

**Land at Junction 22 of the M1,
Cliffe Hill Farm**

Flood Risk Assessment and Drainage Strategy

for

The logo for Caddick Developments, with 'Caddick' in black and 'Developments.' in yellow.

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1.0 – EXECUTIVE SUMMARY

This report has been prepared to support the full planning application for the following proposal;

Full Planning Application for the redevelopment of the site at Cliffe Hill Farm at J22 of the M1 for storage and distribution uses (Class B8), general industry (Class B2), ancillary office space (Class E(g)(i)), together with associated development including access, landscaping, earthworks, ancillary infrastructure, and parking.

Reference should be made to the Geo 2 'Preliminary Risk Assessment' for further detail on the geo-environmental and ground conditions. Document Number: 25/4467A.2

The flood risk assessment identifies that the site is located in flood zone 1 (low risk) in respect to fluvial flood risk, while there are some localised areas on site with a medium/high risk of surface water flooding, this will be mitigated through the development's levels and drainage designs.

The surface water drainage hierarchy has been considered and the preferred drainage solution for disposal of surface water is to discharge to a watercourse. There are two watercourses which serve the site, the proposal is to discharge the whole site to the 'eastern watercourse'. This is the preferred option due to knowledge of existing flooding issues with the 'western watercourse'. A betterment shall be achieved to both watercourses serving the site.

The use of Sustainable Drainage Systems (SuDS) has been considered. Pollution prevention and site control methods will be utilised prior to outfall.

The SuDS and other drainage elements will be regularly maintained by an appointed management company on behalf of the client/occupier.

It is proposed foul flows will be pumped to an existing public foul sewer located outside of the site to the south within Ashby Road. A predevelopment enquiry has been made to Severn Trent Water regarding this connection point.

2.0 - PROJECT BACKGROUND

2.1 - Appointment

Burrows Graham Limited have been commissioned by Caddick Developments Limited (referred to as 'the applicant' hereafter) to undertake a flood risk assessment and drainage strategy of suitable scope to support a planning application for a proposed commercial development on Land at Junction 22 of the M1, Cliffe Hill Farm, LE67 9PH.

2.2 - Aim of study

This FRA and Drainage Strategy has been developed in due cognisance of all relevant available policy information. This report shall satisfy the requirements of the National Planning Policy Framework (NPPF) and all relevant flood risk planning policies.

2.3 - Relevant policy and strategy documents

The following documents were reviewed as part of this Flood Risk Assessment:

- Defra Sustainable Drainage Systems Non-Statutory Technical Standards for Sustainable Drainage Systems (March 2015)
- Environment Agency Climate Change Guidance (February 2016)
- Flood and Water Management Act (April 2010)
- National Planning Policy Framework (Updated February 2025) and Planning Practice Guidance (March 2014)
- Sustainable Drainage Systems Written Statement HCWS161 (December 2014)
- Hinckley and Bosworth Borough Council Strategic Flood Risk Assessment (SFRA) 2025
- Hinckley and Bosworth Borough Council Local Plan 2006-2026

2.4 - Proposed development

The Proposed Development will comprise warehouse units for up to 697,440 sq. ft of floorspace for storage and distribution uses (Class B8), general industry (Class B2), ancillary office space (Class E(g)(i)),

The current greenfield site measures c. 28.24 hectares and is wholly located within the Hinckley and Bosworth Borough Council administrative district. The site is immediately to the east of the M1, northeast of junction 22 and to the north of the A50.

Reference should be made to the 'Site Layout Plan' included in Appendix A, an extract of which is shown below.



Figure 1 – Site Layout Plans

3.0 - SITE DETAILS



Figure 2 – Site Location Plan

3.1- Site description

Site address	Land at Junction 22 of the M1, Cliffe Hill Farm, LE67 9PH.
Grid reference	E = 448063 N=311273
Area (hectares)	The site boundary has been measured to be 28.24 hectares.
Usage	The site currently comprises agricultural land with agricultural buildings, stables, and a bungalow (associated with Cliffe Hill Farm) and an equestrian menage.
Surroundings	North – White Hill Farm B&B and associated land delineates the northern boundary of the site, beyond this land is Old House Lane. East – White Hill, Forest Edge, Weavers Cottage and associated parcels of land delineates the eastern boundary of the site, beyond this land is Whitwick Road. Whitwick road directly delineates the boundary in some areas of the eastern boundary. South – The A50 delineates the southern boundary of the site. West - The M1 delineates the western boundary of the site.
Topography	Site levels generally fall from the north to the south with large level differences of 29m across the site. Levels are highest at northeastern boundary with levels circa 220m AOD. The lowest lying area of the site is the southeastern most point of the site with levels around 191m AOD. A copy of the topographical survey has been included in Appendix B of this report.

Table 1 - Site characteristics

3.2 - Existing drainage

There is an existing culvert in the centre of the site which flows from east to west, routing flows from the existing northern ditches into the M1 highway ditch.

3.3 - Existing watercourses.

The site has a series of existing ditches which collect the surface water runoff from the site and convey flows towards ordinary watercourses to the east and west of the site. Approximately 40% of the site currently discharges to the east into a ditch which discharges under Whitwick Road and 60% of the site currently discharges to the west into a ditch along the western perimeter adjacent to the M1. There are no Main Rivers within the vicinity of the site.

3.4 - Geology and hydrogeology

Reference should be made to the Geo 2 Preliminary Risk Assessment. Document Number: 25/4467A.2, the key findings of which have been summarised below.

Information published by the British Geological Survey (BGS) indicates that the majority of the site is underlain by natural Superficial deposits of Head and Oadby Till (Glacial Till). Superficial soils are indicated to be locally absent in the centre of the site.

Bedrock geology at the site is complex, indicated to comprise relatively flay lying strata of the Gunthorpe Member (clays and mudstones) overlying the strata of the Beacon Hill and Bradgate Formation; the latter are shown to be steeply inclined to the southwest and outcrop in the central area. The Beacon Hill and Bradgate Formation strata comprise volcanoclastic siltstones (i.e. siltstones composed of volcanic ash).

The Environment Agency (EA) classifies the Superficial deposits of Head and Oadby till as a Secondary Undifferentiated Aquifers. The bedrock geologies are classified as Secondary B Aquifers.

The site is not located in a groundwater Source Protection Zone (SPZ) and there are no sensitive groundwater abstractions in the vicinity of the site. The closest protection zone is circa 1.5 km to the west of the site.

There is low risk for groundwater flooding to occur on the site.

4.0 – FLOOD RISK STATEMENT

4.1 - Fluvial flood risk

The National Planning Policy Framework (NPPF) categorises flood risk as follows:

- Zone 1 (low probability) – Land assessed as having less than a 1 in 1,000 annual probability of river or sea flooding (<0.1%);
- Zone 2 (medium probability) – Land assessed as having between a 1 in 100 and 1 in 1,000 annual probability of river flooding (1% – 0.1%), or between a 1 in 200 and 1 in 1,000 annual probability of sea flooding (0.5% – 0.1%) in any year; and
- Zone 3a (high probability) - Land assessed as having a 1 in 100 or greater annual probability of river flooding (>1%), or a 1 in 200 or greater annual probability of flooding from the sea (>0.5%) in any year.
- Zone 3b The Functional Floodplain - This zone comprises land where water has to flow or be stored in times of flood. Local planning authorities should identify in their Strategic Flood Risk Assessments areas of functional floodplain and its boundaries accordingly, in agreement with the EA. (Not separately distinguished from Zone 3a on the Flood Map).

The EA flood maps for planning show that the site is wholly located within flood zone 1, as stated above, the site is considered to be at low risk of flooding from rivers or sea.

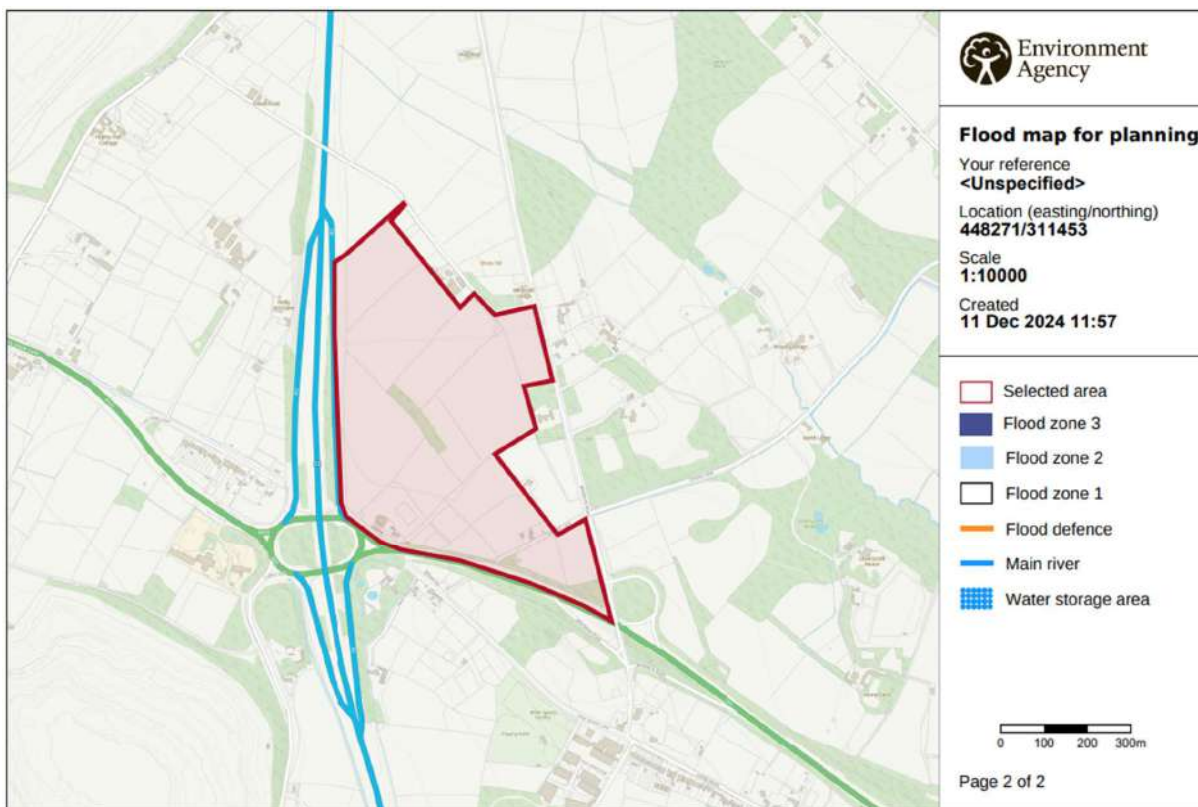
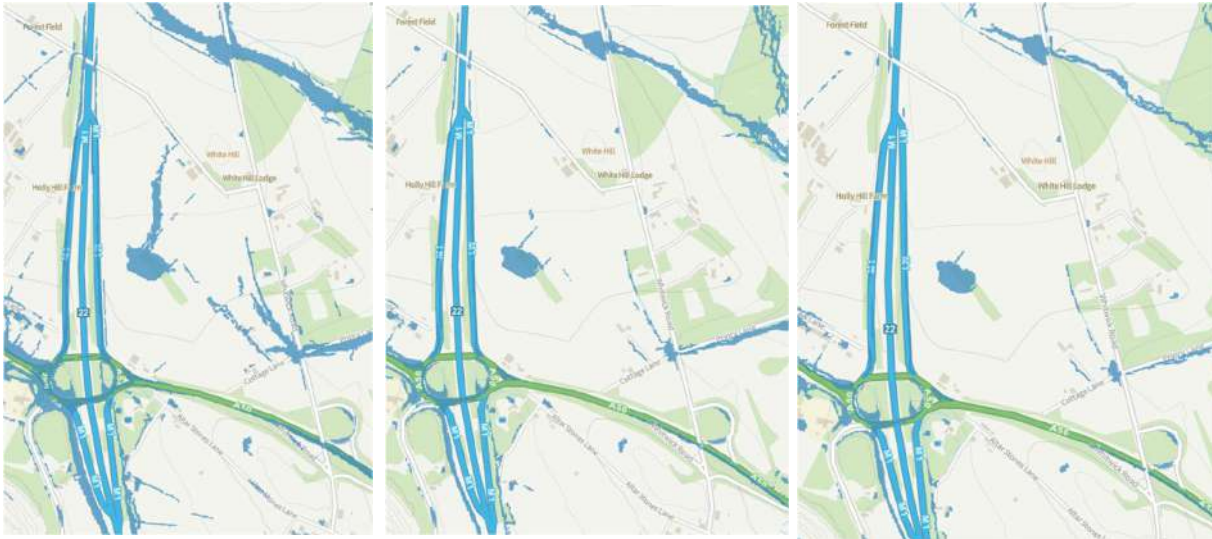


Figure 3 – EA Flood Map for Planning

4.2 - Surface water flooding

The EA descriptions for the High, Medium and Low risk scenarios for surface water flooding are as follows:

- High risk means that each year this area has a chance of flooding of greater than 3.3%.
- Medium risk means that each year this area has a chance of flooding of between 1% and 3.3%.
- Low risk means that each year this area has a chance of flooding of between 0.1% and 1%.
- Very Low risk means that each year this area has a chance of flooding of less than 0.1%.



Low Risk

Medium Risk

High Risk

Figure 4 – EA Flood Map for Surface Water

The EA Map of long-term flood risk from surface water indicates that the site is predominantly very low risk from surface water flooding, it shows some locations of low to high-risk surface water flooding. The area of low to high-risk surface water flooding is shown in the centre of the site, along the routes of the existing ditches which run west towards the M1. The areas of low-risk surface water flooding to the east of the site is shown along the route of the ditch which runs along the eastern boundary and predominantly offsite.

The proposed drainage strategy detailed in section 5.0 of this report shall provide details on how the surface water will be managed to ensure the site is low risk of surface water flooding.

The ditch which runs west that currently shows high risk of surface water flooding is proposed to be removed, the corresponding catchment for this ditch will be collected, attenuated on-site and discharged into the eastern watercourse. This will both mitigate the surface water flooding on-site but also provide a betterment for the existing surface water flooding which is shown downstream along the edge of the M1.

Outside of the site boundary we are aware of the existing issues with the M1 watercourse to the west of the development. This is shown as high risk on the flood maps, and we know this is a watercourse which frequently floods, either due to blockages or to being undersized for its catchment. We are aware that people in the local area have expressed their concerns and experiences of the flooding issues associated with the M1 ditches, hence the strategy to provide betterment to the local area and relieve stresses on the existing watercourse.

The eastern ditches which currently show low risk of surface water flooding are to remain and will provide the outfall for the proposed development. Through the proposed drainage strategy, the incoming discharge rates that this ditch will receive from the development will be substantially better than the existing runoff rates which it currently receives. The reduced and controlled discharge rates from the proposed development will provide betterment to the surface water flooding in this area and therefore surface water flooding should not pose a risk to the site.

4.3 - Groundwater flood risk

The areas susceptible to groundwater flooding map, taken from the Leicestershire County Council Preliminary Flood Risk Assessment, shows most of the site to be in an area with <25% chance of groundwater emergence. A small part of the site along the southern boundary may fall within an area with >25%, <50% chance of groundwater emergence. Overall, this map highlights that the development is sited in an area of Leicestershire which is less susceptible to groundwater flooding.

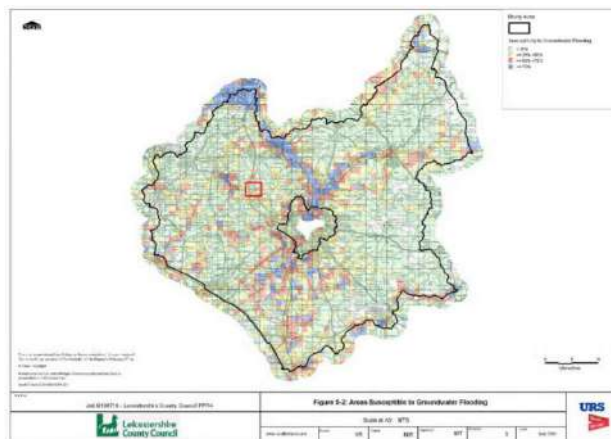


Figure 5 – Leicestershire County Council SFRA– Areas Susceptible to Groundwater Flooding Extract



Figure 6 – Groundsure Groundwater Flooding Map

For further detailed mapping, reference should be made to the Geo 2 'Preliminary Risk Assessment' Document Number: 25/4467A.2 which includes a site-specific groundwater flooding map. This mapping highlights that the site has predominantly negligible risk of groundwater flooding with areas to the south of the site highlighted as low risk.

Based on the information available, it is considered that groundwater flooding does not pose a considerable risk to the proposed development.

4.4 - Sewer flooding

There are no existing public sewers within the vicinity of the site. Therefore, the site is at low of risk of flooding from sewers.

4.5 - Tidal flooding

The site is remote from tidal influences and is therefore not at risk of tidal or coastal flooding.

4.6 - Reservoir flooding

Based on the EA Flood Risk from Reservoirs Map, the site is not at risk of flooding from reservoirs.

5.0– SURFACE WATER DRAINAGE STRATEGY

5.1 – Disposal of surface water

The method for removal of surface water from the site has been selected in accordance with the hierarchy outlined in Building Regulations Part H as summarised below:

- Infiltration to the ground
- Discharge to a watercourse
- Connection to a surface water sewer
- Connection to a combined sewer

As detailed in the Geo 2 'Preliminary Risk Assessment', Infiltration testing was undertaken which showed the site to be unsuitable for soakaway drainage, as such this has been discounted.

Therefore, it is proposed to discharge surface water runoff to the existing watercourse to the east of this site which is mentioned in section 3.3 of this report. It is proposed to discharge the whole site to this location; sufficient attenuation storage can be provided on site to be able to discharge the whole site at the equivalent rate for the eastern catchment and provide a significant betterment on the existing discharge rates. As mentioned in section 4.2 of this report, the ditch which runs to the west of the site and along the boundary of the M1 is susceptible to surface water flooding. Removing the catchment area from this watercourse will ease the stresses on the National Highways asset and will reduce the surface water flooding. Similarly, the betterment provided to the eastern watercourse will provide benefits both onsite and downstream of the watercourse.

5.2 – Sustainable Drainage Systems

Sustainable Drainage Systems (SuDS) will be utilised in line with The SuDS Manual (C753) guidance and aim to minimise the impact a development has on the runoff quantity and quality and maximise amenity and biodiversity opportunities.

The management train approach is a fundamental principle of SuDS, it aims to primarily reduce pollution, flow rates and volume of runoff from the site. The main objective is to treat the runoff as close to the source as possible and it is imperative that at least two of the following should be included within the drainage strategy.

- **Prevention** – The use of good site design and rainwater re-use measures to prevent runoff.
- **Source Control** – Controlling the runoff as close to source as possible by using; green roofs, porous pavements and soakaways.
- **Site Control** – Use of water management techniques within local area, i.e. detention basins and geo-cellular storage.
- **Regional Control** – Management of water from a number of sites in a specific location, i.e. balancing ponds and wetlands.

The drainage strategy for this development will incorporate prevention by using rainwater harvesting systems where possible, site control measures such as attenuation basins will be sized to store and control storm water for the most extreme events.

5.3 – General strategy

For details of the outline drainage proposals for the site, reference should be made to drawing (ref: 30206-BGL-XX-XX-DR-C-00250) which has been included in Appendix C of this report.

5.4 – Total site area and impermeable areas

The total drained area of the proposed development has been measured to be 15.6 hectares.

5.5 – Climate Change

In line with the latest guidance and the Hinckley and Bosworth Borough Council Strategic Flood Risk Assessment (SFRA) 2025, a 40% allowance has been made for climate change.

5.6 – Discharge rates

The site is considered to be a greenfield development.

The hydrological characteristics for the site have been taken from uksuds.com and summarised in Table 3 below.

Table 3 – Hydrological characteristics for the site

SAAR (mm)	714
Hydrological region	4
Soil type	4
SPR	0.47

Using the IH124 method (Institute of Hydrology, 1994) and the above hydrological characteristics, the greenfield runoff rates have been set out in Table 4. As the strategy is to outfall the site to the eastern watercourse, the greenfield runoff rates shown below are based on the relative catchment to this watercourse which has been measured to be 6.1 hectares.

Table 4 – Greenfield runoff rates

QBAR	30.1 l/s
Q(1)	25 l/s
Q(30)	60.3 l/s
Q(100)	77.5 l/s

A reduction of 20% will be applied to the QBAR discharge rate to provide betterment to the existing watercourse, the maximum runoff rate from the developed site will not exceed 24.1 l/s for all storms up to and including the 1 in 100-year storm plus a 40% allowance for climate change.

Table 5 – Proposed betterment to greenfield runoff rates

	Existing	Proposed	Betterment
QBAR	30.1 l/s	24.1 l/s	20%
Q(1)	25 l/s	24.1 l/s	3.6%
Q(30)	60.3 l/s	24.1 l/s	60%
Q(100)	77.5 l/s	24. l/s	69%

For further details on the drainage catchments and discharge rates for the site, reference should be made to drawing (ref: 30206-BGL-XX-XX-DR-C-0251), which has been included in Appendix D of this report.

5.7 – Attenuation storage

In order to discharge the surface water runoff from the developed site as described above, on site surface water attenuation storage will be required to temporarily store the residual volume of surface water for all rainfall events.

Attenuation will be provided in the form of attenuation ponds.

The attenuation storage will be designed to ensure that there is no surface water flooding on site for rainfall events up to and including the 1 in 30 year storm event. The attenuation storage will be designed to ensure that surface water runoff for storm events up to and including the 100 year storm plus a 40% allowance for climate change will not cause a risk of flooding to properties or increase the flood risk outside of the site.

A hydraulic modelling exercise of the proposed drainage system has been undertaken to ensure sufficient attenuation capacity is provided. The hydraulic calculations for this exercise can be found in Appendix E of this report.

5.8 – Water quality

Water quality has been considered, and the following measures have been included within the surface water drainage proposals:

- All drainage from car park areas, which are considered low risk, will pass through a Class 1 by-pass separator plus at least one attenuation ponds which will provide multiple stages of treatment prior to discharging.
- All drainage from service yards, which are considered high risk, will pass through a Class 1 full retention separator plus at least one attenuation ponds which will provide multiple stages of treatment prior to discharging.
- All drainage from the site road and other hard surfaces will pass through an attenuation pond which will provide treatment for runoff from these areas.
- Silt will be prevented from entering the system using channels with silt traps and catch pits where required.

5.9 – Maintenance

Reference should be made to the Drainage Inspection and Maintenance Schedule in Appendix F, which includes required actions and typical frequencies for all drainage infrastructure serving the development.

The drainage will be managed and maintained by an appointed Management Company.

6.0 – FOUL WATER DRAINAGE STRATEGY

It is currently proposed to discharge the foul flows generated from the development to the existing public foul sewer, the closest feasible Severn Trent Water connection is a manhole approximately 450m to the south of the site (ref.7601) on Ashby Road, existing sewer plans can be found in Appendix G of this report. Due to the distance and existing ground profile, it would not be considered feasible to achieve a gravity connection to this sewer therefore, it is proposed for a pumping station will be located to the south of the site which will pump foul flows towards this sewer via a rising main.

It is proposed to route the rising main within Alter Stones Lane to the Severn Trent Sewer, this will require approximately 800m of offsite construction works in the form of a rising main and associated air valves and washout chambers to suit the detailed design.

A predevelopment enquiry has been made to Severn Trent Water regarding this connection point which advises manhole ref. 7601 as the most appropriate connection point, this correspondence can be found in Appendix H of this report.

Based on a gross internal floor space of 64,794 square metres, it is anticipated that the average flow from the development will be 1.2 l/s, pumped at a rate of 4 l/s. For the connection into the existing Severn Trent Sewer, a Section 106 agreement shall be sought.

Average flows have been calculated using the following formula:

$$6DWF = 6PG + I + 3E$$

Where:

6DWF = foul drainage design flow (l/d)

P = population= 165 persons per hectare

G = water consumption = 90 l/person/day

I = dry weather infiltration = 10%

E = trade effluent = 0 l/s/ha

7.0 - MITIGATION / MANAGEMENT OF FLOOD RISK

7.1 – Access and egress

Access to the site shall be gained via the proposed junction connecting the development to the A50. Egress from the site shall be gained through the proposed junction connecting onto Whitwick Road. Both access and egress roads are located within flood zone 1. Therefore, a safe means of access / egress is available to the site at all times.

7.2 - Drainage & exceedance flow routes

The proposed surface water drainage system will be designed in accordance with the drainage strategy set out in Section 5 of this report. This will ensure that there is no increase in flood risk to the site or elsewhere in the local catchment for all storm events up to and including the 100 year storm plus 40% climate change. Areas of exceedance are shown in the hydraulic calculations in the extreme rainfall events; all exceedances shall be contained within the area of dock levellers which are below ground.

It should be noted that if storm events in excess of the 100 year storm plus 40% climate change or blockages occur, this will result in flood water arising from the site drainage system. This will be contained within the yards, car parks and roads until maintenance has been carried out and the levels recede.

8.0 – CONCLUSION

This Flood Risk Assessment and Drainage Strategy has concluded that the development is appropriate and can be occupied safely subject to implementation of the flood risk mitigation described in this report being carried out.

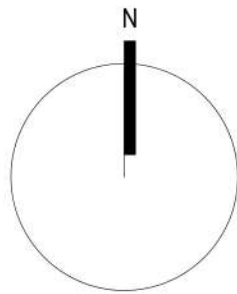
9.0 – BREEAM POL 03 COMPLIANCE

Prerequisite	1. An appropriate consultant, Burrows Graham, has been appointed to carry out and demonstrate compliance with all criteria.
Flood Resilience	2. This document provides a site specific FRA and confirms that the development is defined as having a low annual probability of flooding. The measures set out in this report shall ensure that the development has high flood resilience and minimises the impact of flooding on properties within the development and surrounding area.
Surface Water Run-off Rate	5. In line with the latest guidance and the Hinckley and Bosworth Borough Council Strategic Flood Risk Assessment (SFRA) 2025, a 40% allowance has been made for climate change. All surface water run-off design solutions are bespoke, taking account of the specific site requirements and natural or man-made environment of and surrounding the site. This report details the methodology for disposal of surface water, following the hierarchy outlined in building regulation's part H. 7. The surface water shall be restricted to greenfield runoff rate (QBAR) with a 20% betterment applied (24.1 l/s) meaning the peak run-off rate from the site shall be lower than the pre-development site. This rate shall be utilised for all storm events up to and including 1:100 year plus a 40% allowance for climate change. The predevelopment rates are given in Table 4 of this document. The recued rate can be achieved by attenuating flows within the various SuDS ponds across the development. 8. The drainage will be managed and maintained by an appointed Management Company, a copy of the proposed maintenance strategy has been included in this document. 9. A hydraulic modelling exercise of the proposed drainage system has been undertaken and included in this document with an appropriate allowance for climate change.
Surface Water Runoff Volume	10. In line with the latest guidance and the Hinckley and Bosworth Borough Council Strategic Flood Risk Assessment (SFRA) 2025, a 40% allowance has been made for climate change. If the site drainage system were to flood, it is considered that any surface water arising from the site drainage system would be contained within the area of dock levellers which are below ground and will not affect any property within the development or surrounding areas. 11. The pre-development volume of runoff and post development volume of runoff (prior to mitigation) are assumed to be the same as infiltration is not considered feasible so all runoffs would eventually be routed towards the existing watercourse. Estimated volume of runoff based on site area,

	rainfall intensity and 6-hour duration storm event, plus a 40% allowance for climate change is 5,300m³. Due to the mitigation measures in place the proposed discharged volume from the site in 100 year 6 hour +40cc storm event shall be much lower than the predevelopment volume due to the reduced discharge rate and the various attenuation ponds storing and holding the water on-site for a longer period than the existing scenario, discharging the runoff volume over a longer period. Proposed discharge volume for 6 hr 1:100 year storm event plus 40% climate change = 520m³ Total additional volumes of runoff which can be held on-site within the attenuation ponds is circa 14,200m³ 12. Infiltration is not viable due to the ground conditions; the above point highlight show the Suds ponds will manage surface water runoff achieving a better post-development scenario for this storm event. 14. Final discharge rate has been limited to QBAR with a 20% betterment. 15. The drainage will be managed and maintained by an appointed Management Company, a copy of the proposed maintenance strategy has been included in this document. 16. A hydraulic modelling exercise of the proposed drainage system has been undertaken and included in this document with an appropriate allowance for climate change.
Minimising Watercourse Pollution	17. The use of infiltration is not a feasible solution for this site given the site conditions and therefore it is not possible to prevent discharge from rainfall events up to 5mm for the entire proposed impermeable area. However, the BREEAM guidance states that: "In a small number of sites it may not be possible for the first 5mm of rainfall to be prevented from leaving site completely. Where this is the case, an appropriately qualified professional must design the system to ensure that the intent of this criterion has been met as far as possible and provide justifications to explain why the criterion could not be fully achieved on the site. Where this can be justified, the awarding of the water quality credit would not be affected, provided all other relevant criteria have been achieved." Although infiltration is not feasible, measures are implemented within the drainage design to reduce and delay the discharge into the watercourse, such as the series of attenuation ponds restricted to low rates to delay the flows. Watercourse pollution and environmental damage has been considered, refer to section 5.8 of this document for details. 18. Areas which are considered low risk, will pass through a Class 1 by-pass separator plus at least one attenuation ponds which will provide multiple stages of treatment prior to discharging.

	19. Areas which are considered high risk, will pass through a Class 1 full retention separator plus at least one attenuation ponds which will provide multiple stages of treatment prior to discharging. 20. Chemical or liquid gas is not intended on this development. 21. All water pollution prevention systems have been designed inline with industry best practice guidance and the SuDS manual. 22. A detailed drainage plan has been included in this document. 23. The drainage will be managed and maintained by an appointed Management Company. Relevant maintenance agreements shall be available upon completion/occupation. 24. All external storage and delivery areas are designed and detailed in accordance with the current best practice planning guidance.
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APPENDIX A – SITE LAYOUT PLAN



SCHEDULE OF ACCOMMODATION

(Gross Internal Area)

Total Area	697440 ft²	64794 m²
Site Area	69.79 acres	28.24 ha
Net Development Area (Inc. Road)	34 acres	13.75 ha
Green Infrastructure	35.79 acres	14.49 ha
Road Infrastructure	3.94 acres	1.59 ha
Site Density	48.72%	

Unit 01		
Warehouse	137356 ft²	12761 m²
Undercroft	4334 ft²	403 m²
Office including ground floor core	12097 ft²	1124m²
Total Area	153787 ft²	14287 m²

Staff Parking

150 Spaces including: 93 standard, 10 car share, 30 EV charging, 7 accessible, 2 accessible EV charging and 8 motorcycle.
Cycle Storage: 48 no.

HGV Parking

39 Spaces including: 20 HGV and 19 HGV Trailer.

Unit 02		
Warehouse	208351 ft²	19356 m²
Undercroft	4026 ft²	374 m²
Office including ground floor core	11476 ft²	1066m²
Transport Office	2582 ft²	240 m²
Gatehouse	301 ft²	28m²
Total Area	226741 ft²	21065 m²

Staff Parking

219 Spaces including: 145 standard, 11 car share, 44 EV charging, 9 accessible, 2 accessible EV charging and 8 motorcycle.
Cycle Storage: 72 no.

HGV Parking

74 Spaces including: 34 HGV and 40 HGV Trailer.

Unit 03		
Warehouse	58216 ft²	5501 m²
Undercroft	1845 ft²	171 m²
Office including ground floor core	6372 ft²	582m²
Total Area	67433 ft²	6265 m²

Staff Parking

66 Spaces including: 41 standard, 4 car share, 14 EV charging, 1 accessible, 2 accessible EV charging and 4 motorcycle.
Cycle Storage: 24 no.

HGV Parking

22 Spaces including: 9 HGV and 13 HGV Trailer.

Unit 04		
Warehouse	112397 ft²	10442 m²
Undercroft	3671 ft²	341 m²
Office including ground floor core	11207 ft²	1041m²
Total Area	127275 ft²	11824 m²

Staff Parking

124 Spaces including: 80 standard, 6 car share, 24 EV charging, 4 accessible, 2 accessible EV charging and 8 motorcycle.
Cycle Storage: 36 no.

HGV Parking

46 Spaces including: 22 HGV and 24 HGV Trailer.

Unit 05		
Warehouse	82684 ft²	7682 m²
Undercroft	2413 ft²	224 m²
Office including ground floor core	8697 ft²	808m²
Total Area	93794 ft²	8714 m²

Staff Parking

95 Spaces including: 59 standard, 5 car share, 18 EV charging, 3 accessible, 2 accessible EV charging and 8 motorcycle.
Cycle Storage: 36 no.

HGV Parking

20 Spaces including: 16 HGV and 4 HGV Trailer.

Unit 06		
Warehouse	23208 ft²	2156 m²
Undercroft	1707 ft²	159 m²
Office including ground floor core	3496 ft²	325m²
Total Area	28410 ft²	2639 m²

Staff Parking

32 Spaces including: 18 standard, 2 car share, 6 EV charging, 2 accessible EV charging and 4 motorcycle.
Cycle Storage: 12 no.

HGV Parking

6 Spaces including: 6 HGV.



General Notes

- This document is to be used for the stated purpose only and should not be used for any other.
- Dimensions are all in millimetres, unless stated otherwise.
- It is the recipient's responsibility to print this document to the correct size & scale.
- All relevant drawings and specifications should be read in conjunction with this document.
- Scaling of this document is not recommended.



Scale 1:2000

SITE LEGEND

- Application Boundary
- Wildlife Tunnel
- Public Right of Way
- Existing Trees Retained
- Substation
- Transformer Enclosure
- Condenser Enclosure
- Bin / Recycling Enclosure
- Cycle Storage

Project Name

Land at Junction 22 M1, Cliffe Hill Farm

Employer	Project Address
Caddick Developments Limited	Land at Junction 22 M1, Cliffe Hill Farm, Markfield, Leicestershire

RIBA Workstage	Status
3 - Spatial Coordination	A3 - Authorised Stage 3

Drawn	Checked	Created	Size
JT	DEB	15.08.25	A1

UMC Reference	Scale	LOD	LOI
24473	1:2000	3	3

Document Title

Proposed Masterplan

Document Reference

24473 - UMC - ZZZZ - ZZ - DR - A - 0601

Revision Note

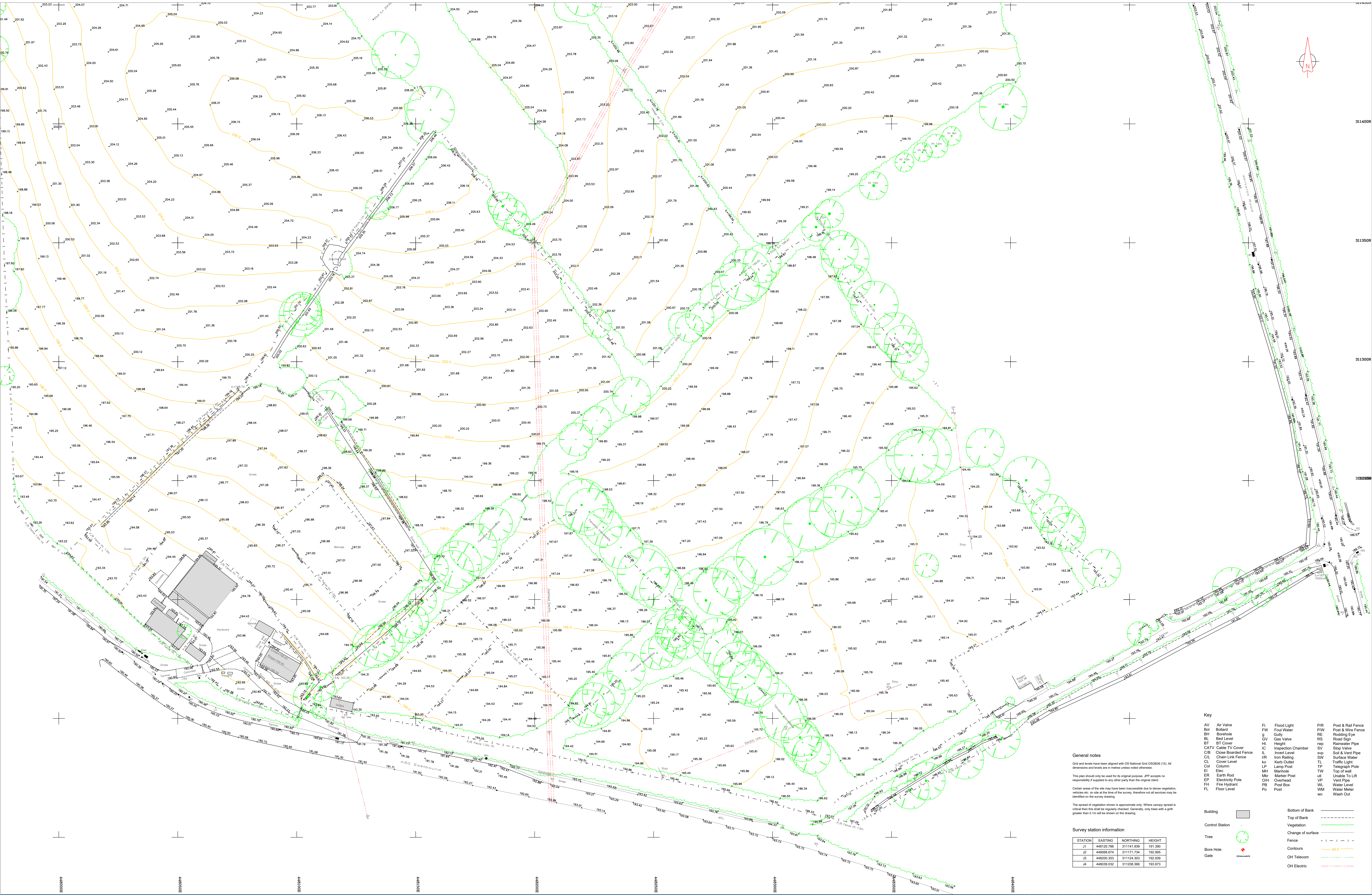
PLANNING ISSUE

Issue Date	Package	Current Revision
19.09.25	PLANNING	

PROPOSED MASTERPLAN

1 : 2000

APPENDIX B – TOPOGRAPHICAL SURVEY



General notes

Grid and levels have been aligned with OS National Grid (OSGB36) (15). All dimensions and levels are in metres unless noted otherwise.

This plan should only be used for its original purpose. JPP accepts no responsibility if supplied to any other party than the original client.

Certain areas of the site may have been inaccessible due to dense vegetation, vehicles etc. on site at the time of the survey, therefore not all services may be identified on the survey drawing.

The spread of vegetation shown is approximate only. Where canopy spread is critical then this shall be regularly checked. Generally, only trees with a girth greater than 5 cm will be shown on the drawing.

Survey station information

STATION	EASTING	NORTHING	HEIGHT
J1	449100.786	311143.039	197.360
J2	449008.674	311171.734	192.995
J3	448200.353	311124.303	192.939
J4	448039.032	311208.366	193.973

Key

- | | | | | | |
|-----|---------------------|-------|--------------------|-----|-------------------|
| AV | Air Valve | FL | Flood Light | P/R | Post & Rail Fence |
| Bol | Bollard | FW | Foul Water | PW | Post & Wire Fence |
| BH | Borehole | Gully | Gully | RE | Rodding Eye |
| BL | Bed Level | GV | Gas Valve | RS | Road Sign |
| BT | BT Cover | HT | Height | rw | Rainwater Pipe |
| CA | Cable TV Cover | IC | Inspection Chamber | SV | Stop Valve |
| C/B | Close Boarded Fence | IL | Invert Level | sw | Soil & Vent Pipe |
| CL | Chain Link Fence | UR | Iron Railing | TL | Telegraph Pole |
| CL | Cover Level | W | Water | TL | Traffic Light |
| Col | Column | LP | Lamp Post | TP | Top of Wall |
| E | Elev | MH | Manhole | UP | Unable To Lift |
| ER | Earth Rod | Mkr | Marker Post | VP | Vent Pipe |
| EP | Electricity Pole | O/H | Overhead | WL | Water Level |
| PH | Fire Hydrant | PS | Post Box | WM | Water Meter |
| FL | Floor Level | Post | Post | wo | Wash Out |

Building



Control Station



Tree



Bore Hole



Gate



Bottom of Bank



Top of Bank



Vegetation



Change of surface



Fence



Contours



OH Telecom



OH Electric



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W: jppuk.net

- | | |
|------------------------|------------------------------|
| Infrastructure Design | Geotechnical & Environmental |
| Structural Engineering | Surveying |
| Planning Services | Professional Advice |

Drawn By:

JG

Chkd By:

TB

Scale @ A0:

1:500

Date:

09/11/18

Status:

FOR INFORMATION

Project No.:

11038Y

Client:

Caddick Residential

Project:

Markfield

Title:

Topographical Survey

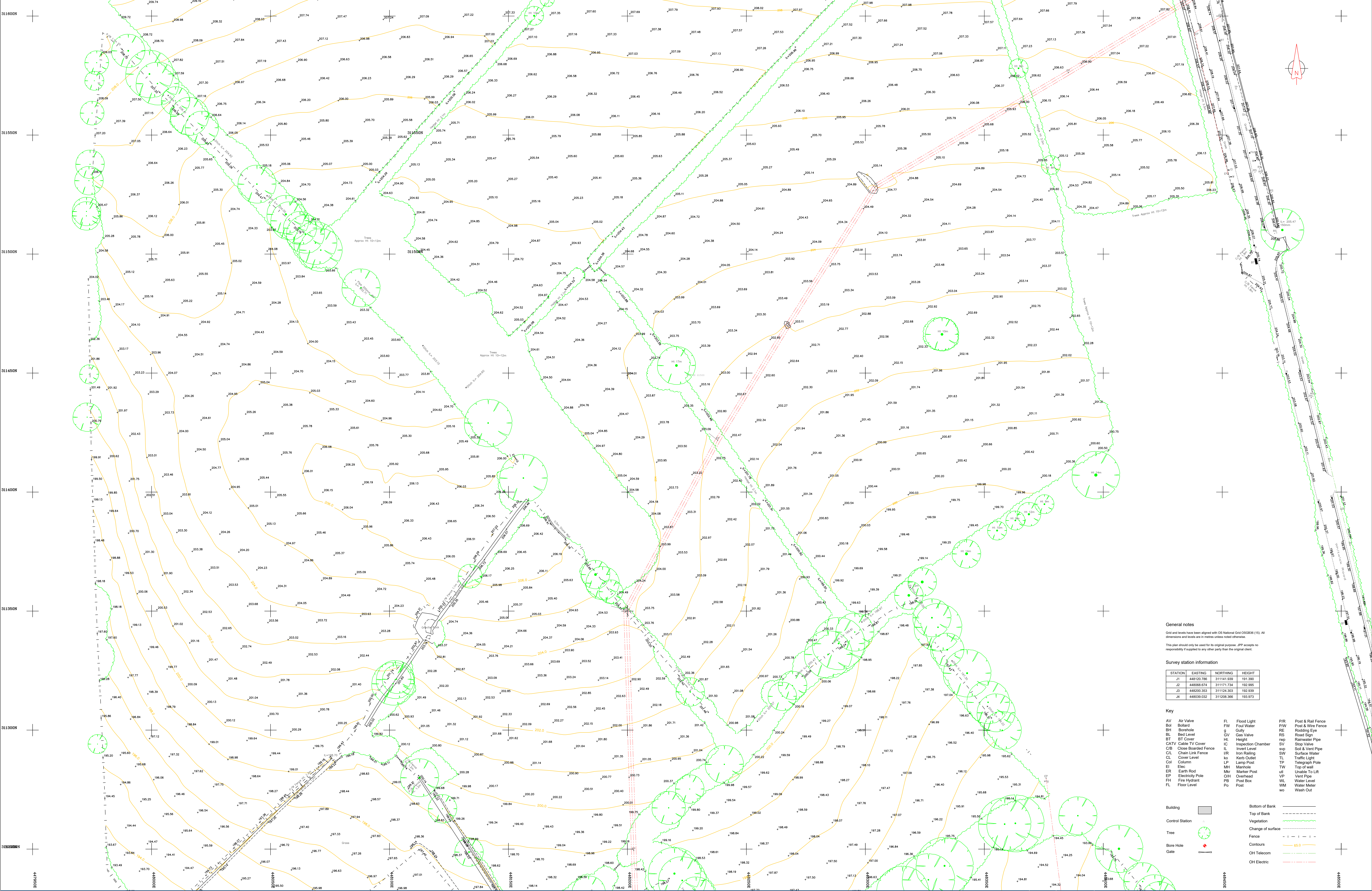
Drawing No.:

01

Rev:

B





General notes

Grid and levels have been aligned with OS National Grid OSG830 (15). All dimensions and levels are in metres unless noted otherwise.

This plan should only be used for its original purpose. JPP accepts no responsibility if supplied to any other party than the original client.

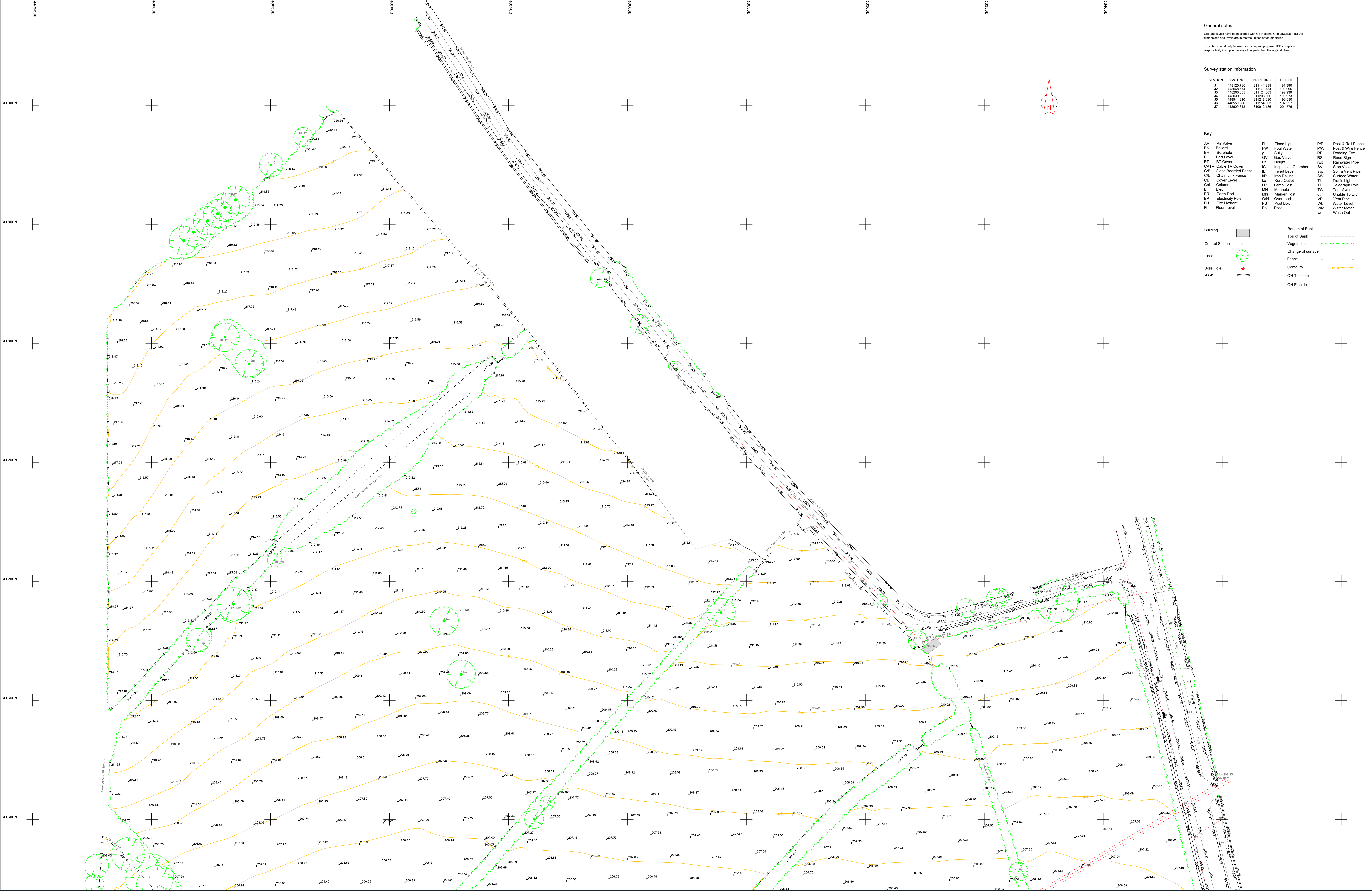
Survey station information

STATION	EASTING	NORTHING	HEIGHT
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J2	448068.074	311171.734	192.965
J3	448030.353	311124.303	192.309
J4	448039.032	311206.366	193.973

Key

AV	Air Valve	FL	Flood Light	PIR	Post & Rail Fence
Bo	Bollard	FW	Foul Water	PW	Post & Wire Fence
BH	Borehole	G	Gully	RE	Rodding Eye
BL	Bed Level	GV	Gas Valve	RS	Road Sign
BT	BT Cover	Ht.	Height	rwp	Rainwater Pipe
CA	Close Boarded Fence	IC	Inspection Chamber	SV	Stop Valve
CL	Chain Link Fence	IL	Invert Level	SW	Soil & Vent Pipe
CL	Close Level	UR	Iron Railing	TL	Surface Water
Col	Column	ko	Kern Outlet	TP	Traffic Light
E	Electric	LP	Lamp Post	TL	Telegraph Pole
ER	Earth Rod	MH	Manhole	UP	Top of wall
EP	Electric Pole	Mkr	Marker Post	UL	Unable To Lift
FI	Fire Hydrant	O/H	Overhead	VP	Vent Pipe
FL	Floor Level	PS	Post Box	WL	Water Level
		Po	Post	WM	Water Meter
				wo	Wash Out

Building		Bottom of Bank	
Control Station		Top of Bank	
Tree		Vegetation	
Bore Hole		Change of surface	
Gate		Contours	
		OH Telecom	
		OH Electric	



General notes

Grid and levels have been aligned with OS National Grid OSG836 (15). All dimensions and levels are in metres unless noted otherwise.

This plan should only be used for its original purpose. JPP accepts no responsibility if supplied to any other party than the original client.

Survey station information

STATION	EASTING	NORTHING	HEIGHT
J1	44820.786	31141.536	191.360
J2	44820.814	31141.725	192.399
J3	44820.833	31142.803	192.399
J4	44820.932	31128.368	193.973
J5	44824.310	31128.699	190.300
J6	44859.686	31154.803	192.327
J7	44859.643	310912.186	201.576

- Key
- | | | | | | |
|------|---------------------|-----|--------------------|-----|-------------------|
| AV | Air Valve | FL | Flood Light | PIR | Post & Rail Fence |
| Bol | Bollard | FW | Foul Water | PW | Post & Wire Fence |
| BH | Borehole | G | Gully | RE | Rodding Eye |
| BL | Bed Level | GV | Gas Valve | RS | Road Sign |
| BT | BT Cover | Ht | Height | RP | Rainwater Pipe |
| CATV | Cable TV Cover | IC | Inspection Chamber | SV | Stop Valve |
| C/B | Close Boarded Fence | IL | Invert Level | svp | Soil & Vent Pipe |
| CL | Chain Link Fence | IR | Iron Railing | SW | Surface Water |
| CL | Cover Level | ko | Kerns Outlet | TL | Traffic Light |
| Col | Column | LP | Lamp Post | TP | Telegraph Pole |
| El | Electric | MH | Manhole | TW | Top of wall |
| ER | Earth Rod | Mkr | Marker Post | ut | Unable To Lift |
| EP | Electricity Pole | OH | Overhead | VP | Vent Pipe |
| FH | Fire Hydrant | PB | Post Box | WL | Water Level |
| FL | Floor Level | Po | Post | WM | Water Meter |
| | | | | wo | Wash Out |
-
- | | | | |
|-----------------|--|-------------------|--|
| Building | | Bottom of Bank | |
| Control Station | | Top of Bank | |
| Tree | | Vegetation | |
| Bore Hole | | Change of surface | |
| Gate | | Fence | |
| | | Contours | |
| | | OH Telecom | |
| | | OH Electric | |

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W: jppuk.net

Infrastructure Design

Structural Engineering

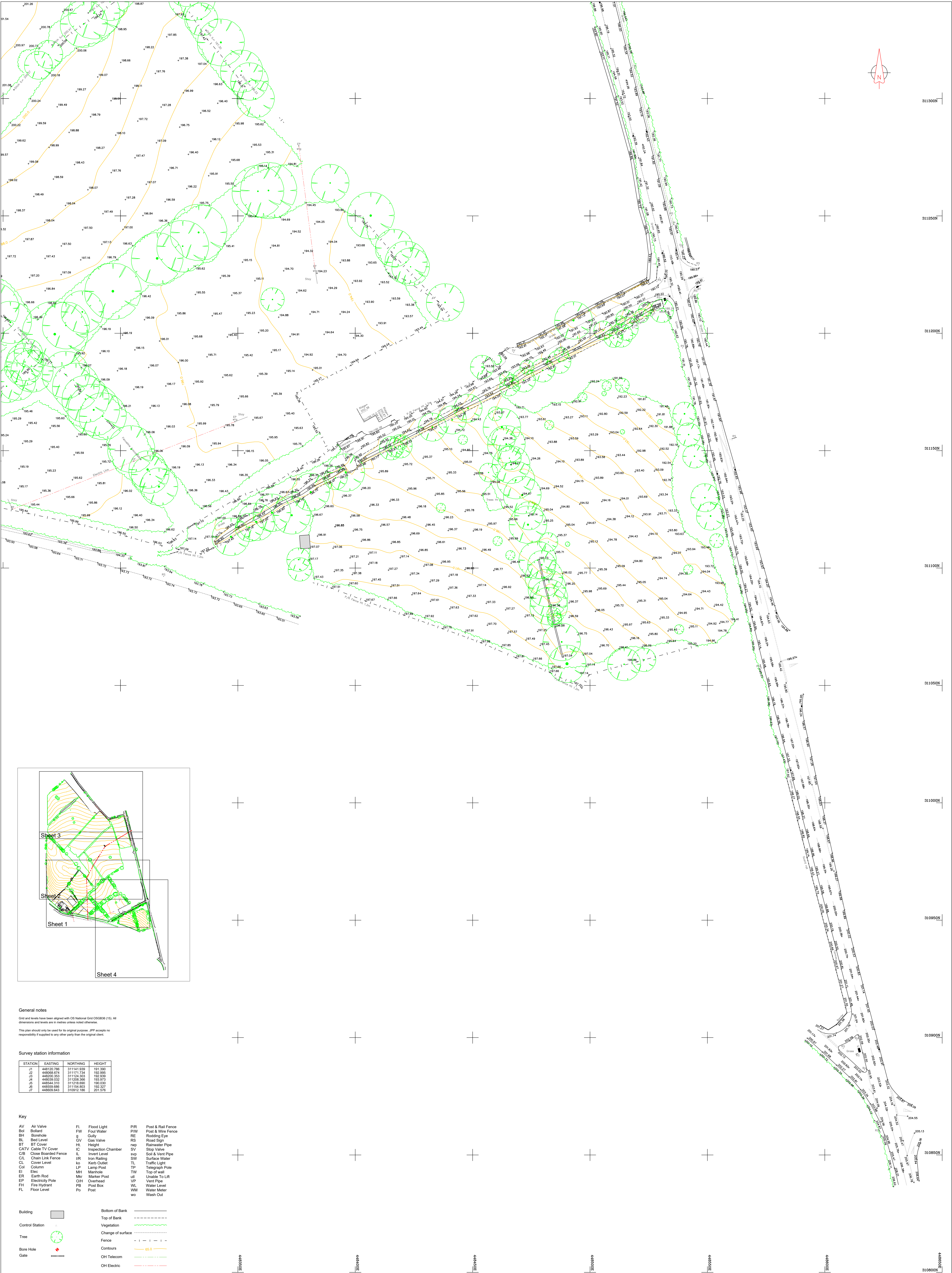
Planning Services

Geotechnical & Environmental

Surveying

Professional Advice

Drawn By:	JG	Client:	Caddick Residential
Chkd By:	TB	Project:	Markfield
Scale @ A0:	1:500	Title:	Topographical Survey
Date:	23/02/20	FOR INFORMATION	
Status:	FOR INFORMATION		
Project No.:	11038Y	Drawing No.:	03
		Rev:	B



General notes

Grid and levels have been aligned with OS National Grid OSG836 (15). All dimensions and levels are in metres unless noted otherwise.

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Survey station information

STATION	EASTING	NORTHING	HEIGHT
J1	448120.786	311141.939	191.390
J2	448069.674	311171.244	192.666
J3	448200.353	311124.303	192.939
J4	448039.032	311286.366	193.973
J5	448034.310	311219.690	190.000
J6	448556.686	311154.603	193.327
J7	448609.643	310912.186	201.576

- Key
- | | | |
|------------------------|-----------------------|-----------------------|
| AV Air Valve | FL Flood Light | PIR Post & Rail Fence |
| Bol Bollard | FW Foul Water | PW Post & Wire Fence |
| BH Borehole | g Gully | RE Rodding Eye |
| BL Bed Level | CV Gas Valve | RS Road Sign |
| BT BT Cover | HL Height | rwp Rainwater Pipe |
| CATV Cable TV Cover | IC Inspection Chamber | SV Stop Valve |
| CB Close Boarded Fence | IL Invert Level | svp Soil & Vent Pipe |
| CL Chain Link Fence | IR Iron Railing | SW Surface Water |
| CL Cover Level | ko Kerb Outlet | TL Traffic Light |
| Col Column | LP Lamp Post | TP Telegraph Pole |
| GI Elec | MH Manhole | TW Top of wall |
| ER Earth Rod | Mkr Marker Post | utl Unable To Lift |
| EP Electricity Pole | O/H Overhead | VP Vent Pipe |
| FI Fire Hydrant | PS Post Box | WL Water Level |
| FL Floor Level | Po Post | WM Water Meter |
| | | wo Wash Out |
- Building 
- Control Station 
- Tree 
- Bore Hole 
- Gate 
- Bottom of Bank 
- Top of Bank 
- Vegetation 
- Change of surface 
- Fence 
- Contours 
- OH Telecom 
- OH Electric 

APPENDIX C – PROPOSED DRAINAGE STRATEGY



INSET A
SCALE 1:2000

0 20 40 60 80 100
SCALE BAR 1:2000

INSET B
SCALE 1:500

0 10 20 30 40 50 60
SCALE BAR 1:500

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CONSTRUCTION

MAINTENANCE

DEMOLITION

IT IS ASSUMED THAT ALL WORKS WILL BE CARRIED OUT BY A COMPETENT CONTRACTOR WORKING, WHERE APPROPRIATE, TO AN APPROVED METHOD STATEMENT

GENERAL NOTES:

1. This drawing shall be read in conjunction with all the relevant architects, engineers' and service engineers drawings & specifications.

2. All units in millimeters U.O.N. on the drawing. Do not scale off the drawing.

3. Drainage layout shown is indicative and subject to change through detailed design.

KEY:

Surface water drainage

Foul water drainage

Foul water rising main

Channel drain

Kerb Drain

Attenuation pond

Gully

Land drain

Wildlife tunnel

P06 23.09.2025 BP Planning Issue JW

P05 16.09.2025 BP Planning Issue JW

P04 05.09.2025 BP Updated to latest masterplan JW

P03 18.07.2025 BP Updated to latest masterplan JW

P02 09.06.2025 BP Updated to latest masterplan JW

P01 02.01.2025 BP First Issue JW

REV DATE BY DESCRIPTION CHKD

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High Street, Bachmanham H4 2BL
Tel: +44 (0)1462 508 402

Caddick Developments.

PROJECT

LAND AT JUNCTION 22 OF THE M1
CLIFFE HILL FARM

DRAWING TITLE

DRAINAGE STRATEGY
SHEET 1

BGL PROJECT NUMBER
30206

DRAWING STATUS
PRELIMINARY

OFFICE
NORTH

SCALE @ A0
1:1000

DATE
02.01.2025

DRAWN BY
BP

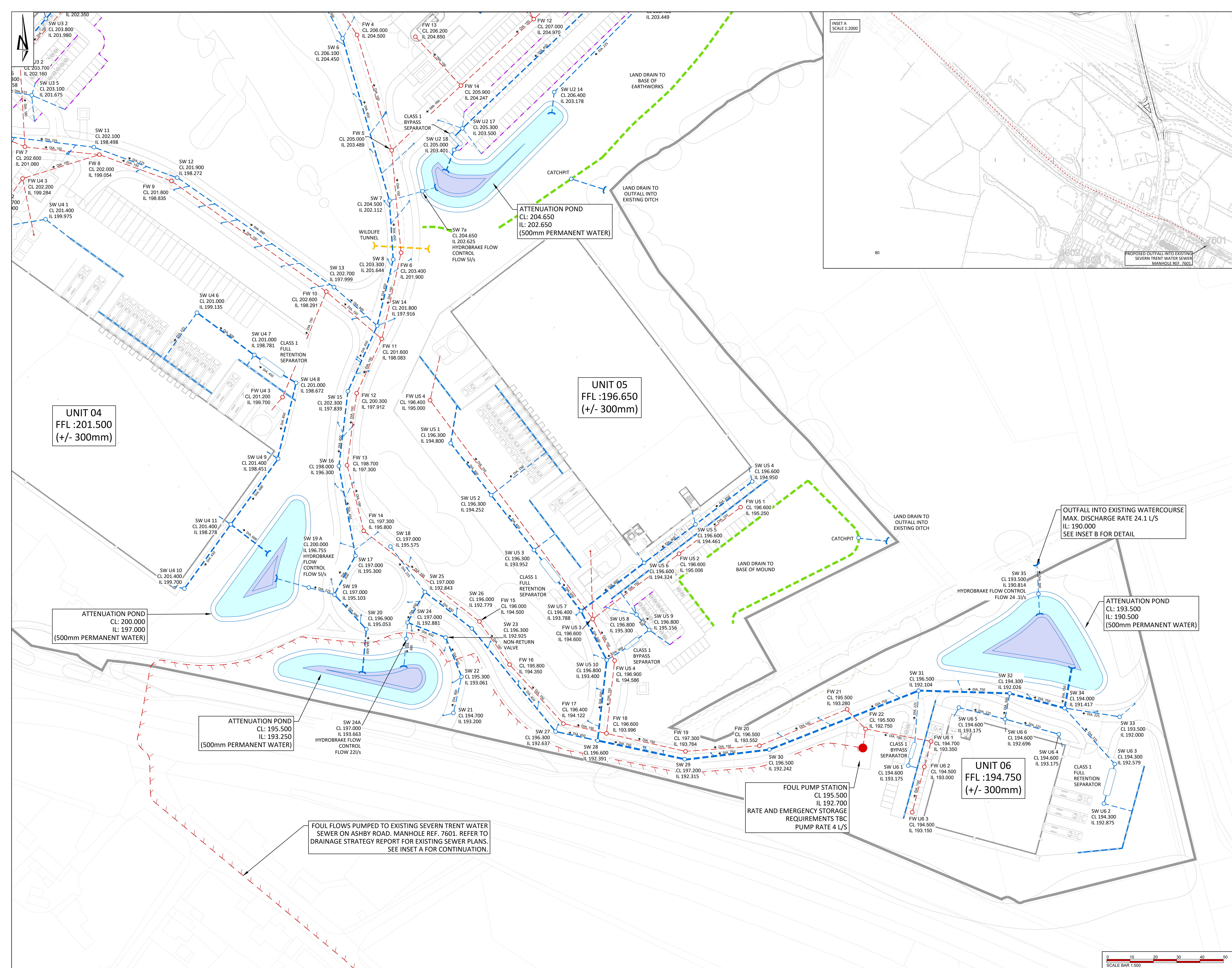
CHECKED BY
JW

DRAWING No

30206-BGL-XX-XX-DR-C-00250

REV

P06



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DEMOLITION				
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GENERAL NOTES:				
1. This drawing shall be read in conjunction with all the relevant architects, engineers' and service engineers drawings & specifications.				
2. All units in millimeters U.O.N. on the drawing. Do not scale off the drawing.				
3. Drainage layout shown is indicative and subject to change through detailed design.				
KEY:				
Surface water drainage				
Foul water drainage				
Foul water rising main				
Channel drain				
Kerb Drain				
Attenuation pond				
Gully				
Land drain				



SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION			
IN ADDITION TO THE HAZARDS/RISKS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, NOTE THE FOLLOWING:			
CONSTRUCTION			
MAINTENANCE			
DEMOLITION			

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- GENERAL NOTES:
1. This drawing shall be read in conjunction with all the relevant architects, engineers' and service engineers drawings & specifications.
 2. All units in millimeters U.O.N. on the drawing. Do not scale off the drawing.
 3. Drainage layout shown is indicative and subject to change through detailed design.

KEY:	
	Surface water drainage
	Foul water drainage
	Foul water rising main
	Channel drain
	Kerb Drain
	Attenuation pond
	Gully
	Land drain

UNIT 03
FFL :204.000
(+/- 300mm)

ATTENUATION POND
CL: 201.000
IL: 198.500
(500mm PERMANENT WATER)

UNIT 04
FFL :201.500
(+/- 300mm)

ATTENUATION POND
CL: 200.000
IL: 197.000
(500mm PERMANENT WATER)

ATTENUATION POND
CL: 195.500
IL: 193.250
(500mm PERMANENT WATER)

UNIT 05
FFL :196.650
(+/- 300mm)

ATTENUATION POND
CL: 204.650
IL: 202.650
(500mm PERMANENT WATER)

REV	DATE	BY	DESCRIPTION	CHKD
P04	23.09.2025	BP	Planning Issue	JW
P03	16.09.2025	BP	Planning Issue	JW
P02	05.09.2025	BP	Update to latest masterplan	JW
P01	18.07.2025	BP	First Issue	JW

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Tel: +44 (0)161 804 8046

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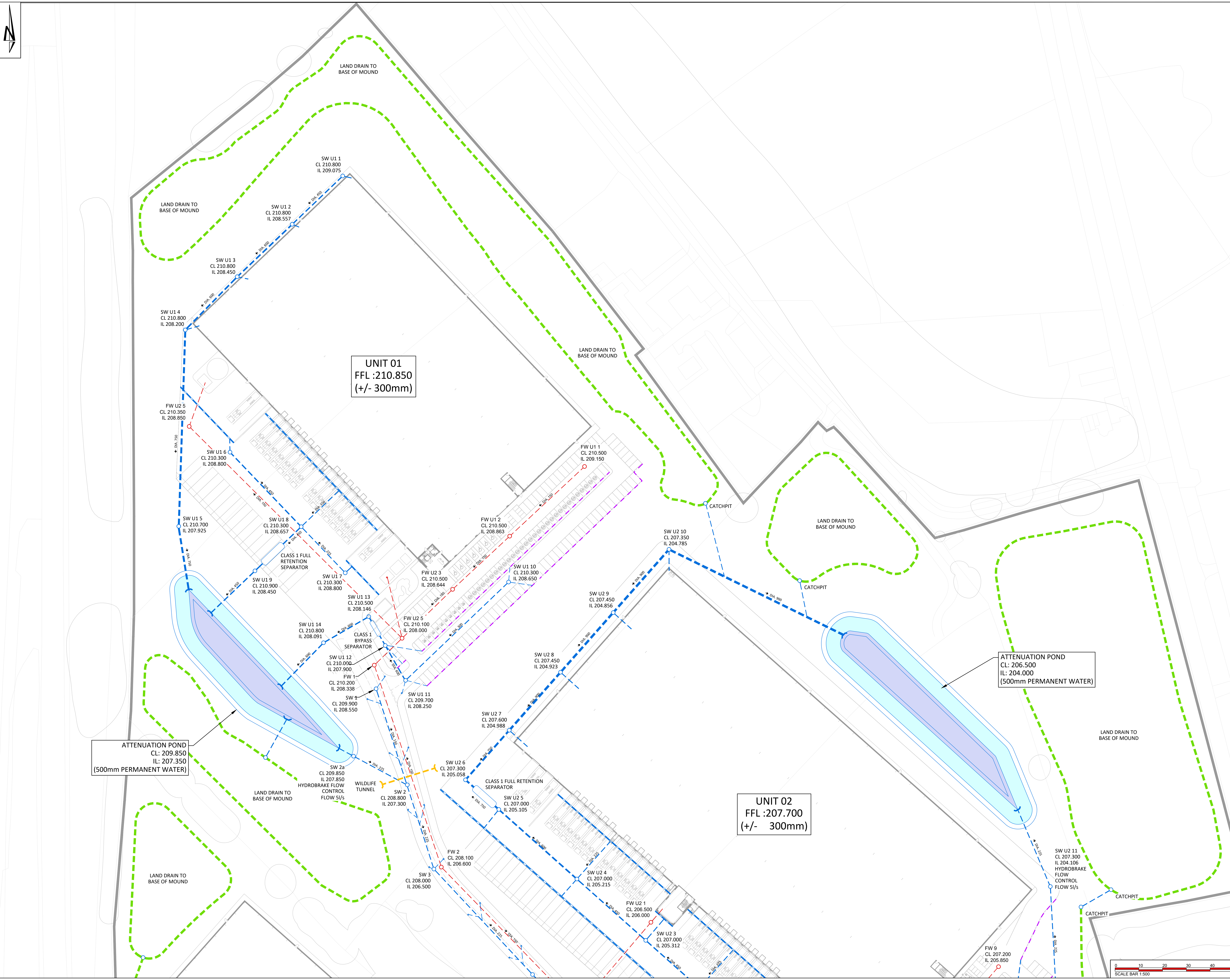
CLIENT

PROJECT
LAND AT JUNCTION 22 OF THE M1
CLIFFE HILL FARM

DRAWING TITLE
DRAINAGE STRATEGY
SHEET 3

REV	DATE	BY	DESCRIPTION	CHKD
P04	23.09.2025	BP	Planning Issue	JW
P03	16.09.2025	BP	Planning Issue	JW
P02	05.09.2025	BP	Update to latest masterplan	JW
P01	18.07.2025	BP	First Issue	JW

SCALE 1:500	DRAWING STATUS PRELIMINARY	OFFICE NORTH
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IT IS ASSUMED THAT ALL WORKS WILL BE CARRIED OUT BY A COMPETENT CONTRACTOR WORKING, WHERE APPROPRIATE, TO AN APPROVED METHOD STATEMENT			

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1. This drawing shall be read in conjunction with all the relevant architects, engineers' and service engineers drawings & specifications.
 2. All units in millimeters U.O.N. on the drawing. Do not scale off the drawing.
 3. Drainage layout shown is indicative and subject to change through detailed design.

KEY:	
	Surface water drainage
	Foul water drainage
	Foul water rising main
	Channel drain
	Kerb Drain
	Attenuation pond
	Gully
	Land drain

P04	23.09.2025	BP	Planning Issue	JW
P03	16.09.2025	BP	Planning Issue	JW
P02	05.09.2025	BP	Update to latest masterplan	JW
P01	18.07.2025	BP	First Issue	JW
REV	DATE	BY	DESCRIPTION	CHKD

Burrows Graham

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High Street, Beckenham HA4 2BL
Tel: +44 (0)1845 208 402

CLIENT

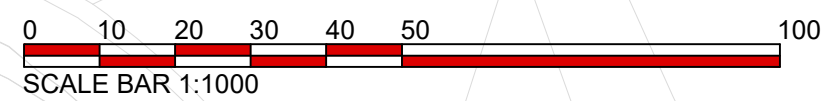
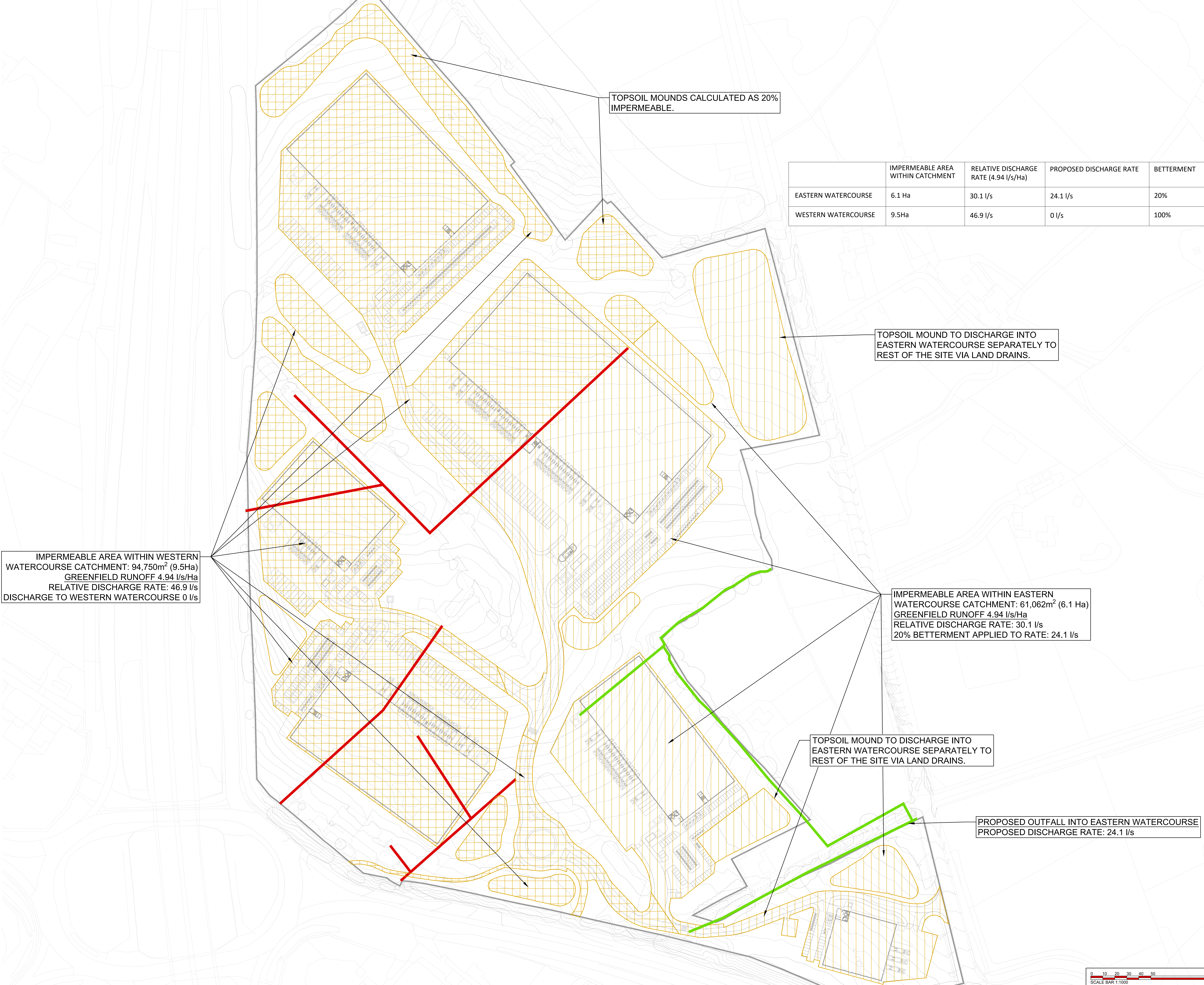
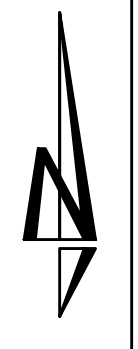
Caddick Developments.

PROJECT
LAND AT JUNCTION 22 OF THE M1
CLIFFE HILL FARM

DRAWING TITLE
DRAINAGE STRATEGY
SHEET 4

BGL PROJECT NUMBER	DRAWING STATUS	OFFICE
30206	PRELIMINARY	NORTH
SCALE @ A0	DATE	DRAWN BY
1:500	18.07.2025	BP
DRAWING No	CHECKED BY	REV
30206-BGL-XX-XX-DR-C-00254	JW	P04

APPENDIX D – EXISTING CATCHMENT AND PROPOSED DISCHARGE RATES



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SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

IN ADDITION TO THE HAZARDS/RISKS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, NOTE THE FOLLOWING

CONSTRUCTION

MAINTENANCE

DEMOLITION

IT IS ASSUMED THAT ALL WORKS WILL BE CARRIED OUT BY A COMPETENT CONTRACTOR WORKING, WHERE APPROPRIATE, TO AN APPROVED METHOD STATEMENT

GENERAL NOTES:
1. This drawing shall be read in conjunction with all the relevant architects, engineers' and service engineers drawings & specifications.
2. All units in millimeters U.O.N. on the drawing. Do not scale off the drawing.

KEY:

Eastern watercourse (existing)

Existing eastern catchment

Proposed impermeable area within eastern catchment

Western watercourse (existing)

Existing western catchment

Proposed impermeable area within western catchment

P04	23.09.2025	BP	Planning Issue	JW
P03	16.09.2025	BP	Planning Issue	JW
P02	05.09.2025	BP	Updated to new masterplan	JW
P01	02.01.2025	BP	First Issue	JW

REV	DATE	BY	DESCRIPTION	CHKD

Burrows Graham

North Office:
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South Office:
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High Street, Bachamsted HP4 2BL
Tel: +44 (0)1492 508 402

CLIENT
Caddick Developments.

PROJECT
LAND AT JUNCTION 22 OF THE M1
CLIFFE HILL FARM

DRAWING TITLE
**EXISTING CATCHMENT AND
PROPOSED DISCHARGE RATES**

BGL PROJECT NUMBER 30206	DRAWING STATUS PRELIMINARY	OFFICE NORTH
SCALE @ A0 1:1000	DATE 02.01.2025	DRAWN BY BP
		CHECKED BY JW

DRAWING No	REV
30206-BGL-XX-XX-DR-C-00251	P04

APPENDIX E – HYDRAULIC CALCULATIONS

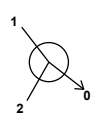
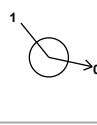
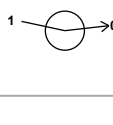
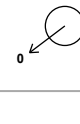
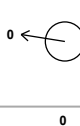
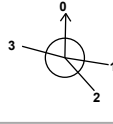
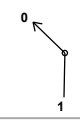
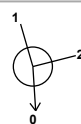
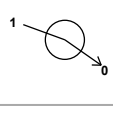
Design Settings

Rainfall Methodology	FSR	Maximum Time of Concentration (mins)	30.00
Return Period (years)	100	Maximum Rainfall (mm/hr)	50.0
Additional Flow (%)	40	Minimum Velocity (m/s)	1.00
FSR Region	England and Wales	Connection Type	Level Soffits
M5-60 (mm)	20.000	Minimum Backdrop Height (m)	0.200
Ratio-R	0.400	Preferred Cover Depth (m)	1.200
CV	0.750	Include Intermediate Ground	x
Time of Entry (mins)	5.00	Enforce best practice design rules	x

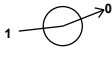
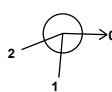
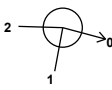
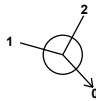
Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)	
U3 1	448100.209	311457.180	203.800	1.500	1200		0	11.000	202.300	300
HIGHWAY POND	448220.586	311152.958	195.500	1.750			1	1.023	193.750	600
							0	1.024	193.750	300
5	448192.443	311446.618	206.500	1.500	1200		1	5.008	205.000	300
							0	5.009	205.000	300
							1	1.016	201.644	450
8	448226.871	311328.262	203.300	1.656	1350		1	1.016	201.644	450
							0	1.017	201.644	450
							1	11.009	197.999	300
13	448201.487	311316.387	202.700	4.701	1200		1	11.009	197.999	300
							0	11.010	197.999	300
							1	11.010	197.916	300
14	448220.029	311299.860	201.800	3.884	1350		1	11.010	197.916	300
							2	1.017	200.106	450
							0	1.018	197.916	450
15	448207.470	311271.779	202.300	4.461	1350		1	1.018	197.839	450
							0	1.019	197.943	450
							1	1.020	195.300	450
17	448210.693	311201.277	197.000	1.700	1350		1	1.020	195.300	450
							0	1.021	195.300	450
21	448251.483	311130.653	194.700	1.500	1200					
							0	19.000	193.200	300
							1	19.001	193.000	450
23	448249.373	311166.253	196.300	3.375	1350		1	19.001	193.000	450
							0	19.002	192.925	450

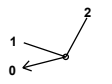
Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)	
24	448233.051	311172.670	197.000	4.119	1350		1	19.002	192.881	450
							2	1.025	193.031	300
							0	1.026	192.881	450
25	448240.492	311185.736	197.000	4.157	1350		1	20.000	192.843	225
							2	1.026	192.843	450
							0	1.027	192.843	450
27	448296.507	311125.912	196.300	3.663	1350		1	1.028	192.637	450
							0	1.029	192.637	450
29	448351.894	311114.057	197.200	4.885	1800		1	1.030	192.315	750
							0	1.031	192.315	750
U5 4	448380.811	311233.077	196.600	1.650	1350		0	23.000	194.950	450
U5 6	448334.509	311198.222	196.600	2.276	1500		1	23.001	194.324	600
33	448538.391	311132.228	193.500	1.500	1200		0	29.000	192.000	225
							1	29.000	191.417	225
34	448514.829	311135.974	194.000	2.583	1800		2	28.001	191.942	225
							3	1.034	191.417	750
							0	1.035	191.417	750
							1	1.035	191.000	750
OUTFALL POND	448515.443	311166.267	193.500	2.500			0	1.036	191.000	300
36_OUT	448523.851	311204.388	191.000	1.000	1200		1	1.037	190.000	300
7	448225.278	311353.460	204.500	2.388	1350		1	5.010	202.800	450
							2	1.015	202.878	225
							0	1.016	202.112	450
12	448134.265	311363.338	201.900	3.628	1200		1	11.008	198.308	225
							0	11.009	198.272	300
U3 5	448071.872	311398.699	203.100	1.425	1200		0	12.000	201.675	225

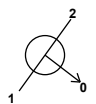
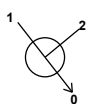
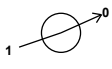
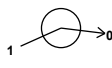
Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
26	448260.596	311170.090	196.000	3.221	1350		1 1.027	192.779	450
							0 1.028	192.779	450
30	448388.201	311118.177	196.500	4.258	1800		1 1.031	192.242	750
							0 1.032	192.242	750
31	448452.202	311143.416	196.500	4.396	1800		1 25.000	192.629	225
							2 1.032	192.104	750
							0 1.033	192.104	750
32	448491.296	311142.278	194.300	2.274	1800		1 26.001	192.326	300
							2 1.033	192.026	750
							0 1.034	192.026	750
16	448203.606	311239.582	198.000	1.700	1350		1 1.019	196.300	450
							0 1.020	196.300	450
18	448225.418	311205.173	197.000	1.425	1200				
							0 20.000	195.575	225
22	448256.213	311149.413	195.300	2.239	1350		1 19.000	193.136	300
							0 19.001	193.061	450
19	448201.729	311184.551	197.000	1.897	1500		1 17.007	195.323	225
							2 1.021	195.253	450
							0 1.022	195.103	600
20	448215.390	311169.789	196.900	1.847	1500		1 1.022	195.053	600
							0 1.023	195.053	600
35	448503.833	311180.730	193.500	2.686	1200		1 1.036	190.814	300
							0 1.037	190.814	300
U2 POND 1	448323.828	311592.805	206.500	2.000			1 1.009	204.500	900
							0 1.010	204.500	225
U2 12	448371.291	311479.760	206.400	2.536	1200		1 1.011	203.864	225
							0 1.012	203.864	225
U2 17	448256.550	311384.451	205.300	1.800	1350		1 4.001	203.500	450
							0 4.002	203.500	450

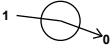
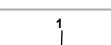
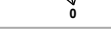
Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
U2 POND 2	448277.954	311366.878	204.650	1.500			1 4.003 2 1.014 0 1.015	203.150 203.150 203.150	450 1050 225
U 1 POND	448022.119	311614.907	209.850	2.000			1 7.002 2 6.004 3 5.004 0 5.005	207.850 207.850 207.850 207.850	450 600 750 225
3	448109.438	311535.362	208.000	1.500	1200		1 5.006 0 5.007	206.500 206.500	225 225
U1 7	448072.169	311659.944	210.300	1.500	1200		0 8.000	208.800	225
U2 4	448169.570	311531.161	207.000	1.785	1500		1 3.000 2 1.002 0 1.003	205.215 205.215 205.215	225 450 600
U2 6	448122.735	311572.880	207.300	2.242	1800		1 1.004 0 1.005	205.058 205.058	750 750
U2 DOCK 2	448183.627	311546.942	206.500	0.700	1200		0 3.000	205.800	225
U2 2	448221.059	311485.297	207.000	1.613	1350		1 2.000 2 1.000 0 1.001	205.387 205.387 205.387	225 450 450
U2 7	448141.143	311593.720	207.600	2.612	1800		1 1.005 0 1.006	204.988 204.988	750 900
U4 2	448054.746	311355.551	201.700	1.700	1200		0 15.000	200.000	225
U4 5	448038.009	311338.943	201.100	1.860	1350		1 16.000 2 15.000 3 14.000 0 14.001	199.398 199.475 199.475 199.240	300 225 300 450
U3 POND	448003.140	311357.902	201.000	2.000			1 14.001 2 11.004 0 11.005	199.000 199.500 199.000	450 600 225
U4 9	448177.532	311242.804	201.400	2.949	1500		1 17.003 0 17.004	198.601 198.451	450 600

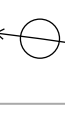
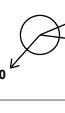
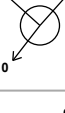
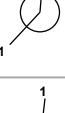
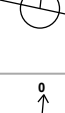
Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)	
U4 10	448137.336	311187.181	201.400	1.700	1350		0	18.000	199.700	450
U4 11	448157.231	311214.711	201.400	3.122	1500		1	18.000	198.428	450
						2	17.004	198.278	600	
						0	17.005	198.278	600	
U 4 POND	448179.598	311197.596	200.000	2.500			1	17.005	198.000	600
						0	17.006	197.500	225	
U4 1	448077.792	311345.492	201.400	1.425	1200		0	14.000	199.975	300
U4 8	448184.792	311274.411	201.000	2.328	1350		1	17.002	198.672	450
						0	17.003	198.709	450	
U3 DOCK	448022.507	311438.070	202.750	0.800	1200		0	13.000	201.950	150
U4 DOCK	448128.663	311285.966	200.250	0.800	1200		0	17.000	199.450	225
U4 6	448142.742	311305.449	201.000	1.865	1200		1	17.000	199.210	225
						0	17.001	199.135	300	
U5 DOCK	448291.772	311246.119	195.400	0.800	1200		0	21.000	194.600	150
U5 2	448268.895	311227.247	196.300	2.048	1350		1	22.000	194.402	300
						2	21.000	194.402	150	
						0	21.001	194.252	450	
1	448085.141	311611.176	209.900	1.350	1200		0	10.000	208.550	150
9	448022.844	311364.640	201.000	2.104	1200		1	11.005	198.896	225
						0	11.006	198.896	225	
10	448059.653	311381.135	202.850	4.156	1200		1	11.006	198.694	225
						0	11.007	198.694	225	

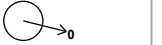
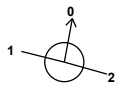
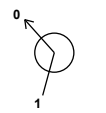
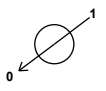
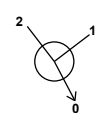
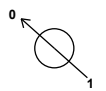
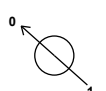
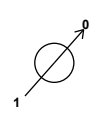
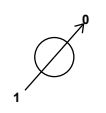
Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)	
11	448098.507	311376.395	202.100	3.602	1200		1	11.007	198.498	225
							0	11.008	198.498	225
U4 7	448167.332	311287.337	201.000	2.219	1350		1	17.001	198.931	300
							0	17.002	198.781	450
U5 3	448287.428	311203.551	196.300	2.348	1500		1	21.001	194.102	450
							0	21.002	193.952	600
U1 5	448002.154	311679.509	210.700	2.775	1800		1	5.003	207.925	750
							0	5.004	207.925	750
U1 6	448023.711	311710.675	210.300	1.500	1350					
							0	7.000	208.800	450
U1 DOCK	448069.159	311694.360	209.600	0.800	1200					
							0	9.000	208.800	150
U1 8	448053.645	311679.464	210.300	1.643	1350		1	9.000	208.657	150
							2	8.000	208.657	225
							3	7.000	208.657	450
							0	7.001	208.657	450
U1 9	448034.192	311660.757	210.900	2.450	1350		1	7.001	208.450	450
							0	7.002	208.450	450
U1 12	448089.000	311629.381	210.000	1.807	1500		1	6.001	208.193	600
							0	6.002	208.193	600
U1 13	448082.054	311641.500	210.500	2.354	1500		1	6.002	208.146	600
							0	6.003	208.146	600
U1 14	448063.022	311630.529	210.800	2.709	1500		1	6.003	208.091	600
							0	6.004	208.091	600
2	448098.267	311570.767	208.800	1.500	1200		1	10.000	207.300	150
							2	5.005	207.300	225
							0	5.006	207.300	225
4	448150.941	311490.990	207.400	1.575	1200		1	5.007	205.900	225
							0	5.008	205.825	300

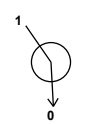
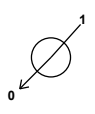
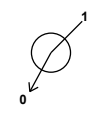
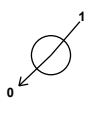
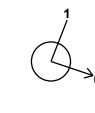
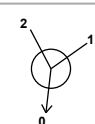
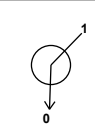
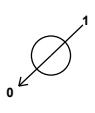
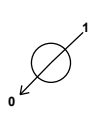
Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
6	448205.182	311423.031	206.100	1.650	1350		1 5.009	204.600	300
							0 5.010	204.450	450
U3 2	448077.928	311431.454	203.800	1.820	1350		1 11.000	202.130	300
							0 11.001	201.980	450
U3 3	448060.774	311411.649	203.800	1.901	1350		1 11.001	201.899	450
							0 11.002	201.899	450
U3 6	448060.293	311400.357	203.300	1.742	1200		1 12.000	201.558	225
							0 12.001	201.558	225
U3 4	448040.067	311402.933	203.600	2.621	1500		1 12.001	201.354	225
							2 11.002	201.219	450
							0 11.003	200.979	600
U3 7	447997.628	311410.207	202.950	1.650	1200		1 13.000	201.300	150
							0 13.001	201.300	300
U3 8	448024.763	311385.798	202.950	2.201	1500		1 13.001	201.049	300
							2 11.003	200.749	600
							0 11.004	200.750	600
U4 3	448032.218	311330.600	201.100	1.600	1200				
							0 16.000	199.500	300
19 A	448190.690	311187.634	200.000	3.245	1200		1 17.006	196.755	225
							0 17.007	197.255	225
24A	448232.465	311165.713	197.000	3.337	1200		1 1.024	193.663	300
							0 1.025	193.663	300
28	448314.529	311122.054	196.600	4.209	1800		1 21.004	192.441	600
							2 1.029	192.591	450
							0 1.030	192.391	750
U6 1	448450.100	311119.697	194.600	1.425	1200				
							0 25.000	193.175	225
U6 4	448512.346	311124.763	194.600	1.425	1200				
							0 26.000	193.175	225

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)	
U6 5	448469.489	311136.179	194.600	1.425	1200		0	27.000	193.175	225
U6 6	448489.253	311131.253	194.600	1.904	1200		1	27.000	192.771	225
							2	26.000	192.771	225
							0	26.001	192.696	300
U6 2	448531.690	311095.039	194.300	1.425	1200		0	28.000	192.875	225
U6 3	448536.306	311111.994	194.300	1.721	1200		1	28.000	192.579	225
0	28.001	192.579	225							
U5 1	448251.539	311249.489	196.300	1.500	1200		0	22.000	194.800	300
U5 5	448356.511	311214.683	196.600	2.139	1500		1	23.000	194.611	450
0	23.001	194.461	600							
U5 7	448307.428	311177.599	196.400	2.612	1500		1	23.002	193.788	600
							2	21.002	193.788	600
							0	21.003	193.788	600
U2 1	448254.872	311455.178	207.000	1.500	1350		0	1.000	205.500	450
U2 DOCK 1	448235.194	311501.247	206.500	0.700	1200			0	2.000	205.800
U2 3	448198.536	311505.360	207.000	1.688	1350		1	1.001	205.312	450
0	1.002	205.312	450							
U2 5	448136.741	311560.404	207.000	1.895	1800		1	1.003	205.105	600
0	1.004	205.105	750							
U2 8	448162.699	311618.125	207.450	2.527	1800		1	1.006	204.923	900
0	1.007	204.923	900							
U2 9	448184.854	311643.208	207.450	2.594	1800		1	1.007	204.856	900
0	1.008	204.856	900							

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
U2 10	448208.305	311669.792	207.350	2.565	1800	 1	1.008	204.785	900
						0	1.009	204.785	900
U2 11	448368.676	311528.003	207.300	3.194	1200	 1	1.010	204.106	225
						0	1.011	204.106	225
U2 13	448334.205	311438.479	206.400	2.951	1200	 1	1.012	203.449	225
						0	1.013	203.449	225
U2 14	448295.951	311400.034	206.400	3.222	1950	 1	1.013	203.178	225
						0	1.014	203.178	1050
U2 15	448354.444	311483.993	206.800	1.500	1200	 0	4.000	205.300	300
U2 16	448325.122	311449.947	206.800	2.405	1350	 1	4.000	204.545	300
						0	4.001	204.395	450
U2 18	448252.968	311375.262	205.000	1.599	1350	 1	4.002	203.401	450
						0	4.003	203.401	450
U5 10	448318.473	311156.591	196.800	3.131	1500	 1	24.001	194.781	300
						2	21.003	193.669	600
						0	21.004	193.669	600
U1 4	448004.900	311762.107	210.800	2.600	1800	 1	5.002	208.345	600
						0	5.003	208.200	750
U1 1	448071.106	311826.861	210.800	1.725	1350	 0	5.000	209.075	450
U1 2	448049.869	311806.525	210.800	2.243	1500	 1	5.000	208.707	450
						0	5.001	208.557	600
U1 3	448026.754	311784.635	210.800	2.350	1500	 1	5.001	208.451	600
						0	5.002	208.450	600
U1 10	448140.860	311656.066	210.300	1.650	1200	 0	6.000	208.650	300

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
U1 11	448097.547	311614.719	209.700	1.450	1500		1 6.000	208.250	300
							0 6.001	208.250	600
U5 8	448331.224	311176.008	196.800	1.500	1200		0 24.000	195.300	300
							1 24.000	195.156	300
U5 9	448336.678	311169.467	196.800	1.644	1200		1 24.000	195.156	300
							0 24.001	195.156	300

Simulation Settings

Rainfall Methodology	FSR	Analysis Speed	Normal
Rainfall Events	Singular	Skip Steady State	x
FSR Region	England and Wales	Drain Down Time (mins)	240
M5-60 (mm)	20.000	Additional Storage (m³/ha)	20.0
Ratio-R	0.400	Starting Level (m)	
Summer CV	0.750	Check Discharge Rate(s)	x
Winter CV	0.840	Check Discharge Volume	x

Storm Durations

15 | 30 | 60 | 120 | 180 | 240 | 360 | 480 | 600 | 720 | 960 | 1440

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
1	0	0	0
30	0	0	0
100	0	0	0
100	40	0	0

Node OUTFALL POND Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Downstream Link	1.036	Sump Available	✓
Replaces Downstream Link	✓	Product Number	CTL-SHE-0195-2400-2400-2400
Invert Level (m)	191.000	Min Outlet Diameter (m)	0.225
Design Depth (m)	2.400	Min Node Diameter (mm)	2100
Design Flow (l/s)	24.0		

Node 23 Online Orifice Control

Flap Valve	✓	Invert Level (m)	192.925	Discharge Coefficient	0.600
Replaces Downstream Link	✓	Diameter (m)	0.300		

Node U 1 POND Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Downstream Link	5.005	Sump Available	✓
Replaces Downstream Link	✓	Product Number	CTL-SHE-0094-5000-1800-5000
Invert Level (m)	207.850	Min Outlet Diameter (m)	0.150
Design Depth (m)	1.800	Min Node Diameter (mm)	1200
Design Flow (l/s)	5.0		

Node U2 POND 1 Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Downstream Link	1.010	Sump Available	✓
Replaces Downstream Link	✓	Product Number	CTL-SHE-0092-5000-2000-5000
Invert Level (m)	204.500	Min Outlet Diameter (m)	0.150
Design Depth (m)	2.000	Min Node Diameter (mm)	1200
Design Flow (l/s)	5.0		

Node U2 POND 2 Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Downstream Link	1.015	Sump Available	✓
Replaces Downstream Link	✓	Product Number	CTL-SHE-0101-5000-1300-5000
Invert Level (m)	203.150	Min Outlet Diameter (m)	0.150
Design Depth (m)	1.300	Min Node Diameter (mm)	1200
Design Flow (l/s)	5.0		

Node U3 POND Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Downstream Link	11.005	Sump Available	✓
Replaces Downstream Link	✓	Product Number	CTL-SHE-0112-7000-1800-7000
Invert Level (m)	199.000	Min Outlet Diameter (m)	0.150
Design Depth (m)	1.800	Min Node Diameter (mm)	1500
Design Flow (l/s)	7.0		

Node U 4 POND Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Downstream Link	17.006	Sump Available	✓
Replaces Downstream Link	✓	Product Number	CTL-SHE-0089-5000-2300-5000
Invert Level (m)	197.500	Min Outlet Diameter (m)	0.150
Design Depth (m)	2.300	Min Node Diameter (mm)	1200
Design Flow (l/s)	5.0		

Node HIGHWAY POND Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Downstream Link	1.024	Sump Available	✓
Replaces Downstream Link	✓	Product Number	CTL-SHE-0197-2200-1700-2200
Invert Level (m)	193.750	Min Outlet Diameter (m)	0.225
Design Depth (m)	1.700	Min Node Diameter (mm)	1800
Design Flow (l/s)	22.0		

Node OUTFALL POND Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	191.000
Side Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Time to half empty (mins)	

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	539.0	0.0	2.500	1669.0	0.0

Node HIGHWAY POND Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	193.750
Side Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Time to half empty (mins)	

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	286.0	0.0	1.750	1011.0	0.0

Node U2 POND 1 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	204.500
Side Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Time to half empty (mins)	

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	983.0	0.0	2.000	2529.0	0.0

Node U 1 POND Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	207.850
Side Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Time to half empty (mins)	

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	792.0	0.0	2.000	2506.0	0.0

Node U2 POND 2 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	203.150
Side Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Time to half empty (mins)	

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	289.0	0.0	1.500	875.0	0.0

Node U3 POND Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	199.000
Side Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Time to half empty (mins)	

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	339.0	0.0	2.000	1091.0	0.0

Node U 4 POND Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	197.500
Side Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Time to half empty (mins)	

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	147.0	0.0	2.500	1000.0	0.0

Results for 1 year Critical Storm Duration. Lowest mass balance: 99.67%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	U3 1	10	202.420	0.120	25.9	0.4301	0.0000	OK
960 minute winter	HIGHWAY POND	750	194.266	0.516	31.8	203.2909	0.0000	SURCHARGED
15 minute winter	5	12	205.111	0.111	37.1	0.2013	0.0000	OK
15 minute winter	8	12	201.744	0.100	76.4	0.1927	0.0000	OK
15 minute winter	13	12	198.230	0.231	34.8	0.3294	0.0000	OK
15 minute winter	14	12	198.203	0.287	119.1	0.5217	0.0000	OK
15 minute winter	15	12	198.069	0.230	124.2	0.3714	0.0000	OK
15 minute winter	17	13	195.607	0.307	132.2	0.5683	0.0000	OK
15 minute winter	21	11	193.229	0.029	1.2	0.0365	0.0000	OK
60 minute winter	23	39	193.002	0.077	2.8	0.1246	0.0000	OK
240 minute winter	24	152	193.002	0.121	22.5	0.1729	0.0000	OK
60 minute winter	25	39	192.964	0.121	23.8	0.1932	0.0000	OK
15 minute winter	27	12	192.808	0.171	22.2	0.2758	0.0000	OK
15 minute winter	29	12	192.720	0.405	272.8	1.0976	0.0000	OK
15 minute winter	U5 4	10	195.041	0.091	29.8	0.3637	0.0000	OK
15 minute winter	U5 6	10	194.504	0.180	164.0	1.1265	0.0000	OK
15 minute winter	33	10	192.034	0.034	4.0	0.0507	0.0000	OK
1440 minute winter	34	1410	191.891	0.474	115.2	1.3082	0.0000	OK
1440 minute winter	OUTFALL POND	1410	191.891	0.891	153.1	660.7274	0.0000	SURCHARGED
Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	U3 1	11.000	U3 2	25.1	0.983	0.321	0.8712	
600 minute winter	HIGHWAY POND	Hydro-Brake®	24A	22.0				
15 minute winter	5	5.009	6	36.6	1.605	0.269	0.6108	
15 minute winter	8	1.017	14	76.3	2.995	0.102	0.7444	
15 minute winter	13	11.010	14	36.1	0.587	0.566	1.5835	
15 minute winter	14	1.018	15	119.7	1.270	0.745	2.8960	
15 minute winter	15	1.019	16	124.1	3.014	0.170	1.3376	
15 minute winter	17	1.021	19	130.7	1.260	0.814	1.9662	
15 minute winter	21	19.000	22	1.2	0.373	0.019	0.0616	
15 minute winter	23	Orifice	24	5.1				
240 minute winter	24	1.026	25	22.5	0.668	0.140	0.5100	
60 minute winter	25	1.027	26	23.8	0.691	0.148	0.8932	
60 minute winter	27	1.029	28	28.6	0.812	0.178	0.6506	
15 minute winter	29	1.031	30	272.3	1.152	0.495	8.6359	
15 minute winter	U5 4	23.000	U5 5	29.1	1.308	0.085	0.6787	
15 minute winter	U5 6	23.002	U5 7	161.7	1.538	0.187	3.6282	
15 minute winter	33	29.000	34	3.9	0.365	0.048	0.5183	
15 minute winter	34	1.035	OUTFALL POND	352.5	4.185	0.243	3.2706	
360 minute winter	OUTFALL POND	Hydro-Brake®	35	24.0				

Results for 1 year Critical Storm Duration. Lowest mass balance: 99.67%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
360 minute winter	36_OUT	528	190.073	0.073	24.0	0.0000	0.0000	OK
15 minute winter	7	11	202.244	0.132	71.4	0.2400	0.0000	OK
15 minute winter	12	12	198.407	0.135	27.5	0.2071	0.0000	OK
15 minute summer	U3 5	1	201.675	0.000	0.0	0.0000	0.0000	OK
60 minute winter	26	39	192.904	0.125	27.1	0.2267	0.0000	OK
15 minute winter	30	12	192.630	0.388	280.0	1.1156	0.0000	OK
15 minute winter	31	13	192.454	0.350	288.1	0.9589	0.0000	OK
15 minute winter	32	13	192.249	0.223	325.7	0.6223	0.0000	OK
15 minute winter	16	12	196.450	0.150	128.8	0.2904	0.0000	OK
15 minute summer	18	1	195.575	0.000	0.0	0.0000	0.0000	OK
15 minute winter	22	12	193.087	0.026	1.2	0.0374	0.0000	OK
15 minute winter	19	13	195.345	0.242	136.9	0.5023	0.0000	OK
15 minute winter	20	12	195.169	0.116	139.7	0.2362	0.0000	OK
360 minute winter	35	312	190.890	0.076	24.0	0.0854	0.0000	OK
1440 minute winter	U2 POND 1	1380	205.093	0.593	30.0	720.2983	0.0000	SURCHARGED
180 minute summer	U2 12	252	203.910	0.046	4.1	0.0519	0.0000	OK
15 minute winter	U2 17	11	203.685	0.185	89.0	0.9662	0.0000	OK

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	7	1.016	8	71.0	2.204	0.161	0.8201	
15 minute winter	12	11.009	13	27.1	0.635	0.425	3.6365	
15 minute summer	U3 5	12.000	U3 6	0.0	0.000	0.000	0.0451	
60 minute winter	26	1.028	27	27.0	0.726	0.168	2.1195	
15 minute winter	30	1.032	31	276.8	1.291	0.503	14.7528	
15 minute winter	31	1.033	32	292.1	1.893	0.531	6.0870	
15 minute winter	32	1.034	34	327.2	2.656	0.167	3.0054	
15 minute winter	16	1.020	17	128.3	1.586	0.247	3.1466	
15 minute summer	18	20.000	25	0.0	0.000	0.000	0.2215	
15 minute winter	22	19.001	23	1.1	0.354	0.006	0.0589	
15 minute winter	19	1.022	20	137.7	1.980	0.402	1.4465	
15 minute winter	20	1.023	HIGHWAY POND	140.9	4.746	0.075	0.8778	
720 minute summer	35	1.037	36_OUT	24.0	1.765	0.133	0.4213	1034.3
720 minute winter	U2 POND 1	Hydro-Brake®	U2 11	4.1				
180 minute summer	U2 12	1.012	U2 13	4.1	0.664	0.092	0.3464	
15 minute winter	U2 17	4.002	U2 18	88.2	1.511	0.273	0.5757	

Results for 1 year Critical Storm Duration. Lowest mass balance: 99.67%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
1440 minute winter	U2 POND 2	1320	203.522	0.372	9.5	134.8597	0.0000	SURCHARGED
960 minute winter	U 1 POND	915	208.363	0.513	32.2	522.0184	0.0000	SURCHARGED
15 minute winter	3	11	206.608	0.108	24.5	0.2095	0.0000	OK
15 minute winter	U1 7	10	208.901	0.101	16.2	0.2680	0.0000	OK
15 minute winter	U2 4	11	205.460	0.245	111.8	1.0710	0.0000	OK
15 minute winter	U2 6	12	205.352	0.294	117.4	0.9751	0.0000	OK
15 minute winter	U2 DOCK 2	10	205.873	0.073	20.2	0.3808	0.0000	OK
15 minute winter	U2 2	11	205.590	0.203	61.7	0.7435	0.0000	OK
15 minute winter	U2 7	12	205.331	0.343	160.8	1.9113	0.0000	OK
15 minute winter	U4 2	10	200.055	0.055	10.0	0.1086	0.0000	OK
360 minute winter	U4 5	336	199.578	0.338	12.3	0.4832	0.0000	OK
360 minute winter	U3 POND	344	199.577	0.577	42.5	259.0395	0.0000	SURCHARGED
15 minute winter	U4 9	11	198.645	0.194	99.3	0.7458	0.0000	OK
15 minute winter	U4 10	10	199.780	0.080	41.8	0.3926	0.0000	OK
15 minute winter	U4 11	11	198.511	0.233	205.9	1.1689	0.0000	OK
600 minute winter	U 4 POND	585	198.343	0.843	24.5	245.8920	0.0000	SURCHARGED
15 minute winter	U4 1	10	200.083	0.108	33.3	0.4784	0.0000	OK

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
1440 minute winter	U2 POND 2	Hydro-Brake®	7	5.0				
180 minute winter	U 1 POND	Hydro-Brake®	2	4.4				
15 minute winter	3	5.007	4	23.5	1.270	0.456	1.1266	
15 minute winter	U1 7	8.000	U1 8	15.8	0.695	0.420	0.6115	
15 minute winter	U2 4	1.003	U2 5	108.7	0.998	0.317	5.0328	
15 minute winter	U2 6	1.005	U2 7	118.6	0.735	0.193	4.9469	
15 minute winter	U2 DOCK 2	3.000	U2 4	19.9	0.719	0.229	0.5380	
15 minute winter	U2 2	1.001	U2 3	60.0	0.862	0.374	2.1268	
15 minute winter	U2 7	1.006	U2 8	162.4	0.737	0.183	7.8194	
15 minute winter	U4 2	15.000	U4 5	9.8	1.326	0.126	0.1745	
15 minute winter	U4 5	14.001	U3 POND	78.3	1.894	0.312	2.6038	
120 minute winter	U3 POND	Hydro-Brake®	9	6.7				
15 minute winter	U4 9	17.004	U4 11	98.9	1.115	0.204	3.1230	
15 minute winter	U4 10	18.000	U4 11	41.4	2.209	0.066	0.6446	
15 minute winter	U4 11	17.005	U 4 POND	207.2	2.121	0.303	2.7527	
15 minute summer	U 4 POND	Hydro-Brake®	19 A	3.8				
15 minute winter	U4 1	14.000	U4 5	32.3	1.467	0.261	0.8915	

Results for 1 year Critical Storm Duration. Lowest mass balance: 99.67%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	U4 8	11	198.891	0.219	60.0	0.3130	0.0000	OK
15 minute winter	U3 DOCK	10	202.012	0.062	8.7	0.1668	0.0000	OK
15 minute winter	U4 DOCK	11	199.609	0.159	41.9	1.3628	0.0000	OK
15 minute winter	U4 6	11	199.282	0.147	40.5	0.1664	0.0000	OK
15 minute summer	U5 DOCK	1	194.600	0.000	0.0	0.0000	0.0000	OK
15 minute winter	U5 2	10	194.407	0.155	54.7	0.5491	0.0000	OK
15 minute winter	1	10	208.606	0.056	9.1	0.1160	0.0000	OK
180 minute summer	9	192	198.962	0.066	6.7	0.0742	0.0000	OK
15 minute winter	10	11	198.799	0.104	16.2	0.1593	0.0000	OK
15 minute winter	11	12	198.616	0.118	19.6	0.1534	0.0000	OK
15 minute winter	U4 7	11	198.953	0.172	59.8	0.4694	0.0000	OK
15 minute winter	U5 3	11	194.104	0.152	71.2	0.4345	0.0000	OK
960 minute winter	U1 5	915	208.363	0.438	17.8	1.1155	0.0000	OK
15 minute winter	U1 6	12	208.810	0.010	0.6	0.0146	0.0000	OK
15 minute winter	U1 DOCK	11	208.811	0.011	0.4	0.0126	0.0000	OK
15 minute winter	U1 8	10	208.808	0.151	63.8	0.8400	0.0000	OK
15 minute winter	U1 9	10	208.564	0.114	61.2	0.1637	0.0000	OK
15 minute winter	U1 12	11	208.370	0.177	62.6	0.6113	0.0000	OK
960 minute winter	U1 13	915	208.363	0.217	4.8	0.3840	0.0000	OK
960 minute winter	U1 14	915	208.363	0.272	4.8	0.4812	0.0000	OK
15 minute winter	2	11	207.371	0.071	16.5	0.1143	0.0000	OK
15 minute winter	4	11	205.923	0.098	30.6	0.1786	0.0000	OK
15 minute winter	6	11	204.561	0.110	64.6	0.4497	0.0000	OK
Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	U4 8	17.003	U4 9	58.9	1.048	0.317	1.8373	
15 minute winter	U3 DOCK	13.000	U3 7	8.5	0.616	0.362	0.4582	
15 minute winter	U4 DOCK	17.000	U4 6	40.5	1.405	0.780	0.6933	
15 minute winter	U4 6	17.001	U4 7	40.8	1.228	0.450	1.0133	
15 minute summer	U5 DOCK	21.000	U5 2	0.0	0.000	0.000	0.0004	
15 minute winter	U5 2	21.001	U5 3	53.9	1.163	0.236	1.3937	
15 minute winter	1	10.000	2	9.0	1.307	0.292	0.2965	
180 minute summer	9	11.006	10	6.7	0.696	0.183	0.4433	
15 minute winter	10	11.007	11	15.7	0.823	0.430	0.7569	
15 minute winter	11	11.008	12	19.1	0.922	0.521	0.7866	
15 minute winter	U4 7	17.002	U4 8	60.0	0.910	0.263	1.4340	
15 minute winter	U5 3	21.002	U5 7	71.4	0.725	0.147	3.2747	
15 minute winter	U1 5	5.004	U 1 POND	231.9	2.557	0.364	2.9727	
15 minute winter	U1 6	7.000	U1 8	-0.6	-0.031	-0.003	1.0153	
15 minute winter	U1 DOCK	9.000	U1 8	-0.4	-0.040	-0.025	0.1955	
15 minute winter	U1 8	7.001	U1 9	61.2	1.609	0.216	1.0545	
15 minute winter	U1 9	7.002	U 1 POND	62.5	2.850	0.127	1.0222	
15 minute winter	U1 12	6.002	U1 13	62.8	0.935	0.159	0.9391	
15 minute winter	U1 13	6.003	U1 14	62.8	1.169	0.183	1.1897	
15 minute winter	U1 14	6.004	U 1 POND	62.8	1.985	0.093	1.2459	
15 minute winter	2	5.006	3	16.5	1.126	0.215	0.5477	
15 minute winter	4	5.008	5	30.2	1.394	0.233	1.3156	
15 minute winter	6	5.010	7	63.3	2.141	0.129	2.1451	

Results for 1 year Critical Storm Duration. Lowest mass balance: 99.67%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	U3 2	10	202.207	0.227	96.3	1.5888	0.0000	OK
15 minute winter	U3 3	10	202.050	0.151	120.0	0.5007	0.0000	OK
15 minute winter	U3 6	10	201.615	0.057	7.2	0.0984	0.0000	OK
15 minute winter	U3 4	11	201.167	0.188	126.2	0.3314	0.0000	OK
15 minute winter	U3 7	10	201.457	0.157	47.9	0.7091	0.0000	OK
15 minute winter	U3 8	11	200.900	0.151	173.7	0.2674	0.0000	OK
15 minute winter	U4 3	10	199.631	0.131	37.1	0.5791	0.0000	OK
15 minute summer	19 A	66	197.276	0.521	3.8	0.5896	0.0000	OK
600 minute winter	24A	450	193.719	0.056	22.0	0.0635	0.0000	OK
15 minute winter	28	12	192.799	0.408	273.8	1.1589	0.0000	OK
15 minute winter	U6 1	10	193.236	0.061	12.3	0.1437	0.0000	OK
15 minute winter	U6 4	10	193.240	0.065	11.8	0.1491	0.0000	OK
15 minute winter	U6 5	10	193.235	0.060	11.0	0.1335	0.0000	OK
15 minute winter	U6 6	10	192.806	0.110	48.7	0.3418	0.0000	OK
15 minute winter	U6 2	10	192.965	0.090	21.4	0.2945	0.0000	OK
15 minute winter	U6 3	10	192.672	0.093	25.4	0.1384	0.0000	OK
15 minute winter	U5 1	10	194.890	0.090	24.8	0.3124	0.0000	OK
15 minute winter	U5 5	10	194.649	0.188	93.4	1.1364	0.0000	OK
15 minute winter	U5 7	11	194.093	0.305	239.1	0.6477	0.0000	OK
15 minute winter	U2 1	11	205.608	0.108	21.7	0.3746	0.0000	OK
15 minute winter	U2 DOCK 1	10	205.871	0.071	15.9	0.3079	0.0000	OK
15 minute winter	U2 3	11	205.520	0.208	63.5	0.3620	0.0000	OK
15 minute winter	U2 5	12	205.373	0.268	108.7	0.6823	0.0000	OK
15 minute winter	U2 8	12	205.308	0.385	235.7	3.0207	0.0000	OK
15 minute winter	U2 9	12	205.265	0.409	341.8	3.9486	0.0000	OK

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	U3 2	11.001	U3 3	94.7	1.511	0.530	1.6574	
15 minute winter	U3 3	11.002	U3 4	119.2	2.716	0.211	0.9865	
15 minute winter	U3 6	12.001	U3 4	7.0	0.904	0.134	0.1580	
15 minute winter	U3 4	11.003	U3 8	127.0	1.946	0.184	1.5027	
15 minute winter	U3 7	13.001	U3 8	46.7	1.292	0.508	1.3195	
15 minute winter	U3 8	11.004	U3 POND	174.9	3.240	0.135	1.9050	
15 minute winter	U4 3	16.000	U4 5	36.5	1.329	0.329	0.2792	
15 minute summer	19 A	17.007	19	3.8	2.059	0.018	0.0214	
600 minute winter	24A	1.025	24	22.0	2.561	0.065	0.0599	
15 minute winter	28	1.030	29	268.4	1.114	0.488	9.3128	
15 minute winter	U6 1	25.000	31	12.1	1.420	0.153	0.2026	
15 minute winter	U6 4	26.000	U6 6	11.5	1.254	0.171	0.2209	
15 minute winter	U6 5	27.000	U6 6	10.8	1.301	0.147	0.1688	
15 minute winter	U6 6	26.001	32	48.3	2.209	0.238	0.2453	
15 minute winter	U6 2	28.000	U6 3	21.1	1.390	0.313	0.2673	
15 minute winter	U6 3	28.001	34	24.9	1.649	0.340	0.4870	
15 minute winter	U5 1	22.000	U5 2	24.2	1.407	0.183	0.4861	
15 minute winter	U5 5	23.001	U5 6	92.1	1.270	0.190	2.0149	
15 minute winter	U5 7	21.003	U5 10	241.8	2.302	0.498	2.5144	
15 minute winter	U2 1	1.000	U2 2	20.9	0.440	0.130	2.2291	
15 minute winter	U2 DOCK 1	2.000	U2 2	15.7	0.644	0.216	0.5134	
15 minute winter	U2 3	1.002	U2 4	62.1	0.783	0.386	3.0987	
15 minute winter	U2 5	1.004	U2 6	107.8	0.741	0.175	2.8215	
15 minute winter	U2 8	1.007	U2 9	238.5	0.921	0.269	9.0138	
15 minute winter	U2 9	1.008	U2 10	345.6	1.327	0.390	9.2649	

Results for 1 year Critical Storm Duration. Lowest mass balance: 99.67%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	U2 10	12	205.152	0.367	415.3	2.7430	0.0000	OK
120 minute winter	U2 11	216	204.158	0.052	4.1	0.0588	0.0000	OK
1440 minute winter	U2 13	1320	203.525	0.076	4.1	0.0862	0.0000	OK
1440 minute winter	U2 14	1320	203.522	0.344	4.1	1.0270	0.0000	OK
15 minute winter	U2 15	10	205.379	0.079	21.7	0.2503	0.0000	OK
15 minute winter	U2 16	11	204.505	0.110	42.9	0.2983	0.0000	OK
15 minute winter	U2 18	11	203.572	0.171	88.2	0.2450	0.0000	OK
15 minute winter	U5 10	11	193.844	0.174	248.8	0.3668	0.0000	OK
15 minute winter	U1 4	11	208.503	0.303	231.9	1.7013	0.0000	OK
15 minute winter	U1 1	10	209.212	0.137	68.1	0.9676	0.0000	OK
15 minute winter	U1 2	10	208.810	0.253	122.5	1.3395	0.0000	OK
15 minute winter	U1 3	11	208.750	0.300	179.1	1.6018	0.0000	OK
15 minute winter	U1 10	10	208.773	0.123	32.5	0.4824	0.0000	OK
15 minute winter	U1 11	11	208.398	0.148	42.7	0.4224	0.0000	OK
15 minute summer	U5 8	1	195.300	0.000	0.0	0.0000	0.0000	OK
15 minute summer	U5 9	1	195.156	0.000	0.0	0.0000	0.0000	OK

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	U2 10	1.009	U2 POND 1	422.5	3.298	0.367	12.1483	
120 minute winter	U2 11	1.011	U2 12	4.1	0.652	0.113	0.3075	
120 minute winter	U2 13	1.013	U2 14	4.1	0.493	0.113	1.2587	
15 minute winter	U2 14	1.014	U2 POND 2	-7.8	-0.248	-0.010	2.0946	
15 minute winter	U2 15	4.000	U2 16	21.0	1.458	0.145	0.6489	
15 minute winter	U2 16	4.001	U2 17	42.1	0.934	0.134	4.3233	
15 minute winter	U2 18	4.003	U2 POND 2	88.5	2.775	0.281	0.9590	
15 minute winter	U5 10	21.004	28	249.1	2.167	0.192	4.1732	
15 minute winter	U1 4	5.003	U1 5	233.2	1.429	0.328	13.4889	
15 minute winter	U1 1	5.000	U1 2	66.8	1.708	0.185	1.1517	
15 minute winter	U1 2	5.001	U1 3	120.3	0.959	0.304	4.0167	
15 minute winter	U1 3	5.002	U1 4	179.0	1.350	0.452	4.1641	
15 minute winter	U1 10	6.000	U1 11	31.7	1.044	0.350	1.8338	
15 minute winter	U1 11	6.001	U1 12	42.4	0.689	0.107	1.0478	
15 minute summer	U5 8	24.000	U5 9	0.0	0.000	0.000	0.0000	
15 minute summer	U5 9	24.001	U5 10	0.0	0.000	0.000	0.0000	

Results for 30 year Critical Storm Duration. Lowest mass balance: 99.67%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	U3 1	10	202.517	0.217	63.4	0.7769	0.0000	OK
1440 minute winter	HIGHWAY POND	1440	194.784	1.034	38.0	518.2449	0.0000	SURCHARGED
15 minute winter	5	11	205.191	0.191	89.2	0.3485	0.0000	OK
15 minute winter	8	11	201.810	0.166	192.2	0.3195	0.0000	OK
15 minute winter	13	11	198.653	0.654	71.2	0.9347	0.0000	SURCHARGED
15 minute winter	14	11	198.522	0.606	287.1	1.1012	0.0000	SURCHARGED
15 minute winter	15	11	198.147	0.308	300.5	0.4980	0.0000	OK
15 minute winter	17	12	195.946	0.646	320.8	1.1949	0.0000	SURCHARGED
15 minute winter	21	11	193.244	0.044	3.0	0.0554	0.0000	OK
15 minute winter	23	13	193.222	0.297	15.6	0.4790	0.0000	OK
15 minute winter	24	12	193.343	0.462	41.0	0.6616	0.0000	SURCHARGED
15 minute winter	25	12	193.370	0.527	50.8	0.8401	0.0000	SURCHARGED
15 minute winter	27	12	193.285	0.648	95.5	1.0451	0.0000	SURCHARGED
15 minute winter	29	12	193.072	0.757	637.3	2.0491	0.0000	SURCHARGED
15 minute winter	U5 4	10	195.095	0.145	72.9	0.5798	0.0000	OK
15 minute winter	U5 6	10	194.651	0.327	404.1	2.0437	0.0000	OK
1440 minute winter	33	1440	192.650	0.650	6.5	0.9804	0.0000	SURCHARGED
1440 minute winter	34	1440	192.650	1.233	148.1	3.4034	0.0000	SURCHARGED
1440 minute winter	OUTFALL POND	1440	192.650	1.650	152.1	1506.7070	0.0000	SURCHARGED
Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	U3 1	11.000	U3 2	62.0	1.134	0.792	1.9949	
30 minute summer	HIGHWAY POND	Hydro-Brake®	24A	22.0				
15 minute winter	5	5.009	6	88.8	1.974	0.653	1.2058	
15 minute winter	8	1.017	14	191.8	3.804	0.258	1.4738	
15 minute winter	13	11.010	14	71.8	1.020	1.126	1.7491	
15 minute winter	14	1.018	15	287.1	1.922	1.787	4.2180	
15 minute winter	15	1.019	16	300.2	3.519	0.411	2.8355	
15 minute winter	17	1.021	19	322.2	2.039	2.005	2.8960	
15 minute winter	21	19.000	22	2.9	0.480	0.045	0.2398	
15 minute summer	23	Orifice	24	21.8				
15 minute summer	24	1.026	25	51.2	0.669	0.319	2.1304	
15 minute winter	25	1.027	26	66.5	0.698	0.414	4.0363	
15 minute winter	27	1.029	28	116.8	1.069	0.727	2.9201	
15 minute winter	29	1.031	30	636.1	1.458	1.157	15.8297	
15 minute winter	U5 4	23.000	U5 5	72.1	1.527	0.212	1.5665	
15 minute winter	U5 6	23.002	U5 7	402.2	1.872	0.465	7.1416	
600 minute winter	33	29.000	34	13.5	0.338	0.165	0.9489	
15 minute winter	34	1.035	OUTFALL POND	838.5	4.731	0.578	8.5928	
30 minute summer	OUTFALL POND	Hydro-Brake®	35	24.0				

Results for 30 year Critical Storm Duration. Lowest mass balance: 99.67%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
120 minute summer	36_OUT	70	190.073	0.073	24.0	0.0000	0.0000	OK
15 minute winter	7	11	202.335	0.223	179.1	0.4045	0.0000	OK
15 minute winter	12	11	198.835	0.563	56.0	0.8665	0.0000	SURCHARGED
15 minute summer	U3 5	1	201.675	0.000	0.0	0.0000	0.0000	OK
15 minute winter	26	12	193.363	0.584	75.0	1.0600	0.0000	SURCHARGED
15 minute winter	30	13	192.940	0.697	655.1	2.0045	0.0000	OK
15 minute winter	31	13	192.682	0.578	680.4	1.5837	0.0000	OK
1440 minute winter	32	1440	192.650	0.624	63.5	1.7403	0.0000	OK
15 minute winter	16	11	196.583	0.283	314.0	0.5473	0.0000	OK
15 minute summer	18	1	195.575	0.000	0.0	0.0000	0.0000	OK
15 minute winter	22	13	193.234	0.173	2.9	0.2477	0.0000	OK
15 minute winter	19	12	195.490	0.387	333.8	0.8040	0.0000	OK
15 minute winter	20	11	195.232	0.179	341.6	0.3631	0.0000	OK
120 minute winter	35	68	190.890	0.076	24.0	0.0854	0.0000	OK
1440 minute winter	U2 POND 1	1440	205.651	1.151	55.6	1647.1210	0.0000	SURCHARGED
15 minute winter	U2 12	13	203.911	0.047	4.1	0.0526	0.0000	OK
1440 minute winter	U2 17	1440	203.850	0.350	21.5	1.8265	0.0000	OK

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	7	1.016	8	179.0	2.729	0.406	1.6588	
15 minute winter	12	11.009	13	53.8	0.789	0.843	5.7740	
15 minute summer	U3 5	12.000	U3 6	0.0	0.000	0.000	0.0883	
15 minute winter	26	1.028	27	92.4	0.791	0.575	9.0205	
15 minute winter	30	1.032	31	653.0	1.636	1.188	27.2160	
15 minute winter	31	1.033	32	692.8	2.318	1.260	11.5975	
15 minute winter	32	1.034	34	776.9	3.175	0.397	5.9605	
15 minute winter	16	1.020	17	310.2	2.132	0.597	5.1290	
15 minute summer	18	20.000	25	0.0	0.000	0.000	0.4891	
15 minute winter	22	19.001	23	11.4	0.418	0.061	1.2194	
15 minute winter	19	1.022	20	335.0	2.588	0.978	2.6276	
15 minute winter	20	1.023	HIGHWAY POND	343.5	5.383	0.183	2.1855	
120 minute summer	35	1.037	36_OUT	24.0	1.765	0.133	0.4213	449.9
480 minute summer	U2 POND 1	Hydro-Brake®	U2 11	4.1				
15 minute summer	U2 12	1.012	U2 13	4.2	0.790	0.093	0.3463	
15 minute winter	U2 17	4.002	U2 18	217.7	1.934	0.673	1.1081	

Results for 30 year Critical Storm Duration. Lowest mass balance: 99.67%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
1440 minute winter	U2 POND 2	1440	203.850	0.700	32.8	298.6062	0.0000	SURCHARGED
1440 minute winter	U 1 POND	1410	208.889	1.039	45.2	1291.0180	0.0000	SURCHARGED
15 minute winter	3	12	206.727	0.227	58.9	0.4392	0.0000	SURCHARGED
15 minute winter	U1 7	11	209.084	0.284	39.7	0.7550	0.0000	SURCHARGED
15 minute winter	U2 4	12	205.745	0.530	244.3	2.3150	0.0000	OK
15 minute winter	U2 6	12	205.670	0.611	260.2	2.0314	0.0000	OK
15 minute winter	U2 DOCK 2	11	205.944	0.144	49.5	0.7532	0.0000	OK
15 minute winter	U2 2	12	205.898	0.511	142.3	1.8699	0.0000	SURCHARGED
1440 minute winter	U2 7	1440	205.651	0.663	20.7	3.6946	0.0000	OK
720 minute winter	U4 2	705	200.236	0.236	1.9	0.4631	0.0000	SURCHARGED
720 minute winter	U4 5	705	200.236	0.996	19.2	1.4250	0.0000	SURCHARGED
720 minute winter	U3 POND	705	200.236	1.236	54.6	708.3983	0.0000	SURCHARGED
960 minute winter	U4 9	930	199.006	0.555	16.4	2.1304	0.0000	OK
15 minute winter	U4 10	10	199.821	0.121	102.6	0.5955	0.0000	OK
960 minute winter	U4 11	930	199.006	0.728	36.0	3.6514	0.0000	SURCHARGED
960 minute winter	U 4 POND	930	199.006	1.506	102.4	610.0635	0.0000	SURCHARGED
720 minute winter	U4 1	705	200.236	0.261	6.5	1.1597	0.0000	OK

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
60 minute summer	U2 POND 2	Hydro-Brake®	7	5.0				
15 minute summer	U 1 POND	Hydro-Brake®	2	4.4				
15 minute winter	3	5.007	4	54.0	1.463	1.046	2.3016	
15 minute winter	U1 7	8.000	U1 8	38.3	0.963	1.015	1.0702	
15 minute winter	U2 4	1.003	U2 5	233.5	1.055	0.682	11.9243	
15 minute winter	U2 6	1.005	U2 7	278.6	0.825	0.453	11.0456	
15 minute winter	U2 DOCK 2	3.000	U2 4	47.1	1.305	0.542	0.7046	
15 minute winter	U2 2	1.001	U2 3	124.8	0.948	0.777	4.7791	
15 minute winter	U2 7	1.006	U2 8	384.6	0.850	0.434	16.7460	
15 minute winter	U4 2	15.000	U4 5	24.1	1.689	0.310	0.4149	
15 minute winter	U4 5	14.001	U3 POND	191.7	2.088	0.764	6.1917	
15 minute summer	U3 POND	Hydro-Brake®	9	6.7				
15 minute winter	U4 9	17.004	U4 11	226.3	1.324	0.466	6.1676	
15 minute winter	U4 10	18.000	U4 11	102.0	2.258	0.163	2.0685	
15 minute winter	U4 11	17.005	U 4 POND	493.0	2.611	0.721	5.3159	
960 minute winter	U 4 POND	Hydro-Brake®	19 A	4.1				
15 minute winter	U4 1	14.000	U4 5	79.6	1.828	0.643	1.7653	

Results for 30 year Critical Storm Duration. Lowest mass balance: 99.67%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
960 minute winter	U4 8	930	199.006	0.334	9.7	0.4785	0.0000	OK
15 minute winter	U3 DOCK	12	202.136	0.186	21.4	0.4984	0.0000	SURCHARGED
15 minute winter	U4 DOCK	12	200.221	0.771	102.8	6.6058	0.0000	FLOOD RISK
15 minute winter	U4 6	12	199.394	0.259	87.3	0.2931	0.0000	OK
15 minute summer	U5 DOCK	1	194.600	0.000	0.0	0.0000	0.0000	OK
15 minute winter	U5 2	10	194.515	0.263	134.6	0.9329	0.0000	OK
15 minute winter	1	10	208.644	0.094	22.3	0.1963	0.0000	OK
15 minute winter	9	12	199.139	0.243	10.6	0.2752	0.0000	SURCHARGED
15 minute winter	10	12	199.117	0.423	34.5	0.6452	0.0000	SURCHARGED
15 minute winter	11	12	198.982	0.484	38.7	0.6278	0.0000	SURCHARGED
15 minute winter	U4 7	11	199.072	0.291	131.0	0.7952	0.0000	OK
15 minute winter	U5 3	11	194.352	0.400	175.8	1.1436	0.0000	OK
1440 minute winter	U1 5	1410	208.889	0.964	25.8	2.4539	0.0000	SURCHARGED
15 minute winter	U1 6	10	208.913	0.113	7.3	0.1611	0.0000	OK
15 minute winter	U1 DOCK	11	208.913	0.113	1.8	0.1272	0.0000	OK
15 minute winter	U1 8	11	208.908	0.251	154.1	1.4015	0.0000	OK
1440 minute winter	U1 9	1410	208.890	0.440	7.3	0.6292	0.0000	OK
1440 minute winter	U1 12	1410	208.889	0.696	6.8	2.4054	0.0000	SURCHARGED
1440 minute winter	U1 13	1410	208.889	0.743	6.4	1.3133	0.0000	SURCHARGED
1440 minute winter	U1 14	1410	208.889	0.798	6.1	1.4104	0.0000	SURCHARGED
15 minute winter	2	10	207.411	0.111	38.6	0.1806	0.0000	OK
15 minute winter	4	11	205.985	0.160	71.7	0.2911	0.0000	OK
15 minute winter	6	11	204.631	0.181	159.7	0.7366	0.0000	OK
Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	U4 8	17.003	U4 9	129.7	1.303	0.698	3.2260	
15 minute winter	U3 DOCK	13.000	U3 7	19.0	1.117	0.811	0.6576	
15 minute winter	U4 DOCK	17.000	U4 6	87.3	2.195	1.679	0.9463	
15 minute winter	U4 6	17.001	U4 7	87.4	1.423	0.965	1.8746	
15 minute summer	U5 DOCK	21.000	U5 2	0.0	0.000	0.000	0.1966	
15 minute winter	U5 2	21.001	U5 3	131.4	1.442	0.576	2.7962	
15 minute winter	1	10.000	2	22.0	1.710	0.718	0.5450	
15 minute winter	9	11.006	10	13.7	0.696	0.374	1.6042	
15 minute winter	10	11.007	11	31.8	0.921	0.868	1.5567	
15 minute winter	11	11.008	12	37.0	1.041	1.010	1.5140	
15 minute winter	U4 7	17.002	U4 8	130.0	1.124	0.570	2.5101	
15 minute winter	U5 3	21.002	U5 7	175.0	0.781	0.360	7.6581	
15 minute winter	U1 5	5.004	U 1 POND	582.3	2.857	0.914	7.2673	
15 minute summer	U1 6	7.000	U1 8	-9.3	-0.211	-0.050	2.5036	
15 minute summer	U1 DOCK	9.000	U1 8	-2.5	-0.205	-0.170	0.3376	
15 minute winter	U1 8	7.001	U1 9	152.8	2.076	0.540	1.9884	
15 minute winter	U1 9	7.002	U 1 POND	154.1	3.152	0.313	2.3795	
15 minute winter	U1 12	6.002	U1 13	155.2	1.195	0.392	1.8150	
15 minute winter	U1 13	6.003	U1 14	155.6	1.500	0.454	2.2843	
15 minute winter	U1 14	6.004	U 1 POND	154.2	2.176	0.228	4.1456	
15 minute winter	2	5.006	3	38.0	1.356	0.497	1.0980	
15 minute winter	4	5.008	5	72.3	1.689	0.557	2.5976	
15 minute winter	6	5.010	7	159.7	2.750	0.326	4.2052	

Results for 30 year Critical Storm Duration. Lowest mass balance: 99.67%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	U3 2	10	202.380	0.400	237.5	2.8020	0.0000	OK
15 minute winter	U3 3	10	202.162	0.263	294.4	0.8711	0.0000	OK
15 minute winter	U3 6	10	201.652	0.094	17.7	0.1609	0.0000	OK
15 minute winter	U3 4	11	201.293	0.314	309.9	0.5550	0.0000	OK
15 minute winter	U3 7	11	201.707	0.407	115.7	1.8367	0.0000	SURCHARGED
15 minute winter	U3 8	11	200.993	0.244	421.7	0.4312	0.0000	OK
720 minute winter	U4 3	705	200.236	0.736	7.2	3.2508	0.0000	SURCHARGED
960 minute winter	19 A	930	197.277	0.522	4.1	0.5904	0.0000	OK
30 minute summer	24A	110	193.719	0.056	22.0	0.0635	0.0000	OK
15 minute winter	28	12	193.233	0.842	651.2	2.3921	0.0000	SURCHARGED
15 minute winter	U6 1	10	193.275	0.100	30.1	0.2357	0.0000	OK
15 minute winter	U6 4	10	193.280	0.105	28.9	0.2419	0.0000	OK
15 minute winter	U6 5	10	193.271	0.095	26.9	0.2122	0.0000	OK
15 minute winter	U6 6	10	192.893	0.197	119.9	0.6094	0.0000	OK
15 minute winter	U6 2	10	193.038	0.163	52.4	0.5311	0.0000	OK
15 minute winter	U6 3	10	192.747	0.168	62.2	0.2487	0.0000	OK
15 minute winter	U5 1	10	194.950	0.150	60.7	0.5215	0.0000	OK
15 minute winter	U5 5	10	194.790	0.329	230.1	1.9850	0.0000	OK
15 minute winter	U5 7	11	194.330	0.542	586.2	1.1508	0.0000	OK
15 minute winter	U2 1	12	205.906	0.406	53.2	1.4139	0.0000	OK
15 minute winter	U2 DOCK 1	12	205.947	0.147	39.1	0.6414	0.0000	OK
15 minute winter	U2 3	12	205.834	0.522	133.8	0.9089	0.0000	SURCHARGED
15 minute winter	U2 5	12	205.686	0.581	233.5	1.4794	0.0000	OK
1440 minute winter	U2 8	1440	205.651	0.728	30.6	5.7183	0.0000	OK
1440 minute winter	U2 9	1440	205.651	0.795	44.2	7.6749	0.0000	OK

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	U3 2	11.001	U3 3	232.4	1.875	1.299	3.2063	
15 minute winter	U3 3	11.002	U3 4	292.9	3.340	0.519	1.9695	
15 minute winter	U3 6	12.001	U3 4	17.3	1.150	0.333	0.3073	
15 minute winter	U3 4	11.003	U3 8	311.3	2.426	0.452	2.9504	
15 minute winter	U3 7	13.001	U3 8	110.4	1.578	1.200	2.4526	
15 minute winter	U3 8	11.004	U3 POND	424.1	4.105	0.327	3.6474	
15 minute winter	U4 3	16.000	U4 5	89.7	1.627	0.807	0.5581	
960 minute winter	19 A	17.007	19	4.1	2.100	0.019	0.0224	
30 minute summer	24A	1.025	24	22.0	2.561	0.065	0.1240	
15 minute winter	28	1.030	29	626.5	1.424	1.140	16.8158	
15 minute winter	U6 1	25.000	31	29.6	1.798	0.375	0.3926	
15 minute winter	U6 4	26.000	U6 6	28.6	1.473	0.423	0.4808	
15 minute winter	U6 5	27.000	U6 6	26.7	1.473	0.363	0.3868	
15 minute winter	U6 6	26.001	32	118.8	2.689	0.586	0.4947	
15 minute winter	U6 2	28.000	U6 3	51.7	1.655	0.765	0.5493	
15 minute winter	U6 3	28.001	34	61.2	2.011	0.835	0.9798	
15 minute winter	U5 1	22.000	U5 2	59.7	1.771	0.452	0.9516	
15 minute winter	U5 5	23.001	U5 6	227.9	1.478	0.469	4.3281	
15 minute winter	U5 7	21.003	U5 10	591.6	2.748	1.218	4.9554	
15 minute winter	U2 1	1.000	U2 2	44.4	0.478	0.276	6.9957	
15 minute winter	U2 DOCK 1	2.000	U2 2	37.4	1.078	0.516	0.7171	
15 minute winter	U2 3	1.002	U2 4	130.9	0.855	0.815	6.1462	
15 minute winter	U2 5	1.004	U2 6	242.9	0.780	0.395	7.0400	
15 minute winter	U2 8	1.007	U2 9	578.7	1.113	0.653	17.8866	
15 minute winter	U2 9	1.008	U2 10	845.3	1.699	0.953	17.6953	

Results for 30 year Critical Storm Duration. Lowest mass balance: 99.67%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
1440 minute winter	U2 10	1440	205.651	0.866	53.0	6.4810	0.0000	OK
30 minute summer	U2 11	22	204.158	0.052	4.1	0.0589	0.0000	OK
1440 minute winter	U2 13	1440	203.853	0.404	4.1	0.4572	0.0000	SURCHARGED
1440 minute winter	U2 14	1440	203.850	0.672	4.1	2.0060	0.0000	OK
15 minute winter	U2 15	10	205.429	0.129	53.2	0.4092	0.0000	OK
15 minute winter	U2 16	11	204.570	0.175	105.6	0.4753	0.0000	OK
1440 minute winter	U2 18	1410	203.850	0.449	28.9	0.6422	0.0000	OK
15 minute winter	U5 10	11	193.984	0.315	608.7	0.6615	0.0000	OK
1440 minute winter	U1 4	1410	208.889	0.689	27.1	3.8671	0.0000	OK
15 minute winter	U1 1	10	209.313	0.238	167.2	1.6740	0.0000	OK
15 minute winter	U1 2	11	209.069	0.512	303.5	2.7111	0.0000	OK
15 minute winter	U1 3	11	208.997	0.547	434.9	2.9231	0.0000	OK
1440 minute winter	U1 10	1410	208.889	0.239	3.7	0.9391	0.0000	OK
1440 minute winter	U1 11	1410	208.889	0.639	4.9	1.8192	0.0000	SURCHARGED
15 minute summer	U5 8	1	195.300	0.000	0.0	0.0000	0.0000	OK
15 minute summer	U5 9	1	195.156	0.000	0.0	0.0000	0.0000	OK

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	U2 10	1.009	U2 POND 1	1050.8	3.891	0.913	26.9169	
960 minute summer	U2 11	1.011	U2 12	4.1	0.652	0.113	0.3075	
30 minute winter	U2 13	1.013	U2 14	4.4	0.240	0.120	1.3835	
15 minute summer	U2 14	1.014	U2 POND 2	-29.0	-0.391	-0.036	6.2697	
15 minute winter	U2 15	4.000	U2 16	52.0	1.857	0.360	1.2600	
15 minute winter	U2 16	4.001	U2 17	103.5	1.151	0.329	8.5051	
15 minute winter	U2 18	4.003	U2 POND 2	218.3	3.205	0.692	2.1501	
15 minute winter	U5 10	21.004	28	608.9	2.484	0.469	7.4967	
15 minute winter	U1 4	5.003	U1 5	568.4	1.782	0.799	26.3472	
15 minute winter	U1 1	5.000	U1 2	166.6	1.793	0.461	3.1963	
15 minute winter	U1 2	5.001	U1 3	294.0	1.122	0.743	8.3595	
15 minute winter	U1 3	5.002	U1 4	436.2	1.770	1.102	7.6514	
15 minute winter	U1 10	6.000	U1 11	77.9	1.290	0.860	3.5983	
15 minute winter	U1 11	6.001	U1 12	104.4	0.815	0.264	2.1751	
15 minute summer	U5 8	24.000	U5 9	0.0	0.000	0.000	0.0000	
15 minute summer	U5 9	24.001	U5 10	0.0	0.000	0.000	0.0000	

Results for 100 year Critical Storm Duration. Lowest mass balance: 99.67%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	U3 1	11	202.788	0.488	82.4	1.7475	0.0000	SURCHARGED
1440 minute winter	HIGHWAY POND	1470	195.075	1.325	42.3	743.8218	0.0000	SURCHARGED
15 minute winter	5	11	205.221	0.221	108.6	0.4026	0.0000	OK
15 minute winter	8	11	201.834	0.190	241.1	0.3653	0.0000	OK
15 minute winter	13	11	198.932	0.933	90.4	1.3332	0.0000	SURCHARGED
15 minute winter	14	11	198.722	0.806	360.3	1.4637	0.0000	SURCHARGED
15 minute winter	15	11	198.173	0.334	375.5	0.5387	0.0000	OK
15 minute winter	17	12	196.130	0.830	398.8	1.5342	0.0000	SURCHARGED
15 minute winter	21	14	193.354	0.154	4.8	0.1922	0.0000	OK
15 minute winter	23	14	193.334	0.409	31.7	0.6588	0.0000	OK
15 minute winter	24	11	193.778	0.897	61.8	1.2836	0.0000	SURCHARGED
15 minute winter	25	12	193.764	0.921	75.9	1.4690	0.0000	SURCHARGED
15 minute winter	27	12	193.746	1.108	116.8	1.7868	0.0000	SURCHARGED
15 minute winter	29	12	193.508	1.192	806.2	3.2293	0.0000	SURCHARGED
15 minute winter	U5 4	10	195.120	0.170	94.8	0.6783	0.0000	OK
15 minute winter	U5 6	11	194.766	0.442	521.1	2.7588	0.0000	OK
1440 minute winter	33	1440	192.911	0.911	0.9	1.3741	0.0000	SURCHARGED
1440 minute winter	34	1440	192.911	1.494	184.6	4.1239	0.0000	SURCHARGED
1440 minute winter	OUTFALL POND	1440	192.911	1.911	127.6	1857.8220	0.0000	SURCHARGED
Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	U3 1	11.000	U3 2	80.3	1.151	1.025	2.3966	
15 minute summer	HIGHWAY POND	Hydro-Brake®	24A	22.0				
15 minute winter	5	5.009	6	107.3	2.047	0.790	1.4079	
15 minute winter	8	1.017	14	241.3	4.024	0.324	1.7527	
15 minute winter	13	11.010	14	92.4	1.312	1.449	1.7491	
15 minute winter	14	1.018	15	358.2	2.347	2.230	4.3750	
15 minute winter	15	1.019	16	376.0	3.501	0.515	3.8621	
15 minute winter	17	1.021	19	398.8	2.517	2.483	2.9611	
30 minute winter	21	19.000	22	8.6	0.479	0.135	0.6894	
15 minute winter	23	Orifice	24	39.9				
15 minute winter	24	1.026	25	70.5	0.669	0.439	2.3824	
15 minute winter	25	1.027	26	89.9	0.705	0.560	4.0363	
15 minute summer	27	1.029	28	137.5	1.124	0.856	2.9201	
15 minute winter	29	1.031	30	806.7	1.833	1.467	16.0820	
15 minute winter	U5 4	23.000	U5 5	93.6	1.507	0.275	2.1712	
15 minute winter	U5 6	23.002	U5 7	491.2	1.953	0.567	8.5687	
600 minute winter	33	29.000	34	15.3	0.383	0.187	0.9489	
15 minute winter	34	1.035	OUTFALL POND	1112.8	4.840	0.767	10.4791	
15 minute summer	OUTFALL POND	Hydro-Brake®	35	24.0				

Results for 100 year Critical Storm Duration. Lowest mass balance: 99.67%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
240 minute summer	36_OUT	120	190.073	0.073	24.0	0.0000	0.0000	OK
15 minute winter	7	11	202.368	0.256	223.9	0.4652	0.0000	OK
15 minute winter	12	12	199.247	0.975	65.3	1.5011	0.0000	SURCHARGED
15 minute summer	U3 5	1	201.675	0.000	0.0	0.0000	0.0000	OK
15 minute winter	26	12	193.758	0.979	98.3	1.7776	0.0000	SURCHARGED
15 minute winter	30	12	193.270	1.028	831.3	2.9557	0.0000	SURCHARGED
1440 minute winter	31	1440	192.912	0.807	67.3	2.2108	0.0000	SURCHARGED
1440 minute winter	32	1440	192.911	0.885	74.9	2.4682	0.0000	SURCHARGED
15 minute winter	16	12	196.849	0.549	394.1	1.0617	0.0000	SURCHARGED
15 minute summer	18	1	195.575	0.000	0.0	0.0000	0.0000	OK
15 minute winter	22	14	193.350	0.289	9.9	0.4129	0.0000	OK
15 minute winter	19	12	195.542	0.439	412.5	0.9125	0.0000	OK
15 minute winter	20	11	195.253	0.200	422.2	0.4070	0.0000	OK
30 minute winter	35	22	190.890	0.076	24.0	0.0854	0.0000	OK
1440 minute winter	U2 POND 1	1440	205.911	1.411	68.9	2159.8170	0.0000	SURCHARGED
1440 minute winter	U2 12	1620	204.058	0.194	4.3	0.2190	0.0000	OK
1440 minute winter	U2 17	1620	204.050	0.550	23.3	2.8729	0.0000	SURCHARGED

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	7	1.016	8	224.1	2.858	0.508	1.9796	
15 minute winter	12	11.009	13	65.8	0.935	1.032	5.7740	
15 minute summer	U3 5	12.000	U3 6	0.0	0.000	0.000	0.1078	
15 minute summer	26	1.028	27	117.0	0.867	0.728	9.0205	
15 minute winter	30	1.032	31	831.7	1.890	1.513	30.2794	
15 minute winter	31	1.033	32	888.5	2.431	1.616	14.3484	
15 minute winter	32	1.034	34	1024.2	3.321	0.523	7.5102	
15 minute winter	16	1.020	17	386.3	2.438	0.744	6.1722	
15 minute summer	18	20.000	25	0.0	0.000	0.000	0.4891	
15 minute winter	22	19.001	23	28.0	0.408	0.151	2.1221	
15 minute winter	19	1.022	20	412.9	2.745	1.206	3.0432	
15 minute winter	20	1.023	HIGHWAY POND	422.9	5.606	0.225	2.6412	
240 minute summer	35	1.037	36_OUT	24.0	1.765	0.133	0.4213	525.2
1440 minute winter	U2 POND 1	Hydro-Brake®	U2 11	4.3				
1440 minute winter	U2 12	1.012	U2 13	4.3	0.664	0.095	2.1125	
15 minute winter	U2 17	4.002	U2 18	282.1	2.063	0.873	1.3393	

Results for 100 year Critical Storm Duration. Lowest mass balance: 99.67%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
1440 minute winter	U2 POND 2	1650	204.050	0.900	35.5	419.3591	0.0000	SURCHARGED
1440 minute winter	U 1 POND	1410	209.124	1.273	57.8	1709.8760	0.0000	SURCHARGED
15 minute winter	3	12	207.116	0.616	75.0	1.1911	0.0000	SURCHARGED
15 minute winter	U1 7	11	209.248	0.448	51.5	1.1932	0.0000	SURCHARGED
15 minute winter	U2 4	11	206.052	0.837	321.0	3.6575	0.0000	SURCHARGED
1440 minute winter	U2 6	1440	205.911	0.853	17.4	2.8320	0.0000	SURCHARGED
15 minute winter	U2 DOCK 2	12	206.330	0.530	64.2	2.7644	0.0000	FLOOD RISK
15 minute winter	U2 2	12	206.311	0.924	166.7	3.3826	0.0000	SURCHARGED
1440 minute winter	U2 7	1440	205.911	0.923	24.4	5.1403	0.0000	SURCHARGED
720 minute winter	U4 2	705	200.526	0.526	2.5	1.0325	0.0000	SURCHARGED
720 minute winter	U4 5	705	200.526	1.286	20.0	1.8399	0.0000	SURCHARGED
720 minute winter	U3 POND	705	200.526	1.526	70.4	957.7484	0.0000	SURCHARGED
960 minute winter	U4 9	945	199.303	0.852	21.0	3.2665	0.0000	SURCHARGED
15 minute winter	U4 10	10	199.838	0.138	133.1	0.6805	0.0000	OK
960 minute winter	U4 11	945	199.303	1.025	48.2	5.1361	0.0000	SURCHARGED
960 minute winter	U 4 POND	945	199.303	1.803	54.6	821.0998	0.0000	SURCHARGED
720 minute winter	U4 1	705	200.526	0.551	8.3	2.4490	0.0000	SURCHARGED

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
30 minute summer	U2 POND 2	Hydro-Brake®	7	5.0				
15 minute summer	U 1 POND	Hydro-Brake®	2	4.4				
15 minute winter	3	5.007	4	65.8	1.655	1.274	2.3655	
15 minute winter	U1 7	8.000	U1 8	49.8	1.251	1.318	1.0702	
15 minute winter	U2 4	1.003	U2 5	329.4	1.169	0.962	12.3839	
15 minute winter	U2 6	1.005	U2 7	368.5	0.848	0.599	12.2380	
15 minute winter	U2 DOCK 2	3.000	U2 4	55.2	1.427	0.636	0.8405	
15 minute winter	U2 2	1.001	U2 3	172.5	1.089	1.074	4.7791	
15 minute winter	U2 7	1.006	U2 8	523.0	0.868	0.590	20.5514	
15 minute winter	U4 2	15.000	U4 5	31.8	1.724	0.409	0.6381	
15 minute winter	U4 5	14.001	U3 POND	241.3	2.145	0.961	6.2886	
120 minute winter	U3 POND	Hydro-Brake®	9	6.7				
15 minute winter	U4 9	17.004	U4 11	282.8	1.323	0.582	7.6232	
15 minute winter	U4 10	18.000	U4 11	132.4	2.298	0.211	2.7943	
15 minute winter	U4 11	17.005	U 4 POND	631.1	2.729	0.923	6.5070	
960 minute winter	U 4 POND	Hydro-Brake®	19 A	4.5				
15 minute winter	U4 1	14.000	U4 5	103.2	1.919	0.833	2.3177	

Results for 100 year Critical Storm Duration. Lowest mass balance: 99.67%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
960 minute winter	U4 8	945	199.303	0.631	12.4	0.9023	0.0000	SURCHARGED
15 minute winter	U3 DOCK	12	202.607	0.657	27.7	1.7556	0.0000	FLOOD RISK
15 minute winter	U4 DOCK	10	200.250	0.800	133.4	6.8512	5.8293	FLOOD
15 minute summer	U4 6	11	199.398	0.263	88.7	0.2978	0.0000	OK
15 minute winter	U5 DOCK	12	194.744	0.144	6.6	0.1631	0.0000	OK
15 minute winter	U5 2	11	194.736	0.484	175.6	1.7141	0.0000	SURCHARGED
15 minute winter	1	10	208.667	0.117	29.0	0.2436	0.0000	OK
15 minute winter	9	12	199.629	0.733	28.4	0.8288	0.0000	SURCHARGED
15 minute winter	10	12	199.617	0.922	40.7	1.4068	0.0000	SURCHARGED
15 minute winter	11	12	199.488	0.990	39.4	1.2830	0.0000	SURCHARGED
960 minute winter	U4 7	945	199.303	0.522	12.4	1.4248	0.0000	SURCHARGED
15 minute winter	U5 3	11	194.633	0.681	214.3	1.9478	0.0000	SURCHARGED
1440 minute winter	U1 5	1410	209.124	1.198	32.0	3.0501	0.0000	SURCHARGED
1440 minute winter	U1 6	1410	209.124	0.323	0.2	0.4629	0.0000	OK
1440 minute winter	U1 DOCK	1440	209.124	0.324	0.1	0.3660	0.0000	SURCHARGED
1440 minute winter	U1 8	1410	209.124	0.466	9.2	2.6006	0.0000	SURCHARGED
1440 minute winter	U1 9	1410	209.124	0.673	9.2	0.9637	0.0000	SURCHARGED
1440 minute winter	U1 12	1410	209.124	0.930	9.0	3.2148	0.0000	SURCHARGED
1440 minute winter	U1 13	1410	209.124	0.977	8.6	1.7272	0.0000	SURCHARGED
1440 minute winter	U1 14	1410	209.124	1.032	8.2	1.8244	0.0000	SURCHARGED
15 minute winter	2	11	207.441	0.141	49.1	0.2293	0.0000	OK
15 minute winter	4	11	206.006	0.180	87.3	0.3290	0.0000	OK
15 minute winter	6	11	204.656	0.206	199.3	0.8377	0.0000	OK
Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	U4 8	17.003	U4 9	151.5	1.363	0.815	3.5988	
15 minute winter	U3 DOCK	13.000	U3 7	23.9	1.360	1.019	0.6576	
15 minute summer	U4 DOCK	17.000	U4 6	88.7	2.230	1.706	0.9463	
15 minute winter	U4 6	17.001	U4 7	88.7	1.426	0.979	1.8935	
15 minute winter	U5 DOCK	21.000	U5 2	-6.6	-0.459	-0.458	0.5183	
15 minute winter	U5 2	21.001	U5 3	160.1	1.384	0.702	4.7665	
15 minute winter	1	10.000	2	28.5	1.841	0.930	0.6653	
15 minute winter	9	11.006	10	-22.0	0.692	-0.601	1.6042	
15 minute summer	10	11.007	11	34.3	0.935	0.938	1.5567	
15 minute winter	11	11.008	12	42.9	1.079	1.173	1.5140	
15 minute winter	U4 7	17.002	U4 8	150.9	1.177	0.662	2.8084	
15 minute winter	U5 3	21.002	U5 7	210.8	0.919	0.434	9.2289	
15 minute summer	U1 5	5.004	U 1 POND	753.3	3.060	1.182	8.4607	
15 minute summer	U1 6	7.000	U1 8	-11.5	-0.244	-0.062	3.3085	
15 minute summer	U1 DOCK	9.000	U1 8	-3.1	-0.213	-0.214	0.3775	
15 minute winter	U1 8	7.001	U1 9	197.2	2.194	0.697	2.4191	
15 minute winter	U1 9	7.002	U 1 POND	197.7	3.245	0.402	2.7556	
15 minute winter	U1 12	6.002	U1 13	195.8	1.266	0.495	2.1640	
15 minute winter	U1 13	6.003	U1 14	195.1	1.591	0.570	3.1428	
15 minute winter	U1 14	6.004	U 1 POND	194.0	2.243	0.287	5.4362	
15 minute winter	2	5.006	3	47.9	1.388	0.626	1.2259	
15 minute winter	4	5.008	5	86.7	1.740	0.669	3.0346	
15 minute winter	6	5.010	7	199.7	2.911	0.408	4.9694	

Results for 100 year Critical Storm Duration. Lowest mass balance: 99.67%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	U3 2	11	202.571	0.591	304.5	4.1447	0.0000	SURCHARGED
15 minute winter	U3 3	11	202.215	0.316	375.2	1.0470	0.0000	OK
15 minute winter	U3 6	10	201.667	0.109	23.0	0.1877	0.0000	OK
15 minute winter	U3 4	11	201.348	0.369	399.9	0.6518	0.0000	OK
15 minute winter	U3 7	11	201.987	0.687	143.4	3.1056	0.0000	SURCHARGED
15 minute winter	U3 8	11	201.031	0.282	539.6	0.4977	0.0000	OK
720 minute winter	U4 3	705	200.526	1.026	9.3	4.5316	0.0000	SURCHARGED
960 minute winter	19 A	945	197.278	0.523	4.5	0.5914	0.0000	OK
15 minute winter	24A	12	193.765	0.101	22.0	0.1148	0.0000	OK
15 minute winter	28	12	193.740	1.349	806.2	3.8314	0.0000	SURCHARGED
15 minute winter	U6 1	10	193.292	0.117	39.1	0.2762	0.0000	OK
15 minute winter	U6 4	10	193.297	0.122	37.5	0.2819	0.0000	OK
15 minute winter	U6 5	10	193.286	0.111	34.9	0.2463	0.0000	OK
15 minute winter	U6 6	10	192.939	0.243	155.7	0.7516	0.0000	OK
15 minute winter	U6 2	11	193.204	0.329	68.1	1.0724	0.0000	SURCHARGED
1440 minute winter	U6 3	1440	192.911	0.332	3.7	0.4929	0.0000	SURCHARGED
15 minute winter	U5 1	10	194.977	0.177	78.9	0.6144	0.0000	OK
15 minute winter	U5 5	11	194.860	0.399	298.7	2.4100	0.0000	OK
15 minute winter	U5 7	11	194.592	0.804	721.6	1.7060	0.0000	SURCHARGED
15 minute winter	U2 1	12	206.333	0.833	69.1	2.9015	0.0000	SURCHARGED
15 minute winter	U2 DOCK 1	12	206.497	0.697	50.7	3.0350	0.0000	FLOOD RISK
15 minute winter	U2 3	11	206.198	0.886	181.7	1.5427	0.0000	SURCHARGED
15 minute winter	U2 5	11	205.927	0.822	329.4	2.0928	0.0000	SURCHARGED
1440 minute winter	U2 8	1440	205.911	0.988	36.7	7.7560	0.0000	SURCHARGED
1440 minute winter	U2 9	1440	205.911	1.055	53.8	10.1794	0.0000	SURCHARGED

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	U3 2	11.001	U3 3	299.4	1.991	1.674	3.6315	
15 minute winter	U3 3	11.002	U3 4	377.8	3.501	0.670	2.4206	
15 minute winter	U3 6	12.001	U3 4	22.5	1.227	0.433	0.3742	
15 minute winter	U3 4	11.003	U3 8	401.2	2.573	0.583	3.5794	
15 minute winter	U3 7	13.001	U3 8	138.4	1.966	1.504	2.5241	
15 minute winter	U3 8	11.004	U3 POND	541.8	4.360	0.417	4.3869	
15 minute winter	U4 3	16.000	U4 5	113.6	1.656	1.022	0.7152	
960 minute winter	19 A	17.007	19	4.5	2.152	0.021	0.0238	
15 minute winter	24A	1.025	24	28.2	2.562	0.084	0.3191	
15 minute winter	28	1.030	29	792.2	1.800	1.441	16.8175	
15 minute winter	U6 1	25.000	31	38.5	1.915	0.488	0.6704	
15 minute winter	U6 4	26.000	U6 6	37.1	1.499	0.549	0.6454	
15 minute winter	U6 5	27.000	U6 6	34.6	1.474	0.471	0.5218	
15 minute winter	U6 6	26.001	32	153.4	2.804	0.757	0.6109	
15 minute summer	U6 2	28.000	U6 3	63.5	1.688	0.939	0.6989	
15 minute summer	U6 3	28.001	34	73.9	2.031	1.007	1.2479	
15 minute winter	U5 1	22.000	U5 2	78.4	1.828	0.593	1.5339	
15 minute winter	U5 5	23.001	U5 6	292.2	1.518	0.602	5.7884	
15 minute winter	U5 7	21.003	U5 10	717.5	2.724	1.477	6.3180	
15 minute winter	U2 1	1.000	U2 2	61.3	0.473	0.382	7.1746	
15 minute winter	U2 DOCK 1	2.000	U2 2	47.2	1.187	0.651	0.8476	
15 minute winter	U2 3	1.002	U2 4	184.4	1.164	1.148	6.1462	
15 minute winter	U2 5	1.004	U2 6	333.7	0.795	0.542	8.2553	
15 minute winter	U2 8	1.007	U2 9	785.5	1.250	0.886	21.1680	
15 minute winter	U2 9	1.008	U2 10	1156.6	1.950	1.304	20.6493	

Results for 100 year Critical Storm Duration. Lowest mass balance: 99.67%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
1440 minute winter	U2 10	1440	205.911	1.126	65.1	8.4224	0.0000	SURCHARGED
30 minute summer	U2 11	20	204.158	0.052	4.1	0.0589	0.0000	OK
1440 minute winter	U2 13	1650	204.054	0.605	4.3	0.6845	0.0000	SURCHARGED
1440 minute winter	U2 14	1650	204.050	0.872	4.2	2.6044	0.0000	OK
15 minute winter	U2 15	10	205.450	0.150	69.1	0.4780	0.0000	OK
15 minute winter	U2 16	11	204.597	0.202	137.2	0.5488	0.0000	OK
1440 minute winter	U2 18	1620	204.050	0.649	32.8	0.9291	0.0000	SURCHARGED
15 minute winter	U5 10	12	194.169	0.499	739.7	1.0499	0.0000	OK
1440 minute winter	U1 4	1410	209.124	0.923	33.6	5.1816	0.0000	SURCHARGED
15 minute winter	U1 1	11	209.433	0.358	217.2	2.5208	0.0000	OK
15 minute winter	U1 2	11	209.309	0.752	376.2	3.9855	0.0000	SURCHARGED
15 minute winter	U1 3	11	209.168	0.718	557.6	3.8364	0.0000	SURCHARGED
1440 minute winter	U1 10	1410	209.124	0.473	4.7	1.8589	0.0000	SURCHARGED
1440 minute winter	U1 11	1410	209.124	0.873	6.3	2.4859	0.0000	SURCHARGED
15 minute summer	U5 8	1	195.300	0.000	0.0	0.0000	0.0000	OK
15 minute summer	U5 9	1	195.156	0.000	0.0	0.0000	0.0000	OK

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	U2 10	1.009	U2 POND 1	1396.1	4.029	1.213	33.3143	
1440 minute winter	U2 11	1.011	U2 12	4.3	0.652	0.116	1.0423	
30 minute winter	U2 13	1.013	U2 14	5.6	0.224	0.152	1.9024	
15 minute winter	U2 14	1.014	U2 POND 2	-39.5	-0.427	-0.049	9.8615	
15 minute winter	U2 15	4.000	U2 16	67.6	1.981	0.468	1.5357	
15 minute winter	U2 16	4.001	U2 17	134.1	1.211	0.427	10.2795	
15 minute winter	U2 18	4.003	U2 POND 2	282.5	3.304	0.896	2.7635	
15 minute winter	U5 10	21.004	28	713.4	2.709	0.550	9.2530	
15 minute winter	U1 4	5.003	U1 5	733.1	1.901	1.031	31.7658	
15 minute winter	U1 1	5.000	U1 2	208.6	1.770	0.577	4.3170	
15 minute winter	U1 2	5.001	U1 3	378.1	1.342	0.955	8.9672	
15 minute winter	U1 3	5.002	U1 4	558.0	1.992	1.409	8.4513	
15 minute winter	U1 10	6.000	U1 11	98.2	1.395	1.083	4.2167	
15 minute winter	U1 11	6.001	U1 12	131.4	0.852	0.332	2.6366	
15 minute summer	U5 8	24.000	U5 9	0.0	0.000	0.000	0.0000	
15 minute summer	U5 9	24.001	U5 10	0.0	0.000	0.000	0.0000	

Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 99.67%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	U3 1	11	203.412	1.112	115.3	3.9798	0.0000	SURCHARGED
1440 minute winter	HIGHWAY POND	1470	195.446	1.696	52.7	1082.9760	0.0000	FLOOD RISK
15 minute winter	5	12	205.374	0.374	143.8	0.6822	0.0000	SURCHARGED
15 minute winter	8	11	201.872	0.228	322.2	0.4375	0.0000	OK
15 minute winter	13	12	199.824	1.825	111.1	2.6077	0.0000	SURCHARGED
15 minute winter	14	12	199.485	1.569	468.3	2.8499	0.0000	SURCHARGED
15 minute winter	15	12	198.646	0.807	485.5	1.3037	0.0000	SURCHARGED
15 minute winter	17	12	196.456	1.156	522.9	2.1383	0.0000	SURCHARGED
30 minute winter	21	22	193.863	0.663	11.1	0.8273	0.0000	SURCHARGED
30 minute winter	23	22	193.897	0.972	33.4	1.5659	0.0000	SURCHARGED
15 minute winter	24	12	194.378	1.497	77.6	2.1421	0.0000	SURCHARGED
15 minute winter	25	12	194.379	1.536	132.5	2.4494	0.0000	SURCHARGED
15 minute winter	27	12	194.359	1.722	139.2	2.7756	0.0000	SURCHARGED
15 minute winter	29	12	194.009	1.694	969.4	4.5879	0.0000	SURCHARGED
15 minute winter	U5 4	12	196.279	1.329	132.6	5.3017	0.0000	SURCHARGED
15 minute winter	U5 6	12	196.131	1.807	633.8	11.2882	0.0000	SURCHARGED
1440 minute winter	33	1440	193.426	1.425	5.4	2.1496	0.0000	FLOOD RISK
1440 minute winter	34	1440	193.426	2.008	95.4	5.5434	0.0000	SURCHARGED
1440 minute winter	OUTFALL POND	1440	193.425	2.425	187.5	2639.6860	0.0000	FLOOD RISK
Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	U3 1	11.000	U3 2	107.6	1.529	1.374	2.3966	
1440 minute winter	HIGHWAY POND	Hydro-Brake®	24A	22.0				
15 minute winter	5	5.009	6	136.5	2.100	1.004	1.8511	
15 minute winter	8	1.017	14	323.4	4.304	0.434	2.1953	
15 minute winter	13	11.010	14	122.0	1.732	1.912	1.7491	
15 minute winter	14	1.018	15	461.2	2.911	2.871	4.8740	
15 minute winter	15	1.019	16	482.1	3.493	0.660	5.1380	
15 minute winter	17	1.021	19	523.9	3.307	3.261	2.9764	
15 minute winter	21	19.000	22	14.0	0.543	0.219	1.3624	
15 minute winter	23	Orifice	24	56.0				
15 minute winter	24	1.026	25	93.4	0.666	0.581	2.3824	
15 minute winter	25	1.027	26	119.0	0.775	0.741	4.0363	
15 minute summer	27	1.029	28	154.4	1.240	0.961	2.9201	
15 minute winter	29	1.031	30	969.1	2.202	1.763	16.0820	
15 minute winter	U5 4	23.000	U5 5	128.2	1.463	0.376	4.8289	
15 minute winter	U5 6	23.002	U5 7	595.8	2.115	0.688	9.5883	
30 minute winter	33	29.000	34	17.9	0.482	0.220	0.9489	
15 minute winter	34	1.035	OUTFALL POND	1392.4	4.989	0.959	12.8019	
1440 minute winter	OUTFALL POND	Hydro-Brake®	35	24.1				

Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 99.67%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
1440 minute winter	36_OUT	1440	190.074	0.074	24.1	0.0000	0.0000	OK
15 minute winter	7	11	202.423	0.311	297.1	0.5647	0.0000	OK
15 minute winter	12	12	200.270	1.998	79.5	3.0746	0.0000	SURCHARGED
15 minute winter	U3 5	10	201.693	0.018	0.5	0.0206	0.0000	OK
15 minute winter	26	12	194.372	1.593	128.8	2.8927	0.0000	SURCHARGED
15 minute winter	30	12	193.664	1.422	1003.6	4.0859	0.0000	SURCHARGED
1440 minute winter	31	1440	193.426	1.322	82.1	3.6192	0.0000	SURCHARGED
1440 minute winter	32	1440	193.426	1.400	90.2	3.9022	0.0000	SURCHARGED
15 minute winter	16	12	197.681	1.381	503.1	2.6718	0.0000	SURCHARGED
15 minute summer	18	1	195.575	0.000	0.0	0.0000	0.0000	OK
30 minute winter	22	22	193.883	0.822	16.5	1.1762	0.0000	SURCHARGED
15 minute winter	19	12	195.627	0.524	541.7	1.0894	0.0000	OK
1440 minute winter	20	1470	195.446	0.393	48.9	0.7989	0.0000	OK
1440 minute winter	35	1440	190.890	0.076	24.1	0.0857	0.0000	OK
1440 minute winter	U2 POND 1	1440	206.363	1.863	98.4	3177.8700	0.0000	FLOOD RISK
1440 minute winter	U2 12	1680	204.346	0.482	4.8	0.5452	0.0000	SURCHARGED
1440 minute winter	U2 17	1680	204.336	0.836	18.6	4.3622	0.0000	SURCHARGED

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	7	1.016	8	298.3	3.014	0.677	2.4909	
15 minute winter	12	11.009	13	85.6	1.216	1.342	5.7740	
15 minute winter	U3 5	12.000	U3 6	-0.5	-0.054	-0.010	0.1534	
15 minute winter	26	1.028	27	136.8	0.948	0.852	9.0205	
15 minute winter	30	1.032	31	1004.4	2.282	1.827	30.2794	
15 minute winter	31	1.033	32	1069.4	2.499	1.945	15.7172	
15 minute winter	32	1.034	34	1276.6	3.422	0.652	9.2651	
15 minute winter	16	1.020	17	505.5	3.191	0.974	6.1722	
15 minute summer	18	20.000	25	0.0	0.000	0.000	0.4891	
15 minute winter	22	19.001	23	39.2	0.405	0.211	2.8799	
15 minute winter	19	1.022	20	542.8	2.921	1.585	3.6137	
15 minute winter	20	1.023	HIGHWAY POND	556.0	5.834	0.296	3.1596	
1440 minute winter	35	1.037	36_OUT	24.1	1.767	0.134	0.4230	2079.4
1440 minute winter	U2 POND 1	Hydro-Brake®	U2 11	4.8				
1440 minute winter	U2 12	1.012	U2 13	4.8	0.664	0.108	2.2070	
15 minute winter	U2 17	4.002	U2 18	386.6	2.440	1.196	1.5626	

Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 99.67%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
1440 minute winter	U2 POND 2	1680	204.336	1.185	29.4	618.3061	0.0000	SURCHARGED
1440 minute winter	U 1 POND	1440	209.519	1.669	81.5	2524.3820	0.0000	SURCHARGED
15 minute winter	3	12	207.715	1.215	87.0	2.3505	0.0000	FLOOD RISK
15 minute winter	U1 7	11	209.608	0.808	72.0	2.1509	0.0000	SURCHARGED
15 minute winter	U2 4	11	206.560	1.345	331.4	5.8810	0.0000	SURCHARGED
15 minute winter	U2 6	11	206.452	1.394	379.6	4.6298	0.0000	SURCHARGED
15 minute winter	U2 DOCK 2	10	206.500	0.700	107.0	3.6512	14.9009	FLOOD
15 minute winter	U2 2	11	206.771	1.384	208.4	5.0650	0.0000	FLOOD RISK
15 minute winter	U2 7	11	206.419	1.431	600.4	7.9756	0.0000	SURCHARGED
960 minute winter	U4 2	945	200.996	0.996	2.8	1.9568	0.0000	SURCHARGED
960 minute winter	U4 5	945	200.996	1.756	21.5	2.5133	0.0000	FLOOD RISK
960 minute winter	U3 POND	945	200.996	1.996	78.4	1429.8010	0.0000	FLOOD RISK
1440 minute winter	U4 9	1410	199.786	1.335	20.0	5.1209	0.0000	SURCHARGED
15 minute winter	U4 10	10	199.865	0.165	186.3	0.8123	0.0000	OK
1440 minute winter	U4 11	1410	199.786	1.508	42.4	7.5593	0.0000	SURCHARGED
1440 minute winter	U 4 POND	1410	199.786	2.286	67.6	1229.7980	0.0000	FLOOD RISK
960 minute winter	U4 1	945	200.996	1.021	9.3	4.5419	0.0000	SURCHARGED

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	U2 POND 2	Hydro-Brake®	7	5.0				
1440 minute winter	U 1 POND	Hydro-Brake®	2	4.8				
15 minute winter	3	5.007	4	81.9	2.059	1.586	2.3919	
15 minute winter	U1 7	8.000	U1 8	69.1	1.738	1.830	1.0702	
15 minute summer	U2 4	1.003	U2 5	341.6	1.213	0.998	12.3839	
15 minute winter	U2 6	1.005	U2 7	399.5	0.908	0.649	12.2380	
15 minute summer	U2 DOCK 2	3.000	U2 4	63.4	1.595	0.731	0.8405	
30 minute summer	U2 2	1.001	U2 3	172.3	1.088	1.073	4.7791	
30 minute summer	U2 7	1.006	U2 8	584.4	0.922	0.659	20.6369	
15 minute summer	U4 2	15.000	U4 5	41.6	1.764	0.534	0.7680	
15 minute winter	U4 5	14.001	U3 POND	316.3	2.239	1.260	6.2886	
960 minute winter	U3 POND	Hydro-Brake®	9	7.4				
15 minute winter	U4 9	17.004	U4 11	353.2	1.270	0.727	9.7629	
15 minute winter	U4 10	18.000	U4 11	185.5	2.277	0.296	3.5851	
15 minute winter	U4 11	17.005	U 4 POND	837.9	2.975	1.225	7.8225	
1440 minute winter	U 4 POND	Hydro-Brake®	19 A	5.0				
15 minute winter	U4 1	14.000	U4 5	132.0	1.877	1.066	2.8392	

Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 99.67%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
1440 minute winter	U4 8	1410	199.786	1.114	12.0	1.5941	0.0000	SURCHARGED
15 minute winter	U3 DOCK	10	202.750	0.800	38.8	2.1392	3.5463	FLOOD
15 minute winter	U4 DOCK	9	200.250	0.800	186.7	6.8512	25.4438	FLOOD
1440 minute winter	U4 6	1410	199.786	0.651	8.4	0.7362	0.0000	SURCHARGED
15 minute winter	U5 DOCK	11	195.400	0.800	22.3	0.9048	3.5050	FLOOD
15 minute winter	U5 2	12	195.941	1.689	211.3	5.9873	0.0000	SURCHARGED
15 minute winter	1	12	209.507	0.957	40.5	1.9964	0.0000	SURCHARGED
15 minute winter	9	12	200.660	1.764	19.0	1.9953	0.0000	SURCHARGED
15 minute winter	10	12	200.664	1.970	51.4	3.0049	0.0000	SURCHARGED
15 minute winter	11	12	200.535	2.037	43.6	2.6405	0.0000	SURCHARGED
1440 minute winter	U4 7	1410	199.786	1.005	12.5	2.7455	0.0000	SURCHARGED
15 minute winter	U5 3	12	195.824	1.872	257.9	5.3514	0.0000	SURCHARGED
1440 minute winter	U1 5	1440	209.519	1.594	45.4	4.0574	0.0000	SURCHARGED
1440 minute winter	U1 6	1440	209.519	0.719	0.5	1.0295	0.0000	SURCHARGED
1440 minute winter	U1 DOCK	1440	209.519	0.719	0.1	0.8133	0.0000	FLOOD RISK
1440 minute winter	U1 8	1440	209.519	0.862	12.8	4.8071	0.0000	SURCHARGED
1440 minute winter	U1 9	1440	209.519	1.069	11.7	1.5301	0.0000	SURCHARGED
1440 minute winter	U1 12	1440	209.519	1.326	12.4	4.5822	0.0000	SURCHARGED
1440 minute winter	U1 13	1440	209.519	1.373	12.3	2.4265	0.0000	SURCHARGED
1440 minute winter	U1 14	1440	209.519	1.428	12.2	2.5237	0.0000	SURCHARGED
15 minute winter	2	12	208.146	0.846	56.6	1.3714	0.0000	SURCHARGED
15 minute winter	4	11	206.042	0.217	112.0	0.3951	0.0000	OK
15 minute winter	6	11	204.694	0.244	266.0	0.9924	0.0000	OK

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	U4 8	17.003	U4 9	171.7	1.418	0.924	5.1383	
15 minute summer	U3 DOCK	13.000	U3 7	25.4	1.442	1.080	0.6576	
15 minute summer	U4 DOCK	17.000	U4 6	88.7	2.230	1.706	0.9560	
15 minute winter	U4 6	17.001	U4 7	91.8	1.433	1.014	2.1506	
15 minute winter	U5 DOCK	21.000	U5 2	-22.3	-1.265	-1.541	0.5221	
15 minute winter	U5 2	21.001	U5 3	182.0	1.375	0.798	4.7665	
30 minute winter	1	10.000	2	31.0	1.835	1.012	0.7480	
15 minute winter	9	11.006	10	-19.0	0.666	-0.518	1.6042	
15 minute winter	10	11.007	11	36.3	0.924	0.991	1.5567	
15 minute winter	11	11.008	12	54.7	1.375	1.494	1.5140	
15 minute summer	U4 7	17.002	U4 8	171.2	1.201	0.751	3.4420	
30 minute summer	U5 3	21.002	U5 7	246.8	0.898	0.508	9.2289	
15 minute winter	U1 5	5.004	U 1 POND	1030.7	3.027	1.618	11.9292	
15 minute summer	U1 6	7.000	U1 8	-16.1	-0.265	-0.087	4.6844	
15 minute summer	U1 DOCK	9.000	U1 8	-3.0	-0.180	-0.211	0.3786	
15 minute winter	U1 8	7.001	U1 9	274.6	2.299	0.971	3.1780	
15 minute winter	U1 9	7.002	U 1 POND	273.1	3.351	0.555	3.2303	
15 minute winter	U1 12	6.002	U1 13	273.9	1.376	0.692	2.9954	
15 minute winter	U1 13	6.003	U1 14	274.2	1.682	0.801	5.2781	
15 minute winter	U1 14	6.004	U 1 POND	274.7	2.326	0.406	6.6865	
15 minute winter	2	5.006	3	52.5	1.399	0.686	1.4765	
15 minute winter	4	5.008	5	113.1	1.755	0.873	3.7948	
15 minute winter	6	5.010	7	265.0	3.120	0.542	6.1524	

Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 99.67%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	U3 2	11	203.027	1.047	422.4	7.3432	0.0000	SURCHARGED
15 minute winter	U3 3	11	202.442	0.543	519.7	1.8012	0.0000	SURCHARGED
15 minute winter	U3 6	10	201.692	0.134	32.2	0.2310	0.0000	OK
15 minute winter	U3 4	11	201.434	0.455	541.0	0.8040	0.0000	OK
15 minute winter	U3 7	11	202.484	1.184	190.7	5.3504	0.0000	SURCHARGED
15 minute winter	U3 8	11	201.087	0.338	723.2	0.5974	0.0000	OK
960 minute winter	U4 3	945	200.996	1.496	10.3	6.6108	0.0000	FLOOD RISK
960 minute winter	19 A	855	197.279	0.524	5.0	0.5928	0.0000	OK
15 minute winter	24A	12	194.374	0.711	22.0	0.8041	0.0000	SURCHARGED
15 minute winter	28	12	194.351	1.960	950.7	5.5678	0.0000	SURCHARGED
1440 minute winter	U6 1	1440	193.426	0.251	2.5	0.5900	0.0000	SURCHARGED
15 minute winter	U6 4	11	193.498	0.323	52.5	0.7456	0.0000	SURCHARGED
1440 minute winter	U6 5	1440	193.426	0.251	2.2	0.5570	0.0000	SURCHARGED
1440 minute winter	U6 6	1440	193.426	0.730	9.9	2.2582	0.0000	SURCHARGED
15 minute winter	U6 2	11	194.014	1.139	95.2	3.7129	0.0000	FLOOD RISK
15 minute winter	U6 3	12	193.454	0.875	100.1	1.2983	0.0000	SURCHARGED
15 minute winter	U5 1	12	196.165	1.365	110.3	4.7415	0.0000	FLOOD RISK
15 minute winter	U5 5	12	196.232	1.771	398.4	10.6954	0.0000	SURCHARGED
15 minute winter	U5 7	12	195.766	1.978	856.2	4.2001	0.0000	SURCHARGED
15 minute winter	U2 1	11	206.817	1.317	96.6	4.5869	0.0000	FLOOD RISK
15 minute winter	U2 DOCK 1	10	206.500	0.700	119.1	3.0492	22.3055	FLOOD
15 minute winter	U2 3	11	206.686	1.374	174.3	2.3924	0.0000	SURCHARGED
15 minute winter	U2 5	11	206.470	1.365	332.9	3.4742	0.0000	SURCHARGED
15 minute winter	U2 8	11	206.374	1.451	999.8	11.3970	0.0000	SURCHARGED
1440 minute winter	U2 9	1440	206.363	1.507	74.7	14.5447	0.0000	SURCHARGED
Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	U3 2	11.001	U3 3	407.1	2.570	2.276	4.1514	
15 minute winter	U3 3	11.002	U3 4	509.9	3.584	0.904	3.1640	
15 minute winter	U3 6	12.001	U3 4	31.2	1.327	0.600	0.4815	
15 minute winter	U3 4	11.003	U3 8	540.5	2.737	0.785	4.5128	
15 minute winter	U3 7	13.001	U3 8	182.7	2.595	1.986	2.5442	
15 minute winter	U3 8	11.004	U3 POND	723.5	4.653	0.557	5.5910	
15 minute winter	U4 3	16.000	U4 5	149.7	2.127	1.348	0.7152	
1440 minute winter	19 A	17.007	19	5.0	2.215	0.023	0.1407	
15 minute winter	24A	1.025	24	30.9	2.552	0.092	0.4917	
15 minute winter	28	1.030	29	949.8	2.158	1.728	16.8175	
15 minute summer	U6 1	25.000	31	52.4	1.998	0.664	0.7937	
15 minute winter	U6 4	26.000	U6 6	49.7	1.517	0.735	0.9540	
15 minute winter	U6 5	27.000	U6 6	47.7	1.490	0.650	0.8101	
15 minute winter	U6 6	26.001	32	204.8	2.909	1.011	0.7896	
15 minute winter	U6 2	28.000	U6 3	82.1	2.065	1.215	0.6989	
15 minute winter	U6 3	28.001	34	98.3	2.471	1.341	1.2723	
15 minute summer	U5 1	22.000	U5 2	94.1	1.818	0.712	1.9867	
15 minute summer	U5 5	23.001	U5 6	348.5	1.418	0.718	7.7399	
15 minute winter	U5 7	21.003	U5 10	857.2	3.044	1.765	6.6856	
15 minute winter	U2 1	1.000	U2 2	95.5	0.603	0.594	7.1746	
15 minute winter	U2 DOCK 1	2.000	U2 2	-52.3	-1.315	-0.721	0.8476	
30 minute summer	U2 3	1.002	U2 4	186.1	1.174	1.158	6.1462	
15 minute summer	U2 5	1.004	U2 6	354.0	0.805	0.575	8.2553	
15 minute winter	U2 8	1.007	U2 9	970.4	1.531	1.094	21.2099	
15 minute winter	U2 9	1.008	U2 10	1522.1	2.402	1.716	22.4666	

Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 99.67%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
1440 minute winter	U2 10	1440	206.363	1.578	91.1	11.8064	0.0000	SURCHARGED
1440 minute winter	U2 11	1680	204.351	0.245	4.8	0.2768	0.0000	SURCHARGED
1440 minute winter	U2 13	1680	204.341	0.892	4.8	1.0085	0.0000	SURCHARGED
1440 minute winter	U2 14	1680	204.336	1.157	4.8	3.4562	0.0000	SURCHARGED
15 minute winter	U2 15	10	205.487	0.187	96.6	0.5940	0.0000	OK
15 minute winter	U2 16	10	204.641	0.246	192.1	0.6704	0.0000	OK
1440 minute winter	U2 18	1680	204.336	0.934	52.1	1.3373	0.0000	SURCHARGED
15 minute winter	U5 10	12	195.166	1.497	882.9	3.1462	0.0000	SURCHARGED
1440 minute winter	U1 4	1440	209.519	1.319	46.2	7.4021	0.0000	SURCHARGED
15 minute winter	U1 1	11	210.401	1.326	303.9	9.3403	0.0000	SURCHARGED
15 minute winter	U1 2	11	210.092	1.535	515.7	8.1324	0.0000	SURCHARGED
15 minute winter	U1 3	11	209.824	1.374	763.0	7.3450	0.0000	SURCHARGED
15 minute winter	U1 10	11	209.698	1.048	144.8	4.1159	0.0000	SURCHARGED
1440 minute winter	U1 11	1440	209.519	1.269	8.3	3.6123	0.0000	FLOOD RISK
15 minute summer	U5 8	1	195.300	0.000	0.0	0.0000	0.0000	OK
15 minute winter	U5 9	13	195.164	0.007	1.2	0.0085	0.0000	OK

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	U2 10	1.009	U2 POND 1	1894.7	4.203	1.647	43.0345	
1440 minute winter	U2 11	1.011	U2 12	4.8	0.652	0.132	1.9215	
30 minute winter	U2 13	1.013	U2 14	-8.4	-0.233	-0.228	2.1570	
15 minute winter	U2 14	1.014	U2 POND 2	-50.1	-0.445	-0.062	14.1976	
15 minute winter	U2 15	4.000	U2 16	94.6	2.138	0.656	1.9938	
15 minute winter	U2 16	4.001	U2 17	188.3	1.349	0.600	11.7194	
15 minute winter	U2 18	4.003	U2 POND 2	379.9	3.433	1.204	3.7464	
15 minute winter	U5 10	21.004	28	882.0	3.131	0.680	9.7914	
15 minute winter	U1 4	5.003	U1 5	991.1	2.252	1.393	36.2723	
15 minute winter	U1 1	5.000	U1 2	286.9	1.811	0.793	4.6587	
15 minute winter	U1 2	5.001	U1 3	514.5	1.827	1.299	8.9672	
15 minute winter	U1 3	5.002	U1 4	766.2	2.720	1.935	8.8407	
15 minute winter	U1 10	6.000	U1 11	137.3	1.950	1.514	4.2167	
15 minute winter	U1 11	6.001	U1 12	183.6	0.897	0.464	3.4858	
15 minute summer	U5 8	24.000	U5 9	0.0	0.000	0.000	0.0000	
15 minute winter	U5 9	24.001	U5 10	-1.2	0.337	-0.008	0.7868	

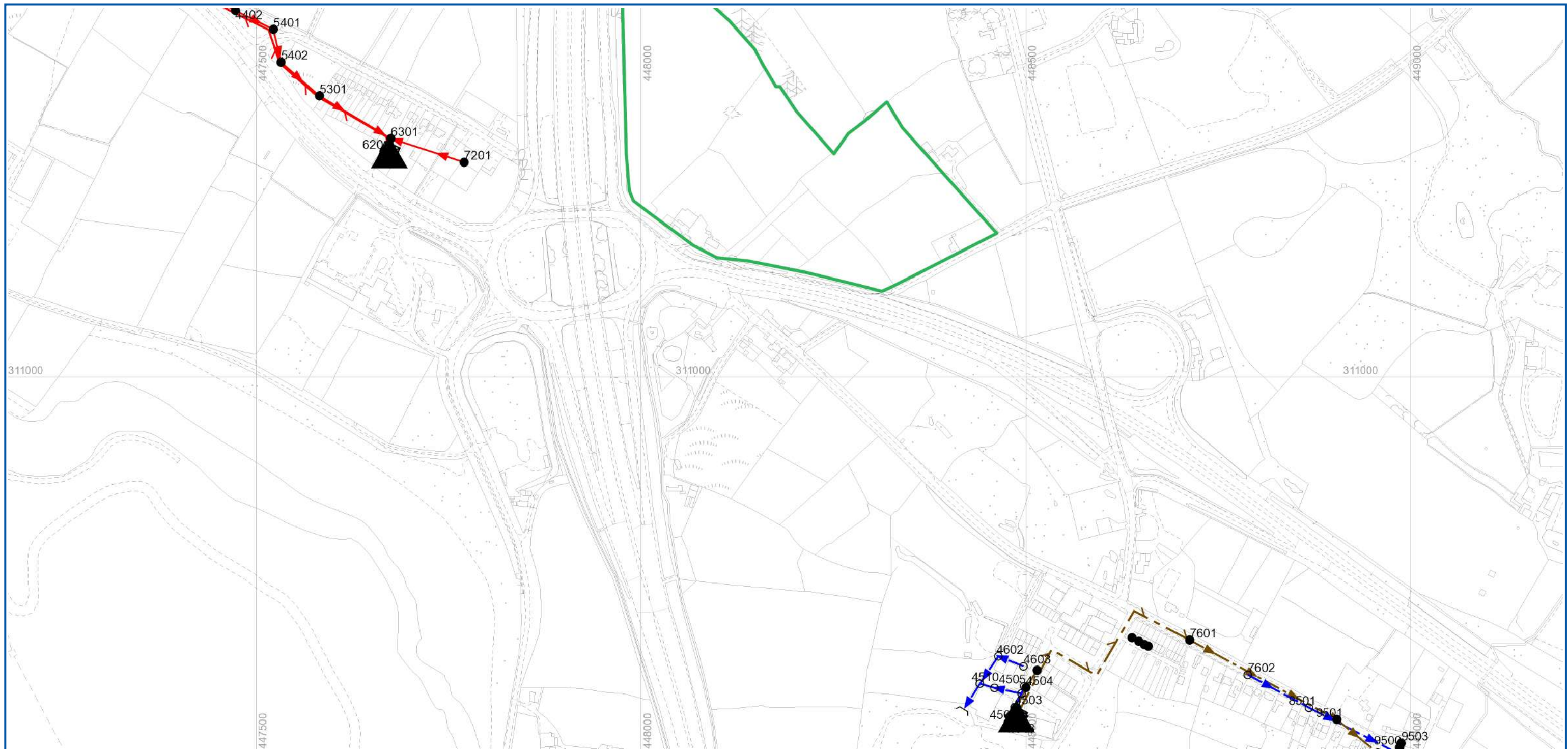
APPENDIX F – DRAINAGE INSPECTION & MAINTENANCE SCHEDULE

Maintenance Schedule	Required Action	Typical Frequency
Below Ground Drainage Pipes, Manholes, Outfall headwalls, ditches, trash screens etc		
Regular Maintenance	Lift covers and inspect manholes for evidence of debris and silt deposits and evidence of blockages (standing water). Carry out CCTV survey if required. Inspect ditches, trash screens, headwalls etc. and clear debris and silt deposits to avoid restriction to flow.	Quarterly or following significant rainfall events.
Remedial Actions	High pressure jetting and/or remove minor blockages and silt build up	As required – 20% loss of pipe cross-section
	Replace broken access covers, remove major blockages, repair structurally defective pipework	As required
Flow control chamber		
Regular Maintenance	Lift covers and inspect chamber for evidence of debris and silt deposits and evidence of blockages. Test bypass door operating correctly.	Quarterly or following significant rainfall events.
Remedial Actions	High pressure jetting and or remove minor blockages and silt build up	As required
	Replace broken access covers, remove major blockages, repair/replace defective flow control devices	As required
Linear channel drains and gullies		
Regular Maintenance	Lift access covers and inspect for silt/debris accumulation	Quarterly or following significant rainfall events.
Remedial Actions	Replace broken access covers, gratings	Annually
	High pressure jetting and/or remove minor blockages and silt build up	As required
Rainwater pipes		
Regular Maintenance	Inspect rainwater goods for evidence of leaking pipework	Monthly (or as required)
Occasional Maintenance	Remove rodding eyes and carry out high pressure jetting to remove any debris	Quarterly
Remedial Actions	Replace cracked / leaking pipework	As required
Ponds		
Regular Maintenance	Remove litter and debris	Monthly (or as required)
	Cut the grass – public areas	Monthly (during growing season)

Maintenance Schedule	Required Action	Typical Frequency
	Cut the meadow grass	Half yearly (spring, before nesting season, and autumn)
	Inspect marginal and bankside vegetation and remove nuisance plants (for first 3 years)	Monthly (at the start, then as required)
	Inspect inlets, outlets, banksides, structures, pipework etc for evidence of blockage and/or physical damage	Monthly
	Inspect water body for signs of poor water quality	Monthly (May – October)
	Inspect silt accumulation rates in any forebay and in main body of the pond and establish appropriate removal frequencies; undertake contamination testing once some build-up has occurred, to inform management and disposal options	Half yearly
	Check any mechanical devices, e.g. penstocks	Half yearly
	Hand cut submerged and emergent aquatic plants (at minimum of 0.1m above pond base; include max 25% of pond surface)	Annually
	Remove 25% of bank vegetation from water's edge to a minimum of 1m above water level	Annually
	Tidy all dead growth (scrub clearance) before start of growing season (Note: tree maintenance is usually part of overall landscape management contract)	Annually
	Remove sediment from any forebay.	Every 1 to 5 years, or as required
	Remove sediment and planting from one quadrant of the main body of ponds without sediment forebays.	Every 5 years, or as required
Occasional Maintenance	Remove sediment from the main body of big ponds when pool volume is reduced by 20%	With effective pre-treatment, this will only be required rarely, eg every 25–50 years
Remedial actions	Repair erosion or other damage	As required
	Replant, where necessary	As required
	Aerate pond when signs of eutrophication are detected	As required

Maintenance Schedule	Required Action	Typical Frequency
	Realign rip-rap or repair other damage	As required
	Repair / rehabilitate inlets, outlets and overflows	As required
Attenuation Tank (Maintenance activities recommended by the manufacturer should be added to this schedule where not included)		
Regular maintenance	Remove litter and debris and inspect for sediment, oil and grease accumulation.	Six monthly
	Change the filter media	As recommended by manufacturer
Remedial actions	Replace malfunctioning parts or structures	As required
Monitoring	Inspect for evidence of poor performance	Six monthly
	Inspect sediment accumulation rates and filter media, and establish appropriate replacement frequencies.	Monthly during first half of the year, then every six months
Pumps (Maintenance activities recommended by the manufacturer should be added to this schedule where not included)		
Regular Maintenance	Ensure sumps and Floats are clean	Quarterly
	Assess the condition of the pipework for wear or damage	Quarterly
	Lift covers and inspect manholes for evidence of debris and silt deposits and evidence of blockages - quarterly	Quarterly
	Examine the condition of pump including impeller, seals, valves and pipework (as recommended by the manufacturer)	Quarterly
Remedial Actions	Consult pump specialist	As Required
	Service and replace and elements of the system	Six Monthly

APPENDIX G – EXISTING SEWER PLANS



LEGEND

Ancillary

- Balancing Lagoon
- Grease Trap
- Interceptor
- Screen

Chamber

- Flushing Chamber
- Soakaway
- Overflow

Fitting

- Blind Shaft
- Facility Connector
- Head Node
- Lamphole
- Sewerage Air Valve
- Sewerage Chemical Injection Point
- Sewerage Hatch Box
- Sewerage Pressure Washout
- Vent Column
- Waste Water Outfall

Manhole

- Penstock
- Sewerage Isolation Valve
- Sewerage Non Return Valve
- Foul Bifurcation Manhole
- Combined Bifurcation Manhole
- Surface Water Bifurcation Manhole
- Dual Manhole
- Foul Single Manhole
- Combined Single Manhole
- Surface Water Single Manhole
- Twin Manhole
- Foul Adopted Manhole
- Combined Adopted Manhole
- Surface Adopted Manhole
- Transferred Manhole
- Unsurveyed Manhole

Storage

- Null STW
- Adopted Sewer
- None
- Highway Drain
- Null Private
- S24
- Disposal Site
- Off-Line Waste Water Storage
- On-Line Waste Water Storage
- Wet Well

Waste Water Process Structure

- Sewage Treatment Point
- Sewage Treatment Structure
- Sludge Treatment Point
- Sludge Treatment Structure

Gravity Sewer Pipe

- Foul Gravity Sewer
- Combined Gravity Sewer
- Surface Water Gravity Sewer
- S104 Surface Water Gravity Sewer
- S104 Combined Gravity Sewer

Pressure Sewer Pipe

- S104 Foul Pressure Sewer
- Private Surface Water Gravity Sewer
- Private Combined Gravity Sewer
- Private Foul Gravity Sewer
- Surface Water Unserved Pipe
- Combined Unserved Pipe
- Foul Unserved Pipe
- Transferred Surface Water Sewer
- Transferred Combined Sewer
- Transferred Foul Sewer
- Disposal Pipe
- Overflow Pipe
- Culverted Water Course
- Waste Internal Site Pipe
- Sewer Service Connection
- Gravity Sewer Others
- Surface Water Pressure Sewer
- Combined Pressure Sewer
- Foul Pressure Sewer
- S104 Surface Water Pressure Sewer
- S104 Combined Pressure Sewer
- Private Surface Water Pressure Sewer
- Private Combined Pressure Sewer
- Private Foul Pressure Sewer
- Surface Water Vacuum Sewer
- Foul Vacuum Sewer
- Combined Vacuum Sewer
- S104 Surface Water Vacuum Sewer
- S104 Combined Vacuum Sewer
- S104 Foul Vacuum Sewer
- Private Surface Water Vacuum Sewer
- Private Combined Vacuum Sewer
- Private Foul Vacuum Sewer
- Surface Water Siphon
- Combined Siphon
- Foul Siphon
- Private Surface Water Siphon
- Private Combined Siphon
- Private Foul Siphon
- S104 Surface Water Siphon
- S104 Combined Siphon
- S104 Foul Siphon

Operational Site

- Waste Water Pump
- S104
- Transferred Asset
- S102

Service Pipe

- Surface Water Unserved Pipe
- Combined Unserved Pipe
- Foul Unserved Pipe
- Disposal Pipe
- Surface Water Lateral Drain
- Combined Lateral Drain
- Foul Lateral Drain
- S104 Surface Water Lateral Drain
- S104 Combined Lateral Drain
- S104 Foul Lateral Drain
- Private Surface Water Lateral Drain
- Private Combined Lateral Drain
- Private Foul Lateral Drain
- Transferred Surface Water Lateral Drain
- Transferred Combined Lateral Drain
- Transferred Foul Lateral Drain

Print500mLine

MATERIALS

-	- NONE
AC	- ASBESTOS CEME
BR	- BRICK
CC	- CONCRETE BOX CULVERT
CI	- CAST IRON
CO	- CONCRETE
CSB	- CONCRETE SEGMENTS (BOLTED)
CSU	- CONCRETE SEGMENTS (UNBOLTED)
DI	- DUCTILE IRON
GRP	- GLASS REINFORCED PLASTIC
MAC	- MASONRY IN REGULAR COURSES
MAR	- MASONRY RANDOMLY COURSED
PE	- POLYETHYLENE
PF	- PITCH
PP	- POLYPROPYLENE
PSC	- PLASTIC STEEL COMPOSITE
PVC	- POLYVINYL CHLORIDE
RPM	- REINFORCED PLASTIC MATRIX
SI	- SPUN (GREY) IRON
ST	- STEEL
U	- UNKNOWN
VC	- VITRIFIED CLAY
XXX	- OTHER

CATEGORIES

W - WEIR
C - CASCADE
DB - DAMBOARD
SE - SIDE ENTRY
FV - FLAP VALVE
BD - BACK DROP
S - SIPHON
D - HIGHWAY DRAIN
S104 - SECTION 104

SHAPE

C - CIRCULAR
E - EGG SHAPED
O - OTHER
R - RECTANGLE
S - SQUARE
T - TRAPEZOIDAL
U - UNKNOWN

PURPOSE

C - COMBINED
E - FINAL EFFLUENT
F - FOUL
L - SLUDGE
S - SURFACE WATER



Severn Trent Water Limited
Asset Data Management
PO Box 5344
Coventry
CV3 9FT
Telephone: 0345 601 6616

SEWER RECORD

O/S Map Scale: 1:5,000

This map is centred upon:

Date of Issue: 30-03-20

X: 448187.56 **Y:** 310997.73

Disclaimer Statement:

- 1 Do not scale off this Map.
- 2 This plan and any information supplied with it is furnished as a general guide, is only valid at the date of issue and no warranty as to its correctness is given or implied. In particular this plan and any information shown on it must not be relied upon in the event of any development or works (including but not limited to excavations) in the vicinity of SEVERN TRENT WATER assets or for the purposes of determining the suitability of a point of connection to the sewerage or distribution systems.
- 3 On 1 October 2011 most private sewers and private lateral drains in Severn Trent Water's sewerage area, which were connected to a public sewer as at 1 July 2011, Transferred to the ownership of Severn Trent Water and became public sewers and public lateral drains. A further transfer takes place on 1 October 2012. Private pumping stations, which form part of these sewers or lateral drains, will transfer to ownership of Severn Trent Water on or before 1 October 2016. Severn Trent Water does not possess complete records of these assets. These assets may not be displayed on the map.

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APPENDIX H – SEVERN TRENT WATER CORESPONDANCE

WONDERFUL ON TAP



BWB Consulting,
11 Portland Street (Aytoun St Side),
Manchester,
M1 3HU

F.A.O: Matthew Bailey

18/04/2024

Dear Sir/Madam,

Severn Trent Water Ltd
Leicester Water Centre
Gorse Hill
Anstey
Leicester
LE7 7GU

www.stwater.co.uk

Email:
Network.Solutions@SevernTrent.co.uk
Page Barot
Tel:
Our ref: 1113425

Proposed Development: (18 Commercial units – 4.22 l/s) Land North East of Junction 22, M1, Markfield, LE67 9PX, 448150, 311450

I refer to your 'Development Enquiry Request' in respect of the above named site. Please find enclosed the sewer records that are included in the fee together with the Supplementary Guidance Notes (SGN) which refer to surface water disposal from development sites.

Protective Strip

No public sewers within site boundary.

Due to a change in legislation on 1 October 2011 there may be former private sewers on the site which have transferred to the responsibility of Severn Trent Water Ltd, which are not shown on the statutory sewer records, but are located in your client's land. These sewers would require protective strips of 3 metres either side of the sewer's centreline that we will not allow to be built over. If such sewers are identified to be present on the site, please contact us for further guidance.

Please note: there is no guarantee that you will be able to build over or close to any Severn Trent sewers, and where a diversion is required there is no guarantee that you will be able to undertake those works on a self-lay basis. Every approach to build near to or divert our assets has to be assessed on its own merit and the decision of what is or isn't permissible is taken based on the risk to the asset and the wider catchment it serves. It is vital therefore that you contact us at the earliest opportunity to discuss the implications of our assets crossing your site. Failure to do so could significantly

affect the costs and timescales of your project if it transpires diversionary works need to be carried out by Severn Trent.

Foul Water Drainage

Although MH - SK47117201 is closest to the site, connection to this network will require crossing the motorway and the network is well known within Severn Trent due to the capacity issues within this area. I have liaised with our planning team and there currently isn't a scheme taking place however one was previously created for this area but this has since been confirmed that this is unviable.

The 150mm foul sewer, MH SK48107601 along Ashby Road would be the most suitable connection point for your development. Connection to this point would require a pumped solution due to the inconsistencies of the land. As the sewer capacity is reduced in this area, modelling will be required to see if the network can assist with the additional flows.

However, we are undergoing a prioritisation process of all investment requirements and emerging risks from growth on our network and treatment works as we build our plan for the coming Asset Management Plan period (2025-2030) and beyond. We will pass details of your site over for consideration and feedback if anything arises which is of concern. We will let you know as soon as possible if anything will affect your connection point or timescales, should we need to make representation to the Planning Authority to apply conditions relating to phasing or occupation of the site.

Surface Water Drainage

Under the terms of Section H of the Building Regulations 2000, the disposal of surface water by means of soakaways should be considered as the primary method. If these are found to be unsuitable, satisfactory evidence will need to be submitted. The evidence should be either percolation test results or by the submission of a statement from the SI consultant (extract or a supplementary letter).

Severn Trent Water expects all surface water from the development to be drained in a sustainable way to the nearest watercourse or land drainage channel, subject to the developer discussing all aspects of the developments surface water drainage with the Local

Lead Flood Authority (LLFA). Any discharge rate to a watercourse or drainage ditch will be determined by the LLFA / EA.

Note, STW will have to be satisfied that all sustainable option have been exhausted before allowing discharge to the public network.

Sewer records show a drainage system that runs east of the site. It is advised to pursue a connection to this if feasible, with flow rates to be agreed by the LLFA.

Please note, there isn't any surface water sewers within proximity of the site and under no circumstances will we accept a Surface water flow into a combined/foul sewer.

Connections

For any new connections (including the re-use of existing connections) to the public sewerage system, the developer will need to submit a Section 106 application form. Our Developer Services department are responsible for handling all new connections enquiries and applications. To contact them for an application form and associated guidance notes please call 0800 7076600 or download from www.stwater.co.uk.

Please quote the above reference in any future correspondence (including e-mails) with STW Limited. Please note that Developer Enquiry responses are only valid for 6 months from the date of this letter.

Yours sincerely

A handwritten signature in black ink, appearing to read 'Page Barot', with a stylized flourish at the end.

Page Barot
Network Solutions
Developer Services