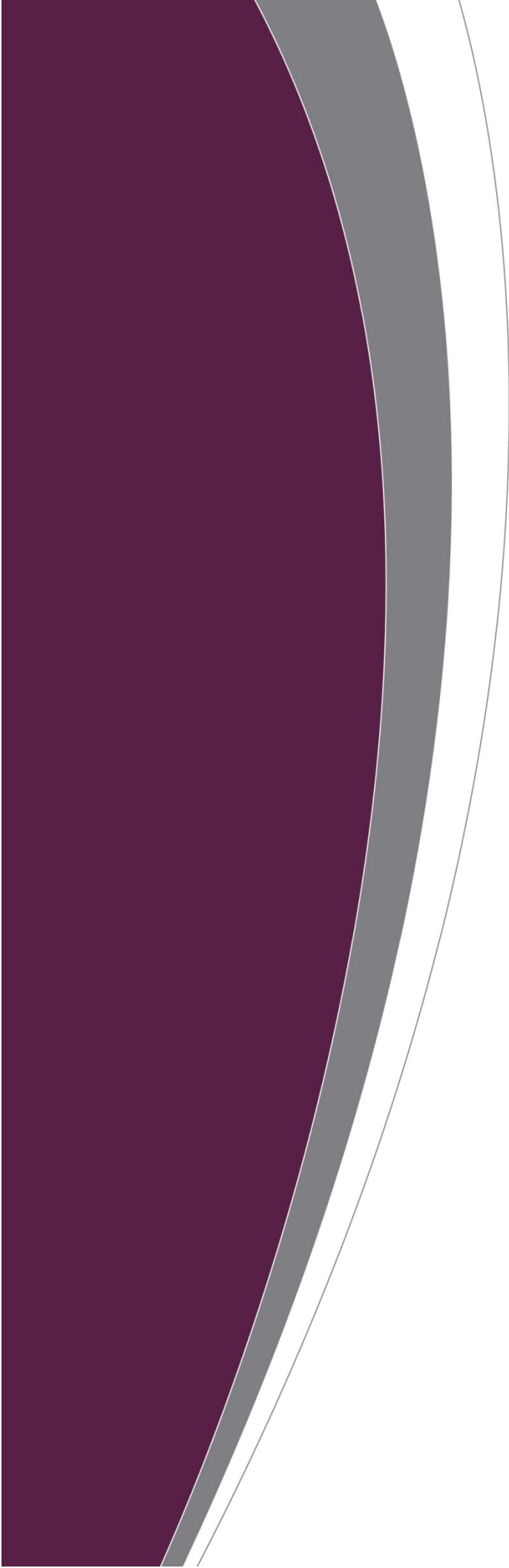




ACORN VALLEY SUBDIVISION

DORCHESTER
MUNICIPALITY OF THAMES CENTRE
COUNTY OF MIDDLESEX

STORMWATER MANAGEMENT REPORT



18010
25 June 2025

EXECUTIVE SUMMARY

The enclosed stormwater management report is prepared in support of the Draft Plan of Subdivision, Official Plan Amendment and Zoning By-Law Amendment applications for the Acorn Valley Subdivision development in the community of Dorchester. This stormwater management report proposes a practical stormwater management design. The following is a summary of the findings presented within the report:

- i. The Acorn Valley Subdivision lands are located within the Community of Dorchester, in the Municipality of Thames Centre, in the County of Middlesex. The subject site is within the Upper Thames Conservation Authority (UTRCA) regulation area. The area proposed for draft plan approval is 44.28ha and is located on the north and south side of the existing untraveled Christie Drive right-of-way (ROW). The area to be developed south of Christie Drive is part of a larger parcel, but only a portion is proposed with the current Draft Plan of Subdivision. The remaining lands to the south are referred to as the Harris Road lands.
- ii. The Acorn Valley Subdivision lands are tributary to four pre-development stormwater outlets;
 - a. Rath-Harris Municipal Drain & Southeasterly Ravine
 - b. Northerly Wetland (Tamarack Swamp) – Provincially Significant
 - c. Shaw Municipal Drain
 - d. Westerly Wetland – Locally Significant
- iii. The majority of the post-development flows from the development and the existing Christie Drive ROW will be directed towards a proposed stormwater management wet pond in the southeast corner of the site. The proposed SWM pond will discharge to the existing ravine directly adjacent to the southeast corner of the property. This ravine is ultimately tributary to Mill Pond, approx. 350m east of the subject site.
- iv. Loss of groundwater recharge for the site under post-development conditions will be mitigated through the implementation of the central open channel to encourage surface contact area and subsequently infiltration, as well as the grassed rear yards of future lots at the north limit of the site that will offer direct sheet flow to the northerly wetland.
- v. The stormwater management facility (SWMF) has been designed in accordance with the Stormwater Management Planning and Design Manual (MECP, 2003) and the Municipality of Thames Centre Engineering Design Standards (2023). The proposed wet pond will provide enhanced (80% TSS removal) quality control and will restrict post-development outflows to pre-development levels to the southeasterly ravine up to 100-year design storm, while safely conveying the regional (250-year) event. The proposed SWMF design will drain the 25.4mm – 4hr quality storm event over a minimum period of 24 hours.
- vi. All four stormwater outlets for the site will experience equal to or less than pre-development peak outflows under post-development conditions, apart from a slight excess for the 25.4mm – 4hr, 2-year and 5-year storm event to the Tamarack Swamp, but consist of only grassed rear yard drainage that is considered acceptable to ensure surface water recharge to the Swamp is approximately consistent to pre-development levels for larger major storm events.
- vii. Vegetative plantings will be provided along the pond banks and surrounding areas to provide erosion and scouring protection. Native species will be selected to compliment the surrounding ecological communities, including grasses, bushes and trees in strategic locations to provide habitat enhancement within the SWMF.

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Pre-Development SSA Model Schematic
Post-Development SSA Model Schematic
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APPENDIX 'B'

Pre-Development Autodesk SSA Modelling Results
Post-Development Autodesk SSA Modelling Results

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STORMWATER MANAGEMENT REPORT

1. INTRODUCTION

The Acorn Valley Subdivision, hereafter referred to as the subject site, is approximately 44.28ha (109.4 ac.) in size and consists of two parcels separated by an untraveled road allowance (Christie Drive). The site is within the Dorchester Settlement Area in the Municipality of Thames Centre in the County of Middlesex, and is municipally known as 83 Christie Drive. Doug Tarry Developments (DTD) has proposed to develop the site as a residential subdivision consisting of low, medium and high-density built forms.

The portion of the site north of Christie Drive is 22.70ha (56.1 ac.). The portion of the development south of Christie Drive is part of a larger parcel that is 68.24ha (168.6 ac.), but only 21.58ha (53.3 ac.) of this southerly parcel is included within the Acorn Valley Subdivision. The remaining 46.66ha (115.3 ac.), hereafter referred to as the Harris Road lands, may be developed in the future, but will be required to undergo future planning applications. The stormwater management design within this report has consideration for the Harris Road lands being developed in the future, but does not provide a full stormwater management plan for this potential future development. A subsequent stormwater management report will be required in the future upon development of the Harris Road lands.

The northerly portion of the Acorn Valley Subdivision is legally described as Part 1 of Plan 33R-21574, Part of Lot 19 and 20, Concession A, South of the River Thames, Geographic Township of North Dorchester, Municipality of Thames Centre, County of Middlesex. The southerly portion of the site is legally described as Part 1 of Plan 33R-21717, Part of Lots 19 and 20, Concession B, South of the River Thames, Geographic Township of North Dorchester, Municipality of Thames Centre, County of Middlesex.

The entirety of the Acorn Valley Subdivision (46.2ha incl. Christie Drive ROW) is within the Dorchester Settlement Area and is designated residential in the Thames Centre Official Plan. A portion of the Harris Road lands to the south are outside of the Dorchester Settlement Area, and are currently designated agricultural. The Acorn Valley lands are zoned Future Development (FD) and Environmental Protection (EP) in the Thames Centre Zoning By-Law. The subject site is also within the regulation area of the Upper Thames Conservation Authority (UTRCA).

The Acorn Valley Subdivision is bounded by a Provincially Significant Wetland to the north (Tamarack Swamp) and existing residential to the east on Wheeler Avenue. The southerly boundary of the site abuts existing agricultural, residential and an existing ravine containing a locally significant wetland. West of the site is Harris Road and existing agricultural and residential usages, as well as a locally significant wetland. Mill Pond is located approximately 350m east of the site. There is an adjacent residential development to the south/east, referred to as the Boardwalk Development, which has draft approval for 500 freehold lots and 80 medium-density units on the east and west side of Mill Road.

Construction of the Boardwalk Development is partially completed on the east side of Mill Road with approx. 160 homes built to date.

There are two municipal drains in proximity to the Acorn Valley Subdivision. The Rath-Harris Drain (1989) is approximately 300m south of the south Subdivision limit, and crosses the Harris Road lands. The Rath-Harris Drain outlets to the existing ravine abutting the southeast limit of the Subdivision, which carries flows northeast to Mill Pond. The Shaw Drain (1977) is approximately 100m west of the proposed development and outlets to an existing flow path that carries flows north to the Thames River.

The Acorn Valley Subdivision development is proposed to consist of 212 freehold lots (149 single-detached, 42 semi-detached, 21 townhome units) and 1 high-density block (393 units - 100 units/ha), for a potential 605 residential units. This stormwater management report has conservatively carried a density of 150 units/ha for the high-density block, yielding 589 high-density units and a potential 801 total units in the stormwater design. The proposed Draft Plan of Subdivision also provides for a northerly development block (30 units/ha maximum) for a potential 540 future units. One SWM pond block is proposed in the southeast corner of the site, an open space block is proposed north of Christie Drive for a proposed open-channel and multi-use trail. Additional open space blocks are proposed for natural heritage, multi-use trails and parkland usages.

The Subdivision is proposed to be developed in multiple phases, with Phase 1 including Christie Drive, Street 'B', the proposed SWM pond and open channel, high-density block 175, and abutting residential lots and parkland. Subsequent phases may be subject to change in the future but are generally shown within Figure 1 appended to this report.

The purpose of this Stormwater Management Report is to provide an overview of the proposed Acorn Valley Subdivision stormwater management design in support of the Draft Plan of Subdivision (DPA), Zoning By-Law Amendment (ZBA), and Official Plan Amendment (OPA) applications for the property.

2. STORMWATER MANAGEMENT PLAN (SWMP) DESIGN REVIEW

2.1. Best Practice Overview

The proposed SWM design for the Acorn Valley Subdivision closely follows the recommended SWM practices and requirements in the Stormwater Management Planning and Design manual (MECP, 2003), the Engineering Design Standards of the Municipality of Thames Centre (2023), and the Environmental Planning Policy Manual of the Upper Thames Region Conservation Authority (UTRCA) (2017) to ensure that;

- Groundwater and baseflow characteristics are preserved;
- Water quality will be protected;
- Receiving watercourses will not undergo undesirable and costly geomorphic change;
- There will not be any increase in flood damage potential, and ultimately;
- That an appropriate diversity of aquatic life and opportunities for human uses will be maintained.

Controls are not required to restrict regional storms under the Thames Centre Engineering Standards, but are required to safely convey regional flows to an appropriate outlet. The stormwater conveyance design will allow for minor ponding to occur during some major storm events within local street right-of-ways with a maximum depth of 300mm.

2.2. Hydraulic Modelling Design Overview

A detailed hydraulic analysis of the pre- and post-development conditions were completed using Autodesk® Storm and Sanitary Analysis (SSA) 2024. The following options were selected;

- Single Event Analysis
- Design Model Storms – 24-hr SCS Type II Distribution Based on Thames Centre Engineering Design Standards (2023)
- Subbasin Hydrograph Method – EPA SWMM
- Infiltration Method – SCS Curve Number
- Link Routing method – Hydrodynamic

All design storms are based on IDF parameters provided within the Thames Centre Engineering Design Standards (2023). A 24-hour SCS Type II storm distribution was used for all design storms due to the large, rural catchment area. The synthetic 25mm event was modelled using a 4-hour storm duration.

All models were run for a minimum duration of 48 hours to ensure steady state conditions were achieved after the 24-hour storm event.

Table 1 IDF Design Storm Parameters

	25mm (Quality Storm)	2-Year	5-Year	10-Year	25-Year	50-Year	100-Year	250-Year (Regional Storm)
a	538.85	1290.00	1183.74	1574.382	2019.372	2270.665	2619.363	3048.22
b	6.331	8.500	7.641	9.025	9.824	9.984	10.500	10.030
c	0.809	0.860	0.838	0.860	0.875	0.876	0.884	0.888

Complete pre- and post-development SSA modelling results have been included in Appendix 'B', which outlines a detailed description of all input parameters, output results and modelling schematics.

3. PRE-DEVELOPMENT CONDITIONS

The Acorn Valley Subdivision has a rolling topography with contours ranging from 254.00 – 267.00±m with localized ravine contours extending down to 251.00±m.

The Acorn Valley development has four (4) main surface drainage outlet locations under pre-development conditions, as shown in the Pre-Development Stormwater Tributaries Figure appended to this report. The stormwater outlet locations are as follows;

- 1) Rath-Harris Drain & Southeast Ravine/Wetland
- 2) Northerly Wetland (Tamarack Swamp)
- 3) Shaw Drain
- 4) Westerly Wetland

The majority of the property is defined by a north-south drainage divide where flows east of this peak fall towards the Rath-Harris Drain and existing ravine/wetland to the southeast. Flows west of the divide either fall to the northerly wetland (Tamarack Swamp), the westerly wetland, or the Shaw Drain/westerly flow path.

3.1. Rath-Harris Drain & Southeasterly Ravine/Wetland

The Rath-Harris Municipal Drain – Main Branch is approximately 1.5km long and consists of 600mmø – 750mmø concrete pipe, starting at Donnybrook Drive flowing northeast across Harris Road and the Harris Road lands before outletting to the existing southeasterly ravine upstream of the Acorn Valley Subdivision lands (W.J. Bartlett & Associates Ltd., 1989). There are four (4) branches of the Rath-Harris Drain (Branch A, Branch B, Branch C and Branch D) which convey flows to the Main Branch. This municipal drain serves a tributary of approximately 153.6ha, of which the Acorn Valley Subdivision is not tributary (upstream of site). There is approx. 29.0ha of the Harris Road lands that are tributary to the Rath-Harris Drain, but are proposed to remain under pre-development conditions with the proposed Acorn Valley Subdivision. The Rath-Harris Drain outlets to the southeasterly ravine/wetland.

The southeast ravine/locally significant wetland, that the Rath-Harris Drain discharges to, serves a total tributary of 201.4ha for minor storms, which consists of the Rath-Harris Drain tributary, the southeast portion of the Acorn Valley Subdivision and a small portion of the Boardwalk Development proposed to remain undeveloped at this time. The easterly adjacent Tiner Estates subdivision consisting of Wheeler Ave., Tiner Ave., and Mill Road has municipal storm sewers to provide drainage during minor storms, but under major storm events, this additional 7.9ha area flows along the roadways into the Acorn Valley lands and eventually to the southeast ravine/wetland. In the southeast corner of the Acorn Valley property, there is an existing irrigation pond, which is currently on-line within the southeasterly ravine.

The land tributary to the southeast ravine consists of mainly agricultural land usage, but does include a residential-industrial Subdivision (Silvermoon Subdivision) and existing residential lots on Donnybrook Drive to the south. It is understood there is an approved draft plan of subdivision for an expansion to the residential-industrial development on Donnybrook Drive, but stormwater management quantity controls are proposed to restrict post-development peak flows to pre-development levels.

The table below provides a summary of the areas tributary to the Rath-Harris Drain & southeasterly ravine in accordance with the Pre-Development Stormwater Tributaries Figure appended to this report.

Table 2 Rath-Harris Drain & Southeast Ravine Pre-Development Catchments

	Acorn Valley Subdivision Lands		Harris Road Lands		External Lands		TOTAL
	Area (ha)	%	Area (ha)	%	Area (ha)	%	Area (ha)
Rath-Harris Municipal Drain	-	-	29.00	18.9 %	124.63	81.1 %	153.63
Southeast Ravine (Minor Storm)	23.95	11.9 %	34.60	17.2 %	142.81	70.9 %	201.36
Southeast Ravine (Major Storm)	23.95	11.4 %	34.60	16.5 %	150.67	72.1 %	209.22

The pre-development peak outflows to the southeast ravine are shown in the table below. These results are based on an SCS Type II storm distribution using the Thames Centre Design Storms from the Municipality's Engineering Design Standards (2023).

Table 3 Southeast Ravine Pre-Development Peak Outflows

Design Storm	Southeast Ravine Pre-Development Peak Outflow (m ³ /s)
25.4mm – 4 Hour (Quality)	1.33
2-Year	2.51
5-Year	2.90
10-Year	3.74
25-Year	5.01
50-Year	6.39
100-Year	7.73
250-Year (Regional)	10.20

Post-development outflows to this location will need to be restricted to the above pre-development levels after build-out of the Acorn Valley Subdivision. Detailed Autodesk[®] Storm and Sanitary Analysis (SSA) modelling results are provided in Appendix 'B'.

3.2. Northerly Wetland (Tamarack Swamp)

The northerly wetland, referred to as the Tamarack Swamp, is approximately 17.89ha in size and is considered a Provincially Significant Wetland (PSW). The Tamarack Swamp lies at the bottom of an embankment 5 - 6±m lower than the Acorn Valley site. The north limit of the Acorn Valley Subdivision (8.64ha) is tributary to the Tamarack Swamp, as well as 0.12ha of external inflow through the subject lands from easterly adjacent rear yards on Wheeler Avenue. The northerly portion of the site tributary to the Tamarack Swamp consists of agricultural land usage.

The pre-development peak outflows to the Tamarack Swamp are provided in the table below. Post-Development outflows from the Acorn Valley Subdivision will be required to approximately match pre-development conditions, to ensure there is sufficient surface water recharge to the northerly wetland.

Table 4 Northerly Wetland (Tamarack Swamp) Pre-Development Peak Outflows

Design Storm	Northerly Wetland Pre-Development Peak Outflow (m ³ /s)
25.4mm – 4 Hour (Quality)	0.05
2-Year	0.09
5-Year	0.11
10-Year	0.17
25-Year	0.26
50-Year	0.37
100-Year	0.47
250-Year (Regional)	0.65

3.3. Shaw Drain

The Shaw Municipal Drain is a closed/tiled drain that is approx. 9km long, starting north of Donnybrook Drive and flowing northeast before crossing Harris Road and changing to an open drain that continues north for 1.5km before outletting to the Thames River north of Hamilton Road (H.M. Gibson & Associates Ltd., 1977). There are two (2) branches of the Shaw Drain (Branch A and Branch B) that convey flows to the Main Drain.

There is 9.03ha at the west limit of the Acorn Valley Subdivision that is tributary to an existing irrigation pond, which outlets to the Shaw Drain open portion, as well as the west limit of the untraveled Christie Drive ROW (0.66ha), for a total drainage area of 9.69ha. This westerly portion of the subject site is entirely agricultural land usage.

There is an additional 4.24ha of the subject site which drains towards the locally significant wetland to the west. This wetland outlets to the north towards the Shaw Drain open portion.

The pre-development peak outflows from the westerly 9.03ha of the site directly tributary to the Shaw Drain are listed below. The post-development peak outflows from the site will need to be limited to the pre-development peak flows provided.

Table 5 Shaw Drain Pre-Development Peak Outflows

Design Storm	Shaw Drain Pre-Development Peak Outflow (m ³ /s)
25.4mm – 4 Hour (Quality)	0.05
2-Year	0.07
5-Year	0.09
10-Year	0.12
25-Year	0.18
50-Year	0.25
100-Year	0.31
250-Year (Regional)	0.43

3.4. Westerly Wetland

The westerly wetland is considered locally/regionally significant and is approx. 5.8ha in size. This wetland lies approximately 5 - 10±m lower than the west limit of the Acorn Valley Subdivision, but is approximately 1m lower than the west extension of the Christie Drive roadway. As mentioned above, there is 4.24ha on the west limit of the Acorn Valley Subdivision that is tributary to the westerly wetland, which is mostly agricultural usage with some woodlands.

This westerly wetland ultimately outlets to the Shaw Drain further north, but to more accurately evaluate site outflows, it has been considered as a separate outlet. The pre-development peak outflows to the westerly wetland are provided in the table below. Detailed SSA modelling results are included in Appendix 'B' for reference.

Table 6 Westerly Wetland Pre-Development Peak Outflows

Design Storm	Westerly Wetland Pre-Development Peak Outflow (m ³ /s)
25.4mm – 4 Hour (Quality)	0.06
2-Year	0.09
5-Year	0.10
10-Year	0.12
25-Year	0.16
50-Year	0.19
100-Year	0.23
250-Year (Regional)	0.30

3.5. Pre-Development Summary

The Acorn Valley Subdivision property is 44.28ha in area, with an additional 1.90ha from the untraveled Christie Drive right-of-way that will be incorporated into this development. A summary of the pre-development drainage split for the site is provided in the table below.

Table 7 Acorn Valley Pre-Development Drainage Area Summary

	Acorn Valley Subdivision				
	Area (ha)	Area %	Runoff Coefficient (C)	% Impervious	Curve Number (CN)
Rath-Harris Drain & Southeasterly Ravine	23.65	51.2 %	0.20	2 %	67
Northerly Wetland (Tamarack Swamp)	8.64	18.7 %	0.20	2 %	67
Shaw Drain	9.69	21.0 %	0.20	2 %	67
Westerly Wetland	4.20	9.1 %	0.20	2 %	67
TOTAL	46.18	100.0 %	0.20	2 %	67

Further to the above drainage area summary, the table below summarizes the pre-development peak outflows to the various site outlets. Post-development peak outflows from the site will need to restrict flows to pre-development levels.

Table 8 Pre-Development Peak Outflow Summary

	Pre-Development Peak Outflow (m ³ /s)							
	25.4mm – 4 Hour (Quality)	2-Year	5-Year	10-Year	25-Year	50-Year	100-Year	250-Year (Regional)
Rath-Harris Drain & Southeasterly Ravine	1.33	2.51	2.90	3.74	5.01	6.39	7.73	10.20
Northerly Wetland (Tamarack Swamp)	0.05	0.09	0.11	0.17	0.26	0.37	0.47	0.65
Shaw Drain	0.05	0.07	0.09	0.12	0.18	0.25	0.31	0.43
Westerly Wetland	0.06	0.09	0.10	0.12	0.16	0.19	0.23	0.30

4. POST-DEVELOPMENT CONDITIONS

4.1. Stormwater Management System Overview

Under post-development conditions, the majority of runoff from the Acorn Valley Subdivision is proposed to be routed towards one stormwater management wet pond in the southeast corner of the site. The wet pond will provide enhanced (80% TSS removal) quality control and full quantity control up to the 100-year design storm. The wet pond will outlet to the existing ravine adjacent to the southeast corner of the site, downstream of the limit of the Rath-Harris Drain.

An open channel is proposed on the north side of Christie Drive to act as a stormwater conveyance feature that will encourage infiltration to supplement groundwater recharge efforts. The open channel will receive inflows from the northwesterly portion of the site, as well as adjacent rear yards (7.5ha estimated, to be confirmed upon development of northern block), and will convey flows easterly across the property, where flows will enter the storm sewer system for release into the wet pond. The open channel is designed with a low-flow channel to handle the 25.4mm – 4 hour quality storm event, and an upper channel to handle up to the 100-year design storm.

The easterly adjacent residential subdivision consisting of Wheeler Ave., Tiner Ave., and Mill Road has municipal storm sewers to provide drainage during minor storms, but under major storm events, this additional 7.9ha area flows along the roadways into the Acorn Valley lands and eventually to the southeast ravine. The proposed wet pond will convey these additional major flows through the SWM facility.

Under post-development conditions, the proposed wet pond will serve a total tributary area of 46.4ha during minor storm events, of which 43.5ha is within the site limits, and 2.9ha is external (from the easterly adjacent subdivision and potential future development on the table lands south of Street 'B'/east of Street 'C'). During major storm events, the total pond tributary area is 54.3ha, as shown in the enclosed Post-Development Storm Drainage System and Areas Figure.

The northerly wetland will receive surface water inflows from the rear yards of lots adjacent to the wetland (2.28ha estimated, to be confirmed upon development of northern block), as well as the existing easterly rear yards that flow through the site (0.12ha), providing a total estimated post-development drainage area of 2.40ha.

Post-development flows westerly to the Shaw Drain will be limited to major flows from the Christie Drive roadway extension at the west limit of the site (0.75ha). Under minor storm events all flow from the west side of the site will be routed towards the proposed wet pond.

The westerly wetland will only receive drainage from the Acorn Valley lands through 0.39ha of adjacent rear yards, at the south limit of Street 'D'.

The proposed high-density block will have all storm drainage routed towards the proposed wet pond.

The table below summarizes the post-development drainage areas to each respective site outlet. The areas below are based on minor storm drainage areas. The only change for major storms is 0.75ha of runoff from the west end of the Christie Drive roadway, which is tributary in major storms to the Shaw Drain tributary. Tributaries for the northern development blocks will potentially be refined upon build-out of that portion of the site in the future.

Table 9 Acorn Valley Post-Development Drainage Area Summary

	Acorn Valley Subdivision				
	Area (ha)	Area %	Runoff Coefficient (C)	% Impervious	Curve Number (CN)
Rath-Harris Drain & Southeasterly Ravine	43.51	94.1 %	0.60	55 %	76
Northerly Wetland (Tamarack Swamp)	2.28	4.9 %	0.30	15 %	57
Shaw Drain	0.00	0.00 %	-	-	-
Westerly Wetland	0.39	1.00 %	0.30	15 %	57
TOTAL	46.18	100.0 %	0.57	53 %	75

The proposed stormwater collection system will be sized to accommodate the 2-year design storm with an initial time of concentration of 19.0 minutes, as per the Thames Centre Engineering Design Standards (2023).

Each housing unit will be provided with an individual 150mmØ storm PDC.

4.2. Open Channel Design

The proposed open channel on the north side of Christie Drive is approximately 550m in length and has a longitudinal slope of 0.3 – 0.4%. The open channel is a 2-tier design, with a low-flow channel to handle the quality storm event, and an upper channel to handle up to the 100-year design storm. Major flow during the 250-year (Regional) design storm for the north half of the subdivision will be directed towards the proposed open channel, where flows will travel east and will overtop towards Street 'D' and Christie Drive into the SWM pond.

The low-flow channel consists of a 0.6m wide flat-bottom channel with a depth of 0.3m and 3H:1V side slopes. This lower channel will convey the 25.4mm – 4 hour quality storm. The upper channel has a 3.4m wide flat-bottom section, with a total depth of 0.7m and 4H:1V side slopes. The total channel depth is 1.0m with an overall width of 9.0m.

The table below summarizes the post-development peak flows within the open channel at the crossing of Street 'D', the multi-use trail crossing between Street 'D'/'B', and the channel outlet at Street 'B'. All flows up to the 100-year storm event are contained within the open channel with a minimum 0.25m freeboard to the top of channel before overtopping onto Street 'B' and into the SWM pond.

Table 10 Open Channel Post-Development Results

Design Storm	Street 'D' Crossing		Multi-Use Trail Crossing		Street 'B' Outlet	
	Peak Flow (m ³ /s)	Flow Depth (m)	Peak Flow (m ³ /s)	Flow Depth (m)	Peak Flow (m ³ /s)	Flow Depth (m)
25.4mm – 4 Hour	0.23	0.34	0.26	0.34	0.26	0.34
2-Year	0.52	0.50	0.54	0.50	0.54	0.50
5-Year	0.56	0.53	0.60	0.53	0.63	0.53
10-Year	0.64	0.56	0.70	0.56	0.70	0.56
25-Year	0.76	0.61	0.79	0.61	0.92	0.61
50-Year	0.87	0.66	0.91	0.66	1.23	0.66
100-Year	0.97	0.70	1.02	0.70	1.34	0.73
250-Year (Regional)	1.12	0.76	1.18	0.76	1.58	0.87

The road centerline of Street 'D' is approximately 1.7m above the bottom of the open channel, and is the overflow point for this upper portion of the channel if the road crossing was blocked. A 1050mmø precast concrete culvert is proposed to convey channel flows underneath Street 'D'. The 1050mmø culvert is able to convey the 250-year (Regional) storm event with 0.83m of upstream ponding, providing 0.87m of freeboard depth before overtopping the roadway and into the next section of the channel further downstream. Autodesk Hydraflow Express was used to model the culvert hydraulics under Regional Storm conditions to verify the headwater conditions and flow levels, as noted above. Please see the results for the Regional Storm event culvert hydraulics in Appendix 'A'.

The centerline of the multi-use trail crossing between Street 'D'/Street 'B' is approximately 1.7m above the bottom of the open channel. A 1200mmø precast concrete culvert is proposed to carry flows below the multi-use trail crossing, which provides 1.0m of freeboard during the 250-year (Regional) storm

event before overtopping the multi-use trail. Autodesk Hydraflow Express results for the Regional Storm event are provided in Appendix 'A'.

The centerline of Street 'B' at the channel outlet is approximately 1.8m above the bottom of the open channel, and is the lowest overflow point for the open channel if the outlet is blocked. The 250-year (Regional) storm event is able to be conveyed through the proposed 1500mmØ storm sewer inlet with a flow depth of 0.87m, providing 0.93m of freeboard depth before overtopping the roadway towards the wet pond.

4.3. SWM Pond Design

The stormwater management wet pond is designed to serve a total tributary area of 46.4ha for minor storms, and 54.3ha for major storms (additional 7.9ha major storm inflow from existing subdivision to the east). The pond tributary catchments are summarized in the table below.

Table 11 SWM Pond Tributary Area Summary

		Proposed SWM Pond					
		Area (ha)	Area % (Minor)	Area % (Major)	Runoff Coefficient (C)	% Impervious	Curve Number (CN)
Internal	Open Space	5.61	12.1 %	10.3 %	0.25	5 %	51
	Low-Density Residential	31.71	68.4 %	58.5 %	0.60	55 %	76
	Future Medium-Density Residential	2.27	4.9 %	4.2 %	0.70	65 %	81
	High-Density Residential	3.93	8.5 %	7.2 %	0.80	75 %	86
External (Minor)	Existing Low-Density Residential	1.55	3.3 %	2.9 %	0.55	45 %	71
	Future Low-Density Residential	1.32	2.8 %	2.4 %	0.60	55 %	76
External (Major)	Existing Low-Density Residential	7.86	-	14.5 %	0.55	45 %	71
TOTAL (MINOR)		46.39	100.0 %	-	0.57	50 %	74
TOTAL (MAJOR)		54.25	-	100.0 %	0.57	49%	73

The proposed wet pond consists of a forebay for collection of sediment, before entering the main pond cell. An earthen berm separates the forebay and main pond cell. The top of the berm (Elev. = 254.35m) is set to 0.15m below the permanent water level elevation (Elev. = 254.50m).

The forebay was sized to adhere to Section 4.6.2 of the MECP SWM Planning and Design Manual (2003).

The settling distance required for the forebay is a function of the length-to-width ratio of the forebay, the peak flow rate from the pond during quality storm event, and the settling velocity of the sediment particles (typically 0.0003 m/s) (MECP, 2003). The settling distance required can be expressed by the following equation;

$$\text{Dist} = \sqrt{\frac{rQ_p}{V_s}} \quad (\text{MECP, 2003})$$

$$r = \text{length-to-width ratio of forebay} = \frac{50.0 \text{ m}}{6.5 \text{ m}} = 7.85:1$$

$$Q_p = \text{peak flow rate from the pond during the quality storm event} = 0.05 \text{ m}^3/\text{s}$$

$$V_s = \text{settling velocity of sediment particles} = 0.0003 \text{ m/s}$$

The resulting settling distance required is 36.2m. The proposed forebay bottom is 51.0m in length, sufficiently exceeding the required settling distance.

The dispersion length required for the forebay is a function of the inlet flowrate (based on 10-year design storm for quantity and quality control facility), the depth of the permanent pool, and the desired outlet velocity from the forebay (0.5 m/s maximum recommended) (MECP, 2003). The dispersion length required can be expressed by the following equation;

$$\text{Dist} = \frac{8Q}{dV_f} \quad (\text{MECP, 2003})$$

$$Q = \text{inlet flowrate (10-year design storm)} = 4.69 \text{ m}^3/\text{s}$$

$$d = \text{depth of permanent pool in the forebay} = 1.50 \text{ m}$$

$$V_f = \text{desired velocity at the forebay outlet} = 0.5 \text{ m/s}$$

The resulting dispersion length required in the forebay is 50.0m. The proposed forebay bottom is 51.0m in length, meeting the calculated dispersion length requirement.

The minimum forebay bottom width is stated in the MECP SWM Planning and Design Manual to be 1/8th of the forebay length. The proposed forebay bottom length is 51.0m, resulting in a minimum bottom width of 6.4m. The proposed forebay bottom is 6.5m, which satisfies this requirement.

The cleanout frequency of the forebay is required to be a minimum of 10 years (MECP, 2003). Table 6.3 of the MECP SWM Planning and Design Manual indicates a sediment accumulation of 1.6 m³/ha, annually for a catchment of 50% imperviousness (MECP, 2003). The total pond tributary of 46.4ha results in a sediment accumulation of 73.1 m³/year. The total forebay permanent pool volume provided is 1,110 m³, resulting in a cleanout frequency of 15.2 years, which sufficiently exceeds the minimum 10-year requirement.

The permanent pool volume within the SWM pond consists of passive (permanent storage) for quality control purposes. The passive storage volume was determined in accordance with Table 3.2 of the MECP

SWM Planning and Design Manual (2003) based on enhanced (80% TSS removal) quality control. The required passive storage is as follows;

Table 12 SWM Pond Passive Storage

	Tributary Area (Minor Storms)	% Imperviousness	Passive Storage (Table 3.2, MECP 2003)	Total Passive Storage
Permanent Storage	46.39 ha	50 %	137.5 m ³ /ha	6,379 m ³

The proposed SWM pond provides 6,460 m³ of passive storage, which adequately exceeds the required storage (6,379 m³) as outlined in the table above.

The proposed forebay permanent pool area is 1,350 m² and is 20.8% of the overall pond permanent pool area of 6,485 m² which is sufficiently below the maximum forebay area of 33% of the overall pond permanent pool, as specified in Table 4.6 of the MECP SWM Planning and Design Manual (2003).

The passive storage within the forebay is 1,110 m³ and is 17.3% of the overall pond passive storage (6,379 m³) which adheres to the preferred maximum forebay volume of 20% of the overall pond permanent storage, as specified in Table 4.6 of the MECP SWM Planning and Design Manual (2003).

A 3.0m maintenance access/walking trail is proposed to be constructed around the south, east and west sides of the SWM pond. The north side of the pond and a portion of the east are adjacent to roadways (Christie Drive and Street 'B'), which can be utilized for maintenance access.

Pond side slopes will be 7H:1V for 0.5m in height above and below the permanent water level. Side slopes more than 0.5m below the permanent water level will be 4H:1V, with 5H:1V side slopes used above the permanent water level.

The pond outlet structure has been designed to restrict post-development peak outflows to pre-development levels up to the 100-year design storm, while safely conveying the 250-year (Regional) storm event. The proposed outlet structure will consist of a 2100mm wide x 900mm deep rectangular precast concrete structure. A 1000mmØ corrugated metal standpipe complete with a 450mmØ pipe connection to the outlet structure is proposed, completed with a stone cone to filter sediment while allowing for water inflow. The 450mmØ standpipe connection will be set to the permanent water elevation (254.50m) at the outlet structure. A 170mmØ circular outlet orifice will restrict outflows from this standpipe connection for minor storms. An upper weir is proposed to be constructed in the precast outlet structure complete with horizontal grating to mitigate any debris entering the outlet structure. The upper weir will be trapezoidal in shape and consist of a 1.15m wide bottom at an elevation 255.90m and have 1H:4V side slopes. The top of the outlet structure will be set to match the top of the pond bank (256.80m).

The pond outlet structure will drain through a 750mmØ outlet pipe releasing to the southeasterly ravine, downstream of the existing on-line pond in the southeast corner of the site. Cable-concrete matting will be used at the storm pipe outlet to create a 0.3m deep plunge pool to protect the existing ravine from erosion.

A 0.3m deep emergency overflow will be provided above the 100-year ponding level, to act as an emergency spillway for the 250-year (Regional) storm event. This 0.3m deep overflow will be graded across the proposed maintenance access/walking trail, and will continue down the existing slope to the bottom of the existing on-line pond. The emergency overflow path will be concentrated to contain flows and will be complete with cable-concrete matting to mitigate any erosion concerns.

The proposed outlet structure design allows for a total draw down time of 48 hours for the 25.4mm – 4 Hour Quality storm, with 50% of the pond active storage being dissipated within the first 24 hours.

Complete post-development Autodesk® Storm and Sanitary Analysis (SSA) modelling results have been included in Appendix 'B'. The table below provides a summary of the modelling results for all storm events for the proposed SWM pond.

Table 13 SWM Pond Post-Development Modelling Results

Design Storm	Controlled Pond Outflow (m ³ /s)	Pond Water Level (m)	Pond Top of Bank Freeboard (m)
25.4mm – 4 Hour (Quality)	0.05	255.18	1.62
2-Year	0.12	255.99	0.81
5-Year	0.18	256.03	0.77
10-Year	0.31	256.12	0.68
25-Year	0.54	256.25	0.55
50-Year	0.83	256.38	0.42
100-Year	1.12	256.49	0.31
250-Year (Regional)	1.86	256.62	0.18

The stage-storage discharge relationship for the proposed SWM pond design is shown on the table below.

Table 14 SWM Pond Stage-Storage Discharge

WATER ELEV. (m)	DEPTH			STORAGE PROVIDED					PEAK DISCHARGE				NOTES
	PASSIVE (m)	ACTIVE (m)	TOTAL (m)	PASSIVE	ACTIVE			TOTAL (m3)	ORIFICE (m3/s)	WEIR (m3/s)	OVERFLOW (m3/s)	TOTAL (m3/s)	
				PERMANENT POOL (m3)	QUALITY (m3)	QUANTITY (m3)	TOTAL ACTIVE (m3)						
253.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	POND & FOREBAY BOTTOM
254.50	1.50	0.0	1.50	6422	0.0	0.0	0.0	6422	-	-	-	-	TOP OF PERMANENT POOL
255.18	1.50	0.68	2.18	6422	5387	0.0	5387	11809	0.05	0.00	-	0.05	STREAM BANK EROSION / QUALITY STORM
255.99	1.50	1.49	2.99	6422	5387	7887	13274	19696	0.07	0.05	-	0.12	2-YEAR STORM
256.03	1.50	1.53	3.03	6422	5387	8438	13825	20247	0.08	0.10	-	0.18	5-YEAR STORM
256.25	1.50	1.75	3.25	6422	5387	10710	16097	22519	0.08	0.46	-	0.54	25-YEAR STORM
256.49	1.50	1.99	3.49	6422	5387	13708	19095	25517	0.08	1.04	-	1.12	100-YEAR STORM
256.62	1.50	2.12	3.62	6422	5387	14416	19803	26225	0.08	1.19	0.59	1.86	250-YEAR STORM (REGIONAL)

TYPE	REQUIRED STORAGE (m ³ /ha)	TRIBUTARY AREA (ha)	REQUIRED STORAGE (m ³)
PASSIVE	137.5	46.39	6379
ACTIVE (QUALITY/EROSION)	40	46.39	1856
ACTIVE	412	46.39	19095
TOTAL	565	46.39	26225

4.4. Rath-Harris Drain & Southeasterly Ravine/Wetland

The Rath-Harris Drain, as discussed in Section 3.1 above, is upstream of the Acorn Valley Subdivision site. After development of the subdivision, the Rath-Harris Drain will remain in place under pre-development conditions.

The proposed SWM pond will outlet to the southeasterly ravine, downstream of the outlet of the Rath-Harris Drain, and downstream of the existing on-line pond in the southeast corner of the site. A total of 46.39ha will be tributary to the southeast ravine from the SWM pond during minor storm events, and 54.25ha under major storm events. The SWM pond outlet will restrict post-development outflows from the site to ensure that when combined with the existing pre-development outflows, the overall peak flows the southeasterly ravine experiences are not exceeded after development of the subdivision. The table below summarizes the pre- and post-development peak flows to the southeasterly ravine.

Table 15 Southeasterly Ravine Post-Development Peak Flows

Design Storm	Southeast Ravine Pre-Development Peak Outflow (m ³ /s)	Southeast Ravine Post-Development Peak Outflow (m ³ /s)
25.4mm – 4 Hour (Quality)	1.33	1.33
2-Year	2.51	2.50
5-Year	2.90	2.88
10-Year	3.74	3.67
25-Year	5.01	4.94
50-Year	6.39	6.33
100-Year	7.73	7.71
250-Year (Regional)	10.20	10.36

4.5. Northerly Wetland (Tamarack Swamp)

Under post-development conditions, the northerly wetland will receive inflows from existing and proposed rear yards of the residential dwellings that back onto the wetland area (2.4ha). This post-development drainage will mainly consist of grassed rear yards, which are not anticipated to provide surface water quality concerns. The table below demonstrates that post-development drainage from adjacent rear yards will approximately match pre-development levels up to the 25-year storm. For larger storm events, post-development flows are further restricted when compared to pre-development levels.

Table 16 Northerly Wetland (Tamarack Swamp) Post-Development Peak Flows

Design Storm	Northerly Wetland Pre-Development Peak Outflow (m ³ /s)	Northerly Wetland Post-Development Peak Outflow (m ³ /s)
25.4mm – 4 Hour (Quality)	0.05	0.08
2-Year	0.09	0.11
5-Year	0.11	0.12
10-Year	0.17	0.16
25-Year	0.26	0.23
50-Year	0.37	0.29
100-Year	0.47	0.35
250-Year (Regional)	0.65	0.45

4.6. Shaw Drain

Under post-development conditions the portion of the Acorn Valley Subdivision site tributary to the Shaw Drain will be redirected towards the proposed SWM pond and ultimately the southeasterly ravine outlet. The existing irrigation pond on the northwest side of the site is proposed to be decommissioned in the future to allow for full build-out of the northerly development block. The westerly portion of the Harris Road lands will remain tributary to the Shaw Drain, matching pre-development conditions, after build-out of the Acorn Valley Subdivision. The table below summarizes the results of the pre- and post-development stormwater modelling, verifying that pre-development peak flows will not be exceeded after development of the subdivision.

Table 17 Shaw Drain Post-Development Peak Flows

Design Storm	Shaw Drain Pre-Development Peak Outflow (m ³ /s)	Shaw Drain Pre-Development Peak Outflow (m ³ /s)
25.4mm – 4 Hour (Quality)	0.05	0.01
2-Year	0.07	0.01
5-Year	0.09	0.02
10-Year	0.12	0.02
25-Year	0.18	0.04
50-Year	0.25	0.05
100-Year	0.31	0.06
250-Year (Regional)	0.43	0.08

4.7. Westerly Wetland

The westerly wetland, as discussed in Section 3.4 above, is considered locally significant. Under post-development conditions, the portion of the Acorn Valley Subdivision site that is tributary to this outlet will become part of the high-density development block, and will have all runoff directed towards the proposed SWM pond and ultimately the southeast ravine outlet. The portion of the Harris Road lands currently tributary to this wetland will remain under pre-development conditions after build-out of the Acorn Valley site. The table below demonstrates that post-development peak flows to the westerly wetland are less than pre-development levels, but similar in magnitude for surface runoff.

Table 18 Westerly Wetland Post-Development Peak Flows

Design Storm	Westerly Wetland Pre-Development Peak Outflow (m ³ /s)	Westerly Wetland Post-Development Peak Outflow (m ³ /s)
25.4mm – 4 Hour (Quality)	0.06	0.04
2-Year	0.09	0.06
5-Year	0.10	0.06
10-Year	0.12	0.07
25-Year	0.16	0.08
50-Year	0.19	0.09
100-Year	0.23	0.10
250-Year (Regional)	0.30	0.12

4.8. Post-Development Summary

The table below summarizes the pre- and post-development peak flows to each stormwater outlet for the Acorn Valley Subdivision site. All post-development peak outflows have been restricted to pre-development levels, apart from the Quality, 2, and 5-Year storm events to the Northerly Wetland (Tamarack Swamp). These minor exceedances are considered acceptable to keep as much clean surface water runoff as possible towards the wetland under post-development conditions. It should be noted the 250-Year (Regional) storm event is safely conveyed through the pond, but not restricted in its outflow.

Table 19 Post-Development Peak Outflow Summary

		Peak Outflow (m ³ /s)							
		25.4mm – 4 Hour (Quality)	2 Year	5 Year	10 Year	25 Year	50 Year	100 Year	250 Year (Regional)
Rath-Harris Drain & Southeasterly Ravine	Pre-Development	1.33	2.51	2.90	3.74	5.01	6.39	7.73	10.20
	Post-Development	1.33	2.50	2.88	3.67	4.94	6.33	7.71	10.36
	SWM Pond Outlet	0.05	0.12	0.18	0.31	0.54	0.83	1.12	1.86
Northerly Wetland (Tamarack Swamp)	Pre-Development	0.05	0.09	0.11	0.17	0.26	0.37	0.47	0.65
	Post-Development	0.08	0.11	0.12	0.16	0.23	0.29	0.35	0.45
Shaw Drain	Pre-Development	0.05	0.07	0.09	0.12	0.18	0.25	0.31	0.43
	Post-Development	0.01	0.01	0.02	0.02	0.04	0.05	0.06	0.08
Westerly Wetland	Pre-Development	0.06	0.09	0.10	0.12	0.16	0.19	0.23	0.30
	Post-Development	0.04	0.06	0.06	0.07	0.08	0.09	0.10	0.12

5. WATER BALANCE

The Hydrogeological Investigation for the site included a preliminary water balance including a pre- to post-development comparison of infiltration rates. The analysis concluded that without any mitigation measures, the groundwater infiltration could potentially be reduced to approx. 37% of pre-development levels. Englobe further conducted a preliminary assessment of the proposed open-channel to increase surface contact area and encourage infiltration. It was indicated that the proposed open channel has the potential to provide a balance of pre- to post-development infiltration rates for the site to ensure no negative impacts to the surrounding environment.

In order to ensure runoff draining to the open channel is of high quality, an oil-grit separator or other water quality treatment chamber will be required for the roadway areas draining to the north limit of the channel. The remainder of the tributary to the open channel consists of grassed yards and roof drainage, which are considered to be of higher quality than roadway areas.

Grassed rear yard runoff from the future lots at the north limit of the site will also supplement flows to the northerly wetland through direct sheet flow runoff.

6. EROSION AND SEDIMENTATION CONTROL

6.1. Subdivision/SWM Design

Proposed road surfaces will be hot-mix asphalt with concrete curb and gutter to prevent erosion in the roadway areas. The SWM pond inlet will be protected from erosion by the use of a reinforced concrete headwall and cable concrete matting. The pond outlet chamber will be reinforced concrete protected by cable concrete matting and graded to blend with the surrounding slopes. The pond, and surrounding area will be restored with topsoil and seed. Catchbasins will contain 600mm minimum deep sumps which will collect sediment.

Quantity control provided by the wet pond facility combined with the proposed outlet headwall and plunge pool will ensure erosion protection of the receiving southeasterly ravine. The wet pond is provided with a sediment forebay to facilitate maintenance by capturing suspended sediment at the inlet of the pond, which in turn will decrease flow velocity through the remainder of the pond.

Vegetative plantings along the pond banks and bottoms will be placed to provide scouring protection and further erosion protection. Natural species will be selected to compliment the surrounding ecological communities, including grasses, bushes, and trees in strategic locations to provide habitat enhancement within the SWMF. A detailed planting plan will be developed during the detailed design phase of this project.

All finished earth surfaces will be topsoiled and seeded. Areas susceptible to erosion will be protected with sod, staked sod, riprap and/or cable concrete as conditions warrant. The SWM area will be unfenced.

Trees and shrubs will be planted in conjunction with subdivision development. Species tolerant to more frequent and prolonged submergence will be selected for the lower wet pond area, while species less tolerant to submergence will be selected for the upper area. An emphasis will be placed on reduced maintenance and compatibility with the adjoining ecosystems.

6.2. Construction Practices

Topsoil stripping and bulk grading will be completed prior to underground servicing. Areas that do not have active housing construction will be seeded and allowed to re-vegetate. Silt fence will be placed at surface runoff locations and across drainage courses. As servicing progresses, silt fence (with straw bales, if required) will be placed across all drainage swales at 100m maximum intervals, including catchbasins and piped outlets and/or as directed on site.

Topsoil piles will be located for suitable access, but will be removed as far as practical from drainage courses and the stormwater management area. Topsoil stockpiles will be shaped to allow for easy maintenance (mowing) by the Developer. Site access during construction will be restricted as much as possible.

Storm sewers and initial granular roadbase will be installed by a General Contractor. In addition to the silt fence, the Contractor will place geotextile under all catchbasin and manhole castings to prevent the flow of construction silt into the storm sewers and to the receiving water courses. The Contractor will also place silt fence around the stormwater management pond inlets and outlets.

All silt will be removed as accumulated and/or as directed by the Engineer on site. Catchbasins will be cleaned by the Contractor during construction to remove any silt which may accumulate.

All finished earth surfaces will be topsoiled and seeded. Areas susceptible to erosion will be protected by sod, staked sod, riprap and/or cable concrete as conditions warrant. The Contractor will be required to return within the guaranteed maintenance period to remedy any areas of erosion which develop.

6.3. Maintenance

The storm sewers and technical aspects of the stormwater management pond area will be maintained by the Municipality of Thames Centre, upon final inspection and acceptance.

Accumulation of sediment in the pond will be monitored by Thames Centre following assumption and removed on an as-needed basis, with disposal to appropriate sites after testing of the material to be removed. Catchbasin sumps shall also be cleaned by Thames Centre on a regular basis after assumption to remove any accumulated sediment.

7. CONCLUSIONS

Stormwater management within the Acorn Valley Subdivision has been designed to reduce environmental, quality, and quantity impacts on downstream receptors by restricting peak outflows to pre-development levels through implementation of a SWM wet pond providing enhanced quality control for the development.

Loss of groundwater recharge for the site under post-development conditions will be mitigated through the implementation of the central open channel to encourage surface contact area and subsequently infiltration, as well as the grassed rear yards of future lots at the north limit of the site that will offer direct sheet flow to the northerly wetland.

Storm sewers will be installed to convey minor flows from within the subdivision to the proposed SWM wet pond facility. Subdivision grading design has been advanced to ensure major flows can be safely conveyed to the SWM facility, with an emergency overflow to the southeasterly ravine.

** ** **

All of which is respectfully submitted by,



Alex Muirhead, P. Eng.



Deren Lyle, P. Eng.

AM/kc

References

1. Stormwater Management Planning and Design Manual (Ministry of the Environment, Conservation and Parks, March 2003).
2. Municipality of Thames Centre Engineering Design Standards – 2023 Edition (Municipality of Thames Centre, March 2023).
3. Low Impact Development Stormwater Management Planning and Design Guide (Toronto and Region Conservation Authority, Credit Valley Conservation Authority, Lake Simcoe Region Conservation Authority, 2010)
4. Scoped Environmental Impact Study (Vroom + Associates, June 2025).
5. Geotechnical Engineering Report (Englobe, April 2025).
6. Hydrogeology Study Report (Englobe, April 2024).
7. Rath-Harris Municipal Drain Improvement, Township of North Dorchester (W.J. Bartlett & Associates Ltd., September 1989).
8. Shaw Municipal Drain Repair & Improvement, Township of North Dorchester (H.M. Gibson & Associates Ltd., December, 1977).

FIGURES

Figure 1: Phasing Plan

Figure 2: Pre-Development Stormwater Tributaries

Figure 3: Post-Development Stormwater Tributaries

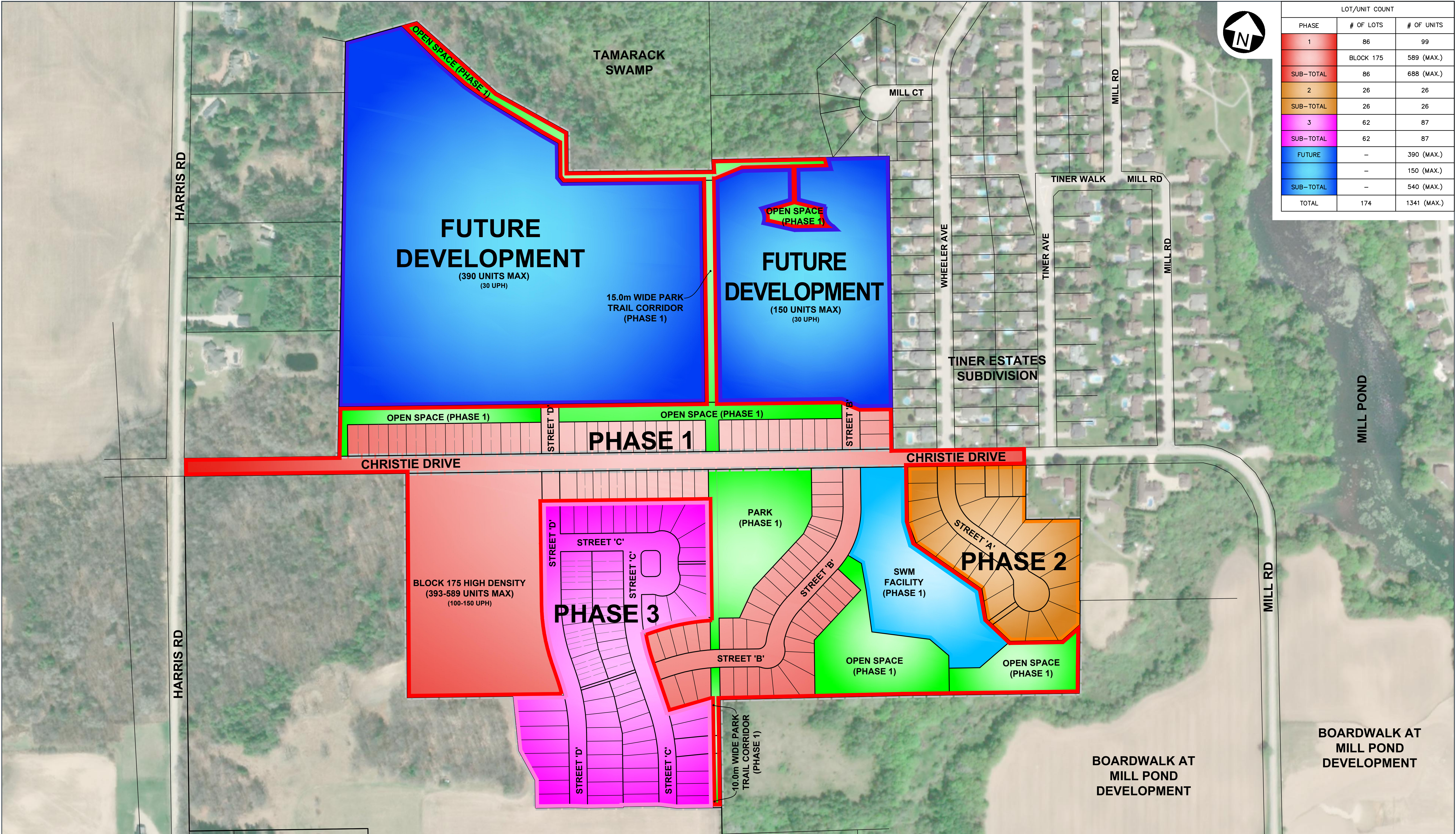
Figure 4: SWM Pond Preliminary Plan & Profiles

Figure 5: Christie Drive Preliminary Plan & Profiles

Figure 6: Open Channel Preliminary Plan & Profiles

Figure 7: Open Channel Preliminary Cross-Section

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LOT/UNIT COUNT		
PHASE	# OF LOTS	# OF UNITS
1	86	99
BLOCK 175		589 (MAX.)
SUB-TOTAL	86	688 (MAX.)
2	26	26
SUB-TOTAL	26	26
3	62	87
SUB-TOTAL	62	87
FUTURE	-	390 (MAX.)
SUB-TOTAL	-	150 (MAX.)
SUB-TOTAL	-	540 (MAX.)
TOTAL	174	1341 (MAX.)

LEGEND

— SITE BOUNDARY

NOTE:

- SOME PHASES MAY BE FURTHER SUBDIVIDED OR ALTERED.

CONSULTANT:

CJDL

Consulting Engineers

Civil & Mechanical Limited
P.O. Box 450, 261 Broadway
Tilbury, Ontario, N4G 4H6
Tel: 519-888-1000
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cjd@cjdeng.com

STAMP:

REVISION		
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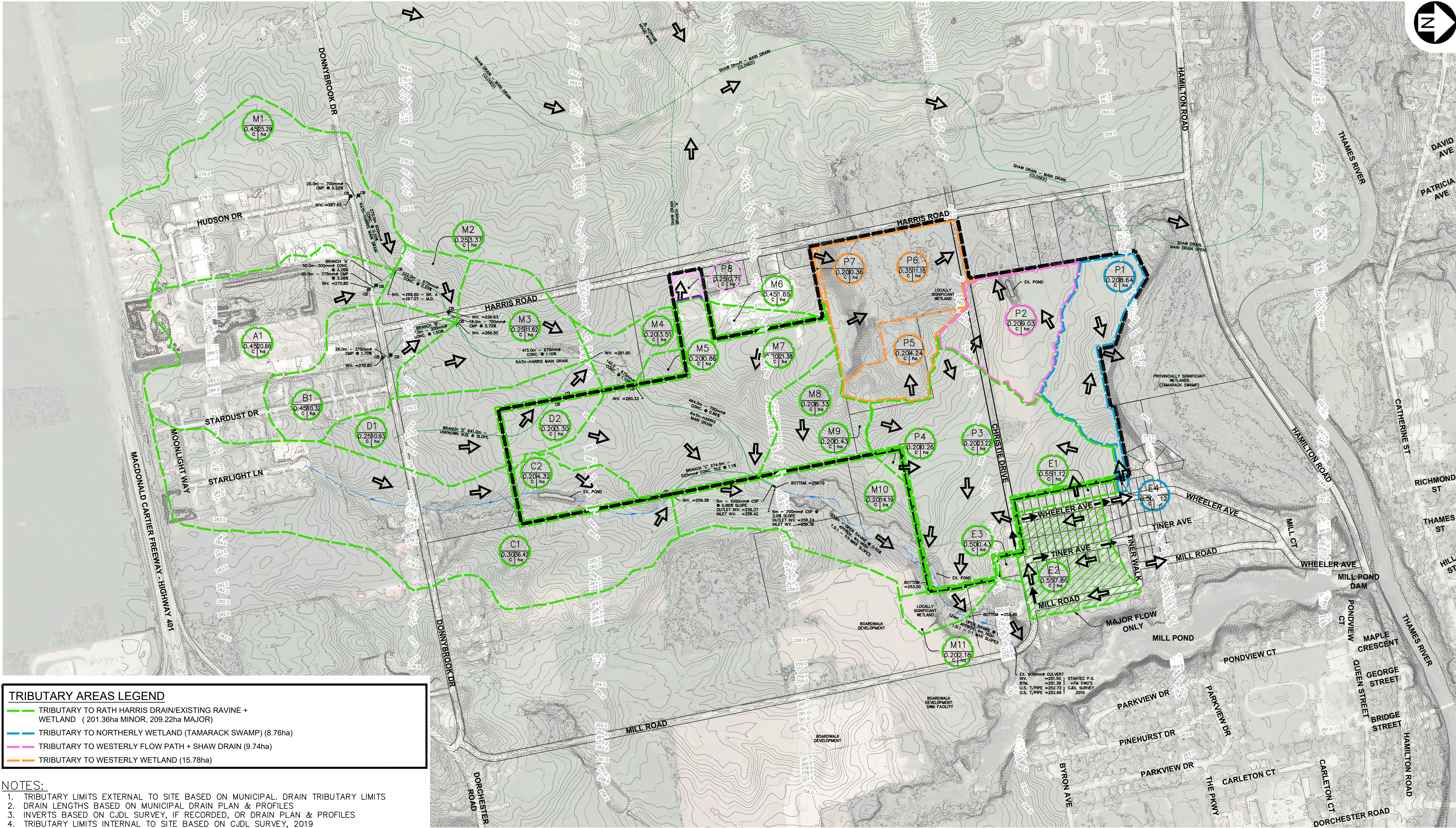
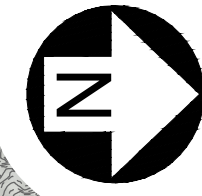
PHASING PLAN

CONTRACT #: 18010

PROJECT NAME: ACORN VALLEY SUBDIVISION
RP 11M-XXX
DOUG TARRY LIMITED

SCALE: 1:2000

DRAWING #: **F1**



TRIBUTARY AREAS LEGEND

- TRIBUTARY TO RATH HARRIS DRAIN/EXISTING RAVINE + WETLAND (201.36ha MINOR, 209.22ha MAJOR)
- TRIBUTARY TO NORTHERLY WETLAND (TAMARACK SWAMP) (8.76ha)
- TRIBUTARY TO WESTERLY FLOW PATH + SHAW DRAIN (9.74ha)
- TRIBUTARY TO WESTERLY WETLAND (15.78ha)

NOTES:

- TRIBUTARY LIMITS EXTERNAL TO SITE BASED ON MUNICIPAL DRAIN TRIBUTARY LIMITS
- DRAIN LENGTHS BASED ON MUNICIPAL DRAIN PLAN & PROFILES
- INVERTS BASED ON CJD L SURVEY, IF RECORDED, OR DRAIN PLAN & PROFILES
- TRIBUTARY LIMITS INTERNAL TO SITE BASED ON CJD L SURVEY, 2019

LEGEND

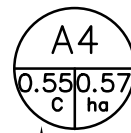
- PROPOSED STORM SEWER
- EXISTING STORM SEWER
- FUTURE STORM SEWER
- CL EXISTING WATERCOURSE
- SUBDIVISION LIMITS
- LIMIT OF DRAINAGE AREA



METRIC CONTOUR ELEVATIONS IN METRES
(BY CJD L SITE SURVEY)

MAJOR OVERLAND FLOW ROUTE

MINOR FLOW



AREA NUMBER

AREA IN HECTARES

RUN-OFF COEFFICIENT

CONSULTANT:

CJD L

Consulting Engineers

1000 SHEPPARD AVE. E. SUITE 100

SCARBOROUGH, ONTARIO M1S 1T5

TEL: 416-291-1111 FAX: 416-291-1112

WWW.CJDL.COM

STAMP:



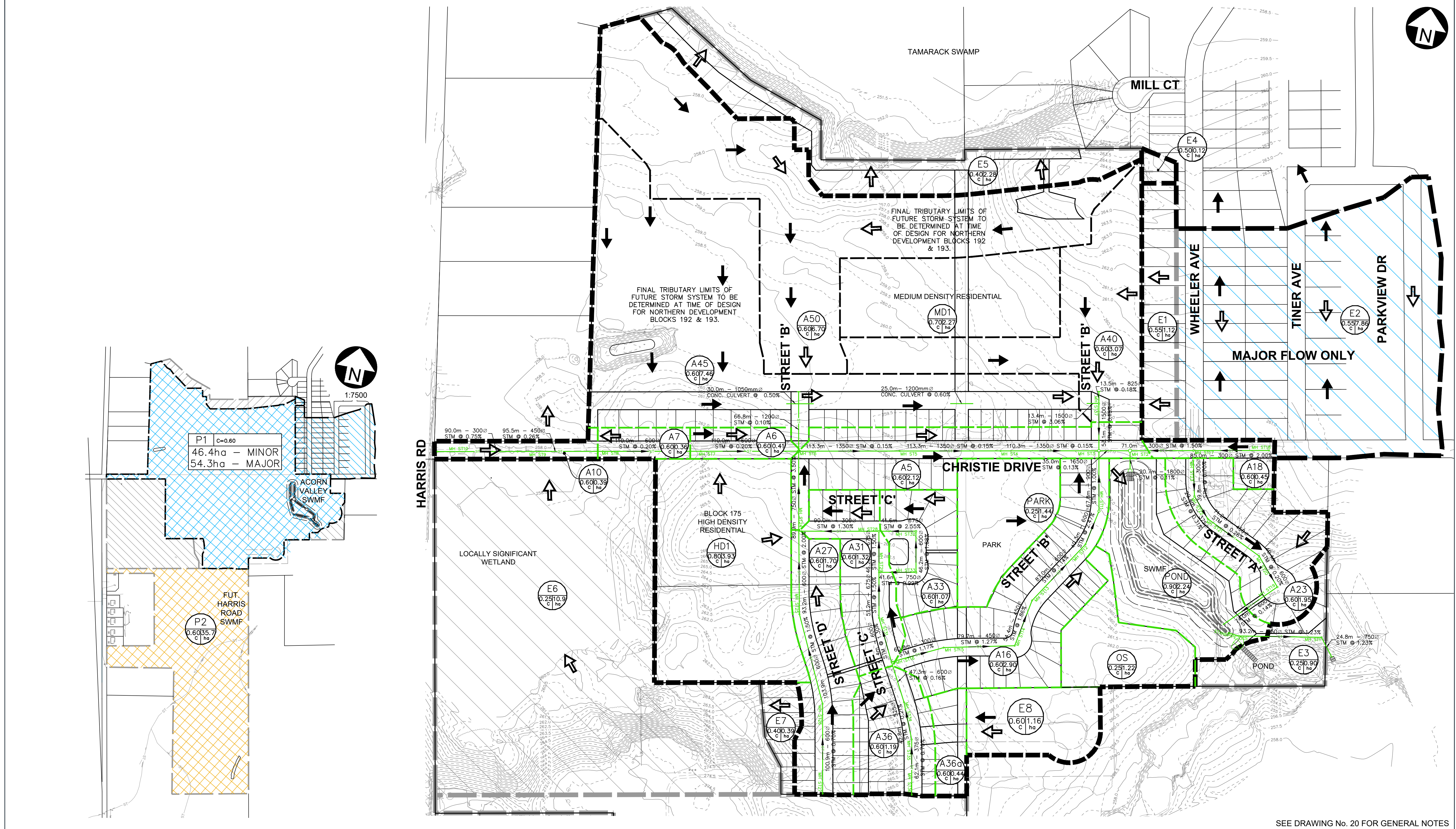
REVISION

#	DESCRIPTION	DD/MM/YYYY	BY

PRE-DEVELOPMENT
STORMWATER TRIBUTARIES

CONTRACT #: 18010 SCALE: 1:5000
PROJECT NAME: ACORN VALLEY SUBDIVISION
RP 11M-XXX DOUG TARRY LIMITED
DRAWING #: F2

\\ACAD Projects\2018\1801004-Layouts\18010_Storm Trib.dwg, 2025-06-25 10:16:14 AM, CUDLPC47, 125.4



SEE DRAWING No. 20 FOR GENERAL NOTES

LEGEND

- PROPOSED STORM SEWER
- EXISTING STORM SEWER
- FUTURE STORM SEWER
- PROPOSED MANHOLE, EXISTING/FUTURE
- PROPOSED CATCHBASIN, EXISTING/FUTURE
- LIMIT OF DRAINAGE AREA

METRIC CONTOUR ELEVATIONS IN METRES (BY CJD.L SITE SURVEY)

MAJOR OVERLAND FLOW ROUTE

STORM WATER DRAINAGE TO SWM FACILITY

2.1Ac (0.85ha)

A27
0.5535.7
C ha

AREA NUMBER

AREA IN HECTARES

RUN-OFF COEFFICIENT

CONSULTANT:

CJD.L
Consulting Engineers

Civil J. Demoyere Limited
P.O. Box 450, 261 Broadway
Toronto, Ontario, M4G 1H6
Tel: 519-488-1000
Fax: 519-488-1001
cjd@cjdl.com

STAMP:

PROFESSIONAL ENGINEER
D.J. LYLE
10012-7172
PROVINCE OF ONTARIO

PROFESSIONAL ENGINEER
MURHEAD
100543499
PROVINCE OF ONTARIO

REVISION		
#	DESCRIPTION	DD/MM/YYYY BY

STORM DRAINAGE SYSTEM AND AREAS

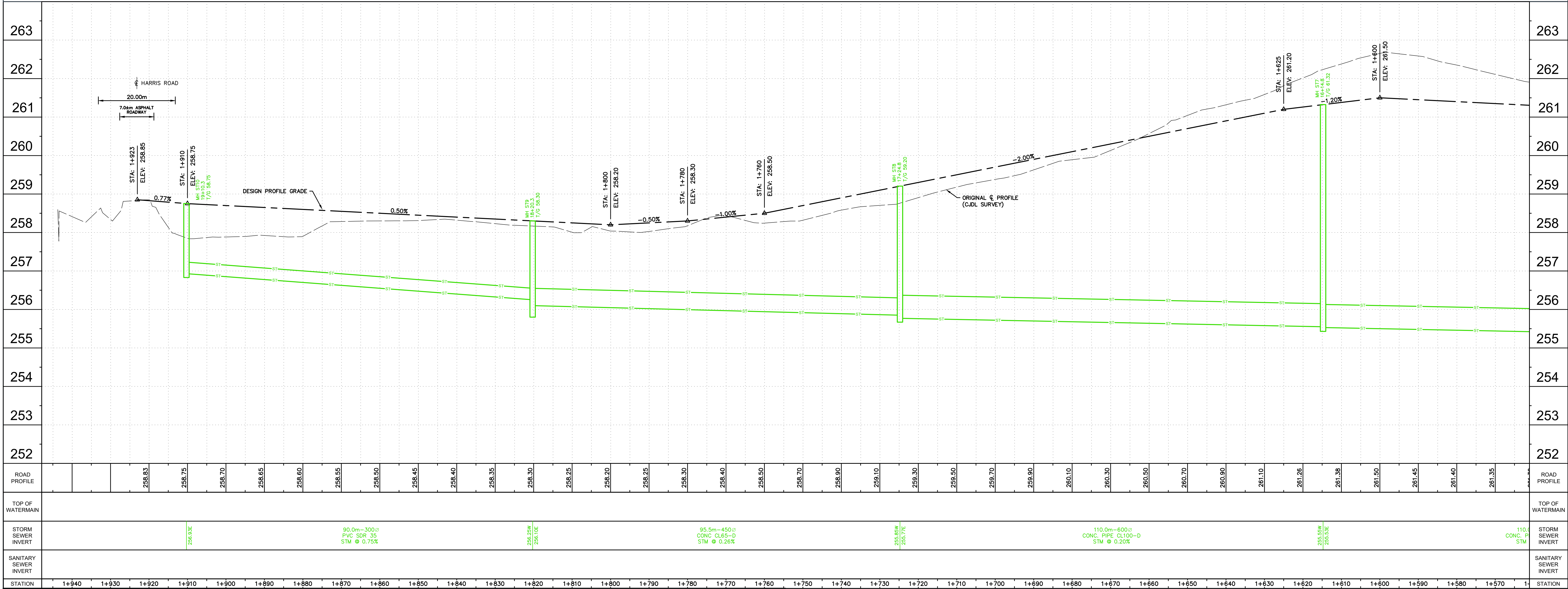
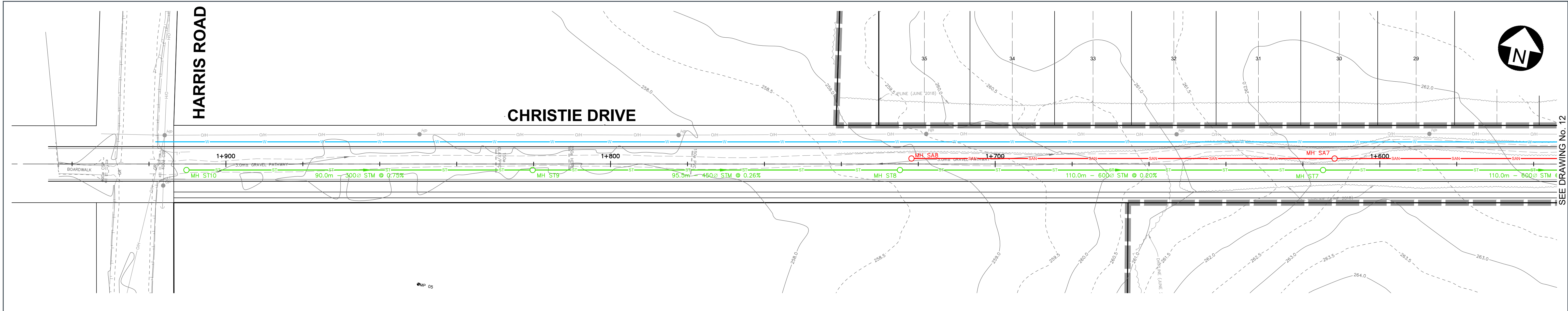
CONTRACT #: 18010

PROJECT NAME: ACORN VALLEY SUBDIVISION
RP 11M-XXX
DOUG TARRY LIMITED

SCALE: 1:2000

DRAWING #: F3

T:\ACAD Projects\2018\1801004-Layouts\18010_Plan and Profile - Christie Drive.dwg, 2025-06-25 10:23:46 AM, CJD\PC47, 1254



LEGEND									
— SAN —	SANITARY SEWER	— T —	UNDERGROUND BELL LINE	— MH —	MAINTENANCE HOLE	— GP —	GUY WIRE, UTILITY POLE	— TR —	TRANSFORMER
— ST —	STORM SEWER	— C —	UNDERGROUND CABLE LINE	— CB —	CLEAN OUT	— LS —	LIGHT STANDARD	— SB —	SURVEY BARS
— W —	WATERMAIN	— D —	DITCH/SWALE	— WB —	CATCH BASIN	— TS —	TRAFFIC SIGNAL	— CD —	CONIFEROUS, DECIDUOUS TREE
— WS —	WATER SERVICE	— TO —	TOE OF SLOPE, TOP OF BANK	— WV —	WATER VALVE	— S —	SIGN	— SH —	SHRUB
— G —	NATURAL GAS LINE	— EG —	EDGE OF GRAVEL	— WSCB —	WATER SERVICE CURB STOP	— EDB —	EDGE OF BUSH/DRIP LINE	— GBH —	GEOTECHNICAL BORE HOLE
— UH —	UNDERGROUND POWER LINE	— EC —	CURB, DROPPED CURB	— WSC —	WATER SERVICE CURB	— GP —	GAS VALVE		
— OH —	OVERHEAD POWER LINE	— EP —	EDGE OF PAVEMENT	— H —	HYDRANT	— UP —	UTILITY PEDESTAL		
— FO —	UNDERGROUND FIBRE OPTIC LINE								

CONSULTANT:
CJD
Consulting Engineers

Civil & Mechanical
P.O. Box 450, 261 Broadway
Toronto, Ontario, M5G 1B8
Tel: 519-485-1000
416-310-8888
Fax: 519-482-3235
cjd@cjdeng.com

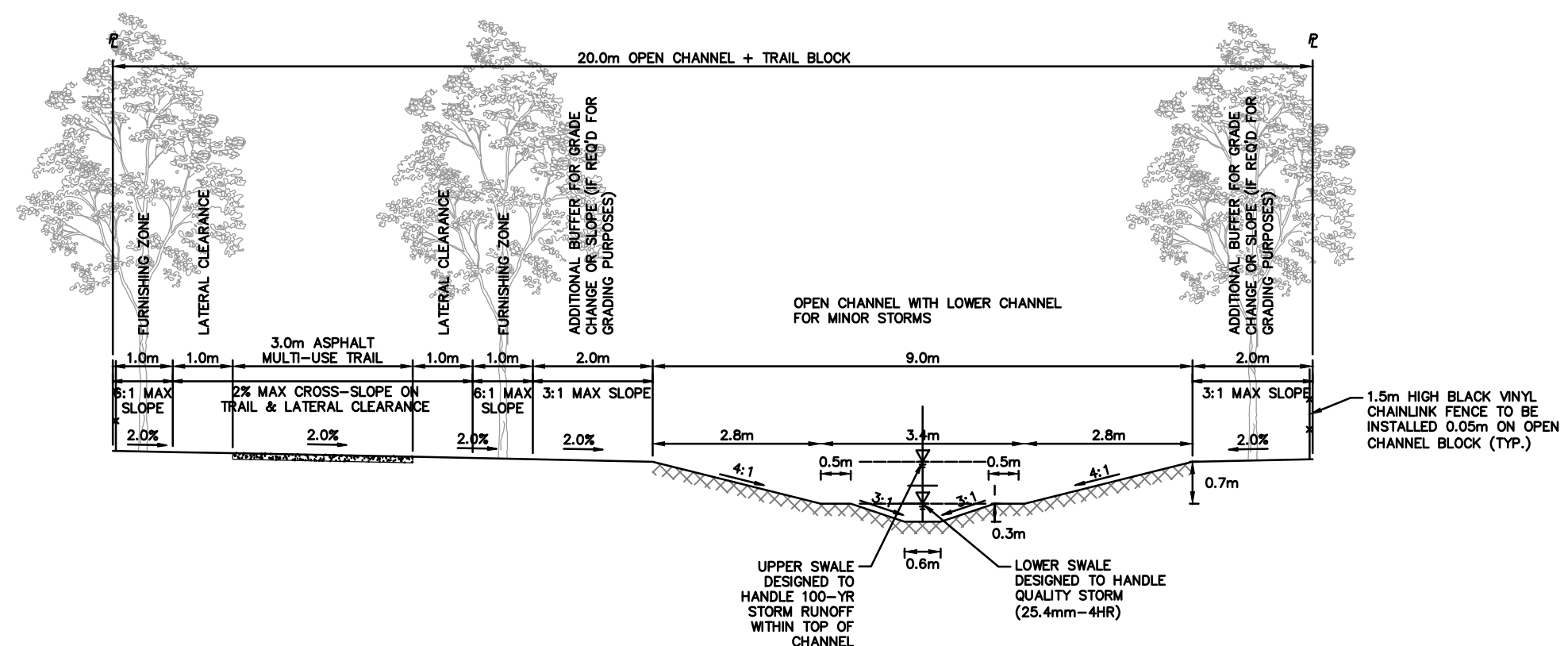
STAMP:
PROFESSIONAL ENGINEER
D.J. HILL
2017-171
25 JUN 2025
PROVINCIAL OF ONTARIO

REVISION		
#	DESCRIPTION	DD/MM/YYYY BY

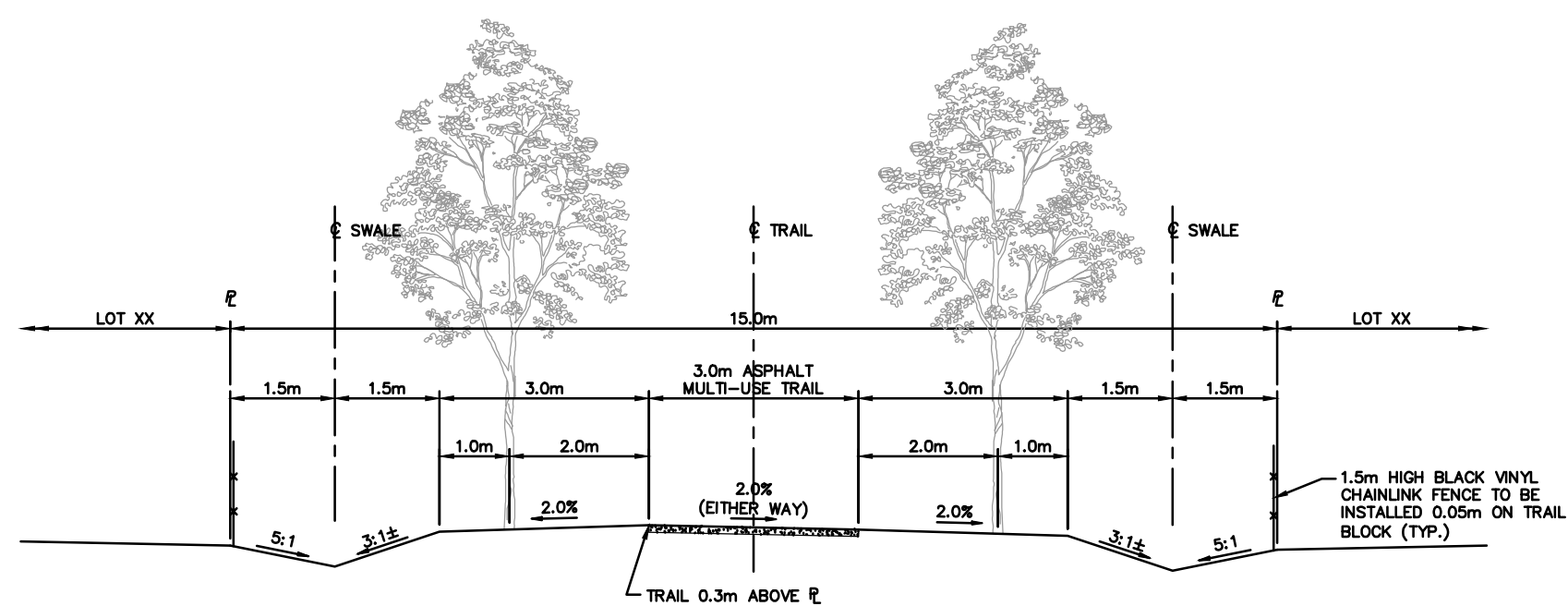
CHRISTIE DRIVE
1+870 TO 1+520

CONTRACT #: 18010
PROJECT NAME: ACORN VALLEY SUBDIVISION
11M-XXX
DOUG TARRY LIMITED

SCALE: HOR. 1:500
VER. 1:50
DRAWING #: 13



TYPICAL X-SECTION – 20m TRAIL/OPEN CHANNEL BLOCK
SCALE : 1:100



TYPICAL X-SECTION – 15m TRAIL CORRIDOR
SCALE : 1:100

83 CHRISTIE DRIVE
MUNICIPALITY OF THAMES CENTRE
**TRAIL AND CHANNEL
CROSS-SECTION SCHEMATIC**

PLAN PREPARED BY:
CJDL
Consulting Engineers

Cyril J. Demeyere Limited
P.O. Box 460, 261 Broadway
Tillsonburg, Ontario, N4G 4H8
Tel: 519-688-1000
866-302-9886
Fax: 519-842-3235
cjd@cjdlieng.com

JOB NUMBER: 18010

DATE: 25 JUNE 2025

I:\ACAD Projects\2018\18010\04-Layouts\18010_Sections.dwg, 2025-06-25 10:34:41 AM, CJDLP47, 1:25.4

APPENDIX 'A'

Pre-Development SSA Model Schematic

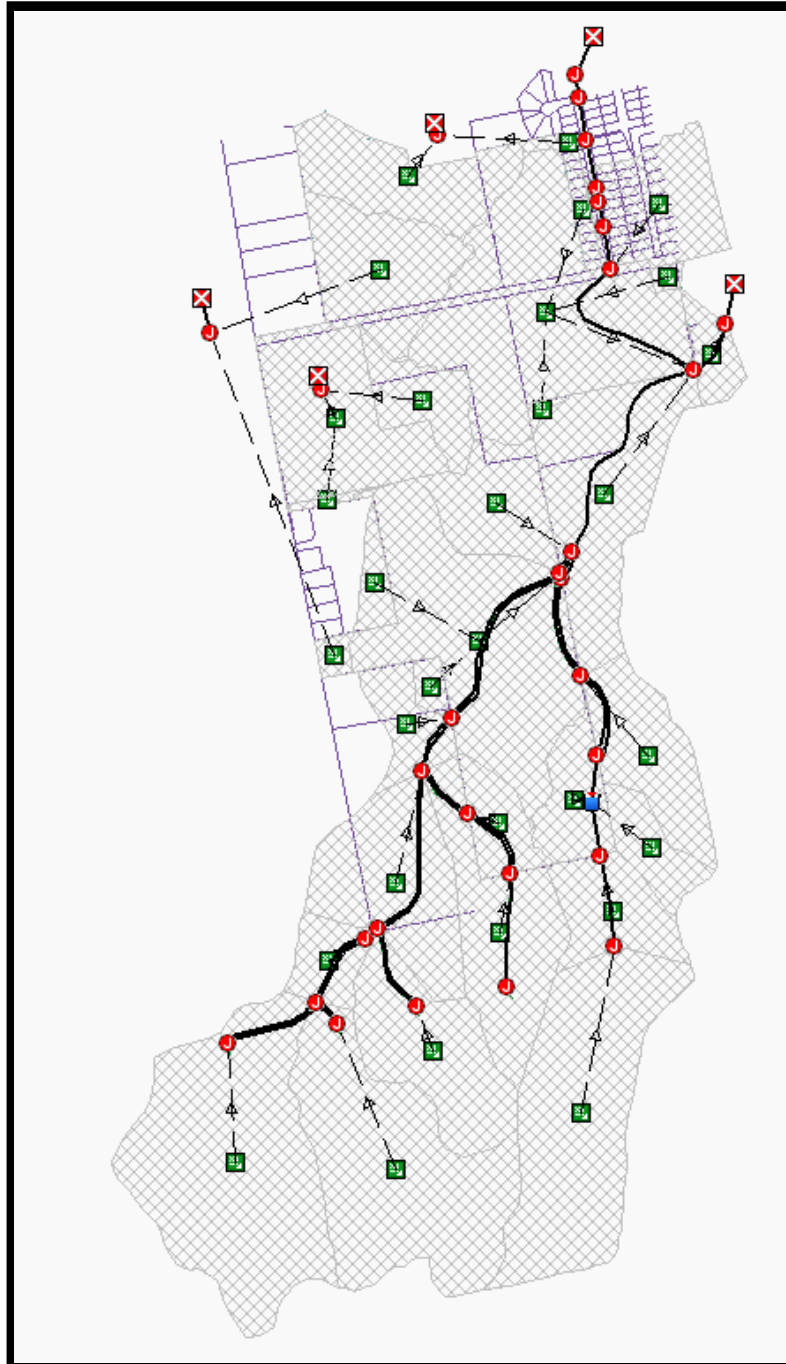
Post-Development SSA Model Schematic

Open Channel Upper Culvert Hydraflow Results

Open Channel Multi-Use Trail Culvert Hydraflow Results

Rath-Harris Municipal Drain Plan & Profile (W.J. Bartlett & Associates Ltd., Sept. 1989)

Shaw Municipal Drain (H.M. Gibson & Associates Ltd., Dec. 1977)

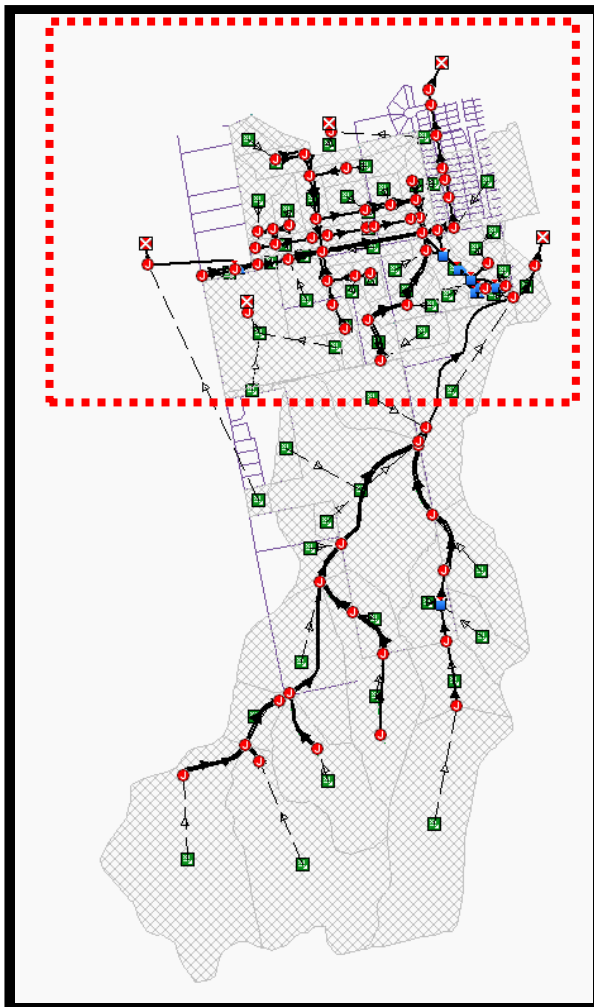
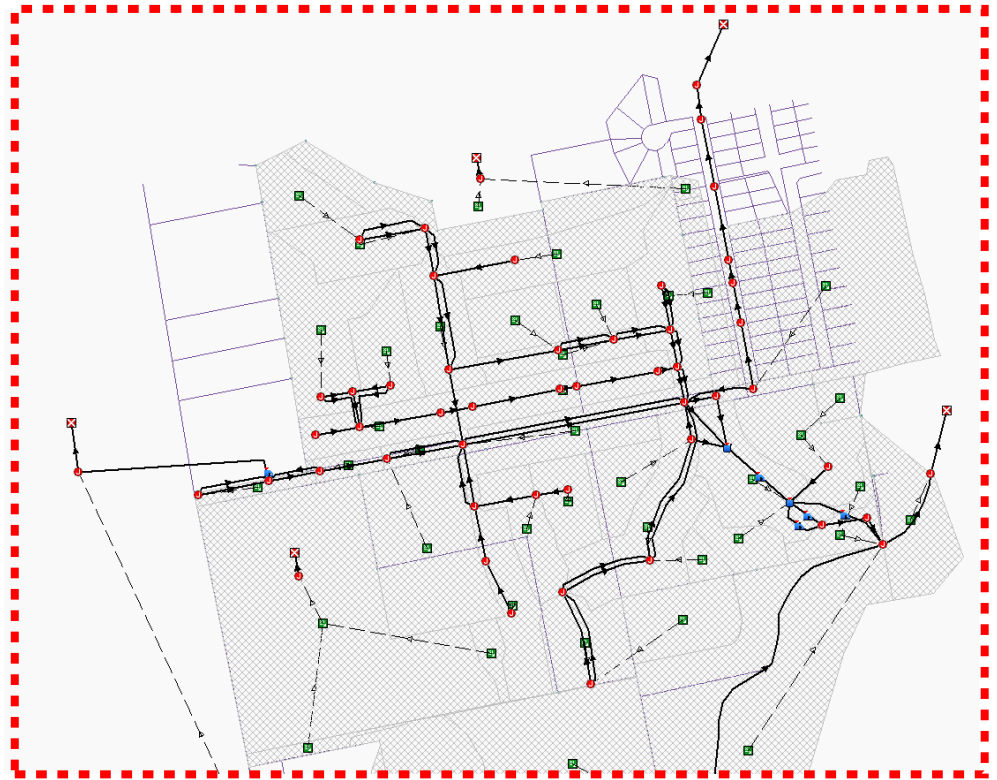


ACORN VALLEY SUBDIVISION PRE-DEVELOPMENT MODEL

25 JUN 2025
JOB No. 18010

CJDL
Consulting Engineers

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cjdl@cjdle.com



ACORN VALLEY SUBDIVISION POST-DEVELOPMENT MODEL

**25 JUN 2025
JOB No. 18010**

CJDL
Consulting Engineers

Cyril J. Demeyere Limited
P.O. Box 460, 261 Broadway
Tillsonburg, Ontario. N4G 4H8
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866-302-9886
Fax: 519-842-3235
cjd@cjdle.com

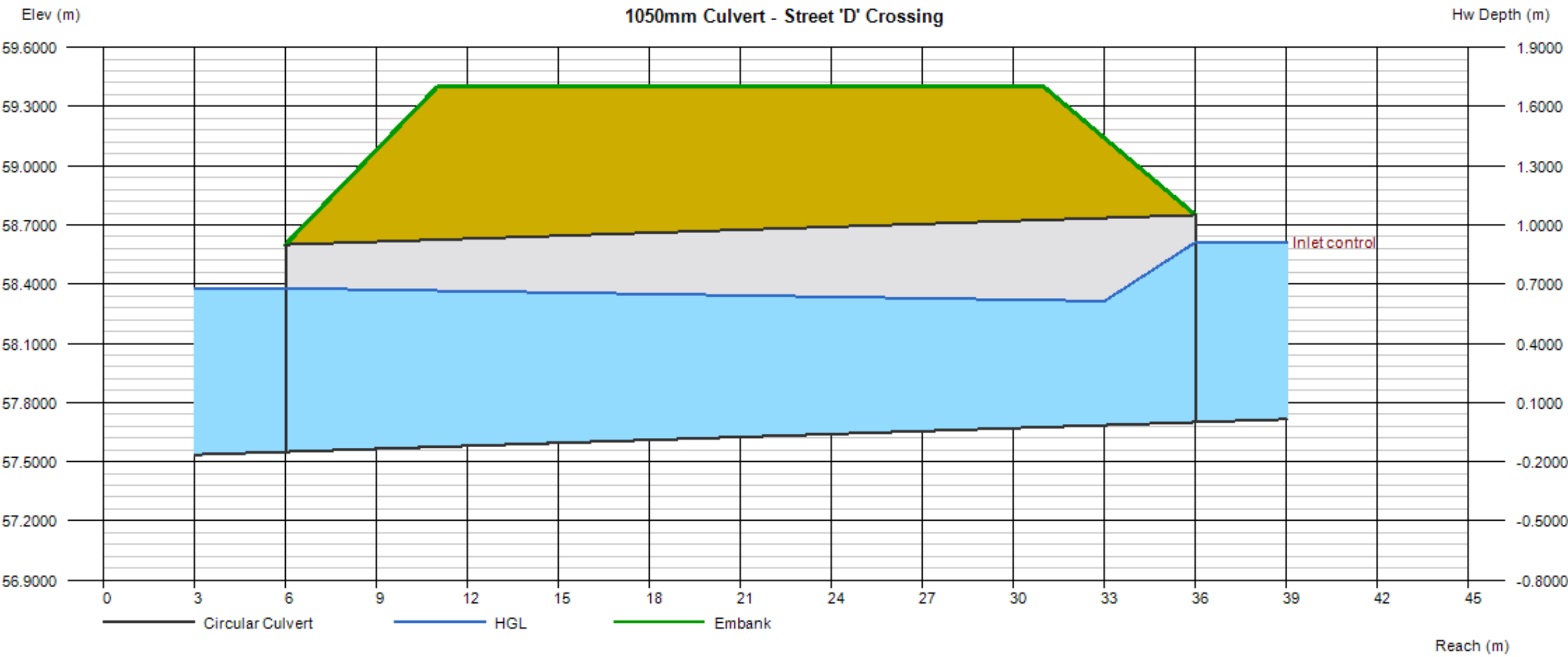
Culvert Report

1050mm Culvert - Street 'D' Crossing

Invert Elev Dn (m)	=	57.5500
Pipe Length (m)	=	30.0000
Slope (%)	=	0.5000
Invert Elev Up (m)	=	57.7000
Rise (mm)	=	1050.0
Shape	=	Circular
Span (mm)	=	1050.0
No. Barrels	=	1
n-Value	=	0.013
Culvert Type	=	Circular Concrete
Culvert Entrance	=	Square edge w/headwall (C)
Coeff. K,M,c,Y,k	=	0.0098, 2, 0.0398, 0.67, 0.5

Embankment	
Top Elevation (m)	= 59.4000
Top Width (m)	= 20.0000
Crest Width (m)	= 20.0000

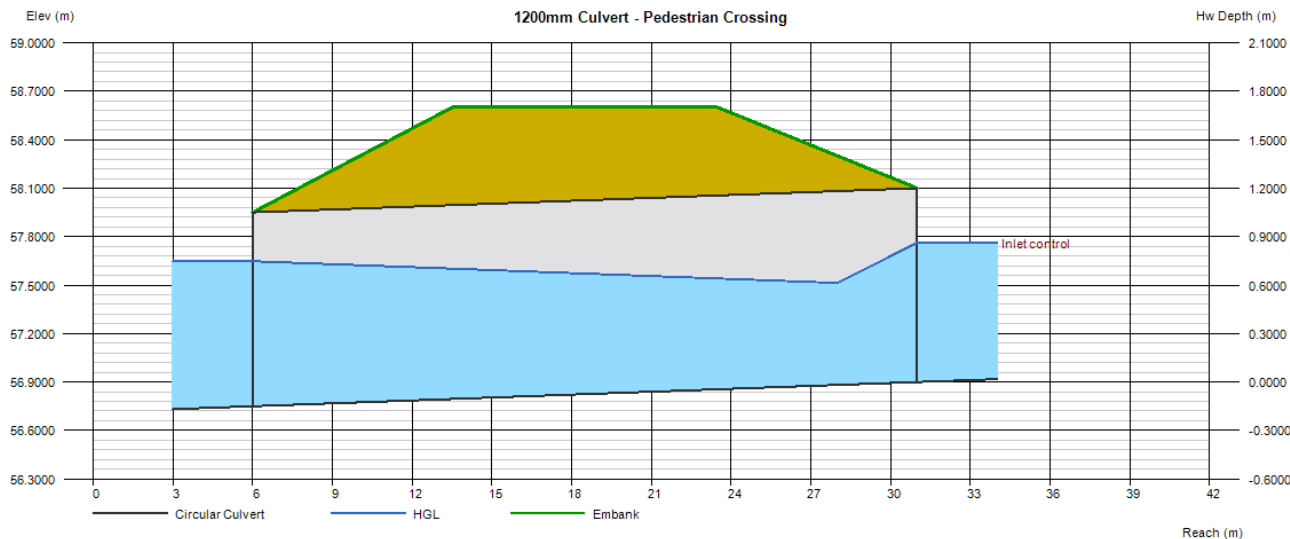
Calculations	
Qmin (cms)	= 0.0000
Qmax (cms)	= 4.5000
Tailwater Elev (m)	= (dc+D)/2
Highlighted	
Qtotal (cms)	= 1.1500
Qpipe (cms)	= 1.1500
Qovertop (cms)	= 0.0000
Veloc Dn (m/s)	= 1.5695
Veloc Up (m/s)	= 2.2186
HGL Dn (m)	= 58.3783
HGL Up (m)	= 58.3067
Hw Elev (m)	= 58.6118
Hw/D (m)	= 0.8684
Flow Regime	= Inlet Control

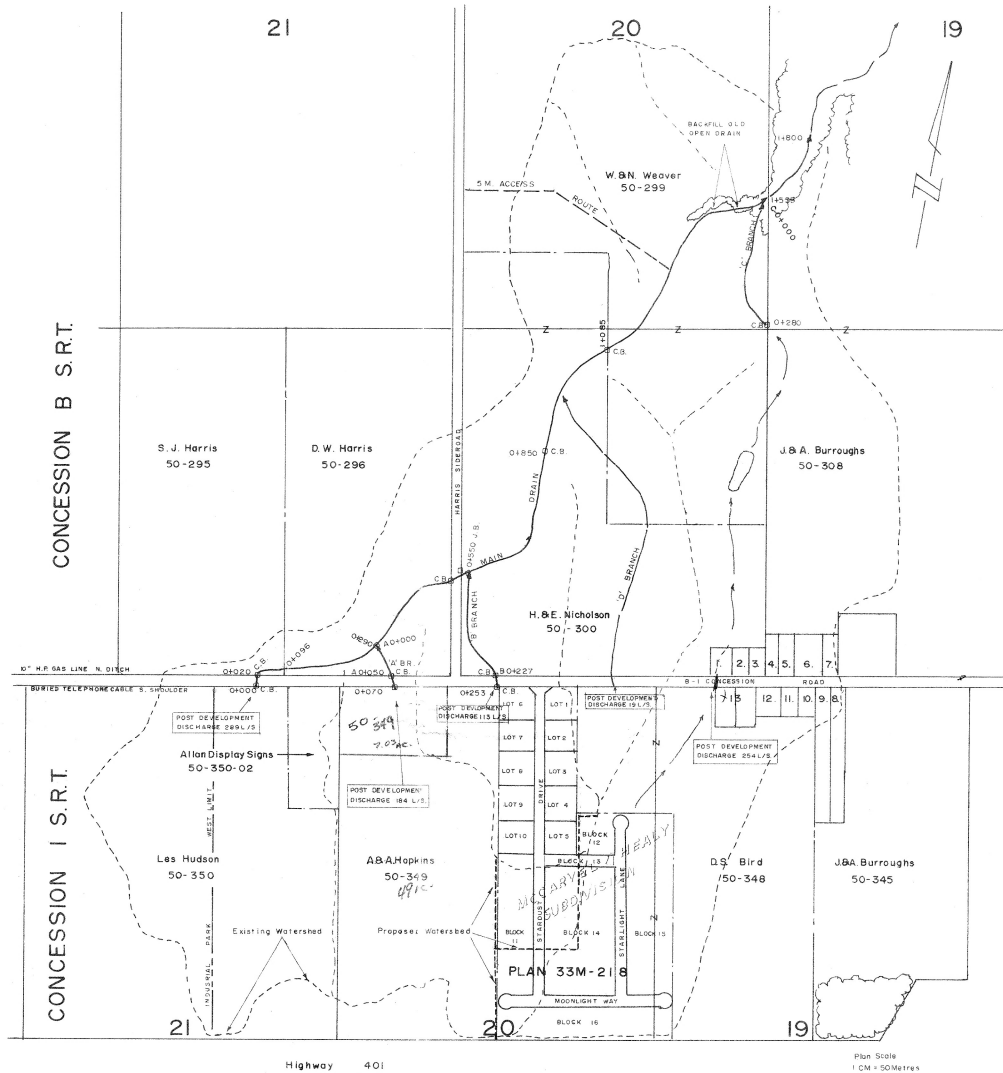


Culvert Report

1200mm Culvert - Pedestrian Crossing

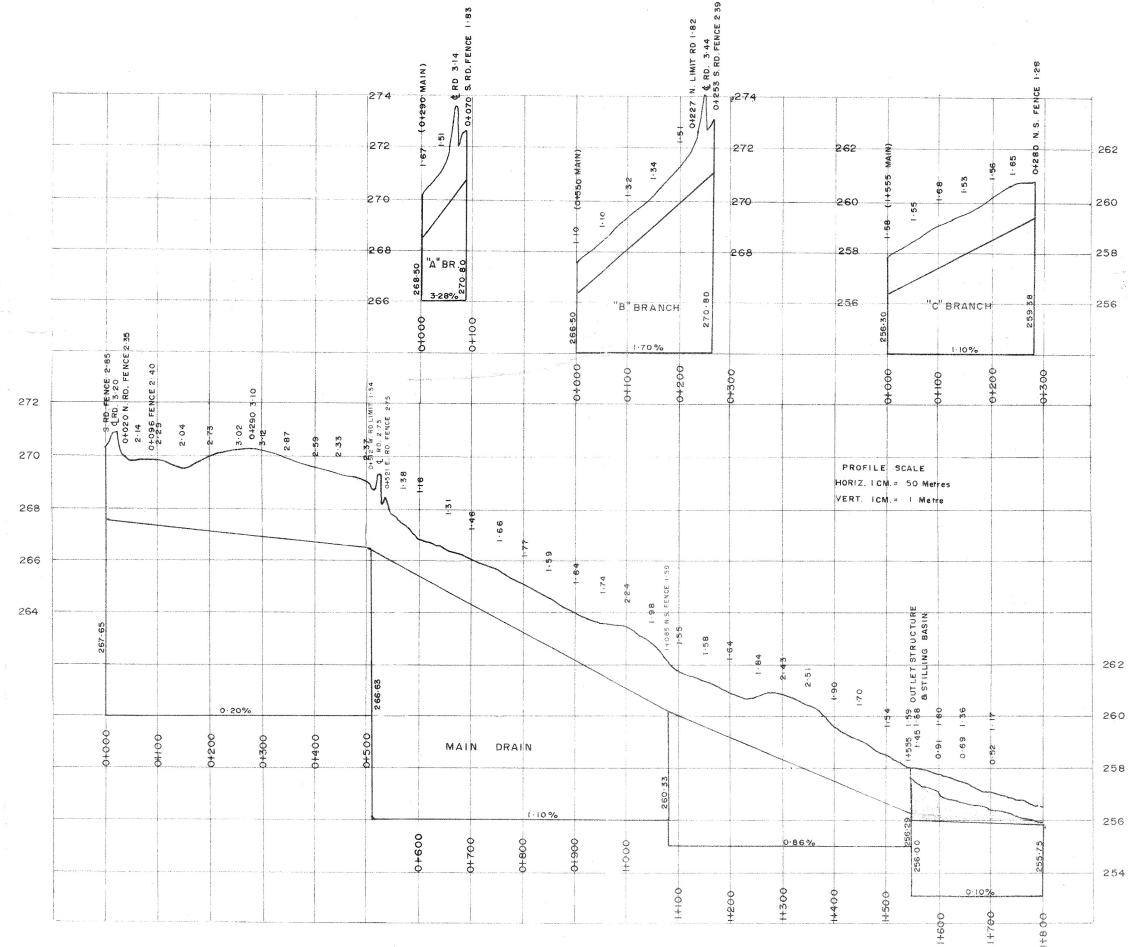
Invert Elev Dn (m)	= 56.7500	Calculations	
Pipe Length (m)	= 25.0000	Qmin (cms)	= 0.0000
Slope (%)	= 0.6000	Qmax (cms)	= 4.5000
Invert Elev Up (m)	= 56.9000	Tailwater Elev (m)	= (dc+D)/2
Rise (mm)	= 1200.0		
Shape	= Circular	Highlighted	
Span (mm)	= 1200.0	Qtotal (cms)	= 1.2000
No. Barrels	= 1	Qpipe (cms)	= 1.2000
n-Value	= 0.013	Qovertop (cms)	= 0.0000
Culvert Type	= Circular Concrete	Veloc Dn (m/s)	= 1.3224
Culvert Entrance	= Square edge w/headwall (C)	Veloc Up (m/s)	= 2.1434
Coeff. K,M,c,Y,k	= 0.0098, 2, 0.0398, 0.67, 0.5	HGL Dn (m)	= 57.6477
		HGL Up (m)	= 57.4953
Embankment		Hw Elev (m)	= 57.7622
Top Elevation (m)	= 58.6000	Hw/D (m)	= 0.7185
Top Width (m)	= 10.0000	Flow Regime	= Inlet Control
Crest Width (m)	= 10.0000		





1	50-300-01	P. & S. Nicholson
2	50-301	M. & I. Laidlaw
3	50-302	J. & B. Bell
4	50-303	H. Schlievinsky
5	50-304	R. & L. Anderson
6	50-305	P. & S. Baker
7	50-306	G. & J. Schlievinsky
8	50-346	S. D. Driver
9	50-347	J. & K. McConnell
10	50-347-02	J. & J. Perlin
11	50-347-04	J. & A. Drake
12	50-347-06	N. L. Bird
13	50-347-08	J. & S. Teeple
McCarvel/Healy Subdivision Plan 33M-218		
Lot 1	50-348-12	722998 Ontario Ltd.
Lot 2	50-348-14	"
Lot 3	50-348-16	Jack Barbeau
Lot 4	50-348-20	M. Matte & G. Bernardi
Lot 5	50-348-22	Frank Prato
Lot 6	50-348-52	722998 Ontario Ltd.
Lot 7	50-348-54	C. & K. Melvin
Lot 8	50-348-56	722998 Ontario Ltd.
Lot 9	50-348-58	D. Lakose & E. Allender
Lot 10	50-348-60	722998 Ontario Ltd.
Blk 11	50-348-92	722998 Ontario Ltd.
Blk 12	50-348-94	"
Blk 13	50-348-96	"
Blk 14	50-348-98	"
Blk 15	50-348-99	"
Blk 16	50-348-94	"

TILE SIZES		DIGITS	
Main Drain		1. Deep Excavation: Station 0+000 to station 0+513 will require compaction of backfill as noted on the accompanying detail drawings.	
0+000 - 0+020	20 Lin. H. 700 mm. dia. 2.0 mm. wall c.m.p.	2. Stripping of Topsoil: In areas requiring stripping of topsoil, station 0+180 to station 0+450, 0+550 to 1+050 and 1+225 to 1+375 the topsoil shall be stripped, stockpiled and replaced after the tile have been installed. The stripped area shall not be less than 10 metres in width.	
0+020 - 0+250	270 Lin. H. 600 mm. dia. concrete drain tile	3. Wrapping of Joints: All tile joints shall be completely wrapped with a double layer of geotextile filter fabric. The joint wrap shall be not less than 40 cm. in width and shall overlap at the ends by less than 40 cm.	
0+250 - 0+513	222 Lin. H. 675 mm. dia. concrete drain tile	4. Pipe Raps: Catchbasin protection - 300mm dia. 20 cm. metres. Stilling Basin - 350 mm. dia. 33 cm. metres.	
0+513 - 0+530	18 Lin. H. 750 mm. dia. 2.0 mm. wall c.m.p.		
0+530 - 1+005	555 Lin. H. 675 mm. dia. concrete drain tile		
1+005 - 1+549	544 Lin. H. 750 mm. dia. concrete drain tile		
1+549 - 1+555	6 Lin. H. 1000 mm. dia. 1.6 mm. wall c.m.p.		
Branch A			
0+000 - 0+070	50 Lin. H. 300 mm. dia. concrete drain tile		
0+070 - 0+227	20 Lin. H. 375 mm. dia. 2.0 mm. wall c.m.p.		
Branch B			
0+000 - 0+227	227 Lin. H. 300 mm. dia. concrete drain tile		
0+227 - 0+253	26 Lin. H. 375 mm. dia. 2.0 mm. wall c.m.p.		
Branch C			
0+000 - 0+006	6 Lin. H. 700 mm. dia. 1.6 mm. wall c.m.p.		
0+006 - 0+280	274 Lin. H. 525 mm. dia. concrete drain tile		
CATCHBASINS AND JUNCTION BOXES			
Main Drain			
900 mm X 1200 mm inline ditch inlet catchbasins - 0+000, 0+020, 0+513, 0+850, & 1+085.			
600 mm X 600 mm offset ditch inlet catchbasin - 0+530			
900 mm X 1200 mm junction boxes - 0+250 & 0+550			
Branch A			
900 mm X 1200 mm inline ditch inlet catchbasin - 0+070			
600 mm X 600 mm offset ditch inlet catchbasin - 0+050			
Branch B			
900 mm X 1200 mm inline ditch inlet catchbasin - 0+253			
600 mm X 600 mm offset ditch inlet catchbasin - 0+227			
Branch C			
900 mm X 1200 mm inline ditch inlet catchbasin - 0+280			



BENCH MARKS		
Main Drain		
0+018	Spike in hydro pole 25 M. East	270.38
0+530	Spike in hydro pole 10 M. North	268.99
0+850	Spike in 600 mm. dia. Ash tree 30 Meters West	265.76
A Branch		
0+050	Spike in hydro pole 10 M. East	272.86
B Branch		
0+227	Spike in hydro pole 5 M. East	272.61
C Branch		
0+280	Spike in 650 mm dia. Maple 40 Metres North.	261.31

WORKING SPACE

The working space for the construction, maintenance and repair shall be an average width of 20 metres along the course of the drain excepting from 0+100 to 0+500, 0+550 to 1+050 and 1+225 to 1+375 where the width shall be 25 metres.

Access to the working space shall be gained from the Harris sideroad, the Concession road and via the 5 metre wide access route shown on the plan.

SEED MIX

Kentucky Tall Fescue 30 Kg. / Ha.
Birdfoot Trefoil 20 Kg. / Ha.
10:10:10 Fertilizer 450 Kg. / Ha.

CLEARING

All trees, brush, logs and stumps shall be cleared back an average width of 25 metres. All trees larger than 150mm. (6") in dia. shall be cut and piled for the use or disposal by the owner. No cleared material to be buried by spoil.

NO.	REVISION	BY	DATE
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

W.J. BARTLETT & ASSOCIATES LTD.

CONSULTING CIVIL ENGINEERS

DORCHESTER 519-268-7091 ONTARIO

DESIGN	R.B.H.
CHECKED	W.J.B.
DRAWN	R.B.H.
SCALE	AS NOTED

RATH-HARRIS

MUNICIPAL DRAIN IMPROVEMENT

TOWNSHIP OF NORTH DORCHESTER

PLAN AND PROFILE

DATE	SEPTEMBER 14, 1999
SHEET	1 OF 3
FILE NO.	890906-9

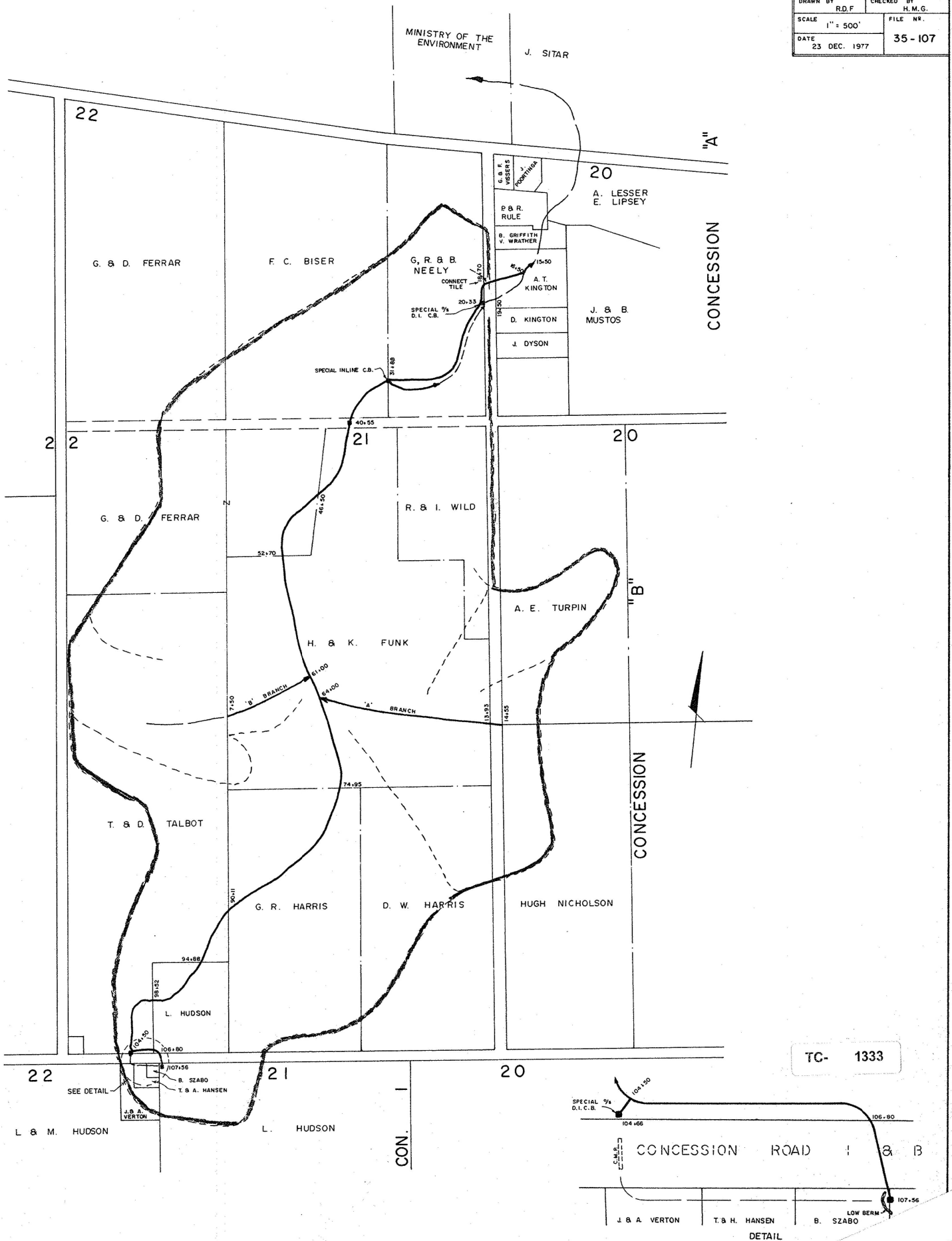
TC- 1333

SHAW MUNICIPAL DRAIN REPAIR & IMPROVEMENT

TOWNSHIP OF
NORTH DORCHESTER

H. M. GIBSON
AND
ASSOCIATES LIMITED
CONSULTING ENGINEERS
LONDON

DESIGN BY R.B.H.	CHECKED BY H.M.G.
DRAWN BY R.D.F.	FILE NO. 35 - 107
SCALE 1" = 500'	DATE 23 DEC. 1977



APPENDIX 'B'

Pre-Development Autodesk SSA Modelling Results

Post-Development Autodesk SSA Modelling Results

Project Description

File Name	18010_Pre-Development Rev.0.SPF
Description	I:\ACAD Projects\2018\18010\03-Ref\18010_Pre-Dev. Storm
	I:\ACAD Projects\2018\18010\03-Ref\18010_Pre-Dev. Storm

Project Options

Flow Units	CMS
Elevation Type	Elevation
Hydrology Method	EPA SWMM
EPA SWMM Infiltration Method	SCS Curve Number
Link Routing Method	Hydrodynamic
Enable Overflow Ponding at Nodes	YES
Skip Steady State Analysis Time Periods	NO

Analysis Options

Start Analysis On	00:00:00	0:00:00
End Analysis On	00:00:00	0:00:00
Start Reporting On	00:00:00	0:00:00
Antecedent Dry Days	0	days
Runoff (Dry Weather) Time Step	0 01:00:00	days hh:mm:ss
Runoff (Wet Weather) Time Step	0 00:05:00	days hh:mm:ss
Reporting Time Step	0 00:05:00	days hh:mm:ss
Routing Time Step	30	seconds

Number of Elements

	Qty
Rain Gages	1
Subbasins.....	31
Nodes.....	36
<i>Junctions</i>	30
<i>Outfalls</i>	5
<i>Flow Diversions</i>	0
<i>Inlets</i>	0
<i>Storage Nodes</i>	1
Links.....	44
<i>Channels</i>	18
<i>Pipes</i>	26
<i>Pumps</i>	0
<i>Orifices</i>	0
<i>Weirs</i>	0
<i>Outlets</i>	0
Pollutants	0
Land Uses	0

Subbasin Summary

SN Subbasin ID	Area	Impervious Area	Weighted Curve Number	Average Slope	Equivalent Width	Impervious Area Manning's Roughness	Pervious Area Manning's Roughness	Total Rainfall	Total Infiltration	Total Runoff	Total Runoff Volume	Peak Runoff	Time of Concentration
	(ha)	(%)		(%)	(m)			(mm)	(mm)	(mm)	(ha-mm)	(cms)	(days hh:mm:ss)
1 {Survey Site}.Standard : 10	0.92	2.00	67.00	2.0000	125.00	0.0130	0.2000	25.05	23.3740	0.50	0.46	0.00	0 00:47:56
2 {Survey Site}.Standard : 11	21.38	2.00	67.00	2.0000	360.00	0.0130	0.2000	25.05	21.0520	0.52	11.14	0.09	0 02:48:01
3 {Survey Site}.Standard : 12	0.71	5.00	67.00	2.0000	90.00	0.0130	0.2000	25.05	22.6590	1.26	0.89	0.01	0 00:49:07
4 {Survey Site}.Standard : 13	1.65	45.00	71.05	2.0000	220.00	0.0130	0.2000	25.05	13.0940	11.20	18.46	0.13	0 00:34:18
5 {Survey Site}.Standard : 14	4.32	2.00	67.00	2.0000	350.00	0.0130	0.2000	25.05	23.3740	0.50	2.17	0.02	0 01:05:27
6 {Survey Site}.Standard : 16	6.33	2.00	67.00	2.0000	215.00	0.0130	0.2000	25.05	23.3740	0.50	3.18	0.03	0 01:50:16
7 {Survey Site}.Standard : 17	0.36	5.00	67.00	5.0000	20.00	0.0130	0.2000	25.05	22.6590	1.26	0.45	0.00	0 01:00:47
8 {Survey Site}.Standard : 18	14.15	5.00	48.00	10.0000	300.00	0.0130	0.2000	25.05	22.6020	1.26	17.82	0.15	0 01:28:37
9 {Survey Site}.Standard : 19	0.26	2.00	67.00	2.0000	90.00	0.0130	0.2000	25.05	23.3740	0.50	0.13	0.00	0 00:27:38
10 {Survey Site}.Standard : 2	20.86	45.00	71.05	2.0000	300.00	0.0130	0.2000	25.05	13.0940	10.72	223.72	0.62	0 02:10:36
11 {Survey Site}.Standard : 20	11.33	2.00	36.00	0.5000	240.00	0.0130	0.2000	25.05	23.2930	0.50	5.70	0.04	0 03:41:50
12 {Survey Site}.Standard : 21	4.24	2.00	67.00	2.0000	155.00	0.0130	0.2000	25.05	23.3740	0.50	2.13	0.02	0 01:45:28
13 {Survey Site}.Standard : 22	23.21	2.00	67.00	2.0000	330.00	0.0130	0.2000	25.05	20.9530	0.52	12.02	0.09	0 03:05:58
14 {Survey Site}.Standard : 23	2.20	5.00	48.00	10.0000	100.00	0.0130	0.2000	25.05	22.6020	1.26	2.76	0.02	0 00:56:02
15 {Survey Site}.Standard : 24	9.04	2.00	67.00	2.0000	275.00	0.0130	0.2000	25.05	23.3740	0.50	4.55	0.04	0 01:57:50
16 {Survey Site}.Standard : 25	8.64	2.00	67.00	5.0000	390.00	0.0130	0.2000	25.05	23.3740	0.50	4.34	0.04	0 01:10:38
17 {Survey Site}.Standard : 26	1.12	45.00	71.05	2.0000	40.00	0.0130	0.2000	25.05	13.0940	10.87	12.21	0.05	0 01:15:49
18 {Survey Site}.Standard : 27	0.43	45.00	71.05	2.0000	60.00	0.0130	0.2000	25.05	13.0940	11.21	4.79	0.03	0 00:33:15
19 {Survey Site}.Standard : 28	0.12	45.00	71.05	2.0000	40.00	0.0130	0.2000	25.05	13.0940	11.32	1.39	0.01	0 00:20:06
20 {Survey Site}.Standard : 29	7.86	45.00	71.05	2.0000	110.00	0.0130	0.2000	25.05	13.0940	10.72	84.28	0.23	0 02:12:45
21 {Survey Site}.Standard : 3	25.14	45.00	71.05	2.0000	370.00	0.0130	0.2000	25.05	13.0940	10.73	269.64	0.76	0 02:08:47
22 {Survey Site}.Standard : 30	20.00	30.00	63.70	2.0000	225.00	0.0130	0.2000	25.05	16.6840	7.16	143.18	0.43	0 02:54:51
23 {Survey Site}.Standard : 31	5.54	5.00	57.00	2.0000	245.00	0.0130	0.2000	25.05	22.6000	1.26	6.98	0.06	0 01:32:25
24 {Survey Site}.Standard : 32	3.34	2.00	67.00	2.0000	95.00	0.0130	0.2000	25.05	23.3740	0.50	1.68	0.01	0 02:02:33
25 {Survey Site}.Standard : 33	7.71	2.00	67.00	2.0000	215.00	0.0130	0.2000	25.05	23.3740	0.50	3.88	0.03	0 02:04:05
26 {Survey Site}.Standard : 4	3.13	2.00	67.00	2.0000	155.00	0.0130	0.2000	25.05	23.3740	0.50	1.57	0.01	0 01:27:58
27 {Survey Site}.Standard : 5	10.46	45.00	71.05	0.5000	235.00	0.0130	0.2000	25.05	13.0940	10.70	111.89	0.28	0 02:31:27
28 {Survey Site}.Standard : 6	11.54	2.00	67.00	2.0000	280.00	0.0130	0.2000	25.05	23.3740	0.50	5.81	0.05	0 02:14:57
29 {Survey Site}.Standard : 7	10.98	5.00	67.00	2.0000	225.00	0.0130	0.2000	25.05	22.6590	1.25	13.74	0.10	0 02:26:32
30 {Survey Site}.Standard : 8	3.30	2.00	67.00	2.0000	125.00	0.0130	0.2000	25.05	23.3740	0.50	1.66	0.01	0 01:43:22

Node Summary

SN	Element ID	Element Type	Invert Elevation	Ground/Rim (Max) Elevation	Initial Water Elevation	Surcharge Elevation	Ponded Area	Peak Inflow	Max HGL Elevation Attained	Max Surcharge Depth Attained	Min Freeboard Attained	Time of Peak Flooding Occurrence	Total Flooded Volume	Total Time Flooded
			(m)	(m)	(m)	(m)	(m²)	(cms)	(m)	(m)	(m)	(days hh:mm)	(ha-mm)	(min)
1	Ex_MHR1	Junction	255.88	262.50	0.00	0.00	0.00	0.22	256.28	0.00	6.22	0 00:00	0.00	0.00
2	Ex_MHR2	Junction	255.48	259.65	0.00	0.00	0.00	0.22	255.87	0.00	3.78	0 00:00	0.00	0.00
3	Ex_MHR25	Junction	256.48	263.35	0.00	0.00	0.00	0.22	256.93	0.00	6.42	0 00:00	0.00	0.00
4	Ex_MHR26	Junction	256.64	262.75	0.00	0.00	0.00	0.22	257.19	0.00	5.56	0 00:00	0.00	0.00
5	Ex_MHR27	Junction	256.94	261.00	0.00	0.00	0.00	0.22	257.74	0.00	3.26	0 00:00	0.00	0.00
6	Ex_MHR28	Junction	257.37	259.30	0.00	0.00	0.00	0.23	258.50	0.00	0.80	0 00:00	0.00	0.00
7	Ex_MHR3	Junction	255.23	259.00	0.00	0.00	0.00	0.22	255.58	0.00	3.42	0 00:00	0.00	0.00
8	NorthWetland	Junction	252.00	258.00	0.00	0.00	0.00	0.05	252.00	0.00	6.00	0 00:00	0.00	0.00
9	Ravine_1	Junction	256.10	260.10	0.00	0.00	0.00	1.22	256.42	0.00	3.68	0 00:00	0.00	0.00
10	Ravine_2	Junction	253.00	257.00	0.00	0.00	0.00	1.33	253.29	0.00	3.71	0 00:00	0.00	0.00
11	Ravine_3	Junction	252.45	256.45	0.00	0.00	0.00	1.12	252.67	0.00	3.78	0 00:00	0.00	0.00
12	RH_1	Junction	267.60	271.70	0.00	0.00	0.00	0.76	271.43	0.00	0.27	0 00:00	0.00	0.00
13	RH_10	Junction	261.90	263.90	0.00	0.00	0.00	0.99	263.04	0.00	0.86	0 00:00	0.00	0.00
14	RH_11	Junction	260.33	262.55	0.00	0.00	0.00	0.94	260.90	0.00	1.65	0 00:00	0.00	0.00
15	RH_12	Junction	269.00	270.50	0.00	0.00	0.00	0.43	269.21	0.00	1.29	0 00:00	0.00	0.00
16	RH_13	Junction	264.00	266.50	0.00	0.00	0.00	0.45	264.31	0.00	2.19	0 00:00	0.00	0.00
17	RH_14	Junction	261.70	263.50	0.00	0.00	0.00	0.27	262.03	0.00	1.47	0 00:00	0.00	0.00
18	RH_15	Junction	259.38	261.00	0.00	0.00	0.00	0.27	259.67	0.00	1.33	0 00:00	0.00	0.00
19	RH_16	Junction	256.36	258.00	0.00	0.00	0.00	0.27	256.82	0.00	1.18	0 00:00	0.00	0.00
20	RH_17	Junction	256.42	258.00	0.00	0.00	0.00	0.95	257.31	0.00	0.69	0 00:00	0.00	0.00
21	RH_2	Junction	270.14	272.45	0.00	0.00	0.00	0.62	272.21	0.00	0.24	0 00:00	0.00	0.00
22	RH_3	Junction	267.07	270.25	0.00	0.00	0.00	1.54	269.70	0.00	0.55	0 00:00	0.00	0.00
23	RH_4	Junction	266.63	268.60	0.00	0.00	0.00	0.85	268.21	0.00	0.39	0 00:00	0.00	0.00
24	RH_5	Junction	270.35	272.10	0.00	0.00	0.00	0.28	271.82	0.00	0.28	0 00:00	0.00	0.00
25	RH_6	Junction	266.50	268.20	0.00	0.00	0.00	1.06	267.92	0.00	0.28	0 00:00	0.00	0.00
26	RH_7	Junction	272.00	273.50	0.00	0.00	0.00	0.00	272.00	0.00	1.50	0 00:00	0.00	0.00
27	RH_8	Junction	267.75	269.85	0.00	0.00	0.00	0.10	267.93	0.00	1.92	0 00:00	0.00	0.00
28	RH_9	Junction	264.00	265.80	0.00	0.00	0.00	0.10	264.18	0.00	1.62	0 00:00	0.00	0.00
29	WestOutfall	Junction	257.00	258.00	0.00	0.00	0.00	0.05	257.00	0.00	1.00	0 00:00	0.00	0.00
30	WestWetland	Junction	258.00	259.00	0.00	0.00	0.00	0.06	258.00	0.00	1.00	0 00:00	0.00	0.00

Link Summary

SN	Element ID	Element Type	From (Inlet) Node	To (Outlet) Node	Length	Inlet Invert Elevation	Outlet Invert Elevation	Average Slope	Diameter or Height	Manning's Roughness	Peak Flow	Design Flow Capacity	Peak Flow/ Design Flow Ratio	Peak Flow Velocity
					(m)	(m)	(m)	(%)	(m)		(cms)	(cms)		(m/sec)
1	Ex.STM_1	Pipe	Ex_MHR28	Ex_MHR27	107.00	257.37	256.94	0.4000	0.450	0.0130	0.22	0.18	1.24	1.41
2	Ex.STM_2	Pipe	Ex_MHR27	Ex_MHR26	73.00	256.94	256.64	0.4100	0.450	0.0130	0.22	0.18	1.23	1.41
3	Ex.STM_3	Pipe	Ex_MHR26	Ex_MHR25	27.00	256.64	256.48	0.5900	0.450	0.0130	0.22	0.22	1.02	1.41
4	Ex.STM_4	Pipe	Ex_MHR25	Ex_MHR1	100.00	256.48	255.88	0.6000	0.450	0.0130	0.22	0.22	1.01	1.47
5	Ex.STM_5	Pipe	Ex_MHR1	Ex_MHR2	100.00	255.88	255.48	0.4000	0.525	0.0130	0.22	0.27	0.82	1.29
6	Ex.STM_6	Pipe	Ex_MHR2	Ex_MHR3	50.00	255.48	255.23	0.5000	0.525	0.0130	0.22	0.30	0.73	1.36
7	Ex.STM_7	Pipe	Ex_MHR3	TinerEstatesSTM	102.00	255.23	254.82	0.4000	0.600	0.0130	0.22	0.39	0.57	1.40
8	RH_A1	Pipe	RH_2	RH_3	50.00	270.14	268.50	3.2800	0.300	0.0130	0.23	0.18	1.32	3.27
9	RH_B1	Pipe	RH_5	RH_6	227.00	270.35	266.50	1.7000	0.300	0.0130	0.14	0.13	1.10	2.43
10	RH_C3	Pipe	Ex_SE_Pond	RH_14	15.00	262.00	261.70	2.0000	0.600	0.0130	0.27	0.87	0.31	1.79
11	RH_C4	Pipe	RH_14	RH_15	195.00	261.70	259.38	1.1900	0.525	0.0150	0.27	0.41	0.66	2.02
12	RH_C5	Pipe	RH_15	RH_16	274.00	259.38	256.36	1.1000	0.525	0.0130	0.27	0.45	0.60	1.66
13	RH_C6	Pipe	RH_16	Ravine_1	6.00	256.36	256.24	2.0000	0.700	0.0130	0.28	1.31	0.21	1.54
14	RH_D1	Pipe	RH_7	RH_8	275.00	272.00	267.75	1.5500	0.300	0.0130	0.00	0.12	0.00	0.00
15	RH_D2	Pipe	RH_8	RH_9	180.00	267.75	264.00	2.0800	0.300	0.0130	0.09	0.14	0.64	2.06
16	RH_D3	Pipe	RH_9	RH_10	155.00	264.00	261.90	1.3500	0.375	0.0130	0.10	0.20	0.48	1.67
17	RH_M1	Pipe	RH_1	RH_3	270.00	267.60	267.07	0.2000	0.600	0.0130	0.50	0.27	1.82	1.75
18	RH_M2	Pipe	RH_3	RH_4	222.00	267.07	266.63	0.2000	0.675	0.0130	0.80	0.37	2.13	2.23
19	RH_M3	Pipe	RH_4	RH_6	18.00	266.63	266.50	0.7200	0.750	0.0130	0.85	0.95	0.90	2.05
20	RH_M4	Pipe	RH_6	RH_10	415.00	266.50	261.90	1.1100	0.675	0.0130	0.91	0.89	1.03	2.64
21	RH_M5	Pipe	RH_10	RH_11	140.00	261.90	260.33	1.1200	0.675	0.0130	0.94	0.89	1.06	2.82
22	RH_M6	Pipe	RH_11	RH_17	464.00	260.33	256.42	0.8400	0.750	0.0130	0.94	1.02	0.92	2.29
23	RH_M7	Pipe	RH_17	Ravine_1	6.00	256.42	256.37	0.8300	1.000	0.0130	0.95	2.19	0.43	1.68
24	West_Link	Pipe	WestOutfall	West_Outfall	33.73	256.00	257.00	-2.9600	0.000	0.0130	0.05	0.00	0.01	0.00
25	WestWetland_Link	Pipe	WestWetland	West_Wetland	37.13	258.00	258.00	0.0000	0.000	0.0130	0.06	0.00	0.01	0.00
26	Wetland_Link	Pipe	NorthWetland	North_Wetland	41.51	252.00	252.00	0.0000	0.000	0.0130	0.05	0.00	0.01	0.00
27	Ex.STM_Overland	Channel	Ex_MHR28	Ravine_2	400.00	259.00	253.00	1.5000	0.300	0.0320	0.00	10.09	0.00	0.00
28	Link-34	Channel	RH_1	RH_3	270.00	271.40	269.65	0.6500	0.300	0.0320	0.18	6.63	0.03	0.26
29	Link-35	Channel	RH_2	RH_3	50.00	272.15	269.65	5.0000	0.300	0.0320	0.97	18.43	0.05	0.94
30	Link-36	Channel	RH_3	RH_4	222.00	269.65	268.30	0.6100	0.300	0.0320	0.20	6.43	0.03	0.27

Junction Input

SN	Element ID	Invert Elevation	Ground/Rim (Max) Elevation (m)	Ground/Rim (Max) Offset (m)	Initial Water Elevation (m)	Initial Water Depth (m)	Surcharge Elevation (m)	Surcharge Depth (m)	Ponded Area (m²)	Minimum Pipe Cover (m)
1	Ex_MHR1	255.88	262.50	6.62	0.00	-255.88	0.00	-262.50	0.00	0.00
2	Ex_MHR2	255.48	259.65	4.17	0.00	-255.48	0.00	-259.65	0.00	0.00
3	Ex_MHR25	256.48	263.35	6.87	0.00	-256.48	0.00	-263.35	0.00	0.00
4	Ex_MHR26	256.64	262.75	6.11	0.00	-256.64	0.00	-262.75	0.00	0.00
5	Ex_MHR27	256.94	261.00	4.06	0.00	-256.94	0.00	-261.00	0.00	0.00
6	Ex_MHR28	257.37	259.30	1.93	0.00	-257.37	0.00	-259.30	0.00	0.00
7	Ex_MHR3	255.23	259.00	3.77	0.00	-255.23	0.00	-259.00	0.00	0.00
8	NorthWetland	252.00	258.00	6.00	0.00	-252.00	0.00	-258.00	0.00	0.00
9	Ravine_1	256.10	260.10	4.00	0.00	-256.10	0.00	-260.10	0.00	0.00
10	Ravine_2	253.00	257.00	4.00	0.00	-253.00	0.00	-257.00	0.00	0.00
11	Ravine_3	252.45	256.45	4.00	0.00	-252.45	0.00	-256.45	0.00	0.00
12	RH_1	267.60	271.70	4.10	0.00	-267.60	0.00	-271.70	0.00	0.00
13	RH_10	261.90	263.90	2.00	0.00	-261.90	0.00	-263.90	0.00	0.00
14	RH_11	260.33	262.55	2.22	0.00	-260.33	0.00	-262.55	0.00	0.00
15	RH_12	269.00	270.50	1.50	0.00	-269.00	0.00	-270.50	0.00	0.00
16	RH_13	264.00	266.50	2.50	0.00	-264.00	0.00	-266.50	0.00	0.00
17	RH_14	261.70	263.50	1.80	0.00	-261.70	0.00	-263.50	0.00	0.00
18	RH_15	259.38	261.00	1.62	0.00	-259.38	0.00	-261.00	0.00	0.00
19	RH_16	256.36	258.00	1.64	0.00	-256.36	0.00	-258.00	0.00	0.00
20	RH_17	256.42	258.00	1.58	0.00	-256.42	0.00	-258.00	0.00	0.00
21	RH_2	270.14	272.45	2.31	0.00	-270.14	0.00	-272.45	0.00	0.00
22	RH_3	267.07	270.25	3.18	0.00	-267.07	0.00	-270.25	0.00	0.00
23	RH_4	266.63	268.60	1.97	0.00	-266.63	0.00	-268.60	0.00	0.00
24	RH_5	270.35	272.10	1.75	0.00	-270.35	0.00	-272.10	0.00	0.00
25	RH_6	266.50	268.20	1.70	0.00	-266.50	0.00	-268.20	0.00	0.00
26	RH_7	272.00	273.50	1.50	0.00	-272.00	0.00	-273.50	0.00	0.00
27	RH_8	267.75	269.85	2.10	0.00	-267.75	0.00	-269.85	0.00	0.00
28	RH_9	264.00	265.80	1.80	0.00	-264.00	0.00	-265.80	0.00	0.00
29	WestOutfall	257.00	258.00	1.00	0.00	-257.00	0.00	-258.00	0.00	0.00
30	WestWetland	258.00	259.00	1.00	0.00	-258.00	0.00	-259.00	0.00	0.00

Junction Results

SN	Element ID	Peak Inflow	Peak Lateral Inflow	Max HGL Elevation Attained	Max HGL Depth Attained	Max Surcharge Depth Attained	Min Freeboard Attained	Average HGL Elevation Attained	Average HGL Depth Attained	Time of Max HGL Occurrence
		(cms)	(cms)	(m)	(m)	(m)	(m)	(m)	(m)	(days hh:mm)
1	Ex_MHR1	0.22	0.00	256.28	0.40	0.00	6.22	255.99	0.11	0 00:22
2	Ex_MHR2	0.22	0.00	255.87	0.39	0.00	3.78	255.59	0.11	0 00:23
3	Ex_MHR25	0.22	0.00	256.93	0.45	0.00	6.42	256.59	0.11	0 00:22
4	Ex_MHR26	0.22	0.00	257.19	0.55	0.00	5.56	256.76	0.12	0 00:21
5	Ex_MHR27	0.22	0.00	257.74	0.80	0.00	3.26	257.08	0.14	0 00:21
6	Ex_MHR28	0.23	0.23	258.50	1.13	0.00	0.80	257.52	0.15	0 00:21
7	Ex_MHR3	0.22	0.00	255.58	0.35	0.00	3.42	255.34	0.11	0 00:24
8	NorthWetland	0.05	0.05	252.00	0.00	0.00	6.00	252.00	0.00	0 00:00
9	Ravine_1	1.22	0.03	256.42	0.32	0.00	3.68	256.21	0.11	0 00:37
10	Ravine_2	1.33	0.24	253.29	0.29	0.00	3.71	253.12	0.12	0 01:16
11	Ravine_3	1.12	0.02	252.67	0.22	0.00	3.78	252.54	0.09	0 01:17
12	RH_1	0.76	0.76	271.43	3.83	0.00	0.27	268.46	0.86	0 00:25
13	RH_10	0.99	0.05	263.04	1.14	0.00	0.86	262.26	0.36	0 00:56
14	RH_11	0.94	0.01	260.90	0.57	0.00	1.65	260.57	0.24	0 00:57
15	RH_12	0.43	0.43	269.21	0.21	0.00	1.29	269.06	0.06	0 00:16
16	RH_13	0.45	0.06	264.31	0.31	0.00	2.19	264.09	0.09	0 00:20
17	RH_14	0.27	0.00	262.03	0.33	0.00	1.47	261.82	0.12	0 00:36
18	RH_15	0.27	0.03	259.67	0.29	0.00	1.33	259.50	0.12	0 00:36
19	RH_16	0.27	0.00	256.82	0.46	0.00	1.18	256.53	0.17	0 00:41
20	RH_17	0.95	0.09	257.31	0.89	0.00	0.69	256.79	0.37	0 00:56
21	RH_2	0.62	0.62	272.21	2.07	0.00	0.24	270.63	0.49	0 00:06
22	RH_3	1.54	0.00	269.70	2.63	0.00	0.55	267.83	0.76	0 00:36
23	RH_4	0.85	0.01	268.21	1.58	0.00	0.39	267.08	0.45	0 00:40
24	RH_5	0.28	0.28	271.82	1.47	0.00	0.28	270.70	0.35	0 00:31
25	RH_6	1.06	0.00	267.92	1.42	0.00	0.28	266.91	0.41	0 00:53
26	RH_7	0.00	0.00	272.00	0.00	0.00	1.50	272.00	0.00	0 00:00
27	RH_8	0.10	0.10	267.93	0.18	0.00	1.92	267.78	0.03	0 00:11
28	RH_9	0.10	0.01	264.18	0.18	0.00	1.62	264.03	0.03	0 00:12
29	WestOutfall	0.05	0.05	257.00	0.00	0.00	1.00	257.00	0.00	0 00:00
30	WestWetland	0.06	0.06	258.00	0.00	0.00	1.00	258.00	0.00	0 00:00

Channel Input

SN	Element ID	Length	Inlet Invert Elevation	Inlet Invert Offset	Outlet Invert Elevation	Outlet Invert Offset	Total Drop	Average Slope	Shape	Height	Width	Manni Roughr
		(m)	(m)	(m)	(m)	(m)	(m)	(%)		(m)	(m)	
1	Ex.STM_Overland	400.00	259.00	1.63	253.00	0.00	6.00	1.5000	Rectangular	0.300	20.000	0.0
2	Link-34	270.00	271.40	3.80	269.65	2.58	1.75	0.6500	Rectangular	0.300	20.000	0.0
3	Link-35	50.00	272.15	2.01	269.65	2.58	2.50	5.0000	Rectangular	0.300	20.000	0.0
4	Link-36	222.00	269.65	2.58	268.30	1.67	1.35	0.6100	Rectangular	0.300	20.000	0.0
5	Link-37	18.00	268.30	1.67	267.90	1.40	0.40	2.2200	Rectangular	0.300	20.000	0.0
6	Link-38	227.00	271.80	1.45	267.90	1.40	3.90	1.7200	Rectangular	0.300	20.000	0.0
7	Link-39	415.00	267.90	1.40	263.50	1.60	4.40	1.0600	Rectangular	0.300	20.000	0.0
8	Link-41	180.00	269.55	1.80	265.50	1.50	4.05	2.2500	Rectangular	0.300	20.000	0.0
9	Link-42	155.00	265.50	1.50	263.50	1.60	2.00	1.2900	Rectangular	0.300	20.000	0.0
10	Link-43	140.00	263.50	1.60	262.25	1.92	1.25	0.8900	Rectangular	0.300	20.000	0.0
11	Link-44	470.00	262.25	1.92	258.00	1.90	4.25	0.9000	Rectangular	0.300	20.000	0.0
12	Link-45	195.00	263.20	1.50	260.70	1.32	2.50	1.2800	Rectangular	0.300	20.000	0.0
13	Link-46	280.00	260.70	1.32	258.00	1.90	2.70	0.9600	Rectangular	0.300	20.000	0.0
14	LowerRavine	124.00	253.00	0.00	252.45	0.00	0.55	0.4400	Trapezoidal	4.000	17.000	0.0
15	OutletRavine	45.00	252.45	0.00	252.00	0.00	0.45	1.0000	Trapezoidal	4.000	17.000	0.0
16	RH_C1	215.00	269.00	0.00	264.00	0.00	5.00	2.3300	Trapezoidal	1.500	7.000	0.0
17	RH_C2	60.00	264.00	0.00	263.50	1.50	0.50	0.8300	Trapezoidal	1.500	7.000	0.0
18	UpperRavine	553.00	256.10	0.00	253.00	0.00	3.10	0.5600	Trapezoidal	4.000	17.000	0.0

Channel Results

SN	Element ID	Peak Flow	Time of Peak Flow Occurrence	Design Flow Capacity	Peak Flow/ Design Flow Ratio	Peak Flow Velocity	Travel Time	Peak Flow Depth	Peak Flow Depth/ Total Depth Ratio	Totl Surcl
		(cms)	(days hh:mm)	(cms)		(m/sec)	(min)	(m)		
1	Ex.STM_Overland	0.00	0 00:00	10.09	0.00	0.00		0.15	0.49	
2	Link-34	0.18	0 00:26	6.63	0.03	0.26	17.31	0.04	0.12	
3	Link-35	0.97	0 00:10	18.43	0.05	0.94	0.89	0.05	0.18	
4	Link-36	0.20	0 00:39	6.43	0.03	0.27	13.70	0.04	0.12	
5	Link-37	0.00	0 00:00	12.28	0.00	0.00		0.01	0.03	
6	Link-38	0.09	0 00:31	10.80	0.01	0.29	13.05	0.02	0.05	
7	Link-39	0.05	0 00:53	8.48	0.01	0.18	38.43	0.01	0.04	
8	Link-41	0.00	0 00:00	12.36	0.00	0.00		0.00	0.00	
9	Link-42	0.00	0 00:00	9.36	0.00	0.00		0.00	0.00	
10	Link-43	0.00	0 00:00	7.79	0.00	0.00		0.00	0.00	
11	Link-44	0.00	0 00:00	7.84	0.00	0.00		0.00	0.00	
12	Link-45	0.00	0 00:00	9.33	0.00	0.00		0.00	0.00	
13	Link-46	0.00	0 00:00	8.09	0.00	0.00		0.00	0.00	
14	LowerRavine	1.12	0 01:16	157.98	0.01	0.81	2.55	0.26	0.06	
15	OutletRavine	1.12	0 01:17	237.22	0.00	1.08	0.69	0.20	0.05	
16	RH_C1	0.43	0 00:17	24.20	0.02	1.23	2.91	0.26	0.18	
17	RH_C2	0.43	0 00:20	14.49	0.03	1.04	0.96	0.27	0.18	
18	UpperRavine	1.31	0 00:48	177.61	0.01	0.96	9.60	0.27	0.07	

Pipe Input

SN Element ID	Length	Inlet	Inlet	Outlet	Outlet	Total	Average	Pipe	Pipe Diameter or Height	Pipe	M
		Invert	Invert	Invert	Invert	Drop	Slope	Shape		Width	
		Elevation (m)	Offset (m)	Elevation (m)	Offset (m)	(m)	(%)			(m)	
1 Ex.STM_1	107.00	257.37	0.00	256.94	0.00	0.43	0.4000	CIRCULAR	0.450	0.450	
2 Ex.STM_2	73.00	256.94	0.00	256.64	0.00	0.30	0.4100	CIRCULAR	0.450	0.450	
3 Ex.STM_3	27.00	256.64	0.00	256.48	0.00	0.16	0.5900	CIRCULAR	0.450	0.450	
4 Ex.STM_4	100.00	256.48	0.00	255.88	0.00	0.60	0.6000	CIRCULAR	0.450	0.450	
5 Ex.STM_5	100.00	255.88	0.00	255.48	0.00	0.40	0.4000	CIRCULAR	0.530	0.530	
6 Ex.STM_6	50.00	255.48	0.00	255.23	0.00	0.25	0.5000	CIRCULAR	0.530	0.530	
7 Ex.STM_7	102.00	255.23	0.00	254.82	0.00	0.41	0.4000	CIRCULAR	0.600	0.600	
8 RH_A1	50.00	270.14	0.00	268.50	1.43	1.64	3.2800	CIRCULAR	0.300	0.300	
9 RH_B1	227.00	270.35	0.00	266.50	0.00	3.85	1.7000	CIRCULAR	0.300	0.300	
10 RH_C3	15.00	262.00	0.00	261.70	0.00	0.30	2.0000	CIRCULAR	0.600	0.600	
11 RH_C4	195.00	261.70	0.00	259.38	0.00	2.32	1.1900	CIRCULAR	0.530	0.530	
12 RH_C5	274.00	259.38	0.00	256.36	0.00	3.02	1.1000	CIRCULAR	0.530	0.530	
13 RH_C6	6.00	256.36	0.00	256.24	0.14	0.12	2.0000	CIRCULAR	0.700	0.700	
14 RH_D1	275.00	272.00	0.00	267.75	0.00	4.25	1.5500	CIRCULAR	0.300	0.300	
15 RH_D2	180.00	267.75	0.00	264.00	0.00	3.75	2.0800	CIRCULAR	0.300	0.300	
16 RH_D3	155.00	264.00	0.00	261.90	0.00	2.10	1.3500	CIRCULAR	0.380	0.380	
17 RH_M1	270.00	267.60	0.00	267.07	0.00	0.53	0.2000	CIRCULAR	0.600	0.600	
18 RH_M2	222.00	267.07	0.00	266.63	0.00	0.44	0.2000	CIRCULAR	0.680	0.680	
19 RH_M3	18.00	266.63	0.00	266.50	0.00	0.13	0.7200	CIRCULAR	0.750	0.750	
20 RH_M4	415.00	266.50	0.00	261.90	0.00	4.60	1.1100	CIRCULAR	0.680	0.680	
21 RH_M5	140.00	261.90	0.00	260.33	0.00	1.57	1.1200	CIRCULAR	0.680	0.680	
22 RH_M6	464.00	260.33	0.00	256.42	0.00	3.91	0.8400	CIRCULAR	0.750	0.750	
23 RH_M7	6.00	256.42	0.00	256.37	0.27	0.05	0.8300	CIRCULAR	1.000	1.000	
24 West_Link	33.73	256.00	-1.00	257.00	0.00	-1.00	-2.9600	Dummy	0.000	0.000	
25 WestWetland_Link	37.13	258.00	0.00	258.00	0.00	0.00	0.0000	Dummy	0.000	0.000	
26 Wetland_Link	41.51	252.00	0.00	252.00	0.00	0.00	0.0000	Dummy	0.000	0.000	

QUALITY STORM

No. of
Barrels

1

Pipe Results

SN Element ID	Peak Flow	Time of Peak Flow Occurrence	Design Flow Capacity	Peak Flow/ Design Flow Ratio	Peak Flow Velocity	Travel Time	Peak Flow Depth	Peak Flow Depth/ Total Depth Ratio	To Sur
	(cms)	(days hh:mm)	(cms)		(m/sec)	(min)	(m)		
1 Ex.STM_1	0.22	0 00:20	0.18	1.24	1.41	1.26	0.45	1.00	
2 Ex.STM_2	0.22	0 00:20	0.18	1.23	1.41	0.86	0.45	1.00	
3 Ex.STM_3	0.22	0 00:20	0.22	1.02	1.41	0.32	0.44	1.00	
4 Ex.STM_4	0.22	0 00:22	0.22	1.01	1.47	1.13	0.41	0.94	
5 Ex.STM_5	0.22	0 00:23	0.27	0.82	1.29	1.29	0.39	0.75	
6 Ex.STM_6	0.22	0 00:24	0.30	0.73	1.36	0.61	0.37	0.70	
7 Ex.STM_7	0.22	0 00:24	0.39	0.57	1.40	1.21	0.33	0.55	
8 RH_A1	0.23	0 00:10	0.18	1.32	3.27	0.25	0.30	1.00	
9 RH_B1	0.14	0 00:14	0.13	1.10	2.43	1.56	0.30	1.00	
10 RH_C3	0.27	0 00:37	0.87	0.31	1.79	0.14	0.31	0.52	
11 RH_C4	0.27	0 00:38	0.41	0.66	2.02	1.61	0.31	0.59	
12 RH_C5	0.27	0 00:39	0.45	0.60	1.66	2.75	0.38	0.71	
13 RH_C6	0.28	0 00:41	1.31	0.21	1.54	0.06	0.34	0.49	
14 RH_D1	0.00	0 00:00	0.12	0.00	0.00		0.08	0.30	
15 RH_D2	0.09	0 00:11	0.14	0.64	2.06	1.46	0.16	0.60	
16 RH_D3	0.10	0 00:12	0.20	0.48	1.67	1.55	0.27	0.74	
17 RH_M1	0.50	0 00:16	0.27	1.82	1.75	2.57	0.60	1.00	
18 RH_M2	0.80	0 00:17	0.37	2.13	2.23	1.66	0.68	1.00	
19 RH_M3	0.85	0 00:39	0.95	0.90	2.05	0.15	0.75	1.00	
20 RH_M4	0.91	0 00:18	0.89	1.03	2.64	2.62	0.68	1.00	
21 RH_M5	0.94	0 00:56	0.89	1.06	2.82	0.83	0.62	0.92	
22 RH_M6	0.94	0 00:57	1.02	0.92	2.29	3.38	0.66	0.88	
23 RH_M7	0.95	0 00:58	2.19	0.43	1.68	0.06	0.67	0.67	
24 West_Link	0.05	0 00:10	0.00	0.01	0.00		0.27	0.07	
25 WestWetland_Link	0.06	0 00:10	0.00	0.01	0.00		0.27	0.07	
26 Wetland_Link	0.05	0 00:10	0.00	0.01	0.00		0.27	0.07	

Project Description

File Name	18010_Pre-Development Rev.0.SPF
Description	I:\ACAD Projects\2018\18010\03-Ref\18010_Pre-Dev. Storm
	I:\ACAD Projects\2018\18010\03-Ref\18010_Pre-Dev. Storm

Project Options

Flow Units	CMS
Elevation Type	Elevation
Hydrology Method	EPA SWMM
EPA SWMM Infiltration Method	SCS Curve Number
Link Routing Method	Hydrodynamic
Enable Overflow Ponding at Nodes	YES
Skip Steady State Analysis Time Periods	NO

Analysis Options

Start Analysis On	00:00:00	0:00:00
End Analysis On	00:00:00	0:00:00
Start Reporting On	00:00:00	0:00:00
Antecedent Dry Days	0	days
Runoff (Dry Weather) Time Step	0 01:00:00	days hh:mm:ss
Runoff (Wet Weather) Time Step	0 00:05:00	days hh:mm:ss
Reporting Time Step	0 00:05:00	days hh:mm:ss
Routing Time Step	30	seconds

Number of Elements

	Qty
Rain Gages	1
Subbasins.....	31
Nodes.....	36
<i>Junctions</i>	30
<i>Outfalls</i>	5
<i>Flow Diversions</i>	0
<i>Inlets</i>	0
<i>Storage Nodes</i>	1
Links.....	44
<i>Channels</i>	18
<i>Pipes</i>	26
<i>Pumps</i>	0
<i>Orifices</i>	0
<i>Weirs</i>	0
<i>Outlets</i>	0
Pollutants	0
Land Uses	0

Subbasin Summary

SN Subbasin ID	Area	Impervious Area	Weighted Curve Number	Average Slope	Equivalent Width	Impervious Area Manning's Roughness	Pervious Area Manning's Roughness	Total Rainfall	Total Infiltration	Total Runoff	Total Runoff Volume	Peak Runoff	Time of Concentration
	(ha)	(%)		(%)	(m)			(mm)	(mm)	(mm)	(ha-mm)	(cms)	(days hh:mm:ss)
1 {Survey Site}.Standard : 10	0.92	2.00	67.00	2.0000	125.00	0.0130	0.2000	59.19	43.7930	14.16	13.00	0.01	0 01:18:05
2 {Survey Site}.Standard : 11	21.38	2.00	67.00	2.0000	360.00	0.0130	0.2000	59.19	40.8400	15.82	338.20	0.13	0 04:33:43
3 {Survey Site}.Standard : 12	0.71	5.00	67.00	2.0000	90.00	0.0130	0.2000	59.19	42.4520	15.47	10.99	0.01	0 01:20:01
4 {Survey Site}.Standard : 13	1.65	45.00	71.05	2.0000	220.00	0.0130	0.2000	59.19	23.0560	34.85	57.43	0.20	0 00:55:52
5 {Survey Site}.Standard : 14	4.32	2.00	67.00	2.0000	350.00	0.0130	0.2000	59.19	44.0630	13.87	59.90	0.04	0 01:46:38
6 {Survey Site}.Standard : 16	6.33	2.00	67.00	2.0000	215.00	0.0130	0.2000	59.19	44.8480	13.07	82.73	0.04	0 02:59:38
7 {Survey Site}.Standard : 17	0.36	5.00	67.00	5.0000	20.00	0.0130	0.2000	59.19	42.6430	15.28	5.44	0.01	0 01:39:02
8 {Survey Site}.Standard : 18	14.15	5.00	48.00	10.0000	300.00	0.0130	0.2000	59.19	51.0660	6.88	97.34	0.18	0 02:24:23
9 {Survey Site}.Standard : 19	0.26	2.00	67.00	2.0000	90.00	0.0130	0.2000	59.19	43.4740	14.49	3.83	0.01	0 00:45:01
10 {Survey Site}.Standard : 2	20.86	45.00	71.05	2.0000	300.00	0.0130	0.2000	59.19	23.9870	33.88	706.81	1.84	0 03:32:46
11 {Survey Site}.Standard : 20	11.33	2.00	36.00	0.5000	240.00	0.0130	0.2000	59.19	51.6540	2.30	26.07	0.06	0 06:01:24
12 {Survey Site}.Standard : 21	4.24	2.00	67.00	2.0000	155.00	0.0130	0.2000	59.19	44.7740	13.16	55.76	0.03	0 02:51:50
13 {Survey Site}.Standard : 22	23.21	2.00	67.00	2.0000	330.00	0.0130	0.2000	59.19	40.4820	15.16	351.87	0.14	0 05:02:58
14 {Survey Site}.Standard : 23	2.20	5.00	48.00	10.0000	100.00	0.0130	0.2000	59.19	50.5770	7.35	16.16	0.03	0 01:31:18
15 {Survey Site}.Standard : 24	9.04	2.00	67.00	2.0000	275.00	0.0130	0.2000	59.19	44.9950	12.93	116.94	0.06	0 03:11:58
16 {Survey Site}.Standard : 25	8.64	2.00	67.00	5.0000	390.00	0.0130	0.2000	59.19	44.1610	13.78	119.06	0.07	0 01:55:04
17 {Survey Site}.Standard : 26	1.12	45.00	71.05	2.0000	40.00	0.0130	0.2000	59.19	23.4430	34.46	38.74	0.12	0 02:03:32
18 {Survey Site}.Standard : 27	0.43	45.00	71.05	2.0000	60.00	0.0130	0.2000	59.19	23.0560	34.85	14.88	0.05	0 00:54:11
19 {Survey Site}.Standard : 28	0.12	45.00	71.05	2.0000	40.00	0.0130	0.2000	59.19	22.9350	34.94	4.30	0.02	0 00:32:45
20 {Survey Site}.Standard : 29	7.86	45.00	71.05	2.0000	110.00	0.0130	0.2000	59.19	24.0110	33.85	266.16	0.69	0 03:36:17
21 {Survey Site}.Standard : 3	25.14	45.00	71.05	2.0000	370.00	0.0130	0.2000	59.19	23.9750	33.90	852.14	2.23	0 03:29:49
22 {Survey Site}.Standard : 30	20.00	30.00	63.70	2.0000	225.00	0.0130	0.2000	59.19	34.1590	23.75	474.80	1.21	0 04:44:52
23 {Survey Site}.Standard : 31	5.54	5.00	57.00	2.0000	245.00	0.0130	0.2000	59.19	47.9010	10.02	55.55	0.07	0 02:30:34
24 {Survey Site}.Standard : 32	3.34	2.00	67.00	2.0000	95.00	0.0130	0.2000	59.19	45.0930	12.85	42.84	0.02	0 03:19:39
25 {Survey Site}.Standard : 33	7.71	2.00	67.00	2.0000	215.00	0.0130	0.2000	59.19	45.1170	12.82	98.78	0.05	0 03:22:10
26 {Survey Site}.Standard : 4	3.13	2.00	67.00	2.0000	155.00	0.0130	0.2000	59.19	44.4550	13.48	42.19	0.02	0 02:23:18
27 {Survey Site}.Standard : 5	10.46	45.00	71.05	0.5000	235.00	0.0130	0.2000	59.19	24.1810	33.65	351.95	0.85	0 04:06:44
28 {Survey Site}.Standard : 6	11.54	2.00	67.00	2.0000	280.00	0.0130	0.2000	59.19	45.3140	12.62	145.63	0.07	0 03:39:51
29 {Survey Site}.Standard : 7	10.98	5.00	67.00	2.0000	225.00	0.0130	0.2000	59.19	44.1410	13.80	151.40	0.15	0 03:58:43
30 {Survey Site}.Standard : 8	3.30	2.00	67.00	2.0000	125.00	0.0130	0.2000	59.19	44.7250	13.20	43.61	0.02	0 02:48:24

Node Summary

SN	Element ID	Element Type	Invert Elevation	Ground/Rim (Max) Elevation	Initial Water Elevation	Surcharge Elevation	Ponded Area	Peak Inflow	Max HGL Elevation Attained	Max Surcharge Depth Attained	Min Freeboard Attained	Time of Peak Flooding Occurrence	Total Flooded Volume	Total Time Flooded
			(m)	(m)	(m)	(m)	(m²)	(cms)	(m)	(m)	(m)	(days hh:mm)	(ha-mm)	(min)
1	Ex_MHR1	Junction	255.88	262.50	0.00	0.00	0.00	0.25	256.32	0.00	6.18	0 00:00	0.00	0.00
2	Ex_MHR2	Junction	255.48	259.65	0.00	0.00	0.00	0.25	255.90	0.00	3.75	0 00:00	0.00	0.00
3	Ex_MHR25	Junction	256.48	263.35	0.00	0.00	0.00	0.25	257.50	0.00	5.85	0 00:00	0.00	0.00
4	Ex_MHR26	Junction	256.64	262.75	0.00	0.00	0.00	0.25	257.83	0.00	4.92	0 00:00	0.00	0.00
5	Ex_MHR27	Junction	256.94	261.00	0.00	0.00	0.00	0.25	258.26	0.00	2.74	0 00:00	0.00	0.00
6	Ex_MHR28	Junction	257.37	259.30	0.00	0.00	0.00	0.69	259.03	0.00	0.27	0 00:00	0.00	0.00
7	Ex_MHR3	Junction	255.23	259.00	0.00	0.00	0.00	0.25	255.61	0.00	3.39	0 00:00	0.00	0.00
8	NorthWetland	Junction	252.00	258.00	0.00	0.00	0.00	0.09	252.00	0.00	6.00	0 00:00	0.00	0.00
9	Ravine_1	Junction	256.10	260.10	0.00	0.00	0.00	2.44	256.48	0.00	3.62	0 00:00	0.00	0.00
10	Ravine_2	Junction	253.00	257.00	0.00	0.00	0.00	2.50	253.45	0.00	3.55	0 00:00	0.00	0.00
11	Ravine_3	Junction	252.45	256.45	0.00	0.00	0.00	2.35	252.80	0.00	3.65	0 00:00	0.00	0.00
12	RH_1	Junction	267.60	271.70	0.00	0.00	0.00	2.23	271.53	0.00	0.17	0 00:00	0.00	0.00
13	RH_10	Junction	261.90	263.90	0.00	0.00	0.00	2.72	263.63	0.00	0.27	0 00:00	0.00	0.00
14	RH_11	Junction	260.33	262.55	0.00	0.00	0.00	2.32	262.34	0.00	0.21	0 00:00	0.00	0.00
15	RH_12	Junction	269.00	270.50	0.00	0.00	0.00	1.21	269.37	0.00	1.13	0 00:00	0.00	0.00
16	RH_13	Junction	264.00	266.50	0.00	0.00	0.00	1.24	264.51	0.00	1.99	0 00:00	0.00	0.00
17	RH_14	Junction	261.70	263.50	0.00	0.00	0.00	0.47	262.58	0.00	0.92	0 00:00	0.00	0.00
18	RH_15	Junction	259.38	261.00	0.00	0.00	0.00	0.46	260.05	0.00	0.95	0 00:00	0.00	0.00
19	RH_16	Junction	256.36	258.00	0.00	0.00	0.00	0.45	257.05	0.00	0.95	0 00:00	0.00	0.00
20	RH_17	Junction	256.42	258.00	0.00	0.00	0.00	1.17	257.47	0.00	0.53	0 00:00	0.00	0.00
21	RH_2	Junction	270.14	272.45	0.00	0.00	0.00	1.84	272.22	0.00	0.23	0 00:00	0.00	0.00
22	RH_3	Junction	267.07	270.25	0.00	0.00	0.00	3.85	269.83	0.00	0.42	0 00:00	0.00	0.00
23	RH_4	Junction	266.63	268.60	0.00	0.00	0.00	2.61	268.39	0.00	0.21	0 00:00	0.00	0.00
24	RH_5	Junction	270.35	272.10	0.00	0.00	0.00	0.85	271.85	0.00	0.25	0 00:00	0.00	0.00
25	RH_6	Junction	266.50	268.20	0.00	0.00	0.00	3.22	268.02	0.00	0.18	0 00:00	0.00	0.00
26	RH_7	Junction	272.00	273.50	0.00	0.00	0.00	0.00	272.00	0.00	1.50	0 00:00	0.00	0.00
27	RH_8	Junction	267.75	269.85	0.00	0.00	0.00	0.15	268.00	0.00	1.85	0 00:00	0.00	0.00
28	RH_9	Junction	264.00	265.80	0.00	0.00	0.00	0.16	264.31	0.00	1.49	0 00:00	0.00	0.00
29	WestOutfall	Junction	257.00	258.00	0.00	0.00	0.00	0.07	257.00	0.00	1.00	0 00:00	0.00	0.00
30	WestWetland	Junction	258.00	259.00	0.00	0.00	0.00	0.09	258.00	0.00	1.00	0 00:00	0.00	0.00

Link Summary

SN	Element ID	Element Type	From (Inlet) Node	To (Outlet) Node	Length	Inlet Invert Elevation	Outlet Invert Elevation	Average Slope	Diameter or Height	Manning's Roughness	Peak Flow	Design Flow Capacity	Peak Flow/ Design Flow Ratio	Peak Flow Velocity
					(m)	(m)	(m)	(%)	(m)		(cms)	(cms)		(m/sec)
1	Ex.STM_1	Pipe	Ex_MHR28	Ex_MHR27	107.00	257.37	256.94	0.4000	0.450	0.0130	0.25	0.18	1.37	1.55
2	Ex.STM_2	Pipe	Ex_MHR27	Ex_MHR26	73.00	256.94	256.64	0.4100	0.450	0.0130	0.25	0.18	1.35	1.55
3	Ex.STM_3	Pipe	Ex_MHR26	Ex_MHR25	27.00	256.64	256.48	0.5900	0.450	0.0130	0.25	0.22	1.12	1.55
4	Ex.STM_4	Pipe	Ex_MHR25	Ex_MHR1	100.00	256.48	255.88	0.6000	0.450	0.0130	0.25	0.22	1.12	1.58
5	Ex.STM_5	Pipe	Ex_MHR1	Ex_MHR2	100.00	255.88	255.48	0.4000	0.525	0.0130	0.25	0.27	0.90	1.32
6	Ex.STM_6	Pipe	Ex_MHR2	Ex_MHR3	50.00	255.48	255.23	0.5000	0.525	0.0130	0.25	0.30	0.81	1.40
7	Ex.STM_7	Pipe	Ex_MHR3	TinerEstatesSTM	102.00	255.23	254.82	0.4000	0.600	0.0130	0.25	0.39	0.63	1.43
8	RH_A1	Pipe	RH_2	RH_3	50.00	270.14	268.50	3.2800	0.300	0.0130	0.23	0.18	1.31	3.26
9	RH_B1	Pipe	RH_5	RH_6	227.00	270.35	266.50	1.7000	0.300	0.0130	0.14	0.13	1.10	1.96
10	RH_C3	Pipe	Ex_SE_Pond	RH_14	15.00	262.00	261.70	2.0000	0.600	0.0130	0.47	0.87	0.54	1.90
11	RH_C4	Pipe	RH_14	RH_15	195.00	261.70	259.38	1.1900	0.525	0.0150	0.44	0.41	1.07	2.12
12	RH_C5	Pipe	RH_15	RH_16	274.00	259.38	256.36	1.1000	0.525	0.0130	0.45	0.45	1.00	2.13
13	RH_C6	Pipe	RH_16	Ravine_1	6.00	256.36	256.24	2.0000	0.700	0.0130	0.45	1.31	0.34	1.63
14	RH_D1	Pipe	RH_7	RH_8	275.00	272.00	267.75	1.5500	0.300	0.0130	0.00	0.12	0.00	0.00
15	RH_D2	Pipe	RH_8	RH_9	180.00	267.75	264.00	2.0800	0.300	0.0130	0.14	0.14	1.00	2.18
16	RH_D3	Pipe	RH_9	RH_10	155.00	264.00	261.90	1.3500	0.375	0.0130	0.15	0.20	0.71	1.39
17	RH_M1	Pipe	RH_1	RH_3	270.00	267.60	267.07	0.2000	0.600	0.0130	0.51	0.27	1.86	1.79
18	RH_M2	Pipe	RH_3	RH_4	222.00	267.07	266.63	0.2000	0.675	0.0130	0.80	0.37	2.14	2.23
19	RH_M3	Pipe	RH_4	RH_6	18.00	266.63	266.50	0.7200	0.750	0.0130	1.04	0.95	1.09	2.34
20	RH_M4	Pipe	RH_6	RH_10	415.00	266.50	261.90	1.1100	0.675	0.0130	0.91	0.89	1.03	2.62
21	RH_M5	Pipe	RH_10	RH_11	140.00	261.90	260.33	1.1200	0.675	0.0130	1.06	0.89	1.19	2.96
22	RH_M6	Pipe	RH_11	RH_17	464.00	260.33	256.42	0.8400	0.750	0.0130	1.10	1.02	1.08	2.50
23	RH_M7	Pipe	RH_17	Ravine_1	6.00	256.42	256.37	0.8300	1.000	0.0130	1.17	2.19	0.54	1.83
24	West_Link	Pipe	WestOutfall	West_Outfall	33.73	256.00	257.00	-2.9600	0.000	0.0130	0.07	0.00	0.01	0.00
25	WestWetland_Link	Pipe	WestWetland	West_Wetland	37.13	258.00	258.00	0.0000	0.000	0.0130	0.09	0.00	0.01	0.00
26	Wetland_Link	Pipe	NorthWetland	North_Wetland	41.51	252.00	252.00	0.0000	0.000	0.0130	0.09	0.00	0.01	0.00
27	Ex.STM_Overland	Channel	Ex_MHR28	Ravine_2	400.00	259.00	253.00	1.5000	0.300	0.0320	0.26	10.09	0.03	0.09
28	Link-34	Channel	RH_1	RH_3	270.00	271.40	269.65	0.6500	0.300	0.0320	1.70	6.63	0.26	0.64
29	Link-35	Channel	RH_2	RH_3	50.00	272.15	269.65	5.0000	0.300	0.0320	1.63	18.43	0.09	1.11
30	Link-36	Channel	RH_3	RH_4	222.00	269.65	268.30	0.6100	0.300	0.0320	1.95	6.43	0.30	0.70

Junction Input

SN	Element ID	Invert Elevation	Ground/Rim (Max) Elevation (m)	Ground/Rim (Max) Offset (m)	Initial Water Elevation (m)	Initial Water Depth (m)	Surcharge Elevation (m)	Surcharge Depth (m)	Ponded Area (m²)	Minimum Pipe Cover (m)
1	Ex_MHR1	255.88	262.50	6.62	0.00	-255.88	0.00	-262.50	0.00	0.00
2	Ex_MHR2	255.48	259.65	4.17	0.00	-255.48	0.00	-259.65	0.00	0.00
3	Ex_MHR25	256.48	263.35	6.87	0.00	-256.48	0.00	-263.35	0.00	0.00
4	Ex_MHR26	256.64	262.75	6.11	0.00	-256.64	0.00	-262.75	0.00	0.00
5	Ex_MHR27	256.94	261.00	4.06	0.00	-256.94	0.00	-261.00	0.00	0.00
6	Ex_MHR28	257.37	259.30	1.93	0.00	-257.37	0.00	-259.30	0.00	0.00
7	Ex_MHR3	255.23	259.00	3.77	0.00	-255.23	0.00	-259.00	0.00	0.00
8	NorthWetland	252.00	258.00	6.00	0.00	-252.00	0.00	-258.00	0.00	0.00
9	Ravine_1	256.10	260.10	4.00	0.00	-256.10	0.00	-260.10	0.00	0.00
10	Ravine_2	253.00	257.00	4.00	0.00	-253.00	0.00	-257.00	0.00	0.00
11	Ravine_3	252.45	256.45	4.00	0.00	-252.45	0.00	-256.45	0.00	0.00
12	RH_1	267.60	271.70	4.10	0.00	-267.60	0.00	-271.70	0.00	0.00
13	RH_10	261.90	263.90	2.00	0.00	-261.90	0.00	-263.90	0.00	0.00
14	RH_11	260.33	262.55	2.22	0.00	-260.33	0.00	-262.55	0.00	0.00
15	RH_12	269.00	270.50	1.50	0.00	-269.00	0.00	-270.50	0.00	0.00
16	RH_13	264.00	266.50	2.50	0.00	-264.00	0.00	-266.50	0.00	0.00
17	RH_14	261.70	263.50	1.80	0.00	-261.70	0.00	-263.50	0.00	0.00
18	RH_15	259.38	261.00	1.62	0.00	-259.38	0.00	-261.00	0.00	0.00
19	RH_16	256.36	258.00	1.64	0.00	-256.36	0.00	-258.00	0.00	0.00
20	RH_17	256.42	258.00	1.58	0.00	-256.42	0.00	-258.00	0.00	0.00
21	RH_2	270.14	272.45	2.31	0.00	-270.14	0.00	-272.45	0.00	0.00
22	RH_3	267.07	270.25	3.18	0.00	-267.07	0.00	-270.25	0.00	0.00
23	RH_4	266.63	268.60	1.97	0.00	-266.63	0.00	-268.60	0.00	0.00
24	RH_5	270.35	272.10	1.75	0.00	-270.35	0.00	-272.10	0.00	0.00
25	RH_6	266.50	268.20	1.70	0.00	-266.50	0.00	-268.20	0.00	0.00
26	RH_7	272.00	273.50	1.50	0.00	-272.00	0.00	-273.50	0.00	0.00
27	RH_8	267.75	269.85	2.10	0.00	-267.75	0.00	-269.85	0.00	0.00
28	RH_9	264.00	265.80	1.80	0.00	-264.00	0.00	-265.80	0.00	0.00
29	WestOutfall	257.00	258.00	1.00	0.00	-257.00	0.00	-258.00	0.00	0.00
30	WestWetland	258.00	259.00	1.00	0.00	-258.00	0.00	-259.00	0.00	0.00

Junction Results

SN	Element	Peak	Peak	Max HGL	Max HGL	Max	Min	Average HGL	Average HGL	Time o
ID		Inflow	Lateral	Elevation	Depth	Surcharge	Freeboard	Elevation	Depth	Max HGL
			Inflow	Attained	Attained	Depth	Attained	Attained	Attained	Occurrence
		(cms)	(cms)	(m)	(m)	(m)	(m)	(m)	(m)	(days hh:mm)
1	Ex_MHR1	0.25	0.00	256.32	0.44	0.00	6.18	256.01	0.13	0 12:05
2	Ex_MHR2	0.25	0.00	255.90	0.42	0.00	3.75	255.60	0.12	0 12:06
3	Ex_MHR25	0.25	0.00	257.50	1.02	0.00	5.85	256.61	0.13	0 11:52
4	Ex_MHR26	0.25	0.00	257.83	1.19	0.00	4.92	256.79	0.15	0 11:52
5	Ex_MHR27	0.25	0.00	258.26	1.32	0.00	2.74	257.11	0.17	0 11:52
6	Ex_MHR28	0.69	0.69	259.03	1.66	0.00	0.27	257.57	0.20	0 12:04
7	Ex_MHR3	0.25	0.00	255.61	0.38	0.00	3.39	255.35	0.12	0 12:07
8	NorthWetland	0.09	0.09	252.00	0.00	0.00	6.00	252.00	0.00	0 00:00
9	Ravine_1	2.44	0.04	256.48	0.38	0.00	3.62	256.25	0.15	0 12:43
10	Ravine_2	2.50	0.32	253.45	0.45	0.00	3.55	253.19	0.19	0 12:52
11	Ravine_3	2.35	0.03	252.80	0.35	0.00	3.65	252.60	0.15	0 12:53
12	RH_1	2.23	2.23	271.53	3.93	0.00	0.17	268.21	0.61	0 12:01
13	RH_10	2.72	0.07	263.63	1.73	0.00	0.27	262.36	0.46	0 12:23
14	RH_11	2.32	0.02	262.34	2.01	0.00	0.21	260.81	0.48	0 12:36
15	RH_12	1.21	1.21	269.37	0.37	0.00	1.13	269.07	0.07	0 12:00
16	RH_13	1.24	0.07	264.51	0.51	0.00	1.99	264.12	0.12	0 12:02
17	RH_14	0.47	0.00	262.58	0.88	0.00	0.92	261.90	0.20	0 12:20
18	RH_15	0.46	0.05	260.05	0.67	0.00	0.95	259.57	0.19	0 12:31
19	RH_16	0.45	0.00	257.05	0.69	0.00	0.95	256.63	0.27	0 12:10
20	RH_17	1.17	0.13	257.47	1.05	0.00	0.53	256.90	0.48	0 13:00
21	RH_2	1.84	1.84	272.22	2.08	0.00	0.23	270.51	0.37	0 12:00
22	RH_3	3.85	0.00	269.83	2.76	0.00	0.42	267.68	0.61	0 12:08
23	RH_4	2.61	0.02	268.39	1.76	0.00	0.21	267.03	0.40	0 12:06
24	RH_5	0.85	0.85	271.85	1.50	0.00	0.25	270.60	0.25	0 12:04
25	RH_6	3.22	0.00	268.02	1.52	0.00	0.18	266.85	0.35	0 12:15
26	RH_7	0.00	0.00	272.00	0.00	0.00	1.50	272.00	0.00	0 00:00
27	RH_8	0.15	0.15	268.00	0.25	0.00	1.85	267.83	0.08	0 12:00
28	RH_9	0.16	0.02	264.31	0.31	0.00	1.49	264.09	0.09	0 12:03
29	WestOutfall	0.07	0.07	257.00	0.00	0.00	1.00	257.00	0.00	0 00:00
30	WestWetland	0.09	0.09	258.00	0.00	0.00	1.00	258.00	0.00	0 00:00

Channel Input

SN	Element ID	Length	Inlet Invert Elevation (m)	Inlet Invert Offset (m)	Outlet Invert Elevation (m)	Outlet Invert Offset (m)	Total Drop (m)	Average Slope (%)	Shape	Height (m)	Width (m)	Manni Roughr
1	Ex.STM_Overland	400.00	259.00	1.63	253.00	0.00	6.00	1.5000	Rectangular	0.300	20.000	0.0
2	Link-34	270.00	271.40	3.80	269.65	2.58	1.75	0.6500	Rectangular	0.300	20.000	0.0
3	Link-35	50.00	272.15	2.01	269.65	2.58	2.50	5.0000	Rectangular	0.300	20.000	0.0
4	Link-36	222.00	269.65	2.58	268.30	1.67	1.35	0.6100	Rectangular	0.300	20.000	0.0
5	Link-37	18.00	268.30	1.67	267.90	1.40	0.40	2.2200	Rectangular	0.300	20.000	0.0
6	Link-38	227.00	271.80	1.45	267.90	1.40	3.90	1.7200	Rectangular	0.300	20.000	0.0
7	Link-39	415.00	267.90	1.40	263.50	1.60	4.40	1.0600	Rectangular	0.300	20.000	0.0
8	Link-41	180.00	269.55	1.80	265.50	1.50	4.05	2.2500	Rectangular	0.300	20.000	0.0
9	Link-42	155.00	265.50	1.50	263.50	1.60	2.00	1.2900	Rectangular	0.300	20.000	0.0
10	Link-43	140.00	263.50	1.60	262.25	1.92	1.25	0.8900	Rectangular	0.300	20.000	0.0
11	Link-44	470.00	262.25	1.92	258.00	1.90	4.25	0.9000	Rectangular	0.300	20.000	0.0
12	Link-45	195.00	263.20	1.50	260.70	1.32	2.50	1.2800	Rectangular	0.300	20.000	0.0
13	Link-46	280.00	260.70	1.32	258.00	1.90	2.70	0.9600	Rectangular	0.300	20.000	0.0
14	LowerRavine	124.00	253.00	0.00	252.45	0.00	0.55	0.4400	Trapezoidal	4.000	17.000	0.0
15	OutletRavine	45.00	252.45	0.00	252.00	0.00	0.45	1.0000	Trapezoidal	4.000	17.000	0.0
16	RH_C1	215.00	269.00	0.00	264.00	0.00	5.00	2.3300	Trapezoidal	1.500	7.000	0.0
17	RH_C2	60.00	264.00	0.00	263.50	1.50	0.50	0.8300	Trapezoidal	1.500	7.000	0.0
18	UpperRavine	553.00	256.10	0.00	253.00	0.00	3.10	0.5600	Trapezoidal	4.000	17.000	0.0

Channel Results

SN Element ID	Peak Flow	Time of Peak Flow Occurrence	Design Flow Capacity	Peak Flow/ Design Flow Ratio	Peak Flow Velocity	Travel Time	Peak Flow Depth	Peak Flow Depth/ Total Depth Ratio	Totl Surcl
	(cms)	(days hh:mm)	(cms)		(m/sec)	(min)	(m)		
1 Ex.STM_Overland	0.26	0 12:04	10.09	0.03	0.09	74.07	0.16	0.55	
2 Link-34	1.70	0 12:01	6.63	0.26	0.64	7.03	0.14	0.48	
3 Link-35	1.63	0 12:00	18.43	0.09	1.11	0.75	0.11	0.38	
4 Link-36	1.95	0 12:08	6.43	0.30	0.70	5.29	0.14	0.46	
5 Link-37	1.62	0 12:09	12.28	0.13	0.90	0.33	0.10	0.33	
6 Link-38	0.58	0 12:04	10.80	0.05	0.57	6.64	0.08	0.25	
7 Link-39	1.79	0 12:17	8.48	0.21	0.77	8.98	0.12	0.39	
8 Link-41	0.00	0 00:00	12.36	0.00	0.00		0.00	0.00	
9 Link-42	0.00	0 00:00	9.36	0.00	0.00		0.06	0.21	
10 Link-43	1.56	0 12:23	7.79	0.20	0.73	3.20	0.11	0.36	
11 Link-44	0.81	0 12:38	7.84	0.10	0.56	13.99	0.07	0.24	
12 Link-45	0.00	0 00:00	9.33	0.00	0.00		0.00	0.00	
13 Link-46	0.00	0 00:00	8.09	0.00	0.00		0.00	0.00	
14 LowerRavine	2.35	0 12:52	157.98	0.01	1.06	1.95	0.40	0.10	
15 OutletRavine	2.35	0 12:53	237.22	0.01	1.39	0.54	0.31	0.08	
16 RH_C1	1.18	0 12:00	24.20	0.05	1.47	2.44	0.43	0.29	
17 RH_C2	1.17	0 12:02	14.49	0.08	1.35	0.74	0.43	0.30	
18 UpperRavine	2.43	0 12:41	177.61	0.01	1.07	8.61	0.41	0.10	

Pipe Input

SN	Element	Length	Inlet Invert	Inlet Invert	Outlet Invert	Outlet Invert	Total Drop	Average Slope	Pipe Shape	Pipe Diameter or Height	Pipe Width	Mi Roi
	ID	(m)	Elevation (m)	Offset (m)	Elevation (m)	Offset (m)	(m)	(%)		(m)	(m)	
1	Ex.STM_1	107.00	257.37	0.00	256.94	0.00	0.43	0.4000	CIRCULAR	0.450	0.450	
2	Ex.STM_2	73.00	256.94	0.00	256.64	0.00	0.30	0.4100	CIRCULAR	0.450	0.450	
3	Ex.STM_3	27.00	256.64	0.00	256.48	0.00	0.16	0.5900	CIRCULAR	0.450	0.450	
4	Ex.STM_4	100.00	256.48	0.00	255.88	0.00	0.60	0.6000	CIRCULAR	0.450	0.450	
5	Ex.STM_5	100.00	255.88	0.00	255.48	0.00	0.40	0.4000	CIRCULAR	0.530	0.530	
6	Ex.STM_6	50.00	255.48	0.00	255.23	0.00	0.25	0.5000	CIRCULAR	0.530	0.530	
7	Ex.STM_7	102.00	255.23	0.00	254.82	0.00	0.41	0.4000	CIRCULAR	0.600	0.600	
8	RH_A1	50.00	270.14	0.00	268.50	1.43	1.64	3.2800	CIRCULAR	0.300	0.300	
9	RH_B1	227.00	270.35	0.00	266.50	0.00	3.85	1.7000	CIRCULAR	0.300	0.300	
10	RH_C3	15.00	262.00	0.00	261.70	0.00	0.30	2.0000	CIRCULAR	0.600	0.600	
11	RH_C4	195.00	261.70	0.00	259.38	0.00	2.32	1.1900	CIRCULAR	0.530	0.530	
12	RH_C5	274.00	259.38	0.00	256.36	0.00	3.02	1.1000	CIRCULAR	0.530	0.530	
13	RH_C6	6.00	256.36	0.00	256.24	0.14	0.12	2.0000	CIRCULAR	0.700	0.700	
14	RH_D1	275.00	272.00	0.00	267.75	0.00	4.25	1.5500	CIRCULAR	0.300	0.300	
15	RH_D2	180.00	267.75	0.00	264.00	0.00	3.75	2.0800	CIRCULAR	0.300	0.300	
16	RH_D3	155.00	264.00	0.00	261.90	0.00	2.10	1.3500	CIRCULAR	0.380	0.380	
17	RH_M1	270.00	267.60	0.00	267.07	0.00	0.53	0.2000	CIRCULAR	0.600	0.600	
18	RH_M2	222.00	267.07	0.00	266.63	0.00	0.44	0.2000	CIRCULAR	0.680	0.680	
19	RH_M3	18.00	266.63	0.00	266.50	0.00	0.13	0.7200	CIRCULAR	0.750	0.750	
20	RH_M4	415.00	266.50	0.00	261.90	0.00	4.60	1.1100	CIRCULAR	0.680	0.680	
21	RH_M5	140.00	261.90	0.00	260.33	0.00	1.57	1.1200	CIRCULAR	0.680	0.680	
22	RH_M6	464.00	260.33	0.00	256.42	0.00	3.91	0.8400	CIRCULAR	0.750	0.750	
23	RH_M7	6.00	256.42	0.00	256.37	0.27	0.05	0.8300	CIRCULAR	1.000	1.000	
24	West_Link	33.73	256.00	-1.00	257.00	0.00	-1.00	-2.9600	Dummy	0.000	0.000	
25	WestWetland_Link	37.13	258.00	0.00	258.00	0.00	0.00	0.0000	Dummy	0.000	0.000	
26	Wetland_Link	41.51	252.00	0.00	252.00	0.00	0.00	0.0000	Dummy	0.000	0.000	

2-YEAR STORM

No. of
Barrels

1

Pipe Results

SN Element ID	Peak Flow	Time of Peak Flow Occurrence	Design Flow Capacity	Peak Flow/ Design Flow Ratio	Peak Flow Velocity	Travel Time	Peak Flow Depth	Peak Flow Depth/ Total Depth Ratio	To Sur
	(cms)	(days hh:mm)	(cms)		(m/sec)	(min)	(m)		
1 Ex.STM_1	0.25	0 11:53	0.18	1.37	1.55	1.15	0.45	1.00	
2 Ex.STM_2	0.25	0 11:53	0.18	1.35	1.55	0.78	0.45	1.00	
3 Ex.STM_3	0.25	0 11:53	0.22	1.12	1.55	0.29	0.45	1.00	
4 Ex.STM_4	0.25	0 11:53	0.22	1.12	1.58	1.05	0.44	0.99	
5 Ex.STM_5	0.25	0 12:05	0.27	0.90	1.32	1.26	0.43	0.82	
6 Ex.STM_6	0.25	0 12:06	0.30	0.81	1.40	0.60	0.40	0.76	
7 Ex.STM_7	0.25	0 12:07	0.39	0.63	1.43	1.19	0.35	0.58	
8 RH_A1	0.23	0 11:49	0.18	1.31	3.26	0.26	0.30	1.00	
9 RH_B1	0.14	0 11:48	0.13	1.10	1.96	1.93	0.30	1.00	
10 RH_C3	0.47	0 12:02	0.87	0.54	1.90	0.13	0.60	1.00	
11 RH_C4	0.44	0 12:11	0.41	1.07	2.12	1.53	0.52	1.00	
12 RH_C5	0.45	0 12:09	0.45	1.00	2.13	2.14	0.52	1.00	
13 RH_C6	0.45	0 12:10	1.31	0.34	1.63	0.06	0.49	0.70	
14 RH_D1	0.00	0 00:00	0.12	0.00	0.00		0.12	0.42	
15 RH_D2	0.14	0 12:01	0.14	1.00	2.18	1.38	0.25	0.90	
16 RH_D3	0.15	0 12:01	0.20	0.71	1.39	1.86	0.33	0.91	
17 RH_M1	0.51	0 11:51	0.27	1.86	1.79	2.51	0.60	1.00	
18 RH_M2	0.80	0 11:52	0.37	2.14	2.23	1.66	0.68	1.00	
19 RH_M3	1.04	0 12:02	0.95	1.09	2.34	0.13	0.75	1.00	
20 RH_M4	0.91	0 11:53	0.89	1.03	2.62	2.64	0.68	1.00	
21 RH_M5	1.06	0 12:04	0.89	1.19	2.96	0.79	0.68	1.00	
22 RH_M6	1.10	0 12:37	1.02	1.08	2.50	3.09	0.75	1.00	
23 RH_M7	1.17	0 13:00	2.19	0.54	1.83	0.05	0.76	0.76	
24 West_Link	0.07	0 12:00	0.00	0.01	0.00		0.41	0.10	
25 WestWetland_Link	0.09	0 12:00	0.00	0.01	0.00		0.41	0.10	
26 Wetland_Link	0.09	0 12:00	0.00	0.01	0.00		0.41	0.10	

Project Description

File Name	18010_Pre-Development Rev.0.SPF
Description	I:\ACAD Projects\2018\18010\03-Ref\18010_Pre-Dev. Storm
	I:\ACAD Projects\2018\18010\03-Ref\18010_Pre-Dev. Storm

Project Options

Flow Units	CMS
Elevation Type	Elevation
Hydrology Method	EPA SWMM
EPA SWMM Infiltration Method	SCS Curve Number
Link Routing Method	Hydrodynamic
Enable Overflow Ponding at Nodes	YES
Skip Steady State Analysis Time Periods	NO

Analysis Options

Start Analysis On	00:00:00	0:00:00
End Analysis On	00:00:00	0:00:00
Start Reporting On	00:00:00	0:00:00
Antecedent Dry Days	0	days
Runoff (Dry Weather) Time Step	0 01:00:00	days hh:mm:ss
Runoff (Wet Weather) Time Step	0 00:05:00	days hh:mm:ss
Reporting Time Step	0 00:05:00	days hh:mm:ss
Routing Time Step	30	seconds

Number of Elements

	Qty
Rain Gages	1
Subbasins.....	31
Nodes.....	36
<i>Junctions</i>	30
<i>Outfalls</i>	5
<i>Flow Diversions</i>	0
<i>Inlets</i>	0
<i>Storage Nodes</i>	1
Links.....	44
<i>Channels</i>	18
<i>Pipes</i>	26
<i>Pumps</i>	0
<i>Orifices</i>	0
<i>Weirs</i>	0
<i>Outlets</i>	0
Pollutants	0
Land Uses	0

Subbasin Summary

SN Subbasin ID	Area	Impervious Area	Weighted Curve Number	Average Slope	Equivalent Width	Impervious Area Manning's Roughness	Pervious Area Manning's Roughness	Total Rainfall	Total Infiltration	Total Runoff	Total Runoff Volume	Peak Runoff	Time of Concentration
	(ha)	(%)		(%)	(m)			(mm)	(mm)	(mm)	(ha-mm)	(cms)	(days hh:mm:ss)
1 {Survey Site}.Standard : 10	0.92	2.00	67.00	2.0000	125.00	0.0130	0.2000	63.79	45.8330	16.69	15.32	0.02	0 01:15:47
2 {Survey Site}.Standard : 11	21.38	2.00	67.00	2.0000	360.00	0.0130	0.2000	63.79	42.9570	18.67	399.08	0.15	0 04:25:38
3 {Survey Site}.Standard : 12	0.71	5.00	67.00	2.0000	90.00	0.0130	0.2000	63.79	44.4540	18.07	12.83	0.02	0 01:17:39
4 {Survey Site}.Standard : 13	1.65	45.00	71.05	2.0000	220.00	0.0130	0.2000	63.79	24.0720	38.45	63.36	0.22	0 00:54:14
5 {Survey Site}.Standard : 14	4.32	2.00	67.00	2.0000	350.00	0.0130	0.2000	63.79	46.1350	16.39	70.80	0.05	0 01:43:29
6 {Survey Site}.Standard : 16	6.33	2.00	67.00	2.0000	215.00	0.0130	0.2000	63.79	46.9650	15.57	98.52	0.05	0 02:54:20
7 {Survey Site}.Standard : 17	0.36	5.00	67.00	5.0000	20.00	0.0130	0.2000	63.79	44.6490	17.88	6.36	0.01	0 01:36:07
8 {Survey Site}.Standard : 18	14.15	5.00	48.00	10.0000	300.00	0.0130	0.2000	63.79	54.0720	8.47	119.92	0.19	0 02:20:07
9 {Survey Site}.Standard : 19	0.26	2.00	67.00	2.0000	90.00	0.0130	0.2000	63.79	45.5060	17.04	4.50	0.01	0 00:43:42
10 {Survey Site}.Standard : 2	20.86	45.00	71.05	2.0000	300.00	0.0130	0.2000	63.79	25.0340	37.44	781.17	2.02	0 03:26:30
11 {Survey Site}.Standard : 20	11.33	2.00	36.00	0.5000	240.00	0.0130	0.2000	63.79	55.2010	3.26	36.96	0.06	0 05:50:44
12 {Survey Site}.Standard : 21	4.24	2.00	67.00	2.0000	155.00	0.0130	0.2000	63.79	46.8650	15.66	66.34	0.04	0 02:46:46
13 {Survey Site}.Standard : 22	23.21	2.00	67.00	2.0000	330.00	0.0130	0.2000	63.79	42.5680	17.91	415.75	0.16	0 04:54:01
14 {Survey Site}.Standard : 23	2.20	5.00	48.00	10.0000	100.00	0.0130	0.2000	63.79	53.5590	8.98	19.75	0.03	0 01:28:36
15 {Survey Site}.Standard : 24	9.04	2.00	67.00	2.0000	275.00	0.0130	0.2000	63.79	47.1160	15.42	139.44	0.07	0 03:06:18
16 {Survey Site}.Standard : 25	8.64	2.00	67.00	5.0000	390.00	0.0130	0.2000	63.79	46.2360	16.30	140.84	0.09	0 01:51:41
17 {Survey Site}.Standard : 26	1.12	45.00	71.05	2.0000	40.00	0.0130	0.2000	63.79	24.4670	38.05	42.77	0.13	0 01:59:53
18 {Survey Site}.Standard : 27	0.43	45.00	71.05	2.0000	60.00	0.0130	0.2000	63.79	24.0600	38.45	16.42	0.06	0 00:52:35
19 {Survey Site}.Standard : 28	0.12	45.00	71.05	2.0000	40.00	0.0130	0.2000	63.79	23.9370	38.55	4.74	0.02	0 00:31:47
20 {Survey Site}.Standard : 29	7.86	45.00	71.05	2.0000	110.00	0.0130	0.2000	63.79	25.0580	37.42	294.17	0.75	0 03:29:54
21 {Survey Site}.Standard : 3	25.14	45.00	71.05	2.0000	370.00	0.0130	0.2000	63.79	25.0090	37.46	941.76	2.45	0 03:23:37
22 {Survey Site}.Standard : 30	20.00	30.00	63.70	2.0000	225.00	0.0130	0.2000	63.79	35.8510	26.65	532.81	1.33	0 04:36:27
23 {Survey Site}.Standard : 31	5.54	5.00	57.00	2.0000	245.00	0.0130	0.2000	63.79	50.5060	12.04	66.74	0.08	0 02:26:08
24 {Survey Site}.Standard : 32	3.34	2.00	67.00	2.0000	95.00	0.0130	0.2000	63.79	47.1920	15.33	51.13	0.03	0 03:13:46
25 {Survey Site}.Standard : 33	7.71	2.00	67.00	2.0000	215.00	0.0130	0.2000	63.79	47.2420	15.30	117.90	0.06	0 03:16:12
26 {Survey Site}.Standard : 4	3.13	2.00	67.00	2.0000	155.00	0.0130	0.2000	63.79	46.5380	15.99	50.05	0.03	0 02:19:05
27 {Survey Site}.Standard : 5	10.46	45.00	71.05	0.5000	235.00	0.0130	0.2000	63.79	25.2430	37.20	389.12	0.94	0 03:59:27
28 {Survey Site}.Standard : 6	11.54	2.00	67.00	2.0000	280.00	0.0130	0.2000	63.79	47.4430	15.09	174.16	0.08	0 03:33:22
29 {Survey Site}.Standard : 7	10.98	5.00	67.00	2.0000	225.00	0.0130	0.2000	63.79	46.2110	16.32	179.12	0.17	0 03:51:41
30 {Survey Site}.Standard : 8	3.30	2.00	67.00	2.0000	125.00	0.0130	0.2000	63.79	46.8390	15.70	51.86	0.03	0 02:43:26

Node Summary

SN	Element ID	Element Type	Invert Elevation	Ground/Rim (Max) Elevation	Initial Water Elevation	Surcharge Elevation	Ponded Area	Peak Inflow	Max HGL Elevation Attained	Max Surcharge Depth Attained	Min Freeboard Attained	Time of Peak Flooding Occurrence	Total Flooded Volume	Total Time Flooded
			(m)	(m)	(m)	(m)	(m²)	(cms)	(m)	(m)	(m)	(days hh:mm)	(ha-mm)	(min)
1	Ex_MHR1	Junction	255.88	262.50	0.00	0.00	0.00	0.25	256.32	0.00	6.18	0 00:00	0.00	0.00
2	Ex_MHR2	Junction	255.48	259.65	0.00	0.00	0.00	0.25	255.90	0.00	3.75	0 00:00	0.00	0.00
3	Ex_MHR25	Junction	256.48	263.35	0.00	0.00	0.00	0.25	257.46	0.00	5.89	0 00:00	0.00	0.00
4	Ex_MHR26	Junction	256.64	262.75	0.00	0.00	0.00	0.25	257.85	0.00	4.90	0 00:00	0.00	0.00
5	Ex_MHR27	Junction	256.94	261.00	0.00	0.00	0.00	0.25	258.30	0.00	2.70	0 00:00	0.00	0.00
6	Ex_MHR28	Junction	257.37	259.30	0.00	0.00	0.00	0.75	259.04	0.00	0.26	0 00:00	0.00	0.00
7	Ex_MHR3	Junction	255.23	259.00	0.00	0.00	0.00	0.25	255.61	0.00	3.39	0 00:00	0.00	0.00
8	NorthWetland	Junction	252.00	258.00	0.00	0.00	0.00	0.11	252.00	0.00	6.00	0 00:00	0.00	0.00
9	Ravine_1	Junction	256.10	260.10	0.00	0.00	0.00	2.82	256.52	0.00	3.58	0 00:00	0.00	0.00
10	Ravine_2	Junction	253.00	257.00	0.00	0.00	0.00	2.90	253.48	0.00	3.52	0 00:00	0.00	0.00
11	Ravine_3	Junction	252.45	256.45	0.00	0.00	0.00	2.69	252.83	0.00	3.62	0 00:00	0.00	0.00
12	RH_1	Junction	267.60	271.70	0.00	0.00	0.00	2.45	271.54	0.00	0.16	0 00:00	0.00	0.00
13	RH_10	Junction	261.90	263.90	0.00	0.00	0.00	3.16	263.65	0.00	0.25	0 00:00	0.00	0.00
14	RH_11	Junction	260.33	262.55	0.00	0.00	0.00	2.70	262.36	0.00	0.19	0 00:00	0.00	0.00
15	RH_12	Junction	269.00	270.50	0.00	0.00	0.00	1.33	269.38	0.00	1.12	0 00:00	0.00	0.00
16	RH_13	Junction	264.00	266.50	0.00	0.00	0.00	1.36	264.53	0.00	1.97	0 00:00	0.00	0.00
17	RH_14	Junction	261.70	263.50	0.00	0.00	0.00	0.47	262.69	0.00	0.81	0 00:00	0.00	0.00
18	RH_15	Junction	259.38	261.00	0.00	0.00	0.00	0.47	260.19	0.00	0.81	0 00:00	0.00	0.00
19	RH_16	Junction	256.36	258.00	0.00	0.00	0.00	0.45	257.05	0.00	0.95	0 00:00	0.00	0.00
20	RH_17	Junction	256.42	258.00	0.00	0.00	0.00	1.20	257.48	0.00	0.52	0 00:00	0.00	0.00
21	RH_2	Junction	270.14	272.45	0.00	0.00	0.00	2.02	272.22	0.00	0.23	0 00:00	0.00	0.00
22	RH_3	Junction	267.07	270.25	0.00	0.00	0.00	4.28	269.85	0.00	0.40	0 00:00	0.00	0.00
23	RH_4	Junction	266.63	268.60	0.00	0.00	0.00	2.95	268.40	0.00	0.20	0 00:00	0.00	0.00
24	RH_5	Junction	270.35	272.10	0.00	0.00	0.00	0.94	271.86	0.00	0.24	0 00:00	0.00	0.00
25	RH_6	Junction	266.50	268.20	0.00	0.00	0.00	3.63	268.03	0.00	0.17	0 00:00	0.00	0.00
26	RH_7	Junction	272.00	273.50	0.00	0.00	0.00	0.00	272.00	0.00	1.50	0 00:00	0.00	0.00
27	RH_8	Junction	267.75	269.85	0.00	0.00	0.00	0.17	268.06	0.00	1.79	0 00:00	0.00	0.00
28	RH_9	Junction	264.00	265.80	0.00	0.00	0.00	0.17	264.56	0.00	1.24	0 00:00	0.00	0.00
29	WestOutfall	Junction	257.00	258.00	0.00	0.00	0.00	0.09	257.00	0.00	1.00	0 00:00	0.00	0.00
30	WestWetland	Junction	258.00	259.00	0.00	0.00	0.00	0.10	258.00	0.00	1.00	0 00:00	0.00	0.00

Link Summary

SN	Element ID	Element Type	From (Inlet) Node	To (Outlet) Node	Length	Inlet Invert Elevation	Outlet Invert Elevation	Average Slope	Diameter or Height	Manning's Roughness	Peak Flow	Design Flow Capacity	Peak Flow/ Design Flow Ratio	Peak Flow Velocity
					(m)	(m)	(m)	(%)	(m)		(cms)	(cms)		(m/sec)
1	Ex.STM_1	Pipe	Ex_MHR28	Ex_MHR27	107.00	257.37	256.94	0.4000	0.450	0.0130	0.25	0.18	1.37	1.55
2	Ex.STM_2	Pipe	Ex_MHR27	Ex_MHR26	73.00	256.94	256.64	0.4100	0.450	0.0130	0.25	0.18	1.35	1.55
3	Ex.STM_3	Pipe	Ex_MHR26	Ex_MHR25	27.00	256.64	256.48	0.5900	0.450	0.0130	0.25	0.22	1.12	1.55
4	Ex.STM_4	Pipe	Ex_MHR25	Ex_MHR1	100.00	256.48	255.88	0.6000	0.450	0.0130	0.25	0.22	1.12	1.58
5	Ex.STM_5	Pipe	Ex_MHR1	Ex_MHR2	100.00	255.88	255.48	0.4000	0.525	0.0130	0.25	0.27	0.90	1.32
6	Ex.STM_6	Pipe	Ex_MHR2	Ex_MHR3	50.00	255.48	255.23	0.5000	0.525	0.0130	0.25	0.30	0.81	1.40
7	Ex.STM_7	Pipe	Ex_MHR3	TinerEstatesSTM	102.00	255.23	254.82	0.4000	0.600	0.0130	0.25	0.39	0.63	1.43
8	RH_A1	Pipe	RH_2	RH_3	50.00	270.14	268.50	3.2800	0.300	0.0130	0.23	0.18	1.31	3.26
9	RH_B1	Pipe	RH_5	RH_6	227.00	270.35	266.50	1.7000	0.300	0.0130	0.14	0.13	1.10	1.96
10	RH_C3	Pipe	Ex_SE_Pond	RH_14	15.00	262.00	261.70	2.0000	0.600	0.0130	0.47	0.87	0.54	1.91
11	RH_C4	Pipe	RH_14	RH_15	195.00	261.70	259.38	1.1900	0.525	0.0150	0.43	0.41	1.06	2.11
12	RH_C5	Pipe	RH_15	RH_16	274.00	259.38	256.36	1.1000	0.525	0.0130	0.45	0.45	1.00	2.13
13	RH_C6	Pipe	RH_16	Ravine_1	6.00	256.36	256.24	2.0000	0.700	0.0130	0.45	1.31	0.34	1.63
14	RH_D1	Pipe	RH_7	RH_8	275.00	272.00	267.75	1.5500	0.300	0.0130	0.00	0.12	0.00	0.00
15	RH_D2	Pipe	RH_8	RH_9	180.00	267.75	264.00	2.0800	0.300	0.0130	0.15	0.14	1.05	2.18
16	RH_D3	Pipe	RH_9	RH_10	155.00	264.00	261.90	1.3500	0.375	0.0130	0.15	0.20	0.73	1.40
17	RH_M1	Pipe	RH_1	RH_3	270.00	267.60	267.07	0.2000	0.600	0.0130	0.51	0.27	1.85	1.78
18	RH_M2	Pipe	RH_3	RH_4	222.00	267.07	266.63	0.2000	0.675	0.0130	0.80	0.37	2.14	2.23
19	RH_M3	Pipe	RH_4	RH_6	18.00	266.63	266.50	0.7200	0.750	0.0130	1.04	0.95	1.10	2.35
20	RH_M4	Pipe	RH_6	RH_10	415.00	266.50	261.90	1.1100	0.675	0.0130	0.91	0.89	1.03	2.62
21	RH_M5	Pipe	RH_10	RH_11	140.00	261.90	260.33	1.1200	0.675	0.0130	1.05	0.89	1.18	2.95
22	RH_M6	Pipe	RH_11	RH_17	464.00	260.33	256.42	0.8400	0.750	0.0130	1.10	1.02	1.08	2.50
23	RH_M7	Pipe	RH_17	Ravine_1	6.00	256.42	256.37	0.8300	1.000	0.0130	1.20	2.19	0.55	1.86
24	West_Link	Pipe	WestOutfall	West_Outfall	33.73	256.00	257.00	-2.9600	0.000	0.0130	0.09	0.00	0.02	0.00
25	WestWetland_Link	Pipe	WestWetland	West_Wetland	37.13	258.00	258.00	0.0000	0.000	0.0130	0.10	0.00	0.02	0.00
26	Wetland_Link	Pipe	NorthWetland	North_Wetland	41.51	252.00	252.00	0.0000	0.000	0.0130	0.11	0.00	0.02	0.00
27	Ex.STM_Overland	Channel	Ex_MHR28	Ravine_2	400.00	259.00	253.00	1.5000	0.300	0.0320	0.31	10.09	0.03	0.10
28	Link-34	Channel	RH_1	RH_3	270.00	271.40	269.65	0.6500	0.300	0.0320	1.91	6.63	0.29	0.67
29	Link-35	Channel	RH_2	RH_3	50.00	272.15	269.65	5.0000	0.300	0.0320	1.81	18.43	0.10	1.12
30	Link-36	Channel	RH_3	RH_4	222.00	269.65	268.30	0.6100	0.300	0.0320	2.29	6.43	0.36	0.75

Junction Input

SN	Element ID	Invert Elevation	Ground/Rim (Max) Elevation	Ground/Rim (Max) Offset	Initial Water Elevation	Initial Water Depth	Surcharge Elevation	Surcharge Depth	Ponded Area	Minimum Pipe Cover
		(m)	(m)	(m)	(m)	(m)	(m)	(m)	(m²)	(m)
1	Ex_MHR1	255.88	262.50	6.62	0.00	-255.88	0.00	-262.50	0.00	0.00
2	Ex_MHR2	255.48	259.65	4.17	0.00	-255.48	0.00	-259.65	0.00	0.00
3	Ex_MHR25	256.48	263.35	6.87	0.00	-256.48	0.00	-263.35	0.00	0.00
4	Ex_MHR26	256.64	262.75	6.11	0.00	-256.64	0.00	-262.75	0.00	0.00
5	Ex_MHR27	256.94	261.00	4.06	0.00	-256.94	0.00	-261.00	0.00	0.00
6	Ex_MHR28	257.37	259.30	1.93	0.00	-257.37	0.00	-259.30	0.00	0.00
7	Ex_MHR3	255.23	259.00	3.77	0.00	-255.23	0.00	-259.00	0.00	0.00
8	NorthWetland	252.00	258.00	6.00	0.00	-252.00	0.00	-258.00	0.00	0.00
9	Ravine_1	256.10	260.10	4.00	0.00	-256.10	0.00	-260.10	0.00	0.00
10	Ravine_2	253.00	257.00	4.00	0.00	-253.00	0.00	-257.00	0.00	0.00
11	Ravine_3	252.45	256.45	4.00	0.00	-252.45	0.00	-256.45	0.00	0.00
12	RH_1	267.60	271.70	4.10	0.00	-267.60	0.00	-271.70	0.00	0.00
13	RH_10	261.90	263.90	2.00	0.00	-261.90	0.00	-263.90	0.00	0.00
14	RH_11	260.33	262.55	2.22	0.00	-260.33	0.00	-262.55	0.00	0.00
15	RH_12	269.00	270.50	1.50	0.00	-269.00	0.00	-270.50	0.00	0.00
16	RH_13	264.00	266.50	2.50	0.00	-264.00	0.00	-266.50	0.00	0.00
17	RH_14	261.70	263.50	1.80	0.00	-261.70	0.00	-263.50	0.00	0.00
18	RH_15	259.38	261.00	1.62	0.00	-259.38	0.00	-261.00	0.00	0.00
19	RH_16	256.36	258.00	1.64	0.00	-256.36	0.00	-258.00	0.00	0.00
20	RH_17	256.42	258.00	1.58	0.00	-256.42	0.00	-258.00	0.00	0.00
21	RH_2	270.14	272.45	2.31	0.00	-270.14	0.00	-272.45	0.00	0.00
22	RH_3	267.07	270.25	3.18	0.00	-267.07	0.00	-270.25	0.00	0.00
23	RH_4	266.63	268.60	1.97	0.00	-266.63	0.00	-268.60	0.00	0.00
24	RH_5	270.35	272.10	1.75	0.00	-270.35	0.00	-272.10	0.00	0.00
25	RH_6	266.50	268.20	1.70	0.00	-266.50	0.00	-268.20	0.00	0.00
26	RH_7	272.00	273.50	1.50	0.00	-272.00	0.00	-273.50	0.00	0.00
27	RH_8	267.75	269.85	2.10	0.00	-267.75	0.00	-269.85	0.00	0.00
28	RH_9	264.00	265.80	1.80	0.00	-264.00	0.00	-265.80	0.00	0.00
29	WestOutfall	257.00	258.00	1.00	0.00	-257.00	0.00	-258.00	0.00	0.00
30	WestWetland	258.00	259.00	1.00	0.00	-258.00	0.00	-259.00	0.00	0.00

Junction Results

SN	Element	Peak	Peak	Max HGL	Max HGL	Max	Min	Average HGL	Average HGL	Time o
ID		Inflow	Lateral	Elevation	Depth	Surcharge	Freeboard	Elevation	Depth	Max HGL
			Inflow	Attained	Attained	Depth	Attained	Attained	Attained	Occurrence
		(cms)	(cms)	(m)	(m)	(m)	(m)	(m)	(m)	(days hh:mm)
1	Ex_MHR1	0.25	0.00	256.32	0.44	0.00	6.18	256.01	0.13	0 12:05
2	Ex_MHR2	0.25	0.00	255.90	0.42	0.00	3.75	255.61	0.13	0 12:06
3	Ex_MHR25	0.25	0.00	257.46	0.98	0.00	5.89	256.62	0.14	0 11:51
4	Ex_MHR26	0.25	0.00	257.85	1.21	0.00	4.90	256.79	0.15	0 11:51
5	Ex_MHR27	0.25	0.00	258.30	1.36	0.00	2.70	257.12	0.18	0 11:51
6	Ex_MHR28	0.75	0.75	259.04	1.67	0.00	0.26	257.57	0.20	0 12:04
7	Ex_MHR3	0.25	0.00	255.61	0.38	0.00	3.39	255.36	0.13	0 12:07
8	NorthWetland	0.11	0.11	252.00	0.00	0.00	6.00	252.00	0.00	0 00:00
9	Ravine_1	2.82	0.05	256.52	0.42	0.00	3.58	256.26	0.16	0 12:37
10	Ravine_2	2.90	0.35	253.48	0.48	0.00	3.52	253.20	0.20	0 12:46
11	Ravine_3	2.69	0.03	252.83	0.38	0.00	3.62	252.61	0.16	0 12:46
12	RH_1	2.45	2.45	271.54	3.94	0.00	0.16	268.25	0.65	0 12:00
13	RH_10	3.16	0.08	263.65	1.75	0.00	0.25	262.38	0.48	0 12:21
14	RH_11	2.70	0.03	262.36	2.03	0.00	0.19	260.84	0.51	0 12:34
15	RH_12	1.33	1.33	269.38	0.38	0.00	1.12	269.07	0.07	0 12:00
16	RH_13	1.36	0.08	264.53	0.53	0.00	1.97	264.12	0.12	0 12:01
17	RH_14	0.47	0.00	262.69	0.99	0.00	0.81	261.93	0.23	0 12:23
18	RH_15	0.47	0.06	260.19	0.81	0.00	0.81	259.60	0.22	0 12:33
19	RH_16	0.45	0.00	257.05	0.69	0.00	0.95	256.65	0.29	0 12:04
20	RH_17	1.20	0.15	257.48	1.06	0.00	0.52	256.92	0.50	0 12:54
21	RH_2	2.02	2.02	272.22	2.08	0.00	0.23	270.54	0.40	0 12:00
22	RH_3	4.28	0.00	269.85	2.78	0.00	0.40	267.71	0.64	0 12:07
23	RH_4	2.95	0.03	268.40	1.77	0.00	0.20	267.05	0.42	0 12:06
24	RH_5	0.94	0.94	271.86	1.51	0.00	0.24	270.61	0.26	0 12:03
25	RH_6	3.63	0.00	268.03	1.53	0.00	0.17	266.87	0.37	0 12:14
26	RH_7	0.00	0.00	272.00	0.00	0.00	1.50	272.00	0.00	0 00:00
27	RH_8	0.17	0.17	268.06	0.31	0.00	1.79	267.83	0.08	0 12:01
28	RH_9	0.17	0.03	264.56	0.56	0.00	1.24	264.10	0.10	0 12:05
29	WestOutfall	0.09	0.09	257.00	0.00	0.00	1.00	257.00	0.00	0 00:00
30	WestWetland	0.10	0.10	258.00	0.00	0.00	1.00	258.00	0.00	0 00:00

Channel Input

SN Element ID	Length	Inlet Invert Elevation	Inlet Invert Offset	Outlet Invert Elevation	Outlet Invert Offset	Total Drop	Average Slope	Shape	Height	Width	Manni Roughr
	(m)	(m)	(m)	(m)	(m)	(m)	(%)		(m)	(m)	
1 Ex.STM_Overland	400.00	259.00	1.63	253.00	0.00	6.00	1.5000	Rectangular	0.300	20.000	0.0
2 Link-34	270.00	271.40	3.80	269.65	2.58	1.75	0.6500	Rectangular	0.300	20.000	0.0
3 Link-35	50.00	272.15	2.01	269.65	2.58	2.50	5.0000	Rectangular	0.300	20.000	0.0
4 Link-36	222.00	269.65	2.58	268.30	1.67	1.35	0.6100	Rectangular	0.300	20.000	0.0
5 Link-37	18.00	268.30	1.67	267.90	1.40	0.40	2.2200	Rectangular	0.300	20.000	0.0
6 Link-38	227.00	271.80	1.45	267.90	1.40	3.90	1.7200	Rectangular	0.300	20.000	0.0
7 Link-39	415.00	267.90	1.40	263.50	1.60	4.40	1.0600	Rectangular	0.300	20.000	0.0
8 Link-41	180.00	269.55	1.80	265.50	1.50	4.05	2.2500	Rectangular	0.300	20.000	0.0
9 Link-42	155.00	265.50	1.50	263.50	1.60	2.00	1.2900	Rectangular	0.300	20.000	0.0
10 Link-43	140.00	263.50	1.60	262.25	1.92	1.25	0.8900	Rectangular	0.300	20.000	0.0
11 Link-44	470.00	262.25	1.92	258.00	1.90	4.25	0.9000	Rectangular	0.300	20.000	0.0
12 Link-45	195.00	263.20	1.50	260.70	1.32	2.50	1.2800	Rectangular	0.300	20.000	0.0
13 Link-46	280.00	260.70	1.32	258.00	1.90	2.70	0.9600	Rectangular	0.300	20.000	0.0
14 LowerRavine	124.00	253.00	0.00	252.45	0.00	0.55	0.4400	Trapezoidal	4.000	17.000	0.0
15 OutletRavine	45.00	252.45	0.00	252.00	0.00	0.45	1.0000	Trapezoidal	4.000	17.000	0.0
16 RH_C1	215.00	269.00	0.00	264.00	0.00	5.00	2.3300	Trapezoidal	1.500	7.000	0.0
17 RH_C2	60.00	264.00	0.00	263.50	1.50	0.50	0.8300	Trapezoidal	1.500	7.000	0.0
18 UpperRavine	553.00	256.10	0.00	253.00	0.00	3.10	0.5600	Trapezoidal	4.000	17.000	0.0

Channel Results

SN Element ID	Peak Flow	Time of Peak Flow Occurrence	Design Flow Capacity	Peak Flow/ Design Flow Ratio	Peak Flow Velocity	Travel Time	Peak Flow Depth	Peak Flow Depth/ Total Depth Ratio	Totl Surcl
	(cms)	(days hh:mm)	(cms)		(m/sec)	(min)	(m)		
1 Ex.STM_Overland	0.31	0 12:04	10.09	0.03	0.10	66.67	0.17	0.56	
2 Link-34	1.91	0 12:01	6.63	0.29	0.67	6.72	0.16	0.52	
3 Link-35	1.81	0 12:00	18.43	0.10	1.12	0.74	0.12	0.42	
4 Link-36	2.29	0 12:08	6.43	0.36	0.75	4.93	0.15	0.51	
5 Link-37	1.96	0 12:08	12.28	0.16	0.97	0.31	0.11	0.37	
6 Link-38	0.66	0 12:04	10.80	0.06	0.60	6.31	0.08	0.29	
7 Link-39	2.19	0 12:16	8.48	0.26	0.83	8.33	0.13	0.45	
8 Link-41	0.00	0 00:00	12.36	0.00	0.00		0.00	0.00	
9 Link-42	0.00	0 00:00	9.36	0.00	0.00		0.07	0.24	
10 Link-43	1.94	0 12:21	7.79	0.25	0.79	2.95	0.12	0.41	
11 Link-44	1.14	0 12:34	7.84	0.15	0.64	12.24	0.09	0.29	
12 Link-45	0.00	0 00:00	9.33	0.00	0.00		0.00	0.00	
13 Link-46	0.00	0 00:00	8.09	0.00	0.00		0.00	0.00	
14 LowerRavine	2.69	0 12:48	157.98	0.02	1.11	1.86	0.43	0.11	
15 OutletRavine	2.69	0 12:49	237.22	0.01	1.45	0.52	0.34	0.08	
16 RH_C1	1.29	0 12:00	24.20	0.05	1.50	2.39	0.45	0.30	
17 RH_C2	1.28	0 12:02	14.49	0.09	1.38	0.72	0.45	0.32	
18 UpperRavine	2.80	0 12:37	177.61	0.02	1.14	8.08	0.44	0.11	

Pipe Input

SN Element ID	Length	Inlet	Inlet	Outlet	Outlet	Total	Average Pipe		Pipe	Pipe	M
		Invert	Invert	Invert	Invert	Drop	Slope	Shape	Diameter or	Width	
		Elevation (m)	Offset (m)	Elevation (m)	Offset (m)	(m)	(%)		Height (m)	(m)	
1 Ex.STM_1	107.00	257.37	0.00	256.94	0.00	0.43	0.4000	CIRCULAR	0.450	0.450	
2 Ex.STM_2	73.00	256.94	0.00	256.64	0.00	0.30	0.4100	CIRCULAR	0.450	0.450	
3 Ex.STM_3	27.00	256.64	0.00	256.48	0.00	0.16	0.5900	CIRCULAR	0.450	0.450	
4 Ex.STM_4	100.00	256.48	0.00	255.88	0.00	0.60	0.6000	CIRCULAR	0.450	0.450	
5 Ex.STM_5	100.00	255.88	0.00	255.48	0.00	0.40	0.4000	CIRCULAR	0.530	0.530	
6 Ex.STM_6	50.00	255.48	0.00	255.23	0.00	0.25	0.5000	CIRCULAR	0.530	0.530	
7 Ex.STM_7	102.00	255.23	0.00	254.82	0.00	0.41	0.4000	CIRCULAR	0.600	0.600	
8 RH_A1	50.00	270.14	0.00	268.50	1.43	1.64	3.2800	CIRCULAR	0.300	0.300	
9 RH_B1	227.00	270.35	0.00	266.50	0.00	3.85	1.7000	CIRCULAR	0.300	0.300	
10 RH_C3	15.00	262.00	0.00	261.70	0.00	0.30	2.0000	CIRCULAR	0.600	0.600	
11 RH_C4	195.00	261.70	0.00	259.38	0.00	2.32	1.1900	CIRCULAR	0.530	0.530	
12 RH_C5	274.00	259.38	0.00	256.36	0.00	3.02	1.1000	CIRCULAR	0.530	0.530	
13 RH_C6	6.00	256.36	0.00	256.24	0.14	0.12	2.0000	CIRCULAR	0.700	0.700	
14 RH_D1	275.00	272.00	0.00	267.75	0.00	4.25	1.5500	CIRCULAR	0.300	0.300	
15 RH_D2	180.00	267.75	0.00	264.00	0.00	3.75	2.0800	CIRCULAR	0.300	0.300	
16 RH_D3	155.00	264.00	0.00	261.90	0.00	2.10	1.3500	CIRCULAR	0.380	0.380	
17 RH_M1	270.00	267.60	0.00	267.07	0.00	0.53	0.2000	CIRCULAR	0.600	0.600	
18 RH_M2	222.00	267.07	0.00	266.63	0.00	0.44	0.2000	CIRCULAR	0.680	0.680	
19 RH_M3	18.00	266.63	0.00	266.50	0.00	0.13	0.7200	CIRCULAR	0.750	0.750	
20 RH_M4	415.00	266.50	0.00	261.90	0.00	4.60	1.1100	CIRCULAR	0.680	0.680	
21 RH_M5	140.00	261.90	0.00	260.33	0.00	1.57	1.1200	CIRCULAR	0.680	0.680	
22 RH_M6	464.00	260.33	0.00	256.42	0.00	3.91	0.8400	CIRCULAR	0.750	0.750	
23 RH_M7	6.00	256.42	0.00	256.37	0.27	0.05	0.8300	CIRCULAR	1.000	1.000	
24 West_Link	33.73	256.00	-1.00	257.00	0.00	-1.00	-2.9600	Dummy	0.000	0.000	
25 WestWetland_Link	37.13	258.00	0.00	258.00	0.00	0.00	0.0000	Dummy	0.000	0.000	
26 Wetland_Link	41.51	252.00	0.00	252.00	0.00	0.00	0.0000	Dummy	0.000	0.000	

5-YEAR STORM

No. of
Barrels

1

Pipe Results

SN Element ID	Peak Flow	Time of Peak Flow Occurrence	Design Flow Capacity	Peak Flow/ Design Flow Ratio	Peak Flow Velocity	Travel Time	Peak Flow Depth	Peak Flow Depth/ Total Depth Ratio	To Sur
	(cms)	(days hh:mm)	(cms)		(m/sec)	(min)	(m)		
1 Ex.STM_1	0.25	0 11:52	0.18	1.37	1.55	1.15	0.45	1.00	
2 Ex.STM_2	0.25	0 11:52	0.18	1.35	1.55	0.78	0.45	1.00	
3 Ex.STM_3	0.25	0 11:52	0.22	1.12	1.55	0.29	0.45	1.00	
4 Ex.STM_4	0.25	0 11:52	0.22	1.12	1.58	1.05	0.44	0.99	
5 Ex.STM_5	0.25	0 12:05	0.27	0.90	1.32	1.26	0.43	0.82	
6 Ex.STM_6	0.25	0 12:06	0.30	0.81	1.40	0.60	0.40	0.76	
7 Ex.STM_7	0.25	0 12:07	0.39	0.63	1.43	1.19	0.35	0.58	
8 RH_A1	0.23	0 11:48	0.18	1.31	3.26	0.26	0.30	1.00	
9 RH_B1	0.14	0 11:47	0.13	1.10	1.96	1.93	0.30	1.00	
10 RH_C3	0.47	0 12:01	0.87	0.54	1.91	0.13	0.60	1.00	
11 RH_C4	0.43	0 12:05	0.41	1.06	2.11	1.54	0.52	1.00	
12 RH_C5	0.45	0 12:04	0.45	1.00	2.13	2.14	0.52	1.00	
13 RH_C6	0.45	0 12:04	1.31	0.34	1.63	0.06	0.49	0.70	
14 RH_D1	0.00	0 00:00	0.12	0.00	0.00		0.14	0.50	
15 RH_D2	0.15	0 12:00	0.14	1.05	2.18	1.38	0.29	1.00	
16 RH_D3	0.15	0 12:00	0.20	0.73	1.40	1.85	0.38	1.00	
17 RH_M1	0.51	0 11:50	0.27	1.85	1.78	2.53	0.60	1.00	
18 RH_M2	0.80	0 11:51	0.37	2.14	2.23	1.66	0.68	1.00	
19 RH_M3	1.04	0 12:02	0.95	1.10	2.35	0.13	0.75	1.00	
20 RH_M4	0.91	0 11:52	0.89	1.03	2.62	2.64	0.68	1.00	
21 RH_M5	1.05	0 12:02	0.89	1.18	2.95	0.79	0.68	1.00	
22 RH_M6	1.10	0 12:34	1.02	1.08	2.50	3.09	0.75	1.00	
23 RH_M7	1.20	0 12:54	2.19	0.55	1.86	0.05	0.76	0.76	
24 West_Link	0.09	0 12:00	0.00	0.02	0.00		0.44	0.11	
25 WestWetland_Link	0.10	0 11:59	0.00	0.02	0.00		0.44	0.11	
26 Wetland_Link	0.11	0 12:00	0.00	0.02	0.00		0.44	0.11	

Project Description

File Name	18010_Pre-Development Rev.0.SPF
Description	I:\ACAD Projects\2018\18010\03-Ref\18010_Pre-Dev. Storm
	I:\ACAD Projects\2018\18010\03-Ref\18010_Pre-Dev. Storm

Project Options

Flow Units	CMS
Elevation Type	Elevation
Hydrology Method	EPA SWMM
EPA SWMM Infiltration Method	SCS Curve Number
Link Routing Method	Hydrodynamic
Enable Overflow Ponding at Nodes	YES
Skip Steady State Analysis Time Periods	NO

Analysis Options

Start Analysis On	00:00:00	0:00:00
End Analysis On	00:00:00	0:00:00
Start Reporting On	00:00:00	0:00:00
Antecedent Dry Days	0	days
Runoff (Dry Weather) Time Step	0 01:00:00	days hh:mm:ss
Runoff (Wet Weather) Time Step	0 00:05:00	days hh:mm:ss
Reporting Time Step	0 00:05:00	days hh:mm:ss
Routing Time Step	30	seconds

Number of Elements

	Qty
Rain Gages	1
Subbasins.....	31
Nodes.....	36
<i>Junctions</i>	30
<i>Outfalls</i>	5
<i>Flow Diversions</i>	0
<i>Inlets</i>	0
<i>Storage Nodes</i>	1
Links.....	44
<i>Channels</i>	18
<i>Pipes</i>	26
<i>Pumps</i>	0
<i>Orifices</i>	0
<i>Weirs</i>	0
<i>Outlets</i>	0
Pollutants	0
Land Uses	0

Subbasin Summary

SN Subbasin ID	Area	Impervious Area	Weighted Curve Number	Average Slope	Equivalent Width	Impervious Area Manning's Roughness	Pervious Area Manning's Roughness	Total Rainfall	Total Infiltration	Total Runoff	Total Runoff Volume	Peak Runoff	Time of Concentration
	(ha)	(%)		(%)	(m)			(mm)	(mm)	(mm)	(ha-mm)	(cms)	(days hh:mm:ss)
1 {Survey Site}.Standard : 10	0.92	2.00	67.00	2.0000	125.00	0.0130	0.2000	72.19	49.3510	21.59	19.82	0.03	0 01:12:07
2 {Survey Site}.Standard : 11	21.38	2.00	67.00	2.0000	360.00	0.0130	0.2000	72.19	46.5610	24.16	516.48	0.20	0 04:12:49
3 {Survey Site}.Standard : 12	0.71	5.00	67.00	2.0000	90.00	0.0130	0.2000	72.19	47.8650	23.07	16.38	0.02	0 01:13:54
4 {Survey Site}.Standard : 13	1.65	45.00	71.05	2.0000	220.00	0.0130	0.2000	72.19	25.7800	45.15	74.41	0.27	0 00:51:36
5 {Survey Site}.Standard : 14	4.32	2.00	67.00	2.0000	350.00	0.0130	0.2000	72.19	49.6900	21.26	91.84	0.08	0 01:38:29
6 {Survey Site}.Standard : 16	6.33	2.00	67.00	2.0000	215.00	0.0130	0.2000	72.19	50.5510	20.38	129.00	0.07	0 02:45:55
7 {Survey Site}.Standard : 17	0.36	5.00	67.00	5.0000	20.00	0.0130	0.2000	72.19	48.0680	22.86	8.14	0.01	0 01:31:29
8 {Survey Site}.Standard : 18	14.15	5.00	48.00	10.0000	300.00	0.0130	0.2000	72.19	59.3440	11.60	164.19	0.22	0 02:13:21
9 {Survey Site}.Standard : 19	0.26	2.00	67.00	2.0000	90.00	0.0130	0.2000	72.19	49.0110	21.97	5.80	0.01	0 00:41:35
10 {Survey Site}.Standard : 2	20.86	45.00	71.05	2.0000	300.00	0.0130	0.2000	72.19	26.7910	44.10	920.02	2.36	0 03:16:31
11 {Survey Site}.Standard : 20	11.33	2.00	36.00	0.5000	240.00	0.0130	0.2000	72.19	61.5190	5.29	59.94	0.07	0 05:33:48
12 {Survey Site}.Standard : 21	4.24	2.00	67.00	2.0000	155.00	0.0130	0.2000	72.19	50.4470	20.48	86.78	0.05	0 02:38:42
13 {Survey Site}.Standard : 22	23.21	2.00	67.00	2.0000	330.00	0.0130	0.2000	72.19	46.1210	23.22	538.89	0.20	0 04:39:49
14 {Survey Site}.Standard : 23	2.20	5.00	48.00	10.0000	100.00	0.0130	0.2000	72.19	58.7520	12.17	26.74	0.04	0 01:24:20
15 {Survey Site}.Standard : 24	9.04	2.00	67.00	2.0000	275.00	0.0130	0.2000	72.19	50.7080	20.23	182.91	0.10	0 02:57:18
16 {Survey Site}.Standard : 25	8.64	2.00	67.00	5.0000	390.00	0.0130	0.2000	72.19	49.7680	21.16	182.87	0.15	0 01:46:17
17 {Survey Site}.Standard : 26	1.12	45.00	71.05	2.0000	40.00	0.0130	0.2000	72.19	26.1840	44.74	50.28	0.15	0 01:54:05
18 {Survey Site}.Standard : 27	0.43	45.00	71.05	2.0000	60.00	0.0130	0.2000	72.19	25.7670	45.16	19.28	0.07	0 00:50:03
19 {Survey Site}.Standard : 28	0.12	45.00	71.05	2.0000	40.00	0.0130	0.2000	72.19	25.6410	45.25	5.57	0.02	0 00:30:15
20 {Survey Site}.Standard : 29	7.86	45.00	71.05	2.0000	110.00	0.0130	0.2000	72.19	26.8170	44.07	346.48	0.88	0 03:19:46
21 {Survey Site}.Standard : 3	25.14	45.00	71.05	2.0000	370.00	0.0130	0.2000	72.19	26.7660	44.12	1109.06	2.86	0 03:13:47
22 {Survey Site}.Standard : 30	20.00	30.00	63.70	2.0000	225.00	0.0130	0.2000	72.19	38.7550	32.15	642.82	1.55	0 04:23:06
23 {Survey Site}.Standard : 31	5.54	5.00	57.00	2.0000	245.00	0.0130	0.2000	72.19	54.9610	15.96	88.49	0.10	0 02:19:04
24 {Survey Site}.Standard : 32	3.34	2.00	67.00	2.0000	95.00	0.0130	0.2000	72.19	50.7860	20.13	67.14	0.04	0 03:04:24
25 {Survey Site}.Standard : 33	7.71	2.00	67.00	2.0000	215.00	0.0130	0.2000	72.19	50.8390	20.10	154.88	0.08	0 03:06:43
26 {Survey Site}.Standard : 4	3.13	2.00	67.00	2.0000	155.00	0.0130	0.2000	72.19	50.1080	20.83	65.22	0.04	0 02:12:22
27 {Survey Site}.Standard : 5	10.46	45.00	71.05	0.5000	235.00	0.0130	0.2000	72.19	27.0190	43.84	458.56	1.10	0 03:47:53
28 {Survey Site}.Standard : 6	11.54	2.00	67.00	2.0000	280.00	0.0130	0.2000	72.19	51.0470	19.87	229.37	0.11	0 03:23:04
29 {Survey Site}.Standard : 7	10.98	5.00	67.00	2.0000	225.00	0.0130	0.2000	72.19	49.7380	21.20	232.67	0.20	0 03:40:29
30 {Survey Site}.Standard : 8	3.30	2.00	67.00	2.0000	125.00	0.0130	0.2000	72.19	50.4210	20.52	67.81	0.04	0 02:35:32

Node Summary

SN	Element ID	Element Type	Invert Elevation	Ground/Rim (Max) Elevation	Initial Water Elevation	Surcharge Elevation	Ponded Area	Peak Inflow	Max HGL Elevation Attained	Max Surcharge Depth Attained	Min Freeboard Attained	Time of Peak Flooding Occurrence	Total Flooded Volume	Total Time Flooded
			(m)	(m)	(m)	(m)	(m²)	(cms)	(m)	(m)	(m)	(days hh:mm)	(ha-mm)	(min)
1	Ex_MHR1	Junction	255.88	262.50	0.00	0.00	0.00	0.25	256.32	0.00	6.18	0 00:00	0.00	0.00
2	Ex_MHR2	Junction	255.48	259.65	0.00	0.00	0.00	0.25	255.90	0.00	3.75	0 00:00	0.00	0.00
3	Ex_MHR25	Junction	256.48	263.35	0.00	0.00	0.00	0.25	257.47	0.00	5.88	0 00:00	0.00	0.00
4	Ex_MHR26	Junction	256.64	262.75	0.00	0.00	0.00	0.25	257.87	0.00	4.88	0 00:00	0.00	0.00
5	Ex_MHR27	Junction	256.94	261.00	0.00	0.00	0.00	0.25	258.31	0.00	2.69	0 00:00	0.00	0.00
6	Ex_MHR28	Junction	257.37	259.30	0.00	0.00	0.00	0.88	259.04	0.00	0.26	0 00:00	0.00	0.00
7	Ex_MHR3	Junction	255.23	259.00	0.00	0.00	0.00	0.25	255.61	0.00	3.39	0 00:00	0.00	0.00
8	NorthWetland	Junction	252.00	258.00	0.00	0.00	0.00	0.17	252.00	0.00	6.00	0 00:00	0.00	0.00
9	Ravine_1	Junction	256.10	260.10	0.00	0.00	0.00	3.59	256.58	0.00	3.52	0 00:00	0.00	0.00
10	Ravine_2	Junction	253.00	257.00	0.00	0.00	0.00	3.73	253.55	0.00	3.45	0 00:00	0.00	0.00
11	Ravine_3	Junction	252.45	256.45	0.00	0.00	0.00	3.41	252.88	0.00	3.57	0 00:00	0.00	0.00
12	RH_1	Junction	267.60	271.70	0.00	0.00	0.00	2.86	271.55	0.00	0.15	0 00:00	0.00	0.00
13	RH_10	Junction	261.90	263.90	0.00	0.00	0.00	4.04	263.68	0.00	0.22	0 00:00	0.00	0.00
14	RH_11	Junction	260.33	262.55	0.00	0.00	0.00	3.48	262.39	0.00	0.16	0 00:00	0.00	0.00
15	RH_12	Junction	269.00	270.50	0.00	0.00	0.00	1.55	269.42	0.00	1.08	0 00:00	0.00	0.00
16	RH_13	Junction	264.00	266.50	0.00	0.00	0.00	1.59	264.58	0.00	1.92	0 00:00	0.00	0.00
17	RH_14	Junction	261.70	263.50	0.00	0.00	0.00	0.47	262.92	0.00	0.58	0 00:00	0.00	0.00
18	RH_15	Junction	259.38	261.00	0.00	0.00	0.00	0.50	260.50	0.00	0.50	0 00:00	0.00	0.00
19	RH_16	Junction	256.36	258.00	0.00	0.00	0.00	0.46	257.07	0.00	0.93	0 00:00	0.00	0.00
20	RH_17	Junction	256.42	258.00	0.00	0.00	0.00	1.25	257.52	0.00	0.48	0 00:00	0.00	0.00
21	RH_2	Junction	270.14	272.45	0.00	0.00	0.00	2.36	272.23	0.00	0.22	0 00:00	0.00	0.00
22	RH_3	Junction	267.07	270.25	0.00	0.00	0.00	4.99	269.87	0.00	0.38	0 00:00	0.00	0.00
23	RH_4	Junction	266.63	268.60	0.00	0.00	0.00	3.61	268.42	0.00	0.18	0 00:00	0.00	0.00
24	RH_5	Junction	270.35	272.10	0.00	0.00	0.00	1.10	271.86	0.00	0.24	0 00:00	0.00	0.00
25	RH_6	Junction	266.50	268.20	0.00	0.00	0.00	4.43	268.06	0.00	0.14	0 00:00	0.00	0.00
26	RH_7	Junction	272.00	273.50	0.00	0.00	0.00	0.00	272.00	0.00	1.50	0 00:00	0.00	0.00
27	RH_8	Junction	267.75	269.85	0.00	0.00	0.00	0.20	268.38	0.00	1.47	0 00:00	0.00	0.00
28	RH_9	Junction	264.00	265.80	0.00	0.00	0.00	0.18	264.96	0.00	0.84	0 00:00	0.00	0.00
29	WestOutfall	Junction	257.00	258.00	0.00	0.00	0.00	0.12	257.00	0.00	1.00	0 00:00	0.00	0.00
30	WestWetland	Junction	258.00	259.00	0.00	0.00	0.00	0.12	258.00	0.00	1.00	0 00:00	0.00	0.00

Link Summary

SN Element ID	Element Type	From (Inlet) Node	To (Outlet) Node	Length	Inlet Invert Elevation	Outlet Invert Elevation	Average Slope	Diameter or Height	Manning's Roughness	Peak Flow	Design Flow Capacity	Peak Flow/ Design Flow Ratio	Peak Flow Velocity
				(m)	(m)	(m)	(%)	(m)		(cms)	(cms)		(m/sec)
1 Ex.STM_1	Pipe	Ex_MHR28	Ex_MHR27	107.00	257.37	256.94	0.4000	0.450	0.0130	0.25	0.18	1.37	1.55
2 Ex.STM_2	Pipe	Ex_MHR27	Ex_MHR26	73.00	256.94	256.64	0.4100	0.450	0.0130	0.25	0.18	1.35	1.55
3 Ex.STM_3	Pipe	Ex_MHR26	Ex_MHR25	27.00	256.64	256.48	0.5900	0.450	0.0130	0.25	0.22	1.12	1.55
4 Ex.STM_4	Pipe	Ex_MHR25	Ex_MHR1	100.00	256.48	255.88	0.6000	0.450	0.0130	0.25	0.22	1.12	1.58
5 Ex.STM_5	Pipe	Ex_MHR1	Ex_MHR2	100.00	255.88	255.48	0.4000	0.525	0.0130	0.25	0.27	0.90	1.32
6 Ex.STM_6	Pipe	Ex_MHR2	Ex_MHR3	50.00	255.48	255.23	0.5000	0.525	0.0130	0.25	0.30	0.81	1.40
7 Ex.STM_7	Pipe	Ex_MHR3	TinerEstatesSTM	102.00	255.23	254.82	0.4000	0.600	0.0130	0.25	0.39	0.63	1.44
8 RH_A1	Pipe	RH_2	RH_3	50.00	270.14	268.50	3.2800	0.300	0.0130	0.23	0.18	1.31	3.26
9 RH_B1	Pipe	RH_5	RH_6	227.00	270.35	266.50	1.7000	0.300	0.0130	0.14	0.13	1.10	1.96
10 RH_C3	Pipe	Ex_SE_Pond	RH_14	15.00	262.00	261.70	2.0000	0.600	0.0130	0.47	0.87	0.54	1.91
11 RH_C4	Pipe	RH_14	RH_15	195.00	261.70	259.38	1.1900	0.525	0.0150	0.43	0.41	1.05	2.11
12 RH_C5	Pipe	RH_15	RH_16	274.00	259.38	256.36	1.1000	0.525	0.0130	0.46	0.45	1.03	2.14
13 RH_C6	Pipe	RH_16	Ravine_1	6.00	256.36	256.24	2.0000	0.700	0.0130	0.46	1.31	0.35	1.63
14 RH_D1	Pipe	RH_7	RH_8	275.00	272.00	267.75	1.5500	0.300	0.0130	0.00	0.12	0.00	0.00
15 RH_D2	Pipe	RH_8	RH_9	180.00	267.75	264.00	2.0800	0.300	0.0130	0.15	0.14	1.04	2.17
16 RH_D3	Pipe	RH_9	RH_10	155.00	264.00	261.90	1.3500	0.375	0.0130	0.16	0.20	0.76	1.41
17 RH_M1	Pipe	RH_1	RH_3	270.00	267.60	267.07	0.2000	0.600	0.0130	0.50	0.27	1.85	1.78
18 RH_M2	Pipe	RH_3	RH_4	222.00	267.07	266.63	0.2000	0.675	0.0130	0.80	0.37	2.14	2.23
19 RH_M3	Pipe	RH_4	RH_6	18.00	266.63	266.50	0.7200	0.750	0.0130	1.05	0.95	1.11	2.37
20 RH_M4	Pipe	RH_6	RH_10	415.00	266.50	261.90	1.1100	0.675	0.0130	0.91	0.89	1.03	2.62
21 RH_M5	Pipe	RH_10	RH_11	140.00	261.90	260.33	1.1200	0.675	0.0130	1.05	0.89	1.17	2.93
22 RH_M6	Pipe	RH_11	RH_17	464.00	260.33	256.42	0.8400	0.750	0.0130	1.10	1.02	1.08	2.50
23 RH_M7	Pipe	RH_17	Ravine_1	6.00	256.42	256.37	0.8300	1.000	0.0130	1.25	2.19	0.57	1.92
24 West_Link	Pipe	WestOutfall	West_Outfall	33.73	256.00	257.00	-2.9600	0.000	0.0130	0.12	0.00	0.02	0.00
25 WestWetland_Link	Pipe	WestWetland	West_Wetland	37.13	258.00	258.00	0.0000	0.000	0.0130	0.12	0.00	0.02	0.00
26 Wetland_Link	Pipe	NorthWetland	North_Wetland	41.51	252.00	252.00	0.0000	0.000	0.0130	0.17	0.00	0.02	0.00
27 Ex.STM_Overland	Channel	Ex_MHR28	Ravine_2	400.00	259.00	253.00	1.5000	0.300	0.0320	0.43	10.09	0.04	0.12
28 Link-34	Channel	RH_1	RH_3	270.00	271.40	269.65	0.6500	0.300	0.0320	2.21	6.63	0.33	0.70
29 Link-35	Channel	RH_2	RH_3	50.00	272.15	269.65	5.0000	0.300	0.0320	2.15	18.43	0.12	1.13
30 Link-36	Channel	RH_3	RH_4	222.00	269.65	268.30	0.6100	0.300	0.0320	2.93	6.43	0.46	0.83

Junction Input

SN	Element ID	Invert Elevation (m)	Ground/Rim (Max) Elevation (m)	Ground/Rim (Max) Offset (m)	Initial Water Elevation (m)	Initial Water Depth (m)	Surcharge Elevation (m)	Surcharge Depth (m)	Ponded Area (m²)	Minimum Pipe Cover (m)
1	Ex_MHR1	255.88	262.50	6.62	0.00	-255.88	0.00	-262.50	0.00	0.00
2	Ex_MHR2	255.48	259.65	4.17	0.00	-255.48	0.00	-259.65	0.00	0.00
3	Ex_MHR25	256.48	263.35	6.87	0.00	-256.48	0.00	-263.35	0.00	0.00
4	Ex_MHR26	256.64	262.75	6.11	0.00	-256.64	0.00	-262.75	0.00	0.00
5	Ex_MHR27	256.94	261.00	4.06	0.00	-256.94	0.00	-261.00	0.00	0.00
6	Ex_MHR28	257.37	259.30	1.93	0.00	-257.37	0.00	-259.30	0.00	0.00
7	Ex_MHR3	255.23	259.00	3.77	0.00	-255.23	0.00	-259.00	0.00	0.00
8	NorthWetland	252.00	258.00	6.00	0.00	-252.00	0.00	-258.00	0.00	0.00
9	Ravine_1	256.10	260.10	4.00	0.00	-256.10	0.00	-260.10	0.00	0.00
10	Ravine_2	253.00	257.00	4.00	0.00	-253.00	0.00	-257.00	0.00	0.00
11	Ravine_3	252.45	256.45	4.00	0.00	-252.45	0.00	-256.45	0.00	0.00
12	RH_1	267.60	271.70	4.10	0.00	-267.60	0.00	-271.70	0.00	0.00
13	RH_10	261.90	263.90	2.00	0.00	-261.90	0.00	-263.90	0.00	0.00
14	RH_11	260.33	262.55	2.22	0.00	-260.33	0.00	-262.55	0.00	0.00
15	RH_12	269.00	270.50	1.50	0.00	-269.00	0.00	-270.50	0.00	0.00
16	RH_13	264.00	266.50	2.50	0.00	-264.00	0.00	-266.50	0.00	0.00
17	RH_14	261.70	263.50	1.80	0.00	-261.70	0.00	-263.50	0.00	0.00
18	RH_15	259.38	261.00	1.62	0.00	-259.38	0.00	-261.00	0.00	0.00
19	RH_16	256.36	258.00	1.64	0.00	-256.36	0.00	-258.00	0.00	0.00
20	RH_17	256.42	258.00	1.58	0.00	-256.42	0.00	-258.00	0.00	0.00
21	RH_2	270.14	272.45	2.31	0.00	-270.14	0.00	-272.45	0.00	0.00
22	RH_3	267.07	270.25	3.18	0.00	-267.07	0.00	-270.25	0.00	0.00
23	RH_4	266.63	268.60	1.97	0.00	-266.63	0.00	-268.60	0.00	0.00
24	RH_5	270.35	272.10	1.75	0.00	-270.35	0.00	-272.10	0.00	0.00
25	RH_6	266.50	268.20	1.70	0.00	-266.50	0.00	-268.20	0.00	0.00
26	RH_7	272.00	273.50	1.50	0.00	-272.00	0.00	-273.50	0.00	0.00
27	RH_8	267.75	269.85	2.10	0.00	-267.75	0.00	-269.85	0.00	0.00
28	RH_9	264.00	265.80	1.80	0.00	-264.00	0.00	-265.80	0.00	0.00
29	WestOutfall	257.00	258.00	1.00	0.00	-257.00	0.00	-258.00	0.00	0.00
30	WestWetland	258.00	259.00	1.00	0.00	-258.00	0.00	-259.00	0.00	0.00

Junction Results

SN	Element	Peak	Peak	Max HGL	Max HGL	Max	Min	Average HGL	Average HGL	Time o
ID		Inflow	Lateral	Elevation	Depth	Surcharge	Freeboard	Elevation	Depth	Max HGL
			Inflow	Attained	Attained	Depth	Attained	Attained	Attained	Occurrence
		(cms)	(cms)	(m)	(m)	(m)	(m)	(m)	(m)	(days hh:mm)
1	Ex_MHR1	0.25	0.00	256.32	0.44	0.00	6.18	256.02	0.14	0 12:04
2	Ex_MHR2	0.25	0.00	255.90	0.42	0.00	3.75	255.62	0.14	0 12:05
3	Ex_MHR25	0.25	0.00	257.47	0.99	0.00	5.88	256.63	0.15	0 11:50
4	Ex_MHR26	0.25	0.00	257.87	1.23	0.00	4.88	256.80	0.16	0 11:50
5	Ex_MHR27	0.25	0.00	258.31	1.37	0.00	2.69	257.13	0.19	0 11:50
6	Ex_MHR28	0.88	0.88	259.04	1.67	0.00	0.26	257.59	0.22	0 12:04
7	Ex_MHR3	0.25	0.00	255.61	0.38	0.00	3.39	255.36	0.13	0 12:06
8	NorthWetland	0.17	0.17	252.00	0.00	0.00	6.00	252.00	0.00	0 00:00
9	Ravine_1	3.59	0.07	256.58	0.48	0.00	3.52	256.28	0.18	0 12:32
10	Ravine_2	3.73	0.43	253.55	0.55	0.00	3.45	253.22	0.22	0 12:43
11	Ravine_3	3.41	0.04	252.88	0.43	0.00	3.57	252.62	0.17	0 12:44
12	RH_1	2.86	2.86	271.55	3.95	0.00	0.15	268.32	0.72	0 12:01
13	RH_10	4.04	0.11	263.68	1.78	0.00	0.22	262.43	0.53	0 12:18
14	RH_11	3.48	0.04	262.39	2.06	0.00	0.16	260.89	0.56	0 12:30
15	RH_12	1.55	1.55	269.42	0.42	0.00	1.08	269.08	0.08	0 12:00
16	RH_13	1.59	0.10	264.58	0.58	0.00	1.92	264.14	0.14	0 12:01
17	RH_14	0.47	0.00	262.92	1.22	0.00	0.58	262.01	0.31	0 12:33
18	RH_15	0.50	0.08	260.50	1.12	0.00	0.50	259.69	0.31	0 12:40
19	RH_16	0.46	0.00	257.07	0.71	0.00	0.93	256.69	0.33	0 12:40
20	RH_17	1.25	0.20	257.52	1.10	0.00	0.48	256.97	0.55	0 12:42
21	RH_2	2.36	2.36	272.23	2.09	0.00	0.22	270.60	0.46	0 12:00
22	RH_3	4.99	0.00	269.87	2.80	0.00	0.38	267.77	0.70	0 12:07
23	RH_4	3.61	0.04	268.42	1.79	0.00	0.18	267.08	0.45	0 12:06
24	RH_5	1.10	1.10	271.86	1.51	0.00	0.24	270.65	0.30	0 12:03
25	RH_6	4.43	0.00	268.06	1.56	0.00	0.14	266.90	0.40	0 12:12
26	RH_7	0.00	0.00	272.00	0.00	0.00	1.50	272.00	0.00	0 00:00
27	RH_8	0.20	0.20	268.38	0.63	0.00	1.47	267.85	0.10	0 12:03
28	RH_9	0.18	0.04	264.96	0.96	0.00	0.84	264.14	0.14	0 12:13
29	WestOutfall	0.12	0.12	257.00	0.00	0.00	1.00	257.00	0.00	0 00:00
30	WestWetland	0.12	0.12	258.00	0.00	0.00	1.00	258.00	0.00	0 00:00

Channel Input

SN	Element ID	Length	Inlet Invert Elevation	Inlet Invert Offset	Outlet Invert Elevation	Outlet Invert Offset	Total Drop	Average Slope	Shape	Height	Width	Manni Roughr
		(m)	(m)	(m)	(m)	(m)	(m)	(%)		(m)	(m)	
1	Ex.STM_Overland	400.00	259.00	1.63	253.00	0.00	6.00	1.5000	Rectangular	0.300	20.000	0.0
2	Link-34	270.00	271.40	3.80	269.65	2.58	1.75	0.6500	Rectangular	0.300	20.000	0.0
3	Link-35	50.00	272.15	2.01	269.65	2.58	2.50	5.0000	Rectangular	0.300	20.000	0.0
4	Link-36	222.00	269.65	2.58	268.30	1.67	1.35	0.6100	Rectangular	0.300	20.000	0.0
5	Link-37	18.00	268.30	1.67	267.90	1.40	0.40	2.2200	Rectangular	0.300	20.000	0.0
6	Link-38	227.00	271.80	1.45	267.90	1.40	3.90	1.7200	Rectangular	0.300	20.000	0.0
7	Link-39	415.00	267.90	1.40	263.50	1.60	4.40	1.0600	Rectangular	0.300	20.000	0.0
8	Link-41	180.00	269.55	1.80	265.50	1.50	4.05	2.2500	Rectangular	0.300	20.000	0.0
9	Link-42	155.00	265.50	1.50	263.50	1.60	2.00	1.2900	Rectangular	0.300	20.000	0.0
10	Link-43	140.00	263.50	1.60	262.25	1.92	1.25	0.8900	Rectangular	0.300	20.000	0.0
11	Link-44	470.00	262.25	1.92	258.00	1.90	4.25	0.9000	Rectangular	0.300	20.000	0.0
12	Link-45	195.00	263.20	1.50	260.70	1.32	2.50	1.2800	Rectangular	0.300	20.000	0.0
13	Link-46	280.00	260.70	1.32	258.00	1.90	2.70	0.9600	Rectangular	0.300	20.000	0.0
14	LowerRavine	124.00	253.00	0.00	252.45	0.00	0.55	0.4400	Trapezoidal	4.000	17.000	0.0
15	OutletRavine	45.00	252.45	0.00	252.00	0.00	0.45	1.0000	Trapezoidal	4.000	17.000	0.0
16	RH_C1	215.00	269.00	0.00	264.00	0.00	5.00	2.3300	Trapezoidal	1.500	7.000	0.0
17	RH_C2	60.00	264.00	0.00	263.50	1.50	0.50	0.8300	Trapezoidal	1.500	7.000	0.0
18	UpperRavine	553.00	256.10	0.00	253.00	0.00	3.10	0.5600	Trapezoidal	4.000	17.000	0.0

Channel Results

SN	Element ID	Peak Flow	Time of Peak Flow Occurrence	Design Flow Capacity	Peak Flow/ Design Flow Ratio	Peak Flow Velocity	Travel Time	Peak Flow Depth	Peak Flow Depth/ Total Depth Ratio	Totl Surcl
		(cms)	(days hh:mm)	(cms)		(m/sec)	(min)	(m)		
1	Ex.STM_Overland	0.43	0 12:04	10.09	0.04	0.12	55.56	0.17	0.57	
2	Link-34	2.21	0 12:01	6.63	0.33	0.70	6.43	0.18	0.60	
3	Link-35	2.15	0 12:00	18.43	0.12	1.13	0.74	0.14	0.48	
4	Link-36	2.93	0 12:07	6.43	0.46	0.83	4.46	0.17	0.59	
5	Link-37	2.62	0 12:07	12.28	0.21	1.08	0.28	0.13	0.45	
6	Link-38	0.81	0 12:03	10.80	0.08	0.64	5.91	0.10	0.34	
7	Link-39	2.96	0 12:13	8.48	0.35	0.93	7.44	0.16	0.54	
8	Link-41	0.00	0 00:00	12.36	0.00	0.00		0.00	0.00	
9	Link-42	0.00	0 00:00	9.36	0.00	0.00		0.09	0.29	
10	Link-43	2.70	0 12:19	7.79	0.35	0.91	2.56	0.15	0.50	
11	Link-44	1.82	0 12:30	7.84	0.23	0.78	10.04	0.12	0.39	
12	Link-45	0.00	0 00:00	9.33	0.00	0.00		0.00	0.00	
13	Link-46	0.00	0 00:00	8.09	0.00	0.00		0.00	0.00	
14	LowerRavine	3.40	0 12:43	157.98	0.02	1.20	1.72	0.49	0.12	
15	OutletRavine	3.41	0 12:44	237.22	0.01	1.56	0.48	0.39	0.10	
16	RH_C1	1.50	0 12:00	24.20	0.06	1.56	2.30	0.48	0.33	
17	RH_C2	1.50	0 12:01	14.49	0.10	1.44	0.69	0.49	0.34	
18	UpperRavine	3.55	0 12:32	177.61	0.02	1.26	7.31	0.51	0.13	

Pipe Input

SN	Element	Length	Inlet Invert	Inlet Invert	Outlet Invert	Outlet Invert	Total Drop	Average Slope	Pipe Shape	Pipe Diameter or Height	Pipe Width	Mt Roi
	ID	(m)	Elevation (m)	Offset (m)	Elevation (m)	Offset (m)	(m)	(%)		(m)	(m)	
1	Ex.STM_1	107.00	257.37	0.00	256.94	0.00	0.43	0.4000	CIRCULAR	0.450	0.450	
2	Ex.STM_2	73.00	256.94	0.00	256.64	0.00	0.30	0.4100	CIRCULAR	0.450	0.450	
3	Ex.STM_3	27.00	256.64	0.00	256.48	0.00	0.16	0.5900	CIRCULAR	0.450	0.450	
4	Ex.STM_4	100.00	256.48	0.00	255.88	0.00	0.60	0.6000	CIRCULAR	0.450	0.450	
5	Ex.STM_5	100.00	255.88	0.00	255.48	0.00	0.40	0.4000	CIRCULAR	0.530	0.530	
6	Ex.STM_6	50.00	255.48	0.00	255.23	0.00	0.25	0.5000	CIRCULAR	0.530	0.530	
7	Ex.STM_7	102.00	255.23	0.00	254.82	0.00	0.41	0.4000	CIRCULAR	0.600	0.600	
8	RH_A1	50.00	270.14	0.00	268.50	1.43	1.64	3.2800	CIRCULAR	0.300	0.300	
9	RH_B1	227.00	270.35	0.00	266.50	0.00	3.85	1.7000	CIRCULAR	0.300	0.300	
10	RH_C3	15.00	262.00	0.00	261.70	0.00	0.30	2.0000	CIRCULAR	0.600	0.600	
11	RH_C4	195.00	261.70	0.00	259.38	0.00	2.32	1.1900	CIRCULAR	0.530	0.530	
12	RH_C5	274.00	259.38	0.00	256.36	0.00	3.02	1.1000	CIRCULAR	0.530	0.530	
13	RH_C6	6.00	256.36	0.00	256.24	0.14	0.12	2.0000	CIRCULAR	0.700	0.700	
14	RH_D1	275.00	272.00	0.00	267.75	0.00	4.25	1.5500	CIRCULAR	0.300	0.300	
15	RH_D2	180.00	267.75	0.00	264.00	0.00	3.75	2.0800	CIRCULAR	0.300	0.300	
16	RH_D3	155.00	264.00	0.00	261.90	0.00	2.10	1.3500	CIRCULAR	0.380	0.380	
17	RH_M1	270.00	267.60	0.00	267.07	0.00	0.53	0.2000	CIRCULAR	0.600	0.600	
18	RH_M2	222.00	267.07	0.00	266.63	0.00	0.44	0.2000	CIRCULAR	0.680	0.680	
19	RH_M3	18.00	266.63	0.00	266.50	0.00	0.13	0.7200	CIRCULAR	0.750	0.750	
20	RH_M4	415.00	266.50	0.00	261.90	0.00	4.60	1.1100	CIRCULAR	0.680	0.680	
21	RH_M5	140.00	261.90	0.00	260.33	0.00	1.57	1.1200	CIRCULAR	0.680	0.680	
22	RH_M6	464.00	260.33	0.00	256.42	0.00	3.91	0.8400	CIRCULAR	0.750	0.750	
23	RH_M7	6.00	256.42	0.00	256.37	0.27	0.05	0.8300	CIRCULAR	1.000	1.000	
24	West_Link	33.73	256.00	-1.00	257.00	0.00	-1.00	-2.9600	Dummy	0.000	0.000	
25	WestWetland_Link	37.13	258.00	0.00	258.00	0.00	0.00	0.0000	Dummy	0.000	0.000	
26	Wetland_Link	41.51	252.00	0.00	252.00	0.00	0.00	0.0000	Dummy	0.000	0.000	

10-YEAR STORM

No. of
Barrels[illegible]

Pipe Results

SN Element ID	Peak Flow	Time of Peak Flow Occurrence	Design Flow Capacity	Peak Flow/ Design Flow Ratio	Peak Flow Velocity	Travel Time	Peak Flow Depth	Peak Flow Depth/ Total Depth Ratio	To Sur
	(cms)	(days hh:mm)	(cms)		(m/sec)	(min)	(m)		
1 Ex.STM_1	0.25	0 11:51	0.18	1.37	1.55	1.15	0.45	1.00	
2 Ex.STM_2	0.25	0 11:51	0.18	1.35	1.55	0.78	0.45	1.00	
3 Ex.STM_3	0.25	0 11:51	0.22	1.12	1.55	0.29	0.45	1.00	
4 Ex.STM_4	0.25	0 11:50	0.22	1.12	1.58	1.05	0.44	0.99	
5 Ex.STM_5	0.25	0 12:05	0.27	0.90	1.32	1.26	0.43	0.82	
6 Ex.STM_6	0.25	0 12:06	0.30	0.81	1.40	0.60	0.40	0.76	
7 Ex.STM_7	0.25	0 12:06	0.39	0.63	1.44	1.18	0.35	0.58	
8 RH_A1	0.23	0 11:46	0.18	1.31	3.26	0.26	0.30	1.00	
9 RH_B1	0.14	0 11:45	0.13	1.10	1.96	1.93	0.30	1.00	
10 RH_C3	0.47	0 11:59	0.87	0.54	1.91	0.13	0.60	1.00	
11 RH_C4	0.43	0 12:01	0.41	1.05	2.11	1.54	0.52	1.00	
12 RH_C5	0.46	0 12:40	0.45	1.03	2.14	2.13	0.52	1.00	
13 RH_C6	0.46	0 12:40	1.31	0.35	1.63	0.06	0.52	0.74	
14 RH_D1	0.00	0 00:00	0.12	0.00	0.00		0.15	0.50	
15 RH_D2	0.15	0 11:58	0.14	1.04	2.17	1.38	0.30	1.00	
16 RH_D3	0.16	0 12:10	0.20	0.76	1.41	1.83	0.38	1.00	
17 RH_M1	0.50	0 11:48	0.27	1.85	1.78	2.53	0.60	1.00	
18 RH_M2	0.80	0 11:49	0.37	2.14	2.23	1.66	0.68	1.00	
19 RH_M3	1.05	0 12:01	0.95	1.11	2.37	0.13	0.75	1.00	
20 RH_M4	0.91	0 11:51	0.89	1.03	2.62	2.64	0.68	1.00	
21 RH_M5	1.05	0 12:00	0.89	1.17	2.93	0.80	0.68	1.00	
22 RH_M6	1.10	0 12:29	1.02	1.08	2.50	3.09	0.75	1.00	
23 RH_M7	1.25	0 12:42	2.19	0.57	1.92	0.05	0.77	0.77	
24 West_Link	0.12	0 12:00	0.00	0.02	0.00		0.51	0.13	
25 WestWetland_Link	0.12	0 12:00	0.00	0.02	0.00		0.51	0.13	
26 Wetland_Link	0.17	0 12:00	0.00	0.02	0.00		0.51	0.13	

Project Description

File Name	18010_Pre-Development Rev.0.SPF
Description	I:\ACAD Projects\2018\18010\03-Ref\18010_Pre-Dev. Storm
	I:\ACAD Projects\2018\18010\03-Ref\18010_Pre-Dev. Storm

Project Options

Flow Units	CMS
Elevation Type	Elevation
Hydrology Method	EPA SWMM
EPA SWMM Infiltration Method	SCS Curve Number
Link Routing Method	Hydrodynamic
Enable Overflow Ponding at Nodes	YES
Skip Steady State Analysis Time Periods	NO

Analysis Options

Start Analysis On	00:00:00	0:00:00
End Analysis On	00:00:00	0:00:00
Start Reporting On	00:00:00	0:00:00
Antecedent Dry Days	0	days
Runoff (Dry Weather) Time Step	0 01:00:00	days hh:mm:ss
Runoff (Wet Weather) Time Step	0 00:05:00	days hh:mm:ss
Reporting Time Step	0 00:05:00	days hh:mm:ss
Routing Time Step	30	seconds

Number of Elements

	Qty
Rain Gages	1
Subbasins.....	31
Nodes.....	36
<i>Junctions</i>	30
<i>Outfalls</i>	5
<i>Flow Diversions</i>	0
<i>Inlets</i>	0
<i>Storage Nodes</i>	1
Links.....	44
<i>Channels</i>	18
<i>Pipes</i>	26
<i>Pumps</i>	0
<i>Orifices</i>	0
<i>Weirs</i>	0
<i>Outlets</i>	0
Pollutants	0
Land Uses	0

Subbasin Summary

SN Subbasin ID	Area	Impervious Area	Weighted Curve Number	Average Slope	Equivalent Width	Impervious Area Manning's Roughness	Pervious Area Manning's Roughness	Total Rainfall	Total Infiltration	Total Runoff	Total Runoff Volume	Peak Runoff	Time of Concentration
	(ha)	(%)		(%)	(m)			(mm)	(mm)	(mm)	(ha-mm)	(cms)	(days hh:mm:ss)
1 {Survey Site}.Standard : 10	0.92	2.00	67.00	2.0000	125.00	0.0130	0.2000	82.99	53.4540	28.29	25.97	0.04	0 01:08:13
2 {Survey Site}.Standard : 11	21.38	2.00	67.00	2.0000	360.00	0.0130	0.2000	82.99	50.7540	31.70	677.76	0.28	0 03:59:06
3 {Survey Site}.Standard : 12	0.71	5.00	67.00	2.0000	90.00	0.0130	0.2000	82.99	51.8440	29.89	21.22	0.04	0 01:09:53
4 {Survey Site}.Standard : 13	1.65	45.00	71.05	2.0000	220.00	0.0130	0.2000	82.99	27.7440	54.00	88.98	0.33	0 00:48:48
5 {Survey Site}.Standard : 14	4.32	2.00	67.00	2.0000	350.00	0.0130	0.2000	82.99	53.8050	27.94	120.70	0.14	0 01:33:09
6 {Survey Site}.Standard : 16	6.33	2.00	67.00	2.0000	215.00	0.0130	0.2000	82.99	54.7220	27.01	170.95	0.11	0 02:36:55
7 {Survey Site}.Standard : 17	0.36	5.00	67.00	5.0000	20.00	0.0130	0.2000	82.99	52.0530	29.67	10.56	0.01	0 01:26:31
8 {Survey Site}.Standard : 18	14.15	5.00	48.00	10.0000	300.00	0.0130	0.2000	82.99	65.7390	16.00	226.45	0.28	0 02:06:07
9 {Survey Site}.Standard : 19	0.26	2.00	67.00	2.0000	90.00	0.0130	0.2000	82.99	53.0760	28.71	7.58	0.02	0 00:39:20
10 {Survey Site}.Standard : 2	20.86	45.00	71.05	2.0000	300.00	0.0130	0.2000	82.99	28.8020	52.89	1103.54	2.82	0 03:05:51
11 {Survey Site}.Standard : 20	11.33	2.00	36.00	0.5000	240.00	0.0130	0.2000	82.99	69.3560	8.30	93.96	0.08	0 05:15:41
12 {Survey Site}.Standard : 21	4.24	2.00	67.00	2.0000	155.00	0.0130	0.2000	82.99	54.6140	27.11	114.88	0.08	0 02:30:06
13 {Survey Site}.Standard : 22	23.21	2.00	67.00	2.0000	330.00	0.0130	0.2000	82.99	50.2570	30.50	707.99	0.28	0 04:24:38
14 {Survey Site}.Standard : 23	2.20	5.00	48.00	10.0000	100.00	0.0130	0.2000	82.99	65.0990	16.63	36.56	0.05	0 01:19:45
15 {Survey Site}.Standard : 24	9.04	2.00	67.00	2.0000	275.00	0.0130	0.2000	82.99	54.8840	26.85	242.74	0.15	0 02:47:41
16 {Survey Site}.Standard : 25	8.64	2.00	67.00	5.0000	390.00	0.0130	0.2000	82.99	53.9120	27.84	240.53	0.25	0 01:40:31
17 {Survey Site}.Standard : 26	1.12	45.00	71.05	2.0000	40.00	0.0130	0.2000	82.99	28.1830	53.57	60.21	0.18	0 01:47:54
18 {Survey Site}.Standard : 27	0.43	45.00	71.05	2.0000	60.00	0.0130	0.2000	82.99	27.7310	54.00	23.06	0.09	0 00:47:20
19 {Survey Site}.Standard : 28	0.12	45.00	71.05	2.0000	40.00	0.0130	0.2000	82.99	27.5890	54.10	6.65	0.03	0 00:28:36
20 {Survey Site}.Standard : 29	7.86	45.00	71.05	2.0000	110.00	0.0130	0.2000	82.99	28.8280	52.87	415.62	1.05	0 03:08:56
21 {Survey Site}.Standard : 3	25.14	45.00	71.05	2.0000	370.00	0.0130	0.2000	82.99	28.7890	52.92	1330.23	3.41	0 03:03:16
22 {Survey Site}.Standard : 30	20.00	30.00	63.70	2.0000	225.00	0.0130	0.2000	82.99	42.1560	39.56	791.06	1.83	0 04:08:50
23 {Survey Site}.Standard : 31	5.54	5.00	57.00	2.0000	245.00	0.0130	0.2000	82.99	60.3330	21.41	118.71	0.13	0 02:11:32
24 {Survey Site}.Standard : 32	3.34	2.00	67.00	2.0000	95.00	0.0130	0.2000	82.99	54.9910	26.74	89.19	0.05	0 02:54:24
25 {Survey Site}.Standard : 33	7.71	2.00	67.00	2.0000	215.00	0.0130	0.2000	82.99	55.0180	26.71	205.82	0.12	0 02:56:35
26 {Survey Site}.Standard : 4	3.13	2.00	67.00	2.0000	155.00	0.0130	0.2000	82.99	54.2630	27.48	86.05	0.07	0 02:05:11
27 {Survey Site}.Standard : 5	10.46	45.00	71.05	0.5000	235.00	0.0130	0.2000	82.99	29.0340	52.63	550.42	1.32	0 03:35:31
28 {Survey Site}.Standard : 6	11.54	2.00	67.00	2.0000	280.00	0.0130	0.2000	82.99	55.2610	26.47	305.51	0.16	0 03:12:03
29 {Survey Site}.Standard : 7	10.98	5.00	67.00	2.0000	225.00	0.0130	0.2000	82.99	53.8310	27.91	306.30	0.26	0 03:28:32
30 {Survey Site}.Standard : 8	3.30	2.00	67.00	2.0000	125.00	0.0130	0.2000	82.99	54.5600	27.16	89.73	0.06	0 02:27:06

Node Summary

SN	Element ID	Element Type	Invert Elevation	Ground/Rim (Max) Elevation	Initial Water Elevation	Surcharge Elevation	Ponded Area	Peak Inflow	Max HGL Elevation Attained	Max Surcharge Depth Attained	Min Freeboard Attained	Time of Peak Flooding Occurrence	Total Flooded Volume	Total Time Flooded
			(m)	(m)	(m)	(m)	(m²)	(cms)	(m)	(m)	(m)	(days hh:mm)	(ha-mm)	(min)
1	Ex_MHR1	Junction	255.88	262.50	0.00	0.00	0.00	0.25	256.32	0.00	6.18	0 00:00	0.00	0.00
2	Ex_MHR2	Junction	255.48	259.65	0.00	0.00	0.00	0.25	255.90	0.00	3.75	0 00:00	0.00	0.00
3	Ex_MHR25	Junction	256.48	263.35	0.00	0.00	0.00	0.25	257.42	0.00	5.93	0 00:00	0.00	0.00
4	Ex_MHR26	Junction	256.64	262.75	0.00	0.00	0.00	0.25	257.79	0.00	4.96	0 00:00	0.00	0.00
5	Ex_MHR27	Junction	256.94	261.00	0.00	0.00	0.00	0.25	258.25	0.00	2.75	0 00:00	0.00	0.00
6	Ex_MHR28	Junction	257.37	259.30	0.00	0.00	0.00	1.05	259.05	0.00	0.25	0 00:00	0.00	0.00
7	Ex_MHR3	Junction	255.23	259.00	0.00	0.00	0.00	0.25	255.61	0.00	3.39	0 00:00	0.00	0.00
8	NorthWetland	Junction	252.00	258.00	0.00	0.00	0.00	0.26	252.00	0.00	6.00	0 00:00	0.00	0.00
9	Ravine_1	Junction	256.10	260.10	0.00	0.00	0.00	4.68	256.66	0.00	3.44	0 00:00	0.00	0.00
10	Ravine_2	Junction	253.00	257.00	0.00	0.00	0.00	5.01	253.64	0.00	3.36	0 00:00	0.00	0.00
11	Ravine_3	Junction	252.45	256.45	0.00	0.00	0.00	4.48	252.96	0.00	3.49	0 00:00	0.00	0.00
12	RH_1	Junction	267.60	271.70	0.00	0.00	0.00	3.41	271.57	0.00	0.13	0 00:00	0.00	0.00
13	RH_10	Junction	261.90	263.90	0.00	0.00	0.00	5.20	263.71	0.00	0.19	0 00:00	0.00	0.00
14	RH_11	Junction	260.33	262.55	0.00	0.00	0.00	4.54	262.43	0.00	0.12	0 00:00	0.00	0.00
15	RH_12	Junction	269.00	270.50	0.00	0.00	0.00	1.83	269.45	0.00	1.05	0 00:00	0.00	0.00
16	RH_13	Junction	264.00	266.50	0.00	0.00	0.00	1.91	264.63	0.00	1.87	0 00:00	0.00	0.00
17	RH_14	Junction	261.70	263.50	0.00	0.00	0.00	0.47	263.21	0.00	0.29	0 00:00	0.00	0.00
18	RH_15	Junction	259.38	261.00	0.00	0.00	0.00	0.55	260.72	0.00	0.28	0 00:00	0.00	0.00
19	RH_16	Junction	256.36	258.00	0.00	0.00	0.00	0.48	257.09	0.00	0.91	0 00:00	0.00	0.00
20	RH_17	Junction	256.42	258.00	0.00	0.00	0.00	1.33	257.57	0.00	0.43	0 00:00	0.00	0.00
21	RH_2	Junction	270.14	272.45	0.00	0.00	0.00	2.82	272.24	0.00	0.21	0 00:00	0.00	0.00
22	RH_3	Junction	267.07	270.25	0.00	0.00	0.00	5.85	269.91	0.00	0.34	0 00:00	0.00	0.00
23	RH_4	Junction	266.63	268.60	0.00	0.00	0.00	4.50	268.45	0.00	0.15	0 00:00	0.00	0.00
24	RH_5	Junction	270.35	272.10	0.00	0.00	0.00	1.31	271.87	0.00	0.23	0 00:00	0.00	0.00
25	RH_6	Junction	266.50	268.20	0.00	0.00	0.00	5.52	268.09	0.00	0.11	0 00:00	0.00	0.00
26	RH_7	Junction	272.00	273.50	0.00	0.00	0.00	0.00	272.00	0.00	1.50	0 00:00	0.00	0.00
27	RH_8	Junction	267.75	269.85	0.00	0.00	0.00	0.26	269.19	0.00	0.66	0 00:00	0.00	0.00
28	RH_9	Junction	264.00	265.80	0.00	0.00	0.00	0.20	265.50	0.00	0.30	0 00:00	0.00	0.00
29	WestOutfall	Junction	257.00	258.00	0.00	0.00	0.00	0.18	257.00	0.00	1.00	0 00:00	0.00	0.00
30	WestWetland	Junction	258.00	259.00	0.00	0.00	0.00	0.16	258.00	0.00	1.00	0 00:00	0.00	0.00

Link Summary

SN Element ID	Element Type	From (Inlet) Node	To (Outlet) Node	Length	Inlet Invert Elevation	Outlet Invert Elevation	Average Slope	Diameter or Height	Manning's Roughness	Peak Flow	Design Flow Capacity	Peak Flow/ Design Flow Ratio	Peak Flow Velocity
				(m)	(m)	(m)	(%)	(m)		(cms)	(cms)		(m/sec)
1 Ex.STM_1	Pipe	Ex_MHR28	Ex_MHR27	107.00	257.37	256.94	0.4000	0.450	0.0130	0.25	0.18	1.36	1.55
2 Ex.STM_2	Pipe	Ex_MHR27	Ex_MHR26	73.00	256.94	256.64	0.4100	0.450	0.0130	0.25	0.18	1.35	1.55
3 Ex.STM_3	Pipe	Ex_MHR26	Ex_MHR25	27.00	256.64	256.48	0.5900	0.450	0.0130	0.25	0.22	1.12	1.55
4 Ex.STM_4	Pipe	Ex_MHR25	Ex_MHR1	100.00	256.48	255.88	0.6000	0.450	0.0130	0.25	0.22	1.12	1.58
5 Ex.STM_5	Pipe	Ex_MHR1	Ex_MHR2	100.00	255.88	255.48	0.4000	0.525	0.0130	0.25	0.27	0.91	1.32
6 Ex.STM_6	Pipe	Ex_MHR2	Ex_MHR3	50.00	255.48	255.23	0.5000	0.525	0.0130	0.25	0.30	0.81	1.40
7 Ex.STM_7	Pipe	Ex_MHR3	TinerEstatesSTM	102.00	255.23	254.82	0.4000	0.600	0.0130	0.25	0.39	0.63	1.44
8 RH_A1	Pipe	RH_2	RH_3	50.00	270.14	268.50	3.2800	0.300	0.0130	0.23	0.18	1.31	3.26
9 RH_B1	Pipe	RH_5	RH_6	227.00	270.35	266.50	1.7000	0.300	0.0130	0.14	0.13	1.10	1.96
10 RH_C3	Pipe	Ex_SE_Pond	RH_14	15.00	262.00	261.70	2.0000	0.600	0.0130	0.47	0.87	0.54	1.91
11 RH_C4	Pipe	RH_14	RH_15	195.00	261.70	259.38	1.1900	0.525	0.0150	0.43	0.41	1.04	2.10
12 RH_C5	Pipe	RH_15	RH_16	274.00	259.38	256.36	1.1000	0.525	0.0130	0.48	0.45	1.06	2.21
13 RH_C6	Pipe	RH_16	Ravine_1	6.00	256.36	256.24	2.0000	0.700	0.0130	0.48	1.31	0.36	1.64
14 RH_D1	Pipe	RH_7	RH_8	275.00	272.00	267.75	1.5500	0.300	0.0130	0.00	0.12	0.00	0.00
15 RH_D2	Pipe	RH_8	RH_9	180.00	267.75	264.00	2.0800	0.300	0.0130	0.15	0.14	1.05	2.14
16 RH_D3	Pipe	RH_9	RH_10	155.00	264.00	261.90	1.3500	0.375	0.0130	0.19	0.20	0.91	1.69
17 RH_M1	Pipe	RH_1	RH_3	270.00	267.60	267.07	0.2000	0.600	0.0130	0.51	0.27	1.85	1.78
18 RH_M2	Pipe	RH_3	RH_4	222.00	267.07	266.63	0.2000	0.675	0.0130	0.80	0.37	2.13	2.23
19 RH_M3	Pipe	RH_4	RH_6	18.00	266.63	266.50	0.7200	0.750	0.0130	1.05	0.95	1.11	2.37
20 RH_M4	Pipe	RH_6	RH_10	415.00	266.50	261.90	1.1100	0.675	0.0130	0.91	0.89	1.03	2.61
21 RH_M5	Pipe	RH_10	RH_11	140.00	261.90	260.33	1.1200	0.675	0.0130	1.04	0.89	1.17	2.92
22 RH_M6	Pipe	RH_11	RH_17	464.00	260.33	256.42	0.8400	0.750	0.0130	1.10	1.02	1.08	2.49
23 RH_M7	Pipe	RH_17	Ravine_1	6.00	256.42	256.37	0.8300	1.000	0.0130	1.33	2.19	0.61	2.02
24 West_Link	Pipe	WestOutfall	West_Outfall	33.73	256.00	257.00	-2.9600	0.000	0.0130	0.18	0.00	0.03	0.00
25 WestWetland_Link	Pipe	WestWetland	West_Wetland	37.13	258.00	258.00	0.0000	0.000	0.0130	0.16	0.00	0.03	0.00
26 Wetland_Link	Pipe	NorthWetland	North_Wetland	41.51	252.00	252.00	0.0000	0.000	0.0130	0.26	0.00	0.03	0.00
27 Ex.STM_Overland	Channel	Ex_MHR28	Ravine_2	400.00	259.00	253.00	1.5000	0.300	0.0320	0.58	10.09	0.06	0.16
28 Link-34	Channel	RH_1	RH_3	270.00	271.40	269.65	0.6500	0.300	0.0320	2.67	6.63	0.40	0.71
29 Link-35	Channel	RH_2	RH_3	50.00	272.15	269.65	5.0000	0.300	0.0320	2.60	18.43	0.14	1.10
30 Link-36	Channel	RH_3	RH_4	222.00	269.65	268.30	0.6100	0.300	0.0320	3.79	6.43	0.59	0.92

Junction Input

SN	Element ID	Invert Elevation	Ground/Rim (Max) Elevation	Ground/Rim (Max) Offset	Initial Water Elevation	Initial Water Depth	Surcharge Elevation	Surcharge Depth	Ponded Area	Minimum Pipe Cover
		(m)	(m)	(m)	(m)	(m)	(m)	(m)	(m²)	(m)
1	Ex_MHR1	255.88	262.50	6.62	0.00	-255.88	0.00	-262.50	0.00	0.00
2	Ex_MHR2	255.48	259.65	4.17	0.00	-255.48	0.00	-259.65	0.00	0.00
3	Ex_MHR25	256.48	263.35	6.87	0.00	-256.48	0.00	-263.35	0.00	0.00
4	Ex_MHR26	256.64	262.75	6.11	0.00	-256.64	0.00	-262.75	0.00	0.00
5	Ex_MHR27	256.94	261.00	4.06	0.00	-256.94	0.00	-261.00	0.00	0.00
6	Ex_MHR28	257.37	259.30	1.93	0.00	-257.37	0.00	-259.30	0.00	0.00
7	Ex_MHR3	255.23	259.00	3.77	0.00	-255.23	0.00	-259.00	0.00	0.00
8	NorthWetland	252.00	258.00	6.00	0.00	-252.00	0.00	-258.00	0.00	0.00
9	Ravine_1	256.10	260.10	4.00	0.00	-256.10	0.00	-260.10	0.00	0.00
10	Ravine_2	253.00	257.00	4.00	0.00	-253.00	0.00	-257.00	0.00	0.00
11	Ravine_3	252.45	256.45	4.00	0.00	-252.45	0.00	-256.45	0.00	0.00
12	RH_1	267.60	271.70	4.10	0.00	-267.60	0.00	-271.70	0.00	0.00
13	RH_10	261.90	263.90	2.00	0.00	-261.90	0.00	-263.90	0.00	0.00
14	RH_11	260.33	262.55	2.22	0.00	-260.33	0.00	-262.55	0.00	0.00
15	RH_12	269.00	270.50	1.50	0.00	-269.00	0.00	-270.50	0.00	0.00
16	RH_13	264.00	266.50	2.50	0.00	-264.00	0.00	-266.50	0.00	0.00
17	RH_14	261.70	263.50	1.80	0.00	-261.70	0.00	-263.50	0.00	0.00
18	RH_15	259.38	261.00	1.62	0.00	-259.38	0.00	-261.00	0.00	0.00
19	RH_16	256.36	258.00	1.64	0.00	-256.36	0.00	-258.00	0.00	0.00
20	RH_17	256.42	258.00	1.58	0.00	-256.42	0.00	-258.00	0.00	0.00
21	RH_2	270.14	272.45	2.31	0.00	-270.14	0.00	-272.45	0.00	0.00
22	RH_3	267.07	270.25	3.18	0.00	-267.07	0.00	-270.25	0.00	0.00
23	RH_4	266.63	268.60	1.97	0.00	-266.63	0.00	-268.60	0.00	0.00
24	RH_5	270.35	272.10	1.75	0.00	-270.35	0.00	-272.10	0.00	0.00
25	RH_6	266.50	268.20	1.70	0.00	-266.50	0.00	-268.20	0.00	0.00
26	RH_7	272.00	273.50	1.50	0.00	-272.00	0.00	-273.50	0.00	0.00
27	RH_8	267.75	269.85	2.10	0.00	-267.75	0.00	-269.85	0.00	0.00
28	RH_9	264.00	265.80	1.80	0.00	-264.00	0.00	-265.80	0.00	0.00
29	WestOutfall	257.00	258.00	1.00	0.00	-257.00	0.00	-258.00	0.00	0.00
30	WestWetland	258.00	259.00	1.00	0.00	-258.00	0.00	-259.00	0.00	0.00

Junction Results

SN	Element	Peak	Peak	Max HGL	Max HGL	Max	Min	Average HGL	Average HGL	Time o
ID		Inflow	Lateral	Elevation	Depth	Surcharge	Freeboard	Elevation	Depth	Max HGL
			Inflow	Attained	Attained	Depth	Attained	Attained	Attained	Occurrence
		(cms)	(cms)	(m)	(m)	(m)	(m)	(m)	(m)	(days hh:mm)
1	Ex_MHR1	0.25	0.00	256.32	0.44	0.00	6.18	256.03	0.15	0 12:04
2	Ex_MHR2	0.25	0.00	255.90	0.42	0.00	3.75	255.63	0.15	0 12:05
3	Ex_MHR25	0.25	0.00	257.42	0.94	0.00	5.93	256.64	0.16	0 11:46
4	Ex_MHR26	0.25	0.00	257.79	1.15	0.00	4.96	256.82	0.18	0 11:46
5	Ex_MHR27	0.25	0.00	258.25	1.31	0.00	2.75	257.15	0.21	0 11:46
6	Ex_MHR28	1.05	1.05	259.05	1.68	0.00	0.25	257.61	0.24	0 12:03
7	Ex_MHR3	0.25	0.00	255.61	0.38	0.00	3.39	255.37	0.14	0 12:06
8	NorthWetland	0.26	0.26	252.00	0.00	0.00	6.00	252.00	0.00	0 00:00
9	Ravine_1	4.68	0.11	256.66	0.56	0.00	3.44	256.29	0.19	0 12:27
10	Ravine_2	5.01	0.56	253.64	0.64	0.00	3.36	253.25	0.25	0 12:37
11	Ravine_3	4.48	0.05	252.96	0.51	0.00	3.49	252.65	0.20	0 12:38
12	RH_1	3.41	3.41	271.57	3.97	0.00	0.13	268.42	0.82	0 12:01
13	RH_10	5.20	0.16	263.71	1.81	0.00	0.19	262.49	0.59	0 12:16
14	RH_11	4.54	0.05	262.43	2.10	0.00	0.12	260.96	0.63	0 12:26
15	RH_12	1.83	1.83	269.45	0.45	0.00	1.05	269.09	0.09	0 12:00
16	RH_13	1.91	0.13	264.63	0.63	0.00	1.87	264.15	0.15	0 12:01
17	RH_14	0.47	0.00	263.21	1.51	0.00	0.29	262.16	0.46	0 12:47
18	RH_15	0.55	0.12	260.72	1.34	0.00	0.28	259.83	0.45	0 13:11
19	RH_16	0.48	0.00	257.09	0.73	0.00	0.91	256.73	0.37	0 13:12
20	RH_17	1.33	0.28	257.57	1.15	0.00	0.43	257.01	0.59	0 12:30
21	RH_2	2.82	2.82	272.24	2.10	0.00	0.21	270.68	0.54	0 12:00
22	RH_3	5.85	0.00	269.91	2.84	0.00	0.34	267.84	0.77	0 12:06
23	RH_4	4.50	0.07	268.45	1.82	0.00	0.15	267.13	0.50	0 12:06
24	RH_5	1.31	1.31	271.87	1.52	0.00	0.23	270.70	0.35	0 12:02
25	RH_6	5.52	0.00	268.09	1.59	0.00	0.11	266.94	0.44	0 12:10
26	RH_7	0.00	0.00	272.00	0.00	0.00	1.50	272.00	0.00	0 00:00
27	RH_8	0.26	0.26	269.19	1.44	0.00	0.66	267.95	0.20	0 12:05
28	RH_9	0.20	0.06	265.50	1.50	0.00	0.30	264.28	0.28	0 12:30
29	WestOutfall	0.18	0.18	257.00	0.00	0.00	1.00	257.00	0.00	0 00:00
30	WestWetland	0.16	0.16	258.00	0.00	0.00	1.00	258.00	0.00	0 00:00

Channel Input

SN	Element ID	Length	Inlet Invert Elevation	Inlet Invert Offset	Outlet Invert Elevation	Outlet Invert Offset	Total Drop	Average Slope	Shape	Height	Width	Manni Roughr
		(m)	(m)	(m)	(m)	(m)	(m)	(%)		(m)	(m)	
1	Ex.STM_Overland	400.00	259.00	1.63	253.00	0.00	6.00	1.5000	Rectangular	0.300	20.000	0.0
2	Link-34	270.00	271.40	3.80	269.65	2.58	1.75	0.6500	Rectangular	0.300	20.000	0.0
3	Link-35	50.00	272.15	2.01	269.65	2.58	2.50	5.0000	Rectangular	0.300	20.000	0.0
4	Link-36	222.00	269.65	2.58	268.30	1.67	1.35	0.6100	Rectangular	0.300	20.000	0.0
5	Link-37	18.00	268.30	1.67	267.90	1.40	0.40	2.2200	Rectangular	0.300	20.000	0.0
6	Link-38	227.00	271.80	1.45	267.90	1.40	3.90	1.7200	Rectangular	0.300	20.000	0.0
7	Link-39	415.00	267.90	1.40	263.50	1.60	4.40	1.0600	Rectangular	0.300	20.000	0.0
8	Link-41	180.00	269.55	1.80	265.50	1.50	4.05	2.2500	Rectangular	0.300	20.000	0.0
9	Link-42	155.00	265.50	1.50	263.50	1.60	2.00	1.2900	Rectangular	0.300	20.000	0.0
10	Link-43	140.00	263.50	1.60	262.25	1.92	1.25	0.8900	Rectangular	0.300	20.000	0.0
11	Link-44	470.00	262.25	1.92	258.00	1.90	4.25	0.9000	Rectangular	0.300	20.000	0.0
12	Link-45	195.00	263.20	1.50	260.70	1.32	2.50	1.2800	Rectangular	0.300	20.000	0.0
13	Link-46	280.00	260.70	1.32	258.00	1.90	2.70	0.9600	Rectangular	0.300	20.000	0.0
14	LowerRavine	124.00	253.00	0.00	252.45	0.00	0.55	0.4400	Trapezoidal	4.000	17.000	0.0
15	OutletRavine	45.00	252.45	0.00	252.00	0.00	0.45	1.0000	Trapezoidal	4.000	17.000	0.0
16	RH_C1	215.00	269.00	0.00	264.00	0.00	5.00	2.3300	Trapezoidal	1.500	7.000	0.0
17	RH_C2	60.00	264.00	0.00	263.50	1.50	0.50	0.8300	Trapezoidal	1.500	7.000	0.0
18	UpperRavine	553.00	256.10	0.00	253.00	0.00	3.10	0.5600	Trapezoidal	4.000	17.000	0.0

Channel Results

SN Element ID	Peak Flow	Time of Peak Flow Occurrence	Design Flow Capacity	Peak Flow/ Design Flow Ratio	Peak Flow Velocity	Travel Time	Peak Flow Depth	Peak Flow Depth/ Total Depth Ratio	Totl Surcl
	(cms)	(days hh:mm)	(cms)		(m/sec)	(min)	(m)		
1 Ex.STM_Overland	0.58	0 12:03	10.09	0.06	0.16	41.67	0.18	0.59	
2 Link-34	2.67	0 12:01	6.63	0.40	0.71	6.34	0.21	0.69	
3 Link-35	2.60	0 12:00	18.43	0.14	1.10	0.76	0.17	0.55	
4 Link-36	3.79	0 12:06	6.43	0.59	0.92	4.02	0.20	0.69	
5 Link-37	3.52	0 12:06	12.28	0.29	1.20	0.25	0.16	0.54	
6 Link-38	1.03	0 12:02	10.80	0.10	0.70	5.40	0.12	0.41	
7 Link-39	4.05	0 12:11	8.48	0.48	1.06	6.53	0.19	0.65	
8 Link-41	0.00	0 00:00	12.36	0.00	0.00		0.00	0.00	
9 Link-42	0.00	0 12:30	9.36	0.00	0.00		0.10	0.35	
10 Link-43	3.74	0 12:16	7.79	0.48	1.03	2.27	0.18	0.61	
11 Link-44	2.77	0 12:26	7.84	0.35	0.92	8.51	0.15	0.50	
12 Link-45	0.05	0 12:49	9.33	0.00	0.19	17.11	0.01	0.04	
13 Link-46	0.04	0 13:11	8.09	0.00	0.16	29.17	0.01	0.04	
14 LowerRavine	4.46	0 12:38	157.98	0.03	1.31	1.58	0.58	0.14	
15 OutletRavine	4.48	0 12:38	237.22	0.02	1.70	0.44	0.46	0.12	
16 RH_C1	1.78	0 12:00	24.20	0.07	1.63	2.20	0.53	0.36	
17 RH_C2	1.80	0 12:01	14.49	0.12	1.50	0.67	0.54	0.38	
18 UpperRavine	4.65	0 12:27	177.61	0.03	1.39	6.63	0.59	0.15	

Pipe Input

SN Element ID	Length	Inlet	Inlet	Outlet	Outlet	Total	Average Pipe		Pipe	Pipe	M
		Invert	Invert	Invert	Invert	Drop	Slope	Shape	Diameter or	Width	
		Elevation (m)	Offset (m)	Elevation (m)	Offset (m)	(m)	(%)		Height (m)	(m)	
1 Ex.STM_1	107.00	257.37	0.00	256.94	0.00	0.43	0.4000	CIRCULAR	0.450	0.450	
2 Ex.STM_2	73.00	256.94	0.00	256.64	0.00	0.30	0.4100	CIRCULAR	0.450	0.450	
3 Ex.STM_3	27.00	256.64	0.00	256.48	0.00	0.16	0.5900	CIRCULAR	0.450	0.450	
4 Ex.STM_4	100.00	256.48	0.00	255.88	0.00	0.60	0.6000	CIRCULAR	0.450	0.450	
5 Ex.STM_5	100.00	255.88	0.00	255.48	0.00	0.40	0.4000	CIRCULAR	0.530	0.530	
6 Ex.STM_6	50.00	255.48	0.00	255.23	0.00	0.25	0.5000	CIRCULAR	0.530	0.530	
7 Ex.STM_7	102.00	255.23	0.00	254.82	0.00	0.41	0.4000	CIRCULAR	0.600	0.600	
8 RH_A1	50.00	270.14	0.00	268.50	1.43	1.64	3.2800	CIRCULAR	0.300	0.300	
9 RH_B1	227.00	270.35	0.00	266.50	0.00	3.85	1.7000	CIRCULAR	0.300	0.300	
10 RH_C3	15.00	262.00	0.00	261.70	0.00	0.30	2.0000	CIRCULAR	0.600	0.600	
11 RH_C4	195.00	261.70	0.00	259.38	0.00	2.32	1.1900	CIRCULAR	0.530	0.530	
12 RH_C5	274.00	259.38	0.00	256.36	0.00	3.02	1.1000	CIRCULAR	0.530	0.530	
13 RH_C6	6.00	256.36	0.00	256.24	0.14	0.12	2.0000	CIRCULAR	0.700	0.700	
14 RH_D1	275.00	272.00	0.00	267.75	0.00	4.25	1.5500	CIRCULAR	0.300	0.300	
15 RH_D2	180.00	267.75	0.00	264.00	0.00	3.75	2.0800	CIRCULAR	0.300	0.300	
16 RH_D3	155.00	264.00	0.00	261.90	0.00	2.10	1.3500	CIRCULAR	0.380	0.380	
17 RH_M1	270.00	267.60	0.00	267.07	0.00	0.53	0.2000	CIRCULAR	0.600	0.600	
18 RH_M2	222.00	267.07	0.00	266.63	0.00	0.44	0.2000	CIRCULAR	0.680	0.680	
19 RH_M3	18.00	266.63	0.00	266.50	0.00	0.13	0.7200	CIRCULAR	0.750	0.750	
20 RH_M4	415.00	266.50	0.00	261.90	0.00	4.60	1.1100	CIRCULAR	0.680	0.680	
21 RH_M5	140.00	261.90	0.00	260.33	0.00	1.57	1.1200	CIRCULAR	0.680	0.680	
22 RH_M6	464.00	260.33	0.00	256.42	0.00	3.91	0.8400	CIRCULAR	0.750	0.750	
23 RH_M7	6.00	256.42	0.00	256.37	0.27	0.05	0.8300	CIRCULAR	1.000	1.000	
24 West_Link	33.73	256.00	-1.00	257.00	0.00	-1.00	-2.9600	Dummy	0.000	0.000	
25 WestWetland_Link	37.13	258.00	0.00	258.00	0.00	0.00	0.0000	Dummy	0.000	0.000	
26 Wetland_Link	41.51	252.00	0.00	252.00	0.00	0.00	0.0000	Dummy	0.000	0.000	

25-YEAR STORM

No. of
Barrels[illegible]

Pipe Results

SN Element ID	Peak Flow	Time of Peak Flow Occurrence	Design Flow Capacity	Peak Flow/ Design Flow Ratio	Peak Flow Velocity	Travel Time	Peak Flow Depth	Peak Flow Depth/ Total Depth Ratio	To Sur
	(cms)	(days hh:mm)	(cms)		(m/sec)	(min)	(m)		
1 Ex.STM_1	0.25	0 11:49	0.18	1.36	1.55	1.15	0.45	1.00	
2 Ex.STM_2	0.25	0 11:49	0.18	1.35	1.55	0.78	0.45	1.00	
3 Ex.STM_3	0.25	0 11:49	0.22	1.12	1.55	0.29	0.45	1.00	
4 Ex.STM_4	0.25	0 11:49	0.22	1.12	1.58	1.05	0.44	0.99	
5 Ex.STM_5	0.25	0 12:04	0.27	0.91	1.32	1.26	0.43	0.82	
6 Ex.STM_6	0.25	0 12:05	0.30	0.81	1.40	0.60	0.40	0.76	
7 Ex.STM_7	0.25	0 12:06	0.39	0.63	1.44	1.18	0.35	0.58	
8 RH_A1	0.23	0 11:45	0.18	1.31	3.26	0.26	0.30	1.00	
9 RH_B1	0.14	0 11:44	0.13	1.10	1.96	1.93	0.30	1.00	
10 RH_C3	0.47	0 11:58	0.87	0.54	1.91	0.13	0.60	1.00	
11 RH_C4	0.43	0 11:58	0.41	1.04	2.10	1.55	0.52	1.00	
12 RH_C5	0.48	0 13:12	0.45	1.06	2.21	2.07	0.52	1.00	
13 RH_C6	0.48	0 13:12	1.31	0.36	1.64	0.06	0.56	0.80	
14 RH_D1	0.00	0 00:00	0.12	0.00	0.00		0.15	0.50	
15 RH_D2	0.15	0 11:56	0.14	1.05	2.14	1.40	0.30	1.00	
16 RH_D3	0.19	0 12:48	0.20	0.91	1.69	1.53	0.38	1.00	
17 RH_M1	0.51	0 11:47	0.27	1.85	1.78	2.53	0.60	1.00	
18 RH_M2	0.80	0 11:48	0.37	2.13	2.23	1.66	0.68	1.00	
19 RH_M3	1.05	0 11:59	0.95	1.11	2.37	0.13	0.75	1.00	
20 RH_M4	0.91	0 11:49	0.89	1.03	2.61	2.65	0.68	1.00	
21 RH_M5	1.04	0 11:58	0.89	1.17	2.92	0.80	0.68	1.00	
22 RH_M6	1.10	0 12:25	1.02	1.08	2.49	3.11	0.75	1.00	
23 RH_M7	1.33	0 12:30	2.19	0.61	2.02	0.05	0.78	0.78	
24 West_Link	0.18	0 12:00	0.00	0.03	0.00		0.59	0.15	
25 WestWetland_Link	0.16	0 12:00	0.00	0.03	0.00		0.59	0.15	
26 Wetland_Link	0.26	0 12:06	0.00	0.03	0.00		0.59	0.15	

Project Description

File Name	18010_Pre-Development Rev.0.SPF
Description	I:\ACAD Projects\2018\18010\03-Ref\18010_Pre-Dev. Storm
	I:\ACAD Projects\2018\18010\03-Ref\18010_Pre-Dev. Storm

Project Options

Flow Units	CMS
Elevation Type	Elevation
Hydrology Method	EPA SWMM
EPA SWMM Infiltration Method	SCS Curve Number
Link Routing Method	Hydrodynamic
Enable Overflow Ponding at Nodes	YES
Skip Steady State Analysis Time Periods	NO

Analysis Options

Start Analysis On	00:00:00	0:00:00
End Analysis On	00:00:00	0:00:00
Start Reporting On	00:00:00	0:00:00
Antecedent Dry Days	0	days
Runoff (Dry Weather) Time Step	0 01:00:00	days hh:mm:ss
Runoff (Wet Weather) Time Step	0 00:05:00	days hh:mm:ss
Reporting Time Step	0 00:05:00	days hh:mm:ss
Routing Time Step	30	seconds

Number of Elements

	Qty
Rain Gages	1
Subbasins.....	31
Nodes.....	36
<i>Junctions</i>	30
<i>Outfalls</i>	5
<i>Flow Diversions</i>	0
<i>Inlets</i>	0
<i>Storage Nodes</i>	1
Links.....	44
<i>Channels</i>	18
<i>Pipes</i>	26
<i>Pumps</i>	0
<i>Orifices</i>	0
<i>Weirs</i>	0
<i>Outlets</i>	0
Pollutants	0
Land Uses	0

Subbasin Summary

SN Subbasin ID	Area	Impervious Area	Weighted Curve Number	Average Slope	Equivalent Width	Impervious Area Manning's Roughness	Pervious Area Manning's Roughness	Total Rainfall	Total Infiltration	Total Runoff	Total Runoff Volume	Peak Runoff	Time of Concentration
	(ha)	(%)		(%)	(m)			(mm)	(mm)	(mm)	(ha-mm)	(cms)	(days hh:mm:ss)
1 {Survey Site}.Standard : 10	0.92	2.00	67.00	2.0000	125.00	0.0130	0.2000	92.69	56.7980	34.66	31.82	0.06	0 01:05:16
2 {Survey Site}.Standard : 11	21.38	2.00	67.00	2.0000	360.00	0.0130	0.2000	92.69	54.1530	38.88	831.21	0.37	0 03:48:45
3 {Survey Site}.Standard : 12	0.71	5.00	67.00	2.0000	90.00	0.0130	0.2000	92.69	55.0860	36.37	25.82	0.05	0 01:06:52
4 {Survey Site}.Standard : 13	1.65	45.00	71.05	2.0000	220.00	0.0130	0.2000	92.69	29.3150	62.13	102.38	0.38	0 00:46:42
5 {Survey Site}.Standard : 14	4.32	2.00	67.00	2.0000	350.00	0.0130	0.2000	92.69	57.1560	34.29	148.15	0.19	0 01:29:07
6 {Survey Site}.Standard : 16	6.33	2.00	67.00	2.0000	215.00	0.0130	0.2000	92.69	58.1180	33.32	210.90	0.15	0 02:30:07
7 {Survey Site}.Standard : 17	0.36	5.00	67.00	5.0000	20.00	0.0130	0.2000	92.69	55.2990	36.13	12.86	0.02	0 01:22:46
8 {Survey Site}.Standard : 18	14.15	5.00	48.00	10.0000	300.00	0.0130	0.2000	92.69	71.1570	20.27	286.90	0.34	0 02:00:39
9 {Survey Site}.Standard : 19	0.26	2.00	67.00	2.0000	90.00	0.0130	0.2000	92.69	56.3860	35.09	9.26	0.03	0 00:37:37
10 {Survey Site}.Standard : 2	20.86	45.00	71.05	2.0000	300.00	0.0130	0.2000	92.69	30.4220	60.99	1272.45	3.24	0 02:57:49
11 {Survey Site}.Standard : 20	11.33	2.00	36.00	0.5000	240.00	0.0130	0.2000	92.69	76.1310	11.31	128.12	0.09	0 05:02:01
12 {Survey Site}.Standard : 21	4.24	2.00	67.00	2.0000	155.00	0.0130	0.2000	92.69	58.0080	33.43	141.64	0.11	0 02:23:36
13 {Survey Site}.Standard : 22	23.21	2.00	67.00	2.0000	330.00	0.0130	0.2000	92.69	53.6140	37.43	868.73	0.36	0 04:13:11
14 {Survey Site}.Standard : 23	2.20	5.00	48.00	10.0000	100.00	0.0130	0.2000	92.69	70.4790	20.95	46.04	0.06	0 01:16:18
15 {Survey Site}.Standard : 24	9.04	2.00	67.00	2.0000	275.00	0.0130	0.2000	92.69	58.2830	33.15	299.76	0.20	0 02:40:26
16 {Survey Site}.Standard : 25	8.64	2.00	67.00	5.0000	390.00	0.0130	0.2000	92.69	57.2660	34.18	295.38	0.35	0 01:36:10
17 {Survey Site}.Standard : 26	1.12	45.00	71.05	2.0000	40.00	0.0130	0.2000	92.69	29.7710	61.69	69.33	0.21	0 01:43:14
18 {Survey Site}.Standard : 27	0.43	45.00	71.05	2.0000	60.00	0.0130	0.2000	92.69	29.3020	62.13	26.53	0.10	0 00:45:17
19 {Survey Site}.Standard : 28	0.12	45.00	71.05	2.0000	40.00	0.0130	0.2000	92.69	29.1590	62.24	7.66	0.03	0 00:27:22
20 {Survey Site}.Standard : 29	7.86	45.00	71.05	2.0000	110.00	0.0130	0.2000	92.69	30.4480	60.96	479.27	1.21	0 03:00:45
21 {Survey Site}.Standard : 3	25.14	45.00	71.05	2.0000	370.00	0.0130	0.2000	92.69	30.3960	61.01	1533.78	3.93	0 02:55:21
22 {Survey Site}.Standard : 30	20.00	30.00	63.70	2.0000	225.00	0.0130	0.2000	92.69	44.9310	46.50	929.81	2.10	0 03:58:04
23 {Survey Site}.Standard : 31	5.54	5.00	57.00	2.0000	245.00	0.0130	0.2000	92.69	64.7790	26.66	147.80	0.16	0 02:05:50
24 {Survey Site}.Standard : 32	3.34	2.00	67.00	2.0000	95.00	0.0130	0.2000	92.69	58.3930	33.05	110.21	0.07	0 02:46:51
25 {Survey Site}.Standard : 33	7.71	2.00	67.00	2.0000	215.00	0.0130	0.2000	92.69	58.4210	33.01	254.38	0.16	0 02:48:57
26 {Survey Site}.Standard : 4	3.13	2.00	67.00	2.0000	155.00	0.0130	0.2000	92.69	57.6230	33.81	105.87	0.10	0 01:59:46
27 {Survey Site}.Standard : 5	10.46	45.00	71.05	0.5000	235.00	0.0130	0.2000	92.69	30.6300	60.71	634.99	1.52	0 03:26:12
28 {Survey Site}.Standard : 6	11.54	2.00	67.00	2.0000	280.00	0.0130	0.2000	92.69	58.6680	32.76	378.10	0.22	0 03:03:44
29 {Survey Site}.Standard : 7	10.98	5.00	67.00	2.0000	225.00	0.0130	0.2000	92.69	57.1390	34.29	376.37	0.32	0 03:19:30
30 {Survey Site}.Standard : 8	3.30	2.00	67.00	2.0000	125.00	0.0130	0.2000	92.69	57.9530	33.48	110.61	0.08	0 02:20:44

Node Summary

SN	Element ID	Element Type	Invert Elevation	Ground/Rim (Max) Elevation	Initial Water Elevation	Surcharge Elevation	Ponded Area	Peak Inflow	Max HGL Elevation Attained	Max Surcharge Depth Attained	Min Freeboard Attained	Time of Peak Flooding Occurrence	Total Flooded Volume	Total Time Flooded
			(m)	(m)	(m)	(m)	(m²)	(cms)	(m)	(m)	(m)	(days hh:mm)	(ha-mm)	(min)
1	Ex_MHR1	Junction	255.88	262.50	0.00	0.00	0.00	0.25	256.32	0.00	6.18	0 00:00	0.00	0.00
2	Ex_MHR2	Junction	255.48	259.65	0.00	0.00	0.00	0.25	255.90	0.00	3.75	0 00:00	0.00	0.00
3	Ex_MHR25	Junction	256.48	263.35	0.00	0.00	0.00	0.25	257.53	0.00	5.82	0 00:00	0.00	0.00
4	Ex_MHR26	Junction	256.64	262.75	0.00	0.00	0.00	0.25	257.86	0.00	4.89	0 00:00	0.00	0.00
5	Ex_MHR27	Junction	256.94	261.00	0.00	0.00	0.00	0.25	258.27	0.00	2.73	0 00:00	0.00	0.00
6	Ex_MHR28	Junction	257.37	259.30	0.00	0.00	0.00	1.21	259.06	0.00	0.24	0 00:00	0.00	0.00
7	Ex_MHR3	Junction	255.23	259.00	0.00	0.00	0.00	0.25	255.61	0.00	3.39	0 00:00	0.00	0.00
8	NorthWetland	Junction	252.00	258.00	0.00	0.00	0.00	0.37	252.00	0.00	6.00	0 00:00	0.00	0.00
9	Ravine_1	Junction	256.10	260.10	0.00	0.00	0.00	5.82	256.74	0.00	3.36	0 00:00	0.00	0.00
10	Ravine_2	Junction	253.00	257.00	0.00	0.00	0.00	6.39	253.74	0.00	3.26	0 00:00	0.00	0.00
11	Ravine_3	Junction	252.45	256.45	0.00	0.00	0.00	5.67	253.04	0.00	3.41	0 00:00	0.00	0.00
12	RH_1	Junction	267.60	271.70	0.00	0.00	0.00	3.93	271.59	0.00	0.11	0 00:00	0.00	0.00
13	RH_10	Junction	261.90	263.90	0.00	0.00	0.00	6.35	263.74	0.00	0.16	0 00:00	0.00	0.00
14	RH_11	Junction	260.33	262.55	0.00	0.00	0.00	5.60	262.46	0.00	0.09	0 00:00	0.00	0.00
15	RH_12	Junction	269.00	270.50	0.00	0.00	0.00	2.10	269.48	0.00	1.02	0 00:00	0.00	0.00
16	RH_13	Junction	264.00	266.50	0.00	0.00	0.00	2.20	264.67	0.00	1.83	0 00:00	0.00	0.00
17	RH_14	Junction	261.70	263.50	0.00	0.00	0.00	0.61	263.23	0.00	0.27	0 00:00	0.00	0.00
18	RH_15	Junction	259.38	261.00	0.00	0.00	0.00	0.76	260.74	0.00	0.26	0 00:00	0.00	0.00
19	RH_16	Junction	256.36	258.00	0.00	0.00	0.00	0.48	257.09	0.00	0.91	0 00:00	0.00	0.00
20	RH_17	Junction	256.42	258.00	0.00	0.00	0.00	1.42	257.63	0.00	0.37	0 00:00	0.00	0.00
21	RH_2	Junction	270.14	272.45	0.00	0.00	0.00	3.24	272.25	0.00	0.20	0 00:00	0.00	0.00
22	RH_3	Junction	267.07	270.25	0.00	0.00	0.00	6.73	269.94	0.00	0.31	0 00:00	0.00	0.00
23	RH_4	Junction	266.63	268.60	0.00	0.00	0.00	5.35	268.47	0.00	0.13	0 00:00	0.00	0.00
24	RH_5	Junction	270.35	272.10	0.00	0.00	0.00	1.52	271.88	0.00	0.22	0 00:00	0.00	0.00
25	RH_6	Junction	266.50	268.20	0.00	0.00	0.00	6.56	268.12	0.00	0.08	0 00:00	0.00	0.00
26	RH_7	Junction	272.00	273.50	0.00	0.00	0.00	0.00	272.00	0.00	1.50	0 00:00	0.00	0.00
27	RH_8	Junction	267.75	269.85	0.00	0.00	0.00	0.32	269.56	0.00	0.29	0 00:00	0.00	0.00
28	RH_9	Junction	264.00	265.80	0.00	0.00	0.00	0.26	265.52	0.00	0.28	0 00:00	0.00	0.00
29	WestOutfall	Junction	257.00	258.00	0.00	0.00	0.00	0.25	257.00	0.00	1.00	0 00:00	0.00	0.00
30	WestWetland	Junction	258.00	259.00	0.00	0.00	0.00	0.19	258.00	0.00	1.00	0 00:00	0.00	0.00

Link Summary

SN Element ID	Element Type	From (Inlet) Node	To (Outlet) Node	Length	Inlet Invert Elevation	Outlet Invert Elevation	Average Slope	Diameter or Height	Manning's Roughness	Peak Flow	Design Flow Capacity	Peak Flow/ Design Flow Ratio	Peak Flow Velocity
				(m)	(m)	(m)	(%)	(m)		(cms)	(cms)		(m/sec)
1 Ex.STM_1	Pipe	Ex_MHR28	Ex_MHR27	107.00	257.37	256.94	0.4000	0.450	0.0130	0.25	0.18	1.37	1.55
2 Ex.STM_2	Pipe	Ex_MHR27	Ex_MHR26	73.00	256.94	256.64	0.4100	0.450	0.0130	0.25	0.18	1.35	1.55
3 Ex.STM_3	Pipe	Ex_MHR26	Ex_MHR25	27.00	256.64	256.48	0.5900	0.450	0.0130	0.25	0.22	1.12	1.55
4 Ex.STM_4	Pipe	Ex_MHR25	Ex_MHR1	100.00	256.48	255.88	0.6000	0.450	0.0130	0.25	0.22	1.12	1.58
5 Ex.STM_5	Pipe	Ex_MHR1	Ex_MHR2	100.00	255.88	255.48	0.4000	0.525	0.0130	0.25	0.27	0.91	1.33
6 Ex.STM_6	Pipe	Ex_MHR2	Ex_MHR3	50.00	255.48	255.23	0.5000	0.525	0.0130	0.25	0.30	0.81	1.40
7 Ex.STM_7	Pipe	Ex_MHR3	TinerEstatesSTM	102.00	255.23	254.82	0.4000	0.600	0.0130	0.25	0.39	0.63	1.44
8 RH_A1	Pipe	RH_2	RH_3	50.00	270.14	268.50	3.2800	0.300	0.0130	0.23	0.18	1.31	3.26
9 RH_B1	Pipe	RH_5	RH_6	227.00	270.35	266.50	1.7000	0.300	0.0130	0.14	0.13	1.10	1.95
10 RH_C3	Pipe	Ex_SE_Pond	RH_14	15.00	262.00	261.70	2.0000	0.600	0.0130	0.61	0.87	0.71	2.17
11 RH_C4	Pipe	RH_14	RH_15	195.00	261.70	259.38	1.1900	0.525	0.0150	0.42	0.41	1.04	2.10
12 RH_C5	Pipe	RH_15	RH_16	274.00	259.38	256.36	1.1000	0.525	0.0130	0.48	0.45	1.06	2.22
13 RH_C6	Pipe	RH_16	Ravine_1	6.00	256.36	256.24	2.0000	0.700	0.0130	0.48	1.31	0.37	1.64
14 RH_D1	Pipe	RH_7	RH_8	275.00	272.00	267.75	1.5500	0.300	0.0130	0.00	0.12	0.00	0.00
15 RH_D2	Pipe	RH_8	RH_9	180.00	267.75	264.00	2.0800	0.300	0.0130	0.15	0.14	1.04	2.15
16 RH_D3	Pipe	RH_9	RH_10	155.00	264.00	261.90	1.3500	0.375	0.0130	0.19	0.20	0.92	1.70
17 RH_M1	Pipe	RH_1	RH_3	270.00	267.60	267.07	0.2000	0.600	0.0130	0.50	0.27	1.85	1.78
18 RH_M2	Pipe	RH_3	RH_4	222.00	267.07	266.63	0.2000	0.675	0.0130	0.80	0.37	2.13	2.23
19 RH_M3	Pipe	RH_4	RH_6	18.00	266.63	266.50	0.7200	0.750	0.0130	1.05	0.95	1.11	2.37
20 RH_M4	Pipe	RH_6	RH_10	415.00	266.50	261.90	1.1100	0.675	0.0130	0.91	0.89	1.03	2.61
21 RH_M5	Pipe	RH_10	RH_11	140.00	261.90	260.33	1.1200	0.675	0.0130	1.04	0.89	1.17	2.91
22 RH_M6	Pipe	RH_11	RH_17	464.00	260.33	256.42	0.8400	0.750	0.0130	1.10	1.02	1.07	2.49
23 RH_M7	Pipe	RH_17	Ravine_1	6.00	256.42	256.37	0.8300	1.000	0.0130	1.42	2.19	0.65	2.13
24 West_Link	Pipe	WestOutfall	West_Outfall	33.73	256.00	257.00	-2.9600	0.000	0.0130	0.25	0.00	0.03	0.00
25 WestWetland_Link	Pipe	WestWetland	West_Wetland	37.13	258.00	258.00	0.0000	0.000	0.0130	0.20	0.00	0.03	0.00
26 Wetland_Link	Pipe	NorthWetland	North_Wetland	41.51	252.00	252.00	0.0000	0.000	0.0130	0.37	0.00	0.03	0.00
27 Ex.STM_Overland	Channel	Ex_MHR28	Ravine_2	400.00	259.00	253.00	1.5000	0.300	0.0320	0.73	10.09	0.07	0.20
28 Link-34	Channel	RH_1	RH_3	270.00	271.40	269.65	0.6500	0.300	0.0320	3.15	6.63	0.47	0.73
29 Link-35	Channel	RH_2	RH_3	50.00	272.15	269.65	5.0000	0.300	0.0320	3.03	18.43	0.16	1.08
30 Link-36	Channel	RH_3	RH_4	222.00	269.65	268.30	0.6100	0.300	0.0320	4.61	6.43	0.72	1.00

Junction Input

SN	Element ID	Invert Elevation	Ground/Rim (Max) Elevation	Ground/Rim (Max) Offset	Initial Water Elevation	Initial Water Depth	Surcharge Elevation	Surcharge Depth	Ponded Area	Minimum Pipe Cover
		(m)	(m)	(m)	(m)	(m)	(m)	(m)	(m²)	(m)
1	Ex_MHR1	255.88	262.50	6.62	0.00	-255.88	0.00	-262.50	0.00	0.00
2	Ex_MHR2	255.48	259.65	4.17	0.00	-255.48	0.00	-259.65	0.00	0.00
3	Ex_MHR25	256.48	263.35	6.87	0.00	-256.48	0.00	-263.35	0.00	0.00
4	Ex_MHR26	256.64	262.75	6.11	0.00	-256.64	0.00	-262.75	0.00	0.00
5	Ex_MHR27	256.94	261.00	4.06	0.00	-256.94	0.00	-261.00	0.00	0.00
6	Ex_MHR28	257.37	259.30	1.93	0.00	-257.37	0.00	-259.30	0.00	0.00
7	Ex_MHR3	255.23	259.00	3.77	0.00	-255.23	0.00	-259.00	0.00	0.00
8	NorthWetland	252.00	258.00	6.00	0.00	-252.00	0.00	-258.00	0.00	0.00
9	Ravine_1	256.10	260.10	4.00	0.00	-256.10	0.00	-260.10	0.00	0.00
10	Ravine_2	253.00	257.00	4.00	0.00	-253.00	0.00	-257.00	0.00	0.00
11	Ravine_3	252.45	256.45	4.00	0.00	-252.45	0.00	-256.45	0.00	0.00
12	RH_1	267.60	271.70	4.10	0.00	-267.60	0.00	-271.70	0.00	0.00
13	RH_10	261.90	263.90	2.00	0.00	-261.90	0.00	-263.90	0.00	0.00
14	RH_11	260.33	262.55	2.22	0.00	-260.33	0.00	-262.55	0.00	0.00
15	RH_12	269.00	270.50	1.50	0.00	-269.00	0.00	-270.50	0.00	0.00
16	RH_13	264.00	266.50	2.50	0.00	-264.00	0.00	-266.50	0.00	0.00
17	RH_14	261.70	263.50	1.80	0.00	-261.70	0.00	-263.50	0.00	0.00
18	RH_15	259.38	261.00	1.62	0.00	-259.38	0.00	-261.00	0.00	0.00
19	RH_16	256.36	258.00	1.64	0.00	-256.36	0.00	-258.00	0.00	0.00
20	RH_17	256.42	258.00	1.58	0.00	-256.42	0.00	-258.00	0.00	0.00
21	RH_2	270.14	272.45	2.31	0.00	-270.14	0.00	-272.45	0.00	0.00
22	RH_3	267.07	270.25	3.18	0.00	-267.07	0.00	-270.25	0.00	0.00
23	RH_4	266.63	268.60	1.97	0.00	-266.63	0.00	-268.60	0.00	0.00
24	RH_5	270.35	272.10	1.75	0.00	-270.35	0.00	-272.10	0.00	0.00
25	RH_6	266.50	268.20	1.70	0.00	-266.50	0.00	-268.20	0.00	0.00
26	RH_7	272.00	273.50	1.50	0.00	-272.00	0.00	-273.50	0.00	0.00
27	RH_8	267.75	269.85	2.10	0.00	-267.75	0.00	-269.85	0.00	0.00
28	RH_9	264.00	265.80	1.80	0.00	-264.00	0.00	-265.80	0.00	0.00
29	WestOutfall	257.00	258.00	1.00	0.00	-257.00	0.00	-258.00	0.00	0.00
30	WestWetland	258.00	259.00	1.00	0.00	-258.00	0.00	-259.00	0.00	0.00

Junction Results

SN	Element	Peak	Peak	Max HGL	Max HGL	Max	Min	Average HGL	Average HGL	Time o
	ID	Inflow	Lateral	Elevation	Depth	Surcharge	Freeboard	Elevation	Depth	Max HGL
			Inflow	Attained	Attained	Depth	Attained	Attained	Attained	Occurrence
		(cms)	(cms)	(m)	(m)	(m)	(m)	(m)	(m)	(days hh:mm)
1	Ex_MHR1	0.25	0.00	256.32	0.44	0.00	6.18	256.04	0.16	0 12:04
2	Ex_MHR2	0.25	0.00	255.90	0.42	0.00	3.75	255.63	0.15	0 12:05
3	Ex_MHR25	0.25	0.00	257.53	1.05	0.00	5.82	256.65	0.17	0 11:47
4	Ex_MHR26	0.25	0.00	257.86	1.22	0.00	4.89	256.83	0.19	0 11:47
5	Ex_MHR27	0.25	0.00	258.27	1.33	0.00	2.73	257.16	0.22	0 11:47
6	Ex_MHR28	1.21	1.21	259.06	1.69	0.00	0.24	257.62	0.25	0 12:03
7	Ex_MHR3	0.25	0.00	255.61	0.38	0.00	3.39	255.38	0.15	0 12:05
8	NorthWetland	0.37	0.37	252.00	0.00	0.00	6.00	252.00	0.00	0 00:00
9	Ravine_1	5.82	0.15	256.74	0.64	0.00	3.36	256.31	0.21	0 12:24
10	Ravine_2	6.39	0.70	253.74	0.74	0.00	3.26	253.27	0.27	0 12:34
11	Ravine_3	5.67	0.06	253.04	0.59	0.00	3.41	252.66	0.21	0 12:35
12	RH_1	3.93	3.93	271.59	3.99	0.00	0.11	268.52	0.92	0 12:01
13	RH_10	6.35	0.22	263.74	1.84	0.00	0.16	262.54	0.64	0 12:14
14	RH_11	5.60	0.07	262.46	2.13	0.00	0.09	261.02	0.69	0 12:23
15	RH_12	2.10	2.10	269.48	0.48	0.00	1.02	269.10	0.10	0 12:00
16	RH_13	2.20	0.16	264.67	0.67	0.00	1.83	264.16	0.16	0 12:01
17	RH_14	0.61	0.00	263.23	1.53	0.00	0.27	262.22	0.52	0 12:31
18	RH_15	0.76	0.16	260.74	1.36	0.00	0.26	259.88	0.50	0 13:00
19	RH_16	0.48	0.00	257.09	0.73	0.00	0.91	256.76	0.40	0 13:00
20	RH_17	1.42	0.37	257.63	1.21	0.00	0.37	257.05	0.63	0 12:30
21	RH_2	3.24	3.24	272.25	2.11	0.00	0.20	270.75	0.61	0 12:00
22	RH_3	6.73	0.00	269.94	2.87	0.00	0.31	267.91	0.84	0 12:05
23	RH_4	5.35	0.10	268.47	1.84	0.00	0.13	267.17	0.54	0 12:05
24	RH_5	1.52	1.52	271.88	1.53	0.00	0.22	270.74	0.39	0 12:01
25	RH_6	6.56	0.00	268.12	1.62	0.00	0.08	266.98	0.48	0 12:05
26	RH_7	0.00	0.00	272.00	0.00	0.00	1.50	272.00	0.00	0 00:00
27	RH_8	0.32	0.32	269.56	1.81	0.00	0.29	268.13	0.38	0 12:10
28	RH_9	0.26	0.08	265.52	1.52	0.00	0.28	264.38	0.38	0 12:25
29	WestOutfall	0.25	0.25	257.00	0.00	0.00	1.00	257.00	0.00	0 00:00
30	WestWetland	0.19	0.19	258.00	0.00	0.00	1.00	258.00	0.00	0 00:00

Channel Input

SN	Element ID	Length	Inlet Invert Elevation	Inlet Invert Offset	Outlet Invert Elevation	Outlet Invert Offset	Total Drop	Average Slope	Shape	Height	Width	Manni Roughr
		(m)	(m)	(m)	(m)	(m)	(m)	(%)		(m)	(m)	
1	Ex.STM_Overland	400.00	259.00	1.63	253.00	0.00	6.00	1.5000	Rectangular	0.300	20.000	0.0
2	Link-34	270.00	271.40	3.80	269.65	2.58	1.75	0.6500	Rectangular	0.300	20.000	0.0
3	Link-35	50.00	272.15	2.01	269.65	2.58	2.50	5.0000	Rectangular	0.300	20.000	0.0
4	Link-36	222.00	269.65	2.58	268.30	1.67	1.35	0.6100	Rectangular	0.300	20.000	0.0
5	Link-37	18.00	268.30	1.67	267.90	1.40	0.40	2.2200	Rectangular	0.300	20.000	0.0
6	Link-38	227.00	271.80	1.45	267.90	1.40	3.90	1.7200	Rectangular	0.300	20.000	0.0
7	Link-39	415.00	267.90	1.40	263.50	1.60	4.40	1.0600	Rectangular	0.300	20.000	0.0
8	Link-41	180.00	269.55	1.80	265.50	1.50	4.05	2.2500	Rectangular	0.300	20.000	0.0
9	Link-42	155.00	265.50	1.50	263.50	1.60	2.00	1.2900	Rectangular	0.300	20.000	0.0
10	Link-43	140.00	263.50	1.60	262.25	1.92	1.25	0.8900	Rectangular	0.300	20.000	0.0
11	Link-44	470.00	262.25	1.92	258.00	1.90	4.25	0.9000	Rectangular	0.300	20.000	0.0
12	Link-45	195.00	263.20	1.50	260.70	1.32	2.50	1.2800	Rectangular	0.300	20.000	0.0
13	Link-46	280.00	260.70	1.32	258.00	1.90	2.70	0.9600	Rectangular	0.300	20.000	0.0
14	LowerRavine	124.00	253.00	0.00	252.45	0.00	0.55	0.4400	Trapezoidal	4.000	17.000	0.0
15	OutletRavine	45.00	252.45	0.00	252.00	0.00	0.45	1.0000	Trapezoidal	4.000	17.000	0.0
16	RH_C1	215.00	269.00	0.00	264.00	0.00	5.00	2.3300	Trapezoidal	1.500	7.000	0.0
17	RH_C2	60.00	264.00	0.00	263.50	1.50	0.50	0.8300	Trapezoidal	1.500	7.000	0.0
18	UpperRavine	553.00	256.10	0.00	253.00	0.00	3.10	0.5600	Trapezoidal	4.000	17.000	0.0

Channel Results

SN Element ID	Peak Flow	Time of Peak Flow Occurrence	Design Flow Capacity	Peak Flow/ Design Flow Ratio	Peak Flow Velocity	Travel Time	Peak Flow Depth	Peak Flow Depth/ Total Depth Ratio	Totl Surcl
	(cms)	(days hh:mm)	(cms)		(m/sec)	(min)	(m)		
1 Ex.STM_Overland	0.73	0 12:03	10.09	0.07	0.20	33.33	0.18	0.60	
2 Link-34	3.15	0 12:01	6.63	0.47	0.73	6.16	0.23	0.77	
3 Link-35	3.03	0 12:00	18.43	0.16	1.08	0.77	0.18	0.62	
4 Link-36	4.61	0 12:05	6.43	0.72	1.00	3.70	0.23	0.77	
5 Link-37	4.38	0 12:06	12.28	0.36	1.30	0.23	0.19	0.63	
6 Link-38	1.25	0 12:01	10.80	0.12	0.74	5.11	0.14	0.48	
7 Link-39	5.11	0 12:10	8.48	0.60	1.16	5.96	0.22	0.75	
8 Link-41	0.04	0 12:11	12.36	0.00	0.22	13.64	0.01	0.04	
9 Link-42	0.07	0 12:29	9.36	0.01	0.04	64.58	0.13	0.43	
10 Link-43	4.78	0 12:14	7.79	0.61	1.13	2.06	0.21	0.71	
11 Link-44	3.75	0 12:23	7.84	0.48	1.03	7.61	0.18	0.60	
12 Link-45	0.21	0 12:33	9.33	0.02	0.35	9.29	0.04	0.12	
13 Link-46	0.24	0 13:00	8.09	0.03	0.34	13.73	0.03	0.11	
14 LowerRavine	5.64	0 12:34	157.98	0.04	1.42	1.46	0.66	0.17	
15 OutletRavine	5.67	0 12:35	237.22	0.02	1.82	0.41	0.54	0.13	
16 RH_C1	2.05	0 12:00	24.20	0.08	1.68	2.13	0.57	0.38	
17 RH_C2	2.09	0 12:01	14.49	0.14	1.56	0.64	0.58	0.40	
18 UpperRavine	5.83	0 12:24	177.61	0.03	1.49	6.19	0.67	0.17	

Pipe Input

SN	Element	Length	Inlet Invert	Inlet Invert	Outlet Invert	Outlet Invert	Total Drop	Average Slope	Pipe Shape	Pipe Diameter or Height	Pipe Width	Mi Roi
	ID	(m)	Elevation (m)	Offset (m)	Elevation (m)	Offset (m)	(m)	(%)		(m)	(m)	
1	Ex.STM_1	107.00	257.37	0.00	256.94	0.00	0.43	0.4000	CIRCULAR	0.450	0.450	
2	Ex.STM_2	73.00	256.94	0.00	256.64	0.00	0.30	0.4100	CIRCULAR	0.450	0.450	
3	Ex.STM_3	27.00	256.64	0.00	256.48	0.00	0.16	0.5900	CIRCULAR	0.450	0.450	
4	Ex.STM_4	100.00	256.48	0.00	255.88	0.00	0.60	0.6000	CIRCULAR	0.450	0.450	
5	Ex.STM_5	100.00	255.88	0.00	255.48	0.00	0.40	0.4000	CIRCULAR	0.530	0.530	
6	Ex.STM_6	50.00	255.48	0.00	255.23	0.00	0.25	0.5000	CIRCULAR	0.530	0.530	
7	Ex.STM_7	102.00	255.23	0.00	254.82	0.00	0.41	0.4000	CIRCULAR	0.600	0.600	
8	RH_A1	50.00	270.14	0.00	268.50	1.43	1.64	3.2800	CIRCULAR	0.300	0.300	
9	RH_B1	227.00	270.35	0.00	266.50	0.00	3.85	1.7000	CIRCULAR	0.300	0.300	
10	RH_C3	15.00	262.00	0.00	261.70	0.00	0.30	2.0000	CIRCULAR	0.600	0.600	
11	RH_C4	195.00	261.70	0.00	259.38	0.00	2.32	1.1900	CIRCULAR	0.530	0.530	
12	RH_C5	274.00	259.38	0.00	256.36	0.00	3.02	1.1000	CIRCULAR	0.530	0.530	
13	RH_C6	6.00	256.36	0.00	256.24	0.14	0.12	2.0000	CIRCULAR	0.700	0.700	
14	RH_D1	275.00	272.00	0.00	267.75	0.00	4.25	1.5500	CIRCULAR	0.300	0.300	
15	RH_D2	180.00	267.75	0.00	264.00	0.00	3.75	2.0800	CIRCULAR	0.300	0.300	
16	RH_D3	155.00	264.00	0.00	261.90	0.00	2.10	1.3500	CIRCULAR	0.380	0.380	
17	RH_M1	270.00	267.60	0.00	267.07	0.00	0.53	0.2000	CIRCULAR	0.600	0.600	
18	RH_M2	222.00	267.07	0.00	266.63	0.00	0.44	0.2000	CIRCULAR	0.680	0.680	
19	RH_M3	18.00	266.63	0.00	266.50	0.00	0.13	0.7200	CIRCULAR	0.750	0.750	
20	RH_M4	415.00	266.50	0.00	261.90	0.00	4.60	1.1100	CIRCULAR	0.680	0.680	
21	RH_M5	140.00	261.90	0.00	260.33	0.00	1.57	1.1200	CIRCULAR	0.680	0.680	
22	RH_M6	464.00	260.33	0.00	256.42	0.00	3.91	0.8400	CIRCULAR	0.750	0.750	
23	RH_M7	6.00	256.42	0.00	256.37	0.27	0.05	0.8300	CIRCULAR	1.000	1.000	
24	West_Link	33.73	256.00	-1.00	257.00	0.00	-1.00	-2.9600	Dummy	0.000	0.000	
25	WestWetland_Link	37.13	258.00	0.00	258.00	0.00	0.00	0.0000	Dummy	0.000	0.000	
26	Wetland_Link	41.51	252.00	0.00	252.00	0.00	0.00	0.0000	Dummy	0.000	0.000	

50-YEAR STORM

No. of
Barrels

1

Pipe Results

SN Element ID	Peak Flow	Time of Peak Flow Occurrence	Design Flow Capacity	Peak Flow/ Design Flow Ratio	Peak Flow Velocity	Travel Time	Peak Flow Depth	Peak Flow Depth/ Total Depth Ratio	To Sur
	(cms)	(days hh:mm)	(cms)		(m/sec)	(min)	(m)		
1 Ex.STM_1	0.25	0 11:48	0.18	1.37	1.55	1.15	0.45	1.00	
2 Ex.STM_2	0.25	0 11:48	0.18	1.35	1.55	0.78	0.45	1.00	
3 Ex.STM_3	0.25	0 11:48	0.22	1.12	1.55	0.29	0.45	1.00	
4 Ex.STM_4	0.25	0 11:48	0.22	1.12	1.58	1.05	0.44	0.99	
5 Ex.STM_5	0.25	0 12:04	0.27	0.91	1.33	1.25	0.43	0.82	
6 Ex.STM_6	0.25	0 12:05	0.30	0.81	1.40	0.60	0.40	0.76	
7 Ex.STM_7	0.25	0 12:05	0.39	0.63	1.44	1.18	0.35	0.58	
8 RH_A1	0.23	0 11:43	0.18	1.31	3.26	0.26	0.30	1.00	
9 RH_B1	0.14	0 11:43	0.13	1.10	1.95	1.94	0.30	1.00	
10 RH_C3	0.61	0 12:38	0.87	0.71	2.17	0.12	0.60	1.00	
11 RH_C4	0.42	0 11:57	0.41	1.04	2.10	1.55	0.52	1.00	
12 RH_C5	0.48	0 13:00	0.45	1.06	2.22	2.06	0.52	1.00	
13 RH_C6	0.48	0 13:00	1.31	0.37	1.64	0.06	0.60	0.86	
14 RH_D1	0.00	0 00:00	0.12	0.00	0.00		0.15	0.50	
15 RH_D2	0.15	0 11:54	0.14	1.04	2.15	1.40	0.30	1.00	
16 RH_D3	0.19	0 14:05	0.20	0.92	1.70	1.52	0.38	1.00	
17 RH_M1	0.50	0 11:45	0.27	1.85	1.78	2.53	0.60	1.00	
18 RH_M2	0.80	0 11:46	0.37	2.13	2.23	1.66	0.68	1.00	
19 RH_M3	1.05	0 11:59	0.95	1.11	2.37	0.13	0.75	1.00	
20 RH_M4	0.91	0 11:47	0.89	1.03	2.61	2.65	0.68	1.00	
21 RH_M5	1.04	0 11:56	0.89	1.17	2.91	0.80	0.68	1.00	
22 RH_M6	1.10	0 12:22	1.02	1.07	2.49	3.11	0.75	1.00	
23 RH_M7	1.42	0 12:30	2.19	0.65	2.13	0.05	0.79	0.79	
24 West_Link	0.25	0 12:00	0.00	0.03	0.00		0.67	0.17	
25 WestWetland_Link	0.20	0 12:00	0.00	0.03	0.00		0.67	0.17	
26 Wetland_Link	0.37	0 12:06	0.00	0.03	0.00		0.67	0.17	

Project Description

File Name	18010_Pre-Development Rev.0.SPF
Description	I:\ACAD Projects\2018\18010\03-Ref\18010_Pre-Dev. Storm
	I:\ACAD Projects\2018\18010\03-Ref\18010_Pre-Dev. Storm

Project Options

Flow Units	CMS
Elevation Type	Elevation
Hydrology Method	EPA SWMM
EPA SWMM Infiltration Method	SCS Curve Number
Link Routing Method	Hydrodynamic
Enable Overflow Ponding at Nodes	YES
Skip Steady State Analysis Time Periods	NO

Analysis Options

Start Analysis On	00:00:00	0:00:00
End Analysis On	00:00:00	0:00:00
Start Reporting On	00:00:00	0:00:00
Antecedent Dry Days	0	days
Runoff (Dry Weather) Time Step	0 01:00:00	days hh:mm:ss
Runoff (Wet Weather) Time Step	0 00:05:00	days hh:mm:ss
Reporting Time Step	0 00:05:00	days hh:mm:ss
Routing Time Step	30	seconds

Number of Elements

	Qty
Rain Gages	1
Subbasins.....	31
Nodes.....	36
<i>Junctions</i>	30
<i>Outfalls</i>	5
<i>Flow Diversions</i>	0
<i>Inlets</i>	0
<i>Storage Nodes</i>	1
Links.....	44
<i>Channels</i>	18
<i>Pipes</i>	26
<i>Pumps</i>	0
<i>Orifices</i>	0
<i>Weirs</i>	0
<i>Outlets</i>	0
Pollutants	0
Land Uses	0

Subbasin Summary

SN Subbasin ID	Area	Impervious Area	Weighted Curve Number	Average Slope	Equivalent Width	Impervious Area Manning's Roughness	Pervious Area Manning's Roughness	Total Rainfall	Total Infiltration	Total Runoff	Total Runoff Volume	Peak Runoff	Time of Concentration
	(ha)	(%)		(%)	(m)			(mm)	(mm)	(mm)	(ha-mm)	(cms)	(days hh:mm:ss)
1 {Survey Site}.Standard : 10	0.92	2.00	67.00	2.0000	125.00	0.0130	0.2000	100.79	59.3450	40.20	36.90	0.07	0 01:03:06
2 {Survey Site}.Standard : 11	21.38	2.00	67.00	2.0000	360.00	0.0130	0.2000	100.79	56.7590	45.12	964.75	0.45	0 03:41:12
3 {Survey Site}.Standard : 12	0.71	5.00	67.00	2.0000	90.00	0.0130	0.2000	100.79	57.5550	41.98	29.81	0.06	0 01:04:40
4 {Survey Site}.Standard : 13	1.65	45.00	71.05	2.0000	220.00	0.0130	0.2000	100.79	30.5130	69.03	113.76	0.43	0 00:45:09
5 {Survey Site}.Standard : 14	4.32	2.00	67.00	2.0000	350.00	0.0130	0.2000	100.79	59.7070	39.82	172.02	0.25	0 01:26:11
6 {Survey Site}.Standard : 16	6.33	2.00	67.00	2.0000	215.00	0.0130	0.2000	100.79	60.7080	38.82	245.70	0.19	0 02:25:10
7 {Survey Site}.Standard : 17	0.36	5.00	67.00	5.0000	20.00	0.0130	0.2000	100.79	57.7980	41.74	14.86	0.02	0 01:20:02
8 {Survey Site}.Standard : 18	14.15	5.00	48.00	10.0000	300.00	0.0130	0.2000	100.79	75.4930	24.06	340.49	0.40	0 01:56:41
9 {Survey Site}.Standard : 19	0.26	2.00	67.00	2.0000	90.00	0.0130	0.2000	100.79	58.9280	40.65	10.73	0.03	0 00:36:23
10 {Survey Site}.Standard : 2	20.86	45.00	71.05	2.0000	300.00	0.0130	0.2000	100.79	31.6480	67.87	1416.04	3.61	0 02:51:57
11 {Survey Site}.Standard : 20	11.33	2.00	36.00	0.5000	240.00	0.0130	0.2000	100.79	81.6080	14.04	158.99	0.10	0 04:52:04
12 {Survey Site}.Standard : 21	4.24	2.00	67.00	2.0000	155.00	0.0130	0.2000	100.79	60.5960	38.93	164.95	0.14	0 02:18:52
13 {Survey Site}.Standard : 22	23.21	2.00	67.00	2.0000	330.00	0.0130	0.2000	100.79	56.1900	43.45	1008.56	0.44	0 04:04:50
14 {Survey Site}.Standard : 23	2.20	5.00	48.00	10.0000	100.00	0.0130	0.2000	100.79	74.7870	24.77	54.45	0.08	0 01:13:47
15 {Survey Site}.Standard : 24	9.04	2.00	67.00	2.0000	275.00	0.0130	0.2000	100.79	60.8740	38.65	349.44	0.25	0 02:35:08
16 {Survey Site}.Standard : 25	8.64	2.00	67.00	5.0000	390.00	0.0130	0.2000	100.79	59.8180	39.71	343.11	0.45	0 01:33:00
17 {Survey Site}.Standard : 26	1.12	45.00	71.05	2.0000	40.00	0.0130	0.2000	100.79	30.9830	68.58	77.09	0.24	0 01:39:50
18 {Survey Site}.Standard : 27	0.43	45.00	71.05	2.0000	60.00	0.0130	0.2000	100.79	30.5130	69.04	29.48	0.11	0 00:43:47
19 {Survey Site}.Standard : 28	0.12	45.00	71.05	2.0000	40.00	0.0130	0.2000	100.79	30.3560	69.14	8.50	0.04	0 00:26:28
20 {Survey Site}.Standard : 29	7.86	45.00	71.05	2.0000	110.00	0.0130	0.2000	100.79	31.6750	67.84	533.37	1.35	0 02:54:48
21 {Survey Site}.Standard : 3	25.14	45.00	71.05	2.0000	370.00	0.0130	0.2000	100.79	31.6220	67.90	1706.81	4.38	0 02:49:34
22 {Survey Site}.Standard : 30	20.00	30.00	63.70	2.0000	225.00	0.0130	0.2000	100.79	47.0590	52.47	1049.16	2.34	0 03:50:13
23 {Survey Site}.Standard : 31	5.54	5.00	57.00	2.0000	245.00	0.0130	0.2000	100.79	68.2540	31.27	173.37	0.19	0 02:01:41
24 {Survey Site}.Standard : 32	3.34	2.00	67.00	2.0000	95.00	0.0130	0.2000	100.79	60.9860	38.54	128.52	0.09	0 02:41:21
25 {Survey Site}.Standard : 33	7.71	2.00	67.00	2.0000	215.00	0.0130	0.2000	100.79	61.0410	38.50	296.68	0.20	0 02:43:23
26 {Survey Site}.Standard : 4	3.13	2.00	67.00	2.0000	155.00	0.0130	0.2000	100.79	60.2070	39.33	123.13	0.13	0 01:55:49
27 {Survey Site}.Standard : 5	10.46	45.00	71.05	0.5000	235.00	0.0130	0.2000	100.79	31.8310	67.59	706.90	1.69	0 03:19:24
28 {Survey Site}.Standard : 6	11.54	2.00	67.00	2.0000	280.00	0.0130	0.2000	100.79	61.2910	38.24	441.40	0.28	0 02:57:41
29 {Survey Site}.Standard : 7	10.98	5.00	67.00	2.0000	225.00	0.0130	0.2000	100.79	59.6850	39.85	437.35	0.38	0 03:12:56
30 {Survey Site}.Standard : 8	3.30	2.00	67.00	2.0000	125.00	0.0130	0.2000	100.79	60.5410	38.98	128.79	0.11	0 02:16:05

Node Summary

SN	Element ID	Element Type	Invert Elevation	Ground/Rim (Max) Elevation	Initial Water Elevation	Surcharge Elevation	Ponded Area	Peak Inflow	Max HGL Elevation Attained	Max Surcharge Depth Attained	Min Freeboard Attained	Time of Peak Flooding Occurrence	Total Flooded Volume	Total Time Flooded
			(m)	(m)	(m)	(m)	(m²)	(cms)	(m)	(m)	(m)	(days hh:mm)	(ha-mm)	(min)
1	Ex_MHR1	Junction	255.88	262.50	0.00	0.00	0.00	0.25	256.32	0.00	6.18	0 00:00	0.00	0.00
2	Ex_MHR2	Junction	255.48	259.65	0.00	0.00	0.00	0.25	255.90	0.00	3.75	0 00:00	0.00	0.00
3	Ex_MHR25	Junction	256.48	263.35	0.00	0.00	0.00	0.25	257.68	0.00	5.67	0 00:00	0.00	0.00
4	Ex_MHR26	Junction	256.64	262.75	0.00	0.00	0.00	0.25	257.88	0.00	4.87	0 00:00	0.00	0.00
5	Ex_MHR27	Junction	256.94	261.00	0.00	0.00	0.00	0.25	258.31	0.00	2.69	0 00:00	0.00	0.00
6	Ex_MHR28	Junction	257.37	259.30	0.00	0.00	0.00	1.35	259.07	0.00	0.23	0 00:00	0.00	0.00
7	Ex_MHR3	Junction	255.23	259.00	0.00	0.00	0.00	0.25	255.61	0.00	3.39	0 00:00	0.00	0.00
8	NorthWetland	Junction	252.00	258.00	0.00	0.00	0.00	0.47	252.00	0.00	6.00	0 00:00	0.00	0.00
9	Ravine_1	Junction	256.10	260.10	0.00	0.00	0.00	6.93	256.81	0.00	3.29	0 00:00	0.00	0.00
10	Ravine_2	Junction	253.00	257.00	0.00	0.00	0.00	7.73	253.82	0.00	3.18	0 00:00	0.00	0.00
11	Ravine_3	Junction	252.45	256.45	0.00	0.00	0.00	6.85	253.11	0.00	3.34	0 00:00	0.00	0.00
12	RH_1	Junction	267.60	271.70	0.00	0.00	0.00	4.38	271.61	0.00	0.09	0 00:00	0.00	0.00
13	RH_10	Junction	261.90	263.90	0.00	0.00	0.00	7.38	263.77	0.00	0.13	0 00:00	0.00	0.00
14	RH_11	Junction	260.33	262.55	0.00	0.00	0.00	6.59	262.49	0.00	0.06	0 00:00	0.00	0.00
15	RH_12	Junction	269.00	270.50	0.00	0.00	0.00	2.34	269.51	0.00	0.99	0 00:00	0.00	0.00
16	RH_13	Junction	264.00	266.50	0.00	0.00	0.00	2.47	264.71	0.00	1.79	0 00:00	0.00	0.00
17	RH_14	Junction	261.70	263.50	0.00	0.00	0.00	0.73	263.24	0.00	0.26	0 00:00	0.00	0.00
18	RH_15	Junction	259.38	261.00	0.00	0.00	0.00	0.90	260.76	0.00	0.24	0 00:00	0.00	0.00
19	RH_16	Junction	256.36	258.00	0.00	0.00	0.00	0.48	257.09	0.00	0.91	0 00:00	0.00	0.00
20	RH_17	Junction	256.42	258.00	0.00	0.00	0.00	1.51	257.69	0.00	0.31	0 00:00	0.00	0.00
21	RH_2	Junction	270.14	272.45	0.00	0.00	0.00	3.61	272.26	0.00	0.19	0 00:00	0.00	0.00
22	RH_3	Junction	267.07	270.25	0.00	0.00	0.00	7.51	269.98	0.00	0.27	0 00:00	0.00	0.00
23	RH_4	Junction	266.63	268.60	0.00	0.00	0.00	5.88	268.48	0.00	0.12	0 00:00	0.00	0.00
24	RH_5	Junction	270.35	272.10	0.00	0.00	0.00	1.69	271.89	0.00	0.21	0 00:00	0.00	0.00
25	RH_6	Junction	266.50	268.20	0.00	0.00	0.00	7.27	268.14	0.00	0.06	0 00:00	0.00	0.00
26	RH_7	Junction	272.00	273.50	0.00	0.00	0.00	0.00	272.00	0.00	1.50	0 00:00	0.00	0.00
27	RH_8	Junction	267.75	269.85	0.00	0.00	0.00	0.38	269.57	0.00	0.28	0 00:00	0.00	0.00
28	RH_9	Junction	264.00	265.80	0.00	0.00	0.00	0.36	265.52	0.00	0.28	0 00:00	0.00	0.00
29	WestOutfall	Junction	257.00	258.00	0.00	0.00	0.00	0.31	257.00	0.00	1.00	0 00:00	0.00	0.00
30	WestWetland	Junction	258.00	259.00	0.00	0.00	0.00	0.23	258.00	0.00	1.00	0 00:00	0.00	0.00

Link Summary

SN Element ID	Element Type	From (Inlet) Node	To (Outlet) Node	Length	Inlet Invert Elevation	Outlet Invert Elevation	Average Slope	Diameter or Height	Manning's Roughness	Peak Flow	Design Flow Capacity	Peak Flow/ Design Flow Ratio	Peak Flow Velocity
				(m)	(m)	(m)	(%)	(m)		(cms)	(cms)		(m/sec)
1 Ex.STM_1	Pipe	Ex_MHR28	Ex_MHR27	107.00	257.37	256.94	0.4000	0.450	0.0130	0.25	0.18	1.37	1.55
2 Ex.STM_2	Pipe	Ex_MHR27	Ex_MHR26	73.00	256.94	256.64	0.4100	0.450	0.0130	0.25	0.18	1.35	1.55
3 Ex.STM_3	Pipe	Ex_MHR26	Ex_MHR25	27.00	256.64	256.48	0.5900	0.450	0.0130	0.25	0.22	1.12	1.55
4 Ex.STM_4	Pipe	Ex_MHR25	Ex_MHR1	100.00	256.48	255.88	0.6000	0.450	0.0130	0.25	0.22	1.12	1.59
5 Ex.STM_5	Pipe	Ex_MHR1	Ex_MHR2	100.00	255.88	255.48	0.4000	0.525	0.0130	0.25	0.27	0.91	1.33
6 Ex.STM_6	Pipe	Ex_MHR2	Ex_MHR3	50.00	255.48	255.23	0.5000	0.525	0.0130	0.25	0.30	0.81	1.40
7 Ex.STM_7	Pipe	Ex_MHR3	TinerEstatesSTM	102.00	255.23	254.82	0.4000	0.600	0.0130	0.25	0.39	0.63	1.44
8 RH_A1	Pipe	RH_2	RH_3	50.00	270.14	268.50	3.2800	0.300	0.0130	0.23	0.18	1.31	3.26
9 RH_B1	Pipe	RH_5	RH_6	227.00	270.35	266.50	1.7000	0.300	0.0130	0.14	0.13	1.10	1.95
10 RH_C3	Pipe	Ex_SE_Pond	RH_14	15.00	262.00	261.70	2.0000	0.600	0.0130	0.73	0.87	0.84	2.57
11 RH_C4	Pipe	RH_14	RH_15	195.00	261.70	259.38	1.1900	0.525	0.0150	0.42	0.41	1.04	2.09
12 RH_C5	Pipe	RH_15	RH_16	274.00	259.38	256.36	1.1000	0.525	0.0130	0.48	0.45	1.06	2.22
13 RH_C6	Pipe	RH_16	Ravine_1	6.00	256.36	256.24	2.0000	0.700	0.0130	0.48	1.31	0.37	1.64
14 RH_D1	Pipe	RH_7	RH_8	275.00	272.00	267.75	1.5500	0.300	0.0130	0.00	0.12	0.00	0.00
15 RH_D2	Pipe	RH_8	RH_9	180.00	267.75	264.00	2.0800	0.300	0.0130	0.15	0.14	1.04	2.14
16 RH_D3	Pipe	RH_9	RH_10	155.00	264.00	261.90	1.3500	0.375	0.0130	0.19	0.20	0.92	1.71
17 RH_M1	Pipe	RH_1	RH_3	270.00	267.60	267.07	0.2000	0.600	0.0130	0.50	0.27	1.84	1.77
18 RH_M2	Pipe	RH_3	RH_4	222.00	267.07	266.63	0.2000	0.675	0.0130	0.80	0.37	2.13	2.23
19 RH_M3	Pipe	RH_4	RH_6	18.00	266.63	266.50	0.7200	0.750	0.0130	1.05	0.95	1.11	2.37
20 RH_M4	Pipe	RH_6	RH_10	415.00	266.50	261.90	1.1100	0.675	0.0130	0.91	0.89	1.02	2.59
21 RH_M5	Pipe	RH_10	RH_11	140.00	261.90	260.33	1.1200	0.675	0.0130	1.04	0.89	1.16	2.91
22 RH_M6	Pipe	RH_11	RH_17	464.00	260.33	256.42	0.8400	0.750	0.0130	1.10	1.02	1.07	2.48
23 RH_M7	Pipe	RH_17	Ravine_1	6.00	256.42	256.37	0.8300	1.000	0.0130	1.51	2.19	0.69	2.23
24 West_Link	Pipe	WestOutfall	West_Outfall	33.73	256.00	257.00	-2.9600	0.000	0.0130	0.31	0.00	0.04	0.00
25 WestWetland_Link	Pipe	WestWetland	West_Wetland	37.13	258.00	258.00	0.0000	0.000	0.0130	0.23	0.00	0.04	0.00
26 Wetland_Link	Pipe	NorthWetland	North_Wetland	41.51	252.00	252.00	0.0000	0.000	0.0130	0.47	0.00	0.04	0.00
27 Ex.STM_Overland	Channel	Ex_MHR28	Ravine_2	400.00	259.00	253.00	1.5000	0.300	0.0320	0.86	10.09	0.09	0.23
28 Link-34	Channel	RH_1	RH_3	270.00	271.40	269.65	0.6500	0.300	0.0320	3.57	6.63	0.54	0.75
29 Link-35	Channel	RH_2	RH_3	50.00	272.15	269.65	5.0000	0.300	0.0320	3.40	18.43	0.18	1.10
30 Link-36	Channel	RH_3	RH_4	222.00	269.65	268.30	0.6100	0.300	0.0320	5.10	6.43	0.79	1.05

Junction Input

SN	Element ID	Invert Elevation	Ground/Rim (Max) Elevation	Ground/Rim (Max) Offset	Initial Water Elevation	Initial Water Depth	Surcharge Elevation	Surcharge Depth	Ponded Area	Minimum Pipe Cover
		(m)	(m)	(m)	(m)	(m)	(m)	(m)	(m²)	(m)
1	Ex_MHR1	255.88	262.50	6.62	0.00	-255.88	0.00	-262.50	0.00	0.00
2	Ex_MHR2	255.48	259.65	4.17	0.00	-255.48	0.00	-259.65	0.00	0.00
3	Ex_MHR25	256.48	263.35	6.87	0.00	-256.48	0.00	-263.35	0.00	0.00
4	Ex_MHR26	256.64	262.75	6.11	0.00	-256.64	0.00	-262.75	0.00	0.00
5	Ex_MHR27	256.94	261.00	4.06	0.00	-256.94	0.00	-261.00	0.00	0.00
6	Ex_MHR28	257.37	259.30	1.93	0.00	-257.37	0.00	-259.30	0.00	0.00
7	Ex_MHR3	255.23	259.00	3.77	0.00	-255.23	0.00	-259.00	0.00	0.00
8	NorthWetland	252.00	258.00	6.00	0.00	-252.00	0.00	-258.00	0.00	0.00
9	Ravine_1	256.10	260.10	4.00	0.00	-256.10	0.00	-260.10	0.00	0.00
10	Ravine_2	253.00	257.00	4.00	0.00	-253.00	0.00	-257.00	0.00	0.00
11	Ravine_3	252.45	256.45	4.00	0.00	-252.45	0.00	-256.45	0.00	0.00
12	RH_1	267.60	271.70	4.10	0.00	-267.60	0.00	-271.70	0.00	0.00
13	RH_10	261.90	263.90	2.00	0.00	-261.90	0.00	-263.90	0.00	0.00
14	RH_11	260.33	262.55	2.22	0.00	-260.33	0.00	-262.55	0.00	0.00
15	RH_12	269.00	270.50	1.50	0.00	-269.00	0.00	-270.50	0.00	0.00
16	RH_13	264.00	266.50	2.50	0.00	-264.00	0.00	-266.50	0.00	0.00
17	RH_14	261.70	263.50	1.80	0.00	-261.70	0.00	-263.50	0.00	0.00
18	RH_15	259.38	261.00	1.62	0.00	-259.38	0.00	-261.00	0.00	0.00
19	RH_16	256.36	258.00	1.64	0.00	-256.36	0.00	-258.00	0.00	0.00
20	RH_17	256.42	258.00	1.58	0.00	-256.42	0.00	-258.00	0.00	0.00
21	RH_2	270.14	272.45	2.31	0.00	-270.14	0.00	-272.45	0.00	0.00
22	RH_3	267.07	270.25	3.18	0.00	-267.07	0.00	-270.25	0.00	0.00
23	RH_4	266.63	268.60	1.97	0.00	-266.63	0.00	-268.60	0.00	0.00
24	RH_5	270.35	272.10	1.75	0.00	-270.35	0.00	-272.10	0.00	0.00
25	RH_6	266.50	268.20	1.70	0.00	-266.50	0.00	-268.20	0.00	0.00
26	RH_7	272.00	273.50	1.50	0.00	-272.00	0.00	-273.50	0.00	0.00
27	RH_8	267.75	269.85	2.10	0.00	-267.75	0.00	-269.85	0.00	0.00
28	RH_9	264.00	265.80	1.80	0.00	-264.00	0.00	-265.80	0.00	0.00
29	WestOutfall	257.00	258.00	1.00	0.00	-257.00	0.00	-258.00	0.00	0.00
30	WestWetland	258.00	259.00	1.00	0.00	-258.00	0.00	-259.00	0.00	0.00

Junction Results

SN	Element ID	Peak Inflow	Peak Lateral Inflow	Max HGL Elevation Attained	Max HGL Depth Attained	Max Surcharge Depth Attained	Min Freeboard Attained	Average HGL Elevation Attained	Average HGL Depth Attained	Time of Max HGL Occurrence
		(cms)	(cms)	(m)	(m)	(m)	(m)	(m)	(m)	(days hh:mm)
1	Ex_MHR1	0.25	0.00	256.32	0.44	0.00	6.18	256.05	0.17	0 12:03
2	Ex_MHR2	0.25	0.00	255.90	0.42	0.00	3.75	255.64	0.16	0 12:04
3	Ex_MHR25	0.25	0.00	257.68	1.20	0.00	5.67	256.65	0.17	0 11:46
4	Ex_MHR26	0.25	0.00	257.88	1.24	0.00	4.87	256.84	0.20	0 11:46
5	Ex_MHR27	0.25	0.00	258.31	1.37	0.00	2.69	257.17	0.23	0 11:46
6	Ex_MHR28	1.35	1.35	259.07	1.70	0.00	0.23	257.64	0.27	0 12:02
7	Ex_MHR3	0.25	0.00	255.61	0.38	0.00	3.39	255.39	0.16	0 12:05
8	NorthWetland	0.47	0.47	252.00	0.00	0.00	6.00	252.00	0.00	0 00:00
9	Ravine_1	6.93	0.19	256.81	0.71	0.00	3.29	256.32	0.22	0 12:22
10	Ravine_2	7.73	0.84	253.82	0.82	0.00	3.18	253.29	0.29	0 12:32
11	Ravine_3	6.85	0.08	253.11	0.66	0.00	3.34	252.68	0.23	0 12:33
12	RH_1	4.38	4.38	271.61	4.01	0.00	0.09	268.59	0.99	0 12:01
13	RH_10	7.38	0.28	263.77	1.87	0.00	0.13	262.58	0.68	0 12:13
14	RH_11	6.59	0.09	262.49	2.16	0.00	0.06	261.06	0.73	0 12:21
15	RH_12	2.34	2.34	269.51	0.51	0.00	0.99	269.10	0.10	0 12:00
16	RH_13	2.47	0.19	264.71	0.71	0.00	1.79	264.17	0.17	0 12:01
17	RH_14	0.73	0.00	263.24	1.54	0.00	0.26	262.26	0.56	0 12:41
18	RH_15	0.90	0.20	260.76	1.38	0.00	0.24	259.92	0.54	0 12:55
19	RH_16	0.48	0.00	257.09	0.73	0.00	0.91	256.77	0.41	0 12:55
20	RH_17	1.51	0.45	257.69	1.27	0.00	0.31	257.08	0.66	0 12:24
21	RH_2	3.61	3.61	272.26	2.12	0.00	0.19	270.80	0.66	0 12:00
22	RH_3	7.51	0.00	269.98	2.91	0.00	0.27	267.96	0.89	0 12:05
23	RH_4	5.88	0.13	268.48	1.85	0.00	0.12	267.20	0.57	0 12:04
24	RH_5	1.69	1.69	271.89	1.54	0.00	0.21	270.77	0.42	0 12:01
25	RH_6	7.27	0.00	268.14	1.64	0.00	0.06	267.00	0.50	0 12:05
26	RH_7	0.00	0.00	272.00	0.00	0.00	1.50	272.00	0.00	0 00:00
27	RH_8	0.38	0.38	269.57	1.82	0.00	0.28	268.19	0.44	0 12:05
28	RH_9	0.36	0.11	265.52	1.52	0.00	0.28	264.42	0.42	0 12:21
29	WestOutfall	0.31	0.31	257.00	0.00	0.00	1.00	257.00	0.00	0 00:00
30	WestWetland	0.23	0.23	258.00	0.00	0.00	1.00	258.00	0.00	0 00:00

Channel Input

SN Element ID	Length	Inlet Invert Elevation	Inlet Invert Offset	Outlet Invert Elevation	Outlet Invert Offset	Total Drop	Average Slope	Shape	Height	Width	Manni Roughr
	(m)	(m)	(m)	(m)	(m)	(m)	(%)		(m)	(m)	
1 Ex.STM_Overland	400.00	259.00	1.63	253.00	0.00	6.00	1.5000	Rectangular	0.300	20.000	0.0
2 Link-34	270.00	271.40	3.80	269.65	2.58	1.75	0.6500	Rectangular	0.300	20.000	0.0
3 Link-35	50.00	272.15	2.01	269.65	2.58	2.50	5.0000	Rectangular	0.300	20.000	0.0
4 Link-36	222.00	269.65	2.58	268.30	1.67	1.35	0.6100	Rectangular	0.300	20.000	0.0
5 Link-37	18.00	268.30	1.67	267.90	1.40	0.40	2.2200	Rectangular	0.300	20.000	0.0
6 Link-38	227.00	271.80	1.45	267.90	1.40	3.90	1.7200	Rectangular	0.300	20.000	0.0
7 Link-39	415.00	267.90	1.40	263.50	1.60	4.40	1.0600	Rectangular	0.300	20.000	0.0
8 Link-41	180.00	269.55	1.80	265.50	1.50	4.05	2.2500	Rectangular	0.300	20.000	0.0
9 Link-42	155.00	265.50	1.50	263.50	1.60	2.00	1.2900	Rectangular	0.300	20.000	0.0
10 Link-43	140.00	263.50	1.60	262.25	1.92	1.25	0.8900	Rectangular	0.300	20.000	0.0
11 Link-44	470.00	262.25	1.92	258.00	1.90	4.25	0.9000	Rectangular	0.300	20.000	0.0
12 Link-45	195.00	263.20	1.50	260.70	1.32	2.50	1.2800	Rectangular	0.300	20.000	0.0
13 Link-46	280.00	260.70	1.32	258.00	1.90	2.70	0.9600	Rectangular	0.300	20.000	0.0
14 LowerRavine	124.00	253.00	0.00	252.45	0.00	0.55	0.4400	Trapezoidal	4.000	17.000	0.0
15 OutletRavine	45.00	252.45	0.00	252.00	0.00	0.45	1.0000	Trapezoidal	4.000	17.000	0.0
16 RH_C1	215.00	269.00	0.00	264.00	0.00	5.00	2.3300	Trapezoidal	1.500	7.000	0.0
17 RH_C2	60.00	264.00	0.00	263.50	1.50	0.50	0.8300	Trapezoidal	1.500	7.000	0.0
18 UpperRavine	553.00	256.10	0.00	253.00	0.00	3.10	0.5600	Trapezoidal	4.000	17.000	0.0

Channel Results

SN	Element ID	Peak Flow	Time of Peak Flow Occurrence	Design Flow Capacity	Peak Flow/ Design Flow Ratio	Peak Flow Velocity	Travel Time	Peak Flow Depth	Peak Flow Depth/ Total Depth Ratio	Totl Surcl
		(cms)	(days hh:mm)	(cms)		(m/sec)	(min)	(m)		
1	Ex.STM_Overland	0.86	0 12:02	10.09	0.09	0.23	28.99	0.18	0.61	
2	Link-34	3.57	0 12:01	6.63	0.54	0.75	6.00	0.24	0.84	
3	Link-35	3.40	0 12:00	18.43	0.18	1.10	0.76	0.19	0.66	
4	Link-36	5.10	0 12:05	6.43	0.79	1.05	3.52	0.24	0.81	
5	Link-37	4.95	0 12:06	12.28	0.40	1.36	0.22	0.20	0.70	
6	Link-38	1.43	0 12:01	10.80	0.13	0.75	5.04	0.15	0.52	
7	Link-39	6.01	0 12:09	8.48	0.71	1.22	5.67	0.25	0.83	
8	Link-41	0.11	0 12:08	12.36	0.01	0.32	9.38	0.02	0.07	
9	Link-42	0.14	0 12:21	9.36	0.02	0.07	36.90	0.15	0.49	
10	Link-43	5.75	0 12:14	7.79	0.74	1.21	1.93	0.24	0.81	
11	Link-44	4.67	0 12:21	7.84	0.60	1.13	6.93	0.21	0.69	
12	Link-45	0.32	0 12:41	9.33	0.03	0.40	8.13	0.05	0.16	
13	Link-46	0.39	0 12:55	8.09	0.05	0.42	11.11	0.05	0.15	
14	LowerRavine	6.81	0 12:32	157.98	0.04	1.50	1.38	0.74	0.19	
15	OutletRavine	6.85	0 12:33	237.22	0.03	1.92	0.39	0.60	0.15	
16	RH_C1	2.28	0 12:00	24.20	0.09	1.72	2.08	0.60	0.40	
17	RH_C2	2.34	0 12:01	14.49	0.16	1.60	0.63	0.62	0.43	
18	UpperRavine	6.98	0 12:22	177.61	0.04	1.58	5.83	0.75	0.19	

Pipe Input

SN	Element ID	Length	Inlet Invert	Inlet Invert Offset	Outlet Invert	Outlet Invert Offset	Total Drop	Average Slope	Pipe Shape	Pipe Diameter or Height	Pipe Width	Material
		(m)	(m)	(m)	(m)	(m)	(m)	(%)		(m)	(m)	
1	Ex.STM_1	107.00	257.37	0.00	256.94	0.00	0.43	0.4000	CIRCULAR	0.450	0.450	
2	Ex.STM_2	73.00	256.94	0.00	256.64	0.00	0.30	0.4100	CIRCULAR	0.450	0.450	
3	Ex.STM_3	27.00	256.64	0.00	256.48	0.00	0.16	0.5900	CIRCULAR	0.450	0.450	
4	Ex.STM_4	100.00	256.48	0.00	255.88	0.00	0.60	0.6000	CIRCULAR	0.450	0.450	
5	Ex.STM_5	100.00	255.88	0.00	255.48	0.00	0.40	0.4000	CIRCULAR	0.530	0.530	
6	Ex.STM_6	50.00	255.48	0.00	255.23	0.00	0.25	0.5000	CIRCULAR	0.530	0.530	
7	Ex.STM_7	102.00	255.23	0.00	254.82	0.00	0.41	0.4000	CIRCULAR	0.600	0.600	
8	RH_A1	50.00	270.14	0.00	268.50	1.43	1.64	3.2800	CIRCULAR	0.300	0.300	
9	RH_B1	227.00	270.35	0.00	266.50	0.00	3.85	1.7000	CIRCULAR	0.300	0.300	
10	RH_C3	15.00	262.00	0.00	261.70	0.00	0.30	2.0000	CIRCULAR	0.600	0.600	
11	RH_C4	195.00	261.70	0.00	259.38	0.00	2.32	1.1900	CIRCULAR	0.530	0.530	
12	RH_C5	274.00	259.38	0.00	256.36	0.00	3.02	1.1000	CIRCULAR	0.530	0.530	
13	RH_C6	6.00	256.36	0.00	256.24	0.14	0.12	2.0000	CIRCULAR	0.700	0.700	
14	RH_D1	275.00	272.00	0.00	267.75	0.00	4.25	1.5500	CIRCULAR	0.300	0.300	
15	RH_D2	180.00	267.75	0.00	264.00	0.00	3.75	2.0800	CIRCULAR	0.300	0.300	
16	RH_D3	155.00	264.00	0.00	261.90	0.00	2.10	1.3500	CIRCULAR	0.380	0.380	
17	RH_M1	270.00	267.60	0.00	267.07	0.00	0.53	0.2000	CIRCULAR	0.600	0.600	
18	RH_M2	222.00	267.07	0.00	266.63	0.00	0.44	0.2000	CIRCULAR	0.680	0.680	
19	RH_M3	18.00	266.63	0.00	266.50	0.00	0.13	0.7200	CIRCULAR	0.750	0.750	
20	RH_M4	415.00	266.50	0.00	261.90	0.00	4.60	1.1100	CIRCULAR	0.680	0.680	
21	RH_M5	140.00	261.90	0.00	260.33	0.00	1.57	1.1200	CIRCULAR	0.680	0.680	
22	RH_M6	464.00	260.33	0.00	256.42	0.00	3.91	0.8400	CIRCULAR	0.750	0.750	
23	RH_M7	6.00	256.42	0.00	256.37	0.27	0.05	0.8300	CIRCULAR	1.000	1.000	
24	West_Link	33.73	256.00	-1.00	257.00	0.00	-1.00	-2.9600	Dummy	0.000	0.000	
25	WestWetland_Link	37.13	258.00	0.00	258.00	0.00	0.00	0.0000	Dummy	0.000	0.000	
26	Wetland_Link	41.51	252.00	0.00	252.00	0.00	0.00	0.0000	Dummy	0.000	0.000	

100-YEAR STORM

No. of
Barrels

1

Pipe Results

SN Element ID	Peak Flow	Time of Peak Flow Occurrence	Design Flow Capacity	Peak Flow/ Design Flow Ratio	Peak Flow Velocity	Travel Time	Peak Flow Depth	Peak Flow Depth/ Total Depth Ratio	To Sur
	(cms)	(days hh:mm)	(cms)		(m/sec)	(min)	(m)		
1 Ex.STM_1	0.25	0 12:02	0.18	1.37	1.55	1.15	0.45	1.00	
2 Ex.STM_2	0.25	0 12:02	0.18	1.35	1.55	0.78	0.45	1.00	
3 Ex.STM_3	0.25	0 12:02	0.22	1.12	1.55	0.29	0.45	1.00	
4 Ex.STM_4	0.25	0 12:02	0.22	1.12	1.59	1.05	0.44	0.99	
5 Ex.STM_5	0.25	0 12:03	0.27	0.91	1.33	1.25	0.43	0.82	
6 Ex.STM_6	0.25	0 12:04	0.30	0.81	1.40	0.60	0.40	0.77	
7 Ex.STM_7	0.25	0 12:05	0.39	0.63	1.44	1.18	0.35	0.59	
8 RH_A1	0.23	0 11:42	0.18	1.31	3.26	0.26	0.30	1.00	
9 RH_B1	0.14	0 11:41	0.13	1.10	1.95	1.94	0.30	1.00	
10 RH_C3	0.73	0 12:38	0.87	0.84	2.57	0.10	0.60	1.00	
11 RH_C4	0.42	0 11:55	0.41	1.04	2.09	1.56	0.52	1.00	
12 RH_C5	0.48	0 12:55	0.45	1.06	2.22	2.06	0.52	1.00	
13 RH_C6	0.48	0 12:55	1.31	0.37	1.64	0.06	0.63	0.91	
14 RH_D1	0.00	0 00:00	0.12	0.00	0.00		0.15	0.50	
15 RH_D2	0.15	0 11:53	0.14	1.04	2.14	1.40	0.30	1.00	
16 RH_D3	0.19	0 14:31	0.20	0.92	1.71	1.51	0.38	1.00	
17 RH_M1	0.50	0 11:44	0.27	1.84	1.77	2.54	0.60	1.00	
18 RH_M2	0.80	0 11:45	0.37	2.13	2.23	1.66	0.68	1.00	
19 RH_M3	1.05	0 11:58	0.95	1.11	2.37	0.13	0.75	1.00	
20 RH_M4	0.91	0 11:46	0.89	1.02	2.59	2.67	0.68	1.00	
21 RH_M5	1.04	0 11:55	0.89	1.16	2.91	0.80	0.68	1.00	
22 RH_M6	1.10	0 12:21	1.02	1.07	2.48	3.12	0.75	1.00	
23 RH_M7	1.51	0 12:24	2.19	0.69	2.23	0.04	0.81	0.81	
24 West_Link	0.31	0 12:00	0.00	0.04	0.00		0.75	0.19	
25 WestWetland_Link	0.23	0 12:00	0.00	0.04	0.00		0.75	0.19	
26 Wetland_Link	0.47	0 12:06	0.00	0.04	0.00		0.75	0.19	

Project Description

File Name	18010_Pre-Development Rev.0.SPF
Description	I:\ACAD Projects\2018\18010\03-Ref\18010_Pre-Dev. Storm
	I:\ACAD Projects\2018\18010\03-Ref\18010_Pre-Dev. Storm

Project Options

Flow Units	CMS
Elevation Type	Elevation
Hydrology Method	EPA SWMM
EPA SWMM Infiltration Method	SCS Curve Number
Link Routing Method	Hydrodynamic
Enable Overflow Ponding at Nodes	YES
Skip Steady State Analysis Time Periods	NO

Analysis Options

Start Analysis On	00:00:00	0:00:00
End Analysis On	00:00:00	0:00:00
Start Reporting On	00:00:00	0:00:00
Antecedent Dry Days	0	days
Runoff (Dry Weather) Time Step	0 01:00:00	days hh:mm:ss
Runoff (Wet Weather) Time Step	0 00:05:00	days hh:mm:ss
Reporting Time Step	0 00:05:00	days hh:mm:ss
Routing Time Step	30	seconds

Number of Elements

	Qty
Rain Gages	1
Subbasins.....	31
Nodes.....	36
<i>Junctions</i>	30
<i>Outfalls</i>	5
<i>Flow Diversions</i>	0
<i>Inlets</i>	0
<i>Storage Nodes</i>	1
Links.....	44
<i>Channels</i>	18
<i>Pipes</i>	26
<i>Pumps</i>	0
<i>Orifices</i>	0
<i>Weirs</i>	0
<i>Outlets</i>	0
Pollutants	0
Land Uses	0

Subbasin Summary

SN Subbasin ID	Area	Impervious Area	Weighted Curve Number	Average Slope	Equivalent Width	Impervious Area Manning's Roughness	Pervious Area Manning's Roughness	Total Rainfall	Total Infiltration	Total Runoff	Total Runoff Volume	Peak Runoff	Time of Concentration
	(ha)	(%)		(%)	(m)			(mm)	(mm)	(mm)	(ha-mm)	(cms)	(days hh:mm:ss)
1 {Survey Site}.Standard : 10	0.92	2.00	67.00	2.0000	125.00	0.0130	0.2000	113.99	63.1380	49.61	45.54	0.10	0 01:00:04
2 {Survey Site}.Standard : 11	21.38	2.00	67.00	2.0000	360.00	0.0130	0.2000	113.99	60.6140	55.73	1191.54	0.61	0 03:30:35
3 {Survey Site}.Standard : 12	0.71	5.00	67.00	2.0000	90.00	0.0130	0.2000	113.99	61.2320	51.50	36.57	0.08	0 01:01:33
4 {Survey Site}.Standard : 13	1.65	45.00	71.05	2.0000	220.00	0.0130	0.2000	113.99	32.2840	80.47	132.62	0.51	0 00:42:59
5 {Survey Site}.Standard : 14	4.32	2.00	67.00	2.0000	350.00	0.0130	0.2000	113.99	63.5310	49.21	212.57	0.34	0 01:22:02
6 {Survey Site}.Standard : 16	6.33	2.00	67.00	2.0000	215.00	0.0130	0.2000	113.99	64.5690	48.17	304.85	0.27	0 02:18:12
7 {Survey Site}.Standard : 17	0.36	5.00	67.00	5.0000	20.00	0.0130	0.2000	113.99	61.4770	51.25	18.24	0.03	0 01:16:12
8 {Survey Site}.Standard : 18	14.15	5.00	48.00	10.0000	300.00	0.0130	0.2000	113.99	82.1330	30.61	433.25	0.52	0 01:51:04
9 {Survey Site}.Standard : 19	0.26	2.00	67.00	2.0000	90.00	0.0130	0.2000	113.99	62.7170	50.08	13.22	0.05	0 00:34:38
10 {Survey Site}.Standard : 2	20.86	45.00	71.05	2.0000	300.00	0.0130	0.2000	113.99	33.4560	79.29	1654.24	4.23	0 02:43:41
11 {Survey Site}.Standard : 20	11.33	2.00	36.00	0.5000	240.00	0.0130	0.2000	113.99	90.1970	18.85	213.49	0.12	0 04:38:02
12 {Survey Site}.Standard : 21	4.24	2.00	67.00	2.0000	155.00	0.0130	0.2000	113.99	64.4570	48.28	204.57	0.19	0 02:12:11
13 {Survey Site}.Standard : 22	23.21	2.00	67.00	2.0000	330.00	0.0130	0.2000	113.99	60.0040	53.67	1245.88	0.59	0 03:53:04
14 {Survey Site}.Standard : 23	2.20	5.00	48.00	10.0000	100.00	0.0130	0.2000	113.99	81.3380	31.38	68.98	0.11	0 01:10:14
15 {Survey Site}.Standard : 24	9.04	2.00	67.00	2.0000	275.00	0.0130	0.2000	113.99	64.7380	47.99	433.89	0.36	0 02:27:41
16 {Survey Site}.Standard : 25	8.64	2.00	67.00	5.0000	390.00	0.0130	0.2000	113.99	63.6430	49.09	424.18	0.63	0 01:28:31
17 {Survey Site}.Standard : 26	1.12	45.00	71.05	2.0000	40.00	0.0130	0.2000	113.99	32.7660	80.02	89.94	0.28	0 01:35:02
18 {Survey Site}.Standard : 27	0.43	45.00	71.05	2.0000	60.00	0.0130	0.2000	113.99	32.2700	80.48	34.37	0.13	0 00:41:41
19 {Survey Site}.Standard : 28	0.12	45.00	71.05	2.0000	40.00	0.0130	0.2000	113.99	32.1270	80.59	9.91	0.04	0 00:25:11
20 {Survey Site}.Standard : 29	7.86	45.00	71.05	2.0000	110.00	0.0130	0.2000	113.99	33.4820	79.26	623.12	1.58	0 02:46:24
21 {Survey Site}.Standard : 3	25.14	45.00	71.05	2.0000	370.00	0.0130	0.2000	113.99	33.4300	79.31	1993.85	5.13	0 02:41:25
22 {Survey Site}.Standard : 30	20.00	30.00	63.70	2.0000	225.00	0.0130	0.2000	113.99	50.2530	62.50	1249.67	2.73	0 03:39:09
23 {Survey Site}.Standard : 31	5.54	5.00	57.00	2.0000	245.00	0.0130	0.2000	113.99	73.5620	39.19	217.25	0.26	0 01:55:50
24 {Survey Site}.Standard : 32	3.34	2.00	67.00	2.0000	95.00	0.0130	0.2000	113.99	64.8500	47.87	159.65	0.13	0 02:33:36
25 {Survey Site}.Standard : 33	7.71	2.00	67.00	2.0000	215.00	0.0130	0.2000	113.99	64.9060	47.84	368.62	0.29	0 02:35:32
26 {Survey Site}.Standard : 4	3.13	2.00	67.00	2.0000	155.00	0.0130	0.2000	113.99	64.0360	48.69	152.45	0.18	0 01:50:15
27 {Survey Site}.Standard : 5	10.46	45.00	71.05	0.5000	235.00	0.0130	0.2000	113.99	33.5730	79.00	826.22	1.98	0 03:09:49
28 {Survey Site}.Standard : 6	11.54	2.00	67.00	2.0000	280.00	0.0130	0.2000	113.99	65.1590	47.57	549.04	0.38	0 02:49:08
29 {Survey Site}.Standard : 7	10.98	5.00	67.00	2.0000	225.00	0.0130	0.2000	113.99	63.4360	49.29	540.91	0.48	0 03:03:39
30 {Survey Site}.Standard : 8	3.30	2.00	67.00	2.0000	125.00	0.0130	0.2000	113.99	64.4010	48.33	159.69	0.15	0 02:09:33

Node Summary

SN	Element ID	Element Type	Invert Elevation	Ground/Rim (Max) Elevation	Initial Water Elevation	Surcharge Elevation	Ponded Area	Peak Inflow	Max HGL Elevation Attained	Max Surcharge Depth Attained	Min Freeboard Attained	Time of Peak Flooding Occurrence	Total Flooded Volume	Total Time Flooded
			(m)	(m)	(m)	(m)	(m²)	(cms)	(m)	(m)	(m)	(days hh:mm)	(ha-mm)	(min)
1	Ex_MHR1	Junction	255.88	262.50	0.00	0.00	0.00	0.25	256.32	0.00	6.18	0 00:00	0.00	0.00
2	Ex_MHR2	Junction	255.48	259.65	0.00	0.00	0.00	0.25	255.90	0.00	3.75	0 00:00	0.00	0.00
3	Ex_MHR25	Junction	256.48	263.35	0.00	0.00	0.00	0.25	257.54	0.00	5.81	0 00:00	0.00	0.00
4	Ex_MHR26	Junction	256.64	262.75	0.00	0.00	0.00	0.25	257.91	0.00	4.84	0 00:00	0.00	0.00
5	Ex_MHR27	Junction	256.94	261.00	0.00	0.00	0.00	0.25	258.39	0.00	2.61	0 00:00	0.00	0.00
6	Ex_MHR28	Junction	257.37	259.30	0.00	0.00	0.00	1.58	259.08	0.00	0.22	0 00:00	0.00	0.00
7	Ex_MHR3	Junction	255.23	259.00	0.00	0.00	0.00	0.25	255.61	0.00	3.39	0 00:00	0.00	0.00
8	NorthWetland	Junction	252.00	258.00	0.00	0.00	0.00	0.65	252.00	0.00	6.00	0 00:00	0.00	0.00
9	Ravine_1	Junction	256.10	260.10	0.00	0.00	0.00	9.10	256.93	0.00	3.17	0 00:00	0.00	0.00
10	Ravine_2	Junction	253.00	257.00	0.00	0.00	0.00	10.20	253.96	0.00	3.04	0 00:00	0.00	0.00
11	Ravine_3	Junction	252.45	256.45	0.00	0.00	0.00	9.10	253.24	0.00	3.21	0 00:00	0.00	0.00
12	RH_1	Junction	267.60	271.70	0.00	0.00	0.00	5.13	271.63	0.00	0.07	0 00:00	0.00	0.00
13	RH_10	Junction	261.90	263.90	0.00	0.00	0.00	8.79	263.84	0.00	0.06	0 00:00	0.00	0.00
14	RH_11	Junction	260.33	262.55	0.00	0.00	0.00	8.15	262.53	0.00	0.02	0 00:00	0.00	0.00
15	RH_12	Junction	269.00	270.50	0.00	0.00	0.00	2.73	269.55	0.00	0.95	0 00:00	0.00	0.00
16	RH_13	Junction	264.00	266.50	0.00	0.00	0.00	2.92	264.77	0.00	1.73	0 00:00	0.00	0.00
17	RH_14	Junction	261.70	263.50	0.00	0.00	0.00	0.89	263.25	0.00	0.25	0 00:00	0.00	0.00
18	RH_15	Junction	259.38	261.00	0.00	0.00	0.00	1.13	260.77	0.00	0.23	0 00:00	0.00	0.00
19	RH_16	Junction	256.36	258.00	0.00	0.00	0.00	0.48	257.09	0.00	0.91	0 00:00	0.00	0.00
20	RH_17	Junction	256.42	258.00	0.00	0.00	0.00	1.68	257.80	0.00	0.20	0 00:00	0.00	0.00
21	RH_2	Junction	270.14	272.45	0.00	0.00	0.00	4.23	272.27	0.00	0.18	0 00:00	0.00	0.00
22	RH_3	Junction	267.07	270.25	0.00	0.00	0.00	8.84	270.23	0.00	0.02	0 00:00	0.00	0.00
23	RH_4	Junction	266.63	268.60	0.00	0.00	0.00	6.76	268.50	0.00	0.10	0 00:00	0.00	0.00
24	RH_5	Junction	270.35	272.10	0.00	0.00	0.00	1.98	271.90	0.00	0.20	0 00:00	0.00	0.00
25	RH_6	Junction	266.50	268.20	0.00	0.00	0.00	8.29	268.17	0.00	0.03	0 00:00	0.00	0.00
26	RH_7	Junction	272.00	273.50	0.00	0.00	0.00	0.00	272.00	0.00	1.50	0 00:00	0.00	0.00
27	RH_8	Junction	267.75	269.85	0.00	0.00	0.00	0.48	269.58	0.00	0.27	0 00:00	0.00	0.00
28	RH_9	Junction	264.00	265.80	0.00	0.00	0.00	0.52	265.54	0.00	0.26	0 00:00	0.00	0.00
29	WestOutfall	Junction	257.00	258.00	0.00	0.00	0.00	0.43	257.00	0.00	1.00	0 00:00	0.00	0.00
30	WestWetland	Junction	258.00	259.00	0.00	0.00	0.00	0.30	258.00	0.00	1.00	0 00:00	0.00	0.00

Link Summary

SN Element ID	Element Type	From (Inlet) Node	To (Outlet) Node	Length	Inlet Invert Elevation	Outlet Invert Elevation	Average Slope	Diameter or Height	Manning's Roughness	Peak Flow	Design Flow Capacity	Peak Flow/ Design Flow Ratio	Peak Flow Velocity
				(m)	(m)	(m)	(%)	(m)		(cms)	(cms)		(m/sec)
1 Ex.STM_1	Pipe	Ex_MHR28	Ex_MHR27	107.00	257.37	256.94	0.4000	0.450	0.0130	0.25	0.18	1.37	1.55
2 Ex.STM_2	Pipe	Ex_MHR27	Ex_MHR26	73.00	256.94	256.64	0.4100	0.450	0.0130	0.25	0.18	1.35	1.55
3 Ex.STM_3	Pipe	Ex_MHR26	Ex_MHR25	27.00	256.64	256.48	0.5900	0.450	0.0130	0.25	0.22	1.13	1.55
4 Ex.STM_4	Pipe	Ex_MHR25	Ex_MHR1	100.00	256.48	255.88	0.6000	0.450	0.0130	0.25	0.22	1.12	1.59
5 Ex.STM_5	Pipe	Ex_MHR1	Ex_MHR2	100.00	255.88	255.48	0.4000	0.525	0.0130	0.25	0.27	0.91	1.33
6 Ex.STM_6	Pipe	Ex_MHR2	Ex_MHR3	50.00	255.48	255.23	0.5000	0.525	0.0130	0.25	0.30	0.81	1.40
7 Ex.STM_7	Pipe	Ex_MHR3	TinerEstatesSTM	102.00	255.23	254.82	0.4000	0.600	0.0130	0.25	0.39	0.63	1.44
8 RH_A1	Pipe	RH_2	RH_3	50.00	270.14	268.50	3.2800	0.300	0.0130	0.23	0.18	1.31	3.26
9 RH_B1	Pipe	RH_5	RH_6	227.00	270.35	266.50	1.7000	0.300	0.0130	0.14	0.13	1.09	1.95
10 RH_C3	Pipe	Ex_SE_Pond	RH_14	15.00	262.00	261.70	2.0000	0.600	0.0130	0.89	0.87	1.03	3.15
11 RH_C4	Pipe	RH_14	RH_15	195.00	261.70	259.38	1.1900	0.525	0.0150	0.42	0.41	1.03	2.07
12 RH_C5	Pipe	RH_15	RH_16	274.00	259.38	256.36	1.1000	0.525	0.0130	0.48	0.45	1.07	2.22
13 RH_C6	Pipe	RH_16	Ravine_1	6.00	256.36	256.24	2.0000	0.700	0.0130	0.48	1.31	0.37	1.64
14 RH_D1	Pipe	RH_7	RH_8	275.00	272.00	267.75	1.5500	0.300	0.0130	0.00	0.12	0.00	0.00
15 RH_D2	Pipe	RH_8	RH_9	180.00	267.75	264.00	2.0800	0.300	0.0130	0.15	0.14	1.04	2.11
16 RH_D3	Pipe	RH_9	RH_10	155.00	264.00	261.90	1.3500	0.375	0.0130	0.19	0.20	0.93	1.71
17 RH_M1	Pipe	RH_1	RH_3	270.00	267.60	267.07	0.2000	0.600	0.0130	0.49	0.27	1.81	1.74
18 RH_M2	Pipe	RH_3	RH_4	222.00	267.07	266.63	0.2000	0.675	0.0130	0.80	0.37	2.13	2.23
19 RH_M3	Pipe	RH_4	RH_6	18.00	266.63	266.50	0.7200	0.750	0.0130	1.05	0.95	1.11	2.37
20 RH_M4	Pipe	RH_6	RH_10	415.00	266.50	261.90	1.1100	0.675	0.0130	0.90	0.89	1.02	2.57
21 RH_M5	Pipe	RH_10	RH_11	140.00	261.90	260.33	1.1200	0.675	0.0130	1.03	0.89	1.16	2.90
22 RH_M6	Pipe	RH_11	RH_17	464.00	260.33	256.42	0.8400	0.750	0.0130	1.09	1.02	1.06	2.46
23 RH_M7	Pipe	RH_17	Ravine_1	6.00	256.42	256.37	0.8300	1.000	0.0130	1.68	2.19	0.77	2.41
24 West_Link	Pipe	WestOutfall	West_Outfall	33.73	256.00	257.00	-2.9600	0.000	0.0130	0.43	0.00	0.05	0.00
25 WestWetland_Link	Pipe	WestWetland	West_Wetland	37.13	258.00	258.00	0.0000	0.000	0.0130	0.31	0.00	0.05	0.00
26 Wetland_Link	Pipe	NorthWetland	North_Wetland	41.51	252.00	252.00	0.0000	0.000	0.0130	0.65	0.00	0.05	0.00
27 Ex.STM_Overland	Channel	Ex_MHR28	Ravine_2	400.00	259.00	253.00	1.5000	0.300	0.0320	1.08	10.09	0.11	0.29
28 Link-34	Channel	RH_1	RH_3	270.00	271.40	269.65	0.6500	0.300	0.0320	4.29	6.63	0.65	0.81
29 Link-35	Channel	RH_2	RH_3	50.00	272.15	269.65	5.0000	0.300	0.0320	4.02	18.43	0.22	1.10
30 Link-36	Channel	RH_3	RH_4	222.00	269.65	268.30	0.6100	0.300	0.0320	5.89	6.43	0.92	1.16

Junction Input

SN	Element ID	Invert Elevation (m)	Ground/Rim (Max) Elevation (m)	Ground/Rim (Max) Offset (m)	Initial Water Elevation (m)	Initial Water Depth (m)	Surcharge Elevation (m)	Surcharge Depth (m)	Ponded Area (m²)	Minimum Pipe Cover (m)
1	Ex_MHR1	255.88	262.50	6.62	0.00	-255.88	0.00	-262.50	0.00	0.00
2	Ex_MHR2	255.48	259.65	4.17	0.00	-255.48	0.00	-259.65	0.00	0.00
3	Ex_MHR25	256.48	263.35	6.87	0.00	-256.48	0.00	-263.35	0.00	0.00
4	Ex_MHR26	256.64	262.75	6.11	0.00	-256.64	0.00	-262.75	0.00	0.00
5	Ex_MHR27	256.94	261.00	4.06	0.00	-256.94	0.00	-261.00	0.00	0.00
6	Ex_MHR28	257.37	259.30	1.93	0.00	-257.37	0.00	-259.30	0.00	0.00
7	Ex_MHR3	255.23	259.00	3.77	0.00	-255.23	0.00	-259.00	0.00	0.00
8	NorthWetland	252.00	258.00	6.00	0.00	-252.00	0.00	-258.00	0.00	0.00
9	Ravine_1	256.10	260.10	4.00	0.00	-256.10	0.00	-260.10	0.00	0.00
10	Ravine_2	253.00	257.00	4.00	0.00	-253.00	0.00	-257.00	0.00	0.00
11	Ravine_3	252.45	256.45	4.00	0.00	-252.45	0.00	-256.45	0.00	0.00
12	RH_1	267.60	271.70	4.10	0.00	-267.60	0.00	-271.70	0.00	0.00
13	RH_10	261.90	263.90	2.00	0.00	-261.90	0.00	-263.90	0.00	0.00
14	RH_11	260.33	262.55	2.22	0.00	-260.33	0.00	-262.55	0.00	0.00
15	RH_12	269.00	270.50	1.50	0.00	-269.00	0.00	-270.50	0.00	0.00
16	RH_13	264.00	266.50	2.50	0.00	-264.00	0.00	-266.50	0.00	0.00
17	RH_14	261.70	263.50	1.80	0.00	-261.70	0.00	-263.50	0.00	0.00
18	RH_15	259.38	261.00	1.62	0.00	-259.38	0.00	-261.00	0.00	0.00
19	RH_16	256.36	258.00	1.64	0.00	-256.36	0.00	-258.00	0.00	0.00
20	RH_17	256.42	258.00	1.58	0.00	-256.42	0.00	-258.00	0.00	0.00
21	RH_2	270.14	272.45	2.31	0.00	-270.14	0.00	-272.45	0.00	0.00
22	RH_3	267.07	270.25	3.18	0.00	-267.07	0.00	-270.25	0.00	0.00
23	RH_4	266.63	268.60	1.97	0.00	-266.63	0.00	-268.60	0.00	0.00
24	RH_5	270.35	272.10	1.75	0.00	-270.35	0.00	-272.10	0.00	0.00
25	RH_6	266.50	268.20	1.70	0.00	-266.50	0.00	-268.20	0.00	0.00
26	RH_7	272.00	273.50	1.50	0.00	-272.00	0.00	-273.50	0.00	0.00
27	RH_8	267.75	269.85	2.10	0.00	-267.75	0.00	-269.85	0.00	0.00
28	RH_9	264.00	265.80	1.80	0.00	-264.00	0.00	-265.80	0.00	0.00
29	WestOutfall	257.00	258.00	1.00	0.00	-257.00	0.00	-258.00	0.00	0.00
30	WestWetland	258.00	259.00	1.00	0.00	-258.00	0.00	-259.00	0.00	0.00

Junction Results

SN	Element ID	Peak Inflow	Peak Lateral Inflow	Max HGL Elevation Attained	Max HGL Depth Attained	Max Surcharge Depth Attained	Min Freeboard Attained	Average HGL Elevation Attained	Average HGL Depth Attained	Time of Max HGL Occurrence
		(cms)	(cms)	(m)	(m)	(m)	(m)	(m)	(m)	(days hh:mm)
1	Ex_MHR1	0.25	0.00	256.32	0.44	0.00	6.18	256.06	0.18	0 12:03
2	Ex_MHR2	0.25	0.00	255.90	0.42	0.00	3.75	255.65	0.17	0 12:04
3	Ex_MHR25	0.25	0.00	257.54	1.06	0.00	5.81	256.67	0.19	0 11:44
4	Ex_MHR26	0.25	0.00	257.91	1.27	0.00	4.84	256.86	0.22	0 11:44
5	Ex_MHR27	0.25	0.00	258.39	1.45	0.00	2.61	257.20	0.26	0 11:44
6	Ex_MHR28	1.58	1.58	259.08	1.71	0.00	0.22	257.67	0.30	0 12:02
7	Ex_MHR3	0.25	0.00	255.61	0.38	0.00	3.39	255.39	0.16	0 12:05
8	NorthWetland	0.65	0.65	252.00	0.00	0.00	6.00	252.00	0.00	0 00:00
9	Ravine_1	9.10	0.27	256.93	0.83	0.00	3.17	256.35	0.25	0 12:21
10	Ravine_2	10.20	1.11	253.96	0.96	0.00	3.04	253.32	0.32	0 12:30
11	Ravine_3	9.10	0.11	253.24	0.79	0.00	3.21	252.70	0.25	0 12:30
12	RH_1	5.13	5.13	271.63	4.03	0.00	0.07	268.70	1.10	0 12:01
13	RH_10	8.79	0.38	263.84	1.94	0.00	0.06	262.62	0.72	0 12:14
14	RH_11	8.15	0.13	262.53	2.20	0.00	0.02	261.12	0.79	0 12:20
15	RH_12	2.73	2.73	269.55	0.55	0.00	0.95	269.11	0.11	0 12:00
16	RH_13	2.92	0.26	264.77	0.77	0.00	1.73	264.18	0.18	0 12:01
17	RH_14	0.89	0.00	263.25	1.55	0.00	0.25	262.32	0.62	0 12:43
18	RH_15	1.13	0.29	260.77	1.39	0.00	0.23	259.96	0.58	0 12:50
19	RH_16	0.48	0.00	257.09	0.73	0.00	0.91	256.79	0.43	0 12:50
20	RH_17	1.68	0.61	257.80	1.38	0.00	0.20	257.13	0.71	0 12:24
21	RH_2	4.23	4.23	272.27	2.13	0.00	0.18	270.86	0.72	0 12:00
22	RH_3	8.84	0.00	270.23	3.16	0.00	0.02	268.03	0.96	0 12:05
23	RH_4	6.76	0.18	268.50	1.87	0.00	0.10	267.25	0.62	0 12:05
24	RH_5	1.98	1.98	271.90	1.55	0.00	0.20	270.82	0.47	0 12:01
25	RH_6	8.29	0.00	268.17	1.67	0.00	0.03	267.04	0.54	0 12:07
26	RH_7	0.00	0.00	272.00	0.00	0.00	1.50	272.00	0.00	0 00:00
27	RH_8	0.48	0.48	269.58	1.83	0.00	0.27	268.27	0.52	0 12:06
28	RH_9	0.52	0.15	265.54	1.54	0.00	0.26	264.48	0.48	0 12:14
29	WestOutfall	0.43	0.43	257.00	0.00	0.00	1.00	257.00	0.00	0 00:00
30	WestWetland	0.30	0.30	258.00	0.00	0.00	1.00	258.00	0.00	0 00:00

Channel Input

SN	Element ID	Length	Inlet Invert Elevation	Inlet Invert Offset	Outlet Invert Elevation	Outlet Invert Offset	Total Drop	Average Slope	Shape	Height	Width	Manni Roughr
		(m)	(m)	(m)	(m)	(m)	(m)	(%)		(m)	(m)	
1	Ex.STM_Overland	400.00	259.00	1.63	253.00	0.00	6.00	1.5000	Rectangular	0.300	20.000	0.0
2	Link-34	270.00	271.40	3.80	269.65	2.58	1.75	0.6500	Rectangular	0.300	20.000	0.0
3	Link-35	50.00	272.15	2.01	269.65	2.58	2.50	5.0000	Rectangular	0.300	20.000	0.0
4	Link-36	222.00	269.65	2.58	268.30	1.67	1.35	0.6100	Rectangular	0.300	20.000	0.0
5	Link-37	18.00	268.30	1.67	267.90	1.40	0.40	2.2200	Rectangular	0.300	20.000	0.0
6	Link-38	227.00	271.80	1.45	267.90	1.40	3.90	1.7200	Rectangular	0.300	20.000	0.0
7	Link-39	415.00	267.90	1.40	263.50	1.60	4.40	1.0600	Rectangular	0.300	20.000	0.0
8	Link-41	180.00	269.55	1.80	265.50	1.50	4.05	2.2500	Rectangular	0.300	20.000	0.0
9	Link-42	155.00	265.50	1.50	263.50	1.60	2.00	1.2900	Rectangular	0.300	20.000	0.0
10	Link-43	140.00	263.50	1.60	262.25	1.92	1.25	0.8900	Rectangular	0.300	20.000	0.0
11	Link-44	470.00	262.25	1.92	258.00	1.90	4.25	0.9000	Rectangular	0.300	20.000	0.0
12	Link-45	195.00	263.20	1.50	260.70	1.32	2.50	1.2800	Rectangular	0.300	20.000	0.0
13	Link-46	280.00	260.70	1.32	258.00	1.90	2.70	0.9600	Rectangular	0.300	20.000	0.0
14	LowerRavine	124.00	253.00	0.00	252.45	0.00	0.55	0.4400	Trapezoidal	4.000	17.000	0.0
15	OutletRavine	45.00	252.45	0.00	252.00	0.00	0.45	1.0000	Trapezoidal	4.000	17.000	0.0
16	RH_C1	215.00	269.00	0.00	264.00	0.00	5.00	2.3300	Trapezoidal	1.500	7.000	0.0
17	RH_C2	60.00	264.00	0.00	263.50	1.50	0.50	0.8300	Trapezoidal	1.500	7.000	0.0
18	UpperRavine	553.00	256.10	0.00	253.00	0.00	3.10	0.5600	Trapezoidal	4.000	17.000	0.0

Channel Results

SN	Element ID	Peak Flow	Time of Peak Flow Occurrence	Design Flow Capacity	Peak Flow/ Design Flow Ratio	Peak Flow Velocity	Travel Time	Peak Flow Depth	Peak Flow Depth/ Total Depth Ratio	Total Surcl
		(cms)	(days hh:mm)	(cms)		(m/sec)	(min)	(m)		
1	Ex.STM_Overland	1.08	0 12:02	10.09	0.11	0.29	22.99	0.19	0.63	
2	Link-34	4.29	0 12:01	6.63	0.65	0.81	5.56	0.26	0.88	
3	Link-35	4.02	0 12:00	18.43	0.22	1.10	0.76	0.21	0.70	
4	Link-36	5.89	0 12:05	6.43	0.92	1.16	3.19	0.25	0.84	
5	Link-37	5.85	0 12:06	12.28	0.48	1.38	0.22	0.23	0.78	
6	Link-38	1.73	0 12:01	10.80	0.16	0.75	5.04	0.17	0.59	
7	Link-39	7.16	0 12:08	8.48	0.84	1.31	5.28	0.28	0.94	
8	Link-41	0.23	0 12:06	12.36	0.02	0.42	7.14	0.03	0.10	
9	Link-42	0.29	0 12:14	9.36	0.03	0.12	21.53	0.17	0.56	
10	Link-43	7.29	0 12:17	7.79	0.94	1.31	1.78	0.28	0.96	
11	Link-44	6.39	0 12:20	7.84	0.82	1.27	6.17	0.25	0.84	
12	Link-45	0.49	0 12:43	9.33	0.05	0.45	7.22	0.06	0.21	
13	Link-46	0.62	0 12:50	8.09	0.08	0.52	8.97	0.06	0.20	
14	LowerRavine	9.05	0 12:30	157.98	0.06	1.63	1.27	0.88	0.22	
15	OutletRavine	9.10	0 12:30	237.22	0.04	2.08	0.36	0.72	0.18	
16	RH_C1	2.66	0 12:00	24.20	0.11	1.78	2.01	0.65	0.44	
17	RH_C2	2.78	0 12:01	14.49	0.19	1.67	0.60	0.67	0.46	
18	UpperRavine	9.10	0 12:21	177.61	0.05	1.71	5.39	0.88	0.22	

Pipe Input

SN Element ID	Length	Inlet	Inlet	Outlet	Outlet	Total	Average Pipe		Pipe	Pipe	M
		Invert	Invert	Invert	Invert	Drop	Slope	Shape	Diameter or	Width	
		Elevation (m)	Offset (m)	Elevation (m)	Offset (m)	(m)	(%)		Height (m)	(m)	
1 Ex.STM_1	107.00	257.37	0.00	256.94	0.00	0.43	0.4000	CIRCULAR	0.450	0.450	
2 Ex.STM_2	73.00	256.94	0.00	256.64	0.00	0.30	0.4100	CIRCULAR	0.450	0.450	
3 Ex.STM_3	27.00	256.64	0.00	256.48	0.00	0.16	0.5900	CIRCULAR	0.450	0.450	
4 Ex.STM_4	100.00	256.48	0.00	255.88	0.00	0.60	0.6000	CIRCULAR	0.450	0.450	
5 Ex.STM_5	100.00	255.88	0.00	255.48	0.00	0.40	0.4000	CIRCULAR	0.530	0.530	
6 Ex.STM_6	50.00	255.48	0.00	255.23	0.00	0.25	0.5000	CIRCULAR	0.530	0.530	
7 Ex.STM_7	102.00	255.23	0.00	254.82	0.00	0.41	0.4000	CIRCULAR	0.600	0.600	
8 RH_A1	50.00	270.14	0.00	268.50	1.43	1.64	3.2800	CIRCULAR	0.300	0.300	
9 RH_B1	227.00	270.35	0.00	266.50	0.00	3.85	1.7000	CIRCULAR	0.300	0.300	
10 RH_C3	15.00	262.00	0.00	261.70	0.00	0.30	2.0000	CIRCULAR	0.600	0.600	
11 RH_C4	195.00	261.70	0.00	259.38	0.00	2.32	1.1900	CIRCULAR	0.530	0.530	
12 RH_C5	274.00	259.38	0.00	256.36	0.00	3.02	1.1000	CIRCULAR	0.530	0.530	
13 RH_C6	6.00	256.36	0.00	256.24	0.14	0.12	2.0000	CIRCULAR	0.700	0.700	
14 RH_D1	275.00	272.00	0.00	267.75	0.00	4.25	1.5500	CIRCULAR	0.300	0.300	
15 RH_D2	180.00	267.75	0.00	264.00	0.00	3.75	2.0800	CIRCULAR	0.300	0.300	
16 RH_D3	155.00	264.00	0.00	261.90	0.00	2.10	1.3500	CIRCULAR	0.380	0.380	
17 RH_M1	270.00	267.60	0.00	267.07	0.00	0.53	0.2000	CIRCULAR	0.600	0.600	
18 RH_M2	222.00	267.07	0.00	266.63	0.00	0.44	0.2000	CIRCULAR	0.680	0.680	
19 RH_M3	18.00	266.63	0.00	266.50	0.00	0.13	0.7200	CIRCULAR	0.750	0.750	
20 RH_M4	415.00	266.50	0.00	261.90	0.00	4.60	1.1100	CIRCULAR	0.680	0.680	
21 RH_M5	140.00	261.90	0.00	260.33	0.00	1.57	1.1200	CIRCULAR	0.680	0.680	
22 RH_M6	464.00	260.33	0.00	256.42	0.00	3.91	0.8400	CIRCULAR	0.750	0.750	
23 RH_M7	6.00	256.42	0.00	256.37	0.27	0.05	0.8300	CIRCULAR	1.000	1.000	
24 West_Link	33.73	256.00	-1.00	257.00	0.00	-1.00	-2.9600	Dummy	0.000	0.000	
25 WestWetland_Link	37.13	258.00	0.00	258.00	0.00	0.00	0.0000	Dummy	0.000	0.000	
26 Wetland_Link	41.51	252.00	0.00	252.00	0.00	0.00	0.0000	Dummy	0.000	0.000	

250-YEAR STORM

No. of
Barrels

1

Pipe Results

SN Element ID	Peak Flow	Time of Peak Flow Occurrence	Design Flow Capacity	Peak Flow/ Design Flow Ratio	Peak Flow Velocity	Travel Time	Peak Flow Depth	Peak Flow Depth/ Total Depth Ratio	To Sur
	(cms)	(days hh:mm)	(cms)		(m/sec)	(min)	(m)		
1 Ex.STM_1	0.25	0 12:02	0.18	1.37	1.55	1.15	0.45	1.00	
2 Ex.STM_2	0.25	0 12:02	0.18	1.35	1.55	0.78	0.45	1.00	
3 Ex.STM_3	0.25	0 12:02	0.22	1.13	1.55	0.29	0.45	1.00	
4 Ex.STM_4	0.25	0 12:02	0.22	1.12	1.59	1.05	0.45	0.99	
5 Ex.STM_5	0.25	0 12:03	0.27	0.91	1.33	1.25	0.43	0.82	
6 Ex.STM_6	0.25	0 12:04	0.30	0.81	1.40	0.60	0.40	0.77	
7 Ex.STM_7	0.25	0 12:05	0.39	0.63	1.44	1.18	0.35	0.59	
8 RH_A1	0.23	0 11:39	0.18	1.31	3.26	0.26	0.30	1.00	
9 RH_B1	0.14	0 11:39	0.13	1.09	1.95	1.94	0.30	1.00	
10 RH_C3	0.89	0 12:41	0.87	1.03	3.15	0.08	0.60	1.00	
11 RH_C4	0.42	0 11:53	0.41	1.03	2.07	1.57	0.52	1.00	
12 RH_C5	0.48	0 12:50	0.45	1.07	2.22	2.06	0.52	1.00	
13 RH_C6	0.48	0 12:50	1.31	0.37	1.64	0.06	0.69	0.99	
14 RH_D1	0.00	0 00:00	0.12	0.00	0.00		0.15	0.50	
15 RH_D2	0.15	0 11:51	0.14	1.04	2.11	1.42	0.30	1.00	
16 RH_D3	0.19	0 11:59	0.20	0.93	1.71	1.51	0.38	1.00	
17 RH_M1	0.49	0 11:42	0.27	1.81	1.74	2.59	0.60	1.00	
18 RH_M2	0.80	0 11:43	0.37	2.13	2.23	1.66	0.68	1.00	
19 RH_M3	1.05	0 11:57	0.95	1.11	2.37	0.13	0.75	1.00	
20 RH_M4	0.90	0 11:44	0.89	1.02	2.57	2.69	0.68	1.00	
21 RH_M5	1.03	0 11:52	0.89	1.16	2.90	0.80	0.68	1.00	
22 RH_M6	1.09	0 12:20	1.02	1.06	2.46	3.14	0.75	1.00	
23 RH_M7	1.68	0 12:24	2.19	0.77	2.41	0.04	0.83	0.83	
24 West_Link	0.43	0 12:06	0.00	0.05	0.00		0.88	0.22	
25 WestWetland_Link	0.31	0 12:00	0.00	0.05	0.00		0.88	0.22	
26 Wetland_Link	0.65	0 12:06	0.00	0.05	0.00		0.88	0.22	

Project Description

File Name	18010_Post-Development Rev.0.SPF
Description	I:\ACAD Projects\2018\18010\03-Ref\18010_Pre-Dev. Storm
	I:\ACAD Projects\2018\18010\03-Ref\18010_Pre-Dev. Storm
	I:\ACAD Projects\2018\18010\03-Ref\18010_Post-Dev.Storm
	I:\ACAD Projects\2018\18010\03-Ref\18010_Post-Dev.Storm

Project Options

Flow Units	CMS
Elevation Type	Elevation
Hydrology Method	EPA SWMM
EPA SWMM Infiltration Method	SCS Curve Number
Link Routing Method	Hydrodynamic
Enable Overflow Ponding at Nodes	YES
Skip Steady State Analysis Time Periods	YES

Analysis Options

Start Analysis On	00:00:00	0:00:00
End Analysis On	00:00:00	0:00:00
Start Reporting On	00:00:00	0:00:00
Antecedent Dry Days	0	days
Runoff (Dry Weather) Time Step	0 01:00:00	days hh:mm:ss
Runoff (Wet Weather) Time Step	0 00:05:00	days hh:mm:ss
Reporting Time Step	0 00:05:00	days hh:mm:ss
Routing Time Step	30	seconds

Number of Elements

	Qty
Rain Gages	1
Subbasins.....	58
Nodes.....	77
<i>Junctions</i>	69
<i>Outfalls</i>	5
<i>Flow Diversions</i>	0
<i>Inlets</i>	0
<i>Storage Nodes</i>	3
Links.....	109
<i>Channels</i>	43
<i>Pipes</i>	61
<i>Pumps</i>	0
<i>Orifices</i>	1
<i>Weirs</i>	4
<i>Outlets</i>	0
Pollutants	0
Land Uses	0

Subbasin Summary

SN Subbasin ID	Area	Impervious Area	Weighted Curve Number	Average Slope	Equivalent Width	Impervious Area Manning's Roughness	Pervious Area Manning's Roughness	Total Rainfall	Total Infiltration	Total Runoff	Total Runoff Volume	Peak Runoff	Time of Concentration
	(ha)	(%)		(%)	(m)			(mm)	(mm)	(mm)	(ha-mm)	(cms)	(days hh:mm:ss)
1 {Survey Site}.Standard : 10	0.92	2.00	67.00	2.0000	125.00	0.0130	0.2000	25.05	23.3740	0.50	0.46	0.00	0 00:47:56
2 {Survey Site}.Standard : 11	21.38	2.00	67.00	2.0000	360.00	0.0130	0.2000	25.05	21.0520	0.52	11.14	0.09	0 02:48:01
3 {Survey Site}.Standard : 12	0.71	5.00	67.00	2.0000	90.00	0.0130	0.2000	25.05	22.6590	1.26	0.89	0.01	0 00:49:07
4 {Survey Site}.Standard : 13	1.65	45.00	71.05	2.0000	220.00	0.0130	0.2000	25.05	13.0940	11.20	18.46	0.13	0 00:34:18
5 {Survey Site}.Standard : 14	4.32	2.00	67.00	2.0000	350.00	0.0130	0.2000	25.05	23.3740	0.50	2.17	0.02	0 01:05:27
6 {Survey Site}.Standard : 17	0.36	5.00	67.00	5.0000	20.00	0.0130	0.2000	25.05	22.6590	1.26	0.45	0.00	0 01:00:47
7 {Survey Site}.Standard : 18	13.10	5.00	48.00	10.0000	300.00	0.0130	0.2000	25.05	22.6020	1.26	16.49	0.14	0 01:24:35
8 {Survey Site}.Standard : 19	1.32	55.00	75.95	2.0000	90.00	0.0130	0.2000	25.05	10.6120	13.52	17.85	0.08	0 00:45:30
9 {Survey Site}.Standard : 2	20.86	45.00	71.05	2.0000	300.00	0.0130	0.2000	25.05	13.0940	10.72	223.72	0.62	0 02:10:36
10 {Survey Site}.Standard : 23	2.20	5.00	48.00	10.0000	100.00	0.0130	0.2000	25.05	22.6020	1.26	2.76	0.02	0 00:56:02
11 {Survey Site}.Standard : 26	1.12	45.00	71.05	2.0000	40.00	0.0130	0.2000	25.05	13.0940	10.87	12.21	0.05	0 01:15:49
12 {Survey Site}.Standard : 27	0.43	45.00	71.05	2.0000	60.00	0.0130	0.2000	25.05	13.0940	11.21	4.79	0.03	0 00:33:15
13 {Survey Site}.Standard : 28	0.12	45.00	71.05	2.0000	40.00	0.0130	0.2000	25.05	13.0940	11.32	1.39	0.01	0 00:20:06
14 {Survey Site}.Standard : 29	7.86	45.00	71.05	2.0000	110.00	0.0130	0.2000	25.05	13.0940	10.72	84.28	0.23	0 02:12:45
15 {Survey Site}.Standard : 3	25.14	45.00	71.05	2.0000	370.00	0.0130	0.2000	25.05	13.0940	10.73	269.64	0.76	0 02:08:47
16 {Survey Site}.Standard : 30	20.00	30.00	63.70	2.0000	225.00	0.0130	0.2000	25.05	16.6840	7.16	143.18	0.43	0 02:54:51
17 {Survey Site}.Standard : 31	5.54	5.00	57.00	2.0000	245.00	0.0130	0.2000	25.05	22.6000	1.26	6.98	0.06	0 01:32:25
18 {Survey Site}.Standard : 32	3.34	2.00	67.00	2.0000	95.00	0.0130	0.2000	25.05	23.3740	0.50	1.68	0.01	0 02:02:33
19 {Survey Site}.Standard : 33	7.71	2.00	67.00	2.0000	215.00	0.0130	0.2000	25.05	23.3740	0.50	3.88	0.03	0 02:04:05
20 {Survey Site}.Standard : 4	3.13	2.00	67.00	2.0000	155.00	0.0130	0.2000	25.05	23.3740	0.50	1.57	0.01	0 01:27:58
21 {Survey Site}.Standard : 46	5.62	2.00	67.00	2.0000	200.00	0.0130	0.2000	25.05	23.3740	0.50	2.83	0.02	0 01:47:16
22 {Survey Site}.Standard : 5	10.46	45.00	71.05	0.5000	235.00	0.0130	0.2000	25.05	13.0940	10.70	111.89	0.28	0 02:31:27
23 {Survey Site}.Standard : 51	0.39	95.00	95.55	0.5000	20.00	0.0130	0.2000	25.05	0.5920	23.19	8.93	0.02	0 00:24:39
24 {Survey Site}.Standard : 52	10.94	2.00	36.00	0.5000	240.00	0.0130	0.2000	25.05	23.4110	0.51	5.54	0.04	0 03:37:16
25 {Survey Site}.Standard : 53	0.36	75.00	85.75	3.0000	20.00	0.0130	0.2000	25.05	5.0690	19.04	6.93	0.03	0 00:32:14
26 {Survey Site}.Standard : 54	3.94	75.00	85.75	2.0000	150.00	0.0130	0.2000	25.05	5.1450	18.78	73.95	0.25	0 00:45:21
27 {Survey Site}.Standard : 57	0.38	15.00	56.35	2.0000	125.00	0.0130	0.2000	25.05	20.2860	3.77	1.44	0.01	0 00:26:03
28 {Survey Site}.Standard : 6	11.54	2.00	67.00	2.0000	280.00	0.0130	0.2000	25.05	23.3740	0.50	5.81	0.05	0 02:14:57
29 {Survey Site}.Standard : 63	1.63	55.00	75.95	2.0000	90.00	0.0130	0.2000	25.05	10.6120	13.44	21.90	0.09	0 00:51:37
30 {Survey Site}.Standard : 65	1.71	55.00	75.95	2.0000	130.00	0.0130	0.2000	25.05	10.5830	13.56	23.18	0.11	0 00:42:37

Subbasin Summary

SN	Subbasin ID	Area	Impervious Area	Weighted Curve Number	Average Slope	Equivalent Width	Impervious Area Manning's Roughness	Pervious Area Manning's Roughness	Total Rainfall	Total Infiltration	Total Runoff	Total Runoff Volume	Peak Runoff	Time of Concentration
		(ha)	(%)		(%)	(m)			(mm)	(mm)	(mm)	(ha-mm)	(cms)	(days hh:mm:ss)
48	{Survey Site}.Standard : 84	1.00	55.00	75.95	2.0000	50.00	0.0130	0.2000	25.05	10.6120	13.41	13.46	0.06	0 00:54:57
49	{Survey Site}.Standard : 85	1.78	55.00	75.95	2.0000	70.00	0.0130	0.2000	25.05	10.6410	13.33	23.77	0.09	0 01:03:22
50	{Survey Site}.Standard : 86	1.43	55.00	75.95	2.0000	100.00	0.0130	0.2000	25.05	10.6120	13.53	19.28	0.09	0 00:44:43
51	{Survey Site}.Standard : 87	2.66	55.00	75.95	2.0000	100.00	0.0130	0.2000	25.05	10.6410	13.32	35.38	0.14	0 01:05:00
52	{Survey Site}.Standard : 88	1.64	55.00	75.95	2.0000	75.00	0.0130	0.2000	25.05	10.6410	13.38	21.91	0.09	0 00:57:47
53	{Survey Site}.Standard : 89	1.11	55.00	75.95	2.0000	100.00	0.0130	0.2000	25.05	10.5830	13.63	15.17	0.08	0 00:38:33
54	{Survey Site}.Standard : 9	3.53	2.00	67.00	2.0000	100.00	0.0130	0.2000	25.05	23.3740	0.50	1.78	0.01	0 02:03:00
55	{Survey Site}.Standard : 90	1.22	65.00	80.85	2.0000	130.00	0.0130	0.2000	25.05	7.7470	16.53	20.09	0.10	0 00:29:52
56	{Survey Site}.Standard : 91	1.00	65.00	80.85	2.0000	130.00	0.0130	0.2000	25.05	7.7270	16.64	16.59	0.09	0 00:26:31
57	{Survey Site}.Standard : 92	2.19	55.00	75.95	2.0000	75.00	0.0130	0.2000	25.05	10.6410	13.29	29.14	0.11	0 01:08:50
58	{Survey Site}.Standard : 93	2.32	15.00	56.35	5.0000	525.00	0.0130	0.2000	25.05	20.2860	3.77	8.74	0.07	0 00:24:38

Node Summary

SN	Element ID	Element Type	Invert Elevation	Ground/Rim (Max) Elevation	Initial Water Elevation	Surcharge Elevation	Ponded Area	Peak Inflow	Max HGL Elevation Attained	Max Surcharge Depth Attained	Min Freeboard Attained	Time of Peak Flooding Occurrence	Total Flooded Volume	Total Time Flooded
			(m)	(m)	(m)	(m)	(m²)	(cms)	(m)	(m)	(m)	(days hh:mm)	(ha-mm)	(min)
1	Ex_MHR1	Junction	255.88	262.50	0.00	0.00	0.00	0.22	256.28	0.00	6.22	0 00:00	0.00	0.00
2	Ex_MHR2	Junction	255.48	259.65	0.00	0.00	0.00	0.22	255.87	0.00	3.78	0 00:00	0.00	0.00
3	Ex_MHR25	Junction	256.48	263.35	0.00	0.00	0.00	0.22	256.93	0.00	6.42	0 00:00	0.00	0.00
4	Ex_MHR26	Junction	256.64	262.75	0.00	0.00	0.00	0.22	257.19	0.00	5.56	0 00:00	0.00	0.00
5	Ex_MHR27	Junction	256.94	261.00	0.00	0.00	0.00	0.22	257.74	0.00	3.26	0 00:00	0.00	0.00
6	Ex_MHR28	Junction	257.37	259.30	0.00	0.00	0.00	0.23	258.50	0.00	0.80	0 00:00	0.00	0.00
7	Ex_MHR3	Junction	255.23	259.00	0.00	0.00	0.00	0.22	255.58	0.00	3.42	0 00:00	0.00	0.00
8	Jun-34	Junction	254.62	258.25	0.00	0.00	0.00	1.45	255.39	0.00	2.86	0 00:00	0.00	0.00
9	Jun-35	Junction	254.70	257.50	0.00	0.00	0.00	0.13	255.18	0.00	2.32	0 00:00	0.00	0.00
10	Jun-36	Junction	254.72	258.00	0.00	0.00	0.00	1.48	255.58	0.00	2.77	0 00:00	0.00	0.00
11	Jun-37	Junction	255.29	261.30	0.00	0.00	0.00	0.90	255.89	0.00	5.41	0 00:00	0.00	0.00
12	Jun-38	Junction	255.53	261.80	0.00	0.00	0.00	0.29	256.13	0.00	5.67	0 00:00	0.00	0.00
13	Jun-39	Junction	256.93	259.05	0.00	0.00	0.00	0.02	257.04	0.00	2.01	0 00:00	0.00	0.00
14	Jun-40	Junction	256.10	258.55	0.00	0.00	0.00	0.02	256.22	0.00	2.33	0 00:00	0.00	0.00
15	Jun-41	Junction	255.77	259.65	0.00	0.00	0.00	0.05	256.14	0.00	3.51	0 00:00	0.00	0.00
16	Jun-42	Junction	255.23	258.90	0.00	0.00	0.00	0.43	255.67	0.00	3.23	0 00:00	0.00	0.00
17	Jun-43	Junction	256.25	257.25	0.00	0.00	0.00	0.25	256.43	0.00	1.32	0 00:00	0.00	0.00
18	Jun-44	Junction	257.55	258.55	0.00	0.00	0.00	0.23	257.85	0.00	0.75	0 00:00	0.00	0.00
19	Jun-46	Junction	257.70	258.70	0.00	258.70	0.00	0.24	258.00	0.00	0.75	0 00:00	0.00	0.00
20	Jun-47	Junction	258.10	259.10	0.00	0.00	0.00	0.27	258.48	0.00	0.62	0 00:00	0.00	0.00
21	Jun-48	Junction	258.35	259.35	0.00	0.00	0.00	0.01	258.48	0.00	0.92	0 00:00	0.00	0.00
22	Jun-49	Junction	256.90	257.90	0.00	0.00	0.00	0.26	257.21	0.00	0.89	0 00:00	0.00	0.00
23	Jun-50	Junction	256.75	257.75	0.00	0.00	0.00	0.26	257.16	0.00	0.79	0 00:00	0.00	0.00
24	Jun-51	Junction	258.45	260.50	0.00	0.00	0.00	0.22	258.80	0.00	1.70	0 00:00	0.00	0.00
25	Jun-52	Junction	255.69	260.00	0.00	0.00	0.00	0.26	256.10	0.00	3.90	0 00:00	0.00	0.00
26	Jun-53	Junction	255.35	259.60	0.00	0.00	0.00	0.33	255.82	0.00	3.78	0 00:00	0.00	0.00
27	Jun-54	Junction	255.62	259.80	0.00	0.00	0.00	0.10	256.04	0.00	3.76	0 00:00	0.00	0.00
28	Jun-55	Junction	255.60	259.70	0.00	0.00	0.00	0.24	255.99	0.00	3.71	0 00:00	0.00	0.00
29	Jun-56	Junction	255.79	257.80	0.00	0.00	0.00	0.30	256.05	0.00	1.75	0 00:00	0.00	0.00
30	Jun-61	Junction	258.32	262.00	0.00	0.00	0.00	0.26	258.52	0.00	4.28	0 00:00	0.00	0.00

Node Summary

SN	Element ID	Element Type	Invert Elevation	Ground/Rim (Max) Elevation	Initial Water Elevation	Surcharge Elevation	Ponded Area	Peak Inflow	Max HGL Elevation Attained	Max Surcharge Depth Attained	Min Freeboard Attained	Time of Peak Flooding Occurrence	Total Flooded Volume	Total Time Flooded
			(m)	(m)	(m)	(m)	(m²)	(cms)	(m)	(m)	(m)	(days hh:mm)	(ha-mm)	(min)
48	Ravine_1	Junction	256.10	260.10	0.00	0.00	0.00	1.22	256.37	0.00	3.73	0 00:00	0.00	0.00
49	Ravine_2	Junction	253.00	257.00	0.00	0.00	0.00	1.33	253.31	0.00	3.69	0 00:00	0.00	0.00
50	Ravine_3	Junction	252.45	256.45	0.00	0.00	0.00	1.25	252.69	0.00	3.76	0 00:00	0.00	0.00
51	RH_1	Junction	267.60	271.70	0.00	0.00	0.00	0.76	271.43	0.00	0.27	0 00:00	0.00	0.00
52	RH_10	Junction	261.90	263.90	0.00	0.00	0.00	0.99	263.03	0.00	0.87	0 00:00	0.00	0.00
53	RH_11	Junction	260.33	262.55	0.00	0.00	0.00	0.94	260.90	0.00	1.65	0 00:00	0.00	0.00
54	RH_12	Junction	269.00	270.50	0.00	0.00	0.00	0.43	269.21	0.00	1.29	0 00:00	0.00	0.00
55	RH_13	Junction	264.00	266.50	0.00	0.00	0.00	0.45	264.31	0.00	2.19	0 00:00	0.00	0.00
56	RH_14	Junction	261.70	263.50	0.00	0.00	0.00	0.27	262.03	0.00	1.47	0 00:00	0.00	0.00
57	RH_15	Junction	259.38	261.00	0.00	0.00	0.00	0.27	259.67	0.00	1.33	0 00:00	0.00	0.00
58	RH_16	Junction	256.36	258.00	0.00	0.00	0.00	0.27	256.82	0.00	1.18	0 00:00	0.00	0.00
59	RH_17	Junction	256.42	258.00	0.00	0.00	0.00	0.95	257.31	0.00	0.69	0 00:00	0.00	0.00
60	RH_2	Junction	270.14	272.45	0.00	0.00	0.00	0.62	272.18	0.00	0.27	0 00:00	0.00	0.00
61	RH_3	Junction	267.07	270.50	0.00	0.00	0.00	1.17	269.70	0.00	0.80	0 00:00	0.00	0.00
62	RH_4	Junction	266.63	268.60	0.00	0.00	0.00	0.85	268.20	0.00	0.40	0 00:00	0.00	0.00
63	RH_5	Junction	270.35	272.10	0.00	0.00	0.00	0.28	271.82	0.00	0.28	0 00:00	0.00	0.00
64	RH_6	Junction	266.50	268.20	0.00	0.00	0.00	1.05	267.92	0.00	0.28	0 00:00	0.00	0.00
65	RH_7	Junction	272.00	273.50	0.00	0.00	0.00	0.00	272.00	0.00	1.50	0 00:00	0.00	0.00
66	RH_8	Junction	267.75	269.85	0.00	0.00	0.00	0.10	267.93	0.00	1.92	0 00:00	0.00	0.00
67	RH_9	Junction	264.00	265.80	0.00	0.00	0.00	0.10	264.18	0.00	1.62	0 00:00	0.00	0.00
68	WestOutfall	Junction	257.00	258.40	0.00	0.00	0.00	0.01	257.00	0.00	2.45	0 00:00	0.00	0.00
69	WestWetland	Junction	258.00	259.00	0.00	0.00	0.00	0.04	258.00	0.00	1.00	0 00:00	0.00	0.00
70	North_Wetland	Outfall	252.00					0.08	252.00					
71	Outfall	Outfall	252.00					1.25	252.18					
72	TinerEstatesSTM	Outfall	254.82					0.22	255.12					
73	West_Outfall	Outfall	257.00					0.01	257.00					
74	West_Wetland	Outfall	258.00					0.04	258.00					
75	Ex_SE_Pond	Storage Node	262.00	266.00	0.00		0.00	0.44	262.30				0.00	0.00
76	SWM_FB	Storage Node	253.00	256.80	254.50		0.00	1.45	255.18				0.00	0.00
77	SWM_WP	Storage Node	253.00	256.80	254.50		0.00	1.47	255.18				0.00	0.00

Link Summary

SN	Element ID	Element Type	From (Inlet) Node	To (Outlet) Node	Length	Inlet Invert Elevation	Outlet Invert Elevation	Average Slope	Diameter or Height	Manning's Roughness	Peak Flow	Design Flow Capacity	Peak Flow/ Design Flow Ratio	Peak Flow Velocity
					(m)	(m)	(m)	(%)	(m)		(cms)	(cms)		(m/sec)
1	Ex.STM_1	Pipe	Ex_MHR28	Ex_MHR27	107.00	257.37	256.94	0.4000	0.450	0.0130	0.22	0.18	1.24	1.4
2	Ex.STM_2	Pipe	Ex_MHR27	Ex_MHR26	73.00	256.94	256.64	0.4100	0.450	0.0130	0.22	0.18	1.23	1.4
3	Ex.STM_3	Pipe	Ex_MHR26	Ex_MHR25	27.00	256.64	256.48	0.5900	0.450	0.0130	0.22	0.22	1.02	1.4
4	Ex.STM_4	Pipe	Ex_MHR25	Ex_MHR1	100.00	256.48	255.88	0.6000	0.450	0.0130	0.22	0.22	1.01	1.4
5	Ex.STM_5	Pipe	Ex_MHR1	Ex_MHR2	100.00	255.88	255.48	0.4000	0.525	0.0130	0.22	0.27	0.82	1.2
6	Ex.STM_6	Pipe	Ex_MHR2	Ex_MHR3	50.00	255.48	255.23	0.5000	0.525	0.0130	0.22	0.30	0.73	1.3
7	Ex.STM_7	Pipe	Ex_MHR3	TinerEstatesSTM	102.00	255.23	254.82	0.4000	0.600	0.0130	0.22	0.39	0.57	1.4
8	Link-106	Pipe	Jun-66	Ravine_2	24.80	253.16	252.85	1.2500	0.750	0.0130	0.05	0.89	0.05	1.5
9	Link-107	Pipe	OutletStructure	Jun-66	93.20	254.35	253.20	1.2300	0.750	0.0130	0.05	1.24	0.04	1.3
10	Link-108	Pipe	Jun-67	Jun-37	110.30	255.48	255.37	0.1000	1.200	0.0130	0.32	1.23	0.26	0.7
11	Link-109	Pipe	Jun-46	Jun-44	30.00	257.70	257.55	0.5000	1.050	0.0130	0.23	1.93	0.12	1.7
12	Link-110	Pipe	Jun-52	Jun-67	153.00	255.69	255.48	0.1400	0.900	0.0130	0.26	0.67	0.38	0.9
13	Link-111	Pipe	Jun-68	Jun-52	66.80	255.86	255.77	0.1300	0.750	0.0130	0.16	0.41	0.38	0.9
14	Link-112	Pipe	Jun-69	Jun-68	106.60	256.21	255.91	0.2800	0.600	0.0130	0.08	0.33	0.25	0.8
15	Link-113	Pipe	Jun-70	Jun-52	97.50	256.47	255.88	0.6100	0.525	0.0130	0.11	0.33	0.32	1.3
16	Link-114	Pipe	Jun-71	Jun-53	85.10	256.79	255.73	1.2500	0.450	0.0130	0.12	0.32	0.36	1.7
17	Link-115	Pipe	Jun-73	Jun-51	50.00	258.65	258.50	0.3000	0.525	0.0130	0.14	0.24	0.57	1.0
18	Link-116	Pipe	Jun-72	Jun-51	50.00	258.75	258.55	0.4000	0.450	0.0130	0.09	0.18	0.50	1.0
19	Link-117	Pipe	Jun-74	Jun-61	90.00	259.54	258.37	1.3000	0.675	0.0130	0.15	0.96	0.15	1.8
20	Link-118	Pipe	Jun-75	Jun-74	41.60	260.00	259.56	1.0600	0.525	0.0130	0.07	0.44	0.15	1.2
21	Link-119	Pipe	Jun-76	Jun-56	181.70	259.19	256.08	1.7100	0.600	0.0130	0.29	0.80	0.36	2.5
22	Link-120	Pipe	Jun-77	Jun-76	140.50	260.46	259.24	0.8700	0.600	0.0130	0.17	0.57	0.29	1.7
23	Link-121	Pipe	Jun-78	Jun-77	152.20	261.75	260.51	0.8100	0.525	0.0130	0.17	0.39	0.43	1.6
24	Link-49	Pipe	Jun-34	SWM_FB	20.70	254.62	254.60	0.1000	1.800	0.0130	1.45	3.57	0.41	1.6
25	Link-50	Pipe	Jun-35	SWM_WP	75.20	254.70	254.60	0.1300	0.600	0.0130	0.13	0.22	0.58	0.9
26	Link-52	Pipe	Jun-36	Jun-34	35.00	254.72	254.67	0.1400	1.650	0.0130	1.45	3.45	0.42	1.4
27	Link-53	Pipe	Jun-37	Jun-36	336.90	255.29	254.74	0.1600	1.350	0.0130	0.87	2.16	0.40	1.1
28	Link-54	Pipe	Jun-38	Jun-37	110.00	255.53	255.31	0.2000	0.600	0.0130	0.27	0.27	1.00	1.0
29	Link-56	Pipe	Jun-41	Jun-38	110.00	255.77	255.55	0.2000	0.600	0.0130	0.05	0.27	0.20	0.2
30	Link-57	Pipe	Jun-40	Jun-41	95.50	256.10	255.85	0.2600	0.450	0.0130	0.02	0.15	0.15	0.6

Link Summary

SN Element ID	Element Type	From (Inlet) Node	To (Outlet) Node	Length	Inlet Invert Elevation	Outlet Invert Elevation	Average Slope	Diameter or Height	Manning's Roughness	Peak Flow	Design Flow Capacity	Peak Flow/ Design Flow Ratio	Peak Flow Velocity
				(m)	(m)	(m)	(%)	(m)		(cms)	(cms)		(m/sec)
48 RH_C6	Pipe	RH_16	Ravine_1	6.00	256.36	256.24	2.0000	0.700	0.0130	0.28	1.31	0.21	1.5
49 RH_D1	Pipe	RH_7	RH_8	275.00	272.00	267.75	1.5500	0.300	0.0130	0.00	0.12	0.00	0.0
50 RH_D2	Pipe	RH_8	RH_9	180.00	267.75	264.00	2.0800	0.300	0.0130	0.09	0.14	0.64	2.0
51 RH_D3	Pipe	RH_9	RH_10	155.00	264.00	261.90	1.3500	0.375	0.0130	0.10	0.20	0.48	1.6
52 RH_M1	Pipe	RH_1	RH_3	270.00	267.60	267.07	0.2000	0.600	0.0130	0.50	0.27	1.83	1.7
53 RH_M2	Pipe	RH_3	RH_4	222.00	267.07	266.63	0.2000	0.675	0.0130	0.80	0.37	2.13	2.2
54 RH_M3	Pipe	RH_4	RH_6	18.00	266.63	266.50	0.7200	0.750	0.0130	0.85	0.95	0.90	1.9
55 RH_M4	Pipe	RH_6	RH_10	415.00	266.50	261.90	1.1100	0.675	0.0130	0.91	0.89	1.03	2.6
56 RH_M5	Pipe	RH_10	RH_11	140.00	261.90	260.33	1.1200	0.675	0.0130	0.94	0.89	1.05	2.7
57 RH_M6	Pipe	RH_11	RH_17	464.00	260.33	256.42	0.8400	0.750	0.0130	0.94	1.02	0.92	2.2
58 RH_M7	Pipe	RH_17	Ravine_1	6.00	256.42	256.37	0.8300	1.000	0.0130	0.95	2.19	0.43	1.6
59 West_Link	Pipe	WestOutfall	West_Outfall	33.73	256.00	257.00	-2.9600	0.000	0.0130	0.01	0.00	0.01	0.0
60 WestWetland_Link	Pipe	WestWetland	West_Wetland	37.13	258.00	258.00	0.0000	0.000	0.0130	0.04	0.00	0.01	0.0
61 Wetland_Link	Pipe	NorthWetland	North_Wetland	41.51	252.00	252.00	0.0000	0.000	0.0130	0.08	0.00	0.01	0.0
62 Link-103	Channel	Jun-36	SWM_FB	10.00	257.70	257.50	2.0000	0.300	0.0320	0.00	11.65	0.00	0.0
63 Link-104	Channel	Jun-56	SWM_FB	50.00	257.50	256.50	2.0000	0.300	0.0320	0.00	11.65	0.00	0.0
64 Link-122	Channel	Jun-53	Jun-42	70.00	259.30	258.60	1.0000	0.300	0.0320	0.00	8.24	0.00	0.0
65 Link-123	Channel	Jun-55	Jun-53	90.00	259.40	259.30	0.1100	0.300	0.0320	0.00	2.75	0.00	0.0
66 Link-124	Channel	Jun-54	Jun-55	90.00	259.50	259.40	0.1100	0.300	0.0320	0.00	2.75	0.00	0.0
67 Link-125	Channel	Jun-73	Jun-47	50.00	259.65	258.70	1.9000	0.300	0.0320	0.00	11.36	0.00	0.0
68 Link-126	Channel	Jun-72	Jun-47	50.00	259.65	258.70	1.9000	0.300	0.0320	0.00	11.36	0.00	0.0
69 Link-127	Channel	Jun-67	Jun-54	100.00	259.60	259.50	0.1000	0.300	0.0320	0.00	2.61	0.00	0.0
70 Link-128	Channel	Jun-52	Jun-67	150.00	259.70	259.60	0.0700	0.300	0.0320	0.00	2.13	0.00	0.0
71 Link-129	Channel	Jun-68	Jun-52	80.00	259.80	259.70	0.1300	0.300	0.0320	0.00	2.91	0.00	0.0
72 Link-130	Channel	Jun-69	Jun-68	100.00	259.90	259.80	0.1000	0.300	0.0320	0.00	2.61	0.00	0.0
73 Link-131	Channel	Jun-71	Jun-53	70.00	259.40	259.30	0.1400	0.300	0.0320	0.00	3.11	0.00	0.0
74 Link-132	Channel	Jun-78	Jun-77	150.00	265.00	264.50	0.3300	0.300	0.0320	0.00	4.76	0.00	0.0
75 Link-133	Channel	Jun-77	Jun-76	150.00	264.50	261.90	1.7300	0.300	0.0320	0.00	10.85	0.00	0.0
76 Link-134	Channel	Jun-76	Jun-36	250.00	261.90	257.70	1.6800	0.300	0.0320	0.00	10.68	0.00	0.0
77 Link-135	Channel	Jun-61	Jun-37	100.00	262.50	261.00	1.5000	0.300	0.0320	0.00	10.09	0.00	0.0

Link Summary

SN Element ID	Element Type	From (Inlet) Node	To (Outlet) Node	Length	Inlet Invert Elevation	Outlet Invert Elevation	Average Slope	Diameter or Height	Manning's Roughness	Peak Flow	Design Flow Capacity	Peak Flow/ Design Flow Ratio	Peak Flow Velocit
				(m)	(m)	(m)	(%)	(m)		(cms)	(cms)		(m/sec)
95 Link-89	Channel	Jun-42	Jun-36	53.10	258.60	257.70	1.6900	0.300	0.0320	0.00	10.73	0.00	0.0
96 Link-90	Channel	Jun-39	Jun-40	90.00	258.75	257.75	1.1100	0.300	0.0320	0.00	8.69	0.00	0.0
97 Link-92	Channel	Jun-38	Jun-37	110.00	261.50	261.00	0.4500	0.300	0.0320	0.00	5.56	0.00	0.0
98 Link-93	Channel	Jun-37	Jun-36	340.00	261.00	257.70	0.9700	0.300	0.0320	0.00	8.12	0.00	0.0
99 Link-94	Channel	Jun-41	Jun-40	95.00	259.35	257.75	1.6800	0.300	0.0320	0.00	10.69	0.00	0.0
100 LowerRavine	Channel	Ravine_2	Ravine_3	124.00	253.00	252.45	0.4400	4.000	0.0320	1.25	157.98	0.01	0.8
101 OutletRavine	Channel	Ravine_3	Outfall	45.00	252.45	252.00	1.0000	4.000	0.0320	1.25	237.22	0.01	1.1
102 RH_C1	Channel	RH_12	RH_13	215.00	269.00	264.00	2.3300	1.500	0.0320	0.43	24.20	0.02	1.2
103 RH_C2	Channel	RH_13	Ex_SE_Pond	60.00	264.00	263.50	0.8300	1.500	0.0320	0.43	14.49	0.03	1.0
104 UpperRavine	Channel	Ravine_1	Ravine_2	553.00	256.10	253.00	0.5600	4.000	0.0320	1.29	177.61	0.01	0.9
105 Orifice-01	Orifice	SWM_WP	OutletStructure		253.00	254.25		0.170		0.05			
106 Link-91	Weir	Jun-40	WestOutfall		256.10	257.00				0.00			
107 Weir-01	Weir	SWM_FB	SWM_WP		253.00	253.00				1.23			
108 Weir-04	Weir	SWM_WP	OutletStructure		253.00	254.25				0.00			
109 Weir-05	Weir	SWM_WP	Ravine_2		253.00	253.00				0.00			

Junction Input

SN	Element ID	Invert Elevation	Ground/Rim (Max) Elevation	Ground/Rim (Max) Offset	Initial Water Elevation	Initial Water Depth	Surcharge Elevation	Surcharge Depth	Ponded Area	Minimum Pipe Cover
		(m)	(m)	(m)	(m)	(m)	(m)	(m)	(m²)	(m)
1	Ex_MHR1	255.88	262.50	6.62	0.00	-255.88	0.00	-262.50	0.00	0.00
2	Ex_MHR2	255.48	259.65	4.17	0.00	-255.48	0.00	-259.65	0.00	0.00
3	Ex_MHR25	256.48	263.35	6.87	0.00	-256.48	0.00	-263.35	0.00	0.00
4	Ex_MHR26	256.64	262.75	6.11	0.00	-256.64	0.00	-262.75	0.00	0.00
5	Ex_MHR27	256.94	261.00	4.06	0.00	-256.94	0.00	-261.00	0.00	0.00
6	Ex_MHR28	257.37	259.30	1.93	0.00	-257.37	0.00	-259.30	0.00	0.00
7	Ex_MHR3	255.23	259.00	3.77	0.00	-255.23	0.00	-259.00	0.00	0.00
8	Jun-34	254.62	258.25	3.63	0.00	-254.62	0.00	-258.25	0.00	0.00
9	Jun-35	254.70	257.50	2.80	0.00	-254.70	0.00	-257.50	0.00	0.00
10	Jun-36	254.72	258.00	3.28	0.00	-254.72	0.00	-258.00	0.00	0.00
11	Jun-37	255.29	261.30	6.01	0.00	-255.29	0.00	-261.30	0.00	0.00
12	Jun-38	255.53	261.80	6.27	0.00	-255.53	0.00	-261.80	0.00	0.00
13	Jun-39	256.93	259.05	2.12	0.00	-256.93	0.00	-259.05	0.00	0.00
14	Jun-40	256.10	258.55	2.45	0.00	-256.10	0.00	-258.55	0.00	0.00
15	Jun-41	255.77	259.65	3.88	0.00	-255.77	0.00	-259.65	0.00	0.00
16	Jun-42	255.23	258.90	3.67	0.00	-255.23	0.00	-258.90	0.00	0.00
17	Jun-43	256.25	257.25	1.00	0.00	-256.25	0.00	-257.25	0.00	0.00
18	Jun-44	257.55	258.55	1.00	0.00	-257.55	0.00	-258.55	0.00	0.00
19	Jun-46	257.70	258.70	1.00	0.00	-257.70	258.70	0.00	0.00	0.00
20	Jun-47	258.10	259.10	1.00	0.00	-258.10	0.00	-259.10	0.00	0.00
21	Jun-48	258.35	259.35	1.00	0.00	-258.35	0.00	-259.35	0.00	0.00
22	Jun-49	256.90	257.90	1.00	0.00	-256.90	0.00	-257.90	0.00	0.00
23	Jun-50	256.75	257.75	1.00	0.00	-256.75	0.00	-257.75	0.00	0.00
24	Jun-51	258.45	260.50	2.05	0.00	-258.45	0.00	-260.50	0.00	0.00
25	Jun-52	255.69	260.00	4.31	0.00	-255.69	0.00	-260.00	0.00	0.00
26	Jun-53	255.35	259.60	4.25	0.00	-255.35	0.00	-259.60	0.00	0.00
27	Jun-54	255.62	259.80	4.18	0.00	-255.62	0.00	-259.80	0.00	0.00
28	Jun-55	255.60	259.70	4.10	0.00	-255.60	0.00	-259.70	0.00	0.00
29	Jun-56	255.79	257.80	2.01	0.00	-255.79	0.00	-257.80	0.00	0.00
30	Jun-61	258.32	262.00	3.68	0.00	-258.32	0.00	-262.00	0.00	0.00
31	Jun-64	261.13	263.50	2.37	0.00	-261.13	0.00	-263.50	0.00	0.00
32	Jun-65	262.69	264.50	1.81	0.00	-262.69	0.00	-264.50	0.00	0.00
33	Jun-66	253.16	256.00	2.84	0.00	-253.16	0.00	-256.00	0.00	0.00
34	Jun-67	255.48	259.90	4.42	0.00	-255.48	0.00	-259.90	0.00	0.00
35	Jun-68	255.86	260.10	4.24	0.00	-255.86	0.00	-260.10	0.00	0.00
36	Jun-69	256.21	261.20	4.99	0.00	-256.21	0.00	-261.20	0.00	0.00
37	Jun-70	256.47	263.00	6.53	0.00	-256.47	0.00	-263.00	0.00	0.00
38	Jun-71	256.79	260.00	3.21	0.00	-256.79	0.00	-260.00	0.00	0.00
39	Jun-72	258.75	259.95	1.20	0.00	-258.75	0.00	-259.95	0.00	0.00
40	Jun-73	258.65	259.95	1.30	0.00	-258.65	0.00	-259.95	0.00	0.00
41	Jun-74	259.54	264.00	4.46	0.00	-259.54	0.00	-264.00	0.00	0.00
42	Jun-75	260.00	264.50	4.50	0.00	-260.00	0.00	-264.50	0.00	0.00
43	Jun-76	259.19	262.20	3.01	0.00	-259.19	0.00	-262.20	0.00	0.00
44	Jun-77	260.46	264.80	4.34	0.00	-260.46	0.00	-264.80	0.00	0.00
45	Jun-78	261.75	265.30	3.55	0.00	-261.75	0.00	-265.30	0.00	0.00
46	NorthWetland	252.00	258.00	6.00	0.00	-252.00	0.00	-258.00	0.00	0.00
47	OutletStructure	254.25	256.80	2.55	0.00	-254.25	0.00	-256.80	0.00	0.00
48	Ravine_1	256.10	260.10	4.00	0.00	-256.10	0.00	-260.10	0.00	0.00

Junction Results

SN	Element	Peak Inflow	Peak Lateral Inflow	Max HGL Elevation Attained	Max HGL Depth Attained	Max Surcharge Depth Attained	Min Freeboard Attained	Average HGL Elevation Attained	Average HGL Depth Attained	Time Max HC Occurrence
	ID	(cms)	(cms)	(m)	(m)	(m)	(m)	(m)	(m)	(days hh:mm)
1	Ex_MHR1	0.22	0.00	256.28	0.40	0.00	6.22	255.99	0.11	0 00:22
2	Ex_MHR2	0.22	0.00	255.87	0.39	0.00	3.78	255.58	0.10	0 00:22
3	Ex_MHR25	0.22	0.00	256.93	0.45	0.00	6.42	256.58	0.10	0 00:22
4	Ex_MHR26	0.22	0.00	257.19	0.55	0.00	5.56	256.75	0.11	0 00:22
5	Ex_MHR27	0.22	0.00	257.74	0.80	0.00	3.26	257.07	0.13	0 00:22
6	Ex_MHR28	0.23	0.23	258.50	1.13	0.00	0.80	257.50	0.13	0 00:22
7	Ex_MHR3	0.22	0.00	255.58	0.35	0.00	3.42	255.33	0.10	0 00:22
8	Jun-34	1.45	0.00	255.39	0.77	0.00	2.86	255.06	0.44	0 00:22
9	Jun-35	0.13	0.13	255.18	0.48	0.00	2.32	255.01	0.31	0 04:32
10	Jun-36	1.48	0.00	255.58	0.86	0.00	2.77	255.10	0.38	0 00:22
11	Jun-37	0.90	0.09	255.89	0.60	0.00	5.41	255.45	0.16	0 00:11
12	Jun-38	0.29	0.27	256.13	0.60	0.00	5.67	255.66	0.13	0 00:11
13	Jun-39	0.02	0.02	257.04	0.11	0.00	2.01	256.96	0.03	0 00:22
14	Jun-40	0.02	0.00	256.22	0.12	0.00	2.33	256.14	0.04	0 00:22
15	Jun-41	0.05	0.03	256.14	0.37	0.00	3.51	255.83	0.06	0 00:22
16	Jun-42	0.43	0.00	255.67	0.44	0.00	3.23	255.36	0.13	0 00:22
17	Jun-43	0.25	0.00	256.43	0.18	0.00	1.32	256.30	0.05	0 00:22
18	Jun-44	0.23	0.00	257.85	0.30	0.00	0.75	257.63	0.08	0 00:22
19	Jun-46	0.24	0.00	258.00	0.30	0.00	0.75	257.80	0.10	0 00:22
20	Jun-47	0.27	0.05	258.48	0.38	0.00	0.62	258.19	0.09	0 00:11
21	Jun-48	0.01	0.00	258.48	0.13	0.00	0.92	258.40	0.05	0 00:11
22	Jun-49	0.26	0.07	257.21	0.31	0.00	0.89	257.01	0.11	0 00:22
23	Jun-50	0.26	0.00	257.16	0.41	0.00	0.79	256.87	0.12	0 00:22
24	Jun-51	0.22	0.00	258.80	0.35	0.00	1.70	258.52	0.07	0 00:11
25	Jun-52	0.26	0.00	256.10	0.41	0.00	3.90	255.78	0.09	0 00:11
26	Jun-53	0.33	0.00	255.82	0.47	0.00	3.78	255.46	0.11	0 00:11
27	Jun-54	0.10	0.10	256.04	0.42	0.00	3.76	255.84	0.22	0 00:11
28	Jun-55	0.24	0.15	255.99	0.39	0.00	3.71	255.68	0.08	0 00:11
29	Jun-56	0.30	0.01	256.05	0.26	0.00	1.75	255.85	0.06	0 00:11
30	Jun-61	0.26	0.00	258.52	0.20	0.00	4.28	258.36	0.04	0 00:11
31	Jun-64	0.11	0.00	261.28	0.15	0.00	2.22	261.16	0.03	0 00:11
32	Jun-65	0.11	0.11	262.86	0.17	0.00	1.64	262.72	0.03	0 00:11
33	Jun-66	0.05	0.00	253.31	0.15	0.00	2.69	253.28	0.12	0 00:58
34	Jun-67	0.35	0.09	255.96	0.48	0.00	3.94	255.60	0.12	0 00:11
35	Jun-68	0.16	0.09	256.21	0.35	0.00	3.89	255.94	0.08	0 00:11
36	Jun-69	0.08	0.08	256.41	0.20	0.00	4.79	256.25	0.04	0 00:11
37	Jun-70	0.11	0.11	256.68	0.21	0.00	6.32	256.52	0.05	0 00:11
38	Jun-71	0.12	0.12	256.99	0.20	0.00	3.01	256.84	0.05	0 00:11
39	Jun-72	0.09	0.09	259.00	0.25	0.00	0.95	258.80	0.05	0 00:11
40	Jun-73	0.14	0.14	258.97	0.32	0.00	0.98	258.72	0.07	0 00:11
41	Jun-74	0.15	0.08	259.73	0.19	0.00	4.27	259.58	0.04	0 00:11
42	Jun-75	0.07	0.07	260.15	0.15	0.00	4.35	260.03	0.03	0 00:11
43	Jun-76	0.29	0.13	259.45	0.26	0.00	2.75	259.25	0.06	0 00:11
44	Jun-77	0.17	0.00	260.69	0.23	0.00	4.11	260.51	0.05	0 00:11
45	Jun-78	0.17	0.17	262.00	0.25	0.00	3.30	261.80	0.05	0 00:11
46	NorthWetland	0.08	0.08	252.00	0.00	0.00	6.00	252.00	0.00	0 00:00
47	OutletStructure	0.05	0.00	254.45	0.20	0.00	3.60	254.44	0.19	0 04:32

Channel Input

SN	Element ID	Length	Inlet Invert Elevation	Inlet Invert Offset	Outlet Invert Elevation	Outlet Invert Offset	Total Drop	Average Slope	Shape	Height	Width	Manning's Roughness
		(m)	(m)	(m)	(m)	(m)	(m)	(%)		(m)	(m)	
1	Link-103	10.00	257.70	2.98	257.50	4.50	0.20	2.0000	Rectangular	0.300	20.000	0.0320
2	Link-104	50.00	257.50	1.71	256.50	3.50	1.00	2.0000	Rectangular	0.300	20.000	0.0320
3	Link-122	70.00	259.30	3.95	258.60	3.37	0.70	1.0000	Rectangular	0.300	20.000	0.0320
4	Link-123	90.00	259.40	3.80	259.30	3.95	0.10	0.1100	Rectangular	0.300	20.000	0.0320
5	Link-124	90.00	259.50	3.88	259.40	3.80	0.10	0.1100	Rectangular	0.300	20.000	0.0320
6	Link-125	50.00	259.65	1.00	258.70	0.60	0.95	1.9000	Rectangular	0.300	20.000	0.0320
7	Link-126	50.00	259.65	0.90	258.70	0.60	0.95	1.9000	Rectangular	0.300	20.000	0.0320
8	Link-127	100.00	259.60	4.12	259.50	3.88	0.10	0.1000	Rectangular	0.300	20.000	0.0320
9	Link-128	150.00	259.70	4.01	259.60	4.12	0.10	0.0700	Rectangular	0.300	20.000	0.0320
10	Link-129	80.00	259.80	3.94	259.70	4.01	0.10	0.1300	Rectangular	0.300	20.000	0.0320
11	Link-130	100.00	259.90	3.69	259.80	3.94	0.10	0.1000	Rectangular	0.300	20.000	0.0320
12	Link-131	70.00	259.40	2.61	259.30	3.95	0.10	0.1400	Rectangular	0.300	20.000	0.0320
13	Link-132	150.00	265.00	3.25	264.50	4.04	0.50	0.3300	Rectangular	0.300	20.000	0.0320
14	Link-133	150.00	264.50	4.04	261.90	2.71	2.60	1.7300	Rectangular	0.300	20.000	0.0320
15	Link-134	250.00	261.90	2.71	257.70	2.98	4.20	1.6800	Rectangular	0.300	20.000	0.0320
16	Link-135	100.00	262.50	4.18	261.00	5.71	1.50	1.5000	Rectangular	0.300	20.000	0.0320
17	Link-34	270.00	271.40	3.80	269.65	2.58	1.75	0.6500	Rectangular	0.300	20.000	0.0320
18	Link-35	50.00	272.15	2.01	269.65	2.58	2.50	5.0000	Rectangular	0.300	20.000	0.0320
19	Link-36	222.00	269.65	2.58	268.30	1.67	1.35	0.6100	Rectangular	0.300	20.000	0.0320
20	Link-37	18.00	268.30	1.67	267.90	1.40	0.40	2.2200	Rectangular	0.300	20.000	0.0320
21	Link-38	227.00	271.80	1.45	267.90	1.40	3.90	1.7200	Rectangular	0.300	20.000	0.0320
22	Link-39	415.00	267.90	1.40	263.50	1.60	4.40	1.0600	Rectangular	0.300	20.000	0.0320
23	Link-41	180.00	269.55	1.80	265.50	1.50	4.05	2.2500	Rectangular	0.300	20.000	0.0320
24	Link-42	155.00	265.50	1.50	263.50	1.60	2.00	1.2900	Rectangular	0.300	20.000	0.0320
25	Link-43	140.00	263.50	1.60	262.25	1.92	1.25	0.8900	Rectangular	0.300	20.000	0.0320
26	Link-44	470.00	262.25	1.92	258.00	1.90	4.25	0.9000	Rectangular	0.300	20.000	0.0320
27	Link-45	195.00	263.20	1.50	260.70	1.32	2.50	1.2800	Rectangular	0.300	20.000	0.0320
28	Link-46	280.00	260.70	1.32	258.00	1.90	2.70	0.9600	Rectangular	0.300	20.000	0.0320
29	Link-51	65.00	259.00	1.63	258.05	3.33	0.95	1.4600	Rectangular	0.300	10.000	0.0320
30	Link-61	125.00	256.75	0.00	256.25	0.00	0.50	0.4000	User-Defined	1.000	9.000	0.0320
31	Link-63	162.50	257.55	0.00	256.90	0.00	0.65	0.4000	User-Defined	1.000	9.000	0.0320
32	Link-66	133.00	258.10	0.00	257.70	0.00	0.40	0.3000	User-Defined	1.000	9.000	0.0320
33	Link-67	75.00	258.40	0.05	258.10	0.00	0.30	0.4000	User-Defined	1.000	9.000	0.0320
34	Link-89	53.10	258.60	3.37	257.70	2.98	0.90	1.6900	Rectangular	0.300	20.000	0.0320
35	Link-90	90.00	258.75	1.82	257.75	1.65	1.00	1.1100	Rectangular	0.300	20.000	0.0320
36	Link-92	110.00	261.50	5.97	261.00	5.71	0.50	0.4500	Rectangular	0.300	20.000	0.0320
37	Link-93	340.00	261.00	5.71	257.70	2.98	3.30	0.9700	Rectangular	0.300	20.000	0.0320
38	Link-94	95.00	259.35	3.58	257.75	1.65	1.60	1.6800	Rectangular	0.300	20.000	0.0320
39	LowerRavine	124.00	253.00	0.00	252.45	0.00	0.55	0.4400	Trapezoidal	4.000	17.000	0.0320
40	OutletRavine	45.00	252.45	0.00	252.00	0.00	0.45	1.0000	Trapezoidal	4.000	17.000	0.0320
41	RH_C1	215.00	269.00	0.00	264.00	0.00	5.00	2.3300	Trapezoidal	1.500	7.000	0.0320
42	RH_C2	60.00	264.00	0.00	263.50	1.50	0.50	0.8300	Trapezoidal	1.500	7.000	0.0320
43	UpperRavine	553.00	256.10	0.00	253.00	0.00	3.10	0.5600	Trapezoidal	4.000	17.000	0.0320

Channel Results

SN	Element ID	Peak Flow	Time of Peak Flow Occurrence	Design Flow Capacity	Peak Flow/ Design Flow Ratio	Peak Flow Velocity	Travel Time	Peak Flow Depth	Peak Flow Depth/ Total Depth Ratio	Total Tin Surcharge
		(cms)	(days hh:mm)	(cms)		(m/sec)	(min)	(m)		(mi)
1	Link-103	0.00	0 00:00	11.65	0.00	0.00		0.00	0.00	0.00
2	Link-104	0.00	0 00:00	11.65	0.00	0.00		0.00	0.00	0.00
3	Link-122	0.00	0 00:00	8.24	0.00	0.00		0.00	0.00	0.00
4	Link-123	0.00	0 00:00	2.75	0.00	0.00		0.00	0.00	0.00
5	Link-124	0.00	0 00:00	2.75	0.00	0.00		0.00	0.00	0.00
6	Link-125	0.00	0 00:00	11.36	0.00	0.00		0.00	0.00	0.00
7	Link-126	0.00	0 00:00	11.36	0.00	0.00		0.00	0.00	0.00
8	Link-127	0.00	0 00:00	2.61	0.00	0.00		0.00	0.00	0.00
9	Link-128	0.00	0 00:00	2.13	0.00	0.00		0.00	0.00	0.00
10	Link-129	0.00	0 00:00	2.91	0.00	0.00		0.00	0.00	0.00
11	Link-130	0.00	0 00:00	2.61	0.00	0.00		0.00	0.00	0.00
12	Link-131	0.00	0 00:00	3.11	0.00	0.00		0.00	0.00	0.00
13	Link-132	0.00	0 00:00	4.76	0.00	0.00		0.00	0.00	0.00
14	Link-133	0.00	0 00:00	10.85	0.00	0.00		0.00	0.00	0.00
15	Link-134	0.00	0 00:00	10.68	0.00	0.00		0.00	0.00	0.00
16	Link-135	0.00	0 00:00	10.09	0.00	0.00		0.00	0.00	0.00
17	Link-34	0.18	0 00:27	6.63	0.03	0.26	17.31	0.04	0.12	0.00
18	Link-35	0.42	0 00:19	18.43	0.02	0.68	1.23	0.03	0.12	0.00
19	Link-36	0.20	0 00:39	6.43	0.03	0.27	13.70	0.04	0.12	0.00
20	Link-37	0.00	0 00:00	12.28	0.00	0.00		0.01	0.03	0.00
21	Link-38	0.09	0 00:32	10.80	0.01	0.28	13.51	0.02	0.05	0.00
22	Link-39	0.04	0 00:53	8.48	0.00	0.17	40.69	0.01	0.04	0.00
23	Link-41	0.00	0 00:00	12.36	0.00	0.00		0.00	0.00	0.00
24	Link-42	0.00	0 00:00	9.36	0.00	0.00		0.00	0.00	0.00
25	Link-43	0.00	0 00:00	7.79	0.00	0.00		0.00	0.00	0.00
26	Link-44	0.00	0 00:00	7.84	0.00	0.00		0.00	0.00	0.00
27	Link-45	0.00	0 00:00	9.33	0.00	0.00		0.00	0.00	0.00
28	Link-46	0.00	0 00:00	8.09	0.00	0.00		0.00	0.00	0.00
29	Link-51	0.00	0 00:00	4.89	0.00	0.00		0.00	0.00	0.00
30	Link-61	0.25	0 00:29	4.86	0.05	0.57	3.65	0.30	0.30	0.00
31	Link-63	0.22	0 00:25	4.86	0.05	0.49	5.53	0.30	0.30	0.00
32	Link-66	0.24	0 00:20	4.22	0.06	0.48	4.62	0.33	0.34	0.00
33	Link-67	0.01	0 00:14	4.86	0.00	0.06	20.83	0.22	0.23	0.00
34	Link-89	0.00	0 00:00	10.73	0.00	0.00		0.00	0.00	0.00
35	Link-90	0.00	0 00:00	8.69	0.00	0.00		0.00	0.00	0.00
36	Link-92	0.00	0 00:00	5.56	0.00	0.00		0.00	0.00	0.00
37	Link-93	0.00	0 00:00	8.12	0.00	0.00		0.00	0.00	0.00
38	Link-94	0.00	0 00:00	10.69	0.00	0.00		0.00	0.00	0.00
39	LowerRavine	1.25	0 00:50	157.98	0.01	0.84	2.46	0.27	0.07	0.00
40	OutletRavine	1.25	0 00:51	237.22	0.01	1.12	0.67	0.21	0.05	0.00
41	RH_C1	0.43	0 00:17	24.20	0.02	1.23	2.91	0.26	0.18	0.00
42	RH_C2	0.43	0 00:20	14.49	0.03	1.04	0.96	0.27	0.18	0.00
43	UpperRavine	1.29	0 00:34	177.61	0.01	0.90	10.24	0.28	0.07	0.00

Pipe Input

SN	Element ID	Length	Inlet Invert Elevation	Inlet Invert Offset	Outlet Invert Elevation	Outlet Invert Offset	Total Drop	Average Slope	Pipe Shape	Pipe Diameter or Height	Pipe Width	Mt
		(m)	(m)	(m)	(m)	(m)	(m)	(%)		(m)	(m)	Roi
1	Ex.STM_1	107.00	257.37	0.00	256.94	0.00	0.43	0.4000	CIRCULAR	0.450	0.450	
2	Ex.STM_2	73.00	256.94	0.00	256.64	0.00	0.30	0.4100	CIRCULAR	0.450	0.450	
3	Ex.STM_3	27.00	256.64	0.00	256.48	0.00	0.16	0.5900	CIRCULAR	0.450	0.450	
4	Ex.STM_4	100.00	256.48	0.00	255.88	0.00	0.60	0.6000	CIRCULAR	0.450	0.450	
5	Ex.STM_5	100.00	255.88	0.00	255.48	0.00	0.40	0.4000	CIRCULAR	0.530	0.530	
6	Ex.STM_6	50.00	255.48	0.00	255.23	0.00	0.25	0.5000	CIRCULAR	0.530	0.530	
7	Ex.STM_7	102.00	255.23	0.00	254.82	0.00	0.41	0.4000	CIRCULAR	0.600	0.600	
8	Link-106	24.80	253.16	0.00	252.85	-0.15	0.31	1.2500	CIRCULAR	0.750	0.750	
9	Link-107	93.20	254.35	0.10	253.20	0.04	1.15	1.2300	CIRCULAR	0.750	0.750	
10	Link-108	110.30	255.48	0.00	255.37	0.08	0.11	0.1000	CIRCULAR	1.200	1.200	
11	Link-109	30.00	257.70	0.00	257.55	0.00	0.15	0.5000	CIRCULAR	1.050	1.050	
12	Link-110	153.00	255.69	0.00	255.48	0.00	0.21	0.1400	CIRCULAR	0.900	0.900	
13	Link-111	66.80	255.86	0.00	255.77	0.08	0.09	0.1300	CIRCULAR	0.750	0.750	
14	Link-112	106.60	256.21	0.00	255.91	0.05	0.30	0.2800	CIRCULAR	0.600	0.600	
15	Link-113	97.50	256.47	0.00	255.88	0.19	0.59	0.6100	CIRCULAR	0.530	0.530	
16	Link-114	85.10	256.79	0.00	255.73	0.38	1.06	1.2500	CIRCULAR	0.450	0.450	
17	Link-115	50.00	258.65	0.00	258.50	0.05	0.15	0.3000	CIRCULAR	0.530	0.530	
18	Link-116	50.00	258.75	0.00	258.55	0.10	0.20	0.4000	CIRCULAR	0.450	0.450	
19	Link-117	90.00	259.54	0.00	258.37	0.05	1.17	1.3000	CIRCULAR	0.680	0.680	
20	Link-118	41.60	260.00	0.00	259.56	0.02	0.44	1.0600	CIRCULAR	0.530	0.530	
21	Link-119	181.70	259.19	0.00	256.08	0.29	3.11	1.7100	CIRCULAR	0.600	0.600	
22	Link-120	140.50	260.46	0.00	259.24	0.05	1.22	0.8700	CIRCULAR	0.600	0.600	
23	Link-121	152.20	261.75	0.00	260.51	0.05	1.24	0.8100	CIRCULAR	0.530	0.530	
24	Link-49	20.70	254.62	0.00	254.60	1.60	0.02	0.1000	CIRCULAR	1.800	1.800	
25	Link-50	75.20	254.70	0.00	254.60	1.60	0.10	0.1300	CIRCULAR	0.600	0.600	
26	Link-52	35.00	254.72	0.00	254.67	0.05	0.05	0.1400	CIRCULAR	1.650	1.650	
27	Link-53	336.90	255.29	0.00	254.74	0.02	0.55	0.1600	CIRCULAR	1.350	1.350	
28	Link-54	110.00	255.53	0.00	255.31	0.02	0.22	0.2000	CIRCULAR	0.600	0.600	
29	Link-56	110.00	255.77	0.00	255.55	0.02	0.22	0.2000	CIRCULAR	0.600	0.600	
30	Link-57	95.50	256.10	0.00	255.85	0.08	0.25	0.2600	CIRCULAR	0.450	0.450	
31	Link-58	90.00	256.93	0.00	256.25	0.15	0.68	0.7600	CIRCULAR	0.300	0.300	
32	Link-59	53.10	255.23	0.00	255.13	0.41	0.10	0.1900	CIRCULAR	1.500	1.500	
33	Link-60	13.40	256.25	0.00	255.84	0.61	0.41	3.0600	CIRCULAR	1.500	1.500	
34	Link-62	25.00	256.90	0.00	256.75	0.00	0.15	0.6000	CIRCULAR	1.200	1.200	
35	Link-68	60.00	258.45	0.00	258.20	0.10	0.25	0.4200	CIRCULAR	0.600	0.600	
36	Link-70	57.00	255.35	0.00	255.25	0.02	0.10	0.1800	CIRCULAR	0.820	0.820	
37	Link-71	82.00	255.60	0.00	255.43	0.08	0.17	0.2100	CIRCULAR	0.750	0.750	
38	Link-72	85.00	255.79	0.17	255.62	0.02	0.17	0.2000	CIRCULAR	0.750	0.750	
39	Link-73	67.80	255.78	-0.01	255.10	0.38	0.68	1.0000	CIRCULAR	0.900	0.900	
40	Link-80	89.90	258.32	0.00	255.97	0.68	2.35	2.6100	CIRCULAR	0.750	0.750	
41	Link-81	93.20	261.13	0.00	259.27	0.95	1.86	2.0000	CIRCULAR	0.600	0.600	
42	Link-82	103.90	262.69	0.00	261.13	0.00	1.56	1.5000	CIRCULAR	0.600	0.600	
43	RH_A1	50.00	270.14	0.00	268.50	1.43	1.64	3.2800	CIRCULAR	0.300	0.300	
44	RH_B1	227.00	270.35	0.00	266.50	0.00	3.85	1.7000	CIRCULAR	0.300	0.300	
45	RH_C3	15.00	262.00	0.00	261.70	0.00	0.30	2.0000	CIRCULAR	0.600	0.600	
46	RH_C4	195.00	261.70	0.00	259.38	0.00	2.32	1.1900	CIRCULAR	0.530	0.530	
47	RH_C5	274.00	259.38	0.00	256.36	0.00	3.02	1.1000	CIRCULAR	0.530	0.530	
48	RH_C6	6.00	256.36	0.00	256.24	0.14	0.12	2.0000	CIRCULAR	0.700	0.700	

QUALITY STORM

No. of
Barrels[illegible]

Pipe Results

SN Element ID	Peak Flow	Time of Peak Flow Occurrence	Design Flow Capacity	Peak Flow/ Design Flow Ratio	Peak Flow Velocity	Travel Time	Peak Flow Depth	Peak Flow Depth/ Total Depth Ratio	To Sur
	(cms)	(days hh:mm)	(cms)		(m/sec)	(min)	(m)		
1 Ex.STM_1	0.22	0 00:20	0.18	1.24	1.41	1.26	0.45	1.00	
2 Ex.STM_2	0.22	0 00:20	0.18	1.23	1.41	0.86	0.45	1.00	
3 Ex.STM_3	0.22	0 00:20	0.22	1.02	1.41	0.32	0.44	1.00	
4 Ex.STM_4	0.22	0 00:22	0.22	1.01	1.47	1.13	0.41	0.94	
5 Ex.STM_5	0.22	0 00:23	0.27	0.82	1.29	1.29	0.39	0.75	
6 Ex.STM_6	0.22	0 00:24	0.30	0.73	1.36	0.61	0.37	0.70	
7 Ex.STM_7	0.22	0 00:24	0.39	0.57	1.40	1.21	0.33	0.55	
8 Link-106	0.05	0 04:39	0.89	0.05	1.52	0.27	0.23	0.31	
9 Link-107	0.05	0 04:38	1.24	0.04	1.33	1.17	0.10	0.14	
10 Link-108	0.32	0 00:17	1.23	0.26	0.76	2.42	0.50	0.41	
11 Link-109	0.23	0 00:22	1.93	0.12	1.76	0.28	0.30	0.28	
12 Link-110	0.26	0 00:15	0.67	0.38	0.91	2.80	0.44	0.49	
13 Link-111	0.16	0 00:15	0.41	0.38	0.90	1.24	0.34	0.45	
14 Link-112	0.08	0 00:10	0.33	0.25	0.85	2.09	0.24	0.40	
15 Link-113	0.11	0 00:15	0.33	0.32	1.30	1.25	0.21	0.41	
16 Link-114	0.12	0 00:15	0.32	0.36	1.78	0.80	0.19	0.43	
17 Link-115	0.14	0 00:15	0.24	0.57	1.01	0.83	0.31	0.59	
18 Link-116	0.09	0 00:11	0.18	0.50	1.08	0.77	0.24	0.54	
19 Link-117	0.15	0 00:11	0.96	0.15	1.88	0.80	0.18	0.27	
20 Link-118	0.07	0 00:10	0.44	0.15	1.28	0.54	0.15	0.30	
21 Link-119	0.29	0 00:16	0.80	0.36	2.55	1.19	0.25	0.42	
22 Link-120	0.17	0 00:15	0.57	0.29	1.71	1.37	0.23	0.38	
23 Link-121	0.17	0 00:13	0.39	0.43	1.69	1.50	0.25	0.47	
24 Link-49	1.45	0 00:23	3.57	0.41	1.65	0.21	0.68	0.38	
25 Link-50	0.13	0 00:16	0.22	0.58	0.97	1.29	0.53	0.89	
26 Link-52	1.45	0 00:22	3.45	0.42	1.44	0.41	0.79	0.48	
27 Link-53	0.87	0 00:19	2.16	0.40	1.15	4.88	0.71	0.53	
28 Link-54	0.27	0 00:22	0.27	1.00	1.05	1.75	0.59	0.98	
29 Link-56	0.05	0 00:24	0.27	0.20	0.29	6.32	0.47	0.79	
30 Link-57	0.02	0 00:21	0.15	0.15	0.64	2.49	0.20	0.46	
31 Link-58	0.02	0 00:20	0.08	0.27	0.99	1.52	0.11	0.36	
32 Link-59	0.43	0 00:28	3.07	0.14	1.17	0.76	0.44	0.29	
33 Link-60	0.25	0 00:30	12.37	0.02	2.32	0.10	0.17	0.11	
34 Link-62	0.26	0 00:26	3.02	0.09	1.22	0.34	0.36	0.30	
35 Link-68	0.22	0 00:15	0.40	0.54	1.37	0.73	0.32	0.54	
36 Link-70	0.33	0 00:15	0.60	0.55	1.26	0.75	0.41	0.50	
37 Link-71	0.23	0 00:11	0.51	0.45	1.08	1.27	0.38	0.51	
38 Link-72	0.10	0 00:10	0.50	0.20	0.70	2.02	0.30	0.41	
39 Link-73	0.30	0 00:16	1.83	0.17	1.92	0.59	0.35	0.39	
40 Link-80	0.26	0 00:12	1.80	0.14	2.78	0.54	0.19	0.26	
41 Link-81	0.11	0 00:12	0.87	0.13	2.05	0.76	0.14	0.24	
42 Link-82	0.11	0 00:10	0.75	0.15	2.00	0.87	0.15	0.26	
43 RH_A1	0.23	0 00:10	0.18	1.32	3.26	0.26	0.30	1.00	
44 RH_B1	0.14	0 00:14	0.13	1.10	2.44	1.55	0.30	1.00	
45 RH_C3	0.27	0 00:37	0.87	0.31	1.79	0.14	0.31	0.52	
46 RH_C4	0.27	0 00:38	0.41	0.66	2.02	1.61	0.31	0.59	
47 RH_C5	0.27	0 00:39	0.45	0.60	1.66	2.75	0.38	0.71	

Project Description

File Name	18010_Post-Development Rev.0.SPF
Description	I:\ACAD Projects\2018\18010\03-Ref\18010_Pre-Dev. Storm
	I:\ACAD Projects\2018\18010\03-Ref\18010_Pre-Dev. Storm
	I:\ACAD Projects\2018\18010\03-Ref\18010_Post-Dev.Storm
	I:\ACAD Projects\2018\18010\03-Ref\18010_Post-Dev.Storm

Project Options

Flow Units	CMS
Elevation Type	Elevation
Hydrology Method	EPA SWMM
EPA SWMM Infiltration Method	SCS Curve Number
Link Routing Method	Hydrodynamic
Enable Overflow Ponding at Nodes	YES
Skip Steady State Analysis Time Periods	YES

Analysis Options

Start Analysis On	00:00:00	0:00:00
End Analysis On	00:00:00	0:00:00
Start Reporting On	00:00:00	0:00:00
Antecedent Dry Days	0	days
Runoff (Dry Weather) Time Step	0 01:00:00	days hh:mm:ss
Runoff (Wet Weather) Time Step	0 00:05:00	days hh:mm:ss
Reporting Time Step	0 00:05:00	days hh:mm:ss
Routing Time Step	30	seconds

Number of Elements

	Qty
Rain Gages	1
Subbasins.....	58
Nodes.....	77
<i>Junctions</i>	69
<i>Outfalls</i>	5
<i>Flow Diversions</i>	0
<i>Inlets</i>	0
<i>Storage Nodes</i>	3
Links.....	109
<i>Channels</i>	43
<i>Pipes</i>	61
<i>Pumps</i>	0
<i>Orifices</i>	1
<i>Weirs</i>	4
<i>Outlets</i>	0
Pollutants	0
Land Uses	0

Subbasin Summary

SN Subbasin ID	Area	Impervious Area	Weighted Curve Number	Average Slope	Equivalent Width	Impervious Area Manning's Roughness	Pervious Area Manning's Roughness	Total Rainfall	Total Infiltration	Total Runoff	Total Runoff Volume	Peak Runoff	Time of Concentration
	(ha)	(%)		(%)	(m)			(mm)	(mm)	(mm)	(ha-mm)	(cms)	(days hh:mm:ss)
1 {Survey Site}.Standard : 10	0.92	2.00	67.00	2.0000	125.00	0.0130	0.2000	59.19	43.7930	14.16	13.00	0.01	0 01:18:05
2 {Survey Site}.Standard : 11	21.38	2.00	67.00	2.0000	360.00	0.0130	0.2000	59.19	40.8400	15.82	338.20	0.13	0 04:33:43
3 {Survey Site}.Standard : 12	0.71	5.00	67.00	2.0000	90.00	0.0130	0.2000	59.19	42.4520	15.47	10.99	0.01	0 01:20:01
4 {Survey Site}.Standard : 13	1.65	45.00	71.05	2.0000	220.00	0.0130	0.2000	59.19	23.0560	34.85	57.43	0.20	0 00:55:52
5 {Survey Site}.Standard : 14	4.32	2.00	67.00	2.0000	350.00	0.0130	0.2000	59.19	44.0630	13.87	59.90	0.04	0 01:46:38
6 {Survey Site}.Standard : 17	0.36	5.00	67.00	5.0000	20.00	0.0130	0.2000	59.19	42.6430	15.28	5.44	0.01	0 01:39:02
7 {Survey Site}.Standard : 18	13.10	5.00	48.00	10.0000	300.00	0.0130	0.2000	59.19	50.9960	6.94	90.85	0.17	0 02:17:49
8 {Survey Site}.Standard : 19	1.32	55.00	75.95	2.0000	90.00	0.0130	0.2000	59.19	17.3400	40.57	53.55	0.19	0 01:14:08
9 {Survey Site}.Standard : 2	20.86	45.00	71.05	2.0000	300.00	0.0130	0.2000	59.19	23.9870	33.88	706.81	1.84	0 03:32:46
10 {Survey Site}.Standard : 23	2.20	5.00	48.00	10.0000	100.00	0.0130	0.2000	59.19	50.5770	7.35	16.16	0.03	0 01:31:18
11 {Survey Site}.Standard : 26	1.12	45.00	71.05	2.0000	40.00	0.0130	0.2000	59.19	23.4430	34.46	38.74	0.12	0 02:03:32
12 {Survey Site}.Standard : 27	0.43	45.00	71.05	2.0000	60.00	0.0130	0.2000	59.19	23.0560	34.85	14.88	0.05	0 00:54:11
13 {Survey Site}.Standard : 28	0.12	45.00	71.05	2.0000	40.00	0.0130	0.2000	59.19	22.9350	34.94	4.30	0.02	0 00:32:45
14 {Survey Site}.Standard : 29	7.86	45.00	71.05	2.0000	110.00	0.0130	0.2000	59.19	24.0110	33.85	266.16	0.69	0 03:36:17
15 {Survey Site}.Standard : 3	25.14	45.00	71.05	2.0000	370.00	0.0130	0.2000	59.19	23.9750	33.90	852.14	2.23	0 03:29:49
16 {Survey Site}.Standard : 30	20.00	30.00	63.70	2.0000	225.00	0.0130	0.2000	59.19	34.1590	23.75	474.80	1.21	0 04:44:52
17 {Survey Site}.Standard : 31	5.54	5.00	57.00	2.0000	245.00	0.0130	0.2000	59.19	47.9010	10.02	55.55	0.07	0 02:30:34
18 {Survey Site}.Standard : 32	3.34	2.00	67.00	2.0000	95.00	0.0130	0.2000	59.19	45.0930	12.85	42.84	0.02	0 03:19:39
19 {Survey Site}.Standard : 33	7.71	2.00	67.00	2.0000	215.00	0.0130	0.2000	59.19	45.1170	12.82	98.78	0.05	0 03:22:10
20 {Survey Site}.Standard : 4	3.13	2.00	67.00	2.0000	155.00	0.0130	0.2000	59.19	44.4550	13.48	42.19	0.02	0 02:23:18
21 {Survey Site}.Standard : 46	5.62	2.00	67.00	2.0000	200.00	0.0130	0.2000	59.19	44.7990	13.13	73.83	0.04	0 02:54:46
22 {Survey Site}.Standard : 5	10.46	45.00	71.05	0.5000	235.00	0.0130	0.2000	59.19	24.1810	33.65	351.95	0.85	0 04:06:44
23 {Survey Site}.Standard : 51	0.39	95.00	95.55	0.5000	20.00	0.0130	0.2000	59.19	0.5150	57.10	21.98	0.07	0 00:40:10
24 {Survey Site}.Standard : 52	10.94	2.00	36.00	0.5000	240.00	0.0130	0.2000	59.19	52.0880	2.43	26.58	0.06	0 05:53:58
25 {Survey Site}.Standard : 53	0.36	75.00	85.75	3.0000	20.00	0.0130	0.2000	59.19	6.8350	50.70	18.45	0.07	0 00:52:31
26 {Survey Site}.Standard : 54	3.94	75.00	85.75	2.0000	150.00	0.0130	0.2000	59.19	6.8350	50.62	199.39	0.69	0 01:13:54
27 {Survey Site}.Standard : 57	0.38	15.00	56.35	2.0000	125.00	0.0130	0.2000	59.19	42.1980	15.72	6.02	0.01	0 00:42:26
28 {Survey Site}.Standard : 6	11.54	2.00	67.00	2.0000	280.00	0.0130	0.2000	59.19	45.3140	12.62	145.63	0.07	0 03:39:51
29 {Survey Site}.Standard : 63	1.63	55.00	75.95	2.0000	90.00	0.0130	0.2000	59.19	17.3880	40.52	66.01	0.22	0 01:24:06
30 {Survey Site}.Standard : 65	1.71	55.00	75.95	2.0000	130.00	0.0130	0.2000	59.19	17.3230	40.59	69.38	0.25	0 01:09:25

Subbasin Summary

SN	Subbasin ID	Area	Impervious Area	Weighted Curve Number	Average Slope	Equivalent Width	Impervious Area Manning's Roughness	Pervious Area Manning's Roughness	Total Rainfall	Total Infiltration	Total Runoff	Total Runoff Volume	Peak Runoff	Time of Concentration
		(ha)	(%)		(%)	(m)			(mm)	(mm)	(mm)	(ha-mm)	(cms)	(days hh:mm:ss)
48	{Survey Site}.Standard : 84	1.00	55.00	75.95	2.0000	50.00	0.0130	0.2000	59.19	17.4130	40.49	40.66	0.14	0 01:29:31
49	{Survey Site}.Standard : 85	1.78	55.00	75.95	2.0000	70.00	0.0130	0.2000	59.19	17.4690	40.42	72.07	0.23	0 01:43:15
50	{Survey Site}.Standard : 86	1.43	55.00	75.95	2.0000	100.00	0.0130	0.2000	59.19	17.3400	40.58	57.82	0.20	0 01:12:52
51	{Survey Site}.Standard : 87	2.66	55.00	75.95	2.0000	100.00	0.0130	0.2000	59.19	17.4860	40.41	107.37	0.35	0 01:45:54
52	{Survey Site}.Standard : 88	1.64	55.00	75.95	2.0000	75.00	0.0130	0.2000	59.19	17.4290	40.47	66.29	0.22	0 01:34:09
53	{Survey Site}.Standard : 89	1.11	55.00	75.95	2.0000	100.00	0.0130	0.2000	59.19	17.2910	40.62	45.21	0.16	0 01:02:49
54	{Survey Site}.Standard : 9	3.53	2.00	67.00	2.0000	100.00	0.0130	0.2000	59.19	45.0930	12.84	45.34	0.02	0 03:20:23
55	{Survey Site}.Standard : 90	1.22	65.00	80.85	2.0000	130.00	0.0130	0.2000	59.19	11.8290	46.01	55.91	0.22	0 00:48:39
56	{Survey Site}.Standard : 91	1.00	65.00	80.85	2.0000	130.00	0.0130	0.2000	59.19	11.8290	46.03	45.89	0.18	0 00:43:12
57	{Survey Site}.Standard : 92	2.19	55.00	75.95	2.0000	75.00	0.0130	0.2000	59.19	17.5100	40.38	88.54	0.28	0 01:52:09
58	{Survey Site}.Standard : 93	2.32	15.00	56.35	5.0000	525.00	0.0130	0.2000	59.19	42.1700	15.74	36.50	0.09	0 00:40:09

Node Summary

SN	Element ID	Element Type	Invert Elevation	Ground/Rim (Max) Elevation	Initial Water Elevation	Surcharge Elevation	Ponded Area	Peak Inflow	Max HGL Elevation Attained	Max Surcharge Depth Attained	Min Freeboard Attained	Time of Peak Flooding Occurrence	Total Flooded Volume	Total Time Flooded
			(m)	(m)	(m)	(m)	(m²)	(cms)	(m)	(m)	(m)	(days hh:mm)	(ha-mm)	(min)
1	Ex_MHR1	Junction	255.88	262.50	0.00	0.00	0.00	0.25	256.32	0.00	6.18	0 00:00	0.00	0.00
2	Ex_MHR2	Junction	255.48	259.65	0.00	0.00	0.00	0.25	255.90	0.00	3.75	0 00:00	0.00	0.00
3	Ex_MHR25	Junction	256.48	263.35	0.00	0.00	0.00	0.25	257.50	0.00	5.85	0 00:00	0.00	0.00
4	Ex_MHR26	Junction	256.64	262.75	0.00	0.00	0.00	0.25	257.83	0.00	4.92	0 00:00	0.00	0.00
5	Ex_MHR27	Junction	256.94	261.00	0.00	0.00	0.00	0.25	258.26	0.00	2.74	0 00:00	0.00	0.00
6	Ex_MHR28	Junction	257.37	259.30	0.00	0.00	0.00	0.69	259.07	0.00	0.23	0 00:00	0.00	0.00
7	Ex_MHR3	Junction	255.23	259.00	0.00	0.00	0.00	0.25	255.61	0.00	3.39	0 00:00	0.00	0.00
8	Jun-34	Junction	254.62	258.25	0.00	0.00	0.00	3.65	255.98	0.00	2.27	0 00:00	0.00	0.00
9	Jun-35	Junction	254.70	257.50	0.00	0.00	0.00	0.33	255.98	0.00	1.52	0 00:00	0.00	0.00
10	Jun-36	Junction	254.72	258.00	0.00	0.00	0.00	3.68	256.22	0.00	2.13	0 00:00	0.00	0.00
11	Jun-37	Junction	255.29	261.30	0.00	0.00	0.00	1.99	256.63	0.00	4.67	0 00:00	0.00	0.00
12	Jun-38	Junction	255.53	261.80	0.00	0.00	0.00	0.75	257.87	0.00	3.93	0 00:00	0.00	0.00
13	Jun-39	Junction	256.93	259.05	0.00	0.00	0.00	0.07	258.13	0.00	0.92	0 00:00	0.00	0.00
14	Jun-40	Junction	256.10	258.55	0.00	0.00	0.00	0.14	257.77	0.00	0.78	0 00:00	0.00	0.00
15	Jun-41	Junction	255.77	259.65	0.00	0.00	0.00	0.20	257.85	0.00	1.80	0 00:00	0.00	0.00
16	Jun-42	Junction	255.23	258.90	0.00	0.00	0.00	0.99	256.26	0.00	2.64	0 00:00	0.00	0.00
17	Jun-43	Junction	256.25	257.25	0.00	0.00	0.00	0.55	256.54	0.00	1.21	0 00:00	0.00	0.00
18	Jun-44	Junction	257.55	258.55	0.00	0.00	0.00	0.52	257.97	0.00	0.63	0 00:00	0.00	0.00
19	Jun-46	Junction	257.70	258.70	0.00	258.70	0.00	0.64	258.25	0.00	0.50	0 00:00	0.00	0.00
20	Jun-47	Junction	258.10	259.10	0.00	0.00	0.00	0.64	258.58	0.00	0.52	0 00:00	0.00	0.00
21	Jun-48	Junction	258.35	259.35	0.00	0.00	0.00	0.03	258.59	0.00	0.81	0 00:00	0.00	0.00
22	Jun-49	Junction	256.90	257.90	0.00	0.00	0.00	0.56	257.39	0.00	0.71	0 00:00	0.00	0.00
23	Jun-50	Junction	256.75	257.75	0.00	0.00	0.00	0.54	257.29	0.00	0.66	0 00:00	0.00	0.00
24	Jun-51	Junction	258.45	260.50	0.00	0.00	0.00	0.51	259.29	0.00	1.21	0 00:00	0.00	0.00
25	Jun-52	Junction	255.69	260.00	0.00	0.00	0.00	0.58	256.77	0.00	3.23	0 00:00	0.00	0.00
26	Jun-53	Junction	255.35	259.60	0.00	0.00	0.00	0.73	256.45	0.00	3.15	0 00:00	0.00	0.00
27	Jun-54	Junction	255.62	259.80	0.00	0.00	0.00	0.22	256.62	0.00	3.18	0 00:00	0.00	0.00
28	Jun-55	Junction	255.60	259.70	0.00	0.00	0.00	0.49	256.60	0.00	3.10	0 00:00	0.00	0.00
29	Jun-56	Junction	255.79	257.80	0.00	0.00	0.00	0.70	256.33	0.00	1.47	0 00:00	0.00	0.00
30	Jun-61	Junction	258.32	262.00	0.00	0.00	0.00	0.57	258.63	0.00	4.17	0 00:00	0.00	0.00

Node Summary

SN	Element ID	Element Type	Invert Elevation	Ground/Rim (Max) Elevation	Initial Water Elevation	Surcharge Elevation	Ponded Area	Peak Inflow	Max HGL Elevation Attained	Max Surcharge Depth Attained	Min Freeboard Attained	Time of Peak Flooding Occurrence	Total Flooded Volume	Total Time Flooded
			(m)	(m)	(m)	(m)	(m²)	(cms)	(m)	(m)	(m)	(days hh:mm)	(ha-mm)	(min)
48	Ravine_1	Junction	256.10	260.10	0.00	0.00	0.00	2.44	256.48	0.00	3.62	0 00:00	0.00	0.00
49	Ravine_2	Junction	253.00	257.00	0.00	0.00	0.00	2.50	253.46	0.00	3.54	0 00:00	0.00	0.00
50	Ravine_3	Junction	252.45	256.45	0.00	0.00	0.00	2.48	252.81	0.00	3.64	0 00:00	0.00	0.00
51	RH_1	Junction	267.60	271.70	0.00	0.00	0.00	2.23	271.53	0.00	0.17	0 00:00	0.00	0.00
52	RH_10	Junction	261.90	263.90	0.00	0.00	0.00	2.72	263.63	0.00	0.27	0 00:00	0.00	0.00
53	RH_11	Junction	260.33	262.55	0.00	0.00	0.00	2.32	262.34	0.00	0.21	0 00:00	0.00	0.00
54	RH_12	Junction	269.00	270.50	0.00	0.00	0.00	1.21	269.37	0.00	1.13	0 00:00	0.00	0.00
55	RH_13	Junction	264.00	266.50	0.00	0.00	0.00	1.24	264.51	0.00	1.99	0 00:00	0.00	0.00
56	RH_14	Junction	261.70	263.50	0.00	0.00	0.00	0.47	262.58	0.00	0.92	0 00:00	0.00	0.00
57	RH_15	Junction	259.38	261.00	0.00	0.00	0.00	0.46	260.05	0.00	0.95	0 00:00	0.00	0.00
58	RH_16	Junction	256.36	258.00	0.00	0.00	0.00	0.45	257.05	0.00	0.95	0 00:00	0.00	0.00
59	RH_17	Junction	256.42	258.00	0.00	0.00	0.00	1.17	257.47	0.00	0.53	0 00:00	0.00	0.00
60	RH_2	Junction	270.14	272.45	0.00	0.00	0.00	1.84	272.22	0.00	0.23	0 00:00	0.00	0.00
61	RH_3	Junction	267.07	270.50	0.00	0.00	0.00	3.85	269.83	0.00	0.67	0 00:00	0.00	0.00
62	RH_4	Junction	266.63	268.60	0.00	0.00	0.00	2.61	268.39	0.00	0.21	0 00:00	0.00	0.00
63	RH_5	Junction	270.35	272.10	0.00	0.00	0.00	0.85	271.85	0.00	0.25	0 00:00	0.00	0.00
64	RH_6	Junction	266.50	268.20	0.00	0.00	0.00	3.22	268.02	0.00	0.18	0 00:00	0.00	0.00
65	RH_7	Junction	272.00	273.50	0.00	0.00	0.00	0.00	272.00	0.00	1.50	0 00:00	0.00	0.00
66	RH_8	Junction	267.75	269.85	0.00	0.00	0.00	0.15	268.00	0.00	1.85	0 00:00	0.00	0.00
67	RH_9	Junction	264.00	265.80	0.00	0.00	0.00	0.16	264.31	0.00	1.49	0 00:00	0.00	0.00
68	WestOutfall	Junction	257.00	258.40	0.00	0.00	0.00	0.01	257.00	0.00	2.45	0 00:00	0.00	0.00
69	WestWetland	Junction	258.00	259.00	0.00	0.00	0.00	0.06	258.00	0.00	1.00	0 00:00	0.00	0.00
70	North_Wetland	Outfall	252.00					0.11	252.00					
71	Outfall	Outfall	252.00					2.48	252.28					
72	TinerEstatesSTM	Outfall	254.82					0.25	255.14					
73	West_Outfall	Outfall	257.00					0.01	257.00					
74	West_Wetland	Outfall	258.00					0.06	258.00					
75	Ex_SE_Pond	Storage Node	262.00	266.00	0.00		0.00	1.22	262.75				0.00	0.00
76	SWM_FB	Storage Node	253.00	256.80	254.50		0.00	3.65	255.98				0.00	0.00
77	SWM_WP	Storage Node	253.00	256.80	254.50		0.00	3.44	255.98				0.00	0.00

Link Summary

SN Element ID	Element Type	From (Inlet) Node	To (Outlet) Node	Length	Inlet Invert Elevation	Outlet Invert Elevation	Average Slope	Diameter or Height	Manning's Roughness	Peak Flow	Design Flow Capacity	Peak Flow/ Design Flow Ratio	Peak Flow Velocit
				(m)	(m)	(m)	(%)	(m)		(cms)	(cms)		(m/sec)
1 Ex.STM_1	Pipe	Ex_MHR28	Ex_MHR27	107.00	257.37	256.94	0.4000	0.450	0.0130	0.25	0.18	1.37	1.5
2 Ex.STM_2	Pipe	Ex_MHR27	Ex_MHR26	73.00	256.94	256.64	0.4100	0.450	0.0130	0.25	0.18	1.35	1.5
3 Ex.STM_3	Pipe	Ex_MHR26	Ex_MHR25	27.00	256.64	256.48	0.5900	0.450	0.0130	0.25	0.22	1.13	1.5
4 Ex.STM_4	Pipe	Ex_MHR25	Ex_MHR1	100.00	256.48	255.88	0.6000	0.450	0.0130	0.25	0.22	1.12	1.5
5 Ex.STM_5	Pipe	Ex_MHR1	Ex_MHR2	100.00	255.88	255.48	0.4000	0.525	0.0130	0.25	0.27	0.91	1.3
6 Ex.STM_6	Pipe	Ex_MHR2	Ex_MHR3	50.00	255.48	255.23	0.5000	0.525	0.0130	0.25	0.30	0.81	1.4
7 Ex.STM_7	Pipe	Ex_MHR3	TinerEstatesSTM	102.00	255.23	254.82	0.4000	0.600	0.0130	0.25	0.39	0.63	1.4
8 Link-106	Pipe	Jun-66	Ravine_2	24.80	253.16	252.85	1.2500	0.750	0.0130	0.12	0.89	0.13	1.6
9 Link-107	Pipe	OutletStructure	Jun-66	93.20	254.35	253.20	1.2300	0.750	0.0130	0.12	1.24	0.10	1.6
10 Link-108	Pipe	Jun-67	Jun-37	110.30	255.48	255.37	0.1000	1.200	0.0130	0.60	1.23	0.48	0.7
11 Link-109	Pipe	Jun-46	Jun-44	30.00	257.70	257.55	0.5000	1.050	0.0130	0.52	1.93	0.27	1.5
12 Link-110	Pipe	Jun-52	Jun-67	153.00	255.69	255.48	0.1400	0.900	0.0130	0.47	0.67	0.70	0.8
13 Link-111	Pipe	Jun-68	Jun-52	66.80	255.86	255.77	0.1300	0.750	0.0130	0.31	0.41	0.76	0.8
14 Link-112	Pipe	Jun-69	Jun-68	106.60	256.21	255.91	0.2800	0.600	0.0130	0.14	0.33	0.43	0.7
15 Link-113	Pipe	Jun-70	Jun-52	97.50	256.47	255.88	0.6100	0.525	0.0130	0.27	0.33	0.81	1.4
16 Link-114	Pipe	Jun-71	Jun-53	85.10	256.79	255.73	1.2500	0.450	0.0130	0.29	0.32	0.92	2.0
17 Link-115	Pipe	Jun-73	Jun-51	50.00	258.65	258.50	0.3000	0.525	0.0130	0.33	0.24	1.40	1.5
18 Link-116	Pipe	Jun-72	Jun-51	50.00	258.75	258.55	0.4000	0.450	0.0130	0.20	0.18	1.12	1.2
19 Link-117	Pipe	Jun-74	Jun-61	90.00	259.54	258.37	1.3000	0.675	0.0130	0.33	0.96	0.35	2.3
20 Link-118	Pipe	Jun-75	Jun-74	41.60	260.00	259.56	1.0600	0.525	0.0130	0.15	0.44	0.34	1.4
21 Link-119	Pipe	Jun-76	Jun-56	181.70	259.19	256.08	1.7100	0.600	0.0130	0.70	0.80	0.86	3.0
22 Link-120	Pipe	Jun-77	Jun-76	140.50	260.46	259.24	0.8700	0.600	0.0130	0.38	0.57	0.67	1.9
23 Link-121	Pipe	Jun-78	Jun-77	152.20	261.75	260.51	0.8100	0.525	0.0130	0.38	0.39	0.99	1.9
24 Link-49	Pipe	Jun-34	SWM_FB	20.70	254.62	254.60	0.1000	1.800	0.0130	3.65	3.57	1.02	2.2
25 Link-50	Pipe	Jun-35	SWM_WP	75.20	254.70	254.60	0.1300	0.600	0.0130	0.33	0.22	1.49	1.2
26 Link-52	Pipe	Jun-36	Jun-34	35.00	254.72	254.67	0.1400	1.650	0.0130	3.65	3.45	1.06	1.9
27 Link-53	Pipe	Jun-37	Jun-36	336.90	255.29	254.74	0.1600	1.350	0.0130	1.75	2.16	0.81	1.2
28 Link-54	Pipe	Jun-38	Jun-37	110.00	255.53	255.31	0.2000	0.600	0.0130	0.61	0.27	2.22	2.1
29 Link-56	Pipe	Jun-41	Jun-38	110.00	255.77	255.55	0.2000	0.600	0.0130	0.22	0.27	0.81	0.7
30 Link-57	Pipe	Jun-40	Jun-41	95.50	256.10	255.85	0.2600	0.450	0.0130	0.18	0.15	1.23	1.1

Link Summary

SN Element ID	Element Type	From (Inlet) Node	To (Outlet) Node	Length	Inlet Invert Elevation	Outlet Invert Elevation	Average Slope	Diameter or Height	Manning's Roughness	Peak Flow	Design Flow Capacity	Peak Flow/ Design Flow Ratio	Peak Flow Velocit
				(m)	(m)	(m)	(%)	(m)		(cms)	(cms)		(m/sec)
48 RH_C6	Pipe	RH_16	Ravine_1	6.00	256.36	256.24	2.0000	0.700	0.0130	0.45	1.31	0.34	1.6
49 RH_D1	Pipe	RH_7	RH_8	275.00	272.00	267.75	1.5500	0.300	0.0130	0.00	0.12	0.00	0.0
50 RH_D2	Pipe	RH_8	RH_9	180.00	267.75	264.00	2.0800	0.300	0.0130	0.14	0.14	1.00	2.1
51 RH_D3	Pipe	RH_9	RH_10	155.00	264.00	261.90	1.3500	0.375	0.0130	0.15	0.20	0.71	1.3
52 RH_M1	Pipe	RH_1	RH_3	270.00	267.60	267.07	0.2000	0.600	0.0130	0.51	0.27	1.86	1.7
53 RH_M2	Pipe	RH_3	RH_4	222.00	267.07	266.63	0.2000	0.675	0.0130	0.80	0.37	2.14	2.2
54 RH_M3	Pipe	RH_4	RH_6	18.00	266.63	266.50	0.7200	0.750	0.0130	1.03	0.95	1.09	2.3
55 RH_M4	Pipe	RH_6	RH_10	415.00	266.50	261.90	1.1100	0.675	0.0130	0.91	0.89	1.03	2.6
56 RH_M5	Pipe	RH_10	RH_11	140.00	261.90	260.33	1.1200	0.675	0.0130	1.06	0.89	1.19	2.9
57 RH_M6	Pipe	RH_11	RH_17	464.00	260.33	256.42	0.8400	0.750	0.0130	1.10	1.02	1.08	2.5
58 RH_M7	Pipe	RH_17	Ravine_1	6.00	256.42	256.37	0.8300	1.000	0.0130	1.17	2.19	0.54	1.8
59 West_Link	Pipe	WestOutfall	West_Outfall	33.73	256.00	257.00	-2.9600	0.000	0.0130	0.01	0.00	0.01	0.0
60 WestWetland_Link	Pipe	WestWetland	West_Wetland	37.13	258.00	258.00	0.0000	0.000	0.0130	0.06	0.00	0.01	0.0
61 Wetland_Link	Pipe	NorthWetland	North_Wetland	41.51	252.00	252.00	0.0000	0.000	0.0130	0.11	0.00	0.01	0.0
62 Link-103	Channel	Jun-36	SWM_FB	10.00	257.70	257.50	2.0000	0.300	0.0320	0.00	11.65	0.00	0.0
63 Link-104	Channel	Jun-56	SWM_FB	50.00	257.50	256.50	2.0000	0.300	0.0320	0.00	11.65	0.00	0.0
64 Link-122	Channel	Jun-53	Jun-42	70.00	259.30	258.60	1.0000	0.300	0.0320	0.00	8.24	0.00	0.0
65 Link-123	Channel	Jun-55	Jun-53	90.00	259.40	259.30	0.1100	0.300	0.0320	0.00	2.75	0.00	0.0
66 Link-124	Channel	Jun-54	Jun-55	90.00	259.50	259.40	0.1100	0.300	0.0320	0.00	2.75	0.00	0.0
67 Link-125	Channel	Jun-73	Jun-47	50.00	259.65	258.70	1.9000	0.300	0.0320	0.00	11.36	0.00	0.0
68 Link-126	Channel	Jun-72	Jun-47	50.00	259.65	258.70	1.9000	0.300	0.0320	0.00	11.36	0.00	0.0
69 Link-127	Channel	Jun-67	Jun-54	100.00	259.60	259.50	0.1000	0.300	0.0320	0.00	2.61	0.00	0.0
70 Link-128	Channel	Jun-52	Jun-67	150.00	259.70	259.60	0.0700	0.300	0.0320	0.00	2.13	0.00	0.0
71 Link-129	Channel	Jun-68	Jun-52	80.00	259.80	259.70	0.1300	0.300	0.0320	0.00	2.91	0.00	0.0
72 Link-130	Channel	Jun-69	Jun-68	100.00	259.90	259.80	0.1000	0.300	0.0320	0.00	2.61	0.00	0.0
73 Link-131	Channel	Jun-71	Jun-53	70.00	259.40	259.30	0.1400	0.300	0.0320	0.00	3.11	0.00	0.0
74 Link-132	Channel	Jun-78	Jun-77	150.00	265.00	264.50	0.3300	0.300	0.0320	0.00	4.76	0.00	0.0
75 Link-133	Channel	Jun-77	Jun-76	150.00	264.50	261.90	1.7300	0.300	0.0320	0.00	10.85	0.00	0.0
76 Link-134	Channel	Jun-76	Jun-36	250.00	261.90	257.70	1.6800	0.300	0.0320	0.00	10.68	0.00	0.0
77 Link-135	Channel	Jun-61	Jun-37	100.00	262.50	261.00	1.5000	0.300	0.0320	0.00	10.09	0.00	0.0

Link Summary

SN Element ID	Element Type	From (Inlet) Node	To (Outlet) Node	Length	Inlet Invert Elevation	Outlet Invert Elevation	Average Slope	Diameter or Height	Manning's Roughness	Peak Flow	Design Flow Capacity	Peak Flow/ Design Flow Ratio	Peak Flow Velocity
				(m)	(m)	(m)	(%)	(m)		(cms)	(cms)		(m/sec)
95 Link-89	Channel	Jun-42	Jun-36	53.10	258.60	257.70	1.6900	0.300	0.0320	0.00	10.73	0.00	0.0
96 Link-90	Channel	Jun-39	Jun-40	90.00	258.75	257.75	1.1100	0.300	0.0320	0.00	8.69	0.00	0.0
97 Link-92	Channel	Jun-38	Jun-37	110.00	261.50	261.00	0.4500	0.300	0.0320	0.00	5.56	0.00	0.0
98 Link-93	Channel	Jun-37	Jun-36	340.00	261.00	257.70	0.9700	0.300	0.0320	0.00	8.12	0.00	0.0
99 Link-94	Channel	Jun-41	Jun-40	95.00	259.35	257.75	1.6800	0.300	0.0320	0.00	10.69	0.00	0.0
100 LowerRavine	Channel	Ravine_2	Ravine_3	124.00	253.00	252.45	0.4400	4.000	0.0320	2.48	157.98	0.02	1.0
101 OutletRavine	Channel	Ravine_3	Outfall	45.00	252.45	252.00	1.0000	4.000	0.0320	2.48	237.22	0.01	1.4
102 RH_C1	Channel	RH_12	RH_13	215.00	269.00	264.00	2.3300	1.500	0.0320	1.18	24.20	0.05	1.4
103 RH_C2	Channel	RH_13	Ex_SE_Pond	60.00	264.00	263.50	0.8300	1.500	0.0320	1.17	14.49	0.08	1.3
104 UpperRavine	Channel	Ravine_1	Ravine_2	553.00	256.10	253.00	0.5600	4.000	0.0320	2.43	177.61	0.01	1.0
105 Orifice-01	Orifice	SWM_WP	OutletStructure		253.00	254.25		0.170		0.07			
106 Link-91	Weir	Jun-40	WestOutfall		256.10	257.00				0.00			
107 Weir-01	Weir	SWM_FB	SWM_WP		253.00	253.00				3.44			
108 Weir-04	Weir	SWM_WP	OutletStructure		253.00	254.25				0.05			
109 Weir-05	Weir	SWM_WP	Ravine_2		253.00	253.00				0.00			

Junction Input

SN	Element ID	Invert Elevation	Ground/Rim (Max) Elevation	Ground/Rim (Max) Offset	Initial Water Elevation	Initial Water Depth	Surcharge Elevation	Surcharge Depth	Ponded Area	Minimum Pipe Cover
		(m)	(m)	(m)	(m)	(m)	(m)	(m)	(m²)	(m)
1	Ex_MHR1	255.88	262.50	6.62	0.00	-255.88	0.00	-262.50	0.00	0.00
2	Ex_MHR2	255.48	259.65	4.17	0.00	-255.48	0.00	-259.65	0.00	0.00
3	Ex_MHR25	256.48	263.35	6.87	0.00	-256.48	0.00	-263.35	0.00	0.00
4	Ex_MHR26	256.64	262.75	6.11	0.00	-256.64	0.00	-262.75	0.00	0.00
5	Ex_MHR27	256.94	261.00	4.06	0.00	-256.94	0.00	-261.00	0.00	0.00
6	Ex_MHR28	257.37	259.30	1.93	0.00	-257.37	0.00	-259.30	0.00	0.00
7	Ex_MHR3	255.23	259.00	3.77	0.00	-255.23	0.00	-259.00	0.00	0.00
8	Jun-34	254.62	258.25	3.63	0.00	-254.62	0.00	-258.25	0.00	0.00
9	Jun-35	254.70	257.50	2.80	0.00	-254.70	0.00	-257.50	0.00	0.00
10	Jun-36	254.72	258.00	3.28	0.00	-254.72	0.00	-258.00	0.00	0.00
11	Jun-37	255.29	261.30	6.01	0.00	-255.29	0.00	-261.30	0.00	0.00
12	Jun-38	255.53	261.80	6.27	0.00	-255.53	0.00	-261.80	0.00	0.00
13	Jun-39	256.93	259.05	2.12	0.00	-256.93	0.00	-259.05	0.00	0.00
14	Jun-40	256.10	258.55	2.45	0.00	-256.10	0.00	-258.55	0.00	0.00
15	Jun-41	255.77	259.65	3.88	0.00	-255.77	0.00	-259.65	0.00	0.00
16	Jun-42	255.23	258.90	3.67	0.00	-255.23	0.00	-258.90	0.00	0.00
17	Jun-43	256.25	257.25	1.00	0.00	-256.25	0.00	-257.25	0.00	0.00
18	Jun-44	257.55	258.55	1.00	0.00	-257.55	0.00	-258.55	0.00	0.00
19	Jun-46	257.70	258.70	1.00	0.00	-257.70	258.70	0.00	0.00	0.00
20	Jun-47	258.10	259.10	1.00	0.00	-258.10	0.00	-259.10	0.00	0.00
21	Jun-48	258.35	259.35	1.00	0.00	-258.35	0.00	-259.35	0.00	0.00
22	Jun-49	256.90	257.90	1.00	0.00	-256.90	0.00	-257.90	0.00	0.00
23	Jun-50	256.75	257.75	1.00	0.00	-256.75	0.00	-257.75	0.00	0.00
24	Jun-51	258.45	260.50	2.05	0.00	-258.45	0.00	-260.50	0.00	0.00
25	Jun-52	255.69	260.00	4.31	0.00	-255.69	0.00	-260.00	0.00	0.00
26	Jun-53	255.35	259.60	4.25	0.00	-255.35	0.00	-259.60	0.00	0.00
27	Jun-54	255.62	259.80	4.18	0.00	-255.62	0.00	-259.80	0.00	0.00
28	Jun-55	255.60	259.70	4.10	0.00	-255.60	0.00	-259.70	0.00	0.00
29	Jun-56	255.79	257.80	2.01	0.00	-255.79	0.00	-257.80	0.00	0.00
30	Jun-61	258.32	262.00	3.68	0.00	-258.32	0.00	-262.00	0.00	0.00
31	Jun-64	261.13	263.50	2.37	0.00	-261.13	0.00	-263.50	0.00	0.00
32	Jun-65	262.69	264.50	1.81	0.00	-262.69	0.00	-264.50	0.00	0.00
33	Jun-66	253.16	256.00	2.84	0.00	-253.16	0.00	-256.00	0.00	0.00
34	Jun-67	255.48	259.90	4.42	0.00	-255.48	0.00	-259.90	0.00	0.00
35	Jun-68	255.86	260.10	4.24	0.00	-255.86	0.00	-260.10	0.00	0.00
36	Jun-69	256.21	261.20	4.99	0.00	-256.21	0.00	-261.20	0.00	0.00
37	Jun-70	256.47	263.00	6.53	0.00	-256.47	0.00	-263.00	0.00	0.00
38	Jun-71	256.79	260.00	3.21	0.00	-256.79	0.00	-260.00	0.00	0.00
39	Jun-72	258.75	259.95	1.20	0.00	-258.75	0.00	-259.95	0.00	0.00
40	Jun-73	258.65	259.95	1.30	0.00	-258.65	0.00	-259.95	0.00	0.00
41	Jun-74	259.54	264.00	4.46	0.00	-259.54	0.00	-264.00	0.00	0.00
42	Jun-75	260.00	264.50	4.50	0.00	-260.00	0.00	-264.50	0.00	0.00
43	Jun-76	259.19	262.20	3.01	0.00	-259.19	0.00	-262.20	0.00	0.00
44	Jun-77	260.46	264.80	4.34	0.00	-260.46	0.00	-264.80	0.00	0.00
45	Jun-78	261.75	265.30	3.55	0.00	-261.75	0.00	-265.30	0.00	0.00
46	NorthWetland	252.00	258.00	6.00	0.00	-252.00	0.00	-258.00	0.00	0.00
47	OutletStructure	254.25	256.80	2.55	0.00	-254.25	0.00	-256.80	0.00	0.00
48	Ravine_1	256.10	260.10	4.00	0.00	-256.10	0.00	-260.10	0.00	0.00

Junction Results

SN	Element	Peak Inflow	Peak Lateral Inflow	Max HGL Elevation Attained	Max HGL Depth Attained	Max Surcharge Depth Attained	Min Freeboard Attained	Average HGL Elevation Attained	Average HGL Depth Attained	Time of Max HGL Occurrence
	ID	(cms)	(cms)	(m)	(m)	(m)	(m)	(m)	(m)	(days hh:mm)
1	Ex_MHR1	0.25	0.00	256.32	0.44	0.00	6.18	255.99	0.11	0 12:00
2	Ex_MHR2	0.25	0.00	255.90	0.42	0.00	3.75	255.59	0.11	0 12:00
3	Ex_MHR25	0.25	0.00	257.50	1.02	0.00	5.85	256.59	0.11	0 11:59
4	Ex_MHR26	0.25	0.00	257.83	1.19	0.00	4.92	256.76	0.12	0 11:59
5	Ex_MHR27	0.25	0.00	258.26	1.32	0.00	2.74	257.08	0.14	0 11:59
6	Ex_MHR28	0.69	0.69	259.07	1.70	0.00	0.23	257.53	0.16	0 12:00
7	Ex_MHR3	0.25	0.00	255.61	0.38	0.00	3.39	255.33	0.10	0 12:00
8	Jun-34	3.65	0.00	255.98	1.36	0.00	2.27	255.68	1.06	0 18:00
9	Jun-35	0.33	0.33	255.98	1.28	0.00	1.52	255.66	0.96	0 18:00
10	Jun-36	3.68	0.00	256.22	1.50	0.00	2.13	255.71	0.99	0 12:00
11	Jun-37	1.99	0.27	256.63	1.34	0.00	4.67	255.81	0.52	0 12:00
12	Jun-38	0.75	0.75	257.87	2.34	0.00	3.93	255.88	0.35	0 12:00
13	Jun-39	0.07	0.07	258.13	1.20	0.00	0.92	256.98	0.05	0 12:00
14	Jun-40	0.14	0.00	257.77	1.67	0.00	0.78	256.17	0.07	0 12:00
15	Jun-41	0.20	0.07	257.85	2.08	0.00	1.80	255.93	0.16	0 12:00
16	Jun-42	0.99	0.00	256.26	1.03	0.00	2.64	255.78	0.55	0 12:00
17	Jun-43	0.55	0.00	256.54	0.29	0.00	1.21	256.30	0.05	0 12:00
18	Jun-44	0.52	0.00	257.97	0.42	0.00	0.63	257.63	0.08	0 12:00
19	Jun-46	0.64	0.00	258.25	0.55	0.00	0.50	257.81	0.11	0 12:00
20	Jun-47	0.64	0.12	258.58	0.48	0.00	0.52	258.19	0.09	0 12:00
21	Jun-48	0.03	0.00	258.59	0.24	0.00	0.81	258.40	0.05	0 12:00
22	Jun-49	0.56	0.16	257.39	0.49	0.00	0.71	257.02	0.12	0 12:00
23	Jun-50	0.54	0.00	257.29	0.54	0.00	0.66	256.88	0.13	0 12:00
24	Jun-51	0.51	0.00	259.29	0.84	0.00	1.21	258.53	0.08	0 12:00
25	Jun-52	0.58	0.00	256.77	1.08	0.00	3.23	255.89	0.20	0 12:00
26	Jun-53	0.73	0.00	256.45	1.10	0.00	3.15	255.81	0.46	0 12:00
27	Jun-54	0.22	0.22	256.62	1.00	0.00	3.18	255.91	0.29	0 12:00
28	Jun-55	0.49	0.32	256.60	1.00	0.00	3.10	255.86	0.26	0 12:00
29	Jun-56	0.70	0.01	256.33	0.54	0.00	1.47	255.91	0.12	0 12:00
30	Jun-61	0.57	0.00	258.63	0.31	0.00	4.17	258.37	0.05	0 11:59
31	Jun-64	0.24	0.00	261.36	0.23	0.00	2.14	261.16	0.03	0 12:00
32	Jun-65	0.25	0.25	262.94	0.25	0.00	1.56	262.73	0.04	0 12:00
33	Jun-66	0.12	0.00	253.46	0.30	0.00	2.54	253.33	0.17	0 12:00
34	Jun-67	0.70	0.23	256.67	1.19	0.00	3.23	255.84	0.36	0 12:00
35	Jun-68	0.36	0.22	256.81	0.95	0.00	3.29	255.97	0.11	0 12:00
36	Jun-69	0.16	0.16	256.83	0.62	0.00	4.37	256.26	0.05	0 12:00
37	Jun-70	0.28	0.28	256.95	0.48	0.00	6.05	256.53	0.06	0 12:00
38	Jun-71	0.31	0.31	257.39	0.60	0.00	2.61	256.85	0.06	0 12:00
39	Jun-72	0.20	0.20	259.62	0.87	0.00	0.33	258.81	0.06	0 12:00
40	Jun-73	0.34	0.34	259.65	1.00	0.00	0.30	258.73	0.08	0 12:00
41	Jun-74	0.34	0.19	259.84	0.30	0.00	4.16	259.58	0.04	0 12:00
42	Jun-75	0.15	0.15	260.24	0.24	0.00	4.26	260.03	0.03	0 12:00
43	Jun-76	0.71	0.35	259.66	0.47	0.00	2.54	259.26	0.07	0 12:00
44	Jun-77	0.38	0.00	260.84	0.38	0.00	3.96	260.52	0.06	0 12:00
45	Jun-78	0.41	0.41	262.24	0.49	0.00	3.06	261.81	0.06	0 12:00
46	NorthWetland	0.11	0.11	252.00	0.00	0.00	6.00	252.00	0.00	0 00:00
47	OutletStructure	0.12	0.00	254.51	0.26	0.00	3.54	254.47	0.22	0 18:00

Channel Input

SN	Element ID	Length	Inlet Invert Elevation (m)	Inlet Invert Offset (m)	Outlet Invert Elevation (m)	Outlet Invert Offset (m)	Total Drop (m)	Average Slope (%)	Shape	Height (m)	Width (m)	Manning's Roughness
1	Link-103	10.00	257.70	2.98	257.50	4.50	0.20	2.0000	Rectangular	0.300	20.000	0.0320
2	Link-104	50.00	257.50	1.71	256.50	3.50	1.00	2.0000	Rectangular	0.300	20.000	0.0320
3	Link-122	70.00	259.30	3.95	258.60	3.37	0.70	1.0000	Rectangular	0.300	20.000	0.0320
4	Link-123	90.00	259.40	3.80	259.30	3.95	0.10	0.1100	Rectangular	0.300	20.000	0.0320
5	Link-124	90.00	259.50	3.88	259.40	3.80	0.10	0.1100	Rectangular	0.300	20.000	0.0320
6	Link-125	50.00	259.65	1.00	258.70	0.60	0.95	1.9000	Rectangular	0.300	20.000	0.0320
7	Link-126	50.00	259.65	0.90	258.70	0.60	0.95	1.9000	Rectangular	0.300	20.000	0.0320
8	Link-127	100.00	259.60	4.12	259.50	3.88	0.10	0.1000	Rectangular	0.300	20.000	0.0320
9	Link-128	150.00	259.70	4.01	259.60	4.12	0.10	0.0700	Rectangular	0.300	20.000	0.0320
10	Link-129	80.00	259.80	3.94	259.70	4.01	0.10	0.1300	Rectangular	0.300	20.000	0.0320
11	Link-130	100.00	259.90	3.69	259.80	3.94	0.10	0.1000	Rectangular	0.300	20.000	0.0320
12	Link-131	70.00	259.40	2.61	259.30	3.95	0.10	0.1400	Rectangular	0.300	20.000	0.0320
13	Link-132	150.00	265.00	3.25	264.50	4.04	0.50	0.3300	Rectangular	0.300	20.000	0.0320
14	Link-133	150.00	264.50	4.04	261.90	2.71	2.60	1.7300	Rectangular	0.300	20.000	0.0320
15	Link-134	250.00	261.90	2.71	257.70	2.98	4.20	1.6800	Rectangular	0.300	20.000	0.0320
16	Link-135	100.00	262.50	4.18	261.00	5.71	1.50	1.5000	Rectangular	0.300	20.000	0.0320
17	Link-34	270.00	271.40	3.80	269.65	2.58	1.75	0.6500	Rectangular	0.300	20.000	0.0320
18	Link-35	50.00	272.15	2.01	269.65	2.58	2.50	5.0000	Rectangular	0.300	20.000	0.0320
19	Link-36	222.00	269.65	2.58	268.30	1.67	1.35	0.6100	Rectangular	0.300	20.000	0.0320
20	Link-37	18.00	268.30	1.67	267.90	1.40	0.40	2.2200	Rectangular	0.300	20.000	0.0320
21	Link-38	227.00	271.80	1.45	267.90	1.40	3.90	1.7200	Rectangular	0.300	20.000	0.0320
22	Link-39	415.00	267.90	1.40	263.50	1.60	4.40	1.0600	Rectangular	0.300	20.000	0.0320
23	Link-41	180.00	269.55	1.80	265.50	1.50	4.05	2.2500	Rectangular	0.300	20.000	0.0320
24	Link-42	155.00	265.50	1.50	263.50	1.60	2.00	1.2900	Rectangular	0.300	20.000	0.0320
25	Link-43	140.00	263.50	1.60	262.25	1.92	1.25	0.8900	Rectangular	0.300	20.000	0.0320
26	Link-44	470.00	262.25	1.92	258.00	1.90	4.25	0.9000	Rectangular	0.300	20.000	0.0320
27	Link-45	195.00	263.20	1.50	260.70	1.32	2.50	1.2800	Rectangular	0.300	20.000	0.0320
28	Link-46	280.00	260.70	1.32	258.00	1.90	2.70	0.9600	Rectangular	0.300	20.000	0.0320
29	Link-51	65.00	259.00	1.63	258.05	3.33	0.95	1.4600	Rectangular	0.300	10.000	0.0320
30	Link-61	125.00	256.75	0.00	256.25	0.00	0.50	0.4000	User-Defined	1.000	9.000	0.0320
31	Link-63	162.50	257.55	0.00	256.90	0.00	0.65	0.4000	User-Defined	1.000	9.000	0.0320
32	Link-66	133.00	258.10	0.00	257.70	0.00	0.40	0.3000	User-Defined	1.000	9.000	0.0320
33	Link-67	75.00	258.40	0.05	258.10	0.00	0.30	0.4000	User-Defined	1.000	9.000	0.0320
34	Link-89	53.10	258.60	3.37	257.70	2.98	0.90	1.6900	Rectangular	0.300	20.000	0.0320
35	Link-90	90.00	258.75	1.82	257.75	1.65	1.00	1.1100	Rectangular	0.300	20.000	0.0320
36	Link-92	110.00	261.50	5.97	261.00	5.71	0.50	0.4500	Rectangular	0.300	20.000	0.0320
37	Link-93	340.00	261.00	5.71	257.70	2.98	3.30	0.9700	Rectangular	0.300	20.000	0.0320
38	Link-94	95.00	259.35	3.58	257.75	1.65	1.60	1.6800	Rectangular	0.300	20.000	0.0320
39	LowerRavine	124.00	253.00	0.00	252.45	0.00	0.55	0.4400	Trapezoidal	4.000	17.000	0.0320
40	OutletRavine	45.00	252.45	0.00	252.00	0.00	0.45	1.0000	Trapezoidal	4.000	17.000	0.0320
41	RH_C1	215.00	269.00	0.00	264.00	0.00	5.00	2.3300	Trapezoidal	1.500	7.000	0.0320
42	RH_C2	60.00	264.00	0.00	263.50	1.50	0.50	0.8300	Trapezoidal	1.500	7.000	0.0320
43	UpperRavine	553.00	256.10	0.00	253.00	0.00	3.10	0.5600	Trapezoidal	4.000	17.000	0.0320

Channel Results

SN Element ID	Peak Flow	Time of Peak Flow Occurrence	Design Flow Capacity	Peak Flow/ Design Flow Ratio	Peak Flow Velocity	Travel Time	Peak Flow Depth	Peak Flow Depth/ Total Depth Ratio	Total Tin Surcharge
	(cms)	(days hh:mm)	(cms)		(m/sec)	(min)	(m)		(mi)
1 Link-103	0.00	0 00:00	11.65	0.00	0.00		0.00	0.00	0.00
2 Link-104	0.00	0 00:00	11.65	0.00	0.00		0.00	0.00	0.00
3 Link-122	0.00	0 00:00	8.24	0.00	0.00		0.00	0.00	0.00
4 Link-123	0.00	0 00:00	2.75	0.00	0.00		0.00	0.00	0.00
5 Link-124	0.00	0 00:00	2.75	0.00	0.00		0.00	0.00	0.00
6 Link-125	0.00	0 12:01	11.36	0.00	0.00		0.00	0.01	0.00
7 Link-126	0.00	0 00:00	11.36	0.00	0.00		0.00	0.00	0.00
8 Link-127	0.00	0 00:00	2.61	0.00	0.00		0.00	0.00	0.00
9 Link-128	0.00	0 00:00	2.13	0.00	0.00		0.00	0.00	0.00
10 Link-129	0.00	0 00:00	2.91	0.00	0.00		0.00	0.00	0.00
11 Link-130	0.00	0 00:00	2.61	0.00	0.00		0.00	0.00	0.00
12 Link-131	0.00	0 00:00	3.11	0.00	0.00		0.00	0.00	0.00
13 Link-132	0.00	0 00:00	4.76	0.00	0.00		0.00	0.00	0.00
14 Link-133	0.00	0 00:00	10.85	0.00	0.00		0.00	0.00	0.00
15 Link-134	0.00	0 00:00	10.68	0.00	0.00		0.00	0.00	0.00
16 Link-135	0.00	0 00:00	10.09	0.00	0.00		0.00	0.00	0.00
17 Link-34	1.70	0 12:01	6.63	0.26	0.64	7.03	0.14	0.48	0.00
18 Link-35	1.63	0 12:00	18.43	0.09	1.11	0.75	0.11	0.38	0.00
19 Link-36	1.95	0 12:08	6.43	0.30	0.70	5.29	0.14	0.46	0.00
20 Link-37	1.62	0 12:09	12.28	0.13	0.90	0.33	0.10	0.33	0.00
21 Link-38	0.58	0 12:04	10.80	0.05	0.57	6.64	0.08	0.25	0.00
22 Link-39	1.79	0 12:17	8.48	0.21	0.77	8.98	0.12	0.39	0.00
23 Link-41	0.00	0 00:00	12.36	0.00	0.00		0.00	0.00	0.00
24 Link-42	0.00	0 00:00	9.36	0.00	0.00		0.06	0.21	0.00
25 Link-43	1.56	0 12:23	7.79	0.20	0.73	3.20	0.11	0.36	0.00
26 Link-44	0.81	0 12:38	7.84	0.10	0.56	13.99	0.07	0.24	0.00
27 Link-45	0.00	0 00:00	9.33	0.00	0.00		0.00	0.00	0.00
28 Link-46	0.00	0 00:00	8.09	0.00	0.00		0.00	0.00	0.00
29 Link-51	0.40	0 12:01	4.89	0.08	0.64	1.69	0.06	0.21	0.00
30 Link-61	0.55	0 12:11	4.86	0.11	0.63	3.31	0.41	0.41	0.00
31 Link-63	0.49	0 12:08	4.86	0.10	0.48	5.64	0.45	0.45	0.00
32 Link-66	0.64	0 12:02	4.22	0.15	0.53	4.18	0.50	0.50	0.00
33 Link-67	0.03	0 11:59	4.86	0.01	0.07	17.86	0.32	0.34	0.00
34 Link-89	0.00	0 00:00	10.73	0.00	0.00		0.00	0.00	0.00
35 Link-90	0.00	0 00:00	8.69	0.00	0.00		0.01	0.03	0.00
36 Link-92	0.00	0 00:00	5.56	0.00	0.00		0.00	0.00	0.00
37 Link-93	0.00	0 00:00	8.12	0.00	0.00		0.00	0.00	0.00
38 Link-94	0.00	0 00:00	10.69	0.00	0.00		0.01	0.03	0.00
39 LowerRavine	2.48	0 12:45	157.98	0.02	1.08	1.91	0.41	0.10	0.00
40 OutletRavine	2.48	0 12:46	237.22	0.01	1.41	0.53	0.32	0.08	0.00
41 RH_C1	1.18	0 12:00	24.20	0.05	1.47	2.44	0.43	0.29	0.00
42 RH_C2	1.17	0 12:02	14.49	0.08	1.35	0.74	0.43	0.30	0.00
43 UpperRavine	2.43	0 12:41	177.61	0.01	1.03	8.95	0.42	0.11	0.00

Pipe Input

SN	Element	Length	Inlet Invert	Inlet Invert	Outlet Invert	Outlet Invert	Total Drop	Average Slope	Pipe Shape	Pipe Diameter or Height	Pipe Width	Mi Roi
	ID	(m)	Elevation (m)	Offset (m)	Elevation (m)	Offset (m)	(m)	(%)		(m)	(m)	
1	Ex.STM_1	107.00	257.37	0.00	256.94	0.00	0.43	0.4000	CIRCULAR	0.450	0.450	
2	Ex.STM_2	73.00	256.94	0.00	256.64	0.00	0.30	0.4100	CIRCULAR	0.450	0.450	
3	Ex.STM_3	27.00	256.64	0.00	256.48	0.00	0.16	0.5900	CIRCULAR	0.450	0.450	
4	Ex.STM_4	100.00	256.48	0.00	255.88	0.00	0.60	0.6000	CIRCULAR	0.450	0.450	
5	Ex.STM_5	100.00	255.88	0.00	255.48	0.00	0.40	0.4000	CIRCULAR	0.530	0.530	
6	Ex.STM_6	50.00	255.48	0.00	255.23	0.00	0.25	0.5000	CIRCULAR	0.530	0.530	
7	Ex.STM_7	102.00	255.23	0.00	254.82	0.00	0.41	0.4000	CIRCULAR	0.600	0.600	
8	Link-106	24.80	253.16	0.00	252.85	-0.15	0.31	1.2500	CIRCULAR	0.750	0.750	
9	Link-107	93.20	254.35	0.10	253.20	0.04	1.15	1.2300	CIRCULAR	0.750	0.750	
10	Link-108	110.30	255.48	0.00	255.37	0.08	0.11	0.1000	CIRCULAR	1.200	1.200	
11	Link-109	30.00	257.70	0.00	257.55	0.00	0.15	0.5000	CIRCULAR	1.050	1.050	
12	Link-110	153.00	255.69	0.00	255.48	0.00	0.21	0.1400	CIRCULAR	0.900	0.900	
13	Link-111	66.80	255.86	0.00	255.77	0.08	0.09	0.1300	CIRCULAR	0.750	0.750	
14	Link-112	106.60	256.21	0.00	255.91	0.05	0.30	0.2800	CIRCULAR	0.600	0.600	
15	Link-113	97.50	256.47	0.00	255.88	0.19	0.59	0.6100	CIRCULAR	0.530	0.530	
16	Link-114	85.10	256.79	0.00	255.73	0.38	1.06	1.2500	CIRCULAR	0.450	0.450	
17	Link-115	50.00	258.65	0.00	258.50	0.05	0.15	0.3000	CIRCULAR	0.530	0.530	
18	Link-116	50.00	258.75	0.00	258.55	0.10	0.20	0.4000	CIRCULAR	0.450	0.450	
19	Link-117	90.00	259.54	0.00	258.37	0.05	1.17	1.3000	CIRCULAR	0.680	0.680	
20	Link-118	41.60	260.00	0.00	259.56	0.02	0.44	1.0600	CIRCULAR	0.530	0.530	
21	Link-119	181.70	259.19	0.00	256.08	0.29	3.11	1.7100	CIRCULAR	0.600	0.600	
22	Link-120	140.50	260.46	0.00	259.24	0.05	1.22	0.8700	CIRCULAR	0.600	0.600	
23	Link-121	152.20	261.75	0.00	260.51	0.05	1.24	0.8100	CIRCULAR	0.530	0.530	
24	Link-49	20.70	254.62	0.00	254.60	1.60	0.02	0.1000	CIRCULAR	1.800	1.800	
25	Link-50	75.20	254.70	0.00	254.60	1.60	0.10	0.1300	CIRCULAR	0.600	0.600	
26	Link-52	35.00	254.72	0.00	254.67	0.05	0.05	0.1400	CIRCULAR	1.650	1.650	
27	Link-53	336.90	255.29	0.00	254.74	0.02	0.55	0.1600	CIRCULAR	1.350	1.350	
28	Link-54	110.00	255.53	0.00	255.31	0.02	0.22	0.2000	CIRCULAR	0.600	0.600	
29	Link-56	110.00	255.77	0.00	255.55	0.02	0.22	0.2000	CIRCULAR	0.600	0.600	
30	Link-57	95.50	256.10	0.00	255.85	0.08	0.25	0.2600	CIRCULAR	0.450	0.450	
31	Link-58	90.00	256.93	0.00	256.25	0.15	0.68	0.7600	CIRCULAR	0.300	0.300	
32	Link-59	53.10	255.23	0.00	255.13	0.41	0.10	0.1900	CIRCULAR	1.500	1.500	
33	Link-60	13.40	256.25	0.00	255.84	0.61	0.41	3.0600	CIRCULAR	1.500	1.500	
34	Link-62	25.00	256.90	0.00	256.75	0.00	0.15	0.6000	CIRCULAR	1.200	1.200	
35	Link-68	60.00	258.45	0.00	258.20	0.10	0.25	0.4200	CIRCULAR	0.600	0.600	
36	Link-70	57.00	255.35	0.00	255.25	0.02	0.10	0.1800	CIRCULAR	0.820	0.820	
37	Link-71	82.00	255.60	0.00	255.43	0.08	0.17	0.2100	CIRCULAR	0.750	0.750	
38	Link-72	85.00	255.79	0.17	255.62	0.02	0.17	0.2000	CIRCULAR	0.750	0.750	
39	Link-73	67.80	255.78	-0.01	255.10	0.38	0.68	1.0000	CIRCULAR	0.900	0.900	
40	Link-80	89.90	258.32	0.00	255.97	0.68	2.35	2.6100	CIRCULAR	0.750	0.750	
41	Link-81	93.20	261.13	0.00	259.27	0.95	1.86	2.0000	CIRCULAR	0.600	0.600	
42	Link-82	103.90	262.69	0.00	261.13	0.00	1.56	1.5000	CIRCULAR	0.600	0.600	
43	RH_A1	50.00	270.14	0.00	268.50	1.43	1.64	3.2800	CIRCULAR	0.300	0.300	
44	RH_B1	227.00	270.35	0.00	266.50	0.00	3.85	1.7000	CIRCULAR	0.300	0.300	
45	RH_C3	15.00	262.00	0.00	261.70	0.00	0.30	2.0000	CIRCULAR	0.600	0.600	
46	RH_C4	195.00	261.70	0.00	259.38	0.00	2.32	1.1900	CIRCULAR	0.530	0.530	
47	RH_C5	274.00	259.38	0.00	256.36	0.00	3.02	1.1000	CIRCULAR	0.530	0.530	
48	RH_C6	6.00	256.36	0.00	256.24	0.14	0.12	2.0000	CIRCULAR	0.700	0.700	

2-YEAR STORM

No. of
Barrels

1

Pipe Results

SN Element ID	Peak Flow	Time of Peak Flow Occurrence	Design Flow Capacity	Peak Flow/ Design Flow Ratio	Peak Flow Velocity	Travel Time	Peak Flow Depth	Peak Flow Depth/ Total Depth Ratio	To Sur
	(cms)	(days hh:mm)	(cms)		(m/sec)	(min)	(m)		
1 Ex.STM_1	0.25	0 12:00	0.18	1.37	1.55	1.15	0.45	1.00	
2 Ex.STM_2	0.25	0 12:00	0.18	1.35	1.55	0.78	0.45	1.00	
3 Ex.STM_3	0.25	0 12:00	0.22	1.13	1.55	0.29	0.45	1.00	
4 Ex.STM_4	0.25	0 12:00	0.22	1.12	1.58	1.05	0.44	0.99	
5 Ex.STM_5	0.25	0 12:01	0.27	0.91	1.32	1.26	0.43	0.82	
6 Ex.STM_6	0.25	0 12:02	0.30	0.81	1.40	0.60	0.40	0.77	
7 Ex.STM_7	0.25	0 12:03	0.39	0.63	1.44	1.18	0.35	0.59	
8 Link-106	0.12	0 18:32	0.89	0.13	1.65	0.25	0.38	0.51	
9 Link-107	0.12	0 18:31	1.24	0.10	1.65	0.94	0.19	0.25	
10 Link-108	0.60	0 12:07	1.23	0.48	0.71	2.59	1.19	0.99	
11 Link-109	0.52	0 12:03	1.93	0.27	1.50	0.33	0.47	0.46	
12 Link-110	0.47	0 12:00	0.67	0.70	0.84	3.04	0.90	1.00	
13 Link-111	0.31	0 11:59	0.41	0.76	0.86	1.29	0.75	1.00	
14 Link-112	0.14	0 11:59	0.33	0.43	0.73	2.43	0.60	1.00	
15 Link-113	0.27	0 11:59	0.33	0.81	1.42	1.14	0.50	0.96	
16 Link-114	0.29	0 12:00	0.32	0.92	2.03	0.70	0.43	1.00	
17 Link-115	0.33	0 12:02	0.24	1.40	1.52	0.55	0.52	1.00	
18 Link-116	0.20	0 12:00	0.18	1.12	1.27	0.66	0.45	1.00	
19 Link-117	0.33	0 12:00	0.96	0.35	2.32	0.65	0.28	0.42	
20 Link-118	0.15	0 12:00	0.44	0.34	1.46	0.47	0.26	0.49	
21 Link-119	0.70	0 12:01	0.80	0.86	3.07	0.99	0.43	0.75	
22 Link-120	0.38	0 12:01	0.57	0.67	1.93	1.21	0.39	0.66	
23 Link-121	0.38	0 12:00	0.39	0.99	1.97	1.29	0.44	0.86	
24 Link-49	3.65	0 12:04	3.57	1.02	2.20	0.16	1.37	0.76	
25 Link-50	0.33	0 12:00	0.22	1.49	1.22	1.03	0.60	1.00	
26 Link-52	3.65	0 12:03	3.45	1.06	1.93	0.30	1.36	0.83	
27 Link-53	1.75	0 12:06	2.16	0.81	1.24	4.53	1.34	1.00	
28 Link-54	0.61	0 12:02	0.27	2.22	2.16	0.85	0.60	1.00	
29 Link-56	0.22	0 12:13	0.27	0.81	0.78	2.35	0.60	1.00	
30 Link-57	0.18	0 12:13	0.15	1.23	1.13	1.41	0.45	1.00	
31 Link-58	0.06	0 12:03	0.08	0.71	1.13	1.33	0.30	1.00	
32 Link-59	0.97	0 12:03	3.07	0.31	1.16	0.76	1.05	0.71	
33 Link-60	0.54	0 12:12	12.37	0.04	2.78	0.08	0.30	0.20	
34 Link-62	0.54	0 12:09	3.02	0.18	1.16	0.36	0.52	0.43	
35 Link-68	0.51	0 12:00	0.40	1.29	1.92	0.52	0.53	0.89	
36 Link-70	0.70	0 12:01	0.60	1.16	1.30	0.73	0.82	1.00	
37 Link-71	0.45	0 12:01	0.51	0.89	1.02	1.34	0.75	1.00	
38 Link-72	0.19	0 12:00	0.50	0.39	0.56	2.53	0.73	1.00	
39 Link-73	0.68	0 12:01	1.83	0.37	1.67	0.68	0.70	0.80	
40 Link-80	0.58	0 12:00	1.80	0.32	3.32	0.45	0.45	0.60	
41 Link-81	0.24	0 12:00	0.87	0.28	2.52	0.62	0.22	0.37	
42 Link-82	0.25	0 12:00	0.75	0.33	2.33	0.74	0.24	0.40	
43 RH_A1	0.23	0 11:49	0.18	1.31	3.26	0.26	0.30	1.00	
44 RH_B1	0.14	0 11:48	0.13	1.10	1.96	1.93	0.30	1.00	
45 RH_C3	0.47	0 12:02	0.87	0.54	1.90	0.13	0.60	1.00	
46 RH_C4	0.44	0 12:11	0.41	1.07	2.12	1.53	0.52	1.00	
47 RH_C5	0.45	0 12:09	0.45	1.00	2.13	2.14	0.52	1.00	

Project Description

File Name	18010_Post-Development Rev.0.SPF
Description	I:\ACAD Projects\2018\18010\03-Ref\18010_Pre-Dev. Storm
	I:\ACAD Projects\2018\18010\03-Ref\18010_Pre-Dev. Storm
	I:\ACAD Projects\2018\18010\03-Ref\18010_Post-Dev.Storm
	I:\ACAD Projects\2018\18010\03-Ref\18010_Post-Dev.Storm

Project Options

Flow Units	CMS
Elevation Type	Elevation
Hydrology Method	EPA SWMM
EPA SWMM Infiltration Method	SCS Curve Number
Link Routing Method	Hydrodynamic
Enable Overflow Ponding at Nodes	YES
Skip Steady State Analysis Time Periods	YES

Analysis Options

Start Analysis On	00:00:00	0:00:00
End Analysis On	00:00:00	0:00:00
Start Reporting On	00:00:00	0:00:00
Antecedent Dry Days	0	days
Runoff (Dry Weather) Time Step	0 01:00:00	days hh:mm:ss
Runoff (Wet Weather) Time Step	0 00:05:00	days hh:mm:ss
Reporting Time Step	0 00:05:00	days hh:mm:ss
Routing Time Step	30	seconds

Number of Elements

	Qty
Rain Gages	1
Subbasins.....	58
Nodes.....	77
<i>Junctions</i>	69
<i>Outfalls</i>	5
<i>Flow Diversions</i>	0
<i>Inlets</i>	0
<i>Storage Nodes</i>	3
Links.....	109
<i>Channels</i>	43
<i>Pipes</i>	61
<i>Pumps</i>	0
<i>Orifices</i>	1
<i>Weirs</i>	4
<i>Outlets</i>	0
Pollutants	0
Land Uses	0

Subbasin Summary

SN Subbasin ID	Area	Impervious Area	Weighted Curve Number	Average Slope	Equivalent Width	Impervious Area Manning's Roughness	Pervious Area Manning's Roughness	Total Rainfall	Total Infiltration	Total Runoff	Total Runoff Volume	Peak Runoff	Time of Concentration
	(ha)	(%)		(%)	(m)			(mm)	(mm)	(mm)	(ha-mm)	(cms)	(days hh:mm:ss)
1 {Survey Site}.Standard : 10	0.92	2.00	67.00	2.0000	125.00	0.0130	0.2000	63.79	45.8330	16.69	15.32	0.02	0 01:15:47
2 {Survey Site}.Standard : 11	21.38	2.00	67.00	2.0000	360.00	0.0130	0.2000	63.79	42.9570	18.67	399.08	0.15	0 04:25:38
3 {Survey Site}.Standard : 12	0.71	5.00	67.00	2.0000	90.00	0.0130	0.2000	63.79	44.4540	18.07	12.83	0.02	0 01:17:39
4 {Survey Site}.Standard : 13	1.65	45.00	71.05	2.0000	220.00	0.0130	0.2000	63.79	24.0720	38.45	63.36	0.22	0 00:54:14
5 {Survey Site}.Standard : 14	4.32	2.00	67.00	2.0000	350.00	0.0130	0.2000	63.79	46.1350	16.39	70.80	0.05	0 01:43:29
6 {Survey Site}.Standard : 17	0.36	5.00	67.00	5.0000	20.00	0.0130	0.2000	63.79	44.6490	17.88	6.36	0.01	0 01:36:07
7 {Survey Site}.Standard : 18	13.10	5.00	48.00	10.0000	300.00	0.0130	0.2000	63.79	53.9980	8.54	111.82	0.18	0 02:13:45
8 {Survey Site}.Standard : 19	1.32	55.00	75.95	2.0000	90.00	0.0130	0.2000	63.79	18.0160	44.50	58.74	0.21	0 01:11:57
9 {Survey Site}.Standard : 2	20.86	45.00	71.05	2.0000	300.00	0.0130	0.2000	63.79	25.0340	37.44	781.17	2.02	0 03:26:30
10 {Survey Site}.Standard : 23	2.20	5.00	48.00	10.0000	100.00	0.0130	0.2000	63.79	53.5590	8.98	19.75	0.03	0 01:28:36
11 {Survey Site}.Standard : 26	1.12	45.00	71.05	2.0000	40.00	0.0130	0.2000	63.79	24.4670	38.05	42.77	0.13	0 01:59:53
12 {Survey Site}.Standard : 27	0.43	45.00	71.05	2.0000	60.00	0.0130	0.2000	63.79	24.0600	38.45	16.42	0.06	0 00:52:35
13 {Survey Site}.Standard : 28	0.12	45.00	71.05	2.0000	40.00	0.0130	0.2000	63.79	23.9370	38.55	4.74	0.02	0 00:31:47
14 {Survey Site}.Standard : 29	7.86	45.00	71.05	2.0000	110.00	0.0130	0.2000	63.79	25.0580	37.42	294.17	0.75	0 03:29:54
15 {Survey Site}.Standard : 3	25.14	45.00	71.05	2.0000	370.00	0.0130	0.2000	63.79	25.0090	37.46	941.76	2.45	0 03:23:37
16 {Survey Site}.Standard : 30	20.00	30.00	63.70	2.0000	225.00	0.0130	0.2000	63.79	35.8510	26.65	532.81	1.33	0 04:36:27
17 {Survey Site}.Standard : 31	5.54	5.00	57.00	2.0000	245.00	0.0130	0.2000	63.79	50.5060	12.04	66.74	0.08	0 02:26:08
18 {Survey Site}.Standard : 32	3.34	2.00	67.00	2.0000	95.00	0.0130	0.2000	63.79	47.1920	15.33	51.13	0.03	0 03:13:46
19 {Survey Site}.Standard : 33	7.71	2.00	67.00	2.0000	215.00	0.0130	0.2000	63.79	47.2420	15.30	117.90	0.06	0 03:16:12
20 {Survey Site}.Standard : 4	3.13	2.00	67.00	2.0000	155.00	0.0130	0.2000	63.79	46.5380	15.99	50.05	0.03	0 02:19:05
21 {Survey Site}.Standard : 46	5.62	2.00	67.00	2.0000	200.00	0.0130	0.2000	63.79	46.9150	15.62	87.86	0.05	0 02:49:37
22 {Survey Site}.Standard : 5	10.46	45.00	71.05	0.5000	235.00	0.0130	0.2000	63.79	25.2430	37.20	389.12	0.94	0 03:59:27
23 {Survey Site}.Standard : 51	0.39	95.00	95.55	0.5000	20.00	0.0130	0.2000	63.79	0.5200	61.71	23.76	0.08	0 00:38:59
24 {Survey Site}.Standard : 52	10.94	2.00	36.00	0.5000	240.00	0.0130	0.2000	63.79	55.6900	3.43	37.57	0.06	0 05:43:32
25 {Survey Site}.Standard : 53	0.36	75.00	85.75	3.0000	20.00	0.0130	0.2000	63.79	7.0170	55.12	20.06	0.08	0 00:50:58
26 {Survey Site}.Standard : 54	3.94	75.00	85.75	2.0000	150.00	0.0130	0.2000	63.79	7.0170	55.04	216.79	0.75	0 01:11:43
27 {Survey Site}.Standard : 57	0.38	15.00	56.35	2.0000	125.00	0.0130	0.2000	63.79	44.4660	18.04	6.91	0.02	0 00:41:11
28 {Survey Site}.Standard : 6	11.54	2.00	67.00	2.0000	280.00	0.0130	0.2000	63.79	47.4430	15.09	174.16	0.08	0 03:33:22
29 {Survey Site}.Standard : 63	1.63	55.00	75.95	2.0000	90.00	0.0130	0.2000	63.79	18.0660	44.45	72.41	0.25	0 01:21:38
30 {Survey Site}.Standard : 65	1.71	55.00	75.95	2.0000	130.00	0.0130	0.2000	63.79	18.0000	44.53	76.09	0.27	0 01:07:22

Subbasin Summary

SN	Subbasin ID	Area	Impervious Area	Weighted Curve Number	Average Slope	Equivalent Width	Impervious Area Manning's Roughness	Pervious Area Manning's Roughness	Total Rainfall	Total Infiltration	Total Runoff	Total Runoff Volume	Peak Runoff	Time of Concentration
		(ha)	(%)		(%)	(m)			(mm)	(mm)	(mm)	(ha-mm)	(cms)	(days hh:mm:ss)
48	{Survey Site}.Standard : 84	1.00	55.00	75.95	2.0000	50.00	0.0130	0.2000	63.79	18.0900	44.43	44.60	0.15	0 01:26:52
49	{Survey Site}.Standard : 85	1.78	55.00	75.95	2.0000	70.00	0.0130	0.2000	63.79	18.1480	44.35	79.08	0.26	0 01:40:12
50	{Survey Site}.Standard : 86	1.43	55.00	75.95	2.0000	100.00	0.0130	0.2000	63.79	18.0080	44.51	63.43	0.22	0 01:10:43
51	{Survey Site}.Standard : 87	2.66	55.00	75.95	2.0000	100.00	0.0130	0.2000	63.79	18.1640	44.34	117.81	0.38	0 01:42:46
52	{Survey Site}.Standard : 88	1.64	55.00	75.95	2.0000	75.00	0.0130	0.2000	63.79	18.1070	44.40	72.73	0.24	0 01:31:22
53	{Survey Site}.Standard : 89	1.11	55.00	75.95	2.0000	100.00	0.0130	0.2000	63.79	17.9670	44.56	49.59	0.18	0 01:00:58
54	{Survey Site}.Standard : 9	3.53	2.00	67.00	2.0000	100.00	0.0130	0.2000	63.79	47.2170	15.32	54.11	0.03	0 03:14:29
55	{Survey Site}.Standard : 90	1.22	65.00	80.85	2.0000	130.00	0.0130	0.2000	63.79	12.2220	50.23	61.02	0.24	0 00:47:13
56	{Survey Site}.Standard : 91	1.00	65.00	80.85	2.0000	130.00	0.0130	0.2000	63.79	12.2220	50.24	50.09	0.20	0 00:41:56
57	{Survey Site}.Standard : 92	2.19	55.00	75.95	2.0000	75.00	0.0130	0.2000	63.79	18.1970	44.30	97.16	0.31	0 01:48:51
58	{Survey Site}.Standard : 93	2.32	15.00	56.35	5.0000	525.00	0.0130	0.2000	63.79	44.4660	18.06	41.87	0.10	0 00:38:57

Node Summary

SN	Element ID	Element Type	Invert Elevation	Ground/Rim (Max) Elevation	Initial Water Elevation	Surcharge Elevation	Ponded Area	Peak Inflow	Max HGL Elevation Attained	Max Surcharge Depth Attained	Min Freeboard Attained	Time of Peak Flooding Occurrence	Total Flooded Volume	Total Time Flooded
			(m)	(m)	(m)	(m)	(m²)	(cms)	(m)	(m)	(m)	(days hh:mm)	(ha-mm)	(min)
1	Ex_MHR1	Junction	255.88	262.50	0.00	0.00	0.00	0.25	256.32	0.00	6.18	0 00:00	0.00	0.00
2	Ex_MHR2	Junction	255.48	259.65	0.00	0.00	0.00	0.25	255.90	0.00	3.75	0 00:00	0.00	0.00
3	Ex_MHR25	Junction	256.48	263.35	0.00	0.00	0.00	0.25	257.46	0.00	5.89	0 00:00	0.00	0.00
4	Ex_MHR26	Junction	256.64	262.75	0.00	0.00	0.00	0.25	257.85	0.00	4.90	0 00:00	0.00	0.00
5	Ex_MHR27	Junction	256.94	261.00	0.00	0.00	0.00	0.25	258.30	0.00	2.70	0 00:00	0.00	0.00
6	Ex_MHR28	Junction	257.37	259.30	0.00	0.00	0.00	0.75	259.08	0.00	0.22	0 00:00	0.00	0.00
7	Ex_MHR3	Junction	255.23	259.00	0.00	0.00	0.00	0.25	255.61	0.00	3.39	0 00:00	0.00	0.00
8	Jun-34	Junction	254.62	258.25	0.00	0.00	0.00	3.99	256.03	0.00	2.22	0 00:00	0.00	0.00
9	Jun-35	Junction	254.70	257.50	0.00	0.00	0.00	0.37	256.03	0.00	1.47	0 00:00	0.00	0.00
10	Jun-36	Junction	254.72	258.00	0.00	0.00	0.00	4.00	256.31	0.00	2.04	0 00:00	0.00	0.00
11	Jun-37	Junction	255.29	261.30	0.00	0.00	0.00	2.10	256.83	0.00	4.47	0 00:00	0.00	0.00
12	Jun-38	Junction	255.53	261.80	0.00	0.00	0.00	0.82	258.07	0.00	3.73	0 00:00	0.00	0.00
13	Jun-39	Junction	256.93	259.05	0.00	0.00	0.00	0.08	258.25	0.00	0.80	0 00:00	0.00	0.00
14	Jun-40	Junction	256.10	258.55	0.00	0.00	0.00	0.21	257.79	0.00	0.76	0 00:00	0.00	0.00
15	Jun-41	Junction	255.77	259.65	0.00	0.00	0.00	0.23	258.05	0.00	1.60	0 00:00	0.00	0.00
16	Jun-42	Junction	255.23	258.90	0.00	0.00	0.00	1.10	256.34	0.00	2.56	0 00:00	0.00	0.00
17	Jun-43	Junction	256.25	257.25	0.00	0.00	0.00	0.64	256.56	0.00	1.19	0 00:00	0.00	0.00
18	Jun-44	Junction	257.55	258.55	0.00	0.00	0.00	0.56	257.98	0.00	0.62	0 00:00	0.00	0.00
19	Jun-46	Junction	257.70	258.70	0.00	258.70	0.00	0.67	258.28	0.00	0.47	0 00:00	0.00	0.00
20	Jun-47	Junction	258.10	259.10	0.00	0.00	0.00	0.66	258.59	0.00	0.51	0 00:00	0.00	0.00
21	Jun-48	Junction	258.35	259.35	0.00	0.00	0.00	0.03	258.59	0.00	0.81	0 00:00	0.00	0.00
22	Jun-49	Junction	256.90	257.90	0.00	0.00	0.00	0.62	257.42	0.00	0.68	0 00:00	0.00	0.00
23	Jun-50	Junction	256.75	257.75	0.00	0.00	0.00	0.60	257.32	0.00	0.63	0 00:00	0.00	0.00
24	Jun-51	Junction	258.45	260.50	0.00	0.00	0.00	0.52	259.31	0.00	1.19	0 00:00	0.00	0.00
25	Jun-52	Junction	255.69	260.00	0.00	0.00	0.00	0.60	257.02	0.00	2.98	0 00:00	0.00	0.00
26	Jun-53	Junction	255.35	259.60	0.00	0.00	0.00	0.80	256.58	0.00	3.02	0 00:00	0.00	0.00
27	Jun-54	Junction	255.62	259.80	0.00	0.00	0.00	0.24	256.81	0.00	2.99	0 00:00	0.00	0.00
28	Jun-55	Junction	255.60	259.70	0.00	0.00	0.00	0.56	256.77	0.00	2.93	0 00:00	0.00	0.00
29	Jun-56	Junction	255.79	257.80	0.00	0.00	0.00	0.75	256.45	0.00	1.35	0 00:00	0.00	0.00
30	Jun-61	Junction	258.32	262.00	0.00	0.00	0.00	0.63	258.63	0.00	4.17	0 00:00	0.00	0.00

Node Summary

SN	Element ID	Element Type	Invert Elevation	Ground/Rim (Max) Elevation	Initial Water Elevation	Surcharge Elevation	Ponded Area	Peak Inflow	Max HGL Elevation Attained	Max Surcharge Depth Attained	Min Freeboard Attained	Time of Peak Flooding Occurrence	Total Flooded Volume	Total Time Flooded
			(m)	(m)	(m)	(m)	(m²)	(cms)	(m)	(m)	(m)	(days hh:mm)	(ha-mm)	(min)
48	Ravine_1	Junction	256.10	260.10	0.00	0.00	0.00	2.81	256.52	0.00	3.58	0 00:00	0.00	0.00
49	Ravine_2	Junction	253.00	257.00	0.00	0.00	0.00	2.88	253.50	0.00	3.50	0 00:00	0.00	0.00
50	Ravine_3	Junction	252.45	256.45	0.00	0.00	0.00	2.85	252.84	0.00	3.61	0 00:00	0.00	0.00
51	RH_1	Junction	267.60	271.70	0.00	0.00	0.00	2.45	271.54	0.00	0.16	0 00:00	0.00	0.00
52	RH_10	Junction	261.90	263.90	0.00	0.00	0.00	3.16	263.65	0.00	0.25	0 00:00	0.00	0.00
53	RH_11	Junction	260.33	262.55	0.00	0.00	0.00	2.70	262.36	0.00	0.19	0 00:00	0.00	0.00
54	RH_12	Junction	269.00	270.50	0.00	0.00	0.00	1.33	269.38	0.00	1.12	0 00:00	0.00	0.00
55	RH_13	Junction	264.00	266.50	0.00	0.00	0.00	1.36	264.53	0.00	1.97	0 00:00	0.00	0.00
56	RH_14	Junction	261.70	263.50	0.00	0.00	0.00	0.47	262.69	0.00	0.81	0 00:00	0.00	0.00
57	RH_15	Junction	259.38	261.00	0.00	0.00	0.00	0.47	260.19	0.00	0.81	0 00:00	0.00	0.00
58	RH_16	Junction	256.36	258.00	0.00	0.00	0.00	0.45	257.05	0.00	0.95	0 00:00	0.00	0.00
59	RH_17	Junction	256.42	258.00	0.00	0.00	0.00	1.20	257.48	0.00	0.52	0 00:00	0.00	0.00
60	RH_2	Junction	270.14	272.45	0.00	0.00	0.00	2.02	272.22	0.00	0.23	0 00:00	0.00	0.00
61	RH_3	Junction	267.07	270.50	0.00	0.00	0.00	4.28	269.85	0.00	0.65	0 00:00	0.00	0.00
62	RH_4	Junction	266.63	268.60	0.00	0.00	0.00	2.95	268.40	0.00	0.20	0 00:00	0.00	0.00
63	RH_5	Junction	270.35	272.10	0.00	0.00	0.00	0.94	271.86	0.00	0.24	0 00:00	0.00	0.00
64	RH_6	Junction	266.50	268.20	0.00	0.00	0.00	3.63	268.03	0.00	0.17	0 00:00	0.00	0.00
65	RH_7	Junction	272.00	273.50	0.00	0.00	0.00	0.00	272.00	0.00	1.50	0 00:00	0.00	0.00
66	RH_8	Junction	267.75	269.85	0.00	0.00	0.00	0.17	268.06	0.00	1.79	0 00:00	0.00	0.00
67	RH_9	Junction	264.00	265.80	0.00	0.00	0.00	0.17	264.56	0.00	1.24	0 00:00	0.00	0.00
68	WestOutfall	Junction	257.00	258.40	0.00	0.00	0.00	0.02	257.00	0.00	2.45	0 00:00	0.00	0.00
69	WestWetland	Junction	258.00	259.00	0.00	0.00	0.00	0.06	258.00	0.00	1.00	0 00:00	0.00	0.00
70	North_Wetland	Outfall	252.00					0.12	252.00					
71	Outfall	Outfall	252.00					2.85	252.31					
72	TinerEstatesSTM	Outfall	254.82					0.25	255.14					
73	West_Outfall	Outfall	257.00					0.02	257.00					
74	West_Wetland	Outfall	258.00					0.06	258.00					
75	Ex_SE_Pond	Storage Node	262.00	266.00	0.00		0.00	1.35	262.86				0.00	0.00
76	SWM_FB	Storage Node	253.00	256.80	254.50		0.00	3.99	256.03				0.00	0.00
77	SWM_WP	Storage Node	253.00	256.80	254.50		0.00	3.55	256.03				0.00	0.00

Link Summary

SN	Element ID	Element Type	From (Inlet) Node	To (Outlet) Node	Length	Inlet Invert Elevation	Outlet Invert Elevation	Average Slope	Diameter or Height	Manning's Roughness	Peak Flow	Design Flow Capacity	Peak Flow/ Design Flow Ratio	Peak Flow Velocity
					(m)	(m)	(m)	(%)	(m)		(cms)	(cms)		(m/sec)
1	Ex.STM_1	Pipe	Ex_MHR28	Ex_MHR27	107.00	257.37	256.94	0.4000	0.450	0.0130	0.25	0.18	1.37	1.5
2	Ex.STM_2	Pipe	Ex_MHR27	Ex_MHR26	73.00	256.94	256.64	0.4100	0.450	0.0130	0.25	0.18	1.35	1.5
3	Ex.STM_3	Pipe	Ex_MHR26	Ex_MHR25	27.00	256.64	256.48	0.5900	0.450	0.0130	0.25	0.22	1.13	1.5
4	Ex.STM_4	Pipe	Ex_MHR25	Ex_MHR1	100.00	256.48	255.88	0.6000	0.450	0.0130	0.25	0.22	1.12	1.5
5	Ex.STM_5	Pipe	Ex_MHR1	Ex_MHR2	100.00	255.88	255.48	0.4000	0.525	0.0130	0.25	0.27	0.91	1.3
6	Ex.STM_6	Pipe	Ex_MHR2	Ex_MHR3	50.00	255.48	255.23	0.5000	0.525	0.0130	0.25	0.30	0.81	1.4
7	Ex.STM_7	Pipe	Ex_MHR3	TinerEstatesSTM	102.00	255.23	254.82	0.4000	0.600	0.0130	0.25	0.39	0.63	1.4
8	Link-106	Pipe	Jun-66	Ravine_2	24.80	253.16	252.85	1.2500	0.750	0.0130	0.18	0.89	0.20	1.6
9	Link-107	Pipe	OutletStructure	Jun-66	93.20	254.35	253.20	1.2300	0.750	0.0130	0.18	1.24	0.14	1.7
10	Link-108	Pipe	Jun-67	Jun-37	110.30	255.48	255.37	0.1000	1.200	0.0130	0.66	1.23	0.54	0.7
11	Link-109	Pipe	Jun-46	Jun-44	30.00	257.70	257.55	0.5000	1.050	0.0130	0.56	1.93	0.29	1.5
12	Link-110	Pipe	Jun-52	Jun-67	153.00	255.69	255.48	0.1400	0.900	0.0130	0.47	0.67	0.71	0.8
13	Link-111	Pipe	Jun-68	Jun-52	66.80	255.86	255.77	0.1300	0.750	0.0130	0.32	0.41	0.79	0.8
14	Link-112	Pipe	Jun-69	Jun-68	106.60	256.21	255.91	0.2800	0.600	0.0130	0.14	0.33	0.44	0.7
15	Link-113	Pipe	Jun-70	Jun-52	97.50	256.47	255.88	0.6100	0.525	0.0130	0.30	0.33	0.90	1.4
16	Link-114	Pipe	Jun-71	Jun-53	85.10	256.79	255.73	1.2500	0.450	0.0130	0.31	0.32	0.98	2.0
17	Link-115	Pipe	Jun-73	Jun-51	50.00	258.65	258.50	0.3000	0.525	0.0130	0.34	0.24	1.44	1.5
18	Link-116	Pipe	Jun-72	Jun-51	50.00	258.75	258.55	0.4000	0.450	0.0130	0.21	0.18	1.15	1.3
19	Link-117	Pipe	Jun-74	Jun-61	90.00	259.54	258.37	1.3000	0.675	0.0130	0.37	0.96	0.38	2.3
20	Link-118	Pipe	Jun-75	Jun-74	41.60	260.00	259.56	1.0600	0.525	0.0130	0.17	0.44	0.38	1.4
21	Link-119	Pipe	Jun-76	Jun-56	181.70	259.19	256.08	1.7100	0.600	0.0130	0.74	0.80	0.92	3.0
22	Link-120	Pipe	Jun-77	Jun-76	140.50	260.46	259.24	0.8700	0.600	0.0130	0.40	0.57	0.69	1.9
23	Link-121	Pipe	Jun-78	Jun-77	152.20	261.75	260.51	0.8100	0.525	0.0130	0.40	0.39	1.02	1.9
24	Link-49	Pipe	Jun-34	SWM_FB	20.70	254.62	254.60	0.1000	1.800	0.0130	3.99	3.57	1.12	2.2
25	Link-50	Pipe	Jun-35	SWM_WP	75.20	254.70	254.60	0.1300	0.600	0.0130	0.37	0.22	1.64	1.3
26	Link-52	Pipe	Jun-36	Jun-34	35.00	254.72	254.67	0.1400	1.650	0.0130	3.99	3.45	1.16	2.0
27	Link-53	Pipe	Jun-37	Jun-36	336.90	255.29	254.74	0.1600	1.350	0.0130	1.90	2.16	0.88	1.3
28	Link-54	Pipe	Jun-38	Jun-37	110.00	255.53	255.31	0.2000	0.600	0.0130	0.63	0.27	2.31	2.2
29	Link-56	Pipe	Jun-41	Jun-38	110.00	255.77	255.55	0.2000	0.600	0.0130	0.25	0.27	0.90	0.8
30	Link-57	Pipe	Jun-40	Jun-41	95.50	256.10	255.85	0.2600	0.450	0.0130	0.22	0.15	1.48	1.3

Link Summary

SN Element ID	Element Type	From (Inlet) Node	To (Outlet) Node	Length	Inlet Invert Elevation	Outlet Invert Elevation	Average Slope	Diameter or Height	Manning's Roughness	Peak Flow	Design Flow Capacity	Peak Flow/ Design Flow Ratio	Peak Flow Velocit
				(m)	(m)	(m)	(%)	(m)		(cms)	(cms)		(m/sec)
48 RH_C6	Pipe	RH_16	Ravine_1	6.00	256.36	256.24	2.0000	0.700	0.0130	0.45	1.31	0.34	1.6
49 RH_D1	Pipe	RH_7	RH_8	275.00	272.00	267.75	1.5500	0.300	0.0130	0.00	0.12	0.00	0.0
50 RH_D2	Pipe	RH_8	RH_9	180.00	267.75	264.00	2.0800	0.300	0.0130	0.15	0.14	1.05	2.1
51 RH_D3	Pipe	RH_9	RH_10	155.00	264.00	261.90	1.3500	0.375	0.0130	0.15	0.20	0.73	1.4
52 RH_M1	Pipe	RH_1	RH_3	270.00	267.60	267.07	0.2000	0.600	0.0130	0.51	0.27	1.85	1.7
53 RH_M2	Pipe	RH_3	RH_4	222.00	267.07	266.63	0.2000	0.675	0.0130	0.80	0.37	2.14	2.2
54 RH_M3	Pipe	RH_4	RH_6	18.00	266.63	266.50	0.7200	0.750	0.0130	1.04	0.95	1.10	2.3
55 RH_M4	Pipe	RH_6	RH_10	415.00	266.50	261.90	1.1100	0.675	0.0130	0.91	0.89	1.03	2.6
56 RH_M5	Pipe	RH_10	RH_11	140.00	261.90	260.33	1.1200	0.675	0.0130	1.05	0.89	1.18	2.9
57 RH_M6	Pipe	RH_11	RH_17	464.00	260.33	256.42	0.8400	0.750	0.0130	1.10	1.02	1.08	2.5
58 RH_M7	Pipe	RH_17	Ravine_1	6.00	256.42	256.37	0.8300	1.000	0.0130	1.20	2.19	0.55	1.8
59 West_Link	Pipe	WestOutfall	West_Outfall	33.73	256.00	257.00	-2.9600	0.000	0.0130	0.02	0.00	0.02	0.0
60 WestWetland_Link	Pipe	WestWetland	West_Wetland	37.13	258.00	258.00	0.0000	0.000	0.0130	0.06	0.00	0.02	0.0
61 Wetland_Link	Pipe	NorthWetland	North_Wetland	41.51	252.00	252.00	0.0000	0.000	0.0130	0.12	0.00	0.02	0.0
62 Link-103	Channel	Jun-36	SWM_FB	10.00	257.70	257.50	2.0000	0.300	0.0320	0.00	11.65	0.00	0.0
63 Link-104	Channel	Jun-56	SWM_FB	50.00	257.50	256.50	2.0000	0.300	0.0320	0.00	11.65	0.00	0.0
64 Link-122	Channel	Jun-53	Jun-42	70.00	259.30	258.60	1.0000	0.300	0.0320	0.00	8.24	0.00	0.0
65 Link-123	Channel	Jun-55	Jun-53	90.00	259.40	259.30	0.1100	0.300	0.0320	0.00	2.75	0.00	0.0
66 Link-124	Channel	Jun-54	Jun-55	90.00	259.50	259.40	0.1100	0.300	0.0320	0.00	2.75	0.00	0.0
67 Link-125	Channel	Jun-73	Jun-47	50.00	259.65	258.70	1.9000	0.300	0.0320	0.02	11.36	0.00	0.1
68 Link-126	Channel	Jun-72	Jun-47	50.00	259.65	258.70	1.9000	0.300	0.0320	0.00	11.36	0.00	0.0
69 Link-127	Channel	Jun-67	Jun-54	100.00	259.60	259.50	0.1000	0.300	0.0320	0.00	2.61	0.00	0.0
70 Link-128	Channel	Jun-52	Jun-67	150.00	259.70	259.60	0.0700	0.300	0.0320	0.00	2.13	0.00	0.0
71 Link-129	Channel	Jun-68	Jun-52	80.00	259.80	259.70	0.1300	0.300	0.0320	0.00	2.91	0.00	0.0
72 Link-130	Channel	Jun-69	Jun-68	100.00	259.90	259.80	0.1000	0.300	0.0320	0.00	2.61	0.00	0.0
73 Link-131	Channel	Jun-71	Jun-53	70.00	259.40	259.30	0.1400	0.300	0.0320	0.00	3.11	0.00	0.0
74 Link-132	Channel	Jun-78	Jun-77	150.00	265.00	264.50	0.3300	0.300	0.0320	0.00	4.76	0.00	0.0
75 Link-133	Channel	Jun-77	Jun-76	150.00	264.50	261.90	1.7300	0.300	0.0320	0.00	10.85	0.00	0.0
76 Link-134	Channel	Jun-76	Jun-36	250.00	261.90	257.70	1.6800	0.300	0.0320	0.00	10.68	0.00	0.0
77 Link-135	Channel	Jun-61	Jun-37	100.00	262.50	261.00	1.5000	0.300	0.0320	0.00	10.09	0.00	0.0

Link Summary

SN Element ID	Element Type	From (Inlet) Node	To (Outlet) Node	Length	Inlet Invert Elevation	Outlet Invert Elevation	Average Slope	Diameter or Height	Manning's Roughness	Peak Flow	Design Flow Capacity	Peak Flow/ Design Flow Ratio	Peak Flow Velocit
				(m)	(m)	(m)	(%)	(m)		(cms)	(cms)		(m/sec)
95 Link-89	Channel	Jun-42	Jun-36	53.10	258.60	257.70	1.6900	0.300	0.0320	0.00	10.73	0.00	0.0
96 Link-90	Channel	Jun-39	Jun-40	90.00	258.75	257.75	1.1100	0.300	0.0320	0.00	8.69	0.00	0.0
97 Link-92	Channel	Jun-38	Jun-37	110.00	261.50	261.00	0.4500	0.300	0.0320	0.00	5.56	0.00	0.0
98 Link-93	Channel	Jun-37	Jun-36	340.00	261.00	257.70	0.9700	0.300	0.0320	0.00	8.12	0.00	0.0
99 Link-94	Channel	Jun-41	Jun-40	95.00	259.35	257.75	1.6800	0.300	0.0320	0.00	10.69	0.00	0.0
100 LowerRavine	Channel	Ravine_2	Ravine_3	124.00	253.00	252.45	0.4400	4.000	0.0320	2.85	157.98	0.02	1.1
101 OutletRavine	Channel	Ravine_3	Outfall	45.00	252.45	252.00	1.0000	4.000	0.0320	2.85	237.22	0.01	1.4
102 RH_C1	Channel	RH_12	RH_13	215.00	269.00	264.00	2.3300	1.500	0.0320	1.29	24.20	0.05	1.5
103 RH_C2	Channel	RH_13	Ex_SE_Pond	60.00	264.00	263.50	0.8300	1.500	0.0320	1.28	14.49	0.09	1.3
104 UpperRavine	Channel	Ravine_1	Ravine_2	553.00	256.10	253.00	0.5600	4.000	0.0320	2.79	177.61	0.02	1.0
105 Orifice-01	Orifice	SWM_WP	OutletStructure		253.00	254.25		0.170		0.07			
106 Link-91	Weir	Jun-40	WestOutfall		256.10	257.00				0.00			
107 Weir-01	Weir	SWM_FB	SWM_WP		253.00	253.00				3.49			
108 Weir-04	Weir	SWM_WP	OutletStructure		253.00	254.25				0.10			
109 Weir-05	Weir	SWM_WP	Ravine_2		253.00	253.00				0.00			

Junction Input

SN	Element ID	Invert Elevation	Ground/Rim (Max) Elevation	Ground/Rim (Max) Offset	Initial Water Elevation	Initial Water Depth	Surcharge Elevation	Surcharge Depth	Ponded Area	Minimum Pipe Cover
		(m)	(m)	(m)	(m)	(m)	(m)	(m)	(m²)	(m)
1	Ex_MHR1	255.88	262.50	6.62	0.00	-255.88	0.00	-262.50	0.00	0.00
2	Ex_MHR2	255.48	259.65	4.17	0.00	-255.48	0.00	-259.65	0.00	0.00
3	Ex_MHR25	256.48	263.35	6.87	0.00	-256.48	0.00	-263.35	0.00	0.00
4	Ex_MHR26	256.64	262.75	6.11	0.00	-256.64	0.00	-262.75	0.00	0.00
5	Ex_MHR27	256.94	261.00	4.06	0.00	-256.94	0.00	-261.00	0.00	0.00
6	Ex_MHR28	257.37	259.30	1.93	0.00	-257.37	0.00	-259.30	0.00	0.00
7	Ex_MHR3	255.23	259.00	3.77	0.00	-255.23	0.00	-259.00	0.00	0.00
8	Jun-34	254.62	258.25	3.63	0.00	-254.62	0.00	-258.25	0.00	0.00
9	Jun-35	254.70	257.50	2.80	0.00	-254.70	0.00	-257.50	0.00	0.00
10	Jun-36	254.72	258.00	3.28	0.00	-254.72	0.00	-258.00	0.00	0.00
11	Jun-37	255.29	261.30	6.01	0.00	-255.29	0.00	-261.30	0.00	0.00
12	Jun-38	255.53	261.80	6.27	0.00	-255.53	0.00	-261.80	0.00	0.00
13	Jun-39	256.93	259.05	2.12	0.00	-256.93	0.00	-259.05	0.00	0.00
14	Jun-40	256.10	258.55	2.45	0.00	-256.10	0.00	-258.55	0.00	0.00
15	Jun-41	255.77	259.65	3.88	0.00	-255.77	0.00	-259.65	0.00	0.00
16	Jun-42	255.23	258.90	3.67	0.00	-255.23	0.00	-258.90	0.00	0.00
17	Jun-43	256.25	257.25	1.00	0.00	-256.25	0.00	-257.25	0.00	0.00
18	Jun-44	257.55	258.55	1.00	0.00	-257.55	0.00	-258.55	0.00	0.00
19	Jun-46	257.70	258.70	1.00	0.00	-257.70	258.70	0.00	0.00	0.00
20	Jun-47	258.10	259.10	1.00	0.00	-258.10	0.00	-259.10	0.00	0.00
21	Jun-48	258.35	259.35	1.00	0.00	-258.35	0.00	-259.35	0.00	0.00
22	Jun-49	256.90	257.90	1.00	0.00	-256.90	0.00	-257.90	0.00	0.00
23	Jun-50	256.75	257.75	1.00	0.00	-256.75	0.00	-257.75	0.00	0.00
24	Jun-51	258.45	260.50	2.05	0.00	-258.45	0.00	-260.50	0.00	0.00
25	Jun-52	255.69	260.00	4.31	0.00	-255.69	0.00	-260.00	0.00	0.00
26	Jun-53	255.35	259.60	4.25	0.00	-255.35	0.00	-259.60	0.00	0.00
27	Jun-54	255.62	259.80	4.18	0.00	-255.62	0.00	-259.80	0.00	0.00
28	Jun-55	255.60	259.70	4.10	0.00	-255.60	0.00	-259.70	0.00	0.00
29	Jun-56	255.79	257.80	2.01	0.00	-255.79	0.00	-257.80	0.00	0.00
30	Jun-61	258.32	262.00	3.68	0.00	-258.32	0.00	-262.00	0.00	0.00
31	Jun-64	261.13	263.50	2.37	0.00	-261.13	0.00	-263.50	0.00	0.00
32	Jun-65	262.69	264.50	1.81	0.00	-262.69	0.00	-264.50	0.00	0.00
33	Jun-66	253.16	256.00	2.84	0.00	-253.16	0.00	-256.00	0.00	0.00
34	Jun-67	255.48	259.90	4.42	0.00	-255.48	0.00	-259.90	0.00	0.00
35	Jun-68	255.86	260.10	4.24	0.00	-255.86	0.00	-260.10	0.00	0.00
36	Jun-69	256.21	261.20	4.99	0.00	-256.21	0.00	-261.20	0.00	0.00
37	Jun-70	256.47	263.00	6.53	0.00	-256.47	0.00	-263.00	0.00	0.00
38	Jun-71	256.79	260.00	3.21	0.00	-256.79	0.00	-260.00	0.00	0.00
39	Jun-72	258.75	259.95	1.20	0.00	-258.75	0.00	-259.95	0.00	0.00
40	Jun-73	258.65	259.95	1.30	0.00	-258.65	0.00	-259.95	0.00	0.00
41	Jun-74	259.54	264.00	4.46	0.00	-259.54	0.00	-264.00	0.00	0.00
42	Jun-75	260.00	264.50	4.50	0.00	-260.00	0.00	-264.50	0.00	0.00
43	Jun-76	259.19	262.20	3.01	0.00	-259.19	0.00	-262.20	0.00	0.00
44	Jun-77	260.46	264.80	4.34	0.00	-260.46	0.00	-264.80	0.00	0.00
45	Jun-78	261.75	265.30	3.55	0.00	-261.75	0.00	-265.30	0.00	0.00
46	NorthWetland	252.00	258.00	6.00	0.00	-252.00	0.00	-258.00	0.00	0.00
47	OutletStructure	254.25	256.80	2.55	0.00	-254.25	0.00	-256.80	0.00	0.00
48	Ravine_1	256.10	260.10	4.00	0.00	-256.10	0.00	-260.10	0.00	0.00

Junction Results

SN	Element	Peak Inflow	Peak Lateral Inflow	Max HGL Elevation Attained	Max HGL Depth Attained	Max Surcharge Depth Attained	Min Freeboard Attained	Average HGL Elevation Attained	Average HGL Depth Attained	Time Max HC Occurrent
	ID	(cms)	(cms)	(m)	(m)	(m)	(m)	(m)	(m)	(days hh:mm)
1	Ex_MHR1	0.25	0.00	256.32	0.44	0.00	6.18	256.00	0.12	0 12:00
2	Ex_MHR2	0.25	0.00	255.90	0.42	0.00	3.75	255.59	0.11	0 12:00
3	Ex_MHR25	0.25	0.00	257.46	0.98	0.00	5.89	256.60	0.12	0 11:59
4	Ex_MHR26	0.25	0.00	257.85	1.21	0.00	4.90	256.77	0.13	0 11:59
5	Ex_MHR27	0.25	0.00	258.30	1.36	0.00	2.70	257.09	0.15	0 11:59
6	Ex_MHR28	0.75	0.75	259.08	1.71	0.00	0.22	257.54	0.17	0 12:00
7	Ex_MHR3	0.25	0.00	255.61	0.38	0.00	3.39	255.34	0.11	0 12:00
8	Jun-34	3.99	0.00	256.03	1.41	0.00	2.22	255.72	1.10	0 16:00
9	Jun-35	0.37	0.37	256.03	1.33	0.00	1.47	255.70	1.00	0 16:00
10	Jun-36	4.00	0.00	256.31	1.59	0.00	2.04	255.75	1.03	0 12:00
11	Jun-37	2.10	0.30	256.83	1.54	0.00	4.47	255.85	0.56	0 12:00
12	Jun-38	0.82	0.82	258.07	2.54	0.00	3.73	255.92	0.39	0 12:00
13	Jun-39	0.08	0.08	258.25	1.32	0.00	0.80	256.98	0.05	0 12:00
14	Jun-40	0.21	0.00	257.79	1.69	0.00	0.76	256.18	0.08	0 12:00
15	Jun-41	0.23	0.08	258.05	2.28	0.00	1.60	255.97	0.20	0 12:00
16	Jun-42	1.10	0.00	256.34	1.11	0.00	2.56	255.82	0.59	0 12:00
17	Jun-43	0.64	0.00	256.56	0.31	0.00	1.19	256.30	0.05	0 12:00
18	Jun-44	0.56	0.00	257.98	0.43	0.00	0.62	257.64	0.09	0 12:00
19	Jun-46	0.67	0.00	258.28	0.58	0.00	0.47	257.81	0.11	0 12:00
20	Jun-47	0.66	0.14	258.59	0.49	0.00	0.51	258.19	0.09	0 12:00
21	Jun-48	0.03	0.00	258.59	0.24	0.00	0.81	258.40	0.05	0 12:00
22	Jun-49	0.62	0.18	257.42	0.52	0.00	0.68	257.02	0.12	0 12:00
23	Jun-50	0.60	0.00	257.32	0.57	0.00	0.63	256.89	0.14	0 12:00
24	Jun-51	0.52	0.00	259.31	0.86	0.00	1.19	258.54	0.09	0 12:00
25	Jun-52	0.60	0.00	257.02	1.33	0.00	2.98	255.93	0.24	0 12:00
26	Jun-53	0.80	0.00	256.58	1.23	0.00	3.02	255.85	0.50	0 12:00
27	Jun-54	0.24	0.24	256.81	1.19	0.00	2.99	255.94	0.32	0 12:00
28	Jun-55	0.56	0.35	256.77	1.17	0.00	2.93	255.89	0.29	0 12:00
29	Jun-56	0.75	0.01	256.45	0.66	0.00	1.35	255.94	0.15	0 12:00
30	Jun-61	0.63	0.00	258.63	0.31	0.00	4.17	258.37	0.05	0 11:59
31	Jun-64	0.27	0.00	261.37	0.24	0.00	2.13	261.17	0.04	0 12:00
32	Jun-65	0.27	0.27	262.96	0.27	0.00	1.54	262.73	0.04	0 12:00
33	Jun-66	0.18	0.00	253.50	0.34	0.00	2.50	253.35	0.19	0 12:00
34	Jun-67	0.72	0.26	256.88	1.40	0.00	3.02	255.88	0.40	0 12:00
35	Jun-68	0.37	0.24	257.07	1.21	0.00	3.03	255.99	0.13	0 12:00
36	Jun-69	0.18	0.18	257.11	0.90	0.00	4.09	256.26	0.05	0 12:00
37	Jun-70	0.31	0.31	258.76	2.29	0.00	4.24	256.53	0.06	0 12:00
38	Jun-71	0.34	0.34	257.75	0.96	0.00	2.25	256.85	0.06	0 12:00
39	Jun-72	0.22	0.22	259.65	0.90	0.00	0.30	258.81	0.06	0 12:00
40	Jun-73	0.38	0.38	259.66	1.01	0.00	0.29	258.73	0.08	0 12:00
41	Jun-74	0.37	0.21	259.86	0.32	0.00	4.14	259.59	0.05	0 12:00
42	Jun-75	0.17	0.17	260.25	0.25	0.00	4.25	260.04	0.04	0 12:00
43	Jun-76	0.77	0.38	259.69	0.50	0.00	2.51	259.26	0.07	0 12:00
44	Jun-77	0.40	0.00	260.85	0.39	0.00	3.95	260.52	0.06	0 12:00
45	Jun-78	0.45	0.45	262.39	0.64	0.00	2.91	261.81	0.06	0 12:00
46	NorthWetland	0.12	0.12	252.00	0.00	0.00	6.00	252.00	0.00	0 00:00
47	OutletStructure	0.18	0.00	254.55	0.30	0.00	3.50	254.49	0.24	0 16:00

Channel Input

SN	Element ID	Length	Inlet Invert Elevation (m)	Inlet Invert Offset (m)	Outlet Invert Elevation (m)	Outlet Invert Offset (m)	Total Drop (m)	Average Slope (%)	Shape	Height (m)	Width (m)	Manning's Roughness
1	Link-103	10.00	257.70	2.98	257.50	4.50	0.20	2.0000	Rectangular	0.300	20.000	0.0320
2	Link-104	50.00	257.50	1.71	256.50	3.50	1.00	2.0000	Rectangular	0.300	20.000	0.0320
3	Link-122	70.00	259.30	3.95	258.60	3.37	0.70	1.0000	Rectangular	0.300	20.000	0.0320
4	Link-123	90.00	259.40	3.80	259.30	3.95	0.10	0.1100	Rectangular	0.300	20.000	0.0320
5	Link-124	90.00	259.50	3.88	259.40	3.80	0.10	0.1100	Rectangular	0.300	20.000	0.0320
6	Link-125	50.00	259.65	1.00	258.70	0.60	0.95	1.9000	Rectangular	0.300	20.000	0.0320
7	Link-126	50.00	259.65	0.90	258.70	0.60	0.95	1.9000	Rectangular	0.300	20.000	0.0320
8	Link-127	100.00	259.60	4.12	259.50	3.88	0.10	0.1000	Rectangular	0.300	20.000	0.0320
9	Link-128	150.00	259.70	4.01	259.60	4.12	0.10	0.0700	Rectangular	0.300	20.000	0.0320
10	Link-129	80.00	259.80	3.94	259.70	4.01	0.10	0.1300	Rectangular	0.300	20.000	0.0320
11	Link-130	100.00	259.90	3.69	259.80	3.94	0.10	0.1000	Rectangular	0.300	20.000	0.0320
12	Link-131	70.00	259.40	2.61	259.30	3.95	0.10	0.1400	Rectangular	0.300	20.000	0.0320
13	Link-132	150.00	265.00	3.25	264.50	4.04	0.50	0.3300	Rectangular	0.300	20.000	0.0320
14	Link-133	150.00	264.50	4.04	261.90	2.71	2.60	1.7300	Rectangular	0.300	20.000	0.0320
15	Link-134	250.00	261.90	2.71	257.70	2.98	4.20	1.6800	Rectangular	0.300	20.000	0.0320
16	Link-135	100.00	262.50	4.18	261.00	5.71	1.50	1.5000	Rectangular	0.300	20.000	0.0320
17	Link-34	270.00	271.40	3.80	269.65	2.58	1.75	0.6500	Rectangular	0.300	20.000	0.0320
18	Link-35	50.00	272.15	2.01	269.65	2.58	2.50	5.0000	Rectangular	0.300	20.000	0.0320
19	Link-36	222.00	269.65	2.58	268.30	1.67	1.35	0.6100	Rectangular	0.300	20.000	0.0320
20	Link-37	18.00	268.30	1.67	267.90	1.40	0.40	2.2200	Rectangular	0.300	20.000	0.0320
21	Link-38	227.00	271.80	1.45	267.90	1.40	3.90	1.7200	Rectangular	0.300	20.000	0.0320
22	Link-39	415.00	267.90	1.40	263.50	1.60	4.40	1.0600	Rectangular	0.300	20.000	0.0320
23	Link-41	180.00	269.55	1.80	265.50	1.50	4.05	2.2500	Rectangular	0.300	20.000	0.0320
24	Link-42	155.00	265.50	1.50	263.50	1.60	2.00	1.2900	Rectangular	0.300	20.000	0.0320
25	Link-43	140.00	263.50	1.60	262.25	1.92	1.25	0.8900	Rectangular	0.300	20.000	0.0320
26	Link-44	470.00	262.25	1.92	258.00	1.90	4.25	0.9000	Rectangular	0.300	20.000	0.0320
27	Link-45	195.00	263.20	1.50	260.70	1.32	2.50	1.2800	Rectangular	0.300	20.000	0.0320
28	Link-46	280.00	260.70	1.32	258.00	1.90	2.70	0.9600	Rectangular	0.300	20.000	0.0320
29	Link-51	65.00	259.00	1.63	258.05	3.33	0.95	1.4600	Rectangular	0.300	10.000	0.0320
30	Link-61	125.00	256.75	0.00	256.25	0.00	0.50	0.4000	User-Defined	1.000	9.000	0.0320
31	Link-63	162.50	257.55	0.00	256.90	0.00	0.65	0.4000	User-Defined	1.000	9.000	0.0320
32	Link-66	133.00	258.10	0.00	257.70	0.00	0.40	0.3000	User-Defined	1.000	9.000	0.0320
33	Link-67	75.00	258.40	0.05	258.10	0.00	0.30	0.4000	User-Defined	1.000	9.000	0.0320
34	Link-89	53.10	258.60	3.37	257.70	2.98	0.90	1.6900	Rectangular	0.300	20.000	0.0320
35	Link-90	90.00	258.75	1.82	257.75	1.65	1.00	1.1100	Rectangular	0.300	20.000	0.0320
36	Link-92	110.00	261.50	5.97	261.00	5.71	0.50	0.4500	Rectangular	0.300	20.000	0.0320
37	Link-93	340.00	261.00	5.71	257.70	2.98	3.30	0.9700	Rectangular	0.300	20.000	0.0320
38	Link-94	95.00	259.35	3.58	257.75	1.65	1.60	1.6800	Rectangular	0.300	20.000	0.0320
39	LowerRavine	124.00	253.00	0.00	252.45	0.00	0.55	0.4400	Trapezoidal	4.000	17.000	0.0320
40	OutletRavine	45.00	252.45	0.00	252.00	0.00	0.45	1.0000	Trapezoidal	4.000	17.000	0.0320
41	RH_C1	215.00	269.00	0.00	264.00	0.00	5.00	2.3300	Trapezoidal	1.500	7.000	0.0320
42	RH_C2	60.00	264.00	0.00	263.50	1.50	0.50	0.8300	Trapezoidal	1.500	7.000	0.0320
43	UpperRavine	553.00	256.10	0.00	253.00	0.00	3.10	0.5600	Trapezoidal	4.000	17.000	0.0320

Channel Results

SN Element ID	Peak Flow	Time of Peak Flow Occurrence	Design Flow Capacity	Peak Flow/ Design Flow Ratio	Peak Flow Velocity	Travel Time	Peak Flow Depth	Peak Flow Depth/ Total Depth Ratio	Total Tin Surcharge
	(cms)	(days hh:mm)	(cms)		(m/sec)	(min)	(m)		(mi)
1 Link-103	0.00	0 00:00	11.65	0.00	0.00		0.00	0.00	0.00
2 Link-104	0.00	0 00:00	11.65	0.00	0.00		0.00	0.00	0.00
3 Link-122	0.00	0 00:00	8.24	0.00	0.00		0.00	0.00	0.00
4 Link-123	0.00	0 00:00	2.75	0.00	0.00		0.00	0.00	0.00
5 Link-124	0.00	0 00:00	2.75	0.00	0.00		0.00	0.00	0.00
6 Link-125	0.02	0 12:01	11.36	0.00	0.17	4.90	0.00	0.02	0.00
7 Link-126	0.00	0 11:58	11.36	0.00	0.00		0.00	0.00	0.00
8 Link-127	0.00	0 00:00	2.61	0.00	0.00		0.00	0.00	0.00
9 Link-128	0.00	0 00:00	2.13	0.00	0.00		0.00	0.00	0.00
10 Link-129	0.00	0 00:00	2.91	0.00	0.00		0.00	0.00	0.00
11 Link-130	0.00	0 00:00	2.61	0.00	0.00		0.00	0.00	0.00
12 Link-131	0.00	0 00:00	3.11	0.00	0.00		0.00	0.00	0.00
13 Link-132	0.00	0 00:00	4.76	0.00	0.00		0.00	0.00	0.00
14 Link-133	0.00	0 00:00	10.85	0.00	0.00		0.00	0.00	0.00
15 Link-134	0.00	0 00:00	10.68	0.00	0.00		0.00	0.00	0.00
16 Link-135	0.00	0 00:00	10.09	0.00	0.00		0.00	0.00	0.00
17 Link-34	1.91	0 12:01	6.63	0.29	0.67	6.72	0.16	0.52	0.00
18 Link-35	1.81	0 12:00	18.43	0.10	1.12	0.74	0.12	0.42	0.00
19 Link-36	2.29	0 12:08	6.43	0.36	0.75	4.93	0.15	0.51	0.00
20 Link-37	1.96	0 12:08	12.28	0.16	0.97	0.31	0.11	0.37	0.00
21 Link-38	0.66	0 12:04	10.80	0.06	0.60	6.31	0.08	0.29	0.00
22 Link-39	2.19	0 12:16	8.48	0.26	0.83	8.33	0.13	0.45	0.00
23 Link-41	0.00	0 00:00	12.36	0.00	0.00		0.00	0.00	0.00
24 Link-42	0.00	0 00:00	9.36	0.00	0.00		0.07	0.24	0.00
25 Link-43	1.94	0 12:21	7.79	0.25	0.79	2.95	0.12	0.41	0.00
26 Link-44	1.14	0 12:34	7.84	0.15	0.64	12.24	0.09	0.29	0.00
27 Link-45	0.00	0 00:00	9.33	0.00	0.00		0.00	0.00	0.00
28 Link-46	0.00	0 00:00	8.09	0.00	0.00		0.00	0.00	0.00
29 Link-51	0.47	0 12:00	4.89	0.10	0.68	1.59	0.07	0.23	0.00
30 Link-61	0.64	0 12:10	4.86	0.13	0.65	3.21	0.43	0.43	0.00
31 Link-63	0.54	0 12:08	4.86	0.11	0.47	5.76	0.47	0.48	0.00
32 Link-66	0.67	0 12:01	4.22	0.16	0.53	4.18	0.53	0.53	0.00
33 Link-67	0.03	0 11:58	4.86	0.01	0.08	15.63	0.33	0.34	0.00
34 Link-89	0.00	0 00:00	10.73	0.00	0.00		0.00	0.00	0.00
35 Link-90	0.00	0 00:00	8.69	0.00	0.00		0.02	0.07	0.00
36 Link-92	0.00	0 00:00	5.56	0.00	0.00		0.00	0.00	0.00
37 Link-93	0.00	0 00:00	8.12	0.00	0.00		0.00	0.00	0.00
38 Link-94	0.00	0 00:00	10.69	0.00	0.00		0.02	0.07	0.00
39 LowerRavine	2.85	0 12:41	157.98	0.02	1.13	1.83	0.44	0.11	0.00
40 OutletRavine	2.85	0 12:42	237.22	0.01	1.47	0.51	0.35	0.09	0.00
41 RH_C1	1.29	0 12:00	24.20	0.05	1.50	2.39	0.45	0.30	0.00
42 RH_C2	1.28	0 12:02	14.49	0.09	1.38	0.72	0.45	0.32	0.00
43 UpperRavine	2.79	0 12:37	177.61	0.02	1.08	8.53	0.46	0.11	0.00

Pipe Input

SN	Element	Length	Inlet Invert	Inlet Invert	Outlet Invert	Outlet Invert	Total Drop	Average Slope	Pipe Shape	Pipe Diameter or Height	Pipe Width	Mi Roi
	ID	(m)	Elevation (m)	Offset (m)	Elevation (m)	Offset (m)	(m)	(%)		(m)	(m)	
1	Ex.STM_1	107.00	257.37	0.00	256.94	0.00	0.43	0.4000	CIRCULAR	0.450	0.450	
2	Ex.STM_2	73.00	256.94	0.00	256.64	0.00	0.30	0.4100	CIRCULAR	0.450	0.450	
3	Ex.STM_3	27.00	256.64	0.00	256.48	0.00	0.16	0.5900	CIRCULAR	0.450	0.450	
4	Ex.STM_4	100.00	256.48	0.00	255.88	0.00	0.60	0.6000	CIRCULAR	0.450	0.450	
5	Ex.STM_5	100.00	255.88	0.00	255.48	0.00	0.40	0.4000	CIRCULAR	0.530	0.530	
6	Ex.STM_6	50.00	255.48	0.00	255.23	0.00	0.25	0.5000	CIRCULAR	0.530	0.530	
7	Ex.STM_7	102.00	255.23	0.00	254.82	0.00	0.41	0.4000	CIRCULAR	0.600	0.600	
8	Link-106	24.80	253.16	0.00	252.85	-0.15	0.31	1.2500	CIRCULAR	0.750	0.750	
9	Link-107	93.20	254.35	0.10	253.20	0.04	1.15	1.2300	CIRCULAR	0.750	0.750	
10	Link-108	110.30	255.48	0.00	255.37	0.08	0.11	0.1000	CIRCULAR	1.200	1.200	
11	Link-109	30.00	257.70	0.00	257.55	0.00	0.15	0.5000	CIRCULAR	1.050	1.050	
12	Link-110	153.00	255.69	0.00	255.48	0.00	0.21	0.1400	CIRCULAR	0.900	0.900	
13	Link-111	66.80	255.86	0.00	255.77	0.08	0.09	0.1300	CIRCULAR	0.750	0.750	
14	Link-112	106.60	256.21	0.00	255.91	0.05	0.30	0.2800	CIRCULAR	0.600	0.600	
15	Link-113	97.50	256.47	0.00	255.88	0.19	0.59	0.6100	CIRCULAR	0.530	0.530	
16	Link-114	85.10	256.79	0.00	255.73	0.38	1.06	1.2500	CIRCULAR	0.450	0.450	
17	Link-115	50.00	258.65	0.00	258.50	0.05	0.15	0.3000	CIRCULAR	0.530	0.530	
18	Link-116	50.00	258.75	0.00	258.55	0.10	0.20	0.4000	CIRCULAR	0.450	0.450	
19	Link-117	90.00	259.54	0.00	258.37	0.05	1.17	1.3000	CIRCULAR	0.680	0.680	
20	Link-118	41.60	260.00	0.00	259.56	0.02	0.44	1.0600	CIRCULAR	0.530	0.530	
21	Link-119	181.70	259.19	0.00	256.08	0.29	3.11	1.7100	CIRCULAR	0.600	0.600	
22	Link-120	140.50	260.46	0.00	259.24	0.05	1.22	0.8700	CIRCULAR	0.600	0.600	
23	Link-121	152.20	261.75	0.00	260.51	0.05	1.24	0.8100	CIRCULAR	0.530	0.530	
24	Link-49	20.70	254.62	0.00	254.60	1.60	0.02	0.1000	CIRCULAR	1.800	1.800	
25	Link-50	75.20	254.70	0.00	254.60	1.60	0.10	0.1300	CIRCULAR	0.600	0.600	
26	Link-52	35.00	254.72	0.00	254.67	0.05	0.05	0.1400	CIRCULAR	1.650	1.650	
27	Link-53	336.90	255.29	0.00	254.74	0.02	0.55	0.1600	CIRCULAR	1.350	1.350	
28	Link-54	110.00	255.53	0.00	255.31	0.02	0.22	0.2000	CIRCULAR	0.600	0.600	
29	Link-56	110.00	255.77	0.00	255.55	0.02	0.22	0.2000	CIRCULAR	0.600	0.600	
30	Link-57	95.50	256.10	0.00	255.85	0.08	0.25	0.2600	CIRCULAR	0.450	0.450	
31	Link-58	90.00	256.93	0.00	256.25	0.15	0.68	0.7600	CIRCULAR	0.300	0.300	
32	Link-59	53.10	255.23	0.00	255.13	0.41	0.10	0.1900	CIRCULAR	1.500	1.500	
33	Link-60	13.40	256.25	0.00	255.84	0.61	0.41	3.0600	CIRCULAR	1.500	1.500	
34	Link-62	25.00	256.90	0.00	256.75	0.00	0.15	0.6000	CIRCULAR	1.200	1.200	
35	Link-68	60.00	258.45	0.00	258.20	0.10	0.25	0.4200	CIRCULAR	0.600	0.600	
36	Link-70	57.00	255.35	0.00	255.25	0.02	0.10	0.1800	CIRCULAR	0.820	0.820	
37	Link-71	82.00	255.60	0.00	255.43	0.08	0.17	0.2100	CIRCULAR	0.750	0.750	
38	Link-72	85.00	255.79	0.17	255.62	0.02	0.17	0.2000	CIRCULAR	0.750	0.750	
39	Link-73	67.80	255.78	-0.01	255.10	0.38	0.68	1.0000	CIRCULAR	0.900	0.900	
40	Link-80	89.90	258.32	0.00	255.97	0.68	2.35	2.6100	CIRCULAR	0.750	0.750	
41	Link-81	93.20	261.13	0.00	259.27	0.95	1.86	2.0000	CIRCULAR	0.600	0.600	
42	Link-82	103.90	262.69	0.00	261.13	0.00	1.56	1.5000	CIRCULAR	0.600	0.600	
43	RH_A1	50.00	270.14	0.00	268.50	1.43	1.64	3.2800	CIRCULAR	0.300	0.300	
44	RH_B1	227.00	270.35	0.00	266.50	0.00	3.85	1.7000	CIRCULAR	0.300	0.300	
45	RH_C3	15.00	262.00	0.00	261.70	0.00	0.30	2.0000	CIRCULAR	0.600	0.600	
46	RH_C4	195.00	261.70	0.00	259.38	0.00	2.32	1.1900	CIRCULAR	0.530	0.530	
47	RH_C5	274.00	259.38	0.00	256.36	0.00	3.02	1.1000	CIRCULAR	0.530	0.530	
48	RH_C6	6.00	256.36	0.00	256.24	0.14	0.12	2.0000	CIRCULAR	0.700	0.700	

5-YEAR STORM

No. of
Barrels

1

Pipe Results

SN Element ID	Peak Flow	Time of Peak Flow Occurrence	Design Flow Capacity	Peak Flow/ Design Flow Ratio	Peak Flow Velocity	Travel Time	Peak Flow Depth	Peak Flow Depth/ Total Depth Ratio	To Sur
	(cms)	(days hh:mm)	(cms)		(m/sec)	(min)	(m)		
1 Ex.STM_1	0.25	0 12:00	0.18	1.37	1.55	1.15	0.45	1.00	
2 Ex.STM_2	0.25	0 12:00	0.18	1.35	1.55	0.78	0.45	1.00	
3 Ex.STM_3	0.25	0 12:00	0.22	1.13	1.55	0.29	0.45	1.00	
4 Ex.STM_4	0.25	0 12:00	0.22	1.12	1.58	1.05	0.45	0.99	
5 Ex.STM_5	0.25	0 12:01	0.27	0.91	1.32	1.26	0.43	0.82	
6 Ex.STM_6	0.25	0 12:02	0.30	0.81	1.40	0.60	0.40	0.77	
7 Ex.STM_7	0.25	0 12:03	0.39	0.63	1.44	1.18	0.35	0.59	
8 Link-106	0.18	0 16:25	0.89	0.20	1.65	0.25	0.42	0.56	
9 Link-107	0.18	0 16:24	1.24	0.14	1.75	0.89	0.21	0.28	
10 Link-108	0.66	0 12:05	1.23	0.54	0.71	2.59	1.20	1.00	
11 Link-109	0.56	0 12:06	1.93	0.29	1.50	0.33	0.50	0.48	
12 Link-110	0.47	0 12:05	0.67	0.71	0.83	3.07	0.90	1.00	
13 Link-111	0.32	0 11:59	0.41	0.79	0.86	1.29	0.75	1.00	
14 Link-112	0.14	0 11:59	0.33	0.44	0.73	2.43	0.60	1.00	
15 Link-113	0.30	0 12:00	0.33	0.90	1.41	1.15	0.52	1.00	
16 Link-114	0.31	0 12:01	0.32	0.98	2.03	0.70	0.45	1.00	
17 Link-115	0.34	0 12:04	0.24	1.44	1.57	0.53	0.52	1.00	
18 Link-116	0.21	0 11:59	0.18	1.15	1.31	0.64	0.45	1.00	
19 Link-117	0.37	0 12:00	0.96	0.38	2.37	0.63	0.30	0.45	
20 Link-118	0.17	0 12:00	0.44	0.38	1.48	0.47	0.27	0.52	
21 Link-119	0.74	0 12:01	0.80	0.92	3.08	0.98	0.46	0.79	
22 Link-120	0.40	0 12:01	0.57	0.69	1.94	1.21	0.40	0.69	
23 Link-121	0.40	0 12:01	0.39	1.02	1.98	1.28	0.47	0.90	
24 Link-49	3.99	0 12:04	3.57	1.12	2.27	0.15	1.42	0.79	
25 Link-50	0.37	0 12:00	0.22	1.64	1.31	0.96	0.60	1.00	
26 Link-52	3.99	0 12:04	3.45	1.16	2.00	0.29	1.45	0.88	
27 Link-53	1.90	0 12:05	2.16	0.88	1.33	4.22	1.35	1.00	
28 Link-54	0.63	0 12:01	0.27	2.31	2.24	0.82	0.60	1.00	
29 Link-56	0.25	0 12:19	0.27	0.90	0.87	2.11	0.60	1.00	
30 Link-57	0.22	0 12:19	0.15	1.48	1.36	1.17	0.45	1.00	
31 Link-58	0.07	0 12:02	0.08	0.80	1.13	1.33	0.30	1.00	
32 Link-59	1.07	0 12:02	3.07	0.35	1.17	0.76	1.14	0.76	
33 Link-60	0.63	0 12:11	12.37	0.05	2.77	0.08	0.34	0.23	
34 Link-62	0.60	0 12:09	3.02	0.20	1.21	0.34	0.54	0.45	
35 Link-68	0.52	0 12:01	0.40	1.30	1.94	0.52	0.53	0.89	
36 Link-70	0.77	0 12:01	0.60	1.28	1.44	0.66	0.82	1.00	
37 Link-71	0.50	0 12:00	0.51	0.98	1.13	1.21	0.75	1.00	
38 Link-72	0.21	0 11:59	0.50	0.43	0.56	2.53	0.75	1.00	
39 Link-73	0.73	0 12:02	1.83	0.40	1.66	0.68	0.77	0.86	
40 Link-80	0.64	0 12:00	1.80	0.35	3.32	0.45	0.50	0.70	
41 Link-81	0.27	0 12:00	0.87	0.31	2.59	0.60	0.23	0.39	
42 Link-82	0.27	0 12:00	0.75	0.36	2.38	0.73	0.25	0.42	
43 RH_A1	0.23	0 11:48	0.18	1.31	3.26	0.26	0.30	1.00	
44 RH_B1	0.14	0 11:47	0.13	1.10	1.96	1.93	0.30	1.00	
45 RH_C3	0.47	0 12:01	0.87	0.54	1.91	0.13	0.60	1.00	
46 RH_C4	0.43	0 12:05	0.41	1.06	2.11	1.54	0.52	1.00	
47 RH_C5	0.45	0 12:04	0.45	1.00	2.13	2.14	0.52	1.00	

Project Description

File Name	18010_Post-Development Rev.0.SPF
Description	I:\ACAD Projects\2018\18010\03-Ref\18010_Pre-Dev. Storm
	I:\ACAD Projects\2018\18010\03-Ref\18010_Pre-Dev. Storm
	I:\ACAD Projects\2018\18010\03-Ref\18010_Post-Dev.Storm
	I:\ACAD Projects\2018\18010\03-Ref\18010_Post-Dev.Storm

Project Options

Flow Units	CMS
Elevation Type	Elevation
Hydrology Method	EPA SWMM
EPA SWMM Infiltration Method	SCS Curve Number
Link Routing Method	Hydrodynamic
Enable Overflow Ponding at Nodes	YES
Skip Steady State Analysis Time Periods	YES

Analysis Options

Start Analysis On	00:00:00	0:00:00
End Analysis On	00:00:00	0:00:00
Start Reporting On	00:00:00	0:00:00
Antecedent Dry Days	0	days
Runoff (Dry Weather) Time Step	0 01:00:00	days hh:mm:ss
Runoff (Wet Weather) Time Step	0 00:05:00	days hh:mm:ss
Reporting Time Step	0 00:05:00	days hh:mm:ss
Routing Time Step	30	seconds

Number of Elements

	Qty
Rain Gages	1
Subbasins.....	58
Nodes.....	77
<i>Junctions</i>	69
<i>Outfalls</i>	5
<i>Flow Diversions</i>	0
<i>Inlets</i>	0
<i>Storage Nodes</i>	3
Links.....	109
<i>Channels</i>	43
<i>Pipes</i>	61
<i>Pumps</i>	0
<i>Orifices</i>	1
<i>Weirs</i>	4
<i>Outlets</i>	0
Pollutants	0
Land Uses	0

Subbasin Summary

SN Subbasin ID	Area	Impervious Area	Weighted Curve Number	Average Slope	Equivalent Width	Impervious Area Manning's Roughness	Pervious Area Manning's Roughness	Total Rainfall	Total Infiltration	Total Runoff	Total Runoff Volume	Peak Runoff	Time of Concentration
	(ha)	(%)		(%)	(m)			(mm)	(mm)	(mm)	(ha-mm)	(cms)	(days hh:mm:ss)
1 {Survey Site}.Standard : 10	0.92	2.00	67.00	2.0000	125.00	0.0130	0.2000	72.19	49.3510	21.59	19.82	0.03	0 01:12:07
2 {Survey Site}.Standard : 11	21.38	2.00	67.00	2.0000	360.00	0.0130	0.2000	72.19	46.5610	24.16	516.48	0.20	0 04:12:49
3 {Survey Site}.Standard : 12	0.71	5.00	67.00	2.0000	90.00	0.0130	0.2000	72.19	47.8650	23.07	16.38	0.02	0 01:13:54
4 {Survey Site}.Standard : 13	1.65	45.00	71.05	2.0000	220.00	0.0130	0.2000	72.19	25.7800	45.15	74.41	0.27	0 00:51:36
5 {Survey Site}.Standard : 14	4.32	2.00	67.00	2.0000	350.00	0.0130	0.2000	72.19	49.6900	21.26	91.84	0.08	0 01:38:29
6 {Survey Site}.Standard : 17	0.36	5.00	67.00	5.0000	20.00	0.0130	0.2000	72.19	48.0680	22.86	8.14	0.01	0 01:31:29
7 {Survey Site}.Standard : 18	13.10	5.00	48.00	10.0000	300.00	0.0130	0.2000	72.19	59.2650	11.67	152.88	0.21	0 02:07:17
8 {Survey Site}.Standard : 19	1.32	55.00	75.95	2.0000	90.00	0.0130	0.2000	72.19	19.1480	51.79	68.37	0.24	0 01:08:28
9 {Survey Site}.Standard : 2	20.86	45.00	71.05	2.0000	300.00	0.0130	0.2000	72.19	26.7910	44.10	920.02	2.36	0 03:16:31
10 {Survey Site}.Standard : 23	2.20	5.00	48.00	10.0000	100.00	0.0130	0.2000	72.19	58.7520	12.17	26.74	0.04	0 01:24:20
11 {Survey Site}.Standard : 26	1.12	45.00	71.05	2.0000	40.00	0.0130	0.2000	72.19	26.1840	44.74	50.28	0.15	0 01:54:05
12 {Survey Site}.Standard : 27	0.43	45.00	71.05	2.0000	60.00	0.0130	0.2000	72.19	25.7670	45.16	19.28	0.07	0 00:50:03
13 {Survey Site}.Standard : 28	0.12	45.00	71.05	2.0000	40.00	0.0130	0.2000	72.19	25.6410	45.25	5.57	0.02	0 00:30:15
14 {Survey Site}.Standard : 29	7.86	45.00	71.05	2.0000	110.00	0.0130	0.2000	72.19	26.8170	44.07	346.48	0.88	0 03:19:46
15 {Survey Site}.Standard : 3	25.14	45.00	71.05	2.0000	370.00	0.0130	0.2000	72.19	26.7660	44.12	1109.06	2.86	0 03:13:47
16 {Survey Site}.Standard : 30	20.00	30.00	63.70	2.0000	225.00	0.0130	0.2000	72.19	38.7550	32.15	642.82	1.55	0 04:23:06
17 {Survey Site}.Standard : 31	5.54	5.00	57.00	2.0000	245.00	0.0130	0.2000	72.19	54.9610	15.96	88.49	0.10	0 02:19:04
18 {Survey Site}.Standard : 32	3.34	2.00	67.00	2.0000	95.00	0.0130	0.2000	72.19	50.7860	20.13	67.14	0.04	0 03:04:24
19 {Survey Site}.Standard : 33	7.71	2.00	67.00	2.0000	215.00	0.0130	0.2000	72.19	50.8390	20.10	154.88	0.08	0 03:06:43
20 {Survey Site}.Standard : 4	3.13	2.00	67.00	2.0000	155.00	0.0130	0.2000	72.19	50.1080	20.83	65.22	0.04	0 02:12:22
21 {Survey Site}.Standard : 46	5.62	2.00	67.00	2.0000	200.00	0.0130	0.2000	72.19	50.4990	20.44	114.98	0.07	0 02:41:25
22 {Survey Site}.Standard : 5	10.46	45.00	71.05	0.5000	235.00	0.0130	0.2000	72.19	27.0190	43.84	458.56	1.10	0 03:47:53
23 {Survey Site}.Standard : 51	0.39	95.00	95.55	0.5000	20.00	0.0130	0.2000	72.19	0.5270	70.12	27.00	0.09	0 00:37:06
24 {Survey Site}.Standard : 52	10.94	2.00	36.00	0.5000	240.00	0.0130	0.2000	72.19	62.1100	5.54	60.59	0.07	0 05:26:56
25 {Survey Site}.Standard : 53	0.36	75.00	85.75	3.0000	20.00	0.0130	0.2000	72.19	7.3060	63.23	23.02	0.09	0 00:48:30
26 {Survey Site}.Standard : 54	3.94	75.00	85.75	2.0000	150.00	0.0130	0.2000	72.19	7.3060	63.15	248.74	0.88	0 01:08:15
27 {Survey Site}.Standard : 57	0.38	15.00	56.35	2.0000	125.00	0.0130	0.2000	72.19	48.4480	22.49	8.61	0.02	0 00:39:11
28 {Survey Site}.Standard : 6	11.54	2.00	67.00	2.0000	280.00	0.0130	0.2000	72.19	51.0470	19.87	229.37	0.11	0 03:23:04
29 {Survey Site}.Standard : 63	1.63	55.00	75.95	2.0000	90.00	0.0130	0.2000	72.19	19.1900	51.74	84.29	0.29	0 01:17:41
30 {Survey Site}.Standard : 65	1.71	55.00	75.95	2.0000	130.00	0.0130	0.2000	72.19	19.1240	51.82	88.56	0.32	0 01:04:07

Subbasin Summary

SN	Subbasin ID	Area	Impervious Area	Weighted Curve Number	Average Slope	Equivalent Width	Impervious Area Manning's Roughness	Pervious Area Manning's Roughness	Total Rainfall	Total Infiltration	Total Runoff	Total Runoff Volume	Peak Runoff	Time of Concentration
		(ha)	(%)		(%)	(m)			(mm)	(mm)	(mm)	(ha-mm)	(cms)	(days hh:mm:ss)
48	{Survey Site}.Standard : 84	1.00	55.00	75.95	2.0000	50.00	0.0130	0.2000	72.19	19.2150	51.71	51.92	0.18	0 01:22:41
49	{Survey Site}.Standard : 85	1.78	55.00	75.95	2.0000	70.00	0.0130	0.2000	72.19	19.2810	51.64	92.07	0.30	0 01:35:22
50	{Survey Site}.Standard : 86	1.43	55.00	75.95	2.0000	100.00	0.0130	0.2000	72.19	19.1400	51.80	73.81	0.26	0 01:07:18
51	{Survey Site}.Standard : 87	2.66	55.00	75.95	2.0000	100.00	0.0130	0.2000	72.19	19.2970	51.62	137.15	0.44	0 01:37:48
52	{Survey Site}.Standard : 88	1.64	55.00	75.95	2.0000	75.00	0.0130	0.2000	72.19	19.2390	51.69	84.66	0.28	0 01:26:57
53	{Survey Site}.Standard : 89	1.11	55.00	75.95	2.0000	100.00	0.0130	0.2000	72.19	19.0900	51.85	57.71	0.21	0 00:58:01
54	{Survey Site}.Standard : 9	3.53	2.00	67.00	2.0000	100.00	0.0130	0.2000	72.19	50.8120	20.12	71.07	0.04	0 03:05:05
55	{Survey Site}.Standard : 90	1.22	65.00	80.85	2.0000	130.00	0.0130	0.2000	72.19	12.8600	57.99	70.46	0.28	0 00:44:56
56	{Survey Site}.Standard : 91	1.00	65.00	80.85	2.0000	130.00	0.0130	0.2000	72.19	12.8600	58.00	57.83	0.24	0 00:39:54
57	{Survey Site}.Standard : 92	2.19	55.00	75.95	2.0000	75.00	0.0130	0.2000	72.19	19.3310	51.59	113.13	0.36	0 01:43:35
58	{Survey Site}.Standard : 93	2.32	15.00	56.35	5.0000	525.00	0.0130	0.2000	72.19	48.4180	22.50	52.18	0.14	0 00:37:05

Node Summary

SN	Element ID	Element Type	Invert Elevation	Ground/Rim (Max) Elevation	Initial Water Elevation	Surcharge Elevation	Ponded Area	Peak Inflow	Max HGL Elevation Attained	Max Surcharge Depth Attained	Min Freeboard Attained	Time of Peak Flooding Occurrence	Total Flooded Volume	Total Time Flooded
			(m)	(m)	(m)	(m)	(m²)	(cms)	(m)	(m)	(m)	(days hh:mm)	(ha-mm)	(min)
1	Ex_MHR1	Junction	255.88	262.50	0.00	0.00	0.00	0.25	256.32	0.00	6.18	0 00:00	0.00	0.00
2	Ex_MHR2	Junction	255.48	259.65	0.00	0.00	0.00	0.25	255.90	0.00	3.75	0 00:00	0.00	0.00
3	Ex_MHR25	Junction	256.48	263.35	0.00	0.00	0.00	0.25	257.47	0.00	5.88	0 00:00	0.00	0.00
4	Ex_MHR26	Junction	256.64	262.75	0.00	0.00	0.00	0.25	257.87	0.00	4.88	0 00:00	0.00	0.00
5	Ex_MHR27	Junction	256.94	261.00	0.00	0.00	0.00	0.25	258.31	0.00	2.69	0 00:00	0.00	0.00
6	Ex_MHR28	Junction	257.37	259.30	0.00	0.00	0.00	0.88	259.09	0.00	0.21	0 00:00	0.00	0.00
7	Ex_MHR3	Junction	255.23	259.00	0.00	0.00	0.00	0.25	255.61	0.00	3.39	0 00:00	0.00	0.00
8	Jun-34	Junction	254.62	258.25	0.00	0.00	0.00	4.69	256.12	0.00	2.13	0 00:00	0.00	0.00
9	Jun-35	Junction	254.70	257.50	0.00	0.00	0.00	0.43	256.12	0.00	1.38	0 00:00	0.00	0.00
10	Jun-36	Junction	254.72	258.00	0.00	0.00	0.00	4.75	256.50	0.00	1.85	0 00:00	0.00	0.00
11	Jun-37	Junction	255.29	261.30	0.00	0.00	0.00	2.33	257.17	0.00	4.13	0 00:00	0.00	0.00
12	Jun-38	Junction	255.53	261.80	0.00	0.00	0.00	0.96	258.58	0.00	3.22	0 00:00	0.00	0.00
13	Jun-39	Junction	256.93	259.05	0.00	0.00	0.00	0.09	258.46	0.00	0.59	0 00:00	0.00	0.00
14	Jun-40	Junction	256.10	258.55	0.00	0.00	0.00	0.31	257.84	0.00	0.71	0 00:00	0.00	0.00
15	Jun-41	Junction	255.77	259.65	0.00	0.00	0.00	0.27	258.49	0.00	1.16	0 00:00	0.00	0.00
16	Jun-42	Junction	255.23	258.90	0.00	0.00	0.00	1.29	256.54	0.00	2.36	0 00:00	0.00	0.00
17	Jun-43	Junction	256.25	257.25	0.00	0.00	0.00	0.69	256.58	0.00	1.17	0 00:00	0.00	0.00
18	Jun-44	Junction	257.55	258.55	0.00	0.00	0.00	0.64	258.01	0.00	0.59	0 00:00	0.00	0.00
19	Jun-46	Junction	257.70	258.70	0.00	258.70	0.00	0.73	258.34	0.00	0.41	0 00:00	0.00	0.00
20	Jun-47	Junction	258.10	259.10	0.00	0.00	0.00	0.76	258.61	0.00	0.49	0 00:00	0.00	0.00
21	Jun-48	Junction	258.35	259.35	0.00	0.00	0.00	0.03	258.61	0.00	0.79	0 00:00	0.00	0.00
22	Jun-49	Junction	256.90	257.90	0.00	0.00	0.00	0.72	257.50	0.00	0.60	0 00:00	0.00	0.00
23	Jun-50	Junction	256.75	257.75	0.00	0.00	0.00	0.70	257.32	0.00	0.63	0 00:00	0.00	0.00
24	Jun-51	Junction	258.45	260.50	0.00	0.00	0.00	0.52	259.50	0.00	1.00	0 00:00	0.00	0.00
25	Jun-52	Junction	255.69	260.00	0.00	0.00	0.00	0.68	257.45	0.00	2.55	0 00:00	0.00	0.00
26	Jun-53	Junction	255.35	259.60	0.00	0.00	0.00	0.95	256.84	0.00	2.76	0 00:00	0.00	0.00
27	Jun-54	Junction	255.62	259.80	0.00	0.00	0.00	0.28	257.16	0.00	2.64	0 00:00	0.00	0.00
28	Jun-55	Junction	255.60	259.70	0.00	0.00	0.00	0.65	257.12	0.00	2.58	0 00:00	0.00	0.00
29	Jun-56	Junction	255.79	257.80	0.00	0.00	0.00	0.81	256.70	0.00	1.10	0 00:00	0.00	0.00
30	Jun-61	Junction	258.32	262.00	0.00	0.00	0.00	0.74	258.66	0.00	4.14	0 00:00	0.00	0.00

Node Summary

SN	Element ID	Element Type	Invert Elevation	Ground/Rim (Max) Elevation	Initial Water Elevation	Surcharge Elevation	Ponded Area	Peak Inflow	Max HGL Elevation Attained	Max Surcharge Depth Attained	Min Freeboard Attained	Time of Peak Flooding Occurrence	Total Flooded Volume	Total Time Flooded
			(m)	(m)	(m)	(m)	(m²)	(cms)	(m)	(m)	(m)	(days hh:mm)	(ha-mm)	(min)
48	Ravine_1	Junction	256.10	260.10	0.00	0.00	0.00	3.59	256.58	0.00	3.52	0 00:00	0.00	0.00
49	Ravine_2	Junction	253.00	257.00	0.00	0.00	0.00	3.67	253.57	0.00	3.43	0 00:00	0.00	0.00
50	Ravine_3	Junction	252.45	256.45	0.00	0.00	0.00	3.62	252.90	0.00	3.55	0 00:00	0.00	0.00
51	RH_1	Junction	267.60	271.70	0.00	0.00	0.00	2.86	271.55	0.00	0.15	0 00:00	0.00	0.00
52	RH_10	Junction	261.90	263.90	0.00	0.00	0.00	4.04	263.68	0.00	0.22	0 00:00	0.00	0.00
53	RH_11	Junction	260.33	262.55	0.00	0.00	0.00	3.48	262.39	0.00	0.16	0 00:00	0.00	0.00
54	RH_12	Junction	269.00	270.50	0.00	0.00	0.00	1.55	269.42	0.00	1.08	0 00:00	0.00	0.00
55	RH_13	Junction	264.00	266.50	0.00	0.00	0.00	1.59	264.58	0.00	1.92	0 00:00	0.00	0.00
56	RH_14	Junction	261.70	263.50	0.00	0.00	0.00	0.47	262.92	0.00	0.58	0 00:00	0.00	0.00
57	RH_15	Junction	259.38	261.00	0.00	0.00	0.00	0.50	260.50	0.00	0.50	0 00:00	0.00	0.00
58	RH_16	Junction	256.36	258.00	0.00	0.00	0.00	0.46	257.07	0.00	0.93	0 00:00	0.00	0.00
59	RH_17	Junction	256.42	258.00	0.00	0.00	0.00	1.25	257.52	0.00	0.48	0 00:00	0.00	0.00
60	RH_2	Junction	270.14	272.45	0.00	0.00	0.00	2.36	272.23	0.00	0.22	0 00:00	0.00	0.00
61	RH_3	Junction	267.07	270.50	0.00	0.00	0.00	4.99	269.87	0.00	0.63	0 00:00	0.00	0.00
62	RH_4	Junction	266.63	268.60	0.00	0.00	0.00	3.61	268.42	0.00	0.18	0 00:00	0.00	0.00
63	RH_5	Junction	270.35	272.10	0.00	0.00	0.00	1.10	271.86	0.00	0.24	0 00:00	0.00	0.00
64	RH_6	Junction	266.50	268.20	0.00	0.00	0.00	4.43	268.06	0.00	0.14	0 00:00	0.00	0.00
65	RH_7	Junction	272.00	273.50	0.00	0.00	0.00	0.00	272.00	0.00	1.50	0 00:00	0.00	0.00
66	RH_8	Junction	267.75	269.85	0.00	0.00	0.00	0.20	268.38	0.00	1.47	0 00:00	0.00	0.00
67	RH_9	Junction	264.00	265.80	0.00	0.00	0.00	0.18	264.96	0.00	0.84	0 00:00	0.00	0.00
68	WestOutfall	Junction	257.00	258.40	0.00	0.00	0.00	0.02	257.00	0.00	2.45	0 00:00	0.00	0.00
69	WestWetland	Junction	258.00	259.00	0.00	0.00	0.00	0.07	258.00	0.00	1.00	0 00:00	0.00	0.00
70	North_Wetland	Outfall	252.00					0.16	252.00					
71	Outfall	Outfall	252.00					3.62	252.36					
72	TinerEstatesSTM	Outfall	254.82					0.25	255.14					
73	West_Outfall	Outfall	257.00					0.02	257.00					
74	West_Wetland	Outfall	258.00					0.07	258.00					
75	Ex_SE_Pond	Storage Node	262.00	266.00	0.00		0.00	1.61	263.09				0.00	0.00
76	SWM_FB	Storage Node	253.00	256.80	254.50		0.00	4.69	256.12				0.00	0.00
77	SWM_WP	Storage Node	253.00	256.80	254.50		0.00	4.09	256.12				0.00	0.00

Link Summary

SN Element ID	Element Type	From (Inlet) Node	To (Outlet) Node	Length	Inlet Invert Elevation	Outlet Invert Elevation	Average Slope	Diameter or Height	Manning's Roughness	Peak Flow	Design Flow Capacity	Peak Flow/ Design Flow Ratio	Peak Flow Velocit
				(m)	(m)	(m)	(%)	(m)		(cms)	(cms)		(m/sec)
1 Ex.STM_1	Pipe	Ex_MHR28	Ex_MHR27	107.00	257.37	256.94	0.4000	0.450	0.0130	0.25	0.18	1.37	1.5
2 Ex.STM_2	Pipe	Ex_MHR27	Ex_MHR26	73.00	256.94	256.64	0.4100	0.450	0.0130	0.25	0.18	1.35	1.5
3 Ex.STM_3	Pipe	Ex_MHR26	Ex_MHR25	27.00	256.64	256.48	0.5900	0.450	0.0130	0.25	0.22	1.13	1.5
4 Ex.STM_4	Pipe	Ex_MHR25	Ex_MHR1	100.00	256.48	255.88	0.6000	0.450	0.0130	0.25	0.22	1.12	1.5
5 Ex.STM_5	Pipe	Ex_MHR1	Ex_MHR2	100.00	255.88	255.48	0.4000	0.525	0.0130	0.25	0.27	0.91	1.3
6 Ex.STM_6	Pipe	Ex_MHR2	Ex_MHR3	50.00	255.48	255.23	0.5000	0.525	0.0130	0.25	0.30	0.81	1.4
7 Ex.STM_7	Pipe	Ex_MHR3	TinerEstatesSTM	102.00	255.23	254.82	0.4000	0.600	0.0130	0.25	0.39	0.64	1.4
8 Link-106	Pipe	Jun-66	Ravine_2	24.80	253.16	252.85	1.2500	0.750	0.0130	0.31	0.89	0.34	1.6
9 Link-107	Pipe	OutletStructure	Jun-66	93.20	254.35	253.20	1.2300	0.750	0.0130	0.31	1.24	0.25	1.9
10 Link-108	Pipe	Jun-67	Jun-37	110.30	255.48	255.37	0.1000	1.200	0.0130	0.79	1.23	0.64	0.7
11 Link-109	Pipe	Jun-46	Jun-44	30.00	257.70	257.55	0.5000	1.050	0.0130	0.64	1.93	0.33	1.5
12 Link-110	Pipe	Jun-52	Jun-67	153.00	255.69	255.48	0.1400	0.900	0.0130	0.58	0.67	0.86	0.9
13 Link-111	Pipe	Jun-68	Jun-52	66.80	255.86	255.77	0.1300	0.750	0.0130	0.33	0.41	0.81	0.8
14 Link-112	Pipe	Jun-69	Jun-68	106.60	256.21	255.91	0.2800	0.600	0.0130	0.16	0.33	0.49	0.7
15 Link-113	Pipe	Jun-70	Jun-52	97.50	256.47	255.88	0.6100	0.525	0.0130	0.36	0.33	1.07	1.6
16 Link-114	Pipe	Jun-71	Jun-53	85.10	256.79	255.73	1.2500	0.450	0.0130	0.37	0.32	1.15	2.2
17 Link-115	Pipe	Jun-73	Jun-51	50.00	258.65	258.50	0.3000	0.525	0.0130	0.34	0.24	1.46	1.5
18 Link-116	Pipe	Jun-72	Jun-51	50.00	258.75	258.55	0.4000	0.450	0.0130	0.21	0.18	1.15	1.3
19 Link-117	Pipe	Jun-74	Jun-61	90.00	259.54	258.37	1.3000	0.675	0.0130	0.43	0.96	0.45	2.4
20 Link-118	Pipe	Jun-75	Jun-74	41.60	260.00	259.56	1.0600	0.525	0.0130	0.20	0.44	0.45	1.5
21 Link-119	Pipe	Jun-76	Jun-56	181.70	259.19	256.08	1.7100	0.600	0.0130	0.79	0.80	0.99	3.0
22 Link-120	Pipe	Jun-77	Jun-76	140.50	260.46	259.24	0.8700	0.600	0.0130	0.45	0.57	0.79	1.9
23 Link-121	Pipe	Jun-78	Jun-77	152.20	261.75	260.51	0.8100	0.525	0.0130	0.44	0.39	1.14	2.1
24 Link-49	Pipe	Jun-34	SWM_FB	20.70	254.62	254.60	0.1000	1.800	0.0130	4.69	3.57	1.31	2.4
25 Link-50	Pipe	Jun-35	SWM_WP	75.20	254.70	254.60	0.1300	0.600	0.0130	0.43	0.22	1.93	1.5
26 Link-52	Pipe	Jun-36	Jun-34	35.00	254.72	254.67	0.1400	1.650	0.0130	4.69	3.45	1.36	2.2
27 Link-53	Pipe	Jun-37	Jun-36	336.90	255.29	254.74	0.1600	1.350	0.0130	2.21	2.16	1.02	1.5
28 Link-54	Pipe	Jun-38	Jun-37	110.00	255.53	255.31	0.2000	0.600	0.0130	0.67	0.27	2.45	2.3
29 Link-56	Pipe	Jun-41	Jun-38	110.00	255.77	255.55	0.2000	0.600	0.0130	0.26	0.27	0.94	0.9
30 Link-57	Pipe	Jun-40	Jun-41	95.50	256.10	255.85	0.2600	0.450	0.0130	0.24	0.15	1.63	1.4

Link Summary

SN Element ID	Element Type	From (Inlet) Node	To (Outlet) Node	Length	Inlet Invert Elevation	Outlet Invert Elevation	Average Slope	Diameter or Height	Manning's Roughness	Peak Flow	Design Flow Capacity	Peak Flow/ Design Flow Ratio	Peak Flow Velocit
				(m)	(m)	(m)	(%)	(m)		(cms)	(cms)		(m/sec)
48 RH_C6	Pipe	RH_16	Ravine_1	6.00	256.36	256.24	2.0000	0.700	0.0130	0.46	1.31	0.35	1.6
49 RH_D1	Pipe	RH_7	RH_8	275.00	272.00	267.75	1.5500	0.300	0.0130	0.00	0.12	0.00	0.0
50 RH_D2	Pipe	RH_8	RH_9	180.00	267.75	264.00	2.0800	0.300	0.0130	0.15	0.14	1.04	2.1
51 RH_D3	Pipe	RH_9	RH_10	155.00	264.00	261.90	1.3500	0.375	0.0130	0.16	0.20	0.76	1.4
52 RH_M1	Pipe	RH_1	RH_3	270.00	267.60	267.07	0.2000	0.600	0.0130	0.50	0.27	1.85	1.7
53 RH_M2	Pipe	RH_3	RH_4	222.00	267.07	266.63	0.2000	0.675	0.0130	0.80	0.37	2.14	2.2
54 RH_M3	Pipe	RH_4	RH_6	18.00	266.63	266.50	0.7200	0.750	0.0130	1.05	0.95	1.10	2.3
55 RH_M4	Pipe	RH_6	RH_10	415.00	266.50	261.90	1.1100	0.675	0.0130	0.91	0.89	1.03	2.6
56 RH_M5	Pipe	RH_10	RH_11	140.00	261.90	260.33	1.1200	0.675	0.0130	1.05	0.89	1.17	2.9
57 RH_M6	Pipe	RH_11	RH_17	464.00	260.33	256.42	0.8400	0.750	0.0130	1.10	1.02	1.08	2.5
58 RH_M7	Pipe	RH_17	Ravine_1	6.00	256.42	256.37	0.8300	1.000	0.0130	1.25	2.19	0.57	1.9
59 West_Link	Pipe	WestOutfall	West_Outfall	33.73	256.00	257.00	-2.9600	0.000	0.0130	0.02	0.00	0.02	0.0
60 WestWetland_Link	Pipe	WestWetland	West_Wetland	37.13	258.00	258.00	0.0000	0.000	0.0130	0.07	0.00	0.02	0.0
61 Wetland_Link	Pipe	NorthWetland	North_Wetland	41.51	252.00	252.00	0.0000	0.000	0.0130	0.16	0.00	0.02	0.0
62 Link-103	Channel	Jun-36	SWM_FB	10.00	257.70	257.50	2.0000	0.300	0.0320	0.00	11.65	0.00	0.0
63 Link-104	Channel	Jun-56	SWM_FB	50.00	257.50	256.50	2.0000	0.300	0.0320	0.00	11.65	0.00	0.0
64 Link-122	Channel	Jun-53	Jun-42	70.00	259.30	258.60	1.0000	0.300	0.0320	0.00	8.24	0.00	0.0
65 Link-123	Channel	Jun-55	Jun-53	90.00	259.40	259.30	0.1100	0.300	0.0320	0.00	2.75	0.00	0.0
66 Link-124	Channel	Jun-54	Jun-55	90.00	259.50	259.40	0.1100	0.300	0.0320	0.00	2.75	0.00	0.0
67 Link-125	Channel	Jun-73	Jun-47	50.00	259.65	258.70	1.9000	0.300	0.0320	0.08	11.36	0.01	0.2
68 Link-126	Channel	Jun-72	Jun-47	50.00	259.65	258.70	1.9000	0.300	0.0320	0.02	11.36	0.00	0.1
69 Link-127	Channel	Jun-67	Jun-54	100.00	259.60	259.50	0.1000	0.300	0.0320	0.00	2.61	0.00	0.0
70 Link-128	Channel	Jun-52	Jun-67	150.00	259.70	259.60	0.0700	0.300	0.0320	0.00	2.13	0.00	0.0
71 Link-129	Channel	Jun-68	Jun-52	80.00	259.80	259.70	0.1300	0.300	0.0320	0.00	2.91	0.00	0.0
72 Link-130	Channel	Jun-69	Jun-68	100.00	259.90	259.80	0.1000	0.300	0.0320	0.00	2.61	0.00	0.0
73 Link-131	Channel	Jun-71	Jun-53	70.00	259.40	259.30	0.1400	0.300	0.0320	0.00	3.11	0.00	0.0
74 Link-132	Channel	Jun-78	Jun-77	150.00	265.00	264.50	0.3300	0.300	0.0320	0.00	4.76	0.00	0.0
75 Link-133	Channel	Jun-77	Jun-76	150.00	264.50	261.90	1.7300	0.300	0.0320	0.00	10.85	0.00	0.0
76 Link-134	Channel	Jun-76	Jun-36	250.00	261.90	257.70	1.6800	0.300	0.0320	0.00	10.68	0.00	0.0
77 Link-135	Channel	Jun-61	Jun-37	100.00	262.50	261.00	1.5000	0.300	0.0320	0.00	10.09	0.00	0.0

Link Summary

SN Element ID	Element Type	From (Inlet) Node	To (Outlet) Node	Length	Inlet Invert Elevation	Outlet Invert Elevation	Average Slope	Diameter or Height	Manning's Roughness	Peak Flow	Design Flow Capacity	Peak Flow/ Design Flow Ratio	Peak Flow Velocit
				(m)	(m)	(m)	(%)	(m)		(cms)	(cms)		(m/sec)
95 Link-89	Channel	Jun-42	Jun-36	53.10	258.60	257.70	1.6900	0.300	0.0320	0.00	10.73	0.00	0.0
96 Link-90	Channel	Jun-39	Jun-40	90.00	258.75	257.75	1.1100	0.300	0.0320	0.00	8.69	0.00	0.0
97 Link-92	Channel	Jun-38	Jun-37	110.00	261.50	261.00	0.4500	0.300	0.0320	0.00	5.56	0.00	0.0
98 Link-93	Channel	Jun-37	Jun-36	340.00	261.00	257.70	0.9700	0.300	0.0320	0.00	8.12	0.00	0.0
99 Link-94	Channel	Jun-41	Jun-40	95.00	259.35	257.75	1.6800	0.300	0.0320	0.00	10.69	0.00	0.0
100 LowerRavine	Channel	Ravine_2	Ravine_3	124.00	253.00	252.45	0.4400	4.000	0.0320	3.61	157.98	0.02	1.2
101 OutletRavine	Channel	Ravine_3	Outfall	45.00	252.45	252.00	1.0000	4.000	0.0320	3.62	237.22	0.02	1.5
102 RH_C1	Channel	RH_12	RH_13	215.00	269.00	264.00	2.3300	1.500	0.0320	1.50	24.20	0.06	1.5
103 RH_C2	Channel	RH_13	Ex_SE_Pond	60.00	264.00	263.50	0.8300	1.500	0.0320	1.50	14.49	0.10	1.4
104 UpperRavine	Channel	Ravine_1	Ravine_2	553.00	256.10	253.00	0.5600	4.000	0.0320	3.55	177.61	0.02	1.1
105 Orifice-01	Orifice	SWM_WP	OutletStructure		253.00	254.25		0.170		0.08			
106 Link-91	Weir	Jun-40	WestOutfall		256.10	257.00				0.00			
107 Weir-01	Weir	SWM_FB	SWM_WP		253.00	253.00				3.44			
108 Weir-04	Weir	SWM_WP	OutletStructure		253.00	254.25				0.23			
109 Weir-05	Weir	SWM_WP	Ravine_2		253.00	253.00				0.00			

Junction Input

SN	Element ID	Invert Elevation	Ground/Rim (Max) Elevation	Ground/Rim (Max) Offset	Initial Water Elevation	Initial Water Depth	Surcharge Elevation	Surcharge Depth	Ponded Area	Minimum Pipe Cover
		(m)	(m)	(m)	(m)	(m)	(m)	(m)	(m²)	(m)
1	Ex_MHR1	255.88	262.50	6.62	0.00	-255.88	0.00	-262.50	0.00	0.00
2	Ex_MHR2	255.48	259.65	4.17	0.00	-255.48	0.00	-259.65	0.00	0.00
3	Ex_MHR25	256.48	263.35	6.87	0.00	-256.48	0.00	-263.35	0.00	0.00
4	Ex_MHR26	256.64	262.75	6.11	0.00	-256.64	0.00	-262.75	0.00	0.00
5	Ex_MHR27	256.94	261.00	4.06	0.00	-256.94	0.00	-261.00	0.00	0.00
6	Ex_MHR28	257.37	259.30	1.93	0.00	-257.37	0.00	-259.30	0.00	0.00
7	Ex_MHR3	255.23	259.00	3.77	0.00	-255.23	0.00	-259.00	0.00	0.00
8	Jun-34	254.62	258.25	3.63	0.00	-254.62	0.00	-258.25	0.00	0.00
9	Jun-35	254.70	257.50	2.80	0.00	-254.70	0.00	-257.50	0.00	0.00
10	Jun-36	254.72	258.00	3.28	0.00	-254.72	0.00	-258.00	0.00	0.00
11	Jun-37	255.29	261.30	6.01	0.00	-255.29	0.00	-261.30	0.00	0.00
12	Jun-38	255.53	261.80	6.27	0.00	-255.53	0.00	-261.80	0.00	0.00
13	Jun-39	256.93	259.05	2.12	0.00	-256.93	0.00	-259.05	0.00	0.00
14	Jun-40	256.10	258.55	2.45	0.00	-256.10	0.00	-258.55	0.00	0.00
15	Jun-41	255.77	259.65	3.88	0.00	-255.77	0.00	-259.65	0.00	0.00
16	Jun-42	255.23	258.90	3.67	0.00	-255.23	0.00	-258.90	0.00	0.00
17	Jun-43	256.25	257.25	1.00	0.00	-256.25	0.00	-257.25	0.00	0.00
18	Jun-44	257.55	258.55	1.00	0.00	-257.55	0.00	-258.55	0.00	0.00
19	Jun-46	257.70	258.70	1.00	0.00	-257.70	258.70	0.00	0.00	0.00
20	Jun-47	258.10	259.10	1.00	0.00	-258.10	0.00	-259.10	0.00	0.00
21	Jun-48	258.35	259.35	1.00	0.00	-258.35	0.00	-259.35	0.00	0.00
22	Jun-49	256.90	257.90	1.00	0.00	-256.90	0.00	-257.90	0.00	0.00
23	Jun-50	256.75	257.75	1.00	0.00	-256.75	0.00	-257.75	0.00	0.00
24	Jun-51	258.45	260.50	2.05	0.00	-258.45	0.00	-260.50	0.00	0.00
25	Jun-52	255.69	260.00	4.31	0.00	-255.69	0.00	-260.00	0.00	0.00
26	Jun-53	255.35	259.60	4.25	0.00	-255.35	0.00	-259.60	0.00	0.00
27	Jun-54	255.62	259.80	4.18	0.00	-255.62	0.00	-259.80	0.00	0.00
28	Jun-55	255.60	259.70	4.10	0.00	-255.60	0.00	-259.70	0.00	0.00
29	Jun-56	255.79	257.80	2.01	0.00	-255.79	0.00	-257.80	0.00	0.00
30	Jun-61	258.32	262.00	3.68	0.00	-258.32	0.00	-262.00	0.00	0.00
31	Jun-64	261.13	263.50	2.37	0.00	-261.13	0.00	-263.50	0.00	0.00
32	Jun-65	262.69	264.50	1.81	0.00	-262.69	0.00	-264.50	0.00	0.00
33	Jun-66	253.16	256.00	2.84	0.00	-253.16	0.00	-256.00	0.00	0.00
34	Jun-67	255.48	259.90	4.42	0.00	-255.48	0.00	-259.90	0.00	0.00
35	Jun-68	255.86	260.10	4.24	0.00	-255.86	0.00	-260.10	0.00	0.00
36	Jun-69	256.21	261.20	4.99	0.00	-256.21	0.00	-261.20	0.00	0.00
37	Jun-70	256.47	263.00	6.53	0.00	-256.47	0.00	-263.00	0.00	0.00
38	Jun-71	256.79	260.00	3.21	0.00	-256.79	0.00	-260.00	0.00	0.00
39	Jun-72	258.75	259.95	1.20	0.00	-258.75	0.00	-259.95	0.00	0.00
40	Jun-73	258.65	259.95	1.30	0.00	-258.65	0.00	-259.95	0.00	0.00
41	Jun-74	259.54	264.00	4.46	0.00	-259.54	0.00	-264.00	0.00	0.00
42	Jun-75	260.00	264.50	4.50	0.00	-260.00	0.00	-264.50	0.00	0.00
43	Jun-76	259.19	262.20	3.01	0.00	-259.19	0.00	-262.20	0.00	0.00
44	Jun-77	260.46	264.80	4.34	0.00	-260.46	0.00	-264.80	0.00	0.00
45	Jun-78	261.75	265.30	3.55	0.00	-261.75	0.00	-265.30	0.00	0.00
46	NorthWetland	252.00	258.00	6.00	0.00	-252.00	0.00	-258.00	0.00	0.00
47	OutletStructure	254.25	256.80	2.55	0.00	-254.25	0.00	-256.80	0.00	0.00
48	Ravine_1	256.10	260.10	4.00	0.00	-256.10	0.00	-260.10	0.00	0.00

Junction Results

SN	Element	Peak Inflow	Peak Lateral Inflow	Max HGL Elevation Attained	Max HGL Depth Attained	Max Surcharge Depth Attained	Min Freeboard Attained	Average HGL Elevation Attained	Average HGL Depth Attained	Time Max HC Occurrent
	ID	(cms)	(cms)	(m)	(m)	(m)	(m)	(m)	(m)	(days hh:mm)
1	Ex_MHR1	0.25	0.00	256.32	0.44	0.00	6.18	256.00	0.12	0 12:00
2	Ex_MHR2	0.25	0.00	255.90	0.42	0.00	3.75	255.60	0.12	0 12:00
3	Ex_MHR25	0.25	0.00	257.47	0.99	0.00	5.88	256.61	0.13	0 11:59
4	Ex_MHR26	0.25	0.00	257.87	1.23	0.00	4.88	256.78	0.14	0 11:59
5	Ex_MHR27	0.25	0.00	258.31	1.37	0.00	2.69	257.10	0.16	0 11:59
6	Ex_MHR28	0.88	0.88	259.09	1.72	0.00	0.21	257.55	0.18	0 12:00
7	Ex_MHR3	0.25	0.00	255.61	0.38	0.00	3.39	255.35	0.12	0 12:00
8	Jun-34	4.69	0.00	256.12	1.50	0.00	2.13	255.76	1.14	0 14:44
9	Jun-35	0.43	0.43	256.12	1.42	0.00	1.38	255.74	1.04	0 14:44
10	Jun-36	4.75	0.00	256.50	1.78	0.00	1.85	255.79	1.07	0 12:00
11	Jun-37	2.33	0.35	257.17	1.88	0.00	4.13	255.90	0.61	0 12:00
12	Jun-38	0.96	0.96	258.58	3.05	0.00	3.22	255.98	0.45	0 12:00
13	Jun-39	0.09	0.09	258.46	1.53	0.00	0.59	257.00	0.07	0 12:00
14	Jun-40	0.31	0.00	257.84	1.74	0.00	0.71	256.20	0.10	0 12:00
15	Jun-41	0.27	0.09	258.49	2.72	0.00	1.16	256.03	0.26	0 12:00
16	Jun-42	1.29	0.00	256.54	1.31	0.00	2.36	255.87	0.64	0 12:00
17	Jun-43	0.69	0.00	256.58	0.33	0.00	1.17	256.31	0.06	0 12:00
18	Jun-44	0.64	0.00	258.01	0.46	0.00	0.59	257.64	0.09	0 12:00
19	Jun-46	0.73	0.00	258.34	0.64	0.00	0.41	257.82	0.12	0 12:00
20	Jun-47	0.76	0.16	258.61	0.51	0.00	0.49	258.20	0.10	0 12:00
21	Jun-48	0.03	0.00	258.61	0.26	0.00	0.79	258.40	0.05	0 12:00
22	Jun-49	0.72	0.21	257.50	0.60	0.00	0.60	257.03	0.13	0 12:00
23	Jun-50	0.70	0.00	257.32	0.57	0.00	0.63	256.90	0.15	0 12:00
24	Jun-51	0.52	0.00	259.50	1.05	0.00	1.00	258.54	0.09	0 11:59
25	Jun-52	0.68	0.00	257.45	1.76	0.00	2.55	255.98	0.29	0 12:00
26	Jun-53	0.95	0.00	256.84	1.49	0.00	2.76	255.90	0.55	0 12:00
27	Jun-54	0.28	0.28	257.16	1.54	0.00	2.64	255.99	0.37	0 12:00
28	Jun-55	0.65	0.41	257.12	1.52	0.00	2.58	255.95	0.35	0 12:00
29	Jun-56	0.81	0.02	256.70	0.91	0.00	1.10	255.98	0.19	0 12:00
30	Jun-61	0.74	0.00	258.66	0.34	0.00	4.14	258.37	0.05	0 12:00
31	Jun-64	0.32	0.00	261.40	0.27	0.00	2.10	261.17	0.04	0 12:00
32	Jun-65	0.32	0.32	262.98	0.29	0.00	1.52	262.73	0.04	0 12:00
33	Jun-66	0.31	0.00	253.58	0.42	0.00	2.42	253.39	0.23	0 12:00
34	Jun-67	0.78	0.30	257.25	1.77	0.00	2.65	255.93	0.45	0 12:00
35	Jun-68	0.44	0.28	257.53	1.67	0.00	2.57	256.03	0.17	0 12:00
36	Jun-69	0.21	0.21	257.59	1.38	0.00	3.61	256.27	0.06	0 12:00
37	Jun-70	0.36	0.36	259.75	3.28	0.00	3.25	256.54	0.07	0 11:59
38	Jun-71	0.40	0.40	258.48	1.69	0.00	1.52	256.86	0.07	0 12:00
39	Jun-72	0.26	0.26	259.66	0.91	0.00	0.29	258.82	0.07	0 12:00
40	Jun-73	0.44	0.44	259.67	1.02	0.00	0.28	258.74	0.09	0 12:00
41	Jun-74	0.44	0.24	259.89	0.35	0.00	4.11	259.59	0.05	0 12:00
42	Jun-75	0.20	0.20	260.28	0.28	0.00	4.22	260.04	0.04	0 12:00
43	Jun-76	0.86	0.44	259.91	0.72	0.00	2.29	259.27	0.08	0 12:00
44	Jun-77	0.44	0.00	260.86	0.40	0.00	3.94	260.52	0.06	0 12:00
45	Jun-78	0.53	0.53	262.75	1.00	0.00	2.55	261.82	0.07	0 12:00
46	NorthWetland	0.16	0.16	252.00	0.00	0.00	6.00	252.00	0.00	0 00:00
47	OutletStructure	0.31	0.00	254.61	0.36	0.00	3.44	254.51	0.26	0 14:59

Channel Input

SN	Element ID	Length	Inlet Invert Elevation (m)	Inlet Invert Offset (m)	Outlet Invert Elevation (m)	Outlet Invert Offset (m)	Total Drop (m)	Average Slope (%)	Shape	Height (m)	Width (m)	Manning's Roughness
1	Link-103	10.00	257.70	2.98	257.50	4.50	0.20	2.0000	Rectangular	0.300	20.000	0.0320
2	Link-104	50.00	257.50	1.71	256.50	3.50	1.00	2.0000	Rectangular	0.300	20.000	0.0320
3	Link-122	70.00	259.30	3.95	258.60	3.37	0.70	1.0000	Rectangular	0.300	20.000	0.0320
4	Link-123	90.00	259.40	3.80	259.30	3.95	0.10	0.1100	Rectangular	0.300	20.000	0.0320
5	Link-124	90.00	259.50	3.88	259.40	3.80	0.10	0.1100	Rectangular	0.300	20.000	0.0320
6	Link-125	50.00	259.65	1.00	258.70	0.60	0.95	1.9000	Rectangular	0.300	20.000	0.0320
7	Link-126	50.00	259.65	0.90	258.70	0.60	0.95	1.9000	Rectangular	0.300	20.000	0.0320
8	Link-127	100.00	259.60	4.12	259.50	3.88	0.10	0.1000	Rectangular	0.300	20.000	0.0320
9	Link-128	150.00	259.70	4.01	259.60	4.12	0.10	0.0700	Rectangular	0.300	20.000	0.0320
10	Link-129	80.00	259.80	3.94	259.70	4.01	0.10	0.1300	Rectangular	0.300	20.000	0.0320
11	Link-130	100.00	259.90	3.69	259.80	3.94	0.10	0.1000	Rectangular	0.300	20.000	0.0320
12	Link-131	70.00	259.40	2.61	259.30	3.95	0.10	0.1400	Rectangular	0.300	20.000	0.0320
13	Link-132	150.00	265.00	3.25	264.50	4.04	0.50	0.3300	Rectangular	0.300	20.000	0.0320
14	Link-133	150.00	264.50	4.04	261.90	2.71	2.60	1.7300	Rectangular	0.300	20.000	0.0320
15	Link-134	250.00	261.90	2.71	257.70	2.98	4.20	1.6800	Rectangular	0.300	20.000	0.0320
16	Link-135	100.00	262.50	4.18	261.00	5.71	1.50	1.5000	Rectangular	0.300	20.000	0.0320
17	Link-34	270.00	271.40	3.80	269.65	2.58	1.75	0.6500	Rectangular	0.300	20.000	0.0320
18	Link-35	50.00	272.15	2.01	269.65	2.58	2.50	5.0000	Rectangular	0.300	20.000	0.0320
19	Link-36	222.00	269.65	2.58	268.30	1.67	1.35	0.6100	Rectangular	0.300	20.000	0.0320
20	Link-37	18.00	268.30	1.67	267.90	1.40	0.40	2.2200	Rectangular	0.300	20.000	0.0320
21	Link-38	227.00	271.80	1.45	267.90	1.40	3.90	1.7200	Rectangular	0.300	20.000	0.0320
22	Link-39	415.00	267.90	1.40	263.50	1.60	4.40	1.0600	Rectangular	0.300	20.000	0.0320
23	Link-41	180.00	269.55	1.80	265.50	1.50	4.05	2.2500	Rectangular	0.300	20.000	0.0320
24	Link-42	155.00	265.50	1.50	263.50	1.60	2.00	1.2900	Rectangular	0.300	20.000	0.0320
25	Link-43	140.00	263.50	1.60	262.25	1.92	1.25	0.8900	Rectangular	0.300	20.000	0.0320
26	Link-44	470.00	262.25	1.92	258.00	1.90	4.25	0.9000	Rectangular	0.300	20.000	0.0320
27	Link-45	195.00	263.20	1.50	260.70	1.32	2.50	1.2800	Rectangular	0.300	20.000	0.0320
28	Link-46	280.00	260.70	1.32	258.00	1.90	2.70	0.9600	Rectangular	0.300	20.000	0.0320
29	Link-51	65.00	259.00	1.63	258.05	3.33	0.95	1.4600	Rectangular	0.300	10.000	0.0320
30	Link-61	125.00	256.75	0.00	256.25	0.00	0.50	0.4000	User-Defined	1.000	9.000	0.0320
31	Link-63	162.50	257.55	0.00	256.90	0.00	0.65	0.4000	User-Defined	1.000	9.000	0.0320
32	Link-66	133.00	258.10	0.00	257.70	0.00	0.40	0.3000	User-Defined	1.000	9.000	0.0320
33	Link-67	75.00	258.40	0.05	258.10	0.00	0.30	0.4000	User-Defined	1.000	9.000	0.0320
34	Link-89	53.10	258.60	3.37	257.70	2.98	0.90	1.6900	Rectangular	0.300	20.000	0.0320
35	Link-90	90.00	258.75	1.82	257.75	1.65	1.00	1.1100	Rectangular	0.300	20.000	0.0320
36	Link-92	110.00	261.50	5.97	261.00	5.71	0.50	0.4500	Rectangular	0.300	20.000	0.0320
37	Link-93	340.00	261.00	5.71	257.70	2.98	3.30	0.9700	Rectangular	0.300	20.000	0.0320
38	Link-94	95.00	259.35	3.58	257.75	1.65	1.60	1.6800	Rectangular	0.300	20.000	0.0320
39	LowerRavine	124.00	253.00	0.00	252.45	0.00	0.55	0.4400	Trapezoidal	4.000	17.000	0.0320
40	OutletRavine	45.00	252.45	0.00	252.00	0.00	0.45	1.0000	Trapezoidal	4.000	17.000	0.0320
41	RH_C1	215.00	269.00	0.00	264.00	0.00	5.00	2.3300	Trapezoidal	1.500	7.000	0.0320
42	RH_C2	60.00	264.00	0.00	263.50	1.50	0.50	0.8300	Trapezoidal	1.500	7.000	0.0320
43	UpperRavine	553.00	256.10	0.00	253.00	0.00	3.10	0.5600	Trapezoidal	4.000	17.000	0.0320

Channel Results

SN	Element ID	Peak Flow	Time of Peak Flow Occurrence	Design Flow Capacity	Peak Flow/ Design Flow Ratio	Peak Flow Velocity	Travel Time	Peak Flow Depth	Peak Flow Depth/ Total Depth Ratio	Total Time Surcharged
		(cms)	(days hh:mm)	(cms)		(m/sec)	(min)	(m)		(mi)
1	Link-103	0.00	0 00:00	11.65	0.00	0.00		0.00	0.00	0.00
2	Link-104	0.00	0 00:00	11.65	0.00	0.00		0.00	0.00	0.00
3	Link-122	0.00	0 00:00	8.24	0.00	0.00		0.00	0.00	0.00
4	Link-123	0.00	0 00:00	2.75	0.00	0.00		0.00	0.00	0.00
5	Link-124	0.00	0 00:00	2.75	0.00	0.00		0.00	0.00	0.00
6	Link-125	0.08	0 12:01	11.36	0.01	0.28	2.98	0.01	0.05	0.00
7	Link-126	0.02	0 12:01	11.36	0.00	0.15	5.56	0.00	0.02	0.00
8	Link-127	0.00	0 00:00	2.61	0.00	0.00		0.00	0.00	0.00
9	Link-128	0.00	0 00:00	2.13	0.00	0.00		0.00	0.00	0.00
10	Link-129	0.00	0 00:00	2.91	0.00	0.00		0.00	0.00	0.00
11	Link-130	0.00	0 00:00	2.61	0.00	0.00		0.00	0.00	0.00
12	Link-131	0.00	0 00:00	3.11	0.00	0.00		0.00	0.00	0.00
13	Link-132	0.00	0 00:00	4.76	0.00	0.00		0.00	0.00	0.00
14	Link-133	0.00	0 00:00	10.85	0.00	0.00		0.00	0.00	0.00
15	Link-134	0.00	0 00:00	10.68	0.00	0.00		0.00	0.00	0.00
16	Link-135	0.00	0 00:00	10.09	0.00	0.00		0.00	0.00	0.00
17	Link-34	2.21	0 12:01	6.63	0.33	0.70	6.43	0.18	0.60	0.00
18	Link-35	2.15	0 12:00	18.43	0.12	1.13	0.74	0.14	0.48	0.00
19	Link-36	2.93	0 12:07	6.43	0.46	0.83	4.46	0.17	0.59	0.00
20	Link-37	2.62	0 12:07	12.28	0.21	1.08	0.28	0.13	0.45	0.00
21	Link-38	0.81	0 12:03	10.80	0.08	0.64	5.91	0.10	0.34	0.00
22	Link-39	2.97	0 12:13	8.48	0.35	0.94	7.36	0.16	0.54	0.00
23	Link-41	0.00	0 00:00	12.36	0.00	0.00		0.00	0.00	0.00
24	Link-42	0.00	0 00:00	9.36	0.00	0.00		0.09	0.29	0.00
25	Link-43	2.70	0 12:19	7.79	0.35	0.91	2.56	0.15	0.50	0.00
26	Link-44	1.82	0 12:30	7.84	0.23	0.78	10.04	0.12	0.39	0.00
27	Link-45	0.00	0 00:00	9.33	0.00	0.00		0.00	0.00	0.00
28	Link-46	0.00	0 00:00	8.09	0.00	0.00		0.00	0.00	0.00
29	Link-51	0.60	0 12:00	4.89	0.12	0.75	1.44	0.08	0.27	0.00
30	Link-61	0.69	0 12:11	4.86	0.14	0.66	3.16	0.43	0.45	0.00
31	Link-63	0.63	0 12:08	4.86	0.13	0.47	5.76	0.52	0.52	0.00
32	Link-66	0.73	0 12:02	4.22	0.17	0.53	4.18	0.56	0.56	0.00
33	Link-67	0.03	0 11:57	4.86	0.01	0.08	15.63	0.35	0.36	0.00
34	Link-89	0.00	0 00:00	10.73	0.00	0.00		0.00	0.00	0.00
35	Link-90	0.00	0 00:00	8.69	0.00	0.00		0.04	0.14	0.00
36	Link-92	0.00	0 00:00	5.56	0.00	0.00		0.00	0.00	0.00
37	Link-93	0.00	0 00:00	8.12	0.00	0.00		0.00	0.00	0.00
38	Link-94	0.00	0 00:00	10.69	0.00	0.00		0.04	0.14	0.00
39	LowerRavine	3.61	0 12:37	157.98	0.02	1.23	1.68	0.51	0.13	0.00
40	OutletRavine	3.62	0 12:37	237.22	0.02	1.59	0.47	0.41	0.10	0.00
41	RH_C1	1.50	0 12:00	24.20	0.06	1.56	2.30	0.48	0.33	0.00
42	RH_C2	1.50	0 12:01	14.49	0.10	1.44	0.69	0.49	0.34	0.00
43	UpperRavine	3.55	0 12:32	177.61	0.02	1.18	7.81	0.52	0.13	0.00

Pipe Input

SN	Element ID	Length	Inlet Invert Elevation	Inlet Invert Offset	Outlet Invert Elevation	Outlet Invert Offset	Total Drop	Average Slope	Pipe Shape	Pipe Diameter or Height	Pipe Width	Material
		(m)	(m)	(m)	(m)	(m)	(m)	(%)		(m)	(m)	
1	Ex.STM_1	107.00	257.37	0.00	256.94	0.00	0.43	0.4000	CIRCULAR	0.450	0.450	
2	Ex.STM_2	73.00	256.94	0.00	256.64	0.00	0.30	0.4100	CIRCULAR	0.450	0.450	
3	Ex.STM_3	27.00	256.64	0.00	256.48	0.00	0.16	0.5900	CIRCULAR	0.450	0.450	
4	Ex.STM_4	100.00	256.48	0.00	255.88	0.00	0.60	0.6000	CIRCULAR	0.450	0.450	
5	Ex.STM_5	100.00	255.88	0.00	255.48	0.00	0.40	0.4000	CIRCULAR	0.530	0.530	
6	Ex.STM_6	50.00	255.48	0.00	255.23	0.00	0.25	0.5000	CIRCULAR	0.530	0.530	
7	Ex.STM_7	102.00	255.23	0.00	254.82	0.00	0.41	0.4000	CIRCULAR	0.600	0.600	
8	Link-106	24.80	253.16	0.00	252.85	-0.15	0.31	1.2500	CIRCULAR	0.750	0.750	
9	Link-107	93.20	254.35	0.10	253.20	0.04	1.15	1.2300	CIRCULAR	0.750	0.750	
10	Link-108	110.30	255.48	0.00	255.37	0.08	0.11	0.1000	CIRCULAR	1.200	1.200	
11	Link-109	30.00	257.70	0.00	257.55	0.00	0.15	0.5000	CIRCULAR	1.050	1.050	
12	Link-110	153.00	255.69	0.00	255.48	0.00	0.21	0.1400	CIRCULAR	0.900	0.900	
13	Link-111	66.80	255.86	0.00	255.77	0.08	0.09	0.1300	CIRCULAR	0.750	0.750	
14	Link-112	106.60	256.21	0.00	255.91	0.05	0.30	0.2800	CIRCULAR	0.600	0.600	
15	Link-113	97.50	256.47	0.00	255.88	0.19	0.59	0.6100	CIRCULAR	0.530	0.530	
16	Link-114	85.10	256.79	0.00	255.73	0.38	1.06	1.2500	CIRCULAR	0.450	0.450	
17	Link-115	50.00	258.65	0.00	258.50	0.05	0.15	0.3000	CIRCULAR	0.530	0.530	
18	Link-116	50.00	258.75	0.00	258.55	0.10	0.20	0.4000	CIRCULAR	0.450	0.450	
19	Link-117	90.00	259.54	0.00	258.37	0.05	1.17	1.3000	CIRCULAR	0.680	0.680	
20	Link-118	41.60	260.00	0.00	259.56	0.02	0.44	1.0600	CIRCULAR	0.530	0.530	
21	Link-119	181.70	259.19	0.00	256.08	0.29	3.11	1.7100	CIRCULAR	0.600	0.600	
22	Link-120	140.50	260.46	0.00	259.24	0.05	1.22	0.8700	CIRCULAR	0.600	0.600	
23	Link-121	152.20	261.75	0.00	260.51	0.05	1.24	0.8100	CIRCULAR	0.530	0.530	
24	Link-49	20.70	254.62	0.00	254.60	1.60	0.02	0.1000	CIRCULAR	1.800	1.800	
25	Link-50	75.20	254.70	0.00	254.60	1.60	0.10	0.1300	CIRCULAR	0.600	0.600	
26	Link-52	35.00	254.72	0.00	254.67	0.05	0.05	0.1400	CIRCULAR	1.650	1.650	
27	Link-53	336.90	255.29	0.00	254.74	0.02	0.55	0.1600	CIRCULAR	1.350	1.350	
28	Link-54	110.00	255.53	0.00	255.31	0.02	0.22	0.2000	CIRCULAR	0.600	0.600	
29	Link-56	110.00	255.77	0.00	255.55	0.02	0.22	0.2000	CIRCULAR	0.600	0.600	
30	Link-57	95.50	256.10	0.00	255.85	0.08	0.25	0.2600	CIRCULAR	0.450	0.450	
31	Link-58	90.00	256.93	0.00	256.25	0.15	0.68	0.7600	CIRCULAR	0.300	0.300	
32	Link-59	53.10	255.23	0.00	255.13	0.41	0.10	0.1900	CIRCULAR	1.500	1.500	
33	Link-60	13.40	256.25	0.00	255.84	0.61	0.41	3.0600	CIRCULAR	1.500	1.500	
34	Link-62	25.00	256.90	0.00	256.75	0.00	0.15	0.6000	CIRCULAR	1.200	1.200	
35	Link-68	60.00	258.45	0.00	258.20	0.10	0.25	0.4200	CIRCULAR	0.600	0.600	
36	Link-70	57.00	255.35	0.00	255.25	0.02	0.10	0.1800	CIRCULAR	0.820	0.820	
37	Link-71	82.00	255.60	0.00	255.43	0.08	0.17	0.2100	CIRCULAR	0.750	0.750	
38	Link-72	85.00	255.79	0.17	255.62	0.02	0.17	0.2000	CIRCULAR	0.750	0.750	
39	Link-73	67.80	255.78	-0.01	255.10	0.38	0.68	1.0000	CIRCULAR	0.900	0.900	
40	Link-80	89.90	258.32	0.00	255.97	0.68	2.35	2.6100	CIRCULAR	0.750	0.750	
41	Link-81	93.20	261.13	0.00	259.27	0.95	1.86	2.0000	CIRCULAR	0.600	0.600	
42	Link-82	103.90	262.69	0.00	261.13	0.00	1.56	1.5000	CIRCULAR	0.600	0.600	
43	RH_A1	50.00	270.14	0.00	268.50	1.43	1.64	3.2800	CIRCULAR	0.300	0.300	
44	RH_B1	227.00	270.35	0.00	266.50	0.00	3.85	1.7000	CIRCULAR	0.300	0.300	
45	RH_C3	15.00	262.00	0.00	261.70	0.00	0.30	2.0000	CIRCULAR	0.600	0.600	
46	RH_C4	195.00	261.70	0.00	259.38	0.00	2.32	1.1900	CIRCULAR	0.530	0.530	
47	RH_C5	274.00	259.38	0.00	256.36	0.00	3.02	1.1000	CIRCULAR	0.530	0.530	
48	RH_C6	6.00	256.36	0.00	256.24	0.14	0.12	2.0000	CIRCULAR	0.700	0.700	

10-YEAR STORM

No. of
Barrels

1

Pipe Results

SN Element ID	Peak Flow	Time of Peak Flow Occurrence	Design Flow Capacity	Peak Flow/ Design Flow Ratio	Peak Flow Velocity	Travel Time	Peak Flow Depth	Peak Flow Depth/ Total Depth Ratio	To Sur
	(cms)	(days hh:mm)	(cms)		(m/sec)	(min)	(m)		
1 Ex.STM_1	0.25	0 12:00	0.18	1.37	1.56	1.14	0.45	1.00	
2 Ex.STM_2	0.25	0 12:00	0.18	1.35	1.56	0.78	0.45	1.00	
3 Ex.STM_3	0.25	0 12:00	0.22	1.13	1.56	0.29	0.45	1.00	
4 Ex.STM_4	0.25	0 12:00	0.22	1.12	1.58	1.05	0.45	0.99	
5 Ex.STM_5	0.25	0 12:01	0.27	0.91	1.32	1.26	0.43	0.82	
6 Ex.STM_6	0.25	0 12:02	0.30	0.81	1.40	0.60	0.40	0.77	
7 Ex.STM_7	0.25	0 12:03	0.39	0.64	1.44	1.18	0.35	0.59	
8 Link-106	0.31	0 14:45	0.89	0.34	1.65	0.25	0.49	0.66	
9 Link-107	0.31	0 14:43	1.24	0.25	1.91	0.81	0.30	0.41	
10 Link-108	0.79	0 12:04	1.23	0.64	0.71	2.59	1.20	1.00	
11 Link-109	0.64	0 12:06	1.93	0.33	1.51	0.33	0.53	0.52	
12 Link-110	0.58	0 12:04	0.67	0.86	0.91	2.80	0.90	1.00	
13 Link-111	0.33	0 12:00	0.41	0.81	0.86	1.29	0.75	1.00	
14 Link-112	0.16	0 12:00	0.33	0.49	0.72	2.47	0.60	1.00	
15 Link-113	0.36	0 12:00	0.33	1.07	1.66	0.98	0.52	1.00	
16 Link-114	0.37	0 12:01	0.32	1.15	2.29	0.62	0.45	1.00	
17 Link-115	0.34	0 12:06	0.24	1.46	1.58	0.53	0.52	1.00	
18 Link-116	0.21	0 12:01	0.18	1.15	1.31	0.64	0.45	1.00	
19 Link-117	0.43	0 12:00	0.96	0.45	2.46	0.61	0.33	0.49	
20 Link-118	0.20	0 12:00	0.44	0.45	1.53	0.45	0.30	0.58	
21 Link-119	0.79	0 12:06	0.80	0.99	3.05	0.99	0.60	1.00	
22 Link-120	0.45	0 12:01	0.57	0.79	1.98	1.18	0.49	0.83	
23 Link-121	0.44	0 12:02	0.39	1.14	2.12	1.20	0.48	0.92	
24 Link-49	4.69	0 12:04	3.57	1.31	2.41	0.14	1.51	0.84	
25 Link-50	0.43	0 12:00	0.22	1.93	1.53	0.82	0.60	1.00	
26 Link-52	4.69	0 12:04	3.45	1.36	2.25	0.26	1.55	0.94	
27 Link-53	2.21	0 12:03	2.16	1.02	1.54	3.65	1.35	1.00	
28 Link-54	0.67	0 12:00	0.27	2.45	2.38	0.77	0.60	1.00	
29 Link-56	0.26	0 12:27	0.27	0.94	0.91	2.01	0.60	1.00	
30 Link-57	0.24	0 12:27	0.15	1.63	1.49	1.07	0.45	1.00	
31 Link-58	0.08	0 12:01	0.08	0.96	1.14	1.32	0.30	1.00	
32 Link-59	1.29	0 12:04	3.07	0.42	1.18	0.75	1.33	0.89	
33 Link-60	0.68	0 12:13	12.37	0.05	2.77	0.08	0.48	0.32	
34 Link-62	0.70	0 12:10	3.02	0.23	1.34	0.31	0.58	0.49	
35 Link-68	0.52	0 12:01	0.40	1.30	1.94	0.52	0.53	0.89	
36 Link-70	0.92	0 12:02	0.60	1.53	1.72	0.55	0.82	1.00	
37 Link-71	0.58	0 12:00	0.51	1.15	1.32	1.04	0.75	1.00	
38 Link-72	0.24	0 12:00	0.50	0.49	0.57	2.49	0.75	1.00	
39 Link-73	0.81	0 12:07	1.83	0.44	1.62	0.70	0.90	1.00	
40 Link-80	0.74	0 12:00	1.80	0.41	3.31	0.45	0.54	0.72	
41 Link-81	0.31	0 12:00	0.87	0.36	2.69	0.58	0.25	0.43	
42 Link-82	0.32	0 12:00	0.75	0.42	2.47	0.70	0.28	0.46	
43 RH_A1	0.23	0 11:46	0.18	1.31	3.26	0.26	0.30	1.00	
44 RH_B1	0.14	0 11:45	0.13	1.10	1.96	1.93	0.30	1.00	
45 RH_C3	0.47	0 11:59	0.87	0.54	1.91	0.13	0.60	1.00	
46 RH_C4	0.43	0 12:01	0.41	1.05	2.11	1.54	0.52	1.00	
47 RH_C5	0.46	0 12:40	0.45	1.03	2.14	2.13	0.52	1.00	

Project Description

File Name	18010_Post-Development Rev.0.SPF
Description	I:\ACAD Projects\2018\18010\03-Ref\18010_Pre-Dev. Storm
	I:\ACAD Projects\2018\18010\03-Ref\18010_Pre-Dev. Storm
	I:\ACAD Projects\2018\18010\03-Ref\18010_Post-Dev.Storm
	I:\ACAD Projects\2018\18010\03-Ref\18010_Post-Dev.Storm

Project Options

Flow Units	CMS
Elevation Type	Elevation
Hydrology Method	EPA SWMM
EPA SWMM Infiltration Method	SCS Curve Number
Link Routing Method	Hydrodynamic
Enable Overflow Ponding at Nodes	YES
Skip Steady State Analysis Time Periods	YES

Analysis Options

Start Analysis On	00:00:00	0:00:00
End Analysis On	00:00:00	0:00:00
Start Reporting On	00:00:00	0:00:00
Antecedent Dry Days	0	days
Runoff (Dry Weather) Time Step	0 01:00:00	days hh:mm:ss
Runoff (Wet Weather) Time Step	0 00:05:00	days hh:mm:ss
Reporting Time Step	0 00:05:00	days hh:mm:ss
Routing Time Step	30	seconds

Number of Elements

	Qty
Rain Gages	1
Subbasins.....	58
Nodes.....	77
<i>Junctions</i>	69
<i>Outfalls</i>	5
<i>Flow Diversions</i>	0
<i>Inlets</i>	0
<i>Storage Nodes</i>	3
Links.....	109
<i>Channels</i>	43
<i>Pipes</i>	61
<i>Pumps</i>	0
<i>Orifices</i>	1
<i>Weirs</i>	4
<i>Outlets</i>	0
Pollutants	0
Land Uses	0

Subbasin Summary

SN Subbasin ID	Area	Impervious Area	Weighted Curve Number	Average Slope	Equivalent Width	Impervious Area Manning's Roughness	Pervious Area Manning's Roughness	Total Rainfall	Total Infiltration	Total Runoff	Total Runoff Volume	Peak Runoff	Time of Concentration
	(ha)	(%)		(%)	(m)			(mm)	(mm)	(mm)	(ha-mm)	(cms)	(days hh:mm:ss)
1 {Survey Site}.Standard : 10	0.92	2.00	67.00	2.0000	125.00	0.0130	0.2000	82.99	53.4540	28.29	25.97	0.04	0 01:08:13
2 {Survey Site}.Standard : 11	21.38	2.00	67.00	2.0000	360.00	0.0130	0.2000	82.99	50.7540	31.70	677.76	0.28	0 03:59:06
3 {Survey Site}.Standard : 12	0.71	5.00	67.00	2.0000	90.00	0.0130	0.2000	82.99	51.8440	29.89	21.22	0.04	0 01:09:53
4 {Survey Site}.Standard : 13	1.65	45.00	71.05	2.0000	220.00	0.0130	0.2000	82.99	27.7440	54.00	88.98	0.33	0 00:48:48
5 {Survey Site}.Standard : 14	4.32	2.00	67.00	2.0000	350.00	0.0130	0.2000	82.99	53.8050	27.94	120.70	0.14	0 01:33:09
6 {Survey Site}.Standard : 17	0.36	5.00	67.00	5.0000	20.00	0.0130	0.2000	82.99	52.0530	29.67	10.56	0.01	0 01:26:31
7 {Survey Site}.Standard : 18	13.10	5.00	48.00	10.0000	300.00	0.0130	0.2000	82.99	65.6540	16.08	210.60	0.26	0 02:00:23
8 {Survey Site}.Standard : 19	1.32	55.00	75.95	2.0000	90.00	0.0130	0.2000	82.99	20.4230	61.34	80.96	0.29	0 01:04:45
9 {Survey Site}.Standard : 2	20.86	45.00	71.05	2.0000	300.00	0.0130	0.2000	82.99	28.8020	52.89	1103.54	2.82	0 03:05:51
10 {Survey Site}.Standard : 23	2.20	5.00	48.00	10.0000	100.00	0.0130	0.2000	82.99	65.0990	16.63	36.56	0.05	0 01:19:45
11 {Survey Site}.Standard : 26	1.12	45.00	71.05	2.0000	40.00	0.0130	0.2000	82.99	28.1830	53.57	60.21	0.18	0 01:47:54
12 {Survey Site}.Standard : 27	0.43	45.00	71.05	2.0000	60.00	0.0130	0.2000	82.99	27.7310	54.00	23.06	0.09	0 00:47:20
13 {Survey Site}.Standard : 28	0.12	45.00	71.05	2.0000	40.00	0.0130	0.2000	82.99	27.5890	54.10	6.65	0.03	0 00:28:36
14 {Survey Site}.Standard : 29	7.86	45.00	71.05	2.0000	110.00	0.0130	0.2000	82.99	28.8280	52.87	415.62	1.05	0 03:08:56
15 {Survey Site}.Standard : 3	25.14	45.00	71.05	2.0000	370.00	0.0130	0.2000	82.99	28.7890	52.92	1330.23	3.41	0 03:03:16
16 {Survey Site}.Standard : 30	20.00	30.00	63.70	2.0000	225.00	0.0130	0.2000	82.99	42.1560	39.56	791.06	1.83	0 04:08:50
17 {Survey Site}.Standard : 31	5.54	5.00	57.00	2.0000	245.00	0.0130	0.2000	82.99	60.3330	21.41	118.71	0.13	0 02:11:32
18 {Survey Site}.Standard : 32	3.34	2.00	67.00	2.0000	95.00	0.0130	0.2000	82.99	54.9910	26.74	89.19	0.05	0 02:54:24
19 {Survey Site}.Standard : 33	7.71	2.00	67.00	2.0000	215.00	0.0130	0.2000	82.99	55.0180	26.71	205.82	0.12	0 02:56:35
20 {Survey Site}.Standard : 4	3.13	2.00	67.00	2.0000	155.00	0.0130	0.2000	82.99	54.2630	27.48	86.05	0.07	0 02:05:11
21 {Survey Site}.Standard : 46	5.62	2.00	67.00	2.0000	200.00	0.0130	0.2000	82.99	54.6680	27.08	152.27	0.10	0 02:32:40
22 {Survey Site}.Standard : 5	10.46	45.00	71.05	0.5000	235.00	0.0130	0.2000	82.99	29.0340	52.63	550.42	1.32	0 03:35:31
23 {Survey Site}.Standard : 51	0.39	95.00	95.55	0.5000	20.00	0.0130	0.2000	82.99	0.5350	80.94	31.16	0.11	0 00:35:05
24 {Survey Site}.Standard : 52	10.94	2.00	36.00	0.5000	240.00	0.0130	0.2000	82.99	70.0750	8.65	94.58	0.08	0 05:09:12
25 {Survey Site}.Standard : 53	0.36	75.00	85.75	3.0000	20.00	0.0130	0.2000	82.99	7.6160	73.73	26.84	0.11	0 00:45:52
26 {Survey Site}.Standard : 54	3.94	75.00	85.75	2.0000	150.00	0.0130	0.2000	82.99	7.6160	73.64	290.07	1.04	0 01:04:33
27 {Survey Site}.Standard : 57	0.38	15.00	56.35	2.0000	125.00	0.0130	0.2000	82.99	53.2010	28.52	10.92	0.03	0 00:37:04
28 {Survey Site}.Standard : 6	11.54	2.00	67.00	2.0000	280.00	0.0130	0.2000	82.99	55.2610	26.47	305.51	0.16	0 03:12:03
29 {Survey Site}.Standard : 63	1.63	55.00	75.95	2.0000	90.00	0.0130	0.2000	82.99	20.4720	61.28	99.83	0.35	0 01:13:28
30 {Survey Site}.Standard : 65	1.71	55.00	75.95	2.0000	130.00	0.0130	0.2000	82.99	20.3980	61.36	104.86	0.38	0 01:00:38

Subbasin Summary

SN	Subbasin ID	Area	Impervious Area	Weighted Curve Number	Average Slope	Equivalent Width	Impervious Area Manning's Roughness	Pervious Area Manning's Roughness	Total Rainfall	Total Infiltration	Total Runoff	Total Runoff Volume	Peak Runoff	Time of Concentration
		(ha)	(%)		(%)	(m)			(mm)	(mm)	(mm)	(ha-mm)	(cms)	(days hh:mm:ss)
48	{Survey Site}.Standard : 84	1.00	55.00	75.95	2.0000	50.00	0.0130	0.2000	82.99	20.4970	61.25	61.50	0.21	0 01:18:11
49	{Survey Site}.Standard : 85	1.78	55.00	75.95	2.0000	70.00	0.0130	0.2000	82.99	20.5720	61.17	109.07	0.36	0 01:30:11
50	{Survey Site}.Standard : 86	1.43	55.00	75.95	2.0000	100.00	0.0130	0.2000	82.99	20.4140	61.34	87.41	0.32	0 01:03:39
51	{Survey Site}.Standard : 87	2.66	55.00	75.95	2.0000	100.00	0.0130	0.2000	82.99	20.5800	61.16	162.49	0.53	0 01:32:30
52	{Survey Site}.Standard : 88	1.64	55.00	75.95	2.0000	75.00	0.0130	0.2000	82.99	20.5220	61.23	100.29	0.34	0 01:22:14
53	{Survey Site}.Standard : 89	1.11	55.00	75.95	2.0000	100.00	0.0130	0.2000	82.99	20.3640	61.39	68.33	0.26	0 00:54:52
54	{Survey Site}.Standard : 9	3.53	2.00	67.00	2.0000	100.00	0.0130	0.2000	82.99	54.9910	26.73	94.42	0.05	0 02:55:02
55	{Survey Site}.Standard : 90	1.22	65.00	80.85	2.0000	130.00	0.0130	0.2000	82.99	13.5590	68.08	82.72	0.33	0 00:42:30
56	{Survey Site}.Standard : 91	1.00	65.00	80.85	2.0000	130.00	0.0130	0.2000	82.99	13.5590	68.10	67.89	0.28	0 00:37:44
57	{Survey Site}.Standard : 92	2.19	55.00	75.95	2.0000	75.00	0.0130	0.2000	82.99	20.6130	61.12	134.04	0.43	0 01:37:58
58	{Survey Site}.Standard : 93	2.32	15.00	56.35	5.0000	525.00	0.0130	0.2000	82.99	53.2010	28.54	66.18	0.20	0 00:35:04

Node Summary

SN	Element ID	Element Type	Invert Elevation	Ground/Rim (Max) Elevation	Initial Water Elevation	Surcharge Elevation	Ponded Area	Peak Inflow	Max HGL Elevation Attained	Max Surcharge Depth Attained	Min Freeboard Attained	Time of Peak Flooding Occurrence	Total Flooded Volume	Total Time Flooded
			(m)	(m)	(m)	(m)	(m²)	(cms)	(m)	(m)	(m)	(days hh:mm)	(ha-mm)	(min)
1	Ex_MHR1	Junction	255.88	262.50	0.00	0.00	0.00	0.25	256.32	0.00	6.18	0 00:00	0.00	0.00
2	Ex_MHR2	Junction	255.48	259.65	0.00	0.00	0.00	0.25	255.91	0.00	3.74	0 00:00	0.00	0.00
3	Ex_MHR25	Junction	256.48	263.35	0.00	0.00	0.00	0.25	257.52	0.00	5.83	0 00:00	0.00	0.00
4	Ex_MHR26	Junction	256.64	262.75	0.00	0.00	0.00	0.25	257.75	0.00	5.00	0 00:00	0.00	0.00
5	Ex_MHR27	Junction	256.94	261.00	0.00	0.00	0.00	0.25	258.20	0.00	2.80	0 00:00	0.00	0.00
6	Ex_MHR28	Junction	257.37	259.30	0.00	0.00	0.00	1.05	259.10	0.00	0.20	0 00:00	0.00	0.00
7	Ex_MHR3	Junction	255.23	259.00	0.00	0.00	0.00	0.25	255.61	0.00	3.39	0 00:00	0.00	0.00
8	Jun-34	Junction	254.62	258.25	0.00	0.00	0.00	5.43	256.27	0.00	1.98	0 00:00	0.00	0.00
9	Jun-35	Junction	254.70	257.50	0.00	0.00	0.00	0.52	256.25	0.00	1.25	0 00:00	0.00	0.00
10	Jun-36	Junction	254.72	258.00	0.00	0.00	0.00	5.45	256.72	0.00	1.63	0 00:00	0.00	0.00
11	Jun-37	Junction	255.29	261.30	0.00	0.00	0.00	2.79	257.64	0.00	3.66	0 00:00	0.00	0.00
12	Jun-38	Junction	255.53	261.80	0.00	0.00	0.00	1.14	259.32	0.00	2.48	0 00:00	0.00	0.00
13	Jun-39	Junction	256.93	259.05	0.00	0.00	0.00	0.11	258.75	0.00	0.30	0 00:00	0.00	0.00
14	Jun-40	Junction	256.10	258.55	0.00	0.00	0.00	0.41	257.89	0.00	0.66	0 00:00	0.00	0.00
15	Jun-41	Junction	255.77	259.65	0.00	0.00	0.00	0.38	259.14	0.00	0.51	0 00:00	0.00	0.00
16	Jun-42	Junction	255.23	258.90	0.00	0.00	0.00	1.66	256.79	0.00	2.11	0 00:00	0.00	0.00
17	Jun-43	Junction	256.25	257.25	0.00	0.00	0.00	0.76	256.79	0.00	0.96	0 00:00	0.00	0.00
18	Jun-44	Junction	257.55	258.55	0.00	0.00	0.00	0.76	258.03	0.00	0.57	0 00:00	0.00	0.00
19	Jun-46	Junction	257.70	258.70	0.00	258.70	0.00	0.86	258.40	0.00	0.35	0 00:00	0.00	0.00
20	Jun-47	Junction	258.10	259.10	0.00	0.00	0.00	0.93	258.64	0.00	0.46	0 00:00	0.00	0.00
21	Jun-48	Junction	258.35	259.35	0.00	0.00	0.00	0.03	258.64	0.00	0.76	0 00:00	0.00	0.00
22	Jun-49	Junction	256.90	257.90	0.00	0.00	0.00	0.85	257.57	0.00	0.53	0 00:00	0.00	0.00
23	Jun-50	Junction	256.75	257.75	0.00	0.00	0.00	0.78	257.33	0.00	0.62	0 00:00	0.00	0.00
24	Jun-51	Junction	258.45	260.50	0.00	0.00	0.00	0.52	259.31	0.00	1.19	0 00:00	0.00	0.00
25	Jun-52	Junction	255.69	260.00	0.00	0.00	0.00	0.82	258.02	0.00	1.98	0 00:00	0.00	0.00
26	Jun-53	Junction	255.35	259.60	0.00	0.00	0.00	1.14	257.21	0.00	2.39	0 00:00	0.00	0.00
27	Jun-54	Junction	255.62	259.80	0.00	0.00	0.00	0.33	257.62	0.00	2.18	0 00:00	0.00	0.00
28	Jun-55	Junction	255.60	259.70	0.00	0.00	0.00	0.77	257.56	0.00	2.14	0 00:00	0.00	0.00
29	Jun-56	Junction	255.79	257.80	0.00	0.00	0.00	0.83	256.95	0.00	0.85	0 00:00	0.00	0.00
30	Jun-61	Junction	258.32	262.00	0.00	0.00	0.00	0.90	258.75	0.00	4.05	0 00:00	0.00	0.00

Node Summary

SN	Element ID	Element Type	Invert Elevation	Ground/Rim (Max) Elevation	Initial Water Elevation	Surcharge Elevation	Ponded Area	Peak Inflow	Max HGL Elevation Attained	Max Surcharge Depth Attained	Min Freeboard Attained	Time of Peak Flooding Occurrence	Total Flooded Volume	Total Time Flooded
			(m)	(m)	(m)	(m)	(m²)	(cms)	(m)	(m)	(m)	(days hh:mm)	(ha-mm)	(min)
48	Ravine_1	Junction	256.10	260.10	0.00	0.00	0.00	4.67	256.66	0.00	3.44	0 00:00	0.00	0.00
49	Ravine_2	Junction	253.00	257.00	0.00	0.00	0.00	4.94	253.68	0.00	3.32	0 00:00	0.00	0.00
50	Ravine_3	Junction	252.45	256.45	0.00	0.00	0.00	4.87	252.99	0.00	3.46	0 00:00	0.00	0.00
51	RH_1	Junction	267.60	271.70	0.00	0.00	0.00	3.41	271.57	0.00	0.13	0 00:00	0.00	0.00
52	RH_10	Junction	261.90	263.90	0.00	0.00	0.00	5.21	263.71	0.00	0.19	0 00:00	0.00	0.00
53	RH_11	Junction	260.33	262.55	0.00	0.00	0.00	4.54	262.43	0.00	0.12	0 00:00	0.00	0.00
54	RH_12	Junction	269.00	270.50	0.00	0.00	0.00	1.83	269.45	0.00	1.05	0 00:00	0.00	0.00
55	RH_13	Junction	264.00	266.50	0.00	0.00	0.00	1.91	264.63	0.00	1.87	0 00:00	0.00	0.00
56	RH_14	Junction	261.70	263.50	0.00	0.00	0.00	0.47	263.21	0.00	0.29	0 00:00	0.00	0.00
57	RH_15	Junction	259.38	261.00	0.00	0.00	0.00	0.55	260.72	0.00	0.28	0 00:00	0.00	0.00
58	RH_16	Junction	256.36	258.00	0.00	0.00	0.00	0.48	257.09	0.00	0.91	0 00:00	0.00	0.00
59	RH_17	Junction	256.42	258.00	0.00	0.00	0.00	1.33	257.57	0.00	0.43	0 00:00	0.00	0.00
60	RH_2	Junction	270.14	272.45	0.00	0.00	0.00	2.82	272.24	0.00	0.21	0 00:00	0.00	0.00
61	RH_3	Junction	267.07	270.50	0.00	0.00	0.00	5.85	269.91	0.00	0.59	0 00:00	0.00	0.00
62	RH_4	Junction	266.63	268.60	0.00	0.00	0.00	4.50	268.45	0.00	0.15	0 00:00	0.00	0.00
63	RH_5	Junction	270.35	272.10	0.00	0.00	0.00	1.31	271.87	0.00	0.23	0 00:00	0.00	0.00
64	RH_6	Junction	266.50	268.20	0.00	0.00	0.00	5.52	268.09	0.00	0.11	0 00:00	0.00	0.00
65	RH_7	Junction	272.00	273.50	0.00	0.00	0.00	0.00	272.00	0.00	1.50	0 00:00	0.00	0.00
66	RH_8	Junction	267.75	269.85	0.00	0.00	0.00	0.26	269.19	0.00	0.66	0 00:00	0.00	0.00
67	RH_9	Junction	264.00	265.80	0.00	0.00	0.00	0.20	265.50	0.00	0.30	0 00:00	0.00	0.00
68	WestOutfall	Junction	257.00	258.40	0.00	0.00	0.00	0.04	257.00	0.00	2.45	0 00:00	0.00	0.00
69	WestWetland	Junction	258.00	259.00	0.00	0.00	0.00	0.08	258.00	0.00	1.00	0 00:00	0.00	0.00
70	North_Wetland	Outfall	252.00					0.23	252.00					
71	Outfall	Outfall	252.00					4.87	252.44					
72	TinerEstatesSTM	Outfall	254.82					0.25	255.14					
73	West_Outfall	Outfall	257.00					0.04	257.00					
74	West_Wetland	Outfall	258.00					0.08	258.00					
75	Ex_SE_Pond	Storage Node	262.00	266.00	0.00		0.00	1.98	263.42				0.00	0.00
76	SWM_FB	Storage Node	253.00	256.80	254.50		0.00	5.43	256.25				0.00	0.00
77	SWM_WP	Storage Node	253.00	256.80	254.50		0.00	4.74	256.25				0.00	0.00

Link Summary

SN Element ID	Element Type	From (Inlet) Node	To (Outlet) Node	Length	Inlet Invert Elevation	Outlet Invert Elevation	Average Slope	Diameter or Height	Manning's Roughness	Peak Flow	Design Flow Capacity	Peak Flow/ Design Flow Ratio	Peak Flow Velocit
				(m)	(m)	(m)	(%)	(m)		(cms)	(cms)		(m/sec)
1 Ex.STM_1	Pipe	Ex_MHR28	Ex_MHR27	107.00	257.37	256.94	0.4000	0.450	0.0130	0.25	0.18	1.37	1.5
2 Ex.STM_2	Pipe	Ex_MHR27	Ex_MHR26	73.00	256.94	256.64	0.4100	0.450	0.0130	0.25	0.18	1.36	1.5
3 Ex.STM_3	Pipe	Ex_MHR26	Ex_MHR25	27.00	256.64	256.48	0.5900	0.450	0.0130	0.25	0.22	1.13	1.5
4 Ex.STM_4	Pipe	Ex_MHR25	Ex_MHR1	100.00	256.48	255.88	0.6000	0.450	0.0130	0.25	0.22	1.12	1.5
5 Ex.STM_5	Pipe	Ex_MHR1	Ex_MHR2	100.00	255.88	255.48	0.4000	0.525	0.0130	0.25	0.27	0.91	1.3
6 Ex.STM_6	Pipe	Ex_MHR2	Ex_MHR3	50.00	255.48	255.23	0.5000	0.525	0.0130	0.25	0.30	0.81	1.4
7 Ex.STM_7	Pipe	Ex_MHR3	TinerEstatesSTM	102.00	255.23	254.82	0.4000	0.600	0.0130	0.25	0.39	0.64	1.4
8 Link-106	Pipe	Jun-66	Ravine_2	24.80	253.16	252.85	1.2500	0.750	0.0130	0.54	0.89	0.61	1.7
9 Link-107	Pipe	OutletStructure	Jun-66	93.20	254.35	253.20	1.2300	0.750	0.0130	0.54	1.24	0.44	1.9
10 Link-108	Pipe	Jun-67	Jun-37	110.30	255.48	255.37	0.1000	1.200	0.0130	0.93	1.23	0.76	0.8
11 Link-109	Pipe	Jun-46	Jun-44	30.00	257.70	257.55	0.5000	1.050	0.0130	0.76	1.93	0.39	1.5
12 Link-110	Pipe	Jun-52	Jun-67	153.00	255.69	255.48	0.1400	0.900	0.0130	0.69	0.67	1.03	1.0
13 Link-111	Pipe	Jun-68	Jun-52	66.80	255.86	255.77	0.1300	0.750	0.0130	0.41	0.41	1.01	0.9
14 Link-112	Pipe	Jun-69	Jun-68	106.60	256.21	255.91	0.2800	0.600	0.0130	0.18	0.33	0.57	0.7
15 Link-113	Pipe	Jun-70	Jun-52	97.50	256.47	255.88	0.6100	0.525	0.0130	0.43	0.33	1.28	1.9
16 Link-114	Pipe	Jun-71	Jun-53	85.10	256.79	255.73	1.2500	0.450	0.0130	0.43	0.32	1.36	2.7
17 Link-115	Pipe	Jun-73	Jun-51	50.00	258.65	258.50	0.3000	0.525	0.0130	0.35	0.24	1.47	1.6
18 Link-116	Pipe	Jun-72	Jun-51	50.00	258.75	258.55	0.4000	0.450	0.0130	0.21	0.18	1.16	1.3
19 Link-117	Pipe	Jun-74	Jun-61	90.00	259.54	258.37	1.3000	0.675	0.0130	0.52	0.96	0.55	2.5
20 Link-118	Pipe	Jun-75	Jun-74	41.60	260.00	259.56	1.0600	0.525	0.0130	0.24	0.44	0.54	1.5
21 Link-119	Pipe	Jun-76	Jun-56	181.70	259.19	256.08	1.7100	0.600	0.0130	0.81	0.80	1.01	3.0
22 Link-120	Pipe	Jun-77	Jun-76	140.50	260.46	259.24	0.8700	0.600	0.0130	0.46	0.57	0.79	1.9
23 Link-121	Pipe	Jun-78	Jun-77	152.20	261.75	260.51	0.8100	0.525	0.0130	0.52	0.39	1.33	2.4
24 Link-49	Pipe	Jun-34	SWM_FB	20.70	254.62	254.60	0.1000	1.800	0.0130	5.43	3.57	1.52	2.5
25 Link-50	Pipe	Jun-35	SWM_WP	75.20	254.70	254.60	0.1300	0.600	0.0130	0.52	0.22	2.31	1.8
26 Link-52	Pipe	Jun-36	Jun-34	35.00	254.72	254.67	0.1400	1.650	0.0130	5.43	3.45	1.58	2.5
27 Link-53	Pipe	Jun-37	Jun-36	336.90	255.29	254.74	0.1600	1.350	0.0130	2.56	2.16	1.19	1.7
28 Link-54	Pipe	Jun-38	Jun-37	110.00	255.53	255.31	0.2000	0.600	0.0130	0.72	0.27	2.64	2.5
29 Link-56	Pipe	Jun-41	Jun-38	110.00	255.77	255.55	0.2000	0.600	0.0130	0.27	0.27	1.00	0.9
30 Link-57	Pipe	Jun-40	Jun-41	95.50	256.10	255.85	0.2600	0.450	0.0130	0.31	0.15	2.13	1.9

Link Summary

SN Element ID	Element Type	From (Inlet) Node	To (Outlet) Node	Length	Inlet Invert Elevation	Outlet Invert Elevation	Average Slope	Diameter or Height	Manning's Roughness	Peak Flow	Design Flow Capacity	Peak Flow/ Design Flow Ratio	Peak Flow Velocit
				(m)	(m)	(m)	(%)	(m)		(cms)	(cms)		(m/sec)
48 RH_C6	Pipe	RH_16	Ravine_1	6.00	256.36	256.24	2.0000	0.700	0.0130	0.48	1.31	0.36	1.6
49 RH_D1	Pipe	RH_7	RH_8	275.00	272.00	267.75	1.5500	0.300	0.0130	0.00	0.12	0.00	0.0
50 RH_D2	Pipe	RH_8	RH_9	180.00	267.75	264.00	2.0800	0.300	0.0130	0.15	0.14	1.05	2.1
51 RH_D3	Pipe	RH_9	RH_10	155.00	264.00	261.90	1.3500	0.375	0.0130	0.19	0.20	0.91	1.6
52 RH_M1	Pipe	RH_1	RH_3	270.00	267.60	267.07	0.2000	0.600	0.0130	0.51	0.27	1.85	1.7
53 RH_M2	Pipe	RH_3	RH_4	222.00	267.07	266.63	0.2000	0.675	0.0130	0.80	0.37	2.13	2.2
54 RH_M3	Pipe	RH_4	RH_6	18.00	266.63	266.50	0.7200	0.750	0.0130	1.05	0.95	1.11	2.3
55 RH_M4	Pipe	RH_6	RH_10	415.00	266.50	261.90	1.1100	0.675	0.0130	0.91	0.89	1.03	2.6
56 RH_M5	Pipe	RH_10	RH_11	140.00	261.90	260.33	1.1200	0.675	0.0130	1.04	0.89	1.17	2.9
57 RH_M6	Pipe	RH_11	RH_17	464.00	260.33	256.42	0.8400	0.750	0.0130	1.10	1.02	1.08	2.4
58 RH_M7	Pipe	RH_17	Ravine_1	6.00	256.42	256.37	0.8300	1.000	0.0130	1.33	2.19	0.61	2.0
59 West_Link	Pipe	WestOutfall	West_Outfall	33.73	256.00	257.00	-2.9600	0.000	0.0130	0.04	0.00	0.03	0.0
60 WestWetland_Link	Pipe	WestWetland	West_Wetland	37.13	258.00	258.00	0.0000	0.000	0.0130	0.08	0.00	0.03	0.0
61 Wetland_Link	Pipe	NorthWetland	North_Wetland	41.51	252.00	252.00	0.0000	0.000	0.0130	0.23	0.00	0.03	0.0
62 Link-103	Channel	Jun-36	SWM_FB	10.00	257.70	257.50	2.0000	0.300	0.0320	0.00	11.65	0.00	0.0
63 Link-104	Channel	Jun-56	SWM_FB	50.00	257.50	256.50	2.0000	0.300	0.0320	0.00	11.65	0.00	0.0
64 Link-122	Channel	Jun-53	Jun-42	70.00	259.30	258.60	1.0000	0.300	0.0320	0.00	8.24	0.00	0.0
65 Link-123	Channel	Jun-55	Jun-53	90.00	259.40	259.30	0.1100	0.300	0.0320	0.00	2.75	0.00	0.0
66 Link-124	Channel	Jun-54	Jun-55	90.00	259.50	259.40	0.1100	0.300	0.0320	0.00	2.75	0.00	0.0
67 Link-125	Channel	Jun-73	Jun-47	50.00	259.65	258.70	1.9000	0.300	0.0320	0.17	11.36	0.02	0.3
68 Link-126	Channel	Jun-72	Jun-47	50.00	259.65	258.70	1.9000	0.300	0.0320	0.07	11.36	0.01	0.2
69 Link-127	Channel	Jun-67	Jun-54	100.00	259.60	259.50	0.1000	0.300	0.0320	0.00	2.61	0.00	0.0
70 Link-128	Channel	Jun-52	Jun-67	150.00	259.70	259.60	0.0700	0.300	0.0320	0.00	2.13	0.00	0.0
71 Link-129	Channel	Jun-68	Jun-52	80.00	259.80	259.70	0.1300	0.300	0.0320	0.00	2.91	0.00	0.0
72 Link-130	Channel	Jun-69	Jun-68	100.00	259.90	259.80	0.1000	0.300	0.0320	0.00	2.61	0.00	0.0
73 Link-131	Channel	Jun-71	Jun-53	70.00	259.40	259.30	0.1400	0.300	0.0320	0.00	3.11	0.00	0.0
74 Link-132	Channel	Jun-78	Jun-77	150.00	265.00	264.50	0.3300	0.300	0.0320	0.00	4.76	0.00	0.0
75 Link-133	Channel	Jun-77	Jun-76	150.00	264.50	261.90	1.7300	0.300	0.0320	0.00	10.85	0.00	0.0
76 Link-134	Channel	Jun-76	Jun-36	250.00	261.90	257.70	1.6800	0.300	0.0320	0.00	10.68	0.00	0.0
77 Link-135	Channel	Jun-61	Jun-37	100.00	262.50	261.00	1.5000	0.300	0.0320	0.00	10.09	0.00	0.0

Link Summary

SN Element ID	Element Type	From (Inlet) Node	To (Outlet) Node	Length	Inlet Invert Elevation	Outlet Invert Elevation	Average Slope	Diameter or Height	Manning's Roughness	Peak Flow	Design Flow Capacity	Peak Flow/ Design Flow Ratio	Peak Flow Velocit
				(m)	(m)	(m)	(%)	(m)		(cms)	(cms)		(m/sec)
95 Link-89	Channel	Jun-42	Jun-36	53.10	258.60	257.70	1.6900	0.300	0.0320	0.00	10.73	0.00	0.0
96 Link-90	Channel	Jun-39	Jun-40	90.00	258.75	257.75	1.1100	0.300	0.0320	0.00	8.69	0.00	0.0
97 Link-92	Channel	Jun-38	Jun-37	110.00	261.50	261.00	0.4500	0.300	0.0320	0.00	5.56	0.00	0.0
98 Link-93	Channel	Jun-37	Jun-36	340.00	261.00	257.70	0.9700	0.300	0.0320	0.00	8.12	0.00	0.0
99 Link-94	Channel	Jun-41	Jun-40	95.00	259.35	257.75	1.6800	0.300	0.0320	0.00	10.69	0.00	0.0
100 LowerRavine	Channel	Ravine_2	Ravine_3	124.00	253.00	252.45	0.4400	4.000	0.0320	4.85	157.98	0.03	1.3
101 OutletRavine	Channel	Ravine_3	Outfall	45.00	252.45	252.00	1.0000	4.000	0.0320	4.87	237.22	0.02	1.7
102 RH_C1	Channel	RH_12	RH_13	215.00	269.00	264.00	2.3300	1.500	0.0320	1.78	24.20	0.07	1.6
103 RH_C2	Channel	RH_13	Ex_SE_Pond	60.00	264.00	263.50	0.8300	1.500	0.0320	1.80	14.49	0.12	1.5
104 UpperRavine	Channel	Ravine_1	Ravine_2	553.00	256.10	253.00	0.5600	4.000	0.0320	4.62	177.61	0.03	1.2
105 Orifice-01	Orifice	SWM_WP	OutletStructure		253.00	254.25		0.170		0.08			
106 Link-91	Weir	Jun-40	WestOutfall		256.10	257.00				0.00			
107 Weir-01	Weir	SWM_FB	SWM_WP		253.00	253.00				3.97			
108 Weir-04	Weir	SWM_WP	OutletStructure		253.00	254.25				0.47			
109 Weir-05	Weir	SWM_WP	Ravine_2		253.00	253.00				0.00			

Junction Input

SN	Element ID	Invert Elevation	Ground/Rim (Max) Elevation	Ground/Rim (Max) Offset	Initial Water Elevation	Initial Water Depth	Surcharge Elevation	Surcharge Depth	Ponded Area	Minimum Pipe Cover
		(m)	(m)	(m)	(m)	(m)	(m)	(m)	(m²)	(m)
1	Ex_MHR1	255.88	262.50	6.62	0.00	-255.88	0.00	-262.50	0.00	0.00
2	Ex_MHR2	255.48	259.65	4.17	0.00	-255.48	0.00	-259.65	0.00	0.00
3	Ex_MHR25	256.48	263.35	6.87	0.00	-256.48	0.00	-263.35	0.00	0.00
4	Ex_MHR26	256.64	262.75	6.11	0.00	-256.64	0.00	-262.75	0.00	0.00
5	Ex_MHR27	256.94	261.00	4.06	0.00	-256.94	0.00	-261.00	0.00	0.00
6	Ex_MHR28	257.37	259.30	1.93	0.00	-257.37	0.00	-259.30	0.00	0.00
7	Ex_MHR3	255.23	259.00	3.77	0.00	-255.23	0.00	-259.00	0.00	0.00
8	Jun-34	254.62	258.25	3.63	0.00	-254.62	0.00	-258.25	0.00	0.00
9	Jun-35	254.70	257.50	2.80	0.00	-254.70	0.00	-257.50	0.00	0.00
10	Jun-36	254.72	258.00	3.28	0.00	-254.72	0.00	-258.00	0.00	0.00
11	Jun-37	255.29	261.30	6.01	0.00	-255.29	0.00	-261.30	0.00	0.00
12	Jun-38	255.53	261.80	6.27	0.00	-255.53	0.00	-261.80	0.00	0.00
13	Jun-39	256.93	259.05	2.12	0.00	-256.93	0.00	-259.05	0.00	0.00
14	Jun-40	256.10	258.55	2.45	0.00	-256.10	0.00	-258.55	0.00	0.00
15	Jun-41	255.77	259.65	3.88	0.00	-255.77	0.00	-259.65	0.00	0.00
16	Jun-42	255.23	258.90	3.67	0.00	-255.23	0.00	-258.90	0.00	0.00
17	Jun-43	256.25	257.25	1.00	0.00	-256.25	0.00	-257.25	0.00	0.00
18	Jun-44	257.55	258.55	1.00	0.00	-257.55	0.00	-258.55	0.00	0.00
19	Jun-46	257.70	258.70	1.00	0.00	-257.70	258.70	0.00	0.00	0.00
20	Jun-47	258.10	259.10	1.00	0.00	-258.10	0.00	-259.10	0.00	0.00
21	Jun-48	258.35	259.35	1.00	0.00	-258.35	0.00	-259.35	0.00	0.00
22	Jun-49	256.90	257.90	1.00	0.00	-256.90	0.00	-257.90	0.00	0.00
23	Jun-50	256.75	257.75	1.00	0.00	-256.75	0.00	-257.75	0.00	0.00
24	Jun-51	258.45	260.50	2.05	0.00	-258.45	0.00	-260.50	0.00	0.00
25	Jun-52	255.69	260.00	4.31	0.00	-255.69	0.00	-260.00	0.00	0.00
26	Jun-53	255.35	259.60	4.25	0.00	-255.35	0.00	-259.60	0.00	0.00
27	Jun-54	255.62	259.80	4.18	0.00	-255.62	0.00	-259.80	0.00	0.00
28	Jun-55	255.60	259.70	4.10	0.00	-255.60	0.00	-259.70	0.00	0.00
29	Jun-56	255.79	257.80	2.01	0.00	-255.79	0.00	-257.80	0.00	0.00
30	Jun-61	258.32	262.00	3.68	0.00	-258.32	0.00	-262.00	0.00	0.00
31	Jun-64	261.13	263.50	2.37	0.00	-261.13	0.00	-263.50	0.00	0.00
32	Jun-65	262.69	264.50	1.81	0.00	-262.69	0.00	-264.50	0.00	0.00
33	Jun-66	253.16	256.00	2.84	0.00	-253.16	0.00	-256.00	0.00	0.00
34	Jun-67	255.48	259.90	4.42	0.00	-255.48	0.00	-259.90	0.00	0.00
35	Jun-68	255.86	260.10	4.24	0.00	-255.86	0.00	-260.10	0.00	0.00
36	Jun-69	256.21	261.20	4.99	0.00	-256.21	0.00	-261.20	0.00	0.00
37	Jun-70	256.47	263.00	6.53	0.00	-256.47	0.00	-263.00	0.00	0.00
38	Jun-71	256.79	260.00	3.21	0.00	-256.79	0.00	-260.00	0.00	0.00
39	Jun-72	258.75	259.95	1.20	0.00	-258.75	0.00	-259.95	0.00	0.00
40	Jun-73	258.65	259.95	1.30	0.00	-258.65	0.00	-259.95	0.00	0.00
41	Jun-74	259.54	264.00	4.46	0.00	-259.54	0.00	-264.00	0.00	0.00
42	Jun-75	260.00	264.50	4.50	0.00	-260.00	0.00	-264.50	0.00	0.00
43	Jun-76	259.19	262.20	3.01	0.00	-259.19	0.00	-262.20	0.00	0.00
44	Jun-77	260.46	264.80	4.34	0.00	-260.46	0.00	-264.80	0.00	0.00
45	Jun-78	261.75	265.30	3.55	0.00	-261.75	0.00	-265.30	0.00	0.00
46	NorthWetland	252.00	258.00	6.00	0.00	-252.00	0.00	-258.00	0.00	0.00
47	OutletStructure	254.25	256.80	2.55	0.00	-254.25	0.00	-256.80	0.00	0.00
48	Ravine_1	256.10	260.10	4.00	0.00	-256.10	0.00	-260.10	0.00	0.00

Junction Results

SN	Element	Peak Inflow	Peak Lateral Inflow	Max HGL Elevation Attained	Max HGL Depth Attained	Max Surcharge Depth Attained	Min Freeboard Attained	Average HGL Elevation Attained	Average HGL Depth Attained	Time Max HC Occurrence
	ID	(cms)	(cms)	(m)	(m)	(m)	(m)	(m)	(m)	(days hh:mm)
1	Ex_MHR1	0.25	0.00	256.32	0.44	0.00	6.18	256.01	0.13	0 12:00
2	Ex_MHR2	0.25	0.00	255.91	0.43	0.00	3.74	255.61	0.13	0 12:00
3	Ex_MHR25	0.25	0.00	257.52	1.04	0.00	5.83	256.62	0.14	0 11:45
4	Ex_MHR26	0.25	0.00	257.75	1.11	0.00	5.00	256.79	0.15	0 11:45
5	Ex_MHR27	0.25	0.00	258.20	1.26	0.00	2.80	257.12	0.18	0 11:45
6	Ex_MHR28	1.05	1.05	259.10	1.73	0.00	0.20	257.57	0.20	0 12:00
7	Ex_MHR3	0.25	0.00	255.61	0.38	0.00	3.39	255.36	0.13	0 12:00
8	Jun-34	5.43	0.00	256.27	1.65	0.00	1.98	255.80	1.18	0 12:00
9	Jun-35	0.52	0.52	256.25	1.55	0.00	1.25	255.78	1.08	0 13:45
10	Jun-36	5.45	0.00	256.72	2.00	0.00	1.63	255.83	1.11	0 12:00
11	Jun-37	2.79	0.42	257.64	2.35	0.00	3.66	255.95	0.66	0 12:00
12	Jun-38	1.14	1.14	259.32	3.79	0.00	2.48	256.04	0.51	0 12:00
13	Jun-39	0.11	0.11	258.75	1.82	0.00	0.30	257.01	0.08	0 12:00
14	Jun-40	0.41	0.00	257.89	1.79	0.00	0.66	256.24	0.14	0 12:00
15	Jun-41	0.38	0.11	259.14	3.37	0.00	0.51	256.09	0.32	0 12:00
16	Jun-42	1.66	0.00	256.79	1.56	0.00	2.11	255.91	0.68	0 12:00
17	Jun-43	0.76	0.00	256.79	0.54	0.00	0.96	256.31	0.06	0 12:00
18	Jun-44	0.76	0.00	258.03	0.48	0.00	0.57	257.65	0.10	0 12:00
19	Jun-46	0.86	0.00	258.40	0.70	0.00	0.35	257.83	0.13	0 12:00
20	Jun-47	0.93	0.19	258.64	0.54	0.00	0.46	258.21	0.11	0 12:00
21	Jun-48	0.03	0.00	258.64	0.29	0.00	0.76	258.40	0.05	0 12:00
22	Jun-49	0.85	0.25	257.57	0.67	0.00	0.53	257.04	0.14	0 12:00
23	Jun-50	0.78	0.00	257.33	0.58	0.00	0.62	256.91	0.16	0 12:00
24	Jun-51	0.52	0.00	259.31	0.86	0.00	1.19	258.55	0.10	0 11:45
25	Jun-52	0.82	0.00	258.02	2.33	0.00	1.98	256.03	0.34	0 12:00
26	Jun-53	1.14	0.00	257.21	1.86	0.00	2.39	255.94	0.59	0 12:00
27	Jun-54	0.33	0.33	257.62	2.00	0.00	2.18	256.04	0.42	0 12:00
28	Jun-55	0.77	0.49	257.56	1.96	0.00	2.14	256.00	0.40	0 12:00
29	Jun-56	0.83	0.02	256.95	1.16	0.00	0.85	256.03	0.24	0 12:00
30	Jun-61	0.90	0.00	258.75	0.43	0.00	4.05	258.37	0.05	0 12:00
31	Jun-64	0.38	0.00	261.43	0.30	0.00	2.07	261.17	0.04	0 12:00
32	Jun-65	0.38	0.38	263.02	0.33	0.00	1.48	262.73	0.04	0 12:00
33	Jun-66	0.54	0.00	253.73	0.57	0.00	2.27	253.44	0.28	0 13:45
34	Jun-67	0.97	0.36	257.74	2.26	0.00	2.16	255.98	0.50	0 12:00
35	Jun-68	0.51	0.34	258.13	2.27	0.00	1.97	256.09	0.23	0 12:00
36	Jun-69	0.26	0.26	258.23	2.02	0.00	2.97	256.29	0.08	0 12:00
37	Jun-70	0.43	0.43	260.04	3.57	0.00	2.96	256.56	0.09	0 11:45
38	Jun-71	0.49	0.49	259.40	2.61	0.00	0.60	256.88	0.09	0 12:00
39	Jun-72	0.32	0.32	259.67	0.92	0.00	0.28	258.82	0.07	0 12:00
40	Jun-73	0.53	0.53	259.68	1.03	0.00	0.27	258.75	0.10	0 12:00
41	Jun-74	0.53	0.29	259.93	0.39	0.00	4.07	259.59	0.05	0 12:00
42	Jun-75	0.24	0.24	260.31	0.31	0.00	4.19	260.04	0.04	0 12:00
43	Jun-76	0.98	0.53	260.49	1.30	0.00	1.71	259.28	0.09	0 12:00
44	Jun-77	0.52	0.00	261.34	0.88	0.00	3.46	260.53	0.07	0 12:00
45	Jun-78	0.64	0.64	263.44	1.69	0.00	1.86	261.83	0.08	0 12:00
46	NorthWetland	0.23	0.23	252.00	0.00	0.00	6.00	252.00	0.00	0 00:00
47	OutletStructure	0.54	0.00	254.72	0.47	0.00	3.33	254.54	0.29	0 13:45

Channel Input

SN	Element ID	Length	Inlet Invert Elevation (m)	Inlet Invert Offset (m)	Outlet Invert Elevation (m)	Outlet Invert Offset (m)	Total Drop (m)	Average Slope (%)	Shape	Height (m)	Width (m)	Manning's Roughness
1	Link-103	10.00	257.70	2.98	257.50	4.50	0.20	2.0000	Rectangular	0.300	20.000	0.0320
2	Link-104	50.00	257.50	1.71	256.50	3.50	1.00	2.0000	Rectangular	0.300	20.000	0.0320
3	Link-122	70.00	259.30	3.95	258.60	3.37	0.70	1.0000	Rectangular	0.300	20.000	0.0320
4	Link-123	90.00	259.40	3.80	259.30	3.95	0.10	0.1100	Rectangular	0.300	20.000	0.0320
5	Link-124	90.00	259.50	3.88	259.40	3.80	0.10	0.1100	Rectangular	0.300	20.000	0.0320
6	Link-125	50.00	259.65	1.00	258.70	0.60	0.95	1.9000	Rectangular	0.300	20.000	0.0320
7	Link-126	50.00	259.65	0.90	258.70	0.60	0.95	1.9000	Rectangular	0.300	20.000	0.0320
8	Link-127	100.00	259.60	4.12	259.50	3.88	0.10	0.1000	Rectangular	0.300	20.000	0.0320
9	Link-128	150.00	259.70	4.01	259.60	4.12	0.10	0.0700	Rectangular	0.300	20.000	0.0320
10	Link-129	80.00	259.80	3.94	259.70	4.01	0.10	0.1300	Rectangular	0.300	20.000	0.0320
11	Link-130	100.00	259.90	3.69	259.80	3.94	0.10	0.1000	Rectangular	0.300	20.000	0.0320
12	Link-131	70.00	259.40	2.61	259.30	3.95	0.10	0.1400	Rectangular	0.300	20.000	0.0320
13	Link-132	150.00	265.00	3.25	264.50	4.04	0.50	0.3300	Rectangular	0.300	20.000	0.0320
14	Link-133	150.00	264.50	4.04	261.90	2.71	2.60	1.7300	Rectangular	0.300	20.000	0.0320
15	Link-134	250.00	261.90	2.71	257.70	2.98	4.20	1.6800	Rectangular	0.300	20.000	0.0320
16	Link-135	100.00	262.50	4.18	261.00	5.71	1.50	1.5000	Rectangular	0.300	20.000	0.0320
17	Link-34	270.00	271.40	3.80	269.65	2.58	1.75	0.6500	Rectangular	0.300	20.000	0.0320
18	Link-35	50.00	272.15	2.01	269.65	2.58	2.50	5.0000	Rectangular	0.300	20.000	0.0320
19	Link-36	222.00	269.65	2.58	268.30	1.67	1.35	0.6100	Rectangular	0.300	20.000	0.0320
20	Link-37	18.00	268.30	1.67	267.90	1.40	0.40	2.2200	Rectangular	0.300	20.000	0.0320
21	Link-38	227.00	271.80	1.45	267.90	1.40	3.90	1.7200	Rectangular	0.300	20.000	0.0320
22	Link-39	415.00	267.90	1.40	263.50	1.60	4.40	1.0600	Rectangular	0.300	20.000	0.0320
23	Link-41	180.00	269.55	1.80	265.50	1.50	4.05	2.2500	Rectangular	0.300	20.000	0.0320
24	Link-42	155.00	265.50	1.50	263.50	1.60	2.00	1.2900	Rectangular	0.300	20.000	0.0320
25	Link-43	140.00	263.50	1.60	262.25	1.92	1.25	0.8900	Rectangular	0.300	20.000	0.0320
26	Link-44	470.00	262.25	1.92	258.00	1.90	4.25	0.9000	Rectangular	0.300	20.000	0.0320
27	Link-45	195.00	263.20	1.50	260.70	1.32	2.50	1.2800	Rectangular	0.300	20.000	0.0320
28	Link-46	280.00	260.70	1.32	258.00	1.90	2.70	0.9600	Rectangular	0.300	20.000	0.0320
29	Link-51	65.00	259.00	1.63	258.05	3.33	0.95	1.4600	Rectangular	0.300	10.000	0.0320
30	Link-61	125.00	256.75	0.00	256.25	0.00	0.50	0.4000	User-Defined	1.000	9.000	0.0320
31	Link-63	162.50	257.55	0.00	256.90	0.00	0.65	0.4000	User-Defined	1.000	9.000	0.0320
32	Link-66	133.00	258.10	0.00	257.70	0.00	0.40	0.3000	User-Defined	1.000	9.000	0.0320
33	Link-67	75.00	258.40	0.05	258.10	0.00	0.30	0.4000	User-Defined	1.000	9.000	0.0320
34	Link-89	53.10	258.60	3.37	257.70	2.98	0.90	1.6900	Rectangular	0.300	20.000	0.0320
35	Link-90	90.00	258.75	1.82	257.75	1.65	1.00	1.1100	Rectangular	0.300	20.000	0.0320
36	Link-92	110.00	261.50	5.97	261.00	5.71	0.50	0.4500	Rectangular	0.300	20.000	0.0320
37	Link-93	340.00	261.00	5.71	257.70	2.98	3.30	0.9700	Rectangular	0.300	20.000	0.0320
38	Link-94	95.00	259.35	3.58	257.75	1.65	1.60	1.6800	Rectangular	0.300	20.000	0.0320
39	LowerRavine	124.00	253.00	0.00	252.45	0.00	0.55	0.4400	Trapezoidal	4.000	17.000	0.0320
40	OutletRavine	45.00	252.45	0.00	252.00	0.00	0.45	1.0000	Trapezoidal	4.000	17.000	0.0320
41	RH_C1	215.00	269.00	0.00	264.00	0.00	5.00	2.3300	Trapezoidal	1.500	7.000	0.0320
42	RH_C2	60.00	264.00	0.00	263.50	1.50	0.50	0.8300	Trapezoidal	1.500	7.000	0.0320
43	UpperRavine	553.00	256.10	0.00	253.00	0.00	3.10	0.5600	Trapezoidal	4.000	17.000	0.0320

Channel Results

SN	Element ID	Peak Flow	Time of Peak Flow Occurrence	Design Flow Capacity	Peak Flow/ Design Flow Ratio	Peak Flow Velocity	Travel Time	Peak Flow Depth	Peak Flow Depth/ Total Depth Ratio	Total Time Surcharged
		(cms)	(days hh:mm)	(cms)		(m/sec)	(min)	(m)		(mi)
1	Link-103	0.00	0 00:00	11.65	0.00	0.00		0.00	0.00	0.00
2	Link-104	0.00	0 00:00	11.65	0.00	0.00		0.00	0.00	0.00
3	Link-122	0.00	0 00:00	8.24	0.00	0.00		0.00	0.00	0.00
4	Link-123	0.00	0 00:00	2.75	0.00	0.00		0.00	0.00	0.00
5	Link-124	0.00	0 00:00	2.75	0.00	0.00		0.00	0.00	0.00
6	Link-125	0.17	0 12:01	11.36	0.02	0.38	2.19	0.02	0.08	0.00
7	Link-126	0.07	0 12:01	11.36	0.01	0.26	3.21	0.01	0.04	0.00
8	Link-127	0.00	0 00:00	2.61	0.00	0.00		0.00	0.00	0.00
9	Link-128	0.00	0 00:00	2.13	0.00	0.00		0.00	0.00	0.00
10	Link-129	0.00	0 00:00	2.91	0.00	0.00		0.00	0.00	0.00
11	Link-130	0.00	0 00:00	2.61	0.00	0.00		0.00	0.00	0.00
12	Link-131	0.00	0 12:02	3.11	0.00	0.00		0.00	0.00	0.00
13	Link-132	0.00	0 00:00	4.76	0.00	0.00		0.00	0.00	0.00
14	Link-133	0.00	0 00:00	10.85	0.00	0.00		0.00	0.00	0.00
15	Link-134	0.00	0 00:00	10.68	0.00	0.00		0.00	0.00	0.00
16	Link-135	0.00	0 00:00	10.09	0.00	0.00		0.00	0.00	0.00
17	Link-34	2.67	0 12:01	6.63	0.40	0.71	6.34	0.21	0.69	0.00
18	Link-35	2.60	0 12:00	18.43	0.14	1.10	0.76	0.17	0.55	0.00
19	Link-36	3.79	0 12:06	6.43	0.59	0.92	4.02	0.20	0.69	0.00
20	Link-37	3.52	0 12:06	12.28	0.29	1.20	0.25	0.16	0.54	0.00
21	Link-38	1.03	0 12:02	10.80	0.10	0.70	5.40	0.12	0.41	0.00
22	Link-39	4.06	0 12:11	8.48	0.48	1.06	6.53	0.19	0.65	0.00
23	Link-41	0.00	0 00:00	12.36	0.00	0.00		0.00	0.00	0.00
24	Link-42	0.00	0 12:30	9.36	0.00	0.00		0.11	0.35	0.00
25	Link-43	3.74	0 12:16	7.79	0.48	1.03	2.27	0.18	0.61	0.00
26	Link-44	2.78	0 12:26	7.84	0.35	0.92	8.51	0.15	0.50	0.00
27	Link-45	0.05	0 12:49	9.33	0.00	0.19	17.11	0.01	0.04	0.00
28	Link-46	0.04	0 13:12	8.09	0.00	0.16	29.17	0.01	0.04	0.00
29	Link-51	0.77	0 12:00	4.89	0.16	0.82	1.32	0.09	0.31	0.00
30	Link-61	0.76	0 12:15	4.86	0.16	0.68	3.06	0.50	0.50	0.00
31	Link-63	0.74	0 12:08	4.86	0.15	0.47	5.76	0.57	0.57	0.00
32	Link-66	0.86	0 12:03	4.22	0.20	0.53	4.18	0.61	0.61	0.00
33	Link-67	0.03	0 12:00	4.86	0.01	0.08	15.63	0.38	0.39	0.00
34	Link-89	0.00	0 00:00	10.73	0.00	0.00		0.00	0.00	0.00
35	Link-90	0.00	0 12:01	8.69	0.00	0.00		0.07	0.24	0.00
36	Link-92	0.00	0 00:00	5.56	0.00	0.00		0.00	0.00	0.00
37	Link-93	0.00	0 00:00	8.12	0.00	0.00		0.00	0.00	0.00
38	Link-94	0.00	0 00:00	10.69	0.00	0.00		0.07	0.24	0.00
39	LowerRavine	4.85	0 12:33	157.98	0.03	1.35	1.53	0.61	0.15	0.00
40	OutletRavine	4.87	0 12:33	237.22	0.02	1.74	0.43	0.49	0.12	0.00
41	RH_C1	1.78	0 12:00	24.20	0.07	1.63	2.20	0.53	0.36	0.00
42	RH_C2	1.80	0 12:01	14.49	0.12	1.50	0.67	0.54	0.38	0.00
43	UpperRavine	4.62	0 12:28	177.61	0.03	1.29	7.14	0.61	0.15	0.00

Pipe Input

SN	Element ID	Length	Inlet Invert Elevation	Inlet Invert Offset	Outlet Invert Elevation	Outlet Invert Offset	Total Drop	Average Slope	Pipe Shape	Pipe Diameter or Height	Pipe Width	Meters
		(m)	(m)	(m)	(m)	(m)	(m)	(%)		(m)	(m)	
1	Ex.STM_1	107.00	257.37	0.00	256.94	0.00	0.43	0.4000	CIRCULAR	0.450	0.450	
2	Ex.STM_2	73.00	256.94	0.00	256.64	0.00	0.30	0.4100	CIRCULAR	0.450	0.450	
3	Ex.STM_3	27.00	256.64	0.00	256.48	0.00	0.16	0.5900	CIRCULAR	0.450	0.450	
4	Ex.STM_4	100.00	256.48	0.00	255.88	0.00	0.60	0.6000	CIRCULAR	0.450	0.450	
5	Ex.STM_5	100.00	255.88	0.00	255.48	0.00	0.40	0.4000	CIRCULAR	0.530	0.530	
6	Ex.STM_6	50.00	255.48	0.00	255.23	0.00	0.25	0.5000	CIRCULAR	0.530	0.530	
7	Ex.STM_7	102.00	255.23	0.00	254.82	0.00	0.41	0.4000	CIRCULAR	0.600	0.600	
8	Link-106	24.80	253.16	0.00	252.85	-0.15	0.31	1.2500	CIRCULAR	0.750	0.750	
9	Link-107	93.20	254.35	0.10	253.20	0.04	1.15	1.2300	CIRCULAR	0.750	0.750	
10	Link-108	110.30	255.48	0.00	255.37	0.08	0.11	0.1000	CIRCULAR	1.200	1.200	
11	Link-109	30.00	257.70	0.00	257.55	0.00	0.15	0.5000	CIRCULAR	1.050	1.050	
12	Link-110	153.00	255.69	0.00	255.48	0.00	0.21	0.1400	CIRCULAR	0.900	0.900	
13	Link-111	66.80	255.86	0.00	255.77	0.08	0.09	0.1300	CIRCULAR	0.750	0.750	
14	Link-112	106.60	256.21	0.00	255.91	0.05	0.30	0.2800	CIRCULAR	0.600	0.600	
15	Link-113	97.50	256.47	0.00	255.88	0.19	0.59	0.6100	CIRCULAR	0.530	0.530	
16	Link-114	85.10	256.79	0.00	255.73	0.38	1.06	1.2500	CIRCULAR	0.450	0.450	
17	Link-115	50.00	258.65	0.00	258.50	0.05	0.15	0.3000	CIRCULAR	0.530	0.530	
18	Link-116	50.00	258.75	0.00	258.55	0.10	0.20	0.4000	CIRCULAR	0.450	0.450	
19	Link-117	90.00	259.54	0.00	258.37	0.05	1.17	1.3000	CIRCULAR	0.680	0.680	
20	Link-118	41.60	260.00	0.00	259.56	0.02	0.44	1.0600	CIRCULAR	0.530	0.530	
21	Link-119	181.70	259.19	0.00	256.08	0.29	3.11	1.7100	CIRCULAR	0.600	0.600	
22	Link-120	140.50	260.46	0.00	259.24	0.05	1.22	0.8700	CIRCULAR	0.600	0.600	
23	Link-121	152.20	261.75	0.00	260.51	0.05	1.24	0.8100	CIRCULAR	0.530	0.530	
24	Link-49	20.70	254.62	0.00	254.60	1.60	0.02	0.1000	CIRCULAR	1.800	1.800	
25	Link-50	75.20	254.70	0.00	254.60	1.60	0.10	0.1300	CIRCULAR	0.600	0.600	
26	Link-52	35.00	254.72	0.00	254.67	0.05	0.05	0.1400	CIRCULAR	1.650	1.650	
27	Link-53	336.90	255.29	0.00	254.74	0.02	0.55	0.1600	CIRCULAR	1.350	1.350	
28	Link-54	110.00	255.53	0.00	255.31	0.02	0.22	0.2000	CIRCULAR	0.600	0.600	
29	Link-56	110.00	255.77	0.00	255.55	0.02	0.22	0.2000	CIRCULAR	0.600	0.600	
30	Link-57	95.50	256.10	0.00	255.85	0.08	0.25	0.2600	CIRCULAR	0.450	0.450	
31	Link-58	90.00	256.93	0.00	256.25	0.15	0.68	0.7600	CIRCULAR	0.300	0.300	
32	Link-59	53.10	255.23	0.00	255.13	0.41	0.10	0.1900	CIRCULAR	1.500	1.500	
33	Link-60	13.40	256.25	0.00	255.84	0.61	0.41	3.0600	CIRCULAR	1.500	1.500	
34	Link-62	25.00	256.90	0.00	256.75	0.00	0.15	0.6000	CIRCULAR	1.200	1.200	
35	Link-68	60.00	258.45	0.00	258.20	0.10	0.25	0.4200	CIRCULAR	0.600	0.600	
36	Link-70	57.00	255.35	0.00	255.25	0.02	0.10	0.1800	CIRCULAR	0.820	0.820	
37	Link-71	82.00	255.60	0.00	255.43	0.08	0.17	0.2100	CIRCULAR	0.750	0.750	
38	Link-72	85.00	255.79	0.17	255.62	0.02	0.17	0.2000	CIRCULAR	0.750	0.750	
39	Link-73	67.80	255.78	-0.01	255.10	0.38	0.68	1.0000	CIRCULAR	0.900	0.900	
40	Link-80	89.90	258.32	0.00	255.97	0.68	2.35	2.6100	CIRCULAR	0.750	0.750	
41	Link-81	93.20	261.13	0.00	259.27	0.95	1.86	2.0000	CIRCULAR	0.600	0.600	
42	Link-82	103.90	262.69	0.00	261.13	0.00	1.56	1.5000	CIRCULAR	0.600	0.600	
43	RH_A1	50.00	270.14	0.00	268.50	1.43	1.64	3.2800	CIRCULAR	0.300	0.300	
44	RH_B1	227.00	270.35	0.00	266.50	0.00	3.85	1.7000	CIRCULAR	0.300	0.300	
45	RH_C3	15.00	262.00	0.00	261.70	0.00	0.30	2.0000	CIRCULAR	0.600	0.600	
46	RH_C4	195.00	261.70	0.00	259.38	0.00	2.32	1.1900	CIRCULAR	0.530	0.530	
47	RH_C5	274.00	259.38	0.00	256.36	0.00	3.02	1.1000	CIRCULAR	0.530	0.530	
48	RH_C6	6.00	256.36	0.00	256.24	0.14	0.12	2.0000	CIRCULAR	0.700	0.700	

25-YEAR STORM

No. of
Barrels

1

Pipe Results

SN Element ID	Peak Flow	Time of Peak Flow Occurrence	Design Flow Capacity	Peak Flow/ Design Flow Ratio	Peak Flow Velocity	Travel Time	Peak Flow Depth	Peak Flow Depth/ Total Depth Ratio	To Sur
	(cms)	(days hh:mm)	(cms)		(m/sec)	(min)	(m)		
1 Ex.STM_1	0.25	0 12:00	0.18	1.37	1.56	1.14	0.45	1.00	
2 Ex.STM_2	0.25	0 12:00	0.18	1.36	1.56	0.78	0.45	1.00	
3 Ex.STM_3	0.25	0 12:00	0.22	1.13	1.56	0.29	0.45	1.00	
4 Ex.STM_4	0.25	0 12:00	0.22	1.12	1.58	1.05	0.45	0.99	
5 Ex.STM_5	0.25	0 12:01	0.27	0.91	1.32	1.26	0.43	0.83	
6 Ex.STM_6	0.25	0 12:02	0.30	0.81	1.40	0.60	0.40	0.77	
7 Ex.STM_7	0.25	0 12:03	0.39	0.64	1.44	1.18	0.35	0.59	
8 Link-106	0.54	0 13:43	0.89	0.61	1.71	0.24	0.61	0.82	
9 Link-107	0.54	0 13:43	1.24	0.44	1.99	0.78	0.45	0.60	
10 Link-108	0.93	0 12:05	1.23	0.76	0.82	2.24	1.20	1.00	
11 Link-109	0.76	0 12:06	1.93	0.39	1.51	0.33	0.58	0.56	
12 Link-110	0.69	0 12:03	0.67	1.03	1.08	2.36	0.90	1.00	
13 Link-111	0.41	0 12:01	0.41	1.01	0.93	1.20	0.75	1.00	
14 Link-112	0.18	0 12:00	0.33	0.57	0.72	2.47	0.60	1.00	
15 Link-113	0.43	0 12:00	0.33	1.28	1.98	0.82	0.52	1.00	
16 Link-114	0.43	0 12:00	0.32	1.36	2.72	0.52	0.45	1.00	
17 Link-115	0.35	0 12:08	0.24	1.47	1.60	0.52	0.52	1.00	
18 Link-116	0.21	0 12:02	0.18	1.16	1.31	0.64	0.45	1.00	
19 Link-117	0.52	0 12:00	0.96	0.55	2.54	0.59	0.37	0.56	
20 Link-118	0.24	0 12:00	0.44	0.54	1.58	0.44	0.34	0.65	
21 Link-119	0.81	0 12:00	0.80	1.01	3.05	0.99	0.60	1.00	
22 Link-120	0.46	0 11:59	0.57	0.79	1.91	1.23	0.60	1.00	
23 Link-121	0.52	0 12:01	0.39	1.33	2.40	1.06	0.52	1.00	
24 Link-49	5.43	0 12:05	3.57	1.52	2.55	0.14	1.64	0.91	
25 Link-50	0.52	0 12:00	0.22	2.31	1.83	0.68	0.60	1.00	
26 Link-52	5.43	0 12:05	3.45	1.58	2.55	0.23	1.63	0.99	
27 Link-53	2.56	0 12:04	2.16	1.19	1.79	3.14	1.35	1.00	
28 Link-54	0.72	0 12:00	0.27	2.64	2.56	0.72	0.60	1.00	
29 Link-56	0.27	0 12:00	0.27	1.00	0.97	1.89	0.60	1.00	
30 Link-57	0.31	0 12:02	0.15	2.13	1.96	0.81	0.45	1.00	
31 Link-58	0.10	0 12:01	0.08	1.13	1.34	1.12	0.30	1.00	
32 Link-59	1.68	0 12:08	3.07	0.55	1.17	0.76	1.50	1.00	
33 Link-60	0.92	0 12:08	12.37	0.07	2.32	0.10	0.74	0.50	
34 Link-62	0.79	0 12:11	3.02	0.26	1.60	0.26	0.61	0.52	
35 Link-68	0.52	0 12:01	0.40	1.31	1.95	0.51	0.54	0.89	
36 Link-70	1.09	0 12:01	0.60	1.81	2.04	0.47	0.82	1.00	
37 Link-71	0.71	0 12:00	0.51	1.40	1.60	0.85	0.75	1.00	
38 Link-72	0.29	0 12:00	0.50	0.58	0.66	2.15	0.75	1.00	
39 Link-73	0.82	0 12:07	1.83	0.45	1.53	0.74	0.90	1.00	
40 Link-80	0.87	0 12:00	1.80	0.49	3.27	0.46	0.58	0.79	
41 Link-81	0.38	0 12:00	0.87	0.43	2.81	0.55	0.28	0.48	
42 Link-82	0.38	0 12:00	0.75	0.51	2.57	0.67	0.31	0.52	
43 RH_A1	0.23	0 11:45	0.18	1.31	3.26	0.26	0.30	1.00	
44 RH_B1	0.14	0 11:44	0.13	1.10	1.96	1.93	0.30	1.00	
45 RH_C3	0.47	0 11:58	0.87	0.54	1.91	0.13	0.60	1.00	
46 RH_C4	0.43	0 11:58	0.41	1.04	2.10	1.55	0.52	1.00	
47 RH C5	0.48	0 13:12	0.45	1.06	2.21	2.07	0.52	1.00	

Project Description

File Name	18010_Post-Development Rev.0.SPF
Description	I:\ACAD Projects\2018\18010\03-Ref\18010_Pre-Dev. Storm
	I:\ACAD Projects\2018\18010\03-Ref\18010_Pre-Dev. Storm
	I:\ACAD Projects\2018\18010\03-Ref\18010_Post-Dev.Storm
	I:\ACAD Projects\2018\18010\03-Ref\18010_Post-Dev.Storm

Project Options

Flow Units	CMS
Elevation Type	Elevation
Hydrology Method	EPA SWMM
EPA SWMM Infiltration Method	SCS Curve Number
Link Routing Method	Hydrodynamic
Enable Overflow Ponding at Nodes	YES
Skip Steady State Analysis Time Periods	YES

Analysis Options

Start Analysis On	00:00:00	0:00:00
End Analysis On	00:00:00	0:00:00
Start Reporting On	00:00:00	0:00:00
Antecedent Dry Days	0	days
Runoff (Dry Weather) Time Step	0 01:00:00	days hh:mm:ss
Runoff (Wet Weather) Time Step	0 00:05:00	days hh:mm:ss
Reporting Time Step	0 00:05:00	days hh:mm:ss
Routing Time Step	30	seconds

Number of Elements

	Qty
Rain Gages	1
Subbasins.....	58
Nodes.....	77
<i>Junctions</i>	69
<i>Outfalls</i>	5
<i>Flow Diversions</i>	0
<i>Inlets</i>	0
<i>Storage Nodes</i>	3
Links.....	109
<i>Channels</i>	43
<i>Pipes</i>	61
<i>Pumps</i>	0
<i>Orifices</i>	1
<i>Weirs</i>	4
<i>Outlets</i>	0
Pollutants	0
Land Uses	0

Subbasin Summary

SN Subbasin ID	Area	Impervious Area	Weighted Curve Number	Average Slope	Equivalent Width	Impervious Area Manning's Roughness	Pervious Area Manning's Roughness	Total Rainfall	Total Infiltration	Total Runoff	Total Runoff Volume	Peak Runoff	Time of Concentration
	(ha)	(%)		(%)	(m)			(mm)	(mm)	(mm)	(ha-mm)	(cms)	(days hh:mm:ss)
1 {Survey Site}.Standard : 10	0.92	2.00	67.00	2.0000	125.00	0.0130	0.2000	92.69	56.7980	34.66	31.82	0.06	0 01:05:16
2 {Survey Site}.Standard : 11	21.38	2.00	67.00	2.0000	360.00	0.0130	0.2000	92.69	54.1530	38.88	831.21	0.37	0 03:48:45
3 {Survey Site}.Standard : 12	0.71	5.00	67.00	2.0000	90.00	0.0130	0.2000	92.69	55.0860	36.37	25.82	0.05	0 01:06:52
4 {Survey Site}.Standard : 13	1.65	45.00	71.05	2.0000	220.00	0.0130	0.2000	92.69	29.3150	62.13	102.38	0.38	0 00:46:42
5 {Survey Site}.Standard : 14	4.32	2.00	67.00	2.0000	350.00	0.0130	0.2000	92.69	57.1560	34.29	148.15	0.19	0 01:29:07
6 {Survey Site}.Standard : 17	0.36	5.00	67.00	5.0000	20.00	0.0130	0.2000	92.69	55.2990	36.13	12.86	0.02	0 01:22:46
7 {Survey Site}.Standard : 18	13.10	5.00	48.00	10.0000	300.00	0.0130	0.2000	92.69	71.0670	20.36	266.63	0.32	0 01:55:10
8 {Survey Site}.Standard : 19	1.32	55.00	75.95	2.0000	90.00	0.0130	0.2000	92.69	21.4360	70.04	92.46	0.34	0 01:01:57
9 {Survey Site}.Standard : 2	20.86	45.00	71.05	2.0000	300.00	0.0130	0.2000	92.69	30.4220	60.99	1272.45	3.24	0 02:57:49
10 {Survey Site}.Standard : 23	2.20	5.00	48.00	10.0000	100.00	0.0130	0.2000	92.69	70.4790	20.95	46.04	0.06	0 01:16:18
11 {Survey Site}.Standard : 26	1.12	45.00	71.05	2.0000	40.00	0.0130	0.2000	92.69	29.7710	61.69	69.33	0.21	0 01:43:14
12 {Survey Site}.Standard : 27	0.43	45.00	71.05	2.0000	60.00	0.0130	0.2000	92.69	29.3020	62.13	26.53	0.10	0 00:45:17
13 {Survey Site}.Standard : 28	0.12	45.00	71.05	2.0000	40.00	0.0130	0.2000	92.69	29.1590	62.24	7.66	0.03	0 00:27:22
14 {Survey Site}.Standard : 29	7.86	45.00	71.05	2.0000	110.00	0.0130	0.2000	92.69	30.4480	60.96	479.27	1.21	0 03:00:45
15 {Survey Site}.Standard : 3	25.14	45.00	71.05	2.0000	370.00	0.0130	0.2000	92.69	30.3960	61.01	1533.78	3.93	0 02:55:21
16 {Survey Site}.Standard : 30	20.00	30.00	63.70	2.0000	225.00	0.0130	0.2000	92.69	44.9310	46.50	929.81	2.10	0 03:58:04
17 {Survey Site}.Standard : 31	5.54	5.00	57.00	2.0000	245.00	0.0130	0.2000	92.69	64.7790	26.66	147.80	0.16	0 02:05:50
18 {Survey Site}.Standard : 32	3.34	2.00	67.00	2.0000	95.00	0.0130	0.2000	92.69	58.3930	33.05	110.21	0.07	0 02:46:51
19 {Survey Site}.Standard : 33	7.71	2.00	67.00	2.0000	215.00	0.0130	0.2000	92.69	58.4210	33.01	254.38	0.16	0 02:48:57
20 {Survey Site}.Standard : 4	3.13	2.00	67.00	2.0000	155.00	0.0130	0.2000	92.69	57.6230	33.81	105.87	0.10	0 01:59:46
21 {Survey Site}.Standard : 46	5.62	2.00	67.00	2.0000	200.00	0.0130	0.2000	92.69	58.0360	33.39	187.79	0.14	0 02:26:03
22 {Survey Site}.Standard : 5	10.46	45.00	71.05	0.5000	235.00	0.0130	0.2000	92.69	30.6300	60.71	634.99	1.52	0 03:26:12
23 {Survey Site}.Standard : 51	0.39	95.00	95.55	0.5000	20.00	0.0130	0.2000	92.69	0.5400	90.66	34.90	0.12	0 00:33:34
24 {Survey Site}.Standard : 52	10.94	2.00	36.00	0.5000	240.00	0.0130	0.2000	92.69	76.9640	11.76	128.69	0.09	0 04:55:49
25 {Survey Site}.Standard : 53	0.36	75.00	85.75	3.0000	20.00	0.0130	0.2000	92.69	7.8480	83.20	30.28	0.12	0 00:43:53
26 {Survey Site}.Standard : 54	3.94	75.00	85.75	2.0000	150.00	0.0130	0.2000	92.69	7.8480	83.11	327.37	1.19	0 01:01:45
27 {Survey Site}.Standard : 57	0.38	15.00	56.35	2.0000	125.00	0.0130	0.2000	92.69	57.1970	34.25	13.12	0.04	0 00:35:28
28 {Survey Site}.Standard : 6	11.54	2.00	67.00	2.0000	280.00	0.0130	0.2000	92.69	58.6680	32.76	378.10	0.22	0 03:03:44
29 {Survey Site}.Standard : 63	1.63	55.00	75.95	2.0000	90.00	0.0130	0.2000	92.69	21.4850	69.99	114.01	0.40	0 01:10:17
30 {Survey Site}.Standard : 65	1.71	55.00	75.95	2.0000	130.00	0.0130	0.2000	92.69	21.4110	70.07	119.75	0.44	0 00:58:01

Subbasin Summary

SN	Subbasin ID	Area	Impervious Area	Weighted Curve Number	Average Slope	Equivalent Width	Impervious Area Manning's Roughness	Pervious Area Manning's Roughness	Total Rainfall	Total Infiltration	Total Runoff	Total Runoff Volume	Peak Runoff	Time of Concentration
		(ha)	(%)		(%)	(m)			(mm)	(mm)	(mm)	(ha-mm)	(cms)	(days hh:mm:ss)
48	{Survey Site}.Standard : 84	1.00	55.00	75.95	2.0000	50.00	0.0130	0.2000	92.69	21.5100	69.96	70.24	0.24	0 01:14:48
49	{Survey Site}.Standard : 85	1.78	55.00	75.95	2.0000	70.00	0.0130	0.2000	92.69	21.5840	69.88	124.59	0.41	0 01:26:17
50	{Survey Site}.Standard : 86	1.43	55.00	75.95	2.0000	100.00	0.0130	0.2000	92.69	21.4270	70.05	99.82	0.36	0 01:00:54
51	{Survey Site}.Standard : 87	2.66	55.00	75.95	2.0000	100.00	0.0130	0.2000	92.69	21.6010	69.86	185.62	0.61	0 01:28:30
52	{Survey Site}.Standard : 88	1.64	55.00	75.95	2.0000	75.00	0.0130	0.2000	92.69	21.5350	69.93	114.55	0.39	0 01:18:40
53	{Survey Site}.Standard : 89	1.11	55.00	75.95	2.0000	100.00	0.0130	0.2000	92.69	21.3780	70.10	78.02	0.29	0 00:52:30
54	{Survey Site}.Standard : 9	3.53	2.00	67.00	2.0000	100.00	0.0130	0.2000	92.69	58.3930	33.03	116.68	0.07	0 02:47:28
55	{Survey Site}.Standard : 90	1.22	65.00	80.85	2.0000	130.00	0.0130	0.2000	92.69	14.0930	77.64	94.33	0.39	0 00:40:39
56	{Survey Site}.Standard : 91	1.00	65.00	80.85	2.0000	130.00	0.0130	0.2000	92.69	14.0930	77.25	77.02	0.32	0 00:36:06
57	{Survey Site}.Standard : 92	2.19	55.00	75.95	2.0000	75.00	0.0130	0.2000	92.69	21.6260	69.82	153.12	0.49	0 01:33:44
58	{Survey Site}.Standard : 93	2.32	15.00	56.35	5.0000	525.00	0.0130	0.2000	92.69	57.1640	34.28	79.49	0.26	0 00:33:33

Node Summary

SN	Element ID	Element Type	Invert Elevation	Ground/Rim (Max) Elevation	Initial Water Elevation	Surcharge Elevation	Ponded Area	Peak Inflow	Max HGL Elevation Attained	Max Surcharge Depth Attained	Min Freeboard Attained	Time of Peak Flooding Occurrence	Total Flooded Volume	Total Time Flooded
			(m)	(m)	(m)	(m)	(m²)	(cms)	(m)	(m)	(m)	(days hh:mm)	(ha-mm)	(min)
1	Ex_MHR1	Junction	255.88	262.50	0.00	0.00	0.00	0.25	256.32	0.00	6.18	0 00:00	0.00	0.00
2	Ex_MHR2	Junction	255.48	259.65	0.00	0.00	0.00	0.25	255.91	0.00	3.74	0 00:00	0.00	0.00
3	Ex_MHR25	Junction	256.48	263.35	0.00	0.00	0.00	0.25	257.53	0.00	5.82	0 00:00	0.00	0.00
4	Ex_MHR26	Junction	256.64	262.75	0.00	0.00	0.00	0.25	257.86	0.00	4.89	0 00:00	0.00	0.00
5	Ex_MHR27	Junction	256.94	261.00	0.00	0.00	0.00	0.25	258.27	0.00	2.73	0 00:00	0.00	0.00
6	Ex_MHR28	Junction	257.37	259.30	0.00	0.00	0.00	1.21	259.11	0.00	0.19	0 00:00	0.00	0.00
7	Ex_MHR3	Junction	255.23	259.00	0.00	0.00	0.00	0.25	255.61	0.00	3.39	0 00:00	0.00	0.00
8	Jun-34	Junction	254.62	258.25	0.00	0.00	0.00	5.93	256.38	0.00	1.87	0 00:00	0.00	0.00
9	Jun-35	Junction	254.70	257.50	0.00	0.00	0.00	0.60	256.45	0.00	1.05	0 00:00	0.00	0.00
10	Jun-36	Junction	254.72	258.00	0.00	0.00	0.00	5.94	256.91	0.00	1.44	0 00:00	0.00	0.00
11	Jun-37	Junction	255.29	261.30	0.00	0.00	0.00	3.18	258.06	0.00	3.24	0 00:00	0.00	0.00
12	Jun-38	Junction	255.53	261.80	0.00	0.00	0.00	1.30	259.94	0.00	1.86	0 00:00	0.00	0.00
13	Jun-39	Junction	256.93	259.05	0.00	0.00	0.00	0.12	258.75	0.00	0.30	0 00:00	0.00	0.00
14	Jun-40	Junction	256.10	258.55	0.00	0.00	0.00	0.53	257.96	0.00	0.59	0 00:00	0.00	0.00
15	Jun-41	Junction	255.77	259.65	0.00	0.00	0.00	0.50	259.37	0.00	0.28	0 00:00	0.00	0.00
16	Jun-42	Junction	255.23	258.90	0.00	0.00	0.00	1.88	256.99	0.00	1.91	0 00:00	0.00	0.00
17	Jun-43	Junction	256.25	257.25	0.00	0.00	0.00	0.90	257.00	0.00	0.75	0 00:00	0.00	0.00
18	Jun-44	Junction	257.55	258.55	0.00	0.00	0.00	0.87	258.06	0.00	0.54	0 00:00	0.00	0.00
19	Jun-46	Junction	257.70	258.70	0.00	258.70	0.00	0.99	258.47	0.00	0.28	0 00:00	0.00	0.00
20	Jun-47	Junction	258.10	259.10	0.00	0.00	0.00	1.10	258.67	0.00	0.43	0 00:00	0.00	0.00
21	Jun-48	Junction	258.35	259.35	0.00	0.00	0.00	0.04	258.67	0.00	0.73	0 00:00	0.00	0.00
22	Jun-49	Junction	256.90	257.90	0.00	0.00	0.00	0.98	257.63	0.00	0.47	0 00:00	0.00	0.00
23	Jun-50	Junction	256.75	257.75	0.00	0.00	0.00	0.91	257.31	0.00	0.64	0 00:00	0.00	0.00
24	Jun-51	Junction	258.45	260.50	0.00	0.00	0.00	0.52	259.32	0.00	1.18	0 00:00	0.00	0.00
25	Jun-52	Junction	255.69	260.00	0.00	0.00	0.00	0.96	258.56	0.00	1.44	0 00:00	0.00	0.00
26	Jun-53	Junction	255.35	259.60	0.00	0.00	0.00	1.24	257.48	0.00	2.12	0 00:00	0.00	0.00
27	Jun-54	Junction	255.62	259.80	0.00	0.00	0.00	0.39	258.07	0.00	1.73	0 00:00	0.00	0.00
28	Jun-55	Junction	255.60	259.70	0.00	0.00	0.00	0.90	257.98	0.00	1.72	0 00:00	0.00	0.00
29	Jun-56	Junction	255.79	257.80	0.00	0.00	0.00	0.87	257.17	0.00	0.63	0 00:00	0.00	0.00
30	Jun-61	Junction	258.32	262.00	0.00	0.00	0.00	1.04	258.86	0.00	3.94	0 00:00	0.00	0.00

Node Summary

SN	Element ID	Element Type	Invert Elevation	Ground/Rim (Max) Elevation	Initial Water Elevation	Surcharge Elevation	Ponded Area	Peak Inflow	Max HGL Elevation Attained	Max Surcharge Depth Attained	Min Freeboard Attained	Time of Peak Flooding Occurrence	Total Flooded Volume	Total Time Flooded
			(m)	(m)	(m)	(m)	(m²)	(cms)	(m)	(m)	(m)	(days hh:mm)	(ha-mm)	(min)
48	Ravine_1	Junction	256.10	260.10	0.00	0.00	0.00	5.80	256.74	0.00	3.36	0 00:00	0.00	0.00
49	Ravine_2	Junction	253.00	257.00	0.00	0.00	0.00	6.33	253.78	0.00	3.22	0 00:00	0.00	0.00
50	Ravine_3	Junction	252.45	256.45	0.00	0.00	0.00	6.25	253.08	0.00	3.37	0 00:00	0.00	0.00
51	RH_1	Junction	267.60	271.70	0.00	0.00	0.00	3.93	271.59	0.00	0.11	0 00:00	0.00	0.00
52	RH_10	Junction	261.90	263.90	0.00	0.00	0.00	6.34	263.74	0.00	0.16	0 00:00	0.00	0.00
53	RH_11	Junction	260.33	262.55	0.00	0.00	0.00	5.59	262.46	0.00	0.09	0 00:00	0.00	0.00
54	RH_12	Junction	269.00	270.50	0.00	0.00	0.00	2.10	269.48	0.00	1.02	0 00:00	0.00	0.00
55	RH_13	Junction	264.00	266.50	0.00	0.00	0.00	2.20	264.67	0.00	1.83	0 00:00	0.00	0.00
56	RH_14	Junction	261.70	263.50	0.00	0.00	0.00	0.61	263.23	0.00	0.27	0 00:00	0.00	0.00
57	RH_15	Junction	259.38	261.00	0.00	0.00	0.00	0.76	260.74	0.00	0.26	0 00:00	0.00	0.00
58	RH_16	Junction	256.36	258.00	0.00	0.00	0.00	0.48	257.09	0.00	0.91	0 00:00	0.00	0.00
59	RH_17	Junction	256.42	258.00	0.00	0.00	0.00	1.42	257.63	0.00	0.37	0 00:00	0.00	0.00
60	RH_2	Junction	270.14	272.45	0.00	0.00	0.00	3.24	272.25	0.00	0.20	0 00:00	0.00	0.00
61	RH_3	Junction	267.07	270.50	0.00	0.00	0.00	6.73	269.94	0.00	0.56	0 00:00	0.00	0.00
62	RH_4	Junction	266.63	268.60	0.00	0.00	0.00	5.35	268.47	0.00	0.13	0 00:00	0.00	0.00
63	RH_5	Junction	270.35	272.10	0.00	0.00	0.00	1.52	271.88	0.00	0.22	0 00:00	0.00	0.00
64	RH_6	Junction	266.50	268.20	0.00	0.00	0.00	6.56	268.12	0.00	0.08	0 00:00	0.00	0.00
65	RH_7	Junction	272.00	273.50	0.00	0.00	0.00	0.00	272.00	0.00	1.50	0 00:00	0.00	0.00
66	RH_8	Junction	267.75	269.85	0.00	0.00	0.00	0.32	269.56	0.00	0.29	0 00:00	0.00	0.00
67	RH_9	Junction	264.00	265.80	0.00	0.00	0.00	0.26	265.52	0.00	0.28	0 00:00	0.00	0.00
68	WestOutfall	Junction	257.00	258.40	0.00	0.00	0.00	0.05	257.00	0.00	2.45	0 00:00	0.00	0.00
69	WestWetland	Junction	258.00	259.00	0.00	0.00	0.00	0.09	258.00	0.00	1.00	0 00:00	0.00	0.00
70	North_Wetland	Outfall	252.00					0.29	252.00					
71	Outfall	Outfall	252.00					6.24	252.51					
72	TinerEstatesSTM	Outfall	254.82					0.25	255.14					
73	West_Outfall	Outfall	257.00					0.05	257.00					
74	West_Wetland	Outfall	258.00					0.09	258.00					
75	Ex_SE_Pond	Storage Node	262.00	266.00	0.00		0.00	2.34	263.62				0.00	0.00
76	SWM_FB	Storage Node	253.00	256.80	254.50		0.00	5.93	256.38				0.00	0.00
77	SWM_WP	Storage Node	253.00	256.80	254.50		0.00	5.20	256.38				0.00	0.00

Link Summary

SN	Element ID	Element Type	From (Inlet) Node	To (Outlet) Node	Length	Inlet Invert Elevation	Outlet Invert Elevation	Average Slope	Diameter or Height	Manning's Roughness	Peak Flow	Design Flow Capacity	Peak Flow/ Design Flow Ratio	Peak Flow Velocity
					(m)	(m)	(m)	(%)	(m)		(cms)	(cms)		(m/sec)
1	Ex.STM_1	Pipe	Ex_MHR28	Ex_MHR27	107.00	257.37	256.94	0.4000	0.450	0.0130	0.25	0.18	1.37	1.5
2	Ex.STM_2	Pipe	Ex_MHR27	Ex_MHR26	73.00	256.94	256.64	0.4100	0.450	0.0130	0.25	0.18	1.36	1.5
3	Ex.STM_3	Pipe	Ex_MHR26	Ex_MHR25	27.00	256.64	256.48	0.5900	0.450	0.0130	0.25	0.22	1.13	1.5
4	Ex.STM_4	Pipe	Ex_MHR25	Ex_MHR1	100.00	256.48	255.88	0.6000	0.450	0.0130	0.25	0.22	1.12	1.5
5	Ex.STM_5	Pipe	Ex_MHR1	Ex_MHR2	100.00	255.88	255.48	0.4000	0.525	0.0130	0.25	0.27	0.91	1.3
6	Ex.STM_6	Pipe	Ex_MHR2	Ex_MHR3	50.00	255.48	255.23	0.5000	0.525	0.0130	0.25	0.30	0.82	1.4
7	Ex.STM_7	Pipe	Ex_MHR3	TinerEstatesSTM	102.00	255.23	254.82	0.4000	0.600	0.0130	0.25	0.39	0.64	1.4
8	Link-106	Pipe	Jun-66	Ravine_2	24.80	253.16	252.85	1.2500	0.750	0.0130	0.83	0.89	0.93	1.9
9	Link-107	Pipe	OutletStructure	Jun-66	93.20	254.35	253.20	1.2300	0.750	0.0130	0.83	1.24	0.67	2.1
10	Link-108	Pipe	Jun-67	Jun-37	110.30	255.48	255.37	0.1000	1.200	0.0130	1.07	1.23	0.87	0.9
11	Link-109	Pipe	Jun-46	Jun-44	30.00	257.70	257.55	0.5000	1.050	0.0130	0.87	1.93	0.45	1.5
12	Link-110	Pipe	Jun-52	Jun-67	153.00	255.69	255.48	0.1400	0.900	0.0130	0.79	0.67	1.18	1.2
13	Link-111	Pipe	Jun-68	Jun-52	66.80	255.86	255.77	0.1300	0.750	0.0130	0.48	0.41	1.18	1.0
14	Link-112	Pipe	Jun-69	Jun-68	106.60	256.21	255.91	0.2800	0.600	0.0130	0.22	0.33	0.67	0.7
15	Link-113	Pipe	Jun-70	Jun-52	97.50	256.47	255.88	0.6100	0.525	0.0130	0.50	0.33	1.48	2.2
16	Link-114	Pipe	Jun-71	Jun-53	85.10	256.79	255.73	1.2500	0.450	0.0130	0.43	0.32	1.36	2.7
17	Link-115	Pipe	Jun-73	Jun-51	50.00	258.65	258.50	0.3000	0.525	0.0130	0.35	0.24	1.48	1.6
18	Link-116	Pipe	Jun-72	Jun-51	50.00	258.75	258.55	0.4000	0.450	0.0130	0.21	0.18	1.16	1.3
19	Link-117	Pipe	Jun-74	Jun-61	90.00	259.54	258.37	1.3000	0.675	0.0130	0.61	0.96	0.63	2.5
20	Link-118	Pipe	Jun-75	Jun-74	41.60	260.00	259.56	1.0600	0.525	0.0130	0.27	0.44	0.62	1.6
21	Link-119	Pipe	Jun-76	Jun-56	181.70	259.19	256.08	1.7100	0.600	0.0130	0.85	0.80	1.06	3.0
22	Link-120	Pipe	Jun-77	Jun-76	140.50	260.46	259.24	0.8700	0.600	0.0130	0.47	0.57	0.82	1.9
23	Link-121	Pipe	Jun-78	Jun-77	152.20	261.75	260.51	0.8100	0.525	0.0130	0.56	0.39	1.45	2.6
24	Link-49	Pipe	Jun-34	SWM_FB	20.70	254.62	254.60	0.1000	1.800	0.0130	5.93	3.57	1.66	2.6
25	Link-50	Pipe	Jun-35	SWM_WP	75.20	254.70	254.60	0.1300	0.600	0.0130	0.60	0.22	2.68	2.1
26	Link-52	Pipe	Jun-36	Jun-34	35.00	254.72	254.67	0.1400	1.650	0.0130	5.93	3.45	1.72	2.7
27	Link-53	Pipe	Jun-37	Jun-36	336.90	255.29	254.74	0.1600	1.350	0.0130	2.87	2.16	1.33	2.0
28	Link-54	Pipe	Jun-38	Jun-37	110.00	255.53	255.31	0.2000	0.600	0.0130	0.78	0.27	2.86	2.7
29	Link-56	Pipe	Jun-41	Jun-38	110.00	255.77	255.55	0.2000	0.600	0.0130	0.40	0.27	1.46	1.4
30	Link-57	Pipe	Jun-40	Jun-41	95.50	256.10	255.85	0.2600	0.450	0.0130	0.34	0.15	2.30	2.1

Link Summary

SN Element ID	Element Type	From (Inlet) Node	To (Outlet) Node	Length	Inlet Invert Elevation	Outlet Invert Elevation	Average Slope	Diameter or Height	Manning's Roughness	Peak Flow	Design Flow Capacity	Peak Flow/ Design Flow Ratio	Peak Flow Velocit
				(m)	(m)	(m)	(%)	(m)		(cms)	(cms)		(m/sec)
48 RH_C6	Pipe	RH_16	Ravine_1	6.00	256.36	256.24	2.0000	0.700	0.0130	0.48	1.31	0.37	1.6
49 RH_D1	Pipe	RH_7	RH_8	275.00	272.00	267.75	1.5500	0.300	0.0130	0.00	0.12	0.00	0.0
50 RH_D2	Pipe	RH_8	RH_9	180.00	267.75	264.00	2.0800	0.300	0.0130	0.15	0.14	1.04	2.1
51 RH_D3	Pipe	RH_9	RH_10	155.00	264.00	261.90	1.3500	0.375	0.0130	0.19	0.20	0.92	1.7
52 RH_M1	Pipe	RH_1	RH_3	270.00	267.60	267.07	0.2000	0.600	0.0130	0.50	0.27	1.85	1.7
53 RH_M2	Pipe	RH_3	RH_4	222.00	267.07	266.63	0.2000	0.675	0.0130	0.80	0.37	2.13	2.2
54 RH_M3	Pipe	RH_4	RH_6	18.00	266.63	266.50	0.7200	0.750	0.0130	1.05	0.95	1.11	2.3
55 RH_M4	Pipe	RH_6	RH_10	415.00	266.50	261.90	1.1100	0.675	0.0130	0.91	0.89	1.03	2.6
56 RH_M5	Pipe	RH_10	RH_11	140.00	261.90	260.33	1.1200	0.675	0.0130	1.04	0.89	1.17	2.9
57 RH_M6	Pipe	RH_11	RH_17	464.00	260.33	256.42	0.8400	0.750	0.0130	1.10	1.02	1.07	2.4
58 RH_M7	Pipe	RH_17	Ravine_1	6.00	256.42	256.37	0.8300	1.000	0.0130	1.42	2.19	0.65	2.1
59 West_Link	Pipe	WestOutfall	West_Outfall	33.73	256.00	257.00	-2.9600	0.000	0.0130	0.05	0.00	0.03	0.0
60 WestWetland_Link	Pipe	WestWetland	West_Wetland	37.13	258.00	258.00	0.0000	0.000	0.0130	0.09	0.00	0.03	0.0
61 Wetland_Link	Pipe	NorthWetland	North_Wetland	41.51	252.00	252.00	0.0000	0.000	0.0130	0.29	0.00	0.03	0.0
62 Link-103	Channel	Jun-36	SWM_FB	10.00	257.70	257.50	2.0000	0.300	0.0320	0.00	11.65	0.00	0.0
63 Link-104	Channel	Jun-56	SWM_FB	50.00	257.50	256.50	2.0000	0.300	0.0320	0.00	11.65	0.00	0.0
64 Link-122	Channel	Jun-53	Jun-42	70.00	259.30	258.60	1.0000	0.300	0.0320	0.00	8.24	0.00	0.0
65 Link-123	Channel	Jun-55	Jun-53	90.00	259.40	259.30	0.1100	0.300	0.0320	0.00	2.75	0.00	0.0
66 Link-124	Channel	Jun-54	Jun-55	90.00	259.50	259.40	0.1100	0.300	0.0320	0.00	2.75	0.00	0.0
67 Link-125	Channel	Jun-73	Jun-47	50.00	259.65	258.70	1.9000	0.300	0.0320	0.26	11.36	0.02	0.4
68 Link-126	Channel	Jun-72	Jun-47	50.00	259.65	258.70	1.9000	0.300	0.0320	0.12	11.36	0.01	0.3
69 Link-127	Channel	Jun-67	Jun-54	100.00	259.60	259.50	0.1000	0.300	0.0320	0.00	2.61	0.00	0.0
70 Link-128	Channel	Jun-52	Jun-67	150.00	259.70	259.60	0.0700	0.300	0.0320	0.00	2.13	0.00	0.0
71 Link-129	Channel	Jun-68	Jun-52	80.00	259.80	259.70	0.1300	0.300	0.0320	0.00	2.91	0.00	0.0
72 Link-130	Channel	Jun-69	Jun-68	100.00	259.90	259.80	0.1000	0.300	0.0320	0.00	2.61	0.00	0.0
73 Link-131	Channel	Jun-71	Jun-53	70.00	259.40	259.30	0.1400	0.300	0.0320	0.02	3.11	0.01	0.0
74 Link-132	Channel	Jun-78	Jun-77	150.00	265.00	264.50	0.3300	0.300	0.0320	0.00	4.76	0.00	0.0
75 Link-133	Channel	Jun-77	Jun-76	150.00	264.50	261.90	1.7300	0.300	0.0320	0.00	10.85	0.00	0.0
76 Link-134	Channel	Jun-76	Jun-36	250.00	261.90	257.70	1.6800	0.300	0.0320	0.00	10.68	0.00	0.0
77 Link-135	Channel	Jun-61	Jun-37	100.00	262.50	261.00	1.5000	0.300	0.0320	0.00	10.09	0.00	0.0

Link Summary

SN Element ID	Element Type	From (Inlet) Node	To (Outlet) Node	Length	Inlet Invert Elevation	Outlet Invert Elevation	Average Slope	Diameter or Height	Manning's Roughness	Peak Flow	Design Flow Capacity	Peak Flow/ Design Flow Ratio	Peak Flow Velocit
				(m)	(m)	(m)	(%)	(m)		(cms)	(cms)		(m/sec)
95 Link-89	Channel	Jun-42	Jun-36	53.10	258.60	257.70	1.6900	0.300	0.0320	0.00	10.73	0.00	0.0
96 Link-90	Channel	Jun-39	Jun-40	90.00	258.75	257.75	1.1100	0.300	0.0320	0.01	8.69	0.00	0.0
97 Link-92	Channel	Jun-38	Jun-37	110.00	261.50	261.00	0.4500	0.300	0.0320	0.00	5.56	0.00	0.0
98 Link-93	Channel	Jun-37	Jun-36	340.00	261.00	257.70	0.9700	0.300	0.0320	0.00	8.12	0.00	0.0
99 Link-94	Channel	Jun-41	Jun-40	95.00	259.35	257.75	1.6800	0.300	0.0320	0.10	10.69	0.01	0.0
100 LowerRavine	Channel	Ravine_2	Ravine_3	124.00	253.00	252.45	0.4400	4.000	0.0320	6.21	157.98	0.04	1.4
101 OutletRavine	Channel	Ravine_3	Outfall	45.00	252.45	252.00	1.0000	4.000	0.0320	6.24	237.22	0.03	1.8
102 RH_C1	Channel	RH_12	RH_13	215.00	269.00	264.00	2.3300	1.500	0.0320	2.05	24.20	0.08	1.6
103 RH_C2	Channel	RH_13	Ex_SE_Pond	60.00	264.00	263.50	0.8300	1.500	0.0320	2.09	14.49	0.14	1.5
104 UpperRavine	Channel	Ravine_1	Ravine_2	553.00	256.10	253.00	0.5600	4.000	0.0320	5.72	177.61	0.03	1.3
105 Orifice-01	Orifice	SWM_WP	OutletStructure		253.00	254.25		0.170		0.08			
106 Link-91	Weir	Jun-40	WestOutfall		256.10	257.00				0.00			
107 Weir-01	Weir	SWM_FB	SWM_WP		253.00	253.00				4.32			
108 Weir-04	Weir	SWM_WP	OutletStructure		253.00	254.25				0.76			
109 Weir-05	Weir	SWM_WP	Ravine_2		253.00	253.00				0.00			

Junction Input

SN	Element ID	Invert Elevation	Ground/Rim (Max) Elevation	Ground/Rim (Max) Offset	Initial Water Elevation	Initial Water Depth	Surcharge Elevation	Surcharge Depth	Ponded Area	Minimum Pipe Cover
		(m)	(m)	(m)	(m)	(m)	(m)	(m)	(m²)	(m)
1	Ex_MHR1	255.88	262.50	6.62	0.00	-255.88	0.00	-262.50	0.00	0.00
2	Ex_MHR2	255.48	259.65	4.17	0.00	-255.48	0.00	-259.65	0.00	0.00
3	Ex_MHR25	256.48	263.35	6.87	0.00	-256.48	0.00	-263.35	0.00	0.00
4	Ex_MHR26	256.64	262.75	6.11	0.00	-256.64	0.00	-262.75	0.00	0.00
5	Ex_MHR27	256.94	261.00	4.06	0.00	-256.94	0.00	-261.00	0.00	0.00
6	Ex_MHR28	257.37	259.30	1.93	0.00	-257.37	0.00	-259.30	0.00	0.00
7	Ex_MHR3	255.23	259.00	3.77	0.00	-255.23	0.00	-259.00	0.00	0.00
8	Jun-34	254.62	258.25	3.63	0.00	-254.62	0.00	-258.25	0.00	0.00
9	Jun-35	254.70	257.50	2.80	0.00	-254.70	0.00	-257.50	0.00	0.00
10	Jun-36	254.72	258.00	3.28	0.00	-254.72	0.00	-258.00	0.00	0.00
11	Jun-37	255.29	261.30	6.01	0.00	-255.29	0.00	-261.30	0.00	0.00
12	Jun-38	255.53	261.80	6.27	0.00	-255.53	0.00	-261.80	0.00	0.00
13	Jun-39	256.93	259.05	2.12	0.00	-256.93	0.00	-259.05	0.00	0.00
14	Jun-40	256.10	258.55	2.45	0.00	-256.10	0.00	-258.55	0.00	0.00
15	Jun-41	255.77	259.65	3.88	0.00	-255.77	0.00	-259.65	0.00	0.00
16	Jun-42	255.23	258.90	3.67	0.00	-255.23	0.00	-258.90	0.00	0.00
17	Jun-43	256.25	257.25	1.00	0.00	-256.25	0.00	-257.25	0.00	0.00
18	Jun-44	257.55	258.55	1.00	0.00	-257.55	0.00	-258.55	0.00	0.00
19	Jun-46	257.70	258.70	1.00	0.00	-257.70	258.70	0.00	0.00	0.00
20	Jun-47	258.10	259.10	1.00	0.00	-258.10	0.00	-259.10	0.00	0.00
21	Jun-48	258.35	259.35	1.00	0.00	-258.35	0.00	-259.35	0.00	0.00
22	Jun-49	256.90	257.90	1.00	0.00	-256.90	0.00	-257.90	0.00	0.00
23	Jun-50	256.75	257.75	1.00	0.00	-256.75	0.00	-257.75	0.00	0.00
24	Jun-51	258.45	260.50	2.05	0.00	-258.45	0.00	-260.50	0.00	0.00
25	Jun-52	255.69	260.00	4.31	0.00	-255.69	0.00	-260.00	0.00	0.00
26	Jun-53	255.35	259.60	4.25	0.00	-255.35	0.00	-259.60	0.00	0.00
27	Jun-54	255.62	259.80	4.18	0.00	-255.62	0.00	-259.80	0.00	0.00
28	Jun-55	255.60	259.70	4.10	0.00	-255.60	0.00	-259.70	0.00	0.00
29	Jun-56	255.79	257.80	2.01	0.00	-255.79	0.00	-257.80	0.00	0.00
30	Jun-61	258.32	262.00	3.68	0.00	-258.32	0.00	-262.00	0.00	0.00
31	Jun-64	261.13	263.50	2.37	0.00	-261.13	0.00	-263.50	0.00	0.00
32	Jun-65	262.69	264.50	1.81	0.00	-262.69	0.00	-264.50	0.00	0.00
33	Jun-66	253.16	256.00	2.84	0.00	-253.16	0.00	-256.00	0.00	0.00
34	Jun-67	255.48	259.90	4.42	0.00	-255.48	0.00	-259.90	0.00	0.00
35	Jun-68	255.86	260.10	4.24	0.00	-255.86	0.00	-260.10	0.00	0.00
36	Jun-69	256.21	261.20	4.99	0.00	-256.21	0.00	-261.20	0.00	0.00
37	Jun-70	256.47	263.00	6.53	0.00	-256.47	0.00	-263.00	0.00	0.00
38	Jun-71	256.79	260.00	3.21	0.00	-256.79	0.00	-260.00	0.00	0.00
39	Jun-72	258.75	259.95	1.20	0.00	-258.75	0.00	-259.95	0.00	0.00
40	Jun-73	258.65	259.95	1.30	0.00	-258.65	0.00	-259.95	0.00	0.00
41	Jun-74	259.54	264.00	4.46	0.00	-259.54	0.00	-264.00	0.00	0.00
42	Jun-75	260.00	264.50	4.50	0.00	-260.00	0.00	-264.50	0.00	0.00
43	Jun-76	259.19	262.20	3.01	0.00	-259.19	0.00	-262.20	0.00	0.00
44	Jun-77	260.46	264.80	4.34	0.00	-260.46	0.00	-264.80	0.00	0.00
45	Jun-78	261.75	265.30	3.55	0.00	-261.75	0.00	-265.30	0.00	0.00
46	NorthWetland	252.00	258.00	6.00	0.00	-252.00	0.00	-258.00	0.00	0.00
47	OutletStructure	254.25	256.80	2.55	0.00	-254.25	0.00	-256.80	0.00	0.00
48	Ravine_1	256.10	260.10	4.00	0.00	-256.10	0.00	-260.10	0.00	0.00

Junction Results

SN	Element	Peak Inflow	Peak Lateral Inflow	Max HGL Elevation Attained	Max HGL Depth Attained	Max Surcharge Depth Attained	Min Freeboard Attained	Average HGL Elevation Attained	Average HGL Depth Attained	Time Max HC Occurrence
	ID	(cms)	(cms)	(m)	(m)	(m)	(m)	(m)	(m)	(days hh:mm)
1	Ex_MHR1	0.25	0.00	256.32	0.44	0.00	6.18	256.02	0.14	0 12:00
2	Ex_MHR2	0.25	0.00	255.91	0.43	0.00	3.74	255.62	0.14	0 12:00
3	Ex_MHR25	0.25	0.00	257.53	1.05	0.00	5.82	256.63	0.15	0 11:45
4	Ex_MHR26	0.25	0.00	257.86	1.22	0.00	4.89	256.81	0.17	0 11:45
5	Ex_MHR27	0.25	0.00	258.27	1.33	0.00	2.73	257.14	0.20	0 11:45
6	Ex_MHR28	1.21	1.21	259.11	1.74	0.00	0.19	257.59	0.22	0 12:00
7	Ex_MHR3	0.25	0.00	255.61	0.38	0.00	3.39	255.37	0.14	0 12:00
8	Jun-34	5.93	0.00	256.38	1.76	0.00	1.87	255.83	1.21	0 13:00
9	Jun-35	0.60	0.60	256.45	1.75	0.00	1.05	255.81	1.11	0 11:45
10	Jun-36	5.94	0.00	256.91	2.19	0.00	1.44	255.86	1.14	0 12:00
11	Jun-37	3.18	0.48	258.06	2.77	0.00	3.24	255.99	0.70	0 12:00
12	Jun-38	1.30	1.30	259.94	4.41	0.00	1.86	256.09	0.56	0 12:00
13	Jun-39	0.12	0.12	258.75	1.82	0.00	0.30	257.03	0.10	0 12:00
14	Jun-40	0.53	0.00	257.96	1.86	0.00	0.59	256.28	0.18	0 12:00
15	Jun-41	0.50	0.12	259.37	3.60	0.00	0.28	256.14	0.37	0 12:00
16	Jun-42	1.88	0.00	256.99	1.76	0.00	1.91	255.95	0.72	0 12:00
17	Jun-43	0.90	0.00	257.00	0.75	0.00	0.75	256.32	0.07	0 12:00
18	Jun-44	0.87	0.00	258.06	0.51	0.00	0.54	257.66	0.11	0 12:00
19	Jun-46	0.99	0.00	258.47	0.77	0.00	0.28	257.84	0.14	0 12:00
20	Jun-47	1.10	0.22	258.67	0.57	0.00	0.43	258.22	0.12	0 12:00
21	Jun-48	0.04	0.00	258.67	0.32	0.00	0.73	258.40	0.05	0 12:00
22	Jun-49	0.98	0.28	257.63	0.73	0.00	0.47	257.05	0.15	0 12:00
23	Jun-50	0.91	0.00	257.31	0.56	0.00	0.64	256.92	0.17	0 12:00
24	Jun-51	0.52	0.00	259.32	0.87	0.00	1.18	258.56	0.11	0 11:45
25	Jun-52	0.96	0.00	258.56	2.87	0.00	1.44	256.08	0.39	0 12:00
26	Jun-53	1.24	0.00	257.48	2.13	0.00	2.12	255.98	0.63	0 12:00
27	Jun-54	0.39	0.39	258.07	2.45	0.00	1.73	256.08	0.46	0 12:00
28	Jun-55	0.90	0.56	257.98	2.38	0.00	1.72	256.04	0.44	0 12:00
29	Jun-56	0.87	0.03	257.17	1.38	0.00	0.63	256.07	0.28	0 12:00
30	Jun-61	1.04	0.00	258.86	0.54	0.00	3.94	258.38	0.06	0 12:00
31	Jun-64	0.44	0.00	261.46	0.33	0.00	2.04	261.17	0.04	0 12:00
32	Jun-65	0.44	0.44	263.05	0.36	0.00	1.45	262.74	0.05	0 12:00
33	Jun-66	0.83	0.00	253.99	0.83	0.00	2.01	253.48	0.32	0 13:00
34	Jun-67	1.13	0.41	258.19	2.71	0.00	1.71	256.02	0.54	0 12:00
35	Jun-68	0.60	0.39	258.72	2.86	0.00	1.38	256.13	0.27	0 12:00
36	Jun-69	0.29	0.29	258.85	2.64	0.00	2.35	256.32	0.11	0 12:00
37	Jun-70	0.49	0.49	260.88	4.41	0.00	2.12	256.58	0.11	0 11:45
38	Jun-71	0.56	0.56	259.42	2.63	0.00	0.58	256.90	0.11	0 12:00
39	Jun-72	0.36	0.36	259.67	0.92	0.00	0.28	258.83	0.08	0 12:00
40	Jun-73	0.61	0.61	259.68	1.03	0.00	0.27	258.76	0.11	0 12:00
41	Jun-74	0.61	0.33	259.97	0.43	0.00	4.03	259.60	0.06	0 12:00
42	Jun-75	0.27	0.27	260.35	0.35	0.00	4.15	260.04	0.04	0 12:00
43	Jun-76	1.04	0.61	261.15	1.96	0.00	1.05	259.29	0.10	0 12:00
44	Jun-77	0.56	0.00	262.11	1.65	0.00	2.69	260.54	0.08	0 12:00
45	Jun-78	0.74	0.74	264.62	2.87	0.00	0.68	261.85	0.10	0 12:00
46	NorthWetland	0.29	0.29	252.00	0.00	0.00	6.00	252.00	0.00	0 00:00
47	OutletStructure	0.83	0.00	254.84	0.59	0.00	3.21	254.57	0.32	0 13:00

Channel Input

SN	Element ID	Length	Inlet Invert Elevation (m)	Inlet Invert Offset (m)	Outlet Invert Elevation (m)	Outlet Invert Offset (m)	Total Drop (m)	Average Slope (%)	Shape	Height (m)	Width (m)	Manning's Roughness
1	Link-103	10.00	257.70	2.98	257.50	4.50	0.20	2.0000	Rectangular	0.300	20.000	0.0320
2	Link-104	50.00	257.50	1.71	256.50	3.50	1.00	2.0000	Rectangular	0.300	20.000	0.0320
3	Link-122	70.00	259.30	3.95	258.60	3.37	0.70	1.0000	Rectangular	0.300	20.000	0.0320
4	Link-123	90.00	259.40	3.80	259.30	3.95	0.10	0.1100	Rectangular	0.300	20.000	0.0320
5	Link-124	90.00	259.50	3.88	259.40	3.80	0.10	0.1100	Rectangular	0.300	20.000	0.0320
6	Link-125	50.00	259.65	1.00	258.70	0.60	0.95	1.9000	Rectangular	0.300	20.000	0.0320
7	Link-126	50.00	259.65	0.90	258.70	0.60	0.95	1.9000	Rectangular	0.300	20.000	0.0320
8	Link-127	100.00	259.60	4.12	259.50	3.88	0.10	0.1000	Rectangular	0.300	20.000	0.0320
9	Link-128	150.00	259.70	4.01	259.60	4.12	0.10	0.0700	Rectangular	0.300	20.000	0.0320
10	Link-129	80.00	259.80	3.94	259.70	4.01	0.10	0.1300	Rectangular	0.300	20.000	0.0320
11	Link-130	100.00	259.90	3.69	259.80	3.94	0.10	0.1000	Rectangular	0.300	20.000	0.0320
12	Link-131	70.00	259.40	2.61	259.30	3.95	0.10	0.1400	Rectangular	0.300	20.000	0.0320
13	Link-132	150.00	265.00	3.25	264.50	4.04	0.50	0.3300	Rectangular	0.300	20.000	0.0320
14	Link-133	150.00	264.50	4.04	261.90	2.71	2.60	1.7300	Rectangular	0.300	20.000	0.0320
15	Link-134	250.00	261.90	2.71	257.70	2.98	4.20	1.6800	Rectangular	0.300	20.000	0.0320
16	Link-135	100.00	262.50	4.18	261.00	5.71	1.50	1.5000	Rectangular	0.300	20.000	0.0320
17	Link-34	270.00	271.40	3.80	269.65	2.58	1.75	0.6500	Rectangular	0.300	20.000	0.0320
18	Link-35	50.00	272.15	2.01	269.65	2.58	2.50	5.0000	Rectangular	0.300	20.000	0.0320
19	Link-36	222.00	269.65	2.58	268.30	1.67	1.35	0.6100	Rectangular	0.300	20.000	0.0320
20	Link-37	18.00	268.30	1.67	267.90	1.40	0.40	2.2200	Rectangular	0.300	20.000	0.0320
21	Link-38	227.00	271.80	1.45	267.90	1.40	3.90	1.7200	Rectangular	0.300	20.000	0.0320
22	Link-39	415.00	267.90	1.40	263.50	1.60	4.40	1.0600	Rectangular	0.300	20.000	0.0320
23	Link-41	180.00	269.55	1.80	265.50	1.50	4.05	2.2500	Rectangular	0.300	20.000	0.0320
24	Link-42	155.00	265.50	1.50	263.50	1.60	2.00	1.2900	Rectangular	0.300	20.000	0.0320
25	Link-43	140.00	263.50	1.60	262.25	1.92	1.25	0.8900	Rectangular	0.300	20.000	0.0320
26	Link-44	470.00	262.25	1.92	258.00	1.90	4.25	0.9000	Rectangular	0.300	20.000	0.0320
27	Link-45	195.00	263.20	1.50	260.70	1.32	2.50	1.2800	Rectangular	0.300	20.000	0.0320
28	Link-46	280.00	260.70	1.32	258.00	1.90	2.70	0.9600	Rectangular	0.300	20.000	0.0320
29	Link-51	65.00	259.00	1.63	258.05	3.33	0.95	1.4600	Rectangular	0.300	10.000	0.0320
30	Link-61	125.00	256.75	0.00	256.25	0.00	0.50	0.4000	User-Defined	1.000	9.000	0.0320
31	Link-63	162.50	257.55	0.00	256.90	0.00	0.65	0.4000	User-Defined	1.000	9.000	0.0320
32	Link-66	133.00	258.10	0.00	257.70	0.00	0.40	0.3000	User-Defined	1.000	9.000	0.0320
33	Link-67	75.00	258.40	0.05	258.10	0.00	0.30	0.4000	User-Defined	1.000	9.000	0.0320
34	Link-89	53.10	258.60	3.37	257.70	2.98	0.90	1.6900	Rectangular	0.300	20.000	0.0320
35	Link-90	90.00	258.75	1.82	257.75	1.65	1.00	1.1100	Rectangular	0.300	20.000	0.0320
36	Link-92	110.00	261.50	5.97	261.00	5.71	0.50	0.4500	Rectangular	0.300	20.000	0.0320
37	Link-93	340.00	261.00	5.71	257.70	2.98	3.30	0.9700	Rectangular	0.300	20.000	0.0320
38	Link-94	95.00	259.35	3.58	257.75	1.65	1.60	1.6800	Rectangular	0.300	20.000	0.0320
39	LowerRavine	124.00	253.00	0.00	252.45	0.00	0.55	0.4400	Trapezoidal	4.000	17.000	0.0320
40	OutletRavine	45.00	252.45	0.00	252.00	0.00	0.45	1.0000	Trapezoidal	4.000	17.000	0.0320
41	RH_C1	215.00	269.00	0.00	264.00	0.00	5.00	2.3300	Trapezoidal	1.500	7.000	0.0320
42	RH_C2	60.00	264.00	0.00	263.50	1.50	0.50	0.8300	Trapezoidal	1.500	7.000	0.0320
43	UpperRavine	553.00	256.10	0.00	253.00	0.00	3.10	0.5600	Trapezoidal	4.000	17.000	0.0320

Channel Results

SN Element ID	Peak Flow	Time of Peak Flow Occurrence	Design Flow Capacity	Peak Flow/ Design Flow Ratio	Peak Flow Velocity	Travel Time	Peak Flow Depth	Peak Flow Depth/ Total Depth Ratio	Total Tir Surcharg
	(cms)	(days hh:mm)	(cms)		(m/sec)	(min)	(m)		(m)
1 Link-103	0.00	0 00:00	11.65	0.00	0.00		0.00	0.00	0.
2 Link-104	0.00	0 00:00	11.65	0.00	0.00		0.00	0.00	0.
3 Link-122	0.00	0 00:00	8.24	0.00	0.00		0.00	0.00	0.
4 Link-123	0.00	0 00:00	2.75	0.00	0.00		0.00	0.00	0.
5 Link-124	0.00	0 00:00	2.75	0.00	0.00		0.00	0.00	0.
6 Link-125	0.26	0 12:00	11.36	0.02	0.44	1.89	0.03	0.10	0.
7 Link-126	0.12	0 12:01	11.36	0.01	0.33	2.53	0.02	0.06	0.
8 Link-127	0.00	0 00:00	2.61	0.00	0.00		0.00	0.00	0.
9 Link-128	0.00	0 00:00	2.13	0.00	0.00		0.00	0.00	0.
10 Link-129	0.00	0 00:00	2.91	0.00	0.00		0.00	0.00	0.
11 Link-130	0.00	0 00:00	2.61	0.00	0.00		0.00	0.00	0.
12 Link-131	0.02	0 12:04	3.11	0.01	0.07	16.67	0.01	0.04	0.
13 Link-132	0.00	0 00:00	4.76	0.00	0.00		0.00	0.00	0.
14 Link-133	0.00	0 00:00	10.85	0.00	0.00		0.00	0.00	0.
15 Link-134	0.00	0 00:00	10.68	0.00	0.00		0.00	0.00	0.
16 Link-135	0.00	0 00:00	10.09	0.00	0.00		0.00	0.00	0.
17 Link-34	3.15	0 12:01	6.63	0.47	0.73	6.16	0.23	0.77	0.
18 Link-35	3.03	0 12:00	18.43	0.16	1.08	0.77	0.18	0.62	0.
19 Link-36	4.61	0 12:05	6.43	0.72	1.00	3.70	0.23	0.77	0.
20 Link-37	4.38	0 12:06	12.28	0.36	1.30	0.23	0.19	0.63	0.
21 Link-38	1.25	0 12:01	10.80	0.12	0.74	5.11	0.14	0.48	0.
22 Link-39	5.10	0 12:10	8.48	0.60	1.15	6.01	0.22	0.75	0.
23 Link-41	0.04	0 12:11	12.36	0.00	0.21	14.29	0.01	0.04	0.
24 Link-42	0.07	0 12:29	9.36	0.01	0.04	64.58	0.13	0.43	0.
25 Link-43	4.78	0 12:14	7.79	0.61	1.13	2.06	0.21	0.71	0.
26 Link-44	3.75	0 12:23	7.84	0.48	1.03	7.61	0.18	0.60	0.
27 Link-45	0.21	0 12:33	9.33	0.02	0.35	9.29	0.04	0.12	0.
28 Link-46	0.23	0 13:00	8.09	0.03	0.34	13.73	0.03	0.11	0.
29 Link-51	0.92	0 12:00	4.89	0.19	0.88	1.23	0.10	0.35	0.
30 Link-61	0.90	0 12:12	4.86	0.19	0.66	3.16	0.61	0.62	0.
31 Link-63	0.85	0 12:08	4.86	0.17	0.46	5.89	0.62	0.62	0.
32 Link-66	0.99	0 12:02	4.22	0.24	0.53	4.18	0.66	0.66	0.
33 Link-67	0.04	0 12:00	4.86	0.01	0.08	15.63	0.41	0.42	0.
34 Link-89	0.00	0 00:00	10.73	0.00	0.00		0.00	0.00	0.
35 Link-90	0.01	0 12:03	8.69	0.00	0.01	150.00	0.10	0.34	0.
36 Link-92	0.00	0 00:00	5.56	0.00	0.00		0.00	0.00	0.
37 Link-93	0.00	0 00:00	8.12	0.00	0.00		0.00	0.00	0.
38 Link-94	0.10	0 12:03	10.69	0.01	0.09	17.59	0.10	0.34	0.
39 LowerRavine	6.21	0 12:30	157.98	0.04	1.46	1.42	0.70	0.18	0.
40 OutletRavine	6.24	0 12:31	237.22	0.03	1.87	0.40	0.57	0.14	0.
41 RH_C1	2.05	0 12:00	24.20	0.08	1.68	2.13	0.57	0.38	0.
42 RH_C2	2.09	0 12:01	14.49	0.14	1.56	0.64	0.58	0.40	0.
43 UpperRavine	5.72	0 12:25	177.61	0.03	1.38	6.68	0.70	0.18	0.

Pipe Input

SN	Element ID	Length	Inlet Invert Elevation	Inlet Invert Offset	Outlet Invert Elevation	Outlet Invert Offset	Total Drop	Average Slope	Pipe Shape	Pipe Diameter or Height	Pipe Width	Meters
		(m)	(m)	(m)	(m)	(m)	(m)	(%)		(m)	(m)	
1	Ex.STM_1	107.00	257.37	0.00	256.94	0.00	0.43	0.4000	CIRCULAR	0.450	0.450	
2	Ex.STM_2	73.00	256.94	0.00	256.64	0.00	0.30	0.4100	CIRCULAR	0.450	0.450	
3	Ex.STM_3	27.00	256.64	0.00	256.48	0.00	0.16	0.5900	CIRCULAR	0.450	0.450	
4	Ex.STM_4	100.00	256.48	0.00	255.88	0.00	0.60	0.6000	CIRCULAR	0.450	0.450	
5	Ex.STM_5	100.00	255.88	0.00	255.48	0.00	0.40	0.4000	CIRCULAR	0.530	0.530	
6	Ex.STM_6	50.00	255.48	0.00	255.23	0.00	0.25	0.5000	CIRCULAR	0.530	0.530	
7	Ex.STM_7	102.00	255.23	0.00	254.82	0.00	0.41	0.4000	CIRCULAR	0.600	0.600	
8	Link-106	24.80	253.16	0.00	252.85	-0.15	0.31	1.2500	CIRCULAR	0.750	0.750	
9	Link-107	93.20	254.35	0.10	253.20	0.04	1.15	1.2300	CIRCULAR	0.750	0.750	
10	Link-108	110.30	255.48	0.00	255.37	0.08	0.11	0.1000	CIRCULAR	1.200	1.200	
11	Link-109	30.00	257.70	0.00	257.55	0.00	0.15	0.5000	CIRCULAR	1.050	1.050	
12	Link-110	153.00	255.69	0.00	255.48	0.00	0.21	0.1400	CIRCULAR	0.900	0.900	
13	Link-111	66.80	255.86	0.00	255.77	0.08	0.09	0.1300	CIRCULAR	0.750	0.750	
14	Link-112	106.60	256.21	0.00	255.91	0.05	0.30	0.2800	CIRCULAR	0.600	0.600	
15	Link-113	97.50	256.47	0.00	255.88	0.19	0.59	0.6100	CIRCULAR	0.530	0.530	
16	Link-114	85.10	256.79	0.00	255.73	0.38	1.06	1.2500	CIRCULAR	0.450	0.450	
17	Link-115	50.00	258.65	0.00	258.50	0.05	0.15	0.3000	CIRCULAR	0.530	0.530	
18	Link-116	50.00	258.75	0.00	258.55	0.10	0.20	0.4000	CIRCULAR	0.450	0.450	
19	Link-117	90.00	259.54	0.00	258.37	0.05	1.17	1.3000	CIRCULAR	0.680	0.680	
20	Link-118	41.60	260.00	0.00	259.56	0.02	0.44	1.0600	CIRCULAR	0.530	0.530	
21	Link-119	181.70	259.19	0.00	256.08	0.29	3.11	1.7100	CIRCULAR	0.600	0.600	
22	Link-120	140.50	260.46	0.00	259.24	0.05	1.22	0.8700	CIRCULAR	0.600	0.600	
23	Link-121	152.20	261.75	0.00	260.51	0.05	1.24	0.8100	CIRCULAR	0.530	0.530	
24	Link-49	20.70	254.62	0.00	254.60	1.60	0.02	0.1000	CIRCULAR	1.800	1.800	
25	Link-50	75.20	254.70	0.00	254.60	1.60	0.10	0.1300	CIRCULAR	0.600	0.600	
26	Link-52	35.00	254.72	0.00	254.67	0.05	0.05	0.1400	CIRCULAR	1.650	1.650	
27	Link-53	336.90	255.29	0.00	254.74	0.02	0.55	0.1600	CIRCULAR	1.350	1.350	
28	Link-54	110.00	255.53	0.00	255.31	0.02	0.22	0.2000	CIRCULAR	0.600	0.600	
29	Link-56	110.00	255.77	0.00	255.55	0.02	0.22	0.2000	CIRCULAR	0.600	0.600	
30	Link-57	95.50	256.10	0.00	255.85	0.08	0.25	0.2600	CIRCULAR	0.450	0.450	
31	Link-58	90.00	256.93	0.00	256.25	0.15	0.68	0.7600	CIRCULAR	0.300	0.300	
32	Link-59	53.10	255.23	0.00	255.13	0.41	0.10	0.1900	CIRCULAR	1.500	1.500	
33	Link-60	13.40	256.25	0.00	255.84	0.61	0.41	3.0600	CIRCULAR	1.500	1.500	
34	Link-62	25.00	256.90	0.00	256.75	0.00	0.15	0.6000	CIRCULAR	1.200	1.200	
35	Link-68	60.00	258.45	0.00	258.20	0.10	0.25	0.4200	CIRCULAR	0.600	0.600	
36	Link-70	57.00	255.35	0.00	255.25	0.02	0.10	0.1800	CIRCULAR	0.820	0.820	
37	Link-71	82.00	255.60	0.00	255.43	0.08	0.17	0.2100	CIRCULAR	0.750	0.750	
38	Link-72	85.00	255.79	0.17	255.62	0.02	0.17	0.2000	CIRCULAR	0.750	0.750	
39	Link-73	67.80	255.78	-0.01	255.10	0.38	0.68	1.0000	CIRCULAR	0.900	0.900	
40	Link-80	89.90	258.32	0.00	255.97	0.68	2.35	2.6100	CIRCULAR	0.750	0.750	
41	Link-81	93.20	261.13	0.00	259.27	0.95	1.86	2.0000	CIRCULAR	0.600	0.600	
42	Link-82	103.90	262.69	0.00	261.13	0.00	1.56	1.5000	CIRCULAR	0.600	0.600	
43	RH_A1	50.00	270.14	0.00	268.50	1.43	1.64	3.2800	CIRCULAR	0.300	0.300	
44	RH_B1	227.00	270.35	0.00	266.50	0.00	3.85	1.7000	CIRCULAR	0.300	0.300	
45	RH_C3	15.00	262.00	0.00	261.70	0.00	0.30	2.0000	CIRCULAR	0.600	0.600	
46	RH_C4	195.00	261.70	0.00	259.38	0.00	2.32	1.1900	CIRCULAR	0.530	0.530	
47	RH_C5	274.00	259.38	0.00	256.36	0.00	3.02	1.1000	CIRCULAR	0.530	0.530	
48	RH_C6	6.00	256.36	0.00	256.24	0.14	0.12	2.0000	CIRCULAR	0.700	0.700	

50-YEAR STORM

No. of
Barrels

1

Pipe Results

SN Element ID	Peak Flow	Time of Peak Flow Occurrence	Design Flow Capacity	Peak Flow/ Design Flow Ratio	Peak Flow Velocity	Travel Time	Peak Flow Depth	Peak Flow Depth/ Total Depth Ratio	To Sur
	(cms)	(days hh:mm)	(cms)		(m/sec)	(min)	(m)		
1 Ex.STM_1	0.25	0 12:00	0.18	1.37	1.56	1.14	0.45	1.00	
2 Ex.STM_2	0.25	0 12:00	0.18	1.36	1.56	0.78	0.45	1.00	
3 Ex.STM_3	0.25	0 12:00	0.22	1.13	1.56	0.29	0.45	1.00	
4 Ex.STM_4	0.25	0 12:00	0.22	1.12	1.58	1.05	0.45	0.99	
5 Ex.STM_5	0.25	0 12:01	0.27	0.91	1.33	1.25	0.43	0.83	
6 Ex.STM_6	0.25	0 12:02	0.30	0.82	1.40	0.60	0.40	0.77	
7 Ex.STM_7	0.25	0 12:03	0.39	0.64	1.44	1.18	0.35	0.59	
8 Link-106	0.83	0 13:13	0.89	0.93	1.97	0.21	0.75	1.00	
9 Link-107	0.83	0 13:13	1.24	0.67	2.14	0.73	0.62	0.83	
10 Link-108	1.07	0 12:04	1.23	0.87	0.94	1.96	1.20	1.00	
11 Link-109	0.87	0 12:06	1.93	0.45	1.59	0.31	0.63	0.61	
12 Link-110	0.79	0 12:03	0.67	1.18	1.24	2.06	0.90	1.00	
13 Link-111	0.48	0 12:01	0.41	1.18	1.09	1.02	0.75	1.00	
14 Link-112	0.22	0 12:00	0.33	0.67	0.77	2.31	0.60	1.00	
15 Link-113	0.50	0 12:00	0.33	1.48	2.29	0.71	0.52	1.00	
16 Link-114	0.43	0 11:59	0.32	1.36	2.73	0.52	0.45	1.00	
17 Link-115	0.35	0 12:10	0.24	1.48	1.61	0.52	0.52	1.00	
18 Link-116	0.21	0 12:01	0.18	1.16	1.31	0.64	0.45	1.00	
19 Link-117	0.61	0 12:00	0.96	0.63	2.55	0.59	0.44	0.67	
20 Link-118	0.27	0 12:00	0.44	0.62	1.63	0.43	0.38	0.72	
21 Link-119	0.85	0 12:05	0.80	1.06	3.05	0.99	0.60	1.00	
22 Link-120	0.47	0 12:05	0.57	0.82	1.92	1.22	0.60	1.00	
23 Link-121	0.56	0 12:01	0.39	1.45	2.60	0.98	0.52	1.00	
24 Link-49	5.93	0 12:06	3.57	1.66	2.64	0.13	1.77	0.98	
25 Link-50	0.60	0 12:00	0.22	2.68	2.12	0.59	0.60	1.00	
26 Link-52	5.93	0 12:05	3.45	1.72	2.77	0.21	1.65	1.00	
27 Link-53	2.87	0 12:03	2.16	1.33	2.00	2.81	1.35	1.00	
28 Link-54	0.78	0 12:00	0.27	2.86	2.77	0.66	0.60	1.00	
29 Link-56	0.40	0 12:01	0.27	1.46	1.42	1.29	0.60	1.00	
30 Link-57	0.34	0 12:00	0.15	2.30	2.11	0.75	0.45	1.00	
31 Link-58	0.10	0 11:59	0.08	1.13	1.35	1.11	0.30	1.00	
32 Link-59	1.91	0 12:11	3.07	0.62	1.15	0.77	1.50	1.00	
33 Link-60	1.23	0 12:12	12.37	0.10	2.32	0.10	0.94	0.63	
34 Link-62	0.91	0 12:11	3.02	0.30	1.57	0.27	0.62	0.52	
35 Link-68	0.52	0 12:01	0.40	1.31	1.95	0.51	0.54	0.89	
36 Link-70	1.17	0 12:01	0.60	1.94	2.18	0.44	0.82	1.00	
37 Link-71	0.82	0 12:00	0.51	1.61	1.85	0.74	0.75	1.00	
38 Link-72	0.34	0 12:00	0.50	0.68	0.77	1.84	0.75	1.00	
39 Link-73	0.88	0 12:07	1.83	0.48	1.41	0.80	0.90	1.00	
40 Link-80	1.01	0 12:00	1.80	0.56	3.32	0.45	0.62	0.86	
41 Link-81	0.43	0 12:00	0.87	0.50	2.91	0.53	0.31	0.52	
42 Link-82	0.44	0 12:00	0.75	0.58	2.64	0.66	0.34	0.57	
43 RH_A1	0.23	0 11:43	0.18	1.31	3.26	0.26	0.30	1.00	
44 RH_B1	0.14	0 11:43	0.13	1.10	1.95	1.94	0.30	1.00	
45 RH_C3	0.61	0 12:38	0.87	0.71	2.17	0.12	0.60	1.00	
46 RH_C4	0.42	0 11:57	0.41	1.04	2.10	1.55	0.52	1.00	
47 RH C5	0.48	0 13:00	0.45	1.06	2.22	2.06	0.52	1.00	

Project Description

File Name	18010_Post-Development Rev.0.SPF
Description	I:\ACAD Projects\2018\18010\03-Ref\18010_Pre-Dev. Storm
	I:\ACAD Projects\2018\18010\03-Ref\18010_Pre-Dev. Storm
	I:\ACAD Projects\2018\18010\03-Ref\18010_Post-Dev.Storm
	I:\ACAD Projects\2018\18010\03-Ref\18010_Post-Dev.Storm

Project Options

Flow Units	CMS
Elevation Type	Elevation
Hydrology Method	EPA SWMM
EPA SWMM Infiltration Method	SCS Curve Number
Link Routing Method	Hydrodynamic
Enable Overflow Ponding at Nodes	YES
Skip Steady State Analysis Time Periods	YES

Analysis Options

Start Analysis On	00:00:00	0:00:00
End Analysis On	00:00:00	0:00:00
Start Reporting On	00:00:00	0:00:00
Antecedent Dry Days	0	days
Runoff (Dry Weather) Time Step	0 01:00:00	days hh:mm:ss
Runoff (Wet Weather) Time Step	0 00:05:00	days hh:mm:ss
Reporting Time Step	0 00:05:00	days hh:mm:ss
Routing Time Step	30	seconds

Number of Elements

	Qty
Rain Gages	1
Subbasins.....	58
Nodes.....	77
<i>Junctions</i>	69
<i>Outfalls</i>	5
<i>Flow Diversions</i>	0
<i>Inlets</i>	0
<i>Storage Nodes</i>	3
Links.....	109
<i>Channels</i>	43
<i>Pipes</i>	61
<i>Pumps</i>	0
<i>Orifices</i>	1
<i>Weirs</i>	4
<i>Outlets</i>	0
Pollutants	0
Land Uses	0

Subbasin Summary

SN Subbasin ID	Area	Impervious Area	Weighted Curve Number	Average Slope	Equivalent Width	Impervious Area Manning's Roughness	Pervious Area Manning's Roughness	Total Rainfall	Total Infiltration	Total Runoff	Total Runoff Volume	Peak Runoff	Time of Concentration
	(ha)	(%)		(%)	(m)			(mm)	(mm)	(mm)	(ha-mm)	(cms)	(days hh:mm:ss)
1 {Survey Site}.Standard : 10	0.92	2.00	67.00	2.0000	125.00	0.0130	0.2000	100.79	59.3450	40.20	36.90	0.07	0 01:03:06
2 {Survey Site}.Standard : 11	21.38	2.00	67.00	2.0000	360.00	0.0130	0.2000	100.79	56.7590	45.12	964.75	0.45	0 03:41:12
3 {Survey Site}.Standard : 12	0.71	5.00	67.00	2.0000	90.00	0.0130	0.2000	100.79	57.5550	41.98	29.81	0.06	0 01:04:40
4 {Survey Site}.Standard : 13	1.65	45.00	71.05	2.0000	220.00	0.0130	0.2000	100.79	30.5130	69.03	113.76	0.43	0 00:45:09
5 {Survey Site}.Standard : 14	4.32	2.00	67.00	2.0000	350.00	0.0130	0.2000	100.79	59.7070	39.82	172.02	0.25	0 01:26:11
6 {Survey Site}.Standard : 17	0.36	5.00	67.00	5.0000	20.00	0.0130	0.2000	100.79	57.7980	41.74	14.86	0.02	0 01:20:02
7 {Survey Site}.Standard : 18	13.10	5.00	48.00	10.0000	300.00	0.0130	0.2000	100.79	75.3990	24.15	316.28	0.38	0 01:51:22
8 {Survey Site}.Standard : 19	1.32	55.00	75.95	2.0000	90.00	0.0130	0.2000	100.79	22.1960	77.40	102.17	0.37	0 00:59:55
9 {Survey Site}.Standard : 2	20.86	45.00	71.05	2.0000	300.00	0.0130	0.2000	100.79	31.6480	67.87	1416.04	3.61	0 02:51:57
10 {Survey Site}.Standard : 23	2.20	5.00	48.00	10.0000	100.00	0.0130	0.2000	100.79	74.7870	24.77	54.45	0.08	0 01:13:47
11 {Survey Site}.Standard : 26	1.12	45.00	71.05	2.0000	40.00	0.0130	0.2000	100.79	30.9830	68.58	77.09	0.24	0 01:39:50
12 {Survey Site}.Standard : 27	0.43	45.00	71.05	2.0000	60.00	0.0130	0.2000	100.79	30.5130	69.04	29.48	0.11	0 00:43:47
13 {Survey Site}.Standard : 28	0.12	45.00	71.05	2.0000	40.00	0.0130	0.2000	100.79	30.3560	69.14	8.50	0.04	0 00:26:28
14 {Survey Site}.Standard : 29	7.86	45.00	71.05	2.0000	110.00	0.0130	0.2000	100.79	31.6750	67.84	533.37	1.35	0 02:54:48
15 {Survey Site}.Standard : 3	25.14	45.00	71.05	2.0000	370.00	0.0130	0.2000	100.79	31.6220	67.90	1706.81	4.38	0 02:49:34
16 {Survey Site}.Standard : 30	20.00	30.00	63.70	2.0000	225.00	0.0130	0.2000	100.79	47.0590	52.47	1049.16	2.34	0 03:50:13
17 {Survey Site}.Standard : 31	5.54	5.00	57.00	2.0000	245.00	0.0130	0.2000	100.79	68.2540	31.27	173.37	0.19	0 02:01:41
18 {Survey Site}.Standard : 32	3.34	2.00	67.00	2.0000	95.00	0.0130	0.2000	100.79	60.9860	38.54	128.52	0.09	0 02:41:21
19 {Survey Site}.Standard : 33	7.71	2.00	67.00	2.0000	215.00	0.0130	0.2000	100.79	61.0410	38.50	296.68	0.20	0 02:43:23
20 {Survey Site}.Standard : 4	3.13	2.00	67.00	2.0000	155.00	0.0130	0.2000	100.79	60.2070	39.33	123.13	0.13	0 01:55:49
21 {Survey Site}.Standard : 46	5.62	2.00	67.00	2.0000	200.00	0.0130	0.2000	100.79	60.6520	38.89	218.72	0.18	0 02:21:14
22 {Survey Site}.Standard : 5	10.46	45.00	71.05	0.5000	235.00	0.0130	0.2000	100.79	31.8310	67.59	706.90	1.69	0 03:19:24
23 {Survey Site}.Standard : 51	0.39	95.00	95.55	0.5000	20.00	0.0130	0.2000	100.79	0.5440	98.78	38.03	0.13	0 00:32:28
24 {Survey Site}.Standard : 52	10.94	2.00	36.00	0.5000	240.00	0.0130	0.2000	100.79	82.5330	14.58	159.54	0.10	0 04:46:04
25 {Survey Site}.Standard : 53	0.36	75.00	85.75	3.0000	20.00	0.0130	0.2000	100.79	8.0160	91.14	33.17	0.13	0 00:42:26
26 {Survey Site}.Standard : 54	3.94	75.00	85.75	2.0000	150.00	0.0130	0.2000	100.79	8.0160	91.05	358.63	1.32	0 00:59:43
27 {Survey Site}.Standard : 57	0.38	15.00	56.35	2.0000	125.00	0.0130	0.2000	100.79	60.2940	39.24	15.03	0.05	0 00:34:17
28 {Survey Site}.Standard : 6	11.54	2.00	67.00	2.0000	280.00	0.0130	0.2000	100.79	61.2910	38.24	441.40	0.28	0 02:57:41
29 {Survey Site}.Standard : 63	1.63	55.00	75.95	2.0000	90.00	0.0130	0.2000	100.79	22.2450	77.35	126.00	0.45	0 01:07:58
30 {Survey Site}.Standard : 65	1.71	55.00	75.95	2.0000	130.00	0.0130	0.2000	100.79	22.1710	77.42	132.32	0.49	0 00:56:06

Subbasin Summary

SN	Subbasin ID	Area	Impervious Area	Weighted Curve Number	Average Slope	Equivalent Width	Impervious Area Manning's Roughness	Pervious Area Manning's Roughness	Total Rainfall	Total Infiltration	Total Runoff	Total Runoff Volume	Peak Runoff	Time of Concentration
		(ha)	(%)		(%)	(m)			(mm)	(mm)	(mm)	(ha-mm)	(cms)	(days hh:mm:ss)
48	{Survey Site}.Standard : 84	1.00	55.00	75.95	2.0000	50.00	0.0130	0.2000	100.79	22.2700	77.31	77.62	0.27	0 01:12:20
49	{Survey Site}.Standard : 85	1.78	55.00	75.95	2.0000	70.00	0.0130	0.2000	100.79	22.3440	77.23	137.70	0.46	0 01:23:26
50	{Survey Site}.Standard : 86	1.43	55.00	75.95	2.0000	100.00	0.0130	0.2000	100.79	22.1880	77.41	110.30	0.41	0 00:58:53
51	{Survey Site}.Standard : 87	2.66	55.00	75.95	2.0000	100.00	0.0130	0.2000	100.79	22.3600	77.22	205.16	0.68	0 01:25:35
52	{Survey Site}.Standard : 88	1.64	55.00	75.95	2.0000	75.00	0.0130	0.2000	100.79	22.2940	77.29	126.60	0.43	0 01:16:05
53	{Survey Site}.Standard : 89	1.11	55.00	75.95	2.0000	100.00	0.0130	0.2000	100.79	22.1390	77.45	86.21	0.33	0 00:50:46
54	{Survey Site}.Standard : 9	3.53	2.00	67.00	2.0000	100.00	0.0130	0.2000	100.79	61.0130	38.53	136.07	0.09	0 02:41:57
55	{Survey Site}.Standard : 90	1.22	65.00	80.85	2.0000	130.00	0.0130	0.2000	100.79	14.4840	84.94	103.20	0.42	0 00:39:19
56	{Survey Site}.Standard : 91	1.00	65.00	80.85	2.0000	130.00	0.0130	0.2000	100.79	14.4840	84.95	84.69	0.35	0 00:34:55
57	{Survey Site}.Standard : 92	2.19	55.00	75.95	2.0000	75.00	0.0130	0.2000	100.79	22.3930	77.18	169.25	0.55	0 01:30:38
58	{Survey Site}.Standard : 93	2.32	15.00	56.35	5.0000	525.00	0.0130	0.2000	100.79	60.2940	39.26	91.05	0.31	0 00:32:26

Node Summary

SN	Element ID	Element Type	Invert Elevation	Ground/Rim (Max) Elevation	Initial Water Elevation	Surcharge Elevation	Ponded Area	Peak Inflow	Max HGL Elevation Attained	Max Surcharge Depth Attained	Min Freeboard Attained	Time of Peak Flooding Occurrence	Total Flooded Volume	Total Time Flooded
			(m)	(m)	(m)	(m)	(m²)	(cms)	(m)	(m)	(m)	(days hh:mm)	(ha-mm)	(min)
1	Ex_MHR1	Junction	255.88	262.50	0.00	0.00	0.00	0.25	256.32	0.00	6.18	0 00:00	0.00	0.00
2	Ex_MHR2	Junction	255.48	259.65	0.00	0.00	0.00	0.25	255.91	0.00	3.74	0 00:00	0.00	0.00
3	Ex_MHR25	Junction	256.48	263.35	0.00	0.00	0.00	0.25	257.60	0.00	5.75	0 00:00	0.00	0.00
4	Ex_MHR26	Junction	256.64	262.75	0.00	0.00	0.00	0.25	257.94	0.00	4.81	0 00:00	0.00	0.00
5	Ex_MHR27	Junction	256.94	261.00	0.00	0.00	0.00	0.25	258.33	0.00	2.67	0 00:00	0.00	0.00
6	Ex_MHR28	Junction	257.37	259.30	0.00	0.00	0.00	1.35	259.12	0.00	0.18	0 00:00	0.00	0.00
7	Ex_MHR3	Junction	255.23	259.00	0.00	0.00	0.00	0.25	255.61	0.00	3.39	0 00:00	0.00	0.00
8	Jun-34	Junction	254.62	258.25	0.00	0.00	0.00	6.35	256.51	0.00	1.74	0 00:00	0.00	0.00
9	Jun-35	Junction	254.70	257.50	0.00	0.00	0.00	0.67	256.77	0.00	0.73	0 00:00	0.00	0.00
10	Jun-36	Junction	254.72	258.00	0.00	0.00	0.00	6.36	257.08	0.00	1.27	0 00:00	0.00	0.00
11	Jun-37	Junction	255.29	261.30	0.00	0.00	0.00	3.42	258.41	0.00	2.89	0 00:00	0.00	0.00
12	Jun-38	Junction	255.53	261.80	0.00	0.00	0.00	1.44	260.35	0.00	1.45	0 00:00	0.00	0.00
13	Jun-39	Junction	256.93	259.05	0.00	0.00	0.00	0.13	258.76	0.00	0.29	0 00:00	0.00	0.00
14	Jun-40	Junction	256.10	258.55	0.00	0.00	0.00	0.68	258.02	0.00	0.53	0 00:00	0.00	0.00
15	Jun-41	Junction	255.77	259.65	0.00	0.00	0.00	0.64	259.38	0.00	0.27	0 00:00	0.00	0.00
16	Jun-42	Junction	255.23	258.90	0.00	0.00	0.00	2.05	257.17	0.00	1.73	0 00:00	0.00	0.00
17	Jun-43	Junction	256.25	257.25	0.00	0.00	0.00	1.01	257.18	0.00	0.57	0 00:00	0.00	0.00
18	Jun-44	Junction	257.55	258.55	0.00	0.00	0.00	0.97	258.08	0.00	0.52	0 00:00	0.00	0.00
19	Jun-46	Junction	257.70	258.70	0.00	258.70	0.00	1.11	258.52	0.00	0.23	0 00:00	0.00	0.00
20	Jun-47	Junction	258.10	259.10	0.00	0.00	0.00	1.24	258.70	0.00	0.40	0 00:00	0.00	0.00
21	Jun-48	Junction	258.35	259.35	0.00	0.00	0.00	0.05	258.70	0.00	0.70	0 00:00	0.00	0.00
22	Jun-49	Junction	256.90	257.90	0.00	0.00	0.00	1.10	257.68	0.00	0.42	0 00:00	0.00	0.00
23	Jun-50	Junction	256.75	257.75	0.00	0.00	0.00	1.02	257.30	0.00	0.65	0 00:00	0.00	0.00
24	Jun-51	Junction	258.45	260.50	0.00	0.00	0.00	0.52	259.32	0.00	1.18	0 00:00	0.00	0.00
25	Jun-52	Junction	255.69	260.00	0.00	0.00	0.00	1.07	259.02	0.00	0.98	0 00:00	0.00	0.00
26	Jun-53	Junction	255.35	259.60	0.00	0.00	0.00	1.30	257.70	0.00	1.90	0 00:00	0.00	0.00
27	Jun-54	Junction	255.62	259.80	0.00	0.00	0.00	0.42	258.42	0.00	1.38	0 00:00	0.00	0.00
28	Jun-55	Junction	255.60	259.70	0.00	0.00	0.00	0.98	258.31	0.00	1.39	0 00:00	0.00	0.00
29	Jun-56	Junction	255.79	257.80	0.00	0.00	0.00	0.91	257.36	0.00	0.44	0 00:00	0.00	0.00
30	Jun-61	Junction	258.32	262.00	0.00	0.00	0.00	1.15	259.22	0.00	3.58	0 00:00	0.00	0.00

Node Summary

SN	Element ID	Element Type	Invert Elevation	Ground/Rim (Max) Elevation	Initial Water Elevation	Surcharge Elevation	Ponded Area	Peak Inflow	Max HGL Elevation Attained	Max Surcharge Depth Attained	Min Freeboard Attained	Time of Peak Flooding Occurrence	Total Flooded Volume	Total Time Flooded
			(m)	(m)	(m)	(m)	(m²)	(cms)	(m)	(m)	(m)	(days hh:mm)	(ha-mm)	(min)
48	Ravine_1	Junction	256.10	260.10	0.00	0.00	0.00	6.90	256.80	0.00	3.30	0 00:00	0.00	0.00
49	Ravine_2	Junction	253.00	257.00	0.00	0.00	0.00	7.71	253.87	0.00	3.13	0 00:00	0.00	0.00
50	Ravine_3	Junction	252.45	256.45	0.00	0.00	0.00	7.62	253.16	0.00	3.29	0 00:00	0.00	0.00
51	RH_1	Junction	267.60	271.70	0.00	0.00	0.00	4.38	271.61	0.00	0.09	0 00:00	0.00	0.00
52	RH_10	Junction	261.90	263.90	0.00	0.00	0.00	7.37	263.77	0.00	0.13	0 00:00	0.00	0.00
53	RH_11	Junction	260.33	262.55	0.00	0.00	0.00	6.57	262.49	0.00	0.06	0 00:00	0.00	0.00
54	RH_12	Junction	269.00	270.50	0.00	0.00	0.00	2.34	269.51	0.00	0.99	0 00:00	0.00	0.00
55	RH_13	Junction	264.00	266.50	0.00	0.00	0.00	2.47	264.71	0.00	1.79	0 00:00	0.00	0.00
56	RH_14	Junction	261.70	263.50	0.00	0.00	0.00	0.73	263.24	0.00	0.26	0 00:00	0.00	0.00
57	RH_15	Junction	259.38	261.00	0.00	0.00	0.00	0.90	260.76	0.00	0.24	0 00:00	0.00	0.00
58	RH_16	Junction	256.36	258.00	0.00	0.00	0.00	0.48	257.09	0.00	0.91	0 00:00	0.00	0.00
59	RH_17	Junction	256.42	258.00	0.00	0.00	0.00	1.51	257.69	0.00	0.31	0 00:00	0.00	0.00
60	RH_2	Junction	270.14	272.45	0.00	0.00	0.00	3.61	272.26	0.00	0.19	0 00:00	0.00	0.00
61	RH_3	Junction	267.07	270.50	0.00	0.00	0.00	7.51	269.98	0.00	0.52	0 00:00	0.00	0.00
62	RH_4	Junction	266.63	268.60	0.00	0.00	0.00	5.88	268.48	0.00	0.12	0 00:00	0.00	0.00
63	RH_5	Junction	270.35	272.10	0.00	0.00	0.00	1.69	271.89	0.00	0.21	0 00:00	0.00	0.00
64	RH_6	Junction	266.50	268.20	0.00	0.00	0.00	7.27	268.14	0.00	0.06	0 00:00	0.00	0.00
65	RH_7	Junction	272.00	273.50	0.00	0.00	0.00	0.00	272.00	0.00	1.50	0 00:00	0.00	0.00
66	RH_8	Junction	267.75	269.85	0.00	0.00	0.00	0.38	269.57	0.00	0.28	0 00:00	0.00	0.00
67	RH_9	Junction	264.00	265.80	0.00	0.00	0.00	0.36	265.52	0.00	0.28	0 00:00	0.00	0.00
68	WestOutfall	Junction	257.00	258.40	0.00	0.00	0.00	0.06	257.00	0.00	2.45	0 00:00	0.00	0.00
69	WestWetland	Junction	258.00	259.00	0.00	0.00	0.00	0.10	258.00	0.00	1.00	0 00:00	0.00	0.00
70	North_Wetland	Outfall	252.00					0.35	252.00					
71	Outfall	Outfall	252.00					7.62	252.58					
72	TinerEstatesSTM	Outfall	254.82					0.25	255.14					
73	West_Outfall	Outfall	257.00					0.06	257.00					
74	West_Wetland	Outfall	258.00					0.10	258.00					
75	Ex_SE_Pond	Storage Node	262.00	266.00	0.00		0.00	2.66	263.78				0.00	0.00
76	SWM_FB	Storage Node	253.00	256.80	254.50		0.00	6.35	256.49				0.00	0.00
77	SWM_WP	Storage Node	253.00	256.80	254.50		0.00	5.55	256.49				0.00	0.00

Link Summary

SN Element ID	Element Type	From (Inlet) Node	To (Outlet) Node	Length	Inlet Invert Elevation	Outlet Invert Elevation	Average Slope	Diameter or Height	Manning's Roughness	Peak Flow	Design Flow Capacity	Peak Flow/ Design Flow Ratio	Peak Flow Velocit
				(m)	(m)	(m)	(%)	(m)		(cms)	(cms)		(m/sec)
1 Ex.STM_1	Pipe	Ex_MHR28	Ex_MHR27	107.00	257.37	256.94	0.4000	0.450	0.0130	0.25	0.18	1.38	1.5
2 Ex.STM_2	Pipe	Ex_MHR27	Ex_MHR26	73.00	256.94	256.64	0.4100	0.450	0.0130	0.25	0.18	1.36	1.5
3 Ex.STM_3	Pipe	Ex_MHR26	Ex_MHR25	27.00	256.64	256.48	0.5900	0.450	0.0130	0.25	0.22	1.13	1.5
4 Ex.STM_4	Pipe	Ex_MHR25	Ex_MHR1	100.00	256.48	255.88	0.6000	0.450	0.0130	0.25	0.22	1.13	1.5
5 Ex.STM_5	Pipe	Ex_MHR1	Ex_MHR2	100.00	255.88	255.48	0.4000	0.525	0.0130	0.25	0.27	0.91	1.3
6 Ex.STM_6	Pipe	Ex_MHR2	Ex_MHR3	50.00	255.48	255.23	0.5000	0.525	0.0130	0.25	0.30	0.82	1.4
7 Ex.STM_7	Pipe	Ex_MHR3	TinerEstatesSTM	102.00	255.23	254.82	0.4000	0.600	0.0130	0.25	0.39	0.64	1.4
8 Link-106	Pipe	Jun-66	Ravine_2	24.80	253.16	252.85	1.2500	0.750	0.0130	1.12	0.89	1.25	2.5
9 Link-107	Pipe	OutletStructure	Jun-66	93.20	254.35	253.20	1.2300	0.750	0.0130	1.12	1.24	0.90	2.5
10 Link-108	Pipe	Jun-67	Jun-37	110.30	255.48	255.37	0.1000	1.200	0.0130	1.18	1.23	0.96	1.0
11 Link-109	Pipe	Jun-46	Jun-44	30.00	257.70	257.55	0.5000	1.050	0.0130	0.97	1.93	0.50	1.6
12 Link-110	Pipe	Jun-52	Jun-67	153.00	255.69	255.48	0.1400	0.900	0.0130	0.88	0.67	1.32	1.3
13 Link-111	Pipe	Jun-68	Jun-52	66.80	255.86	255.77	0.1300	0.750	0.0130	0.54	0.41	1.31	1.2
14 Link-112	Pipe	Jun-69	Jun-68	106.60	256.21	255.91	0.2800	0.600	0.0130	0.24	0.33	0.74	0.8
15 Link-113	Pipe	Jun-70	Jun-52	97.50	256.47	255.88	0.6100	0.525	0.0130	0.55	0.33	1.65	2.5
16 Link-114	Pipe	Jun-71	Jun-53	85.10	256.79	255.73	1.2500	0.450	0.0130	0.44	0.32	1.37	2.7
17 Link-115	Pipe	Jun-73	Jun-51	50.00	258.65	258.50	0.3000	0.525	0.0130	0.35	0.24	1.49	1.6
18 Link-116	Pipe	Jun-72	Jun-51	50.00	258.75	258.55	0.4000	0.450	0.0130	0.21	0.18	1.16	1.3
19 Link-117	Pipe	Jun-74	Jun-61	90.00	259.54	258.37	1.3000	0.675	0.0130	0.67	0.96	0.70	2.5
20 Link-118	Pipe	Jun-75	Jun-74	41.60	260.00	259.56	1.0600	0.525	0.0130	0.30	0.44	0.69	1.6
21 Link-119	Pipe	Jun-76	Jun-56	181.70	259.19	256.08	1.7100	0.600	0.0130	0.89	0.80	1.11	3.1
22 Link-120	Pipe	Jun-77	Jun-76	140.50	260.46	259.24	0.8700	0.600	0.0130	0.51	0.57	0.89	1.9
23 Link-121	Pipe	Jun-78	Jun-77	152.20	261.75	260.51	0.8100	0.525	0.0130	0.60	0.39	1.56	2.7
24 Link-49	Pipe	Jun-34	SWM_FB	20.70	254.62	254.60	0.1000	1.800	0.0130	6.35	3.57	1.78	2.7
25 Link-50	Pipe	Jun-35	SWM_WP	75.20	254.70	254.60	0.1300	0.600	0.0130	0.67	0.22	2.99	2.3
26 Link-52	Pipe	Jun-36	Jun-34	35.00	254.72	254.67	0.1400	1.650	0.0130	6.35	3.45	1.84	2.9
27 Link-53	Pipe	Jun-37	Jun-36	336.90	255.29	254.74	0.1600	1.350	0.0130	3.10	2.16	1.44	2.1
28 Link-54	Pipe	Jun-38	Jun-37	110.00	255.53	255.31	0.2000	0.600	0.0130	0.82	0.27	2.98	2.8
29 Link-56	Pipe	Jun-41	Jun-38	110.00	255.77	255.55	0.2000	0.600	0.0130	0.53	0.27	1.91	1.8
30 Link-57	Pipe	Jun-40	Jun-41	95.50	256.10	255.85	0.2600	0.450	0.0130	0.34	0.15	2.30	2.1

Link Summary

SN Element ID	Element Type	From (Inlet) Node	To (Outlet) Node	Length	Inlet Invert Elevation	Outlet Invert Elevation	Average Slope	Diameter or Height	Manning's Roughness	Peak Flow	Design Flow Capacity	Peak Flow/ Design Flow Ratio	Peak Flow Velocit
				(m)	(m)	(m)	(%)	(m)		(cms)	(cms)		(m/sec)
48 RH_C6	Pipe	RH_16	Ravine_1	6.00	256.36	256.24	2.0000	0.700	0.0130	0.48	1.31	0.37	1.6
49 RH_D1	Pipe	RH_7	RH_8	275.00	272.00	267.75	1.5500	0.300	0.0130	0.00	0.12	0.00	0.0
50 RH_D2	Pipe	RH_8	RH_9	180.00	267.75	264.00	2.0800	0.300	0.0130	0.15	0.14	1.04	2.1
51 RH_D3	Pipe	RH_9	RH_10	155.00	264.00	261.90	1.3500	0.375	0.0130	0.19	0.20	0.92	1.7
52 RH_M1	Pipe	RH_1	RH_3	270.00	267.60	267.07	0.2000	0.600	0.0130	0.50	0.27	1.84	1.7
53 RH_M2	Pipe	RH_3	RH_4	222.00	267.07	266.63	0.2000	0.675	0.0130	0.80	0.37	2.13	2.2
54 RH_M3	Pipe	RH_4	RH_6	18.00	266.63	266.50	0.7200	0.750	0.0130	1.05	0.95	1.11	2.3
55 RH_M4	Pipe	RH_6	RH_10	415.00	266.50	261.90	1.1100	0.675	0.0130	0.91	0.89	1.02	2.5
56 RH_M5	Pipe	RH_10	RH_11	140.00	261.90	260.33	1.1200	0.675	0.0130	1.04	0.89	1.16	2.9
57 RH_M6	Pipe	RH_11	RH_17	464.00	260.33	256.42	0.8400	0.750	0.0130	1.10	1.02	1.07	2.4
58 RH_M7	Pipe	RH_17	Ravine_1	6.00	256.42	256.37	0.8300	1.000	0.0130	1.51	2.19	0.69	2.2
59 West_Link	Pipe	WestOutfall	West_Outfall	33.73	256.00	257.00	-2.9600	0.000	0.0130	0.06	0.00	0.04	0.0
60 WestWetland_Link	Pipe	WestWetland	West_Wetland	37.13	258.00	258.00	0.0000	0.000	0.0130	0.10	0.00	0.04	0.0
61 Wetland_Link	Pipe	NorthWetland	North_Wetland	41.51	252.00	252.00	0.0000	0.000	0.0130	0.35	0.00	0.04	0.0
62 Link-103	Channel	Jun-36	SWM_FB	10.00	257.70	257.50	2.0000	0.300	0.0320	0.00	11.65	0.00	0.0
63 Link-104	Channel	Jun-56	SWM_FB	50.00	257.50	256.50	2.0000	0.300	0.0320	0.00	11.65	0.00	0.0
64 Link-122	Channel	Jun-53	Jun-42	70.00	259.30	258.60	1.0000	0.300	0.0320	0.00	8.24	0.00	0.0
65 Link-123	Channel	Jun-55	Jun-53	90.00	259.40	259.30	0.1100	0.300	0.0320	0.00	2.75	0.00	0.0
66 Link-124	Channel	Jun-54	Jun-55	90.00	259.50	259.40	0.1100	0.300	0.0320	0.00	2.75	0.00	0.0
67 Link-125	Channel	Jun-73	Jun-47	50.00	259.65	258.70	1.9000	0.300	0.0320	0.33	11.36	0.03	0.4
68 Link-126	Channel	Jun-72	Jun-47	50.00	259.65	258.70	1.9000	0.300	0.0320	0.16	11.36	0.01	0.3
69 Link-127	Channel	Jun-67	Jun-54	100.00	259.60	259.50	0.1000	0.300	0.0320	0.00	2.61	0.00	0.0
70 Link-128	Channel	Jun-52	Jun-67	150.00	259.70	259.60	0.0700	0.300	0.0320	0.00	2.13	0.00	0.0
71 Link-129	Channel	Jun-68	Jun-52	80.00	259.80	259.70	0.1300	0.300	0.0320	0.00	2.91	0.00	0.0
72 Link-130	Channel	Jun-69	Jun-68	100.00	259.90	259.80	0.1000	0.300	0.0320	0.00	2.61	0.00	0.0
73 Link-131	Channel	Jun-71	Jun-53	70.00	259.40	259.30	0.1400	0.300	0.0320	0.06	3.11	0.02	0.1
74 Link-132	Channel	Jun-78	Jun-77	150.00	265.00	264.50	0.3300	0.300	0.0320	0.00	4.76	0.00	0.0
75 Link-133	Channel	Jun-77	Jun-76	150.00	264.50	261.90	1.7300	0.300	0.0320	0.00	10.85	0.00	0.0
76 Link-134	Channel	Jun-76	Jun-36	250.00	261.90	257.70	1.6800	0.300	0.0320	0.00	10.68	0.00	0.0
77 Link-135	Channel	Jun-61	Jun-37	100.00	262.50	261.00	1.5000	0.300	0.0320	0.00	10.09	0.00	0.0

Link Summary

SN Element ID	Element Type	From (Inlet) Node	To (Outlet) Node	Length	Inlet Invert Elevation	Outlet Invert Elevation	Average Slope	Diameter or Height	Manning's Roughness	Peak Flow	Design Flow Capacity	Peak Flow/ Design Flow Ratio	Peak Flow Velocity
				(m)	(m)	(m)	(%)	(m)		(cms)	(cms)		(m/sec)
95 Link-89	Channel	Jun-42	Jun-36	53.10	258.60	257.70	1.6900	0.300	0.0320	0.00	10.73	0.00	0.0
96 Link-90	Channel	Jun-39	Jun-40	90.00	258.75	257.75	1.1100	0.300	0.0320	0.02	8.69	0.00	0.0
97 Link-92	Channel	Jun-38	Jun-37	110.00	261.50	261.00	0.4500	0.300	0.0320	0.00	5.56	0.00	0.0
98 Link-93	Channel	Jun-37	Jun-36	340.00	261.00	257.70	0.9700	0.300	0.0320	0.00	8.12	0.00	0.0
99 Link-94	Channel	Jun-41	Jun-40	95.00	259.35	257.75	1.6800	0.300	0.0320	0.24	10.69	0.02	0.1
100 LowerRavine	Channel	Ravine_2	Ravine_3	124.00	253.00	252.45	0.4400	4.000	0.0320	7.58	157.98	0.05	1.5
101 OutletRavine	Channel	Ravine_3	Outfall	45.00	252.45	252.00	1.0000	4.000	0.0320	7.62	237.22	0.03	1.9
102 RH_C1	Channel	RH_12	RH_13	215.00	269.00	264.00	2.3300	1.500	0.0320	2.28	24.20	0.09	1.7
103 RH_C2	Channel	RH_13	Ex_SE_Pond	60.00	264.00	263.50	0.8300	1.500	0.0320	2.34	14.49	0.16	1.6
104 UpperRavine	Channel	Ravine_1	Ravine_2	553.00	256.10	253.00	0.5600	4.000	0.0320	6.81	177.61	0.04	1.4
105 Orifice-01	Orifice	SWM_WP	OutletStructure		253.00	254.25		0.170		0.08			
106 Link-91	Weir	Jun-40	WestOutfall		256.10	257.00				0.00			
107 Weir-01	Weir	SWM_FB	SWM_WP		253.00	253.00				4.61			
108 Weir-04	Weir	SWM_WP	OutletStructure		253.00	254.25				1.06			
109 Weir-05	Weir	SWM_WP	Ravine_2		253.00	253.00				0.00			

Junction Input

SN	Element ID	Invert Elevation	Ground/Rim (Max) Elevation	Ground/Rim (Max) Offset	Initial Water Elevation	Initial Water Depth	Surcharge Elevation	Surcharge Depth	Ponded Area	Minimum Pipe Cover
		(m)	(m)	(m)	(m)	(m)	(m)	(m)	(m²)	(m)
1	Ex_MHR1	255.88	262.50	6.62	0.00	-255.88	0.00	-262.50	0.00	0.00
2	Ex_MHR2	255.48	259.65	4.17	0.00	-255.48	0.00	-259.65	0.00	0.00
3	Ex_MHR25	256.48	263.35	6.87	0.00	-256.48	0.00	-263.35	0.00	0.00
4	Ex_MHR26	256.64	262.75	6.11	0.00	-256.64	0.00	-262.75	0.00	0.00
5	Ex_MHR27	256.94	261.00	4.06	0.00	-256.94	0.00	-261.00	0.00	0.00
6	Ex_MHR28	257.37	259.30	1.93	0.00	-257.37	0.00	-259.30	0.00	0.00
7	Ex_MHR3	255.23	259.00	3.77	0.00	-255.23	0.00	-259.00	0.00	0.00
8	Jun-34	254.62	258.25	3.63	0.00	-254.62	0.00	-258.25	0.00	0.00
9	Jun-35	254.70	257.50	2.80	0.00	-254.70	0.00	-257.50	0.00	0.00
10	Jun-36	254.72	258.00	3.28	0.00	-254.72	0.00	-258.00	0.00	0.00
11	Jun-37	255.29	261.30	6.01	0.00	-255.29	0.00	-261.30	0.00	0.00
12	Jun-38	255.53	261.80	6.27	0.00	-255.53	0.00	-261.80	0.00	0.00
13	Jun-39	256.93	259.05	2.12	0.00	-256.93	0.00	-259.05	0.00	0.00
14	Jun-40	256.10	258.55	2.45	0.00	-256.10	0.00	-258.55	0.00	0.00
15	Jun-41	255.77	259.65	3.88	0.00	-255.77	0.00	-259.65	0.00	0.00
16	Jun-42	255.23	258.90	3.67	0.00	-255.23	0.00	-258.90	0.00	0.00
17	Jun-43	256.25	257.25	1.00	0.00	-256.25	0.00	-257.25	0.00	0.00
18	Jun-44	257.55	258.55	1.00	0.00	-257.55	0.00	-258.55	0.00	0.00
19	Jun-46	257.70	258.70	1.00	0.00	-257.70	258.70	0.00	0.00	0.00
20	Jun-47	258.10	259.10	1.00	0.00	-258.10	0.00	-259.10	0.00	0.00
21	Jun-48	258.35	259.35	1.00	0.00	-258.35	0.00	-259.35	0.00	0.00
22	Jun-49	256.90	257.90	1.00	0.00	-256.90	0.00	-257.90	0.00	0.00
23	Jun-50	256.75	257.75	1.00	0.00	-256.75	0.00	-257.75	0.00	0.00
24	Jun-51	258.45	260.50	2.05	0.00	-258.45	0.00	-260.50	0.00	0.00
25	Jun-52	255.69	260.00	4.31	0.00	-255.69	0.00	-260.00	0.00	0.00
26	Jun-53	255.35	259.60	4.25	0.00	-255.35	0.00	-259.60	0.00	0.00
27	Jun-54	255.62	259.80	4.18	0.00	-255.62	0.00	-259.80	0.00	0.00
28	Jun-55	255.60	259.70	4.10	0.00	-255.60	0.00	-259.70	0.00	0.00
29	Jun-56	255.79	257.80	2.01	0.00	-255.79	0.00	-257.80	0.00	0.00
30	Jun-61	258.32	262.00	3.68	0.00	-258.32	0.00	-262.00	0.00	0.00
31	Jun-64	261.13	263.50	2.37	0.00	-261.13	0.00	-263.50	0.00	0.00
32	Jun-65	262.69	264.50	1.81	0.00	-262.69	0.00	-264.50	0.00	0.00
33	Jun-66	253.16	256.00	2.84	0.00	-253.16	0.00	-256.00	0.00	0.00
34	Jun-67	255.48	259.90	4.42	0.00	-255.48	0.00	-259.90	0.00	0.00
35	Jun-68	255.86	260.10	4.24	0.00	-255.86	0.00	-260.10	0.00	0.00
36	Jun-69	256.21	261.20	4.99	0.00	-256.21	0.00	-261.20	0.00	0.00
37	Jun-70	256.47	263.00	6.53	0.00	-256.47	0.00	-263.00	0.00	0.00
38	Jun-71	256.79	260.00	3.21	0.00	-256.79	0.00	-260.00	0.00	0.00
39	Jun-72	258.75	259.95	1.20	0.00	-258.75	0.00	-259.95	0.00	0.00
40	Jun-73	258.65	259.95	1.30	0.00	-258.65	0.00	-259.95	0.00	0.00
41	Jun-74	259.54	264.00	4.46	0.00	-259.54	0.00	-264.00	0.00	0.00
42	Jun-75	260.00	264.50	4.50	0.00	-260.00	0.00	-264.50	0.00	0.00
43	Jun-76	259.19	262.20	3.01	0.00	-259.19	0.00	-262.20	0.00	0.00
44	Jun-77	260.46	264.80	4.34	0.00	-260.46	0.00	-264.80	0.00	0.00
45	Jun-78	261.75	265.30	3.55	0.00	-261.75	0.00	-265.30	0.00	0.00
46	NorthWetland	252.00	258.00	6.00	0.00	-252.00	0.00	-258.00	0.00	0.00
47	OutletStructure	254.25	256.80	2.55	0.00	-254.25	0.00	-256.80	0.00	0.00
48	Ravine_1	256.10	260.10	4.00	0.00	-256.10	0.00	-260.10	0.00	0.00

Junction Results

SN	Element	Peak Inflow	Peak Lateral Inflow	Max HGL Elevation Attained	Max HGL Depth Attained	Max Surcharge Depth Attained	Min Freeboard Attained	Average HGL Elevation Attained	Average HGL Depth Attained	Time Max HC Occurrence
	ID	(cms)	(cms)	(m)	(m)	(m)	(m)	(m)	(m)	(days hh:mm)
1	Ex_MHR1	0.25	0.00	256.32	0.44	0.00	6.18	256.03	0.15	0 12:00
2	Ex_MHR2	0.25	0.00	255.91	0.43	0.00	3.74	255.63	0.15	0 12:00
3	Ex_MHR25	0.25	0.00	257.60	1.12	0.00	5.75	256.64	0.16	0 11:45
4	Ex_MHR26	0.25	0.00	257.94	1.30	0.00	4.81	256.82	0.18	0 11:45
5	Ex_MHR27	0.25	0.00	258.33	1.39	0.00	2.67	257.15	0.21	0 11:45
6	Ex_MHR28	1.35	1.35	259.12	1.75	0.00	0.18	257.61	0.24	0 12:00
7	Ex_MHR3	0.25	0.00	255.61	0.38	0.00	3.39	255.37	0.14	0 12:00
8	Jun-34	6.35	0.00	256.51	1.89	0.00	1.74	255.85	1.23	0 13:00
9	Jun-35	0.67	0.67	256.77	2.07	0.00	0.73	255.84	1.14	0 11:45
10	Jun-36	6.36	0.00	257.08	2.36	0.00	1.27	255.88	1.16	0 12:00
11	Jun-37	3.42	0.54	258.41	3.12	0.00	2.89	256.02	0.73	0 12:00
12	Jun-38	1.44	1.44	260.35	4.82	0.00	1.45	256.13	0.60	0 12:00
13	Jun-39	0.13	0.13	258.76	1.83	0.00	0.29	257.05	0.12	0 12:00
14	Jun-40	0.68	0.00	258.02	1.92	0.00	0.53	256.32	0.22	0 12:00
15	Jun-41	0.64	0.13	259.38	3.61	0.00	0.27	256.18	0.41	0 12:00
16	Jun-42	2.05	0.00	257.17	1.94	0.00	1.73	255.97	0.74	0 12:00
17	Jun-43	1.01	0.00	257.18	0.93	0.00	0.57	256.34	0.09	0 12:00
18	Jun-44	0.97	0.00	258.08	0.53	0.00	0.52	257.66	0.11	0 12:00
19	Jun-46	1.11	0.00	258.52	0.82	0.00	0.23	257.84	0.14	0 12:00
20	Jun-47	1.24	0.24	258.70	0.60	0.00	0.40	258.22	0.12	0 12:00
21	Jun-48	0.05	0.00	258.70	0.35	0.00	0.70	258.40	0.05	0 12:00
22	Jun-49	1.10	0.31	257.68	0.78	0.00	0.42	257.06	0.16	0 12:00
23	Jun-50	1.02	0.00	257.30	0.55	0.00	0.65	256.92	0.17	0 12:00
24	Jun-51	0.52	0.00	259.32	0.87	0.00	1.18	258.56	0.11	0 11:45
25	Jun-52	1.07	0.00	259.02	3.33	0.00	0.98	256.11	0.42	0 12:00
26	Jun-53	1.30	0.00	257.70	2.35	0.00	1.90	256.01	0.66	0 12:00
27	Jun-54	0.42	0.42	258.42	2.80	0.00	1.38	256.11	0.49	0 12:00
28	Jun-55	0.98	0.62	258.31	2.71	0.00	1.39	256.07	0.47	0 12:00
29	Jun-56	0.91	0.03	257.36	1.57	0.00	0.44	256.10	0.31	0 12:00
30	Jun-61	1.15	0.00	259.22	0.90	0.00	3.58	258.38	0.06	0 12:00
31	Jun-64	0.49	0.00	261.48	0.35	0.00	2.02	261.18	0.05	0 12:00
32	Jun-65	0.49	0.49	263.08	0.39	0.00	1.42	262.74	0.05	0 12:00
33	Jun-66	1.12	0.00	254.29	1.13	0.00	1.71	253.53	0.37	0 12:00
34	Jun-67	1.26	0.46	258.56	3.08	0.00	1.34	256.06	0.58	0 12:00
35	Jun-68	0.67	0.43	259.22	3.36	0.00	0.88	256.17	0.31	0 12:00
36	Jun-69	0.33	0.33	259.38	3.17	0.00	1.82	256.35	0.14	0 12:00
37	Jun-70	0.55	0.55	260.28	3.81	0.00	2.72	256.59	0.12	0 11:45
38	Jun-71	0.63	0.63	259.44	2.65	0.00	0.56	256.91	0.12	0 12:00
39	Jun-72	0.41	0.41	259.67	0.92	0.00	0.28	258.83	0.08	0 12:00
40	Jun-73	0.68	0.68	259.69	1.04	0.00	0.26	258.76	0.11	0 12:00
41	Jun-74	0.68	0.37	260.01	0.47	0.00	3.99	259.60	0.06	0 12:00
42	Jun-75	0.31	0.31	260.38	0.38	0.00	4.12	260.04	0.04	0 12:00
43	Jun-76	1.07	0.68	261.68	2.49	0.00	0.52	259.31	0.12	0 12:00
44	Jun-77	0.60	0.00	262.72	2.26	0.00	2.08	260.56	0.10	0 12:00
45	Jun-78	0.82	0.82	265.01	3.26	0.00	0.29	261.87	0.12	0 12:00
46	NorthWetland	0.35	0.35	252.00	0.00	0.00	6.00	252.00	0.00	0 00:00
47	OutletStructure	1.12	0.00	255.54	1.29	0.00	2.51	254.63	0.38	0 13:00

Channel Input

SN	Element ID	Length	Inlet Invert Elevation (m)	Inlet Invert Offset (m)	Outlet Invert Elevation (m)	Outlet Invert Offset (m)	Total Drop (m)	Average Slope (%)	Shape	Height (m)	Width (m)	Manning's Roughness
1	Link-103	10.00	257.70	2.98	257.50	4.50	0.20	2.0000	Rectangular	0.300	20.000	0.0320
2	Link-104	50.00	257.50	1.71	256.50	3.50	1.00	2.0000	Rectangular	0.300	20.000	0.0320
3	Link-122	70.00	259.30	3.95	258.60	3.37	0.70	1.0000	Rectangular	0.300	20.000	0.0320
4	Link-123	90.00	259.40	3.80	259.30	3.95	0.10	0.1100	Rectangular	0.300	20.000	0.0320
5	Link-124	90.00	259.50	3.88	259.40	3.80	0.10	0.1100	Rectangular	0.300	20.000	0.0320
6	Link-125	50.00	259.65	1.00	258.70	0.60	0.95	1.9000	Rectangular	0.300	20.000	0.0320
7	Link-126	50.00	259.65	0.90	258.70	0.60	0.95	1.9000	Rectangular	0.300	20.000	0.0320
8	Link-127	100.00	259.60	4.12	259.50	3.88	0.10	0.1000	Rectangular	0.300	20.000	0.0320
9	Link-128	150.00	259.70	4.01	259.60	4.12	0.10	0.0700	Rectangular	0.300	20.000	0.0320
10	Link-129	80.00	259.80	3.94	259.70	4.01	0.10	0.1300	Rectangular	0.300	20.000	0.0320
11	Link-130	100.00	259.90	3.69	259.80	3.94	0.10	0.1000	Rectangular	0.300	20.000	0.0320
12	Link-131	70.00	259.40	2.61	259.30	3.95	0.10	0.1400	Rectangular	0.300	20.000	0.0320
13	Link-132	150.00	265.00	3.25	264.50	4.04	0.50	0.3300	Rectangular	0.300	20.000	0.0320
14	Link-133	150.00	264.50	4.04	261.90	2.71	2.60	1.7300	Rectangular	0.300	20.000	0.0320
15	Link-134	250.00	261.90	2.71	257.70	2.98	4.20	1.6800	Rectangular	0.300	20.000	0.0320
16	Link-135	100.00	262.50	4.18	261.00	5.71	1.50	1.5000	Rectangular	0.300	20.000	0.0320
17	Link-34	270.00	271.40	3.80	269.65	2.58	1.75	0.6500	Rectangular	0.300	20.000	0.0320
18	Link-35	50.00	272.15	2.01	269.65	2.58	2.50	5.0000	Rectangular	0.300	20.000	0.0320
19	Link-36	222.00	269.65	2.58	268.30	1.67	1.35	0.6100	Rectangular	0.300	20.000	0.0320
20	Link-37	18.00	268.30	1.67	267.90	1.40	0.40	2.2200	Rectangular	0.300	20.000	0.0320
21	Link-38	227.00	271.80	1.45	267.90	1.40	3.90	1.7200	Rectangular	0.300	20.000	0.0320
22	Link-39	415.00	267.90	1.40	263.50	1.60	4.40	1.0600	Rectangular	0.300	20.000	0.0320
23	Link-41	180.00	269.55	1.80	265.50	1.50	4.05	2.2500	Rectangular	0.300	20.000	0.0320
24	Link-42	155.00	265.50	1.50	263.50	1.60	2.00	1.2900	Rectangular	0.300	20.000	0.0320
25	Link-43	140.00	263.50	1.60	262.25	1.92	1.25	0.8900	Rectangular	0.300	20.000	0.0320
26	Link-44	470.00	262.25	1.92	258.00	1.90	4.25	0.9000	Rectangular	0.300	20.000	0.0320
27	Link-45	195.00	263.20	1.50	260.70	1.32	2.50	1.2800	Rectangular	0.300	20.000	0.0320
28	Link-46	280.00	260.70	1.32	258.00	1.90	2.70	0.9600	Rectangular	0.300	20.000	0.0320
29	Link-51	65.00	259.00	1.63	258.05	3.33	0.95	1.4600	Rectangular	0.300	10.000	0.0320
30	Link-61	125.00	256.75	0.00	256.25	0.00	0.50	0.4000	User-Defined	1.000	9.000	0.0320
31	Link-63	162.50	257.55	0.00	256.90	0.00	0.65	0.4000	User-Defined	1.000	9.000	0.0320
32	Link-66	133.00	258.10	0.00	257.70	0.00	0.40	0.3000	User-Defined	1.000	9.000	0.0320
33	Link-67	75.00	258.40	0.05	258.10	0.00	0.30	0.4000	User-Defined	1.000	9.000	0.0320
34	Link-89	53.10	258.60	3.37	257.70	2.98	0.90	1.6900	Rectangular	0.300	20.000	0.0320
35	Link-90	90.00	258.75	1.82	257.75	1.65	1.00	1.1100	Rectangular	0.300	20.000	0.0320
36	Link-92	110.00	261.50	5.97	261.00	5.71	0.50	0.4500	Rectangular	0.300	20.000	0.0320
37	Link-93	340.00	261.00	5.71	257.70	2.98	3.30	0.9700	Rectangular	0.300	20.000	0.0320
38	Link-94	95.00	259.35	3.58	257.75	1.65	1.60	1.6800	Rectangular	0.300	20.000	0.0320
39	LowerRavine	124.00	253.00	0.00	252.45	0.00	0.55	0.4400	Trapezoidal	4.000	17.000	0.0320
40	OutletRavine	45.00	252.45	0.00	252.00	0.00	0.45	1.0000	Trapezoidal	4.000	17.000	0.0320
41	RH_C1	215.00	269.00	0.00	264.00	0.00	5.00	2.3300	Trapezoidal	1.500	7.000	0.0320
42	RH_C2	60.00	264.00	0.00	263.50	1.50	0.50	0.8300	Trapezoidal	1.500	7.000	0.0320
43	UpperRavine	553.00	256.10	0.00	253.00	0.00	3.10	0.5600	Trapezoidal	4.000	17.000	0.0320

Channel Results

SN Element ID	Peak Flow	Time of Peak Flow Occurrence	Design Flow Capacity	Peak Flow/ Design Flow Ratio	Peak Flow Velocity	Travel Time	Peak Flow Depth	Peak Flow Depth/ Total Depth Ratio	Total Tir Surcharg
	(cms)	(days hh:mm)	(cms)		(m/sec)	(min)	(m)		(m)
1 Link-103	0.00	0 00:00	11.65	0.00	0.00		0.00	0.00	0.
2 Link-104	0.00	0 00:00	11.65	0.00	0.00		0.00	0.00	0.
3 Link-122	0.00	0 00:00	8.24	0.00	0.00		0.00	0.00	0.
4 Link-123	0.00	0 00:00	2.75	0.00	0.00		0.00	0.00	0.
5 Link-124	0.00	0 00:00	2.75	0.00	0.00		0.00	0.00	0.
6 Link-125	0.33	0 12:00	11.36	0.03	0.49	1.70	0.03	0.11	0.
7 Link-126	0.16	0 12:00	11.36	0.01	0.37	2.25	0.02	0.07	0.
8 Link-127	0.00	0 00:00	2.61	0.00	0.00		0.00	0.00	0.
9 Link-128	0.00	0 00:00	2.13	0.00	0.00		0.00	0.00	0.
10 Link-129	0.00	0 00:00	2.91	0.00	0.00		0.00	0.00	0.
11 Link-130	0.00	0 00:00	2.61	0.00	0.00		0.00	0.00	0.
12 Link-131	0.06	0 12:05	3.11	0.02	0.12	9.72	0.03	0.09	0.
13 Link-132	0.00	0 12:04	4.76	0.00	0.05	50.00	0.00	0.01	0.
14 Link-133	0.00	0 00:00	10.85	0.00	0.00		0.00	0.00	0.
15 Link-134	0.00	0 00:00	10.68	0.00	0.00		0.00	0.00	0.
16 Link-135	0.00	0 00:00	10.09	0.00	0.00		0.00	0.00	0.
17 Link-34	3.57	0 12:01	6.63	0.54	0.75	6.00	0.24	0.84	0.
18 Link-35	3.40	0 12:00	18.43	0.18	1.10	0.76	0.19	0.66	0.
19 Link-36	5.10	0 12:05	6.43	0.79	1.05	3.52	0.24	0.81	0.
20 Link-37	4.95	0 12:06	12.28	0.40	1.36	0.22	0.20	0.70	0.
21 Link-38	1.43	0 12:01	10.80	0.13	0.75	5.04	0.15	0.52	0.
22 Link-39	6.00	0 12:09	8.48	0.71	1.22	5.67	0.25	0.83	0.
23 Link-41	0.11	0 12:08	12.36	0.01	0.32	9.38	0.02	0.07	0.
24 Link-42	0.14	0 12:22	9.36	0.02	0.07	36.90	0.15	0.49	0.
25 Link-43	5.73	0 12:14	7.79	0.74	1.21	1.93	0.24	0.81	0.
26 Link-44	4.66	0 12:21	7.84	0.59	1.12	6.99	0.21	0.69	0.
27 Link-45	0.32	0 12:41	9.33	0.03	0.40	8.13	0.05	0.16	0.
28 Link-46	0.39	0 12:55	8.09	0.05	0.43	10.85	0.05	0.15	0.
29 Link-51	1.06	0 12:00	4.89	0.22	0.93	1.16	0.11	0.38	0.
30 Link-61	1.01	0 12:12	4.86	0.21	0.64	3.26	0.73	0.73	0.
31 Link-63	0.95	0 12:08	4.86	0.19	0.46	5.89	0.65	0.65	0.
32 Link-66	1.12	0 12:02	4.22	0.26	0.53	4.18	0.70	0.70	0.
33 Link-67	0.05	0 12:00	4.86	0.01	0.08	15.63	0.43	0.45	0.
34 Link-89	0.00	0 00:00	10.73	0.00	0.00		0.00	0.00	0.
35 Link-90	0.02	0 12:03	8.69	0.00	0.01	150.00	0.13	0.45	0.
36 Link-92	0.00	0 00:00	5.56	0.00	0.00		0.00	0.00	0.
37 Link-93	0.00	0 00:00	8.12	0.00	0.00		0.00	0.00	0.
38 Link-94	0.24	0 12:02	10.69	0.02	0.19	8.33	0.13	0.45	0.
39 LowerRavine	7.58	0 12:28	157.98	0.05	1.55	1.33	0.79	0.20	0.
40 OutletRavine	7.62	0 12:29	237.22	0.03	1.98	0.38	0.64	0.16	0.
41 RH_C1	2.28	0 12:00	24.20	0.09	1.72	2.08	0.60	0.40	0.
42 RH_C2	2.34	0 12:01	14.49	0.16	1.60	0.63	0.62	0.43	0.
43 UpperRavine	6.81	0 12:24	177.61	0.04	1.45	6.36	0.78	0.20	0.

Pipe Input

SN	Element ID	Length	Inlet Invert Elevation	Inlet Invert Offset	Outlet Invert Elevation	Outlet Invert Offset	Total Drop	Average Slope	Pipe Shape	Pipe Diameter or Height	Pipe Width	Meters
		(m)	(m)	(m)	(m)	(m)	(m)	(%)		(m)	(m)	
1	Ex.STM_1	107.00	257.37	0.00	256.94	0.00	0.43	0.4000	CIRCULAR	0.450	0.450	
2	Ex.STM_2	73.00	256.94	0.00	256.64	0.00	0.30	0.4100	CIRCULAR	0.450	0.450	
3	Ex.STM_3	27.00	256.64	0.00	256.48	0.00	0.16	0.5900	CIRCULAR	0.450	0.450	
4	Ex.STM_4	100.00	256.48	0.00	255.88	0.00	0.60	0.6000	CIRCULAR	0.450	0.450	
5	Ex.STM_5	100.00	255.88	0.00	255.48	0.00	0.40	0.4000	CIRCULAR	0.530	0.530	
6	Ex.STM_6	50.00	255.48	0.00	255.23	0.00	0.25	0.5000	CIRCULAR	0.530	0.530	
7	Ex.STM_7	102.00	255.23	0.00	254.82	0.00	0.41	0.4000	CIRCULAR	0.600	0.600	
8	Link-106	24.80	253.16	0.00	252.85	-0.15	0.31	1.2500	CIRCULAR	0.750	0.750	
9	Link-107	93.20	254.35	0.10	253.20	0.04	1.15	1.2300	CIRCULAR	0.750	0.750	
10	Link-108	110.30	255.48	0.00	255.37	0.08	0.11	0.1000	CIRCULAR	1.200	1.200	
11	Link-109	30.00	257.70	0.00	257.55	0.00	0.15	0.5000	CIRCULAR	1.050	1.050	
12	Link-110	153.00	255.69	0.00	255.48	0.00	0.21	0.1400	CIRCULAR	0.900	0.900	
13	Link-111	66.80	255.86	0.00	255.77	0.08	0.09	0.1300	CIRCULAR	0.750	0.750	
14	Link-112	106.60	256.21	0.00	255.91	0.05	0.30	0.2800	CIRCULAR	0.600	0.600	
15	Link-113	97.50	256.47	0.00	255.88	0.19	0.59	0.6100	CIRCULAR	0.530	0.530	
16	Link-114	85.10	256.79	0.00	255.73	0.38	1.06	1.2500	CIRCULAR	0.450	0.450	
17	Link-115	50.00	258.65	0.00	258.50	0.05	0.15	0.3000	CIRCULAR	0.530	0.530	
18	Link-116	50.00	258.75	0.00	258.55	0.10	0.20	0.4000	CIRCULAR	0.450	0.450	
19	Link-117	90.00	259.54	0.00	258.37	0.05	1.17	1.3000	CIRCULAR	0.680	0.680	
20	Link-118	41.60	260.00	0.00	259.56	0.02	0.44	1.0600	CIRCULAR	0.530	0.530	
21	Link-119	181.70	259.19	0.00	256.08	0.29	3.11	1.7100	CIRCULAR	0.600	0.600	
22	Link-120	140.50	260.46	0.00	259.24	0.05	1.22	0.8700	CIRCULAR	0.600	0.600	
23	Link-121	152.20	261.75	0.00	260.51	0.05	1.24	0.8100	CIRCULAR	0.530	0.530	
24	Link-49	20.70	254.62	0.00	254.60	1.60	0.02	0.1000	CIRCULAR	1.800	1.800	
25	Link-50	75.20	254.70	0.00	254.60	1.60	0.10	0.1300	CIRCULAR	0.600	0.600	
26	Link-52	35.00	254.72	0.00	254.67	0.05	0.05	0.1400	CIRCULAR	1.650	1.650	
27	Link-53	336.90	255.29	0.00	254.74	0.02	0.55	0.1600	CIRCULAR	1.350	1.350	
28	Link-54	110.00	255.53	0.00	255.31	0.02	0.22	0.2000	CIRCULAR	0.600	0.600	
29	Link-56	110.00	255.77	0.00	255.55	0.02	0.22	0.2000	CIRCULAR	0.600	0.600	
30	Link-57	95.50	256.10	0.00	255.85	0.08	0.25	0.2600	CIRCULAR	0.450	0.450	
31	Link-58	90.00	256.93	0.00	256.25	0.15	0.68	0.7600	CIRCULAR	0.300	0.300	
32	Link-59	53.10	255.23	0.00	255.13	0.41	0.10	0.1900	CIRCULAR	1.500	1.500	
33	Link-60	13.40	256.25	0.00	255.84	0.61	0.41	3.0600	CIRCULAR	1.500	1.500	
34	Link-62	25.00	256.90	0.00	256.75	0.00	0.15	0.6000	CIRCULAR	1.200	1.200	
35	Link-68	60.00	258.45	0.00	258.20	0.10	0.25	0.4200	CIRCULAR	0.600	0.600	
36	Link-70	57.00	255.35	0.00	255.25	0.02	0.10	0.1800	CIRCULAR	0.820	0.820	
37	Link-71	82.00	255.60	0.00	255.43	0.08	0.17	0.2100	CIRCULAR	0.750	0.750	
38	Link-72	85.00	255.79	0.17	255.62	0.02	0.17	0.2000	CIRCULAR	0.750	0.750	
39	Link-73	67.80	255.78	-0.01	255.10	0.38	0.68	1.0000	CIRCULAR	0.900	0.900	
40	Link-80	89.90	258.32	0.00	255.97	0.68	2.35	2.6100	CIRCULAR	0.750	0.750	
41	Link-81	93.20	261.13	0.00	259.27	0.95	1.86	2.0000	CIRCULAR	0.600	0.600	
42	Link-82	103.90	262.69	0.00	261.13	0.00	1.56	1.5000	CIRCULAR	0.600	0.600	
43	RH_A1	50.00	270.14	0.00	268.50	1.43	1.64	3.2800	CIRCULAR	0.300	0.300	
44	RH_B1	227.00	270.35	0.00	266.50	0.00	3.85	1.7000	CIRCULAR	0.300	0.300	
45	RH_C3	15.00	262.00	0.00	261.70	0.00	0.30	2.0000	CIRCULAR	0.600	0.600	
46	RH_C4	195.00	261.70	0.00	259.38	0.00	2.32	1.1900	CIRCULAR	0.530	0.530	
47	RH_C5	274.00	259.38	0.00	256.36	0.00	3.02	1.1000	CIRCULAR	0.530	0.530	
48	RH_C6	6.00	256.36	0.00	256.24	0.14	0.12	2.0000	CIRCULAR	0.700	0.700	

100-YEAR STORM

No. of
Barrels

1

Pipe Results

SN Element ID	Peak Flow	Time of Peak Flow Occurrence	Design Flow Capacity	Peak Flow/ Design Flow Ratio	Peak Flow Velocity	Travel Time	Peak Flow Depth	Peak Flow Depth/ Total Depth Ratio	To Sur
	(cms)	(days hh:mm)	(cms)		(m/sec)	(min)	(m)		
1 Ex.STM_1	0.25	0 12:00	0.18	1.38	1.56	1.14	0.45	1.00	
2 Ex.STM_2	0.25	0 12:00	0.18	1.36	1.56	0.78	0.45	1.00	
3 Ex.STM_3	0.25	0 12:00	0.22	1.13	1.56	0.29	0.45	1.00	
4 Ex.STM_4	0.25	0 12:00	0.22	1.13	1.59	1.05	0.45	0.99	
5 Ex.STM_5	0.25	0 12:01	0.27	0.91	1.33	1.25	0.43	0.83	
6 Ex.STM_6	0.25	0 12:02	0.30	0.82	1.40	0.60	0.40	0.77	
7 Ex.STM_7	0.25	0 12:03	0.39	0.64	1.44	1.18	0.35	0.59	
8 Link-106	1.12	0 13:09	0.89	1.25	2.55	0.16	0.75	1.00	
9 Link-107	1.12	0 13:09	1.24	0.90	2.53	0.61	0.75	1.00	
10 Link-108	1.18	0 12:04	1.23	0.96	1.04	1.77	1.20	1.00	
11 Link-109	0.97	0 12:06	1.93	0.50	1.67	0.30	0.66	0.64	
12 Link-110	0.88	0 12:03	0.67	1.32	1.39	1.83	0.90	1.00	
13 Link-111	0.54	0 12:01	0.41	1.31	1.22	0.91	0.75	1.00	
14 Link-112	0.24	0 12:00	0.33	0.74	0.85	2.09	0.60	1.00	
15 Link-113	0.55	0 11:59	0.33	1.65	2.54	0.64	0.52	1.00	
16 Link-114	0.44	0 11:58	0.32	1.37	2.74	0.52	0.45	1.00	
17 Link-115	0.35	0 12:11	0.24	1.49	1.62	0.51	0.52	1.00	
18 Link-116	0.21	0 12:01	0.18	1.16	1.32	0.63	0.45	1.00	
19 Link-117	0.67	0 12:00	0.96	0.70	2.55	0.59	0.51	0.82	
20 Link-118	0.30	0 12:00	0.44	0.69	1.68	0.41	0.41	0.79	
21 Link-119	0.89	0 12:06	0.80	1.11	3.15	0.96	0.60	1.00	
22 Link-120	0.51	0 12:09	0.57	0.89	1.92	1.22	0.60	1.00	
23 Link-121	0.60	0 12:00	0.39	1.56	2.79	0.91	0.52	1.00	
24 Link-49	6.35	0 12:06	3.57	1.78	2.76	0.13	1.80	1.00	
25 Link-50	0.67	0 12:00	0.22	2.99	2.37	0.53	0.60	1.00	
26 Link-52	6.35	0 12:06	3.45	1.84	2.97	0.20	1.65	1.00	
27 Link-53	3.10	0 12:03	2.16	1.44	2.16	2.60	1.35	1.00	
28 Link-54	0.82	0 12:00	0.27	2.98	2.89	0.63	0.60	1.00	
29 Link-56	0.53	0 12:01	0.27	1.91	1.86	0.99	0.60	1.00	
30 Link-57	0.34	0 11:59	0.15	2.30	2.11	0.75	0.45	1.00	
31 Link-58	0.10	0 11:58	0.08	1.13	1.35	1.11	0.30	1.00	
32 Link-59	2.08	0 12:13	3.07	0.68	1.18	0.75	1.50	1.00	
33 Link-60	1.34	0 12:13	12.37	0.11	2.32	0.10	1.11	0.76	
34 Link-62	1.02	0 12:10	3.02	0.34	1.59	0.26	0.66	0.55	
35 Link-68	0.52	0 12:00	0.40	1.32	1.96	0.51	0.54	0.91	
36 Link-70	1.24	0 12:01	0.60	2.06	2.31	0.41	0.82	1.00	
37 Link-71	0.89	0 12:00	0.51	1.75	2.01	0.68	0.75	1.00	
38 Link-72	0.37	0 12:00	0.50	0.73	0.83	1.71	0.75	1.00	
39 Link-73	0.92	0 12:08	1.83	0.50	1.44	0.78	0.90	1.00	
40 Link-80	1.07	0 12:00	1.80	0.60	3.32	0.45	0.71	1.00	
41 Link-81	0.48	0 12:00	0.87	0.56	2.97	0.52	0.33	0.56	
42 Link-82	0.49	0 12:00	0.75	0.65	2.69	0.64	0.37	0.61	
43 RH_A1	0.23	0 11:42	0.18	1.31	3.26	0.26	0.30	1.00	
44 RH_B1	0.14	0 11:41	0.13	1.10	1.95	1.94	0.30	1.00	
45 RH_C3	0.73	0 12:38	0.87	0.84	2.57	0.10	0.60	1.00	
46 RH_C4	0.42	0 11:55	0.41	1.04	2.09	1.56	0.52	1.00	
47 RH_C5	0.48	0 12:55	0.45	1.06	2.22	2.06	0.52	1.00	

Project Description

File Name	18010_Post-Development Rev.0.SPF
Description	I:\ACAD Projects\2018\18010\03-Ref\18010_Pre-Dev. Storm
	I:\ACAD Projects\2018\18010\03-Ref\18010_Pre-Dev. Storm
	I:\ACAD Projects\2018\18010\03-Ref\18010_Post-Dev.Storm
	I:\ACAD Projects\2018\18010\03-Ref\18010_Post-Dev.Storm

Project Options

Flow Units	CMS
Elevation Type	Elevation
Hydrology Method	EPA SWMM
EPA SWMM Infiltration Method	SCS Curve Number
Link Routing Method	Hydrodynamic
Enable Overflow Ponding at Nodes	YES
Skip Steady State Analysis Time Periods	YES

Analysis Options

Start Analysis On	00:00:00	0:00:00
End Analysis On	00:00:00	0:00:00
Start Reporting On	00:00:00	0:00:00
Antecedent Dry Days	0	days
Runoff (Dry Weather) Time Step	0 01:00:00	days hh:mm:ss
Runoff (Wet Weather) Time Step	0 00:05:00	days hh:mm:ss
Reporting Time Step	0 00:05:00	days hh:mm:ss
Routing Time Step	30	seconds

Number of Elements

	Qty
Rain Gages	1
Subbasins.....	58
Nodes.....	77
<i>Junctions</i>	69
<i>Outfalls</i>	5
<i>Flow Diversions</i>	0
<i>Inlets</i>	0
<i>Storage Nodes</i>	3
Links.....	109
<i>Channels</i>	43
<i>Pipes</i>	61
<i>Pumps</i>	0
<i>Orifices</i>	1
<i>Weirs</i>	4
<i>Outlets</i>	0
Pollutants	0
Land Uses	0

Subbasin Summary

SN Subbasin ID	Area	Impervious Area	Weighted Curve Number	Average Slope	Equivalent Width	Impervious Area Manning's Roughness	Pervious Area Manning's Roughness	Total Rainfall	Total Infiltration	Total Runoff	Total Runoff Volume	Peak Runoff	Time of Concentration
	(ha)	(%)		(%)	(m)			(mm)	(mm)	(mm)	(ha-mm)	(cms)	(days hh:mm:ss)
1 {Survey Site}.Standard : 10	0.92	2.00	67.00	2.0000	125.00	0.0130	0.2000	113.99	63.1380	49.61	45.54	0.10	0 01:00:04
2 {Survey Site}.Standard : 11	21.38	2.00	67.00	2.0000	360.00	0.0130	0.2000	113.99	60.6140	55.73	1191.54	0.61	0 03:30:35
3 {Survey Site}.Standard : 12	0.71	5.00	67.00	2.0000	90.00	0.0130	0.2000	113.99	61.2320	51.50	36.57	0.08	0 01:01:33
4 {Survey Site}.Standard : 13	1.65	45.00	71.05	2.0000	220.00	0.0130	0.2000	113.99	32.2840	80.47	132.62	0.51	0 00:42:59
5 {Survey Site}.Standard : 14	4.32	2.00	67.00	2.0000	350.00	0.0130	0.2000	113.99	63.5310	49.21	212.57	0.34	0 01:22:02
6 {Survey Site}.Standard : 17	0.36	5.00	67.00	5.0000	20.00	0.0130	0.2000	113.99	61.4770	51.25	18.24	0.03	0 01:16:12
7 {Survey Site}.Standard : 18	13.10	5.00	48.00	10.0000	300.00	0.0130	0.2000	113.99	82.0340	30.71	402.21	0.49	0 01:46:01
8 {Survey Site}.Standard : 19	1.32	55.00	75.95	2.0000	90.00	0.0130	0.2000	113.99	23.2910	89.52	118.17	0.44	0 00:57:02
9 {Survey Site}.Standard : 2	20.86	45.00	71.05	2.0000	300.00	0.0130	0.2000	113.99	33.4560	79.29	1654.24	4.23	0 02:43:41
10 {Survey Site}.Standard : 23	2.20	5.00	48.00	10.0000	100.00	0.0130	0.2000	113.99	81.3380	31.38	68.98	0.11	0 01:10:14
11 {Survey Site}.Standard : 26	1.12	45.00	71.05	2.0000	40.00	0.0130	0.2000	113.99	32.7660	80.02	89.94	0.28	0 01:35:02
12 {Survey Site}.Standard : 27	0.43	45.00	71.05	2.0000	60.00	0.0130	0.2000	113.99	32.2700	80.48	34.37	0.13	0 00:41:41
13 {Survey Site}.Standard : 28	0.12	45.00	71.05	2.0000	40.00	0.0130	0.2000	113.99	32.1270	80.59	9.91	0.04	0 00:25:11
14 {Survey Site}.Standard : 29	7.86	45.00	71.05	2.0000	110.00	0.0130	0.2000	113.99	33.4820	79.26	623.12	1.58	0 02:46:24
15 {Survey Site}.Standard : 3	25.14	45.00	71.05	2.0000	370.00	0.0130	0.2000	113.99	33.4300	79.31	1993.85	5.13	0 02:41:25
16 {Survey Site}.Standard : 30	20.00	30.00	63.70	2.0000	225.00	0.0130	0.2000	113.99	50.2530	62.50	1249.67	2.73	0 03:39:09
17 {Survey Site}.Standard : 31	5.54	5.00	57.00	2.0000	245.00	0.0130	0.2000	113.99	73.5620	39.19	217.25	0.26	0 01:55:50
18 {Survey Site}.Standard : 32	3.34	2.00	67.00	2.0000	95.00	0.0130	0.2000	113.99	64.8500	47.87	159.65	0.13	0 02:33:36
19 {Survey Site}.Standard : 33	7.71	2.00	67.00	2.0000	215.00	0.0130	0.2000	113.99	64.9060	47.84	368.62	0.29	0 02:35:32
20 {Survey Site}.Standard : 4	3.13	2.00	67.00	2.0000	155.00	0.0130	0.2000	113.99	64.0360	48.69	152.45	0.18	0 01:50:15
21 {Survey Site}.Standard : 46	5.62	2.00	67.00	2.0000	200.00	0.0130	0.2000	113.99	64.4850	48.24	271.29	0.25	0 02:14:27
22 {Survey Site}.Standard : 5	10.46	45.00	71.05	0.5000	235.00	0.0130	0.2000	113.99	33.5730	79.00	826.22	1.98	0 03:09:49
23 {Survey Site}.Standard : 51	0.39	95.00	95.55	0.5000	20.00	0.0130	0.2000	113.99	0.5490	112.01	43.12	0.15	0 00:30:54
24 {Survey Site}.Standard : 52	10.94	2.00	36.00	0.5000	240.00	0.0130	0.2000	113.99	91.2700	19.56	214.01	0.12	0 04:32:19
25 {Survey Site}.Standard : 53	0.36	75.00	85.75	3.0000	20.00	0.0130	0.2000	113.99	8.2490	104.11	37.90	0.15	0 00:40:24
26 {Survey Site}.Standard : 54	3.94	75.00	85.75	2.0000	150.00	0.0130	0.2000	113.99	8.2490	104.02	409.74	1.52	0 00:56:51
27 {Survey Site}.Standard : 57	0.38	15.00	56.35	2.0000	125.00	0.0130	0.2000	113.99	65.0550	47.71	18.27	0.06	0 00:32:38
28 {Survey Site}.Standard : 6	11.54	2.00	67.00	2.0000	280.00	0.0130	0.2000	113.99	65.1590	47.57	549.04	0.38	0 02:49:08
29 {Survey Site}.Standard : 63	1.63	55.00	75.95	2.0000	90.00	0.0130	0.2000	113.99	23.3470	89.47	145.75	0.52	0 01:04:42
30 {Survey Site}.Standard : 65	1.71	55.00	75.95	2.0000	130.00	0.0130	0.2000	113.99	23.2670	89.55	153.03	0.57	0 00:53:24

Subbasin Summary

SN	Subbasin ID	Area	Impervious Area	Weighted Curve Number	Average Slope	Equivalent Width	Impervious Area Manning's Roughness	Pervious Area Manning's Roughness	Total Rainfall	Total Infiltration	Total Runoff	Total Runoff Volume	Peak Runoff	Time of Concentration
		(ha)	(%)		(%)	(m)			(mm)	(mm)	(mm)	(ha-mm)	(cms)	(days hh:mm:ss)
48	{Survey Site}.Standard : 84	1.00	55.00	75.95	2.0000	50.00	0.0130	0.2000	113.99	23.3790	89.44	89.80	0.32	0 01:08:52
49	{Survey Site}.Standard : 85	1.78	55.00	75.95	2.0000	70.00	0.0130	0.2000	113.99	23.4520	89.36	159.32	0.54	0 01:19:26
50	{Survey Site}.Standard : 86	1.43	55.00	75.95	2.0000	100.00	0.0130	0.2000	113.99	23.2910	89.53	127.58	0.47	0 00:56:03
51	{Survey Site}.Standard : 87	2.66	55.00	75.95	2.0000	100.00	0.0130	0.2000	113.99	23.4680	89.34	237.37	0.80	0 01:21:28
52	{Survey Site}.Standard : 88	1.64	55.00	75.95	2.0000	75.00	0.0130	0.2000	113.99	23.4040	89.41	146.46	0.51	0 01:12:25
53	{Survey Site}.Standard : 89	1.11	55.00	75.95	2.0000	100.00	0.0130	0.2000	113.99	23.2340	89.58	99.70	0.38	0 00:48:20
54	{Survey Site}.Standard : 9	3.53	2.00	67.00	2.0000	100.00	0.0130	0.2000	113.99	64.8780	47.86	169.05	0.13	0 02:34:10
55	{Survey Site}.Standard : 90	1.22	65.00	80.85	2.0000	130.00	0.0130	0.2000	113.99	15.0360	97.57	118.54	0.49	0 00:37:26
56	{Survey Site}.Standard : 91	1.00	65.00	80.85	2.0000	130.00	0.0130	0.2000	113.99	15.0360	97.57	97.28	0.41	0 00:33:14
57	{Survey Site}.Standard : 92	2.19	55.00	75.95	2.0000	75.00	0.0130	0.2000	113.99	23.5000	89.30	195.83	0.64	0 01:26:17
58	{Survey Site}.Standard : 93	2.32	15.00	56.35	5.0000	525.00	0.0130	0.2000	113.99	65.0190	47.74	110.71	0.40	0 00:30:53

Node Summary

SN	Element ID	Element Type	Invert Elevation	Ground/Rim (Max) Elevation	Initial Water Elevation	Surcharge Elevation	Ponded Area	Peak Inflow	Max HGL Elevation Attained	Max Surcharge Depth Attained	Min Freeboard Attained	Time of Peak Flooding Occurrence	Total Flooded Volume	Total Time Flooded
			(m)	(m)	(m)	(m)	(m²)	(cms)	(m)	(m)	(m)	(days hh:mm)	(ha-mm)	(min)
1	Ex_MHR1	Junction	255.88	262.50	0.00	0.00	0.00	0.25	256.32	0.00	6.18	0 00:00	0.00	0.00
2	Ex_MHR2	Junction	255.48	259.65	0.00	0.00	0.00	0.25	255.91	0.00	3.74	0 00:00	0.00	0.00
3	Ex_MHR25	Junction	256.48	263.35	0.00	0.00	0.00	0.25	257.54	0.00	5.81	0 00:00	0.00	0.00
4	Ex_MHR26	Junction	256.64	262.75	0.00	0.00	0.00	0.25	257.91	0.00	4.84	0 00:00	0.00	0.00
5	Ex_MHR27	Junction	256.94	261.00	0.00	0.00	0.00	0.25	258.39	0.00	2.61	0 00:00	0.00	0.00
6	Ex_MHR28	Junction	257.37	259.30	0.00	0.00	0.00	1.58	259.14	0.00	0.16	0 00:00	0.00	0.00
7	Ex_MHR3	Junction	255.23	259.00	0.00	0.00	0.00	0.25	255.61	0.00	3.39	0 00:00	0.00	0.00
8	Jun-34	Junction	254.62	258.25	0.00	0.00	0.00	6.77	256.67	0.00	1.58	0 00:00	0.00	0.00
9	Jun-35	Junction	254.70	257.50	0.00	0.00	0.00	0.79	257.37	0.00	0.13	0 00:00	0.00	0.00
10	Jun-36	Junction	254.72	258.00	0.00	0.00	0.00	6.82	257.30	0.00	1.05	0 00:00	0.00	0.00
11	Jun-37	Junction	255.29	261.30	0.00	0.00	0.00	3.79	258.94	0.00	2.36	0 00:00	0.00	0.00
12	Jun-38	Junction	255.53	261.80	0.00	0.00	0.00	1.67	261.08	0.00	0.72	0 00:00	0.00	0.00
13	Jun-39	Junction	256.93	259.05	0.00	0.00	0.00	0.15	258.76	0.00	0.29	0 00:00	0.00	0.00
14	Jun-40	Junction	256.10	258.55	0.00	0.00	0.00	0.91	258.14	0.00	0.41	0 00:00	0.00	0.00
15	Jun-41	Junction	255.77	259.65	0.00	0.00	0.00	0.83	259.39	0.00	0.26	0 00:00	0.00	0.00
16	Jun-42	Junction	255.23	258.90	0.00	0.00	0.00	2.27	257.42	0.00	1.48	0 00:00	0.00	0.00
17	Jun-43	Junction	256.25	257.25	0.00	0.00	0.00	1.30	257.44	0.00	0.31	0 00:00	0.00	0.00
18	Jun-44	Junction	257.55	258.55	0.00	0.00	0.00	1.12	258.11	0.00	0.49	0 00:00	0.00	0.00
19	Jun-46	Junction	257.70	258.70	0.00	258.70	0.00	1.31	258.60	0.00	0.15	0 00:00	0.00	0.00
20	Jun-47	Junction	258.10	259.10	0.00	0.00	0.00	1.48	258.73	0.00	0.37	0 00:00	0.00	0.00
21	Jun-48	Junction	258.35	259.35	0.00	0.00	0.00	0.06	258.74	0.00	0.66	0 00:00	0.00	0.00
22	Jun-49	Junction	256.90	257.90	0.00	0.00	0.00	1.28	257.76	0.00	0.34	0 00:00	0.00	0.00
23	Jun-50	Junction	256.75	257.75	0.00	0.00	0.00	1.18	257.50	0.00	0.45	0 00:00	0.00	0.00
24	Jun-51	Junction	258.45	260.50	0.00	0.00	0.00	0.52	259.33	0.00	1.17	0 00:00	0.00	0.00
25	Jun-52	Junction	255.69	260.00	0.00	0.00	0.00	1.25	259.63	0.00	0.37	0 00:00	0.00	0.00
26	Jun-53	Junction	255.35	259.60	0.00	0.00	0.00	1.45	258.13	0.00	1.47	0 00:00	0.00	0.00
27	Jun-54	Junction	255.62	259.80	0.00	0.00	0.00	0.49	259.07	0.00	0.73	0 00:00	0.00	0.00
28	Jun-55	Junction	255.60	259.70	0.00	0.00	0.00	1.13	258.92	0.00	0.78	0 00:00	0.00	0.00
29	Jun-56	Junction	255.79	257.80	0.00	0.00	0.00	0.96	257.52	0.00	0.28	0 00:00	0.00	0.00
30	Jun-61	Junction	258.32	262.00	0.00	0.00	0.00	1.33	259.99	0.00	2.81	0 00:00	0.00	0.00

Node Summary

SN	Element ID	Element Type	Invert Elevation	Ground/Rim (Max) Elevation	Initial Water Elevation	Surcharge Elevation	Ponded Area	Peak Inflow	Max HGL Elevation Attained	Max Surcharge Depth Attained	Min Freeboard Attained	Time of Peak Flooding Occurrence	Total Flooded Volume	Total Time Flooded
			(m)	(m)	(m)	(m)	(m²)	(cms)	(m)	(m)	(m)	(days hh:mm)	(ha-mm)	(min)
48	Ravine_1	Junction	256.10	260.10	0.00	0.00	0.00	9.11	256.92	0.00	3.18	0 00:00	0.00	0.00
49	Ravine_2	Junction	253.00	257.00	0.00	0.00	0.00	10.36	254.03	0.00	2.97	0 00:00	0.00	0.00
50	Ravine_3	Junction	252.45	256.45	0.00	0.00	0.00	10.25	253.30	0.00	3.15	0 00:00	0.00	0.00
51	RH_1	Junction	267.60	271.70	0.00	0.00	0.00	5.13	271.63	0.00	0.07	0 00:00	0.00	0.00
52	RH_10	Junction	261.90	263.90	0.00	0.00	0.00	9.05	263.86	0.00	0.04	0 00:00	0.00	0.00
53	RH_11	Junction	260.33	262.55	0.00	0.00	0.00	8.19	262.54	0.00	0.01	0 00:00	0.00	0.00
54	RH_12	Junction	269.00	270.50	0.00	0.00	0.00	2.73	269.55	0.00	0.95	0 00:00	0.00	0.00
55	RH_13	Junction	264.00	266.50	0.00	0.00	0.00	2.92	264.77	0.00	1.73	0 00:00	0.00	0.00
56	RH_14	Junction	261.70	263.50	0.00	0.00	0.00	0.89	263.25	0.00	0.25	0 00:00	0.00	0.00
57	RH_15	Junction	259.38	261.00	0.00	0.00	0.00	1.13	260.77	0.00	0.23	0 00:00	0.00	0.00
58	RH_16	Junction	256.36	258.00	0.00	0.00	0.00	0.48	257.09	0.00	0.91	0 00:00	0.00	0.00
59	RH_17	Junction	256.42	258.00	0.00	0.00	0.00	1.68	257.80	0.00	0.20	0 00:00	0.00	0.00
60	RH_2	Junction	270.14	272.45	0.00	0.00	0.00	4.23	272.27	0.00	0.18	0 00:00	0.00	0.00
61	RH_3	Junction	267.07	270.50	0.00	0.00	0.00	8.84	270.35	0.00	0.15	0 00:00	0.00	0.00
62	RH_4	Junction	266.63	268.60	0.00	0.00	0.00	7.14	268.51	0.00	0.09	0 00:00	0.00	0.00
63	RH_5	Junction	270.35	272.10	0.00	0.00	0.00	1.98	271.90	0.00	0.20	0 00:00	0.00	0.00
64	RH_6	Junction	266.50	268.20	0.00	0.00	0.00	8.73	268.18	0.00	0.02	0 00:00	0.00	0.00
65	RH_7	Junction	272.00	273.50	0.00	0.00	0.00	0.00	272.00	0.00	1.50	0 00:00	0.00	0.00
66	RH_8	Junction	267.75	269.85	0.00	0.00	0.00	0.48	269.58	0.00	0.27	0 00:00	0.00	0.00
67	RH_9	Junction	264.00	265.80	0.00	0.00	0.00	0.52	265.54	0.00	0.26	0 00:00	0.00	0.00
68	WestOutfall	Junction	257.00	258.40	0.00	0.00	0.00	0.08	257.00	0.00	2.45	0 00:00	0.00	0.00
69	WestWetland	Junction	258.00	259.00	0.00	0.00	0.00	0.12	258.00	0.00	1.00	0 00:00	0.00	0.00
70	North_Wetland	Outfall	252.00					0.45	252.00					
71	Outfall	Outfall	252.00					10.25	252.70					
72	TinerEstatesSTM	Outfall	254.82					0.25	255.14					
73	West_Outfall	Outfall	257.00					0.08	257.00					
74	West_Wetland	Outfall	258.00					0.12	258.00					
75	Ex_SE_Pond	Storage Node	262.00	266.00	0.00		0.00	3.23	264.07				0.00	0.00
76	SWM_FB	Storage Node	253.00	256.80	254.50		0.00	6.81	256.62				0.00	0.00
77	SWM_WP	Storage Node	253.00	256.80	254.50		0.00	6.12	256.62				0.00	0.00

Link Summary

SN Element ID	Element Type	From (Inlet) Node	To (Outlet) Node	Length	Inlet Invert Elevation	Outlet Invert Elevation	Average Slope	Diameter or Height	Manning's Roughness	Peak Flow	Design Flow Capacity	Peak Flow/ Design Flow Ratio	Peak Flow Velocity
				(m)	(m)	(m)	(%)	(m)		(cms)	(cms)		(m/sec)
1 Ex.STM_1	Pipe	Ex_MHR28	Ex_MHR27	107.00	257.37	256.94	0.4000	0.450	0.0130	0.25	0.18	1.38	1.5
2 Ex.STM_2	Pipe	Ex_MHR27	Ex_MHR26	73.00	256.94	256.64	0.4100	0.450	0.0130	0.25	0.18	1.36	1.5
3 Ex.STM_3	Pipe	Ex_MHR26	Ex_MHR25	27.00	256.64	256.48	0.5900	0.450	0.0130	0.25	0.22	1.13	1.5
4 Ex.STM_4	Pipe	Ex_MHR25	Ex_MHR1	100.00	256.48	255.88	0.6000	0.450	0.0130	0.25	0.22	1.13	1.5
5 Ex.STM_5	Pipe	Ex_MHR1	Ex_MHR2	100.00	255.88	255.48	0.4000	0.525	0.0130	0.25	0.27	0.92	1.3
6 Ex.STM_6	Pipe	Ex_MHR2	Ex_MHR3	50.00	255.48	255.23	0.5000	0.525	0.0130	0.25	0.30	0.82	1.4
7 Ex.STM_7	Pipe	Ex_MHR3	TinerEstatesSTM	102.00	255.23	254.82	0.4000	0.600	0.0130	0.25	0.39	0.64	1.4
8 Link-106	Pipe	Jun-66	Ravine_2	24.80	253.16	252.85	1.2500	0.750	0.0130	1.27	0.89	1.42	2.8
9 Link-107	Pipe	OutletStructure	Jun-66	93.20	254.35	253.20	1.2300	0.750	0.0130	1.27	1.24	1.03	2.8
10 Link-108	Pipe	Jun-67	Jun-37	110.30	255.48	255.37	0.1000	1.200	0.0130	1.32	1.23	1.07	1.1
11 Link-109	Pipe	Jun-46	Jun-44	30.00	257.70	257.55	0.5000	1.050	0.0130	1.12	1.93	0.58	1.7
12 Link-110	Pipe	Jun-52	Jun-67	153.00	255.69	255.48	0.1400	0.900	0.0130	1.01	0.67	1.50	1.5
13 Link-111	Pipe	Jun-68	Jun-52	66.80	255.86	255.77	0.1300	0.750	0.0130	0.63	0.41	1.54	1.4
14 Link-112	Pipe	Jun-69	Jun-68	106.60	256.21	255.91	0.2800	0.600	0.0130	0.38	0.33	1.17	1.3
15 Link-113	Pipe	Jun-70	Jun-52	97.50	256.47	255.88	0.6100	0.525	0.0130	0.64	0.33	1.93	2.9
16 Link-114	Pipe	Jun-71	Jun-53	85.10	256.79	255.73	1.2500	0.450	0.0130	0.44	0.32	1.37	2.7
17 Link-115	Pipe	Jun-73	Jun-51	50.00	258.65	258.50	0.3000	0.525	0.0130	0.35	0.24	1.47	1.6
18 Link-116	Pipe	Jun-72	Jun-51	50.00	258.75	258.55	0.4000	0.450	0.0130	0.21	0.18	1.16	1.3
19 Link-117	Pipe	Jun-74	Jun-61	90.00	259.54	258.37	1.3000	0.675	0.0130	0.77	0.96	0.81	2.5
20 Link-118	Pipe	Jun-75	Jun-74	41.60	260.00	259.56	1.0600	0.525	0.0130	0.35	0.44	0.79	1.7
21 Link-119	Pipe	Jun-76	Jun-56	181.70	259.19	256.08	1.7100	0.600	0.0130	0.91	0.80	1.14	3.2
22 Link-120	Pipe	Jun-77	Jun-76	140.50	260.46	259.24	0.8700	0.600	0.0130	0.51	0.57	0.89	1.9
23 Link-121	Pipe	Jun-78	Jun-77	152.20	261.75	260.51	0.8100	0.525	0.0130	0.61	0.39	1.57	2.8
24 Link-49	Pipe	Jun-34	SWM_FB	20.70	254.62	254.60	0.1000	1.800	0.0130	6.77	3.57	1.89	2.9
25 Link-50	Pipe	Jun-35	SWM_WP	75.20	254.70	254.60	0.1300	0.600	0.0130	0.79	0.22	3.51	2.7
26 Link-52	Pipe	Jun-36	Jun-34	35.00	254.72	254.67	0.1400	1.650	0.0130	6.77	3.45	1.96	3.1
27 Link-53	Pipe	Jun-37	Jun-36	336.90	255.29	254.74	0.1600	1.350	0.0130	3.45	2.16	1.60	2.4
28 Link-54	Pipe	Jun-38	Jun-37	110.00	255.53	255.31	0.2000	0.600	0.0130	0.86	0.27	3.13	3.0
29 Link-56	Pipe	Jun-41	Jun-38	110.00	255.77	255.55	0.2000	0.600	0.0130	0.69	0.27	2.51	2.4
30 Link-57	Pipe	Jun-40	Jun-41	95.50	256.10	255.85	0.2600	0.450	0.0130	0.34	0.15	2.30	2.1

Link Summary

SN Element ID	Element Type	From (Inlet) Node	To (Outlet) Node	Length	Inlet Invert Elevation	Outlet Invert Elevation	Average Slope	Diameter or Height	Manning's Roughness	Peak Flow	Design Flow Capacity	Peak Flow/ Design Flow Ratio	Peak Flow Velocity
				(m)	(m)	(m)	(%)	(m)		(cms)	(cms)		(m/sec)
48 RH_C6	Pipe	RH_16	Ravine_1	6.00	256.36	256.24	2.0000	0.700	0.0130	0.48	1.31	0.37	1.6
49 RH_D1	Pipe	RH_7	RH_8	275.00	272.00	267.75	1.5500	0.300	0.0130	0.00	0.12	0.00	0.0
50 RH_D2	Pipe	RH_8	RH_9	180.00	267.75	264.00	2.0800	0.300	0.0130	0.15	0.14	1.04	2.1
51 RH_D3	Pipe	RH_9	RH_10	155.00	264.00	261.90	1.3500	0.375	0.0130	0.19	0.20	0.93	1.7
52 RH_M1	Pipe	RH_1	RH_3	270.00	267.60	267.07	0.2000	0.600	0.0130	0.49	0.27	1.81	1.7
53 RH_M2	Pipe	RH_3	RH_4	222.00	267.07	266.63	0.2000	0.675	0.0130	0.80	0.37	2.13	2.2
54 RH_M3	Pipe	RH_4	RH_6	18.00	266.63	266.50	0.7200	0.750	0.0130	1.05	0.95	1.11	2.3
55 RH_M4	Pipe	RH_6	RH_10	415.00	266.50	261.90	1.1100	0.675	0.0130	0.90	0.89	1.02	2.5
56 RH_M5	Pipe	RH_10	RH_11	140.00	261.90	260.33	1.1200	0.675	0.0130	1.03	0.89	1.16	2.9
57 RH_M6	Pipe	RH_11	RH_17	464.00	260.33	256.42	0.8400	0.750	0.0130	1.09	1.02	1.06	2.4
58 RH_M7	Pipe	RH_17	Ravine_1	6.00	256.42	256.37	0.8300	1.000	0.0130	1.68	2.19	0.77	2.4
59 West_Link	Pipe	WestOutfall	West_Outfall	33.73	256.00	257.00	-2.9600	0.000	0.0130	0.08	0.00	0.05	0.0
60 WestWetland_Link	Pipe	WestWetland	West_Wetland	37.13	258.00	258.00	0.0000	0.000	0.0130	0.12	0.00	0.05	0.0
61 Wetland_Link	Pipe	NorthWetland	North_Wetland	41.51	252.00	252.00	0.0000	0.000	0.0130	0.45	0.00	0.05	0.0
62 Link-103	Channel	Jun-36	SWM_FB	10.00	257.70	257.50	2.0000	0.300	0.0320	0.00	11.65	0.00	0.0
63 Link-104	Channel	Jun-56	SWM_FB	50.00	257.50	256.50	2.0000	0.300	0.0320	0.11	11.65	0.01	0.3
64 Link-122	Channel	Jun-53	Jun-42	70.00	259.30	258.60	1.0000	0.300	0.0320	0.00	8.24	0.00	0.0
65 Link-123	Channel	Jun-55	Jun-53	90.00	259.40	259.30	0.1100	0.300	0.0320	0.00	2.75	0.00	0.0
66 Link-124	Channel	Jun-54	Jun-55	90.00	259.50	259.40	0.1100	0.300	0.0320	0.00	2.75	0.00	0.0
67 Link-125	Channel	Jun-73	Jun-47	50.00	259.65	258.70	1.9000	0.300	0.0320	0.45	11.36	0.04	0.5
68 Link-126	Channel	Jun-72	Jun-47	50.00	259.65	258.70	1.9000	0.300	0.0320	0.24	11.36	0.02	0.4
69 Link-127	Channel	Jun-67	Jun-54	100.00	259.60	259.50	0.1000	0.300	0.0320	0.00	2.61	0.00	0.0
70 Link-128	Channel	Jun-52	Jun-67	150.00	259.70	259.60	0.0700	0.300	0.0320	0.00	2.13	0.00	0.0
71 Link-129	Channel	Jun-68	Jun-52	80.00	259.80	259.70	0.1300	0.300	0.0320	0.00	2.91	0.00	0.0
72 Link-130	Channel	Jun-69	Jun-68	100.00	259.90	259.80	0.1000	0.300	0.0320	0.01	2.61	0.00	0.0
73 Link-131	Channel	Jun-71	Jun-53	70.00	259.40	259.30	0.1400	0.300	0.0320	0.18	3.11	0.06	0.1
74 Link-132	Channel	Jun-78	Jun-77	150.00	265.00	264.50	0.3300	0.300	0.0320	0.05	4.76	0.01	0.1
75 Link-133	Channel	Jun-77	Jun-76	150.00	264.50	261.90	1.7300	0.300	0.0320	0.00	10.85	0.00	0.0
76 Link-134	Channel	Jun-76	Jun-36	250.00	261.90	257.70	1.6800	0.300	0.0320	0.02	10.68	0.00	0.1
77 Link-135	Channel	Jun-61	Jun-37	100.00	262.50	261.00	1.5000	0.300	0.0320	0.00	10.09	0.00	0.0

Link Summary

SN Element ID	Element Type	From (Inlet) Node	To (Outlet) Node	Length	Inlet Invert Elevation	Outlet Invert Elevation	Average Slope	Diameter or Height	Manning's Roughness	Peak Flow	Design Flow Capacity	Peak Flow/ Design Flow Ratio	Peak Flow Velocity
				(m)	(m)	(m)	(%)	(m)		(cms)	(cms)		(m/sec)
95 Link-89	Channel	Jun-42	Jun-36	53.10	258.60	257.70	1.6900	0.300	0.0320	0.00	10.73	0.00	0.0
96 Link-90	Channel	Jun-39	Jun-40	90.00	258.75	257.75	1.1100	0.300	0.0320	0.04	8.69	0.00	0.0
97 Link-92	Channel	Jun-38	Jun-37	110.00	261.50	261.00	0.4500	0.300	0.0320	0.00	5.56	0.00	0.0
98 Link-93	Channel	Jun-37	Jun-36	340.00	261.00	257.70	0.9700	0.300	0.0320	0.00	8.12	0.00	0.0
99 Link-94	Channel	Jun-41	Jun-40	95.00	259.35	257.75	1.6800	0.300	0.0320	0.45	10.69	0.04	0.2
100 LowerRavine	Channel	Ravine_2	Ravine_3	124.00	253.00	252.45	0.4400	4.000	0.0320	10.19	157.98	0.06	1.6
101 OutletRavine	Channel	Ravine_3	Outfall	45.00	252.45	252.00	1.0000	4.000	0.0320	10.25	237.22	0.04	2.1
102 RH_C1	Channel	RH_12	RH_13	215.00	269.00	264.00	2.3300	1.500	0.0320	2.66	24.20	0.11	1.7
103 RH_C2	Channel	RH_13	Ex_SE_Pond	60.00	264.00	263.50	0.8300	1.500	0.0320	2.77	14.49	0.19	1.6
104 UpperRavine	Channel	Ravine_1	Ravine_2	553.00	256.10	253.00	0.5600	4.000	0.0320	8.97	177.61	0.05	1.5
105 Orifice-01	Orifice	SWM_WP	OutletStructure		253.00	254.25		0.170		0.08			
106 Link-91	Weir	Jun-40	WestOutfall		256.10	257.00				0.00			
107 Weir-01	Weir	SWM_FB	SWM_WP		253.00	253.00				4.95			
108 Weir-04	Weir	SWM_WP	OutletStructure		253.00	254.25				1.23			
109 Weir-05	Weir	SWM_WP	Ravine_2		253.00	253.00				0.59			

Junction Input

SN	Element ID	Invert Elevation	Ground/Rim (Max) Elevation	Ground/Rim (Max) Offset	Initial Water Elevation	Initial Water Depth	Surcharge Elevation	Surcharge Depth	Ponded Area	Minimum Pipe Cover
		(m)	(m)	(m)	(m)	(m)	(m)	(m)	(m²)	(m)
1	Ex_MHR1	255.88	262.50	6.62	0.00	-255.88	0.00	-262.50	0.00	0.00
2	Ex_MHR2	255.48	259.65	4.17	0.00	-255.48	0.00	-259.65	0.00	0.00
3	Ex_MHR25	256.48	263.35	6.87	0.00	-256.48	0.00	-263.35	0.00	0.00
4	Ex_MHR26	256.64	262.75	6.11	0.00	-256.64	0.00	-262.75	0.00	0.00
5	Ex_MHR27	256.94	261.00	4.06	0.00	-256.94	0.00	-261.00	0.00	0.00
6	Ex_MHR28	257.37	259.30	1.93	0.00	-257.37	0.00	-259.30	0.00	0.00
7	Ex_MHR3	255.23	259.00	3.77	0.00	-255.23	0.00	-259.00	0.00	0.00
8	Jun-34	254.62	258.25	3.63	0.00	-254.62	0.00	-258.25	0.00	0.00
9	Jun-35	254.70	257.50	2.80	0.00	-254.70	0.00	-257.50	0.00	0.00
10	Jun-36	254.72	258.00	3.28	0.00	-254.72	0.00	-258.00	0.00	0.00
11	Jun-37	255.29	261.30	6.01	0.00	-255.29	0.00	-261.30	0.00	0.00
12	Jun-38	255.53	261.80	6.27	0.00	-255.53	0.00	-261.80	0.00	0.00
13	Jun-39	256.93	259.05	2.12	0.00	-256.93	0.00	-259.05	0.00	0.00
14	Jun-40	256.10	258.55	2.45	0.00	-256.10	0.00	-258.55	0.00	0.00
15	Jun-41	255.77	259.65	3.88	0.00	-255.77	0.00	-259.65	0.00	0.00
16	Jun-42	255.23	258.90	3.67	0.00	-255.23	0.00	-258.90	0.00	0.00
17	Jun-43	256.25	257.25	1.00	0.00	-256.25	0.00	-257.25	0.00	0.00
18	Jun-44	257.55	258.55	1.00	0.00	-257.55	0.00	-258.55	0.00	0.00
19	Jun-46	257.70	258.70	1.00	0.00	-257.70	258.70	0.00	0.00	0.00
20	Jun-47	258.10	259.10	1.00	0.00	-258.10	0.00	-259.10	0.00	0.00
21	Jun-48	258.35	259.35	1.00	0.00	-258.35	0.00	-259.35	0.00	0.00
22	Jun-49	256.90	257.90	1.00	0.00	-256.90	0.00	-257.90	0.00	0.00
23	Jun-50	256.75	257.75	1.00	0.00	-256.75	0.00	-257.75	0.00	0.00
24	Jun-51	258.45	260.50	2.05	0.00	-258.45	0.00	-260.50	0.00	0.00
25	Jun-52	255.69	260.00	4.31	0.00	-255.69	0.00	-260.00	0.00	0.00
26	Jun-53	255.35	259.60	4.25	0.00	-255.35	0.00	-259.60	0.00	0.00
27	Jun-54	255.62	259.80	4.18	0.00	-255.62	0.00	-259.80	0.00	0.00
28	Jun-55	255.60	259.70	4.10	0.00	-255.60	0.00	-259.70	0.00	0.00
29	Jun-56	255.79	257.80	2.01	0.00	-255.79	0.00	-257.80	0.00	0.00
30	Jun-61	258.32	262.00	3.68	0.00	-258.32	0.00	-262.00	0.00	0.00
31	Jun-64	261.13	263.50	2.37	0.00	-261.13	0.00	-263.50	0.00	0.00
32	Jun-65	262.69	264.50	1.81	0.00	-262.69	0.00	-264.50	0.00	0.00
33	Jun-66	253.16	256.00	2.84	0.00	-253.16	0.00	-256.00	0.00	0.00
34	Jun-67	255.48	259.90	4.42	0.00	-255.48	0.00	-259.90	0.00	0.00
35	Jun-68	255.86	260.10	4.24	0.00	-255.86	0.00	-260.10	0.00	0.00
36	Jun-69	256.21	261.20	4.99	0.00	-256.21	0.00	-261.20	0.00	0.00
37	Jun-70	256.47	263.00	6.53	0.00	-256.47	0.00	-263.00	0.00	0.00
38	Jun-71	256.79	260.00	3.21	0.00	-256.79	0.00	-260.00	0.00	0.00
39	Jun-72	258.75	259.95	1.20	0.00	-258.75	0.00	-259.95	0.00	0.00
40	Jun-73	258.65	259.95	1.30	0.00	-258.65	0.00	-259.95	0.00	0.00
41	Jun-74	259.54	264.00	4.46	0.00	-259.54	0.00	-264.00	0.00	0.00
42	Jun-75	260.00	264.50	4.50	0.00	-260.00	0.00	-264.50	0.00	0.00
43	Jun-76	259.19	262.20	3.01	0.00	-259.19	0.00	-262.20	0.00	0.00
44	Jun-77	260.46	264.80	4.34	0.00	-260.46	0.00	-264.80	0.00	0.00
45	Jun-78	261.75	265.30	3.55	0.00	-261.75	0.00	-265.30	0.00	0.00
46	NorthWetland	252.00	258.00	6.00	0.00	-252.00	0.00	-258.00	0.00	0.00
47	OutletStructure	254.25	256.80	2.55	0.00	-254.25	0.00	-256.80	0.00	0.00
48	Ravine_1	256.10	260.10	4.00	0.00	-256.10	0.00	-260.10	0.00	0.00

Junction Results

SN	Element	Peak Inflow	Peak Lateral Inflow	Max HGL Elevation Attained	Max HGL Depth Attained	Max Surcharge Depth Attained	Min Freeboard Attained	Average HGL Elevation Attained	Average HGL Depth Attained	Time Max HC Occurrence
	ID	(cms)	(cms)	(m)	(m)	(m)	(m)	(m)	(m)	(days hh:mm)
1	Ex_MHR1	0.25	0.00	256.32	0.44	0.00	6.18	256.04	0.16	0 12:00
2	Ex_MHR2	0.25	0.00	255.91	0.43	0.00	3.74	255.64	0.16	0 12:00
3	Ex_MHR25	0.25	0.00	257.54	1.06	0.00	5.81	256.65	0.17	0 11:45
4	Ex_MHR26	0.25	0.00	257.91	1.27	0.00	4.84	256.83	0.19	0 11:45
5	Ex_MHR27	0.25	0.00	258.39	1.45	0.00	2.61	257.17	0.23	0 11:45
6	Ex_MHR28	1.58	1.58	259.14	1.77	0.00	0.16	257.64	0.27	0 12:00
7	Ex_MHR3	0.25	0.00	255.61	0.38	0.00	3.39	255.38	0.15	0 12:00
8	Jun-34	6.77	0.00	256.67	2.05	0.00	1.58	255.87	1.25	0 12:00
9	Jun-35	0.79	0.79	257.37	2.67	0.00	0.13	255.87	1.17	0 11:45
10	Jun-36	6.82	0.00	257.30	2.58	0.00	1.05	255.91	1.19	0 12:00
11	Jun-37	3.79	0.63	258.94	3.65	0.00	2.36	256.06	0.77	0 12:00
12	Jun-38	1.67	1.67	261.08	5.55	0.00	0.72	256.19	0.66	0 12:00
13	Jun-39	0.15	0.15	258.76	1.83	0.00	0.29	257.08	0.15	0 12:00
14	Jun-40	0.91	0.00	258.14	2.04	0.00	0.41	256.37	0.27	0 12:00
15	Jun-41	0.83	0.15	259.39	3.62	0.00	0.26	256.23	0.46	0 12:00
16	Jun-42	2.27	0.00	257.42	2.19	0.00	1.48	256.01	0.78	0 12:00
17	Jun-43	1.30	0.00	257.44	1.19	0.00	0.31	256.37	0.12	0 12:00
18	Jun-44	1.12	0.00	258.11	0.56	0.00	0.49	257.67	0.12	0 12:00
19	Jun-46	1.31	0.00	258.60	0.90	0.00	0.15	257.85	0.15	0 12:00
20	Jun-47	1.48	0.29	258.73	0.63	0.00	0.37	258.23	0.13	0 12:00
21	Jun-48	0.06	0.00	258.74	0.39	0.00	0.66	258.40	0.05	0 12:00
22	Jun-49	1.28	0.37	257.76	0.86	0.00	0.34	257.07	0.17	0 12:00
23	Jun-50	1.18	0.00	257.50	0.75	0.00	0.45	256.92	0.17	0 12:00
24	Jun-51	0.52	0.00	259.33	0.88	0.00	1.17	258.57	0.12	0 12:00
25	Jun-52	1.25	0.00	259.63	3.94	0.00	0.37	256.16	0.47	0 12:00
26	Jun-53	1.45	0.00	258.13	2.78	0.00	1.47	256.05	0.70	0 12:00
27	Jun-54	0.49	0.49	259.07	3.45	0.00	0.73	256.16	0.54	0 12:00
28	Jun-55	1.13	0.72	258.92	3.32	0.00	0.78	256.11	0.51	0 12:00
29	Jun-56	0.96	0.04	257.52	1.73	0.00	0.28	256.14	0.35	0 12:00
30	Jun-61	1.33	0.00	259.99	1.67	0.00	2.81	258.39	0.07	0 12:00
31	Jun-64	0.57	0.00	261.52	0.39	0.00	1.98	261.18	0.05	0 12:00
32	Jun-65	0.57	0.57	263.13	0.44	0.00	1.37	262.74	0.05	0 12:00
33	Jun-66	1.27	0.00	254.70	1.54	0.00	1.30	253.59	0.43	0 12:00
34	Jun-67	1.48	0.54	259.13	3.65	0.00	0.77	256.10	0.62	0 12:00
35	Jun-68	0.78	0.51	259.80	3.94	0.00	0.30	256.22	0.36	0 12:00
36	Jun-69	0.38	0.38	259.92	3.71	0.00	1.28	256.39	0.18	0 12:00
37	Jun-70	0.64	0.64	261.65	5.18	0.00	1.35	256.64	0.17	0 11:45
38	Jun-71	0.74	0.74	259.47	2.68	0.00	0.53	256.94	0.15	0 12:00
39	Jun-72	0.47	0.47	259.68	0.93	0.00	0.27	258.83	0.08	0 12:00
40	Jun-73	0.80	0.80	259.69	1.04	0.00	0.26	258.77	0.12	0 12:00
41	Jun-74	0.78	0.43	262.52	2.98	0.00	1.48	259.60	0.06	0 12:00
42	Jun-75	0.36	0.36	263.17	3.17	0.00	1.33	260.05	0.05	0 12:00
43	Jun-76	1.17	0.80	261.91	2.72	0.00	0.29	259.34	0.15	0 12:00
44	Jun-77	0.61	0.00	263.04	2.58	0.00	1.76	260.58	0.12	0 12:00
45	Jun-78	0.96	0.96	265.03	3.28	0.00	0.27	261.89	0.14	0 12:00
46	NorthWetland	0.45	0.45	252.00	0.00	0.00	6.00	252.00	0.00	0 00:00
47	OutletStructure	1.27	0.00	256.27	2.02	0.00	1.78	254.73	0.48	0 12:00

Channel Input

SN	Element ID	Length	Inlet Invert Elevation (m)	Inlet Invert Offset (m)	Outlet Invert Elevation (m)	Outlet Invert Offset (m)	Total Drop (m)	Average Slope (%)	Shape	Height (m)	Width (m)	Manning's Roughness
1	Link-103	10.00	257.70	2.98	257.50	4.50	0.20	2.0000	Rectangular	0.300	20.000	0.0320
2	Link-104	50.00	257.50	1.71	256.50	3.50	1.00	2.0000	Rectangular	0.300	20.000	0.0320
3	Link-122	70.00	259.30	3.95	258.60	3.37	0.70	1.0000	Rectangular	0.300	20.000	0.0320
4	Link-123	90.00	259.40	3.80	259.30	3.95	0.10	0.1100	Rectangular	0.300	20.000	0.0320
5	Link-124	90.00	259.50	3.88	259.40	3.80	0.10	0.1100	Rectangular	0.300	20.000	0.0320
6	Link-125	50.00	259.65	1.00	258.70	0.60	0.95	1.9000	Rectangular	0.300	20.000	0.0320
7	Link-126	50.00	259.65	0.90	258.70	0.60	0.95	1.9000	Rectangular	0.300	20.000	0.0320
8	Link-127	100.00	259.60	4.12	259.50	3.88	0.10	0.1000	Rectangular	0.300	20.000	0.0320
9	Link-128	150.00	259.70	4.01	259.60	4.12	0.10	0.0700	Rectangular	0.300	20.000	0.0320
10	Link-129	80.00	259.80	3.94	259.70	4.01	0.10	0.1300	Rectangular	0.300	20.000	0.0320
11	Link-130	100.00	259.90	3.69	259.80	3.94	0.10	0.1000	Rectangular	0.300	20.000	0.0320
12	Link-131	70.00	259.40	2.61	259.30	3.95	0.10	0.1400	Rectangular	0.300	20.000	0.0320
13	Link-132	150.00	265.00	3.25	264.50	4.04	0.50	0.3300	Rectangular	0.300	20.000	0.0320
14	Link-133	150.00	264.50	4.04	261.90	2.71	2.60	1.7300	Rectangular	0.300	20.000	0.0320
15	Link-134	250.00	261.90	2.71	257.70	2.98	4.20	1.6800	Rectangular	0.300	20.000	0.0320
16	Link-135	100.00	262.50	4.18	261.00	5.71	1.50	1.5000	Rectangular	0.300	20.000	0.0320
17	Link-34	270.00	271.40	3.80	269.65	2.58	1.75	0.6500	Rectangular	0.300	20.000	0.0320
18	Link-35	50.00	272.15	2.01	269.65	2.58	2.50	5.0000	Rectangular	0.300	20.000	0.0320
19	Link-36	222.00	269.65	2.58	268.30	1.67	1.35	0.6100	Rectangular	0.300	20.000	0.0320
20	Link-37	18.00	268.30	1.67	267.90	1.40	0.40	2.2200	Rectangular	0.300	20.000	0.0320
21	Link-38	227.00	271.80	1.45	267.90	1.40	3.90	1.7200	Rectangular	0.300	20.000	0.0320
22	Link-39	415.00	267.90	1.40	263.50	1.60	4.40	1.0600	Rectangular	0.300	20.000	0.0320
23	Link-41	180.00	269.55	1.80	265.50	1.50	4.05	2.2500	Rectangular	0.300	20.000	0.0320
24	Link-42	155.00	265.50	1.50	263.50	1.60	2.00	1.2900	Rectangular	0.300	20.000	0.0320
25	Link-43	140.00	263.50	1.60	262.25	1.92	1.25	0.8900	Rectangular	0.300	20.000	0.0320
26	Link-44	470.00	262.25	1.92	258.00	1.90	4.25	0.9000	Rectangular	0.300	20.000	0.0320
27	Link-45	195.00	263.20	1.50	260.70	1.32	2.50	1.2800	Rectangular	0.300	20.000	0.0320
28	Link-46	280.00	260.70	1.32	258.00	1.90	2.70	0.9600	Rectangular	0.300	20.000	0.0320
29	Link-51	65.00	259.00	1.63	258.05	3.33	0.95	1.4600	Rectangular	0.300	10.000	0.0320
30	Link-61	125.00	256.75	0.00	256.25	0.00	0.50	0.4000	User-Defined	1.000	9.000	0.0320
31	Link-63	162.50	257.55	0.00	256.90	0.00	0.65	0.4000	User-Defined	1.000	9.000	0.0320
32	Link-66	133.00	258.10	0.00	257.70	0.00	0.40	0.3000	User-Defined	1.000	9.000	0.0320
33	Link-67	75.00	258.40	0.05	258.10	0.00	0.30	0.4000	User-Defined	1.000	9.000	0.0320
34	Link-89	53.10	258.60	3.37	257.70	2.98	0.90	1.6900	Rectangular	0.300	20.000	0.0320
35	Link-90	90.00	258.75	1.82	257.75	1.65	1.00	1.1100	Rectangular	0.300	20.000	0.0320
36	Link-92	110.00	261.50	5.97	261.00	5.71	0.50	0.4500	Rectangular	0.300	20.000	0.0320
37	Link-93	340.00	261.00	5.71	257.70	2.98	3.30	0.9700	Rectangular	0.300	20.000	0.0320
38	Link-94	95.00	259.35	3.58	257.75	1.65	1.60	1.6800	Rectangular	0.300	20.000	0.0320
39	LowerRavine	124.00	253.00	0.00	252.45	0.00	0.55	0.4400	Trapezoidal	4.000	17.000	0.0320
40	OutletRavine	45.00	252.45	0.00	252.00	0.00	0.45	1.0000	Trapezoidal	4.000	17.000	0.0320
41	RH_C1	215.00	269.00	0.00	264.00	0.00	5.00	2.3300	Trapezoidal	1.500	7.000	0.0320
42	RH_C2	60.00	264.00	0.00	263.50	1.50	0.50	0.8300	Trapezoidal	1.500	7.000	0.0320
43	UpperRavine	553.00	256.10	0.00	253.00	0.00	3.10	0.5600	Trapezoidal	4.000	17.000	0.0320

Channel Results

SN Element ID	Peak Flow	Time of Peak Flow Occurrence	Design Flow Capacity	Peak Flow/ Design Flow Ratio	Peak Flow Velocity	Travel Time	Peak Flow Depth	Peak Flow Depth/ Total Depth Ratio	Total Tin Surcharge
	(cms)	(days hh:mm)	(cms)		(m/sec)	(min)	(m)		(mi)
1 Link-103	0.00	0 00:00	11.65	0.00	0.00		0.00	0.00	0.0
2 Link-104	0.11	0 12:09	11.65	0.01	0.32	2.60	0.06	0.20	0.0
3 Link-122	0.00	0 00:00	8.24	0.00	0.00		0.00	0.00	0.0
4 Link-123	0.00	0 00:00	2.75	0.00	0.00		0.00	0.00	0.0
5 Link-124	0.00	0 00:00	2.75	0.00	0.00		0.00	0.00	0.0
6 Link-125	0.45	0 12:00	11.36	0.04	0.55	1.52	0.04	0.14	0.0
7 Link-126	0.24	0 12:01	11.36	0.02	0.43	1.94	0.03	0.10	0.0
8 Link-127	0.00	0 00:00	2.61	0.00	0.00		0.00	0.00	0.0
9 Link-128	0.00	0 00:00	2.13	0.00	0.00		0.00	0.00	0.0
10 Link-129	0.00	0 12:04	2.91	0.00	0.00		0.00	0.01	0.0
11 Link-130	0.01	0 12:05	2.61	0.00	0.05	33.33	0.01	0.04	0.0
12 Link-131	0.18	0 12:06	3.11	0.06	0.19	6.14	0.05	0.16	0.0
13 Link-132	0.05	0 12:06	4.76	0.01	0.13	19.23	0.02	0.06	0.0
14 Link-133	0.00	0 00:00	10.85	0.00	0.00		0.00	0.01	0.0
15 Link-134	0.02	0 12:08	10.68	0.00	0.14	29.76	0.01	0.02	0.0
16 Link-135	0.00	0 00:00	10.09	0.00	0.00		0.00	0.00	0.0
17 Link-34	4.29	0 12:01	6.63	0.65	0.81	5.56	0.26	0.88	0.0
18 Link-35	4.02	0 12:00	18.43	0.22	1.10	0.76	0.21	0.70	0.0
19 Link-36	6.25	0 12:05	6.43	0.97	1.21	3.06	0.26	0.86	0.0
20 Link-37	6.21	0 12:05	12.28	0.51	1.40	0.21	0.23	0.80	0.0
21 Link-38	1.73	0 12:01	10.80	0.16	0.75	5.04	0.17	0.60	0.0
22 Link-39	7.40	0 12:08	8.48	0.87	1.33	5.20	0.28	0.95	0.0
23 Link-41	0.23	0 12:06	12.36	0.02	0.42	7.14	0.03	0.10	0.0
24 Link-42	0.29	0 12:14	9.36	0.03	0.12	21.53	0.17	0.56	0.0
25 Link-43	7.33	0 12:17	7.79	0.94	1.32	1.77	0.28	0.97	0.0
26 Link-44	6.43	0 12:20	7.84	0.82	1.27	6.17	0.25	0.84	0.0
27 Link-45	0.49	0 12:43	9.33	0.05	0.45	7.22	0.06	0.21	0.0
28 Link-46	0.62	0 12:50	8.09	0.08	0.52	8.97	0.06	0.20	0.0
29 Link-51	1.29	0 12:00	4.89	0.26	1.00	1.08	0.13	0.43	0.0
30 Link-61	1.30	0 12:14	4.86	0.27	0.62	3.36	0.87	0.87	0.0
31 Link-63	1.09	0 12:08	4.86	0.22	0.46	5.89	0.71	0.71	0.0
32 Link-66	1.31	0 12:02	4.22	0.31	0.53	4.18	0.76	0.76	0.0
33 Link-67	0.06	0 11:59	4.86	0.01	0.09	13.89	0.47	0.48	0.0
34 Link-89	0.00	0 00:00	10.73	0.00	0.00		0.00	0.00	0.0
35 Link-90	0.04	0 12:02	8.69	0.00	0.03	50.00	0.15	0.51	0.0
36 Link-92	0.00	0 00:00	5.56	0.00	0.00		0.00	0.00	0.0
37 Link-93	0.00	0 00:00	8.12	0.00	0.00		0.00	0.00	0.0
38 Link-94	0.45	0 12:02	10.69	0.04	0.27	5.86	0.16	0.53	0.0
39 LowerRavine	10.19	0 12:26	157.98	0.06	1.69	1.22	0.94	0.24	0.0
40 OutletRavine	10.25	0 12:27	237.22	0.04	2.15	0.35	0.77	0.19	0.0
41 RH_C1	2.66	0 12:00	24.20	0.11	1.78	2.01	0.65	0.44	0.0
42 RH_C2	2.77	0 12:01	14.49	0.19	1.67	0.60	0.67	0.46	0.0
43 UpperRavine	8.97	0 12:22	177.61	0.05	1.56	5.91	0.92	0.23	0.0

Pipe Input

SN Element ID	Length	Inlet Invert Elevation	Inlet Invert Offset	Outlet Invert Elevation	Outlet Invert Offset	Total Drop	Average Slope	Pipe Shape	Pipe Diameter or Height	Pipe Width	Mi Roi
	(m)	(m)	(m)	(m)	(m)	(m)	(%)		(m)	(m)	
1 Ex.STM_1	107.00	257.37	0.00	256.94	0.00	0.43	0.4000	CIRCULAR	0.450	0.450	
2 Ex.STM_2	73.00	256.94	0.00	256.64	0.00	0.30	0.4100	CIRCULAR	0.450	0.450	
3 Ex.STM_3	27.00	256.64	0.00	256.48	0.00	0.16	0.5900	CIRCULAR	0.450	0.450	
4 Ex.STM_4	100.00	256.48	0.00	255.88	0.00	0.60	0.6000	CIRCULAR	0.450	0.450	
5 Ex.STM_5	100.00	255.88	0.00	255.48	0.00	0.40	0.4000	CIRCULAR	0.530	0.530	
6 Ex.STM_6	50.00	255.48	0.00	255.23	0.00	0.25	0.5000	CIRCULAR	0.530	0.530	
7 Ex.STM_7	102.00	255.23	0.00	254.82	0.00	0.41	0.4000	CIRCULAR	0.600	0.600	
8 Link-106	24.80	253.16	0.00	252.85	-0.15	0.31	1.2500	CIRCULAR	0.750	0.750	
9 Link-107	93.20	254.35	0.10	253.20	0.04	1.15	1.2300	CIRCULAR	0.750	0.750	
10 Link-108	110.30	255.48	0.00	255.37	0.08	0.11	0.1000	CIRCULAR	1.200	1.200	
11 Link-109	30.00	257.70	0.00	257.55	0.00	0.15	0.5000	CIRCULAR	1.050	1.050	
12 Link-110	153.00	255.69	0.00	255.48	0.00	0.21	0.1400	CIRCULAR	0.900	0.900	
13 Link-111	66.80	255.86	0.00	255.77	0.08	0.09	0.1300	CIRCULAR	0.750	0.750	
14 Link-112	106.60	256.21	0.00	255.91	0.05	0.30	0.2800	CIRCULAR	0.600	0.600	
15 Link-113	97.50	256.47	0.00	255.88	0.19	0.59	0.6100	CIRCULAR	0.530	0.530	
16 Link-114	85.10	256.79	0.00	255.73	0.38	1.06	1.2500	CIRCULAR	0.450	0.450	
17 Link-115	50.00	258.65	0.00	258.50	0.05	0.15	0.3000	CIRCULAR	0.530	0.530	
18 Link-116	50.00	258.75	0.00	258.55	0.10	0.20	0.4000	CIRCULAR	0.450	0.450	
19 Link-117	90.00	259.54	0.00	258.37	0.05	1.17	1.3000	CIRCULAR	0.680	0.680	
20 Link-118	41.60	260.00	0.00	259.56	0.02	0.44	1.0600	CIRCULAR	0.530	0.530	
21 Link-119	181.70	259.19	0.00	256.08	0.29	3.11	1.7100	CIRCULAR	0.600	0.600	
22 Link-120	140.50	260.46	0.00	259.24	0.05	1.22	0.8700	CIRCULAR	0.600	0.600	
23 Link-121	152.20	261.75	0.00	260.51	0.05	1.24	0.8100	CIRCULAR	0.530	0.530	
24 Link-49	20.70	254.62	0.00	254.60	1.60	0.02	0.1000	CIRCULAR	1.800	1.800	
25 Link-50	75.20	254.70	0.00	254.60	1.60	0.10	0.1300	CIRCULAR	0.600	0.600	
26 Link-52	35.00	254.72	0.00	254.67	0.05	0.05	0.1400	CIRCULAR	1.650	1.650	
27 Link-53	336.90	255.29	0.00	254.74	0.02	0.55	0.1600	CIRCULAR	1.350	1.350	
28 Link-54	110.00	255.53	0.00	255.31	0.02	0.22	0.2000	CIRCULAR	0.600	0.600	
29 Link-56	110.00	255.77	0.00	255.55	0.02	0.22	0.2000	CIRCULAR	0.600	0.600	
30 Link-57	95.50	256.10	0.00	255.85	0.08	0.25	0.2600	CIRCULAR	0.450	0.450	
31 Link-58	90.00	256.93	0.00	256.25	0.15	0.68	0.7600	CIRCULAR	0.300	0.300	
32 Link-59	53.10	255.23	0.00	255.13	0.41	0.10	0.1900	CIRCULAR	1.500	1.500	
33 Link-60	13.40	256.25	0.00	255.84	0.61	0.41	3.0600	CIRCULAR	1.500	1.500	
34 Link-62	25.00	256.90	0.00	256.75	0.00	0.15	0.6000	CIRCULAR	1.200	1.200	
35 Link-68	60.00	258.45	0.00	258.20	0.10	0.25	0.4200	CIRCULAR	0.600	0.600	
36 Link-70	57.00	255.35	0.00	255.25	0.02	0.10	0.1800	CIRCULAR	0.820	0.820	
37 Link-71	82.00	255.60	0.00	255.43	0.08	0.17	0.2100	CIRCULAR	0.750	0.750	
38 Link-72	85.00	255.79	0.17	255.62	0.02	0.17	0.2000	CIRCULAR	0.750	0.750	
39 Link-73	67.80	255.78	-0.01	255.10	0.38	0.68	1.0000	CIRCULAR	0.900	0.900	
40 Link-80	89.90	258.32	0.00	255.97	0.68	2.35	2.6100	CIRCULAR	0.750	0.750	
41 Link-81	93.20	261.13	0.00	259.27	0.95	1.86	2.0000	CIRCULAR	0.600	0.600	
42 Link-82	103.90	262.69	0.00	261.13	0.00	1.56	1.5000	CIRCULAR	0.600	0.600	
43 RH_A1	50.00	270.14	0.00	268.50	1.43	1.64	3.2800	CIRCULAR	0.300	0.300	
44 RH_B1	227.00	270.35	0.00	266.50	0.00	3.85	1.7000	CIRCULAR	0.300	0.300	
45 RH_C3	15.00	262.00	0.00	261.70	0.00	0.30	2.0000	CIRCULAR	0.600	0.600	
46 RH_C4	195.00	261.70	0.00	259.38	0.00	2.32	1.1900	CIRCULAR	0.530	0.530	
47 RH_C5	274.00	259.38	0.00	256.36	0.00	3.02	1.1000	CIRCULAR	0.530	0.530	
48 RH_C6	6.00	256.36	0.00	256.24	0.14	0.12	2.0000	CIRCULAR	0.700	0.700	

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Pipe Results

SN Element ID	Peak Flow	Time of Peak Flow Occurrence	Design Flow Capacity	Peak Flow/ Design Flow Ratio	Peak Flow Velocity	Travel Time	Peak Flow Depth	Peak Flow Depth/ Total Depth Ratio	To Sur
	(cms)	(days hh:mm)	(cms)		(m/sec)	(min)	(m)		
1 Ex.STM_1	0.25	0 12:00	0.18	1.38	1.57	1.14	0.45	1.00	
2 Ex.STM_2	0.25	0 12:00	0.18	1.36	1.57	0.77	0.45	1.00	
3 Ex.STM_3	0.25	0 12:00	0.22	1.13	1.57	0.29	0.45	1.00	
4 Ex.STM_4	0.25	0 12:00	0.22	1.13	1.59	1.05	0.45	0.99	
5 Ex.STM_5	0.25	0 12:01	0.27	0.92	1.33	1.25	0.44	0.83	
6 Ex.STM_6	0.25	0 12:02	0.30	0.82	1.40	0.60	0.40	0.77	
7 Ex.STM_7	0.25	0 12:02	0.39	0.64	1.44	1.18	0.35	0.59	
8 Link-106	1.27	0 13:02	0.89	1.42	2.88	0.14	0.75	1.00	
9 Link-107	1.27	0 13:02	1.24	1.03	2.88	0.54	0.75	1.00	
10 Link-108	1.32	0 12:02	1.23	1.07	1.16	1.58	1.20	1.00	
11 Link-109	1.12	0 12:05	1.93	0.58	1.76	0.28	0.72	0.69	
12 Link-110	1.01	0 12:01	0.67	1.50	1.59	1.60	0.90	1.00	
13 Link-111	0.63	0 12:01	0.41	1.54	1.43	0.78	0.75	1.00	
14 Link-112	0.38	0 12:10	0.33	1.17	1.34	1.33	0.60	1.00	
15 Link-113	0.64	0 12:00	0.33	1.93	2.98	0.55	0.52	1.00	
16 Link-114	0.44	0 11:56	0.32	1.37	2.74	0.52	0.45	1.00	
17 Link-115	0.35	0 12:12	0.24	1.47	1.60	0.52	0.52	1.00	
18 Link-116	0.21	0 12:00	0.18	1.16	1.32	0.63	0.45	1.00	
19 Link-117	0.77	0 12:00	0.96	0.81	2.55	0.59	0.67	1.00	
20 Link-118	0.35	0 11:59	0.44	0.79	1.70	0.41	0.49	1.00	
21 Link-119	0.91	0 12:01	0.80	1.14	3.23	0.94	0.60	1.00	
22 Link-120	0.51	0 12:08	0.57	0.89	1.92	1.22	0.60	1.00	
23 Link-121	0.61	0 11:58	0.39	1.57	2.82	0.90	0.52	1.00	
24 Link-49	6.77	0 12:05	3.57	1.89	2.90	0.12	1.80	1.00	
25 Link-50	0.79	0 12:00	0.22	3.51	2.78	0.45	0.60	1.00	
26 Link-52	6.77	0 12:05	3.45	1.96	3.17	0.18	1.65	1.00	
27 Link-53	3.45	0 12:04	2.16	1.60	2.41	2.33	1.35	1.00	
28 Link-54	0.86	0 12:00	0.27	3.13	3.04	0.60	0.60	1.00	
29 Link-56	0.69	0 12:01	0.27	2.51	2.43	0.75	0.60	1.00	
30 Link-57	0.34	0 11:58	0.15	2.30	2.11	0.75	0.45	1.00	
31 Link-58	0.10	0 11:57	0.08	1.13	1.35	1.11	0.30	1.00	
32 Link-59	2.28	0 12:14	3.07	0.74	1.29	0.69	1.50	1.00	
33 Link-60	1.58	0 12:17	12.37	0.13	2.33	0.10	1.34	0.90	
34 Link-62	1.18	0 12:10	3.02	0.39	1.53	0.27	0.80	0.67	
35 Link-68	0.52	0 12:00	0.40	1.32	1.96	0.51	0.56	0.94	
36 Link-70	1.38	0 12:01	0.60	2.30	2.58	0.37	0.82	1.00	
37 Link-71	1.02	0 12:00	0.51	2.01	2.31	0.59	0.75	1.00	
38 Link-72	0.42	0 12:00	0.50	0.84	0.95	1.49	0.75	1.00	
39 Link-73	1.03	0 12:16	1.83	0.56	1.61	0.70	0.90	1.00	
40 Link-80	1.11	0 12:01	1.80	0.62	3.31	0.45	0.75	1.00	
41 Link-81	0.58	0 12:00	0.87	0.67	3.06	0.51	0.39	0.80	
42 Link-82	0.57	0 12:00	0.75	0.76	2.76	0.63	0.41	0.69	
43 RH_A1	0.23	0 11:39	0.18	1.31	3.26	0.26	0.30	1.00	
44 RH_B1	0.14	0 11:39	0.13	1.09	1.95	1.94	0.30	1.00	
45 RH_C3	0.89	0 12:41	0.87	1.03	3.15	0.08	0.60	1.00	
46 RH_C4	0.42	0 11:53	0.41	1.03	2.07	1.57	0.52	1.00	
47 RH C5	0.48	0 12:50	0.45	1.07	2.22	2.06	0.52	1.00	