

# **Land off Watmore Lane, Winnersh**

## **SuDS Maintenance Management Plan**

For

Wokingham Borough Council

Project Number:

SE2326

January 2026

Iesis Civils

t: 0207 600 2912

w: [www.iesisgroup.com](http://www.iesisgroup.com)

a: 20 IRONMONGER LANE, LONDON EC2V 8EP

## **Introduction**

Iesis have been appointed by Taylor Wimpey West London to complete the SuDS maintenance and Management Plan for the above scheme. This technical note is aimed at assisting with the discharge Condition 8 pertaining to the outline planning permission 230208 and supporting the reserved matters application. Planning permission was granted approval in March 2024.

The approved Flood Risk Assessment (FRA) completed by SLR, reference 425.V62212.00001, dated January 2023 was submitted as part of the outline planning application.

The development itself comprises of 233 residential dwellings.

## **Design overview**

The proposed surface water network consists of traditional pipe networks (chambers, pipes and trapped gullies) linking into detention basins and open swales. The system ultimately discharges into an existing river located to the east of the development site, the itself river flows north. Flow control devices are proposed in three locations, including on the final outfall from the northern attenuation basin to optimize the storage throughout the basins and swale. Prior to discharge in to the existing river, the proposed flows from the site will not exceed the allowable discharge rate outlined within the approved FRA. The discharge rates have been summarised below;

*AEP 50% (2 YEAR RETURN PERIOD) = 20 l/s*

*AEP 3.3% (30 YEAR RETURN PERIOD) = 35 l/s*

*AEP 1% (100 YEAR RETURN PERIOD) = 49 l/s*

*AEP 1%+40%CC (100 YEAR RETURN PERIOD + 40%CC) = 69 l/s*

The surface water network including the attenuation basin and cellular storage are designed to cater for a 1 in 100 year return storm plus a 40% allowance for climate change, and an additional 10% for urban creep.

The key features of the Surface Water Drainage System will be maintained long term by the appointed Management Company in accordance with the drainage suppliers' requirements/recommendations.

A more detailed description of the surface water strategy can be found in Iesis's drainage technical note, which will issued at the same time as this report, which is aimed at assisting with the discharge Condition 7 pertaining to the outline planning permission 230208 and supporting the reserved matters application.

## **Surface Water Drainage Management Plan**

Outlined below are the inspection and maintenance specification for the surface water drainage, which the appointed Management Company will own and maintain.

The actions outlined below are common to all types of surface water drainage, and are the minimum standard of maintenance and inspection; indeed the Management Company may find it beneficial to vary the maintenance regularity at some sites, and to include extra tasks such as:

- To record the measurements of sediment levels;
- To make a photographic record of problem areas;
- To identify and clear areas where refuse is problem;

| SuDs Feature                                                | Ownership/Maintenance |
|-------------------------------------------------------------|-----------------------|
| Surface Water Plot Drainage (pipes and inspection chambers) | Private               |
| Surface Water Sewers (pipes and Manholes)                   | Local Water Authority |
| Trapped Highway Gullies                                     | Highway Authority     |
| Flow Control Devices                                        | Management Company    |
| Swale and Basins                                            | Management Company    |

The proposed surface water drainage network has been designed in accordance with the approved planning proposals, Wokingham Borough Council requirements and current design guides/best practice.

### **Pipe Systems, Gullies and Manholes**

Drainage systems comprising of pipe runs, manholes and gullies are a more conventional method of draining surface water runoff from highway areas.

Surface water falling on impermeable areas, such as roads and footways, drain at surface level to gullies which convey the water below ground to the main drainage network. Manholes are also provided on the main drainage system at regular intervals, changes in sewer direction, gradient or pipe diameter. This type of drainage system can be accessed from the gullies or manholes for routine inspection and maintenance.

Gullies are trapped such that on collecting and conveying surface water they trap sediment and prevent any unpleasant odours returning from the sewers.

*Pipe Systems, Gullies and Manholes Maintenance Activities & Frequency*

| Maintenance Category   | Maintenance Activity                                             | Comments             | Frequency                                       |
|------------------------|------------------------------------------------------------------|----------------------|-------------------------------------------------|
| Routine Maintenance    | Inspect and identify any areas that are not operating correctly. | Gullies and manholes | Monthly (for the first 3 months) then annually. |
|                        | Remove debris from gratings, sumps / silt traps                  |                      | Annually                                        |
| Infrequent Maintenance | Clear blockages                                                  | Piped system         | As required.                                    |

*Pipe Systems, Gullies and Manholes Inspection & Frequency*

| Inspection Activity         | Comments                                                                                                          | Frequency                                    |
|-----------------------------|-------------------------------------------------------------------------------------------------------------------|----------------------------------------------|
| Clearing of gullies / sumps | Gullies found to be non-functioning/blocked on annual inspection will be noted and cleared at 6 monthly intervals | Annually (or 6 monthly if blocked annually). |
| Cleaning / jetting          | Pipes and manholes                                                                                                | When required.                               |

## Headwalls

Cleaning outfalls and ditches is a simple way to improve drainage systems.

Blocked outfalls can cause the whole drainage system to fail (particularly in flat areas), resulting in poor drainage, pipe siltation and, potentially, blow holes. However, they can often be cleared quickly with a spade.

Ditches are best cleared in autumn to minimise soil damage.

A ditch will function if it has stable banks, the overall gradient is consistent (so it does not reduce drainage efficiency) and it is deep enough to allow drainage outfalls to discharge.

With respect to the maintenance of any exposed surfaces of concrete components, only routine (Annual) cleaning may be necessary using clean water and a power washer/ stiff brush should suffice. Concrete units are often expected to "weather" and some coverage will help them to blend into their environment. If damage to the structure of any pre-cast concrete components occurs we recommend their replacement not repair. If there is minor damage to corners during their normal life by grass cutting equipment etc. then repair with an epoxy compound such as 'Mason Mate 0868PR380 Polyester Resin'

To dispose of any Pre-Cast concrete components the preferred method is to recycle the material by crushing and grading, but if the quantity is too small to be cost effective then disposal in conventional landfill is acceptable as all the concrete components are inert with regard to having any environmental impact.

With regards to the grilles and handrails, as a minimum annual / bi-annual visual checks are basic recommendations. If gratings are in a water course subject to a higher level of debris/weed, then more regular checks may be required.

Clearing of debris/weeds from the grate will ensure no disruption to the flow, or backing up of the water course. Handrails should also only require a visual inspection - annually or at the same time as the headwall and grates.

The headwalls within the site are intended to be included within the management company's scope. It is anticipated that the final headwall within the adjacent field will be adoptable by the water authority.

### **Basins and Swales (Lined)**

Ponds are permanent water SuDS that are used in the later stages of the treatment train, and they are seen as site or regional controls. Ponds attenuate the treatment of the runoff through sedimentation and biological degradation.

The safety designs of the pond include shallow side slopes (maximum 1:3), a maximum depth of 1.0 Meters.

In addition, life saving equipment, and safety signs such as "Danger no swimming", "Danger deep water" as well as seasonal (ice) signs, are essential. Safety equipment should, of course, be easily accessible and safety signs should be highly visible and located around the perimeter of the ponds.

Ponds are visually pleasing and offer various types of planting, such as woodland and manicured parkland around the perimeter of the barrier or fenced off area, aquatic vegetation in the permanent pool, as well as ornamental shrubs.

Prior to discharging to the basins, the storm water drainage is collected by trapped gulleys catchpit chambers to catch heavy sedimentation to enhance the treatment train.

The water quality can be further improved, and path flow increased by using a low flow channel.

Hard engineered headwall structures with inspection and maintenance man entry chambers are used to house the Inlet and outlet structures. Inlet / outlet pipes may be either above or below the permanent water level and include flow dissipation measures such as rip-rap or Reno mattresses to minimise scour and erosion.

Emergency spillways for ponds are typically soft engineered grassed structures but may also be hard engineered using an outlet chamber and suitable flow control.

***Pond Maintenance Activities & Frequency***

| <b>Maintenance Category</b> | <b>Maintenance Activity</b>                                   | <b>Comments</b>                                                                                                                                                                                                  | <b>Frequency</b>                                        |
|-----------------------------|---------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------|
| Routine Maintenance         | Litter and debris removal.                                    | Litter & debris to be removed prior to any grass cutting activity (of perimeter areas) to minimise risk of shredding litter. Particular attention should be paid to inlet/outlet pipes and grilles (if in place) | Monthly.                                                |
|                             | Grass cutting: landscaped areas, spillways and access routes. | All cuttings to be removed from SUDS component.                                                                                                                                                                  | Monthly (during growing season) or as required.         |
|                             | Grass cutting: meadow grass.                                  | All cuttings to be removed from SUDS component.                                                                                                                                                                  | Half yearly (Spring before nesting season, and Autumn). |

|                        |                                                                                                                 |                                                                                                                                                                                                       |                                                                        |
|------------------------|-----------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------|
|                        | Remove dead vegetation from pond edge.                                                                          |                                                                                                                                                                                                       | 1-3 years, or as required.                                             |
|                        | Hand cut submerged and emergent aquatic plants (at a minimum of 0.1m above pond base; max 1/3 of pond surface). | Thinning of emergent barrier vegetation. Areas of tall emergent plants obscuring visual inspection (for safety) of the open water should be regularly trimmed.                                        | As required.                                                           |
|                        | Cut and remove bank vegetation from waters edge to a minimum of 1m above water level.                           | To provide access to pond edge / emergent vegetation for maintenance and inspection.                                                                                                                  | Monthly (for first 3 years) then as required.                          |
|                        | Manage other vegetation and remove nuisance plants.                                                             | To include wetland plants in permanent pools. Weeding should be conducted by hand or use non-toxic and biodegradable weedkiller. Invasive species should be removed in accordance with best practice. | Monthly (at implementation) then as required.                          |
|                        | Tidy all dead growth before start of growing season.                                                            |                                                                                                                                                                                                       | Annually.                                                              |
|                        | Remove sediment from pre-treatment(if applicable).                                                              | When level reaches 50% of inspection chambers sump / forebay.                                                                                                                                         | Annually or as required.                                               |
|                        | Ice warning safety signage.                                                                                     |                                                                                                                                                                                                       | To be erected at the end of September and removed at the end of March. |
| Infrequent Maintenance | Re-seed or replant areas of poor vegetation growth.                                                             |                                                                                                                                                                                                       | As required.                                                           |
|                        | Prune and trim trees and remove cuttings.                                                                       | Where vegetation is planted as a barrier management of upward growth to encourage outward growth is necessary (after shrub seedlings are established).                                                | As required.                                                           |
|                        | Remove sediment from forebay.                                                                                   | If pond is lined care should be taken to protect the liner; this may include digger                                                                                                                   | As required.                                                           |

|                        |                                                                                   |                                                                                                                                                                                 |                                    |
|------------------------|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|
|                        |                                                                                   | buckets without teeth, etc.<br>Care should be exercised to limit re-suspension of sediment into main pool.                                                                      |                                    |
|                        | Remove sediment from main body of large ponds when pool volume is reduced by 20%. | Sediment level will be dependent upon presence and type of upstream SUDS, size and land use of catchment as well as local soil conditions. Refer to above point for pond liner. | >25 years usually, or as required. |
| Corrective Maintenance | Repair erosion or other damage.                                                   |                                                                                                                                                                                 | As required.                       |
|                        | Re-alignment of rip-rap.                                                          |                                                                                                                                                                                 | As required.                       |
|                        | Aerate pond when signs of eutrophication are detected.                            |                                                                                                                                                                                 | As required.                       |
|                        | Repair / rehabilitation of inlets, outlets and overflows.                         |                                                                                                                                                                                 | As required.                       |

### ***Pond Inspection & Frequency***

| <b>Inspection Activity</b>                                                    | <b>Comments</b>                                                                                                                         | <b>Frequency</b>         |
|-------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|--------------------------|
| Inspect structures for evidence of poor operation                             |                                                                                                                                         | Monthly.                 |
| Inspect banksides, structures, pipework etc. for evidence of physical damage. |                                                                                                                                         | Monthly.                 |
| Inspect water body for signs of eutrophication.                               |                                                                                                                                         | Monthly (May – October). |
| Inspect inlets and pre-treatment components for silt accumulation.            | Includes visual inspection of chamber (where present) and inspection of flow control.                                                   | Half yearly.             |
| Check mechanical devices within chambers.                                     | Includes cracking of seals on penstocks, testing Hydro-Brake by-pass door.                                                              | Half yearly.             |
| Safety signage and safety equipment inspection.                               | Ensure permanent and seasonal safety signs in place. Safety equipment should be inspected to ensure it is available and in good repair. | Monthly.                 |

### Flow Control Device

A flow control device usually comprises of a fixed orifice or an alternative form of throttle such as a vortex flow control unit. Its principal function is to throttle the discharge passed downstream and thereby retain water upstream within associated storage facilities.

This site utilises 3 no. vortex flow control devices (Hydrobrake or similar) within manhole chambers which contain a sump and associated parts for access and maintenance.

Normally, little maintenance is required as there are no moving parts within the Flow Control device and generally if blockages occur they do so at the intake and can be due to poor installation or upstream treatment of water entering the system.

Most vortex flow control are fitted with a pivoting by-pass door, which allows the manhole chamber to be drained down should blockages occur.

#### *Flow Control Devices Maintenance Activities & Frequency*

| Maintenance Category   | Maintenance Activity                                             | Comments | Frequency                                          |
|------------------------|------------------------------------------------------------------|----------|----------------------------------------------------|
| Routine Maintenance    | Inspect and identify any areas that are not operating correctly. |          | Monthly (for the first 3 months) then six monthly. |
|                        | Remove sediment from upstream silt trap (sump).                  |          | Six monthly, or as required.                       |
|                        | Hose down unit / chamber                                         |          | Six monthly, or as required.                       |
| Infrequent Maintenance | Clear blockages                                                  |          | As required.                                       |

### Conclusion

The proposed surface water drainage network has been designed in accordance with the approved planning proposals, Wokingham Council requirements and current design guides/best practice.

The surface water run-off from the site will discharge into an existing ditch located along the northern boundary at a restricted discharge rates listed above (as outlined in the approved FRA).

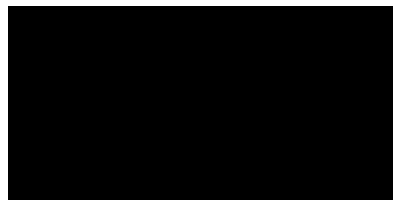
SuDs are to remain private and will be under Management Company responsibility. SuDs systems/components will be maintained long term in accordance with this Maintenance Plan and the supplier/manufacturers specifications.

### **Supporting Documents**

1. WHA Drainage layout
2. WHA Drainage details
3. Design Calculations

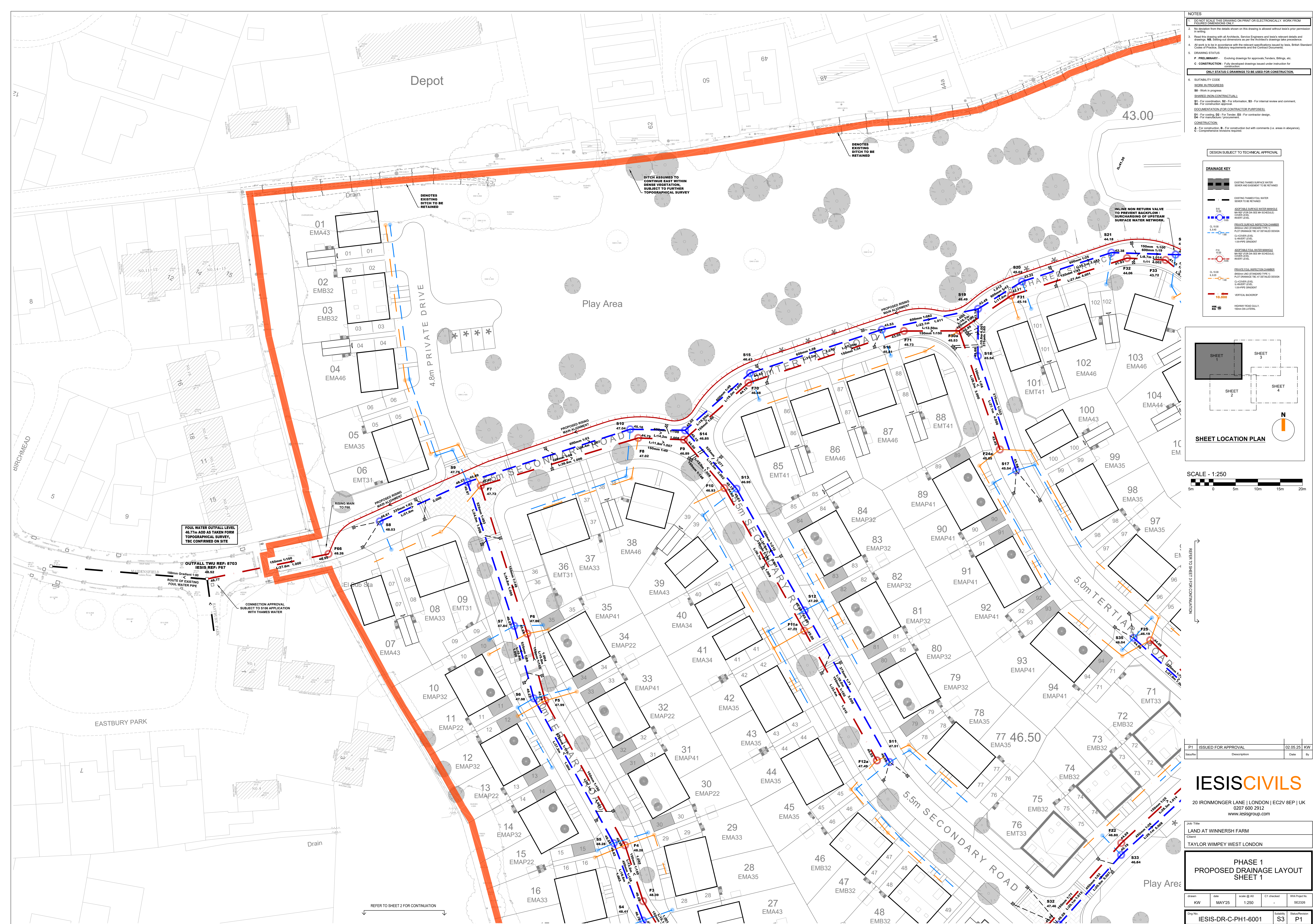
### **THE ABOVE IS SUBMITTED FOR ACCEPTANCE**

Signed:

A large black rectangular box redacting the signature.

Name: G Wilby  
Director  
WHA Ltd

Date: 23.01.2026



|            |                     |          |    |
|------------|---------------------|----------|----|
| P1         | ISSUED FOR APPROVAL | 02.05.25 | KW |
| Status/Rev | Description         | Date     | By |

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|           |                           |
|-----------|---------------------------|
| Job Title | LAND AT WINNERSH FARM     |
| Client    | TAYLOR WIMPEY WEST LONDON |

PHASE 1  
PROPOSED DRAINAGE LAYOUT  
SHEET 1

|             |                |                     |                 |                           |
|-------------|----------------|---------------------|-----------------|---------------------------|
| drawn<br>KW | date<br>MAY'25 | scale @ A0<br>1:250 | C1 checked<br>- | WHA Project No.<br>SE2326 |
|-------------|----------------|---------------------|-----------------|---------------------------|

|                     |             |                 |
|---------------------|-------------|-----------------|
| Org No.             | Suitability | Status/Revision |
| IESIS-DR-C-PH1-6001 | S3          | P1              |





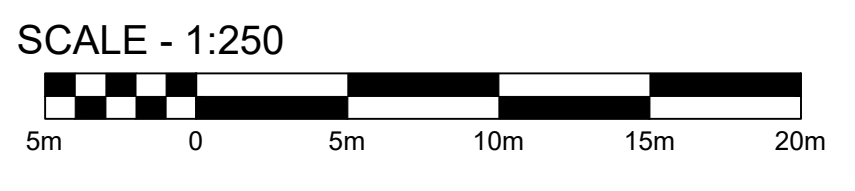
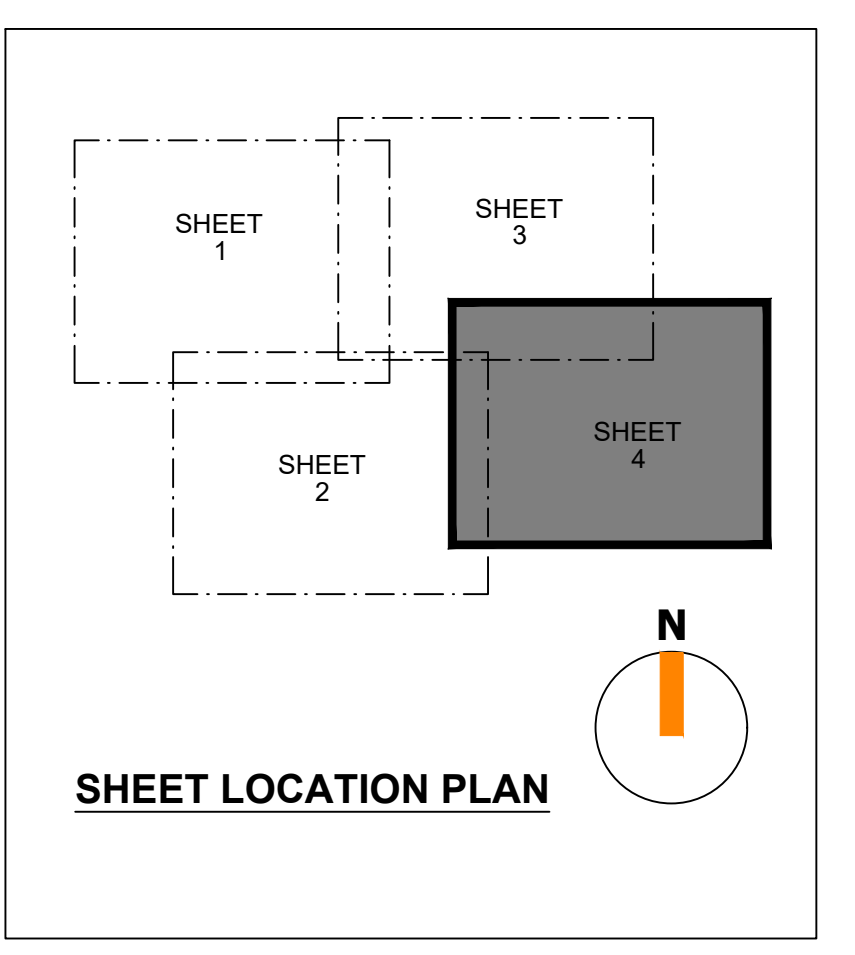


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  2. No deviation from the details shown on this drawing is allowed without the prior permission in writing.
  3. Read this drawing with all Architects, Service Engineers and local relevant details and drawings. NB: Bidding and dimensions as per the Architects drawings and specifications.
  4. All work is to be in accordance with the relevant specifications issued by local, British Standard Codes of Practice, Statutory requirements and the Contract Documents.
  5. DRAWING STATUS
- P. PRELIMINARY** - Evolving drawings for approvals, Tenders, Bids, etc.
- C. CONSTRUCTION** - Fully developed drawings issued under instruction for construction.
- ONLY STATUS C DRAWINGS TO BE USED FOR CONSTRUCTION**
- SUITABILITY CODE**
- WORK IN PROGRESS**
- SHARED (NON-CONTRACTUAL)**
- S1** - For construction, **S2** - For information, **S3** - For internal review and comment, **S4** - For construction approval.
- DOCUMENTATION (FOR CONTRACTOR PURPOSES)**
- D1** - For existing, **D2** - For tender, **D3** - For contractor design, **D4** - For final design (contractor).
- CONSTRUCTION**
- C** - For construction, **B** - For construction but with comments (i.e. areas in grey), **C** - Comprehensive revisions required.

**DESIGN SUBJECT TO TECHNICAL APPROVAL**

**DRAINAGE KEY**

- EXISTING THAMES SURFACE WATER SEWER AND GABRIEL TO BE RETAINED
- EXISTING THAMES FOL WATER SEWER TO BE RETAINED
- ADAPTABLE SURFACE WATER MANHOLE (M1) SEE (M1) FOR COVER LEVEL
- PRIVATE SURFACE INSPECTION CHAMBERS (S1) SEE (S1) FOR COVER LEVEL
- ADAPTABLE COIL WATER MANHOLE (M2) SEE (M2) FOR COVER LEVEL
- PRIVATE COIL INSPECTION CHAMBERS (S2) SEE (S2) FOR COVER LEVEL
- VERTICAL BACKDROP
- ADAPTABLE COIL WATER MANHOLE (M3) SEE (M3) FOR COVER LEVEL
- PRIVATE COIL INSPECTION CHAMBERS (S3) SEE (S3) FOR COVER LEVEL
- ADAPTABLE COIL WATER MANHOLE (M4) SEE (M4) FOR COVER LEVEL
- PRIVATE COIL INSPECTION CHAMBERS (S4) SEE (S4) FOR COVER LEVEL



|     |                     |          |    |
|-----|---------------------|----------|----|
| P2  | PLOT 126 UPDATED    | 23.01.26 | KW |
| P1  | ISSUED FOR APPROVAL | 02.05.25 | KW |
| Rev | Description         | Date     | By |

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**Job Title:**  
LAND AT WINNERSH FARM

**Client:**  
TAYLOR WIMPEY WEST LONDON

**PHASE 1  
PROPOSED DRAINAGE LAYOUT  
SHEET 4**

|       |        |       |            |                 |
|-------|--------|-------|------------|-----------------|
| Drawn | date   | scale | C1 checked | WMA Project No. |
| KW    | MAY 25 | 1:250 | -          | SE2326          |

|                     |           |                    |
|---------------------|-----------|--------------------|
| Orig No.            | Stability | Stability/Revision |
| IESIS-DR-C-PH1-6004 | S3        | P2                 |

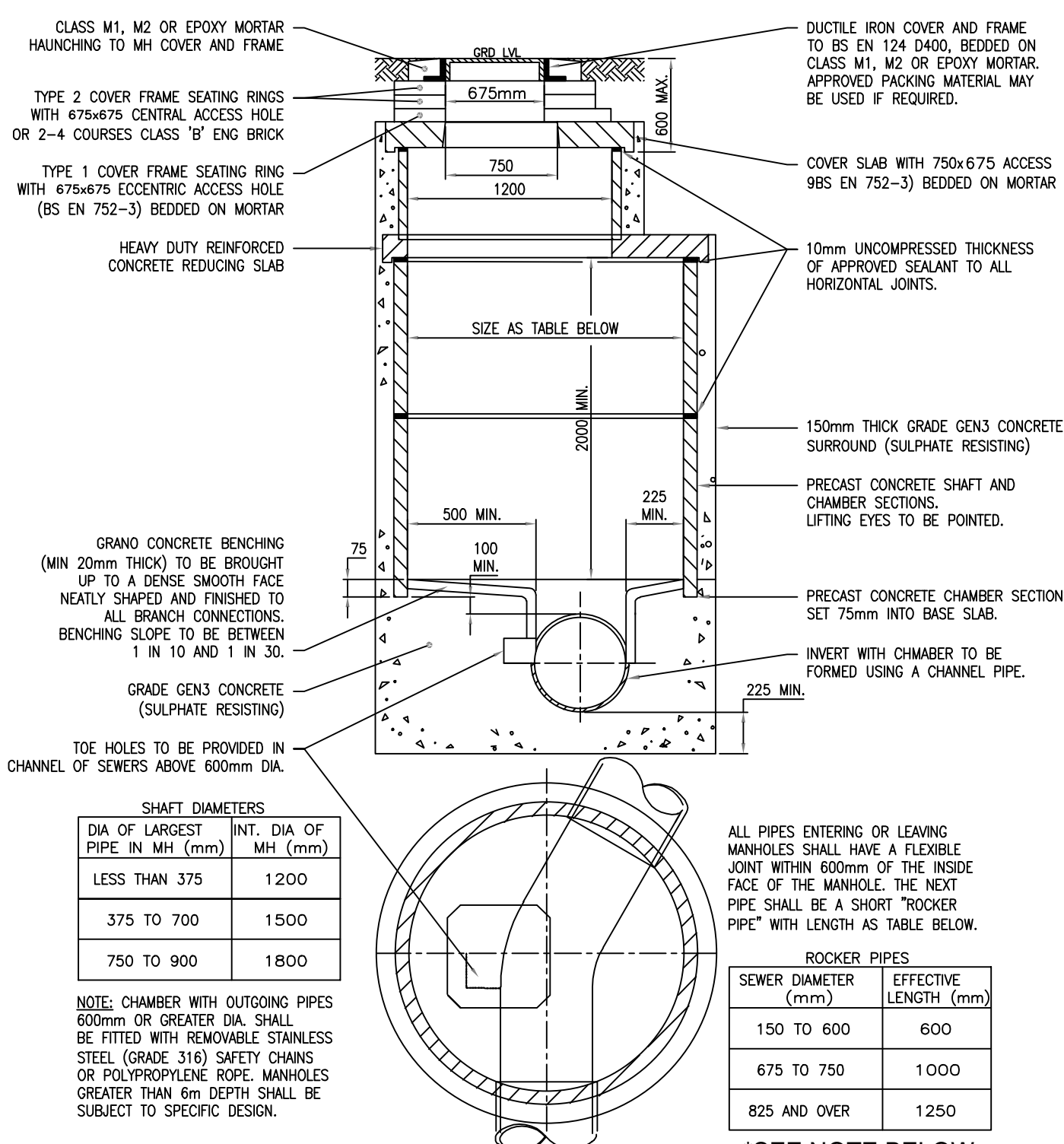
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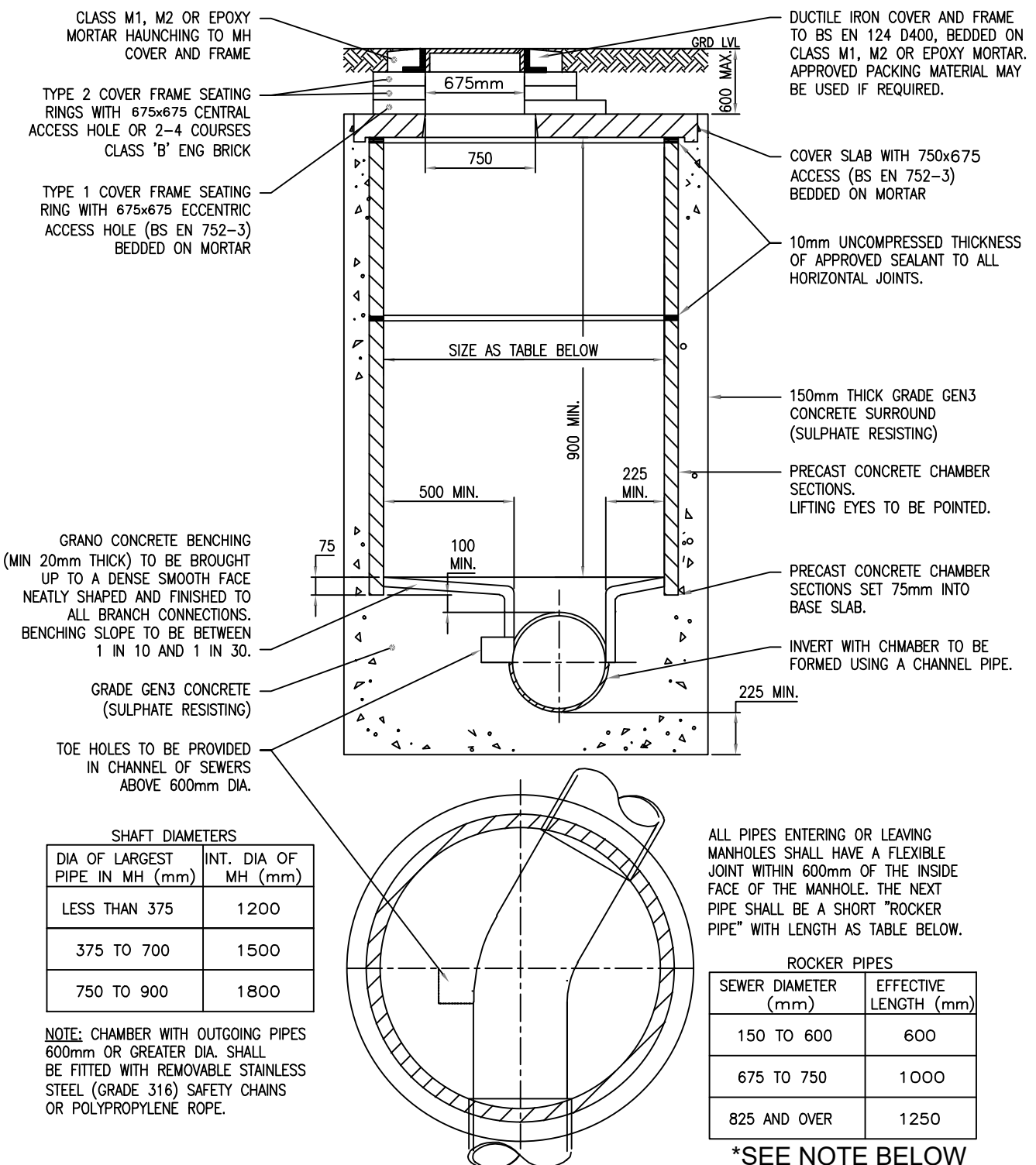




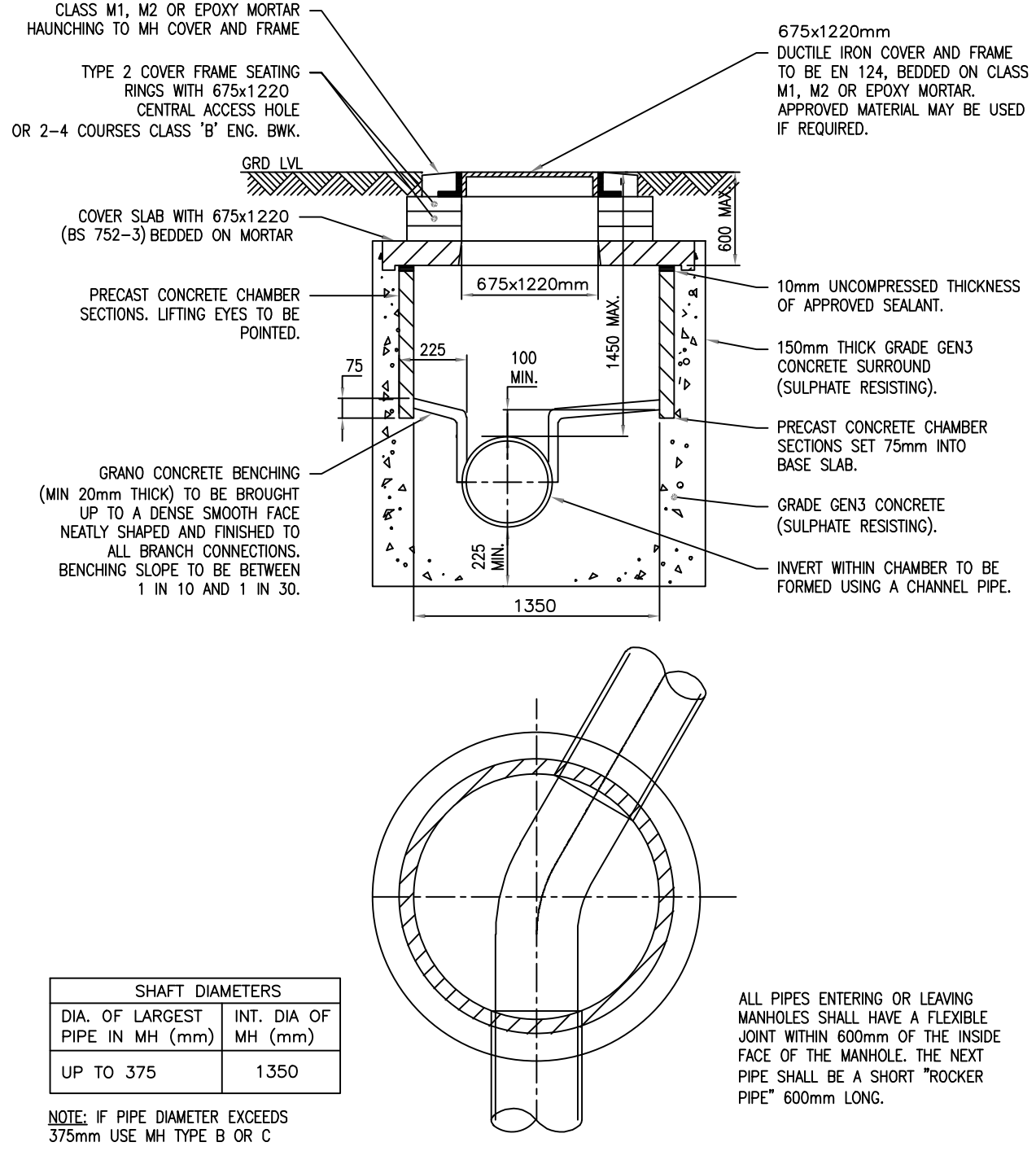




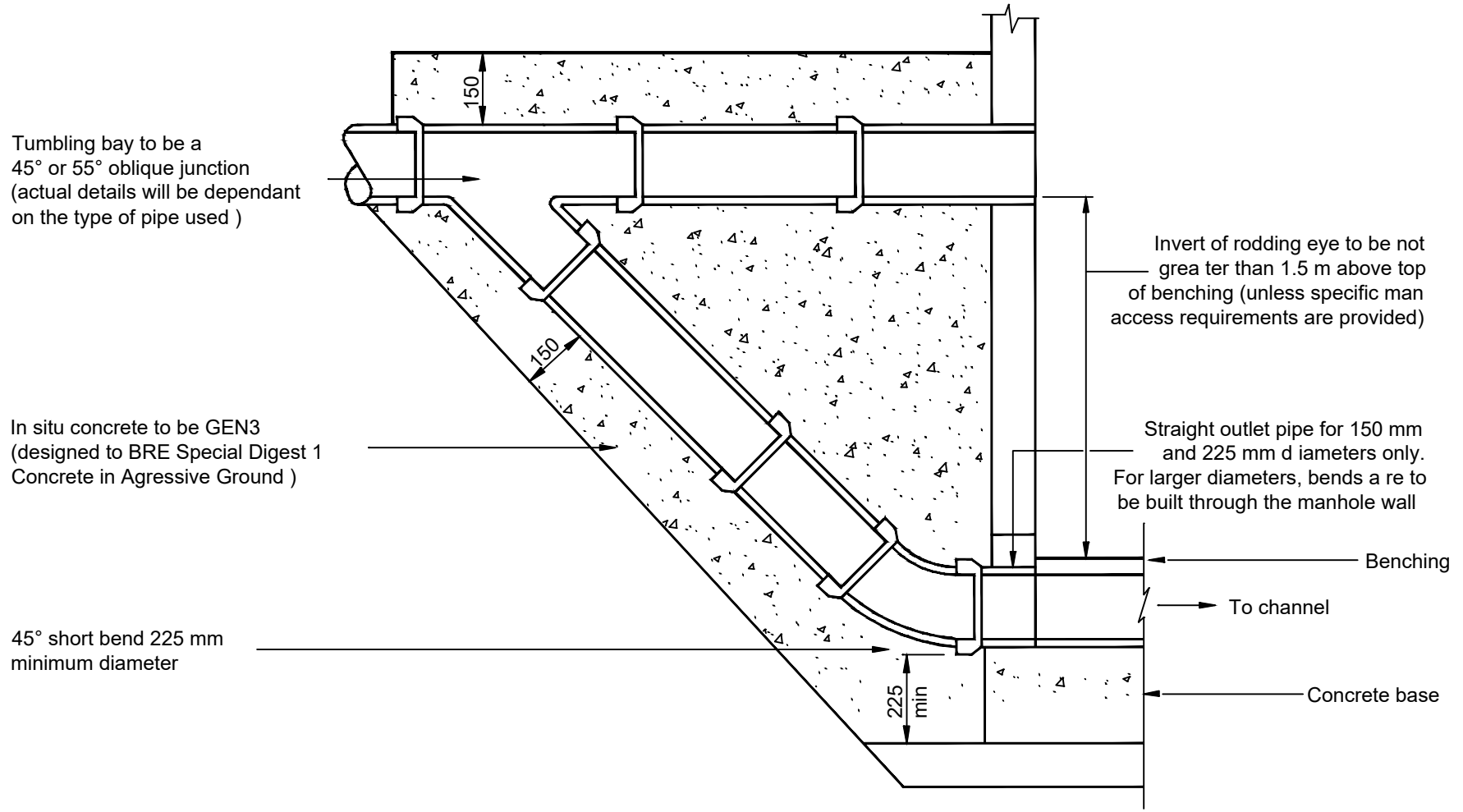
**TYPICAL MANHOLE DETAIL - TYPE A**  
Depth from cover level to soffit of pipe 3 m to 6 m



**TYPICAL MANHOLE DETAIL - TYPE B**  
Depth from cover level to soffit of pipe 1.5 m to 3 m



**TYPICAL MANHOLE DETAIL - MODIFIED TYPE E**  
Depth from cover level to soffit of pipe 1.0 - 1.5 m



**External Ramped Backdrop**

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  - All work is to be in accordance with the relevant specifications issued by IESIS, British Standard Codes of Practice, Statutory requirements and the Contract Documents.
  - DRAWING STATUS  
**P - PRELIMINARY** - Evolving drawings for approvals, Tenders, Billings, etc.  
**C - CONSTRUCTION** - Fully developed drawings issued under instruction for construction.
- ONLY STATUS C DRAWINGS TO BE USED FOR CONSTRUCTION.**
- SUITABILITY CODE:  
**WORK IN PROGRESS:**  
**S0** - Work in progress  
**SHARED (NON-CONTRACTUAL):**  
**S1** - For coordination, **S2** - For information, **S3** - For internal review and comment, **S4** - For construction approval  
**DOCUMENTATION (FOR CONTRACTOR PURPOSES):**  
**D1** - For costing, **D2** - For Tender, **D3** - For contractor design, **D4** - For manufacture / procurement  
**CONSTRUCTION:**  
**A** - For construction, **B** - For construction but with comments (i.e. areas in abeyance), **C** - Comprehensive revisions required.

SUBJECT TO TECHNICAL APPROVAL.

DESIGNED TO CURRENT VERSION OF WATER UK'S  
DESIGN AND CONSTRUCTION GUIDANCE

|            |                     |          |    |
|------------|---------------------|----------|----|
|            |                     |          |    |
| P1         | ISSUED FOR APPROVAL | 16.09.24 | KW |
| Status/Rev | Description         | Date     | By |

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|           |                           |
|-----------|---------------------------|
| Job Title | LAND AT WINNERSH FARM     |
| Client    | TAYLOR WIMPEY WEST LONDON |

**DRAINAGE DETAILS  
SHEET 1**

|       |         |            |            |                   |
|-------|---------|------------|------------|-------------------|
| drawn | date    | scale @ A1 | C1 checked | IESIS Project No. |
| KW    | SEPT'24 | NTS        | -          | SE2326            |

|                 |             |                 |
|-----------------|-------------|-----------------|
| Drw No.         | Suitability | Status/Revision |
| IESIS-DR-C-6011 | S3          | P1              |

**FIGURE B.16**  
**TYPICAL INSPECTION CHAMBER DETAIL - WHA TYPE 1 (Flexible material detail)**  
Maximum depth from cover level to soffit of pipe  
in areas subject to vehicle loading 3 m, non-entry  
**WHA TYPE 3 WHERE 600mm INTERNAL DIA.**

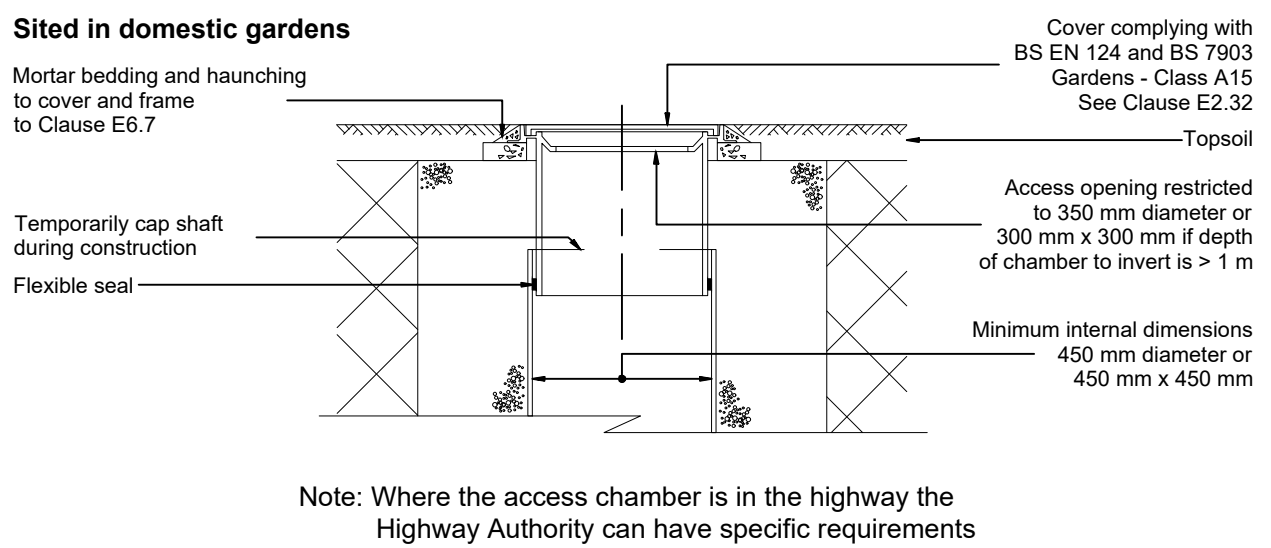
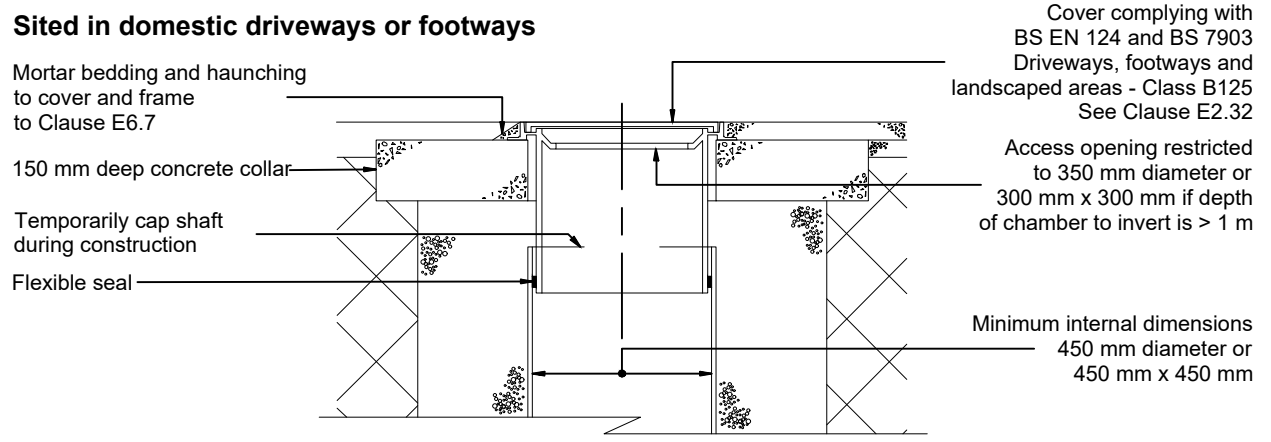
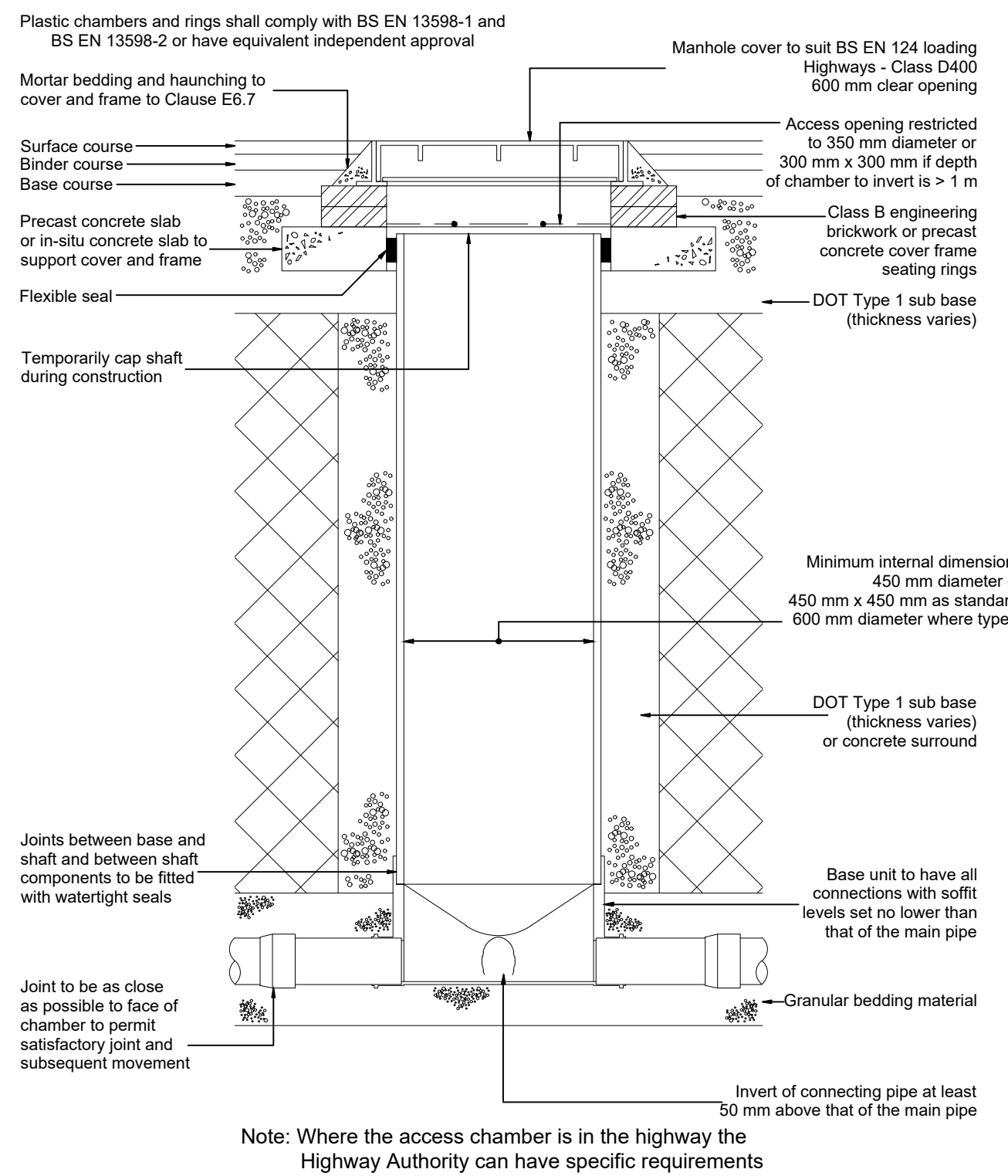


**FIGURE B.17**  
**ALTERNATIVE TOP DETAILS FOR LIGHT VEHICLE LOADING AND LANDSCAPED AREAS**  
Plastic chambers and rings shall comply with BS EN 13598-1 and BS EN 13598-2 or have equivalent independent approval

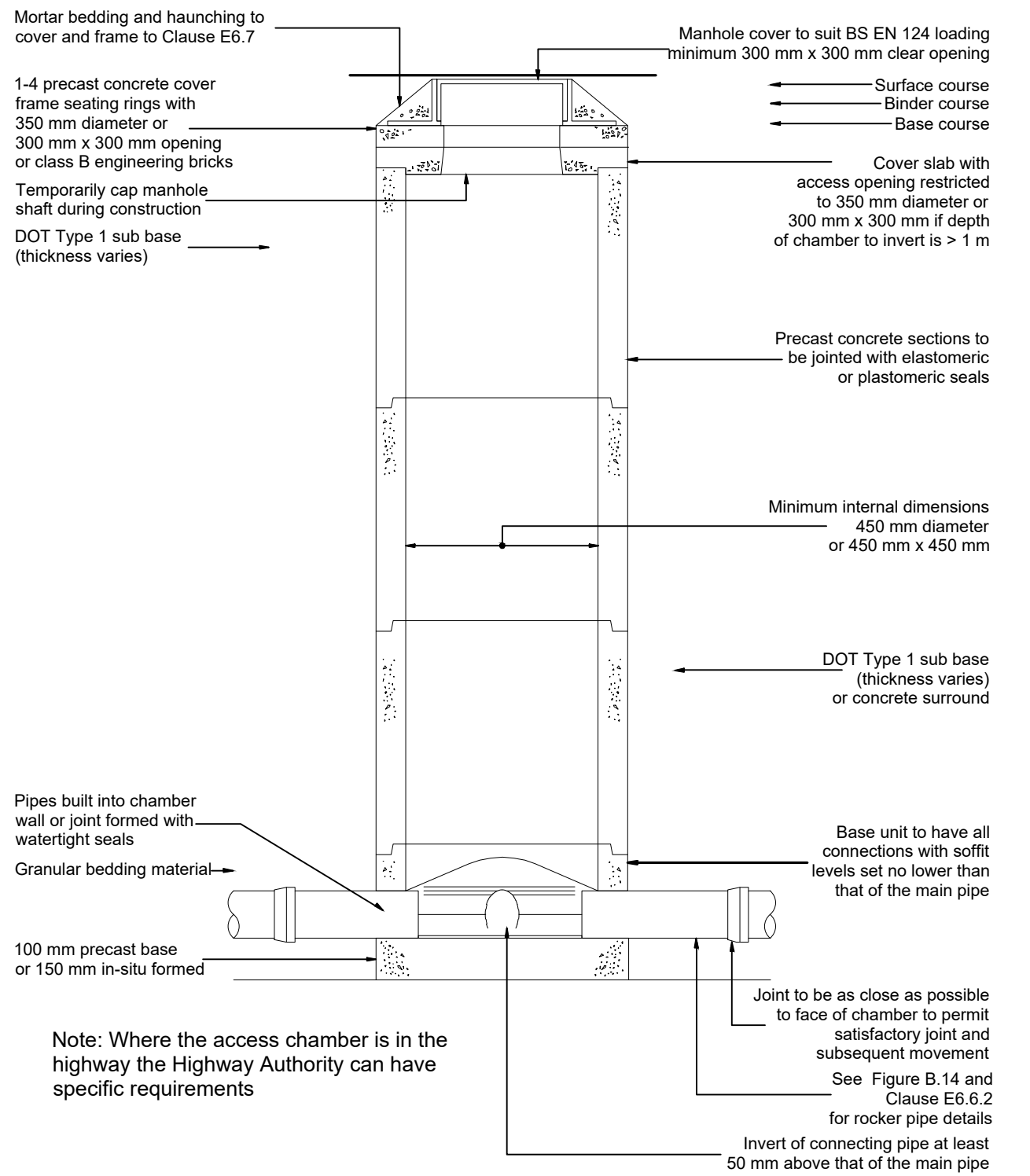


**FIGURE B.18**  
**TYPICAL INSPECTION CHAMBER DETAIL (Rigid material detail)**  
Maximum depth from cover level to soffit of pipe  
in areas subject to vehicle loading 3 m, non-entry

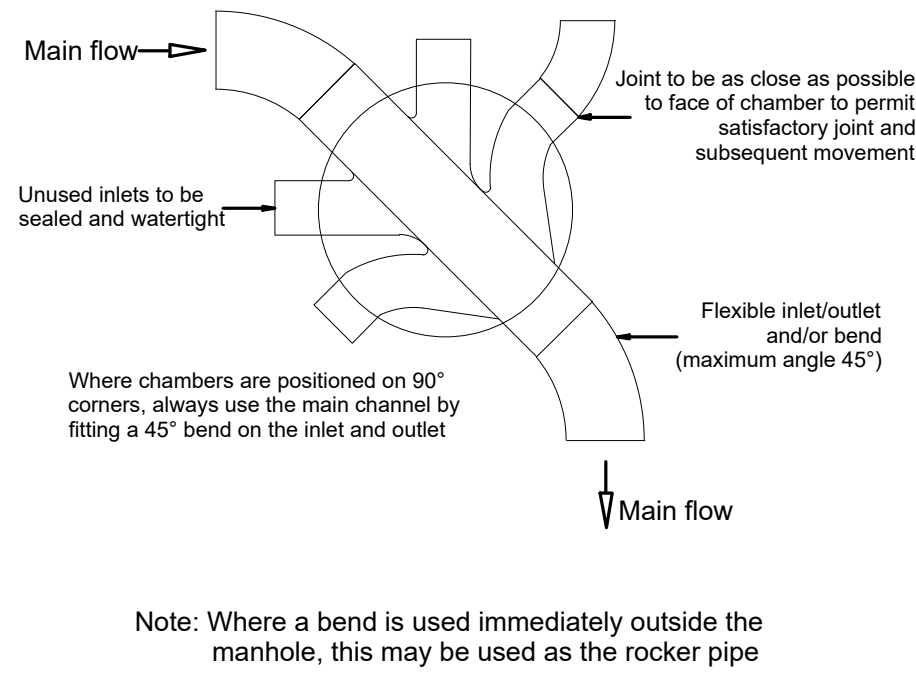
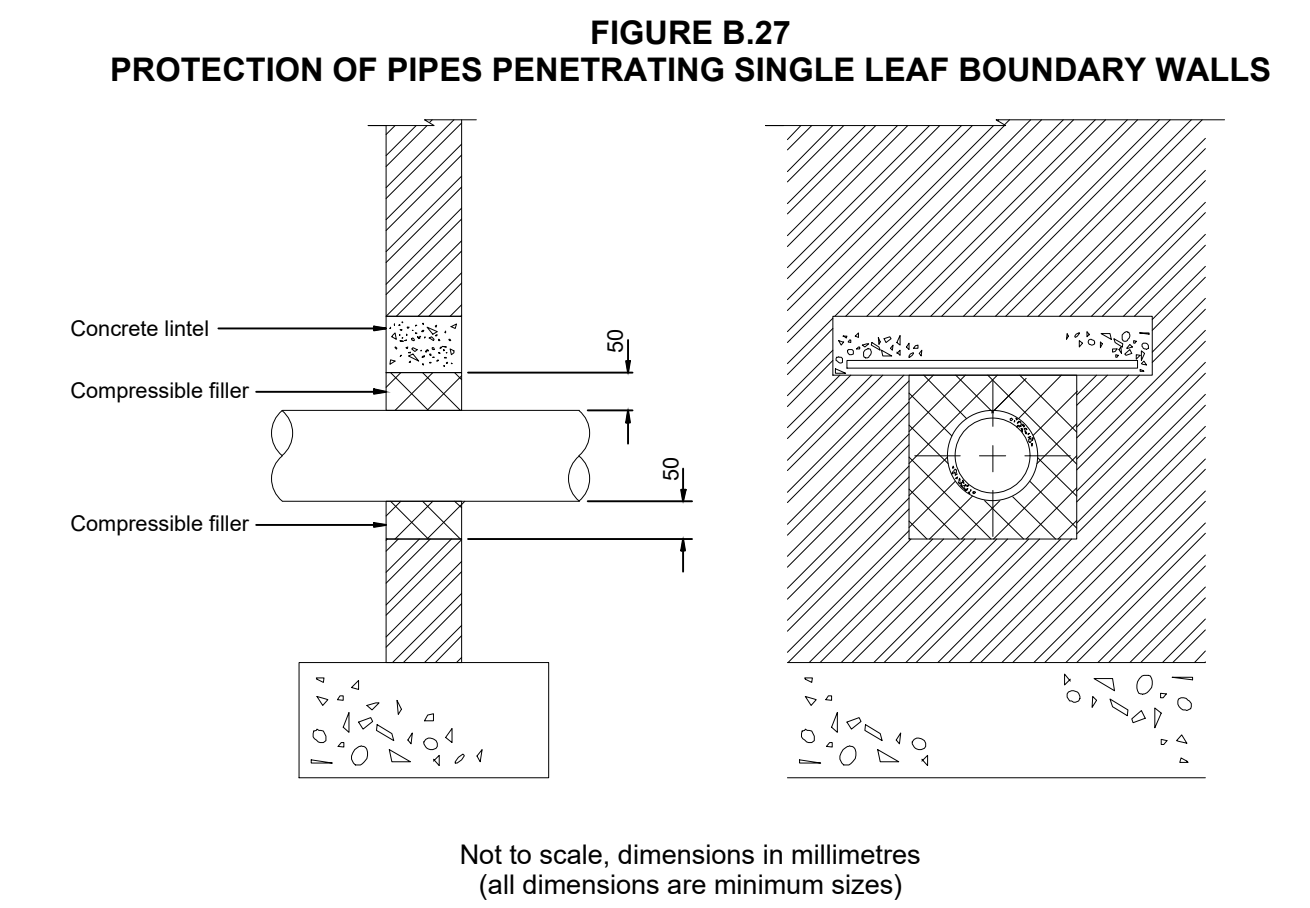
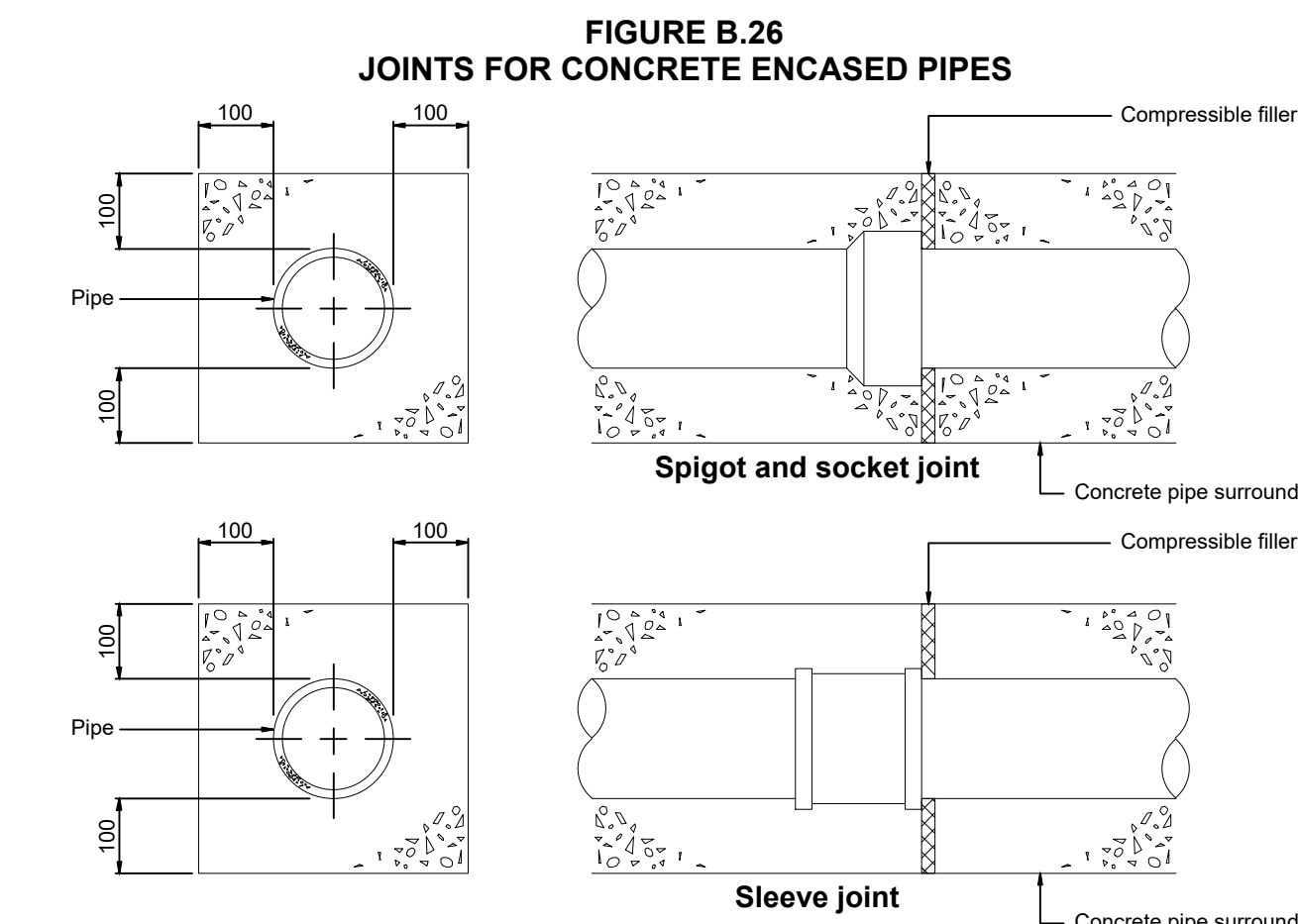
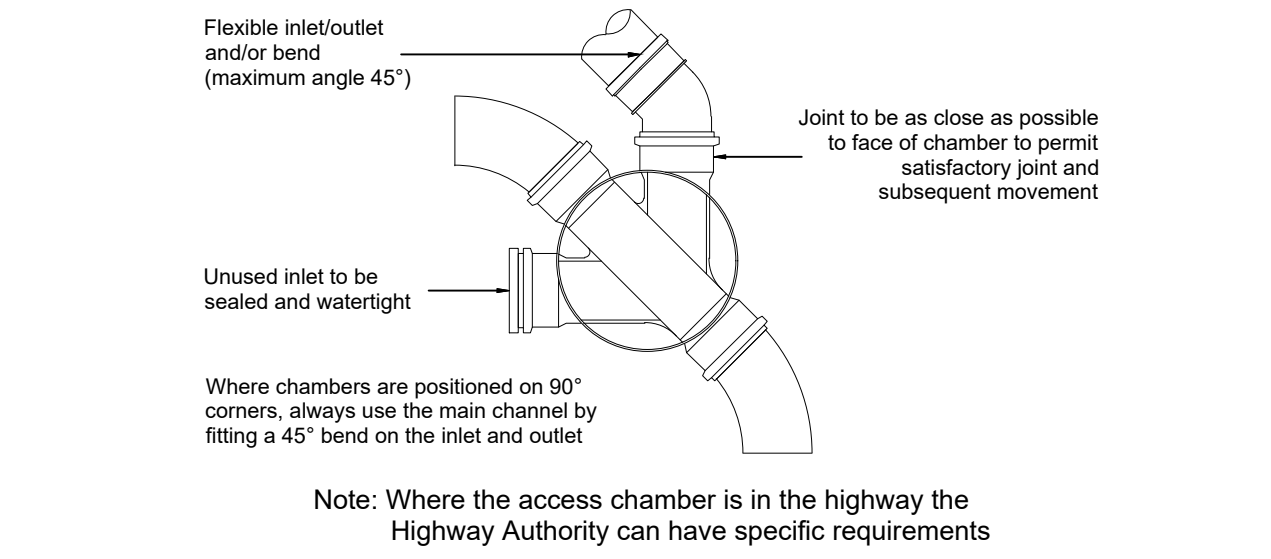
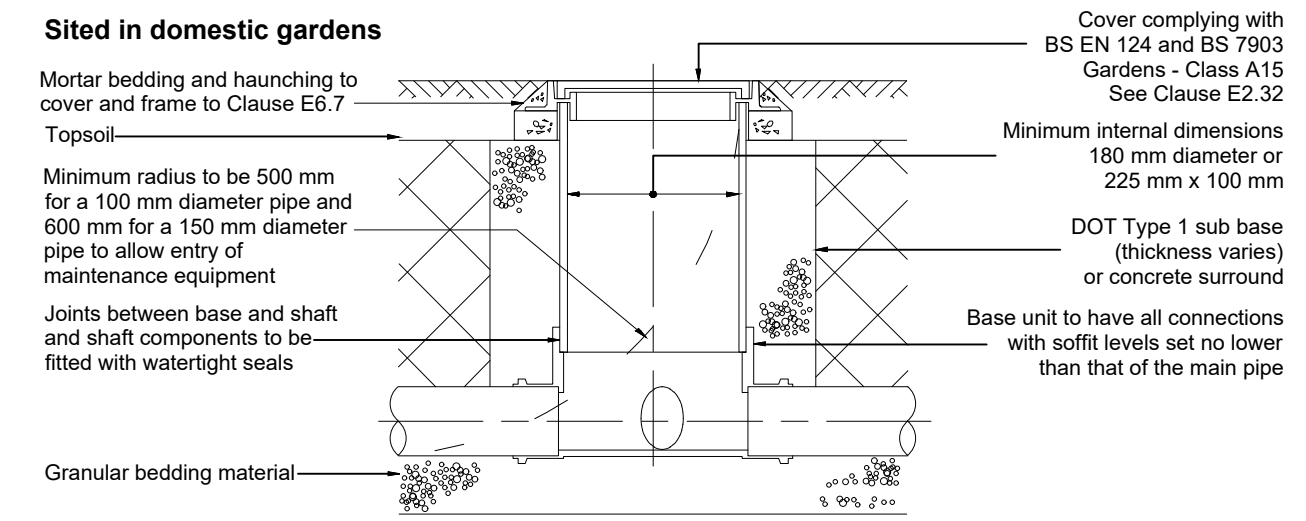
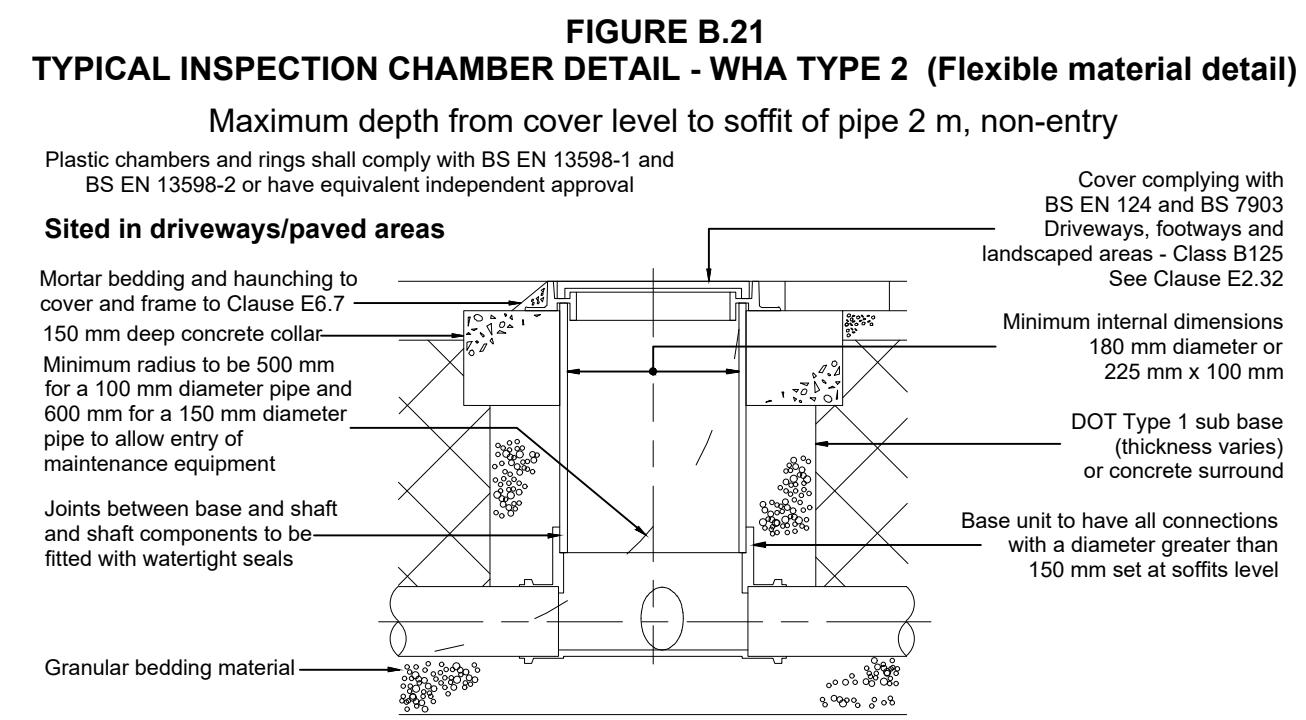


**FIGURE B.21**  
**TYPICAL INSPECTION CHAMBER DETAIL - WHA TYPE 2 (Flexible material detail)**  
Maximum depth from cover level to soffit of pipe 2 m, non-entry



Not to scale, dimensions in millimetres  
(all dimensions are minimum sizes)

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**P - PRELIMINARY** - Evolving drawings for approvals, Tenders, Billings, etc.  
**C - CONSTRUCTION** - Fully developed drawings issued under instruction for construction.
- ONLY STATUS C DRAWINGS TO BE USED FOR CONSTRUCTION.**
- SUITABILITY CODE**  
**WORK IN PROGRESS:**  
**S0** - Work in progress  
**SHARED (NON-CONTRACTUAL):**  
**S1** - For coordination, **S2** - For information, **S3** - For internal review and comment, **S4** - For construction approval  
**DOCUMENTATION (FOR CONTRACTOR PURPOSES):**  
**D1** - For costing, **D2** - For Tender, **D3** - For contractor design, **D4** - For manufacture / procurement  
**CONSTRUCTION:**  
**A** - For construction, **B** - For construction but with comments (i.e. areas in abeyance), **C** - Comprehensive revisions required.

SUBJECT TO TECHNICAL APPROVAL

DESIGNED TO CURRENT VERSION OF WATER UK'S  
DESIGN AND CONSTRUCTION GUIDANCE

|            |                     |          |    |
|------------|---------------------|----------|----|
| P1         | ISSUED FOR APPROVAL | 16.09.24 | KW |
| Status/Rev | Description         | Date     | By |

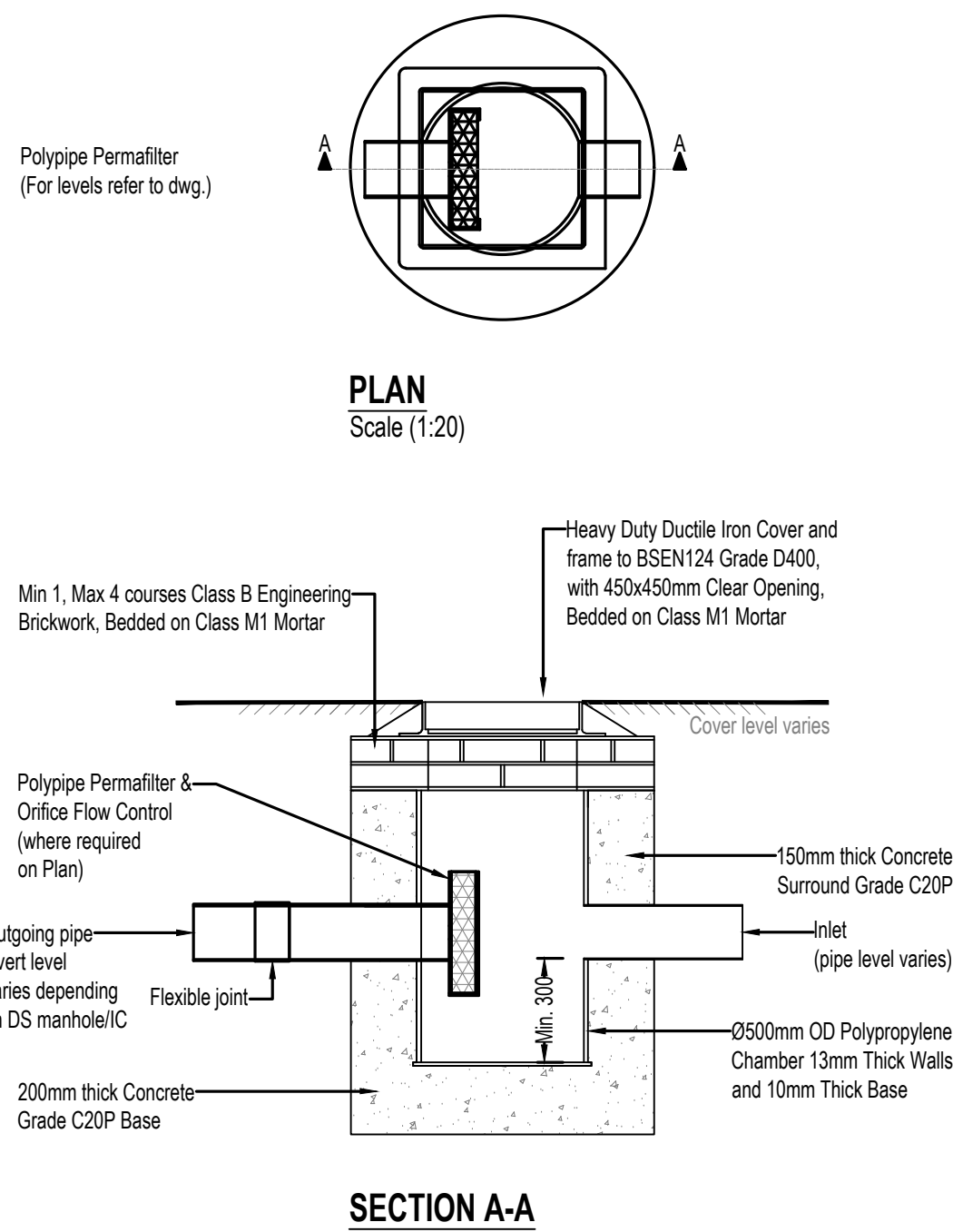
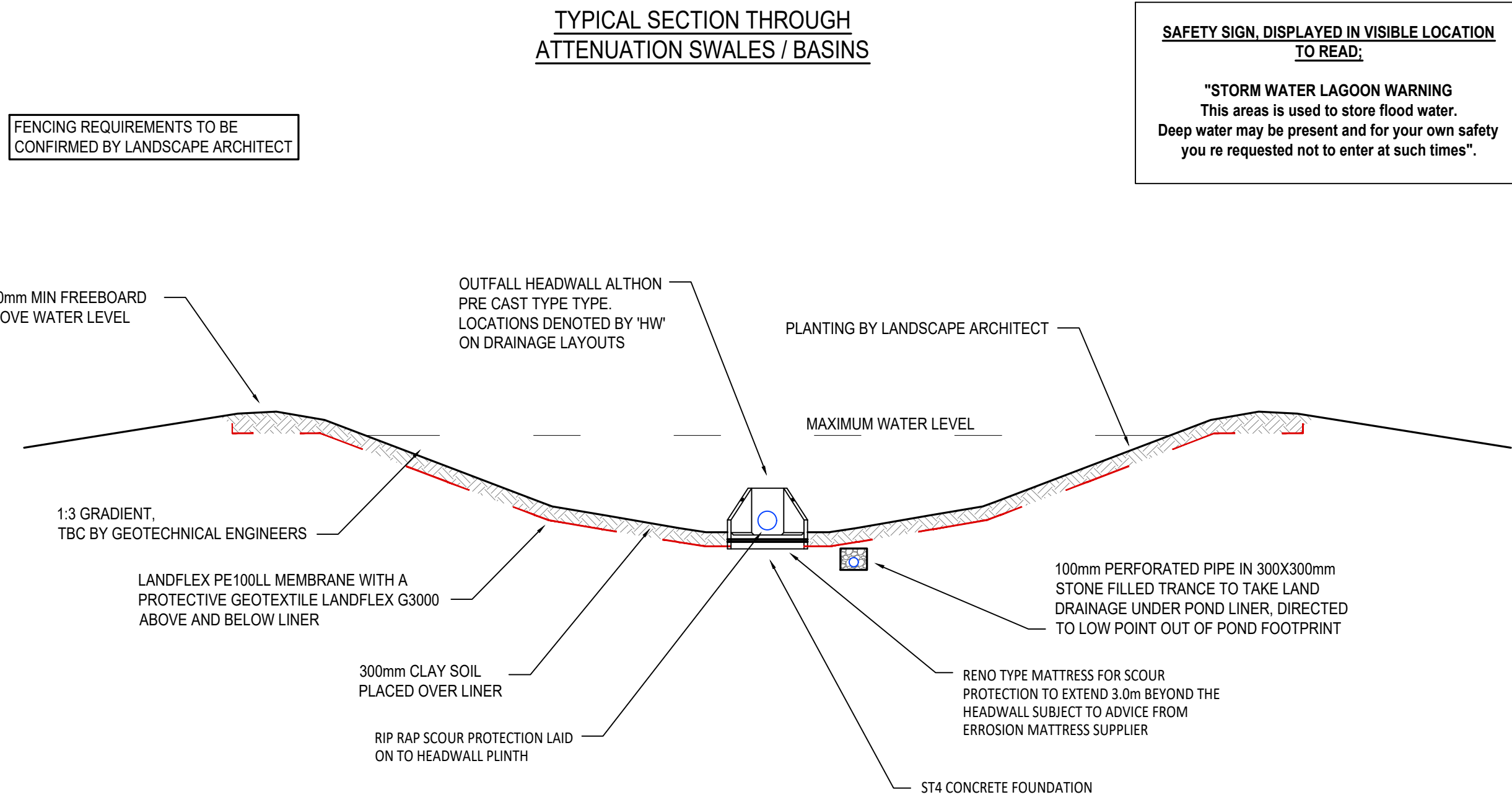
**IESISCIVILS**

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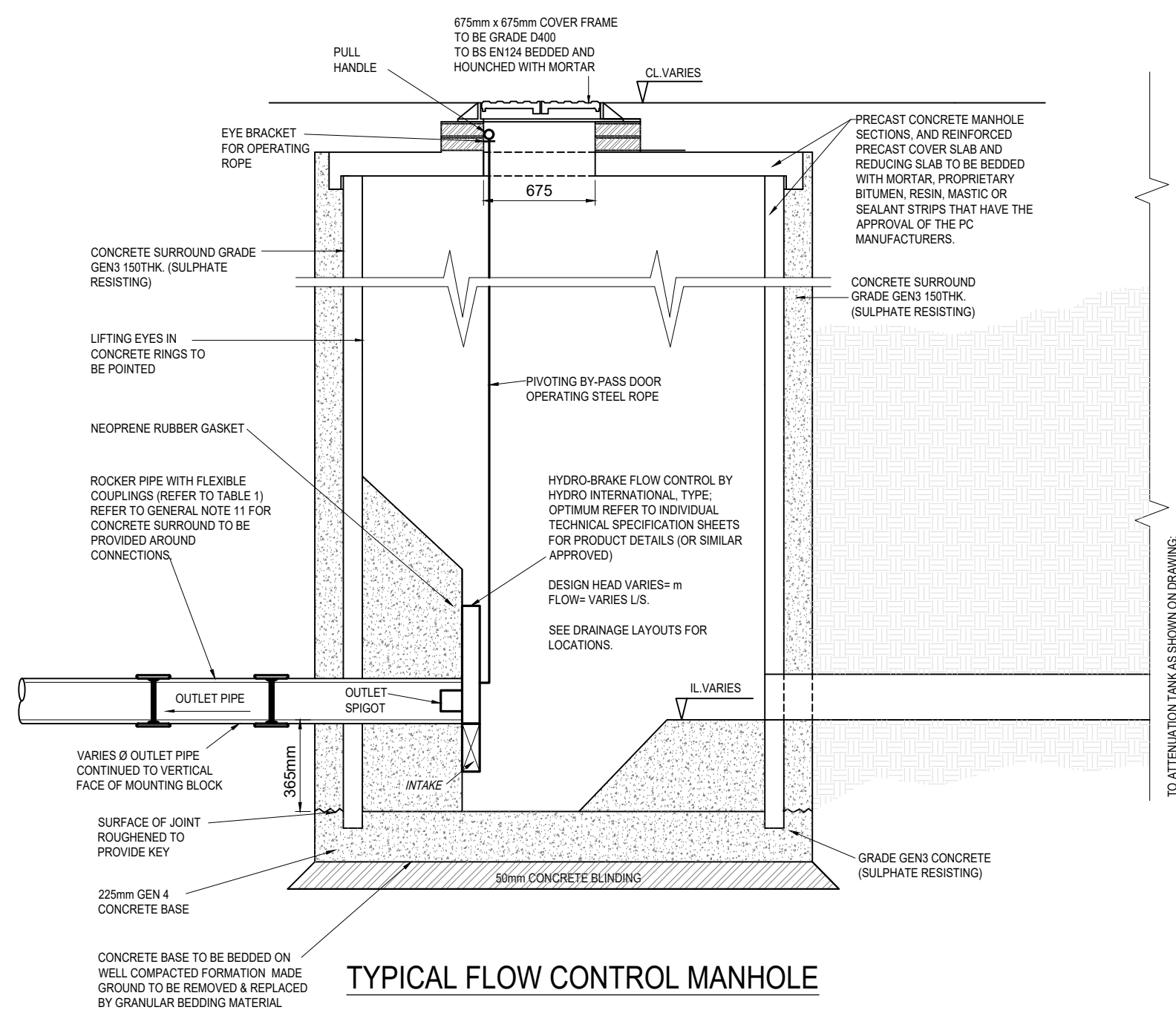
|           |                           |
|-----------|---------------------------|
| Job Title | LAND AT WINNERSH FARM     |
| Client    | TAYLOR WIMPEY WEST LONDON |

**DRAINAGE DETAILS  
SHEET 2**

|         |                 |             |                 |                   |
|---------|-----------------|-------------|-----------------|-------------------|
| drawn   | date            | scale @ A1  | C1 checked      | IESIS Project No. |
| KW      | SEPT'24         | NTS         | -               | SE2326            |
| Org No. | IESIS-DR-C-6012 | Suitability | Status/Revision |                   |
|         |                 | S3          | P1              |                   |

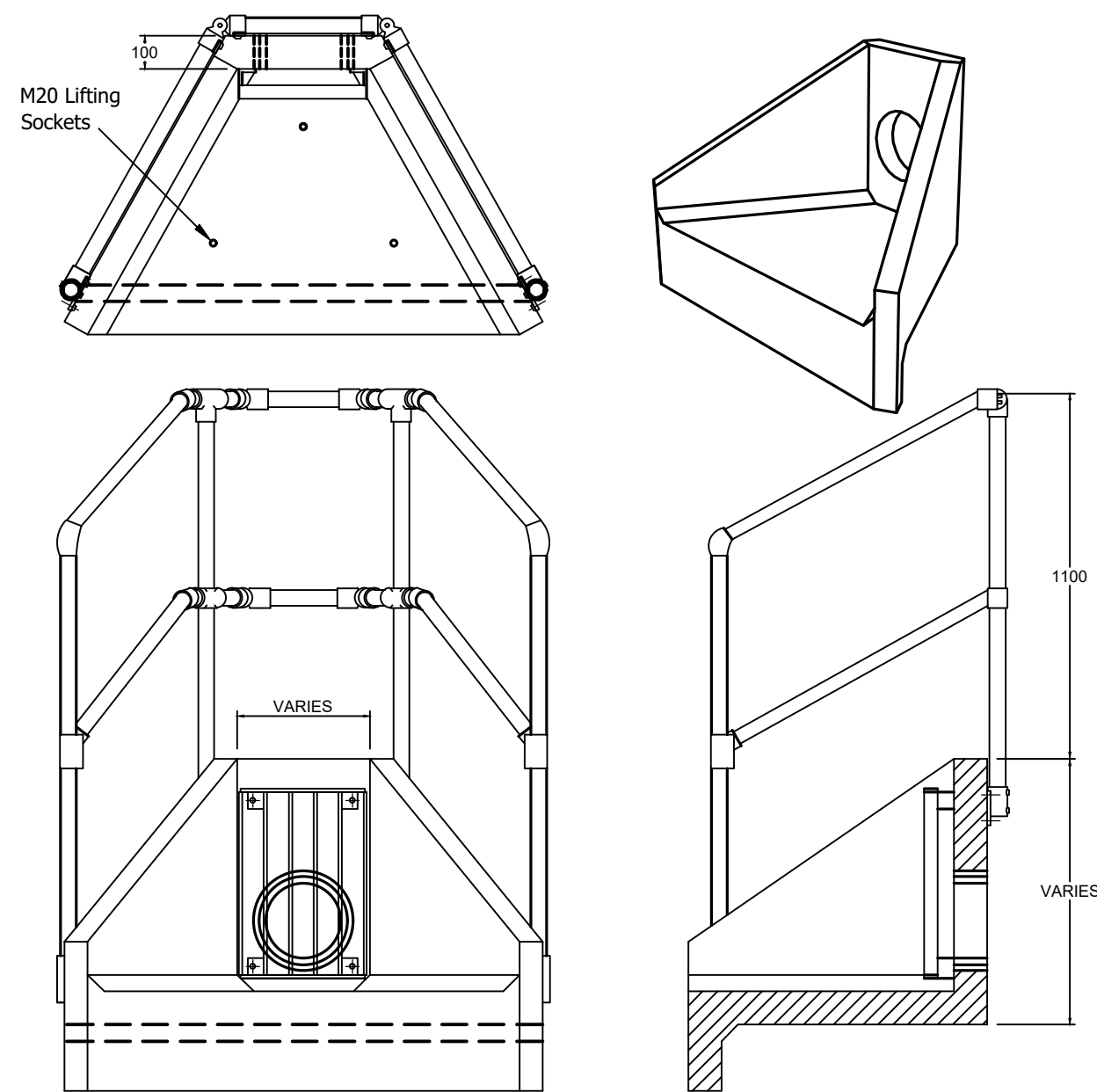


**TYPE 5 Ø500mm POLYPIPE CATCHPIT INSPECTION CHAMBER INCORPORATING FLOW CONTROL AND DEBRIS DEVICE**



**CONTROL MANHOLE NOTES**

- ALL DIMENSION ARE IN MILLIMETERS AND METERS
- PRECAST CONCRETE UNITS TO BE B55/911 PART 200 AND TO BE CONSTRUCTED WITH A MINIMUM CLASS 3 SULPHATE RESISTING CEMENT.
- ALL INSITU CONCRETE TO BE CLASS STANDARD MIX ST4 (GRADE C20) IN ACCORDANCE WITH SECTION 4 OF B55/928 PART 2.
- MATERIALS FOR JOINTING MANHOLE RINGS TO BE A RUBBER BITUMEN COMPOUND OF APPROVED MANUFACTURER TONSTRIP OR SIMILAR
- ALL BRICKWORK TO BE CLASS B ENGINEERING - 2 COURSES MIN 4 COURSES (MAX. 225mm THICK - B55/928 PART 3).
- 20mm THICK GRANOLITHIC CONCRETE BENCHING TO BE BROUGHT UP TO A DENSE SMOOTH FACE NEATLY SHAPED AND FINISHED TO ALL BRANCH CONNECTIONS. WHERE BENCHING IS LESS THAN 450mm WIDE, SLOPE TO BE 1:10. MORE THAN 450mm 1:30
- PIPES ENTERING MANHOLES TO HAVE A FLEXIBLE JOINT AS CLOSE AS FEASIBLE TO OUTSIDE FACE OF ANY STRUCTURE INTO WHICH THE PIPE IS BUILT IN ORDER TO FACILITATE MOVEMENT OF THE JOINT. THE LENGTH OF THE NEXT PIPE (ROCKER PIPELINES, BEDDING, LAYING AND JOINTING OF PIPES AND BACKFILLING OF TRENCHES SHALL BE IN ACCORDANCE WITH THE DGS GUIDANCE.



HEADWALL ALTHON SFA TYPE (TYPICAL SPECIFICATION, VARIES) OR SIMILAR APPROVED. WITH KEE KLAMP HANDRAIL AND SAFETY GRILLE.  
Scale 1:20

- NOTES**
- DO NOT SCALE THIS DRAWING ON PRINT OR ELECTRONICALLY. WORK FROM FIGURED DIMENSIONS ONLY.
  - No deviation from the details shown on this drawing is allowed without IESIS's prior permission in writing.
  - Read this drawing with all Architects, Service Engineers and IESIS's relevant details and drawings. NB. Setting-out dimensions as per the Architect's drawings take precedence.
  - All work is to be in accordance with the relevant specifications issued by IESIS, British Standard Codes of Practice, Statutory requirements and the Contract Documents.
  - DRAWING STATUS  
**P - PRELIMINARY** - Evolving drawings for approvals, Tenders, Billings, etc.  
**C - CONSTRUCTION** - Fully developed drawings issued under instruction for construction.
- ONLY STATUS C DRAWINGS TO BE USED FOR CONSTRUCTION.**
6. SUITABILITY CODE:  
**WORK IN PROGRESS:**  
**S0** - Work in progress  
**SHARED (NON-CONTRACTUAL):**  
**S1** - For coordination, **S2** - For information, **S3** - For internal review and comment, **S4** - For construction approval  
**DOCUMENTATION (FOR CONTRACTOR PURPOSES):**  
**D1** - For costing, **D2** - For Tender, **D3** - For contractor design, **D4** - For manufacture / procurement  
**CONSTRUCTION:**  
**A** - For construction, **B** - For construction but with comments (i.e. areas in abeyance), **C** - Comprehensive revisions required.

SUBJECT TO TECHNICAL APPROVAL.

DESIGNED TO CURRENT VERSION OF WATER UK'S DESIGN AND CONSTRUCTION GUIDANCE

|            |                     |          |    |
|------------|---------------------|----------|----|
| P1         | ISSUED FOR APPROVAL | 16.09.24 | KW |
| Status/Rev | Description         | Date     | By |

**IESISCIVILS**

20 IRONMONGER LANE | LONDON | EC2V 8EP | UK  
0207 600 2912  
www.iesisgroup.com

|           |                           |
|-----------|---------------------------|
| Job Title | LAND AT WINNERSH FARM     |
| Client    | TAYLOR WIMPEY WEST LONDON |

**DRAINAGE DETAILS SHEET 3**

|       |         |            |            |                   |
|-------|---------|------------|------------|-------------------|
| drawn | date    | scale @ A1 | C1 checked | IESIS Project No. |
| KW    | SEPT'24 | NTS        | -          | SE2326            |

|                 |             |                 |
|-----------------|-------------|-----------------|
| Drg No.         | Suitability | Status/Revision |
| IESIS-DR-C-6013 | S3          | P1              |

### Design Settings

|                                      |        |                                    |               |
|--------------------------------------|--------|------------------------------------|---------------|
| Rainfall Methodology                 | FEH-22 | Minimum Velocity (m/s)             | 1.00          |
| Return Period (years)                | 2      | Connection Type                    | Level Soffits |
| Additional Flow (%)                  | 0      | Minimum Backdrop Height (m)        | 0.750         |
| CV                                   | 0.750  | Preferred Cover Depth (m)          | 1.200         |
| Time of Entry (mins)                 | 5.00   | Include Intermediate Ground        | ✓             |
| Maximum Time of Concentration (mins) | 30.00  | Enforce best practice design rules | ✓             |
| Maximum Rainfall (mm/hr)             | 50.0   |                                    |               |

### Nodes

| Name | Area<br>(ha) | T of E<br>(mins) | Cover<br>Level<br>(m) | Diameter<br>(mm) | Easting<br>(m) | Northing<br>(m) | Depth<br>(m) |
|------|--------------|------------------|-----------------------|------------------|----------------|-----------------|--------------|
| 1    | 0.075        | 5.00             | 49.134                | 1200             | 478918.683     | 170622.890      | 1.355        |
| 2    | 0.085        | 5.00             | 48.821                | 1350             | 478918.364     | 170645.898      | 1.774        |
| 3    | 0.050        | 5.00             | 48.501                | 1350             | 478912.657     | 170669.494      | 1.686        |
| 4    | 0.050        | 5.00             | 48.414                | 1350             | 478907.616     | 170676.370      | 1.650        |
| 5    | 0.085        | 5.00             | 48.276                | 1350             | 478901.040     | 170693.726      | 1.732        |
| 6    | 0.095        | 5.00             | 47.976                | 1500             | 478883.084     | 170726.254      | 1.753        |
| 7    | 0.050        | 5.00             | 47.841                | 1500             | 478878.697     | 170742.520      | 1.807        |
| 8    | 0.052        | 5.00             | 48.034                | 1200             | 478848.505     | 170765.973      | 1.425        |
| 9    | 0.170        | 5.00             | 47.750                | 1500             | 478868.200     | 170774.842      | 1.860        |
| 10   | 0.055        | 5.00             | 47.040                | 1500             | 478904.735     | 170786.668      | 1.877        |
| 11   | 0.145        | 5.00             | 47.510                | 1350             | 478962.980     | 170711.961      | 1.506        |
| 12   | 0.125        | 5.00             | 47.200                | 1350             | 478943.908     | 170746.013      | 1.824        |
| 13   | 0.045        | 5.00             | 46.950                | 1500             | 478928.626     | 170773.299      | 1.798        |
| 14   | 0.030        | 5.00             | 46.850                | 1500             | 478918.819     | 170784.987      | 1.828        |
| 15   | 0.040        | 5.00             | 46.430                | 1500             | 478931.702     | 170799.165      | 1.800        |
| 16   | 0.040        | 5.00             | 45.810                | 1500             | 478961.248     | 170809.058      | 2.283        |
| 17   | 0.130        | 5.00             | 45.536                | 1350             | 478991.410     | 170777.411      | 1.575        |
| 18   | 0.050        | 5.00             | 45.536                | 1350             | 478982.811     | 170803.093      | 1.659        |
| 19   | 0.020        | 5.00             | 45.494                | 1500             | 478982.864     | 170813.710      | 2.005        |
| 20   | 0.020        | 5.00             | 45.020                | 1500             | 478992.731     | 170819.830      | 1.800        |
| 21   | 0.020        | 5.00             | 44.180                | 1500             | 479012.808     | 170826.330      | 1.800        |
| 22   | 0.055        | 5.00             | 43.619                | 1500             | 479027.198     | 170825.871      | 2.015        |
| 23   | 0.025        | 5.00             | 42.963                | 1500             | 479041.847     | 170825.854      | 1.457        |
| 24   | 0.065        | 5.00             | 49.875                | 1200             | 478900.986     | 170590.298      | 1.518        |
| 25   | 0.035        | 5.00             | 49.520                | 1200             | 478928.596     | 170599.446      | 1.425        |
| 26   | 0.045        | 5.00             | 49.760                | 1200             | 478938.052     | 170589.872      | 1.895        |
| 27   | 0.110        | 5.00             | 48.894                | 1350             | 478962.003     | 170616.526      | 1.614        |
| 28   | 0.180        | 5.00             | 48.014                | 1350             | 478987.049     | 170644.397      | 1.650        |
| 29   | 0.020        | 5.00             | 47.531                | 1350             | 479000.766     | 170659.662      | 1.894        |
| 30   | 0.066        | 5.00             | 47.371                | 1200             | 479012.669     | 170665.067      | 1.425        |
| 31   |              |                  | 47.383                | 1350             | 479006.691     | 170670.424      | 1.777        |
| 32   | 0.110        | 5.00             | 47.457                | 1350             | 479001.012     | 170675.511      | 1.870        |
| 33   | 0.045        | 5.00             | 46.845                | 1350             | 479014.975     | 170691.111      | 1.652        |
| 34   | 0.045        | 5.00             | 46.110                | 1350             | 479036.494     | 170710.709      | 2.043        |
| 35   |              | 5.00             | 46.035                | 1200             | 479017.785     | 170739.822      | 1.471        |
| 36   |              |                  | 45.909                | 1200             | 479038.331     | 170721.018      | 1.743        |
| 37   | 0.050        | 5.00             | 45.811                | 1350             | 479049.156     | 170714.831      | 2.019        |
| 38   | 0.045        | 5.00             | 44.661                | 1500             | 479070.263     | 170738.541      | 1.782        |
| 39   | 0.020        | 5.00             | 44.170                | 1500             | 479079.609     | 170749.041      | 1.725        |
| 40   | 0.015        | 5.00             | 43.710                | 1500             | 479078.343     | 170760.922      | 1.398        |
| 41   | 0.085        | 5.00             | 43.366                | 1500             | 479064.965     | 170776.780      | 1.325        |
| 42   |              |                  | 42.628                | 1500             | 479076.408     | 170785.721      | 1.163        |

### Nodes

| Name | Area<br>(ha) | T of E<br>(mins) | Cover<br>Level<br>(m) | Diameter<br>(mm) | Easting<br>(m) | Northing<br>(m) | Depth<br>(m) |
|------|--------------|------------------|-----------------------|------------------|----------------|-----------------|--------------|
| 77   | 0.075        | 5.00             | 42.733                | 1200             | 479116.335     | 170761.382      | 1.660        |
| 78   | 0.310        | 5.00             | 42.500                | 1500             | 479098.236     | 170792.166      | 1.500        |
| 79   |              |                  | 42.500                | 1500             | 479103.303     | 170792.747      | 1.520        |
| 80   |              |                  | 42.000                | 1500             | 479141.477     | 170797.122      | 1.100        |

### Links

| Name  | US<br>Node | DS<br>Node | Length<br>(m) | ks (mm) /<br>n | US IL<br>(m) | DS IL<br>(m) | Fall<br>(m) | Slope<br>(1:X) | Dia<br>(mm) | T of C<br>(mins) | Rain<br>(mm/hr) |
|-------|------------|------------|---------------|----------------|--------------|--------------|-------------|----------------|-------------|------------------|-----------------|
| 1.000 | 1          | 2          | 23.010        | 0.600          | 47.779       | 47.122       | 0.657       | 35.0           | 300         | 5.14             | 50.0            |
| 1.001 | 2          | 3          | 24.276        | 0.600          | 47.047       | 46.890       | 0.157       | 154.5          | 375         | 5.42             | 50.0            |
| 1.002 | 3          | 4          | 8.526         | 0.600          | 46.815       | 46.764       | 0.051       | 167.0          | 450         | 5.51             | 49.7            |
| 1.003 | 4          | 5          | 18.560        | 0.600          | 46.764       | 46.619       | 0.145       | 128.2          | 450         | 5.68             | 49.0            |
| 1.004 | 5          | 6          | 37.155        | 0.600          | 46.544       | 46.223       | 0.322       | 115.5          | 525         | 5.98             | 47.7            |
| 1.005 | 6          | 7          | 16.847        | 0.600          | 46.223       | 46.034       | 0.188       | 89.4           | 525         | 6.10             | 47.3            |
| 1.006 | 7          | 9          | 33.984        | 0.600          | 46.034       | 45.965       | 0.069       | 492.5          | 525         | 6.67             | 45.3            |
| 2.000 | 8          | 9          | 21.600        | 0.600          | 46.609       | 46.265       | 0.344       | 62.8           | 225         | 5.22             | 50.0            |
| 1.007 | 9          | 10         | 38.401        | 0.600          | 45.890       | 45.163       | 0.727       | 52.8           | 600         | 6.86             | 44.7            |
| 1.008 | 10         | 14         | 14.184        | 0.600          | 45.163       | 45.022       | 0.142       | 100.2          | 600         | 6.95             | 44.4            |
| 3.000 | 11         | 12         | 39.029        | 0.600          | 46.004       | 45.451       | 0.553       | 70.6           | 375         | 5.30             | 50.0            |
| 3.001 | 12         | 13         | 31.274        | 0.600          | 45.376       | 45.227       | 0.149       | 209.9          | 450         | 5.67             | 49.0            |
| 3.002 | 13         | 14         | 15.257        | 0.600          | 45.152       | 45.097       | 0.055       | 276.7          | 525         | 5.86             | 48.2            |
| 1.009 | 14         | 15         | 19.157        | 0.600          | 45.022       | 44.630       | 0.392       | 48.9           | 600         | 7.05             | 44.1            |
| 1.010 | 15         | 16         | 31.158        | 0.600          | 44.630       | 43.527       | 1.103       | 28.2           | 600         | 7.16             | 43.7            |
| 1.011 | 16         | 19         | 22.111        | 0.600          | 43.527       | 43.489       | 0.038       | 581.9          | 600         | 7.53             | 42.7            |
| 4.000 | 17         | 18         | 27.083        | 0.600          | 43.961       | 43.877       | 0.084       | 322.4          | 375         | 5.45             | 50.0            |
| 4.001 | 18         | 19         | 10.617        | 0.600          | 43.877       | 43.714       | 0.163       | 65.0           | 375         | 5.53             | 49.6            |
| 1.012 | 19         | 20         | 11.611        | 0.600          | 43.489       | 43.220       | 0.269       | 43.2           | 600         | 7.58             | 42.5            |

| Name  | Vel<br>(m/s) | Cap<br>(l/s) | Flow<br>(l/s) | US<br>Depth<br>(m) | DS<br>Depth<br>(m) | Σ Area<br>(ha) | Σ Add<br>Inflow<br>(l/s) | Pro<br>Depth<br>(mm) | Pro<br>Velocity<br>(m/s) |
|-------|--------------|--------------|---------------|--------------------|--------------------|----------------|--------------------------|----------------------|--------------------------|
| 1.000 | 2.665        | 188.3        | 10.2          | 1.055              | 1.399              | 0.075          | 0.0                      | 47                   | 1.445                    |
| 1.001 | 1.455        | 160.7        | 21.7          | 1.399              | 1.236              | 0.160          | 0.0                      | 93                   | 1.027                    |
| 1.002 | 1.570        | 249.7        | 28.3          | 1.236              | 1.200              | 0.210          | 0.0                      | 102                  | 1.056                    |
| 1.003 | 1.794        | 285.3        | 34.5          | 1.200              | 1.207              | 0.260          | 0.0                      | 105                  | 1.230                    |
| 1.004 | 2.083        | 450.9        | 44.6          | 1.207              | 1.228              | 0.345          | 0.0                      | 110                  | 1.350                    |
| 1.005 | 2.369        | 512.9        | 56.4          | 1.228              | 1.282              | 0.440          | 0.0                      | 116                  | 1.580                    |
| 1.006 | 1.002        | 217.0        | 60.2          | 1.282              | 1.260              | 0.490          | 0.0                      | 188                  | 0.863                    |
| 2.000 | 1.653        | 65.7         | 7.0           | 1.200              | 1.260              | 0.052          | 0.0                      | 50                   | 1.088                    |
| 1.007 | 3.355        | 948.5        | 86.2          | 1.260              | 1.277              | 0.712          | 0.0                      | 120                  | 2.122                    |
| 1.008 | 2.433        | 687.8        | 92.2          | 1.277              | 1.228              | 0.767          | 0.0                      | 147                  | 1.718                    |
| 3.000 | 2.159        | 238.4        | 19.7          | 1.131              | 1.374              | 0.145          | 0.0                      | 72                   | 1.323                    |
| 3.001 | 1.399        | 222.5        | 35.9          | 1.374              | 1.273              | 0.270          | 0.0                      | 121                  | 1.036                    |
| 3.002 | 1.341        | 290.3        | 41.2          | 1.273              | 1.228              | 0.315          | 0.0                      | 133                  | 0.961                    |
| 1.009 | 3.488        | 986.1        | 132.8         | 1.228              | 1.200              | 1.112          | 0.0                      | 147                  | 2.470                    |
| 1.010 | 4.593        | 1298.7       | 136.6         | 1.200              | 1.683              | 1.152          | 0.0                      | 130                  | 3.033                    |
| 1.011 | 1.002        | 283.3        | 137.9         | 1.683              | 1.405              | 1.192          | 0.0                      | 295                  | 0.995                    |
| 4.000 | 1.003        | 110.8        | 17.6          | 1.200              | 1.284              | 0.130          | 0.0                      | 101                  | 0.741                    |
| 4.001 | 2.250        | 248.5        | 24.2          | 1.284              | 1.405              | 0.180          | 0.0                      | 78                   | 1.443                    |
| 1.012 | 3.711        | 1049.2       | 160.5         | 1.405              | 1.200              | 1.392          | 0.0                      | 157                  | 2.723                    |

Links

| Name  | US Node | DS Node | Length (m) | ks (mm) / n | US IL (m) | DS IL (m) | Fall (m) | Slope (1:X) | Dia (mm) | T of C (mins) | Rain (mm/hr) |
|-------|---------|---------|------------|-------------|-----------|-----------|----------|-------------|----------|---------------|--------------|
| 1.013 | 20      | 21      | 21.103     | 0.600       | 43.220    | 42.380    | 0.840    | 25.1        | 600      | 7.65          | 42.3         |
| 1.014 | 21      | 22      | 14.397     | 0.600       | 42.380    | 41.604    | 0.776    | 18.5        | 600      | 7.69          | 42.2         |
| 1.015 | 22      | 23      | 14.649     | 0.600       | 41.604    | 41.506    | 0.098    | 149.5       | 600      | 7.82          | 41.9         |
| 1.016 | 23      | 78      | 65.686     | 0.600       | 41.506    | 41.000    | 0.506    | 129.8       | 675      | 8.29          | 40.6         |
| 5.000 | 24      | 25      | 29.086     | 0.600       | 48.357    | 48.095    | 0.262    | 111.0       | 225      | 5.39          | 50.0         |
| 5.001 | 25      | 26      | 13.457     | 0.600       | 48.095    | 48.015    | 0.080    | 168.2       | 225      | 5.61          | 49.3         |
| 5.002 | 26      | 27      | 35.834     | 0.600       | 47.865    | 47.280    | 0.585    | 61.3        | 375      | 5.87          | 48.2         |
| 5.003 | 27      | 28      | 37.471     | 0.600       | 47.280    | 46.439    | 0.841    | 44.5        | 375      | 6.10          | 47.3         |
| 5.004 | 28      | 29      | 20.523     | 0.600       | 46.364    | 45.637    | 0.727    | 28.2        | 450      | 6.19          | 47.0         |
| 5.005 | 29      | 31      | 12.285     | 0.600       | 45.637    | 45.606    | 0.031    | 396.3       | 450      | 6.39          | 46.3         |
| 6.000 | 30      | 31      | 8.027      | 0.600       | 45.946    | 45.831    | 0.115    | 70.1        | 225      | 5.09          | 50.0         |
| 5.006 | 31      | 32      | 7.624      | 0.600       | 45.606    | 45.587    | 0.019    | 401.3       | 450      | 6.52          | 45.9         |
| 5.007 | 32      | 33      | 20.936     | 0.600       | 45.587    | 45.193    | 0.395    | 53.1        | 450      | 6.64          | 45.4         |
| 5.008 | 33      | 34      | 29.106     | 0.600       | 45.193    | 44.067    | 1.126    | 25.8        | 450      | 6.76          | 45.0         |
| 5.009 | 34      | 37      | 13.316     | 0.600       | 44.067    | 43.867    | 0.200    | 66.7        | 450      | 6.85          | 44.7         |
| 7.000 | 35      | 36      | 27.852     | 0.600       | 44.564    | 44.166    | 0.398    | 70.0        | 225      | 5.30          | 50.0         |
| 7.001 | 36      | 37      | 12.468     | 0.600       | 44.166    | 44.092    | 0.074    | 168.5       | 225      | 5.50          | 49.7         |
| 5.010 | 37      | 38      | 31.744     | 0.600       | 43.792    | 42.879    | 0.913    | 34.8        | 525      | 6.99          | 44.2         |
| 5.011 | 38      | 39      | 14.057     | 0.600       | 42.879    | 42.445    | 0.434    | 32.4        | 525      | 7.05          | 44.1         |
| 5.012 | 39      | 40      | 11.948     | 0.600       | 42.445    | 42.312    | 0.133    | 90.0        | 525      | 7.14          | 43.8         |
| 5.013 | 40      | 41      | 20.747     | 0.600       | 42.312    | 42.053    | 0.259    | 80.1        | 525      | 7.27          | 43.4         |
| 5.014 | 41      | 42      | 14.522     | 0.600       | 42.041    | 41.615    | 0.426    | 34.1        | 525      | 7.34          | 43.2         |
| 5.015 | 42      | 78      | 22.760     | 0.600       | 41.465    | 41.000    | 0.465    | 48.9        | 675      | 7.44          | 42.9         |
| 8.013 | 77      | 78      | 35.710     | 0.600       | 41.073    | 41.000    | 0.073    | 489.2       | 225      | 6.02          | 47.6         |

| Name  | Vel (m/s) | Cap (l/s) | Flow (l/s) | US Depth (m) | DS Depth (m) | Σ Area (ha) | Σ Add Inflow (l/s) | Pro Depth (mm) | Pro Velocity (m/s) |
|-------|-----------|-----------|------------|--------------|--------------|-------------|--------------------|----------------|--------------------|
| 1.013 | 4.871     | 1377.2    | 162.0      | 1.200        | 1.200        | 1.412       | 0.0                | 137            | 3.321              |
| 1.014 | 5.672     | 1603.6    | 163.8      | 1.200        | 1.415        | 1.432       | 0.0                | 128            | 3.718              |
| 1.015 | 1.989     | 562.4     | 168.7      | 1.415        | 0.857        | 1.487       | 0.0                | 224            | 1.748              |
| 1.016 | 2.299     | 822.5     | 166.4      | 0.782        | 0.825        | 1.512       | 0.0                | 205            | 1.821              |
| 5.000 | 1.240     | 49.3      | 8.8        | 1.293        | 1.200        | 0.065       | 0.0                | 64             | 0.939              |
| 5.001 | 1.005     | 40.0      | 13.4       | 1.200        | 1.520        | 0.100       | 0.0                | 89             | 0.905              |
| 5.002 | 2.318     | 256.0     | 18.9       | 1.520        | 1.239        | 0.145       | 0.0                | 68             | 1.378              |
| 5.003 | 2.721     | 300.5     | 32.7       | 1.239        | 1.200        | 0.255       | 0.0                | 82             | 1.801              |
| 5.004 | 3.836     | 610.1     | 55.4       | 1.200        | 1.444        | 0.435       | 0.0                | 91             | 2.429              |
| 5.005 | 1.015     | 161.4     | 57.1       | 1.444        | 1.327        | 0.455       | 0.0                | 184            | 0.930              |
| 6.000 | 1.564     | 62.2      | 8.9        | 1.200        | 1.327        | 0.066       | 0.0                | 58             | 1.120              |
| 5.006 | 1.008     | 160.4     | 64.8       | 1.327        | 1.420        | 0.521       | 0.0                | 199            | 0.957              |
| 5.007 | 2.795     | 444.6     | 77.7       | 1.420        | 1.202        | 0.631       | 0.0                | 126            | 2.120              |
| 5.008 | 4.011     | 637.9     | 82.5       | 1.202        | 1.593        | 0.676       | 0.0                | 109            | 2.806              |
| 5.009 | 2.492     | 396.3     | 87.4       | 1.593        | 1.494        | 0.721       | 0.0                | 143            | 2.017              |
| 7.000 | 1.565     | 62.2      | 0.0        | 1.246        | 1.518        | 0.000       | 0.0                | 0              | 0.000              |
| 7.001 | 1.004     | 39.9      | 0.0        | 1.518        | 1.494        | 0.000       | 0.0                | 0              | 0.000              |
| 5.010 | 3.808     | 824.4     | 92.4       | 1.494        | 1.257        | 0.771       | 0.0                | 117            | 2.555              |
| 5.011 | 3.943     | 853.6     | 97.4       | 1.257        | 1.200        | 0.816       | 0.0                | 119            | 2.665              |
| 5.012 | 2.361     | 511.2     | 99.3       | 1.200        | 0.873        | 0.836       | 0.0                | 156            | 1.846              |
| 5.013 | 2.504     | 542.0     | 100.1      | 0.873        | 0.788        | 0.851       | 0.0                | 152            | 1.931              |
| 5.014 | 3.845     | 832.4     | 109.7      | 0.800        | 0.488        | 0.936       | 0.0                | 127            | 2.702              |
| 5.015 | 3.751     | 1342.4    | 108.9      | 0.488        | 0.825        | 0.936       | 0.0                | 128            | 2.304              |
| 8.013 | 0.584     | 23.2      | 9.7        | 1.435        | 1.275        | 0.075       | 0.0                | 102            | 0.559              |

### Links

| Name  | US Node | DS Node | Length (m) | ks (mm) / n | US IL (m) | DS IL (m) | Fall (m) | Slope (1:X) | Dia (mm) | T of C (mins) | Rain (mm/hr) |
|-------|---------|---------|------------|-------------|-----------|-----------|----------|-------------|----------|---------------|--------------|
| 1.017 | 78      | 79      | 5.100      | 0.600       | 41.000    | 40.980    | 0.020    | 255.0       | 675      | 8.34          | 40.5         |
| 1.018 | 79      | 80      | 38.424     | 0.600       | 40.980    | 40.900    | 0.080    | 480.3       | 675      | 8.88          | 39.2         |

| Name  | Vel (m/s) | Cap (l/s) | Flow (l/s) | US Depth (m) | DS Depth (m) | Σ Area (ha) | Σ Add Inflow (l/s) | Pro Depth (mm) | Pro Velocity (m/s) |
|-------|-----------|-----------|------------|--------------|--------------|-------------|--------------------|----------------|--------------------|
| 1.017 | 1.636     | 585.5     | 310.8      | 0.825        | 0.845        | 2.833       | 0.0                | 350            | 1.659              |
| 1.018 | 1.189     | 425.4     | 300.6      | 0.845        | 0.425        | 2.833       | 0.0                | 420            | 1.284              |

### Simulation Settings

|                      |        |                            |      |                          |   |
|----------------------|--------|----------------------------|------|--------------------------|---|
| Rainfall Methodology | FEH-22 | Skip Steady State          | ✓    | Check Discharge Volume   | ✓ |
| Summer CV            | 0.750  | Drain Down Time (mins)     | 240  | 100 year 360 minute (m³) |   |
| Winter CV            | 0.840  | Additional Storage (m³/ha) | 20.0 |                          |   |
| Analysis Speed       | Normal | Check Discharge Rate(s)    | ✓    |                          |   |

### 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 %) |
|-----------------------|-----------------------|-----------------------|-----------------------|
| 2                     | 0                     | 0                     | 0                     |
| 30                    | 0                     | 0                     | 0                     |
| 100                   | 0                     | 0                     | 0                     |
| 100                   | 40                    | 10                    | 0                     |

### Pre-development Discharge Rate

|                              |            |                        |      |
|------------------------------|------------|------------------------|------|
| Site Makeup                  | Greenfield | Growth Factor 30 year  | 1.95 |
| Greenfield Method            | IH124      | Growth Factor 100 year | 2.48 |
| Positively Drained Area (ha) |            | Betterment (%)         | 0    |
| SAAR (mm)                    |            | QBar                   |      |
| Soil Index                   | 1          | Q 1 year (l/s)         |      |
| SPR                          | 0.10       | Q 30 year (l/s)        |      |
| Region                       | 1          | Q 100 year (l/s)       |      |
| Growth Factor 1 year         | 0.85       |                        |      |

### Pre-development Discharge Volume

|                              |            |                       |     |
|------------------------------|------------|-----------------------|-----|
| Site Makeup                  | Greenfield | Return Period (years) | 100 |
| Greenfield Method            | FSR/FEH    | Climate Change (%)    | 0   |
| Positively Drained Area (ha) |            | Storm Duration (mins) | 360 |
| Soil Index                   | 1          | Betterment (%)        | 0   |
| SPR                          | 0.10       | PR                    |     |
| CWI                          |            | Runoff Volume (m³)    |     |

### Node 79 Online Head/Flow Control

|                          |   |                  |        |                   |      |
|--------------------------|---|------------------|--------|-------------------|------|
| Flap Valve               | x | Invert Level (m) | 40.980 | Design Flow (l/s) | 69.0 |
| Replaces Downstream Link | ✓ | Design Depth (m) | 0.850  |                   |      |

| Head<br>(m) | Flow<br>(l/s) |
|-------------|---------------|
| 0.850       | 43.500        |

**Node 78 Depth/Area Storage Structure**

|                             |         |               |      |                           |        |
|-----------------------------|---------|---------------|------|---------------------------|--------|
| Base Inf Coefficient (m/hr) | 0.00000 | Safety Factor | 2.0  | Invert Level (m)          | 41.000 |
| Side Inf Coefficient (m/hr) | 0.00000 | Porosity      | 1.00 | Time to half empty (mins) |        |

| Depth<br>(m) | Area<br>(m²) | Inf Area<br>(m²) | Depth<br>(m) | Area<br>(m²) | Inf Area<br>(m²) | Depth<br>(m) | Area<br>(m²) | Inf Area<br>(m²) |
|--------------|--------------|------------------|--------------|--------------|------------------|--------------|--------------|------------------|
| 0.000        | 2100.0       | 0.0              | 1.000        | 2100.0       | 0.0              | 1.001        | 0.0          | 0.0              |

**Results for 2 year Critical Storm Duration. Lowest mass balance: 99.89%**

| Node Event       | US<br>Node | Peak<br>(mins) | Level<br>(m) | Depth<br>(m) | Inflow<br>(l/s) | Node<br>Vol (m³) | Flood<br>(m³) | Status |
|------------------|------------|----------------|--------------|--------------|-----------------|------------------|---------------|--------|
| 15 minute winter | 1          | 10             | 47.826       | 0.047        | 9.9             | 0.1058           | 0.0000        | OK     |
| 15 minute winter | 2          | 10             | 47.141       | 0.094        | 21.0            | 0.2239           | 0.0000        | OK     |
| 15 minute winter | 3          | 10             | 46.926       | 0.111        | 27.1            | 0.2242           | 0.0000        | OK     |
| 15 minute winter | 4          | 11             | 46.873       | 0.109        | 33.4            | 0.2223           | 0.0000        | OK     |
| 15 minute winter | 5          | 11             | 46.656       | 0.112        | 44.2            | 0.2703           | 0.0000        | OK     |
| 15 minute winter | 6          | 11             | 46.349       | 0.127        | 56.4            | 0.3607           | 0.0000        | OK     |
| 15 minute winter | 7          | 11             | 46.229       | 0.195        | 63.2            | 0.4529           | 0.0000        | OK     |
| 15 minute winter | 8          | 10             | 46.659       | 0.050        | 6.9             | 0.0926           | 0.0000        | OK     |
| 15 minute winter | 9          | 11             | 46.012       | 0.122        | 89.3            | 0.4373           | 0.0000        | OK     |
| 15 minute winter | 10         | 11             | 45.331       | 0.168        | 95.7            | 0.3952           | 0.0000        | OK     |
| 15 minute winter | 11         | 10             | 46.076       | 0.072        | 19.2            | 0.2414           | 0.0000        | OK     |
| 15 minute winter | 12         | 11             | 45.499       | 0.123        | 35.2            | 0.3459           | 0.0000        | OK     |
| 15 minute winter | 13         | 11             | 45.292       | 0.140        | 40.5            | 0.3182           | 0.0000        | OK     |
| 15 minute winter | 14         | 11             | 45.190       | 0.168        | 139.0           | 0.3524           | 0.0000        | OK     |
| 15 minute winter | 15         | 11             | 44.762       | 0.132        | 143.5           | 0.2914           | 0.0000        | OK     |
| 15 minute winter | 16         | 12             | 43.795       | 0.268        | 147.6           | 0.5680           | 0.0000        | OK     |
| 15 minute winter | 17         | 10             | 44.061       | 0.100        | 17.2            | 0.3093           | 0.0000        | OK     |
| 15 minute winter | 18         | 10             | 43.960       | 0.083        | 23.4            | 0.1683           | 0.0000        | OK     |
| 15 minute winter | 19         | 12             | 43.680       | 0.191        | 171.3           | 0.3757           | 0.0000        | OK     |
| 15 minute winter | 20         | 12             | 43.377       | 0.157        | 174.5           | 0.3132           | 0.0000        | OK     |
| 15 minute winter | 21         | 12             | 42.515       | 0.135        | 177.2           | 0.2680           | 0.0000        | OK     |
| 15 minute winter | 22         | 11             | 41.900       | 0.296        | 183.4           | 0.6858           | 0.0000        | OK     |
| 15 minute winter | 23         | 11             | 41.839       | 0.333        | 188.5           | 0.7029           | 0.0000        | OK     |
| 15 minute winter | 24         | 10             | 48.420       | 0.063        | 8.6             | 0.1244           | 0.0000        | OK     |
| 15 minute winter | 25         | 11             | 48.187       | 0.092        | 13.0            | 0.1496           | 0.0000        | OK     |

| Link Event<br>(Upstream Depth) | US<br>Node | Link  | DS<br>Node | Outflow<br>(l/s) | Velocity<br>(m/s) | Flow/Cap | Link<br>Vol (m³) | Discharge<br>Vol (m³) |
|--------------------------------|------------|-------|------------|------------------|-------------------|----------|------------------|-----------------------|
| 15 minute winter               | 1          | 1.000 | 2          | 9.8              | 1.401             | 0.052    | 0.1602           |                       |
| 15 minute winter               | 2          | 1.001 | 3          | 20.6             | 0.996             | 0.128    | 0.5041           |                       |
| 15 minute winter               | 3          | 1.002 | 4          | 27.0             | 0.903             | 0.108    | 0.2547           |                       |
| 15 minute winter               | 4          | 1.003 | 5          | 33.6             | 1.184             | 0.118    | 0.5267           |                       |
| 15 minute winter               | 5          | 1.004 | 6          | 44.5             | 1.212             | 0.099    | 1.3672           |                       |
| 15 minute winter               | 6          | 1.005 | 7          | 57.0             | 1.018             | 0.111    | 0.9516           |                       |
| 15 minute winter               | 7          | 1.006 | 9          | 61.8             | 0.958             | 0.285    | 2.2113           |                       |
| 15 minute winter               | 8          | 2.000 | 9          | 6.7              | 1.057             | 0.103    | 0.1378           |                       |
| 15 minute winter               | 9          | 1.007 | 10         | 88.8             | 1.699             | 0.094    | 2.0212           |                       |
| 15 minute winter               | 10         | 1.008 | 14         | 94.6             | 1.485             | 0.137    | 0.9154           |                       |
| 15 minute winter               | 11         | 3.000 | 12         | 18.6             | 1.291             | 0.078    | 0.5642           |                       |
| 15 minute winter               | 12         | 3.001 | 13         | 34.9             | 1.019             | 0.157    | 1.0710           |                       |
| 15 minute winter               | 13         | 3.002 | 14         | 40.8             | 0.928             | 0.140    | 0.6710           |                       |
| 15 minute winter               | 14         | 1.009 | 15         | 138.5            | 2.520             | 0.140    | 1.0565           |                       |
| 15 minute winter               | 15         | 1.010 | 16         | 142.6            | 1.737             | 0.110    | 2.6099           |                       |
| 15 minute winter               | 16         | 1.011 | 19         | 148.4            | 1.497             | 0.524    | 2.1996           |                       |
| 15 minute winter               | 17         | 4.000 | 18         | 16.8             | 0.811             | 0.152    | 0.5639           |                       |
| 15 minute winter               | 18         | 4.001 | 19         | 23.2             | 1.360             | 0.093    | 0.1809           |                       |
| 15 minute winter               | 19         | 1.012 | 20         | 172.4            | 2.541             | 0.164    | 0.7895           |                       |
| 15 minute winter               | 20         | 1.013 | 21         | 175.1            | 3.307             | 0.127    | 1.1193           |                       |
| 15 minute winter               | 21         | 1.014 | 22         | 177.7            | 1.994             | 0.111    | 1.3330           |                       |
| 15 minute winter               | 22         | 1.015 | 23         | 185.9            | 1.384             | 0.331    | 2.1929           |                       |
| 15 minute winter               | 23         | 1.016 | 78         | 202.3            | 2.901             | 0.246    | 5.9017           |                       |
| 15 minute winter               | 24         | 5.000 | 25         | 8.4              | 0.704             | 0.171    | 0.3512           |                       |
| 15 minute winter               | 25         | 5.001 | 26         | 12.9             | 0.873             | 0.322    | 0.1982           |                       |

**Results for 2 year Critical Storm Duration. Lowest mass balance: 99.89%**

| Node Event        | US<br>Node | Peak<br>(mins) | Level<br>(m) | Depth<br>(m) | Inflow<br>(l/s) | Node<br>Vol (m³) | Flood<br>(m³) | Status |
|-------------------|------------|----------------|--------------|--------------|-----------------|------------------|---------------|--------|
| 15 minute winter  | 26         | 11             | 47.933       | 0.068        | 18.5            | 0.1086           | 0.0000        | OK     |
| 15 minute winter  | 27         | 11             | 47.365       | 0.085        | 32.7            | 0.2370           | 0.0000        | OK     |
| 15 minute winter  | 28         | 11             | 46.454       | 0.090        | 55.1            | 0.3259           | 0.0000        | OK     |
| 15 minute winter  | 29         | 11             | 45.840       | 0.203        | 57.7            | 0.3334           | 0.0000        | OK     |
| 15 minute winter  | 30         | 10             | 46.007       | 0.061        | 8.8             | 0.1247           | 0.0000        | OK     |
| 15 minute winter  | 31         | 11             | 45.793       | 0.186        | 66.4            | 0.2666           | 0.0000        | OK     |
| 15 minute winter  | 32         | 11             | 45.729       | 0.141        | 80.3            | 0.3681           | 0.0000        | OK     |
| 15 minute winter  | 33         | 11             | 45.303       | 0.110        | 86.1            | 0.2178           | 0.0000        | OK     |
| 15 minute winter  | 34         | 11             | 44.231       | 0.165        | 91.8            | 0.3081           | 0.0000        | OK     |
| 15 minute summer  | 35         | 1              | 44.564       | 0.000        | 0.0             | 0.0000           | 0.0000        | OK     |
| 15 minute summer  | 36         | 1              | 44.166       | 0.000        | 0.0             | 0.0000           | 0.0000        | OK     |
| 15 minute winter  | 37         | 11             | 43.917       | 0.125        | 97.8            | 0.2412           | 0.0000        | OK     |
| 15 minute winter  | 38         | 11             | 43.008       | 0.130        | 103.3           | 0.2951           | 0.0000        | OK     |
| 15 minute winter  | 39         | 11             | 42.628       | 0.183        | 105.4           | 0.3667           | 0.0000        | OK     |
| 15 minute winter  | 40         | 11             | 42.482       | 0.170        | 106.7           | 0.3376           | 0.0000        | OK     |
| 15 minute winter  | 41         | 11             | 42.188       | 0.147        | 116.0           | 0.4469           | 0.0000        | OK     |
| 15 minute summer  | 42         | 10             | 41.708       | 0.243        | 110.9           | 0.4302           | 0.0000        | OK     |
| 15 minute winter  | 77         | 8              | 41.217       | 0.144        | 9.9             | 0.2936           | 0.0000        | OK     |
| 480 minute winter | 78         | 392            | 41.217       | 0.217        | 56.4            | 456.5710         | 0.0000        | OK     |
| 480 minute winter | 79         | 392            | 41.217       | 0.236        | 12.1            | 0.4179           | 0.0000        | OK     |
| 15 minute summer  | 80         | 1              | 40.900       | 0.000        | 4.5             | 0.0000           | 0.0000        | OK     |

| Link Event<br>(Upstream Depth) | US<br>Node | Link      | DS<br>Node | Outflow<br>(l/s) | Velocity<br>(m/s) | Flow/Cap | Link<br>Vol (m³) | Discharge<br>Vol (m³) |
|--------------------------------|------------|-----------|------------|------------------|-------------------|----------|------------------|-----------------------|
| 15 minute winter               | 26         | 5.002     | 27         | 18.6             | 1.160             | 0.073    | 0.5753           |                       |
| 15 minute winter               | 27         | 5.003     | 28         | 32.6             | 1.783             | 0.108    | 0.6844           |                       |
| 15 minute winter               | 28         | 5.004     | 29         | 55.2             | 1.243             | 0.090    | 0.9432           |                       |
| 15 minute winter               | 29         | 5.005     | 31         | 58.1             | 0.885             | 0.360    | 0.8064           |                       |
| 15 minute winter               | 30         | 6.000     | 31         | 8.7              | 1.059             | 0.139    | 0.0657           |                       |
| 15 minute winter               | 31         | 5.006     | 32         | 66.6             | 1.280             | 0.415    | 0.3980           |                       |
| 15 minute winter               | 32         | 5.007     | 33         | 80.6             | 2.229             | 0.181    | 0.7590           |                       |
| 15 minute winter               | 33         | 5.008     | 34         | 86.2             | 2.107             | 0.135    | 1.2005           |                       |
| 15 minute winter               | 34         | 5.009     | 37         | 91.7             | 1.901             | 0.231    | 0.6423           |                       |
| 15 minute summer               | 35         | 7.000     | 36         | 0.0              | 0.000             | 0.000    | 0.0000           |                       |
| 15 minute summer               | 36         | 7.001     | 37         | 0.0              | 0.000             | 0.000    | 0.0000           |                       |
| 15 minute winter               | 37         | 5.010     | 38         | 97.7             | 2.418             | 0.119    | 1.2834           |                       |
| 15 minute winter               | 38         | 5.011     | 39         | 102.9            | 1.906             | 0.121    | 0.7635           |                       |
| 15 minute winter               | 39         | 5.012     | 40         | 104.8            | 1.642             | 0.205    | 0.7632           |                       |
| 15 minute winter               | 40         | 5.013     | 41         | 106.6            | 1.879             | 0.197    | 1.1781           |                       |
| 15 minute winter               | 41         | 5.014     | 42         | 116.2            | 2.562             | 0.140    | 0.6592           |                       |
| 15 minute summer               | 42         | 5.015     | 78         | 114.8            | 3.121             | 0.086    | 1.3363           |                       |
| 15 minute winter               | 77         | 8.013     | 78         | 11.0             | 1.116             | 0.475    | 0.4840           |                       |
| 480 minute winter              | 78         | 1.017     | 79         | 12.1             | 0.350             | 0.021    | 0.5360           |                       |
| 480 minute winter              | 79         | Head/Flow | 80         | 12.1             |                   |          |                  | 337.4                 |

**Results for 30 year Critical Storm Duration. Lowest mass balance: 99.89%**

| Node Event       | US Node | Peak (mins) | Level (m) | Depth (m) | Inflow (l/s) | Node Vol (m³) | Flood (m³) | Status     |
|------------------|---------|-------------|-----------|-----------|--------------|---------------|------------|------------|
| 15 minute winter | 1       | 10          | 47.859    | 0.080     | 29.5         | 0.1797        | 0.0000     | OK         |
| 15 minute winter | 2       | 10          | 47.218    | 0.171     | 62.7         | 0.4093        | 0.0000     | OK         |
| 15 minute winter | 3       | 10          | 47.025    | 0.210     | 81.0         | 0.4250        | 0.0000     | OK         |
| 15 minute winter | 4       | 10          | 46.964    | 0.200     | 100.1        | 0.4071        | 0.0000     | OK         |
| 15 minute winter | 5       | 10          | 46.750    | 0.206     | 131.9        | 0.4960        | 0.0000     | OK         |
| 15 minute winter | 6       | 11          | 46.474    | 0.251     | 167.5        | 0.7168        | 0.0000     | OK         |
| 15 minute winter | 7       | 11          | 46.399    | 0.365     | 187.4        | 0.8478        | 0.0000     | OK         |
| 15 minute winter | 8       | 10          | 46.698    | 0.089     | 20.4         | 0.1659        | 0.0000     | OK         |
| 15 minute winter | 9       | 11          | 46.114    | 0.224     | 269.4        | 0.8066        | 0.0000     | OK         |
| 15 minute winter | 10      | 11          | 45.497    | 0.333     | 289.9        | 0.7846        | 0.0000     | OK         |
| 15 minute winter | 11      | 10          | 46.128    | 0.124     | 57.0         | 0.4178        | 0.0000     | OK         |
| 15 minute winter | 12      | 10          | 45.604    | 0.229     | 105.5        | 0.6403        | 0.0000     | OK         |
| 15 minute winter | 13      | 11          | 45.417    | 0.265     | 120.6        | 0.6014        | 0.0000     | OK         |
| 15 minute winter | 14      | 11          | 45.345    | 0.324     | 421.3        | 0.6777        | 0.0000     | OK         |
| 15 minute winter | 15      | 11          | 44.876    | 0.246     | 436.1        | 0.5433        | 0.0000     | OK         |
| 15 minute winter | 16      | 11          | 44.076    | 0.550     | 450.8        | 1.1642        | 0.0000     | OK         |
| 15 minute winter | 17      | 10          | 44.143    | 0.182     | 51.1         | 0.5603        | 0.0000     | OK         |
| 15 minute winter | 18      | 10          | 44.030    | 0.153     | 69.9         | 0.3119        | 0.0000     | OK         |
| 15 minute winter | 19      | 11          | 43.873    | 0.384     | 522.3        | 0.7550        | 0.0000     | OK         |
| 15 minute winter | 20      | 11          | 43.516    | 0.296     | 527.6        | 0.5885        | 0.0000     | OK         |
| 15 minute winter | 21      | 11          | 42.686    | 0.306     | 533.3        | 0.6091        | 0.0000     | OK         |
| 15 minute winter | 22      | 11          | 42.243    | 0.640     | 551.2        | 1.4794        | 0.0000     | SURCHARGED |
| 15 minute summer | 23      | 11          | 42.046    | 0.540     | 541.0        | 1.1396        | 0.0000     | OK         |
| 15 minute winter | 24      | 10          | 48.470    | 0.113     | 25.5         | 0.2243        | 0.0000     | OK         |
| 15 minute winter | 25      | 11          | 48.287    | 0.192     | 39.0         | 0.3114        | 0.0000     | OK         |

| Link Event<br>(Upstream Depth) | US Node | Link  | DS Node | Outflow (l/s) | Velocity (m/s) | Flow/Cap | Link Vol (m³) | Discharge Vol (m³) |
|--------------------------------|---------|-------|---------|---------------|----------------|----------|---------------|--------------------|
| 15 minute winter               | 1       | 1.000 | 2       | 29.3          | 1.742          | 0.156    | 0.3981        |                    |
| 15 minute winter               | 2       | 1.001 | 3       | 61.4          | 1.325          | 0.382    | 1.1305        |                    |
| 15 minute winter               | 3       | 1.002 | 4       | 80.5          | 1.146          | 0.322    | 0.5986        |                    |
| 15 minute winter               | 4       | 1.003 | 5       | 99.7          | 1.570          | 0.349    | 1.1789        |                    |
| 15 minute winter               | 5       | 1.004 | 6       | 132.4         | 1.472          | 0.294    | 3.3458        |                    |
| 15 minute winter               | 6       | 1.005 | 7       | 168.9         | 1.284          | 0.329    | 2.2111        |                    |
| 15 minute winter               | 7       | 1.006 | 9       | 187.0         | 1.318          | 0.862    | 4.8118        |                    |
| 15 minute winter               | 8       | 2.000 | 9       | 20.1          | 1.419          | 0.305    | 0.3055        |                    |
| 15 minute winter               | 9       | 1.007 | 10      | 269.6         | 2.103          | 0.284    | 4.9324        |                    |
| 15 minute winter               | 10      | 1.008 | 14      | 289.5         | 1.847          | 0.421    | 2.2390        |                    |
| 15 minute winter               | 11      | 3.000 | 12      | 56.4          | 1.563          | 0.236    | 1.4506        |                    |
| 15 minute winter               | 12      | 3.001 | 13      | 103.5         | 1.354          | 0.465    | 2.4013        |                    |
| 15 minute winter               | 13      | 3.002 | 14      | 120.7         | 1.183          | 0.416    | 1.6011        |                    |
| 15 minute winter               | 14      | 1.009 | 15      | 421.3         | 3.209          | 0.427    | 2.5230        |                    |
| 15 minute winter               | 15      | 1.010 | 16      | 436.1         | 2.218          | 0.336    | 5.9038        |                    |
| 15 minute winter               | 16      | 1.011 | 19      | 446.7         | 1.938          | 1.577    | 5.0945        |                    |
| 15 minute winter               | 17      | 4.000 | 18      | 50.3          | 1.056          | 0.454    | 1.2903        |                    |
| 15 minute winter               | 18      | 4.001 | 19      | 69.0          | 1.766          | 0.278    | 0.4592        |                    |
| 15 minute winter               | 19      | 1.012 | 20      | 520.2         | 3.172          | 0.496    | 1.9085        |                    |
| 15 minute winter               | 20      | 1.013 | 21      | 525.9         | 3.814          | 0.382    | 2.9859        |                    |
| 15 minute winter               | 21      | 1.014 | 22      | 533.8         | 2.443          | 0.333    | 3.0685        |                    |
| 15 minute winter               | 22      | 1.015 | 23      | 554.9         | 2.059          | 0.987    | 3.9998        |                    |
| 15 minute summer               | 23      | 1.016 | 78      | 562.9         | 3.592          | 0.684    | 10.8696       |                    |
| 15 minute winter               | 24      | 5.000 | 25      | 25.2          | 0.892          | 0.510    | 0.8122        |                    |
| 15 minute winter               | 25      | 5.001 | 26      | 38.1          | 1.131          | 0.953    | 0.4511        |                    |

**Results for 30 year Critical Storm Duration. Lowest mass balance: 99.89%**

| Node Event        | US Node | Peak (mins) | Level (m) | Depth (m) | Inflow (l/s) | Node Vol (m³) | Flood (m³) | Status     |
|-------------------|---------|-------------|-----------|-----------|--------------|---------------|------------|------------|
| 15 minute winter  | 26      | 10          | 47.982    | 0.117     | 55.1         | 0.1881        | 0.0000     | OK         |
| 15 minute winter  | 27      | 11          | 47.433    | 0.153     | 97.7         | 0.4268        | 0.0000     | OK         |
| 15 minute winter  | 28      | 10          | 46.528    | 0.164     | 165.6        | 0.5914        | 0.0000     | OK         |
| 15 minute winter  | 29      | 11          | 46.041    | 0.404     | 172.3        | 0.6632        | 0.0000     | OK         |
| 15 minute winter  | 30      | 10          | 46.061    | 0.115     | 25.9         | 0.2361        | 0.0000     | OK         |
| 15 minute winter  | 31      | 11          | 45.957    | 0.351     | 197.7        | 0.5019        | 0.0000     | OK         |
| 15 minute winter  | 32      | 11          | 45.857    | 0.270     | 239.1        | 0.7040        | 0.0000     | OK         |
| 15 minute winter  | 33      | 11          | 45.393    | 0.201     | 256.6        | 0.3964        | 0.0000     | OK         |
| 15 minute winter  | 34      | 11          | 44.400    | 0.333     | 274.3        | 0.6233        | 0.0000     | OK         |
| 15 minute summer  | 35      | 1           | 44.564    | 0.000     | 0.0          | 0.0000        | 0.0000     | OK         |
| 15 minute summer  | 36      | 1           | 44.166    | 0.000     | 0.0          | 0.0000        | 0.0000     | OK         |
| 15 minute winter  | 37      | 11          | 44.021    | 0.229     | 293.9        | 0.4407        | 0.0000     | OK         |
| 15 minute winter  | 38      | 11          | 43.146    | 0.268     | 311.0        | 0.6087        | 0.0000     | OK         |
| 15 minute winter  | 39      | 11          | 42.818    | 0.373     | 318.2        | 0.7465        | 0.0000     | OK         |
| 15 minute winter  | 40      | 11          | 42.648    | 0.336     | 323.1        | 0.6653        | 0.0000     | OK         |
| 15 minute winter  | 41      | 11          | 42.330    | 0.289     | 353.0        | 0.8821        | 0.0000     | OK         |
| 15 minute winter  | 42      | 8           | 41.799    | 0.334     | 352.1        | 0.5904        | 0.0000     | OK         |
| 240 minute winter | 77      | 236         | 41.476    | 0.403     | 5.6          | 0.8195        | 0.0000     | SURCHARGED |
| 240 minute winter | 78      | 236         | 41.476    | 0.476     | 210.2        | 1001.4510     | 0.0000     | OK         |
| 240 minute winter | 79      | 236         | 41.475    | 0.495     | 25.4         | 0.8752        | 0.0000     | OK         |
| 15 minute summer  | 80      | 1           | 40.900    | 0.000     | 11.6         | 0.0000        | 0.0000     | OK         |

| Link Event<br>(Upstream Depth) | US Node | Link      | DS Node | Outflow (l/s) | Velocity (m/s) | Flow/Cap | Link Vol (m³) | Discharge Vol (m³) |
|--------------------------------|---------|-----------|---------|---------------|----------------|----------|---------------|--------------------|
| 15 minute winter               | 26      | 5.002     | 27      | 55.1          | 1.547          | 0.215    | 1.2786        |                    |
| 15 minute winter               | 27      | 5.003     | 28      | 97.0          | 2.389          | 0.323    | 1.5224        |                    |
| 15 minute winter               | 28      | 5.004     | 29      | 164.4         | 1.575          | 0.269    | 2.0658        |                    |
| 15 minute winter               | 29      | 5.005     | 31      | 173.1         | 1.220          | 1.072    | 1.7351        |                    |
| 15 minute winter               | 30      | 6.000     | 31      | 25.6          | 1.359          | 0.411    | 0.1709        |                    |
| 15 minute winter               | 31      | 5.006     | 32      | 198.4         | 1.702          | 1.237    | 0.8837        |                    |
| 15 minute winter               | 32      | 5.007     | 33      | 240.0         | 2.863          | 0.540    | 1.7541        |                    |
| 15 minute winter               | 33      | 5.008     | 34      | 257.7         | 2.633          | 0.404    | 2.8243        |                    |
| 15 minute winter               | 34      | 5.009     | 37      | 275.4         | 2.439          | 0.695    | 1.4987        |                    |
| 15 minute summer               | 35      | 7.000     | 36      | 0.0           | 0.000          | 0.000    | 0.0000        |                    |
| 15 minute summer               | 36      | 7.001     | 37      | 0.0           | 0.000          | 0.000    | 0.0000        |                    |
| 15 minute winter               | 37      | 5.010     | 38      | 294.4         | 2.930          | 0.357    | 3.1902        |                    |
| 15 minute winter               | 38      | 5.011     | 39      | 310.8         | 2.250          | 0.364    | 1.9331        |                    |
| 15 minute winter               | 39      | 5.012     | 40      | 317.6         | 2.047          | 0.621    | 1.8521        |                    |
| 15 minute winter               | 40      | 5.013     | 41      | 321.6         | 2.430          | 0.593    | 2.7486        |                    |
| 15 minute winter               | 41      | 5.014     | 42      | 352.1         | 3.283          | 0.423    | 1.5577        |                    |
| 15 minute winter               | 42      | 5.015     | 78      | 354.9         | 3.954          | 0.264    | 2.1619        |                    |
| 240 minute winter              | 77      | 8.013     | 78      | 5.2           | 0.534          | 0.223    | 1.4202        |                    |
| 240 minute winter              | 78      | 1.017     | 79      | 25.4          | 0.357          | 0.043    | 1.4011        |                    |
| 240 minute winter              | 79      | Head/Flow | 80      | 25.3          |                |          |               | 500.2              |

**Results for 100 year Critical Storm Duration. Lowest mass balance: 99.89%**

| Node Event       | US Node | Peak (mins) | Level (m) | Depth (m) | Inflow (l/s) | Node Vol (m³) | Flood (m³) | Status     |
|------------------|---------|-------------|-----------|-----------|--------------|---------------|------------|------------|
| 15 minute winter | 1       | 10          | 47.869    | 0.090     | 38.0         | 0.2023        | 0.0000     | OK         |
| 15 minute winter | 2       | 10          | 47.247    | 0.200     | 80.7         | 0.4774        | 0.0000     | OK         |
| 15 minute winter | 3       | 10          | 47.062    | 0.247     | 104.5        | 0.5006        | 0.0000     | OK         |
| 15 minute winter | 4       | 10          | 46.997    | 0.233     | 129.2        | 0.4752        | 0.0000     | OK         |
| 15 minute winter | 5       | 10          | 46.787    | 0.242     | 170.4        | 0.5850        | 0.0000     | OK         |
| 15 minute winter | 6       | 11          | 46.529    | 0.307     | 216.3        | 0.8743        | 0.0000     | OK         |
| 15 minute winter | 7       | 11          | 46.467    | 0.433     | 241.0        | 1.0043        | 0.0000     | OK         |
| 15 minute winter | 8       | 10          | 46.712    | 0.103     | 26.3         | 0.1923        | 0.0000     | OK         |
| 15 minute winter | 9       | 11          | 46.154    | 0.264     | 347.0        | 0.9484        | 0.0000     | OK         |
| 15 minute winter | 10      | 11          | 45.562    | 0.399     | 373.5        | 0.9386        | 0.0000     | OK         |
| 15 minute winter | 11      | 10          | 46.146    | 0.142     | 73.4         | 0.4773        | 0.0000     | OK         |
| 15 minute winter | 12      | 10          | 45.645    | 0.269     | 135.9        | 0.7529        | 0.0000     | OK         |
| 15 minute winter | 13      | 11          | 45.473    | 0.321     | 156.1        | 0.7280        | 0.0000     | OK         |
| 15 minute winter | 14      | 11          | 45.405    | 0.383     | 543.2        | 0.8032        | 0.0000     | OK         |
| 15 minute winter | 15      | 11          | 44.943    | 0.313     | 562.6        | 0.6922        | 0.0000     | OK         |
| 15 minute winter | 16      | 11          | 44.261    | 0.734     | 581.0        | 1.5544        | 0.0000     | SURCHARGED |
| 15 minute winter | 17      | 10          | 44.175    | 0.214     | 65.8         | 0.6586        | 0.0000     | OK         |
| 15 minute winter | 18      | 11          | 44.067    | 0.190     | 89.7         | 0.3873        | 0.0000     | OK         |
| 15 minute winter | 19      | 11          | 43.954    | 0.465     | 675.8        | 0.9145        | 0.0000     | OK         |
| 15 minute winter | 20      | 11          | 43.572    | 0.352     | 683.3        | 0.7009        | 0.0000     | OK         |
| 15 minute winter | 21      | 11          | 42.805    | 0.425     | 691.0        | 0.8448        | 0.0000     | OK         |
| 15 minute winter | 22      | 11          | 42.462    | 0.858     | 712.1        | 1.9850        | 0.0000     | SURCHARGED |
| 15 minute summer | 23      | 11          | 42.148    | 0.642     | 695.9        | 1.3555        | 0.0000     | OK         |
| 15 minute winter | 24      | 10          | 48.489    | 0.132     | 32.9         | 0.2625        | 0.0000     | OK         |
| 15 minute winter | 25      | 10          | 48.362    | 0.267     | 50.2         | 0.4324        | 0.0000     | SURCHARGED |

| Link Event<br>(Upstream Depth) | US Node | Link  | DS Node | Outflow (l/s) | Velocity (m/s) | Flow/Cap | Link Vol (m³) | Discharge Vol (m³) |
|--------------------------------|---------|-------|---------|---------------|----------------|----------|---------------|--------------------|
| 15 minute winter               | 1       | 1.000 | 2       | 37.7          | 1.744          | 0.200    | 0.5241        |                    |
| 15 minute winter               | 2       | 1.001 | 3       | 79.2          | 1.409          | 0.493    | 1.3713        |                    |
| 15 minute winter               | 3       | 1.002 | 4       | 103.9         | 1.207          | 0.416    | 0.7338        |                    |
| 15 minute winter               | 4       | 1.003 | 5       | 128.2         | 1.669          | 0.449    | 1.4284        |                    |
| 15 minute winter               | 5       | 1.004 | 6       | 170.5         | 1.500          | 0.378    | 4.2340        |                    |
| 15 minute winter               | 6       | 1.005 | 7       | 217.2         | 1.343          | 0.423    | 2.7069        |                    |
| 15 minute winter               | 7       | 1.006 | 9       | 240.8         | 1.429          | 1.110    | 5.6805        |                    |
| 15 minute winter               | 8       | 2.000 | 9       | 25.9          | 1.513          | 0.394    | 0.3699        |                    |
| 15 minute winter               | 9       | 1.007 | 10      | 347.3         | 2.177          | 0.366    | 6.1095        |                    |
| 15 minute winter               | 10      | 1.008 | 14      | 373.4         | 1.934          | 0.543    | 2.7592        |                    |
| 15 minute winter               | 11      | 3.000 | 12      | 72.6          | 1.560          | 0.304    | 1.8668        |                    |
| 15 minute winter               | 12      | 3.001 | 13      | 133.3         | 1.431          | 0.599    | 2.9260        |                    |
| 15 minute winter               | 13      | 3.002 | 14      | 155.5         | 1.214          | 0.536    | 2.0609        |                    |
| 15 minute winter               | 14      | 1.009 | 15      | 543.5         | 3.257          | 0.551    | 3.2444        |                    |
| 15 minute winter               | 15      | 1.010 | 16      | 561.9         | 2.296          | 0.433    | 6.7033        |                    |
| 15 minute winter               | 16      | 1.011 | 19      | 579.6         | 2.112          | 2.046    | 5.7047        |                    |
| 15 minute winter               | 17      | 4.000 | 18      | 64.4          | 1.087          | 0.582    | 1.6241        |                    |
| 15 minute winter               | 18      | 4.001 | 19      | 87.1          | 1.803          | 0.350    | 0.6933        |                    |
| 15 minute winter               | 19      | 1.012 | 20      | 673.8         | 3.308          | 0.642    | 2.3592        |                    |
| 15 minute winter               | 20      | 1.013 | 21      | 681.5         | 3.853          | 0.495    | 4.0659        |                    |
| 15 minute winter               | 21      | 1.014 | 22      | 686.6         | 2.589          | 0.428    | 3.5631        |                    |
| 15 minute winter               | 22      | 1.015 | 23      | 715.3         | 2.540          | 1.272    | 4.1263        |                    |
| 15 minute summer               | 23      | 1.016 | 78      | 724.5         | 3.662          | 0.881    | 12.7535       |                    |
| 15 minute winter               | 24      | 5.000 | 25      | 32.5          | 0.918          | 0.659    | 0.9306        |                    |
| 15 minute winter               | 25      | 5.001 | 26      | 49.1          | 1.251          | 1.228    | 0.5020        |                    |

**Results for 100 year Critical Storm Duration. Lowest mass balance: 99.89%**

| Node Event        | US Node | Peak (mins) | Level (m) | Depth (m) | Inflow (l/s) | Node Vol (m³) | Flood (m³) | Status     |
|-------------------|---------|-------------|-----------|-----------|--------------|---------------|------------|------------|
| 15 minute winter  | 26      | 10          | 48.000    | 0.135     | 71.4         | 0.2175        | 0.0000     | OK         |
| 15 minute winter  | 27      | 11          | 47.458    | 0.177     | 126.2        | 0.4959        | 0.0000     | OK         |
| 15 minute winter  | 28      | 11          | 46.547    | 0.183     | 213.5        | 0.6602        | 0.0000     | OK         |
| 15 minute winter  | 29      | 11          | 46.170    | 0.533     | 222.0        | 0.8752        | 0.0000     | SURCHARGED |
| 15 minute winter  | 30      | 11          | 46.094    | 0.148     | 33.4         | 0.3034        | 0.0000     | OK         |
| 15 minute winter  | 31      | 11          | 46.063    | 0.456     | 255.3        | 0.6530        | 0.0000     | SURCHARGED |
| 15 minute winter  | 32      | 11          | 45.910    | 0.323     | 308.2        | 0.8419        | 0.0000     | OK         |
| 15 minute winter  | 33      | 11          | 45.431    | 0.238     | 330.5        | 0.4710        | 0.0000     | OK         |
| 15 minute winter  | 34      | 11          | 44.484    | 0.417     | 352.9        | 0.7805        | 0.0000     | OK         |
| 15 minute summer  | 35      | 1           | 44.564    | 0.000     | 0.0          | 0.0000        | 0.0000     | OK         |
| 15 minute summer  | 36      | 1           | 44.166    | 0.000     | 0.0          | 0.0000        | 0.0000     | OK         |
| 15 minute winter  | 37      | 11          | 44.059    | 0.267     | 377.0        | 0.5137        | 0.0000     | OK         |
| 15 minute winter  | 38      | 11          | 43.210    | 0.331     | 398.7        | 0.7525        | 0.0000     | OK         |
| 15 minute winter  | 39      | 11          | 42.903    | 0.458     | 408.2        | 0.9159        | 0.0000     | OK         |
| 15 minute winter  | 40      | 11          | 42.716    | 0.404     | 414.8        | 0.7999        | 0.0000     | OK         |
| 15 minute winter  | 41      | 11          | 42.386    | 0.345     | 453.8        | 1.0510        | 0.0000     | OK         |
| 15 minute winter  | 42      | 7           | 41.832    | 0.367     | 453.2        | 0.6485        | 0.0000     | OK         |
| 240 minute winter | 77      | 240         | 41.598    | 0.525     | 7.1          | 1.0683        | 0.0000     | SURCHARGED |
| 240 minute winter | 78      | 236         | 41.598    | 0.598     | 264.7        | 1258.9480     | 0.0000     | OK         |
| 240 minute winter | 79      | 236         | 41.598    | 0.618     | 31.6         | 1.0912        | 0.0000     | OK         |
| 15 minute summer  | 80      | 1           | 40.900    | 0.000     | 14.7         | 0.0000        | 0.0000     | OK         |

| Link Event<br>(Upstream Depth) | US Node | Link      | DS Node | Outflow (l/s) | Velocity (m/s) | Flow/Cap | Link Vol (m³) | Discharge Vol (m³) |
|--------------------------------|---------|-----------|---------|---------------|----------------|----------|---------------|--------------------|
| 15 minute winter               | 26      | 5.002     | 27      | 71.0          | 1.639          | 0.277    | 1.5554        |                    |
| 15 minute winter               | 27      | 5.003     | 28      | 125.2         | 2.544          | 0.417    | 1.8453        |                    |
| 15 minute winter               | 28      | 5.004     | 29      | 212.5         | 1.660          | 0.348    | 2.2454        |                    |
| 15 minute winter               | 29      | 5.005     | 31      | 223.3         | 1.410          | 1.384    | 1.9465        |                    |
| 15 minute winter               | 30      | 6.000     | 31      | 32.7          | 1.371          | 0.526    | 0.2703        |                    |
| 15 minute winter               | 31      | 5.006     | 32      | 255.8         | 1.783          | 1.595    | 1.0680        |                    |
| 15 minute winter               | 32      | 5.007     | 33      | 309.1         | 2.975          | 0.695    | 2.1662        |                    |
| 15 minute winter               | 33      | 5.008     | 34      | 331.5         | 2.687          | 0.520    | 3.4710        |                    |
| 15 minute winter               | 34      | 5.009     | 37      | 353.3         | 2.536          | 0.891    | 1.8295        |                    |
| 15 minute summer               | 35      | 7.000     | 36      | 0.0           | 0.000          | 0.000    | 0.0000        |                    |
| 15 minute summer               | 36      | 7.001     | 37      | 0.0           | 0.000          | 0.000    | 0.0000        |                    |
| 15 minute winter               | 37      | 5.010     | 38      | 377.3         | 2.978          | 0.458    | 4.0243        |                    |
| 15 minute winter               | 38      | 5.011     | 39      | 398.7         | 2.289          | 0.467    | 2.4141        |                    |
| 15 minute winter               | 39      | 5.012     | 40      | 407.7         | 2.150          | 0.797    | 2.2589        |                    |
| 15 minute winter               | 40      | 5.013     | 41      | 413.3         | 2.555          | 0.763    | 3.3505        |                    |
| 15 minute winter               | 41      | 5.014     | 42      | 453.2         | 3.453          | 0.544    | 1.9028        |                    |
| 15 minute winter               | 42      | 5.015     | 78      | 456.7         | 4.097          | 0.340    | 2.6852        |                    |
| 240 minute winter              | 77      | 8.013     | 78      | 6.9           | 0.560          | 0.295    | 1.4202        |                    |
| 240 minute winter              | 78      | 1.017     | 79      | 31.6          | 0.360          | 0.054    | 1.7254        |                    |
| 240 minute winter              | 79      | Head/Flow | 80      | 31.6          |                |          |               | 623.5              |

**Results for 100 year +40% CC +10% A Critical Storm Duration. Lowest mass balance: 99.89%**

| Node Event       | US Node | Peak (mins) | Level (m) | Depth (m) | Inflow (l/s) | Node Vol (m³) | Flood (m³) | Status     |
|------------------|---------|-------------|-----------|-----------|--------------|---------------|------------|------------|
| 15 minute winter | 1       | 10          | 47.892    | 0.113     | 58.5         | 0.2665        | 0.0000     | OK         |
| 15 minute winter | 2       | 10          | 47.321    | 0.273     | 124.4        | 0.6797        | 0.0000     | OK         |
| 15 minute winter | 3       | 10          | 47.149    | 0.334     | 161.1        | 0.6954        | 0.0000     | OK         |
| 15 minute winter | 4       | 10          | 47.073    | 0.309     | 198.0        | 0.6478        | 0.0000     | OK         |
| 15 minute winter | 5       | 11          | 46.889    | 0.344     | 262.3        | 0.8647        | 0.0000     | OK         |
| 15 minute winter | 6       | 11          | 46.797    | 0.574     | 335.8        | 1.6994        | 0.0000     | SURCHARGED |
| 15 minute winter | 7       | 11          | 46.659    | 0.625     | 366.4        | 1.4851        | 0.0000     | SURCHARGED |
| 15 minute winter | 8       | 10          | 46.745    | 0.136     | 40.5         | 0.2624        | 0.0000     | OK         |
| 15 minute winter | 9       | 12          | 46.438    | 0.548     | 529.2        | 2.0714        | 0.0000     | OK         |
| 15 minute winter | 10      | 12          | 46.212    | 1.048     | 546.0        | 2.5284        | 0.0000     | SURCHARGED |
| 15 minute winter | 11      | 12          | 46.250    | 0.246     | 113.0        | 0.8746        | 0.0000     | OK         |
| 15 minute winter | 12      | 12          | 46.198    | 0.822     | 209.5        | 2.4170        | 0.0000     | SURCHARGED |
| 15 minute winter | 13      | 12          | 46.096    | 0.944     | 235.4        | 2.1881        | 0.0000     | SURCHARGED |
| 15 minute winter | 14      | 12          | 46.053    | 1.031     | 772.7        | 2.1945        | 0.0000     | SURCHARGED |
| 15 minute winter | 15      | 12          | 45.688    | 1.058     | 781.1        | 2.3864        | 0.0000     | SURCHARGED |
| 15 minute winter | 16      | 12          | 45.159    | 1.633     | 763.5        | 3.5148        | 0.0000     | SURCHARGED |
| 15 minute winter | 17      | 12          | 44.828    | 0.867     | 101.3        | 2.8139        | 0.0000     | SURCHARGED |
| 15 minute winter | 18      | 12          | 44.767    | 0.890     | 126.5        | 1.8636        | 0.0000     | SURCHARGED |
| 15 minute winter | 19      | 12          | 44.704    | 1.215     | 888.3        | 2.4142        | 0.0000     | SURCHARGED |
| 15 minute winter | 20      | 12          | 44.257    | 1.037     | 901.8        | 2.0862        | 0.0000     | SURCHARGED |
| 15 minute winter | 21      | 12          | 43.633    | 1.253     | 915.5        | 2.5210        | 0.0000     | SURCHARGED |
| 15 minute winter | 22      | 11          | 43.115    | 1.511     | 950.7        | 3.5792        | 0.0000     | SURCHARGED |
| 15 minute winter | 23      | 11          | 42.570    | 1.064     | 968.1        | 2.2827        | 0.0000     | SURCHARGED |
| 15 minute winter | 24      | 11          | 48.895    | 0.538     | 50.7         | 1.1151        | 0.0000     | SURCHARGED |
| 15 minute winter | 25      | 11          | 48.595    | 0.500     | 74.0         | 0.8347        | 0.0000     | SURCHARGED |

| Link Event<br>(Upstream Depth) | US Node | Link  | DS Node | Outflow (l/s) | Velocity (m/s) | Flow/Cap | Link Vol (m³) | Discharge Vol (m³) |
|--------------------------------|---------|-------|---------|---------------|----------------|----------|---------------|--------------------|
| 15 minute winter               | 1       | 1.000 | 2       | 58.1          | 1.738          | 0.309    | 0.8494        |                    |
| 15 minute winter               | 2       | 1.001 | 3       | 122.1         | 1.472          | 0.760    | 2.0292        |                    |
| 15 minute winter               | 3       | 1.002 | 4       | 159.0         | 1.317          | 0.637    | 1.0316        |                    |
| 15 minute winter               | 4       | 1.003 | 5       | 197.7         | 1.840          | 0.693    | 1.9922        |                    |
| 15 minute winter               | 5       | 1.004 | 6       | 261.7         | 1.537          | 0.580    | 6.8017        |                    |
| 15 minute winter               | 6       | 1.005 | 7       | 329.7         | 1.526          | 0.643    | 3.6395        |                    |
| 15 minute winter               | 7       | 1.006 | 9       | 365.6         | 1.735          | 1.685    | 7.1545        |                    |
| 15 minute winter               | 8       | 2.000 | 9       | 39.9          | 1.671          | 0.607    | 0.5726        |                    |
| 15 minute winter               | 9       | 1.007 | 10      | 505.1         | 2.203          | 0.532    | 10.5923       |                    |
| 15 minute winter               | 10      | 1.008 | 14      | 526.9         | 1.944          | 0.766    | 3.9953        |                    |
| 15 minute winter               | 11      | 3.000 | 12      | 112.0         | 1.564          | 0.470    | 3.6501        |                    |
| 15 minute winter               | 12      | 3.001 | 13      | 200.3         | 1.452          | 0.900    | 4.9552        |                    |
| 15 minute winter               | 13      | 3.002 | 14      | 222.4         | 1.234          | 0.766    | 3.2960        |                    |
| 15 minute winter               | 14      | 1.009 | 15      | 750.0         | 3.193          | 0.761    | 5.3961        |                    |
| 15 minute winter               | 15      | 1.010 | 16      | 745.6         | 2.647          | 0.574    | 8.7765        |                    |
| 15 minute winter               | 16      | 1.011 | 19      | 770.1         | 2.734          | 2.718    | 6.2282        |                    |
| 15 minute winter               | 17      | 4.000 | 18      | 89.8          | 1.123          | 0.810    | 2.9872        |                    |
| 15 minute winter               | 18      | 4.001 | 19      | 120.9         | 1.765          | 0.487    | 1.1710        |                    |
| 15 minute winter               | 19      | 1.012 | 20      | 889.6         | 3.266          | 0.848    | 3.2706        |                    |
| 15 minute winter               | 20      | 1.013 | 21      | 903.3         | 3.871          | 0.656    | 5.9442        |                    |
| 15 minute winter               | 21      | 1.014 | 22      | 917.2         | 3.256          | 0.572    | 4.0553        |                    |
| 15 minute winter               | 22      | 1.015 | 23      | 952.9         | 3.383          | 1.694    | 4.1263        |                    |
| 15 minute winter               | 23      | 1.016 | 78      | 979.9         | 3.587          | 1.191    | 18.6032       |                    |
| 15 minute winter               | 24      | 5.000 | 25      | 48.3          | 1.215          | 0.980    | 1.1568        |                    |
| 15 minute winter               | 25      | 5.001 | 26      | 74.3          | 1.868          | 1.859    | 0.5284        |                    |

**Results for 100 year +40% CC +10% A Critical Storm Duration. Lowest mass balance: 99.89%**

| Node Event        | US Node | Peak (mins) | Level (m) | Depth (m) | Inflow (l/s) | Node Vol (m³) | Flood (m³) | Status     |
|-------------------|---------|-------------|-----------|-----------|--------------|---------------|------------|------------|
| 15 minute winter  | 26      | 11          | 48.038    | 0.173     | 107.3        | 0.2854        | 0.0000     | OK         |
| 15 minute winter  | 27      | 11          | 47.514    | 0.233     | 190.7        | 0.6842        | 0.0000     | OK         |
| 15 minute winter  | 28      | 11          | 46.986    | 0.622     | 329.1        | 2.3829        | 0.0000     | SURCHARGED |
| 15 minute winter  | 29      | 12          | 46.702    | 1.065     | 325.4        | 1.7721        | 0.0000     | SURCHARGED |
| 15 minute winter  | 30      | 12          | 46.574    | 0.628     | 51.5         | 1.3509        | 0.0000     | SURCHARGED |
| 15 minute winter  | 31      | 12          | 46.483    | 0.876     | 368.5        | 1.2542        | 0.0000     | SURCHARGED |
| 15 minute winter  | 32      | 12          | 46.252    | 0.665     | 446.3        | 1.8116        | 0.0000     | SURCHARGED |
| 15 minute winter  | 33      | 12          | 45.679    | 0.486     | 470.4        | 0.9872        | 0.0000     | SURCHARGED |
| 15 minute summer  | 34      | 11          | 44.857    | 0.790     | 492.9        | 1.5135        | 0.0000     | SURCHARGED |
| 15 minute summer  | 35      | 1           | 44.564    | 0.000     | 0.0          | 0.0000        | 0.0000     | OK         |
| 15 minute winter  | 36      | 12          | 44.210    | 0.044     | 2.2          | 0.0498        | 0.0000     | OK         |
| 15 minute winter  | 37      | 11          | 44.206    | 0.414     | 529.1        | 0.8173        | 0.0000     | OK         |
| 15 minute winter  | 38      | 11          | 43.742    | 0.864     | 561.2        | 2.0059        | 0.0000     | SURCHARGED |
| 15 minute winter  | 39      | 11          | 43.384    | 0.939     | 573.8        | 1.8986        | 0.0000     | SURCHARGED |
| 15 minute winter  | 40      | 11          | 43.036    | 0.724     | 583.5        | 1.4508        | 0.0000     | SURCHARGED |
| 15 minute winter  | 41      | 11          | 42.504    | 0.463     | 645.1        | 1.4716        | 0.0000     | OK         |
| 360 minute winter | 42      | 344         | 41.928    | 0.463     | 97.4         | 0.8186        | 0.0000     | OK         |
| 360 minute winter | 77      | 344         | 41.928    | 0.855     | 7.8          | 1.8178        | 0.0000     | SURCHARGED |
| 360 minute winter | 78      | 344         | 41.928    | 0.928     | 294.2        | 1955.1940     | 0.0000     | SURCHARGED |
| 360 minute winter | 79      | 344         | 41.929    | 0.949     | 45.8         | 1.6761        | 0.0000     | SURCHARGED |
| 15 minute summer  | 80      | 1           | 40.900    | 0.000     | 22.2         | 0.0000        | 0.0000     | OK         |

| Link Event<br>(Upstream Depth) | US Node | Link      | DS Node | Outflow (l/s) | Velocity (m/s) | Flow/Cap | Link Vol (m³) | Discharge Vol (m³) |
|--------------------------------|---------|-----------|---------|---------------|----------------|----------|---------------|--------------------|
| 15 minute winter               | 26      | 5.002     | 27      | 107.8         | 1.802          | 0.421    | 2.1789        |                    |
| 15 minute winter               | 27      | 5.003     | 28      | 188.8         | 2.571          | 0.628    | 3.4173        |                    |
| 15 minute winter               | 28      | 5.004     | 29      | 310.7         | 1.961          | 0.509    | 3.2517        |                    |
| 15 minute winter               | 29      | 5.005     | 31      | 323.0         | 2.039          | 2.001    | 1.9465        |                    |
| 15 minute winter               | 30      | 6.000     | 31      | 45.5          | 1.329          | 0.732    | 0.3192        |                    |
| 15 minute winter               | 31      | 5.006     | 32      | 365.6         | 2.308          | 2.280    | 1.2080        |                    |
| 15 minute winter               | 32      | 5.007     | 33      | 437.4         | 3.025          | 0.984    | 3.3172        |                    |
| 15 minute winter               | 33      | 5.008     | 34      | 464.6         | 2.932          | 0.728    | 4.6117        |                    |
| 15 minute summer               | 34      | 5.009     | 37      | 492.7         | 3.110          | 1.243    | 2.0885        |                    |
| 15 minute summer               | 35      | 7.000     | 36      | 0.0           | 0.000          | 0.000    | 0.0253        |                    |
| 15 minute winter               | 36      | 7.001     | 37      | -2.2          | 0.321          | -0.055   | 0.1505        |                    |
| 15 minute winter               | 37      | 5.010     | 38      | 528.2         | 2.938          | 0.641    | 6.3254        |                    |
| 15 minute winter               | 38      | 5.011     | 39      | 559.1         | 2.588          | 0.655    | 3.0368        |                    |
| 15 minute winter               | 39      | 5.012     | 40      | 572.5         | 2.651          | 1.120    | 2.5812        |                    |
| 15 minute winter               | 40      | 5.013     | 41      | 582.7         | 2.698          | 1.075    | 4.4120        |                    |
| 15 minute winter               | 41      | 5.014     | 42      | 642.4         | 3.648          | 0.772    | 2.5274        |                    |
| 360 minute winter              | 42      | 5.015     | 78      | 97.3          | 1.917          | 0.073    | 7.0340        |                    |
| 360 minute winter              | 77      | 8.013     | 78      | 7.5           | 0.538          | 0.324    | 1.4202        |                    |
| 360 minute winter              | 78      | 1.017     | 79      | 45.8          | 0.366          | 0.078    | 1.8206        |                    |
| 360 minute winter              | 79      | Head/Flow | 80      | 43.5          |                |          |               | 1114.7             |

### Design Settings

|                                      |        |                                    |               |
|--------------------------------------|--------|------------------------------------|---------------|
| Rainfall Methodology                 | FEH-22 | Minimum Velocity (m/s)             | 1.00          |
| Return Period (years)                | 2      | Connection Type                    | Level Soffits |
| Additional Flow (%)                  | 0      | Minimum Backdrop Height (m)        | 0.750         |
| CV                                   | 0.750  | Preferred Cover Depth (m)          | 1.200         |
| Time of Entry (mins)                 | 5.00   | Include Intermediate Ground        | ✓             |
| Maximum Time of Concentration (mins) | 30.00  | Enforce best practice design rules | ✓             |
| Maximum Rainfall (mm/hr)             | 50.0   |                                    |               |

### Nodes

| Name | Area<br>(ha) | T of E<br>(mins) | Cover<br>Level<br>(m) | Diameter<br>(mm) | Easting<br>(m) | Northing<br>(m) | Depth<br>(m) |
|------|--------------|------------------|-----------------------|------------------|----------------|-----------------|--------------|
| 1    | 0.075        | 5.00             | 49.134                | 1200             | 478918.683     | 170622.890      | 1.355        |
| 2    | 0.085        | 5.00             | 48.821                | 1350             | 478918.364     | 170645.898      | 1.774        |
| 3    | 0.050        | 5.00             | 48.501                | 1350             | 478912.657     | 170669.494      | 1.686        |
| 4    | 0.050        | 5.00             | 48.414                | 1350             | 478907.616     | 170676.370      | 1.650        |
| 5    | 0.085        | 5.00             | 48.276                | 1350             | 478901.040     | 170693.726      | 1.732        |
| 6    | 0.095        | 5.00             | 47.976                | 1500             | 478883.084     | 170726.254      | 1.753        |
| 7    | 0.050        | 5.00             | 47.841                | 1500             | 478878.697     | 170742.520      | 1.807        |
| 8    | 0.052        | 5.00             | 48.034                | 1200             | 478848.505     | 170765.973      | 1.425        |
| 9    | 0.170        | 5.00             | 47.750                | 1500             | 478868.200     | 170774.842      | 1.860        |
| 10   | 0.055        | 5.00             | 47.040                | 1500             | 478904.735     | 170786.668      | 1.877        |
| 11   | 0.145        | 5.00             | 47.510                | 1350             | 478962.980     | 170711.961      | 1.506        |
| 12   | 0.125        | 5.00             | 47.200                | 1350             | 478943.908     | 170746.013      | 1.824        |
| 13   | 0.045        | 5.00             | 46.950                | 1500             | 478928.626     | 170773.299      | 1.798        |
| 14   | 0.030        | 5.00             | 46.850                | 1500             | 478918.819     | 170784.987      | 1.828        |
| 15   | 0.040        | 5.00             | 46.430                | 1500             | 478931.702     | 170799.165      | 1.800        |
| 16   | 0.040        | 5.00             | 45.810                | 1500             | 478961.248     | 170809.058      | 2.283        |
| 17   | 0.130        | 5.00             | 45.536                | 1350             | 478991.410     | 170777.411      | 1.575        |
| 18   | 0.050        | 5.00             | 45.536                | 1350             | 478982.811     | 170803.093      | 1.659        |
| 19   | 0.020        | 5.00             | 45.494                | 1500             | 478982.864     | 170813.710      | 2.005        |
| 20   | 0.020        | 5.00             | 45.020                | 1500             | 478992.731     | 170819.830      | 1.800        |
| 21   | 0.020        | 5.00             | 44.180                | 1500             | 479012.808     | 170826.330      | 1.800        |
| 22   | 0.055        | 5.00             | 43.619                | 1500             | 479027.198     | 170825.871      | 2.015        |
| 23   | 0.025        | 5.00             | 42.963                | 1500             | 479041.847     | 170825.854      | 1.457        |
| 24   | 0.065        | 5.00             | 49.875                | 1200             | 478900.986     | 170590.298      | 1.518        |
| 25   | 0.035        | 5.00             | 49.520                | 1200             | 478928.596     | 170599.446      | 1.425        |
| 26   | 0.045        | 5.00             | 49.760                | 1200             | 478938.052     | 170589.872      | 1.895        |
| 27   | 0.110        | 5.00             | 48.894                | 1350             | 478962.003     | 170616.526      | 1.614        |
| 28   | 0.180        | 5.00             | 48.014                | 1350             | 478987.049     | 170644.397      | 1.650        |
| 29   | 0.020        | 5.00             | 47.531                | 1350             | 479000.766     | 170659.662      | 1.894        |
| 30   | 0.066        | 5.00             | 47.371                | 1200             | 479012.669     | 170665.067      | 1.425        |
| 31   |              |                  | 47.383                | 1350             | 479006.691     | 170670.424      | 1.777        |
| 32   | 0.110        | 5.00             | 47.457                | 1350             | 479001.012     | 170675.511      | 1.870        |
| 33   | 0.045        | 5.00             | 46.845                | 1350             | 479014.975     | 170691.111      | 1.652        |
| 34   | 0.045        | 5.00             | 46.110                | 1350             | 479036.494     | 170710.709      | 2.043        |
| 35   |              | 5.00             | 46.035                | 1200             | 479017.785     | 170739.822      | 1.471        |
| 36   |              |                  | 45.909                | 1200             | 479038.331     | 170721.018      | 1.743        |
| 37   | 0.050        | 5.00             | 45.811                | 1350             | 479049.156     | 170714.831      | 2.019        |
| 38   | 0.045        | 5.00             | 44.661                | 1500             | 479070.263     | 170738.541      | 1.782        |
| 39   | 0.020        | 5.00             | 44.170                | 1500             | 479079.609     | 170749.041      | 1.725        |
| 40   | 0.015        | 5.00             | 43.710                | 1500             | 479078.343     | 170760.922      | 1.398        |
| 41   | 0.085        | 5.00             | 43.366                | 1500             | 479064.965     | 170776.780      | 1.325        |
| 42   |              |                  | 42.628                | 1500             | 479076.408     | 170785.721      | 1.163        |

**Nodes**

| Name | Area<br>(ha) | T of E<br>(mins) | Cover<br>Level<br>(m) | Diameter<br>(mm) | Easting<br>(m) | Northing<br>(m) | Depth<br>(m) |
|------|--------------|------------------|-----------------------|------------------|----------------|-----------------|--------------|
| 43   | 0.110        | 5.00             | 50.315                | 1200             | 478949.748     | 170535.541      | 1.504        |
| 44   | 0.045        | 5.00             | 49.865                | 1200             | 478984.543     | 170543.098      | 1.939        |
| 45   | 0.050        | 5.00             | 49.567                | 1200             | 478963.297     | 170571.547      | 1.443        |
| 46   | 0.080        | 5.00             | 49.291                | 1350             | 478994.718     | 170557.305      | 1.618        |
| 47   | 0.055        | 5.00             | 49.130                | 1350             | 479014.637     | 170552.839      | 1.575        |
| 48   | 0.120        | 5.00             | 48.041                | 1350             | 479088.169     | 170570.352      | 1.575        |
| 49   | 0.020        | 5.00             | 47.416                | 1350             | 479115.259     | 170576.803      | 1.575        |
| 50   | 0.075        | 5.00             | 46.542                | 1350             | 479145.667     | 170603.465      | 1.575        |
| 51   | 0.075        | 5.00             | 46.181                | 1200             | 479134.354     | 170636.452      | 1.443        |
| 52   | 0.015        | 5.00             | 46.094                | 1200             | 479145.044     | 170626.939      | 1.441        |
| 53   | 0.010        | 5.00             | 46.185                | 1200             | 479148.759     | 170619.442      | 1.582        |
| 54   | 0.030        | 5.00             | 45.739                | 1350             | 479163.304     | 170618.589      | 1.575        |
| 55   | 0.060        | 5.00             | 44.900                | 1350             | 479180.989     | 170638.466      | 1.575        |
| 56   | 0.095        | 5.00             | 48.293                | 1200             | 479040.454     | 170603.688      | 1.500        |
| 57   | 0.050        | 5.00             | 48.103                | 1200             | 479037.635     | 170615.901      | 1.827        |
| 58   | 0.030        | 5.00             | 47.511                | 1200             | 479067.747     | 170623.072      | 1.500        |
| 59   | 0.060        | 5.00             | 47.161                | 1200             | 479080.905     | 170630.195      | 2.359        |
| 60   |              |                  | 46.329                | 1200             | 479107.990     | 170659.912      | 1.834        |
| 61   | 0.060        | 5.00             | 45.039                | 1200             | 479127.585     | 170681.411      | 2.206        |
| 62   |              | 5.00             | 47.572                | 1200             | 479024.634     | 170654.348      | 1.408        |
| 63   |              |                  | 46.919                | 1200             | 479037.665     | 170668.988      | 2.377        |
| 64   | 0.040        | 5.00             | 46.060                | 1200             | 479089.573     | 170676.177      | 1.393        |
| 65   | 0.045        | 5.00             | 46.014                | 1200             | 479064.178     | 170698.775      | 1.707        |
| 66   |              |                  | 45.588                | 1200             | 479066.344     | 170710.960      | 1.425        |
| 67   | 0.035        | 5.00             | 44.944                | 1200             | 479079.451     | 170725.689      | 1.540        |
| 68   | 0.015        | 5.00             | 44.410                | 1200             | 479090.814     | 170738.457      | 1.500        |
| 69   |              |                  | 44.243                | 1200             | 479099.944     | 170741.451      | 1.500        |
| 70   |              |                  | 44.076                | 1200             | 479112.221     | 170733.041      | 1.977        |
| 71   | 0.070        | 5.00             | 43.570                | 1350             | 479148.362     | 170704.207      | 1.820        |
| 72   | 0.080        | 5.00             | 43.057                | 1500             | 479177.613     | 170680.556      | 1.607        |
| 73   | 0.080        | 5.00             | 43.593                | 1500             | 479201.357     | 170661.357      | 2.271        |
| 74   |              |                  | 43.210                | 1500             | 479209.608     | 170664.499      | 1.903        |
| 75   | 0.250        | 5.00             | 42.600                | 1500             | 479209.886     | 170683.921      | 1.325        |
| 76   |              |                  | 42.510                | 1500             | 479161.818     | 170723.722      | 1.339        |
| 77   | 0.075        | 5.00             | 42.733                | 1500             | 479116.335     | 170761.382      | 1.660        |
| 78   | 0.310        | 5.00             | 42.500                | 1500             | 479098.236     | 170792.166      | 1.500        |
| 79   |              |                  | 42.500                | 1500             | 479103.303     | 170792.747      | 1.520        |
| 80   |              |                  | 42.000                | 1500             | 479141.477     | 170797.122      | 1.100        |

Links

| Name  | US Node | DS Node | Length (m) | ks (mm) / n | US IL (m) | DS IL (m) | Fall (m) | Slope (1:X) | Dia (mm) | T of C (mins) | Rain (mm/hr) |
|-------|---------|---------|------------|-------------|-----------|-----------|----------|-------------|----------|---------------|--------------|
| 1.000 | 1       | 2       | 23.010     | 0.600       | 47.779    | 47.122    | 0.657    | 35.0        | 300      | 5.14          | 50.0         |
| 1.001 | 2       | 3       | 24.276     | 0.600       | 47.047    | 46.890    | 0.157    | 154.5       | 375      | 5.42          | 50.0         |
| 1.002 | 3       | 4       | 8.526      | 0.600       | 46.815    | 46.764    | 0.051    | 167.0       | 450      | 5.51          | 49.7         |
| 1.003 | 4       | 5       | 18.560     | 0.600       | 46.764    | 46.619    | 0.145    | 128.2       | 450      | 5.68          | 49.0         |
| 1.004 | 5       | 6       | 37.155     | 0.600       | 46.544    | 46.223    | 0.322    | 115.5       | 525      | 5.98          | 47.7         |
| 1.005 | 6       | 7       | 16.847     | 0.600       | 46.223    | 46.034    | 0.188    | 89.4        | 525      | 6.10          | 47.3         |
| 1.006 | 7       | 9       | 33.984     | 0.600       | 46.034    | 45.965    | 0.069    | 492.5       | 525      | 6.67          | 45.3         |
| 2.000 | 8       | 9       | 21.600     | 0.600       | 46.609    | 46.265    | 0.344    | 62.8        | 225      | 5.22          | 50.0         |
| 1.007 | 9       | 10      | 38.401     | 0.600       | 45.890    | 45.163    | 0.727    | 52.8        | 600      | 6.86          | 44.7         |
| 1.008 | 10      | 14      | 14.184     | 0.600       | 45.163    | 45.022    | 0.142    | 100.2       | 600      | 6.95          | 44.4         |
| 3.000 | 11      | 12      | 39.029     | 0.600       | 46.004    | 45.451    | 0.553    | 70.6        | 375      | 5.30          | 50.0         |
| 3.001 | 12      | 13      | 31.274     | 0.600       | 45.376    | 45.227    | 0.149    | 209.9       | 450      | 5.67          | 49.0         |
| 3.002 | 13      | 14      | 15.257     | 0.600       | 45.152    | 45.097    | 0.055    | 276.7       | 525      | 5.86          | 48.2         |
| 1.009 | 14      | 15      | 19.157     | 0.600       | 45.022    | 44.630    | 0.392    | 48.9        | 600      | 7.05          | 44.1         |
| 1.010 | 15      | 16      | 31.158     | 0.600       | 44.630    | 43.527    | 1.103    | 28.2        | 600      | 7.16          | 43.7         |
| 1.011 | 16      | 19      | 22.111     | 0.600       | 43.527    | 43.489    | 0.038    | 581.9       | 600      | 7.53          | 42.7         |
| 4.000 | 17      | 18      | 27.083     | 0.600       | 43.961    | 43.877    | 0.084    | 322.4       | 375      | 5.45          | 50.0         |
| 4.001 | 18      | 19      | 10.617     | 0.600       | 43.877    | 43.714    | 0.163    | 65.0        | 375      | 5.53          | 49.6         |
| 1.012 | 19      | 20      | 11.611     | 0.600       | 43.489    | 43.220    | 0.269    | 43.2        | 600      | 7.58          | 42.5         |
| 1.013 | 20      | 21      | 21.103     | 0.600       | 43.220    | 42.380    | 0.840    | 25.1        | 600      | 7.65          | 42.3         |
| 1.014 | 21      | 22      | 14.397     | 0.600       | 42.380    | 41.604    | 0.776    | 18.5        | 600      | 7.69          | 42.2         |
| 1.015 | 22      | 23      | 14.649     | 0.600       | 41.604    | 41.506    | 0.098    | 149.5       | 600      | 7.82          | 41.9         |
| 1.016 | 23      | 78      | 65.686     | 0.600       | 41.506    | 41.000    | 0.506    | 129.8       | 675      | 8.29          | 40.6         |
| 5.000 | 24      | 25      | 29.086     | 0.600       | 48.357    | 48.095    | 0.262    | 111.0       | 225      | 5.39          | 50.0         |

| Name  | Vel (m/s) | Cap (l/s) | Flow (l/s) | US Depth (m) | DS Depth (m) | Σ Area (ha) | Σ Add Inflow (l/s) | Pro Depth (mm) | Pro Velocity (m/s) |
|-------|-----------|-----------|------------|--------------|--------------|-------------|--------------------|----------------|--------------------|
| 1.000 | 2.665     | 188.3     | 10.2       | 1.055        | 1.399        | 0.075       | 0.0                | 47             | 1.445              |
| 1.001 | 1.455     | 160.7     | 21.7       | 1.399        | 1.236        | 0.160       | 0.0                | 93             | 1.027              |
| 1.002 | 1.570     | 249.7     | 28.3       | 1.236        | 1.200        | 0.210       | 0.0                | 102            | 1.056              |
| 1.003 | 1.794     | 285.3     | 34.5       | 1.200        | 1.207        | 0.260       | 0.0                | 105            | 1.230              |
| 1.004 | 2.083     | 450.9     | 44.6       | 1.207        | 1.228        | 0.345       | 0.0                | 110            | 1.350              |
| 1.005 | 2.369     | 512.9     | 56.4       | 1.228        | 1.282        | 0.440       | 0.0                | 116            | 1.580              |
| 1.006 | 1.002     | 217.0     | 60.2       | 1.282        | 1.260        | 0.490       | 0.0                | 188            | 0.863              |
| 2.000 | 1.653     | 65.7      | 7.0        | 1.200        | 1.260        | 0.052       | 0.0                | 50             | 1.088              |
| 1.007 | 3.355     | 948.5     | 86.2       | 1.260        | 1.277        | 0.712       | 0.0                | 120            | 2.122              |
| 1.008 | 2.433     | 687.8     | 92.2       | 1.277        | 1.228        | 0.767       | 0.0                | 147            | 1.718              |
| 3.000 | 2.159     | 238.4     | 19.7       | 1.131        | 1.374        | 0.145       | 0.0                | 72             | 1.323              |
| 3.001 | 1.399     | 222.5     | 35.9       | 1.374        | 1.273        | 0.270       | 0.0                | 121            | 1.036              |
| 3.002 | 1.341     | 290.3     | 41.2       | 1.273        | 1.228        | 0.315       | 0.0                | 133            | 0.961              |
| 1.009 | 3.488     | 986.1     | 132.8      | 1.228        | 1.200        | 1.112       | 0.0                | 147            | 2.470              |
| 1.010 | 4.593     | 1298.7    | 136.6      | 1.200        | 1.683        | 1.152       | 0.0                | 130            | 3.033              |
| 1.011 | 1.002     | 283.3     | 137.9      | 1.683        | 1.405        | 1.192       | 0.0                | 295            | 0.995              |
| 4.000 | 1.003     | 110.8     | 17.6       | 1.200        | 1.284        | 0.130       | 0.0                | 101            | 0.741              |
| 4.001 | 2.250     | 248.5     | 24.2       | 1.284        | 1.405        | 0.180       | 0.0                | 78             | 1.443              |
| 1.012 | 3.711     | 1049.2    | 160.5      | 1.405        | 1.200        | 1.392       | 0.0                | 157            | 2.723              |
| 1.013 | 4.871     | 1377.2    | 162.0      | 1.200        | 1.200        | 1.412       | 0.0                | 137            | 3.321              |
| 1.014 | 5.672     | 1603.6    | 163.8      | 1.200        | 1.415        | 1.432       | 0.0                | 128            | 3.718              |
| 1.015 | 1.989     | 562.4     | 168.7      | 1.415        | 0.857        | 1.487       | 0.0                | 224            | 1.748              |
| 1.016 | 2.299     | 822.5     | 166.4      | 0.782        | 0.825        | 1.512       | 0.0                | 205            | 1.821              |
| 5.000 | 1.240     | 49.3      | 8.8        | 1.293        | 1.200        | 0.065       | 0.0                | 64             | 0.939              |

Links

| Name  | US Node | DS Node | Length (m) | ks (mm) / n | US IL (m) | DS IL (m) | Fall (m) | Slope (1:X) | Dia (mm) | T of C (mins) | Rain (mm/hr) |
|-------|---------|---------|------------|-------------|-----------|-----------|----------|-------------|----------|---------------|--------------|
| 5.001 | 25      | 26      | 13.457     | 0.600       | 48.095    | 48.015    | 0.080    | 168.2       | 225      | 5.61          | 49.3         |
| 5.002 | 26      | 27      | 35.834     | 0.600       | 47.865    | 47.280    | 0.585    | 61.3        | 375      | 5.87          | 48.2         |
| 5.003 | 27      | 28      | 37.471     | 0.600       | 47.280    | 46.439    | 0.841    | 44.5        | 375      | 6.10          | 47.3         |
| 5.004 | 28      | 29      | 20.523     | 0.600       | 46.364    | 45.637    | 0.727    | 28.2        | 450      | 6.19          | 47.0         |
| 5.005 | 29      | 31      | 12.285     | 0.600       | 45.637    | 45.606    | 0.031    | 396.3       | 450      | 6.39          | 46.3         |
| 6.000 | 30      | 31      | 8.027      | 0.600       | 45.946    | 45.831    | 0.115    | 70.1        | 225      | 5.09          | 50.0         |
| 5.006 | 31      | 32      | 7.624      | 0.600       | 45.606    | 45.587    | 0.019    | 401.3       | 450      | 6.52          | 45.9         |
| 5.007 | 32      | 33      | 20.936     | 0.600       | 45.587    | 45.193    | 0.395    | 53.1        | 450      | 6.64          | 45.4         |
| 5.008 | 33      | 34      | 29.106     | 0.600       | 45.193    | 44.067    | 1.126    | 25.8        | 450      | 6.76          | 45.0         |
| 5.009 | 34      | 37      | 13.316     | 0.600       | 44.067    | 43.867    | 0.200    | 66.7        | 450      | 6.85          | 44.7         |
| 7.000 | 35      | 36      | 27.852     | 0.600       | 44.564    | 44.166    | 0.398    | 70.0        | 225      | 5.30          | 50.0         |
| 7.001 | 36      | 37      | 12.468     | 0.600       | 44.166    | 44.092    | 0.074    | 168.5       | 225      | 5.50          | 49.7         |
| 5.010 | 37      | 38      | 31.744     | 0.600       | 43.792    | 42.879    | 0.913    | 34.8        | 525      | 6.99          | 44.2         |
| 5.011 | 38      | 39      | 14.057     | 0.600       | 42.879    | 42.445    | 0.434    | 32.4        | 525      | 7.05          | 44.1         |
| 5.012 | 39      | 40      | 11.948     | 0.600       | 42.445    | 42.312    | 0.133    | 90.0        | 525      | 7.14          | 43.8         |
| 5.013 | 40      | 41      | 20.747     | 0.600       | 42.312    | 42.053    | 0.259    | 80.1        | 525      | 7.27          | 43.4         |
| 5.014 | 41      | 42      | 14.522     | 0.600       | 42.041    | 41.615    | 0.426    | 34.1        | 525      | 7.34          | 43.2         |
| 5.015 | 42      | 78      | 22.760     | 0.600       | 41.465    | 41.000    | 0.465    | 48.9        | 675      | 7.44          | 42.9         |
| 8.000 | 43      | 44      | 35.606     | 0.600       | 48.811    | 47.926    | 0.885    | 40.2        | 225      | 5.29          | 50.0         |
| 8.001 | 44      | 46      | 17.475     | 0.600       | 47.926    | 47.823    | 0.103    | 169.7       | 225      | 5.58          | 49.4         |
| 9.000 | 45      | 46      | 34.498     | 0.600       | 48.124    | 47.823    | 0.301    | 114.7       | 225      | 5.47          | 49.9         |
| 8.002 | 46      | 47      | 20.414     | 0.600       | 47.673    | 47.555    | 0.118    | 172.8       | 375      | 5.83          | 48.4         |
| 8.003 | 47      | 48      | 75.589     | 0.600       | 47.555    | 46.466    | 1.089    | 69.4        | 375      | 6.40          | 46.2         |
| 8.004 | 48      | 49      | 27.848     | 0.600       | 46.466    | 45.841    | 0.625    | 44.6        | 375      | 6.57          | 45.7         |

| Name  | Vel (m/s) | Cap (l/s) | Flow (l/s) | US Depth (m) | DS Depth (m) | Σ Area (ha) | Σ Add Inflow (l/s) | Pro Depth (mm) | Pro Velocity (m/s) |
|-------|-----------|-----------|------------|--------------|--------------|-------------|--------------------|----------------|--------------------|
| 5.001 | 1.005     | 40.0      | 13.4       | 1.200        | 1.520        | 0.100       | 0.0                | 89             | 0.905              |
| 5.002 | 2.318     | 256.0     | 18.9       | 1.520        | 1.239        | 0.145       | 0.0                | 68             | 1.378              |
| 5.003 | 2.721     | 300.5     | 32.7       | 1.239        | 1.200        | 0.255       | 0.0                | 82             | 1.801              |
| 5.004 | 3.836     | 610.1     | 55.4       | 1.200        | 1.444        | 0.435       | 0.0                | 91             | 2.429              |
| 5.005 | 1.015     | 161.4     | 57.1       | 1.444        | 1.327        | 0.455       | 0.0                | 184            | 0.930              |
| 6.000 | 1.564     | 62.2      | 8.9        | 1.200        | 1.327        | 0.066       | 0.0                | 58             | 1.120              |
| 5.006 | 1.008     | 160.4     | 64.8       | 1.327        | 1.420        | 0.521       | 0.0                | 199            | 0.957              |
| 5.007 | 2.795     | 444.6     | 77.7       | 1.420        | 1.202        | 0.631       | 0.0                | 126            | 2.120              |
| 5.008 | 4.011     | 637.9     | 82.5       | 1.202        | 1.593        | 0.676       | 0.0                | 109            | 2.806              |
| 5.009 | 2.492     | 396.3     | 87.4       | 1.593        | 1.494        | 0.721       | 0.0                | 143            | 2.017              |
| 7.000 | 1.565     | 62.2      | 0.0        | 1.246        | 1.518        | 0.000       | 0.0                | 0              | 0.000              |
| 7.001 | 1.004     | 39.9      | 0.0        | 1.518        | 1.494        | 0.000       | 0.0                | 0              | 0.000              |
| 5.010 | 3.808     | 824.4     | 92.4       | 1.494        | 1.257        | 0.771       | 0.0                | 117            | 2.555              |
| 5.011 | 3.943     | 853.6     | 97.4       | 1.257        | 1.200        | 0.816       | 0.0                | 119            | 2.665              |
| 5.012 | 2.361     | 511.2     | 99.3       | 1.200        | 0.873        | 0.836       | 0.0                | 156            | 1.846              |
| 5.013 | 2.504     | 542.0     | 100.1      | 0.873        | 0.788        | 0.851       | 0.0                | 152            | 1.931              |
| 5.014 | 3.845     | 832.4     | 109.7      | 0.800        | 0.488        | 0.936       | 0.0                | 127            | 2.702              |
| 5.015 | 3.751     | 1342.4    | 108.9      | 0.488        | 0.825        | 0.936       | 0.0                | 128            | 2.304              |
| 8.000 | 2.068     | 82.2      | 14.9       | 1.279        | 1.714        | 0.110       | 0.0                | 65             | 1.580              |
| 8.001 | 1.001     | 39.8      | 20.8       | 1.714        | 1.243        | 0.155       | 0.0                | 116            | 1.012              |
| 9.000 | 1.220     | 48.5      | 6.8        | 1.218        | 1.243        | 0.050       | 0.0                | 57             | 0.865              |
| 8.002 | 1.375     | 151.9     | 37.4       | 1.243        | 1.200        | 0.285       | 0.0                | 126            | 1.146              |
| 8.003 | 2.177     | 240.4     | 42.6       | 1.200        | 1.200        | 0.340       | 0.0                | 106            | 1.654              |
| 8.004 | 2.720     | 300.5     | 56.9       | 1.200        | 1.200        | 0.460       | 0.0                | 110            | 2.113              |

Links

| Name   | US Node | DS Node | Length (m) | ks (mm) / n | US IL (m) | DS IL (m) | Fall (m) | Slope (1:X) | Dia (mm) | T of C (mins) | Rain (mm/hr) |
|--------|---------|---------|------------|-------------|-----------|-----------|----------|-------------|----------|---------------|--------------|
| 8.005  | 49      | 50      | 40.441     | 0.600       | 45.841    | 44.967    | 0.874    | 46.3        | 375      | 6.83          | 44.8         |
| 8.006  | 50      | 54      | 23.234     | 0.600       | 44.967    | 44.164    | 0.803    | 28.9        | 375      | 6.94          | 44.4         |
| 10.000 | 51      | 52      | 14.310     | 0.600       | 44.738    | 44.653    | 0.085    | 168.4       | 225      | 5.24          | 50.0         |
| 10.001 | 52      | 53      | 8.367      | 0.600       | 44.653    | 44.603    | 0.050    | 167.3       | 225      | 5.38          | 50.0         |
| 10.002 | 53      | 54      | 14.570     | 0.600       | 44.603    | 44.314    | 0.289    | 50.4        | 225      | 5.51          | 49.7         |
| 8.007  | 54      | 55      | 26.606     | 0.600       | 44.164    | 43.325    | 0.839    | 31.7        | 375      | 7.08          | 44.0         |
| 8.008  | 55      | 73      | 30.641     | 0.600       | 43.325    | 41.622    | 1.703    | 18.0        | 375      | 7.20          | 43.6         |
| 11.000 | 56      | 57      | 12.534     | 0.600       | 46.793    | 46.276    | 0.517    | 24.2        | 300      | 5.07          | 50.0         |
| 11.001 | 57      | 58      | 30.954     | 0.600       | 46.276    | 46.011    | 0.265    | 117.0       | 300      | 5.42          | 50.0         |
| 11.002 | 58      | 59      | 14.962     | 0.600       | 46.011    | 44.802    | 1.209    | 12.4        | 300      | 5.48          | 49.8         |
| 11.003 | 59      | 60      | 40.208     | 0.600       | 44.802    | 44.495    | 0.307    | 130.8       | 300      | 5.96          | 47.8         |
| 11.004 | 60      | 61      | 29.089     | 0.600       | 44.495    | 42.833    | 1.662    | 17.5        | 300      | 6.09          | 47.3         |
| 11.005 | 61      | 71      | 30.844     | 0.600       | 42.833    | 41.900    | 0.933    | 33.1        | 300      | 6.28          | 46.7         |
| 12.000 | 62      | 63      | 19.599     | 0.600       | 46.164    | 44.542    | 1.622    | 12.1        | 225      | 5.09          | 50.0         |
| 12.001 | 63      | 65      | 39.877     | 0.600       | 44.542    | 44.307    | 0.235    | 169.7       | 225      | 5.75          | 48.7         |
| 13.000 | 64      | 65      | 33.994     | 0.600       | 44.667    | 44.307    | 0.360    | 94.4        | 225      | 5.42          | 50.0         |
| 12.002 | 65      | 66      | 12.376     | 0.600       | 44.307    | 44.163    | 0.144    | 86.0        | 225      | 5.90          | 48.1         |
| 12.003 | 66      | 67      | 19.716     | 0.600       | 44.163    | 43.404    | 0.759    | 26.0        | 225      | 6.02          | 47.5         |
| 12.004 | 67      | 68      | 17.092     | 0.600       | 43.404    | 42.985    | 0.419    | 40.8        | 225      | 6.16          | 47.1         |
| 12.005 | 68      | 69      | 9.608      | 0.600       | 42.910    | 42.743    | 0.167    | 57.5        | 300      | 6.24          | 46.8         |
| 12.006 | 69      | 70      | 14.881     | 0.600       | 42.743    | 42.099    | 0.644    | 23.1        | 300      | 6.32          | 46.5         |
| 12.007 | 70      | 71      | 46.234     | 0.600       | 42.099    | 41.900    | 0.199    | 232.3       | 300      | 7.07          | 44.0         |
| 11.006 | 71      | 72      | 37.616     | 0.600       | 41.750    | 41.600    | 0.150    | 250.8       | 450      | 7.56          | 42.6         |
| 11.007 | 72      | 73      | 30.535     | 0.600       | 41.450    | 41.397    | 0.053    | 576.1       | 600      | 8.06          | 41.2         |

| Name   | Vel (m/s) | Cap (l/s) | Flow (l/s) | US Depth (m) | DS Depth (m) | Σ Area (ha) | Σ Add Inflow (l/s) | Pro Depth (mm) | Pro Velocity (m/s) |
|--------|-----------|-----------|------------|--------------|--------------|-------------|--------------------|----------------|--------------------|
| 8.005  | 2.669     | 294.8     | 58.3       | 1.200        | 1.200        | 0.480       | 0.0                | 112            | 2.095              |
| 8.006  | 3.379     | 373.2     | 66.8       | 1.200        | 1.200        | 0.555       | 0.0                | 107            | 2.579              |
| 10.000 | 1.005     | 39.9      | 10.2       | 1.218        | 1.216        | 0.075       | 0.0                | 77             | 0.840              |
| 10.001 | 1.008     | 40.1      | 12.2       | 1.216        | 1.357        | 0.090       | 0.0                | 85             | 0.886              |
| 10.002 | 1.846     | 73.4      | 13.5       | 1.357        | 1.200        | 0.100       | 0.0                | 65             | 1.410              |
| 8.007  | 3.227     | 356.4     | 81.6       | 1.200        | 1.200        | 0.685       | 0.0                | 121            | 2.635              |
| 8.008  | 4.288     | 473.6     | 88.1       | 1.200        | 1.596        | 0.745       | 0.0                | 109            | 3.310              |
| 11.000 | 3.207     | 226.7     | 12.9       | 1.200        | 1.527        | 0.095       | 0.0                | 48             | 1.766              |
| 11.001 | 1.452     | 102.7     | 19.7       | 1.527        | 1.200        | 0.145       | 0.0                | 89             | 1.129              |
| 11.002 | 4.492     | 317.5     | 23.6       | 1.200        | 2.059        | 0.175       | 0.0                | 55             | 2.667              |
| 11.003 | 1.373     | 97.0      | 30.4       | 2.059        | 1.534        | 0.235       | 0.0                | 115            | 1.219              |
| 11.004 | 3.775     | 266.9     | 30.1       | 1.534        | 1.906        | 0.235       | 0.0                | 68             | 2.532              |
| 11.005 | 2.743     | 193.9     | 37.3       | 1.906        | 1.370        | 0.295       | 0.0                | 89             | 2.135              |
| 12.000 | 3.785     | 150.5     | 0.0        | 1.183        | 2.152        | 0.000       | 0.0                | 0              | 0.000              |
| 12.001 | 1.001     | 39.8      | 0.0        | 2.152        | 1.482        | 0.000       | 0.0                | 0              | 0.000              |
| 13.000 | 1.346     | 53.5      | 5.4        | 1.168        | 1.482        | 0.040       | 0.0                | 48             | 0.867              |
| 12.002 | 1.410     | 56.1      | 11.1       | 1.482        | 1.200        | 0.085       | 0.0                | 67             | 1.100              |
| 12.003 | 2.576     | 102.4     | 11.0       | 1.200        | 1.315        | 0.085       | 0.0                | 50             | 1.699              |
| 12.004 | 2.055     | 81.7      | 15.3       | 1.315        | 1.200        | 0.120       | 0.0                | 65             | 1.581              |
| 12.005 | 2.076     | 146.8     | 17.1       | 1.200        | 1.200        | 0.135       | 0.0                | 69             | 1.404              |
| 12.006 | 3.284     | 232.1     | 17.0       | 1.200        | 1.677        | 0.135       | 0.0                | 55             | 1.948              |
| 12.007 | 1.027     | 72.6      | 16.1       | 1.677        | 1.370        | 0.135       | 0.0                | 96             | 0.831              |
| 11.006 | 1.279     | 203.4     | 57.7       | 1.370        | 1.007        | 0.500       | 0.0                | 163            | 1.106              |
| 11.007 | 1.007     | 284.8     | 64.7       | 1.007        | 1.596        | 0.580       | 0.0                | 194            | 0.822              |

### Links

| Name  | US Node | DS Node | Length (m) | ks (mm) / n | US IL (m) | DS IL (m) | Fall (m) | Slope (1:X) | Dia (mm) | T of C (mins) | Rain (mm/hr) |
|-------|---------|---------|------------|-------------|-----------|-----------|----------|-------------|----------|---------------|--------------|
| 8.009 | 73      | 74      | 8.829      | 0.600       | 41.322    | 41.307    | 0.015    | 600.0       | 675      | 8.20          | 40.8         |
| 8.010 | 74      | 75      | 19.424     | 0.600       | 41.307    | 41.275    | 0.032    | 607.0       | 675      | 8.51          | 40.1         |
| 8.011 | 75      | 76      | 62.407     | 0.600       | 41.275    | 41.171    | 0.104    | 600.1       | 675      | 9.49          | 37.8         |
| 8.012 | 76      | 77      | 59.051     | 0.600       | 41.171    | 41.073    | 0.098    | 602.6       | 675      | 10.41         | 35.9         |
| 8.013 | 77      | 78      | 35.710     | 0.600       | 41.073    | 41.000    | 0.073    | 489.2       | 675      | 10.92         | 35.0         |
| 1.017 | 78      | 79      | 5.100      | 0.600       | 41.000    | 40.980    | 0.020    | 255.0       | 675      | 10.97         | 34.9         |
| 1.018 | 79      | 80      | 38.424     | 0.600       | 40.980    | 40.900    | 0.080    | 480.3       | 675      | 11.51         | 34.0         |

| Name  | Vel (m/s) | Cap (l/s) | Flow (l/s) | US Depth (m) | DS Depth (m) | Σ Area (ha) | Σ Add Inflow (l/s) | Pro Depth (mm) | Pro Velocity (m/s) |
|-------|-----------|-----------|------------|--------------|--------------|-------------|--------------------|----------------|--------------------|
| 8.009 | 1.062     | 380.2     | 155.5      | 1.596        | 1.228        | 1.405       | 0.0                | 300            | 1.012              |
| 8.010 | 1.056     | 378.0     | 152.6      | 1.228        | 0.650        | 1.405       | 0.0                | 298            | 1.002              |
| 8.011 | 1.062     | 380.2     | 169.7      | 0.650        | 0.664        | 1.655       | 0.0                | 315            | 1.033              |
| 8.012 | 1.060     | 379.4     | 161.3      | 0.664        | 0.985        | 1.655       | 0.0                | 307            | 1.019              |
| 8.013 | 1.178     | 421.5     | 164.1      | 0.985        | 0.825        | 1.730       | 0.0                | 292            | 1.107              |
| 1.017 | 1.636     | 585.5     | 424.6      | 0.825        | 0.845        | 4.488       | 0.0                | 427            | 1.775              |
| 1.018 | 1.189     | 425.4     | 413.6      | 0.845        | 0.425        | 4.488       | 0.0                | 542            | 1.344              |

### Pipeline Schedule

| Link  | Length (m) | Slope (1:X) | Dia (mm) | Link Type                   | US CL (m) | US IL (m) | US Depth (m) | DS CL (m) | DS IL (m) | DS Depth (m) |
|-------|------------|-------------|----------|-----------------------------|-----------|-----------|--------------|-----------|-----------|--------------|
| 1.000 | 23.010     | 35.0        | 300      | Circular_Default Sewer Type | 49.134    | 47.779    | 1.055        | 48.821    | 47.122    | 1.399        |
| 1.001 | 24.276     | 154.5       | 375      | Circular_Default Sewer Type | 48.821    | 47.047    | 1.399        | 48.501    | 46.890    | 1.236        |
| 1.002 | 8.526      | 167.0       | 450      | Circular_Default Sewer Type | 48.501    | 46.815    | 1.236        | 48.414    | 46.764    | 1.200        |
| 1.003 | 18.560     | 128.2       | 450      | Circular_Default Sewer Type | 48.414    | 46.764    | 1.200        | 48.276    | 46.619    | 1.207        |
| 1.004 | 37.155     | 115.5       | 525      | Circular_Default Sewer Type | 48.276    | 46.544    | 1.207        | 47.976    | 46.223    | 1.228        |
| 1.005 | 16.847     | 89.4        | 525      | Circular_Default Sewer Type | 47.976    | 46.223    | 1.228        | 47.841    | 46.034    | 1.282        |
| 1.006 | 33.984     | 492.5       | 525      | Circular_Default Sewer Type | 47.841    | 46.034    | 1.282        | 47.750    | 45.965    | 1.260        |
| 2.000 | 21.600     | 62.8        | 225      | Circular_Default Sewer Type | 48.034    | 46.609    | 1.200        | 47.750    | 46.265    | 1.260        |
| 1.007 | 38.401     | 52.8        | 600      | Circular_Default Sewer Type | 47.750    | 45.890    | 1.260        | 47.040    | 45.163    | 1.277        |
| 1.008 | 14.184     | 100.2       | 600      | Circular_Default Sewer Type | 47.040    | 45.163    | 1.277        | 46.850    | 45.022    | 1.228        |
| 3.000 | 39.029     | 70.6        | 375      | Circular_Default Sewer Type | 47.510    | 46.004    | 1.131        | 47.200    | 45.451    | 1.374        |
| 3.001 | 31.274     | 209.9       | 450      | Circular_Default Sewer Type | 47.200    | 45.376    | 1.374        | 46.950    | 45.227    | 1.273        |
| 3.002 | 15.257     | 276.7       | 525      | Circular_Default Sewer Type | 46.950    | 45.152    | 1.273        | 46.850    | 45.097    | 1.228        |

| Link  | US Node | Dia (mm) | Node Type | MH Type   | DS Node | Dia (mm) | Node Type | MH Type   |
|-------|---------|----------|-----------|-----------|---------|----------|-----------|-----------|
| 1.000 | 1       | 1200     | Manhole   | Adoptable | 2       | 1350     | Manhole   | Adoptable |
| 1.001 | 2       | 1350     | Manhole   | Adoptable | 3       | 1350     | Manhole   | Adoptable |
| 1.002 | 3       | 1350     | Manhole   | Adoptable | 4       | 1350     | Manhole   | Adoptable |
| 1.003 | 4       | 1350     | Manhole   | Adoptable | 5       | 1350     | Manhole   | Adoptable |
| 1.004 | 5       | 1350     | Manhole   | Adoptable | 6       | 1500     | Manhole   | Adoptable |
| 1.005 | 6       | 1500     | Manhole   | Adoptable | 7       | 1500     | Manhole   | Adoptable |
| 1.006 | 7       | 1500     | Manhole   | Adoptable | 9       | 1500     | Manhole   | Adoptable |
| 2.000 | 8       | 1200     | Manhole   | Adoptable | 9       | 1500     | Manhole   | Adoptable |
| 1.007 | 9       | 1500     | Manhole   | Adoptable | 10      | 1500     | Manhole   | Adoptable |
| 1.008 | 10      | 1500     | Manhole   | Adoptable | 14      | 1500     | Manhole   | Adoptable |
| 3.000 | 11      | 1350     | Manhole   | Adoptable | 12      | 1350     | Manhole   | Adoptable |
| 3.001 | 12      | 1350     | Manhole   | Adoptable | 13      | 1500     | Manhole   | Adoptable |
| 3.002 | 13      | 1500     | Manhole   | Adoptable | 14      | 1500     | Manhole   | Adoptable |

### Pipeline Schedule

| Link  | Length<br>(m) | Slope<br>(1:X) | Dia<br>(mm) | Link<br>Type                | US CL<br>(m) | US IL<br>(m) | US Depth<br>(m) | DS CL<br>(m) | DS IL<br>(m) | DS Depth<br>(m) |
|-------|---------------|----------------|-------------|-----------------------------|--------------|--------------|-----------------|--------------|--------------|-----------------|
| 1.009 | 19.157        | 48.9           | 600         | Circular_Default Sewer Type | 46.850       | 45.022       | 1.228           | 46.430       | 44.630       | 1.200           |
| 1.010 | 31.158        | 28.2           | 600         | Circular_Default Sewer Type | 46.430       | 44.630       | 1.200           | 45.810       | 43.527       | 1.683           |
| 1.011 | 22.111        | 581.9          | 600         | Circular_Default Sewer Type | 45.810       | 43.527       | 1.683           | 45.494       | 43.489       | 1.405           |
| 4.000 | 27.083        | 322.4          | 375         | Circular_Default Sewer Type | 45.536       | 43.961       | 1.200           | 45.536       | 43.877       | 1.284           |
| 4.001 | 10.617        | 65.0           | 375         | Circular_Default Sewer Type | 45.536       | 43.877       | 1.284           | 45.494       | 43.714       | 1.405           |
| 1.012 | 11.611        | 43.2           | 600         | Circular_Default Sewer Type | 45.494       | 43.489       | 1.405           | 45.020       | 43.220       | 1.200           |
| 1.013 | 21.103        | 25.1           | 600         | Circular_Default Sewer Type | 45.020       | 43.220       | 1.200           | 44.180       | 42.380       | 1.200           |
| 1.014 | 14.397        | 18.5           | 600         | Circular_Default Sewer Type | 44.180       | 42.380       | 1.200           | 43.619       | 41.604       | 1.415           |
| 1.015 | 14.649        | 149.5          | 600         | Circular_Default Sewer Type | 43.619       | 41.604       | 1.415           | 42.963       | 41.506       | 0.857           |
| 1.016 | 65.686        | 129.8          | 675         | Circular_Default Sewer Type | 42.963       | 41.506       | 0.782           | 42.500       | 41.000       | 0.825           |
| 5.000 | 29.086        | 111.0          | 225         | Circular_Default Sewer Type | 49.875       | 48.357       | 1.293           | 49.520       | 48.095       | 1.200           |
| 5.001 | 13.457        | 168.2          | 225         | Circular_Default Sewer Type | 49.520       | 48.095       | 1.200           | 49.760       | 48.015       | 1.520           |
| 5.002 | 35.834        | 61.3           | 375         | Circular_Default Sewer Type | 49.760       | 47.865       | 1.520           | 48.894       | 47.280       | 1.239           |
| 5.003 | 37.471        | 44.5           | 375         | Circular_Default Sewer Type | 48.894       | 47.280       | 1.239           | 48.014       | 46.439       | 1.200           |
| 5.004 | 20.523        | 28.2           | 450         | Circular_Default Sewer Type | 48.014       | 46.364       | 1.200           | 47.531       | 45.637       | 1.444           |
| 5.005 | 12.285        | 396.3          | 450         | Circular_Default Sewer Type | 47.531       | 45.637       | 1.444           | 47.383       | 45.606       | 1.327           |
| 6.000 | 8.027         | 70.1           | 225         | Circular_Default Sewer Type | 47.371       | 45.946       | 1.200           | 47.383       | 45.831       | 1.327           |
| 5.006 | 7.624         | 401.3          | 450         | Circular_Default Sewer Type | 47.383       | 45.606       | 1.327           | 47.457       | 45.587       | 1.420           |
| 5.007 | 20.936        | 53.1           | 450         | Circular_Default Sewer Type | 47.457       | 45.587       | 1.420           | 46.845       | 45.193       | 1.202           |
| 5.008 | 29.106        | 25.8           | 450         | Circular_Default Sewer Type | 46.845       | 45.193       | 1.202           | 46.110       | 44.067       | 1.593           |
| 5.009 | 13.316        | 66.7           | 450         | Circular_Default Sewer Type | 46.110       | 44.067       | 1.593           | 45.811       | 43.867       | 1.494           |
| 7.000 | 27.852        | 70.0           | 225         | Circular_Default Sewer Type | 46.035       | 44.564       | 1.246           | 45.909       | 44.166       | 1.518           |
| 7.001 | 12.468        | 168.5          | 225         | Circular_Default Sewer Type | 45.909       | 44.166       | 1.518           | 45.811       | 44.092       | 1.494           |
| 5.010 | 31.744        | 34.8           | 525         | Circular_Default Sewer Type | 45.811       | 43.792       | 1.494           | 44.661       | 42.879       | 1.257           |
| 5.011 | 14.057        | 32.4           | 525         | Circular_Default Sewer Type | 44.661       | 42.879       | 1.257           | 44.170       | 42.445       | 1.200           |

| Link  | US<br>Node | Dia<br>(mm) | Node<br>Type | MH<br>Type | DS<br>Node | Dia<br>(mm) | Node<br>Type | MH<br>Type |
|-------|------------|-------------|--------------|------------|------------|-------------|--------------|------------|
| 1.009 | 14         | 1500        | Manhole      | Adoptable  | 15         | 1500        | Manhole      | Adoptable  |
| 1.010 | 15         | 1500        | Manhole      | Adoptable  | 16         | 1500        | Manhole      | Adoptable  |
| 1.011 | 16         | 1500        | Manhole      | Adoptable  | 19         | 1500        | Manhole      | Adoptable  |
| 4.000 | 17         | 1350        | Manhole      | Adoptable  | 18         | 1350        | Manhole      | Adoptable  |
| 4.001 | 18         | 1350        | Manhole      | Adoptable  | 19         | 1500        | Manhole      | Adoptable  |
| 1.012 | 19         | 1500        | Manhole      | Adoptable  | 20         | 1500        | Manhole      | Adoptable  |
| 1.013 | 20         | 1500        | Manhole      | Adoptable  | 21         | 1500        | Manhole      | Adoptable  |
| 1.014 | 21         | 1500        | Manhole      | Adoptable  | 22         | 1500        | Manhole      | Adoptable  |
| 1.015 | 22         | 1500        | Manhole      | Adoptable  | 23         | 1500        | Manhole      | Adoptable  |
| 1.016 | 23         | 1500        | Manhole      | Adoptable  | 78         | 1500        | Manhole      | Adoptable  |
| 5.000 | 24         | 1200        | Manhole      | Adoptable  | 25         | 1200        | Manhole      | Adoptable  |
| 5.001 | 25         | 1200        | Manhole      | Adoptable  | 26         | 1200        | Manhole      | Adoptable  |
| 5.002 | 26         | 1200        | Manhole      | Adoptable  | 27         | 1350        | Manhole      | Adoptable  |
| 5.003 | 27         | 1350        | Manhole      | Adoptable  | 28         | 1350        | Manhole      | Adoptable  |
| 5.004 | 28         | 1350        | Manhole      | Adoptable  | 29         | 1350        | Manhole      | Adoptable  |
| 5.005 | 29         | 1350        | Manhole      | Adoptable  | 31         | 1350        | Manhole      | Adoptable  |
| 6.000 | 30         | 1200        | Manhole      | Adoptable  | 31         | 1350        | Manhole      | Adoptable  |
| 5.006 | 31         | 1350        | Manhole      | Adoptable  | 32         | 1350        | Manhole      | Adoptable  |
| 5.007 | 32         | 1350        | Manhole      | Adoptable  | 33         | 1350        | Manhole      | Adoptable  |
| 5.008 | 33         | 1350        | Manhole      | Adoptable  | 34         | 1350        | Manhole      | Adoptable  |
| 5.009 | 34         | 1350        | Manhole      | Adoptable  | 37         | 1350        | Manhole      | Adoptable  |
| 7.000 | 35         | 1200        | Manhole      | Adoptable  | 36         | 1200        | Manhole      | Adoptable  |
| 7.001 | 36         | 1200        | Manhole      | Adoptable  | 37         | 1350        | Manhole      | Adoptable  |
| 5.010 | 37         | 1350        | Manhole      | Adoptable  | 38         | 1500        | Manhole      | Adoptable  |
| 5.011 | 38         | 1500        | Manhole      | Adoptable  | 39         | 1500        | Manhole      | Adoptable  |

### Pipeline Schedule

| Link   | Length<br>(m) | Slope<br>(1:X) | Dia<br>(mm) | Link<br>Type                | US CL<br>(m) | US IL<br>(m) | US Depth<br>(m) | DS CL<br>(m) | DS IL<br>(m) | DS Depth<br>(m) |
|--------|---------------|----------------|-------------|-----------------------------|--------------|--------------|-----------------|--------------|--------------|-----------------|
| 5.012  | 11.948        | 90.0           | 525         | Circular_Default Sewer Type | 44.170       | 42.445       | 1.200           | 43.710       | 42.312       | 0.873           |
| 5.013  | 20.747        | 80.1           | 525         | Circular_Default Sewer Type | 43.710       | 42.312       | 0.873           | 43.366       | 42.053       | 0.788           |
| 5.014  | 14.522        | 34.1           | 525         | Circular_Default Sewer Type | 43.366       | 42.041       | 0.800           | 42.628       | 41.615       | 0.488           |
| 5.015  | 22.760        | 48.9           | 675         | Circular_Default Sewer Type | 42.628       | 41.465       | 0.488           | 42.500       | 41.000       | 0.825           |
| 8.000  | 35.606        | 40.2           | 225         | Circular_Default Sewer Type | 50.315       | 48.811       | 1.279           | 49.865       | 47.926       | 1.714           |
| 8.001  | 17.475        | 169.7          | 225         | Circular_Default Sewer Type | 49.865       | 47.926       | 1.714           | 49.291       | 47.823       | 1.243           |
| 9.000  | 34.498        | 114.7          | 225         | Circular_Default Sewer Type | 49.567       | 48.124       | 1.218           | 49.291       | 47.823       | 1.243           |
| 8.002  | 20.414        | 172.8          | 375         | Circular_Default Sewer Type | 49.291       | 47.673       | 1.243           | 49.130       | 47.555       | 1.200           |
| 8.003  | 75.589        | 69.4           | 375         | Circular_Default Sewer Type | 49.130       | 47.555       | 1.200           | 48.041       | 46.466       | 1.200           |
| 8.004  | 27.848        | 44.6           | 375         | Circular_Default Sewer Type | 48.041       | 46.466       | 1.200           | 47.416       | 45.841       | 1.200           |
| 8.005  | 40.441        | 46.3           | 375         | Circular_Default Sewer Type | 47.416       | 45.841       | 1.200           | 46.542       | 44.967       | 1.200           |
| 8.006  | 23.234        | 28.9           | 375         | Circular_Default Sewer Type | 46.542       | 44.967       | 1.200           | 45.739       | 44.164       | 1.200           |
| 10.000 | 14.310        | 168.4          | 225         | Circular_Default Sewer Type | 46.181       | 44.738       | 1.218           | 46.094       | 44.653       | 1.216           |
| 10.001 | 8.367         | 167.3          | 225         | Circular_Default Sewer Type | 46.094       | 44.653       | 1.216           | 46.185       | 44.603       | 1.357           |
| 10.002 | 14.570        | 50.4           | 225         | Circular_Default Sewer Type | 46.185       | 44.603       | 1.357           | 45.739       | 44.314       | 1.200           |
| 8.007  | 26.606        | 31.7           | 375         | Circular_Default Sewer Type | 45.739       | 44.164       | 1.200           | 44.900       | 43.325       | 1.200           |
| 8.008  | 30.641        | 18.0           | 375         | Circular_Default Sewer Type | 44.900       | 43.325       | 1.200           | 43.593       | 41.622       | 1.596           |
| 11.000 | 12.534        | 24.2           | 300         | Circular_Default Sewer Type | 48.293       | 46.793       | 1.200           | 48.103       | 46.276       | 1.527           |
| 11.001 | 30.954        | 117.0          | 300         | Circular_Default Sewer Type | 48.103       | 46.276       | 1.527           | 47.511       | 46.011       | 1.200           |
| 11.002 | 14.962        | 12.4           | 300         | Circular_Default Sewer Type | 47.511       | 46.011       | 1.200           | 47.161       | 44.802       | 2.059           |
| 11.003 | 40.208        | 130.8          | 300         | Circular_Default Sewer Type | 47.161       | 44.802       | 2.059           | 46.329       | 44.495       | 1.534           |
| 11.004 | 29.089        | 17.5           | 300         | Circular_Default Sewer Type | 46.329       | 44.495       | 1.534           | 45.039       | 42.833       | 1.906           |
| 11.005 | 30.844        | 33.1           | 300         | Circular_Default Sewer Type | 45.039       | 42.833       | 1.906           | 43.570       | 41.900       | 1.370           |
| 12.000 | 19.599        | 12.1           | 225         | Circular_Default Sewer Type | 47.572       | 46.164       | 1.183           | 46.919       | 44.542       | 2.152           |
| 12.001 | 39.877        | 169.7          | 225         | Circular_Default Sewer Type | 46.919       | 44.542       | 2.152           | 46.014       | 44.307       | 1.482           |

| Link   | US<br>Node | Dia<br>(mm) | Node<br>Type | MH<br>Type | DS<br>Node | Dia<br>(mm) | Node<br>Type | MH<br>Type |
|--------|------------|-------------|--------------|------------|------------|-------------|--------------|------------|
| 5.012  | 39         | 1500        | Manhole      | Adoptable  | 40         | 1500        | Manhole      | Adoptable  |
| 5.013  | 40         | 1500        | Manhole      | Adoptable  | 41         | 1500        | Manhole      | Adoptable  |
| 5.014  | 41         | 1500        | Manhole      | Adoptable  | 42         | 1500        | Manhole      | Adoptable  |
| 5.015  | 42         | 1500        | Manhole      | Adoptable  | 78         | 1500        | Manhole      | Adoptable  |
| 8.000  | 43         | 1200        | Manhole      | Adoptable  | 44         | 1200        | Manhole      | Adoptable  |
| 8.001  | 44         | 1200        | Manhole      | Adoptable  | 46         | 1350        | Manhole      | Adoptable  |
| 9.000  | 45         | 1200        | Manhole      | Adoptable  | 46         | 1350        | Manhole      | Adoptable  |
| 8.002  | 46         | 1350        | Manhole      | Adoptable  | 47         | 1350        | Manhole      | Adoptable  |
| 8.003  | 47         | 1350        | Manhole      | Adoptable  | 48         | 1350        | Manhole      | Adoptable  |
| 8.004  | 48         | 1350        | Manhole      | Adoptable  | 49         | 1350        | Manhole      | Adoptable  |
| 8.005  | 49         | 1350        | Manhole      | Adoptable  | 50         | 1350        | Manhole      | Adoptable  |
| 8.006  | 50         | 1350        | Manhole      | Adoptable  | 54         | 1350        | Manhole      | Adoptable  |
| 10.000 | 51         | 1200        | Manhole      | Adoptable  | 52         | 1200        | Manhole      | Adoptable  |
| 10.001 | 52         | 1200        | Manhole      | Adoptable  | 53         | 1200        | Manhole      | Adoptable  |
| 10.002 | 53         | 1200        | Manhole      | Adoptable  | 54         | 1350        | Manhole      | Adoptable  |
| 8.007  | 54         | 1350        | Manhole      | Adoptable  | 55         | 1350        | Manhole      | Adoptable  |
| 8.008  | 55         | 1350        | Manhole      | Adoptable  | 73         | 1500        | Manhole      | Adoptable  |
| 11.000 | 56         | 1200        | Manhole      | Adoptable  | 57         | 1200        | Manhole      | Adoptable  |
| 11.001 | 57         | 1200        | Manhole      | Adoptable  | 58         | 1200        | Manhole      | Adoptable  |
| 11.002 | 58         | 1200        | Manhole      | Adoptable  | 59         | 1200        | Manhole      | Adoptable  |
| 11.003 | 59         | 1200        | Manhole      | Adoptable  | 60         | 1200        | Manhole      | Adoptable  |
| 11.004 | 60         | 1200        | Manhole      | Adoptable  | 61         | 1200        | Manhole      | Adoptable  |
| 11.005 | 61         | 1200        | Manhole      | Adoptable  | 71         | 1350        | Manhole      | Adoptable  |
| 12.000 | 62         | 1200        | Manhole      | Adoptable  | 63         | 1200        | Manhole      | Adoptable  |
| 12.001 | 63         | 1200        | Manhole      | Adoptable  | 65         | 1200        | Manhole      | Adoptable  |

### Pipeline Schedule

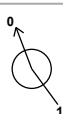
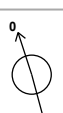
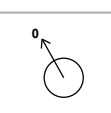
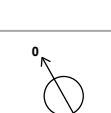
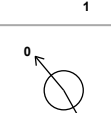
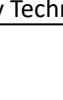
| Link   | Length<br>(m) | Slope<br>(1:X) | Dia<br>(mm) | Link<br>Type                | US CL<br>(m) | US IL<br>(m) | US Depth<br>(m) | DS CL<br>(m) | DS IL<br>(m) | DS Depth<br>(m) |
|--------|---------------|----------------|-------------|-----------------------------|--------------|--------------|-----------------|--------------|--------------|-----------------|
| 13.000 | 33.994        | 94.4           | 225         | Circular_Default Sewer Type | 46.060       | 44.667       | 1.168           | 46.014       | 44.307       | 1.482           |
| 12.002 | 12.376        | 86.0           | 225         | Circular_Default Sewer Type | 46.014       | 44.307       | 1.482           | 45.588       | 44.163       | 1.200           |
| 12.003 | 19.716        | 26.0           | 225         | Circular_Default Sewer Type | 45.588       | 44.163       | 1.200           | 44.944       | 43.404       | 1.315           |
| 12.004 | 17.092        | 40.8           | 225         | Circular_Default Sewer Type | 44.944       | 43.404       | 1.315           | 44.410       | 42.985       | 1.200           |
| 12.005 | 9.608         | 57.5           | 300         | Circular_Default Sewer Type | 44.410       | 42.910       | 1.200           | 44.243       | 42.743       | 1.200           |
| 12.006 | 14.881        | 23.1           | 300         | Circular_Default Sewer Type | 44.243       | 42.743       | 1.200           | 44.076       | 42.099       | 1.677           |
| 12.007 | 46.234        | 232.3          | 300         | Circular_Default Sewer Type | 44.076       | 42.099       | 1.677           | 43.570       | 41.900       | 1.370           |
| 11.006 | 37.616        | 250.8          | 450         | Circular_Default Sewer Type | 43.570       | 41.750       | 1.370           | 43.057       | 41.600       | 1.007           |
| 11.007 | 30.535        | 576.1          | 600         | Circular_Default Sewer Type | 43.057       | 41.450       | 1.007           | 43.593       | 41.397       | 1.596           |
| 8.009  | 8.829         | 600.0          | 675         | Circular_Default Sewer Type | 43.593       | 41.322       | 1.596           | 43.210       | 41.307       | 1.228           |
| 8.010  | 19.424        | 607.0          | 675         | Circular_Default Sewer Type | 43.210       | 41.307       | 1.228           | 42.600       | 41.275       | 0.650           |
| 8.011  | 62.407        | 600.1          | 675         | Circular_Default Sewer Type | 42.600       | 41.275       | 0.650           | 42.510       | 41.171       | 0.664           |
| 8.012  | 59.051        | 602.6          | 675         | Circular_Default Sewer Type | 42.510       | 41.171       | 0.664           | 42.733       | 41.073       | 0.985           |
| 8.013  | 35.710        | 489.2          | 675         | Circular_Default Sewer Type | 42.733       | 41.073       | 0.985           | 42.500       | 41.000       | 0.825           |
| 1.017  | 5.100         | 255.0          | 675         | Circular_Default Sewer Type | 42.500       | 41.000       | 0.825           | 42.500       | 40.980       | 0.845           |
| 1.018  | 38.424        | 480.3          | 675         | Circular_Default Sewer Type | 42.500       | 40.980       | 0.845           | 42.000       | 40.900       | 0.425           |

| Link   | US<br>Node | Dia<br>(mm) | Node<br>Type | MH<br>Type | DS<br>Node | Dia<br>(mm) | Node<br>Type | MH<br>Type |
|--------|------------|-------------|--------------|------------|------------|-------------|--------------|------------|
| 13.000 | 64         | 1200        | Manhole      | Adoptable  | 65         | 1200        | Manhole      | Adoptable  |
| 12.002 | 65         | 1200        | Manhole      | Adoptable  | 66         | 1200        | Manhole      | Adoptable  |
| 12.003 | 66         | 1200        | Manhole      | Adoptable  | 67         | 1200        | Manhole      | Adoptable  |
| 12.004 | 67         | 1200        | Manhole      | Adoptable  | 68         | 1200        | Manhole      | Adoptable  |
| 12.005 | 68         | 1200        | Manhole      | Adoptable  | 69         | 1200        | Manhole      | Adoptable  |
| 12.006 | 69         | 1200        | Manhole      | Adoptable  | 70         | 1200        | Manhole      | Adoptable  |
| 12.007 | 70         | 1200        | Manhole      | Adoptable  | 71         | 1350        | Manhole      | Adoptable  |
| 11.006 | 71         | 1350        | Manhole      | Adoptable  | 72         | 1500        | Manhole      | Adoptable  |
| 11.007 | 72         | 1500        | Manhole      | Adoptable  | 73         | 1500        | Manhole      | Adoptable  |
| 8.009  | 73         | 1500        | Manhole      | Adoptable  | 74         | 1500        | Manhole      | Adoptable  |
| 8.010  | 74         | 1500        | Manhole      | Adoptable  | 75         | 1500        | Manhole      | Adoptable  |
| 8.011  | 75         | 1500        | Manhole      | Adoptable  | 76         | 1500        | Manhole      | Adoptable  |
| 8.012  | 76         | 1500        | Manhole      | Adoptable  | 77         | 1500        | Manhole      | Adoptable  |
| 8.013  | 77         | 1500        | Manhole      | Adoptable  | 78         | 1500        | Manhole      | Adoptable  |
| 1.017  | 78         | 1500        | Manhole      | Adoptable  | 79         | 1500        | Manhole      | Adoptable  |
| 1.018  | 79         | 1500        | Manhole      | Adoptable  | 80         | 1500        | Manhole      | Adoptable  |

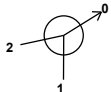
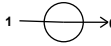
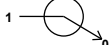
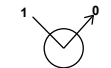
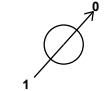
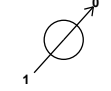
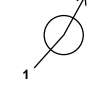
### Manhole Schedule

| Node | Easting<br>(m) | Northing<br>(m) | CL<br>(m) | Depth<br>(m) | Dia<br>(mm) | Connections                                                                          | Link  | IL<br>(m) | Dia<br>(mm) |     |
|------|----------------|-----------------|-----------|--------------|-------------|--------------------------------------------------------------------------------------|-------|-----------|-------------|-----|
| 1    | 478918.683     | 170622.890      | 49.134    | 1.355        | 1200        |  |       |           |             |     |
|      |                |                 |           |              |             | 0                                                                                    | 1.000 | 47.779    | 300         |     |
| 2    | 478918.364     | 170645.898      | 48.821    | 1.774        | 1350        |  | 1     | 1.000     | 47.122      | 300 |
|      |                |                 |           |              |             | 0                                                                                    | 1.001 | 47.047    | 375         |     |
| 3    | 478912.657     | 170669.494      | 48.501    | 1.686        | 1350        |  | 1     | 1.001     | 46.890      | 375 |
|      |                |                 |           |              |             | 0                                                                                    | 1.002 | 46.815    | 450         |     |

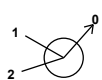
**Manhole Schedule**

| Node | Easting<br>(m) | Northing<br>(m) | CL<br>(m) | Depth<br>(m) | Dia<br>(mm) | Connections                                                                          | Link | IL<br>(m) | Dia<br>(mm) |     |
|------|----------------|-----------------|-----------|--------------|-------------|--------------------------------------------------------------------------------------|------|-----------|-------------|-----|
| 4    | 478907.616     | 170676.370      | 48.414    | 1.650        | 1350        |    | 1    | 1.002     | 46.764      | 450 |
| 5    | 478901.040     | 170693.726      | 48.276    | 1.732        | 1350        |    | 0    | 1.003     | 46.764      | 450 |
|      |                |                 |           |              |             |    | 1    | 1.004     | 46.544      | 525 |
| 6    | 478883.084     | 170726.254      | 47.976    | 1.753        | 1500        |    | 1    | 1.004     | 46.223      | 525 |
| 7    | 478878.697     | 170742.520      | 47.841    | 1.807        | 1500        |    | 0    | 1.005     | 46.223      | 525 |
|      |                |                 |           |              |             |   | 1    | 1.005     | 46.034      | 525 |
| 8    | 478848.505     | 170765.973      | 48.034    | 1.425        | 1200        |  | 0    | 2.000     | 46.609      | 225 |
| 9    | 478868.200     | 170774.842      | 47.750    | 1.860        | 1500        |  | 1    | 2.000     | 46.265      | 225 |
|      |                |                 |           |              |             |  | 2    | 1.006     | 45.965      | 525 |
| 10   | 478904.735     | 170786.668      | 47.040    | 1.877        | 1500        |  | 0    | 1.007     | 45.890      | 600 |
| 11   | 478962.980     | 170711.961      | 47.510    | 1.506        | 1350        |  | 1    | 1.007     | 45.163      | 600 |
|      |                |                 |           |              |             |  | 0    | 1.008     | 45.163      | 600 |
| 12   | 478943.908     | 170746.013      | 47.200    | 1.824        | 1350        |  | 1    | 3.000     | 46.004      | 375 |
| 13   | 478928.626     | 170773.299      | 46.950    | 1.798        | 1500        |  | 0    | 3.000     | 45.451      | 375 |
|      |                |                 |           |              |             |  | 0    | 3.001     | 45.376      | 450 |
| 14   | 478918.819     | 170784.987      | 46.850    | 1.828        | 1500        |  | 1    | 3.001     | 45.227      | 450 |
| 15   | 478931.702     | 170799.165      | 46.430    | 1.800        | 1500        |  | 0    | 3.002     | 45.152      | 525 |
|      |                |                 |           |              |             |  | 1    | 3.002     | 45.097      | 525 |
| 16   | 478961.248     | 170809.058      | 45.810    | 2.283        | 1500        |  | 2    | 1.008     | 45.022      | 600 |
| 17   | 478931.702     | 170799.165      | 46.430    | 1.800        | 1500        |  | 0    | 1.009     | 45.022      | 600 |
|      |                |                 |           |              |             |  | 1    | 1.009     | 44.630      | 600 |
| 18   | 478961.248     | 170809.058      | 45.810    | 2.283        | 1500        |  | 0    | 1.010     | 44.630      | 600 |
| 19   | 478961.248     | 170809.058      | 45.810    | 2.283        | 1500        |  | 1    | 1.010     | 43.527      | 600 |
|      |                |                 |           |              |             |  | 0    | 1.011     | 43.527      | 600 |

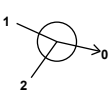
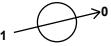
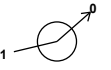
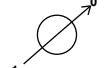
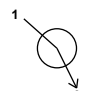
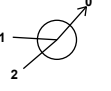
### Manhole Schedule

| Node | Easting<br>(m) | Northing<br>(m) | CL<br>(m) | Depth<br>(m) | Dia<br>(mm) | Connections                                                                                                  | Link  | IL<br>(m) | Dia<br>(mm) |
|------|----------------|-----------------|-----------|--------------|-------------|--------------------------------------------------------------------------------------------------------------|-------|-----------|-------------|
| 17   | 478991.410     | 170777.411      | 45.536    | 1.575        | 1350        | <div></div> <div>0</div>    | 4.000 | 43.961    | 375         |
| 18   | 478982.811     | 170803.093      | 45.536    | 1.659        | 1350        | <div></div> <div>1</div>    | 4.000 | 43.877    | 375         |
| 19   | 478982.864     | 170813.710      | 45.494    | 2.005        | 1500        | <div></div> <div>0</div>   | 4.001 | 43.877    | 375         |
|      |                |                 |           |              |             | <div>1</div>                                                                                                 | 4.001 | 43.714    | 375         |
|      |                |                 |           |              |             | <div>2</div>                                                                                                 | 1.011 | 43.489    | 600         |
| 20   | 478992.731     | 170819.830      | 45.020    | 1.800        | 1500        | <div></div> <div>0</div>   | 1.012 | 43.489    | 600         |
|      |                |                 |           |              |             | <div>1</div>                                                                                                 | 1.012 | 43.220    | 600         |
| 21   | 479012.808     | 170826.330      | 44.180    | 1.800        | 1500        | <div></div> <div>0</div>   | 1.013 | 43.220    | 600         |
|      |                |                 |           |              |             | <div>1</div>                                                                                                 | 1.013 | 42.380    | 600         |
| 22   | 479027.198     | 170825.871      | 43.619    | 2.015        | 1500        | <div></div> <div>0</div> | 1.014 | 42.380    | 600         |
|      |                |                 |           |              |             | <div>1</div>                                                                                                 | 1.014 | 41.604    | 600         |
| 23   | 479041.847     | 170825.854      | 42.963    | 1.457        | 1500        | <div></div> <div>0</div> | 1.015 | 41.604    | 600         |
|      |                |                 |           |              |             | <div>1</div>                                                                                                 | 1.015 | 41.506    | 600         |
| 24   | 478900.986     | 170590.298      | 49.875    | 1.518        | 1200        | <div></div> <div>0</div>  | 5.000 | 48.357    | 225         |
| 25   | 478928.596     | 170599.446      | 49.520    | 1.425        | 1200        | <div></div> <div>0</div> | 5.000 | 48.095    | 225         |
|      |                |                 |           |              |             | <div>1</div>                                                                                                 | 5.001 | 48.095    | 225         |
| 26   | 478938.052     | 170589.872      | 49.760    | 1.895        | 1200        | <div></div> <div>0</div> | 5.001 | 48.015    | 225         |
|      |                |                 |           |              |             | <div>1</div>                                                                                                 | 5.002 | 47.865    | 375         |
| 27   | 478962.003     | 170616.526      | 48.894    | 1.614        | 1350        | <div></div> <div>0</div> | 5.002 | 47.280    | 375         |
|      |                |                 |           |              |             | <div>1</div>                                                                                                 | 5.003 | 47.280    | 375         |
| 28   | 478987.049     | 170644.397      | 48.014    | 1.650        | 1350        | <div></div> <div>0</div> | 5.003 | 46.439    | 375         |
|      |                |                 |           |              |             | <div>1</div>                                                                                                 | 5.004 | 46.364    | 450         |
| 29   | 479000.766     | 170659.662      | 47.531    | 1.894        | 1350        | <div></div> <div>0</div> | 5.004 | 45.637    | 450         |
|      |                |                 |           |              |             | <div>1</div>                                                                                                 | 5.005 | 45.637    | 450         |

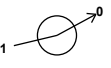
**Manhole Schedule**

| Node | Easting<br>(m) | Northing<br>(m) | CL<br>(m) | Depth<br>(m) | Dia<br>(mm) | Connections                                                                          | Link | IL<br>(m) | Dia<br>(mm) |     |
|------|----------------|-----------------|-----------|--------------|-------------|--------------------------------------------------------------------------------------|------|-----------|-------------|-----|
| 30   | 479012.669     | 170665.067      | 47.371    | 1.425        | 1200        |     | 0    | 6.000     | 45.946      | 225 |
| 31   | 479006.691     | 170670.424      | 47.383    | 1.777        | 1350        |     | 1    | 6.000     | 45.831      | 225 |
|      |                |                 |           |              |             |                                                                                      | 2    | 5.005     | 45.606      | 450 |
|      |                |                 |           |              |             |                                                                                      | 0    | 5.006     | 45.606      | 450 |
| 32   | 479001.012     | 170675.511      | 47.457    | 1.870        | 1350        |     | 1    | 5.006     | 45.587      | 450 |
|      |                |                 |           |              |             |                                                                                      | 0    | 5.007     | 45.587      | 450 |
| 33   | 479014.975     | 170691.111      | 46.845    | 1.652        | 1350        |     | 1    | 5.007     | 45.193      | 450 |
|      |                |                 |           |              |             |                                                                                      | 0    | 5.008     | 45.193      | 450 |
| 34   | 479036.494     | 170710.709      | 46.110    | 2.043        | 1350        |    | 1    | 5.008     | 44.067      | 450 |
|      |                |                 |           |              |             |                                                                                      | 0    | 5.009     | 44.067      | 450 |
| 35   | 479017.785     | 170739.822      | 46.035    | 1.471        | 1200        |   | 0    | 7.000     | 44.564      | 225 |
| 36   | 479038.331     | 170721.018      | 45.909    | 1.743        | 1200        |  | 1    | 7.000     | 44.166      | 225 |
|      |                |                 |           |              |             |                                                                                      | 0    | 7.001     | 44.166      | 225 |
| 37   | 479049.156     | 170714.831      | 45.811    | 2.019        | 1350        |  | 1    | 7.001     | 44.092      | 225 |
|      |                |                 |           |              |             |                                                                                      | 2    | 5.009     | 43.867      | 450 |
|      |                |                 |           |              |             |                                                                                      | 0    | 5.010     | 43.792      | 525 |
| 38   | 479070.263     | 170738.541      | 44.661    | 1.782        | 1500        |   | 1    | 5.010     | 42.879      | 525 |
|      |                |                 |           |              |             |                                                                                      | 0    | 5.011     | 42.879      | 525 |
| 39   | 479079.609     | 170749.041      | 44.170    | 1.725        | 1500        |  | 1    | 5.011     | 42.445      | 525 |
|      |                |                 |           |              |             |                                                                                      | 0    | 5.012     | 42.445      | 525 |
| 40   | 479078.343     | 170760.922      | 43.710    | 1.398        | 1500        |  | 1    | 5.012     | 42.312      | 525 |
|      |                |                 |           |              |             |                                                                                      | 0    | 5.013     | 42.312      | 525 |
| 41   | 479064.965     | 170776.780      | 43.366    | 1.325        | 1500        |  | 1    | 5.013     | 42.053      | 525 |
|      |                |                 |           |              |             |                                                                                      | 0    | 5.014     | 42.041      | 525 |
| 42   | 479076.408     | 170785.721      | 42.628    | 1.163        | 1500        |  | 1    | 5.014     | 41.615      | 525 |
|      |                |                 |           |              |             |                                                                                      | 0    | 5.015     | 41.465      | 675 |

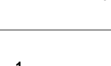
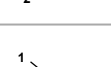
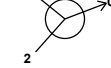
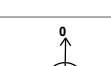
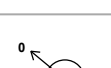
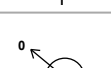
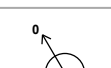
**Manhole Schedule**

| Node | Easting<br>(m) | Northing<br>(m) | CL<br>(m) | Depth<br>(m) | Dia<br>(mm) | Connections                                                                          | Link   | IL<br>(m) | Dia<br>(mm) |     |
|------|----------------|-----------------|-----------|--------------|-------------|--------------------------------------------------------------------------------------|--------|-----------|-------------|-----|
| 43   | 478949.748     | 170535.541      | 50.315    | 1.504        | 1200        |    |        |           |             |     |
|      |                |                 |           |              |             | 0                                                                                    | 8.000  | 48.811    | 225         |     |
| 44   | 478984.543     | 170543.098      | 49.865    | 1.939        | 1200        |     | 1      | 8.000     | 47.926      | 225 |
|      |                |                 |           |              |             | 0                                                                                    | 8.001  | 47.926    | 225         |     |
| 45   | 478963.297     | 170571.547      | 49.567    | 1.443        | 1200        |    |        |           |             |     |
|      |                |                 |           |              |             | 0                                                                                    | 9.000  | 48.124    | 225         |     |
| 46   | 478994.718     | 170557.305      | 49.291    | 1.618        | 1350        |    | 1      | 9.000     | 47.823      | 225 |
|      |                |                 |           |              |             | 2                                                                                    | 8.001  | 47.823    | 225         |     |
|      |                |                 |           |              |             | 0                                                                                    | 8.002  | 47.673    | 375         |     |
| 47   | 479014.637     | 170552.839      | 49.130    | 1.575        | 1350        |    | 1      | 8.002     | 47.555      | 375 |
|      |                |                 |           |              |             | 0                                                                                    | 8.003  | 47.555    | 375         |     |
| 48   | 479088.169     | 170570.352      | 48.041    | 1.575        | 1350        |  | 1      | 8.003     | 46.466      | 375 |
|      |                |                 |           |              |             | 0                                                                                    | 8.004  | 46.466    | 375         |     |
| 49   | 479115.259     | 170576.803      | 47.416    | 1.575        | 1350        |  | 1      | 8.004     | 45.841      | 375 |
|      |                |                 |           |              |             | 0                                                                                    | 8.005  | 45.841    | 375         |     |
| 50   | 479145.667     | 170603.465      | 46.542    | 1.575        | 1350        |  | 1      | 8.005     | 44.967      | 375 |
|      |                |                 |           |              |             | 0                                                                                    | 8.006  | 44.967    | 375         |     |
| 51   | 479134.354     | 170636.452      | 46.181    | 1.443        | 1200        |  |        |           |             |     |
|      |                |                 |           |              |             | 0                                                                                    | 10.000 | 44.738    | 225         |     |
| 52   | 479145.044     | 170626.939      | 46.094    | 1.441        | 1200        |  | 1      | 10.000    | 44.653      | 225 |
|      |                |                 |           |              |             | 0                                                                                    | 10.001 | 44.653    | 225         |     |
| 53   | 479148.759     | 170619.442      | 46.185    | 1.582        | 1200        |  | 1      | 10.001    | 44.603      | 225 |
|      |                |                 |           |              |             | 0                                                                                    | 10.002 | 44.603    | 225         |     |
| 54   | 479163.304     | 170618.589      | 45.739    | 1.575        | 1350        |  | 1      | 10.002    | 44.314      | 225 |
|      |                |                 |           |              |             | 2                                                                                    | 8.006  | 44.164    | 375         |     |
|      |                |                 |           |              |             | 0                                                                                    | 8.007  | 44.164    | 375         |     |
| 55   | 479180.989     | 170638.466      | 44.900    | 1.575        | 1350        |  | 1      | 8.007     | 43.325      | 375 |
|      |                |                 |           |              |             | 0                                                                                    | 8.008  | 43.325    | 375         |     |

**Manhole Schedule**

| Node | Easting<br>(m) | Northing<br>(m) | CL<br>(m) | Depth<br>(m) | Dia<br>(mm) | Connections                                                                          | Link   | IL<br>(m) | Dia<br>(mm) |     |
|------|----------------|-----------------|-----------|--------------|-------------|--------------------------------------------------------------------------------------|--------|-----------|-------------|-----|
| 56   | 479040.454     | 170603.688      | 48.293    | 1.500        | 1200        |     |        |           |             |     |
|      |                |                 |           |              |             | 0                                                                                    | 11.000 | 46.793    | 300         |     |
| 57   | 479037.635     | 170615.901      | 48.103    | 1.827        | 1200        |    | 1      | 11.000    | 46.276      | 300 |
|      |                |                 |           |              |             | 0                                                                                    | 11.001 | 46.276    | 300         |     |
| 58   | 479067.747     | 170623.072      | 47.511    | 1.500        | 1200        |    | 1      | 11.001    | 46.011      | 300 |
|      |                |                 |           |              |             | 0                                                                                    | 11.002 | 46.011    | 300         |     |
| 59   | 479080.905     | 170630.195      | 47.161    | 2.359        | 1200        |    | 1      | 11.002    | 44.802      | 300 |
|      |                |                 |           |              |             | 0                                                                                    | 11.003 | 44.802    | 300         |     |
| 60   | 479107.990     | 170659.912      | 46.329    | 1.834        | 1200        |    | 1      | 11.003    | 44.495      | 300 |
|      |                |                 |           |              |             | 0                                                                                    | 11.004 | 44.495    | 300         |     |
| 61   | 479127.585     | 170681.411      | 45.039    | 2.206        | 1200        |  | 1      | 11.004    | 42.833      | 300 |
|      |                |                 |           |              |             | 0                                                                                    | 11.005 | 42.833    | 300         |     |
| 62   | 479024.634     | 170654.348      | 47.572    | 1.408        | 1200        |  |        |           |             |     |
|      |                |                 |           |              |             | 0                                                                                    | 12.000 | 46.164    | 225         |     |
| 63   | 479037.665     | 170668.988      | 46.919    | 2.377        | 1200        |  | 1      | 12.000    | 44.542      | 225 |
|      |                |                 |           |              |             | 0                                                                                    | 12.001 | 44.542    | 225         |     |
| 64   | 479089.573     | 170676.177      | 46.060    | 1.393        | 1200        |   |        |           |             |     |
|      |                |                 |           |              |             | 0                                                                                    | 13.000 | 44.667    | 225         |     |
| 65   | 479064.178     | 170698.775      | 46.014    | 1.707        | 1200        |  | 1      | 13.000    | 44.307      | 225 |
|      |                |                 |           |              |             | 2                                                                                    | 12.001 | 44.307    | 225         |     |
|      |                |                 |           |              |             | 0                                                                                    | 12.002 | 44.307    | 225         |     |
| 66   | 479066.344     | 170710.960      | 45.588    | 1.425        | 1200        |  | 1      | 12.002    | 44.163      | 225 |
|      |                |                 |           |              |             | 0                                                                                    | 12.003 | 44.163    | 225         |     |
| 67   | 479079.451     | 170725.689      | 44.944    | 1.540        | 1200        |  | 1      | 12.003    | 43.404      | 225 |
|      |                |                 |           |              |             | 0                                                                                    | 12.004 | 43.404    | 225         |     |
| 68   | 479090.814     | 170738.457      | 44.410    | 1.500        | 1200        |  | 1      | 12.004    | 42.985      | 225 |
|      |                |                 |           |              |             | 0                                                                                    | 12.005 | 42.910    | 300         |     |

**Manhole Schedule**

| Node | Easting (m) | Northing (m) | CL (m) | Depth (m) | Dia (mm) | Connections                                                                                     | Link | IL (m) | Dia (mm) |     |
|------|-------------|--------------|--------|-----------|----------|-------------------------------------------------------------------------------------------------|------|--------|----------|-----|
| 69   | 479099.944  | 170741.451   | 44.243 | 1.500     | 1200     | <div></div>   | 1    | 12.005 | 42.743   | 300 |
|      |             |              |        |           |          | <div></div>   | 0    | 12.006 | 42.743   | 300 |
| 70   | 479112.221  | 170733.041   | 44.076 | 1.977     | 1200     | <div></div>   | 1    | 12.006 | 42.099   | 300 |
|      |             |              |        |           |          | <div></div>   | 0    | 12.007 | 42.099   | 300 |
| 71   | 479148.362  | 170704.207   | 43.570 | 1.820     | 1350     | <div></div>   | 1    | 12.007 | 41.900   | 300 |
|      |             |              |        |           |          | <div></div>   | 2    | 11.005 | 41.900   | 300 |
|      |             |              |        |           |          | <div></div>   | 0    | 11.006 | 41.750   | 450 |
| 72   | 479177.613  | 170680.556   | 43.057 | 1.607     | 1500     | <div></div>   | 1    | 11.006 | 41.600   | 450 |
|      |             |              |        |           |          | <div></div>  | 0    | 11.007 | 41.450   | 600 |
| 73   | 479201.357  | 170661.357   | 43.593 | 2.271     | 1500     | <div></div> | 1    | 11.007 | 41.397   | 600 |
|      |             |              |        |           |          | <div></div> | 2    | 8.008  | 41.622   | 375 |
|      |             |              |        |           |          | <div></div> | 0    | 8.009  | 41.322   | 675 |
| 74   | 479209.608  | 170664.499   | 43.210 | 1.903     | 1500     | <div></div> | 1    | 8.009  | 41.307   | 675 |
|      |             |              |        |           |          | <div></div> | 0    | 8.010  | 41.307   | 675 |
| 75   | 479209.886  | 170683.921   | 42.600 | 1.325     | 1500     | <div></div> | 1    | 8.010  | 41.275   | 675 |
|      |             |              |        |           |          | <div></div> | 0    | 8.011  | 41.275   | 675 |
| 76   | 479161.818  | 170723.722   | 42.510 | 1.339     | 1500     | <div></div> | 1    | 8.011  | 41.171   | 675 |
|      |             |              |        |           |          | <div></div> | 0    | 8.012  | 41.171   | 675 |
| 77   | 479116.335  | 170761.382   | 42.733 | 1.660     | 1500     | <div></div> | 1    | 8.012  | 41.073   | 675 |
|      |             |              |        |           |          | <div></div> | 0    | 8.013  | 41.073   | 675 |
| 78   | 479098.236  | 170792.166   | 42.500 | 1.500     | 1500     | <div></div> | 1    | 8.013  | 41.000   | 675 |
|      |             |              |        |           |          | <div></div> | 2    | 5.015  | 41.000   | 675 |
|      |             |              |        |           |          | <div></div> | 3    | 1.016  | 41.000   | 675 |
|      |             |              |        |           |          | <div></div> | 0    | 1.017  | 41.000   | 675 |
| 79   | 479103.303  | 170792.747   | 42.500 | 1.520     | 1500     | <div></div> | 1    | 1.017  | 40.980   | 675 |
|      |             |              |        |           |          | <div></div> | 0    | 1.018  | 40.980   | 675 |
| 80   | 479141.477  | 170797.122   | 42.000 | 1.100     | 1500     | <div></div> | 1    | 1.018  | 40.900   | 675 |

### Simulation Settings

|                      |        |                                         |      |                                       |   |
|----------------------|--------|-----------------------------------------|------|---------------------------------------|---|
| Rainfall Methodology | FEH-22 | Skip Steady State                       | ✓    | Check Discharge Volume                | ✓ |
| Summer CV            | 0.750  | Drain Down Time (mins)                  | 240  | 100 year 360 minute (m <sup>3</sup> ) |   |
| Winter CV            | 0.840  | Additional Storage (m <sup>3</sup> /ha) | 20.0 |                                       |   |
| Analysis Speed       | Normal | Check Discharge Rate(s)                 | ✓    |                                       |   |

### Storm Durations

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

| Return Period<br>(years) | Climate Change<br>(CC %) | Additional Area<br>(A %) | Additional Flow<br>(Q %) |
|--------------------------|--------------------------|--------------------------|--------------------------|
| 2                        | 0                        | 0                        | 0                        |
| 30                       | 0                        | 0                        | 0                        |
| 100                      | 0                        | 0                        | 0                        |
| 100                      | 40                       | 10                       | 0                        |

### Pre-development Discharge Rate

|                              |            |                        |      |
|------------------------------|------------|------------------------|------|
| Site Makeup                  | Greenfield | Growth Factor 30 year  | 1.95 |
| Greenfield Method            | IH124      | Growth Factor 100 year | 2.48 |
| Positively Drained Area (ha) |            | Betterment (%)         | 0    |
| SAAR (mm)                    |            | QBar                   |      |
| Soil Index                   | 1          | Q 1 year (l/s)         |      |
| SPR                          | 0.10       | Q 30 year (l/s)        |      |
| Region                       | 1          | Q 100 year (l/s)       |      |
| Growth Factor 1 year         | 0.85       |                        |      |

### Pre-development Discharge Volume

|                              |            |                                 |     |
|------------------------------|------------|---------------------------------|-----|
| Site Makeup                  | Greenfield | Return Period (years)           | 100 |
| Greenfield Method            | FSR/FEH    | Climate Change (%)              | 0   |
| Positively Drained Area (ha) |            | Storm Duration (mins)           | 360 |
| Soil Index                   | 1          | Betterment (%)                  | 0   |
| SPR                          | 0.10       | PR                              |     |
| CWI                          |            | Runoff Volume (m <sup>3</sup> ) |     |

### Node 79 Online Head/Flow Control

|                          |   |                     |                       |                   |      |
|--------------------------|---|---------------------|-----------------------|-------------------|------|
| Flap Valve               | x | Invert Level (m)    | 40.980                | Design Flow (l/s) | 69.0 |
| Replaces Downstream Link | ✓ | Design Depth (m)    | 0.850                 |                   |      |
|                          |   | <b>Head<br/>(m)</b> | <b>Flow<br/>(l/s)</b> |                   |      |
|                          |   | 0.850               | 69.000                |                   |      |

### Node 75 Online Orifice Control

|                          |   |                  |        |                       |       |
|--------------------------|---|------------------|--------|-----------------------|-------|
| Flap Valve               | x | Invert Level (m) | 41.275 | Discharge Coefficient | 0.600 |
| Replaces Downstream Link | ✓ | Diameter (m)     | 0.127  |                       |       |

### Node 76 Online Head/Flow Control

|                          |   |                  |        |                   |      |
|--------------------------|---|------------------|--------|-------------------|------|
| Flap Valve               | x | Invert Level (m) | 41.171 | Design Flow (l/s) | 20.0 |
| Replaces Downstream Link | ✓ | Design Depth (m) | 1.300  |                   |      |

Head      Flow  
(m)      (l/s)  
1.300    20.000

**Node 75 Depth/Area Storage Structure**

|                             |         |               |      |                           |        |
|-----------------------------|---------|---------------|------|---------------------------|--------|
| Base Inf Coefficient (m/hr) | 0.00000 | Safety Factor | 2.0  | Invert Level (m)          | 41.275 |
| Side Inf Coefficient (m/hr) | 0.00000 | Porosity      | 1.00 | Time to half empty (mins) |        |

| Depth<br>(m) | Area<br>(m <sup>2</sup> ) | Inf Area<br>(m <sup>2</sup> ) | Depth<br>(m) | Area<br>(m <sup>2</sup> ) | Inf Area<br>(m <sup>2</sup> ) | Depth<br>(m) | Area<br>(m <sup>2</sup> ) | Inf Area<br>(m <sup>2</sup> ) |
|--------------|---------------------------|-------------------------------|--------------|---------------------------|-------------------------------|--------------|---------------------------|-------------------------------|
| 0.000        | 1350.0                    | 0.0                           | 1.000        | 1350.0                    | 0.0                           | 1.010        | 0.0                       | 0.0                           |

**Node 78 Depth/Area Storage Structure**

|                             |         |               |      |                           |        |
|-----------------------------|---------|---------------|------|---------------------------|--------|
| Base Inf Coefficient (m/hr) | 0.00000 | Safety Factor | 2.0  | Invert Level (m)          | 41.000 |
| Side Inf Coefficient (m/hr) | 0.00000 | Porosity      | 1.00 | Time to half empty (mins) | 256    |

| Depth<br>(m) | Area<br>(m <sup>2</sup> ) | Inf Area<br>(m <sup>2</sup> ) | Depth<br>(m) | Area<br>(m <sup>2</sup> ) | Inf Area<br>(m <sup>2</sup> ) | Depth<br>(m) | Area<br>(m <sup>2</sup> ) | Inf Area<br>(m <sup>2</sup> ) |
|--------------|---------------------------|-------------------------------|--------------|---------------------------|-------------------------------|--------------|---------------------------|-------------------------------|
| 0.000        | 2100.0                    | 0.0                           | 1.000        | 2100.0                    | 0.0                           | 1.001        | 0.0                       | 0.0                           |

**Node 76 Depth/Area Storage Structure**

|                             |         |               |      |                           |        |
|-----------------------------|---------|---------------|------|---------------------------|--------|
| Base Inf Coefficient (m/hr) | 0.00000 | Safety Factor | 2.0  | Invert Level (m)          | 41.171 |
| Side Inf Coefficient (m/hr) | 0.00000 | Porosity      | 1.00 | Time to half empty (mins) |        |

| Depth<br>(m) | Area<br>(m <sup>2</sup> ) | Inf Area<br>(m <sup>2</sup> ) | Depth<br>(m) | Area<br>(m <sup>2</sup> ) | Inf Area<br>(m <sup>2</sup> ) | Depth<br>(m) | Area<br>(m <sup>2</sup> ) | Inf Area<br>(m <sup>2</sup> ) |
|--------------|---------------------------|-------------------------------|--------------|---------------------------|-------------------------------|--------------|---------------------------|-------------------------------|
| 0.000        | 450.0                     | 0.0                           | 1.000        | 450.0                     | 0.0                           | 1.001        | 0.0                       | 0.0                           |

**Results for 2 year Critical Storm Duration. Lowest mass balance: 99.72%**

| Node Event       | US<br>Node | Peak<br>(mins) | Level<br>(m) | Depth<br>(m) | Inflow<br>(l/s) | Node<br>Vol (m³) | Flood<br>(m³) | Status |
|------------------|------------|----------------|--------------|--------------|-----------------|------------------|---------------|--------|
| 15 minute winter | 1          | 10             | 47.826       | 0.047        | 9.9             | 0.1058           | 0.0000        | OK     |
| 15 minute winter | 2          | 10             | 47.141       | 0.094        | 21.0            | 0.2239           | 0.0000        | OK     |
| 15 minute winter | 3          | 10             | 46.926       | 0.111        | 27.1            | 0.2242           | 0.0000        | OK     |
| 15 minute winter | 4          | 11             | 46.873       | 0.109        | 33.4            | 0.2223           | 0.0000        | OK     |
| 15 minute winter | 5          | 11             | 46.656       | 0.112        | 44.2            | 0.2703           | 0.0000        | OK     |
| 15 minute winter | 6          | 11             | 46.349       | 0.127        | 56.4            | 0.3607           | 0.0000        | OK     |
| 15 minute winter | 7          | 11             | 46.229       | 0.195        | 63.2            | 0.4529           | 0.0000        | OK     |
| 15 minute winter | 8          | 10             | 46.659       | 0.050        | 6.9             | 0.0926           | 0.0000        | OK     |
| 15 minute winter | 9          | 11             | 46.012       | 0.122        | 89.3            | 0.4372           | 0.0000        | OK     |
| 15 minute winter | 10         | 11             | 45.331       | 0.168        | 95.7            | 0.3952           | 0.0000        | OK     |
| 15 minute winter | 11         | 10             | 46.076       | 0.072        | 19.2            | 0.2414           | 0.0000        | OK     |
| 15 minute winter | 12         | 11             | 45.499       | 0.123        | 35.2            | 0.3459           | 0.0000        | OK     |
| 15 minute winter | 13         | 11             | 45.292       | 0.140        | 40.5            | 0.3182           | 0.0000        | OK     |
| 15 minute winter | 14         | 11             | 45.190       | 0.168        | 139.1           | 0.3524           | 0.0000        | OK     |
| 15 minute winter | 15         | 11             | 44.762       | 0.132        | 143.5           | 0.2913           | 0.0000        | OK     |
| 15 minute winter | 16         | 12             | 43.795       | 0.268        | 147.6           | 0.5679           | 0.0000        | OK     |
| 15 minute winter | 17         | 10             | 44.061       | 0.100        | 17.2            | 0.3093           | 0.0000        | OK     |
| 15 minute winter | 18         | 10             | 43.960       | 0.083        | 23.4            | 0.1683           | 0.0000        | OK     |
| 15 minute winter | 19         | 12             | 43.680       | 0.191        | 171.3           | 0.3757           | 0.0000        | OK     |
| 15 minute winter | 20         | 12             | 43.377       | 0.157        | 174.4           | 0.3132           | 0.0000        | OK     |
| 15 minute winter | 21         | 12             | 42.515       | 0.135        | 177.2           | 0.2679           | 0.0000        | OK     |
| 15 minute winter | 22         | 11             | 41.900       | 0.296        | 183.4           | 0.6855           | 0.0000        | OK     |
| 15 minute winter | 23         | 11             | 41.839       | 0.333        | 188.5           | 0.7024           | 0.0000        | OK     |
| 15 minute winter | 24         | 10             | 48.420       | 0.063        | 8.6             | 0.1244           | 0.0000        | OK     |
| 15 minute winter | 25         | 11             | 48.187       | 0.092        | 13.0            | 0.1496           | 0.0000        | OK     |

| Link Event<br>(Upstream Depth) | US<br>Node | Link  | DS<br>Node | Outflow<br>(l/s) | Velocity<br>(m/s) | Flow/Cap | Link<br>Vol (m³) | Discharge<br>Vol (m³) |
|--------------------------------|------------|-------|------------|------------------|-------------------|----------|------------------|-----------------------|
| 15 minute winter               | 1          | 1.000 | 2          | 9.8              | 1.401             | 0.052    | 0.1602           |                       |
| 15 minute winter               | 2          | 1.001 | 3          | 20.6             | 0.996             | 0.128    | 0.5041           |                       |
| 15 minute winter               | 3          | 1.002 | 4          | 27.0             | 0.903             | 0.108    | 0.2547           |                       |
| 15 minute winter               | 4          | 1.003 | 5          | 33.6             | 1.184             | 0.118    | 0.5267           |                       |
| 15 minute winter               | 5          | 1.004 | 6          | 44.5             | 1.212             | 0.099    | 1.3672           |                       |
| 15 minute winter               | 6          | 1.005 | 7          | 57.0             | 1.018             | 0.111    | 0.9516           |                       |
| 15 minute winter               | 7          | 1.006 | 9          | 61.8             | 0.957             | 0.285    | 2.2113           |                       |
| 15 minute winter               | 8          | 2.000 | 9          | 6.7              | 1.057             | 0.103    | 0.1378           |                       |
| 15 minute winter               | 9          | 1.007 | 10         | 88.8             | 1.699             | 0.094    | 2.0210           |                       |
| 15 minute winter               | 10         | 1.008 | 14         | 94.6             | 1.485             | 0.137    | 0.9153           |                       |
| 15 minute winter               | 11         | 3.000 | 12         | 18.6             | 1.291             | 0.078    | 0.5642           |                       |
| 15 minute winter               | 12         | 3.001 | 13         | 34.9             | 1.019             | 0.157    | 1.0710           |                       |
| 15 minute winter               | 13         | 3.002 | 14         | 40.8             | 0.928             | 0.140    | 0.6710           |                       |
| 15 minute winter               | 14         | 1.009 | 15         | 138.5            | 2.520             | 0.140    | 1.0564           |                       |
| 15 minute winter               | 15         | 1.010 | 16         | 142.6            | 1.737             | 0.110    | 2.6096           |                       |
| 15 minute winter               | 16         | 1.011 | 19         | 148.3            | 1.497             | 0.523    | 2.1991           |                       |
| 15 minute winter               | 17         | 4.000 | 18         | 16.8             | 0.811             | 0.152    | 0.5639           |                       |
| 15 minute winter               | 18         | 4.001 | 19         | 23.2             | 1.360             | 0.093    | 0.1809           |                       |
| 15 minute winter               | 19         | 1.012 | 20         | 172.3            | 2.540             | 0.164    | 0.7893           |                       |
| 15 minute winter               | 20         | 1.013 | 21         | 175.1            | 3.307             | 0.127    | 1.1191           |                       |
| 15 minute winter               | 21         | 1.014 | 22         | 177.7            | 1.993             | 0.111    | 1.3326           |                       |
| 15 minute winter               | 22         | 1.015 | 23         | 185.9            | 1.384             | 0.331    | 2.1913           |                       |
| 15 minute winter               | 23         | 1.016 | 78         | 202.2            | 2.901             | 0.246    | 5.8961           |                       |
| 15 minute winter               | 24         | 5.000 | 25         | 8.4              | 0.704             | 0.171    | 0.3512           |                       |
| 15 minute winter               | 25         | 5.001 | 26         | 12.9             | 0.873             | 0.322    | 0.1982           |                       |

**Results for 2 year Critical Storm Duration. Lowest mass balance: 99.72%**

| Node Event       | US Node | Peak (mins) | Level (m) | Depth (m) | Inflow (l/s) | Node Vol (m³) | Flood (m³) | Status |
|------------------|---------|-------------|-----------|-----------|--------------|---------------|------------|--------|
| 15 minute winter | 26      | 11          | 47.933    | 0.068     | 18.5         | 0.1086        | 0.0000     | OK     |
| 15 minute winter | 27      | 11          | 47.365    | 0.085     | 32.7         | 0.2370        | 0.0000     | OK     |
| 15 minute winter | 28      | 11          | 46.454    | 0.090     | 55.1         | 0.3259        | 0.0000     | OK     |
| 15 minute winter | 29      | 11          | 45.840    | 0.203     | 57.7         | 0.3334        | 0.0000     | OK     |
| 15 minute winter | 30      | 10          | 46.007    | 0.061     | 8.8          | 0.1247        | 0.0000     | OK     |
| 15 minute winter | 31      | 11          | 45.793    | 0.186     | 66.4         | 0.2666        | 0.0000     | OK     |
| 15 minute winter | 32      | 11          | 45.729    | 0.141     | 80.3         | 0.3681        | 0.0000     | OK     |
| 15 minute winter | 33      | 11          | 45.303    | 0.110     | 86.1         | 0.2178        | 0.0000     | OK     |
| 15 minute winter | 34      | 11          | 44.231    | 0.165     | 91.8         | 0.3081        | 0.0000     | OK     |
| 15 minute summer | 35      | 1           | 44.564    | 0.000     | 0.0          | 0.0000        | 0.0000     | OK     |
| 15 minute summer | 36      | 1           | 44.166    | 0.000     | 0.0          | 0.0000        | 0.0000     | OK     |
| 15 minute winter | 37      | 11          | 43.917    | 0.125     | 97.8         | 0.2412        | 0.0000     | OK     |
| 15 minute winter | 38      | 11          | 43.008    | 0.130     | 103.3        | 0.2951        | 0.0000     | OK     |
| 15 minute winter | 39      | 11          | 42.628    | 0.183     | 105.4        | 0.3667        | 0.0000     | OK     |
| 15 minute winter | 40      | 11          | 42.482    | 0.170     | 106.7        | 0.3375        | 0.0000     | OK     |
| 15 minute winter | 41      | 11          | 42.188    | 0.147     | 116.0        | 0.4468        | 0.0000     | OK     |
| 15 minute summer | 42      | 10          | 41.708    | 0.243     | 110.9        | 0.4288        | 0.0000     | OK     |
| 15 minute winter | 43      | 10          | 48.874    | 0.063     | 14.6         | 0.1646        | 0.0000     | OK     |
| 15 minute winter | 44      | 11          | 48.045    | 0.119     | 20.4         | 0.1891        | 0.0000     | OK     |
| 15 minute winter | 45      | 11          | 48.180    | 0.056     | 6.6          | 0.1014        | 0.0000     | OK     |
| 15 minute winter | 46      | 11          | 47.804    | 0.131     | 36.3         | 0.3161        | 0.0000     | OK     |
| 15 minute winter | 47      | 11          | 47.662    | 0.107     | 43.5         | 0.2289        | 0.0000     | OK     |
| 15 minute winter | 48      | 11          | 46.582    | 0.116     | 58.7         | 0.3422        | 0.0000     | OK     |
| 15 minute winter | 49      | 11          | 45.960    | 0.119     | 61.1         | 0.2011        | 0.0000     | OK     |
| 15 minute winter | 50      | 11          | 45.078    | 0.111     | 70.1         | 0.2655        | 0.0000     | OK     |

| Link Event<br>(Upstream Depth) | US Node | Link  | DS Node | Outflow (l/s) | Velocity (m/s) | Flow/Cap | Link Vol (m³) | Discharge Vol (m³) |
|--------------------------------|---------|-------|---------|---------------|----------------|----------|---------------|--------------------|
| 15 minute winter               | 26      | 5.002 | 27      | 18.6          | 1.160          | 0.072    | 0.5753        |                    |
| 15 minute winter               | 27      | 5.003 | 28      | 32.6          | 1.783          | 0.108    | 0.6844        |                    |
| 15 minute winter               | 28      | 5.004 | 29      | 55.2          | 1.243          | 0.090    | 0.9432        |                    |
| 15 minute winter               | 29      | 5.005 | 31      | 58.1          | 0.885          | 0.360    | 0.8064        |                    |
| 15 minute winter               | 30      | 6.000 | 31      | 8.7           | 1.059          | 0.139    | 0.0657        |                    |
| 15 minute winter               | 31      | 5.006 | 32      | 66.6          | 1.280          | 0.415    | 0.3980        |                    |
| 15 minute winter               | 32      | 5.007 | 33      | 80.5          | 2.229          | 0.181    | 0.7590        |                    |
| 15 minute winter               | 33      | 5.008 | 34      | 86.2          | 2.107          | 0.135    | 1.2004        |                    |
| 15 minute winter               | 34      | 5.009 | 37      | 91.6          | 1.901          | 0.231    | 0.6423        |                    |
| 15 minute summer               | 35      | 7.000 | 36      | 0.0           | 0.000          | 0.000    | 0.0000        |                    |
| 15 minute summer               | 36      | 7.001 | 37      | 0.0           | 0.000          | 0.000    | 0.0000        |                    |
| 15 minute winter               | 37      | 5.010 | 38      | 97.7          | 2.418          | 0.119    | 1.2833        |                    |
| 15 minute winter               | 38      | 5.011 | 39      | 102.9         | 1.906          | 0.121    | 0.7634        |                    |
| 15 minute winter               | 39      | 5.012 | 40      | 104.8         | 1.642          | 0.205    | 0.7631        |                    |
| 15 minute winter               | 40      | 5.013 | 41      | 106.6         | 1.879          | 0.197    | 1.1777        |                    |
| 15 minute winter               | 41      | 5.014 | 42      | 116.2         | 2.562          | 0.140    | 0.6590        |                    |
| 15 minute summer               | 42      | 5.015 | 78      | 114.8         | 3.120          | 0.086    | 1.3304        |                    |
| 15 minute winter               | 43      | 8.000 | 44      | 14.4          | 0.968          | 0.175    | 0.5364        |                    |
| 15 minute winter               | 44      | 8.001 | 46      | 20.0          | 0.978          | 0.502    | 0.3568        |                    |
| 15 minute winter               | 45      | 9.000 | 46      | 6.4           | 0.846          | 0.131    | 0.2598        |                    |
| 15 minute winter               | 46      | 8.002 | 47      | 36.6          | 1.220          | 0.241    | 0.6139        |                    |
| 15 minute winter               | 47      | 8.003 | 48      | 43.7          | 1.592          | 0.182    | 2.0755        |                    |
| 15 minute winter               | 48      | 8.004 | 49      | 58.6          | 1.985          | 0.195    | 0.8217        |                    |
| 15 minute winter               | 49      | 8.005 | 50      | 60.7          | 2.112          | 0.206    | 1.1627        |                    |
| 15 minute winter               | 50      | 8.006 | 54      | 69.5          | 2.217          | 0.186    | 0.7313        |                    |

**Results for 2 year Critical Storm Duration. Lowest mass balance: 99.72%**

| Node Event        | US<br>Node | Peak<br>(mins) | Level<br>(m) | Depth<br>(m) | Inflow<br>(l/s) | Node<br>Vol (m³) | Flood<br>(m³) | Status |
|-------------------|------------|----------------|--------------|--------------|-----------------|------------------|---------------|--------|
| 15 minute winter  | 51         | 10             | 44.818       | 0.080        | 9.9             | 0.1729           | 0.0000        | OK     |
| 15 minute winter  | 52         | 10             | 44.740       | 0.087        | 11.8            | 0.1161           | 0.0000        | OK     |
| 15 minute winter  | 53         | 11             | 44.670       | 0.067        | 12.9            | 0.0839           | 0.0000        | OK     |
| 15 minute winter  | 54         | 11             | 44.299       | 0.135        | 86.2            | 0.2441           | 0.0000        | OK     |
| 15 minute winter  | 55         | 11             | 43.436       | 0.111        | 93.2            | 0.2439           | 0.0000        | OK     |
| 15 minute winter  | 56         | 10             | 46.841       | 0.048        | 12.6            | 0.1142           | 0.0000        | OK     |
| 15 minute winter  | 57         | 10             | 46.370       | 0.094        | 19.1            | 0.1580           | 0.0000        | OK     |
| 15 minute winter  | 58         | 10             | 46.065       | 0.054        | 22.8            | 0.0825           | 0.0000        | OK     |
| 15 minute winter  | 59         | 11             | 44.927       | 0.125        | 30.6            | 0.2045           | 0.0000        | OK     |
| 15 minute winter  | 60         | 11             | 44.563       | 0.068        | 30.5            | 0.0770           | 0.0000        | OK     |
| 15 minute winter  | 61         | 11             | 42.926       | 0.093        | 38.1            | 0.1557           | 0.0000        | OK     |
| 15 minute summer  | 62         | 1              | 46.164       | 0.000        | 0.0             | 0.0000           | 0.0000        | OK     |
| 15 minute summer  | 63         | 1              | 44.542       | 0.000        | 0.0             | 0.0000           | 0.0000        | OK     |
| 15 minute winter  | 64         | 10             | 44.714       | 0.047        | 5.3             | 0.0802           | 0.0000        | OK     |
| 15 minute winter  | 65         | 11             | 44.379       | 0.072        | 11.2            | 0.1202           | 0.0000        | OK     |
| 15 minute winter  | 66         | 11             | 44.212       | 0.049        | 10.9            | 0.0559           | 0.0000        | OK     |
| 15 minute winter  | 67         | 11             | 43.473       | 0.069        | 15.3            | 0.1091           | 0.0000        | OK     |
| 15 minute winter  | 68         | 11             | 42.986       | 0.076        | 17.2            | 0.1014           | 0.0000        | OK     |
| 15 minute winter  | 69         | 11             | 42.798       | 0.055        | 17.2            | 0.0622           | 0.0000        | OK     |
| 15 minute winter  | 70         | 12             | 42.198       | 0.099        | 17.2            | 0.1121           | 0.0000        | OK     |
| 15 minute winter  | 71         | 12             | 42.004       | 0.254        | 62.6            | 0.5600           | 0.0000        | OK     |
| 15 minute winter  | 72         | 12             | 41.977       | 0.527        | 77.9            | 1.4573           | 0.0000        | OK     |
| 15 minute summer  | 73         | 12             | 41.959       | 0.637        | 207.4           | 1.5745           | 0.0000        | OK     |
| 15 minute summer  | 74         | 12             | 41.952       | 0.645        | 236.2           | 1.1404           | 0.0000        | OK     |
| 360 minute winter | 75         | 272            | 41.450       | 0.175        | 40.4            | 237.0969         | 0.0000        | OK     |

| Link Event<br>(Upstream Depth) | US<br>Node | Link    | DS<br>Node | Outflow<br>(l/s) | Velocity<br>(m/s) | Flow/Cap | Link<br>Vol (m³) | Discharge<br>Vol (m³) |
|--------------------------------|------------|---------|------------|------------------|-------------------|----------|------------------|-----------------------|
| 15 minute winter               | 51         | 10.000  | 52         | 9.8              | 0.733             | 0.244    | 0.1907           |                       |
| 15 minute winter               | 52         | 10.001  | 53         | 11.6             | 0.976             | 0.290    | 0.0998           |                       |
| 15 minute winter               | 53         | 10.002  | 54         | 12.9             | 1.359             | 0.176    | 0.1387           |                       |
| 15 minute winter               | 54         | 8.007   | 55         | 85.7             | 2.731             | 0.241    | 0.8367           |                       |
| 15 minute winter               | 55         | 8.008   | 73         | 92.7             | 2.953             | 0.196    | 1.9978           |                       |
| 15 minute winter               | 56         | 11.000  | 57         | 12.5             | 0.987             | 0.055    | 0.1633           |                       |
| 15 minute winter               | 57         | 11.001  | 58         | 18.8             | 1.394             | 0.183    | 0.4250           |                       |
| 15 minute winter               | 58         | 11.002  | 59         | 22.6             | 1.290             | 0.071    | 0.2707           |                       |
| 15 minute winter               | 59         | 11.003  | 60         | 30.5             | 1.560             | 0.314    | 0.7973           |                       |
| 15 minute winter               | 60         | 11.004  | 61         | 30.6             | 2.012             | 0.115    | 0.4443           |                       |
| 15 minute winter               | 61         | 11.005  | 71         | 38.1             | 2.107             | 0.196    | 0.5992           |                       |
| 15 minute summer               | 62         | 12.000  | 63         | 0.0              | 0.000             | 0.000    | 0.0000           |                       |
| 15 minute summer               | 63         | 12.001  | 65         | 0.0              | 0.000             | 0.000    | 0.2126           |                       |
| 15 minute winter               | 64         | 13.000  | 65         | 5.2              | 0.620             | 0.097    | 0.2884           |                       |
| 15 minute winter               | 65         | 12.002  | 66         | 10.9             | 1.257             | 0.194    | 0.1081           |                       |
| 15 minute winter               | 66         | 12.003  | 67         | 10.9             | 1.316             | 0.107    | 0.1646           |                       |
| 15 minute winter               | 67         | 12.004  | 68         | 15.3             | 1.542             | 0.188    | 0.1700           |                       |
| 15 minute winter               | 68         | 12.005  | 69         | 17.2             | 1.518             | 0.117    | 0.1099           |                       |
| 15 minute winter               | 69         | 12.006  | 70         | 17.2             | 1.261             | 0.074    | 0.2141           |                       |
| 15 minute winter               | 70         | 12.007  | 71         | 16.9             | 0.825             | 0.233    | 0.9727           |                       |
| 15 minute winter               | 71         | 11.006  | 72         | 71.8             | 1.036             | 0.353    | 4.4078           |                       |
| 15 minute winter               | 72         | 11.007  | 73         | 123.0            | 0.691             | 0.432    | 8.1759           |                       |
| 15 minute summer               | 73         | 8.009   | 74         | 236.2            | 0.897             | 0.621    | 3.0924           |                       |
| 15 minute summer               | 74         | 8.010   | 75         | 257.4            | 2.261             | 0.681    | 3.4426           |                       |
| 360 minute winter              | 75         | Orifice | 76         | 11.2             |                   |          |                  |                       |

**Results for 2 year Critical Storm Duration. Lowest mass balance: 99.72%**

| Node Event        | US<br>Node | Peak<br>(mins) | Level<br>(m) | Depth<br>(m) | Inflow<br>(l/s) | Node<br>Vol (m³) | Flood<br>(m³) | Status |
|-------------------|------------|----------------|--------------|--------------|-----------------|------------------|---------------|--------|
| 720 minute winter | 76         | 705            | 41.426       | 0.255        | 10.5            | 115.3987         | 0.0000        | OK     |
| 480 minute winter | 77         | 360            | 41.198       | 0.125        | 3.8             | 0.3350           | 0.0000        | OK     |
| 480 minute winter | 78         | 360            | 41.198       | 0.198        | 57.1            | 417.5936         | 0.0000        | OK     |
| 480 minute winter | 79         | 360            | 41.197       | 0.217        | 17.7            | 0.3843           | 0.0000        | OK     |
| 15 minute summer  | 80         | 1              | 40.900       | 0.000        | 7.0             | 0.0000           | 0.0000        | OK     |

| Link Event<br>(Upstream Depth) | US<br>Node | Link      | DS<br>Node | Outflow<br>(l/s) | Velocity<br>(m/s) | Flow/Cap | Link<br>Vol (m³) | Discharge<br>Vol (m³) |
|--------------------------------|------------|-----------|------------|------------------|-------------------|----------|------------------|-----------------------|
| 720 minute winter              | 76         | Head/Flow | 77         | 3.9              |                   |          |                  |                       |
| 480 minute winter              | 77         | 8.013     | 78         | 3.9              | 0.284             | 0.009    | 2.3729           |                       |
| 480 minute winter              | 78         | 1.017     | 79         | 17.7             | 0.448             | 0.030    | 0.4757           |                       |
| 480 minute winter              | 79         | Head/Flow | 80         | 17.7             |                   |          |                  | 479.1                 |

**Results for 30 year Critical Storm Duration. Lowest mass balance: 99.72%**

| Node Event       | US Node | Peak (mins) | Level (m) | Depth (m) | Inflow (l/s) | Node Vol (m³) | Flood (m³) | Status     |
|------------------|---------|-------------|-----------|-----------|--------------|---------------|------------|------------|
| 15 minute winter | 1       | 10          | 47.859    | 0.080     | 29.5         | 0.1797        | 0.0000     | OK         |
| 15 minute winter | 2       | 10          | 47.218    | 0.171     | 62.7         | 0.4092        | 0.0000     | OK         |
| 15 minute winter | 3       | 10          | 47.025    | 0.210     | 81.0         | 0.4250        | 0.0000     | OK         |
| 15 minute winter | 4       | 10          | 46.964    | 0.200     | 100.1        | 0.4071        | 0.0000     | OK         |
| 15 minute winter | 5       | 10          | 46.750    | 0.206     | 131.9        | 0.4960        | 0.0000     | OK         |
| 15 minute winter | 6       | 11          | 46.474    | 0.251     | 167.5        | 0.7168        | 0.0000     | OK         |
| 15 minute winter | 7       | 11          | 46.399    | 0.365     | 187.4        | 0.8478        | 0.0000     | OK         |
| 15 minute winter | 8       | 10          | 46.698    | 0.089     | 20.4         | 0.1659        | 0.0000     | OK         |
| 15 minute winter | 9       | 11          | 46.114    | 0.224     | 269.4        | 0.8066        | 0.0000     | OK         |
| 15 minute winter | 10      | 11          | 45.497    | 0.333     | 289.9        | 0.7846        | 0.0000     | OK         |
| 15 minute winter | 11      | 10          | 46.128    | 0.124     | 57.0         | 0.4178        | 0.0000     | OK         |
| 15 minute winter | 12      | 10          | 45.604    | 0.229     | 105.4        | 0.6403        | 0.0000     | OK         |
| 15 minute winter | 13      | 11          | 45.417    | 0.265     | 120.6        | 0.6014        | 0.0000     | OK         |
| 15 minute winter | 14      | 11          | 45.345    | 0.324     | 421.3        | 0.6777        | 0.0000     | OK         |
| 15 minute winter | 15      | 11          | 44.876    | 0.246     | 436.1        | 0.5433        | 0.0000     | OK         |
| 15 minute winter | 16      | 11          | 44.076    | 0.550     | 450.8        | 1.1642        | 0.0000     | OK         |
| 15 minute winter | 17      | 10          | 44.143    | 0.182     | 51.1         | 0.5603        | 0.0000     | OK         |
| 15 minute winter | 18      | 10          | 44.030    | 0.153     | 69.9         | 0.3119        | 0.0000     | OK         |
| 15 minute winter | 19      | 11          | 43.873    | 0.384     | 522.3        | 0.7550        | 0.0000     | OK         |
| 15 minute winter | 20      | 11          | 43.516    | 0.296     | 527.6        | 0.5885        | 0.0000     | OK         |
| 15 minute winter | 21      | 11          | 42.686    | 0.306     | 533.3        | 0.6092        | 0.0000     | OK         |
| 15 minute winter | 22      | 11          | 42.243    | 0.640     | 551.2        | 1.4799        | 0.0000     | SURCHARGED |
| 15 minute summer | 23      | 11          | 42.046    | 0.541     | 541.0        | 1.1405        | 0.0000     | OK         |
| 15 minute winter | 24      | 10          | 48.470    | 0.113     | 25.5         | 0.2243        | 0.0000     | OK         |
| 15 minute winter | 25      | 11          | 48.287    | 0.192     | 38.9         | 0.3114        | 0.0000     | OK         |

| Link Event<br>(Upstream Depth) | US Node | Link  | DS Node | Outflow (l/s) | Velocity (m/s) | Flow/Cap | Link Vol (m³) | Discharge Vol (m³) |
|--------------------------------|---------|-------|---------|---------------|----------------|----------|---------------|--------------------|
| 15 minute winter               | 1       | 1.000 | 2       | 29.3          | 1.742          | 0.156    | 0.3981        |                    |
| 15 minute winter               | 2       | 1.001 | 3       | 61.4          | 1.325          | 0.382    | 1.1305        |                    |
| 15 minute winter               | 3       | 1.002 | 4       | 80.5          | 1.146          | 0.322    | 0.5986        |                    |
| 15 minute winter               | 4       | 1.003 | 5       | 99.7          | 1.570          | 0.349    | 1.1789        |                    |
| 15 minute winter               | 5       | 1.004 | 6       | 132.4         | 1.472          | 0.294    | 3.3458        |                    |
| 15 minute winter               | 6       | 1.005 | 7       | 168.9         | 1.284          | 0.329    | 2.2111        |                    |
| 15 minute winter               | 7       | 1.006 | 9       | 187.0         | 1.318          | 0.862    | 4.8118        |                    |
| 15 minute winter               | 8       | 2.000 | 9       | 20.1          | 1.419          | 0.305    | 0.3055        |                    |
| 15 minute winter               | 9       | 1.007 | 10      | 269.6         | 2.103          | 0.284    | 4.9324        |                    |
| 15 minute winter               | 10      | 1.008 | 14      | 289.5         | 1.847          | 0.421    | 2.2390        |                    |
| 15 minute winter               | 11      | 3.000 | 12      | 56.4          | 1.563          | 0.236    | 1.4506        |                    |
| 15 minute winter               | 12      | 3.001 | 13      | 103.5         | 1.354          | 0.465    | 2.4013        |                    |
| 15 minute winter               | 13      | 3.002 | 14      | 120.7         | 1.183          | 0.416    | 1.6011        |                    |
| 15 minute winter               | 14      | 1.009 | 15      | 421.3         | 3.209          | 0.427    | 2.5230        |                    |
| 15 minute winter               | 15      | 1.010 | 16      | 436.0         | 2.217          | 0.336    | 5.9037        |                    |
| 15 minute winter               | 16      | 1.011 | 19      | 446.7         | 1.938          | 1.577    | 5.0944        |                    |
| 15 minute winter               | 17      | 4.000 | 18      | 50.3          | 1.056          | 0.454    | 1.2904        |                    |
| 15 minute winter               | 18      | 4.001 | 19      | 69.0          | 1.766          | 0.278    | 0.4592        |                    |
| 15 minute winter               | 19      | 1.012 | 20      | 520.2         | 3.171          | 0.496    | 1.9084        |                    |
| 15 minute winter               | 20      | 1.013 | 21      | 525.9         | 3.813          | 0.382    | 2.9861        |                    |
| 15 minute winter               | 21      | 1.014 | 22      | 533.7         | 2.443          | 0.333    | 3.0687        |                    |
| 15 minute winter               | 22      | 1.015 | 23      | 554.8         | 2.058          | 0.986    | 4.0002        |                    |
| 15 minute summer               | 23      | 1.016 | 78      | 562.9         | 3.591          | 0.684    | 10.8745       |                    |
| 15 minute winter               | 24      | 5.000 | 25      | 25.2          | 0.891          | 0.510    | 0.8122        |                    |
| 15 minute winter               | 25      | 5.001 | 26      | 38.1          | 1.131          | 0.953    | 0.4511        |                    |

**Results for 30 year Critical Storm Duration. Lowest mass balance: 99.72%**

| Node Event       | US Node | Peak (mins) | Level (m) | Depth (m) | Inflow (l/s) | Node Vol (m³) | Flood (m³) | Status     |
|------------------|---------|-------------|-----------|-----------|--------------|---------------|------------|------------|
| 15 minute winter | 26      | 10          | 47.982    | 0.117     | 55.1         | 0.1881        | 0.0000     | OK         |
| 15 minute winter | 27      | 11          | 47.433    | 0.153     | 97.7         | 0.4268        | 0.0000     | OK         |
| 15 minute winter | 28      | 10          | 46.528    | 0.164     | 165.6        | 0.5914        | 0.0000     | OK         |
| 15 minute winter | 29      | 11          | 46.041    | 0.404     | 172.3        | 0.6632        | 0.0000     | OK         |
| 15 minute winter | 30      | 10          | 46.061    | 0.115     | 25.9         | 0.2361        | 0.0000     | OK         |
| 15 minute winter | 31      | 11          | 45.957    | 0.351     | 197.7        | 0.5019        | 0.0000     | OK         |
| 15 minute winter | 32      | 11          | 45.857    | 0.270     | 239.1        | 0.7040        | 0.0000     | OK         |
| 15 minute winter | 33      | 11          | 45.393    | 0.201     | 256.6        | 0.3964        | 0.0000     | OK         |
| 15 minute winter | 34      | 11          | 44.400    | 0.333     | 274.3        | 0.6233        | 0.0000     | OK         |
| 15 minute summer | 35      | 1           | 44.564    | 0.000     | 0.0          | 0.0000        | 0.0000     | OK         |
| 15 minute summer | 36      | 1           | 44.166    | 0.000     | 0.0          | 0.0000        | 0.0000     | OK         |
| 15 minute winter | 37      | 11          | 44.021    | 0.229     | 293.9        | 0.4407        | 0.0000     | OK         |
| 15 minute winter | 38      | 11          | 43.146    | 0.268     | 311.0        | 0.6087        | 0.0000     | OK         |
| 15 minute winter | 39      | 11          | 42.818    | 0.373     | 318.2        | 0.7465        | 0.0000     | OK         |
| 15 minute winter | 40      | 11          | 42.648    | 0.336     | 323.1        | 0.6653        | 0.0000     | OK         |
| 15 minute winter | 41      | 11          | 42.330    | 0.289     | 353.0        | 0.8821        | 0.0000     | OK         |
| 15 minute winter | 42      | 8           | 41.798    | 0.333     | 352.1        | 0.5881        | 0.0000     | OK         |
| 15 minute winter | 43      | 10          | 48.925    | 0.114     | 43.2         | 0.2970        | 0.0000     | OK         |
| 15 minute winter | 44      | 11          | 48.295    | 0.368     | 60.5         | 0.5876        | 0.0000     | SURCHARGED |
| 15 minute winter | 45      | 10          | 48.225    | 0.101     | 19.6         | 0.1840        | 0.0000     | OK         |
| 15 minute winter | 46      | 10          | 47.918    | 0.245     | 108.0        | 0.5937        | 0.0000     | OK         |
| 15 minute winter | 47      | 11          | 47.751    | 0.196     | 128.4        | 0.4181        | 0.0000     | OK         |
| 15 minute winter | 48      | 11          | 46.689    | 0.223     | 174.2        | 0.6582        | 0.0000     | OK         |
| 15 minute winter | 49      | 11          | 46.068    | 0.227     | 182.5        | 0.3828        | 0.0000     | OK         |
| 15 minute winter | 50      | 11          | 45.184    | 0.217     | 210.3        | 0.5183        | 0.0000     | OK         |

| Link Event<br>(Upstream Depth) | US Node | Link  | DS Node | Outflow (l/s) | Velocity (m/s) | Flow/Cap | Link Vol (m³) | Discharge Vol (m³) |
|--------------------------------|---------|-------|---------|---------------|----------------|----------|---------------|--------------------|
| 15 minute winter               | 26      | 5.002 | 27      | 55.1          | 1.547          | 0.215    | 1.2786        |                    |
| 15 minute winter               | 27      | 5.003 | 28      | 97.0          | 2.389          | 0.323    | 1.5224        |                    |
| 15 minute winter               | 28      | 5.004 | 29      | 164.4         | 1.575          | 0.269    | 2.0658        |                    |
| 15 minute winter               | 29      | 5.005 | 31      | 173.1         | 1.220          | 1.072    | 1.7351        |                    |
| 15 minute winter               | 30      | 6.000 | 31      | 25.6          | 1.359          | 0.411    | 0.1709        |                    |
| 15 minute winter               | 31      | 5.006 | 32      | 198.4         | 1.702          | 1.237    | 0.8837        |                    |
| 15 minute winter               | 32      | 5.007 | 33      | 240.0         | 2.863          | 0.540    | 1.7541        |                    |
| 15 minute winter               | 33      | 5.008 | 34      | 257.7         | 2.633          | 0.404    | 2.8243        |                    |
| 15 minute winter               | 34      | 5.009 | 37      | 275.4         | 2.439          | 0.695    | 1.4987        |                    |
| 15 minute summer               | 35      | 7.000 | 36      | 0.0           | 0.000          | 0.000    | 0.0000        |                    |
| 15 minute summer               | 36      | 7.001 | 37      | 0.0           | 0.000          | 0.000    | 0.0000        |                    |
| 15 minute winter               | 37      | 5.010 | 38      | 294.4         | 2.930          | 0.357    | 3.1902        |                    |
| 15 minute winter               | 38      | 5.011 | 39      | 310.8         | 2.250          | 0.364    | 1.9331        |                    |
| 15 minute winter               | 39      | 5.012 | 40      | 317.6         | 2.047          | 0.621    | 1.8521        |                    |
| 15 minute winter               | 40      | 5.013 | 41      | 321.6         | 2.430          | 0.593    | 2.7486        |                    |
| 15 minute winter               | 41      | 5.014 | 42      | 352.1         | 3.283          | 0.423    | 1.5577        |                    |
| 15 minute winter               | 42      | 5.015 | 78      | 354.8         | 3.955          | 0.264    | 2.1622        |                    |
| 15 minute winter               | 43      | 8.000 | 44      | 42.8          | 1.249          | 0.521    | 1.0692        |                    |
| 15 minute winter               | 44      | 8.001 | 46      | 58.9          | 1.484          | 1.481    | 0.6722        |                    |
| 15 minute winter               | 45      | 9.000 | 46      | 19.0          | 1.138          | 0.392    | 0.5796        |                    |
| 15 minute winter               | 46      | 8.002 | 47      | 108.2         | 1.604          | 0.712    | 1.3747        |                    |
| 15 minute winter               | 47      | 8.003 | 48      | 129.8         | 2.052          | 0.540    | 4.7831        |                    |
| 15 minute winter               | 48      | 8.004 | 49      | 175.1         | 2.538          | 0.583    | 1.9216        |                    |
| 15 minute winter               | 49      | 8.005 | 50      | 182.6         | 2.687          | 0.619    | 2.7507        |                    |
| 15 minute winter               | 50      | 8.006 | 54      | 210.0         | 2.763          | 0.563    | 1.7610        |                    |

**Results for 30 year Critical Storm Duration. Lowest mass balance: 99.72%**

| Node Event        | US Node | Peak (mins) | Level (m) | Depth (m) | Inflow (l/s) | Node Vol (m³) | Flood (m³) | Status     |
|-------------------|---------|-------------|-----------|-----------|--------------|---------------|------------|------------|
| 15 minute winter  | 51      | 10          | 44.898    | 0.160     | 29.5         | 0.3476        | 0.0000     | OK         |
| 15 minute winter  | 52      | 10          | 44.818    | 0.165     | 34.9         | 0.2213        | 0.0000     | OK         |
| 15 minute winter  | 53      | 10          | 44.728    | 0.125     | 38.4         | 0.1577        | 0.0000     | OK         |
| 15 minute winter  | 54      | 11          | 44.435    | 0.271     | 259.3        | 0.4914        | 0.0000     | OK         |
| 15 minute winter  | 55      | 10          | 43.540    | 0.215     | 280.5        | 0.4725        | 0.0000     | OK         |
| 15 minute winter  | 56      | 10          | 46.875    | 0.082     | 37.3         | 0.1956        | 0.0000     | OK         |
| 15 minute winter  | 57      | 10          | 46.448    | 0.172     | 56.7         | 0.2892        | 0.0000     | OK         |
| 15 minute winter  | 58      | 10          | 46.104    | 0.093     | 67.7         | 0.1426        | 0.0000     | OK         |
| 15 minute winter  | 59      | 10          | 45.050    | 0.247     | 91.0         | 0.4056        | 0.0000     | OK         |
| 15 minute winter  | 60      | 11          | 44.614    | 0.119     | 90.1         | 0.1350        | 0.0000     | OK         |
| 15 minute winter  | 61      | 10          | 43.033    | 0.200     | 112.7        | 0.3349        | 0.0000     | OK         |
| 15 minute summer  | 62      | 1           | 46.164    | 0.000     | 0.0          | 0.0000        | 0.0000     | OK         |
| 15 minute summer  | 63      | 1           | 44.542    | 0.000     | 0.0          | 0.0000        | 0.0000     | OK         |
| 15 minute winter  | 64      | 10          | 44.749    | 0.082     | 15.7         | 0.1403        | 0.0000     | OK         |
| 15 minute winter  | 65      | 11          | 44.441    | 0.134     | 33.1         | 0.2229        | 0.0000     | OK         |
| 15 minute winter  | 66      | 11          | 44.250    | 0.087     | 32.3         | 0.0979        | 0.0000     | OK         |
| 15 minute winter  | 67      | 11          | 43.535    | 0.131     | 45.4         | 0.2070        | 0.0000     | OK         |
| 15 minute winter  | 68      | 11          | 43.050    | 0.140     | 51.2         | 0.1864        | 0.0000     | OK         |
| 15 minute summer  | 69      | 10          | 42.862    | 0.119     | 49.2         | 0.1351        | 0.0000     | OK         |
| 15 minute summer  | 70      | 10          | 42.761    | 0.662     | 56.9         | 0.7483        | 0.0000     | SURCHARGED |
| 15 minute summer  | 71      | 10          | 42.661    | 0.911     | 191.3        | 2.0054        | 0.0000     | SURCHARGED |
| 15 minute summer  | 72      | 10          | 42.461    | 1.011     | 234.8        | 2.7946        | 0.0000     | SURCHARGED |
| 15 minute winter  | 73      | 9           | 42.385    | 1.063     | 571.4        | 2.6283        | 0.0000     | SURCHARGED |
| 15 minute winter  | 74      | 9           | 42.333    | 1.026     | 589.8        | 1.8135        | 0.0000     | SURCHARGED |
| 360 minute winter | 75      | 352         | 41.684    | 0.409     | 88.5         | 553.8512      | 0.0000     | OK         |

| Link Event<br>(Upstream Depth) | US Node | Link    | DS Node | Outflow (l/s) | Velocity (m/s) | Flow/Cap | Link Vol (m³) | Discharge Vol (m³) |
|--------------------------------|---------|---------|---------|---------------|----------------|----------|---------------|--------------------|
| 15 minute winter               | 51      | 10.000  | 52      | 29.0          | 0.944          | 0.727    | 0.4400        |                    |
| 15 minute winter               | 52      | 10.001  | 53      | 34.5          | 1.273          | 0.860    | 0.2260        |                    |
| 15 minute winter               | 53      | 10.002  | 54      | 38.2          | 1.767          | 0.520    | 0.3233        |                    |
| 15 minute winter               | 54      | 8.007   | 55      | 258.3         | 3.491          | 0.725    | 1.9950        |                    |
| 15 minute winter               | 55      | 8.008   | 73      | 283.2         | 3.630          | 0.598    | 2.6932        |                    |
| 15 minute winter               | 56      | 11.000  | 57      | 37.1          | 1.310          | 0.164    | 0.3594        |                    |
| 15 minute winter               | 57      | 11.001  | 58      | 55.9          | 1.862          | 0.545    | 0.9361        |                    |
| 15 minute winter               | 58      | 11.002  | 59      | 67.4          | 1.634          | 0.212    | 0.6040        |                    |
| 15 minute winter               | 59      | 11.003  | 60      | 90.1          | 2.003          | 0.929    | 1.7712        |                    |
| 15 minute winter               | 60      | 11.004  | 61      | 90.6          | 2.716          | 0.339    | 1.0980        |                    |
| 15 minute winter               | 61      | 11.005  | 71      | 117.3         | 2.403          | 0.605    | 1.8550        |                    |
| 15 minute summer               | 62      | 12.000  | 63      | 0.0           | 0.000          | 0.000    | 0.0000        |                    |
| 15 minute summer               | 63      | 12.001  | 65      | 0.0           | 0.000          | 0.000    | 0.4782        |                    |
| 15 minute winter               | 64      | 13.000  | 65      | 15.5          | 0.819          | 0.289    | 0.6433        |                    |
| 15 minute winter               | 65      | 12.002  | 66      | 32.3          | 1.668          | 0.577    | 0.2401        |                    |
| 15 minute winter               | 66      | 12.003  | 67      | 32.5          | 1.713          | 0.317    | 0.3739        |                    |
| 15 minute winter               | 67      | 12.004  | 68      | 45.7          | 2.019          | 0.560    | 0.3871        |                    |
| 15 minute winter               | 68      | 12.005  | 69      | 51.4          | 2.006          | 0.350    | 0.2470        |                    |
| 15 minute summer               | 69      | 12.006  | 70      | 56.9          | 1.585          | 0.245    | 0.7184        |                    |
| 15 minute summer               | 70      | 12.007  | 71      | 61.5          | 1.026          | 0.847    | 3.2558        |                    |
| 15 minute summer               | 71      | 11.006  | 72      | 206.3         | 1.339          | 1.014    | 5.9600        |                    |
| 15 minute summer               | 72      | 11.007  | 73      | 249.1         | 0.885          | 0.875    | 8.6010        |                    |
| 15 minute winter               | 73      | 8.009   | 74      | 589.8         | 1.652          | 1.551    | 3.1518        |                    |
| 15 minute winter               | 74      | 8.010   | 75      | 609.4         | 3.199          | 1.612    | 3.7164        |                    |
| 360 minute winter              | 75      | Orifice | 76      | 17.5          |                |          |               |                    |

**Results for 30 year Critical Storm Duration. Lowest mass balance: 99.72%**

| Node Event        | US<br>Node | Peak<br>(mins) | Level<br>(m) | Depth<br>(m) | Inflow<br>(l/s) | Node<br>Vol (m³) | Flood<br>(m³) | Status |
|-------------------|------------|----------------|--------------|--------------|-----------------|------------------|---------------|--------|
| 720 minute winter | 76         | 735            | 41.655       | 0.484        | 13.6            | 218.5557         | 0.0000        | OK     |
| 240 minute winter | 77         | 228            | 41.431       | 0.358        | 5.6             | 0.9557           | 0.0000        | OK     |
| 240 minute winter | 78         | 228            | 41.431       | 0.431        | 209.2           | 907.1733         | 0.0000        | OK     |
| 240 minute winter | 79         | 228            | 41.430       | 0.450        | 36.5            | 0.7955           | 0.0000        | OK     |
| 15 minute summer  | 80         | 1              | 40.900       | 0.000        | 18.2            | 0.0000           | 0.0000        | OK     |

| Link Event<br>(Upstream Depth) | US<br>Node | Link      | DS<br>Node | Outflow<br>(l/s) | Velocity<br>(m/s) | Flow/Cap | Link<br>Vol (m³) | Discharge<br>Vol (m³) |
|--------------------------------|------------|-----------|------------|------------------|-------------------|----------|------------------|-----------------------|
| 720 minute winter              | 76         | Head/Flow | 77         | 6.1              |                   |          |                  |                       |
| 240 minute winter              | 77         | 8.013     | 78         | 5.2              | 0.461             | 0.012    | 7.7208           |                       |
| 240 minute winter              | 78         | 1.017     | 79         | 36.5             | 0.455             | 0.062    | 1.2578           |                       |
| 240 minute winter              | 79         | Head/Flow | 80         | 36.5             |                   |          |                  | 699.8                 |

**Results for 100 year Critical Storm Duration. Lowest mass balance: 99.72%**

| Node Event       | US Node | Peak (mins) | Level (m) | Depth (m) | Inflow (l/s) | Node Vol (m³) | Flood (m³) | Status     |
|------------------|---------|-------------|-----------|-----------|--------------|---------------|------------|------------|
| 15 minute winter | 1       | 10          | 47.869    | 0.090     | 38.0         | 0.2023        | 0.0000     | OK         |
| 15 minute winter | 2       | 10          | 47.247    | 0.200     | 80.7         | 0.4774        | 0.0000     | OK         |
| 15 minute winter | 3       | 10          | 47.062    | 0.247     | 104.5        | 0.5006        | 0.0000     | OK         |
| 15 minute winter | 4       | 10          | 46.997    | 0.233     | 129.2        | 0.4752        | 0.0000     | OK         |
| 15 minute winter | 5       | 10          | 46.787    | 0.242     | 170.4        | 0.5850        | 0.0000     | OK         |
| 15 minute winter | 6       | 11          | 46.529    | 0.307     | 216.3        | 0.8743        | 0.0000     | OK         |
| 15 minute winter | 7       | 11          | 46.467    | 0.433     | 241.0        | 1.0043        | 0.0000     | OK         |
| 15 minute winter | 8       | 10          | 46.712    | 0.103     | 26.3         | 0.1923        | 0.0000     | OK         |
| 15 minute winter | 9       | 11          | 46.154    | 0.264     | 346.9        | 0.9484        | 0.0000     | OK         |
| 15 minute winter | 10      | 11          | 45.562    | 0.399     | 373.5        | 0.9386        | 0.0000     | OK         |
| 15 minute winter | 11      | 10          | 46.146    | 0.142     | 73.4         | 0.4773        | 0.0000     | OK         |
| 15 minute winter | 12      | 10          | 45.645    | 0.269     | 135.9        | 0.7529        | 0.0000     | OK         |
| 15 minute winter | 13      | 11          | 45.473    | 0.321     | 156.1        | 0.7279        | 0.0000     | OK         |
| 15 minute winter | 14      | 11          | 45.405    | 0.383     | 543.2        | 0.8032        | 0.0000     | OK         |
| 15 minute winter | 15      | 11          | 44.943    | 0.313     | 562.6        | 0.6922        | 0.0000     | OK         |
| 15 minute winter | 16      | 11          | 44.261    | 0.734     | 581.0        | 1.5544        | 0.0000     | SURCHARGED |
| 15 minute winter | 17      | 10          | 44.175    | 0.214     | 65.8         | 0.6586        | 0.0000     | OK         |
| 15 minute winter | 18      | 11          | 44.067    | 0.190     | 89.7         | 0.3873        | 0.0000     | OK         |
| 15 minute winter | 19      | 11          | 43.954    | 0.465     | 675.8        | 0.9145        | 0.0000     | OK         |
| 15 minute winter | 20      | 11          | 43.572    | 0.352     | 683.3        | 0.7009        | 0.0000     | OK         |
| 15 minute winter | 21      | 11          | 42.805    | 0.425     | 690.9        | 0.8450        | 0.0000     | OK         |
| 15 minute winter | 22      | 11          | 42.462    | 0.859     | 712.1        | 1.9864        | 0.0000     | SURCHARGED |
| 15 minute summer | 23      | 11          | 42.148    | 0.643     | 696.0        | 1.3564        | 0.0000     | OK         |
| 15 minute winter | 24      | 10          | 48.489    | 0.132     | 32.9         | 0.2625        | 0.0000     | OK         |
| 15 minute winter | 25      | 10          | 48.362    | 0.267     | 50.2         | 0.4324        | 0.0000     | SURCHARGED |

| Link Event<br>(Upstream Depth) | US Node | Link  | DS Node | Outflow (l/s) | Velocity (m/s) | Flow/Cap | Link Vol (m³) | Discharge Vol (m³) |
|--------------------------------|---------|-------|---------|---------------|----------------|----------|---------------|--------------------|
| 15 minute winter               | 1       | 1.000 | 2       | 37.7          | 1.744          | 0.200    | 0.5241        |                    |
| 15 minute winter               | 2       | 1.001 | 3       | 79.2          | 1.409          | 0.493    | 1.3712        |                    |
| 15 minute winter               | 3       | 1.002 | 4       | 103.9         | 1.207          | 0.416    | 0.7338        |                    |
| 15 minute winter               | 4       | 1.003 | 5       | 128.2         | 1.669          | 0.449    | 1.4284        |                    |
| 15 minute winter               | 5       | 1.004 | 6       | 170.5         | 1.500          | 0.378    | 4.2340        |                    |
| 15 minute winter               | 6       | 1.005 | 7       | 217.2         | 1.343          | 0.423    | 2.7069        |                    |
| 15 minute winter               | 7       | 1.006 | 9       | 240.8         | 1.429          | 1.110    | 5.6804        |                    |
| 15 minute winter               | 8       | 2.000 | 9       | 25.9          | 1.513          | 0.394    | 0.3699        |                    |
| 15 minute winter               | 9       | 1.007 | 10      | 347.3         | 2.177          | 0.366    | 6.1094        |                    |
| 15 minute winter               | 10      | 1.008 | 14      | 373.4         | 1.934          | 0.543    | 2.7591        |                    |
| 15 minute winter               | 11      | 3.000 | 12      | 72.6          | 1.560          | 0.304    | 1.8668        |                    |
| 15 minute winter               | 12      | 3.001 | 13      | 133.3         | 1.431          | 0.599    | 2.9260        |                    |
| 15 minute winter               | 13      | 3.002 | 14      | 155.5         | 1.214          | 0.536    | 2.0607        |                    |
| 15 minute winter               | 14      | 1.009 | 15      | 543.5         | 3.256          | 0.551    | 3.2443        |                    |
| 15 minute winter               | 15      | 1.010 | 16      | 561.9         | 2.296          | 0.433    | 6.7033        |                    |
| 15 minute winter               | 16      | 1.011 | 19      | 579.6         | 2.112          | 2.046    | 5.7047        |                    |
| 15 minute winter               | 17      | 4.000 | 18      | 64.4          | 1.087          | 0.582    | 1.6241        |                    |
| 15 minute winter               | 18      | 4.001 | 19      | 87.1          | 1.803          | 0.350    | 0.6933        |                    |
| 15 minute winter               | 19      | 1.012 | 20      | 673.8         | 3.308          | 0.642    | 2.3592        |                    |
| 15 minute winter               | 20      | 1.013 | 21      | 681.4         | 3.852          | 0.495    | 4.0666        |                    |
| 15 minute winter               | 21      | 1.014 | 22      | 686.6         | 2.589          | 0.428    | 3.5636        |                    |
| 15 minute winter               | 22      | 1.015 | 23      | 715.4         | 2.540          | 1.272    | 4.1263        |                    |
| 15 minute summer               | 23      | 1.016 | 78      | 724.5         | 3.662          | 0.881    | 12.7537       |                    |
| 15 minute winter               | 24      | 5.000 | 25      | 32.5          | 0.919          | 0.659    | 0.9306        |                    |
| 15 minute winter               | 25      | 5.001 | 26      | 49.1          | 1.251          | 1.228    | 0.5020        |                    |

**Results for 100 year Critical Storm Duration. Lowest mass balance: 99.72%**

| Node Event       | US Node | Peak (mins) | Level (m) | Depth (m) | Inflow (l/s) | Node Vol (m³) | Flood (m³) | Status     |
|------------------|---------|-------------|-----------|-----------|--------------|---------------|------------|------------|
| 15 minute winter | 26      | 10          | 48.000    | 0.135     | 71.4         | 0.2175        | 0.0000     | OK         |
| 15 minute winter | 27      | 11          | 47.458    | 0.177     | 126.2        | 0.4959        | 0.0000     | OK         |
| 15 minute winter | 28      | 11          | 46.547    | 0.183     | 213.5        | 0.6601        | 0.0000     | OK         |
| 15 minute winter | 29      | 11          | 46.170    | 0.533     | 222.0        | 0.8752        | 0.0000     | SURCHARGED |
| 15 minute winter | 30      | 11          | 46.093    | 0.147     | 33.4         | 0.3034        | 0.0000     | OK         |
| 15 minute winter | 31      | 11          | 46.063    | 0.456     | 255.3        | 0.6530        | 0.0000     | SURCHARGED |
| 15 minute winter | 32      | 11          | 45.910    | 0.323     | 308.2        | 0.8419        | 0.0000     | OK         |
| 15 minute winter | 33      | 11          | 45.431    | 0.238     | 330.5        | 0.4710        | 0.0000     | OK         |
| 15 minute winter | 34      | 11          | 44.484    | 0.417     | 352.8        | 0.7805        | 0.0000     | OK         |
| 15 minute summer | 35      | 1           | 44.564    | 0.000     | 0.0          | 0.0000        | 0.0000     | OK         |
| 15 minute summer | 36      | 1           | 44.166    | 0.000     | 0.0          | 0.0000        | 0.0000     | OK         |
| 15 minute winter | 37      | 11          | 44.059    | 0.267     | 377.0        | 0.5137        | 0.0000     | OK         |
| 15 minute winter | 38      | 11          | 43.210    | 0.331     | 398.7        | 0.7525        | 0.0000     | OK         |
| 15 minute winter | 39      | 11          | 42.903    | 0.458     | 408.2        | 0.9159        | 0.0000     | OK         |
| 15 minute winter | 40      | 11          | 42.716    | 0.404     | 414.8        | 0.7999        | 0.0000     | OK         |
| 15 minute winter | 41      | 11          | 42.386    | 0.345     | 453.8        | 1.0510        | 0.0000     | OK         |
| 15 minute summer | 42      | 10          | 41.830    | 0.365     | 437.0        | 0.6455        | 0.0000     | OK         |
| 15 minute winter | 43      | 10          | 48.962    | 0.151     | 55.7         | 0.3914        | 0.0000     | OK         |
| 15 minute winter | 44      | 11          | 48.498    | 0.572     | 76.7         | 0.9123        | 0.0000     | SURCHARGED |
| 15 minute winter | 45      | 10          | 48.241    | 0.117     | 25.3         | 0.2134        | 0.0000     | OK         |
| 15 minute winter | 46      | 11          | 47.966    | 0.293     | 138.3        | 0.7085        | 0.0000     | OK         |
| 15 minute winter | 47      | 11          | 47.786    | 0.231     | 165.2        | 0.4916        | 0.0000     | OK         |
| 15 minute winter | 48      | 11          | 46.734    | 0.268     | 223.5        | 0.7919        | 0.0000     | OK         |
| 15 minute winter | 49      | 11          | 46.113    | 0.272     | 233.4        | 0.4582        | 0.0000     | OK         |
| 15 minute winter | 50      | 11          | 45.231    | 0.264     | 268.8        | 0.6284        | 0.0000     | OK         |

| Link Event<br>(Upstream Depth) | US Node | Link  | DS Node | Outflow (l/s) | Velocity (m/s) | Flow/Cap | Link Vol (m³) | Discharge Vol (m³) |
|--------------------------------|---------|-------|---------|---------------|----------------|----------|---------------|--------------------|
| 15 minute winter               | 26      | 5.002 | 27      | 71.0          | 1.639          | 0.277    | 1.5554        |                    |
| 15 minute winter               | 27      | 5.003 | 28      | 125.2         | 2.544          | 0.417    | 1.8453        |                    |
| 15 minute winter               | 28      | 5.004 | 29      | 212.5         | 1.660          | 0.348    | 2.2453        |                    |
| 15 minute winter               | 29      | 5.005 | 31      | 223.3         | 1.410          | 1.384    | 1.9465        |                    |
| 15 minute winter               | 30      | 6.000 | 31      | 32.7          | 1.371          | 0.526    | 0.2703        |                    |
| 15 minute winter               | 31      | 5.006 | 32      | 255.8         | 1.783          | 1.595    | 1.0680        |                    |
| 15 minute winter               | 32      | 5.007 | 33      | 309.1         | 2.975          | 0.695    | 2.1662        |                    |
| 15 minute winter               | 33      | 5.008 | 34      | 331.5         | 2.687          | 0.520    | 3.4710        |                    |
| 15 minute winter               | 34      | 5.009 | 37      | 353.2         | 2.536          | 0.891    | 1.8295        |                    |
| 15 minute summer               | 35      | 7.000 | 36      | 0.0           | 0.000          | 0.000    | 0.0000        |                    |
| 15 minute summer               | 36      | 7.001 | 37      | 0.0           | 0.000          | 0.000    | 0.0000        |                    |
| 15 minute winter               | 37      | 5.010 | 38      | 377.3         | 2.978          | 0.458    | 4.0242        |                    |
| 15 minute winter               | 38      | 5.011 | 39      | 398.7         | 2.289          | 0.467    | 2.4140        |                    |
| 15 minute winter               | 39      | 5.012 | 40      | 407.7         | 2.150          | 0.797    | 2.2589        |                    |
| 15 minute winter               | 40      | 5.013 | 41      | 413.3         | 2.555          | 0.763    | 3.3505        |                    |
| 15 minute winter               | 41      | 5.014 | 42      | 453.2         | 3.453          | 0.544    | 1.9027        |                    |
| 15 minute summer               | 42      | 5.015 | 78      | 441.4         | 4.112          | 0.329    | 2.5591        |                    |
| 15 minute winter               | 43      | 8.000 | 44      | 53.9          | 1.448          | 0.656    | 1.2119        |                    |
| 15 minute winter               | 44      | 8.001 | 46      | 75.5          | 1.899          | 1.898    | 0.6868        |                    |
| 15 minute winter               | 45      | 9.000 | 46      | 24.9          | 1.115          | 0.514    | 0.8064        |                    |
| 15 minute winter               | 46      | 8.002 | 47      | 139.0         | 1.692          | 0.915    | 1.6686        |                    |
| 15 minute winter               | 47      | 8.003 | 48      | 166.4         | 2.138          | 0.692    | 5.8739        |                    |
| 15 minute winter               | 48      | 8.004 | 49      | 223.9         | 2.637          | 0.745    | 2.3652        |                    |
| 15 minute winter               | 49      | 8.005 | 50      | 233.2         | 2.787          | 0.791    | 3.4047        |                    |
| 15 minute winter               | 50      | 8.006 | 54      | 268.3         | 2.817          | 0.719    | 2.2020        |                    |

**Results for 100 year Critical Storm Duration. Lowest mass balance: 99.72%**

| Node Event        | US Node | Peak (mins) | Level (m) | Depth (m) | Inflow (l/s) | Node Vol (m³) | Flood (m³) | Status     |
|-------------------|---------|-------------|-----------|-----------|--------------|---------------|------------|------------|
| 15 minute winter  | 51      | 10          | 44.942    | 0.204     | 38.0         | 0.4421        | 0.0000     | OK         |
| 15 minute winter  | 52      | 10          | 44.853    | 0.200     | 44.7         | 0.2679        | 0.0000     | OK         |
| 15 minute winter  | 53      | 11          | 44.753    | 0.150     | 49.2         | 0.1885        | 0.0000     | OK         |
| 15 minute winter  | 54      | 11          | 44.512    | 0.348     | 331.7        | 0.6309        | 0.0000     | OK         |
| 15 minute winter  | 55      | 10          | 43.604    | 0.279     | 357.7        | 0.6108        | 0.0000     | OK         |
| 15 minute winter  | 56      | 10          | 46.886    | 0.093     | 48.1         | 0.2230        | 0.0000     | OK         |
| 15 minute winter  | 57      | 10          | 46.478    | 0.203     | 73.2         | 0.3401        | 0.0000     | OK         |
| 15 minute winter  | 58      | 10          | 46.117    | 0.106     | 87.4         | 0.1629        | 0.0000     | OK         |
| 15 minute winter  | 59      | 11          | 45.270    | 0.468     | 117.3        | 0.7677        | 0.0000     | SURCHARGED |
| 15 minute winter  | 60      | 11          | 44.630    | 0.136     | 113.9        | 0.1533        | 0.0000     | OK         |
| 15 minute winter  | 61      | 11          | 43.317    | 0.484     | 142.2        | 0.8105        | 0.0000     | SURCHARGED |
| 15 minute summer  | 62      | 1           | 46.164    | 0.000     | 0.0          | 0.0000        | 0.0000     | OK         |
| 15 minute summer  | 63      | 1           | 44.542    | 0.000     | 0.0          | 0.0000        | 0.0000     | OK         |
| 15 minute winter  | 64      | 10          | 44.762    | 0.095     | 20.3         | 0.1613        | 0.0000     | OK         |
| 15 minute winter  | 65      | 11          | 44.466    | 0.159     | 42.8         | 0.2637        | 0.0000     | OK         |
| 15 minute winter  | 66      | 11          | 44.263    | 0.100     | 41.7         | 0.1126        | 0.0000     | OK         |
| 15 minute winter  | 67      | 11          | 43.561    | 0.157     | 58.6         | 0.2484        | 0.0000     | OK         |
| 15 minute winter  | 68      | 11          | 43.087    | 0.177     | 66.1         | 0.2351        | 0.0000     | OK         |
| 15 minute summer  | 69      | 11          | 42.979    | 0.236     | 63.3         | 0.2669        | 0.0000     | OK         |
| 15 minute summer  | 70      | 9           | 42.954    | 0.855     | 68.3         | 0.9670        | 0.0000     | SURCHARGED |
| 15 minute summer  | 71      | 10          | 42.769    | 1.019     | 250.3        | 2.2433        | 0.0000     | SURCHARGED |
| 15 minute winter  | 72      | 9           | 42.561    | 1.111     | 295.3        | 3.0699        | 0.0000     | SURCHARGED |
| 15 minute winter  | 73      | 9           | 42.503    | 1.181     | 701.3        | 2.9204        | 0.0000     | SURCHARGED |
| 15 minute winter  | 74      | 9           | 42.413    | 1.106     | 712.8        | 1.9548        | 0.0000     | SURCHARGED |
| 360 minute winter | 75      | 352         | 41.799    | 0.524     | 110.4        | 709.6868      | 0.0000     | OK         |

| Link Event<br>(Upstream Depth) | US Node | Link    | DS Node | Outflow (l/s) | Velocity (m/s) | Flow/Cap | Link Vol (m³) | Discharge Vol (m³) |
|--------------------------------|---------|---------|---------|---------------|----------------|----------|---------------|--------------------|
| 15 minute winter               | 51      | 10.000  | 52      | 37.1          | 0.988          | 0.930    | 0.5378        |                    |
| 15 minute winter               | 52      | 10.001  | 53      | 44.1          | 1.337          | 1.102    | 0.2730        |                    |
| 15 minute winter               | 53      | 10.002  | 54      | 49.0          | 1.808          | 0.668    | 0.4747        |                    |
| 15 minute winter               | 54      | 8.007   | 55      | 329.1         | 3.547          | 0.923    | 2.5781        |                    |
| 15 minute winter               | 55      | 8.008   | 73      | 360.2         | 3.654          | 0.761    | 3.0346        |                    |
| 15 minute winter               | 56      | 11.000  | 57      | 47.9          | 1.386          | 0.211    | 0.4337        |                    |
| 15 minute winter               | 57      | 11.001  | 58      | 72.2          | 1.977          | 0.703    | 1.1299        |                    |
| 15 minute winter               | 58      | 11.002  | 59      | 86.9          | 1.651          | 0.274    | 0.6941        |                    |
| 15 minute winter               | 59      | 11.003  | 60      | 113.9         | 2.076          | 1.174    | 2.0366        |                    |
| 15 minute winter               | 60      | 11.004  | 61      | 113.7         | 2.821          | 0.426    | 1.4734        |                    |
| 15 minute winter               | 61      | 11.005  | 71      | 148.5         | 2.366          | 0.766    | 2.1720        |                    |
| 15 minute summer               | 62      | 12.000  | 63      | 0.0           | 0.000          | 0.000    | 0.0000        |                    |
| 15 minute summer               | 63      | 12.001  | 65      | 0.0           | 0.000          | 0.000    | 0.5796        |                    |
| 15 minute winter               | 64      | 13.000  | 65      | 20.0          | 0.868          | 0.374    | 0.7791        |                    |
| 15 minute winter               | 65      | 12.002  | 66      | 41.7          | 1.767          | 0.744    | 0.2905        |                    |
| 15 minute winter               | 66      | 12.003  | 67      | 41.9          | 1.794          | 0.409    | 0.4578        |                    |
| 15 minute winter               | 67      | 12.004  | 68      | 59.0          | 2.122          | 0.723    | 0.4752        |                    |
| 15 minute winter               | 68      | 12.005  | 69      | 66.2          | 1.995          | 0.451    | 0.4851        |                    |
| 15 minute summer               | 69      | 12.006  | 70      | 68.3          | 1.592          | 0.294    | 0.9662        |                    |
| 15 minute summer               | 70      | 12.007  | 71      | 78.4          | 1.113          | 1.079    | 3.2558        |                    |
| 15 minute summer               | 71      | 11.006  | 72      | 258.7         | 1.633          | 1.272    | 5.9600        |                    |
| 15 minute winter               | 72      | 11.007  | 73      | 303.0         | 1.076          | 1.064    | 8.6010        |                    |
| 15 minute winter               | 73      | 8.009   | 74      | 712.8         | 1.997          | 1.875    | 3.1518        |                    |
| 15 minute winter               | 74      | 8.010   | 75      | 727.1         | 3.367          | 1.924    | 3.9110        |                    |
| 360 minute winter              | 75      | Orifice | 76      | 19.1          |                |          |               |                    |

**Results for 100 year Critical Storm Duration. Lowest mass balance: 99.72%**

| Node Event        | US<br>Node | Peak<br>(mins) | Level<br>(m) | Depth<br>(m) | Inflow<br>(l/s) | Node<br>Vol (m³) | Flood<br>(m³) | Status |
|-------------------|------------|----------------|--------------|--------------|-----------------|------------------|---------------|--------|
| 720 minute winter | 76         | 750            | 41.761       | 0.590        | 14.6            | 266.3448         | 0.0000        | OK     |
| 240 minute winter | 77         | 224            | 41.540       | 0.467        | 7.1             | 1.2463           | 0.0000        | OK     |
| 240 minute winter | 78         | 224            | 41.540       | 0.540        | 262.4           | 1136.3610        | 0.0000        | OK     |
| 240 minute winter | 79         | 224            | 41.539       | 0.559        | 45.4            | 0.9878           | 0.0000        | OK     |
| 15 minute summer  | 80         | 1              | 40.900       | 0.000        | 23.0            | 0.0000           | 0.0000        | OK     |

| Link Event<br>(Upstream Depth) | US<br>Node | Link      | DS<br>Node | Outflow<br>(l/s) | Velocity<br>(m/s) | Flow/Cap | Link<br>Vol (m³) | Discharge<br>Vol (m³) |
|--------------------------------|------------|-----------|------------|------------------|-------------------|----------|------------------|-----------------------|
| 720 minute winter              | 76         | Head/Flow | 77         | 7.0              |                   |          |                  |                       |
| 240 minute winter              | 77         | 8.013     | 78         | 5.8              | 0.489             | 0.014    | 10.1609          |                       |
| 240 minute winter              | 78         | 1.017     | 79         | 45.4             | 0.457             | 0.078    | 1.5860           |                       |
| 240 minute winter              | 79         | Head/Flow | 80         | 45.4             |                   |          |                  | 866.3                 |

**Results for 100 year +40% CC +10% A Critical Storm Duration. Lowest mass balance: 99.72%**

| Node Event       | US Node | Peak (mins) | Level (m) | Depth (m) | Inflow (l/s) | Node Vol (m³) | Flood (m³) | Status     |
|------------------|---------|-------------|-----------|-----------|--------------|---------------|------------|------------|
| 15 minute winter | 1       | 10          | 47.892    | 0.113     | 58.5         | 0.2665        | 0.0000     | OK         |
| 15 minute winter | 2       | 10          | 47.321    | 0.273     | 124.4        | 0.6797        | 0.0000     | OK         |
| 15 minute winter | 3       | 10          | 47.149    | 0.334     | 161.1        | 0.6954        | 0.0000     | OK         |
| 15 minute winter | 4       | 10          | 47.073    | 0.309     | 198.0        | 0.6478        | 0.0000     | OK         |
| 15 minute winter | 5       | 11          | 46.889    | 0.344     | 262.3        | 0.8647        | 0.0000     | OK         |
| 15 minute winter | 6       | 11          | 46.797    | 0.574     | 335.8        | 1.6993        | 0.0000     | SURCHARGED |
| 15 minute winter | 7       | 11          | 46.659    | 0.625     | 366.4        | 1.4851        | 0.0000     | SURCHARGED |
| 15 minute winter | 8       | 10          | 46.745    | 0.136     | 40.5         | 0.2624        | 0.0000     | OK         |
| 15 minute winter | 9       | 12          | 46.438    | 0.548     | 529.2        | 2.0716        | 0.0000     | OK         |
| 15 minute winter | 10      | 12          | 46.212    | 1.048     | 546.0        | 2.5286        | 0.0000     | SURCHARGED |
| 15 minute winter | 11      | 12          | 46.250    | 0.246     | 113.0        | 0.8743        | 0.0000     | OK         |
| 15 minute winter | 12      | 12          | 46.198    | 0.822     | 209.5        | 2.4168        | 0.0000     | SURCHARGED |
| 15 minute winter | 13      | 12          | 46.096    | 0.944     | 235.4        | 2.1883        | 0.0000     | SURCHARGED |
| 15 minute winter | 14      | 12          | 46.053    | 1.031     | 772.7        | 2.1947        | 0.0000     | SURCHARGED |
| 15 minute winter | 15      | 12          | 45.688    | 1.058     | 781.2        | 2.3867        | 0.0000     | SURCHARGED |
| 15 minute winter | 16      | 12          | 45.159    | 1.633     | 763.3        | 3.5152        | 0.0000     | SURCHARGED |
| 15 minute winter | 17      | 12          | 44.828    | 0.867     | 101.3        | 2.8147        | 0.0000     | SURCHARGED |
| 15 minute winter | 18      | 12          | 44.767    | 0.890     | 126.5        | 1.8642        | 0.0000     | SURCHARGED |
| 15 minute winter | 19      | 12          | 44.704    | 1.215     | 888.1        | 2.4148        | 0.0000     | SURCHARGED |
| 15 minute winter | 20      | 12          | 44.257    | 1.037     | 901.7        | 2.0871        | 0.0000     | SURCHARGED |
| 15 minute winter | 21      | 12          | 43.634    | 1.254     | 915.3        | 2.5222        | 0.0000     | SURCHARGED |
| 15 minute winter | 22      | 11          | 43.115    | 1.512     | 950.5        | 3.5799        | 0.0000     | SURCHARGED |
| 15 minute winter | 23      | 11          | 42.570    | 1.065     | 968.0        | 2.2836        | 0.0000     | SURCHARGED |
| 15 minute winter | 24      | 11          | 48.895    | 0.538     | 50.7         | 1.1151        | 0.0000     | SURCHARGED |
| 15 minute winter | 25      | 11          | 48.595    | 0.500     | 74.0         | 0.8347        | 0.0000     | SURCHARGED |

| Link Event<br>(Upstream Depth) | US Node | Link  | DS Node | Outflow (l/s) | Velocity (m/s) | Flow/Cap | Link Vol (m³) | Discharge Vol (m³) |
|--------------------------------|---------|-------|---------|---------------|----------------|----------|---------------|--------------------|
| 15 minute winter               | 1       | 1.000 | 2       | 58.1          | 1.738          | 0.309    | 0.8494        |                    |
| 15 minute winter               | 2       | 1.001 | 3       | 122.1         | 1.472          | 0.760    | 2.0292        |                    |
| 15 minute winter               | 3       | 1.002 | 4       | 159.0         | 1.317          | 0.637    | 1.0316        |                    |
| 15 minute winter               | 4       | 1.003 | 5       | 197.7         | 1.840          | 0.693    | 1.9922        |                    |
| 15 minute winter               | 5       | 1.004 | 6       | 261.7         | 1.537          | 0.581    | 6.8017        |                    |
| 15 minute winter               | 6       | 1.005 | 7       | 329.7         | 1.526          | 0.643    | 3.6395        |                    |
| 15 minute winter               | 7       | 1.006 | 9       | 365.6         | 1.735          | 1.685    | 7.1549        |                    |
| 15 minute winter               | 8       | 2.000 | 9       | 39.9          | 1.671          | 0.607    | 0.5727        |                    |
| 15 minute winter               | 9       | 1.007 | 10      | 505.1         | 2.203          | 0.532    | 10.5928       |                    |
| 15 minute winter               | 10      | 1.008 | 14      | 526.9         | 1.944          | 0.766    | 3.9953        |                    |
| 15 minute winter               | 11      | 3.000 | 12      | 112.0         | 1.564          | 0.470    | 3.6496        |                    |
| 15 minute winter               | 12      | 3.001 | 13      | 200.3         | 1.452          | 0.900    | 4.9552        |                    |
| 15 minute winter               | 13      | 3.002 | 14      | 222.4         | 1.234          | 0.766    | 3.2960        |                    |
| 15 minute winter               | 14      | 1.009 | 15      | 750.0         | 3.188          | 0.761    | 5.3961        |                    |
| 15 minute winter               | 15      | 1.010 | 16      | 745.4         | 2.647          | 0.574    | 8.7765        |                    |
| 15 minute winter               | 16      | 1.011 | 19      | 770.0         | 2.734          | 2.718    | 6.2282        |                    |
| 15 minute winter               | 17      | 4.000 | 18      | 89.8          | 1.122          | 0.810    | 2.9872        |                    |
| 15 minute winter               | 18      | 4.001 | 19      | 120.9         | 1.765          | 0.487    | 1.1710        |                    |
| 15 minute winter               | 19      | 1.012 | 20      | 889.5         | 3.267          | 0.848    | 3.2706        |                    |
| 15 minute winter               | 20      | 1.013 | 21      | 903.2         | 3.867          | 0.656    | 5.9442        |                    |
| 15 minute winter               | 21      | 1.014 | 22      | 917.0         | 3.256          | 0.572    | 4.0553        |                    |
| 15 minute winter               | 22      | 1.015 | 23      | 952.8         | 3.383          | 1.694    | 4.1263        |                    |
| 15 minute winter               | 23      | 1.016 | 78      | 979.7         | 3.587          | 1.191    | 18.5189       |                    |
| 15 minute winter               | 24      | 5.000 | 25      | 48.3          | 1.215          | 0.980    | 1.1568        |                    |
| 15 minute winter               | 25      | 5.001 | 26      | 74.3          | 1.868          | 1.859    | 0.5284        |                    |

**Results for 100 year +40% CC +10% A Critical Storm Duration. Lowest mass balance: 99.72%**

| Node Event       | US Node | Peak (mins) | Level (m) | Depth (m) | Inflow (l/s) | Node Vol (m³) | Flood (m³) | Status     |
|------------------|---------|-------------|-----------|-----------|--------------|---------------|------------|------------|
| 15 minute winter | 26      | 11          | 48.038    | 0.173     | 107.3        | 0.2854        | 0.0000     | OK         |
| 15 minute winter | 27      | 11          | 47.514    | 0.233     | 190.7        | 0.6842        | 0.0000     | OK         |
| 15 minute winter | 28      | 11          | 46.986    | 0.622     | 329.1        | 2.3828        | 0.0000     | SURCHARGED |
| 15 minute winter | 29      | 12          | 46.702    | 1.065     | 325.4        | 1.7720        | 0.0000     | SURCHARGED |
| 15 minute winter | 30      | 12          | 46.574    | 0.628     | 51.5         | 1.3508        | 0.0000     | SURCHARGED |
| 15 minute winter | 31      | 12          | 46.483    | 0.876     | 368.5        | 1.2541        | 0.0000     | SURCHARGED |
| 15 minute winter | 32      | 12          | 46.252    | 0.665     | 446.3        | 1.8115        | 0.0000     | SURCHARGED |
| 15 minute winter | 33      | 12          | 45.679    | 0.486     | 470.4        | 0.9871        | 0.0000     | SURCHARGED |
| 15 minute summer | 34      | 11          | 44.857    | 0.790     | 492.9        | 1.5136        | 0.0000     | SURCHARGED |
| 15 minute summer | 35      | 1           | 44.564    | 0.000     | 0.0          | 0.0000        | 0.0000     | OK         |
| 15 minute winter | 36      | 12          | 44.210    | 0.044     | 2.2          | 0.0498        | 0.0000     | OK         |
| 15 minute winter | 37      | 11          | 44.206    | 0.414     | 529.1        | 0.8172        | 0.0000     | OK         |
| 15 minute winter | 38      | 11          | 43.742    | 0.863     | 561.2        | 2.0056        | 0.0000     | SURCHARGED |
| 15 minute winter | 39      | 11          | 43.384    | 0.939     | 573.7        | 1.8984        | 0.0000     | SURCHARGED |
| 15 minute winter | 40      | 11          | 43.036    | 0.724     | 583.5        | 1.4507        | 0.0000     | SURCHARGED |
| 15 minute winter | 41      | 11          | 42.504    | 0.463     | 645.0        | 1.4715        | 0.0000     | OK         |
| 15 minute summer | 42      | 10          | 41.890    | 0.425     | 623.8        | 0.7515        | 0.0000     | OK         |
| 15 minute winter | 43      | 12          | 50.130    | 1.319     | 85.8         | 3.6141        | 0.0000     | FLOOD RISK |
| 15 minute winter | 44      | 12          | 49.478    | 1.551     | 103.7        | 2.5474        | 0.0000     | SURCHARGED |
| 15 minute winter | 45      | 12          | 48.903    | 0.779     | 39.0         | 1.4740        | 0.0000     | SURCHARGED |
| 15 minute winter | 46      | 12          | 48.797    | 1.123     | 196.0        | 2.8297        | 0.0000     | SURCHARGED |
| 15 minute winter | 47      | 12          | 48.607    | 1.052     | 234.3        | 2.3152        | 0.0000     | SURCHARGED |
| 15 minute winter | 48      | 12          | 47.828    | 1.362     | 298.3        | 4.2341        | 0.0000     | FLOOD RISK |
| 15 minute winter | 49      | 12          | 47.208    | 1.367     | 284.3        | 2.3384        | 0.0000     | FLOOD RISK |
| 15 minute winter | 50      | 12          | 46.299    | 1.332     | 327.2        | 3.3032        | 0.0000     | FLOOD RISK |

| Link Event<br>(Upstream Depth) | US Node | Link  | DS Node | Outflow (l/s) | Velocity (m/s) | Flow/Cap | Link Vol (m³) | Discharge Vol (m³) |
|--------------------------------|---------|-------|---------|---------------|----------------|----------|---------------|--------------------|
| 15 minute winter               | 26      | 5.002 | 27      | 107.8         | 1.802          | 0.421    | 2.1789        |                    |
| 15 minute winter               | 27      | 5.003 | 28      | 188.8         | 2.571          | 0.628    | 3.4172        |                    |
| 15 minute winter               | 28      | 5.004 | 29      | 310.7         | 1.961          | 0.509    | 3.2517        |                    |
| 15 minute winter               | 29      | 5.005 | 31      | 323.0         | 2.039          | 2.001    | 1.9465        |                    |
| 15 minute winter               | 30      | 6.000 | 31      | 45.5          | 1.330          | 0.732    | 0.3192        |                    |
| 15 minute winter               | 31      | 5.006 | 32      | 365.6         | 2.308          | 2.280    | 1.2080        |                    |
| 15 minute winter               | 32      | 5.007 | 33      | 437.4         | 3.025          | 0.984    | 3.3172        |                    |
| 15 minute winter               | 33      | 5.008 | 34      | 464.6         | 2.932          | 0.728    | 4.6117        |                    |
| 15 minute summer               | 34      | 5.009 | 37      | 492.7         | 3.110          | 1.243    | 2.0885        |                    |
| 15 minute summer               | 35      | 7.000 | 36      | 0.0           | 0.000          | 0.000    | 0.0253        |                    |
| 15 minute winter               | 36      | 7.001 | 37      | -2.2          | 0.322          | -0.055   | 0.1505        |                    |
| 15 minute winter               | 37      | 5.010 | 38      | 528.2         | 2.943          | 0.641    | 6.3251        |                    |
| 15 minute winter               | 38      | 5.011 | 39      | 559.0         | 2.588          | 0.655    | 3.0368        |                    |
| 15 minute winter               | 39      | 5.012 | 40      | 572.5         | 2.650          | 1.120    | 2.5812        |                    |
| 15 minute winter               | 40      | 5.013 | 41      | 582.6         | 2.697          | 1.075    | 4.4120        |                    |
| 15 minute winter               | 41      | 5.014 | 42      | 642.3         | 3.648          | 0.772    | 2.5272        |                    |
| 15 minute summer               | 42      | 5.015 | 78      | 627.2         | 4.294          | 0.467    | 3.8724        |                    |
| 15 minute winter               | 43      | 8.000 | 44      | 68.8          | 1.731          | 0.837    | 1.4161        |                    |
| 15 minute winter               | 44      | 8.001 | 46      | 97.7          | 2.457          | 2.456    | 0.6950        |                    |
| 15 minute winter               | 45      | 9.000 | 46      | 36.0          | 1.114          | 0.741    | 1.3720        |                    |
| 15 minute winter               | 46      | 8.002 | 47      | 191.4         | 1.741          | 1.260    | 2.2516        |                    |
| 15 minute winter               | 47      | 8.003 | 48      | 210.7         | 2.136          | 0.876    | 8.3372        |                    |
| 15 minute winter               | 48      | 8.004 | 49      | 269.6         | 2.651          | 0.897    | 3.0716        |                    |
| 15 minute winter               | 49      | 8.005 | 50      | 276.9         | 2.662          | 0.939    | 4.4605        |                    |
| 15 minute winter               | 50      | 8.006 | 54      | 315.2         | 2.858          | 0.845    | 2.5626        |                    |

**Results for 100 year +40% CC +10% A Critical Storm Duration. Lowest mass balance: 99.72%**

| Node Event        | US Node | Peak (mins) | Level (m) | Depth (m) | Inflow (l/s) | Node Vol (m³) | Flood (m³) | Status     |
|-------------------|---------|-------------|-----------|-----------|--------------|---------------|------------|------------|
| 15 minute winter  | 51      | 12          | 46.039    | 1.301     | 58.5         | 2.9589        | 0.0000     | FLOOD RISK |
| 15 minute winter  | 52      | 12          | 45.896    | 1.243     | 56.4         | 1.6901        | 0.0000     | FLOOD RISK |
| 15 minute winter  | 53      | 12          | 45.757    | 1.154     | 59.4         | 1.4661        | 0.0000     | SURCHARGED |
| 15 minute winter  | 54      | 12          | 45.504    | 1.340     | 391.4        | 2.4791        | 0.0000     | FLOOD RISK |
| 15 minute winter  | 55      | 11          | 44.145    | 0.820     | 427.9        | 1.8612        | 0.0000     | SURCHARGED |
| 15 minute winter  | 56      | 10          | 46.917    | 0.124     | 74.1         | 0.3132        | 0.0000     | OK         |
| 15 minute winter  | 57      | 11          | 46.605    | 0.329     | 112.6        | 0.5709        | 0.0000     | SURCHARGED |
| 15 minute winter  | 58      | 12          | 46.293    | 0.282     | 131.8        | 0.4423        | 0.0000     | OK         |
| 15 minute winter  | 59      | 12          | 46.045    | 1.243     | 173.6        | 2.1019        | 0.0000     | SURCHARGED |
| 15 minute winter  | 60      | 11          | 45.047    | 0.552     | 160.6        | 0.6245        | 0.0000     | SURCHARGED |
| 15 minute winter  | 61      | 11          | 44.318    | 1.485     | 199.7        | 2.5669        | 0.0000     | SURCHARGED |
| 15 minute summer  | 62      | 1           | 46.164    | 0.000     | 0.0          | 0.0000        | 0.0000     | OK         |
| 15 minute winter  | 63      | 12          | 44.627    | 0.085     | 5.5          | 0.0961        | 0.0000     | OK         |
| 15 minute winter  | 64      | 10          | 44.788    | 0.121     | 31.2         | 0.2142        | 0.0000     | OK         |
| 15 minute winter  | 65      | 11          | 44.605    | 0.298     | 65.9         | 0.5099        | 0.0000     | SURCHARGED |
| 15 minute winter  | 66      | 11          | 44.424    | 0.261     | 58.7         | 0.2949        | 0.0000     | SURCHARGED |
| 15 minute winter  | 67      | 11          | 44.173    | 0.768     | 82.6         | 1.2531        | 0.0000     | SURCHARGED |
| 15 minute winter  | 68      | 11          | 43.680    | 0.770     | 88.2         | 1.0401        | 0.0000     | SURCHARGED |
| 15 minute winter  | 69      | 11          | 43.577    | 0.834     | 90.0         | 0.9431        | 0.0000     | SURCHARGED |
| 15 minute winter  | 70      | 11          | 43.439    | 1.340     | 92.7         | 1.5153        | 0.0000     | SURCHARGED |
| 15 minute winter  | 71      | 10          | 43.104    | 1.354     | 337.7        | 3.0851        | 0.0000     | SURCHARGED |
| 15 minute summer  | 72      | 9           | 42.762    | 1.312     | 385.5        | 3.7538        | 0.0000     | FLOOD RISK |
| 15 minute winter  | 73      | 8           | 42.668    | 1.346     | 879.0        | 3.4217        | 0.0000     | SURCHARGED |
| 15 minute winter  | 74      | 8           | 42.563    | 1.256     | 882.4        | 2.2202        | 0.0000     | SURCHARGED |
| 720 minute winter | 75      | 705         | 42.118    | 0.843     | 92.7         | 1142.6020     | 0.0000     | SURCHARGED |

| Link Event<br>(Upstream Depth) | US Node | Link    | DS Node | Outflow (l/s) | Velocity (m/s) | Flow/Cap | Link Vol (m³) | Discharge Vol (m³) |
|--------------------------------|---------|---------|---------|---------------|----------------|----------|---------------|--------------------|
| 15 minute winter               | 51      | 10.000  | 52      | 45.4          | 1.141          | 1.136    | 0.5691        |                    |
| 15 minute winter               | 52      | 10.001  | 53      | 53.3          | 1.340          | 1.330    | 0.3328        |                    |
| 15 minute winter               | 53      | 10.002  | 54      | 61.0          | 1.764          | 0.831    | 0.5795        |                    |
| 15 minute winter               | 54      | 8.007   | 55      | 395.3         | 3.584          | 1.109    | 2.9346        |                    |
| 15 minute winter               | 55      | 8.008   | 73      | 430.0         | 3.899          | 0.908    | 3.3796        |                    |
| 15 minute winter               | 56      | 11.000  | 57      | 73.6          | 1.453          | 0.325    | 0.6123        |                    |
| 15 minute winter               | 57      | 11.001  | 58      | 109.2         | 1.990          | 1.063    | 2.0974        |                    |
| 15 minute winter               | 58      | 11.002  | 59      | 126.8         | 1.954          | 0.399    | 1.0404        |                    |
| 15 minute winter               | 59      | 11.003  | 60      | 160.6         | 2.320          | 1.655    | 2.8314        |                    |
| 15 minute winter               | 60      | 11.004  | 61      | 163.0         | 2.601          | 0.611    | 2.0484        |                    |
| 15 minute winter               | 61      | 11.005  | 71      | 202.1         | 2.870          | 1.042    | 2.1720        |                    |
| 15 minute summer               | 62      | 12.000  | 63      | 0.0           | 0.000          | 0.000    | 0.0299        |                    |
| 15 minute winter               | 63      | 12.001  | 65      | -5.5          | -0.206         | -0.138   | 1.0664        |                    |
| 15 minute winter               | 64      | 13.000  | 65      | 30.8          | 0.940          | 0.576    | 1.0475        |                    |
| 15 minute winter               | 65      | 12.002  | 66      | 58.7          | 1.828          | 1.046    | 0.4922        |                    |
| 15 minute winter               | 66      | 12.003  | 67      | 62.1          | 1.781          | 0.607    | 0.7841        |                    |
| 15 minute winter               | 67      | 12.004  | 68      | 80.4          | 2.095          | 0.984    | 0.6798        |                    |
| 15 minute winter               | 68      | 12.005  | 69      | 90.0          | 1.945          | 0.613    | 0.6766        |                    |
| 15 minute winter               | 69      | 12.006  | 70      | 92.7          | 1.591          | 0.399    | 1.0479        |                    |
| 15 minute winter               | 70      | 12.007  | 71      | 95.6          | 1.357          | 1.317    | 3.2558        |                    |
| 15 minute winter               | 71      | 11.006  | 72      | 342.5         | 2.162          | 1.684    | 5.9600        |                    |
| 15 minute summer               | 72      | 11.007  | 73      | 390.7         | 1.387          | 1.372    | 8.6010        |                    |
| 15 minute winter               | 73      | 8.009   | 74      | 882.4         | 2.472          | 2.321    | 3.1518        |                    |
| 15 minute winter               | 74      | 8.010   | 75      | 889.6         | 3.509          | 2.354    | 4.9519        |                    |
| 720 minute winter              | 75      | Orifice | 76      | 18.1          |                |          |               |                    |

**Results for 100 year +40% CC +10% A Critical Storm Duration. Lowest mass balance: 99.72%**

| Node Event        | US<br>Node | Peak<br>(mins) | Level<br>(m) | Depth<br>(m) | Inflow<br>(l/s) | Node<br>Vol (m³) | Flood<br>(m³) | Status     |
|-------------------|------------|----------------|--------------|--------------|-----------------|------------------|---------------|------------|
| 720 minute winter | 76         | 765            | 42.053       | 0.882        | 18.7            | 398.2772         | 0.0000        | SURCHARGED |
| 240 minute winter | 77         | 224            | 41.827       | 0.754        | 10.9            | 2.0813           | 0.0000        | SURCHARGED |
| 240 minute winter | 78         | 224            | 41.827       | 0.827        | 402.5           | 1741.5220        | 0.0000        | SURCHARGED |
| 240 minute winter | 79         | 228            | 41.826       | 0.846        | 72.2            | 1.4942           | 0.0000        | SURCHARGED |
| 15 minute summer  | 80         | 1              | 40.900       | 0.000        | 34.5            | 0.0000           | 0.0000        | OK         |

| Link Event<br>(Upstream Depth) | US<br>Node | Link      | DS<br>Node | Outflow<br>(l/s) | Velocity<br>(m/s) | Flow/Cap | Link<br>Vol (m³) | Discharge<br>Vol (m³) |
|--------------------------------|------------|-----------|------------|------------------|-------------------|----------|------------------|-----------------------|
| 720 minute winter              | 76         | Head/Flow | 77         | 9.2              |                   |          |                  |                       |
| 240 minute winter              | 77         | 8.013     | 78         | 7.2              | 0.539             | 0.017    | 12.7477          |                       |
| 240 minute winter              | 78         | 1.017     | 79         | 72.2             | 0.463             | 0.123    | 1.8206           |                       |
| 240 minute winter              | 79         | Head/Flow | 80         | 68.7             |                   |          |                  | 1304.0                |