Representative Infrastructure Studies

(Published October 2021)

Appendix 3. Supplemental Stormwater Study

This Study is an Appendix to the **NE 85th Street Station Area Plan project** **Fiscal Impacts and Community Benefits Analysis Study Technical Memo (Technical Memo).** The Station Area Fiscal Impacts and Community Benefits Analysis was scoped to answer this question: If the City were to implement its vision of the Station Area as a thriving, walkable urban center with plentiful affordable housing, jobs, sustainable development, and shops and restaurants linked by transit, can the City afford the investments necessary to address increased demand on public services, especially schools, parks/open spaces, transportation, and utilities, and avoid a reduction in service for existing community members and businesses?

Study Purpose

To support the Technical Memo's assumptions, planning level **Representative Infrastructure Studies** were conducted to determine a set of representative infrastructure investments needed to maintain service levels in transportation, water and sewer, and stormwater, in alignment with the full 23-year buildout scenarios described for the two key development alternatives analyzed in the Technical Memo – June Alternatives A and B. The purpose of the Infrastructure Studies was to inform an understanding of area-wide representative infrastructure and service needs and costs and for incorporation as assumptions in the fiscal analysis. Note that as "representative infrastructure," these identified investments are ones that are likely to be similar in scale and type to those needed to support future Station Area development, but are likely to differ somewhat from the specific infrastructure investments that will ultimately be adopted for the Station Area. Information about the Representative Infrastructure Studies is presented in Section 3 of the Fiscal Impacts and Community Benefits Technical Memo. The Fiscal Impact model assigns all representative infrastructure investments either to development projects or to the City, roughly following City policy. Any assumptions about parcel- and quadrant-level development and phasing included in the studies are hypothetical and not meant to presuppose decision- making by private landowners or the actions of the market. The representative investments identified in the Infrastructure Studies are distinct from and should not be construed as preferred plan recommendations or final project configurations, which will be developed in later stages of planning and are subject to City Council approval.

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Fiscal Impacts and Community Benefits Supplemental Study Technical Memo

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Representative Infrastructure Studies

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MEMORANDUM

To: Kevin Pelstring, Budget Analyst

From: Robert O'Brien, Senior Surface Water Engineer
Kelli Jones, Surface Water Program Supervisor

Date: September 30, 2021

Subject: NE 85th St Station Area Plan – Stormwater Fiscal Analysis Summary

BACKGROUND

Sound Transit's ST3 Regional Transit System Plan is bringing a transportation investment to Kirkland by redeveloping the interchange at NE 85th Street and Interstate (I)-405. The new interchange will include a new Bus Rapid Transit Station, expected to be complete in 2025. Kirkland's Station Area Plan will look at how the City of Kirkland (City) can make the most of this regional investment to create the best value and quality of life for Kirkland and its residents.

As part of the Station Area Plan, the City is conducting a fiscal analysis to understand the potential impacts of the changes proposed within the plan across City departments. As part of that analysis, the City is evaluating the capacity of the existing stormwater main line on 120th Ave NE between NE 85th St and NE 90th St. This line would serve the majority of the proposed changes within NE 85th St Station Area Plan Study Area (Study Area).

ANALYSIS

A high-level analysis was performed to determine potential flooding impacts to the stormwater main line along 120th Ave NE with various redevelopment scenarios.

The three scenarios that were analyzed included:

1. a baseline condition with existing land cover,
2. a developed "a" condition which evaluated fully developed land cover under current zoning standards, and
3. a developed "b" condition which evaluated fully developed land cover to a potentially new zoning standard within the Study Area. This standard would allow an increase in lot coverage on certain parcels, therefore increasing impervious surface.

After determining the potential flooding locations for each developed scenario, stormwater mitigation options were then evaluated to determine their effectiveness at reducing runoff along the stormwater main line for each developed scenario. Mitigation options that were applied

included stormwater conveyance system improvements (larger pipe diameters, or change in pipe material), and incorporation of detention facilities (vaults). In addition, "blue/green" streets (a combination of rain gardens and vault-type structures) were evaluated as a mitigation alternative for developed condition "b" within the Study Area.

RESULTS

The results of the analysis are summarized below.

1. Development of the Study Area and any associated increases in impervious surface area will not have any negative downstream impacts. This is due to current stormwater mitigation requirements that will require these parcels to install large detention systems (such as tanks and vaults) to reduce the flow off their development and help existing flooding issues.
2. Outside of the Study Area, the analysis showed an increase in runoff from the upstream residential areas causing potential flooding. Residential parcels are smaller in size and tend to be under the mitigation requirement and therefore are exempt from the requirement to construct large stormwater facilities.
3. Green/Blue Street stormwater infrastructure modeled within the Study Area are very costly and provide very little benefit for the capacity of the stormwater system. Much of the potential flooding is resolved with the stormwater mitigation from redevelopment. Other types of green streets or stormwater expression, that were not included in the study and may have lower maintenance costs, could continue to be considered as urban design features with water treatment benefits.

FUTURE PROJECT

The only proposed stormwater project within the Study Area consists of replacing 520 feet of 36-inch piped stream along 120th Ave NE with a smoother pipe material. This will increase capacity through the stormwater main line, helping in all scenarios. The estimated cost of this project is $600,000. This estimate assumes construction occurs during the drier summer season and external permitting agencies allow the pipe to be replaced without needing to meet fish passage requirements.

CONCLUSION

This analysis shows that development and any associated land use code changes within the Study Area will not negatively impact existing stormwater conveyance through the stormwater main line on 120th Ave NE between NE 85th St and NE 90th St. Redevelopment in this area should reduce stormwater runoff with the implementation of required onsite stormwater control facilities.

CITY OF KIRKLAND

NE 85TH STREET STATION AREA PLAN: 120TH AVE NE BASIN STORMWATER ANALYSIS

RKI planning engineering

Revised: October 7, 2021

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CITY OF KIRKLAND PUBLIC WORKS

85TH AVENUE STATION AREA PLAN

Date:	October 7, 2021
Prepared By:	Robin Kirschbaum, Inc.
Prepared For:	Robert O'Brien / City of Kirkland
	Kelli Jones / City of Kirkland
Subject:	120th Avenue NE Basin Stormwater Analysis (Revised)

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EXECUTIVE SUMMARY

Background

The City of Kirkland (City) is evaluating potential capacity impacts to the existing stormwater conveyance trunk drainage system serving the proposed NE 85th Street (St) Station Area near the intersection of NE 85th St and Interstate (I)-405 (Study Area). The City has retained Robin Kirschbaum, Inc. (RKI) to work collaboratively with City staff to develop a hydrologic/hydraulic model in PCSWMM modeling software to identify and evaluate conveyance capacity issues resulting from potential zoning changes being considered under the Station Area Plan.

Model Development

A total of six (6) models were developed and evaluated for the purposes of this study, including an existing conditions model and five (5) alternative models as follows:

- **Alternative A:** Full Build-out Based on Existing City Zoning (Unmitigated and Mitigated)
- **Alternative B:** Redeveloped Conditions (Unmitigated and Mitigated)
- **Alternative C:** Redeveloped Conditions with Blue-Green Streets (Mitigated)

For each of the models, rainfall runoff timeseries were developed using long-term continuous hydrologic modeling in Western Washington Hydrology Model version 2012 (WWHM). Modeled storms with peak flow rates matching the 25-year recurrence interval were extracted from the WWHM timeseries and input into PCSWMM.

The models include stormwater trunk conveyance elements (e.g., pipes and channels) only, with no lateral stormwater conveyance pipes included. Seven subbasins were delineated for the study area (see Figure 1 in the main report), with all stormwater flows assumed to enter the trunk drainage system at the downstream end of each of those 7 subbasins.

Results

The modeling results for this study indicate that development of the Station Area Plan and any associated impervious limit increases will not negatively impact downstream flooding. On the contrary, redevelopment is expected to benefit existing flooding due to the flow control facilities that will be required for the redeveloping parcels.

Future conveyance improvements may be required upstream due to residential development that may increase the upstream basin impervious surface by 15% to 20% without requiring addition of flow control facilities. Any such upstream mitigation requirements are not due to the Station Area Plan.

Blue-green streets provide only minor benefits at their proposed locations due to extensive flow control improvements occurring with redevelopment within the basin. The cost to construct these facilities will be high due to required construction depths, expected dewatering needs, and steep slopes, which may require the addition of weirs and additional length to achieve desired storage volumes. While maintenance costs were not evaluated as part of this study, the cost of maintaining blue-green street improvements is also expected to be higher than that of traditional grey infrastructure due to the distributed nature and lack of economies of scale proposed under the Station Area Plan.

The models are considered suitable for purposes of this planning-level study, in which the relative changes in modeled flooding between the existing condition and the various alternatives are being compared. However, due to their coarse resolution, with the 7 relatively large subbasins and simplified drainage trunk conveyance system, the models should not be used to predict the absolute value of modeled flood depth or duration for any given existing or alternative condition scenario without further model refinement, as recommended in Section 9 of the main report (Recommended Next Steps).

1 INTRODUCTION

1.1 Project Description

Sound Transit's ST3 Regional Transit System Plan is bringing a transportation investment to Kirkland by redeveloping the interchange at NE 85th Street (St) and Interstate (I)-405 (Figure 1). The new interchange will include a new Bus Rapid Transit (BRT) Station, expected to be complete in 2025. Kirkland's Station Area Plan will look at how the City of Kirkland (City) can make the most of this regional investment to create the best value and quality of life for Kirkland and its residents.

The Station Area Plan will encourage an equitable and sustainable transit-oriented community as part of the significant growth expected in Greater Downtown Kirkland. It will build on recent efforts such as the Kirkland 2035 Comprehensive Plan, the Greater Downtown Kirkland Urban Center proposal, and other city-wide initiatives addressing housing, mobility, and sustainability. The final plan will provide a visual and policy framework for future redevelopment and growth within approximately a half-mile radius of the BRT station (City of Kirkland 2021).

As part of the Station Area Plan, the City is conducting a fiscal analysis to understand the potential impacts of the changes proposed within the plan across City departments (including Public Works, Planning and Building, Parks, Fire, and Police). As part of that analysis, the City is evaluating the capacity of the existing stormwater conveyance trunk system serving the proposed NE 85th St Station Area near the intersection of NE 85th St and I-405 (Study Area). The City retained Robin Kirschbaum, Inc. (RKI) to work collaboratively with City staff to develop a hydrologic/hydraulic model in PCSWMM modeling software to identify and evaluate conveyance capacity issues resulting from potential zoning changes being considered for the station area.

Flooding issues identified in the model were used as a basis for developing high-level planning concepts for flood mitigation. Associated planning-level construction cost estimates were developed for the following mitigation strategies considered in this study:

- Conveyance pipe upgrades (e.g., material improvements, realignment, and/or increased diameter)
- Underground detention vaults/Blue-Green Streets
- Rain gardens

These mitigation concepts are based on the Action Alternatives described in *Kirkland NE 85th St Station Area Plan and Planned Action: Draft Supplemental Environmental Impact Statement,* Section 3: Environment, Impacts and Mitigation (*SEIS*; BERK 2021b) and conceptual designs prepared by City staff for use in this analysis.

1.2 Purpose of this Report

This report documents the methods, assumptions, and results of hydrologic/hydraulic modeling performed to evaluate the stormwater conveyance trunk system capacity for conveying storms with recurrence intervals up to 25 years under existing and various redevelopment alternatives (Section 4, Section 5, and Section 6). The modeling was used to identify locations within the study area (Section 2) where system upgrades (or mitigation) would be needed to provide the desired 25-year conveyance capacity under each alternative and to verify the effectiveness of the proposed mitigation measures.

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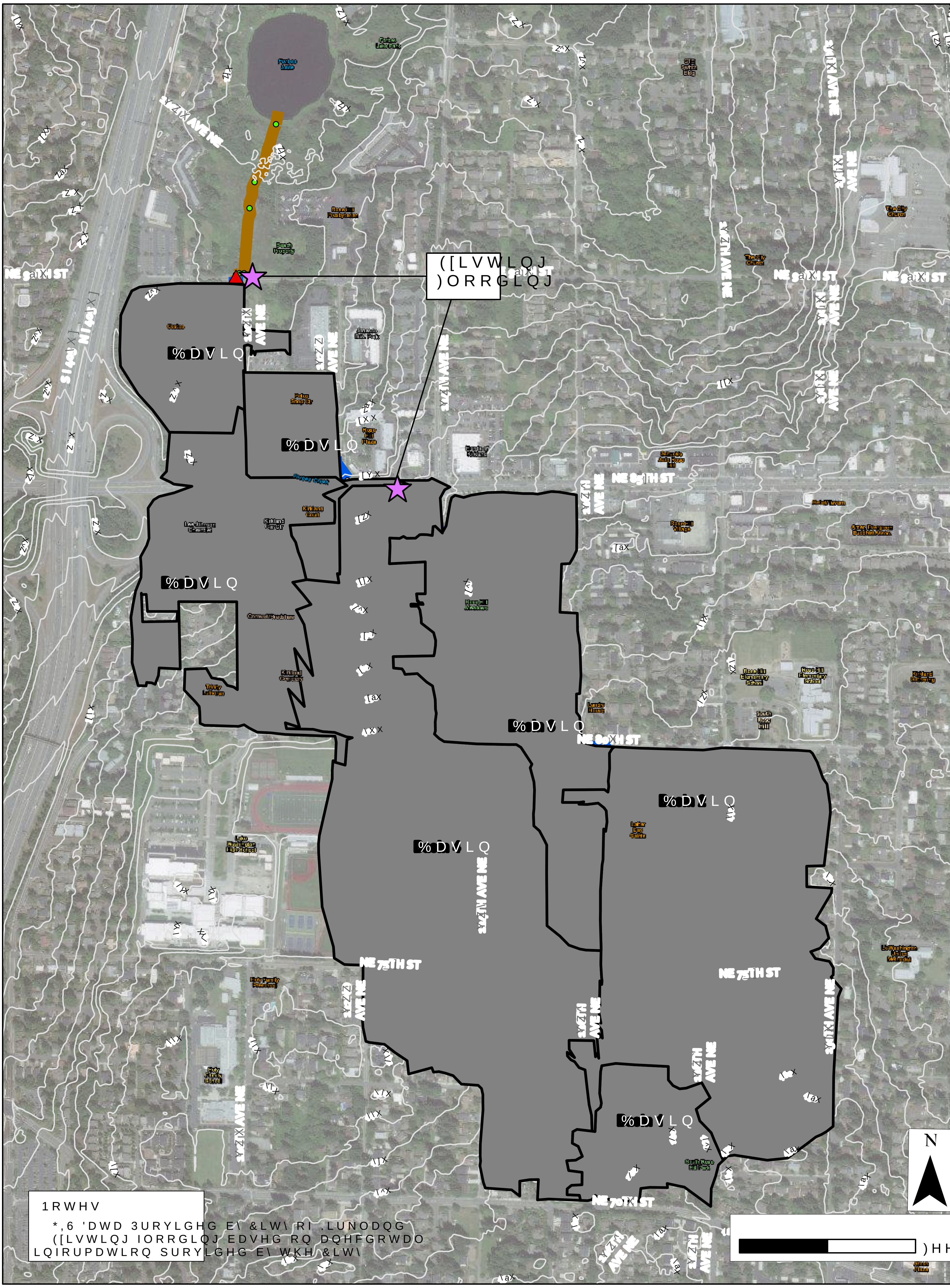

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2 STUDY AREA DESCRIPTION

The Study Area, located east of I-405 and mostly south of NE 85th St, covers approximately 244.2 acres of tributary drainage area within the City's Forbes Creek Drainage Basin. Using Geographic Information System (GIS) data provided by the City, the study area is divided into seven subbasins, as shown in Figure 1.

The main trunkline through the Study Area flows south to north and begins near the intersection of NE 73rd St and 126th Avenue (Ave) NE. Through a series of pipes and ditches, stormwater is conveyed north to NE 80th St, where flow then enters Rose Hill Meadows Park. Stormwater is then conveyed through the park via a series of streams and pipes before passing under a private commercial parcel at the intersection of NE 85th St and 120th Ave NE. Stormwater is then conveyed north along 120th Ave NE, where flow crosses beneath NE 90th St and enters the Forbes Lake Wetland complex that then drains to Forbes Lake.

There are two areas of flooding in the Study Area documented by City maintenance personnel and resident complaints. These areas include 1) the parking lot at Costco, located west of 120th Ave NE between NE 90th St and NE 85th St; and 2) the stormwater channel behind Jiffy Lube, located near the intersection of 124th Ave NE and NE 85th St. The latter location is known to flood only when the privately-owned stormwater channel trash rack is not regularly maintained (see Photo 1). Both flooding locations are noted on Figure 1.

Photo 1. Stormwater Channel Behind Jiffy Lube

3 RELEVANT STANDARDS

The Study Area conveyance system was evaluated for 25-year peak flow capacity based on requirements outlined in the *King County Surface Water Design Manual* (KCSWDM; King County 2016) *Section 1.2.4.1: Conveyance Requirements for New Systems*.

For proposed redevelopment projects that would trigger flow control requirements (see Section 5.2), it was assumed those project sites would be designed to meet the King County Level 2 Flow Control standard (KCSWDM, Section 1.2.3: Core Requirement #3: Flow Control Facilities).

As required by the *City of Kirkland Addendum to the 2016 King County Surface Water Design Manual* (Kirkland 2020), the historic (forested) condition was used for pre-developed runoff modeling of all projects in Level 2 flow control areas.

4 METHODS AND ASSUMPTIONS

This section documents the methods and key assumptions used for hydrologic and hydraulic modeling for this study.

4.1 Hydrologic Modeling

Long-term continuous hydrologic modeling was conducted using the Western Washington Hydrology Model Version 2012 Version 4.2.17 (WWHM), with 15-minute rainfall data from the SeaTac rain gauge and a

precipitation scaling factor of 1.0. The purpose of this modeling was to develop rainfall runoff time series for input into the hydraulic model, described further below.

The following general assumptions were made for hydrologic modeling:

- **Impervious Areas:** All impervious areas in the Study Area were assumed to be effective impervious area; that is, stormwater runoff from impervious areas was assumed to flow directly into the conveyance system with no incidental infiltration nor detention that may occur through vegetated areas or stormwater channels. This is considered a conservative assumption. See Section 9 Recommended Next Steps on considering effective impervious area in future models.
- **Soils:** Type C soils were assumed for the entire Study Area. This is considered a conservative assumption.
- **Groundwater:** Groundwater was not considered in either the hydrologic or hydraulic modeling (Section 4.2). However, extensive groundwater pumping may be expected under the future redevelopment alternatives (Section 5.2). Recommendations regarding groundwater pumping policies are provided in Section 9.
- **Slopes:** The average surface slope for each basin within the Study Area was calculated using a 32-Bit LiDAR Digital Elevation Model (DEM) provided by the City and clipped to the Study Area. This data was used to select slope inputs for modeling subbasins in WWHM. The WWHM User Manual (Clear Creek 2016) provides the slope categories below for hydrologic modeling. See Section 5 for a summary of WWHM basin slope inputs for the Study Area.
    - Flat (0-5% grade)
    - Moderate (5-15% grade)
    - Steep (>15% grade)

The WWHM output long-term continuous runoff timeseries was post-processed to identify and extract single-event storm on record with a peak flow rate roughly matching the 25-year recurrence interval storm. The following steps were used to identify and extract the storm event from the WWHM output record. These steps were followed for each of the seven subbasins:

1. Identify the modeled storm on record that most closely matches the 25-year peak flow rate for that subbasin.
2. Extract the identified storm event, with two days centered around the timing of the peak.
3. Because the 25-year peak flow rate is estimated in WWHM based on statistical analysis (Log Pearson Type III) of yearly modeled peak flow values, there is no storm on record that precisely matches that computed rate. Therefore, the extracted storm event was scaled by the ratio (r) of the 25-year peak flow rate (Q25) to the maximum simulated flow rate for the extracted storm (Qevent max). This resulted in an average ratio (r) of 1.04 for this project.

See Section 5 for additional discussion of WWHM inputs and Appendix A for WWHM output reports.

4.2 Hydraulic Modeling

Hydraulic modeling was conducted using PCSWMM 2020 Professional hydraulic modeling software. Key inputs to the PCSWMM conveyance network model were derived from the following sources:

- **Geographic Information System (GIS) Data:** City-provided GIS data contained stormwater channels, stormwater pipes, manholes, and miscellaneous stormwater components. See Section 9: Recommended Next Steps for discussion of the available data and recommended next steps for filling data gaps.
- **Record Drawings:** Gaps in the GIS data were supplemented with record drawings, where applicable and available.

Where record drawings were not readily available to fill data gaps, the following assumptions were made in agreement with City staff:

- Stormwater Channel #7582 (behind Jiffy Lube at 124th Ave NE and NE 85th St) was assumed to be 2.5-feet-wide by 2-feet-deep (see Photo 2).
- Manhole rim elevations were assumed from the 32-Bit LiDAR DEM layer provided by the City (no photo available).
- Pipe invert elevations were assumed to be depths provided in the GIS data, in reference to rim elevations.
- The tailwater elevation at the 120th Ave NE outfall was assumed to be at the crown of the pipe (see Photo 3).

Table 1 summarizes Manning's N roughness values used in the PCSWMM model. Roughness values were based on KCSWDM, Section 4.2, Table 4.2.1.D and Section 4.4, Table 4.4.1.B. Pipe materials were provided in the City's GIS data and supplemented by City review of the available as-built data. See the PCSWMM Model Reports in Appendix B for additional information.

Photo 2. Bottom Area, Stormwater Channel behind Jiffy Lube

Photo 3 Outfall Tailwater Conditions

Table 1. Manning's N Values for PCSWMM Model

Pipe Material/Open Channel Type	Manning's N Value
Corrugated Aluminum Pipe (CAP) [a]	0.024
Concrete	0.012
Corrugated Polyethylene (CPE) [b]	0.012
Ductile Iron [c]	0.012
Polyvinyl Chloride (PVC)	0.011
Reinforced Concrete Pipe (RCP)	0.012
Solid Wall Polyethylene (SWPE) [d]	0.009

Ditches and Channels [e]	0.027
Not Available [f]	0.011

Notes:

a CAP is assumed to have 2-2/3-inch-by-1/2-inch corrugations and are assumed to be fully coated.
b CPE is assumed to be lined.
c Ductile iron pipes are assumed to be cement-lined.
d SWPE is assumed to be butt-fused.
e Ditches and Channels are assumed to be constructed channels with short grass and few weeds.
f Not Available. only pertains to one 63-linear foot 12-inch diameter pipe located in Basin 2. Due to the unavailable pipe material data for this pipe, a Manning's N value of 0.011 was assumed (PVC) based on material of surrounding pipes.

5 ANALYSIS

This section describes the hydrologic/hydraulic modeling analysis performed for existing conditions and three future redevelopment condition alternative scenarios developed for this study.

5.1 Existing Conditions

5.1.1 Model Resolution, Intended Use, and Limitations

As shown in Figure 1, stormwater runoff is assumed to enter the stormwater trunk drainage system at the downstream end of each subbasin. This results in relatively large, abrupt additions of flow at just seven discrete locations in the model network. As a result of this relatively low model resolution of the trunk drainage system, as well as the lumped subbasin delineation, lack of model calibration, and data gaps and general assumptions made to fill the data gaps, the existing condition model is considered suitable for high-level planning purposes only. Absolute values of modeled flood depth and duration should not be used without further model development, calibration, and validation, as discussed in Section 9 (Recommended Next Steps). However, the relative changes in modeled flood depth and duration between the existing condition and various alternatives analyzed (Section 5.2) are considered reasonable for the high-level planning purposes of this study, as discussed further in Section 6 (Results).

5.1.2 Land Use Assumptions and Existing Flow Control

The City provided the existing condition land use assumptions to be used in hydrologic modeling for this study (Figure 2), based on their review of available GIS data and Record Drawings. In addition to land use, the City also provided a GIS layer depicting parcels they deem to have flow control under existing conditions. The flow control designations provided by the City include the following (Figure 1):

- **100% Forest:** Includes areas with infiltration facilities designed for 100% infiltration (with overflow connection to the City's stormwater trunk conveyance system) or flow control facilities with low orifice diameter of approximately 0.5-inch (assumed to provide Level 2 Flow Control).
- **20% Grass / 80% Forest:** Includes areas with LID implementation and infiltration facilities (with overflow connection to City's stormwater trunk conveyance system).
- **100% Grass:** Includes areas with flow control facilities with low orifice diameter of approximately 1-inch.
- **10% Grass / 90% Impervious:** Includes areas with flow control facilities constructed prior to 2012, with low orifice diameter less than 1-inch.

5.1.3 Existing Flood Storage

Each junction in the PCSWMM model was assigned a flood storage area of 1,320 square feet (SF). This flood storage area was based on an assumed average 660-linear-foot typical block length with up to 2 feet of ponding width allowed. One exception was made for junction 10968 (on 120th Ave NE near the Costco parking lot), where a much larger flood storage area of 260,000 SF was used to account for the existing flooding that occurs within the Costco parking lot. This modeled flood storage area assumes the entire parking lot surface floods during major storms such as those with recurrence intervals of 25 years or greater.

5.2 Alternatives

Three main alternatives were analyzed for this study, with a total of five models developed as follows:

- **Alternative A:** Full Build-out Based on Existing City Zoning
    - Unmitigated – Assumes land uses based on full-build conditions under existing City zoning. Assumes existing flow control (Section 5.1.2) will remain in place and new flow control will be installed to meet the Level 2 flow control standard (Section 3) for all parcels at least 16,000 SF in size. The 16,000 SF threshold was developed by the City based on WWHM modeling results that showed that redevelopment of parcels that size or greater with an assumed 60% impervious/40% lawn coverage would increase the 100-year peak flow rate by more than 0.15 cfs, therefore requiring Level 2 Flow Control. The resulting Level 2 flow control parcels were modeled as 100% forested condition (Figure 3).
    - Mitigated – Same land use assumptions as the unmitigated model, with additional mitigation to resolve all flooding under Alternative A. Mitigation strategies considered included conveyance system improvements and installation of detention vaults, as summarized in Table 2.
- **Alternative B:** Redeveloped Conditions
    - Unmitigated – Assumes future zoning under redevelopment conditions based on data provided by BERK (2021c). As with Alternative A, assumes existing flow control (Section 5.1.2) will remain in place and new Level 2 flow control will be added for all parcels at least 16,000 SF in size.
    - Mitigated – Same land use and flow control assumptions as the unmitigated model, with additional mitigation to resolve all flooding under Alternative B. Since the Alternative B land uses (Figure 2) and modeled peak flow rates (Table 4) were nearly identical to Alternative A, the same mitigation measures were used for both alternatives (Table 2).
- **Alternative C:** Redeveloped Conditions with Blue-Green Streets
    - Mitigated – Same land use and flow control assumptions as the Alternative B Mitigated model, but with addition of blue-green streets and rain gardens, as summarized in Table 2.

The City conducted modeling in WWHM and PCSWMM to size mitigation as needed to eliminate flooding under each alternative (Table 2).

As shown in Figure 2, Alternative A and Alternatives B/C are extremely similar in their resulting land use distribution (e.g., 96.7 acres impervious in Alternative A versus 97.6 acres impervious in Alternative B; Table 3), due to the large number of parcels that trigger the Level 2 flow control designation.

Figure 3 shows the land use and flow control assumptions for Alternative A, while Figure 4 shows the corresponding information for Alternatives B/C. Alternatives B/C are shown together in the latter figure because their land use assumptions are the same.

As shown in Figure 4, there are a total of 11 land use classifications within the Study Area provided in the BERK (2021c) data. These were simplified for this study by grouping them into the following four categories based on percentage impervious area assumed for each:

- **Re-Zoned Class 1 (100% Impervious):**
    - Surplus
- **Re-Zoned Class 2 (90% Impervious):**
    - Multi-Unit (MU) Office Tower 17 Rental 50k - Low Public (PU) 1
    - MU Office Tower 9 Rental 50k - Medium (PU1)
    - Office Tower 12 Rental 75k - Medium (PU1)
    - Residential Mid 5 Rental 50k - Medium (PS)
    - Residential Mid 7 Rental 75k - Medium (PS)
- **Re-Zoned Class 3 (80% Impervious):**
    - MU Residential Mid 7 Rental 50k - High (PU1)
    - MU Residential Tower 8 Rental 50k - Medium (PU)
    - Mid 7 Rental 50k - Medium (PU1)
    - Residential Mid 6 Rental 50k - Medium (PS)
- **Re-Zoned Class 4 (70% Impervious):**
    - Residential Low 4 Rental 50k - High (SS)

See Appendix C for summary of Flow Control Designations, Zoning Designations, and Re-Zoned Designations and resulting land use used to develop WWHM inputs in Table 3.

Table 2. Summary of Modeled Land Uses, Flow Control, and Mitigation Measures by Alternative

Model	Land Use Assumptions	Flow Control Assumptions	Mitigation Measures [a]
Existing Condition	Land use inputs provided by the City (Figure 2) [b]	• See flow control designations in Figure 1, based on City evaluation of available GIS data and record drawings	• None
Alternative A	Full build-out condition based on current City zoning [b]	• Existing condition flow control designations • New flow control (modeled as 100% forested conditions) assumed for parcels > 16,000 SF [c]	• Installation of a 26,570 sf Detention Vault (185,990 cubic feet, 7-foot depth) in Basin 2 to manage 7.5 acres impervious area • Installation of a 35,350 sf Detention Vault (247,450 cubic feet, 7-foot depth) in Basin 4 to manage 10.0 acres impervious area • Increased the following conveyance pipe diameters: ○ Pipe 7493 (near PETCO) from 18- to 30-inch based on development project currently in design ○ Pipe 40640 to Pipe -5 (along 124th Ave NE) from 12- to 18-inch ○ Pipes 23048, 23047 and 23018 (north of NE 80th St) from 16- to 18-inch ○ Pipes 45955 and 7563 from 18- to 24-inch • Modified the following conveyance pipe materials: ○ Pipes 6496, 6462, and 6460 (last three pipe segments in model) from CAP to RCP ○ Pipes C1 and 40642 (along 124th Ave NE) from CAP to SWPE ○ Pipes 40640 to Pipe -5 (along 124th Ave NE) from CAP, RCP, and PVC to SWPE ○ Pipes 45955 and 7606 (along NE 80th St) from CAP to SWPE
Alternative B	Same as Alternative A, with the addition of a Redevelopment Area along the NE 85th St Commercial Corridor [d]	• Existing condition flow control designations • New flow control (modeled as 100% forested conditions) assumed for parcels > 16,000 SF [c]	
Alternative C	Same as Alternative B		• All Alternative A/B mitigation measures, plus: ○ Installation of blue-green streets in Basin 6 (represented as a 4,250 SF [29,750 cubic feet, 7-foot-depth] and a 1,800 SF [2,600 cubic feet, 7-foot-depth] Detention Vault in WWHM); and ○ Installation of a 3,100 SF and 600 SF rain garden in Basin 4 (represented as storage nodes in PCSWMM with one-foot-depths, see Appendix B).

Notes:

a The City developed the mitigation scenarios via modeling in WWHM and provided the documentation provided in this table. The City also provided runoff timeseries to RKI for incorporation into the PCSWMM model. See Appendix B for pipe locations.

b Imperviousness and Current Zoning GIS data provided by the City.

c Flow Control Threshold of 16,000 SF was developed by the City based on WWHM modeling analysis.

d Redevelopment Area data for Alternatives B & C provided by BERK Consulting for analysis purposes only and is not intended to represent site-level proposals for regulatory or development activities. (BERK 2021a).

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Table 3. WWHM Land Use Input Summary by Model and by Subbasin

All Scenarios				Existing Conditions [a]				Alternative A [b]				Alternative B/Alternative C [c]			
Basin #	Average Basin Slope [d] (%)	WWHM Slope Input [e]	Soil Type [f]	Impervious Area (acres)	Lawn Area (acres)	Forest Area (acres)	Total Area (acres)	Impervious Area (acres)	Lawn Area (acres)	Forest Area (acres)	Total Area (acres)	Impervious Area (acres)	Lawn Area (acres)	Forest Area (acres)	Total Area (acres)
Basin 1	4.22	Flat	C	4.02	4.37	2.86	11.25	6.15	2.79	2.31	11.25	6.15	2.79	2.31	11.25
Basin 2	3.80	Flat	C	18.75	18.93	25.02	62.70	19.85	9.13	33.72	62.70	19.85	9.13	33.72	62.7
Basin 3	5.85	Moderate	C	15.92	19.15	1.56	36.63	13.79	7.77	15.07	36.63	14.69	8.21	13.74	36.64
Basin 4	3.69	Flat	C	33.71	49.40	0.00	83.11	45.71	21.06	16.34	83.11	45.68	21.09	16.34	83.11
Basin 5	6.58	Moderate	C	7.20	2.05	0.17	9.42	2.17	0.21	7.05	9.43	2.17	0.21	7.05	9.43
Basin 6	8.20	Moderate	C	17.15	11.12	0.00	28.27	8.07	0.76	19.43	28.26	8.13	0.7	19.43	28.26
Basin 7	2.10	Flat	C	11.22	1.55	0.00	12.77	0.92	0.00	11.84	12.76	0.92	0	11.84	12.76
Total	--	--	--	**107.96**	**106.58**	**29.61**	**244.15**	**96.66**	**41.72**	**105.76**	**244.14**	**97.59**	**42.13**	**104.43**	**244.15**

Abbreviations:

DEM Digital Elevation Model
GIS Geographic Information System
WWHM Western Washington Hydrology Model

Notes:

a Existing Conditions values provided by the City and are based on GIS data and Flow Control Designations from Record Drawing evaluation of parcel groups within the 120th Avenue NE Basin. See Section 5.1.

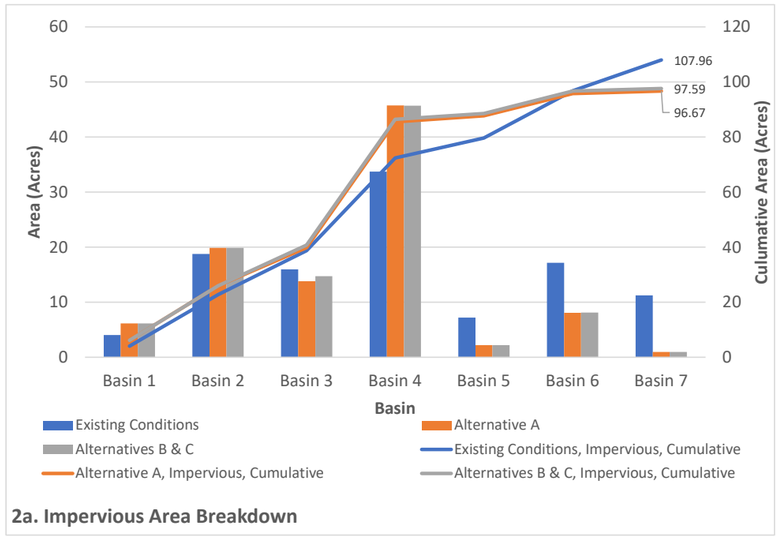
b Alternative A values are based on a combination of current zoning and Flow Control Designations for Existing Conditions and Redeveloped-Mitigated Conditions. See Section 5.2.

c Alternative B and Alternative C values are based on a combination of current zoning designations, Flow Control Designations for Existing Conditions and Redeveloped-Mitigated Conditions, and with Re-Zoned Designations provided by BERK Consulting. See Section 5.2.

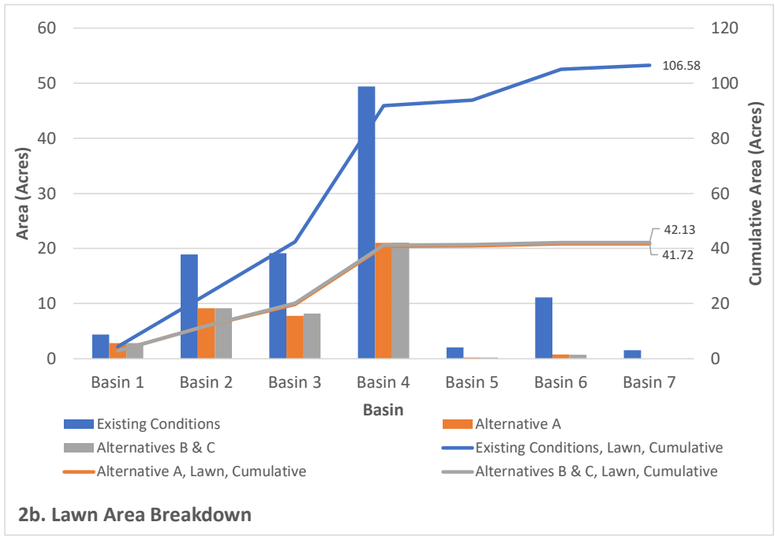
d Average Basin Slope calculated in PCSWMM using 32-Bit LiDAR Digital Elevation Model (DEM) layer provided by the City.

e WWHM Slope Categories include (See Section 4.1):
-Flat (0 – 5% Slope)
-Moderate (5 – 15% Slope)
-Steep (>15%)

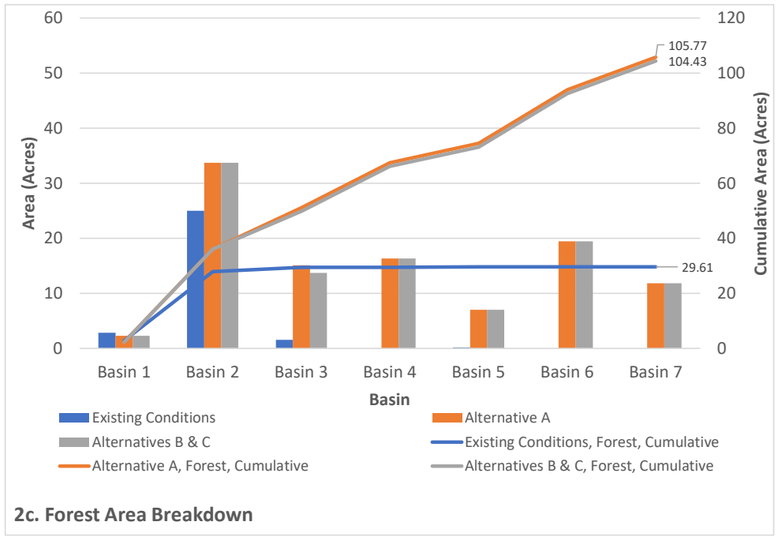
f Type C soils assumed for the entire 120th Ave NE Basin. See Section 4.1.



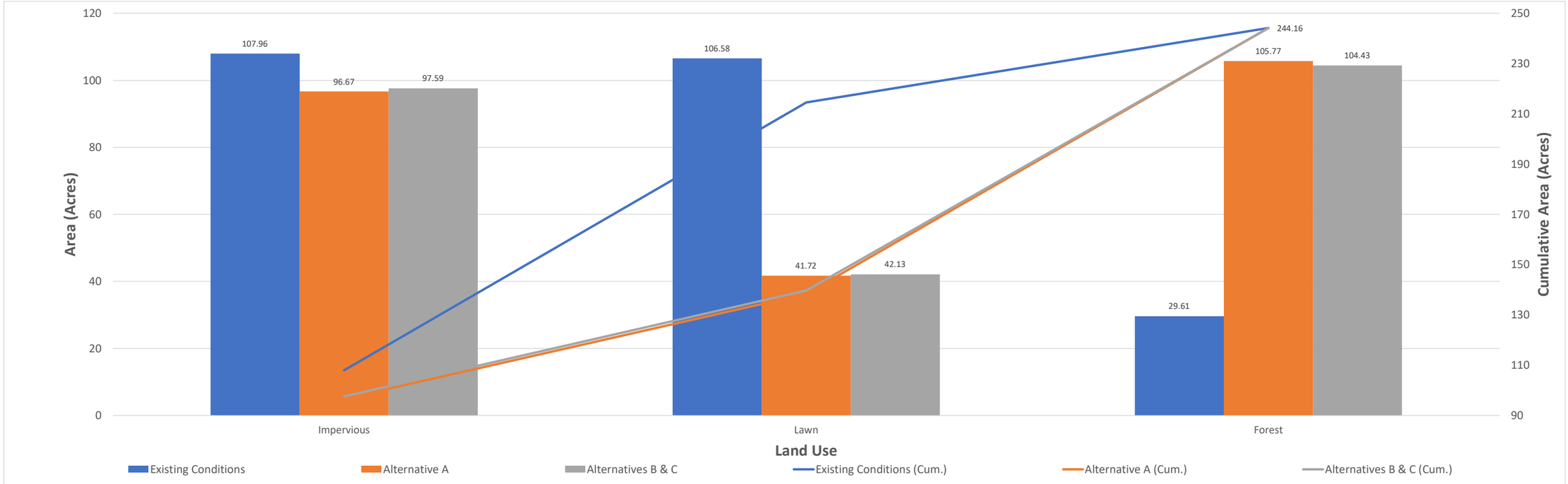
2a. Impervious Area Breakdown



2b. Lawn Area Breakdown



2c. Forest Area Breakdown



2d. Grand Summary of Land Use for Existing Conditions, Alternative A, and Alternatives B & C

Figure 2. Breakdown of Land Use by Basin for Existing Conditions, Alternative A and Alternatives B & C

City of Kirkland: 85th Street Station Area Plan

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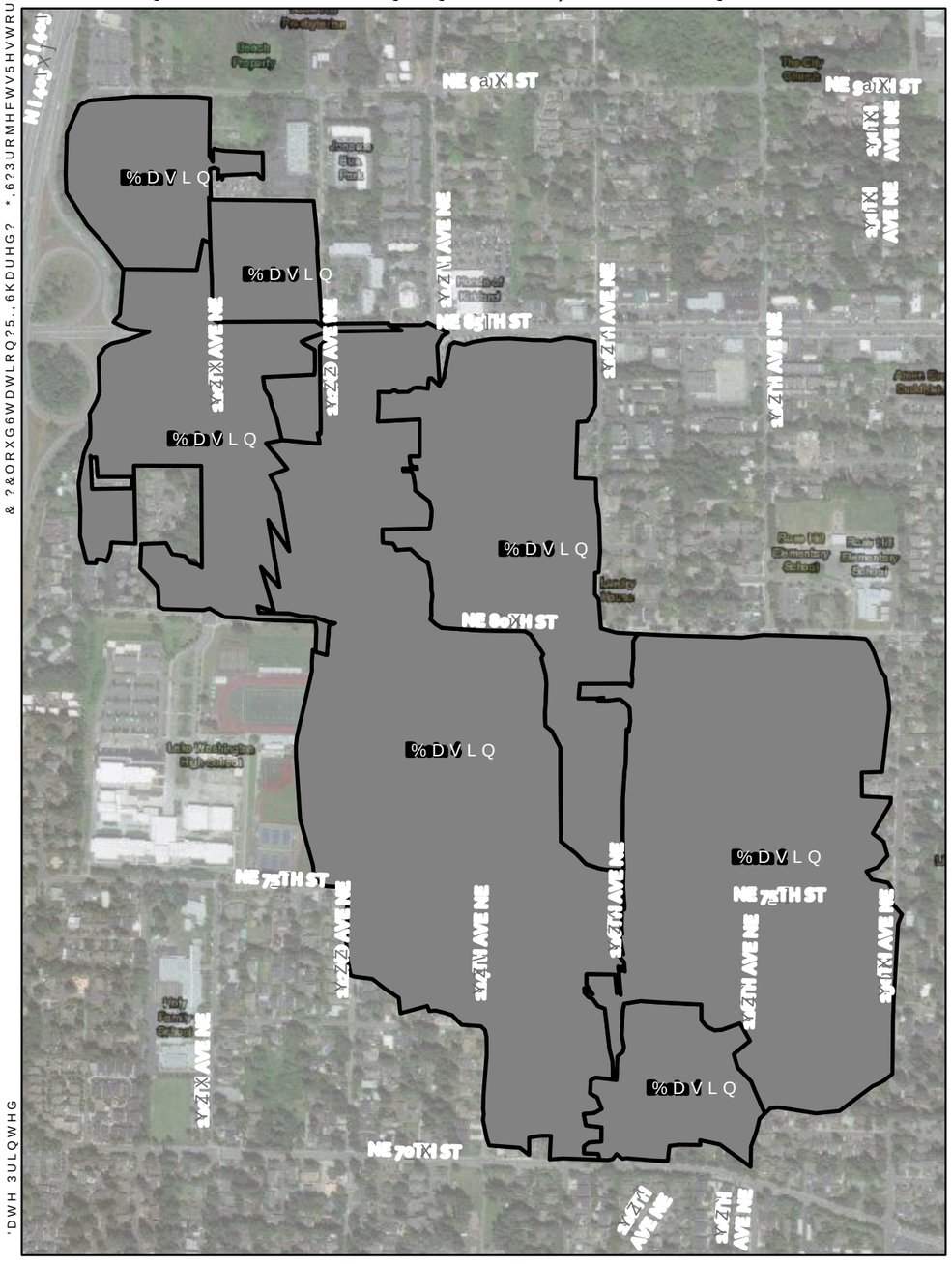

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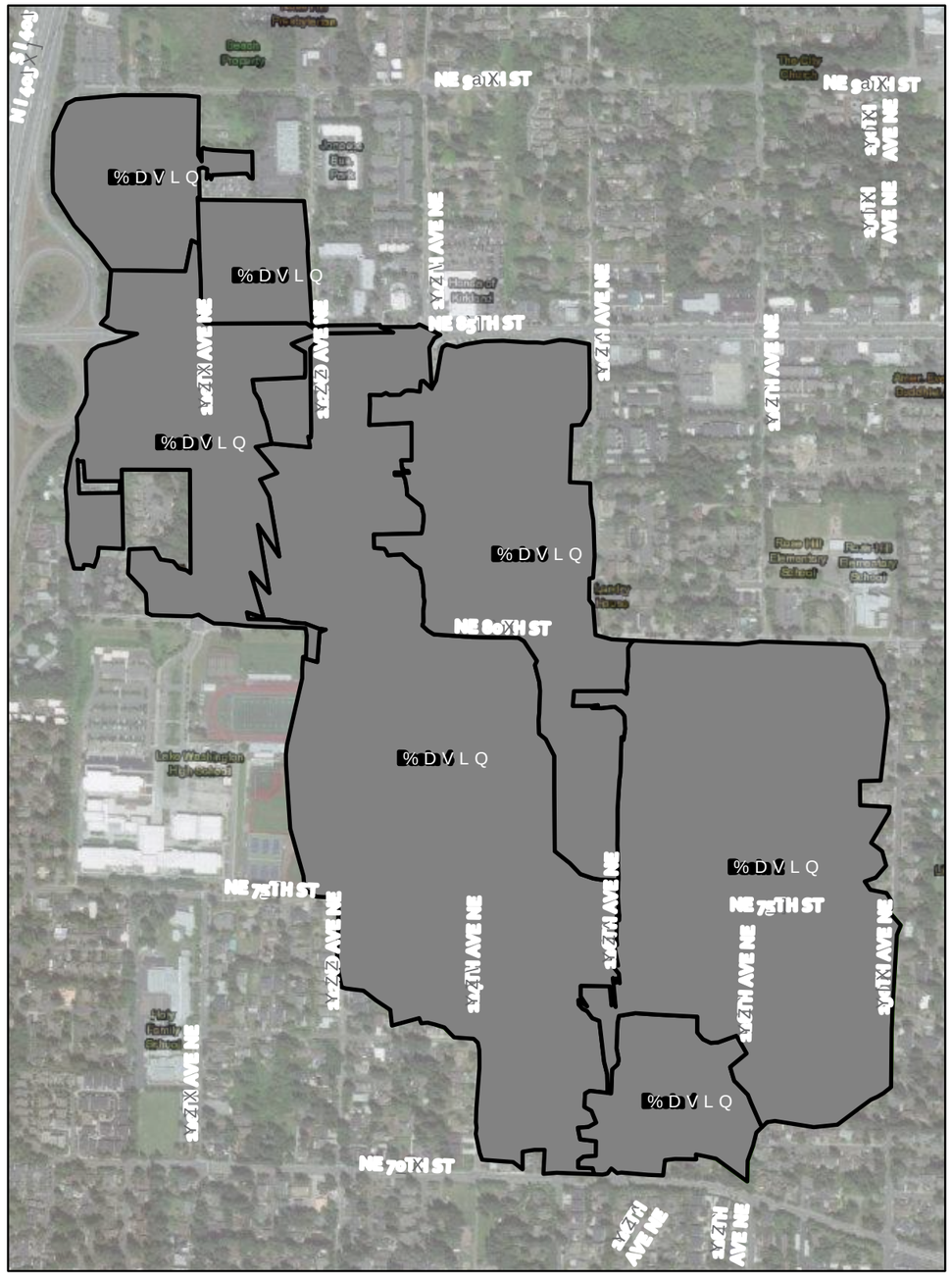

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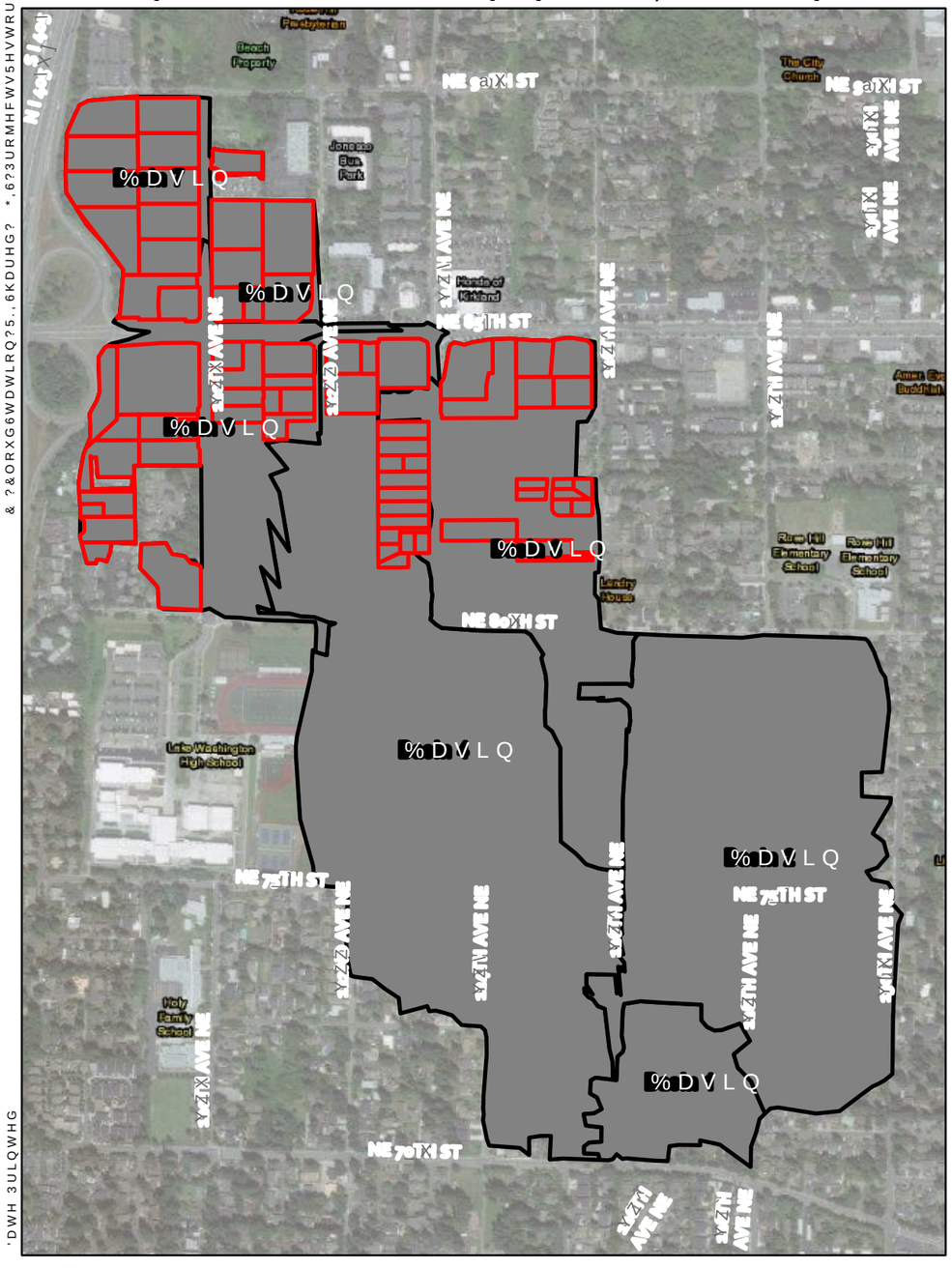

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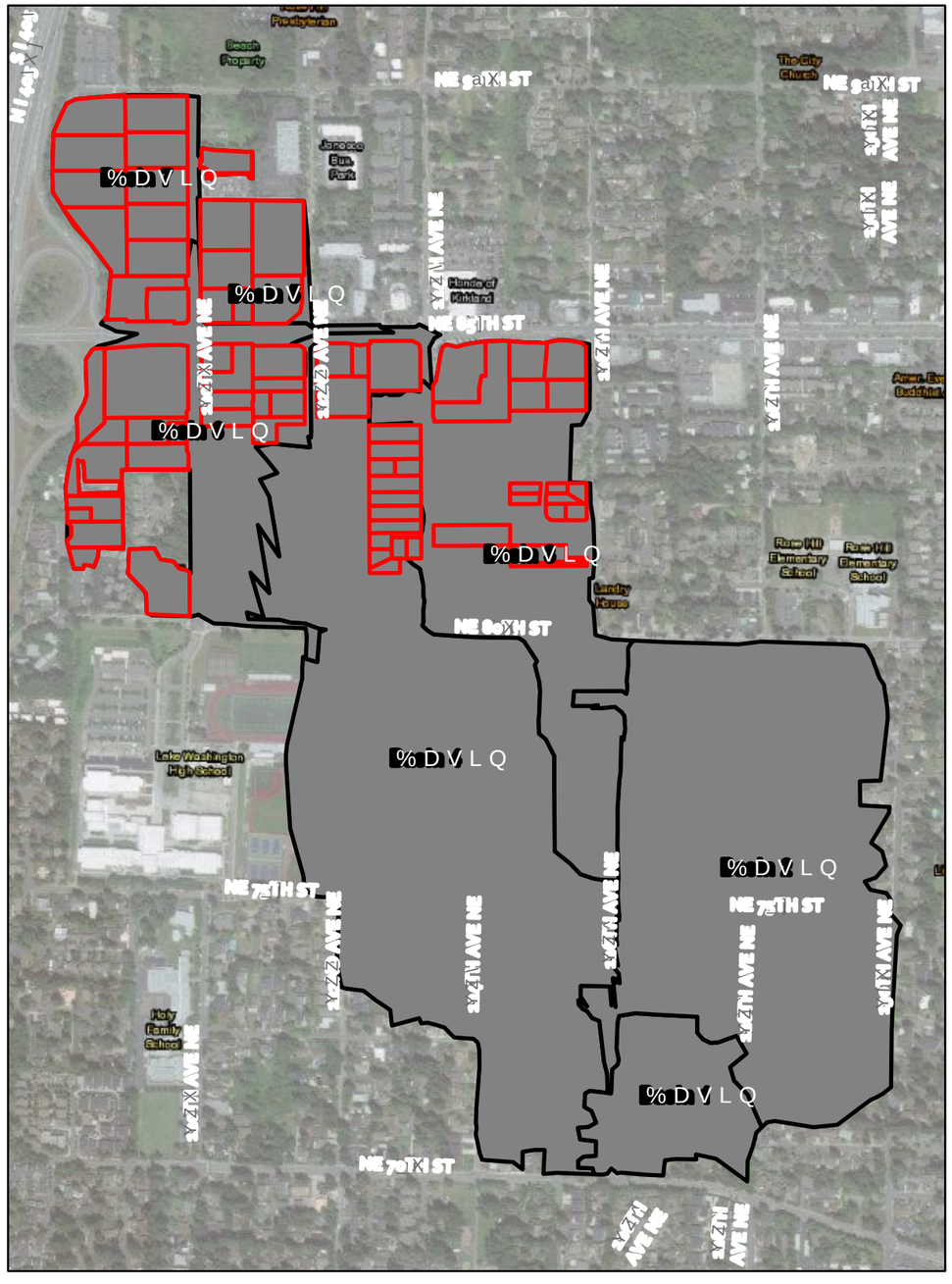

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6 RESULTS

6.1 Modeled Peak Flow Rates

The modeled 25-year peak flow rates for each subbasin are summarized in Table 4, with bar graph plots provided in Figure 5. As shown in the below table, the total 25-year peak flow rate for the Study Area is predicted to decrease from 114 cubic feet per section (cfs) under the existing condition to approximately 89 cfs for each of the future redevelopment alternatives. This decrease in modeled peak flow rate is attributed to the extensive flow control assumed for large, redeveloping parcels (Section 5.1.2). See Appendix A for WWHM output reports for the existing condition and each alternative model.

Table 4. 25-Year Peak Flow by Basin and by Alternative (all units in cubic feet per second [cfs])

	Existing Conditions		Alternative A [a]		Alternative B/C [b]	
Basin	**By Basin**	**Cumulative**	**By Basin**	**Cumulative**	**By Basin**	**Cumulative**
Basin 1	4.12	4.12	5.29	5.29	5.29	5.29
Basin 2	19.22	23.34	17.84	23.13	17.84	23.13
Basin 3	19.30	42.64	14.81	37.95	15.69	38.82
Basin 4	37.32	79.96	39.40	77.35	39.39	78.21
Basin 5	7.03	86.99	2.25	79.60	2.25	80.45
Basin 6	18.19	105.18	8.10	87.70	8.14	88.59
Basin 7	8.82	114.00	1.26	88.96	1.26	89.85
Total	**114.00**	**--**	**88.96**	**--**	**89.85**	**--**

Notes:

a Alternative A modeled peak flow rates do not incorporate mitigation measures (Section 5.2).

b Alternative B/C peak flow rates are the same due to the same land use and flow control assumptions applied. The modeled peak flow rates do not incorporate mitigation measures (Section 5.2).

Modeled Flooding

Table 5 summarizes modeled flood depths and durations. Figure 6 through Figure 10 show the locations and depths of modeled flooding where flooding is modeled to last at least 15 minutes. Any modeled flooding shorter than 15 minutes in duration was assumed to be negligible for purposes of this planning level study.

As discussed in Section 4, the absolute values of modeled flood depth or duration should not be relied upon without further model refinement. Only the change in modeled flood depth from existing conditions to the future redevelopment conditions under Alternatives A through C should be considered reliable for this study.

As shown in Figure 6 through Figure 10, modeled flooding is expected to reduce in each of the alternatives as compared to the existing condition. This is due to the flow control assumed to be provided for the large parcels under the future redevelopment conditions for each of the alternatives (Section 5.1.2).

Because Alternatives A and B use such similar land use and flow control assumptions, and since the mitigation measures were the same for both, there was very little change in modeled flooding from Alternative A (mitigated; Figure 8) to Alternative B (mitigated; Figure 9). While some flooding does remain in those alternatives, no flooding is modeled in Alternative C due to the addition of blue-green streets (Figure 10), in

addition to proposed mitigation measures in Alternative and B. See the PCSWMM model output reports provided in Appendix B for additional information.

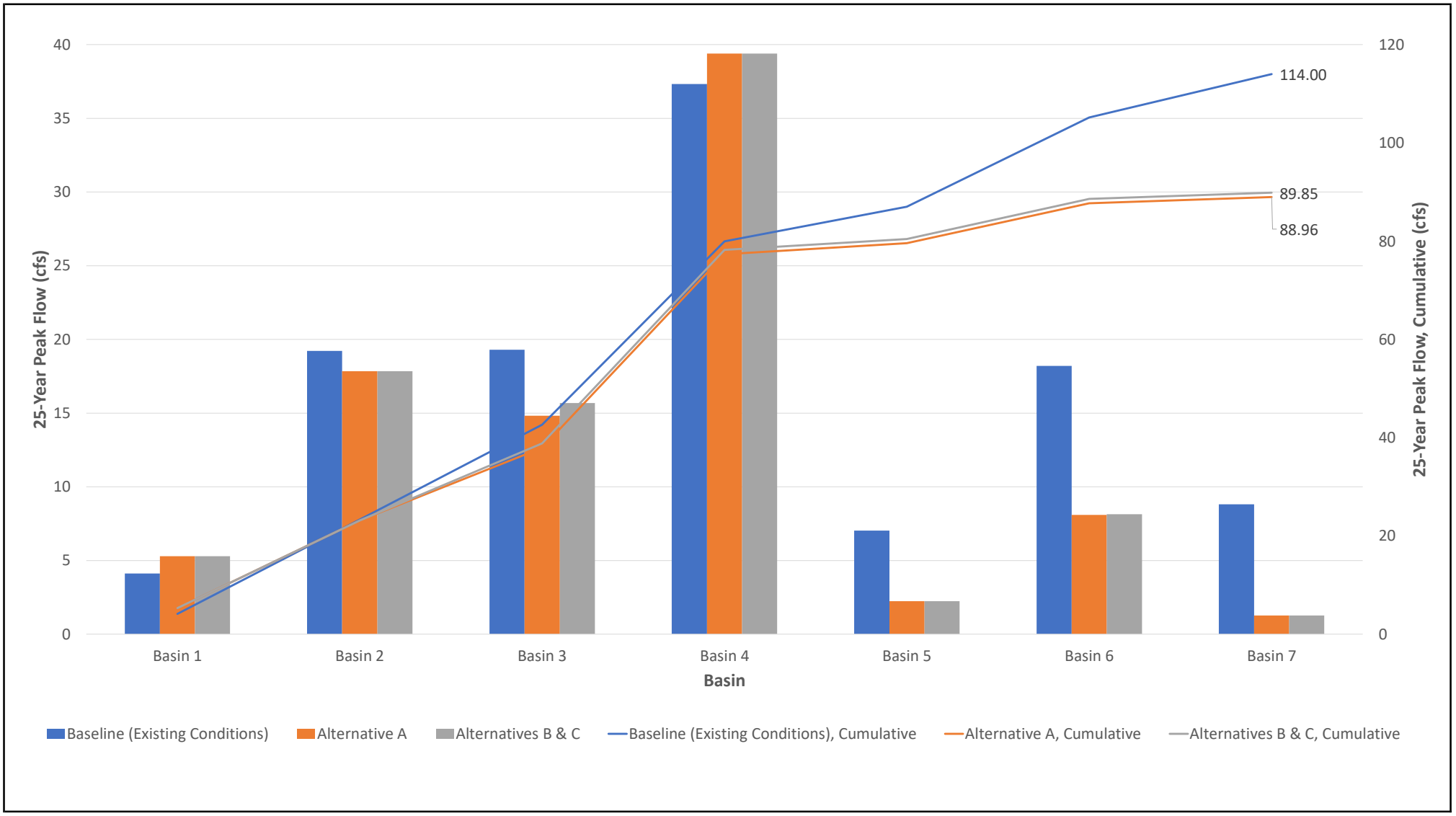

Figure 5. 25-Year Peak Flow by Basin for Baseline (Existing Conditions), Alternative A and Alternatives B & C

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Table 5. Modeled 25-Year Flood Depth and Duration by Alternative.

Node [a,b,c]	Existing Conditions		Alternative A (Unmitigated)		Alternative A (Mitigated)		Alternative B (Unmitigated)		Alternative B (Mitigated)		Alternative C (Mitigated)	
	Max Flood Depth (ft) [d]	Hours Flooded (hr) [d]	Max Flood Depth (ft) [d]	Hours Flooded (hr) [d]	Max Flood Depth (ft) [d]	Hours Flooded (hr) [d]	Max Flood Depth (ft) [d]	Hours Flooded (hr) [d]	Max Flood Depth (ft) [d]	Hours Flooded (hr) [d]	Max Flood Depth (ft) [d]	Hours Flooded (hr) [d]
10968	0.06	0.86	--	--	--	--	--	--	--	--	--	--
10975	0.55	0.33	--	--	--	--	--	--	--	--	--	--
11236	--	--	--	--	0.47	0.25	--	--	0.61	0.28	--	--
11293	3.76	0.68	4.17	0.67	5.27	0.49	4.27	0.68	5.54	0.50	--	--
11428	2.95	0.52	3.31	0.52	--	--	3.39	0.53	--	--	--	--
11429	3.79	0.60	4.12	0.58	--	--	4.19	0.59	--	--	--	--
11843	1.10	0.46	--	--	--	--	--	--	--	--	--	--
11844	2.82	0.66	1.40	0.45	--	--	1.75	0.49	--	--	--	--
12645	2.24	1.14	2.06	1.37	--	--	2.06	1.37	--	--	--	--
12708	2.07	0.82	1.86	1.03	--	--	1.86	1.03	--	--	--	--
12716	2.16	0.86	1.95	1.18	--	--	1.95	1.18	--	--	--	--
33729	0.14	0.28	0.58	0.58	--	--	0.58	0.58	--	--	--	--
33731	--	--	0.29	0.56	--	--	0.29	0.55	--	--	--	--

Abbreviations:

ft feet
hr hour

Notes:

a Flooding was modeled using PCSWMM with runoff time series developed in Western Washington Hydrology Model version 2012 (WWHM). WWHM was run using 15-minute rainfall data from the SeaTac gauge with a precipitation scaling factor of 1.0.
b Modeled flood depths should be used as a basis for comparison between existing conditions and each of the alternatives only.
c Nodes listed in order of model conveyance from upstream to downstream.
d Only modeled flooding with at least a 15-minute duration is reported. Shorter-duration flooding is considered negligible for purposes of this study.

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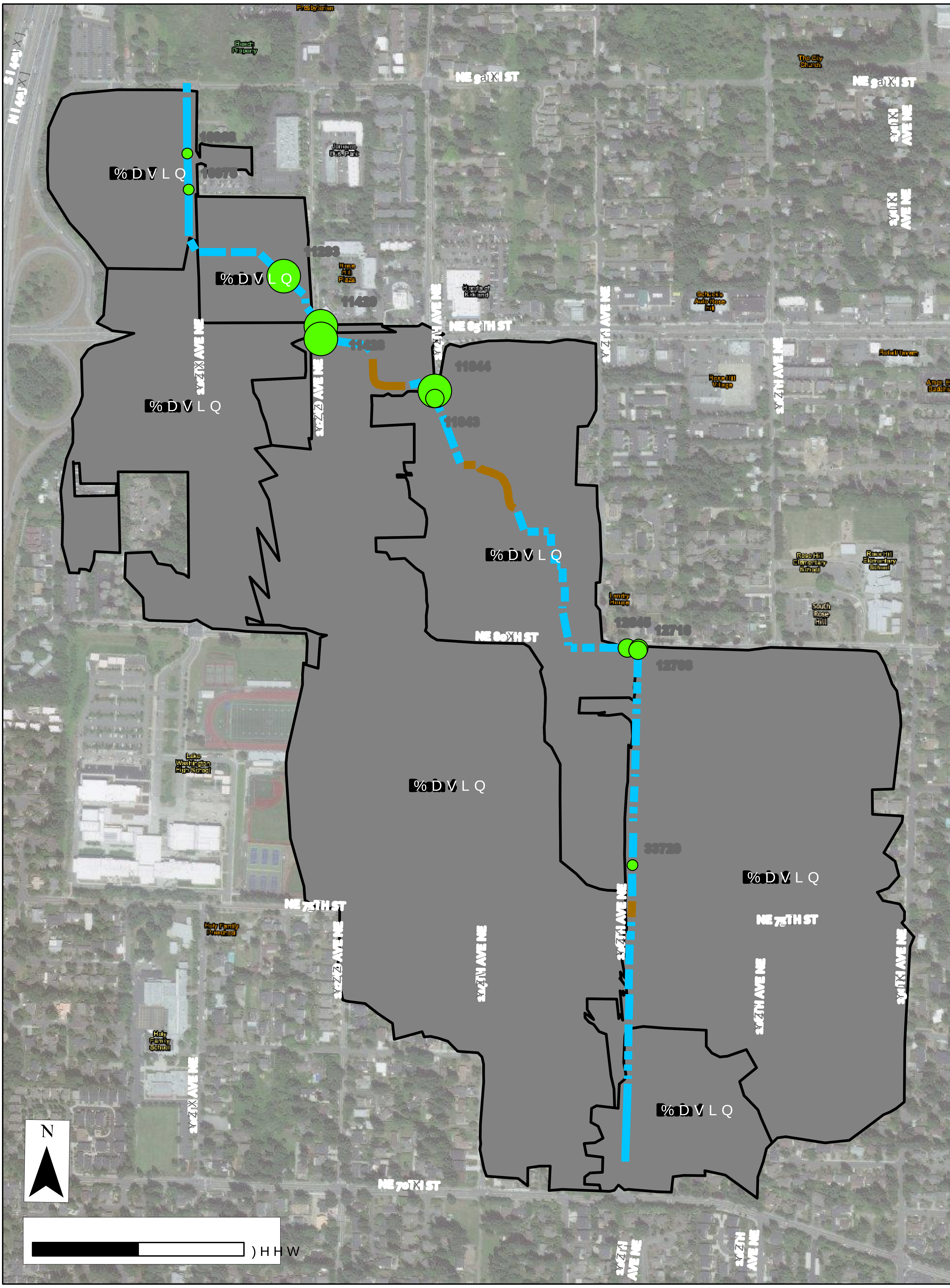

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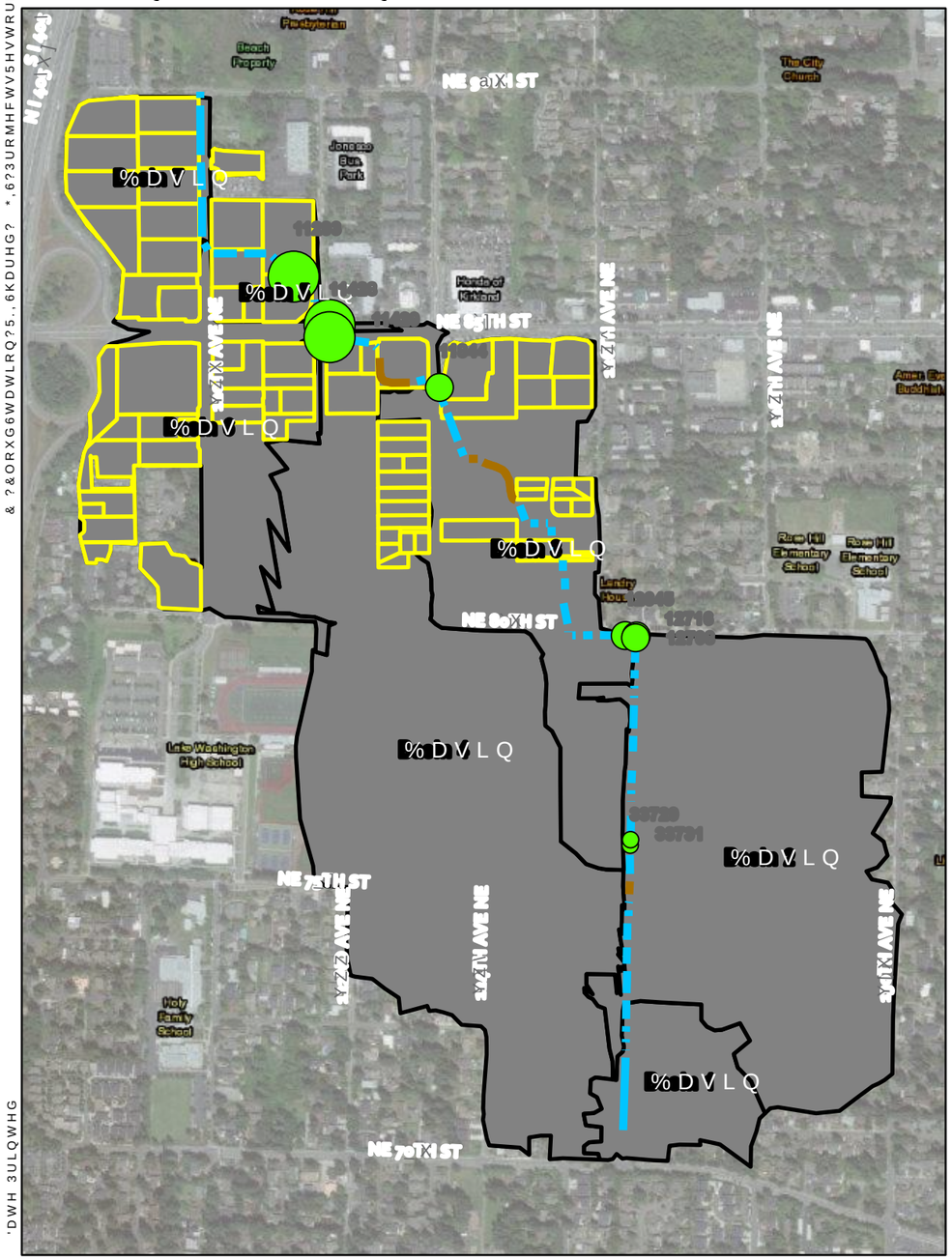

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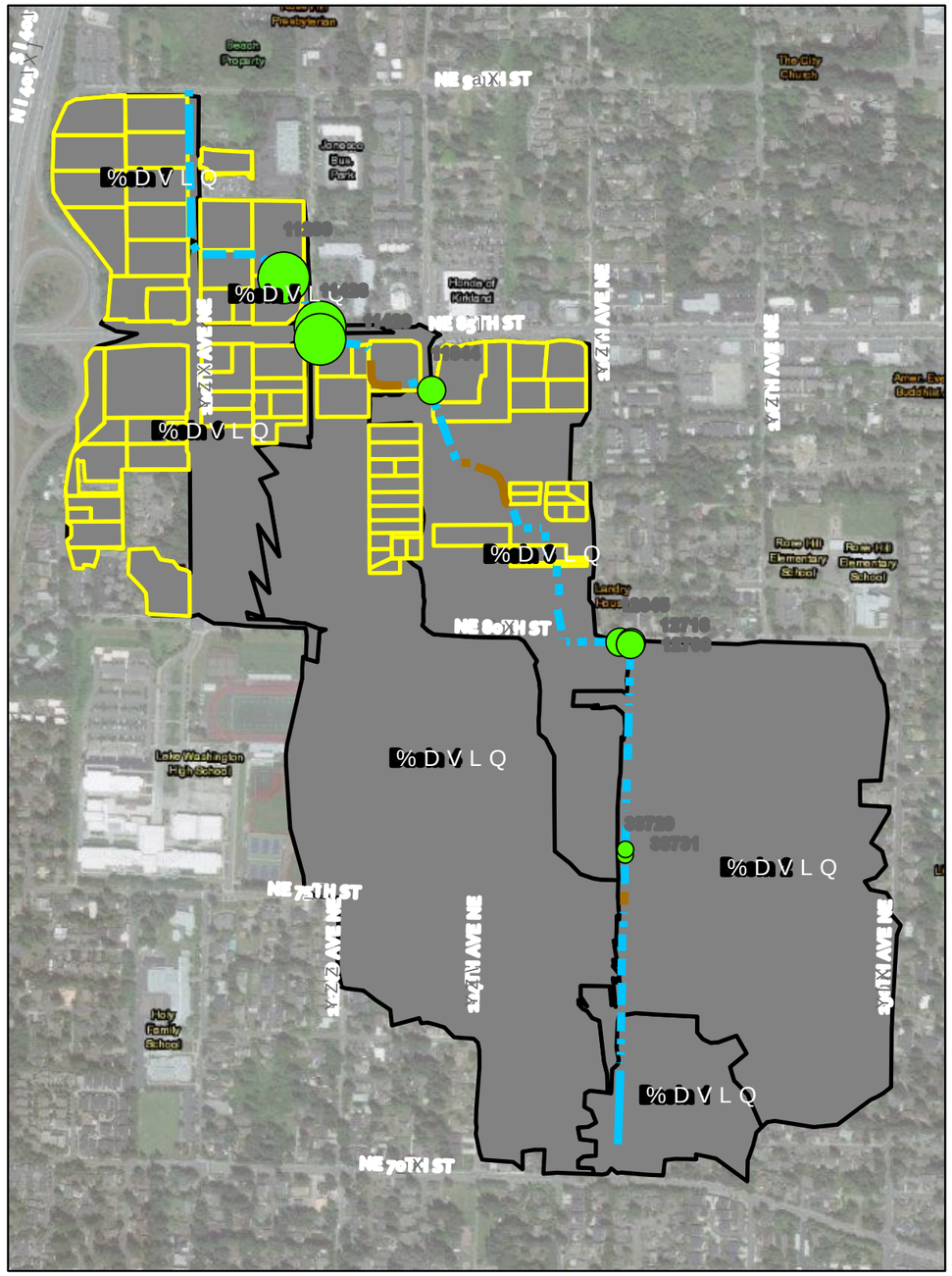

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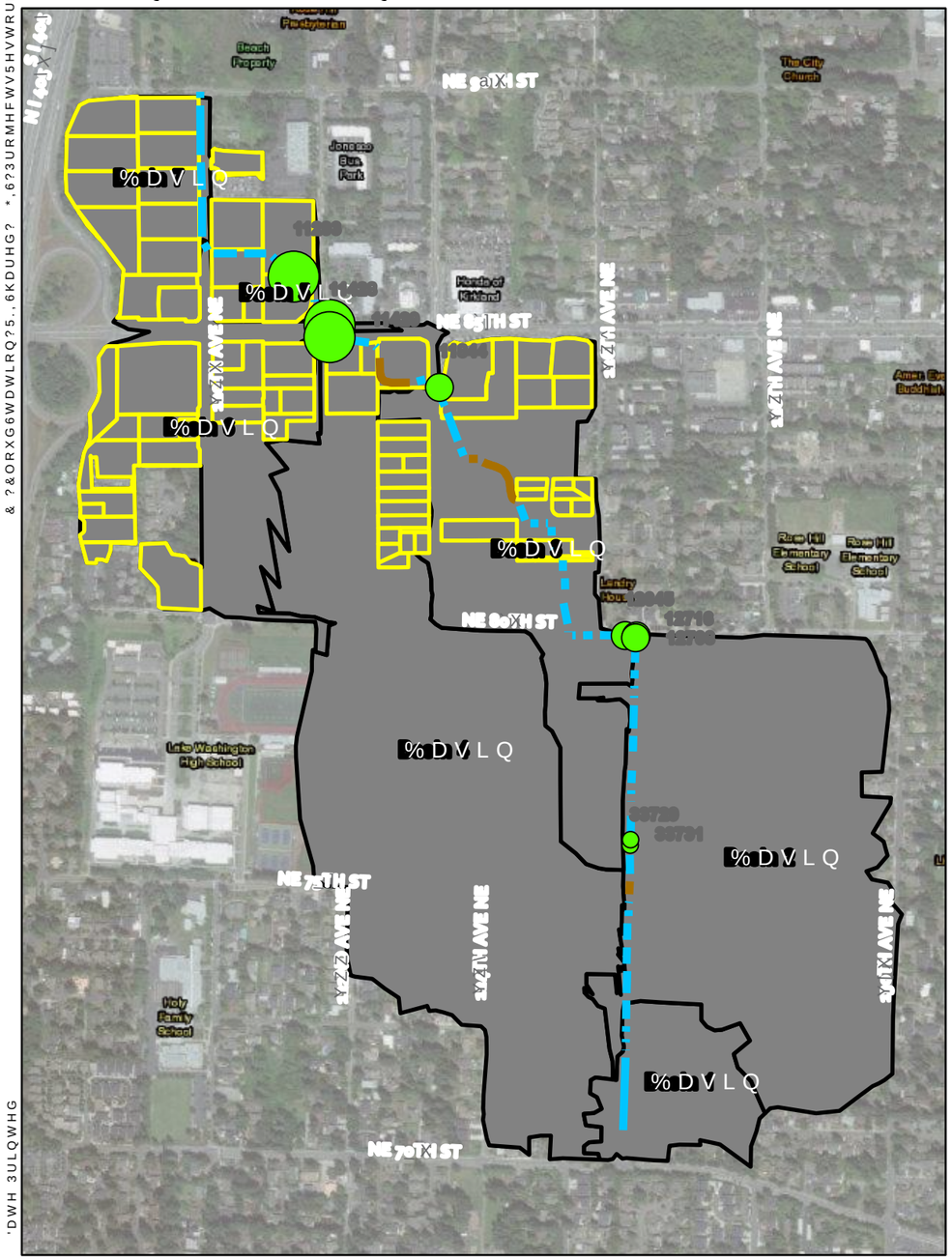

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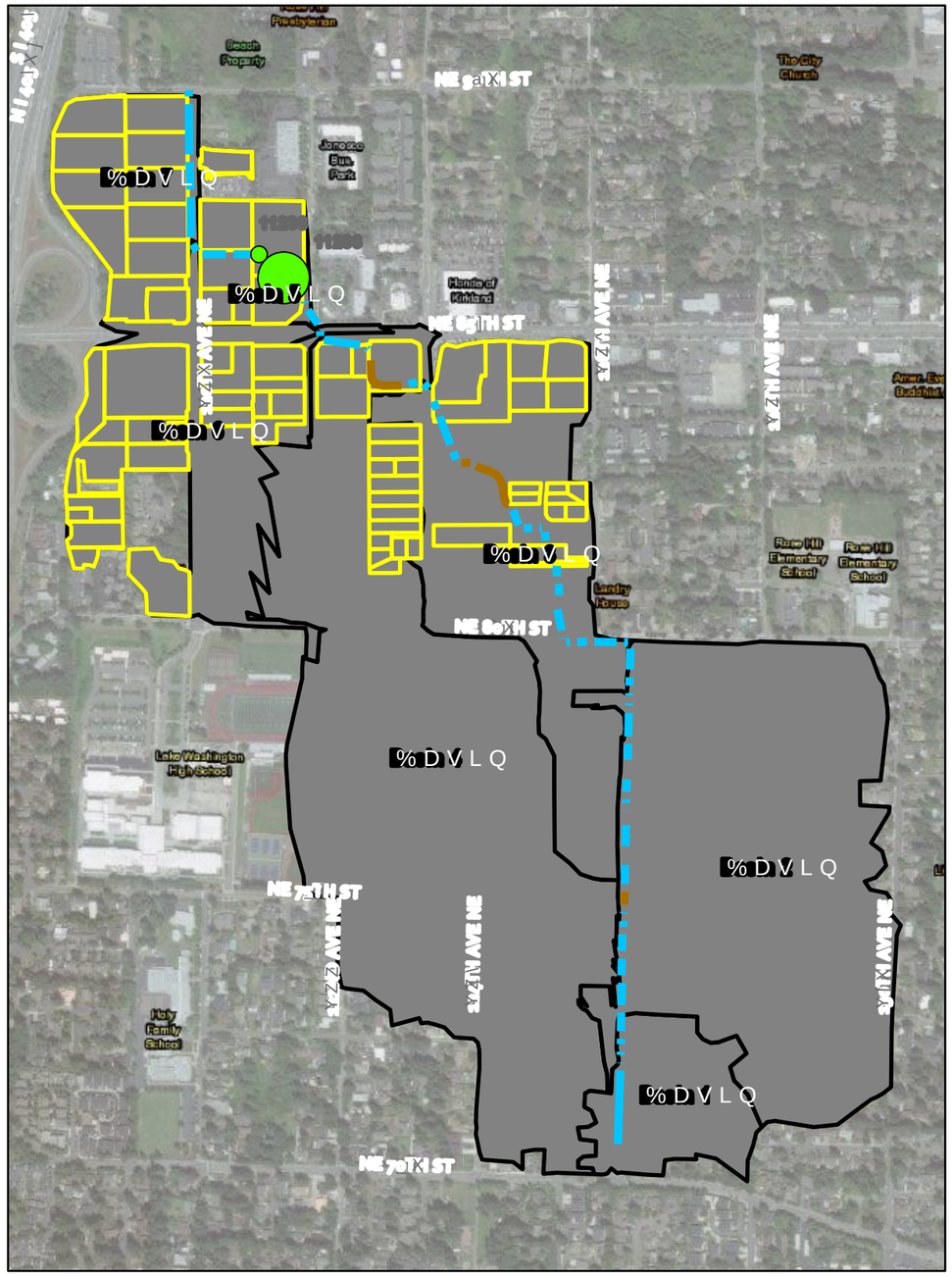

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H[LVWLQJ FRQGLWLRQ RU DQ\ $OWHUQ
SODQQLQJ QRU GHVLJQ SXUSRVHV ZL

0D[ )ORRG 'HSWKV VKRZQ RQO\ IRU
GXUDWLRQ RI DW OHDVW PLQXWHV

'DWH 3ULQWHG

CITY OF KIRKLAND WASHINGTON

RKI planning engineering

N

0LOHV

)LJXUH 0RGHOHG &KDQJH LQ
$OWHUQDWLYH $ 8QPLWLJDWHG YV
&LW\ RI .LUNODQG WK 6WUH

& ?&ORXG6WDWLRQ?5..6KDUHG? *.6?3URMHFWV5HVWRUHG?.LUNOD

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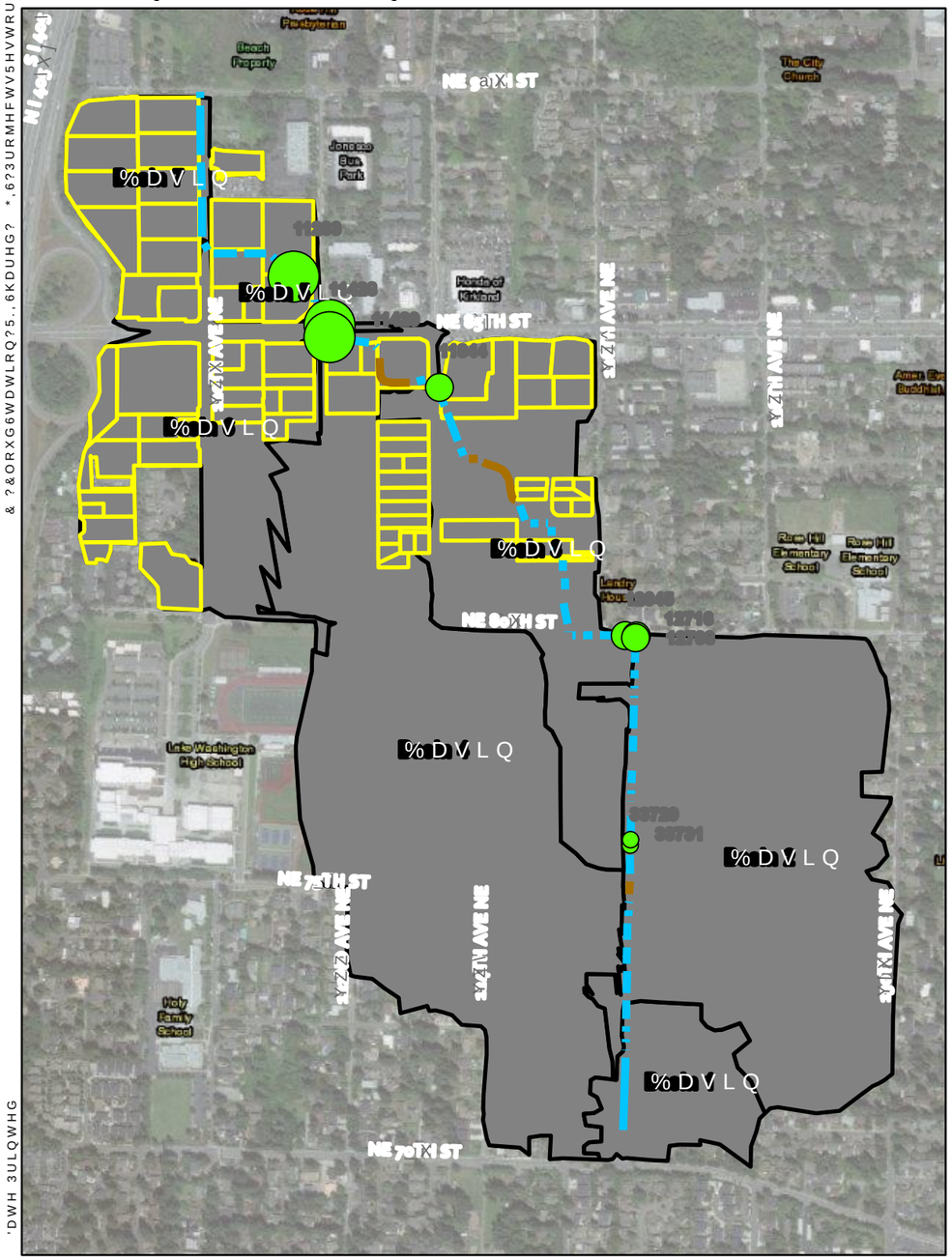

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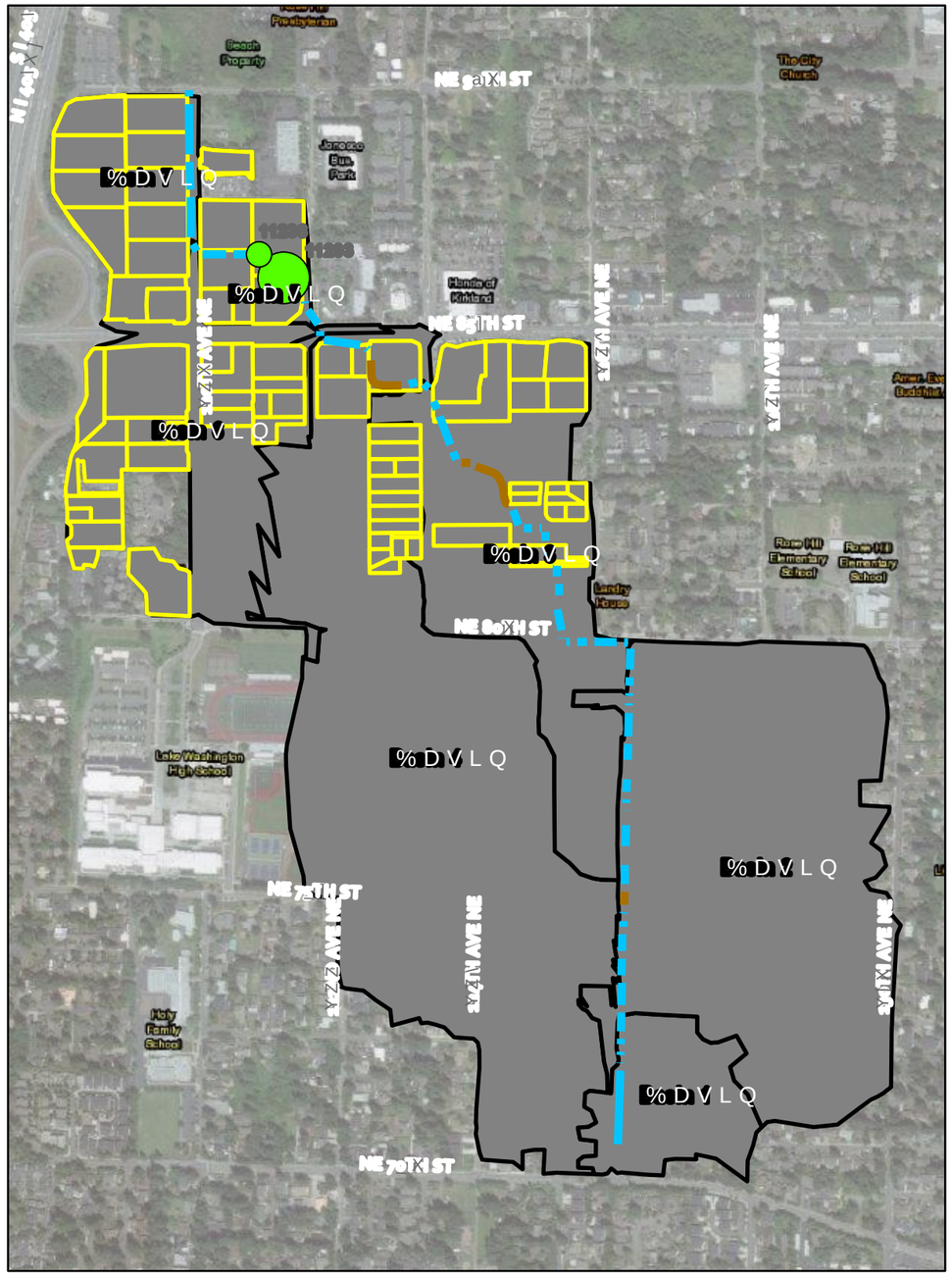

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&RQGXLWV

&KDQQHOV

3LSHV

1RWHV

&RQYH\DQFH QHWZRUN GDWD SURYL
PRGLILHG EDVHG RQ UHFRUG GUDZLQJ
DVVXPSWLRQV
)ORRGLQJ GDWD JHQHUDWHG IURP 3
VHULHV GHYHORSHG LQ ::+0 ::+0 ZDV
UDLQIDOO GDWD IURP WKH 6HD7DF JD
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IORRG GHSWKV VKRXOG EH XVHG DV D
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H[LVWLQJ FRQGLWLRQ RU DQ\ $OWHUQ
SODQQLQJ QRU GHVLJQ SXUSRVHV ZL
0D[ )ORRG 'HSWKV VKRZQ RQO\ IRU
GXUDWLRQ RI DW OHDVW PLQXWHV

N

0LOHV

)LJXUH 0RGHOHG &KDQJH LQ
$OWHUQDWLYH % 8QPLWLJDWHG YV
&LW\ RI .LUNODQG WK 6WUH

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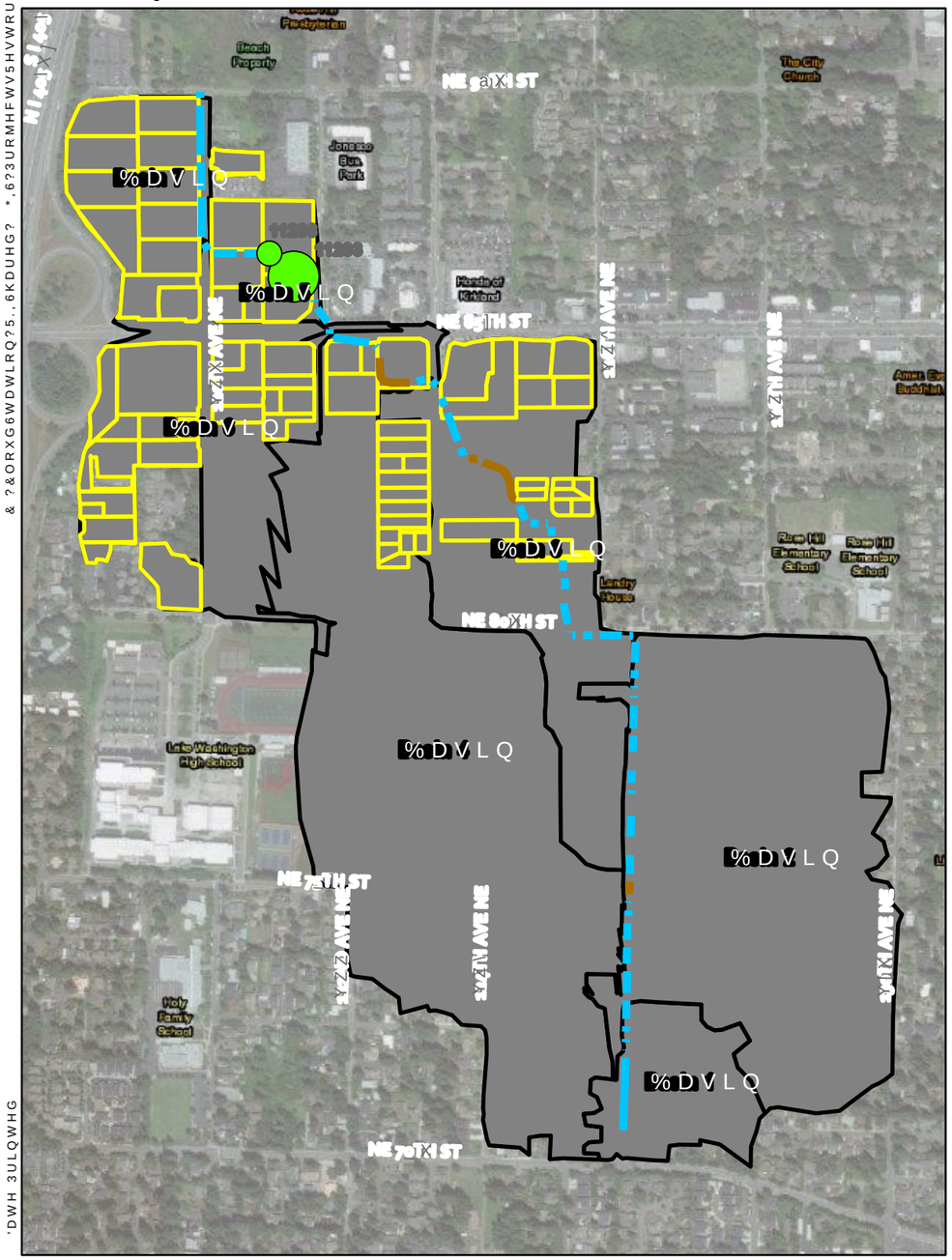
$OWHUQDWLYH % 0LWLJDWHG



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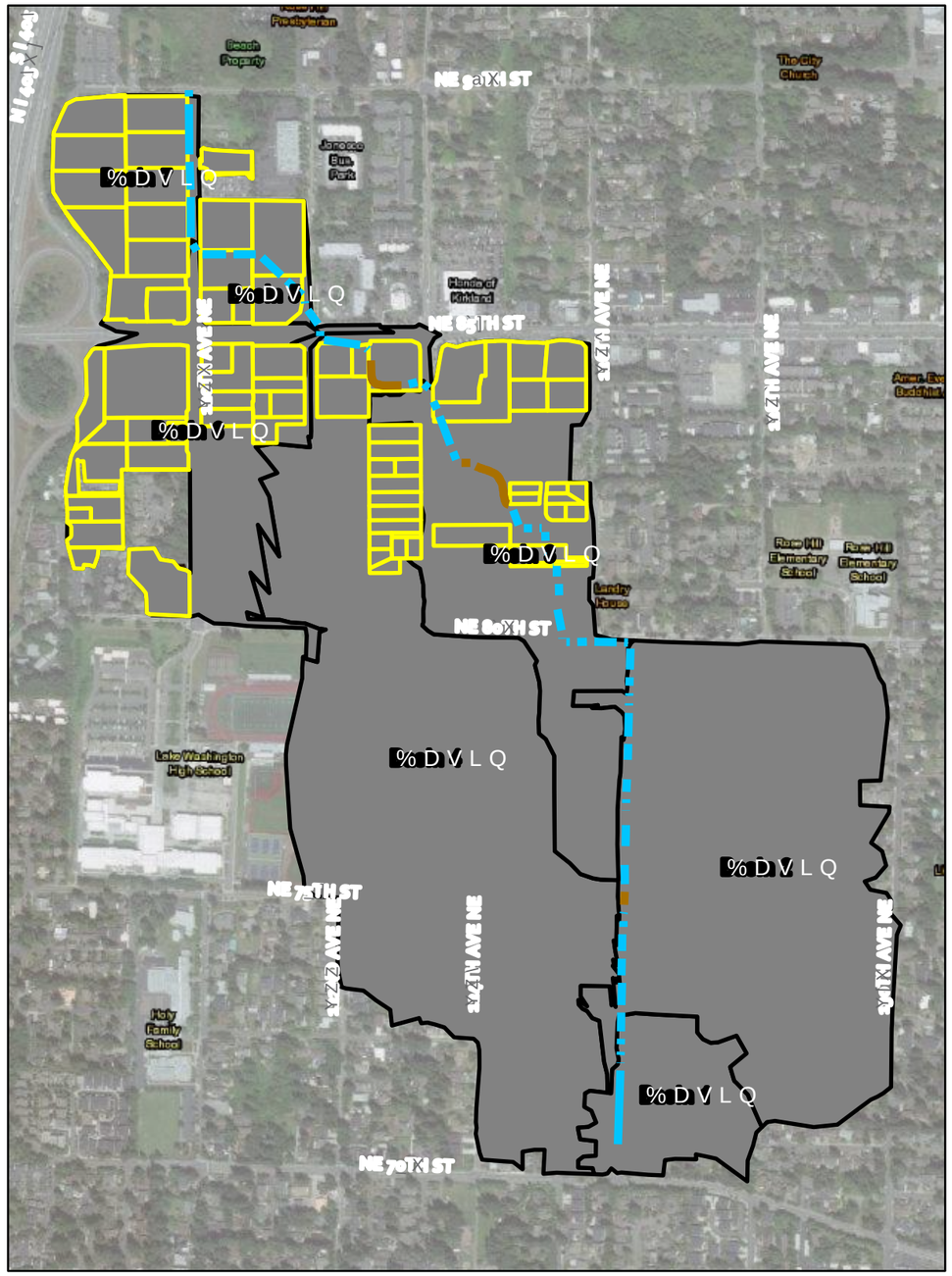

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&RQGXLWV

&KDQQHOV

3LSHV

1RWHV

&RQYH\DQFH QHWZRUN GDWD SURYL
PRGLILHG EDVHG RQ UHFRUG GUDZLQJ
DVVXPSWLRQV

)ORRGLQJ GDWD JHQHUDWHG IURP 3
VHULHV GHYHORSHG LQ ::+0 ::+0 ZDV
UDLQIDOO GDWD IURP WKH 6HD7DF JD
DQG D SUHFLSLWDWLRQ VFDOLQJ IDFW

'XH WR VLJQLILFDQW GDWD JDSV DQ
IORRG GHSWKV VKRXOG EH XVHG DV D
$OWHUQDWLYHV RQO\ 7KH DEVROXWH
H[LVWLQJ FRQGLWLRQ RU DQ\ $OWHUQ
SODQQLQJ QRU GHVLJQ SXUSRVHV ZL

0D[ )ORRG 'HSWKV VKRZQ RQO\ IRU
GXUDWLRQ RI DW OHDVW PLQXWHV

N

0LOHV

)LJXUH 0RGHOHG &KDQJH LQ
$OWHUQDWLYH % 0LWLJDWHG YV
&LW\ RI .LUNODQG WK 6WUH

7 MITIGATION COSTS

Table 6 summarizes the total project costs assumed for the mitigation measures evaluated for this study. Total project costs include hard costs and soft costs, such as planning, design, and project close-out.

The total project costs for detention vaults, stormwater conveyance pipe improvements, and blue-green streets were provided by the City. Total project costs for rain gardens were based on a cost relationship developed for bioretention with underdrains for Seattle Public Utilities' (SPU's) Longfellow Starts Here (LSH; 2021) project. SPU's LSH developed a toolkit of stormwater Best Management Practices suitable for high-level, basin-scale planning studies such as this. The LSH cost estimating relationship used is as follows:

$y=7787.8*x^{-0.289}$, where

y is the total project cost of bioretention with underdrains per square foot of bottom area, and

x is the bioretention bottom area in square feet

As illustrated in the below table, the cost to construct these mitigation measures is very high, due to factors such as required construction depth, dewatering, and steep slopes requiring weirs in the case of rain gardens.

Table 6. Summary of Mitigation Project Total Cost Estimates

Component	Bottom Footprint (SF) or Length (LF)	$/SF Bottom Area	Total Cost [a]
Alternatives A and B			
Basin 2 160k CF Detention Vault [b]	26,570 SF	$75 to $150	$2 to $4 million
Basin 4 210k CF Detention Vault [b]	35,350 SF	$85 to $200	$3 to $7 million
Stormwater Conveyance Improvements (Within Station Area Plan) [b]	520 LF	N/A	$600,000
Stormwater Conveyance Improvements (Upstream of Station Area Plan) [b]	685 LF	N/A	$400,000
Subtotal	**N/A**	**N/A**	**$6 to $12 million**
Alternative C (Additional GSI)			
Rain Garden 1 (with weirs) [c]	3,100 SF	$763	$2,364,683
Rain Garden 2 (with weirs) [c]	600 SF	$1,226	$735,665
Blue-Green Streets (2 vaults) [d]	6,050 SF	$530	$3.2 million
Subtotal	**9,750 SF**	**N/A**	**$6.3 million**

Abbreviations:

N/A Not Applicable LF Lineal Feet SF Square Feet

Notes:

a Total Cost includes hard and soft costs, such as planning, design, and project close-out.

b Detention vault and stormwater conveyance improvement costs are preliminary, developed by the City by scaling from recently completed projects. Detention vault costs include potential parcel acquisition.

c Cost data for Rain Gardens based on SPU's Longfellow Starts Here (LSH) project.

d Blue-Green streets estimated by the City using vaults as "grey infrastructure" within roadway prism. Due to construction depths, locations and potential of utility relocations cost estimate includes high contingency factor.

8 SUMMARY & CONCLUSIONS

The modeling results for this study indicate that development of the Station Area Plan and any associated impervious limit increases will not negatively impact downstream flooding. On the contrary, redevelopment is expected to help existing flooding due to the flow control that will be required for the redeveloping parcels.

Future conveyance improvements may be required upstream due to development that may increase impervious surface by and estimated 15% to 20% without triggering flow control requirements. Any such upstream mitigation requirements are not due to the Station Area Plan.

Blue-green streets provide very little benefit at the proposed location due to being located in basins where flow control will be implemented as part of redevelopment. The cost to construct these facilities will be high due to required construction depths, expected dewatering needs, and steep slopes, which may require the addition of weirs and additional length to achieve desired storage volumes. While maintenance costs were not evaluated as part of this study, the cost of maintaining blue-green street improvements is also expected to be higher than that of traditional grey infrastructure due to the distributed nature and lack of economies of scale proposed under the Station Area Plan.

9 RECOMMENDED NEXT STEPS

This section provides recommended next steps that should be considered for future phases of study.

9.1 Complete the GIS Database

Survey will be needed at locations where the stormwater GIS data gaps exist to complete a more accurate basin model. Items to be surveyed include:

- Manhole and miscellaneous component rim elevations
- Stormwater channel/ditch invert elevations, channel/ditch size
- Missing and/or unknown pipe invert elevations, resulting in negative-sloped pipes
- Pipe materials

9.2 Refine the Model for Future Use

If the models developed for this study will be used for any other purpose, they must be refined as needed to suit the intended purpose. Necessary model refinements may include, for example:

- Incorporate refined GIS data (Section 9.1) and/or more information from additional review of record drawings and/or site visits;
- Refine the subbasin delineation;
- Incorporate effective impervious area assumptions (as opposed to assuming all impervious area is effective); and
- Revise hydrology as appropriate.

9.3 Consider Climate Change

Based on the Climate Impacts Group *Projected Changes in Extreme Precipitation* (CIG 2021), the average modeled change in 25-year, 1-hour storm intensity would be 18% to 22% higher in the 2030s as compared to

the period 1981 to 2010 (these values are based on an average of several different models with Representative Concentration Pathway [RCP] 8.5, which assumes little change in greenhouse gas emissions). Due to future impacts of climate change, the City may consider re-evaluating the conveyance standards used for this study (Section 3) to provide for more resilient design and construction of stormwater systems to handle increased storm intensity under future climate change scenarios.

9.4 Develop a Groundwater Management Policy

Although groundwater pumping into the conveyance system (dewatering) was not evaluated in this study (Section 4), significant dewatering may be necessary due to the large number of deep excavations being considered for the redevelopment plan. The City should develop a policy for managing groundwater in the stormwater conveyance system to preserve system capacity and provide helpful guidance for developers and plan reviewers alike. Elements of a groundwater management policy should include but not necessarily be limited to:

- **Water Quality:** Groundwater can potentially contain contamination, thus dewatering directly to a Municipal Separate Storm Sewer System (MS4) should not be considered unless water quality is addressed. The City may consider adopting a policy similar to King County, that is, if the pumped groundwater does not meet King County water quality criteria or if direct or indirect discharge is not available, the pumped water may be sent to the sanitary sewer with County permission (King County 2021).
- **Times/Seasons:** During the wet season in western Washington (October through March), stormwater conveyance systems can quickly become overwhelmed from large and/or long-duration storm events. The City may consider implementing a discharge policy similar to the City of Seattle, which limits discharge rates [to its sanitary or combined sewers] during the wet season to 25,000 gallons per day (SPU 2011). Although the City's policy would pertain to the stormwater conveyance system, not the sewer system, similar considerations of timing and seasonality would apply.
- **Maximum flow rates / volumes:** The City may consider posing an overall maximum flow rate or allowable dewatering volume regardless of time or season to reduce the possibility of surcharging or flooding.

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APPENDIX A

WWHM Model Output Reports

Existing Conditions

Alternative A

Alternatives B & C

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WWHM2012

PROJECT REPORT

General Model Information

Project Name:	120th_Ave_Basin_Flows_210720
Site Name:	85th St Station Area Plan
Site Address:	120th St Basin
City:	Kirkland
Report Date:	7/21/2021
Gage:	Seatac
Data Start:	1948/10/01
Data End:	2009/09/30
Timestep:	5 Minute
Precip Scale:	1.000
Version Date:	2019/09/13
Version:	4.2.17

Existing Conditions Model

POC Thresholds

Low Flow Threshold for POC1:	50 Percent of the 2 Year
High Flow Threshold for POC1:	50 Year
Low Flow Threshold for POC2:	50 Percent of the 2 Year
High Flow Threshold for POC2:	50 Year
Low Flow Threshold for POC3:	50 Percent of the 2 Year
High Flow Threshold for POC3:	50 Year
Low Flow Threshold for POC4:	50 Percent of the 2 Year
High Flow Threshold for POC4:	50 Year
Low Flow Threshold for POC5:	50 Percent of the 2 Year
High Flow Threshold for POC5:	50 Year
Low Flow Threshold for POC6:	50 Percent of the 2 Year
High Flow Threshold for POC6:	50 Year
Low Flow Threshold for POC7:	50 Percent of the 2 Year
High Flow Threshold for POC7:	50 Year

Landuse Basin Data

Predeveloped Land Use

Basin 1

Bypass:	No
GroundWater:	No

Pervious Land Use	acre
C, Forest, Flat	2.86
C, Lawn, Flat	4.37
Pervious Total	7.23

Impervious Land Use	acre
ROADS FLAT	4.02
Impervious Total	4.02
Basin Total	11.25

Element Flows To:

Surface	Interflow	Groundwater

Basin 2

Bypass:	No
GroundWater:	No

Pervious Land Use	acre
C, Lawn, Flat	18.93
C, Forest, Flat	25.02
Pervious Total	43.95

Impervious Land Use	acre
ROADS FLAT	18.75
Impervious Total	18.75
Basin Total	62.7

Element Flows To:

Surface	Interflow	Groundwater

Basin 3

Bypass:	No
GroundWater:	No

Pervious Land Use	acre
C, Lawn, Mod	19.15
C, Forest, Mod	1.56
Pervious Total	20.71

Impervious Land Use	acre
ROADS MOD	15.92
Impervious Total	15.92
Basin Total	36.63

Element Flows To:

Surface	Interflow	Groundwater

Basin 4

Bypass:	No
GroundWater:	No

Pervious Land Use	acre
C, Lawn, Flat	49.4
Pervious Total	49.4

Impervious Land Use	acre
ROADS FLAT	33.71
Impervious Total	33.71
Basin Total	83.11

Element Flows To:

Surface	Interflow	Groundwater

Basin 5

Bypass:	No
GroundWater:	No

Pervious Land Use	acre
C, Lawn, Mod	2.05
C, Forest, Mod	0.17
Pervious Total	2.22

Impervious Land Use	acre
ROADS MOD	7.2
Impervious Total	7.2
Basin Total	9.42

Element Flows To:

Surface	Interflow	Groundwater

Basin 6

Bypass:	No
GroundWater:	No

Pervious Land Use	acre
C, Lawn, Mod	11.12
Pervious Total	11.12

Impervious Land Use	acre
ROADS MOD	17.15
Impervious Total	17.15
Basin Total	28.27

Element Flows To:

Surface	Interflow	Groundwater

Basin 7

Bypass:	No
GroundWater:	No

Pervious Land Use	acre
C, Lawn, Flat	1.55
Pervious Total	1.55

Impervious Land Use	acre
ROADS FLAT	11.22
Impervious Total	11.22
Basin Total	12.77

Element Flows To:

Surface	Interflow	Groundwater

Mitigated Land Use

Basin 1

Bypass:	No
GroundWater:	No

Pervious Land Use	acre
C, Forest, Flat	2.86
C, Lawn, Flat	4.37
Pervious Total	7.23

Impervious Land Use	acre
ROADS FLAT	4.02
Impervious Total	4.02
Basin Total	11.25

Element Flows To:

Surface	Interflow	Groundwater

Basin 2

Bypass:	No
GroundWater:	No

Pervious Land Use	acre
C, Lawn, Flat	18.93
C, Forest, Flat	25.02
Pervious Total	43.95

Impervious Land Use	acre
ROADS FLAT	18.75
Impervious Total	18.75
Basin Total	62.7

Element Flows To:

Surface	Interflow	Groundwater

Basin 3

Bypass:	No
GroundWater:	No

Pervious Land Use	acre
C, Lawn, Mod	19.15
C, Forest, Mod	1.56
Pervious Total	20.71

Impervious Land Use	acre
ROADS MOD	15.92
Impervious Total	15.92
Basin Total	36.63

Element Flows To:

Surface	Interflow	Groundwater

Basin 4

Bypass:	No
GroundWater:	No

Pervious Land Use	acre
C, Lawn, Flat	49.4
Pervious Total	49.4

Impervious Land Use	acre
ROADS FLAT	33.71
Impervious Total	33.71
Basin Total	83.11

Element Flows To:

Surface	Interflow	Groundwater

Basin 5

Bypass:	No
GroundWater:	No

Pervious Land Use	acre
C, Lawn, Mod	2.05
C, Forest, Mod	0.17
Pervious Total	2.22

Impervious Land Use	acre
ROADS MOD	7.2
Impervious Total	7.2
Basin Total	9.42

Element Flows To:

Surface	Interflow	Groundwater

Basin 6

Bypass:	No
GroundWater:	No

Pervious Land Use	acre
C, Lawn, Mod	11.12
Pervious Total	11.12

Impervious Land Use	acre
ROADS MOD	17.15
Impervious Total	17.15
Basin Total	28.27

Element Flows To:

Surface	Interflow	Groundwater

Basin 7

Bypass:	No
GroundWater:	No

Pervious Land Use	acre
C, Lawn, Flat	1.55
Pervious Total	1.55

Impervious Land Use	acre
ROADS FLAT	11.22
Impervious Total	11.22
Basin Total	12.77

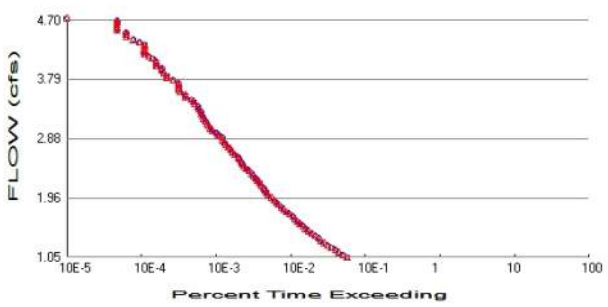
Element Flows To:

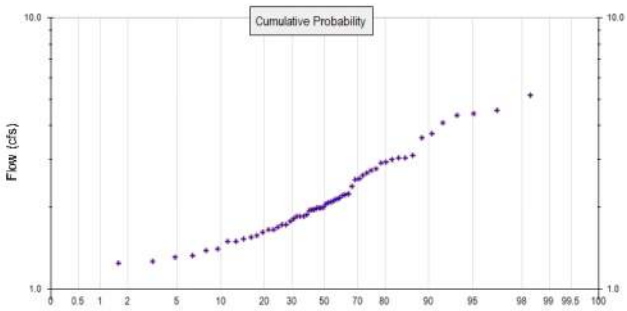
Surface	Interflow	Groundwater

Mitigated Routing

Analysis Results

POC 1





\+ Predeveloped x Mitigated

Predeveloped Landuse Totals for POC #1
Total Pervious Area: 7.23
Total Impervious Area: 4.02

Mitigated Landuse Totals for POC #1
Total Pervious Area: 7.23
Total Impervious Area: 4.02

Flow Frequency Method: Log Pearson Type III 17B

Flow Frequency Return Periods for Predeveloped. POC #1

Return Period	**Flow(cfs)**
2 year	2.096906
5 year	2.848445
10 year	3.388401
25 year	4.120282
50 year	4.702458
100 year	5.317074

Flow Frequency Return Periods for Mitigated. POC #1

Return Period	**Flow(cfs)**
2 year	2.096906
5 year	2.848445
10 year	3.388401
25 year	4.120282
50 year	4.702458
100 year	5.317074

Annual Peaks

Annual Peaks for Predeveloped and Mitigated. POC #1

Year	**Predeveloped**	**Mitigated**
1949	3.049	3.049
1950	2.778	2.778
1951	1.818	1.818
1952	1.247	1.247
1953	1.389	1.389
1954	1.654	1.654
1955	1.772	1.772
1956	1.998	1.998
1957	2.146	2.146
1958	1.555	1.555

1959	1.497	1.497
1960	1.993	1.993
1961	1.939	1.939
1962	1.331	1.331
1963	1.850	1.850
1964	1.618	1.618
1965	2.389	2.389
1966	1.527	1.527
1967	3.046	3.046
1968	2.928	2.928
1969	2.127	2.127
1970	1.877	1.877
1971	2.238	2.238
1972	2.679	2.679
1973	1.213	1.213
1974	2.083	2.083
1975	2.159	2.159
1976	1.722	1.722
1977	1.575	1.575
1978	2.217	2.217
1979	2.612	2.612
1980	4.098	4.098
1981	1.958	1.958
1982	3.109	3.109
1983	2.225	2.225
1984	1.492	1.492
1985	2.107	2.107
1986	1.851	1.851
1987	2.533	2.533
1988	1.407	1.407
1989	2.052	2.052
1990	5.173	5.173
1991	3.743	3.743
1992	1.657	1.657
1993	1.304	1.304
1994	1.264	1.264
1995	1.692	1.692
1996	2.916	2.916
1997	2.070	2.070
1998	1.857	1.857
1999	4.372	4.372
2000	1.960	1.960
2001	1.993	1.993
2002	3.002	3.002
2003	2.731	2.731
2004	4.547	4.547
2005	1.994	1.994
2006	1.724	1.724
2007	4.422	4.422
2008	3.595	3.595
2009	2.555	2.555

Ranked Annual Peaks

Ranked Annual Peaks for Predeveloped and Mitigated. POC #1

Rank	Predeveloped	Mitigated
1	5.1729	5.1729
2	4.5470	4.5470
3	4.4220	4.4220

4	4.3715	4.3715
5	4.0979	4.0979
6	3.7430	3.7430
7	3.5949	3.5949
8	3.1094	3.1094
9	3.0491	3.0491
10	3.0464	3.0464
11	3.0017	3.0017
12	2.9283	2.9283
13	2.9156	2.9156
14	2.7780	2.7780
15	2.7312	2.7312
16	2.6792	2.6792
17	2.6124	2.6124
18	2.5553	2.5553
19	2.5332	2.5332
20	2.3886	2.3886
21	2.2383	2.2383
22	2.2250	2.2250
23	2.2166	2.2166
24	2.1589	2.1589
25	2.1462	2.1462
26	2.1272	2.1272
27	2.1075	2.1075
28	2.0831	2.0831
29	2.0700	2.0700
30	2.0524	2.0524
31	1.9975	1.9975
32	1.9942	1.9942
33	1.9932	1.9932
34	1.9927	1.9927
35	1.9597	1.9597
36	1.9575	1.9575
37	1.9391	1.9391
38	1.8766	1.8766
39	1.8573	1.8573
40	1.8509	1.8509
41	1.8500	1.8500
42	1.8180	1.8180
43	1.7722	1.7722
44	1.7243	1.7243
45	1.7215	1.7215
46	1.6921	1.6921
47	1.6565	1.6565
48	1.6536	1.6536
49	1.6185	1.6185
50	1.5746	1.5746
51	1.5552	1.5552
52	1.5275	1.5275
53	1.4969	1.4969
54	1.4921	1.4921
55	1.4066	1.4066
56	1.3892	1.3892
57	1.3313	1.3313
58	1.3045	1.3045
59	1.2643	1.2643
60	1.2470	1.2470
61	1.2128	1.2128

Duration Flows

The Facility PASSED

Flow(cfs)	Predev	Mit	Percentage	Pass/Fail
1.0485	3643	3643	100	Pass
1.0854	3221	3221	100	Pass
1.1223	2838	2838	100	Pass
1.1592	2542	2542	100	Pass
1.1961	2248	2248	100	Pass
1.2330	2013	2013	100	Pass
1.2699	1817	1817	100	Pass
1.3068	1634	1634	100	Pass
1.3437	1498	1498	100	Pass
1.3806	1353	1353	100	Pass
1.4175	1222	1222	100	Pass
1.4545	1118	1118	100	Pass
1.4914	1022	1022	100	Pass
1.5283	937	937	100	Pass
1.5652	859	859	100	Pass
1.6021	797	797	100	Pass
1.6390	737	737	100	Pass
1.6759	688	688	100	Pass
1.7128	623	623	100	Pass
1.7497	566	566	100	Pass
1.7866	521	521	100	Pass
1.8235	481	481	100	Pass
1.8605	436	436	100	Pass
1.8974	410	410	100	Pass
1.9343	385	385	100	Pass
1.9712	356	356	100	Pass
2.0081	323	323	100	Pass
2.0450	303	303	100	Pass
2.0819	286	286	100	Pass
2.1188	276	276	100	Pass
2.1557	262	262	100	Pass
2.1926	248	248	100	Pass
2.2295	229	229	100	Pass
2.2665	217	217	100	Pass
2.3034	203	203	100	Pass
2.3403	194	194	100	Pass
2.3772	176	176	100	Pass
2.4141	163	163	100	Pass
2.4510	151	151	100	Pass
2.4879	144	144	100	Pass
2.5248	139	139	100	Pass
2.5617	130	130	100	Pass
2.5986	126	126	100	Pass
2.6355	114	114	100	Pass
2.6725	106	106	100	Pass
2.7094	99	99	100	Pass
2.7463	94	94	100	Pass
2.7832	87	87	100	Pass
2.8201	83	83	100	Pass
2.8570	79	79	100	Pass
2.8939	77	77	100	Pass
2.9308	69	69	100	Pass
2.9677	65	65	100	Pass

3.0046	57	57	100	Pass
3.0415	54	54	100	Pass
3.0785	50	50	100	Pass
3.1154	48	48	100	Pass
3.1523	46	46	100	Pass
3.1892	44	44	100	Pass
3.2261	42	42	100	Pass
3.2630	41	41	100	Pass
3.2999	40	40	100	Pass
3.3368	38	38	100	Pass
3.3737	37	37	100	Pass
3.4106	33	33	100	Pass
3.4475	32	32	100	Pass
3.4845	30	30	100	Pass
3.5214	25	25	100	Pass
3.5583	25	25	100	Pass
3.5952	21	21	100	Pass
3.6321	20	20	100	Pass
3.6690	20	20	100	Pass
3.7059	20	20	100	Pass
3.7428	20	20	100	Pass
3.7797	17	17	100	Pass
3.8166	14	14	100	Pass
3.8535	14	14	100	Pass
3.8905	13	13	100	Pass
3.9274	12	12	100	Pass
3.9643	12	12	100	Pass
4.0012	10	10	100	Pass
4.0381	10	10	100	Pass
4.0750	10	10	100	Pass
4.1119	9	9	100	Pass
4.1488	8	8	100	Pass
4.1857	7	7	100	Pass
4.2226	7	7	100	Pass
4.2595	7	7	100	Pass
4.2965	7	7	100	Pass
4.3334	7	7	100	Pass
4.3703	6	6	100	Pass
4.4072	5	5	100	Pass
4.4441	4	4	100	Pass
4.4810	4	4	100	Pass
4.5179	4	4	100	Pass
4.5548	3	3	100	Pass
4.5917	3	3	100	Pass
4.6286	3	3	100	Pass
4.6655	3	3	100	Pass
4.7025	3	3	100	Pass

Water Quality

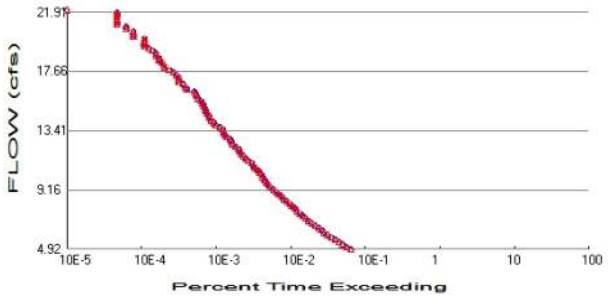
Water Quality BMP Flow and Volume for POC #1

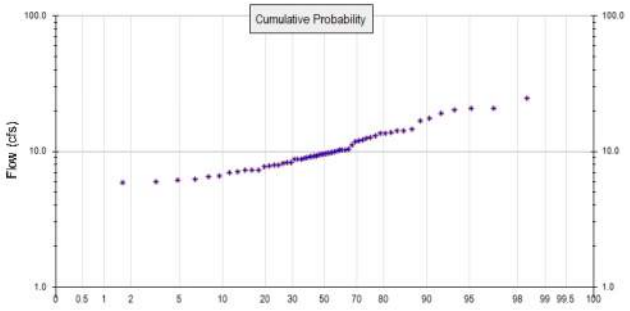
On-line facility volume:	0 acre-feet
On-line facility target flow:	0 cfs.
Adjusted for 15 min:	0 cfs.
Off-line facility target flow:	0 cfs.
Adjusted for 15 min:	0 cfs.

LID Report

LID Technique	Used for Treatment ?	Total Volume Needs Treatment (ac-ft)	Volume Through Facility (ac-ft)	Infiltration Volume (ac-ft)	Cumulative Volume Infiltration Credit	Percent Volume Infiltrated	Water Quality	Percent Water Quality Treated	Comment
Total Volume Infiltrated		0.00	0.00	0.00		0.00	0.00	0%	No Treat. Credit
Compliance with LID Standard 8% of 2-yr to 50% of 2-yr									Duration Analysis Result = Passed

POC 2





\+ Predeveloped x Mitigated

Predeveloped Landuse Totals for POC #2
Total Pervious Area: 43.95
Total Impervious Area: 18.75

Mitigated Landuse Totals for POC #2
Total Pervious Area: 43.95
Total Impervious Area: 18.75

Flow Frequency Method: Log Pearson Type III 17B

Flow Frequency Return Periods for Predeveloped. POC #2

Return Period	**Flow(cfs)**
2 year	9.835826
5 year	13.326155
10 year	15.828824
25 year	19.2157
50 year	21.906068
100 year	24.74327

Flow Frequency Return Periods for Mitigated. POC #2

Return Period	**Flow(cfs)**
2 year	9.835826
5 year	13.326155
10 year	15.828824
25 year	19.2157
50 year	21.906068
100 year	24.74327

Annual Peaks

Annual Peaks for Predeveloped and Mitigated. POC #2

Year	**Predeveloped**	**Mitigated**
1949	14.163	14.163
1950	13.012	13.012
1951	8.747	8.747
1952	5.987	5.987
1953	6.469	6.469
1954	7.802	7.802
1955	8.222	8.222
1956	9.344	9.344
1957	10.146	10.146
1958	7.306	7.306
1959	6.983	6.983

1960	9.664	9.664
1961	9.139	9.139
1962	6.192	6.192
1963	8.679	8.679
1964	7.716	7.716
1965	11.124	11.124
1966	7.230	7.230
1967	14.253	14.253
1968	13.551	13.551
1969	9.826	9.826
1970	8.859	8.859
1971	10.441	10.441
1972	12.438	12.438
1973	5.667	5.667
1974	9.692	9.692
1975	10.276	10.276
1976	8.185	8.185
1977	7.279	7.279
1978	10.282	10.282
1979	12.180	12.180
1980	19.009	19.009
1981	9.131	9.131
1982	14.626	14.626
1983	10.267	10.267
1984	7.033	7.033
1985	9.751	9.751
1986	9.015	9.015
1987	11.786	11.786
1988	6.559	6.559
1989	9.572	9.572
1990	24.735	24.735
1991	17.587	17.587
1992	7.865	7.865
1993	6.097	6.097
1994	5.896	5.896
1995	7.909	7.909
1996	13.638	13.638
1997	9.909	9.909
1998	8.696	8.696
1999	20.111	20.111
2000	9.196	9.196
2001	9.288	9.288
2002	13.852	13.852
2003	12.711	12.711
2004	20.894	20.894
2005	9.490	9.490
2006	8.246	8.246
2007	20.653	20.653
2008	16.891	16.891
2009	11.917	11.917

Ranked Annual Peaks

Ranked Annual Peaks for Predeveloped and Mitigated. POC #2

Rank	Predeveloped	Mitigated
1	24.7354	24.7354
2	20.8935	20.8935
3	20.6534	20.6534
4	20.1111	20.1111

5	19.0087	19.0087
6	17.5872	17.5872
7	16.8914	16.8914
8	14.6255	14.6255
9	14.2534	14.2534
10	14.1625	14.1625
11	13.8523	13.8523
12	13.6375	13.6375
13	13.5514	13.5514
14	13.0120	13.0120
15	12.7112	12.7112
16	12.4375	12.4375
17	12.1803	12.1803
18	11.9170	11.9170
19	11.7859	11.7859
20	11.1242	11.1242
21	10.4413	10.4413
22	10.2822	10.2822
23	10.2755	10.2755
24	10.2666	10.2666
25	10.1460	10.1460
26	9.9089	9.9089
27	9.8264	9.8264
28	9.7513	9.7513
29	9.6919	9.6919
30	9.6640	9.6640
31	9.5724	9.5724
32	9.4897	9.4897
33	9.3444	9.3444
34	9.2884	9.2884
35	9.1965	9.1965
36	9.1386	9.1386
37	9.1310	9.1310
38	9.0146	9.0146
39	8.8587	8.8587
40	8.7472	8.7472
41	8.6957	8.6957
42	8.6791	8.6791
43	8.2458	8.2458
44	8.2225	8.2225
45	8.1851	8.1851
46	7.9094	7.9094
47	7.8654	7.8654
48	7.8022	7.8022
49	7.7163	7.7163
50	7.3064	7.3064
51	7.2790	7.2790
52	7.2304	7.2304
53	7.0335	7.0335
54	6.9834	6.9834
55	6.5595	6.5595
56	6.4687	6.4687
57	6.1923	6.1923
58	6.0971	6.0971
59	5.9871	5.9871
60	5.8963	5.8963
61	5.6665	5.6665

Duration Flows

The Facility PASSED

Flow(cfs)	Predev	Mit	Percentage	Pass/Fail
4.9179	4077	4077	100	Pass
5.0895	3603	3603	100	Pass
5.2611	3168	3168	100	Pass
5.4327	2829	2829	100	Pass
5.6043	2514	2514	100	Pass
5.7759	2251	2251	100	Pass
5.9475	2002	2002	100	Pass
6.1191	1800	1800	100	Pass
6.2907	1646	1646	100	Pass
6.4623	1496	1496	100	Pass
6.6339	1356	1356	100	Pass
6.8055	1220	1220	100	Pass
6.9771	1106	1106	100	Pass
7.1487	1009	1009	100	Pass
7.3203	927	927	100	Pass
7.4919	854	854	100	Pass
7.6635	782	782	100	Pass
7.8351	729	729	100	Pass
8.0067	672	672	100	Pass
8.1783	625	625	100	Pass
8.3499	569	569	100	Pass
8.5215	523	523	100	Pass
8.6931	484	484	100	Pass
8.8647	445	445	100	Pass
9.0363	412	412	100	Pass
9.2079	376	376	100	Pass
9.3794	344	344	100	Pass
9.5510	317	317	100	Pass
9.7226	300	300	100	Pass
9.8942	285	285	100	Pass
10.0658	274	274	100	Pass
10.2374	260	260	100	Pass
10.4090	246	246	100	Pass
10.5806	233	233	100	Pass
10.7522	212	212	100	Pass
10.9238	204	204	100	Pass
11.0954	194	194	100	Pass
11.2670	173	173	100	Pass
11.4386	160	160	100	Pass
11.6102	150	150	100	Pass
11.7818	141	141	100	Pass
11.9534	133	133	100	Pass
12.1250	128	128	100	Pass
12.2966	117	117	100	Pass
12.4682	106	106	100	Pass
12.6398	102	102	100	Pass
12.8114	98	98	100	Pass
12.9830	89	89	100	Pass
13.1546	84	84	100	Pass
13.3262	82	82	100	Pass
13.4978	79	79	100	Pass
13.6694	72	72	100	Pass
13.8410	63	63	100	Pass

14.0126	60	60	100	Pass
14.1842	55	55	100	Pass
14.3558	52	52	100	Pass
14.5274	51	51	100	Pass
14.6990	48	48	100	Pass
14.8706	47	47	100	Pass
15.0422	45	45	100	Pass
15.2138	44	44	100	Pass
15.3854	42	42	100	Pass
15.5570	41	41	100	Pass
15.7286	37	37	100	Pass
15.9002	35	35	100	Pass
16.0718	34	34	100	Pass
16.2433	33	33	100	Pass
16.4149	26	26	100	Pass
16.5865	25	25	100	Pass
16.7581	23	23	100	Pass
16.9297	20	20	100	Pass
17.1013	20	20	100	Pass
17.2729	20	20	100	Pass
17.4445	19	19	100	Pass
17.6161	17	17	100	Pass
17.7877	15	15	100	Pass
17.9593	13	13	100	Pass
18.1309	13	13	100	Pass
18.3025	12	12	100	Pass
18.4741	11	11	100	Pass
18.6457	11	11	100	Pass
18.8173	10	10	100	Pass
18.9889	10	10	100	Pass
19.1605	9	9	100	Pass
19.3321	8	8	100	Pass
19.5037	7	7	100	Pass
19.6753	7	7	100	Pass
19.8469	7	7	100	Pass
20.0185	7	7	100	Pass
20.1901	5	5	100	Pass
20.3617	5	5	100	Pass
20.5333	5	5	100	Pass
20.7049	4	4	100	Pass
20.8765	4	4	100	Pass
21.0481	3	3	100	Pass
21.2197	3	3	100	Pass
21.3913	3	3	100	Pass
21.5629	3	3	100	Pass
21.7345	3	3	100	Pass
21.9061	3	3	100	Pass

Water Quality

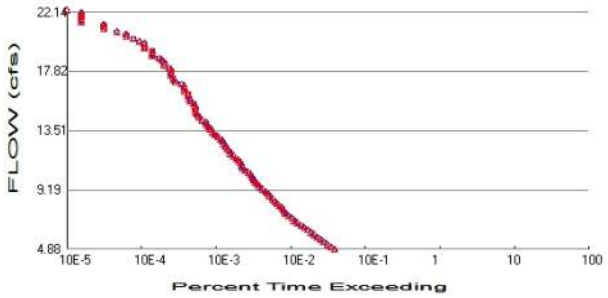
Water Quality BMP Flow and Volume for POC #2

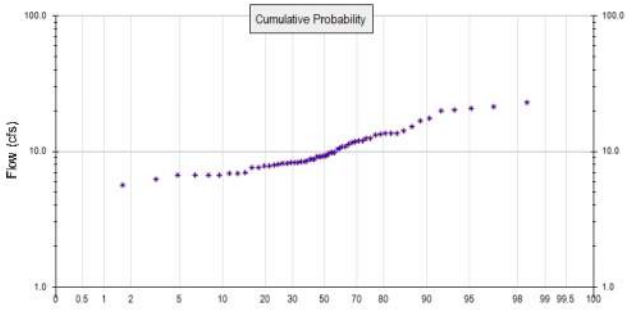
On-line facility volume:	0 acre-feet
On-line facility target flow:	0 cfs.
Adjusted for 15 min:	0 cfs.
Off-line facility target flow:	0 cfs.
Adjusted for 15 min:	0 cfs.

LID Report

LID Technique	Used for Treatment ?	Total Volume Needs Treatment (ac-ft)	Volume Through Facility (ac-ft)	Infiltration Volume (ac-ft)	Cumulative Volume Infiltration Credit	Percent Volume Infiltrated	Water Quality	Percent Water Quality Treated	Comment
Total Volume Infiltrated		0.00	0.00	0.00		0.00	0.00	0%	No Treat. Credit
Compliance with LID Standard 8% of 2-yr to 50% of 2-yr									Duration Analysis Result = Passed

POC 3





\+ Predeveloped x Mitigated

Predeveloped Landuse Totals for POC #3
Total Pervious Area: 20.71
Total Impervious Area: 15.92

Mitigated Landuse Totals for POC #3
Total Pervious Area: 20.71
Total Impervious Area: 15.92

Flow Frequency Method: Log Pearson Type III 17B

Flow Frequency Return Periods for Predeveloped. POC #3

Return Period	**Flow(cfs)**
2 year	9.752852
5 year	13.23369
10 year	15.784774
25 year	19.299772
50 year	22.137549
100 year	25.169758

Flow Frequency Return Periods for Mitigated. POC #3

Return Period	**Flow(cfs)**
2 year	9.752852
5 year	13.23369
10 year	15.784774
25 year	19.299772
50 year	22.137549
100 year	25.169758

Annual Peaks

Annual Peaks for Predeveloped and Mitigated. POC #3

Year	**Predeveloped**	**Mitigated**
1949	13.604	13.604
1950	12.496	12.496
1951	7.637	7.637
1952	6.181	6.181
1953	6.692	6.692
1954	8.227	8.227
1955	8.397	8.397
1956	9.730	9.730
1957	9.116	9.116
1958	6.857	6.857
1959	7.001	7.001

1960	9.107	9.107
1961	8.118	8.118
1962	5.595	5.595
1963	8.024	8.024
1964	8.272	8.272
1965	10.829	10.829
1966	6.702	6.702
1967	13.518	13.518
1968	15.223	15.223
1969	9.738	9.738
1970	8.296	8.296
1971	10.327	10.327
1972	11.776	11.776
1973	5.620	5.620
1974	10.580	10.580
1975	9.206	9.206
1976	8.407	8.407
1977	9.138	9.138
1978	10.745	10.745
1979	11.995	11.995
1980	20.000	20.000
1981	8.798	8.798
1982	13.528	13.528
1983	11.340	11.340
1984	6.698	6.698
1985	9.216	9.216
1986	7.797	7.797
1987	11.675	11.675
1988	6.904	6.904
1989	11.923	11.923
1990	22.823	22.823
1991	17.454	17.454
1992	7.790	7.790
1993	8.099	8.099
1994	6.689	6.689
1995	7.556	7.556
1996	13.404	13.404
1997	8.697	8.697
1998	9.805	9.805
1999	20.681	20.681
2000	8.478	8.478
2001	9.545	9.545
2002	13.205	13.205
2003	14.187	14.187
2004	21.353	21.353
2005	8.706	8.706
2006	7.961	7.961
2007	20.284	20.284
2008	16.754	16.754
2009	12.484	12.484

Ranked Annual Peaks

Ranked Annual Peaks for Predeveloped and Mitigated. POC #3

Rank	Predeveloped	Mitigated
1	22.8231	22.8231
2	21.3527	21.3527
3	20.6805	20.6805
4	20.2843	20.2843

5	20.0002	20.0002
6	17.4541	17.4541
7	16.7538	16.7538
8	15.2234	15.2234
9	14.1871	14.1871
10	13.6044	13.6044
11	13.5283	13.5283
12	13.5179	13.5179
13	13.4041	13.4041
14	13.2050	13.2050
15	12.4961	12.4961
16	12.4841	12.4841
17	11.9954	11.9954
18	11.9225	11.9225
19	11.7758	11.7758
20	11.6747	11.6747
21	11.3397	11.3397
22	10.8290	10.8290
23	10.7450	10.7450
24	10.5799	10.5799
25	10.3267	10.3267
26	9.8047	9.8047
27	9.7379	9.7379
28	9.7298	9.7298
29	9.5454	9.5454
30	9.2155	9.2155
31	9.2065	9.2065
32	9.1378	9.1378
33	9.1163	9.1163
34	9.1071	9.1071
35	8.7979	8.7979
36	8.7064	8.7064
37	8.6973	8.6973
38	8.4782	8.4782
39	8.4070	8.4070
40	8.3973	8.3973
41	8.2959	8.2959
42	8.2716	8.2716
43	8.2270	8.2270
44	8.1178	8.1178
45	8.0994	8.0994
46	8.0245	8.0245
47	7.9606	7.9606
48	7.7973	7.7973
49	7.7901	7.7901
50	7.6375	7.6375
51	7.5559	7.5559
52	7.0008	7.0008
53	6.9042	6.9042
54	6.8566	6.8566
55	6.7019	6.7019
56	6.6981	6.6981
57	6.6920	6.6920
58	6.6886	6.6886
59	6.1805	6.1805
60	5.6196	5.6196
61	5.5950	5.5950

Duration Flows

The Facility PASSED

Flow(cfs)	Predev	Mit	Percentage	Pass/Fail
4.8764	2461	2461	100	Pass
5.0508	2196	2196	100	Pass
5.2251	1982	1982	100	Pass
5.3995	1765	1765	100	Pass
5.5738	1610	1610	100	Pass
5.7482	1454	1454	100	Pass
5.9226	1330	1330	100	Pass
6.0969	1203	1203	100	Pass
6.2713	1076	1076	100	Pass
6.4456	966	966	100	Pass
6.6200	890	890	100	Pass
6.7943	790	790	100	Pass
6.9687	723	723	100	Pass
7.1430	665	665	100	Pass
7.3174	602	602	100	Pass
7.4917	549	549	100	Pass
7.6661	518	518	100	Pass
7.8405	490	490	100	Pass
8.0148	461	461	100	Pass
8.1892	419	419	100	Pass
8.3635	393	393	100	Pass
8.5379	368	368	100	Pass
8.7122	334	334	100	Pass
8.8866	318	318	100	Pass
9.0609	298	298	100	Pass
9.2353	271	271	100	Pass
9.4097	248	248	100	Pass
9.5840	231	231	100	Pass
9.7584	215	215	100	Pass
9.9327	203	203	100	Pass
10.1071	196	196	100	Pass
10.2814	184	184	100	Pass
10.4558	174	174	100	Pass
10.6301	157	157	100	Pass
10.8045	146	146	100	Pass
10.9788	142	142	100	Pass
11.1532	135	135	100	Pass
11.3276	128	128	100	Pass
11.5019	119	119	100	Pass
11.6763	110	110	100	Pass
11.8506	100	100	100	Pass
12.0250	96	96	100	Pass
12.1993	90	90	100	Pass
12.3737	86	86	100	Pass
12.5480	82	82	100	Pass
12.7224	77	77	100	Pass
12.8967	74	74	100	Pass
13.0711	67	67	100	Pass
13.2455	62	62	100	Pass
13.4198	58	58	100	Pass
13.5942	54	54	100	Pass
13.7685	51	51	100	Pass
13.9429	48	48	100	Pass

14.1172	47	47	100	Pass
14.2916	42	42	100	Pass
14.4659	38	38	100	Pass
14.6403	36	36	100	Pass
14.8146	34	34	100	Pass
14.9890	34	34	100	Pass
15.1634	34	34	100	Pass
15.3377	33	33	100	Pass
15.5121	32	32	100	Pass
15.6864	29	29	100	Pass
15.8608	28	28	100	Pass
16.0351	27	27	100	Pass
16.2095	27	27	100	Pass
16.3838	24	24	100	Pass
16.5582	24	24	100	Pass
16.7326	24	24	100	Pass
16.9069	22	22	100	Pass
17.0813	18	18	100	Pass
17.2556	17	17	100	Pass
17.4300	17	17	100	Pass
17.6043	16	16	100	Pass
17.7787	16	16	100	Pass
17.9530	16	16	100	Pass
18.1274	15	15	100	Pass
18.3017	13	13	100	Pass
18.4761	13	13	100	Pass
18.6505	12	12	100	Pass
18.8248	11	11	100	Pass
18.9992	9	9	100	Pass
19.1735	9	9	100	Pass
19.3479	9	9	100	Pass
19.5222	7	7	100	Pass
19.6966	7	7	100	Pass
19.8709	7	7	100	Pass
20.0453	6	6	100	Pass
20.2196	5	5	100	Pass
20.3940	4	4	100	Pass
20.5684	4	4	100	Pass
20.7427	3	3	100	Pass
20.9171	2	2	100	Pass
21.0914	2	2	100	Pass
21.2658	2	2	100	Pass
21.4401	1	1	100	Pass
21.6145	1	1	100	Pass
21.7888	1	1	100	Pass
21.9632	1	1	100	Pass
22.1375	1	1	100	Pass

Water Quality

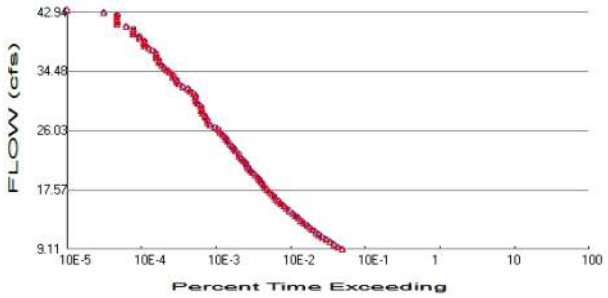
Water Quality BMP Flow and Volume for POC #3

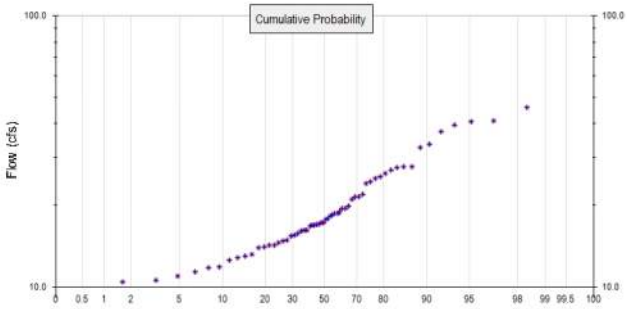
On-line facility volume:	0 acre-feet
On-line facility target flow:	0 cfs.
Adjusted for 15 min:	0 cfs.
Off-line facility target flow:	0 cfs.
Adjusted for 15 min:	0 cfs.

LID Report

LID Technique	Used for Treatment ?	Total Volume Needs Treatment (ac-ft)	Volume Through Facility (ac-ft)	Infiltration Volume (ac-ft)	Cumulative Volume Infiltration Credit	Percent Volume Infiltrated	Water Quality	Percent Water Quality Treated	Comment
Total Volume Infiltrated		0.00	0.00	0.00		0.00	0.00	0%	No Treat. Credit
Compliance with LID Standard 8% of 2-yr to 50% of 2-yr									Duration Analysis Result = Passed

POC 4





\+ Predeveloped x Mitigated

Predeveloped Landuse Totals for POC #4
Total Pervious Area: 49.4
Total Impervious Area: 33.71

Mitigated Landuse Totals for POC #4
Total Pervious Area: 49.4
Total Impervious Area: 33.71

Flow Frequency Method: Log Pearson Type III 17B

Flow Frequency Return Periods for Predeveloped. POC #4

Return Period	**Flow(cfs)**
2 year	18.220731
5 year	25.221971
10 year	30.325219
25 year	37.321693
50 year	42.942815
100 year	48.923823

Flow Frequency Return Periods for Mitigated. POC #4

Return Period	**Flow(cfs)**
2 year	18.220731
5 year	25.221971
10 year	30.325219
25 year	37.321693
50 year	42.942815
100 year	48.923823

Annual Peaks

Annual Peaks for Predeveloped and Mitigated. POC #4

Year	**Predeveloped**	**Mitigated**
1949	27.689	27.689
1950	25.161	25.161
1951	15.709	15.709
1952	10.451	10.451
1953	11.775	11.775
1954	14.244	14.244
1955	15.355	15.355
1956	17.906	17.906
1957	18.650	18.650
1958	13.208	13.208
1959	12.555	12.555

1960	16.863	16.863
1961	16.786	16.786
1962	11.358	11.358
1963	16.220	16.220
1964	14.003	14.003
1965	21.082	21.082
1966	12.994	12.994
1967	27.672	27.672
1968	25.506	25.506
1969	18.929	18.929
1970	16.068	16.068
1971	19.400	19.400
1972	24.082	24.082
1973	10.154	10.154
1974	18.289	18.289
1975	18.633	18.633
1976	14.722	14.722
1977	13.925	13.925
1978	19.424	19.424
1979	22.025	22.025
1980	37.479	37.479
1981	16.954	16.954
1982	27.586	27.586
1983	19.816	19.816
1984	12.768	12.768
1985	18.408	18.408
1986	15.516	15.516
1987	21.545	21.545
1988	11.809	11.809
1989	17.214	17.214
1990	45.984	45.984
1991	33.672	33.672
1992	14.244	14.244
1993	10.923	10.923
1994	10.607	10.607
1995	14.530	14.530
1996	26.131	26.131
1997	17.779	17.779
1998	16.201	16.201
1999	39.598	39.598
2000	16.982	16.982
2001	16.844	16.844
2002	27.047	27.047
2003	24.498	24.498
2004	41.104	41.104
2005	17.264	17.264
2006	14.907	14.907
2007	40.812	40.812
2008	32.592	32.592
2009	21.499	21.499

Ranked Annual Peaks

Ranked Annual Peaks for Predeveloped and Mitigated. POC #4

Rank	Predeveloped	Mitigated
1	45.9835	45.9835
2	41.1038	41.1038
3	40.8117	40.8117
4	39.5981	39.5981

5	37.4790	37.4790
6	33.6723	33.6723
7	32.5919	32.5919
8	27.6886	27.6886
9	27.6721	27.6721
10	27.5857	27.5857
11	27.0468	27.0468
12	26.1311	26.1311
13	25.5058	25.5058
14	25.1605	25.1605
15	24.4979	24.4979
16	24.0824	24.0824
17	22.0246	22.0246
18	21.5445	21.5445
19	21.4985	21.4985
20	21.0819	21.0819
21	19.8159	19.8159
22	19.4240	19.4240
23	19.3999	19.3999
24	18.9286	18.9286
25	18.6498	18.6498
26	18.6333	18.6333
27	18.4076	18.4076
28	18.2893	18.2893
29	17.9057	17.9057
30	17.7790	17.7790
31	17.2644	17.2644
32	17.2137	17.2137
33	16.9822	16.9822
34	16.9539	16.9539
35	16.8634	16.8634
36	16.8436	16.8436
37	16.7860	16.7860
38	16.2203	16.2203
39	16.2012	16.2012
40	16.0681	16.0681
41	15.7094	15.7094
42	15.5163	15.5163
43	15.3548	15.3548
44	14.9065	14.9065
45	14.7219	14.7219
46	14.5296	14.5296
47	14.2444	14.2444
48	14.2442	14.2442
49	14.0027	14.0027
50	13.9247	13.9247
51	13.2081	13.2081
52	12.9941	12.9941
53	12.7675	12.7675
54	12.5553	12.5553
55	11.8086	11.8086
56	11.7747	11.7747
57	11.3584	11.3584
58	10.9225	10.9225
59	10.6066	10.6066
60	10.4507	10.4507
61	10.1544	10.1544

Duration Flows

The Facility PASSED

Flow(cfs)	Predev	Mit	Percentage	Pass/Fail
9.1104	3152	3152	100	Pass
9.4521	2753	2753	100	Pass
9.7938	2429	2429	100	Pass
10.1356	2144	2144	100	Pass
10.4773	1916	1916	100	Pass
10.8191	1716	1716	100	Pass
11.1608	1548	1548	100	Pass
11.5026	1399	1399	100	Pass
11.8443	1258	1258	100	Pass
12.1860	1153	1153	100	Pass
12.5278	1063	1063	100	Pass
12.8695	962	962	100	Pass
13.2113	881	881	100	Pass
13.5530	812	812	100	Pass
13.8948	746	746	100	Pass
14.2365	690	690	100	Pass
14.5782	623	623	100	Pass
14.9200	559	559	100	Pass
15.2617	523	523	100	Pass
15.6035	476	476	100	Pass
15.9452	443	443	100	Pass
16.2869	408	408	100	Pass
16.6287	388	388	100	Pass
16.9704	355	355	100	Pass
17.3122	332	332	100	Pass
17.6539	311	311	100	Pass
17.9957	290	290	100	Pass
18.3374	272	272	100	Pass
18.6791	258	258	100	Pass
19.0209	246	246	100	Pass
19.3626	234	234	100	Pass
19.7044	213	213	100	Pass
20.0461	195	195	100	Pass
20.3878	182	182	100	Pass
20.7296	175	175	100	Pass
21.0713	166	166	100	Pass
21.4131	159	159	100	Pass
21.7548	148	148	100	Pass
22.0966	138	138	100	Pass
22.4383	131	131	100	Pass
22.7800	129	129	100	Pass
23.1218	117	117	100	Pass
23.4635	112	112	100	Pass
23.8053	105	105	100	Pass
24.1470	99	99	100	Pass
24.4888	92	92	100	Pass
24.8305	88	88	100	Pass
25.1722	84	84	100	Pass
25.5140	78	78	100	Pass
25.8557	73	73	100	Pass
26.1975	69	69	100	Pass
26.5392	62	62	100	Pass
26.8809	53	53	100	Pass

27.2227	50	50	100	Pass
27.5644	50	50	100	Pass
27.9062	46	46	100	Pass
28.2479	45	45	100	Pass
28.5897	42	42	100	Pass
28.9314	41	41	100	Pass
29.2731	41	41	100	Pass
29.6149	39	39	100	Pass
29.9566	36	36	100	Pass
30.2984	34	34	100	Pass
30.6401	34	34	100	Pass
30.9818	34	34	100	Pass
31.3236	32	32	100	Pass
31.6653	29	29	100	Pass
32.0071	27	27	100	Pass
32.3488	23	23	100	Pass
32.6906	20	20	100	Pass
33.0323	19	19	100	Pass
33.3740	19	19	100	Pass
33.7158	17	17	100	Pass
34.0575	17	17	100	Pass
34.3993	15	15	100	Pass
34.7410	14	14	100	Pass
35.0828	13	13	100	Pass
35.4245	12	12	100	Pass
35.7662	11	11	100	Pass
36.1080	11	11	100	Pass
36.4497	10	10	100	Pass
36.7915	10	10	100	Pass
37.1332	10	10	100	Pass
37.4749	9	9	100	Pass
37.8167	8	8	100	Pass
38.1584	7	7	100	Pass
38.5002	7	7	100	Pass
38.8419	7	7	100	Pass
39.1837	6	6	100	Pass
39.5254	6	6	100	Pass
39.8671	5	5	100	Pass
40.2089	5	5	100	Pass
40.5506	5	5	100	Pass
40.8924	4	4	100	Pass
41.2341	3	3	100	Pass
41.5758	3	3	100	Pass
41.9176	3	3	100	Pass
42.2593	3	3	100	Pass
42.6011	3	3	100	Pass
42.9428	2	2	100	Pass

Water Quality

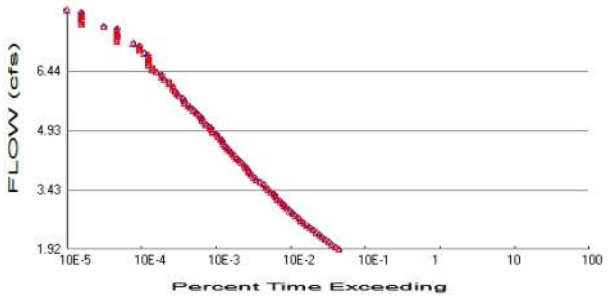
Water Quality BMP Flow and Volume for POC #4

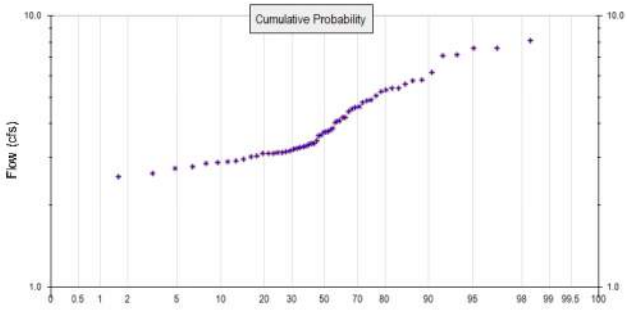
On-line facility volume:	0 acre-feet
On-line facility target flow:	0 cfs.
Adjusted for 15 min:	0 cfs.
Off-line facility target flow:	0 cfs.
Adjusted for 15 min:	0 cfs.

LID Report

LID Technique	Used for Treatment ?	Total Volume Needs Treatment (ac-ft)	Volume Through Facility (ac-ft)	Infiltration Volume (ac-ft)	Cumulative Volume Infiltration Credit	Percent Volume Infiltrated	Water Quality	Percent Water Quality Treated	Comment
Total Volume Infiltrated		0.00	0.00	0.00		0.00	0.00	0%	No Treat. Credit
Compliance with LID Standard 8% of 2-yr to 50% of 2-yr									Duration Analysis Result = Passed

POC 5





\+ Predeveloped x Mitigated

Predeveloped Landuse Totals for POC #5
Total Pervious Area: 2.22
Total Impervious Area: 7.2

Mitigated Landuse Totals for POC #5
Total Pervious Area: 2.22
Total Impervious Area: 7.2

Flow Frequency Method: Log Pearson Type III 17B

Flow Frequency Return Periods for Predeveloped. POC #5

Return Period	**Flow(cfs)**
2 year	3.846508
5 year	5.03845
10 year	5.888523
25 year	7.034434
50 year	7.941838
100 year	8.896669

Flow Frequency Return Periods for Mitigated. POC #5

Return Period	**Flow(cfs)**
2 year	3.846508
5 year	5.03845
10 year	5.888523
25 year	7.034434
50 year	7.941838
100 year	8.896669

Annual Peaks

Annual Peaks for Predeveloped and Mitigated. POC #5

Year	**Predeveloped**	**Mitigated**
1949	4.775	4.775
1950	4.417	4.417
1951	2.858	2.858
1952	2.612	2.612
1953	2.951	2.951
1954	3.362	3.362
1955	3.451	3.451
1956	3.389	3.389
1957	3.323	3.323
1958	2.868	2.868
1959	3.162	3.162

1960	3.395	3.395
1961	3.218	3.218
1962	2.414	2.414
1963	3.099	3.099
1964	3.132	3.132
1965	4.110	4.110
1966	2.781	2.781
1967	4.594	4.594
1968	6.201	6.201
1969	3.739	3.739
1970	3.276	3.276
1971	4.085	4.085
1972	4.220	4.220
1973	2.538	2.538
1974	4.041	4.041
1975	3.800	3.800
1976	3.289	3.289
1977	3.616	3.616
1978	4.534	4.534
1979	5.334	5.334
1980	7.114	7.114
1981	3.708	3.708
1982	5.416	5.416
1983	4.634	4.634
1984	2.742	2.742
1985	3.732	3.732
1986	2.913	2.913
1987	5.076	5.076
1988	3.119	3.119
1989	5.390	5.390
1990	7.164	7.164
1991	5.818	5.818
1992	3.042	3.042
1993	3.633	3.633
1994	3.014	3.014
1995	3.118	3.118
1996	4.908	4.908
1997	3.131	3.131
1998	3.839	3.839
1999	7.615	7.615
2000	3.245	3.245
2001	4.220	4.220
2002	4.861	4.861
2003	5.264	5.264
2004	8.115	8.115
2005	3.177	3.177
2006	2.888	2.888
2007	7.576	7.576
2008	5.772	5.772
2009	5.581	5.581

Ranked Annual Peaks

Ranked Annual Peaks for Predeveloped and Mitigated. POC #5

Rank	Predeveloped	Mitigated
1	8.1151	8.1151
2	7.6153	7.6153
3	7.5761	7.5761
4	7.1644	7.1644

5	7.1136	7.1136
6	6.2010	6.2010
7	5.8180	5.8180
8	5.7724	5.7724
9	5.5813	5.5813
10	5.4156	5.4156
11	5.3905	5.3905
12	5.3341	5.3341
13	5.2641	5.2641
14	5.0763	5.0763
15	4.9078	4.9078
16	4.8613	4.8613
17	4.7750	4.7750
18	4.6342	4.6342
19	4.5943	4.5943
20	4.5337	4.5337
21	4.4172	4.4172
22	4.2201	4.2201
23	4.2198	4.2198
24	4.1104	4.1104
25	4.0853	4.0853
26	4.0405	4.0405
27	3.8395	3.8395
28	3.8000	3.8000
29	3.7393	3.7393
30	3.7317	3.7317
31	3.7075	3.7075
32	3.6330	3.6330
33	3.6165	3.6165
34	3.4510	3.4510
35	3.3952	3.3952
36	3.3885	3.3885
37	3.3616	3.3616
38	3.3235	3.3235
39	3.2891	3.2891
40	3.2757	3.2757
41	3.2445	3.2445
42	3.2178	3.2178
43	3.1773	3.1773
44	3.1616	3.1616
45	3.1319	3.1319
46	3.1308	3.1308
47	3.1191	3.1191
48	3.1185	3.1185
49	3.0993	3.0993
50	3.0422	3.0422
51	3.0138	3.0138
52	2.9510	2.9510
53	2.9128	2.9128
54	2.8875	2.8875
55	2.8679	2.8679
56	2.8579	2.8579
57	2.7808	2.7808
58	2.7417	2.7417
59	2.6121	2.6121
60	2.5384	2.5384
61	2.4144	2.4144

Duration Flows

The Facility PASSED

Flow(cfs)	Predev	Mit	Percentage	Pass/Fail
1.9233	2828	2828	100	Pass
1.9840	2558	2558	100	Pass
2.0448	2287	2287	100	Pass
2.1056	2056	2056	100	Pass
2.1664	1847	1847	100	Pass
2.2272	1681	1681	100	Pass
2.2880	1560	1560	100	Pass
2.3488	1413	1413	100	Pass
2.4096	1263	1263	100	Pass
2.4704	1152	1152	100	Pass
2.5312	1053	1053	100	Pass
2.5920	963	963	100	Pass
2.6528	880	880	100	Pass
2.7136	816	816	100	Pass
2.7744	734	734	100	Pass
2.8352	679	679	100	Pass
2.8960	624	624	100	Pass
2.9567	567	567	100	Pass
3.0175	530	530	100	Pass
3.0783	498	498	100	Pass
3.1391	463	463	100	Pass
3.1999	425	425	100	Pass
3.2607	401	401	100	Pass
3.3215	377	377	100	Pass
3.3823	344	344	100	Pass
3.4431	323	323	100	Pass
3.5039	299	299	100	Pass
3.5647	278	278	100	Pass
3.6255	249	249	100	Pass
3.6863	220	220	100	Pass
3.7471	207	207	100	Pass
3.8079	190	190	100	Pass
3.8687	176	176	100	Pass
3.9294	172	172	100	Pass
3.9902	163	163	100	Pass
4.0510	154	154	100	Pass
4.1118	140	140	100	Pass
4.1726	129	129	100	Pass
4.2334	119	119	100	Pass
4.2942	114	114	100	Pass
4.3550	105	105	100	Pass
4.4158	97	97	100	Pass
4.4766	91	91	100	Pass
4.5374	86	86	100	Pass
4.5982	81	81	100	Pass
4.6590	77	77	100	Pass
4.7198	74	74	100	Pass
4.7806	68	68	100	Pass
4.8414	66	66	100	Pass
4.9021	57	57	100	Pass
4.9629	56	56	100	Pass
5.0237	53	53	100	Pass
5.0845	47	47	100	Pass

5.1453	45	45	100	Pass
5.2061	42	42	100	Pass
5.2669	40	40	100	Pass
5.3277	38	38	100	Pass
5.3885	35	35	100	Pass
5.4493	32	32	100	Pass
5.5101	29	29	100	Pass
5.5709	27	27	100	Pass
5.6317	24	24	100	Pass
5.6925	24	24	100	Pass
5.7533	23	23	100	Pass
5.8141	20	20	100	Pass
5.8748	19	19	100	Pass
5.9356	18	18	100	Pass
5.9964	17	17	100	Pass
6.0572	17	17	100	Pass
6.1180	15	15	100	Pass
6.1788	15	15	100	Pass
6.2396	13	13	100	Pass
6.3004	12	12	100	Pass
6.3612	12	12	100	Pass
6.4220	10	10	100	Pass
6.4828	9	9	100	Pass
6.5436	9	9	100	Pass
6.6044	8	8	100	Pass
6.6652	8	8	100	Pass
6.7260	8	8	100	Pass
6.7868	8	8	100	Pass
6.8476	8	8	100	Pass
6.9083	7	7	100	Pass
6.9691	6	6	100	Pass
7.0299	6	6	100	Pass
7.0907	6	6	100	Pass
7.1515	5	5	100	Pass
7.2123	3	3	100	Pass
7.2731	3	3	100	Pass
7.3339	3	3	100	Pass
7.3947	3	3	100	Pass
7.4555	3	3	100	Pass
7.5163	3	3	100	Pass
7.5771	2	2	100	Pass
7.6379	1	1	100	Pass
7.6987	1	1	100	Pass
7.7595	1	1	100	Pass
7.8203	1	1	100	Pass
7.8810	1	1	100	Pass
7.9418	1	1	100	Pass

Water Quality

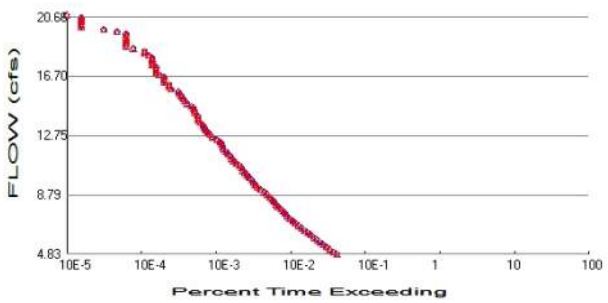
Water Quality BMP Flow and Volume for POC #5

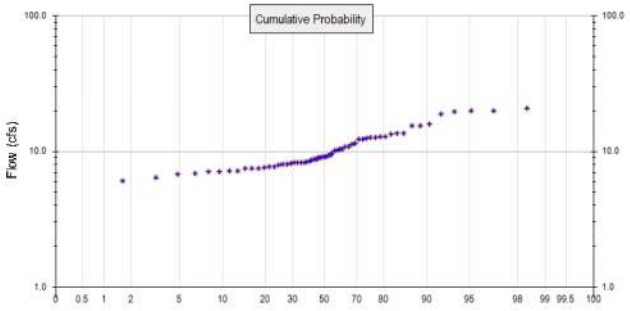
On-line facility volume:	0 acre-feet
On-line facility target flow:	0 cfs.
Adjusted for 15 min:	0 cfs.
Off-line facility target flow:	0 cfs.
Adjusted for 15 min:	0 cfs.

LID Report

LID Technique	Used for Treatment ?	Total Volume Needs Treatment (ac-ft)	Volume Through Facility (ac-ft)	Infiltration Volume (ac-ft)	Cumulative Volume Infiltration Credit	Percent Volume Infiltrated	Water Quality	Percent Water Quality Treated	Comment
Total Volume Infiltrated		0.00	0.00	0.00		0.00	0.00	0%	No Treat. Credit
Compliance with LID Standard 8% of 2-yr to 50% of 2-yr									Duration Analysis Result = Passed

POC 6





\+ Predeveloped x Mitigated

Predeveloped Landuse Totals for POC #6
Total Pervious Area: 11.12
Total Impervious Area: 17.15

Mitigated Landuse Totals for POC #6
Total Pervious Area: 11.12
Total Impervious Area: 17.15

Flow Frequency Method: Log Pearson Type III 17B

Flow Frequency Return Periods for Predeveloped. POC #6

Return Period	**Flow(cfs)**
2 year	9.660139
5 year	12.820828
10 year	15.097991
25 year	18.192746
50 year	20.661089
100 year	23.273303

Flow Frequency Return Periods for Mitigated. POC #6

Return Period	**Flow(cfs)**
2 year	9.660139
5 year	12.820828
10 year	15.097991
25 year	18.192746
50 year	20.661089
100 year	23.273303

Annual Peaks

Annual Peaks for Predeveloped and Mitigated. POC #6

Year	**Predeveloped**	**Mitigated**
1949	12.652	12.652
1950	11.215	11.215
1951	7.183	7.183
1952	6.389	6.389
1953	7.100	7.100
1954	8.341	8.341
1955	8.546	8.546
1956	9.009	9.009
1957	8.649	8.649
1958	7.044	7.044
1959	7.535	7.535

1960	8.730	8.730
1961	8.061	8.061
1962	5.860	5.860
1963	7.869	7.869
1964	8.011	8.011
1965	10.416	10.416
1966	6.851	6.851
1967	12.344	12.344
1968	15.416	15.416
1969	9.419	9.419
1970	8.237	8.237
1971	10.275	10.275
1972	10.858	10.858
1973	6.049	6.049
1974	10.310	10.310
1975	9.053	9.053
1976	8.299	8.299
1977	9.100	9.100
1978	10.844	10.844
1979	12.790	12.790
1980	18.721	18.721
1981	9.087	9.087
1982	13.562	13.562
1983	11.470	11.470
1984	6.791	6.791
1985	9.224	9.224
1986	7.455	7.455
1987	12.283	12.283
1988	7.431	7.431
1989	12.841	12.841
1990	19.934	19.934
1991	15.774	15.774
1992	7.681	7.681
1993	8.681	8.681
1994	7.189	7.189
1995	7.705	7.705
1996	12.737	12.737
1997	8.184	8.184
1998	9.695	9.695
1999	19.778	19.778
2000	8.272	8.272
2001	10.143	10.143
2002	12.425	12.425
2003	13.595	13.595
2004	20.782	20.782
2005	8.260	8.260
2006	7.524	7.524
2007	19.551	19.551
2008	15.365	15.365
2009	13.312	13.312

Ranked Annual Peaks

Ranked Annual Peaks for Predeveloped and Mitigated. POC #6

Rank	Predeveloped	Mitigated
1	20.7818	20.7818
2	19.9336	19.9336
3	19.7783	19.7783
4	19.5509	19.5509

5	18.7214	18.7214
6	15.7740	15.7740
7	15.4155	15.4155
8	15.3651	15.3651
9	13.5954	13.5954
10	13.5622	13.5622
11	13.3116	13.3116
12	12.8412	12.8412
13	12.7904	12.7904
14	12.7372	12.7372
15	12.6516	12.6516
16	12.4250	12.4250
17	12.3439	12.3439
18	12.2831	12.2831
19	11.4698	11.4698
20	11.2150	11.2150
21	10.8583	10.8583
22	10.8442	10.8442
23	10.4160	10.4160
24	10.3101	10.3101
25	10.2752	10.2752
26	10.1428	10.1428
27	9.6953	9.6953
28	9.4190	9.4190
29	9.2241	9.2241
30	9.0995	9.0995
31	9.0870	9.0870
32	9.0526	9.0526
33	9.0092	9.0092
34	8.7302	8.7302
35	8.6811	8.6811
36	8.6489	8.6489
37	8.5459	8.5459
38	8.3411	8.3411
39	8.2989	8.2989
40	8.2724	8.2724
41	8.2598	8.2598
42	8.2367	8.2367
43	8.1837	8.1837
44	8.0606	8.0606
45	8.0106	8.0106
46	7.8685	7.8685
47	7.7049	7.7049
48	7.6810	7.6810
49	7.5349	7.5349
50	7.5242	7.5242
51	7.4552	7.4552
52	7.4306	7.4306
53	7.1893	7.1893
54	7.1832	7.1832
55	7.1000	7.1000
56	7.0436	7.0436
57	6.8515	6.8515
58	6.7911	6.7911
59	6.3890	6.3890
60	6.0486	6.0486
61	5.8599	5.8599

Duration Flows

The Facility PASSED

Flow(cfs)	Predev	Mit	Percentage	Pass/Fail
4.8301	2660	2660	100	Pass
4.9900	2403	2403	100	Pass
5.1499	2141	2141	100	Pass
5.3098	1926	1926	100	Pass
5.4697	1744	1744	100	Pass
5.6296	1601	1601	100	Pass
5.7895	1457	1457	100	Pass
5.9494	1317	1317	100	Pass
6.1093	1187	1187	100	Pass
6.2693	1086	1086	100	Pass
6.4292	988	988	100	Pass
6.5891	894	894	100	Pass
6.7490	821	821	100	Pass
6.9089	731	731	100	Pass
7.0688	677	677	100	Pass
7.2287	622	622	100	Pass
7.3886	573	573	100	Pass
7.5485	533	533	100	Pass
7.7084	502	502	100	Pass
7.8683	469	469	100	Pass
8.0283	429	429	100	Pass
8.1882	406	406	100	Pass
8.3481	376	376	100	Pass
8.5080	358	358	100	Pass
8.6679	337	337	100	Pass
8.8278	309	309	100	Pass
8.9877	283	283	100	Pass
9.1476	250	250	100	Pass
9.3075	228	228	100	Pass
9.4674	216	216	100	Pass
9.6273	203	203	100	Pass
9.7873	191	191	100	Pass
9.9472	176	176	100	Pass
10.1071	169	169	100	Pass
10.2670	158	158	100	Pass
10.4269	147	147	100	Pass
10.5868	141	141	100	Pass
10.7467	133	133	100	Pass
10.9066	119	119	100	Pass
11.0665	112	112	100	Pass
11.2264	104	104	100	Pass
11.3864	99	99	100	Pass
11.5463	92	92	100	Pass
11.7062	88	88	100	Pass
11.8661	81	81	100	Pass
12.0260	78	78	100	Pass
12.1859	76	76	100	Pass
12.3458	72	72	100	Pass
12.5057	66	66	100	Pass
12.6656	57	57	100	Pass
12.8255	53	53	100	Pass
12.9854	49	49	100	Pass
13.1454	46	46	100	Pass

13.3053	45	45	100	Pass
13.4652	43	43	100	Pass
13.6251	39	39	100	Pass
13.7850	37	37	100	Pass
13.9449	37	37	100	Pass
14.1048	36	36	100	Pass
14.2647	33	33	100	Pass
14.4246	33	33	100	Pass
14.5845	32	32	100	Pass
14.7444	30	30	100	Pass
14.9044	26	26	100	Pass
15.0643	24	24	100	Pass
15.2242	23	23	100	Pass
15.3841	22	22	100	Pass
15.5440	21	21	100	Pass
15.7039	20	20	100	Pass
15.8638	16	16	100	Pass
16.0237	15	15	100	Pass
16.1836	15	15	100	Pass
16.3435	13	13	100	Pass
16.5034	13	13	100	Pass
16.6634	13	13	100	Pass
16.8233	11	11	100	Pass
16.9832	10	10	100	Pass
17.1431	10	10	100	Pass
17.3030	10	10	100	Pass
17.4629	9	9	100	Pass
17.6228	9	9	100	Pass
17.7827	9	9	100	Pass
17.9426	9	9	100	Pass
18.1025	8	8	100	Pass
18.2624	7	7	100	Pass
18.4224	7	7	100	Pass
18.5823	5	5	100	Pass
18.7422	4	4	100	Pass
18.9021	4	4	100	Pass
19.0620	4	4	100	Pass
19.2219	4	4	100	Pass
19.3818	4	4	100	Pass
19.5417	4	4	100	Pass
19.7016	3	3	100	Pass
19.8615	2	2	100	Pass
20.0215	1	1	100	Pass
20.1814	1	1	100	Pass
20.3413	1	1	100	Pass
20.5012	1	1	100	Pass
20.6611	1	1	100	Pass

Water Quality

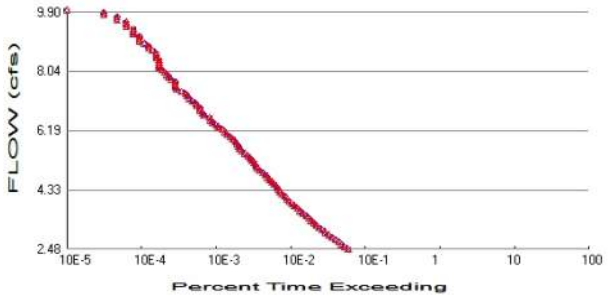
Water Quality BMP Flow and Volume for POC #6

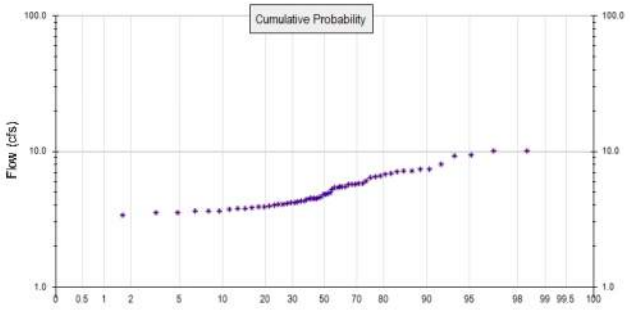
On-line facility volume:	0 acre-feet
On-line facility target flow:	0 cfs.
Adjusted for 15 min:	0 cfs.
Off-line facility target flow:	0 cfs.
Adjusted for 15 min:	0 cfs.

LID Report

LID Technique	Used for Treatment ?	Total Volume Needs Treatment (ac-ft)	Volume Through Facility (ac-ft)	Infiltration Volume (ac-ft)	Cumulative Volume Infiltration Credit	Percent Volume Infiltrated	Water Quality	Percent Water Quality Treated	Comment
Total Volume Infiltrated		0.00	0.00	0.00		0.00	0.00	0%	No Treat. Credit
Compliance with LID Standard 8% of 2-yr to 50% of 2-yr									Duration Analysis Result = Passed

POC 7





\+ Predeveloped x Mitigated

Predeveloped Landuse Totals for POC #7
Total Pervious Area: 1.55
Total Impervious Area: 11.22

Mitigated Landuse Totals for POC #7
Total Pervious Area: 1.55
Total Impervious Area: 11.22

Flow Frequency Method: Log Pearson Type III 17B

Flow Frequency Return Periods for Predeveloped. POC #7

Return Period	**Flow(cfs)**
2 year	4.959074
5 year	6.414426
10 year	7.442282
25 year	8.817057
50 year	9.898184
100 year	11.029605

Flow Frequency Return Periods for Mitigated. POC #7

Return Period	**Flow(cfs)**
2 year	4.959074
5 year	6.414426
10 year	7.442282
25 year	8.817057
50 year	9.898184
100 year	11.029605

Annual Peaks

Annual Peaks for Predeveloped and Mitigated. POC #7

Year	**Predeveloped**	**Mitigated**
1949	6.442	6.442
1950	6.520	6.520
1951	3.838	3.838
1952	3.348	3.348
1953	3.760	3.760
1954	3.885	3.885
1955	4.493	4.493
1956	4.442	4.442
1957	4.788	4.788
1958	3.978	3.978
1959	4.169	4.169

1960	4.221	4.221
1961	4.490	4.490
1962	3.537	3.537
1963	4.166	4.166
1964	4.088	4.088
1965	5.465	5.465
1966	3.711	3.711
1967	5.830	5.830
1968	7.374	7.374
1969	4.936	4.936
1970	4.512	4.512
1971	5.492	5.492
1972	5.737	5.737
1973	3.374	3.374
1974	4.911	4.911
1975	5.405	5.405
1976	3.978	3.978
1977	4.038	4.038
1978	5.377	5.377
1979	7.165	7.165
1980	8.055	8.055
1981	4.819	4.819
1982	7.148	7.148
1983	5.701	5.701
1984	3.628	3.628
1985	5.251	5.251
1986	4.099	4.099
1987	6.803	6.803
1988	3.913	3.913
1989	5.726	5.726
1990	9.432	9.432
1991	7.322	7.322
1992	3.767	3.767
1993	3.620	3.620
1994	3.525	3.525
1995	4.289	4.289
1996	6.014	6.014
1997	4.482	4.482
1998	4.579	4.579
1999	10.123	10.123
2000	4.640	4.640
2001	5.435	5.435
2002	6.607	6.607
2003	5.809	5.809
2004	10.132	10.132
2005	4.330	4.330
2006	3.644	3.644
2007	9.213	9.213
2008	6.902	6.902
2009	7.114	7.114

Ranked Annual Peaks

Ranked Annual Peaks for Predeveloped and Mitigated. POC #7

Rank	Predeveloped	Mitigated
1	10.1324	10.1324
2	10.1226	10.1226
3	9.4316	9.4316
4	9.2131	9.2131

5	8.0550	8.0550
6	7.3739	7.3739
7	7.3222	7.3222
8	7.1653	7.1653
9	7.1485	7.1485
10	7.1139	7.1139
11	6.9016	6.9016
12	6.8029	6.8029
13	6.6066	6.6066
14	6.5204	6.5204
15	6.4417	6.4417
16	6.0144	6.0144
17	5.8300	5.8300
18	5.8086	5.8086
19	5.7375	5.7375
20	5.7258	5.7258
21	5.7009	5.7009
22	5.4917	5.4917
23	5.4646	5.4646
24	5.4350	5.4350
25	5.4054	5.4054
26	5.3767	5.3767
27	5.2511	5.2511
28	4.9357	4.9357
29	4.9109	4.9109
30	4.8194	4.8194
31	4.7877	4.7877
32	4.6398	4.6398
33	4.5791	4.5791
34	4.5122	4.5122
35	4.4933	4.4933
36	4.4904	4.4904
37	4.4818	4.4818
38	4.4419	4.4419
39	4.3300	4.3300
40	4.2888	4.2888
41	4.2213	4.2213
42	4.1690	4.1690
43	4.1658	4.1658
44	4.0992	4.0992
45	4.0879	4.0879
46	4.0384	4.0384
47	3.9783	3.9783
48	3.9781	3.9781
49	3.9127	3.9127
50	3.8848	3.8848
51	3.8377	3.8377
52	3.7666	3.7666
53	3.7604	3.7604
54	3.7109	3.7109
55	3.6437	3.6437
56	3.6281	3.6281
57	3.6197	3.6197
58	3.5371	3.5371
59	3.5246	3.5246
60	3.3741	3.3741
61	3.3478	3.3478

Duration Flows

The Facility PASSED

Flow(cfs)	Predev	Mit	Percentage	Pass/Fail
2.4795	3787	3787	100	Pass
2.5545	3416	3416	100	Pass
2.6294	3077	3077	100	Pass
2.7043	2791	2791	100	Pass
2.7793	2520	2520	100	Pass
2.8542	2288	2288	100	Pass
2.9292	2073	2073	100	Pass
3.0041	1881	1881	100	Pass
3.0790	1706	1706	100	Pass
3.1540	1548	1548	100	Pass
3.2289	1406	1406	100	Pass
3.3038	1304	1304	100	Pass
3.3788	1202	1202	100	Pass
3.4537	1121	1121	100	Pass
3.5286	1028	1028	100	Pass
3.6036	930	930	100	Pass
3.6785	857	857	100	Pass
3.7534	786	786	100	Pass
3.8284	716	716	100	Pass
3.9033	670	670	100	Pass
3.9783	612	612	100	Pass
4.0532	577	577	100	Pass
4.1281	533	533	100	Pass
4.2031	488	488	100	Pass
4.2780	458	458	100	Pass
4.3529	439	439	100	Pass
4.4279	417	417	100	Pass
4.5028	387	387	100	Pass
4.5777	362	362	100	Pass
4.6527	337	337	100	Pass
4.7276	316	316	100	Pass
4.8025	292	292	100	Pass
4.8775	272	272	100	Pass
4.9524	244	244	100	Pass
5.0274	228	228	100	Pass
5.1023	219	219	100	Pass
5.1772	207	207	100	Pass
5.2522	193	193	100	Pass
5.3271	183	183	100	Pass
5.4020	170	170	100	Pass
5.4770	156	156	100	Pass
5.5519	140	140	100	Pass
5.6268	132	132	100	Pass
5.7018	128	128	100	Pass
5.7767	121	121	100	Pass
5.8516	114	114	100	Pass
5.9266	108	108	100	Pass
6.0015	99	99	100	Pass
6.0765	90	90	100	Pass
6.1514	85	85	100	Pass
6.2263	78	78	100	Pass
6.3013	69	69	100	Pass
6.3762	64	64	100	Pass

6.4511	58	58	100	Pass
6.5261	54	54	100	Pass
6.6010	52	52	100	Pass
6.6759	44	44	100	Pass
6.7509	42	42	100	Pass
6.8258	39	39	100	Pass
6.9008	39	39	100	Pass
6.9757	35	35	100	Pass
7.0506	34	34	100	Pass
7.1256	31	31	100	Pass
7.2005	28	28	100	Pass
7.2754	26	26	100	Pass
7.3504	25	25	100	Pass
7.4253	22	22	100	Pass
7.5002	19	19	100	Pass
7.5752	18	18	100	Pass
7.6501	18	18	100	Pass
7.7250	18	18	100	Pass
7.8000	16	16	100	Pass
7.8749	15	15	100	Pass
7.9499	14	14	100	Pass
8.0248	13	13	100	Pass
8.0997	12	12	100	Pass
8.1747	11	11	100	Pass
8.2496	11	11	100	Pass
8.3245	11	11	100	Pass
8.3995	11	11	100	Pass
8.4744	10	10	100	Pass
8.5493	10	10	100	Pass
8.6243	10	10	100	Pass
8.6992	9	9	100	Pass
8.7741	8	8	100	Pass
8.8491	8	8	100	Pass
8.9240	7	7	100	Pass
8.9990	6	6	100	Pass
9.0739	6	6	100	Pass
9.1488	6	6	100	Pass
9.2238	5	5	100	Pass
9.2987	5	5	100	Pass
9.3736	5	5	100	Pass
9.4486	4	4	100	Pass
9.5235	4	4	100	Pass
9.5984	4	4	100	Pass
9.6734	3	3	100	Pass
9.7483	3	3	100	Pass
9.8232	2	2	100	Pass
9.8982	2	2	100	Pass

Water Quality

Water Quality BMP Flow and Volume for POC #7

On-line facility volume:	0 acre-feet
On-line facility target flow:	0 cfs.
Adjusted for 15 min:	0 cfs.
Off-line facility target flow:	0 cfs.
Adjusted for 15 min:	0 cfs.

LID Report

LID Technique	Used for Treatment ?	Total Volume Needs Treatment (ac-ft)	Volume Through Facility (ac-ft)	Infiltration Volume (ac-ft)	Cumulative Volume Infiltration Credit	Percent Volume Infiltrated	Water Quality	Percent Water Quality Treated	Comment
Total Volume Infiltrated		0.00	0.00	0.00		0.00	0.00	0%	No Treat. Credit
Compliance with LID Standard 8% of 2-yr to 50% of 2-yr									Duration Analysis Result = Passed

Model Default Modifications

Total of 0 changes have been made.

PERLND Changes

No PERLND changes have been made.

IMPLND Changes

No IMPLND changes have been made.

Appendix

Predeveloped Schematic

Mitigated Schematic

Predeveloped UCI File

```
RUN

GLOBAL
  WWHM4 model simulation
  START       1948 10 01        END    2009 09 30
  RUN INTERP OUTPUT LEVEL    3    0
  RESUME     0 RUN     1                   UNIT SYSTEM     1
END GLOBAL

FILES
<File>  <Un#>   <-----------File Name------------------------------>***
<-ID->                                                              ***
WDM         26   120th_Ave_Basin_Flows_210720.wdm
MESSU       25   Pre120th_Ave_Basin_Flows_210720.MES
            27   Pre120th_Ave_Basin_Flows_210720.L61
            28   Pre120th_Ave_Basin_Flows_210720.L62
            30   POC120th_Ave_Basin_Flows_2107201.dat
            31   POC120th_Ave_Basin_Flows_2107202.dat
            32   POC120th_Ave_Basin_Flows_2107203.dat
            33   POC120th_Ave_Basin_Flows_2107204.dat
            34   POC120th_Ave_Basin_Flows_2107205.dat
            35   POC120th_Ave_Basin_Flows_2107206.dat
            36   POC120th_Ave_Basin_Flows_2107207.dat
END FILES

OPN SEQUENCE
    INGRP              INDELT 00:05
      PERLND      10
      PERLND      16
      IMPLND       1
      PERLND      17
      PERLND      11
      IMPLND       2
      COPY       501
      COPY       502
      COPY       503
      COPY       504
      COPY       505
      COPY       506
      COPY       507
      DISPLY       1
      DISPLY       2
      DISPLY       3
      DISPLY       4
      DISPLY       5
      DISPLY       6
      DISPLY       7
    END INGRP
END OPN SEQUENCE
DISPLY
  DISPLY-INFO1
    # -  #<----------Title----------->***TRAN PIVL DIG1 FIL1  PYR DIG2 FIL2 YRND
    1        Basin  1                   MAX                    1    2   30    9
    2        Basin  2                   MAX                    1    2   31    9
    3        Basin  3                   MAX                    1    2   32    9
    4        Basin  4                   MAX                    1    2   33    9
    5        Basin  5                   MAX                    1    2   34    9
    6        Basin  6                   MAX                    1    2   35    9
    7        Basin  7                   MAX                    1    2   36    9
  END DISPLY-INFO1
END DISPLY
COPY
  TIMESERIES
    # -  #  NPT  NMN ***
    1         1    1
  501         1    1
  502         1    1
  503         1    1
```

```
  504         1    1
  505         1    1
  506         1    1
  507         1    1
  END TIMESERIES
END COPY
GENER
  OPCODE
    #    # OPCD ***
  END OPCODE
  PARM
    #    #         K ***
  END PARM
END GENER
PERLND
  GEN-INFO
    <PLS ><-------Name------->NBLKS   Unit-systems   Printer ***
    # -  #                          User  t-series Engl Metr ***
                                        in  out           ***
   10     C, Forest, Flat         1    1    1    1   27    0
   16     C, Lawn, Flat           1    1    1    1   27    0
   17     C, Lawn, Mod            1    1    1    1   27    0
   11     C, Forest, Mod          1    1    1    1   27    0
  END GEN-INFO
  *** Section PWATER***

  ACTIVITY
    <PLS > ************* Active Sections ****************************
    # -  # ATMP SNOW PWAT  SED  PST  PWG PQAL MSTL PEST NITR PHOS TRAC ***
   10         0    0    1    0    0    0    0    0    0    0    0    0
   16         0    0    1    0    0    0    0    0    0    0    0    0
   17         0    0    1    0    0    0    0    0    0    0    0    0
   11         0    0    1    0    0    0    0    0    0    0    0    0
  END ACTIVITY

  PRINT-INFO
    <PLS > ***************** Print-flags **************************** PIVL  PYR
    # -  # ATMP SNOW PWAT  SED  PST  PWG PQAL MSTL PEST NITR PHOS TRAC  *********
   10         0    0    4    0    0    0    0    0    0    0    0    0    1    9
   16         0    0    4    0    0    0    0    0    0    0    0    0    1    9
   17         0    0    4    0    0    0    0    0    0    0    0    0    1    9
   11         0    0    4    0    0    0    0    0    0    0    0    0    1    9
  END PRINT-INFO

  PWAT-PARM1
    <PLS >  PWATER variable monthly parameter value flags  ***
    # -  # CSNO RTOP UZFG  VCS  VUZ  VNN VIFW VIRC  VLE INFC  HWT ***
   10         0    0    0    0    0    0    0    0    0    0    0
   16         0    0    0    0    0    0    0    0    0    0    0
   17         0    0    0    0    0    0    0    0    0    0    0
   11         0    0    0    0    0    0    0    0    0    0    0
  END PWAT-PARM1

  PWAT-PARM2
    <PLS >      PWATER input info: Part 2         ***
    # -  # ***FOREST      LZSN    INFILT      LSUR     SLSUR     KVARY     AGWRC
   10              0       4.5      0.08       400      0.05       0.5     0.996
   16              0       4.5      0.03       400      0.05       0.5     0.996
   17              0       4.5      0.03       400       0.1       0.5     0.996
   11              0       4.5      0.08       400       0.1       0.5     0.996
  END PWAT-PARM2

  PWAT-PARM3
    <PLS >      PWATER input info: Part 3         ***
    # -  # ***PETMAX    PETMIN    INFEXP    INFILD    DEEPFR    BASETP    AGWETP
   10              0         0         2         2         0         0         0
   16              0         0         2         2         0         0         0
   17              0         0         2         2         0         0         0
   11              0         0         2         2         0         0         0
  END PWAT-PARM3
```

```
  PWAT-PARM4
    <PLS >     PWATER input info: Part 4                                    ***
    # -  #     CEPSC      UZSN      NSUR     INTFW       IRC     LZETP ***
   10            0.2       0.5      0.35         6       0.5       0.7
   16            0.1      0.25      0.25         6       0.5      0.25
   17            0.1      0.25      0.25         6       0.5      0.25
   11            0.2       0.5      0.35         6       0.5       0.7
  END PWAT-PARM4

  PWAT-STATE1
    <PLS > *** Initial conditions at start of simulation
               ran from 1990 to end of 1992 (pat 1-11-95) RUN 21 ***
    # -  # ***  CEPS      SURS       UZS      IFWS       LZS      AGWS      GWVS
   10              0         0         0         0       2.5         1         0
   16              0         0         0         0       2.5         1         0
   17              0         0         0         0       2.5         1         0
   11              0         0         0         0       2.5         1         0
  END PWAT-STATE1

END PERLND

IMPLND
  GEN-INFO
    <PLS ><-------Name------->   Unit-systems   Printer ***
    # -  #                     User  t-series Engl Metr ***
                                      in  out           ***
    1      ROADS/FLAT             1    1    1   27    0
    2      ROADS/MOD              1    1    1   27    0
  END GEN-INFO
  *** Section IWATER***

  ACTIVITY
    <PLS > ************* Active Sections ******************************
    # -  # ATMP SNOW IWAT  SLD  IWG IQAL   ***
    1         0    0    1    0    0    0
    2         0    0    1    0    0    0
  END ACTIVITY

  PRINT-INFO
    <ILS > ******** Print-flags ******** PIVL  PYR
    # -  # ATMP SNOW IWAT  SLD  IWG IQAL    *********
    1         0    0    4    0    0    0    1    9
    2         0    0    4    0    0    0    1    9
  END PRINT-INFO

  IWAT-PARM1
    <PLS >  IWATER variable monthly parameter value flags  ***
    # -  # CSNO RTOP  VRS  VNN RTLI     ***
    1         0    0    0    0    0
    2         0    0    0    0    0
  END IWAT-PARM1

  IWAT-PARM2
    <PLS >      IWATER input info: Part 2         ***
    # -  # ***  LSUR     SLSUR      NSUR     RETSC
    1            400      0.01       0.1       0.1
    2            400      0.05       0.1      0.08
  END IWAT-PARM2

  IWAT-PARM3
    <PLS >      IWATER input info: Part 3         ***
    # -  # ***PETMAX    PETMIN
    1              0         0
    2              0         0
  END IWAT-PARM3

  IWAT-STATE1
    <PLS > *** Initial conditions at start of simulation
    # -  # ***  RETS      SURS
    1              0         0
```

```
    2              0         0
  END IWAT-STATE1

END IMPLND

SCHEMATIC
<-Source->                  <--Area-->     <-Target->   MBLK   ***
<Name>   #                  <-factor->     <Name>   #   Tbl#   ***
Basin  1***
PERLND  10                       2.86     COPY   501     12
PERLND  10                       2.86     COPY   501     13
PERLND  16                       4.37     COPY   501     12
PERLND  16                       4.37     COPY   501     13
IMPLND   1                       4.02     COPY   501     15
Basin  2***
PERLND  16                      18.93     COPY   502     12
PERLND  16                      18.93     COPY   502     13
PERLND  10                      25.02     COPY   502     12
PERLND  10                      25.02     COPY   502     13
IMPLND   1                      18.75     COPY   502     15
Basin  3***
PERLND  17                      19.15     COPY   503     12
PERLND  17                      19.15     COPY   503     13
PERLND  11                       1.56     COPY   503     12
PERLND  11                       1.56     COPY   503     13
IMPLND   2                      15.92     COPY   503     15
Basin  4***
PERLND  16                       49.4     COPY   504     12
PERLND  16                       49.4     COPY   504     13
IMPLND   1                      33.71     COPY   504     15
Basin  5***
PERLND  17                       2.05     COPY   505     12
PERLND  17                       2.05     COPY   505     13
PERLND  11                       0.17     COPY   505     12
PERLND  11                       0.17     COPY   505     13
IMPLND   2                        7.2     COPY   505     15
Basin  6***
PERLND  17                      11.12     COPY   506     12
PERLND  17                      11.12     COPY   506     13
IMPLND   2                      17.15     COPY   506     15
Basin  7***
PERLND  16                       1.55     COPY   507     12
PERLND  16                       1.55     COPY   507     13
IMPLND   1                      11.22     COPY   507     15

******Routing******
END SCHEMATIC

NETWORK
<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
<Name>   #        <Name> # #<-factor->strg <Name>   #   #        <Name> # #  ***
COPY   501 OUTPUT MEAN   1 1  145.2        DISPLY   1     INPUT  TIMSER 1
COPY   502 OUTPUT MEAN   1 1  145.2        DISPLY   2     INPUT  TIMSER 1
COPY   503 OUTPUT MEAN   1 1  145.2        DISPLY   3     INPUT  TIMSER 1
COPY   504 OUTPUT MEAN   1 1  145.2        DISPLY   4     INPUT  TIMSER 1
COPY   505 OUTPUT MEAN   1 1  145.2        DISPLY   5     INPUT  TIMSER 1
COPY   506 OUTPUT MEAN   1 1  145.2        DISPLY   6     INPUT  TIMSER 1
COPY   507 OUTPUT MEAN   1 1  145.2        DISPLY   7     INPUT  TIMSER 1



<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
<Name>   #        <Name> # #<-factor->strg <Name>   #   #        <Name> # #  ***
END NETWORK

RCHRES
  GEN-INFO
    RCHRES       Name        Nexits   Unit Systems   Printer                ***
    # -  #<------------------><---> User T-series  Engl Metr LKFG           ***
                                       in  out                              ***
```

```
  END GEN-INFO
  *** Section RCHRES***

  ACTIVITY
    <PLS > ************* Active Sections ******************************
    # -  # HYFG ADFG CNFG HTFG SDFG GQFG OXFG NUFG PKFG PHFG ***
  END ACTIVITY

  PRINT-INFO
    <PLS > ***************** Print-flags ****************** PIVL  PYR
    # -  # HYDR ADCA CONS HEAT  SED  GQL OXRX NUTR PLNK PHCB PIVL  PYR  *********
  END PRINT-INFO

  HYDR-PARM1
    RCHRES  Flags for each HYDR Section                                    ***
    # -  #  VC A1 A2 A3  ODFVFG for each *** ODGTFG for each     FUNCT  for each
            FG FG FG FG  possible  exit  *** possible  exit      possible  exit
             *  *  *  *    *  *  *  *  *       *  *  *  *  *         ***
  END HYDR-PARM1

  HYDR-PARM2
    # -  #    FTABNO       LEN     DELTH     STCOR        KS      DB50       ***
  <------><--------><--------><--------><--------><--------><-------->       ***
  END HYDR-PARM2
  HYDR-INIT
    RCHRES  Initial conditions for each HYDR section                       ***
    # -  # ***   VOL     Initial  value  of COLIND     Initial  value  of OUTDGT
         *** ac-ft     for each possible exit        for each possible exit
  <------><-------->     <---><---><---><---><---> *** <---><---><---><---><--->
  END HYDR-INIT
END RCHRES

SPEC-ACTIONS
END SPEC-ACTIONS
FTABLES
END FTABLES

EXT SOURCES
<-Volume-> <Member> SsysSgap<--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
<Name>   # <Name> # tem strg<-factor->strg <Name>   #   #        <Name> # #  ***
WDM      2 PREC     ENGL    1         DIV  PERLND   1 999 EXTNL  PREC
WDM      2 PREC     ENGL    1         DIV  IMPLND   1 999 EXTNL  PREC
WDM      1 EVAP     ENGL    0.76           PERLND   1 999 EXTNL  PETINP
WDM      1 EVAP     ENGL    0.76           IMPLND   1 999 EXTNL  PETINP

END EXT SOURCES

EXT TARGETS
<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Volume-> <Member> Tsys Tgap Amd ***
<Name>   #        <Name> # #<-factor->strg <Name>   # <Name>    tem strg strg***
COPY   501 OUTPUT MEAN   1 1    145.2      WDM    501 FLOW     ENGL      REPL
COPY   502 OUTPUT MEAN   1 1    145.2      WDM    502 FLOW     ENGL      REPL
COPY   503 OUTPUT MEAN   1 1    145.2      WDM    503 FLOW     ENGL      REPL
COPY   504 OUTPUT MEAN   1 1    145.2      WDM    504 FLOW     ENGL      REPL
COPY   505 OUTPUT MEAN   1 1    145.2      WDM    505 FLOW     ENGL      REPL
COPY   506 OUTPUT MEAN   1 1    145.2      WDM    506 FLOW     ENGL      REPL
COPY   507 OUTPUT MEAN   1 1    145.2      WDM    507 FLOW     ENGL      REPL
END EXT TARGETS

MASS-LINK
<Volume>   <-Grp> <-Member-><--Mult-->     <Target>       <-Grp> <-Member->***
<Name>           <Name> # #<-factor->     <Name>                <Name> # #***
  MASS-LINK       12
PERLND     PWATER SURO       0.083333      COPY           INPUT  MEAN
  END MASS-LINK   12

  MASS-LINK       13
PERLND     PWATER IFWO       0.083333      COPY           INPUT  MEAN
  END MASS-LINK   13
```

```
  MASS-LINK       15
IMPLND     IWATER SURO       0.083333      COPY           INPUT  MEAN
  END MASS-LINK   15


END MASS-LINK

END RUN
```

Mitigated UCI File

```
RUN

GLOBAL
  WWHM4 model simulation
  START       1948 10 01        END    2009 09 30
  RUN INTERP OUTPUT LEVEL    3    0
  RESUME     0 RUN     1                   UNIT SYSTEM     1
END GLOBAL

FILES
<File>  <Un#>   <-----------File Name------------------------------>***
<-ID->                                                              ***
WDM         26   120th_Ave_Basin_Flows_210720.wdm
MESSU       25   Mit120th_Ave_Basin_Flows_210720.MES
            27   Mit120th_Ave_Basin_Flows_210720.L61
            28   Mit120th_Ave_Basin_Flows_210720.L62
            30   POC120th_Ave_Basin_Flows_2107201.dat
            31   POC120th_Ave_Basin_Flows_2107202.dat
            32   POC120th_Ave_Basin_Flows_2107203.dat
            33   POC120th_Ave_Basin_Flows_2107204.dat
            34   POC120th_Ave_Basin_Flows_2107205.dat
            35   POC120th_Ave_Basin_Flows_2107206.dat
            36   POC120th_Ave_Basin_Flows_2107207.dat
END FILES

OPN SEQUENCE
    INGRP              INDELT 00:05
      PERLND      10
      PERLND      16
      IMPLND       1
      PERLND      17
      PERLND      11
      IMPLND       2
      COPY       501
      COPY       502
      COPY       503
      COPY       504
      COPY       505
      COPY       506
      COPY       507
      DISPLY       1
      DISPLY       2
      DISPLY       3
      DISPLY       4
      DISPLY       5
      DISPLY       6
      DISPLY       7
    END INGRP
END OPN SEQUENCE
DISPLY
  DISPLY-INFO1
    # -  #<----------Title----------->***TRAN PIVL DIG1 FIL1  PYR DIG2 FIL2 YRND
    1        Basin  1                   MAX                    1    2   30    9
    2        Basin  2                   MAX                    1    2   31    9
    3        Basin  3                   MAX                    1    2   32    9
    4        Basin  4                   MAX                    1    2   33    9
    5        Basin  5                   MAX                    1    2   34    9
    6        Basin  6                   MAX                    1    2   35    9
    7        Basin  7                   MAX                    1    2   36    9
  END DISPLY-INFO1
END DISPLY
COPY
  TIMESERIES
    # -  #  NPT  NMN ***
    1         1    1
  501         1    1
  502         1    1
  503         1    1
```

```
  504         1    1
  505         1    1
  506         1    1
  507         1    1
  END TIMESERIES
END COPY
GENER
  OPCODE
    #    # OPCD ***
  END OPCODE
  PARM
    #    #         K ***
  END PARM
END GENER
PERLND
  GEN-INFO
    <PLS ><-------Name------->NBLKS   Unit-systems   Printer ***
    # -  #                          User  t-series Engl Metr ***
                                        in  out           ***
   10     C, Forest, Flat         1    1    1    1   27    0
   16     C, Lawn, Flat           1    1    1    1   27    0
   17     C, Lawn, Mod            1    1    1    1   27    0
   11     C, Forest, Mod          1    1    1    1   27    0
  END GEN-INFO
  *** Section PWATER***

  ACTIVITY
    <PLS > ************* Active Sections ****************************
    # -  # ATMP SNOW PWAT  SED  PST  PWG PQAL MSTL PEST NITR PHOS TRAC ***
   10         0    0    1    0    0    0    0    0    0    0    0    0
   16         0    0    1    0    0    0    0    0    0    0    0    0
   17         0    0    1    0    0    0    0    0    0    0    0    0
   11         0    0    1    0    0    0    0    0    0    0    0    0
  END ACTIVITY

  PRINT-INFO
    <PLS > ***************** Print-flags **************************** PIVL  PYR
    # -  # ATMP SNOW PWAT  SED  PST  PWG PQAL MSTL PEST NITR PHOS TRAC  *********
   10         0    0    4    0    0    0    0    0    0    0    0    0    1    9
   16         0    0    4    0    0    0    0    0    0    0    0    0    1    9
   17         0    0    4    0    0    0    0    0    0    0    0    0    1    9
   11         0    0    4    0    0    0    0    0    0    0    0    0    1    9
  END PRINT-INFO

  PWAT-PARM1
    <PLS >  PWATER variable monthly parameter value flags  ***
    # -  # CSNO RTOP UZFG  VCS  VUZ  VNN VIFW VIRC  VLE INFC  HWT ***
   10         0    0    0    0    0    0    0    0    0    0    0
   16         0    0    0    0    0    0    0    0    0    0    0
   17         0    0    0    0    0    0    0    0    0    0    0
   11         0    0    0    0    0    0    0    0    0    0    0
  END PWAT-PARM1

  PWAT-PARM2
    <PLS >      PWATER input info: Part 2         ***
    # -  # ***FOREST      LZSN    INFILT      LSUR     SLSUR     KVARY     AGWRC
   10              0       4.5      0.08       400      0.05       0.5     0.996
   16              0       4.5      0.03       400      0.05       0.5     0.996
   17              0       4.5      0.03       400       0.1       0.5     0.996
   11              0       4.5      0.08       400       0.1       0.5     0.996
  END PWAT-PARM2

  PWAT-PARM3
    <PLS >      PWATER input info: Part 3         ***
    # -  # ***PETMAX    PETMIN    INFEXP    INFILD    DEEPFR    BASETP    AGWETP
   10              0         0         2         2         0         0         0
   16              0         0         2         2         0         0         0
   17              0         0         2         2         0         0         0
   11              0         0         2         2         0         0         0
  END PWAT-PARM3
```

```
  PWAT-PARM4
    <PLS >     PWATER input info: Part 4                                    ***
    # -  #     CEPSC      UZSN      NSUR     INTFW       IRC     LZETP ***
   10            0.2       0.5      0.35         6       0.5       0.7
   16            0.1      0.25      0.25         6       0.5      0.25
   17            0.1      0.25      0.25         6       0.5      0.25
   11            0.2       0.5      0.35         6       0.5       0.7
  END PWAT-PARM4

  PWAT-STATE1
    <PLS > *** Initial conditions at start of simulation
               ran from 1990 to end of 1992 (pat 1-11-95) RUN 21 ***
    # -  # ***  CEPS      SURS       UZS      IFWS       LZS      AGWS      GWVS
   10              0         0         0         0       2.5         1         0
   16              0         0         0         0       2.5         1         0
   17              0         0         0         0       2.5         1         0
   11              0         0         0         0       2.5         1         0
  END PWAT-STATE1

END PERLND

IMPLND
  GEN-INFO
    <PLS ><-------Name------->   Unit-systems   Printer ***
    # -  #                     User  t-series Engl Metr ***
                                      in  out           ***
    1      ROADS/FLAT             1    1    1   27    0
    2      ROADS/MOD              1    1    1   27    0
  END GEN-INFO
  *** Section IWATER***

  ACTIVITY
    <PLS > ************* Active Sections ******************************
    # -  # ATMP SNOW IWAT  SLD  IWG IQAL   ***
    1         0    0    1    0    0    0
    2         0    0    1    0    0    0
  END ACTIVITY

  PRINT-INFO
    <ILS > ******** Print-flags ******** PIVL  PYR
    # -  # ATMP SNOW IWAT  SLD  IWG IQAL    *********
    1         0    0    4    0    0    0    1    9
    2         0    0    4    0    0    0    1    9
  END PRINT-INFO

  IWAT-PARM1
    <PLS >  IWATER variable monthly parameter value flags  ***
    # -  # CSNO RTOP  VRS  VNN RTLI     ***
    1         0    0    0    0    0
    2         0    0    0    0    0
  END IWAT-PARM1

  IWAT-PARM2
    <PLS >      IWATER input info: Part 2         ***
    # -  # ***  LSUR     SLSUR      NSUR     RETSC
    1            400      0.01       0.1       0.1
    2            400      0.05       0.1      0.08
  END IWAT-PARM2

  IWAT-PARM3
    <PLS >      IWATER input info: Part 3         ***
    # -  # ***PETMAX    PETMIN
    1              0         0
    2              0         0
  END IWAT-PARM3

  IWAT-STATE1
    <PLS > *** Initial conditions at start of simulation
    # -  # ***  RETS      SURS
    1              0         0
```

```
    2              0         0
  END IWAT-STATE1

END IMPLND

SCHEMATIC
<-Source->                  <--Area-->     <-Target->   MBLK   ***
<Name>   #                  <-factor->     <Name>   #   Tbl#   ***
Basin  1***
PERLND  10                       2.86     COPY   501     12
PERLND  10                       2.86     COPY   501     13
PERLND  16                       4.37     COPY   501     12
PERLND  16                       4.37     COPY   501     13
IMPLND   1                       4.02     COPY   501     15
Basin  2***
PERLND  16                      18.93     COPY   502     12
PERLND  16                      18.93     COPY   502     13
PERLND  10                      25.02     COPY   502     12
PERLND  10                      25.02     COPY   502     13
IMPLND   1                      18.75     COPY   502     15
Basin  3***
PERLND  17                      19.15     COPY   503     12
PERLND  17                      19.15     COPY   503     13
PERLND  11                       1.56     COPY   503     12
PERLND  11                       1.56     COPY   503     13
IMPLND   2                      15.92     COPY   503     15
Basin  4***
PERLND  16                       49.4     COPY   504     12
PERLND  16                       49.4     COPY   504     13
IMPLND   1                      33.71     COPY   504     15
Basin  5***
PERLND  17                       2.05     COPY   505     12
PERLND  17                       2.05     COPY   505     13
PERLND  11                       0.17     COPY   505     12
PERLND  11                       0.17     COPY   505     13
IMPLND   2                        7.2     COPY   505     15
Basin  6***
PERLND  17                      11.12     COPY   506     12
PERLND  17                      11.12     COPY   506     13
IMPLND   2                      17.15     COPY   506     15
Basin  7***
PERLND  16                       1.55     COPY   507     12
PERLND  16                       1.55     COPY   507     13
IMPLND   1                      11.22     COPY   507     15

******Routing******
END SCHEMATIC

NETWORK
<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
<Name>   #        <Name> # #<-factor->strg <Name>   #   #        <Name> # #  ***
COPY   501 OUTPUT MEAN   1 1  145.2        DISPLY   1     INPUT  TIMSER 1
COPY   502 OUTPUT MEAN   1 1  145.2        DISPLY   2     INPUT  TIMSER 1
COPY   503 OUTPUT MEAN   1 1  145.2        DISPLY   3     INPUT  TIMSER 1
COPY   504 OUTPUT MEAN   1 1  145.2        DISPLY   4     INPUT  TIMSER 1
COPY   505 OUTPUT MEAN   1 1  145.2        DISPLY   5     INPUT  TIMSER 1
COPY   506 OUTPUT MEAN   1 1  145.2        DISPLY   6     INPUT  TIMSER 1
COPY   507 OUTPUT MEAN   1 1  145.2        DISPLY   7     INPUT  TIMSER 1



<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
<Name>   #        <Name> # #<-factor->strg <Name>   #   #        <Name> # #  ***
END NETWORK

RCHRES
  GEN-INFO
    RCHRES       Name        Nexits   Unit Systems   Printer                ***
    # -  #<------------------><---> User T-series  Engl Metr LKFG           ***
                                       in  out                              ***
```

```
  END GEN-INFO
  *** Section RCHRES***

  ACTIVITY
    <PLS > ************* Active Sections ****************************
    # -  # HYFG ADFG CNFG HTFG SDFG GQFG OXFG NUFG PKFG PHFG ***
  END ACTIVITY

  PRINT-INFO
    <PLS > ***************** Print-flags ****************** PIVL  PYR
    # -  # HYDR ADCA CONS HEAT  SED  GQL OXRX NUTR PLNK PHCB PIVL  PYR  *********
  END PRINT-INFO

  HYDR-PARM1
    RCHRES  Flags for each HYDR Section                                    ***
    # -  #  VC A1 A2 A3  ODFVFG for each *** ODGTFG for each     FUNCT  for each
            FG FG FG FG  possible  exit  *** possible  exit      possible  exit
             *  *  *  *    *  *  *  *  *       *  *  *  *  *         ***
  END HYDR-PARM1

  HYDR-PARM2
    # -  #    FTABNO       LEN     DELTH     STCOR        KS      DB50       ***
  <------><--------><--------><--------><--------><--------><--------->      ***
  END HYDR-PARM2
  HYDR-INIT
    RCHRES  Initial conditions for each HYDR section                       ***
    # -  # ***   VOL     Initial  value  of COLIND     Initial  value  of OUTDGT
          *** ac-ft     for each possible exit        for each possible exit
  <------><-------->     <---><---><---><---><---> *** <---><---><---><---><--->
  END HYDR-INIT
END RCHRES

SPEC-ACTIONS
END SPEC-ACTIONS
FTABLES
END FTABLES

EXT SOURCES
<-Volume-> <Member> SsysSgap<--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
<Name>   # <Name> # tem strg<-factor->strg <Name>   #   #        <Name> # #  ***
WDM      2 PREC     ENGL    1         DIV  PERLND   1 999 EXTNL  PREC
WDM      2 PREC     ENGL    1         DIV  IMPLND   1 999 EXTNL  PREC
WDM      1 EVAP     ENGL    0.76           PERLND   1 999 EXTNL  PETINP
WDM      1 EVAP     ENGL    0.76           IMPLND   1 999 EXTNL  PETINP

END EXT SOURCES

EXT TARGETS
<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Volume-> <Member> Tsys Tgap Amd ***
<Name>   #        <Name> # #<-factor->strg <Name>   # <Name>    tem strg strg***
COPY     1 OUTPUT MEAN   1 1    145.2      WDM    701 FLOW     ENGL      REPL
COPY   501 OUTPUT MEAN   1 1    145.2      WDM    801 FLOW     ENGL      REPL
COPY     2 OUTPUT MEAN   1 1    145.2      WDM    702 FLOW     ENGL      REPL
COPY   502 OUTPUT MEAN   1 1    145.2      WDM    802 FLOW     ENGL      REPL
COPY     3 OUTPUT MEAN   1 1    145.2      WDM    703 FLOW     ENGL      REPL
COPY   503 OUTPUT MEAN   1 1    145.2      WDM    803 FLOW     ENGL      REPL
COPY     4 OUTPUT MEAN   1 1    145.2      WDM    704 FLOW     ENGL      REPL
COPY   504 OUTPUT MEAN   1 1    145.2      WDM    804 FLOW     ENGL      REPL
COPY     5 OUTPUT MEAN   1 1    145.2      WDM    705 FLOW     ENGL      REPL
COPY   505 OUTPUT MEAN   1 1    145.2      WDM    805 FLOW     ENGL      REPL
COPY     6 OUTPUT MEAN   1 1    145.2      WDM    706 FLOW     ENGL      REPL
COPY   506 OUTPUT MEAN   1 1    145.2      WDM    806 FLOW     ENGL      REPL
COPY     7 OUTPUT MEAN   1 1    145.2      WDM    707 FLOW     ENGL      REPL
COPY   507 OUTPUT MEAN   1 1    145.2      WDM    807 FLOW     ENGL      REPL
END EXT TARGETS

MASS-LINK
<Volume>   <-Grp> <-Member-><--Mult-->     <Target>       <-Grp> <-Member->***
<Name>           <Name> # #<-factor->     <Name>                <Name> # #***
  MASS-LINK       12
```

```
PERLND     PWATER SURO       0.083333      COPY           INPUT  MEAN
  END MASS-LINK   12

  MASS-LINK       13
PERLND     PWATER IFWO       0.083333      COPY           INPUT  MEAN
  END MASS-LINK   13

  MASS-LINK       15
IMPLND     IWATER SURO       0.083333      COPY           INPUT  MEAN
  END MASS-LINK   15


END MASS-LINK

END RUN
```

Predeveloped HSPF Message File

Mitigated HSPF Message File

Disclaimer

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WWHM2012

PROJECT REPORT

General Model Information

Project Name:	Alt_A_210802
Site Name:	Alternative A
Site Address:	Kirkland
City:	Kirkland
Report Date:	8/2/2021
Gage:	Seatac
Data Start:	1948/10/01 00:00
Data End:	2009/09/30 00:00
Timestep:	5 Minute
Precip Scale:	1.000
Version Date:	2019/09/13
Version:	4.2.17

POC Thresholds

Low Flow Threshold for POC1:	50 Percent of the 2 Year
High Flow Threshold for POC1:	50 Year
Low Flow Threshold for POC2:	50 Percent of the 2 Year
High Flow Threshold for POC2:	50 Year
Low Flow Threshold for POC3:	50 Percent of the 2 Year
High Flow Threshold for POC3:	50 Year
Low Flow Threshold for POC4:	50 Percent of the 2 Year
High Flow Threshold for POC4:	50 Year
Low Flow Threshold for POC5:	50 Percent of the 2 Year
High Flow Threshold for POC5:	50 Year
Low Flow Threshold for POC6:	50 Percent of the 2 Year
High Flow Threshold for POC6:	50 Year
Low Flow Threshold for POC7:	50 Percent of the 2 Year
High Flow Threshold for POC7:	50 Year

Landuse Basin Data

Predeveloped Land Use

Basin 1

Bypass:	No
GroundWater:	No

Pervious Land Use	acre
C, Forest, Flat	2.31
C, Lawn, Flat	2.79
Pervious Total	5.1

Impervious Land Use	acre
ROADS FLAT	6.15
Impervious Total	6.15
Basin Total	11.25

Element Flows To:

Surface	Interflow	Groundwater

Basin 2

Bypass:	No
GroundWater:	No

Pervious Land Use	acre
C, Forest, Flat	33.72
C, Lawn, Flat	9.13
Pervious Total	42.85

Impervious Land Use	acre
ROADS FLAT	19.85
Impervious Total	19.85
Basin Total	62.7

Element Flows To:

Surface	Interflow	Groundwater

Basin 3

Bypass:	No
GroundWater:	No

Pervious Land Use	acre
C, Lawn, Mod	7.77
C, Forest, Mod	15.07
Pervious Total	22.84

Impervious Land Use	acre
ROADS MOD	13.79
Impervious Total	13.79
Basin Total	36.63

Element Flows To:

Surface	Interflow	Groundwater

Basin 4

Bypass:	No
GroundWater:	No

Pervious Land Use	acre
C, Forest, Flat	16.34
C, Lawn, Flat	21.06
Pervious Total	37.4

Impervious Land Use	acre
ROADS FLAT	45.71
Impervious Total	45.71
Basin Total	83.11

Element Flows To:

Surface	Interflow	Groundwater

Basin 5

Bypass:	No
GroundWater:	No

Pervious Land Use	acre
C, Lawn, Mod	0.21
C, Forest, Mod	7.05
Pervious Total	7.26

Impervious Land Use	acre
ROADS MOD	2.17
Impervious Total	2.17
Basin Total	9.43

Element Flows To:

Surface	Interflow	Groundwater

Basin 6

Bypass:	No
GroundWater:	No

Pervious Land Use	acre
C, Forest, Mod	19.43
C, Lawn, Mod	0.76
Pervious Total	20.19

Impervious Land Use	acre
ROADS MOD	8.07
Impervious Total	8.07
Basin Total	28.26

Element Flows To:

Surface	Interflow	Groundwater

Basin 7

Bypass:	No
GroundWater:	No

Pervious Land Use	acre
C, Forest, Flat	11.84
Pervious Total	11.84

Impervious Land Use	acre
ROADS FLAT	0.92
Impervious Total	0.92
Basin Total	12.76

Element Flows To:

Surface	Interflow	Groundwater

Mitigated Land Use

Basin 1

Bypass:	No
GroundWater:	No

Pervious Land Use	acre
C, Forest, Flat	2.31
C, Lawn, Flat	2.79
Pervious Total	5.1

Impervious Land Use	acre
ROADS FLAT	6.15
Impervious Total	6.15
Basin Total	11.25

Element Flows To:

Surface	Interflow	Groundwater

Basin 2

Bypass:	No
GroundWater:	No

Pervious Land Use	acre
C, Forest, Flat	33.72
C, Lawn, Flat	9.13
Pervious Total	42.85

Impervious Land Use	acre
ROADS FLAT	19.85
Impervious Total	19.85
Basin Total	62.7

Element Flows To:

Surface	Interflow	Groundwater

Basin 3

Bypass:	No
GroundWater:	No

Pervious Land Use	acre
C, Lawn, Mod	7.77
C, Forest, Mod	15.07
Pervious Total	22.84

Impervious Land Use	acre
ROADS MOD	13.79
Impervious Total	13.79
Basin Total	36.63

Element Flows To:

Surface	Interflow	Groundwater

Basin 4

Bypass:	No
GroundWater:	No

Pervious Land Use	acre
C, Forest, Flat	16.34
C, Lawn, Flat	21.06
Pervious Total	37.4

Impervious Land Use	acre
ROADS FLAT	45.71
Impervious Total	45.71
Basin Total	83.11

Element Flows To:

Surface	Interflow	Groundwater

Basin 5

Bypass:	No
GroundWater:	No

Pervious Land Use	acre
C, Lawn, Mod	0.21
C, Forest, Mod	7.05
Pervious Total	7.26

Impervious Land Use	acre
ROADS MOD	2.17
Impervious Total	2.17
Basin Total	9.43

Element Flows To:

Surface	Interflow	Groundwater

Basin 6

Bypass:	No
GroundWater:	No

Pervious Land Use	acre
C, Forest, Mod	19.43
C, Lawn, Mod	0.76
Pervious Total	20.19

Impervious Land Use	acre
ROADS MOD	8.07
Impervious Total	8.07
Basin Total	28.26

Element Flows To:

Surface	Interflow	Groundwater

Basin 7

Bypass:	No
GroundWater:	No

Pervious Land Use	acre
C, Forest, Flat	11.84
Pervious Total	11.84

Impervious Land Use	acre
ROADS FLAT	0.92
Impervious Total	0.92
Basin Total	12.76

Element Flows To:

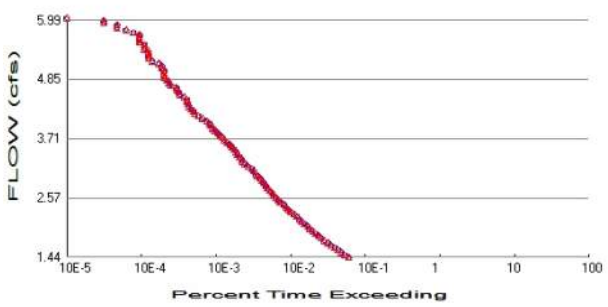
Surface	Interflow	Groundwater

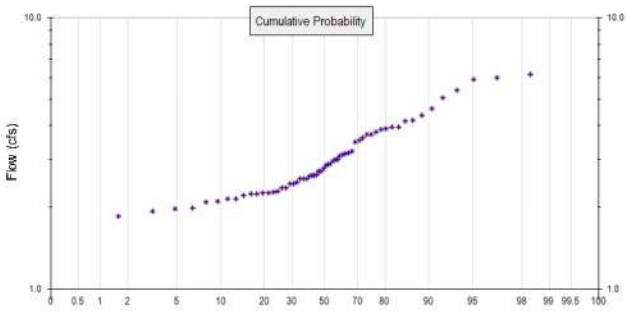
Routing Elements
Predeveloped Routing

Mitigated Routing

Analysis Results

POC 1





\+ Predeveloped x Mitigated

Predeveloped Landuse Totals for POC #1
Total Pervious Area: 5.1
Total Impervious Area: 6.15

Mitigated Landuse Totals for POC #1
Total Pervious Area: 5.1
Total Impervious Area: 6.15

Flow Frequency Method: Log Pearson Type III 17B

Flow Frequency Return Periods for Predeveloped. POC #1

Return Period	**Flow(cfs)**
2 year	2.87498
5 year	3.777528
10 year	4.422752
25 year	5.294192
50 year	5.985426
100 year	6.713764

Flow Frequency Return Periods for Mitigated. POC #1

Return Period	**Flow(cfs)**
2 year	2.87498
5 year	3.777528
10 year	4.422752
25 year	5.294192
50 year	5.985426
100 year	6.713764

Annual Peaks

Annual Peaks for Predeveloped and Mitigated. POC #1

Year	**Predeveloped**	**Mitigated**
1949	3.880	3.880
1950	3.599	3.599
1951	2.357	2.357
1952	1.853	1.853
1953	2.083	2.083
1954	2.275	2.275
1955	2.547	2.547
1956	2.547	2.547
1957	2.864	2.864
1958	2.253	2.253

1959	2.287	2.287
1960	2.595	2.595
1961	2.644	2.644
1962	1.972	1.972
1963	2.477	2.477
1964	2.256	2.256
1965	3.224	3.224
1966	2.147	2.147
1967	3.710	3.710
1968	4.188	4.188
1969	2.891	2.891
1970	2.619	2.619
1971	3.155	3.155
1972	3.474	3.474
1973	1.852	1.852
1974	2.863	2.863
1975	2.965	2.965
1976	2.349	2.349
1977	2.217	2.217
1978	3.095	3.095
1979	3.951	3.951
1980	5.056	5.056
1981	2.765	2.765
1982	4.143	4.143
1983	3.176	3.176
1984	2.096	2.096
1985	2.994	2.994
1986	2.433	2.433
1987	3.778	3.778
1988	2.147	2.147
1989	3.139	3.139
1990	6.169	6.169
1991	4.620	4.620
1992	2.238	2.238
1993	1.989	1.989
1994	1.933	1.933
1995	2.435	2.435
1996	3.706	3.706
1997	2.722	2.722
1998	2.554	2.554
1999	5.928	5.928
2000	2.706	2.706
2001	3.003	3.003
2002	3.950	3.950
2003	3.529	3.529
2004	6.022	6.022
2005	2.623	2.623
2006	2.235	2.235
2007	5.405	5.405
2008	4.355	4.355
2009	3.903	3.903

Ranked Annual Peaks

Ranked Annual Peaks for Predeveloped and Mitigated. POC #1

Rank	Predeveloped	Mitigated
1	6.1686	6.1686
2	6.0225	6.0225
3	5.9276	5.9276

4	5.4050	5.4050
5	5.0555	5.0555
6	4.6202	4.6202
7	4.3546	4.3546
8	4.1876	4.1876
9	4.1426	4.1426
10	3.9513	3.9513
11	3.9503	3.9503
12	3.9027	3.9027
13	3.8803	3.8803
14	3.7781	3.7781
15	3.7101	3.7101
16	3.7056	3.7056
17	3.5988	3.5988
18	3.5292	3.5292
19	3.4740	3.4740
20	3.2242	3.2242
21	3.1764	3.1764
22	3.1549	3.1549
23	3.1389	3.1389
24	3.0946	3.0946
25	3.0030	3.0030
26	2.9938	2.9938
27	2.9649	2.9649
28	2.8907	2.8907
29	2.8635	2.8635
30	2.8631	2.8631
31	2.7650	2.7650
32	2.7216	2.7216
33	2.7058	2.7058
34	2.6440	2.6440
35	2.6225	2.6225
36	2.6192	2.6192
37	2.5951	2.5951
38	2.5539	2.5539
39	2.5470	2.5470
40	2.5467	2.5467
41	2.4767	2.4767
42	2.4345	2.4345
43	2.4331	2.4331
44	2.3569	2.3569
45	2.3492	2.3492
46	2.2870	2.2870
47	2.2752	2.2752
48	2.2557	2.2557
49	2.2535	2.2535
50	2.2379	2.2379
51	2.2345	2.2345
52	2.2169	2.2169
53	2.1471	2.1471
54	2.1469	2.1469
55	2.0963	2.0963
56	2.0828	2.0828
57	1.9889	1.9889
58	1.9718	1.9718
59	1.9327	1.9327
60	1.8529	1.8529
61	1.8522	1.8522

Duration Flows

The Facility PASSED

Flow(cfs)	Predev	Mit	Percentage	Pass/Fail
1.4375	3840	3840	100	Pass
1.4834	3422	3422	100	Pass
1.5294	3065	3065	100	Pass
1.5753	2763	2763	100	Pass
1.6212	2496	2496	100	Pass
1.6672	2225	2225	100	Pass
1.7131	2022	2022	100	Pass
1.7591	1818	1818	100	Pass
1.8050	1633	1633	100	Pass
1.8509	1506	1506	100	Pass
1.8969	1386	1386	100	Pass
1.9428	1269	1269	100	Pass
1.9888	1152	1152	100	Pass
2.0347	1073	1073	100	Pass
2.0806	984	984	100	Pass
2.1266	901	901	100	Pass
2.1725	841	841	100	Pass
2.2184	774	774	100	Pass
2.2644	703	703	100	Pass
2.3103	635	635	100	Pass
2.3563	593	593	100	Pass
2.4022	551	551	100	Pass
2.4481	513	513	100	Pass
2.4941	461	461	100	Pass
2.5400	435	435	100	Pass
2.5860	407	407	100	Pass
2.6319	384	384	100	Pass
2.6778	356	356	100	Pass
2.7238	332	332	100	Pass
2.7697	311	311	100	Pass
2.8157	296	296	100	Pass
2.8616	277	277	100	Pass
2.9075	260	260	100	Pass
2.9535	251	251	100	Pass
2.9994	231	231	100	Pass
3.0453	219	219	100	Pass
3.0913	204	204	100	Pass
3.1372	193	193	100	Pass
3.1832	173	173	100	Pass
3.2291	158	158	100	Pass
3.2750	145	145	100	Pass
3.3210	140	140	100	Pass
3.3669	133	133	100	Pass
3.4129	124	124	100	Pass
3.4588	120	120	100	Pass
3.5047	111	111	100	Pass
3.5507	104	104	100	Pass
3.5966	98	98	100	Pass
3.6425	91	91	100	Pass
3.6885	84	84	100	Pass
3.7344	78	78	100	Pass
3.7804	72	72	100	Pass
3.8263	67	67	100	Pass

3.8722	62	62	100	Pass
3.9182	58	58	100	Pass
3.9641	54	54	100	Pass
4.0101	52	52	100	Pass
4.0560	48	48	100	Pass
4.1019	42	42	100	Pass
4.1479	37	37	100	Pass
4.1938	33	33	100	Pass
4.2398	32	32	100	Pass
4.2857	30	30	100	Pass
4.3316	28	28	100	Pass
4.3776	27	27	100	Pass
4.4235	26	26	100	Pass
4.4694	26	26	100	Pass
4.5154	24	24	100	Pass
4.5613	21	21	100	Pass
4.6073	20	20	100	Pass
4.6532	19	19	100	Pass
4.6991	19	19	100	Pass
4.7451	16	16	100	Pass
4.7910	15	15	100	Pass
4.8370	14	14	100	Pass
4.8829	13	13	100	Pass
4.9288	13	13	100	Pass
4.9748	13	13	100	Pass
5.0207	13	13	100	Pass
5.0667	12	12	100	Pass
5.1126	12	12	100	Pass
5.1585	11	11	100	Pass
5.2045	9	9	100	Pass
5.2504	8	8	100	Pass
5.2963	8	8	100	Pass
5.3423	8	8	100	Pass
5.3882	8	8	100	Pass
5.4342	7	7	100	Pass
5.4801	7	7	100	Pass
5.5260	7	7	100	Pass
5.5720	6	6	100	Pass
5.6179	6	6	100	Pass
5.6639	6	6	100	Pass
5.7098	6	6	100	Pass
5.7557	5	5	100	Pass
5.8017	4	4	100	Pass
5.8476	3	3	100	Pass
5.8935	3	3	100	Pass
5.9395	2	2	100	Pass
5.9854	2	2	100	Pass

Water Quality

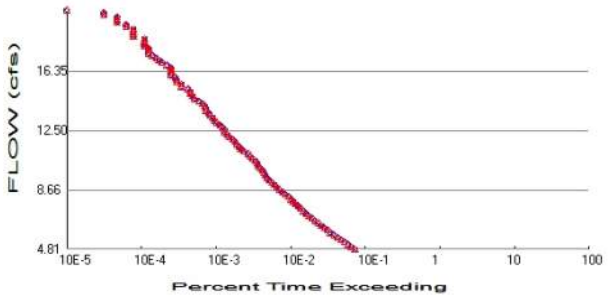
Water Quality BMP Flow and Volume for POC #1

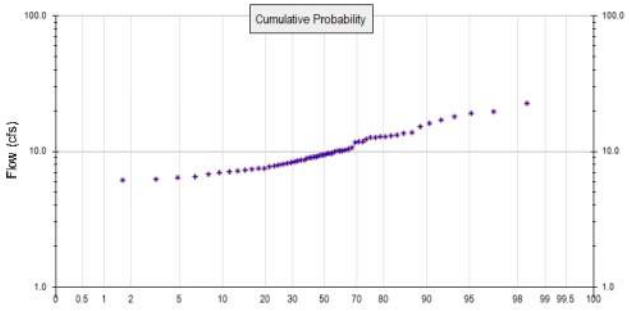
On-line facility volume:	0 acre-feet
On-line facility target flow:	0 cfs.
Adjusted for 15 min:	0 cfs.
Off-line facility target flow:	0 cfs.
Adjusted for 15 min:	0 cfs.

LID Report

LID Technique	Used for Treatment ?	Total Volume Needs Treatment (ac-ft)	Volume Through Facility (ac-ft)	Infiltration Volume (ac-ft)	Cumulative Volume Infiltration Credit	Percent Volume Infiltrated	Water Quality	Percent Water Quality Treated	Comment
Total Volume Infiltrated		0.00	0.00	0.00		0.00	0.00	0%	No Treat. Credit
Compliance with LID Standard 8% of 2-yr to 50% of 2-yr									Duration Analysis Result = Passed

POC 2





\+ Predeveloped x Mitigated

Predeveloped Landuse Totals for POC #2
Total Pervious Area: 42.85
Total Impervious Area: 19.85

Mitigated Landuse Totals for POC #2
Total Pervious Area: 42.85
Total Impervious Area: 19.85

Flow Frequency Method: Log Pearson Type III 17B

Flow Frequency Return Periods for Predeveloped. POC #2

Return Period	**Flow(cfs)**
2 year	9.629546
5 year	12.686389
10 year	14.876219
25 year	17.838709
50 year	20.192023
100 year	22.674542

Flow Frequency Return Periods for Mitigated. POC #2

Return Period	**Flow(cfs)**
2 year	9.629546
5 year	12.686389
10 year	14.876219
25 year	17.838709
50 year	20.192023
100 year	22.674542

Annual Peaks

Annual Peaks for Predeveloped and Mitigated. POC #2

Year	**Predeveloped**	**Mitigated**
1949	13.114	13.114
1950	11.783	11.783
1951	8.565	8.565
1952	6.123	6.123
1953	6.735	6.735
1954	7.740	7.740
1955	8.263	8.263
1956	8.668	8.668
1957	9.871	9.871
1958	7.487	7.487
1959	7.388	7.388

1960	9.525	9.525
1961	8.996	8.996
1962	6.381	6.381
1963	8.389	8.389
1964	7.479	7.479
1965	10.723	10.723
1966	7.307	7.307
1967	12.845	12.845
1968	13.531	13.531
1969	9.427	9.427
1970	8.882	8.882
1971	10.406	10.406
1972	11.599	11.599
1973	6.001	6.001
1974	9.455	9.455
1975	10.030	10.030
1976	8.142	8.142
1977	7.161	7.161
1978	10.112	10.112
1979	12.781	12.781
1980	17.088	17.088
1981	9.114	9.114
1982	13.753	13.753
1983	10.294	10.294
1984	7.074	7.074
1985	9.686	9.686
1986	8.982	8.982
1987	12.212	12.212
1988	6.932	6.932
1989	10.131	10.131
1990	22.615	22.615
1991	16.087	16.087
1992	7.758	7.758
1993	6.452	6.452
1994	6.238	6.238
1995	8.021	8.021
1996	12.658	12.658
1997	9.682	9.682
1998	8.514	8.514
1999	19.167	19.167
2000	9.090	9.090
2001	9.713	9.713
2002	12.963	12.963
2003	11.863	11.863
2004	19.539	19.539
2005	9.211	9.211
2006	7.970	7.970
2007	18.002	18.002
2008	15.289	15.289
2009	12.599	12.599

Ranked Annual Peaks

Ranked Annual Peaks for Predeveloped and Mitigated. POC #2

Rank	Predeveloped	Mitigated
1	22.6146	22.6146
2	19.5390	19.5390
3	19.1673	19.1673
4	18.0017	18.0017

5	17.0880	17.0880
6	16.0871	16.0871
7	15.2887	15.2887
8	13.7525	13.7525
9	13.5306	13.5306
10	13.1135	13.1135
11	12.9629	12.9629
12	12.8448	12.8448
13	12.7809	12.7809
14	12.6577	12.6577
15	12.5988	12.5988
16	12.2117	12.2117
17	11.8633	11.8633
18	11.7833	11.7833
19	11.5993	11.5993
20	10.7231	10.7231
21	10.4059	10.4059
22	10.2944	10.2944
23	10.1314	10.1314
24	10.1119	10.1119
25	10.0295	10.0295
26	9.8710	9.8710
27	9.7131	9.7131
28	9.6863	9.6863
29	9.6823	9.6823
30	9.5245	9.5245
31	9.4548	9.4548
32	9.4267	9.4267
33	9.2111	9.2111
34	9.1136	9.1136
35	9.0901	9.0901
36	8.9959	8.9959
37	8.9816	8.9816
38	8.8819	8.8819
39	8.6685	8.6685
40	8.5647	8.5647
41	8.5144	8.5144
42	8.3889	8.3889
43	8.2630	8.2630
44	8.1418	8.1418
45	8.0208	8.0208
46	7.9696	7.9696
47	7.7580	7.7580
48	7.7398	7.7398
49	7.4866	7.4866
50	7.4790	7.4790
51	7.3876	7.3876
52	7.3075	7.3075
53	7.1613	7.1613
54	7.0743	7.0743
55	6.9318	6.9318
56	6.7350	6.7350
57	6.4521	6.4521
58	6.3813	6.3813
59	6.2380	6.2380
60	6.1231	6.1231
61	6.0011	6.0011

Duration Flows

The Facility PASSED

Flow(cfs)	Predev	Mit	Percentage	Pass/Fail
4.8148	4652	4652	100	Pass
4.9701	4178	4178	100	Pass
5.1254	3767	3767	100	Pass
5.2808	3363	3363	100	Pass
5.4361	3021	3021	100	Pass
5.5914	2706	2706	100	Pass
5.7467	2452	2452	100	Pass
5.9021	2176	2176	100	Pass
6.0574	1981	1981	100	Pass
6.2127	1807	1807	100	Pass
6.3680	1644	1644	100	Pass
6.5234	1517	1517	100	Pass
6.6787	1363	1363	100	Pass
6.8340	1218	1218	100	Pass
6.9893	1120	1120	100	Pass
7.1447	1027	1027	100	Pass
7.3000	952	952	100	Pass
7.4553	865	865	100	Pass
7.6106	808	808	100	Pass
7.7660	749	749	100	Pass
7.9213	692	692	100	Pass
8.0766	648	648	100	Pass
8.2319	599	599	100	Pass
8.3873	540	540	100	Pass
8.5426	500	500	100	Pass
8.6979	455	455	100	Pass
8.8532	417	417	100	Pass
9.0086	386	386	100	Pass
9.1639	358	358	100	Pass
9.3192	329	329	100	Pass
9.4745	308	308	100	Pass
9.6299	290	290	100	Pass
9.7852	281	281	100	Pass
9.9405	267	267	100	Pass
10.0958	250	250	100	Pass
10.2512	237	237	100	Pass
10.4065	227	227	100	Pass
10.5618	216	216	100	Pass
10.7172	195	195	100	Pass
10.8725	186	186	100	Pass
11.0278	172	172	100	Pass
11.1831	149	149	100	Pass
11.3385	137	137	100	Pass
11.4938	130	130	100	Pass
11.6491	122	122	100	Pass
11.8044	114	114	100	Pass
11.9598	106	106	100	Pass
12.1151	96	96	100	Pass
12.2704	91	91	100	Pass
12.4257	84	84	100	Pass
12.5811	83	83	100	Pass
12.7364	78	78	100	Pass
12.8917	72	72	100	Pass

13.0470	66	66	100	Pass
13.2024	61	61	100	Pass
13.3577	58	58	100	Pass
13.5130	53	53	100	Pass
13.6683	51	51	100	Pass
13.8237	47	47	100	Pass
13.9790	46	46	100	Pass
14.1343	45	45	100	Pass
14.2896	42	42	100	Pass
14.4450	38	38	100	Pass
14.6003	33	33	100	Pass
14.7556	31	31	100	Pass
14.9109	29	29	100	Pass
15.0663	29	29	100	Pass
15.2216	27	27	100	Pass
15.3769	22	22	100	Pass
15.5323	22	22	100	Pass
15.6876	19	19	100	Pass
15.8429	19	19	100	Pass
15.9982	18	18	100	Pass
16.1536	16	16	100	Pass
16.3089	16	16	100	Pass
16.4642	16	16	100	Pass
16.6195	16	16	100	Pass
16.7749	14	14	100	Pass
16.9302	12	12	100	Pass
17.0855	11	11	100	Pass
17.2408	10	10	100	Pass
17.3962	9	9	100	Pass
17.5515	8	8	100	Pass
17.7068	8	8	100	Pass
17.8621	8	8	100	Pass
18.0175	7	7	100	Pass
18.1728	7	7	100	Pass
18.3281	7	7	100	Pass
18.4834	7	7	100	Pass
18.6388	5	5	100	Pass
18.7941	5	5	100	Pass
18.9494	5	5	100	Pass
19.1047	5	5	100	Pass
19.2601	4	4	100	Pass
19.4154	4	4	100	Pass
19.5707	3	3	100	Pass
19.7260	3	3	100	Pass
19.8814	3	3	100	Pass
20.0367	2	2	100	Pass
20.1920	2	2	100	Pass

Water Quality

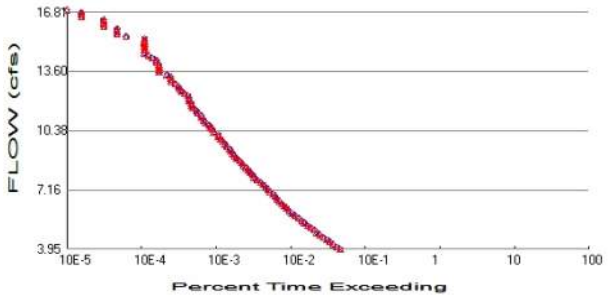
Water Quality BMP Flow and Volume for POC #2

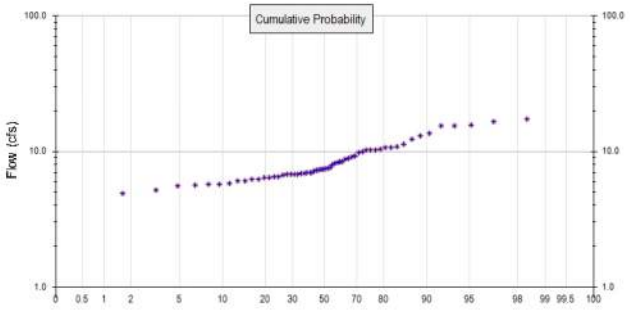
On-line facility volume:	0 acre-feet
On-line facility target flow:	0 cfs.
Adjusted for 15 min:	0 cfs.
Off-line facility target flow:	0 cfs.
Adjusted for 15 min:	0 cfs.

LID Report

LID Technique	Used for Treatment ?	Total Volume Needs Treatment (ac-ft)	Volume Through Facility (ac-ft)	Infiltration Volume (ac-ft)	Cumulative Volume Infiltration Credit	Percent Volume Infiltrated	Water Quality	Percent Water Quality Treated	Comment
Total Volume Infiltrated		0.00	0.00	0.00		0.00	0.00	0%	No Treat. Credit
Compliance with LID Standard 8% of 2-yr to 50% of 2-yr									Duration Analysis Result = Passed

POC 3





\+ Predeveloped x Mitigated

Predeveloped Landuse Totals for POC #3
Total Pervious Area: 22.84
Total Impervious Area: 13.79

Mitigated Landuse Totals for POC #3
Total Pervious Area: 22.84
Total Impervious Area: 13.79

Flow Frequency Method: Log Pearson Type III 17B

Flow Frequency Return Periods for Predeveloped. POC #3

Return Period	**Flow(cfs)**
2 year	7.898562
5 year	10.463833
10 year	12.309421
25 year	14.814819
50 year	16.811105
100 year	18.922077

Flow Frequency Return Periods for Mitigated. POC #3

Return Period	**Flow(cfs)**
2 year	7.898562
5 year	10.463833
10 year	12.309421
25 year	14.814819
50 year	16.811105
100 year	18.922077

Annual Peaks

Annual Peaks for Predeveloped and Mitigated. POC #3

Year	**Predeveloped**	**Mitigated**
1949	10.296	10.296
1950	9.215	9.215
1951	6.203	6.203
1952	5.200	5.200
1953	5.702	5.702
1954	6.726	6.726
1955	6.831	6.831
1956	7.344	7.344
1957	7.174	7.174
1958	5.746	5.746
1959	6.061	6.061

1960	7.553	7.553
1961	6.666	6.666
1962	4.700	4.700
1963	6.462	6.462
1964	6.734	6.734
1965	8.429	8.429
1966	5.615	5.615
1967	10.206	10.206
1968	12.277	12.277
1969	7.527	7.527
1970	6.789	6.789
1971	8.287	8.287
1972	8.819	8.819
1973	4.876	4.876
1974	8.432	8.432
1975	7.474	7.474
1976	6.909	6.909
1977	7.255	7.255
1978	8.727	8.727
1979	10.283	10.283
1980	15.466	15.466
1981	7.262	7.262
1982	10.789	10.789
1983	9.144	9.144
1984	5.590	5.590
1985	7.352	7.352
1986	6.534	6.534
1987	9.849	9.849
1988	6.011	6.011
1989	10.326	10.326
1990	17.314	17.314
1991	13.024	13.024
1992	6.411	6.411
1993	6.991	6.991
1994	5.780	5.780
1995	6.226	6.226
1996	10.632	10.632
1997	6.955	6.955
1998	7.878	7.878
1999	15.602	15.602
2000	6.752	6.752
2001	8.149	8.149
2002	9.945	9.945
2003	11.236	11.236
2004	16.481	16.481
2005	6.934	6.934
2006	6.360	6.360
2007	15.475	15.475
2008	13.485	13.485
2009	10.708	10.708

Ranked Annual Peaks

Ranked Annual Peaks for Predeveloped and Mitigated. POC #3

Rank	Predeveloped	Mitigated
1	17.3138	17.3138
2	16.4807	16.4807
3	15.6017	15.6017
4	15.4753	15.4753

5	15.4656	15.4656
6	13.4847	13.4847
7	13.0238	13.0238
8	12.2771	12.2771
9	11.2357	11.2357
10	10.7887	10.7887
11	10.7078	10.7078
12	10.6317	10.6317
13	10.3260	10.3260
14	10.2957	10.2957
15	10.2834	10.2834
16	10.2059	10.2059
17	9.9447	9.9447
18	9.8488	9.8488
19	9.2153	9.2153
20	9.1440	9.1440
21	8.8186	8.8186
22	8.7266	8.7266
23	8.4321	8.4321
24	8.4287	8.4287
25	8.2872	8.2872
26	8.1494	8.1494
27	7.8783	7.8783
28	7.5532	7.5532
29	7.5267	7.5267
30	7.4741	7.4741
31	7.3520	7.3520
32	7.3440	7.3440
33	7.2615	7.2615
34	7.2545	7.2545
35	7.1740	7.1740
36	6.9906	6.9906
37	6.9550	6.9550
38	6.9343	6.9343
39	6.9094	6.9094
40	6.8314	6.8314
41	6.7894	6.7894
42	6.7524	6.7524
43	6.7340	6.7340
44	6.7259	6.7259
45	6.6657	6.6657
46	6.5337	6.5337
47	6.4615	6.4615
48	6.4110	6.4110
49	6.3595	6.3595
50	6.2257	6.2257
51	6.2030	6.2030
52	6.0613	6.0613
53	6.0107	6.0107
54	5.7799	5.7799
55	5.7457	5.7457
56	5.7019	5.7019
57	5.6152	5.6152
58	5.5895	5.5895
59	5.1997	5.1997
60	4.8762	4.8762
61	4.6999	4.6999

Duration Flows

The Facility PASSED

Flow(cfs)	Predev	Mit	Percentage	Pass/Fail
3.9493	2981	2981	100	Pass
4.0792	2660	2660	100	Pass
4.2091	2373	2373	100	Pass
4.3390	2135	2135	100	Pass
4.4690	1949	1949	100	Pass
4.5989	1753	1753	100	Pass
4.7288	1576	1576	100	Pass
4.8587	1432	1432	100	Pass
4.9886	1316	1316	100	Pass
5.1185	1186	1186	100	Pass
5.2485	1079	1079	100	Pass
5.3784	986	986	100	Pass
5.5083	892	892	100	Pass
5.6382	806	806	100	Pass
5.7681	730	730	100	Pass
5.8980	670	670	100	Pass
6.0280	611	611	100	Pass
6.1579	564	564	100	Pass
6.2878	525	525	100	Pass
6.4177	489	489	100	Pass
6.5476	452	452	100	Pass
6.6775	420	420	100	Pass
6.8075	395	395	100	Pass
6.9374	373	373	100	Pass
7.0673	334	334	100	Pass
7.1972	322	322	100	Pass
7.3271	298	298	100	Pass
7.4571	273	273	100	Pass
7.5870	252	252	100	Pass
7.7169	226	226	100	Pass
7.8468	208	208	100	Pass
7.9767	195	195	100	Pass
8.1066	183	183	100	Pass
8.2366	175	175	100	Pass
8.3665	163	163	100	Pass
8.4964	151	151	100	Pass
8.6263	140	140	100	Pass
8.7562	131	131	100	Pass
8.8861	119	119	100	Pass
9.0161	113	113	100	Pass
9.1460	108	108	100	Pass
9.2759	101	101	100	Pass
9.4058	97	97	100	Pass
9.5357	89	89	100	Pass
9.6656	85	85	100	Pass
9.7956	78	78	100	Pass
9.9255	74	74	100	Pass
10.0554	69	69	100	Pass
10.1853	69	69	100	Pass
10.3152	60	60	100	Pass
10.4452	57	57	100	Pass
10.5751	54	54	100	Pass
10.7050	51	51	100	Pass

10.8349	46	46	100	Pass
10.9648	44	44	100	Pass
11.0947	41	41	100	Pass
11.2247	40	40	100	Pass
11.3546	36	36	100	Pass
11.4845	35	35	100	Pass
11.6144	31	31	100	Pass
11.7443	30	30	100	Pass
11.8742	30	30	100	Pass
12.0042	28	28	100	Pass
12.1341	28	28	100	Pass
12.2640	27	27	100	Pass
12.3939	24	24	100	Pass
12.5238	22	22	100	Pass
12.6537	21	21	100	Pass
12.7837	20	20	100	Pass
12.9136	18	18	100	Pass
13.0435	16	16	100	Pass
13.1734	16	16	100	Pass
13.3033	16	16	100	Pass
13.4333	14	14	100	Pass
13.5632	11	11	100	Pass
13.6931	11	11	100	Pass
13.8230	11	11	100	Pass
13.9529	11	11	100	Pass
14.0828	10	10	100	Pass
14.2128	10	10	100	Pass
14.3427	9	9	100	Pass
14.4726	8	8	100	Pass
14.6025	7	7	100	Pass
14.7324	7	7	100	Pass
14.8623	7	7	100	Pass
14.9923	7	7	100	Pass
15.1222	7	7	100	Pass
15.2521	7	7	100	Pass
15.3820	7	7	100	Pass
15.5119	4	4	100	Pass
15.6418	3	3	100	Pass
15.7718	3	3	100	Pass
15.9017	3	3	100	Pass
16.0316	2	2	100	Pass
16.1615	2	2	100	Pass
16.2914	2	2	100	Pass
16.4214	2	2	100	Pass
16.5513	1	1	100	Pass
16.6812	1	1	100	Pass
16.8111	1	1	100	Pass

Water Quality

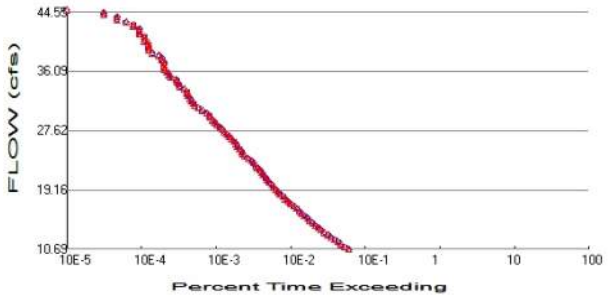
Water Quality BMP Flow and Volume for POC #3

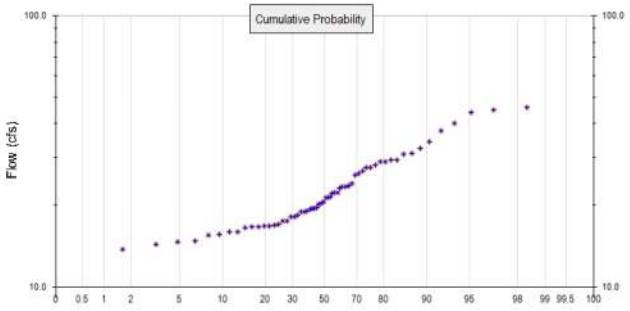
On-line facility volume:	0 acre-feet
On-line facility target flow:	0 cfs.
Adjusted for 15 min:	0 cfs.
Off-line facility target flow:	0 cfs.
Adjusted for 15 min:	0 cfs.

LID Report

LID Technique	Used for Treatment ?	Total Volume Needs Treatment (ac-ft)	Volume Through Facility (ac-ft)	Infiltration Volume (ac-ft)	Cumulative Volume Infiltration Credit	Percent Volume Infiltrated	Water Quality	Percent Water Quality Treated	Comment
Total Volume Infiltrated		0.00	0.00	0.00		0.00	0.00	0%	No Treat. Credit
Compliance with LID Standard 8% of 2-yr to 50% of 2-yr									Duration Analysis Result = Passed

POC 4





\+ Predeveloped x Mitigated

Predeveloped Landuse Totals for POC #4
Total Pervious Area: 37.4
Total Impervious Area: 45.71

Mitigated Landuse Totals for POC #4
Total Pervious Area: 37.4
Total Impervious Area: 45.71

Flow Frequency Method: Log Pearson Type III 17B

Flow Frequency Return Periods for Predeveloped. POC #4

Return Period	**Flow(cfs)**
2 year	21.379579
5 year	28.101565
10 year	32.908417
25 year	39.402025
50 year	44.553837
100 year	49.983061

Flow Frequency Return Periods for Mitigated. POC #4

Return Period	**Flow(cfs)**
2 year	21.379579
5 year	28.101565
10 year	32.908417
25 year	39.402025
50 year	44.553837
100 year	49.983061

Annual Peaks

Annual Peaks for Predeveloped and Mitigated. POC #4

Year	**Predeveloped**	**Mitigated**
1949	28.872	28.872
1950	26.752	26.752
1951	17.516	17.516
1952	13.774	13.774
1953	15.484	15.484
1954	16.917	16.917
1955	18.941	18.941
1956	18.942	18.942
1957	21.294	21.294
1958	16.752	16.752
1959	16.998	16.998

1960	19.283	19.283
1961	19.661	19.661
1962	14.660	14.660
1963	18.423	18.423
1964	16.768	16.768
1965	23.988	23.988
1966	15.958	15.958
1967	27.622	27.622
1968	31.149	31.149
1969	21.512	21.512
1970	19.472	19.472
1971	23.463	23.463
1972	25.858	25.858
1973	13.766	13.766
1974	21.299	21.299
1975	22.037	22.037
1976	17.463	17.463
1977	16.478	16.478
1978	23.021	23.021
1979	29.371	29.371
1980	37.648	37.648
1981	20.563	20.563
1982	30.826	30.826
1983	23.616	23.616
1984	15.585	15.585
1985	22.270	22.270
1986	18.074	18.074
1987	28.088	28.088
1988	15.959	15.959
1989	23.330	23.330
1990	45.892	45.892
1991	34.388	34.388
1992	16.638	16.638
1993	14.782	14.782
1994	14.365	14.365
1995	18.102	18.102
1996	27.579	27.579
1997	20.232	20.232
1998	18.988	18.988
1999	44.120	44.120
2000	20.122	20.122
2001	22.323	22.323
2002	29.407	29.407
2003	26.268	26.268
2004	44.837	44.837
2005	19.500	19.500
2006	16.613	16.613
2007	40.229	40.229
2008	32.406	32.406
2009	29.007	29.007

Ranked Annual Peaks

Ranked Annual Peaks for Predeveloped and Mitigated. POC #4

Rank	Predeveloped	Mitigated
1	45.8917	45.8917
2	44.8368	44.8368
3	44.1200	44.1200
4	40.2292	40.2292

5	37.6482	37.6482
6	34.3879	34.3879
7	32.4055	32.4055
8	31.1488	31.1488
9	30.8262	30.8262
10	29.4068	29.4068
11	29.3712	29.3712
12	29.0073	29.0073
13	28.8722	28.8722
14	28.0882	28.0882
15	27.6220	27.6220
16	27.5789	27.5789
17	26.7520	26.7520
18	26.2677	26.2677
19	25.8584	25.8584
20	23.9883	23.9883
21	23.6158	23.6158
22	23.4627	23.4627
23	23.3302	23.3302
24	23.0208	23.0208
25	22.3233	22.3233
26	22.2700	22.2700
27	22.0369	22.0369
28	21.5119	21.5119
29	21.2988	21.2988
30	21.2944	21.2944
31	20.5630	20.5630
32	20.2315	20.2315
33	20.1218	20.1218
34	19.6612	19.6612
35	19.4996	19.4996
36	19.4720	19.4720
37	19.2825	19.2825
38	18.9878	18.9878
39	18.9415	18.9415
40	18.9405	18.9405
41	18.4230	18.4230
42	18.1019	18.1019
43	18.0743	18.0743
44	17.5159	17.5159
45	17.4629	17.4629
46	16.9980	16.9980
47	16.9165	16.9165
48	16.7676	16.7676
49	16.7516	16.7516
50	16.6377	16.6377
51	16.6133	16.6133
52	16.4776	16.4776
53	15.9586	15.9586
54	15.9581	15.9581
55	15.5847	15.5847
56	15.4838	15.4838
57	14.7822	14.7822
58	14.6602	14.6602
59	14.3646	14.3646
60	13.7742	13.7742
61	13.7658	13.7658

Duration Flows

The Facility PASSED

Flow(cfs)	Predev	Mit	Percentage	Pass/Fail
10.6898	3834	3834	100	Pass
11.0319	3413	3413	100	Pass
11.3739	3052	3052	100	Pass
11.7160	2758	2758	100	Pass
12.0580	2489	2489	100	Pass
12.4001	2216	2216	100	Pass
12.7422	2018	2018	100	Pass
13.0842	1812	1812	100	Pass
13.4263	1631	1631	100	Pass
13.7683	1501	1501	100	Pass
14.1104	1378	1378	100	Pass
14.4525	1265	1265	100	Pass
14.7945	1146	1146	100	Pass
15.1366	1073	1073	100	Pass
15.4786	980	980	100	Pass
15.8207	899	899	100	Pass
16.1628	839	839	100	Pass
16.5048	769	769	100	Pass
16.8469	702	702	100	Pass
17.1890	634	634	100	Pass
17.5310	589	589	100	Pass
17.8731	549	549	100	Pass
18.2151	512	512	100	Pass
18.5572	461	461	100	Pass
18.8993	434	434	100	Pass
19.2413	406	406	100	Pass
19.5834	381	381	100	Pass
19.9254	356	356	100	Pass
20.2675	330	330	100	Pass
20.6096	311	311	100	Pass
20.9516	295	295	100	Pass
21.2937	275	275	100	Pass
21.6357	260	260	100	Pass
21.9778	250	250	100	Pass
22.3199	231	231	100	Pass
22.6619	219	219	100	Pass
23.0040	204	204	100	Pass
23.3460	192	192	100	Pass
23.6881	172	172	100	Pass
24.0302	156	156	100	Pass
24.3722	145	145	100	Pass
24.7143	140	140	100	Pass
25.0564	132	132	100	Pass
25.3984	124	124	100	Pass
25.7405	119	119	100	Pass
26.0825	111	111	100	Pass
26.4246	103	103	100	Pass
26.7667	97	97	100	Pass
27.1087	91	91	100	Pass
27.4508	84	84	100	Pass
27.7928	78	78	100	Pass
28.1349	72	72	100	Pass
28.4770	66	66	100	Pass

28.8190	62	62	100	Pass
29.1611	58	58	100	Pass
29.5031	53	53	100	Pass
29.8452	52	52	100	Pass
30.1873	48	48	100	Pass
30.5293	42	42	100	Pass
30.8714	37	37	100	Pass
31.2135	33	33	100	Pass
31.5555	32	32	100	Pass
31.8976	30	30	100	Pass
32.2396	29	29	100	Pass
32.5817	27	27	100	Pass
32.9238	26	26	100	Pass
33.2658	26	26	100	Pass
33.6079	24	24	100	Pass
33.9499	21	21	100	Pass
34.2920	20	20	100	Pass
34.6341	19	19	100	Pass
34.9761	19	19	100	Pass
35.3182	16	16	100	Pass
35.6602	15	15	100	Pass
36.0023	14	14	100	Pass
36.3444	13	13	100	Pass
36.6864	13	13	100	Pass
37.0285	13	13	100	Pass
37.3706	13	13	100	Pass
37.7126	12	12	100	Pass
38.0547	12	12	100	Pass
38.3967	11	11	100	Pass
38.7388	9	9	100	Pass
39.0809	8	8	100	Pass
39.4229	8	8	100	Pass
39.7650	8	8	100	Pass
40.1070	8	8	100	Pass
40.4491	7	7	100	Pass
40.7912	7	7	100	Pass
41.1332	7	7	100	Pass
41.4753	6	6	100	Pass
41.8173	6	6	100	Pass
42.1594	6	6	100	Pass
42.5015	5	5	100	Pass
42.8435	5	5	100	Pass
43.1856	4	4	100	Pass
43.5277	3	3	100	Pass
43.8697	3	3	100	Pass
44.2118	2	2	100	Pass
44.5538	2	2	100	Pass

Water Quality

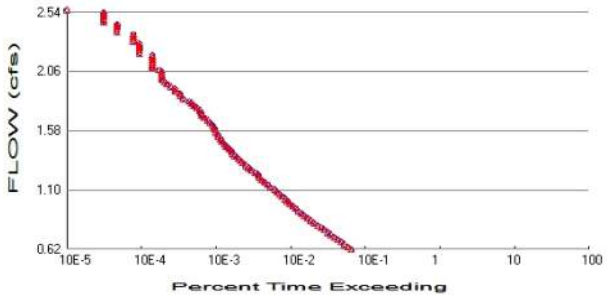
Water Quality BMP Flow and Volume for POC #4

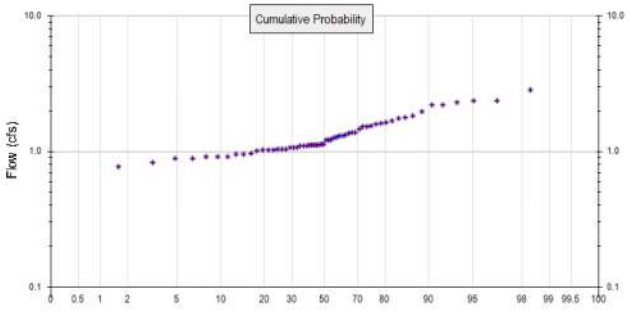
On-line facility volume:	0 acre-feet
On-line facility target flow:	0 cfs.
Adjusted for 15 min:	0 cfs.
Off-line facility target flow:	0 cfs.
Adjusted for 15 min:	0 cfs.

LID Report

LID Technique	Used for Treatment ?	Total Volume Needs Treatment (ac-ft)	Volume Through Facility (ac-ft)	Infiltration Volume (ac-ft)	Cumulative Volume Infiltration Credit	Percent Volume Infiltrated	Water Quality	Percent Water Quality Treated	Comment
Total Volume Infiltrated		0.00	0.00	0.00		0.00	0.00	0%	No Treat. Credit
Compliance with LID Standard 8% of 2-yr to 50% of 2-yr									Duration Analysis Result = Passed

POC 5





\+ Predeveloped x Mitigated

Predeveloped Landuse Totals for POC #5
Total Pervious Area: 7.26
Total Impervious Area: 2.17

Mitigated Landuse Totals for POC #5
Total Pervious Area: 7.26
Total Impervious Area: 2.17

Flow Frequency Method: Log Pearson Type III 17B

Flow Frequency Return Periods for Predeveloped. POC #5

Return Period	**Flow(cfs)**
2 year	1.232033
5 year	1.611973
10 year	1.882701
25 year	2.247388
50 year	2.53599
100 year	2.839526

Flow Frequency Return Periods for Mitigated. POC #5

Return Period	**Flow(cfs)**
2 year	1.232033
5 year	1.611973
10 year	1.882701
25 year	2.247388
50 year	2.53599
100 year	2.839526

Annual Peaks

Annual Peaks for Predeveloped and Mitigated. POC #5

Year	**Predeveloped**	**Mitigated**
1949	1.524	1.524
1950	1.362	1.362
1951	1.042	1.042
1952	0.820	0.820
1953	0.888	0.888
1954	1.029	1.029
1955	1.029	1.029
1956	1.137	1.137
1957	1.120	1.120
1958	0.907	0.907
1959	0.954	0.954

1960	1.285	1.285
1961	1.064	1.064
1962	0.725	0.725
1963	1.007	1.007
1964	1.092	1.092
1965	1.295	1.295
1966	0.910	0.910
1967	1.546	1.546
1968	1.828	1.828
1969	1.116	1.116
1970	1.074	1.074
1971	1.255	1.255
1972	1.321	1.321
1973	0.771	0.771
1974	1.299	1.299
1975	1.209	1.209
1976	1.111	1.111
1977	1.072	1.072
1978	1.371	1.371
1979	1.609	1.609
1980	2.375	2.375
1981	1.102	1.102
1982	1.593	1.593
1983	1.370	1.370
1984	0.892	0.892
1985	1.107	1.107
1986	1.136	1.136
1987	1.521	1.521
1988	0.957	0.957
1989	1.625	1.625
1990	2.820	2.820
1991	1.954	1.954
1992	1.036	1.036
1993	1.100	1.100
1994	0.908	0.908
1995	0.960	0.960
1996	1.769	1.769
1997	1.219	1.219
1998	1.208	1.208
1999	2.191	2.191
2000	1.037	1.037
2001	1.271	1.271
2002	1.462	1.462
2003	1.751	1.751
2004	2.371	2.371
2005	1.109	1.109
2006	1.028	1.028
2007	2.202	2.202
2008	2.301	2.301
2009	1.684	1.684

Ranked Annual Peaks

Ranked Annual Peaks for Predeveloped and Mitigated. POC #5

Rank	Predeveloped	Mitigated
1	2.8200	2.8200
2	2.3746	2.3746
3	2.3709	2.3709
4	2.3006	2.3006

5	2.2023	2.2023
6	2.1909	2.1909
7	1.9537	1.9537
8	1.8281	1.8281
9	1.7694	1.7694
10	1.7511	1.7511
11	1.6845	1.6845
12	1.6249	1.6249
13	1.6090	1.6090
14	1.5926	1.5926
15	1.5458	1.5458
16	1.5242	1.5242
17	1.5212	1.5212
18	1.4623	1.4623
19	1.3707	1.3707
20	1.3696	1.3696
21	1.3617	1.3617
22	1.3214	1.3214
23	1.2988	1.2988
24	1.2950	1.2950
25	1.2854	1.2854
26	1.2710	1.2710
27	1.2549	1.2549
28	1.2194	1.2194
29	1.2088	1.2088
30	1.2076	1.2076
31	1.1370	1.1370
32	1.1360	1.1360
33	1.1198	1.1198
34	1.1164	1.1164
35	1.1114	1.1114
36	1.1089	1.1089
37	1.1075	1.1075
38	1.1020	1.1020
39	1.1004	1.1004
40	1.0922	1.0922
41	1.0741	1.0741
42	1.0717	1.0717
43	1.0642	1.0642
44	1.0416	1.0416
45	1.0366	1.0366
46	1.0356	1.0356
47	1.0293	1.0293
48	1.0285	1.0285
49	1.0283	1.0283
50	1.0074	1.0074
51	0.9600	0.9600
52	0.9568	0.9568
53	0.9542	0.9542
54	0.9101	0.9101
55	0.9082	0.9082
56	0.9072	0.9072
57	0.8920	0.8920
58	0.8877	0.8877
59	0.8200	0.8200
60	0.7710	0.7710
61	0.7245	0.7245

Duration Flows

The Facility PASSED

Flow(cfs)	Predev	Mit	Percentage	Pass/Fail
0.6160	4147	4147	100	Pass
0.6354	3726	3726	100	Pass
0.6548	3366	3366	100	Pass
0.6742	3038	3038	100	Pass
0.6936	2739	2739	100	Pass
0.7130	2464	2464	100	Pass
0.7324	2228	2228	100	Pass
0.7518	2021	2021	100	Pass
0.7712	1801	1801	100	Pass
0.7906	1641	1641	100	Pass
0.8100	1472	1472	100	Pass
0.8293	1316	1316	100	Pass
0.8487	1191	1191	100	Pass
0.8681	1071	1071	100	Pass
0.8875	967	967	100	Pass
0.9069	894	894	100	Pass
0.9263	808	808	100	Pass
0.9457	746	746	100	Pass
0.9651	683	683	100	Pass
0.9845	623	623	100	Pass
1.0039	587	587	100	Pass
1.0233	544	544	100	Pass
1.0427	492	492	100	Pass
1.0621	452	452	100	Pass
1.0815	419	419	100	Pass
1.1009	390	390	100	Pass
1.1203	339	339	100	Pass
1.1396	316	316	100	Pass
1.1590	286	286	100	Pass
1.1784	260	260	100	Pass
1.1978	244	244	100	Pass
1.2172	232	232	100	Pass
1.2366	214	214	100	Pass
1.2560	189	189	100	Pass
1.2754	174	174	100	Pass
1.2948	161	161	100	Pass
1.3142	145	145	100	Pass
1.3336	135	135	100	Pass
1.3530	126	126	100	Pass
1.3724	115	115	100	Pass
1.3918	107	107	100	Pass
1.4112	102	102	100	Pass
1.4306	95	95	100	Pass
1.4499	88	88	100	Pass
1.4693	83	83	100	Pass
1.4887	76	76	100	Pass
1.5081	74	74	100	Pass
1.5275	68	68	100	Pass
1.5469	67	67	100	Pass
1.5663	64	64	100	Pass
1.5857	62	62	100	Pass
1.6051	59	59	100	Pass
1.6245	57	57	100	Pass

1.6439	53	53	100	Pass
1.6633	50	50	100	Pass
1.6827	44	44	100	Pass
1.7021	41	41	100	Pass
1.7215	40	40	100	Pass
1.7408	39	39	100	Pass
1.7602	35	35	100	Pass
1.7796	32	32	100	Pass
1.7990	30	30	100	Pass
1.8184	28	28	100	Pass
1.8378	23	23	100	Pass
1.8572	21	21	100	Pass
1.8766	21	21	100	Pass
1.8960	18	18	100	Pass
1.9154	18	18	100	Pass
1.9348	16	16	100	Pass
1.9542	14	14	100	Pass
1.9736	13	13	100	Pass
1.9930	12	12	100	Pass
2.0124	12	12	100	Pass
2.0318	12	12	100	Pass
2.0511	12	12	100	Pass
2.0705	11	11	100	Pass
2.0899	9	9	100	Pass
2.1093	9	9	100	Pass
2.1287	9	9	100	Pass
2.1481	9	9	100	Pass
2.1675	9	9	100	Pass
2.1869	9	9	100	Pass
2.2063	6	6	100	Pass
2.2257	6	6	100	Pass
2.2451	6	6	100	Pass
2.2645	6	6	100	Pass
2.2839	6	6	100	Pass
2.3033	5	5	100	Pass
2.3227	5	5	100	Pass
2.3421	5	5	100	Pass
2.3614	5	5	100	Pass
2.3808	3	3	100	Pass
2.4002	3	3	100	Pass
2.4196	3	3	100	Pass
2.4390	3	3	100	Pass
2.4584	2	2	100	Pass
2.4778	2	2	100	Pass
2.4972	2	2	100	Pass
2.5166	2	2	100	Pass
2.5360	2	2	100	Pass

Water Quality

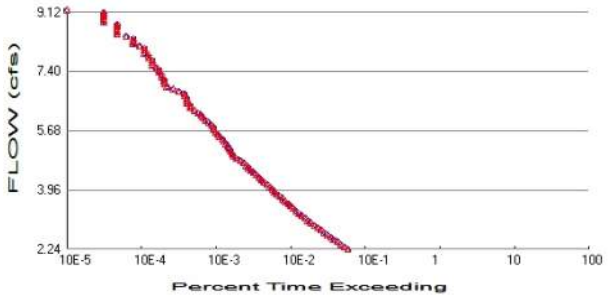
Water Quality BMP Flow and Volume for POC #5

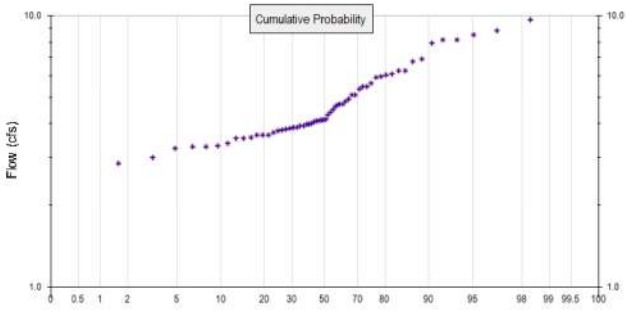
On-line facility volume:	0 acre-feet
On-line facility target flow:	0 cfs.
Adjusted for 15 min:	0 cfs.
Off-line facility target flow:	0 cfs.
Adjusted for 15 min:	0 cfs.

LID Report

LID Technique	Used for Treatment ?	Total Volume Needs Treatment (ac-ft)	Volume Through Facility (ac-ft)	Infiltration Volume (ac-ft)	Cumulative Volume Infiltration Credit	Percent Volume Infiltrated	Water Quality	Percent Water Quality Treated	Comment
Total Volume Infiltrated		0.00	0.00	0.00		0.00	0.00	0%	No Treat. Credit
Compliance with LID Standard 8% of 2-yr to 50% of 2-yr									Duration Analysis Result = Passed

POC 6





\+ Predeveloped x Mitigated

Predeveloped Landuse Totals for POC #6
Total Pervious Area: 20.19
Total Impervious Area: 8.07

Mitigated Landuse Totals for POC #6
Total Pervious Area: 20.19
Total Impervious Area: 8.07

Flow Frequency Method: Log Pearson Type III 17B

Flow Frequency Return Periods for Predeveloped. POC #6

Return Period	**Flow(cfs)**
2 year	4.474799
5 year	5.834355
10 year	6.800501
25 year	8.099143
50 year	9.124878
100 year	10.202056

Flow Frequency Return Periods for Mitigated. POC #6

Return Period	**Flow(cfs)**
2 year	4.474799
5 year	5.834355
10 year	6.800501
25 year	8.099143
50 year	9.124878
100 year	10.202056

Annual Peaks

Annual Peaks for Predeveloped and Mitigated. POC #6

Year	**Predeveloped**	**Mitigated**
1949	5.500	5.500
1950	4.936	4.936
1951	3.625	3.625
1952	3.006	3.006
1953	3.298	3.298
1954	3.790	3.790
1955	3.814	3.814
1956	4.058	4.058
1957	4.000	4.000
1958	3.318	3.318
1959	3.547	3.547

1960	4.482	4.482
1961	3.839	3.839
1962	2.690	2.690
1963	3.642	3.642
1964	3.880	3.880
1965	4.723	4.723
1966	3.286	3.286
1967	5.498	5.498
1968	6.795	6.795
1969	4.128	4.128
1970	3.881	3.881
1971	4.607	4.607
1972	4.813	4.813
1973	2.861	2.861
1974	4.705	4.705
1975	4.296	4.296
1976	3.985	3.985
1977	3.971	3.971
1978	5.090	5.090
1979	5.977	5.977
1980	8.487	8.487
1981	4.096	4.096
1982	5.917	5.917
1983	5.091	5.091
1984	3.236	3.236
1985	4.114	4.114
1986	3.931	3.931
1987	5.653	5.653
1988	3.542	3.542
1989	6.043	6.043
1990	9.652	9.652
1991	6.942	6.942
1992	3.707	3.707
1993	4.085	4.085
1994	3.377	3.377
1995	3.532	3.532
1996	6.108	6.108
1997	4.164	4.164
1998	4.405	4.405
1999	8.139	8.139
2000	3.761	3.761
2001	4.721	4.721
2002	5.384	5.384
2003	6.281	6.281
2004	8.793	8.793
2005	3.930	3.930
2006	3.627	3.627
2007	8.168	8.168
2008	7.901	7.901
2009	6.261	6.261

Ranked Annual Peaks

Ranked Annual Peaks for Predeveloped and Mitigated. POC #6

Rank	Predeveloped	Mitigated
1	9.6516	9.6516
2	8.7927	8.7927
3	8.4871	8.4871
4	8.1682	8.1682

5	8.1393	8.1393
6	7.9011	7.9011
7	6.9421	6.9421
8	6.7949	6.7949
9	6.2810	6.2810
10	6.2609	6.2609
11	6.1080	6.1080
12	6.0426	6.0426
13	5.9766	5.9766
14	5.9169	5.9169
15	5.6528	5.6528
16	5.5000	5.5000
17	5.4979	5.4979
18	5.3841	5.3841
19	5.0907	5.0907
20	5.0902	5.0902
21	4.9359	4.9359
22	4.8129	4.8129
23	4.7228	4.7228
24	4.7214	4.7214
25	4.7052	4.7052
26	4.6073	4.6073
27	4.4820	4.4820
28	4.4049	4.4049
29	4.2960	4.2960
30	4.1636	4.1636
31	4.1277	4.1277
32	4.1139	4.1139
33	4.0962	4.0962
34	4.0850	4.0850
35	4.0575	4.0575
36	4.0003	4.0003
37	3.9852	3.9852
38	3.9707	3.9707
39	3.9314	3.9314
40	3.9303	3.9303
41	3.8809	3.8809
42	3.8804	3.8804
43	3.8392	3.8392
44	3.8144	3.8144
45	3.7897	3.7897
46	3.7614	3.7614
47	3.7066	3.7066
48	3.6423	3.6423
49	3.6270	3.6270
50	3.6245	3.6245
51	3.5469	3.5469
52	3.5418	3.5418
53	3.5321	3.5321
54	3.3768	3.3768
55	3.3177	3.3177
56	3.2981	3.2981
57	3.2860	3.2860
58	3.2358	3.2358
59	3.0063	3.0063
60	2.8613	2.8613
61	2.6902	2.6902

Duration Flows

The Facility PASSED

Flow(cfs)	Predev	Mit	Percentage	Pass/Fail
2.2374	3714	3714	100	Pass
2.3070	3316	3316	100	Pass
2.3765	2994	2994	100	Pass
2.4461	2691	2691	100	Pass
2.5157	2423	2423	100	Pass
2.5853	2214	2214	100	Pass
2.6548	1979	1979	100	Pass
2.7244	1784	1784	100	Pass
2.7940	1617	1617	100	Pass
2.8635	1462	1462	100	Pass
2.9331	1326	1326	100	Pass
3.0027	1195	1195	100	Pass
3.0722	1087	1087	100	Pass
3.1418	989	989	100	Pass
3.2114	900	900	100	Pass
3.2810	822	822	100	Pass
3.3505	752	752	100	Pass
3.4201	687	687	100	Pass
3.4897	632	632	100	Pass
3.5592	589	589	100	Pass
3.6288	542	542	100	Pass
3.6984	505	505	100	Pass
3.7680	458	458	100	Pass
3.8375	414	414	100	Pass
3.9071	385	385	100	Pass
3.9767	363	363	100	Pass
4.0462	336	336	100	Pass
4.1158	307	307	100	Pass
4.1854	278	278	100	Pass
4.2549	257	257	100	Pass
4.3245	240	240	100	Pass
4.3941	221	221	100	Pass
4.4637	203	203	100	Pass
4.5332	188	188	100	Pass
4.6028	175	175	100	Pass
4.6724	163	163	100	Pass
4.7419	148	148	100	Pass
4.8115	136	136	100	Pass
4.8811	119	119	100	Pass
4.9506	110	110	100	Pass
5.0202	105	105	100	Pass
5.0898	101	101	100	Pass
5.1594	95	95	100	Pass
5.2289	92	92	100	Pass
5.2985	88	88	100	Pass
5.3681	81	81	100	Pass
5.4376	78	78	100	Pass
5.5072	70	70	100	Pass
5.5768	67	67	100	Pass
5.6464	63	63	100	Pass
5.7159	59	59	100	Pass
5.7855	59	59	100	Pass
5.8551	55	55	100	Pass

5.9246	51	51	100	Pass
5.9942	46	46	100	Pass
6.0638	42	42	100	Pass
6.1333	40	40	100	Pass
6.2029	37	37	100	Pass
6.2725	33	33	100	Pass
6.3421	29	29	100	Pass
6.4116	29	29	100	Pass
6.4812	26	26	100	Pass
6.5508	26	26	100	Pass
6.6203	26	26	100	Pass
6.6899	24	24	100	Pass
6.7595	24	24	100	Pass
6.8291	20	20	100	Pass
6.8986	17	17	100	Pass
6.9682	14	14	100	Pass
7.0378	13	13	100	Pass
7.1073	13	13	100	Pass
7.1769	13	13	100	Pass
7.2465	12	12	100	Pass
7.3160	12	12	100	Pass
7.3856	11	11	100	Pass
7.4552	11	11	100	Pass
7.5248	10	10	100	Pass
7.5943	9	9	100	Pass
7.6639	9	9	100	Pass
7.7335	9	9	100	Pass
7.8030	8	8	100	Pass
7.8726	8	8	100	Pass
7.9422	7	7	100	Pass
8.0118	7	7	100	Pass
8.0813	7	7	100	Pass
8.1509	6	6	100	Pass
8.2205	5	5	100	Pass
8.2900	5	5	100	Pass
8.3596	5	5	100	Pass
8.4292	4	4	100	Pass
8.4987	3	3	100	Pass
8.5683	3	3	100	Pass
8.6379	3	3	100	Pass
8.7075	3	3	100	Pass
8.7770	3	3	100	Pass
8.8466	2	2	100	Pass
8.9162	2	2	100	Pass
8.9857	2	2	100	Pass
9.0553	2	2	100	Pass
9.1249	2	2	100	Pass

Water Quality

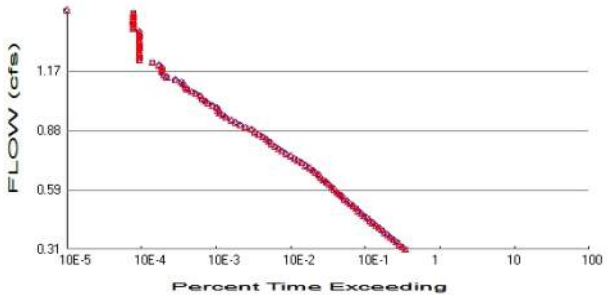
Water Quality BMP Flow and Volume for POC #6

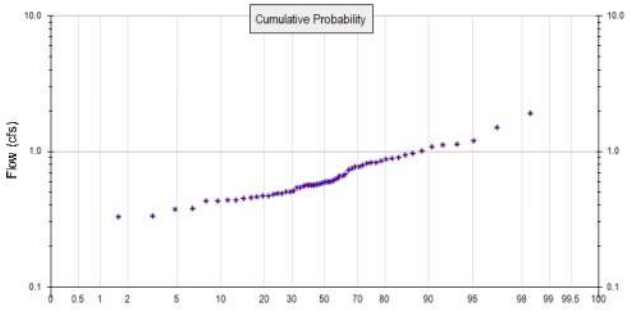
On-line facility volume:	0 acre-feet
On-line facility target flow:	0 cfs.
Adjusted for 15 min:	0 cfs.
Off-line facility target flow:	0 cfs.
Adjusted for 15 min:	0 cfs.

LID Report

LID Technique	Used for Treatment ?	Total Volume Needs Treatment (ac-ft)	Volume Through Facility (ac-ft)	Infiltration Volume (ac-ft)	Cumulative Volume Infiltration Credit	Percent Volume Infiltrated	Water Quality	Percent Water Quality Treated	Comment
Total Volume Infiltrated		0.00	0.00	0.00		0.00	0.00	0%	No Treat. Credit
Compliance with LID Standard 8% of 2-yr to 50% of 2-yr									Duration Analysis Result = Passed

POC 7





\+ Predeveloped x Mitigated

Predeveloped Landuse Totals for POC #7
Total Pervious Area: 11.84
Total Impervious Area: 0.92

Mitigated Landuse Totals for POC #7
Total Pervious Area: 11.84
Total Impervious Area: 0.92

Flow Frequency Method: Log Pearson Type III 17B

Flow Frequency Return Periods for Predeveloped. POC #7

Return Period	**Flow(cfs)**
2 year	0.612129
5 year	0.849414
10 year	1.022697
25 year	1.260616
50 year	1.452014
100 year	1.655873

Flow Frequency Return Periods for Mitigated. POC #7

Return Period	**Flow(cfs)**
2 year	0.612129
5 year	0.849414
10 year	1.022697
25 year	1.260616
50 year	1.452014
100 year	1.655873

Annual Peaks

Annual Peaks for Predeveloped and Mitigated. POC #7

Year	**Predeveloped**	**Mitigated**
1949	0.766	0.766
1950	0.767	0.767
1951	0.962	0.962
1952	0.462	0.462
1953	0.376	0.376
1954	0.487	0.487
1955	0.661	0.661
1956	0.622	0.622
1957	0.658	0.658
1958	0.502	0.502
1959	0.452	0.452

1960	0.847	0.847
1961	0.563	0.563
1962	0.328	0.328
1963	0.508	0.508
1964	0.562	0.562
1965	0.572	0.572
1966	0.467	0.467
1967	0.829	0.829
1968	0.597	0.597
1969	0.588	0.588
1970	0.553	0.553
1971	0.579	0.579
1972	0.792	0.792
1973	0.439	0.439
1974	0.564	0.564
1975	0.730	0.730
1976	0.567	0.567
1977	0.334	0.334
1978	0.502	0.502
1979	0.598	0.598
1980	1.003	1.003
1981	0.492	0.492
1982	0.900	0.900
1983	0.593	0.593
1984	0.429	0.429
1985	0.430	0.430
1986	0.820	0.820
1987	0.812	0.812
1988	0.379	0.379
1989	0.469	0.469
1990	1.920	1.920
1991	1.082	1.082
1992	0.538	0.538
1993	0.436	0.436
1994	0.289	0.289
1995	0.571	0.571
1996	1.132	1.132
1997	0.941	0.941
1998	0.485	0.485
1999	1.121	1.121
2000	0.539	0.539
2001	0.453	0.453
2002	0.608	0.608
2003	0.745	0.745
2004	0.868	0.868
2005	0.674	0.674
2006	0.628	0.628
2007	1.191	1.191
2008	1.491	1.491
2009	0.883	0.883

Ranked Annual Peaks

Ranked Annual Peaks for Predeveloped and Mitigated. POC #7

Rank	Predeveloped	Mitigated
1	1.9203	1.9203
2	1.4909	1.4909
3	1.1906	1.1906
4	1.1318	1.1318

5	1.1210	1.1210
6	1.0821	1.0821
7	1.0034	1.0034
8	0.9618	0.9618
9	0.9406	0.9406
10	0.8998	0.8998
11	0.8826	0.8826
12	0.8680	0.8680
13	0.8467	0.8467
14	0.8292	0.8292
15	0.8202	0.8202
16	0.8120	0.8120
17	0.7924	0.7924
18	0.7673	0.7673
19	0.7656	0.7656
20	0.7450	0.7450
21	0.7296	0.7296
22	0.6741	0.6741
23	0.6606	0.6606
24	0.6585	0.6585
25	0.6282	0.6282
26	0.6222	0.6222
27	0.6081	0.6081
28	0.5979	0.5979
29	0.5974	0.5974
30	0.5931	0.5931
31	0.5879	0.5879
32	0.5785	0.5785
33	0.5716	0.5716
34	0.5708	0.5708
35	0.5671	0.5671
36	0.5640	0.5640
37	0.5630	0.5630
38	0.5617	0.5617
39	0.5527	0.5527
40	0.5388	0.5388
41	0.5380	0.5380
42	0.5076	0.5076
43	0.5016	0.5016
44	0.5016	0.5016
45	0.4917	0.4917
46	0.4867	0.4867
47	0.4845	0.4845
48	0.4695	0.4695
49	0.4672	0.4672
50	0.4615	0.4615
51	0.4527	0.4527
52	0.4516	0.4516
53	0.4388	0.4388
54	0.4361	0.4361
55	0.4303	0.4303
56	0.4288	0.4288
57	0.3787	0.3787
58	0.3757	0.3757
59	0.3335	0.3335
60	0.3284	0.3284
61	0.2890	0.2890

Duration Flows

The Facility PASSED

Flow(cfs)	Predev	Mit	Percentage	Pass/Fail
0.3061	22086	22086	100	Pass
0.3176	20135	20135	100	Pass
0.3292	18204	18204	100	Pass
0.3408	16696	16696	100	Pass
0.3524	15207	15207	100	Pass
0.3639	13956	13956	100	Pass
0.3755	12737	12737	100	Pass
0.3871	11563	11563	100	Pass
0.3987	10607	10607	100	Pass
0.4102	9689	9689	100	Pass
0.4218	8868	8868	100	Pass
0.4334	8066	8066	100	Pass
0.4450	7405	7405	100	Pass
0.4565	6763	6763	100	Pass
0.4681	6159	6159	100	Pass
0.4797	5674	5674	100	Pass
0.4913	5182	5182	100	Pass
0.5028	4790	4790	100	Pass
0.5144	4375	4375	100	Pass
0.5260	4026	4026	100	Pass
0.5376	3684	3684	100	Pass
0.5491	3371	3371	100	Pass
0.5607	3109	3109	100	Pass
0.5723	2882	2882	100	Pass
0.5839	2662	2662	100	Pass
0.5954	2456	2456	100	Pass
0.6070	2271	2271	100	Pass
0.6186	2088	2088	100	Pass
0.6302	1909	1909	100	Pass
0.6417	1764	1764	100	Pass
0.6533	1625	1625	100	Pass
0.6649	1500	1500	100	Pass
0.6765	1378	1378	100	Pass
0.6880	1260	1260	100	Pass
0.6996	1156	1156	100	Pass
0.7112	1012	1012	100	Pass
0.7228	899	899	100	Pass
0.7343	797	797	100	Pass
0.7459	722	722	100	Pass
0.7575	641	641	100	Pass
0.7691	555	555	100	Pass
0.7806	487	487	100	Pass
0.7922	441	441	100	Pass
0.8038	395	395	100	Pass
0.8154	355	355	100	Pass
0.8270	324	324	100	Pass
0.8385	299	299	100	Pass
0.8501	272	272	100	Pass
0.8617	238	238	100	Pass
0.8733	213	213	100	Pass
0.8848	189	189	100	Pass
0.8964	158	158	100	Pass
0.9080	134	134	100	Pass

0.9196	117	117	100	Pass
0.9311	103	103	100	Pass
0.9427	87	87	100	Pass
0.9543	79	79	100	Pass
0.9659	71	71	100	Pass
0.9774	69	69	100	Pass
0.9890	65	65	100	Pass
1.0006	57	57	100	Pass
1.0122	50	50	100	Pass
1.0237	46	46	100	Pass
1.0353	42	42	100	Pass
1.0469	39	39	100	Pass
1.0585	34	34	100	Pass
1.0700	30	30	100	Pass
1.0816	26	26	100	Pass
1.0932	25	25	100	Pass
1.1048	23	23	100	Pass
1.1163	22	22	100	Pass
1.1279	18	18	100	Pass
1.1395	14	14	100	Pass
1.1511	13	13	100	Pass
1.1626	12	12	100	Pass
1.1742	12	12	100	Pass
1.1858	12	12	100	Pass
1.1974	11	11	100	Pass
1.2089	9	9	100	Pass
1.2205	6	6	100	Pass
1.2321	6	6	100	Pass
1.2437	6	6	100	Pass
1.2552	6	6	100	Pass
1.2668	6	6	100	Pass
1.2784	6	6	100	Pass
1.2900	6	6	100	Pass
1.3015	6	6	100	Pass
1.3131	6	6	100	Pass
1.3247	6	6	100	Pass
1.3363	6	6	100	Pass
1.3478	6	6	100	Pass
1.3594	6	6	100	Pass
1.3710	5	5	100	Pass
1.3826	5	5	100	Pass
1.3941	5	5	100	Pass
1.4057	5	5	100	Pass
1.4173	5	5	100	Pass
1.4289	5	5	100	Pass
1.4404	5	5	100	Pass
1.4520	5	5	100	Pass

Water Quality

Water Quality BMP Flow and Volume for POC #7

On-line facility volume:	0 acre-feet
On-line facility target flow:	0 cfs.
Adjusted for 15 min:	0 cfs.
Off-line facility target flow:	0 cfs.
Adjusted for 15 min:	0 cfs.

LID Report

LID Technique	Used for Treatment ?	Total Volume Needs Treatment (ac-ft)	Volume Through Facility (ac-ft)	Infiltration Volume (ac-ft)	Cumulative Volume Infiltration Credit	Percent Volume Infiltrated	Water Quality	Percent Water Quality Treated	Comment
Total Volume Infiltrated		0.00	0.00	0.00		0.00	0.00	0%	No Treat. Credit
Compliance with LID Standard 8% of 2-yr to 50% of 2-yr									Duration Analysis Result = Passed

Model Default Modifications

Total of 0 changes have been made.

PERLND Changes

No PERLND changes have been made.

IMPLND Changes

No IMPLND changes have been made.

Appendix

Predeveloped Schematic

Mitigated Schematic

Predeveloped UCI File

```
RUN

GLOBAL
  WWHM4 model simulation
  START       1948 10 01        END    2009 09 30
  RUN INTERP OUTPUT LEVEL    3    0
  RESUME     0 RUN     1                    UNIT SYSTEM     1
END GLOBAL

FILES
<File>  <Un#>   <-----------File Name------------------------------>***
<-ID->                                                              ***
WDM         26   Alt_A_210802.wdm
MESSU       25   PreAlt_A_210802.MES
            27   PreAlt_A_210802.L61
            28   PreAlt_A_210802.L62
            30   POCAlt_A_2108021.dat
            31   POCAlt_A_2108022.dat
            32   POCAlt_A_2108023.dat
            33   POCAlt_A_2108024.dat
            34   POCAlt_A_2108025.dat
            35   POCAlt_A_2108026.dat
            36   POCAlt_A_2108027.dat
END FILES

OPN SEQUENCE
    INGRP               INDELT 00:05
      PERLND      10
      PERLND      16
      IMPLND       1
      PERLND      17
      PERLND      11
      IMPLND       2
      COPY       501
      COPY       502
      COPY       503
      COPY       504
      COPY       505
      COPY       506
      COPY       507
      DISPLY       1
      DISPLY       2
      DISPLY       3
      DISPLY       4
      DISPLY       5
      DISPLY       6
      DISPLY       7
    END INGRP
END OPN SEQUENCE
DISPLY
  DISPLY-INFO1
    # -  #<----------Title----------->***TRAN PIVL DIG1 FIL1  PYR DIG2 FIL2 YRND
    1        Basin  1                   MAX                    1    2   30    9
    2        Basin  2                   MAX                    1    2   31    9
    3        Basin  3                   MAX                    1    2   32    9
    4        Basin  4                   MAX                    1    2   33    9
    5        Basin  5                   MAX                    1    2   34    9
    6        Basin  6                   MAX                    1    2   35    9
    7        Basin  7                   MAX                    1    2   36    9
  END DISPLY-INFO1
END DISPLY
COPY
  TIMESERIES
    # -  #  NPT  NMN ***
    1         1    1
  501         1    1
  502         1    1
  503         1    1
```

```
  504         1    1
  505         1    1
  506         1    1
  507         1    1
  END TIMESERIES
END COPY
GENER
  OPCODE
    #    # OPCD ***
  END OPCODE
  PARM
    #    #         K ***
  END PARM
END GENER
PERLND
  GEN-INFO
    <PLS ><-------Name------->NBLKS   Unit-systems   Printer ***
    # -  #                          User  t-series Engl Metr ***
                                        in  out           ***
   10     C, Forest, Flat         1    1    1    1   27    0
   16     C, Lawn, Flat           1    1    1    1   27    0
   17     C, Lawn, Mod            1    1    1    1   27    0
   11     C, Forest, Mod          1    1    1    1   27    0
  END GEN-INFO
  *** Section PWATER***

  ACTIVITY
    <PLS > ************ Active Sections ****************************
    # -  # ATMP SNOW PWAT  SED  PST  PWG PQAL MSTL PEST NITR PHOS TRAC ***
   10         0    0    1    0    0    0    0    0    0    0    0    0
   16         0    0    1    0    0    0    0    0    0    0    0    0
   17         0    0    1    0    0    0    0    0    0    0    0    0
   11         0    0    1    0    0    0    0    0    0    0    0    0
  END ACTIVITY

  PRINT-INFO
    <PLS > ***************** Print-flags **************************** PIVL  PYR
    # -  # ATMP SNOW PWAT  SED  PST  PWG PQAL MSTL PEST NITR PHOS TRAC  *********
   10         0    0    4    0    0    0    0    0    0    0    0    0    1    9
   16         0    0    4    0    0    0    0    0    0    0    0    0    1    9
   17         0    0    4    0    0    0    0    0    0    0    0    0    1    9
   11         0    0    4    0    0    0    0    0    0    0    0    0    1    9
  END PRINT-INFO

  PWAT-PARM1
    <PLS >  PWATER variable monthly parameter value flags  ***
    # -  # CSNO RTOP UZFG  VCS  VUZ  VNN VIFW VIRC  VLE INFC  HWT ***
   10         0    0    0    0    0    0    0    0    0    0    0
   16         0    0    0    0    0    0    0    0    0    0    0
   17         0    0    0    0    0    0    0    0    0    0    0
   11         0    0    0    0    0    0    0    0    0    0    0
  END PWAT-PARM1

  PWAT-PARM2
    <PLS >      PWATER input info: Part 2         ***
    # -  # ***FOREST      LZSN    INFILT      LSUR     SLSUR     KVARY     AGWRC
   10              0       4.5      0.08       400      0.05       0.5     0.996
   16              0       4.5      0.03       400      0.05       0.5     0.996
   17              0       4.5      0.03       400       0.1       0.5     0.996
   11              0       4.5      0.08       400       0.1       0.5     0.996
  END PWAT-PARM2

  PWAT-PARM3
    <PLS >      PWATER input info: Part 3         ***
    # -  # ***PETMAX    PETMIN    INFEXP    INFILD    DEEPFR    BASETP    AGWETP
   10              0         0         2         2         0         0         0
   16              0         0         2         2         0         0         0
   17              0         0         2         2         0         0         0
   11              0         0         2         2         0         0         0
  END PWAT-PARM3
```

```
  PWAT-PARM4
    <PLS >     PWATER input info: Part 4                                    ***
    # -  #     CEPSC      UZSN      NSUR     INTFW       IRC     LZETP ***
   10            0.2       0.5      0.35         6       0.5       0.7
   16            0.1      0.25      0.25         6       0.5      0.25
   17            0.1      0.25      0.25         6       0.5      0.25
   11            0.2       0.5      0.35         6       0.5       0.7
  END PWAT-PARM4

  PWAT-STATE1
    <PLS > *** Initial conditions at start of simulation
               ran from 1990 to end of 1992 (pat 1-11-95) RUN 21 ***
    # -  # ***  CEPS      SURS       UZS      IFWS       LZS      AGWS      GWVS
   10              0         0         0         0       2.5         1         0
   16              0         0         0         0       2.5         1         0
   17              0         0         0         0       2.5         1         0
   11              0         0         0         0       2.5         1         0
  END PWAT-STATE1

END PERLND

IMPLND
  GEN-INFO
    <PLS ><-------Name------->   Unit-systems   Printer ***
    # -  #                     User  t-series Engl Metr ***
                                      in  out           ***
    1      ROADS/FLAT             1    1    1   27    0
    2      ROADS/MOD              1    1    1   27    0
  END GEN-INFO
  *** Section IWATER***

  ACTIVITY
    <PLS > ************* Active Sections ******************************
    # -  # ATMP SNOW IWAT  SLD  IWG IQAL   ***
    1         0    0    1    0    0    0
    2         0    0    1    0    0    0
  END ACTIVITY

  PRINT-INFO
    <ILS > ******** Print-flags ******** PIVL  PYR
    # -  # ATMP SNOW IWAT  SLD  IWG IQAL    *********
    1         0    0    4    0    0    0    1    9
    2         0    0    4    0    0    0    1    9
  END PRINT-INFO

  IWAT-PARM1
    <PLS >  IWATER variable monthly parameter value flags  ***
    # -  # CSNO RTOP  VRS  VNN RTLI     ***
    1         0    0    0    0    0
    2         0    0    0    0    0
  END IWAT-PARM1

  IWAT-PARM2
    <PLS >      IWATER input info: Part 2         ***
    # -  # ***  LSUR     SLSUR      NSUR     RETSC
    1            400      0.01       0.1       0.1
    2            400      0.05       0.1      0.08
  END IWAT-PARM2

  IWAT-PARM3
    <PLS >      IWATER input info: Part 3         ***
    # -  # ***PETMAX    PETMIN
    1              0         0
    2              0         0
  END IWAT-PARM3

  IWAT-STATE1
    <PLS > *** Initial conditions at start of simulation
    # -  # ***  RETS      SURS
    1              0         0
```

```
    2              0         0
  END IWAT-STATE1

END IMPLND

SCHEMATIC
<-Source->                  <--Area-->     <-Target->   MBLK   ***
<Name>   #                  <-factor->     <Name>   #   Tbl#   ***
Basin  1***
PERLND  10                       2.31     COPY   501     12
PERLND  10                       2.31     COPY   501     13
PERLND  16                       2.79     COPY   501     12
PERLND  16                       2.79     COPY   501     13
IMPLND   1                       6.15     COPY   501     15
Basin  2***
PERLND  10                      33.72     COPY   502     12
PERLND  10                      33.72     COPY   502     13
PERLND  16                       9.13     COPY   502     12
PERLND  16                       9.13     COPY   502     13
IMPLND   1                      19.85     COPY   502     15
Basin  3***
PERLND  17                       7.77     COPY   503     12
PERLND  17                       7.77     COPY   503     13
PERLND  11                      15.07     COPY   503     12
PERLND  11                      15.07     COPY   503     13
IMPLND   2                      13.79     COPY   503     15
Basin  4***
PERLND  10                      16.34     COPY   504     12
PERLND  10                      16.34     COPY   504     13
PERLND  16                      21.06     COPY   504     12
PERLND  16                      21.06     COPY   504     13
IMPLND   1                      45.71     COPY   504     15
Basin  5***
PERLND  17                       0.21     COPY   505     12
PERLND  17                       0.21     COPY   505     13
PERLND  11                       7.05     COPY   505     12
PERLND  11                       7.05     COPY   505     13
IMPLND   2                       2.17     COPY   505     15
Basin  6***
PERLND  11                      19.43     COPY   506     12
PERLND  11                      19.43     COPY   506     13
PERLND  17                       0.76     COPY   506     12
PERLND  17                       0.76     COPY   506     13
IMPLND   2                       8.07     COPY   506     15
Basin  7***
PERLND  10                      11.84     COPY   507     12
PERLND  10                      11.84     COPY   507     13
IMPLND   1                       0.92     COPY   507     15

******Routing******
END SCHEMATIC

NETWORK
<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
<Name>   #        <Name> # #<-factor->strg <Name>   #   #        <Name> # #  ***
COPY   501 OUTPUT MEAN   1 1  145.2        DISPLY   1     INPUT  TIMSER 1
COPY   502 OUTPUT MEAN   1 1  145.2        DISPLY   2     INPUT  TIMSER 1
COPY   503 OUTPUT MEAN   1 1  145.2        DISPLY   3     INPUT  TIMSER 1
COPY   504 OUTPUT MEAN   1 1  145.2        DISPLY   4     INPUT  TIMSER 1
COPY   505 OUTPUT MEAN   1 1  145.2        DISPLY   5     INPUT  TIMSER 1
COPY   506 OUTPUT MEAN   1 1  145.2        DISPLY   6     INPUT  TIMSER 1
COPY   507 OUTPUT MEAN   1 1  145.2        DISPLY   7     INPUT  TIMSER 1



<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
<Name>   #        <Name> # #<-factor->strg <Name>   #   #        <Name> # #  ***
END NETWORK

RCHRES
```

```
  GEN-INFO
    RCHRES       Name        Nexits   Unit Systems   Printer                ***
    # -  #<-----------------><---> User T-series  Engl Metr LKFG            ***
                                       in  out                              ***
  END GEN-INFO
  *** Section RCHRES***

  ACTIVITY
    <PLS > ************* Active Sections ****************************
    # -  # HYFG ADFG CNFG HTFG SDFG GQFG OXFG NUFG PKFG PHFG ***
  END ACTIVITY

  PRINT-INFO
    <PLS > ***************** Print-flags ******************* PIVL  PYR
    # -  # HYDR ADCA CONS HEAT  SED  GQL OXRX NUTR PLNK PHCB PIVL  PYR  *********
  END PRINT-INFO

  HYDR-PARM1
    RCHRES  Flags for each HYDR Section                                   ***
    # -  #  VC A1 A2 A3  ODFVFG for each *** ODGTFG for each     FUNCT  for each
            FG FG FG FG  possible  exit  *** possible  exit      possible  exit
             *  *  *  *    *  *  *  *  *       *  *  *  *  *        ***
  END HYDR-PARM1

  HYDR-PARM2
    # -  #    FTABNO       LEN     DELTH     STCOR        KS      DB50       ***
  <------><--------><--------><--------><--------><--------><-------->       ***
  END HYDR-PARM2
  HYDR-INIT
    RCHRES  Initial conditions for each HYDR section                      ***
    # -  # ***   VOL     Initial  value  of COLIND     Initial  value  of OUTDGT
          *** ac-ft     for each possible exit        for each possible exit
  <------><-------->     <---><---><---><---><---> *** <---><---><---><---><--->
  END HYDR-INIT
END RCHRES

SPEC-ACTIONS
END SPEC-ACTIONS
FTABLES
END FTABLES

EXT SOURCES
<-Volume-> <Member> SsysSgap<--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
<Name>   # <Name> # tem strg<-factor->strg <Name>   #   #        <Name> # #  ***
WDM      2 PREC     ENGL    1         DIV  PERLND   1 999 EXTNL  PREC
WDM      2 PREC     ENGL    1         DIV  IMPLND   1 999 EXTNL  PREC
WDM      1 EVAP     ENGL    0.76           PERLND   1 999 EXTNL  PETINP
WDM      1 EVAP     ENGL    0.76           IMPLND   1 999 EXTNL  PETINP

END EXT SOURCES

EXT TARGETS
<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Volume-> <Member> Tsys Tgap Amd ***
<Name>   #        <Name> # #<-factor->strg <Name>   # <Name>    tem strg strg***
COPY   501 OUTPUT MEAN   1 1    145.2      WDM    501 FLOW     ENGL      REPL
COPY   502 OUTPUT MEAN   1 1    145.2      WDM    502 FLOW     ENGL      REPL
COPY   503 OUTPUT MEAN   1 1    145.2      WDM    503 FLOW     ENGL      REPL
COPY   504 OUTPUT MEAN   1 1    145.2      WDM    504 FLOW     ENGL      REPL
COPY   505 OUTPUT MEAN   1 1    145.2      WDM    505 FLOW     ENGL      REPL
COPY   506 OUTPUT MEAN   1 1    145.2      WDM    506 FLOW     ENGL      REPL
COPY   507 OUTPUT MEAN   1 1    145.2      WDM    507 FLOW     ENGL      REPL
END EXT TARGETS

MASS-LINK
<Volume>   <-Grp> <-Member-><--Mult-->     <Target>       <-Grp> <-Member->***
<Name>           <Name> # #<-factor->     <Name>                <Name> # #***
  MASS-LINK      12
PERLND     PWATER SURO       0.083333      COPY           INPUT  MEAN
  END MASS-LINK  12
```

```
  MASS-LINK       13
PERLND     PWATER IFWO       0.083333      COPY           INPUT  MEAN
  END MASS-LINK   13

  MASS-LINK       15
IMPLND     IWATER SURO       0.083333      COPY           INPUT  MEAN
  END MASS-LINK   15


END MASS-LINK

END RUN
```

Mitigated UCI File

```
RUN

GLOBAL
  WWHM4 model simulation
  START       1948 10 01        END    2009 09 30
  RUN INTERP OUTPUT LEVEL    3    0
  RESUME     0 RUN     1                    UNIT SYSTEM     1
END GLOBAL

FILES
<File>  <Un#>   <-----------File Name------------------------------>***
<-ID->                                                              ***
WDM         26   Alt_A_210802.wdm
MESSU       25   MitAlt_A_210802.MES
            27   MitAlt_A_210802.L61
            28   MitAlt_A_210802.L62
            30   POCAlt_A_2108021.dat
            31   POCAlt_A_2108022.dat
            32   POCAlt_A_2108023.dat
            33   POCAlt_A_2108024.dat
            34   POCAlt_A_2108025.dat
            35   POCAlt_A_2108026.dat
            36   POCAlt_A_2108027.dat
END FILES

OPN SEQUENCE
    INGRP               INDELT 00:05
      PERLND      10
      PERLND      16
      IMPLND       1
      PERLND      17
      PERLND      11
      IMPLND       2
      COPY       501
      COPY       502
      COPY       503
      COPY       504
      COPY       505
      COPY       506
      COPY       507
      DISPLY       1
      DISPLY       2
      DISPLY       3
      DISPLY       4
      DISPLY       5
      DISPLY       6
      DISPLY       7
    END INGRP
END OPN SEQUENCE
DISPLY
  DISPLY-INFO1
    # -  #<----------Title----------->***TRAN PIVL DIG1 FIL1  PYR DIG2 FIL2 YRND
    1        Basin  1                   MAX                    1    2   30    9
    2        Basin  2                   MAX                    1    2   31    9
    3        Basin  3                   MAX                    1    2   32    9
    4        Basin  4                   MAX                    1    2   33    9
    5        Basin  5                   MAX                    1    2   34    9
    6        Basin  6                   MAX                    1    2   35    9
    7        Basin  7                   MAX                    1    2   36    9
  END DISPLY-INFO1
END DISPLY
COPY
  TIMESERIES
    # -  #  NPT  NMN ***
    1         1    1
  501         1    1
  502         1    1
  503         1    1
```

```
  504         1    1
  505         1    1
  506         1    1
  507         1    1
  END TIMESERIES
END COPY
GENER
  OPCODE
    #    # OPCD ***
  END OPCODE
  PARM
    #    #         K ***
  END PARM
END GENER
PERLND
  GEN-INFO
    <PLS ><-------Name------->NBLKS   Unit-systems   Printer ***
    # -  #                          User  t-series Engl Metr ***
                                        in  out           ***
   10     C, Forest, Flat         1    1    1    1   27    0
   16     C, Lawn, Flat           1    1    1    1   27    0
   17     C, Lawn, Mod            1    1    1    1   27    0
   11     C, Forest, Mod          1    1    1    1   27    0
  END GEN-INFO
  *** Section PWATER***

  ACTIVITY
    <PLS > ************ Active Sections ******************************
    # -  # ATMP SNOW PWAT  SED  PST  PWG PQAL MSTL PEST NITR PHOS TRAC ***
   10         0    0    1    0    0    0    0    0    0    0    0    0
   16         0    0    1    0    0    0    0    0    0    0    0    0
   17         0    0    1    0    0    0    0    0    0    0    0    0
   11         0    0    1    0    0    0    0    0    0    0    0    0
  END ACTIVITY

  PRINT-INFO
    <PLS > ***************** Print-flags **************************** PIVL  PYR
    # -  # ATMP SNOW PWAT  SED  PST  PWG PQAL MSTL PEST NITR PHOS TRAC  *********
   10         0    0    4    0    0    0    0    0    0    0    0    0    1    9
   16         0    0    4    0    0    0    0    0    0    0    0    0    1    9
   17         0    0    4    0    0    0    0    0    0    0    0    0    1    9
   11         0    0    4    0    0    0    0    0    0    0    0    0    1    9
  END PRINT-INFO

  PWAT-PARM1
    <PLS >  PWATER variable monthly parameter value flags  ***
    # -  # CSNO RTOP UZFG  VCS  VUZ  VNN VIFW VIRC  VLE INFC  HWT ***
   10         0    0    0    0    0    0    0    0    0    0    0
   16         0    0    0    0    0    0    0    0    0    0    0
   17         0    0    0    0    0    0    0    0    0    0    0
   11         0    0    0    0    0    0    0    0    0    0    0
  END PWAT-PARM1

  PWAT-PARM2
    <PLS >      PWATER input info: Part 2         ***
    # -  # ***FOREST      LZSN    INFILT      LSUR     SLSUR     KVARY     AGWRC
   10              0       4.5      0.08       400      0.05       0.5     0.996
   16              0       4.5      0.03       400      0.05       0.5     0.996
   17              0       4.5      0.03       400       0.1       0.5     0.996
   11              0       4.5      0.08       400       0.1       0.5     0.996
  END PWAT-PARM2

  PWAT-PARM3
    <PLS >      PWATER input info: Part 3         ***
    # -  # ***PETMAX    PETMIN    INFEXP    INFILD    DEEPFR    BASETP    AGWETP
   10              0         0         2         2         0         0         0
   16              0         0         2         2         0         0         0
   17              0         0         2         2         0         0         0
   11              0         0         2         2         0         0         0
  END PWAT-PARM3
```

```
  PWAT-PARM4
    <PLS >     PWATER input info: Part 4                                    ***
    # -  #     CEPSC      UZSN      NSUR     INTFW       IRC     LZETP ***
   10            0.2       0.5      0.35         6       0.5       0.7
   16            0.1      0.25      0.25         6       0.5      0.25
   17            0.1      0.25      0.25         6       0.5      0.25
   11            0.2       0.5      0.35         6       0.5       0.7
  END PWAT-PARM4

  PWAT-STATE1
    <PLS > *** Initial conditions at start of simulation
               ran from 1990 to end of 1992 (pat 1-11-95) RUN 21 ***
    # -  # ***  CEPS      SURS       UZS      IFWS       LZS      AGWS      GWVS
   10              0         0         0         0       2.5         1         0
   16              0         0         0         0       2.5         1         0
   17              0         0         0         0       2.5         1         0
   11              0         0         0         0       2.5         1         0
  END PWAT-STATE1

END PERLND

IMPLND
  GEN-INFO
    <PLS ><-------Name------->   Unit-systems   Printer ***
    # -  #                     User  t-series Engl Metr ***
                                      in  out           ***
    1      ROADS/FLAT             1    1    1   27    0
    2      ROADS/MOD              1    1    1   27    0
  END GEN-INFO
  *** Section IWATER***

  ACTIVITY
    <PLS > ************ Active Sections ******************************
    # -  # ATMP SNOW IWAT  SLD  IWG IQAL   ***
    1         0    0    1    0    0    0
    2         0    0    1    0    0    0
  END ACTIVITY

  PRINT-INFO
    <ILS > ******** Print-flags ******** PIVL  PYR
    # -  # ATMP SNOW IWAT  SLD  IWG IQAL    *********
    1         0    0    4    0    0    0    1    9
    2         0    0    4    0    0    0    1    9
  END PRINT-INFO

  IWAT-PARM1
    <PLS >  IWATER variable monthly parameter value flags  ***
    # -  # CSNO RTOP  VRS  VNN RTLI     ***
    1         0    0    0    0    0
    2         0    0    0    0    0
  END IWAT-PARM1

  IWAT-PARM2
    <PLS >      IWATER input info: Part 2         ***
    # -  # ***  LSUR     SLSUR      NSUR     RETSC
    1            400      0.01       0.1       0.1
    2            400      0.05       0.1      0.08
  END IWAT-PARM2

  IWAT-PARM3
    <PLS >      IWATER input info: Part 3         ***
    # -  # ***PETMAX    PETMIN
    1              0         0
    2              0         0
  END IWAT-PARM3

  IWAT-STATE1
    <PLS > *** Initial conditions at start of simulation
    # -  # ***  RETS      SURS
    1              0         0
```

```
    2              0         0
  END IWAT-STATE1

END IMPLND

SCHEMATIC
<-Source->                  <--Area-->     <-Target->   MBLK   ***
<Name>   #                  <-factor->     <Name>   #   Tbl#   ***
Basin  1***
PERLND  10                       2.31     COPY   501     12
PERLND  10                       2.31     COPY   501     13
PERLND  16                       2.79     COPY   501     12
PERLND  16                       2.79     COPY   501     13
IMPLND   1                       6.15     COPY   501     15
Basin  2***
PERLND  10                      33.72     COPY   502     12
PERLND  10                      33.72     COPY   502     13
PERLND  16                       9.13     COPY   502     12
PERLND  16                       9.13     COPY   502     13
IMPLND   1                      19.85     COPY   502     15
Basin  3***
PERLND  17                       7.77     COPY   503     12
PERLND  17                       7.77     COPY   503     13
PERLND  11                      15.07     COPY   503     12
PERLND  11                      15.07     COPY   503     13
IMPLND   2                      13.79     COPY   503     15
Basin  4***
PERLND  10                      16.34     COPY   504     12
PERLND  10                      16.34     COPY   504     13
PERLND  16                      21.06     COPY   504     12
PERLND  16                      21.06     COPY   504     13
IMPLND   1                      45.71     COPY   504     15
Basin  5***
PERLND  17                       0.21     COPY   505     12
PERLND  17                       0.21     COPY   505     13
PERLND  11                       7.05     COPY   505     12
PERLND  11                       7.05     COPY   505     13
IMPLND   2                       2.17     COPY   505     15
Basin  6***
PERLND  11                      19.43     COPY   506     12
PERLND  11                      19.43     COPY   506     13
PERLND  17                       0.76     COPY   506     12
PERLND  17                       0.76     COPY   506     13
IMPLND   2                       8.07     COPY   506     15
Basin  7***
PERLND  10                      11.84     COPY   507     12
PERLND  10                      11.84     COPY   507     13
IMPLND   1                       0.92     COPY   507     15

******Routing******
END SCHEMATIC

NETWORK
<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
<Name>   #        <Name> # #<-factor->strg <Name>   #   #        <Name> # #  ***
COPY   501 OUTPUT MEAN   1 1  145.2        DISPLY   1     INPUT  TIMSER 1
COPY   502 OUTPUT MEAN   1 1  145.2        DISPLY   2     INPUT  TIMSER 1
COPY   503 OUTPUT MEAN   1 1  145.2        DISPLY   3     INPUT  TIMSER 1
COPY   504 OUTPUT MEAN   1 1  145.2        DISPLY   4     INPUT  TIMSER 1
COPY   505 OUTPUT MEAN   1 1  145.2        DISPLY   5     INPUT  TIMSER 1
COPY   506 OUTPUT MEAN   1 1  145.2        DISPLY   6     INPUT  TIMSER 1
COPY   507 OUTPUT MEAN   1 1  145.2        DISPLY   7     INPUT  TIMSER 1



<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
<Name>   #        <Name> # #<-factor->strg <Name>   #   #        <Name> # #  ***
END NETWORK

RCHRES
```

```
  GEN-INFO
    RCHRES       Name        Nexits   Unit Systems   Printer                ***
    # -  #<----------------><---> User T-series  Engl Metr LKFG            ***
                                       in  out                              ***
  END GEN-INFO
  *** Section RCHRES***

  ACTIVITY
    <PLS > ************ Active Sections ****************************
    # -  # HYFG ADFG CNFG HTFG SDFG GQFG OXFG NUFG PKFG PHFG ***
  END ACTIVITY

  PRINT-INFO
    <PLS > ***************** Print-flags ****************** PIVL  PYR
    # -  # HYDR ADCA CONS HEAT  SED  GQL OXRX NUTR PLNK PHCB PIVL  PYR  *********
  END PRINT-INFO

  HYDR-PARM1
    RCHRES  Flags for each HYDR Section                                  ***
    # -  #  VC A1 A2 A3  ODFVFG for each *** ODGTFG for each     FUNCT  for each
            FG FG FG FG  possible  exit  *** possible  exit      possible  exit
             *  *  *  *    *  *  *  *  *       *  *  *  *  *        ***
  END HYDR-PARM1

  HYDR-PARM2
    # -  #    FTABNO       LEN     DELTH     STCOR        KS      DB50       ***
  <------><--------><--------><--------><--------><--------><-------->       ***
  END HYDR-PARM2
  HYDR-INIT
    RCHRES  Initial conditions for each HYDR section                     ***
    # -  # ***   VOL     Initial  value  of COLIND     Initial  value  of OUTDGT
          *** ac-ft     for each possible exit        for each possible exit
  <------><-------->     <---><---><---><---><---> *** <---><---><---><---><--->
  END HYDR-INIT
END RCHRES

SPEC-ACTIONS
END SPEC-ACTIONS
FTABLES
END FTABLES

EXT SOURCES
<-Volume-> <Member> SsysSgap<--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
<Name>   # <Name> # tem strg<-factor->strg <Name>   #   #        <Name> # #  ***
WDM      2 PREC     ENGL    1         DIV  PERLND   1 999 EXTNL  PREC
WDM      2 PREC     ENGL    1         DIV  IMPLND   1 999 EXTNL  PREC
WDM      1 EVAP     ENGL    0.76           PERLND   1 999 EXTNL  PETINP
WDM      1 EVAP     ENGL    0.76           IMPLND   1 999 EXTNL  PETINP

END EXT SOURCES

EXT TARGETS
<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Volume-> <Member> Tsys Tgap Amd ***
<Name>   #        <Name> # #<-factor->strg <Name>   # <Name>    tem strg strg***
COPY     1 OUTPUT MEAN   1 1    145.2      WDM    701 FLOW     ENGL       REPL
COPY   501 OUTPUT MEAN   1 1    145.2      WDM    801 FLOW     ENGL       REPL
COPY     2 OUTPUT MEAN   1 1    145.2      WDM    702 FLOW     ENGL       REPL
COPY   502 OUTPUT MEAN   1 1    145.2      WDM    802 FLOW     ENGL       REPL
COPY     3 OUTPUT MEAN   1 1    145.2      WDM    703 FLOW     ENGL       REPL
COPY   503 OUTPUT MEAN   1 1    145.2      WDM    803 FLOW     ENGL       REPL
COPY     4 OUTPUT MEAN   1 1    145.2      WDM    704 FLOW     ENGL       REPL
COPY   504 OUTPUT MEAN   1 1    145.2      WDM    804 FLOW     ENGL       REPL
COPY     5 OUTPUT MEAN   1 1    145.2      WDM    705 FLOW     ENGL       REPL
COPY   505 OUTPUT MEAN   1 1    145.2      WDM    805 FLOW     ENGL       REPL
COPY     6 OUTPUT MEAN   1 1    145.2      WDM    706 FLOW     ENGL       REPL
COPY   506 OUTPUT MEAN   1 1    145.2      WDM    806 FLOW     ENGL       REPL
COPY     7 OUTPUT MEAN   1 1    145.2      WDM    707 FLOW     ENGL       REPL
COPY   507 OUTPUT MEAN   1 1    145.2      WDM    807 FLOW     ENGL       REPL
END EXT TARGETS
```

```
MASS-LINK
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<Name>             <Name> # #<-factor->     <Name>                <Name> # #***
  MASS-LINK        12
PERLND     PWATER SURO       0.083333      COPY           INPUT  MEAN
  END MASS-LINK    12

  MASS-LINK        13
PERLND     PWATER IFWO       0.083333      COPY           INPUT  MEAN
  END MASS-LINK    13

  MASS-LINK        15
IMPLND     IWATER SURO       0.083333      COPY           INPUT  MEAN
  END MASS-LINK    15


END MASS-LINK

END RUN
```

Predeveloped HSPF Message File

Mitigated HSPF Message File

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WWHM2012

PROJECT REPORT

General Model Information

Project Name:	Alt_B_Model_210802
Site Name:	Alternative B
Site Address:	Kirkland
City:	Kirkland
Report Date:	8/2/2021
Gage:	Seatac
Data Start:	1948/10/01
Data End:	2009/09/30
Timestep:	5 Minute
Precip Scale:	1.000
Version Date:	2019/09/13
Version:	4.2.17

POC Thresholds

Low Flow Threshold for POC1:	50 Percent of the 2 Year
High Flow Threshold for POC1:	50 Year
Low Flow Threshold for POC2:	50 Percent of the 2 Year
High Flow Threshold for POC2:	50 Year
Low Flow Threshold for POC3:	50 Percent of the 2 Year
High Flow Threshold for POC3:	50 Year
Low Flow Threshold for POC4:	50 Percent of the 2 Year
High Flow Threshold for POC4:	50 Year
Low Flow Threshold for POC5:	50 Percent of the 2 Year
High Flow Threshold for POC5:	50 Year
Low Flow Threshold for POC6:	50 Percent of the 2 Year
High Flow Threshold for POC6:	50 Year
Low Flow Threshold for POC7:	50 Percent of the 2 Year
High Flow Threshold for POC7:	50 Year

Landuse Basin Data

Predeveloped Land Use

Basin 1

Bypass:	No
GroundWater:	No

Pervious Land Use	acre
C, Forest, Flat	2.31
C, Lawn, Flat	2.79
Pervious Total	5.1

Impervious Land Use	acre
ROADS FLAT	6.15
Impervious Total	6.15
Basin Total	11.25

Element Flows To:

Surface	Interflow	Groundwater

Basin 2

Bypass:	No
GroundWater:	No

Pervious Land Use	acre
C, Forest, Flat	33.72
C, Lawn, Flat	9.13
Pervious Total	42.85

Impervious Land Use	acre
ROADS FLAT	19.85
Impervious Total	19.85
Basin Total	62.7

Element Flows To:

Surface	Interflow	Groundwater

Basin 3

Bypass:	No
GroundWater:	No

Pervious Land Use	acre
C, Lawn, Mod	8.21
C, Forest, Mod	13.74
Pervious Total	21.95

Impervious Land Use	acre
ROADS MOD	14.69
Impervious Total	14.69
Basin Total	36.64

Element Flows To:

Surface	Interflow	Groundwater

Basin 4

Bypass:	No
GroundWater:	No

Pervious Land Use	acre
C, Forest, Flat	16.34
C, Lawn, Flat	21.09
Pervious Total	37.43

Impervious Land Use	acre
ROADS FLAT	45.68
Impervious Total	45.68
Basin Total	83.11

Element Flows To:

Surface	Interflow	Groundwater

Basin 5

Bypass:	No
GroundWater:	No

Pervious Land Use	acre
C, Lawn, Mod	0.21
C, Forest, Mod	7.05
Pervious Total	7.26

Impervious Land Use	acre
ROADS MOD	2.17
Impervious Total	2.17
Basin Total	9.43

Element Flows To:

Surface	Interflow	Groundwater

Basin 6

Bypass:	No
GroundWater:	No

Pervious Land Use	acre
C, Forest, Mod	19.43
C, Lawn, Mod	0.7
Pervious Total	20.13

Impervious Land Use	acre
ROADS MOD	8.13
Impervious Total	8.13
Basin Total	28.26

Element Flows To:

Surface	Interflow	Groundwater

Basin 7

Bypass:	No
GroundWater:	No

Pervious Land Use	acre
C, Forest, Flat	11.84
Pervious Total	11.84

Impervious Land Use	acre
ROADS FLAT	0.92
Impervious Total	0.92
Basin Total	12.76

Element Flows To:

Surface	Interflow	Groundwater

Mitigated Land Use

Basin 1

Bypass:	No
GroundWater:	No

Pervious Land Use	acre
C, Forest, Flat	2.31
C, Lawn, Flat	2.79
Pervious Total	5.1

Impervious Land Use	acre
ROADS FLAT	6.15
Impervious Total	6.15
Basin Total	11.25

Element Flows To:

Surface	Interflow	Groundwater

Basin 2

Bypass:	No
GroundWater:	No

Pervious Land Use	acre
C, Forest, Flat	33.72
C, Lawn, Flat	9.13
Pervious Total	42.85

Impervious Land Use	acre
ROADS FLAT	19.85
Impervious Total	19.85
Basin Total	62.7

Element Flows To:

Surface	Interflow	Groundwater

Basin 3

Bypass:	No
GroundWater:	No

Pervious Land Use	acre
C, Lawn, Mod	8.21
C, Forest, Mod	13.74
Pervious Total	21.95

Impervious Land Use	acre
ROADS MOD	14.69
Impervious Total	14.69
Basin Total	36.64

Element Flows To:

Surface	Interflow	Groundwater

Basin 4

Bypass:	No
GroundWater:	No

Pervious Land Use	acre
C, Forest, Flat	16.34
C, Lawn, Flat	21.09
Pervious Total	37.43

Impervious Land Use	acre
ROADS FLAT	45.68
Impervious Total	45.68
Basin Total	83.11

Element Flows To:

Surface	Interflow	Groundwater

Basin 5

Bypass:	No
GroundWater:	No

Pervious Land Use	acre
C, Lawn, Mod	0.21
C, Forest, Mod	7.05
Pervious Total	7.26

Impervious Land Use	acre
ROADS MOD	2.17
Impervious Total	2.17
Basin Total	9.43

Element Flows To:

Surface	Interflow	Groundwater

Basin 6

Bypass:	No
GroundWater:	No

Pervious Land Use	acre
C, Forest, Mod	19.43
C, Lawn, Mod	0.7
Pervious Total	20.13

Impervious Land Use	acre
ROADS MOD	8.13
Impervious Total	8.13
Basin Total	28.26

Element Flows To:

Surface	Interflow	Groundwater

Basin 7

Bypass:	No
GroundWater:	No

Pervious Land Use	acre
C, Forest, Flat	11.84
Pervious Total	11.84

Impervious Land Use	acre
ROADS FLAT	0.92
Impervious Total	0.92
Basin Total	12.76

Element Flows To:

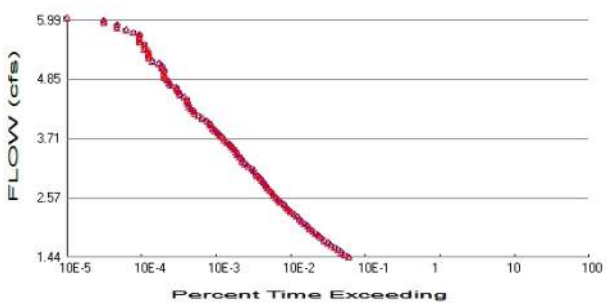
Surface	Interflow	Groundwater

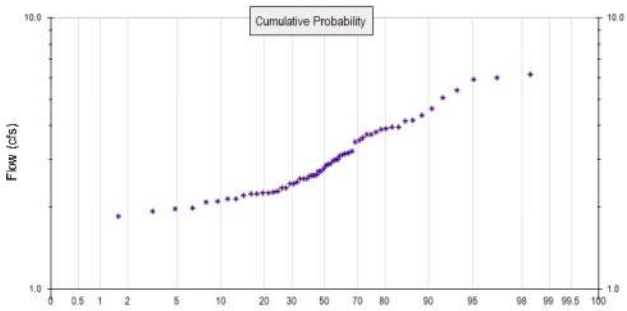
Routing Elements
Predeveloped Routing

Mitigated Routing

Analysis Results

POC 1





\+ Predeveloped x Mitigated

Predeveloped Landuse Totals for POC #1
Total Pervious Area: 5.1
Total Impervious Area: 6.15

Mitigated Landuse Totals for POC #1
Total Pervious Area: 5.1
Total Impervious Area: 6.15

Flow Frequency Method: Log Pearson Type III 17B

Flow Frequency Return Periods for Predeveloped. POC #1

Return Period	**Flow(cfs)**
2 year	2.87498
5 year	3.777528
10 year	4.422752
25 year	5.294192
50 year	5.985426
100 year	6.713764

Flow Frequency Return Periods for Mitigated. POC #1

Return Period	**Flow(cfs)**
2 year	2.87498
5 year	3.777528
10 year	4.422752
25 year	5.294192
50 year	5.985426
100 year	6.713764

Annual Peaks

Annual Peaks for Predeveloped and Mitigated. POC #1

Year	**Predeveloped**	**Mitigated**
1949	3.880	3.880
1950	3.599	3.599
1951	2.357	2.357
1952	1.853	1.853
1953	2.083	2.083
1954	2.275	2.275
1955	2.547	2.547
1956	2.547	2.547
1957	2.864	2.864
1958	2.253	2.253

1959	2.287	2.287
1960	2.595	2.595
1961	2.644	2.644
1962	1.972	1.972
1963	2.477	2.477
1964	2.256	2.256
1965	3.224	3.224
1966	2.147	2.147
1967	3.710	3.710
1968	4.188	4.188
1969	2.891	2.891
1970	2.619	2.619
1971	3.155	3.155
1972	3.474	3.474
1973	1.852	1.852
1974	2.863	2.863
1975	2.965	2.965
1976	2.349	2.349
1977	2.217	2.217
1978	3.095	3.095
1979	3.951	3.951
1980	5.056	5.056
1981	2.765	2.765
1982	4.143	4.143
1983	3.176	3.176
1984	2.096	2.096
1985	2.994	2.994
1986	2.433	2.433
1987	3.778	3.778
1988	2.147	2.147
1989	3.139	3.139
1990	6.169	6.169
1991	4.620	4.620
1992	2.238	2.238
1993	1.989	1.989
1994	1.933	1.933
1995	2.435	2.435
1996	3.706	3.706
1997	2.722	2.722
1998	2.554	2.554
1999	5.928	5.928
2000	2.706	2.706
2001	3.003	3.003
2002	3.950	3.950
2003	3.529	3.529
2004	6.022	6.022
2005	2.623	2.623
2006	2.235	2.235
2007	5.405	5.405
2008	4.355	4.355
2009	3.903	3.903

Ranked Annual Peaks

Ranked Annual Peaks for Predeveloped and Mitigated. POC #1

Rank	Predeveloped	Mitigated
1	6.1686	6.1686
2	6.0225	6.0225
3	5.9276	5.9276

4	5.4050	5.4050
5	5.0555	5.0555
6	4.6202	4.6202
7	4.3546	4.3546
8	4.1876	4.1876
9	4.1426	4.1426
10	3.9513	3.9513
11	3.9503	3.9503
12	3.9027	3.9027
13	3.8803	3.8803
14	3.7781	3.7781
15	3.7101	3.7101
16	3.7056	3.7056
17	3.5988	3.5988
18	3.5292	3.5292
19	3.4740	3.4740
20	3.2242	3.2242
21	3.1764	3.1764
22	3.1549	3.1549
23	3.1389	3.1389
24	3.0946	3.0946
25	3.0030	3.0030
26	2.9938	2.9938
27	2.9649	2.9649
28	2.8907	2.8907
29	2.8635	2.8635
30	2.8631	2.8631
31	2.7650	2.7650
32	2.7216	2.7216
33	2.7058	2.7058
34	2.6440	2.6440
35	2.6225	2.6225
36	2.6192	2.6192
37	2.5951	2.5951
38	2.5539	2.5539
39	2.5470	2.5470
40	2.5467	2.5467
41	2.4767	2.4767
42	2.4345	2.4345
43	2.4331	2.4331
44	2.3569	2.3569
45	2.3492	2.3492
46	2.2870	2.2870
47	2.2752	2.2752
48	2.2557	2.2557
49	2.2535	2.2535
50	2.2379	2.2379
51	2.2345	2.2345
52	2.2169	2.2169
53	2.1471	2.1471
54	2.1469	2.1469
55	2.0963	2.0963
56	2.0828	2.0828
57	1.9889	1.9889
58	1.9718	1.9718
59	1.9327	1.9327
60	1.8529	1.8529
61	1.8522	1.8522

Duration Flows

The Facility PASSED

Flow(cfs)	Predev	Mit	Percentage	Pass/Fail
1.4375	3840	3840	100	Pass
1.4834	3422	3422	100	Pass
1.5294	3065	3065	100	Pass
1.5753	2763	2763	100	Pass
1.6212	2496	2496	100	Pass
1.6672	2225	2225	100	Pass
1.7131	2022	2022	100	Pass
1.7591	1818	1818	100	Pass
1.8050	1633	1633	100	Pass
1.8509	1506	1506	100	Pass
1.8969	1386	1386	100	Pass
1.9428	1269	1269	100	Pass
1.9888	1152	1152	100	Pass
2.0347	1073	1073	100	Pass
2.0806	984	984	100	Pass
2.1266	901	901	100	Pass
2.1725	841	841	100	Pass
2.2184	774	774	100	Pass
2.2644	703	703	100	Pass
2.3103	635	635	100	Pass
2.3563	593	593	100	Pass
2.4022	551	551	100	Pass
2.4481	513	513	100	Pass
2.4941	461	461	100	Pass
2.5400	435	435	100	Pass
2.5860	407	407	100	Pass
2.6319	384	384	100	Pass
2.6778	356	356	100	Pass
2.7238	332	332	100	Pass
2.7697	311	311	100	Pass
2.8157	296	296	100	Pass
2.8616	277	277	100	Pass
2.9075	260	260	100	Pass
2.9535	251	251	100	Pass
2.9994	231	231	100	Pass
3.0453	219	219	100	Pass
3.0913	204	204	100	Pass
3.1372	193	193	100	Pass
3.1832	173	173	100	Pass
3.2291	158	158	100	Pass
3.2750	145	145	100	Pass
3.3210	140	140	100	Pass
3.3669	133	133	100	Pass
3.4129	124	124	100	Pass
3.4588	120	120	100	Pass
3.5047	111	111	100	Pass
3.5507	104	104	100	Pass
3.5966	98	98	100	Pass
3.6425	91	91	100	Pass
3.6885	84	84	100	Pass
3.7344	78	78	100	Pass
3.7804	72	72	100	Pass
3.8263	67	67	100	Pass

3.8722	62	62	100	Pass
3.9182	58	58	100	Pass
3.9641	54	54	100	Pass
4.0101	52	52	100	Pass
4.0560	48	48	100	Pass
4.1019	42	42	100	Pass
4.1479	37	37	100	Pass
4.1938	33	33	100	Pass
4.2398	32	32	100	Pass
4.2857	30	30	100	Pass
4.3316	28	28	100	Pass
4.3776	27	27	100	Pass
4.4235	26	26	100	Pass
4.4694	26	26	100	Pass
4.5154	24	24	100	Pass
4.5613	21	21	100	Pass
4.6073	20	20	100	Pass
4.6532	19	19	100	Pass
4.6991	19	19	100	Pass
4.7451	16	16	100	Pass
4.7910	15	15	100	Pass
4.8370	14	14	100	Pass
4.8829	13	13	100	Pass
4.9288	13	13	100	Pass
4.9748	13	13	100	Pass
5.0207	13	13	100	Pass
5.0667	12	12	100	Pass
5.1126	12	12	100	Pass
5.1585	11	11	100	Pass
5.2045	9	9	100	Pass
5.2504	8	8	100	Pass
5.2963	8	8	100	Pass
5.3423	8	8	100	Pass
5.3882	8	8	100	Pass
5.4342	7	7	100	Pass
5.4801	7	7	100	Pass
5.5260	7	7	100	Pass
5.5720	6	6	100	Pass
5.6179	6	6	100	Pass
5.6639	6	6	100	Pass
5.7098	6	6	100	Pass
5.7557	5	5	100	Pass
5.8017	4	4	100	Pass
5.8476	3	3	100	Pass
5.8935	3	3	100	Pass
5.9395	2	2	100	Pass
5.9854	2	2	100	Pass

Water Quality

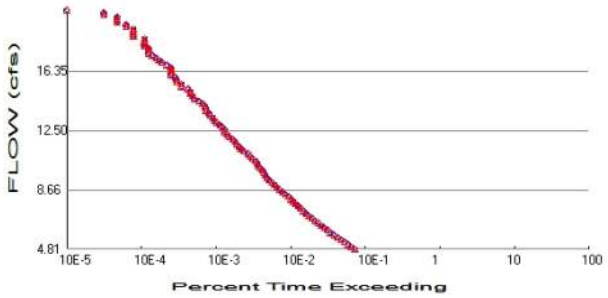
Water Quality BMP Flow and Volume for POC #1

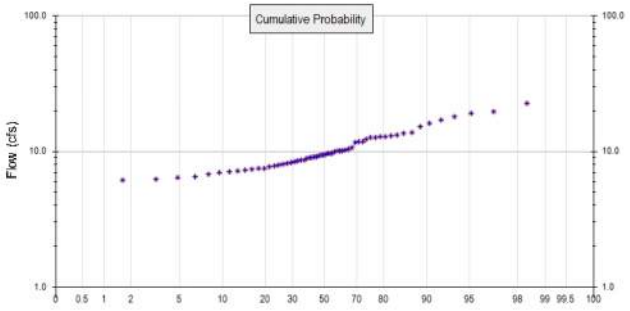
On-line facility volume:	0 acre-feet
On-line facility target flow:	0 cfs.
Adjusted for 15 min:	0 cfs.
Off-line facility target flow:	0 cfs.
Adjusted for 15 min:	0 cfs.

LID Report

LID Technique	Used for Treatment ?	Total Volume Needs Treatment (ac-ft)	Volume Through Facility (ac-ft)	Infiltration Volume (ac-ft)	Cumulative Volume Infiltration Credit	Percent Volume Infiltrated	Water Quality	Percent Water Quality Treated	Comment
Total Volume Infiltrated		0.00	0.00	0.00		0.00	0.00	0%	No Treat. Credit
Compliance with LID Standard 8% of 2-yr to 50% of 2-yr									Duration Analysis Result = Passed

POC 2





\+ Predeveloped x Mitigated

Predeveloped Landuse Totals for POC #2
Total Pervious Area: 42.85
Total Impervious Area: 19.85

Mitigated Landuse Totals for POC #2
Total Pervious Area: 42.85
Total Impervious Area: 19.85

Flow Frequency Method: Log Pearson Type III 17B

Flow Frequency Return Periods for Predeveloped. POC #2

Return Period	**Flow(cfs)**
2 year	9.629546
5 year	12.686389
10 year	14.876219
25 year	17.838709
50 year	20.192023
100 year	22.674542

Flow Frequency Return Periods for Mitigated. POC #2

Return Period	**Flow(cfs)**
2 year	9.629546
5 year	12.686389
10 year	14.876219
25 year	17.838709
50 year	20.192023
100 year	22.674542

Annual Peaks

Annual Peaks for Predeveloped and Mitigated. POC #2

Year	**Predeveloped**	**Mitigated**
1949	13.114	13.114
1950	11.783	11.783
1951	8.565	8.565
1952	6.123	6.123
1953	6.735	6.735
1954	7.740	7.740
1955	8.263	8.263
1956	8.668	8.668
1957	9.871	9.871
1958	7.487	7.487
1959	7.388	7.388

1960	9.525	9.525
1961	8.996	8.996
1962	6.381	6.381
1963	8.389	8.389
1964	7.479	7.479
1965	10.723	10.723
1966	7.307	7.307
1967	12.845	12.845
1968	13.531	13.531
1969	9.427	9.427
1970	8.882	8.882
1971	10.406	10.406
1972	11.599	11.599
1973	6.001	6.001
1974	9.455	9.455
1975	10.030	10.030
1976	8.142	8.142
1977	7.161	7.161
1978	10.112	10.112
1979	12.781	12.781
1980	17.088	17.088
1981	9.114	9.114
1982	13.753	13.753
1983	10.294	10.294
1984	7.074	7.074
1985	9.686	9.686
1986	8.982	8.982
1987	12.212	12.212
1988	6.932	6.932
1989	10.131	10.131
1990	22.615	22.615
1991	16.087	16.087
1992	7.758	7.758
1993	6.452	6.452
1994	6.238	6.238
1995	8.021	8.021
1996	12.658	12.658
1997	9.682	9.682
1998	8.514	8.514
1999	19.167	19.167
2000	9.090	9.090
2001	9.713	9.713
2002	12.963	12.963
2003	11.863	11.863
2004	19.539	19.539
2005	9.211	9.211
2006	7.970	7.970
2007	18.002	18.002
2008	15.289	15.289
2009	12.599	12.599

Ranked Annual Peaks

Ranked Annual Peaks for Predeveloped and Mitigated. POC #2

Rank	Predeveloped	Mitigated
1	22.6146	22.6146
2	19.5390	19.5390
3	19.1673	19.1673
4	18.0017	18.0017

5	17.0880	17.0880
6	16.0871	16.0871
7	15.2887	15.2887
8	13.7525	13.7525
9	13.5306	13.5306
10	13.1135	13.1135
11	12.9629	12.9629
12	12.8448	12.8448
13	12.7809	12.7809
14	12.6577	12.6577
15	12.5988	12.5988
16	12.2117	12.2117
17	11.8633	11.8633
18	11.7833	11.7833
19	11.5993	11.5993
20	10.7231	10.7231
21	10.4059	10.4059
22	10.2944	10.2944
23	10.1314	10.1314
24	10.1119	10.1119
25	10.0295	10.0295
26	9.8710	9.8710
27	9.7131	9.7131
28	9.6863	9.6863
29	9.6823	9.6823
30	9.5245	9.5245
31	9.4548	9.4548
32	9.4267	9.4267
33	9.2111	9.2111
34	9.1136	9.1136
35	9.0901	9.0901
36	8.9959	8.9959
37	8.9816	8.9816
38	8.8819	8.8819
39	8.6685	8.6685
40	8.5647	8.5647
41	8.5144	8.5144
42	8.3889	8.3889
43	8.2630	8.2630
44	8.1418	8.1418
45	8.0208	8.0208
46	7.9696	7.9696
47	7.7580	7.7580
48	7.7398	7.7398
49	7.4866	7.4866
50	7.4790	7.4790
51	7.3876	7.3876
52	7.3075	7.3075
53	7.1613	7.1613
54	7.0743	7.0743
55	6.9318	6.9318
56	6.7350	6.7350
57	6.4521	6.4521
58	6.3813	6.3813
59	6.2380	6.2380
60	6.1231	6.1231
61	6.0011	6.0011

Duration Flows

The Facility PASSED

Flow(cfs)	Predev	Mit	Percentage	Pass/Fail
4.8148	4652	4652	100	Pass
4.9701	4178	4178	100	Pass
5.1254	3767	3767	100	Pass
5.2808	3363	3363	100	Pass
5.4361	3021	3021	100	Pass
5.5914	2706	2706	100	Pass
5.7467	2452	2452	100	Pass
5.9021	2176	2176	100	Pass
6.0574	1981	1981	100	Pass
6.2127	1807	1807	100	Pass
6.3680	1644	1644	100	Pass
6.5234	1517	1517	100	Pass
6.6787	1363	1363	100	Pass
6.8340	1218	1218	100	Pass
6.9893	1120	1120	100	Pass
7.1447	1027	1027	100	Pass
7.3000	952	952	100	Pass
7.4553	865	865	100	Pass
7.6106	808	808	100	Pass
7.7660	749	749	100	Pass
7.9213	692	692	100	Pass
8.0766	648	648	100	Pass
8.2319	599	599	100	Pass
8.3873	540	540	100	Pass
8.5426	500	500	100	Pass
8.6979	455	455	100	Pass
8.8532	417	417	100	Pass
9.0086	386	386	100	Pass
9.1639	358	358	100	Pass
9.3192	329	329	100	Pass
9.4745	308	308	100	Pass
9.6299	290	290	100	Pass
9.7852	281	281	100	Pass
9.9405	267	267	100	Pass
10.0958	250	250	100	Pass
10.2512	237	237	100	Pass
10.4065	227	227	100	Pass
10.5618	216	216	100	Pass
10.7172	195	195	100	Pass
10.8725	186	186	100	Pass
11.0278	172	172	100	Pass
11.1831	149	149	100	Pass
11.3385	137	137	100	Pass
11.4938	130	130	100	Pass
11.6491	122	122	100	Pass
11.8044	114	114	100	Pass
11.9598	106	106	100	Pass
12.1151	96	96	100	Pass
12.2704	91	91	100	Pass
12.4257	84	84	100	Pass
12.5811	83	83	100	Pass
12.7364	78	78	100	Pass
12.8917	72	72	100	Pass

13.0470	66	66	100	Pass
13.2024	61	61	100	Pass
13.3577	58	58	100	Pass
13.5130	53	53	100	Pass
13.6683	51	51	100	Pass
13.8237	47	47	100	Pass
13.9790	46	46	100	Pass
14.1343	45	45	100	Pass
14.2896	42	42	100	Pass
14.4450	38	38	100	Pass
14.6003	33	33	100	Pass
14.7556	31	31	100	Pass
14.9109	29	29	100	Pass
15.0663	29	29	100	Pass
15.2216	27	27	100	Pass
15.3769	22	22	100	Pass
15.5323	22	22	100	Pass
15.6876	19	19	100	Pass
15.8429	19	19	100	Pass
15.9982	18	18	100	Pass
16.1536	16	16	100	Pass
16.3089	16	16	100	Pass
16.4642	16	16	100	Pass
16.6195	16	16	100	Pass
16.7749	14	14	100	Pass
16.9302	12	12	100	Pass
17.0855	11	11	100	Pass
17.2408	10	10	100	Pass
17.3962	9	9	100	Pass
17.5515	8	8	100	Pass
17.7068	8	8	100	Pass
17.8621	8	8	100	Pass
18.0175	7	7	100	Pass
18.1728	7	7	100	Pass
18.3281	7	7	100	Pass
18.4834	7	7	100	Pass
18.6388	5	5	100	Pass
18.7941	5	5	100	Pass
18.9494	5	5	100	Pass
19.1047	5	5	100	Pass
19.2601	4	4	100	Pass
19.4154	4	4	100	Pass
19.5707	3	3	100	Pass
19.7260	3	3	100	Pass
19.8814	3	3	100	Pass
20.0367	2	2	100	Pass
20.1920	2	2	100	Pass

Water Quality

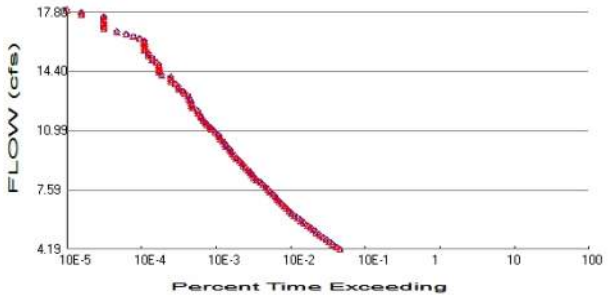
Water Quality BMP Flow and Volume for POC #2

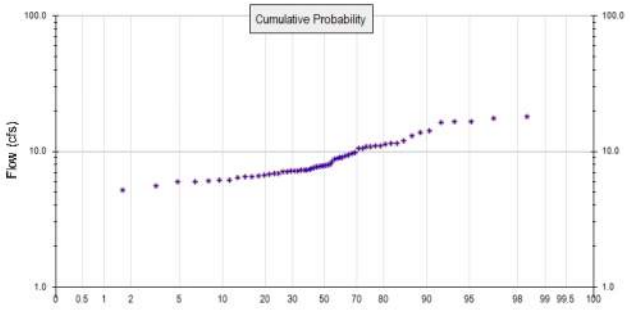
On-line facility volume:	0 acre-feet
On-line facility target flow:	0 cfs.
Adjusted for 15 min:	0 cfs.
Off-line facility target flow:	0 cfs.
Adjusted for 15 min:	0 cfs.

LID Report

LID Technique	Used for Treatment ?	Total Volume Needs Treatment (ac-ft)	Volume Through Facility (ac-ft)	Infiltration Volume (ac-ft)	Cumulative Volume Infiltration Credit	Percent Volume Infiltrated	Water Quality	Percent Water Quality Treated	Comment
Total Volume Infiltrated		0.00	0.00	0.00		0.00	0.00	0%	No Treat. Credit
Compliance with LID Standard 8% of 2-yr to 50% of 2-yr									Duration Analysis Result = Passed

POC 3





\+ Predeveloped x Mitigated

Predeveloped Landuse Totals for POC #3
Total Pervious Area: 21.95
Total Impervious Area: 14.69

Mitigated Landuse Totals for POC #3
Total Pervious Area: 21.95
Total Impervious Area: 14.69

Flow Frequency Method: Log Pearson Type III 17B

Flow Frequency Return Periods for Predeveloped. POC #3

Return Period	**Flow(cfs)**
2 year	8.372907
5 year	11.08709
10 year	13.039112
25 year	15.688234
50 year	17.798501
100 year	20.029553

Flow Frequency Return Periods for Mitigated. POC #3

Return Period	**Flow(cfs)**
2 year	8.372907
5 year	11.08709
10 year	13.039112
25 year	15.688234
50 year	17.798501
100 year	20.029553

Annual Peaks

Annual Peaks for Predeveloped and Mitigated. POC #3

Year	**Predeveloped**	**Mitigated**
1949	10.898	10.898
1950	9.729	9.729
1951	6.517	6.517
1952	5.523	5.523
1953	6.072	6.072
1954	7.149	7.149
1955	7.270	7.270
1956	7.770	7.770
1957	7.579	7.579
1958	6.100	6.100
1959	6.456	6.456

1960	7.938	7.938
1961	7.056	7.056
1962	5.004	5.004
1963	6.843	6.843
1964	7.106	7.106
1965	8.941	8.941
1966	5.946	5.946
1967	10.773	10.773
1968	13.071	13.071
1969	8.005	8.005
1970	7.189	7.189
1971	8.803	8.803
1972	9.339	9.339
1973	5.192	5.192
1974	8.933	8.933
1975	7.888	7.888
1976	7.305	7.305
1977	7.718	7.718
1978	9.293	9.293
1979	10.951	10.951
1980	16.341	16.341
1981	7.732	7.732
1982	11.485	11.485
1983	9.736	9.736
1984	5.924	5.924
1985	7.827	7.827
1986	6.855	6.855
1987	10.488	10.488
1988	6.397	6.397
1989	11.000	11.000
1990	18.131	18.131
1991	13.745	13.745
1992	6.776	6.776
1993	7.444	7.444
1994	6.157	6.157
1995	6.616	6.616
1996	11.224	11.224
1997	7.322	7.322
1998	8.358	8.358
1999	16.601	16.601
2000	7.156	7.156
2001	8.679	8.679
2002	10.567	10.567
2003	11.880	11.880
2004	17.534	17.534
2005	7.314	7.314
2006	6.701	6.701
2007	16.463	16.463
2008	14.126	14.126
2009	11.405	11.405

Ranked Annual Peaks

Ranked Annual Peaks for Predeveloped and Mitigated. POC #3

Rank	Predeveloped	Mitigated
1	18.1309	18.1309
2	17.5340	17.5340
3	16.6013	16.6013
4	16.4633	16.4633

5	16.3406	16.3406
6	14.1258	14.1258
7	13.7449	13.7449
8	13.0710	13.0710
9	11.8800	11.8800
10	11.4845	11.4845
11	11.4053	11.4053
12	11.2236	11.2236
13	10.9998	10.9998
14	10.9514	10.9514
15	10.8978	10.8978
16	10.7729	10.7729
17	10.5671	10.5671
18	10.4882	10.4882
19	9.7357	9.7357
20	9.7294	9.7294
21	9.3385	9.3385
22	9.2933	9.2933
23	8.9415	8.9415
24	8.9332	8.9332
25	8.8026	8.8026
26	8.6786	8.6786
27	8.3578	8.3578
28	8.0048	8.0048
29	7.9381	7.9381
30	7.8878	7.8878
31	7.8272	7.8272
32	7.7705	7.7705
33	7.7323	7.7323
34	7.7183	7.7183
35	7.5791	7.5791
36	7.4442	7.4442
37	7.3221	7.3221
38	7.3141	7.3141
39	7.3053	7.3053
40	7.2705	7.2705
41	7.1895	7.1895
42	7.1559	7.1559
43	7.1486	7.1486
44	7.1063	7.1063
45	7.0565	7.0565
46	6.8547	6.8547
47	6.8431	6.8431
48	6.7758	6.7758
49	6.7010	6.7010
50	6.6163	6.6163
51	6.5167	6.5167
52	6.4563	6.4563
53	6.3974	6.3974
54	6.1568	6.1568
55	6.0995	6.0995
56	6.0723	6.0723
57	5.9456	5.9456
58	5.9240	5.9240
59	5.5227	5.5227
60	5.1924	5.1924
61	5.0042	5.0042

Duration Flows

The Facility PASSED

Flow(cfs)	Predev	Mit	Percentage	Pass/Fail
4.1865	2932	2932	100	Pass
4.3239	2634	2634	100	Pass
4.4614	2340	2340	100	Pass
4.5989	2111	2111	100	Pass
4.7364	1918	1918	100	Pass
4.8739	1728	1728	100	Pass
5.0114	1550	1550	100	Pass
5.1489	1425	1425	100	Pass
5.2864	1298	1298	100	Pass
5.4239	1179	1179	100	Pass
5.5614	1073	1073	100	Pass
5.6989	973	973	100	Pass
5.8364	884	884	100	Pass
5.9739	795	795	100	Pass
6.1114	723	723	100	Pass
6.2489	656	656	100	Pass
6.3864	612	612	100	Pass
6.5239	558	558	100	Pass
6.6614	523	523	100	Pass
6.7989	487	487	100	Pass
6.9364	447	447	100	Pass
7.0739	421	421	100	Pass
7.2114	397	397	100	Pass
7.3488	368	368	100	Pass
7.4863	338	338	100	Pass
7.6238	320	320	100	Pass
7.7613	298	298	100	Pass
7.8988	272	272	100	Pass
8.0363	249	249	100	Pass
8.1738	223	223	100	Pass
8.3113	208	208	100	Pass
8.4488	193	193	100	Pass
8.5863	183	183	100	Pass
8.7238	174	174	100	Pass
8.8613	162	162	100	Pass
8.9988	151	151	100	Pass
9.1363	140	140	100	Pass
9.2738	131	131	100	Pass
9.4113	120	120	100	Pass
9.5488	114	114	100	Pass
9.6863	107	107	100	Pass
9.8238	101	101	100	Pass
9.9613	96	96	100	Pass
10.0988	88	88	100	Pass
10.2363	85	85	100	Pass
10.3737	79	79	100	Pass
10.5112	73	73	100	Pass
10.6487	71	71	100	Pass
10.7862	68	68	100	Pass
10.9237	63	63	100	Pass
11.0612	56	56	100	Pass
11.1987	53	53	100	Pass
11.3362	48	48	100	Pass

11.4737	46	46	100	Pass
11.6112	43	43	100	Pass
11.7487	40	40	100	Pass
11.8862	39	39	100	Pass
12.0237	37	37	100	Pass
12.1612	36	36	100	Pass
12.2987	31	31	100	Pass
12.4362	30	30	100	Pass
12.5737	30	30	100	Pass
12.7112	29	29	100	Pass
12.8487	28	28	100	Pass
12.9862	27	27	100	Pass
13.1237	24	24	100	Pass
13.2612	23	23	100	Pass
13.3986	20	20	100	Pass
13.5361	20	20	100	Pass
13.6736	18	18	100	Pass
13.8111	16	16	100	Pass
13.9486	16	16	100	Pass
14.0861	16	16	100	Pass
14.2236	12	12	100	Pass
14.3611	11	11	100	Pass
14.4986	11	11	100	Pass
14.6361	11	11	100	Pass
14.7736	11	11	100	Pass
14.9111	10	10	100	Pass
15.0486	9	9	100	Pass
15.1861	9	9	100	Pass
15.3236	8	8	100	Pass
15.4611	8	8	100	Pass
15.5986	7	7	100	Pass
15.7361	7	7	100	Pass
15.8736	7	7	100	Pass
16.0111	7	7	100	Pass
16.1486	7	7	100	Pass
16.2861	6	6	100	Pass
16.4235	5	5	100	Pass
16.5610	4	4	100	Pass
16.6985	3	3	100	Pass
16.8360	2	2	100	Pass
16.9735	2	2	100	Pass
17.1110	2	2	100	Pass
17.2485	2	2	100	Pass
17.3860	2	2	100	Pass
17.5235	2	2	100	Pass
17.6610	1	1	100	Pass
17.7985	1	1	100	Pass

Water Quality

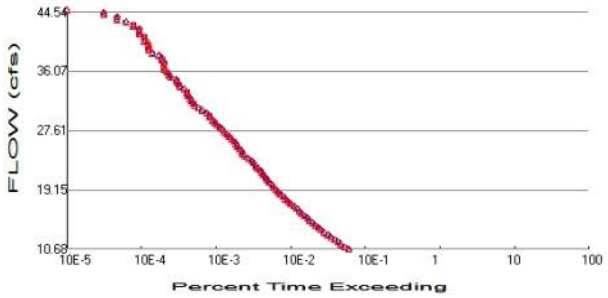
Water Quality BMP Flow and Volume for POC #3

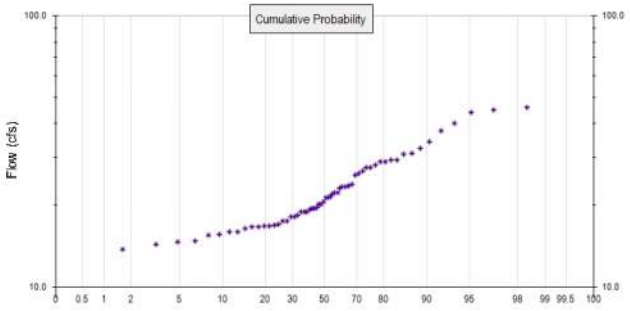
On-line facility volume:	0 acre-feet
On-line facility target flow:	0 cfs.
Adjusted for 15 min:	0 cfs.
Off-line facility target flow:	0 cfs.
Adjusted for 15 min:	0 cfs.

LID Report

LID Technique	Used for Treatment ?	Total Volume Needs Treatment (ac-ft)	Volume Through Facility (ac-ft)	Infiltration Volume (ac-ft)	Cumulative Volume Infiltration Credit	Percent Volume Infiltrated	Water Quality	Percent Water Quality Treated	Comment
Total Volume Infiltrated		0.00	0.00	0.00		0.00	0.00	0%	No Treat. Credit
Compliance with LID Standard 8% of 2-yr to 50% of 2-yr									Duration Analysis Result = Passed

POC 4





\+ Predeveloped x Mitigated

Predeveloped Landuse Totals for POC #4
Total Pervious Area: 37.43
Total Impervious Area: 45.68

Mitigated Landuse Totals for POC #4
Total Pervious Area: 37.43
Total Impervious Area: 45.68

Flow Frequency Method: Log Pearson Type III 17B

Flow Frequency Return Periods for Predeveloped. POC #4

Return Period	**Flow(cfs)**
2 year	21.368552
5 year	28.088487
10 year	32.89406
25 year	39.386143
50 year	44.536888
100 year	49.965107

Flow Frequency Return Periods for Mitigated. POC #4

Return Period	**Flow(cfs)**
2 year	21.368552
5 year	28.088487
10 year	32.89406
25 year	39.386143
50 year	44.536888
100 year	49.965107

Annual Peaks

Annual Peaks for Predeveloped and Mitigated. POC #4

Year	**Predeveloped**	**Mitigated**
1949	28.860	28.860
1950	26.735	26.735
1951	17.509	17.509
1952	13.766	13.766
1953	15.474	15.474
1954	16.908	16.908
1955	18.930	18.930
1956	18.931	18.931
1957	21.285	21.285
1958	16.742	16.742
1959	16.987	16.987

1960	19.274	19.274
1961	19.652	19.652
1962	14.651	14.651
1963	18.415	18.415
1964	16.757	16.757
1965	23.977	23.977
1966	15.950	15.950
1967	27.614	27.614
1968	31.132	31.132
1969	21.502	21.502
1970	19.462	19.462
1971	23.450	23.450
1972	25.848	25.848
1973	13.757	13.757
1974	21.288	21.288
1975	22.023	22.023
1976	17.454	17.454
1977	16.467	16.467
1978	23.009	23.009
1979	29.352	29.352
1980	37.637	37.637
1981	20.552	20.552
1982	30.811	30.811
1983	23.601	23.601
1984	15.576	15.576
1985	22.258	22.258
1986	18.066	18.066
1987	28.071	28.071
1988	15.948	15.948
1989	23.315	23.315
1990	45.880	45.880
1991	34.377	34.377
1992	16.630	16.630
1993	14.773	14.773
1994	14.355	14.355
1995	18.092	18.092
1996	27.569	27.569
1997	20.223	20.223
1998	18.976	18.976
1999	44.100	44.100
2000	20.112	20.112
2001	22.309	22.309
2002	29.395	29.395
2003	26.258	26.258
2004	44.818	44.818
2005	19.491	19.491
2006	16.607	16.607
2007	40.211	40.211
2008	32.395	32.395
2009	28.988	28.988

Ranked Annual Peaks

Ranked Annual Peaks for Predeveloped and Mitigated. POC #4

Rank	Predeveloped	Mitigated
1	45.8800	45.8800
2	44.8179	44.8179
3	44.0996	44.0996
4	40.2107	40.2107

5	37.6368	37.6368
6	34.3772	34.3772
7	32.3953	32.3953
8	31.1316	31.1316
9	30.8110	30.8110
10	29.3946	29.3946
11	29.3524	29.3524
12	28.9884	28.9884
13	28.8603	28.8603
14	28.0708	28.0708
15	27.6141	27.6141
16	27.5690	27.5690
17	26.7350	26.7350
18	26.2576	26.2576
19	25.8483	25.8483
20	23.9773	23.9773
21	23.6014	23.6014
22	23.4502	23.4502
23	23.3149	23.3149
24	23.0090	23.0090
25	22.3092	22.3092
26	22.2579	22.2579
27	22.0225	22.0225
28	21.5019	21.5019
29	21.2884	21.2884
30	21.2848	21.2848
31	20.5520	20.5520
32	20.2228	20.2228
33	20.1117	20.1117
34	19.6517	19.6517
35	19.4912	19.4912
36	19.4619	19.4619
37	19.2744	19.2744
38	18.9763	18.9763
39	18.9314	18.9314
40	18.9299	18.9299
41	18.4147	18.4147
42	18.0917	18.0917
43	18.0664	18.0664
44	17.5087	17.5087
45	17.4544	17.4544
46	16.9869	16.9869
47	16.9081	16.9081
48	16.7569	16.7569
49	16.7419	16.7419
50	16.6298	16.6298
51	16.6066	16.6066
52	16.4669	16.4669
53	15.9496	15.9496
54	15.9482	15.9482
55	15.5764	15.5764
56	15.4741	15.4741
57	14.7725	14.7725
58	14.6513	14.6513
59	14.3552	14.3552
60	13.7655	13.7655
61	13.7568	13.7568

Duration Flows

The Facility PASSED

Flow(cfs)	Predev	Mit	Percentage	Pass/Fail
10.6843	3831	3831	100	Pass
11.0262	3416	3416	100	Pass
11.3682	3053	3053	100	Pass
11.7101	2754	2754	100	Pass
12.0521	2486	2486	100	Pass
12.3940	2219	2219	100	Pass
12.7359	2021	2021	100	Pass
13.0779	1814	1814	100	Pass
13.4198	1634	1634	100	Pass
13.7618	1496	1496	100	Pass
14.1037	1379	1379	100	Pass
14.4457	1268	1268	100	Pass
14.7876	1147	1147	100	Pass
15.1296	1073	1073	100	Pass
15.4715	977	977	100	Pass
15.8135	899	899	100	Pass
16.1554	840	840	100	Pass
16.4974	771	771	100	Pass
16.8393	702	702	100	Pass
17.1812	633	633	100	Pass
17.5232	589	589	100	Pass
17.8651	549	549	100	Pass
18.2071	512	512	100	Pass
18.5490	461	461	100	Pass
18.8910	433	433	100	Pass
19.2329	406	406	100	Pass
19.5749	381	381	100	Pass
19.9168	356	356	100	Pass
20.2588	330	330	100	Pass
20.6007	311	311	100	Pass
20.9426	295	295	100	Pass
21.2846	275	275	100	Pass
21.6265	260	260	100	Pass
21.9685	250	250	100	Pass
22.3104	228	228	100	Pass
22.6524	219	219	100	Pass
22.9943	204	204	100	Pass
23.3363	192	192	100	Pass
23.6782	172	172	100	Pass
24.0202	156	156	100	Pass
24.3621	145	145	100	Pass
24.7040	140	140	100	Pass
25.0460	132	132	100	Pass
25.3879	124	124	100	Pass
25.7299	119	119	100	Pass
26.0718	111	111	100	Pass
26.4138	103	103	100	Pass
26.7557	97	97	100	Pass
27.0977	91	91	100	Pass
27.4396	84	84	100	Pass
27.7816	78	78	100	Pass
28.1235	72	72	100	Pass
28.4654	66	66	100	Pass

28.8074	62	62	100	Pass
29.1493	58	58	100	Pass
29.4913	53	53	100	Pass
29.8332	52	52	100	Pass
30.1752	48	48	100	Pass
30.5171	42	42	100	Pass
30.8591	37	37	100	Pass
31.2010	33	33	100	Pass
31.5430	32	32	100	Pass
31.8849	30	30	100	Pass
32.2268	29	29	100	Pass
32.5688	27	27	100	Pass
32.9107	26	26	100	Pass
33.2527	26	26	100	Pass
33.5946	24	24	100	Pass
33.9366	21	21	100	Pass
34.2785	20	20	100	Pass
34.6205	19	19	100	Pass
34.9624	19	19	100	Pass
35.3044	16	16	100	Pass
35.6463	15	15	100	Pass
35.9882	14	14	100	Pass
36.3302	13	13	100	Pass
36.6721	13	13	100	Pass
37.0141	13	13	100	Pass
37.3560	13	13	100	Pass
37.6980	12	12	100	Pass
38.0399	12	12	100	Pass
38.3819	11	11	100	Pass
38.7238	9	9	100	Pass
39.0658	8	8	100	Pass
39.4077	8	8	100	Pass
39.7496	8	8	100	Pass
40.0916	8	8	100	Pass
40.4335	7	7	100	Pass
40.7755	7	7	100	Pass
41.1174	7	7	100	Pass
41.4594	6	6	100	Pass
41.8013	6	6	100	Pass
42.1433	6	6	100	Pass
42.4852	5	5	100	Pass
42.8272	5	5	100	Pass
43.1691	4	4	100	Pass
43.5111	3	3	100	Pass
43.8530	3	3	100	Pass
44.1949	2	2	100	Pass
44.5369	2	2	100	Pass

Water Quality

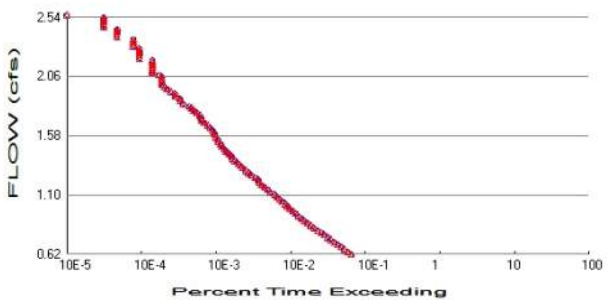
Water Quality BMP Flow and Volume for POC #4

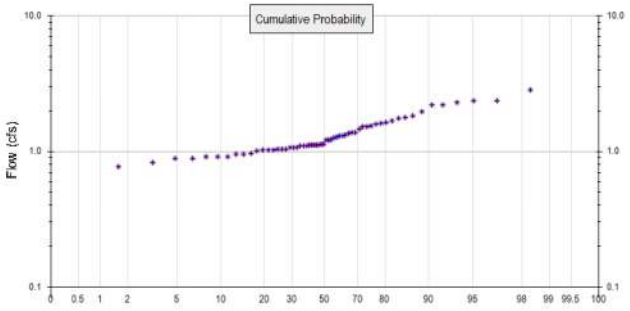
On-line facility volume:	0 acre-feet
On-line facility target flow:	0 cfs.
Adjusted for 15 min:	0 cfs.
Off-line facility target flow:	0 cfs.
Adjusted for 15 min:	0 cfs.

LID Report

LID Technique	Used for Treatment ?	Total Volume Needs Treatment (ac-ft)	Volume Through Facility (ac-ft)	Infiltration Volume (ac-ft)	Cumulative Volume Infiltration Credit	Percent Volume Infiltrated	Water Quality	Percent Water Quality Treated	Comment
Total Volume Infiltrated		0.00	0.00	0.00		0.00	0.00	0%	No Treat. Credit
Compliance with LID Standard 8% of 2-yr to 50% of 2-yr									Duration Analysis Result = Passed

POC 5





\+ Predeveloped x Mitigated

Predeveloped Landuse Totals for POC #5
Total Pervious Area: 7.26
Total Impervious Area: 2.17

Mitigated Landuse Totals for POC #5
Total Pervious Area: 7.26
Total Impervious Area: 2.17

Flow Frequency Method: Log Pearson Type III 17B

Flow Frequency Return Periods for Predeveloped. POC #5

Return Period	**Flow(cfs)**
2 year	1.232033
5 year	1.611973
10 year	1.882701
25 year	2.247388
50 year	2.53599
100 year	2.839526

Flow Frequency Return Periods for Mitigated. POC #5

Return Period	**Flow(cfs)**
2 year	1.232033
5 year	1.611973
10 year	1.882701
25 year	2.247388
50 year	2.53599
100 year	2.839526

Annual Peaks

Annual Peaks for Predeveloped and Mitigated. POC #5

Year	**Predeveloped**	**Mitigated**
1949	1.524	1.524
1950	1.362	1.362
1951	1.042	1.042
1952	0.820	0.820
1953	0.888	0.888
1954	1.029	1.029
1955	1.029	1.029
1956	1.137	1.137
1957	1.120	1.120
1958	0.907	0.907
1959	0.954	0.954

1960	1.285	1.285
1961	1.064	1.064
1962	0.725	0.725
1963	1.007	1.007
1964	1.092	1.092
1965	1.295	1.295
1966	0.910	0.910
1967	1.546	1.546
1968	1.828	1.828
1969	1.116	1.116
1970	1.074	1.074
1971	1.255	1.255
1972	1.321	1.321
1973	0.771	0.771
1974	1.299	1.299
1975	1.209	1.209
1976	1.111	1.111
1977	1.072	1.072
1978	1.371	1.371
1979	1.609	1.609
1980	2.375	2.375
1981	1.102	1.102
1982	1.593	1.593
1983	1.370	1.370
1984	0.892	0.892
1985	1.107	1.107
1986	1.136	1.136
1987	1.521	1.521
1988	0.957	0.957
1989	1.625	1.625
1990	2.820	2.820
1991	1.954	1.954
1992	1.036	1.036
1993	1.100	1.100
1994	0.908	0.908
1995	0.960	0.960
1996	1.769	1.769
1997	1.219	1.219
1998	1.208	1.208
1999	2.191	2.191
2000	1.037	1.037
2001	1.271	1.271
2002	1.462	1.462
2003	1.751	1.751
2004	2.371	2.371
2005	1.109	1.109
2006	1.028	1.028
2007	2.202	2.202
2008	2.301	2.301
2009	1.684	1.684

Ranked Annual Peaks

Ranked Annual Peaks for Predeveloped and Mitigated. POC #5

Rank	Predeveloped	Mitigated
1	2.8200	2.8200
2	2.3746	2.3746
3	2.3709	2.3709
4	2.3006	2.3006

5	2.2023	2.2023
6	2.1909	2.1909
7	1.9537	1.9537
8	1.8281	1.8281
9	1.7694	1.7694
10	1.7511	1.7511
11	1.6845	1.6845
12	1.6249	1.6249
13	1.6090	1.6090
14	1.5926	1.5926
15	1.5458	1.5458
16	1.5242	1.5242
17	1.5212	1.5212
18	1.4623	1.4623
19	1.3707	1.3707
20	1.3696	1.3696
21	1.3617	1.3617
22	1.3214	1.3214
23	1.2988	1.2988
24	1.2950	1.2950
25	1.2854	1.2854
26	1.2710	1.2710
27	1.2549	1.2549
28	1.2194	1.2194
29	1.2088	1.2088
30	1.2076	1.2076
31	1.1370	1.1370
32	1.1360	1.1360
33	1.1198	1.1198
34	1.1164	1.1164
35	1.1114	1.1114
36	1.1089	1.1089
37	1.1075	1.1075
38	1.1020	1.1020
39	1.1004	1.1004
40	1.0922	1.0922
41	1.0741	1.0741
42	1.0717	1.0717
43	1.0642	1.0642
44	1.0416	1.0416
45	1.0366	1.0366
46	1.0356	1.0356
47	1.0293	1.0293
48	1.0285	1.0285
49	1.0283	1.0283
50	1.0074	1.0074
51	0.9600	0.9600
52	0.9568	0.9568
53	0.9542	0.9542
54	0.9101	0.9101
55	0.9082	0.9082
56	0.9072	0.9072
57	0.8920	0.8920
58	0.8877	0.8877
59	0.8200	0.8200
60	0.7710	0.7710
61	0.7245	0.7245

Duration Flows

The Facility PASSED

Flow(cfs)	Predev	Mit	Percentage	Pass/Fail
0.6160	4147	4147	100	Pass
0.6354	3726	3726	100	Pass
0.6548	3366	3366	100	Pass
0.6742	3038	3038	100	Pass
0.6936	2739	2739	100	Pass
0.7130	2464	2464	100	Pass
0.7324	2228	2228	100	Pass
0.7518	2021	2021	100	Pass
0.7712	1801	1801	100	Pass
0.7906	1641	1641	100	Pass
0.8100	1472	1472	100	Pass
0.8293	1316	1316	100	Pass
0.8487	1191	1191	100	Pass
0.8681	1071	1071	100	Pass
0.8875	967	967	100	Pass
0.9069	894	894	100	Pass
0.9263	808	808	100	Pass
0.9457	746	746	100	Pass
0.9651	683	683	100	Pass
0.9845	623	623	100	Pass
1.0039	587	587	100	Pass
1.0233	544	544	100	Pass
1.0427	492	492	100	Pass
1.0621	452	452	100	Pass
1.0815	419	419	100	Pass
1.1009	390	390	100	Pass
1.1203	339	339	100	Pass
1.1396	316	316	100	Pass
1.1590	286	286	100	Pass
1.1784	260	260	100	Pass
1.1978	244	244	100	Pass
1.2172	232	232	100	Pass
1.2366	214	214	100	Pass
1.2560	189	189	100	Pass
1.2754	174	174	100	Pass
1.2948	161	161	100	Pass
1.3142	145	145	100	Pass
1.3336	135	135	100	Pass
1.3530	126	126	100	Pass
1.3724	115	115	100	Pass
1.3918	107	107	100	Pass
1.4112	102	102	100	Pass
1.4306	95	95	100	Pass
1.4499	88	88	100	Pass
1.4693	83	83	100	Pass
1.4887	76	76	100	Pass
1.5081	74	74	100	Pass
1.5275	68	68	100	Pass
1.5469	67	67	100	Pass
1.5663	64	64	100	Pass
1.5857	62	62	100	Pass
1.6051	59	59	100	Pass
1.6245	57	57	100	Pass

1.6439	53	53	100	Pass
1.6633	50	50	100	Pass
1.6827	44	44	100	Pass
1.7021	41	41	100	Pass
1.7215	40	40	100	Pass
1.7408	39	39	100	Pass
1.7602	35	35	100	Pass
1.7796	32	32	100	Pass
1.7990	30	30	100	Pass
1.8184	28	28	100	Pass
1.8378	23	23	100	Pass
1.8572	21	21	100	Pass
1.8766	21	21	100	Pass
1.8960	18	18	100	Pass
1.9154	18	18	100	Pass
1.9348	16	16	100	Pass
1.9542	14	14	100	Pass
1.9736	13	13	100	Pass
1.9930	12	12	100	Pass
2.0124	12	12	100	Pass
2.0318	12	12	100	Pass
2.0511	12	12	100	Pass
2.0705	11	11	100	Pass
2.0899	9	9	100	Pass
2.1093	9	9	100	Pass
2.1287	9	9	100	Pass
2.1481	9	9	100	Pass
2.1675	9	9	100	Pass
2.1869	9	9	100	Pass
2.2063	6	6	100	Pass
2.2257	6	6	100	Pass
2.2451	6	6	100	Pass
2.2645	6	6	100	Pass
2.2839	6	6	100	Pass
2.3033	5	5	100	Pass
2.3227	5	5	100	Pass
2.3421	5	5	100	Pass
2.3614	5	5	100	Pass
2.3808	3	3	100	Pass
2.4002	3	3	100	Pass
2.4196	3	3	100	Pass
2.4390	3	3	100	Pass
2.4584	2	2	100	Pass
2.4778	2	2	100	Pass
2.4972	2	2	100	Pass
2.5166	2	2	100	Pass
2.5360	2	2	100	Pass

Water Quality

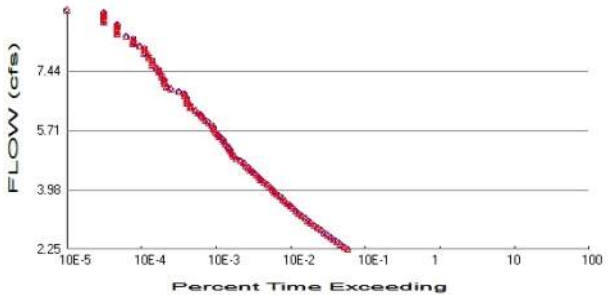
Water Quality BMP Flow and Volume for POC #5

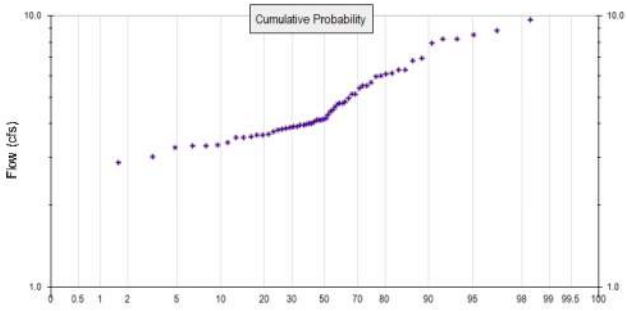
On-line facility volume:	0 acre-feet
On-line facility target flow:	0 cfs.
Adjusted for 15 min:	0 cfs.
Off-line facility target flow:	0 cfs.
Adjusted for 15 min:	0 cfs.

LID Report

LID Technique	Used for Treatment ?	Total Volume Needs Treatment (ac-ft)	Volume Through Facility (ac-ft)	Infiltration Volume (ac-ft)	Cumulative Volume Infiltration Credit	Percent Volume Infiltrated	Water Quality	Percent Water Quality Treated	Comment
Total Volume Infiltrated		0.00	0.00	0.00		0.00	0.00	0%	No Treat. Credit
Compliance with LID Standard 8% of 2-yr to 50% of 2-yr									Duration Analysis Result = Passed

POC 6





\+ Predeveloped x Mitigated

Predeveloped Landuse Totals for POC #6
Total Pervious Area: 20.13
Total Impervious Area: 8.13

Mitigated Landuse Totals for POC #6
Total Pervious Area: 20.13
Total Impervious Area: 8.13

Flow Frequency Method: Log Pearson Type III 17B

Flow Frequency Return Periods for Predeveloped. POC #6

Return Period	**Flow(cfs)**
2 year	4.500528
5 year	5.865623
10 year	6.835413
25 year	8.138639
50 year	9.167776
100 year	10.248344

Flow Frequency Return Periods for Mitigated. POC #6

Return Period	**Flow(cfs)**
2 year	4.500528
5 year	5.865623
10 year	6.835413
25 year	8.138639
50 year	9.167776
100 year	10.248344

Annual Peaks

Annual Peaks for Predeveloped and Mitigated. POC #6

Year	**Predeveloped**	**Mitigated**
1949	5.524	5.524
1950	4.972	4.972
1951	3.639	3.639
1952	3.026	3.026
1953	3.322	3.322
1954	3.814	3.814
1955	3.839	3.839
1956	4.076	4.076
1957	4.019	4.019
1958	3.339	3.339
1959	3.573	3.573

1960	4.502	4.502
1961	3.861	3.861
1962	2.709	2.709
1963	3.662	3.662
1964	3.900	3.900
1965	4.750	4.750
1966	3.306	3.306
1967	5.519	5.519
1968	6.839	6.839
1969	4.153	4.153
1970	3.903	3.903
1971	4.635	4.635
1972	4.838	4.838
1973	2.882	2.882
1974	4.730	4.730
1975	4.317	4.317
1976	4.007	4.007
1977	3.995	3.995
1978	5.127	5.127
1979	6.020	6.020
1980	8.524	8.524
1981	4.124	4.124
1982	5.954	5.954
1983	5.124	5.124
1984	3.255	3.255
1985	4.141	4.141
1986	3.948	3.948
1987	5.693	5.693
1988	3.568	3.568
1989	6.087	6.087
1990	9.675	9.675
1991	6.967	6.967
1992	3.726	3.726
1993	4.115	4.115
1994	3.402	3.402
1995	3.555	3.555
1996	6.129	6.129
1997	4.180	4.180
1998	4.430	4.430
1999	8.182	8.182
2000	3.782	3.782
2001	4.755	4.755
2002	5.414	5.414
2003	6.312	6.312
2004	8.842	8.842
2005	3.948	3.948
2006	3.643	3.643
2007	8.213	8.213
2008	7.929	7.929
2009	6.307	6.307

Ranked Annual Peaks

Ranked Annual Peaks for Predeveloped and Mitigated. POC #6

Rank	Predeveloped	Mitigated
1	9.6751	9.6751
2	8.8424	8.8424
3	8.5241	8.5241
4	8.2128	8.2128

5	8.1825	8.1825
6	7.9286	7.9286
7	6.9666	6.9666
8	6.8386	6.8386
9	6.3116	6.3116
10	6.3072	6.3072
11	6.1290	6.1290
12	6.0875	6.0875
13	6.0200	6.0200
14	5.9539	5.9539
15	5.6927	5.6927
16	5.5238	5.5238
17	5.5187	5.5187
18	5.4141	5.4141
19	5.1274	5.1274
20	5.1240	5.1240
21	4.9715	4.9715
22	4.8381	4.8381
23	4.7555	4.7555
24	4.7498	4.7498
25	4.7303	4.7303
26	4.6346	4.6346
27	4.5021	4.5021
28	4.4300	4.4300
29	4.3170	4.3170
30	4.1801	4.1801
31	4.1526	4.1526
32	4.1411	4.1411
33	4.1239	4.1239
34	4.1149	4.1149
35	4.0763	4.0763
36	4.0188	4.0188
37	4.0067	4.0067
38	3.9948	3.9948
39	3.9484	3.9484
40	3.9480	3.9480
41	3.9027	3.9027
42	3.8995	3.8995
43	3.8610	3.8610
44	3.8391	3.8391
45	3.8136	3.8136
46	3.7816	3.7816
47	3.7265	3.7265
48	3.6620	3.6620
49	3.6429	3.6429
50	3.6395	3.6395
51	3.5732	3.5732
52	3.5678	3.5678
53	3.5546	3.5546
54	3.4018	3.4018
55	3.3389	3.3389
56	3.3218	3.3218
57	3.3057	3.3057
58	3.2553	3.2553
59	3.0260	3.0260
60	2.8824	2.8824
61	2.7090	2.7090

Duration Flows

The Facility PASSED

Flow(cfs)	Predev	Mit	Percentage	Pass/Fail
2.2503	3708	3708	100	Pass
2.3201	3310	3310	100	Pass
2.3900	2982	2982	100	Pass
2.4599	2686	2686	100	Pass
2.5298	2420	2420	100	Pass
2.5996	2210	2210	100	Pass
2.6695	1975	1975	100	Pass
2.7394	1783	1783	100	Pass
2.8093	1611	1611	100	Pass
2.8791	1456	1456	100	Pass
2.9490	1326	1326	100	Pass
3.0189	1197	1197	100	Pass
3.0888	1087	1087	100	Pass
3.1586	990	990	100	Pass
3.2285	901	901	100	Pass
3.2984	819	819	100	Pass
3.3682	751	751	100	Pass
3.4381	690	690	100	Pass
3.5080	635	635	100	Pass
3.5779	586	586	100	Pass
3.6477	539	539	100	Pass
3.7176	502	502	100	Pass
3.7875	459	459	100	Pass
3.8574	414	414	100	Pass
3.9272	385	385	100	Pass
3.9971	364	364	100	Pass
4.0670	336	336	100	Pass
4.1369	307	307	100	Pass
4.2067	279	279	100	Pass
4.2766	256	256	100	Pass
4.3465	240	240	100	Pass
4.4164	221	221	100	Pass
4.4862	203	203	100	Pass
4.5561	188	188	100	Pass
4.6260	174	174	100	Pass
4.6958	161	161	100	Pass
4.7657	149	149	100	Pass
4.8356	135	135	100	Pass
4.9055	118	118	100	Pass
4.9753	110	110	100	Pass
5.0452	106	106	100	Pass
5.1151	101	101	100	Pass
5.1850	95	95	100	Pass
5.2548	92	92	100	Pass
5.3247	87	87	100	Pass
5.3946	82	82	100	Pass
5.4645	78	78	100	Pass
5.5343	71	71	100	Pass
5.6042	67	67	100	Pass
5.6741	63	63	100	Pass
5.7440	59	59	100	Pass
5.8138	59	59	100	Pass
5.8837	56	56	100	Pass

5.9536	51	51	100	Pass
6.0235	46	46	100	Pass
6.0933	42	42	100	Pass
6.1632	40	40	100	Pass
6.2331	37	37	100	Pass
6.3029	34	34	100	Pass
6.3728	29	29	100	Pass
6.4427	29	29	100	Pass
6.5126	26	26	100	Pass
6.5824	26	26	100	Pass
6.6523	26	26	100	Pass
6.7222	24	24	100	Pass
6.7921	24	24	100	Pass
6.8619	20	20	100	Pass
6.9318	16	16	100	Pass
7.0017	14	14	100	Pass
7.0716	13	13	100	Pass
7.1414	13	13	100	Pass
7.2113	13	13	100	Pass
7.2812	12	12	100	Pass
7.3511	12	12	100	Pass
7.4209	11	11	100	Pass
7.4908	11	11	100	Pass
7.5607	10	10	100	Pass
7.6306	9	9	100	Pass
7.7004	9	9	100	Pass
7.7703	9	9	100	Pass
7.8402	8	8	100	Pass
7.9100	8	8	100	Pass
7.9799	7	7	100	Pass
8.0498	7	7	100	Pass
8.1197	7	7	100	Pass
8.1895	6	6	100	Pass
8.2594	5	5	100	Pass
8.3293	5	5	100	Pass
8.3992	5	5	100	Pass
8.4690	4	4	100	Pass
8.5389	3	3	100	Pass
8.6088	3	3	100	Pass
8.6787	3	3	100	Pass
8.7485	3	3	100	Pass
8.8184	3	3	100	Pass
8.8883	2	2	100	Pass
8.9582	2	2	100	Pass
9.0280	2	2	100	Pass
9.0979	2	2	100	Pass
9.1678	2	2	100	Pass

Water Quality

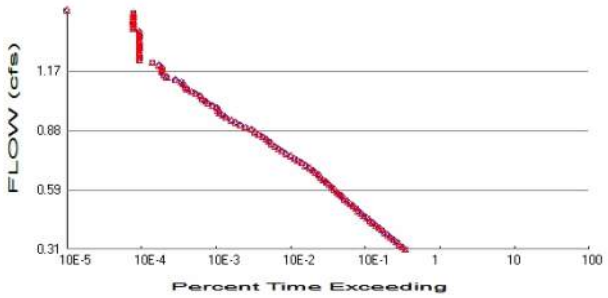
Water Quality BMP Flow and Volume for POC #6

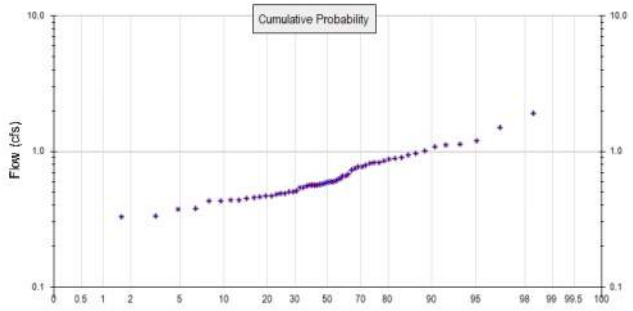
On-line facility volume:	0 acre-feet
On-line facility target flow:	0 cfs.
Adjusted for 15 min:	0 cfs.
Off-line facility target flow:	0 cfs.
Adjusted for 15 min:	0 cfs.

LID Report

LID Technique	Used for Treatment ?	Total Volume Needs Treatment (ac-ft)	Volume Through Facility (ac-ft)	Infiltration Volume (ac-ft)	Cumulative Volume Infiltration Credit	Percent Volume Infiltrated	Water Quality	Percent Water Quality Treated	Comment
Total Volume Infiltrated		0.00	0.00	0.00		0.00	0.00	0%	No Treat. Credit
Compliance with LID Standard 8% of 2-yr to 50% of 2-yr									Duration Analysis Result = Passed

POC 7





\+ Predeveloped x Mitigated

Predeveloped Landuse Totals for POC #7
Total Pervious Area: 11.84
Total Impervious Area: 0.92

Mitigated Landuse Totals for POC #7
Total Pervious Area: 11.84
Total Impervious Area: 0.92

Flow Frequency Method: Log Pearson Type III 17B

Flow Frequency Return Periods for Predeveloped. POC #7

Return Period	**Flow(cfs)**
2 year	0.612129
5 year	0.849414
10 year	1.022697
25 year	1.260616
50 year	1.452014
100 year	1.655873

Flow Frequency Return Periods for Mitigated. POC #7

Return Period	**Flow(cfs)**
2 year	0.612129
5 year	0.849414
10 year	1.022697
25 year	1.260616
50 year	1.452014
100 year	1.655873

Annual Peaks

Annual Peaks for Predeveloped and Mitigated. POC #7

Year	**Predeveloped**	**Mitigated**
1949	0.766	0.766
1950	0.767	0.767
1951	0.962	0.962
1952	0.462	0.462
1953	0.376	0.376
1954	0.487	0.487
1955	0.661	0.661
1956	0.622	0.622
1957	0.658	0.658
1958	0.502	0.502
1959	0.452	0.452

1960	0.847	0.847
1961	0.563	0.563
1962	0.328	0.328
1963	0.508	0.508
1964	0.562	0.562
1965	0.572	0.572
1966	0.467	0.467
1967	0.829	0.829
1968	0.597	0.597
1969	0.588	0.588
1970	0.553	0.553
1971	0.579	0.579
1972	0.792	0.792
1973	0.439	0.439
1974	0.564	0.564
1975	0.730	0.730
1976	0.567	0.567
1977	0.334	0.334
1978	0.502	0.502
1979	0.598	0.598
1980	1.003	1.003
1981	0.492	0.492
1982	0.900	0.900
1983	0.593	0.593
1984	0.429	0.429
1985	0.430	0.430
1986	0.820	0.820
1987	0.812	0.812
1988	0.379	0.379
1989	0.469	0.469
1990	1.920	1.920
1991	1.082	1.082
1992	0.538	0.538
1993	0.436	0.436
1994	0.289	0.289
1995	0.571	0.571
1996	1.132	1.132
1997	0.941	0.941
1998	0.485	0.485
1999	1.121	1.121
2000	0.539	0.539
2001	0.453	0.453
2002	0.608	0.608
2003	0.745	0.745
2004	0.868	0.868
2005	0.674	0.674
2006	0.628	0.628
2007	1.191	1.191
2008	1.491	1.491
2009	0.883	0.883

Ranked Annual Peaks

Ranked Annual Peaks for Predeveloped and Mitigated. POC #7

Rank	Predeveloped	Mitigated
1	1.9203	1.9203
2	1.4909	1.4909
3	1.1906	1.1906
4	1.1318	1.1318

5	1.1210	1.1210
6	1.0821	1.0821
7	1.0034	1.0034
8	0.9618	0.9618
9	0.9406	0.9406
10	0.8998	0.8998
11	0.8826	0.8826
12	0.8680	0.8680
13	0.8467	0.8467
14	0.8292	0.8292
15	0.8202	0.8202
16	0.8120	0.8120
17	0.7924	0.7924
18	0.7673	0.7673
19	0.7656	0.7656
20	0.7450	0.7450
21	0.7296	0.7296
22	0.6741	0.6741
23	0.6606	0.6606
24	0.6585	0.6585
25	0.6282	0.6282
26	0.6222	0.6222
27	0.6081	0.6081
28	0.5979	0.5979
29	0.5974	0.5974
30	0.5931	0.5931
31	0.5879	0.5879
32	0.5785	0.5785
33	0.5716	0.5716
34	0.5708	0.5708
35	0.5671	0.5671
36	0.5640	0.5640
37	0.5630	0.5630
38	0.5617	0.5617
39	0.5527	0.5527
40	0.5388	0.5388
41	0.5380	0.5380
42	0.5076	0.5076
43	0.5016	0.5016
44	0.5016	0.5016
45	0.4917	0.4917
46	0.4867	0.4867
47	0.4845	0.4845
48	0.4695	0.4695
49	0.4672	0.4672
50	0.4615	0.4615
51	0.4527	0.4527
52	0.4516	0.4516
53	0.4388	0.4388
54	0.4361	0.4361
55	0.4303	0.4303
56	0.4288	0.4288
57	0.3787	0.3787
58	0.3757	0.3757
59	0.3335	0.3335
60	0.3284	0.3284
61	0.2890	0.2890

Duration Flows

The Facility PASSED

Flow(cfs)	Predev	Mit	Percentage	Pass/Fail
0.3061	22086	22086	100	Pass
0.3176	20135	20135	100	Pass
0.3292	18204	18204	100	Pass
0.3408	16696	16696	100	Pass
0.3524	15207	15207	100	Pass
0.3639	13956	13956	100	Pass
0.3755	12737	12737	100	Pass
0.3871	11563	11563	100	Pass
0.3987	10607	10607	100	Pass
0.4102	9689	9689	100	Pass
0.4218	8868	8868	100	Pass
0.4334	8066	8066	100	Pass
0.4450	7405	7405	100	Pass
0.4565	6763	6763	100	Pass
0.4681	6159	6159	100	Pass
0.4797	5674	5674	100	Pass
0.4913	5182	5182	100	Pass
0.5028	4790	4790	100	Pass
0.5144	4375	4375	100	Pass
0.5260	4026	4026	100	Pass
0.5376	3684	3684	100	Pass
0.5491	3371	3371	100	Pass
0.5607	3109	3109	100	Pass
0.5723	2882	2882	100	Pass
0.5839	2662	2662	100	Pass
0.5954	2456	2456	100	Pass
0.6070	2271	2271	100	Pass
0.6186	2088	2088	100	Pass
0.6302	1909	1909	100	Pass
0.6417	1764	1764	100	Pass
0.6533	1625	1625	100	Pass
0.6649	1500	1500	100	Pass
0.6765	1378	1378	100	Pass
0.6880	1260	1260	100	Pass
0.6996	1156	1156	100	Pass
0.7112	1012	1012	100	Pass
0.7228	899	899	100	Pass
0.7343	797	797	100	Pass
0.7459	722	722	100	Pass
0.7575	641	641	100	Pass
0.7691	555	555	100	Pass
0.7806	487	487	100	Pass
0.7922	441	441	100	Pass
0.8038	395	395	100	Pass
0.8154	355	355	100	Pass
0.8270	324	324	100	Pass
0.8385	299	299	100	Pass
0.8501	272	272	100	Pass
0.8617	238	238	100	Pass
0.8733	213	213	100	Pass
0.8848	189	189	100	Pass
0.8964	158	158	100	Pass
0.9080	134	134	100	Pass

0.9196	117	117	100	Pass
0.9311	103	103	100	Pass
0.9427	87	87	100	Pass
0.9543	79	79	100	Pass
0.9659	71	71	100	Pass
0.9774	69	69	100	Pass
0.9890	65	65	100	Pass
1.0006	57	57	100	Pass
1.0122	50	50	100	Pass
1.0237	46	46	100	Pass
1.0353	42	42	100	Pass
1.0469	39	39	100	Pass
1.0585	34	34	100	Pass
1.0700	30	30	100	Pass
1.0816	26	26	100	Pass
1.0932	25	25	100	Pass
1.1048	23	23	100	Pass
1.1163	22	22	100	Pass
1.1279	18	18	100	Pass
1.1395	14	14	100	Pass
1.1511	13	13	100	Pass
1.1626	12	12	100	Pass
1.1742	12	12	100	Pass
1.1858	12	12	100	Pass
1.1974	11	11	100	Pass
1.2089	9	9	100	Pass
1.2205	6	6	100	Pass
1.2321	6	6	100	Pass
1.2437	6	6	100	Pass
1.2552	6	6	100	Pass
1.2668	6	6	100	Pass
1.2784	6	6	100	Pass
1.2900	6	6	100	Pass
1.3015	6	6	100	Pass
1.3131	6	6	100	Pass
1.3247	6	6	100	Pass
1.3363	6	6	100	Pass
1.3478	6	6	100	Pass
1.3594	6	6	100	Pass
1.3710	5	5	100	Pass
1.3826	5	5	100	Pass
1.3941	5	5	100	Pass
1.4057	5	5	100	Pass
1.4173	5	5	100	Pass
1.4289	5	5	100	Pass
1.4404	5	5	100	Pass
1.4520	5	5	100	Pass

Water Quality

Water Quality BMP Flow and Volume for POC #7

On-line facility volume:	0 acre-feet
On-line facility target flow:	0 cfs.
Adjusted for 15 min:	0 cfs.
Off-line facility target flow:	0 cfs.
Adjusted for 15 min:	0 cfs.

LID Report

LID Technique	Used for Treatment ?	Total Volume Needs Treatment (ac-ft)	Volume Through Facility (ac-ft)	Infiltration Volume (ac-ft)	Cumulative Volume Infiltration Credit	Percent Volume Infiltrated	Water Quality	Percent Water Quality Treated	Comment
Total Volume Infiltrated		0.00	0.00	0.00		0.00	0.00	0%	No Treat. Credit
Compliance with LID Standard 8% of 2-yr to 50% of 2-yr									Duration Analysis Result = Passed

Model Default Modifications

Total of 0 changes have been made.

PERLND Changes

No PERLND changes have been made.

IMPLND Changes

No IMPLND changes have been made.

Appendix

Predeveloped Schematic

Mitigated Schematic

Predeveloped UCI File

```
RUN

GLOBAL
  WWHM4 model simulation
  START       1948 10 01        END    2009 09 30
  RUN INTERP OUTPUT LEVEL    3    0
  RESUME     0 RUN     1                    UNIT SYSTEM     1
END GLOBAL

FILES
<File>  <Un#>   <-----------File Name------------------------------>***
<-ID->                                                              ***
WDM         26   Alt_B_Model_210802.wdm
MESSU       25   PreAlt_B_Model_210802.MES
            27   PreAlt_B_Model_210802.L61
            28   PreAlt_B_Model_210802.L62
            30   POCAlt_B_Model_2108021.dat
            31   POCAlt_B_Model_2108022.dat
            32   POCAlt_B_Model_2108023.dat
            33   POCAlt_B_Model_2108024.dat
            34   POCAlt_B_Model_2108025.dat
            35   POCAlt_B_Model_2108026.dat
            36   POCAlt_B_Model_2108027.dat
END FILES

OPN SEQUENCE
    INGRP               INDELT 00:05
      PERLND      10
      PERLND      16
      IMPLND       1
      PERLND      17
      PERLND      11
      IMPLND       2
      COPY       501
      COPY       502
      COPY       503
      COPY       504
      COPY       505
      COPY       506
      COPY       507
      DISPLY       1
      DISPLY       2
      DISPLY       3
      DISPLY       4
      DISPLY       5
      DISPLY       6
      DISPLY       7
    END INGRP
END OPN SEQUENCE
DISPLY
  DISPLY-INFO1
    # -  #<----------Title----------->***TRAN PIVL DIG1 FIL1  PYR DIG2 FIL2 YRND
    1        Basin  1                   MAX                    1    2   30    9
    2        Basin  2                   MAX                    1    2   31    9
    3        Basin  3                   MAX                    1    2   32    9
    4        Basin  4                   MAX                    1    2   33    9
    5        Basin  5                   MAX                    1    2   34    9
    6        Basin  6                   MAX                    1    2   35    9
    7        Basin  7                   MAX                    1    2   36    9
  END DISPLY-INFO1
END DISPLY
COPY
  TIMESERIES
    # -  #  NPT  NMN ***
    1         1    1
  501         1    1
  502         1    1
  503         1    1
```

```
  504         1    1
  505         1    1
  506         1    1
  507         1    1
  END TIMESERIES
END COPY
GENER
  OPCODE
    #    # OPCD ***
  END OPCODE
  PARM
    #    #         K ***
  END PARM
END GENER
PERLND
  GEN-INFO
    <PLS ><-------Name------->NBLKS   Unit-systems   Printer ***
    # -  #                          User  t-series Engl Metr ***
                                        in  out           ***
   10     C, Forest, Flat         1    1    1    1   27    0
   16     C, Lawn, Flat           1    1    1    1   27    0
   17     C, Lawn, Mod            1    1    1    1   27    0
   11     C, Forest, Mod          1    1    1    1   27    0
  END GEN-INFO
  *** Section PWATER***

  ACTIVITY
    <PLS > ************ Active Sections ******************************
    # -  # ATMP SNOW PWAT  SED  PST  PWG PQAL MSTL PEST NITR PHOS TRAC ***
   10         0    0    1    0    0    0    0    0    0    0    0    0
   16         0    0    1    0    0    0    0    0    0    0    0    0
   17         0    0    1    0    0    0    0    0    0    0    0    0
   11         0    0    1    0    0    0    0    0    0    0    0    0
  END ACTIVITY

  PRINT-INFO
    <PLS > ***************** Print-flags **************************** PIVL  PYR
    # -  # ATMP SNOW PWAT  SED  PST  PWG PQAL MSTL PEST NITR PHOS TRAC  *********
   10         0    0    4    0    0    0    0    0    0    0    0    0    1    9
   16         0    0    4    0    0    0    0    0    0    0    0    0    1    9
   17         0    0    4    0    0    0    0    0    0    0    0    0    1    9
   11         0    0    4    0    0    0    0    0    0    0    0    0    1    9
  END PRINT-INFO

  PWAT-PARM1
    <PLS >  PWATER variable monthly parameter value flags  ***
    # -  # CSNO RTOP UZFG  VCS  VUZ  VNN VIFW VIRC  VLE INFC  HWT ***
   10         0    0    0    0    0    0    0    0    0    0    0
   16         0    0    0    0    0    0    0    0    0    0    0
   17         0    0    0    0    0    0    0    0    0    0    0
   11         0    0    0    0    0    0    0    0    0    0    0
  END PWAT-PARM1

  PWAT-PARM2
    <PLS >      PWATER input info: Part 2         ***
    # -  # ***FOREST      LZSN    INFILT      LSUR     SLSUR     KVARY     AGWRC
   10              0       4.5      0.08       400      0.05       0.5     0.996
   16              0       4.5      0.03       400      0.05       0.5     0.996
   17              0       4.5      0.03       400       0.1       0.5     0.996
   11              0       4.5      0.08       400       0.1       0.5     0.996
  END PWAT-PARM2

  PWAT-PARM3
    <PLS >      PWATER input info: Part 3         ***
    # -  # ***PETMAX    PETMIN    INFEXP    INFILD    DEEPFR    BASETP    AGWETP
   10              0         0         2         2         0         0         0
   16              0         0         2         2         0         0         0
   17              0         0         2         2         0         0         0
   11              0         0         2         2         0         0         0
  END PWAT-PARM3
```

```
  PWAT-PARM4
    <PLS >     PWATER input info: Part 4                                    ***
    # -  #     CEPSC      UZSN      NSUR     INTFW       IRC     LZETP ***
   10            0.2       0.5      0.35         6       0.5       0.7
   16            0.1      0.25      0.25         6       0.5      0.25
   17            0.1      0.25      0.25         6       0.5      0.25
   11            0.2       0.5      0.35         6       0.5       0.7
  END PWAT-PARM4

  PWAT-STATE1
    <PLS > *** Initial conditions at start of simulation
               ran from 1990 to end of 1992 (pat 1-11-95) RUN 21 ***
    # -  # ***  CEPS      SURS       UZS       IFWS       LZS       AGWS      GWVS
   10              0         0         0          0       2.5          1         0
   16              0         0         0          0       2.5          1         0
   17              0         0         0          0       2.5          1         0
   11              0         0         0          0       2.5          1         0
  END PWAT-STATE1

END PERLND

IMPLND
  GEN-INFO
    <PLS ><-------Name------->   Unit-systems   Printer ***
    # -  #                     User  t-series Engl Metr ***
                                      in  out           ***
    1      ROADS/FLAT             1    1    1   27    0
    2      ROADS/MOD              1    1    1   27    0
  END GEN-INFO
  *** Section IWATER***

  ACTIVITY
    <PLS > ************* Active Sections ******************************
    # -  # ATMP SNOW IWAT  SLD  IWG IQAL   ***
    1         0    0    1    0    0    0
    2         0    0    1    0    0    0
  END ACTIVITY

  PRINT-INFO
    <ILS > ******** Print-flags ******** PIVL  PYR
    # -  # ATMP SNOW IWAT  SLD  IWG IQAL    *********
    1         0    0    4    0    0    0    1    9
    2         0    0    4    0    0    0    1    9
  END PRINT-INFO

  IWAT-PARM1
    <PLS >  IWATER variable monthly parameter value flags  ***
    # -  # CSNO RTOP  VRS  VNN RTLI     ***
    1         0    0    0    0    0
    2         0    0    0    0    0
  END IWAT-PARM1

  IWAT-PARM2
    <PLS >      IWATER input info: Part 2         ***
    # -  # ***  LSUR     SLSUR      NSUR     RETSC
    1            400      0.01       0.1       0.1
    2            400      0.05       0.1      0.08
  END IWAT-PARM2

  IWAT-PARM3
    <PLS >      IWATER input info: Part 3         ***
    # -  # ***PETMAX    PETMIN
    1              0         0
    2              0         0
  END IWAT-PARM3

  IWAT-STATE1
    <PLS > *** Initial conditions at start of simulation
    # -  # ***  RETS      SURS
    1              0         0
```

```
    2              0         0
  END IWAT-STATE1

END IMPLND

SCHEMATIC
<-Source->                  <--Area-->     <-Target->   MBLK   ***
<Name>   #                  <-factor->     <Name>   #   Tbl#   ***
Basin  1***
PERLND  10                       2.31     COPY   501     12
PERLND  10                       2.31     COPY   501     13
PERLND  16                       2.79     COPY   501     12
PERLND  16                       2.79     COPY   501     13
IMPLND   1                       6.15     COPY   501     15
Basin  2***
PERLND  10                      33.72     COPY   502     12
PERLND  10                      33.72     COPY   502     13
PERLND  16                       9.13     COPY   502     12
PERLND  16                       9.13     COPY   502     13
IMPLND   1                      19.85     COPY   502     15
Basin  3***
PERLND  17                       8.21     COPY   503     12
PERLND  17                       8.21     COPY   503     13
PERLND  11                      13.74     COPY   503     12
PERLND  11                      13.74     COPY   503     13
IMPLND   2                      14.69     COPY   503     15
Basin  4***
PERLND  10                      16.34     COPY   504     12
PERLND  10                      16.34     COPY   504     13
PERLND  16                      21.09     COPY   504     12
PERLND  16                      21.09     COPY   504     13
IMPLND   1                      45.68     COPY   504     15
Basin  5***
PERLND  17                       0.21     COPY   505     12
PERLND  17                       0.21     COPY   505     13
PERLND  11                       7.05     COPY   505     12
PERLND  11                       7.05     COPY   505     13
IMPLND   2                       2.17     COPY   505     15
Basin  6***
PERLND  11                      19.43     COPY   506     12
PERLND  11                      19.43     COPY   506     13
PERLND  17                        0.7     COPY   506     12
PERLND  17                        0.7     COPY   506     13
IMPLND   2                       8.13     COPY   506     15
Basin  7***
PERLND  10                      11.84     COPY   507     12
PERLND  10                      11.84     COPY   507     13
IMPLND   1                       0.92     COPY   507     15

******Routing******
END SCHEMATIC

NETWORK
<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
<Name>   #        <Name> # #<-factor->strg <Name>   #   #        <Name> # #  ***
COPY   501 OUTPUT MEAN   1 1  145.2        DISPLY   1     INPUT  TIMSER 1
COPY   502 OUTPUT MEAN   1 1  145.2        DISPLY   2     INPUT  TIMSER 1
COPY   503 OUTPUT MEAN   1 1  145.2        DISPLY   3     INPUT  TIMSER 1
COPY   504 OUTPUT MEAN   1 1  145.2        DISPLY   4     INPUT  TIMSER 1
COPY   505 OUTPUT MEAN   1 1  145.2        DISPLY   5     INPUT  TIMSER 1
COPY   506 OUTPUT MEAN   1 1  145.2        DISPLY   6     INPUT  TIMSER 1
COPY   507 OUTPUT MEAN   1 1  145.2        DISPLY   7     INPUT  TIMSER 1



<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
<Name>   #        <Name> # #<-factor->strg <Name>   #   #        <Name> # #  ***
END NETWORK

RCHRES
```

```
  GEN-INFO
    RCHRES       Name        Nexits   Unit Systems   Printer                ***
    # -  #<----------------><---> User T-series  Engl Metr LKFG            ***
                                       in  out                              ***
  END GEN-INFO
  *** Section RCHRES***

  ACTIVITY
    <PLS > ************ Active Sections ****************************
    # -  # HYFG ADFG CNFG HTFG SDFG GQFG OXFG NUFG PKFG PHFG ***
  END ACTIVITY

  PRINT-INFO
    <PLS > ***************** Print-flags ****************** PIVL  PYR
    # -  # HYDR ADCA CONS HEAT  SED  GQL OXRX NUTR PLNK PHCB PIVL  PYR  *********
  END PRINT-INFO

  HYDR-PARM1
    RCHRES  Flags for each HYDR Section                                  ***
    # -  #  VC A1 A2 A3  ODFVFG for each *** ODGTFG for each     FUNCT  for each
            FG FG FG FG  possible  exit  *** possible  exit      possible  exit
             *  *  *  *    *  *  *  *  *       *  *  *  *  *        ***
  END HYDR-PARM1

  HYDR-PARM2
    # -  #    FTABNO       LEN     DELTH     STCOR        KS      DB50       ***
  <------><--------><--------><--------><--------><--------><-------->       ***
  END HYDR-PARM2
  HYDR-INIT
    RCHRES  Initial conditions for each HYDR section                     ***
    # -  # ***   VOL     Initial  value  of COLIND     Initial  value  of OUTDGT
          *** ac-ft     for each possible exit        for each possible exit
  <------><-------->     <---><---><---><---><---> *** <---><---><---><---><--->
  END HYDR-INIT
END RCHRES

SPEC-ACTIONS
END SPEC-ACTIONS
FTABLES
END FTABLES

EXT SOURCES
<-Volume-> <Member> SsysSgap<--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
<Name>   # <Name> # tem strg<-factor->strg <Name>   #   #        <Name> # #  ***
WDM      2 PREC     ENGL    1         DIV  PERLND   1 999 EXTNL  PREC
WDM      2 PREC     ENGL    1         DIV  IMPLND   1 999 EXTNL  PREC
WDM      1 EVAP     ENGL    0.76           PERLND   1 999 EXTNL  PETINP
WDM      1 EVAP     ENGL    0.76           IMPLND   1 999 EXTNL  PETINP

END EXT SOURCES

EXT TARGETS
<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Volume-> <Member> Tsys Tgap Amd ***
<Name>   #        <Name> # #<-factor->strg <Name>   # <Name>    tem strg strg***
COPY   501 OUTPUT MEAN   1 1    145.2      WDM    501 FLOW     ENGL      REPL
COPY   502 OUTPUT MEAN   1 1    145.2      WDM    502 FLOW     ENGL      REPL
COPY   503 OUTPUT MEAN   1 1    145.2      WDM    503 FLOW     ENGL      REPL
COPY   504 OUTPUT MEAN   1 1    145.2      WDM    504 FLOW     ENGL      REPL
COPY   505 OUTPUT MEAN   1 1    145.2      WDM    505 FLOW     ENGL      REPL
COPY   506 OUTPUT MEAN   1 1    145.2      WDM    506 FLOW     ENGL      REPL
COPY   507 OUTPUT MEAN   1 1    145.2      WDM    507 FLOW     ENGL      REPL
END EXT TARGETS

MASS-LINK
<Volume>   <-Grp> <-Member-><--Mult-->     <Target>       <-Grp> <-Member->***
<Name>           <Name> # #<-factor->     <Name>                <Name> # #***
  MASS-LINK      12
PERLND     PWATER SURO       0.083333      COPY           INPUT  MEAN
  END MASS-LINK  12
```

```
  MASS-LINK       13
PERLND     PWATER IFWO       0.083333      COPY           INPUT  MEAN
  END MASS-LINK   13

  MASS-LINK       15
IMPLND     IWATER SURO       0.083333      COPY           INPUT  MEAN
  END MASS-LINK   15


END MASS-LINK

END RUN
```

Mitigated UCI File

```
RUN

GLOBAL
  WWHM4 model simulation
  START       1948 10 01        END    2009 09 30
  RUN INTERP OUTPUT LEVEL    3    0
  RESUME     0 RUN     1                    UNIT SYSTEM     1
END GLOBAL

FILES
<File>  <Un#>   <-----------File Name------------------------------>***
<-ID->                                                              ***
WDM         26   Alt_B_Model_210802.wdm
MESSU       25   MitAlt_B_Model_210802.MES
            27   MitAlt_B_Model_210802.L61
            28   MitAlt_B_Model_210802.L62
            30   POCAlt_B_Model_2108021.dat
            31   POCAlt_B_Model_2108022.dat
            32   POCAlt_B_Model_2108023.dat
            33   POCAlt_B_Model_2108024.dat
            34   POCAlt_B_Model_2108025.dat
            35   POCAlt_B_Model_2108026.dat
            36   POCAlt_B_Model_2108027.dat
END FILES

OPN SEQUENCE
    INGRP              INDELT 00:05
      PERLND      10
      PERLND      16
      IMPLND       1
      PERLND      17
      PERLND      11
      IMPLND       2
      COPY       501
      COPY       502
      COPY       503
      COPY       504
      COPY       505
      COPY       506
      COPY       507
      DISPLY       1
      DISPLY       2
      DISPLY       3
      DISPLY       4
      DISPLY       5
      DISPLY       6
      DISPLY       7
    END INGRP
END OPN SEQUENCE
DISPLY
  DISPLY-INFO1
    # -  #<----------Title----------->***TRAN PIVL DIG1 FIL1  PYR DIG2 FIL2 YRND
    1        Basin  1                   MAX                    1    2   30    9
    2        Basin  2                   MAX                    1    2   31    9
    3        Basin  3                   MAX                    1    2   32    9
    4        Basin  4                   MAX                    1    2   33    9
    5        Basin  5                   MAX                    1    2   34    9
    6        Basin  6                   MAX                    1    2   35    9
    7        Basin  7                   MAX                    1    2   36    9
  END DISPLY-INFO1
END DISPLY
COPY
  TIMESERIES
    # -  #  NPT  NMN ***
    1         1    1
  501         1    1
  502         1    1
  503         1    1
```

```
  504         1    1
  505         1    1
  506         1    1
  507         1    1
  END TIMESERIES
END COPY
GENER
  OPCODE
    #    # OPCD ***
  END OPCODE
  PARM
    #    #         K ***
  END PARM
END GENER
PERLND
  GEN-INFO
    <PLS ><-------Name------->NBLKS   Unit-systems   Printer ***
    # -  #                          User  t-series Engl Metr ***
                                        in  out           ***
   10     C, Forest, Flat         1    1    1    1   27    0
   16     C, Lawn, Flat           1    1    1    1   27    0
   17     C, Lawn, Mod            1    1    1    1   27    0
   11     C, Forest, Mod          1    1    1    1   27    0
  END GEN-INFO
  *** Section PWATER***

  ACTIVITY
    <PLS > ************ Active Sections ****************************
    # -  # ATMP SNOW PWAT  SED  PST  PWG PQAL MSTL PEST NITR PHOS TRAC ***
   10         0    0    1    0    0    0    0    0    0    0    0    0
   16         0    0    1    0    0    0    0    0    0    0    0    0
   17         0    0    1    0    0    0    0    0    0    0    0    0
   11         0    0    1    0    0    0    0    0    0    0    0    0
  END ACTIVITY

  PRINT-INFO
    <PLS > ***************** Print-flags **************************** PIVL  PYR
    # -  # ATMP SNOW PWAT  SED  PST  PWG PQAL MSTL PEST NITR PHOS TRAC  *********
   10         0    0    4    0    0    0    0    0    0    0    0    0    1    9
   16         0    0    4    0    0    0    0    0    0    0    0    0    1    9
   17         0    0    4    0    0    0    0    0    0    0    0    0    1    9
   11         0    0    4    0    0    0    0    0    0    0    0    0    1    9
  END PRINT-INFO

  PWAT-PARM1
    <PLS >  PWATER variable monthly parameter value flags  ***
    # -  # CSNO RTOP UZFG  VCS  VUZ  VNN VIFW VIRC  VLE INFC  HWT ***
   10         0    0    0    0    0    0    0    0    0    0    0
   16         0    0    0    0    0    0    0    0    0    0    0
   17         0    0    0    0    0    0    0    0    0    0    0
   11         0    0    0    0    0    0    0    0    0    0    0
  END PWAT-PARM1

  PWAT-PARM2
    <PLS >      PWATER input info: Part 2         ***
    # -  # ***FOREST      LZSN    INFILT      LSUR     SLSUR     KVARY     AGWRC
   10              0       4.5      0.08       400      0.05       0.5     0.996
   16              0       4.5      0.03       400      0.05       0.5     0.996
   17              0       4.5      0.03       400       0.1       0.5     0.996
   11              0       4.5      0.08       400       0.1       0.5     0.996
  END PWAT-PARM2

  PWAT-PARM3
    <PLS >      PWATER input info: Part 3         ***
    # -  # ***PETMAX    PETMIN    INFEXP    INFILD    DEEPFR    BASETP    AGWETP
   10              0         0         2         2         0         0         0
   16              0         0         2         2         0         0         0
   17              0         0         2         2         0         0         0
   11              0         0         2         2         0         0         0
  END PWAT-PARM3
```

```
  PWAT-PARM4
    <PLS >     PWATER input info: Part 4                                    ***
    # -  #     CEPSC      UZSN      NSUR     INTFW       IRC     LZETP ***
   10            0.2       0.5      0.35         6       0.5       0.7
   16            0.1      0.25      0.25         6       0.5      0.25
   17            0.1      0.25      0.25         6       0.5      0.25
   11            0.2       0.5      0.35         6       0.5       0.7
  END PWAT-PARM4

  PWAT-STATE1
    <PLS > *** Initial conditions at start of simulation
               ran from 1990 to end of 1992 (pat 1-11-95) RUN 21 ***
    # -  # ***  CEPS      SURS       UZS       IFWS       LZS       AGWS      GWVS
   10              0         0         0          0       2.5          1         0
   16              0         0         0          0       2.5          1         0
   17              0         0         0          0       2.5          1         0
   11              0         0         0          0       2.5          1         0
  END PWAT-STATE1

END PERLND

IMPLND
  GEN-INFO
    <PLS ><-------Name------->   Unit-systems   Printer ***
    # -  #                     User  t-series Engl Metr ***
                                      in  out           ***
    1      ROADS/FLAT             1    1    1   27    0
    2      ROADS/MOD              1    1    1   27    0
  END GEN-INFO
  *** Section IWATER***

  ACTIVITY
    <PLS > ************* Active Sections ******************************
    # -  # ATMP SNOW IWAT  SLD  IWG IQAL   ***
    1         0    0    1    0    0    0
    2         0    0    1    0    0    0
  END ACTIVITY

  PRINT-INFO
    <ILS > ******** Print-flags ******** PIVL  PYR
    # -  # ATMP SNOW IWAT  SLD  IWG IQAL    *********
    1         0    0    4    0    0    0    1    9
    2         0    0    4    0    0    0    1    9
  END PRINT-INFO

  IWAT-PARM1
    <PLS >  IWATER variable monthly parameter value flags  ***
    # -  # CSNO RTOP  VRS  VNN RTLI     ***
    1         0    0    0    0    0
    2         0    0    0    0    0
  END IWAT-PARM1

  IWAT-PARM2
    <PLS >      IWATER input info: Part 2         ***
    # -  # ***  LSUR     SLSUR      NSUR     RETSC
    1            400      0.01       0.1       0.1
    2            400      0.05       0.1      0.08
  END IWAT-PARM2

  IWAT-PARM3
    <PLS >      IWATER input info: Part 3         ***
    # -  # ***PETMAX    PETMIN
    1              0         0
    2              0         0
  END IWAT-PARM3

  IWAT-STATE1
    <PLS > *** Initial conditions at start of simulation
    # -  # ***  RETS      SURS
    1              0         0
```

```
    2              0         0
  END IWAT-STATE1

END IMPLND

SCHEMATIC
<-Source->                  <--Area-->     <-Target->   MBLK   ***
<Name>   #                  <-factor->     <Name>   #   Tbl#   ***
Basin  1***
PERLND  10                       2.31     COPY   501     12
PERLND  10                       2.31     COPY   501     13
PERLND  16                       2.79     COPY   501     12
PERLND  16                       2.79     COPY   501     13
IMPLND   1                       6.15     COPY   501     15
Basin  2***
PERLND  10                      33.72     COPY   502     12
PERLND  10                      33.72     COPY   502     13
PERLND  16                       9.13     COPY   502     12
PERLND  16                       9.13     COPY   502     13
IMPLND   1                      19.85     COPY   502     15
Basin  3***
PERLND  17                       8.21     COPY   503     12
PERLND  17                       8.21     COPY   503     13
PERLND  11                      13.74     COPY   503     12
PERLND  11                      13.74     COPY   503     13
IMPLND   2                      14.69     COPY   503     15
Basin  4***
PERLND  10                      16.34     COPY   504     12
PERLND  10                      16.34     COPY   504     13
PERLND  16                      21.09     COPY   504     12
PERLND  16                      21.09     COPY   504     13
IMPLND   1                      45.68     COPY   504     15
Basin  5***
PERLND  17                       0.21     COPY   505     12
PERLND  17                       0.21     COPY   505     13
PERLND  11                       7.05     COPY   505     12
PERLND  11                       7.05     COPY   505     13
IMPLND   2                       2.17     COPY   505     15
Basin  6***
PERLND  11                      19.43     COPY   506     12
PERLND  11                      19.43     COPY   506     13
PERLND  17                        0.7     COPY   506     12
PERLND  17                        0.7     COPY   506     13
IMPLND   2                       8.13     COPY   506     15
Basin  7***
PERLND  10                      11.84     COPY   507     12
PERLND  10                      11.84     COPY   507     13
IMPLND   1                       0.92     COPY   507     15

******Routing******
END SCHEMATIC

NETWORK
<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
<Name>   #        <Name> # #<-factor->strg <Name>   #   #        <Name> # #  ***
COPY   501 OUTPUT MEAN   1 1  145.2        DISPLY   1     INPUT  TIMSER 1
COPY   502 OUTPUT MEAN   1 1  145.2        DISPLY   2     INPUT  TIMSER 1
COPY   503 OUTPUT MEAN   1 1  145.2        DISPLY   3     INPUT  TIMSER 1
COPY   504 OUTPUT MEAN   1 1  145.2        DISPLY   4     INPUT  TIMSER 1
COPY   505 OUTPUT MEAN   1 1  145.2        DISPLY   5     INPUT  TIMSER 1
COPY   506 OUTPUT MEAN   1 1  145.2        DISPLY   6     INPUT  TIMSER 1
COPY   507 OUTPUT MEAN   1 1  145.2        DISPLY   7     INPUT  TIMSER 1



<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
<Name>   #        <Name> # #<-factor->strg <Name>   #   #        <Name> # #  ***
END NETWORK

RCHRES
```

```
  GEN-INFO
    RCHRES       Name        Nexits   Unit Systems   Printer                ***
    # -  #<----------------><---> User T-series  Engl Metr LKFG            ***
                                       in  out                              ***
  END GEN-INFO
  *** Section RCHRES***

  ACTIVITY
    <PLS > ************* Active Sections ****************************
    # -  # HYFG ADFG CNFG HTFG SDFG GQFG OXFG NUFG PKFG PHFG ***
  END ACTIVITY

  PRINT-INFO
    <PLS > ***************** Print-flags ******************* PIVL  PYR
    # -  # HYDR ADCA CONS HEAT  SED  GQL OXRX NUTR PLNK PHCB PIVL  PYR  *********
  END PRINT-INFO

  HYDR-PARM1
    RCHRES  Flags for each HYDR Section                                   ***
    # -  #  VC A1 A2 A3  ODFVFG for each *** ODGTFG for each     FUNCT  for each
            FG FG FG FG  possible  exit  *** possible  exit      possible  exit
             *  *  *  *    *  *  *  *  *       *  *  *  *  *        ***
  END HYDR-PARM1

  HYDR-PARM2
    # -  #    FTABNO       LEN     DELTH     STCOR        KS      DB50       ***
  <------><--------><--------><--------><--------><--------><-------->       ***
  END HYDR-PARM2
  HYDR-INIT
    RCHRES  Initial conditions for each HYDR section                      ***
    # -  # ***   VOL     Initial  value  of COLIND     Initial  value  of OUTDGT
          *** ac-ft     for each possible exit        for each possible exit
  <------><-------->     <---><---><---><---><---> *** <---><---><---><---><--->
  END HYDR-INIT
END RCHRES

SPEC-ACTIONS
END SPEC-ACTIONS
FTABLES
END FTABLES

EXT SOURCES
<-Volume-> <Member> SsysSgap<--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
<Name>   # <Name> # tem strg<-factor->strg <Name>   #   #        <Name> # #  ***
WDM      2 PREC     ENGL    1         DIV  PERLND   1 999 EXTNL  PREC
WDM      2 PREC     ENGL    1         DIV  IMPLND   1 999 EXTNL  PREC
WDM      1 EVAP     ENGL    0.76           PERLND   1 999 EXTNL  PETINP
WDM      1 EVAP     ENGL    0.76           IMPLND   1 999 EXTNL  PETINP

END EXT SOURCES

EXT TARGETS
<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Volume-> <Member> Tsys Tgap Amd ***
<Name>   #        <Name> # #<-factor->strg <Name>   # <Name>    tem strg strg***
COPY     1 OUTPUT MEAN   1 1    145.2      WDM    701 FLOW     ENGL       REPL
COPY   501 OUTPUT MEAN   1 1    145.2      WDM    801 FLOW     ENGL       REPL
COPY     2 OUTPUT MEAN   1 1    145.2      WDM    702 FLOW     ENGL       REPL
COPY   502 OUTPUT MEAN   1 1    145.2      WDM    802 FLOW     ENGL       REPL
COPY     3 OUTPUT MEAN   1 1    145.2      WDM    703 FLOW     ENGL       REPL
COPY   503 OUTPUT MEAN   1 1    145.2      WDM    803 FLOW     ENGL       REPL
COPY     4 OUTPUT MEAN   1 1    145.2      WDM    704 FLOW     ENGL       REPL
COPY   504 OUTPUT MEAN   1 1    145.2      WDM    804 FLOW     ENGL       REPL
COPY     5 OUTPUT MEAN   1 1    145.2      WDM    705 FLOW     ENGL       REPL
COPY   505 OUTPUT MEAN   1 1    145.2      WDM    805 FLOW     ENGL       REPL
COPY     6 OUTPUT MEAN   1 1    145.2      WDM    706 FLOW     ENGL       REPL
COPY   506 OUTPUT MEAN   1 1    145.2      WDM    806 FLOW     ENGL       REPL
COPY     7 OUTPUT MEAN   1 1    145.2      WDM    707 FLOW     ENGL       REPL
COPY   507 OUTPUT MEAN   1 1    145.2      WDM    807 FLOW     ENGL       REPL
END EXT TARGETS
```

```
MASS-LINK
<Volume>   <-Grp> <-Member-><--Mult-->     <Target>       <-Grp> <-Member->***
<Name>             <Name> # #<-factor->     <Name>                <Name> # #***
  MASS-LINK        12
PERLND     PWATER SURO       0.083333      COPY           INPUT  MEAN
  END MASS-LINK    12

  MASS-LINK        13
PERLND     PWATER IFWO       0.083333      COPY           INPUT  MEAN
  END MASS-LINK    13

  MASS-LINK        15
IMPLND     IWATER SURO       0.083333      COPY           INPUT  MEAN
  END MASS-LINK    15


END MASS-LINK

END RUN
```

Predeveloped HSPF Message File

Mitigated HSPF Message File

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APPENDIX B

PCSWWM Output Reports

Baseline (Existing Conditions)

Alternative A (Unmitigated)

Alternative A (Mitigated)

Alternative B (Unmitigated)

Alternative B (Mitigated)

Alternative C (Mitigated)

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PCSWMM Report

Report

Model Kirkland_Ex_25_Yr_Rev.inp

RKI

August 13, 2021

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Summary 1: Options

Name	Kirkland_Ex_25_Yr_Rev
Flow Units	CFS
Infiltration method	Green-Ampt
Flow routing method	Dynamic Wave
Link offsets defined by	Elevation
Allow ponding	Yes
Skip steady flow periods	No
Inertial dampening	Partial
Define supercritical flow by	Both
Force Main Equation	H-W
Variable time step	On
Adjustment factor (%)	75
Conduit lengthening (s)	0
Minimum surface area (ft²)	0
Starting date	Dec-12-1979 12:00:00 AM
Ending date	Dec-16-1979 02:30:00 PM
Duration of simulation (hours)	110.5
Antecedent dry days (days)	0
Rain interval (h:mm)	n/a
Report time step (h:mm:ss)	00:00:01
Wet time step (h:mm:ss)	00:05:00
Dry time step (h:mm:ss)	00:05:00
Routing time step (s)	1
Minimum time step used (s)	0.44
Average time step used (s)	0.59
Minimum conduit slope	0
Ignore rainfall/runoff	No
Ignore snow melt	No
Ignore groundwater	No
Ignore flow routing	No
Ignore water quality	No
Report average results	No

Summary 2: Model inventory

Name	Kirkland_Ex_25_Yr_Rev
Raingages	0
Subcatchments	0
Aquifers	0
Snowpacks	0
RDII hydrographs	0
Junction nodes	73
Outfall nodes	1
Flow divider nodes	0
Storage unit nodes	0
Conduit links	74
Pump links	0
Orifice links	0
Weir links	0
Outlet links	0
Treatment units	0
Transects	0
Control rules	0
Pollutants	0
Land Uses	0
Control Curves	0
Diversion Curves	0
Pump Curves	0
Rating Curves	0
Shape Curves	0
Storage Curves	0
Tidal Curves	0
Weir Curves	0
Time Series	7
Time Patterns	0

Summary 3: Model complexity

Name	Kirkland_Ex_25_Yr_Rev
Subcatchments	n/a
Groundwater	n/a
Aquifers	n/a
Snowpacks	n/a
RDII hydrographs	n/a
Junction nodes	233
Outfall nodes	2
Flow divider nodes	n/a
Storage unit nodes	n/a
Conduit links	447
Pump links	n/a
Orifice links	n/a
Weir links	n/a
Outlet links	n/a
Transect	n/a
Pollutants	n/a
Land Uses	n/a
Model complexity (total uncertain input parameters)	682

Summary 4: Inflows

Name	Kirkland_Ex_25_Yr_Rev
Time series inflows	7
Dry weather	0
Groundwater	0
RDII inflows	0

Summary 5: Node statistics

Name	Kirkland_Ex_25_Yr_Rev
Max. ground elev. (ft)	479.587
Min. ground elev. (ft)	254.357
Max. invert elev. (ft)	478.087
Min. invert elev. (ft)	249.585
Max. depth (ft)	15.8
Min. depth (ft)	1.362

Summary 6: Conduit statistics

Name	Kirkland_Ex_25_Yr_Rev
Max. roughness	0.027
Min. roughness	0.009
Max. entry loss coef.	0
Min. entry loss coef.	0
Max. exit loss coef.	0
Min. exit loss coef.	0
Max. avg. loss coef.	0
Min. avg. loss coef.	0
Max. length (ft)	392.106
Min. length (ft)	4
Total length (ft)	6817.946
Max. slope (ft/ft)	0.2573
Min. slope (ft/ft)	0.0008

Summary 7: Conduit Inventory

Name	Kirkland_Ex_25_Yr_Rev
Open Rectangular (ft)	674
Circular (ft)	5396.946
Arch (ft)	747

Summary 8: Pipe inventory

Name	Kirkland_Ex_25_Yr_Rev
Max. pipe diameter (ft)	3
Min. pipe diameter (ft)	1
Total 12” pipe length (ft)	1959.492
Total 18” pipe length (ft)	2192.467
Total 24” pipe length (ft)	143
Total 30” pipe length (ft)	914.987
Total 36” pipe length (ft)	75
Total other pipe length (ft)	112
Total pipe length (ft)	5396.946

Summary 9: Unused objects

Name	Kirkland_Ex_25_Yr_Rev
Rain Gages	n/a
Aquifers	n/a
Snow Packs	n/a
Unit Hydrographs	n/a
Transects	n/a
Control Curves	n/a
Diversion Curves	n/a
Pump Curves	n/a
Rating Curves	n/a
Shape Curves	n/a
Storage Curves	n/a
Tidal Curves	n/a
Weir Curves	n/a
Time Series	0
Time Patterns	n/a

Summary 10: Flow routing continuity

Name	Kirkland_Ex_25_Yr_Rev
Dry weather inflow (MG)	0.000
Wet weather inflow (MG)	0.000
Groundwater inflow (MG)	0.000
RDII inflow (MG)	0.000
External inflow (MG)	20.620
External outflow (MG)	20.580
Flooding loss (MG)	0.000
Evaporation loss (MG)	0.000
Exfiltration loss (MG)	0.000
Initial stored volume (MG)	0.003
Final stored volume (MG)	0.042
Continuity error (%)	0.002

Summary 11: Results statistics

Name	Kirkland_Ex_25_Yr_Rev
Max. subcatchment total runoff (MG)	n/a
Max. subcatchment peak runoff (cfs)	n/a
Max. subcatchment runoff coefficient	n/a
Max. subcatchment total precip (in)	n/a
Min. subcatchment total precip (in)	n/a
Max. node depth (ft)	14.69
Num. nodes surcharged	29
Max. node surcharge duration (hours)	11.38
Max. node height above crown (ft)	12.186
Min. node depth below rim (ft)	0
Num. nodes flooded	15
Max. node flooding duration (hours)	1.14
Max. node flood volume (MG)	0.108
Max. node ponded volume or depth (acre-in/1000 ft³/ft)	3.786
Max. storage volume (1000 ft³)	n/a
Max. storage percent full (%)	n/a
Max. outfall flow frequency (%)	99.99
Max. outfall peak flow (cfs)	94.53
Max. outfall total volume (MG)	20.617
Total outfall volume (MG)	20.617
Max. link peak flow (cfs)	94.53
Max. link peak velocity (ft/s)	31.21
Min. link peak velocity (ft/s)	0
Num. conduits surcharged	42
Max. conduit surcharge duration (hours)	110.5
Max. conduit capacity limited duration (hours)	9.94

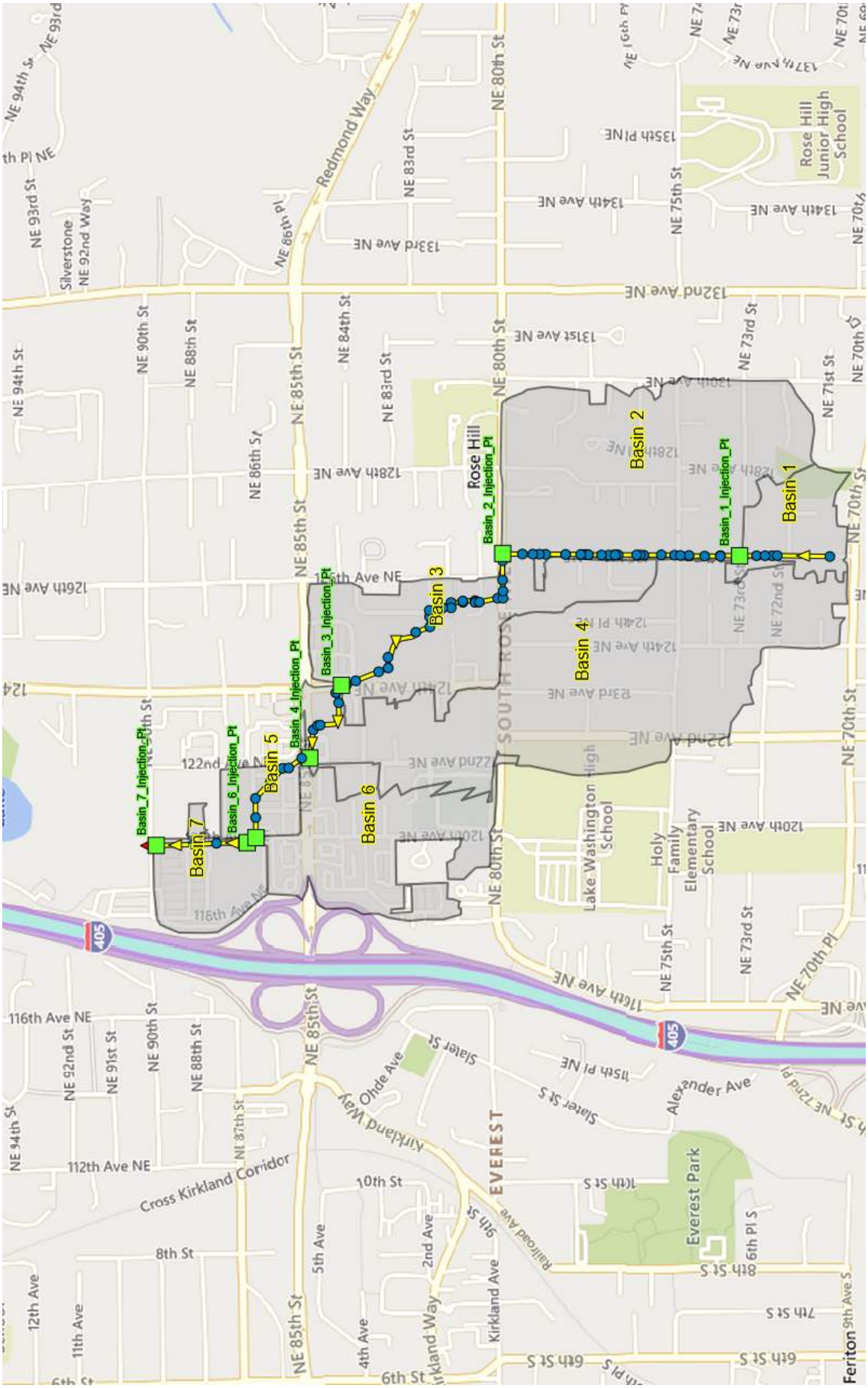


Figure 1: Study Area

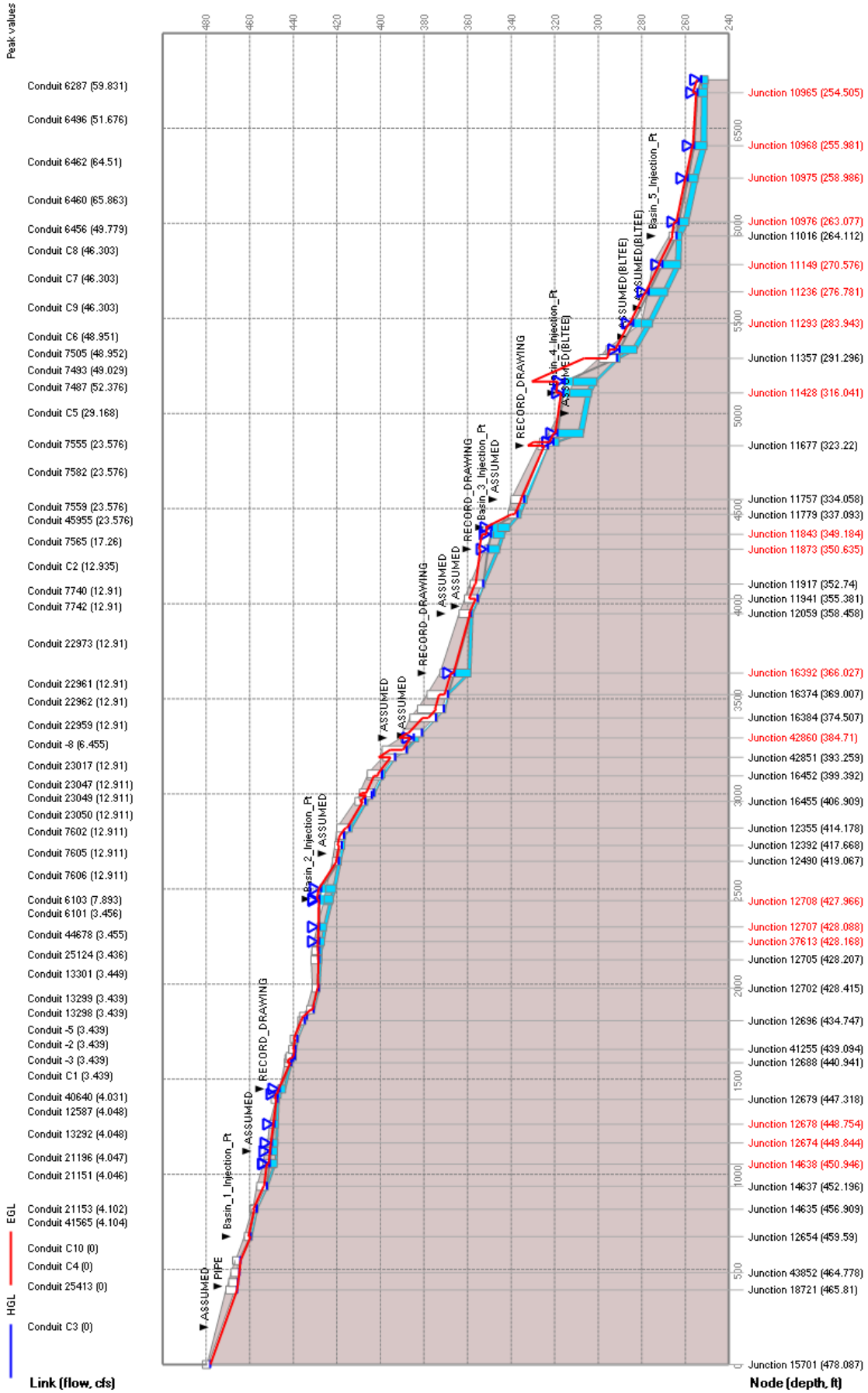


Figure 2: Study Area

Table 1A: Junctions

Name	X-Coordinate	Y-Coordinate	Tag	Inflows	Invert Elev. (ft)	Rim Elev. (ft)	Depth (ft)	Ponded Area (ft^2)	Time Series	Avg. Depth (ft)	Max. Depth (ft)	Max. HGL (ft)
10965	1308533	251802.6	Basin_7_Injection_Pt	YES	249.857	254.357	4.5	1320	Basin7_25_Yr_Ex	2.74	4.65	254.51
10968	1308535	251524		NO	250.126	255.926	5.8	260000		2.6	5.85	255.98
10975	1308541	251353.4		NO	254.139	258.439	4.3	1320		0.47	4.85	258.99
10976	1308542	251124.1	Basin_6_Injection_Pt	YES	258.404	262.904	4.5	1320	Basin6_25_Yr_Ex	0.49	4.67	263.08
11016	1308578	251058	Basin_5_Injection_Pt	YES	261.602	267.402	5.8	1320	Basin5_25_Yr_Ex	0.54	2.51	264.11
11149	1308728	251057.7		NO	262.042	275.042	13	1320		1.13	8.54	270.58
11236	1308871	251057.3		NO	268.096	277.096	9	1320		0.59	9	277.1
11293	1308990	250943.9		NO	275.185	280.185	5	1320		0.58	8.76	283.94
11352	1309092	250850.2		NO	282.213	296.413	14.2	1320		0.55	8.03	290.25
11357	1309094	250804.6		NO	289.913	299.513	9.6	1320		0.28	1.38	291.3
11428	1309166	250647.1	Basin_4_Injection_Pt	YES	303.09	313.09	10	1320	Basin4_25_Yr_Ex	0.46	12.95	316.04
11429	1309166	250706.7		NO	300.654	311.554	10.9	1320		0.49	14.69	315.34
11655	1309376	250617.4		NO	306.719	322.519	15.8	1320		0.57	13.8	320.52
11676	1309408	250584.2		NO	317.976	326.976	9	1320		0.28	2.52	320.5
11677	1309411	250565.1	RECORD_DRAWING	NO	322.71	327.764	5.054	1320		0.17	0.51	323.22
11757	1309575	250424.2	ASSUMED	NO	332.66	340.002	7.342	1320		0.31	1.4	334.06
11779	1309651	250444.6		NO	335.403	341.403	6	1320		0.48	1.69	337.09
11843	1309705	250365.1		NO	342.982	348.082	5.1	1320		0.24	6.2	349.18
11844	1309705	250400.8	Basin_3_Injection_Pt	YES	340.52	346.12	5.6	1320	Basin3_25_Yr_Ex	0.47	8.42	348.94
11873	1309737	250294.2	RECORD_DRAWING	NO	345.152	352.072	6.92	1320		0.29	6.92	352.07
11917	1309801	250122.4	RECORD_DRAWING	NO	351.972	358.893	6.921	1320		0.24	0.77	352.74
11941	1309829	250050.6	RECORD_DRAWING	NO	354.672	361.361	6.689	1320		0.24	0.71	355.38
12059	1309908	250051	ASSUMED	NO	357.44	363.891	6.451	1320		0.25	1.02	358.46
12355	1310336	249225.5		NO	412.9	420	7.1	1320		0.37	1.28	414.18
12360	1310335	249186.1		NO	416.064	420.2	4.136	1320		0.22	0.63	416.69
12392	1310388	249185.3	ASSUMED	NO	416.462	421	4.538	1320		0.36	1.21	417.67

Table 1A: Junctions (continued...)

Name	X-Coordinate	Y-Coordinate	Tag	Inflows	Invert Elev. (ft)	Rim Elev. (ft)	Depth (ft)	Ponded Area (ft²)	Time Series	Avg. Depth (ft)	Max. Depth (ft)	Max. HGL (ft)
12490	1310471	249186.8		NO	418.012	422	3.988	1320		0.33	1.06	419.07
12645	1310615	249184.5		NO	420.384	425	4.616	1320		0.57	6.85	427.24
12654	1310621	247416.9	Basin_1_Injection_Pt	YES	458.893	462.5	3.607	1320	Basin1_25_Yr_Ex	0.16	0.7	459.59
12674	1310634	247901.1	ASSUMED	NO	447.205	451.8	4.595	1320		0.24	2.64	449.84
12678	1310639	248000	ASSUMED	NO	446.908	451	4.092	1320		0.24	3.25	450.16
12679	1310638	248129.8		NO	446.492	447.9	1.408	1320		0.14	0.83	447.32
12688	1310644	248322.1	RECORD_DRAWING	NO	440.406	443.85	3.444	1320		0.15	0.53	440.94
12695	1310651	248565.5		NO	433.495	435.795	2.3	1320		0.09	0.32	433.81
12696	1310649	248543.1		NO	434.337	437.337	3	1320		0.12	0.41	434.75
12697	1310652	248600.9		NO	430.202	433.902	3.7	1320		0.13	0.46	430.66
12702	1310655	248713.5		NO	427.714	431.214	3.5	1320		0.19	0.7	428.42
12705	1310658	248862.5		NO	427.019	431.806	4.787	1320		0.19	1.19	428.21
12707	1310663	249035.9		NO	424.747	429.047	4.3	1320		0.15	3.35	428.1
12708	1310666	249173.8		NO	421.906	425.9	3.994	1320		0.19	6.06	427.97
12716	1310669	249182.5	Basin_2_Injection_Pt	YES	421.689	425.8	4.111	1320	Basin2_25_Yr_Ex	0.36	6.27	427.96
14635	1310626	247559.8		NO	456.37	458.95	2.58	1320		0.13	0.54	456.91
14636	1310621	247560.3		NO	456.252	458.502	2.25	1320		0.12	0.49	456.74
14637	1310624	247677.3		NO	451.49	456.8	5.31	1320		0.14	0.71	452.2
14638	1310627	247794.4		NO	448.028	453.75	5.722	1320		0.09	2.92	450.95
14639	1310631	247794.3		NO	447.388	453.85	6.462	1320		0.3	3.52	450.91
14675	1310632	247858.4	ASSUMED	NO	447.339	453	5.661	1320		0.24	2.98	450.32
15701	1310605	246744.3		NO	478.087	479.587	1.5	1320		0	0	478.09
16374	1310130	249734.3		NO	368.459	378.659	10.2	1320		0.19	0.55	369.01
16377	1310206	249735.5		NO	370.041	382.941	12.9	1320		0.29	0.85	370.89
16384	1310254	249736.7		NO	373.882	386.535	12.653	1320		0.22	0.63	374.51
16385	1310255	249657.8		NO	380.339	389.439	9.1	1320		0.2	0.56	380.9

Table 1A: Junctions (continued...)

Name	X-Coordinate	Y-Coordinate	Tag	Inflows	Invert Elev. (ft)	Rim Elev. (ft)	Depth (ft)	Ponded Area (ft²)	Time Series	Avg. Depth (ft)	Max. Depth (ft)	Max. HGL (ft)
16392	1310092	249840.9	RECORD_DRAWING	NO	358.42	372.647	14.227	1320		0.78	13.47	371.89
16451	1310310	249485.8		NO	397.927	406.027	8.1	1320		0.38	1.3	399.22
16452	1310319	249485.9		NO	398.527	406.027	7.5	1320		0.22	0.87	399.39
16453	1310321	249394.6		NO	402.294	409.594	7.3	1320		0.25	0.72	403.02
16454	1310308	249394.6		NO	403.394	409.594	6.2	1320		0.2	0.57	403.97
16455	1310309	249362.8		NO	405.822	411.622	5.8	1320		0.35	1.09	406.91
18711	1310659	248909.3		NO	426.8	431.5	4.7	1320		0.13	1.39	428.19
18719	1310620	247290.3		NO	464.236	466.536	2.3	1320		0	0	464.24
18720	1310618	247175		NO	465.393	469.693	4.3	1320		0	0	465.39
18721	1310618	247136.2		NO	465.81	470.91	5.1	1320		0	0	465.81
33729	1310640	248157.6		NO	445.638	447	1.362	1320		0.15	1.5	447.14
33731	1310641	248184.3	RECORD_DRAWING	NO	443.498	446.25	2.752	1320		0.22	2.76	446.26
37613	1310661	248958.5		NO	425.721	430.421	4.7	1320		0.16	2.45	428.17
41253	1310643	248354.6		NO	438.524	443.3	4.776	1320		0.24	0.84	439.37
41255	1310644	248392		NO	438.484	441.75	3.266	1320		0.16	0.61	439.09
41256	1310645	248446.1		NO	437.724	439.8	2.076	1320		0.13	0.47	438.2
41260	1310644	248343.8		NO	439.848	443.75	3.902	1320		0.09	0.33	440.18
42851	1310309	249573.6		NO	392.715	398.815	6.1	1320		0.19	0.54	393.26
42852	1310270	249573.8		NO	387.416	399.216	11.8	1320		0.18	0.55	387.97
42860	1310270	249636.4	ASSUMED	NO	382.4	390.682	8.282	1320		0.26	2.46	384.86
43852	1310619	247227.4		NO	464.778	468.678	3.9	1320		0	0	464.78

Table 1B: Junctions

Name	Time Max. HGL (M/D/Y)	Rep. Max. Depth (ft)	Max. Lat. Inflow (cfs)	Max. Total Inflow (cfs)	Total Lat. Inflow (MG)	Total inflow (MG)	Flow Error (%)	Hours Surcharged (h)	Max. Surcharge (ft)	Min. Freeboard (ft)	Hours Flooded (h)	Max. Flood Rate (cfs)	Total Flood Vol. (MG)	Max. Ponded Depth (ft)
10965	12/12/1979 00:00 AM	4.65	8.82	94.59	1.57	20.6	0.057	10.07	1.898	0	0.01	69.24	0.002	0.148
10968	12/14/1979 21:38 PM	5.85	0	64.51	0	19	0.074	11.38	3.105	0	0.86	15.12	0.108	0.055
10975	12/14/1979 21:16 PM	4.85	0	65.86	0	19	0.009	0.73	2.097	0	0.33	7.7	0.007	0.547
10976	12/14/1979 21:14 PM	4.67	18.19	67.49	2.67	19	0.006	0.31	1.673	0	0.16	4.26	0.002	0.173
11016	12/14/1979 21:14 PM	2.51	7.03	49.38	0.982	16.3	0.003	0	0	3.292	0	0	0	0
11149	12/14/1979 21:43 PM	8.53	0	46.3	0	15.4	0.009	1.87	6.039	4.461	0	0	0	0
11236	12/14/1979 21:07 PM	8.69	0	46.3	0	15.4	0.003	0.84	6.5	0	0.01	3.02	0	0
11293	12/14/1979 21:42 PM	8.76	0	48.95	0	15.4	0	0.69	6.258	0	0.68	3.88	0.041	3.758
11352	12/14/1979 21:38 PM	8.03	0	48.95	0	15.4	0.003	0.62	5.533	6.167	0	0	0	0
11357	12/14/1979 21:38 PM	1.38	0	49.03	0	15.4	0.001	0	0	8.213	0	0	0	0
11428	12/14/1979 21:26 PM	12.95	37.32	60.23	7.09	15.4	0.002	0.67	10.451	0	0.52	8.14	0.032	2.951
11429	12/14/1979 21:26 PM	14.69	0	52.38	0	15.4	0.004	0.93	12.186	0	0.6	8.62	0.04	3.786
11655	12/14/1979 21:07 PM	11.99	0	23.91	0	8.26	0.006	0.6	11.302	1.998	0	0	0	0
11676	12/14/1979 21:26 PM	2.51	0	23.58	0	8.26	0	0.05	0.52	6.48	0	0	0	0
11677	12/14/1979 21:25 PM	0.51	0	23.58	0	8.26	0.004	0	0	4.544	0	0	0	0
11757	12/14/1979 21:24 PM	1.4	0	23.58	0	8.26	0.007	0	0	5.942	0	0	0	0
11779	12/14/1979 21:24 PM	1.69	0	23.58	0	8.27	0.002	0	0	4.313	0	0	0	0
11843	12/14/1979 21:25 PM	6.2	0	17.56	0	5.22	0.001	0.78	4.702	0	0.46	4.38	0.011	1.102
11844	12/14/1979 21:24 PM	8.42	19.3	30.34	3.05	8.27	0.001	1.08	6.92	0	0.66	8.49	0.029	2.82
11873	12/14/1979 21:06 PM	5.48	0	12.94	0	5.22	0.003	0.65	5.42	0	0	0	0	0
11917	12/14/1979 21:27 PM	0.77	0	12.91	0	5.22	0.002	0	0	6.153	0	0	0	0
11941	12/14/1979 21:34 PM	0.71	0	12.91	0	5.22	0.003	0	0	5.981	0	0	0	0
12059	12/14/1979 21:34 PM	1.02	0	12.91	0	5.22	0.01	0	0	5.431	0	0	0	0
12355	12/14/1979 21:33 PM	1.28	0	12.91	0	5.22	0.003	0	0	5.82	0	0	0	0
12360	12/14/1979 21:33 PM	0.63	0	12.91	0	5.22	0.001	0	0	3.51	0	0	0	0
12392	12/14/1979 21:33 PM	1.21	0	12.91	0	5.22	0.002	0	0	3.33	0	0	0	0

Table 1B: Junctions (continued...)

Name	Time Max. HGL (M/D/Y)	Rep. Max. Depth (ft)	Max. Lat. Inflow (cfs)	Max. Total Inflow (cfs)	Total Lat. Inflow (MG)	Total inflow (MG)	Flow Error (%)	Hours Surcharged (h)	Max. Surcharge (ft)	Min. Freeboard (ft)	Hours Flooded (h)	Max. Flood Rate (cfs)	Total Flood Vol. (MG)	Max. Ponded Depth (ft)
12490	12/14/1979 21:32 PM	1.06	0	12.91	0	5.22	0.004	0	0	2.93	0	0	0	0
12645	12/14/1979 21:32 PM	6.85	0	15.07	0	5.22	0.005	1.5	5.354	0	1.14	3.66	0.025	2.238
12654	12/14/1979 21:15 PM	0.7	4.12	4.12	0.86	0.86	0.006	0	0	2.91	0	0	0	0
12674	12/14/1979 21:16 PM	2.64	0	4.05	0	0.86	0.006	0.34	1.639	1.956	0	0	0	0
12678	12/14/1979 21:10 PM	1.85	0	4.05	0	0.86	0.009	0.29	2.249	0.843	0	0	0	0
12679	12/14/1979 21:17 PM	0.83	0	4.05	0	0.86	0.003	0	0	0.58	0	0	0	0
12688	12/14/1979 21:23 PM	0.53	0	3.44	0	0.86	0.004	0	0	2.91	0	0	0	0
12695	12/14/1979 21:24 PM	0.32	0	3.44	0	0.86	0.001	0	0	1.985	0	0	0	0
12696	12/14/1979 21:23 PM	0.41	0	3.44	0	0.86	0.002	0	0	2.587	0	0	0	0
12697	12/14/1979 21:24 PM	0.46	0	3.44	0	0.86	0.003	0	0	3.242	0	0	0	0
12702	12/14/1979 21:21 PM	0.7	0	3.44	0	0.86	0.01	0	0	2.794	0	0	0	0
12705	12/14/1979 21:29 PM	1.19	0	3.45	0	0.86	0.008	0	0	3.596	0	0	0	0
12707	12/14/1979 21:29 PM	3.34	0	3.46	0	0.86	0.007	0.72	1.853	0.947	0	0	0	0
12708	12/14/1979 21:30 PM	6.06	0	4.32	0	0.862	0.002	1.32	4.56	0	0.82	4.13	0.021	2.066
12716	12/14/1979 21:30 PM	6.27	19.21	19.21	4.36	5.23	-0.003	1.36	4.769	0	0.86	3.99	0.022	2.158
14635	12/14/1979 21:15 PM	0.54	0	4.1	0	0.86	0.003	0	0	2.04	0	0	0	0
14636	12/14/1979 21:15 PM	0.49	0	4.1	0	0.86	0.002	0	0	1.762	0	0	0	0
14637	12/14/1979 21:15 PM	0.71	0	4.1	0	0.86	0.005	0	0	4.6	0	0	0	0
14638	12/14/1979 21:16 PM	2.92	0	4.05	0	0.86	0.001	0.27	1.918	2.804	0	0	0	0
14639	12/14/1979 21:16 PM	3.52	0	4.05	0	0.86	0.003	0.4	2.521	2.941	0	0	0	0
14675	12/14/1979 21:16 PM	2.98	0	4.05	0	0.86	0.005	0.36	1.978	2.683	0	0	0	0
15701	12/12/1979 00:00 AM	0	0	0	0	0	0	0	0	1.497	0	0	0	0
16374	12/14/1979 21:33 PM	0.55	0	12.91	0	5.22	0.002	0	0	9.649	0	0	0	0
16377	12/14/1979 21:33 PM	0.85	0	12.91	0	5.22	0.001	0	0	12.051	0	0	0	0
16384	12/14/1979 21:33 PM	0.63	0	12.91	0	5.22	0.001	0	0	12.025	0	0	0	0
16385	12/14/1979 21:33 PM	0.56	0	12.91	0	5.22	0.001	0	0	8.539	0	0	0	0

Table 1B: Junctions (continued...)

Name	Time Max. HGL (M/D/Y)	Rep. Max. Depth (ft)	Max. Lat. Inflow (cfs)	Max. Total Inflow (cfs)	Total Lat. Inflow (MG)	Total inflow (MG)	Flow Error (%)	Hours Surcharged (h)	Max. Surcharge (ft)	Min. Freeboard (ft)	Hours Flooded (h)	Max. Flood Rate (cfs)	Total Flood Vol. (MG)	Max. Ponded Depth (ft)
16392	12/14/1979 21:02 PM	7.61	0	12.91	0	5.22	0.042	3.77	11.935	0.762	0	0	0	0
16451	12/14/1979 21:33 PM	1.3	0	12.91	0	5.22	0.002	0	0	6.807	0	0	0	0
16452	12/14/1979 21:33 PM	0.87	0	12.91	0	5.22	0.001	0	0	6.637	0	0	0	0
16453	12/14/1979 21:33 PM	0.72	0	12.91	0	5.22	0.001	0	0	6.574	0	0	0	0
16454	12/14/1979 21:33 PM	0.57	0	12.91	0	5.22	0	0	0	5.624	0	0	0	0
16455	12/14/1979 21:33 PM	1.09	0	12.91	0	5.22	0.003	0	0	4.712	0	0	0	0
18711	12/14/1979 21:29 PM	1.39	0	3.44	0	0.86	0.002	0	0	3.31	0	0	0	0
18719	12/12/1979 00:00 AM	0	0	0	0	0	0	0	0	2.296	0	0	0	0
18720	12/12/1979 00:00 AM	0	0	0	0	0	0	0	0	4.303	0	0	0	0
18721	12/12/1979 00:00 AM	0	0	0	0	0	0	0	0	5.1	0	0	0	0
33729	12/14/1979 21:20 PM	1.5	0	4.03	0	0.86	0.001	0.29	0.499	0	0.28	0.61	0.001	0.137
33731	12/14/1979 21:23 PM	2.76	0	3.49	0	0.86	0.005	0.32	1.761	0	0.16	0.55	0	0.009
37613	12/14/1979 21:29 PM	2.45	0	3.45	0	0.86	0.004	0.46	0.951	2.249	0	0	0	0
41253	12/14/1979 21:23 PM	0.84	0	3.44	0	0.86	0.002	0	0	3.93	0	0	0	0
41255	12/14/1979 21:23 PM	0.61	0	3.44	0	0.86	0.002	0	0	2.66	0	0	0	0
41256	12/14/1979 21:23 PM	0.47	0	3.44	0	0.86	0.003	0	0	1.6	0	0	0	0
41260	12/14/1979 21:23 PM	0.33	0	3.44	0	0.86	0.001	0	0	3.57	0	0	0	0
42851	12/14/1979 21:33 PM	0.54	0	12.91	0	5.22	0.001	0	0	5.555	0	0	0	0
42852	12/14/1979 21:33 PM	0.55	0	12.91	0	5.22	0.001	0	0	11.246	0	0	0	0
42860	12/14/1979 21:26 PM	2.31	0	12.91	0	5.22	0.001	0.44	1.459	5.823	0	0	0	0
43852	12/12/1979 00:00 AM	0	0	0	0	0	0	0	0	3.898	0	0	0	0

Table 2A: Outfalls

Name	X-Coordinate	Y-Coordinate	Tag	Inflows	Treatment	Invert Elev. (ft)	Rim Elev. (ft)	Tide Gate	Type	Fixed Stage (ft)	Avg. Depth (ft)	Max. Depth (ft)	Max. HGL (ft)	Time Max. HGL (M/D/Y)
10964	1308533	251870.4		NO	NO	249.585	249.585	NO	FIXED	252.585	3	3	252.59	12/12/1979 00:00 AM

Table 2B: Outfalls

Name	Rep. Max. Depth (ft)	Max. Lat. Inflow (cfs)	Max. Total Inflow (cfs)	Total Lat. Inflow (MG)	Total inflow (MG)	Flow Error (%)	Hours Surcharged (h)	Max. Surcharge (ft)	Min. Freeboard (ft)	Hours Flooded (h)	Max. Flood Rate (cfs)	Total Flood Vol. (MG)	Max. Ponded Depth (ft)	Flow Frequency	Avg. Flow (cfs)	Max. Flow (cfs)
10964	3	0	94.53	0	20.6	0	0	0	0	0	0	0	0	99.99	8.05	94.53

Table 2C: Outfalls

Name	Total Flow (MG)
10964	20.617

Table 3A: Conduits

Name	Inlet Node	Outlet Node	Tag	Length (ft)	Roughness	Inlet Elev. (ft)	Outlet Elev. (ft)	Flow Limit (cfs)	Cross-Section	Geom1 (ft)	Geom2 (ft)	Barrels	Slope (ft/ft)	Max. |Flow| (cfs)
-1	41253	41255		37	0.011	438.524	438.484	0	CIRCULAR	1	0	1	0.00108	3.44
12587	12678	12679	ASSUMED	130	0.012	446.908	446.492	0	CIRCULAR	1	0	1	0.0032	4.05
13292	12674	12678	ASSUMED	99	0.012	447.205	446.908	0	CIRCULAR	1	0	1	0.003	4.05
13297	12696	12695		23	0.012	434.337	433.495	0	CIRCULAR	1.5	0	1	0.03663	3.44
13298	12695	12697		35	0.012	433.495	430.202	0	CIRCULAR	1.5	0	1	0.0945	3.44
13299	12697	12702		113	0.012	430.202	427.714	0	CIRCULAR	1.5	0	1	0.02202	3.44
13301	12702	12705		149	0.012	427.714	427.019	0	CIRCULAR	1.5	0	1	0.00466	3.45
-2	41255	41256		54	0.011	438.484	437.724	0	CIRCULAR	1	0	1	0.01408	3.44
21149	14638	14639		4	0.011	448.028	447.388	0	CIRCULAR	1	0	1	0.16209	4.05
21151	14637	14638		117	0.011	451.49	448.028	0	CIRCULAR	1	0	1	0.0296	4.05
21152	14636	14637		117	0.011	456.252	451.49	0	CIRCULAR	1	0	1	0.04073	4.1
21153	14635	14636		4	0.011	456.37	456.252	0	CIRCULAR	1	0	1	0.02951	4.1
21196	14639	14675	ASSUMED	64	0.011	447.388	447.339	0	CIRCULAR	1	0	1	0.00077	4.05
22958	16384	16377		47	0.011	373.882	370.041	0	CIRCULAR	1.5	0	1	0.082	12.91
22959	16385	16384		79	0.009	380.339	373.882	0	CIRCULAR	1.5	0	1	0.08201	12.91
22961	16374	16392	RECORD_DRAWING	113	0.009	368.459	358.45	0	CIRCULAR	1.5	0	1	0.08892	12.91
22962	16377	16374		76	0.009	370.041	368.459	0	CIRCULAR	1.5	0	1	0.02082	12.91
22973	16392	12059	ASSUMED	312	0.027	358.42	351	0	RECT_OPEN	1.5	2	1	0.02379	12.91
23017	16451	42851		88	0.024	397.927	392.715	0	CIRCULAR	1.5	0	1	0.05933	12.91
23018	16452	16451		9	0.009	398.527	397.927	0	CIRCULAR	1.333	0	1	0.06682	12.91
23047	16453	16452		91	0.009	402.294	398.527	0	CIRCULAR	1.333	0	1	0.04143	12.91
23048	16454	16453		12	0.009	403.394	402.294	0	CIRCULAR	1.333	0	1	0.09205	12.91
23049	16455	16454		32	0.024	405.822	403.394	0	CIRCULAR	1.5	0	1	0.07609	12.91
23050	12355	16455		140	0.024	412.9	405.822	0	CIRCULAR	1.5	0	1	0.05062	12.91
25124	12705	18711		47	0.012	427.019	426.8	0	CIRCULAR	1.5	0	1	0.00466	3.44
25413	18721	18720	PIPE	39	0.009	465.81	465.393	0	CIRCULAR	1	0	1	0.01069	0

Table 3A: Conduits (continued...)

Name	Inlet Node	Outlet Node	Tag	Length (ft)	Roughness	Inlet Elev. (ft)	Outlet Elev. (ft)	Flow Limit (cfs)	Cross-Section	Geom1 (ft)	Geom2 (ft)	Barrels	Slope (ft/ft)	Max. |Flow| (cfs)
25414	18720	43852	PIPE	52	0.012	465.393	464.778	0	CIRCULAR	1	0	1	0.01183	0
-3	12688	41260		22	0.012	440.406	439.848	0	CIRCULAR	1	0	1	0.02537	3.44
-4	41260	41253		11	0.011	439.848	438.524	0	CIRCULAR	1	0	1	0.12125	3.44
40640	12679	33729		28	0.012	446.492	445.638	0	CIRCULAR	1	0	1	0.03051	4.03
40642	33729	33731		27	0.024	445.638	443.498	0	CIRCULAR	1	0	1	0.07951	3.49
41542	14675	12674	ASSUMED	43	0.012	447.339	447.205	0	CIRCULAR	1	0	1	0.00312	4.05
41565	12654	14635		143	0.012	458.893	456.37	0	CIRCULAR	1	0	1	0.01765	4.1
44677	18711	37613		49	0.012	426.8	425.721	0	CIRCULAR	1.5	0	1	0.02203	3.45
44678	37613	12707		77	0.012	425.721	424.747	0	CIRCULAR	1.5	0	1	0.01265	3.46
45955	11844	11779		69	0.024	340.52	335.403	0	CIRCULAR	1.5	0	1	0.07436	23.58
-5	41256	12696		97	0.011	437.724	434.337	0	CIRCULAR	1	0	1	0.03494	3.44
-6	42851	42852		39	0.011	392.715	387.416	0	CIRCULAR	1.5	0	1	0.13714	12.91
6101	12707	12708		138	0.012	424.747	421.906	0	CIRCULAR	1.5	0	1	0.02059	3.46
6102	12716	12645		54	0.012	421.689	420.384	0	CIRCULAR	1.5	0	1	0.02417	15.07
6103	12708	12716		9	0.012	421.906	421.689	0	CIRCULAR	1.5	0	1	0.02412	7.92
6287	10965	10964		68	0.012	249.857	249.585	0	ARCH	24	0	1	0.004	94.53
6456	11016	10976		75	0.024	261.602	258.404	0	CIRCULAR	3	0	1	0.04268	49.85
6460	10976	10975		229	0.024	258.404	254.139	0	ARCH	24	0	1	0.01863	65.86
6462	10975	10968		171	0.024	254.139	250.126	0	ARCH	24	0	1	0.02347	64.51
6496	10968	10965		279	0.024	250.126	249.857	0	ARCH	24	0	1	0.00096	51.68
-7	42860	16385	ASSUMED	26	0.011	382.4	380.339	0	CIRCULAR	1	0	1	0.07952	12.91
7487	11428	11429		60	0.012	303.09	300.654	0	CIRCULAR	2.5	0	1	0.04063	52.38
7493	11429	11357		122	0.012	300.654	289.913	0	CIRCULAR	1.5	0	1	0.08838	49.03
7505	11357	11352		46	0.012	289.913	282.213	0	CIRCULAR	2.5	0	1	0.16979	48.95
7553	11676	11655		46	0.024	317.976	306.719	0	CIRCULAR	2	0	1	0.25239	23.91
7555	11677	11676		19	0.009	322.71	317.976	0	CIRCULAR	2	0	1	0.25727	23.58

Table 3A: Conduits (continued...)

Name	Inlet Node	Outlet Node	Tag	Length (ft)	Roughness	Inlet Elev. (ft)	Outlet Elev. (ft)	Flow Limit (cfs)	Cross-Section	Geom1 (ft)	Geom2 (ft)	Barrels	Slope (ft/ft)	Max. |Flow| (cfs)
7559	11779	11757	ASSUMED	78	0.024	335.403	332.66	0	CIRCULAR	2	0	1	0.03519	23.58
7563	11843	11844		36	0.009	342.982	340.52	0	CIRCULAR	1.5	0	1	0.06855	16.96
7565	11873	11843	RECORD_DRAWING	78	0.009	345.152	342.982	0	CIRCULAR	1.5	0	1	0.02783	17.56
7582	11757	11677	ASSUMED	283	0.027	332.66	322.71	0	RECT_OPEN	2	2.5	1	0.03518	23.58
7602	12360	12355		39	0.011	416.064	412.9	0	CIRCULAR	1.5	0	1	0.0814	12.91
7603	12392	12360	ASSUMED	53	0.009	416.462	416.064	0	CIRCULAR	1.5	0	1	0.00751	12.91
7605	12490	12392	ASSUMED	83	0.012	418.012	416.462	0	CIRCULAR	1.5	0	1	0.01868	12.91
7606	12645	12490		144	0.024	420.384	418.012	0	CIRCULAR	1.5	0	1	0.01647	12.91
7740	11941	11917	RECORD_DRAWING	77	0.009	354.672	351.972	0	CIRCULAR	1.5	0	1	0.03509	12.91
7742	12059	11941	ASSUMED	79	0.027	357.44	354.672	0	RECT_OPEN	1.5	2	1	0.03506	12.91
-8	42852	42860	ASSUMED	63	0.012	387.416	382.4	0	CIRCULAR	1	0	1	0.07987	6.46
-9	42852	42860		63	0.012	387.416	380.339	0	CIRCULAR	1	0	1	0.11305	6.46
C1	33731	12688	ASSUMED	137.886	0.024	443.498	440.406	0	CIRCULAR	1	0	1	0.02243	3.44
C10	18719	12654	ASSUMED	126.611	0.012	464.236	458.893	0	CIRCULAR	1	0	1	0.04224	0
C2	11917	11873	ASSUMED	183.467	0.009	351.972	345.152	0	CIRCULAR	1.5	0	1	0.0372	12.94
C3	15701	18721	ASSUMED	392.106	0.012	478.087	465.81	0	CIRCULAR	1	0	1	0.03133	0
C4	43852	18719	assumed	62.889	0.012	464.778	464.236	0	CIRCULAR	1	0	1	0.00862	0
C5	11655	11428	ASSUMED(BLTEE)	212.261	0.024	306.719	303.09	0	CIRCULAR	2.5	0	1	0.0171	29.19
C6	11352	11293	ASSUMED(BLTEE)	138.344	0.024	282.213	275.185	0	CIRCULAR	2.5	0	1	0.05087	48.95
C7	11236	11149	ASSUMED(BLTEE)	143.382	0.024	268.096	262.042	0	CIRCULAR	2.5	0	1	0.04226	46.3
C8	11149	11016	ASSUMED(BLTEE)	150	0.024	262.042	261.602	0	CIRCULAR	2.5	0	1	0.00293	46.3
C9	11293	11236	ASSUMED(BLTEE)	165	0.024	275.185	268.096	0	CIRCULAR	2.5	0	1	0.043	46.3

Table 3B: Conduits

Name	Time Max. Flow (M/D/Y)	Max. |Velocity| (ft/s)	Max/Full Flow	Max/Full Depth	Max. Volume (ft³)	Full Both Ends (h)	Full Upstream (h)	Full Downstream (h)	Above Full Normal (h)	Capacity Limited (h)	Subcritical (fraction)	Supercritical (fraction)
-1	12/14/1979 21:23 PM	5.63	2.48	0.73	0	0.01	0.01	0.01	1.12	0.01	0.18	0.82
12587	12/14/1979 21:16 PM	5.46	1.85	0.91	0	0.01	0.29	0.01	0.42	0.01	0.14	0.86
13292	12/14/1979 21:16 PM	5.15	1.91	1	0	0.29	0.34	0.29	0.43	0.29	1	0
13297	12/14/1979 21:24 PM	10.4	0.16	0.24	0	0	0	0	0	0	0	1
13298	12/14/1979 21:24 PM	9.53	0.1	0.26	0	0	0	0	0	0	0	1
13299	12/14/1979 21:24 PM	5.55	0.2	0.39	0	0	0	0	0	0	0.11	0.89
13301	12/14/1979 21:22 PM	4.26	0.44	0.63	0	0	0	0	0	0	0.57	0.43
-2	12/14/1979 21:23 PM	7.93	0.69	0.54	0	0	0	0	0	0	0	1
21149	12/14/1979 21:16 PM	5.15	0.24	1	0	0.27	0.27	0.4	0.01	0.01	0.16	0.84
21151	12/14/1979 21:16 PM	8.87	0.56	0.85	0	0.01	0.01	0.27	0.01	0.01	0	1
21152	12/14/1979 21:15 PM	9.66	0.48	0.6	0	0	0	0	0	0	0	1
21153	12/14/1979 21:15 PM	10.08	0.57	0.51	0	0	0	0	0	0	0	1
21196	12/14/1979 21:16 PM	5.15	3.47	1	0	0.36	0.4	0.36	1.51	0.36	1	0
22958	12/14/1979 21:33 PM	14.98	0.36	0.49	0	0	0	0	0	0	0	1
22959	12/14/1979 21:33 PM	19.9	0.3	0.4	0	0	0	0	0	0	0	1
22961	12/14/1979 21:33 PM	10.04	0.29	0.68	0	0.01	0.01	3.77	0.01	0.01	0.1	0.79
22962	12/14/1979 21:33 PM	16.1	0.59	0.47	0	0	0	0	0	0	0	1
22973	12/14/1979 21:33 PM	5.13	1.96	0.84	0	0.01	4.04	0.01	1.92	0.01	1	0
23017	12/14/1979 21:33 PM	11.42	0.93	0.61	0	0	0	0	0	0	0	1
23018	12/14/1979 21:33 PM	10.74	0.45	0.81	0	0	0	0	0	0	0	1
23047	12/14/1979 21:33 PM	15.14	0.57	0.6	0	0	0	0	0	0	0	1
23048	12/14/1979 21:33 PM	19.17	0.38	0.49	0	0	0	0	0	0	0	1
23049	12/14/1979 21:33 PM	12.86	0.82	0.55	0	0	0	0	0	0	0	1
23050	12/14/1979 21:33 PM	8.64	1.01	0.79	0	0.01	0.01	0.01	0.17	0.01	0	1
25124	12/14/1979 21:19 PM	5.46	0.44	0.86	0	0	0	0	0	0	0.13	0.87
25413	12/12/1979 00:00 AM	0	0	0	0	0	0	0	0	0	0	0

Table 3B: Conduits (continued...)

Name	Time Max. Flow (M/D/Y)	Max. |Velocity| (ft/s)	Max/Full Flow	Max/Full Depth	Max. Volume (ft³)	Full Both Ends (h)	Full Upstream (h)	Full Downstream (h)	Above Full Normal (h)	Capacity Limited (h)	Subcritical (fraction)	Supercritical (fraction)
25414	12/12/1979 00:00 AM	0	0	0	0	0	0	0	0	0	0	0
-3	12/14/1979 21:23 PM	10.58	0.56	0.43	0	0	0	0	0	0	0	1
-4	12/14/1979 21:23 PM	7.19	0.23	0.59	0	0	0	0	0	0	0.14	0.85
40640	12/14/1979 21:16 PM	7.94	0.6	0.91	0	0.01	0.01	0.29	0.01	0.01	0	1
40642	12/14/1979 21:20 PM	5.22	0.64	1	0	0.29	0.29	0.32	0.01	0.01	0.1	0.9
41542	12/14/1979 21:16 PM	5.15	1.88	1	0	0.34	0.36	0.34	0.42	0.34	1	0
41565	12/14/1979 21:15 PM	8.06	0.8	0.62	0	0	0	0	0	0	0	1
44677	12/14/1979 21:18 PM	6.34	0.2	0.96	0	0.01	0.01	0.46	0.01	0.01	0.03	0.97
44678	12/14/1979 21:17 PM	5.47	0.27	1	0	0.46	0.46	0.72	0.01	0.01	0.05	0.95
45955	12/14/1979 21:24 PM	13.34	1.52	1	0	0.64	1.08	0.64	1.14	0.64	0.01	0.99
-5	12/14/1979 21:23 PM	10.31	0.44	0.44	0	0	0	0	0	0	0	1
-6	12/14/1979 21:33 PM	22.06	0.28	0.37	0	0	0	0	0	0	0	1
6101	12/14/1979 21:17 PM	4.59	0.21	1	0	0.72	0.72	1.32	0.01	0.01	0.02	0.98
6102	12/14/1979 21:17 PM	8.53	0.85	1	0	1.35	1.36	1.5	0.01	0.01	0.09	0.91
6103	12/14/1979 21:59 PM	5.74	0.45	1	0	1.32	1.32	1.36	0.01	0.01	1	0
6287	12/12/1979 00:00 AM	11.43	1.54	1	0	10.01	10.01	110.5	0.01	0.01	1	0
6456	12/14/1979 21:19 PM	11.45	0.67	0.92	0	0.01	0.01	0.31	0.01	0.01	0	1
6460	12/14/1979 21:09 PM	8.07	1	1	0	0.35	0.35	0.73	0.01	0.01	0.14	0.86
6462	12/14/1979 21:15 PM	7.25	0.87	1	0	0.73	0.73	11.37	0.01	0.01	1	0
6496	12/14/1979 21:45 PM	5.81	3.44	1	0	9.94	11.37	10.01	11.56	9.94	1	0
-7	12/14/1979 21:33 PM	20.64	1.09	0.78	0	0.01	0.44	0.01	0.59	0.01	0	1
7487	12/14/1979 21:15 PM	14.45	0.58	1	0	0.67	0.67	0.93	0.01	0.01	0.01	0.99
7493	12/14/1979 21:33 PM	31.21	1.45	0.96	0	0.01	1	0.01	0.85	0.01	0	1
7505	12/14/1979 21:33 PM	17.11	0.27	0.78	0	0.01	0.01	0.62	0.01	0.01	0	1
7553	12/14/1979 21:29 PM	10.8	0.39	1	0	0.05	0.05	0.61	0.01	0.01	0	1
7555	12/14/1979 21:25 PM	24.26	0.14	0.63	0	0.01	0.01	0.05	0.01	0.01	0	1

Table 3B: Conduits (continued...)

Name	Time Max. Flow (M/D/Y)	Max. |Velocity| (ft/s)	Max/Full Flow	Max/Full Depth	Max. Volume (ft³)	Full Both Ends (h)	Full Upstream (h)	Full Downstream (h)	Above Full Normal (h)	Capacity Limited (h)	Subcritical (fraction)	Supercritical (fraction)
7559	12/14/1979 21:24 PM	9.07	1.03	0.77	0	0.01	0.01	0.01	0.33	0.01	0	1
7563	12/14/1979 21:45 PM	11.83	0.43	1	0	0.78	0.78	1.08	0.01	0.01	0.01	0.99
7565	12/14/1979 21:45 PM	16.32	0.69	1	0	0.65	0.65	0.78	0.01	0.01	0.01	0.99
7582	12/14/1979 21:25 PM	9.89	0.54	0.48	0	0	0	0	0	0	0.14	0.86
7602	12/14/1979 21:33 PM	11.1	0.36	0.63	0	0	0	0	0	0	0	1
7603	12/14/1979 21:33 PM	11.42	0.98	0.61	0	0	0	0	0	0	0	1
7605	12/14/1979 21:32 PM	9.04	0.83	0.75	0	0	0	0	0	0	0	1
7606	12/14/1979 21:32 PM	8.05	1.77	0.85	0	0.01	1.5	0.01	1.58	0.01	0.1	0.9
7740	12/14/1979 21:34 PM	15.81	0.45	0.49	0	0	0	0	0	0	0	1
7742	12/14/1979 21:34 PM	7.47	0.59	0.58	0	0	0	0	0	0	0.16	0.84
-8	12/14/1979 21:33 PM	10.33	0.59	0.78	0	0.01	0.01	0.44	0.01	0.01	0	1
-9	12/14/1979 21:33 PM	10.33	0.59	0.78	0	0.01	0.01	0.44	0.01	0.01	0	1
C1	12/14/1979 21:23 PM	5.32	1.19	0.77	0	0.01	0.32	0.01	0.32	0.01	0.11	0.89
C10	12/12/1979 00:00 AM	0	0	0.35	0	0	0	0	0	0	0	0
C2	12/14/1979 21:39 PM	15	0.44	0.76	0	0.01	0.01	0.65	0.01	0.01	0	1
C3	12/12/1979 00:00 AM	0	0	0	0	0	0	0	0	0	0	0
C4	12/12/1979 00:00 AM	0	0	0	0	0	0	0	0	0	0	0
C5	12/14/1979 21:43 PM	8.05	1	1	0	0.6	0.6	0.67	0.01	0.01	0.14	0.86
C6	12/14/1979 21:33 PM	11.2	0.98	1	0	0.62	0.62	0.69	0.01	0.01	0.01	0.99
C7	12/14/1979 21:42 PM	9.43	1.01	1	0	0.84	0.84	1.87	0.15	0.15	1	0
C8	12/14/1979 21:42 PM	10.44	3.85	1	0	0.04	1.87	0.04	11.59	0.04	0.99	0.01
C9	12/14/1979 21:42 PM	10.01	1	1	0	0.69	0.69	0.84	0.09	0.09	0.01	0.99

Table 3C: Conduits

Name	Normal Limited (fraction)
-1	0
12587	0
13292	0.74
13297	0
13298	1
13299	1
13301	0.83
-2	0
21149	0.98
21151	0
21152	1
21153	0.69
21196	0
22958	1
22959	1
22961	0.8
22962	0
22973	0
23017	0
23018	0.79
23047	0.01
23048	1
23049	0
23050	0
25124	0.36
25413	0

Table 3C: Conduits (continued...)

Name	Normal Limited (fraction)
25414	0
-3	0
-4	1
40640	0.99
40642	1
41542	0.55
41565	0
44677	0.99
44678	0
45955	0.99
-5	0
-6	0.08
6101	0.11
6102	0.98
6103	0.85
6287	0
6456	0.01
6460	0.01
6462	0.99
6496	0
-7	0
7487	0.92
7493	0
7505	1
7553	0.99
7555	1

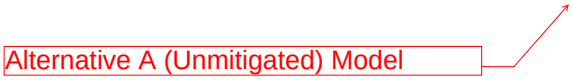
Table 3C: Conduits (continued...)

Name	Normal Limited (fraction)
7559	0.01
7563	0.99
7565	0
7582	0.24
7602	1
7603	0.38
7605	0.98
7606	0
7740	0
7742	0.66
-8	1
-9	1
C1	0
C10	0
C2	0.99
C3	0
C4	0
C5	0.01
C6	0.99
C7	0.99
C8	0
C9	0.86

PCSWMM Report

Report

Model Kirkland_Alt1_25_Year.inp



RKI

August 16, 2021

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Summary 1: Options

Name	Kirkland_Alt1_25_Year
Flow Units	CFS
Infiltration method	Green-Ampt
Flow routing method	Dynamic Wave
Link offsets defined by	Elevation
Allow ponding	Yes
Skip steady flow periods	No
Inertial dampening	Partial
Define supercritical flow by	Both
Force Main Equation	H-W
Variable time step	On
Adjustment factor (%)	75
Conduit lengthening (s)	0
Minimum surface area (ft²)	0
Starting date	Dec-12-1979 12:00:00 AM
Ending date	Dec-16-1979 02:30:00 PM
Duration of simulation (hours)	110.5
Antecedent dry days (days)	0
Rain interval (h:mm)	n/a
Report time step (h:mm:ss)	00:00:01
Wet time step (h:mm:ss)	00:05:00
Dry time step (h:mm:ss)	00:05:00
Routing time step (s)	1
Minimum time step used (s)	0.5
Average time step used (s)	0.59
Minimum conduit slope	0
Ignore rainfall/runoff	No
Ignore snow melt	No
Ignore groundwater	No
Ignore flow routing	No
Ignore water quality	No
Report average results	No

Summary 2: Model inventory

Name	Kirkland_Alt1_25_Year
Raingages	0
Subcatchments	0
Aquifers	0
Snowpacks	0
RDII hydrographs	0
Junction nodes	73
Outfall nodes	1
Flow divider nodes	0
Storage unit nodes	0
Conduit links	74
Pump links	0
Orifice links	0
Weir links	0
Outlet links	0
Treatment units	0
Transects	0
Control rules	0
Pollutants	0
Land Uses	0
Control Curves	0
Diversion Curves	0
Pump Curves	0
Rating Curves	0
Shape Curves	0
Storage Curves	0
Tidal Curves	0
Weir Curves	0
Time Series	7
Time Patterns	0

Summary 3: Model complexity

Name	Kirkland_Alt1_25_Year
Subcatchments	n/a
Groundwater	n/a
Aquifers	n/a
Snowpacks	n/a
RDII hydrographs	n/a
Junction nodes	233
Outfall nodes	2
Flow divider nodes	n/a
Storage unit nodes	n/a
Conduit links	447
Pump links	n/a
Orifice links	n/a
Weir links	n/a
Outlet links	n/a
Transect	n/a
Pollutants	n/a
Land Uses	n/a
Model complexity (total uncertain input parameters)	682

Summary 4: Inflows

Name	Kirkland_Alt1_25_Year
Time series inflows	7
Dry weather	0
Groundwater	0
RDII inflows	0

Summary 5: Subcatchment statistics

Name	Kirkland_Alt1_25_Year
Max. width (ft)	n/a
Min. width (ft)	n/a
Max. area (ac)	n/a
Min. area (ac)	n/a
Total area (ac)	n/a
Max. length of overland flow (ft)	n/a
Min. length of overland flow (ft)	n/a
Max. slope (%)	n/a

Summary 5: Subcatchment statistics (continued...)

Name	Kirkland_Alt1_25_Year
Min. slope (%)	n/a
Max. imperviousness (%)	n/a
Min. imperviousness (%)	n/a
Max. imp. roughness	n/a
Min. imp. roughness	n/a
Max. perv. roughness	n/a
Min. perv. roughness	n/a
Max. imp. depression storage (in)	n/a
Min. imp. depression storage (in)	n/a
Max. perv. depression storage (in)	n/a
Min. perv. depression storage (in)	n/a

Summary 6: Node statistics

Name	Kirkland_Alt1_25_Year
Max. ground elev. (ft)	479.587
Min. ground elev. (ft)	254.357
Max. invert elev. (ft)	478.087
Min. invert elev. (ft)	249.585
Max. depth (ft)	15.8
Min. depth (ft)	1.362

Summary 7: Conduit statistics

Name	Kirkland_Alt1_25_Year
Max. roughness	0.027
Min. roughness	0.009
Max. entry loss coef.	0
Min. entry loss coef.	0
Max. exit loss coef.	0
Min. exit loss coef.	0
Max. avg. loss coef.	0
Min. avg. loss coef.	0
Max. length (ft)	392.106
Min. length (ft)	4
Total length (ft)	6817.946
Max. slope (ft/ft)	0.2573
Min. slope (ft/ft)	0.0008

Summary 8: Conduit Inventory

Name	Kirkland_Alt1_25_Year
Open Rectangular (ft)	674
Circular (ft)	5396.946
Arch (ft)	747

Summary 9: Pipe inventory

Name	Kirkland_Alt1_25_Year
Max. pipe diameter (ft)	3
Min. pipe diameter (ft)	1
Total 12” pipe length (ft)	1959.492
Total 18” pipe length (ft)	2192.467
Total 24” pipe length (ft)	143
Total 30” pipe length (ft)	914.987
Total 36” pipe length (ft)	75
Total other pipe length (ft)	112
Total pipe length (ft)	5396.946

Summary 10: Unused objects

Name	Kirkland_Alt1_25_Year
Rain Gages	n/a
Aquifers	n/a
Snow Packs	n/a
Unit Hydrographs	n/a
Transects	n/a
Control Curves	n/a
Diversion Curves	n/a
Pump Curves	n/a
Rating Curves	n/a
Shape Curves	n/a
Storage Curves	n/a
Tidal Curves	n/a
Weir Curves	n/a
Time Series	0
Time Patterns	n/a

Summary 11: Flow routing continuity

Name	Kirkland_Alt1_25_Year
Dry weather inflow (MG)	0.000
Wet weather inflow (MG)	0.000
Groundwater inflow (MG)	0.000
RDII inflow (MG)	0.000
External inflow (MG)	18.448
External outflow (MG)	18.407
Flooding loss (MG)	0.000
Evaporation loss (MG)	0.000
Exfiltration loss (MG)	0.000
Initial stored volume (MG)	0.003
Final stored volume (MG)	0.040
Continuity error (%)	0.018

Summary 12: Results statistics

Name	Kirkland_Alt1_25_Year
Max. subcatchment total runoff (MG)	n/a
Max. subcatchment peak runoff (cfs)	n/a
Max. subcatchment runoff coefficient	n/a
Max. subcatchment total precip (in)	n/a
Min. subcatchment total precip (in)	n/a
Max. node depth (ft)	15.8
Num. nodes surcharged	29
Max. node surcharge duration (hours)	10.47
Max. node height above crown (ft)	13.3
Min. node depth below rim (ft)	0
Num. nodes flooded	16
Max. node flooding duration (hours)	1.37
Max. node flood volume (MG)	0.046
Max. node ponded volume or depth (acre-in/1000 ft³/ft)	4.166
Max. storage volume (1000 ft³)	n/a
Max. storage percent full (%)	n/a
Max. outfall flow frequency (%)	99.85
Max. outfall peak flow (cfs)	94.57
Max. outfall total volume (MG)	18.444
Total outfall volume (MG)	18.444
Max. link peak flow (cfs)	94.57
Max. link peak velocity (ft/s)	31.27
Min. link peak velocity (ft/s)	0

Summary 12: Results statistics (continued...)

Name	Kirkland_Alt1_25_Year
Num. conduits surcharged	40
Max. conduit surcharge duration (hours)	110.5
Max. conduit capacity limited duration (hours)	7.38

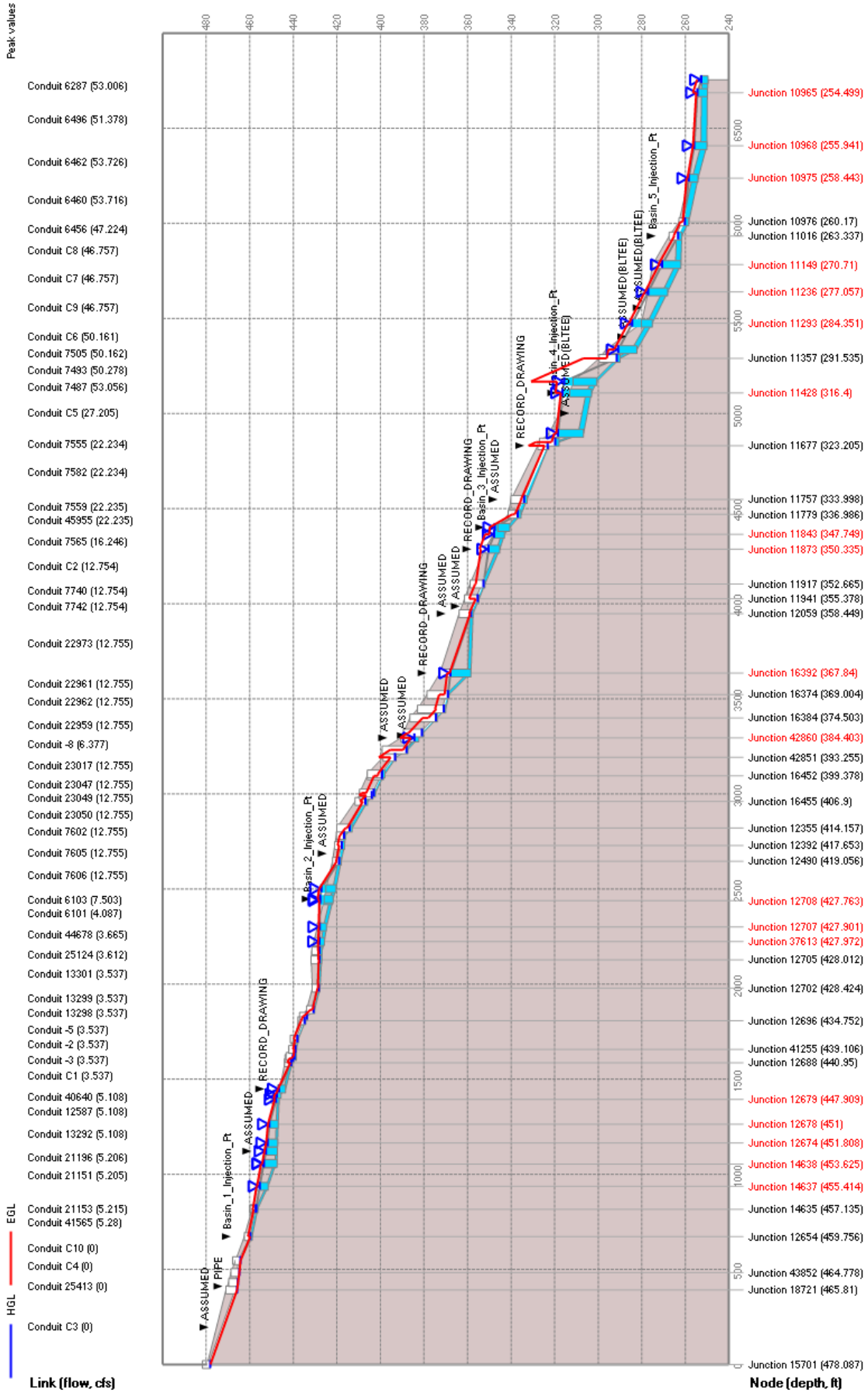


Figure 1: Study Area

Table 1A: Junctions

Name	X-Coordinate	Y-Coordinate	Tag	Inflows	Invert Elev. (ft)	Rim Elev. (ft)	Depth (ft)	Ponded Area (ft^2)	Time Series	Avg. Depth (ft)	Max. Depth (ft)	Max. HGL (ft)
10965	1308533	251802.6	Basin_7_Injection_Pt	YES	249.857	254.357	4.5	1320	Basin7_AltA	2.74	4.64	254.5
10968	1308535	251524		NO	250.126	255.926	5.8	1320		2.58	5.82	255.94
10975	1308541	251353.4		NO	254.139	258.439	4.3	1320		0.44	4.3	258.44
10976	1308542	251124.1	Basin_6_Injection_Pt	YES	258.404	262.904	4.5	1320	Basin6_AltA	0.46	1.77	260.17
11016	1308578	251058	Basin_5_Injection_Pt	YES	261.602	267.402	5.8	1320	Basin5_AltA	0.53	1.74	263.34
11149	1308728	251057.7		NO	262.042	275.042	13	1320		1.13	8.68	270.72
11236	1308871	251057.3		NO	268.096	277.096	9	1320		0.6	9	277.1
11293	1308990	250943.9		NO	275.185	280.185	5	1320		0.58	9.17	284.35
11352	1309092	250850.2		NO	282.213	296.413	14.2	1320		0.55	8.56	290.78
11357	1309094	250804.6		NO	289.913	299.513	9.6	1320		0.28	1.62	291.54
11428	1309166	250647.1	Basin_4_Injection_Pt	YES	303.09	313.09	10	1320	Basin4_AltA	0.46	13.31	316.4
11429	1309166	250706.7		NO	300.654	311.554	10.9	1320		0.5	15.01	315.67
11655	1309376	250617.4		NO	306.719	322.519	15.8	1320		0.56	15.8	322.52
11676	1309408	250584.2		NO	317.976	326.976	9	1320		0.27	1.72	319.69
11677	1309411	250565.1	RECORD_DRAWING	NO	322.71	327.764	5.054	1320		0.17	0.49	323.2
11757	1309575	250424.2	ASSUMED	NO	332.66	340.002	7.342	1320		0.3	1.34	334
11779	1309651	250444.6		NO	335.403	341.403	6	1320		0.47	1.58	336.99
11843	1309705	250365.1		NO	342.982	348.082	5.1	1320		0.23	4.79	347.77
11844	1309705	250400.8	Basin_3_Injection_Pt	YES	340.52	346.12	5.6	1320	Basin3_AltA	0.44	7	347.52
11873	1309737	250294.2	RECORD_DRAWING	NO	345.152	352.072	6.92	1320		0.28	5.65	350.8
11917	1309801	250122.4	RECORD_DRAWING	NO	351.972	358.893	6.921	1320		0.24	0.69	352.66
11941	1309829	250050.6	RECORD_DRAWING	NO	354.672	361.361	6.689	1320		0.24	0.71	355.38
12059	1309908	250051	ASSUMED	NO	357.44	363.891	6.451	1320		0.26	1.01	358.45
12355	1310336	249225.5		NO	412.9	420	7.1	1320		0.37	1.26	414.16
12360	1310335	249186.1		NO	416.064	420.2	4.136	1320		0.22	0.62	416.69
12392	1310388	249185.3	ASSUMED	NO	416.462	421	4.538	1320		0.36	1.19	417.65

Table 1A: Junctions (continued...)

Name	X-Coordinate	Y-Coordinate	Tag	Inflows	Invert Elev. (ft)	Rim Elev. (ft)	Depth (ft)	Ponded Area (ft²)	Time Series	Avg. Depth (ft)	Max. Depth (ft)	Max. HGL (ft)
12490	1310471	249186.8		NO	418.012	422	3.988	1320		0.33	1.04	419.06
12645	1310615	249184.5		NO	420.384	425	4.616	1320		0.59	6.68	427.06
12654	1310621	247416.9	Basin_1_Injection_Pt	YES	458.893	462.5	3.607	1320	Basin1_AltA	0.17	0.86	459.76
12674	1310634	247901.1	ASSUMED	NO	447.205	451.8	4.595	1320		0.27	4.6	451.81
12678	1310639	248000	ASSUMED	NO	446.908	451	4.092	1320		0.27	4.09	451
12679	1310638	248129.8		NO	446.492	447.9	1.408	1320		0.15	1.42	447.91
12688	1310644	248322.1	RECORD_DRAWING	NO	440.406	443.85	3.444	1320		0.16	0.54	440.95
12695	1310651	248565.5		NO	433.495	435.795	2.3	1320		0.1	0.32	433.82
12696	1310649	248543.1		NO	434.337	437.337	3	1320		0.13	0.42	434.75
12697	1310652	248600.9		NO	430.202	433.902	3.7	1320		0.14	0.47	430.67
12702	1310655	248713.5		NO	427.714	431.214	3.5	1320		0.2	0.71	428.42
12705	1310658	248862.5		NO	427.019	431.806	4.787	1320		0.2	0.99	428.01
12707	1310663	249035.9		NO	424.747	429.047	4.3	1320		0.16	3.16	427.9
12708	1310666	249173.8		NO	421.906	425.9	3.994	1320		0.21	5.86	427.76
12716	1310669	249182.5	Basin_2_Injection_Pt	YES	421.689	425.8	4.111	1320	Basin2_AltA	0.37	6.07	427.75
14635	1310626	247559.8		NO	456.37	458.95	2.58	1320		0.14	0.77	457.14
14636	1310621	247560.3		NO	456.252	458.502	2.25	1320		0.13	0.82	457.07
14637	1310624	247677.3		NO	451.49	456.8	5.31	1320		0.15	3.93	455.42
14638	1310627	247794.4		NO	448.028	453.75	5.722	1320		0.11	5.6	453.63
14639	1310631	247794.3		NO	447.388	453.85	6.462	1320		0.34	6.18	453.56
14675	1310632	247858.4	ASSUMED	NO	447.339	453	5.661	1320		0.27	5.25	452.59
15701	1310605	246744.3		NO	478.087	479.587	1.5	1320		0	0	478.09
16374	1310130	249734.3		NO	368.459	378.659	10.2	1320		0.19	0.54	369
16377	1310206	249735.5		NO	370.041	382.941	12.9	1320		0.29	0.84	370.88
16384	1310254	249736.7		NO	373.882	386.535	12.653	1320		0.22	0.62	374.5
16385	1310255	249657.8		NO	380.339	389.439	9.1	1320		0.2	0.56	380.9

Table 1A: Junctions (continued...)

Name	X-Coordinate	Y-Coordinate	Tag	Inflows	Invert Elev. (ft)	Rim Elev. (ft)	Depth (ft)	Ponded Area (ft²)	Time Series	Avg. Depth (ft)	Max. Depth (ft)	Max. HGL (ft)
16392	1310092	249840.9	RECORD_DRAWING	NO	358.42	372.647	14.227	1320		0.79	12.01	370.43
16451	1310310	249485.8		NO	397.927	406.027	8.1	1320		0.39	1.28	399.2
16452	1310319	249485.9		NO	398.527	406.027	7.5	1320		0.22	0.85	399.38
16453	1310321	249394.6		NO	402.294	409.594	7.3	1320		0.25	0.72	403.01
16454	1310308	249394.6		NO	403.394	409.594	6.2	1320		0.2	0.57	403.96
16455	1310309	249362.8		NO	405.822	411.622	5.8	1320		0.35	1.08	406.9
18711	1310659	248909.3		NO	426.8	431.5	4.7	1320		0.14	1.19	427.99
18719	1310620	247290.3		NO	464.236	466.536	2.3	1320		0	0	464.24
18720	1310618	247175		NO	465.393	469.693	4.3	1320		0	0	465.39
18721	1310618	247136.2		NO	465.81	470.91	5.1	1320		0	0	465.81
33729	1310640	248157.6		NO	445.638	447	1.362	1320		0.17	1.94	447.58
33731	1310641	248184.3	RECORD_DRAWING	NO	443.498	446.25	2.752	1320		0.25	3.04	446.54
37613	1310661	248958.5		NO	425.721	430.421	4.7	1320		0.17	2.25	427.97
41253	1310643	248354.6		NO	438.524	443.3	4.776	1320		0.25	0.86	439.38
41255	1310644	248392		NO	438.484	441.75	3.266	1320		0.17	0.62	439.11
41256	1310645	248446.1		NO	437.724	439.8	2.076	1320		0.14	0.48	438.2
41260	1310644	248343.8		NO	439.848	443.75	3.902	1320		0.1	0.33	440.18
42851	1310309	249573.6		NO	392.715	398.815	6.1	1320		0.19	0.54	393.26
42852	1310270	249573.8		NO	387.416	399.216	11.8	1320		0.19	0.55	387.97
42860	1310270	249636.4	ASSUMED	NO	382.4	390.682	8.282	1320		0.27	2.18	384.58
43852	1310619	247227.4		NO	464.778	468.678	3.9	1320		0	0	464.78

Table 1B: Junctions

Name	Time Max. HGL (M/D/Y)	Rep. Max. Depth (ft)	Max. Lat. Inflow (cfs)	Max. Total Inflow (cfs)	Total Lat. Inflow (MG)	Total inflow (MG)	Flow Error (%)	Hours Surcharged (h)	Max. Surcharge (ft)	Min. Freeboard (ft)	Hours Flooded (h)	Max. Flood Rate (cfs)	Total Flood Vol. (MG)	Max. Ponded Depth (ft)
10965	12/12/1979 00:00 AM	4.64	1.26	94.57	0.668	18.4	0.065	7.52	1.892	0	0.01	68.18	0.002	0.142
10968	12/12/1979 00:01 AM	5.81	0	53.88	0	17.7	0.081	10.47	3.065	0	0.1	16.4	0.002	0.015
10975	12/14/1979 21:10 PM	4.3	0	53.8	0	17.7	0.021	0.59	1.554	0	0.04	5.06	0.001	0.004
10976	12/14/1979 21:10 PM	1.77	8.1	52.25	1.62	17.7	0.005	0	0	2.734	0	0	0	0
11016	12/14/1979 21:41 PM	1.74	2.25	47.22	0.495	16.1	0.003	0	0	4.062	0	0	0	0
11149	12/14/1979 21:41 PM	8.67	0	46.76	0	15.6	0.008	2.4	6.18	4.32	0	0	0	0
11236	12/14/1979 21:07 PM	8.96	0	46.76	0	15.6	0.002	0.98	6.5	0	0.01	3.13	0	0
11293	12/14/1979 21:41 PM	9.17	0	50.16	0	15.6	0	0.68	6.666	0	0.67	4.8	0.046	4.166
11352	12/14/1979 21:36 PM	8.56	0	50.16	0	15.6	0.002	0.59	6.063	5.637	0	0	0	0
11357	12/14/1979 21:36 PM	1.62	0	50.28	0	15.6	0.001	0	0	7.973	0	0	0	0
11428	12/14/1979 21:25 PM	13.31	39.4	61.28	7.7	15.6	0.001	0.82	10.81	0	0.52	8.46	0.036	3.31
11429	12/14/1979 21:26 PM	15.01	0	53.06	0	15.6	0.005	1	12.515	0	0.58	9.27	0.043	4.115
11655	12/14/1979 21:06 PM	11.76	0	22.19	0	7.91	0.005	0.58	13.3	0	0	0	0	0
11676	12/14/1979 21:25 PM	1.72	0	22.23	0	7.91	0.001	0	0	7.286	0	0	0	0
11677	12/14/1979 21:19 PM	0.49	0	22.23	0	7.91	0.004	0	0	4.564	0	0	0	0
11757	12/14/1979 21:19 PM	1.34	0	22.23	0	7.91	0.007	0	0	6.002	0	0	0	0
11779	12/14/1979 21:19 PM	1.58	0	22.23	0	7.91	0.002	0	0	4.413	0	0	0	0
11843	12/14/1979 21:18 PM	4.77	0	16.33	0	5.36	0.001	0.48	3.288	0.312	0	0	0	0
11844	12/14/1979 21:19 PM	7	14.81	25.87	2.56	7.91	0.001	0.95	5.503	0	0.45	4.66	0.014	1.403
11873	12/14/1979 21:07 PM	5.18	0	12.75	0	5.36	0.002	0.44	4.145	1.275	0	0	0	0
11917	12/14/1979 21:35 PM	0.69	0	12.75	0	5.36	0.002	0	0	6.233	0	0	0	0
11941	12/14/1979 21:34 PM	0.71	0	12.75	0	5.36	0.003	0	0	5.981	0	0	0	0
12059	12/14/1979 21:34 PM	1.01	0	12.75	0	5.36	0.009	0	0	5.441	0	0	0	0
12355	12/14/1979 21:33 PM	1.26	0	12.75	0	5.36	0.003	0	0	5.84	0	0	0	0
12360	12/14/1979 21:33 PM	0.62	0	12.75	0	5.36	0.001	0	0	3.51	0	0	0	0
12392	12/14/1979 21:33 PM	1.19	0	12.75	0	5.36	0.002	0	0	3.35	0	0	0	0

Table 1B: Junctions (continued...)

Name	Time Max. HGL (M/D/Y)	Rep. Max. Depth (ft)	Max. Lat. Inflow (cfs)	Max. Total Inflow (cfs)	Total Lat. Inflow (MG)	Total inflow (MG)	Flow Error (%)	Hours Surcharged (h)	Max. Surcharge (ft)	Min. Freeboard (ft)	Hours Flooded (h)	Max. Flood Rate (cfs)	Total Flood Vol. (MG)	Max. Ponded Depth (ft)
12490	12/14/1979 21:33 PM	1.04	0	12.75	0	5.36	0.003	0	0	2.94	0	0	0	0
12645	12/14/1979 21:33 PM	6.68	0	14.67	0	5.36	0.005	1.65	5.176	0	1.37	3.36	0.026	2.06
12654	12/14/1979 21:15 PM	0.86	5.29	5.29	1.04	1.04	0.004	0	0	2.74	0	0	0	0
12674	12/14/1979 21:17 PM	4.6	0	5.21	0	1.04	0.004	0.64	3.603	0	0.06	0.12	0	0.008
12678	12/14/1979 21:07 PM	4.09	0	5.11	0	1.04	0.007	0.47	3.092	0	0.01	0.31	0	0
12679	12/14/1979 21:19 PM	1.42	0	5.11	0	1.04	0	0.37	0.417	0	0.09	0.23	0	0.009
12688	12/14/1979 21:32 PM	0.54	0	3.54	0	1.04	0.003	0	0	2.9	0	0	0	0
12695	12/14/1979 21:32 PM	0.32	0	3.54	0	1.04	0.001	0	0	1.975	0	0	0	0
12696	12/14/1979 21:32 PM	0.42	0	3.54	0	1.04	0.001	0	0	2.587	0	0	0	0
12697	12/14/1979 21:32 PM	0.47	0	3.54	0	1.04	0.002	0	0	3.232	0	0	0	0
12702	12/14/1979 21:33 PM	0.71	0	3.54	0	1.04	0.007	0	0	2.794	0	0	0	0
12705	12/14/1979 21:31 PM	0.99	0	3.54	0	1.04	0.005	0	0	3.796	0	0	0	0
12707	12/14/1979 21:28 PM	3.15	0	3.67	0	1.04	0.003	0.77	1.657	1.143	0	0	0	0
12708	12/14/1979 21:30 PM	5.86	0	4.88	0	1.04	0.002	1.5	4.357	0	1.03	3.61	0.019	1.863
12716	12/14/1979 21:30 PM	6.07	17.84	17.89	4.32	5.36	-0.003	1.52	4.565	0	1.18	3.49	0.021	1.954
14635	12/14/1979 21:15 PM	0.77	0	5.28	0	1.04	0.002	0	0	1.81	0	0	0	0
14636	12/14/1979 21:15 PM	0.82	0	5.21	0	1.04	0.001	0	0	1.432	0	0	0	0
14637	12/14/1979 21:15 PM	3.92	0	5.21	0	1.04	0.002	0.22	2.926	1.384	0	0	0	0
14638	12/14/1979 21:16 PM	5.6	0	5.21	0	1.04	-0.001	0.43	4.597	0.125	0	0	0	0
14639	12/14/1979 21:16 PM	6.18	0	5.21	0	1.04	0.001	0.93	5.176	0.286	0	0	0	0
14675	12/14/1979 21:16 PM	5.25	0	5.21	0	1.04	0.003	0.72	4.246	0.415	0	0	0	0
15701	12/12/1979 00:00 AM	0	0	0	0	0	0	0	0	1.497	0	0	0	0
16374	12/14/1979 21:34 PM	0.54	0	12.75	0	5.36	0.001	0	0	9.659	0	0	0	0
16377	12/14/1979 21:28 PM	0.84	0	12.75	0	5.36	0.001	0	0	12.061	0	0	0	0
16384	12/14/1979 21:34 PM	0.62	0	12.75	0	5.36	0.001	0	0	12.035	0	0	0	0
16385	12/14/1979 21:34 PM	0.56	0	12.75	0	5.36	0.001	0	0	8.539	0	0	0	0

Table 1B: Junctions (continued...)

Name	Time Max. HGL (M/D/Y)	Rep. Max. Depth (ft)	Max. Lat. Inflow (cfs)	Max. Total Inflow (cfs)	Total Lat. Inflow (MG)	Total inflow (MG)	Flow Error (%)	Hours Surcharged (h)	Max. Surcharge (ft)	Min. Freeboard (ft)	Hours Flooded (h)	Max. Flood Rate (cfs)	Total Flood Vol. (MG)	Max. Ponded Depth (ft)
16392	12/14/1979 21:02 PM	9.42	0	12.75	0	5.36	0.045	4.97	10.476	2.221	0	0	0	0
16451	12/14/1979 21:34 PM	1.28	0	12.75	0	5.36	0.001	0	0	6.827	0	0	0	0
16452	12/14/1979 21:34 PM	0.85	0	12.75	0	5.36	0.001	0	0	6.647	0	0	0	0
16453	12/14/1979 21:34 PM	0.72	0	12.75	0	5.36	0.001	0	0	6.584	0	0	0	0
16454	12/14/1979 21:34 PM	0.57	0	12.75	0	5.36	0	0	0	5.634	0	0	0	0
16455	12/14/1979 21:33 PM	1.08	0	12.75	0	5.36	0.003	0	0	4.722	0	0	0	0
18711	12/14/1979 21:31 PM	1.19	0	3.61	0	1.04	0.001	0	0	3.51	0	0	0	0
18719	12/12/1979 00:00 AM	0	0	0	0	0	0	0	0	2.296	0	0	0	0
18720	12/12/1979 00:00 AM	0	0	0	0	0	0	0	0	4.303	0	0	0	0
18721	12/12/1979 00:00 AM	0	0	0	0	0	0	0	0	5.1	0	0	0	0
33729	12/14/1979 21:26 PM	1.94	0	5.11	0	1.04	0	0.58	0.945	0	0.58	1.36	0.006	0.583
33731	12/14/1979 21:32 PM	3.04	0	3.99	0	1.04	0.003	0.62	2.045	0	0.56	0.51	0.003	0.293
37613	12/14/1979 21:31 PM	2.25	0	3.66	0	1.04	0.002	0.5	0.751	2.449	0	0	0	0
41253	12/14/1979 21:32 PM	0.86	0	3.54	0	1.04	0.003	0	0	3.92	0	0	0	0
41255	12/14/1979 21:32 PM	0.62	0	3.54	0	1.04	0	0	0	2.64	0	0	0	0
41256	12/14/1979 21:32 PM	0.48	0	3.54	0	1.04	0.002	0	0	1.6	0	0	0	0
41260	12/14/1979 21:32 PM	0.33	0	3.54	0	1.04	0.001	0	0	3.57	0	0	0	0
42851	12/14/1979 21:34 PM	0.54	0	12.75	0	5.36	0.001	0	0	5.555	0	0	0	0
42852	12/14/1979 21:34 PM	0.55	0	12.75	0	5.36	0.001	0	0	11.246	0	0	0	0
42860	12/14/1979 21:28 PM	2	0	12.75	0	5.36	0.001	0.44	1.179	6.103	0	0	0	0
43852	12/12/1979 00:00 AM	0	0	0	0	0	0	0	0	3.898	0	0	0	0

Table 2A: Outfalls

Name	X-Coordinate	Y-Coordinate	Tag	Inflows	Treatment	Invert Elev. (ft)	Rim Elev. (ft)	Tide Gate	Type	Fixed Stage (ft)	Avg. Depth (ft)	Max. Depth (ft)	Max. HGL (ft)	Time Max. HGL (M/D/Y)
10964	1308533	251870.4		NO	NO	249.585	252.585	NO	FIXED	252.585	3	3	252.59	12/12/1979 00:00 AM

Table 2B: Outfalls

Name	Rep. Max. Depth (ft)	Max. Lat. Inflow (cfs)	Max. Total Inflow (cfs)	Total Lat. Inflow (MG)	Total inflow (MG)	Flow Error (%)	Hours Surcharged (h)	Max. Surcharge (ft)	Min. Freeboard (ft)	Hours Flooded (h)	Max. Flood Rate (cfs)	Total Flood Vol. (MG)	Max. Ponded Depth (ft)	Flow Frequency	Avg. Flow (cfs)	Max. Flow (cfs)
10964	3	0	94.57	0	18.4	0	0	0	0	0	0	0	0	99.85	7.23	94.57

Table 2C: Outfalls

Name	Total Flow (MG)
10964	18.444

Table 3A: Conduits

Name	Inlet Node	Outlet Node	Tag	Length (ft)	Roughness	Inlet Elev. (ft)	Outlet Elev. (ft)	Flow Limit (cfs)	Cross-Section	Geom1 (ft)	Geom2 (ft)	Barrels	Slope (ft/ft)	Max. |Flow| (cfs)
-1	41253	41255		37	0.011	438.524	438.484	0	CIRCULAR	1	0	1	0.00108	3.54
12587	12678	12679	ASSUMED	130	0.012	446.908	446.492	0	CIRCULAR	1	0	1	0.0032	5.11
13292	12674	12678	ASSUMED	99	0.012	447.205	446.908	0	CIRCULAR	1	0	1	0.003	5.11
13297	12696	12695		23	0.012	434.337	433.495	0	CIRCULAR	1.5	0	1	0.03663	3.54
13298	12695	12697		35	0.012	433.495	430.202	0	CIRCULAR	1.5	0	1	0.0945	3.54
13299	12697	12702		113	0.012	430.202	427.714	0	CIRCULAR	1.5	0	1	0.02202	3.54
13301	12702	12705		149	0.012	427.714	427.019	0	CIRCULAR	1.5	0	1	0.00466	3.54
-2	41255	41256		54	0.011	438.484	437.724	0	CIRCULAR	1	0	1	0.01408	3.54
21149	14638	14639		4	0.011	448.028	447.388	0	CIRCULAR	1	0	1	0.16209	5.21
21151	14637	14638		117	0.011	451.49	448.028	0	CIRCULAR	1	0	1	0.0296	5.21
21152	14636	14637		117	0.011	456.252	451.49	0	CIRCULAR	1	0	1	0.04073	5.21
21153	14635	14636		4	0.011	456.37	456.252	0	CIRCULAR	1	0	1	0.02951	5.21
21196	14639	14675	ASSUMED	64	0.011	447.388	447.339	0	CIRCULAR	1	0	1	0.00077	5.21
22958	16384	16377		47	0.011	373.882	370.041	0	CIRCULAR	1.5	0	1	0.082	12.75
22959	16385	16384		79	0.009	380.339	373.882	0	CIRCULAR	1.5	0	1	0.08201	12.75
22961	16374	16392	RECORD_DRAWING	113	0.009	368.459	358.45	0	CIRCULAR	1.5	0	1	0.08892	12.75
22962	16377	16374		76	0.009	370.041	368.459	0	CIRCULAR	1.5	0	1	0.02082	12.75
22973	16392	12059	ASSUMED	312	0.027	358.42	351	0	RECT_OPEN	1.5	2	1	0.02379	12.75
23017	16451	42851		88	0.024	397.927	392.715	0	CIRCULAR	1.5	0	1	0.05933	12.75
23018	16452	16451		9	0.009	398.527	397.927	0	CIRCULAR	1.333	0	1	0.06682	12.75
23047	16453	16452		91	0.009	402.294	398.527	0	CIRCULAR	1.333	0	1	0.04143	12.75
23048	16454	16453		12	0.009	403.394	402.294	0	CIRCULAR	1.333	0	1	0.09205	12.75
23049	16455	16454		32	0.024	405.822	403.394	0	CIRCULAR	1.5	0	1	0.07609	12.75
23050	12355	16455		140	0.024	412.9	405.822	0	CIRCULAR	1.5	0	1	0.05062	12.75
25124	12705	18711		47	0.012	427.019	426.8	0	CIRCULAR	1.5	0	1	0.00466	3.61
25413	18721	18720	PIPE	39	0.009	465.81	465.393	0	CIRCULAR	1	0	1	0.01069	0

Table 3A: Conduits (continued...)

Name	Inlet Node	Outlet Node	Tag	Length (ft)	Roughness	Inlet Elev. (ft)	Outlet Elev. (ft)	Flow Limit (cfs)	Cross-Section	Geom1 (ft)	Geom2 (ft)	Barrels	Slope (ft/ft)	Max. |Flow| (cfs)
25414	18720	43852	PIPE	52	0.012	465.393	464.778	0	CIRCULAR	1	0	1	0.01183	0
-3	12688	41260		22	0.012	440.406	439.848	0	CIRCULAR	1	0	1	0.02537	3.54
-4	41260	41253		11	0.011	439.848	438.524	0	CIRCULAR	1	0	1	0.12125	3.54
40640	12679	33729		28	0.012	446.492	445.638	0	CIRCULAR	1	0	1	0.03051	5.11
40642	33729	33731		27	0.024	445.638	443.498	0	CIRCULAR	1	0	1	0.07951	3.99
41542	14675	12674	ASSUMED	43	0.012	447.339	447.205	0	CIRCULAR	1	0	1	0.00312	5.21
41565	12654	14635		143	0.012	458.893	456.37	0	CIRCULAR	1	0	1	0.01765	5.28
44677	18711	37613		49	0.012	426.8	425.721	0	CIRCULAR	1.5	0	1	0.02203	3.66
44678	37613	12707		77	0.012	425.721	424.747	0	CIRCULAR	1.5	0	1	0.01265	3.67
45955	11844	11779		69	0.024	340.52	335.403	0	CIRCULAR	1.5	0	1	0.07436	22.23
-5	41256	12696		97	0.011	437.724	434.337	0	CIRCULAR	1	0	1	0.03494	3.54
-6	42851	42852		39	0.011	392.715	387.416	0	CIRCULAR	1.5	0	1	0.13714	12.75
6101	12707	12708		138	0.012	424.747	421.906	0	CIRCULAR	1.5	0	1	0.02059	4.15
6102	12716	12645		54	0.012	421.689	420.384	0	CIRCULAR	1.5	0	1	0.02417	14.67
6103	12708	12716		9	0.012	421.906	421.689	0	CIRCULAR	1.5	0	1	0.02412	7.59
6287	10965	10964		68	0.012	249.857	249.585	0	ARCH	24	0	1	0.004	94.57
6456	11016	10976		75	0.024	261.602	258.404	0	CIRCULAR	3	0	1	0.04268	47.22
6460	10976	10975		229	0.024	258.404	254.139	0	ARCH	24	0	1	0.01863	53.8
6462	10975	10968		171	0.024	254.139	250.126	0	ARCH	24	0	1	0.02347	53.88
6496	10968	10965		279	0.024	250.126	249.857	0	ARCH	24	0	1	0.00096	51.38
-7	42860	16385	ASSUMED	26	0.011	382.4	380.339	0	CIRCULAR	1	0	1	0.07952	12.75
7487	11428	11429		60	0.012	303.09	300.654	0	CIRCULAR	2.5	0	1	0.04063	53.06
7493	11429	11357		122	0.012	300.654	289.913	0	CIRCULAR	1.5	0	1	0.08838	50.28
7505	11357	11352		46	0.012	289.913	282.213	0	CIRCULAR	2.5	0	1	0.16979	50.16
7553	11676	11655		46	0.024	317.976	306.719	0	CIRCULAR	2	0	1	0.25239	22.19
7555	11677	11676		19	0.009	322.71	317.976	0	CIRCULAR	2	0	1	0.25727	22.23

Table 3A: Conduits (continued...)

Name	Inlet Node	Outlet Node	Tag	Length (ft)	Roughness	Inlet Elev. (ft)	Outlet Elev. (ft)	Flow Limit (cfs)	Cross-Section	Geom1 (ft)	Geom2 (ft)	Barrels	Slope (ft/ft)	Max. |Flow| (cfs)
7559	11779	11757	ASSUMED	78	0.024	335.403	332.66	0	CIRCULAR	2	0	1	0.03519	22.23
7563	11843	11844		36	0.009	342.982	340.52	0	CIRCULAR	1.5	0	1	0.06855	15.87
7565	11873	11843	RECORD_DRAWING	78	0.009	345.152	342.982	0	CIRCULAR	1.5	0	1	0.02783	16.33
7582	11757	11677	ASSUMED	283	0.027	332.66	322.71	0	RECT_OPEN	2	2.5	1	0.03518	22.23
7602	12360	12355		39	0.011	416.064	412.9	0	CIRCULAR	1.5	0	1	0.0814	12.75
7603	12392	12360	ASSUMED	53	0.009	416.462	416.064	0	CIRCULAR	1.5	0	1	0.00751	12.75
7605	12490	12392	ASSUMED	83	0.012	418.012	416.462	0	CIRCULAR	1.5	0	1	0.01868	12.75
7606	12645	12490		144	0.024	420.384	418.012	0	CIRCULAR	1.5	0	1	0.01647	12.75
7740	11941	11917	RECORD_DRAWING	77	0.009	354.672	351.972	0	CIRCULAR	1.5	0	1	0.03509	12.75
7742	12059	11941	ASSUMED	79	0.027	357.44	354.672	0	RECT_OPEN	1.5	2	1	0.03506	12.75
-8	42852	42860	ASSUMED	63	0.012	387.416	382.4	0	CIRCULAR	1	0	1	0.07987	6.38
-9	42852	42860		63	0.012	387.416	380.339	0	CIRCULAR	1	0	1	0.11305	6.38
C1	33731	12688	ASSUMED	137.886	0.024	443.498	440.406	0	CIRCULAR	1	0	1	0.02243	3.54
C10	18719	12654	ASSUMED	126.611	0.012	464.236	458.893	0	CIRCULAR	1	0	1	0.04224	0
C2	11917	11873	ASSUMED	183.467	0.009	351.972	345.152	0	CIRCULAR	1.5	0	1	0.0372	12.75
C3	15701	18721	ASSUMED	392.106	0.012	478.087	465.81	0	CIRCULAR	1	0	1	0.03133	0
C4	43852	18719	assumed	62.889	0.012	464.778	464.236	0	CIRCULAR	1	0	1	0.00862	0
C5	11655	11428	ASSUMED(BLTEE)	212.261	0.024	306.719	303.09	0	CIRCULAR	2.5	0	1	0.0171	27.24
C6	11352	11293	ASSUMED(BLTEE)	138.344	0.024	282.213	275.185	0	CIRCULAR	2.5	0	1	0.05087	50.16
C7	11236	11149	ASSUMED(BLTEE)	143.382	0.024	268.096	262.042	0	CIRCULAR	2.5	0	1	0.04226	46.76
C8	11149	11016	ASSUMED(BLTEE)	150	0.024	262.042	261.602	0	CIRCULAR	2.5	0	1	0.00293	46.76
C9	11293	11236	ASSUMED(BLTEE)	165	0.024	275.185	268.096	0	CIRCULAR	2.5	0	1	0.043	46.76

Table 3B: Conduits

Name	Time Max. Flow (M/D/Y)	Max. |Velocity| (ft/s)	Max/Full Flow	Max/Full Depth	Max. Volume (ft³)	Full Both Ends (h)	Full Upstream (h)	Full Downstream (h)	Above Full Normal (h)	Capacity Limited (h)	Subcritical (fraction)	Supercritical (fraction)
-1	12/14/1979 21:32 PM	5.7	2.56	0.74	0	0.01	0.01	0.01	2.1	0.01	0.17	0.82
12587	12/14/1979 21:15 PM	6.5	2.34	1	0	0.37	0.47	0.37	0.98	0.37	0.14	0.86
13292	12/14/1979 21:15 PM	6.5	2.42	1	0	0.47	0.64	0.47	1.02	0.47	1	0
13297	12/14/1979 21:32 PM	10.48	0.16	0.25	0	0	0	0	0	0	0	1
13298	12/14/1979 21:32 PM	9.55	0.1	0.26	0	0	0	0	0	0	0	1
13299	12/14/1979 21:32 PM	5.57	0.21	0.39	0	0	0	0	0	0	0.1	0.89
13301	12/14/1979 21:33 PM	4.27	0.46	0.57	0	0	0	0	0	0	0.52	0.48
-2	12/14/1979 21:32 PM	7.98	0.71	0.55	0	0	0	0	0	0	0	1
21149	12/14/1979 21:16 PM	6.63	0.31	1	0	0.43	0.43	0.93	0.01	0.01	0.16	0.84
21151	12/14/1979 21:16 PM	8.91	0.72	1	0	0.22	0.22	0.43	0.01	0.01	0	1
21152	12/14/1979 21:16 PM	9.74	0.61	0.91	0	0.01	0.01	0.22	0.01	0.01	0	1
21153	12/14/1979 21:15 PM	10.4	0.72	0.79	0	0	0	0	0	0	0	1
21196	12/14/1979 21:16 PM	6.63	4.47	1	0	0.72	0.93	0.72	4.31	0.72	1	0
22958	12/14/1979 21:34 PM	14.98	0.36	0.49	0	0	0	0	0	0	0	1
22959	12/14/1979 21:34 PM	19.89	0.29	0.39	0	0	0	0	0	0	0	1
22961	12/14/1979 21:34 PM	9.94	0.28	0.68	0	0.01	0.01	4.97	0.01	0.01	0.09	0.79
22962	12/14/1979 21:34 PM	16.1	0.58	0.46	0	0	0	0	0	0	0	1
22973	12/14/1979 21:34 PM	5.09	1.94	0.84	0	0.01	5.44	0.01	2.31	0.01	1	0
23017	12/14/1979 21:34 PM	11.42	0.92	0.61	0	0	0	0	0	0	0	1
23018	12/14/1979 21:34 PM	10.74	0.45	0.8	0	0	0	0	0	0	0	1
23047	12/14/1979 21:34 PM	15.14	0.57	0.59	0	0	0	0	0	0	0	1
23048	12/14/1979 21:34 PM	19.12	0.38	0.48	0	0	0	0	0	0	0	1
23049	12/14/1979 21:34 PM	12.83	0.81	0.55	0	0	0	0	0	0	0	1
23050	12/14/1979 21:33 PM	8.64	1	0.78	0	0	0	0	0	0	0	1
25124	12/14/1979 21:36 PM	5.47	0.46	0.73	0	0	0	0	0	0	0.12	0.88
25413	12/12/1979 00:00 AM	0	0	0	0	0	0	0	0	0	0	0

Table 3B: Conduits (continued...)

Name	Time Max. Flow (M/D/Y)	Max. |Velocity| (ft/s)	Max/Full Flow	Max/Full Depth	Max. Volume (ft³)	Full Both Ends (h)	Full Upstream (h)	Full Downstream (h)	Above Full Normal (h)	Capacity Limited (h)	Subcritical (fraction)	Supercritical (fraction)
25414	12/12/1979 00:00 AM	0	0	0	0	0	0	0	0	0	0	0
-3	12/14/1979 21:32 PM	10.65	0.58	0.44	0	0	0	0	0	0	0	1
-4	12/14/1979 21:32 PM	7.23	0.24	0.6	0	0	0	0	0	0	0.14	0.86
40640	12/14/1979 21:15 PM	7.96	0.76	1	0	0.37	0.37	0.58	0.01	0.01	0.01	0.99
40642	12/14/1979 21:20 PM	5.36	0.73	1	0	0.58	0.58	0.62	0.01	0.01	0.1	0.9
41542	12/14/1979 21:16 PM	6.63	2.42	1	0	0.64	0.72	0.64	0.99	0.64	1	0
41565	12/14/1979 21:15 PM	8.27	1.03	0.8	0	0.01	0.01	0.01	0.04	0.01	0	1
44677	12/14/1979 21:44 PM	6.74	0.22	0.9	0	0.01	0.01	0.5	0.01	0.01	0.04	0.96
44678	12/14/1979 21:44 PM	5.79	0.29	1	0	0.5	0.5	0.77	0.01	0.01	0.05	0.94
45955	12/14/1979 21:19 PM	12.58	1.43	1	0	0.42	0.95	0.42	1.03	0.42	0.01	0.99
-5	12/14/1979 21:32 PM	10.39	0.45	0.45	0	0	0	0	0	0	0	1
-6	12/14/1979 21:34 PM	22	0.28	0.36	0	0	0	0	0	0	0	1
6101	12/14/1979 23:33 PM	4.96	0.25	1	0	0.77	0.77	1.5	0.01	0.01	0.02	0.98
6102	12/14/1979 21:17 PM	8.3	0.83	1	0	1.52	1.52	1.65	0.01	0.01	0.09	0.91
6103	12/14/1979 22:02 PM	6.08	0.43	1	0	1.5	1.5	1.52	0.01	0.01	0.99	0.01
6287	12/12/1979 00:00 AM	11.44	1.54	1	0	7.43	7.43	110.5	0.01	0.02	1	0
6456	12/14/1979 21:41 PM	11.58	0.63	0.57	0	0	0	0	0	0	0	1
6460	12/14/1979 21:10 PM	7.98	0.81	0.82	0	0.01	0.01	0.59	0.01	0.01	0.14	0.86
6462	12/14/1979 21:10 PM	6.05	0.73	1	0	0.59	0.59	10.47	0.01	0.01	1	0
6496	12/14/1979 21:15 PM	5.77	3.42	1	0	7.38	10.47	7.43	10.77	7.38	1	0
-7	12/14/1979 21:34 PM	20.64	1.07	0.78	0	0.01	0.44	0.01	0.63	0.01	0	1
7487	12/14/1979 21:15 PM	14.53	0.59	1	0	0.82	0.82	1	0.01	0.01	0.01	0.99
7493	12/14/1979 21:31 PM	31.27	1.49	1	0	0.15	1.06	0.15	0.95	0.15	0	1
7505	12/14/1979 21:31 PM	17.09	0.27	0.82	0	0.01	0.01	0.59	0.01	0.01	0	1
7553	12/14/1979 21:20 PM	10.48	0.36	0.93	0	0.01	0.01	0.66	0.01	0.01	0	1
7555	12/14/1979 21:19 PM	23.77	0.13	0.55	0	0	0	0	0	0	0	1

Table 3B: Conduits (continued...)

Name	Time Max. Flow (M/D/Y)	Max. |Velocity| (ft/s)	Max/Full Flow	Max/Full Depth	Max. Volume (ft³)	Full Both Ends (h)	Full Upstream (h)	Full Downstream (h)	Above Full Normal (h)	Capacity Limited (h)	Subcritical (fraction)	Supercritical (fraction)
7559	12/14/1979 21:19 PM	9.06	0.97	0.73	0	0	0	0	0	0	0	1
7563	12/14/1979 21:34 PM	12.05	0.4	1	0	0.48	0.48	0.95	0.01	0.01	0.01	0.99
7565	12/14/1979 21:34 PM	16.42	0.65	1	0	0.44	0.44	0.48	0.01	0.01	0.01	0.99
7582	12/14/1979 21:19 PM	9.71	0.51	0.46	0	0	0	0	0	0	0.14	0.86
7602	12/14/1979 21:33 PM	11.11	0.36	0.63	0	0	0	0	0	0	0	1
7603	12/14/1979 21:33 PM	11.42	0.97	0.6	0	0	0	0	0	0	0	1
7605	12/14/1979 21:33 PM	9.03	0.82	0.75	0	0	0	0	0	0	0	1
7606	12/14/1979 21:33 PM	7.98	1.75	0.85	0	0.01	1.65	0.01	1.95	0.01	0.1	0.9
7740	12/14/1979 21:34 PM	15.79	0.45	0.47	0	0	0	0	0	0	0	1
7742	12/14/1979 21:34 PM	7.44	0.58	0.57	0	0	0	0	0	0	0.17	0.83
-8	12/14/1979 21:34 PM	10.33	0.58	0.77	0	0.01	0.01	0.44	0.01	0.01	0	1
-9	12/14/1979 21:34 PM	10.33	0.58	0.77	0	0.01	0.01	0.44	0.01	0.01	0	1
C1	12/14/1979 21:32 PM	5.44	1.22	0.77	0	0.01	0.62	0.01	0.63	0.01	0.1	0.9
C10	12/12/1979 00:00 AM	0	0	0.43	0	0	0	0	0	0	0	0
C2	12/14/1979 21:35 PM	15.13	0.44	0.73	0	0.01	0.01	0.44	0.01	0.01	0	1
C3	12/12/1979 00:00 AM	0	0	0	0	0	0	0	0	0	0	0
C4	12/12/1979 00:00 AM	0	0	0	0	0	0	0	0	0	0	0
C5	12/14/1979 21:41 PM	7.07	0.94	1	0	0.58	0.58	0.82	0.01	0.01	0.15	0.85
C6	12/14/1979 21:31 PM	11.14	1	1	0	0.59	0.59	0.68	0.02	0.02	0.01	0.99
C7	12/14/1979 21:41 PM	9.53	1.02	1	0	0.98	0.98	2.4	0.2	0.2	1	0
C8	12/14/1979 21:41 PM	10.55	3.89	0.85	0	0.01	2.4	0.01	12.84	0.01	0.99	0.01
C9	12/14/1979 21:41 PM	10.01	1.01	1	0	0.68	0.68	0.98	0.16	0.16	0.01	0.99

Table 3C: Conduits

Name	Normal Limited (fraction)
-1	0
12587	0
13292	0.67
13297	0
13298	1
13299	1
13301	0.82
-2	0.01
21149	0.95
21151	0
21152	1
21153	0.67
21196	0
22958	1
22959	1
22961	0.8
22962	0
22973	0
23017	0
23018	0.79
23047	0.02
23048	1
23049	0
23050	0
25124	0.4
25413	0

Table 3C: Conduits (continued...)

Name	Normal Limited (fraction)
25414	0
-3	0.01
-4	1
40640	0.99
40642	0.99
41542	0.56
41565	0
44677	0.99
44678	0.01
45955	0.99
-5	0
-6	0.1
6101	0.24
6102	0.96
6103	0.68
6287	0
6456	0
6460	0.01
6462	0.99
6496	0
-7	0
7487	0.92
7493	0
7505	1
7553	0.99
7555	1

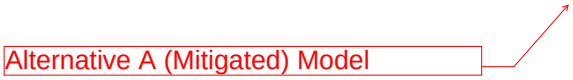
Table 3C: Conduits (continued...)

Name	Normal Limited (fraction)
7559	0
7563	0.99
7565	0
7582	0.24
7602	1
7603	0.37
7605	0.98
7606	0
7740	0
7742	0.66
-8	1
-9	1
C1	0
C10	0
C2	1
C3	0
C4	0
C5	0.01
C6	0.99
C7	0.99
C8	0
C9	0.85

PCSWMM Report

report

Model Kirkland_Alt1_25_Year_Mitigated.inp



RKI

August 16, 2021

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Summary 1: Options

Name	Kirkland_Alt1_25_Year_Mitigated
Flow Units	CFS
Infiltration method	Green-Ampt
Flow routing method	Dynamic Wave
Link offsets defined by	Elevation
Allow ponding	Yes
Skip steady flow periods	No
Inertial dampening	Partial
Define supercritical flow by	Both
Force Main Equation	H-W
Variable time step	On
Adjustment factor (%)	75
Conduit lengthening (s)	0
Minimum surface area (ft²)	0
Starting date	Dec-12-1979 12:00:00 AM
Ending date	Dec-16-1979 02:30:00 PM
Duration of simulation (hours)	110.5
Antecedent dry days (days)	0
Rain interval (h:mm)	n/a
Report time step (h:mm:ss)	00:00:01
Wet time step (h:mm:ss)	00:05:00
Dry time step (h:mm:ss)	00:05:00
Routing time step (s)	1
Minimum time step used (s)	0
Average time step used (s)	0.59
Minimum conduit slope	0
Ignore rainfall/runoff	No
Ignore snow melt	No
Ignore groundwater	No
Ignore flow routing	No
Ignore water quality	No
Report average results	No

Summary 2: Model inventory

Name	Kirkland_Alt1_25_Year_Mitigated
Raingages	0
Subcatchments	0
Aquifers	0
Snowpacks	0
RDII hydrographs	0
Junction nodes	73
Outfall nodes	1
Flow divider nodes	0
Storage unit nodes	0
Conduit links	74
Pump links	0
Orifice links	0
Weir links	0
Outlet links	0
Treatment units	0
Transects	0
Control rules	0
Pollutants	0
Land Uses	0
Control Curves	0
Diversion Curves	0
Pump Curves	0
Rating Curves	0
Shape Curves	0
Storage Curves	0
Tidal Curves	0
Weir Curves	0
Time Series	9
Time Patterns	0

Summary 3: Model complexity

Name	Kirkland_Alt1_25_Year_Mitigated
Subcatchments	n/a
Groundwater	n/a
Aquifers	n/a
Snowpacks	n/a
RDII hydrographs	n/a
Junction nodes	233
Outfall nodes	2
Flow divider nodes	n/a
Storage unit nodes	n/a
Conduit links	447
Pump links	n/a
Orifice links	n/a
Weir links	n/a
Outlet links	n/a
Transect	n/a
Pollutants	n/a
Land Uses	n/a
Model complexity (total uncertain input parameters)	682

Summary 4: Inflows

Name	Kirkland_Alt1_25_Year_Mitigated
Time series inflows	7
Dry weather	0
Groundwater	0
RDII inflows	0

Summary 5: Subcatchment statistics

Name	Kirkland_Alt1_25_Year_Mitigated
Max. width (ft)	n/a
Min. width (ft)	n/a
Max. area (ac)	n/a
Min. area (ac)	n/a
Total area (ac)	n/a
Max. length of overland flow (ft)	n/a
Min. length of overland flow (ft)	n/a
Max. slope (%)	n/a

Summary 5: Subcatchment statistics (continued...)

Name	Kirkland_Alt1_25_Year_Mitigated
Min. slope (%)	n/a
Max. imperviousness (%)	n/a
Min. imperviousness (%)	n/a
Max. imp. roughness	n/a
Min. imp. roughness	n/a
Max. perv. roughness	n/a
Min. perv. roughness	n/a
Max. imp. depression storage (in)	n/a
Min. imp. depression storage (in)	n/a
Max. perv. depression storage (in)	n/a
Min. perv. depression storage (in)	n/a

Summary 6: Node statistics

Name	Kirkland_Alt1_25_Year_Mitigated
Max. ground elev. (ft)	479.587
Min. ground elev. (ft)	254.357
Max. invert elev. (ft)	478.087
Min. invert elev. (ft)	249.585
Max. depth (ft)	15.8
Min. depth (ft)	1.408

Summary 7: Conduit statistics

Name	Kirkland_Alt1_25_Year_Mitigated
Max. roughness	0.027
Min. roughness	0.009
Max. entry loss coef.	0
Min. entry loss coef.	0
Max. exit loss coef.	0
Min. exit loss coef.	0
Max. avg. loss coef.	0
Min. avg. loss coef.	0
Max. length (ft)	392.106
Min. length (ft)	4
Total length (ft)	6817.946
Max. slope (ft/ft)	0.2573
Min. slope (ft/ft)	0.0008

Summary 8: Conduit Inventory

Name	Kirkland_Alt1_25_Year_Mitigated
Open Rectangular (ft)	674
Circular (ft)	5396.946
Arch (ft)	747

Summary 9: Pipe inventory

Name	Kirkland_Alt1_25_Year_Mitigated
Max. pipe diameter (ft)	3
Min. pipe diameter (ft)	1
Total 12” pipe length (ft)	1545.606
Total 18” pipe length (ft)	2491.353
Total 24” pipe length (ft)	248
Total 30” pipe length (ft)	1036.987
Total 36” pipe length (ft)	75
Total pipe length (ft)	5396.946

Summary 10: Unused objects

Name	Kirkland_Alt1_25_Year_Mitigated
Rain Gages	n/a
Aquifers	n/a
Snow Packs	n/a
Unit Hydrographs	n/a
Transects	n/a
Control Curves	n/a
Diversion Curves	n/a
Pump Curves	n/a
Rating Curves	n/a
Shape Curves	n/a
Storage Curves	n/a
Tidal Curves	n/a
Weir Curves	n/a
Time Series	2
Time Patterns	n/a

Summary 11: Flow routing continuity

Name	Kirkland_Alt1_25_Year_Mitigated
Dry weather inflow (MG)	0.000
Wet weather inflow (MG)	0.000
Groundwater inflow (MG)	0.000
RDII inflow (MG)	0.000
External inflow (MG)	16.728
External outflow (MG)	16.691
Flooding loss (MG)	0.000
Evaporation loss (MG)	0.000
Exfiltration loss (MG)	0.000
Initial stored volume (MG)	0.003
Final stored volume (MG)	0.040
Continuity error (%)	0.000

Summary 12: Results statistics

Name	Kirkland_Alt1_25_Year_Mitigated
Max. subcatchment total runoff (MG)	n/a
Max. subcatchment peak runoff (cfs)	n/a
Max. subcatchment runoff coefficient	n/a
Max. subcatchment total precip (in)	n/a
Min. subcatchment total precip (in)	n/a
Max. node depth (ft)	12.78
Num. nodes surcharged	26
Max. node surcharge duration (hours)	3.84
Max. node height above crown (ft)	11.247
Min. node depth below rim (ft)	0
Num. nodes flooded	9
Max. node flooding duration (hours)	0.49
Max. node flood volume (MG)	0.058
Max. node ponded volume or depth (acre-in/1000 ft³/ft)	5.269
Max. storage volume (1000 ft³)	n/a
Max. storage percent full (%)	n/a
Max. outfall flow frequency (%)	99.97
Max. outfall peak flow (cfs)	94.58
Max. outfall total volume (MG)	16.756
Total outfall volume (MG)	16.756
Max. link peak flow (cfs)	94.58
Max. link peak velocity (ft/s)	27.28
Min. link peak velocity (ft/s)	0

Summary 12: Results statistics (continued...)

Name	Kirkland_Alt1_25_Year_Mitigated
Num. conduits surcharged	39
Max. conduit surcharge duration (hours)	110.5
Max. conduit capacity limited duration (hours)	0.98

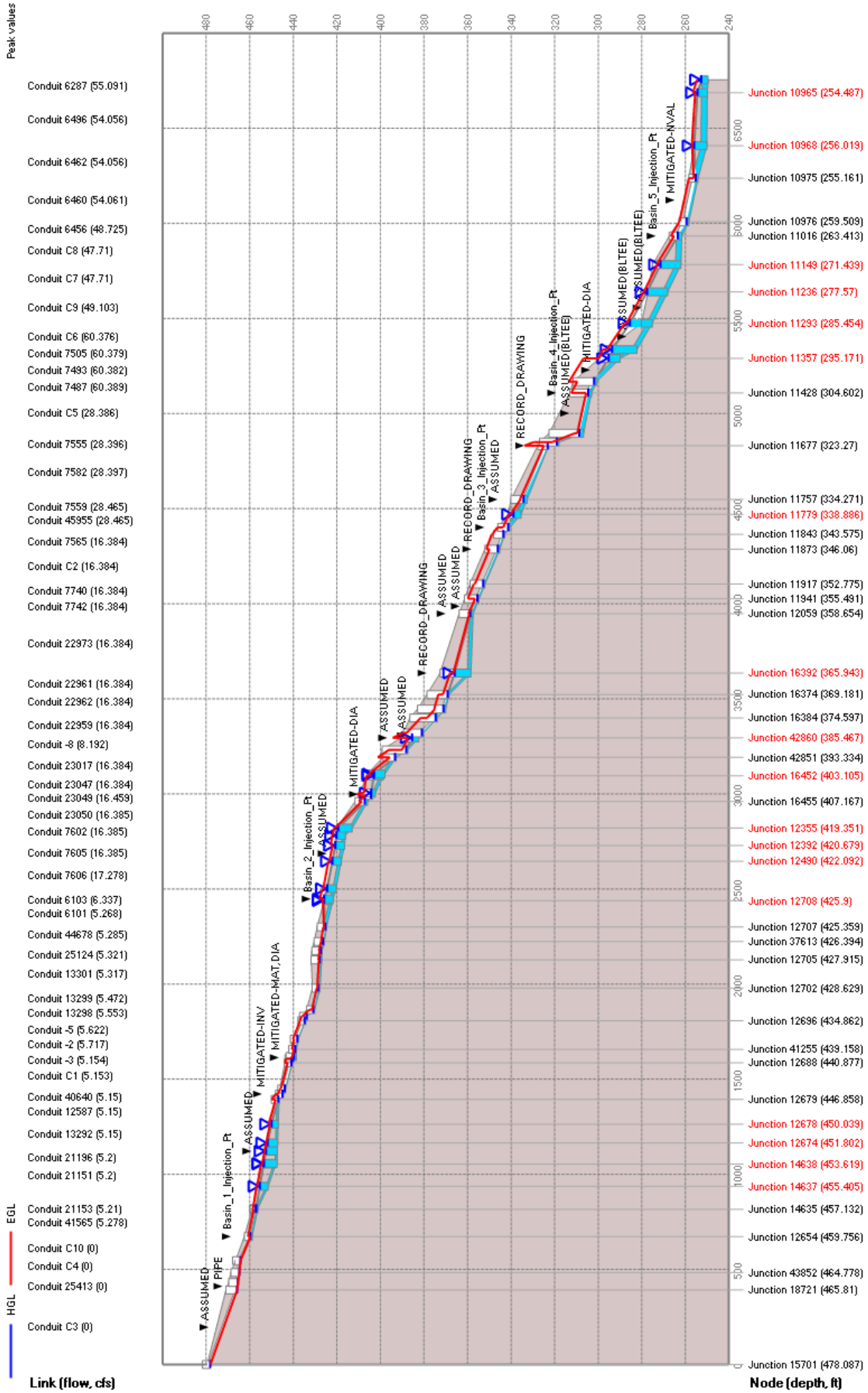


Figure 1: Study Area

Table 1A: Junctions

Name	X-Coordinate	Y-Coordinate	Tag	Inflows	Invert Elev. (ft)	Rim Elev. (ft)	Depth (ft)	Ponded Area (ft²)	Time Series	Avg. Depth (ft)	Max. Depth (ft)	Max. HGL (ft)
10965	1308533	251802.6	Basin_7_Injection_Pt	YES	249.857	254.357	4.5	1320	Basin7_AltA	2.73	4.63	254.49
10968	1308535	251524		NO	250.126	255.926	5.8	1320		2.49	5.89	256.02
10975	1308541	251353.4		NO	254.139	258.439	4.3	1320		0.29	1.02	255.16
10976	1308542	251124.1	Basin_6_Injection_Pt	YES	258.404	262.904	4.5	1320	Basin6_AltA	0.31	1.1	259.51
11016	1308578	251058	Basin_5_Injection_Pt	YES	261.602	267.402	5.8	1320	Basin5_AltA	0.53	1.81	263.41
11149	1308728	251057.7		NO	262.042	275.042	13	1320		1.09	9.94	271.98
11236	1308871	251057.3		NO	268.096	277.096	9	1320		0.56	9.47	277.57
11293	1308990	250943.9		NO	275.185	280.185	5	1320		0.55	10.27	285.45
11352	1309092	250850.2		NO	282.213	296.413	14.2	1320		0.53	12.55	294.76
11357	1309094	250804.6		NO	289.913	299.513	9.6	1320		0.27	6	295.92
11428	1309166	250647.1	Basin_4_Injection_Pt	YES	303.09	313.09	10	1320	Basin4_Mitigated	0.38	1.51	304.6
11429	1309166	250706.7		NO	300.654	311.554	10.9	1320		0.32	1.19	301.84
11655	1309376	250617.4		NO	306.719	322.519	15.8	1320		0.49	2.01	308.73
11676	1309408	250584.2		NO	317.976	326.976	9	1320		0.26	0.95	318.93
11677	1309411	250565.1	RECORD_DRAWING	NO	322.71	327.764	5.054	1320		0.16	0.56	323.27
11757	1309575	250424.2	ASSUMED	NO	332.66	340.002	7.342	1320		0.28	1.61	334.27
11779	1309651	250444.6		NO	335.403	341.403	6	1320		0.45	4.51	339.92
11843	1309705	250365.1		NO	342.982	348.082	5.1	1320		0.18	0.59	343.58
11844	1309705	250400.8	Basin_3_Injection_Pt	YES	340.52	346.12	5.6	1320	Basin3_AltA	0.22	0.78	341.3
11873	1309737	250294.2	RECORD_DRAWING	NO	345.152	352.072	6.92	1320		0.26	0.91	346.06
11917	1309801	250122.4	RECORD_DRAWING	NO	351.972	358.893	6.921	1320		0.23	0.8	352.77
11941	1309829	250050.6	RECORD_DRAWING	NO	354.672	361.361	6.689	1320		0.23	0.82	355.49
12059	1309908	250051	ASSUMED	NO	357.44	363.891	6.451	1320		0.24	1.21	358.65
12355	1310336	249225.5		NO	412.9	420	7.1	1320		0.36	6.48	419.38
12360	1310335	249186.1		NO	416.064	420.2	4.136	1320		0.21	4.14	420.2
12392	1310388	249185.3	ASSUMED	NO	416.462	421	4.538	1320		0.35	4.32	420.78

Table 1A: Junctions (continued...)

Name	X-Coordinate	Y-Coordinate	Tag	Inflows	Invert Elev. (ft)	Rim Elev. (ft)	Depth (ft)	Ponded Area (ft²)	Time Series	Avg. Depth (ft)	Max. Depth (ft)	Max. HGL (ft)
12490	1310471	249186.8		NO	418.012	422	3.988	1320		0.32	4.08	422.09
12645	1310615	249184.5		NO	420.384	425	4.616	1320		0.28	4.2	424.58
12654	1310621	247416.9	Basin_1_Injection_Pt	YES	458.893	462.5	3.607	1320	Basin1_AltA	0.17	0.86	459.76
12674	1310634	247901.1	ASSUMED	NO	447.205	451.8	4.595	1320		0.27	4.6	451.8
12678	1310639	248000	ASSUMED	NO	446.908	451	4.092	1320		0.27	4.09	451
12679	1310638	248129.8		NO	446.492	447.9	1.408	1320		0.09	0.37	446.86
12688	1310644	248322.1	RECORD_DRAWING	NO	440.406	443.85	3.444	1320		0.12	0.47	440.88
12695	1310651	248565.5		NO	433.495	435.795	2.3	1320		0.1	0.4	433.9
12696	1310649	248543.1		NO	434.337	437.337	3	1320		0.13	0.53	434.86
12697	1310652	248600.9		NO	430.202	433.902	3.7	1320		0.14	0.59	430.79
12702	1310655	248713.5		NO	427.714	431.214	3.5	1320		0.2	0.91	428.63
12705	1310658	248862.5		NO	427.019	431.806	4.787	1320		0.2	0.9	427.92
12707	1310663	249035.9		NO	424.747	429.047	4.3	1320		0.14	0.61	425.36
12708	1310666	249173.8		NO	421.906	425.9	3.994	1320		0.15	3.99	425.9
12716	1310669	249182.5	Basin_2_Injection_Pt	YES	421.689	425.8	4.111	1320	Basin2_Mitigated	0.3	4.11	425.8
14635	1310626	247559.8		NO	456.37	458.95	2.58	1320		0.14	0.76	457.13
14636	1310621	247560.3		NO	456.252	458.502	2.25	1320		0.13	0.81	457.06
14637	1310624	247677.3		NO	451.49	456.8	5.31	1320		0.15	4	455.49
14638	1310627	247794.4		NO	448.028	453.75	5.722	1320		0.11	5.59	453.62
14639	1310631	247794.3		NO	447.388	453.85	6.462	1320		0.34	6.17	453.56
14675	1310632	247858.4	ASSUMED	NO	447.339	453	5.661	1320		0.27	5.24	452.58
15701	1310605	246744.3		NO	478.087	479.587	1.5	1320		0	0	478.09
16374	1310130	249734.3		NO	368.459	378.659	10.2	1320		0.18	0.72	369.18
16377	1310206	249735.5		NO	370.041	382.941	12.9	1320		0.28	0.97	371.02
16384	1310254	249736.7		NO	373.882	386.535	12.653	1320		0.21	0.72	374.6
16385	1310255	249657.8		NO	380.339	389.439	9.1	1320		0.19	0.64	380.98

Table 1A: Junctions (continued...)

Name	X-Coordinate	Y-Coordinate	Tag	Inflows	Invert Elev. (ft)	Rim Elev. (ft)	Depth (ft)	Ponded Area (ft²)	Time Series	Avg. Depth (ft)	Max. Depth (ft)	Max. HGL (ft)
16392	1310092	249840.9	RECORD_DRAWING	NO	358.42	372.647	14.227	1320		0.71	12.78	371.2
16451	1310310	249485.8		NO	397.927	406.027	8.1	1320		0.37	5.07	403
16452	1310319	249485.9		NO	398.527	406.027	7.5	1320		0.21	4.58	403.11
16453	1310321	249394.6		NO	402.294	409.594	7.3	1320		0.23	1.87	404.17
16454	1310308	249394.6		NO	403.394	409.594	6.2	1320		0.18	0.97	404.36
16455	1310309	249362.8		NO	405.822	411.622	5.8	1320		0.34	1.35	407.17
18711	1310659	248909.3		NO	426.8	431.5	4.7	1320		0.14	0.58	427.38
18719	1310620	247290.3		NO	464.236	466.536	2.3	1320		0	0	464.24
18720	1310618	247175		NO	465.393	469.693	4.3	1320		0	0	465.39
18721	1310618	247136.2		NO	465.81	470.91	5.1	1320		0	0	465.81
33729	1310640	248157.6	MITIGATED-INV	NO	444.6	447	2.4	1320		0.1	0.42	445.02
33731	1310641	248184.3	RECORD_DRAWING	NO	443.498	446.25	2.752	1320		0.12	0.49	443.99
37613	1310661	248958.5		NO	425.721	430.421	4.7	1320		0.16	0.67	426.39
41253	1310643	248354.6		NO	438.524	443.3	4.776	1320		0.23	1.15	439.68
41255	1310644	248392		NO	438.484	441.75	3.266	1320		0.15	0.67	439.16
41256	1310645	248446.1		NO	437.724	439.8	2.076	1320		0.11	0.45	438.18
41260	1310644	248343.8		NO	439.848	443.75	3.902	1320		0.08	0.32	440.16
42851	1310309	249573.6		NO	392.715	398.815	6.1	1320		0.18	0.62	393.33
42852	1310270	249573.8		NO	387.416	399.216	11.8	1320		0.18	0.79	388.21
42860	1310270	249636.4	ASSUMED	NO	382.4	390.682	8.282	1320		0.25	3.08	385.48
43852	1310619	247227.4		NO	464.778	468.678	3.9	1320		0	0	464.78

Table 1B: Junctions

Name	Time Max. HGL (M/D/Y)	Rep. Max. Depth (ft)	Max. Lat. Inflow (cfs)	Max. Total Inflow (cfs)	Total Lat. Inflow (MG)	Total inflow (MG)	Flow Error (%)	Hours Surcharged (h)	Max. Surcharge (ft)	Min. Freeboard (ft)	Hours Flooded (h)	Max. Flood Rate (cfs)	Total Flood Vol. (MG)	Max. Ponded Depth (ft)
10965	12/12/1979 00:00 AM	4.63	1.26	94.58	0.668	16.7	0.069	3.84	1.88	0	0.01	66.43	0.002	0.13
10968	12/12/1979 00:01 AM	5.89	0	54.06	0	16	0.09	1.06	3.143	0	0.01	35.83	0.001	0.093
10975	12/14/1979 21:18 PM	1.02	0	54.06	0	16	0.005	0	0	3.279	0	0	0	0
10976	12/14/1979 21:17 PM	1.1	8.1	54.06	1.62	16	0.003	0	0	3.394	0	0	0	0
11016	12/14/1979 21:26 PM	1.81	2.25	48.73	0.495	14.4	0.003	0	0	3.992	0	0	0	0
11149	12/14/1979 21:32 PM	9.4	0	47.71	0	13.9	0.01	1.43	7.437	3.063	0	0	0	0
11236	12/14/1979 21:27 PM	9.47	0	49.1	0	13.9	0.004	0.51	6.974	0	0.25	2.99	0.005	0.474
11293	12/14/1979 21:23 PM	10.27	0	60.38	0	13.9	0.001	0.49	7.769	0	0.49	15.16	0.058	5.269
11352	12/14/1979 21:14 PM	11.41	0	60.38	0	13.9	0.002	0.42	10.047	1.653	0	0	0	0
11357	12/14/1979 21:14 PM	5.26	0	60.38	0	13.9	0	0.17	3.505	3.595	0	0	0	0
11428	12/14/1979 21:15 PM	1.51	32.02	60.39	6.69	13.9	0.002	0	0	8.49	0	0	0	0
11429	12/14/1979 21:15 PM	1.19	0	60.39	0	13.9	0.001	0	0	9.714	0	0	0	0
11655	12/14/1979 21:15 PM	2.01	0	28.4	0	7.18	0.007	0	0	13.789	0	0	0	0
11676	12/14/1979 21:15 PM	0.95	0	28.4	0	7.18	0.001	0	0	8.046	0	0	0	0
11677	12/14/1979 21:15 PM	0.56	0	28.4	0	7.18	0.005	0	0	4.494	0	0	0	0
11757	12/14/1979 21:15 PM	1.61	0	28.47	0	7.18	0.008	0	0	5.732	0	0	0	0
11779	12/14/1979 21:09 PM	3.48	0	28.46	0	7.18	0.002	0.23	2.512	1.488	0	0	0	0
11843	12/14/1979 21:19 PM	0.59	0	16.38	0	4.62	0.001	0	0	4.502	0	0	0	0
11844	12/14/1979 21:13 PM	0.78	14.81	28.47	2.56	7.18	0.001	0	0	4.82	0	0	0	0
11873	12/14/1979 21:19 PM	0.91	0	16.38	0	4.62	0.003	0	0	6.012	0	0	0	0
11917	12/14/1979 21:19 PM	0.8	0	16.38	0	4.62	0.003	0	0	6.123	0	0	0	0
11941	12/14/1979 21:19 PM	0.82	0	16.38	0	4.62	0.003	0	0	5.871	0	0	0	0
12059	12/14/1979 21:19 PM	1.21	0	16.38	0	4.62	0.011	0	0	5.241	0	0	0	0
12355	12/14/1979 21:20 PM	6.45	0	16.39	0	4.62	0.003	0.27	4.977	0.623	0	0	0	0
12360	12/14/1979 21:20 PM	4.14	0	16.39	0	4.62	0.001	0.19	2.636	0	0.01	0.33	0	0
12392	12/14/1979 21:20 PM	4.22	0	16.39	0	4.62	0.002	0.19	2.818	0.22	0	0	0	0

Table 1B: Junctions (continued...)

Name	Time Max. HGL (M/D/Y)	Rep. Max. Depth (ft)	Max. Lat. Inflow (cfs)	Max. Total Inflow (cfs)	Total Lat. Inflow (MG)	Total inflow (MG)	Flow Error (%)	Hours Surcharged (h)	Max. Surcharge (ft)	Min. Freeboard (ft)	Hours Flooded (h)	Max. Flood Rate (cfs)	Total Flood Vol. (MG)	Max. Ponded Depth (ft)
12490	12/14/1979 21:18 PM	4.08	0	17.28	0	4.63	0.004	0.17	2.58	0	0.11	0.9	0.001	0.092
12645	12/14/1979 21:14 PM	4.06	0	17.28	0	4.63	0.002	0.14	2.698	0.418	0	0	0	0
12654	12/14/1979 21:15 PM	0.86	5.29	5.29	1.04	1.04	0.004	0	0	2.74	0	0	0	0
12674	12/14/1979 21:16 PM	4.6	0	5.2	0	1.04	0.004	0.58	3.597	0	0.04	0.05	0	0.002
12678	12/14/1979 21:07 PM	3.13	0	5.15	0	1.04	0.006	0.38	3.092	0	0	0	0	0
12679	12/14/1979 21:16 PM	0.37	0	5.15	0	1.04	0.001	0	0	1.132	0	0	0	0
12688	12/14/1979 21:15 PM	0.47	0	5.15	0	1.04	0.002	0	0	2.97	0	0	0	0
12695	12/14/1979 21:16 PM	0.4	0	5.56	0	1.04	0.001	0	0	1.895	0	0	0	0
12696	12/14/1979 21:16 PM	0.53	0	5.63	0	1.04	0.001	0	0	2.477	0	0	0	0
12697	12/14/1979 21:16 PM	0.59	0	5.55	0	1.04	0.002	0	0	3.112	0	0	0	0
12702	12/14/1979 21:17 PM	0.91	0	5.47	0	1.04	0.007	0	0	2.584	0	0	0	0
12705	12/14/1979 21:17 PM	0.9	0	5.32	0	1.04	0.005	0	0	3.886	0	0	0	0
12707	12/14/1979 21:16 PM	0.61	0	5.28	0	1.04	0.003	0	0	3.687	0	0	0	0
12708	12/14/1979 21:14 PM	3.99	0	5.27	0	1.04	0.002	0.11	2.494	0	0.01	0.41	0	0
12716	12/14/1979 21:14 PM	4.11	12.47	18.3	3.59	4.63	0.001	0.12	2.612	0	0.01	0.81	0	0.001
14635	12/14/1979 21:16 PM	0.76	0	5.28	0	1.04	0.002	0	0	1.82	0	0	0	0
14636	12/14/1979 21:16 PM	0.81	0	5.21	0	1.04	0.001	0	0	1.442	0	0	0	0
14637	12/14/1979 21:11 PM	3.91	0	5.2	0	1.04	0.002	0.2	3.003	1.307	0	0	0	0
14638	12/14/1979 21:16 PM	5.59	0	5.2	0	1.04	0	0.39	4.592	0.13	0	0	0	0
14639	12/14/1979 21:16 PM	6.17	0	5.2	0	1.04	0.002	0.9	5.171	0.291	0	0	0	0
14675	12/14/1979 21:16 PM	5.24	0	5.2	0	1.04	0.003	0.67	4.243	0.418	0	0	0	0
15701	12/12/1979 00:00 AM	0	0	0	0	0	0	0	0	1.497	0	0	0	0
16374	12/14/1979 21:18 PM	0.72	0	16.38	0	4.62	0.002	0	0	9.479	0	0	0	0
16377	12/14/1979 21:16 PM	0.97	0	16.38	0	4.62	0.002	0	0	11.921	0	0	0	0
16384	12/14/1979 21:18 PM	0.72	0	16.38	0	4.62	0.001	0	0	11.935	0	0	0	0
16385	12/14/1979 21:18 PM	0.64	0	16.38	0	4.62	0.001	0	0	8.459	0	0	0	0

Table 1B: Junctions (continued...)

Name	Time Max. HGL (M/D/Y)	Rep. Max. Depth (ft)	Max. Lat. Inflow (cfs)	Max. Total Inflow (cfs)	Total Lat. Inflow (MG)	Total inflow (MG)	Flow Error (%)	Hours Surcharged (h)	Max. Surcharge (ft)	Min. Freeboard (ft)	Hours Flooded (h)	Max. Flood Rate (cfs)	Total Flood Vol. (MG)	Max. Ponded Depth (ft)
16392	12/14/1979 21:03 PM	7.52	0	16.38	0	4.62	0.047	1.79	11.247	1.45	0	0	0	0
16451	12/14/1979 21:18 PM	5.07	0	16.38	0	4.62	0.002	0.28	3.574	3.026	0	0	0	0
16452	12/14/1979 21:18 PM	4.58	0	16.38	0	4.62	0.001	0.23	3.078	2.922	0	0	0	0
16453	12/14/1979 21:18 PM	1.87	0	16.38	0	4.62	0.001	0.09	0.373	5.427	0	0	0	0
16454	12/14/1979 21:18 PM	0.97	0	16.46	0	4.62	0	0	0	5.234	0	0	0	0
16455	12/14/1979 21:14 PM	1.35	0	16.38	0	4.62	0.003	0	0	4.452	0	0	0	0
18711	12/14/1979 21:17 PM	0.58	0	5.37	0	1.04	0.001	0	0	4.12	0	0	0	0
18719	12/12/1979 00:00 AM	0	0	0	0	0	0	0	0	2.296	0	0	0	0
18720	12/12/1979 00:00 AM	0	0	0	0	0	0	0	0	4.303	0	0	0	0
18721	12/12/1979 00:00 AM	0	0	0	0	0	0	0	0	5.1	0	0	0	0
33729	12/14/1979 21:16 PM	0.42	0	5.15	0	1.04	0.001	0	0	1.98	0	0	0	0
33731	12/14/1979 21:15 PM	0.49	0	5.15	0	1.04	0.002	0	0	2.26	0	0	0	0
37613	12/14/1979 21:17 PM	0.67	0	5.27	0	1.04	0.002	0	0	4.031	0	0	0	0
41253	12/14/1979 21:16 PM	1.15	0	5.15	0	1.04	0.027	0	0	3.62	0	0	0	0
41255	12/14/1979 21:16 PM	0.67	0	6.94	0	1.04	-0.024	0	0	2.59	0	0	0	0
41256	12/14/1979 21:16 PM	0.45	0	5.72	0	1.04	0.001	0	0	1.62	0	0	0	0
41260	12/14/1979 21:15 PM	0.32	0	5.15	0	1.04	0.001	0	0	3.59	0	0	0	0
42851	12/14/1979 21:18 PM	0.62	0	16.38	0	4.62	0.001	0	0	5.485	0	0	0	0
42852	12/14/1979 21:18 PM	0.79	0	16.38	0	4.62	0.001	0	0	11.006	0	0	0	0
42860	12/14/1979 21:20 PM	3.07	0	16.38	0	4.62	0.001	0.31	2.078	5.204	0	0	0	0
43852	12/12/1979 00:00 AM	0	0	0	0	0	0	0	0	3.898	0	0	0	0

Table 2A: Outfalls

Name	X-Coordinate	Y-Coordinate	Tag	Inflows	Treatment	Invert Elev. (ft)	Rim Elev. (ft)	Tide Gate	Type	Fixed Stage (ft)	Avg. Depth (ft)	Max. Depth (ft)	Max. HGL (ft)	Time Max. HGL (M/D/Y)
10964	1308533	251870.4		NO	NO	249.585	252.585	NO	FIXED	252.585	3	3	252.59	12/12/1979 00:00 AM

Table 2B: Outfalls

Name	Rep. Max. Depth (ft)	Max. Lat. Inflow (cfs)	Max. Total Inflow (cfs)	Total Lat. Inflow (MG)	Total inflow (MG)	Flow Error (%)	Hours Surcharged (h)	Max. Surcharge (ft)	Min. Freeboard (ft)	Hours Flooded (h)	Max. Flood Rate (cfs)	Total Flood Vol. (MG)	Max. Ponded Depth (ft)	Flow Frequency	Avg. Flow (cfs)	Max. Flow (cfs)
10964	3	0	94.58	0	16.8	0	0	0	0	0	0	0	0	99.97	6.52	94.58

Table 2C: Outfalls

Name	Total Flow (MG)
10964	16.756

Table 3A: Conduits

Name	Inlet Node	Outlet Node	Tag	Length (ft)	Roughness	Inlet Elev. (ft)	Outlet Elev. (ft)	Flow Limit (cfs)	Cross-Section	Geom1 (ft)	Geom2 (ft)	Barrels	Slope (ft/ft)	Max. |Flow| (cfs)
-1	41253	41255	MITIGATED-DIA	37	0.011	438.524	438.484	0	CIRCULAR	1.5	0	1	0.00108	6.94
12587	12678	12679	ASSUMED	130	0.012	446.908	446.492	0	CIRCULAR	1	0	1	0.0032	5.15
13292	12674	12678	ASSUMED	99	0.012	447.205	446.908	0	CIRCULAR	1	0	1	0.003	5.15
13297	12696	12695		23	0.012	434.337	433.495	0	CIRCULAR	1.5	0	1	0.03663	5.56
13298	12695	12697		35	0.012	433.495	430.202	0	CIRCULAR	1.5	0	1	0.0945	5.55
13299	12697	12702		113	0.012	430.202	427.714	0	CIRCULAR	1.5	0	1	0.02202	5.47
13301	12702	12705		149	0.012	427.714	427.019	0	CIRCULAR	1.5	0	1	0.00466	5.32
-2	41255	41256	MITIGATED-DIA	54	0.011	438.484	437.724	0	CIRCULAR	1.5	0	1	0.01408	5.72
21149	14638	14639		4	0.011	448.028	447.388	0	CIRCULAR	1	0	1	0.16209	5.2
21151	14637	14638		117	0.011	451.49	448.028	0	CIRCULAR	1	0	1	0.0296	5.2
21152	14636	14637		117	0.011	456.252	451.49	0	CIRCULAR	1	0	1	0.04073	5.2
21153	14635	14636		4	0.011	456.37	456.252	0	CIRCULAR	1	0	1	0.02951	5.21
21196	14639	14675	ASSUMED	64	0.011	447.388	447.339	0	CIRCULAR	1	0	1	0.00077	5.2
22958	16384	16377		47	0.011	373.882	370.041	0	CIRCULAR	1.5	0	1	0.082	16.38
22959	16385	16384		79	0.009	380.339	373.882	0	CIRCULAR	1.5	0	1	0.08201	16.38
22961	16374	16392	RECORD_DRAWING	113	0.009	368.459	358.45	0	CIRCULAR	1.5	0	1	0.08892	16.38
22962	16377	16374		76	0.009	370.041	368.459	0	CIRCULAR	1.5	0	1	0.02082	16.38
22973	16392	12059	ASSUMED	312	0.027	358.42	351	0	RECT_OPEN	1.5	2	1	0.02379	16.38
23017	16451	42851		88	0.024	397.927	392.715	0	CIRCULAR	1.5	0	1	0.05933	16.38
23018	16452	16451	MITIGATED-DIA	9	0.009	398.527	397.927	0	CIRCULAR	1.5	0	1	0.06682	16.38
23047	16453	16452	MITIGATED-DIA	91	0.009	402.294	398.527	0	CIRCULAR	1.5	0	1	0.04143	16.38
23048	16454	16453	MITIGATED-DIA	12	0.009	403.394	402.294	0	CIRCULAR	1.5	0	1	0.09205	16.38
23049	16455	16454		32	0.024	405.822	403.394	0	CIRCULAR	1.5	0	1	0.07609	16.46
23050	12355	16455		140	0.024	412.9	405.822	0	CIRCULAR	1.5	0	1	0.05062	16.38
25124	12705	18711		47	0.012	427.019	426.8	0	CIRCULAR	1.5	0	1	0.00466	5.37
25413	18721	18720	PIPE	39	0.009	465.81	465.393	0	CIRCULAR	1	0	1	0.01069	0

Table 3A: Conduits (continued...)

Name	Inlet Node	Outlet Node	Tag	Length (ft)	Roughness	Inlet Elev. (ft)	Outlet Elev. (ft)	Flow Limit (cfs)	Cross-Section	Geom1 (ft)	Geom2 (ft)	Barrels	Slope (ft/ft)	Max. |Flow| (cfs)
25414	18720	43852	PIPE	52	0.012	465.393	464.778	0	CIRCULAR	1	0	1	0.01183	0
-3	12688	41260	MITIGATED-MAT,DIA	22	0.009	440.406	439.848	0	CIRCULAR	1.5	0	1	0.02537	5.15
-4	41260	41253	MITIGATED-MAT,DIA	11	0.009	439.848	438.524	0	CIRCULAR	1.5	0	1	0.12125	5.15
40640	12679	33729	MITIGATED-OUT,MAT,DIA	28	0.009	446.492	444.6	0	CIRCULAR	1.5	0	1	0.06773	5.15
40642	33729	33731	MITIGATED-IN,MAT,DIA	27	0.009	444.6	443.498	0	CIRCULAR	1.5	0	1	0.04085	5.15
41542	14675	12674	ASSUMED	43	0.012	447.339	447.205	0	CIRCULAR	1	0	1	0.00312	5.2
41565	12654	14635		143	0.012	458.893	456.37	0	CIRCULAR	1	0	1	0.01765	5.28
44677	18711	37613		49	0.012	426.8	425.721	0	CIRCULAR	1.5	0	1	0.02203	5.27
44678	37613	12707		77	0.012	425.721	424.747	0	CIRCULAR	1.5	0	1	0.01265	5.28
45955	11844	11779	MITIGATED-MAT,DIA	69	0.009	340.52	335.403	0	CIRCULAR	2	0	1	0.07436	28.46
-5	41256	12696	MITIGATED-MAT,DIA	97	0.009	437.724	434.337	0	CIRCULAR	1.5	0	1	0.03494	5.63
-6	42851	42852		39	0.011	392.715	387.416	0	CIRCULAR	1.5	0	1	0.13714	16.38
6101	12707	12708		138	0.012	424.747	421.906	0	CIRCULAR	1.5	0	1	0.02059	5.27
6102	12716	12645		54	0.012	421.689	420.384	0	CIRCULAR	1.5	0	1	0.02417	17.28
6103	12708	12716		9	0.012	421.906	421.689	0	CIRCULAR	1.5	0	1	0.02412	6.42
6287	10965	10964		68	0.012	249.857	249.585	0	ARCH	24	0	1	0.004	94.58
6456	11016	10976		75	0.024	261.602	258.404	0	CIRCULAR	3	0	1	0.04268	48.72
6460	10976	10975	MITIGATED-NVAL	229	0.012	258.404	254.139	0	ARCH	24	0	1	0.01863	54.06
6462	10975	10968	MITIGATED-NVAL	171	0.012	254.139	250.126	0	ARCH	24	0	1	0.02347	54.06
6496	10968	10965	MITIGATED-NVAL	279	0.012	250.126	249.857	0	ARCH	24	0	1	0.00096	54.06
-7	42860	16385	ASSUMED	26	0.011	382.4	380.339	0	CIRCULAR	1	0	1	0.07952	16.38
7487	11428	11429		60	0.012	303.09	300.654	0	CIRCULAR	2.5	0	1	0.04063	60.39
7493	11429	11357	MITIGATED-DIA	122	0.012	300.654	289.913	0	CIRCULAR	2.5	0	1	0.08838	60.38
7505	11357	11352		46	0.012	289.913	282.213	0	CIRCULAR	2.5	0	1	0.16979	60.38
7553	11676	11655		46	0.024	317.976	306.719	0	CIRCULAR	2	0	1	0.25239	28.4
7555	11677	11676		19	0.009	322.71	317.976	0	CIRCULAR	2	0	1	0.25727	28.4

Table 3A: Conduits (continued...)

Name	Inlet Node	Outlet Node	Tag	Length (ft)	Roughness	Inlet Elev. (ft)	Outlet Elev. (ft)	Flow Limit (cfs)	Cross-Section	Geom1 (ft)	Geom2 (ft)	Barrels	Slope (ft/ft)	Max. |Flow| (cfs)
7559	11779	11757	ASSUMED	78	0.024	335.403	332.66	0	CIRCULAR	2	0	1	0.03519	28.47
7563	11843	11844	MITIGATED-DIA	36	0.009	342.982	340.52	0	CIRCULAR	2	0	1	0.06855	16.38
7565	11873	11843	RECORD_DRAWING	78	0.009	345.152	342.982	0	CIRCULAR	1.5	0	1	0.02783	16.38
7582	11757	11677	ASSUMED	283	0.027	332.66	322.71	0	RECT_OPEN	2	2.5	1	0.03518	28.4
7602	12360	12355		39	0.011	416.064	412.9	0	CIRCULAR	1.5	0	1	0.0814	16.39
7603	12392	12360	ASSUMED	53	0.009	416.462	416.064	0	CIRCULAR	1.5	0	1	0.00751	16.39
7605	12490	12392	ASSUMED	83	0.012	418.012	416.462	0	CIRCULAR	1.5	0	1	0.01868	16.39
7606	12645	12490	MITIGATED-MAT	144	0.009	420.384	418.012	0	CIRCULAR	1.5	0	1	0.01647	17.28
7740	11941	11917	RECORD_DRAWING	77	0.009	354.672	351.972	0	CIRCULAR	1.5	0	1	0.03509	16.38
7742	12059	11941	ASSUMED	79	0.027	357.44	354.672	0	RECT_OPEN	1.5	2	1	0.03506	16.38
-8	42852	42860	ASSUMED	63	0.012	387.416	382.4	0	CIRCULAR	1	0	1	0.07987	8.19
-9	42852	42860		63	0.012	387.416	380.339	0	CIRCULAR	1	0	1	0.11305	8.19
C1	33731	12688	MITIGATED-MAT,DIA	137.886	0.009	443.498	440.406	0	CIRCULAR	1.5	0	1	0.02243	5.15
C10	18719	12654	ASSUMED	126.611	0.012	464.236	458.893	0	CIRCULAR	1	0	1	0.04224	0
C2	11917	11873	ASSUMED	183.467	0.009	351.972	345.152	0	CIRCULAR	1.5	0	1	0.0372	16.38
C3	15701	18721	ASSUMED	392.106	0.012	478.087	465.81	0	CIRCULAR	1	0	1	0.03133	0
C4	43852	18719	assumed	62.889	0.012	464.778	464.236	0	CIRCULAR	1	0	1	0.00862	0
C5	11655	11428	ASSUMED(BLTEE)	212.261	0.024	306.719	303.09	0	CIRCULAR	2.5	0	1	0.0171	28.39
C6	11352	11293	ASSUMED(BLTEE)	138.344	0.024	282.213	275.185	0	CIRCULAR	2.5	0	1	0.05087	60.38
C7	11236	11149	ASSUMED(BLTEE)	143.382	0.024	268.096	262.042	0	CIRCULAR	2.5	0	1	0.04226	47.71
C8	11149	11016	ASSUMED(BLTEE)	150	0.024	262.042	261.602	0	CIRCULAR	2.5	0	1	0.00293	47.71
C9	11293	11236	ASSUMED(BLTEE)	165	0.024	275.185	268.096	0	CIRCULAR	2.5	0	1	0.043	49.1

Table 3B: Conduits

Name	Time Max. Flow (M/D/Y)	Max. |Velocity| (ft/s)	Max/Full Flow	Max/Full Depth	Max. Volume (ft³)	Full Both Ends (h)	Full Upstream (h)	Full Downstream (h)	Above Full Normal (h)	Capacity Limited (h)	Subcritical (fraction)	Supercritical (fraction)
-1	12/14/1979 21:16 PM	6.72	1.7	0.58	0	0.01	0.01	0.01	0.22	0.01	0.25	0.75
12587	12/14/1979 21:16 PM	9.01	2.36	0.68	0	0.01	0.38	0.01	0.96	0.01	0.04	0.95
13292	12/14/1979 21:16 PM	6.56	2.44	1	0	0.38	0.58	0.38	1.01	0.38	1	0
13297	12/14/1979 21:16 PM	12.04	0.26	0.31	0	0	0	0	0	0	0	1
13298	12/14/1979 21:16 PM	10.99	0.16	0.33	0	0	0	0	0	0	0	1
13299	12/14/1979 21:16 PM	6.26	0.32	0.5	0	0	0	0	0	0	0.1	0.89
13301	12/14/1979 21:17 PM	4.8	0.68	0.6	0	0	0	0	0	0	0.52	0.48
-2	12/14/1979 21:16 PM	9.73	0.39	0.37	0	0	0	0	0	0	0	1
21149	12/14/1979 21:16 PM	6.62	0.31	1	0	0.39	0.39	0.9	0.01	0.01	0.16	0.84
21151	12/14/1979 21:16 PM	8.9	0.72	1	0	0.2	0.2	0.39	0.01	0.01	0	1
21152	12/14/1979 21:16 PM	9.76	0.61	0.91	0	0.01	0.01	0.2	0.01	0.01	0	1
21153	12/14/1979 21:15 PM	10.36	0.72	0.79	0	0	0	0	0	0	0	1
21196	12/14/1979 21:16 PM	6.62	4.46	1	0	0.67	0.9	0.67	4.31	0.67	1	0
22958	12/14/1979 21:18 PM	15.98	0.46	0.56	0	0	0	0	0	0	0	1
22959	12/14/1979 21:18 PM	21.17	0.38	0.45	0	0	0	0	0	0	0	1
22961	12/14/1979 21:19 PM	11.68	0.36	0.74	0	0.01	0.01	1.79	0.01	0.01	0.06	0.94
22962	12/14/1979 21:18 PM	16.57	0.75	0.57	0	0	0	0	0	0	0	1
22973	12/14/1979 21:19 PM	6.04	2.49	0.9	0	0.01	1.91	0.01	1.16	0.01	1	0
23017	12/14/1979 21:18 PM	12.28	1.18	0.71	0	0.01	0.28	0.01	0.22	0.01	0	1
23018	12/14/1979 21:18 PM	9.87	0.42	1	0	0.23	0.23	0.28	0.01	0.01	0	1
23047	12/14/1979 21:18 PM	14.84	0.53	1	0	0.09	0.09	0.23	0.01	0.01	0	1
23048	12/14/1979 21:18 PM	19.79	0.36	0.82	0	0.01	0.01	0.09	0.01	0.01	0	1
23049	12/14/1979 21:15 PM	13.37	1.05	0.76	0	0.01	0.01	0.01	0.11	0.01	0	1
23050	12/14/1979 21:18 PM	9.54	1.28	0.95	0	0.01	0.27	0.01	0.28	0.01	0	1
25124	12/14/1979 21:17 PM	6.23	0.69	0.49	0	0	0	0	0	0	0.11	0.88
25413	12/12/1979 00:00 AM	0	0	0	0	0	0	0	0	0	0	0

Table 3B: Conduits (continued...)

Name	Time Max. Flow (M/D/Y)	Max. |Velocity| (ft/s)	Max/Full Flow	Max/Full Depth	Max. Volume (ft³)	Full Both Ends (h)	Full Upstream (h)	Full Downstream (h)	Above Full Normal (h)	Capacity Limited (h)	Subcritical (fraction)	Supercritical (fraction)
25414	12/12/1979 00:00 AM	0	0	0	0	0	0	0	0	0	0	0
-3	12/14/1979 21:15 PM	13.93	0.21	0.26	0	0	0	0	0	0	0	1
-4	12/14/1979 21:15 PM	7.57	0.1	0.49	0	0	0	0	0	0	0.14	0.86
40640	12/14/1979 21:16 PM	14.06	0.13	0.26	0	0	0	0	0	0	0	1
40642	12/14/1979 21:16 PM	11.48	0.17	0.3	0	0	0	0	0	0	0	1
41542	12/14/1979 21:16 PM	6.62	2.41	1	0	0.58	0.67	0.58	0.98	0.58	1	0
41565	12/14/1979 21:15 PM	8.27	1.03	0.8	0	0.01	0.01	0.01	0.04	0.01	0	1
44677	12/14/1979 21:17 PM	7.57	0.31	0.42	0	0	0	0	0	0	0.03	0.97
44678	12/14/1979 21:17 PM	7.52	0.41	0.42	0	0	0	0	0	0	0.04	0.96
45955	12/14/1979 21:13 PM	12.23	0.32	0.69	0	0.01	0.01	0.23	0.01	0.01	0	1
-5	12/14/1979 21:16 PM	11.31	0.2	0.32	0	0	0	0	0	0	0	1
-6	12/14/1979 21:18 PM	22.52	0.36	0.47	0	0	0	0	0	0	0	1
6101	12/14/1979 21:17 PM	6.05	0.32	0.7	0	0.01	0.01	0.11	0.01	0.01	0	1
6102	12/14/1979 21:15 PM	11.76	0.98	1	0	0.12	0.12	0.14	0.01	0.01	0	1
6103	12/14/1979 21:20 PM	4.18	0.36	1	0	0.11	0.11	0.12	0.01	0.01	0.82	0.18
6287	12/12/1979 00:00 AM	11.44	1.55	1	0	3.8	3.8	110.5	0.01	0.01	1	0
6456	12/14/1979 21:25 PM	14.52	0.65	0.48	0	0	0	0	0	0	0	1
6460	12/14/1979 21:18 PM	14.35	0.41	0.39	0	0	0	0	0	0	0	1
6462	12/14/1979 21:18 PM	7.73	0.36	0.69	0	0.01	0.01	1.06	0.01	0.01	1	0
6496	12/14/1979 21:18 PM	8.05	1.8	1	0	1.05	1.06	3.81	1	0.98	1	0
-7	12/14/1979 21:18 PM	23.79	1.38	0.82	0	0.01	0.31	0.01	0.33	0.01	0	1
7487	12/14/1979 21:15 PM	22.37	0.67	0.54	0	0	0	0	0	0	0	1
7493	12/14/1979 21:15 PM	27.28	0.46	0.74	0	0.01	0.01	0.17	0.01	0.01	0	1
7505	12/14/1979 21:15 PM	16.76	0.33	1	0	0.17	0.17	0.42	0.01	0.01	0	1
7553	12/14/1979 21:15 PM	11.45	0.46	0.74	0	0.01	0.01	0.05	0.01	0.01	0	1
7555	12/14/1979 21:15 PM	26.05	0.17	0.38	0	0	0	0	0	0	0	1

Table 3B: Conduits (continued...)

Name	Time Max. Flow (M/D/Y)	Max. |Velocity| (ft/s)	Max/Full Flow	Max/Full Depth	Max. Volume (ft³)	Full Both Ends (h)	Full Upstream (h)	Full Downstream (h)	Above Full Normal (h)	Capacity Limited (h)	Subcritical (fraction)	Supercritical (fraction)
7559	12/14/1979 21:13 PM	9.56	1.24	0.9	0	0.01	0.23	0.01	0.27	0.01	0	1
7563	12/14/1979 21:19 PM	17.98	0.19	0.34	0	0	0	0	0	0	0	1
7565	12/14/1979 21:19 PM	18.53	0.65	0.5	0	0	0	0	0	0	0	1
7582	12/14/1979 21:15 PM	10.46	0.66	0.54	0	0	0	0	0	0	0.13	0.87
7602	12/14/1979 21:17 PM	11.09	0.46	1	0	0.19	0.19	0.27	0.01	0.01	0	1
7603	12/14/1979 21:17 PM	11.43	1.25	1	0	0.19	0.19	0.19	0.26	0.19	0	1
7605	12/14/1979 21:17 PM	9.27	1.05	1	0	0.17	0.17	0.19	0.13	0.12	0	1
7606	12/14/1979 21:15 PM	10.77	0.89	1	0	0.14	0.14	0.17	0.01	0.01	0	1
7740	12/14/1979 21:19 PM	16.81	0.58	0.54	0	0	0	0	0	0	0	1
7742	12/14/1979 21:19 PM	8.06	0.74	0.68	0	0	0	0	0	0	0.17	0.83
-8	12/14/1979 21:18 PM	11.07	0.75	0.89	0	0.01	0.01	0.31	0.01	0.01	0	1
-9	12/14/1979 21:18 PM	11.07	0.75	0.89	0	0.01	0.01	0.31	0.01	0.01	0	1
C1	12/14/1979 21:15 PM	10.6	0.23	0.32	0	0	0	0	0	0	0	1
C10	12/12/1979 00:00 AM	0	0	0.43	0	0	0	0	0	0	0	0
C2	12/14/1979 21:19 PM	15.74	0.56	0.57	0	0	0	0	0	0	0	1
C3	12/12/1979 00:00 AM	0	0	0	0	0	0	0	0	0	0	0
C4	12/12/1979 00:00 AM	0	0	0	0	0	0	0	0	0	0	0
C5	12/14/1979 21:15 PM	7.77	0.98	0.7	0	0	0	0	0	0	0.14	0.86
C6	12/14/1979 21:15 PM	12.3	1.2	1	0	0.42	0.42	0.49	0.22	0.22	0.01	0.99
C7	12/14/1979 21:27 PM	9.72	1.04	1	0	0.51	0.51	1.43	0.29	0.29	1	0
C8	12/14/1979 21:27 PM	10.6	3.96	0.86	0	0.01	1.43	0.01	9.09	0.01	0.99	0.01
C9	12/14/1979 21:22 PM	10	1.07	1	0	0.49	0.49	0.51	0.22	0.22	0.01	0.99

Table 3C: Conduits

Name	Normal Limited (fraction)
-1	0
12587	0
13292	0.81
13297	0
13298	1
13299	1
13301	0.82
-2	0
21149	0.95
21151	0
21152	1
21153	0.67
21196	0
22958	1
22959	1
22961	1
22962	0
22973	0
23017	0
23018	0.85
23047	0.01
23048	1
23049	0
23050	0
25124	0.4
25413	0

Table 3C: Conduits (continued...)

Name	Normal Limited (fraction)
25414	0
-3	0
-4	1
40640	1
40642	1
41542	0.56
41565	0
44677	1
44678	0
45955	1
-5	1
-6	0
6101	0.31
6102	0
6103	0.62
6287	0
6456	0
6460	0
6462	1
6496	0
-7	0
7487	0
7493	0
7505	1
7553	1
7555	1

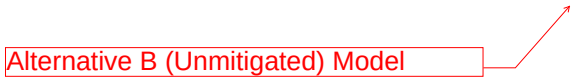
Table 3C: Conduits (continued...)

Name	Normal Limited (fraction)
7559	0
7563	0.89
7565	0
7582	0.24
7602	1
7603	0.32
7605	0.99
7606	1
7740	0
7742	0.72
-8	1
-9	1
C1	0.95
C10	0
C2	1
C3	0
C4	0
C5	0
C6	0.99
C7	0.99
C8	0
C9	0.86

PCSWMM Report

Report

Model Kirkland_Alt2_25_Year.inp



RKI

August 16, 2021

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Summary 1: Options

Name	Kirkland_Alt2_25_Year
Flow Units	CFS
Infiltration method	Green-Ampt
Flow routing method	Dynamic Wave
Link offsets defined by	Elevation
Allow ponding	Yes
Skip steady flow periods	No
Inertial dampening	Partial
Define supercritical flow by	Both
Force Main Equation	H-W
Variable time step	On
Adjustment factor (%)	75
Conduit lengthening (s)	0
Minimum surface area (ft²)	0
Starting date	Dec-12-1979 12:00:00 AM
Ending date	Dec-16-1979 02:30:00 PM
Duration of simulation (hours)	110.5
Antecedent dry days (days)	0
Rain interval (h:mm)	n/a
Report time step (h:mm:ss)	00:00:01
Wet time step (h:mm:ss)	00:05:00
Dry time step (h:mm:ss)	00:05:00
Routing time step (s)	1
Minimum time step used (s)	0.5
Average time step used (s)	0.59
Minimum conduit slope	0
Ignore rainfall/runoff	No
Ignore snow melt	No
Ignore groundwater	No
Ignore flow routing	No
Ignore water quality	No
Report average results	No

Summary 2: Model inventory

Name	Kirkland_Alt2_25_Year
Raingages	0
Subcatchments	0
Aquifers	0
Snowpacks	0
RDII hydrographs	0
Junction nodes	73
Outfall nodes	1
Flow divider nodes	0
Storage unit nodes	0
Conduit links	74
Pump links	0
Orifice links	0
Weir links	0
Outlet links	0
Treatment units	0
Transects	0
Control rules	0
Pollutants	0
Land Uses	0
Control Curves	0
Diversion Curves	0
Pump Curves	0
Rating Curves	0
Shape Curves	0
Storage Curves	0
Tidal Curves	0
Weir Curves	0
Time Series	7
Time Patterns	0

Summary 3: Model complexity

Name	Kirkland_Alt2_25_Year
Subcatchments	n/a
Groundwater	n/a
Aquifers	n/a
Snowpacks	n/a
RDII hydrographs	n/a
Junction nodes	233
Outfall nodes	2
Flow divider nodes	n/a
Storage unit nodes	n/a
Conduit links	447
Pump links	n/a
Orifice links	n/a
Weir links	n/a
Outlet links	n/a
Transect	n/a
Pollutants	n/a
Land Uses	n/a
Model complexity (total uncertain input parameters)	682

Summary 4: Inflows

Name	Kirkland_Alt2_25_Year
Time series inflows	7
Dry weather	0
Groundwater	0
RDII inflows	0

Summary 5: Subcatchment statistics

Name	Kirkland_Alt2_25_Year
Max. width (ft)	n/a
Min. width (ft)	n/a
Max. area (ac)	n/a
Min. area (ac)	n/a
Total area (ac)	n/a
Max. length of overland flow (ft)	n/a
Min. length of overland flow (ft)	n/a
Max. slope (%)	n/a

Summary 5: Subcatchment statistics (continued...)

Name	Kirkland_Alt2_25_Year
Min. slope (%)	n/a
Max. imperviousness (%)	n/a
Min. imperviousness (%)	n/a
Max. imp. roughness	n/a
Min. imp. roughness	n/a
Max. perv. roughness	n/a
Min. perv. roughness	n/a
Max. imp. depression storage (in)	n/a
Min. imp. depression storage (in)	n/a
Max. perv. depression storage (in)	n/a
Min. perv. depression storage (in)	n/a

Summary 6: Node statistics

Name	Kirkland_Alt2_25_Year
Max. ground elev. (ft)	479.587
Min. ground elev. (ft)	254.357
Max. invert elev. (ft)	478.087
Min. invert elev. (ft)	249.585
Max. depth (ft)	15.8
Min. depth (ft)	1.362

Summary 7: Conduit statistics

Name	Kirkland_Alt2_25_Year
Max. roughness	0.027
Min. roughness	0.009
Max. entry loss coef.	0
Min. entry loss coef.	0
Max. exit loss coef.	0
Min. exit loss coef.	0
Max. avg. loss coef.	0
Min. avg. loss coef.	0
Max. length (ft)	392.106
Min. length (ft)	4
Total length (ft)	6817.946
Max. slope (ft/ft)	0.2573
Min. slope (ft/ft)	0.0008

Summary 8: Conduit Inventory

Name	Kirkland_Alt2_25_Year
Open Rectangular (ft)	674
Circular (ft)	5396.946
Arch (ft)	747

Summary 9: Pipe inventory

Name	Kirkland_Alt2_25_Year
Max. pipe diameter (ft)	3
Min. pipe diameter (ft)	1
Total 12” pipe length (ft)	1959.492
Total 18” pipe length (ft)	2192.467
Total 24” pipe length (ft)	143
Total 30” pipe length (ft)	914.987
Total 36” pipe length (ft)	75
Total other pipe length (ft)	112
Total pipe length (ft)	5396.946

Summary 10: Unused objects

Name	Kirkland_Alt2_25_Year
Rain Gages	n/a
Aquifers	n/a
Snow Packs	n/a
Unit Hydrographs	n/a
Transects	n/a
Control Curves	n/a
Diversion Curves	n/a
Pump Curves	n/a
Rating Curves	n/a
Shape Curves	n/a
Storage Curves	n/a
Tidal Curves	n/a
Weir Curves	n/a
Time Series	0
Time Patterns	n/a

Summary 11: Flow routing continuity

Name	Kirkland_Alt2_25_Year
Dry weather inflow (MG)	0.000
Wet weather inflow (MG)	0.000
Groundwater inflow (MG)	0.000
RDII inflow (MG)	0.000
External inflow (MG)	18.539
External outflow (MG)	18.499
Flooding loss (MG)	0.000
Evaporation loss (MG)	0.000
Exfiltration loss (MG)	0.000
Initial stored volume (MG)	0.003
Final stored volume (MG)	0.040
Continuity error (%)	0.013

Summary 12: Results statistics

Name	Kirkland_Alt2_25_Year
Max. subcatchment total runoff (MG)	n/a
Max. subcatchment peak runoff (cfs)	n/a
Max. subcatchment runoff coefficient	n/a
Max. subcatchment total precip (in)	n/a
Min. subcatchment total precip (in)	n/a
Max. node depth (ft)	15.8
Num. nodes surcharged	30
Max. node surcharge duration (hours)	10.61
Max. node height above crown (ft)	13.3
Min. node depth below rim (ft)	0
Num. nodes flooded	16
Max. node flooding duration (hours)	1.37
Max. node flood volume (MG)	0.047
Max. node ponded volume or depth (acre-in/1000 ft³/ft)	4.271
Max. storage volume (1000 ft³)	n/a
Max. storage percent full (%)	n/a
Max. outfall flow frequency (%)	99.91
Max. outfall peak flow (cfs)	94.57
Max. outfall total volume (MG)	18.536
Total outfall volume (MG)	18.536
Max. link peak flow (cfs)	94.57
Max. link peak velocity (ft/s)	31.29
Min. link peak velocity (ft/s)	0

Summary 12: Results statistics (continued...)

Name	Kirkland_Alt2_25_Year
Num. conduits surcharged	41
Max. conduit surcharge duration (hours)	110.5
Max. conduit capacity limited duration (hours)	7.6

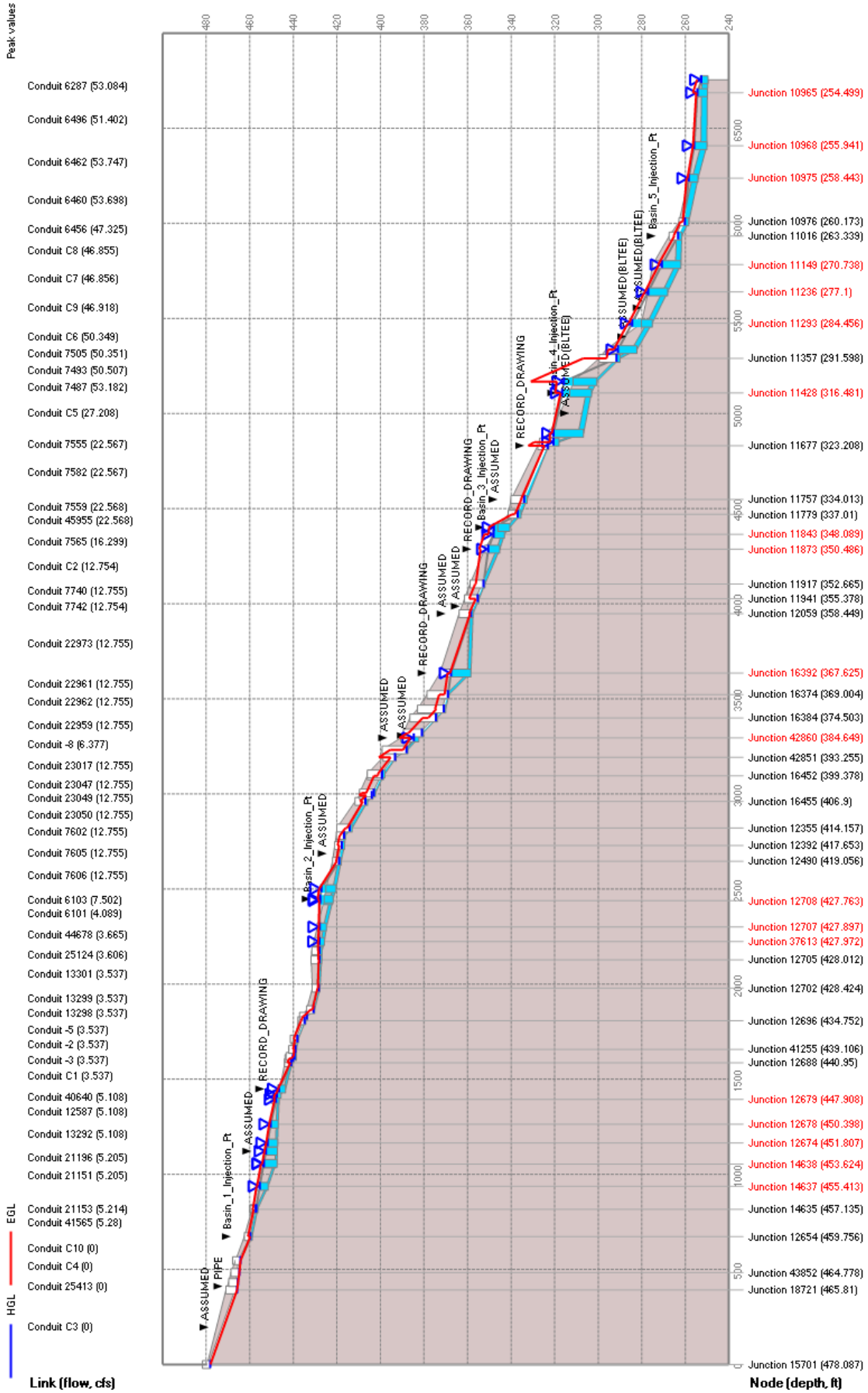


Figure 1: Study Area

Table 1A: Junctions

Name	X-Coordinate	Y-Coordinate	Tag	Inflows	Invert Elev. (ft)	Rim Elev. (ft)	Depth (ft)	Ponded Area (ft^2)	Time Series	Avg. Depth (ft)	Max. Depth (ft)	Max. HGL (ft)
10965	1308533	251802.6	Basin_7_Injection_Pt	YES	249.857	254.357	4.5	1320	Basin7_AltB	2.74	4.64	254.5
10968	1308535	251524		NO	250.126	255.926	5.8	1320		2.58	5.82	255.94
10975	1308541	251353.4		NO	254.139	258.439	4.3	1320		0.44	4.3	258.44
10976	1308542	251124.1	Basin_6_Injection_Pt	YES	258.404	262.904	4.5	1320	Basin6_AltB	0.46	1.77	260.17
11016	1308578	251058	Basin_5_Injection_Pt	YES	261.602	267.402	5.8	1320	Basin5_AltB	0.53	1.74	263.34
11149	1308728	251057.7		NO	262.042	275.042	13	1320		1.14	8.7	270.75
11236	1308871	251057.3		NO	268.096	277.096	9	1320		0.6	9	277.1
11293	1308990	250943.9		NO	275.185	280.185	5	1320		0.58	9.27	284.46
11352	1309092	250850.2		NO	282.213	296.413	14.2	1320		0.55	8.69	290.9
11357	1309094	250804.6		NO	289.913	299.513	9.6	1320		0.28	1.69	291.6
11428	1309166	250647.1	Basin_4_Injection_Pt	YES	303.09	313.09	10	1320	Basin4_AltB	0.47	13.39	316.48
11429	1309166	250706.7		NO	300.654	311.554	10.9	1320		0.51	15.09	315.74
11655	1309376	250617.4		NO	306.719	322.519	15.8	1320		0.56	15.8	322.52
11676	1309408	250584.2		NO	317.976	326.976	9	1320		0.27	2.68	320.66
11677	1309411	250565.1	RECORD_DRAWING	NO	322.71	327.764	5.054	1320		0.17	0.5	323.21
11757	1309575	250424.2	ASSUMED	NO	332.66	340.002	7.342	1320		0.3	1.35	334.01
11779	1309651	250444.6		NO	335.403	341.403	6	1320		0.47	1.61	337.01
11843	1309705	250365.1		NO	342.982	348.082	5.1	1320		0.23	5.11	348.09
11844	1309705	250400.8	Basin_3_Injection_Pt	YES	340.52	346.12	5.6	1320	Basin3_AltB	0.45	7.35	347.87
11873	1309737	250294.2	RECORD_DRAWING	NO	345.152	352.072	6.92	1320		0.28	6.39	351.54
11917	1309801	250122.4	RECORD_DRAWING	NO	351.972	358.893	6.921	1320		0.24	0.69	352.66
11941	1309829	250050.6	RECORD_DRAWING	NO	354.672	361.361	6.689	1320		0.24	0.71	355.38
12059	1309908	250051	ASSUMED	NO	357.44	363.891	6.451	1320		0.26	1.01	358.45
12355	1310336	249225.5		NO	412.9	420	7.1	1320		0.37	1.26	414.16
12360	1310335	249186.1		NO	416.064	420.2	4.136	1320		0.22	0.62	416.69
12392	1310388	249185.3	ASSUMED	NO	416.462	421	4.538	1320		0.36	1.19	417.65

Table 1A: Junctions (continued...)

Name	X-Coordinate	Y-Coordinate	Tag	Inflows	Invert Elev. (ft)	Rim Elev. (ft)	Depth (ft)	Ponded Area (ft²)	Time Series	Avg. Depth (ft)	Max. Depth (ft)	Max. HGL (ft)
12490	1310471	249186.8		NO	418.012	422	3.988	1320		0.33	1.04	419.06
12645	1310615	249184.5		NO	420.384	425	4.616	1320		0.59	6.68	427.06
12654	1310621	247416.9	Basin_1_Injection_Pt	YES	458.893	462.5	3.607	1320	Basin1_AltB	0.17	0.86	459.76
12674	1310634	247901.1	ASSUMED	NO	447.205	451.8	4.595	1320		0.27	4.6	451.81
12678	1310639	248000	ASSUMED	NO	446.908	451	4.092	1320		0.27	4.09	451
12679	1310638	248129.8		NO	446.492	447.9	1.408	1320		0.15	1.42	447.91
12688	1310644	248322.1	RECORD_DRAWING	NO	440.406	443.85	3.444	1320		0.16	0.54	440.95
12695	1310651	248565.5		NO	433.495	435.795	2.3	1320		0.1	0.32	433.82
12696	1310649	248543.1		NO	434.337	437.337	3	1320		0.13	0.42	434.75
12697	1310652	248600.9		NO	430.202	433.902	3.7	1320		0.14	0.47	430.67
12702	1310655	248713.5		NO	427.714	431.214	3.5	1320		0.2	0.71	428.42
12705	1310658	248862.5		NO	427.019	431.806	4.787	1320		0.2	0.99	428.01
12707	1310663	249035.9		NO	424.747	429.047	4.3	1320		0.16	3.16	427.91
12708	1310666	249173.8		NO	421.906	425.9	3.994	1320		0.21	5.86	427.76
12716	1310669	249182.5	Basin_2_Injection_Pt	YES	421.689	425.8	4.111	1320	Basin2_AltB	0.37	6.07	427.75
14635	1310626	247559.8		NO	456.37	458.95	2.58	1320		0.14	0.76	457.13
14636	1310621	247560.3		NO	456.252	458.502	2.25	1320		0.13	0.82	457.07
14637	1310624	247677.3		NO	451.49	456.8	5.31	1320		0.15	3.92	455.41
14638	1310627	247794.4		NO	448.028	453.75	5.722	1320		0.11	5.6	453.62
14639	1310631	247794.3		NO	447.388	453.85	6.462	1320		0.34	6.18	453.56
14675	1310632	247858.4	ASSUMED	NO	447.339	453	5.661	1320		0.27	5.25	452.58
15701	1310605	246744.3		NO	478.087	479.587	1.5	1320		0	0	478.09
16374	1310130	249734.3		NO	368.459	378.659	10.2	1320		0.19	0.54	369
16377	1310206	249735.5		NO	370.041	382.941	12.9	1320		0.29	0.84	370.88
16384	1310254	249736.7		NO	373.882	386.535	12.653	1320		0.22	0.62	374.5
16385	1310255	249657.8		NO	380.339	389.439	9.1	1320		0.2	0.56	380.9

Table 1A: Junctions (continued...)

Name	X-Coordinate	Y-Coordinate	Tag	Inflows	Invert Elev. (ft)	Rim Elev. (ft)	Depth (ft)	Ponded Area (ft²)	Time Series	Avg. Depth (ft)	Max. Depth (ft)	Max. HGL (ft)
16392	1310092	249840.9	RECORD_DRAWING	NO	358.42	372.647	14.227	1320		0.79	13.73	372.15
16451	1310310	249485.8		NO	397.927	406.027	8.1	1320		0.39	1.28	399.2
16452	1310319	249485.9		NO	398.527	406.027	7.5	1320		0.22	0.85	399.38
16453	1310321	249394.6		NO	402.294	409.594	7.3	1320		0.25	0.72	403.01
16454	1310308	249394.6		NO	403.394	409.594	6.2	1320		0.2	0.57	403.96
16455	1310309	249362.8		NO	405.822	411.622	5.8	1320		0.35	1.08	406.9
18711	1310659	248909.3		NO	426.8	431.5	4.7	1320		0.14	1.19	427.99
18719	1310620	247290.3		NO	464.236	466.536	2.3	1320		0	0	464.24
18720	1310618	247175		NO	465.393	469.693	4.3	1320		0	0	465.39
18721	1310618	247136.2		NO	465.81	470.91	5.1	1320		0	0	465.81
33729	1310640	248157.6		NO	445.638	447	1.362	1320		0.17	1.94	447.58
33731	1310641	248184.3	RECORD_DRAWING	NO	443.498	446.25	2.752	1320		0.25	3.04	446.54
37613	1310661	248958.5		NO	425.721	430.421	4.7	1320		0.17	2.25	427.97
41253	1310643	248354.6		NO	438.524	443.3	4.776	1320		0.25	0.86	439.38
41255	1310644	248392		NO	438.484	441.75	3.266	1320		0.17	0.62	439.11
41256	1310645	248446.1		NO	437.724	439.8	2.076	1320		0.14	0.48	438.2
41260	1310644	248343.8		NO	439.848	443.75	3.902	1320		0.1	0.33	440.18
42851	1310309	249573.6		NO	392.715	398.815	6.1	1320		0.19	0.54	393.26
42852	1310270	249573.8		NO	387.416	399.216	11.8	1320		0.19	0.55	387.97
42860	1310270	249636.4	ASSUMED	NO	382.4	390.682	8.282	1320		0.27	2.39	384.79
43852	1310619	247227.4		NO	464.778	468.678	3.9	1320		0	0	464.78

Table 1B: Junctions

Name	Time Max. HGL (M/D/Y)	Rep. Max. Depth (ft)	Max. Lat. Inflow (cfs)	Max. Total Inflow (cfs)	Total Lat. Inflow (MG)	Total inflow (MG)	Flow Error (%)	Hours Surcharged (h)	Max. Surcharge (ft)	Min. Freeboard (ft)	Hours Flooded (h)	Max. Flood Rate (cfs)	Total Flood Vol. (MG)	Max. Ponded Depth (ft)
10965	12/12/1979 00:00 AM	4.64	1.26	94.57	0.668	18.5	0.064	7.74	1.892	0	0.01	68.18	0.002	0.142
10968	12/12/1979 00:01 AM	5.81	0	53.9	0	17.8	0.08	10.61	3.065	0	0.09	16.4	0.002	0.015
10975	12/14/1979 21:11 PM	4.3	0	53.79	0	17.8	0.018	0.61	1.554	0	0.04	5.04	0.001	0.004
10976	12/14/1979 21:10 PM	1.77	8.14	52.3	1.63	17.8	0.005	0	0	2.734	0	0	0	0
11016	12/14/1979 21:40 PM	1.74	2.25	47.32	0.495	16.2	0.003	0	0	4.062	0	0	0	0
11149	12/14/1979 21:42 PM	8.7	0	46.86	0	15.7	0.007	2.42	6.204	4.296	0	0	0	0
11236	12/14/1979 21:42 PM	9	0	46.92	0	15.7	0.002	1	6.504	0	0.04	2.93	0	0.004
11293	12/14/1979 21:41 PM	9.27	0	50.35	0	15.7	0	0.69	6.771	0	0.68	4.98	0.047	4.271
11352	12/14/1979 21:37 PM	8.69	0	50.35	0	15.7	0.002	0.61	6.187	5.513	0	0	0	0
11357	12/14/1979 21:37 PM	1.69	0	50.51	0	15.7	0.001	0	0	7.913	0	0	0	0
11428	12/14/1979 21:25 PM	13.39	39.38	61.51	7.7	15.7	0.002	0.85	10.891	0	0.53	8.57	0.037	3.391
11429	12/14/1979 21:26 PM	15.09	0	53.18	0	15.7	0.005	1.03	12.588	0	0.59	9.2	0.044	4.188
11655	12/14/1979 21:06 PM	13.82	0	22.57	0	8	0.005	0.64	13.3	0	0	0	0	0
11676	12/14/1979 21:24 PM	2.51	0	22.57	0	8	0	0.07	0.684	6.316	0	0	0	0
11677	12/14/1979 21:20 PM	0.5	0	22.57	0	8	0.004	0	0	4.554	0	0	0	0
11757	12/14/1979 21:20 PM	1.35	0	22.57	0	8	0.007	0	0	5.992	0	0	0	0
11779	12/14/1979 21:19 PM	1.61	0	22.57	0	8	0.002	0	0	4.393	0	0	0	0
11843	12/14/1979 21:20 PM	5.11	0	16.43	0	5.36	0.001	0.51	3.607	0	0.05	0.16	0	0.007
11844	12/14/1979 21:19 PM	7.35	15.69	26.75	2.65	8	0.001	1	5.845	0	0.49	5.41	0.018	1.745
11873	12/14/1979 21:07 PM	5.33	0	12.75	0	5.36	0.002	0.48	4.885	0.535	0	0	0	0
11917	12/14/1979 21:35 PM	0.69	0	12.75	0	5.36	0.002	0	0	6.233	0	0	0	0
11941	12/14/1979 21:34 PM	0.71	0	12.75	0	5.36	0.003	0	0	5.981	0	0	0	0
12059	12/14/1979 21:34 PM	1.01	0	12.75	0	5.36	0.009	0	0	5.441	0	0	0	0
12355	12/14/1979 21:33 PM	1.26	0	12.75	0	5.36	0.003	0	0	5.84	0	0	0	0
12360	12/14/1979 21:33 PM	0.62	0	12.75	0	5.36	0.001	0	0	3.51	0	0	0	0
12392	12/14/1979 21:33 PM	1.19	0	12.75	0	5.36	0.002	0	0	3.35	0	0	0	0

Table 1B: Junctions (continued...)

Name	Time Max. HGL (M/D/Y)	Rep. Max. Depth (ft)	Max. Lat. Inflow (cfs)	Max. Total Inflow (cfs)	Total Lat. Inflow (MG)	Total inflow (MG)	Flow Error (%)	Hours Surcharged (h)	Max. Surcharge (ft)	Min. Freeboard (ft)	Hours Flooded (h)	Max. Flood Rate (cfs)	Total Flood Vol. (MG)	Max. Ponded Depth (ft)
12490	12/14/1979 21:33 PM	1.04	0	12.75	0	5.36	0.003	0	0	2.94	0	0	0	0
12645	12/14/1979 21:33 PM	6.68	0	14.67	0	5.36	0.005	1.65	5.176	0	1.37	3.36	0.026	2.06
12654	12/14/1979 21:15 PM	0.86	5.29	5.29	1.04	1.04	0.004	0	0	2.74	0	0	0	0
12674	12/14/1979 21:17 PM	4.6	0	5.2	0	1.04	0.004	0.64	3.602	0	0.06	0.12	0	0.007
12678	12/14/1979 21:07 PM	3.49	0	5.11	0	1.04	0.006	0.47	3.092	0	0	0	0	0
12679	12/14/1979 21:19 PM	1.42	0	5.11	0	1.04	0	0.37	0.416	0	0.08	0.23	0	0.008
12688	12/14/1979 21:32 PM	0.54	0	3.54	0	1.04	0.003	0	0	2.9	0	0	0	0
12695	12/14/1979 21:32 PM	0.32	0	3.54	0	1.04	0.001	0	0	1.975	0	0	0	0
12696	12/14/1979 21:32 PM	0.42	0	3.54	0	1.04	0.001	0	0	2.587	0	0	0	0
12697	12/14/1979 21:32 PM	0.47	0	3.54	0	1.04	0.002	0	0	3.232	0	0	0	0
12702	12/14/1979 21:33 PM	0.71	0	3.54	0	1.04	0.007	0	0	2.794	0	0	0	0
12705	12/14/1979 21:31 PM	0.99	0	3.54	0	1.04	0.005	0	0	3.796	0	0	0	0
12707	12/14/1979 21:28 PM	3.15	0	3.67	0	1.04	0.003	0.77	1.659	1.141	0	0	0	0
12708	12/14/1979 21:30 PM	5.86	0	4.88	0	1.04	0.001	1.5	4.357	0	1.03	3.62	0.019	1.863
12716	12/14/1979 21:30 PM	6.07	17.84	17.91	4.32	5.36	-0.003	1.52	4.565	0	1.18	3.51	0.021	1.954
14635	12/14/1979 21:15 PM	0.76	0	5.28	0	1.04	0.002	0	0	1.82	0	0	0	0
14636	12/14/1979 21:15 PM	0.82	0	5.21	0	1.04	0.001	0	0	1.432	0	0	0	0
14637	12/14/1979 21:15 PM	3.92	0	5.2	0	1.04	0.002	0.22	2.923	1.387	0	0	0	0
14638	12/14/1979 21:15 PM	5.6	0	5.2	0	1.04	-0.001	0.43	4.596	0.126	0	0	0	0
14639	12/14/1979 21:15 PM	6.18	0	5.2	0	1.04	0.001	0.93	5.175	0.287	0	0	0	0
14675	12/14/1979 21:16 PM	5.25	0	5.2	0	1.04	0.003	0.72	4.246	0.415	0	0	0	0
15701	12/12/1979 00:00 AM	0	0	0	0	0	0	0	0	1.497	0	0	0	0
16374	12/14/1979 21:34 PM	0.54	0	12.75	0	5.36	0.001	0	0	9.659	0	0	0	0
16377	12/14/1979 21:28 PM	0.84	0	12.75	0	5.36	0.001	0	0	12.061	0	0	0	0
16384	12/14/1979 21:34 PM	0.62	0	12.75	0	5.36	0.001	0	0	12.035	0	0	0	0
16385	12/14/1979 21:34 PM	0.56	0	12.75	0	5.36	0.001	0	0	8.539	0	0	0	0

Table 1B: Junctions (continued...)

Name	Time Max. HGL (M/D/Y)	Rep. Max. Depth (ft)	Max. Lat. Inflow (cfs)	Max. Total Inflow (cfs)	Total Lat. Inflow (MG)	Total inflow (MG)	Flow Error (%)	Hours Surcharged (h)	Max. Surcharge (ft)	Min. Freeboard (ft)	Hours Flooded (h)	Max. Flood Rate (cfs)	Total Flood Vol. (MG)	Max. Ponded Depth (ft)
16392	12/15/1979 00:59 AM	9.21	0	12.75	0	5.36	0.043	4.97	12.201	0.496	0	0	0	0
16451	12/14/1979 21:34 PM	1.28	0	12.75	0	5.36	0.001	0	0	6.827	0	0	0	0
16452	12/14/1979 21:34 PM	0.85	0	12.75	0	5.36	0.001	0	0	6.647	0	0	0	0
16453	12/14/1979 21:34 PM	0.72	0	12.75	0	5.36	0.001	0	0	6.584	0	0	0	0
16454	12/14/1979 21:34 PM	0.57	0	12.75	0	5.36	0	0	0	5.634	0	0	0	0
16455	12/14/1979 21:33 PM	1.08	0	12.75	0	5.36	0.003	0	0	4.722	0	0	0	0
18711	12/14/1979 21:31 PM	1.19	0	3.61	0	1.04	0.001	0	0	3.51	0	0	0	0
18719	12/12/1979 00:00 AM	0	0	0	0	0	0	0	0	2.296	0	0	0	0
18720	12/12/1979 00:00 AM	0	0	0	0	0	0	0	0	4.303	0	0	0	0
18721	12/12/1979 00:00 AM	0	0	0	0	0	0	0	0	5.1	0	0	0	0
33729	12/14/1979 21:26 PM	1.94	0	5.11	0	1.04	0	0.58	0.944	0	0.58	1.36	0.006	0.582
33731	12/14/1979 21:32 PM	3.04	0	3.99	0	1.04	0.004	0.62	2.045	0	0.55	0.51	0.003	0.293
37613	12/14/1979 21:31 PM	2.25	0	3.66	0	1.04	0.002	0.5	0.751	2.449	0	0	0	0
41253	12/14/1979 21:32 PM	0.86	0	3.54	0	1.04	0.003	0	0	3.92	0	0	0	0
41255	12/14/1979 21:32 PM	0.62	0	3.54	0	1.04	0	0	0	2.64	0	0	0	0
41256	12/14/1979 21:32 PM	0.48	0	3.54	0	1.04	0.002	0	0	1.6	0	0	0	0
41260	12/14/1979 21:32 PM	0.33	0	3.54	0	1.04	0.001	0	0	3.57	0	0	0	0
42851	12/14/1979 21:34 PM	0.54	0	12.75	0	5.36	0.001	0	0	5.555	0	0	0	0
42852	12/14/1979 21:34 PM	0.55	0	12.75	0	5.36	0.001	0	0	11.246	0	0	0	0
42860	12/14/1979 21:28 PM	2.25	0	12.75	0	5.36	0.001	0.44	1.393	5.889	0	0	0	0
43852	12/12/1979 00:00 AM	0	0	0	0	0	0	0	0	3.898	0	0	0	0

Table 2A: Outfalls

Name	X-Coordinate	Y-Coordinate	Tag	Inflows	Treatment	Invert Elev. (ft)	Rim Elev. (ft)	Tide Gate	Type	Fixed Stage (ft)	Avg. Depth (ft)	Max. Depth (ft)	Max. HGL (ft)	Time Max. HGL (M/D/Y)
10964	1308533	251870.4		NO	NO	249.585	252.585	NO	FIXED	252.585	3	3	252.59	12/12/1979 00:00 AM

Table 2B: Outfalls

Name	Rep. Max. Depth (ft)	Max. Lat. Inflow (cfs)	Max. Total Inflow (cfs)	Total Lat. Inflow (MG)	Total inflow (MG)	Flow Error (%)	Hours Surcharged (h)	Max. Surcharge (ft)	Min. Freeboard (ft)	Hours Flooded (h)	Max. Flood Rate (cfs)	Total Flood Vol. (MG)	Max. Ponded Depth (ft)	Flow Frequency	Avg. Flow (cfs)	Max. Flow (cfs)
10964	3	0	94.57	0	18.5	0	0	0	0	0	0	0	0	99.91	7.26	94.57

Table 2C: Outfalls

Name	Total Flow (MG)
10964	18.536

Table 3A: Conduits

Name	Inlet Node	Outlet Node	Tag	Length (ft)	Roughness	Inlet Elev. (ft)	Outlet Elev. (ft)	Flow Limit (cfs)	Cross-Section	Geom1 (ft)	Geom2 (ft)	Barrels	Slope (ft/ft)	Max. |Flow| (cfs)
-1	41253	41255		37	0.011	438.524	438.484	0	CIRCULAR	1	0	1	0.00108	3.54
12587	12678	12679	ASSUMED	130	0.012	446.908	446.492	0	CIRCULAR	1	0	1	0.0032	5.11
13292	12674	12678	ASSUMED	99	0.012	447.205	446.908	0	CIRCULAR	1	0	1	0.003	5.11
13297	12696	12695		23	0.012	434.337	433.495	0	CIRCULAR	1.5	0	1	0.03663	3.54
13298	12695	12697		35	0.012	433.495	430.202	0	CIRCULAR	1.5	0	1	0.0945	3.54
13299	12697	12702		113	0.012	430.202	427.714	0	CIRCULAR	1.5	0	1	0.02202	3.54
13301	12702	12705		149	0.012	427.714	427.019	0	CIRCULAR	1.5	0	1	0.00466	3.54
-2	41255	41256		54	0.011	438.484	437.724	0	CIRCULAR	1	0	1	0.01408	3.54
21149	14638	14639		4	0.011	448.028	447.388	0	CIRCULAR	1	0	1	0.16209	5.2
21151	14637	14638		117	0.011	451.49	448.028	0	CIRCULAR	1	0	1	0.0296	5.2
21152	14636	14637		117	0.011	456.252	451.49	0	CIRCULAR	1	0	1	0.04073	5.2
21153	14635	14636		4	0.011	456.37	456.252	0	CIRCULAR	1	0	1	0.02951	5.21
21196	14639	14675	ASSUMED	64	0.011	447.388	447.339	0	CIRCULAR	1	0	1	0.00077	5.2
22958	16384	16377		47	0.011	373.882	370.041	0	CIRCULAR	1.5	0	1	0.082	12.75
22959	16385	16384		79	0.009	380.339	373.882	0	CIRCULAR	1.5	0	1	0.08201	12.75
22961	16374	16392	RECORD_DRAWING	113	0.009	368.459	358.45	0	CIRCULAR	1.5	0	1	0.08892	12.75
22962	16377	16374		76	0.009	370.041	368.459	0	CIRCULAR	1.5	0	1	0.02082	12.75
22973	16392	12059	ASSUMED	312	0.027	358.42	351	0	RECT_OPEN	1.5	2	1	0.02379	12.75
23017	16451	42851		88	0.024	397.927	392.715	0	CIRCULAR	1.5	0	1	0.05933	12.75
23018	16452	16451		9	0.009	398.527	397.927	0	CIRCULAR	1.333	0	1	0.06682	12.75
23047	16453	16452		91	0.009	402.294	398.527	0	CIRCULAR	1.333	0	1	0.04143	12.75
23048	16454	16453		12	0.009	403.394	402.294	0	CIRCULAR	1.333	0	1	0.09205	12.75
23049	16455	16454		32	0.024	405.822	403.394	0	CIRCULAR	1.5	0	1	0.07609	12.75
23050	12355	16455		140	0.024	412.9	405.822	0	CIRCULAR	1.5	0	1	0.05062	12.75
25124	12705	18711		47	0.012	427.019	426.8	0	CIRCULAR	1.5	0	1	0.00466	3.61
25413	18721	18720	PIPE	39	0.009	465.81	465.393	0	CIRCULAR	1	0	1	0.01069	0

Table 3A: Conduits (continued...)

Name	Inlet Node	Outlet Node	Tag	Length (ft)	Roughness	Inlet Elev. (ft)	Outlet Elev. (ft)	Flow Limit (cfs)	Cross-Section	Geom1 (ft)	Geom2 (ft)	Barrels	Slope (ft/ft)	Max. |Flow| (cfs)
25414	18720	43852	PIPE	52	0.012	465.393	464.778	0	CIRCULAR	1	0	1	0.01183	0
-3	12688	41260		22	0.012	440.406	439.848	0	CIRCULAR	1	0	1	0.02537	3.54
-4	41260	41253		11	0.011	439.848	438.524	0	CIRCULAR	1	0	1	0.12125	3.54
40640	12679	33729		28	0.012	446.492	445.638	0	CIRCULAR	1	0	1	0.03051	5.11
40642	33729	33731		27	0.024	445.638	443.498	0	CIRCULAR	1	0	1	0.07951	3.99
41542	14675	12674	ASSUMED	43	0.012	447.339	447.205	0	CIRCULAR	1	0	1	0.00312	5.2
41565	12654	14635		143	0.012	458.893	456.37	0	CIRCULAR	1	0	1	0.01765	5.28
44677	18711	37613		49	0.012	426.8	425.721	0	CIRCULAR	1.5	0	1	0.02203	3.66
44678	37613	12707		77	0.012	425.721	424.747	0	CIRCULAR	1.5	0	1	0.01265	3.67
45955	11844	11779		69	0.024	340.52	335.403	0	CIRCULAR	1.5	0	1	0.07436	22.57
-5	41256	12696		97	0.011	437.724	434.337	0	CIRCULAR	1	0	1	0.03494	3.54
-6	42851	42852		39	0.011	392.715	387.416	0	CIRCULAR	1.5	0	1	0.13714	12.75
6101	12707	12708		138	0.012	424.747	421.906	0	CIRCULAR	1.5	0	1	0.02059	4.15
6102	12716	12645		54	0.012	421.689	420.384	0	CIRCULAR	1.5	0	1	0.02417	14.67
6103	12708	12716		9	0.012	421.906	421.689	0	CIRCULAR	1.5	0	1	0.02412	7.59
6287	10965	10964		68	0.012	249.857	249.585	0	ARCH	24	0	1	0.004	94.57
6456	11016	10976		75	0.024	261.602	258.404	0	CIRCULAR	3	0	1	0.04268	47.32
6460	10976	10975		229	0.024	258.404	254.139	0	ARCH	24	0	1	0.01863	53.79
6462	10975	10968		171	0.024	254.139	250.126	0	ARCH	24	0	1	0.02347	53.9
6496	10968	10965		279	0.024	250.126	249.857	0	ARCH	24	0	1	0.00096	51.4
-7	42860	16385	ASSUMED	26	0.011	382.4	380.339	0	CIRCULAR	1	0	1	0.07952	12.75
7487	11428	11429		60	0.012	303.09	300.654	0	CIRCULAR	2.5	0	1	0.04063	53.18
7493	11429	11357		122	0.012	300.654	289.913	0	CIRCULAR	1.5	0	1	0.08838	50.51
7505	11357	11352		46	0.012	289.913	282.213	0	CIRCULAR	2.5	0	1	0.16979	50.35
7553	11676	11655		46	0.024	317.976	306.719	0	CIRCULAR	2	0	1	0.25239	22.57
7555	11677	11676		19	0.009	322.71	317.976	0	CIRCULAR	2	0	1	0.25727	22.57

Table 3A: Conduits (continued...)

Name	Inlet Node	Outlet Node	Tag	Length (ft)	Roughness	Inlet Elev. (ft)	Outlet Elev. (ft)	Flow Limit (cfs)	Cross-Section	Geom1 (ft)	Geom2 (ft)	Barrels	Slope (ft/ft)	Max. |Flow| (cfs)
7559	11779	11757	ASSUMED	78	0.024	335.403	332.66	0	CIRCULAR	2	0	1	0.03519	22.57
7563	11843	11844		36	0.009	342.982	340.52	0	CIRCULAR	1.5	0	1	0.06855	16
7565	11873	11843	RECORD_DRAWING	78	0.009	345.152	342.982	0	CIRCULAR	1.5	0	1	0.02783	16.43
7582	11757	11677	ASSUMED	283	0.027	332.66	322.71	0	RECT_OPEN	2	2.5	1	0.03518	22.57
7602	12360	12355		39	0.011	416.064	412.9	0	CIRCULAR	1.5	0	1	0.0814	12.75
7603	12392	12360	ASSUMED	53	0.009	416.462	416.064	0	CIRCULAR	1.5	0	1	0.00751	12.75
7605	12490	12392	ASSUMED	83	0.012	418.012	416.462	0	CIRCULAR	1.5	0	1	0.01868	12.75
7606	12645	12490		144	0.024	420.384	418.012	0	CIRCULAR	1.5	0	1	0.01647	12.75
7740	11941	11917	RECORD_DRAWING	77	0.009	354.672	351.972	0	CIRCULAR	1.5	0	1	0.03509	12.75
7742	12059	11941	ASSUMED	79	0.027	357.44	354.672	0	RECT_OPEN	1.5	2	1	0.03506	12.75
-8	42852	42860	ASSUMED	63	0.012	387.416	382.4	0	CIRCULAR	1	0	1	0.07987	6.38
-9	42852	42860		63	0.012	387.416	380.339	0	CIRCULAR	1	0	1	0.11305	6.38
C1	33731	12688	ASSUMED	137.886	0.024	443.498	440.406	0	CIRCULAR	1	0	1	0.02243	3.54
C10	18719	12654	ASSUMED	126.611	0.012	464.236	458.893	0	CIRCULAR	1	0	1	0.04224	0
C2	11917	11873	ASSUMED	183.467	0.009	351.972	345.152	0	CIRCULAR	1.5	0	1	0.0372	12.75
C3	15701	18721	ASSUMED	392.106	0.012	478.087	465.81	0	CIRCULAR	1	0	1	0.03133	0
C4	43852	18719	assumed	62.889	0.012	464.778	464.236	0	CIRCULAR	1	0	1	0.00862	0
C5	11655	11428	ASSUMED(BLTEE)	212.261	0.024	306.719	303.09	0	CIRCULAR	2.5	0	1	0.0171	27.26
C6	11352	11293	ASSUMED(BLTEE)	138.344	0.024	282.213	275.185	0	CIRCULAR	2.5	0	1	0.05087	50.35
C7	11236	11149	ASSUMED(BLTEE)	143.382	0.024	268.096	262.042	0	CIRCULAR	2.5	0	1	0.04226	46.86
C8	11149	11016	ASSUMED(BLTEE)	150	0.024	262.042	261.602	0	CIRCULAR	2.5	0	1	0.00293	46.86
C9	11293	11236	ASSUMED(BLTEE)	165	0.024	275.185	268.096	0	CIRCULAR	2.5	0	1	0.043	46.92

Table 3B: Conduits

Name	Time Max. Flow (M/D/Y)	Max. |Velocity| (ft/s)	Max/Full Flow	Max/Full Depth	Max. Volume (ft³)	Full Both Ends (h)	Full Upstream (h)	Full Downstream (h)	Above Full Normal (h)	Capacity Limited (h)	Subcritical (fraction)	Supercritical (fraction)
-1	12/14/1979 21:32 PM	5.7	2.56	0.74	0	0.01	0.01	0.01	2.1	0.01	0.17	0.82
12587	12/14/1979 21:15 PM	6.5	2.34	1	0	0.37	0.47	0.37	0.98	0.37	0.14	0.86
13292	12/14/1979 21:15 PM	6.5	2.42	1	0	0.47	0.64	0.47	1.02	0.47	1	0
13297	12/14/1979 21:32 PM	10.48	0.16	0.25	0	0	0	0	0	0	0	1
13298	12/14/1979 21:32 PM	9.56	0.1	0.26	0	0	0	0	0	0	0	1
13299	12/14/1979 21:32 PM	5.57	0.21	0.39	0	0	0	0	0	0	0.1	0.89
13301	12/14/1979 21:33 PM	4.27	0.46	0.57	0	0	0	0	0	0	0.52	0.48
-2	12/14/1979 21:32 PM	7.98	0.71	0.55	0	0	0	0	0	0	0	1
21149	12/14/1979 21:16 PM	6.63	0.31	1	0	0.43	0.43	0.93	0.01	0.01	0.16	0.84
21151	12/14/1979 21:16 PM	8.91	0.72	1	0	0.22	0.22	0.43	0.01	0.01	0	1
21152	12/14/1979 21:16 PM	9.74	0.61	0.91	0	0.01	0.01	0.22	0.01	0.01	0	1
21153	12/14/1979 21:15 PM	10.4	0.72	0.79	0	0	0	0	0	0	0	1
21196	12/14/1979 21:16 PM	6.63	4.47	1	0	0.72	0.93	0.72	4.31	0.72	1	0
22958	12/14/1979 21:34 PM	14.98	0.36	0.49	0	0	0	0	0	0	0	1
22959	12/14/1979 21:34 PM	19.89	0.29	0.39	0	0	0	0	0	0	0	1
22961	12/14/1979 21:34 PM	9.94	0.28	0.68	0	0.01	0.01	4.97	0.01	0.01	0.09	0.79
22962	12/14/1979 21:34 PM	16.1	0.58	0.46	0	0	0	0	0	0	0	1
22973	12/14/1979 21:34 PM	5.09	1.94	0.84	0	0.01	5.44	0.01	2.31	0.01	1	0
23017	12/14/1979 21:34 PM	11.42	0.92	0.61	0	0	0	0	0	0	0	1
23018	12/14/1979 21:34 PM	10.74	0.45	0.8	0	0	0	0	0	0	0	1
23047	12/14/1979 21:34 PM	15.14	0.57	0.59	0	0	0	0	0	0	0	1
23048	12/14/1979 21:34 PM	19.12	0.38	0.48	0	0	0	0	0	0	0	1
23049	12/14/1979 21:34 PM	12.83	0.81	0.55	0	0	0	0	0	0	0	1
23050	12/14/1979 21:33 PM	8.64	1	0.78	0	0	0	0	0	0	0	1
25124	12/14/1979 21:35 PM	5.47	0.46	0.73	0	0	0	0	0	0	0.12	0.88
25413	12/12/1979 00:00 AM	0	0	0	0	0	0	0	0	0	0	0

Table 3B: Conduits (continued...)

Name	Time Max. Flow (M/D/Y)	Max. |Velocity| (ft/s)	Max/Full Flow	Max/Full Depth	Max. Volume (ft³)	Full Both Ends (h)	Full Upstream (h)	Full Downstream (h)	Above Full Normal (h)	Capacity Limited (h)	Subcritical (fraction)	Supercritical (fraction)
25414	12/12/1979 00:00 AM	0	0	0	0	0	0	0	0	0	0	0
-3	12/14/1979 21:32 PM	10.65	0.58	0.44	0	0	0	0	0	0	0	1
-4	12/14/1979 21:32 PM	7.23	0.24	0.6	0	0	0	0	0	0	0.14	0.86
40640	12/14/1979 21:15 PM	7.96	0.76	1	0	0.37	0.37	0.58	0.01	0.01	0.01	0.99
40642	12/14/1979 21:20 PM	5.36	0.73	1	0	0.58	0.58	0.62	0.01	0.01	0.1	0.9
41542	12/14/1979 21:16 PM	6.63	2.42	1	0	0.64	0.72	0.64	0.99	0.64	1	0
41565	12/14/1979 21:15 PM	8.27	1.03	0.8	0	0.01	0.01	0.01	0.04	0.01	0	1
44677	12/14/1979 21:44 PM	6.74	0.22	0.9	0	0.01	0.01	0.5	0.01	0.01	0.04	0.96
44678	12/14/1979 21:44 PM	5.79	0.29	1	0	0.5	0.5	0.77	0.01	0.01	0.05	0.94
45955	12/14/1979 21:19 PM	12.77	1.45	1	0	0.46	1	0.46	1.06	0.46	0.01	0.99
-5	12/14/1979 21:32 PM	10.39	0.45	0.45	0	0	0	0	0	0	0	1
-6	12/14/1979 21:34 PM	22	0.28	0.36	0	0	0	0	0	0	0	1
6101	12/14/1979 23:33 PM	4.96	0.25	1	0	0.77	0.77	1.5	0.01	0.01	0.02	0.98
6102	12/14/1979 21:17 PM	8.3	0.83	1	0	1.52	1.52	1.65	0.01	0.01	0.09	0.91
6103	12/14/1979 22:02 PM	6.08	0.43	1	0	1.5	1.5	1.52	0.01	0.01	0.99	0.01
6287	12/12/1979 00:00 AM	11.44	1.54	1	0	7.65	7.65	110.5	0.01	0.02	1	0
6456	12/14/1979 21:40 PM	11.6	0.63	0.57	0	0	0	0	0	0	0	1
6460	12/14/1979 21:10 PM	7.98	0.81	0.82	0	0.01	0.01	0.61	0.01	0.01	0.14	0.86
6462	12/14/1979 21:11 PM	6.06	0.73	1	0	0.61	0.61	10.61	0.01	0.01	1	0
6496	12/14/1979 21:11 PM	5.78	3.42	1	0	7.6	10.61	7.65	10.93	7.6	1	0
-7	12/14/1979 21:34 PM	20.64	1.07	0.78	0	0.01	0.44	0.01	0.63	0.01	0	1
7487	12/14/1979 21:15 PM	14.53	0.59	1	0	0.85	0.85	1.03	0.01	0.01	0.01	0.99
7493	12/14/1979 21:31 PM	31.29	1.49	1	0	0.18	1.08	0.18	0.98	0.18	0	1
7505	12/14/1979 21:30 PM	17.09	0.27	0.84	0	0.01	0.01	0.61	0.01	0.01	0	1
7553	12/14/1979 21:24 PM	10.54	0.37	1	0	0.07	0.07	0.72	0.01	0.01	0	1
7555	12/14/1979 21:20 PM	23.85	0.14	0.62	0	0.01	0.01	0.07	0.01	0.01	0	1

Table 3B: Conduits (continued...)

Name	Time Max. Flow (M/D/Y)	Max. |Velocity| (ft/s)	Max/Full Flow	Max/Full Depth	Max. Volume (ft³)	Full Both Ends (h)	Full Upstream (h)	Full Downstream (h)	Above Full Normal (h)	Capacity Limited (h)	Subcritical (fraction)	Supercritical (fraction)
7559	12/14/1979 21:19 PM	9.06	0.98	0.74	0	0	0	0	0	0	0	1
7563	12/14/1979 21:36 PM	12.01	0.4	1	0	0.51	0.51	1	0.01	0.01	0.01	0.99
7565	12/14/1979 21:36 PM	16.42	0.65	1	0	0.48	0.48	0.51	0.01	0.01	0.01	0.99
7582	12/14/1979 21:20 PM	9.75	0.52	0.46	0	0	0	0	0	0	0.14	0.86
7602	12/14/1979 21:33 PM	11.11	0.36	0.63	0	0	0	0	0	0	0	1
7603	12/14/1979 21:33 PM	11.42	0.97	0.6	0	0	0	0	0	0	0	1
7605	12/14/1979 21:33 PM	9.03	0.82	0.75	0	0	0	0	0	0	0	1
7606	12/14/1979 21:33 PM	7.98	1.75	0.85	0	0.01	1.65	0.01	1.95	0.01	0.1	0.9
7740	12/14/1979 21:34 PM	15.79	0.45	0.47	0	0	0	0	0	0	0	1
7742	12/14/1979 21:34 PM	7.44	0.58	0.57	0	0	0	0	0	0	0.17	0.83
-8	12/14/1979 21:34 PM	10.33	0.58	0.77	0	0.01	0.01	0.44	0.01	0.01	0	1
-9	12/14/1979 21:34 PM	10.33	0.58	0.77	0	0.01	0.01	0.44	0.01	0.01	0	1
C1	12/14/1979 21:32 PM	5.44	1.22	0.77	0	0.01	0.62	0.01	0.63	0.01	0.1	0.9
C10	12/12/1979 00:00 AM	0	0	0.43	0	0	0	0	0	0	0	0
C2	12/14/1979 21:35 PM	15.12	0.44	0.73	0	0.01	0.01	0.48	0.01	0.01	0	1
C3	12/12/1979 00:00 AM	0	0	0	0	0	0	0	0	0	0	0
C4	12/12/1979 00:00 AM	0	0	0	0	0	0	0	0	0	0	0
C5	12/14/1979 21:42 PM	7.09	0.94	1	0	0.64	0.64	0.85	0.01	0.01	0.15	0.85
C6	12/14/1979 21:30 PM	11.16	1	1	0	0.61	0.61	0.69	0.05	0.05	0.01	0.99
C7	12/14/1979 21:42 PM	9.55	1.03	1	0	1	1	2.42	0.22	0.22	1	0
C8	12/14/1979 21:42 PM	10.57	3.89	0.85	0	0.01	2.42	0.01	12.95	0.01	0.99	0.01
C9	12/14/1979 21:41 PM	10.01	1.02	1	0	0.69	0.69	1	0.18	0.18	0.01	0.99

Table 3C: Conduits

Name	Normal Limited (fraction)
-1	0
12587	0
13292	0.67
13297	0
13298	1
13299	1
13301	0.82
-2	0.01
21149	0.95
21151	0
21152	1
21153	0.67
21196	0
22958	1
22959	1
22961	0.8
22962	0
22973	0
23017	0
23018	0.79
23047	0.02
23048	1
23049	0
23050	0
25124	0.4
25413	0

Table 3C: Conduits (continued...)

Name	Normal Limited (fraction)
25414	0
-3	0.01
-4	1
40640	0.99
40642	0.99
41542	0.56
41565	0
44677	0.99
44678	0.01
45955	0.99
-5	0
-6	0.1
6101	0.24
6102	0.96
6103	0.68
6287	0
6456	0
6460	0.01
6462	0.99
6496	0
-7	0
7487	0.92
7493	0
7505	1
7553	0.99
7555	1

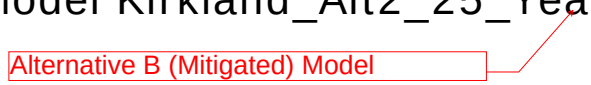
Table 3C: Conduits (continued...)

Name	Normal Limited (fraction)
7559	0
7563	0.99
7565	0
7582	0.24
7602	1
7603	0.37
7605	0.98
7606	0
7740	0
7742	0.66
-8	1
-9	1
C1	0
C10	0
C2	1
C3	0
C4	0
C5	0.01
C6	0.99
C7	0.99
C8	0
C9	0.85

PCSWMM Report

report

Model Kirkland_Alt2_25_Year_Mitigated.inp



RKI

August 16, 2021

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Summary 1: Options

Name	Kirkland_Alt2_25_Year_Mitigated
Flow Units	CFS
Infiltration method	Green-Ampt
Flow routing method	Dynamic Wave
Link offsets defined by	Elevation
Allow ponding	Yes
Skip steady flow periods	No
Inertial dampening	Partial
Define supercritical flow by	Both
Force Main Equation	H-W
Variable time step	On
Adjustment factor (%)	75
Conduit lengthening (s)	0
Minimum surface area (ft²)	0
Starting date	Dec-12-1979 12:00:00 AM
Ending date	Dec-16-1979 02:30:00 PM
Duration of simulation (hours)	110.5
Antecedent dry days (days)	0
Rain interval (h:mm)	n/a
Report time step (h:mm:ss)	00:00:01
Wet time step (h:mm:ss)	00:05:00
Dry time step (h:mm:ss)	00:05:00
Routing time step (s)	1
Minimum time step used (s)	0
Average time step used (s)	0.59
Minimum conduit slope	0
Ignore rainfall/runoff	No
Ignore snow melt	No
Ignore groundwater	No
Ignore flow routing	No
Ignore water quality	No
Report average results	No

Summary 2: Model inventory

Name	Kirkland_Alt2_25_Year_Mitigated
Raingages	0
Subcatchments	0
Aquifers	0
Snowpacks	0
RDII hydrographs	0
Junction nodes	73
Outfall nodes	1
Flow divider nodes	0
Storage unit nodes	0
Conduit links	74
Pump links	0
Orifice links	0
Weir links	0
Outlet links	0
Treatment units	0
Transects	0
Control rules	0
Pollutants	0
Land Uses	0
Control Curves	0
Diversion Curves	0
Pump Curves	0
Rating Curves	0
Shape Curves	0
Storage Curves	0
Tidal Curves	0
Weir Curves	0
Time Series	9
Time Patterns	0

Summary 3: Model complexity

Name	Kirkland_Alt2_25_Year_Mitigated
Subcatchments	n/a
Groundwater	n/a
Aquifers	n/a
Snowpacks	n/a
RDII hydrographs	n/a
Junction nodes	233
Outfall nodes	2
Flow divider nodes	n/a
Storage unit nodes	n/a
Conduit links	447
Pump links	n/a
Orifice links	n/a
Weir links	n/a
Outlet links	n/a
Transect	n/a
Pollutants	n/a
Land Uses	n/a
Model complexity (total uncertain input parameters)	682

Summary 4: Inflows

Name	Kirkland_Alt2_25_Year_Mitigated
Time series inflows	7
Dry weather	0
Groundwater	0
RDII inflows	0

Summary 5: Subcatchment statistics

Name	Kirkland_Alt2_25_Year_Mitigated
Max. width (ft)	n/a
Min. width (ft)	n/a
Max. area (ac)	n/a
Min. area (ac)	n/a
Total area (ac)	n/a
Max. length of overland flow (ft)	n/a
Min. length of overland flow (ft)	n/a
Max. slope (%)	n/a

Summary 5: Subcatchment statistics (continued...)

Name	Kirkland_Alt2_25_Year_Mitigated
Min. slope (%)	n/a
Max. imperviousness (%)	n/a
Min. imperviousness (%)	n/a
Max. imp. roughness	n/a
Min. imp. roughness	n/a
Max. perv. roughness	n/a
Min. perv. roughness	n/a
Max. imp. depression storage (in)	n/a
Min. imp. depression storage (in)	n/a
Max. perv. depression storage (in)	n/a
Min. perv. depression storage (in)	n/a

Summary 6: Node statistics

Name	Kirkland_Alt2_25_Year_Mitigated
Max. ground elev. (ft)	479.587
Min. ground elev. (ft)	254.357
Max. invert elev. (ft)	478.087
Min. invert elev. (ft)	249.585
Max. depth (ft)	15.8
Min. depth (ft)	1.408

Summary 7: Conduit statistics

Name	Kirkland_Alt2_25_Year_Mitigated
Max. roughness	0.027
Min. roughness	0.009
Max. entry loss coef.	0
Min. entry loss coef.	0
Max. exit loss coef.	0
Min. exit loss coef.	0
Max. avg. loss coef.	0
Min. avg. loss coef.	0
Max. length (ft)	392.106
Min. length (ft)	4
Total length (ft)	6817.946
Max. slope (ft/ft)	0.2573
Min. slope (ft/ft)	0.0008

Summary 8: Conduit Inventory

Name	Kirkland_Alt2_25_Year_Mitigated
Open Rectangular (ft)	674
Circular (ft)	5396.946
Arch (ft)	747

Summary 9: Pipe inventory

Name	Kirkland_Alt2_25_Year_Mitigated
Max. pipe diameter (ft)	3
Min. pipe diameter (ft)	1
Total 12” pipe length (ft)	1545.606
Total 18” pipe length (ft)	2491.353
Total 24” pipe length (ft)	248
Total 30” pipe length (ft)	1036.987
Total 36” pipe length (ft)	75
Total pipe length (ft)	5396.946

Summary 10: Unused objects

Name	Kirkland_Alt2_25_Year_Mitigated
Rain Gages	n/a
Aquifers	n/a
Snow Packs	n/a
Unit Hydrographs	n/a
Transects	n/a
Control Curves	n/a
Diversion Curves	n/a
Pump Curves	n/a
Rating Curves	n/a
Shape Curves	n/a
Storage Curves	n/a
Tidal Curves	n/a
Weir Curves	n/a
Time Series	2
Time Patterns	n/a

Summary 11: Flow routing continuity

Name	Kirkland_Alt2_25_Year_Mitigated
Dry weather inflow (MG)	0.000
Wet weather inflow (MG)	0.000
Groundwater inflow (MG)	0.000
RDII inflow (MG)	0.000
External inflow (MG)	16.822
External outflow (MG)	16.784
Flooding loss (MG)	0.000
Evaporation loss (MG)	0.000
Exfiltration loss (MG)	0.000
Initial stored volume (MG)	0.003
Final stored volume (MG)	0.040
Continuity error (%)	-0.000

Summary 12: Results statistics

Name	Kirkland_Alt2_25_Year_Mitigated
Max. subcatchment total runoff (MG)	n/a
Max. subcatchment peak runoff (cfs)	n/a
Max. subcatchment runoff coefficient	n/a
Max. subcatchment total precip (in)	n/a
Min. subcatchment total precip (in)	n/a
Max. node depth (ft)	12.78
Num. nodes surcharged	26
Max. node surcharge duration (hours)	3.95
Max. node height above crown (ft)	11.246
Min. node depth below rim (ft)	0
Num. nodes flooded	8
Max. node flooding duration (hours)	0.5
Max. node flood volume (MG)	0.061
Max. node ponded volume or depth (acre-in/1000 ft³/ft)	5.538
Max. storage volume (1000 ft³)	n/a
Max. storage percent full (%)	n/a
Max. outfall flow frequency (%)	99.98
Max. outfall peak flow (cfs)	94.58
Max. outfall total volume (MG)	16.85
Total outfall volume (MG)	16.850
Max. link peak flow (cfs)	94.58
Max. link peak velocity (ft/s)	27.28
Min. link peak velocity (ft/s)	0

Summary 12: Results statistics (continued...)

Name	Kirkland_Alt2_25_Year_Mitigated
Num. conduits surcharged	40
Max. conduit surcharge duration (hours)	110.5
Max. conduit capacity limited duration (hours)	1

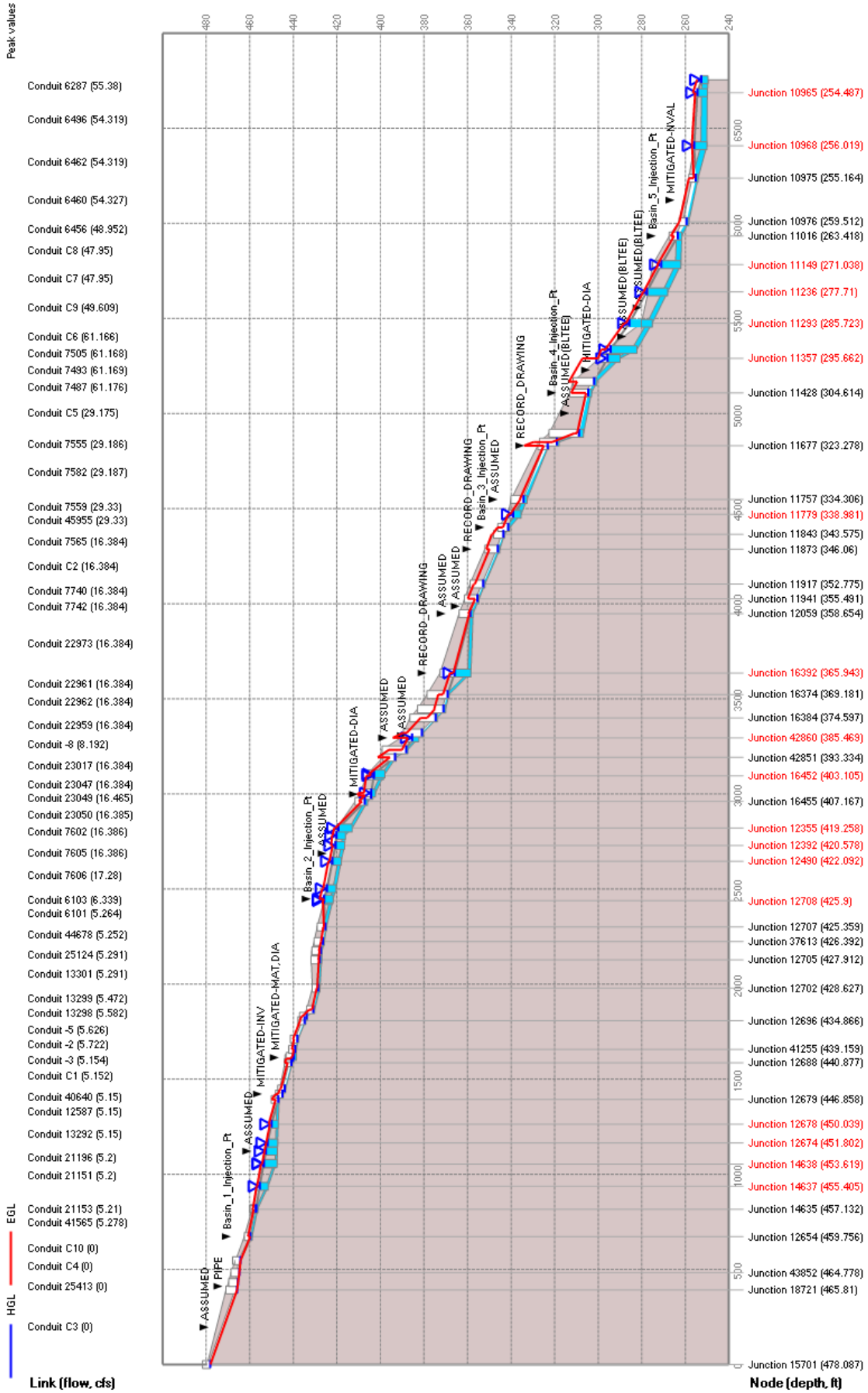


Figure 1: Study Area

Table 1A: Junctions

Name	X-Coordinate	Y-Coordinate	Tag	Inflows	Invert Elev. (ft)	Rim Elev. (ft)	Depth (ft)	Ponded Area (ft²)	Time Series	Avg. Depth (ft)	Max. Depth (ft)	Max. HGL (ft)
10965	1308533	251802.6	Basin_7_Injection_Pt	YES	249.857	254.357	4.5	1320	Basin7_AltB	2.73	4.63	254.49
10968	1308535	251524		NO	250.126	255.926	5.8	1320		2.49	5.89	256.02
10975	1308541	251353.4		NO	254.139	258.439	4.3	1320		0.29	1.02	255.16
10976	1308542	251124.1	Basin_6_Injection_Pt	YES	258.404	262.904	4.5	1320	Basin6_AltB	0.31	1.11	259.51
11016	1308578	251058	Basin_5_Injection_Pt	YES	261.602	267.402	5.8	1320	Basin5_AltB	0.53	1.82	263.42
11149	1308728	251057.7		NO	262.042	275.042	13	1320		1.09	9.01	271.06
11236	1308871	251057.3		NO	268.096	277.096	9	1320		0.56	9.61	277.71
11293	1308990	250943.9		NO	275.185	280.185	5	1320		0.56	10.54	285.72
11352	1309092	250850.2		NO	282.213	296.413	14.2	1320		0.53	12.78	294.99
11357	1309094	250804.6		NO	289.913	299.513	9.6	1320		0.27	6.1	296.01
11428	1309166	250647.1	Basin_4_Injection_Pt	YES	303.09	313.09	10	1320	Basin4_Mitigated	0.38	1.52	304.61
11429	1309166	250706.7		NO	300.654	311.554	10.9	1320		0.32	1.2	301.85
11655	1309376	250617.4		NO	306.719	322.519	15.8	1320		0.49	2.06	308.78
11676	1309408	250584.2		NO	317.976	326.976	9	1320		0.26	0.97	318.95
11677	1309411	250565.1	RECORD_DRAWING	NO	322.71	327.764	5.054	1320		0.16	0.57	323.28
11757	1309575	250424.2	ASSUMED	NO	332.66	340.002	7.342	1320		0.29	1.65	334.31
11779	1309651	250444.6		NO	335.403	341.403	6	1320		0.46	4.37	339.78
11843	1309705	250365.1		NO	342.982	348.082	5.1	1320		0.18	0.59	343.58
11844	1309705	250400.8	Basin_3_Injection_Pt	YES	340.52	346.12	5.6	1320	Basin3_AltB	0.22	0.81	341.33
11873	1309737	250294.2	RECORD_DRAWING	NO	345.152	352.072	6.92	1320		0.26	0.91	346.06
11917	1309801	250122.4	RECORD_DRAWING	NO	351.972	358.893	6.921	1320		0.23	0.8	352.77
11941	1309829	250050.6	RECORD_DRAWING	NO	354.672	361.361	6.689	1320		0.23	0.82	355.49
12059	1309908	250051	ASSUMED	NO	357.44	363.891	6.451	1320		0.24	1.21	358.65
12355	1310336	249225.5		NO	412.9	420	7.1	1320		0.36	6.4	419.3
12360	1310335	249186.1		NO	416.064	420.2	4.136	1320		0.21	4.12	420.18
12392	1310388	249185.3	ASSUMED	NO	416.462	421	4.538	1320		0.35	4.16	420.63

Table 1A: Junctions (continued...)

Name	X-Coordinate	Y-Coordinate	Tag	Inflows	Invert Elev. (ft)	Rim Elev. (ft)	Depth (ft)	Ponded Area (ft²)	Time Series	Avg. Depth (ft)	Max. Depth (ft)	Max. HGL (ft)
12490	1310471	249186.8		NO	418.012	422	3.988	1320		0.32	4.08	422.09
12645	1310615	249184.5		NO	420.384	425	4.616	1320		0.28	4.25	424.64
12654	1310621	247416.9	Basin_1_Injection_Pt	YES	458.893	462.5	3.607	1320	Basin1_AltB	0.17	0.86	459.76
12674	1310634	247901.1	ASSUMED	NO	447.205	451.8	4.595	1320		0.27	4.6	451.8
12678	1310639	248000	ASSUMED	NO	446.908	451	4.092	1320		0.27	4.09	451
12679	1310638	248129.8		NO	446.492	447.9	1.408	1320		0.09	0.37	446.86
12688	1310644	248322.1	RECORD_DRAWING	NO	440.406	443.85	3.444	1320		0.12	0.47	440.88
12695	1310651	248565.5		NO	433.495	435.795	2.3	1320		0.1	0.41	433.9
12696	1310649	248543.1		NO	434.337	437.337	3	1320		0.13	0.53	434.87
12697	1310652	248600.9		NO	430.202	433.902	3.7	1320		0.14	0.59	430.79
12702	1310655	248713.5		NO	427.714	431.214	3.5	1320		0.2	0.91	428.63
12705	1310658	248862.5		NO	427.019	431.806	4.787	1320		0.2	0.89	427.91
12707	1310663	249035.9		NO	424.747	429.047	4.3	1320		0.14	0.61	425.36
12708	1310666	249173.8		NO	421.906	425.9	3.994	1320		0.15	3.99	425.9
12716	1310669	249182.5	Basin_2_Injection_Pt	YES	421.689	425.8	4.111	1320	Basin2_Mitigated	0.3	4.11	425.8
14635	1310626	247559.8		NO	456.37	458.95	2.58	1320		0.14	0.76	457.13
14636	1310621	247560.3		NO	456.252	458.502	2.25	1320		0.13	0.81	457.06
14637	1310624	247677.3		NO	451.49	456.8	5.31	1320		0.15	3.91	455.4
14638	1310627	247794.4		NO	448.028	453.75	5.722	1320		0.11	5.59	453.62
14639	1310631	247794.3		NO	447.388	453.85	6.462	1320		0.34	6.17	453.56
14675	1310632	247858.4	ASSUMED	NO	447.339	453	5.661	1320		0.27	5.24	452.58
15701	1310605	246744.3		NO	478.087	479.587	1.5	1320		0	0	478.09
16374	1310130	249734.3		NO	368.459	378.659	10.2	1320		0.18	0.72	369.18
16377	1310206	249735.5		NO	370.041	382.941	12.9	1320		0.28	0.97	371.02
16384	1310254	249736.7		NO	373.882	386.535	12.653	1320		0.21	0.72	374.6
16385	1310255	249657.8		NO	380.339	389.439	9.1	1320		0.19	0.64	380.98

Table 1A: Junctions (continued...)

Name	X-Coordinate	Y-Coordinate	Tag	Inflows	Invert Elev. (ft)	Rim Elev. (ft)	Depth (ft)	Ponded Area (ft²)	Time Series	Avg. Depth (ft)	Max. Depth (ft)	Max. HGL (ft)
16392	1310092	249840.9	RECORD_DRAWING	NO	358.42	372.647	14.227	1320		0.71	12.78	371.2
16451	1310310	249485.8		NO	397.927	406.027	8.1	1320		0.37	5.07	403
16452	1310319	249485.9		NO	398.527	406.027	7.5	1320		0.21	4.58	403.11
16453	1310321	249394.6		NO	402.294	409.594	7.3	1320		0.23	1.87	404.17
16454	1310308	249394.6		NO	403.394	409.594	6.2	1320		0.18	0.97	404.36
16455	1310309	249362.8		NO	405.822	411.622	5.8	1320		0.34	1.35	407.17
18711	1310659	248909.3		NO	426.8	431.5	4.7	1320		0.14	0.57	427.37
18719	1310620	247290.3		NO	464.236	466.536	2.3	1320		0	0	464.24
18720	1310618	247175		NO	465.393	469.693	4.3	1320		0	0	465.39
18721	1310618	247136.2		NO	465.81	470.91	5.1	1320		0	0	465.81
33729	1310640	248157.6	MITIGATED-INV	NO	444.6	447	2.4	1320		0.1	0.42	445.02
33731	1310641	248184.3	RECORD_DRAWING	NO	443.498	446.25	2.752	1320		0.12	0.49	443.99
37613	1310661	248958.5		NO	425.721	430.421	4.7	1320		0.16	0.67	426.39
41253	1310643	248354.6		NO	438.524	443.3	4.776	1320		0.23	1.15	439.68
41255	1310644	248392		NO	438.484	441.75	3.266	1320		0.15	0.68	439.16
41256	1310645	248446.1		NO	437.724	439.8	2.076	1320		0.11	0.46	438.18
41260	1310644	248343.8		NO	439.848	443.75	3.902	1320		0.08	0.32	440.16
42851	1310309	249573.6		NO	392.715	398.815	6.1	1320		0.18	0.62	393.33
42852	1310270	249573.8		NO	387.416	399.216	11.8	1320		0.18	0.79	388.21
42860	1310270	249636.4	ASSUMED	NO	382.4	390.682	8.282	1320		0.25	3.08	385.48
43852	1310619	247227.4		NO	464.778	468.678	3.9	1320		0	0	464.78

Table 1B: Junctions

Name	Time Max. HGL (M/D/Y)	Rep. Max. Depth (ft)	Max. Lat. Inflow (cfs)	Max. Total Inflow (cfs)	Total Lat. Inflow (MG)	Total inflow (MG)	Flow Error (%)	Hours Surcharged (h)	Max. Surcharge (ft)	Min. Freeboard (ft)	Hours Flooded (h)	Max. Flood Rate (cfs)	Total Flood Vol. (MG)	Max. Ponded Depth (ft)
10965	12/12/1979 00:00 AM	4.63	1.26	94.58	0.668	16.8	0.068	3.95	1.88	0	0.01	66.43	0.002	0.13
10968	12/12/1979 00:01 AM	5.89	0	54.32	0	16.1	0.09	1.08	3.143	0	0.01	35.83	0.001	0.093
10975	12/14/1979 21:17 PM	1.02	0	54.33	0	16.1	0.005	0	0	3.279	0	0	0	0
10976	12/14/1979 21:17 PM	1.11	8.14	54.32	1.63	16.1	0.003	0	0	3.394	0	0	0	0
11016	12/14/1979 21:26 PM	1.82	2.25	48.95	0.495	14.4	0.003	0	0	3.982	0	0	0	0
11149	12/14/1979 21:28 PM	9	0	47.95	0	14	0.01	1.47	6.514	3.986	0	0	0	0
11236	12/14/1979 21:27 PM	9.61	0	49.61	0	14	0.003	0.52	7.114	0	0.28	3.05	0.007	0.614
11293	12/14/1979 21:23 PM	10.54	0	61.17	0	14	0.001	0.5	8.038	0	0.5	15.65	0.061	5.538
11352	12/14/1979 21:13 PM	12.14	0	61.17	0	14	0.002	0.43	10.281	1.419	0	0	0	0
11357	12/14/1979 21:13 PM	5.75	0	61.17	0	14	0	0.19	3.6	3.5	0	0	0	0
11428	12/14/1979 21:15 PM	1.52	32.02	61.18	6.69	14	0.002	0	0	8.48	0	0	0	0
11429	12/14/1979 21:15 PM	1.2	0	61.18	0	14	0.001	0	0	9.704	0	0	0	0
11655	12/14/1979 21:15 PM	2.06	0	29.19	0	7.27	0.007	0	0	13.739	0	0	0	0
11676	12/14/1979 21:15 PM	0.97	0	29.19	0	7.27	0.001	0	0	8.026	0	0	0	0
11677	12/14/1979 21:15 PM	0.57	0	29.19	0	7.27	0.005	0	0	4.484	0	0	0	0
11757	12/14/1979 21:15 PM	1.65	0	29.33	0	7.27	0.008	0	0	5.692	0	0	0	0
11779	12/14/1979 21:09 PM	3.58	0	29.33	0	7.27	0.002	0.24	2.374	1.626	0	0	0	0
11843	12/14/1979 21:19 PM	0.59	0	16.38	0	4.62	0.001	0	0	4.502	0	0	0	0
11844	12/14/1979 21:13 PM	0.81	15.69	29.29	2.65	7.27	0.001	0	0	4.79	0	0	0	0
11873	12/14/1979 21:19 PM	0.91	0	16.38	0	4.62	0.003	0	0	6.012	0	0	0	0
11917	12/14/1979 21:19 PM	0.8	0	16.38	0	4.62	0.003	0	0	6.123	0	0	0	0
11941	12/14/1979 21:19 PM	0.82	0	16.38	0	4.62	0.003	0	0	5.871	0	0	0	0
12059	12/14/1979 21:19 PM	1.21	0	16.38	0	4.62	0.011	0	0	5.241	0	0	0	0
12355	12/14/1979 21:20 PM	6.36	0	16.39	0	4.62	0.003	0.27	4.896	0.704	0	0	0	0
12360	12/14/1979 21:20 PM	4.06	0	16.39	0	4.62	0.001	0.19	2.616	0.02	0	0	0	0
12392	12/14/1979 21:20 PM	4.12	0	16.39	0	4.62	0.002	0.19	2.664	0.374	0	0	0	0

Table 1B: Junctions (continued...)

Name	Time Max. HGL (M/D/Y)	Rep. Max. Depth (ft)	Max. Lat. Inflow (cfs)	Max. Total Inflow (cfs)	Total Lat. Inflow (MG)	Total inflow (MG)	Flow Error (%)	Hours Surcharged (h)	Max. Surcharge (ft)	Min. Freeboard (ft)	Hours Flooded (h)	Max. Flood Rate (cfs)	Total Flood Vol. (MG)	Max. Ponded Depth (ft)
12490	12/14/1979 21:17 PM	4.08	0	17.28	0	4.63	0.004	0.17	2.58	0	0.11	0.96	0.001	0.092
12645	12/14/1979 21:14 PM	4.1	0	17.28	0	4.63	0.003	0.14	2.752	0.364	0	0	0	0
12654	12/14/1979 21:15 PM	0.86	5.29	5.29	1.04	1.04	0.004	0	0	2.74	0	0	0	0
12674	12/14/1979 21:16 PM	4.6	0	5.2	0	1.04	0.004	0.58	3.597	0	0.04	0.05	0	0.002
12678	12/14/1979 21:07 PM	3.13	0	5.15	0	1.04	0.006	0.38	3.092	0	0	0	0	0
12679	12/14/1979 21:16 PM	0.37	0	5.15	0	1.04	0.001	0	0	1.132	0	0	0	0
12688	12/14/1979 21:15 PM	0.47	0	5.15	0	1.04	0.002	0	0	2.97	0	0	0	0
12695	12/14/1979 21:15 PM	0.41	0	5.59	0	1.04	0.001	0	0	1.895	0	0	0	0
12696	12/14/1979 21:15 PM	0.53	0	5.63	0	1.04	0.001	0	0	2.467	0	0	0	0
12697	12/14/1979 21:17 PM	0.59	0	5.58	0	1.04	0.002	0	0	3.112	0	0	0	0
12702	12/14/1979 21:18 PM	0.91	0	5.47	0	1.04	0.007	0	0	2.584	0	0	0	0
12705	12/14/1979 21:18 PM	0.89	0	5.29	0	1.04	0.005	0	0	3.896	0	0	0	0
12707	12/14/1979 21:16 PM	0.61	0	5.25	0	1.04	0.003	0	0	3.687	0	0	0	0
12708	12/14/1979 21:14 PM	3.99	0	5.26	0	1.04	0.002	0.11	2.494	0	0.01	0.42	0	0
12716	12/14/1979 21:14 PM	4.11	12.47	18.3	3.59	4.63	0.001	0.12	2.612	0	0.01	0.8	0	0.001
14635	12/14/1979 21:16 PM	0.76	0	5.28	0	1.04	0.002	0	0	1.82	0	0	0	0
14636	12/14/1979 21:16 PM	0.81	0	5.21	0	1.04	0.001	0	0	1.442	0	0	0	0
14637	12/14/1979 21:16 PM	3.91	0	5.2	0	1.04	0.002	0.2	2.915	1.395	0	0	0	0
14638	12/14/1979 21:16 PM	5.59	0	5.2	0	1.04	0	0.39	4.591	0.131	0	0	0	0
14639	12/14/1979 21:16 PM	6.17	0	5.2	0	1.04	0.002	0.9	5.17	0.292	0	0	0	0
14675	12/14/1979 21:16 PM	5.24	0	5.2	0	1.04	0.003	0.67	4.243	0.418	0	0	0	0
15701	12/12/1979 00:00 AM	0	0	0	0	0	0	0	0	1.497	0	0	0	0
16374	12/14/1979 21:16 PM	0.72	0	16.38	0	4.62	0.002	0	0	9.479	0	0	0	0
16377	12/14/1979 21:16 PM	0.97	0	16.38	0	4.62	0.002	0	0	11.921	0	0	0	0
16384	12/14/1979 21:18 PM	0.72	0	16.38	0	4.62	0.001	0	0	11.935	0	0	0	0
16385	12/14/1979 21:18 PM	0.64	0	16.38	0	4.62	0.001	0	0	8.459	0	0	0	0

Table 1B: Junctions (continued...)

Name	Time Max. HGL (M/D/Y)	Rep. Max. Depth (ft)	Max. Lat. Inflow (cfs)	Max. Total Inflow (cfs)	Total Lat. Inflow (MG)	Total inflow (MG)	Flow Error (%)	Hours Surcharged (h)	Max. Surcharge (ft)	Min. Freeboard (ft)	Hours Flooded (h)	Max. Flood Rate (cfs)	Total Flood Vol. (MG)	Max. Ponded Depth (ft)
16392	12/14/1979 21:03 PM	7.52	0	16.38	0	4.62	0.047	1.79	11.246	1.451	0	0	0	0
16451	12/14/1979 21:18 PM	5.07	0	16.38	0	4.62	0.002	0.28	3.574	3.026	0	0	0	0
16452	12/14/1979 21:18 PM	4.58	0	16.38	0	4.62	0.001	0.23	3.078	2.922	0	0	0	0
16453	12/14/1979 21:18 PM	1.87	0	16.38	0	4.62	0.001	0.09	0.373	5.427	0	0	0	0
16454	12/14/1979 21:18 PM	0.97	0	16.46	0	4.62	0	0	0	5.234	0	0	0	0
16455	12/14/1979 21:14 PM	1.35	0	16.39	0	4.62	0.003	0	0	4.452	0	0	0	0
18711	12/14/1979 21:18 PM	0.57	0	5.34	0	1.04	0.001	0	0	4.13	0	0	0	0
18719	12/12/1979 00:00 AM	0	0	0	0	0	0	0	0	2.296	0	0	0	0
18720	12/12/1979 00:00 AM	0	0	0	0	0	0	0	0	4.303	0	0	0	0
18721	12/12/1979 00:00 AM	0	0	0	0	0	0	0	0	5.1	0	0	0	0
33729	12/14/1979 21:16 PM	0.42	0	5.15	0	1.04	0.001	0	0	1.98	0	0	0	0
33731	12/14/1979 21:15 PM	0.49	0	5.15	0	1.04	0.002	0	0	2.26	0	0	0	0
37613	12/14/1979 21:18 PM	0.67	0	5.24	0	1.04	0.002	0	0	4.031	0	0	0	0
41253	12/14/1979 21:17 PM	1.15	0	5.15	0	1.04	0.027	0	0	3.62	0	0	0	0
41255	12/14/1979 21:15 PM	0.68	0	6.94	0	1.04	-0.023	0	0	2.59	0	0	0	0
41256	12/14/1979 21:15 PM	0.46	0	5.72	0	1.04	0.001	0	0	1.62	0	0	0	0
41260	12/14/1979 21:15 PM	0.32	0	5.15	0	1.04	0.001	0	0	3.59	0	0	0	0
42851	12/14/1979 21:18 PM	0.62	0	16.38	0	4.62	0.001	0	0	5.485	0	0	0	0
42852	12/14/1979 21:18 PM	0.79	0	16.38	0	4.62	0.001	0	0	11.006	0	0	0	0
42860	12/14/1979 21:20 PM	3.07	0	16.38	0	4.62	0.001	0.31	2.083	5.199	0	0	0	0
43852	12/12/1979 00:00 AM	0	0	0	0	0	0	0	0	3.898	0	0	0	0

Table 2A: Outfalls

Name	X-Coordinate	Y-Coordinate	Tag	Inflows	Treatment	Invert Elev. (ft)	Rim Elev. (ft)	Tide Gate	Type	Fixed Stage (ft)	Avg. Depth (ft)	Max. Depth (ft)	Max. HGL (ft)	Time Max. HGL (M/D/Y)
10964	1308533	251870.4		NO	NO	249.585	252.585	NO	FIXED	252.585	3	3	252.59	12/12/1979 00:00 AM

Table 2B: Outfalls

Name	Rep. Max. Depth (ft)	Max. Lat. Inflow (cfs)	Max. Total Inflow (cfs)	Total Lat. Inflow (MG)	Total inflow (MG)	Flow Error (%)	Hours Surcharged (h)	Max. Surcharge (ft)	Min. Freeboard (ft)	Hours Flooded (h)	Max. Flood Rate (cfs)	Total Flood Vol. (MG)	Max. Ponded Depth (ft)	Flow Frequency	Avg. Flow (cfs)	Max. Flow (cfs)	Total Flow (MG)
10964	3	0	94.58	0	16.8	0	0	0	0	0	0	0	0	99.98	6.56	94.58	16.85

Table 3A: Conduits

Name	Inlet Node	Outlet Node	Tag	Length (ft)	Roughness	Inlet Elev. (ft)	Outlet Elev. (ft)	Flow Limit (cfs)	Cross-Section	Geom1 (ft)	Geom2 (ft)	Barrels	Slope (ft/ft)	Max. |Flow| (cfs)
-1	41253	41255	MITIGATED-DIA	37	0.011	438.524	438.484	0	CIRCULAR	1.5	0	1	0.00108	6.94
12587	12678	12679	ASSUMED	130	0.012	446.908	446.492	0	CIRCULAR	1	0	1	0.0032	5.15
13292	12674	12678	ASSUMED	99	0.012	447.205	446.908	0	CIRCULAR	1	0	1	0.003	5.15
13297	12696	12695		23	0.012	434.337	433.495	0	CIRCULAR	1.5	0	1	0.03663	5.59
13298	12695	12697		35	0.012	433.495	430.202	0	CIRCULAR	1.5	0	1	0.0945	5.58
13299	12697	12702		113	0.012	430.202	427.714	0	CIRCULAR	1.5	0	1	0.02202	5.47
13301	12702	12705		149	0.012	427.714	427.019	0	CIRCULAR	1.5	0	1	0.00466	5.29
-2	41255	41256	MITIGATED-DIA	54	0.011	438.484	437.724	0	CIRCULAR	1.5	0	1	0.01408	5.72
21149	14638	14639		4	0.011	448.028	447.388	0	CIRCULAR	1	0	1	0.16209	5.2
21151	14637	14638		117	0.011	451.49	448.028	0	CIRCULAR	1	0	1	0.0296	5.2
21152	14636	14637		117	0.011	456.252	451.49	0	CIRCULAR	1	0	1	0.04073	5.2
21153	14635	14636		4	0.011	456.37	456.252	0	CIRCULAR	1	0	1	0.02951	5.21
21196	14639	14675	ASSUMED	64	0.011	447.388	447.339	0	CIRCULAR	1	0	1	0.00077	5.2

Table 3A: Conduits (continued...)

Name	Inlet Node	Outlet Node	Tag	Length (ft)	Roughness	Inlet Elev. (ft)	Outlet Elev. (ft)	Flow Limit (cfs)	Cross-Section	Geom1 (ft)	Geom2 (ft)	Barrels	Slope (ft/ft)	Max. |Flow| (cfs)
22958	16384	16377		47	0.011	373.882	370.041	0	CIRCULAR	1.5	0	1	0.082	16.38
22959	16385	16384		79	0.009	380.339	373.882	0	CIRCULAR	1.5	0	1	0.08201	16.38
22961	16374	16392	RECORD_DRAWING	113	0.009	368.459	358.45	0	CIRCULAR	1.5	0	1	0.08892	16.38
22962	16377	16374		76	0.009	370.041	368.459	0	CIRCULAR	1.5	0	1	0.02082	16.38
22973	16392	12059	ASSUMED	312	0.027	358.42	351	0	RECT_OPEN	1.5	2	1	0.02379	16.38
23017	16451	42851		88	0.024	397.927	392.715	0	CIRCULAR	1.5	0	1	0.05933	16.38
23018	16452	16451	MITIGATED-DIA	9	0.009	398.527	397.927	0	CIRCULAR	1.5	0	1	0.06682	16.38
23047	16453	16452	MITIGATED-DIA	91	0.009	402.294	398.527	0	CIRCULAR	1.5	0	1	0.04143	16.38
23048	16454	16453	MITIGATED-DIA	12	0.009	403.394	402.294	0	CIRCULAR	1.5	0	1	0.09205	16.38
23049	16455	16454		32	0.024	405.822	403.394	0	CIRCULAR	1.5	0	1	0.07609	16.46
23050	12355	16455		140	0.024	412.9	405.822	0	CIRCULAR	1.5	0	1	0.05062	16.39
25124	12705	18711		47	0.012	427.019	426.8	0	CIRCULAR	1.5	0	1	0.00466	5.34
25413	18721	18720	PIPE	39	0.009	465.81	465.393	0	CIRCULAR	1	0	1	0.01069	0
25414	18720	43852	PIPE	52	0.012	465.393	464.778	0	CIRCULAR	1	0	1	0.01183	0
-3	12688	41260	MITIGATED-MAT,DIA	22	0.009	440.406	439.848	0	CIRCULAR	1.5	0	1	0.02537	5.15
-4	41260	41253	MITIGATED-MAT,DIA	11	0.009	439.848	438.524	0	CIRCULAR	1.5	0	1	0.12125	5.15
40640	12679	33729	MITIGATED-OUT,MAT,DIA	28	0.009	446.492	444.6	0	CIRCULAR	1.5	0	1	0.06773	5.15
40642	33729	33731	MITIGATED-IN,MAT,DIA	27	0.009	444.6	443.498	0	CIRCULAR	1.5	0	1	0.04085	5.15
41542	14675	12674	ASSUMED	43	0.012	447.339	447.205	0	CIRCULAR	1	0	1	0.00312	5.2
41565	12654	14635		143	0.012	458.893	456.37	0	CIRCULAR	1	0	1	0.01765	5.28
44677	18711	37613		49	0.012	426.8	425.721	0	CIRCULAR	1.5	0	1	0.02203	5.24
44678	37613	12707		77	0.012	425.721	424.747	0	CIRCULAR	1.5	0	1	0.01265	5.25
45955	11844	11779	MITIGATED-MAT,DIA	69	0.009	340.52	335.403	0	CIRCULAR	2	0	1	0.07436	29.33
-5	41256	12696	MITIGATED-MAT,DIA	97	0.009	437.724	434.337	0	CIRCULAR	1.5	0	1	0.03494	5.63
-6	42851	42852		39	0.011	392.715	387.416	0	CIRCULAR	1.5	0	1	0.13714	16.38
6101	12707	12708		138	0.012	424.747	421.906	0	CIRCULAR	1.5	0	1	0.02059	5.26

Table 3A: Conduits (continued...)

Name	Inlet Node	Outlet Node	Tag	Length (ft)	Roughness	Inlet Elev. (ft)	Outlet Elev. (ft)	Flow Limit (cfs)	Cross-Section	Geom1 (ft)	Geom2 (ft)	Barrels	Slope (ft/ft)	Max. |Flow| (cfs)
6102	12716	12645		54	0.012	421.689	420.384	0	CIRCULAR	1.5	0	1	0.02417	17.28
6103	12708	12716		9	0.012	421.906	421.689	0	CIRCULAR	1.5	0	1	0.02412	6.43
6287	10965	10964		68	0.012	249.857	249.585	0	ARCH	24	0	1	0.004	94.58
6456	11016	10976		75	0.024	261.602	258.404	0	CIRCULAR	3	0	1	0.04268	48.95
6460	10976	10975	MITIGATED-NVAL	229	0.012	258.404	254.139	0	ARCH	24	0	1	0.01863	54.33
6462	10975	10968	MITIGATED-NVAL	171	0.012	254.139	250.126	0	ARCH	24	0	1	0.02347	54.32
6496	10968	10965	MITIGATED-NVAL	279	0.012	250.126	249.857	0	ARCH	24	0	1	0.00096	54.32
-7	42860	16385	ASSUMED	26	0.011	382.4	380.339	0	CIRCULAR	1	0	1	0.07952	16.38
7487	11428	11429		60	0.012	303.09	300.654	0	CIRCULAR	2.5	0	1	0.04063	61.18
7493	11429	11357	MITIGATED-DIA	122	0.012	300.654	289.913	0	CIRCULAR	2.5	0	1	0.08838	61.17
7505	11357	11352		46	0.012	289.913	282.213	0	CIRCULAR	2.5	0	1	0.16979	61.17
7553	11676	11655		46	0.024	317.976	306.719	0	CIRCULAR	2	0	1	0.25239	29.19
7555	11677	11676		19	0.009	322.71	317.976	0	CIRCULAR	2	0	1	0.25727	29.19
7559	11779	11757	ASSUMED	78	0.024	335.403	332.66	0	CIRCULAR	2	0	1	0.03519	29.33
7563	11843	11844	MITIGATED-DIA	36	0.009	342.982	340.52	0	CIRCULAR	2	0	1	0.06855	16.38
7565	11873	11843	RECORD_DRAWING	78	0.009	345.152	342.982	0	CIRCULAR	1.5	0	1	0.02783	16.38
7582	11757	11677	ASSUMED	283	0.027	332.66	322.71	0	RECT_OPEN	2	2.5	1	0.03518	29.19
7602	12360	12355		39	0.011	416.064	412.9	0	CIRCULAR	1.5	0	1	0.0814	16.39
7603	12392	12360	ASSUMED	53	0.009	416.462	416.064	0	CIRCULAR	1.5	0	1	0.00751	16.39
7605	12490	12392	ASSUMED	83	0.012	418.012	416.462	0	CIRCULAR	1.5	0	1	0.01868	16.39
7606	12645	12490	MITIGATED-MAT	144	0.009	420.384	418.012	0	CIRCULAR	1.5	0	1	0.01647	17.28
7740	11941	11917	RECORD_DRAWING	77	0.009	354.672	351.972	0	CIRCULAR	1.5	0	1	0.03509	16.38
7742	12059	11941	ASSUMED	79	0.027	357.44	354.672	0	RECT_OPEN	1.5	2	1	0.03506	16.38
-8	42852	42860	ASSUMED	63	0.012	387.416	382.4	0	CIRCULAR	1	0	1	0.07987	8.19
-9	42852	42860		63	0.012	387.416	380.339	0	CIRCULAR	1	0	1	0.11305	8.19
C1	33731	12688	MITIGATED-MAT,DIA	137.886	0.009	443.498	440.406	0	CIRCULAR	1.5	0	1	0.02243	5.15

Table 3A: Conduits (continued...)

Name	Inlet Node	Outlet Node	Tag	Length (ft)	Roughness	Inlet Elev. (ft)	Outlet Elev. (ft)	Flow Limit (cfs)	Cross-Section	Geom1 (ft)	Geom2 (ft)	Barrels	Slope (ft/ft)	Max. |Flow| (cfs)
C10	18719	12654	ASSUMED	126.611	0.012	464.236	458.893	0	CIRCULAR	1	0	1	0.04224	0
C2	11917	11873	ASSUMED	183.467	0.009	351.972	345.152	0	CIRCULAR	1.5	0	1	0.0372	16.38
C3	15701	18721	ASSUMED	392.106	0.012	478.087	465.81	0	CIRCULAR	1	0	1	0.03133	0
C4	43852	18719	assumed	62.889	0.012	464.778	464.236	0	CIRCULAR	1	0	1	0.00862	0
C5	11655	11428	ASSUMED(BLTEE)	212.261	0.024	306.719	303.09	0	CIRCULAR	2.5	0	1	0.0171	29.17
C6	11352	11293	ASSUMED(BLTEE)	138.344	0.024	282.213	275.185	0	CIRCULAR	2.5	0	1	0.05087	61.17
C7	11236	11149	ASSUMED(BLTEE)	143.382	0.024	268.096	262.042	0	CIRCULAR	2.5	0	1	0.04226	47.95
C8	11149	11016	ASSUMED(BLTEE)	150	0.024	262.042	261.602	0	CIRCULAR	2.5	0	1	0.00293	47.95
C9	11293	11236	ASSUMED(BLTEE)	165	0.024	275.185	268.096	0	CIRCULAR	2.5	0	1	0.043	49.61

Table 3B: Conduits

Name	Time Max. Flow (M/D/Y)	Max. |Velocity| (ft/s)	Max/Full Flow	Max/Full Depth	Max. Volume (ft^3)	Full Both Ends (h)	Full Upstream (h)	Full Downstream (h)	Above Full Normal (h)	Capacity Limited (h)	Subcritical (fraction)	Supercritical (fraction)
-1	12/14/1979 21:17 PM	6.72	1.7	0.58	0	0.01	0.01	0.01	0.22	0.01	0.25	0.75
12587	12/14/1979 21:16 PM	9.01	2.36	0.68	0	0.01	0.38	0.01	0.96	0.01	0.04	0.95
13292	12/14/1979 21:16 PM	6.56	2.44	1	0	0.38	0.58	0.38	1.01	0.38	1	0
13297	12/14/1979 21:15 PM	12.08	0.26	0.31	0	0	0	0	0	0	0	1
13298	12/14/1979 21:15 PM	11.09	0.16	0.33	0	0	0	0	0	0	0	1
13299	12/14/1979 21:17 PM	6.3	0.32	0.5	0	0	0	0	0	0	0.1	0.89
13301	12/14/1979 21:18 PM	4.8	0.68	0.6	0	0	0	0	0	0	0.52	0.48
-2	12/14/1979 21:17 PM	9.73	0.39	0.37	0	0	0	0	0	0	0	1
21149	12/14/1979 21:16 PM	6.62	0.31	1	0	0.39	0.39	0.9	0.01	0.01	0.16	0.84
21151	12/14/1979 21:16 PM	8.9	0.72	1	0	0.2	0.2	0.39	0.01	0.01	0	1
21152	12/14/1979 21:16 PM	9.76	0.61	0.91	0	0.01	0.01	0.2	0.01	0.01	0	1

Table 3B: Conduits (continued...)

Name	Time Max. Flow (M/D/Y)	Max. |Velocity| (ft/s)	Max/Full Flow	Max/Full Depth	Max. Volume (ft³)	Full Both Ends (h)	Full Upstream (h)	Full Downstream (h)	Above Full Normal (h)	Capacity Limited (h)	Subcritical (fraction)	Supercritical (fraction)
21153	12/14/1979 21:15 PM	10.36	0.72	0.79	0	0	0	0	0	0	0	1
21196	12/14/1979 21:16 PM	6.62	4.46	1	0	0.67	0.9	0.67	4.31	0.67	1	0
22958	12/14/1979 21:18 PM	15.98	0.46	0.56	0	0	0	0	0	0	0	1
22959	12/14/1979 21:18 PM	21.17	0.38	0.45	0	0	0	0	0	0	0	1
22961	12/14/1979 21:18 PM	11.68	0.36	0.74	0	0.01	0.01	1.79	0.01	0.01	0.06	0.94
22962	12/14/1979 21:18 PM	16.57	0.75	0.57	0	0	0	0	0	0	0	1
22973	12/14/1979 21:18 PM	6.05	2.49	0.9	0	0.01	1.91	0.01	1.16	0.01	1	0
23017	12/14/1979 21:18 PM	12.28	1.18	0.71	0	0.01	0.28	0.01	0.22	0.01	0	1
23018	12/14/1979 21:18 PM	9.87	0.42	1	0	0.23	0.23	0.28	0.01	0.01	0	1
23047	12/14/1979 21:18 PM	14.84	0.53	1	0	0.09	0.09	0.23	0.01	0.01	0	1
23048	12/14/1979 21:18 PM	19.79	0.36	0.82	0	0.01	0.01	0.09	0.01	0.01	0	1
23049	12/14/1979 21:15 PM	13.37	1.05	0.76	0	0.01	0.01	0.01	0.11	0.01	0	1
23050	12/14/1979 21:17 PM	9.54	1.28	0.95	0	0.01	0.27	0.01	0.28	0.01	0	1
25124	12/14/1979 21:18 PM	6.22	0.69	0.49	0	0	0	0	0	0	0.11	0.88
25413	12/12/1979 00:00 AM	0	0	0	0	0	0	0	0	0	0	0
25414	12/12/1979 00:00 AM	0	0	0	0	0	0	0	0	0	0	0
-3	12/14/1979 21:15 PM	13.93	0.21	0.26	0	0	0	0	0	0	0	1
-4	12/14/1979 21:15 PM	7.6	0.1	0.49	0	0	0	0	0	0	0.14	0.86
40640	12/14/1979 21:16 PM	14.06	0.13	0.26	0	0	0	0	0	0	0	1
40642	12/14/1979 21:16 PM	11.48	0.17	0.3	0	0	0	0	0	0	0	1
41542	12/14/1979 21:16 PM	6.62	2.41	1	0	0.58	0.67	0.58	0.98	0.58	1	0
41565	12/14/1979 21:15 PM	8.27	1.03	0.8	0	0.01	0.01	0.01	0.04	0.01	0	1
44677	12/14/1979 21:18 PM	7.56	0.31	0.41	0	0	0	0	0	0	0.03	0.97
44678	12/14/1979 21:18 PM	7.51	0.41	0.43	0	0	0	0	0	0	0.04	0.96
45955	12/14/1979 21:13 PM	12.44	0.33	0.7	0	0.01	0.01	0.24	0.01	0.01	0	1
-5	12/14/1979 21:17 PM	11.31	0.2	0.33	0	0	0	0	0	0	0	1

Table 3B: Conduits (continued...)

Name	Time Max. Flow (M/D/Y)	Max. |Velocity| (ft/s)	Max/Full Flow	Max/Full Depth	Max. Volume (ft³)	Full Both Ends (h)	Full Upstream (h)	Full Downstream (h)	Above Full Normal (h)	Capacity Limited (h)	Subcritical (fraction)	Supercritical (fraction)
-6	12/14/1979 21:18 PM	22.52	0.36	0.47	0	0	0	0	0	0	0	1
6101	12/14/1979 21:17 PM	6.05	0.32	0.7	0	0.01	0.01	0.11	0.01	0.01	0	1
6102	12/14/1979 21:15 PM	11.76	0.98	1	0	0.12	0.12	0.14	0.01	0.01	0	1
6103	12/14/1979 21:20 PM	4.18	0.36	1	0	0.11	0.11	0.12	0.01	0.01	0.82	0.18
6287	12/12/1979 00:00 AM	11.44	1.55	1	0	3.91	3.91	110.5	0.01	0.01	1	0
6456	12/14/1979 21:26 PM	14.5	0.66	0.49	0	0	0	0	0	0	0	1
6460	12/14/1979 21:17 PM	14.37	0.41	0.39	0	0	0	0	0	0	0	1
6462	12/14/1979 21:17 PM	7.76	0.37	0.69	0	0.01	0.01	1.08	0.01	0.01	1	0
6496	12/14/1979 21:17 PM	8.05	1.81	1	0	1.07	1.08	3.91	1.01	1	1	0
-7	12/14/1979 21:18 PM	23.79	1.38	0.82	0	0.01	0.31	0.01	0.33	0.01	0	1
7487	12/14/1979 21:15 PM	22.44	0.68	0.54	0	0	0	0	0	0	0	1
7493	12/14/1979 21:15 PM	27.28	0.46	0.74	0	0.01	0.01	0.19	0.01	0.01	0	1
7505	12/14/1979 21:15 PM	16.76	0.33	1	0	0.19	0.19	0.43	0.01	0.01	0	1
7553	12/14/1979 21:15 PM	11.67	0.47	0.74	0	0.01	0.01	0.1	0.01	0.01	0	1
7555	12/14/1979 21:15 PM	26.23	0.18	0.38	0	0	0	0	0	0	0	1
7559	12/14/1979 21:13 PM	9.78	1.28	0.91	0	0.01	0.24	0.01	0.29	0.01	0	1
7563	12/14/1979 21:19 PM	17.82	0.19	0.35	0	0	0	0	0	0	0	1
7565	12/14/1979 21:19 PM	18.53	0.65	0.5	0	0	0	0	0	0	0	1
7582	12/14/1979 21:15 PM	10.55	0.67	0.55	0	0	0	0	0	0	0.13	0.87
7602	12/14/1979 21:17 PM	11.09	0.46	1	0	0.19	0.19	0.27	0.01	0.01	0	1
7603	12/14/1979 21:17 PM	11.43	1.25	1	0	0.19	0.19	0.19	0.26	0.19	0	1
7605	12/14/1979 21:17 PM	9.27	1.05	1	0	0.17	0.17	0.19	0.13	0.12	0	1
7606	12/14/1979 21:15 PM	10.77	0.89	1	0	0.14	0.14	0.17	0.01	0.01	0	1
7740	12/14/1979 21:19 PM	16.81	0.58	0.54	0	0	0	0	0	0	0	1
7742	12/14/1979 21:19 PM	8.06	0.74	0.68	0	0	0	0	0	0	0.17	0.83
-8	12/14/1979 21:18 PM	11.07	0.75	0.89	0	0.01	0.01	0.31	0.01	0.01	0	1

Table 3B: Conduits (continued...)

Name	Time Max. Flow (M/D/Y)	Max. |Velocity| (ft/s)	Max/Full Flow	Max/Full Depth	Max. Volume (ft³)	Full Both Ends (h)	Full Upstream (h)	Full Downstream (h)	Above Full Normal (h)	Capacity Limited (h)	Subcritical (fraction)	Supercritical (fraction)
-9	12/14/1979 21:18 PM	11.07	0.75	0.89	0	0.01	0.01	0.31	0.01	0.01	0	1
C1	12/14/1979 21:15 PM	10.6	0.23	0.32	0	0	0	0	0	0	0	1
C10	12/12/1979 00:00 AM	0	0	0.43	0	0	0	0	0	0	0	0
C2	12/14/1979 21:19 PM	15.74	0.56	0.57	0	0	0	0	0	0	0	1
C3	12/12/1979 00:00 AM	0	0	0	0	0	0	0	0	0	0	0
C4	12/12/1979 00:00 AM	0	0	0	0	0	0	0	0	0	0	0
C5	12/14/1979 21:15 PM	7.83	1	0.72	0	0.01	0.01	0.01	0.04	0.01	0.14	0.86
C6	12/14/1979 21:15 PM	12.46	1.22	1	0	0.43	0.43	0.5	0.22	0.23	0.01	0.99
C7	12/14/1979 21:27 PM	9.77	1.05	1	0	0.52	0.52	1.47	0.31	0.31	1	0
C8	12/14/1979 21:27 PM	10.65	3.98	0.86	0	0.01	1.47	0.01	9.25	0.01	0.99	0.01
C9	12/14/1979 21:22 PM	10.11	1.08	1	0	0.5	0.5	0.52	0.23	0.23	0.01	0.99

Table 3C: Conduits

Name	Normal Limited (fraction)
-1	0
12587	0
13292	0.81
13297	0
13298	1
13299	1
13301	0.82
-2	0
21149	0.95

Table 3C: Conduits (continued...)

Name	Normal Limited (fraction)
21151	0
21152	1
21153	0.67
21196	0
22958	1
22959	1
22961	1
22962	0
22973	0
23017	0
23018	0.85
23047	0.01
23048	1
23049	0
23050	0
25124	0.4
25413	0
25414	0
-3	0
-4	1
40640	1
40642	1
41542	0.56
41565	0
44677	1
44678	0

Table 3C: Conduits (continued...)

Name	Normal Limited (fraction)
45955	1
-5	1
-6	0
6101	0.31
6102	0
6103	0.62
6287	0
6456	0
6460	0
6462	1
6496	0
-7	0
7487	0
7493	0
7505	1
7553	1
7555	1
7559	0
7563	0.9
7565	0
7582	0.24
7602	1
7603	0.32
7605	0.99
7606	1
7740	0

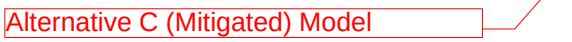
Table 3C: Conduits (continued...)

Name	Normal Limited (fraction)
7742	0.72
-8	1
-9	1
C1	0.95
C10	0
C2	1
C3	0
C4	0
C5	0
C6	0.99
C7	0.99
C8	0
C9	0.86

PCSWMM Report

report

Model Kirkland_Alt3_25_Year.inp



RKI

August 16, 2021

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Summary 1: Options

Name	Kirkland_Alt3_25_Year
Flow Units	CFS
Infiltration method	Green-Ampt
Flow routing method	Dynamic Wave
Link offsets defined by	Elevation
Allow ponding	Yes
Skip steady flow periods	No
Inertial dampening	Partial
Define supercritical flow by	Both
Force Main Equation	H-W
Variable time step	On
Adjustment factor (%)	75
Conduit lengthening (s)	0
Minimum surface area (ft²)	0
Starting date	Dec-12-1979 12:00:00 AM
Ending date	Dec-16-1979 02:30:00 PM
Duration of simulation (hours)	110.5
Antecedent dry days (days)	0
Rain interval (h:mm)	n/a
Report time step (h:mm:ss)	00:00:01
Wet time step (h:mm:ss)	00:05:00
Dry time step (h:mm:ss)	00:05:00
Routing time step (s)	1
Minimum time step used (s)	0
Average time step used (s)	0.59
Minimum conduit slope	0
Ignore rainfall/runoff	No
Ignore snow melt	No
Ignore groundwater	No
Ignore flow routing	No
Ignore water quality	No
Report average results	No

Summary 2: Model inventory

Name	Kirkland_Alt3_25_Year
Raingages	0
Subcatchments	0
Aquifers	0
Snowpacks	0
RDII hydrographs	0
Junction nodes	71
Outfall nodes	1
Flow divider nodes	0
Storage unit nodes	2
Conduit links	74
Pump links	0
Orifice links	0
Weir links	0
Outlet links	0
Treatment units	0
Transects	0
Control rules	0
Pollutants	0
Land Uses	0
Control Curves	0
Diversion Curves	0
Pump Curves	0
Rating Curves	0
Shape Curves	0
Storage Curves	3
Tidal Curves	0
Weir Curves	0
Time Series	10
Time Patterns	0

Summary 3: Model complexity

Name	Kirkland_Alt3_25_Year
Subcatchments	n/a
Groundwater	n/a
Aquifers	n/a
Snowpacks	n/a
RDII hydrographs	n/a
Junction nodes	227
Outfall nodes	2
Flow divider nodes	n/a
Storage unit nodes	14
Conduit links	447
Pump links	n/a
Orifice links	n/a
Weir links	n/a
Outlet links	n/a
Transect	n/a
Pollutants	n/a
Land Uses	n/a
Model complexity (total uncertain input parameters)	690

Summary 4: Inflows

Name	Kirkland_Alt3_25_Year
Time series inflows	7
Dry weather	0
Groundwater	0
RDII inflows	0

Summary 5: Subcatchment statistics

Name	Kirkland_Alt3_25_Year
Max. width (ft)	n/a
Min. width (ft)	n/a
Max. area (ac)	n/a
Min. area (ac)	n/a
Total area (ac)	n/a
Max. length of overland flow (ft)	n/a
Min. length of overland flow (ft)	n/a
Max. slope (%)	n/a

Summary 5: Subcatchment statistics (continued...)

Name	Kirkland_Alt3_25_Year
Min. slope (%)	n/a
Max. imperviousness (%)	n/a
Min. imperviousness (%)	n/a
Max. imp. roughness	n/a
Min. imp. roughness	n/a
Max. perv. roughness	n/a
Min. perv. roughness	n/a
Max. imp. depression storage (in)	n/a
Min. imp. depression storage (in)	n/a
Max. perv. depression storage (in)	n/a
Min. perv. depression storage (in)	n/a

Summary 6: Node statistics

Name	Kirkland_Alt3_25_Year
Max. ground elev. (ft)	479.587
Min. ground elev. (ft)	254.357
Max. invert elev. (ft)	478.087
Min. invert elev. (ft)	249.585
Max. depth (ft)	15.8
Min. depth (ft)	1

Summary 7: Conduit statistics

Name	Kirkland_Alt3_25_Year
Max. roughness	0.027
Min. roughness	0.009
Max. entry loss coef.	0
Min. entry loss coef.	0
Max. exit loss coef.	0
Min. exit loss coef.	0
Max. avg. loss coef.	0
Min. avg. loss coef.	0
Max. length (ft)	392.106
Min. length (ft)	4
Total length (ft)	6817.946
Max. slope (ft/ft)	0.2573
Min. slope (ft/ft)	0.0008

Summary 8: Conduit Inventory

Name	Kirkland_Alt3_25_Year
Open Rectangular (ft)	674
Circular (ft)	5396.946
Arch (ft)	747

Summary 9: Pipe inventory

Name	Kirkland_Alt3_25_Year
Max. pipe diameter (ft)	3
Min. pipe diameter (ft)	1
Total 12” pipe length (ft)	1545.606
Total 18” pipe length (ft)	2491.353
Total 24” pipe length (ft)	248
Total 30” pipe length (ft)	1036.987
Total 36” pipe length (ft)	75
Total pipe length (ft)	5396.946

Summary 10: Unused objects

Name	Kirkland_Alt3_25_Year
Rain Gages	n/a
Aquifers	n/a
Snow Packs	n/a
Unit Hydrographs	n/a
Transects	n/a
Control Curves	n/a
Diversion Curves	n/a
Pump Curves	n/a
Rating Curves	n/a
Shape Curves	n/a
Storage Curves	1
Tidal Curves	n/a
Weir Curves	n/a
Time Series	3
Time Patterns	n/a

Summary 11: Flow routing continuity

Name	Kirkland_Alt3_25_Year
Dry weather inflow (MG)	0.000
Wet weather inflow (MG)	0.000
Groundwater inflow (MG)	0.000
RDII inflow (MG)	0.000
External inflow (MG)	16.819
External outflow (MG)	16.475
Flooding loss (MG)	0.214
Evaporation loss (MG)	0.000
Exfiltration loss (MG)	0.084
Initial stored volume (MG)	0.003
Final stored volume (MG)	0.047
Continuity error (%)	0.002

Summary 12: Results statistics

Name	Kirkland_Alt3_25_Year
Max. subcatchment total runoff (MG)	n/a
Max. subcatchment peak runoff (cfs)	n/a
Max. subcatchment runoff coefficient	n/a
Max. subcatchment total precip (in)	n/a
Min. subcatchment total precip (in)	n/a
Max. node depth (ft)	12.69
Num. nodes surcharged	23
Max. node surcharge duration (hours)	3.88
Max. node height above crown (ft)	11.16
Min. node depth below rim (ft)	0
Num. nodes flooded	11
Max. node flooding duration (hours)	1.13
Max. node flood volume (MG)	0.213
Max. node ponded volume or depth (acre-in/1000 ft^3/ft)	0.13
Max. storage volume (1000 ft^3)	3.1
Max. storage percent full (%)	100
Max. outfall flow frequency (%)	99.96
Max. outfall peak flow (cfs)	94.58
Max. outfall total volume (MG)	16.549
Total outfall volume (MG)	16.549
Max. link peak flow (cfs)	94.58
Max. link peak velocity (ft/s)	26.1
Min. link peak velocity (ft/s)	0

Summary 12: Results statistics (continued...)

Name	Kirkland_Alt3_25_Year
Num. conduits surcharged	34
Max. conduit surcharge duration (hours)	110.5
Max. conduit capacity limited duration (hours)	0.68

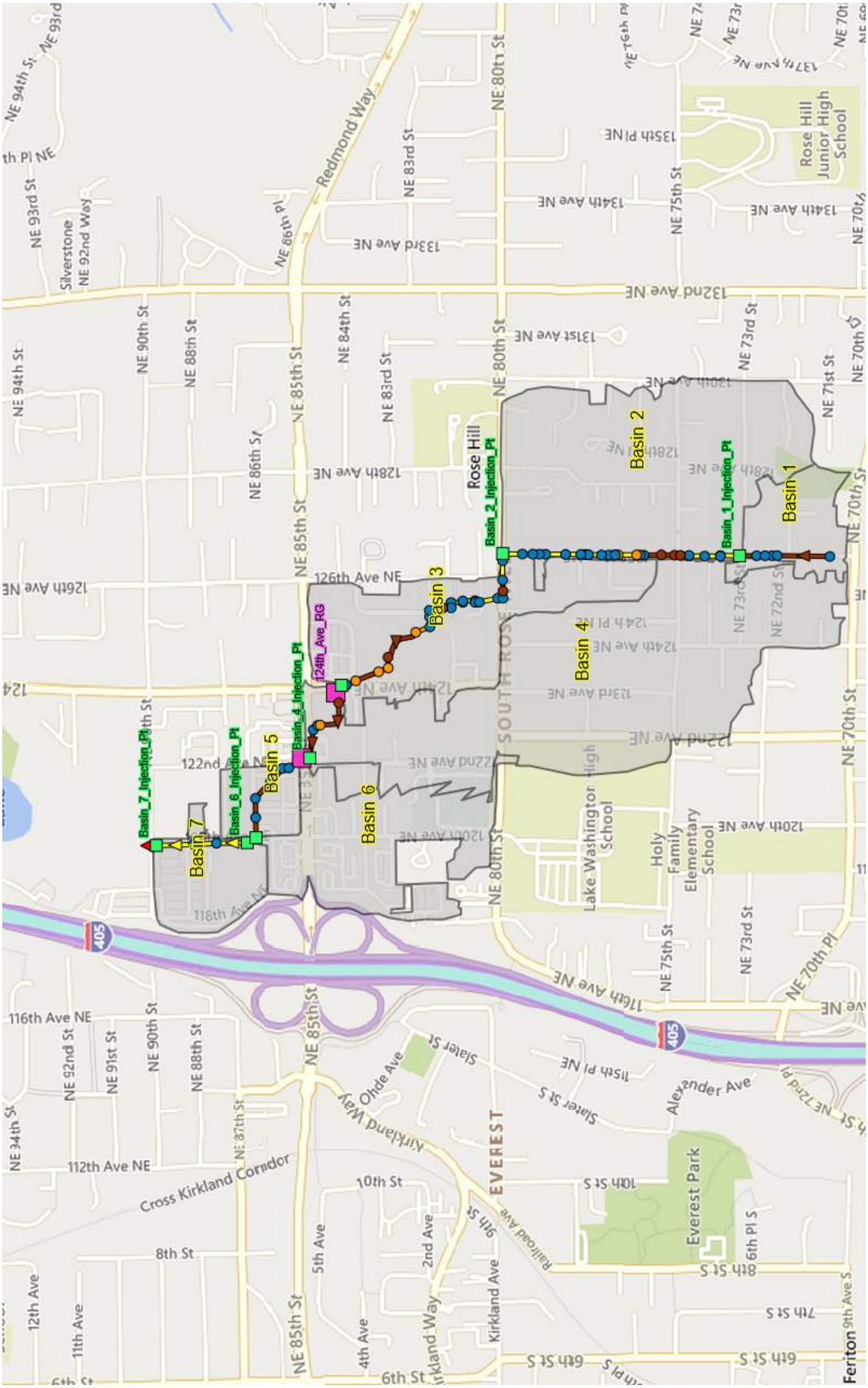

Figure 1: Study Area

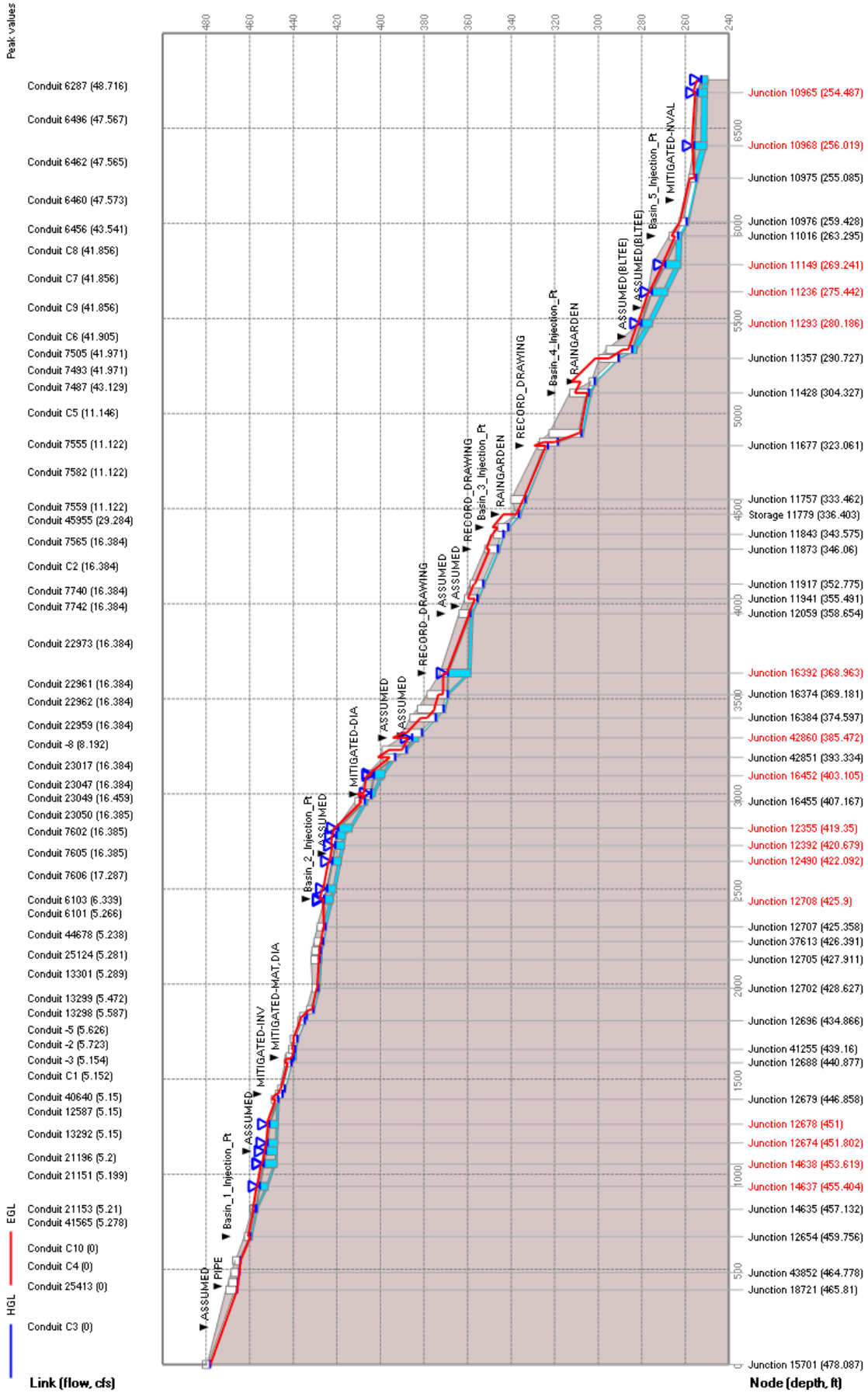

Figure 2: Study Area

Table 1A: Junctions

Name	X-Coordinate	Y-Coordinate	Tag	Inflows	Invert Elev. (ft)	Rim Elev. (ft)	Depth (ft)	Ponded Area (ft^2)	Time Series	Avg. Depth (ft)	Max. Depth (ft)	Max. HGL (ft)
10965	1308533	251802.6	Basin_7_Injection_Pt	YES	249.857	254.357	4.5	1320	Basin7_AltB	2.73	4.63	254.49
10968	1308535	251524		NO	250.126	255.926	5.8	1320		2.48	5.89	256.02
10975	1308541	251353.4		NO	254.139	258.439	4.3	1320		0.29	0.95	255.09
10976	1308542	251124.1	Basin_6_Injection_Pt	YES	258.404	262.904	4.5	1320	Basin6_Mit	0.31	1.02	259.43
11016	1308578	251058	Basin_5_Injection_Pt	YES	261.602	267.402	5.8	1320	Basin5_AltB	0.53	1.69	263.3
11149	1308728	251057.7		NO	262.042	275.042	13	1320		1.06	8.34	270.38
11236	1308871	251057.3		NO	268.096	277.096	9	1320		0.53	8.23	276.33
11293	1308990	250943.9		NO	275.185	280.185	5	1320		0.52	5	280.19
11352	1309092	250850.2		NO	282.213	296.413	14.2	1320		0.5	2.16	284.37
11357	1309094	250804.6		NO	289.913	299.513	9.6	1320		0.26	0.81	290.73
11428	1309166	250647.1	Basin_4_Injection_Pt	YES	303.09	313.09	10	1320	Basin4_Mitigated	0.38	1.24	304.33
11655	1309376	250617.4		NO	306.719	322.519	15.8	1320		0.48	1.1	307.82
11676	1309408	250584.2		NO	317.976	326.976	9	1320		0.26	0.58	318.55
11677	1309411	250565.1	RECORD_DRAWING	NO	322.71	327.764	5.054	1320		0.16	0.35	323.06
11757	1309575	250424.2	ASSUMED	NO	332.66	340.002	7.342	1320		0.28	0.8	333.46
11843	1309705	250365.1		NO	342.982	348.082	5.1	1320		0.18	0.59	343.58
11844	1309705	250400.8	Basin_3_Injection_Pt	YES	340.52	346.12	5.6	1320	Basin3_AltB	0.22	0.79	341.31
11873	1309737	250294.2	RECORD_DRAWING	NO	345.152	352.072	6.92	1320		0.26	0.91	346.06
11917	1309801	250122.4	RECORD_DRAWING	NO	351.972	358.893	6.921	1320		0.23	0.8	352.77
11941	1309829	250050.6	RECORD_DRAWING	NO	354.672	361.361	6.689	1320		0.23	0.82	355.49
12059	1309908	250051	ASSUMED	NO	357.44	363.891	6.451	1320		0.24	1.21	358.65
12355	1310336	249225.5		NO	412.9	420	7.1	1320		0.36	6.48	419.38
12360	1310335	249186.1		NO	416.064	420.2	4.136	1320		0.21	4.14	420.2
12392	1310388	249185.3	ASSUMED	NO	416.462	421	4.538	1320		0.35	4.32	420.78
12490	1310471	249186.8		NO	418.012	422	3.988	1320		0.32	4.08	422.09
12645	1310615	249184.5		NO	420.384	425	4.616	1320		0.28	4.2	424.58

Table 1A: Junctions (continued...)

Name	X-Coordinate	Y-Coordinate	Tag	Inflows	Invert Elev. (ft)	Rim Elev. (ft)	Depth (ft)	Ponded Area (ft²)	Time Series	Avg. Depth (ft)	Max. Depth (ft)	Max. HGL (ft)
12654	1310621	247416.9	Basin_1_Injection_Pt	YES	458.893	462.5	3.607	1320	Basin1_AltB	0.17	0.86	459.76
12674	1310634	247901.1	ASSUMED	NO	447.205	451.8	4.595	1320		0.27	4.6	451.8
12678	1310639	248000	ASSUMED	NO	446.908	451	4.092	1320		0.27	4.09	451
12679	1310638	248129.8		NO	446.492	447.9	1.408	1320		0.09	0.37	446.86
12688	1310644	248322.1	RECORD_DRAWING	NO	440.406	443.85	3.444	1320		0.12	0.47	440.88
12695	1310651	248565.5		NO	433.495	435.795	2.3	1320		0.1	0.41	433.9
12696	1310649	248543.1		NO	434.337	437.337	3	1320		0.13	0.53	434.87
12697	1310652	248600.9		NO	430.202	433.902	3.7	1320		0.14	0.59	430.79
12702	1310655	248713.5		NO	427.714	431.214	3.5	1320		0.2	0.91	428.63
12705	1310658	248862.5		NO	427.019	431.806	4.787	1320		0.2	0.89	427.91
12707	1310663	249035.9		NO	424.747	429.047	4.3	1320		0.14	0.61	425.36
12708	1310666	249173.8		NO	421.906	425.9	3.994	1320		0.15	3.99	425.9
12716	1310669	249182.5	Basin_2_Injection_Pt	YES	421.689	425.8	4.111	1320	Basin2_Mitigated	0.3	4.11	425.8
14635	1310626	247559.8		NO	456.37	458.95	2.58	1320		0.14	0.76	457.13
14636	1310621	247560.3		NO	456.252	458.502	2.25	1320		0.13	0.81	457.06
14637	1310624	247677.3		NO	451.49	456.8	5.31	1320		0.15	3.91	455.4
14638	1310627	247794.4		NO	448.028	453.75	5.722	1320		0.11	5.59	453.62
14639	1310631	247794.3		NO	447.388	453.85	6.462	1320		0.34	6.17	453.56
14675	1310632	247858.4	ASSUMED	NO	447.339	453	5.661	1320		0.27	5.24	452.58
15701	1310605	246744.3		NO	478.087	479.587	1.5	1320		0	0	478.09
16374	1310130	249734.3		NO	368.459	378.659	10.2	1320		0.18	0.72	369.18
16377	1310206	249735.5		NO	370.041	382.941	12.9	1320		0.28	0.97	371.02
16384	1310254	249736.7		NO	373.882	386.535	12.653	1320		0.21	0.72	374.6
16385	1310255	249657.8		NO	380.339	389.439	9.1	1320		0.19	0.64	380.98
16392	1310092	249840.9	RECORD_DRAWING	NO	358.42	372.647	14.227	1320		0.71	12.69	371.11
16451	1310310	249485.8		NO	397.927	406.027	8.1	1320		0.37	5.07	403

Table 1A: Junctions (continued...)

Name	X-Coordinate	Y-Coordinate	Tag	Inflows	Invert Elev. (ft)	Rim Elev. (ft)	Depth (ft)	Ponded Area (ft²)	Time Series	Avg. Depth (ft)	Max. Depth (ft)	Max. HGL (ft)
16452	1310319	249485.9		NO	398.527	406.027	7.5	1320		0.21	4.58	403.11
16453	1310321	249394.6		NO	402.294	409.594	7.3	1320		0.23	1.87	404.17
16454	1310308	249394.6		NO	403.394	409.594	6.2	1320		0.18	0.97	404.36
16455	1310309	249362.8		NO	405.822	411.622	5.8	1320		0.34	1.35	407.17
18711	1310659	248909.3		NO	426.8	431.5	4.7	1320		0.14	0.57	427.37
18719	1310620	247290.3		NO	464.236	466.536	2.3	1320		0	0	464.24
18720	1310618	247175		NO	465.393	469.693	4.3	1320		0	0	465.39
18721	1310618	247136.2		NO	465.81	470.91	5.1	1320		0	0	465.81
33729	1310640	248157.6	MITIGATED-INV	NO	444.6	447	2.4	1320		0.1	0.42	445.02
33731	1310641	248184.3	RECORD_DRAWING	NO	443.498	446.25	2.752	1320		0.12	0.49	443.99
37613	1310661	248958.5		NO	425.721	430.421	4.7	1320		0.16	0.67	426.39
41253	1310643	248354.6		NO	438.524	443.3	4.776	1320		0.23	1.15	439.68
41255	1310644	248392		NO	438.484	441.75	3.266	1320		0.15	0.68	439.16
41256	1310645	248446.1		NO	437.724	439.8	2.076	1320		0.11	0.46	438.18
41260	1310644	248343.8		NO	439.848	443.75	3.902	1320		0.08	0.32	440.16
42851	1310309	249573.6		NO	392.715	398.815	6.1	1320		0.18	0.62	393.33
42852	1310270	249573.8		NO	387.416	399.216	11.8	1320		0.18	0.79	388.21
42860	1310270	249636.4	ASSUMED	NO	382.4	390.682	8.282	1320		0.25	3.09	385.49
43852	1310619	247227.4		NO	464.778	468.678	3.9	1320		0	0	464.78

Table 1B: Junctions

Name	Time Max. HGL (M/D/Y)	Rep. Max. Depth (ft)	Max. Lat. Inflow (cfs)	Max. Total Inflow (cfs)	Total Lat. Inflow (MG)	Total inflow (MG)	Flow Error (%)	Hours Surcharged (h)	Max. Surcharge (ft)	Min. Freeboard (ft)	Hours Flooded (h)	Max. Flood Rate (cfs)	Total Flood Vol. (MG)	Max. Ponded Depth (ft)
10965	12/12/1979 00:00 AM	4.63	1.26	94.58	0.668	16.5	0.069	3.88	1.88	0	0.01	66.43	0.002	0.13
10968	12/12/1979 00:01 AM	5.89	0	47.57	0	15.8	0.091	0.92	3.143	0	0.01	35.83	0.001	0.093
10975	12/14/1979 21:16 PM	0.95	0	47.57	0	15.8	0.005	0	0	3.349	0	0	0	0
10976	12/14/1979 21:14 PM	1.02	6.14	47.56	1.62	15.8	0.003	0	0	3.474	0	0	0	0
11016	12/14/1979 21:16 PM	1.69	2.25	43.54	0.495	14.1	0.003	0	0	4.102	0	0	0	0
11149	12/14/1979 21:10 PM	7.2	0	41.86	0	13.6	0.01	1.45	5.841	4.659	0	0	0	0
11236	12/14/1979 21:10 PM	7.35	0	41.86	0	13.6	0.003	0.26	5.732	0.768	0	0	0	0
11293	12/14/1979 21:16 PM	5	0	41.91	0	13.6	0.004	0.11	2.501	0	0.02	1.73	0	0.001
11352	12/14/1979 21:16 PM	2.16	0	41.97	0	13.6	0.002	0	0	12.043	0	0	0	0
11357	12/14/1979 21:16 PM	0.81	0	41.97	0	13.6	0.001	0	0	8.783	0	0	0	0
11428	12/14/1979 21:15 PM	1.24	32.02	43.14	6.69	13.7	0.002	0	0	8.76	0	0	0	0
11655	12/14/1979 23:31 PM	1.1	0	11.12	0	7.04	0.007	0	0	14.699	0	0	0	0
11676	12/14/1979 21:19 PM	0.58	0	11.12	0	7.04	0.001	0	0	8.426	0	0	0	0
11677	12/14/1979 21:14 PM	0.35	0	11.12	0	7.04	0.005	0	0	4.704	0	0	0	0
11757	12/14/1979 21:12 PM	0.8	0	11.12	0	7.04	0.008	0	0	6.542	0	0	0	0
11843	12/14/1979 21:19 PM	0.59	0	16.38	0	4.62	0.001	0	0	4.502	0	0	0	0
11844	12/14/1979 21:13 PM	0.79	15.69	29.29	2.65	7.27	0.001	0	0	4.81	0	0	0	0
11873	12/14/1979 21:19 PM	0.91	0	16.38	0	4.62	0.003	0	0	6.012	0	0	0	0
11917	12/14/1979 21:19 PM	0.8	0	16.38	0	4.62	0.003	0	0	6.123	0	0	0	0
11941	12/14/1979 21:19 PM	0.82	0	16.38	0	4.62	0.003	0	0	5.871	0	0	0	0
12059	12/14/1979 21:19 PM	1.21	0	16.38	0	4.62	0.011	0	0	5.241	0	0	0	0
12355	12/14/1979 21:20 PM	6.45	0	16.39	0	4.62	0.003	0.27	4.978	0.622	0	0	0	0
12360	12/14/1979 21:20 PM	4.14	0	16.39	0	4.62	0.001	0.19	2.636	0	0.01	0.34	0	0
12392	12/14/1979 21:20 PM	4.22	0	16.39	0	4.62	0.002	0.19	2.818	0.22	0	0	0	0
12490	12/14/1979 21:17 PM	4.08	0	17.29	0	4.63	0.004	0.17	2.58	0	0.11	0.91	0.001	0.092
12645	12/14/1979 21:14 PM	4.06	0	17.29	0	4.63	0.003	0.14	2.699	0.417	0	0	0	0

Table 1B: Junctions (continued...)

Name	Time Max. HGL (M/D/Y)	Rep. Max. Depth (ft)	Max. Lat. Inflow (cfs)	Max. Total Inflow (cfs)	Total Lat. Inflow (MG)	Total inflow (MG)	Flow Error (%)	Hours Surcharged (h)	Max. Surcharge (ft)	Min. Freeboard (ft)	Hours Flooded (h)	Max. Flood Rate (cfs)	Total Flood Vol. (MG)	Max. Ponded Depth (ft)
12654	12/14/1979 21:15 PM	0.86	5.29	5.29	1.04	1.04	0.004	0	0	2.74	0	0	0	0
12674	12/14/1979 21:16 PM	4.6	0	5.2	0	1.04	0.004	0.58	3.597	0	0.04	0.05	0	0.002
12678	12/14/1979 21:07 PM	4.09	0	5.15	0	1.04	0.006	0.38	3.092	0	0.01	0.33	0	0
12679	12/14/1979 21:16 PM	0.37	0	5.15	0	1.04	0.001	0	0	1.132	0	0	0	0
12688	12/14/1979 21:15 PM	0.47	0	5.15	0	1.04	0.002	0	0	2.97	0	0	0	0
12695	12/14/1979 21:16 PM	0.41	0	5.6	0	1.04	0.001	0	0	1.895	0	0	0	0
12696	12/14/1979 21:15 PM	0.53	0	5.64	0	1.04	0.001	0	0	2.467	0	0	0	0
12697	12/14/1979 21:17 PM	0.59	0	5.59	0	1.04	0.002	0	0	3.112	0	0	0	0
12702	12/14/1979 21:18 PM	0.91	0	5.47	0	1.04	0.007	0	0	2.584	0	0	0	0
12705	12/14/1979 21:18 PM	0.89	0	5.29	0	1.04	0.005	0	0	3.896	0	0	0	0
12707	12/14/1979 21:16 PM	0.61	0	5.24	0	1.04	0.003	0	0	3.687	0	0	0	0
12708	12/14/1979 21:14 PM	3.99	0	5.27	0	1.04	0.002	0.11	2.494	0	0.01	0.42	0	0
12716	12/14/1979 21:14 PM	4.11	12.47	18.31	3.59	4.63	0.001	0.12	2.612	0	0.01	0.81	0	0.001
14635	12/14/1979 21:16 PM	0.76	0	5.28	0	1.04	0.002	0	0	1.82	0	0	0	0
14636	12/14/1979 21:16 PM	0.81	0	5.21	0	1.04	0.001	0	0	1.442	0	0	0	0
14637	12/14/1979 21:16 PM	3.91	0	5.2	0	1.04	0.003	0.19	2.915	1.395	0	0	0	0
14638	12/14/1979 21:16 PM	5.59	0	5.2	0	1.04	0	0.39	4.591	0.131	0	0	0	0
14639	12/14/1979 21:16 PM	6.17	0	5.2	0	1.04	0.002	0.9	5.17	0.292	0	0	0	0
14675	12/14/1979 21:16 PM	5.24	0	5.2	0	1.04	0.003	0.67	4.243	0.418	0	0	0	0
15701	12/12/1979 00:00 AM	0	0	0	0	0	0	0	0	1.497	0	0	0	0
16374	12/14/1979 21:18 PM	0.72	0	16.38	0	4.62	0.002	0	0	9.479	0	0	0	0
16377	12/14/1979 21:16 PM	0.97	0	16.38	0	4.62	0.002	0	0	11.921	0	0	0	0
16384	12/14/1979 21:18 PM	0.72	0	16.38	0	4.62	0.001	0	0	11.935	0	0	0	0
16385	12/14/1979 21:18 PM	0.64	0	16.38	0	4.62	0.001	0	0	8.459	0	0	0	0
16392	12/14/1979 21:03 PM	10.54	0	16.38	0	4.62	0.047	1.79	11.16	1.537	0	0	0	0
16451	12/14/1979 21:18 PM	5.07	0	16.38	0	4.62	0.002	0.28	3.573	3.027	0	0	0	0

Table 1B: Junctions (continued...)

Name	Time Max. HGL (M/D/Y)	Rep. Max. Depth (ft)	Max. Lat. Inflow (cfs)	Max. Total Inflow (cfs)	Total Lat. Inflow (MG)	Total inflow (MG)	Flow Error (%)	Hours Surcharged (h)	Max. Surcharge (ft)	Min. Freeboard (ft)	Hours Flooded (h)	Max. Flood Rate (cfs)	Total Flood Vol. (MG)	Max. Ponded Depth (ft)
16452	12/14/1979 21:18 PM	4.58	0	16.38	0	4.62	0.001	0.23	3.078	2.922	0	0	0	0
16453	12/14/1979 21:18 PM	1.87	0	16.38	0	4.62	0.001	0.09	0.372	5.428	0	0	0	0
16454	12/14/1979 21:18 PM	0.97	0	16.46	0	4.62	0	0	0	5.234	0	0	0	0
16455	12/14/1979 21:14 PM	1.35	0	16.39	0	4.62	0.003	0	0	4.452	0	0	0	0
18711	12/14/1979 21:18 PM	0.57	0	5.33	0	1.04	0.001	0	0	4.13	0	0	0	0
18719	12/12/1979 00:00 AM	0	0	0	0	0	0	0	0	2.296	0	0	0	0
18720	12/12/1979 00:00 AM	0	0	0	0	0	0	0	0	4.303	0	0	0	0
18721	12/12/1979 00:00 AM	0	0	0	0	0	0	0	0	5.1	0	0	0	0
33729	12/14/1979 21:16 PM	0.42	0	5.15	0	1.04	0.001	0	0	1.98	0	0	0	0
33731	12/14/1979 21:15 PM	0.49	0	5.15	0	1.04	0.002	0	0	2.26	0	0	0	0
37613	12/14/1979 21:18 PM	0.67	0	5.23	0	1.04	0.002	0	0	4.031	0	0	0	0
41253	12/14/1979 21:17 PM	1.15	0	5.15	0	1.04	0.027	0	0	3.62	0	0	0	0
41255	12/14/1979 21:15 PM	0.68	0	6.94	0	1.04	-0.024	0	0	2.59	0	0	0	0
41256	12/14/1979 21:15 PM	0.46	0	5.73	0	1.04	0.001	0	0	1.62	0	0	0	0
41260	12/14/1979 21:15 PM	0.32	0	5.15	0	1.04	0.001	0	0	3.59	0	0	0	0
42851	12/14/1979 21:18 PM	0.62	0	16.38	0	4.62	0.001	0	0	5.485	0	0	0	0
42852	12/14/1979 21:18 PM	0.79	0	16.38	0	4.62	0.001	0	0	11.006	0	0	0	0
42860	12/14/1979 21:17 PM	3.07	0	16.38	0	4.62	0.001	0.31	2.09	5.192	0	0	0	0
43852	12/12/1979 00:00 AM	0	0	0	0	0	0	0	0	3.898	0	0	0	0

Table 2A: Outfalls

Name	X-Coordinate	Y-Coordinate	Tag	Inflows	Treatment	Invert Elev. (ft)	Rim Elev. (ft)	Tide Gate	Type	Fixed Stage (ft)	Avg. Depth (ft)	Max. Depth (ft)	Max. HGL (ft)	Time Max. HGL (M/D/Y)
10964	1308533	251870.4		NO	NO	249.585	252.585	NO	FIXED	252.585	3	3	252.59	12/12/1979 00:00 AM

Table 2B: Outfalls

Name	Rep. Max. Depth (ft)	Max. Lat. Inflow (cfs)	Max. Total Inflow (cfs)	Total Lat. Inflow (MG)	Total inflow (MG)	Flow Error (%)	Hours Surcharged (h)	Max. Surcharge (ft)	Min. Freeboard (ft)	Hours Flooded (h)	Max. Flood Rate (cfs)	Total Flood Vol. (MG)	Max. Ponded Depth (ft)	Flow Frequency	Avg. Flow (cfs)	Max. Flow (cfs)
10964	3	0	94.58	0	16.5	0	0	0	0	0	0	0	0	99.96	6.44	94.58

Table 2C: Outfalls

Name	Total Flow (MG)
10964	16.549

Table 3A: Conduits

Name	Inlet Node	Outlet Node	Tag	Length (ft)	Roughness	Inlet Elev. (ft)	Outlet Elev. (ft)	Flow Limit (cfs)	Cross-Section	Geom1 (ft)	Geom2 (ft)	Barrels	Slope (ft/ft)	Max. |Flow| (cfs)
-1	41253	41255	MITIGATED-DIA	37	0.011	438.524	438.484	0	CIRCULAR	1.5	0	1	0.00108	6.94
12587	12678	12679	ASSUMED	130	0.012	446.908	446.492	0	CIRCULAR	1	0	1	0.0032	5.15
13292	12674	12678	ASSUMED	99	0.012	447.205	446.908	0	CIRCULAR	1	0	1	0.003	5.15
13297	12696	12695		23	0.012	434.337	433.495	0	CIRCULAR	1.5	0	1	0.03663	5.6
13298	12695	12697		35	0.012	433.495	430.202	0	CIRCULAR	1.5	0	1	0.0945	5.59
13299	12697	12702		113	0.012	430.202	427.714	0	CIRCULAR	1.5	0	1	0.02202	5.47
13301	12702	12705		149	0.012	427.714	427.019	0	CIRCULAR	1.5	0	1	0.00466	5.29
-2	41255	41256	MITIGATED-DIA	54	0.011	438.484	437.724	0	CIRCULAR	1.5	0	1	0.01408	5.73
21149	14638	14639		4	0.011	448.028	447.388	0	CIRCULAR	1	0	1	0.16209	5.2
21151	14637	14638		117	0.011	451.49	448.028	0	CIRCULAR	1	0	1	0.0296	5.2
21152	14636	14637		117	0.011	456.252	451.49	0	CIRCULAR	1	0	1	0.04073	5.2
21153	14635	14636		4	0.011	456.37	456.252	0	CIRCULAR	1	0	1	0.02951	5.21
21196	14639	14675	ASSUMED	64	0.011	447.388	447.339	0	CIRCULAR	1	0	1	0.00077	5.2

Table 3A: Conduits (continued...)

Name	Inlet Node	Outlet Node	Tag	Length (ft)	Roughness	Inlet Elev. (ft)	Outlet Elev. (ft)	Flow Limit (cfs)	Cross-Section	Geom1 (ft)	Geom2 (ft)	Barrels	Slope (ft/ft)	Max. |Flow| (cfs)
22958	16384	16377		47	0.011	373.882	370.041	0	CIRCULAR	1.5	0	1	0.082	16.38
22959	16385	16384		79	0.009	380.339	373.882	0	CIRCULAR	1.5	0	1	0.08201	16.38
22961	16374	16392	RECORD_DRAWING	113	0.009	368.459	358.45	0	CIRCULAR	1.5	0	1	0.08892	16.38
22962	16377	16374		76	0.009	370.041	368.459	0	CIRCULAR	1.5	0	1	0.02082	16.38
22973	16392	12059	ASSUMED	312	0.027	358.42	351	0	RECT_OPEN	1.5	2	1	0.02379	16.38
23017	16451	42851		88	0.024	397.927	392.715	0	CIRCULAR	1.5	0	1	0.05933	16.38
23018	16452	16451	MITIGATED-DIA	9	0.009	398.527	397.927	0	CIRCULAR	1.5	0	1	0.06682	16.38
23047	16453	16452	MITIGATED-DIA	91	0.009	402.294	398.527	0	CIRCULAR	1.5	0	1	0.04143	16.38
23048	16454	16453	MITIGATED-DIA	12	0.009	403.394	402.294	0	CIRCULAR	1.5	0	1	0.09205	16.38
23049	16455	16454		32	0.024	405.822	403.394	0	CIRCULAR	1.5	0	1	0.07609	16.46
23050	12355	16455		140	0.024	412.9	405.822	0	CIRCULAR	1.5	0	1	0.05062	16.39
25124	12705	18711		47	0.012	427.019	426.8	0	CIRCULAR	1.5	0	1	0.00466	5.33
25413	18721	18720	PIPE	39	0.009	465.81	465.393	0	CIRCULAR	1	0	1	0.01069	0
25414	18720	43852	PIPE	52	0.012	465.393	464.778	0	CIRCULAR	1	0	1	0.01183	0
-3	12688	41260	MITIGATED-MAT,DIA	22	0.009	440.406	439.848	0	CIRCULAR	1.5	0	1	0.02537	5.15
-4	41260	41253	MITIGATED-MAT,DIA	11	0.009	439.848	438.524	0	CIRCULAR	1.5	0	1	0.12125	5.15
40640	12679	33729	MITIGATED-OUT,MAT,DIA	28	0.009	446.492	444.6	0	CIRCULAR	1.5	0	1	0.06773	5.15
40642	33729	33731	MITIGATED-IN,MAT,DIA	27	0.009	444.6	443.498	0	CIRCULAR	1.5	0	1	0.04085	5.15
41542	14675	12674	ASSUMED	43	0.012	447.339	447.205	0	CIRCULAR	1	0	1	0.00312	5.2
41565	12654	14635		143	0.012	458.893	456.37	0	CIRCULAR	1	0	1	0.01765	5.28
44677	18711	37613		49	0.012	426.8	425.721	0	CIRCULAR	1.5	0	1	0.02203	5.23
44678	37613	12707		77	0.012	425.721	424.747	0	CIRCULAR	1.5	0	1	0.01265	5.24
45955	11844	11779	MITIGATED-MAT,DIA	69	0.009	340.52	335.403	0	CIRCULAR	2	0	1	0.07436	29.28
-5	41256	12696	MITIGATED-MAT,DIA	97	0.009	437.724	434.337	0	CIRCULAR	1.5	0	1	0.03494	5.64
-6	42851	42852		39	0.011	392.715	387.416	0	CIRCULAR	1.5	0	1	0.13714	16.38
6101	12707	12708		138	0.012	424.747	421.906	0	CIRCULAR	1.5	0	1	0.02059	5.27

Table 3A: Conduits (continued...)

Name	Inlet Node	Outlet Node	Tag	Length (ft)	Roughness	Inlet Elev. (ft)	Outlet Elev. (ft)	Flow Limit (cfs)	Cross-Section	Geom1 (ft)	Geom2 (ft)	Barrels	Slope (ft/ft)	Max. |Flow| (cfs)
6102	12716	12645		54	0.012	421.689	420.384	0	CIRCULAR	1.5	0	1	0.02417	17.29
6103	12708	12716		9	0.012	421.906	421.689	0	CIRCULAR	1.5	0	1	0.02412	6.42
6287	10965	10964		68	0.012	249.857	249.585	0	ARCH	24	0	1	0.004	94.58
6456	11016	10976		75	0.024	261.602	258.404	0	CIRCULAR	3	0	1	0.04268	43.54
6460	10976	10975	MITIGATED-NVAL	229	0.012	258.404	254.139	0	ARCH	24	0	1	0.01863	47.57
6462	10975	10968	MITIGATED-NVAL	171	0.012	254.139	250.126	0	ARCH	24	0	1	0.02347	47.57
6496	10968	10965	MITIGATED-NVAL	279	0.012	250.126	249.857	0	ARCH	24	0	1	0.00096	47.57
-7	42860	16385	ASSUMED	26	0.011	382.4	380.339	0	CIRCULAR	1	0	1	0.07952	16.38
7487	11428	11429		60	0.012	303.09	300.654	0	CIRCULAR	2.5	0	1	0.04063	43.13
7493	11429	11357	MITIGATED-DIA	122	0.012	300.654	289.913	0	CIRCULAR	2.5	0	1	0.08838	41.97
7505	11357	11352		46	0.012	289.913	282.213	0	CIRCULAR	2.5	0	1	0.16979	41.97
7553	11676	11655		46	0.024	317.976	306.719	0	CIRCULAR	2	0	1	0.25239	11.12
7555	11677	11676		19	0.009	322.71	317.976	0	CIRCULAR	2	0	1	0.25727	11.12
7559	11779	11757	ASSUMED	78	0.024	335.403	332.66	0	CIRCULAR	2	0	1	0.03519	11.12
7563	11843	11844	MITIGATED-DIA	36	0.009	342.982	340.52	0	CIRCULAR	2	0	1	0.06855	16.38
7565	11873	11843	RECORD_DRAWING	78	0.009	345.152	342.982	0	CIRCULAR	1.5	0	1	0.02783	16.38
7582	11757	11677	ASSUMED	283	0.027	332.66	322.71	0	RECT_OPEN	2	2.5	1	0.03518	11.12
7602	12360	12355		39	0.011	416.064	412.9	0	CIRCULAR	1.5	0	1	0.0814	16.39
7603	12392	12360	ASSUMED	53	0.009	416.462	416.064	0	CIRCULAR	1.5	0	1	0.00751	16.39
7605	12490	12392	ASSUMED	83	0.012	418.012	416.462	0	CIRCULAR	1.5	0	1	0.01868	16.39
7606	12645	12490	MITIGATED-MAT	144	0.009	420.384	418.012	0	CIRCULAR	1.5	0	1	0.01647	17.29
7740	11941	11917	RECORD_DRAWING	77	0.009	354.672	351.972	0	CIRCULAR	1.5	0	1	0.03509	16.38
7742	12059	11941	ASSUMED	79	0.027	357.44	354.672	0	RECT_OPEN	1.5	2	1	0.03506	16.38
-8	42852	42860	ASSUMED	63	0.012	387.416	382.4	0	CIRCULAR	1	0	1	0.07987	8.19
-9	42852	42860		63	0.012	387.416	380.339	0	CIRCULAR	1	0	1	0.11305	8.19
C1	33731	12688	MITIGATED-MAT,DIA	137.886	0.009	443.498	440.406	0	CIRCULAR	1.5	0	1	0.02243	5.15

Table 3A: Conduits (continued...)

Name	Inlet Node	Outlet Node	Tag	Length (ft)	Roughness	Inlet Elev. (ft)	Outlet Elev. (ft)	Flow Limit (cfs)	Cross-Section	Geom1 (ft)	Geom2 (ft)	Barrels	Slope (ft/ft)	Max. |Flow| (cfs)
C10	18719	12654	ASSUMED	126.611	0.012	464.236	458.893	0	CIRCULAR	1	0	1	0.04224	0
C2	11917	11873	ASSUMED	183.467	0.009	351.972	345.152	0	CIRCULAR	1.5	0	1	0.0372	16.38
C3	15701	18721	ASSUMED	392.106	0.012	478.087	465.81	0	CIRCULAR	1	0	1	0.03133	0
C4	43852	18719	assumed	62.889	0.012	464.778	464.236	0	CIRCULAR	1	0	1	0.00862	0
C5	11655	11428	ASSUMED(BLTEE)	212.261	0.024	306.719	303.09	0	CIRCULAR	2.5	0	1	0.0171	11.15
C6	11352	11293	ASSUMED(BLTEE)	138.344	0.024	282.213	275.185	0	CIRCULAR	2.5	0	1	0.05087	41.91
C7	11236	11149	ASSUMED(BLTEE)	143.382	0.024	268.096	262.042	0	CIRCULAR	2.5	0	1	0.04226	41.86
C8	11149	11016	ASSUMED(BLTEE)	150	0.024	262.042	261.602	0	CIRCULAR	2.5	0	1	0.00293	41.86
C9	11293	11236	ASSUMED(BLTEE)	165	0.024	275.185	268.096	0	CIRCULAR	2.5	0	1	0.043	41.86

Table 3B: Conduits

Name	Time Max. Flow (M/D/Y)	Max. |Velocity| (ft/s)	Max/Full Flow	Max/Full Depth	Max. Volume (ft^3)	Full Both Ends (h)	Full Upstream (h)	Full Downstream (h)	Above Full Normal (h)	Capacity Limited (h)	Subcritical (fraction)	Supercritical (fraction)
-1	12/14/1979 21:17 PM	6.72	1.7	0.58	0	0.01	0.01	0.01	0.22	0.01	0.25	0.75
12587	12/14/1979 21:16 PM	9.01	2.36	0.68	0	0.01	0.38	0.01	0.96	0.01	0.04	0.95
13292	12/14/1979 21:16 PM	6.56	2.44	1	0	0.38	0.58	0.38	1.01	0.38	1	0
13297	12/14/1979 21:15 PM	12.08	0.26	0.31	0	0	0	0	0	0	0	1
13298	12/14/1979 21:16 PM	11.09	0.16	0.33	0	0	0	0	0	0	0	1
13299	12/14/1979 21:17 PM	6.29	0.32	0.5	0	0	0	0	0	0	0.1	0.89
13301	12/14/1979 21:18 PM	4.8	0.68	0.6	0	0	0	0	0	0	0.52	0.48
-2	12/14/1979 21:15 PM	9.74	0.39	0.37	0	0	0	0	0	0	0	1
21149	12/14/1979 21:16 PM	6.62	0.31	1	0	0.39	0.39	0.9	0.01	0.01	0.16	0.84
21151	12/14/1979 21:16 PM	8.9	0.72	1	0	0.19	0.19	0.39	0.01	0.01	0	1
21152	12/14/1979 21:16 PM	9.76	0.61	0.91	0	0.01	0.01	0.19	0.01	0.01	0	1

Table 3B: Conduits (continued...)

Name	Time Max. Flow (M/D/Y)	Max. |Velocity| (ft/s)	Max/Full Flow	Max/Full Depth	Max. Volume (ft³)	Full Both Ends (h)	Full Upstream (h)	Full Downstream (h)	Above Full Normal (h)	Capacity Limited (h)	Subcritical (fraction)	Supercritical (fraction)
21153	12/14/1979 21:15 PM	10.36	0.72	0.79	0	0	0	0	0	0	0	1
21196	12/14/1979 21:16 PM	6.62	4.46	1	0	0.67	0.9	0.67	4.31	0.67	1	0
22958	12/14/1979 21:18 PM	15.98	0.46	0.56	0	0	0	0	0	0	0	1
22959	12/14/1979 21:18 PM	21.17	0.38	0.45	0	0	0	0	0	0	0	1
22961	12/14/1979 21:18 PM	11.68	0.36	0.74	0	0.01	0.01	1.79	0.01	0.01	0.06	0.94
22962	12/14/1979 21:18 PM	16.57	0.75	0.57	0	0	0	0	0	0	0	1
22973	12/14/1979 21:18 PM	6.05	2.49	0.9	0	0.01	1.91	0.01	1.16	0.01	1	0
23017	12/14/1979 21:18 PM	12.28	1.18	0.71	0	0.01	0.28	0.01	0.22	0.01	0	1
23018	12/14/1979 21:18 PM	9.87	0.42	1	0	0.23	0.23	0.28	0.01	0.01	0	1
23047	12/14/1979 21:18 PM	14.84	0.53	1	0	0.09	0.09	0.23	0.01	0.01	0	1
23048	12/14/1979 21:18 PM	19.79	0.36	0.82	0	0.01	0.01	0.09	0.01	0.01	0	1
23049	12/14/1979 21:15 PM	13.37	1.05	0.76	0	0.01	0.01	0.01	0.11	0.01	0	1
23050	12/14/1979 21:17 PM	9.54	1.28	0.95	0	0.01	0.27	0.01	0.28	0.01	0	1
25124	12/14/1979 21:18 PM	6.22	0.69	0.49	0	0	0	0	0	0	0.11	0.88
25413	12/12/1979 00:00 AM	0	0	0	0	0	0	0	0	0	0	0
25414	12/12/1979 00:00 AM	0	0	0	0	0	0	0	0	0	0	0
-3	12/14/1979 21:15 PM	13.93	0.21	0.26	0	0	0	0	0	0	0	1
-4	12/14/1979 21:15 PM	7.6	0.1	0.49	0	0	0	0	0	0	0.14	0.86
40640	12/14/1979 21:16 PM	14.06	0.13	0.26	0	0	0	0	0	0	0	1
40642	12/14/1979 21:16 PM	11.48	0.17	0.3	0	0	0	0	0	0	0	1
41542	12/14/1979 21:16 PM	6.62	2.41	1	0	0.58	0.67	0.58	0.98	0.58	1	0
41565	12/14/1979 21:15 PM	8.27	1.03	0.8	0	0.01	0.01	0.01	0.04	0.01	0	1
44677	12/14/1979 21:18 PM	7.56	0.31	0.41	0	0	0	0	0	0	0.03	0.97
44678	12/14/1979 21:18 PM	7.51	0.41	0.43	0	0	0	0	0	0	0.04	0.96
45955	12/14/1979 21:13 PM	21.53	0.33	0.45	0	0	0	0	0	0	0	1
-5	12/14/1979 21:17 PM	11.31	0.2	0.33	0	0	0	0	0	0	0	1

Table 3B: Conduits (continued...)

Name	Time Max. Flow (M/D/Y)	Max. |Velocity| (ft/s)	Max/Full Flow	Max/Full Depth	Max. Volume (ft³)	Full Both Ends (h)	Full Upstream (h)	Full Downstream (h)	Above Full Normal (h)	Capacity Limited (h)	Subcritical (fraction)	Supercritical (fraction)
-6	12/14/1979 21:18 PM	22.51	0.36	0.47	0	0	0	0	0	0	0	1
6101	12/14/1979 21:17 PM	6.05	0.32	0.7	0	0.01	0.01	0.11	0.01	0.01	0	1
6102	12/14/1979 21:15 PM	11.76	0.98	1	0	0.12	0.12	0.14	0.01	0.01	0	1
6103	12/14/1979 21:20 PM	4.18	0.36	1	0	0.11	0.11	0.12	0.01	0.01	0.82	0.18
6287	12/12/1979 00:00 AM	11.44	1.55	1	0	3.85	3.85	110.5	0.01	0.01	1	0
6456	12/14/1979 21:16 PM	14.03	0.58	0.45	0	0	0	0	0	0	0	1
6460	12/14/1979 21:15 PM	13.8	0.36	0.36	0	0	0	0	0	0	0	1
6462	12/14/1979 21:16 PM	6.93	0.32	0.67	0	0.01	0.01	0.92	0.01	0.01	1	0
6496	12/14/1979 21:16 PM	8.05	1.58	1	0	0.91	0.92	3.85	0.7	0.68	1	0
-7	12/14/1979 21:18 PM	23.79	1.38	0.82	0	0.01	0.31	0.01	0.33	0.01	0	1
7487	12/14/1979 21:15 PM	20.3	0.48	0.45	0	0	0	0	0	0	0	1
7493	12/14/1979 21:16 PM	26.1	0.32	0.36	0	0	0	0	0	0	0	1
7505	12/14/1979 21:16 PM	16.54	0.23	0.59	0	0	0	0	0	0	0	1
7553	12/14/1979 21:12 PM	9.1	0.18	0.42	0	0	0	0	0	0	0	1
7555	12/14/1979 21:12 PM	20.17	0.07	0.23	0	0	0	0	0	0	0	1
7559	12/14/1979 21:12 PM	8.21	0.48	0.45	0	0	0	0	0	0	0	1
7563	12/14/1979 21:19 PM	17.82	0.19	0.34	0	0	0	0	0	0	0	1
7565	12/14/1979 21:19 PM	18.53	0.65	0.5	0	0	0	0	0	0	0	1
7582	12/14/1979 21:13 PM	7.72	0.26	0.29	0	0	0	0	0	0	0.14	0.86
7602	12/14/1979 21:17 PM	11.09	0.46	1	0	0.19	0.19	0.27	0.01	0.01	0	1
7603	12/14/1979 21:17 PM	11.43	1.25	1	0	0.19	0.19	0.19	0.26	0.19	0	1
7605	12/14/1979 21:17 PM	9.27	1.05	1	0	0.17	0.17	0.19	0.13	0.12	0	1
7606	12/14/1979 21:15 PM	10.77	0.89	1	0	0.14	0.14	0.17	0.01	0.01	0	1
7740	12/14/1979 21:19 PM	16.81	0.58	0.54	0	0	0	0	0	0	0	1
7742	12/14/1979 21:19 PM	8.06	0.74	0.68	0	0	0	0	0	0	0.17	0.83
-8	12/14/1979 21:18 PM	11.08	0.75	0.89	0	0.01	0.01	0.31	0.01	0.01	0	1

Table 3B: Conduits (continued...)

Name	Time Max. Flow (M/D/Y)	Max. |Velocity| (ft/s)	Max/Full Flow	Max/Full Depth	Max. Volume (ft³)	Full Both Ends (h)	Full Upstream (h)	Full Downstream (h)	Above Full Normal (h)	Capacity Limited (h)	Subcritical (fraction)	Supercritical (fraction)
-9	12/14/1979 21:18 PM	11.08	0.75	0.89	0	0.01	0.01	0.31	0.01	0.01	0	1
C1	12/14/1979 21:15 PM	10.6	0.23	0.32	0	0	0	0	0	0	0	1
C10	12/12/1979 00:00 AM	0	0	0.43	0	0	0	0	0	0	0	0
C2	12/14/1979 21:19 PM	15.74	0.56	0.57	0	0	0	0	0	0	0	1
C3	12/12/1979 00:00 AM	0	0	0	0	0	0	0	0	0	0	0
C4	12/12/1979 00:00 AM	0	0	0	0	0	0	0	0	0	0	0
C5	12/14/1979 21:05 PM	6.25	0.38	0.46	0	0	0	0	0	0	0.15	0.85
C6	12/14/1979 21:16 PM	10.86	0.84	0.93	0	0.01	0.01	0.11	0.01	0.01	0	1
C7	12/14/1979 21:16 PM	8.53	0.92	1	0	0.26	0.26	1.45	0.01	0.01	1	0
C8	12/14/1979 21:16 PM	9.53	3.48	0.84	0	0.01	1.45	0.01	9.23	0.01	1	0
C9	12/14/1979 21:16 PM	9.95	0.91	1	0	0.11	0.11	0.26	0.01	0.01	0	1

Table 3C: Conduits

Name	Normal Limited (fraction)
-1	0
12587	0
13292	0.81
13297	0
13298	1
13299	1
13301	0.82
-2	0
21149	0.95

Table 3C: Conduits (continued...)

Name	Normal Limited (fraction)
21151	0
21152	1
21153	0.67
21196	0
22958	1
22959	1
22961	1
22962	0
22973	0
23017	0
23018	0.85
23047	0.01
23048	1
23049	0
23050	0
25124	0.4
25413	0
25414	0
-3	0
-4	1
40640	1
40642	1
41542	0.56
41565	0
44677	1
44678	0

Table 3C: Conduits (continued...)

Name	Normal Limited (fraction)
45955	1
-5	1
-6	0
6101	0.31
6102	0
6103	0.62
6287	0
6456	0
6460	0
6462	1
6496	0
-7	0
7487	0
7493	0
7505	1
7553	1
7555	1
7559	0
7563	0.9
7565	0
7582	0.24
7602	1
7603	0.32
7605	0.99
7606	1
7740	0

Table 3C: Conduits (continued...)

Name	Normal Limited (fraction)
7742	0.72
-8	1
-9	1
C1	0.95
C10	0
C2	1
C3	0
C4	0
C5	0.01
C6	0.99
C7	0.99
C8	0
C9	0.86

Table 4A: Storages

Name	X-Coordinate	Y-Coordinate	Tag	Inflows	Treatment	Invert Elev. (ft)	Rim Elev. (ft)	Depth (ft)	Initial Depth (ft)	Surcharge Depth (ft)	Ponded Area (ft^2)	Evap. Factor (fraction)	Storage Curve
11429	1309166	250706.7	RAINGARDEN	NO	NO	300.654	301.654	1	0	0	0	0	TABULAR
11779	1309651	250444.6	RAINGARDEN	NO	NO	335.403	336.403	1	0	0	0	0	TABULAR

Table 4B: Storages

Name	Coefficient	Exponent	Constant (ft²)	Curve Name	Baseline (cfs)	Baseline Pattern	Time Series	Scale Factor	Average Value (cfs)	Suction Head (in)	Conductivity (in/hr)	Initial Deficit (fraction)	Avg. Depth (ft)	Max. Depth (ft)
11429	1000	0	0	122nd_Ave_RG	0			1	0	8.61	0.25	0.33	0.32	1
11779	1000	0	0	124th_Ave_RG	0			1	0	8.61	0.25	0.33	0.45	1

Table 4C: Storages

Name	Max. HGL (ft)	Time Max. HGL (M/D/Y)	Rep. Max. Depth (ft)	Max. Lat. Inflow (cfs)	Max. Total Inflow (cfs)	Total Lat. Inflow (MG)	Total inflow (MG)	Flow Error (%)	Hours Surcharged (h)	Max. Surcharge (ft)	Min. Freeboard (ft)	Hours Flooded (h)	Max. Flood Rate (cfs)	Total Flood Vol. (MG)	Max. Ponded Depth (ft)
11429	301.65	12/14/1979 21:14 PM	1	0	43.13	0	13.7	0.001	0	0	1.504	0.03	1.13	0	0
11779	336.4	12/14/1979 21:02 PM	1	0	29.28	0	7.27	0.003	0	0	1.003	1.13	18.16	0.213	0

Table 4D: Storages

Name	Avg. Volume (1000 ft³)	Avg. Percent Full (%)	Evaporation Loss (%)	Infiltration Loss (%)	Total Percent Loss (%)	Max. Volume (1000 ft³)	Max. Percent Full (%)	Max. Outflow (cfs)
11429	0.979	32	0	1	1	3.1	100	41.99
11779	0.268	45	0	0	0	0.6	100	11.13

APPENDIX C

Land Use, Zoning, and Flow Control Assumptions

Table C1: Land Use Assumptions for Flow Control, Zoning Designations, and Re-Zoned Designations

Table C2: Zoning and Flow Control Summary by Alternative

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Table C1. Land Use Assumptions for Flow Control, Zoning Designations, and Re-Zoned Designations

Zoning Description # [a]	Parcel Description	% Impervious	Lawn	Forest
Flow Control Designations (Existing Conditions)				
1	10% Grass / 90% Impervious	90%	10%	0%
2	100% Forest	0%	0%	100%
3	100% Grass	0%	100%	0%
4	20% Grass / 80% Forest	0%	20%	80%
Flow Control Designation (Redeveloped-Mitigated Conditions) [a]				
5	Forested	0%	0%	100%
Zoning Designations				
6	Commercial	90%	10%	0%
7	Industrial	90%	10%	0%
8	Low Density Residential	60%	40%	0%
9	Medium Density Residential	80%	20%	0%
10	Office	80%	20%	0%
11	Park/Open Space	50%	50%	0%
12	Right-of-Way	100%	0%	0%
Zoning Designations for Re-developed Parcels [a,b]				
13	Surplus	100%	0%	0%
14	MU Office Tower 17 Rental 50k - Low (PU1)	90%	10%	0%
15	MU Office Tower 9 Rental 50k - Medium (PU1)	90%	10%	0%
16	Office Tower 12 Rental 75k - Medium (PU1)	90%	10%	0%
17	Residential Mid 5 Rental 50k - Medium (PS)	90%	10%	0%
18	Residential Mid 7 Rental 75k - Medium (PS)	90%	10%	0%

19	MU Residential Mid 7 Rental 50k - High (PU1)	80%	20%	0%
20	MU Residential Tower 8 Rental 50k - Medium (PU)	80%	20%	0%
21	Mid 7 Rental 50k - Medium (PU1)	80%	20%	0%
22	Residential Mid 6 Rental 50k - Medium (PS)	80%	20%	0%
23	Residential Low 4 Rental 50k - High (SS)	70%	30%	0%

Notes:

a Flow Control Threshold triggered for parcels > 16,000 square feet. See Section 5 for additional information.

b Zoning Designations for Re-developed Parcels provided by BERK Consulting (2021c). See Section 5.2 for explanation of Re-Zoned Classes.

Table C2. Zoning and Flow Control Summary by Scenario

Description	Area (Acres)	
	Alternative A	Alternative B/Alternative C
Flow Control Designations (Existing Conditions)		
10% Grass / 90% Impervious	1.05	1.05
100% Forest	29.06	28.35
100% Grass	1.69	1.69
20% Grass / 80% Forest	0.85	0.07
Subtotal	**32.65**	**31.16**
Flow Control Designation (Redeveloped-Mitigated Conditions) [a]		
Forested	76.03	76.03
Subtotal	**76.03**	**76.03**
Current City Zoning Designations		
Commercial	0.78	0.00
Low Density Residential	98.10	99.59
Medium Density Residential	1.12	0.52
Office	0.36	0.00
Park/Open Space	0.28	0.28
Right-of-Way	34.84	33.88
Subtotal	**135.48**	**134.27**
Zoning Designations for Re-developed Parcels [a,b]		
MU Office Tower 17 Rental 50k - Low (PU1)	0.00	0.02
MU Office Tower 9 Rental 50k - Medium (PU1)	0.00	0.36
MU Residential Mid 7 Rental 50k - High (PU1)	0.00	0.36

MU Residential Tower 8 Rental 50k - Medium (PU)	0.00	0.28
Office Tower 12 Rental 75k - Medium (PU1)	0.00	0.12
Residential Mid 7 Rental 75k - Medium (PS)	0.00	0.60
Surplus	0.00	0.97
Subtotal	**0.00**	**2.71**
Total [c]	**244.16**	**244.17**

Notes:

a Flow Control Threshold triggered for parcels > 16,000 square feet. See Table 2 for additional information.
b Zoning Designations for Re-developed Parcels provided by BERK Consulting (2021c).
c Total Area for Alternatives A and B vary slightly due to the use of significant figures.