



PARCEL R7 & R13 – PHASE 2B OF THE SOUTH WOKINGHAM STRATEGIC
DEVELOPMENT LOCATION

DRAINAGE STATEMENT

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06 AUGUST 2026





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1.0 Introduction

1.1 Context

- 1.1.1 This report has been prepared by Abley Letchford on behalf of Miller Homes, to support the Reserved Matters application pursuant to Condition 1 attached to planning application 191068, for the erection of 215 dwellings.

Planning Context

- 1.1.2 The SDL site is an urban extension of Wokingham in Berkshire and is bisected by an existing railway line linking Wokingham and Bracknell. The SDL proposals comprise of approximately 2,500 homes, a new South Wokingham Distributor Road and other facilities such as two primary schools and a community centre.
- 1.1.3 Planning permission for the South Wokingham SDL has been granted by Wokingham Borough Council at different times for the various phases of the SDL.
- 1.1.4 The first phase of the South Wokingham SDL is located at Montague Park located in the north-east area of the South Wokingham SDL. This phase of development was granted planning permission (ref: O/2010/1712) and has been subsequently constructed and includes approximately 620 dwellings. A section of road between Montague Park heading south over the railway line to a new four arm roundabout with Waterloo Road was subsequently approved in 2019 (WBC Planning Reference: 172934) and constructed. The road over the railway line is named William Heelas Way and the new roundabout junction with Waterloo Road is known as the Eastern Gateway roundabout.
- 1.1.5 The second phase of the South Wokingham SDL is split into Phase 2a (WBC Planning Reference: 190914) and Phase 2b (WBC Planning Reference: 191068) and they are both located south of the railway line and include proposals for 215 and 1,434 dwellings respectively.
- 1.1.6 The new South Wokingham Distributor Road (SWDR) was approved in 2021 (WBC Planning Reference: 192928). It routes east to west through the larger Phase 2b parcel and will ultimately connect Finchampstead Road at the west to the Eastern Gateway roundabout.
- 1.1.7 Parcels R7 and R13 are located to the west of the Eastern Gateway roundabout and to the south of the South Wokingham Distributor Road.

1.2 Report Aims and Formation

- 1.2.1 This Reserved Matters Planning Application pertains to the R7 and R13 parcels, located in the centre of Phase 2b, to the east of Easthampstead Road and to the south of the South Wokingham Distributor Road. The proposal includes 215 residential dwellings, comprising a mix of 1 and 2-bedroom flats, as well as 2, 3, and 4-bedroom houses together with associated access and parking.



1.2.2 This report has taken cognisance from the original Flood Risk Assessment (FRA) carried out by WSP in August 2020, Ref: 70001684-FRA-SDL-001, and the Technical Note produced by Abley Letchford in January 2025 (A389-TN004E) submitted to discharge Condition 29, and presents a detailed drainage design to ensure that the guiding principles are upheld.

1.2.3 The aim of this Report is to propose a suitable drainage system for the R7 & R13 residential development parcel, to demonstrate compliance and discharge the conditions listed below:

Condition 30 – Reserved matters for each phase shall include details of SuDS to serve the phase, based on the approved SuDS strategy). SuDS shall be provided before occupation of the development it is to serve in accordance with the approved details and the phasing details pursuant to condition 3 and retained thereafter.

Reason: to prevent increased flood risk from surface water run-off in accordance with NPPF Section 14 (Meeting the Challenge of Climate Change, Flooding and Coastal Change); Core Strategy policy CP1; and Managing Development Delivery Local Plan policies CC09 and CC10 and Design principles 1d(ii) of the South Wokingham SDP SPD.

Condition 32 – Development shall not commence in each phase until details of any proposed points of connection, including connection into a drainage system or ordinary watercourse or third party land, have been submitted to and approved in writing by the Local Planning Authority and no discharge of surface water from the site shall be accepted into the public system until the drainage works have been completed in accordance with the approved details. The details shall demonstrate any connections onto third party land have the approval of the third party landowner and that the system immediately downstream is clear from obstruction.

Reason: to prevent increased risk of flooding, and to protect water quality in accordance with NPPF Section 14 (Meeting the Challenge of Climate Change, Flooding and Coastal Change), Technical guidance on the NPPF (Flood Risk), Core strategy policies CP1 & CP21; Managing Development Delivery Local plan policies CC09 & CC10; and the South Wokingham SDL SPD.

Condition 33 – Reserved matters for each phase of the development shall include measures for effective water quality treatment (using the methodology set out in the SuDS Strategy and Section 26.7 of the CIRIA SuDS Manual(C753) or any guidance that supersedes it) including phasing and measures shall be provided in accordance with the approved details.

Reason: to protect water quality in accordance with NPPF Section 14 (Meeting the Challenge of Climate Change, Flooding and Coastal Change, Technical Guidance on the NPPF (Flood Risk), Core Strategy policies CP1 & CP21; and the South Wokingham SDP SPD.

Condition 34 (ii)– Reserved matters shall be accompanied by a detailed exceedance flow routing plan consistent with the approved strategy.



2.0 Report Structure

2.1.1 This report addresses the following aspects:

- Section 2: Surface Water Strategy
- Section 3: Foul Water Strategy
- Section 4: Water Quality and enhancement
- Section 5: Adoption, Maintenance and Management
- Section 6: Summary

2.2 Basis of Report

2.2.1 Abley Letchford follows accepted procedures in providing professional services, but given the residual risk associated with any prediction and the variability which can be experienced in flood condition, Abley Letchford takes no liability for and gives no warranty against actual flooding of any property (client's or third party) or the consequences of flooding in relation to the performance of the service. This report has been prepared for the purposes of planning approval only and is to assist our client and the Local Planning Authority (LPA) to make an informed decision on the flood risks associated with the development of the Site under consideration.



3.0 Surface Water Drainage Strategy

3.1 Introduction

- 3.1.1 This chapter provides details on the proposed surface water drainage strategy and measures to drain the proposed 215 residential dwellings (R7: 38 dwellings and R13: 177 Dwellings).

3.2 Methodology

- 3.2.1 The proposed drainage strategy has been designed to meet the requirements of the NPPF by providing a drainage system which embraces the SuDS philosophy and key principals. The utilisation of Sustainable Drainage Systems (SuDS) not only provides the benefit of controlling waters at source and online treatment of collected surface water, but also allows enhanced aesthetics through improved landscaping, biodiversity, and ecological opportunities.
- 3.2.2 Additionally, the Drainage Strategy meets the requirements of Wokingham Borough Council's Standards and Guidance documents. References to how the scheme reflects the relevant individual National and Local Standards is included where appropriate.

3.3 Existing Drainage Conditions

- 3.3.1 The R7 & R13 parcels are predominantly a greenfield area which currently drains via infiltration and overland flows.

3.4 Sustainable Drainage Systems (SuDS)

- 3.4.1 Sustainable water management measures should be used to control the surface water runoff from the proposed development site therefore, managing the flood risk to the site and surrounding areas from surface water runoff.
- 3.4.2 Current guidance, CIRIA (2004) Report C609, provides that a hierarchy of techniques should be identified, namely:
- **Prevention** – the use of good site design and housekeeping measures on individual sites to prevent runoff and pollution (e.g., minimise areas of hard standing).
 - **Source Control** – control of runoff at or very near its source (such as the use of rainwater harvesting).
 - **Site Control** – management of water from several sub-catchments (including routing water from roofs and car parks to one/several large soakaways for the whole site).
 - **Regional Control** – management of runoff from several sites, typically in a detention pond or wetland.
- 3.4.3 In 2015, CIRIA published The SuDS Manual (C753) providing best practice guidance on the planning, design, construction, operation and maintenance of SuDS.
- 3.4.4 The SuDS Manual provides guidance to ensure SuDS are planned and designed to maximise the opportunities and benefits of surface water management.
- 3.4.5 The four main categories of benefits that can be achieved by SuDS, referred to as the four pillars of SuDS design, are:



- **Water quantity** – control the quantity of runoff to support the management of flood risk and maintain and protect the natural water cycle.
- **Water quality** – manage the quality of the runoff to prevent pollution.
- **Amenity** – create and sustain better places for people.
- **Biodiversity** – Create and sustain better places for nature.

3.5 Post Development Areas and Rates

- 3.5.1 To quantify any potential increase in surface water runoff, the existing Greenfield/Pre-Development runoff rate from the site must be determined. The rates of runoff have been established as part of the original Flood Risk Assessment (FRA) carried out by WSP in August 2020, Ref: 70001684-FRA-SDL-001. The proposed greenfield runoff rate (QBAR) is 4.4l/ha/s.
- 3.5.2 The total area of the proposed development is approximately 8.5ha and the impermeable area of the residential development is approximately 5.54ha.
- 3.5.3 To comply with best practice as stipulated in EA Report SC030219 'Rainfall Runoff Management for Developments', proposed discharge rates should be restricted for all storms up to and including the 1 in a 100-year storm event (1% AEP) plus a 40% allowance for climate change.

3.6 Surface Water Proposals and Rationale

- 3.6.1 As part of the Outline Permission, the approved Flood Risk Assessment (FRA) dated August 2020 by WSP (Ref: 70001684-FRA-SDL-001) provided a surface water drainage strategy generally dependant on a discharge rate of 4.4l/ha/s.
- 3.6.2 The approved FRA allowed for a different approach for Plot R7 and the local centre to the west with unattenuated discharge directly into the SWDR swale as attenuation for these plots was provided within the basin to be constructed in the SANG. Therefore, the drainage strategy for R7 included in this RM application, allows for unattenuated discharge to the SWDR swale.
- 3.6.3 The SWDR swale and attenuation basin is due to be delivered in advance of construction on the R7 site.
- 3.6.4 As part of the drainage strategy for R7 & R13 parcels, it is proposed to provide a network of pipes and Sustainable Drainage (SuDS) features to collect and attenuate the surface water runoff from the impermeable areas. The conventional drainage system will work in combination with SuDS such as rain garden/tree pits, swales and detention basins to provide attenuation storage and high-quality water benefits.
- 3.6.5 Refer to drawing A389-R7&R13-RM-501 in **Appendix A** for the drainage strategy.
- 3.6.6 Outputs from the hydraulic model are included in **Appendix C**.

R13 Basin Catchment

- 3.6.7 The R13 catchment drains to a basin situated in the north of the plot, immediately south of the SWDR.



- 3.6.8 The R13 catchment has an impermeable area of approximately 3.243ha. A 10% urban creep is included in these impermeable areas to account for future development of the proposed dwellings.
- 3.6.9 A flow control device on the outfall of the basin will restrict discharge to 14l/s prior to discharging to the SWDR swale. This discharge rate is the rate calculated in the approved site wide strategy submitted for discharge of planning condition 29.
- 3.6.10 Tree pits within the streets will act as bioretention areas and parking courts for the apartment blocks are proposed to be permeable block paving to provide water quality benefits.
- 3.6.11 Parking areas for the apartment block and houses off the main spine road are proposed to be permeable block paving to provide water quality benefits prior to discharging to the SWDR swale.
- 3.6.12 A swale has been incorporated along the western edge of the development to convey water towards the basin.
- 3.6.13 The manhole chambers of the proposed network will utilise strategic catchpits or proprietary devices, to minimize the amount of silt reaching the basins.
- 3.6.14 The proposed basin will be lined with a geomembrane and will provide attenuation only and not infiltration.
- 3.6.15 The basin has been designed in conjunction with the landscape architects to maximise its amenity value when not in use attenuating water. The public open space within which the basin is located has been defined as Parks and Gardens – the most formal landscape type.
- 3.6.16 The basin will have 1:3 side slopes, in accordance with the SuDS manual, and will incorporate 400mm freeboard above the maximum water level.
- 3.6.17 Large grass tiered steps have been incorporated on the eastern edge of the basin to facilitate access during dry periods.
- 3.6.18 Refer to drawing A389-R7&R13-RM-530 and 531 for cross section drawings of the basin and swale.

R7 Catchment

- 3.6.19 The R7 catchment includes approximately 0.628ha of impermeable area. A 10% urban creep is included in these impermeable areas to account for future development of the proposed dwellings.
- 3.6.20 Surface water from this plot will discharge via gravity, unattenuated into the SWDR swale, in accordance with the agreed site wide strategy. This is because the basin within the SANG to the west of the site has been sized to attenuate these flows.
- 3.6.21 SWDR have confirmed an allowance of 0.8ha impermeable area has been made for the R7 catchment in the SWDR drainage model.
- 3.6.22 Tree pits acting as bioretention areas are proposed along streets throughout the development parcel.
- 3.6.23 Parking areas for the apartment block and houses off the main spine road are proposed to be permeable block paving to provide water quality benefits prior to discharging to the SWDR swale.



3.6.24 The manhole chambers of the proposed network will utilise strategic catchpits or proprietary devices, to minimize the amount of silt reaching the basin.

3.7 Points of Connection

3.7.1 Attenuated flows from basin R13 will discharge to the SWDR swale to the north.

3.7.2 R7 will discharge to the SWDR swale to the north.

3.8 Exceedance Flood Routing

3.8.1 Storms in excess of the 1 in 100-year storm event (1% AEP) plus 40% climate change may flood from the network and will be kept within the internal road network, until such time as they can be directed into adjacent landscaping areas or existing vegetation/woodland.

3.8.2 Refer to drawing A389-R7&R13-RM-507 for the Exceedance Plan.

3.9 Safe Access

3.9.1 The site is located outside of the fluvial and surface water flood extents. Drawing A389-R7&R13-RM-509 shows the extent of the 1 in 100 year + 35% climate change fluvial event modelled by the SWDR team demonstrating the water is contained within the SWDR ditch along the northern edge of the development. Continuous safe access is therefore available during a flood event.



4.0 Foul Water Drainage Strategy

4.1 Introduction

- 4.1.1 This section provides details on the proposed foul water drainage strategy and measures to convey effluent. Refer to drawings A389-R7&R13-RM-501 in **Appendix A**.

4.2 Existing Drainage Conditions

- 4.2.1 No foul network is present in the area that the R7 and R13 residential development is proposed to be built.

4.3 Foul Water Drainage Strategy

- 4.3.1 Foul water from each residential plot will discharge via a gravity network to a pump station (PS2) located between parcels R7 and R13 which in turn will discharge to the pump station located with parcel R10 (PS1). This pump station then discharges to the Thames Water pump station in Montague Park to the north of the site. Refer to drawing A389-003 P9 for the sitewide foul drainage strategy overview in **Appendix B**.
- 4.3.2 The proposed foul water sewers and pump station have been designed in accordance with the new Sewerage Sector Guidance (SSG), British Standards and Building Regulations, and will be offered to a NAV (IWNL) for adoption under Section 104 Agreement of the Water Industry Act.

4.4 Point of connection

- 4.4.1 Foul drainage from both the R7 and R13 plot will discharge into pump station 2 (PS2) located between the two parcels. This will discharge to pump station 1 located within parcel R10.
- 4.4.2 R7 and R13 also makes allowance for the pumped flows from pump station 3, located further west and foul water from future parcels R8 and R9 to the North.



5.0 Water Quality Enhancement

- 5.1.1 CIRIA report C753 The SuDS Manual outlines the methodology for assessing water quality risks associated with new development. This is a simple index approach which provides a high-level scoping analysis of the land usage and gives guidelines for appropriate treatment stages.
- 5.1.2 This process identifies features necessary to provide adequate substance removal in line with Environment Agency requirements. This is a three-step process of Allocation, Mitigation and Review.
- 5.1.3 Surfaces generating runoff are ‘graded’ on their potential to contribute to various harmful pollutants and gives each surface a risk of pollution from each element. An extract of Table 26.2 within the SuDS Manual is set out in **Figure 1**.

Figure 1 – Extract from Table 26.2 SuDS Manual

Land Use	Pollution Hazard Level	Total Suspended Solids	Metals	Hydrocarbons
Residential Roofs	Very Low	0.2	0.2	0.05
Other Roofs	Low	0.3	0.2-0.8	0.05
Low traffic residential roads and non-residential parking with infrequent change.	Low	0.5	0.4	0.4
Commercial yard, parking with frequent change, other roads,	Medium	0.7	0.6	0.7
Sites with heavy pollution	High	0.8	0.8	0.9

- 5.1.4 Historically, PPG3 documentation would recommend that pollutants were removed utilising oil separators, but since its superseding, more recent guidance has shifted to the use of SuDS features to remove pollutants; thereby providing significant improvements in treatment.
- 5.1.5 The use of non-mechanical features decreases the requirements for maintenance and increase natural biodiversity. That said, the SuDS Manual does not remove the possibility of utilising separators, so long as they are considered in partnership with a comprehensive overall SuDS regime.
- 5.1.6 Without adequate treatment, the pollutants would cause damage if they were to enter the watercourse or water table in large volumes. The use of SuDS features to slow down and degrade these pollutants is critical to the provision of an acceptable discharge.
- 5.1.7 The proposed residential development is classified between “Very Low” and “Medium” in accordance with the Pollution Hazard Level, which equals to Total Suspended Solids: 0.7, Metals: 0.6 and Hydrocarbons: 0.7 for “Medium” and Total Suspended Solids: 0.5, Metals: 0.4 and Hydrocarbons: 0.4 for “Low”.
- 5.1.8 The respective cleansing abilities of common SuDS features are given by corresponding mitigation indices within the SuDS Manual. An extract of Table 26.3 is set out below and is set out in **Figure 2**.



Figure 2 – Extract from Table 26.3 SuDS Manual

Type of SuDS component	Total Suspended Solids	Metals	Hydrocarbons
Filter strip	0.4	0.4	0.5
Filter Drain	0.4	0.4	0.4
Swale	0.5	0.6	0.6
Bioretention system	0.8	0.8	0.8
Permeable Paving	0.7	0.6	0.7
Detention Basin	0.5	0.5	0.6
Pond	0.7	0.7	0.5
Wetland	0.8	0.8	0.8

5.2 R13

- 5.2.1 Parking courts for apartment blocks are proposed to have lined permeable paving. The mitigation indices stated above provide sufficient treatment for the likely pollutants outlined in Figure 1.
- 5.2.2 Rain gardens within the road corridors will act as bio retention areas providing treatment for the roads within the development.
- 5.2.3 Run off from residential roofs discharging directly to the piped network will receive a level of treatment within the detention basin prior to discharge to the SWDR swale.

5.3 R7

- 5.3.1 Parking courts for apartment blocks and houses located off the main spine road are proposed to have lined permeable paving. The mitigation indices stated above provide sufficient treatment for the likely pollutants outlined in Figure 1.



6.0 Adoption, Maintenance and Management

6.1.1 This section of the strategy considers the maintenance requirements of the drainage provisions during the construction phase and post construction phase of the development lifecycle.

6.2 Construction Phase

6.2.1 During the construction phase, the Developer will be responsible for all surface water matters especially water quality and pollution control. They or their Principal Contractor will develop a Construction Surface Water Management Plan (CSWMP) based on the CIRIA best practice guidance listed below. The aim of the CSWMP is to ensure the risk of flooding on and off site is not increased due to construction activities, and that quality of receiving water bodies is not impacted by construction activities.

6.2.2 CIRIA C532 Control of Water Pollution from Construction Sites and CIRIA C753 The SuDS Manual provide specific measures for the protection of surface water quality during construction activities, including:

- Management of construction works to comply with the necessary surface water quality standards and any consent conditions from planning approval.
- Surface water run-off from the road will be managed through a temporary and/or permanent drainage infrastructure, including measures for removing suspended solids and potential contaminants.
- Plant machinery and vehicles to be maintained in a good working condition, with wheel washing and dust suppression measures at all entry and exit points used to prevent the migration of pollutants (particularly in relation to works using concrete and with areas where dust and mud can build up);
- Areas at risk of spillage will be carefully sited and protected (e.g., bunds and impervious walls and floor) to minimise the risk of hazardous substances affecting surface water quality – this may include vehicle maintenance and storage areas for hazardous materials.
- The movement of plant machinery and vehicles and the storage of materials during the construction works will be limited near to surface water features.
- Excavation activities will carefully be monitored and coordinated with forecasted dry periods, where possible, with excavation works covered during periods of heavy rain to minimise the entry and collection of rainwater and transport of pollutants; and
- The movement of plant and machinery over bare soil areas will be limited to avoid soil compaction and smearing, with suitable preparatory works included where this cannot be avoided so as to minimise effects on the surface water runoff regime.

6.2.3 The CSWMP will identify the key activities being undertaken on the site and how run off will be managed both in terms of quantity – directed to suitable areas to reduce flood risk, and quality – ensuring treatment is provided prior to discharging to water courses or sewers.



- 6.2.4 Temporary onsite drainage facilities will be provided during the construction phase to ensure the controlled discharge of surface water run-off, until such a time as the permanent surface water drainage strategy is implemented.

6.3 Post Construction Phase

- 6.3.1 Whilst the drainage system has been designed to the appropriate standards including Design and Construction Guidance for foul and surface water sewers offered for adoption under the Code for adoption agreements for water and sewerage companies operating wholly or mainly in England ("the Code", 2021), the Building Regulations and the requirement of the National Planning Policy Framework, ongoing maintenance will be required to all drainage elements.

Surface Water Adoption

- 6.3.2 The onsite main drainage provision, including traditional sewers and manholes will be offered to IWNL for adoption under Section 104 of the Water Industry Act. Ultimately these assets will become owned and maintained in perpetuity by IWNL upon vesting.
- 6.3.3 The basin and swale, which are located the within public open space, will be offered to Wokingham Borough Council for adoption, along with rain gardens and drainage associated with adopted roads.
- 6.3.4 Smaller private drains and manholes within dwelling curtilages will be conveyed to purchasers, wherein responsibility for ongoing maintenance will lie with the homeowner.

Foul Water Adoption

- 6.3.5 The onsite main drainage provision including traditional sewers and manholes, and the pump station between parcel R7 and R13, will be offered to IWNL for adoption under Section 104 of the Water Industry Act. Ultimately these assets will become owned and maintained in perpetuity by IWNL upon vesting.
- 6.3.6 Smaller private drains and manholes within dwelling curtilages will be conveyed to purchasers, wherein responsibility for ongoing maintenance will lie with the homeowner.

SuDS Feature Maintenance

- 6.3.7 Regular maintenance/replacement of the fundamental SuDS features and associated drainage assets requires careful consideration.
- 6.3.8 Rain garden/tree pits/bioretenion areas will be maintained by Wokingham Borough Council as highway features with the SUDS basins also maintained by Wokingham Borough Council as part of the open space.
- 6.3.9 Tables 1 and 2 identify the recommended maintenance schedule for the various SUDS features.



Table 1: Maintenance Schedule for Detention Basins

Maintenance Schedule	Required action	Frequency
Regular Maintenance	Remove litter and debris	Monthly
	Cut grass – for spillways and access routes	Monthly (during growing season), or as required
	Cut grass – meadow grass in and around basin	Half yearly (spring – before nesting season, and autumn)
	Manage other vegetation and remove nuisance plants	Monthly (at start, then as required)
	Inspect inlets, outlets, and overflows for blockages, and clear if required	Monthly
	Inspect bank sides, structures, pipework etc for evidence of physical damage	Monthly
	Inspect inlets and facility surface for silt accumulation. Establish appropriate silt removal frequencies	Monthly (for first year) then annually or as required
	Check any penstocks and other mechanical devices	Annually
	Tidy all dead growth before start of growing season	Annually
	Remove sediment from inlets, outlets, and forebays	Annually (or as required)
	Manage wetland plants in outlet pool – where provided	Annually
Occasional Maintenance	Reseed areas of poor vegetation growth	As required
	Prune and trim any trees and remove cuttings	Every two years, or as required
	Remove sediment from inlets, outlets, forebays, and main basin when required.	Every five years, or as required (likely to be minimal requirements where effective upstream source control is provided)
Remedial actions	Repair erosion or other damage by reseeding or re-turfing	As required
	Realignment of rip-rap	As required
	Repair/rehabilitation of inlets, outlets, and overflows	As required
	Re-level uneven surfaces and reinstate design levels	As required
Monitoring	Inspect inlets, outlets and overflows for blockages, and clear if required.	Monthly/after large storms.



Table 2: Maintenance Schedule for Tree Pits/Bio-retention Areas

Maintenance Schedule	Required action	Frequency
Regular Inspections	Inspect infiltration surface for silting and ponding, record dewatering time of the facility and assess standing water levels in under-drain (if appropriate) to determine if maintenance is necessary	Quarterly
	Check operation of under-drains by inspection of flows after rain	Annually
	Assess plants for disease infection, poor growth, invasive species etc. and replace as necessary	Quarterly
	Inspect inlets and outlets for blockages	Quarterly
Regular Maintenance	Remove litter and surface debris and weeds	Quarterly (or more frequently for tidiness or aesthetic reasons)
	Replace any plants, to maintain planting density	As required
	Remove sediment, litter, and debris buildup from around inlets or from forebays	Quarterly to biannually
Occasional Maintenance	Infll any holes or scour in the filter medium, improve erosion protection if required	As required
	Repair minor accumulations of silt by raking away surface mulch, scarifying surface of medium and replacing mulch	As required
Remedial actions	Remove and replace filter medium and vegetation above	As required
Monitoring	Inspect inlets, outlets and overflows for blockages, and clear if required.	Monthly/after large storms
	Inspect infiltration surfaces for ponding. Record dewatering time of the facility to determine if maintenance is necessary.	Monthly, or when required
	Inspect inlets and facility surface for silt accumulation. Establish appropriate silt removal frequencies.	Half yearly
	Test planting soil for pH – if adjustment is necessary, amalgamate with appropriate substances.	Annually



7.0 Summary

- 7.1.1 In accordance with the Flood Risk Assessment (FRA) dated August 2020 and produced by WSP (Ref: 70001684-FRA-SDL-001), as part of the Outline Permission, a discharge rate of 14l/s has been adopted for plot R13.
- 7.1.2 For plot R7, an unattenuated discharge has been used, in accordance with the WSP FRA.
- 7.1.3 Discharge points from the site are into the proposed SWDR swale located to the north of the developments.
- 7.1.4 The Drainage Strategy encompasses SuDS to mitigate and manage surface water flows from the proposed residential development in parcels R7 and R13.
- 7.1.5 The proposed surface water drainage strategy will manage the flood risk posed by uncontrolled surface water runoff from the residential development. Any increase in surface water run-off can be managed using SuDS as well as attenuation features to provide storage in extreme storm events.
- 7.1.6 The site is located outside of the fluvial and surface water flood extents. Continuous safe access is therefore available during a flood event.
- 7.1.7 All the water quality parameters have been considered to enhance the water quality of the proposed surface water network in accordance with The SuDS Manual 2015 (C753).
- 7.1.8 Surface water attenuation for all storm events is provided within the proposed surface water drainage network for all storm events up to and including the 1 in 100-year storm event (1% AEP) plus the allowance for a 40% increase in rainfall intensities as a result of climate change.
- 7.1.9 A gravity-based foul water network is proposed as for the site, discharging to a pump station located between R7 and R13. This in turn pumps to the gravity network in R11 and on to the pump station within R10. Flows from the pump station in R10 are discharged to the existing Thames Water Montague Park SPS. Both the network and the foul pumping station will be offered to IWNL for adoption.
- 7.1.10 The proposed residential development complies with national and local planning policy in response to flood risk. The risk of flooding is adequately managed, and the offsite flood risk is not increase.
- 7.1.11 The proposed residential development is therefore deemed appropriate in this location in terms of flood risk and drainage.



Appendices



Appendix A – Proposed Drawings

A389-R7&R13-RM-501 Drainage Strategy

A389-R7&R13-RM-505 Surface Water Catchment Plan

A389-R7&R13-RM-506 Foul Water Catchment Plan

A389-R7&R13-RM-507 Exceedance Routing plan

A389-R7&R13-RM-509 Drainage Strategy with Fluvial Flood Extent

A389-R7&R13-RM-530 Basin Cross Sections

A389-R7&R13-RM-531 Swale Cross Sections



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GENERAL ARRANGEMENT NOTES:

1. Do not scale.
2. Refer to all other Project Drawings and supporting notes.

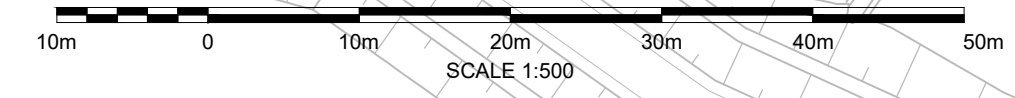
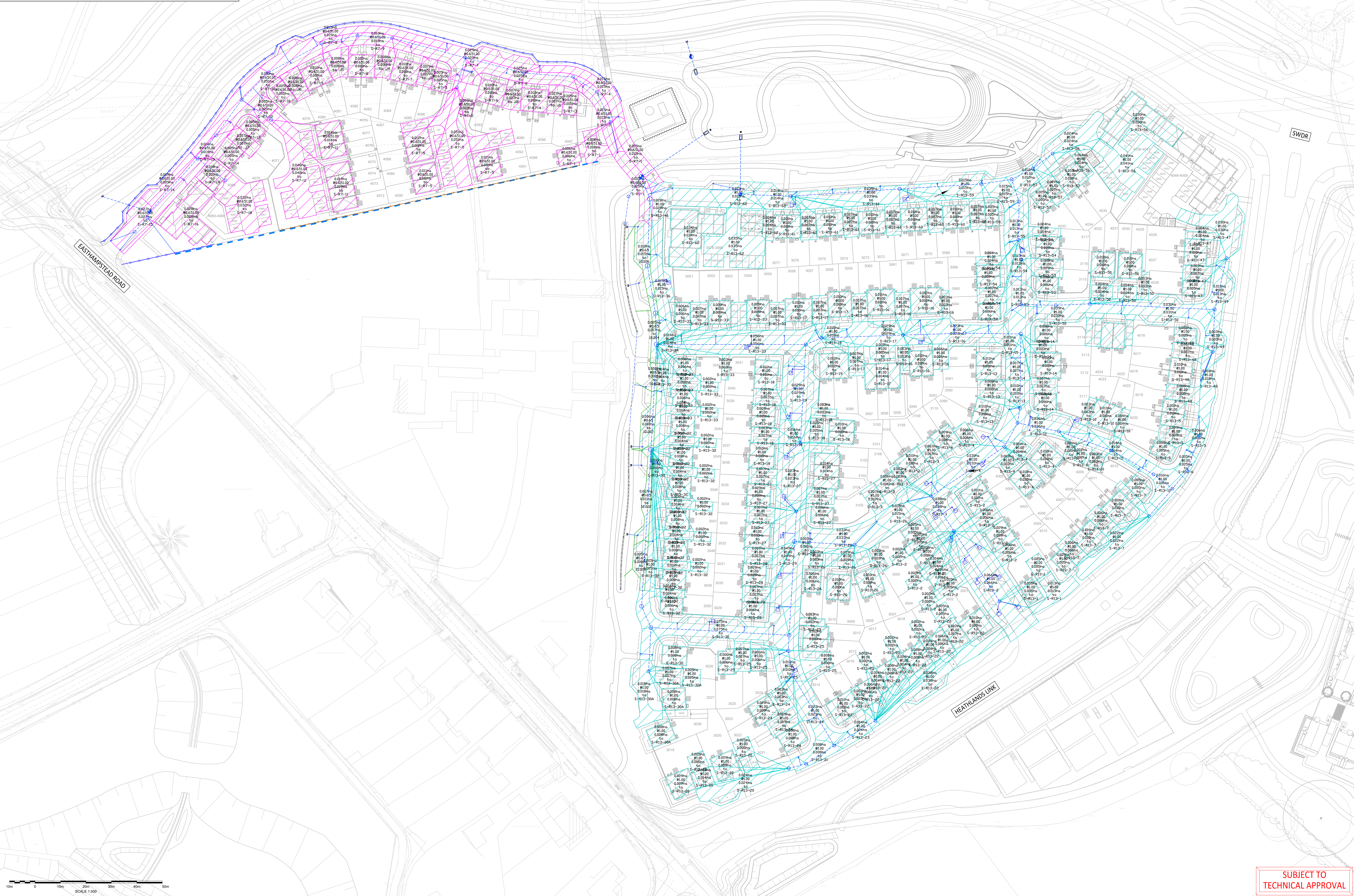
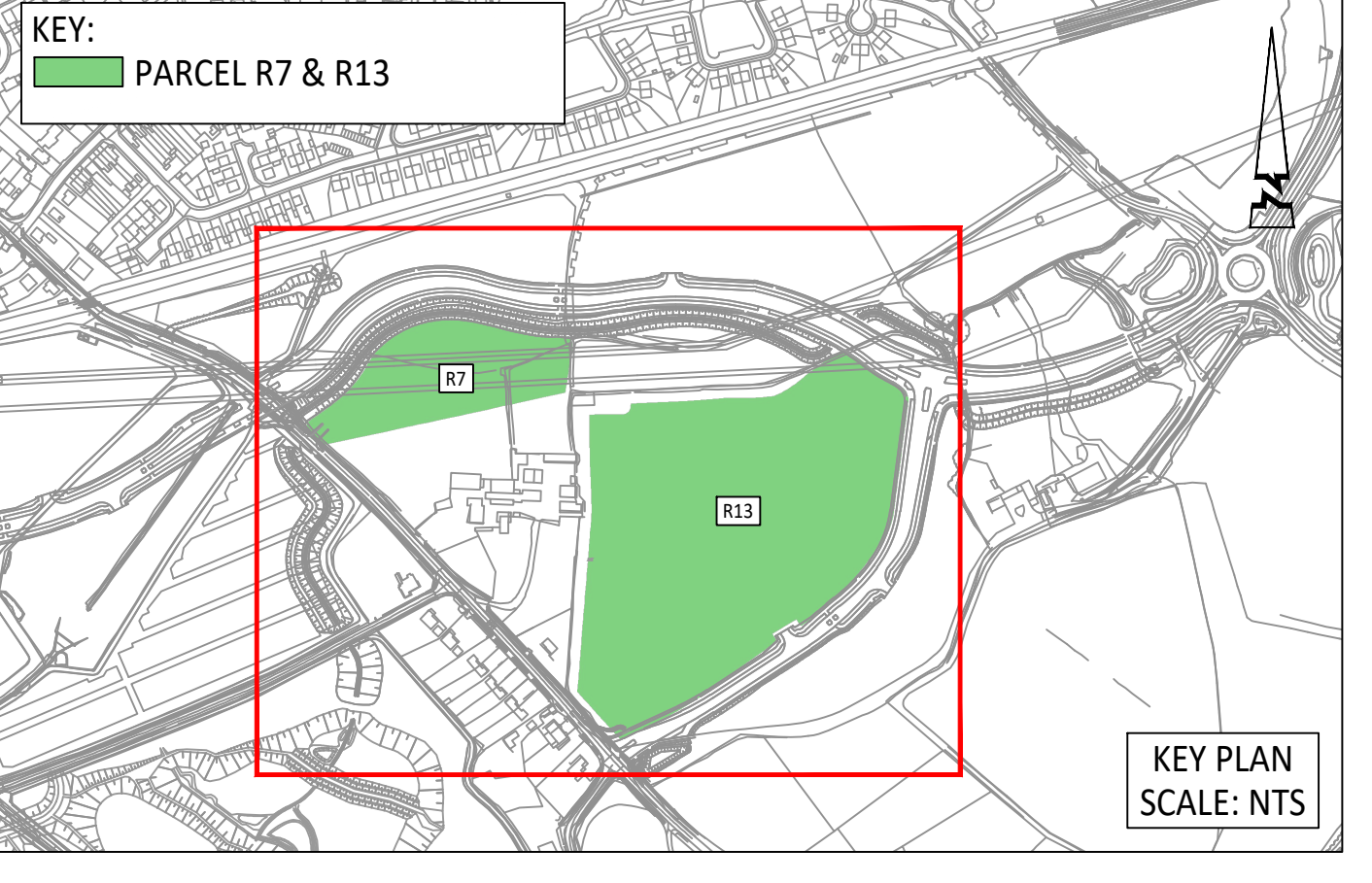
KEY	
	Foul
	Storm
	Proposed adoptable sewer & MH connection
	Highway gully and 150mmØ connection
	Proposed Control Manhole
	Proposed Catchpit Manhole
	PSS2 Foul Water Rising Main
	PSS3 Foul Water Rising Main
	Proposed Headwall
	Proposed French Drain
	Proposed Swale/Basin
	Permeable Paved Parking Court
	Permeable Paved Driveway

D	R0-24	ADDED PERMEABLE PAVED AREAS AND AMENDED BY DRAINAGE	RS	RF
C	R0-24	AMENDED TO SUIT UPDATED LAYOUT	RS	RP
B	R0-24	AMENDED TO SUIT UPDATED LAYOUT	RS	RT
A	R2-25	TIPST ISSUE	AS	RF
MTH	SIN	(Drawn)	Author	(Checked)

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Client				
MILLER HOMES				
Project				
SOUTH WOKINGHAM SDL PHASE 2B R7 & R13 RESERVED MATTERS APPLICATION				
Title				
DRAINAGE STRATEGY				
Status				
Date	Time	Drawn	Checked	
1:500 @ A0	DEC 2025	AS	RG	
Drawing No.				Revision
A389-R7&R13-RM-SO1				D



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TECHNICAL APPROVAL

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- Any anomaly or contradiction between any of the above is to be reported to the Engineer.

Key

- Proposed adoptable sewer & MH
- Highway gully and 150mmØ connection
- Proposed Control Manhole
- Proposed Catchpit Manhole
- Proposed HSDC Headwall
- Proposed Headwall
- Proposed French Drain
- R7 Catchment Area
- Total Impermeable area - 0.628ha
- R13 Catchment Area
- Total Impermeable area - 2.949ha

Rev	Description	By	Check
0	27.24 AMENDED TO SUIT UPDATED LAYOUT	AS	RF
1	28.24 AMENDED TO SUIT UPDATED LAYOUT	RD	RF
2	29.24 AMENDED TO SUIT UPDATED LAYOUT	RD	RF
3	30.24 FIRST ISSUE	AD	RF

Issue

Client

MILLER HOMES

Project

SOUTH WOKINGHAM SDL
PHASE 2B R7 & R13 RESERVED
MATTERS APPLICATION

Surface Water
CATCHMENT PLAN

Scale

Scale	Date	Drawn	Checked
1:500 @ A0	DEC 2025	AS	RF

Drawing No

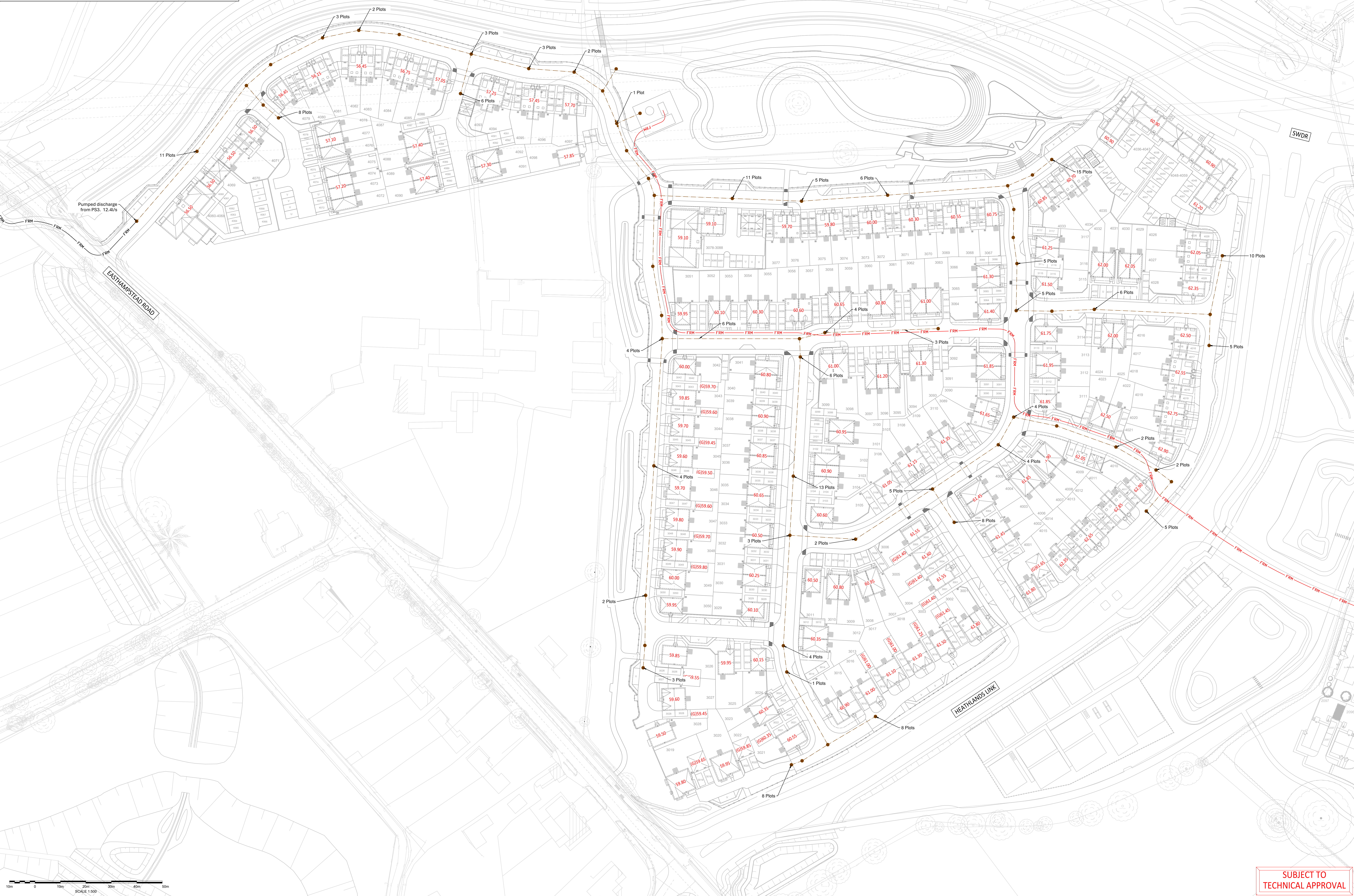
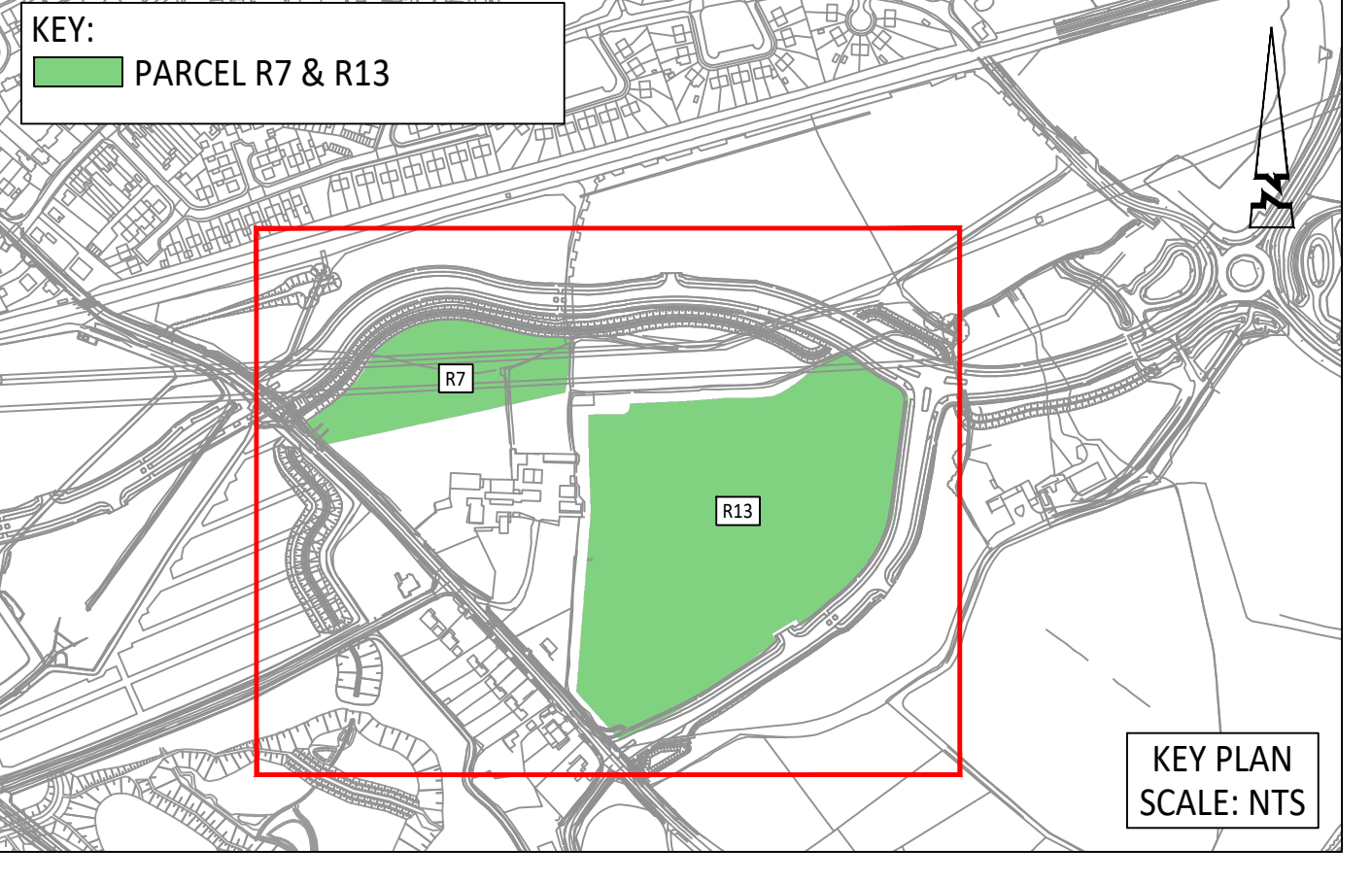
A389-R7&R13-RM-505

Revision

D

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 2. This drawing is to be read in conjunction with and checked against all other drawings, Engineering details, Specification and any structural, Geotechnical or other specialist document provided.
 3. Foul water discharge is based on 4000l/s per plot.
 4. Catchment numbers refer only to parcels under current RM application.
- KEY
- Proposed adoptable sewer & MH
 - FRM Proposed PS2 Foul Water Rising Main
 - FRM PS3 Foul Water Rising Main
 - 42.50 Finished Floor Level

D	27.24	AMENDMENTS TO SLAT UPDATED LAYOUT	GL	RF
B	25.24	AMENDMENTS TO SLAT UPDATED LAYOUT	RF	RF
A	12.24	FIRST ISSUE	AD	RF
Rev	1/24	Revised	Author	Engineer

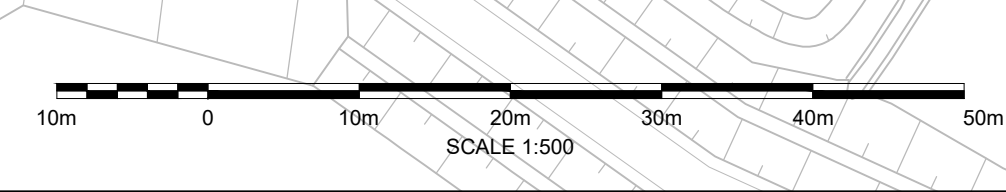
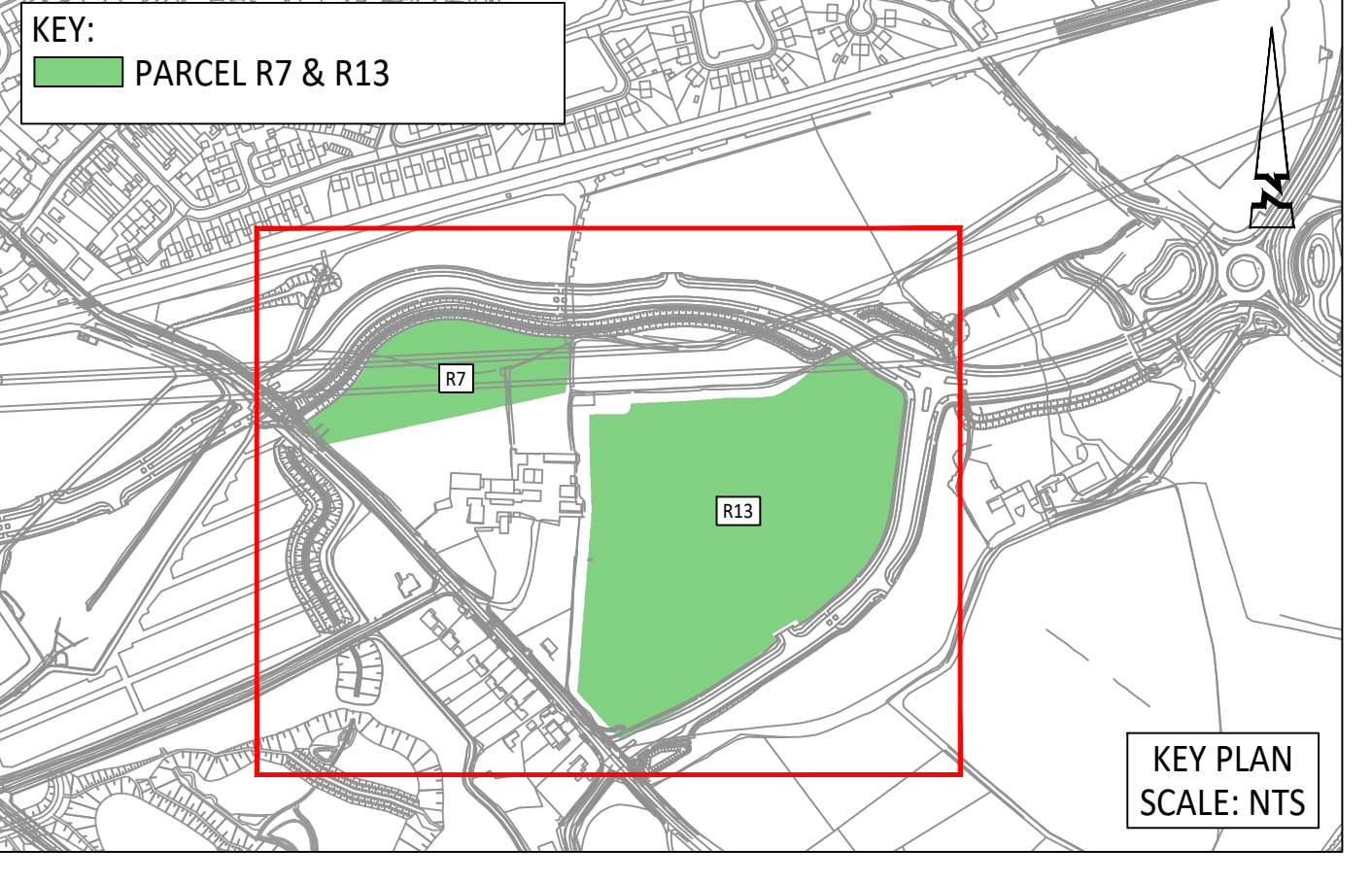


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MILLER HOMES

Project	SOUTH WOKINGHAM SDL PHASE 2B R7 & R13 RESERVED MATTERS APPLICATION						
Drawn	FOUL WATER CATCHMENT PLAN						
Scale							
Drawn	1:500 @ A0	Date	DEC 2025	Drawn	AS	Checked	RF
Project No	A389-R7&R13-RM-506			Revision	D		

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- Any anomaly or contradiction between any of the above is to be reported to the Engineer.

KEY:

- Proposed Highway Contours
- Exceedance Flow Route Arrow
- HP Exceedance Flow Route High Point
- LP Exceedance Flow Route Low Point

Rev	Date	Description	By	Check
D	07.24	AMENDED TO SUIT UPDATED LAYOUT	GL	RF
B	05.24	AMENDED TO SUIT UPDATED LAYOUT	RD	RF
A	12.23	FIRST ISSUE	AD	RF

Client: **MILLER HOMES**

Project: **SOUTH WOKINGHAM SDL
PHASE 2B R7 & R13 RESERVED
MATTERS APPLICATION**

Title: **EXCEEDANCE ROUTE PLAN**

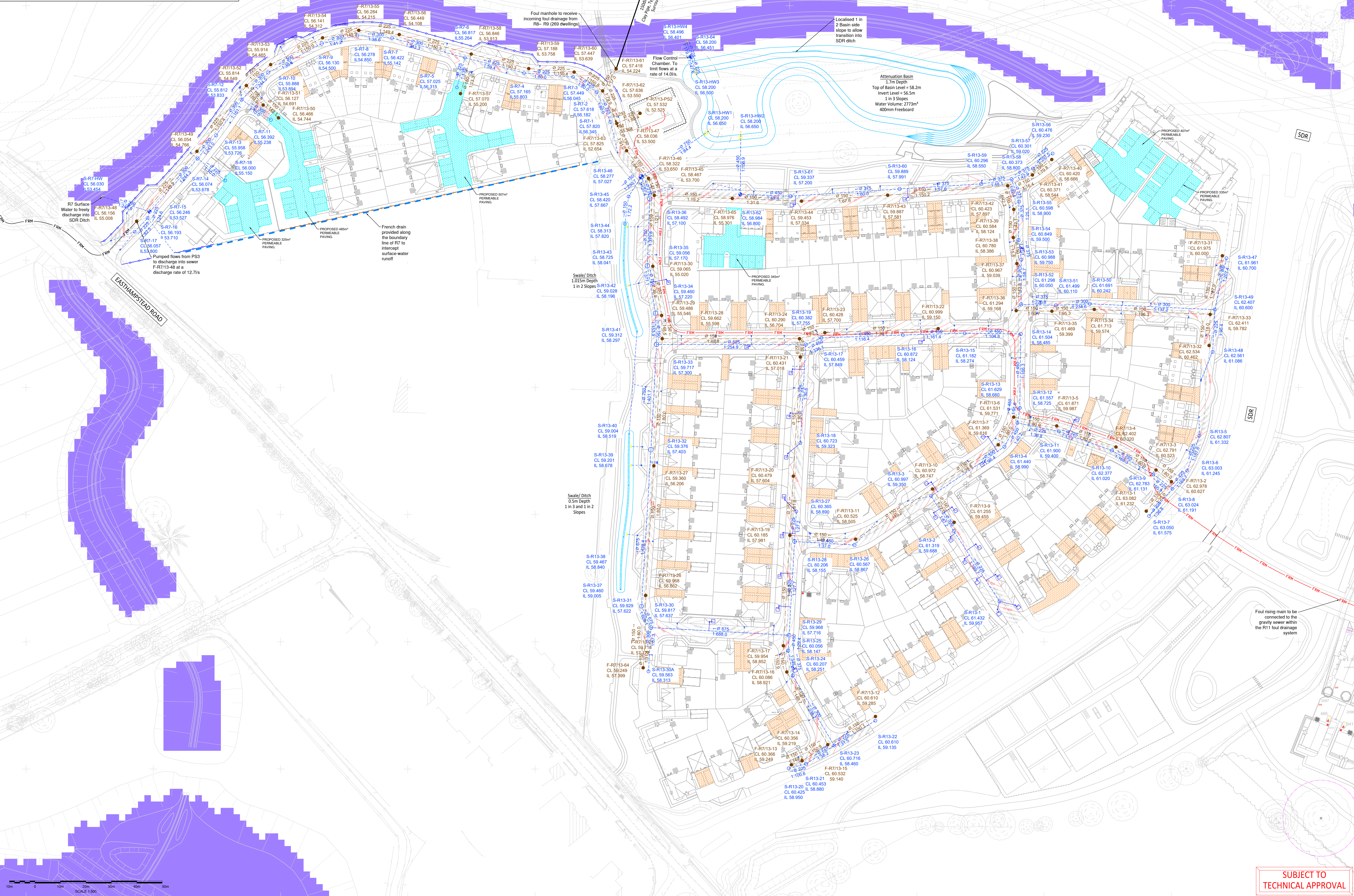
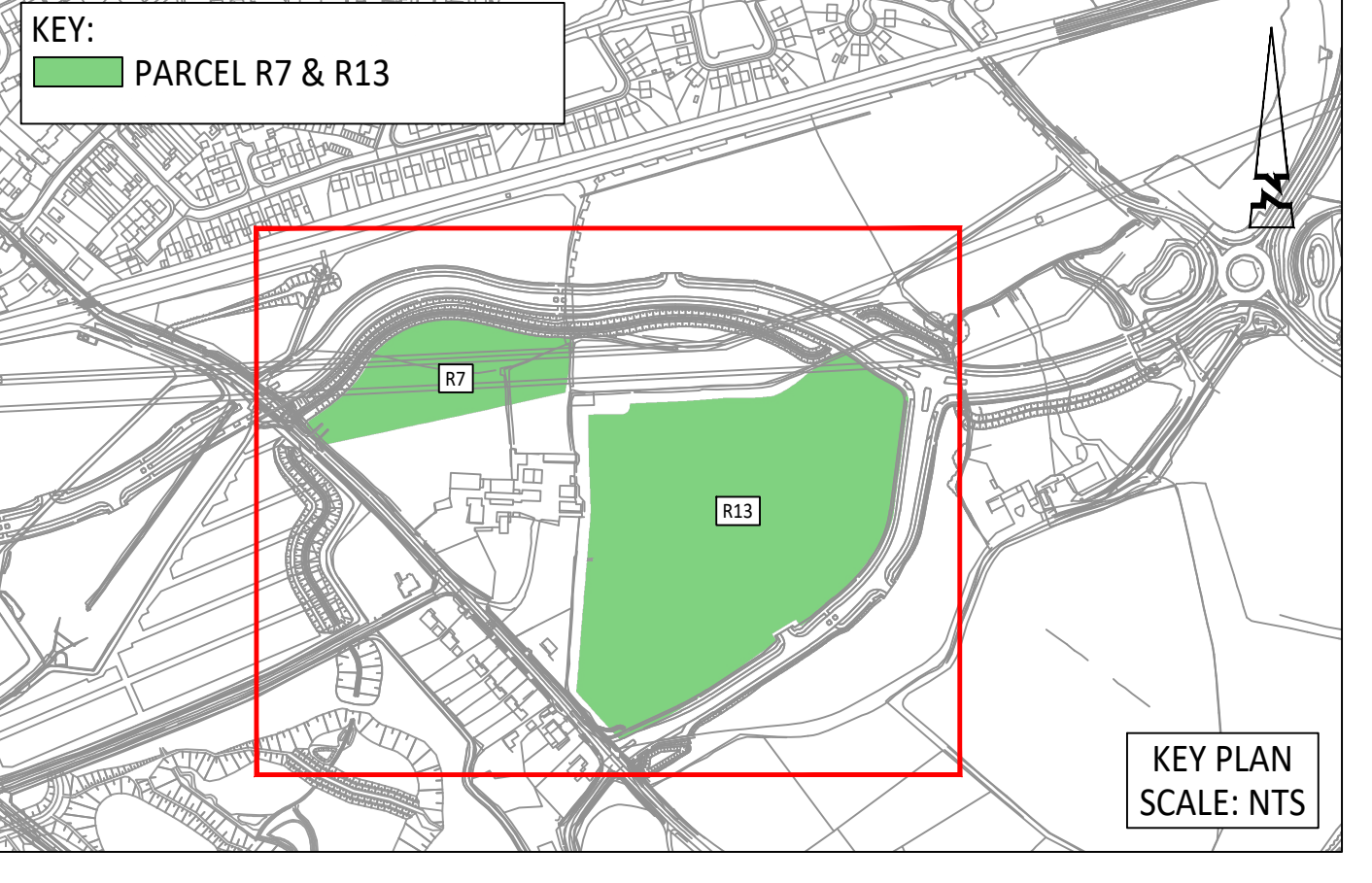
Scale:

Scale	Date	Drawn	Checked
1:500 @ A0	DEC 2025	AS	RF

Drawing No: **A389-R7&R13-RM-507**

Revision: **D**

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2. Refer to all other Project Drawings and supporting notes.

KEY

FOUL

STORM

Proposed adoptable sewer & MH connection

Proposed Control Manhole

Proposed Catchpit Manhole

Proposed PS2 Foul Water Rising Main

PS3 Foul Water Rising Main

Proposed Headwall

Proposed French Drain

Proposed Swale/ Basin

Permeable Paved Parking Court

Permeable Paved Driveway

Extent of 1 in 100 yr + 35% CC fluvial flood event

A 00.24 FIRST ISSUE

AD

RF

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Client

MILLER HOMES

Project

SOUTH WOKINGHAM SDL
PHASE 2B R7 & R13 RESERVED
MATTERS APPLICATION

Drawn

DRAINAGE STRATEGY
WITH FLUVIAL FLOOD
EXTENTS

Issue

1:500 @ A0

Date

AUG 2026

Drawn

AS

Checked

RG

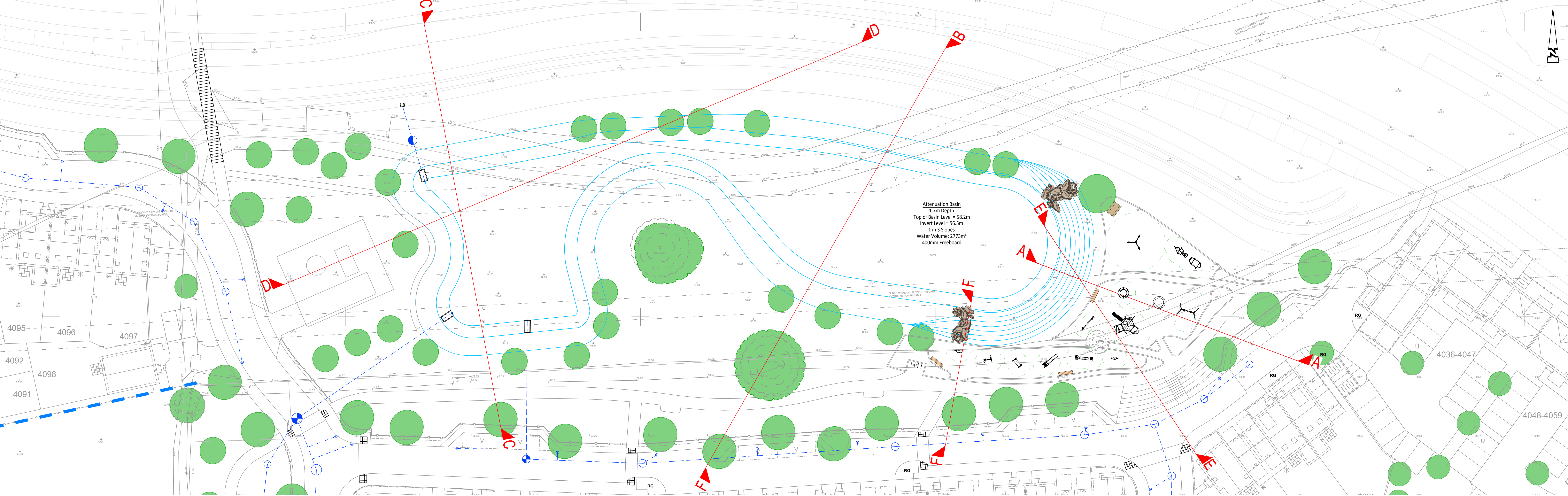
Project No

A389-R7&R13-RM-509

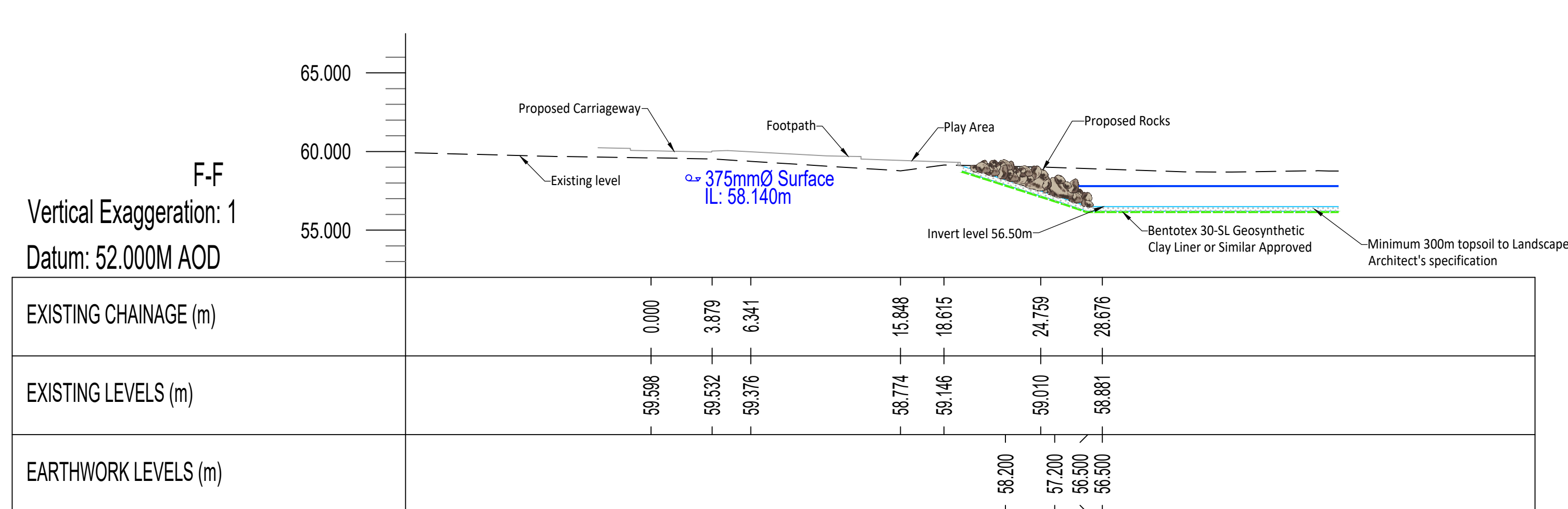
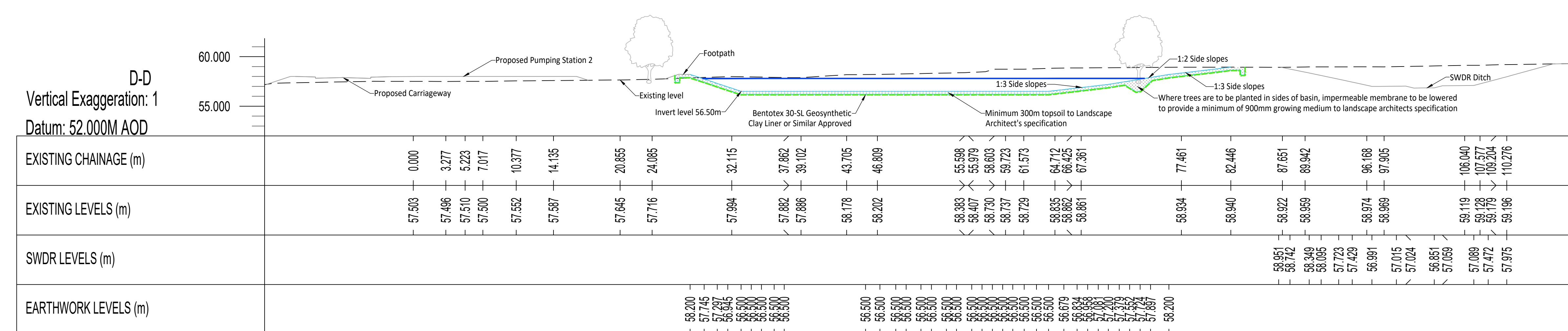
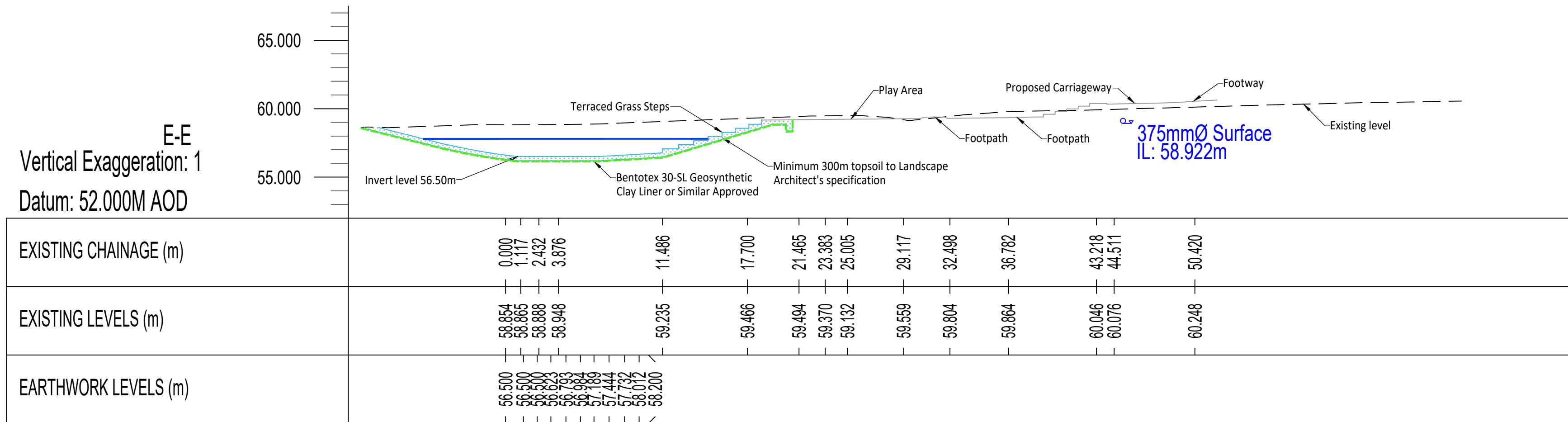
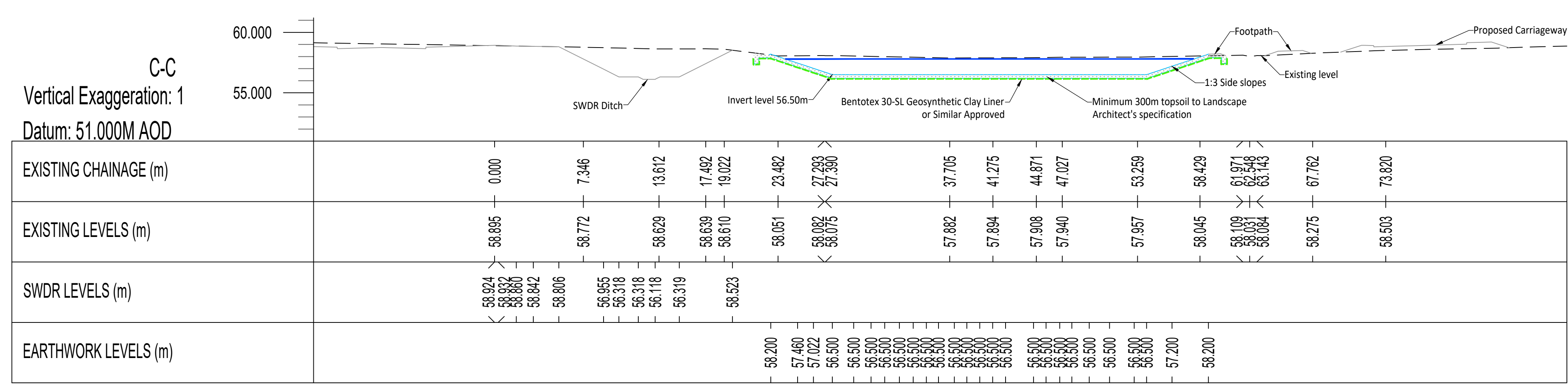
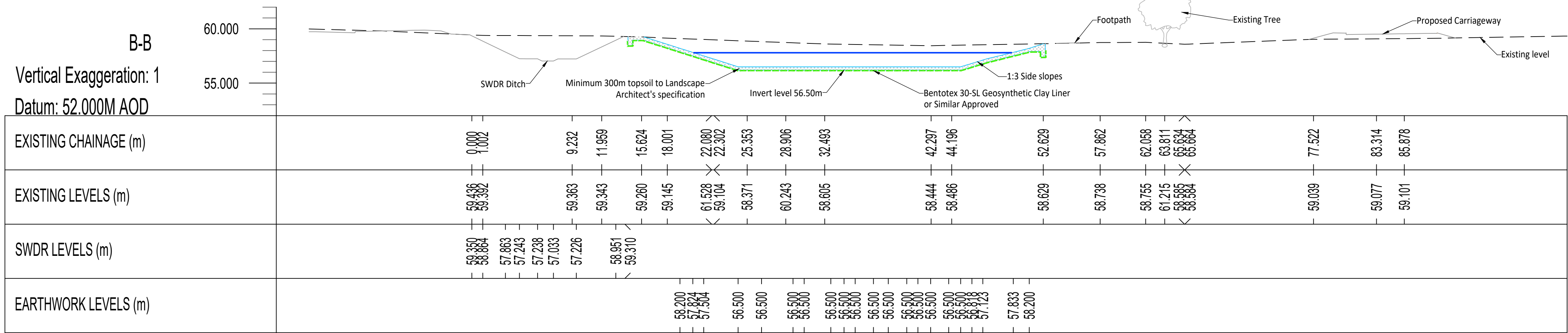
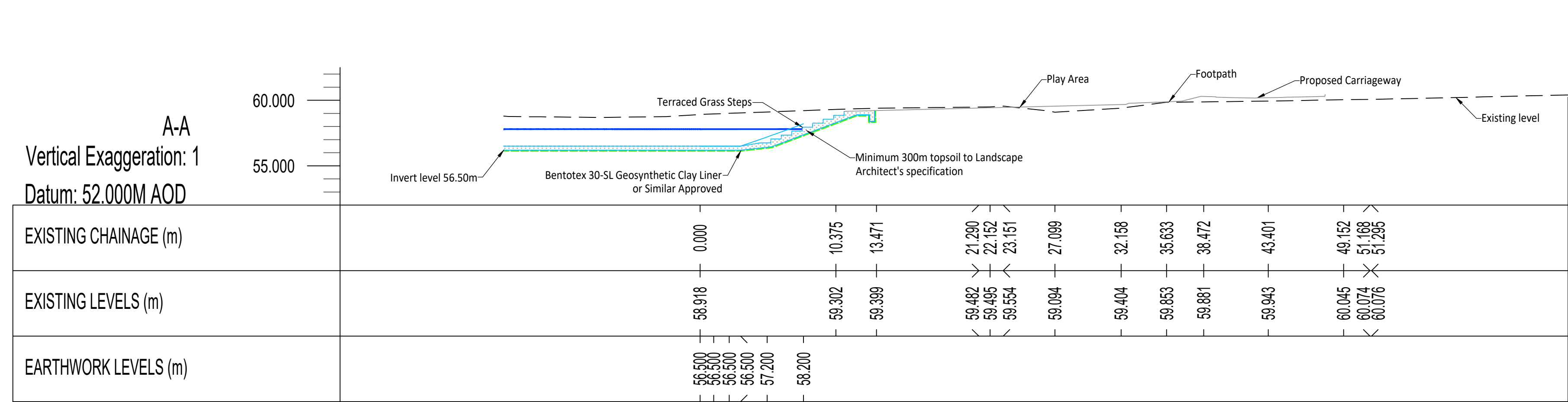
Revision

A

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 3. The proposed works on this drawing could impact on existing services/statutory undertakers apparatus therefore the contractor should check the position of existing services on site prior to starting work.
 4. Any anomaly or contradiction between any of the above is to be reported to the Engineer.
- Key:
- Proposed adoptable sewer & M/R
 - Highway gully and 150mmØ connection
 - Proposed Control Manhole
 - Proposed Catchpit Manhole
 - Proposed H50C Headwall
 - Proposed Headwall
 - Proposed French Drain
 - Proposed Basin
 - Proposed Trees
- Sections Key:
- Existing Ground Levels
 - Proposed Centreline Profile
 - Basin Levels
 - Max Water Level



SUBJECT TO
TECHNICAL APPROVAL

C	15.124	AMENDED TO SUIT UPDATED LAYOUT	RD	RF
B	15.124	AMENDED TO SUIT UPDATED LAYOUT	RD	RF
A	12.124	FIRST ISSUE	AD	RF
Rev	1	Issue	Issue	Issue

Client

Miller Homes

Project

SOUTH WOKINGHAM SDL
PHASE 2B R7 & R13 RESERVED
MATTERS APPLICATION

Title

R13 BASIN CROSS SECTIONS

Drawn

Scale

1:250 @ A0

Date

DEC 2025

Drawn

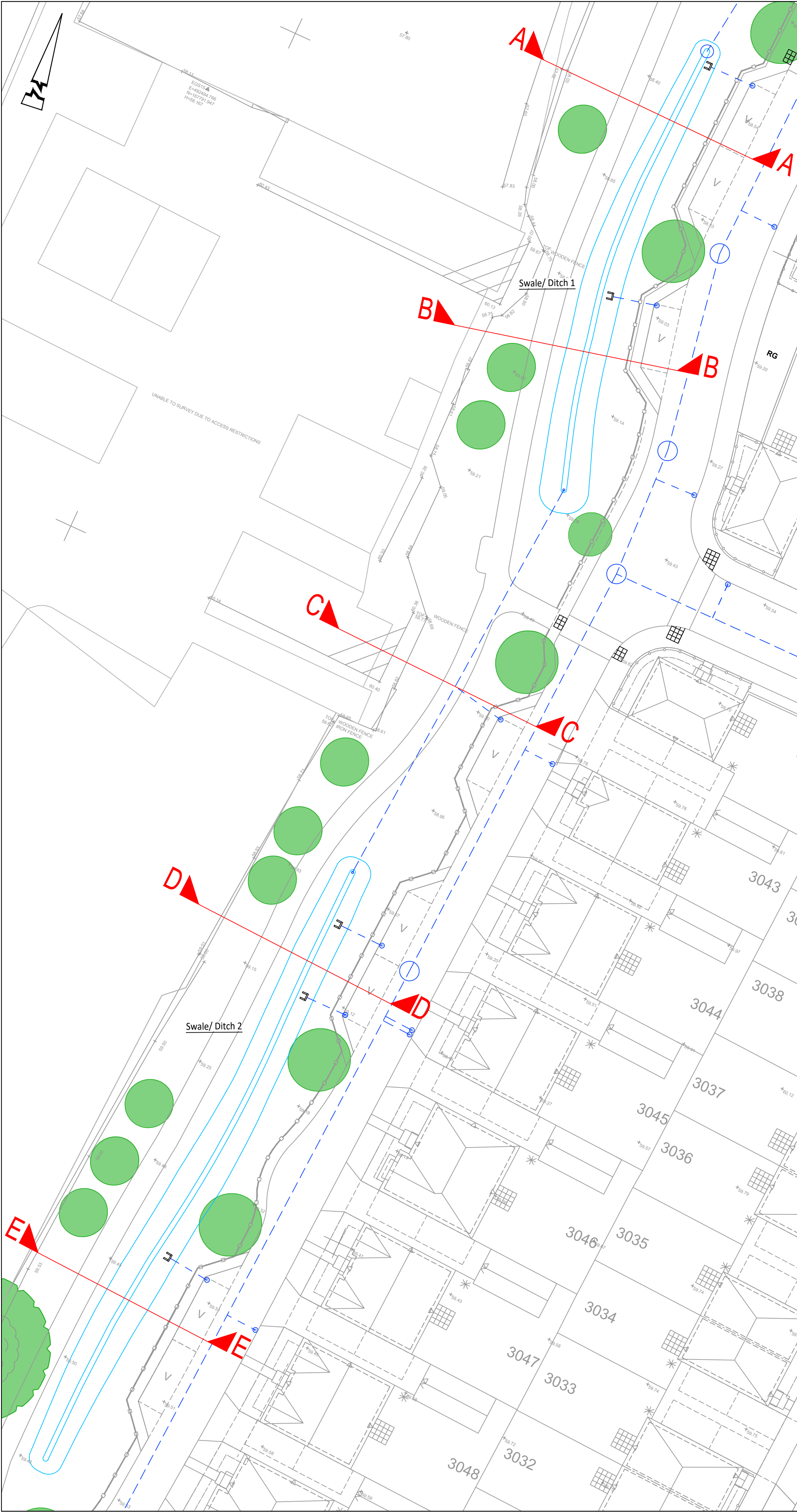
AS

Checked

RF

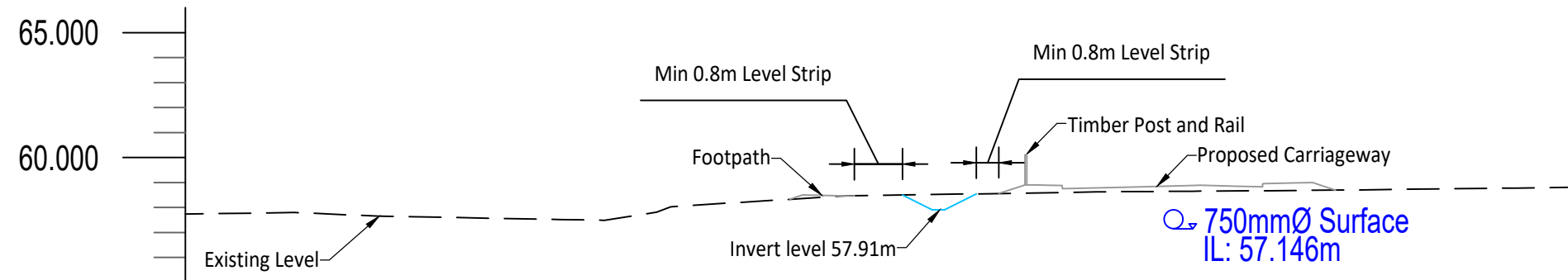
Project

C



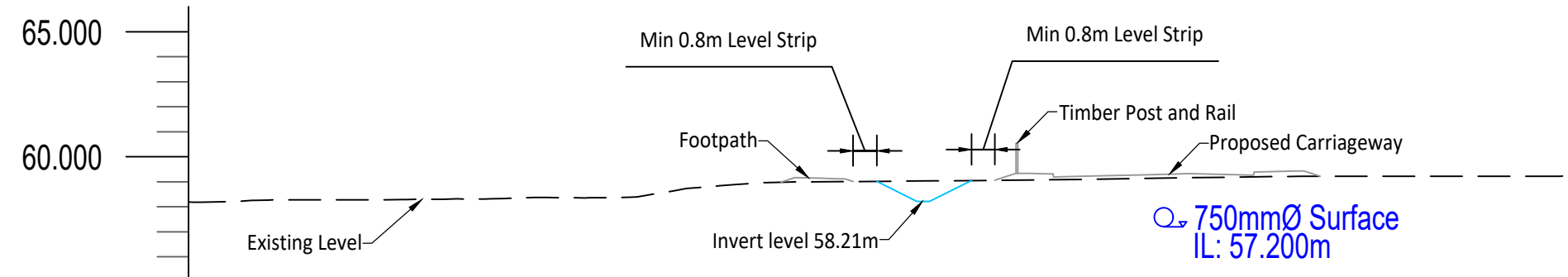
A-A
Vertical Exaggeration: 1
Datum: 55.000M AOD

EXISTING CHAINAGE (m)		0.000	1.752	3.847	11.470	18.534	21.471	25.295
EXISTING LEVELS (m)		57.519	57.486	57.813	58.470	58.571	58.625	58.652



B-B
Vertical Exaggeration: 1
Datum: 55.000M AOD

EXISTING CHAINAGE (m)		0.000	0.784	1.579	2.886	4.470	6.210	8.105	8.976	13.240	19.238	24.968
EXISTING LEVELS (m)		58.364	58.363	58.364	58.363	58.650	58.836	58.968	58.991	59.020	59.076	59.161

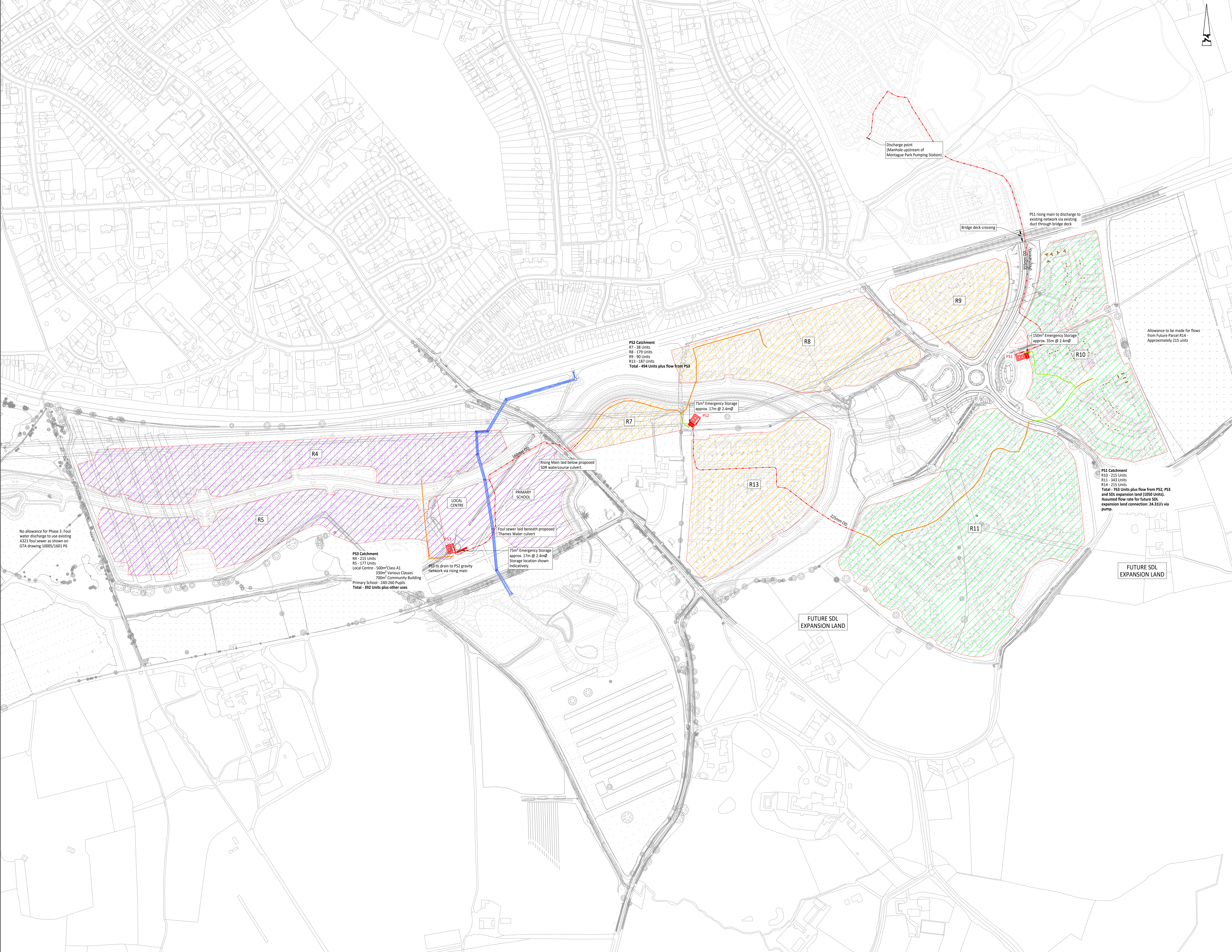


C-C
Vertical Exaggeration: 1
Datum: 55.000M AOD

EXISTING CHAINAGE (m)		0.000	0.026	0.042	0.057	0.073	0.088	0.104	0.119	0.135	0.150	0.166	0.181	0.197	0.212	0.228	0.243	0.259	0.274	0.289	0.305	0.320	0.336	0.351	0.367	0.382	0.397	0.413	0.428	0.443	0.459	0.474	0.489	0.505	0.520	0.535	0.551	0.566	0.581	0.597	0.612	0.628	0.643	0.658	0.674	0.689	0.704	0.720	0.735	0.750	0.766	0.781	0.796	0.812	0.827	0.842	0.858	0.873	0.888	0.904	0.919	0.934	0.950	0.965	0.980	0.996	1.011	1.026	1.042	1.057	1.072	1.088	1.103	1.118	1.133	1.149	1.164	1.179	1.194	1.210	1.225	1.240	1.256	1.271	1.286	1.301	1.317	1.332	1.347	1.362	1.378	1.393	1.408	1.423	1.439	1.454	1.469	1.484	1.499	1.515	1.530	1.545	1.560	1.576	1.591	1.606	1.621	1.637	1.652	1.667	1.682	1.698	1.713	1.728	1.743	1.758	1.774	1.789	1.804	1.819	1.834	1.850	1.865	1.880	1.895	1.910	1.926	1.941	1.956	1.971	1.986	2.002	2.017	2.032	2.047	2.062	2.078	2.093	2.108	2.123	2.138	2.153	2.168	2.183	2.198	2.213	2.228	2.243	2.258	2.273	2.288	2.303	2.318	2.333	2.348	2.363	2.378	2.393	2.408	2.423	2.438	2.453	2.468	2.483	2.498	2.513	2.528	2.543	2.558	2.573	2.588	2.603	2.618	2.633	2.648	2.663	2.678	2.693	2.708	2.723	2.738	2.753	2.768	2.783	2.798	2.813	2.828	2.843	2.858	2.873	2.888	2.903	2.918	2.933	2.948	2.963	2.978	2.993	3.008	3.023	3.038	3.053	3.068	3.083	3.098	3.113	3.128	3.143	3.158	3.173	3.188	3.203	3.218	3.233	3.248	3.263	3.278	3.293	3.308	3.323	3.338	3.353	3.368	3.383	3.398	3.413	3.428	3.443	3.458	3.473	3.488	3.503	3.518	3.533	3.548	3.563	3.578	3.593	3.608	3.623	3.638	3.653	3.668	3.683	3.698	3.713	3.728	3.743	3.758	3.773	3.788	3.803	3.818	3.833	3.848	3.863	3.878	3.893	3.908	3.923	3.938	3.953	3.968	3.983	3.998	4.013	4.028	4.043	4.058	4.073	4.088	4.103	4.118	4.133	4.148	4.163	4.178	4.193	4.208	4.223	4.238	4.253	4.268	4.283	4.298	4.313	4.328	4.343	4.358	4.373	4.388	4.403	4.418	4.433	4.448	4.463	4.478	4.493	4.508	4.523	4.538	4.553	4.568	4.583	4.598	4.613	4.628	4.643	4.658	4.673	4.688	4.703	4.718	4.733	4.748	4.763	4.778	4.793	4.808	4.823	4.838	4.853	4.868	4.883	4.898	4.913	4.928	4.943	4.958	4.973	4.988	5.003	5.018	5.033	5.048	5.063	5.078	5.093	5.108	5.123	5.138	5.153	5.168	5.183	5.198	5.213	5.228	5.243	5.258	5.273	5.288	5.303	5.318	5.333	5.348	5.363	5.378	5.393	5.408	5.423	5.438	5.453	5.468	5.483	5.498	5.513	5.528	5.543	5.558	5.573	5.588	5.603	5.618	5.633	5.648	5.663	5.678	5.693	5.708	5.723	5.738	5.753	5.768	5.783	5.798	5.813	5.828	5.843	5.858	5.873	5.888	5.903	5.918	5.933	5.948	5.963	5.978	5.993	6.008	6.023	6.038	6.053	6.068	6.083	6.098	6.113	6.128	6.143	6.158	6.173	6.188	6.203	6.218	6.233	6.248	6.263	6.278	6.293	6.308	6.323	6.338	6.353	6.368	6.383	6.398	6.413	6.428	6.443	6.458	6.473	6.488	6.503	6.518	6.533	6.548	6.563	6.578	6.593	6.608	6.623	6.638	6.653	6.668	6.683	6.698	6.713	6.728	6.743	6.758	6.773	6.788	6.803	6.818	6.833	6.848	6.863	6.878	6.893	6.908	6.923	6.938	6.953	6.968	6.983	6.998	7.013	7.028	7.043	7.058	7.073	7.088	7.103	7.118	7.133	7.148	7.163	7.178	7.193	7.208	7.223	7.238	7.253	7.268	7.283	7.298	7.313	7.328	7.343	7.358	7.373	7.388	7.403	7.418	7.433	7.448	7.463	7.478	7.493	7.508	7.523	7.538	7.553	7.568	7.583	7.598	7.613	7.628	7.643	7.658	7.673	7.688	7.703	7.718	7.733	7.748	7.763	7.778	7.793	7.808	7.823	7.838	7.853	7.868	7.883	7.898	7.913	7.928	7.943	7.958	7.973	7.988	8.003	8.018	8.033	8.048	8.063	8.078	8.093	8.108	8.123	8.138	8.153	8.168	8.183	8.198	8.213	8.228	8.243	8.258	8.273	8.288	8.303	8.318	8.333	8.348	8.363	8.378	8.393	8.408	8.423	8.438	8.453	8.468	8.483	8.498	8.513	8.528	8.543	8.558	8.573	8.588	8.603	8.618	8.633	8.648	8.663	8.678	8.693	8.708	8.723	8.738	8.753	8.768	8.783	8.798	8.813	8.828	8.843	8.858	8.873	8.888	8.903	8.918	8.933	8.948	8.963	8.978	8.993	9.008	9.023	9.038	9.053	9.068	9.083	9.098	9.113	9.128	9.143	9.158	9.173	9.188	9.203	9.218	9.233	9.248	9.263	9.278	9.293	9.308	9.323	9.338	9.353	9.368	9.383	9.398	9.413	9.428	9.443	9.458	9.473	9.488	9.503	9.518	9.533	9.548	9.563	9.578	9.593	9.608	9.623	9.638	9.653	9.668	9.683	9.698	9.713	9.728	9.743	9.758	9.773	9.788	9.803	9.818	9.833	9.848	9.863	9.878	9.893	9.908	9.923	9.938	9.953	9.968	9.983	10.000	10.015	10.030	10.045	10.060	10.075	10.090	10.105	10.120	10.135	10.150	10.165	10.180	10.195	10.210	10.225	10.240	10.255	10.270	10.285	10.300	10.315	10.330	10.345	10.360	10.375	10.390	10.405	10.420	10.435	10.450	10.465	10.480	10.495	10.510	10.525	10.540	10.555	10.570	10.585	10.600	10.615	10.630	10.645	10.660	10.675	10.690	10.705	10.720	10.735	10.750	10.765	10.780	10.795	10.810	10.825	10.840	10.855	10.870	10.885	10.900	10.915	10.930	10.945	10.960	10.975	10.990	11.005	11.020	11.035	11.050	11.065	11.080	11.095	11.110	11.125	11.140	11.155	11.170	11.185	11.200	11.215	11.230	11.245	11.260	11.275	11.290	11.305	11.320	11.335	11.350	11.365	11.380	11.395	11.410	11.425	11.440	11.455	11.470	11.485	11.500	11.515	11.530	11.545	11.560	11.575	11.590	11.605	11.620	11.635	11.650	11.665	11.680	11.695	11.710	11.725	11.740	11.755	11.770	11.785	11.800	11.815	11.830	11.845	11.860	11.875	11.890	11.905	11.920	11.935	11.950	11.965	11.980	11.995	12.010	12.025	12.040	12.055	12.070	12.085	12.100	12.115	12.130	12.145	12.160	12.175	12.190	12.205	12.220	12.235	12.250	12.265	12.280	12.295	12.310	12.325	12.340	12.355	12.370	12.385	12.400	12.415	12.430	12.445	12.460	12.475	12.490	12.505	12.520	12.535	12.550	12.565	12.580	12.595	12.610	12.625	12.640	12.655	12.670	12.685	12.700	12.715	12.730	12.745	12.760	12.775	12.790	12.805	12.820	12.835	12.850	12.865	12.880	12.895	12.910	12.925	12.940	12.955	12.970	12.985	12.995	13.010	13.025	13.040	13.055	13.070	13.085	13.100	13.115	13.130	13.145	13.160	13.175	13.190	13.205	13.220	13.235	13.250	13.265	13.280	13.295	13.310	13.325	13.340	13.355	13.370	13.385	13.400	13.415	13.430	13.445	13.460	13.475	13.490	13.505	13.520	13.535	13.550	13.565	13.580	13.595	13.610	13.625	13.640	13.655	13.670	13.685	13.700	13.715	13.730	13.745	13.760	13.775	13.790	13.805	13.820	13.835	13.850	13.865	13.880	13.895	13.910	13.925	13.940	13.955	13.970	13.985	13.995	14.010	14.025	14.040	14.055	14.070	14.085	14.100	14.115	14.130	14.145	14.160	14.175	14.190	14.205	14.220	14.235	14.250	14.265	14.280	14.295	14.310	14.325	14.340	14.355	14.370	14.385	14.400	14.415	14.430	14.445	14.460	14.475	14.490	14.505	14.520	14.535	14.550	14.565	14.580	14.595	14.610	14.625	14.640	14.655	14.670	14.685	14.700	14.715	14.730	14.745	14.760	14.775	14.790	14.805	14.820	14.835	14.850	14.865	14.880	14.895	14.910	14.925	14.940	14.955	14.970	14.985	14.995	15.010	15.025	15.040	15.055	15.070	15.085	15.100	15.115	15.130	15.145	15.160	15.175	15.190	15.205	15.220	15.235	15.250	15.265	15.280	15.295	15.310	15.325	15.340	15.355	15.370	15.385	15.400	15.415	15.430	15.445	15.460	15.475	15.490	15.505	15.520	15.535	15.550	15.565	15.580	15.595	15.610	15.625	15.640	15.655	15.670	15.685	15.700	15.715	15.730	15.745	15.760	15.775	15.790	15.805	15.820	15.835	15.850	15.865	15.880	15.895	15.910	15.925	15.940	15.955	15.970	15.985	15.995	16.010	16.025	16.040	16.055	16.070	16.085	16.100	16.115	16.130	16.145	16.160	16.175	16.190	16.205	16.220	16.235	16.250	16.265	16.280	16.295	16.310	16.325	16.340	16.355	16.370	16.385	16.400	16.415	16.430	16.445	16.460	16.475	16.490	16.505	16.520	16.535	16.550	16.565	16.580	16.595	16.610	16.625	16.640	16.655	16.670	16.685	16.700	16.715	16.730	16.745	16.760	16.775	16.790	16.805	16.820	16.835	16.850	16.865	16.880	16.895	16.910	16.925	16.940	16.955	16.970	16.985	16.995	17.010	17.025	17.040	17.055	17.070	17.085	17.100	17.115	17.130	17.145	17.160	17.175	17.190	17.205	17.220	17.235	17.250	17.265	17.280	17.295	17.310	17.325	17.340	17.355	17.370	17.385	17.400	17.415	17.430	17.445	17.460	17.475	17.490	17.505	17.520	17.535	17.550	17.565	17.580	17.595	17.610	17.625	17.640	17.655	17.670	17.685	17.700	17.715	17.730	17.745	17.760	17.775	1
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Appendix B – Sitewide Foul Drainage Strategy



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Notes:
1. Do not scale from this drawing.
2. Refer to all other project drawings and supporting notes.

Key:

- Proposed Foul Sewer (150mm Dia)
- Proposed Foul Sewer (225mm Dia)
- Proposed Foul Sewer (300mm Dia)
- Proposed Pumping Station
- Proposed Rising Main
- Proposed Emergency Storage - 2.4mØ x Varies
- PS1 Catchment Area
- PS2 Catchment Area
- PS3 Catchment Area

PS	06.25	INTERIM RISING MAIN REMOVED	CS	RF
PS	06.25	R10 DWELLING NUMBERS UPDATED	CS	RF
PS	11.24	UPDATED TO SUIT LATEST ACCOMMODATION SCHEDULE AND CONCURRENT FOUl ROUTES	CS	LPA
PS	06.24	PS1 FOUl RISING MAIN AMENDED	CS	LPA
PS	06.24	GENERAL AMENDMENTS	CS	LPA
PS	06.24	EMERGENCY STORAGE ADDED	CS	LPA
PS	06.24	CATCHMENT AREAS UPDATED KEY UPDATED	CS	LPA
PS	07.23	PUMP STATION ADDED TO ALLOW EARLY CONSTRUCTION OF PHASE R10	KLW	LPA
PS	07.22	FIRST ISSUE	JA	KLW



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Client

MILLER HOMES
KIER VENTURES

Project

SOUTH WOKINGHAM SDL

Title

SITE OVERVIEW
FOUL WATER STRATEGY

Status

Scale	Date	Author	Checked
1:2000 @ A0	JULY 2022	KLW	LPA
Drawn by		Reviewed	
A389-003			P9



Appendix C – Surface Water Hydraulic Model Calculations

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)	9.999
CV	0.950	Preferred Cover Depth (m)	1.250
Time of Entry (mins)	5.00	Include Intermediate Ground	✓
Maximum Time of Concentration (mins)	30.00	Enforce best practice design rules	x
Maximum Rainfall (mm/hr)	550.0		

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
S-R7-2			57.618	1200	482524.226	167866.135	1.436
S-R7-3	0.020	5.00	57.449	1200	482514.939	167871.941	1.404
S-R7-4	0.024	5.00	57.165	1200	482495.680	167873.537	1.362
S-R7-18	0.032	5.00	56.000	1200	482378.292	167831.341	0.850
S-R7-6	0.035	5.00	56.817	1200	482472.463	167879.574	1.553
S-R7-7	0.039	5.00	56.422	1200	482443.802	167887.294	1.280
S-R7-8	0.024	5.00	56.278	1200	482430.234	167888.279	1.428
S-R7-9	0.023	5.00	56.130	1350	482416.179	167885.107	1.630
S-R7-10	0.057	5.00	55.888	1350	482395.177	167873.708	1.994
J1	0.007	5.00	57.435		482508.566	167868.315	1.400
S-R7-12	0.005	5.00	55.812	1350	482384.717	167863.074	1.979
S-R7-13	0.019	5.00	55.958	1350	482374.680	167849.063	2.232
S-R7-14	0.024	5.00	56.074	1350	482367.425	167839.928	2.396
J2	0.007	5.00	57.189		482492.403	167869.615	1.400
S-R7-HW			56.030		482330.139	167824.933	2.576
S-R7-1	0.044	5.00	57.820	1200	482529.642	167854.272	1.475
S-R7-11	0.081	5.00	56.392	1350	482396.176	167855.165	1.154
S-R7-5	0.094	5.00	57.025	1200	482469.292	167867.896	0.710
S-R7-15	0.027	5.00	56.246	1350	482348.558	167819.066	2.719
S-R7-16	0.028	5.00	56.193	1200	482347.750	167816.530	2.483
S-R7-17		5.00	56.057	1200	482342.649	167811.132	2.257
J3	0.007	5.00	56.596		482458.709	167878.389	1.128
J4	0.008	5.00	56.488		482437.573	167884.283	1.432
J5	0.008	5.00	56.263		482417.812	167881.492	1.400
J6	0.008	5.00	56.044		482403.461	167873.867	1.400
J7	0.007	5.00	56.091		482381.053	167850.277	1.400

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	S-R7-1	S-R7-2	13.041	0.600	56.345	56.182	0.163	80.0	225	5.13	55.1
1.001	S-R7-2	S-R7-3	10.953	0.600	56.182	56.045	0.137	80.0	225	5.24	54.6
1.002	S-R7-3	S-R7-4	19.325	0.600	56.045	55.803	0.242	80.0	225	5.45	53.8
1.003	S-R7-4	S-R7-6	23.989	0.600	55.803	55.399	0.404	59.4	225	5.70	52.8
4.000_1	S-R7-5	S-R7-6	12.101	0.600	56.315	55.399	0.916	13.2	225	5.20	54.8
1.004	S-R7-6	S-R7-7	29.683	0.600	55.264	55.142	0.122	243.3	300	6.02	51.5
1.005	S-R7-7	S-R7-8	13.604	0.600	55.202	54.850	0.352	38.6	300	6.16	51.0
1.006	S-R7-8	S-R7-9	14.408	0.600	54.850	54.500	0.350	41.2	300	6.25	50.7
1.007	S-R7-9	S-R7-10	23.896	0.600	54.500	53.894	0.606	39.4	300	6.64	49.2
1.008	S-R7-10	S-R7-12	14.916	0.600	53.894	53.833	0.061	244.5	300	6.72	48.9
9.000	S-R7-11	S-R7-12	13.923	0.600	55.238	53.846	1.392	10.0	300	6.95	48.1
1.009	S-R7-12	S-R7-13	17.235	0.600	53.833	53.726	0.107	161.1	300	5.28	54.4
1.010	S-R7-13	S-R7-14	11.665	0.600	53.726	53.678	0.048	243.0	300	5.48	53.7
1.011	S-R7-14	S-R7-15	36.889	0.600	53.678	53.527	0.151	244.3	300	6.09	51.2
4.000	S-R7-17	S-R7-16	7.427	0.600	53.800	53.710	0.090	82.5	225	5.09	55.2
4.001	S-R7-16	S-R7-15	2.662	0.600	53.710	53.602	0.108	24.6	225	5.10	55.1
1.012	S-R7-15	S-R7-HW	18.100	0.600	53.527	53.454	0.073	247.9	300	6.13	51.1
11.000	S-R7-18	S-R7-14	13.850	0.600	55.150	53.770	1.380	10.0	225	5.06	55.4
2.000	J1	S-R7-4	13.904	0.600	56.035	55.876	0.159	87.4	150	5.22	54.7
3.000	J2	S-R7-6	22.289	0.600	55.789	55.414	0.375	59.4	150	5.28	54.4
5.000	J3	S-R7-7	17.364	0.600	55.468	55.352	0.116	149.7	150	5.35	54.2
6.000	J4	S-R7-8	8.356	0.600	55.056	55.000	0.056	149.2	150	5.17	54.9
7.000	J5	S-R7-9	3.967	0.600	54.863	54.650	0.213	18.6	150	5.03	55.5
8.000	J6	S-R7-10	8.286	0.600	54.644	54.044	0.600	13.8	150	5.05	55.4

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	1.463	58.2	8.3	1.250	1.211	0.044	0.0	58	1.048
1.001	1.463	58.2	8.2	1.211	1.179	0.044	0.0	57	1.039
1.002	1.463	58.2	11.8	1.179	1.137	0.064	0.0	69	1.157
1.003	1.700	67.6	17.2	1.137	1.193	0.095	0.0	77	1.423
4.000_1	3.619	143.9	17.7	0.485	1.193	0.094	0.0	53	2.483
1.004	1.003	70.9	40.9	1.253	0.980	0.231	0.0	164	1.038
1.005	2.536	179.3	48.4	0.920	1.128	0.277	0.0	106	2.167
1.006	2.457	173.7	53.7	1.128	1.330	0.309	0.0	114	2.172
1.007	2.511	177.5	57.2	1.330	1.694	0.339	0.0	117	2.247
1.008	1.001	70.7	67.8	1.694	1.679	0.404	0.0	236	1.134
9.000	4.998	353.3	13.4	0.854	1.666	0.081	0.0	40	2.440
1.009	1.236	87.4	91.6	1.679	1.932	0.491	0.0	264	1.390
1.010	1.004	71.0	95.4	1.932	2.096	0.517	0.0	300	1.017
1.011	1.001	70.8	100.7	2.096	2.419	0.573	0.0	300	1.014
4.000	1.440	57.3	0.0	2.032	2.258	0.000	0.0	0	0.000
4.001	2.646	105.2	5.3	2.258	2.419	0.028	0.0	34	1.388
1.012	0.994	70.2	110.1	2.419	2.276	0.628	0.0	300	1.007
11.000	4.154	165.2	6.2	0.625	2.079	0.032	0.0	29	2.003
2.000	1.075	19.0	1.3	1.250	1.139	0.007	0.0	26	0.608
3.000	1.307	23.1	1.4	1.250	1.253	0.007	0.0	25	0.719
5.000	0.819	14.5	1.2	0.978	0.920	0.007	0.0	30	0.499
6.000	0.820	14.5	1.5	1.282	1.128	0.008	0.0	32	0.524
7.000	2.345	41.4	1.5	1.250	1.330	0.008	0.0	19	1.094
8.000	2.725	48.2	1.6	1.250	1.694	0.008	0.0	18	1.247

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)
10.000	J7	S-R7-13	6.488	0.600	54.691	53.876	0.815	8.0	150	5.03	55.5

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)
10.000	3.593	63.5	1.4	1.250	1.932	0.007	0.0	16	1.473

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	13.041	80.0	225	ADOPTABLE	57.820	56.345	1.250	57.618	56.182	1.211
1.001	10.953	80.0	225	ADOPTABLE	57.618	56.182	1.211	57.449	56.045	1.179
1.002	19.325	80.0	225	ADOPTABLE	57.449	56.045	1.179	57.165	55.803	1.137
1.003	23.989	59.4	225	ADOPTABLE	57.165	55.803	1.137	56.817	55.399	1.193
4.000_1	12.101	13.2	225	ADOPTABLE	57.025	56.315	0.485	56.817	55.399	1.193
1.004	29.683	243.3	300	ADOPTABLE	56.817	55.264	1.253	56.422	55.142	0.980
1.005	13.604	38.6	300	ADOPTABLE	56.422	55.202	0.920	56.278	54.850	1.128
1.006	14.408	41.2	300	ADOPTABLE	56.278	54.850	1.128	56.130	54.500	1.330
1.007	23.896	39.4	300	ADOPTABLE	56.130	54.500	1.330	55.888	53.894	1.694
1.008	14.916	244.5	300	ADOPTABLE	55.888	53.894	1.694	55.812	53.833	1.679
9.000	13.923	10.0	300	ADOPTABLE	56.392	55.238	0.854	55.812	53.846	1.666
1.009	17.235	161.1	300	ADOPTABLE	55.812	53.833	1.679	55.958	53.726	1.932
1.010	11.665	243.0	300	ADOPTABLE	55.958	53.726	1.932	56.074	53.678	2.096
1.011	36.889	244.3	300	ADOPTABLE	56.074	53.678	2.096	56.246	53.527	2.419
4.000	7.427	82.5	225	ADOPTABLE	56.057	53.800	2.032	56.193	53.710	2.258
4.001	2.662	24.6	225	ADOPTABLE	56.193	53.710	2.258	56.246	53.602	2.419
1.012	18.100	247.9	300	ADOPTABLE	56.246	53.527	2.419	56.030	53.454	2.276
11.000	13.850	10.0	225	ADOPTABLE	56.000	55.150	0.625	56.074	53.770	2.079
2.000	13.904	87.4	150	ADOPTABLE	57.435	56.035	1.250	57.165	55.876	1.139

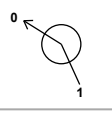
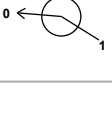
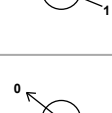
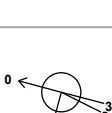
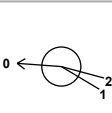
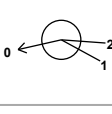
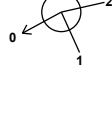
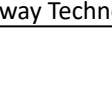
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1.000	S-R7-1	1200	Manhole	Adoptable	S-R7-2	1200	Manhole	Adoptable
1.001	S-R7-2	1200	Manhole	Adoptable	S-R7-3	1200	Manhole	Adoptable
1.002	S-R7-3	1200	Manhole	Adoptable	S-R7-4	1200	Manhole	Adoptable
1.003	S-R7-4	1200	Manhole	Adoptable	S-R7-6	1200	Manhole	Adoptable
4.000_1	S-R7-5	1200	Manhole	Adoptable	S-R7-6	1200	Manhole	Adoptable
1.004	S-R7-6	1200	Manhole	Adoptable	S-R7-7	1200	Manhole	Adoptable
1.005	S-R7-7	1200	Manhole	Adoptable	S-R7-8	1200	Manhole	Adoptable
1.006	S-R7-8	1200	Manhole	Adoptable	S-R7-9	1350	Manhole	Adoptable
1.007	S-R7-9	1350	Manhole	Adoptable	S-R7-10	1350	Manhole	Adoptable
1.008	S-R7-10	1350	Manhole	Adoptable	S-R7-12	1350	Manhole	Adoptable
9.000	S-R7-11	1350	Manhole	Adoptable	S-R7-12	1350	Manhole	Adoptable
1.009	S-R7-12	1350	Manhole	Adoptable	S-R7-13	1350	Manhole	Adoptable
1.010	S-R7-13	1350	Manhole	Adoptable	S-R7-14	1350	Manhole	Adoptable
1.011	S-R7-14	1350	Manhole	Adoptable	S-R7-15	1350	Manhole	Adoptable
4.000	S-R7-17	1200	Manhole	Adoptable	S-R7-16	1200	Manhole	Adoptable
4.001	S-R7-16	1200	Manhole	Adoptable	S-R7-15	1350	Manhole	Adoptable
1.012	S-R7-15	1350	Manhole	Adoptable	S-R7-HW		Junction	
11.000	S-R7-18	1200	Manhole	Adoptable	S-R7-14	1350	Manhole	Adoptable
2.000	J1		Junction		S-R7-4	1200	Manhole	Adoptable

Pipeline Schedule

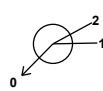
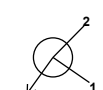
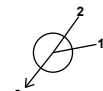
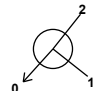
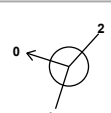
Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
3.000	22.289	59.4	150	ADOPTABLE	57.189	55.789	1.250	56.817	55.414	1.253
5.000	17.364	149.7	150	ADOPTABLE	56.596	55.468	0.978	56.422	55.352	0.920
6.000	8.356	149.2	150	ADOPTABLE	56.488	55.056	1.282	56.278	55.000	1.128
7.000	3.967	18.6	150	ADOPTABLE	56.263	54.863	1.250	56.130	54.650	1.330
8.000	8.286	13.8	150	ADOPTABLE	56.044	54.644	1.250	55.888	54.044	1.694
10.000	6.488	8.0	150	ADOPTABLE	56.091	54.691	1.250	55.958	53.876	1.932

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
3.000	J2		Junction		S-R7-6	1200	Manhole	Adoptable
5.000	J3		Junction		S-R7-7	1200	Manhole	Adoptable
6.000	J4		Junction		S-R7-8	1200	Manhole	Adoptable
7.000	J5		Junction		S-R7-9	1350	Manhole	Adoptable
8.000	J6		Junction		S-R7-10	1350	Manhole	Adoptable
10.000	J7		Junction		S-R7-13	1350	Manhole	Adoptable

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
S-R7-2	482524.226	167866.135	57.618	1.436	1200	 1	1.000	56.182	225
						0	1.001	56.182	225
S-R7-3	482514.939	167871.941	57.449	1.404	1200	 1	1.001	56.045	225
						0	1.002	56.045	225
S-R7-4	482495.680	167873.537	57.165	1.362	1200	 1	2.000	55.876	150
						2	1.002	55.803	225
						0	1.003	55.803	225
S-R7-18	482378.292	167831.341	56.000	0.850	1200	 0	11.000	55.150	225
S-R7-6	482472.463	167879.574	56.817	1.553	1200	 1	4.000_1	55.399	225
						2	3.000	55.414	150
						3	1.003	55.399	225
						0	1.004	55.264	300
S-R7-7	482443.802	167887.294	56.422	1.280	1200	 1	5.000	55.352	150
						2	1.004	55.142	300
						0	1.005	55.202	300
S-R7-8	482430.234	167888.279	56.278	1.428	1200	 1	6.000	55.000	150
						2	1.005	54.850	300
						0	1.006	54.850	300
S-R7-9	482416.179	167885.107	56.130	1.630	1350	 1	7.000	54.650	150
						2	1.006	54.500	300
						0	1.007	54.500	300

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
S-R7-10	482395.177	167873.708	55.888	1.994	1350		1 8.000 2 1.007 0 1.008	54.044 53.894 53.894	150 300 300
J1	482508.566	167868.315	57.435	1.400			0 2.000	56.035	150
S-R7-12	482384.717	167863.074	55.812	1.979	1350		1 9.000 2 1.008 0 1.009	53.846 53.833 53.833	300 300 300
S-R7-13	482374.680	167849.063	55.958	2.232	1350		1 10.000 2 1.009 0 1.010	53.876 53.726 53.726	150 300 300
S-R7-14	482367.425	167839.928	56.074	2.396	1350		1 11.000 2 1.010 0 1.011	53.770 53.678 53.678	225 300 300
J2	482492.403	167869.615	57.189	1.400			0 3.000	55.789	150
S-R7-HW	482330.139	167824.933	56.030	2.576			1 1.012	53.454	300
S-R7-1	482529.642	167854.272	57.820	1.475	1200		0 1.000	56.345	225
S-R7-11	482396.176	167855.165	56.392	1.154	1350		0 9.000	55.238	300
S-R7-5	482469.292	167867.896	57.025	0.710	1200		0 4.000_1	56.315	225
S-R7-15	482348.558	167819.066	56.246	2.719	1350		1 4.001 2 1.011 0 1.012	53.602 53.527 53.527	225 300 300
S-R7-16	482347.750	167816.530	56.193	2.483	1200		1 4.000 0 4.001	53.710	225 225
S-R7-17	482342.649	167811.132	56.057	2.257	1200		0 4.000	53.800	225

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
J3	482458.709	167878.389	56.596	1.128					
						0	5.000	55.468	150
J4	482437.573	167884.283	56.488	1.432					
						0	6.000	55.056	150
J5	482417.812	167881.492	56.263	1.400					
						0	7.000	54.863	150
J6	482403.461	167873.867	56.044	1.400					
						0	8.000	54.644	150
J7	482381.053	167850.277	56.091	1.400					
						0	10.000	54.691	150

Simulation Settings

Rainfall Methodology	FEH-22	Analysis Speed	Normal	Starting Level (m)	
Rainfall Events	Singular	Skip Steady State	x	Check Discharge Rate(s)	x
Summer CV	0.950	Drain Down Time (mins)	240	Check Discharge Volume	x
Winter CV	0.950	Additional Storage (m³/ha)	0.0		

Storm Durations

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	40	0	0

Node S-R7-11 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	55.238	Slope (1:X)	62.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	0	Depth (m)	0.450
Safety Factor	2.0	Width (m)	11.063	Inf Depth (m)	
Porosity	0.30	Length (m)	43.714		

Node S-R7-18 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	55.150	Slope (1:X)	60.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	0	Depth (m)	0.450
Safety Factor	2.0	Width (m)	12.450	Inf Depth (m)	
Porosity	0.30	Length (m)	25.967		

Node S-R7-5 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	56.315	Slope (1:X)	169.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	0	Depth (m)	0.450
Safety Factor	2.0	Width (m)	11.992	Inf Depth (m)	
Porosity	1.00	Length (m)	42.317		

Node J1 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	56.035	Slope (1:X)	43.4
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	0	Depth (m)	0.710
Safety Factor	2.0	Width (m)	5.897	Inf Depth (m)	
Porosity	0.30	Length (m)	11.192		

Node J2 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	55.789	Slope (1:X)	56.2
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	1	Depth (m)	0.710
Safety Factor	2.0	Width (m)	7.430	Inf Depth (m)	
Porosity	0.30	Length (m)	11.344		

Node J3 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	55.468	Slope (1:X)	50.5
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	7	Depth (m)	0.710
Safety Factor	2.0	Width (m)	5.900	Inf Depth (m)	
Porosity	0.30	Length (m)	11.309		

Node J4 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	55.056	Slope (1:X)	55.3
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	10	Depth (m)	0.710
Safety Factor	2.0	Width (m)	5.878	Inf Depth (m)	
Porosity	0.30	Length (m)	12.565		

Node J5 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	54.863	Slope (1:X)	59.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	9	Depth (m)	0.710
Safety Factor	2.0	Width (m)	5.900	Inf Depth (m)	
Porosity	0.30	Length (m)	11.218		

Node J6 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	54.644	Slope (1:X)	123.8
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	11	Depth (m)	0.710
Safety Factor	2.0	Width (m)	5.628	Inf Depth (m)	
Porosity	0.30	Length (m)	12.539		

Node J7 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	54.691	Slope (1:X)	40.6
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	7	Depth (m)	0.710
Safety Factor	2.0	Width (m)	5.900	Inf Depth (m)	
Porosity	0.30	Length (m)	12.915		

Results for 2 year Critical Storm Duration. Lowest mass balance: 99.96%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
60 minute summer	S-R7-2	33	56.226	0.044	4.8	0.0501	0.0000	OK
60 minute summer	S-R7-3	33	56.098	0.053	7.0	0.0598	0.0000	OK
60 minute summer	S-R7-4	33	55.864	0.061	10.4	0.0689	0.0000	OK
60 minute summer	S-R7-18	33	55.173	0.023	3.6	0.0874	0.0000	OK
60 minute summer	S-R7-6	34	55.386	0.122	23.7	0.1375	0.0000	OK
60 minute summer	S-R7-7	34	55.286	0.144	28.4	0.1633	0.0000	OK
60 minute summer	S-R7-8	34	54.942	0.092	31.7	0.1043	0.0000	OK
60 minute summer	S-R7-9	34	54.590	0.090	35.0	0.1282	0.0000	OK
60 minute summer	S-R7-10	34	54.081	0.187	41.8	0.2682	0.0000	OK
60 minute summer	J1	34	56.055	0.020	0.7	0.0170	0.0000	OK
60 minute summer	S-R7-12	34	54.022	0.189	50.9	0.2699	0.0000	OK
60 minute summer	S-R7-13	34	53.955	0.229	53.6	0.3271	0.0000	OK
60 minute summer	S-R7-14	35	53.900	0.222	59.2	0.3179	0.0000	OK
60 minute summer	J2	34	55.808	0.019	0.8	0.0249	0.0000	OK
60 minute summer	S-R7-HW	35	53.653	0.199	64.8	0.0000	0.0000	OK
60 minute summer	S-R7-1	33	56.390	0.045	4.8	0.0508	0.0000	OK
60 minute summer	S-R7-11	33	55.271	0.033	9.0	0.1217	0.0000	OK
60 minute summer	S-R7-5	35	56.354	0.039	10.3	1.6267	0.0000	OK
60 minute summer	S-R7-15	35	53.752	0.225	62.9	0.3225	0.0000	OK
60 minute summer	S-R7-16	34	53.748	0.038	3.1	0.0429	0.0000	OK
60 minute summer	S-R7-17	1	53.800	0.000	0.0	0.0000	0.0000	OK
60 minute summer	J3	34	55.490	0.022	0.7	0.0247	0.0000	OK
60 minute summer	J4	34	55.080	0.024	0.8	0.0307	0.0000	OK
60 minute summer	J5	34	54.878	0.015	0.8	0.0128	0.0000	OK
60 minute summer	J6	34	54.658	0.014	0.9	0.0228	0.0000	OK

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
60 minute summer	S-R7-2	1.001	S-R7-3	4.8	0.764	0.083	0.0690	
60 minute summer	S-R7-3	1.002	S-R7-4	7.0	0.890	0.120	0.1522	
60 minute summer	S-R7-4	1.003	S-R7-6	10.3	1.218	0.153	0.2037	
60 minute summer	S-R7-18	11.000	S-R7-14	3.6	1.202	0.022	0.1781	
60 minute summer	S-R7-6	1.004	S-R7-7	23.7	0.786	0.334	0.8946	
60 minute summer	S-R7-7	1.005	S-R7-8	28.4	1.646	0.159	0.2351	
60 minute summer	S-R7-8	1.006	S-R7-9	31.8	1.766	0.183	0.2594	
60 minute summer	S-R7-9	1.007	S-R7-10	35.0	1.104	0.197	0.7638	
60 minute summer	S-R7-10	1.008	S-R7-12	41.8	0.899	0.591	0.6930	
60 minute summer	J1	2.000	S-R7-4	0.7	0.513	0.037	0.0190	
60 minute summer	S-R7-12	1.009	S-R7-13	50.7	0.973	0.581	0.8983	
60 minute summer	S-R7-13	1.010	S-R7-14	53.2	0.938	0.749	0.6620	
60 minute summer	S-R7-14	1.011	S-R7-15	59.0	1.048	0.833	2.0791	
60 minute summer	J2	3.000	S-R7-6	0.8	0.611	0.035	0.0291	
60 minute summer	S-R7-1	1.000	S-R7-2	4.8	0.863	0.083	0.0725	
60 minute summer	S-R7-11	9.000	S-R7-12	9.0	0.973	0.025	0.3264	
60 minute summer	S-R7-5	4.000_1	S-R7-6	9.0	1.985	0.063	0.0551	
60 minute summer	S-R7-15	1.012	S-R7-HW	64.8	1.217	0.922	0.9618	73.0
60 minute summer	S-R7-16	4.001	S-R7-15	3.7	0.727	0.035	0.0419	
60 minute summer	S-R7-17	4.000	S-R7-16	0.0	0.000	0.000	0.0164	
60 minute summer	J3	5.000	S-R7-7	0.7	0.424	0.048	0.0285	
60 minute summer	J4	6.000	S-R7-8	0.8	0.440	0.055	0.0152	
60 minute summer	J5	7.000	S-R7-9	0.8	0.909	0.019	0.0035	
60 minute summer	J6	8.000	S-R7-10	0.9	1.034	0.019	0.0177	

Results for 2 year Critical Storm Duration. Lowest mass balance: 99.96%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
60 minute summer	J7	33	54.703	0.012	0.8	0.0063	0.0000	OK

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
60 minute summer	J7	10.000	S-R7-13	0.8	1.113	0.013	0.0324	

Results for 30 year Critical Storm Duration. Lowest mass balance: 99.97%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
60 minute summer	S-R7-2	33	56.263	0.081	14.3	0.0915	0.0000	OK
60 minute summer	S-R7-3	33	56.141	0.096	20.8	0.1089	0.0000	OK
60 minute summer	S-R7-4	33	55.913	0.110	30.9	0.1248	0.0000	OK
60 minute summer	S-R7-18	33	55.188	0.038	10.5	0.2118	0.0000	OK
60 minute summer	S-R7-6	34	55.525	0.261	70.8	0.2954	0.0000	OK
60 minute summer	S-R7-7	35	55.378	0.236	84.8	0.2668	0.0000	OK
60 minute summer	S-R7-8	37	55.289	0.439	91.3	0.4968	0.0000	SURCHARGED
60 minute summer	S-R7-9	38	55.195	0.695	87.0	0.9952	0.0000	SURCHARGED
60 minute summer	S-R7-10	37	55.043	1.149	90.4	1.6438	0.0000	SURCHARGED
60 minute summer	J1	33	56.069	0.034	2.2	0.0486	0.0000	OK
60 minute summer	S-R7-12	36	54.932	1.099	102.6	1.5724	0.0000	SURCHARGED
60 minute summer	S-R7-13	35	54.743	1.017	107.8	1.4555	0.0000	SURCHARGED
60 minute summer	S-R7-14	35	54.578	0.900	120.4	1.2883	0.0000	SURCHARGED
60 minute summer	J2	33	55.822	0.033	2.4	0.0692	0.0000	OK
60 minute summer	S-R7-HW	34	53.729	0.275	136.3	0.0000	0.0000	OK
60 minute summer	S-R7-1	33	56.425	0.080	14.3	0.0905	0.0000	OK
60 minute summer	S-R7-11	33	55.293	0.055	26.5	0.2848	0.0000	OK
60 minute summer	S-R7-5	35	56.381	0.066	30.5	4.4995	0.0000	OK
60 minute summer	S-R7-15	34	54.052	0.525	136.3	0.7520	0.0000	SURCHARGED
60 minute summer	S-R7-16	34	54.054	0.344	9.1	0.3895	0.0000	SURCHARGED
60 minute summer	S-R7-17	34	54.054	0.254	2.2	0.2876	0.0000	SURCHARGED
60 minute summer	J3	33	55.507	0.039	2.2	0.0732	0.0000	OK
60 minute summer	J4	37	55.294	0.238	12.5	2.7703	0.0000	SURCHARGED
60 minute summer	J5	38	55.198	0.335	17.3	4.7798	0.0000	SURCHARGED
60 minute summer	J6	38	55.047	0.403	23.2	7.4604	0.0000	SURCHARGED

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
60 minute summer	S-R7-2	1.001	S-R7-3	14.3	0.986	0.246	0.1590	
60 minute summer	S-R7-3	1.002	S-R7-4	20.8	1.171	0.358	0.3435	
60 minute summer	S-R7-4	1.003	S-R7-6	31.0	1.567	0.459	0.5007	
60 minute summer	S-R7-18	11.000	S-R7-14	10.5	1.188	0.064	0.3064	
60 minute summer	S-R7-6	1.004	S-R7-7	70.5	1.172	0.994	1.8329	
60 minute summer	S-R7-7	1.005	S-R7-8	83.4	1.932	0.465	0.7709	
60 minute summer	S-R7-8	1.006	S-R7-9	80.0	2.038	0.460	1.0146	
60 minute summer	S-R7-9	1.007	S-R7-10	78.0	1.151	0.439	1.6827	
60 minute summer	S-R7-10	1.008	S-R7-12	91.7	1.302	1.296	1.0504	
60 minute summer	J1	2.000	S-R7-4	2.2	0.699	0.116	0.0449	
60 minute summer	S-R7-12	1.009	S-R7-13	103.9	1.475	1.189	1.2137	
60 minute summer	S-R7-13	1.010	S-R7-14	108.5	1.542	1.530	0.8214	
60 minute summer	S-R7-14	1.011	S-R7-15	120.7	1.714	1.705	2.5977	
60 minute summer	J2	3.000	S-R7-6	2.4	0.709	0.103	0.1870	
60 minute summer	S-R7-1	1.000	S-R7-2	14.3	1.123	0.246	0.1661	
60 minute summer	S-R7-11	9.000	S-R7-12	26.5	1.197	0.075	0.5521	
60 minute summer	S-R7-5	4.000_1	S-R7-6	27.2	2.451	0.189	0.1971	
60 minute summer	S-R7-15	1.012	S-R7-HW	136.3	1.936	1.940	1.2497	216.2
60 minute summer	S-R7-16	4.001	S-R7-15	16.3	0.805	0.155	0.1059	
60 minute summer	S-R7-17	4.000	S-R7-16	-2.2	-0.171	-0.039	0.2954	
60 minute summer	J3	5.000	S-R7-7	2.2	0.589	0.149	0.0636	
60 minute summer	J4	6.000	S-R7-8	13.5	0.901	0.935	0.1471	
60 minute summer	J5	7.000	S-R7-9	19.4	1.252	0.469	0.0698	
60 minute summer	J6	8.000	S-R7-10	29.2	1.754	0.606	0.1459	

Results for 30 year Critical Storm Duration. Lowest mass balance: 99.97%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
60 minute summer	J7	35	54.744	0.053	2.4	0.1071	0.0000	OK

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
60 minute summer	J7	10.000	S-R7-13	2.7	1.113	0.042	0.0753	

Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 99.95%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
60 minute summer	S-R7-2	35	56.419	0.237	25.8	0.2682	0.0000	SURCHARGED
60 minute summer	S-R7-3	35	56.390	0.345	38.0	0.3904	0.0000	SURCHARGED
60 minute summer	S-R7-4	38	56.318	0.515	54.1	0.5823	0.0000	SURCHARGED
60 minute summer	S-R7-18	33	55.201	0.051	19.1	0.3597	0.0000	OK
60 minute summer	S-R7-6	38	56.217	0.953	99.4	1.0774	0.0000	SURCHARGED
60 minute summer	S-R7-7	38	56.079	0.937	110.3	1.0601	0.0000	SURCHARGED
60 minute summer	S-R7-8	38	56.007	1.157	110.5	1.3085	0.0000	FLOOD RISK
60 minute summer	S-R7-9	38	55.901	1.401	98.0	2.0050	0.0000	FLOOD RISK
60 minute summer	S-R7-10	38	55.712	1.818	112.6	2.6010	0.0000	FLOOD RISK
60 minute summer	J1	38	56.324	0.289	10.9	3.1773	0.0000	SURCHARGED
60 minute summer	S-R7-12	39	55.514	1.681	124.1	2.4057	0.0000	FLOOD RISK
60 minute summer	S-R7-13	39	55.211	1.485	134.3	2.1247	0.0000	SURCHARGED
60 minute summer	S-R7-14	37	54.966	1.288	145.3	1.8437	0.0000	SURCHARGED
60 minute summer	J2	42	56.195	0.406	15.6	7.7133	0.0000	SURCHARGED
60 minute summer	S-R7-HW	32	53.738	0.284	170.4	0.0000	0.0000	OK
60 minute summer	S-R7-1	33	56.460	0.115	26.0	0.1304	0.0000	OK
60 minute summer	S-R7-11	39	55.521	0.283	48.2	5.6997	0.0000	OK
60 minute summer	S-R7-5	36	56.414	0.099	55.5	9.9960	0.0000	OK
60 minute summer	S-R7-15	34	54.242	0.715	170.4	1.0226	0.0000	SURCHARGED
60 minute summer	S-R7-16	34	54.248	0.538	16.5	0.6085	0.0000	SURCHARGED
60 minute summer	S-R7-17	34	54.248	0.448	2.6	0.5067	0.0000	SURCHARGED
60 minute summer	J3	42	56.057	0.589	17.8	9.5671	0.0000	SURCHARGED
60 minute summer	J4	38	56.015	0.959	29.3	13.2316	0.0000	SURCHARGED
60 minute summer	J5	38	55.901	1.038	33.7	12.2259	0.0000	SURCHARGED
60 minute summer	J6	38	55.713	1.069	34.1	13.9570	0.0000	SURCHARGED

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
60 minute summer	S-R7-2	1.001	S-R7-3	26.1	1.099	0.449	0.4356	
60 minute summer	S-R7-3	1.002	S-R7-4	36.9	1.291	0.634	0.7686	
60 minute summer	S-R7-4	1.003	S-R7-6	43.1	1.565	0.637	0.9541	
60 minute summer	S-R7-18	11.000	S-R7-14	19.1	1.336	0.116	0.3227	
60 minute summer	S-R7-6	1.004	S-R7-7	88.7	1.259	1.250	2.0903	
60 minute summer	S-R7-7	1.005	S-R7-8	97.0	2.005	0.541	0.9580	
60 minute summer	S-R7-8	1.006	S-R7-9	85.3	2.012	0.491	1.0146	
60 minute summer	S-R7-9	1.007	S-R7-10	90.7	1.287	0.511	1.6827	
60 minute summer	S-R7-10	1.008	S-R7-12	107.9	1.533	1.526	1.0504	
60 minute summer	J1	2.000	S-R7-4	10.8	0.686	0.566	0.2448	
60 minute summer	S-R7-12	1.009	S-R7-13	124.3	1.765	1.422	1.2137	
60 minute summer	S-R7-13	1.010	S-R7-14	134.8	1.915	1.900	0.8214	
60 minute summer	S-R7-14	1.011	S-R7-15	145.7	2.069	2.059	2.5977	
60 minute summer	J2	3.000	S-R7-6	17.9	1.018	0.773	0.3924	
60 minute summer	S-R7-1	1.000	S-R7-2	25.8	1.265	0.443	0.3696	
60 minute summer	S-R7-11	9.000	S-R7-12	44.6	1.187	0.126	0.9700	
60 minute summer	S-R7-5	4.000_1	S-R7-6	40.2	2.260	0.280	0.3420	
60 minute summer	S-R7-15	1.012	S-R7-HW	170.4	2.420	2.426	1.2617	393.5
60 minute summer	S-R7-16	4.001	S-R7-15	15.9	0.931	0.151	0.1059	
60 minute summer	S-R7-17	4.000	S-R7-16	-2.6	0.134	-0.046	0.2954	
60 minute summer	J3	5.000	S-R7-7	16.8	0.981	1.164	0.3057	
60 minute summer	J4	6.000	S-R7-8	-24.7	-1.405	-1.707	0.1471	
60 minute summer	J5	7.000	S-R7-9	-29.2	-1.661	-0.706	0.0698	
60 minute summer	J6	8.000	S-R7-10	37.0	2.143	0.769	0.1459	

Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 99.95%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
60 minute summer	J7	39	55.213	0.522	21.2	8.3161	0.0000	SURCHARGED

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
60 minute summer	J7	10.000	S-R7-13	-16.9	1.064	-0.265	0.1142	

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)	9.999
CV	0.950	Preferred Cover Depth (m)	1.250
Time of Entry (mins)	5.00	Include Intermediate Ground	✓
Maximum Time of Concentration (mins)	30.00	Enforce best practice design rules	x
Maximum Rainfall (mm/hr)	550.0		

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
S-R13-1	0.024	5.00	61.432	1200	482682.490	167665.912	1.475
S-R13-2	0.140	5.00	61.319	1200	482664.534	167693.510	1.631
S-R13-3	0.070	5.00	60.997	1200	482655.604	167707.265	1.647
S-R13-26	0.055	5.00	60.567	1350	482625.481	167688.044	1.700
S-R13-27	0.082	5.00	60.365	1200	482602.649	167701.239	1.475
S-R13-28	0.061	5.00	60.206	1500	482601.957	167689.422	2.051
S-R13-20	0.055	5.00	60.425	1200	482599.655	167600.285	1.475
S-R13-21	0.008	5.00	60.453	1200	482606.473	167602.044	1.573
S-R13-22	0.121	5.00	60.610	1200	482633.689	167619.009	1.475
S-R13-23	0.004	5.00	60.716	1200	482617.530	167609.226	2.256
S-R13-24	0.051	5.00	60.207	1350	482601.288	167636.705	1.956
S-R13-25	0.048	5.00	60.056	1350	482599.445	167646.548	1.909
S-R13-29	0.052	5.00	59.968	1500	482599.798	167652.587	2.252
S-R13-30	0.082	5.00	59.817	1500	482545.531	167655.610	2.180
S-R13-31			59.929	1500	482541.843	167663.968	2.307
S-R13-32	0.114	5.00	59.376	1800	482545.518	167725.552	1.973
S-R13-15	0.011	5.00	61.182	1200	482668.730	167771.287	2.908
S-R13-16	0.082	5.00	60.872	1200	482644.530	167770.565	2.748
S-R13-17	0.081	5.00	60.459	1200	482612.532	167769.441	2.610
S-R13-18	0.075	5.00	60.723	1200	482604.241	167728.132	1.400
S-R13-19	0.051	5.00	60.382	1350	482606.330	167766.848	2.627
S-R13-33	0.130	5.00	59.717	1800	482547.712	167766.870	2.417
S-R13-34	0.014	5.00	59.460	1800	482547.289	167779.171	2.240
S-R13-35			59.056	1800	482544.118	167797.758	1.886
S-R13-36	0.015	5.00	58.492	1800	482545.026	167824.049	1.392
S-R13-37		5.00	59.460		482535.440	167670.797	0.455
S-R13-38			59.467		482534.749	167680.727	0.627
S-R13-39			59.201		482537.546	167719.548	0.523
S-R13-40			59.004		482538.298	167731.954	0.485
S-R13-41			59.312		482541.133	167771.668	1.015
S-R13-43			58.725		482536.139	167801.942	0.684
S-R13-44			58.313	1200	482535.475	167814.026	0.493
S-R13-45			58.420	1200	482536.734	167825.000	0.753
S-R13-46	0.028	5.00	58.277	1800	482541.743	167832.752	1.250
S-R13-HW1			58.200		482568.056	167850.638	1.550
S-R13-5	0.030	5.00	62.807	1200	482761.028	167731.034	1.475
S-R13-6	0.005	5.00	63.003	1200	482756.212	167717.267	1.758
S-R13-7	0.065	5.00	63.050	1200	482741.232	167699.436	1.475
S-R13-8			63.024	1200	482750.420	167710.168	1.833
S-R13-9			62.783	1200	482742.955	167715.804	1.652
S-R13-10	0.037	5.00	62.377	1200	482726.663	167725.172	1.357
S-R13-11	0.016	5.00	61.900	1200	482705.747	167732.694	2.500

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
S-R13-12	0.036	5.00	61.557	1200	482689.542	167736.003	2.832
S-R13-13	0.038	5.00	61.629	1200	482690.445	167741.886	2.969
S-R13-47	0.056	5.00	61.961	1200	482771.654	167800.763	1.261
S-R13-48	0.048	5.00	62.561	1200	482766.227	167763.957	1.475
S-R13-49	0.016	5.00	62.407	1200	482767.027	167780.550	1.807
S-R13-50	0.062	5.00	61.691	1200	482717.958	167782.844	1.449
S-R13-51			61.499	1200	482704.600	167782.262	1.389
S-R13-52	0.039	5.00	61.298	1350	482690.995	167782.597	1.248
S-R13-53	0.028	5.00	60.988	1350	482691.042	167800.209	1.238
S-R13-54	0.051	5.00	60.849	1350	482689.944	167807.899	1.349
S-R13-55	0.013	5.00	60.598	1350	482690.124	167822.984	1.698
S-R13-56	0.098	5.00	60.476	1200	482703.334	167841.902	1.246
S-R13-57	0.034	5.00	60.301	1200	482695.628	167836.029	1.281
S-R13-58			60.373	1350	482687.221	167831.758	1.573
S-R13-59	0.035	5.00	60.296	1350	482675.338	167829.966	1.746
S-R13-60	0.034	5.00	59.889	1350	482643.216	167827.982	1.898
S-R13-61	0.090	5.00	59.337	1350	482600.386	167825.133	2.137
S-R13-62	0.102	5.00	58.984	1350	482580.637	167825.847	2.184
S-R13-HW2			58.200		482580.801	167849.375	1.550
S-R13-HW3		5.00	58.200		482563.421	167872.987	1.700
S-R13-64			58.200	1500	482561.362	167879.919	1.749
S-R13-HW4			58.496		482559.664	167885.638	2.095
S-R13-4	0.071	5.00	61.440	1350	482684.397	167726.660	2.450
S-R13-14	0.038	5.00	61.504	1350	482690.838	167770.988	3.019
S-R13-42			59.028		482537.886	167788.284	0.832
S-R13-30A	0.046	5.00	59.563	1200	482544.571	167638.385	1.250

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	S-R13-1	S-R13-2	32.925	0.600	59.957	59.763	0.194	169.7	225	5.32	54.3
1.001	S-R13-2	S-R13-3	16.400	0.600	59.688	59.500	0.188	87.2	300	5.40	54.0
1.002	S-R13-3	S-R13-4	34.716	0.600	59.350	58.990	0.360	96.4	450	5.68	52.9
1.003	S-R13-4	S-R13-12	10.666	0.600	58.990	58.725	0.265	40.2	450	5.73	52.6
2.000	S-R13-5	S-R13-6	14.585	0.600	61.332	61.245	0.087	167.6	225	5.24	54.6
2.001	S-R13-6	S-R13-8	9.162	0.600	61.245	61.191	0.054	169.7	225	5.26	54.5
3.000	S-R13-7	S-R13-8	14.128	0.600	61.575	61.191	0.384	36.8	225	5.24	54.6
2.002	S-R13-8	S-R13-9	9.354	0.600	61.191	61.131	0.060	155.9	225	5.43	53.9

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	1.000	39.8	4.4	1.250	1.331	0.024	0.0	51	0.664
1.001	1.684	119.0	30.3	1.331	1.197	0.163	0.0	103	1.414
1.002	2.070	329.3	42.5	1.197	2.000	0.234	0.0	109	1.446
1.003	3.212	510.8	55.1	2.000	2.382	0.305	0.0	99	2.132
2.000	1.007	40.0	5.6	1.250	1.533	0.030	0.0	57	0.714
2.001	1.001	39.8	6.5	1.533	1.608	0.035	0.0	61	0.740
3.000	2.163	86.0	12.1	1.250	1.608	0.065	0.0	57	1.538
2.002	1.044	41.5	18.4	1.608	1.427	0.099	0.0	105	1.014

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)
2.003	S-R13-9	S-R13-10	18.793	0.600	61.131	61.020	0.111	169.3	225	5.74	52.6
2.004	S-R13-10	S-R13-11	22.227	0.600	61.020	59.400	1.620	13.7	225	6.11	51.2
2.005	S-R13-11	S-R13-12	16.539	0.600	59.400	58.950	0.450	36.8	225	6.39	50.2
1.004	S-R13-12	S-R13-13	5.952	0.600	58.725	58.660	0.065	91.6	450	6.49	49.8
1.005	S-R13-13	S-R13-14	29.105	0.600	58.660	58.485	0.175	166.3	450	6.80	48.7
1.006	S-R13-14	S-R13-15	22.110	0.600	58.485	58.274	0.211	104.8	450	6.98	48.0
1.007	S-R13-15	S-R13-16	24.211	0.600	58.274	58.124	0.150	161.4	450	5.19	54.8
1.008	S-R13-16	S-R13-17	32.018	0.600	58.124	57.849	0.275	116.4	450	5.70	52.8
1.009	S-R13-17	S-R13-19	6.722	0.600	57.849	57.829	0.020	336.1	450	5.71	52.7
4.000	S-R13-18	S-R13-19	38.772	0.600	59.323	58.055	1.268	30.6	225	5.60	53.2
1.010	S-R13-19	S-R13-33	58.618	0.600	57.755	57.525	0.230	254.9	525	6.23	50.7
5.000	S-R13-20	S-R13-21	7.041	0.600	58.950	58.880	0.070	100.6	225	5.12	55.1
5.001	S-R13-21	S-R13-23	13.185	0.600	58.880	58.535	0.345	38.2	225	5.34	54.2
6.000	S-R13-22	S-R13-23	18.890	0.600	59.135	58.535	0.600	31.5	225	5.19	54.8
5.002	S-R13-23	S-R13-24	31.920	0.600	58.460	58.326	0.134	238.2	300	5.80	52.4
5.003	S-R13-24	S-R13-25	10.014	0.600	58.251	58.222	0.029	345.3	375	5.87	52.1
5.004	S-R13-25	S-R13-29	6.049	0.600	58.147	57.941	0.206	29.4	450	5.92	51.9
7.000	S-R13-26	S-R13-28	23.564	0.600	58.867	58.230	0.637	37.0	450	6.13	51.1
8.000	S-R13-27	S-R13-28	11.837	0.600	58.890	58.455	0.435	27.2	225	5.07	55.3
7.001	S-R13-28	S-R13-29	36.898	0.600	58.155	57.866	0.289	127.7	525	6.41	50.1
5.005	S-R13-29	S-R13-30	54.351	0.600	57.716	57.637	0.079	688.0	675	7.29	47.0
9.000	S-R13-30A	S-R13-30	17.252	0.600	58.313	58.012	0.301	57.3	300	5.14	55.0
5.006	S-R13-30	S-R13-31	9.136	0.600	57.637	57.622	0.015	609.1	675	7.35	46.8
5.007	S-R13-31	S-R13-32	61.694	0.600	57.622	57.478	0.144	428.4	675	8.32	43.9

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)
2.003	1.002	39.8	17.9	1.427	1.132	0.099	0.0	106	0.976
2.004	3.551	141.2	23.9	1.132	2.275	0.136	0.0	62	2.653
2.005	2.164	86.1	26.3	2.275	2.382	0.153	0.0	85	1.904
1.004	2.125	337.9	84.4	2.382	2.519	0.493	0.0	152	1.778
1.005	1.573	250.2	88.9	2.519	2.569	0.532	0.0	185	1.445
1.006	1.985	315.8	93.9	2.569	2.458	0.570	0.0	167	1.740
1.007	1.597	254.0	109.3	2.458	2.298	0.581	0.0	206	1.540
1.008	1.883	299.5	120.1	2.298	2.160	0.663	0.0	198	1.785
1.009	1.103	175.4	134.6	2.160	2.103	0.744	0.0	297	1.211
4.000	2.374	94.4	13.7	1.175	2.102	0.075	0.0	58	1.702
1.010	1.398	302.7	151.4	2.102	1.667	0.870	0.0	263	1.399
5.000	1.303	51.8	10.4	1.250	1.348	0.055	0.0	68	1.023
5.001	2.122	84.4	11.8	1.348	1.956	0.064	0.0	57	1.508
6.000	2.340	93.0	22.8	1.250	1.956	0.121	0.0	76	1.948
5.002	1.014	71.7	33.9	1.956	1.581	0.188	0.0	145	1.000
5.003	0.969	107.0	42.9	1.581	1.459	0.240	0.0	165	0.918
5.004	3.762	598.3	51.2	1.459	1.577	0.288	0.0	88	2.343
7.000	3.350	532.9	9.6	1.250	1.526	0.055	0.0	42	1.326
8.000	2.518	100.1	15.5	1.250	1.526	0.082	0.0	59	1.836
7.001	1.981	428.7	34.1	1.526	1.577	0.198	0.0	99	1.203
5.005	0.991	354.8	86.7	1.577	1.505	0.537	0.0	226	0.825
9.000	2.080	147.1	8.6	0.950	1.505	0.046	0.0	49	1.152
5.006	1.054	377.3	106.9	1.505	1.632	0.665	0.0	245	0.913
5.007	1.260	450.7	100.2	1.632	1.223	0.665	0.0	215	1.023

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)
5.008	S-R13-32	S-R13-33	41.376	0.600	57.403	57.300	0.103	401.7	750	9.06	41.9
1.011	S-R13-33	S-R13-34	12.308	0.600	57.300	57.220	0.080	153.9	750	9.10	41.8
1.012	S-R13-34	S-R13-35	18.856	0.600	57.220	57.170	0.050	377.1	750	9.35	41.4
1.013	S-R13-35	S-R13-36	26.307	0.600	57.170	57.100	0.070	375.8	750	9.63	40.5
1.014	S-R13-36	S-R13-46	9.302	0.600	57.100	57.027	0.073	127.4	750	9.73	40.3
10.000	S-R13-37	S-R13-38	9.962	0.600	59.005	58.840	0.165	60.4	500	5.04	55.3
10.001	S-R13-38	S-R13-39	38.927	0.600	58.840	58.678	0.162	240.3	500	5.32	54.2
10.002	S-R13-39	S-R13-40	12.441	0.600	58.678	58.519	0.159	78.2	500	5.37	54.1
10.003	S-R13-40	S-R13-41	39.815	0.600	58.519	58.297	0.222	179.3	225	6.06	51.4
10.004	S-R13-41	S-R13-42	16.936	0.600	58.297	58.196	0.101	167.7	500	6.16	51.0
10.005	S-R13-42	S-R13-43	13.773	0.600	58.196	58.041	0.155	88.9	500	6.22	50.4
10.006	S-R13-43	S-R13-44	12.102	0.600	58.041	57.820	0.221	54.8	500	6.26	50.3
10.007	S-R13-44	S-R13-45	11.046	0.600	57.820	57.667	0.153	72.2	150	6.57	49.5
10.008	S-R13-45	S-R13-46	9.229	0.600	57.667	57.627	0.040	230.7	150	6.62	49.3
1.015	S-R13-46	S-R13-HW1	31.816	0.600	57.027	56.650	0.377	84.4	750	10.25	39.1
11.000	S-R13-47	S-R13-49	20.736	0.600	60.700	60.600	0.100	207.4	300	5.34	54.2
12.000_1	S-R13-48	S-R13-49	16.612	0.600	61.086	60.675	0.411	40.4	225	5.22	54.7
11.001	S-R13-49	S-R13-50	49.123	0.600	60.600	60.242	0.358	137.2	300	5.99	51.6
11.002	S-R13-50	S-R13-51	13.371	0.600	60.242	60.185	0.057	234.6	300	6.10	51.2
11.003	S-R13-51	S-R13-52	13.609	0.600	60.110	60.050	0.060	226.8	375	6.14	51.1
11.004	S-R13-52	S-R13-53	17.612	0.600	60.050	59.750	0.300	58.7	375	7.46	46.5
11.005	S-R13-53	S-R13-54	7.768	0.600	59.750	59.500	0.250	31.1	375	7.59	46.1
11.006	S-R13-54	S-R13-55	15.086	0.600	59.500	58.900	0.600	25.1	375	7.84	45.3
11.007	S-R13-55	S-R13-58	9.242	0.600	58.900	58.800	0.100	92.4	375	7.99	44.8

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)
5.008	1.390	614.0	112.1	1.223	1.667	0.779	0.0	215	1.069
1.011	2.253	995.5	255.3	1.667	1.490	1.779	0.0	257	1.902
1.012	1.435	633.8	254.8	1.490	1.136	1.792	0.0	330	1.360
1.013	1.437	635.0	249.2	1.136	0.642	1.792	0.0	326	1.354
1.014	2.477	1094.5	250.1	0.642	0.500	1.807	0.0	242	2.028
10.000	4.547	4547.5	1.0	-0.045	0.127	0.005	0.0	5	0.334
10.001	2.273	2273.0	1.0	0.127	0.023	0.005	0.0	8	0.221
10.002	3.993	3993.0	3.6	0.023	-0.015	0.019	0.0	12	0.509
10.003	0.973	38.7	3.7	0.260	0.790	0.021	0.0	46	0.612
10.004	2.723	2723.5	4.4	0.515	0.332	0.025	0.0	18	0.442
10.005	3.746	3746.2	4.4	0.332	0.184	0.025	0.0	15	0.548
10.006	4.776	4775.6	6.0	0.184	-0.007	0.035	0.0	15	0.701
10.007	1.185	20.9	5.9	0.343	0.603	0.035	0.0	55	1.023
10.008	0.657	11.6	5.9	0.603	0.500	0.035	0.0	76	0.660
1.015	3.047	1346.2	251.0	0.500	0.800	1.870	0.0	217	2.360
11.000	1.088	76.9	10.4	0.961	1.507	0.056	0.0	74	0.765
12.000_1	2.063	82.0	9.0	1.250	1.507	0.048	0.0	50	1.360
11.001	1.340	94.7	21.3	1.507	1.149	0.120	0.0	96	1.088
11.002	1.022	72.2	32.0	1.149	1.014	0.182	0.0	140	0.992
11.003	1.199	132.4	31.9	1.014	0.873	0.182	0.0	125	0.992
11.004	2.368	261.6	35.3	0.873	0.863	0.221	0.0	93	1.674
11.005	3.260	360.1	39.4	0.863	0.974	0.249	0.0	83	2.170
11.006	3.626	400.4	46.6	0.974	1.323	0.300	0.0	85	2.450
11.007	1.885	208.2	48.1	1.323	1.198	0.313	0.0	122	1.543

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)
12.000	S-R13-56	S-R13-57	9.689	0.600	59.230	59.170	0.060	161.5	225	5.16	54.9
13.001	S-R13-57	S-R13-58	9.430	0.600	59.020	58.800	0.220	42.9	375	5.25	54.6
11.008	S-R13-58	S-R13-59	12.017	0.600	58.800	58.550	0.250	48.1	375	8.19	44.2
11.009	S-R13-59	S-R13-60	32.183	0.600	58.550	57.991	0.559	57.6	375	8.72	42.8
11.010	S-R13-60	S-R13-61	42.925	0.600	57.991	57.275	0.716	60.0	375	9.43	41.0
11.011	S-R13-61	S-R13-62	19.762	0.600	57.200	56.800	0.400	49.4	450	9.53	40.7
11.012	S-R13-62	S-R13-HW2	23.529	0.600	56.800	56.650	0.150	156.9	450	9.69	40.4
14.000	S-R13-HW3	S-R13-64	7.231	0.600	56.500	56.451	0.049	147.6	225	5.14	55.0
14.001	S-R13-64	S-R13-HW4	5.966	0.600	56.451	56.401	0.050	119.3	225	5.28	54.5

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)
12.000	1.026	40.8	18.5	1.021	0.906	0.098	0.0	106	1.000
13.001	2.774	306.4	24.7	0.906	1.198	0.132	0.0	71	1.692
11.008	2.619	289.2	67.5	1.198	1.371	0.445	0.0	123	2.151
11.009	2.392	264.1	70.5	1.371	1.523	0.480	0.0	131	2.034
11.010	2.343	258.8	72.4	1.523	1.687	0.514	0.0	135	2.021
11.011	2.897	460.8	84.4	1.687	1.734	0.604	0.0	130	2.230
11.012	1.620	257.7	98.0	1.734	1.100	0.706	0.0	192	1.514
14.000	1.074	42.7	0.0	1.475	1.524	0.000	0.0	0	0.000
14.001	1.196	47.5	0.0	1.524	1.870	0.000	0.0	0	0.000

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	32.925	169.7	225	ADOPTABLE	61.432	59.957	1.250	61.319	59.763	1.331
1.001	16.400	87.2	300	ADOPTABLE	61.319	59.688	1.331	60.997	59.500	1.197
1.002	34.716	96.4	450	ADOPTABLE	60.997	59.350	1.197	61.440	58.990	2.000
1.003	10.666	40.2	450	ADOPTABLE	61.440	58.990	2.000	61.557	58.725	2.382
2.000	14.585	167.6	225	ADOPTABLE	62.807	61.332	1.250	63.003	61.245	1.533
2.001	9.162	169.7	225	ADOPTABLE	63.003	61.245	1.533	63.024	61.191	1.608
3.000	14.128	36.8	225	ADOPTABLE	63.050	61.575	1.250	63.024	61.191	1.608
2.002	9.354	155.9	225	ADOPTABLE	63.024	61.191	1.608	62.783	61.131	1.427
2.003	18.793	169.3	225	ADOPTABLE	62.783	61.131	1.427	62.377	61.020	1.132
2.004	22.227	13.7	225	ADOPTABLE	62.377	61.020	1.132	61.900	59.400	2.275
2.005	16.539	36.8	225	ADOPTABLE	61.900	59.400	2.275	61.557	58.950	2.382

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
1.000	S-R13-1	1200	Manhole	Adoptable	S-R13-2	1200	Manhole	Adoptable
1.001	S-R13-2	1200	Manhole	Adoptable	S-R13-3	1200	Manhole	Adoptable
1.002	S-R13-3	1200	Manhole	Adoptable	S-R13-4	1350	Manhole	Adoptable
1.003	S-R13-4	1350	Manhole	Adoptable	S-R13-12	1200	Manhole	Adoptable
2.000	S-R13-5	1200	Manhole	Adoptable	S-R13-6	1200	Manhole	Adoptable
2.001	S-R13-6	1200	Manhole	Adoptable	S-R13-8	1200	Manhole	Adoptable
3.000	S-R13-7	1200	Manhole	Adoptable	S-R13-8	1200	Manhole	Adoptable
2.002	S-R13-8	1200	Manhole	Adoptable	S-R13-9	1200	Manhole	Adoptable
2.003	S-R13-9	1200	Manhole	Adoptable	S-R13-10	1200	Manhole	Adoptable
2.004	S-R13-10	1200	Manhole	Adoptable	S-R13-11	1200	Manhole	Adoptable
2.005	S-R13-11	1200	Manhole	Adoptable	S-R13-12	1200	Manhole	Adoptable

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)
1.004	5.952	91.6	450	ADOPTABLE	61.557	58.725	2.382	61.629	58.660	2.519
1.005	29.105	166.3	450	ADOPTABLE	61.629	58.660	2.519	61.504	58.485	2.569
1.006	22.110	104.8	450	ADOPTABLE	61.504	58.485	2.569	61.182	58.274	2.458
1.007	24.211	161.4	450	ADOPTABLE	61.182	58.274	2.458	60.872	58.124	2.298
1.008	32.018	116.4	450	ADOPTABLE	60.872	58.124	2.298	60.459	57.849	2.160
1.009	6.722	336.1	450	ADOPTABLE	60.459	57.849	2.160	60.382	57.829	2.103
4.000	38.772	30.6	225	ADOPTABLE	60.723	59.323	1.175	60.382	58.055	2.102
1.010	58.618	254.9	525	ADOPTABLE	60.382	57.755	2.102	59.717	57.525	1.667
5.000	7.041	100.6	225	ADOPTABLE	60.425	58.950	1.250	60.453	58.880	1.348
5.001	13.185	38.2	225	ADOPTABLE	60.453	58.880	1.348	60.716	58.535	1.956
6.000	18.890	31.5	225	ADOPTABLE	60.610	59.135	1.250	60.716	58.535	1.956
5.002	31.920	238.2	300	ADOPTABLE	60.716	58.460	1.956	60.207	58.326	1.581
5.003	10.014	345.3	375	ADOPTABLE	60.207	58.251	1.581	60.056	58.222	1.459
5.004	6.049	29.4	450	ADOPTABLE	60.056	58.147	1.459	59.968	57.941	1.577
7.000	23.564	37.0	450	ADOPTABLE	60.567	58.867	1.250	60.206	58.230	1.526
8.000	11.837	27.2	225	ADOPTABLE	60.365	58.890	1.250	60.206	58.455	1.526
7.001	36.898	127.7	525	ADOPTABLE	60.206	58.155	1.526	59.968	57.866	1.577
5.005	54.351	688.0	675	ADOPTABLE	59.968	57.716	1.577	59.817	57.637	1.505
9.000	17.252	57.3	300	ADOPTABLE	59.563	58.313	0.950	59.817	58.012	1.505
5.006	9.136	609.1	675	ADOPTABLE	59.817	57.637	1.505	59.929	57.622	1.632
5.007	61.694	428.4	675	ADOPTABLE	59.929	57.622	1.632	59.376	57.478	1.223
5.008	41.376	401.7	750	ADOPTABLE	59.376	57.403	1.223	59.717	57.300	1.667
1.011	12.308	153.9	750	ADOPTABLE	59.717	57.300	1.667	59.460	57.220	1.490
1.012	18.856	377.1	750	ADOPTABLE	59.460	57.220	1.490	59.056	57.170	1.136
1.013	26.307	375.8	750	ADOPTABLE	59.056	57.170	1.136	58.492	57.100	0.642

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
1.004	S-R13-12	1200	Manhole	Adoptable	S-R13-13	1200	Manhole	Adoptable
1.005	S-R13-13	1200	Manhole	Adoptable	S-R13-14	1350	Manhole	Adoptable
1.006	S-R13-14	1350	Manhole	Adoptable	S-R13-15	1200	Manhole	Adoptable
1.007	S-R13-15	1200	Manhole	Adoptable	S-R13-16	1200	Manhole	Adoptable
1.008	S-R13-16	1200	Manhole	Adoptable	S-R13-17	1200	Manhole	Adoptable
1.009	S-R13-17	1200	Manhole	Adoptable	S-R13-19	1350	Manhole	Adoptable
4.000	S-R13-18	1200	Manhole	Adoptable	S-R13-19	1350	Manhole	Adoptable
1.010	S-R13-19	1350	Manhole	Adoptable	S-R13-33	1800	Manhole	Adoptable
5.000	S-R13-20	1200	Manhole	Adoptable	S-R13-21	1200	Manhole	Adoptable
5.001	S-R13-21	1200	Manhole	Adoptable	S-R13-23	1200	Manhole	Adoptable
6.000	S-R13-22	1200	Manhole	Adoptable	S-R13-23	1200	Manhole	Adoptable
5.002	S-R13-23	1200	Manhole	Adoptable	S-R13-24	1350	Manhole	Adoptable
5.003	S-R13-24	1350	Manhole	Adoptable	S-R13-25	1350	Manhole	Adoptable
5.004	S-R13-25	1350	Manhole	Adoptable	S-R13-29	1500	Manhole	Adoptable
7.000	S-R13-26	1350	Manhole	Adoptable	S-R13-28	1500	Manhole	Adoptable
8.000	S-R13-27	1200	Manhole	Adoptable	S-R13-28	1500	Manhole	Adoptable
7.001	S-R13-28	1500	Manhole	Adoptable	S-R13-29	1500	Manhole	Adoptable
5.005	S-R13-29	1500	Manhole	Adoptable	S-R13-30	1500	Manhole	Adoptable
9.000	S-R13-30A	1200	Manhole	Adoptable	S-R13-30	1500	Manhole	Adoptable
5.006	S-R13-30	1500	Manhole	Adoptable	S-R13-31	1500	Manhole	Adoptable
5.007	S-R13-31	1500	Manhole	Adoptable	S-R13-32	1800	Manhole	Adoptable
5.008	S-R13-32	1800	Manhole	Adoptable	S-R13-33	1800	Manhole	Adoptable
1.011	S-R13-33	1800	Manhole	Adoptable	S-R13-34	1800	Manhole	Adoptable
1.012	S-R13-34	1800	Manhole	Adoptable	S-R13-35	1800	Manhole	Adoptable
1.013	S-R13-35	1800	Manhole	Adoptable	S-R13-36	1800	Manhole	Adoptable

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)
1.014	9.302	127.4	750	ADOPTABLE	58.492	57.100	0.642	58.277	57.027	0.500
10.000	9.962	60.4	500	DRY SWALE	59.460	59.005	-0.045	59.467	58.840	0.127
10.001	38.927	240.3	500	DRY SWALE	59.467	58.840	0.127	59.201	58.678	0.023
10.002	12.441	78.2	500	DRY SWALE	59.201	58.678	0.023	59.004	58.519	-0.015
10.003	39.815	179.3	225	ADOPTABLE	59.004	58.519	0.260	59.312	58.297	0.790
10.004	16.936	167.7	500	DRY SWALE	59.312	58.297	0.515	59.028	58.196	0.332
10.005	13.773	88.9	500	DRY SWALE	59.028	58.196	0.332	58.725	58.041	0.184
10.006	12.102	54.8	500	DRY SWALE	58.725	58.041	0.184	58.313	57.820	-0.007
10.007	11.046	72.2	150	ADOPTABLE	58.313	57.820	0.343	58.420	57.667	0.603
10.008	9.229	230.7	150	ADOPTABLE	58.420	57.667	0.603	58.277	57.627	0.500
1.015	31.816	84.4	750	ADOPTABLE	58.277	57.027	0.500	58.200	56.650	0.800
11.000	20.736	207.4	300	ADOPTABLE	61.961	60.700	0.961	62.407	60.600	1.507
12.000_1	16.612	40.4	225	ADOPTABLE	62.561	61.086	1.250	62.407	60.675	1.507
11.001	49.123	137.2	300	ADOPTABLE	62.407	60.600	1.507	61.691	60.242	1.149
11.002	13.371	234.6	300	ADOPTABLE	61.691	60.242	1.149	61.499	60.185	1.014
11.003	13.609	226.8	375	ADOPTABLE	61.499	60.110	1.014	61.298	60.050	0.873
11.004	17.612	58.7	375	ADOPTABLE	61.298	60.050	0.873	60.988	59.750	0.863
11.005	7.768	31.1	375	ADOPTABLE	60.988	59.750	0.863	60.849	59.500	0.974
11.006	15.086	25.1	375	ADOPTABLE	60.849	59.500	0.974	60.598	58.900	1.323
11.007	9.242	92.4	375	ADOPTABLE	60.598	58.900	1.323	60.373	58.800	1.198
12.000	9.689	161.5	225	ADOPTABLE	60.476	59.230	1.021	60.301	59.170	0.906
13.001	9.430	42.9	375	ADOPTABLE	60.301	59.020	0.906	60.373	58.800	1.198
11.008	12.017	48.1	375	ADOPTABLE	60.373	58.800	1.198	60.296	58.550	1.371
11.009	32.183	57.6	375	ADOPTABLE	60.296	58.550	1.371	59.889	57.991	1.523
11.010	42.925	60.0	375	ADOPTABLE	59.889	57.991	1.523	59.337	57.275	1.687

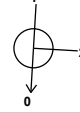
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1.014	S-R13-36	1800	Manhole	Adoptable	S-R13-46	1800	Manhole	Adoptable
10.000	S-R13-37		Junction		S-R13-38		Junction	
10.001	S-R13-38		Junction		S-R13-39		Junction	
10.002	S-R13-39		Junction		S-R13-40		Junction	
10.003	S-R13-40		Junction		S-R13-41		Junction	
10.004	S-R13-41		Junction		S-R13-42		Junction	
10.005	S-R13-42		Junction		S-R13-43		Junction	
10.006	S-R13-43		Junction		S-R13-44	1200	Manhole	Adoptable
10.007	S-R13-44	1200	Manhole	Adoptable	S-R13-45	1200	Manhole	Adoptable
10.008	S-R13-45	1200	Manhole	Adoptable	S-R13-46	1800	Manhole	Adoptable
1.015	S-R13-46	1800	Manhole	Adoptable	S-R13-HW1		Junction	
11.000	S-R13-47	1200	Manhole	Adoptable	S-R13-49	1200	Manhole	Adoptable
12.000_1	S-R13-48	1200	Manhole	Adoptable	S-R13-49	1200	Manhole	Adoptable
11.001	S-R13-49	1200	Manhole	Adoptable	S-R13-50	1200	Manhole	Adoptable
11.002	S-R13-50	1200	Manhole	Adoptable	S-R13-51	1200	Manhole	Adoptable
11.003	S-R13-51	1200	Manhole	Adoptable	S-R13-52	1350	Manhole	Adoptable
11.004	S-R13-52	1350	Manhole	Adoptable	S-R13-53	1350	Manhole	Adoptable
11.005	S-R13-53	1350	Manhole	Adoptable	S-R13-54	1350	Manhole	Adoptable
11.006	S-R13-54	1350	Manhole	Adoptable	S-R13-55	1350	Manhole	Adoptable
11.007	S-R13-55	1350	Manhole	Adoptable	S-R13-58	1350	Manhole	Adoptable
12.000	S-R13-56	1200	Manhole	Adoptable	S-R13-57	1200	Manhole	Adoptable
13.001	S-R13-57	1200	Manhole	Adoptable	S-R13-58	1350	Manhole	Adoptable
11.008	S-R13-58	1350	Manhole	Adoptable	S-R13-59	1350	Manhole	Adoptable
11.009	S-R13-59	1350	Manhole	Adoptable	S-R13-60	1350	Manhole	Adoptable
11.010	S-R13-60	1350	Manhole	Adoptable	S-R13-61	1350	Manhole	Adoptable

Pipeline Schedule

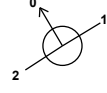
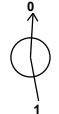
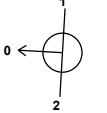
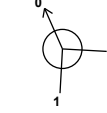
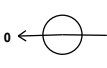
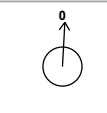
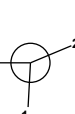
Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
11.011	19.762	49.4	450	ADOPTABLE	59.337	57.200	1.687	58.984	56.800	1.734
11.012	23.529	156.9	450	ADOPTABLE	58.984	56.800	1.734	58.200	56.650	1.100
14.000	7.231	147.6	225	ADOPTABLE	58.200	56.500	1.475	58.200	56.451	1.524
14.001	5.966	119.3	225	ADOPTABLE	58.200	56.451	1.524	58.496	56.401	1.870

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
11.011	S-R13-61	1350	Manhole	Adoptable	S-R13-62	1350	Manhole	Adoptable
11.012	S-R13-62	1350	Manhole	Adoptable	S-R13-HW2		Junction	
14.000	S-R13-HW3		Junction		S-R13-64	1500	Manhole	Adoptable
14.001	S-R13-64	1500	Manhole	Adoptable	S-R13-HW4		Junction	

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
S-R13-1	482682.490	167665.912	61.432	1.475	1200				
						0	1.000	59.957	225
S-R13-2	482664.534	167693.510	61.319	1.631	1200				
						0	1.001	59.688	300
S-R13-3	482655.604	167707.265	60.997	1.647	1200				
						0	1.002	59.350	450
S-R13-26	482625.481	167688.044	60.567	1.700	1350				
						0	7.000	58.867	450
S-R13-27	482602.649	167701.239	60.365	1.475	1200				
						0	8.000	58.890	225
S-R13-28	482601.957	167689.422	60.206	2.051	1500				
						1	8.000	58.455	225
						2	7.000	58.230	450
						0	7.001	58.155	525
S-R13-20	482599.655	167600.285	60.425	1.475	1200				
						0	5.000	58.950	225
S-R13-21	482606.473	167602.044	60.453	1.573	1200				
						1	5.000	58.880	225
						0	5.001	58.880	225
S-R13-22	482633.689	167619.009	60.610	1.475	1200				
						0	6.000	59.135	225

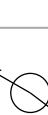
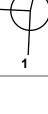
Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)	
S-R13-23	482617.530	167609.226	60.716	2.256	1200		1	6.000	58.535	225
							2	5.001	58.535	225
							0	5.002	58.460	300
S-R13-24	482601.288	167636.705	60.207	1.956	1350		1	5.002	58.326	300
					0		5.003	58.251	375	
S-R13-25	482599.445	167646.548	60.056	1.909	1350		1	5.003	58.222	375
					0		5.004	58.147	450	
S-R13-29	482599.798	167652.587	59.968	2.252	1500		1	7.001	57.866	525
							2	5.004	57.941	450
							0	5.005	57.716	675
S-R13-30	482545.531	167655.610	59.817	2.180	1500		1	9.000	58.012	300
							2	5.005	57.637	675
							0	5.006	57.637	675
S-R13-31	482541.843	167663.968	59.929	2.307	1500		1	5.006	57.622	675
							0	5.007	57.622	675
S-R13-32	482545.518	167725.552	59.376	1.973	1800		1	5.007	57.478	675
					0		5.008	57.403	750	
S-R13-15	482668.730	167771.287	61.182	2.908	1200		1	1.006	58.274	450
					0		1.007	58.274	450	
S-R13-16	482644.530	167770.565	60.872	2.748	1200		1	1.007	58.124	450
					0		1.008	58.124	450	
S-R13-17	482612.532	167769.441	60.459	2.610	1200		1	1.008	57.849	450
					0		1.009	57.849	450	
S-R13-18	482604.241	167728.132	60.723	1.400	1200					
					0		4.000	59.323	225	
S-R13-19	482606.330	167766.848	60.382	2.627	1350		1	4.000	58.055	225
					2		1.009	57.829	450	
					0		1.010	57.755	525	
S-R13-33	482547.712	167766.870	59.717	2.417	1800		1	5.008	57.300	750
							2	1.010	57.525	525

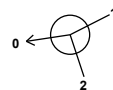
Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
S-R13-34	482547.289	167779.171	59.460	2.240	1800		1.011	57.220	750
S-R13-35	482544.118	167797.758	59.056	1.886	1800		1.012	57.220	750
S-R13-36	482545.026	167824.049	58.492	1.392	1800		1.013	57.170	750
S-R13-37	482535.440	167670.797	59.460	0.455			1.014	57.100	750
S-R13-38	482534.749	167680.727	59.467	0.627			10.000	59.005	500
S-R13-39	482537.546	167719.548	59.201	0.523			10.001	58.840	500
S-R13-40	482538.298	167731.954	59.004	0.485			10.002	58.678	500
S-R13-41	482541.133	167771.668	59.312	1.015			10.003	58.519	225
S-R13-43	482536.139	167801.942	58.725	0.684			10.004	58.297	500
S-R13-44	482535.475	167814.026	58.313	0.493	1200		10.005	58.041	500
S-R13-45	482536.734	167825.000	58.420	0.753	1200		10.006	57.820	150
S-R13-46	482541.743	167832.752	58.277	1.250	1800		10.007	57.667	150
S-R13-HW1	482568.056	167850.638	58.200	1.550			1.015	57.627	750

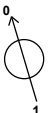
Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)	
S-R13-5	482761.028	167731.034	62.807	1.475	1200	 0	0	2.000	61.332	225
S-R13-6	482756.212	167717.267	63.003	1.758	1200	 0	1 0	2.000 2.001	61.245 61.245	225 225
S-R13-7	482741.232	167699.436	63.050	1.475	1200	 0	0	3.000	61.575	225
S-R13-8	482750.420	167710.168	63.024	1.833	1200	 0	1 2 0	3.000 2.001 2.002	61.191 61.191 61.191	225 225 225
S-R13-9	482742.955	167715.804	62.783	1.652	1200	 0	1 0	2.002 2.003	61.131 61.131	225 225
S-R13-10	482726.663	167725.172	62.377	1.357	1200	 0	1 0	2.003 2.004	61.020 61.020	225 225
S-R13-11	482705.747	167732.694	61.900	2.500	1200	 0	1 0	2.004 2.005	59.400 59.400	225 225
S-R13-12	482689.542	167736.003	61.557	2.832	1200	 0	1 2 0	2.005 1.003 1.004	58.950 58.725 58.725	225 450 450
S-R13-13	482690.445	167741.886	61.629	2.969	1200	 0	1 0	1.004 1.005	58.660 58.660	450 450
S-R13-47	482771.654	167800.763	61.961	1.261	1200	 0	0	11.000	60.700	300
S-R13-48	482766.227	167763.957	62.561	1.475	1200	 0	0	12.000_1	61.086	225
S-R13-49	482767.027	167780.550	62.407	1.807	1200	 0	1 2 0	12.000_1 11.000 11.001	60.675 60.600 60.600	225 300 300
S-R13-50	482717.958	167782.844	61.691	1.449	1200	 0	1 0	11.001 11.002	60.242 60.242	300 300

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
S-R13-51	482704.600	167782.262	61.499	1.389	1200		1 11.002	60.185	300
S-R13-52	482690.995	167782.597	61.298	1.248	1350		0 11.003	60.110	375
							0 11.004	60.050	375
S-R13-53	482691.042	167800.209	60.988	1.238	1350		1 11.004	59.750	375
S-R13-54	482689.944	167807.899	60.849	1.349	1350		0 11.005	59.750	375
							1 11.005	59.500	375
S-R13-55	482690.124	167822.984	60.598	1.698	1350		1 11.006	59.500	375
S-R13-56	482703.334	167841.902	60.476	1.246	1200		0 12.000	59.230	225
							1 12.000	59.170	225
S-R13-57	482695.628	167836.029	60.301	1.281	1200		0 13.001	59.020	375
S-R13-58	482687.221	167831.758	60.373	1.573	1350		1 13.001	58.800	375
							2 11.007	58.800	375
S-R13-59	482675.338	167829.966	60.296	1.746	1350		0 11.008	58.800	375
S-R13-60	482643.216	167827.982	59.889	1.898	1350		1 11.008	58.550	375
							0 11.009	58.550	375
S-R13-61	482600.386	167825.133	59.889	1.898	1350		1 11.009	57.991	375
S-R13-62	482580.637	167825.847	58.984	2.184	1350		0 11.010	57.991	375
							1 11.010	57.275	375
S-R13-62	482580.637	167825.847	58.984	2.184	1350		0 11.011	57.200	450
S-R13-HW2	482580.801	167849.375	58.200	1.550			1 11.011	56.800	450
							0 11.012	56.800	450
S-R13-HW2	482580.801	167849.375	58.200	1.550			1 11.012	56.650	450

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
S-R13-HW3	482563.421	167872.987	58.200	1.700					
						0	14.000	56.500	225
S-R13-64	482561.362	167879.919	58.200	1.749	1500		1	14.000	56.451
						0	14.001	56.451	225
S-R13-HW4	482559.664	167885.638	58.496	2.095			1	14.001	56.401
						0	1.002	58.990	450
S-R13-4	482684.397	167726.660	61.440	2.450	1350		1	1.003	58.990
						0	1.005	58.485	450
S-R13-14	482690.838	167770.988	61.504	3.019	1350		1	1.006	58.485
						0	10.004	58.196	500
S-R13-42	482537.886	167788.284	59.028	0.832			0	10.005	58.196
						0	9.000	58.313	300
S-R13-30A	482544.571	167638.385	59.563	1.250	1200				

Simulation Settings

Rainfall Methodology	FEH-22	Analysis Speed	Normal	Starting Level (m)	
Rainfall Events	Singular	Skip Steady State	x	Check Discharge Rate(s)	x
Summer CV	0.950	Drain Down Time (mins)	240	Check Discharge Volume	x
Winter CV	0.950	Additional Storage (m³/ha)	0.0		

Storm Durations

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	40	0	0

Node S-R13-HW2 Online Orifice Control

Flap Valve	x	Invert Level (m)	56.650	Discharge Coefficient	0.600
Replaces Downstream Link	x	Diameter (m)	0.450		

Node S-R13-HW1 Online Orifice Control

Flap Valve	x	Invert Level (m)	56.650	Discharge Coefficient	0.600
Replaces Downstream Link	x	Diameter (m)	0.750		

Node S-R13-64 Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	x	Sump Available	✓
Invert Level (m)	56.451	Product Number	CTL-SHE-0163-1400-1443-1400
Design Depth (m)	1.443	Min Outlet Diameter (m)	0.225
Design Flow (l/s)	14.0	Min Node Diameter (mm)	1500

Node S-R13-HW3 Flow through Pond Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Main Channel Length (m)	29.194
Side Inf Coefficient (m/hr)	0.00000	Invert Level (m)	56.500	Main Channel Slope (1:X)	195.0
Safety Factor	2.0	Time to half empty (mins)		Main Channel n	0.035

Inlets

S-R13-HW2	S-R13-HW1
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Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	1573.9	1573.9	1.700	3086.1	3991.6

Node Carpark 1 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	0.000	Slope (1:X)	500.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)		Depth (m)	0.710
Safety Factor	2.0	Width (m)	12.990	Inf Depth (m)	
Porosity	1.00	Length (m)	31.335		

Node Carpark 2 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	0.000	Slope (1:X)	500.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)		Depth (m)	0.710
Safety Factor	2.0	Width (m)	4.525	Inf Depth (m)	
Porosity	1.00	Length (m)	73.905		

Results for 2 year Critical Storm Duration. Lowest mass balance: 99.46%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
60 minute summer	S-R13-1	33	59.996	0.039	2.6	0.0441	0.0000	OK
60 minute summer	S-R13-2	33	59.770	0.082	18.0	0.0932	0.0000	OK
60 minute summer	S-R13-3	33	59.437	0.087	25.7	0.0986	0.0000	OK
60 minute summer	S-R13-26	33	58.901	0.034	6.1	0.0489	0.0000	OK
60 minute summer	S-R13-27	33	58.937	0.047	9.0	0.0536	0.0000	OK
60 minute summer	S-R13-28	33	58.236	0.081	21.9	0.1438	0.0000	OK
60 minute summer	S-R13-20	33	59.006	0.056	6.1	0.0628	0.0000	OK
60 minute summer	S-R13-21	33	58.925	0.045	7.0	0.0511	0.0000	OK
60 minute summer	S-R13-22	33	59.194	0.059	13.3	0.0671	0.0000	OK
60 minute summer	S-R13-23	33	58.573	0.113	20.7	0.1281	0.0000	OK
60 minute summer	S-R13-24	33	58.383	0.132	26.3	0.1894	0.0000	OK
60 minute summer	S-R13-25	33	58.226	0.079	31.6	0.1126	0.0000	OK
60 minute summer	S-R13-29	34	57.905	0.189	59.0	0.3343	0.0000	OK
60 minute summer	S-R13-30	34	57.842	0.205	72.2	0.3627	0.0000	OK
60 minute summer	S-R13-31	35	57.805	0.183	71.5	0.3237	0.0000	OK
60 minute summer	S-R13-32	35	57.606	0.203	81.7	0.5161	0.0000	OK
60 minute summer	S-R13-15	34	58.436	0.162	63.3	0.1832	0.0000	OK
60 minute summer	S-R13-16	34	58.278	0.154	72.1	0.1742	0.0000	OK
60 minute summer	S-R13-17	34	58.078	0.229	80.7	0.2585	0.0000	OK
60 minute summer	S-R13-18	33	59.369	0.046	8.3	0.0515	0.0000	OK
60 minute summer	S-R13-19	34	57.960	0.205	93.9	0.2929	0.0000	OK
60 minute summer	S-R13-33	35	57.582	0.282	186.9	0.7169	0.0000	OK
60 minute summer	S-R13-34	35	57.527	0.307	188.2	0.7819	0.0000	OK
60 minute summer	S-R13-35	35	57.452	0.282	187.9	0.7178	0.0000	OK
60 minute summer	S-R13-36	36	57.341	0.241	188.5	0.6136	0.0000	OK

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
60 minute summer	S-R13-1	1.000	S-R13-2	2.6	0.565	0.064	0.1494	
60 minute summer	S-R13-2	1.001	S-R13-3	17.9	1.188	0.151	0.2479	
60 minute summer	S-R13-3	1.002	S-R13-4	25.7	1.276	0.078	0.7007	
60 minute summer	S-R13-26	7.000	S-R13-28	6.1	1.131	0.011	0.1271	
60 minute summer	S-R13-27	8.000	S-R13-28	9.0	1.529	0.090	0.0697	
60 minute summer	S-R13-28	7.001	S-R13-29	21.8	1.050	0.051	0.7671	
60 minute summer	S-R13-20	5.000	S-R13-21	6.1	0.922	0.118	0.0467	
60 minute summer	S-R13-21	5.001	S-R13-23	7.0	1.266	0.083	0.0730	
60 minute summer	S-R13-22	6.000	S-R13-23	13.3	1.634	0.143	0.1537	
60 minute summer	S-R13-23	5.002	S-R13-24	20.6	0.872	0.288	0.7562	
60 minute summer	S-R13-24	5.003	S-R13-25	26.3	0.825	0.245	0.3190	
60 minute summer	S-R13-25	5.004	S-R13-29	31.5	1.856	0.053	0.1027	
60 minute summer	S-R13-29	5.005	S-R13-30	58.7	0.682	0.165	4.7118	
60 minute summer	S-R13-30	5.006	S-R13-31	71.5	0.854	0.190	0.7731	
60 minute summer	S-R13-31	5.007	S-R13-32	70.9	0.983	0.157	4.4552	
60 minute summer	S-R13-32	5.008	S-R13-33	81.5	0.668	0.133	5.1091	
60 minute summer	S-R13-15	1.007	S-R13-16	63.5	1.280	0.250	1.2016	
60 minute summer	S-R13-16	1.008	S-R13-17	72.2	1.126	0.241	2.0611	
60 minute summer	S-R13-17	1.009	S-R13-19	80.6	1.094	0.459	0.4951	
60 minute summer	S-R13-18	4.000	S-R13-19	8.3	1.462	0.088	0.2199	
60 minute summer	S-R13-19	1.010	S-R13-33	93.3	1.239	0.308	4.4178	
60 minute summer	S-R13-33	1.011	S-R13-34	186.9	1.166	0.188	1.9735	
60 minute summer	S-R13-34	1.012	S-R13-35	187.9	1.171	0.296	3.0260	
60 minute summer	S-R13-35	1.013	S-R13-36	187.1	1.374	0.295	3.5911	
60 minute summer	S-R13-36	1.014	S-R13-46	189.0	1.751	0.173	1.0059	

Results for 2 year Critical Storm Duration. Lowest mass balance: 99.46%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
60 minute summer	S-R13-37	1	59.005	0.000	0.0	0.0000	0.0000	OK
60 minute summer	10.000:50%	34	58.927	0.004	0.6	0.0000	0.0000	OK
60 minute summer	S-R13-38	34	58.846	0.006	0.6	0.0000	0.0000	OK
60 minute summer	S-R13-39	35	58.682	0.004	0.6	0.0000	0.0000	OK
60 minute summer	10.002:50%	33	58.607	0.009	2.0	0.0000	0.0000	OK
60 minute summer	S-R13-40	34	58.554	0.035	2.0	0.0000	0.0000	OK
60 minute summer	10.003:50%	34	58.448	0.040	2.2	0.0000	0.0000	OK
60 minute summer	S-R13-41	34	58.309	0.012	2.2	0.0000	0.0000	OK
60 minute summer	10.004:50%	34	58.260	0.013	2.7	0.0049	0.0000	OK
60 minute summer	S-R13-43	35	58.051	0.010	2.6	0.0000	0.0000	OK
60 minute summer	10.006:50%	34	57.942	0.011	3.6	0.0055	0.0000	OK
60 minute summer	S-R13-44	35	57.862	0.042	3.6	0.0476	0.0000	OK
60 minute summer	S-R13-45	35	57.727	0.060	3.6	0.0677	0.0000	OK
60 minute summer	S-R13-46	36	57.227	0.200	194.8	0.5094	0.0000	OK
60 minute summer	S-R13-HW1	36	56.966	0.317	195.4	0.0000	0.0000	OK
60 minute summer	S-R13-5	33	61.376	0.044	3.3	0.0503	0.0000	OK
60 minute summer	S-R13-6	33	61.292	0.047	3.8	0.0527	0.0000	OK
60 minute summer	S-R13-7	33	61.619	0.044	7.1	0.0493	0.0000	OK
60 minute summer	S-R13-8	33	61.276	0.085	10.9	0.0958	0.0000	OK
60 minute summer	S-R13-9	33	61.216	0.085	10.9	0.0957	0.0000	OK
60 minute summer	S-R13-10	33	61.069	0.049	14.9	0.0556	0.0000	OK
60 minute summer	S-R13-11	33	59.470	0.070	16.7	0.0790	0.0000	OK
60 minute summer	S-R13-12	33	58.875	0.150	54.0	0.1695	0.0000	OK
60 minute summer	S-R13-13	33	58.814	0.154	58.1	0.1741	0.0000	OK
60 minute summer	S-R13-47	33	60.757	0.057	6.2	0.0645	0.0000	OK

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
60 minute summer	S-R13-37	10.000	10.000:50%	0.0	0.000	0.000	0.0052	
60 minute summer	S-R13-37	10.000	S-R13-38	0.6	0.235	0.000	0.0135	
60 minute summer	S-R13-38	10.001	S-R13-39	0.6	0.214	0.000	0.1071	
60 minute summer	S-R13-39	10.002	10.002:50%	0.6	0.175	0.000	0.0212	
60 minute summer	S-R13-39	10.002	S-R13-40	2.0	0.165	0.001	0.0794	
60 minute summer	S-R13-40	10.003	10.003:50%	2.0	0.467	0.052	0.0855	
60 minute summer	S-R13-40	10.003	S-R13-41	2.2	0.871	0.057	0.0551	
60 minute summer	S-R13-41	10.004	10.004:50%	2.2	0.322	0.001	0.0576	
60 minute summer	S-R13-41	10.004	S-R13-42	2.7	0.404	0.001	0.0561	
60 minute summer	S-R13-43	10.006	10.006:50%	2.7	0.480	0.001	0.0335	
60 minute summer	S-R13-43	10.006	S-R13-44	3.6	0.234	0.001	0.0981	
60 minute summer	S-R13-44	10.007	S-R13-45	3.6	0.689	0.172	0.0585	
60 minute summer	S-R13-45	10.008	S-R13-46	3.6	0.586	0.310	0.0567	
60 minute summer	S-R13-46	1.015	S-R13-HW1	195.4	1.457	0.145	4.3081	
60 minute summer	S-R13-HW1	Flow through Pond	S-R13-HW3	261.7	0.084	0.001	268.5828	
60 minute summer	S-R13-5	2.000	S-R13-6	3.3	0.576	0.082	0.0836	
60 minute summer	S-R13-6	2.001	S-R13-8	3.8	0.394	0.095	0.0897	
60 minute summer	S-R13-7	3.000	S-R13-8	7.1	0.771	0.083	0.1344	
60 minute summer	S-R13-8	2.002	S-R13-9	10.9	0.796	0.261	0.1276	
60 minute summer	S-R13-9	2.003	S-R13-10	10.8	1.098	0.271	0.1881	
60 minute summer	S-R13-10	2.004	S-R13-11	14.9	1.774	0.105	0.1875	
60 minute summer	S-R13-11	2.005	S-R13-12	16.6	1.634	0.192	0.1677	
60 minute summer	S-R13-12	1.004	S-R13-13	53.9	1.146	0.159	0.2798	
60 minute summer	S-R13-13	1.005	S-R13-14	57.9	1.271	0.231	1.3281	
60 minute summer	S-R13-47	11.000	S-R13-49	6.2	0.544	0.081	0.2389	

Results for 2 year Critical Storm Duration. Lowest mass balance: 99.46%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
60 minute summer	S-R13-48	33	61.126	0.040	5.3	0.0448	0.0000	OK
60 minute summer	S-R13-49	33	60.675	0.075	13.3	0.0848	0.0000	OK
60 minute summer	S-R13-50	34	60.355	0.113	20.0	0.1282	0.0000	OK
60 minute summer	S-R13-51	34	60.211	0.101	19.8	0.1138	0.0000	OK
60 minute summer	S-R13-52	34	60.130	0.080	23.9	0.1144	0.0000	OK
60 minute summer	S-R13-53	34	59.826	0.075	26.9	0.1080	0.0000	OK
60 minute summer	S-R13-54	34	59.571	0.071	32.2	0.1020	0.0000	OK
60 minute summer	S-R13-55	34	59.013	0.113	33.7	0.1619	0.0000	OK
60 minute summer	S-R13-56	33	59.314	0.084	10.8	0.0950	0.0000	OK
60 minute summer	S-R13-57	33	59.075	0.055	14.5	0.0622	0.0000	OK
60 minute summer	S-R13-58	34	58.912	0.112	47.7	0.1598	0.0000	OK
60 minute summer	S-R13-59	34	58.665	0.115	51.6	0.1645	0.0000	OK
60 minute summer	S-R13-60	34	58.112	0.121	55.3	0.1729	0.0000	OK
60 minute summer	S-R13-61	34	57.316	0.116	64.7	0.1653	0.0000	OK
60 minute summer	S-R13-62	34	56.976	0.176	75.5	0.2517	0.0000	OK
60 minute summer	S-R13-HW2	34	56.886	0.236	75.5	0.0000	0.0000	OK
480 minute summer	S-R13-HW3	360	56.838	0.338	50.6	0.0000	0.0000	SURCHARGED
480 minute summer	S-R13-64	360	56.831	0.380	13.7	0.6721	0.0000	SURCHARGED
480 minute summer	S-R13-HW4	360	56.483	0.082	13.7	0.0000	0.0000	OK
60 minute summer	S-R13-4	33	59.070	0.080	33.5	0.1140	0.0000	OK
60 minute summer	S-R13-14	34	58.628	0.143	62.1	0.2053	0.0000	OK
60 minute summer	S-R13-42	34	58.207	0.011	2.7	0.0000	0.0000	OK
60 minute summer	S-R13-30A	33	58.352	0.039	5.0	0.0436	0.0000	OK

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
60 minute summer	S-R13-48	12.000_1	S-R13-49	5.3	1.151	0.065	0.0765	
60 minute summer	S-R13-49	11.001	S-R13-50	13.2	0.699	0.139	0.9356	
60 minute summer	S-R13-50	11.002	S-R13-51	19.8	0.849	0.274	0.3114	
60 minute summer	S-R13-51	11.003	S-R13-52	19.8	0.974	0.150	0.2780	
60 minute summer	S-R13-52	11.004	S-R13-53	24.0	1.458	0.092	0.2899	
60 minute summer	S-R13-53	11.005	S-R13-54	26.9	1.777	0.075	0.1178	
60 minute summer	S-R13-54	11.006	S-R13-55	32.3	1.538	0.081	0.3206	
60 minute summer	S-R13-55	11.007	S-R13-58	33.7	1.217	0.162	0.2562	
60 minute summer	S-R13-56	12.000	S-R13-57	10.8	0.838	0.265	0.1249	
60 minute summer	S-R13-57	13.001	S-R13-58	14.5	0.816	0.047	0.1761	
60 minute summer	S-R13-58	11.008	S-R13-59	47.9	1.708	0.165	0.3368	
60 minute summer	S-R13-59	11.009	S-R13-60	51.7	1.748	0.196	0.9529	
60 minute summer	S-R13-60	11.010	S-R13-61	55.3	1.855	0.214	1.2808	
60 minute summer	S-R13-61	11.011	S-R13-62	64.8	1.459	0.141	0.8843	
60 minute summer	S-R13-62	11.012	S-R13-HW2	75.5	1.067	0.293	1.6677	
60 minute summer	S-R13-HW2	Flow through Pond	S-R13-HW3	261.7	0.084	0.001	268.5828	
480 minute summer	S-R13-HW3	14.000	S-R13-64	13.7	0.347	0.320	0.2876	
480 minute summer	S-R13-64	14.001	S-R13-HW4	13.7	1.009	0.287	0.0808	438.6
60 minute summer	S-R13-4	1.003	S-R13-12	33.5	1.054	0.066	0.3467	
60 minute summer	S-R13-14	1.006	S-R13-15	62.2	1.313	0.197	1.0478	
60 minute summer	S-R13-42	10.005	S-R13-43	2.6	0.483	0.001	0.0756	
60 minute summer	S-R13-30A	9.000	S-R13-30	5.0	0.965	0.034	0.0894	

Results for 30 year Critical Storm Duration. Lowest mass balance: 99.79%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
60 minute summer	S-R13-1	33	60.024	0.067	7.8	0.0762	0.0000	OK
60 minute summer	S-R13-2	33	59.841	0.153	53.2	0.1732	0.0000	OK
60 minute summer	S-R13-3	33	59.503	0.153	76.1	0.1726	0.0000	OK
60 minute summer	S-R13-26	33	58.923	0.056	17.9	0.0805	0.0000	OK
60 minute summer	S-R13-27	33	58.975	0.085	26.6	0.0965	0.0000	OK
60 minute summer	S-R13-28	32	58.294	0.139	64.4	0.2461	0.0000	OK
60 minute summer	S-R13-20	33	59.049	0.099	17.9	0.1125	0.0000	OK
60 minute summer	S-R13-21	33	58.955	0.075	20.6	0.0852	0.0000	OK
60 minute summer	S-R13-22	32	59.238	0.103	39.4	0.1164	0.0000	OK
60 minute summer	S-R13-23	33	58.684	0.224	61.2	0.2530	0.0000	OK
60 minute summer	S-R13-24	33	58.494	0.243	77.7	0.3480	0.0000	OK
60 minute summer	S-R13-25	33	58.292	0.145	93.1	0.2080	0.0000	OK
60 minute summer	S-R13-29	34	58.079	0.363	175.2	0.6423	0.0000	OK
60 minute summer	S-R13-30	34	58.024	0.387	212.4	0.6837	0.0000	OK
60 minute summer	S-R13-31	35	57.979	0.357	208.5	0.6312	0.0000	OK
60 minute summer	S-R13-32	35	57.923	0.520	239.7	1.3240	0.0000	OK
60 minute summer	S-R13-15	34	58.606	0.332	187.1	0.3756	0.0000	OK
60 minute summer	S-R13-16	34	58.452	0.328	213.1	0.3711	0.0000	OK
60 minute summer	S-R13-17	34	58.300	0.451	238.5	0.5098	0.0000	SURCHARGED
60 minute summer	S-R13-18	32	59.402	0.079	24.5	0.0898	0.0000	OK
60 minute summer	S-R13-19	34	58.171	0.416	277.6	0.5955	0.0000	OK
60 minute summer	S-R13-33	35	57.901	0.601	546.3	1.5298	0.0000	OK
60 minute summer	S-R13-34	35	57.830	0.610	546.1	1.5531	0.0000	OK
60 minute summer	S-R13-35	35	57.720	0.550	546.3	1.3991	0.0000	OK
60 minute summer	S-R13-36	35	57.560	0.460	550.3	1.1702	0.0000	OK

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
60 minute summer	S-R13-1	1.000	S-R13-2	7.8	0.735	0.196	0.3655	
60 minute summer	S-R13-2	1.001	S-R13-3	53.2	1.564	0.447	0.5582	
60 minute summer	S-R13-3	1.002	S-R13-4	76.1	1.611	0.231	1.6407	
60 minute summer	S-R13-26	7.000	S-R13-28	17.8	1.492	0.033	0.2957	
60 minute summer	S-R13-27	8.000	S-R13-28	26.6	2.034	0.266	0.1548	
60 minute summer	S-R13-28	7.001	S-R13-29	65.3	1.228	0.152	2.3173	
60 minute summer	S-R13-20	5.000	S-R13-21	17.9	1.257	0.345	0.1005	
60 minute summer	S-R13-21	5.001	S-R13-23	20.6	1.320	0.244	0.2602	
60 minute summer	S-R13-22	6.000	S-R13-23	39.4	1.893	0.424	0.4291	
60 minute summer	S-R13-23	5.002	S-R13-24	61.0	1.171	0.852	1.6611	
60 minute summer	S-R13-24	5.003	S-R13-25	77.6	1.134	0.725	0.6847	
60 minute summer	S-R13-25	5.004	S-R13-29	93.1	2.327	0.156	0.2565	
60 minute summer	S-R13-29	5.005	S-R13-30	170.9	0.857	0.482	11.0710	
60 minute summer	S-R13-30	5.006	S-R13-31	208.5	1.081	0.553	1.8376	
60 minute summer	S-R13-31	5.007	S-R13-32	204.4	1.083	0.454	13.6137	
60 minute summer	S-R13-32	5.008	S-R13-33	234.1	0.717	0.381	14.5696	
60 minute summer	S-R13-15	1.007	S-R13-16	187.7	1.518	0.739	3.0177	
60 minute summer	S-R13-16	1.008	S-R13-17	213.4	1.464	0.713	4.5177	
60 minute summer	S-R13-17	1.009	S-R13-19	238.6	1.611	1.360	0.9694	
60 minute summer	S-R13-18	4.000	S-R13-19	24.5	1.937	0.260	0.6288	
60 minute summer	S-R13-19	1.010	S-R13-33	277.3	1.603	0.916	10.1424	
60 minute summer	S-R13-33	1.011	S-R13-34	542.3	1.425	0.545	4.6893	
60 minute summer	S-R13-34	1.012	S-R13-35	546.3	1.495	0.862	6.8787	
60 minute summer	S-R13-35	1.013	S-R13-36	546.2	1.733	0.860	8.2719	
60 minute summer	S-R13-36	1.014	S-R13-46	550.1	2.153	0.503	2.3818	

Results for 30 year Critical Storm Duration. Lowest mass balance: 99.79%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
60 minute summer	S-R13-37	1	59.005	0.000	0.0	0.0000	0.0000	OK
60 minute summer	10.000:50%	33	58.930	0.007	1.7	0.0000	0.0000	OK
60 minute summer	S-R13-38	34	58.852	0.012	1.7	0.0000	0.0000	OK
60 minute summer	S-R13-39	34	58.686	0.008	1.7	0.0000	0.0000	OK
60 minute summer	10.002:50%	33	58.616	0.017	6.2	0.0000	0.0000	OK
60 minute summer	S-R13-40	33	58.579	0.060	6.1	0.0000	0.0000	OK
60 minute summer	10.003:50%	33	58.474	0.066	6.6	0.0000	0.0000	OK
60 minute summer	S-R13-41	34	58.320	0.023	6.6	0.0000	0.0000	OK
60 minute summer	10.004:50%	34	58.272	0.025	8.0	0.0173	0.0000	OK
60 minute summer	S-R13-43	34	58.059	0.018	8.0	0.0000	0.0000	OK
60 minute summer	10.006:50%	34	57.952	0.022	11.0	0.0205	0.0000	OK
60 minute summer	S-R13-44	34	57.902	0.082	11.0	0.0924	0.0000	OK
60 minute summer	S-R13-45	35	57.787	0.120	11.1	0.1361	0.0000	OK
60 minute summer	S-R13-46	35	57.414	0.387	568.8	0.9852	0.0000	OK
60 minute summer	S-R13-HW1	36	57.316	0.666	568.5	0.0000	0.0000	OK
60 minute summer	S-R13-5	33	61.407	0.075	9.7	0.0846	0.0000	OK
60 minute summer	S-R13-6	33	61.366	0.121	11.3	0.1368	0.0000	OK
60 minute summer	S-R13-7	33	61.650	0.075	21.0	0.0852	0.0000	OK
60 minute summer	S-R13-8	33	61.361	0.170	32.2	0.1920	0.0000	OK
60 minute summer	S-R13-9	33	61.288	0.157	32.1	0.1773	0.0000	OK
60 minute summer	S-R13-10	33	61.106	0.086	43.9	0.0969	0.0000	OK
60 minute summer	S-R13-11	33	59.533	0.133	49.3	0.1503	0.0000	OK
60 minute summer	S-R13-12	33	59.034	0.309	160.2	0.3499	0.0000	OK
60 minute summer	S-R13-13	33	58.963	0.303	172.5	0.3429	0.0000	OK
60 minute summer	S-R13-47	33	60.801	0.101	18.2	0.1142	0.0000	OK

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
60 minute summer	S-R13-37	10.000	10.000:50%	0.0	0.000	0.000	0.0098	
60 minute summer	S-R13-37	10.000	S-R13-38	1.7	0.343	0.000	0.0256	
60 minute summer	S-R13-38	10.001	S-R13-39	1.7	0.322	0.001	0.2060	
60 minute summer	S-R13-39	10.002	10.002:50%	1.7	0.257	0.000	0.0427	
60 minute summer	S-R13-39	10.002	S-R13-40	6.1	0.258	0.002	0.1564	
60 minute summer	S-R13-40	10.003	10.003:50%	6.1	0.672	0.158	0.1808	
60 minute summer	S-R13-40	10.003	S-R13-41	6.6	1.192	0.170	0.1171	
60 minute summer	S-R13-41	10.004	10.004:50%	6.6	0.481	0.002	0.1161	
60 minute summer	S-R13-41	10.004	S-R13-42	8.0	0.602	0.003	0.1130	
60 minute summer	S-R13-43	10.006	10.006:50%	8.0	0.713	0.002	0.0683	
60 minute summer	S-R13-43	10.006	S-R13-44	11.0	0.325	0.002	0.2218	
60 minute summer	S-R13-44	10.007	S-R13-45	11.1	0.877	0.528	0.1377	
60 minute summer	S-R13-45	10.008	S-R13-46	11.0	0.803	0.945	0.1255	
60 minute summer	S-R13-46	1.015	S-R13-HW1	568.5	1.730	0.422	10.1840	
60 minute summer	S-R13-HW1	Flow through Pond	S-R13-HW3	408.9	0.115	0.002	836.3652	
60 minute summer	S-R13-5	2.000	S-R13-6	9.7	0.646	0.242	0.2425	
60 minute summer	S-R13-6	2.001	S-R13-8	11.2	0.441	0.281	0.2468	
60 minute summer	S-R13-7	3.000	S-R13-8	21.0	0.976	0.244	0.3093	
60 minute summer	S-R13-8	2.002	S-R13-9	32.1	1.039	0.772	0.2884	
60 minute summer	S-R13-9	2.003	S-R13-10	31.9	1.471	0.802	0.4077	
60 minute summer	S-R13-10	2.004	S-R13-11	43.9	2.295	0.311	0.4252	
60 minute summer	S-R13-11	2.005	S-R13-12	49.0	2.128	0.570	0.3813	
60 minute summer	S-R13-12	1.004	S-R13-13	160.0	1.392	0.473	0.6839	
60 minute summer	S-R13-13	1.005	S-R13-14	172.1	1.548	0.688	3.2350	
60 minute summer	S-R13-47	11.000	S-R13-49	18.2	0.719	0.237	0.5270	

Results for 30 year Critical Storm Duration. Lowest mass balance: 99.79%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
60 minute summer	S-R13-48	33	61.155	0.069	15.6	0.0784	0.0000	OK
60 minute summer	S-R13-49	33	60.733	0.133	39.1	0.1500	0.0000	OK
60 minute summer	S-R13-50	33	60.463	0.221	59.1	0.2496	0.0000	OK
60 minute summer	S-R13-51	33	60.290	0.180	58.7	0.2038	0.0000	OK
60 minute summer	S-R13-52	33	60.194	0.144	71.2	0.2066	0.0000	OK
60 minute summer	S-R13-53	33	59.890	0.140	80.0	0.2010	0.0000	OK
60 minute summer	S-R13-54	33	59.628	0.128	96.4	0.1832	0.0000	OK
60 minute summer	S-R13-55	33	59.125	0.225	100.4	0.3217	0.0000	OK
60 minute summer	S-R13-56	33	59.397	0.167	32.0	0.1885	0.0000	OK
60 minute summer	S-R13-57	32	59.117	0.097	42.9	0.1100	0.0000	OK
60 minute summer	S-R13-58	33	59.021	0.221	143.0	0.3160	0.0000	OK
60 minute summer	S-R13-59	33	58.770	0.220	154.2	0.3146	0.0000	OK
60 minute summer	S-R13-60	34	58.222	0.231	164.9	0.3309	0.0000	OK
60 minute summer	S-R13-61	32	57.421	0.221	193.3	0.3156	0.0000	OK
60 minute summer	S-R13-62	34	57.302	0.502	225.2	0.7177	0.0000	SURCHARGED
360 minute winter	S-R13-HW2	376	57.212	0.562	44.5	0.0000	0.0000	OK
360 minute winter	S-R13-HW3	360	57.196	0.696	88.5	0.0000	0.0000	SURCHARGED
360 minute winter	S-R13-64	360	57.189	0.738	14.1	1.3047	0.0000	SURCHARGED
60 minute summer	S-R13-HW4	45	56.484	0.083	14.0	0.0000	0.0000	OK
60 minute summer	S-R13-4	33	59.142	0.152	99.3	0.2180	0.0000	OK
60 minute summer	S-R13-14	33	58.777	0.292	184.5	0.4174	0.0000	OK
60 minute summer	S-R13-42	34	58.217	0.021	8.0	0.0000	0.0000	OK
60 minute summer	S-R13-30A	33	58.380	0.067	14.8	0.0753	0.0000	OK

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
60 minute summer	S-R13-48	12.000_1	S-R13-49	15.6	1.553	0.190	0.1669	
60 minute summer	S-R13-49	11.001	S-R13-50	39.0	0.905	0.412	2.1016	
60 minute summer	S-R13-50	11.002	S-R13-51	58.7	1.147	0.812	0.6829	
60 minute summer	S-R13-51	11.003	S-R13-52	58.5	1.288	0.442	0.6220	
60 minute summer	S-R13-52	11.004	S-R13-53	71.0	1.857	0.272	0.6757	
60 minute summer	S-R13-53	11.005	S-R13-54	79.8	2.263	0.222	0.2752	
60 minute summer	S-R13-54	11.006	S-R13-55	96.2	1.892	0.240	0.7705	
60 minute summer	S-R13-55	11.007	S-R13-58	100.1	1.479	0.481	0.6305	
60 minute summer	S-R13-56	12.000	S-R13-57	32.0	1.079	0.784	0.2871	
60 minute summer	S-R13-57	13.001	S-R13-58	43.0	0.982	0.140	0.4224	
60 minute summer	S-R13-58	11.008	S-R13-59	142.7	2.125	0.493	0.8088	
60 minute summer	S-R13-59	11.009	S-R13-60	153.7	2.229	0.582	2.2212	
60 minute summer	S-R13-60	11.010	S-R13-61	165.5	2.427	0.639	2.9265	
60 minute summer	S-R13-61	11.011	S-R13-62	193.7	1.564	0.420	2.3084	
60 minute summer	S-R13-62	11.012	S-R13-HW2	225.5	1.424	0.875	3.7280	
60 minute summer	S-R13-HW2	Flow through Pond	S-R13-HW3	408.9	0.115	0.002	836.3652	
60 minute winter	S-R13-HW3	14.000	S-R13-64	14.5	0.480	0.339	0.2876	
60 minute summer	S-R13-64	14.001	S-R13-HW4	14.0	1.015	0.294	0.0822	231.1
60 minute summer	S-R13-4	1.003	S-R13-12	99.5	1.216	0.195	0.8713	
60 minute summer	S-R13-14	1.006	S-R13-15	183.6	1.574	0.581	2.5843	
60 minute summer	S-R13-42	10.005	S-R13-43	8.0	0.723	0.002	0.1532	
60 minute summer	S-R13-30A	9.000	S-R13-30	14.8	1.314	0.101	0.1943	

Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 99.91%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
60 minute summer	S-R13-1	35	60.882	0.925	14.1	1.0457	0.0000	SURCHARGED
60 minute summer	S-R13-2	35	60.859	1.171	96.4	1.3247	0.0000	SURCHARGED
60 minute summer	S-R13-3	35	60.736	1.386	127.8	1.5670	0.0000	FLOOD RISK
60 minute summer	S-R13-26	33	58.941	0.074	32.5	0.1065	0.0000	OK
60 minute summer	S-R13-27	33	59.013	0.123	48.4	0.1391	0.0000	OK
60 minute summer	S-R13-28	35	58.867	0.712	117.4	1.2582	0.0000	SURCHARGED
60 minute summer	S-R13-20	35	59.321	0.371	32.6	0.4199	0.0000	SURCHARGED
60 minute summer	S-R13-21	35	59.288	0.408	37.3	0.4619	0.0000	SURCHARGED
60 minute summer	S-R13-22	35	59.557	0.422	71.6	0.4775	0.0000	SURCHARGED
60 minute summer	S-R13-23	35	59.221	0.761	108.1	0.8601	0.0000	SURCHARGED
60 minute summer	S-R13-24	35	58.936	0.685	138.8	0.9800	0.0000	SURCHARGED
60 minute summer	S-R13-25	35	58.871	0.724	168.0	1.0366	0.0000	SURCHARGED
60 minute summer	S-R13-29	35	58.840	1.124	309.2	1.9858	0.0000	SURCHARGED
60 minute summer	S-R13-30	35	58.780	1.143	329.7	2.0192	0.0000	SURCHARGED
60 minute summer	S-R13-31	35	58.747	1.125	329.2	1.9875	0.0000	SURCHARGED
60 minute summer	S-R13-32	35	58.651	1.248	393.3	3.1759	0.0000	SURCHARGED
60 minute summer	S-R13-15	35	60.049	1.775	280.4	2.0076	0.0000	SURCHARGED
60 minute summer	S-R13-16	35	59.784	1.660	321.0	1.8772	0.0000	SURCHARGED
60 minute summer	S-R13-17	35	59.358	1.509	362.7	1.7072	0.0000	SURCHARGED
60 minute summer	S-R13-18	35	59.444	0.121	44.5	0.1366	0.0000	OK
60 minute summer	S-R13-19	35	59.141	1.386	428.3	1.9834	0.0000	SURCHARGED
60 minute summer	S-R13-33	35	58.593	1.293	877.8	3.2918	0.0000	SURCHARGED
60 minute summer	S-R13-34	35	58.433	1.213	881.1	3.0878	0.0000	SURCHARGED
60 minute summer	S-R13-35	35	58.238	1.068	880.4	2.7181	0.0000	SURCHARGED
60 minute summer	S-R13-36	35	58.005	0.905	887.0	2.3041	0.0000	SURCHARGED

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
60 minute summer	S-R13-1	1.000	S-R13-2	14.5	0.738	0.365	1.3095	
60 minute summer	S-R13-2	1.001	S-R13-3	88.4	1.733	0.742	1.1549	
60 minute summer	S-R13-3	1.002	S-R13-4	127.1	1.733	0.386	5.5005	
60 minute summer	S-R13-26	7.000	S-R13-28	32.5	1.449	0.061	2.0623	
60 minute summer	S-R13-27	8.000	S-R13-28	48.6	2.332	0.485	0.3621	
60 minute summer	S-R13-28	7.001	S-R13-29	115.6	1.225	0.270	7.9712	
60 minute summer	S-R13-20	5.000	S-R13-21	32.3	1.418	0.623	0.2800	
60 minute summer	S-R13-21	5.001	S-R13-23	35.9	1.315	0.426	0.5244	
60 minute summer	S-R13-22	6.000	S-R13-23	70.4	1.887	0.756	0.7513	
60 minute summer	S-R13-23	5.002	S-R13-24	108.4	1.539	1.512	2.2478	
60 minute summer	S-R13-24	5.003	S-R13-25	139.8	1.399	1.306	1.1045	
60 minute summer	S-R13-25	5.004	S-R13-29	163.1	2.327	0.273	0.9584	
60 minute summer	S-R13-29	5.005	S-R13-30	265.5	0.910	0.748	19.4021	
60 minute summer	S-R13-30	5.006	S-R13-31	329.2	1.128	0.873	3.2614	
60 minute summer	S-R13-31	5.007	S-R13-32	329.1	1.073	0.730	22.0234	
60 minute summer	S-R13-32	5.008	S-R13-33	389.2	0.884	0.634	18.2104	
60 minute summer	S-R13-15	1.007	S-R13-16	282.3	1.782	1.111	3.8361	
60 minute summer	S-R13-16	1.008	S-R13-17	320.4	2.023	1.070	5.0730	
60 minute summer	S-R13-17	1.009	S-R13-19	360.9	2.278	2.057	1.0651	
60 minute summer	S-R13-18	4.000	S-R13-19	44.2	2.011	0.468	1.1915	
60 minute summer	S-R13-19	1.010	S-R13-33	424.0	1.963	1.401	12.6634	
60 minute summer	S-R13-33	1.011	S-R13-34	874.2	1.987	0.878	5.4170	
60 minute summer	S-R13-34	1.012	S-R13-35	880.4	2.001	1.389	8.2989	
60 minute summer	S-R13-35	1.013	S-R13-36	879.6	1.999	1.385	11.5783	
60 minute summer	S-R13-36	1.014	S-R13-46	886.0	2.155	0.810	4.0940	

Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 99.91%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
60 minute summer	S-R13-37	1	59.005	0.000	0.0	0.0000	0.0000	OK
60 minute summer	10.000:50%	33	58.933	0.011	3.2	0.0000	0.0000	OK
60 minute summer	S-R13-38	33	58.857	0.017	3.2	0.0000	0.0000	OK
60 minute summer	S-R13-39	34	58.690	0.012	3.2	0.0000	0.0000	OK
60 minute summer	10.002:50%	33	58.623	0.025	11.2	0.0000	0.0000	OK
60 minute summer	S-R13-40	33	58.601	0.082	11.2	0.0000	0.0000	OK
60 minute summer	10.003:50%	33	58.496	0.088	12.0	0.0000	0.0000	OK
60 minute summer	S-R13-41	34	58.329	0.032	12.0	0.0000	0.0000	OK
60 minute summer	10.004:50%	34	58.282	0.036	14.6	0.0345	0.0000	OK
60 minute summer	S-R13-43	34	58.067	0.026	14.7	0.0000	0.0000	OK
60 minute summer	10.006:50%	37	58.034	0.103	20.1	0.4520	0.0000	OK
60 minute summer	S-R13-44	39	57.991	0.171	63.1	0.1940	0.0000	SURCHARGED
60 minute summer	S-R13-45	36	57.933	0.266	16.4	0.3008	0.0000	SURCHARGED
60 minute summer	S-R13-46	35	57.855	0.828	913.9	2.1074	0.0000	SURCHARGED
480 minute winter	S-R13-HW1	512	57.652	1.003	161.6	0.0000	0.0000	OK
60 minute summer	S-R13-5	36	61.745	0.413	17.6	0.4673	0.0000	SURCHARGED
60 minute summer	S-R13-6	36	61.733	0.488	19.6	0.5516	0.0000	SURCHARGED
60 minute summer	S-R13-7	36	61.768	0.193	38.2	0.2177	0.0000	OK
60 minute summer	S-R13-8	36	61.719	0.528	56.2	0.5976	0.0000	SURCHARGED
60 minute summer	S-R13-9	36	61.609	0.478	55.0	0.5407	0.0000	SURCHARGED
60 minute summer	S-R13-10	35	61.422	0.402	75.9	0.4546	0.0000	SURCHARGED
60 minute summer	S-R13-11	35	61.023	1.623	81.8	1.8362	0.0000	SURCHARGED
60 minute summer	S-R13-12	35	60.632	1.907	243.5	2.1566	0.0000	SURCHARGED
60 minute summer	S-R13-13	35	60.542	1.882	261.0	2.1281	0.0000	SURCHARGED
60 minute summer	S-R13-47	33	60.848	0.148	33.1	0.1674	0.0000	OK

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
60 minute summer	S-R13-37	10.000	10.000:50%	0.0	0.000	0.000	0.0145	
60 minute summer	S-R13-37	10.000	S-R13-38	3.2	0.426	0.001	0.0380	
60 minute summer	S-R13-38	10.001	S-R13-39	3.2	0.407	0.001	0.3044	
60 minute summer	S-R13-39	10.002	10.002:50%	3.2	0.318	0.001	0.0631	
60 minute summer	S-R13-39	10.002	S-R13-40	11.2	0.318	0.003	0.2345	
60 minute summer	S-R13-40	10.003	10.003:50%	11.1	0.810	0.288	0.2734	
60 minute summer	S-R13-40	10.003	S-R13-41	12.0	1.415	0.310	0.1775	
60 minute summer	S-R13-41	10.004	10.004:50%	12.0	0.590	0.004	0.1728	
60 minute summer	S-R13-41	10.004	S-R13-42	14.7	0.742	0.005	0.1677	
60 minute summer	S-R13-43	10.006	10.006:50%	14.7	0.844	0.003	0.2918	
60 minute summer	S-R13-43	10.006	S-R13-44	63.1	0.629	0.013	0.7424	
60 minute summer	S-R13-44	10.007	S-R13-45	16.4	0.935	0.784	0.1945	
60 minute summer	S-R13-45	10.008	S-R13-46	18.2	1.041	1.565	0.1625	
60 minute summer	S-R13-46	1.015	S-R13-HW1	913.2	2.075	0.678	14.0029	
60 minute summer	S-R13-HW1	Flow through Pond	S-R13-HW3	685.8	0.137	0.003	1541.9401	
60 minute summer	S-R13-5	2.000	S-R13-6	16.7	0.646	0.418	0.5801	
60 minute summer	S-R13-6	2.001	S-R13-8	19.2	0.495	0.484	0.3644	
60 minute summer	S-R13-7	3.000	S-R13-8	37.4	1.091	0.435	0.5366	
60 minute summer	S-R13-8	2.002	S-R13-9	55.0	1.383	1.324	0.3720	
60 minute summer	S-R13-9	2.003	S-R13-10	54.1	1.571	1.357	0.7474	
60 minute summer	S-R13-10	2.004	S-R13-11	72.1	2.444	0.510	0.8840	
60 minute summer	S-R13-11	2.005	S-R13-12	83.9	2.162	0.975	0.6578	
60 minute summer	S-R13-12	1.004	S-R13-13	239.3	1.511	0.708	0.9431	
60 minute summer	S-R13-13	1.005	S-R13-14	256.8	1.621	1.026	4.6115	
60 minute summer	S-R13-47	11.000	S-R13-49	33.0	0.806	0.429	0.8808	

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Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
60 minute summer	S-R13-48	32	61.180	0.094	28.4	0.1063	0.0000	OK
60 minute summer	S-R13-49	33	60.802	0.202	71.2	0.2280	0.0000	OK
60 minute summer	S-R13-50	33	60.625	0.383	106.3	0.4333	0.0000	SURCHARGED
60 minute summer	S-R13-51	35	60.484	0.374	105.9	0.4225	0.0000	OK
60 minute summer	S-R13-52	35	60.437	0.387	128.5	0.5531	0.0000	SURCHARGED
60 minute summer	S-R13-53	35	60.356	0.606	141.7	0.8669	0.0000	SURCHARGED
60 minute summer	S-R13-54	35	60.291	0.791	169.4	1.1322	0.0000	SURCHARGED
60 minute summer	S-R13-55	35	60.154	1.254	165.2	1.7947	0.0000	SURCHARGED
60 minute summer	S-R13-56	35	60.192	0.962	58.1	1.0885	0.0000	FLOOD RISK
60 minute summer	S-R13-57	35	60.062	1.042	73.7	1.1786	0.0000	FLOOD RISK
60 minute summer	S-R13-58	35	60.043	1.243	228.3	1.7788	0.0000	SURCHARGED
60 minute summer	S-R13-59	35	59.785	1.235	240.9	1.7674	0.0000	SURCHARGED
60 minute summer	S-R13-60	35	59.186	1.195	258.0	1.7094	0.0000	SURCHARGED
60 minute summer	S-R13-61	35	58.314	1.114	305.3	1.5938	0.0000	SURCHARGED
60 minute summer	S-R13-62	35	58.043	1.243	361.1	1.7794	0.0000	SURCHARGED
60 minute summer	S-R13-HW2	35	57.693	1.043	359.6	0.0000	0.0000	OK
600 minute winter	S-R13-HW3	600	57.636	1.136	98.0	0.0000	0.0000	SURCHARGED
600 minute winter	S-R13-64	600	57.631	1.180	14.1	2.0853	0.0000	SURCHARGED
120 minute summer	S-R13-HW4	62	56.484	0.083	14.0	0.0000	0.0000	OK
60 minute summer	S-R13-4	35	60.678	1.688	167.0	2.4155	0.0000	SURCHARGED
60 minute summer	S-R13-14	35	60.289	1.804	278.1	2.5811	0.0000	SURCHARGED
60 minute summer	S-R13-42	34	58.226	0.030	14.7	0.0000	0.0000	OK
60 minute summer	S-R13-30A	35	58.792	0.479	26.9	0.5414	0.0000	SURCHARGED

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
60 minute summer	S-R13-48	12.000_1	S-R13-49	28.4	1.655	0.347	0.3193	
60 minute summer	S-R13-49	11.001	S-R13-50	70.0	1.064	0.739	2.9658	
60 minute summer	S-R13-50	11.002	S-R13-51	105.9	1.517	1.466	0.9411	
60 minute summer	S-R13-51	11.003	S-R13-52	105.3	1.452	0.795	1.5002	
60 minute summer	S-R13-52	11.004	S-R13-53	125.4	2.024	0.479	1.9426	
60 minute summer	S-R13-53	11.005	S-R13-54	139.2	2.370	0.387	0.8568	
60 minute summer	S-R13-54	11.006	S-R13-55	157.5	1.924	0.393	1.6639	
60 minute summer	S-R13-55	11.007	S-R13-58	164.1	1.491	0.788	1.0194	
60 minute summer	S-R13-56	12.000	S-R13-57	54.1	1.370	1.327	0.3853	
60 minute summer	S-R13-57	13.001	S-R13-58	72.8	1.051	0.238	1.0401	
60 minute summer	S-R13-58	11.008	S-R13-59	223.9	2.193	0.774	1.3254	
60 minute summer	S-R13-59	11.009	S-R13-60	241.3	2.324	0.914	3.5497	
60 minute summer	S-R13-60	11.010	S-R13-61	258.2	2.446	0.997	4.7345	
60 minute summer	S-R13-61	11.011	S-R13-62	303.8	1.918	0.659	3.1312	
60 minute summer	S-R13-62	11.012	S-R13-HW2	359.6	2.270	1.395	3.7280	
60 minute summer	S-R13-HW2	Flow through Pond	S-R13-HW3	685.8	0.137	0.003	1541.9401	
60 minute summer	S-R13-HW3	14.000	S-R13-64	15.3	0.533	0.358	0.2876	
120 minute summer	S-R13-64	14.001	S-R13-HW4	14.0	1.015	0.294	0.0822	236.2
60 minute summer	S-R13-4	1.003	S-R13-12	152.9	1.253	0.299	1.6900	
60 minute summer	S-R13-14	1.006	S-R13-15	275.1	1.737	0.871	3.5032	
60 minute summer	S-R13-42	10.005	S-R13-43	14.7	0.892	0.004	0.2270	
60 minute summer	S-R13-30A	9.000	S-R13-30	26.7	1.461	0.182	1.2149	