           |       |      |           |       |      |            |       |      |                           |   |      |           |            |           |            |           |            |           |            |       |     |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |  |  |       |      |       |      |       |      |  |  |
| Unit Reference                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | MD-SHE-0248-3400-1200-3400 |                                                                                 |                           |                                                                                     |            |           |            |           |           |           |           |       |        |       |        |       |        |                |                            |                 |       |                   |      |            |            |           |                           |             |         |                |     |               |     |                  |        |                                   |     |                                 |      |                |          |            |                |          |            |                           |       |      |           |       |      |            |       |      |                           |   |      |           |            |           |            |           |            |           |            |       |     |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |  |  |       |      |       |      |       |      |  |  |
| Design Head (m)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 1.200                      |                                                                                 |                           |                                                                                     |            |           |            |           |           |           |           |       |        |       |        |       |        |                |                            |                 |       |                   |      |            |            |           |                           |             |         |                |     |               |     |                  |        |                                   |     |                                 |      |                |          |            |                |          |            |                           |       |      |           |       |      |            |       |      |                           |   |      |           |            |           |            |           |            |           |            |       |     |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |  |  |       |      |       |      |       |      |  |  |
| Design Flow (l/s)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 34.0                       |                                                                                 |                           |                                                                                     |            |           |            |           |           |           |           |       |        |       |        |       |        |                |                            |                 |       |                   |      |            |            |           |                           |             |         |                |     |               |     |                  |        |                                   |     |                                 |      |                |          |            |                |          |            |                           |       |      |           |       |      |            |       |      |                           |   |      |           |            |           |            |           |            |           |            |       |     |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |  |  |       |      |       |      |       |      |  |  |
| Flush-Flo™                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Calculated                 |                                                                                 |                           |                                                                                     |            |           |            |           |           |           |           |       |        |       |        |       |        |                |                            |                 |       |                   |      |            |            |           |                           |             |         |                |     |               |     |                  |        |                                   |     |                                 |      |                |          |            |                |          |            |                           |       |      |           |       |      |            |       |      |                           |   |      |           |            |           |            |           |            |           |            |       |     |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |  |  |       |      |       |      |       |      |  |  |
| Objective                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Minimise upstream storage  |                                                                                 |                           |                                                                                     |            |           |            |           |           |           |           |       |        |       |        |       |        |                |                            |                 |       |                   |      |            |            |           |                           |             |         |                |     |               |     |                  |        |                                   |     |                                 |      |                |          |            |                |          |            |                           |       |      |           |       |      |            |       |      |                           |   |      |           |            |           |            |           |            |           |            |       |     |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |  |  |       |      |       |      |       |      |  |  |
| Application                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Surface                    |                                                                                 |                           |                                                                                     |            |           |            |           |           |           |           |       |        |       |        |       |        |                |                            |                 |       |                   |      |            |            |           |                           |             |         |                |     |               |     |                  |        |                                   |     |                                 |      |                |          |            |                |          |            |                           |       |      |           |       |      |            |       |      |                           |   |      |           |            |           |            |           |            |           |            |       |     |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |  |  |       |      |       |      |       |      |  |  |
| Sump Available                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Yes                        |                                                                                 |                           |                                                                                     |            |           |            |           |           |           |           |       |        |       |        |       |        |                |                            |                 |       |                   |      |            |            |           |                           |             |         |                |     |               |     |                  |        |                                   |     |                                 |      |                |          |            |                |          |            |                           |       |      |           |       |      |            |       |      |                           |   |      |           |            |           |            |           |            |           |            |       |     |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |  |  |       |      |       |      |       |      |  |  |
| Diameter (mm)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 248                        |                                                                                 |                           |                                                                                     |            |           |            |           |           |           |           |       |        |       |        |       |        |                |                            |                 |       |                   |      |            |            |           |                           |             |         |                |     |               |     |                  |        |                                   |     |                                 |      |                |          |            |                |          |            |                           |       |      |           |       |      |            |       |      |                           |   |      |           |            |           |            |           |            |           |            |       |     |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |  |  |       |      |       |      |       |      |  |  |
| Invert Level (m)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 27.500                     |                                                                                 |                           |                                                                                     |            |           |            |           |           |           |           |       |        |       |        |       |        |                |                            |                 |       |                   |      |            |            |           |                           |             |         |                |     |               |     |                  |        |                                   |     |                                 |      |                |          |            |                |          |            |                           |       |      |           |       |      |            |       |      |                           |   |      |           |            |           |            |           |            |           |            |       |     |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |  |  |       |      |       |      |       |      |  |  |
| Minimum Outlet Pipe Diameter (mm)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 300                        |                                                                                 |                           |                                                                                     |            |           |            |           |           |           |           |       |        |       |        |       |        |                |                            |                 |       |                   |      |            |            |           |                           |             |         |                |     |               |     |                  |        |                                   |     |                                 |      |                |          |            |                |          |            |                           |       |      |           |       |      |            |       |      |                           |   |      |           |            |           |            |           |            |           |            |       |     |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |  |  |       |      |       |      |       |      |  |  |
| Suggested Manhole Diameter (mm)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 1800                       |                                                                                 |                           |                                                                                     |            |           |            |           |           |           |           |       |        |       |        |       |        |                |                            |                 |       |                   |      |            |            |           |                           |             |         |                |     |               |     |                  |        |                                   |     |                                 |      |                |          |            |                |          |            |                           |       |      |           |       |      |            |       |      |                           |   |      |           |            |           |            |           |            |           |            |       |     |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |  |  |       |      |       |      |       |      |  |  |
| Control Points                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Head (m)                   | Flow (l/s)                                                                      | Control Points            | Head (m)                                                                            | Flow (l/s) |           |            |           |           |           |           |       |        |       |        |       |        |                |                            |                 |       |                   |      |            |            |           |                           |             |         |                |     |               |     |                  |        |                                   |     |                                 |      |                |          |            |                |          |            |                           |       |      |           |       |      |            |       |      |                           |   |      |           |            |           |            |           |            |           |            |       |     |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |  |  |       |      |       |      |       |      |  |  |
| Design Point (Calculated)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 1.200                      | 34.0                                                                            | Kick-Flo®                 | 0.872                                                                               | 29.2       |           |            |           |           |           |           |       |        |       |        |       |        |                |                            |                 |       |                   |      |            |            |           |                           |             |         |                |     |               |     |                  |        |                                   |     |                                 |      |                |          |            |                |          |            |                           |       |      |           |       |      |            |       |      |                           |   |      |           |            |           |            |           |            |           |            |       |     |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |  |  |       |      |       |      |       |      |  |  |
| Flush-Flo™                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 0.420                      | 34.0                                                                            | Mean Flow over Head Range | -                                                                                   | 28.5       |           |            |           |           |           |           |       |        |       |        |       |        |                |                            |                 |       |                   |      |            |            |           |                           |             |         |                |     |               |     |                  |        |                                   |     |                                 |      |                |          |            |                |          |            |                           |       |      |           |       |      |            |       |      |                           |   |      |           |            |           |            |           |            |           |            |       |     |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |  |  |       |      |       |      |       |      |  |  |
| Depth (m)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Flow (l/s)                 | Depth (m)                                                                       | Flow (l/s)                | Depth (m)                                                                           | Flow (l/s) | Depth (m) | Flow (l/s) |           |           |           |           |       |        |       |        |       |        |                |                            |                 |       |                   |      |            |            |           |                           |             |         |                |     |               |     |                  |        |                                   |     |                                 |      |                |          |            |                |          |            |                           |       |      |           |       |      |            |       |      |                           |   |      |           |            |           |            |           |            |           |            |       |     |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |  |  |       |      |       |      |       |      |  |  |
| 0.100                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 8.1                        | 1.200                                                                           | 34.0                      | 3.000                                                                               | 52.9       | 7.000     | 79.7       |           |           |           |           |       |        |       |        |       |        |                |                            |                 |       |                   |      |            |            |           |                           |             |         |                |     |               |     |                  |        |                                   |     |                                 |      |                |          |            |                |          |            |                           |       |      |           |       |      |            |       |      |                           |   |      |           |            |           |            |           |            |           |            |       |     |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |  |  |       |      |       |      |       |      |  |  |
| 0.200                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 25.3                       | 1.400                                                                           | 36.6                      | 3.500                                                                               | 56.9       | 7.500     | 82.5       |           |           |           |           |       |        |       |        |       |        |                |                            |                 |       |                   |      |            |            |           |                           |             |         |                |     |               |     |                  |        |                                   |     |                                 |      |                |          |            |                |          |            |                           |       |      |           |       |      |            |       |      |                           |   |      |           |            |           |            |           |            |           |            |       |     |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |  |  |       |      |       |      |       |      |  |  |
| 0.300                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 33.3                       | 1.600                                                                           | 39.0                      | 4.000                                                                               | 60.8       | 8.000     | 85.1       |           |           |           |           |       |        |       |        |       |        |                |                            |                 |       |                   |      |            |            |           |                           |             |         |                |     |               |     |                  |        |                                   |     |                                 |      |                |          |            |                |          |            |                           |       |      |           |       |      |            |       |      |                           |   |      |           |            |           |            |           |            |           |            |       |     |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |  |  |       |      |       |      |       |      |  |  |
| 0.400                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 34.0                       | 1.800                                                                           | 41.3                      | 4.500                                                                               | 64.3       | 8.500     | 87.7       |           |           |           |           |       |        |       |        |       |        |                |                            |                 |       |                   |      |            |            |           |                           |             |         |                |     |               |     |                  |        |                                   |     |                                 |      |                |          |            |                |          |            |                           |       |      |           |       |      |            |       |      |                           |   |      |           |            |           |            |           |            |           |            |       |     |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |  |  |       |      |       |      |       |      |  |  |
| 0.500                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 33.8                       | 2.000                                                                           | 43.5                      | 5.000                                                                               | 67.7       | 9.000     | 90.1       |           |           |           |           |       |        |       |        |       |        |                |                            |                 |       |                   |      |            |            |           |                           |             |         |                |     |               |     |                  |        |                                   |     |                                 |      |                |          |            |                |          |            |                           |       |      |           |       |      |            |       |      |                           |   |      |           |            |           |            |           |            |           |            |       |     |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |  |  |       |      |       |      |       |      |  |  |
| 0.600                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 33.3                       | 2.200                                                                           | 45.5                      | 5.500                                                                               | 70.9       | 9.500     | 92.5       |           |           |           |           |       |        |       |        |       |        |                |                            |                 |       |                   |      |            |            |           |                           |             |         |                |     |               |     |                  |        |                                   |     |                                 |      |                |          |            |                |          |            |                           |       |      |           |       |      |            |       |      |                           |   |      |           |            |           |            |           |            |           |            |       |     |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |  |  |       |      |       |      |       |      |  |  |
| 0.800                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 31.1                       | 2.400                                                                           | 47.4                      | 6.000                                                                               | 74.0       |           |            |           |           |           |           |       |        |       |        |       |        |                |                            |                 |       |                   |      |            |            |           |                           |             |         |                |     |               |     |                  |        |                                   |     |                                 |      |                |          |            |                |          |            |                           |       |      |           |       |      |            |       |      |                           |   |      |           |            |           |            |           |            |           |            |       |     |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |  |  |       |      |       |      |       |      |  |  |
| 1.000                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 31.2                       | 2.600                                                                           | 49.3                      | 6.500                                                                               | 76.9       |           |            |           |           |           |           |       |        |       |        |       |        |                |                            |                 |       |                   |      |            |            |           |                           |             |         |                |     |               |     |                  |        |                                   |     |                                 |      |                |          |            |                |          |            |                           |       |      |           |       |      |            |       |      |                           |   |      |           |            |           |            |           |            |           |            |       |     |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |  |  |       |      |       |      |       |      |  |  |
| ©1982-2020 Innovyze                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                            |                                                                                 |                           |                                                                                     |            |           |            |           |           |           |           |       |        |       |        |       |        |                |                            |                 |       |                   |      |            |            |           |                           |             |         |                |     |               |     |                  |        |                                   |     |                                 |      |                |          |            |                |          |            |                           |       |      |           |       |      |            |       |      |                           |   |      |           |            |           |            |           |            |           |            |       |     |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |  |  |       |      |       |      |       |      |  |  |

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|--------------------------------------------------------------------------|---------------|---------------------------------------------------------------------------------|-----------------------|------------------|-------------------------------------------------------------------------------------|
| Ardent Consulting Engineers                                              |               |                                                                                 |                       | Page 1           |                                                                                     |
| Suite 9, 10 Churchill Square ...<br>Kings Hill<br>West Malling, ME19 4YU |               | Bird in Eye Farm, Uckfield<br>SW Source Control Model<br>1 in 100 year + 45% CC |                       |                  |  |
| Date 10/05/2024                                                          |               | Designed by AW                                                                  |                       |                  |                                                                                     |
| File zONE Z - CAT C TANK C+45...                                         |               | Checked by DM                                                                   |                       |                  |                                                                                     |
| XP Solutions                                                             |               | Source Control 2020.1                                                           |                       |                  |                                                                                     |
| <u>Cascade Summary of Results for 2401070-Basin 3.SRCX</u>               |               |                                                                                 |                       |                  |                                                                                     |
| Upstream Structures                                                      |               | Outflow To                                                                      |                       | Overflow To      |                                                                                     |
| (None)                                                                   |               | 2401070-Basin 4.SRCX                                                            |                       | (None)           |                                                                                     |
| Storm Event                                                              | Max Level (m) | Max Depth (m)                                                                   | Max Control (l/s)     | Max Volume (m³)  | Status                                                                              |
| 15 min Summer                                                            | 31.401        | 0.401                                                                           | 0.7                   | 107.8            | O K                                                                                 |
| 30 min Summer                                                            | 31.514        | 0.514                                                                           | 0.7                   | 144.7            | O K                                                                                 |
| 60 min Summer                                                            | 31.628        | 0.628                                                                           | 0.8                   | 184.7            | O K                                                                                 |
| 120 min Summer                                                           | 31.737        | 0.737                                                                           | 0.8                   | 226.3            | O K                                                                                 |
| 180 min Summer                                                           | 31.796        | 0.796                                                                           | 0.8                   | 250.0            | O K                                                                                 |
| 240 min Summer                                                           | 31.835        | 0.835                                                                           | 0.9                   | 266.0            | O K                                                                                 |
| 360 min Summer                                                           | 31.890        | 0.890                                                                           | 0.9                   | 289.5            | O K                                                                                 |
| 480 min Summer                                                           | 31.928        | 0.928                                                                           | 0.9                   | 305.9            | O K                                                                                 |
| 600 min Summer                                                           | 31.955        | 0.955                                                                           | 0.9                   | 318.0            | O K                                                                                 |
| 720 min Summer                                                           | 31.976        | 0.976                                                                           | 0.9                   | 327.4            | O K                                                                                 |
| 960 min Summer                                                           | 32.005        | 1.005                                                                           | 0.9                   | 340.8            | O K                                                                                 |
| 1440 min Summer                                                          | 32.035        | 1.035                                                                           | 0.9                   | 355.2            | O K                                                                                 |
| 2160 min Summer                                                          | 32.047        | 1.047                                                                           | 0.9                   | 360.9            | O K                                                                                 |
| 2880 min Summer                                                          | 32.040        | 1.040                                                                           | 0.9                   | 357.5            | O K                                                                                 |
| 4320 min Summer                                                          | 32.015        | 1.015                                                                           | 0.9                   | 345.5            | O K                                                                                 |
| 5760 min Summer                                                          | 31.987        | 0.987                                                                           | 0.9                   | 332.9            | O K                                                                                 |
| Storm Event                                                              | Rain (mm/hr)  | Flooded Volume (m³)                                                             | Discharge Volume (m³) | Time-Peak (mins) |                                                                                     |
| 15 min Summer                                                            | 136.286       | 0.0                                                                             | 60.6                  | 27               |                                                                                     |
| 30 min Summer                                                            | 91.635        | 0.0                                                                             | 56.3                  | 42               |                                                                                     |
| 60 min Summer                                                            | 58.739        | 0.0                                                                             | 118.3                 | 72               |                                                                                     |
| 120 min Summer                                                           | 36.288        | 0.0                                                                             | 123.2                 | 132              |                                                                                     |
| 180 min Summer                                                           | 26.937        | 0.0                                                                             | 128.7                 | 190              |                                                                                     |
| 240 min Summer                                                           | 21.660        | 0.0                                                                             | 132.1                 | 250              |                                                                                     |
| 360 min Summer                                                           | 15.950        | 0.0                                                                             | 136.6                 | 370              |                                                                                     |
| 480 min Summer                                                           | 12.815        | 0.0                                                                             | 139.3                 | 490              |                                                                                     |
| 600 min Summer                                                           | 10.804        | 0.0                                                                             | 141.1                 | 608              |                                                                                     |
| 720 min Summer                                                           | 9.393         | 0.0                                                                             | 142.2                 | 728              |                                                                                     |
| 960 min Summer                                                           | 7.524         | 0.0                                                                             | 143.2                 | 966              |                                                                                     |
| 1440 min Summer                                                          | 5.493         | 0.0                                                                             | 142.5                 | 1444             |                                                                                     |
| 2160 min Summer                                                          | 4.002         | 0.0                                                                             | 280.8                 | 2164             |                                                                                     |
| 2880 min Summer                                                          | 3.192         | 0.0                                                                             | 280.0                 | 2804             |                                                                                     |
| 4320 min Summer                                                          | 2.316         | 0.0                                                                             | 270.3                 | 3464             |                                                                                     |
| 5760 min Summer                                                          | 1.843         | 0.0                                                                             | 513.1                 | 4224             |                                                                                     |
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|--------------------------------------------------------------------------|---------------------|---------------------------------------------------------------------------------|-----------------------------|-------------------------------------------------------------------------------------|--------|
| Ardent Consulting Engineers                                              |                     |                                                                                 |                             | Page 2                                                                              |        |
| Suite 9, 10 Churchill Square ...<br>Kings Hill<br>West Malling, ME19 4YU |                     | Bird in Eye Farm, Uckfield<br>SW Source Control Model<br>1 in 100 year + 45% CC |                             |  |        |
| Date 10/05/2024                                                          |                     | Designed by AW                                                                  |                             |                                                                                     |        |
| File zONE Z - CAT C TANK C+45...                                         |                     | Checked by DM                                                                   |                             |                                                                                     |        |
| XP Solutions                                                             |                     | Source Control 2020.1                                                           |                             |                                                                                     |        |
| <u>Cascade Summary of Results for 2401070-Basin 3.SRCX</u>               |                     |                                                                                 |                             |                                                                                     |        |
| Storm<br>Event                                                           | Max<br>Level<br>(m) | Max<br>Depth<br>(m)                                                             | Max<br>Control<br>(l/s)     | Max<br>Volume<br>(m³)                                                               | Status |
| 7200 min Summer                                                          | 31.963              | 0.963                                                                           | 0.9                         | 321.6                                                                               | O K    |
| 8640 min Summer                                                          | 31.939              | 0.939                                                                           | 0.9                         | 311.1                                                                               | O K    |
| 10080 min Summer                                                         | 31.917              | 0.917                                                                           | 0.9                         | 301.1                                                                               | O K    |
| 15 min Winter                                                            | 31.442              | 0.442                                                                           | 0.7                         | 120.8                                                                               | O K    |
| 30 min Winter                                                            | 31.565              | 0.565                                                                           | 0.7                         | 162.2                                                                               | O K    |
| 60 min Winter                                                            | 31.688              | 0.688                                                                           | 0.8                         | 207.1                                                                               | O K    |
| 120 min Winter                                                           | 31.806              | 0.806                                                                           | 0.8                         | 254.1                                                                               | O K    |
| 180 min Winter                                                           | 31.870              | 0.870                                                                           | 0.9                         | 280.9                                                                               | O K    |
| 240 min Winter                                                           | 31.912              | 0.912                                                                           | 0.9                         | 299.1                                                                               | O K    |
| 360 min Winter                                                           | 31.973              | 0.973                                                                           | 0.9                         | 326.1                                                                               | O K    |
| 480 min Winter                                                           | 32.014              | 1.014                                                                           | 0.9                         | 345.0                                                                               | O K    |
| 600 min Winter                                                           | 32.044              | 1.044                                                                           | 0.9                         | 359.3                                                                               | O K    |
| 720 min Winter                                                           | 32.067              | 1.067                                                                           | 0.9                         | 370.5                                                                               | O K    |
| 960 min Winter                                                           | 32.101              | 1.101                                                                           | 1.0                         | 386.8                                                                               | O K    |
| 1440 min Winter                                                          | 32.138              | 1.138                                                                           | 1.0                         | 405.5                                                                               | O K    |
| 2160 min Winter                                                          | 32.159              | 1.159                                                                           | 1.0                         | 416.1                                                                               | O K    |
| 2880 min Winter                                                          | 32.160              | 1.160                                                                           | 1.0                         | 416.4                                                                               | O K    |
| 4320 min Winter                                                          | 32.134              | 1.134                                                                           | 1.0                         | 403.0                                                                               | O K    |
| 5760 min Winter                                                          | 32.103              | 1.103                                                                           | 1.0                         | 387.7                                                                               | O K    |
| Storm<br>Event                                                           | Rain<br>(mm/hr)     | Flooded<br>Volume<br>(m³)                                                       | Discharge<br>Volume<br>(m³) | Time-Peak<br>(mins)                                                                 |        |
| 7200 min Summer                                                          | 1.545               | 0.0                                                                             | 500.5                       | 5048                                                                                |        |
| 8640 min Summer                                                          | 1.338               | 0.0                                                                             | 489.2                       | 5880                                                                                |        |
| 10080 min Summer                                                         | 1.184               | 0.0                                                                             | 473.5                       | 6672                                                                                |        |
| 15 min Winter                                                            | 136.286             | 0.0                                                                             | 58.4                        | 27                                                                                  |        |
| 30 min Winter                                                            | 91.635              | 0.0                                                                             | 57.3                        | 41                                                                                  |        |
| 60 min Winter                                                            | 58.739              | 0.0                                                                             | 119.8                       | 70                                                                                  |        |
| 120 min Winter                                                           | 36.288              | 0.0                                                                             | 129.4                       | 130                                                                                 |        |
| 180 min Winter                                                           | 26.937              | 0.0                                                                             | 134.9                       | 188                                                                                 |        |
| 240 min Winter                                                           | 21.660              | 0.0                                                                             | 138.3                       | 246                                                                                 |        |
| 360 min Winter                                                           | 15.950              | 0.0                                                                             | 142.7                       | 364                                                                                 |        |
| 480 min Winter                                                           | 12.815              | 0.0                                                                             | 145.3                       | 482                                                                                 |        |
| 600 min Winter                                                           | 10.804              | 0.0                                                                             | 146.9                       | 600                                                                                 |        |
| 720 min Winter                                                           | 9.393               | 0.0                                                                             | 147.9                       | 716                                                                                 |        |
| 960 min Winter                                                           | 7.524               | 0.0                                                                             | 148.6                       | 952                                                                                 |        |
| 1440 min Winter                                                          | 5.493               | 0.0                                                                             | 147.2                       | 1416                                                                                |        |
| 2160 min Winter                                                          | 4.002               | 0.0                                                                             | 293.3                       | 2100                                                                                |        |
| 2880 min Winter                                                          | 3.192               | 0.0                                                                             | 291.5                       | 2768                                                                                |        |
| 4320 min Winter                                                          | 2.316               | 0.0                                                                             | 280.4                       | 3980                                                                                |        |
| 5760 min Winter                                                          | 1.843               | 0.0                                                                             | 535.5                       | 4496                                                                                |        |
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| Ardent Consulting Engineers                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                     |                                                                                 |                             | Page 3                                                                              |        |                |                     |                     |                         |                       |        |                 |        |       |     |       |     |                 |        |       |     |       |     |                  |        |       |     |       |     |                |                 |                           |                             |                     |                 |       |     |       |      |                 |       |     |       |      |                  |       |     |       |      |
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| Suite 9, 10 Churchill Square ...<br>Kings Hill<br>West Malling, ME19 4YU                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                     | Bird in Eye Farm, Uckfield<br>SW Source Control Model<br>1 in 100 year + 45% CC |                             |  |        |                |                     |                     |                         |                       |        |                 |        |       |     |       |     |                 |        |       |     |       |     |                  |        |       |     |       |     |                |                 |                           |                             |                     |                 |       |     |       |      |                 |       |     |       |      |                  |       |     |       |      |
| Date 10/05/2024                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                     | Designed by AW                                                                  |                             |                                                                                     |        |                |                     |                     |                         |                       |        |                 |        |       |     |       |     |                 |        |       |     |       |     |                  |        |       |     |       |     |                |                 |                           |                             |                     |                 |       |     |       |      |                 |       |     |       |      |                  |       |     |       |      |
| File zONE Z - CAT C TANK C+45...                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                     | Checked by DM                                                                   |                             |                                                                                     |        |                |                     |                     |                         |                       |        |                 |        |       |     |       |     |                 |        |       |     |       |     |                  |        |       |     |       |     |                |                 |                           |                             |                     |                 |       |     |       |      |                 |       |     |       |      |                  |       |     |       |      |
| XP Solutions                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                     | Source Control 2020.1                                                           |                             |                                                                                     |        |                |                     |                     |                         |                       |        |                 |        |       |     |       |     |                 |        |       |     |       |     |                  |        |       |     |       |     |                |                 |                           |                             |                     |                 |       |     |       |      |                 |       |     |       |      |                  |       |     |       |      |
| <p style="text-align: center;"><u>Cascade Summary of Results for 2401070-Basin 3.SRCX</u></p> <table><tr><th>Storm<br/>Event</th><th>Max<br/>Level<br/>(m)</th><th>Max<br/>Depth<br/>(m)</th><th>Max<br/>Control<br/>(l/s)</th><th>Max<br/>Volume<br/>(m³)</th><th>Status</th></tr><tr><td>7200 min Winter</td><td>32.072</td><td>1.072</td><td>1.0</td><td>372.8</td><td>O K</td></tr><tr><td>8640 min Winter</td><td>32.041</td><td>1.041</td><td>0.9</td><td>358.0</td><td>O K</td></tr><tr><td>10080 min Winter</td><td>32.010</td><td>1.010</td><td>0.9</td><td>343.5</td><td>O K</td></tr></table><br><table><tr><th>Storm<br/>Event</th><th>Rain<br/>(mm/hr)</th><th>Flooded<br/>Volume<br/>(m³)</th><th>Discharge<br/>Volume<br/>(m³)</th><th>Time-Peak<br/>(mins)</th></tr><tr><td>7200 min Winter</td><td>1.545</td><td>0.0</td><td>530.6</td><td>5408</td></tr><tr><td>8640 min Winter</td><td>1.338</td><td>0.0</td><td>519.8</td><td>6320</td></tr><tr><td>10080 min Winter</td><td>1.184</td><td>0.0</td><td>503.3</td><td>7264</td></tr></table> |                     |                                                                                 |                             |                                                                                     |        | Storm<br>Event | Max<br>Level<br>(m) | Max<br>Depth<br>(m) | Max<br>Control<br>(l/s) | Max<br>Volume<br>(m³) | Status | 7200 min Winter | 32.072 | 1.072 | 1.0 | 372.8 | O K | 8640 min Winter | 32.041 | 1.041 | 0.9 | 358.0 | O K | 10080 min Winter | 32.010 | 1.010 | 0.9 | 343.5 | O K | Storm<br>Event | Rain<br>(mm/hr) | Flooded<br>Volume<br>(m³) | Discharge<br>Volume<br>(m³) | Time-Peak<br>(mins) | 7200 min Winter | 1.545 | 0.0 | 530.6 | 5408 | 8640 min Winter | 1.338 | 0.0 | 519.8 | 6320 | 10080 min Winter | 1.184 | 0.0 | 503.3 | 7264 |
| Storm<br>Event                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Max<br>Level<br>(m) | Max<br>Depth<br>(m)                                                             | Max<br>Control<br>(l/s)     | Max<br>Volume<br>(m³)                                                               | Status |                |                     |                     |                         |                       |        |                 |        |       |     |       |     |                 |        |       |     |       |     |                  |        |       |     |       |     |                |                 |                           |                             |                     |                 |       |     |       |      |                 |       |     |       |      |                  |       |     |       |      |
| 7200 min Winter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 32.072              | 1.072                                                                           | 1.0                         | 372.8                                                                               | O K    |                |                     |                     |                         |                       |        |                 |        |       |     |       |     |                 |        |       |     |       |     |                  |        |       |     |       |     |                |                 |                           |                             |                     |                 |       |     |       |      |                 |       |     |       |      |                  |       |     |       |      |
| 8640 min Winter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 32.041              | 1.041                                                                           | 0.9                         | 358.0                                                                               | O K    |                |                     |                     |                         |                       |        |                 |        |       |     |       |     |                 |        |       |     |       |     |                  |        |       |     |       |     |                |                 |                           |                             |                     |                 |       |     |       |      |                 |       |     |       |      |                  |       |     |       |      |
| 10080 min Winter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 32.010              | 1.010                                                                           | 0.9                         | 343.5                                                                               | O K    |                |                     |                     |                         |                       |        |                 |        |       |     |       |     |                 |        |       |     |       |     |                  |        |       |     |       |     |                |                 |                           |                             |                     |                 |       |     |       |      |                 |       |     |       |      |                  |       |     |       |      |
| Storm<br>Event                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Rain<br>(mm/hr)     | Flooded<br>Volume<br>(m³)                                                       | Discharge<br>Volume<br>(m³) | Time-Peak<br>(mins)                                                                 |        |                |                     |                     |                         |                       |        |                 |        |       |     |       |     |                 |        |       |     |       |     |                  |        |       |     |       |     |                |                 |                           |                             |                     |                 |       |     |       |      |                 |       |     |       |      |                  |       |     |       |      |
| 7200 min Winter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 1.545               | 0.0                                                                             | 530.6                       | 5408                                                                                |        |                |                     |                     |                         |                       |        |                 |        |       |     |       |     |                 |        |       |     |       |     |                  |        |       |     |       |     |                |                 |                           |                             |                     |                 |       |     |       |      |                 |       |     |       |      |                  |       |     |       |      |
| 8640 min Winter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 1.338               | 0.0                                                                             | 519.8                       | 6320                                                                                |        |                |                     |                     |                         |                       |        |                 |        |       |     |       |     |                 |        |       |     |       |     |                  |        |       |     |       |     |                |                 |                           |                             |                     |                 |       |     |       |      |                 |       |     |       |      |                  |       |     |       |      |
| 10080 min Winter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 1.184               | 0.0                                                                             | 503.3                       | 7264                                                                                |        |                |                     |                     |                         |                       |        |                 |        |       |     |       |     |                 |        |       |     |       |     |                  |        |       |     |       |     |                |                 |                           |                             |                     |                 |       |     |       |      |                 |       |     |       |      |                  |       |     |       |      |
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|                                                                          |                                                                                 |                                                                                     |
|--------------------------------------------------------------------------|---------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Ardent Consulting Engineers                                              |                                                                                 | Page 4                                                                              |
| Suite 9, 10 Churchill Square ...<br>Kings Hill<br>West Malling, ME19 4YU | Bird in Eye Farm, Uckfield<br>SW Source Control Model<br>1 in 100 year + 45% CC |  |
| Date 10/05/2024                                                          | Designed by AW                                                                  |                                                                                     |
| File zONE Z - CAT C TANK C+45...                                         | Checked by DM                                                                   |                                                                                     |
| XP Solutions                                                             |                                                                                 | Source Control 2020.1                                                               |

Cascade Rainfall Details for 2401070-Basin 3.SRCX

|                       |                   |                       |       |
|-----------------------|-------------------|-----------------------|-------|
| Rainfall Model        | FSR               | Winter Storms         | Yes   |
| Return Period (years) | 100               | Cv (Summer)           | 0.750 |
| Region                | England and Wales | Cv (Winter)           | 0.840 |
| M5-60 (mm)            | 20.000            | Shortest Storm (mins) | 15    |
| Ratio R               | 0.348             | Longest Storm (mins)  | 10080 |
| Summer Storms         | Yes               | Climate Change %      | +45   |

Time Area Diagram

Total Area (ha) 0.425

| Time (mins)    | Area | Time (mins)    | Area | Time (mins)    | Area |
|----------------|------|----------------|------|----------------|------|
| From: To: (ha) |      | From: To: (ha) |      | From: To: (ha) |      |
| 0 4 0.142      |      | 4 8 0.142      |      | 8 12 0.142     |      |

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| Ardent Consulting Engineers                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                            |                                                                                 | Page 5                    |                                                                                     |                        |           |                        |           |                        |           |                        |       |       |       |       |       |       |                |                            |                 |       |                   |     |            |            |           |                           |             |         |                |     |               |    |                  |        |                                   |    |                                 |      |                |          |            |                |          |            |                           |       |     |           |       |     |            |       |     |                           |   |     |           |            |           |            |           |            |           |            |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |  |  |       |     |       |     |       |     |  |  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|---------------------------------------------------------------------------------|---------------------------|-------------------------------------------------------------------------------------|------------------------|-----------|------------------------|-----------|------------------------|-----------|------------------------|-------|-------|-------|-------|-------|-------|----------------|----------------------------|-----------------|-------|-------------------|-----|------------|------------|-----------|---------------------------|-------------|---------|----------------|-----|---------------|----|------------------|--------|-----------------------------------|----|---------------------------------|------|----------------|----------|------------|----------------|----------|------------|---------------------------|-------|-----|-----------|-------|-----|------------|-------|-----|---------------------------|---|-----|-----------|------------|-----------|------------|-----------|------------|-----------|------------|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|--|--|-------|-----|-------|-----|-------|-----|--|--|
| Suite 9, 10 Churchill Square ...<br>Kings Hill<br>West Malling, ME19 4YU                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                            | Bird in Eye Farm, Uckfield<br>SW Source Control Model<br>1 in 100 year + 45% CC |                           |  |                        |           |                        |           |                        |           |                        |       |       |       |       |       |       |                |                            |                 |       |                   |     |            |            |           |                           |             |         |                |     |               |    |                  |        |                                   |    |                                 |      |                |          |            |                |          |            |                           |       |     |           |       |     |            |       |     |                           |   |     |           |            |           |            |           |            |           |            |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |  |  |       |     |       |     |       |     |  |  |
| Date 10/05/2024                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                            | Designed by AW                                                                  |                           |                                                                                     |                        |           |                        |           |                        |           |                        |       |       |       |       |       |       |                |                            |                 |       |                   |     |            |            |           |                           |             |         |                |     |               |    |                  |        |                                   |    |                                 |      |                |          |            |                |          |            |                           |       |     |           |       |     |            |       |     |                           |   |     |           |            |           |            |           |            |           |            |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |  |  |       |     |       |     |       |     |  |  |
| File zONE Z - CAT C TANK C+45...                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                            | Checked by DM                                                                   |                           |                                                                                     |                        |           |                        |           |                        |           |                        |       |       |       |       |       |       |                |                            |                 |       |                   |     |            |            |           |                           |             |         |                |     |               |    |                  |        |                                   |    |                                 |      |                |          |            |                |          |            |                           |       |     |           |       |     |            |       |     |                           |   |     |           |            |           |            |           |            |           |            |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |  |  |       |     |       |     |       |     |  |  |
| XP Solutions                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                            |                                                                                 | Source Control 2020.1     |                                                                                     |                        |           |                        |           |                        |           |                        |       |       |       |       |       |       |                |                            |                 |       |                   |     |            |            |           |                           |             |         |                |     |               |    |                  |        |                                   |    |                                 |      |                |          |            |                |          |            |                           |       |     |           |       |     |            |       |     |                           |   |     |           |            |           |            |           |            |           |            |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |  |  |       |     |       |     |       |     |  |  |
| <p style="text-align: center;"><u>Cascade Model Details for 2401070-Basin 3.SRCX</u></p> <p style="text-align: center;">Storage is Online Cover Level (m) 32.500</p> <p style="text-align: center;"><u>Tank or Pond Structure</u></p> <p style="text-align: center;">Invert Level (m) 31.000</p> <table><tr><th>Depth (m)</th><th>Area (m<sup>2</sup>)</th><th>Depth (m)</th><th>Area (m<sup>2</sup>)</th><th>Depth (m)</th><th>Area (m<sup>2</sup>)</th></tr><tr><td>0.000</td><td>228.0</td><td>1.200</td><td>520.0</td><td>1.500</td><td>606.0</td></tr></table> <p style="text-align: center;"><u>Hydro-Brake® Optimum Outflow Control</u></p> <table><tr><td>Unit Reference</td><td>MD-SHE-0045-1000-1200-1000</td></tr><tr><td>Design Head (m)</td><td>1.200</td></tr><tr><td>Design Flow (l/s)</td><td>1.0</td></tr><tr><td>Flush-Flo™</td><td>Calculated</td></tr><tr><td>Objective</td><td>Minimise upstream storage</td></tr><tr><td>Application</td><td>Surface</td></tr><tr><td>Sump Available</td><td>Yes</td></tr><tr><td>Diameter (mm)</td><td>45</td></tr><tr><td>Invert Level (m)</td><td>31.000</td></tr><tr><td>Minimum Outlet Pipe Diameter (mm)</td><td>75</td></tr><tr><td>Suggested Manhole Diameter (mm)</td><td>1200</td></tr></table> <table><tr><th>Control Points</th><th>Head (m)</th><th>Flow (l/s)</th><th>Control Points</th><th>Head (m)</th><th>Flow (l/s)</th></tr><tr><td>Design Point (Calculated)</td><td>1.200</td><td>1.0</td><td>Kick-Flo®</td><td>0.398</td><td>0.6</td></tr><tr><td>Flush-Flo™</td><td>0.196</td><td>0.7</td><td>Mean Flow over Head Range</td><td>-</td><td>0.8</td></tr></table> <p>The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake® Optimum as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated</p> <table><tr><th>Depth (m)</th><th>Flow (l/s)</th><th>Depth (m)</th><th>Flow (l/s)</th><th>Depth (m)</th><th>Flow (l/s)</th><th>Depth (m)</th><th>Flow (l/s)</th></tr><tr><td>0.100</td><td>0.7</td><td>1.200</td><td>1.0</td><td>3.000</td><td>1.5</td><td>7.000</td><td>2.2</td></tr><tr><td>0.200</td><td>0.7</td><td>1.400</td><td>1.1</td><td>3.500</td><td>1.6</td><td>7.500</td><td>2.3</td></tr><tr><td>0.300</td><td>0.7</td><td>1.600</td><td>1.1</td><td>4.000</td><td>1.7</td><td>8.000</td><td>2.4</td></tr><tr><td>0.400</td><td>0.6</td><td>1.800</td><td>1.2</td><td>4.500</td><td>1.8</td><td>8.500</td><td>2.4</td></tr><tr><td>0.500</td><td>0.7</td><td>2.000</td><td>1.3</td><td>5.000</td><td>1.9</td><td>9.000</td><td>2.5</td></tr><tr><td>0.600</td><td>0.7</td><td>2.200</td><td>1.3</td><td>5.500</td><td>2.0</td><td>9.500</td><td>2.6</td></tr><tr><td>0.800</td><td>0.8</td><td>2.400</td><td>1.4</td><td>6.000</td><td>2.1</td><td></td><td></td></tr><tr><td>1.000</td><td>0.9</td><td>2.600</td><td>1.4</td><td>6.500</td><td>2.2</td><td></td><td></td></tr></table> |                            |                                                                                 |                           |                                                                                     |                        | Depth (m) | Area (m <sup>2</sup> ) | Depth (m) | Area (m <sup>2</sup> ) | Depth (m) | Area (m <sup>2</sup> ) | 0.000 | 228.0 | 1.200 | 520.0 | 1.500 | 606.0 | Unit Reference | MD-SHE-0045-1000-1200-1000 | Design Head (m) | 1.200 | Design Flow (l/s) | 1.0 | Flush-Flo™ | Calculated | Objective | Minimise upstream storage | Application | Surface | Sump Available | Yes | Diameter (mm) | 45 | Invert Level (m) | 31.000 | Minimum Outlet Pipe Diameter (mm) | 75 | Suggested Manhole Diameter (mm) | 1200 | Control Points | Head (m) | Flow (l/s) | Control Points | Head (m) | Flow (l/s) | Design Point (Calculated) | 1.200 | 1.0 | Kick-Flo® | 0.398 | 0.6 | Flush-Flo™ | 0.196 | 0.7 | Mean Flow over Head Range | - | 0.8 | Depth (m) | Flow (l/s) | Depth (m) | Flow (l/s) | Depth (m) | Flow (l/s) | Depth (m) | Flow (l/s) | 0.100 | 0.7 | 1.200 | 1.0 | 3.000 | 1.5 | 7.000 | 2.2 | 0.200 | 0.7 | 1.400 | 1.1 | 3.500 | 1.6 | 7.500 | 2.3 | 0.300 | 0.7 | 1.600 | 1.1 | 4.000 | 1.7 | 8.000 | 2.4 | 0.400 | 0.6 | 1.800 | 1.2 | 4.500 | 1.8 | 8.500 | 2.4 | 0.500 | 0.7 | 2.000 | 1.3 | 5.000 | 1.9 | 9.000 | 2.5 | 0.600 | 0.7 | 2.200 | 1.3 | 5.500 | 2.0 | 9.500 | 2.6 | 0.800 | 0.8 | 2.400 | 1.4 | 6.000 | 2.1 |  |  | 1.000 | 0.9 | 2.600 | 1.4 | 6.500 | 2.2 |  |  |
| Depth (m)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Area (m <sup>2</sup> )     | Depth (m)                                                                       | Area (m <sup>2</sup> )    | Depth (m)                                                                           | Area (m <sup>2</sup> ) |           |                        |           |                        |           |                        |       |       |       |       |       |       |                |                            |                 |       |                   |     |            |            |           |                           |             |         |                |     |               |    |                  |        |                                   |    |                                 |      |                |          |            |                |          |            |                           |       |     |           |       |     |            |       |     |                           |   |     |           |            |           |            |           |            |           |            |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |  |  |       |     |       |     |       |     |  |  |
| 0.000                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 228.0                      | 1.200                                                                           | 520.0                     | 1.500                                                                               | 606.0                  |           |                        |           |                        |           |                        |       |       |       |       |       |       |                |                            |                 |       |                   |     |            |            |           |                           |             |         |                |     |               |    |                  |        |                                   |    |                                 |      |                |          |            |                |          |            |                           |       |     |           |       |     |            |       |     |                           |   |     |           |            |           |            |           |            |           |            |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |  |  |       |     |       |     |       |     |  |  |
| Unit Reference                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | MD-SHE-0045-1000-1200-1000 |                                                                                 |                           |                                                                                     |                        |           |                        |           |                        |           |                        |       |       |       |       |       |       |                |                            |                 |       |                   |     |            |            |           |                           |             |         |                |     |               |    |                  |        |                                   |    |                                 |      |                |          |            |                |          |            |                           |       |     |           |       |     |            |       |     |                           |   |     |           |            |           |            |           |            |           |            |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |  |  |       |     |       |     |       |     |  |  |
| Design Head (m)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 1.200                      |                                                                                 |                           |                                                                                     |                        |           |                        |           |                        |           |                        |       |       |       |       |       |       |                |                            |                 |       |                   |     |            |            |           |                           |             |         |                |     |               |    |                  |        |                                   |    |                                 |      |                |          |            |                |          |            |                           |       |     |           |       |     |            |       |     |                           |   |     |           |            |           |            |           |            |           |            |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |  |  |       |     |       |     |       |     |  |  |
| Design Flow (l/s)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 1.0                        |                                                                                 |                           |                                                                                     |                        |           |                        |           |                        |           |                        |       |       |       |       |       |       |                |                            |                 |       |                   |     |            |            |           |                           |             |         |                |     |               |    |                  |        |                                   |    |                                 |      |                |          |            |                |          |            |                           |       |     |           |       |     |            |       |     |                           |   |     |           |            |           |            |           |            |           |            |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |  |  |       |     |       |     |       |     |  |  |
| Flush-Flo™                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Calculated                 |                                                                                 |                           |                                                                                     |                        |           |                        |           |                        |           |                        |       |       |       |       |       |       |                |                            |                 |       |                   |     |            |            |           |                           |             |         |                |     |               |    |                  |        |                                   |    |                                 |      |                |          |            |                |          |            |                           |       |     |           |       |     |            |       |     |                           |   |     |           |            |           |            |           |            |           |            |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |  |  |       |     |       |     |       |     |  |  |
| Objective                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Minimise upstream storage  |                                                                                 |                           |                                                                                     |                        |           |                        |           |                        |           |                        |       |       |       |       |       |       |                |                            |                 |       |                   |     |            |            |           |                           |             |         |                |     |               |    |                  |        |                                   |    |                                 |      |                |          |            |                |          |            |                           |       |     |           |       |     |            |       |     |                           |   |     |           |            |           |            |           |            |           |            |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |  |  |       |     |       |     |       |     |  |  |
| Application                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Surface                    |                                                                                 |                           |                                                                                     |                        |           |                        |           |                        |           |                        |       |       |       |       |       |       |                |                            |                 |       |                   |     |            |            |           |                           |             |         |                |     |               |    |                  |        |                                   |    |                                 |      |                |          |            |                |          |            |                           |       |     |           |       |     |            |       |     |                           |   |     |           |            |           |            |           |            |           |            |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |  |  |       |     |       |     |       |     |  |  |
| Sump Available                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Yes                        |                                                                                 |                           |                                                                                     |                        |           |                        |           |                        |           |                        |       |       |       |       |       |       |                |                            |                 |       |                   |     |            |            |           |                           |             |         |                |     |               |    |                  |        |                                   |    |                                 |      |                |          |            |                |          |            |                           |       |     |           |       |     |            |       |     |                           |   |     |           |            |           |            |           |            |           |            |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |  |  |       |     |       |     |       |     |  |  |
| Diameter (mm)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 45                         |                                                                                 |                           |                                                                                     |                        |           |                        |           |                        |           |                        |       |       |       |       |       |       |                |                            |                 |       |                   |     |            |            |           |                           |             |         |                |     |               |    |                  |        |                                   |    |                                 |      |                |          |            |                |          |            |                           |       |     |           |       |     |            |       |     |                           |   |     |           |            |           |            |           |            |           |            |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |  |  |       |     |       |     |       |     |  |  |
| Invert Level (m)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 31.000                     |                                                                                 |                           |                                                                                     |                        |           |                        |           |                        |           |                        |       |       |       |       |       |       |                |                            |                 |       |                   |     |            |            |           |                           |             |         |                |     |               |    |                  |        |                                   |    |                                 |      |                |          |            |                |          |            |                           |       |     |           |       |     |            |       |     |                           |   |     |           |            |           |            |           |            |           |            |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |  |  |       |     |       |     |       |     |  |  |
| Minimum Outlet Pipe Diameter (mm)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 75                         |                                                                                 |                           |                                                                                     |                        |           |                        |           |                        |           |                        |       |       |       |       |       |       |                |                            |                 |       |                   |     |            |            |           |                           |             |         |                |     |               |    |                  |        |                                   |    |                                 |      |                |          |            |                |          |            |                           |       |     |           |       |     |            |       |     |                           |   |     |           |            |           |            |           |            |           |            |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |  |  |       |     |       |     |       |     |  |  |
| Suggested Manhole Diameter (mm)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 1200                       |                                                                                 |                           |                                                                                     |                        |           |                        |           |                        |           |                        |       |       |       |       |       |       |                |                            |                 |       |                   |     |            |            |           |                           |             |         |                |     |               |    |                  |        |                                   |    |                                 |      |                |          |            |                |          |            |                           |       |     |           |       |     |            |       |     |                           |   |     |           |            |           |            |           |            |           |            |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |  |  |       |     |       |     |       |     |  |  |
| Control Points                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Head (m)                   | Flow (l/s)                                                                      | Control Points            | Head (m)                                                                            | Flow (l/s)             |           |                        |           |                        |           |                        |       |       |       |       |       |       |                |                            |                 |       |                   |     |            |            |           |                           |             |         |                |     |               |    |                  |        |                                   |    |                                 |      |                |          |            |                |          |            |                           |       |     |           |       |     |            |       |     |                           |   |     |           |            |           |            |           |            |           |            |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |  |  |       |     |       |     |       |     |  |  |
| Design Point (Calculated)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 1.200                      | 1.0                                                                             | Kick-Flo®                 | 0.398                                                                               | 0.6                    |           |                        |           |                        |           |                        |       |       |       |       |       |       |                |                            |                 |       |                   |     |            |            |           |                           |             |         |                |     |               |    |                  |        |                                   |    |                                 |      |                |          |            |                |          |            |                           |       |     |           |       |     |            |       |     |                           |   |     |           |            |           |            |           |            |           |            |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |  |  |       |     |       |     |       |     |  |  |
| Flush-Flo™                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 0.196                      | 0.7                                                                             | Mean Flow over Head Range | -                                                                                   | 0.8                    |           |                        |           |                        |           |                        |       |       |       |       |       |       |                |                            |                 |       |                   |     |            |            |           |                           |             |         |                |     |               |    |                  |        |                                   |    |                                 |      |                |          |            |                |          |            |                           |       |     |           |       |     |            |       |     |                           |   |     |           |            |           |            |           |            |           |            |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |  |  |       |     |       |     |       |     |  |  |
| Depth (m)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Flow (l/s)                 | Depth (m)                                                                       | Flow (l/s)                | Depth (m)                                                                           | Flow (l/s)             | Depth (m) | Flow (l/s)             |           |                        |           |                        |       |       |       |       |       |       |                |                            |                 |       |                   |     |            |            |           |                           |             |         |                |     |               |    |                  |        |                                   |    |                                 |      |                |          |            |                |          |            |                           |       |     |           |       |     |            |       |     |                           |   |     |           |            |           |            |           |            |           |            |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |  |  |       |     |       |     |       |     |  |  |
| 0.100                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 0.7                        | 1.200                                                                           | 1.0                       | 3.000                                                                               | 1.5                    | 7.000     | 2.2                    |           |                        |           |                        |       |       |       |       |       |       |                |                            |                 |       |                   |     |            |            |           |                           |             |         |                |     |               |    |                  |        |                                   |    |                                 |      |                |          |            |                |          |            |                           |       |     |           |       |     |            |       |     |                           |   |     |           |            |           |            |           |            |           |            |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |  |  |       |     |       |     |       |     |  |  |
| 0.200                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 0.7                        | 1.400                                                                           | 1.1                       | 3.500                                                                               | 1.6                    | 7.500     | 2.3                    |           |                        |           |                        |       |       |       |       |       |       |                |                            |                 |       |                   |     |            |            |           |                           |             |         |                |     |               |    |                  |        |                                   |    |                                 |      |                |          |            |                |          |            |                           |       |     |           |       |     |            |       |     |                           |   |     |           |            |           |            |           |            |           |            |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |  |  |       |     |       |     |       |     |  |  |
| 0.300                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 0.7                        | 1.600                                                                           | 1.1                       | 4.000                                                                               | 1.7                    | 8.000     | 2.4                    |           |                        |           |                        |       |       |       |       |       |       |                |                            |                 |       |                   |     |            |            |           |                           |             |         |                |     |               |    |                  |        |                                   |    |                                 |      |                |          |            |                |          |            |                           |       |     |           |       |     |            |       |     |                           |   |     |           |            |           |            |           |            |           |            |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |  |  |       |     |       |     |       |     |  |  |
| 0.400                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 0.6                        | 1.800                                                                           | 1.2                       | 4.500                                                                               | 1.8                    | 8.500     | 2.4                    |           |                        |           |                        |       |       |       |       |       |       |                |                            |                 |       |                   |     |            |            |           |                           |             |         |                |     |               |    |                  |        |                                   |    |                                 |      |                |          |            |                |          |            |                           |       |     |           |       |     |            |       |     |                           |   |     |           |            |           |            |           |            |           |            |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |  |  |       |     |       |     |       |     |  |  |
| 0.500                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 0.7                        | 2.000                                                                           | 1.3                       | 5.000                                                                               | 1.9                    | 9.000     | 2.5                    |           |                        |           |                        |       |       |       |       |       |       |                |                            |                 |       |                   |     |            |            |           |                           |             |         |                |     |               |    |                  |        |                                   |    |                                 |      |                |          |            |                |          |            |                           |       |     |           |       |     |            |       |     |                           |   |     |           |            |           |            |           |            |           |            |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |  |  |       |     |       |     |       |     |  |  |
| 0.600                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 0.7                        | 2.200                                                                           | 1.3                       | 5.500                                                                               | 2.0                    | 9.500     | 2.6                    |           |                        |           |                        |       |       |       |       |       |       |                |                            |                 |       |                   |     |            |            |           |                           |             |         |                |     |               |    |                  |        |                                   |    |                                 |      |                |          |            |                |          |            |                           |       |     |           |       |     |            |       |     |                           |   |     |           |            |           |            |           |            |           |            |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |  |  |       |     |       |     |       |     |  |  |
| 0.800                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 0.8                        | 2.400                                                                           | 1.4                       | 6.000                                                                               | 2.1                    |           |                        |           |                        |           |                        |       |       |       |       |       |       |                |                            |                 |       |                   |     |            |            |           |                           |             |         |                |     |               |    |                  |        |                                   |    |                                 |      |                |          |            |                |          |            |                           |       |     |           |       |     |            |       |     |                           |   |     |           |            |           |            |           |            |           |            |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |  |  |       |     |       |     |       |     |  |  |
| 1.000                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 0.9                        | 2.600                                                                           | 1.4                       | 6.500                                                                               | 2.2                    |           |                        |           |                        |           |                        |       |       |       |       |       |       |                |                            |                 |       |                   |     |            |            |           |                           |             |         |                |     |               |    |                  |        |                                   |    |                                 |      |                |          |            |                |          |            |                           |       |     |           |       |     |            |       |     |                           |   |     |           |            |           |            |           |            |           |            |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |  |  |       |     |       |     |       |     |  |  |
| ©1982-2020 Innovyze                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                            |                                                                                 |                           |                                                                                     |                        |           |                        |           |                        |           |                        |       |       |       |       |       |       |                |                            |                 |       |                   |     |            |            |           |                           |             |         |                |     |               |    |                  |        |                                   |    |                                 |      |                |          |            |                |          |            |                           |       |     |           |       |     |            |       |     |                           |   |     |           |            |           |            |           |            |           |            |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |  |  |       |     |       |     |       |     |  |  |

|                                                                          |               |                                                                                 |                       |                                                                                     |        |
|--------------------------------------------------------------------------|---------------|---------------------------------------------------------------------------------|-----------------------|-------------------------------------------------------------------------------------|--------|
| Ardent Consulting Engineers                                              |               |                                                                                 |                       | Page 1                                                                              |        |
| Suite 9, 10 Churchill Square ...<br>Kings Hill<br>West Malling, ME19 4YU |               | Bird in Eye Farm, Uckfield<br>SW Source Control Model<br>1 in 100 year + 45% CC |                       |  |        |
| Date 10/05/2024                                                          |               | Designed by AW                                                                  |                       |                                                                                     |        |
| File zONE Z - CAT C TANK C+45...                                         |               | Checked by DM                                                                   |                       |                                                                                     |        |
| XP Solutions                                                             |               | Source Control 2020.1                                                           |                       |                                                                                     |        |
| <div>Cascade Summary of Results for 2401070-Basin 4.SRCX</div>           |               |                                                                                 |                       |                                                                                     |        |
| Upstream Structures                                                      |               | Outflow To Overflow To                                                          |                       |                                                                                     |        |
| 2401070-Basin 2.SRCX                                                     |               | (None)                                                                          |                       | (None)                                                                              |        |
| 2401070-Basin 1.SRCX                                                     |               |                                                                                 |                       |                                                                                     |        |
| 2401070-Basin 3.SRCX                                                     |               |                                                                                 |                       |                                                                                     |        |
| Storm Event                                                              | Max Level (m) | Max Depth (m)                                                                   | Max Control (l/s)     | Max Volume (m³)                                                                     | Status |
| 15 min Summer                                                            | 22.858        | 0.358                                                                           | 31.3                  | 92.6                                                                                | O K    |
| 30 min Summer                                                            | 22.967        | 0.467                                                                           | 31.4                  | 127.3                                                                               | O K    |
| 60 min Summer                                                            | 23.082        | 0.582                                                                           | 31.4                  | 167.0                                                                               | O K    |
| 120 min Summer                                                           | 23.193        | 0.693                                                                           | 31.4                  | 209.0                                                                               | O K    |
| 180 min Summer                                                           | 23.237        | 0.737                                                                           | 31.4                  | 226.7                                                                               | O K    |
| 240 min Summer                                                           | 23.245        | 0.745                                                                           | 31.4                  | 229.7                                                                               | O K    |
| 360 min Summer                                                           | 23.186        | 0.686                                                                           | 31.4                  | 206.3                                                                               | O K    |
| 480 min Summer                                                           | 23.147        | 0.647                                                                           | 31.4                  | 191.1                                                                               | O K    |
| 600 min Summer                                                           | 23.148        | 0.648                                                                           | 31.4                  | 191.7                                                                               | O K    |
| 720 min Summer                                                           | 23.159        | 0.659                                                                           | 31.4                  | 195.9                                                                               | O K    |
| 960 min Summer                                                           | 23.197        | 0.697                                                                           | 31.4                  | 210.7                                                                               | O K    |
| 1440 min Summer                                                          | 23.234        | 0.734                                                                           | 31.4                  | 225.5                                                                               | O K    |
| 2160 min Summer                                                          | 23.216        | 0.716                                                                           | 31.4                  | 218.1                                                                               | O K    |
| 2880 min Summer                                                          | 23.248        | 0.748                                                                           | 31.4                  | 230.9                                                                               | O K    |
| 4320 min Summer                                                          | 23.558        | 1.058                                                                           | 31.4                  | 373.2                                                                               | O K    |
| Storm Event                                                              | Rain (mm/hr)  | Flooded Volume (m³)                                                             | Discharge Volume (m³) | Time-Peak (mins)                                                                    |        |
| 15 min Summer                                                            | 136.286       | 0.0                                                                             | 920.1                 | 309                                                                                 |        |
| 30 min Summer                                                            | 91.635        | 0.0                                                                             | 1225.2                | 473                                                                                 |        |
| 60 min Summer                                                            | 58.739        | 0.0                                                                             | 1659.2                | 658                                                                                 |        |
| 120 min Summer                                                           | 36.288        | 0.0                                                                             | 2032.8                | 874                                                                                 |        |
| 180 min Summer                                                           | 26.937        | 0.0                                                                             | 2257.0                | 1014                                                                                |        |
| 240 min Summer                                                           | 21.660        | 0.0                                                                             | 2415.1                | 1118                                                                                |        |
| 360 min Summer                                                           | 15.950        | 0.0                                                                             | 2659.6                | 1292                                                                                |        |
| 480 min Summer                                                           | 12.815        | 0.0                                                                             | 2842.5                | 1430                                                                                |        |
| 600 min Summer                                                           | 10.804        | 0.0                                                                             | 2990.1                | 1542                                                                                |        |
| 720 min Summer                                                           | 9.393         | 0.0                                                                             | 3114.1                | 1640                                                                                |        |
| 960 min Summer                                                           | 7.524         | 0.0                                                                             | 3316.1                | 1810                                                                                |        |
| 1440 min Summer                                                          | 5.493         | 0.0                                                                             | 3609.9                | 2106                                                                                |        |
| 2160 min Summer                                                          | 4.002         | 0.0                                                                             | 4107.5                | 2500                                                                                |        |
| 2880 min Summer                                                          | 3.192         | 0.0                                                                             | 4347.6                | 2828                                                                                |        |
| 4320 min Summer                                                          | 2.316         | 0.0                                                                             | 4684.9                | 3300                                                                                |        |
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| Ardent Consulting Engineers                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                     |                                                                                 |                             | Page 2                                                                              |        |  |                |                     |                           |                             |                       |                 |                 |        |        |      |                 |       |                 |        |       |                 |       |     |                 |        |                  |       |       |        |                  |               |         |      |        |     |               |        |       |        |       |               |               |        |        |      |                |        |               |        |       |                |        |     |                |        |                |        |       |        |                |                |        |      |        |      |                |        |       |        |       |                |                |        |        |      |                |       |                |        |       |                |       |     |                |        |                 |       |       |        |                |                 |       |      |        |      |                 |        |       |        |       |                 |                 |        |        |      |       |     |                 |        |       |      |       |     |                 |        |       |      |       |     |                 |        |       |      |       |     |
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| Suite 9, 10 Churchill Square ...<br>Kings Hill<br>West Malling, ME19 4YU                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                     | Bird in Eye Farm, Uckfield<br>SW Source Control Model<br>1 in 100 year + 45% CC |                             |  |        |  |                |                     |                           |                             |                       |                 |                 |        |        |      |                 |       |                 |        |       |                 |       |     |                 |        |                  |       |       |        |                  |               |         |      |        |     |               |        |       |        |       |               |               |        |        |      |                |        |               |        |       |                |        |     |                |        |                |        |       |        |                |                |        |      |        |      |                |        |       |        |       |                |                |        |        |      |                |       |                |        |       |                |       |     |                |        |                 |       |       |        |                |                 |       |      |        |      |                 |        |       |        |       |                 |                 |        |        |      |       |     |                 |        |       |      |       |     |                 |        |       |      |       |     |                 |        |       |      |       |     |
| Date 10/05/2024<br>File zONE Z - CAT C TANK C+45...                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                     | Designed by AW<br>Checked by DM                                                 |                             |                                                                                     |        |  |                |                     |                           |                             |                       |                 |                 |        |        |      |                 |       |                 |        |       |                 |       |     |                 |        |                  |       |       |        |                  |               |         |      |        |     |               |        |       |        |       |               |               |        |        |      |                |        |               |        |       |                |        |     |                |        |                |        |       |        |                |                |        |      |        |      |                |        |       |        |       |                |                |        |        |      |                |       |                |        |       |                |       |     |                |        |                 |       |       |        |                |                 |       |      |        |      |                 |        |       |        |       |                 |                 |        |        |      |       |     |                 |        |       |      |       |     |                 |        |       |      |       |     |                 |        |       |      |       |     |
| XP Solutions                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                     | Source Control 2020.1                                                           |                             |                                                                                     |        |  |                |                     |                           |                             |                       |                 |                 |        |        |      |                 |       |                 |        |       |                 |       |     |                 |        |                  |       |       |        |                  |               |         |      |        |     |               |        |       |        |       |               |               |        |        |      |                |        |               |        |       |                |        |     |                |        |                |        |       |        |                |                |        |      |        |      |                |        |       |        |       |                |                |        |        |      |                |       |                |        |       |                |       |     |                |        |                 |       |       |        |                |                 |       |      |        |      |                 |        |       |        |       |                 |                 |        |        |      |       |     |                 |        |       |      |       |     |                 |        |       |      |       |     |                 |        |       |      |       |     |
| <u>Cascade Summary of Results for 2401070-Basin 4.SRCX</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                     |                                                                                 |                             |                                                                                     |        |  |                |                     |                           |                             |                       |                 |                 |        |        |      |                 |       |                 |        |       |                 |       |     |                 |        |                  |       |       |        |                  |               |         |      |        |     |               |        |       |        |       |               |               |        |        |      |                |        |               |        |       |                |        |     |                |        |                |        |       |        |                |                |        |      |        |      |                |        |       |        |       |                |                |        |        |      |                |       |                |        |       |                |       |     |                |        |                 |       |       |        |                |                 |       |      |        |      |                 |        |       |        |       |                 |                 |        |        |      |       |     |                 |        |       |      |       |     |                 |        |       |      |       |     |                 |        |       |      |       |     |
| <table><tr><th>Storm<br/>Event</th><th>Max<br/>Level<br/>(m)</th><th>Max<br/>Depth<br/>(m)</th><th>Max<br/>Control<br/>(l/s)</th><th>Max<br/>Volume<br/>(m³)</th><th>Status</th></tr><tr><td>5760 min Summer</td><td>23.527</td><td>1.027</td><td>31.4</td><td>357.3</td><td>O K</td></tr><tr><td>7200 min Summer</td><td>23.322</td><td>0.822</td><td>31.4</td><td>262.4</td><td>O K</td></tr><tr><td>8640 min Summer</td><td>23.053</td><td>0.553</td><td>31.4</td><td>156.8</td><td>O K</td></tr><tr><td>10080 min Summer</td><td>22.863</td><td>0.363</td><td>31.3</td><td>94.4</td><td>O K</td></tr><tr><td>15 min Winter</td><td>22.896</td><td>0.396</td><td>31.4</td><td>104.3</td><td>O K</td></tr><tr><td>30 min Winter</td><td>23.016</td><td>0.516</td><td>31.4</td><td>143.9</td><td>O K</td></tr><tr><td>60 min Winter</td><td>23.142</td><td>0.642</td><td>31.4</td><td>189.1</td><td>O K</td></tr><tr><td>120 min Winter</td><td>23.244</td><td>0.744</td><td>31.4</td><td>229.4</td><td>O K</td></tr><tr><td>180 min Winter</td><td>23.239</td><td>0.739</td><td>31.4</td><td>227.6</td><td>O K</td></tr><tr><td>240 min Winter</td><td>23.166</td><td>0.666</td><td>31.4</td><td>198.6</td><td>O K</td></tr><tr><td>360 min Winter</td><td>23.137</td><td>0.637</td><td>31.4</td><td>187.3</td><td>O K</td></tr><tr><td>480 min Winter</td><td>23.161</td><td>0.661</td><td>31.4</td><td>196.4</td><td>O K</td></tr><tr><td>600 min Winter</td><td>23.203</td><td>0.703</td><td>31.4</td><td>212.8</td><td>O K</td></tr><tr><td>720 min Winter</td><td>23.254</td><td>0.754</td><td>31.4</td><td>233.6</td><td>O K</td></tr><tr><td>960 min Winter</td><td>23.386</td><td>0.886</td><td>31.4</td><td>290.6</td><td>O K</td></tr><tr><td>1440 min Winter</td><td>23.569</td><td>1.069</td><td>31.4</td><td>378.8</td><td>O K</td></tr><tr><td>2160 min Winter</td><td>23.527</td><td>1.027</td><td>31.4</td><td>357.5</td><td>O K</td></tr><tr><td>2880 min Winter</td><td>23.422</td><td>0.922</td><td>31.4</td><td>306.8</td><td>O K</td></tr><tr><td>4320 min Winter</td><td>23.694</td><td>1.194</td><td>31.4</td><td>445.1</td><td>O K</td></tr></table> |                     |                                                                                 |                             |                                                                                     |        |  | Storm<br>Event | Max<br>Level<br>(m) | Max<br>Depth<br>(m)       | Max<br>Control<br>(l/s)     | Max<br>Volume<br>(m³) | Status          | 5760 min Summer | 23.527 | 1.027  | 31.4 | 357.3           | O K   | 7200 min Summer | 23.322 | 0.822 | 31.4            | 262.4 | O K | 8640 min Summer | 23.053 | 0.553            | 31.4  | 156.8 | O K    | 10080 min Summer | 22.863        | 0.363   | 31.3 | 94.4   | O K | 15 min Winter | 22.896 | 0.396 | 31.4   | 104.3 | O K           | 30 min Winter | 23.016 | 0.516  | 31.4 | 143.9          | O K    | 60 min Winter | 23.142 | 0.642 | 31.4           | 189.1  | O K | 120 min Winter | 23.244 | 0.744          | 31.4   | 229.4 | O K    | 180 min Winter | 23.239         | 0.739  | 31.4 | 227.6  | O K  | 240 min Winter | 23.166 | 0.666 | 31.4   | 198.6 | O K            | 360 min Winter | 23.137 | 0.637  | 31.4 | 187.3          | O K   | 480 min Winter | 23.161 | 0.661 | 31.4           | 196.4 | O K | 600 min Winter | 23.203 | 0.703           | 31.4  | 212.8 | O K    | 720 min Winter | 23.254          | 0.754 | 31.4 | 233.6  | O K  | 960 min Winter  | 23.386 | 0.886 | 31.4   | 290.6 | O K             | 1440 min Winter | 23.569 | 1.069  | 31.4 | 378.8 | O K | 2160 min Winter | 23.527 | 1.027 | 31.4 | 357.5 | O K | 2880 min Winter | 23.422 | 0.922 | 31.4 | 306.8 | O K | 4320 min Winter | 23.694 | 1.194 | 31.4 | 445.1 | O K |
| Storm<br>Event                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Max<br>Level<br>(m) | Max<br>Depth<br>(m)                                                             | Max<br>Control<br>(l/s)     | Max<br>Volume<br>(m³)                                                               | Status |  |                |                     |                           |                             |                       |                 |                 |        |        |      |                 |       |                 |        |       |                 |       |     |                 |        |                  |       |       |        |                  |               |         |      |        |     |               |        |       |        |       |               |               |        |        |      |                |        |               |        |       |                |        |     |                |        |                |        |       |        |                |                |        |      |        |      |                |        |       |        |       |                |                |        |        |      |                |       |                |        |       |                |       |     |                |        |                 |       |       |        |                |                 |       |      |        |      |                 |        |       |        |       |                 |                 |        |        |      |       |     |                 |        |       |      |       |     |                 |        |       |      |       |     |                 |        |       |      |       |     |
| 5760 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 23.527              | 1.027                                                                           | 31.4                        | 357.3                                                                               | O K    |  |                |                     |                           |                             |                       |                 |                 |        |        |      |                 |       |                 |        |       |                 |       |     |                 |        |                  |       |       |        |                  |               |         |      |        |     |               |        |       |        |       |               |               |        |        |      |                |        |               |        |       |                |        |     |                |        |                |        |       |        |                |                |        |      |        |      |                |        |       |        |       |                |                |        |        |      |                |       |                |        |       |                |       |     |                |        |                 |       |       |        |                |                 |       |      |        |      |                 |        |       |        |       |                 |                 |        |        |      |       |     |                 |        |       |      |       |     |                 |        |       |      |       |     |                 |        |       |      |       |     |
| 7200 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 23.322              | 0.822                                                                           | 31.4                        | 262.4                                                                               | O K    |  |                |                     |                           |                             |                       |                 |                 |        |        |      |                 |       |                 |        |       |                 |       |     |                 |        |                  |       |       |        |                  |               |         |      |        |     |               |        |       |        |       |               |               |        |        |      |                |        |               |        |       |                |        |     |                |        |                |        |       |        |                |                |        |      |        |      |                |        |       |        |       |                |                |        |        |      |                |       |                |        |       |                |       |     |                |        |                 |       |       |        |                |                 |       |      |        |      |                 |        |       |        |       |                 |                 |        |        |      |       |     |                 |        |       |      |       |     |                 |        |       |      |       |     |                 |        |       |      |       |     |
| 8640 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 23.053              | 0.553                                                                           | 31.4                        | 156.8                                                                               | O K    |  |                |                     |                           |                             |                       |                 |                 |        |        |      |                 |       |                 |        |       |                 |       |     |                 |        |                  |       |       |        |                  |               |         |      |        |     |               |        |       |        |       |               |               |        |        |      |                |        |               |        |       |                |        |     |                |        |                |        |       |        |                |                |        |      |        |      |                |        |       |        |       |                |                |        |        |      |                |       |                |        |       |                |       |     |                |        |                 |       |       |        |                |                 |       |      |        |      |                 |        |       |        |       |                 |                 |        |        |      |       |     |                 |        |       |      |       |     |                 |        |       |      |       |     |                 |        |       |      |       |     |
| 10080 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 22.863              | 0.363                                                                           | 31.3                        | 94.4                                                                                | O K    |  |                |                     |                           |                             |                       |                 |                 |        |        |      |                 |       |                 |        |       |                 |       |     |                 |        |                  |       |       |        |                  |               |         |      |        |     |               |        |       |        |       |               |               |        |        |      |                |        |               |        |       |                |        |     |                |        |                |        |       |        |                |                |        |      |        |      |                |        |       |        |       |                |                |        |        |      |                |       |                |        |       |                |       |     |                |        |                 |       |       |        |                |                 |       |      |        |      |                 |        |       |        |       |                 |                 |        |        |      |       |     |                 |        |       |      |       |     |                 |        |       |      |       |     |                 |        |       |      |       |     |
| 15 min Winter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 22.896              | 0.396                                                                           | 31.4                        | 104.3                                                                               | O K    |  |                |                     |                           |                             |                       |                 |                 |        |        |      |                 |       |                 |        |       |                 |       |     |                 |        |                  |       |       |        |                  |               |         |      |        |     |               |        |       |        |       |               |               |        |        |      |                |        |               |        |       |                |        |     |                |        |                |        |       |        |                |                |        |      |        |      |                |        |       |        |       |                |                |        |        |      |                |       |                |        |       |                |       |     |                |        |                 |       |       |        |                |                 |       |      |        |      |                 |        |       |        |       |                 |                 |        |        |      |       |     |                 |        |       |      |       |     |                 |        |       |      |       |     |                 |        |       |      |       |     |
| 30 min Winter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 23.016              | 0.516                                                                           | 31.4                        | 143.9                                                                               | O K    |  |                |                     |                           |                             |                       |                 |                 |        |        |      |                 |       |                 |        |       |                 |       |     |                 |        |                  |       |       |        |                  |               |         |      |        |     |               |        |       |        |       |               |               |        |        |      |                |        |               |        |       |                |        |     |                |        |                |        |       |        |                |                |        |      |        |      |                |        |       |        |       |                |                |        |        |      |                |       |                |        |       |                |       |     |                |        |                 |       |       |        |                |                 |       |      |        |      |                 |        |       |        |       |                 |                 |        |        |      |       |     |                 |        |       |      |       |     |                 |        |       |      |       |     |                 |        |       |      |       |     |
| 60 min Winter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 23.142              | 0.642                                                                           | 31.4                        | 189.1                                                                               | O K    |  |                |                     |                           |                             |                       |                 |                 |        |        |      |                 |       |                 |        |       |                 |       |     |                 |        |                  |       |       |        |                  |               |         |      |        |     |               |        |       |        |       |               |               |        |        |      |                |        |               |        |       |                |        |     |                |        |                |        |       |        |                |                |        |      |        |      |                |        |       |        |       |                |                |        |        |      |                |       |                |        |       |                |       |     |                |        |                 |       |       |        |                |                 |       |      |        |      |                 |        |       |        |       |                 |                 |        |        |      |       |     |                 |        |       |      |       |     |                 |        |       |      |       |     |                 |        |       |      |       |     |
| 120 min Winter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 23.244              | 0.744                                                                           | 31.4                        | 229.4                                                                               | O K    |  |                |                     |                           |                             |                       |                 |                 |        |        |      |                 |       |                 |        |       |                 |       |     |                 |        |                  |       |       |        |                  |               |         |      |        |     |               |        |       |        |       |               |               |        |        |      |                |        |               |        |       |                |        |     |                |        |                |        |       |        |                |                |        |      |        |      |                |        |       |        |       |                |                |        |        |      |                |       |                |        |       |                |       |     |                |        |                 |       |       |        |                |                 |       |      |        |      |                 |        |       |        |       |                 |                 |        |        |      |       |     |                 |        |       |      |       |     |                 |        |       |      |       |     |                 |        |       |      |       |     |
| 180 min Winter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 23.239              | 0.739                                                                           | 31.4                        | 227.6                                                                               | O K    |  |                |                     |                           |                             |                       |                 |                 |        |        |      |                 |       |                 |        |       |                 |       |     |                 |        |                  |       |       |        |                  |               |         |      |        |     |               |        |       |        |       |               |               |        |        |      |                |        |               |        |       |                |        |     |                |        |                |        |       |        |                |                |        |      |        |      |                |        |       |        |       |                |                |        |        |      |                |       |                |        |       |                |       |     |                |        |                 |       |       |        |                |                 |       |      |        |      |                 |        |       |        |       |                 |                 |        |        |      |       |     |                 |        |       |      |       |     |                 |        |       |      |       |     |                 |        |       |      |       |     |
| 240 min Winter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 23.166              | 0.666                                                                           | 31.4                        | 198.6                                                                               | O K    |  |                |                     |                           |                             |                       |                 |                 |        |        |      |                 |       |                 |        |       |                 |       |     |                 |        |                  |       |       |        |                  |               |         |      |        |     |               |        |       |        |       |               |               |        |        |      |                |        |               |        |       |                |        |     |                |        |                |        |       |        |                |                |        |      |        |      |                |        |       |        |       |                |                |        |        |      |                |       |                |        |       |                |       |     |                |        |                 |       |       |        |                |                 |       |      |        |      |                 |        |       |        |       |                 |                 |        |        |      |       |     |                 |        |       |      |       |     |                 |        |       |      |       |     |                 |        |       |      |       |     |
| 360 min Winter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 23.137              | 0.637                                                                           | 31.4                        | 187.3                                                                               | O K    |  |                |                     |                           |                             |                       |                 |                 |        |        |      |                 |       |                 |        |       |                 |       |     |                 |        |                  |       |       |        |                  |               |         |      |        |     |               |        |       |        |       |               |               |        |        |      |                |        |               |        |       |                |        |     |                |        |                |        |       |        |                |                |        |      |        |      |                |        |       |        |       |                |                |        |        |      |                |       |                |        |       |                |       |     |                |        |                 |       |       |        |                |                 |       |      |        |      |                 |        |       |        |       |                 |                 |        |        |      |       |     |                 |        |       |      |       |     |                 |        |       |      |       |     |                 |        |       |      |       |     |
| 480 min Winter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 23.161              | 0.661                                                                           | 31.4                        | 196.4                                                                               | O K    |  |                |                     |                           |                             |                       |                 |                 |        |        |      |                 |       |                 |        |       |                 |       |     |                 |        |                  |       |       |        |                  |               |         |      |        |     |               |        |       |        |       |               |               |        |        |      |                |        |               |        |       |                |        |     |                |        |                |        |       |        |                |                |        |      |        |      |                |        |       |        |       |                |                |        |        |      |                |       |                |        |       |                |       |     |                |        |                 |       |       |        |                |                 |       |      |        |      |                 |        |       |        |       |                 |                 |        |        |      |       |     |                 |        |       |      |       |     |                 |        |       |      |       |     |                 |        |       |      |       |     |
| 600 min Winter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 23.203              | 0.703                                                                           | 31.4                        | 212.8                                                                               | O K    |  |                |                     |                           |                             |                       |                 |                 |        |        |      |                 |       |                 |        |       |                 |       |     |                 |        |                  |       |       |        |                  |               |         |      |        |     |               |        |       |        |       |               |               |        |        |      |                |        |               |        |       |                |        |     |                |        |                |        |       |        |                |                |        |      |        |      |                |        |       |        |       |                |                |        |        |      |                |       |                |        |       |                |       |     |                |        |                 |       |       |        |                |                 |       |      |        |      |                 |        |       |        |       |                 |                 |        |        |      |       |     |                 |        |       |      |       |     |                 |        |       |      |       |     |                 |        |       |      |       |     |
| 720 min Winter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 23.254              | 0.754                                                                           | 31.4                        | 233.6                                                                               | O K    |  |                |                     |                           |                             |                       |                 |                 |        |        |      |                 |       |                 |        |       |                 |       |     |                 |        |                  |       |       |        |                  |               |         |      |        |     |               |        |       |        |       |               |               |        |        |      |                |        |               |        |       |                |        |     |                |        |                |        |       |        |                |                |        |      |        |      |                |        |       |        |       |                |                |        |        |      |                |       |                |        |       |                |       |     |                |        |                 |       |       |        |                |                 |       |      |        |      |                 |        |       |        |       |                 |                 |        |        |      |       |     |                 |        |       |      |       |     |                 |        |       |      |       |     |                 |        |       |      |       |     |
| 960 min Winter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 23.386              | 0.886                                                                           | 31.4                        | 290.6                                                                               | O K    |  |                |                     |                           |                             |                       |                 |                 |        |        |      |                 |       |                 |        |       |                 |       |     |                 |        |                  |       |       |        |                  |               |         |      |        |     |               |        |       |        |       |               |               |        |        |      |                |        |               |        |       |                |        |     |                |        |                |        |       |        |                |                |        |      |        |      |                |        |       |        |       |                |                |        |        |      |                |       |                |        |       |                |       |     |                |        |                 |       |       |        |                |                 |       |      |        |      |                 |        |       |        |       |                 |                 |        |        |      |       |     |                 |        |       |      |       |     |                 |        |       |      |       |     |                 |        |       |      |       |     |
| 1440 min Winter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 23.569              | 1.069                                                                           | 31.4                        | 378.8                                                                               | O K    |  |                |                     |                           |                             |                       |                 |                 |        |        |      |                 |       |                 |        |       |                 |       |     |                 |        |                  |       |       |        |                  |               |         |      |        |     |               |        |       |        |       |               |               |        |        |      |                |        |               |        |       |                |        |     |                |        |                |        |       |        |                |                |        |      |        |      |                |        |       |        |       |                |                |        |        |      |                |       |                |        |       |                |       |     |                |        |                 |       |       |        |                |                 |       |      |        |      |                 |        |       |        |       |                 |                 |        |        |      |       |     |                 |        |       |      |       |     |                 |        |       |      |       |     |                 |        |       |      |       |     |
| 2160 min Winter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 23.527              | 1.027                                                                           | 31.4                        | 357.5                                                                               | O K    |  |                |                     |                           |                             |                       |                 |                 |        |        |      |                 |       |                 |        |       |                 |       |     |                 |        |                  |       |       |        |                  |               |         |      |        |     |               |        |       |        |       |               |               |        |        |      |                |        |               |        |       |                |        |     |                |        |                |        |       |        |                |                |        |      |        |      |                |        |       |        |       |                |                |        |        |      |                |       |                |        |       |                |       |     |                |        |                 |       |       |        |                |                 |       |      |        |      |                 |        |       |        |       |                 |                 |        |        |      |       |     |                 |        |       |      |       |     |                 |        |       |      |       |     |                 |        |       |      |       |     |
| 2880 min Winter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 23.422              | 0.922                                                                           | 31.4                        | 306.8                                                                               | O K    |  |                |                     |                           |                             |                       |                 |                 |        |        |      |                 |       |                 |        |       |                 |       |     |                 |        |                  |       |       |        |                  |               |         |      |        |     |               |        |       |        |       |               |               |        |        |      |                |        |               |        |       |                |        |     |                |        |                |        |       |        |                |                |        |      |        |      |                |        |       |        |       |                |                |        |        |      |                |       |                |        |       |                |       |     |                |        |                 |       |       |        |                |                 |       |      |        |      |                 |        |       |        |       |                 |                 |        |        |      |       |     |                 |        |       |      |       |     |                 |        |       |      |       |     |                 |        |       |      |       |     |
| 4320 min Winter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 23.694              | 1.194                                                                           | 31.4                        | 445.1                                                                               | O K    |  |                |                     |                           |                             |                       |                 |                 |        |        |      |                 |       |                 |        |       |                 |       |     |                 |        |                  |       |       |        |                  |               |         |      |        |     |               |        |       |        |       |               |               |        |        |      |                |        |               |        |       |                |        |     |                |        |                |        |       |        |                |                |        |      |        |      |                |        |       |        |       |                |                |        |        |      |                |       |                |        |       |                |       |     |                |        |                 |       |       |        |                |                 |       |      |        |      |                 |        |       |        |       |                 |                 |        |        |      |       |     |                 |        |       |      |       |     |                 |        |       |      |       |     |                 |        |       |      |       |     |
| <table><tr><th>Storm<br/>Event</th><th>Rain<br/>(mm/hr)</th><th>Flooded<br/>Volume<br/>(m³)</th><th>Discharge<br/>Volume<br/>(m³)</th><th>Time-Peak<br/>(mins)</th></tr><tr><td>5760 min Summer</td><td>1.843</td><td>0.0</td><td>5223.1</td><td>3848</td></tr><tr><td>7200 min Summer</td><td>1.545</td><td>0.0</td><td>5433.8</td><td>4416</td></tr><tr><td>8640 min Summer</td><td>1.338</td><td>0.0</td><td>5611.1</td><td>4904</td></tr><tr><td>10080 min Summer</td><td>1.184</td><td>0.0</td><td>5751.1</td><td>5400</td></tr><tr><td>15 min Winter</td><td>136.286</td><td>0.0</td><td>1025.8</td><td>364</td></tr><tr><td>30 min Winter</td><td>91.635</td><td>0.0</td><td>1370.9</td><td>547</td></tr><tr><td>60 min Winter</td><td>58.739</td><td>0.0</td><td>1848.6</td><td>754</td></tr><tr><td>120 min Winter</td><td>36.288</td><td>0.0</td><td>2270.6</td><td>996</td></tr><tr><td>180 min Winter</td><td>26.937</td><td>0.0</td><td>2521.0</td><td>1154</td></tr><tr><td>240 min Winter</td><td>21.660</td><td>0.0</td><td>2697.4</td><td>1274</td></tr><tr><td>360 min Winter</td><td>15.950</td><td>0.0</td><td>2970.3</td><td>1458</td></tr><tr><td>480 min Winter</td><td>12.815</td><td>0.0</td><td>3174.7</td><td>1596</td></tr><tr><td>600 min Winter</td><td>10.804</td><td>0.0</td><td>3339.3</td><td>1712</td></tr><tr><td>720 min Winter</td><td>9.393</td><td>0.0</td><td>3477.7</td><td>1814</td></tr><tr><td>960 min Winter</td><td>7.524</td><td>0.0</td><td>3702.7</td><td>1992</td></tr><tr><td>1440 min Winter</td><td>5.493</td><td>0.0</td><td>4029.5</td><td>2260</td></tr><tr><td>2160 min Winter</td><td>4.002</td><td>0.0</td><td>4581.4</td><td>2656</td></tr><tr><td>2880 min Winter</td><td>3.192</td><td>0.0</td><td>4850.0</td><td>3016</td></tr><tr><td>4320 min Winter</td><td>2.316</td><td>0.0</td><td>5230.5</td><td>3360</td></tr></table>                                                                                                                                                                                                                                                                                 |                     |                                                                                 |                             |                                                                                     |        |  | Storm<br>Event | Rain<br>(mm/hr)     | Flooded<br>Volume<br>(m³) | Discharge<br>Volume<br>(m³) | Time-Peak<br>(mins)   | 5760 min Summer | 1.843           | 0.0    | 5223.1 | 3848 | 7200 min Summer | 1.545 | 0.0             | 5433.8 | 4416  | 8640 min Summer | 1.338 | 0.0 | 5611.1          | 4904   | 10080 min Summer | 1.184 | 0.0   | 5751.1 | 5400             | 15 min Winter | 136.286 | 0.0  | 1025.8 | 364 | 30 min Winter | 91.635 | 0.0   | 1370.9 | 547   | 60 min Winter | 58.739        | 0.0    | 1848.6 | 754  | 120 min Winter | 36.288 | 0.0           | 2270.6 | 996   | 180 min Winter | 26.937 | 0.0 | 2521.0         | 1154   | 240 min Winter | 21.660 | 0.0   | 2697.4 | 1274           | 360 min Winter | 15.950 | 0.0  | 2970.3 | 1458 | 480 min Winter | 12.815 | 0.0   | 3174.7 | 1596  | 600 min Winter | 10.804         | 0.0    | 3339.3 | 1712 | 720 min Winter | 9.393 | 0.0            | 3477.7 | 1814  | 960 min Winter | 7.524 | 0.0 | 3702.7         | 1992   | 1440 min Winter | 5.493 | 0.0   | 4029.5 | 2260           | 2160 min Winter | 4.002 | 0.0  | 4581.4 | 2656 | 2880 min Winter | 3.192  | 0.0   | 4850.0 | 3016  | 4320 min Winter | 2.316           | 0.0    | 5230.5 | 3360 |       |     |                 |        |       |      |       |     |                 |        |       |      |       |     |                 |        |       |      |       |     |
| Storm<br>Event                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Rain<br>(mm/hr)     | Flooded<br>Volume<br>(m³)                                                       | Discharge<br>Volume<br>(m³) | Time-Peak<br>(mins)                                                                 |        |  |                |                     |                           |                             |                       |                 |                 |        |        |      |                 |       |                 |        |       |                 |       |     |                 |        |                  |       |       |        |                  |               |         |      |        |     |               |        |       |        |       |               |               |        |        |      |                |        |               |        |       |                |        |     |                |        |                |        |       |        |                |                |        |      |        |      |                |        |       |        |       |                |                |        |        |      |                |       |                |        |       |                |       |     |                |        |                 |       |       |        |                |                 |       |      |        |      |                 |        |       |        |       |                 |                 |        |        |      |       |     |                 |        |       |      |       |     |                 |        |       |      |       |     |                 |        |       |      |       |     |
| 5760 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 1.843               | 0.0                                                                             | 5223.1                      | 3848                                                                                |        |  |                |                     |                           |                             |                       |                 |                 |        |        |      |                 |       |                 |        |       |                 |       |     |                 |        |                  |       |       |        |                  |               |         |      |        |     |               |        |       |        |       |               |               |        |        |      |                |        |               |        |       |                |        |     |                |        |                |        |       |        |                |                |        |      |        |      |                |        |       |        |       |                |                |        |        |      |                |       |                |        |       |                |       |     |                |        |                 |       |       |        |                |                 |       |      |        |      |                 |        |       |        |       |                 |                 |        |        |      |       |     |                 |        |       |      |       |     |                 |        |       |      |       |     |                 |        |       |      |       |     |
| 7200 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 1.545               | 0.0                                                                             | 5433.8                      | 4416                                                                                |        |  |                |                     |                           |                             |                       |                 |                 |        |        |      |                 |       |                 |        |       |                 |       |     |                 |        |                  |       |       |        |                  |               |         |      |        |     |               |        |       |        |       |               |               |        |        |      |                |        |               |        |       |                |        |     |                |        |                |        |       |        |                |                |        |      |        |      |                |        |       |        |       |                |                |        |        |      |                |       |                |        |       |                |       |     |                |        |                 |       |       |        |                |                 |       |      |        |      |                 |        |       |        |       |                 |                 |        |        |      |       |     |                 |        |       |      |       |     |                 |        |       |      |       |     |                 |        |       |      |       |     |
| 8640 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 1.338               | 0.0                                                                             | 5611.1                      | 4904                                                                                |        |  |                |                     |                           |                             |                       |                 |                 |        |        |      |                 |       |                 |        |       |                 |       |     |                 |        |                  |       |       |        |                  |               |         |      |        |     |               |        |       |        |       |               |               |        |        |      |                |        |               |        |       |                |        |     |                |        |                |        |       |        |                |                |        |      |        |      |                |        |       |        |       |                |                |        |        |      |                |       |                |        |       |                |       |     |                |        |                 |       |       |        |                |                 |       |      |        |      |                 |        |       |        |       |                 |                 |        |        |      |       |     |                 |        |       |      |       |     |                 |        |       |      |       |     |                 |        |       |      |       |     |
| 10080 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 1.184               | 0.0                                                                             | 5751.1                      | 5400                                                                                |        |  |                |                     |                           |                             |                       |                 |                 |        |        |      |                 |       |                 |        |       |                 |       |     |                 |        |                  |       |       |        |                  |               |         |      |        |     |               |        |       |        |       |               |               |        |        |      |                |        |               |        |       |                |        |     |                |        |                |        |       |        |                |                |        |      |        |      |                |        |       |        |       |                |                |        |        |      |                |       |                |        |       |                |       |     |                |        |                 |       |       |        |                |                 |       |      |        |      |                 |        |       |        |       |                 |                 |        |        |      |       |     |                 |        |       |      |       |     |                 |        |       |      |       |     |                 |        |       |      |       |     |
| 15 min Winter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 136.286             | 0.0                                                                             | 1025.8                      | 364                                                                                 |        |  |                |                     |                           |                             |                       |                 |                 |        |        |      |                 |       |                 |        |       |                 |       |     |                 |        |                  |       |       |        |                  |               |         |      |        |     |               |        |       |        |       |               |               |        |        |      |                |        |               |        |       |                |        |     |                |        |                |        |       |        |                |                |        |      |        |      |                |        |       |        |       |                |                |        |        |      |                |       |                |        |       |                |       |     |                |        |                 |       |       |        |                |                 |       |      |        |      |                 |        |       |        |       |                 |                 |        |        |      |       |     |                 |        |       |      |       |     |                 |        |       |      |       |     |                 |        |       |      |       |     |
| 30 min Winter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 91.635              | 0.0                                                                             | 1370.9                      | 547                                                                                 |        |  |                |                     |                           |                             |                       |                 |                 |        |        |      |                 |       |                 |        |       |                 |       |     |                 |        |                  |       |       |        |                  |               |         |      |        |     |               |        |       |        |       |               |               |        |        |      |                |        |               |        |       |                |        |     |                |        |                |        |       |        |                |                |        |      |        |      |                |        |       |        |       |                |                |        |        |      |                |       |                |        |       |                |       |     |                |        |                 |       |       |        |                |                 |       |      |        |      |                 |        |       |        |       |                 |                 |        |        |      |       |     |                 |        |       |      |       |     |                 |        |       |      |       |     |                 |        |       |      |       |     |
| 60 min Winter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 58.739              | 0.0                                                                             | 1848.6                      | 754                                                                                 |        |  |                |                     |                           |                             |                       |                 |                 |        |        |      |                 |       |                 |        |       |                 |       |     |                 |        |                  |       |       |        |                  |               |         |      |        |     |               |        |       |        |       |               |               |        |        |      |                |        |               |        |       |                |        |     |                |        |                |        |       |        |                |                |        |      |        |      |                |        |       |        |       |                |                |        |        |      |                |       |                |        |       |                |       |     |                |        |                 |       |       |        |                |                 |       |      |        |      |                 |        |       |        |       |                 |                 |        |        |      |       |     |                 |        |       |      |       |     |                 |        |       |      |       |     |                 |        |       |      |       |     |
| 120 min Winter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 36.288              | 0.0                                                                             | 2270.6                      | 996                                                                                 |        |  |                |                     |                           |                             |                       |                 |                 |        |        |      |                 |       |                 |        |       |                 |       |     |                 |        |                  |       |       |        |                  |               |         |      |        |     |               |        |       |        |       |               |               |        |        |      |                |        |               |        |       |                |        |     |                |        |                |        |       |        |                |                |        |      |        |      |                |        |       |        |       |                |                |        |        |      |                |       |                |        |       |                |       |     |                |        |                 |       |       |        |                |                 |       |      |        |      |                 |        |       |        |       |                 |                 |        |        |      |       |     |                 |        |       |      |       |     |                 |        |       |      |       |     |                 |        |       |      |       |     |
| 180 min Winter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 26.937              | 0.0                                                                             | 2521.0                      | 1154                                                                                |        |  |                |                     |                           |                             |                       |                 |                 |        |        |      |                 |       |                 |        |       |                 |       |     |                 |        |                  |       |       |        |                  |               |         |      |        |     |               |        |       |        |       |               |               |        |        |      |                |        |               |        |       |                |        |     |                |        |                |        |       |        |                |                |        |      |        |      |                |        |       |        |       |                |                |        |        |      |                |       |                |        |       |                |       |     |                |        |                 |       |       |        |                |                 |       |      |        |      |                 |        |       |        |       |                 |                 |        |        |      |       |     |                 |        |       |      |       |     |                 |        |       |      |       |     |                 |        |       |      |       |     |
| 240 min Winter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 21.660              | 0.0                                                                             | 2697.4                      | 1274                                                                                |        |  |                |                     |                           |                             |                       |                 |                 |        |        |      |                 |       |                 |        |       |                 |       |     |                 |        |                  |       |       |        |                  |               |         |      |        |     |               |        |       |        |       |               |               |        |        |      |                |        |               |        |       |                |        |     |                |        |                |        |       |        |                |                |        |      |        |      |                |        |       |        |       |                |                |        |        |      |                |       |                |        |       |                |       |     |                |        |                 |       |       |        |                |                 |       |      |        |      |                 |        |       |        |       |                 |                 |        |        |      |       |     |                 |        |       |      |       |     |                 |        |       |      |       |     |                 |        |       |      |       |     |
| 360 min Winter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 15.950              | 0.0                                                                             | 2970.3                      | 1458                                                                                |        |  |                |                     |                           |                             |                       |                 |                 |        |        |      |                 |       |                 |        |       |                 |       |     |                 |        |                  |       |       |        |                  |               |         |      |        |     |               |        |       |        |       |               |               |        |        |      |                |        |               |        |       |                |        |     |                |        |                |        |       |        |                |                |        |      |        |      |                |        |       |        |       |                |                |        |        |      |                |       |                |        |       |                |       |     |                |        |                 |       |       |        |                |                 |       |      |        |      |                 |        |       |        |       |                 |                 |        |        |      |       |     |                 |        |       |      |       |     |                 |        |       |      |       |     |                 |        |       |      |       |     |
| 480 min Winter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 12.815              | 0.0                                                                             | 3174.7                      | 1596                                                                                |        |  |                |                     |                           |                             |                       |                 |                 |        |        |      |                 |       |                 |        |       |                 |       |     |                 |        |                  |       |       |        |                  |               |         |      |        |     |               |        |       |        |       |               |               |        |        |      |                |        |               |        |       |                |        |     |                |        |                |        |       |        |                |                |        |      |        |      |                |        |       |        |       |                |                |        |        |      |                |       |                |        |       |                |       |     |                |        |                 |       |       |        |                |                 |       |      |        |      |                 |        |       |        |       |                 |                 |        |        |      |       |     |                 |        |       |      |       |     |                 |        |       |      |       |     |                 |        |       |      |       |     |
| 600 min Winter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 10.804              | 0.0                                                                             | 3339.3                      | 1712                                                                                |        |  |                |                     |                           |                             |                       |                 |                 |        |        |      |                 |       |                 |        |       |                 |       |     |                 |        |                  |       |       |        |                  |               |         |      |        |     |               |        |       |        |       |               |               |        |        |      |                |        |               |        |       |                |        |     |                |        |                |        |       |        |                |                |        |      |        |      |                |        |       |        |       |                |                |        |        |      |                |       |                |        |       |                |       |     |                |        |                 |       |       |        |                |                 |       |      |        |      |                 |        |       |        |       |                 |                 |        |        |      |       |     |                 |        |       |      |       |     |                 |        |       |      |       |     |                 |        |       |      |       |     |
| 720 min Winter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 9.393               | 0.0                                                                             | 3477.7                      | 1814                                                                                |        |  |                |                     |                           |                             |                       |                 |                 |        |        |      |                 |       |                 |        |       |                 |       |     |                 |        |                  |       |       |        |                  |               |         |      |        |     |               |        |       |        |       |               |               |        |        |      |                |        |               |        |       |                |        |     |                |        |                |        |       |        |                |                |        |      |        |      |                |        |       |        |       |                |                |        |        |      |                |       |                |        |       |                |       |     |                |        |                 |       |       |        |                |                 |       |      |        |      |                 |        |       |        |       |                 |                 |        |        |      |       |     |                 |        |       |      |       |     |                 |        |       |      |       |     |                 |        |       |      |       |     |
| 960 min Winter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 7.524               | 0.0                                                                             | 3702.7                      | 1992                                                                                |        |  |                |                     |                           |                             |                       |                 |                 |        |        |      |                 |       |                 |        |       |                 |       |     |                 |        |                  |       |       |        |                  |               |         |      |        |     |               |        |       |        |       |               |               |        |        |      |                |        |               |        |       |                |        |     |                |        |                |        |       |        |                |                |        |      |        |      |                |        |       |        |       |                |                |        |        |      |                |       |                |        |       |                |       |     |                |        |                 |       |       |        |                |                 |       |      |        |      |                 |        |       |        |       |                 |                 |        |        |      |       |     |                 |        |       |      |       |     |                 |        |       |      |       |     |                 |        |       |      |       |     |
| 1440 min Winter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 5.493               | 0.0                                                                             | 4029.5                      | 2260                                                                                |        |  |                |                     |                           |                             |                       |                 |                 |        |        |      |                 |       |                 |        |       |                 |       |     |                 |        |                  |       |       |        |                  |               |         |      |        |     |               |        |       |        |       |               |               |        |        |      |                |        |               |        |       |                |        |     |                |        |                |        |       |        |                |                |        |      |        |      |                |        |       |        |       |                |                |        |        |      |                |       |                |        |       |                |       |     |                |        |                 |       |       |        |                |                 |       |      |        |      |                 |        |       |        |       |                 |                 |        |        |      |       |     |                 |        |       |      |       |     |                 |        |       |      |       |     |                 |        |       |      |       |     |
| 2160 min Winter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 4.002               | 0.0                                                                             | 4581.4                      | 2656                                                                                |        |  |                |                     |                           |                             |                       |                 |                 |        |        |      |                 |       |                 |        |       |                 |       |     |                 |        |                  |       |       |        |                  |               |         |      |        |     |               |        |       |        |       |               |               |        |        |      |                |        |               |        |       |                |        |     |                |        |                |        |       |        |                |                |        |      |        |      |                |        |       |        |       |                |                |        |        |      |                |       |                |        |       |                |       |     |                |        |                 |       |       |        |                |                 |       |      |        |      |                 |        |       |        |       |                 |                 |        |        |      |       |     |                 |        |       |      |       |     |                 |        |       |      |       |     |                 |        |       |      |       |     |
| 2880 min Winter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 3.192               | 0.0                                                                             | 4850.0                      | 3016                                                                                |        |  |                |                     |                           |                             |                       |                 |                 |        |        |      |                 |       |                 |        |       |                 |       |     |                 |        |                  |       |       |        |                  |               |         |      |        |     |               |        |       |        |       |               |               |        |        |      |                |        |               |        |       |                |        |     |                |        |                |        |       |        |                |                |        |      |        |      |                |        |       |        |       |                |                |        |        |      |                |       |                |        |       |                |       |     |                |        |                 |       |       |        |                |                 |       |      |        |      |                 |        |       |        |       |                 |                 |        |        |      |       |     |                 |        |       |      |       |     |                 |        |       |      |       |     |                 |        |       |      |       |     |
| 4320 min Winter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 2.316               | 0.0                                                                             | 5230.5                      | 3360                                                                                |        |  |                |                     |                           |                             |                       |                 |                 |        |        |      |                 |       |                 |        |       |                 |       |     |                 |        |                  |       |       |        |                  |               |         |      |        |     |               |        |       |        |       |               |               |        |        |      |                |        |               |        |       |                |        |     |                |        |                |        |       |        |                |                |        |      |        |      |                |        |       |        |       |                |                |        |        |      |                |       |                |        |       |                |       |     |                |        |                 |       |       |        |                |                 |       |      |        |      |                 |        |       |        |       |                 |                 |        |        |      |       |     |                 |        |       |      |       |     |                 |        |       |      |       |     |                 |        |       |      |       |     |
| ©1982-2020 Innovyze                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                     |                                                                                 |                             |                                                                                     |        |  |                |                     |                           |                             |                       |                 |                 |        |        |      |                 |       |                 |        |       |                 |       |     |                 |        |                  |       |       |        |                  |               |         |      |        |     |               |        |       |        |       |               |               |        |        |      |                |        |               |        |       |                |        |     |                |        |                |        |       |        |                |                |        |      |        |      |                |        |       |        |       |                |                |        |        |      |                |       |                |        |       |                |       |     |                |        |                 |       |       |        |                |                 |       |      |        |      |                 |        |       |        |       |                 |                 |        |        |      |       |     |                 |        |       |      |       |     |                 |        |       |      |       |     |                 |        |       |      |       |     |

| Ardent Consulting Engineers                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                     |                                                                                 |                             | Page 3                                                                              |        |                |                     |                     |                         |                       |        |                 |        |       |      |       |     |                 |        |       |      |      |     |                 |        |       |      |      |     |                  |        |       |      |      |     |                |                 |                           |                             |                     |                 |       |     |        |      |                 |       |     |        |      |                 |       |     |        |      |                  |       |     |        |      |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|---------------------------------------------------------------------------------|-----------------------------|-------------------------------------------------------------------------------------|--------|----------------|---------------------|---------------------|-------------------------|-----------------------|--------|-----------------|--------|-------|------|-------|-----|-----------------|--------|-------|------|------|-----|-----------------|--------|-------|------|------|-----|------------------|--------|-------|------|------|-----|----------------|-----------------|---------------------------|-----------------------------|---------------------|-----------------|-------|-----|--------|------|-----------------|-------|-----|--------|------|-----------------|-------|-----|--------|------|------------------|-------|-----|--------|------|
| Suite 9, 10 Churchill Square ...<br>Kings Hill<br>West Malling, ME19 4YU                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                     | Bird in Eye Farm, Uckfield<br>SW Source Control Model<br>1 in 100 year + 45% CC |                             |  |        |                |                     |                     |                         |                       |        |                 |        |       |      |       |     |                 |        |       |      |      |     |                 |        |       |      |      |     |                  |        |       |      |      |     |                |                 |                           |                             |                     |                 |       |     |        |      |                 |       |     |        |      |                 |       |     |        |      |                  |       |     |        |      |
| Date 10/05/2024                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                     | Designed by AW                                                                  |                             |                                                                                     |        |                |                     |                     |                         |                       |        |                 |        |       |      |       |     |                 |        |       |      |      |     |                 |        |       |      |      |     |                  |        |       |      |      |     |                |                 |                           |                             |                     |                 |       |     |        |      |                 |       |     |        |      |                 |       |     |        |      |                  |       |     |        |      |
| File zONE Z - CAT C TANK C+45...                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                     | Checked by DM                                                                   |                             |                                                                                     |        |                |                     |                     |                         |                       |        |                 |        |       |      |       |     |                 |        |       |      |      |     |                 |        |       |      |      |     |                  |        |       |      |      |     |                |                 |                           |                             |                     |                 |       |     |        |      |                 |       |     |        |      |                 |       |     |        |      |                  |       |     |        |      |
| XP Solutions                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                     | Source Control 2020.1                                                           |                             |                                                                                     |        |                |                     |                     |                         |                       |        |                 |        |       |      |       |     |                 |        |       |      |      |     |                 |        |       |      |      |     |                  |        |       |      |      |     |                |                 |                           |                             |                     |                 |       |     |        |      |                 |       |     |        |      |                 |       |     |        |      |                  |       |     |        |      |
| <p style="text-align: center;"><u>Cascade Summary of Results for 2401070-Basin 4.SRCX</u></p> <table><tr><th>Storm<br/>Event</th><th>Max<br/>Level<br/>(m)</th><th>Max<br/>Depth<br/>(m)</th><th>Max<br/>Control<br/>(l/s)</th><th>Max<br/>Volume<br/>(m³)</th><th>Status</th></tr><tr><td>5760 min Winter</td><td>23.463</td><td>0.963</td><td>31.4</td><td>326.3</td><td>O K</td></tr><tr><td>7200 min Winter</td><td>22.868</td><td>0.368</td><td>31.3</td><td>95.8</td><td>O K</td></tr><tr><td>8640 min Winter</td><td>22.730</td><td>0.230</td><td>28.5</td><td>56.2</td><td>O K</td></tr><tr><td>10080 min Winter</td><td>22.708</td><td>0.208</td><td>25.5</td><td>50.2</td><td>O K</td></tr></table><br><table><tr><th>Storm<br/>Event</th><th>Rain<br/>(mm/hr)</th><th>Flooded<br/>Volume<br/>(m³)</th><th>Discharge<br/>Volume<br/>(m³)</th><th>Time-Peak<br/>(mins)</th></tr><tr><td>5760 min Winter</td><td>1.843</td><td>0.0</td><td>5813.0</td><td>3816</td></tr><tr><td>7200 min Winter</td><td>1.545</td><td>0.0</td><td>6058.2</td><td>4048</td></tr><tr><td>8640 min Winter</td><td>1.338</td><td>0.0</td><td>6259.3</td><td>4544</td></tr><tr><td>10080 min Winter</td><td>1.184</td><td>0.0</td><td>6420.7</td><td>5264</td></tr></table> |                     |                                                                                 |                             |                                                                                     |        | Storm<br>Event | Max<br>Level<br>(m) | Max<br>Depth<br>(m) | Max<br>Control<br>(l/s) | Max<br>Volume<br>(m³) | Status | 5760 min Winter | 23.463 | 0.963 | 31.4 | 326.3 | O K | 7200 min Winter | 22.868 | 0.368 | 31.3 | 95.8 | O K | 8640 min Winter | 22.730 | 0.230 | 28.5 | 56.2 | O K | 10080 min Winter | 22.708 | 0.208 | 25.5 | 50.2 | O K | Storm<br>Event | Rain<br>(mm/hr) | Flooded<br>Volume<br>(m³) | Discharge<br>Volume<br>(m³) | Time-Peak<br>(mins) | 5760 min Winter | 1.843 | 0.0 | 5813.0 | 3816 | 7200 min Winter | 1.545 | 0.0 | 6058.2 | 4048 | 8640 min Winter | 1.338 | 0.0 | 6259.3 | 4544 | 10080 min Winter | 1.184 | 0.0 | 6420.7 | 5264 |
| Storm<br>Event                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Max<br>Level<br>(m) | Max<br>Depth<br>(m)                                                             | Max<br>Control<br>(l/s)     | Max<br>Volume<br>(m³)                                                               | Status |                |                     |                     |                         |                       |        |                 |        |       |      |       |     |                 |        |       |      |      |     |                 |        |       |      |      |     |                  |        |       |      |      |     |                |                 |                           |                             |                     |                 |       |     |        |      |                 |       |     |        |      |                 |       |     |        |      |                  |       |     |        |      |
| 5760 min Winter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 23.463              | 0.963                                                                           | 31.4                        | 326.3                                                                               | O K    |                |                     |                     |                         |                       |        |                 |        |       |      |       |     |                 |        |       |      |      |     |                 |        |       |      |      |     |                  |        |       |      |      |     |                |                 |                           |                             |                     |                 |       |     |        |      |                 |       |     |        |      |                 |       |     |        |      |                  |       |     |        |      |
| 7200 min Winter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 22.868              | 0.368                                                                           | 31.3                        | 95.8                                                                                | O K    |                |                     |                     |                         |                       |        |                 |        |       |      |       |     |                 |        |       |      |      |     |                 |        |       |      |      |     |                  |        |       |      |      |     |                |                 |                           |                             |                     |                 |       |     |        |      |                 |       |     |        |      |                 |       |     |        |      |                  |       |     |        |      |
| 8640 min Winter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 22.730              | 0.230                                                                           | 28.5                        | 56.2                                                                                | O K    |                |                     |                     |                         |                       |        |                 |        |       |      |       |     |                 |        |       |      |      |     |                 |        |       |      |      |     |                  |        |       |      |      |     |                |                 |                           |                             |                     |                 |       |     |        |      |                 |       |     |        |      |                 |       |     |        |      |                  |       |     |        |      |
| 10080 min Winter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 22.708              | 0.208                                                                           | 25.5                        | 50.2                                                                                | O K    |                |                     |                     |                         |                       |        |                 |        |       |      |       |     |                 |        |       |      |      |     |                 |        |       |      |      |     |                  |        |       |      |      |     |                |                 |                           |                             |                     |                 |       |     |        |      |                 |       |     |        |      |                 |       |     |        |      |                  |       |     |        |      |
| Storm<br>Event                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Rain<br>(mm/hr)     | Flooded<br>Volume<br>(m³)                                                       | Discharge<br>Volume<br>(m³) | Time-Peak<br>(mins)                                                                 |        |                |                     |                     |                         |                       |        |                 |        |       |      |       |     |                 |        |       |      |      |     |                 |        |       |      |      |     |                  |        |       |      |      |     |                |                 |                           |                             |                     |                 |       |     |        |      |                 |       |     |        |      |                 |       |     |        |      |                  |       |     |        |      |
| 5760 min Winter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 1.843               | 0.0                                                                             | 5813.0                      | 3816                                                                                |        |                |                     |                     |                         |                       |        |                 |        |       |      |       |     |                 |        |       |      |      |     |                 |        |       |      |      |     |                  |        |       |      |      |     |                |                 |                           |                             |                     |                 |       |     |        |      |                 |       |     |        |      |                 |       |     |        |      |                  |       |     |        |      |
| 7200 min Winter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 1.545               | 0.0                                                                             | 6058.2                      | 4048                                                                                |        |                |                     |                     |                         |                       |        |                 |        |       |      |       |     |                 |        |       |      |      |     |                 |        |       |      |      |     |                  |        |       |      |      |     |                |                 |                           |                             |                     |                 |       |     |        |      |                 |       |     |        |      |                 |       |     |        |      |                  |       |     |        |      |
| 8640 min Winter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 1.338               | 0.0                                                                             | 6259.3                      | 4544                                                                                |        |                |                     |                     |                         |                       |        |                 |        |       |      |       |     |                 |        |       |      |      |     |                 |        |       |      |      |     |                  |        |       |      |      |     |                |                 |                           |                             |                     |                 |       |     |        |      |                 |       |     |        |      |                 |       |     |        |      |                  |       |     |        |      |
| 10080 min Winter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 1.184               | 0.0                                                                             | 6420.7                      | 5264                                                                                |        |                |                     |                     |                         |                       |        |                 |        |       |      |       |     |                 |        |       |      |      |     |                 |        |       |      |      |     |                  |        |       |      |      |     |                |                 |                           |                             |                     |                 |       |     |        |      |                 |       |     |        |      |                 |       |     |        |      |                  |       |     |        |      |
| ©1982-2020 Innovyze                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                     |                                                                                 |                             |                                                                                     |        |                |                     |                     |                         |                       |        |                 |        |       |      |       |     |                 |        |       |      |      |     |                 |        |       |      |      |     |                  |        |       |      |      |     |                |                 |                           |                             |                     |                 |       |     |        |      |                 |       |     |        |      |                 |       |     |        |      |                  |       |     |        |      |



Micro  
Drainage

|                       |                   |                       |       |
|-----------------------|-------------------|-----------------------|-------|
| Rainfall Model        | FSR               | Winter Storms         | Yes   |
| Return Period (years) | 100               | Cv (Summer)           | 0.750 |
| Region                | England and Wales | Cv (Winter)           | 0.840 |
| M5-60 (mm)            | 20.000            | Shortest Storm (mins) | 15    |
| Ratio R               | 0.348             | Longest Storm (mins)  | 10080 |
| Summer Storms         | Yes               | Climate Change %      | +45   |

Total Area (ha) 0.000

0            4   0.000

| Ardent Consulting Engineers                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                            |                                                                                 | Page 5                    |                                                                                     |                        |           |                        |           |                        |           |                        |       |       |       |       |       |       |                |                            |                 |       |                   |      |            |            |           |                           |             |         |                |     |               |     |                  |        |                                   |     |                                 |      |                |          |            |                |          |            |                           |       |      |           |       |      |            |       |      |                           |   |      |           |            |           |            |           |            |           |            |       |     |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |  |  |       |      |       |      |       |      |  |  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|---------------------------------------------------------------------------------|---------------------------|-------------------------------------------------------------------------------------|------------------------|-----------|------------------------|-----------|------------------------|-----------|------------------------|-------|-------|-------|-------|-------|-------|----------------|----------------------------|-----------------|-------|-------------------|------|------------|------------|-----------|---------------------------|-------------|---------|----------------|-----|---------------|-----|------------------|--------|-----------------------------------|-----|---------------------------------|------|----------------|----------|------------|----------------|----------|------------|---------------------------|-------|------|-----------|-------|------|------------|-------|------|---------------------------|---|------|-----------|------------|-----------|------------|-----------|------------|-----------|------------|-------|-----|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|--|--|-------|------|-------|------|-------|------|--|--|
| Suite 9, 10 Churchill Square ...<br>Kings Hill<br>West Malling, ME19 4YU                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                            | Bird in Eye Farm, Uckfield<br>SW Source Control Model<br>1 in 100 year + 45% CC |                           |  |                        |           |                        |           |                        |           |                        |       |       |       |       |       |       |                |                            |                 |       |                   |      |            |            |           |                           |             |         |                |     |               |     |                  |        |                                   |     |                                 |      |                |          |            |                |          |            |                           |       |      |           |       |      |            |       |      |                           |   |      |           |            |           |            |           |            |           |            |       |     |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |  |  |       |      |       |      |       |      |  |  |
| Date 10/05/2024                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                            | Designed by AW                                                                  |                           |                                                                                     |                        |           |                        |           |                        |           |                        |       |       |       |       |       |       |                |                            |                 |       |                   |      |            |            |           |                           |             |         |                |     |               |     |                  |        |                                   |     |                                 |      |                |          |            |                |          |            |                           |       |      |           |       |      |            |       |      |                           |   |      |           |            |           |            |           |            |           |            |       |     |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |  |  |       |      |       |      |       |      |  |  |
| File zONE Z - CAT C TANK C+45...                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                            | Checked by DM                                                                   |                           |                                                                                     |                        |           |                        |           |                        |           |                        |       |       |       |       |       |       |                |                            |                 |       |                   |      |            |            |           |                           |             |         |                |     |               |     |                  |        |                                   |     |                                 |      |                |          |            |                |          |            |                           |       |      |           |       |      |            |       |      |                           |   |      |           |            |           |            |           |            |           |            |       |     |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |  |  |       |      |       |      |       |      |  |  |
| XP Solutions                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                            | Source Control 2020.1                                                           |                           |                                                                                     |                        |           |                        |           |                        |           |                        |       |       |       |       |       |       |                |                            |                 |       |                   |      |            |            |           |                           |             |         |                |     |               |     |                  |        |                                   |     |                                 |      |                |          |            |                |          |            |                           |       |      |           |       |      |            |       |      |                           |   |      |           |            |           |            |           |            |           |            |       |     |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |  |  |       |      |       |      |       |      |  |  |
| <p style="text-align: center;"><u>Cascade Model Details for 2401070-Basin 4.SRCX</u></p> <p style="text-align: center;">Storage is Online Cover Level (m) 24.000</p> <p style="text-align: center;"><u>Tank or Pond Structure</u></p> <p style="text-align: center;">Invert Level (m) 22.500</p> <table><tr><th>Depth (m)</th><th>Area (m<sup>2</sup>)</th><th>Depth (m)</th><th>Area (m<sup>2</sup>)</th><th>Depth (m)</th><th>Area (m<sup>2</sup>)</th></tr><tr><td>0.000</td><td>218.0</td><td>1.200</td><td>555.0</td><td>1.500</td><td>652.0</td></tr></table> <p style="text-align: center;"><u>Hydro-Brake® Optimum Outflow Control</u></p> <table><tr><td>Unit Reference</td><td>MD-SHE-0239-3150-1200-3150</td></tr><tr><td>Design Head (m)</td><td>1.200</td></tr><tr><td>Design Flow (l/s)</td><td>31.5</td></tr><tr><td>Flush-Flo™</td><td>Calculated</td></tr><tr><td>Objective</td><td>Minimise upstream storage</td></tr><tr><td>Application</td><td>Surface</td></tr><tr><td>Sump Available</td><td>Yes</td></tr><tr><td>Diameter (mm)</td><td>239</td></tr><tr><td>Invert Level (m)</td><td>22.500</td></tr><tr><td>Minimum Outlet Pipe Diameter (mm)</td><td>300</td></tr><tr><td>Suggested Manhole Diameter (mm)</td><td>1800</td></tr></table> <table><tr><th>Control Points</th><th>Head (m)</th><th>Flow (l/s)</th><th>Control Points</th><th>Head (m)</th><th>Flow (l/s)</th></tr><tr><td>Design Point (Calculated)</td><td>1.200</td><td>31.5</td><td>Kick-Flo®</td><td>0.863</td><td>26.9</td></tr><tr><td>Flush-Flo™</td><td>0.412</td><td>31.4</td><td>Mean Flow over Head Range</td><td>-</td><td>26.5</td></tr></table> <p>The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake® Optimum as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated</p> <table><tr><th>Depth (m)</th><th>Flow (l/s)</th><th>Depth (m)</th><th>Flow (l/s)</th><th>Depth (m)</th><th>Flow (l/s)</th><th>Depth (m)</th><th>Flow (l/s)</th></tr><tr><td>0.100</td><td>7.9</td><td>1.200</td><td>31.5</td><td>3.000</td><td>48.9</td><td>7.000</td><td>73.8</td></tr><tr><td>0.200</td><td>24.3</td><td>1.400</td><td>33.9</td><td>3.500</td><td>52.7</td><td>7.500</td><td>76.3</td></tr><tr><td>0.300</td><td>30.9</td><td>1.600</td><td>36.2</td><td>4.000</td><td>56.3</td><td>8.000</td><td>78.8</td></tr><tr><td>0.400</td><td>31.4</td><td>1.800</td><td>38.3</td><td>4.500</td><td>59.6</td><td>8.500</td><td>81.1</td></tr><tr><td>0.500</td><td>31.2</td><td>2.000</td><td>40.2</td><td>5.000</td><td>62.7</td><td>9.000</td><td>83.4</td></tr><tr><td>0.600</td><td>30.7</td><td>2.200</td><td>42.1</td><td>5.500</td><td>65.7</td><td>9.500</td><td>85.7</td></tr><tr><td>0.800</td><td>28.6</td><td>2.400</td><td>43.9</td><td>6.000</td><td>68.5</td><td></td><td></td></tr><tr><td>1.000</td><td>28.9</td><td>2.600</td><td>45.7</td><td>6.500</td><td>71.2</td><td></td><td></td></tr></table> |                            |                                                                                 |                           |                                                                                     |                        | Depth (m) | Area (m <sup>2</sup> ) | Depth (m) | Area (m <sup>2</sup> ) | Depth (m) | Area (m <sup>2</sup> ) | 0.000 | 218.0 | 1.200 | 555.0 | 1.500 | 652.0 | Unit Reference | MD-SHE-0239-3150-1200-3150 | Design Head (m) | 1.200 | Design Flow (l/s) | 31.5 | Flush-Flo™ | Calculated | Objective | Minimise upstream storage | Application | Surface | Sump Available | Yes | Diameter (mm) | 239 | Invert Level (m) | 22.500 | Minimum Outlet Pipe Diameter (mm) | 300 | Suggested Manhole Diameter (mm) | 1800 | Control Points | Head (m) | Flow (l/s) | Control Points | Head (m) | Flow (l/s) | Design Point (Calculated) | 1.200 | 31.5 | Kick-Flo® | 0.863 | 26.9 | Flush-Flo™ | 0.412 | 31.4 | Mean Flow over Head Range | - | 26.5 | Depth (m) | Flow (l/s) | Depth (m) | Flow (l/s) | Depth (m) | Flow (l/s) | Depth (m) | Flow (l/s) | 0.100 | 7.9 | 1.200 | 31.5 | 3.000 | 48.9 | 7.000 | 73.8 | 0.200 | 24.3 | 1.400 | 33.9 | 3.500 | 52.7 | 7.500 | 76.3 | 0.300 | 30.9 | 1.600 | 36.2 | 4.000 | 56.3 | 8.000 | 78.8 | 0.400 | 31.4 | 1.800 | 38.3 | 4.500 | 59.6 | 8.500 | 81.1 | 0.500 | 31.2 | 2.000 | 40.2 | 5.000 | 62.7 | 9.000 | 83.4 | 0.600 | 30.7 | 2.200 | 42.1 | 5.500 | 65.7 | 9.500 | 85.7 | 0.800 | 28.6 | 2.400 | 43.9 | 6.000 | 68.5 |  |  | 1.000 | 28.9 | 2.600 | 45.7 | 6.500 | 71.2 |  |  |
| Depth (m)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Area (m <sup>2</sup> )     | Depth (m)                                                                       | Area (m <sup>2</sup> )    | Depth (m)                                                                           | Area (m <sup>2</sup> ) |           |                        |           |                        |           |                        |       |       |       |       |       |       |                |                            |                 |       |                   |      |            |            |           |                           |             |         |                |     |               |     |                  |        |                                   |     |                                 |      |                |          |            |                |          |            |                           |       |      |           |       |      |            |       |      |                           |   |      |           |            |           |            |           |            |           |            |       |     |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |  |  |       |      |       |      |       |      |  |  |
| 0.000                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 218.0                      | 1.200                                                                           | 555.0                     | 1.500                                                                               | 652.0                  |           |                        |           |                        |           |                        |       |       |       |       |       |       |                |                            |                 |       |                   |      |            |            |           |                           |             |         |                |     |               |     |                  |        |                                   |     |                                 |      |                |          |            |                |          |            |                           |       |      |           |       |      |            |       |      |                           |   |      |           |            |           |            |           |            |           |            |       |     |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |  |  |       |      |       |      |       |      |  |  |
| Unit Reference                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | MD-SHE-0239-3150-1200-3150 |                                                                                 |                           |                                                                                     |                        |           |                        |           |                        |           |                        |       |       |       |       |       |       |                |                            |                 |       |                   |      |            |            |           |                           |             |         |                |     |               |     |                  |        |                                   |     |                                 |      |                |          |            |                |          |            |                           |       |      |           |       |      |            |       |      |                           |   |      |           |            |           |            |           |            |           |            |       |     |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |  |  |       |      |       |      |       |      |  |  |
| Design Head (m)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 1.200                      |                                                                                 |                           |                                                                                     |                        |           |                        |           |                        |           |                        |       |       |       |       |       |       |                |                            |                 |       |                   |      |            |            |           |                           |             |         |                |     |               |     |                  |        |                                   |     |                                 |      |                |          |            |                |          |            |                           |       |      |           |       |      |            |       |      |                           |   |      |           |            |           |            |           |            |           |            |       |     |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |  |  |       |      |       |      |       |      |  |  |
| Design Flow (l/s)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 31.5                       |                                                                                 |                           |                                                                                     |                        |           |                        |           |                        |           |                        |       |       |       |       |       |       |                |                            |                 |       |                   |      |            |            |           |                           |             |         |                |     |               |     |                  |        |                                   |     |                                 |      |                |          |            |                |          |            |                           |       |      |           |       |      |            |       |      |                           |   |      |           |            |           |            |           |            |           |            |       |     |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |  |  |       |      |       |      |       |      |  |  |
| Flush-Flo™                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Calculated                 |                                                                                 |                           |                                                                                     |                        |           |                        |           |                        |           |                        |       |       |       |       |       |       |                |                            |                 |       |                   |      |            |            |           |                           |             |         |                |     |               |     |                  |        |                                   |     |                                 |      |                |          |            |                |          |            |                           |       |      |           |       |      |            |       |      |                           |   |      |           |            |           |            |           |            |           |            |       |     |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |  |  |       |      |       |      |       |      |  |  |
| Objective                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Minimise upstream storage  |                                                                                 |                           |                                                                                     |                        |           |                        |           |                        |           |                        |       |       |       |       |       |       |                |                            |                 |       |                   |      |            |            |           |                           |             |         |                |     |               |     |                  |        |                                   |     |                                 |      |                |          |            |                |          |            |                           |       |      |           |       |      |            |       |      |                           |   |      |           |            |           |            |           |            |           |            |       |     |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |  |  |       |      |       |      |       |      |  |  |
| Application                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Surface                    |                                                                                 |                           |                                                                                     |                        |           |                        |           |                        |           |                        |       |       |       |       |       |       |                |                            |                 |       |                   |      |            |            |           |                           |             |         |                |     |               |     |                  |        |                                   |     |                                 |      |                |          |            |                |          |            |                           |       |      |           |       |      |            |       |      |                           |   |      |           |            |           |            |           |            |           |            |       |     |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |  |  |       |      |       |      |       |      |  |  |
| Sump Available                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Yes                        |                                                                                 |                           |                                                                                     |                        |           |                        |           |                        |           |                        |       |       |       |       |       |       |                |                            |                 |       |                   |      |            |            |           |                           |             |         |                |     |               |     |                  |        |                                   |     |                                 |      |                |          |            |                |          |            |                           |       |      |           |       |      |            |       |      |                           |   |      |           |            |           |            |           |            |           |            |       |     |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |  |  |       |      |       |      |       |      |  |  |
| Diameter (mm)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 239                        |                                                                                 |                           |                                                                                     |                        |           |                        |           |                        |           |                        |       |       |       |       |       |       |                |                            |                 |       |                   |      |            |            |           |                           |             |         |                |     |               |     |                  |        |                                   |     |                                 |      |                |          |            |                |          |            |                           |       |      |           |       |      |            |       |      |                           |   |      |           |            |           |            |           |            |           |            |       |     |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |  |  |       |      |       |      |       |      |  |  |
| Invert Level (m)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 22.500                     |                                                                                 |                           |                                                                                     |                        |           |                        |           |                        |           |                        |       |       |       |       |       |       |                |                            |                 |       |                   |      |            |            |           |                           |             |         |                |     |               |     |                  |        |                                   |     |                                 |      |                |          |            |                |          |            |                           |       |      |           |       |      |            |       |      |                           |   |      |           |            |           |            |           |            |           |            |       |     |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |  |  |       |      |       |      |       |      |  |  |
| Minimum Outlet Pipe Diameter (mm)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 300                        |                                                                                 |                           |                                                                                     |                        |           |                        |           |                        |           |                        |       |       |       |       |       |       |                |                            |                 |       |                   |      |            |            |           |                           |             |         |                |     |               |     |                  |        |                                   |     |                                 |      |                |          |            |                |          |            |                           |       |      |           |       |      |            |       |      |                           |   |      |           |            |           |            |           |            |           |            |       |     |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |  |  |       |      |       |      |       |      |  |  |
| Suggested Manhole Diameter (mm)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 1800                       |                                                                                 |                           |                                                                                     |                        |           |                        |           |                        |           |                        |       |       |       |       |       |       |                |                            |                 |       |                   |      |            |            |           |                           |             |         |                |     |               |     |                  |        |                                   |     |                                 |      |                |          |            |                |          |            |                           |       |      |           |       |      |            |       |      |                           |   |      |           |            |           |            |           |            |           |            |       |     |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |  |  |       |      |       |      |       |      |  |  |
| Control Points                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Head (m)                   | Flow (l/s)                                                                      | Control Points            | Head (m)                                                                            | Flow (l/s)             |           |                        |           |                        |           |                        |       |       |       |       |       |       |                |                            |                 |       |                   |      |            |            |           |                           |             |         |                |     |               |     |                  |        |                                   |     |                                 |      |                |          |            |                |          |            |                           |       |      |           |       |      |            |       |      |                           |   |      |           |            |           |            |           |            |           |            |       |     |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |  |  |       |      |       |      |       |      |  |  |
| Design Point (Calculated)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 1.200                      | 31.5                                                                            | Kick-Flo®                 | 0.863                                                                               | 26.9                   |           |                        |           |                        |           |                        |       |       |       |       |       |       |                |                            |                 |       |                   |      |            |            |           |                           |             |         |                |     |               |     |                  |        |                                   |     |                                 |      |                |          |            |                |          |            |                           |       |      |           |       |      |            |       |      |                           |   |      |           |            |           |            |           |            |           |            |       |     |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |  |  |       |      |       |      |       |      |  |  |
| Flush-Flo™                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 0.412                      | 31.4                                                                            | Mean Flow over Head Range | -                                                                                   | 26.5                   |           |                        |           |                        |           |                        |       |       |       |       |       |       |                |                            |                 |       |                   |      |            |            |           |                           |             |         |                |     |               |     |                  |        |                                   |     |                                 |      |                |          |            |                |          |            |                           |       |      |           |       |      |            |       |      |                           |   |      |           |            |           |            |           |            |           |            |       |     |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |  |  |       |      |       |      |       |      |  |  |
| Depth (m)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Flow (l/s)                 | Depth (m)                                                                       | Flow (l/s)                | Depth (m)                                                                           | Flow (l/s)             | Depth (m) | Flow (l/s)             |           |                        |           |                        |       |       |       |       |       |       |                |                            |                 |       |                   |      |            |            |           |                           |             |         |                |     |               |     |                  |        |                                   |     |                                 |      |                |          |            |                |          |            |                           |       |      |           |       |      |            |       |      |                           |   |      |           |            |           |            |           |            |           |            |       |     |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |  |  |       |      |       |      |       |      |  |  |
| 0.100                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 7.9                        | 1.200                                                                           | 31.5                      | 3.000                                                                               | 48.9                   | 7.000     | 73.8                   |           |                        |           |                        |       |       |       |       |       |       |                |                            |                 |       |                   |      |            |            |           |                           |             |         |                |     |               |     |                  |        |                                   |     |                                 |      |                |          |            |                |          |            |                           |       |      |           |       |      |            |       |      |                           |   |      |           |            |           |            |           |            |           |            |       |     |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |  |  |       |      |       |      |       |      |  |  |
| 0.200                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 24.3                       | 1.400                                                                           | 33.9                      | 3.500                                                                               | 52.7                   | 7.500     | 76.3                   |           |                        |           |                        |       |       |       |       |       |       |                |                            |                 |       |                   |      |            |            |           |                           |             |         |                |     |               |     |                  |        |                                   |     |                                 |      |                |          |            |                |          |            |                           |       |      |           |       |      |            |       |      |                           |   |      |           |            |           |            |           |            |           |            |       |     |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |  |  |       |      |       |      |       |      |  |  |
| 0.300                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 30.9                       | 1.600                                                                           | 36.2                      | 4.000                                                                               | 56.3                   | 8.000     | 78.8                   |           |                        |           |                        |       |       |       |       |       |       |                |                            |                 |       |                   |      |            |            |           |                           |             |         |                |     |               |     |                  |        |                                   |     |                                 |      |                |          |            |                |          |            |                           |       |      |           |       |      |            |       |      |                           |   |      |           |            |           |            |           |            |           |            |       |     |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |  |  |       |      |       |      |       |      |  |  |
| 0.400                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 31.4                       | 1.800                                                                           | 38.3                      | 4.500                                                                               | 59.6                   | 8.500     | 81.1                   |           |                        |           |                        |       |       |       |       |       |       |                |                            |                 |       |                   |      |            |            |           |                           |             |         |                |     |               |     |                  |        |                                   |     |                                 |      |                |          |            |                |          |            |                           |       |      |           |       |      |            |       |      |                           |   |      |           |            |           |            |           |            |           |            |       |     |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |  |  |       |      |       |      |       |      |  |  |
| 0.500                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 31.2                       | 2.000                                                                           | 40.2                      | 5.000                                                                               | 62.7                   | 9.000     | 83.4                   |           |                        |           |                        |       |       |       |       |       |       |                |                            |                 |       |                   |      |            |            |           |                           |             |         |                |     |               |     |                  |        |                                   |     |                                 |      |                |          |            |                |          |            |                           |       |      |           |       |      |            |       |      |                           |   |      |           |            |           |            |           |            |           |            |       |     |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |  |  |       |      |       |      |       |      |  |  |
| 0.600                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 30.7                       | 2.200                                                                           | 42.1                      | 5.500                                                                               | 65.7                   | 9.500     | 85.7                   |           |                        |           |                        |       |       |       |       |       |       |                |                            |                 |       |                   |      |            |            |           |                           |             |         |                |     |               |     |                  |        |                                   |     |                                 |      |                |          |            |                |          |            |                           |       |      |           |       |      |            |       |      |                           |   |      |           |            |           |            |           |            |           |            |       |     |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |  |  |       |      |       |      |       |      |  |  |
| 0.800                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 28.6                       | 2.400                                                                           | 43.9                      | 6.000                                                                               | 68.5                   |           |                        |           |                        |           |                        |       |       |       |       |       |       |                |                            |                 |       |                   |      |            |            |           |                           |             |         |                |     |               |     |                  |        |                                   |     |                                 |      |                |          |            |                |          |            |                           |       |      |           |       |      |            |       |      |                           |   |      |           |            |           |            |           |            |           |            |       |     |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |  |  |       |      |       |      |       |      |  |  |
| 1.000                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 28.9                       | 2.600                                                                           | 45.7                      | 6.500                                                                               | 71.2                   |           |                        |           |                        |           |                        |       |       |       |       |       |       |                |                            |                 |       |                   |      |            |            |           |                           |             |         |                |     |               |     |                  |        |                                   |     |                                 |      |                |          |            |                |          |            |                           |       |      |           |       |      |            |       |      |                           |   |      |           |            |           |            |           |            |           |            |       |     |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |  |  |       |      |       |      |       |      |  |  |
| ©1982-2020 Innovyze                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                            |                                                                                 |                           |                                                                                     |                        |           |                        |           |                        |           |                        |       |       |       |       |       |       |                |                            |                 |       |                   |      |            |            |           |                           |             |         |                |     |               |     |                  |        |                                   |     |                                 |      |                |          |            |                |          |            |                           |       |      |           |       |      |            |       |      |                           |   |      |           |            |           |            |           |            |           |            |       |     |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |  |  |       |      |       |      |       |      |  |  |

## **APPENDIX E**

### **CIRIA 753 Simple Index Treatment Method**

**Pollution hazard indices for different land use classifications (land use shaded grey applicable for the development)**

| Land use                                                                                                                                                                                                                                                                                                    | Pollution hazard level | Total suspended solids (TSS) | Metals                                                                     | Hydrocarbons |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|------------------------------|----------------------------------------------------------------------------|--------------|
| Residential roofs                                                                                                                                                                                                                                                                                           | Very low               | 0.2                          | 0.2                                                                        | 0.05         |
| Other roofs (typically commercial/industrial roofs)                                                                                                                                                                                                                                                         | Low                    | 0.3                          | 0.2 (up to 0.8 where there is potential for metals to leach from the roof) | 0.05         |
| Individual property driveways, residential car parks, low traffic roads (eg cul de sacs, home zones and general access roads) and non-residential car parking with infrequent change (eg schools, offices) ie < 300 traffic movements/day                                                                   | Low                    | 0.5                          | 0.4                                                                        | 0.4          |
| Commercial yard and delivery areas, non-residential car parking with frequent change (e.g. hospitals, retail), all roads except low traffic roads and trunk roads/motorways                                                                                                                                 | Medium                 | 0.7                          | 0.6                                                                        | 0.7          |
| Sites with heavy pollution (e.g. haulage yards, lorry parks, highly frequented lorry approaches to industrial estates, waste sites), sites where chemicals and fuels (other than domestic fuel oil) are to be delivered, handled, stored, used or manufactured; industrial sites; trunk roads and motorways | High                   | 0.8                          | 0.8                                                                        | 0.9          |

**Indicative SuDS mitigation indices for discharges to surface waters**  
**(SuDS components shaded grey applicable to this development)**

|                               | Mitigation indices                                                                                                                                                                                                                                 |        |              |
|-------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|--------------|
| Type of SuDS component        | TSS                                                                                                                                                                                                                                                | Metals | Hydrocarbons |
| Filter strip                  | 0.4                                                                                                                                                                                                                                                | 0.4    | 0.5          |
| Filter drain                  | 0.4                                                                                                                                                                                                                                                | 0.4    | 0.4          |
| Swale                         | 0.5                                                                                                                                                                                                                                                | 0.6    | 0.6          |
| Bio retention system          | 0.8                                                                                                                                                                                                                                                | 0.8    | 0.8          |
| Permeable pavement            | 0.7                                                                                                                                                                                                                                                | 0.6    | 0.7          |
| Detention basin               | 0.5                                                                                                                                                                                                                                                | 0.5    | 0.6          |
| Pond                          | 0.7                                                                                                                                                                                                                                                | 0.7    | 0.5          |
| Wetland                       | 0.8                                                                                                                                                                                                                                                | 0.8    | 0.8          |
| Proprietary treatment systems | These must demonstrate that they can address each of the contaminant types to acceptable levels for frequent events up to approximately the 1 in 1 year return period event, for inflow concentrations relevant to the contributing drainage area. |        |              |

**Indicative SuDS mitigation indices for discharges to surface waters**

| For surface water discharge from Residential Parking Areas and Low Traffic Roads <300 traffic movements/day |                             |           |              |
|-------------------------------------------------------------------------------------------------------------|-----------------------------|-----------|--------------|
|                                                                                                             | Required mitigation indices |           |              |
| Source                                                                                                      | TSS                         | Metals    | Hydrocarbons |
| Medium                                                                                                      | 0.7                         | 0.6       | 0.7          |
| Private Drainage Network                                                                                    |                             |           |              |
| Basin 1/2/3                                                                                                 | 0.5                         | 0.5       | 0.6          |
| Basin 4                                                                                                     | 0.5 x 0.5                   | 0.5 x 0.5 | 0.5 x 0.6    |
| Check                                                                                                       | +0.05                       | +0.15     | +0.2         |

**Total SuDS mitigation index = mitigation index<sub>1</sub> + (0.5 x mitigation index<sub>2</sub>)**

## **APPENDIX F**

### **SUDS Maintenance and Management Plan**

**SuDS Management & Maintenance Strategy****July 2024**

| SuDS Element                  | Swales/Highway Swales                                                                                                                  |                                                                            |
|-------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------|
| Maintenance Period            | Maintenance Task                                                                                                                       | Frequency                                                                  |
| <b>Regular Maintenance</b>    | Remove litter and debris                                                                                                               | Monthly, or as required                                                    |
|                               | Cut the grass – to retain grass height within specified design range                                                                   | Monthly (during growing season) or as required                             |
|                               | Manage other vegetation and remove nuisance plants                                                                                     | Monthly at start, then as required                                         |
|                               | Inspect inlets, outlets and overflows for blockages, and clear if required                                                             | Monthly                                                                    |
|                               | Inspect infiltration surfaces for ponding, compaction, silt accumulation, record areas where water is ponding for > 48 hours           | Monthly, or when required                                                  |
|                               | Inspect vegetation coverage                                                                                                            | Monthly for 6 months, quarterly for 2 years, then half yearly              |
|                               | Inspect inlets and facility surface for silt accumulation, establish appropriate silt removal frequencies                              | Half yearly                                                                |
| <b>Occasional Maintenance</b> | Reseed areas of poor vegetation growth; alter plant types to better suit conditions, if required                                       | As required or if bare soil is exposed over > 10% of the filter strip area |
| <b>Remedial Actions</b>       | Repair erosion or other damage by re-turfing or reseedling                                                                             | As required                                                                |
|                               | Relevel uneven surfaces and reinstate design levels                                                                                    | As required                                                                |
|                               | Scarify and spike topsoil layer to improve infiltration performance, break up silt deposits and prevent compaction of the soil surface | As required                                                                |

**SuDS Management & Maintenance Strategy****July 2024**

|  |                                                                                                |             |
|--|------------------------------------------------------------------------------------------------|-------------|
|  | Remove build-up of sediment on upstream gravel trench, flow spreader or at top of filter strip | As required |
|  | Remove and dispose of oils or petrol residues using safe standard practices                    | As required |

| <b>SUDS Element</b>        | <b>Detention Basin</b>                                                                                    |                                                         |
|----------------------------|-----------------------------------------------------------------------------------------------------------|---------------------------------------------------------|
| <b>Maintenance Period</b>  | <b>Maintenance Task</b>                                                                                   | <b>Frequency</b>                                        |
| <b>Regular Maintenance</b> | Remove litter and debris                                                                                  | Monthly (or as required)                                |
|                            | Cut the grass – for spillways and access routes                                                           | Monthly (during growing season), or as required         |
|                            | Cut grass - meadow grass in and around basin                                                              | Half yearly (spring, before nesting season, and autumn) |
|                            | Manage other vegetation and remove nuisance plants                                                        | Monthly (at start, then as required)                    |
|                            | Inspect inlets, outlets, and overflows for blockages, and clear is required                               | Monthly                                                 |
|                            | Inspect banksides, structures, pipework etc. for evidence of physical damage                              | Monthly                                                 |
|                            | Inspect inlets and facility surface for silt accumulation. Establish appropriate silt removal frequencies | Monthly (for first year), then annually or as required  |
|                            | Check any penstocks and other mechanical devices                                                          | Annually                                                |
|                            | Tidy all dead growth before start of growing season                                                       | Annually                                                |
|                            | Remove sediment from inlets, outlets and forebays                                                         | Annually (or as required)                               |
|                            | Manage wetland plants in outlet pool- where provided                                                      | Annually                                                |

**SuDS Management & Maintenance Strategy****July 2024**

|                               |                                                                            |                                                                                                                       |
|-------------------------------|----------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|
| <b>Occasional Maintenance</b> | Reseed areas of poor vegetation growth                                     | As required                                                                                                           |
|                               | Prune and trim any trees and remove cuttings                               | Every 2 years, or as required                                                                                         |
|                               | Remove sediment from inlets, outlets, forebay and main basin when required | Every 5 years, or as required (likely to be minimal requirements where effective upstream source control is provided) |
| <b>Remedial Actions</b>       | Repair erosion or other damage by reseedling or returfing                  | As required                                                                                                           |
|                               | Realignment of rip-rap                                                     | As required                                                                                                           |
|                               | Repair/rehabilitation of inlets, outlets and overflows                     | As required                                                                                                           |
|                               | Relevel uneven levels and reinstate design levels                          | As required                                                                                                           |

| Element                       | Main River / Ordinary Watercourse                                                                                                        |                                     |
|-------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|
| Maintenance schedule          | Required action                                                                                                                          | Frequency                           |
| <b>Regular maintenance</b>    | Litter and debris removal.                                                                                                               | 6 Months                            |
|                               | Grass cutting along byelaw strips.                                                                                                       | 4-6 Months                          |
|                               | Manage other vegetation and remove nuisance plants.                                                                                      | 1 Year                              |
| <b>Occasional maintenance</b> | Repair erosion or channel and bank damage.                                                                                               | 1-2 years                           |
|                               | Re-level uneven surfaces and reinstate design levels.                                                                                    | 1-2 years                           |
|                               | Remove build-up of sediment.                                                                                                             | 2-5 Years                           |
| <b>Monitoring</b>             | Inspect inlets, outlets, erosion control, structures, channel base and channel banks and overflows for blockages, and clear if required. | 1 Year or after a major flood event |
|                               | Remove and dispose of oils or petrol residues using safe standard practices.                                                             | ASAP                                |

## **APPENDIX G**

Southern Water Capacity Letter



Head of Development and Building Control  
Wealden District Council  
Council Offices  
Vicarage Lane  
Hailsham  
East Sussex  
BN27 2AX

Your ref  
WD/2021/2198/MAO

Our ref  
PLAN-042043

Date  
22/10/2021

Contact  
Tel 0330 303 0119

Dear Sir/Madam,

**Proposal:** Outline planning application for the erection of up to 290 dwellings, associated landscaping, informal open space and strategic sang, with access from the b2102.

**Site:** WD/2021/2198/MAO: - Land at Bird in Eye Farm, South of Bird In Eye Hill, Framfield TN22 5HA.

Thank you for your letter dated 01/10/2021.

Southern Water has undertaken a desktop study of the impact that the additional foul sewerage flows from the proposed development will have on the existing public sewer network.

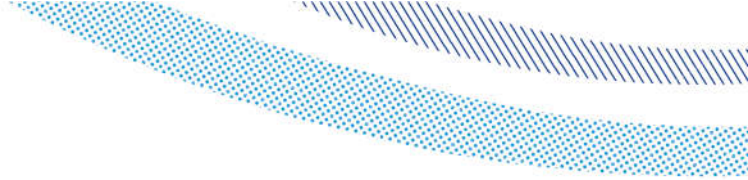
This initial study indicates that these additional flows may lead to an increased risk of foul flooding from the sewer network. Any network reinforcement that is deemed necessary to mitigate this will be provided by Southern Water.

Southern Water and the Developer will need to work together in order to review if the delivery of our network reinforcement aligns with the proposed occupation of the development, as it will take time to design and deliver any such reinforcement.

It may be possible for some initial dwellings to connect, pending network reinforcement. Southern Water will review and advise on this following consideration of the development programme and the extent of network reinforcement required.

Southern Water will carry out detailed network modelling as part of this review which may require existing flows to be monitored. This will enable us to establish the extent of any works required.

Southern Water endeavour to provide reinforcement within 24 months of planning consent being granted (Full or Outline) however for large developments our assessment of the timescales needed will require an allowance for the following which may result in an extension of the 24-month period:

- 
- Initial feasibility, detail modelling and preliminary estimates.
  - Flow monitoring (If required)
  - Detailed design, including land negotiations.
  - Construction.

Southern Water hence requests the following condition to be applied: Occupation of the development is to be phased and implemented to align with the delivery by Southern Water of any sewerage network reinforcement required to ensure that adequate wastewater network capacity is available to adequately drain the development.

The supporting documents make reference to drainage using Sustainable Drainage Systems (SuDS).

Under certain circumstances SuDS will be adopted by Southern Water should this be requested by the developer. Where SuDS form part of a continuous sewer system, and are not an isolated end of pipe SuDS component, adoption will be considered if such systems comply with the latest Sewers for Adoption (Appendix C) and CIRIA guidance available here:

[water.org.uk/sewerage-sector-guidance-approved-documents/](https://www.water.org.uk/sewerage-sector-guidance-approved-documents/)

[ciria.org/Memberships/The SuDS Manual C753 Chapters.aspx](https://www.ciria.org/Memberships/The_SuDS_Manual_C753_Chapters.aspx)

Where SuDS rely upon facilities which are not adoptable by sewerage undertakers the applicant will need to ensure that arrangements exist for the long-term maintenance of the SuDS facilities. It is critical that the effectiveness of these systems is maintained in perpetuity. Good management will avoid flooding from the proposed surface water system, which may result in the inundation of the foul sewerage system.

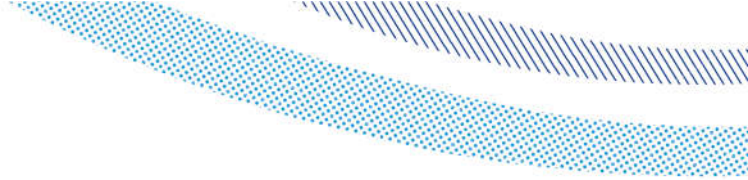
Thus, where a SuDS scheme is to be implemented, the drainage details submitted to the Local Planning Authority should:

- Specify the responsibilities of each party for the implementation of the SuDS scheme.
- Specify a timetable for implementation.
- Provide a management and maintenance plan for the lifetime of the development.

This should include the arrangements for adoption by any public authority or statutory undertaker and any other arrangements to secure the operation of the scheme throughout its lifetime.

The Council's Building Control officers or technical staff should be asked to comment on the adequacy of soakaways to dispose of surface water from the proposed development.

The Council's technical staff and the relevant authority for land drainage should comment on the adequacy of the proposals to discharge surface water to the local watercourse.



If the applicant proposes to offer a new on-site drainage and pumping station for adoption as part of the foul/surface water public sewerage system, this would have to be designed and constructed to the specification of Southern Water Services Ltd. A secure compound would be required, to which access for large vehicles would need to be possible at all times. The compound will be required to be 100 square metres in area, or of some such approved lesser area as would provide an operationally satisfactory layout. In order to protect the amenity of prospective residents, no habitable rooms shall be located within 15 metres to the boundary of the proposed adoptable pumping station, due to the potential odour, vibration and noise generated by all types of pumping stations. The transfer of land ownership will be required at a later stage for adoption.

We request that should this planning application receive planning approval, the following informative is attached to the consent: Construction of the development shall not commence until details of the proposed means of foul sewerage and surface water disposal have been submitted to, and approved in writing by, the Local Planning Authority in consultation with Southern Water.

This initial assessment does not prejudice any future assessment or commit to any adoption agreements under Section 104 of the Water Industry Act 1991. Please note that non-compliance with Sewers for Adoption standards will preclude future adoption of the foul and surface water sewerage network on site. The design of drainage should ensure that no groundwater or land drainage is to enter public sewers.

It is possible that a sewer now deemed to be public could be crossing the development site. Therefore, should any sewer be found during construction works, an investigation of the sewer will be required to ascertain its ownership before any further works commence on site.

For further advice, please contact Southern Water, Southern House, Yeoman Road, Worthing, West Sussex, BN13 3NX (Tel: 0330 303 0119).

Website: [southernwater.co.uk](https://southernwater.co.uk) or by email at: [SouthernWaterPlanning@southernwater.co.uk](mailto:SouthernWaterPlanning@southernwater.co.uk)

Yours faithfully,

Growth Planning Team  
**Business Channels**

[southernwater.co.uk/developing-building/planning-your-development](https://southernwater.co.uk/developing-building/planning-your-development)

# SOUTHERN WATER



The positions of pipes shown on this plan are believed to be correct, but Southern Water Services Ltd accept no responsibility in the event of inaccuracy. The actual positions should be determined on site.

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O.S. REF: TQ4820NW

Scale: 1:4000

Screen Print

**WARNING: BAC pipes are constructed of Bonded Asbestos Cement**

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



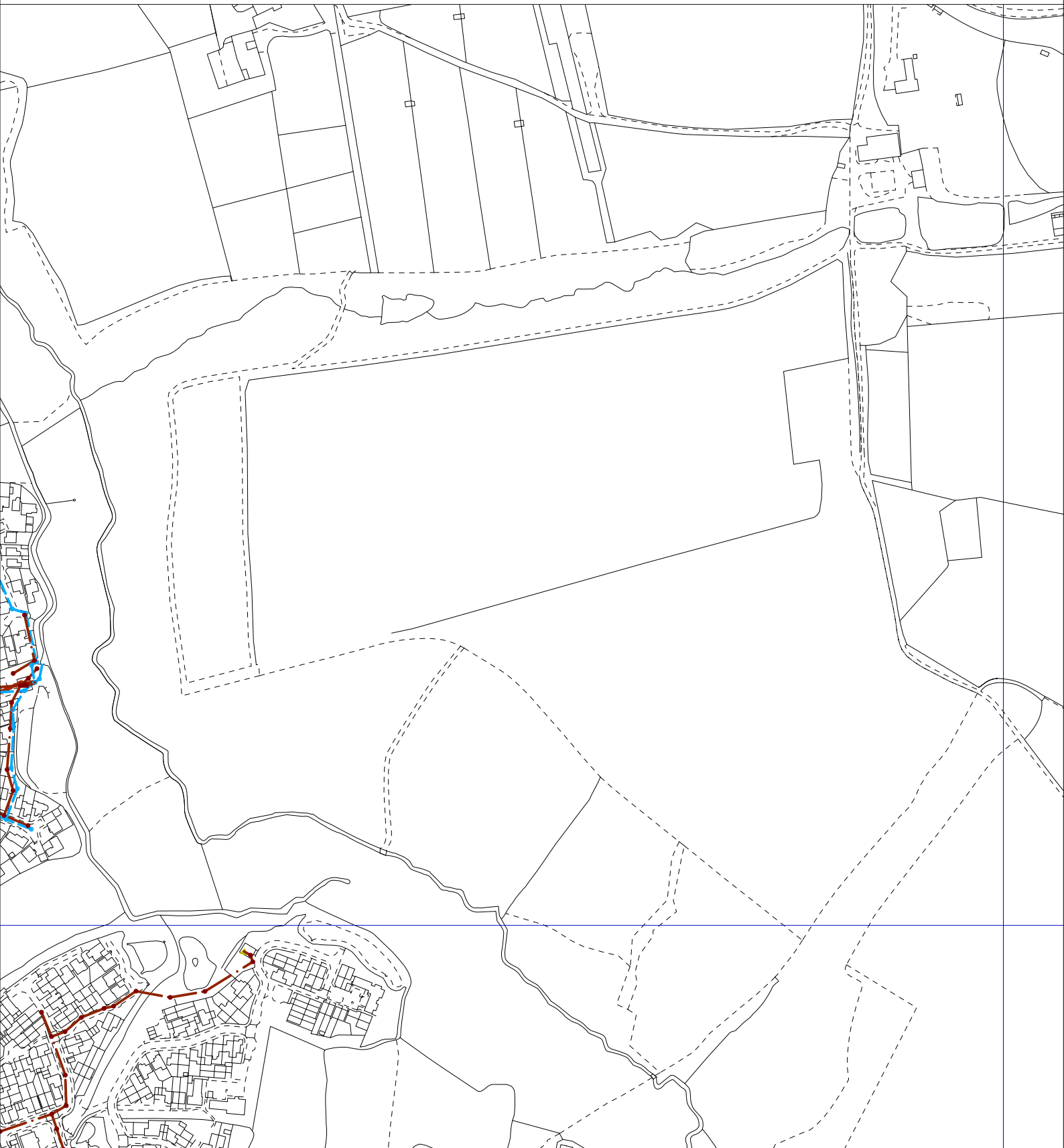
Printed By: chandne

Date: 20-10-2021

Southern Water MapGuide Browser

Requested By:

# SOUTHERN WATER



The positions of pipes shown on this plan are believed to be correct, but Southern Water Services Ltd accept no responsibility in the event of inaccuracy. The actual positions should be determined on site.

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O.S. REF: TQ4820SE

Scale: 1:4000

Screen Print

**WARNING: BAC pipes are constructed of Bonded Asbestos Cement**

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



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Date: 20-10-2021

Southern Water MapGuide Browser

Requested By:

## **APPENDIX H**

### Hydrological Regime Technical Note

## TECHNICAL NOTE

**Job Name:** Land at Bird in Eye Farm, South of Bird in Eye Hill, Uckfield

**Job No:** 48494/2002

**Note No:** TN007

**Date:** 02 August 2023

**Prepared By:** Paul Davison

**Subject:** **Potential Changes to Hydrological Regime**

### 1. Introduction

- 1.1. This technical note describes a conceptual model of the hydrology of the site at Bird in Eye Farm under non-extreme (non-flood) conditions. It then sets out, at a conceptual level, how the hydrological regime at the site might be expected to change under development proposals.
- 1.2. The site drains from the high ground in the north and east of the site, to the south and west towards an area of ancient woodland, as shown in Figure 1.



**Figure 1: Areas of ancient woodland to the south and west of the site (Defra MAGIC map).**

- 1.3. The development of the site thus has the potential to impact the quantity of runoff that will reach the woodland areas.
- 1.4. There are watercourses that flow through the centre of the ancient woodland. There is an ordinary watercourse that flows east to west from Hailwell Farm to the Framfield Stream. Based on the topography of the area, the catchment of this watercourse extends up as far as Framfield village, with the development site forming approximately 25% of the total catchment area (see Figure 2 below). The Framfield Stream main river also flows along the western boundary of the site, and has a much larger catchment, draining from Hawkhurst Common approximately 5km east of the site.

## TECHNICAL NOTE

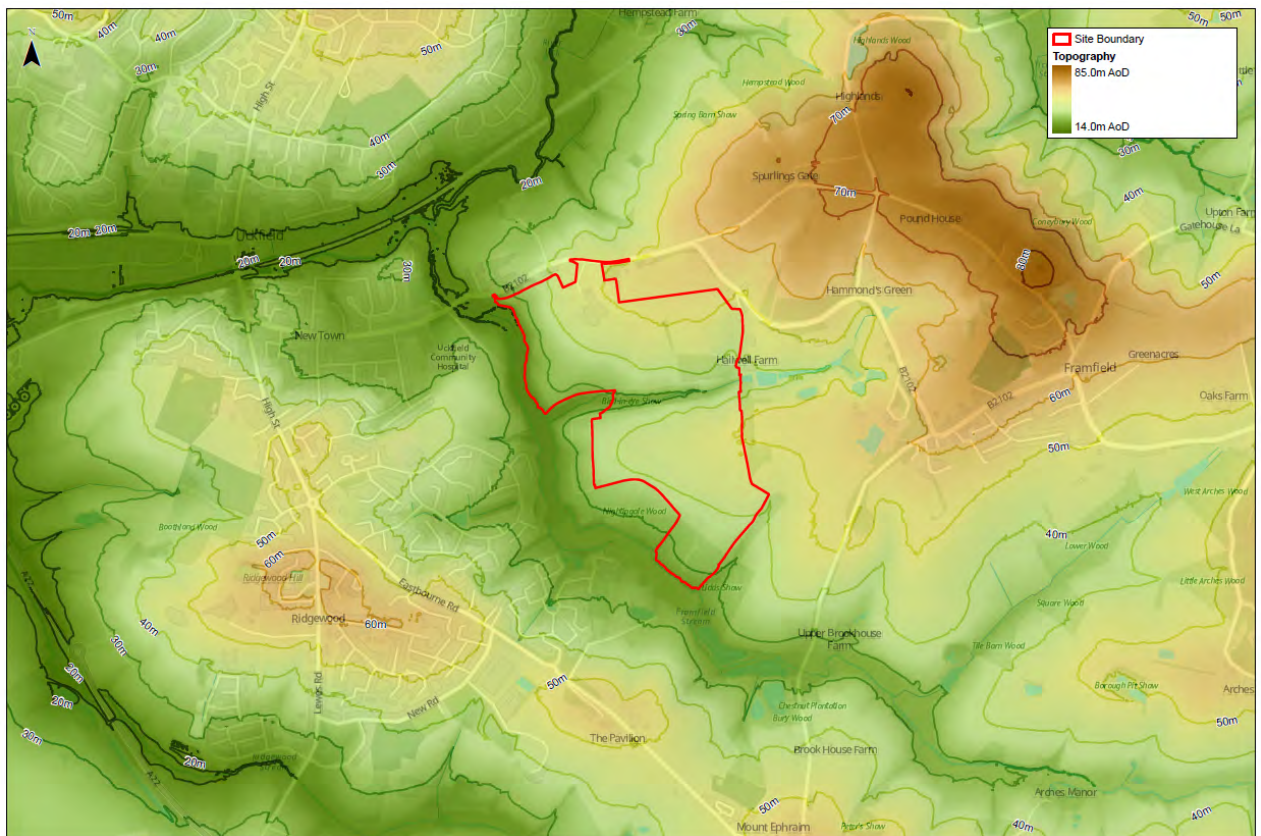


**Figure 2: Topography of the area**

## 2. Soil Hydrology

- 2.1. Soilscape soils mapping<sup>1</sup> indicates that soils on the site are loamy and clayey with impeded drainage.
- 2.2. This is supported by evidence from infiltration tests carried out in November 2022. The excavation of four trial pits at three locations on the site revealed largely sandy and silty soils. A layer of clay at 0.4-1.4 mbgl was found in one trial pit, but not at the other two locations.
- 2.3. Groundwater seepage was also noted at 0.8 mbgl (two pits) and 2.70 mbgl (one pit). No groundwater was encountered in the fourth pit.
- 2.4. This suggests that the principal hydrological pathways for incident rainfall are likely to be surface runoff and shallow lateral subsurface flow. There may also be some drainage to shallow groundwater where this is present, and when the subsoil is not waterlogged. However, the seasonal variability in groundwater levels at the site is not known, and it is likely that the significance of this pathway is reduced during the summer.
- 2.5. The relative proportions of runoff and shallow subsurface flow will be spatially variable and likely to be influenced by the presence or otherwise of clay soils, which appear to be discontinuous across the site.

<sup>1</sup> <https://www.landis.org.uk/soilsapes/>

## TECHNICAL NOTE

### 3. Water Balance Pre-Development

- 3.1. The site is currently managed as improved grassland utilised as paddocks, with a few areas of woodland. Incident rainfall will generate some surface runoff, with the remaining rainfall infiltrating the soil surface. Runoff will follow the topography of the site, draining to the south or west, with some re-infiltration likely before reaching the site boundary. Indicative flow routes are presented in Figure 48494-2002-SK06 appended to this note.
- 3.2. Infiltrating rainfall will be subject to losses from evapotranspiration (ET) by the grassland and woodland. In a normal summer it would be expected that a soil moisture deficit (SMD) would develop and any remaining infiltration, after evapotranspiration, would act partially to replenish this SMD, rather than draining from the soil.
- 3.3. In the autumn, the SMD will reduce to zero as incident rainfall exceeds losses to ET. Further infiltrating winter rainfall would drain from the soil either as recharge to shallow groundwater or laterally, if there is an impermeable or slowly permeable soil layer present, or if the subsoil becomes waterlogged.
- 3.4. This shallow subsurface flow would also be expected to follow the topography of the site, draining to the south or west. Runoff rates will be higher in the winter than in the summer, and ET losses lower.

### 4. Potential Changes to the Water Balance

- 4.1. The proposed development of the site will introduce some new urban area in the north-west of the site, but the majority of the site will be SANG. There will also be some new tree planting in the public open space, and street trees within the urban area. Further marginal planting will protect the existing woodland to the south and west of the site.
- 4.2. The replacement of some of the existing grassland with new urban area would be expected to slightly reduce ET losses from this part of the catchment. However, this would be partly or wholly offset by increases in ET from the new tree planting. Per unit area, ET losses from woodland are higher than from grassland.
- 4.3. The new urban area covers approximately 7.5% of the total catchment area of the watercourse draining east-west through the parcel of ancient woodland to the south, and so overall this effect is not expected to be significant.
- 4.4. Runoff from the new impermeable residential area will be intercepted by a vegetated swale and channelled to an attenuation basin. Post development flow routes are indicated on Figure 48494-2002-SK07 appended to this note. During non-extreme rainfall events it would be expected that some of the runoff intercepted by the swale would re-infiltrate before reaching the basin, particularly during the summer months. There will also be some minor ET losses to the vegetation in the swale.
- 4.5. Under normal conditions, particularly in the summer months when an SMD would develop, these losses to seepage and infiltration could be substantial, so not all rainfall runoff would reach the basin. Water lost to seepage from the swale (and the base of the basin) would, however, still ultimately drain from the site to the south and west towards the woodland.
- 4.6. In winter months, ET losses from all vegetation types are much lower than in the summer. Losses to re-infiltration would also be expected to be relatively small, especially given the findings of the infiltration tests which showed modest rates of seepage, and the majority of the runoff intercepted by the swales would be expected to reach the attenuation basin.
- 4.7. It is proposed to create an overdug area within the basin below the outfall level. This would ensure that the first few mm of rainfall would remain in the basin and ultimately be infiltrated, if not already lost to seepage and infiltration through the swales, to ensure that the hydrological regime to the ancient woodland during normal conditions is not changed significantly.

## TECHNICAL NOTE

- 4.8. Drainage from the SANG areas would not be expected to change due to the proposed development, with flow draining southwards towards the woodland as at present.

### 5. Summary

- 5.1. Under existing conditions, incident rainfall, after any ET losses, will become either rapid runoff or interflow under normal conditions. Due to the local topography, runoff would reach the woodland relatively quickly. The interflow will also reach the woodland but much more slowly.
- 5.2. Post development, with the surface water drainage scheme in place, runoff arising from the developed portion of the site (i.e. residential) will be intercepted by the swales. During a normal rainfall event, the majority of the runoff would infiltrate either from the base of the swale or the base of the attenuation basin, and this will still follow the topography towards the woodland as interflow. Overall, the total volume of water reaching the woodland is likely to be comparable to existing, but a lesser proportion of this would be rapid runoff than existing, and more of this rainfall will become interflow rather than runoff.
- 5.3. The impact of this change, to 7.5% of the catchment, is likely to be minor. The ancient woodland would receive a similar volume of rainfall as currently, though with a greater proportion of that rainfall being slower moving interflow.

### DOCUMENT ISSUE RECORD

| Technical Note No | Rev | Date     | Prepared | Checked | Reviewed<br>(Discipline Lead) | Approved<br>(Project Director) |
|-------------------|-----|----------|----------|---------|-------------------------------|--------------------------------|
| 48494/2002/TN007  | -   | 02.08.23 | PD       | AH      |                               | AH                             |
|                   |     |          |          |         |                               |                                |

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## TECHNICAL NOTE

### Attachments:

**48494-2002-SK06 Overland Flow Paths - Existing Site (Draft)**

**48494-2002-SK07 Flow Paths - Developed Site (Draft)**



- Notes:
1. This drawing is to be read in conjunction with all other Engineer's drawings.
  2. Do not scale from this drawing.
  3. All dimensions are in metres unless noted otherwise.
  4. All levels are in metres above Ordnance Datum (AOD).
  5. Levels, pipe diameters and gradients, and manhole depths are indicative only and subject to detailed design.

Key:

Application Boundary

Ancient Woodland 15m Buffer Zone

Indicative Overland Flow Path

|      |          |  |      |       |      |
|------|----------|--|------|-------|------|
|      |          |  |      |       |      |
|      |          |  |      |       |      |
|      |          |  |      |       |      |
| Mark | Revision |  | Date | Drawn | Chkd |
|      |          |  |      |       | Appd |

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Drawing Issue Status

For Information

Land at Bird in Eye Farm  
South of Bird in Eye Hill, Lockfield  
Overland Runoff Flow Paths  
Existing / Pre-Development Site

Client

Croudace Homes Limited

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|-------------------|----------|----------|
| Date of 1st Issue | Designed | Drawn    |
| 20.07.2023        | -        | LWD      |
| A1 Scale          | Checked  | Approved |
| 1:1000            | AH       | AH       |
| Drawing Number    | Revision |          |
| 48494/2002/SK06   | -        |          |



- |                                                                                     |  |                                         |
|-------------------------------------------------------------------------------------|--|-----------------------------------------|
| <b>Key:</b>                                                                         |  |                                         |
|  |  | Application Boundary                    |
|  |  | Ancient Woodland 15m Buffer Zone        |
|  |  | Indicative Overland Flow Path           |
|  |  | Indicative Development Runoff Flow Path |

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Land at Bird in Eye Farm  
South of Bird in Eye Hill, Lockfield  
Runoff Flow Path  
Post-Development Site

|                                 |               |                |
|---------------------------------|---------------|----------------|
| Date of 1st Issue<br>20.07.2023 | Designed<br>- | Drawn<br>LWD   |
| A1 Scale<br>1:1000              | Checked<br>AH | Approved<br>AH |

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