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# FLOOD RISK ASSESSMENT REPORT FOR 200903 – MITTON ROAD, WHALLEY

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# 1 EXECUTIVE SUMMARY

EDGE have been instructed by Prospect GB Ltd to prepare a Flood Risk Assessment to support a full planning application which seeks permission for the erection of 50 residential dwellings together with associated infrastructure on land off Mitton Road in Whalley.

The site is located 1.4km to the North West of the town centre of Whalley in Lancashire and previously comprised residential dwellings, access track and greenfield land.

The site is spit into 2 development parcels, parcel A to the North is bounded on its Eastern border by Mitton Road and a residential development to the West. To the South of Parcel A is an existing residential dwelling and Pendle Road and to the north is an old abandoned disused railway line and greenfield land.

Parcel B to the south is bounded on its Eastern border by Mitton Road and a residential development and playing fields to the West. To the north is an existing residential dwelling and Pendle Road while Calderstones Drive runs along the southern boundary of Parcel B.

Parcel A comprises land extending to 1.31 ha, is an irregular shape and is both greenfield and brownfield land. Parcel B being roughly rectangular is shape extends to 0.97Ha and is brownfield land. A copy of the architects site layout outlining the development proposals can be found in Appendix C.

The purpose of this report is to assess the risk of flooding to the site from fluvial, tidal, pluvial (overland) surface water and ground water sources as well as from reservoirs, canals and adjacent sewers.

The topographic survey, a copy of which can be found in Appendix B, shows that Parcel B fall from south to north by around 2.5m. Levels along the southern boundary are shown around 58.50m AOD and the northern boundary is at a level of around 56.00mAOD.

Parcel B falls from a central high point to the north and south. The central high point is shown to be around 60.90m AOD with levels on the northern boundary shown in the topographic survey to be 59.50m AOD and the southern boundary is at a level of 60.50m AOD.

The site is located wholly within flood zone 1.

Surface water must discharge from the site in the most sustainable manor and drainage proposals should adhere to the SUDs hierarchy.

New drainage proposals for Parcel A consist of traditional gravity sewers for foul and a pumping station for surface water due to the level of existing sewers. Parcel B will be served by gravity sewers for both foul and surface water. Connection will be made to existing foul and surface water public sewers in the site and in Pendle Drive.

The surface water discharge rate is proposed to mimic the greenfield run off rate, in accordance with Lancashire County Council guidelines and united Utilities request. Attenuation storage is required within the on-site drainage network.

Oversized pipes are proposed to store all surface water volumes up to and including both the 1 in 30-year storm events (in line with United Utilities requirements) and the 1 in 100 year + climate change storm events.

There are no existing watercourses within the site or in its immediate vicinity. An evaluation of the ground conditions has been undertaken and infiltration of surface water via soakaways has been deemed not be viable.

An existing public foul sewer crosses the Northern boundary of the site and connection to this is preferred for the proposed foul sewers in Parcel A. The sewer will be diverted to support the development layout. A surface water sewer is present in Pendle Drive and a foul sewer extends to the Western boundary of Parcel B. Connections to the foul sewer on the West of Parcel B will serve this parcel while the surface water sewer in Pendle drive is proposed to take flows via gravity from Parcel B and pumped flows from Parcel A.

United Utilities sewer maps are shown in Appendix D.

All sewers and the surface water pumping station, will be offered to United Utilities for adoption under a section 104 agreement and drainage proposals are shown in Appendix E.

## 2 INTRODUCTION

EDGE Consulting Engineers have undertaken a Flood Risk Assessment in line with National Planning Policy framework and the main aims of this report are:

- To determine whether the proposed development is likely to be affected by current or future flooding from any source.
- To determine whether it will increase flood risk elsewhere.
- To determine whether the measures proposed to deal with these effects and risks are appropriate.
- To assess under SUDS Guidance the best way of reducing the flow rates from site to an acceptable rate of discharge.

The proposed development area is classed as mostly brownfield land with an area of greenfield land to the North West of Parcel A. The site and surrounding boundary conditions are shown on the Aerial Image in Figure 2.1.

There are no watercourses within the immediate vicinity of the site and. United Utilities sewer records show that there are several surface water and foul sewers within the site and the surrounding area.

At the time this report was written infiltration testing has not been undertaken, however, in October 2020 Coopers (Chester) Ltd undertook a site investigation report which included bore hole and trial pit excavation.

Findings show:

*"Glacial clays were found to be present across the site and broadly heterogenous in nature. They were found at depths up to 5.0m as identified within WS01, WS04, WS06 and WS08.*

*The clays were brown or brown with grey mottling and the consistency was noted to be firm to very stiff (predominantly stiff) with exception of TP12 which was observed to be grey soft (20kPa) below 2.0m of made ground former pond material. Whilst the strength recorded in the field using a shear vane varied from medium strength to very high strength (56kPa->192kPa). This does not take into account readings taken from window sample holes which are more disturbed. TP02 and TP04-TP06 noted to have a very silty clay/very clayey silt strata at varying depths between 1.60m and 2.25m"*

The cohesive nature of the clay strata is not deemed to be suitable for discharge of surface water, so the use of soakaways has been discounted. Coopers bore hole, trial pit logs and location plan can be found in Appendix H.

FIGURE 2.1 – SITE LOCATION


## 3 NATIONAL PLANNING POLICY FRAMEWORK (NPPF)

The National Planning Policy Framework (NPPF) clearly identifies flood risk as a specific material consideration in the Planning Process and in the allocation and release of sites for development or re-development.

NPPF seeks to further strengthen the co-ordination between land use planning and development planning and the operational delivery of flood and coastal defence strategy. NPPF encourages local planning authorities to use their existing powers to guide, regulate and control development in relation to flooding and flood risk. The framework expects local authorities to adopt a risk-based approach at all levels of planning, through the application of the Sequential Test detailed in Table 1 and 2, of the Technical Guidance to NPPF document, a copy of which is attached in Appendix A.

The aim of the sequential test is to steer new development to areas with the lowest probability of flooding. Development should not be allocated or permitted if there are reasonably available sites appropriate for the proposed development in areas with a lower probability of flooding. The Strategic Flood Risk Assessment (SFRA) will provide the basis for applying this test. A sequential approach should be used in areas known to be at risk from any form of flooding.

The Water Resources Act 1991 [Section 105] also requires the Environment Agency to exercise a general supervision over all flood defence matters, including flood plains and wash lands which accommodate waters during periods of flood. In discharging their functions, the Agency from time to time carries out comprehensive surveys and flood studies, largely of 'main rivers' within its jurisdiction.

A Section 105 Study involves the Agency topographically surveying the subject watercourse (or parts of it) and obtaining details of the flow mechanics within the watercourse. This data then enables them to generate a comprehensive hydraulic computer model for the watercourse.

From this hydraulic model the EA can define the approximate extent of fluvial flood-plain associated with the 1 in 100-year (1% annual probability) flooding event or the extent of tidal floodplain associated with the 1 in 200-year (0.5% annual probability) flooding event.

The extents of the modelled floodplain are then provided to Local Planning Authorities, to enable them to make more informed decisions when considering proposed development in flood susceptible areas. If development is proposed in a flood susceptible area, or in an area where there is a history of flooding, the EA, as a statutory consultee in the Planning Process, will generally recommend that the risk of flooding be formally assessed, in accordance with the NPPF, and that a Flood Risk Assessment report be produced to support the Planning Application.

The broader modelled flood extents are also indicated on the EA's Flood Zone Maps, available through their website (Figure 5.1).

# 4 STRATEGIC FLOOD RISK ASSESSMENT

Local planning authorities are required to produce local development frameworks, which are a portfolio of local development documents [LDDs] that collectively deliver the spatial planning strategy for the authority area. The LDD's undergo a sustainability appraisal which assists planning authorities in ensuring their policies fulfil the principles of sustainability.

Strategic Flood Risk Assessments [SFRA] are one of the documents to be used as the evidence base for planning decisions and are a component of the Sustainability Appraisal process. Therefore, SFRAs should be used in the review or production of LDD's.

To assist Local Planning Authorities in their strategic land-use planning, SFRA's should present enough information to enable Local Authorities to apply the Sequential Test to their proposed development sites:

"*Decision makers should use the SFRA to inform their knowledge of flooding, refine the information on the Flood Map and determine the variations in flood risk from all sources of flooding across and from their area. These should form the basis for preparing appropriate policies for flood risk management for these areas.*"

In May 2010 Ribble Valley borough council produced a level 1 Strategic Flood Risk Assessment.

The SFRA along with the EA flood risk maps indicate that the proposed development site lies predominantly within Flood Zone 1 (less than 1 in 1000 probability of flooding from river or sea) and therefore is unlikely to be at risk of fluvial flooding.

The SFRA has been developed with the assistance of the Environment Agency, United Utilities and key landowners to provide a robust assessment of current and future levels of flood risk, ensuring that future development takes full account of flood risk and sustainability at the outset.

In the application of the sequential test the strategic flood risk assessment has identified flood risk zones within the boroughs (1, 2 and 3) and has assessed the potential of the various possible development sites which have been identified by the councils. This has created a hierarchy of preferred development sites in line with the sequential approach required by the NPPF.

The SFRA refers to the Ribble Valley Catchment Flood Management Plan which contains high level "policies to manage flood risks in the whole River Ribble catchment which includes the Ribble Velley Borough Council area over the next 50 to 100 years and an action plan laying out how its policies can be achieved. These policies

consider the likely future impact of changes in climate and the effects of land management. The CFMP has been a significant source of information for the Ribble Valley Borough Council SFRA.

Appendix 4 of the Ribble Valley Borough Councils SFRA shows that, in Clitheroe, the policy unit is P5 which is to take further action to reduce flood risk in the area. Justification behind this policy selection is quoted below:

*"This very small policy unit (4km2) is entirely urban but set within a much larger rural catchment with considerable landscape, cultural and environmental interests. About 260 properties are at risk of flooding (1% AEP event), at a cost of £38M worth of damage, with a further 230 properties at risk in 100 years with a 'do nothing' scenario.*

*In addition, 3 schools and 1 hospital are currently at risk in a 1% event, which is not forecast to increase in the future. Flood risk management activities in the town include the maintenance of screens on the inlet and outlet of culverted watercourses, general maintenance of banks of open watercourses, and the provision of formal flood warnings to the Clitheroe and Low Moor areas. Further action is 52 needed to reduce the predicted effects of climate change and further urban development in and around Clitheroe.*

*Culverted stretches of Mearley Brook pose a high flood risk to the town, and work is required to reduce this risk. Whilst the projected damages in this unit are not as high as other policy units where P5 is proposed, this level of damage in such a small area indicates the action is needed to reduce the flood risk and therefore a proactive P5 policy is recommended, rather than any policy which would provide a lower level of flood risk management now and into the future. Being a wholly urban policy unit means that, by implications, opportunities for a policy P6 policy are extremely limited, although there is potential for flood storage upstream of the town. Work in this policy unit is likely to get priority on a national scale, with work programmed in Clitheroe to address flood risk.*

*Implementing flood resilience measures within existing and future properties may also help to reduce flood risk."* A copy of the SFRA is available from the Ribble Valley Borough Council's website.

## 5 FINDINGS OF A FLOOD RISK ASSESSMENT

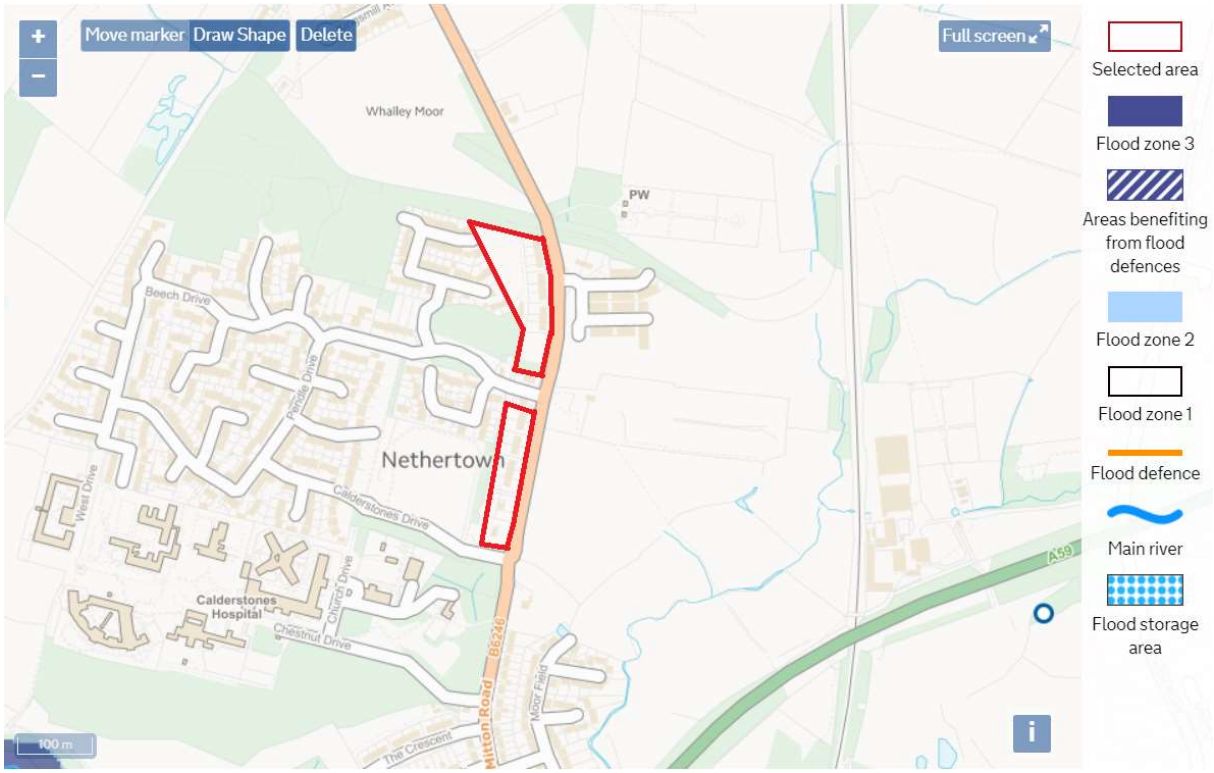
EDGE Consulting Engineers have carried out a flood risk assessment in line with National Planning Policy Framework.

The Environment Agency's flood zone maps, now available on the GOV.uk website, indicate that the site is located within Flood Zone 1 (Ref Figure 5.1).

Flood Zone 1 indicates that there is a low risk of flooding from fluvial or tidal sources and current EA guidance indicates that all proposed developments in zone 1, larger than 1 hectare, should be accompanied by a flood risk assessment. The flood risk assessment should contain:

- Information about the surface water disposal measures already in place and their state of maintenance.
- An assessment of the volume of surface water run-off likely to be generated from the proposed development.
- Information on how that surface water run-off will be disposed of (from the new development).
- Estimates of how climate change could affect the probability and intensity of flooding events in the future.

FIGURE 5.1 – FLOOD ZONE MAP (RIVERS AND SEAS)




DRAINAGE STRATEGY

Existing Foul Drainage

There is a 150mm diameter existing public foul sewer running along the northern boundary of Parcel A from East to West, proposals include a minor diversion of this sewer. There is also an existing foul sewer extending into the Western boundary of Parcel B and both foul and surface water sewers in Pendle Road (between the 2 parcels). United Utilities asset search maps are shown in Appendix D.

Proposed Foul Drainage

It is proposed that the foul flows generated from the development will utilise a traditional gravity system and connect to the existing sewers via new manholes which will be in accordance with consent being obtained from United Utilities. The existing foul sewer along the northern border of Parcel A will be diverted to suit the development layout. A section 185 application should be made to United Utilities to confirm if this the diversion proposals are acceptable. The depth of the existing sewers is shown in the United Utilities records and as part of the topographic survey the chambers locations have been confirmed, covers lifted and depths proved.

The proposed foul water drainage networks will be offered to United Utilities for adoption under a section 104 agreement and will be designed in accordance with Design Construction Guidance (DCG) and United Utilities guidelines and standard details. Foul water drainage proposals are shown in Appendix E.

Existing Storm Water Drainage

There are no watercourses near the site and infiltration is not viable.

United Utilities sewer maps show surface water sewers in Pendle Drive, which is situated between the 2 development parcels.

The greenfield runoff rate for the site has been calculated using the Greenfield runoff toll in HR Wallingfords ukSUDS website. The report generated from the tool shows that the QBAR greenfield run off rate is 19.3 litres per second. The report can be found in Appendix F Drainage calculations.

Proposed Strom Water Drainage

Due to the cohesive nature of the underlying strata, as described in section 7 SUDs evaluation part of this report and in line with the ground's drainage characteristics shown in the Coopers Site Investigation, discharging surface water flows via infiltration is not viable.

DEFRAs non statutory technical standards for sustainable drainage systems states that proposed developments on previously developed (brownfield sites should control their peak flow as follows:

- ***S3*** *For developments which were previously developed, the peak runoff rate from the development to any drain, sewer or surface water body for the 1 in 1 year rainfall event and the 1 in 100-year rainfall event must be as close as reasonably practicable to the greenfield runoff rate from the development for the same rainfall event but should never exceed the rate of discharge from the development prior to redevelopment for that event.*

The construction of the proposed development will result in an increase of impermeable areas and therefore a corresponding increase in surface water run-off. To ensure that the site poses no flood risk to proposed or existing properties a restriction of surface water run-off is required.

It is proposed to restrict surface water run off to the Greenfield QBAR rate 19.3 litres per second. Greenfield calculations are shown in Appendix F.

A gravity connection from Parcel B is achievable and storage is provided within oversized pipes and manholes.

A surface water pumping station is required to convey flows from Parcel A to the surface water public sewer in Pendle Drive due to the invert level of the receiving chamber and the low point being situated to the far north of the parcel.

United Utilities has been contacted via a pre-development enquiry and they confirmed that the greenfield runoff rate should be proposed for the site. Correspondence is shown in Appendix D.

The restriction of surface water run will result in volumes of storage being required. Oversized pipes are proposed to provide storage for the 30 year and 100 year + climate change storm events. An additional 5% rainfall has been included in the micro drainage simulations to account for urban creep.

Emergency storage is required for the surface water pumping station and a volume should be provided in line with the requirements of the DCG which states:

*"For surface water pumping stations, 125 m3 of storage should be provided per hectare of impermeable surface draining to the pumping station (i.e., 15 minutes of rainfall at 50 mm per hour). "*

Micro drainage software has been used to verify the suitability of the proposed storage and 30 year and 100-year simulations and micro drainage calculations are shown in appendix G.

Proposed sewers up to the outfall point, including the pumping station will be offered to United Utilities for adoption under a section 104 agreement.

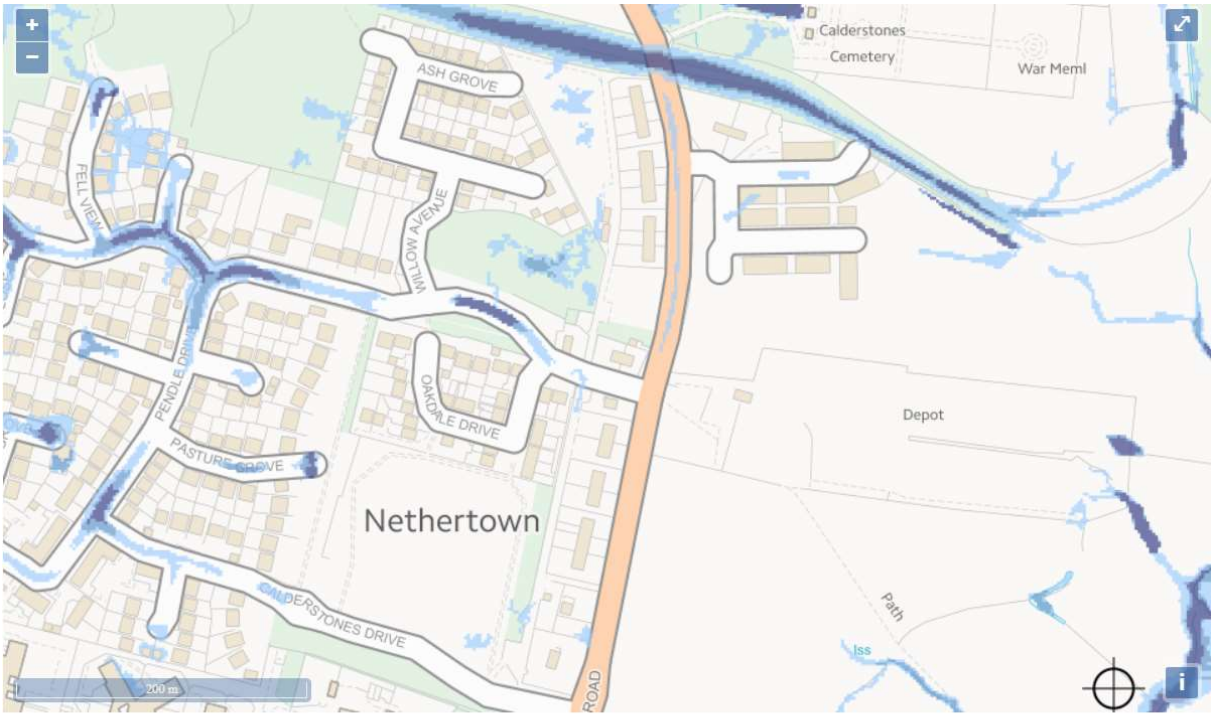
Flood Risk

- Fluvial – As mentioned in previous sections of this report the site is located within flood zone 1 and as such has a low probability of flooding from fluvial sources.

- Tidal – The site is located far enough inland to be considered at very low risk of flooding from the sea. Climate change is not thought to provide an increased risk to the site from tidal flooding during the lifetime of the development and so tidal flood risk is deemed to be low.

- Surface Water – Surface water flooding may occur when intense rainfall causes the ground to be saturated and its capacity is exceeded. The surface water flood map available on the EAs website (Figure 5.2 below) shows that the site is predominantly at very low risk of flooding from pluvial sources with small areas shown at low risk. The development of the site and introduction of impermeable areas (roofs, drives and roads etc) and a designated drainage system will help collect and divert potential overland flows away from houses to soft landscaped areas and to gullies and drainage channels which connect to the drainage network via adoptable and private roads. Finished floor levels of proposed dwellings will be set a minimum of 150mm above surrounding ground levels to minimise the low risk of flooding from any remaining overland flows.

FIGURE 5.2 – FLOOD MAP (SURFACE WATER)




Extent of flooding from surface water

High Medium Low Very low Location you selected

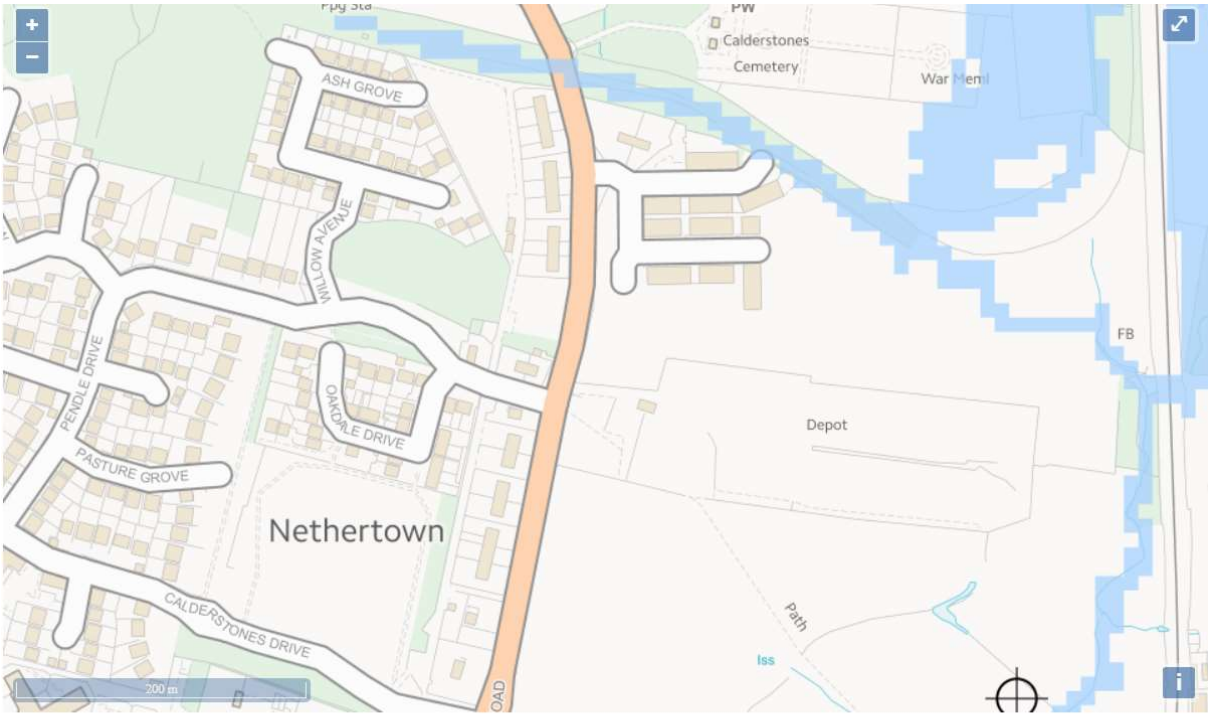
- Ground water – Coopers Site investigation shows that groundwater was only encountered in one trial pit at a depth of 2.0m. This is in the centre of a former, now removed and filled pond. The report states:

*"Groundwater ingress was identified within TP12 at 2.0m at the base of the made ground, rising to 2.0m after five minutes. All other excavated or drilled locations did not find groundwater."*

As a result, the risk of flooding from ground water sources is considered to be low.

- Reservoirs, canals – Flooding can occur from the release of large volumes of water from reservoirs and canals. The image below (Figure 5.3) is taken from the Environment Agencies flood risk section of the website indicating the extent of flooding from reservoirs. The risk is considered to be very low. There are no canals in the vicinity of the site and so flooding from this source is also considered to be low.

FIGURE 5.3 – FLOOD MAP (RESERVOIRS)




Extent of flooding from reservoirs

Maximum extent of flooding  Location you selected

- Adjacent sewers – There is an existing public foul sewer within Parcel A and the head of a foul sewer within the Western boundary of Parcel B and the only risk of flooding from these sewers would be failure or surcharge during periods of high flow. Assuming the existing public sewers have sufficient capacity for the catchments they are serving, and they are regularly maintained and inspected the risk of flooding from sewers is low.
- Proposed sewers – Drainage infrastructure is designed to ensure that rainwater drains off site at a restricted rate. Proposed storage is proposed to hold all volumes up to and including the 1 in 100 year + climate change storm events. This will minimise the risk of flooding from proposed surface water sources. The proposed drainage system is shown in Appendix E.

## 6 RESIDUAL RISKS

The table below outlines the initial qualitative assessment of risk posed by each potential source of flooding, the mechanisms for flooding and the likely consequences. The Table also includes a review of possible mitigation measures and what effect, if any, the mitigation measures are likely to have on the residual risk posed by each potential flood source. Categories of risk have been qualitatively defined as:

- High Risk: Flooding is likely to result in significant damage to property and pose a significant risk to life.
- Medium Risk: Flooding is likely to result in possible minor damage to property, but flood progress would allow adequate time for residents to be warned and safely evacuated to higher ground or appropriate places of safety.
- Low' Risk: Flooding is unlikely to result in any damage to property and pose little or no risk to life.

| Source | Flood Mechanism & Consequences | Assessment of Risk | Recommended Mitigation Measures | Residual Risk |
|---|---|---|---|---|
| Fluvial flooding | Risk of fluvial flooding at the site from adjacent Watercourses, Drains and other Water Bodies. | **Low** | • Fluvial flooding of the site is not expected during the 1 in 100-year event + climate change. | **Low** |
| Pluvial flooding | Risk of flooding from overland flows in extreme events. Ponding of surface water due to ground being saturated and capacity being exceeded. | **Low** | • FFLs to be set 150mm above surrounding levels. | **Low** |
| Surcharging of artificial drainage systems | Drainage systems operating above design capacity, resulting in:<br>• surcharging of manholes / drainage systems.<br>• over-land flow through development.<br>• ponding in low-lying areas of site.<br>• no over-land flow route for flood waters accumulating in low-lying areas. | **Low** | • Appropriate design of SW drainage system to provide sufficient storage.<br>• Provision of overland flood flow routes through proposed development. | **Low** |
| Infrastructure failure | Water main burst resulting in:<br>• Possible over-land flows through / adjacent to the site | **Low** | • Safe access/egress available to adjacent highway. | **Low** |

| | | | | |
|---|---|---|---|---|
| | and possible inundation of property.<br>• Possible ponding in low-lying areas.<br>Pump station failure resulting in:<br>• Possible over-land flows through / adjacent to the site and possible inundation of property.<br>• Possible ponding in low-lying areas; | | • Flood flow route through development.<br><br>• Provision of emergency storage in the event of pump failure. Storage to be in line with DCG guidance | |

## 7 SUDs EVALUATION

Development of the site will result in an increase of impermeable areas and therefore a corresponding increase in run-off volumes. The use of SUDs techniques to discharge the additional surface water will be evaluated in this section of the report.

The storm water drainage system for the proposed development will be designed in accordance with 'Design Construction Guidance', which requires any surface water drainage system, should not surcharge during the 1 in 2-year storm event, and should not flood during a 1 in 30-year storm event (i.e., all run-off contained wholly within the sewerage system during the 1 in 30-year event).

Whilst the DCG requires there be no surface flooding during the 1 in 30-year storm event. It is generally accepted that a degree of surface flooding can be permitted during extreme storm events i.e., 1 in 100 year + climate change. This will be subject to specific areas being designated as flood susceptible and subject to flooding of these areas posing little or no risk to human life and damage to property. Examples of surface areas which might be permitted to flood in such events are:

- Agricultural land
- Recreational land (playing fields etc.)
- Landscaped areas
- Highways
- Car parks
- Other non-inhabited, designated areas

In all cases where surface flooding might be permitted or designed into a scheme, due diligence needs to be given to the NPPF and the need to make potential users of such areas aware of their functionality and purpose, and the requirement to maintain safe egress and access at all times.

The Building Regulations Approved Document H (2002) outlines a hierarchy of potential methods of disposing surface water from a site:

- A soakaway; or where that is not practicable.
- A watercourse or river; or where that is not practicable,
- A sewer.

The viability of each has been assessed below:

- Soakaway: Regarding the consideration of soakaway infiltration methods for the disposal of surface water, Coopers (Chester) Ltd undertook a Site Investigation in October 2020 and found that the underlying strata is made up of impermeable cohesive clay and so soakaways will not be viable and can be discounted.
- Watercourse's waterbodies: There are no watercourses or waterbodies within the site or in its immediate vicinity.

- Sewers: A United Utilities surface water sewer is located within Pendle Drive, a public highway situated between the 2 development parcels. United Utilities have confirmed via a pre-development enquiry, that a connection to this sewer (at the greenfield QBAR rate) will be acceptable should the evaluation of more sustainable drainage options show soakaways and watercourse connections are not available/ viable. The drainage proposals for the 2 development parcels show surface water flows connecting to the public sewer in Pendle drive at the greenfield QBAR rate.

## 8 CONCLUSIONS AND RECOMMENDATIONS

- EDGE have been instructed by Prospect GB Ltd to prepare a Flood risk assessment which will support a full planning application seeking permission for the construction of 50 residential dwellings together with associated infrastructure.
- The site is located 1.4km to the North West of the town of Whalley in Lancashire.
- The site area is split between 2 development parcels, Parcel A to the north of Pendle Drive is 1.31Ha and Parcel B to the south of Pendle Drive is 0.97Ha. Parcel A is both brownfield and greenfield land. Parcel B is Brownfield land
- There are no existing watercourses within or near the site.
- Infiltration of surface water via soakaways is not viable due to the existing cohesive, impermeable ground make up.
- There are existing foul sewers within both development parcels. There is an existing surface water sewer in Pendle Drive.
- EDGE Consulting Engineers have been instructed to formally assess the risk of flooding through a flood risk assessment.
- The site lies within Flood Zone 1 and is therefore unlikely to be affected by fluvial flooding.
- Pluvial flood risk is very low and raising finished floor levels 150mm above surrounding ground levels will mitigate the risk further.
- The development of the site will result in an increase in impermeable area resulting in a corresponding increase in surface water run-off.
- Surface water flows will be restricted to a greenfield run off rate calculated as 19.3 litres per second.
- Surface water volumes will be stored within oversized pipes and manholes.
- Climate change has been factored into the drainage calculations.
- An allowance for urban creep has been factored into the drainage calculations.
- Construction of the proposed development will not increase flood risk on or off the site.
- No mitigation measures are considered necessary to mitigate the risk from infrastructure failure.
- A drainage design (Appendix E) has been submitted in support of this flood risk assessment.
- Development of the site will not increase the flood risk to any other property.
- Based on the information provided to EDGE Consulting Engineers in support of this flood risk assessment, the development of the site would be considered sustainable in terms of flood risk, subject to the various recommendations in line with National and Local Planning Policy.

## APPENDICES

### Appendix A – Extract from chapter 14 of NPPF February 2019

# 14. Meeting the challenge of climate change, flooding and coastal change

148. The planning system should support the transition to a low carbon future in a changing climate, taking full account of flood risk and coastal change. It should help to: shape places in ways that contribute to radical reductions in greenhouse gas emissions, minimise vulnerability and improve resilience; encourage the reuse of existing resources, including the conversion of existing buildings; and support renewable and low carbon energy and associated infrastructure.

## Planning for climate change

149. Plans should take a proactive approach to mitigating and adapting to climate change, taking into account the long-term implications for flood risk, coastal change, water supply, biodiversity and landscapes, and the risk of overheating from rising temperatures[48]. Policies should support appropriate measures to ensure the future resilience of communities and infrastructure to climate change impacts, such as providing space for physical protection measures, or making provision for the possible future relocation of vulnerable development and infrastructure.

150. New development should be planned for in ways that:

a) avoid increased vulnerability to the range of impacts arising from climate change. When new development is brought forward in areas which are vulnerable, care should be taken to ensure that risks can be managed through suitable adaptation measures, including through the planning of green infrastructure; and

b) can help to reduce greenhouse gas emissions, such as through its location, orientation and design. Any local requirements for the sustainability of buildings should reflect the Government's policy for national technical standards.

151. To help increase the use and supply of renewable and low carbon energy and heat, plans should:

a) provide a positive strategy for energy from these sources, that maximises the potential for suitable development, while ensuring that adverse impacts are addressed satisfactorily (including cumulative landscape and visual impacts);

b) consider identifying suitable areas for renewable and low carbon energy sources, and supporting infrastructure, where this would help secure their development; and

c) identify opportunities for development to draw its energy supply from decentralised, renewable or low carbon energy supply systems and for co-locating potential heat customers and suppliers.

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[48] In line with the objectives and provisions of the Climate Change Act 2008.

152. Local planning authorities should support community-led initiatives for renewable and low carbon energy, including developments outside areas identified in local plans or other strategic policies that are being taken forward through neighbourhood planning.

153. In determining planning applications, local planning authorities should expect new development to:

a) comply with any development plan policies on local requirements for decentralised energy supply unless it can be demonstrated by the applicant, having regard to the type of development involved and its design, that this is not feasible or viable; and

b) take account of landform, layout, building orientation, massing and landscaping to minimise energy consumption.

154. When determining planning applications for renewable and low carbon development, local planning authorities should:

a) not require applicants to demonstrate the overall need for renewable or low carbon energy, and recognise that even small-scale projects provide a valuable contribution to cutting greenhouse gas emissions; and

b) approve the application if its impacts are (or can be made) acceptable[49]. Once suitable areas for renewable and low carbon energy have been identified in plans, local planning authorities should expect subsequent applications for commercial scale projects outside these areas to demonstrate that the proposed location meets the criteria used in identifying suitable areas.

# Planning and flood risk

155. Inappropriate development in areas at risk of flooding should be avoided by directing development away from areas at highest risk (whether existing or future). Where development is necessary in such areas, the development should be made safe for its lifetime without increasing flood risk elsewhere.

156. Strategic policies should be informed by a strategic flood risk assessment, and should manage flood risk from all sources. They should consider cumulative impacts in, or affecting, local areas susceptible to flooding, and take account of advice from the Environment Agency and other relevant flood risk management authorities, such as lead local flood authorities and internal drainage boards.

157. All plans should apply a sequential, risk-based approach to the location of development – taking into account the current and future impacts of climate change

[49] Except for applications for the repowering of existing wind turbines, a proposed wind energy development involving one or more turbines should not be considered acceptable unless it is in an area identified as suitable for wind energy development in the development plan; and, following consultation, it can be demonstrated that the planning impacts identified by the affected local community have been fully addressed and the proposal has their backing.

– so as to avoid, where possible, flood risk to people and property. They should do this, and manage any residual risk, by:

a) applying the sequential test and then, if necessary, the exception test as set out below;

b) safeguarding land from development that is required, or likely to be required, for current or future flood management;

c) using opportunities provided by new development to reduce the causes and impacts of flooding (where appropriate through the use of natural flood management techniques); and

d) 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.

158. The aim of the sequential test is to steer new development to areas with the lowest risk of flooding. Development should not be allocated or permitted if there are reasonably available sites appropriate for the proposed development in areas with a lower risk of flooding. The strategic flood risk assessment will provide the basis for applying this test. The sequential approach should be used in areas known to be at risk now or in the future from any form of flooding.

159. If it is not possible for development to be located in zones with a lower risk of flooding (taking into account wider sustainable development objectives), the exception test may have to be applied. The need for the exception test will depend on the potential vulnerability of the site and of the development proposed, in line with the Flood Risk Vulnerability Classification set out in national planning guidance.

160. The application of the exception test should be informed by a strategic or site-specific flood risk assessment, depending on whether it is being applied during plan production or at the application stage. For the exception test to be passed it should be demonstrated that:

a) the development would provide wider sustainability benefits to the community that outweigh the flood risk; and

b) 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.

161. Both elements of the exception test should be satisfied for development to be allocated or permitted.

162. Where planning applications come forward on sites allocated in the development plan through the sequential test, applicants need not apply the sequential test again. However, the exception test may need to be reapplied if relevant aspects of the proposal had not been considered when the test was applied at the plan-making stage, or if more recent information about existing or potential flood risk should be taken into account.

163. When determining any planning applications, local planning authorities should ensure that flood risk is not increased elsewhere. Where appropriate, applications should be supported by a site-specific flood-risk assessment[50]. Development should only be allowed in areas at risk of flooding where, in the light of this assessment (and the sequential and exception tests, as applicable) it can be demonstrated that:

a) within the site, the most vulnerable development is located in areas of lowest flood risk, unless there are overriding reasons to prefer a different location;

b) the development is appropriately flood resistant and resilient;

c) it incorporates sustainable drainage systems, unless there is clear evidence that this would be inappropriate;

d) any residual risk can be safely managed; and

e) safe access and escape routes are included where appropriate, as part of an agreed emergency plan.

164. Applications for some minor development and changes of use[51] should not be subject to the sequential or exception tests but should still meet the requirements for site-specific flood risk assessments set out in footnote 50.

165. Major developments should incorporate sustainable drainage systems unless there is clear evidence that this would be inappropriate. The systems used should:

a) take account of advice from the lead local flood authority;

b) have appropriate proposed minimum operational standards;

c) have maintenance arrangements in place to ensure an acceptable standard of operation for the lifetime of the development; and

d) where possible, provide multifunctional benefits.

# Coastal change

166. In coastal areas, planning policies and decisions should take account of the UK Marine Policy Statement and marine plans. Integrated Coastal Zone Management should be pursued across local authority and land/sea boundaries, to ensure effective alignment of the terrestrial and marine planning regimes.

---

[50] 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.

[51] This includes householder development, small non-residential extensions (with a footprint of less than 250m$^2$) and changes of use; except for changes of use to a caravan, camping or chalet site, or to a mobile home or park home site, where the sequential and exception tests should be applied as appropriate.

167. Plans should reduce risk from coastal change by avoiding inappropriate development in vulnerable areas and not exacerbating the impacts of physical changes to the coast. They should identify as a Coastal Change Management Area any area likely to be affected by physical changes to the coast, and:

a) be clear as to what development will be appropriate in such areas and in what circumstances; and

b) make provision for development and infrastructure that needs to be relocated away from Coastal Change Management Areas.

168. Development in a Coastal Change Management Area will be appropriate only where it is demonstrated that:

a) it will be safe over its planned lifetime and not have an unacceptable impact on coastal change;

b) the character of the coast including designations is not compromised;

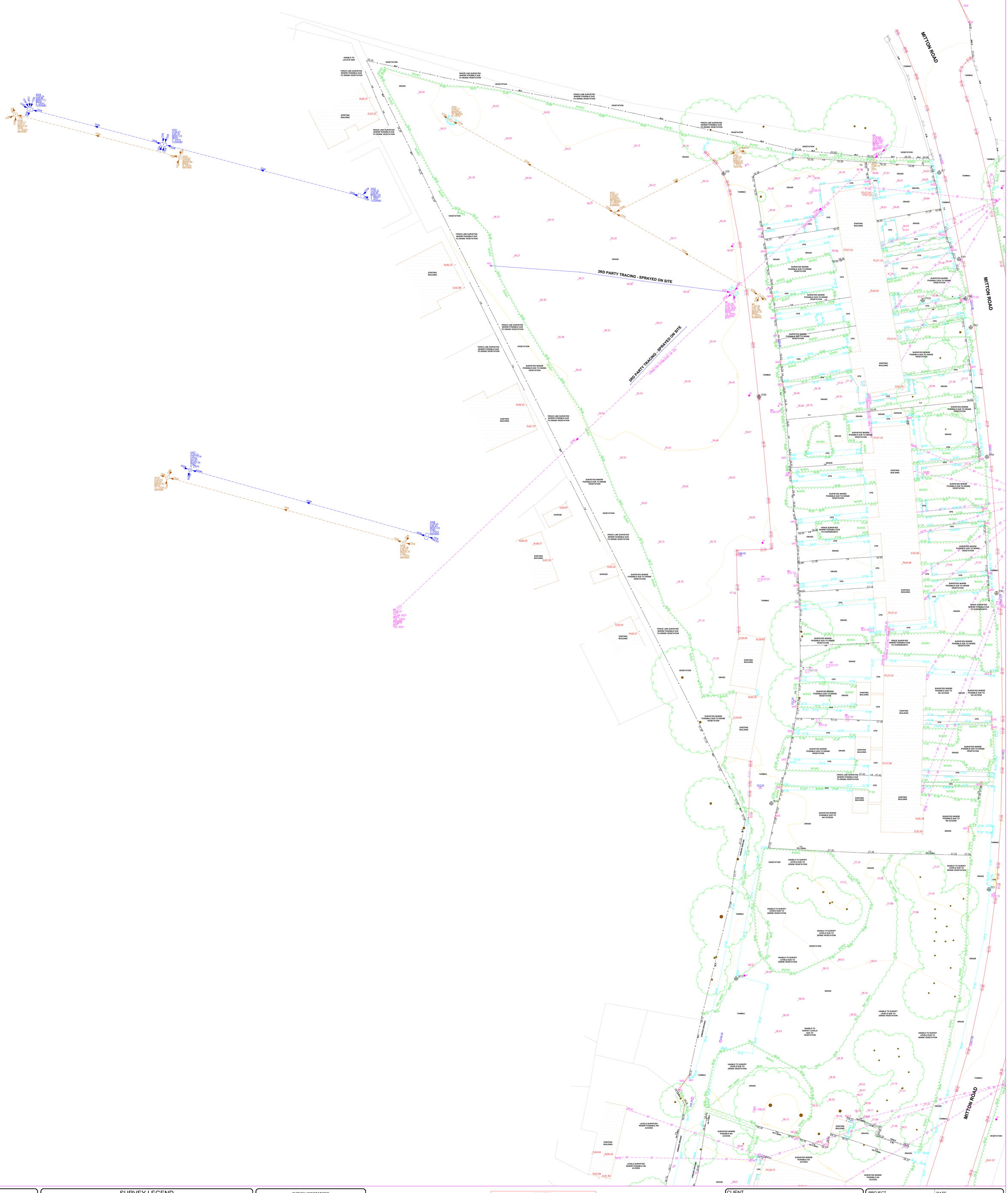
c) the development provides wider sustainability benefits; and

d) the development does not hinder the creation and maintenance of a continuous signed and managed route around the coast[52].

169. Local planning authorities should limit the planned lifetime of development in a Coastal Change Management Area through temporary permission and restoration conditions, where this is necessary to reduce a potentially unacceptable level of future risk to people and the development.

[52] As required by the Marine and Coastal Access Act 2009.

## Appendix B – Topographic survey




N

W E

S

SURVEY ORIENTATED TO OS GRID (OSGB36-15)

## SURVEY NOTES

ALL LEVELS ARE RELATED TO O.S DATUM (OSGB36-15)
ESTABLISHED AT SE1 USING THE LEICA SMARTNET GPS NETWORK



## SURVEY LEGEND

| FEATURES | BOUNDARY ANNOTATIONS | | |
|---|---|---|---|
| TOP OF BANK | BARB WIRE FENCE | BW.F | SECURITY FENCE SEC.F |
| BOTTOM OF BANK | CHAIN LINK FENCE | CL.F | TIMBER FENCE T.F |
| SURVEY STATION | CONC POST AND PANEL | CP&P.F | B.W |
| TREE | CONC POST TIMB PANEL | CP&TP.F | BRICK WALL BL.W |
| HEDGE | ELECTRIC FENCE | EL.F | BLOCK WALL C.W |
| TREE CANOPY | HERAS FENCE | HER.F | CONCRETE WALL G.W |
| BUSHES | IRON RAIL FENCE | IR.F | GABIEN WALL MISC.W |
| VEGETATION | KNEE RAIL FENCE | KR.F | MISCELLANEOUS WALL R.W |
| | MISCELLANEOUS FENCE | MISC.F | RETAINING WALL RL.W |
| | POST AND WIRE FENCE | P&W.F | RETAINING LOG WALL S.W |
| | RANCH STYLE FENCE | RS.F | STONE WALL |

### LEVEL PREFIX ANNOTATIONS

| | | | | | |
|---|---|---|---|---|---|
| ASL | ARCH SPRING LEVEL | IL | INVERT LEVEL | | |
| BL | BED LEVEL | PL | PARAPET LEVEL | TRH | TREE HEIGHT |
| BD | BACK DROP | RL | ROOF/RIDGE LEVEL | THR | THRESHOLD LEVEL |
| CL | COVER LEVEL | SL | SOFFIT LEVEL | WL | WATER LEVEL |
| DH | TOP OF DOOR | TOF | TOP OF FENCE | WS | WINDOW SILL |
| DTC | DEPTH TO CROWN | TOP | TOP OF PIPE | WSF | WINDOW SOFFIT |
| FFL | FINISHED FLOOR LEVEL | TOW | TOP OF WALL | | |

### GEOTECHNICAL INFORMATION

| | |
|---|---|
| TRIAL HOLE / PIT | TH |
| BORE HOLE | BH |
| WINDOW SAMPLE | WS |
| MONITORING POINT | MP |

### SURVEY ANNOTATIONS

| | | | |
|---|---|---|---|
| AV | AIR VALVE | OHC | OVERHEAD CABLES |
| B | BOLLARD | PB | POST BOX |
| BS | BUS STOP | PM | PARKING METER |
| BT | BRITISH TELECOM IC | PS | POST |
| CPS | CONCRETE PAVING SLABS | PYL | ELECTRICITY PYLON |
| CP | CATCH PIT | RE | RODDING EYE |
| DR | DRAIN | RS | ROAD SIGN |
| EB | ELECTRIC CONTROL BOX | RWP | RAIN WATER PIPE |
| EL | ELECTRICAL IC | ST | STOP TAP |
| EP | ELECTRICITY POLE | SM | SERVICE MARKER |
| ER | EARTH ROD | SP | SIGN POST |
| FH | FIRE HYDRANT | SV | STOP VALVE / SLUICE VALVE |
| FP | FLAG POLE | SVP | SOIL VENT PIPE |
| G | GULLY | TB | TELEPHONE BOX |
| GH | GREENHOUSE | TL | TRAFFIC LIGHTS |
| GP | GATE POST | TM | TELEPHONE MAST |
| GV | GAS VALVE | TP | TELEGRAPH POLE |
| IC | INSPECTION COVER | TPS | TACTILE PAVING SLABS |
| JB | JUNCTION BOX | VP | VENT PIPE |
| JKW | JAPANESE KNOT WEED | WM | WATER METER |
| KO | KERB OUTLET | WO | WASH OUT |
| LH | LAMP HOLE | UTL | UNABLE TO LIFT |
| LP | LAMP POST/LIGHT COLUMN | UTS | UNABLE TO SURVEY |
| MH | MANHOLE | | |
| MP | MONITOR POINT | | |
| NP | NAME PLATE | | |

### SURVEY STATIONS

| Name | Easting | Northing | Height |
|---|---|---|---|
| AP1 | 372400.579 | 437228.033 | 60.299 |
| AP1A | 372611.891 | 437314.217 | 59.544 |
| AP2 | 372400.584 | 437283.961 | 60.437 |
| AP2A | 372653.137 | 437261.691 | 61.105 |
| AP2C | 372446.031 | 437239.913 | 61.066 |
| AP3 | 372592.954 | 437245.483 | 60.621 |
| AP3A | 372639.314 | 437241.359 | 60.599 |
| AP4 | 372583.332 | 437185.778 | 60.832 |
| AP5 | 372579.518 | 437139.998 | 60.716 |
| AP5A | 372566.479 | 437182.875 | 60.702 |
| AP5B | 372610.234 | 437178.980 | 60.714 |
| AP6 | 372590.678 | 437161.962 | 60.593 |
| AP7 | 372634.735 | 437158.126 | 60.481 |
| AP8 | 372597.872 | 437134.321 | 60.405 |
| NEWAP5 | 372579.515 | 437165.917 | 60.511 |
| SE1 | 372577.854 | 437452.928 | 57.576 |
| SE10 | 372638.940 | 437299.101 | 58.007 |
| SE2 | 372636.210 | 437215.402 | 61.745 |
| SE20A | 372638.210 | 437215.402 | 61.702 |
| SE3 | 372644.316 | 437344.747 | 58.102 |
| SE4 | 372660.028 | 437343.747 | 58.925 |
| SE4A | 372615.577 | 437345.642 | 59.000 |
| SE40 | 372620.744 | 437305.039 | 58.901 |
| SE5 | 372619.138 | 437419.705 | 57.852 |
| SE6 | 372631.844 | 437474.027 | 57.601 |
| SE7 | 372668.675 | 437452.851 | 57.577 |
| SE8 | 372628.553 | 437552.665 | 56.412 |
| SE80 | 372635.208 | 437519.015 | 56.606 |
| SIN1 | 372673.430 | 437536.356 | 57.209 |
| SIN2 | 372614.665 | 437538.829 | 57.205 |
| SIN2A | 372668.526 | 437528.479 | 56.925 |
| SIN3 | 372675.078 | 437543.320 | 57.205 |
| SIN4 | 372678.774 | 437498.616 | 57.206 |
| SIN5 | 372660.604 | 437472.916 | 57.332 |

| | | | | |
|---|---|---|---|---|
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| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| MANHOLE SURVEY ADDED | B | 01.02.21 | BM | - |
| SURVEY UPDATED | A | 22.10.20 | DS | - |
| DESCRIPTION | REV | DATE | DRWN | APPR |

CLIENT
PROSPECT GB

PROJECT ENGINEER JLP/MH
DRAWN DH
DATE 19.08.2020
SCALE 1:250@A0

PROJECT TITLE
MITTON ROAD, WHALLEY

DRAWING DETAIL
TOPOGRAPHICAL LAND SURVEY
SHEET 1 OF 2

DRAWING NUMBER PRO.TS.07
REVISION B


SurveyEng Ltd
Land Surveyors & Engineers
14 GREEN MILL
WESTHOUGHTON
BOLTON
LANCS
BL5 3GE
TEL/FAX: 0800 772 3040
MOB: 07850069993
info@surveyeng.co.uk

## Appendix C – Architects layout

prospect. HOMES

Part of Riverside

| Reference | House Type | Quantity | Sq.ft | Total Sq.ft | Configuration | Parking/Garage |
|---|---|---|---|---|---|---|
| | | | | 3 BEDS | | |
| 32A | The Barton | 6 | 915 | 5490 | Semi | Parking Space |
| 31DE | The Croston Plus | 7 | 1012 | 7084 | Detached | Parking space |
| 33D | The Edmonton | 7 | 1255 | 8785 | Detached | Integ Single |
| | | | | 4 BEDS | | |
| 41D | The Barley | 5 | 1191 | 5955 | Detached | Single garage |
| 42D | The Cleveley | 3 | 1251 | 3753 | Detached | Integ single garage |
| 44D | The Whalley | 10 | 1404 | 14040 | Detached | Single garage |
| 46D | The Keighley | 5 | 1596 | 7980 | Detached | Double garage |
| 47D | The Pattersley | 3 | 1715 | 5145 | Detached | Integ double |
| T2D | The Mawdesley | 4 | 1284 | 5136 | Detached | Single garage |
| SITE TOTAL | | 50 | | 63368 | | |

PARCEL A


PARCEL B

Key

- Site boundary
- Tree to be retained - Canopy and root protection area
- Tree to be removed
- Building for demolition
- Refuse bins
- Line of sewer and associated drainage easement
- Pump station compound

0 10 20 30 40 50

1:500

# Mitton Road, Whalley

A PLOTS 28-32 ALTERED TO ACCOMMODATE P/S. RED EDGE SJS 02.12.2020
ALTERED TO V5

| Rev | Revision History | By | Date |
|---|---|---|---|

Client: Prospect Homes

Site: Mitton Road, Whalley

Drawing: Planning Layout

Drawing Number: MR/W-SJS-PL01

| Scale: | Size: | Date: |
|---|---|---|
| 1 : 500 | A0 | 18/11/2020 |
| Drawn: SJS | Checked: - | Rev: A |
| Status: Planning | | Eden Rose Consulting |

## Appendix D – United Utilities asset search maps and pre-development enquiry correspondence

**How to contact us:**

**United Utilities Water Limited**
**Property Searches**
**Haweswater House**
**Lingley Mere Business Park**
**Great Sankey**
**Warrington**
**WA5 3LP**

**Telephone: 0370 7510101**

**E-mail: propertysearches@uuplc.co.uk**

**Prospect (GB) Ltd**

**5 Meridian Business Village**
**Hansby Drive,**
**Liverpool, Merseyside**
**L24 9LG**

**FAO:**

**Your Ref: MittonRd_Clitheroe**
**Our Ref: UUPS-ORD-164086**
**Date: 13/05/2020**

**Dear Sirs**

## Location: Land at Mitton Road Clitheroe

I acknowledge with thanks your request dated 12/05/2020 for information on the location of our services.

Please find enclosed plans showing the approximate position of United Utilities' apparatus known to be in the vicinity of this site.

The enclosed plans are being provided to you subject to the United Utilities terms and conditions for both the wastewater and water distribution plans which are shown attached.

If you are planning works anywhere in the North West, please read United Utilities' access statement before you start work to check how it will affect our network. http://www.unitedutilities.com/work-near-asset.aspx .

I trust the above meets with your requirements and look forward to hearing from you should you need anything further.

If you have any queries regarding this matter please contact us .

Yours Faithfully,

Karen McCormack
Property Searches Manager



*United Utilities Water Limited*
*Registered In England & Wales No. 2366678*
*Registered Office Haweswater House, Lingley Mere Business Park,*
*Lingley Green Avenue, Great Sankey, Warrington, WA5 3LP*

# TERMS AND CONDITIONS - WASTEWATER AND WATER DISTRIBUTION PLANS

These provisions apply to the public sewerage, water distribution and telemetry systems (including sewers which are the subject of an agreement under Section 104 of the Water Industry Act 1991 and mains installed in accordance with the agreement for the self construction of water mains) (UUWL apparatus) of United Utilities Water Limited "(UUWL)".

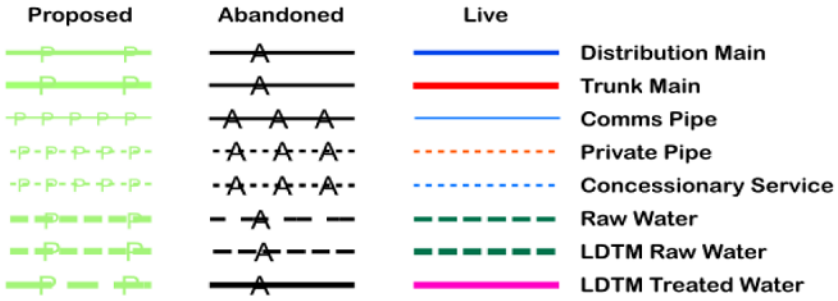
**TERMS AND CONDITIONS:**

- This Map and any information supplied with it is issued subject to the provisions contained below, to the exclusion of all others and no party relies upon any representation, warranty, collateral contract or other assurance of any person (whether party to this agreement or not) that is not set out in this agreement or the documents referred to in it.
- This Map and any information supplied with it is provided for general guidance only and no representation, undertaking or warranty as to its accuracy, completeness or being up to date is given or implied.
- In particular, the position and depth of any UUWL apparatus shown on the Map are approximate only. UUWL strongly recommends that a comprehensive survey is undertaken in addition to reviewing this Map to determine and ensure the precise location of any UUWL apparatus. The exact location, positions and depths should be obtained by excavation trial holes.
- The location and position of private drains, private sewers and service pipes to properties are not normally shown on this Map but their presence must be anticipated and accounted for and you are strongly advised to carry out your own further enquiries and investigations in order to locate the same.
- The position and depth of UUWL apparatus is subject to change and therefore this Map is issued subject to any removal or change in location of the same. The onus is entirely upon you to confirm whether any changes to the Map have been made subsequent to issue and prior to any works being carried out.
- This Map and any information shown on it or provided with it must not be relied upon in the event of any development, construction or other works (including but not limited to any excavations) in the vicinity of UUWL apparatus or for the purpose of determining the suitability of a point of connection to the sewerage or other distribution systems.
- No person or legal entity, including any company shall be relieved from any liability howsoever and whensoever arising for any damage caused to UUWL apparatus by reason of the actual position and/or depths of UUWL apparatus being different from those shown on the Map and any information supplied with it.
- If any provision contained herein is or becomes legally invalid or unenforceable, it will be taken to be severed from the remaining provisions which shall be unaffected and continue in full force and affect.
- This agreement shall be governed by English law and all parties submit to the exclusive jurisdiction of the English courts, save that nothing will prevent UUWL from bringing proceedings in any other competent jurisdiction, whether concurrently or otherwise.



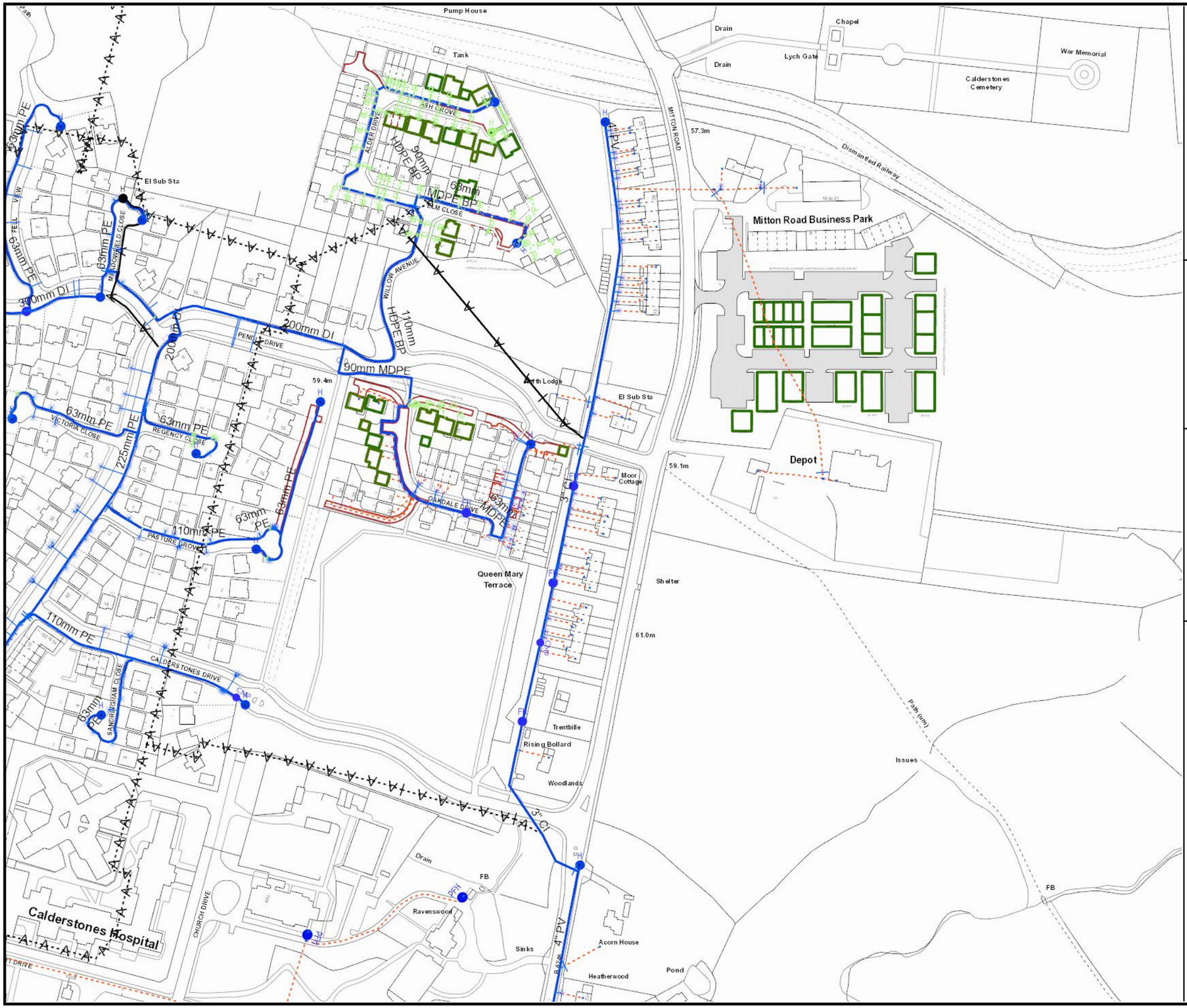
*United Utilities Water Limited*
*Registered In England & Wales No. 2366678*
*Registered Office Haweswater House, Lingley Mere Business Park,*
*Lingley Green Avenue, Great Sankey, Warrington, WA5 3LP*

# Clean Water Symbology





Symbology for proposed assets is the same as above, but shown in green
Symbology for abandoned assets is the same as above, but shown in black




United Utilities
helping life flow smoothly

# WATER MAIN RECORDS

**Address or Site Reference**

Land at Mitton Road Clitheroe,

**Scale:** 1:2500
**Date:** 13/05/2020

**Printed by:** Property Searches

The position of the underground apparatus shown on this plan is approximate only and is given in accordance with the best information currently available. United Utilities Water will not accept liability for any loss or damage caused by the actual position being different from those shown.


The position of the underground apparatus shown on this plan is approximate only and is given in accordance with the best information currently available. United Utilities Water will not accept liability for any loss or damage caused by the actual position being different from those shown.



| Refno | Cover | Func | Invert | Size x | Size y | Shape | Matl | Length | Grad |
|---|---|---|---|---|---|---|---|---|---|
| 4501 | 58.77 | SW | 56.65 | 600 | | | CO | 48.12067 | 1 in 209 |
| 4501 | 58.77 | SW | 56.65 | 600 | | | CO | 48.12067 | 1 in 209 |
| 5505 | 56.2 | FO | 53.72 | 225 | | | UN | 22.59863 | 1 in 108 |
| 5505 | 56.2 | FO | 53.72 | 225 | | | UN | 22.59863 | 1 in 108 |
| 5408 | 58.58 | SW | 56.55 | 600 | | | CO | 47.15824 | 1 in 363 |
| 5408 | 58.58 | SW | 56.55 | 600 | | | CO | 47.15824 | 1 in 363 |
| 5409 | 58.57 | FO | 56.14 | 150 | | | VC | 47.24652 | 1 in 101 |
| 5409 | 58.57 | FO | 56.14 | 150 | | | VC | 47.24652 | 1 in 101 |
| 5403 | 58.94 | SW | 56.25 | 600 | | | CO | 19.08869 | 1 in 477 |
| 5403 | 58.94 | SW | 56.25 | 600 | | | CO | 19.08869 | 1 in 477 |
| 5502 | 57.08 | SW | 57.08 | 300 | | | VC | 38.85421 | 1 in 243 |
| 5502 | 57.08 | SW | 57.08 | 300 | | | VC | 38.85421 | 1 in 243 |
| 4505 | 58.32 | FO | 55.04 | 150 | | | VC | 17.45238 | 1 in 125 |
| 4505 | 58.32 | FO | 55.04 | 150 | | | VC | 17.45238 | 1 in 125 |
| 4512 | 58.2 | FO | 53.17 | 225 | | | VC | 9.189239 | 1 in 2 |
| 5503 | 58.63 | FO | 55.74 | 150 | | | VC | 32.43282 | 1 in 39 |
| 5503 | 58.63 | FO | 55.74 | 150 | | | VC | 32.43282 | 1 in 39 |
| 4507 | 58.29 | FO | 54.86 | 150 | | | VC | 22.69126 | 1 in 13 |
| 4511 | 58.2 | FO | 58.2 | 225 | | | VC | 17.95774 | 1 in 4 |
| 5504 | 56.03 | FO | 53.51 | 225 | | | VC | 65.6659 | 1 in 193 |
| 4503 | 58.35 | SW | 56.73 | 300 | | | VC | 35.45773 | 1 in 443 |
| 4503 | 58.35 | SW | 56.73 | 300 | | | VC | 35.45773 | 1 in 443 |
| 4405 | 59.2 | SW | 56.29 | 600 | | | CO | 23.06003 | 1 in 461 |
| 4405 | 59.2 | SW | 56.29 | 600 | | | CO | 23.06003 | 1 in 461 |
| 5410 | 58.67 | FO | 55.67 | 150 | | | VC | 46.55427 | 1 in 141 |
| 5410 | 58.67 | FO | 55.67 | 150 | | | VC | 46.55427 | 1 in 141 |
| 4504 | 58.4 | SW | 56.82 | 300 | | | VC | 24.11365 | 1 in 268 |
| 4504 | 58.4 | SW | 56.82 | 300 | | | VC | 24.11365 | 1 in 268 |
| 6501 | 56.23 | FO | | 225 | | | UN | 35.94836 | |
| 6501 | 56.23 | FO | | 225 | | | UN | 35.94836 | |
| 6503 | | FO | | 150 | | | VC | 24.2116 | |
| 6503 | | FO | | 150 | | | VC | 24.2116 | |
| 5402 | 58.8 | SW | 56.25 | 600 | | | CO | 12.62833 | 1 in 316 |
| 5402 | 58.8 | SW | 56.25 | 600 | | | CO | 12.62833 | 1 in 316 |
| 4508 | 58.18 | FO | 53.07 | 225 | | | VC | 7.813894 | |
| 4506 | 58.3 | FO | 54.9 | 150 | | | VC | 7.136416 | 1 in 178 |
| 4506 | 58.3 | FO | 54.9 | 150 | | | VC | 7.136416 | 1 in 178 |
| 6502 | | FO | | 150 | | | VC | 29.34176 | |
| 6502 | | FO | | 150 | | | VC | 29.34176 | |
| 4502 | 58.75 | FO | 55.34 | 150 | | | VC | 41.45528 | 1 in 138 |
| 4502 | 58.75 | FO | 55.34 | 150 | | | VC | 41.45528 | 1 in 138 |
| 5407 | 58.65 | SW | 56.42 | 600 | | | CO | 22.0649 | 1 in 221 |
| 5407 | 58.65 | SW | 56.42 | 600 | | | CO | 22.0649 | 1 in 221 |
| 5501 | 58.6 | SW | 56.92 | 300 | | | VC | 26.55399 | 1 in 266 |
| 5501 | 58.6 | SW | 56.92 | 300 | | | VC | 26.55399 | 1 in 266 |

| Refno | Cover | Func | Invert | Size x | Size y | Shape | Matl | Length | Grad |
|---|---|---|---|---|---|---|---|---|---|

# LEGEND

Abandoned | Foul | Surface Water | Combined

- Public Sewer
- Private Sewer
- Section 104
- Rising Main
- Sludge Main
- Overflow
- Water Course
- Highway Drain

**All point assets follow the standard colour convention:**

red - combined  blue - surface water

brown - foul  purple - overflow

- Manhole
- Head of System
- Extent of Survey
- Rodding Eye
- Inlet
- Discharge Point
- Vortex
- Penstock
- Washout Chamber
- Valve
- Air Valve
- Non Return Valve
- Soakaway
- Gully
- Cascade
- Flow Meter
- Hatch Box
- Oil Interceptor
- Summit
- Drop Shaft
- Orifice Plate
- Side Entry Manhole
- Outfall
- Screen Chamber
- Inspection Chamber
- Bifurcation Chamber
- Lamp Hole
- T Junction / Saddle
- Catchpit
- Valve Chamber
- Vent Column
- Vortex Chamber
- Penstock Chamber
- Network Storage Tank
- Sewer Overflow
- Ww Treatment Works
- Ww Pumping Station
- Septic Tank
- Control Kiosk
- Change of Characteristic

**MANHOLE FUNCTION**

| | |
|---|---|
| FO | Foul |
| SW | Surface Water |
| CO | Combined |
| OV | Overflow |

**SEWER SHAPE**

| | | | |
|---|---|---|---|
| CI | Circular | TR | Trapezoidal |
| EG | Egg | AR | Arch |
| OV | Oval | BA | Barrel |
| FT | Flat Top | HO | HorseShoe |
| RE | Rectangular | UN | Unspecified |
| SQ | Square | | |

**SEWER MATERIAL**

| | |
|---|---|
| AC | Asbestos Cement |
| BR | Brick |
| PE | Polyethylene |
| RP | Reinforced Plastic Matrix |
| CO | Concrete |
| CSB | Concrete Segment Bolted |
| CSU | Concrete Segment Unbolted |
| CC | Concrete Box Culverted |
| PSC | Plastic / Steel Composite |
| GRC | Glass Reinforecd Plastic |
| DI | Ductile Iron |
| PVC | Polyvinyl Chloride |
| CI | Cast Iron |
| SI | Spun Iron |
| ST | Steel |
| VC | Vitrified Clay |
| PP | Polypropylene |
| PF | Pitch Fibre |
| MAC | Masonry, Coursed |
| MAR | Masonry, Random |
| U | Unspecified |

**Address or Site Reference:**

Land at Mitton Road Clitheroe,

**OS sheet Number:** SD7237NE

**Scale:** 1:1250  **Date:** 13/05/2020

**Nodes:** 45

**Sheet:** 1 of 2

**Printed by:** Property Searches

**SEWER RECORDS**

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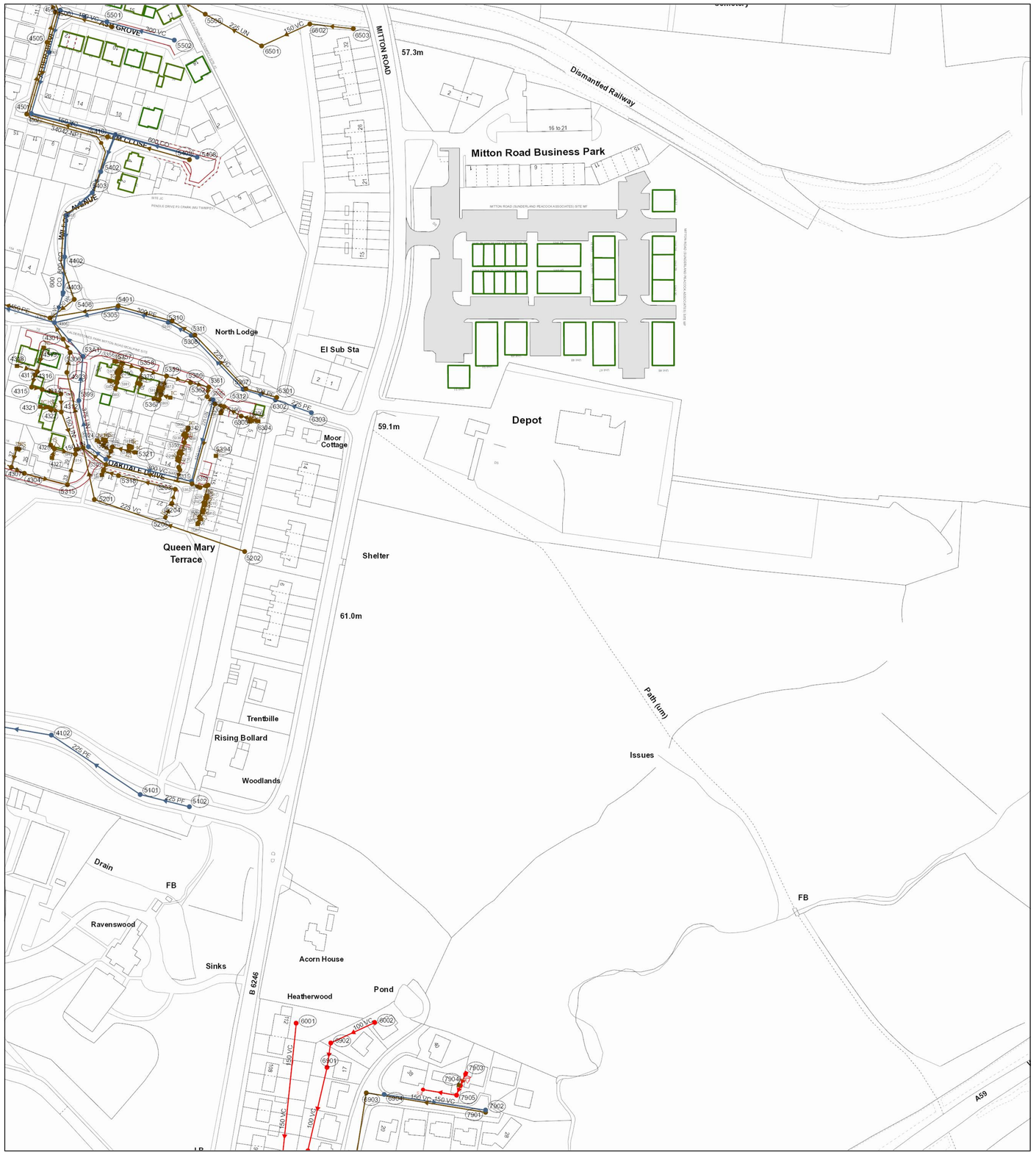


| Refno | Cover | Func | Invert | Size x | Size y | Shape | Matl | Length | Grad |
|---|---|---|---|---|---|---|---|---|---|
| 5364 | | FO | | 0 | | | UN | 7.094663 | |
| 4501 | 58.77 | SW | 56.65 | 600 | | | CO | 48.12067 | 1 in 209 |
| 4501 | 58.77 | SW | 56.65 | 600 | | | CO | 48.12067 | 1 in 209 |
| 5399 | 60.09 | SW | 57.19 | 375 | | | UN | 24.76608 | 1 in 130 |
| 5362 | | FO | | 0 | | | UN | 5.958431 | |
| 6002 | 56.17 | CO | 55.4 | 100 | | | VC | 26.97059 | 1 in 75 |
| 6901 | 55.33 | CO | 54.22 | 100 | | | VC | 47.60952 | |
| 5307 | 59.25 | FO | 57.38 | 225 | | | VC | 41.20581 | 1 in 158 |
| 4303 | | FO | 56.6 | 225 | | | VC | 11.36334 | 1 in 162 |
| 4505 | 58.32 | FO | 55.04 | 150 | | | VC | 17.45238 | 1 in 125 |
| 4505 | 58.32 | FO | 55.04 | 150 | | | VC | 17.45238 | 1 in 125 |
| 5318 | | FO | | 0 | | | UN | 8.900602 | |
| 5393 | | FO | | 0 | | | UN | 4.54661 | |
| 5102 | 60.53 | SW | 59.01 | 225 | | | PF | 28.30586 | 1 in 135 |
| 5101 | 60.76 | SW | 58.8 | 225 | | | PE | 59.26434 | 1 in 148 |
| 4302 | 59.03 | FO | 56.45 | 225 | | | VC | 49.15672 | 1 in 182 |
| 4405 | 59.2 | SW | 56.29 | 600 | | | CO | 23.06003 | 1 in 461 |
| 4405 | 59.2 | SW | 56.29 | 600 | | | CO | 23.06003 | 1 in 461 |
| 6301 | 59.35 | FO | 57.58 | 225 | | | VC | 17.76869 | 1 in 89 |
| 5316 | | FO | | 0 | | | UN | 3.782018 | |
| 5398 | 60.41 | SW | 57.38 | 375 | | | UN | 26.04392 | 1 in 137 |
| 5402 | 58.8 | SW | 56.25 | 600 | | | CO | 12.62833 | 1 in 316 |
| 5402 | 58.8 | SW | 56.25 | 600 | | | CO | 12.62833 | 1 in 316 |
| 5358 | | FO | | 0 | | | UN | 14.02486 | |
| 6001 | 55.89 | CO | 54.78 | 150 | | | VC | 126.7965 | |
| 5336 | | FO | | 0 | | | UN | 1.568337 | |
| 6502 | | FO | | 150 | | | VC | 29.34176 | |
| 6502 | | FO | | 150 | | | VC | 29.34176 | |
| 4316 | | FO | | 150 | | | UN | 7.008227 | |
| 5203 | | FO | | 0 | | | UN | 32.41931 | |
| 5305 | 58.94 | SW | 56.12 | 300 | | | PE | 35.6348 | 1 in 109 |
| 5361 | | FO | | 0 | | | UN | 5.29581 | |
| 5505 | 56.2 | FO | 53.72 | 225 | | | UN | 22.59863 | 1 in 108 |
| 5505 | 56.2 | FO | 53.72 | 225 | | | UN | 22.59863 | 1 in 108 |
| 5320 | | FO | | 0 | | | UN | 2.466161 | |
| 5301 | | FO | 57.78 | 150 | | | VC | 46.18272 | 1 in 144 |
| 6303 | 59.21 | SW | 57.71 | 225 | | | PE | 21.21475 | 1 in 35 |
| 5408 | 58.58 | SW | 56.55 | 600 | | | CO | 47.15824 | 1 in 363 |
| 5408 | 58.58 | SW | 56.55 | 600 | | | CO | 47.15824 | 1 in 363 |
| 5502 | 57.08 | SW | 57.08 | 300 | | | VC | 38.85421 | 1 in 243 |
| 5502 | 57.08 | SW | 57.08 | 300 | | | VC | 38.85421 | 1 in 243 |
| 5503 | 58.63 | FO | 55.74 | 150 | | | VC | 32.43282 | 1 in 39 |
| 5503 | 58.63 | FO | 55.74 | 150 | | | VC | 32.43282 | 1 in 39 |
| 4317 | | FO | | 150 | | | UN | 2.349886 | |
| 7905 | | CO | | 100 | | | VC | 18.82735 | |
| 5341 | 59.92 | SW | 57 | 375 | | | UN | 24.47645 | 1 in 23 |
| 5308 | 58.94 | FO | 57.12 | 225 | | | VC | 14.78325 | 1 in 134 |
| 5396 | 60.41 | SW | 57.71 | 300 | | | VC | 49.03093 | 1 in 189 |
| 6903 | 54.95 | FO | 51.76 | 150 | | | VC | 73.50102 | 1 in 51 |
| 4306 | 58.96 | SW | 55.73 | 450 | | | PE | 54.15689 | 1 in 319 |
| 6503 | | FO | | 150 | | | VC | 24.2116 | |
| 6503 | | FO | | 150 | | | VC | 24.2116 | |
| 4313 | | FO | | 150 | | | UN | 9.8438 | |
| 4304 | | FO | | 150 | | | UN | 24.60472 | |
| 5319 | | FO | | 0 | | | UN | 8.001116 | |
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| 4502 | 58.75 | FO | 55.34 | 150 | | | VC | 41.45528 | 1 in 138 |
| 4502 | 58.75 | FO | 55.34 | 150 | | | VC | 41.45528 | 1 in 138 |
| 5359 | | FO | | 0 | | | UN | 13.80539 | |
| 5335 | | FO | | 0 | | | UN | 6.409895 | |
| 4307 | | FO | | 0 | | | UN | 8.156532 | |
| 5397 | 60.59 | SW | 57.45 | 300 | | | UN | 12.11288 | 1 in 173 |
| 7901 | 54.15 | FO | 52.17 | 150 | | | VC | 67.14893 | 1 in 172 |
| 5501 | 58.6 | SW | 56.92 | 300 | | | VC | 26.55399 | 1 in 266 |
| 5501 | 58.6 | SW | 56.92 | 300 | | | VC | 26.55399 | 1 in 266 |
| 4102 | 61.33 | SW | 58.4 | 225 | | | PE | 39.78815 | 1 in 142 |
| 6902 | 55.98 | CO | 55.02 | 100 | | | VC | 13.76031 | 1 in 18 |
| 5302 | | FO | 57.46 | 150 | | | VC | 49.08948 | 1 in 149 |
| 6904 | 54.82 | SW | 53.09 | 150 | | | VC | 57.04287 | 1 in 272 |
| 4403 | 59.24 | SW | | 0 | | | VC | 1.162971 | |
| 5201 | 60.97 | FO | 57.09 | 225 | | | VC | 29.55739 | 1 in 369 |
| 5309 | 58.78 | FO | 57.01 | 225 | | | VC | 31.13136 | 1 in 142 |
| 4314 | | FO | | 150 | | | UN | 10.79359 | |
| 5304 | | FO | 57.01 | 225 | | | VC | 42.61117 | 1 in 104 |
| 5313 | | FO | | 150 | | | UN | 4.335078 | |
| 4503 | 58.35 | SW | 56.73 | 300 | | | VC | 35.45773 | 1 in 443 |
| 4503 | 58.35 | SW | 56.73 | 300 | | | VC | 35.45773 | 1 in 443 |
| 5315 | | FO | | 150 | | | UN | 17.50835 | |
| 5202 | 60.6 | FO | 57.39 | 225 | | | VC | 88.21355 | 1 in 294 |
| 6501 | 56.23 | FO | | 225 | | | UN | 35.94836 | |
| 6501 | 56.23 | FO | | 225 | | | UN | 35.94836 | |
| 5392 | | FO | | 0 | | | UN | 4.823321 | |
| 4506 | 58.3 | FO | 54.9 | 150 | | | VC | 7.136416 | 1 in 178 |
| 4506 | 58.3 | FO | 54.9 | 150 | | | VC | 7.136416 | 1 in 178 |
| 5407 | 58.65 | SW | 56.42 | 600 | | | CO | 22.0649 | 1 in 221 |
| 5407 | 58.65 | SW | 56.42 | 600 | | | CO | 22.0649 | 1 in 221 |
| 5389 | | FO | | 0 | | | UN | 5.20218 | |
| 4315 | | FO | | 150 | | | UN | 5.981234 | |
| 5306 | | FO | 56.53 | 225 | | | VC | 8.257751 | 1 in 206 |
| 4312 | | FO | | 150 | | | UN | 22.45522 | |
| 5409 | 58.57 | FO | 56.14 | 150 | | | VC | 47.24652 | 1 in 101 |
| 5409 | 58.57 | FO | 56.14 | 150 | | | VC | 47.24652 | 1 in 101 |
| 5310 | 58.81 | SW | 56.31 | 300 | | | PE | 29.28496 | 1 in 154 |
| 5403 | 58.94 | SW | 56.25 | 600 | | | CO | 19.08869 | 1 in 477 |
| 5403 | 58.94 | SW | 56.25 | 600 | | | CO | 19.08869 | 1 in 477 |
| 5312 | 59.25 | SW | 56.82 | 300 | | | PE | 41.54596 | 1 in 101 |
| 4301 | 59.65 | FO | 56.49 | 225 | | | VC | 13.88348 | 1 in 347 |
| 5390 | | FO | | 0 | | | UN | 10.9941 | |
| 5406 | 59.04 | FO | 56.86 | 150 | | | VC | 16.9125 | 1 in 39 |
| 5314 | | FO | | 150 | | | UN | 2.535223 | |
| 4402 | 59.43 | SW | 56.24 | 600 | | | CO | 19.82849 | 1 in 117 |
| 5360 | | FO | | 0 | | | UN | 10.34783 | |
| 5303 | | FO | 57.13 | 150 | | | VC | 15.80129 | 1 in 132 |
| 5311 | 58.93 | SW | 56.41 | 300 | | | PE | 14.71768 | 1 in 147 |
| 5395 | 59.51 | SW | 58.08 | 225 | | | UN | 46.84892 | 1 in 151 |
| 5410 | 58.67 | FO | 55.67 | 150 | | | VC | 46.55427 | 1 in 141 |
| 5410 | 58.67 | FO | 55.67 | 150 | | | VC | 46.55427 | 1 in 141 |
| 4504 | 58.4 | SW | 56.82 | 300 | | | VC | 24.11365 | 1 in 268 |
| 4504 | 58.4 | SW | 56.82 | 300 | | | VC | 24.11365 | 1 in 268 |
| 5401 | 58.94 | FO | 56.79 | 225 | | | VC | 38.41573 | 1 in 132 |
| 5380 | | FO | | 0 | | | UN | 3.662376 | |
| 5338 | | FO | | 0 | | | UN | 14.10581 | |

| Refno | Cover | Func | Invert | Size x | Size y | Shape | Matl | Length | Grad |
|---|---|---|---|---|---|---|---|---|---|

# LEGEND

Abandoned · Foul · Surface Water · Combined

- Public Sewer
- Private Sewer
- Section 104
- Rising Main
- Sludge Main
- Overflow
- Water Course
- Highway Drain

All point assets follow the standard colour convention:
red - combined · blue - surface water
brown - foul · purple - overflow

- Manhole
- Head of System
- Extent of Survey
- Rodding Eye
- Inlet
- Discharge Point
- Vortex
- Penstock
- Washout Chamber
- Valve
- Air Valve
- Non Return Valve
- Soakaway
- Gully
- Cascade
- Flow Meter
- Hatch Box
- Oil Interceptor
- Summit
- Drop Shaft
- Orifice Plate
- Side Entry Manhole
- Outfall
- Screen Chamber
- Inspection Chamber
- Bifurcation Chamber
- Lamp Hole
- T Junction / Saddle
- Catchpit
- Valve Chamber
- Vent Column
- Vortex Chamber
- Penstock Chamber
- Network Storage Tank
- Sewer Overflow
- Ww Treatment Works
- Ww Pumping Station
- Septic Tank
- Control Kiosk
- Change of Characteristic

**MANHOLE FUNCTION**

| | |
|---|---|
| FO | Foul |
| SW | Surface Water |
| CO | Combined |
| OV | Overflow |

**SEWER SHAPE**

| | | | |
|---|---|---|---|
| CI | Circular | TR | Trapezoidal |
| EG | Egg | AR | Arch |
| OV | Oval | BA | Barrel |
| FT | Flat Top | HO | HorseShoe |
| RE | Rectangular | UN | Unspecified |
| SQ | Square | | |

**SEWER MATERIAL**

| | |
|---|---|
| AC | Asbestos Cement |
| BR | Brick |
| PE | Polyethylene |
| RP | Reinforced Plastic Matrix |
| CO | Concrete |
| CSB | Concrete Segment Bolted |
| CSU | Concrete Segment Unbolted |
| CC | Concrete Box Culverted |
| PSC | Plastic / Steel Composite |
| GRC | Glass Reinforecd Plastic |
| DI | Ductile Iron |
| PVC | Polyvinyl Chloride |
| CI | Cast Iron |
| SI | Spun Iron |
| ST | Steel |
| VC | Vitrified Clay |
| PP | Polypropylene |
| PF | Pitch Fibre |
| MAC | Masonry, Coursed |
| MAR | Masonry, Random |
| U | Unspecified |

**Address or Site Reference:**

Land at Mitton Road Clitheroe,

**OS sheet Number:** SD7237SE
**Scale:** 1:1250 **Date:** 13/05/2020
**Nodes:** 113
**Sheet:** 2 of 2

**Printed by:** Property Searches

**SEWER RECORDS**

United Utilities — helping life flow smoothly

## Ryan Atherton

**From:** Wastewater Developer Services <WastewaterDeveloperServices@uuplc.co.uk>
**Sent:** 17 December 2020 11:24
**To:** Ryan Atherton; Wastewater Developer Services
**Subject:** PDE 4200035650 Mitton Road, Whalley, BB7 9JY

**Follow Up Flag:** Follow up
**Flag Status:** Flagged

Good morning Ryan,

**Pre Development Enquiry for: Mitton Road, Whalley, BB7 9JY  UU Reference Number : 4200035650**

For future reference we now have a new wastewater pre-development enquiry form designed to be easier and more user friendly which is available on our website via the following link:

https://www.unitedutilities.com/builders-developers/larger-developments/pre-development/wastewater-pre-dev/

We have carried out an assessment of your application which is based on the information provided. This pre-development advice on your drainage strategy will be valid for 12 months. Your drainage strategy will need to be reviewed by other competent authorities as part of the planning process, and we advise that you carry out the necessary site investigations to confirm the viability of your proposals.

If your investigations require access to our public sewer network, we ask that you contact our network engineers with a request for an access certificate via our main contact telephone number 0345 3723223 or refer to the link below:

https://www.unitedutilities.com/builders-developers/working-near-our-assets/

There are two land parcels within this site which will be referred to as the northern and southern parcels.

**Foul Water**

Foul flow from this site will be allowed to drain into the public foul water/combined sewer system.

Our preferred point of discharge would be to the 225mm diameter public foul water sewer located to the north of the northern parcel and 225mm diameter public foul water sewer located to the west of the southern parcel, as you have suggested on your drainage proposals, both connects can be at an unrestricted rate.

If you are able to identify an alternative, more suitable point of discharge, we request that you contact us at your earliest convenience so that we can assess suitability.

In accordance with our infrastructure plans we may ask you to change your point of connection. Therefore please contact us when you are ready to formalise your drainage proposals, we would suggest before you submit for Full Planning.

**Surface Water**

All surface water flow from the proposed development should drain in-line with the drainage hierarchy, as outlined in Paragraph 80, (Reference ID: 7-080-20150323), of the National Planning Practice Guidance. We also recommend you

prioritise the use of multi-functional sustainable drainage systems for the management of surface water in accordance with national planning policy.

Generally, the aim should be to discharge surface run off as high up the following hierarchy of drainage options as reasonably practicable.
This is outlined as follows, in order of priority:

1. **into the ground (infiltration);**
2. **to a surface waterbody;**
3. **to a surface water sewer or highway drain;**
4. **to a combined sewer.**

For guidance, The North West SuDS Pro-Forma provides information on the appropriate evidence required at each stage of the hierarchy, to demonstrate how each level has been discounted.

The Lead Local Flood Authority has responsibility for all surface water drainage concerns and their input to your proposal is critical. You should also consider whether it is necessary to discuss your proposal with the Environment Agency, or Internal Drainage Board (if operating in your area).

The Local Planning Authority are the determining authority for any application for planning permission and the appropriate authority for determining cost viability of a proposed drainage scheme, such assessments are outside of the jurisdiction of United Utilities.

**Infiltration**

Surface water runoff generated from this development should discharge to the ground via infiltration system where feasible.

A detailed evidence based feasibility assessment must be carried out in line with Chapter 25 of the CIRIA SuDS Manual 2015 to determine whether infiltration is a suitable method of surface water disposal.

Particular attention must be paid to Ground Water Source Protection Zones to ensure that the risk of pollution to these valuable resources is not compromised. Details can be obtained from the government website:

https://www.gov.uk/guidance/groundwater-source-protection-zones-spzs#find-groundwater-spzs

If your site is in a Groundwater Source Protection Zone, you should have regard to the Environment Agency's approach to Groundwater Protection. Information on this is available via the link below:

https://www.gov.uk/government/publications/groundwater-protection-position-statements

Please note that such a location could have implications for the principle of your development and the need for additional mitigating measures to protect the groundwater environment and public water supply in the detailed design of your site.

**Waterbody**

If an evidence based assessment has been carried out and confirms that infiltration is not feasible, we recommend that you contact the Lead Local Flood Authority and/or Environment Agency to discuss a point of discharge to the nearby watercourses shown on our records to be located 40m south of the southern parcel or 200m east of the southern parcel.

We would encourage you to identify and engage with any third party landowner and riparian owner to agree access and discharge rights to the water body if this is not in your ownership.

**Highway Drainage**

If an evidence based assessment has been carried out and confirms that infiltration is not feasible, we recommend that you investigate the possibility of draining surface water to the highway drain where this ultimately discharges to a watercourse, by contacting the relevant Highway Authority.

**Public Sewer**

In accordance with the hierarchy of drainage options within the National Planning Practice Guidance, both discharge to ground via infiltration and discharge to a waterbody should be discounted prior to consideration of discharging surface water to the public sewer system. Evidence should be provided to demonstrate how these have been discounted, as outlined in the North West SuDS pro-forma.

Once evidence is provided as outlined above, United Utilities will consider a connection to the 225mm diameter public surface water sewer within Pendle Drive located between the two proposed land parcels as you have shown on your provided on your drainage strategy. However, the proposed surface water discharge rate is based on a Brownfield and Greenfield combined rate but no evidence has been provided to show that the existing surface water drained to our public sewer. As a result, the pass forward flow should be agreed with the Lead Local Flood Authority but United Utilities request that any agreed rate does not exceed 19.44l/s which equates to the QBar Greenfield runoff rate from the total site which ll sites should be looking to restrict their flow rates too where possible.

As a Water Company, we have no obligation to accept highway drainage into our public sewer network. However, should your proposals include runoff from highways, we would request that consideration is given to SuDS components that deliver source control are incorporated within the design of the scheme to reduce the volume and frequency of discharges of these flows to the public sewer.

**Levels**

For low-lying sites, (where the ground level of the site or the level of a basement is below the ground level at the point where the drainage connects to the public sewer), care should be taken to ensure that the property is not at increased risk of flooding. If these circumstances exist, we recommend that you contact us to discuss further. It could affect the detailed design of your site and result in the need to incorporate appropriate mitigating measures in your drainage scheme.

**Land drainage / Overland flows / track drainage**

United Utilities have no obligation, and furthermore we do not accept land drainage, overland flows or track drainage into the pubic sewerage network under any circumstances

**Sewer Adoptions**

You have not indicated if you intend to put the sewers forward for adoption (including any SuDS components that can come within the meaning of a sewer). As a result, we have included the below information for your consideration if this is the case.

United Utilities assess adoption applications based on the current Design & Construction Guidance and local practices which have now replaced 'Sewers For Adoption 6th Edition'.

We recommend that you submit a pre design assessment to the sewer adoption mailbox (SewerAdoptions@uuplc.co.uk) stating pre design assessment in the title

Please refer to links below to obtain further guidance:

https://www.unitedutilities.com/builders-developers/larger-developments/wastewater/sewer-adoptions/

Site drainage must be designed in accordance with Building Regulations, National Planning Policy, and local flood authority guidelines, we would recommend that you speak and make suitable agreements with the relevant statutory bodies.

If you intend to put forward your wastewater assets for adoption by United Utilities, the proposed detail design will be subject to a technical appraisal by an Adoption Engineer as we need to be sure that the proposals meets the requirements set out in the Design & Construction Guidance. The proposed design should give consideration to long term operability and give United Utilities a safe and cost effective proposal for the lifetime of the assets. In these cases, we strongly recommend that no construction commences until the detailed drainage design, submitted as part of the Section 104 application, has been assessed and accepted in writing by United Utilities. Any work carried out prior to the technical assessment being approved is done entirely at the developer's own risk and could be subject to change.

**Codes For Adoption**

The new Codes for Adoption are outlined on the Water UK Website. The link below takes you to their webpage:

https://www.water.org.uk/technical-guidance/developers-services/codes-for-adoption/

A free copy of the new Design & Construction Guidance can be downloaded via the link below:

https://www.water.org.uk/wp-content/uploads/2020/03/SSG-App-C-Des-Con-Guide-v-2-100320-C.pdf

**Existing Wastewater Assets Crossing the Site**

According to our public sewer records there are public sewers located within your site boundary, as you have noted you intend to divert to suit the development.

Please refer to the link below to obtain full details of the processes involved with sewer diversions:

https://www.unitedutilities.com/builders-developers/larger-developments/wastewater/sewer-diversions/

**Existing Water Assets Crossing the Site**

It is the developer responsibility to identify utilities on-site. Where clean water assets are shown on our records, we recommend that you contact our Water Pre-Development Team, via the following email address: DeveloperServicesWater@uuplc.co.uk. Further information for this service can be found on our website via the link below:

https://www.unitedutilities.com/builders-developers/larger-developments/pre-development/water-pre-dev/

**Connection Application**

Although we may discuss and agree discharge points and rates in principle, please be aware that you will have to apply for a formal sewer connection. This is so that we can assess the method of construction, Health & Safety requirements and to ultimately inspect the connection when it is made. Details of the application process and the form itself can be obtained from our website by following the link below:

https://www.unitedutilities.com/builders-developers/larger-developments/wastewater/sewer-connections/

We recommend that the detailed design should confirm the locations of all utilities in the area and ensure that any proposed drainage solution considers routing and clash checks where required.

If we can be of any further assistance please don't hesitate to contact us further.

Kind regards,

United Utilities
Water for the North West

**Robert Brenton**
Developer Engineer
Developer Services & Metering
Customer Services
**M:** 07880299827
unitedutilities.com

**If you have received a great service today why not tell us?**
**Visit: unitedutilities.com/wow**

Did you know we now have a live chat facility available to you Mon to Friday 8 -5pm. You just click on the orange live chat box on our webpage and one of our advisors will be ready to chat to you and help you with your enquiry https://www.unitedutilities.com/builders-developers/ or you can email us at developerserviceswater@uuplc.co.uk


---

**From:** Ryan Atherton [mailto:ratherton@edgece.com]
**Sent:** 08 December 2020 17:00
**To:** Wastewater Developer Services <WastewaterDeveloperServices@uuplc.co.uk>
**Subject:** Mitton Road, Whally

Good afternoon

Please find attached, by cover of 2 emails the completed application form, drawings and information for the above named site.

Can you let us know if the points proposed for foul water and surface water discharge are acceptable? We have calculated SW runoff in line with a 30% betterment on the brownfield element combined with the greenfield run off rates. Surface water is proposed to be pumped.

We are also looking to abandon and/ or divert a foul sewer to the far north of the site, can you provide comment/ guidance on this element too.

Should you need anything further please feel free to contact our office.

Kind regards

**Ryan Atherton**
Team Leader - Civil

**EDGE Consulting Engineers**
3rd Floor, Conavon Court, 12 Blackfriars Street,
Manchester, M3 5BQ, United Kingdom
T +44 (0) 161 834 1938 | M +44 (0) 755 221 6876
Follow us on Twitter: @EDGEConsultEng

**www.edgece.com** | **ratherton@edgece.com** | **map**





Business Park, Lingley Green Avenue, Great Sankey,
Warrington, WA5 3LP
Registered in England and Wales. Registered No 6559020

www.unitedutilities.com
www.unitedutilities.com/subsidiaries
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## Appendix E – Proposed drainage layout


KEY:

- PROPOSED SURFACE WATER SEWER
- PROPOSED FOUL WATER SEWER
- EXISTING PUBLIC SW PIPE
- EXISTING PUBLIC FW PIPE
- POTENTIAL DIVERTED COMBINED SEWER
- SEWER TO BE ABANDONED
- SW DRAGOUT
- FW DRAGOUT
- GULLY

NOTES:

1. ALL SEWERS ARE DESIGNED IN ACCORDANCE WITH SEWERS FOR ADOPTION 6TH EDITION AND UNITED UTILITIES GUIDELINES AND STANDARD DETAILS.
2. ALL CO-ORDINATES AND LEVELS SHOWN ARE RELATIVE TO THE TOPOGRAPHIC SURVEY.
3. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ENSURE THE LINE AND LOCATION OF ANY EXISTING SEWERS, AS WELL AS ANY EXISTING GROUND AND INVERT LEVELS SHOWN ON THE DRAWING ARE CORRECT PRIOR TO THE COMMENCEMENT OF ANY WORKS. ANY DISCREPANCIES MUST BE MUST BE REPORTED IMMEDIATELY.
4. PRIOR TO THE COMMENCEMENT OF ANY ON SITE WORKS THE CONTRACTOR MUST CONTACT THE STATUTORY UNDERTAKER AND BE IN POSSESSION OF THE LATEST DRAWINGS SHOWING THEIR APPARATUS.
5. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ALLOW FOR THE SUPERVISION OF THE CONSTRUCTION WORKS BY UNITED UTILITIES AND / OR THE HIGHWAYS AUTHORITY. THE CONTRACTOR WILL NOTIFY THE SUPERVISING OFFICER GIVING NOTICE WHICH WILL BE IN ACCORDANCE WITH THE AUTHORITIES REQUIREMENTS.
6. THE PROPOSED SEWERS WILL BE CLAY PIPE WORK AND SHALL BE EXTRA STRENGTH TO BS EN 295:1991 PART 1.
7. ANY PCC PIPE WORK WILL BE IN ACCORDANCE WITH BS EN 1916:2002.
8. ALL MANHOLES AND CHAMBERS SHALL BE IN ACCORDANCE WITH BS EN 1917:2002
9. SEWERS WITH COVER TO SOFFIT GREATER THAN 1.2m IN ROADS AND 0.9m IN FIELDS SHALL HAVE BED AND SURROUND AS FOLLOWS: RIGID PIPE EMBEDMENT SHALL BE CLASS S. SEMI RIGID PIPE EMBEDMENT SHALL BE CLASS S ALL IN ACCORDANCE WITH UNITED UTILITIES STANDARD DETAIL STND/05/001.
10. PRIVATE DRAINAGE CONNECTIONS TO THE SEWER WILL BE 150MM DIAMETER AND LAID TO THE SPECIFIED INVERT.
11. THE INVERT LEVELS SPECIFIED AT THE DRAG OUT CHAMBER ARE INCOMING LEVELS.
12. WHEREVER POSSIBLE PRIVATE DRAINAGE RUNS WILL REMAIN WITHIN THE CURTILAGE OF THE DWELLING FOR WHICH THEY SERVE.
13. THE CONNECTION TO THE ADOPTABLE SEWER SHALL BE MANUFACTURED JUNCTION PIPES A SADDLE CONNECTION IS NOT PERMITTED UNLESS IT IS CLEARLY SPECIFIED.
14. ANY SEWER FOR ADOPTION WITH A COVER OF LESS THAN 1.2M TO PIPE SOFFIT IN ROADS OR 0.9m TO PIPE SOFFIT IN FIELDS WILL HAVE A MINIMUM 150mm GEN 3 CONCRETE BED AND SURROUND WITH FLEXIBILITY MAINTAINED WITH FLEXCELL EXPANSION JOINT FILLER OR SIMILAR APPROVED AT EACH PIPE JOINT.
15. CONNECTIONS TO THE EXISTING SEWER WILL BE IN ACCORDANCE WITH SECTION 104 APPROVAL GRANTED BY UNITED UTILITIES.




LAYOUT LOCATION
NOT TO SCALE

| Rev | Date | Description | By | Chk |
|---|---|---|---|---|
| P02 | 12.01.21 | Drainage layout added for Parcel A | D.A | R.A |
| P01 | 28.01.21 | PRELIMINARY - Issued for Information | D.A | R.A |


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DO NOT SCALE DRAWINGS. IF IN DOUBT, ASK!

Project Name
**MITTON ROAD**
**WHALLEY**

Client
**PROSPECT HOMES**

| Designed | Drawn | Checked | Scale @ A1 |
|---|---|---|---|
| R.A | D.A | R.A | 1:500 |

Drawing Title
**DRAINAGE LAYOUT**

Project No.
**200903**

PRELIMINARY
NOT FOR CONSTRUCTION

Drawing No.
**200903-EDGE-XX-XX-DR-C-2004**

Revision
**P02**

## Appendix F – Greenfield runoff calculations

# Greenfield runoff rate estimation for sites

www.uksuds.com | Greenfield runoff tool

| | |
|---|---|
| Calculated by: | Ryan Atherton |
| Site name: | mitton road |
| Site location: | whalley |

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

**Site Details**

| | |
|---|---|
| Latitude: | 53.83291° N |
| Longitude: | 2.41696° W |
| Reference: | 1412632409 |
| Date: | Mar 22 2021 10:01 |

## Runoff estimation approach

IH124

## Site characteristics

Total site area (ha): 2.28

## Methodology

| | |
|---|---|
| $Q_{BAR}$ estimation method: | Calculate from SPR and SAAR |
| SPR estimation method: | Calculate from SOIL type |

## Soil characteristics

| | Default | Edited |
|---|---|---|
| SOIL type: | 4 | 4 |
| HOST class: | N/A | N/A |
| SPR/SPRHOST: | 0.47 | 0.47 |

## Hydrological characteristics

| | Default | Edited |
|---|---|---|
| SAAR (mm): | 1134 | 1134 |
| Hydrological region: | 10 | 10 |
| Growth curve factor 1 year: | 0.87 | 0.87 |
| Growth curve factor 30 years: | 1.7 | 1.7 |
| Growth curve factor 100 years: | 2.08 | 2.08 |
| Growth curve factor 200 years: | 2.37 | 2.37 |

## Notes

### (1) Is $Q_{BAR}$ < 2.0 l/s/ha?

When $Q_{BAR}$ is < 2.0 l/s/ha then limiting discharge rates are set at 2.0 l/s/ha.

### (2) Are flow rates < 5.0 l/s?

Where flow rates are less than 5.0 l/s consent for discharge is usually set at 5.0 l/s if blockage from vegetation and other materials is possible. Lower consent flow rates may be set where the blockage risk is addressed by using appropriate drainage elements.

### (3) Is SPR/SPRHOST ≤ 0.3?

Where groundwater levels are low enough the use of soakaways to avoid discharge offsite would normally be preferred for disposal of surface water runoff.

## Greenfield runoff rates

| | Default | Edited |
|---|---|---|
| $Q_{BAR}$ (l/s): | 19.36 | 19.36 |
| 1 in 1 year (l/s): | 16.84 | 16.84 |
| 1 in 30 years (l/s): | 32.91 | 32.91 |
| 1 in 100 year (l/s): | 40.26 | 40.26 |
| 1 in 200 years (l/s): | 45.87 | 45.87 |

## STORM SEWER DESIGN by the Modified Rational Method

### Design Criteria for PARCEL A_SW

Pipe Sizes STANDARD Manhole Sizes STANDARD

FSR Rainfall Model - England and Wales

| | | | |
|---|---|---|---|
| Return Period (years) | 30 | PIMP (%) | 100 |
| M5-60 (mm) | 19.500 | Add Flow / Climate Change (%) | 0 |
| Ratio R | 0.279 | Minimum Backdrop Height (m) | 0.600 |
| Maximum Rainfall (mm/hr) | 40 | Maximum Backdrop Height (m) | 3.000 |
| Maximum Time of Concentration (mins) | 30 | Min Design Depth for Optimisation (m) | 0.900 |
| Foul Sewage (l/s/ha) | 0.000 | Min Vel for Auto Design only (m/s) | 1.00 |
| Volumetric Runoff Coeff. | 0.750 | Min Slope for Optimisation (1:X) | 500 |

Designed with Level Soffits

### Time Area Diagram for PARCEL A_SW

| Time (mins) | Area (ha) | Time (mins) | Area (ha) |
|---|---|---|---|
| 0-4 | 0.449 | 4-8 | 0.261 |

Total Area Contributing (ha) = 0.710

Total Pipe Volume (m³) = 272.568

### Network Design Table for PARCEL A_SW

« - Indicates pipe capacity < flow

| PN | Length (m) | Fall (m) | Slope (1:X) | I.Area (ha) | T.E. (mins) | Base Flow (l/s) | k (mm) | HYD SECT | DIA (mm) | Section Type | Auto Design |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.000 | 26.396 | 0.176 | 150.0 | 0.164 | 5.00 | 0.0 | 0.600 | o | 225 | Pipe/Conduit | |
| 1.001 | 13.876 | 0.139 | 99.8 | 0.083 | 0.00 | 0.0 | 0.600 | o | 225 | Pipe/Conduit | |
| 1.002 | 26.534 | 0.066 | 402.0 | 0.058 | 0.00 | 0.0 | 0.600 | o | 1200 | Pipe/Conduit | |

### Network Results Table

| PN | Rain (mm/hr) | T.C. (mins) | US/IL (m) | Σ I.Area (ha) | Σ Base Flow (l/s) | Foul (l/s) | Add Flow (l/s) | Vel (m/s) | Cap (l/s) | Flow (l/s) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1.000 | 40.00 | 5.41 | 55.060 | 0.164 | 0.0 | 0.0 | 0.0 | 1.07 | 42.4 | 17.8 |
| 1.001 | 40.00 | 5.59 | 54.884 | 0.247 | 0.0 | 0.0 | 0.0 | 1.31 | 52.0 | 26.8 |
| 1.002 | 40.00 | 5.83 | 53.770 | 0.305 | 0.0 | 0.0 | 0.0 | 1.86 | 2103.2 | 33.0 |

## Network Design Table for PARCEL A SW

| PN | Length (m) | Fall (m) | Slope (1:X) | I.Area (ha) | T.E. (mins) | Base Flow (l/s) | k (mm) | HYD SECT | DIA (mm) | Section Type | Auto Design |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.003 | 7.074 | 0.018 | 393.0 | 0.000 | 0.00 | 0.0 | 0.600 | o | 1200 | Pipe/Conduit | |
| 1.004 | 26.163 | 0.065 | 402.5 | 0.051 | 0.00 | 0.0 | 0.600 | o | 1200 | Pipe/Conduit | |
| 1.005 | 10.189 | 0.025 | 407.6 | 0.000 | 0.00 | 0.0 | 0.600 | o | 1200 | Pipe/Conduit | |
| 1.006 | 25.881 | 0.122 | 212.1 | 0.029 | 0.00 | 0.0 | 0.600 | o | 1200 | Pipe/Conduit | |
| 2.000 | 32.750 | 0.082 | 399.4 | 0.094 | 5.00 | 0.0 | 0.600 | o | 1200 | Pipe/Conduit | |
| 2.001 | 18.588 | 0.046 | 404.1 | 0.050 | 0.00 | 0.0 | 0.600 | o | 1200 | Pipe/Conduit | |
| 2.002 | 22.576 | 0.056 | 403.1 | 0.064 | 0.00 | 0.0 | 0.600 | o | 1200 | Pipe/Conduit | |
| 2.003 | 22.050 | 0.055 | 400.9 | 0.000 | 0.00 | 0.0 | 0.600 | o | 1200 | Pipe/Conduit | |
| 2.004 | 8.791 | 0.022 | 399.6 | 0.000 | 0.00 | 0.0 | 0.600 | o | 1200 | Pipe/Conduit | |
| 1.007 | 8.218 | 0.021 | 391.3 | 0.017 | 0.00 | 0.0 | 0.600 | o | 1200 | Pipe/Conduit | |
| 1.008 | 29.991 | 0.075 | 399.9 | 0.000 | 0.00 | 0.0 | 0.600 | o | 1200 | Pipe/Conduit | |
| 1.009 | 5.110 | 0.034 | 150.3 | 0.100 | 0.00 | 0.0 | 0.600 | o | 300 | Pipe/Conduit | |
| 1.010 | 5.257 | 0.035 | 150.2 | 0.000 | 0.00 | 0.0 | 0.600 | o | 300 | Pipe/Conduit | |
| 1.011 | 8.574 | 0.100 | 85.7 | 0.000 | 0.00 | 0.0 | 0.600 | o | 150 | Pipe/Conduit | |

## Network Results Table

| PN | Rain (mm/hr) | T.C. (mins) | US/IL (m) | Σ I.Area (ha) | Σ Base Flow (l/s) | Foul (l/s) | Add Flow (l/s) | Vel (m/s) | Cap (l/s) | Flow (l/s) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1.003 | 40.00 | 5.89 | 53.704 | 0.305 | 0.0 | 0.0 | 0.0 | 1.88 | 2127.4 | 33.0 |
| 1.004 | 40.00 | 6.12 | 53.686 | 0.356 | 0.0 | 0.0 | 0.0 | 1.86 | 2102.0 | 38.6 |
| 1.005 | 40.00 | 6.22 | 53.621 | 0.356 | 0.0 | 0.0 | 0.0 | 1.85 | 2088.8 | 38.6 |
| 1.006 | 40.00 | 6.38 | 53.596 | 0.385 | 0.0 | 0.0 | 0.0 | 2.56 | 2900.8 | 41.7 |
| 2.000 | 40.00 | 5.29 | 53.735 | 0.094 | 0.0 | 0.0 | 0.0 | 1.87 | 2110.2 | 10.2 |
| 2.001 | 40.00 | 5.46 | 53.653 | 0.144 | 0.0 | 0.0 | 0.0 | 1.85 | 2097.8 | 15.6 |
| 2.002 | 40.00 | 5.66 | 53.607 | 0.208 | 0.0 | 0.0 | 0.0 | 1.86 | 2100.3 | 22.5 |
| 2.003 | 40.00 | 5.86 | 53.551 | 0.208 | 0.0 | 0.0 | 0.0 | 1.86 | 2106.2 | 22.5 |
| 2.004 | 40.00 | 5.94 | 53.496 | 0.208 | 0.0 | 0.0 | 0.0 | 1.87 | 2109.7 | 22.5 |
| 1.007 | 40.00 | 6.46 | 53.474 | 0.610 | 0.0 | 0.0 | 0.0 | 1.89 | 2132.0 | 66.1 |
| 1.008 | 40.00 | 6.73 | 53.453 | 0.610 | 0.0 | 0.0 | 0.0 | 1.86 | 2108.9 | 66.1 |
| 1.009 | 40.00 | 6.79 | 53.378 | 0.710 | 0.0 | 0.0 | 0.0 | 1.28 | 90.5 | 76.9 |
| 1.010 | 40.00 | 6.86 | 53.344 | 0.710 | 0.0 | 0.0 | 0.0 | 1.28 | 90.5 | 76.9 |
| 1.011 | 40.00 | 6.99 | 53.309 | 0.710 | 0.0 | 0.0 | 0.0 | 1.09 | 19.2« | 76.9 |

## Manhole Schedules for PARCEL A_SW

| MH Name | MH CL (m) | MH Depth (m) | MH Connection | MH Diam.,L*W (mm) | Pipe Out PN | Pipe Out Invert Level (m) | Pipe Out Diameter (mm) | Pipes In PN | Pipes In Invert Level (m) | Pipes In Diameter (mm) | Back (m |
|---|---|---|---|---|---|---|---|---|---|---|---|
| S11 | 56.485 | 1.425 | Open Manhole | 1350 | 1.000 | 55.060 | 225 | | | | |
| S12 | 56.848 | 1.964 | Open Manhole | 1350 | 1.001 | 54.884 | 225 | 1.000 | 54.884 | 225 | |
| S13 | 57.050 | 3.280 | Open Manhole | 2700 | 1.002 | 53.770 | 1200 | 1.001 | 54.745 | 225 | |
| S14 | 57.399 | 3.695 | Open Manhole | 2700 | 1.003 | 53.704 | 1200 | 1.002 | 53.704 | 1200 | |
| S15 | 57.504 | 3.818 | Open Manhole | 2700 | 1.004 | 53.686 | 1200 | 1.003 | 53.686 | 1200 | |
| S16 | 57.751 | 4.130 | Open Manhole | 2700 | 1.005 | 53.621 | 1200 | 1.004 | 53.621 | 1200 | |
| S17 | 57.651 | 4.055 | Open Manhole | 2700 | 1.006 | 53.596 | 1200 | 1.005 | 53.596 | 1200 | |
| S18 | 57.012 | 3.277 | Open Manhole | 2700 | 2.000 | 53.735 | 1200 | | | | |
| S19 | 56.951 | 3.298 | Open Manhole | 2700 | 2.001 | 53.653 | 1200 | 2.000 | 53.653 | 1200 | |
| S20 | 56.954 | 3.347 | Open Manhole | 2700 | 2.002 | 53.607 | 1200 | 2.001 | 53.607 | 1200 | |
| S21 | 57.195 | 3.644 | Open Manhole | 2700 | 2.003 | 53.551 | 1200 | 2.002 | 53.551 | 1200 | |
| S22 | 57.363 | 3.867 | Open Manhole | 2700 | 2.004 | 53.496 | 1200 | 2.003 | 53.496 | 1200 | |
| S23 | 57.428 | 3.954 | Open Manhole | 2700 | 1.007 | 53.474 | 1200 | 1.006 | 53.474 | 1200 | |
| | | | | | | | | 2.004 | 53.474 | 1200 | |
| S24 | 57.500 | 4.047 | Open Manhole | 2700 | 1.008 | 53.453 | 1200 | 1.007 | 53.453 | 1200 | |
| S25 HYDROBRAKE | 57.875 | 4.497 | Open Manhole | 2700 | 1.009 | 53.378 | 300 | 1.008 | 53.378 | 1200 | |
| S26 | 57.595 | 4.251 | Open Manhole | 1500 | 1.010 | 53.344 | 300 | 1.009 | 53.344 | 300 | |
| S28 PUMP STATION | 57.564 | 4.255 | Open Manhole | 2700 | 1.011 | 53.309 | 150 | 1.010 | 53.309 | 300 | |
| S28 OUTFALL | 57.664 | 4.455 | Open Manhole | 1500 | | OUTFALL | | 1.011 | 53.209 | 150 | |

## PIPELINE SCHEDULES for PARCEL A SW

### Upstream Manhole

| PN | Hyd Sect | Diam (mm) | MH Name | C.Level (m) | I.Level (m) | D.Depth (m) | MH Connection | MH DIAM., L*W (mm) |
|---|---|---|---|---|---|---|---|---|
| 1.000 | o | 225 | S11 | 56.485 | 55.060 | 1.200 | Open Manhole | 1350 |
| 1.001 | o | 225 | S12 | 56.848 | 54.884 | 1.739 | Open Manhole | 1350 |
| 1.002 | o | 1200 | S13 | 57.050 | 53.770 | 2.080 | Open Manhole | 2700 |
| 1.003 | o | 1200 | S14 | 57.399 | 53.704 | 2.495 | Open Manhole | 2700 |
| 1.004 | o | 1200 | S15 | 57.504 | 53.686 | 2.618 | Open Manhole | 2700 |
| 1.005 | o | 1200 | S16 | 57.751 | 53.621 | 2.930 | Open Manhole | 2700 |
| 1.006 | o | 1200 | S17 | 57.651 | 53.596 | 2.855 | Open Manhole | 2700 |
| 2.000 | o | 1200 | S18 | 57.012 | 53.735 | 2.077 | Open Manhole | 2700 |
| 2.001 | o | 1200 | S19 | 56.951 | 53.653 | 2.098 | Open Manhole | 2700 |
| 2.002 | o | 1200 | S20 | 56.954 | 53.607 | 2.147 | Open Manhole | 2700 |
| 2.003 | o | 1200 | S21 | 57.195 | 53.551 | 2.444 | Open Manhole | 2700 |
| 2.004 | o | 1200 | S22 | 57.363 | 53.496 | 2.667 | Open Manhole | 2700 |
| 1.007 | o | 1200 | S23 | 57.428 | 53.474 | 2.754 | Open Manhole | 2700 |
| 1.008 | o | 1200 | S24 | 57.500 | 53.453 | 2.847 | Open Manhole | 2700 |
| 1.009 | o | 300 | S25 HYDROBRAKE | 57.875 | 53.378 | 4.197 | Open Manhole | 2700 |
| 1.010 | o | 300 | S26 | 57.595 | 53.344 | 3.951 | Open Manhole | 1500 |

### Downstream Manhole

| PN | Length (m) | Slope (1:X) | MH Name | C.Level (m) | I.Level (m) | D.Depth (m) | MH Connection | MH DIAM., L*W (mm) |
|---|---|---|---|---|---|---|---|---|
| 1.000 | 26.396 | 150.0 | S12 | 56.848 | 54.884 | 1.739 | Open Manhole | 1350 |
| 1.001 | 13.876 | 99.8 | S13 | 57.050 | 54.745 | 2.080 | Open Manhole | 2700 |
| 1.002 | 26.534 | 402.0 | S14 | 57.399 | 53.704 | 2.495 | Open Manhole | 2700 |
| 1.003 | 7.074 | 393.0 | S15 | 57.504 | 53.686 | 2.618 | Open Manhole | 2700 |
| 1.004 | 26.163 | 402.5 | S16 | 57.751 | 53.621 | 2.930 | Open Manhole | 2700 |
| 1.005 | 10.189 | 407.6 | S17 | 57.651 | 53.596 | 2.855 | Open Manhole | 2700 |
| 1.006 | 25.881 | 212.1 | S23 | 57.428 | 53.474 | 2.754 | Open Manhole | 2700 |
| 2.000 | 32.750 | 399.4 | S19 | 56.951 | 53.653 | 2.098 | Open Manhole | 2700 |
| 2.001 | 18.588 | 404.1 | S20 | 56.954 | 53.607 | 2.147 | Open Manhole | 2700 |
| 2.002 | 22.576 | 403.1 | S21 | 57.195 | 53.551 | 2.444 | Open Manhole | 2700 |
| 2.003 | 22.050 | 400.9 | S22 | 57.363 | 53.496 | 2.667 | Open Manhole | 2700 |
| 2.004 | 8.791 | 399.6 | S23 | 57.428 | 53.474 | 2.754 | Open Manhole | 2700 |
| 1.007 | 8.218 | 391.3 | S24 | 57.500 | 53.453 | 2.847 | Open Manhole | 2700 |
| 1.008 | 29.991 | 399.9 | S25 HYDROBRAKE | 57.875 | 53.378 | 3.297 | Open Manhole | 2700 |
| 1.009 | 5.110 | 150.3 | S26 | 57.595 | 53.344 | 3.951 | Open Manhole | 1500 |
| 1.010 | 5.257 | 150.2 | S28 PUMP STATION | 57.564 | 53.309 | 3.955 | Open Manhole | 2700 |

## PIPELINE SCHEDULES for PARCEL A SW

### Upstream Manhole

| PN | Hyd Sect | Diam (mm) | MH Name | C.Level (m) | I.Level (m) | D.Depth (m) | MH Connection | MH DIAM., L*W (mm) |
|---|---|---|---|---|---|---|---|---|
| 1.011 | o | 150 | S28 PUMP STATION | 57.564 | 53.309 | 4.105 | Open Manhole | 2700 |

### Downstream Manhole

| PN | Length (m) | Slope (1:X) | MH Name | C.Level (m) | I.Level (m) | D.Depth (m) | MH Connection | MH DIAM., L*W (mm) |
|---|---|---|---|---|---|---|---|---|
| 1.011 | 8.574 | 85.7 | S28 OUTFALL | 57.664 | 53.209 | 4.305 | Open Manhole | 1500 |

### Free Flowing Outfall Details for PARCEL A_SW

| Outfall Pipe Number | Outfall Name | C. Level (m) | I. Level (m) | Min I. Level (m) | D,L (mm) | W (mm) |
|---|---|---|---|---|---|---|
| 1.011 | S28 OUTFALL | 57.664 | 53.209 | 0.000 | 1500 | 0 |

### Simulation Criteria for PARCEL A_SW

| | | | |
|---|---|---|---|
| Volumetric Runoff Coeff | 0.750 | Additional Flow - % of Total Flow | 0.000 |
| Areal Reduction Factor | 1.000 | MADD Factor * 10m³/ha Storage | 2.000 |
| Hot Start (mins) | 0 | Inlet Coeffiecient | 0.800 |
| Hot Start Level (mm) | 0 | Flow per Person per Day (l/per/day) | 0.000 |
| Manhole Headloss Coeff (Global) | 0.500 | Run Time (mins) | 60 |
| Foul Sewage per hectare (l/s) | 0.000 | Output Interval (mins) | 1 |

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 2 Number of Storage Structures 0 Number of Real Time Controls 0

### Synthetic Rainfall Details

| | | | |
|---|---|---|---|
| Rainfall Model | FSR | Profile Type | Summer |
| Return Period (years) | 30 | Cv (Summer) | 0.750 |
| Region | England and Wales | Cv (Winter) | 0.840 |
| M5-60 (mm) | 19.500 | Storm Duration (mins) | 30 |
| Ratio R | 0.279 | | |

## Online Controls for PARCEL A_SW

### Hydro-Brake® Optimum Manhole: S25 HYDROBRAKE, DS/PN: 1.009, Volume (m³): 56.6

| | |
|---|---|
| Unit Reference | MD-SHE-0109-9400-3800-9400 |
| Design Head (m) | 3.800 |
| Design Flow (l/s) | 9.4 |
| Flush-Flo™ | Calculated |
| Objective | Minimise upstream storage |
| Application | Surface |
| Sump Available | Yes |
| Diameter (mm) | 108 |
| Invert Level (m) | 53.378 |
| Minimum Outlet Pipe Diameter (mm) | 150 |
| Suggested Manhole Diameter (mm) | 1200 |

| Control Points | Head (m) | Flow (l/s) | Control Points | Head (m) | Flow (l/s) |
|---|---|---|---|---|---|
| Design Point (Calculated) | 3.800 | 9.4 | Kick-Flo® | 0.973 | 5.0 |
| Flush-Flo™ | 0.473 | 6.3 | Mean Flow over Head Range | - | 6.9 |

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

| Depth (m) | Flow (l/s) | Depth (m) | Flow (l/s) | Depth (m) | Flow (l/s) | Depth (m) | Flow (l/s) |
|---|---|---|---|---|---|---|---|
| 0.100 | 3.7 | 1.200 | 5.5 | 3.000 | 8.4 | 7.000 | 12.6 |
| 0.200 | 5.5 | 1.400 | 5.9 | 3.500 | 9.0 | 7.500 | 13.0 |
| 0.300 | 6.0 | 1.600 | 6.3 | 4.000 | 9.6 | 8.000 | 13.4 |
| 0.400 | 6.2 | 1.800 | 6.6 | 4.500 | 10.2 | 8.500 | 13.8 |
| 0.500 | 6.3 | 2.000 | 6.9 | 5.000 | 10.7 | 9.000 | 14.2 |
| 0.600 | 6.2 | 2.200 | 7.3 | 5.500 | 11.2 | 9.500 | 14.5 |
| 0.800 | 5.8 | 2.400 | 7.6 | 6.000 | 11.7 | | |
| 1.000 | 5.0 | 2.600 | 7.9 | 6.500 | 12.1 | | |

### Pump Manhole: S28 PUMP STATION, DS/PN: 1.011, Volume (m³): 24.6

Invert Level (m) 53.309

| Depth (m) | Flow (l/s) | Depth (m) | Flow (l/s) | Depth (m) | Flow (l/s) | Depth (m) | Flow (l/s) |
|---|---|---|---|---|---|---|---|
| 0.200 | 9.0000 | 1.400 | 9.0000 | 2.600 | 9.0000 | 3.800 | 9.0000 |
| 0.400 | 9.0000 | 1.600 | 9.0000 | 2.800 | 9.0000 | 4.000 | 9.0000 |
| 0.600 | 9.0000 | 1.800 | 9.0000 | 3.000 | 9.0000 | 4.200 | 9.0000 |
| 0.800 | 9.0000 | 2.000 | 9.0000 | 3.200 | 9.0000 | 4.400 | 9.0000 |
| 1.000 | 9.0000 | 2.200 | 9.0000 | 3.400 | 9.0000 | 4.600 | 9.0000 |
| 1.200 | 9.0000 | 2.400 | 9.0000 | 3.600 | 9.0000 | 4.800 | 9.0000 |

Pump Manhole: S28 PUMP STATION, DS/PN: 1.011, Volume (m³): 24.6

| Depth (m) | Flow (l/s) | Depth (m) | Flow (l/s) | Depth (m) | Flow (l/s) | Depth (m) | Flow (l/s) |
|---|---|---|---|---|---|---|---|
| 5.000 | 9.0000 | 5.400 | 9.0000 | 5.800 | 9.0000 | | |
| 5.200 | 9.0000 | 5.600 | 9.0000 | 6.000 | 9.0000 | | |

## Summary Wizard of 15 minute 2 year Summer I+0% for PARCEL A_SW

### Simulation Criteria

| | | | |
|---|---|---|---|
| Areal Reduction Factor | 1.000 | Additional Flow - % of Total Flow | 0.000 |
| Hot Start (mins) | 0 | MADD Factor * 10m³/ha Storage | 2.000 |
| Hot Start Level (mm) | 0 | Inlet Coeffiecient | 0.800 |
| Manhole Headloss Coeff (Global) | 0.500 | Flow per Person per Day (l/per/day) | 0.000 |
| Foul Sewage per hectare (l/s) | 0.000 | | |

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 2 Number of Storage Structures 0 Number of Real Time Controls 0

### Synthetic Rainfall Details

| | | | |
|---|---|---|---|
| Rainfall Model | FSR | Ratio R | 0.279 |
| Region | England and Wales | Cv (Summer) | 0.750 |
| M5-60 (mm) | 19.500 | Cv (Winter) | 0.840 |

| | |
|---|---|
| Margin for Flood Risk Warning (mm) | 300.0 |
| Analysis Timestep | 2.5 Second Increment (Extended) |
| DTS Status | OFF |
| DVD Status | ON |
| Inertia Status | ON |

| | |
|---|---|
| Profile(s) | Summer and Winter |
| Duration(s) (mins) | 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440 |
| Return Period(s) (years) | 2, 30, 100 |
| Climate Change (%) | 0, 0, 35 |

| PN | US/MH Name | Storm Rank | Water Level (m) | Surcharged Depth (m) | Flooded Volume (m³) | Flow / Cap. | Overflow (l/s) | Pipe Flow (l/s) | Status |
|---|---|---|---|---|---|---|---|---|---|
| 1.000 | S11 | 31 | 55.189 | -0.096 | 0.000 | 0.61 | | 24.1 | OK |
| 1.001 | S12 | 33 | 55.032 | -0.077 | 0.000 | 0.76 | | 34.3 | OK |
| 1.002 | S13 | 67 | 53.923 | -1.047 | 0.000 | 0.03 | | 40.6 | OK |
| 1.003 | S14 | 71 | 53.873 | -1.031 | 0.000 | 0.05 | | 40.5 | OK |
| 1.004 | S15 | 71 | 53.847 | -1.039 | 0.000 | 0.03 | | 44.9 | OK |
| 1.005 | S16 | 71 | 53.838 | -0.983 | 0.000 | 0.05 | | 43.4 | OK |
| 1.006 | S17 | 71 | 53.838 | -0.958 | 0.000 | 0.02 | | 42.8 | OK |
| 2.000 | S18 | 71 | 53.838 | -1.097 | 0.000 | 0.01 | | 13.3 | OK |
| 2.001 | S19 | 71 | 53.838 | -1.015 | 0.000 | 0.01 | | 16.9 | OK |
| 2.002 | S20 | 71 | 53.838 | -0.969 | 0.000 | 0.02 | | 21.9 | OK |
| 2.003 | S21 | 71 | 53.838 | -0.913 | 0.000 | 0.01 | | 16.1 | OK |
| 2.004 | S22 | 71 | 53.838 | -0.858 | 0.000 | 0.01 | | 7.3 | OK |
| 1.007 | S23 | 71 | 53.838 | -0.836 | 0.000 | 0.03 | | 27.7 | OK |
| 1.008 | S24 | 71 | 53.838 | -0.815 | 0.000 | 0.01 | | 19.5 | OK |
| 1.009 | S25 HYDROBRAKE | 71 | 53.838 | 0.160 | 0.000 | 0.10 | | 6.2 | SURCHARGED |

## Summary Wizard of 15 minute 2 year Summer I+0% for PARCEL A_SW

| PN | US/MH Name | Storm Rank | Water Level (m) | Surcharged Depth (m) | Flooded Volume ($m^3$) | Flow / Cap. | Overflow (l/s) | Pipe Flow (l/s) | Status |
|---|---|---|---|---|---|---|---|---|---|
| 1.010 | S26 | 69 | 53.449 | -0.195 | 0.000 | 0.10 | | 6.2 | OK |
| 1.011 | S28 PUMP STATION | 69 | 53.446 | -0.013 | 0.000 | 0.37 | | 6.2 | OK |

## Summary Wizard of 30 minute 2 year Summer I+0% for PARCEL A_SW

### Simulation Criteria

| | | | |
|---|---|---|---|
| Areal Reduction Factor | 1.000 | Additional Flow - % of Total Flow | 0.000 |
| Hot Start (mins) | 0 | MADD Factor * 10m³/ha Storage | 2.000 |
| Hot Start Level (mm) | 0 | Inlet Coeffiecient | 0.800 |
| Manhole Headloss Coeff (Global) | 0.500 | Flow per Person per Day (l/per/day) | 0.000 |
| Foul Sewage per hectare (l/s) | 0.000 | | |

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 2 Number of Storage Structures 0 Number of Real Time Controls 0

### Synthetic Rainfall Details

| | | | |
|---|---|---|---|
| Rainfall Model | FSR | Ratio R | 0.279 |
| Region | England and Wales | Cv (Summer) | 0.750 |
| M5-60 (mm) | 19.500 | Cv (Winter) | 0.840 |

| | |
|---|---|
| Margin for Flood Risk Warning (mm) | 300.0 |
| Analysis Timestep | 2.5 Second Increment (Extended) |
| DTS Status | OFF |
| DVD Status | ON |
| Inertia Status | ON |

| | |
|---|---|
| Profile(s) | Summer and Winter |
| Duration(s) (mins) | 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440 |
| Return Period(s) (years) | 2, 30, 100 |
| Climate Change (%) | 0, 0, 35 |

| PN | US/MH Name | Storm Rank | Water Level (m) | Surcharged Depth (m) | Flooded Volume (m³) | Flow / Cap. | Overflow (l/s) | Pipe Flow (l/s) | Status |
|---|---|---|---|---|---|---|---|---|---|
| 1.000 | S11 | 33 | 55.184 | -0.101 | 0.000 | 0.59 | | 23.0 | OK |
| 1.001 | S12 | 34 | 55.028 | -0.081 | 0.000 | 0.72 | | 32.8 | OK |
| 1.002 | S13 | 70 | 53.921 | -1.049 | 0.000 | 0.03 | | 39.7 | OK |
| 1.003 | S14 | 68 | 53.893 | -1.011 | 0.000 | 0.05 | | 39.0 | OK |
| 1.004 | S15 | 68 | 53.893 | -0.993 | 0.000 | 0.03 | | 43.2 | OK |
| 1.005 | S16 | 68 | 53.893 | -0.928 | 0.000 | 0.05 | | 38.9 | OK |
| 1.006 | S17 | 68 | 53.893 | -0.903 | 0.000 | 0.02 | | 37.8 | OK |
| 2.000 | S18 | 68 | 53.892 | -1.043 | 0.000 | 0.01 | | 12.5 | OK |
| 2.001 | S19 | 68 | 53.892 | -0.961 | 0.000 | 0.01 | | 15.3 | OK |
| 2.002 | S20 | 68 | 53.892 | -0.915 | 0.000 | 0.01 | | 19.5 | OK |
| 2.003 | S21 | 68 | 53.892 | -0.859 | 0.000 | 0.01 | | 12.3 | OK |
| 2.004 | S22 | 68 | 53.892 | -0.804 | 0.000 | 0.00 | | 4.0 | OK |
| 1.007 | S23 | 68 | 53.892 | -0.782 | 0.000 | 0.03 | | 21.7 | OK |
| 1.008 | S24 | 68 | 53.892 | -0.761 | 0.000 | 0.01 | | 15.0 | OK |
| 1.009 | S25 HYDROBRAKE | 68 | 53.892 | 0.214 | 0.000 | 0.10 | | 6.2 | SURCHARGED |

## Summary Wizard of 30 minute 2 year Summer I+0% for PARCEL A_SW

| PN | US/MH Name | Storm Rank | Water Level (m) | Surcharged Depth (m) | Flooded Volume (m³) | Flow / Cap. | Overflow (l/s) | Pipe Flow (l/s) | Status |
|---|---|---|---|---|---|---|---|---|---|
| 1.010 | S26 | 62 | 53.450 | -0.194 | 0.000 | 0.10 | | 6.2 | OK |
| 1.011 | S28 PUMP STATION | 62 | 53.447 | -0.012 | 0.000 | 0.37 | | 6.2 | OK |

## Summary Wizard of 60 minute 2 year Summer I+0% for PARCEL A_SW

### Simulation Criteria

| | | | |
|---|---|---|---|
| Areal Reduction Factor | 1.000 | Additional Flow - % of Total Flow | 0.000 |
| Hot Start (mins) | 0 | MADD Factor * 10m³/ha Storage | 2.000 |
| Hot Start Level (mm) | 0 | Inlet Coeffiecient | 0.800 |
| Manhole Headloss Coeff (Global) | 0.500 | Flow per Person per Day (l/per/day) | 0.000 |
| Foul Sewage per hectare (l/s) | 0.000 | | |

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 2 Number of Storage Structures 0 Number of Real Time Controls 0

### Synthetic Rainfall Details

| | | | |
|---|---|---|---|
| Rainfall Model | | FSR | Ratio R 0.279 |
| Region | England and Wales | Cv (Summer) | 0.750 |
| M5-60 (mm) | 19.500 | Cv (Winter) | 0.840 |

| | |
|---|---|
| Margin for Flood Risk Warning (mm) | 300.0 |
| Analysis Timestep | 2.5 Second Increment (Extended) |
| DTS Status | OFF |
| DVD Status | ON |
| Inertia Status | ON |

| | |
|---|---|
| Profile(s) | Summer and Winter |
| Duration(s) (mins) | 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440 |
| Return Period(s) (years) | 2, 30, 100 |
| Climate Change (%) | 0, 0, 35 |

| PN | US/MH Name | Storm | Rank | Water Level (m) | Surcharged Depth (m) | Flooded Volume (m³) | Flow / Cap. | Overflow (l/s) | Pipe Flow (l/s) | Status |
|---|---|---|---|---|---|---|---|---|---|---|
| 1.000 | S11 | 37 | | 55.168 | -0.117 | 0.000 | 0.46 | | 18.2 | OK |
| 1.001 | S12 | 38 | | 55.009 | -0.100 | 0.000 | 0.59 | | 26.7 | OK |
| 1.002 | S13 | 64 | | 53.937 | -1.033 | 0.000 | 0.02 | | 32.4 | OK |
| 1.003 | S14 | 64 | | 53.937 | -0.967 | 0.000 | 0.04 | | 30.7 | OK |
| 1.004 | S15 | 64 | | 53.937 | -0.949 | 0.000 | 0.03 | | 34.4 | OK |
| 1.005 | S16 | 64 | | 53.937 | -0.884 | 0.000 | 0.04 | | 29.8 | OK |
| 1.006 | S17 | 64 | | 53.937 | -0.859 | 0.000 | 0.02 | | 28.8 | OK |
| 2.000 | S18 | 64 | | 53.937 | -0.998 | 0.000 | 0.01 | | 9.5 | OK |
| 2.001 | S19 | 64 | | 53.937 | -0.916 | 0.000 | 0.01 | | 10.5 | OK |
| 2.002 | S20 | 64 | | 53.937 | -0.870 | 0.000 | 0.01 | | 13.3 | OK |
| 2.003 | S21 | 64 | | 53.937 | -0.814 | 0.000 | 0.01 | | 7.7 | OK |
| 2.004 | S22 | 64 | | 53.937 | -0.759 | 0.000 | 0.00 | | 2.6 | OK |
| 1.007 | S23 | 64 | | 53.937 | -0.737 | 0.000 | 0.02 | | 14.5 | OK |
| 1.008 | S24 | 64 | | 53.937 | -0.716 | 0.000 | 0.01 | | 9.9 | OK |
| 1.009 | S25 HYDROBRAKE | 64 | | 53.936 | 0.258 | 0.000 | 0.10 | | 6.2 | SURCHARGED |

## Summary Wizard of 60 minute 2 year Summer I+0% for PARCEL A_SW

| PN | US/MH Name | Storm Rank | Water Level (m) | Surcharged Depth (m) | Flooded Volume (m³) | Flow / Cap. | Overflow (l/s) | Pipe Flow (l/s) | Status |
|---|---|---|---|---|---|---|---|---|---|
| 1.010 | S26 | 48 | 53.450 | -0.194 | 0.000 | 0.10 | | 6.2 | OK |
| 1.011 | S28 PUMP STATION | 48 | 53.448 | -0.011 | 0.000 | 0.37 | | 6.2 | OK |

## Summary Wizard of 120 minute 2 year Summer I+0% for PARCEL A_SW

### Simulation Criteria

| | | | |
|---|---|---|---|
| Areal Reduction Factor | 1.000 | Additional Flow - % of Total Flow | 0.000 |
| Hot Start (mins) | 0 | MADD Factor * 10m³/ha Storage | 2.000 |
| Hot Start Level (mm) | 0 | Inlet Coeffiecient | 0.800 |
| Manhole Headloss Coeff (Global) | 0.500 | Flow per Person per Day (l/per/day) | 0.000 |
| Foul Sewage per hectare (l/s) | 0.000 | | |

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 2 Number of Storage Structures 0 Number of Real Time Controls 0

### Synthetic Rainfall Details

| | | | |
|---|---|---|---|
| Rainfall Model | FSR | Ratio R | 0.279 |
| Region | England and Wales | Cv (Summer) | 0.750 |
| M5-60 (mm) | 19.500 | Cv (Winter) | 0.840 |

| | |
|---|---|
| Margin for Flood Risk Warning (mm) | 300.0 |
| Analysis Timestep | 2.5 Second Increment (Extended) |
| DTS Status | OFF |
| DVD Status | ON |
| Inertia Status | ON |

| | |
|---|---|
| Profile(s) | Summer and Winter |
| Duration(s) (mins) | 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440 |
| Return Period(s) (years) | 2, 30, 100 |
| Climate Change (%) | 0, 0, 35 |

| PN | US/MH Name | Storm Rank | Water Level (m) | Surcharged Depth (m) | Flooded Volume (m³) | Flow / Cap. | Overflow (l/s) | Pipe Flow (l/s) | Status |
|---|---|---|---|---|---|---|---|---|---|
| 1.000 | S11 | 41 | 55.149 | -0.136 | 0.000 | 0.33 | | 13.0 | OK |
| 1.001 | S12 | 42 | 54.986 | -0.123 | 0.000 | 0.43 | | 19.3 | OK |
| 1.002 | S13 | 60 | 53.965 | -1.005 | 0.000 | 0.02 | | 23.5 | OK |
| 1.003 | S14 | 60 | 53.965 | -0.939 | 0.000 | 0.03 | | 21.8 | OK |
| 1.004 | S15 | 60 | 53.965 | -0.921 | 0.000 | 0.02 | | 24.3 | OK |
| 1.005 | S16 | 60 | 53.965 | -0.856 | 0.000 | 0.02 | | 20.4 | OK |
| 1.006 | S17 | 60 | 53.965 | -0.831 | 0.000 | 0.01 | | 19.6 | OK |
| 2.000 | S18 | 60 | 53.964 | -0.971 | 0.000 | 0.00 | | 6.3 | OK |
| 2.001 | S19 | 60 | 53.965 | -0.888 | 0.000 | 0.01 | | 6.4 | OK |
| 2.002 | S20 | 60 | 53.965 | -0.842 | 0.000 | 0.01 | | 8.0 | OK |
| 2.003 | S21 | 60 | 53.965 | -0.786 | 0.000 | 0.00 | | 4.5 | OK |
| 2.004 | S22 | 60 | 53.965 | -0.731 | 0.000 | 0.00 | | 2.6 | OK |
| 1.007 | S23 | 60 | 53.965 | -0.709 | 0.000 | 0.01 | | 10.3 | OK |
| 1.008 | S24 | 60 | 53.964 | -0.689 | 0.000 | 0.01 | | 7.6 | OK |
| 1.009 | S25 HYDROBRAKE | 60 | 53.964 | 0.286 | 0.000 | 0.10 | | 6.2 | SURCHARGED |

## Summary Wizard of 120 minute 2 year Summer I+0% for PARCEL A_SW

| PN | US/MH Name | Storm Rank | Water Level (m) | Surcharged Depth (m) | Flooded Volume ($m^3$) | Flow / Cap. | Overflow (l/s) | Pipe Flow (l/s) | Status |
|---|---|---|---|---|---|---|---|---|---|
| 1.010 | S26 | 28 | 53.450 | -0.194 | 0.000 | 0.10 | | 6.2 | OK |
| 1.011 | S28 PUMP STATION | 28 | 53.448 | -0.011 | 0.000 | 0.37 | | 6.2 | OK |

## Summary Wizard of 180 minute 2 year Summer I+0% for PARCEL A_SW

### Simulation Criteria

| | | | |
|---|---|---|---|
| Areal Reduction Factor | 1.000 | Additional Flow - % of Total Flow | 0.000 |
| Hot Start (mins) | 0 | MADD Factor * 10m³/ha Storage | 2.000 |
| Hot Start Level (mm) | 0 | Inlet Coeffiecient | 0.800 |
| Manhole Headloss Coeff (Global) | 0.500 | Flow per Person per Day (l/per/day) | 0.000 |
| Foul Sewage per hectare (l/s) | 0.000 | | |

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 2 Number of Storage Structures 0 Number of Real Time Controls 0

### Synthetic Rainfall Details

| | | | |
|---|---|---|---|
| Rainfall Model | | FSR | Ratio R 0.279 |
| Region | England and Wales | Cv (Summer) | 0.750 |
| M5-60 (mm) | 19.500 | Cv (Winter) | 0.840 |

| | |
|---|---|
| Margin for Flood Risk Warning (mm) | 300.0 |
| Analysis Timestep | 2.5 Second Increment (Extended) |
| DTS Status | OFF |
| DVD Status | ON |
| Inertia Status | ON |

| | |
|---|---|
| Profile(s) | Summer and Winter |
| Duration(s) (mins) | 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440 |
| Return Period(s) (years) | 2, 30, 100 |
| Climate Change (%) | 0, 0, 35 |

| PN | US/MH Name | Storm Rank | Water Level (m) | Surcharged Depth (m) | Flooded Volume (m³) | Flow / Cap. | Overflow (l/s) | Pipe Flow (l/s) | Status |
|---|---|---|---|---|---|---|---|---|---|
| 1.000 | S11 | 44 | 55.139 | -0.146 | 0.000 | 0.27 | | 10.4 | OK |
| 1.001 | S12 | 45 | 54.975 | -0.134 | 0.000 | 0.34 | | 15.5 | OK |
| 1.002 | S13 | 57 | 53.975 | -0.995 | 0.000 | 0.01 | | 18.8 | OK |
| 1.003 | S14 | 57 | 53.975 | -0.929 | 0.000 | 0.02 | | 17.1 | OK |
| 1.004 | S15 | 57 | 53.975 | -0.911 | 0.000 | 0.01 | | 19.1 | OK |
| 1.005 | S16 | 57 | 53.975 | -0.846 | 0.000 | 0.02 | | 15.9 | OK |
| 1.006 | S17 | 57 | 53.975 | -0.821 | 0.000 | 0.01 | | 15.6 | OK |
| 2.000 | S18 | 57 | 53.975 | -0.960 | 0.000 | 0.00 | | 4.9 | OK |
| 2.001 | S19 | 57 | 53.975 | -0.878 | 0.000 | 0.00 | | 5.0 | OK |
| 2.002 | S20 | 57 | 53.975 | -0.832 | 0.000 | 0.00 | | 6.3 | OK |
| 2.003 | S21 | 57 | 53.975 | -0.776 | 0.000 | 0.00 | | 3.7 | OK |
| 2.004 | S22 | 57 | 53.975 | -0.721 | 0.000 | 0.00 | | 2.6 | OK |
| 1.007 | S23 | 57 | 53.975 | -0.699 | 0.000 | 0.01 | | 8.8 | OK |
| 1.008 | S24 | 57 | 53.974 | -0.679 | 0.000 | 0.00 | | 6.8 | OK |
| 1.009 | S25 HYDROBRAKE | 57 | 53.974 | 0.296 | 0.000 | 0.10 | | 6.2 | SURCHARGED |

## Summary Wizard of 180 minute 2 year Summer I+0% for PARCEL A_SW

| PN | US/MH Name | Storm Rank | Water Level (m) | Surcharged Depth (m) | Flooded Volume ($m^3$) | Flow / Cap. | Overflow (l/s) | Pipe Flow (l/s) | Status |
|---|---|---|---|---|---|---|---|---|---|
| 1.010 | S26 | 29 | 53.450 | -0.194 | 0.000 | 0.10 | | 6.2 | OK |
| 1.011 | S28 PUMP STATION | 29 | 53.448 | -0.011 | 0.000 | 0.37 | | 6.2 | OK |

## Summary Wizard of 240 minute 2 year Summer I+0% for PARCEL A_SW

### Simulation Criteria

| | | | |
|---|---|---|---|
| Areal Reduction Factor | 1.000 | Additional Flow - % of Total Flow | 0.000 |
| Hot Start (mins) | 0 | MADD Factor * 10m³/ha Storage | 2.000 |
| Hot Start Level (mm) | 0 | Inlet Coeffiecient | 0.800 |
| Manhole Headloss Coeff (Global) | 0.500 | Flow per Person per Day (l/per/day) | 0.000 |
| Foul Sewage per hectare (l/s) | 0.000 | | |

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 2 Number of Storage Structures 0 Number of Real Time Controls 0

### Synthetic Rainfall Details

| | | | |
|---|---|---|---|
| Rainfall Model | FSR | Ratio R | 0.279 |
| Region | England and Wales | Cv (Summer) | 0.750 |
| M5-60 (mm) | 19.500 | Cv (Winter) | 0.840 |

| | |
|---|---|
| Margin for Flood Risk Warning (mm) | 300.0 |
| Analysis Timestep | 2.5 Second Increment (Extended) |
| DTS Status | OFF |
| DVD Status | ON |
| Inertia Status | ON |

| | |
|---|---|
| Profile(s) | Summer and Winter |
| Duration(s) (mins) | 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440 |
| Return Period(s) (years) | 2, 30, 100 |
| Climate Change (%) | 0, 0, 35 |

| PN | US/MH Name | Storm Rank | Water Level (m) | Surcharged Depth (m) | Flooded Volume (m³) | Flow / Cap. | Overflow (l/s) | Pipe Flow (l/s) | Status |
|---|---|---|---|---|---|---|---|---|---|
| 1.000 | S11 | 48 | 55.132 | -0.153 | 0.000 | 0.22 | | 8.8 | OK |
| 1.001 | S12 | 49 | 54.967 | -0.142 | 0.000 | 0.29 | | 13.2 | OK |
| 1.002 | S13 | 55 | 53.978 | -0.992 | 0.000 | 0.01 | | 15.8 | OK |
| 1.003 | S14 | 55 | 53.978 | -0.926 | 0.000 | 0.02 | | 14.3 | OK |
| 1.004 | S15 | 55 | 53.978 | -0.908 | 0.000 | 0.01 | | 16.0 | OK |
| 1.005 | S16 | 55 | 53.978 | -0.843 | 0.000 | 0.02 | | 13.6 | OK |
| 1.006 | S17 | 55 | 53.978 | -0.818 | 0.000 | 0.01 | | 13.4 | OK |
| 2.000 | S18 | 55 | 53.978 | -0.957 | 0.000 | 0.00 | | 4.2 | OK |
| 2.001 | S19 | 55 | 53.978 | -0.875 | 0.000 | 0.00 | | 4.4 | OK |
| 2.002 | S20 | 55 | 53.978 | -0.829 | 0.000 | 0.00 | | 5.4 | OK |
| 2.003 | S21 | 55 | 53.978 | -0.773 | 0.000 | 0.00 | | 3.2 | OK |
| 2.004 | S22 | 55 | 53.978 | -0.718 | 0.000 | 0.00 | | 2.6 | OK |
| 1.007 | S23 | 55 | 53.978 | -0.696 | 0.000 | 0.01 | | 8.1 | OK |
| 1.008 | S24 | 55 | 53.978 | -0.675 | 0.000 | 0.00 | | 6.5 | OK |
| 1.009 | S25 HYDROBRAKE | 55 | 53.977 | 0.299 | 0.000 | 0.10 | | 6.2 | SURCHARGED |

## Summary Wizard of 240 minute 2 year Summer I+0% for PARCEL A_SW

| PN | US/MH Name | Storm Rank | Water Level (m) | Surcharged Depth (m) | Flooded Volume (m³) | Flow / Cap. | Overflow (l/s) | Pipe Flow (l/s) | Status |
|---|---|---|---|---|---|---|---|---|---|
| 1.010 | S26 | 21 | 53.450 | -0.194 | 0.000 | 0.10 | | 6.2 | OK |
| 1.011 | S28 PUMP STATION | 21 | 53.448 | -0.011 | 0.000 | 0.37 | | 6.2 | OK |

## Summary Wizard of 360 minute 2 year Summer I+0% for PARCEL A_SW

### Simulation Criteria

| | | | |
|---|---|---|---|
| Areal Reduction Factor | 1.000 | Additional Flow - % of Total Flow | 0.000 |
| Hot Start (mins) | 0 | MADD Factor * 10m³/ha Storage | 2.000 |
| Hot Start Level (mm) | 0 | Inlet Coeffiecient | 0.800 |
| Manhole Headloss Coeff (Global) | 0.500 | Flow per Person per Day (l/per/day) | 0.000 |
| Foul Sewage per hectare (l/s) | 0.000 | | |

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 2 Number of Storage Structures 0 Number of Real Time Controls 0

### Synthetic Rainfall Details

| | | | |
|---|---|---|---|
| Rainfall Model | | FSR | Ratio R 0.279 |
| Region | England and Wales | Cv (Summer) | 0.750 |
| M5-60 (mm) | 19.500 | Cv (Winter) | 0.840 |

| | |
|---|---|
| Margin for Flood Risk Warning (mm) | 300.0 |
| Analysis Timestep | 2.5 Second Increment (Extended) |
| DTS Status | OFF |
| DVD Status | ON |
| Inertia Status | ON |

| | |
|---|---|
| Profile(s) | Summer and Winter |
| Duration(s) (mins) | 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440 |
| Return Period(s) (years) | 2, 30, 100 |
| Climate Change (%) | 0, 0, 35 |

| PN | US/MH Name | Storm | Rank | Water Level (m) | Surcharged Depth (m) | Flooded Volume (m³) | Flow / Cap. | Overflow (l/s) | Pipe Flow (l/s) | Status |
|---|---|---|---|---|---|---|---|---|---|---|
| 1.000 | S11 | 54 | | 55.123 | -0.162 | 0.000 | 0.17 | | 6.9 | OK |
| 1.001 | S12 | 54 | | 54.956 | -0.153 | 0.000 | 0.23 | | 10.3 | OK |
| 1.002 | S13 | 56 | | 53.976 | -0.994 | 0.000 | 0.01 | | 12.3 | OK |
| 1.003 | S14 | 56 | | 53.976 | -0.928 | 0.000 | 0.01 | | 11.1 | OK |
| 1.004 | S15 | 56 | | 53.976 | -0.910 | 0.000 | 0.01 | | 12.5 | OK |
| 1.005 | S16 | 56 | | 53.976 | -0.845 | 0.000 | 0.01 | | 10.7 | OK |
| 1.006 | S17 | 56 | | 53.976 | -0.820 | 0.000 | 0.01 | | 10.7 | OK |
| 2.000 | S18 | 56 | | 53.976 | -0.959 | 0.000 | 0.00 | | 3.3 | OK |
| 2.001 | S19 | 56 | | 53.976 | -0.877 | 0.000 | 0.00 | | 3.6 | OK |
| 2.002 | S20 | 56 | | 53.976 | -0.831 | 0.000 | 0.00 | | 4.4 | OK |
| 2.003 | S21 | 56 | | 53.976 | -0.775 | 0.000 | 0.00 | | 2.8 | OK |
| 2.004 | S22 | 56 | | 53.976 | -0.720 | 0.000 | 0.00 | | 2.6 | OK |
| 1.007 | S23 | 56 | | 53.976 | -0.698 | 0.000 | 0.01 | | 7.4 | OK |
| 1.008 | S24 | 56 | | 53.976 | -0.677 | 0.000 | 0.00 | | 6.2 | OK |
| 1.009 | S25 HYDROBRAKE | 56 | | 53.975 | 0.297 | 0.000 | 0.10 | | 6.2 | SURCHARGED |

## Summary Wizard of 360 minute 2 year Summer I+0% for PARCEL A_SW

| PN | US/MH Name | Storm Rank | Water Level (m) | Surcharged Depth (m) | Flooded Volume (m³) | Flow / Cap. | Overflow (l/s) | Pipe Flow (l/s) | Status |
|---|---|---|---|---|---|---|---|---|---|
| 1.010 | S26 | 22 | 53.450 | -0.194 | 0.000 | 0.10 | | 6.2 | OK |
| 1.011 | S28 PUMP STATION | 22 | 53.448 | -0.011 | 0.000 | 0.37 | | 6.2 | OK |

## Summary Wizard of 480 minute 2 year Summer I+0% for PARCEL A SW

### Simulation Criteria

| | | | |
|---|---|---|---|
| Areal Reduction Factor | 1.000 | Additional Flow - % of Total Flow | 0.000 |
| Hot Start (mins) | 0 | MADD Factor * 10m³/ha Storage | 2.000 |
| Hot Start Level (mm) | 0 | Inlet Coeffiecient | 0.800 |
| Manhole Headloss Coeff (Global) | 0.500 | Flow per Person per Day (l/per/day) | 0.000 |
| Foul Sewage per hectare (l/s) | 0.000 | | |

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 2 Number of Storage Structures 0 Number of Real Time Controls 0

### Synthetic Rainfall Details

| | | | |
|---|---|---|---|
| Rainfall Model | FSR | Ratio R | 0.279 |
| Region | England and Wales | Cv (Summer) | 0.750 |
| M5-60 (mm) | 19.500 | Cv (Winter) | 0.840 |

| | |
|---|---|
| Margin for Flood Risk Warning (mm) | 300.0 |
| Analysis Timestep | 2.5 Second Increment (Extended) |
| DTS Status | OFF |
| DVD Status | ON |
| Inertia Status | ON |

| | |
|---|---|
| Profile(s) | Summer and Winter |
| Duration(s) (mins) | 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440 |
| Return Period(s) (years) | 2, 30, 100 |
| Climate Change (%) | 0, 0, 35 |

| PN | US/MH Name | Storm Rank | Water Level (m) | Surcharged Depth (m) | Flooded Volume (m³) | Flow / Cap. | Overflow (l/s) | Pipe Flow (l/s) | Status |
|---|---|---|---|---|---|---|---|---|---|
| 1.000 | S11 | 58 | 55.117 | -0.168 | 0.000 | 0.15 | | 5.7 | OK |
| 1.001 | S12 | 58 | 54.950 | -0.159 | 0.000 | 0.19 | | 8.6 | OK |
| 1.002 | S13 | 59 | 53.970 | -1.000 | 0.000 | 0.01 | | 10.3 | OK |
| 1.003 | S14 | 59 | 53.970 | -0.934 | 0.000 | 0.01 | | 9.3 | OK |
| 1.004 | S15 | 59 | 53.970 | -0.916 | 0.000 | 0.01 | | 10.5 | OK |
| 1.005 | S16 | 59 | 53.969 | -0.852 | 0.000 | 0.01 | | 9.1 | OK |
| 1.006 | S17 | 59 | 53.969 | -0.827 | 0.000 | 0.00 | | 9.1 | OK |
| 2.000 | S18 | 59 | 53.969 | -0.966 | 0.000 | 0.00 | | 2.7 | OK |
| 2.001 | S19 | 59 | 53.969 | -0.884 | 0.000 | 0.00 | | 3.1 | OK |
| 2.002 | S20 | 59 | 53.969 | -0.838 | 0.000 | 0.00 | | 3.9 | OK |
| 2.003 | S21 | 59 | 53.969 | -0.782 | 0.000 | 0.00 | | 2.6 | OK |
| 2.004 | S22 | 59 | 53.969 | -0.727 | 0.000 | 0.00 | | 2.5 | OK |
| 1.007 | S23 | 59 | 53.969 | -0.705 | 0.000 | 0.01 | | 6.9 | OK |
| 1.008 | S24 | 59 | 53.969 | -0.684 | 0.000 | 0.00 | | 6.0 | OK |
| 1.009 | S25 HYDROBRAKE | 59 | 53.969 | 0.291 | 0.000 | 0.10 | | 6.2 | SURCHARGED |

## Summary Wizard of 480 minute 2 year Summer I+0% for PARCEL A_SW

| PN | US/MH Name | Storm Rank | Water Level (m) | Surcharged Depth (m) | Flooded Volume (m³) | Flow / Cap. | Overflow (l/s) | Pipe Flow (l/s) | Status |
|---|---|---|---|---|---|---|---|---|---|
| 1.010 | S26 | 20 | 53.450 | -0.194 | 0.000 | 0.10 | | 6.2 | OK |
| 1.011 | S28 PUMP STATION | 20 | 53.448 | -0.011 | 0.000 | 0.37 | | 6.2 | OK |

## Summary Wizard of 600 minute 2 year Summer I+0% for PARCEL A_SW

### Simulation Criteria

| | | | |
|---|---|---|---|
| Areal Reduction Factor | 1.000 | Additional Flow - % of Total Flow | 0.000 |
| Hot Start (mins) | 0 | MADD Factor * 10m³/ha Storage | 2.000 |
| Hot Start Level (mm) | 0 | Inlet Coeffiecient | 0.800 |
| Manhole Headloss Coeff (Global) | 0.500 | Flow per Person per Day (l/per/day) | 0.000 |
| Foul Sewage per hectare (l/s) | 0.000 | | |

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 2 Number of Storage Structures 0 Number of Real Time Controls 0

### Synthetic Rainfall Details

| | | | |
|---|---|---|---|
| Rainfall Model | | FSR Ratio R | 0.279 |
| Region | England and Wales | Cv (Summer) | 0.750 |
| M5-60 (mm) | 19.500 | Cv (Winter) | 0.840 |

| | |
|---|---|
| Margin for Flood Risk Warning (mm) | 300.0 |
| Analysis Timestep | 2.5 Second Increment (Extended) |
| DTS Status | OFF |
| DVD Status | ON |
| Inertia Status | ON |

| | |
|---|---|
| Profile(s) | Summer and Winter |
| Duration(s) (mins) | 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440 |
| Return Period(s) (years) | 2, 30, 100 |
| Climate Change (%) | 0, 0, 35 |

| PN | US/MH Name | Storm Rank | Water Level (m) | Surcharged Depth (m) | Flooded Volume (m³) | Flow / Cap. | Overflow (l/s) | Pipe Flow (l/s) | Status |
|---|---|---|---|---|---|---|---|---|---|
| 1.000 | S11 | 61 | 55.113 | -0.172 | 0.000 | 0.13 | | 4.9 | OK |
| 1.001 | S12 | 61 | 54.945 | -0.164 | 0.000 | 0.16 | | 7.4 | OK |
| 1.002 | S13 | 62 | 53.961 | -1.009 | 0.000 | 0.01 | | 8.9 | OK |
| 1.003 | S14 | 62 | 53.961 | -0.943 | 0.000 | 0.01 | | 8.2 | OK |
| 1.004 | S15 | 62 | 53.961 | -0.925 | 0.000 | 0.01 | | 9.2 | OK |
| 1.005 | S16 | 62 | 53.961 | -0.860 | 0.000 | 0.01 | | 8.2 | OK |
| 1.006 | S17 | 62 | 53.961 | -0.835 | 0.000 | 0.00 | | 8.2 | OK |
| 2.000 | S18 | 62 | 53.960 | -0.975 | 0.000 | 0.00 | | 2.4 | OK |
| 2.001 | S19 | 62 | 53.961 | -0.892 | 0.000 | 0.00 | | 2.7 | OK |
| 2.002 | S20 | 62 | 53.961 | -0.846 | 0.000 | 0.00 | | 3.6 | OK |
| 2.003 | S21 | 62 | 53.961 | -0.790 | 0.000 | 0.00 | | 2.5 | OK |
| 2.004 | S22 | 62 | 53.961 | -0.735 | 0.000 | 0.00 | | 2.4 | OK |
| 1.007 | S23 | 62 | 53.961 | -0.713 | 0.000 | 0.01 | | 6.7 | OK |
| 1.008 | S24 | 62 | 53.960 | -0.693 | 0.000 | 0.00 | | 5.9 | OK |
| 1.009 | S25 HYDROBRAKE | 62 | 53.960 | 0.282 | 0.000 | 0.10 | | 6.2 | SURCHARGED |

## Summary Wizard of 600 minute 2 year Summer I+0% for PARCEL A_SW

| PN | US/MH Name | Storm Rank | Water Level (m) | Surcharged Depth (m) | Flooded Volume (m³) | Flow / Cap. | Overflow (l/s) | Pipe Flow (l/s) | Status |
|---|---|---|---|---|---|---|---|---|---|
| 1.010 | S26 | 19 | 53.450 | -0.194 | 0.000 | 0.10 | | 6.2 | OK |
| 1.011 | S28 PUMP STATION | 19 | 53.448 | -0.011 | 0.000 | 0.37 | | 6.2 | OK |

## Summary Wizard of 720 minute 2 year Summer I+0% for PARCEL A SW

### Simulation Criteria

| | | | |
|---|---|---|---|
| Areal Reduction Factor | 1.000 | Additional Flow - % of Total Flow | 0.000 |
| Hot Start (mins) | 0 | MADD Factor * 10m³/ha Storage | 2.000 |
| Hot Start Level (mm) | 0 | Inlet Coeffiecient | 0.800 |
| Manhole Headloss Coeff (Global) | 0.500 | Flow per Person per Day (l/per/day) | 0.000 |
| Foul Sewage per hectare (l/s) | 0.000 | | |

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 2 Number of Storage Structures 0 Number of Real Time Controls 0

### Synthetic Rainfall Details

| | | | |
|---|---|---|---|
| Rainfall Model | | FSR | Ratio R 0.279 |
| Region | England and Wales | Cv (Summer) | 0.750 |
| M5-60 (mm) | 19.500 | Cv (Winter) | 0.840 |

| | |
|---|---|
| Margin for Flood Risk Warning (mm) | 300.0 |
| Analysis Timestep | 2.5 Second Increment (Extended) |
| DTS Status | OFF |
| DVD Status | ON |
| Inertia Status | ON |

| | |
|---|---|
| Profile(s) | Summer and Winter |
| Duration(s) (mins) | 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440 |
| Return Period(s) (years) | 2, 30, 100 |
| Climate Change (%) | 0, 0, 35 |

| PN | US/MH Name | Storm Rank | Water Level (m) | Surcharged Depth (m) | Flooded Volume (m³) | Flow / Cap. | Overflow (l/s) | Pipe Flow (l/s) | Status |
|---|---|---|---|---|---|---|---|---|---|
| 1.000 | S11 | 64 | 55.110 | -0.175 | 0.000 | 0.11 | | 4.4 | OK |
| 1.001 | S12 | 64 | 54.941 | -0.168 | 0.000 | 0.15 | | 6.6 | OK |
| 1.002 | S13 | 63 | 53.951 | -1.019 | 0.000 | 0.01 | | 8.0 | OK |
| 1.003 | S14 | 63 | 53.950 | -0.954 | 0.000 | 0.01 | | 7.3 | OK |
| 1.004 | S15 | 63 | 53.951 | -0.935 | 0.000 | 0.01 | | 8.3 | OK |
| 1.005 | S16 | 63 | 53.950 | -0.871 | 0.000 | 0.01 | | 7.4 | OK |
| 1.006 | S17 | 63 | 53.950 | -0.846 | 0.000 | 0.00 | | 7.5 | OK |
| 2.000 | S18 | 63 | 53.950 | -0.985 | 0.000 | 0.00 | | 2.1 | OK |
| 2.001 | S19 | 63 | 53.950 | -0.903 | 0.000 | 0.00 | | 2.5 | OK |
| 2.002 | S20 | 63 | 53.950 | -0.857 | 0.000 | 0.00 | | 3.3 | OK |
| 2.003 | S21 | 63 | 53.950 | -0.801 | 0.000 | 0.00 | | 2.4 | OK |
| 2.004 | S22 | 63 | 53.950 | -0.746 | 0.000 | 0.00 | | 2.3 | OK |
| 1.007 | S23 | 63 | 53.950 | -0.724 | 0.000 | 0.01 | | 6.5 | OK |
| 1.008 | S24 | 63 | 53.950 | -0.703 | 0.000 | 0.00 | | 5.8 | OK |
| 1.009 | S25 HYDROBRAKE | 63 | 53.950 | 0.272 | 0.000 | 0.10 | | 6.2 | SURCHARGED |

## Summary Wizard of 720 minute 2 year Summer I+0% for PARCEL A_SW

| PN | US/MH Name | Storm Rank | Water Level (m) | Surcharged Depth (m) | Flooded Volume ($m^3$) | Flow / Cap. | Overflow (l/s) | Pipe Flow (l/s) | Status |
|---|---|---|---|---|---|---|---|---|---|
| 1.010 | S26 | 23 | 53.450 | -0.194 | 0.000 | 0.10 | | 6.2 | OK |
| 1.011 | S28 PUMP STATION | 23 | 53.448 | -0.011 | 0.000 | 0.37 | | 6.2 | OK |

## Summary Wizard of 960 minute 2 year Summer I+0% for PARCEL A_SW

### Simulation Criteria

| | | | |
|---|---|---|---|
| Areal Reduction Factor | 1.000 | Additional Flow - % of Total Flow | 0.000 |
| Hot Start (mins) | 0 | MADD Factor * 10m³/ha Storage | 2.000 |
| Hot Start Level (mm) | 0 | Inlet Coeffiecient | 0.800 |
| Manhole Headloss Coeff (Global) | 0.500 | Flow per Person per Day (l/per/day) | 0.000 |
| Foul Sewage per hectare (l/s) | 0.000 | | |

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 2 Number of Storage Structures 0 Number of Real Time Controls 0

### Synthetic Rainfall Details

| | | | |
|---|---|---|---|
| Rainfall Model | FSR | Ratio R | 0.279 |
| Region | England and Wales | Cv (Summer) | 0.750 |
| M5-60 (mm) | 19.500 | Cv (Winter) | 0.840 |

| | |
|---|---|
| Margin for Flood Risk Warning (mm) | 300.0 |
| Analysis Timestep | 2.5 Second Increment (Extended) |
| DTS Status | OFF |
| DVD Status | ON |
| Inertia Status | ON |

| | |
|---|---|
| Profile(s) | Summer and Winter |
| Duration(s) (mins) | 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440 |
| Return Period(s) (years) | 2, 30, 100 |
| Climate Change (%) | 0, 0, 35 |

| PN | US/MH Name | Storm Rank | Water Level (m) | Surcharged Depth (m) | Flooded Volume (m³) | Flow / Cap. | Overflow (l/s) | Pipe Flow (l/s) | Status |
|---|---|---|---|---|---|---|---|---|---|
| 1.000 | S11 | 66 | 55.106 | -0.179 | 0.000 | 0.09 | | 3.7 | OK |
| 1.001 | S12 | 66 | 54.936 | -0.173 | 0.000 | 0.12 | | 5.5 | OK |
| 1.002 | S13 | 66 | 53.926 | -1.044 | 0.000 | 0.00 | | 6.6 | OK |
| 1.003 | S14 | 65 | 53.926 | -0.978 | 0.000 | 0.01 | | 6.3 | OK |
| 1.004 | S15 | 65 | 53.926 | -0.960 | 0.000 | 0.01 | | 7.1 | OK |
| 1.005 | S16 | 65 | 53.926 | -0.895 | 0.000 | 0.01 | | 6.4 | OK |
| 1.006 | S17 | 65 | 53.926 | -0.870 | 0.000 | 0.00 | | 6.6 | OK |
| 2.000 | S18 | 65 | 53.926 | -1.009 | 0.000 | 0.00 | | 1.8 | OK |
| 2.001 | S19 | 65 | 53.926 | -0.927 | 0.000 | 0.00 | | 2.2 | OK |
| 2.002 | S20 | 65 | 53.926 | -0.881 | 0.000 | 0.00 | | 2.9 | OK |
| 2.003 | S21 | 65 | 53.926 | -0.825 | 0.000 | 0.00 | | 2.3 | OK |
| 2.004 | S22 | 65 | 53.926 | -0.770 | 0.000 | 0.00 | | 2.3 | OK |
| 1.007 | S23 | 65 | 53.926 | -0.748 | 0.000 | 0.01 | | 6.2 | OK |
| 1.008 | S24 | 65 | 53.926 | -0.727 | 0.000 | 0.00 | | 5.7 | OK |
| 1.009 | S25 HYDROBRAKE | 65 | 53.926 | 0.248 | 0.000 | 0.10 | | 6.2 | SURCHARGED |

## Summary Wizard of 960 minute 2 year Summer I+0% for PARCEL A_SW

| PN | US/MH Name | Storm Rank | Water Level (m) | Surcharged Depth (m) | Flooded Volume ($m^3$) | Flow / Cap. | Overflow (l/s) | Pipe Flow (l/s) | Status |
|---|---|---|---|---|---|---|---|---|---|
| 1.010 | S26 | 51 | 53.450 | -0.194 | 0.000 | 0.10 | | 6.2 | OK |
| 1.011 | S28 PUMP STATION | 51 | 53.448 | -0.011 | 0.000 | 0.37 | | 6.2 | OK |

## Summary Wizard of 1440 minute 2 year Summer I+0% for PARCEL A_SW

### Simulation Criteria

| | | | |
|---|---|---|---|
| Areal Reduction Factor | 1.000 | Additional Flow - % of Total Flow | 0.000 |
| Hot Start (mins) | 0 | MADD Factor * 10m³/ha Storage | 2.000 |
| Hot Start Level (mm) | 0 | Inlet Coeffiecient | 0.800 |
| Manhole Headloss Coeff (Global) | 0.500 | Flow per Person per Day (l/per/day) | 0.000 |
| Foul Sewage per hectare (l/s) | 0.000 | | |

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 2 Number of Storage Structures 0 Number of Real Time Controls 0

### Synthetic Rainfall Details

| | | | |
|---|---|---|---|
| Rainfall Model | | FSR | Ratio R 0.279 |
| Region | England and Wales | Cv (Summer) | 0.750 |
| M5-60 (mm) | 19.500 | Cv (Winter) | 0.840 |

| | |
|---|---|
| Margin for Flood Risk Warning (mm) | 300.0 |
| Analysis Timestep | 2.5 Second Increment (Extended) |
| DTS Status | OFF |
| DVD Status | ON |
| Inertia Status | ON |

| | |
|---|---|
| Profile(s) | Summer and Winter |
| Duration(s) (mins) | 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440 |
| Return Period(s) (years) | 2, 30, 100 |
| Climate Change (%) | 0, 0, 35 |

| PN | US/MH Name | Storm | Rank | Water Level (m) | Surcharged Depth (m) | Flooded Volume (m³) | Flow / Cap. | Overflow (l/s) | Pipe Flow (l/s) | Status |
|---|---|---|---|---|---|---|---|---|---|---|
| 1.000 | S11 | 70 | | 55.099 | -0.186 | 0.000 | 0.07 | | 2.8 | OK |
| 1.001 | S12 | 70 | | 54.930 | -0.179 | 0.000 | 0.09 | | 4.2 | OK |
| 1.002 | S13 | 71 | | 53.876 | -1.094 | 0.000 | 0.00 | | 5.2 | OK |
| 1.003 | S14 | 70 | | 53.875 | -1.029 | 0.000 | 0.01 | | 5.0 | OK |
| 1.004 | S15 | 69 | | 53.875 | -1.011 | 0.000 | 0.00 | | 5.6 | OK |
| 1.005 | S16 | 69 | | 53.875 | -0.946 | 0.000 | 0.01 | | 5.1 | OK |
| 1.006 | S17 | 69 | | 53.875 | -0.921 | 0.000 | 0.00 | | 5.4 | OK |
| 2.000 | S18 | 69 | | 53.875 | -1.060 | 0.000 | 0.00 | | 1.5 | OK |
| 2.001 | S19 | 69 | | 53.875 | -0.978 | 0.000 | 0.00 | | 1.9 | OK |
| 2.002 | S20 | 69 | | 53.875 | -0.932 | 0.000 | 0.00 | | 2.6 | OK |
| 2.003 | S21 | 69 | | 53.875 | -0.876 | 0.000 | 0.00 | | 2.1 | OK |
| 2.004 | S22 | 69 | | 53.875 | -0.821 | 0.000 | 0.00 | | 2.2 | OK |
| 1.007 | S23 | 69 | | 53.875 | -0.799 | 0.000 | 0.01 | | 5.9 | OK |
| 1.008 | S24 | 69 | | 53.875 | -0.778 | 0.000 | 0.00 | | 5.6 | OK |
| 1.009 | S25 HYDROBRAKE | 69 | | 53.875 | 0.197 | 0.000 | 0.10 | | 6.2 | SURCHARGED |

Summary Wizard of 1440 minute 2 year Summer I+0% for PARCEL A_SW

| PN | US/MH Name | Storm Rank | Water Level (m) | Surcharged Depth (m) | Flooded Volume (m³) | Flow / Cap. | Overflow (l/s) | Pipe Flow (l/s) | Status |
|---|---|---|---|---|---|---|---|---|---|
| 1.010 | S26 | 64 | 53.450 | -0.194 | 0.000 | 0.10 | | 6.2 | OK |
| 1.011 | S28 PUMP STATION | 65 | 53.447 | -0.012 | 0.000 | 0.37 | | 6.2 | OK |

## Summary Wizard of 15 minute 30 year Summer I+0% for PARCEL A_SW

### Simulation Criteria

| | | | |
|---|---|---|---|
| Areal Reduction Factor | 1.000 | Additional Flow - % of Total Flow | 0.000 |
| Hot Start (mins) | 0 | MADD Factor * 10m³/ha Storage | 2.000 |
| Hot Start Level (mm) | 0 | Inlet Coeffiecient | 0.800 |
| Manhole Headloss Coeff (Global) | 0.500 | Flow per Person per Day (l/per/day) | 0.000 |
| Foul Sewage per hectare (l/s) | 0.000 | | |

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 2 Number of Storage Structures 0 Number of Real Time Controls 0

### Synthetic Rainfall Details

| | | | |
|---|---|---|---|
| Rainfall Model | FSR | Ratio R | 0.279 |
| Region | England and Wales | Cv (Summer) | 0.750 |
| M5-60 (mm) | 19.500 | Cv (Winter) | 0.840 |

| | |
|---|---|
| Margin for Flood Risk Warning (mm) | 300.0 |
| Analysis Timestep | 2.5 Second Increment (Extended) |
| DTS Status | OFF |
| DVD Status | ON |
| Inertia Status | ON |

| | |
|---|---|
| Profile(s) | Summer and Winter |
| Duration(s) (mins) | 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440 |
| Return Period(s) (years) | 2, 30, 100 |
| Climate Change (%) | 0, 0, 35 |

| PN | US/MH Name | Storm | Rank | Water Level (m) | Surcharged Depth (m) | Flooded Volume (m³) | Flow / Cap. | Overflow (l/s) | Pipe Flow (l/s) | Status |
|---|---|---|---|---|---|---|---|---|---|---|
| 1.000 | S11 | 16 | | 55.461 | 0.176 | 0.000 | 1.11 | | 43.6 | SURCHARGED |
| 1.001 | S12 | 22 | | 55.247 | 0.138 | 0.000 | 1.41 | | 64.1 | SURCHARGED |
| 1.002 | S13 | 53 | | 53.998 | -0.972 | 0.000 | 0.06 | | 78.4 | OK |
| 1.003 | S14 | 53 | | 53.997 | -0.907 | 0.000 | 0.09 | | 73.0 | OK |
| 1.004 | S15 | 53 | | 53.997 | -0.889 | 0.000 | 0.06 | | 80.9 | OK |
| 1.005 | S16 | 53 | | 53.997 | -0.824 | 0.000 | 0.08 | | 65.9 | OK |
| 1.006 | S17 | 53 | | 53.997 | -0.799 | 0.000 | 0.03 | | 63.3 | OK |
| 2.000 | S18 | 53 | | 53.996 | -0.939 | 0.000 | 0.02 | | 24.9 | OK |
| 2.001 | S19 | 53 | | 53.996 | -0.857 | 0.000 | 0.03 | | 32.7 | OK |
| 2.002 | S20 | 53 | | 53.996 | -0.811 | 0.000 | 0.03 | | 43.6 | OK |
| 2.003 | S21 | 53 | | 53.996 | -0.755 | 0.000 | 0.02 | | 25.0 | OK |
| 2.004 | S22 | 53 | | 53.996 | -0.700 | 0.000 | 0.01 | | 4.5 | OK |
| 1.007 | S23 | 53 | | 53.996 | -0.678 | 0.000 | 0.04 | | 30.1 | OK |
| 1.008 | S24 | 53 | | 53.996 | -0.657 | 0.000 | 0.01 | | 17.6 | OK |
| 1.009 | S25 HYDROBRAKE | 53 | | 53.995 | 0.317 | 0.000 | 0.10 | | 6.2 | SURCHARGED |

## Summary Wizard of 15 minute 30 year Summer I+0% for PARCEL A_SW

| PN | US/MH Name | Storm Rank | Water Level (m) | Surcharged Depth (m) | Flooded Volume (m³) | Flow / Cap. | Overflow (l/s) | Pipe Flow (l/s) | Status |
|---|---|---|---|---|---|---|---|---|---|
| 1.010 | S26 | 43 | 53.450 | -0.194 | 0.000 | 0.10 | | 6.2 | OK |
| 1.011 | S28 PUMP STATION | 41 | 53.448 | -0.011 | 0.000 | 0.37 | | 6.2 | OK |

## Summary Wizard of 30 minute 30 year Summer I+0% for PARCEL A_SW

### Simulation Criteria

| | | | |
|---|---|---|---|
| Areal Reduction Factor | 1.000 | Additional Flow - % of Total Flow | 0.000 |
| Hot Start (mins) | 0 | MADD Factor * 10m³/ha Storage | 2.000 |
| Hot Start Level (mm) | 0 | Inlet Coeffiecient | 0.800 |
| Manhole Headloss Coeff (Global) | 0.500 | Flow per Person per Day (l/per/day) | 0.000 |
| Foul Sewage per hectare (l/s) | 0.000 | | |

| | | | | | |
|---|---|---|---|---|---|
| Number of Input Hydrographs | 0 | Number of Offline Controls | 0 | Number of Time/Area Diagrams | 0 |
| Number of Online Controls | 2 | Number of Storage Structures | 0 | Number of Real Time Controls | 0 |

### Synthetic Rainfall Details

| | | | |
|---|---|---|---|
| Rainfall Model | FSR | Ratio R | 0.279 |
| Region | England and Wales | Cv (Summer) | 0.750 |
| M5-60 (mm) | 19.500 | Cv (Winter) | 0.840 |

| | |
|---|---|
| Margin for Flood Risk Warning (mm) | 300.0 |
| Analysis Timestep | 2.5 Second Increment (Extended) |
| DTS Status | OFF |
| DVD Status | ON |
| Inertia Status | ON |

| | |
|---|---|
| Profile(s) | Summer and Winter |
| Duration(s) (mins) | 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440 |
| Return Period(s) (years) | 2, 30, 100 |
| Climate Change (%) | 0, 0, 35 |

| PN | US/MH Name | Storm Rank | Water Level (m) | Surcharged Depth (m) | Flooded Volume (m³) | Flow / Cap. | Overflow (l/s) | Pipe Flow (l/s) | Status |
|---|---|---|---|---|---|---|---|---|---|
| 1.000 | S11 | 18 | 55.428 | 0.143 | 0.000 | 1.06 | | 41.7 | SURCHARGED |
| 1.001 | S12 | 25 | 55.228 | 0.119 | 0.000 | 1.36 | | 61.7 | SURCHARGED |
| 1.002 | S13 | 46 | 54.093 | -0.877 | 0.000 | 0.05 | | 73.8 | OK |
| 1.003 | S14 | 46 | 54.093 | -0.811 | 0.000 | 0.08 | | 64.4 | OK |
| 1.004 | S15 | 46 | 54.093 | -0.793 | 0.000 | 0.05 | | 71.5 | OK |
| 1.005 | S16 | 46 | 54.093 | -0.728 | 0.000 | 0.06 | | 54.1 | OK |
| 1.006 | S17 | 46 | 54.093 | -0.703 | 0.000 | 0.03 | | 51.5 | OK |
| 2.000 | S18 | 46 | 54.092 | -0.843 | 0.000 | 0.02 | | 22.1 | OK |
| 2.001 | S19 | 46 | 54.092 | -0.761 | 0.000 | 0.02 | | 23.4 | OK |
| 2.002 | S20 | 46 | 54.092 | -0.715 | 0.000 | 0.02 | | 29.0 | OK |
| 2.003 | S21 | 46 | 54.092 | -0.659 | 0.000 | 0.01 | | 12.2 | OK |
| 2.004 | S22 | 46 | 54.092 | -0.604 | 0.000 | 0.01 | | 4.1 | OK |
| 1.007 | S23 | 46 | 54.092 | -0.582 | 0.000 | 0.02 | | 17.1 | OK |
| 1.008 | S24 | 46 | 54.092 | -0.561 | 0.000 | 0.01 | | 10.6 | OK |
| 1.009 | S25 HYDROBRAKE | 46 | 54.092 | 0.414 | 0.000 | 0.10 | | 6.2 | SURCHARGED |

## Summary Wizard of 30 minute 30 year Summer I+0% for PARCEL A_SW

| PN | US/MH Name | Storm Rank | Water Level (m) | Surcharged Depth (m) | Flooded Volume (m³) | Flow / Cap. | Overflow (l/s) | Pipe Flow (l/s) | Status |
|---|---|---|---|---|---|---|---|---|---|
| 1.010 | S26 | 58 | 53.450 | -0.194 | 0.000 | 0.10 | | 6.2 | OK |
| 1.011 | S28 PUMP STATION | 58 | 53.448 | -0.011 | 0.000 | 0.37 | | 6.2 | OK |

## Summary Wizard of 60 minute 30 year Summer I+0% for PARCEL A_SW

### Simulation Criteria

| | | | |
|---|---|---|---|
| Areal Reduction Factor | 1.000 | Additional Flow - % of Total Flow | 0.000 |
| Hot Start (mins) | 0 | MADD Factor * 10m³/ha Storage | 2.000 |
| Hot Start Level (mm) | 0 | Inlet Coeffiecient | 0.800 |
| Manhole Headloss Coeff (Global) | 0.500 | Flow per Person per Day (l/per/day) | 0.000 |
| Foul Sewage per hectare (l/s) | 0.000 | | |

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 2 Number of Storage Structures 0 Number of Real Time Controls 0

### Synthetic Rainfall Details

| | | | |
|---|---|---|---|
| Rainfall Model | | FSR Ratio R | 0.279 |
| Region | England and Wales | Cv (Summer) | 0.750 |
| M5-60 (mm) | 19.500 | Cv (Winter) | 0.840 |

| | |
|---|---|
| Margin for Flood Risk Warning (mm) | 300.0 |
| Analysis Timestep | 2.5 Second Increment (Extended) |
| DTS Status | OFF |
| DVD Status | ON |
| Inertia Status | ON |

| | |
|---|---|
| Profile(s) | Summer and Winter |
| Duration(s) (mins) | 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440 |
| Return Period(s) (years) | 2, 30, 100 |
| Climate Change (%) | 0, 0, 35 |

| PN | US/MH Name | Storm | Rank | Water Level (m) | Surcharged Depth (m) | Flooded Volume (m³) | Flow / Cap. | Overflow (l/s) | Pipe Flow (l/s) | Status |
|---|---|---|---|---|---|---|---|---|---|---|
| 1.000 | S11 | 25 | | 55.269 | -0.016 | 0.000 | 0.86 | | 33.9 | OK |
| 1.001 | S12 | 27 | | 55.135 | 0.026 | 0.000 | 1.12 | | 50.6 | SURCHARGED |
| 1.002 | S13 | 44 | | 54.188 | -0.782 | 0.000 | 0.04 | | 59.8 | OK |
| 1.003 | S14 | 44 | | 54.187 | -0.717 | 0.000 | 0.06 | | 48.5 | OK |
| 1.004 | S15 | 44 | | 54.187 | -0.699 | 0.000 | 0.04 | | 54.6 | OK |
| 1.005 | S16 | 44 | | 54.187 | -0.634 | 0.000 | 0.05 | | 39.8 | OK |
| 1.006 | S17 | 44 | | 54.187 | -0.609 | 0.000 | 0.02 | | 38.9 | OK |
| 2.000 | S18 | 44 | | 54.187 | -0.748 | 0.000 | 0.01 | | 16.6 | OK |
| 2.001 | S19 | 44 | | 54.187 | -0.666 | 0.000 | 0.01 | | 12.4 | OK |
| 2.002 | S20 | 44 | | 54.187 | -0.620 | 0.000 | 0.01 | | 16.0 | OK |
| 2.003 | S21 | 44 | | 54.187 | -0.564 | 0.000 | 0.00 | | 5.5 | OK |
| 2.004 | S22 | 44 | | 54.187 | -0.509 | 0.000 | 0.00 | | 2.9 | OK |
| 1.007 | S23 | 44 | | 54.187 | -0.487 | 0.000 | 0.01 | | 11.7 | OK |
| 1.008 | S24 | 44 | | 54.186 | -0.467 | 0.000 | 0.01 | | 7.5 | OK |
| 1.009 | S25 HYDROBRAKE | 44 | | 54.186 | 0.508 | 0.000 | 0.10 | | 6.2 | SURCHARGED |

Summary Wizard of 60 minute 30 year Summer I+0% for PARCEL A SW

| PN | US/MH Name | Storm Rank | Water Level (m) | Surcharged Depth (m) | Flooded Volume ($m^3$) | Flow / Cap. | Overflow (l/s) | Pipe Flow (l/s) | Status |
|---|---|---|---|---|---|---|---|---|---|
| 1.010 | S26 | 60 | 53.450 | -0.194 | 0.000 | 0.10 | | 6.2 | OK |
| 1.011 | S28 PUMP STATION | 60 | 53.448 | -0.011 | 0.000 | 0.37 | | 6.2 | OK |

## Summary Wizard of 120 minute 30 year Summer I+0% for PARCEL A_SW

### Simulation Criteria

| | | | |
|---|---|---|---|
| Areal Reduction Factor | 1.000 | Additional Flow - % of Total Flow | 0.000 |
| Hot Start (mins) | 0 | MADD Factor * 10m³/ha Storage | 2.000 |
| Hot Start Level (mm) | 0 | Inlet Coeffiecient | 0.800 |
| Manhole Headloss Coeff (Global) | 0.500 | Flow per Person per Day (l/per/day) | 0.000 |
| Foul Sewage per hectare (l/s) | 0.000 | | |

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 2 Number of Storage Structures 0 Number of Real Time Controls 0

### Synthetic Rainfall Details

| | | | |
|---|---|---|---|
| Rainfall Model | | FSR | Ratio R 0.279 |
| Region | England and Wales | Cv (Summer) | 0.750 |
| M5-60 (mm) | 19.500 | Cv (Winter) | 0.840 |

| | |
|---|---|
| Margin for Flood Risk Warning (mm) | 300.0 |
| Analysis Timestep | 2.5 Second Increment (Extended) |
| DTS Status | OFF |
| DVD Status | ON |
| Inertia Status | ON |

| | |
|---|---|
| Profile(s) | Summer and Winter |
| Duration(s) (mins) | 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440 |
| Return Period(s) (years) | 2, 30, 100 |
| Climate Change (%) | 0, 0, 35 |

| PN | US/MH Name | Storm Rank | Water Level (m) | Surcharged Depth (m) | Flooded Volume (m³) | Flow / Cap. | Overflow (l/s) | Pipe Flow (l/s) | Status |
|---|---|---|---|---|---|---|---|---|---|
| 1.000 | S11 | 32 | 55.189 | -0.096 | 0.000 | 0.62 | | 24.4 | OK |
| 1.001 | S12 | 31 | 55.039 | -0.070 | 0.000 | 0.81 | | 36.8 | OK |
| 1.002 | S13 | 38 | 54.268 | -0.702 | 0.000 | 0.03 | | 43.4 | OK |
| 1.003 | S14 | 38 | 54.268 | -0.636 | 0.000 | 0.04 | | 33.9 | OK |
| 1.004 | S15 | 38 | 54.268 | -0.618 | 0.000 | 0.03 | | 37.7 | OK |
| 1.005 | S16 | 38 | 54.267 | -0.554 | 0.000 | 0.03 | | 28.2 | OK |
| 1.006 | S17 | 37 | 54.267 | -0.529 | 0.000 | 0.01 | | 27.7 | OK |
| 2.000 | S18 | 37 | 54.267 | -0.668 | 0.000 | 0.01 | | 11.7 | OK |
| 2.001 | S19 | 37 | 54.267 | -0.586 | 0.000 | 0.01 | | 8.3 | OK |
| 2.002 | S20 | 37 | 54.267 | -0.540 | 0.000 | 0.01 | | 10.4 | OK |
| 2.003 | S21 | 37 | 54.267 | -0.484 | 0.000 | 0.00 | | 3.4 | OK |
| 2.004 | S22 | 37 | 54.267 | -0.429 | 0.000 | 0.00 | | 2.6 | OK |
| 1.007 | S23 | 37 | 54.267 | -0.407 | 0.000 | 0.01 | | 8.9 | OK |
| 1.008 | S24 | 37 | 54.267 | -0.386 | 0.000 | 0.00 | | 6.3 | OK |
| 1.009 | S25 HYDROBRAKE | 37 | 54.266 | 0.588 | 0.000 | 0.10 | | 6.2 | SURCHARGED |

Summary Wizard of 120 minute 30 year Summer I+0% for PARCEL A_SW

| PN | US/MH Name | Storm Rank | Water Level (m) | Surcharged Depth (m) | Flooded Volume (m³) | Flow / Cap. | Overflow (l/s) | Pipe Flow (l/s) | Status |
|---|---|---|---|---|---|---|---|---|---|
| 1.010 | S26 | 57 | 53.450 | -0.194 | 0.000 | 0.10 | | 6.2 | OK |
| 1.011 | S28 PUMP STATION | 57 | 53.448 | -0.011 | 0.000 | 0.37 | | 6.2 | OK |

## Summary Wizard of 180 minute 30 year Summer I+0% for PARCEL A_SW

### Simulation Criteria

| | | | |
|---|---|---|---|
| Areal Reduction Factor | 1.000 | Additional Flow - % of Total Flow | 0.000 |
| Hot Start (mins) | 0 | MADD Factor * 10m³/ha Storage | 2.000 |
| Hot Start Level (mm) | 0 | Inlet Coeffiecient | 0.800 |
| Manhole Headloss Coeff (Global) | 0.500 | Flow per Person per Day (l/per/day) | 0.000 |
| Foul Sewage per hectare (l/s) | 0.000 | | |

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 2 Number of Storage Structures 0 Number of Real Time Controls 0

### Synthetic Rainfall Details

| | | | |
|---|---|---|---|
| Rainfall Model | | FSR | Ratio R 0.279 |
| Region | England and Wales | Cv (Summer) | 0.750 |
| M5-60 (mm) | 19.500 | Cv (Winter) | 0.840 |

| | |
|---|---|
| Margin for Flood Risk Warning (mm) | 300.0 |
| Analysis Timestep | 2.5 Second Increment (Extended) |
| DTS Status | OFF |
| DVD Status | ON |
| Inertia Status | ON |

| | |
|---|---|
| Profile(s) | Summer and Winter |
| Duration(s) (mins) | 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440 |
| Return Period(s) (years) | 2, 30, 100 |
| Climate Change (%) | 0, 0, 35 |

| PN | US/MH Name | Storm Rank | Water Level (m) | Surcharged Depth (m) | Flooded Volume (m³) | Flow / Cap. | Overflow (l/s) | Pipe Flow (l/s) | Status |
|---|---|---|---|---|---|---|---|---|---|
| 1.000 | S11 | 35 | 55.171 | -0.114 | 0.000 | 0.49 | | 19.1 | OK |
| 1.001 | S12 | 36 | 55.015 | -0.094 | 0.000 | 0.64 | | 28.8 | OK |
| 1.002 | S13 | 34 | 54.298 | -0.672 | 0.000 | 0.02 | | 33.8 | OK |
| 1.003 | S14 | 34 | 54.297 | -0.607 | 0.000 | 0.03 | | 26.4 | OK |
| 1.004 | S15 | 34 | 54.297 | -0.589 | 0.000 | 0.02 | | 29.5 | OK |
| 1.005 | S16 | 34 | 54.297 | -0.524 | 0.000 | 0.03 | | 22.0 | OK |
| 1.006 | S17 | 34 | 54.297 | -0.499 | 0.000 | 0.01 | | 21.7 | OK |
| 2.000 | S18 | 34 | 54.297 | -0.638 | 0.000 | 0.01 | | 9.3 | OK |
| 2.001 | S19 | 34 | 54.297 | -0.556 | 0.000 | 0.01 | | 6.5 | OK |
| 2.002 | S20 | 34 | 54.297 | -0.510 | 0.000 | 0.01 | | 8.2 | OK |
| 2.003 | S21 | 34 | 54.297 | -0.454 | 0.000 | 0.00 | | 2.9 | OK |
| 2.004 | S22 | 34 | 54.297 | -0.399 | 0.000 | 0.00 | | 2.6 | OK |
| 1.007 | S23 | 34 | 54.297 | -0.377 | 0.000 | 0.01 | | 8.0 | OK |
| 1.008 | S24 | 34 | 54.297 | -0.356 | 0.000 | 0.00 | | 6.2 | OK |
| 1.009 | S25 HYDROBRAKE | 34 | 54.296 | 0.618 | 0.000 | 0.10 | | 6.2 | SURCHARGED |

Summary Wizard of 180 minute 30 year Summer I+0% for PARCEL A_SW

| PN | US/MH Name | Storm Rank | Water Level (m) | Surcharged Depth (m) | Flooded Volume ($m^3$) | Flow / Cap. | Overflow (l/s) | Pipe Flow (l/s) | Status |
|---|---|---|---|---|---|---|---|---|---|
| 1.010 | S26 | 52 | 53.450 | -0.194 | 0.000 | 0.10 | | 6.2 | OK |
| 1.011 | S28 PUMP STATION | 52 | 53.448 | -0.011 | 0.000 | 0.37 | | 6.2 | OK |

## Summary Wizard of 240 minute 30 year Summer I+0% for PARCEL A_SW

### Simulation Criteria

| | | | |
|---|---|---|---|
| Areal Reduction Factor | 1.000 | Additional Flow - % of Total Flow | 0.000 |
| Hot Start (mins) | 0 | MADD Factor * 10m³/ha Storage | 2.000 |
| Hot Start Level (mm) | 0 | Inlet Coeffiecient | 0.800 |
| Manhole Headloss Coeff (Global) | 0.500 | Flow per Person per Day (l/per/day) | 0.000 |
| Foul Sewage per hectare (l/s) | 0.000 | | |

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 2 Number of Storage Structures 0 Number of Real Time Controls 0

### Synthetic Rainfall Details

| | | | |
|---|---|---|---|
| Rainfall Model | FSR | Ratio R | 0.279 |
| Region | England and Wales | Cv (Summer) | 0.750 |
| M5-60 (mm) | 19.500 | Cv (Winter) | 0.840 |

| | |
|---|---|
| Margin for Flood Risk Warning (mm) | 300.0 |
| Analysis Timestep | 2.5 Second Increment (Extended) |
| DTS Status | OFF |
| DVD Status | ON |
| Inertia Status | ON |

| | |
|---|---|
| Profile(s) | Summer and Winter |
| Duration(s) (mins) | 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440 |
| Return Period(s) (years) | 2, 30, 100 |
| Climate Change (%) | 0, 0, 35 |

| PN | US/MH Name | Storm Rank | Water Level (m) | Surcharged Depth (m) | Flooded Volume (m³) | Flow / Cap. | Overflow (l/s) | Pipe Flow (l/s) | Status |
|---|---|---|---|---|---|---|---|---|---|
| 1.000 | S11 | 38 | 55.160 | -0.125 | 0.000 | 0.41 | | 16.0 | OK |
| 1.001 | S12 | 39 | 55.001 | -0.108 | 0.000 | 0.53 | | 24.0 | OK |
| 1.002 | S13 | 32 | 54.307 | -0.663 | 0.000 | 0.02 | | 28.2 | OK |
| 1.003 | S14 | 32 | 54.307 | -0.597 | 0.000 | 0.03 | | 22.3 | OK |
| 1.004 | S15 | 32 | 54.307 | -0.579 | 0.000 | 0.02 | | 25.0 | OK |
| 1.005 | S16 | 32 | 54.307 | -0.514 | 0.000 | 0.02 | | 18.6 | OK |
| 1.006 | S17 | 32 | 54.307 | -0.489 | 0.000 | 0.01 | | 18.5 | OK |
| 2.000 | S18 | 32 | 54.307 | -0.628 | 0.000 | 0.01 | | 7.8 | OK |
| 2.001 | S19 | 32 | 54.307 | -0.546 | 0.000 | 0.00 | | 5.5 | OK |
| 2.002 | S20 | 32 | 54.307 | -0.500 | 0.000 | 0.01 | | 7.0 | OK |
| 2.003 | S21 | 32 | 54.307 | -0.444 | 0.000 | 0.00 | | 2.7 | OK |
| 2.004 | S22 | 32 | 54.307 | -0.389 | 0.000 | 0.00 | | 2.6 | OK |
| 1.007 | S23 | 32 | 54.307 | -0.367 | 0.000 | 0.01 | | 7.6 | OK |
| 1.008 | S24 | 32 | 54.306 | -0.347 | 0.000 | 0.00 | | 6.1 | OK |
| 1.009 | S25 HYDROBRAKE | 32 | 54.306 | 0.628 | 0.000 | 0.10 | | 6.2 | SURCHARGED |

Summary Wizard of 240 minute 30 year Summer I+0% for PARCEL A_SW

| PN | US/MH Name | Storm Rank | Water Level (m) | Surcharged Depth (m) | Flooded Volume ($m^3$) | Flow / Cap. | Overflow (l/s) | Pipe Flow (l/s) | Status |
|---|---|---|---|---|---|---|---|---|---|
| 1.010 | S26 | 50 | 53.450 | -0.194 | 0.000 | 0.10 | | 6.2 | OK |
| 1.011 | S28 PUMP STATION | 50 | 53.448 | -0.011 | 0.000 | 0.37 | | 6.2 | OK |

## Summary Wizard of 360 minute 30 year Summer I+0% for PARCEL A_SW

### Simulation Criteria

| | | | |
|---|---|---|---|
| Areal Reduction Factor | 1.000 | Additional Flow - % of Total Flow | 0.000 |
| Hot Start (mins) | 0 | MADD Factor * 10m³/ha Storage | 2.000 |
| Hot Start Level (mm) | 0 | Inlet Coeffiecient | 0.800 |
| Manhole Headloss Coeff (Global) | 0.500 | Flow per Person per Day (l/per/day) | 0.000 |
| Foul Sewage per hectare (l/s) | 0.000 | | |

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 2 Number of Storage Structures 0 Number of Real Time Controls 0

### Synthetic Rainfall Details

| | | | |
|---|---|---|---|
| Rainfall Model | FSR | Ratio R | 0.279 |
| Region | England and Wales | Cv (Summer) | 0.750 |
| M5-60 (mm) | 19.500 | Cv (Winter) | 0.840 |

| | |
|---|---|
| Margin for Flood Risk Warning (mm) | 300.0 |
| Analysis Timestep | 2.5 Second Increment (Extended) |
| DTS Status | OFF |
| DVD Status | ON |
| Inertia Status | ON |

| | |
|---|---|
| Profile(s) | Summer and Winter |
| Duration(s) (mins) | 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440 |
| Return Period(s) (years) | 2, 30, 100 |
| Climate Change (%) | 0, 0, 35 |

| PN | US/MH Name | Storm Rank | Water Level (m) | Surcharged Depth (m) | Flooded Volume (m³) | Flow / Cap. | Overflow (l/s) | Pipe Flow (l/s) | Status |
|---|---|---|---|---|---|---|---|---|---|
| 1.000 | S11 | 42 | 55.146 | -0.139 | 0.000 | 0.31 | | 12.2 | OK |
| 1.001 | S12 | 43 | 54.983 | -0.126 | 0.000 | 0.41 | | 18.4 | OK |
| 1.002 | S13 | 31 | 54.308 | -0.662 | 0.000 | 0.02 | | 21.6 | OK |
| 1.003 | S14 | 31 | 54.308 | -0.596 | 0.000 | 0.02 | | 17.2 | OK |
| 1.004 | S15 | 31 | 54.308 | -0.578 | 0.000 | 0.01 | | 19.4 | OK |
| 1.005 | S16 | 31 | 54.308 | -0.513 | 0.000 | 0.02 | | 14.7 | OK |
| 1.006 | S17 | 31 | 54.308 | -0.488 | 0.000 | 0.01 | | 14.7 | OK |
| 2.000 | S18 | 31 | 54.308 | -0.627 | 0.000 | 0.00 | | 6.0 | OK |
| 2.001 | S19 | 31 | 54.308 | -0.545 | 0.000 | 0.00 | | 4.4 | OK |
| 2.002 | S20 | 31 | 54.308 | -0.499 | 0.000 | 0.00 | | 5.6 | OK |
| 2.003 | S21 | 31 | 54.308 | -0.443 | 0.000 | 0.00 | | 2.6 | OK |
| 2.004 | S22 | 31 | 54.308 | -0.388 | 0.000 | 0.00 | | 2.6 | OK |
| 1.007 | S23 | 31 | 54.308 | -0.366 | 0.000 | 0.01 | | 7.1 | OK |
| 1.008 | S24 | 31 | 54.308 | -0.345 | 0.000 | 0.00 | | 6.0 | OK |
| 1.009 | S25 HYDROBRAKE | 31 | 54.307 | 0.629 | 0.000 | 0.10 | | 6.2 | SURCHARGED |

Summary Wizard of 360 minute 30 year Summer I+0% for PARCEL A_SW

| PN | US/MH Name | Storm Rank | Water Level (m) | Surcharged Depth (m) | Flooded Volume (m³) | Flow / Cap. | Overflow (l/s) | Pipe Flow (l/s) | Status |
|---|---|---|---|---|---|---|---|---|---|
| 1.010 | S26 | 36 | 53.450 | -0.194 | 0.000 | 0.10 | | 6.2 | OK |
| 1.011 | S28 PUMP STATION | 37 | 53.448 | -0.011 | 0.000 | 0.37 | | 6.2 | OK |

## STORM SEWER DESIGN by the Modified Rational Method

### Design Criteria for SW_NET1

Pipe Sizes STANDARD Manhole Sizes STANDARD

FSR Rainfall Model - England and Wales

| | | | |
|---|---|---|---|
| Return Period (years) | 30 | PIMP (%) | 100 |
| M5-60 (mm) | 19.500 | Add Flow / Climate Change (%) | 0 |
| Ratio R | 0.279 | Minimum Backdrop Height (m) | 0.600 |
| Maximum Rainfall (mm/hr) | 40 | Maximum Backdrop Height (m) | 3.000 |
| Maximum Time of Concentration (mins) | 30 | Min Design Depth for Optimisation (m) | 0.900 |
| Foul Sewage (l/s/ha) | 0.000 | Min Vel for Auto Design only (m/s) | 1.00 |
| Volumetric Runoff Coeff. | 0.750 | Min Slope for Optimisation (1:X) | 500 |

Designed with Level Soffits

### Time Area Diagram for SW_NET1

| Time (mins) | Area (ha) | Time (mins) | Area (ha) |
|---|---|---|---|
| 0-4 | 0.173 | 4-8 | 0.252 |

Total Area Contributing (ha) = 0.425

Total Pipe Volume (m³) = 176.017

### Network Design Table for SW_NET1

| PN | Length (m) | Fall (m) | Slope (1:X) | I.Area (ha) | T.E. (mins) | Base Flow (l/s) | k (mm) | HYD SECT | DIA (mm) | Section Type | Auto Design |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.000 | 35.858 | 0.097 | 369.7 | 0.074 | 5.00 | 0.0 | 0.600 | o | 1050 | Pipe/Conduit | |
| 1.001 | 35.427 | 0.089 | 398.1 | 0.110 | 0.00 | 0.0 | 0.600 | o | 1050 | Pipe/Conduit | |
| 1.002 | 22.934 | 0.057 | 402.4 | 0.103 | 0.00 | 0.0 | 0.600 | o | 1050 | Pipe/Conduit | |

### Network Results Table

| PN | Rain (mm/hr) | T.C. (mins) | US/IL (m) | Σ I.Area (ha) | Σ Base Flow (l/s) | Foul (l/s) | Add Flow (l/s) | Vel (m/s) | Cap (l/s) | Flow (l/s) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1.000 | 40.00 | 5.33 | 57.831 | 0.074 | 0.0 | 0.0 | 0.0 | 1.79 | 1546.8 | 8.0 |
| 1.001 | 40.00 | 5.68 | 57.734 | 0.184 | 0.0 | 0.0 | 0.0 | 1.72 | 1490.3 | 19.9 |
| 1.002 | 40.00 | 5.90 | 57.645 | 0.287 | 0.0 | 0.0 | 0.0 | 1.71 | 1482.2 | 31.1 |

## Network Design Table for SW_NET1

| PN | Length (m) | Fall (m) | Slope (1:X) | I.Area (ha) | T.E. (mins) | Base Flow (l/s) | k (mm) | HYD SECT | DIA (mm) | Section Type | Auto Design |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2.000 | 26.712 | 0.067 | 398.7 | 0.063 | 5.00 | 0.0 | 0.600 | o | 1050 | Pipe/Conduit | |
| 1.003 | 56.308 | 0.140 | 402.2 | 0.075 | 0.00 | 0.0 | 0.600 | o | 1200 | Pipe/Conduit | |
| 1.004 | 10.476 | 0.070 | 149.7 | 0.000 | 0.00 | 0.0 | 0.600 | o | 300 | Pipe/Conduit | |
| 1.005 | 22.602 | 0.151 | 149.7 | 0.000 | 0.00 | 0.0 | 0.600 | o | 300 | Pipe/Conduit | |
| 3.000 | 5.738 | 0.034 | 168.8 | 0.000 | 5.00 | 0.0 | 0.600 | o | 300 | Pipe/Conduit | |
| 1.006 | 66.406 | 0.401 | 165.6 | 0.000 | 0.00 | 0.0 | 0.600 | o | 300 | Pipe/Conduit | |
| 1.007 | 2.580 | 0.016 | 161.3 | 0.000 | 0.00 | 0.0 | 0.600 | o | 300 | Pipe/Conduit | |

## Network Results Table

| PN | Rain (mm/hr) | T.C. (mins) | US/IL (m) | Σ I.Area (ha) | Σ Base Flow (l/s) | Foul (l/s) | Add Flow (l/s) | Vel (m/s) | Cap (l/s) | Flow (l/s) |
|---|---|---|---|---|---|---|---|---|---|---|
| 2.000 | 40.00 | 5.26 | 57.655 | 0.063 | 0.0 | 0.0 | 0.0 | 1.72 | 1489.1 | 6.8 |
| 1.003 | 40.00 | 6.41 | 57.438 | 0.425 | 0.0 | 0.0 | 0.0 | 1.86 | 2102.8 | 46.0 |
| 1.004 | 40.00 | 6.54 | 57.298 | 0.425 | 0.0 | 0.0 | 0.0 | 1.28 | 90.7 | 46.0 |
| 1.005 | 40.00 | 6.84 | 57.228 | 0.425 | 0.0 | 0.0 | 0.0 | 1.28 | 90.7 | 46.0 |
| 3.000 | 40.00 | 5.08 | 57.111 | 0.000 | 0.0 | 0.0 | 0.0 | 1.21 | 85.3 | 0.0 |
| 1.006 | 40.00 | 7.74 | 57.077 | 0.425 | 0.0 | 0.0 | 0.0 | 1.22 | 86.2 | 46.0 |
| 1.007 | 40.00 | 7.78 | 56.676 | 0.425 | 0.0 | 0.0 | 0.0 | 1.24 | 87.3 | 46.0 |

## Manhole Schedules for SW NET1

| MH Name | MH CL (m) | MH Depth (m) | MH Connection | MH Diam.,L*W (mm) | Pipe Out PN | Pipe Out Invert Level (m) | Pipe Out Diameter (mm) | Pipes In PN | Pipes In Invert Level (m) | Pipes In Diameter (mm) | Backdro (mm) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| S1 | 61.038 | 3.207 | Open Manhole | 2700 | 1.000 | 57.831 | 1050 | | | | |
| S2 | 61.166 | 3.432 | Open Manhole | 2700 | 1.001 | 57.734 | 1050 | 1.000 | 57.734 | 1050 | |
| S3 | 61.287 | 3.642 | Open Manhole | 2700 | 1.002 | 57.645 | 1050 | 1.001 | 57.645 | 1050 | |
| S4 | 60.607 | 2.952 | Open Manhole | 2700 | 2.000 | 57.655 | 1050 | | | | |
| S5 | 61.101 | 3.663 | Open Manhole | 2700 | 1.003 | 57.438 | 1200 | 1.002 | 57.588 | 1050 | |
| | | | | | | | | 2.000 | 57.588 | 1050 | |
| S6 HYDROBRAKE | 60.051 | 2.753 | Open Manhole | 2700 | 1.004 | 57.298 | 300 | 1.003 | 57.298 | 1200 | |
| S7 | 59.731 | 2.503 | Open Manhole | 1500 | 1.005 | 57.228 | 300 | 1.004 | 57.228 | 300 | |
| S8 | 58.683 | 1.572 | Open Manhole | 1500 | 3.000 | 57.111 | 300 | | | | |
| S9 | 58.901 | 1.824 | Open Manhole | 1500 | 1.006 | 57.077 | 300 | 1.005 | 57.077 | 300 | |
| | | | | | | | | 3.000 | 57.077 | 300 | |
| S10 | 59.145 | 2.469 | Open Manhole | 1500 | 1.007 | 56.676 | 300 | 1.006 | 56.676 | 300 | |
| EX MH5312 | 59.136 | 2.476 | Open Manhole | 1350 | | OUTFALL | | 1.007 | 56.660 | 300 | |

## PIPELINE SCHEDULES for SW_NET1

### Upstream Manhole

| PN | Hyd Sect | Diam (mm) | MH Name | C.Level (m) | I.Level (m) | D.Depth (m) | MH Connection | MH DIAM., L*W (mm) |
|---|---|---|---|---|---|---|---|---|
| 1.000 | o | 1050 | S1 | 61.038 | 57.831 | 2.157 | Open Manhole | 2700 |
| 1.001 | o | 1050 | S2 | 61.166 | 57.734 | 2.382 | Open Manhole | 2700 |
| 1.002 | o | 1050 | S3 | 61.287 | 57.645 | 2.592 | Open Manhole | 2700 |
| 2.000 | o | 1050 | S4 | 60.607 | 57.655 | 1.902 | Open Manhole | 2700 |
| 1.003 | o | 1200 | S5 | 61.101 | 57.438 | 2.463 | Open Manhole | 2700 |
| 1.004 | o | 300 | S6 HYDROBRAKE | 60.051 | 57.298 | 2.453 | Open Manhole | 2700 |
| 1.005 | o | 300 | S7 | 59.731 | 57.228 | 2.203 | Open Manhole | 1500 |
| 3.000 | o | 300 | S8 | 58.683 | 57.111 | 1.272 | Open Manhole | 1500 |
| 1.006 | o | 300 | S9 | 58.901 | 57.077 | 1.524 | Open Manhole | 1500 |
| 1.007 | o | 300 | S10 | 59.145 | 56.676 | 2.169 | Open Manhole | 1500 |

### Downstream Manhole

| PN | Length (m) | Slope (1:X) | MH Name | C.Level (m) | I.Level (m) | D.Depth (m) | MH Connection | MH DIAM., L*W (mm) |
|---|---|---|---|---|---|---|---|---|
| 1.000 | 35.858 | 369.7 | S2 | 61.166 | 57.734 | 2.382 | Open Manhole | 2700 |
| 1.001 | 35.427 | 398.1 | S3 | 61.287 | 57.645 | 2.592 | Open Manhole | 2700 |
| 1.002 | 22.934 | 402.4 | S5 | 61.101 | 57.588 | 2.463 | Open Manhole | 2700 |
| 2.000 | 26.712 | 398.7 | S5 | 61.101 | 57.588 | 2.463 | Open Manhole | 2700 |
| 1.003 | 56.308 | 402.2 | S6 HYDROBRAKE | 60.051 | 57.298 | 1.553 | Open Manhole | 2700 |
| 1.004 | 10.476 | 149.7 | S7 | 59.731 | 57.228 | 2.203 | Open Manhole | 1500 |
| 1.005 | 22.602 | 149.7 | S9 | 58.901 | 57.077 | 1.524 | Open Manhole | 1500 |
| 3.000 | 5.738 | 168.8 | S9 | 58.901 | 57.077 | 1.524 | Open Manhole | 1500 |
| 1.006 | 66.406 | 165.6 | S10 | 59.145 | 56.676 | 2.169 | Open Manhole | 1500 |
| 1.007 | 2.580 | 161.3 | EX MH5312 | 59.136 | 56.660 | 2.176 | Open Manhole | 1350 |

### Free Flowing Outfall Details for SW_NET1

| Outfall Pipe Number | Outfall Name | C. Level (m) | I. Level (m) | Min I. Level (m) | D,L (mm) | W (mm) |
|---|---|---|---|---|---|---|
| 1.007 | EX MH5312 | 59.136 | 56.660 | 0.000 | 1350 | 0 |

## Simulation Criteria for SW NET1

| | | | |
|---|---|---|---|
| Volumetric Runoff Coeff | 0.750 | Additional Flow - % of Total Flow | 0.000 |
| Areal Reduction Factor | 1.000 | MADD Factor * 10m³/ha Storage | 2.000 |
| Hot Start (mins) | 0 | Inlet Coeffiecient | 0.800 |
| Hot Start Level (mm) | 0 | Flow per Person per Day (l/per/day) | 0.000 |
| Manhole Headloss Coeff (Global) | 0.500 | Run Time (mins) | 60 |
| Foul Sewage per hectare (l/s) | 0.000 | Output Interval (mins) | 1 |

| | | |
|---|---|---|
| Number of Input Hydrographs 0 | Number of Offline Controls 0 | Number of Time/Area Diagrams 0 |
| Number of Online Controls 1 | Number of Storage Structures 0 | Number of Real Time Controls 0 |

## Synthetic Rainfall Details

| | | | |
|---|---|---|---|
| Rainfall Model | FSR | Profile Type | Summer |
| Return Period (years) | 30 | Cv (Summer) | 0.750 |
| Region | England and Wales | Cv (Winter) | 0.840 |
| M5-60 (mm) | 19.500 | Storm Duration (mins) | 30 |
| Ratio R | 0.279 | | |

## Online Controls for SW_NET1

### Hydro-Brake® Optimum Manhole: S6 HYDROBRAKE, DS/PN: 1.004, Volume (m³): 76.4

| | |
|---|---|
| Unit Reference | MD-SHE-0129-1000-2100-1000 |
| Design Head (m) | 2.100 |
| Design Flow (l/s) | 10.0 |
| Flush-Flo™ | Calculated |
| Objective | Minimise upstream storage |
| Application | Surface |
| Sump Available | Yes |
| Diameter (mm) | 129 |
| Invert Level (m) | 57.298 |
| Minimum Outlet Pipe Diameter (mm) | 150 |
| Suggested Manhole Diameter (mm) | 1500 |

| Control Points | Head (m) | Flow (l/s) | Control Points | Head (m) | Flow (l/s) |
|---|---|---|---|---|---|
| Design Point (Calculated) | 2.100 | 10.0 | Kick-Flo® | 1.155 | 7.5 |
| Flush-Flo™ | 0.565 | 9.5 | Mean Flow over Head Range | - | 8.5 |

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

| Depth (m) | Flow (l/s) | Depth (m) | Flow (l/s) | Depth (m) | Flow (l/s) | Depth (m) | Flow (l/s) |
|---|---|---|---|---|---|---|---|
| 0.100 | 4.6 | 1.200 | 7.7 | 3.000 | 11.8 | 7.000 | 17.7 |
| 0.200 | 8.0 | 1.400 | 8.3 | 3.500 | 12.7 | 7.500 | 18.3 |
| 0.300 | 8.9 | 1.600 | 8.8 | 4.000 | 13.6 | 8.000 | 18.9 |
| 0.400 | 9.3 | 1.800 | 9.3 | 4.500 | 14.3 | 8.500 | 19.4 |
| 0.500 | 9.5 | 2.000 | 9.8 | 5.000 | 15.1 | 9.000 | 20.0 |
| 0.600 | 9.5 | 2.200 | 10.2 | 5.500 | 15.8 | 9.500 | 20.5 |
| 0.800 | 9.3 | 2.400 | 10.6 | 6.000 | 16.4 | | |
| 1.000 | 8.6 | 2.600 | 11.0 | 6.500 | 17.1 | | |

## Summary Wizard of 15 minute 2 year Summer I+0% for SW_NET1

### Simulation Criteria

| | | | |
|---|---|---|---|
| Areal Reduction Factor | 1.000 | Additional Flow - % of Total Flow | 0.000 |
| Hot Start (mins) | 0 | MADD Factor * 10m³/ha Storage | 2.000 |
| Hot Start Level (mm) | 0 | Inlet Coeffiecient | 0.800 |
| Manhole Headloss Coeff (Global) | 0.500 | Flow per Person per Day (l/per/day) | 0.000 |
| Foul Sewage per hectare (l/s) | 0.000 | | |

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 1 Number of Storage Structures 0 Number of Real Time Controls 0

### Synthetic Rainfall Details

| | | | |
|---|---|---|---|
| Rainfall Model | | FSR | Ratio R 0.279 |
| Region | England and Wales | Cv (Summer) | 0.750 |
| M5-60 (mm) | 19.500 | Cv (Winter) | 0.840 |

Margin for Flood Risk Warning (mm) 300.0 DVD Status OFF
Analysis Timestep Fine Inertia Status OFF
DTS Status ON

Profile(s) Summer and Winter
Duration(s) (mins) 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440
Return Period(s) (years) 2, 30, 100
Climate Change (%) 0, 0, 35

| PN | US/MH Name | Storm Rank | Water Level (m) | Surcharged Depth (m) | Flooded Volume (m³) | Flow / Cap. | Overflow (l/s) | Pipe Flow (l/s) | Status |
|---|---|---|---|---|---|---|---|---|---|
| 1.000 | S1 | 44 | 57.901 | -0.980 | 0.000 | 0.01 | | 10.6 | OK |
| 1.001 | S2 | 46 | 57.848 | -0.936 | 0.000 | 0.02 | | 22.9 | OK |
| 1.002 | S3 | 55 | 57.773 | -0.922 | 0.000 | 0.04 | | 34.5 | OK |
| 2.000 | S4 | 57 | 57.741 | -0.964 | 0.000 | 0.01 | | 9.2 | OK |
| 1.003 | S5 | 57 | 57.741 | -0.897 | 0.000 | 0.03 | | 46.6 | OK |
| 1.004 | S6 HYDROBRAKE | 57 | 57.741 | 0.143 | 0.000 | 0.14 | | 9.4 | SURCHARGED |
| 1.005 | S7 | 57 | 57.296 | -0.232 | 0.000 | 0.12 | | 9.4 | OK |
| 3.000 | S8 | 56 | 57.144 | -0.267 | 0.000 | 0.00 | | 0.1 | OK |
| 1.006 | S9 | 57 | 57.144 | -0.233 | 0.000 | 0.11 | | 9.4 | OK |
| 1.007 | S10 | 56 | 56.761 | -0.215 | 0.000 | 0.18 | | 9.4 | OK |

## Summary Wizard of 30 minute 2 year Summer I+0% for SW_NET1

### Simulation Criteria

| | | | |
|---|---|---|---|
| Areal Reduction Factor | 1.000 | Additional Flow - % of Total Flow | 0.000 |
| Hot Start (mins) | 0 | MADD Factor * 10m³/ha Storage | 2.000 |
| Hot Start Level (mm) | 0 | Inlet Coeffiecient | 0.800 |
| Manhole Headloss Coeff (Global) | 0.500 | Flow per Person per Day (l/per/day) | 0.000 |
| Foul Sewage per hectare (l/s) | 0.000 | | |

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 1 Number of Storage Structures 0 Number of Real Time Controls 0

### Synthetic Rainfall Details

| | | | |
|---|---|---|---|
| Rainfall Model | | FSR | Ratio R 0.279 |
| Region | England and Wales | Cv (Summer) | 0.750 |
| M5-60 (mm) | 19.500 | Cv (Winter) | 0.840 |

Margin for Flood Risk Warning (mm) 300.0 DVD Status OFF
Analysis Timestep Fine Inertia Status OFF
DTS Status ON

| | |
|---|---|
| Profile(s) | Summer and Winter |
| Duration(s) (mins) | 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440 |
| Return Period(s) (years) | 2, 30, 100 |
| Climate Change (%) | 0, 0, 35 |

| PN | US/MH Name | Storm Rank | Water Level (m) | Surcharged Depth (m) | Flooded Volume (m³) | Flow / Cap. | Overflow (l/s) | Pipe Flow (l/s) | Status |
|---|---|---|---|---|---|---|---|---|---|
| 1.000 | S1 | 45 | 57.899 | -0.982 | 0.000 | 0.01 | | 10.0 | OK |
| 1.001 | S2 | 47 | 57.847 | -0.937 | 0.000 | 0.02 | | 22.9 | OK |
| 1.002 | S3 | 53 | 57.782 | -0.913 | 0.000 | 0.04 | | 34.4 | OK |
| 2.000 | S4 | 53 | 57.780 | -0.925 | 0.000 | 0.01 | | 8.5 | OK |
| 1.003 | S5 | 53 | 57.780 | -0.858 | 0.000 | 0.03 | | 44.9 | OK |
| 1.004 | S6 HYDROBRAKE | 53 | 57.780 | 0.182 | 0.000 | 0.14 | | 9.5 | SURCHARGED |
| 1.005 | S7 | 53 | 57.296 | -0.232 | 0.000 | 0.12 | | 9.5 | OK |
| 3.000 | S8 | 50 | 57.144 | -0.267 | 0.000 | 0.00 | | 0.0 | OK |
| 1.006 | S9 | 51 | 57.144 | -0.233 | 0.000 | 0.11 | | 9.5 | OK |
| 1.007 | S10 | 49 | 56.762 | -0.214 | 0.000 | 0.18 | | 9.5 | OK |

## Summary Wizard of 60 minute 2 year Summer I+0% for SW_NET1

### Simulation Criteria

| | | | |
|---|---|---|---|
| Areal Reduction Factor | 1.000 | Additional Flow - % of Total Flow | 0.000 |
| Hot Start (mins) | 0 | MADD Factor * 10m³/ha Storage | 2.000 |
| Hot Start Level (mm) | 0 | Inlet Coeffiecient | 0.800 |
| Manhole Headloss Coeff (Global) | 0.500 | Flow per Person per Day (l/per/day) | 0.000 |
| Foul Sewage per hectare (l/s) | 0.000 | | |

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 1 Number of Storage Structures 0 Number of Real Time Controls 0

### Synthetic Rainfall Details

| | | | |
|---|---|---|---|
| Rainfall Model | | FSR | Ratio R 0.279 |
| Region | England and Wales | Cv (Summer) | 0.750 |
| M5-60 (mm) | 19.500 | Cv (Winter) | 0.840 |

Margin for Flood Risk Warning (mm) 300.0 DVD Status OFF
Analysis Timestep Fine Inertia Status OFF
DTS Status ON

| | |
|---|---|
| Profile(s) | Summer and Winter |
| Duration(s) (mins) | 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440 |
| Return Period(s) (years) | 2, 30, 100 |
| Climate Change (%) | 0, 0, 35 |

| PN | US/MH Name | Storm Rank | Water Level (m) | Surcharged Depth (m) | Flooded Volume (m³) | Flow / Cap. | Overflow (l/s) | Pipe Flow (l/s) | Status |
|---|---|---|---|---|---|---|---|---|---|
| 1.000 | S1 | 48 | 57.886 | -0.995 | 0.000 | 0.01 | | 7.8 | OK |
| 1.001 | S2 | 49 | 57.840 | -0.944 | 0.000 | 0.02 | | 18.6 | OK |
| 1.002 | S3 | 49 | 57.799 | -0.896 | 0.000 | 0.03 | | 28.5 | OK |
| 2.000 | S4 | 49 | 57.798 | -0.907 | 0.000 | 0.01 | | 6.2 | OK |
| 1.003 | S5 | 49 | 57.798 | -0.840 | 0.000 | 0.02 | | 36.4 | OK |
| 1.004 | S6 HYDROBRAKE | 49 | 57.798 | 0.200 | 0.000 | 0.14 | | 9.5 | SURCHARGED |
| 1.005 | S7 | 49 | 57.296 | -0.232 | 0.000 | 0.12 | | 9.5 | OK |
| 3.000 | S8 | 38 | 57.144 | -0.267 | 0.000 | 0.00 | | 0.1 | OK |
| 1.006 | S9 | 45 | 57.144 | -0.233 | 0.000 | 0.12 | | 9.5 | OK |
| 1.007 | S10 | 46 | 56.762 | -0.214 | 0.000 | 0.18 | | 9.5 | OK |

## Summary Wizard of 120 minute 2 year Summer I+0% for SW_NET1

### Simulation Criteria

| | | | |
|---|---|---|---|
| Areal Reduction Factor | 1.000 | Additional Flow - % of Total Flow | 0.000 |
| Hot Start (mins) | 0 | MADD Factor * 10m³/ha Storage | 2.000 |
| Hot Start Level (mm) | 0 | Inlet Coeffiecient | 0.800 |
| Manhole Headloss Coeff (Global) | 0.500 | Flow per Person per Day (l/per/day) | 0.000 |
| Foul Sewage per hectare (l/s) | 0.000 | | |

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 1 Number of Storage Structures 0 Number of Real Time Controls 0

### Synthetic Rainfall Details

| | | | |
|---|---|---|---|
| Rainfall Model | | FSR | Ratio R 0.279 |
| Region | England and Wales | Cv (Summer) | 0.750 |
| M5-60 (mm) | 19.500 | Cv (Winter) | 0.840 |

Margin for Flood Risk Warning (mm) 300.0 DVD Status OFF
Analysis Timestep Fine Inertia Status OFF
DTS Status ON

| | |
|---|---|
| Profile(s) | Summer and Winter |
| Duration(s) (mins) | 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440 |
| Return Period(s) (years) | 2, 30, 100 |
| Climate Change (%) | 0, 0, 35 |

| PN | US/MH Name | Storm Rank | Water Level (m) | Surcharged Depth (m) | Flooded Volume (m³) | Flow / Cap. | Overflow (l/s) | Pipe Flow (l/s) | Status |
|---|---|---|---|---|---|---|---|---|---|
| 1.000 | S1 | 50 | 57.869 | -1.012 | 0.000 | 0.00 | | 5.5 | OK |
| 1.001 | S2 | 53 | 57.820 | -0.964 | 0.000 | 0.01 | | 13.4 | OK |
| 1.002 | S3 | 50 | 57.798 | -0.897 | 0.000 | 0.02 | | 20.4 | OK |
| 2.000 | S4 | 50 | 57.796 | -0.909 | 0.000 | 0.00 | | 4.2 | OK |
| 1.003 | S5 | 50 | 57.796 | -0.842 | 0.000 | 0.02 | | 26.2 | OK |
| 1.004 | S6 HYDROBRAKE | 50 | 57.796 | 0.198 | 0.000 | 0.14 | | 9.5 | SURCHARGED |
| 1.005 | S7 | 50 | 57.296 | -0.232 | 0.000 | 0.12 | | 9.5 | OK |
| 3.000 | S8 | 49 | 57.144 | -0.267 | 0.000 | 0.00 | | 0.1 | OK |
| 1.006 | S9 | 46 | 57.144 | -0.233 | 0.000 | 0.12 | | 9.5 | OK |
| 1.007 | S10 | 47 | 56.762 | -0.214 | 0.000 | 0.18 | | 9.5 | OK |

## Summary Wizard of 180 minute 2 year Summer I+0% for SW_NET1

### Simulation Criteria

| | | | |
|---|---|---|---|
| Areal Reduction Factor | 1.000 | Additional Flow - % of Total Flow | 0.000 |
| Hot Start (mins) | 0 | MADD Factor * 10m³/ha Storage | 2.000 |
| Hot Start Level (mm) | 0 | Inlet Coeffiecient | 0.800 |
| Manhole Headloss Coeff (Global) | 0.500 | Flow per Person per Day (l/per/day) | 0.000 |
| Foul Sewage per hectare (l/s) | 0.000 | | |

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 1 Number of Storage Structures 0 Number of Real Time Controls 0

### Synthetic Rainfall Details

| | | | |
|---|---|---|---|
| Rainfall Model | | FSR | Ratio R 0.279 |
| Region | England and Wales | Cv (Summer) | 0.750 |
| M5-60 (mm) | 19.500 | Cv (Winter) | 0.840 |

Margin for Flood Risk Warning (mm) 300.0 DVD Status OFF
Analysis Timestep Fine Inertia Status OFF
DTS Status ON

| | |
|---|---|
| Profile(s) | Summer and Winter |
| Duration(s) (mins) | 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440 |
| Return Period(s) (years) | 2, 30, 100 |
| Climate Change (%) | 0, 0, 35 |

| PN | US/MH Name | Storm Rank | Water Level (m) | Surcharged Depth (m) | Flooded Volume (m³) | Flow / Cap. | Overflow (l/s) | Pipe Flow (l/s) | Status |
|---|---|---|---|---|---|---|---|---|---|
| 1.000 | S1 | 51 | 57.860 | -1.021 | 0.000 | 0.00 | | 4.6 | OK |
| 1.001 | S2 | 54 | 57.805 | -0.979 | 0.000 | 0.01 | | 11.0 | OK |
| 1.002 | S3 | 52 | 57.785 | -0.910 | 0.000 | 0.02 | | 16.6 | OK |
| 2.000 | S4 | 52 | 57.783 | -0.922 | 0.000 | 0.00 | | 3.6 | OK |
| 1.003 | S5 | 52 | 57.783 | -0.855 | 0.000 | 0.01 | | 22.0 | OK |
| 1.004 | S6 HYDROBRAKE | 52 | 57.783 | 0.185 | 0.000 | 0.14 | | 9.5 | SURCHARGED |
| 1.005 | S7 | 52 | 57.296 | -0.232 | 0.000 | 0.12 | | 9.5 | OK |
| 3.000 | S8 | 48 | 57.144 | -0.267 | 0.000 | 0.00 | | 0.1 | OK |
| 1.006 | S9 | 49 | 57.144 | -0.233 | 0.000 | 0.11 | | 9.5 | OK |
| 1.007 | S10 | 48 | 56.762 | -0.214 | 0.000 | 0.18 | | 9.5 | OK |

## Summary Wizard of 240 minute 2 year Summer I+0% for SW_NET1

### Simulation Criteria

| | | | |
|---|---|---|---|
| Areal Reduction Factor | 1.000 | Additional Flow - % of Total Flow | 0.000 |
| Hot Start (mins) | 0 | MADD Factor * 10m³/ha Storage | 2.000 |
| Hot Start Level (mm) | 0 | Inlet Coeffiecient | 0.800 |
| Manhole Headloss Coeff (Global) | 0.500 | Flow per Person per Day (l/per/day) | 0.000 |
| Foul Sewage per hectare (l/s) | 0.000 | | |

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 1 Number of Storage Structures 0 Number of Real Time Controls 0

### Synthetic Rainfall Details

| | | | |
|---|---|---|---|
| Rainfall Model | | FSR | Ratio R 0.279 |
| Region | England and Wales | Cv (Summer) | 0.750 |
| M5-60 (mm) | 19.500 | Cv (Winter) | 0.840 |

Margin for Flood Risk Warning (mm) 300.0 DVD Status OFF
Analysis Timestep Fine Inertia Status OFF
DTS Status ON

| | |
|---|---|
| Profile(s) | Summer and Winter |
| Duration(s) (mins) | 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440 |
| Return Period(s) (years) | 2, 30, 100 |
| Climate Change (%) | 0, 0, 35 |

| PN | US/MH Name | Storm Rank | Water Level (m) | Surcharged Depth (m) | Flooded Volume (m³) | Flow / Cap. | Overflow (l/s) | Pipe Flow (l/s) | Status |
|---|---|---|---|---|---|---|---|---|---|
| 1.000 | S1 | 54 | 57.855 | -1.026 | 0.000 | 0.00 | | 3.8 | OK |
| 1.001 | S2 | 56 | 57.794 | -0.990 | 0.000 | 0.01 | | 9.4 | OK |
| 1.002 | S3 | 56 | 57.768 | -0.927 | 0.000 | 0.01 | | 14.2 | OK |
| 2.000 | S4 | 55 | 57.765 | -0.940 | 0.000 | 0.00 | | 3.0 | OK |
| 1.003 | S5 | 55 | 57.765 | -0.873 | 0.000 | 0.01 | | 18.9 | OK |
| 1.004 | S6 HYDROBRAKE | 55 | 57.765 | 0.167 | 0.000 | 0.14 | | 9.4 | SURCHARGED |
| 1.005 | S7 | 55 | 57.296 | -0.232 | 0.000 | 0.12 | | 9.4 | OK |
| 3.000 | S8 | 54 | 57.144 | -0.267 | 0.000 | 0.00 | | 0.1 | OK |
| 1.006 | S9 | 53 | 57.144 | -0.233 | 0.000 | 0.11 | | 9.4 | OK |
| 1.007 | S10 | 52 | 56.761 | -0.215 | 0.000 | 0.18 | | 9.4 | OK |

## Summary Wizard of 360 minute 2 year Summer I+0% for SW_NET1

### Simulation Criteria

| | | | |
|---|---|---|---|
| Areal Reduction Factor | 1.000 | Additional Flow - % of Total Flow | 0.000 |
| Hot Start (mins) | 0 | MADD Factor * 10m³/ha Storage | 2.000 |
| Hot Start Level (mm) | 0 | Inlet Coeffiecient | 0.800 |
| Manhole Headloss Coeff (Global) | 0.500 | Flow per Person per Day (l/per/day) | 0.000 |
| Foul Sewage per hectare (l/s) | 0.000 | | |

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 1 Number of Storage Structures 0 Number of Real Time Controls 0

### Synthetic Rainfall Details

| | | | |
|---|---|---|---|
| Rainfall Model | | FSR | Ratio R 0.279 |
| Region | England and Wales | Cv (Summer) | 0.750 |
| M5-60 (mm) | 19.500 | Cv (Winter) | 0.840 |

Margin for Flood Risk Warning (mm) 300.0 DVD Status OFF
Analysis Timestep Fine Inertia Status OFF
DTS Status ON

| | |
|---|---|
| Profile(s) | Summer and Winter |
| Duration(s) (mins) | 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440 |
| Return Period(s) (years) | 2, 30, 100 |
| Climate Change (%) | 0, 0, 35 |

| PN | US/MH Name | Storm Rank | Water Level (m) | Surcharged Depth (m) | Flooded Volume (m³) | Flow / Cap. | Overflow (l/s) | Pipe Flow (l/s) | Status |
|---|---|---|---|---|---|---|---|---|---|
| 1.000 | S1 | 57 | 57.848 | -1.033 | 0.000 | 0.00 | | 3.0 | OK |
| 1.001 | S2 | 58 | 57.779 | -1.005 | 0.000 | 0.01 | | 7.4 | OK |
| 1.002 | S3 | 59 | 57.733 | -0.962 | 0.000 | 0.01 | | 11.2 | OK |
| 2.000 | S4 | 59 | 57.723 | -0.982 | 0.000 | 0.00 | | 2.5 | OK |
| 1.003 | S5 | 59 | 57.722 | -0.916 | 0.000 | 0.01 | | 15.6 | OK |
| 1.004 | S6 HYDROBRAKE | 59 | 57.722 | 0.124 | 0.000 | 0.14 | | 9.4 | SURCHARGED |
| 1.005 | S7 | 59 | 57.296 | -0.232 | 0.000 | 0.12 | | 9.4 | OK |
| 3.000 | S8 | 57 | 57.144 | -0.267 | 0.000 | 0.00 | | 0.1 | OK |
| 1.006 | S9 | 59 | 57.144 | -0.233 | 0.000 | 0.11 | | 9.4 | OK |
| 1.007 | S10 | 58 | 56.761 | -0.215 | 0.000 | 0.18 | | 9.4 | OK |

## Summary Wizard of 480 minute 2 year Summer I+0% for SW_NET1

### Simulation Criteria

| | | | |
|---|---|---|---|
| Areal Reduction Factor | 1.000 | Additional Flow - % of Total Flow | 0.000 |
| Hot Start (mins) | 0 | MADD Factor * 10m³/ha Storage | 2.000 |
| Hot Start Level (mm) | 0 | Inlet Coeffiecient | 0.800 |
| Manhole Headloss Coeff (Global) | 0.500 | Flow per Person per Day (l/per/day) | 0.000 |
| Foul Sewage per hectare (l/s) | 0.000 | | |

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 1 Number of Storage Structures 0 Number of Real Time Controls 0

### Synthetic Rainfall Details

| | | | |
|---|---|---|---|
| Rainfall Model | FSR | Ratio R | 0.279 |
| Region | England and Wales | Cv (Summer) | 0.750 |
| M5-60 (mm) | 19.500 | Cv (Winter) | 0.840 |

Margin for Flood Risk Warning (mm) 300.0 DVD Status OFF
Analysis Timestep Fine Inertia Status OFF
DTS Status ON

| | |
|---|---|
| Profile(s) | Summer and Winter |
| Duration(s) (mins) | 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440 |
| Return Period(s) (years) | 2, 30, 100 |
| Climate Change (%) | 0, 0, 35 |

| PN | US/MH Name | Storm Rank | Water Level (m) | Surcharged Depth (m) | Flooded Volume (m³) | Flow / Cap. | Overflow (l/s) | Pipe Flow (l/s) | Status |
|---|---|---|---|---|---|---|---|---|---|
| 1.000 | S1 | 59 | 57.845 | -1.036 | 0.000 | 0.00 | | 2.5 | OK |
| 1.001 | S2 | 60 | 57.770 | -1.014 | 0.000 | 0.01 | | 6.2 | OK |
| 1.002 | S3 | 62 | 57.704 | -0.991 | 0.000 | 0.01 | | 9.5 | OK |
| 2.000 | S4 | 62 | 57.682 | -1.023 | 0.000 | 0.00 | | 2.1 | OK |
| 1.003 | S5 | 62 | 57.677 | -0.961 | 0.000 | 0.01 | | 13.5 | OK |
| 1.004 | S6 HYDROBRAKE | 62 | 57.676 | 0.078 | 0.000 | 0.14 | | 9.2 | SURCHARGED |
| 1.005 | S7 | 62 | 57.295 | -0.233 | 0.000 | 0.12 | | 9.2 | OK |
| 3.000 | S8 | 62 | 57.144 | -0.267 | 0.000 | 0.00 | | 0.0 | OK |
| 1.006 | S9 | 62 | 57.144 | -0.233 | 0.000 | 0.11 | | 9.2 | OK |
| 1.007 | S10 | 62 | 56.760 | -0.216 | 0.000 | 0.18 | | 9.2 | OK |

## Summary Wizard of 600 minute 2 year Summer I+0% for SW_NET1

### Simulation Criteria

| | | | |
|---|---|---|---|
| Areal Reduction Factor | 1.000 | Additional Flow - % of Total Flow | 0.000 |
| Hot Start (mins) | 0 | MADD Factor * 10m³/ha Storage | 2.000 |
| Hot Start Level (mm) | 0 | Inlet Coeffiecient | 0.800 |
| Manhole Headloss Coeff (Global) | 0.500 | Flow per Person per Day (l/per/day) | 0.000 |
| Foul Sewage per hectare (l/s) | 0.000 | | |

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 1 Number of Storage Structures 0 Number of Real Time Controls 0

### Synthetic Rainfall Details

| | | | |
|---|---|---|---|
| Rainfall Model | | FSR | Ratio R 0.279 |
| Region | England and Wales | Cv (Summer) | 0.750 |
| M5-60 (mm) | 19.500 | Cv (Winter) | 0.840 |

Margin for Flood Risk Warning (mm) 300.0 DVD Status OFF
Analysis Timestep Fine Inertia Status OFF
DTS Status ON

| | |
|---|---|
| Profile(s) | Summer and Winter |
| Duration(s) (mins) | 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440 |
| Return Period(s) (years) | 2, 30, 100 |
| Climate Change (%) | 0, 0, 35 |

| PN | US/MH Name | Storm Rank | Water Level (m) | Surcharged Depth (m) | Flooded Volume (m³) | Flow / Cap. | Overflow (l/s) | Pipe Flow (l/s) | Status |
|---|---|---|---|---|---|---|---|---|---|
| 1.000 | S1 | 61 | 57.843 | -1.038 | 0.000 | 0.00 | | 2.2 | OK |
| 1.001 | S2 | 63 | 57.764 | -1.020 | 0.000 | 0.00 | | 5.4 | OK |
| 1.002 | S3 | 63 | 57.688 | -1.007 | 0.000 | 0.01 | | 8.3 | OK |
| 2.000 | S4 | 63 | 57.667 | -1.038 | 0.000 | 0.00 | | 1.8 | OK |
| 1.003 | S5 | 63 | 57.634 | -1.004 | 0.000 | 0.01 | | 11.9 | OK |
| 1.004 | S6 HYDROBRAKE | 63 | 57.633 | 0.035 | 0.000 | 0.14 | | 9.0 | SURCHARGED |
| 1.005 | S7 | 63 | 57.295 | -0.233 | 0.000 | 0.11 | | 9.0 | OK |
| 3.000 | S8 | 63 | 57.143 | -0.268 | 0.000 | 0.00 | | 0.0 | OK |
| 1.006 | S9 | 63 | 57.143 | -0.234 | 0.000 | 0.11 | | 9.1 | OK |
| 1.007 | S10 | 63 | 56.759 | -0.217 | 0.000 | 0.17 | | 9.1 | OK |

## Summary Wizard of 720 minute 2 year Summer I+0% for SW_NET1

### Simulation Criteria

| | | | |
|---|---|---|---|
| Areal Reduction Factor | 1.000 | Additional Flow - % of Total Flow | 0.000 |
| Hot Start (mins) | 0 | MADD Factor * 10m³/ha Storage | 2.000 |
| Hot Start Level (mm) | 0 | Inlet Coeffiecient | 0.800 |
| Manhole Headloss Coeff (Global) | 0.500 | Flow per Person per Day (l/per/day) | 0.000 |
| Foul Sewage per hectare (l/s) | 0.000 | | |

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 1 Number of Storage Structures 0 Number of Real Time Controls 0

### Synthetic Rainfall Details

| | | | |
|---|---|---|---|
| Rainfall Model | | FSR | Ratio R 0.279 |
| Region | England and Wales | Cv (Summer) | 0.750 |
| M5-60 (mm) | 19.500 | Cv (Winter) | 0.840 |

Margin for Flood Risk Warning (mm) 300.0 DVD Status OFF
Analysis Timestep Fine Inertia Status OFF
DTS Status ON

| | |
|---|---|
| Profile(s) | Summer and Winter |
| Duration(s) (mins) | 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440 |
| Return Period(s) (years) | 2, 30, 100 |
| Climate Change (%) | 0, 0, 35 |

| PN | US/MH Name | Storm Rank | Water Level (m) | Surcharged Depth (m) | Flooded Volume (m³) | Flow / Cap. | Overflow (l/s) | Pipe Flow (l/s) | Status |
|---|---|---|---|---|---|---|---|---|---|
| 1.000 | S1 | 64 | 57.841 | -1.040 | 0.000 | 0.00 | | 1.9 | OK |
| 1.001 | S2 | 64 | 57.761 | -1.023 | 0.000 | 0.00 | | 4.8 | OK |
| 1.002 | S3 | 64 | 57.683 | -1.012 | 0.000 | 0.01 | | 7.4 | OK |
| 2.000 | S4 | 65 | 57.664 | -1.041 | 0.000 | 0.00 | | 1.6 | OK |
| 1.003 | S5 | 65 | 57.596 | -1.042 | 0.000 | 0.01 | | 10.8 | OK |
| 1.004 | S6 HYDROBRAKE | 65 | 57.593 | -0.005 | 0.000 | 0.13 | | 8.9 | OK |
| 1.005 | S7 | 65 | 57.294 | -0.234 | 0.000 | 0.11 | | 8.9 | OK |
| 3.000 | S8 | 65 | 57.142 | -0.269 | 0.000 | 0.00 | | 0.0 | OK |
| 1.006 | S9 | 65 | 57.142 | -0.235 | 0.000 | 0.11 | | 8.9 | OK |
| 1.007 | S10 | 65 | 56.758 | -0.218 | 0.000 | 0.17 | | 8.9 | OK |

## Summary Wizard of 960 minute 2 year Summer I+0% for SW_NET1

### Simulation Criteria

| | | | |
|---|---|---|---|
| Areal Reduction Factor | 1.000 | Additional Flow - % of Total Flow | 0.000 |
| Hot Start (mins) | 0 | MADD Factor * 10m³/ha Storage | 2.000 |
| Hot Start Level (mm) | 0 | Inlet Coeffiecient | 0.800 |
| Manhole Headloss Coeff (Global) | 0.500 | Flow per Person per Day (l/per/day) | 0.000 |
| Foul Sewage per hectare (l/s) | 0.000 | | |

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 1 Number of Storage Structures 0 Number of Real Time Controls 0

### Synthetic Rainfall Details

| | | | |
|---|---|---|---|
| Rainfall Model | | FSR | Ratio R 0.279 |
| Region | England and Wales | Cv (Summer) | 0.750 |
| M5-60 (mm) | 19.500 | Cv (Winter) | 0.840 |

Margin for Flood Risk Warning (mm) 300.0 DVD Status OFF
Analysis Timestep Fine Inertia Status OFF
DTS Status ON

| | |
|---|---|
| Profile(s) | Summer and Winter |
| Duration(s) (mins) | 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440 |
| Return Period(s) (years) | 2, 30, 100 |
| Climate Change (%) | 0, 0, 35 |

| PN | US/MH Name | Storm Rank | Water Level (m) | Surcharged Depth (m) | Flooded Volume (m³) | Flow / Cap. | Overflow (l/s) | Pipe Flow (l/s) | Status |
|---|---|---|---|---|---|---|---|---|---|
| 1.000 | S1 | 67 | 57.839 | -1.042 | 0.000 | 0.00 | | 1.6 | OK |
| 1.001 | S2 | 67 | 57.756 | -1.028 | 0.000 | 0.00 | | 4.0 | OK |
| 1.002 | S3 | 67 | 57.677 | -1.018 | 0.000 | 0.01 | | 6.2 | OK |
| 2.000 | S4 | 67 | 57.662 | -1.043 | 0.000 | 0.00 | | 1.4 | OK |
| 1.003 | S5 | 68 | 57.541 | -1.097 | 0.000 | 0.01 | | 9.0 | OK |
| 1.004 | S6 HYDROBRAKE | 68 | 57.524 | -0.074 | 0.000 | 0.13 | | 8.3 | OK |
| 1.005 | S7 | 68 | 57.292 | -0.236 | 0.000 | 0.10 | | 8.3 | OK |
| 3.000 | S8 | 68 | 57.140 | -0.271 | 0.000 | 0.00 | | 0.0 | OK |
| 1.006 | S9 | 68 | 57.140 | -0.237 | 0.000 | 0.10 | | 8.3 | OK |
| 1.007 | S10 | 68 | 56.755 | -0.221 | 0.000 | 0.16 | | 8.3 | OK |

## Summary Wizard of 1440 minute 2 year Summer I+0% for SW_NET1

### Simulation Criteria

| | | | |
|---|---|---|---|
| Areal Reduction Factor | 1.000 | Additional Flow - % of Total Flow | 0.000 |
| Hot Start (mins) | 0 | MADD Factor * 10m³/ha Storage | 2.000 |
| Hot Start Level (mm) | 0 | Inlet Coeffiecient | 0.800 |
| Manhole Headloss Coeff (Global) | 0.500 | Flow per Person per Day (l/per/day) | 0.000 |
| Foul Sewage per hectare (l/s) | 0.000 | | |

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 1 Number of Storage Structures 0 Number of Real Time Controls 0

### Synthetic Rainfall Details

| | | | |
|---|---|---|---|
| Rainfall Model | | FSR | Ratio R 0.279 |
| Region | England and Wales | Cv (Summer) | 0.750 |
| M5-60 (mm) | 19.500 | Cv (Winter) | 0.840 |

Margin for Flood Risk Warning (mm) 300.0 DVD Status OFF
Analysis Timestep Fine Inertia Status OFF
DTS Status ON

| | |
|---|---|
| Profile(s) | Summer and Winter |
| Duration(s) (mins) | 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440 |
| Return Period(s) (years) | 2, 30, 100 |
| Climate Change (%) | 0, 0, 35 |

| PN | US/MH Name | Storm Rank | Water Level (m) | Surcharged Depth (m) | Flooded Volume (m³) | Flow / Cap. | Overflow (l/s) | Pipe Flow (l/s) | Status |
|---|---|---|---|---|---|---|---|---|---|
| 1.000 | S1 | 70 | 57.837 | -1.044 | 0.000 | 0.00 | | 1.2 | OK |
| 1.001 | S2 | 70 | 57.751 | -1.033 | 0.000 | 0.00 | | 3.0 | OK |
| 1.002 | S3 | 70 | 57.669 | -1.026 | 0.000 | 0.00 | | 4.7 | OK |
| 2.000 | S4 | 70 | 57.661 | -1.044 | 0.000 | 0.00 | | 1.0 | OK |
| 1.003 | S5 | 70 | 57.494 | -1.144 | 0.000 | 0.00 | | 7.0 | OK |
| 1.004 | S6 HYDROBRAKE | 70 | 57.458 | -0.140 | 0.000 | 0.10 | | 6.9 | OK |
| 1.005 | S7 | 70 | 57.287 | -0.241 | 0.000 | 0.09 | | 6.9 | OK |
| 3.000 | S8 | 70 | 57.135 | -0.276 | 0.000 | 0.00 | | 0.0 | OK |
| 1.006 | S9 | 70 | 57.135 | -0.242 | 0.000 | 0.08 | | 6.8 | OK |
| 1.007 | S10 | 70 | 56.748 | -0.228 | 0.000 | 0.13 | | 6.8 | OK |

## Summary Wizard of 15 minute 30 year Summer I+0% for SW_NET1

### Simulation Criteria

| | | | |
|---|---|---|---|
| Areal Reduction Factor | 1.000 | Additional Flow - % of Total Flow | 0.000 |
| Hot Start (mins) | 0 | MADD Factor * 10m³/ha Storage | 2.000 |
| Hot Start Level (mm) | 0 | Inlet Coeffiecient | 0.800 |
| Manhole Headloss Coeff (Global) | 0.500 | Flow per Person per Day (l/per/day) | 0.000 |
| Foul Sewage per hectare (l/s) | 0.000 | | |

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 1 Number of Storage Structures 0 Number of Real Time Controls 0

### Synthetic Rainfall Details

| | | | |
|---|---|---|---|
| Rainfall Model | | FSR | Ratio R 0.279 |
| Region | England and Wales | Cv (Summer) | 0.750 |
| M5-60 (mm) | 19.500 | Cv (Winter) | 0.840 |

Margin for Flood Risk Warning (mm) 300.0 DVD Status OFF
Analysis Timestep Fine Inertia Status OFF
DTS Status ON

| | |
|---|---|
| Profile(s) | Summer and Winter |
| Duration(s) (mins) | 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440 |
| Return Period(s) (years) | 2, 30, 100 |
| Climate Change (%) | 0, 0, 35 |

| PN | US/MH Name | Storm Rank | Water Level (m) | Surcharged Depth (m) | Flooded Volume (m³) | Flow / Cap. | Overflow (l/s) | Pipe Flow (l/s) | Status |
|---|---|---|---|---|---|---|---|---|---|
| 1.000 | S1 | 40 | 57.950 | -0.931 | 0.000 | 0.02 | | 20.4 | OK |
| 1.001 | S2 | 41 | 57.912 | -0.872 | 0.000 | 0.05 | | 50.8 | OK |
| 1.002 | S3 | 41 | 57.911 | -0.784 | 0.000 | 0.08 | | 77.1 | OK |
| 2.000 | S4 | 41 | 57.911 | -0.794 | 0.000 | 0.01 | | 15.1 | OK |
| 1.003 | S5 | 41 | 57.911 | -0.727 | 0.000 | 0.05 | | 90.2 | OK |
| 1.004 | S6 HYDROBRAKE | 41 | 57.911 | 0.313 | 0.000 | 0.14 | | 9.5 | SURCHARGED |
| 1.005 | S7 | 3 | 57.296 | -0.232 | 0.000 | 0.12 | | 9.5 | OK |
| 3.000 | S8 | 18 | 57.144 | -0.267 | 0.000 | 0.00 | | 0.0 | OK |
| 1.006 | S9 | 4 | 57.144 | -0.233 | 0.000 | 0.12 | | 9.5 | OK |
| 1.007 | S10 | 12 | 56.762 | -0.214 | 0.000 | 0.18 | | 9.5 | OK |

## Summary Wizard of 30 minute 30 year Summer I+0% for SW_NET1

### Simulation Criteria

| | | | |
|---|---|---|---|
| Areal Reduction Factor | 1.000 | Additional Flow - % of Total Flow | 0.000 |
| Hot Start (mins) | 0 | MADD Factor * 10m³/ha Storage | 2.000 |
| Hot Start Level (mm) | 0 | Inlet Coeffiecient | 0.800 |
| Manhole Headloss Coeff (Global) | 0.500 | Flow per Person per Day (l/per/day) | 0.000 |
| Foul Sewage per hectare (l/s) | 0.000 | | |

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 1 Number of Storage Structures 0 Number of Real Time Controls 0

### Synthetic Rainfall Details

| | | | |
|---|---|---|---|
| Rainfall Model | | FSR | Ratio R 0.279 |
| Region | England and Wales | Cv (Summer) | 0.750 |
| M5-60 (mm) | 19.500 | Cv (Winter) | 0.840 |

Margin for Flood Risk Warning (mm) 300.0 DVD Status OFF
Analysis Timestep Fine Inertia Status OFF
DTS Status ON

| | |
|---|---|
| Profile(s) | Summer and Winter |
| Duration(s) (mins) | 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440 |
| Return Period(s) (years) | 2, 30, 100 |
| Climate Change (%) | 0, 0, 35 |

| PN | US/MH Name | Storm Rank | Water Level (m) | Surcharged Depth (m) | Flooded Volume (m³) | Flow / Cap. | Overflow (l/s) | Pipe Flow (l/s) | Status |
|---|---|---|---|---|---|---|---|---|---|
| 1.000 | S1 | 36 | 57.980 | -0.901 | 0.000 | 0.02 | | 19.4 | OK |
| 1.001 | S2 | 36 | 57.980 | -0.804 | 0.000 | 0.04 | | 46.6 | OK |
| 1.002 | S3 | 36 | 57.980 | -0.715 | 0.000 | 0.07 | | 65.7 | OK |
| 2.000 | S4 | 36 | 57.980 | -0.725 | 0.000 | 0.01 | | 13.4 | OK |
| 1.003 | S5 | 36 | 57.981 | -0.657 | 0.000 | 0.05 | | 74.9 | OK |
| 1.004 | S6 HYDROBRAKE | 36 | 57.981 | 0.383 | 0.000 | 0.14 | | 9.5 | SURCHARGED |
| 1.005 | S7 | 8 | 57.296 | -0.232 | 0.000 | 0.12 | | 9.5 | OK |
| 3.000 | S8 | 33 | 57.144 | -0.267 | 0.000 | 0.00 | | 0.0 | OK |
| 1.006 | S9 | 2 | 57.145 | -0.232 | 0.000 | 0.12 | | 9.5 | OK |
| 1.007 | S10 | 28 | 56.762 | -0.214 | 0.000 | 0.18 | | 9.5 | OK |

## Summary Wizard of 60 minute 30 year Summer I+0% for SW_NET1

### Simulation Criteria

| | | | |
|---|---|---|---|
| Areal Reduction Factor | 1.000 | Additional Flow - % of Total Flow | 0.000 |
| Hot Start (mins) | 0 | MADD Factor * 10m³/ha Storage | 2.000 |
| Hot Start Level (mm) | 0 | Inlet Coeffiecient | 0.800 |
| Manhole Headloss Coeff (Global) | 0.500 | Flow per Person per Day (l/per/day) | 0.000 |
| Foul Sewage per hectare (l/s) | 0.000 | | |

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 1 Number of Storage Structures 0 Number of Real Time Controls 0

### Synthetic Rainfall Details

| | | | |
|---|---|---|---|
| Rainfall Model | | FSR | Ratio R 0.279 |
| Region | England and Wales | Cv (Summer) | 0.750 |
| M5-60 (mm) | 19.500 | Cv (Winter) | 0.840 |

Margin for Flood Risk Warning (mm) 300.0 DVD Status OFF
Analysis Timestep Fine Inertia Status OFF
DTS Status ON

| | |
|---|---|
| Profile(s) | Summer and Winter |
| Duration(s) (mins) | 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440 |
| Return Period(s) (years) | 2, 30, 100 |
| Climate Change (%) | 0, 0, 35 |

| PN | US/MH Name | Storm Rank | Water Level (m) | Surcharged Depth (m) | Flooded Volume (m³) | Flow / Cap. | Overflow (l/s) | Pipe Flow (l/s) | Status |
|---|---|---|---|---|---|---|---|---|---|
| 1.000 | S1 | 31 | 58.028 | -0.853 | 0.000 | 0.01 | | 14.4 | OK |
| 1.001 | S2 | 31 | 58.028 | -0.756 | 0.000 | 0.03 | | 33.2 | OK |
| 1.002 | S3 | 31 | 58.028 | -0.667 | 0.000 | 0.05 | | 46.3 | OK |
| 2.000 | S4 | 31 | 58.028 | -0.677 | 0.000 | 0.01 | | 9.3 | OK |
| 1.003 | S5 | 31 | 58.029 | -0.609 | 0.000 | 0.03 | | 52.1 | OK |
| 1.004 | S6 HYDROBRAKE | 31 | 58.029 | 0.431 | 0.000 | 0.14 | | 9.5 | SURCHARGED |
| 1.005 | S7 | 7 | 57.296 | -0.232 | 0.000 | 0.12 | | 9.5 | OK |
| 3.000 | S8 | 19 | 57.144 | -0.267 | 0.000 | 0.00 | | 0.0 | OK |
| 1.006 | S9 | 3 | 57.144 | -0.233 | 0.000 | 0.12 | | 9.5 | OK |
| 1.007 | S10 | 19 | 56.762 | -0.214 | 0.000 | 0.18 | | 9.5 | OK |

## Summary Wizard of 120 minute 30 year Summer I+0% for SW_NET1

### Simulation Criteria

| | | | |
|---|---|---|---|
| Areal Reduction Factor | 1.000 | Additional Flow - % of Total Flow | 0.000 |
| Hot Start (mins) | 0 | MADD Factor * 10m³/ha Storage | 2.000 |
| Hot Start Level (mm) | 0 | Inlet Coeffiecient | 0.800 |
| Manhole Headloss Coeff (Global) | 0.500 | Flow per Person per Day (l/per/day) | 0.000 |
| Foul Sewage per hectare (l/s) | 0.000 | | |

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 1 Number of Storage Structures 0 Number of Real Time Controls 0

### Synthetic Rainfall Details

| | | | |
|---|---|---|---|
| Rainfall Model | | FSR | Ratio R 0.279 |
| Region | England and Wales | Cv (Summer) | 0.750 |
| M5-60 (mm) | 19.500 | Cv (Winter) | 0.840 |

Margin for Flood Risk Warning (mm) 300.0 DVD Status OFF
Analysis Timestep Fine Inertia Status OFF
DTS Status ON

| | |
|---|---|
| Profile(s) | Summer and Winter |
| Duration(s) (mins) | 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440 |
| Return Period(s) (years) | 2, 30, 100 |
| Climate Change (%) | 0, 0, 35 |

| PN | US/MH Name | Storm Rank | Water Level (m) | Surcharged Depth (m) | Flooded Volume (m³) | Flow / Cap. | Overflow (l/s) | Pipe Flow (l/s) | Status |
|---|---|---|---|---|---|---|---|---|---|
| 1.000 | S1 | 28 | 58.044 | -0.837 | 0.000 | 0.01 | | 9.6 | OK |
| 1.001 | S2 | 28 | 58.044 | -0.740 | 0.000 | 0.02 | | 21.7 | OK |
| 1.002 | S3 | 28 | 58.044 | -0.651 | 0.000 | 0.03 | | 30.1 | OK |
| 2.000 | S4 | 28 | 58.044 | -0.661 | 0.000 | 0.01 | | 6.8 | OK |
| 1.003 | S5 | 28 | 58.044 | -0.594 | 0.000 | 0.02 | | 34.8 | OK |
| 1.004 | S6 HYDROBRAKE | 28 | 58.044 | 0.446 | 0.000 | 0.14 | | 9.5 | SURCHARGED |
| 1.005 | S7 | 5 | 57.296 | -0.232 | 0.000 | 0.12 | | 9.5 | OK |
| 3.000 | S8 | 21 | 57.144 | -0.267 | 0.000 | 0.00 | | 0.1 | OK |
| 1.006 | S9 | 9 | 57.144 | -0.233 | 0.000 | 0.12 | | 9.5 | OK |
| 1.007 | S10 | 4 | 56.762 | -0.214 | 0.000 | 0.18 | | 9.5 | OK |

## Summary Wizard of 180 minute 30 year Summer I+0% for SW_NET1

### Simulation Criteria

| | | | |
|---|---|---|---|
| Areal Reduction Factor | 1.000 | Additional Flow - % of Total Flow | 0.000 |
| Hot Start (mins) | 0 | MADD Factor * 10m³/ha Storage | 2.000 |
| Hot Start Level (mm) | 0 | Inlet Coeffiecient | 0.800 |
| Manhole Headloss Coeff (Global) | 0.500 | Flow per Person per Day (l/per/day) | 0.000 |
| Foul Sewage per hectare (l/s) | 0.000 | | |

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 1 Number of Storage Structures 0 Number of Real Time Controls 0

### Synthetic Rainfall Details

| | | | |
|---|---|---|---|
| Rainfall Model | | FSR | Ratio R 0.279 |
| Region | England and Wales | Cv (Summer) | 0.750 |
| M5-60 (mm) | 19.500 | Cv (Winter) | 0.840 |

Margin for Flood Risk Warning (mm) 300.0 DVD Status OFF
Analysis Timestep Fine Inertia Status OFF
DTS Status ON

| | |
|---|---|
| Profile(s) | Summer and Winter |
| Duration(s) (mins) | 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440 |
| Return Period(s) (years) | 2, 30, 100 |
| Climate Change (%) | 0, 0, 35 |

| PN | US/MH Name | Storm Rank | Water Level (m) | Surcharged Depth (m) | Flooded Volume (m³) | Flow / Cap. | Overflow (l/s) | Pipe Flow (l/s) | Status |
|---|---|---|---|---|---|---|---|---|---|
| 1.000 | S1 | 30 | 58.039 | -0.842 | 0.000 | 0.01 | | 7.9 | OK |
| 1.001 | S2 | 30 | 58.039 | -0.745 | 0.000 | 0.02 | | 17.6 | OK |
| 1.002 | S3 | 30 | 58.039 | -0.656 | 0.000 | 0.02 | | 24.3 | OK |
| 2.000 | S4 | 30 | 58.039 | -0.666 | 0.000 | 0.01 | | 5.6 | OK |
| 1.003 | S5 | 30 | 58.039 | -0.599 | 0.000 | 0.02 | | 28.4 | OK |
| 1.004 | S6 HYDROBRAKE | 30 | 58.039 | 0.441 | 0.000 | 0.14 | | 9.5 | SURCHARGED |
| 1.005 | S7 | 15 | 57.296 | -0.232 | 0.000 | 0.12 | | 9.5 | OK |
| 3.000 | S8 | 25 | 57.144 | -0.267 | 0.000 | 0.00 | | 0.1 | OK |
| 1.006 | S9 | 24 | 57.144 | -0.233 | 0.000 | 0.12 | | 9.5 | OK |
| 1.007 | S10 | 13 | 56.762 | -0.214 | 0.000 | 0.18 | | 9.5 | OK |

## Summary Wizard of 240 minute 30 year Summer I+0% for SW_NET1

### Simulation Criteria

| | | | |
|---|---|---|---|
| Areal Reduction Factor | 1.000 | Additional Flow - % of Total Flow | 0.000 |
| Hot Start (mins) | 0 | MADD Factor * 10m³/ha Storage | 2.000 |
| Hot Start Level (mm) | 0 | Inlet Coeffiecient | 0.800 |
| Manhole Headloss Coeff (Global) | 0.500 | Flow per Person per Day (l/per/day) | 0.000 |
| Foul Sewage per hectare (l/s) | 0.000 | | |

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 1 Number of Storage Structures 0 Number of Real Time Controls 0

### Synthetic Rainfall Details

| | | | |
|---|---|---|---|
| Rainfall Model | | FSR | Ratio R 0.279 |
| Region | England and Wales | Cv (Summer) | 0.750 |
| M5-60 (mm) | 19.500 | Cv (Winter) | 0.840 |

Margin for Flood Risk Warning (mm) 300.0 DVD Status OFF
Analysis Timestep Fine Inertia Status OFF
DTS Status ON

| | |
|---|---|
| Profile(s) | Summer and Winter |
| Duration(s) (mins) | 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440 |
| Return Period(s) (years) | 2, 30, 100 |
| Climate Change (%) | 0, 0, 35 |

| PN | US/MH Name | Storm Rank | Water Level (m) | Surcharged Depth (m) | Flooded Volume (m³) | Flow / Cap. | Overflow (l/s) | Pipe Flow (l/s) | Status |
|---|---|---|---|---|---|---|---|---|---|
| 1.000 | S1 | 32 | 58.027 | -0.854 | 0.000 | 0.01 | | 6.5 | OK |
| 1.001 | S2 | 32 | 58.027 | -0.757 | 0.000 | 0.01 | | 14.9 | OK |
| 1.002 | S3 | 32 | 58.027 | -0.668 | 0.000 | 0.02 | | 20.5 | OK |
| 2.000 | S4 | 32 | 58.027 | -0.678 | 0.000 | 0.00 | | 4.7 | OK |
| 1.003 | S5 | 32 | 58.027 | -0.611 | 0.000 | 0.02 | | 24.7 | OK |
| 1.004 | S6 HYDROBRAKE | 32 | 58.027 | 0.429 | 0.000 | 0.14 | | 9.5 | SURCHARGED |
| 1.005 | S7 | 13 | 57.296 | -0.232 | 0.000 | 0.12 | | 9.5 | OK |
| 3.000 | S8 | 31 | 57.144 | -0.267 | 0.000 | 0.00 | | 0.1 | OK |
| 1.006 | S9 | 10 | 57.144 | -0.233 | 0.000 | 0.12 | | 9.5 | OK |
| 1.007 | S10 | 15 | 56.762 | -0.214 | 0.000 | 0.18 | | 9.5 | OK |

## Summary Wizard of 360 minute 30 year Summer I+0% for SW_NET1

### Simulation Criteria

| | | | |
|---|---|---|---|
| Areal Reduction Factor | 1.000 | Additional Flow - % of Total Flow | 0.000 |
| Hot Start (mins) | 0 | MADD Factor * 10m³/ha Storage | 2.000 |
| Hot Start Level (mm) | 0 | Inlet Coeffiecient | 0.800 |
| Manhole Headloss Coeff (Global) | 0.500 | Flow per Person per Day (l/per/day) | 0.000 |
| Foul Sewage per hectare (l/s) | 0.000 | | |

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 1 Number of Storage Structures 0 Number of Real Time Controls 0

### Synthetic Rainfall Details

| | | | |
|---|---|---|---|
| Rainfall Model | | FSR | Ratio R 0.279 |
| Region | England and Wales | Cv (Summer) | 0.750 |
| M5-60 (mm) | 19.500 | Cv (Winter) | 0.840 |

Margin for Flood Risk Warning (mm) 300.0 DVD Status OFF
Analysis Timestep Fine Inertia Status OFF
DTS Status ON

| | |
|---|---|
| Profile(s) | Summer and Winter |
| Duration(s) (mins) | 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440 |
| Return Period(s) (years) | 2, 30, 100 |
| Climate Change (%) | 0, 0, 35 |

| PN | US/MH Name | Storm Rank | Water Level (m) | Surcharged Depth (m) | Flooded Volume (m³) | Flow / Cap. | Overflow (l/s) | Pipe Flow (l/s) | Status |
|---|---|---|---|---|---|---|---|---|---|
| 1.000 | S1 | 35 | 57.998 | -0.883 | 0.000 | 0.00 | | 5.0 | OK |
| 1.001 | S2 | 35 | 57.997 | -0.787 | 0.000 | 0.01 | | 11.8 | OK |
| 1.002 | S3 | 35 | 57.997 | -0.698 | 0.000 | 0.02 | | 16.4 | OK |
| 2.000 | S4 | 35 | 57.997 | -0.708 | 0.000 | 0.00 | | 3.6 | OK |
| 1.003 | S5 | 35 | 57.998 | -0.640 | 0.000 | 0.01 | | 20.2 | OK |
| 1.004 | S6 HYDROBRAKE | 35 | 57.997 | 0.399 | 0.000 | 0.14 | | 9.5 | SURCHARGED |
| 1.005 | S7 | 20 | 57.296 | -0.232 | 0.000 | 0.12 | | 9.5 | OK |
| 3.000 | S8 | 6 | 57.144 | -0.267 | 0.000 | 0.00 | | 0.1 | OK |
| 1.006 | S9 | 27 | 57.144 | -0.233 | 0.000 | 0.12 | | 9.5 | OK |
| 1.007 | S10 | 26 | 56.762 | -0.214 | 0.000 | 0.18 | | 9.5 | OK |

## Summary Wizard of 480 minute 30 year Summer I+0% for SW_NET1

### Simulation Criteria

| | | | |
|---|---|---|---|
| Areal Reduction Factor | 1.000 | Additional Flow - % of Total Flow | 0.000 |
| Hot Start (mins) | 0 | MADD Factor * 10m³/ha Storage | 2.000 |
| Hot Start Level (mm) | 0 | Inlet Coeffiecient | 0.800 |
| Manhole Headloss Coeff (Global) | 0.500 | Flow per Person per Day (l/per/day) | 0.000 |
| Foul Sewage per hectare (l/s) | 0.000 | | |

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 1 Number of Storage Structures 0 Number of Real Time Controls 0

### Synthetic Rainfall Details

| | | | |
|---|---|---|---|
| Rainfall Model | | FSR | Ratio R 0.279 |
| Region | England and Wales | Cv (Summer) | 0.750 |
| M5-60 (mm) | 19.500 | Cv (Winter) | 0.840 |

Margin for Flood Risk Warning (mm) 300.0 DVD Status OFF
Analysis Timestep Fine Inertia Status OFF
DTS Status ON

| | |
|---|---|
| Profile(s) | Summer and Winter |
| Duration(s) (mins) | 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440 |
| Return Period(s) (years) | 2, 30, 100 |
| Climate Change (%) | 0, 0, 35 |

| PN | US/MH Name | Storm Rank | Water Level (m) | Surcharged Depth (m) | Flooded Volume (m³) | Flow / Cap. | Overflow (l/s) | Pipe Flow (l/s) | Status |
|---|---|---|---|---|---|---|---|---|---|
| 1.000 | S1 | 38 | 57.964 | -0.917 | 0.000 | 0.00 | | 4.2 | OK |
| 1.001 | S2 | 38 | 57.964 | -0.820 | 0.000 | 0.01 | | 10.0 | OK |
| 1.002 | S3 | 38 | 57.964 | -0.731 | 0.000 | 0.01 | | 14.1 | OK |
| 2.000 | S4 | 38 | 57.964 | -0.741 | 0.000 | 0.00 | | 3.0 | OK |
| 1.003 | S5 | 38 | 57.964 | -0.674 | 0.000 | 0.01 | | 17.6 | OK |
| 1.004 | S6 HYDROBRAKE | 38 | 57.964 | 0.366 | 0.000 | 0.14 | | 9.5 | SURCHARGED |
| 1.005 | S7 | 16 | 57.296 | -0.232 | 0.000 | 0.12 | | 9.5 | OK |
| 3.000 | S8 | 32 | 57.144 | -0.267 | 0.000 | 0.00 | | 0.1 | OK |
| 1.006 | S9 | 13 | 57.144 | -0.233 | 0.000 | 0.12 | | 9.5 | OK |
| 1.007 | S10 | 21 | 56.762 | -0.214 | 0.000 | 0.18 | | 9.5 | OK |

## Summary Wizard of 600 minute 30 year Summer I+0% for SW_NET1

### Simulation Criteria

| | | | |
|---|---|---|---|
| Areal Reduction Factor | 1.000 | Additional Flow - % of Total Flow | 0.000 |
| Hot Start (mins) | 0 | MADD Factor * 10m³/ha Storage | 2.000 |
| Hot Start Level (mm) | 0 | Inlet Coeffiecient | 0.800 |
| Manhole Headloss Coeff (Global) | 0.500 | Flow per Person per Day (l/per/day) | 0.000 |
| Foul Sewage per hectare (l/s) | 0.000 | | |

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 1 Number of Storage Structures 0 Number of Real Time Controls 0

### Synthetic Rainfall Details

| | | | |
|---|---|---|---|
| Rainfall Model | | FSR | Ratio R 0.279 |
| Region | England and Wales | Cv (Summer) | 0.750 |
| M5-60 (mm) | 19.500 | Cv (Winter) | 0.840 |

Margin for Flood Risk Warning (mm) 300.0 DVD Status OFF
Analysis Timestep Fine Inertia Status OFF
DTS Status ON

| | |
|---|---|
| Profile(s) | Summer and Winter |
| Duration(s) (mins) | 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440 |
| Return Period(s) (years) | 2, 30, 100 |
| Climate Change (%) | 0, 0, 35 |

| PN | US/MH Name | Storm Rank | Water Level (m) | Surcharged Depth (m) | Flooded Volume (m³) | Flow / Cap. | Overflow (l/s) | Pipe Flow (l/s) | Status |
|---|---|---|---|---|---|---|---|---|---|
| 1.000 | S1 | 41 | 57.930 | -0.951 | 0.000 | 0.00 | | 3.6 | OK |
| 1.001 | S2 | 40 | 57.929 | -0.855 | 0.000 | 0.01 | | 8.7 | OK |
| 1.002 | S3 | 40 | 57.929 | -0.766 | 0.000 | 0.01 | | 12.6 | OK |
| 2.000 | S4 | 40 | 57.929 | -0.776 | 0.000 | 0.00 | | 2.6 | OK |
| 1.003 | S5 | 40 | 57.929 | -0.709 | 0.000 | 0.01 | | 16.1 | OK |
| 1.004 | S6 HYDROBRAKE | 40 | 57.929 | 0.331 | 0.000 | 0.14 | | 9.5 | SURCHARGED |
| 1.005 | S7 | 17 | 57.296 | -0.232 | 0.000 | 0.12 | | 9.5 | OK |
| 3.000 | S8 | 4 | 57.144 | -0.267 | 0.000 | 0.00 | | 0.0 | OK |
| 1.006 | S9 | 23 | 57.144 | -0.233 | 0.000 | 0.12 | | 9.5 | OK |
| 1.007 | S10 | 8 | 56.762 | -0.214 | 0.000 | 0.18 | | 9.5 | OK |

## Summary Wizard of 720 minute 30 year Summer I+0% for SW_NET1

### Simulation Criteria

| | | | |
|---|---|---|---|
| Areal Reduction Factor | 1.000 | Additional Flow - % of Total Flow | 0.000 |
| Hot Start (mins) | 0 | MADD Factor * 10m³/ha Storage | 2.000 |
| Hot Start Level (mm) | 0 | Inlet Coeffiecient | 0.800 |
| Manhole Headloss Coeff (Global) | 0.500 | Flow per Person per Day (l/per/day) | 0.000 |
| Foul Sewage per hectare (l/s) | 0.000 | | |

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 1 Number of Storage Structures 0 Number of Real Time Controls 0

### Synthetic Rainfall Details

| | | | |
|---|---|---|---|
| Rainfall Model | | FSR | Ratio R 0.279 |
| Region | England and Wales | Cv (Summer) | 0.750 |
| M5-60 (mm) | 19.500 | Cv (Winter) | 0.840 |

Margin for Flood Risk Warning (mm) 300.0 DVD Status OFF
Analysis Timestep Fine Inertia Status OFF
DTS Status ON

| | |
|---|---|
| Profile(s) | Summer and Winter |
| Duration(s) (mins) | 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440 |
| Return Period(s) (years) | 2, 30, 100 |
| Climate Change (%) | 0, 0, 35 |

| PN | US/MH Name | Storm Rank | Water Level (m) | Surcharged Depth (m) | Flooded Volume (m³) | Flow / Cap. | Overflow (l/s) | Pipe Flow (l/s) | Status |
|---|---|---|---|---|---|---|---|---|---|
| 1.000 | S1 | 46 | 57.895 | -0.986 | 0.000 | 0.00 | | 3.2 | OK |
| 1.001 | S2 | 43 | 57.893 | -0.891 | 0.000 | 0.01 | | 7.8 | OK |
| 1.002 | S3 | 43 | 57.893 | -0.802 | 0.000 | 0.01 | | 11.5 | OK |
| 2.000 | S4 | 43 | 57.893 | -0.812 | 0.000 | 0.00 | | 2.3 | OK |
| 1.003 | S5 | 43 | 57.893 | -0.745 | 0.000 | 0.01 | | 15.1 | OK |
| 1.004 | S6 HYDROBRAKE | 43 | 57.893 | 0.295 | 0.000 | 0.14 | | 9.5 | SURCHARGED |
| 1.005 | S7 | 24 | 57.296 | -0.232 | 0.000 | 0.12 | | 9.5 | OK |
| 3.000 | S8 | 7 | 57.144 | -0.267 | 0.000 | 0.00 | | 0.0 | OK |
| 1.006 | S9 | 8 | 57.144 | -0.233 | 0.000 | 0.12 | | 9.5 | OK |
| 1.007 | S10 | 17 | 56.762 | -0.214 | 0.000 | 0.18 | | 9.5 | OK |

## Summary Wizard of 960 minute 30 year Summer I+0% for SW_NET1

### Simulation Criteria

| | | | |
|---|---|---|---|
| Areal Reduction Factor | 1.000 | Additional Flow - % of Total Flow | 0.000 |
| Hot Start (mins) | 0 | MADD Factor * 10m³/ha Storage | 2.000 |
| Hot Start Level (mm) | 0 | Inlet Coeffiecient | 0.800 |
| Manhole Headloss Coeff (Global) | 0.500 | Flow per Person per Day (l/per/day) | 0.000 |
| Foul Sewage per hectare (l/s) | 0.000 | | |

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 1 Number of Storage Structures 0 Number of Real Time Controls 0

### Synthetic Rainfall Details

| | | | |
|---|---|---|---|
| Rainfall Model | | FSR | Ratio R 0.279 |
| Region | England and Wales | Cv (Summer) | 0.750 |
| M5-60 (mm) | 19.500 | Cv (Winter) | 0.840 |

Margin for Flood Risk Warning (mm) 300.0 DVD Status OFF
Analysis Timestep Fine Inertia Status OFF
DTS Status ON

| | |
|---|---|
| Profile(s) | Summer and Winter |
| Duration(s) (mins) | 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440 |
| Return Period(s) (years) | 2, 30, 100 |
| Climate Change (%) | 0, 0, 35 |

| PN | US/MH Name | Storm Rank | Water Level (m) | Surcharged Depth (m) | Flooded Volume (m³) | Flow / Cap. | Overflow (l/s) | Pipe Flow (l/s) | Status |
|---|---|---|---|---|---|---|---|---|---|
| 1.000 | S1 | 56 | 57.851 | -1.030 | 0.000 | 0.00 | | 2.7 | OK |
| 1.001 | S2 | 51 | 57.828 | -0.956 | 0.000 | 0.01 | | 6.5 | OK |
| 1.002 | S3 | 46 | 57.823 | -0.872 | 0.000 | 0.01 | | 9.8 | OK |
| 2.000 | S4 | 46 | 57.823 | -0.882 | 0.000 | 0.00 | | 2.0 | OK |
| 1.003 | S5 | 46 | 57.823 | -0.815 | 0.000 | 0.01 | | 13.4 | OK |
| 1.004 | S6 HYDROBRAKE | 46 | 57.822 | 0.224 | 0.000 | 0.14 | | 9.5 | SURCHARGED |
| 1.005 | S7 | 45 | 57.296 | -0.232 | 0.000 | 0.12 | | 9.5 | OK |
| 3.000 | S8 | 28 | 57.144 | -0.267 | 0.000 | 0.00 | | 0.0 | OK |
| 1.006 | S9 | 41 | 57.144 | -0.233 | 0.000 | 0.12 | | 9.5 | OK |
| 1.007 | S10 | 42 | 56.762 | -0.214 | 0.000 | 0.18 | | 9.5 | OK |

## Summary Wizard of 1440 minute 30 year Summer I+0% for SW_NET1

### Simulation Criteria

| | | | |
|---|---|---|---|
| Areal Reduction Factor | 1.000 | Additional Flow - % of Total Flow | 0.000 |
| Hot Start (mins) | 0 | MADD Factor * 10m³/ha Storage | 2.000 |
| Hot Start Level (mm) | 0 | Inlet Coeffiecient | 0.800 |
| Manhole Headloss Coeff (Global) | 0.500 | Flow per Person per Day (l/per/day) | 0.000 |
| Foul Sewage per hectare (l/s) | 0.000 | | |

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 1 Number of Storage Structures 0 Number of Real Time Controls 0

### Synthetic Rainfall Details

| | | | |
|---|---|---|---|
| Rainfall Model | | FSR | Ratio R 0.279 |
| Region | England and Wales | Cv (Summer) | 0.750 |
| M5-60 (mm) | 19.500 | Cv (Winter) | 0.840 |

Margin for Flood Risk Warning (mm) 300.0 DVD Status OFF
Analysis Timestep Fine Inertia Status OFF
DTS Status ON

| | |
|---|---|
| Profile(s) | Summer and Winter |
| Duration(s) (mins) | 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440 |
| Return Period(s) (years) | 2, 30, 100 |
| Climate Change (%) | 0, 0, 35 |

| PN | US/MH Name | Storm Rank | Water Level (m) | Surcharged Depth (m) | Flooded Volume (m³) | Flow / Cap. | Overflow (l/s) | Pipe Flow (l/s) | Status |
|---|---|---|---|---|---|---|---|---|---|
| 1.000 | S1 | 63 | 57.842 | -1.039 | 0.000 | 0.00 | | 2.0 | OK |
| 1.001 | S2 | 62 | 57.765 | -1.019 | 0.000 | 0.00 | | 5.0 | OK |
| 1.002 | S3 | 60 | 57.709 | -0.986 | 0.000 | 0.01 | | 7.7 | OK |
| 2.000 | S4 | 60 | 57.691 | -1.014 | 0.000 | 0.00 | | 1.7 | OK |
| 1.003 | S5 | 60 | 57.687 | -0.951 | 0.000 | 0.01 | | 11.1 | OK |
| 1.004 | S6 HYDROBRAKE | 60 | 57.687 | 0.089 | 0.000 | 0.14 | | 9.3 | SURCHARGED |
| 1.005 | S7 | 60 | 57.296 | -0.232 | 0.000 | 0.12 | | 9.3 | OK |
| 3.000 | S8 | 61 | 57.144 | -0.267 | 0.000 | 0.00 | | 0.0 | OK |
| 1.006 | S9 | 61 | 57.144 | -0.233 | 0.000 | 0.11 | | 9.3 | OK |
| 1.007 | S10 | 60 | 56.761 | -0.215 | 0.000 | 0.18 | | 9.3 | OK |

## Summary Wizard of 15 minute 100 year Summer I+35% for SW_NET1

### Simulation Criteria

| | | | |
|---|---|---|---|
| Areal Reduction Factor | 1.000 | Additional Flow - % of Total Flow | 0.000 |
| Hot Start (mins) | 0 | MADD Factor * 10m³/ha Storage | 2.000 |
| Hot Start Level (mm) | 0 | Inlet Coeffiecient | 0.800 |
| Manhole Headloss Coeff (Global) | 0.500 | Flow per Person per Day (l/per/day) | 0.000 |
| Foul Sewage per hectare (l/s) | 0.000 | | |

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 1 Number of Storage Structures 0 Number of Real Time Controls 0

### Synthetic Rainfall Details

| | | | |
|---|---|---|---|
| Rainfall Model | | FSR | Ratio R 0.279 |
| Region | England and Wales | Cv (Summer) | 0.750 |
| M5-60 (mm) | 19.500 | Cv (Winter) | 0.840 |

Margin for Flood Risk Warning (mm) 300.0 DVD Status OFF
Analysis Timestep Fine Inertia Status OFF
DTS Status ON

| | |
|---|---|
| Profile(s) | Summer and Winter |
| Duration(s) (mins) | 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440 |
| Return Period(s) (years) | 2, 30, 100 |
| Climate Change (%) | 0, 0, 35 |

| PN | US/MH Name | Storm Rank | Water Level (m) | Surcharged Depth (m) | Flooded Volume (m³) | Flow / Cap. | Overflow (l/s) | Pipe Flow (l/s) | Status |
|---|---|---|---|---|---|---|---|---|---|
| 1.000 | S1 | 23 | 58.108 | -0.773 | 0.000 | 0.03 | | 34.5 | OK |
| 1.001 | S2 | 23 | 58.108 | -0.676 | 0.000 | 0.08 | | 83.5 | OK |
| 1.002 | S3 | 23 | 58.108 | -0.587 | 0.000 | 0.13 | | 122.4 | OK |
| 2.000 | S4 | 23 | 58.108 | -0.597 | 0.000 | 0.02 | | 24.4 | OK |
| 1.003 | S5 | 23 | 58.108 | -0.530 | 0.000 | 0.08 | | 132.4 | OK |
| 1.004 | S6 HYDROBRAKE | 23 | 58.108 | 0.510 | 0.000 | 0.14 | | 9.5 | SURCHARGED |
| 1.005 | S7 | 48 | 57.296 | -0.232 | 0.000 | 0.12 | | 9.5 | OK |
| 3.000 | S8 | 53 | 57.144 | -0.267 | 0.000 | 0.00 | | 0.0 | OK |
| 1.006 | S9 | 54 | 57.144 | -0.233 | 0.000 | 0.11 | | 9.4 | OK |
| 1.007 | S10 | 54 | 56.761 | -0.215 | 0.000 | 0.18 | | 9.4 | OK |

## Summary Wizard of 30 minute 100 year Summer I+35% for SW_NET1

### Simulation Criteria

| | | | |
|---|---|---|---|
| Areal Reduction Factor | 1.000 | Additional Flow - % of Total Flow | 0.000 |
| Hot Start (mins) | 0 | MADD Factor * 10m³/ha Storage | 2.000 |
| Hot Start Level (mm) | 0 | Inlet Coeffiecient | 0.800 |
| Manhole Headloss Coeff (Global) | 0.500 | Flow per Person per Day (l/per/day) | 0.000 |
| Foul Sewage per hectare (l/s) | 0.000 | | |

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 1 Number of Storage Structures 0 Number of Real Time Controls 0

### Synthetic Rainfall Details

| | | | |
|---|---|---|---|
| Rainfall Model | FSR | Ratio R | 0.279 |
| Region | England and Wales | Cv (Summer) | 0.750 |
| M5-60 (mm) | 19.500 | Cv (Winter) | 0.840 |

Margin for Flood Risk Warning (mm) 300.0 DVD Status OFF
Analysis Timestep Fine Inertia Status OFF
DTS Status ON

| | |
|---|---|
| Profile(s) | Summer and Winter |
| Duration(s) (mins) | 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440 |
| Return Period(s) (years) | 2, 30, 100 |
| Climate Change (%) | 0, 0, 35 |

| PN | US/MH Name | Storm Rank | Water Level (m) | Surcharged Depth (m) | Flooded Volume (m³) | Flow / Cap. | Overflow (l/s) | Pipe Flow (l/s) | Status |
|---|---|---|---|---|---|---|---|---|---|
| 1.000 | S1 | 20 | 58.245 | -0.636 | 0.000 | 0.03 | | 31.9 | OK |
| 1.001 | S2 | 20 | 58.245 | -0.539 | 0.000 | 0.06 | | 69.4 | OK |
| 1.002 | S3 | 20 | 58.245 | -0.450 | 0.000 | 0.10 | | 92.9 | OK |
| 2.000 | S4 | 20 | 58.245 | -0.460 | 0.000 | 0.02 | | 22.2 | OK |
| 1.003 | S5 | 20 | 58.245 | -0.393 | 0.000 | 0.06 | | 97.9 | OK |
| 1.004 | S6 HYDROBRAKE | 20 | 58.245 | 0.647 | 0.000 | 0.14 | | 9.5 | SURCHARGED |
| 1.005 | S7 | 40 | 57.296 | -0.232 | 0.000 | 0.12 | | 9.5 | OK |
| 3.000 | S8 | 47 | 57.144 | -0.267 | 0.000 | 0.00 | | 0.0 | OK |
| 1.006 | S9 | 47 | 57.144 | -0.233 | 0.000 | 0.11 | | 9.5 | OK |
| 1.007 | S10 | 51 | 56.761 | -0.215 | 0.000 | 0.18 | | 9.5 | OK |

## Summary Wizard of 60 minute 100 year Summer I+35% for SW_NET1

### Simulation Criteria

| | | | |
|---|---|---|---|
| Areal Reduction Factor | 1.000 | Additional Flow - % of Total Flow | 0.000 |
| Hot Start (mins) | 0 | MADD Factor * 10m³/ha Storage | 2.000 |
| Hot Start Level (mm) | 0 | Inlet Coeffiecient | 0.800 |
| Manhole Headloss Coeff (Global) | 0.500 | Flow per Person per Day (l/per/day) | 0.000 |
| Foul Sewage per hectare (l/s) | 0.000 | | |

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 1 Number of Storage Structures 0 Number of Real Time Controls 0

### Synthetic Rainfall Details

| | | | |
|---|---|---|---|
| Rainfall Model | | FSR | Ratio R 0.279 |
| Region | England and Wales | Cv (Summer) | 0.750 |
| M5-60 (mm) | 19.500 | Cv (Winter) | 0.840 |

Margin for Flood Risk Warning (mm) 300.0 DVD Status OFF
Analysis Timestep Fine Inertia Status OFF
DTS Status ON

| | |
|---|---|
| Profile(s) | Summer and Winter |
| Duration(s) (mins) | 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440 |
| Return Period(s) (years) | 2, 30, 100 |
| Climate Change (%) | 0, 0, 35 |

| PN | US/MH Name | Storm Rank | Water Level (m) | Surcharged Depth (m) | Flooded Volume (m³) | Flow / Cap. | Overflow (l/s) | Pipe Flow (l/s) | Status |
|---|---|---|---|---|---|---|---|---|---|
| 1.000 | S1 | 15 | 58.384 | -0.497 | 0.000 | 0.02 | | 23.0 | OK |
| 1.001 | S2 | 15 | 58.384 | -0.400 | 0.000 | 0.04 | | 44.1 | OK |
| 1.002 | S3 | 15 | 58.385 | -0.310 | 0.000 | 0.06 | | 57.2 | OK |
| 2.000 | S4 | 15 | 58.384 | -0.321 | 0.000 | 0.02 | | 17.9 | OK |
| 1.003 | S5 | 15 | 58.385 | -0.253 | 0.000 | 0.04 | | 65.0 | OK |
| 1.004 | S6 HYDROBRAKE | 15 | 58.384 | 0.786 | 0.000 | 0.14 | | 9.5 | SURCHARGED |
| 1.005 | S7 | 41 | 57.296 | -0.232 | 0.000 | 0.12 | | 9.5 | OK |
| 3.000 | S8 | 41 | 57.144 | -0.267 | 0.000 | 0.00 | | 0.0 | OK |
| 1.006 | S9 | 43 | 57.144 | -0.233 | 0.000 | 0.12 | | 9.5 | OK |
| 1.007 | S10 | 38 | 56.762 | -0.214 | 0.000 | 0.18 | | 9.5 | OK |

## Summary Wizard of 120 minute 100 year Summer I+35% for SW_NET1

### Simulation Criteria

| | | | |
|---|---|---|---|
| Areal Reduction Factor | 1.000 | Additional Flow - % of Total Flow | 0.000 |
| Hot Start (mins) | 0 | MADD Factor * 10m³/ha Storage | 2.000 |
| Hot Start Level (mm) | 0 | Inlet Coeffiecient | 0.800 |
| Manhole Headloss Coeff (Global) | 0.500 | Flow per Person per Day (l/per/day) | 0.000 |
| Foul Sewage per hectare (l/s) | 0.000 | | |

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 1 Number of Storage Structures 0 Number of Real Time Controls 0

### Synthetic Rainfall Details

| | | | |
|---|---|---|---|
| Rainfall Model | | FSR | Ratio R 0.279 |
| Region | England and Wales | Cv (Summer) | 0.750 |
| M5-60 (mm) | 19.500 | Cv (Winter) | 0.840 |

Margin for Flood Risk Warning (mm) 300.0 DVD Status OFF
Analysis Timestep Fine Inertia Status OFF
DTS Status ON

| | |
|---|---|
| Profile(s) | Summer and Winter |
| Duration(s) (mins) | 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440 |
| Return Period(s) (years) | 2, 30, 100 |
| Climate Change (%) | 0, 0, 35 |

| PN | US/MH Name | Storm Rank | Water Level (m) | Surcharged Depth (m) | Flooded Volume (m³) | Flow / Cap. | Overflow (l/s) | Pipe Flow (l/s) | Status |
|---|---|---|---|---|---|---|---|---|---|
| 1.000 | S1 | 9 | 58.492 | -0.389 | 0.000 | 0.01 | | 15.6 | OK |
| 1.001 | S2 | 9 | 58.492 | -0.292 | 0.000 | 0.02 | | 26.9 | OK |
| 1.002 | S3 | 9 | 58.492 | -0.203 | 0.000 | 0.04 | | 35.5 | OK |
| 2.000 | S4 | 9 | 58.492 | -0.213 | 0.000 | 0.01 | | 12.9 | OK |
| 1.003 | S5 | 9 | 58.492 | -0.146 | 0.000 | 0.03 | | 42.4 | OK |
| 1.004 | S6 HYDROBRAKE | 9 | 58.491 | 0.893 | 0.000 | 0.14 | | 9.5 | SURCHARGED |
| 1.005 | S7 | 42 | 57.296 | -0.232 | 0.000 | 0.12 | | 9.5 | OK |
| 3.000 | S8 | 46 | 57.144 | -0.267 | 0.000 | 0.00 | | 0.0 | OK |
| 1.006 | S9 | 39 | 57.144 | -0.233 | 0.000 | 0.12 | | 9.5 | OK |
| 1.007 | S10 | 36 | 56.762 | -0.214 | 0.000 | 0.18 | | 9.5 | OK |

## Summary Wizard of 180 minute 100 year Summer I+35% for SW_NET1

### Simulation Criteria

| | | | |
|---|---|---|---|
| Areal Reduction Factor | 1.000 | Additional Flow - % of Total Flow | 0.000 |
| Hot Start (mins) | 0 | MADD Factor * 10m³/ha Storage | 2.000 |
| Hot Start Level (mm) | 0 | Inlet Coeffiecient | 0.800 |
| Manhole Headloss Coeff (Global) | 0.500 | Flow per Person per Day (l/per/day) | 0.000 |
| Foul Sewage per hectare (l/s) | 0.000 | | |

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 1 Number of Storage Structures 0 Number of Real Time Controls 0

### Synthetic Rainfall Details

| | | | |
|---|---|---|---|
| Rainfall Model | | FSR | Ratio R 0.279 |
| Region | England and Wales | Cv (Summer) | 0.750 |
| M5-60 (mm) | 19.500 | Cv (Winter) | 0.840 |

Margin for Flood Risk Warning (mm) 300.0 DVD Status OFF
Analysis Timestep Fine Inertia Status OFF
DTS Status ON

| | |
|---|---|
| Profile(s) | Summer and Winter |
| Duration(s) (mins) | 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440 |
| Return Period(s) (years) | 2, 30, 100 |
| Climate Change (%) | 0, 0, 35 |

| PN | US/MH Name | Storm Rank | Water Level (m) | Surcharged Depth (m) | Flooded Volume (m³) | Flow / Cap. | Overflow (l/s) | Pipe Flow (l/s) | Status |
|---|---|---|---|---|---|---|---|---|---|
| 1.000 | S1 | 6 | 58.503 | -0.378 | 0.000 | 0.01 | | 12.6 | OK |
| 1.001 | S2 | 6 | 58.503 | -0.281 | 0.000 | 0.02 | | 21.6 | OK |
| 1.002 | S3 | 6 | 58.503 | -0.192 | 0.000 | 0.03 | | 28.5 | OK |
| 2.000 | S4 | 6 | 58.503 | -0.202 | 0.000 | 0.01 | | 10.4 | OK |
| 1.003 | S5 | 6 | 58.504 | -0.134 | 0.000 | 0.02 | | 34.9 | OK |
| 1.004 | S6 HYDROBRAKE | 6 | 58.503 | 0.905 | 0.000 | 0.14 | | 9.5 | SURCHARGED |
| 1.005 | S7 | 34 | 57.296 | -0.232 | 0.000 | 0.12 | | 9.5 | OK |
| 3.000 | S8 | 40 | 57.144 | -0.267 | 0.000 | 0.00 | | 0.0 | OK |
| 1.006 | S9 | 32 | 57.144 | -0.233 | 0.000 | 0.12 | | 9.5 | OK |
| 1.007 | S10 | 33 | 56.762 | -0.214 | 0.000 | 0.18 | | 9.5 | OK |

## Summary Wizard of 240 minute 100 year Summer I+35% for SW_NET1

### Simulation Criteria

| | | | |
|---|---|---|---|
| Areal Reduction Factor | 1.000 | Additional Flow - % of Total Flow | 0.000 |
| Hot Start (mins) | 0 | MADD Factor * 10m³/ha Storage | 2.000 |
| Hot Start Level (mm) | 0 | Inlet Coeffiecient | 0.800 |
| Manhole Headloss Coeff (Global) | 0.500 | Flow per Person per Day (l/per/day) | 0.000 |
| Foul Sewage per hectare (l/s) | 0.000 | | |

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 1 Number of Storage Structures 0 Number of Real Time Controls 0

### Synthetic Rainfall Details

| | | | |
|---|---|---|---|
| Rainfall Model | | FSR | Ratio R 0.279 |
| Region | England and Wales | Cv (Summer) | 0.750 |
| M5-60 (mm) | 19.500 | Cv (Winter) | 0.840 |

Margin for Flood Risk Warning (mm) 300.0 DVD Status OFF
Analysis Timestep Fine Inertia Status OFF
DTS Status ON

| | |
|---|---|
| Profile(s) | Summer and Winter |
| Duration(s) (mins) | 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440 |
| Return Period(s) (years) | 2, 30, 100 |
| Climate Change (%) | 0, 0, 35 |

| PN | US/MH Name | Storm Rank | Water Level (m) | Surcharged Depth (m) | Flooded Volume (m³) | Flow / Cap. | Overflow (l/s) | Pipe Flow (l/s) | Status |
|---|---|---|---|---|---|---|---|---|---|
| 1.000 | S1 | 10 | 58.491 | -0.390 | 0.000 | 0.01 | | 10.4 | OK |
| 1.001 | S2 | 10 | 58.491 | -0.293 | 0.000 | 0.02 | | 18.2 | OK |
| 1.002 | S3 | 10 | 58.491 | -0.204 | 0.000 | 0.02 | | 24.3 | OK |
| 2.000 | S4 | 10 | 58.491 | -0.214 | 0.000 | 0.01 | | 8.6 | OK |
| 1.003 | S5 | 10 | 58.491 | -0.147 | 0.000 | 0.02 | | 30.0 | OK |
| 1.004 | S6 HYDROBRAKE | 10 | 58.491 | 0.893 | 0.000 | 0.14 | | 9.5 | SURCHARGED |
| 1.005 | S7 | 12 | 57.296 | -0.232 | 0.000 | 0.12 | | 9.5 | OK |
| 3.000 | S8 | 24 | 57.144 | -0.267 | 0.000 | 0.00 | | 0.0 | OK |
| 1.006 | S9 | 6 | 57.144 | -0.233 | 0.000 | 0.12 | | 9.5 | OK |
| 1.007 | S10 | 16 | 56.762 | -0.214 | 0.000 | 0.18 | | 9.5 | OK |

## Summary Wizard of 360 minute 100 year Summer I+35% for SW_NET1

### Simulation Criteria

| | | | |
|---|---|---|---|
| Areal Reduction Factor | 1.000 | Additional Flow - % of Total Flow | 0.000 |
| Hot Start (mins) | 0 | MADD Factor * 10m³/ha Storage | 2.000 |
| Hot Start Level (mm) | 0 | Inlet Coeffiecient | 0.800 |
| Manhole Headloss Coeff (Global) | 0.500 | Flow per Person per Day (l/per/day) | 0.000 |
| Foul Sewage per hectare (l/s) | 0.000 | | |

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 1 Number of Storage Structures 0 Number of Real Time Controls 0

### Synthetic Rainfall Details

| | | | |
|---|---|---|---|
| Rainfall Model | | FSR | Ratio R 0.279 |
| Region | England and Wales | Cv (Summer) | 0.750 |
| M5-60 (mm) | 19.500 | Cv (Winter) | 0.840 |

Margin for Flood Risk Warning (mm) 300.0 DVD Status OFF
Analysis Timestep Fine Inertia Status OFF
DTS Status ON

| | |
|---|---|
| Profile(s) | Summer and Winter |
| Duration(s) (mins) | 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440 |
| Return Period(s) (years) | 2, 30, 100 |
| Climate Change (%) | 0, 0, 35 |

| PN | US/MH Name | Storm Rank | Water Level (m) | Surcharged Depth (m) | Flooded Volume (m³) | Flow / Cap. | Overflow (l/s) | Pipe Flow (l/s) | Status |
|---|---|---|---|---|---|---|---|---|---|
| 1.000 | S1 | 11 | 58.463 | -0.418 | 0.000 | 0.01 | | 7.9 | OK |
| 1.001 | S2 | 11 | 58.463 | -0.321 | 0.000 | 0.01 | | 14.4 | OK |
| 1.002 | S3 | 11 | 58.463 | -0.232 | 0.000 | 0.02 | | 19.4 | OK |
| 2.000 | S4 | 11 | 58.463 | -0.242 | 0.000 | 0.01 | | 6.5 | OK |
| 1.003 | S5 | 11 | 58.463 | -0.175 | 0.000 | 0.01 | | 24.4 | OK |
| 1.004 | S6 HYDROBRAKE | 11 | 58.463 | 0.865 | 0.000 | 0.14 | | 9.5 | SURCHARGED |
| 1.005 | S7 | 27 | 57.296 | -0.232 | 0.000 | 0.12 | | 9.5 | OK |
| 3.000 | S8 | 9 | 57.144 | -0.267 | 0.000 | 0.00 | | 0.1 | OK |
| 1.006 | S9 | 30 | 57.144 | -0.233 | 0.000 | 0.12 | | 9.5 | OK |
| 1.007 | S10 | 9 | 56.762 | -0.214 | 0.000 | 0.18 | | 9.5 | OK |

## Summary Wizard of 480 minute 100 year Summer I+35% for SW_NET1

### Simulation Criteria

| | | | |
|---|---|---|---|
| Areal Reduction Factor | 1.000 | Additional Flow - % of Total Flow | 0.000 |
| Hot Start (mins) | 0 | MADD Factor * 10m³/ha Storage | 2.000 |
| Hot Start Level (mm) | 0 | Inlet Coeffiecient | 0.800 |
| Manhole Headloss Coeff (Global) | 0.500 | Flow per Person per Day (l/per/day) | 0.000 |
| Foul Sewage per hectare (l/s) | 0.000 | | |

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 1 Number of Storage Structures 0 Number of Real Time Controls 0

### Synthetic Rainfall Details

| | | | |
|---|---|---|---|
| Rainfall Model | | FSR | Ratio R 0.279 |
| Region | England and Wales | Cv (Summer) | 0.750 |
| M5-60 (mm) | 19.500 | Cv (Winter) | 0.840 |

Margin for Flood Risk Warning (mm) 300.0 DVD Status OFF
Analysis Timestep Fine Inertia Status OFF
DTS Status ON

| | |
|---|---|
| Profile(s) | Summer and Winter |
| Duration(s) (mins) | 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440 |
| Return Period(s) (years) | 2, 30, 100 |
| Climate Change (%) | 0, 0, 35 |

| PN | US/MH Name | Storm Rank | Water Level (m) | Surcharged Depth (m) | Flooded Volume (m³) | Flow / Cap. | Overflow (l/s) | Pipe Flow (l/s) | Status |
|---|---|---|---|---|---|---|---|---|---|
| 1.000 | S1 | 12 | 58.428 | -0.453 | 0.000 | 0.01 | | 6.5 | OK |
| 1.001 | S2 | 12 | 58.428 | -0.356 | 0.000 | 0.01 | | 12.2 | OK |
| 1.002 | S3 | 13 | 58.428 | -0.267 | 0.000 | 0.02 | | 16.6 | OK |
| 2.000 | S4 | 13 | 58.428 | -0.277 | 0.000 | 0.01 | | 5.4 | OK |
| 1.003 | S5 | 13 | 58.428 | -0.210 | 0.000 | 0.01 | | 21.2 | OK |
| 1.004 | S6 HYDROBRAKE | 12 | 58.428 | 0.830 | 0.000 | 0.14 | | 9.5 | SURCHARGED |
| 1.005 | S7 | 1 | 57.296 | -0.232 | 0.000 | 0.12 | | 9.5 | OK |
| 3.000 | S8 | 35 | 57.144 | -0.267 | 0.000 | 0.00 | | 0.0 | OK |
| 1.006 | S9 | 19 | 57.144 | -0.233 | 0.000 | 0.12 | | 9.5 | OK |
| 1.007 | S10 | 30 | 56.762 | -0.214 | 0.000 | 0.18 | | 9.5 | OK |

## Summary Wizard of 600 minute 100 year Summer I+35% for SW_NET1

### Simulation Criteria

| | | | |
|---|---|---|---|
| Areal Reduction Factor | 1.000 | Additional Flow - % of Total Flow | 0.000 |
| Hot Start (mins) | 0 | MADD Factor * 10m³/ha Storage | 2.000 |
| Hot Start Level (mm) | 0 | Inlet Coeffiecient | 0.800 |
| Manhole Headloss Coeff (Global) | 0.500 | Flow per Person per Day (l/per/day) | 0.000 |
| Foul Sewage per hectare (l/s) | 0.000 | | |

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 1 Number of Storage Structures 0 Number of Real Time Controls 0

### Synthetic Rainfall Details

| | | | |
|---|---|---|---|
| Rainfall Model | | FSR | Ratio R 0.279 |
| Region | England and Wales | Cv (Summer) | 0.750 |
| M5-60 (mm) | 19.500 | Cv (Winter) | 0.840 |

Margin for Flood Risk Warning (mm) 300.0 DVD Status OFF
Analysis Timestep Fine Inertia Status OFF
DTS Status ON

| | |
|---|---|
| Profile(s) | Summer and Winter |
| Duration(s) (mins) | 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440 |
| Return Period(s) (years) | 2, 30, 100 |
| Climate Change (%) | 0, 0, 35 |

| PN | US/MH Name | Storm Rank | Water Level (m) | Surcharged Depth (m) | Flooded Volume (m³) | Flow / Cap. | Overflow (l/s) | Pipe Flow (l/s) | Status |
|---|---|---|---|---|---|---|---|---|---|
| 1.000 | S1 | 14 | 58.389 | -0.492 | 0.000 | 0.00 | | 5.6 | OK |
| 1.001 | S2 | 14 | 58.389 | -0.395 | 0.000 | 0.01 | | 10.8 | OK |
| 1.002 | S3 | 14 | 58.389 | -0.306 | 0.000 | 0.02 | | 14.8 | OK |
| 2.000 | S4 | 14 | 58.389 | -0.316 | 0.000 | 0.00 | | 4.6 | OK |
| 1.003 | S5 | 14 | 58.389 | -0.249 | 0.000 | 0.01 | | 19.1 | OK |
| 1.004 | S6 HYDROBRAKE | 14 | 58.389 | 0.791 | 0.000 | 0.14 | | 9.5 | SURCHARGED |
| 1.005 | S7 | 25 | 57.296 | -0.232 | 0.000 | 0.12 | | 9.5 | OK |
| 3.000 | S8 | 16 | 57.144 | -0.267 | 0.000 | 0.00 | | 0.1 | OK |
| 1.006 | S9 | 26 | 57.144 | -0.233 | 0.000 | 0.12 | | 9.5 | OK |
| 1.007 | S10 | 23 | 56.762 | -0.214 | 0.000 | 0.18 | | 9.5 | OK |

## Summary Wizard of 720 minute 100 year Summer I+35% for SW_NET1

### Simulation Criteria

| | | | |
|---|---|---|---|
| Areal Reduction Factor | 1.000 | Additional Flow - % of Total Flow | 0.000 |
| Hot Start (mins) | 0 | MADD Factor * 10m³/ha Storage | 2.000 |
| Hot Start Level (mm) | 0 | Inlet Coeffiecient | 0.800 |
| Manhole Headloss Coeff (Global) | 0.500 | Flow per Person per Day (l/per/day) | 0.000 |
| Foul Sewage per hectare (l/s) | 0.000 | | |

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 1 Number of Storage Structures 0 Number of Real Time Controls 0

### Synthetic Rainfall Details

| | | | |
|---|---|---|---|
| Rainfall Model | | FSR | Ratio R 0.279 |
| Region | England and Wales | Cv (Summer) | 0.750 |
| M5-60 (mm) | 19.500 | Cv (Winter) | 0.840 |

Margin for Flood Risk Warning (mm) 300.0 DVD Status OFF
Analysis Timestep Fine Inertia Status OFF
DTS Status ON

| | |
|---|---|
| Profile(s) | Summer and Winter |
| Duration(s) (mins) | 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440 |
| Return Period(s) (years) | 2, 30, 100 |
| Climate Change (%) | 0, 0, 35 |

| PN | US/MH Name | Storm Rank | Water Level (m) | Surcharged Depth (m) | Flooded Volume (m³) | Flow / Cap. | Overflow (l/s) | Pipe Flow (l/s) | Status |
|---|---|---|---|---|---|---|---|---|---|
| 1.000 | S1 | 16 | 58.348 | -0.533 | 0.000 | 0.00 | | 4.9 | OK |
| 1.001 | S2 | 16 | 58.348 | -0.436 | 0.000 | 0.01 | | 9.7 | OK |
| 1.002 | S3 | 16 | 58.348 | -0.347 | 0.000 | 0.01 | | 13.5 | OK |
| 2.000 | S4 | 16 | 58.348 | -0.357 | 0.000 | 0.00 | | 4.1 | OK |
| 1.003 | S5 | 16 | 58.348 | -0.290 | 0.000 | 0.01 | | 17.5 | OK |
| 1.004 | S6 HYDROBRAKE | 16 | 58.348 | 0.750 | 0.000 | 0.14 | | 9.5 | SURCHARGED |
| 1.005 | S7 | 31 | 57.296 | -0.232 | 0.000 | 0.12 | | 9.5 | OK |
| 3.000 | S8 | 8 | 57.144 | -0.267 | 0.000 | 0.00 | | 0.0 | OK |
| 1.006 | S9 | 36 | 57.144 | -0.233 | 0.000 | 0.12 | | 9.5 | OK |
| 1.007 | S10 | 25 | 56.762 | -0.214 | 0.000 | 0.18 | | 9.5 | OK |

## Summary Wizard of 960 minute 100 year Summer I+35% for SW_NET1

### Simulation Criteria

| | | | |
|---|---|---|---|
| Areal Reduction Factor | 1.000 | Additional Flow - % of Total Flow | 0.000 |
| Hot Start (mins) | 0 | MADD Factor * 10m³/ha Storage | 2.000 |
| Hot Start Level (mm) | 0 | Inlet Coeffiecient | 0.800 |
| Manhole Headloss Coeff (Global) | 0.500 | Flow per Person per Day (l/per/day) | 0.000 |
| Foul Sewage per hectare (l/s) | 0.000 | | |

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 1 Number of Storage Structures 0 Number of Real Time Controls 0

### Synthetic Rainfall Details

| | | | |
|---|---|---|---|
| Rainfall Model | | FSR | Ratio R 0.279 |
| Region | England and Wales | Cv (Summer) | 0.750 |
| M5-60 (mm) | 19.500 | Cv (Winter) | 0.840 |

Margin for Flood Risk Warning (mm) 300.0 DVD Status OFF
Analysis Timestep Fine Inertia Status OFF
DTS Status ON

| | |
|---|---|
| Profile(s) | Summer and Winter |
| Duration(s) (mins) | 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440 |
| Return Period(s) (years) | 2, 30, 100 |
| Climate Change (%) | 0, 0, 35 |

| PN | US/MH Name | Storm Rank | Water Level (m) | Surcharged Depth (m) | Flooded Volume (m³) | Flow / Cap. | Overflow (l/s) | Pipe Flow (l/s) | Status |
|---|---|---|---|---|---|---|---|---|---|
| 1.000 | S1 | 19 | 58.265 | -0.616 | 0.000 | 0.00 | | 4.0 | OK |
| 1.001 | S2 | 19 | 58.265 | -0.519 | 0.000 | 0.01 | | 8.5 | OK |
| 1.002 | S3 | 19 | 58.265 | -0.430 | 0.000 | 0.01 | | 11.9 | OK |
| 2.000 | S4 | 19 | 58.265 | -0.440 | 0.000 | 0.00 | | 3.3 | OK |
| 1.003 | S5 | 19 | 58.266 | -0.372 | 0.000 | 0.01 | | 15.7 | OK |
| 1.004 | S6 HYDROBRAKE | 19 | 58.265 | 0.667 | 0.000 | 0.14 | | 9.5 | SURCHARGED |
| 1.005 | S7 | 2 | 57.296 | -0.232 | 0.000 | 0.12 | | 9.5 | OK |
| 3.000 | S8 | 34 | 57.144 | -0.267 | 0.000 | 0.00 | | 0.0 | OK |
| 1.006 | S9 | 16 | 57.144 | -0.233 | 0.000 | 0.12 | | 9.5 | OK |
| 1.007 | S10 | 20 | 56.762 | -0.214 | 0.000 | 0.18 | | 9.5 | OK |

## Summary Wizard of 1440 minute 100 year Summer I+35% for SW NET1

### Simulation Criteria

| | | | |
|---|---|---|---|
| Areal Reduction Factor | 1.000 | Additional Flow - % of Total Flow | 0.000 |
| Hot Start (mins) | 0 | MADD Factor * 10m³/ha Storage | 2.000 |
| Hot Start Level (mm) | 0 | Inlet Coeffiecient | 0.800 |
| Manhole Headloss Coeff (Global) | 0.500 | Flow per Person per Day (l/per/day) | 0.000 |
| Foul Sewage per hectare (l/s) | 0.000 | | |

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 1 Number of Storage Structures 0 Number of Real Time Controls 0

### Synthetic Rainfall Details

| | | | |
|---|---|---|---|
| Rainfall Model | | FSR | Ratio R 0.279 |
| Region | England and Wales | Cv (Summer) | 0.750 |
| M5-60 (mm) | 19.500 | Cv (Winter) | 0.840 |

Margin for Flood Risk Warning (mm) 300.0 DVD Status OFF
Analysis Timestep Fine Inertia Status OFF
DTS Status ON

| | |
|---|---|
| Profile(s) | Summer and Winter |
| Duration(s) (mins) | 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440 |
| Return Period(s) (years) | 2, 30, 100 |
| Climate Change (%) | 0, 0, 35 |

| PN | US/MH Name | Storm Rank | Water Level (m) | Surcharged Depth (m) | Flooded Volume (m³) | Flow / Cap. | Overflow (l/s) | Pipe Flow (l/s) | Status |
|---|---|---|---|---|---|---|---|---|---|
| 1.000 | S1 | 22 | 58.115 | -0.766 | 0.000 | 0.00 | | 3.1 | OK |
| 1.001 | S2 | 22 | 58.115 | -0.669 | 0.000 | 0.01 | | 7.1 | OK |
| 1.002 | S3 | 22 | 58.115 | -0.580 | 0.000 | 0.01 | | 10.2 | OK |
| 2.000 | S4 | 22 | 58.115 | -0.590 | 0.000 | 0.00 | | 2.5 | OK |
| 1.003 | S5 | 22 | 58.115 | -0.523 | 0.000 | 0.01 | | 13.7 | OK |
| 1.004 | S6 HYDROBRAKE | 22 | 58.115 | 0.517 | 0.000 | 0.14 | | 9.5 | SURCHARGED |
| 1.005 | S7 | 30 | 57.296 | -0.232 | 0.000 | 0.12 | | 9.5 | OK |
| 3.000 | S8 | 13 | 57.144 | -0.267 | 0.000 | 0.00 | | 0.0 | OK |
| 1.006 | S9 | 18 | 57.144 | -0.233 | 0.000 | 0.12 | | 9.5 | OK |
| 1.007 | S10 | 32 | 56.762 | -0.214 | 0.000 | 0.18 | | 9.5 | OK |

## Summary Wizard of 15 minute 2 year Winter I+0% for SW_NET1

### Simulation Criteria

| | | | |
|---|---|---|---|
| Areal Reduction Factor | 1.000 | Additional Flow - % of Total Flow | 0.000 |
| Hot Start (mins) | 0 | MADD Factor * 10m³/ha Storage | 2.000 |
| Hot Start Level (mm) | 0 | Inlet Coeffiecient | 0.800 |
| Manhole Headloss Coeff (Global) | 0.500 | Flow per Person per Day (l/per/day) | 0.000 |
| Foul Sewage per hectare (l/s) | 0.000 | | |

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 1 Number of Storage Structures 0 Number of Real Time Controls 0

### Synthetic Rainfall Details

| | | | |
|---|---|---|---|
| Rainfall Model | FSR | Ratio R | 0.279 |
| Region | England and Wales | Cv (Summer) | 0.750 |
| M5-60 (mm) | 19.500 | Cv (Winter) | 0.840 |

Margin for Flood Risk Warning (mm) 300.0 DVD Status OFF
Analysis Timestep Fine Inertia Status OFF
DTS Status ON

| | |
|---|---|
| Profile(s) | Summer and Winter |
| Duration(s) (mins) | 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440 |
| Return Period(s) (years) | 2, 30, 100 |
| Climate Change (%) | 0, 0, 35 |

| PN | US/MH Name | Storm Rank | Water Level (m) | Surcharged Depth (m) | Flooded Volume (m³) | Flow / Cap. | Overflow (l/s) | Pipe Flow (l/s) | Status |
|---|---|---|---|---|---|---|---|---|---|
| 1.000 | S1 | 43 | 57.904 | -0.977 | 0.000 | 0.01 | | 11.1 | OK |
| 1.001 | S2 | 45 | 57.851 | -0.933 | 0.000 | 0.02 | | 24.6 | OK |
| 1.002 | S3 | 54 | 57.777 | -0.918 | 0.000 | 0.04 | | 37.2 | OK |
| 2.000 | S4 | 54 | 57.768 | -0.937 | 0.000 | 0.01 | | 9.4 | OK |
| 1.003 | S5 | 54 | 57.768 | -0.870 | 0.000 | 0.03 | | 49.1 | OK |
| 1.004 | S6 HYDROBRAKE | 54 | 57.768 | 0.170 | 0.000 | 0.14 | | 9.4 | SURCHARGED |
| 1.005 | S7 | 54 | 57.296 | -0.232 | 0.000 | 0.12 | | 9.4 | OK |
| 3.000 | S8 | 52 | 57.144 | -0.267 | 0.000 | 0.00 | | 0.1 | OK |
| 1.006 | S9 | 52 | 57.144 | -0.233 | 0.000 | 0.11 | | 9.4 | OK |
| 1.007 | S10 | 53 | 56.761 | -0.215 | 0.000 | 0.18 | | 9.4 | OK |

## Summary Wizard of 30 minute 2 year Winter I+0% for SW_NET1

### Simulation Criteria

| | | | |
|---|---|---|---|
| Areal Reduction Factor | 1.000 | Additional Flow - % of Total Flow | 0.000 |
| Hot Start (mins) | 0 | MADD Factor * 10m³/ha Storage | 2.000 |
| Hot Start Level (mm) | 0 | Inlet Coeffiecient | 0.800 |
| Manhole Headloss Coeff (Global) | 0.500 | Flow per Person per Day (l/per/day) | 0.000 |
| Foul Sewage per hectare (l/s) | 0.000 | | |

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 1 Number of Storage Structures 0 Number of Real Time Controls 0

### Synthetic Rainfall Details

| | | | |
|---|---|---|---|
| Rainfall Model | | FSR | Ratio R 0.279 |
| Region | England and Wales | Cv (Summer) | 0.750 |
| M5-60 (mm) | 19.500 | Cv (Winter) | 0.840 |

Margin for Flood Risk Warning (mm) 300.0 DVD Status OFF
Analysis Timestep Fine Inertia Status OFF
DTS Status ON

| | |
|---|---|
| Profile(s) | Summer and Winter |
| Duration(s) (mins) | 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440 |
| Return Period(s) (years) | 2, 30, 100 |
| Climate Change (%) | 0, 0, 35 |

| PN | US/MH Name | Storm Rank | Water Level (m) | Surcharged Depth (m) | Flooded Volume (m³) | Flow / Cap. | Overflow (l/s) | Pipe Flow (l/s) | Status |
|---|---|---|---|---|---|---|---|---|---|
| 1.000 | S1 | 47 | 57.895 | -0.986 | 0.000 | 0.01 | | 9.2 | OK |
| 1.001 | S2 | 48 | 57.845 | -0.939 | 0.000 | 0.02 | | 21.8 | OK |
| 1.002 | S3 | 48 | 57.813 | -0.882 | 0.000 | 0.03 | | 33.2 | OK |
| 2.000 | S4 | 48 | 57.812 | -0.893 | 0.000 | 0.01 | | 7.4 | OK |
| 1.003 | S5 | 48 | 57.812 | -0.826 | 0.000 | 0.03 | | 41.8 | OK |
| 1.004 | S6 HYDROBRAKE | 48 | 57.812 | 0.214 | 0.000 | 0.14 | | 9.5 | SURCHARGED |
| 1.005 | S7 | 47 | 57.296 | -0.232 | 0.000 | 0.12 | | 9.5 | OK |
| 3.000 | S8 | 42 | 57.144 | -0.267 | 0.000 | 0.00 | | 0.0 | OK |
| 1.006 | S9 | 38 | 57.144 | -0.233 | 0.000 | 0.12 | | 9.5 | OK |
| 1.007 | S10 | 41 | 56.762 | -0.214 | 0.000 | 0.18 | | 9.5 | OK |

## Summary Wizard of 60 minute 2 year Winter I+0% for SW_NET1

### Simulation Criteria

| | | | |
|---|---|---|---|
| Areal Reduction Factor | 1.000 | Additional Flow - % of Total Flow | 0.000 |
| Hot Start (mins) | 0 | MADD Factor * 10m³/ha Storage | 2.000 |
| Hot Start Level (mm) | 0 | Inlet Coeffiecient | 0.800 |
| Manhole Headloss Coeff (Global) | 0.500 | Flow per Person per Day (l/per/day) | 0.000 |
| Foul Sewage per hectare (l/s) | 0.000 | | |

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 1 Number of Storage Structures 0 Number of Real Time Controls 0

### Synthetic Rainfall Details

| | | | |
|---|---|---|---|
| Rainfall Model | | FSR | Ratio R 0.279 |
| Region | England and Wales | Cv (Summer) | 0.750 |
| M5-60 (mm) | 19.500 | Cv (Winter) | 0.840 |

Margin for Flood Risk Warning (mm) 300.0 DVD Status OFF
Analysis Timestep Fine Inertia Status OFF
DTS Status ON

| | |
|---|---|
| Profile(s) | Summer and Winter |
| Duration(s) (mins) | 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440 |
| Return Period(s) (years) | 2, 30, 100 |
| Climate Change (%) | 0, 0, 35 |

| PN | US/MH Name | Storm Rank | Water Level (m) | Surcharged Depth (m) | Flooded Volume (m³) | Flow / Cap. | Overflow (l/s) | Pipe Flow (l/s) | Status |
|---|---|---|---|---|---|---|---|---|---|
| 1.000 | S1 | 49 | 57.876 | -1.005 | 0.000 | 0.01 | | 6.5 | OK |
| 1.001 | S2 | 50 | 57.836 | -0.948 | 0.000 | 0.01 | | 15.9 | OK |
| 1.002 | S3 | 45 | 57.831 | -0.864 | 0.000 | 0.02 | | 23.8 | OK |
| 2.000 | S4 | 45 | 57.830 | -0.875 | 0.000 | 0.00 | | 5.0 | OK |
| 1.003 | S5 | 45 | 57.830 | -0.808 | 0.000 | 0.02 | | 30.1 | OK |
| 1.004 | S6 HYDROBRAKE | 45 | 57.830 | 0.232 | 0.000 | 0.14 | | 9.5 | SURCHARGED |
| 1.005 | S7 | 44 | 57.296 | -0.232 | 0.000 | 0.12 | | 9.5 | OK |
| 3.000 | S8 | 5 | 57.144 | -0.267 | 0.000 | 0.00 | | 0.1 | OK |
| 1.006 | S9 | 42 | 57.144 | -0.233 | 0.000 | 0.12 | | 9.5 | OK |
| 1.007 | S10 | 2 | 56.762 | -0.214 | 0.000 | 0.18 | | 9.5 | OK |

## Summary Wizard of 120 minute 2 year Winter I+0% for SW_NET1

### Simulation Criteria

| | | | |
|---|---|---|---|
| Areal Reduction Factor | 1.000 | Additional Flow - % of Total Flow | 0.000 |
| Hot Start (mins) | 0 | MADD Factor * 10m³/ha Storage | 2.000 |
| Hot Start Level (mm) | 0 | Inlet Coeffiecient | 0.800 |
| Manhole Headloss Coeff (Global) | 0.500 | Flow per Person per Day (l/per/day) | 0.000 |
| Foul Sewage per hectare (l/s) | 0.000 | | |

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 1 Number of Storage Structures 0 Number of Real Time Controls 0

### Synthetic Rainfall Details

| | | | |
|---|---|---|---|
| Rainfall Model | | FSR | Ratio R 0.279 |
| Region | England and Wales | Cv (Summer) | 0.750 |
| M5-60 (mm) | 19.500 | Cv (Winter) | 0.840 |

Margin for Flood Risk Warning (mm) 300.0 DVD Status OFF
Analysis Timestep Fine Inertia Status OFF
DTS Status ON

| | |
|---|---|
| Profile(s) | Summer and Winter |
| Duration(s) (mins) | 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440 |
| Return Period(s) (years) | 2, 30, 100 |
| Climate Change (%) | 0, 0, 35 |

| PN | US/MH Name | Storm Rank | Water Level (m) | Surcharged Depth (m) | Flooded Volume (m³) | Flow / Cap. | Overflow (l/s) | Pipe Flow (l/s) | Status |
|---|---|---|---|---|---|---|---|---|---|
| 1.000 | S1 | 53 | 57.860 | -1.021 | 0.000 | 0.00 | | 4.4 | OK |
| 1.001 | S2 | 52 | 57.826 | -0.958 | 0.000 | 0.01 | | 10.6 | OK |
| 1.002 | S3 | 47 | 57.819 | -0.876 | 0.000 | 0.02 | | 15.8 | OK |
| 2.000 | S4 | 47 | 57.818 | -0.887 | 0.000 | 0.00 | | 3.3 | OK |
| 1.003 | S5 | 47 | 57.818 | -0.820 | 0.000 | 0.01 | | 20.7 | OK |
| 1.004 | S6 HYDROBRAKE | 47 | 57.818 | 0.220 | 0.000 | 0.14 | | 9.5 | SURCHARGED |
| 1.005 | S7 | 46 | 57.296 | -0.232 | 0.000 | 0.12 | | 9.5 | OK |
| 3.000 | S8 | 43 | 57.144 | -0.267 | 0.000 | 0.00 | | 0.1 | OK |
| 1.006 | S9 | 40 | 57.144 | -0.233 | 0.000 | 0.12 | | 9.5 | OK |
| 1.007 | S10 | 43 | 56.762 | -0.214 | 0.000 | 0.18 | | 9.5 | OK |

## Summary Wizard of 180 minute 2 year Winter I+0% for SW_NET1

### Simulation Criteria

| | | | |
|---|---|---|---|
| Areal Reduction Factor | 1.000 | Additional Flow - % of Total Flow | 0.000 |
| Hot Start (mins) | 0 | MADD Factor * 10m³/ha Storage | 2.000 |
| Hot Start Level (mm) | 0 | Inlet Coeffiecient | 0.800 |
| Manhole Headloss Coeff (Global) | 0.500 | Flow per Person per Day (l/per/day) | 0.000 |
| Foul Sewage per hectare (l/s) | 0.000 | | |

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 1 Number of Storage Structures 0 Number of Real Time Controls 0

### Synthetic Rainfall Details

| | | | |
|---|---|---|---|
| Rainfall Model | | FSR | Ratio R 0.279 |
| Region | England and Wales | Cv (Summer) | 0.750 |
| M5-60 (mm) | 19.500 | Cv (Winter) | 0.840 |

Margin for Flood Risk Warning (mm) 300.0 DVD Status OFF
Analysis Timestep Fine Inertia Status OFF
DTS Status ON

| | |
|---|---|
| Profile(s) | Summer and Winter |
| Duration(s) (mins) | 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440 |
| Return Period(s) (years) | 2, 30, 100 |
| Climate Change (%) | 0, 0, 35 |

| PN | US/MH Name | Storm Rank | Water Level (m) | Surcharged Depth (m) | Flooded Volume (m³) | Flow / Cap. | Overflow (l/s) | Pipe Flow (l/s) | Status |
|---|---|---|---|---|---|---|---|---|---|
| 1.000 | S1 | 55 | 57.852 | -1.029 | 0.000 | 0.00 | | 3.4 | OK |
| 1.001 | S2 | 55 | 57.804 | -0.980 | 0.000 | 0.01 | | 8.4 | OK |
| 1.002 | S3 | 51 | 57.793 | -0.902 | 0.000 | 0.01 | | 12.6 | OK |
| 2.000 | S4 | 51 | 57.791 | -0.914 | 0.000 | 0.00 | | 2.7 | OK |
| 1.003 | S5 | 51 | 57.791 | -0.847 | 0.000 | 0.01 | | 17.1 | OK |
| 1.004 | S6 HYDROBRAKE | 51 | 57.791 | 0.193 | 0.000 | 0.14 | | 9.5 | SURCHARGED |
| 1.005 | S7 | 51 | 57.296 | -0.232 | 0.000 | 0.12 | | 9.5 | OK |
| 3.000 | S8 | 45 | 57.144 | -0.267 | 0.000 | 0.00 | | 0.1 | OK |
| 1.006 | S9 | 48 | 57.144 | -0.233 | 0.000 | 0.12 | | 9.5 | OK |
| 1.007 | S10 | 45 | 56.762 | -0.214 | 0.000 | 0.18 | | 9.5 | OK |

## Summary Wizard of 240 minute 2 year Winter I+0% for SW_NET1

### Simulation Criteria

| | | | |
|---|---|---|---|
| Areal Reduction Factor | 1.000 | Additional Flow - % of Total Flow | 0.000 |
| Hot Start (mins) | 0 | MADD Factor * 10m³/ha Storage | 2.000 |
| Hot Start Level (mm) | 0 | Inlet Coeffiecient | 0.800 |
| Manhole Headloss Coeff (Global) | 0.500 | Flow per Person per Day (l/per/day) | 0.000 |
| Foul Sewage per hectare (l/s) | 0.000 | | |

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 1 Number of Storage Structures 0 Number of Real Time Controls 0

### Synthetic Rainfall Details

| | | | |
|---|---|---|---|
| Rainfall Model | | FSR | Ratio R 0.279 |
| Region | England and Wales | Cv (Summer) | 0.750 |
| M5-60 (mm) | 19.500 | Cv (Winter) | 0.840 |

Margin for Flood Risk Warning (mm) 300.0 DVD Status OFF
Analysis Timestep Fine Inertia Status OFF
DTS Status ON

| | |
|---|---|
| Profile(s) | Summer and Winter |
| Duration(s) (mins) | 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440 |
| Return Period(s) (years) | 2, 30, 100 |
| Climate Change (%) | 0, 0, 35 |

| PN | US/MH Name | Storm Rank | Water Level (m) | Surcharged Depth (m) | Flooded Volume (m³) | Flow / Cap. | Overflow (l/s) | Pipe Flow (l/s) | Status |
|---|---|---|---|---|---|---|---|---|---|
| 1.000 | S1 | 58 | 57.848 | -1.033 | 0.000 | 0.00 | | 2.9 | OK |
| 1.001 | S2 | 57 | 57.785 | -0.999 | 0.000 | 0.01 | | 7.1 | OK |
| 1.002 | S3 | 57 | 57.763 | -0.932 | 0.000 | 0.01 | | 10.7 | OK |
| 2.000 | S4 | 56 | 57.759 | -0.946 | 0.000 | 0.00 | | 2.3 | OK |
| 1.003 | S5 | 56 | 57.759 | -0.879 | 0.000 | 0.01 | | 14.8 | OK |
| 1.004 | S6 HYDROBRAKE | 56 | 57.759 | 0.161 | 0.000 | 0.14 | | 9.4 | SURCHARGED |
| 1.005 | S7 | 56 | 57.296 | -0.232 | 0.000 | 0.12 | | 9.4 | OK |
| 3.000 | S8 | 55 | 57.144 | -0.267 | 0.000 | 0.00 | | 0.1 | OK |
| 1.006 | S9 | 55 | 57.144 | -0.233 | 0.000 | 0.11 | | 9.4 | OK |
| 1.007 | S10 | 55 | 56.761 | -0.215 | 0.000 | 0.18 | | 9.4 | OK |

## Summary Wizard of 360 minute 2 year Winter I+0% for SW_NET1

### Simulation Criteria

| | | | |
|---|---|---|---|
| Areal Reduction Factor | 1.000 | Additional Flow - % of Total Flow | 0.000 |
| Hot Start (mins) | 0 | MADD Factor * 10m³/ha Storage | 2.000 |
| Hot Start Level (mm) | 0 | Inlet Coeffiecient | 0.800 |
| Manhole Headloss Coeff (Global) | 0.500 | Flow per Person per Day (l/per/day) | 0.000 |
| Foul Sewage per hectare (l/s) | 0.000 | | |

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 1 Number of Storage Structures 0 Number of Real Time Controls 0

### Synthetic Rainfall Details

| | | | |
|---|---|---|---|
| Rainfall Model | | FSR | Ratio R 0.279 |
| Region | England and Wales | Cv (Summer) | 0.750 |
| M5-60 (mm) | 19.500 | Cv (Winter) | 0.840 |

Margin for Flood Risk Warning (mm) 300.0 DVD Status OFF
Analysis Timestep Fine Inertia Status OFF
DTS Status ON

| | |
|---|---|
| Profile(s) | Summer and Winter |
| Duration(s) (mins) | 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440 |
| Return Period(s) (years) | 2, 30, 100 |
| Climate Change (%) | 0, 0, 35 |

| PN | US/MH Name | Storm Rank | Water Level (m) | Surcharged Depth (m) | Flooded Volume (m³) | Flow / Cap. | Overflow (l/s) | Pipe Flow (l/s) | Status |
|---|---|---|---|---|---|---|---|---|---|
| 1.000 | S1 | 60 | 57.843 | -1.038 | 0.000 | 0.00 | | 2.2 | OK |
| 1.001 | S2 | 61 | 57.766 | -1.018 | 0.000 | 0.01 | | 5.5 | OK |
| 1.002 | S3 | 61 | 57.706 | -0.989 | 0.000 | 0.01 | | 8.5 | OK |
| 2.000 | S4 | 61 | 57.687 | -1.018 | 0.000 | 0.00 | | 1.9 | OK |
| 1.003 | S5 | 61 | 57.684 | -0.954 | 0.000 | 0.01 | | 12.2 | OK |
| 1.004 | S6 HYDROBRAKE | 61 | 57.683 | 0.085 | 0.000 | 0.14 | | 9.3 | SURCHARGED |
| 1.005 | S7 | 61 | 57.296 | -0.232 | 0.000 | 0.12 | | 9.3 | OK |
| 3.000 | S8 | 60 | 57.144 | -0.267 | 0.000 | 0.00 | | 0.0 | OK |
| 1.006 | S9 | 60 | 57.144 | -0.233 | 0.000 | 0.11 | | 9.3 | OK |
| 1.007 | S10 | 61 | 56.761 | -0.215 | 0.000 | 0.18 | | 9.3 | OK |

## Summary Wizard of 480 minute 2 year Winter I+0% for SW_NET1

### Simulation Criteria

| | | | |
|---|---|---|---|
| Areal Reduction Factor | 1.000 | Additional Flow - % of Total Flow | 0.000 |
| Hot Start (mins) | 0 | MADD Factor * 10m³/ha Storage | 2.000 |
| Hot Start Level (mm) | 0 | Inlet Coeffiecient | 0.800 |
| Manhole Headloss Coeff (Global) | 0.500 | Flow per Person per Day (l/per/day) | 0.000 |
| Foul Sewage per hectare (l/s) | 0.000 | | |

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 1 Number of Storage Structures 0 Number of Real Time Controls 0

### Synthetic Rainfall Details

| | | | |
|---|---|---|---|
| Rainfall Model | | FSR | Ratio R 0.279 |
| Region | England and Wales | Cv (Summer) | 0.750 |
| M5-60 (mm) | 19.500 | Cv (Winter) | 0.840 |

Margin for Flood Risk Warning (mm) 300.0 DVD Status OFF
Analysis Timestep Fine Inertia Status OFF
DTS Status ON

| | |
|---|---|
| Profile(s) | Summer and Winter |
| Duration(s) (mins) | 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440 |
| Return Period(s) (years) | 2, 30, 100 |
| Climate Change (%) | 0, 0, 35 |

| PN | US/MH Name | Storm Rank | Water Level (m) | Surcharged Depth (m) | Flooded Volume (m³) | Flow / Cap. | Overflow (l/s) | Pipe Flow (l/s) | Status |
|---|---|---|---|---|---|---|---|---|---|
| 1.000 | S1 | 65 | 57.841 | -1.040 | 0.000 | 0.00 | | 1.8 | OK |
| 1.001 | S2 | 65 | 57.760 | -1.024 | 0.000 | 0.00 | | 4.6 | OK |
| 1.002 | S3 | 65 | 57.682 | -1.013 | 0.000 | 0.01 | | 7.2 | OK |
| 2.000 | S4 | 64 | 57.664 | -1.041 | 0.000 | 0.00 | | 1.6 | OK |
| 1.003 | S5 | 64 | 57.610 | -1.028 | 0.000 | 0.01 | | 10.4 | OK |
| 1.004 | S6 HYDROBRAKE | 64 | 57.608 | 0.010 | 0.000 | 0.14 | | 8.9 | SURCHARGED |
| 1.005 | S7 | 64 | 57.294 | -0.234 | 0.000 | 0.11 | | 8.9 | OK |
| 3.000 | S8 | 64 | 57.143 | -0.268 | 0.000 | 0.00 | | 0.0 | OK |
| 1.006 | S9 | 64 | 57.143 | -0.234 | 0.000 | 0.11 | | 9.0 | OK |
| 1.007 | S10 | 64 | 56.759 | -0.217 | 0.000 | 0.17 | | 8.9 | OK |

## Summary Wizard of 600 minute 2 year Winter I+0% for SW_NET1

### Simulation Criteria

| | | | |
|---|---|---|---|
| Areal Reduction Factor | 1.000 | Additional Flow - % of Total Flow | 0.000 |
| Hot Start (mins) | 0 | MADD Factor * 10m³/ha Storage | 2.000 |
| Hot Start Level (mm) | 0 | Inlet Coeffiecient | 0.800 |
| Manhole Headloss Coeff (Global) | 0.500 | Flow per Person per Day (l/per/day) | 0.000 |
| Foul Sewage per hectare (l/s) | 0.000 | | |

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 1 Number of Storage Structures 0 Number of Real Time Controls 0

### Synthetic Rainfall Details

| | | | |
|---|---|---|---|
| Rainfall Model | | FSR | Ratio R 0.279 |
| Region | England and Wales | Cv (Summer) | 0.750 |
| M5-60 (mm) | 19.500 | Cv (Winter) | 0.840 |

Margin for Flood Risk Warning (mm) 300.0 DVD Status OFF
Analysis Timestep Fine Inertia Status OFF
DTS Status ON

| | |
|---|---|
| Profile(s) | Summer and Winter |
| Duration(s) (mins) | 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440 |
| Return Period(s) (years) | 2, 30, 100 |
| Climate Change (%) | 0, 0, 35 |

| PN | US/MH Name | Storm Rank | Water Level (m) | Surcharged Depth (m) | Flooded Volume (m³) | Flow / Cap. | Overflow (l/s) | Pipe Flow (l/s) | Status |
|---|---|---|---|---|---|---|---|---|---|
| 1.000 | S1 | 66 | 57.839 | -1.042 | 0.000 | 0.00 | | 1.6 | OK |
| 1.001 | S2 | 66 | 57.756 | -1.028 | 0.000 | 0.00 | | 4.0 | OK |
| 1.002 | S3 | 66 | 57.677 | -1.018 | 0.000 | 0.01 | | 6.2 | OK |
| 2.000 | S4 | 66 | 57.662 | -1.043 | 0.000 | 0.00 | | 1.4 | OK |
| 1.003 | S5 | 66 | 57.552 | -1.086 | 0.000 | 0.01 | | 9.1 | OK |
| 1.004 | S6 HYDROBRAKE | 66 | 57.540 | -0.058 | 0.000 | 0.13 | | 8.4 | OK |
| 1.005 | S7 | 66 | 57.293 | -0.235 | 0.000 | 0.11 | | 8.4 | OK |
| 3.000 | S8 | 66 | 57.141 | -0.270 | 0.000 | 0.00 | | 0.0 | OK |
| 1.006 | S9 | 66 | 57.141 | -0.236 | 0.000 | 0.10 | | 8.4 | OK |
| 1.007 | S10 | 66 | 56.756 | -0.220 | 0.000 | 0.16 | | 8.4 | OK |

## Summary Wizard of 720 minute 2 year Winter I+0% for SW_NET1

### Simulation Criteria

| | | | |
|---|---|---|---|
| Areal Reduction Factor | 1.000 | Additional Flow - % of Total Flow | 0.000 |
| Hot Start (mins) | 0 | MADD Factor * 10m³/ha Storage | 2.000 |
| Hot Start Level (mm) | 0 | Inlet Coeffiecient | 0.800 |
| Manhole Headloss Coeff (Global) | 0.500 | Flow per Person per Day (l/per/day) | 0.000 |
| Foul Sewage per hectare (l/s) | 0.000 | | |

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 1 Number of Storage Structures 0 Number of Real Time Controls 0

### Synthetic Rainfall Details

| | | | |
|---|---|---|---|
| Rainfall Model | | FSR | Ratio R 0.279 |
| Region | England and Wales | Cv (Summer) | 0.750 |
| M5-60 (mm) | 19.500 | Cv (Winter) | 0.840 |

Margin for Flood Risk Warning (mm) 300.0 DVD Status OFF
Analysis Timestep Fine Inertia Status OFF
DTS Status ON

| | |
|---|---|
| Profile(s) | Summer and Winter |
| Duration(s) (mins) | 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440 |
| Return Period(s) (years) | 2, 30, 100 |
| Climate Change (%) | 0, 0, 35 |

| PN | US/MH Name | Storm Rank | Water Level (m) | Surcharged Depth (m) | Flooded Volume (m³) | Flow / Cap. | Overflow (l/s) | Pipe Flow (l/s) | Status |
|---|---|---|---|---|---|---|---|---|---|
| 1.000 | S1 | 69 | 57.838 | -1.043 | 0.000 | 0.00 | | 1.4 | OK |
| 1.001 | S2 | 69 | 57.754 | -1.030 | 0.000 | 0.00 | | 3.5 | OK |
| 1.002 | S3 | 69 | 57.673 | -1.022 | 0.000 | 0.01 | | 5.5 | OK |
| 2.000 | S4 | 69 | 57.662 | -1.043 | 0.000 | 0.00 | | 1.2 | OK |
| 1.003 | S5 | 69 | 57.517 | -1.121 | 0.000 | 0.00 | | 8.2 | OK |
| 1.004 | S6 HYDROBRAKE | 69 | 57.494 | -0.104 | 0.000 | 0.12 | | 8.0 | OK |
| 1.005 | S7 | 69 | 57.291 | -0.237 | 0.000 | 0.10 | | 8.0 | OK |
| 3.000 | S8 | 69 | 57.139 | -0.272 | 0.000 | 0.00 | | 0.0 | OK |
| 1.006 | S9 | 69 | 57.139 | -0.238 | 0.000 | 0.10 | | 8.0 | OK |
| 1.007 | S10 | 69 | 56.754 | -0.222 | 0.000 | 0.15 | | 8.0 | OK |

## Summary Wizard of 960 minute 2 year Winter I+0% for SW_NET1

### Simulation Criteria

| | | | |
|---|---|---|---|
| Areal Reduction Factor | 1.000 | Additional Flow - % of Total Flow | 0.000 |
| Hot Start (mins) | 0 | MADD Factor * 10m³/ha Storage | 2.000 |
| Hot Start Level (mm) | 0 | Inlet Coeffiecient | 0.800 |
| Manhole Headloss Coeff (Global) | 0.500 | Flow per Person per Day (l/per/day) | 0.000 |
| Foul Sewage per hectare (l/s) | 0.000 | | |

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 1 Number of Storage Structures 0 Number of Real Time Controls 0

### Synthetic Rainfall Details

| | | | |
|---|---|---|---|
| Rainfall Model | | FSR | Ratio R 0.279 |
| Region | England and Wales | Cv (Summer) | 0.750 |
| M5-60 (mm) | 19.500 | Cv (Winter) | 0.840 |

Margin for Flood Risk Warning (mm) 300.0 DVD Status OFF
Analysis Timestep Fine Inertia Status OFF
DTS Status ON

| | |
|---|---|
| Profile(s) | Summer and Winter |
| Duration(s) (mins) | 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440 |
| Return Period(s) (years) | 2, 30, 100 |
| Climate Change (%) | 0, 0, 35 |

| PN | US/MH Name | Storm Rank | Water Level (m) | Surcharged Depth (m) | Flooded Volume (m³) | Flow / Cap. | Overflow (l/s) | Pipe Flow (l/s) | Status |
|---|---|---|---|---|---|---|---|---|---|
| 1.000 | S1 | 71 | 57.837 | -1.044 | 0.000 | 0.00 | | 1.2 | OK |
| 1.001 | S2 | 71 | 57.750 | -1.034 | 0.000 | 0.00 | | 2.9 | OK |
| 1.002 | S3 | 71 | 57.668 | -1.027 | 0.000 | 0.00 | | 4.6 | OK |
| 2.000 | S4 | 71 | 57.660 | -1.045 | 0.000 | 0.00 | | 1.0 | OK |
| 1.003 | S5 | 71 | 57.490 | -1.148 | 0.000 | 0.00 | | 6.8 | OK |
| 1.004 | S6 HYDROBRAKE | 71 | 57.451 | -0.147 | 0.000 | 0.10 | | 6.7 | OK |
| 1.005 | S7 | 71 | 57.286 | -0.242 | 0.000 | 0.08 | | 6.7 | OK |
| 3.000 | S8 | 71 | 57.134 | -0.277 | 0.000 | 0.00 | | 0.0 | OK |
| 1.006 | S9 | 71 | 57.134 | -0.243 | 0.000 | 0.08 | | 6.7 | OK |
| 1.007 | S10 | 71 | 56.747 | -0.229 | 0.000 | 0.13 | | 6.7 | OK |

## Summary Wizard of 1440 minute 2 year Winter I+0% for SW_NET1

### Simulation Criteria

| | | | |
|---|---|---|---|
| Areal Reduction Factor | 1.000 | Additional Flow - % of Total Flow | 0.000 |
| Hot Start (mins) | 0 | MADD Factor * 10m³/ha Storage | 2.000 |
| Hot Start Level (mm) | 0 | Inlet Coeffiecient | 0.800 |
| Manhole Headloss Coeff (Global) | 0.500 | Flow per Person per Day (l/per/day) | 0.000 |
| Foul Sewage per hectare (l/s) | 0.000 | | |

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 1 Number of Storage Structures 0 Number of Real Time Controls 0

### Synthetic Rainfall Details

| | | | |
|---|---|---|---|
| Rainfall Model | | FSR | Ratio R 0.279 |
| Region | England and Wales | Cv (Summer) | 0.750 |
| M5-60 (mm) | 19.500 | Cv (Winter) | 0.840 |

Margin for Flood Risk Warning (mm) 300.0 DVD Status OFF
Analysis Timestep Fine Inertia Status OFF
DTS Status ON

| | |
|---|---|
| Profile(s) | Summer and Winter |
| Duration(s) (mins) | 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440 |
| Return Period(s) (years) | 2, 30, 100 |
| Climate Change (%) | 0, 0, 35 |

| PN | US/MH Name | Storm Rank | Water Level (m) | Surcharged Depth (m) | Flooded Volume (m³) | Flow / Cap. | Overflow (l/s) | Pipe Flow (l/s) | Status |
|---|---|---|---|---|---|---|---|---|---|
| 1.000 | S1 | 72 | 57.836 | -1.045 | 0.000 | 0.00 | | 0.9 | OK |
| 1.001 | S2 | 72 | 57.746 | -1.038 | 0.000 | 0.00 | | 2.3 | OK |
| 1.002 | S3 | 72 | 57.663 | -1.032 | 0.000 | 0.00 | | 3.5 | OK |
| 2.000 | S4 | 72 | 57.659 | -1.046 | 0.000 | 0.00 | | 0.8 | OK |
| 1.003 | S5 | 72 | 57.469 | -1.169 | 0.000 | 0.00 | | 5.2 | OK |
| 1.004 | S6 HYDROBRAKE | 72 | 57.407 | -0.191 | 0.000 | 0.08 | | 5.2 | OK |
| 1.005 | S7 | 72 | 57.278 | -0.250 | 0.000 | 0.07 | | 5.2 | OK |
| 3.000 | S8 | 72 | 57.125 | -0.286 | 0.000 | 0.00 | | 0.0 | OK |
| 1.006 | S9 | 72 | 57.126 | -0.251 | 0.000 | 0.06 | | 5.2 | OK |
| 1.007 | S10 | 72 | 56.739 | -0.237 | 0.000 | 0.10 | | 5.2 | OK |

## Summary Wizard of 15 minute 30 year Winter I+0% for SW_NET1

### Simulation Criteria

| | | | |
|---|---|---|---|
| Areal Reduction Factor | 1.000 | Additional Flow - % of Total Flow | 0.000 |
| Hot Start (mins) | 0 | MADD Factor * 10m³/ha Storage | 2.000 |
| Hot Start Level (mm) | 0 | Inlet Coeffiecient | 0.800 |
| Manhole Headloss Coeff (Global) | 0.500 | Flow per Person per Day (l/per/day) | 0.000 |
| Foul Sewage per hectare (l/s) | 0.000 | | |

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 1 Number of Storage Structures 0 Number of Real Time Controls 0

### Synthetic Rainfall Details

| | | | |
|---|---|---|---|
| Rainfall Model | | FSR | Ratio R 0.279 |
| Region | England and Wales | Cv (Summer) | 0.750 |
| M5-60 (mm) | 19.500 | Cv (Winter) | 0.840 |

Margin for Flood Risk Warning (mm) 300.0 DVD Status OFF
Analysis Timestep Fine Inertia Status OFF
DTS Status ON

| | |
|---|---|
| Profile(s) | Summer and Winter |
| Duration(s) (mins) | 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440 |
| Return Period(s) (years) | 2, 30, 100 |
| Climate Change (%) | 0, 0, 35 |

| PN | US/MH Name | Storm Rank | Water Level (m) | Surcharged Depth (m) | Flooded Volume (m³) | Flow / Cap. | Overflow (l/s) | Pipe Flow (l/s) | Status |
|---|---|---|---|---|---|---|---|---|---|
| 1.000 | S1 | 39 | 57.953 | -0.928 | 0.000 | 0.02 | | 21.2 | OK |
| 1.001 | S2 | 39 | 57.947 | -0.837 | 0.000 | 0.05 | | 51.8 | OK |
| 1.002 | S3 | 39 | 57.947 | -0.748 | 0.000 | 0.08 | | 76.2 | OK |
| 2.000 | S4 | 39 | 57.946 | -0.759 | 0.000 | 0.02 | | 15.8 | OK |
| 1.003 | S5 | 39 | 57.947 | -0.691 | 0.000 | 0.05 | | 89.3 | OK |
| 1.004 | S6 HYDROBRAKE | 39 | 57.947 | 0.349 | 0.000 | 0.14 | | 9.5 | SURCHARGED |
| 1.005 | S7 | 11 | 57.296 | -0.232 | 0.000 | 0.12 | | 9.5 | OK |
| 3.000 | S8 | 14 | 57.144 | -0.267 | 0.000 | 0.00 | | 0.0 | OK |
| 1.006 | S9 | 7 | 57.144 | -0.233 | 0.000 | 0.12 | | 9.5 | OK |
| 1.007 | S10 | 7 | 56.762 | -0.214 | 0.000 | 0.18 | | 9.5 | OK |

## Summary Wizard of 30 minute 30 year Winter I+0% for SW_NET1

### Simulation Criteria

| | | | |
|---|---|---|---|
| Areal Reduction Factor | 1.000 | Additional Flow - % of Total Flow | 0.000 |
| Hot Start (mins) | 0 | MADD Factor * 10m³/ha Storage | 2.000 |
| Hot Start Level (mm) | 0 | Inlet Coeffiecient | 0.800 |
| Manhole Headloss Coeff (Global) | 0.500 | Flow per Person per Day (l/per/day) | 0.000 |
| Foul Sewage per hectare (l/s) | 0.000 | | |

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 1 Number of Storage Structures 0 Number of Real Time Controls 0

### Synthetic Rainfall Details

| | | | |
|---|---|---|---|
| Rainfall Model | | FSR | Ratio R 0.279 |
| Region | England and Wales | Cv (Summer) | 0.750 |
| M5-60 (mm) | 19.500 | Cv (Winter) | 0.840 |

Margin for Flood Risk Warning (mm) 300.0 DVD Status OFF
Analysis Timestep Fine Inertia Status OFF
DTS Status ON

| | |
|---|---|
| Profile(s) | Summer and Winter |
| Duration(s) (mins) | 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440 |
| Return Period(s) (years) | 2, 30, 100 |
| Climate Change (%) | 0, 0, 35 |

| PN | US/MH Name | Storm Rank | Water Level (m) | Surcharged Depth (m) | Flooded Volume (m³) | Flow / Cap. | Overflow (l/s) | Pipe Flow (l/s) | Status |
|---|---|---|---|---|---|---|---|---|---|
| 1.000 | S1 | 33 | 58.025 | -0.856 | 0.000 | 0.02 | | 17.5 | OK |
| 1.001 | S2 | 33 | 58.025 | -0.759 | 0.000 | 0.04 | | 40.4 | OK |
| 1.002 | S3 | 33 | 58.026 | -0.669 | 0.000 | 0.06 | | 56.0 | OK |
| 2.000 | S4 | 33 | 58.026 | -0.679 | 0.000 | 0.01 | | 11.3 | OK |
| 1.003 | S5 | 33 | 58.026 | -0.612 | 0.000 | 0.04 | | 64.2 | OK |
| 1.004 | S6 HYDROBRAKE | 33 | 58.026 | 0.428 | 0.000 | 0.14 | | 9.5 | SURCHARGED |
| 1.005 | S7 | 33 | 57.296 | -0.232 | 0.000 | 0.12 | | 9.5 | OK |
| 3.000 | S8 | 30 | 57.144 | -0.267 | 0.000 | 0.00 | | 0.0 | OK |
| 1.006 | S9 | 37 | 57.144 | -0.233 | 0.000 | 0.12 | | 9.5 | OK |
| 1.007 | S10 | 44 | 56.762 | -0.214 | 0.000 | 0.18 | | 9.5 | OK |

## Summary Wizard of 60 minute 30 year Winter I+0% for SW_NET1

### Simulation Criteria

| | | | |
|---|---|---|---|
| Areal Reduction Factor | 1.000 | Additional Flow - % of Total Flow | 0.000 |
| Hot Start (mins) | 0 | MADD Factor * 10m³/ha Storage | 2.000 |
| Hot Start Level (mm) | 0 | Inlet Coeffiecient | 0.800 |
| Manhole Headloss Coeff (Global) | 0.500 | Flow per Person per Day (l/per/day) | 0.000 |
| Foul Sewage per hectare (l/s) | 0.000 | | |

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 1 Number of Storage Structures 0 Number of Real Time Controls 0

### Synthetic Rainfall Details

| | | | |
|---|---|---|---|
| Rainfall Model | FSR | Ratio R | 0.279 |
| Region | England and Wales | Cv (Summer) | 0.750 |
| M5-60 (mm) | 19.500 | Cv (Winter) | 0.840 |

Margin for Flood Risk Warning (mm) 300.0 DVD Status OFF
Analysis Timestep Fine Inertia Status OFF
DTS Status ON

| | |
|---|---|
| Profile(s) | Summer and Winter |
| Duration(s) (mins) | 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440 |
| Return Period(s) (years) | 2, 30, 100 |
| Climate Change (%) | 0, 0, 35 |

| PN | US/MH Name | Storm Rank | Water Level (m) | Surcharged Depth (m) | Flooded Volume (m³) | Flow / Cap. | Overflow (l/s) | Pipe Flow (l/s) | Status |
|---|---|---|---|---|---|---|---|---|---|
| 1.000 | S1 | 26 | 58.084 | -0.797 | 0.000 | 0.01 | | 11.7 | OK |
| 1.001 | S2 | 26 | 58.084 | -0.700 | 0.000 | 0.02 | | 26.4 | OK |
| 1.002 | S3 | 26 | 58.084 | -0.611 | 0.000 | 0.04 | | 36.0 | OK |
| 2.000 | S4 | 26 | 58.084 | -0.621 | 0.000 | 0.01 | | 8.1 | OK |
| 1.003 | S5 | 26 | 58.085 | -0.553 | 0.000 | 0.02 | | 40.7 | OK |
| 1.004 | S6 HYDROBRAKE | 26 | 58.085 | 0.487 | 0.000 | 0.14 | | 9.5 | SURCHARGED |
| 1.005 | S7 | 35 | 57.296 | -0.232 | 0.000 | 0.12 | | 9.5 | OK |
| 3.000 | S8 | 27 | 57.144 | -0.267 | 0.000 | 0.00 | | 0.0 | OK |
| 1.006 | S9 | 33 | 57.144 | -0.233 | 0.000 | 0.12 | | 9.5 | OK |
| 1.007 | S10 | 35 | 56.762 | -0.214 | 0.000 | 0.18 | | 9.5 | OK |

## Summary Wizard of 120 minute 30 year Winter I+0% for SW_NET1

### Simulation Criteria

| | | | |
|---|---|---|---|
| Areal Reduction Factor | 1.000 | Additional Flow - % of Total Flow | 0.000 |
| Hot Start (mins) | 0 | MADD Factor * 10m³/ha Storage | 2.000 |
| Hot Start Level (mm) | 0 | Inlet Coeffiecient | 0.800 |
| Manhole Headloss Coeff (Global) | 0.500 | Flow per Person per Day (l/per/day) | 0.000 |
| Foul Sewage per hectare (l/s) | 0.000 | | |

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 1 Number of Storage Structures 0 Number of Real Time Controls 0

### Synthetic Rainfall Details

| | | | |
|---|---|---|---|
| Rainfall Model | | FSR | Ratio R 0.279 |
| Region | England and Wales | Cv (Summer) | 0.750 |
| M5-60 (mm) | 19.500 | Cv (Winter) | 0.840 |

Margin for Flood Risk Warning (mm) 300.0 DVD Status OFF
Analysis Timestep Fine Inertia Status OFF
DTS Status ON

| | |
|---|---|
| Profile(s) | Summer and Winter |
| Duration(s) (mins) | 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440 |
| Return Period(s) (years) | 2, 30, 100 |
| Climate Change (%) | 0, 0, 35 |

| PN | US/MH Name | Storm Rank | Water Level (m) | Surcharged Depth (m) | Flooded Volume (m³) | Flow / Cap. | Overflow (l/s) | Pipe Flow (l/s) | Status |
|---|---|---|---|---|---|---|---|---|---|
| 1.000 | S1 | 24 | 58.103 | -0.778 | 0.000 | 0.01 | | 7.4 | OK |
| 1.001 | S2 | 24 | 58.103 | -0.681 | 0.000 | 0.02 | | 16.6 | OK |
| 1.002 | S3 | 24 | 58.103 | -0.592 | 0.000 | 0.02 | | 22.9 | OK |
| 2.000 | S4 | 24 | 58.103 | -0.602 | 0.000 | 0.01 | | 5.6 | OK |
| 1.003 | S5 | 24 | 58.103 | -0.535 | 0.000 | 0.02 | | 26.9 | OK |
| 1.004 | S6 HYDROBRAKE | 24 | 58.103 | 0.505 | 0.000 | 0.14 | | 9.5 | SURCHARGED |
| 1.005 | S7 | 21 | 57.296 | -0.232 | 0.000 | 0.12 | | 9.5 | OK |
| 3.000 | S8 | 39 | 57.144 | -0.267 | 0.000 | 0.00 | | 0.0 | OK |
| 1.006 | S9 | 17 | 57.144 | -0.233 | 0.000 | 0.12 | | 9.5 | OK |
| 1.007 | S10 | 14 | 56.762 | -0.214 | 0.000 | 0.18 | | 9.5 | OK |

## Summary Wizard of 180 minute 30 year Winter I+0% for SW_NET1

### Simulation Criteria

| | | | |
|---|---|---|---|
| Areal Reduction Factor | 1.000 | Additional Flow - % of Total Flow | 0.000 |
| Hot Start (mins) | 0 | MADD Factor * 10m³/ha Storage | 2.000 |
| Hot Start Level (mm) | 0 | Inlet Coeffiecient | 0.800 |
| Manhole Headloss Coeff (Global) | 0.500 | Flow per Person per Day (l/per/day) | 0.000 |
| Foul Sewage per hectare (l/s) | 0.000 | | |

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 1 Number of Storage Structures 0 Number of Real Time Controls 0

### Synthetic Rainfall Details

| | | | |
|---|---|---|---|
| Rainfall Model | | FSR | Ratio R 0.279 |
| Region | England and Wales | Cv (Summer) | 0.750 |
| M5-60 (mm) | 19.500 | Cv (Winter) | 0.840 |

Margin for Flood Risk Warning (mm) 300.0 DVD Status OFF
Analysis Timestep Fine Inertia Status OFF
DTS Status ON

| | |
|---|---|
| Profile(s) | Summer and Winter |
| Duration(s) (mins) | 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440 |
| Return Period(s) (years) | 2, 30, 100 |
| Climate Change (%) | 0, 0, 35 |

| PN | US/MH Name | Storm Rank | Water Level (m) | Surcharged Depth (m) | Flooded Volume (m³) | Flow / Cap. | Overflow (l/s) | Pipe Flow (l/s) | Status |
|---|---|---|---|---|---|---|---|---|---|
| 1.000 | S1 | 25 | 58.092 | -0.789 | 0.000 | 0.01 | | 5.8 | OK |
| 1.001 | S2 | 25 | 58.092 | -0.692 | 0.000 | 0.01 | | 13.1 | OK |
| 1.002 | S3 | 25 | 58.092 | -0.603 | 0.000 | 0.02 | | 18.1 | OK |
| 2.000 | S4 | 25 | 58.092 | -0.613 | 0.000 | 0.00 | | 4.4 | OK |
| 1.003 | S5 | 25 | 58.092 | -0.546 | 0.000 | 0.01 | | 22.0 | OK |
| 1.004 | S6 HYDROBRAKE | 25 | 58.092 | 0.494 | 0.000 | 0.14 | | 9.5 | SURCHARGED |
| 1.005 | S7 | 18 | 57.296 | -0.232 | 0.000 | 0.12 | | 9.5 | OK |
| 3.000 | S8 | 12 | 57.144 | -0.267 | 0.000 | 0.00 | | 0.1 | OK |
| 1.006 | S9 | 21 | 57.144 | -0.233 | 0.000 | 0.12 | | 9.5 | OK |
| 1.007 | S10 | 11 | 56.762 | -0.214 | 0.000 | 0.18 | | 9.5 | OK |

## Summary Wizard of 240 minute 30 year Winter I+0% for SW_NET1

### Simulation Criteria

| | | | |
|---|---|---|---|
| Areal Reduction Factor | 1.000 | Additional Flow - % of Total Flow | 0.000 |
| Hot Start (mins) | 0 | MADD Factor * 10m³/ha Storage | 2.000 |
| Hot Start Level (mm) | 0 | Inlet Coeffiecient | 0.800 |
| Manhole Headloss Coeff (Global) | 0.500 | Flow per Person per Day (l/per/day) | 0.000 |
| Foul Sewage per hectare (l/s) | 0.000 | | |

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 1 Number of Storage Structures 0 Number of Real Time Controls 0

### Synthetic Rainfall Details

| | | | |
|---|---|---|---|
| Rainfall Model | | FSR | Ratio R 0.279 |
| Region | England and Wales | Cv (Summer) | 0.750 |
| M5-60 (mm) | 19.500 | Cv (Winter) | 0.840 |

Margin for Flood Risk Warning (mm) 300.0 DVD Status OFF
Analysis Timestep Fine Inertia Status OFF
DTS Status ON

| | |
|---|---|
| Profile(s) | Summer and Winter |
| Duration(s) (mins) | 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440 |
| Return Period(s) (years) | 2, 30, 100 |
| Climate Change (%) | 0, 0, 35 |

| PN | US/MH Name | Storm Rank | Water Level (m) | Surcharged Depth (m) | Flooded Volume (m³) | Flow / Cap. | Overflow (l/s) | Pipe Flow (l/s) | Status |
|---|---|---|---|---|---|---|---|---|---|
| 1.000 | S1 | 27 | 58.071 | -0.810 | 0.000 | 0.00 | | 4.8 | OK |
| 1.001 | S2 | 27 | 58.071 | -0.713 | 0.000 | 0.01 | | 11.0 | OK |
| 1.002 | S3 | 27 | 58.071 | -0.624 | 0.000 | 0.02 | | 15.5 | OK |
| 2.000 | S4 | 27 | 58.071 | -0.634 | 0.000 | 0.00 | | 3.7 | OK |
| 1.003 | S5 | 27 | 58.071 | -0.567 | 0.000 | 0.01 | | 19.2 | OK |
| 1.004 | S6 HYDROBRAKE | 27 | 58.071 | 0.473 | 0.000 | 0.14 | | 9.5 | SURCHARGED |
| 1.005 | S7 | 10 | 57.296 | -0.232 | 0.000 | 0.12 | | 9.5 | OK |
| 3.000 | S8 | 11 | 57.144 | -0.267 | 0.000 | 0.00 | | 0.1 | OK |
| 1.006 | S9 | 5 | 57.144 | -0.233 | 0.000 | 0.12 | | 9.5 | OK |
| 1.007 | S10 | 5 | 56.762 | -0.214 | 0.000 | 0.18 | | 9.5 | OK |

## Summary Wizard of 360 minute 30 year Winter I+0% for SW_NET1

### Simulation Criteria

| | | | |
|---|---|---|---|
| Areal Reduction Factor | 1.000 | Additional Flow - % of Total Flow | 0.000 |
| Hot Start (mins) | 0 | MADD Factor * 10m³/ha Storage | 2.000 |
| Hot Start Level (mm) | 0 | Inlet Coeffiecient | 0.800 |
| Manhole Headloss Coeff (Global) | 0.500 | Flow per Person per Day (l/per/day) | 0.000 |
| Foul Sewage per hectare (l/s) | 0.000 | | |

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 1 Number of Storage Structures 0 Number of Real Time Controls 0

### Synthetic Rainfall Details

| | | | |
|---|---|---|---|
| Rainfall Model | | FSR | Ratio R 0.279 |
| Region | England and Wales | Cv (Summer) | 0.750 |
| M5-60 (mm) | 19.500 | Cv (Winter) | 0.840 |

Margin for Flood Risk Warning (mm) 300.0 DVD Status OFF
Analysis Timestep Fine Inertia Status OFF
DTS Status ON

| | |
|---|---|
| Profile(s) | Summer and Winter |
| Duration(s) (mins) | 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440 |
| Return Period(s) (years) | 2, 30, 100 |
| Climate Change (%) | 0, 0, 35 |

| PN | US/MH Name | Storm Rank | Water Level (m) | Surcharged Depth (m) | Flooded Volume (m³) | Flow / Cap. | Overflow (l/s) | Pipe Flow (l/s) | Status |
|---|---|---|---|---|---|---|---|---|---|
| 1.000 | S1 | 34 | 58.021 | -0.860 | 0.000 | 0.00 | | 3.8 | OK |
| 1.001 | S2 | 34 | 58.021 | -0.763 | 0.000 | 0.01 | | 8.9 | OK |
| 1.002 | S3 | 34 | 58.021 | -0.674 | 0.000 | 0.01 | | 12.5 | OK |
| 2.000 | S4 | 34 | 58.021 | -0.684 | 0.000 | 0.00 | | 2.8 | OK |
| 1.003 | S5 | 34 | 58.021 | -0.617 | 0.000 | 0.01 | | 16.1 | OK |
| 1.004 | S6 HYDROBRAKE | 34 | 58.021 | 0.423 | 0.000 | 0.14 | | 9.5 | SURCHARGED |
| 1.005 | S7 | 19 | 57.296 | -0.232 | 0.000 | 0.12 | | 9.5 | OK |
| 3.000 | S8 | 2 | 57.144 | -0.267 | 0.000 | 0.00 | | 0.1 | OK |
| 1.006 | S9 | 28 | 57.144 | -0.233 | 0.000 | 0.12 | | 9.5 | OK |
| 1.007 | S10 | 22 | 56.762 | -0.214 | 0.000 | 0.18 | | 9.5 | OK |

## Summary Wizard of 480 minute 30 year Winter I+0% for SW_NET1

### Simulation Criteria

| | | | |
|---|---|---|---|
| Areal Reduction Factor | 1.000 | Additional Flow - % of Total Flow | 0.000 |
| Hot Start (mins) | 0 | MADD Factor * 10m³/ha Storage | 2.000 |
| Hot Start Level (mm) | 0 | Inlet Coeffiecient | 0.800 |
| Manhole Headloss Coeff (Global) | 0.500 | Flow per Person per Day (l/per/day) | 0.000 |
| Foul Sewage per hectare (l/s) | 0.000 | | |

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 1 Number of Storage Structures 0 Number of Real Time Controls 0

### Synthetic Rainfall Details

| | | | |
|---|---|---|---|
| Rainfall Model | | FSR | Ratio R 0.279 |
| Region | England and Wales | Cv (Summer) | 0.750 |
| M5-60 (mm) | 19.500 | Cv (Winter) | 0.840 |

Margin for Flood Risk Warning (mm) 300.0 DVD Status OFF
Analysis Timestep Fine Inertia Status OFF
DTS Status ON

| | |
|---|---|
| Profile(s) | Summer and Winter |
| Duration(s) (mins) | 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440 |
| Return Period(s) (years) | 2, 30, 100 |
| Climate Change (%) | 0, 0, 35 |

| PN | US/MH Name | Storm Rank | Water Level (m) | Surcharged Depth (m) | Flooded Volume (m³) | Flow / Cap. | Overflow (l/s) | Pipe Flow (l/s) | Status |
|---|---|---|---|---|---|---|---|---|---|
| 1.000 | S1 | 37 | 57.965 | -0.916 | 0.000 | 0.00 | | 3.2 | OK |
| 1.001 | S2 | 37 | 57.965 | -0.819 | 0.000 | 0.01 | | 7.5 | OK |
| 1.002 | S3 | 37 | 57.965 | -0.730 | 0.000 | 0.01 | | 10.8 | OK |
| 2.000 | S4 | 37 | 57.965 | -0.740 | 0.000 | 0.00 | | 2.3 | OK |
| 1.003 | S5 | 37 | 57.965 | -0.673 | 0.000 | 0.01 | | 14.4 | OK |
| 1.004 | S6 HYDROBRAKE | 37 | 57.965 | 0.367 | 0.000 | 0.14 | | 9.5 | SURCHARGED |
| 1.005 | S7 | 4 | 57.296 | -0.232 | 0.000 | 0.12 | | 9.5 | OK |
| 3.000 | S8 | 22 | 57.144 | -0.267 | 0.000 | 0.00 | | 0.1 | OK |
| 1.006 | S9 | 14 | 57.144 | -0.233 | 0.000 | 0.12 | | 9.5 | OK |
| 1.007 | S10 | 10 | 56.762 | -0.214 | 0.000 | 0.18 | | 9.5 | OK |

## Summary Wizard of 600 minute 30 year Winter I+0% for SW_NET1

### Simulation Criteria

| | | | |
|---|---|---|---|
| Areal Reduction Factor | 1.000 | Additional Flow - % of Total Flow | 0.000 |
| Hot Start (mins) | 0 | MADD Factor * 10m³/ha Storage | 2.000 |
| Hot Start Level (mm) | 0 | Inlet Coeffiecient | 0.800 |
| Manhole Headloss Coeff (Global) | 0.500 | Flow per Person per Day (l/per/day) | 0.000 |
| Foul Sewage per hectare (l/s) | 0.000 | | |

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 1 Number of Storage Structures 0 Number of Real Time Controls 0

### Synthetic Rainfall Details

| | | | |
|---|---|---|---|
| Rainfall Model | | FSR | Ratio R 0.279 |
| Region | England and Wales | Cv (Summer) | 0.750 |
| M5-60 (mm) | 19.500 | Cv (Winter) | 0.840 |

Margin for Flood Risk Warning (mm) 300.0 DVD Status OFF
Analysis Timestep Fine Inertia Status OFF
DTS Status ON

| | |
|---|---|
| Profile(s) | Summer and Winter |
| Duration(s) (mins) | 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440 |
| Return Period(s) (years) | 2, 30, 100 |
| Climate Change (%) | 0, 0, 35 |

| PN | US/MH Name | Storm Rank | Water Level (m) | Surcharged Depth (m) | Flooded Volume (m³) | Flow / Cap. | Overflow (l/s) | Pipe Flow (l/s) | Status |
|---|---|---|---|---|---|---|---|---|---|
| 1.000 | S1 | 42 | 57.908 | -0.973 | 0.000 | 0.00 | | 2.8 | OK |
| 1.001 | S2 | 42 | 57.907 | -0.877 | 0.000 | 0.01 | | 6.6 | OK |
| 1.002 | S3 | 42 | 57.907 | -0.788 | 0.000 | 0.01 | | 9.8 | OK |
| 2.000 | S4 | 42 | 57.907 | -0.798 | 0.000 | 0.00 | | 2.0 | OK |
| 1.003 | S5 | 42 | 57.907 | -0.731 | 0.000 | 0.01 | | 13.3 | OK |
| 1.004 | S6 HYDROBRAKE | 42 | 57.907 | 0.309 | 0.000 | 0.14 | | 9.5 | SURCHARGED |
| 1.005 | S7 | 6 | 57.296 | -0.232 | 0.000 | 0.12 | | 9.5 | OK |
| 3.000 | S8 | 20 | 57.144 | -0.267 | 0.000 | 0.00 | | 0.0 | OK |
| 1.006 | S9 | 1 | 57.145 | -0.232 | 0.000 | 0.12 | | 9.5 | OK |
| 1.007 | S10 | 1 | 56.762 | -0.214 | 0.000 | 0.18 | | 9.5 | OK |

## Summary Wizard of 720 minute 30 year Winter I+0% for SW_NET1

### Simulation Criteria

| | | | |
|---|---|---|---|
| Areal Reduction Factor | 1.000 | Additional Flow - % of Total Flow | 0.000 |
| Hot Start (mins) | 0 | MADD Factor * 10m³/ha Storage | 2.000 |
| Hot Start Level (mm) | 0 | Inlet Coeffiecient | 0.800 |
| Manhole Headloss Coeff (Global) | 0.500 | Flow per Person per Day (l/per/day) | 0.000 |
| Foul Sewage per hectare (l/s) | 0.000 | | |

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 1 Number of Storage Structures 0 Number of Real Time Controls 0

### Synthetic Rainfall Details

| | | | |
|---|---|---|---|
| Rainfall Model | | FSR | Ratio R 0.279 |
| Region | England and Wales | Cv (Summer) | 0.750 |
| M5-60 (mm) | 19.500 | Cv (Winter) | 0.840 |

Margin for Flood Risk Warning (mm) 300.0 DVD Status OFF
Analysis Timestep Fine Inertia Status OFF
DTS Status ON

| | |
|---|---|
| Profile(s) | Summer and Winter |
| Duration(s) (mins) | 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440 |
| Return Period(s) (years) | 2, 30, 100 |
| Climate Change (%) | 0, 0, 35 |

| PN | US/MH Name | Storm Rank | Water Level (m) | Surcharged Depth (m) | Flooded Volume (m³) | Flow / Cap. | Overflow (l/s) | Pipe Flow (l/s) | Status |
|---|---|---|---|---|---|---|---|---|---|
| 1.000 | S1 | 52 | 57.860 | -1.021 | 0.000 | 0.00 | | 2.4 | OK |
| 1.001 | S2 | 44 | 57.852 | -0.932 | 0.000 | 0.01 | | 5.9 | OK |
| 1.002 | S3 | 44 | 57.850 | -0.845 | 0.000 | 0.01 | | 9.0 | OK |
| 2.000 | S4 | 44 | 57.849 | -0.856 | 0.000 | 0.00 | | 1.9 | OK |
| 1.003 | S5 | 44 | 57.849 | -0.789 | 0.000 | 0.01 | | 12.4 | OK |
| 1.004 | S6 HYDROBRAKE | 44 | 57.849 | 0.251 | 0.000 | 0.14 | | 9.5 | SURCHARGED |
| 1.005 | S7 | 43 | 57.296 | -0.232 | 0.000 | 0.12 | | 9.5 | OK |
| 3.000 | S8 | 1 | 57.145 | -0.266 | 0.000 | 0.00 | | 0.0 | OK |
| 1.006 | S9 | 31 | 57.144 | -0.233 | 0.000 | 0.12 | | 9.5 | OK |
| 1.007 | S10 | 39 | 56.762 | -0.214 | 0.000 | 0.18 | | 9.5 | OK |

## Summary Wizard of 960 minute 30 year Winter I+0% for SW_NET1

### Simulation Criteria

| | | | |
|---|---|---|---|
| Areal Reduction Factor | 1.000 | Additional Flow - % of Total Flow | 0.000 |
| Hot Start (mins) | 0 | MADD Factor * 10m³/ha Storage | 2.000 |
| Hot Start Level (mm) | 0 | Inlet Coeffiecient | 0.800 |
| Manhole Headloss Coeff (Global) | 0.500 | Flow per Person per Day (l/per/day) | 0.000 |
| Foul Sewage per hectare (l/s) | 0.000 | | |

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 1 Number of Storage Structures 0 Number of Real Time Controls 0

### Synthetic Rainfall Details

| | | | |
|---|---|---|---|
| Rainfall Model | | FSR | Ratio R 0.279 |
| Region | England and Wales | Cv (Summer) | 0.750 |
| M5-60 (mm) | 19.500 | Cv (Winter) | 0.840 |

Margin for Flood Risk Warning (mm) 300.0 DVD Status OFF
Analysis Timestep Fine Inertia Status OFF
DTS Status ON

| | |
|---|---|
| Profile(s) | Summer and Winter |
| Duration(s) (mins) | 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440 |
| Return Period(s) (years) | 2, 30, 100 |
| Climate Change (%) | 0, 0, 35 |

| PN | US/MH Name | Storm Rank | Water Level (m) | Surcharged Depth (m) | Flooded Volume (m³) | Flow / Cap. | Overflow (l/s) | Pipe Flow (l/s) | Status |
|---|---|---|---|---|---|---|---|---|---|
| 1.000 | S1 | 62 | 57.842 | -1.039 | 0.000 | 0.00 | | 2.0 | OK |
| 1.001 | S2 | 59 | 57.772 | -1.012 | 0.000 | 0.00 | | 4.9 | OK |
| 1.002 | S3 | 58 | 57.739 | -0.956 | 0.000 | 0.01 | | 7.6 | OK |
| 2.000 | S4 | 58 | 57.731 | -0.974 | 0.000 | 0.00 | | 1.7 | OK |
| 1.003 | S5 | 58 | 57.730 | -0.908 | 0.000 | 0.01 | | 10.9 | OK |
| 1.004 | S6 HYDROBRAKE | 58 | 57.730 | 0.132 | 0.000 | 0.14 | | 9.4 | SURCHARGED |
| 1.005 | S7 | 58 | 57.296 | -0.232 | 0.000 | 0.12 | | 9.4 | OK |
| 3.000 | S8 | 59 | 57.144 | -0.267 | 0.000 | 0.00 | | 0.0 | OK |
| 1.006 | S9 | 58 | 57.144 | -0.233 | 0.000 | 0.11 | | 9.4 | OK |
| 1.007 | S10 | 57 | 56.761 | -0.215 | 0.000 | 0.18 | | 9.4 | OK |

## Summary Wizard of 1440 minute 30 year Winter I+0% for SW_NET1

### Simulation Criteria

| | | | |
|---|---|---|---|
| Areal Reduction Factor | 1.000 | Additional Flow - % of Total Flow | 0.000 |
| Hot Start (mins) | 0 | MADD Factor * 10m³/ha Storage | 2.000 |
| Hot Start Level (mm) | 0 | Inlet Coeffiecient | 0.800 |
| Manhole Headloss Coeff (Global) | 0.500 | Flow per Person per Day (l/per/day) | 0.000 |
| Foul Sewage per hectare (l/s) | 0.000 | | |

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 1 Number of Storage Structures 0 Number of Real Time Controls 0

### Synthetic Rainfall Details

| | | | |
|---|---|---|---|
| Rainfall Model | | FSR | Ratio R 0.279 |
| Region | England and Wales | Cv (Summer) | 0.750 |
| M5-60 (mm) | 19.500 | Cv (Winter) | 0.840 |

Margin for Flood Risk Warning (mm) 300.0 DVD Status OFF
Analysis Timestep Fine Inertia Status OFF
DTS Status ON

| | |
|---|---|
| Profile(s) | Summer and Winter |
| Duration(s) (mins) | 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440 |
| Return Period(s) (years) | 2, 30, 100 |
| Climate Change (%) | 0, 0, 35 |

| PN | US/MH Name | Storm Rank | Water Level (m) | Surcharged Depth (m) | Flooded Volume (m³) | Flow / Cap. | Overflow (l/s) | Pipe Flow (l/s) | Status |
|---|---|---|---|---|---|---|---|---|---|
| 1.000 | S1 | 68 | 57.839 | -1.042 | 0.000 | 0.00 | | 1.5 | OK |
| 1.001 | S2 | 68 | 57.755 | -1.029 | 0.000 | 0.00 | | 3.7 | OK |
| 1.002 | S3 | 68 | 57.675 | -1.020 | 0.000 | 0.01 | | 5.8 | OK |
| 2.000 | S4 | 68 | 57.662 | -1.043 | 0.000 | 0.00 | | 1.3 | OK |
| 1.003 | S5 | 67 | 57.542 | -1.096 | 0.000 | 0.01 | | 8.6 | OK |
| 1.004 | S6 HYDROBRAKE | 67 | 57.527 | -0.071 | 0.000 | 0.13 | | 8.3 | OK |
| 1.005 | S7 | 67 | 57.292 | -0.236 | 0.000 | 0.10 | | 8.3 | OK |
| 3.000 | S8 | 67 | 57.141 | -0.270 | 0.000 | 0.00 | | 0.0 | OK |
| 1.006 | S9 | 67 | 57.140 | -0.237 | 0.000 | 0.10 | | 8.3 | OK |
| 1.007 | S10 | 67 | 56.756 | -0.220 | 0.000 | 0.16 | | 8.3 | OK |

## Summary Wizard of 15 minute 100 year Winter I+35% for SW_NET1

### Simulation Criteria

| | | | |
|---|---|---|---|
| Areal Reduction Factor | 1.000 | Additional Flow - % of Total Flow | 0.000 |
| Hot Start (mins) | 0 | MADD Factor * 10m³/ha Storage | 2.000 |
| Hot Start Level (mm) | 0 | Inlet Coeffiecient | 0.800 |
| Manhole Headloss Coeff (Global) | 0.500 | Flow per Person per Day (l/per/day) | 0.000 |
| Foul Sewage per hectare (l/s) | 0.000 | | |

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 1 Number of Storage Structures 0 Number of Real Time Controls 0

### Synthetic Rainfall Details

| | | | |
|---|---|---|---|
| Rainfall Model | | FSR | Ratio R 0.279 |
| Region | England and Wales | Cv (Summer) | 0.750 |
| M5-60 (mm) | 19.500 | Cv (Winter) | 0.840 |

Margin for Flood Risk Warning (mm) 300.0 DVD Status OFF
Analysis Timestep Fine Inertia Status OFF
DTS Status ON

| | |
|---|---|
| Profile(s) | Summer and Winter |
| Duration(s) (mins) | 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440 |
| Return Period(s) (years) | 2, 30, 100 |
| Climate Change (%) | 0, 0, 35 |

| PN | US/MH Name | Storm Rank | Water Level (m) | Surcharged Depth (m) | Flooded Volume (m³) | Flow / Cap. | Overflow (l/s) | Pipe Flow (l/s) | Status |
|---|---|---|---|---|---|---|---|---|---|
| 1.000 | S1 | 21 | 58.161 | -0.720 | 0.000 | 0.03 | | 35.8 | OK |
| 1.001 | S2 | 21 | 58.161 | -0.623 | 0.000 | 0.08 | | 84.2 | OK |
| 1.002 | S3 | 21 | 58.161 | -0.534 | 0.000 | 0.12 | | 118.5 | OK |
| 2.000 | S4 | 21 | 58.161 | -0.544 | 0.000 | 0.02 | | 24.3 | OK |
| 1.003 | S5 | 21 | 58.161 | -0.477 | 0.000 | 0.08 | | 128.5 | OK |
| 1.004 | S6 HYDROBRAKE | 21 | 58.160 | 0.562 | 0.000 | 0.14 | | 9.5 | SURCHARGED |
| 1.005 | S7 | 39 | 57.296 | -0.232 | 0.000 | 0.12 | | 9.5 | OK |
| 3.000 | S8 | 58 | 57.144 | -0.267 | 0.000 | 0.00 | | 0.0 | OK |
| 1.006 | S9 | 56 | 57.144 | -0.233 | 0.000 | 0.11 | | 9.4 | OK |
| 1.007 | S10 | 59 | 56.761 | -0.215 | 0.000 | 0.18 | | 9.4 | OK |

## Summary Wizard of 30 minute 100 year Winter I+35% for SW_NET1

### Simulation Criteria

| | | | |
|---|---|---|---|
| Areal Reduction Factor | 1.000 | Additional Flow - % of Total Flow | 0.000 |
| Hot Start (mins) | 0 | MADD Factor * 10m³/ha Storage | 2.000 |
| Hot Start Level (mm) | 0 | Inlet Coeffiecient | 0.800 |
| Manhole Headloss Coeff (Global) | 0.500 | Flow per Person per Day (l/per/day) | 0.000 |
| Foul Sewage per hectare (l/s) | 0.000 | | |

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 1 Number of Storage Structures 0 Number of Real Time Controls 0

### Synthetic Rainfall Details

| | | | |
|---|---|---|---|
| Rainfall Model | | FSR | Ratio R 0.279 |
| Region | England and Wales | Cv (Summer) | 0.750 |
| M5-60 (mm) | 19.500 | Cv (Winter) | 0.840 |

Margin for Flood Risk Warning (mm) 300.0 DVD Status OFF
Analysis Timestep Fine Inertia Status OFF
DTS Status ON

| | |
|---|---|
| Profile(s) | Summer and Winter |
| Duration(s) (mins) | 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440 |
| Return Period(s) (years) | 2, 30, 100 |
| Climate Change (%) | 0, 0, 35 |

| PN | US/MH Name | Storm Rank | Water Level (m) | Surcharged Depth (m) | Flooded Volume (m³) | Flow / Cap. | Overflow (l/s) | Pipe Flow (l/s) | Status |
|---|---|---|---|---|---|---|---|---|---|
| 1.000 | S1 | 17 | 58.321 | -0.560 | 0.000 | 0.02 | | 28.1 | OK |
| 1.001 | S2 | 17 | 58.321 | -0.463 | 0.000 | 0.05 | | 58.2 | OK |
| 1.002 | S3 | 17 | 58.321 | -0.374 | 0.000 | 0.08 | | 77.3 | OK |
| 2.000 | S4 | 17 | 58.321 | -0.384 | 0.000 | 0.02 | | 20.8 | OK |
| 1.003 | S5 | 17 | 58.321 | -0.317 | 0.000 | 0.05 | | 82.0 | OK |
| 1.004 | S6 HYDROBRAKE | 17 | 58.321 | 0.723 | 0.000 | 0.14 | | 9.5 | SURCHARGED |
| 1.005 | S7 | 38 | 57.296 | -0.232 | 0.000 | 0.12 | | 9.5 | OK |
| 3.000 | S8 | 51 | 57.144 | -0.267 | 0.000 | 0.00 | | 0.0 | OK |
| 1.006 | S9 | 50 | 57.144 | -0.233 | 0.000 | 0.11 | | 9.5 | OK |
| 1.007 | S10 | 50 | 56.761 | -0.215 | 0.000 | 0.18 | | 9.5 | OK |

## Summary Wizard of 60 minute 100 year Winter I+35% for SW_NET1

### Simulation Criteria

| | | | |
|---|---|---|---|
| Areal Reduction Factor | 1.000 | Additional Flow - % of Total Flow | 0.000 |
| Hot Start (mins) | 0 | MADD Factor * 10m³/ha Storage | 2.000 |
| Hot Start Level (mm) | 0 | Inlet Coeffiecient | 0.800 |
| Manhole Headloss Coeff (Global) | 0.500 | Flow per Person per Day (l/per/day) | 0.000 |
| Foul Sewage per hectare (l/s) | 0.000 | | |

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 1 Number of Storage Structures 0 Number of Real Time Controls 0

### Synthetic Rainfall Details

| | | | |
|---|---|---|---|
| Rainfall Model | | FSR | Ratio R 0.279 |
| Region | England and Wales | Cv (Summer) | 0.750 |
| M5-60 (mm) | 19.500 | Cv (Winter) | 0.840 |

Margin for Flood Risk Warning (mm) 300.0 DVD Status OFF
Analysis Timestep Fine Inertia Status OFF
DTS Status ON

| | |
|---|---|
| Profile(s) | Summer and Winter |
| Duration(s) (mins) | 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440 |
| Return Period(s) (years) | 2, 30, 100 |
| Climate Change (%) | 0, 0, 35 |

| PN | US/MH Name | Storm Rank | Water Level (m) | Surcharged Depth (m) | Flooded Volume (m³) | Flow / Cap. | Overflow (l/s) | Pipe Flow (l/s) | Status |
|---|---|---|---|---|---|---|---|---|---|
| 1.000 | S1 | 8 | 58.498 | -0.383 | 0.000 | 0.02 | | 18.7 | OK |
| 1.001 | S2 | 8 | 58.498 | -0.286 | 0.000 | 0.03 | | 34.3 | OK |
| 1.002 | S3 | 8 | 58.498 | -0.197 | 0.000 | 0.05 | | 44.6 | OK |
| 2.000 | S4 | 8 | 58.498 | -0.207 | 0.000 | 0.01 | | 15.2 | OK |
| 1.003 | S5 | 8 | 58.498 | -0.140 | 0.000 | 0.03 | | 50.5 | OK |
| 1.004 | S6 HYDROBRAKE | 8 | 58.498 | 0.900 | 0.000 | 0.14 | | 9.5 | SURCHARGED |
| 1.005 | S7 | 32 | 57.296 | -0.232 | 0.000 | 0.12 | | 9.5 | OK |
| 3.000 | S8 | 26 | 57.144 | -0.267 | 0.000 | 0.00 | | 0.0 | OK |
| 1.006 | S9 | 44 | 57.144 | -0.233 | 0.000 | 0.12 | | 9.5 | OK |
| 1.007 | S10 | 37 | 56.762 | -0.214 | 0.000 | 0.18 | | 9.5 | OK |

## Summary Wizard of 120 minute 100 year Winter I+35% for SW_NET1

### Simulation Criteria

| | | | |
|---|---|---|---|
| Areal Reduction Factor | 1.000 | Additional Flow - % of Total Flow | 0.000 |
| Hot Start (mins) | 0 | MADD Factor * 10m³/ha Storage | 2.000 |
| Hot Start Level (mm) | 0 | Inlet Coeffiecient | 0.800 |
| Manhole Headloss Coeff (Global) | 0.500 | Flow per Person per Day (l/per/day) | 0.000 |
| Foul Sewage per hectare (l/s) | 0.000 | | |

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 1 Number of Storage Structures 0 Number of Real Time Controls 0

### Synthetic Rainfall Details

| | | | |
|---|---|---|---|
| Rainfall Model | | FSR | Ratio R 0.279 |
| Region | England and Wales | Cv (Summer) | 0.750 |
| M5-60 (mm) | 19.500 | Cv (Winter) | 0.840 |

Margin for Flood Risk Warning (mm) 300.0 DVD Status OFF
Analysis Timestep Fine Inertia Status OFF
DTS Status ON

| | |
|---|---|
| Profile(s) | Summer and Winter |
| Duration(s) (mins) | 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440 |
| Return Period(s) (years) | 2, 30, 100 |
| Climate Change (%) | 0, 0, 35 |

| PN | US/MH Name | Storm Rank | Water Level (m) | Surcharged Depth (m) | Flooded Volume (m³) | Flow / Cap. | Overflow (l/s) | Pipe Flow (l/s) | Status |
|---|---|---|---|---|---|---|---|---|---|
| 1.000 | S1 | 3 | 58.675 | -0.206 | 0.000 | 0.01 | | 12.4 | OK |
| 1.001 | S2 | 3 | 58.675 | -0.109 | 0.000 | 0.02 | | 20.8 | OK |
| 1.002 | S3 | 3 | 58.675 | -0.020 | 0.000 | 0.03 | | 27.3 | OK |
| 2.000 | S4 | 3 | 58.674 | -0.031 | 0.000 | 0.01 | | 10.2 | OK |
| 1.003 | S5 | 3 | 58.674 | 0.036 | 0.000 | 0.02 | | 33.8 | SURCHARGED |
| 1.004 | S6 HYDROBRAKE | 3 | 58.674 | 1.076 | 0.000 | 0.14 | | 9.5 | SURCHARGED |
| 1.005 | S7 | 26 | 57.296 | -0.232 | 0.000 | 0.12 | | 9.5 | OK |
| 3.000 | S8 | 44 | 57.144 | -0.267 | 0.000 | 0.00 | | 0.0 | OK |
| 1.006 | S9 | 25 | 57.144 | -0.233 | 0.000 | 0.12 | | 9.5 | OK |
| 1.007 | S10 | 40 | 56.762 | -0.214 | 0.000 | 0.18 | | 9.5 | OK |

## Summary Wizard of 180 minute 100 year Winter I+35% for SW_NET1

### Simulation Criteria

| | | | |
|---|---|---|---|
| Areal Reduction Factor | 1.000 | Additional Flow - % of Total Flow | 0.000 |
| Hot Start (mins) | 0 | MADD Factor * 10m³/ha Storage | 2.000 |
| Hot Start Level (mm) | 0 | Inlet Coeffiecient | 0.800 |
| Manhole Headloss Coeff (Global) | 0.500 | Flow per Person per Day (l/per/day) | 0.000 |
| Foul Sewage per hectare (l/s) | 0.000 | | |

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 1 Number of Storage Structures 0 Number of Real Time Controls 0

### Synthetic Rainfall Details

| | | | |
|---|---|---|---|
| Rainfall Model | | FSR | Ratio R 0.279 |
| Region | England and Wales | Cv (Summer) | 0.750 |
| M5-60 (mm) | 19.500 | Cv (Winter) | 0.840 |

Margin for Flood Risk Warning (mm) 300.0 DVD Status OFF
Analysis Timestep Fine Inertia Status OFF
DTS Status ON

| | |
|---|---|
| Profile(s) | Summer and Winter |
| Duration(s) (mins) | 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440 |
| Return Period(s) (years) | 2, 30, 100 |
| Climate Change (%) | 0, 0, 35 |

| PN | US/MH Name | Storm Rank | Water Level (m) | Surcharged Depth (m) | Flooded Volume (m³) | Flow / Cap. | Overflow (l/s) | Pipe Flow (l/s) | Status |
|---|---|---|---|---|---|---|---|---|---|
| 1.000 | S1 | 1 | 58.719 | -0.162 | 0.000 | 0.01 | | 9.6 | OK |
| 1.001 | S2 | 1 | 58.719 | -0.065 | 0.000 | 0.01 | | 16.4 | OK |
| 1.002 | S3 | 1 | 58.719 | 0.024 | 0.000 | 0.02 | | 21.7 | SURCHARGED |
| 2.000 | S4 | 1 | 58.719 | 0.014 | 0.000 | 0.01 | | 7.9 | SURCHARGED |
| 1.003 | S5 | 1 | 58.719 | 0.081 | 0.000 | 0.02 | | 27.2 | SURCHARGED |
| 1.004 | S6 HYDROBRAKE | 1 | 58.719 | 1.121 | 0.000 | 0.14 | | 9.5 | SURCHARGED |
| 1.005 | S7 | 36 | 57.296 | -0.232 | 0.000 | 0.12 | | 9.5 | OK |
| 3.000 | S8 | 37 | 57.144 | -0.267 | 0.000 | 0.00 | | 0.0 | OK |
| 1.006 | S9 | 35 | 57.144 | -0.233 | 0.000 | 0.12 | | 9.5 | OK |
| 1.007 | S10 | 27 | 56.762 | -0.214 | 0.000 | 0.18 | | 9.5 | OK |

## Summary Wizard of 240 minute 100 year Winter I+35% for SW_NET1

### Simulation Criteria

| | | | |
|---|---|---|---|
| Areal Reduction Factor | 1.000 | Additional Flow - % of Total Flow | 0.000 |
| Hot Start (mins) | 0 | MADD Factor * 10m³/ha Storage | 2.000 |
| Hot Start Level (mm) | 0 | Inlet Coeffiecient | 0.800 |
| Manhole Headloss Coeff (Global) | 0.500 | Flow per Person per Day (l/per/day) | 0.000 |
| Foul Sewage per hectare (l/s) | 0.000 | | |

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 1 Number of Storage Structures 0 Number of Real Time Controls 0

### Synthetic Rainfall Details

| | | | |
|---|---|---|---|
| Rainfall Model | | FSR | Ratio R 0.279 |
| Region | England and Wales | Cv (Summer) | 0.750 |
| M5-60 (mm) | 19.500 | Cv (Winter) | 0.840 |

Margin for Flood Risk Warning (mm) 300.0 DVD Status OFF
Analysis Timestep Fine Inertia Status OFF
DTS Status ON

| | |
|---|---|
| Profile(s) | Summer and Winter |
| Duration(s) (mins) | 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440 |
| Return Period(s) (years) | 2, 30, 100 |
| Climate Change (%) | 0, 0, 35 |

| PN | US/MH Name | Storm Rank | Water Level (m) | Surcharged Depth (m) | Flooded Volume (m³) | Flow / Cap. | Overflow (l/s) | Pipe Flow (l/s) | Status |
|---|---|---|---|---|---|---|---|---|---|
| 1.000 | S1 | 2 | 58.696 | -0.185 | 0.000 | 0.01 | | 7.9 | OK |
| 1.001 | S2 | 2 | 58.696 | -0.088 | 0.000 | 0.01 | | 13.7 | OK |
| 1.002 | S3 | 2 | 58.696 | 0.001 | 0.000 | 0.02 | | 18.4 | SURCHARGED |
| 2.000 | S4 | 2 | 58.697 | -0.008 | 0.000 | 0.01 | | 6.5 | OK |
| 1.003 | S5 | 2 | 58.697 | 0.059 | 0.000 | 0.01 | | 23.4 | SURCHARGED |
| 1.004 | S6 HYDROBRAKE | 2 | 58.697 | 1.099 | 0.000 | 0.14 | | 9.5 | SURCHARGED |
| 1.005 | S7 | 37 | 57.296 | -0.232 | 0.000 | 0.12 | | 9.5 | OK |
| 3.000 | S8 | 23 | 57.144 | -0.267 | 0.000 | 0.00 | | 0.0 | OK |
| 1.006 | S9 | 29 | 57.144 | -0.233 | 0.000 | 0.12 | | 9.5 | OK |
| 1.007 | S10 | 6 | 56.762 | -0.214 | 0.000 | 0.18 | | 9.5 | OK |

## Summary Wizard of 360 minute 100 year Winter I+35% for SW_NET1

### Simulation Criteria

| | | | |
|---|---|---|---|
| Areal Reduction Factor | 1.000 | Additional Flow - % of Total Flow | 0.000 |
| Hot Start (mins) | 0 | MADD Factor * 10m³/ha Storage | 2.000 |
| Hot Start Level (mm) | 0 | Inlet Coeffiecient | 0.800 |
| Manhole Headloss Coeff (Global) | 0.500 | Flow per Person per Day (l/per/day) | 0.000 |
| Foul Sewage per hectare (l/s) | 0.000 | | |

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 1 Number of Storage Structures 0 Number of Real Time Controls 0

### Synthetic Rainfall Details

| | | | |
|---|---|---|---|
| Rainfall Model | | FSR | Ratio R 0.279 |
| Region | England and Wales | Cv (Summer) | 0.750 |
| M5-60 (mm) | 19.500 | Cv (Winter) | 0.840 |

Margin for Flood Risk Warning (mm) 300.0 DVD Status OFF
Analysis Timestep Fine Inertia Status OFF
DTS Status ON

| | |
|---|---|
| Profile(s) | Summer and Winter |
| Duration(s) (mins) | 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440 |
| Return Period(s) (years) | 2, 30, 100 |
| Climate Change (%) | 0, 0, 35 |

| PN | US/MH Name | Storm Rank | Water Level (m) | Surcharged Depth (m) | Flooded Volume (m³) | Flow / Cap. | Overflow (l/s) | Pipe Flow (l/s) | Status |
|---|---|---|---|---|---|---|---|---|---|
| 1.000 | S1 | 4 | 58.633 | -0.248 | 0.000 | 0.01 | | 6.0 | OK |
| 1.001 | S2 | 4 | 58.633 | -0.151 | 0.000 | 0.01 | | 10.9 | OK |
| 1.002 | S3 | 4 | 58.633 | -0.062 | 0.000 | 0.02 | | 14.8 | OK |
| 2.000 | S4 | 4 | 58.633 | -0.072 | 0.000 | 0.00 | | 4.9 | OK |
| 1.003 | S5 | 4 | 58.633 | -0.005 | 0.000 | 0.01 | | 19.3 | OK |
| 1.004 | S6 HYDROBRAKE | 4 | 58.626 | 1.028 | 0.000 | 0.14 | | 9.5 | SURCHARGED |
| 1.005 | S7 | 28 | 57.296 | -0.232 | 0.000 | 0.12 | | 9.5 | OK |
| 3.000 | S8 | 29 | 57.144 | -0.267 | 0.000 | 0.00 | | 0.1 | OK |
| 1.006 | S9 | 34 | 57.144 | -0.233 | 0.000 | 0.12 | | 9.5 | OK |
| 1.007 | S10 | 24 | 56.762 | -0.214 | 0.000 | 0.18 | | 9.5 | OK |

## Summary Wizard of 480 minute 100 year Winter I+35% for SW_NET1

### Simulation Criteria

| | | | |
|---|---|---|---|
| Areal Reduction Factor | 1.000 | Additional Flow - % of Total Flow | 0.000 |
| Hot Start (mins) | 0 | MADD Factor * 10m³/ha Storage | 2.000 |
| Hot Start Level (mm) | 0 | Inlet Coeffiecient | 0.800 |
| Manhole Headloss Coeff (Global) | 0.500 | Flow per Person per Day (l/per/day) | 0.000 |
| Foul Sewage per hectare (l/s) | 0.000 | | |

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 1 Number of Storage Structures 0 Number of Real Time Controls 0

### Synthetic Rainfall Details

| | | | |
|---|---|---|---|
| Rainfall Model | | FSR | Ratio R 0.279 |
| Region | England and Wales | Cv (Summer) | 0.750 |
| M5-60 (mm) | 19.500 | Cv (Winter) | 0.840 |

Margin for Flood Risk Warning (mm) 300.0 DVD Status OFF
Analysis Timestep Fine Inertia Status OFF
DTS Status ON

| | |
|---|---|
| Profile(s) | Summer and Winter |
| Duration(s) (mins) | 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440 |
| Return Period(s) (years) | 2, 30, 100 |
| Climate Change (%) | 0, 0, 35 |

| PN | US/MH Name | Storm Rank | Water Level (m) | Surcharged Depth (m) | Flooded Volume (m³) | Flow / Cap. | Overflow (l/s) | Pipe Flow (l/s) | Status |
|---|---|---|---|---|---|---|---|---|---|
| 1.000 | S1 | 5 | 58.572 | -0.309 | 0.000 | 0.00 | | 4.9 | OK |
| 1.001 | S2 | 5 | 58.572 | -0.212 | 0.000 | 0.01 | | 9.3 | OK |
| 1.002 | S3 | 5 | 58.572 | -0.123 | 0.000 | 0.01 | | 12.9 | OK |
| 2.000 | S4 | 5 | 58.572 | -0.133 | 0.000 | 0.00 | | 4.1 | OK |
| 1.003 | S5 | 5 | 58.572 | -0.066 | 0.000 | 0.01 | | 17.0 | OK |
| 1.004 | S6 HYDROBRAKE | 5 | 58.571 | 0.973 | 0.000 | 0.14 | | 9.5 | SURCHARGED |
| 1.005 | S7 | 22 | 57.296 | -0.232 | 0.000 | 0.12 | | 9.5 | OK |
| 3.000 | S8 | 36 | 57.144 | -0.267 | 0.000 | 0.00 | | 0.0 | OK |
| 1.006 | S9 | 12 | 57.144 | -0.233 | 0.000 | 0.12 | | 9.5 | OK |
| 1.007 | S10 | 18 | 56.762 | -0.214 | 0.000 | 0.18 | | 9.5 | OK |

## Summary Wizard of 600 minute 100 year Winter I+35% for SW_NET1

### Simulation Criteria

| | | | |
|---|---|---|---|
| Areal Reduction Factor | 1.000 | Additional Flow - % of Total Flow | 0.000 |
| Hot Start (mins) | 0 | MADD Factor * 10m³/ha Storage | 2.000 |
| Hot Start Level (mm) | 0 | Inlet Coeffiecient | 0.800 |
| Manhole Headloss Coeff (Global) | 0.500 | Flow per Person per Day (l/per/day) | 0.000 |
| Foul Sewage per hectare (l/s) | 0.000 | | |

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 1 Number of Storage Structures 0 Number of Real Time Controls 0

### Synthetic Rainfall Details

| | | | |
|---|---|---|---|
| Rainfall Model | FSR | Ratio R | 0.279 |
| Region | England and Wales | Cv (Summer) | 0.750 |
| M5-60 (mm) | 19.500 | Cv (Winter) | 0.840 |

Margin for Flood Risk Warning (mm) 300.0 DVD Status OFF
Analysis Timestep Fine Inertia Status OFF
DTS Status ON

| | |
|---|---|
| Profile(s) | Summer and Winter |
| Duration(s) (mins) | 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440 |
| Return Period(s) (years) | 2, 30, 100 |
| Climate Change (%) | 0, 0, 35 |

| PN | US/MH Name | Storm Rank | Water Level (m) | Surcharged Depth (m) | Flooded Volume (m³) | Flow / Cap. | Overflow (l/s) | Pipe Flow (l/s) | Status |
|---|---|---|---|---|---|---|---|---|---|
| 1.000 | S1 | 7 | 58.501 | -0.380 | 0.000 | 0.00 | | 4.2 | OK |
| 1.001 | S2 | 7 | 58.501 | -0.283 | 0.000 | 0.01 | | 8.4 | OK |
| 1.002 | S3 | 7 | 58.502 | -0.193 | 0.000 | 0.01 | | 11.8 | OK |
| 2.000 | S4 | 7 | 58.501 | -0.204 | 0.000 | 0.00 | | 3.5 | OK |
| 1.003 | S5 | 7 | 58.502 | -0.136 | 0.000 | 0.01 | | 15.5 | OK |
| 1.004 | S6 HYDROBRAKE | 7 | 58.501 | 0.903 | 0.000 | 0.14 | | 9.5 | SURCHARGED |
| 1.005 | S7 | 14 | 57.296 | -0.232 | 0.000 | 0.12 | | 9.5 | OK |
| 3.000 | S8 | 3 | 57.144 | -0.267 | 0.000 | 0.00 | | 0.1 | OK |
| 1.006 | S9 | 20 | 57.144 | -0.233 | 0.000 | 0.12 | | 9.5 | OK |
| 1.007 | S10 | 31 | 56.762 | -0.214 | 0.000 | 0.18 | | 9.5 | OK |

## Summary Wizard of 720 minute 100 year Winter I+35% for SW_NET1

### Simulation Criteria

| | | | |
|---|---|---|---|
| Areal Reduction Factor | 1.000 | Additional Flow - % of Total Flow | 0.000 |
| Hot Start (mins) | 0 | MADD Factor * 10m³/ha Storage | 2.000 |
| Hot Start Level (mm) | 0 | Inlet Coeffiecient | 0.800 |
| Manhole Headloss Coeff (Global) | 0.500 | Flow per Person per Day (l/per/day) | 0.000 |
| Foul Sewage per hectare (l/s) | 0.000 | | |

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 1 Number of Storage Structures 0 Number of Real Time Controls 0

### Synthetic Rainfall Details

| | | | |
|---|---|---|---|
| Rainfall Model | | FSR | Ratio R 0.279 |
| Region | England and Wales | Cv (Summer) | 0.750 |
| M5-60 (mm) | 19.500 | Cv (Winter) | 0.840 |

Margin for Flood Risk Warning (mm) 300.0 DVD Status OFF
Analysis Timestep Fine Inertia Status OFF
DTS Status ON

| | |
|---|---|
| Profile(s) | Summer and Winter |
| Duration(s) (mins) | 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440 |
| Return Period(s) (years) | 2, 30, 100 |
| Climate Change (%) | 0, 0, 35 |

| PN | US/MH Name | Storm Rank | Water Level (m) | Surcharged Depth (m) | Flooded Volume (m³) | Flow / Cap. | Overflow (l/s) | Pipe Flow (l/s) | Status |
|---|---|---|---|---|---|---|---|---|---|
| 1.000 | S1 | 13 | 58.428 | -0.453 | 0.000 | 0.00 | | 3.7 | OK |
| 1.001 | S2 | 13 | 58.428 | -0.356 | 0.000 | 0.01 | | 7.6 | OK |
| 1.002 | S3 | 12 | 58.428 | -0.267 | 0.000 | 0.01 | | 10.9 | OK |
| 2.000 | S4 | 12 | 58.428 | -0.277 | 0.000 | 0.00 | | 3.1 | OK |
| 1.003 | S5 | 12 | 58.428 | -0.210 | 0.000 | 0.01 | | 14.5 | OK |
| 1.004 | S6 HYDROBRAKE | 13 | 58.428 | 0.830 | 0.000 | 0.14 | | 9.5 | SURCHARGED |
| 1.005 | S7 | 9 | 57.296 | -0.232 | 0.000 | 0.12 | | 9.5 | OK |
| 3.000 | S8 | 15 | 57.144 | -0.267 | 0.000 | 0.00 | | 0.1 | OK |
| 1.006 | S9 | 11 | 57.144 | -0.233 | 0.000 | 0.12 | | 9.5 | OK |
| 1.007 | S10 | 3 | 56.762 | -0.214 | 0.000 | 0.18 | | 9.5 | OK |

## Summary Wizard of 960 minute 100 year Winter I+35% for SW_NET1

### Simulation Criteria

| | | | |
|---|---|---|---|
| Areal Reduction Factor | 1.000 | Additional Flow - % of Total Flow | 0.000 |
| Hot Start (mins) | 0 | MADD Factor * 10m³/ha Storage | 2.000 |
| Hot Start Level (mm) | 0 | Inlet Coeffiecient | 0.800 |
| Manhole Headloss Coeff (Global) | 0.500 | Flow per Person per Day (l/per/day) | 0.000 |
| Foul Sewage per hectare (l/s) | 0.000 | | |

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 1 Number of Storage Structures 0 Number of Real Time Controls 0

### Synthetic Rainfall Details

| | | | |
|---|---|---|---|
| Rainfall Model | | FSR | Ratio R 0.279 |
| Region | England and Wales | Cv (Summer) | 0.750 |
| M5-60 (mm) | 19.500 | Cv (Winter) | 0.840 |

Margin for Flood Risk Warning (mm) 300.0 DVD Status OFF
Analysis Timestep Fine Inertia Status OFF
DTS Status ON

| | |
|---|---|
| Profile(s) | Summer and Winter |
| Duration(s) (mins) | 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440 |
| Return Period(s) (years) | 2, 30, 100 |
| Climate Change (%) | 0, 0, 35 |

| PN | US/MH Name | Storm Rank | Water Level (m) | Surcharged Depth (m) | Flooded Volume (m³) | Flow / Cap. | Overflow (l/s) | Pipe Flow (l/s) | Status |
|---|---|---|---|---|---|---|---|---|---|
| 1.000 | S1 | 18 | 58.281 | -0.600 | 0.000 | 0.00 | | 3.1 | OK |
| 1.001 | S2 | 18 | 58.281 | -0.503 | 0.000 | 0.01 | | 6.8 | OK |
| 1.002 | S3 | 18 | 58.281 | -0.414 | 0.000 | 0.01 | | 9.8 | OK |
| 2.000 | S4 | 18 | 58.281 | -0.424 | 0.000 | 0.00 | | 2.6 | OK |
| 1.003 | S5 | 18 | 58.281 | -0.357 | 0.000 | 0.01 | | 13.2 | OK |
| 1.004 | S6 HYDROBRAKE | 18 | 58.281 | 0.683 | 0.000 | 0.14 | | 9.5 | SURCHARGED |
| 1.005 | S7 | 23 | 57.296 | -0.232 | 0.000 | 0.12 | | 9.5 | OK |
| 3.000 | S8 | 10 | 57.144 | -0.267 | 0.000 | 0.00 | | 0.0 | OK |
| 1.006 | S9 | 15 | 57.144 | -0.233 | 0.000 | 0.12 | | 9.5 | OK |
| 1.007 | S10 | 29 | 56.762 | -0.214 | 0.000 | 0.18 | | 9.5 | OK |

## Summary Wizard of 1440 minute 100 year Winter I+35% for SW NET1

### Simulation Criteria

| | | | |
|---|---|---|---|
| Areal Reduction Factor | 1.000 | Additional Flow - % of Total Flow | 0.000 |
| Hot Start (mins) | 0 | MADD Factor * 10m³/ha Storage | 2.000 |
| Hot Start Level (mm) | 0 | Inlet Coeffiecient | 0.800 |
| Manhole Headloss Coeff (Global) | 0.500 | Flow per Person per Day (l/per/day) | 0.000 |
| Foul Sewage per hectare (l/s) | 0.000 | | |

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 1 Number of Storage Structures 0 Number of Real Time Controls 0

### Synthetic Rainfall Details

| | | | |
|---|---|---|---|
| Rainfall Model | | FSR | Ratio R 0.279 |
| Region | England and Wales | Cv (Summer) | 0.750 |
| M5-60 (mm) | 19.500 | Cv (Winter) | 0.840 |

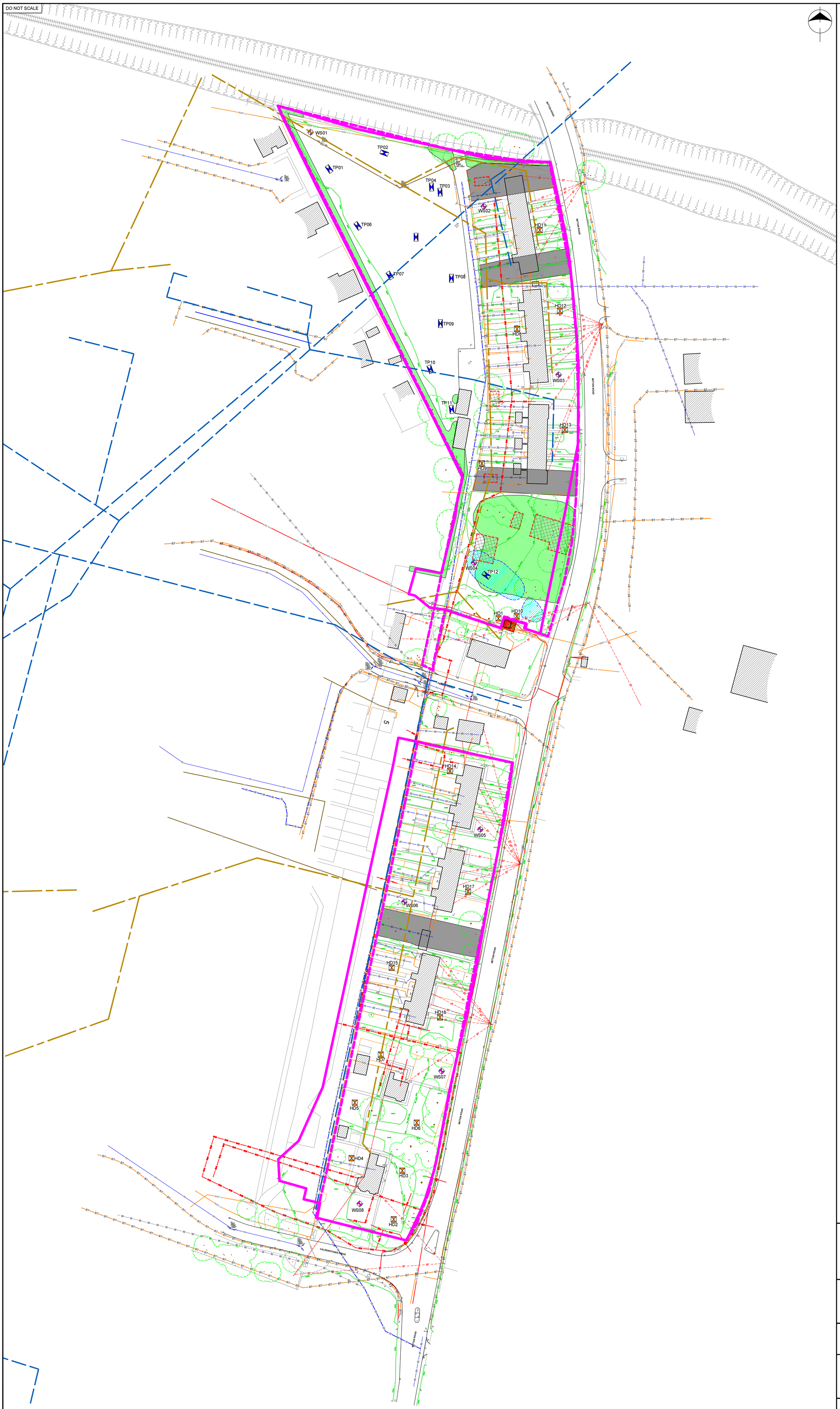
Margin for Flood Risk Warning (mm) 300.0 DVD Status OFF
Analysis Timestep Fine Inertia Status OFF
DTS Status ON

| | |
|---|---|
| Profile(s) | Summer and Winter |
| Duration(s) (mins) | 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440 |
| Return Period(s) (years) | 2, 30, 100 |
| Climate Change (%) | 0, 0, 35 |

| PN | US/MH Name | Storm Rank | Water Level (m) | Surcharged Depth (m) | Flooded Volume (m³) | Flow / Cap. | Overflow (l/s) | Pipe Flow (l/s) | Status |
|---|---|---|---|---|---|---|---|---|---|
| 1.000 | S1 | 29 | 58.043 | -0.838 | 0.000 | 0.00 | | 2.4 | OK |
| 1.001 | S2 | 29 | 58.043 | -0.741 | 0.000 | 0.01 | | 5.8 | OK |
| 1.002 | S3 | 29 | 58.043 | -0.652 | 0.000 | 0.01 | | 8.5 | OK |
| 2.000 | S4 | 29 | 58.043 | -0.662 | 0.000 | 0.00 | | 2.0 | OK |
| 1.003 | S5 | 29 | 58.043 | -0.595 | 0.000 | 0.01 | | 11.8 | OK |
| 1.004 | S6 HYDROBRAKE | 29 | 58.043 | 0.445 | 0.000 | 0.14 | | 9.5 | SURCHARGED |
| 1.005 | S7 | 29 | 57.296 | -0.232 | 0.000 | 0.12 | | 9.5 | OK |
| 3.000 | S8 | 17 | 57.144 | -0.267 | 0.000 | 0.00 | | 0.0 | OK |
| 1.006 | S9 | 22 | 57.144 | -0.233 | 0.000 | 0.12 | | 9.5 | OK |
| 1.007 | S10 | 34 | 56.762 | -0.214 | 0.000 | 0.18 | | 9.5 | OK |

## Appendix H – Coopers borehole and trial pit location plan and logs

DO NOT SCALE




## KEY TO EXPLORATORY HOLES

(All positions are approximate unless otherwise stated)

- Trial pits TP01 - TP12 excavated by Coopers on 03 September 2020
- Hand dig trial pits HD1 - HD17 excavated by Coopers between 28 August - 17 September 2020
- Window sample boreholes WS1 - WS8 drilled for Coopers between 28 August - 01 September 2020

## KEY TO EXISTING FEATURES

(All positions are approximate unless otherwise stated)

- Surveyed buildings (taken from ref. g)
- Surveyed tree (taken from ref. g)
- Surveyed vegetation (taken from ref. g)
- Surveyed fenceline (taken from ref. g)
- Occupied properties - no investigation permitted
- Areas on Himalayan Balsam observed by Coopers on 22 July 2020
- Electricity substation (taken from ref. g)
- Original site investigation boundary (taken from ref. a)
- New site boundary (taken from ref. h)

## KEY TO FORMER FEATURES

(All positions are approximate unless otherwise stated)

- Former buildings (taken from ref. f)
- Former hedgeline (taken from ref. f)
- Former pond (taken from ref. f)
- Former railway (taken from ref. f)

## KEY TO CONJECTURED SERVICES

- BT lines (taken from ref. c)
- Surveyed BT overhead lines (taken from ref. g)
- High voltage electricity lines (taken from ref. e)
- Low voltage electricity lines (taken from ref. e)
- Gas lines (taken from ref. b)
- Potable water mains (taken from ref. d)
- Potable abandoned water lines (taken from ref. d)
- Surface water lines (taken from ref. d)
- Foul sewer line (taken from ref. d)
- Former surface water lines (taken from Coopers archived project No. 2309)
- Former foul sewer line (taken from Coopers archived project No. 2309)

Note:
Only above services available to Coopers at time of drawing production.

This drawing is to be read in conjunction with the following:-

a) Prospect Homes, Mitton Road, Whalley, Location Plan, ref. LP001, dated July 2020.
b) Cadent Gas, ref. 372649,437354, dated 12 August 2020.
c) BT Openreach utilities map, ref. DTH02115X & WXL02118M, dated 12 August 2020.
d) United Utilities, Land at Mitton Road, Clitheroe, ref. UUPS-ORD-164086, dated 13 May 2020.
e) Electricity North West, GIS Viewer, search dated 12 August 2020.
f) Groundsure, Mitton Road, Whalley, BB7 9JT, ref. GS-6960964, dated 12 August 2020.
g) SurveyEng Ltd, Mitton Road, Whalley, Topographical Land Survey, ref. PRO.TS.07, dated 19 August 2020.
h) Prospect Homes, Mitton Road, Whalley, Draft Planning Layout, ref. MR/W-SJS-PL01, received by Coopers on 16 October 2020.

THIS DRAWING SHOULD ONLY BE PRINTED IN COLOUR

0 5 10 15 20 25 30 35 40 45 50
SCALEBAR (m)

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Sandpiper Court
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CH4 9QU
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Web: http://coopers.co.uk

Client: prospect. HOMES

Project: Mitton Road, Whalley.

Title: SITE PLAN

| DRAWING NUMBER | SCALE at A0 | 1:500 | |
|---|---|---|---|
| 7583 / 01 | DATE | 21.10.20 | REVISION |
| | DRAWN | AH | - |
| | CHECKED | BH | |

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**Site**
MITTON ROAD, WHALLEY

**Trial Pit Number**
**TP01**

**Machine :** 5 Tonne Tracked Excavator

**Method :** Mechanical Excavation

**Dimensions**
3.00 x 1.00 x 2.95m

**Ground Level (mOD)**

**Client**
Prospect Homes Ltd

**Job Number**
7583

**Location** (Observed measurements)

**Dates**
03/09/2020

**Engineer**
Coopers (Chester) Ltd

**Sheet**
1/1

| Depth (m) | Sample / Tests | Water Depth (m) | Field Records | Level (mOD) | Depth (m) (Thickness) | Description | Legend | Water |
|---|---|---|---|---|---|---|---|---|
| 0.10 | B | | | | (0.25) | Turf over dark brown, slightly clayey, silty TOPSOIL with some fine roots. | | |
| | | | | | 0.25 | Firm, medium strength, grey/brown, slightly silty CLAY. | | |
| 0.40 | SV 60kPa | | | | | | | |
| 0.50 | B | | | | | | | |
| 0.80 | SV 64kPa | | | | | | | |
| | | | | | | Below 1.50m: Firm to stiff, high strength, grey/brown with lenses of silt and pockets of fine sand | | |
| 1.60 | SV 80kPa | | | | (2.70) | | | |
| 1.60 | B | | | | | | | |
| 1.90 | SV 100kPa | | | | | | | |
| 2.10 | SV 124kPa | | | | | | | |
| 2.50 | SV 120kPa | | | | | | | |
| 2.60 | B | | | | | | | |
| 2.90 | SV 120kPa | | | | 2.95 | Complete at 2.95m | | |

**Remarks**

Location CAT scanned prior to excavation.
Sides stable during excavation.
No groundwater encountered during excavation.
Please note that discolouration of photographs may occur when viewed on screen as a PDF, or when printed as a hard copy.
Trial pit backfilled with arisings upon completion.

| Scale (approx) | Logged By | Checked By |
|---|---|---|
| 1:20 | MW | PRS |

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**Site**
MITTON ROAD, WHALLEY

**Trial Pit Number**
**TP02**

**Machine :** 5 Tonne Tracked Excavator

**Method :** Mechanical Excavation

**Dimensions**
3.50 x 1.00 x 3.00m

**Ground Level (mOD)**

**Client**
Prospect Homes Ltd

**Job Number**
7583

**Location** (Observed measurements)

**Dates**
03/09/2020

**Engineer**
Coopers (Chester) Ltd

**Sheet**
1/1

| Depth (m) | Sample / Tests | Water Depth (m) | Field Records | Level (mOD) | Depth (m) (Thickness) | Description | Legend | Water |
|---|---|---|---|---|---|---|---|---|
| 0.10 | B | | | | (0.25) | Turf over dark brown, slightly clayey TOPSOIL with some fine roots. | | |
| | | | | | 0.25 | | | |
| 0.30 | SV 60kPa | | | | | Soft to firm, medium strength, grey mottled brown, silty, sandy CLAY. | | |
| 0.50 | SV 60kPa | | | | | | | |
| 0.50 | B | | | | | | | |
| 0.80 | SV 60kPa | | | | | | | |
| | | | | | (1.35) | | | |
| | | | Minor seepage on east side pit(1) at 1.00m. | | | | | ▽1 |
| 1.20 | SV 68kPa | | | | | | | |
| 1.50 | SV 60kPa | | | | | | | |
| 1.50 | B | | | | 1.60 | | | |
| | | | | | | Soft to firm, medium strength, grey/brown, very silty CLAY/very clayey SILT. | | |
| 1.80 | SV 56kPa | | | | | | | |
| 1.80 | B | | | | | | | |
| 2.20 | SV 52kPa | | | | | | | |
| | | | | | (1.40) | | | |
| 2.50 | B | | | | | | | |
| 2.60 | SV 60kPa | | | | | | | |
| 2.90 | SV 60kPa | | | | | | | |
| 2.90 | B | | | | 3.00 | | | |
| | | | | | | Complete at 3.00m | | |

**Remarks**

Location CAT scanned prior to excavation.
Sides stable during excavation.
Minor seepage at 1.00m on east side of trial pit during excavation.
Please note that discolouration of photographs may occur when viewed on screen as a PDF, or when printed as a hard copy.
Trial pit backfilled with arisings upon completion.

| North | Scale (approx) | Logged By | Checked By |
|---|---|---|---|
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**Site**
MITTON ROAD, WHALLEY

**Trial Pit Number**
**TP03**

**Machine :** 5 Tonne Tracked Excavator

**Method :** Mechanical Excavation

**Dimensions**
3.00 x 1.00 x 1.10m

**Ground Level (mOD)**

**Client**
Prospect Homes Ltd

**Job Number**
7583

**Location** (Observed measurements)

**Dates**
03/09/2020

**Engineer**
Coopers (Chester) Ltd

**Sheet**
1/1

| Depth (m) | Sample / Tests | Water Depth (m) | Field Records | Level (mOD) | Depth (m) (Thickness) | Description | Legend | Water |
|---|---|---|---|---|---|---|---|---|
| | | | | | (0.30) | Turf over dark brown, clayey TOPSOIL. | | |
| | | | | | 0.30 | Soft to firm, medium strength, grey, very silty CLAY. | | |
| 0.40 | SV 52kPa | | | | | | | |
| 0.70 | SV 52kPa | | Rapid ingress from culvert(1) at 0.70m. | | (0.80) | At 0.70m: Suspected brick lined culvert encountered (blocked), measuring 0.40 x 0.40m, running south west to north east. Rapid ingress | | ▽1 |
| 1.00 | SV 56kPa | | | | | | | |
| | | | | | 1.10 | Complete at 1.10m | | |

**Remarks**

Location CAT scanned prior to excavation.
Sides stable during excavation.
Rapid ingress from culvert at 0.70m during excavation.
Please note that discolouration of photographs may occur when viewed on screen as a PDF, or when printed as a hard copy.
Trial pit backfilled with arisings upon completion due to ingress from culvert.

| North | Scale (approx) | Logged By | Checked By |
|---|---|---|---|
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**Site**
MITTON ROAD, WHALLEY

**Trial Pit Number**
**TP04**

**Machine :** 5 Tonne Tracked Excavator

**Method :** Mechanical Excavation

**Dimensions**
3.00 x 1.00 x 3.00m

**Ground Level (mOD)**

**Client**
Prospect Homes Ltd

**Job Number**
7583

**Location** (Observed measurements)

**Dates**
03/09/2020

**Engineer**
Coopers (Chester) Ltd

**Sheet**
1/1

| Depth (m) | Sample / Tests | Water Depth (m) | Field Records | Level (mOD) | Depth (m) (Thickness) | Description | Legend | Water |
|---|---|---|---|---|---|---|---|---|
| | | | | | (0.30) | MADEGROUND. Turf over dark brown, clayey topsoil. | | |
| 0.20 | JV | | | | 0.30 | Soft, low to medium strength, grey mottled reddish brown, silty, sandy CLAY. | | |
| 0.50 | SV 20kPa | | | | | | | |
| 0.60 | B | | | | | | | |
| | | | | | (1.30) | | | |
| 1.00 | SV 52kPa | | | | | Below 1.50m: Medium strength | | |
| 1.30 | SV 48kPa | | | | | | | |
| 1.50 | SV 72kPa | | | | | | | |
| | | | Seepage on north side(1) at 1.60m. | | 1.60 | Soft to firm, medium strength, very silty CLAY/very clayey SILT. | | ▽1 |
| 1.70 | SV 64kPa | | | | | | | |
| 1.70 | B | | | | | | | |
| 1.80 | SV 60kPa | | | | | | | |
| 2.20 | SV 68kPa | | | | (1.40) | | | |
| 2.50 | SV 56kPa | | | | | | | |
| 2.70 | B | | | | | | | |
| 2.80 | SV 56kPa | | | | | | | |
| 2.90 | SV 64kPa | | | | | | | |
| | | | | | 3.00 | Complete at 3.00m | | |

**Remarks**

Location CAT scanned prior to excavation.
Sides stable during excavation.
Seepage at 1.60m on north side of trial pit during excavation.
Please note that discolouration of photographs may occur when viewed on screen as a PDF, or when printed as a hard copy.
Trial pit backfilled with arisings upon completion.

| North | Scale (approx) | Logged By | Checked By |
|---|---|---|---|
| ➔ | 1:20 | MW | PRS |

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**Site**
MITTON ROAD, WHALLEY

**Trial Pit Number**
**TP05**

**Machine :** 5 Tonne Tracked Excavator

**Method :** Mechanical Excavation

**Dimensions**
3.00 x 1.00 x 3.00m

**Ground Level (mOD)**

**Client**
Prospect Homes Ltd

**Job Number**
7583

**Location** (Observed measurements)

**Dates**
03/09/2020

**Engineer**
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**Sheet**
1/1

| Depth (m) | Sample / Tests | Water Depth (m) | Field Records | Level (mOD) | Depth (m) (Thickness) | Description | Legend | Water |
|---|---|---|---|---|---|---|---|---|
| 0.10 | B | | | | (0.25) | Turf over dark brown, clayey TOPSOIL with some fine roots. | | |
| | | | | | 0.25 | Firm, medium strength, brown/grey, silty CLAY with rare gravel of sub-angular to sub-rounded natural stone. | | |
| 0.40 | SV 60kPa | | | | | | | |
| 0.40 | B | | | | | | | |
| 0.60 | SV 68kPa | | | | | | | |
| 0.80 | SV 64kPa | | | | | | | |
| | | | | | (2.00) | | | |
| | | | | | | At 1.40m: Stiff, high strength | | |
| 1.50 | SV 140kPa | | | | | | | |
| 1.50 | B | | | | | | | |
| 1.70 | SV 148kPa | | | | | | | |
| | | | | | | Below 1.80m: Very high strength | | |
| 1.90 | SV 160kPa | | | | | | | |
| 2.20 | SV 180kPa | | | | 2.25 | Firm to stiff, high strength, very silty CLAY/very clayey SILT. | | |
| 2.40 | SV 132kPa | | | | | | | |
| 2.50 | B | | | | | | | |
| 2.60 | SV 140kPa | | | | (0.75) | | | |
| | | | | | 3.00 | Complete at 3.00m | | |

**Remarks**

Location CAT scanned prior to excavation.
Sides stable during excavation.
No groundwater encountered during excavation
Please note that discolouration of photographs may occur when viewed on screen as a PDF, or when printed as a hard copy.
Trial pit backfilled with arisings upon completion.

| Scale (approx) | Logged By | Checked By |
|---|---|---|
| 1:20 | MW | PRS |

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**Site**
MITTON ROAD, WHALLEY

**Trial Pit Number**
**TP06**

**Machine :** 5 Tonne Tracked Excavator

**Method :** Mechanical Excavation

**Dimensions**
3.00 x 1.00 x 3.00m

**Ground Level (mOD)**

**Client**
Prospect Homes Ltd

**Job Number**
7583

**Location** (Observed measurements)

**Dates**
03/09/2020

**Engineer**
Coopers (Chester) Ltd

**Sheet**
1/1

| Depth (m) | Sample / Tests | Water Depth (m) | Field Records | Level (mOD) | Depth (m) (Thickness) | Description | Legend | Water |
|---|---|---|---|---|---|---|---|---|
| 0.10 | B | | | | (0.20) 0.20 | Turf over dark brown, clayey TOPSOIL. | | |
| 0.40 | SV 92kPa | | | | | Firm to stiff, high strength, grey mottled brown, silty CLAY with rare gravel of sub-rounded natural stone. | | |
| 0.40 | B | | | | | | | |
| 0.60 | SV 88kPa | | | | | | | |
| 1.00 | SV 100kPa | | | | (2.10) | | | |
| | | | | | | Below 1.40m: Very stiff, high strength | | |
| 1.50 | SV 184kPa | | | | | | | |
| 1.60 | B | | | | | | | |
| 1.80 | SV 184kPa | | | | | | | |
| 2.20 | SV 176kPa | | | | 2.30 | Firm to stiff, high strength, brown/grey, very silty CLAY/very clayey SILT. | | |
| 2.50 | SV 140kPa | | | | | | | |
| 2.50 | B | | | | (0.70) | | | |
| 2.80 | SV 136kPa | | | | | | | |
| 2.90 | SV 140kPa | | | | | | | |
| 2.90 | B | | | | 3.00 | Complete at 3.00m | | |

**Remarks**

Location CAT scanned prior to excavation.
Sides stable during excavation.
No groundwater encountered during excavation
Please note that discolouration of photographs may occur when viewed on screen as a PDF, or when printed as a hard copy.
Trial pit backfilled with arisings upon completion.

| Scale (approx) | Logged By | Checked By |
|---|---|---|
| 1:20 | MW | PRS |

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**Site**
MITTON ROAD, WHALLEY

**Trial Pit Number**
**TP07**

**Machine :** 5 Tonne Tracked Excavator

**Method :** Mechanical Excavation

**Dimensions**
3.00 x 1.00 x 3.00m

**Ground Level (mOD)**

**Client**
Prospect Homes Ltd

**Job Number**
7583

**Location** (Observed measurements)

**Dates**
03/09/2020

**Engineer**
Coopers (Chester) Ltd

**Sheet**
1/1

| Depth (m) | Sample / Tests | Water Depth (m) | Field Records | Level (mOD) | Depth (m) (Thickness) | Description | Legend | Water |
|---|---|---|---|---|---|---|---|---|
| | | | | | | Turf over dark brown, clayey TOPSOIL with some fine roots. | | |
| 0.15 | B | | | | (0.35) | | | |
| | | | | | 0.35 | Firm, medium strength, brown/grey, silty CLAY. | | |
| 0.50 | SV 60kPa | | | | | | | |
| 0.60 | B | | | | | | | |
| 0.80 | SV 64kPa | | | | | | | |
| 1.20 | SV 60kPa | | | | | | | |
| 1.50 | SV 60kPa | | | | | | | |
| | | | | | (2.65) | Below 1.60m: Very stiff, very high strength, grey mottled brown with lenses of silt | | |
| 1.80 | SV 180kPa | | | | | | | |
| 1.80 | B | | | | | | | |
| 2.30 | SV 192kPa | | | | | | | |
| 2.80 | SV 188kPa | | | | | | | |
| 2.80 | B | | | | | | | |
| | | | | | 3.00 | Complete at 3.00m | | |

**Remarks**

Location CAT scanned prior to excavation.
Sides stable during excavation.
No groundwater encountered during excavation
Please note that discolouration of photographs may occur when viewed on screen as a PDF, or when printed as a hard copy.
Trial pit backfilled with arisings upon completion.

| Scale (approx) | Logged By | Checked By |
|---|---|---|
| 1:20 | MW | PRS |

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**Site**
MITTON ROAD, WHALLEY

**Trial Pit Number**
**TP08**

**Machine :** 5 Tonne Tracked Excavator

**Method :** Mechanical Excavation

**Dimensions**
3.00 x 1.00 x 3.00m

**Ground Level (mOD)**

**Client**
Prospect Homes Ltd

**Job Number**
7583

**Location** (Observed measurements)

**Dates**
03/09/2020

**Engineer**
Coopers (Chester) Ltd

**Sheet**
1/1

| Depth (m) | Sample / Tests | Water Depth (m) | Field Records | Level (mOD) | Depth (m) (Thickness) | Description | Legend | Water |
|---|---|---|---|---|---|---|---|---|
| 0.10 | B | | | | (0.20) | Turf over dark brown, silty, clayey TOPSOIL. | | |
| 0.30 | SV 140kPa | | | | 0.20 | Stiff, high strength, grey mottled brown, silty, gravelly CLAY. Gravel is fine to coarse, sub-angular to sub-rounded of natural stone. | | |
| 0.50 | B | | | | | | | |
| 0.60 | SV 140kPa | | | | | | | |
| 0.90 | SV 148kPa | | | | | | | |
| 1.30 | SV 156kPa | | | | | | | |
| 1.50 | B | | | | (2.80) | | | |
| 1.80 | SV 140kPa | | | | | Below 1.80m: Grey, slightly silty | | |
| 2.00 | B | | | | | | | |
| 2.30 | SV 152kPa | | | | | | | |
| 2.50 | SV 152kPa | | | | | At 2.50m: 1 No. small boulder measuring 1.00 x 0.50 x 0.60m | | |
| 2.80 | SV 140kPa | | | | | | | |
| 2.90 | B | | | | 3.00 | Complete at 3.00m | | |

**Remarks**

Location CAT scanned prior to excavation.
Sides stable during excavation.
No groundwater encountered during excavation
Please note that discolouration of photographs may occur when viewed on screen as a PDF, or when printed as a hard copy.
Trial pit backfilled with arisings upon completion.

| Scale (approx) | Logged By | Checked By |
|---|---|---|
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**Site**
MITTON ROAD, WHALLEY

**Trial Pit Number**
**TP09**

**Machine :** 5 Tonne Tracked Excavator

**Method :** Mechanical Excavation

**Dimensions**
3.00 x 1.00 x 3.00m

**Ground Level (mOD)**

**Client**
Prospect Homes Ltd

**Job Number**
7583

**Location** (Observed measurements)

**Dates**
03/09/2020

**Engineer**
Coopers (Chester) Ltd

**Sheet**
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| Depth (m) | Sample / Tests | Water Depth (m) | Field Records | Level (mOD) | Depth (m) (Thickness) | Description | Legend | Water |
|---|---|---|---|---|---|---|---|---|
| 0.10 | B | | | | (0.25) 0.25 | Turf over dark brown, silty, clayey TOPSOIL with some roots. | | |
| 0.40 | B | | | | | Firm to stiff, high strength, grey mottled brown, silty, gravelly CLAY. Gravel is fine to coarse, sub-rounded natural stone. | | |
| 0.60 | SV 100kPa | | Minor seepage on south side(1) at 0.80m. | | | | | ▽1 |
| 1.10 | SV 132kPa | | | | | | | |
| 1.40 | SV 132kPa | | | | | | | |
| 1.40 | B | | | | (2.65) | | | |
| 1.80 | SV 136kPa | | | | | Below 2.10m: Lenses of silt | | |
| 2.40 | B | | | | | | | |
| 2.70 | SV 128kPa | | | | 2.90 | Complete at 2.90m | | |

**Remarks**

Location CAT scanned prior to excavation.
Sides stable during excavation.
Minor seepage at 0.80m on south side of trial pit.
Please note that discolouration of photographs may occur when viewed on screen as a PDF, or when printed as a hard copy.
Trial pit backfilled with arisings upon completion.

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**Site**
MITTON ROAD, WHALLEY

**Trial Pit Number**
**TP10**

**Machine :** 5 Tonne Tracked Excavator

**Method :** Mechanical Excavation

**Dimensions**
2.80 x 1.00 x 2.85m

**Ground Level (mOD)**

**Client**
Prospect Homes Ltd

**Job Number**
7583

**Location** (Observed measurements)

**Dates**
03/09/2020

**Engineer**
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| Depth (m) | Sample / Tests | Water Depth (m) | Field Records | Level (mOD) | Depth (m) (Thickness) | Description | Legend | Water |
|---|---|---|---|---|---|---|---|---|
| | | | | | (0.25) | Turf over dark brown, clayey, gravelly TOPSOIL with some roots. | | |
| 0.20 | B | | | | 0.25 | Firm to stiff, high strength, grey mottled brown, silty CLAY with rare fine to coarse gravel and cobbles of sub-rounded natural stone. | | |
| 0.40 | SV 120kPa | | | | | | | |
| 0.50 | B | | | | | | | |
| 0.90 | SV 120kPa | | | | | | | |
| 1.00 | B | | | | | | | |
| 1.30 | SV 120kPa | | | | (2.60) | | | |
| 1.80 | SV 124kPa | | | | | | | |
| 2.00 | B | | | | | | | |
| 2.30 | SV 128kPa | | | | | | | |
| | | | | | 2.85 | Complete at 2.85m | | |

**Remarks**

Location CAT scanned prior to excavation.
Sides stable during excavation.
Minor seepage at 0.80m on south side of trial pit.
Please note that discolouration of photographs may occur when viewed on screen as a PDF, or when printed as a hard copy.
Trial pit backfilled with arisings upon completion.

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**Site**
MITTON ROAD, WHALLEY

**Trial Pit Number**
**TP11**

**Machine :** 5 Tonne Tracked Excavator

**Method :** Mechanical Excavation

**Dimensions**
2.80 x 1.00 x 2.65m

**Ground Level (mOD)**

**Client**
Prospect Homes Ltd

**Job Number**
7583

**Location** (Observed measurements)

**Dates**
03/09/2020

**Engineer**
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| Depth (m) | Sample / Tests | Water Depth (m) | Field Records | Level (mOD) | Depth (m) (Thickness) | Description | Legend | Water |
|---|---|---|---|---|---|---|---|---|
| 0.10 | B | | | | (0.25) | Turf over dark brown, clayey, sandy TOPSOIL with some roots. | | |
| | | | | | 0.25 | Firm to stiff, high strength, grey mottled brown, silty, gravelly CLAY. Gravel and cobbles of fine to coarse, sub-rounded natural stone. Occasional roots. | | |
| 0.50 | SV 132kPa | | | | | | | |
| 0.50 | B | | | | | | | |
| 1.00 | SV 148kPa | | | | | | | |
| | | | | | (2.40) | Below 1.50m: Occasional cobbles and small boulders of sub-rounded to rounded natural. 2 No. measuring 0.50 x 0.50 x 0.80m | | |
| 1.60 | SV 144kPa | | | | | | | |
| 1.60 | B | | | | | | | |
| | | | | | | Below 2.00m: Friable | | |
| 2.60 | B | | | | 2.65 | Complete at 2.65m | | |

**Remarks**

Location CAT scanned prior to excavation.
Sides stable during excavation.
No groundwater encountered during excavation.
Below 2.00m clay friable and no shear vane readings taken.
Please note that discolouration of photographs may occur when viewed on screen as a PDF, or when printed as a hard copy.
Trial pit backfilled with arisings upon completion.

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**Site** MITTON ROAD, WHALLEY

**Trial Pit Number** TP12

**Machine :** 5 Tonne Tracked Excavator

**Method :** Mechanical Excavation

**Dimensions** 3.00 x 1.00 x 2.90m

**Ground Level (mOD)**

**Client** Prospect Homes Ltd

**Job Number** 7583

**Location** (Observed measurements)

**Dates** 03/09/2020

**Engineer** Coopers (Chester) Ltd

**Sheet** 1/1

| Depth (m) | Sample / Tests | Water Depth (m) | Field Records | Level (mOD) | Depth (m) (Thickness) | Description | Legend | Water |
|---|---|---|---|---|---|---|---|---|
| 0.20 | JV | | | | (0.55) | MADEGROUND (similar to topsoil). Dark brown, slightly sandy CLAY with some fragments of whole and half red brick, concrete, glass and timber. | | |
| 0.70 | SV 60kPa | | | | 0.55 | | | |
| 0.70 | JV | | | | | MADEGROUND. Firm, medium strength, grey, silty CLAY with occasional half bricks, plastics, metal pieces and timber. | | |
| | | | | | (0.95) | | | |
| 1.10 | SV 60kPa | | | | | | | |
| 1.40 | SV 56kPa | | | | 1.50 | | | |
| 1.60 | JV | | | | | MADEGROUND. Dark brown, sandy, very gravelly ASH and CLINKER. *Assumed as loose to medium dense. | | |
| | | | | | (0.50) | | | |
| | | | Strong ingress on all sides(1) at 2.00m. | | 2.00 | | | ▽1 |
| 2.10 | SV 20kPa | | | | | Soft, low strength, grey, very silty CLAY. | | |
| 2.10 | JV | | | | | | | |
| | | | | | (0.90) | | | |
| 2.60 | SV 20kPa | | | | | | | |
| | | | | | 2.90 | | | |
| | | | | | | Complete at 2.90m | | |

**Remarks**

Location CAT scanned prior to excavation.
Minor spalling between 1.50-2.50m during excavation.
Strong ingress at 2.00m on all sides of trial pit during excavation. Ground water level remained at 2.00m at time of backfill.
*Based upon trenchside stability characteristics.
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Trial pit backfilled with arisings upon completion.

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**Site**
MITTON ROAD, WHALLEY

**Trial Pit Number**
**HD01**

**Machine :** Manual Excavation
**Method :** Hand Dug

**Dimensions**
0.30 x 0.50 x 0.30m

**Ground Level (mOD)**

**Client**
Prospect Homes Ltd

**Job Number**
7583

**Location** (Observed measurements)

**Dates**
28/08/2020

**Engineer**
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1/1

| Depth (m) | Sample / Tests | Water Depth (m) | Field Records | Level (mOD) | Depth (m) (Thickness) | Description | Legend | Water |
|---|---|---|---|---|---|---|---|---|
| 0.10 | JV | | | | (0.20) 0.20 | MADEGROUND (similar to topsoil). dark brown clayey with some roots. | | |
| 0.30 | JV | | | | (0.30) 0.50 | Firm, grey/brown, silty CLAY. | | |
| | | | | | | Complete at 0.50m | | |

**Remarks**

Sides stable during dig.
No groundwater encountered during dig.
Hand dug pit next to sub station for PCB testing.
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**Site**
MITTON ROAD, WHALLEY

**Trial Pit Number**
**HD02**

**Machine :** Manual Excavation
**Method :** Hand Dug

**Dimensions**
0.30 x 0.45 x 0.30m

**Ground Level (mOD)**

**Client**
Prospect Homes Ltd

**Job Number**
7583

**Location** (Observed measurements)

**Dates**
28/08/2020

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| Depth (m) | Sample / Tests | Water Depth (m) | Field Records | Level (mOD) | Depth (m) (Thickness) | Description | Legend | Water |
|---|---|---|---|---|---|---|---|---|
| 0.10 | JV | | | | (0.30) | Dark brown, silty, clayey TOPSOIL with some fine roots. | | |
| 0.40 | SV 64kPa | | | | 0.30 (0.15) | Firm, medium strength, grey/brown, silty CLAY. | | |
| 0.40 | JV | | | | 0.45 | Complete at 0.45m | | |

**Remarks**

Sides stable during dig.
No groundwater encountered during dig.
Backfilled with arisings upon completion.
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**Site**
MITTON ROAD, WHALLEY

**Trial Pit Number**
**HD03**

**Machine :** Manual Excavation
**Method :** Hand Dug

**Dimensions**
0.30 x 0.30 x 0.30m

**Ground Level (mOD)**

**Client**
Prospect Homes Ltd

**Job Number**
7583

**Location** (Observed measurements)

**Dates**
28/08/2020

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| Depth (m) | Sample / Tests | Water Depth (m) | Field Records | Level (mOD) | Depth (m) (Thickness) | Description | Legend | Water |
|---|---|---|---|---|---|---|---|---|
| 0.10 | JV | | | | (0.25) | Dark brown, silty, sandy TOPSOIL with some fine to medium roots. | | |
| 0.25 | JV | | | | 0.25 | Brown, silty, sandy CLAY. | | |
| | | | | | 0.30 | Complete at 0.30m | | |

**Remarks**

Sides stable during dig.
No groundwater encountered during dig.
Backfilled with arisings upon completion.
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**Site**
MITTON ROAD, WHALLEY

**Trial Pit Number**
**HD04**

**Machine :** Manual Excavation
**Method :** Hand Dug

**Dimensions**
0.30 x 0.40 x 0.30m

**Ground Level (mOD)**

**Client**
Prospect Homes Ltd

**Job Number**
7583

**Location** (Observed measurements)

**Dates**
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| Depth (m) | Sample / Tests | Water Depth (m) | Field Records | Level (mOD) | Depth (m) (Thickness) | Description | Legend | Water |
|---|---|---|---|---|---|---|---|---|
| 0.20 | JV | | | | (0.30) | Dark brown, slightly clayey, silty TOPSOIL with some fine roots. | | |
| 0.35 | JV | | | | 0.30<br>(0.10)<br>0.40 | Firm, medium strength, grey mottled brown, silty CLAY. | | |
| | | | | | | Complete at 0.40m | | |

**Remarks**

Sides stable during dig.
No groundwater encountered during dig.
Backfilled with arisings upon completion.
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**Site**
MITTON ROAD, WHALLEY

**Trial Pit Number**
**HD05**

**Machine :** Manual Excavation
**Method :** Hand Dug

**Dimensions**
0.30 x 0.40 x 0.30m

**Ground Level (mOD)**

**Client**
Prospect Homes Ltd

**Job Number**
7583

**Location** (Observed measurements)

**Dates**
28/08/2020

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| Depth (m) | Sample / Tests | Water Depth (m) | Field Records | Level (mOD) | Depth (m) (Thickness) | Description | Legend | Water |
|---|---|---|---|---|---|---|---|---|
| 0.10 | JV | | | | (0.30) | Dark brown, slightly clayey, silty TOPSOIL with some fine roots. | | |
| 0.35 | JV | | | | 0.30<br>(0.10)<br>0.40 | Firm to stiff, high strength, brown mottled grey, silty CLAY. | | |
| | | | | | | Complete at 0.40m | | |

**Remarks**

Sides stable during dig.
No groundwater encountered during dig.
Backfilled with arisings upon completion.
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**Site**
MITTON ROAD, WHALLEY

**Trial Pit Number**
**HD06**

**Machine :** Manual Excavation
**Method :** Hand Dug

**Dimensions**
0.30 x 0.45 x 0.30m

**Ground Level (mOD)**

**Client**
Prospect Homes Ltd

**Job Number**
7583

**Location** (Observed measurements)

**Dates**
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| Depth (m) | Sample / Tests | Water Depth (m) | Field Records | Level (mOD) | Depth (m) (Thickness) | Description | Legend | Water |
|---|---|---|---|---|---|---|---|---|
| | | | | | (0.30) | Dark brown, silty, clayey TOPSOIL. | | |
| 0.20 | JV | | | | 0.30 | | | |
| 0.40 | JV | | | | (0.15) | Firm to stiff, light brown mottled grey, silty CLAY. | | |
| | | | | | 0.45 | Complete at 0.45m | | |

**Remarks**

Sides stable during dig.
No groundwater encountered during dig.
Backfilled with arisings upon completion.
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**Site**
MITTON ROAD, WHALLEY

**Trial Pit Number**
**HD07**

**Machine :** Manual Excavation
**Method :** Hand Dug

**Dimensions**
0.30 x 0.35 x 0.30m

**Ground Level (mOD)**

**Client**
Prospect Homes Ltd

**Job Number**
7583

**Location** (Observed measurements)

**Dates**
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| Depth (m) | Sample / Tests | Water Depth (m) | Field Records | Level (mOD) | Depth (m) (Thickness) | Description | Legend | Water |
|---|---|---|---|---|---|---|---|---|
| 0.10 | JV | | | | (0.25) 0.25 | Dark brown, clayey, sandy TOPSOIL. | | |
| 0.30 | JV | | | | (0.10) 0.35 | Soft, slightly sandy, silty CLAY. | | |
| | | | | | | Complete at 0.35m | | |

**Remarks**

Sides stable during dig.
No groundwater encountered during dig.
Backfilled with arisings upon completion.
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|---|---|---|---|
| **Site** MITTON ROAD, WHALLEY | | | **Trial Pit Number** HD08 |
| **Machine :** Manual Excavation<br>**Method :** Hand Dug | **Dimensions** 0.30 x 0.30 x 0.30m | **Ground Level (mOD)** | **Client** Prospect Homes Ltd | **Job Number** 7583 |
| | **Location** (Observed measurements) | **Dates** 17/09/2020 | **Engineer** Coopers (Chester) Ltd | **Sheet** 1/1 |

| Depth (m) | Sample / Tests | Water Depth (m) | Field Records | Level (mOD) | Depth (m) (Thickness) | Description | Legend | Water |
|---|---|---|---|---|---|---|---|---|
| 0.05 | JV | | | | (0.10) 0.10 | MADEGROUND. Dark brown, slightly clayey TOPSOIL over geotextile terram. | | |
| 0.20 | JV | | | | (0.20) 0.30 | Firm, brown, silty CLAY. | | |
| | | | | | | Complete at 0.30m | | |

**Remarks**

Location CAT scanned prior to excavation.
Sides stable during dig.
No groundwater encountered during dig.
Please note that discolouration of photographs may occur when viewed on screen as a PDF, or when printed as a hard copy.
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**Site**
MITTON ROAD, WHALLEY

**Trial Pit Number**
**HD09**

**Machine :** Manual Excavation
**Method :** Hand Dug

**Dimensions**
0.30 x 0.40 x 0.30m

**Ground Level (mOD)**

**Client**
Prospect Homes Ltd

**Job Number**
7583

**Location** (Observed measurements)

**Dates**
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**Engineer**
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| Depth (m) | Sample / Tests | Water Depth (m) | Field Records | Level (mOD) | Depth (m) (Thickness) | Description | Legend | Water |
|---|---|---|---|---|---|---|---|---|
| 0.10 | JV | | | | (0.30) | MADEGROUND (similar to topsoil). Dark brown, slightly clayey SAND. | | |
| 0.35 | JV | | | | 0.30<br>(0.10)<br>0.40 | Firm, light brown, silty CLAY. | | |
| | | | | | | Complete at 0.40m | | |

**Remarks**

Location CAT scanned prior to excavation.
Sides stable during dig.
No groundwater encountered during dig.
Please note that discolouration of photographs may occur when viewed on screen as a PDF, or when printed as a hard copy.
Backfilled with arisings upon completion.

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**Site**
MITTON ROAD, WHALLEY

**Trial Pit Number**
**HD10**

**Machine :** Manual Excavation
**Method :** Hand Dug

**Dimensions**
0.30 x 0.55 x 0.30m

**Ground Level (mOD)**

**Client**
Prospect Homes Ltd

**Job Number**
7583

**Location** (Observed measurements)

**Dates**
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| Depth (m) | Sample / Tests | Water Depth (m) | Field Records | Level (mOD) | Depth (m) (Thickness) | Description | Legend | Water |
|---|---|---|---|---|---|---|---|---|
| 0.10 | JV | | | | (0.30) | MADEGROUND (similar to topsoil). Clayey, fine to medium SAND with some roots. | | |
| | | | | | 0.30 | | | |
| | | | | | (0.10) | MADEGROUND. Grey, clayey, fine to coarse GRAVEL with some fragments of concrete and half brick. | | |
| | | | | | 0.40 | | | |
| 0.50 | JV | | | | | Complete at 0.55m | | |

**Remarks**

Sides stable during dig.
No groundwater encountered during dig.
Please note that discolouration of photographs may occur when viewed on screen as a PDF, or when printed as a hard copy.
Backfilled with arisings upon completion.

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**Site**
MITTON ROAD, WHALLEY

**Trial Pit Number**
**HD11**

**Machine :** Manual Excavation
**Method :** Hand Dug

**Dimensions**
0.30 x 0.45 x 0.30m

**Ground Level (mOD)**

**Client**
Prospect Homes Ltd

**Job Number**
7583

**Location** (Observed measurements)

**Dates**
17/09/2020

**Engineer**
Coopers (Chester) Ltd

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| Depth (m) | Sample / Tests | Water Depth (m) | Field Records | Level (mOD) | Depth (m) (Thickness) | Description | Legend | Water |
|---|---|---|---|---|---|---|---|---|
| 0.20 | JV | | | | (0.35) 0.35 | Dark brown, slightly clayey, sandy TOPSOIL with some roots. | | |
| 0.40 | JV | | | | (0.10) 0.45 | Firm, brown, silty CLAY. | | |
| | | | | | | Complete at 0.45m | | |

**Remarks**

Sides stable during dig.
No groundwater encountered during dig.
Please note that discolouration of photographs may occur when viewed on screen as a PDF, or when printed as a hard copy.
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**Site**
MITTON ROAD, WHALLEY

**Trial Pit Number**
**HD12**

**Machine :** Manual Excavation
**Method :** Hand Dug

**Dimensions**
0.30 x 0.45 x 0.30m

**Ground Level (mOD)**

**Client**
Prospect Homes Ltd

**Job Number**
7583

**Location** (Observed measurements)

**Dates**
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| Depth (m) | Sample / Tests | Water Depth (m) | Field Records | Level (mOD) | Depth (m) (Thickness) | Description | Legend | Water |
|---|---|---|---|---|---|---|---|---|
| 0.20 | JV | | | | (0.30) | Dark brown, clayey TOPSOIL with some roots. | | |
| 0.40 | JV | | | | 0.30<br>(0.15)<br>0.45 | Firm, grey mottled brown, silty CLAY. | | |
| | | | | | | Complete at 0.45m | | |

**Remarks**

Sides stable during dig.
No groundwater encountered during dig.
Please note that discolouration of photographs may occur when viewed on screen as a PDF, or when printed as a hard copy.
Backfilled with arisings upon completion.

| Scale (approx) | Logged By | Checked By |
|---|---|---|
| 1:25 | MW | PRS |

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**Site**
MITTON ROAD, WHALLEY

**Trial Pit Number**
**HD13**

**Machine :** Manual Excavation
**Method :** Hand Dug

**Dimensions**
0.30 x 0.40 x 0.30m

**Ground Level (mOD)**

**Client**
Prospect Homes Ltd

**Job Number**
7583

**Location** (Observed measurements)

**Dates**
17/09/2020

**Engineer**
Coopers (Chester) Ltd

**Sheet**
1/1

| Depth (m) | Sample / Tests | Water Depth (m) | Field Records | Level (mOD) | Depth (m) (Thickness) | Description | Legend | Water |
|---|---|---|---|---|---|---|---|---|
| | | | | | (0.20) | Dark brown, clayey TOPSOIL with some roots. | | |
| 0.10 | JV | | | | 0.20 | Firm to stiff, grey mottled brown, silty CLAY. | | |
| 0.30 | JV | | | | (0.20) | | | |
| | | | | | 0.40 | Complete at 0.40m | | |

**Remarks**

Sides stable during dig.
No groundwater encountered during dig.
Please note that discolouration of photographs may occur when viewed on screen as a PDF, or when printed as a hard copy.
Backfilled with arisings upon completion.

| Scale (approx) | Logged By | Checked By |
|---|---|---|
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**Site**
MITTON ROAD, WHALLEY

**Trial Pit Number**
**HD14**

**Machine :** Manual Excavation
**Method :** Hand Dug

**Dimensions**
0.30 x 0.45 x 0.30m

**Ground Level (mOD)**

**Client**
Prospect Homes Ltd

**Job Number**
7583

**Location** (Observed measurements)

**Dates**
17/09/2020

**Engineer**
Coopers (Chester) Ltd

**Sheet**
1/1

| Depth (m) | Sample / Tests | Water Depth (m) | Field Records | Level (mOD) | Depth (m) (Thickness) | Description | Legend | Water |
|---|---|---|---|---|---|---|---|---|
| | | | | | (0.30) | MADEGROUND (similar to topsoil). Dark brown, clayey, fine to coarse SAND with some roots. | | |
| 0.20 | JV | | | | 0.30 | | | |
| 0.35 | JV | | | | (0.15) | MADEGROUND. Light brown, fine to coarse SAND with 1 No. quarter fragment of brick. | | |
| | | | | | 0.45 | Complete at 0.45m | | |

**Remarks**

Sides stable during dig.
No groundwater encountered during dig.
Please note that discolouration of photographs may occur when viewed on screen as a PDF, or when printed as a hard copy.
Backfilled with arisings upon completion.

| Scale (approx) | Logged By | Checked By |
|---|---|---|
| 1:25 | MW | PRS |

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**Site**
MITTON ROAD, WHALLEY

**Trial Pit Number**
**HD15**

**Machine :** Manual Excavation
**Method :** Hand Dug

**Dimensions**
0.30 x 0.425 x 0.30m

**Ground Level (mOD)**

**Client**
Prospect Homes Ltd

**Job Number**
7583

**Location** (Observed measurements)

**Dates**
17/09/2020

**Engineer**
Coopers (Chester) Ltd

**Sheet**
1/1

| Depth (m) | Sample / Tests | Water Depth (m) | Field Records | Level (mOD) | Depth (m) (Thickness) | Description | Legend | Water |
|---|---|---|---|---|---|---|---|---|
| 0.10 | JV | | | | (0.25) 0.25 | MADEGROUND (similar to topsoil). Dark brown, sandy CLAY with some roots and small fragments of brick 5cm x 4cm. | | |
| 0.30 | JV | | | | (0.18) 0.43 | MADEGROUND. Firm, brown/grey, silty CLAY with pieces of plastic and glass. | | |
| | | | | | | Complete at 0.43m | | |

**Remarks**

Sides stable during dig.
No groundwater encountered during dig.
Please note that discolouration of photographs may occur when viewed on screen as a PDF, or when printed as a hard copy.
Backfilled with arisings upon completion.

| Scale (approx) | Logged By | Checked By |
|---|---|---|
| 1:25 | MW | |

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| | | | |
|---|---|---|---|
| **Site** MITTON ROAD, WHALLEY | | | **Trial Pit Number** HD16 |
| **Machine :** Manual Excavation<br>**Method :** Hand Dug | **Dimensions** 0.30 x 0.35 x 0.30m | **Ground Level (mOD)** | **Client** Prospect Homes Ltd | **Job Number** 7583 |
| | **Location** (Observed measurements) | **Dates** 17/09/2020 | **Engineer** Coopers (Chester) Ltd | **Sheet** 1/1 |

| Depth (m) | Sample / Tests | Water Depth (m) | Field Records | Level (mOD) | Depth (m) (Thickness) | Description | Legend | Water |
|---|---|---|---|---|---|---|---|---|
| 0.10 | JV | | | | (0.25) 0.25 | Dark brown, slightly silty, clayey TOPSOIL with some roots. | | |
| 0.30 | JV | | | | (0.10) 0.35 | Firm, brown/grey, silty CLAY. | | |
| | | | | | | Complete at 0.35m | | |

**Remarks**

Sides stable during dig.
No groundwater encountered during dig.
Please note that discolouration of photographs may occur when viewed on screen as a PDF, or when printed as a hard copy.
Backfilled with arisings upon completion.

| Scale (approx) | Logged By | Checked By |
|---|---|---|
| 1:25 | MW | PRS |

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| | | | |
|---|---|---|---|
| **Site** MITTON ROAD, WHALLEY | | | **Trial Pit Number** HD17 |
| **Machine :** Manual Excavation<br>**Method :** Hand Dug | **Dimensions** 0.30 x 0.35 x 0.30m | **Ground Level (mOD)** | **Client** Prospect Homes Ltd | **Job Number** 7583 |
| | **Location** (Observed measurements) | **Dates** 17/09/2020 | **Engineer** Coopers (Chester) Ltd | **Sheet** 1/1 |

| Depth (m) | Sample / Tests | Water Depth (m) | Field Records | Level (mOD) | Depth (m) (Thickness) | Description | Legend | Water |
|---|---|---|---|---|---|---|---|---|
| | | | | | (0.20) | MADEGROUND. Brown, silty, sandy TOPSOIL with some fine roots. | | |
| 0.15 | JV | | | | 0.20 | | | |
| 0.25 | JV | | | | (0.15) | MADEGROUND. Firm, brown/grey, silty, gravelly CLAY. Gravel is fine to coarse, angular to sub-angular natural stone.<br>At 0.30m: 1 No. half brick | | |
| | | | | | 0.35 | Complete at 0.35m | | |

**Remarks**

Sides stable during dig.
No groundwater encountered during dig.
Please note that discolouration of photographs may occur when viewed on screen as a PDF, or when printed as a hard copy.
Backfilled with arisings upon completion.

| Scale (approx) | Logged By | Checked By |
|---|---|---|
| 1:25 | MW | PRS |

# Appendix 5

## Coopers Small Diameter Borehole Logs

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**Site** MITTON ROAD, WHALLEY

**Number** WS01

**Machine :** Competitor Rig

**Method :** Drive-in Windowless Sampler

**Dimensions** 150mm to 5.45m

**Ground Level (mOD)**

**Client** Prospect Homes Ltd

**Job Number** 7583

**Location** (Observed measurements)

**Dates** 28/08/2020

**Engineer** Coopers (Chester) Ltd

**Sheet** 1/1

| Depth (m) | Sample / Tests | Water Depth (m) | Field Records | Level (mOD) | Depth (m) (Thickness) | Description | Legend | Water | Instr |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | (0.40) | MADEGROUND. Brown, very silty CLAY with some glass fragments and rare coal. | | | |
| 0.30 | B | | | | 0.40 | | | | |
| 0.30 | JV | | | | | Stiff, high strength, grey, slightly silty, sandy CLAY with rare gravel of sub-rounded natural stone. | | | |
| 0.60 | B | | | | | | | | |
| 1.00-1.45 | SPT N=6 | | 0,0/1,1,2,2 | | | | | | |
| 1.30 | SV 100kPa | | | | | | | | |
| 1.30-1.80 | B | | | | | | | | |
| 1.45 | SV 100kPa | | | | | | | | |
| 1.70 | SV 108kPa | | | | | | | | |
| 1.90 | SV 100kPa | | | | | | | | |
| 2.00 | SV 120kPa | | | | | | | | |
| 2.00-2.45 | SPT N=6 | | 1,1/1,2,1,2 | | | Below 2.05m: Very soft, low strength, very silty, sandy CLAY | | | |
| 2.00-3.00 | B | | | | | | | | |
| 2.00 | SV 20kPa | | | | | | | | |
| 2.30 | SV 20kPa | | | | | | | | |
| 2.70 | SV 32kPa | | | | | | | | |
| | | | | | (5.05) | | | | |
| 3.00 | SV 32kPa | | | | | | | | |
| 3.00-3.45 | SPT N=5 | | 0,0/1,1,1,2 | | | | | | |
| 3.00-3.50 | B | | | | | | | | |
| 3.20 | SV 24kPa | | | | | | | | |
| 3.50 | SV 38kPa | | | | | | | | |
| 3.60-4.00 | B | | | | | | | | |
| 3.80 | SV 60kPa | | | | | | | | |
| 4.00-4.45 | SPT N=7 | | 1,1/1,2,2,2 | | | | | | |
| 4.20 | SV 80kPa | | | | | Below 4.10m: Firm to stiff, high strength, grey/brown, silty CLAY | | | |
| 4.80 | SV 88kPa | | | | | | | | |
| 5.00-5.45 | SPT N=14 | | 2,2/3,3,4,4 | | | | | | |
| | | | | | 5.45 | | | | |
| | | | | | | Complete at 5.45m | | | |

**Remarks**
Location CAT scanned prior to drilling. Service pit excavated to 1.20m.
Sides stable during drilling. No groundwater encountered drilling.
Samples below 5.00m based upon retrieved SPT sample.
Monitoring well installed between surface and 4.00m, comprising 2.00m plain pipe, 2.00m slotted pipe with inert free draining gravel surround and bentonite seal above and below response zone.
SPT energy ratio = 61%.
Borehole not cased

**Scale (approx)** 1:40

**Logged By** MW

**Checked By** PRS

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**Site** MITTON ROAD, WHALLEY

**Number** WS02

**Machine :** Competitor Rig

**Method :** Drive-in Windowless Sampler

**Dimensions** 150mm to 4.45m

**Ground Level (mOD)**

**Client** Prospect Homes Ltd

**Job Number** 7583

**Location** (Observed measurements)

**Dates** 28/08/2020

**Engineer** Coopers (Chester) Ltd

**Sheet** 1/1

| Depth (m) | Sample / Tests | Water Depth (m) | Field Records | Level (mOD) | Depth (m) (Thickness) | Description | Legend | Water | Instr |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | (0.30) | MADEGROUND (similar to topsoil). Dark brown, very silty, sandy CLAY with rare, small glass fragments. | | | |
| 0.20 | B | | | | 0.30 | At 0.25m: 1 No. piece of ceramic | | | |
| 0.20 | JV | | | | | | | | |
| 0.50 | B | | | | (0.50) | MADEGROUND. Soft to firm, brown mottled grey, silty CLAY with some fine to coarse gravel of angular to sub-angular natural stone. | | | |
| 0.50 | JV | | | | | | | | |
| 0.60 | SV 40kPa | | | | 0.80 | At 0.70m: 1 No. half red brick | | | |
| 0.90 | SV 60kPa | | | | | | | | |
| 0.90 | B | | | | | Soft to firm, grey slightly silty CLAY with rare gravel of fine to medium, sub-angular to sub-rounded natural stone. Occasional organic plant matter (no odour). | | | |
| 1.00-1.45 | SPT N=0 | | 1,0/0,0,0,0 | | | | | | |
| 1.10 | SV 48kPa | | | | | Below 1.20m: Soft, low strength | | | |
| 1.30 | SV 24kPa | | | | | | | | |
| 1.30-1.60 | B | | | | | | | | |
| 1.50 | SV 20kPa | | | | | | | | |
| 1.70 | SV 24kPa | | | | | | | | |
| 1.70-2.00 | B | | | | | | | | |
| 1.90 | SV 14kPa | | | | | | | | |
| 2.00-2.45 | SPT N=4 | | 1,0/1,1,1,1 | | | | | | |
| | | | | | (3.65) | | | | |
| 2.80-3.00 | B | | | | | Below 2.80m: Firm to stiff, high strength, grey/brown, silty CLAY with rare gravel of sub-rounded natural stone | | | |
| 2.90 | SV 100kPa | | | | | | | | |
| 3.00-3.45 | SPT N=13 | | 2,2/3,3,3,4 | | | | | | |
| 3.10 | SV 104kPa | | | | | | | | |
| 3.20-3.50 | B | | | | | | | | |
| 3.50 | SV 112kPa | | | | | | | | |
| 3.60-4.00 | B | | | | | | | | |
| 3.80 | SV 120kPa | | | | | | | | |
| 4.00 | SV 112kPa | | | | | | | | |
| 4.00-4.45 | SPT N=16 | | 2,3/3,3,5,5 | | | | | | |
| | | | | | 4.45 | Complete at 4.45m | | | |

**Remarks**
Location CAT scanned prior to drilling. Service pit excavated to 1.20m.
Sides stable during drilling. No groundwater encountered drilling.
Samples below 4.00m based upon retrieved SPT sample.
Monitoring well installed between surface and 4.00m, comprising 0.80m plain pipe, 2.20m slotted pipe with inert free draining gravel surround and bentonite seal above and below response zone.
Borehole not cased.
SPT energy ratio = 61%.

**Scale (approx)** 1:40

**Logged By** MW

**Checked By**

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**Site** MITTON ROAD, WHALLEY

**Number** WS03

**Machine :** Competitor Rig

**Method :** Drive-in Windowless Sampler

**Dimensions** 150mm to 4.45m

**Ground Level (mOD)**

**Client** Prospect Homes Ltd

**Job Number** 7583

**Location** (Observed measurements)

**Dates** 28/08/2020

**Engineer** Coopers (Chester) Ltd

**Sheet** 1/1

| Depth (m) | Sample / Tests | Water Depth (m) | Field Records | Level (mOD) | Depth (m) (Thickness) | Description | Legend | Water | Instr |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | (0.30) | MADEGROUND (similar to topsoil). Dark brown, very silty, gravelly CLAY. Gravel is fine to coarse, angular to sub-angular natural stone. | | | |
| 0.20 | B | | | | 0.30 | | | | |
| 0.20 | JV | | | | | Firm, medium strength, grey mottled brown, silty CLAY with rare organics and rootlets. | | | |
| 0.50 | SV 60kPa | | | | | At 0.30m: 1 No. piece of plastic | | | |
| 0.50 | B | | | | | | | | |
| 0.90 | SV 72kPa | | | | | | | | |
| 1.00-1.45 | SPT N=9 | | 1,2/2,1,3,3 | | | Below 1.00m: Firm to stiff, high strength | | | |
| 1.10 | SV 84kPa | | | | | | | | |
| 1.20 | SV 100kPa | | | | | | | | |
| 1.20-1.50 | B | | | | | | | | |
| 1.40 | SV 132kPa | | | | | | | | |
| 1.60 | SV 132kPa | | | | | | | | |
| 1.60-2.00 | B | | | | | | | | |
| 1.80 | SV 128kPa | | | | | | | | |
| 1.95 | SV 136kPa | | | | | | | | |
| 2.00-2.45 | SPT N=12 | | 2,1/3,2,3,4 | | | | | | |
| 2.10-2.50 | B | | | | | | | | |
| 2.20 | SV 132kPa | | | | (4.15) | | | | |
| 2.50 | SV 120kPa | | | | | | | | |
| 2.60-3.00 | B | | | | | | | | |
| 2.70 | SV 140kPa | | | | | | | | |
| 2.90 | SV 140kPa | | | | | | | | |
| 3.00-3.45 | SPT N=12 | | 2,2/3,2,3,4 | | | | | | |
| 3.00-3.40 | B | | | | | | | | |
| 3.30 | SV 132kPa | | | | | | | | |
| 3.50-4.00 | B | | | | | | | | |
| 3.60 | SV 128kPa | | | | | | | | |
| 3.80 | SV 140kPa | | | | | | | | |
| 4.00-4.45 | SPT N=13 | | 2,3/3,3,3,4 | | | | | | |
| 4.00-4.45 | B | | | | | | | | |
| | | | | | 4.45 | Complete at 4.45m | | | |

**Remarks**
Location CAT scanned prior to drilling. Service pit excavated to 1.20m.
Sides stable during drilling. No groundwater encountered drilling.
Samples below 4.00m based upon retrieved SPT sample.
Monitoring well installed between surface and 4.00m, comprising 1.00m plain pipe, 3.00m slotted pipe with inert free draining gravel surround and bentonite seal above and below response zone.
Borehole not cased.
SPT energy ratio = 61%.

**Scale (approx)** 1:40

**Logged By** MW

**Checked By** PRS

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**Site** MITTON ROAD, WHALLEY

**Number** WS04

**Machine :** Competitor Rig

**Method :** Drive-in Windowless Sampler

**Dimensions** 150mm to 5.00m

**Ground Level (mOD)**

**Client** Prospect Homes Ltd

**Job Number** 7583

**Location** (Observed measurements)

**Dates** 28/08/2020

**Engineer** Coopers (Chester) Ltd

**Sheet** 1/1

| Depth (m) | Sample / Tests | Water Depth (m) | Field Records | Level (mOD) | Depth (m) (Thickness) | Description | Legend | Water | Instr |
|---|---|---|---|---|---|---|---|---|---|
| 0.20 | B | | | | (0.40) | MADEGROUND (similar to topsoil). Brown, very silty CLAY with rare half brick fragments. | | | |
| 0.20 | JV | | | | 0.40 | | | | |
| | | | | | (0.30) | MADEGROUND. Firm to stiff, high strength, grey/brown, silty CLAY with rare, small quarter size brick pieces. | | | |
| 0.60 | B | | | | 0.70 | | | | |
| 0.60 | JV | | | | | MADEGROUND. Dark brown, very gravelly, sandy ASH and CLINKER. *Assumed as loose to medium dense. | | | |
| 0.90 | B | | | | (0.70) | Below 1.00m: Very loose. | | | |
| 0.90 | JV | | | | | | | | |
| 1.00-1.45 | SPT N=3 | | 1,1/0,1,1,1 | | 1.40 | | | | |
| 1.50 | SV 60kPa | | | | | MADEGROUND. Firm to stiff, medium strength, grey, slightly silty CLAY. | | ▽1 | |
| 1.50-2.00 | B | | | | | | | | |
| 1.70 | SV 60kPa | | Groundwater(1) at 1.70m. | | | | | | |
| 1.90 | SV 64kPa | | | | | | | | |
| 2.00-2.45 | SPT N=2 | | 0,0/0,1,1,0 | | | Below 2.00m: Very soft, low strength, grey, slightly silty, gravelly CLAY. Gravel is fine to coarse, angular natural stone with some organics (no odour) | | | |
| 2.20 | SV 14kPa | | | | | | | | |
| 2.20-2.50 | B | | | | | | | | |
| 2.40 | SV 10kPa | | | | (2.10) | At 2.50m: 1 No. piece of ceramic | | | |
| 2.60-3.00 | B | | | | | | | | |
| 2.70 | SV 10kPa | | | | | | | | |
| 3.00 | SV 16kPa | | | | | | | | |
| 3.00-3.45 | SPT N=6 | | 2,1/1,1,2,2 | | | | | | |
| 3.00-3.40 | B | | | | | | | | |
| | | | | | 3.50 | Firm to stiff, high strength, grey, slightly silty CLAY with rare, fine to coarse gravel of sub-angular to sub-rounded natural stone. | | | |
| 3.60-3.90 | B | | | | | | | | |
| 3.70 | SV 100kPa | | | | | | | | |
| 3.90 | SV 100kPa | | | | | | | | |
| 4.00 | SV 108kPa | | | | | | | | |
| 4.00-4.45 | SPT N=7 | | 1,1/1,1,2,3 | | | | | | |
| 4.10-4.50 | B | | | | (1.50) | | | | |
| 4.30 | SV 88kPa | | | | | | | | |
| 4.60 | SV 96kPa | | | | | | | | |
| 4.60-5.00 | B | | | | | | | | |
| 4.80 | SV 92kPa | | | | | | | | |
| 4.90 | SV 100kPa | | | | 5.00 | Complete at 5.00m | | | |

**Remarks**
Location CAT scanned prior to drilling. Service pit excavated to 1.20m.
Sides stable during drilling. Groundwater at 1.70m during drilling. *Based upon stability characteristics.
Unable to get SPT sample below 5.00m due to collapsing.
Monitoring well installed between surface and 4.00m, comprising 1.00m plain pipe, 2.00m slotted pipe with inert free draining gravel surround and bentonite seal above and below response zone.
Borehole not cased.
SPT energy ratio = 61%.

**Scale (approx)** 1:40

**Logged By** MW

**Checked By** PRS

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**Site** MITTON ROAD, WHALLEY

**Number** WS05

**Machine :** Competitor Rig

**Method :** Drive-in Windowless Sampler

**Dimensions** 150mm to 4.45m

**Ground Level (mOD)**

**Client** Prospect Homes Ltd

**Job Number** 7583

**Location** (Observed measurements)

**Dates** 01/09/2020

**Engineer** Coopers (Chester) Ltd

**Sheet** 1/1

| Depth (m) | Sample / Tests | Water Depth (m) | Field Records | Level (mOD) | Depth (m) (Thickness) | Description | Legend | Water | Instr |
|---|---|---|---|---|---|---|---|---|---|
| 0.10 | B | | | | (0.40) | MADEGROUND (similar to topsoil). Dark brown, slightly clayey, fine to coarse SAND with rare gravel of sub-rounded natural stone and pieces of plastic and rubber. | | | |
| 0.10 | JV | | | | | | | | |
| | | | | | 0.40 | | | | |
| 0.60 | SV 20kPa | | | | (0.70) | MADEGROUND. Soft, low strength, grey, slightly sandy, silty CLAY with rare gravel and cobbles of fine to coarse, sub-angular to sub-rounded natural stone. | | | |
| 0.60 | B | | | | | | | | |
| 0.60 | JV | | | | | | | | |
| 1.00-1.45 | SPT N=5 | | 2,1/1,1,1,2 | | | At 1.00m: 1 No. piece of metal | | | |
| 1.00-1.40 | B | | | | 1.10 | | | | |
| | | | | | | Soft, low strength, grey, very silty CLAY. | | | |
| 1.60 | SV 40kPa | | | | | | | | |
| 1.60-2.00 | B | | | | | | | | |
| 1.75 | SV 44kPa | | | | | | | | |
| 1.90 | SV 52kPa | | | | | Firm, medium strength | | | |
| 2.00-2.45 | SPT N=3 | | 0,0/0,0,1,2 | | (2.00) | | | | |
| 2.00-2.45 | B | | | | | At 2.10m: 1 No. sub-angular cobble, measuring 0.10 x 0.07 x 0.06m | | | |
| 2.20-2.60 | B | | | | | | | | |
| 2.30 | SV 18kPa | | | | | | | | |
| 2.60 | SV 12kPa | | | | | | | | |
| 2.80-3.00 | B | | | | | | | | |
| 2.90 | SV 20kPa | | | | | | | | |
| 3.00-3.45 | SPT N=19 | | 3,9/7,4,4,4 | | | | | | |
| 3.00-3.45 | B | | | | 3.10 | | | | |
| 3.10-3.50 | B | | | | | Stiff, high strength, grey/brown, slightly sandy, silty, gravelly CLAY. Gravel is fine to coarse, sub-angular to sub-rounded natural stone with occasional cobbles of sub-angular to sub-rounded natural stone. | | | |
| 3.20 | SV 100kPa | | | | | | | | |
| 3.60 | SV 100kPa | | Groundwater(1) at 3.60m. | | | | | ▽1 | |
| 3.60-4.00 | B | | | | (1.35) | | | | |
| 3.80 | SV 88kPa | | | | | | | | |
| 3.90 | SV 108kPa | | | | | | | | |
| 4.00-4.45 | SPT N=26 | | 3,4/4,5,7,10 | | | | | | |
| 4.00-4.45 | B | | | | 4.45 | | | | |
| | | | | | | Complete at 4.45m | | | |

**Remarks**
Location CAT scanned prior to drilling. Service pit excavated to 1.00m.
Sides stable during drilling. Groundwater at 3.60m during drilling and remained at 3.60m at time of completion.
Samples below 4.00m based upon retrieved SPT samples.
Monitoring well installed between surface and 1.10m, comprising 0.50m plain pipe, 0.60m slotted pipe, 0.90m of bentonite and 2.6m of free draining gravel surround with a bentonite seal above and below response zone.
Borehole not cased.
SPT energy ratio = 61%.

**Scale (approx)** 1:40

**Logged By** MW

**Checked By** PRS

coopers
chartered consulting engineers

Coopers (Chester) Ltd
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**Site** MITTON ROAD, WHALLEY

**Number** WS06

**Machine :** Competitor Rig

**Method :** Drive-in Windowless Sampler

**Dimensions** 150mm to 5.45m

**Ground Level (mOD)**

**Client** Prospect Homes Ltd

**Job Number** 7583

**Location** (Observed measurements)

**Dates** 01/09/2020

**Engineer** Coopers (Chester) Ltd

**Sheet** 1/1

| Depth (m) | Sample / Tests | Water Depth (m) | Field Records | Level (mOD) | Depth (m) (Thickness) | Description | Legend | Water | Instr |
|---|---|---|---|---|---|---|---|---|---|
| 0.20 | B | | | | (0.50) | MADEGROUND. Firm, medium strength, grey, silty, gravelly CLAY. Gravel is fine to coarse, angular to sub-angular natural stone. | | | |
| 0.20 | JV | | | | | | | | |
| 0.40 | SV 72kPa | | | | 0.50 | | | | |
| 0.70 | B | | | | | MADEGROUND. Grey, clayey, sandy GRAVEL. Gravel is coarse, angular, natural stone. | | | |
| 0.70 | JV | | | | (0.80) | | | | |
| 1.00-1.45 | SPT N=1 | | 1,1/0,0,0,1 | | | | | | |
| 1.00-1.45 | B | | | | 1.30 | | | | |
| 1.30-1.60 | B | | | | | Firm to stiff, high strength, brown mottled grey, silty CLAY. | | | |
| 1.40 | SV 80kPa | | | | | | | | |
| 1.60 | SV 88kPa | | | | | | | | |
| 1.70-2.00 | B | | | | | Below 1.80m: Medium strength | | | |
| 1.80 | SV 68kPa | | | | | | | | |
| 1.90 | SV 80kPa | | | | | | | | |
| 2.00-2.45 | SPT N=5 | | 1,0/1,1,1,2 | | | | | | |
| 2.00-2.40 | B | | | | (1.70) | | | | |
| 2.20 | SV 64kPa | | | | | | | | |
| 2.40 | SV 60kPa | | | | | | | | |
| 2.50-3.00 | B | | | | | | | | |
| 2.60 | SV 80kPa | | | | | | | | |
| 2.80 | SV 68kPa | | | | | | | | |
| 3.00 | SV 56kPa | | Groundwater(1) at 3.00m. | | 3.00 | | | ▽1 | |
| 3.00-3.45 | SPT N=7 | | 1,1/1,1,2,3 | | (0.10) | Grey, slightly silty, fine to coarse GRAVEL of angular to sub-rounded natural stone. | | | |
| 3.00-3.20 | B | | | | 3.10 | | | | |
| 3.30 | SV 52kPa | | | | | Firm, medium strength, brown/grey, slightly silty CLAY with occasional gravel of fine to coarse, sub-rounded natural stone. | | | |
| 3.30-3.60 | B | | | | | | | | |
| 3.50 | SV 60kPa | | | | | | | | |
| 3.60-4.00 | B | | | | | | | | |
| 3.70 | SV 80kPa | | | | | | | | |
| 3.90 | SV 80kPa | | | | | | | | |
| 4.00-4.45 | SPT N=7 | | 2,1/2,1,2,2 | | | | | | |
| 4.00-4.45 | B | | | | (2.35) | | | | |
| 4.30 | SV 64kPa | | | | | | | | |
| 4.30-4.80 | B | | | | | | | | |
| 4.50 | SV 64kPa | | | | | | | | |
| 4.80 | SV 68kPa | | | | | | | | |
| 5.00-5.45 | B | | | | 5.45 | | | | |
| | | | | | | Complete at 5.45m | | | |

**Remarks**
Location CAT scanned prior to drilling. Service pit excavated to 1.20m.
Sides stable during drilling. Groundwater at 3.00m during drilling.
Samples below 5.00m based upon retrieved SPT samples.
Monitoring well installed between surface and 4.00m, comprising 1.50m plain pipe, 2.50m slotted pipe with inert 10mm free draining gravel surround and bentonite seal to above and below response zone.
Borehole not cased.
SPT energy ratio = 61%.

**Scale (approx)** 1:40

**Logged By** MW

**Checked By** PRS

coopers
chartered consulting engineers

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**Site** MITTON ROAD, WHALLEY

**Number** WS07

**Machine :** Competitor Rig

**Method :** Drive-in Windowless Sampler

**Dimensions** 150mm to 4.45m

**Ground Level (mOD)**

**Client** Prospect Homes Ltd

**Job Number** 7583

**Location** (Observed measurements)

**Dates** 01/09/2020

**Engineer** Coopers (Chester) Ltd

**Sheet** 1/1

| Depth (m) | Sample / Tests | Water Depth (m) | Field Records | Level (mOD) | Depth (m) (Thickness) | Description | Legend | Water | Instr |
|---|---|---|---|---|---|---|---|---|---|
| 0.20 | B | | | | (0.45) | MADEGROUND (similar to topsoil). Dark brown, slightly sandy, silty CLAY. | | | |
| 0.20 | JV | | | | 0.45 | At 0.40m: Clay land drain measuring approximately 100mm in diameter, orientated north to south (dry) | | | |
| 0.60 | SV 112kPa | | | | | Firm to stiff, high strength, grey/brown, silty CLAY with occasional gravel and cobbles of fine to coarse, sub-angular to sub-rounded natural stone. | | | |
| 0.60 | B | | | | | | | | |
| 1.00-1.45 | SPT N=7 | | 2,1/1,1,3,2 | | | | | | |
| 1.20 | SV 128kPa | | | | | Below 1.30m: Grey mottled brown | | | |
| 1.20-1.60 | B | | | | | | | | |
| 1.20-1.65 | B | | | | | | | | |
| 1.40 | SV 132kPa | | | | | | | | |
| 1.60 | SV 140kPa | | | | | | | | |
| 1.70-2.00 | B | | | | | | | | |
| 1.80 | SV 140kPa | | | | | | | | |
| 2.00-2.45 | SPT N=33 | | 2,4/6,9,9,9 | | | Below 2.00m: Some fine to coarse gravel of sub-angular to sub-rounded natural stone | | | |
| 2.10 | SV 140*kPa | | | | | | | | |
| 2.10-2.50 | B | | | | | | | | |
| 2.40 | SV 140*kPa | | | | (4.00) | | | | |
| 2.60-3.00 | B | | | | | | | | |
| 2.80 | SV 142*kPa | | | | | | | | |
| 3.00-3.45 | SPT N=13 | | 2,3/3,3,3,4 | | | | | | |
| 3.00-3.45 | B | | | | | | | | |
| 3.30 | SV 148*kPa | | | | | | | ▽1 | |
| | | | Groundwater(1) at 3.50m. | | | | | | |
| 3.70 | SV 136*kPa | | | | | At 3.80m: 1 No. large cobble<br>At 3.85m: 1 No. large cobble | | | |
| 4.00-4.45 | SPT N=21 | | 4,4/4,5,5,7 | | | | | | |
| 4.00-4.45 | B | | | | | | | | |
| | | | | | 4.45 | Complete at 4.45m | | | |

**Remarks**
Location CAT scanned prior to drilling. Service pit excavated to 1.20m.
Sides stable during drilling. Groundwater at 3.50m during drilling.
Samples below 4.00m based upon retrieved SPT samples. *Spurious results due to gravel content.
Monitoring well installed between surface and 4.00m comprising 1.00m plain pipe, 3.00m slotted pipe with inert 10mm free draining gravel surround and bentonite seal above and below response zone.
Borehole not cased.
SPT energy ratio = 61%.

**Scale (approx)** 1:40

**Logged By** MW

**Checked By** PRS

coopers
chartered consulting engineers

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**Site** MITTON ROAD, WHALLEY

**Number** WS08

**Machine :** Competitor Rig

**Method :** Drive-in Windowless Sampler

**Dimensions** 150mm to 5.45m

**Ground Level (mOD)**

**Client** Prospect Homes Ltd

**Job Number** 7583

**Location** (Observed measurements)

**Dates** 01/09/2020

**Engineer** Coopers (Chester) Ltd

**Sheet** 1/1

| Depth (m) | Sample / Tests | Water Depth (m) | Field Records | Level (mOD) | Depth (m) (Thickness) | Description | Legend | Water | Instr |
|---|---|---|---|---|---|---|---|---|---|
| 0.10 | B | | | | (0.30) | Dark brown, silty, sandy TOPSOIL with some fine roots. | | | |
| | | | | | 0.30 | Firm to stiff, high strength, brown, silty CLAY. | | | |
| 0.50 | SV 100kPa | | | | | | | | |
| 0.50 | B | | | | | | | | |
| 0.90 | SV 100kPa | | | | | | | | |
| 1.00 | SV 80kPa | | | | | | | | |
| 1.00-1.45 | SPT N=8 | | 1,1/2,1,2,3 | | | | | | |
| 1.00-1.45 | B | | | | | | | | |
| 1.00-1.50 | B | | | | | | | | |
| 1.20 | SV 80kPa | | | | | | | | |
| 1.40 | SV 80kPa | | | | | | | | |
| 1.60 | SV 128kPa | | | | | | | | |
| 1.60-2.00 | B | | | | | | | | |
| 1.80 | SV 160kPa | | | | | | | | |
| 2.00-2.45 | SPT N=10 | | 2,2/2,2,3,3 | | | | | | |
| 2.00-2.50 | B | | | | | | | | |
| 2.20 | SV 136kPa | | | | | | | | |
| 2.40 | SV 124kPa | | | | | | | | |
| 2.60 | SV 124kPa | | | | | | | | |
| 2.60-3.00 | B | | | | | | | | |
| 2.80 | SV 180kPa | | | | (5.15) | Below 2.80m: Very stiff, very high strength | | | |
| 3.00-3.45 | SPT N=11 | | 2,2/2,2,3,4 | | | Below 3.00m: Firm to stiff, high strength, slightly fine sandy | | | |
| 3.00-3.45 | B | | | | | | | | |
| 3.10 | SV 80kPa | | | | | | | | |
| 3.10-3.50 | B | | | | | | | | |
| 3.30 | SV 80kPa | | | | | | | | |
| 3.50 | SV 84kPa | | | | | | | | |
| 3.60-4.00 | B | | | | | | | | |
| 3.70 | SV 80kPa | | | | | | | | |
| 3.90 | SV 100kPa | | | | | | | | |
| 4.00-4.45 | SPT N=11 | | 1,1/2,2,3,4 | | | | | | |
| 4.00-4.45 | B | | | | | | | | |
| 4.00-4.45 | B | | | | | | | | |
| 4.10 | SV 80kPa | | | | | | | | |
| 4.30 | SV 60kPa | | | | | | | | |
| 4.50 | SV 88kPa | | | | | | | | |
| 4.70 | SV 64kPa | | | | | | | | |
| 4.90 | SV 60kPa | | | | | | | | |
| 5.00-5.45 | SPT N=19 | | 2,4/5,4,5,5 | | | | | | |
| 5.00-5.45 | B | | | | | | | | |
| | | | | | 5.45 | Complete at 5.45m | | | |

**Remarks**
Location CAT scanned prior to drilling. Service pit excavated to 1.00m.
Sides stable during drilling. No groundwate during drilling.
Samples below 5.00m based upon retrieved SPT samples.
Monitoring well installed between surface and 4.00m, comprising 1.00m plain pipe, 3.00m slotted pipe with inert 10mm free draining gravel surround and bentonite seal above and below response zone.
Borehole not cased.
SPT energy ratio = 61%.

**Scale (approx)** 1:40

**Logged By** MW

**Checked By** PRS