# City of Saratoga Springs

# Storm Drain Capital Facilities Plan

## Project No. 305-20-03

Prepared by:

BOWEN COLLINS & ASSOCIATES

**July 2021**

# SARATOGA SPRINGS
# STORM DRAIN
# CAPITAL FACILITIES PLAN

July 2021




Prepared for:

SARATOGA SPRINGS
*Life's just better here*

Prepared by:

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# CHAPTER 1
# INTRODUCTION AND BACKGROUND

## INTRODUCTION

The City of Saratoga Springs has retained Bowen Collins & Associates (BC&A) to prepare a master plan for the City's storm drain collection system. The primary purpose of this Storm Drain Facilities Plan is to provide recommended improvements to resolve existing and projected future deficiencies in the City of Saratoga Springs storm drain collection system based on the City's adopted General Plan. As part of this process, an Impact Fee Facilities Plan and an Impact Fee Analysis following the requirements of Section 11-36a of Utah code will be created but is included in a separate report.

The City's storm drain capital facilities plan was last updated in June of 2018. Since that time, the City has experienced significant growth and has completed a number of storm drain improvements throughout the City that will affect facility planning. Given the amount of change that has occurred recently, an update was necessary to make sure the City is adequately prepared for the future.

## SCOPE OF SERVICES

The general scope of this project involved a thorough analysis of City of Saratoga Spring's storm drain system and its ability to meet the present and future storm drain needs of its residents. As part of this project, BC&A completed the following tasks:

Task 1.1: Collected and reviewed existing information pertinent to the City's storm drain system.

Task 1.2: Updated the City's storm drain computer model utilizing the Autodesk Storm and Sanitary Analysis computer program and used it to analyze the system for deficiencies and predict the effectiveness of planned projects (See Task 1.3) to resolve deficiencies identified and accommodate the needs of future development.

Task 1.3: Performed system analyses to identify the most cost-effective improvements that will resolve the deficiencies identified in Task 1.2.

Task 1.4: Updated the documented existing facilities in the Impact Fee Facilities Plan (separate document) using data provided by the City.

Task 1.5: Developed a Capital Facilities Plan that can be used by City Personnel for budgeting and planning purposes.

Task 1.6: Prepared for and attended progress meetings to coordinate the plans with City personnel.

Task 1.7: Prepared a Capital Facilities Plan (CFP) report (this document) to summarize the results of the study.

Task 1.8: Coordinated with the City to obtain and address comments from stakeholders and affected entities prior to final adoption of the plans.

Task 2.1: Developed an Impact Fee Facilities Plan (IFFP) based on data obtained and produced in the development of the CFP. This IFFP is based on a subset of recommended projects identified in the CFP eligible for impact fees within the next 10 years in accordance with state law.

Task 2.2: Assessed surplus capacity available in existing facilities based on actual costs and in accordance with state law.

Task 2.3: Documented the results of Tasks 2.1 and 2.2 and provided a written certification of the IFFP in accordance with the requirements of Utah Code 11-36a. (See separate IFFP report for additional information.)

Task 3.1: Conducted an Impact Fee Analysis (IFA) based on the data obtained and produced in the development of the IFFP. Historic costs have been included to calculate a buy-in fee for existing infrastructure and future costs will be used for the Impact Fee Facilities Plans projects. Coordination with City personnel, and support to the City for interfacing with stakeholders is included in Task 1.8. (See separate IFA report for additional information.)

This document is a working document. Some of the recommended improvements identified in this report are based on the assumption that development and/or potential annexation will occur in a certain manner. If future growth or development patterns change significantly from those assumed and documented in this report, the recommendations may need to be revised.

## AUTHORIZATION

Saratoga Springs contracted the services of BC&A to prepare this Storm Drain Capital Facilities Plan on June 25, 2020. The CFP and the associated report were completed in June 2021.

## PROJECT STAFF

The project work was performed by the BC&A team members listed below. Team member's roles on the project are also listed. The project was completed in BC&A's Draper, Utah office. Questions may be addressed to Justin Dietrich, Project Engineer at (801) 495-2224.

| | |
|---|---|
| Keith Larson | Project Manager |
| Justin Dietrich | Project Engineer |
| Emily Fica | Staff Engineer |

## RELATED PUBLICATIONS

This CFP is designed to work in conjunction with other Saratoga Springs publications related to storm drain infrastructure in their combined ability to provide insight and direction to City personnel and other interested parties. The following is a list of publications especially relevant to storm drain infrastructure within the City.

**Saratoga Springs Impact Fee Facilities Plan.** This document is being created in conjunction with this CFP and it identifies demands placed upon City facilities by future development and evaluates how these demands will be met by the City. Draft versions of the new impact fee facilities plan is available by link at the City's website at http://www.saratogaspringscity.com/298/Capital-Facilities-Plans-Impact-Fees. This is also the webpage at which the final versions are planned to be published.

**Saratoga Springs Impact Fee Analysis.** This document is being created in conjunction with this CFP and it calculates the maximum impact fees that may be assessed to new development in accordance with the Impact Fee Act (Utah Code 11-36a-101 et seq). Draft versions of the new impact fee analysis is available by link at the City's website at http://www.saratogaspringscity.com/298/Capital-Facilities-Plans-Impact-Fees. This is also the webpage at which the final versions are planned to be published.

**Technical Specifications and Drawings for City of Saratoga Springs Utah.** This document contains design and construction standard information for storm drain infrastructure. As of the writing of this CFP, the latest edition is the January 5, 2021 edition. This document is currently available by link at the City's website at http://www.saratogaspringscity.com/266/Standards-Specifications.

**City of Saratoga Springs Storm Water Management Program Plan (2019).** This document describes various aspects of the City's Storm Water Management Program, which purpose is to limit the discharge of pollutants from Saratoga Springs' storm drain system. This includes information regarding Phase II MS4 storm water regulations. This document is currently available by link at the City's website at http://www.saratogaspringscity.com/352/Storm-Water.

**Hydrologic Analysis of Alluvial Fan Areas – Saratoga Springs, Utah (2020).** This document contains information regarding the recent Saratoga Springs alluvial fan study performed by the U.S. Army Corps of Engineers.

# CHAPTER 2
# EXISTING SYSTEM DESCRIPTION

## SERVICE AREA

The City of Saratoga Springs, which first incorporated in 1997, is bounded to the west by the Lake Mountain and Eagle Mountain City and to the east and northeast by Utah Lake and Lehi City. Figure 2-1 shows the approximate planning extent of Saratoga Springs along with the City's major collection system components. The topography of the majority of the City slopes west to east toward either Utah Lake or the Jordan River. For the purposes of this report, it has been assumed that the future service area of the City's storm drain system will be limited to the annexation boundaries of the City.

## STORM DRAINAGE PIPES

Table 2-1 lists the recorded length of pipes in the City's collection system as documented in the City's GIS database as of July 2020.

**Table 2-1**
**Saratoga Springs Storm Drain Pipe Lengths**

| Diameter (in) | Length (ft) | Length (mi) |
|---|---|---|
| 12 | 25,473 | 4.82 |
| 15 | 127,449 | 24.14 |
| 18 | 74,739 | 14.16 |
| 24 | 63,862 | 12.10 |
| 30 | 20,476 | 3.88 |
| 36 | 11,203 | 2.12 |
| 42 | 29 | 0.01 |
| 48 | 9,731 | 1.84 |
| 54 | 4,477 | 0.85 |
| 60 | 150 | 0.03 |
| 72 | 0 | 0.00 |
| 84 | 239 | 0.05 |
| 96 | 0 | 0.00 |
| 118 | 92 | 0.02 |
| **Total** | **337,922** | **64.02** |

## STORM BASINS

There are approximately 91 storm basin facilities in the existing storm drain system according to the City's GIS database. The primary purpose of the storm basin facilities is to capture and store peak storm water flows during large precipitation events. The storm water is then slowly released downstream at more manageable flow rates.

Each basin has been given a designation as either a regional or a local facility. BC&A staff analyzed the existing system and consulted with City personnel to identify 24 detention basins that function as regional facilities and 1 detention basin that functions as a temporary regional facility (ID no. 4140, Located at Kollman Ln). Regional facilities are improvements that benefit large areas of the City, which areas typically include multiple developments. The remaining detention basins have been identified as local facilities and are project-specific improvements that serve much smaller areas such as a single development or a portion of a development. The facilities that have been identified as regional facilities are an important part of the City's overall storm water conveyance strategy and have been included in the computer model that is being used to analyze the system. BC&A staff developed stage-storage curves from the Digital Elevation Model (DEM) of each facility, which have been incorporated into the computer model.

The City is responsible for maintaining a portion of the storm basin facilities, and private entities are responsible for maintaining the other portion of storm basin facilities. Table 2-2 provides available and estimated data for city-maintained facilities. Table 2-3 provides available and estimated data for privately maintained facilities. Table 2-4 provides available and estimated data for basins that do not have a designated maintenance group. It is important to note that while it is not usually the case, some city-maintained storm basins are not regional and some privately maintained storm basins are regional.

## DEBRIS BASINS

There is 1 major debris basin in the existing storm drain system. This debris basin is located at Ruger Road and is known as the Israel Canyon Debris Basin. It has an outlet size of 36-inches, an outlet elevation of 4903 ft, and a rim elevation of 4940 ft. It has a volume of 40 Acre-Feet.

**Table 2-2**
**Detention Basins – City Maintained**

| Facility ID from City Database | Outlet | Outlet Elevation | Rim Elevation | Required Active Volume (AF) | Infrastructure Owner | Surface Improvements Owner | Address | Location |
|---|---|---|---|---|---|---|---|---|
| 414 | 8" | 4632.9 | 4634.4 | 4.2 | City | City | 1237 Pondside Dr | 40d 20' 22.04'' N 111d 55' 36.19'' W |
| 415 | 20" | 4659 | 4660.4 | 2.3 | City | City | Swainson Ave/Wildlife Blvd | 40d 18' 12.10'' N 111d 53' 23.78'' W |
| 417 | 18" | 4592.8 | 4601.56 | 1.8 | City | City | Redwood Rd/Wildlife Blvd | 40d 18' 17.55'' N 111d 53' 13.61'' W |
| 418 | 18" | 4590.1 | 4592.03 | 0.9 | City | Unlisted | Redwood Rd/Village Pkwy | 40d 18' 37.41'' N 111d 53' 30.36'' W |
| 419 | Unlisted | 4641.3 | 4643.31 | Unlisted | City | Unlisted | Village Pkwy/Village Court Rd | 40d 18' 34.91'' N 111d 53' 43.27'' W |
| 543 | Unlisted | 4641.3 | Unlisted | Unlisted | City | City | 516 W Aspen Hills Blvd | 40d 23' 31.62'' N 111d 55' 35.48'' W |
| 4110 | 5" | 4725.7 | 4727.4 | Unlisted | City | HOA | Stillwater Dr/Shadow Ridge Dr | 40d 18' 45.54'' N 111d 54' 07.61'' W |
| 4111 | 15" | 4599.8 | 4607.36 | 2.7 | City | HOA | Redwood Rd/Stillwater Dr | 40d 18' 56.71'' N 111d 53' 44.71'' W |
| 4112 | 12" | 4596.8 | 4602.78 | 2.2 | City | City | Maverick Rd | 40d 19' 04.47'' N 111d 53' 57.59'' W |
| 4113 | 30" | 4708.1 | 4708.15 | Unlisted | City | City | Ring Rd/Weatherby Dr | 40d 19' 24.91'' N 111d 54' 44.29'' W |
| 4115 | Unlisted | 4600.5 | 4601.11 | Unlisted | City | Unlisted | Gardenview Ct/Grandview Blvd | 40d 20' 10.83'' N 111d 55' 06.74'' W |
| 4117 | Unlisted | 4494.4 | 4501.42 | Unlisted | City | City | 756 N Devonshire Dr | 40d 22' 32.48'' N 111d 54' 42.66'' W |
| 4119 | 15" | 4508.99 | 4512.64 | 3.3 | Aldara Apartments | Aldara Apartments | 1312 N Commerce Dr | 40d 23' 03.39'' N 111d 54' 43.16'' W |

| Facility ID from City Database | Outlet | Outlet Elevation | Rim Elevation | Required Active Volume (AF) | Infrastructure Owner | Surface Improvements Owner | Address | Location |
|---|---|---|---|---|---|---|---|---|
| 4120 | 20" | 4628.7 | 4631.69 | 1.5 | City | City | Buffalo Dr | 40d 22' 34.56'' N 111d 56' 10.01'' W |
| 4121 | 20" | 4628.6 | 4631.83 | 1.8 | City | City | Buffalo Dr | 40d 22' 30.49'' N 111d 56' 10.28'' W |
| 4123 | Unlisted | Unlisted | Unlisted | Unlisted | City | Unlisted | 2211 E Lakeview Dr | 40d 21' 39.86'' N 111d 51' 47.43'' W |
| 4128 | 6" | 4629.51 | 4629.74 | 10.7 | City | City | Ginger Pl | 40d 23' 42.44'' N 111d 55' 24.66'' W |
| 4129 | 4" | 4619.48 | 4626.47 | 1.5 | Hillcrest condos | Unlisted | Ridge Rd | 40d 23' 42.95'' N 111d 55' 21.36'' W |
| 4130 | 4" | 4638.3 | 4645.96 | 2.9 | City | HH HOA | Redwood Rd/Harvest Hills Blvd | 40d 23' 58.60'' N 111d 55' 12.33'' W |
| 4131 | 15" | 4727.2 | 4730.2 | 0.5 | City | City | Granary Way/Harvest Hills Blvd | 40d 23' 59.47'' N 111d 55' 44.70'' W |
| 4132 | 8" | 4725.8 | 4730.41 | 4.5 | City | Fox Hollow HOA | Village Pkwy/Day Lilly Dr | 40d 18' 33.38'' N 111d 54' 00.58'' W |
| 4133 | 8" | 4592.8 | 4597.21 | 1 | City | Stillwater HOA | Periwinkle Cir | 40d 18' 41.23'' N 111d 53' 32.52'' W |
| 4134 | 20" | 4723.6 | Unlisted | 2.5 | City | Unlisted | Wildlife Blvd | 40d 18' 06.13'' N 111d 53' 45.82'' W |
| 4142 | Unlisted | Unlisted | Unlisted | Unlisted | Unlisted | Unlisted | Unlisted | 40d 19' 57.69'' N 111d 55' 27.65'' W |
| 4143 | Unlisted | Unlisted | Unlisted | Unlisted | City | City | Prividence Dr | 40d 23' 59.40'' N 111d 55' 58.87'' W |
| 4144 | 10" | 4660 | Unlisted | 1.7 | City | City | Talus Ridge/Foothill Blvd | 40d 22' 16.92'' N 111d 56' 11.73'' W |
| 4145 | 36" | 4903 | Unlisted | 2.6 | Unlisted | Unlisted | Ruger Rd | 40d 19' 09.78'' N 111d 55' 25.79'' W |

| Facility ID from City Database | Outlet | Outlet Elevation | Rim Elevation | Required Active Volume (AF) | Infrastructure Owner | Surface Improvements Owner | Address | Location |
|---|---|---|---|---|---|---|---|---|
| 4150 | 12" | 4743 | Unlisted | 2 | City | HH HOA | Orchard Way | 40d 24' 17.77'' N 111d 55' 34.42'' W |
| 4153 | 15" | 4571.7 | 4571.8 | 2.6 | City | City | 400 N | 40d 22' 11.20'' N 111d 55' 43.96'' W |
| 4154 | 21" | 4536.8 | Unlisted | 5.2 | ASD | ASD | 400 N/Thunder Blvd | 40d 22' 08.07'' N 111d 55' 19.56'' W |
| 4155 | Unlisted | Unlisted | 4576.36 | Unlisted | City | City | Lindsey St | 40d 22' 02.52'' N 111d 55' 49.71'' W |
| 4156 | Unlisted | Unlisted | 4576.36 | Unlisted | City | City | Lindsey St | 40d 22' 04.89'' N 111d 55' 47.93'' W |
| 4157 | 15" | 4720 | Unlisted | 1.4 | City | City | Pinnacle Ln | 40d 22' 24.38'' N 111d 56' 32.93'' W |

Note: Outlet and Elevation information not available in the City's GIS database or from City personnel directly has been estimated.

**Table 2-3**
**Detention Basins – Privately Maintained**

| Facility ID from City Database | Infrastructure Owner | Surface Improvements Owner | Address | Location |
|---|---|---|---|---|
| 438 | CFT Development | CFT Development | 1413 N Redwood Rd | 40d 23' 19.25'' N 111d 55' 00.82'' W |
| 439 | CFT Development | CFT Development | 1413 N Redwood Rd | 40d 23' 18.90'' N 111d 55' 00.74'' W |
| 440 | CFT Development | CFT Development | 1413 N Redwood Rd | 40d 23' 18.91'' N 111d 55' 00.67'' W |
| 441 | CFT Development | CFT Development | 1413 N Redwood Rd | 40d 23' 18.63'' N 111d 55' 00.60'' W |
| 442 | CFT Development | CFT Development | 1413 N Redwood Rd | 40d 23' 19.08'' N 111d 55' 00.62'' W |
| 443 | CFT Development | CFT Development | 1413 N Redwood Rd | 40d 23' 19.09'' N 111d 55' 00.56'' W |
| 444 | CFT Development | CFT Development | 1413 N Redwood Rd | 40d 23' 18.60'' N 111d 55' 00.53'' W |
| 445 | Cyprus C.U. | Cyprus C.U. | 74 W Crossroads Blvd | 40d 23' 15.73'' N 111d 55' 04.84'' W |
| 534 | Legacy Farms | Legacy Farms | 400 S Schoolhouse Rd | 40d 21' 16.59'' N 111d 54' 27.16'' W |
| 536 | Church | Unlisted | 1178 S Pondside Dr | 40d 20' 26.76'' N 111d 55' 30.42'' W |
| 544 | Lexington Green | Lexington Green | Independence Way/Lexington Way | 40d 21' 53.95'' N 111d 56' 17.57'' W |
| 547 | Wildflower | Wildflower | Providence Dr/Mountain View | 40d 24' 41.74'' N 111d 55' 35.70'' W |
| 548 | Beacon Pointe | Beacon Pointe | Founders Blvd/Redwood Rd | 40d 20' 41.31'' N 111d 55' 00.31'' W |
| 549 | Starhaven | Starhaven | 1400 N Starhaven Ln | 40d 23' 16.22'' N 111d 55' 39.72'' W |
| 4125 | Loch Lomond HOA | Loch Lomond HOA | Hawthorne St | 40d 21' 47.52'' N 111d 51' 56.83'' W |

| Facility ID from City Database | Infrastructure Owner | Surface Improvements Owner | Address | Location |
|---|---|---|---|---|
| 4158 | ASD | ASD | 273 W Aspen Hills Blvd | 40d 23' 30.59'' N 111d 55' 15.96'' W |
| 4160 | IHC | IHC | 354 W Crossroads Blvd | 40d 23' 17.02'' N 111d 55' 25.72'' W |
| 4161 | River Heights | River Heights | Cordoba Dr | 40d 23' 24.69'' N 111d 54' 35.34'' W |
| 4162 | Jordan Ridge condos | Jordan Ridge Condos | Jordan Ridge Blvd/Riverside Dr | 40d 23' 01.10'' N 111d 54' 37.60'' W |
| 4164 | ASD | ASD | 264 N 750 W | 40d 22' 03.92'' N 111d 55' 55.20'' W |
| 4165 | City | Unlisted | 400 N/Carlton Ave | 40d 22' 08.61'' N 111d 55' 34.22'' W |
| 4166 | City | Hillside Ridge HOA | Hillside Dr | 40d 20' 23.92'' N 111d 54' 59.78'' W |

**Table 2-4**
**Detention Basins – Unlisted Maintenance**

| Facility ID from City Database | Infrastructure Owner | Surface Improvements Owner | Address | Location |
|---|---|---|---|---|
| 413 | City | City | 332 W Landview Dr | 40d 19' 55.88'' N 111d 54' 28.17'' W |
| 435 | Boyer | Boyer | 689 N Redwood Rd | 40d 22' 29.11'' N 111d 55' 03.90'' W |
| 436 | Murphys | Murphys | 1534 N Commerce Dr | 40d 23' 27.64'' N 111d 54' 57.37'' W |
| 437 | Auto Zone | Auto Zone | 1536 N Redwood Rd | 40d 23' 24.54'' N 111d 54' 57.36'' W |
| 455 | BRP - Sparks (tractor) | BRP - Sparks (tractor) | 1303 N Exchange Dr | 40d 23' 07.18'' N 111d 55' 22.75'' W |
| 456 | Seargeant Ct | Seargeant Ct | Condor Rd | 40d 23' 28.98'' N 111d 55' 05.17'' W |
| 457 | Unlisted | Unlisted | Pavillion Cr | 40d 21' 01.60'' N 111d 54' 25.73'' W |
| 533 | Church | Church | 49 W Tanner Ln | 40d 20' 26.72'' N 111d 54' 59.55'' W |
| 537 | Unlisted | Smiths | 653 Redwood Rd | 40d 22' 26.75'' N 111d 55' 00.64'' W |
| 538 | Unlisted | Unlisted | 1200 N Riverside Dr | 40d 22' 59.37'' N 111d 54' 38.31'' W |
| 539 | Unlisted | Unlisted | Unlisted | 40d 18' 36.57'' N 111d 53' 05.34'' W |
| 540 | Unlisted | Unlisted | Village Pkway/Redwood Rd | 40d 18' 33.17'' N 111d 53' 27.43'' W |
| 541 | Unlisted | Maverik | 2023 Redwood Road | 40d 19' 32.57'' N 111d 54' 20.77'' W |
| 545 | Unlisted | Unlisted | 1450 S Saratoga Rd | 40d 22' 13.52'' N 111d 53' 10.82'' W |
| 546 | Unlisted | Unlisted | Unlisted | 40d 21' 55.49'' N 111d 52' 54.13'' W |

| Facility ID from City Database | Infrastructure Owner | Surface Improvements Owner | Address | Location |
|---|---|---|---|---|
| 4114 | City | Saratoga Hills HOA | Redwood Rd/Grandview Blvd | 40d 20' 15.66'' N 111d 54' 58.29'' W |
| 4116 | City | Saratoga Hills HOA | Hiiside Dr/Parkside Dr | 40d 20' 21.56'' N 111d 55' 18.18'' W |
| 4122 | Church | Church | 587 S Saratoga Dr | 40d 21' 07.01'' N 111d 54' 12.27'' W |
| 4124 | Loch Lomond HOA | Loch Lomond HOA | Hawthorne St | 40d 21' 50.78'' N 111d 51' 56.76'' W |
| 4126 | Gables | Gables | Venetian Way | 40d 23' 18.84'' N 111d 54' 35.72'' W |
| 4127 | JDH town center | JDH town center | 87 E Commerce Dr | 40d 23' 17.50'' N 111d 54' 48.09'' W |
| 4135 | Unlisted | Lake View Terrace HOA | Redwoord Rd/Lake View Terrace Rd | 40d 19' 59.20'' N 111d 54' 47.47'' W |
| 4137 | City | HOA | Shorewood Dr/Cottage Cv | 40d 19' 12.50'' N 111d 53' 40.33'' W |
| 4138 | City | HOA | Shorewood Dr/Cottage Cv | 40d 19' 11.31'' N 111d 53' 39.05'' W |
| 4139 | City | HOA | Shorewood Dr/Lakewood | 40d 19' 08.29'' N 111d 53' 38.84'' W |
| 4140 | City | Unlisted | Kollman Ln | 40d 18' 34.76'' N 111d 54' 19.84'' W |
| 4141 | Church | Church | 2101 N Providence Dr | 40d 23' 52.74'' N 111d 56' 01.15'' W |
| 4146 | Summer Village | Summer Village | Sunshine Dr/Summer Village Rd | 40d 23' 19.08'' N 111d 54' 42.39'' W |
| 4147 | Gables | Gables | Venetian Way | 40d 23' 22.46'' N 111d 54' 44.76'' W |
| 4148 | JDH town center | JDH town center | 87 E Commerc Dr | 40d 23' 17.53'' N 111d 54' 50.96'' W |
| 4149 | Town storage | Town storage | 2148 N Stagecoach Dr | 40d 24' 05.28'' N 111d 54' 56.44'' W |

| Facility ID from City Database | Infrastructure Owner | Surface Improvements Owner | Address | Location |
|---|---|---|---|---|
| 4151 | Jordan River condos | Jordan River condos | Jordan Cove Ln | 40d 23' 06.09'' N 111d 54' 28.08'' W |
| 4152 | Jordan River condos | Jordan River condos | Riverside Dr | 40d 23' 03.15'' N 111d 54' 31.50'' W |
| 4163 | City | Unlisted | 400 N | 40d 22' 11.46'' N 111d 55' 23.97'' W |
| 4167 | ASD | Unlisted | Swainson Ave | 40d 18' 27.28'' N 111d 53' 42.27'' W |
| 4168 | ASD | City | Swainson Ave | 40d 18' 24.63'' N 111d 53' 40.24'' W |

## NATURAL CHANNELS

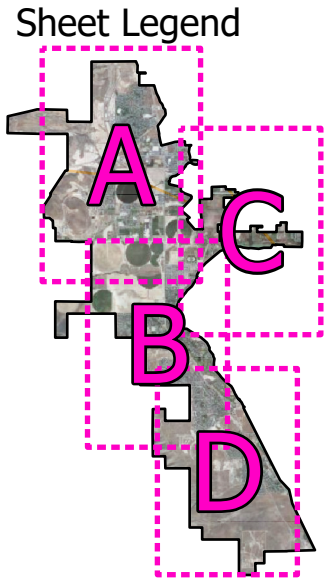
There are many ephemeral drainages that convey runoff from the Lake Mountains and other upland areas to Utah Lake and the Jordan River within the City (See Figure 2-1). For the purposes of this study, it is expected these drainages will be preserved and will continue to be used for conveyance purposes in the Saratoga Springs storm drain system. Separate City policy will govern whether future development is allowed to pipe these drainages. Large natural channels that are required to be preserved as part of the drainage system have been identified in Chapter 6 (see Figure 6-1).

There are likely other small, unmapped drainage channels that have not been identified in Chapter 6 but must still be accounted for as part of development plans. Adjacent development may be required to preserve such drainages as needed to ensure adequate drainage capacity now, even if such drainages are expected to become obsolete at buildout.

## OPEN CHANNELS

In addition to the natural tributary channels identified above, the City uses manmade open channels in some locations to convey storm water. This includes canals and ditches as shown in Figure 2-1. While some of these channels will eventually be replaced with pipelines, others will be maintained as part of the drainage system as identified in Chapter 6. In the case of channels and drainages to be replaced, it is important that they be maintained until all corresponding new facilities have been constructed and commissioned.

Sheet Legend




## Legend

Storm basins maintained by:

- City
- Private
- Unknown

Diameter:

- < 15"
- 15" - 18"
- 21" - 30"
- 32"
- 36"
- 38"
- 42"
- 48"
- 54"
- > 54"
- Natural Channel
- Subbasins
- Saratoga Springs Boundary

Maxar

BOWEN COLLINS & ASSOCIATES

STORM DRAIN CAPITAL FACILITIES PLAN

EXISTING STORM DRAIN COLLECTION AND DETENTION SYSTEM

NORTH:

NORTH

SCALE:

0 940 1,880 Feet

FIGURE NO.

2-1A

P:\Saratoga Springs\305-20-03 Storm Drain CFP, IFFP, and IFA Update\4.0 GIS\Storm Drain Master Map 2020.aprx efica 4/20/2021

Sheet Legend

A
B
C
D

Legend

Storm basins maintained by:

- City
- Private
- Unknown

Diameter:

- < 15"
- 15" - 18"
- 21" - 30"
- 32"
- 36"
- 38"
- 42"
- 48"
- 54"
- > 54"
- Natural Channel
- Subbasins
- Saratoga Springs Boundary

Maxar

BOWEN COLLINS & ASSOCIATES

STORM DRAIN CAPITAL FACILITIES PLAN

EXISTING STORM DRAIN COLLECTION AND DETENTION SYSTEM

NORTH:

NORTH

SCALE:

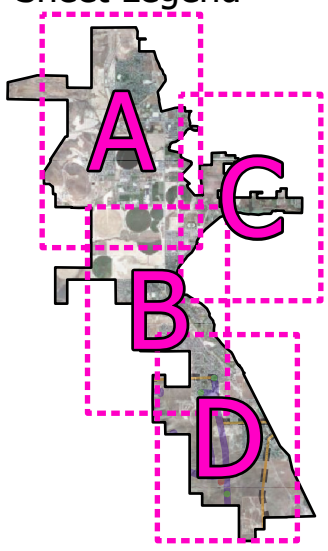
0 940 1,880 Feet

FIGURE NO.

2-1B

P:\Saratoga Springs\305-20-03 Storm Drain CFP, IFFP, and IFA Update\4.0 GIS\Storm Drain Master Map 2020.aprx efica 4/20/2021

Sheet Legend




## Legend

Storm basins maintained by:

- City
- Private
- Unknown

Diameter:

- < 15"
- 15" - 18"
- 21" - 30"
- 32"
- 36"
- 38"
- 42"
- 48"
- 54"
- > 54"
- Natural Channel
- Subbasins
- Saratoga Springs Boundary

Maxar

BOWEN COLLINS & ASSOCIATES

# STORM DRAIN CAPITAL FACILITIES PLAN

## EXISTING STORM DRAIN COLLECTION AND DETENTION SYSTEM

NORTH:

SCALE: 0 940 1,880 Feet

FIGURE NO. 2-1C

P:\Saratoga Springs\305-20-03 Storm Drain CFP, IFFP, and IFA Update\4.0 GIS\Storm Drain Master Map 2020.aprx efica 4/20/2021

Sheet Legend

A

B

C

D

## Legend

Storm basins maintained by:

- City
- Private
- Unknown

Diameter:

- < 15"
- 15" - 18"
- 21" - 30"
- 32"
- 36"
- 38"
- 42"
- 48"
- 54"
- > 54"
- Natural Channel
- Subbasins
- Saratoga Springs Boundary

Maxar

BOWEN COLLINS & ASSOCIATES

# STORM DRAIN CAPITAL FACILITIES PLAN

## EXISTING STORM DRAIN COLLECTION AND DETENTION SYSTEM

NORTH:

NORTH

SCALE:

0 940 1,880 Feet

FIGURE NO.

2-1D

P:\Saratoga Springs\305-20-03 Storm Drain CFP, IFFP, and IFA Update\4.0 GIS\Storm Drain Master Map 2020.aprx efica 4/20/2021

# CHAPTER 3
# HYDROLOGIC ANALYSIS

To evaluate the capacity of the Saratoga Springs storm drain system, it is necessary to perform both a hydrologic and hydraulic analysis. The hydrologic analysis estimates the storm water runoff volume and peak discharges generated by a design cloudburst event. The hydraulic analysis evaluates the capacity of storm drain facilities to convey the predicted storm water discharges through the City. The purpose of this chapter is to document the hydrologic analysis performed for Saratoga Springs.

A hydrologic computer model of the study area was developed in Autodesk Storm and Sanitary Analysis 2020 (ASSA), version 12.2.147.0. The hydrologic model development process includes delineating drainage basins, estimating hydrologic parameters, developing a design storm, and calibrating the model. Each of these steps is described below.

## DRAINAGE BASIN DELINEATION

The first step in developing a computer hydrologic model is to delineate drainage basins and subbasins. This involves dividing the overall service area into smaller areas based on topography and the drainage system. This is done for two reasons. First, it allows each area to be analyzed on a smaller scale to evaluate land use and development patterns more accurately. Second, it yields runoff projections that are distributed aerially across the service area, which is an important requirement when evaluating the capacity of individual facilities.

Topographic mapping, aerial photography, and an existing storm drainage system inventory (provided by the City via GIS) were used to delineate drainage basins and subbasin boundaries in the study area. Subbasin boundaries associated with the hydrologic model are shown on Figure A-1 in Appendix A.

## HYDROLOGIC MODEL PARAMETERS

The next step in developing the ASSA computer model is to define a set of hydrologic model parameters to be used for each subbasin. Hydrologic parameters represent the physical characteristics of each subbasin to be used in the calculation of potential runoff. Required hydrologic parameters will vary depending on the method of calculation selected for the model. For this study, the hydrologic calculation method is as follows:

- **Hydrology Method.** In the ASSA software, there are multiple options for the hydrology method, including the EPA SWMM method and HEC-1 method, among others. Many of these methodologies could be used to produce accurate results. Based on BC&A's familiarity and experience with the several methods, the HEC-1 method was used for this study.
- **Unit Hydrograph Method.** The SCS Unit Hydrograph was used in the hydrologic model to convert rainfall to runoff.
- **Loss Method.** The SCS Curve Number method with the average antecedent condition was used in the ASSA model to calculate infiltration losses (see NRCS TR-55 publication for additional information). This method requires the input of a composite Curve Number for the pervious areas of each subbasin and the percent impervious of each subbasin. It should be emphasized that pervious and impervious areas are being modeled separately as opposed to using a single composite curve number for both. The percent impervious designation allows directly connected impervious areas to be modeled more accurately (i.e. separately from the pervious areas).

These methods were selected because they are commonly used by professionals in the industry and have been shown to produce accurate results in neighboring communities. These methodologies are also consistent with the Saratoga Springs standards for hydrologic method.

Required hydrologic parameters for this approach are as follows (see Appendix B for a documentation of computer model input parameters organized by subbasin):

- **Lag Time.** Lag time is the time interval between the center of mass of the excess rainfall (aka runoff) and the peak runoff rate. This parameter was adjusted for existing conditions during the calibration process for some subbasins. See Model Calibration for a more detailed description.
- **Composite Curve Number.** A Curve Number is single parameter that can be used to represent land use and soil type in an area. A composite Curve Number was estimated for each subbasin based on soil type. The hydrologic soil type was obtained from the NRCS SSURGO dataset. The Curve Numbers selected are based on the SCS TR-55 publication based on natural conditions and in accordance with the City's standards for composite curve number determination. Figure A-2 in Appendix A shows a soils map for Saratoga Springs and the surrounding area. The Curve Number was adjusted for some sights based on model calibration. See Model Calibration below for a more detailed description.
- **Directly Connected Impervious Area.** The amount of directly connected impervious area for existing conditions was estimated using NAIP aerial imagery. Each subbasin was analyzed and the estimated directly connected impervious area was recorded. This includes the directly connected impervious area within each developed lot (e.g. rooftops, driveways, etc.), along with impervious area associated with roadways. The amount of directly connected impervious area was also estimated for full build-out conditions. For areas that are currently undeveloped, the Land Use Plan was used in conjunction with the values shown in Table 3-1 to estimate the imperviousness for future conditions. The values in Table 3-1 were developed based on values obtained from analysis of existing Saratoga Springs development and past analysis completed in other similar cities.

**Table 3-1**
**Average Imperviousness Based on Land Use**

| General Plan Land Use Type * | Directly Connected Imperviousness |
|---|---|
| Low Density Residential | 27% |
| Medium Density Residential | 33% |
| High Density Residential | 60% |
| Commercial and Business | 85% |
| Industrial | 72% |
| Agriculture | 15% |
| Road | 95% |
| Rural Residential | 15% |
| Planned Community | 60% |

* Some of the City's many land use types from the General Plan have been grouped according to hydrologic similarity for convenience.

## DESIGN STORM PARAMETERS

With the hydrologic parameters of each subbasin defined, the next step in the modeling process is to select a design storm. The design storm defines how much precipitation falls and at what rate for a projected precipitation event. In the model, the design storm is applied to each subbasin to see how much runoff is generated from the basin during the precipitation event. The following criteria were used to define the design storm for this study, are commonly used by professionals in the industry, and have been shown to produce accurate results in neighboring communities:

### Storm Distribution and Duration

Cloudburst rainfall events in Utah typically have durations ranging from a few minutes to three hours. Storms producing general rainfall over longer periods are rare and are typically associated with slower-moving tropical storm remnants. The following design storms and duration were used for sizing drainage and storm water facilities.

- ***2-Year, 3-Hour Storm (Storm Event Volume = 0.64 inches):*** Used to define treatment capacity information for storm drain water quality/treatment facilities.
- ***10-Year, 3-Hour Storm (Storm Event Volume = 0.98 inches):*** Used to evaluate storm drain pipeline facilities.
- ***100-Year, 3-Hour Storm (Storm Event Volume = 1.74 inches):*** Used to evaluate storm drain facilities such as bridges, culverts, channels, detention basins, and other conveyance facilities where public health and safety are a concern. See also *Storm Selection for Detention Basins* below.
- ***Storm Distribution:*** Used Modified Farmer Fletcher for all storm return periods. The Farmer-Fletcher distribution is widely accepted and utilized along the Wasatch Front as it was created and calibrated based on local Utah data.

It should be noted that the utilized design storms capture the critical elements of shorter duration storms that often control when subbasins have short times of concentration. Utilized design storm distributions are shown in Table 3-2.

### Storm Selection for Detention Basins

The design storm frequency selection for most detention basins is the 100-year storm. This is because the 100-year runoff is typically routed through detention basins (even if conveyed overland). However, in some cases where a clear overland flood route directly to the Jordan River or Utah Lake exists and is utilized for the 100-year runoff, only the piped 10-year runoff is routed through the detention basins. Therefore, in those cases the selected design storm frequency is the 10-year storm.

**Table 3-2**
**Design Storms**

| Time (min) | 2-Year Precipitation (inches) | 10-Year Precipitation (inches) | 100-Year Precipitation (inches) |
|---|---|---|---|
| 0 | 0.0000 | 0.0000 | 0.0000 |
| 5 | 0.0073 | 0.0067 | 0.0058 |
| 10 | 0.0073 | 0.0067 | 0.0058 |
| 15 | 0.0073 | 0.0067 | 0.0058 |
| 20 | 0.0073 | 0.0067 | 0.0058 |
| 25 | 0.0073 | 0.0067 | 0.0058 |
| 30 | 0.0073 | 0.0067 | 0.0058 |
| 35 | 0.1324 | 0.2337 | 0.0058 |
| 40 | 0.1060 | 0.1845 | 0.4560 |
| 45 | 0.0739 | 0.1287 | 0.3600 |
| 50 | 0.0471 | 0.0820 | 0.2512 |
| 55 | 0.0283 | 0.0492 | 0.1600 |
| 60 | 0.0217 | 0.0377 | 0.0960 |
| 65 | 0.0160 | 0.0279 | 0.0736 |
| 70 | 0.0122 | 0.0213 | 0.0544 |
| 75 | 0.0094 | 0.0164 | 0.0416 |
| 80 | 0.0085 | 0.0148 | 0.0320 |
| 85 | 0.0075 | 0.0131 | 0.0288 |
| 90 | 0.0061 | 0.0107 | 0.0256 |
| 95 | 0.0073 | 0.0067 | 0.0208 |
| 100 | 0.0073 | 0.0067 | 0.0058 |
| 105 | 0.0073 | 0.0067 | 0.0058 |
| 110 | 0.0073 | 0.0067 | 0.0058 |
| 115 | 0.0073 | 0.0067 | 0.0058 |
| 120 | 0.0073 | 0.0067 | 0.0058 |
| 125 | 0.0073 | 0.0067 | 0.0058 |
| 130 | 0.0073 | 0.0067 | 0.0058 |
| 135 | 0.0073 | 0.0067 | 0.0058 |
| 140 | 0.0073 | 0.0067 | 0.0058 |
| 145 | 0.0073 | 0.0067 | 0.0058 |
| 150 | 0.0073 | 0.0067 | 0.0058 |
| 155 | 0.0073 | 0.0067 | 0.0058 |
| 160 | 0.0073 | 0.0067 | 0.0058 |
| 165 | 0.0073 | 0.0067 | 0.0058 |
| 170 | 0.0073 | 0.0067 | 0.0058 |
| 175 | 0.0073 | 0.0067 | 0.0058 |
| 180 | 0.0073 | 0.0067 | 0.0058 |
| Total | 0.64 | 0.98 | 1.74 |

## MODEL CALIBRATION

The final step in the hydrologic modeling process is model calibration. In general, calibration of a hydrologic model of an urban area refers to the process of adjusting parameters to achieve results consistent with available reference information in nearby areas rather than adjusting for actual measured discharge observations in the study area.

### Calibration Target Range

The rainfall-runoff model generally produces peak runoff rates that range from 0.2 cfs/ac to 0.4 cfs/ac runoff for quarter-acre subdivision lots. This falls within the expected calibration target range for runoff on a quarter acre subdivision lot during a 10-year design storm. A few areas of the City do produce runoff below 0.2 cfs/ac, but these areas tend to have less slope. These flatter areas tend to drain more slowly and have longer times of concentration, and therefore produce less runoff.

### CN Values

In some instances, the simulated peak runoff initially exceeded the calibration range. In these instances, the CN Value for the subbasin was examined and adjusted as required by model results. These adjustments typically occurred in areas where the soil map indicated the underlying soil was Type C or D soil (CN value 79 or 84), indicating low infiltration and high runoff potential. However, once an area develops, the pervious portion of the development area is usually landscaped with sod, mulch or other materials that have higher infiltration rates and lower runoff potential. Runoff is typically only generated from the impervious portion of the developed area during a 10-year storm event. Therefore, in some of these areas the CN Value was set to 61 to reflect expected developed conditions and correspondingly little or no runoff from the pervious area of the development.

### Lag Time

Worksheet 3 in TR-55 was initially used to estimate the time of concentration and lag time. The Lag Time was further adjusted for some subbasins during the calibration process to adjust the peak runoff to be within, or closer to, the calibration target range described above. See Appendix B for computer model input used, including lag time.

### Existing Inlet Capacity Issues

The collective assumption was made that there either are or will be enough storm water inlets in each subbasin to collect runoff from a 10-year design storm event. Such an assumption is standard for a study at this level of detail. In areas of new development, inlet capacity should be closely reviewed during design to make sure this is the case. In existing areas where ponding or local flooding occurs, the inlet capacity should be evaluated, and additional inlets should be added if necessary.

# CHAPTER 4
# HYDRAULIC ANALYSIS

As discussed in the previous chapter, evaluation of the Saratoga Springs storm drain system requires both a hydrologic and hydraulic analysis. The hydrologic analysis estimates to the storm water runoff volume and peak discharges generated by a design cloudburst event. The hydraulic analysis evaluates the capacity of storm drain facilities to convey the predicted storm water discharges through the City. The purpose of this chapter is to document the hydraulic analysis performed for Saratoga Springs.

A hydraulic computer model of the study area was developed in Autodesk Storm and Sanitary Analysis (ASSA). There are two major types of data required to create a hydraulic model of a storm drain system, geometric data, and flow data.

## GEOMETRIC MODEL DEVELOPMENT

Geometric data consists of all information in the model needed to represent the physical characteristics of the system, including pipelines, open channels, and detention basins.

### Pipes

Information on the physical characteristics of the pipes included in the model was collected and assembled by Saratoga Springs personnel, including the diameter, length, and location of each pipe to be included in the computer model. A basic framework for the model was developed using Saratoga Springs geographic information system (GIS) records. In cases where pipe invert information was not available in GIS, the invert elevation was estimated based on surface elevation.

The scope of this storm drain facilities plan included a hydraulic analysis of only the system level storm drain improvements in the City. The storm drain trunk lines that were evaluated in this model were coordinated with Saratoga Springs City and generally exclude project level pipes, pipes with diameters under 18 inches, and pipes that serve only small areas.

### Open Channels

The open channels evaluated in the study are based on data shown on USGS Quadrangle maps and input from Saratoga Springs City personnel. Estimates of channel slope were made based on available digital topographic data provided by the State of Utah's Automated Geographic Reference Center (AGRC). There was no detailed survey of the open channels for this study, so the exact capacity of the channels at all locations was not calculated. The actual channel capacity and improvements to each channel will need to be evaluated during the development planning process in those areas.

### Detention Basins

Saratoga Springs personnel provided outlet size, orifice size, and a Digital Elevation Model (DEM) for many of detention basins modeled. Assumptions based on available GIS-based aerial imagery and elevation information was used to approximate the characteristics of basins without City-supplied data. See Chapter 2 for a list of the existing regional detention basins. Future detention basins were modeled in ASSA using a design stage-storage curve and an outlet that released the design flow rate.

## FLOW MODEL DEVELOPMENT

The second type of data required by the hydraulic model is storm drain runoff. Hydrologic parameters were estimated, and a design storm was developed as described in Chapter 3. Subbasin runoff was usually applied to the hydraulic system near the upstream side of the drainage area.

# CHAPTER 5
# SYSTEM EVALUATION

The standards and criteria in this chapter outline the way in which the hydraulic analysis (as described in Chapter 4) was used to evaluate the system for deficiencies and produce the recommendations for capital improvements (as described in Chapter 6).

## EVALUATION CRITERIA AND LEVEL OF SERVICE EVALUATION

To evaluate the performance of the system, it is necessary to first define the required level of service for the various components of the system. There is no minimum State standard for storm drain as there are with other utilities. Every city desires to protect their residents and infrastructure from flooding and attempts to balance the cost of storm drainage improvements with the amount of flow in the streets. The evaluation criteria for this study were provided by Saratoga Springs City personnel at the beginning of this study and are documented below. The level of service provided by Saratoga City is consistent with the level of service provided by neighboring cities.

### Allowable Runoff

Current City policy requires that runoff from developed properties be limited in accordance with available capacity in downstream infrastructure. Runoff conveyed in City systems is generally limited to the historic runoff for the pre-developed condition. In some cases, the City will allow more runoff if there is available capacity in downstream infrastructure. However, in no case will runoff be allowed to exceed 0.2 cfs/acre. In some cases, runoff may be limited on a volumetric basis to pre-development conditions as well as a peak flow basis. Each subbasin has been assigned the highest possible release rate (not to exceed 0.2 cfs/acre) that preserves the integrity of downstream infrastructure. The maximum allowable release for each subbasin is documented in Appendix D, Figure D-1.

It should be noted that some areas of the City are located adjacent to Utah Lake or the Jordan River. In these areas, runoff is not limited to a specific release rate since independent local drainage facilities (instead of system-wide planned facilities) are to be used to convey runoff. These areas are indicated on Figure D-1 in Appendix D as areas requiring "local drainage only". It should also be noted that the storm facilities within these areas are still required to meet all Saratoga Springs standards, including the requirement to provide safe flood routing and protection for the 100-year design storm, which may still require detention depending on development layout, location, and whether there is a clear overland flow route leading directly to the lake or the river.

### Storm Drain Pipelines

Storm drain pipelines are generally designed to convey the 10-year storm event at full pipe capacity. Storm drain pipes are also not to be smaller than 15 inches in diameter. In the event that storm water discharge is greater than the 10-year event, the pipes will pressurize and eventually flood in the streets. It is important to note that roadways become the major storm water conveyance facility during storms that are larger than the 10-year design event and should be designed to convey flows up to the 100-year event.

The exception to this general requirement is for pipelines that have replaced natural drainages and convey drainage from Lake Mountain or any other upland areas. In these cases, the pipelines must be designed to convey the 100-year storm event.

### Open Channels

All open channels should be designed to convey the 100-year event with at least 2 feet of freeboard. This includes all manmade channels and enhancements to natural channels. Open channels should have adequate erosion protection for 100-year peak velocities. Therefore, open channels should also

be designed to prevent erosion according to Federal Highway Administration Hydraulic Engineering Circular (HEC) Number 15 guidelines. Open channel design should consider maintenance and safety issues.

### Culverts

All culverts on reaches of open channel should be designed to convey the 100-year event with at least 18-inches of freeboard at the road crossing.

### Detention Basins

Detention facilities need to have capacity for the design storm (see *Design Storm Parameters* in Chapter 3) with at least one foot of freeboard and be designed to safely direct potential overflow toward secondary conveyance facilities, such as a right-of-way or open channel, and away from private property and areas of potential property damage. Release rates for local detention basins need to be limited as described above in *Allowable Runoff*. Release rates for regional detention basins have been optimized to minimize cost between improvements at the detention basins and downstream conveyance facilities.

**Table 5-1**
**Evaluation Criteria Summary**

| Type | Evaluation Criteria |
|---|---|
| Allowable Runoff | Between historic runoff and 0.2 cfs per acre based on the capacity of downstream infrastructure |
| Pipelines | Minor: 10-year design storm<br>Major: 100-year design storm |
| Open Channels | 100-year design storm with at least 2 feet freeboard and armoring |
| Detention Basins | 100-year design storm with at least 1 foot freeboard; release rate per Allowable Runoff |

Note: See the detailed descriptions above and related City publications for more detailed discussion of City storm drain standards.

## CONVEYANCE SYSTEM ANALYSIS

With the additional growth projected for Saratoga Springs, it is expected that a number of projects will need to be constructed to meet build-out conditions in the City. Where existing facilities exist, much of the new growth can be accommodated through available excess capacity. In a few areas, some existing pipelines and detention basins will need to be replaced or modified. Where facilities do not currently exist, additional new pipelines and detention basins will need to be constructed to service new growth. Because of the extent of the improvements required to meet future growth, discussion of these improvements has been divided into a separate section. Chapter 6 discusses conceptual improvements that are proposed to serve continued growth in Saratoga Springs.

## MS4 LOW IMPACT DEVELOPMENT (LID) REQUIREMENTS

Recently, there has been much discussion regarding recent changes to the MS4 permit that require retention of the 80$^{th}$ percentile storm event on site. The City has adopted these standards for all new development where retention is feasible.

With regard to conveyance capacities, the LID requirement will not generally affect pipe, channel, or other conveyance sizing because the effects of LID measures on system performance during the design storms are negligible. This is because the design storms are much larger than the relatively small 80$^{th}$ percentile storm and because LID facilities' storage volume are assumed to be full at the time of the design storm event and will thus bypass all design storm runoff.

With regard to storage capacities, which are likely to be combined detention and LID retention facilities, the MS4 requirements could affect the total storage volume needed. This will be dictated by City policy and whether or not retention on the property is feasible. Therefore, this study presents volume information applicable only to the active, detention portion of the storage requirement. Additional storage volume may need to be added at local detention sites for the retention/LID portion of the storage requirement. Because regional detention basins are not expected to provide any retention/LID capacity, the volumes presented herein are directly representative of the required facility volume.

# CHAPTER 6
# BUILDOUT SYSTEM IMPROVEMENTS

The hydraulic model was used to evaluate various alternatives for meeting the required level of service under projected future conditions. Previous master plan alternatives and new alternatives proposed as part of this capital facilities plan were analyzed and the preferred conveyance alternatives were selected based on the most cost-effective approach of meeting the required level of service. Proposed sizes for pipes have been included in this report and are based on estimated peak runoff and estimated pipe slopes. Final sizing to meet peak runoff will need to be verified as part of final design for each individual project. Proposed sizes of, and discharge rates from, detention basins are based on minimizing the total cost of improvements.

## RECOMMENDED IMPROVEMENTS

Figure 6-1 shows the location of improvements proposed to meet the needs future growth in Saratoga Springs. For organization purposes, each project has been given a unique project identification (project ID). The project ID is consisting of three parts: XXYZ. The first part, XX, indicates the type of project where:

- "D" is for detention basins
- "C" is for culvert
- "P" is for pipe
- "OC" is for open channel
- "M" is for miscellaneous projects
- "DB" is for debris basin

The middle part, Y, indicates if the project is located in the northern ("N"), southern ("S"), or eastern ("E") portion of the City. This has been done for the reader's convenience in locating the projects; there is no separate "north", "south", or "east" service area for the purpose of impact fees or otherwise. The last part, Z, is a number assigned to the project. Thus "PN2" is a pipe project in the north with the number 2 assigned.

Table 6-1 summarizes all the projects, ordered by project number. This table also includes a brief description of, and design criteria for, each project. Tables 6-2 and 6-3 show these same projects with expected project costs in 2021 dollars. Table 6-2 consists of short-term projects (next 10 years), and Table 6-3 consists of long-term projects (beyond 10 years). Detailed cost estimate information for each project is located in Appendix C.

Projects were selected as "short term" projects based on the need for them in order to serve areas expected to develop within the next 10 years. These projects are shown in conjunction with areas of expected growth on Figure 6-2.

**Table 6-1**
**CFP Projects and Design Criteria**

| Project ID | Project Name | Description | Approximate Size * | Design Flow / Discharge (cfs) | Design Volume (acre-ft) |
|---|---|---|---|---|---|
| CN1 | Mountain View Corridor 5 | Install culvert under future Mountain View Corridor | 6' x 4' Box | 116 | - |
| CN2 | Foothill Blvd 6 | Install culvert under future Foothill Blvd | 36" dia | 34 | - |
| CN3 | Foothill Blvd & Tickville Wash | Install culvert under future Foothill Blvd | 10' x 9' Box | 706 | - |
| CN4 | Mountain View Corridor 1 | Install culvert under future Mountain View Corridor | 36" dia | 40 | - |
| CN5 | Mountain View Corridor 2 | Install culvert under future Mountain View Corridor | 36" dia | 40 | - |
| CN6 | Saratoga Parkway 1 | Saratoga Parkway 1 | 8' x 4' Box | 160 | - |
| CN8 | Mountain View Corridor 3 | Install culvert under future Mountain View Corridor | 42" dia | 60 | - |
| CN12 | Planned Collector | Install culvert under planned collector for Tickville | 10' x 9' Box | 706 | - |
| CN13 | Major Planned Collector | Install culverted under planned collector for Tickville | 10' x 9' Box | 706 | - |
| CN14 | Planned Collector | Install culvert under planned collector for Tickville | 10' x 9' Box | 706 | - |
| CS1 | Redwood Road & Little Canyon | Upsize existing culvert at Redwood Road | 10' x 6' Box | 395 | - |
| CS4 | Bonneville Dr. & Olaf Canyon | Install culvert under future Bonneville Dr | 8' x 4' Box | 245 | - |
| CS5 | Bonneville Dr. & Limekiln Canyon | Install culvert under future Bonneville Dr | 42" dia | 65 | - |
| CS6 | Foothill Blvd 1 | Install culvert under future Foothill Blvd | 6' x 4' Box | 70 | - |
| CS7 | Foothill Blvd 2 | Install culvert under future Foothill Blvd | 33" dia | 32 | - |
| CS8 | Foothill Blvd & Clark Canyon | Install culvert under future Foothill Blvd | 6' x 4' Box | 107 | - |
| CS9 | Foothill Blvd 3 | Install culvert under future Foothill Blvd | 36" dia | 43 | - |
| CS10 | Foothill Blvd 4 | Install culvert under future Foothill Blvd | 30" dia | 26 | - |
| CS11 | Foothill Blvd & Israel Canyon | Install culvert under future Foothill Blvd | 6' x 4' Box | 131 | - |
| CS12 | Planned Collector 2 | Install culvert under future planned collector | 6' x 4' Box | 70 | - |
| CS13 | Foothill Blvd & Harbor Parkway | Install culvert under future Foothill Blvd | 36" dia | 35 | - |
| CS14 | Foothill Blvd 5 | Install culvert under future Foothill Blvd | 6' x 4' Box | 100 | - |
| CS16 | Planned Collector 2 | Install culvert under future planned collector | 6' x 4' Box | 105 | - |
| CS17 | Planned Collector | Install culvert under collector road | 6' x 4' Box | 70 | - |

| Project ID | Project Name | Description | Approximate Size * | Design Flow / Discharge (cfs) | Design Volume (acre-ft) |
|---|---|---|---|---|---|
| CS18 | Planned Collector | Install culvert under collector road | 33" dia | 32 | - |
| CS19 | Planned Collector | Install culvert under collector road | 33" dia | 32 | - |
| CS20 | Planned Collector | Install culvert under collector road | 6' x 4' Box | 89 | - |
| DN3 | Mountain View Corridor 1 (New) | Regional Detention to limit flow to capacity of downstream infrastructure | 7.94 acres | 100 | 23 |
| DS1* | Harbor Parkway | New Pond to limit flow to capacity of existing pipe | 4.37 acres | 17 | 9 |
| DBN1 | Wildflower Area 1 Basin | Debris basin for offsite flows through Wildflower Area 1 | - | 37 | - |
| DBN2 | Wildflower Area 3 Basin | Debris basin for offsite flows through Wildflower Area 3 | - | 105 | - |
| DBN3 | Wildflower Area 2 Basin | Debris basin for offsite flows through Wildflower Area 2 | - | 80 | - |
| DBS1a | Upper South Basin | Debris basin (in design) to service alluvial fam OQE058 | - | 565 | - |
| DBS1b | Upper North Basin | Debris basin (in design) to service alluvial fan OQE059 | - | 198 | - |
| DBS2 | OQE076 Basin | Debris basin to service alluvial fan OQE076 | - | 225 | - |
| DBS3 | OQE055 Basin | Debris basin to service alluvial fan OQE055 | - | 251 | - |
| DBS4 | OQE077 Basin | Debris basin to service alluvial fan OQE077 | - | 82 | - |
| DBS5 | OQE076b Basin | Debris basin to service alluvial fan OQE076b | - | 184 | - |
| DBS6 | OQE064 Basin | Debris basin to service alluvial fan OQE064 | - | 89 | - |
| DBS7 | OQE063 Basin | Debris basin to service alluvial fan OQE063 | - | 279 | - |
| DBS8 | South Saratoga Basin | Debris basin to service flows at the South end of Saratoga Springs | - | 241 | - |
| DBS9 | South Saratoga Basin 2 | Debris basin to service flows at the south end of Saratoga | - | 25 | - |
| M1 | Pollution Control Outfall Treatment | New treatment devices to be added at all city outfalls | See Table 6-4 ft | | - |
| OCN1 | Clay Pit Reroute | Improve channel through development | 1451 ft | 36 | - |

| Project ID | Project Name | Description | Approximate Size * | Design Flow / Discharge (cfs) | Design Volume (acre-ft) |
|---|---|---|---|---|---|
| OCS1 | Village Parkway & Redwood Road | Improve existing channel to Utah Lake with Riprap and Vegetation as Required | 1986 ft | 109 | - |
| OCS2 | Clark Canyon | Improve existing channel to Utah Lake with Riprap and Vegetation as Required | 1259 ft | 151 | - |
| OCS4 | Fox Hollow Reroute | New channel to redirect flow to Fox Hollow open channel (which will remove the need for the temporary detention basin) | 306 ft | 29 | - |
| PE1 | Pioneer Crossing parallel | Install new pipe to serve area around Pioneer Crossing | P ft | 11 | - |
| PE2A | East side service 1 | New pipe for future development | 30'' dia | 28 | - |
| PE2B | East side service 2 | New pipe for future development | 48'' dia | 58 | - |
| PE3 | Saratoga Road 6 | New pipe for future development | 30'' dia | 27 | - |
| PE4B | Saratoga Road 2 | New pipe for future development | 30'' dia | 12 | - |
| PN2b | Redwood Road & Pony Express Extension | New pipe for future and existing development | 36'' dia | 30 | - |
| PN2c | Pony Express Crossing | Connect existing infrastructure to existing PN2a | 24'' dia | 13 | - |
| PN3a | Fairfield Road | New pipe for future development | 24'' dia | 15 | - |
| PN6f | Pioneer Crossing to Exchange Dr | Pipe for future development | 24'' dia | 19 | - |
| PN6g | Market Street | New pipe for future development | 24'' dia | 15 | - |
| PN8a | 1200 N 1 | New pipe for future development | 42'' dia | 116 | - |
| PN8b | 1200 N 2 | New pipe for future development | 42'' dia | 131 | - |
| PN8c | Redwood Rd. (1200 N to Market) | New pipe for future development | 48'' dia | 140 | - |
| PN8e | The Crossing Outfall | Increase existing 30-inch pipe to a 48-inch pipe | 48'' dia | 170 | – |
| PN10a | Wildflower Outlet | New pipe from Wildflower to Future Detention | 84'' dia | 285 | – |
| PN10b | Pioneer Crossing (DN3 to 1200 N) | New pipe for future development | 42'' dia | 100 | – |
| PN11 | 1200 North 3 | New pipe for future development | 18'' dia | 8 | – |
| PN12** | Harvest Hills to Jordan River | New pipe to provide additional outfall to Jordan River | 36'' dia | 60 | – |

| Project ID | Project Name | Description | Approximate Size * | Design Flow / Discharge (cfs) | Design Volume (acre-ft) |
|---|---|---|---|---|---|
| PN19 | Extension of line near storage units | New pipe for future development | 24'' dia | 10 | – |
| PN21d | 400 South 4 | New pipe in old canal alignment for new outfall to Utah Lake | 36'' dia | 76 | – |
| PN23a | 1400 N Line Extension 2 | New Pipe for Future Development | 15'' dia | 10 | – |
| PS1* | Harbor Parkway Basin Conveyance | Pipe to connect discharge from Harbor Parkway basin to City System and upsize existing system | 24'' dia | 34 | – |

Jordan River and Utah Lake Outfalls Notes: The majority of City drainages outfall to Jordan River or Utah Lake. New projects shall be constructed such that the outfall invert elevations are as follows:

- Outfalls to the Jordan River shall have invert elevations no lower than the normal water surface elevation of the river.
- Outfalls to Utah Lake shall have invert elevations no lower than the compromise elevation of the lake.

Approximate Sizing Notes: Master plan sizing is based on simplified design conditions. Detailed design sizing should be independently calculated. Basic Master plan assumptions are as follows.

- Approximate pipeline sizing is based on average slope as measured using ground surface contours.
- Approximate culvert sizing is based on inlet control with box culverts for design flows over 100 cfs.
- Approximate detention sizing assumes an average active depth of 5 feet.
- Approximate open channel sizing assumes a width to depth ratio of 2:1, uses available DTM for approximating channel slope, and assumes a manning roughness coefficient of 0.035 (rip rap). The reported width is the bottom width of a 2:1 trapezoidal channel.

*Project cost is partially being covered by NRCS grants.

**Final project alignment has not been determined. All alternative alignments are approximately the same cost. See chapter 7 for identification of alternatives.

## PROJECT PRIORITIZATION

It should be noted that new development is the primary reason that these projects are needed. As a result, the priority of projects to be completed within the short-term window is dependent upon upcoming development location and construction timing. Therefore, the prioritization and timing of these projects may be expedited or deferred accordingly. The exception to this is project M1 (See *Pollution Control and Outfall Treatment* below) and debris basin projects (see *Debris Basins* below). A summary of each identified short-term project is in Appendix I.

**Table 6-2**
**CFP & Estimated Costs – Short-Term Projects (within next 10 years)**

| Project ID | Project Name | Total Estimated Cost (2021 dollars) |
|---|---|---|
| CN1 | Mountain View Corridor 5 | $96,100 |
| CN6 | Saratoga Parkway 1 | $192,200 |
| CN8 | Mountain View Corridor 3 | $96,100 |
| DN3 | Mountain View Corridor 1 (New) | $331,605 |
| DS1* | Harbor Parkway | $1,416,000 |
| OCN1 | Clay Pit Reroute | $383,100 |
| OCS1 | Village Parkway & Redwood Road | $624,200 |
| OCS2 | Clark Canyon | $432,500 |
| PE3 | Saratoga Road 6 | $520,400 |
| PN10a | Wildflower Outlet | $672,900 |
| PN10b | Pioneer Crossing (DN3 to 1200 N) | $288,400 |
| PN11 | 1200 North 3 | $163,600 |
| PN12** | Harvest Hills to Jordan River | $1,749,000 |
| PN19 | Extension of line near storage units | $324,900 |
| PN21d | 400 South 4 | $300,000 |
| PN23a | 1400 N Line Extension 2 | $239,700 |
| PN2b | Redwood Road & Pony Express Extension | $896,800 |
| PN2c | Pony Express Crossing | $40,800 |
| PN3a | Fairfield Road | $716,000 |
| PN6f | Pioneer Crossing to Exchange Dr | $295,600 |
| PN6g | Market Street | $176,300 |
| PN8a | 1200 N 1 | $674,700 |
| PN8b | 1200 N 2 | $1,270,800 |
| PN8c | Redwood Rd. (1200 N to Market) | $211,200 |
| PN8e | The Crossing Outfall | $40,300 |
| PS1* | Harbor Parkway Basin Conveyance | $775,700 |
| | **Total:** | **$12,928,905** |

*Project cost is being covered by an NRCS grant.
**Final project alignment has not been determined. All alternative alignments are approximately the same cost. See chapter 7 for identification of alternatives.

**Table 6-3**
**CFP & Estimated Costs – Long-Term Projects (beyond next 10 years)**

| Project ID | Project Name | Total Estimated Cost (2021 dollars) |
|---|---|---|
| CN12 | Planned Collector | $576,700 |
| CN13 | Major Planned Collector | $576,700 |
| CN14 | Planned Collector | $576,700 |
| CN2 | Foothill Blvd 6 | $96,100 |
| CN3 | Foothill Blvd & Tickville Wash | $576,700 |
| CN4 | Mountain View Corridor 1 | $96,100 |
| CN5 | Mountain View Corridor 2 | $96,100 |
| CS1 | Redwood Road & Little Canyon | $384,500 |
| CS10 | Foothill Blvd 4 | $96,100 |
| CS11 | Foothill Blvd & Israel Canyon | $192,200 |
| CS12 | Planned Collector 2 | $96,100 |
| CS13 | Foothill Blvd & Harbor Parkway | $96,100 |
| CS14 | Foothill Blvd 5 | $96,100 |
| CS16 | Planned Collector 2 | $96,100 |
| CS17 | Planned Collector | $96,100 |
| CS18 | Planned Collector | $96,100 |
| CS19 | Planned Collector | $96,100 |
| CS20 | Planned Collector | $96,100 |
| CS4 | Bonneville Dr. & Olaf Canyon | $192,200 |
| CS5 | Bonneville Dr. & Limekiln Canyon | $96,100 |
| CS6 | Foothill Blvd 1 | $96,100 |
| CS7 | Foothill Blvd 2 | $96,100 |
| CS8 | Foothill Blvd & Clark Canyon | $96,100 |
| CS9 | Foothill Blvd 3 | $96,100 |
| DBN1 | Wildflower Area 1 Basin | $848,536 |
| DBN2 | Wildflower Area 3 Basin | $1,229,122 |
| DBN3 | Wildflower Area 2 Basin | $1,089,201 |
| DBS1a | Upper South Basin | $3,803,670 |
| DBS1b | Upper North Basin | $1,749,628 |
| DBS2 | OQE076 Basin | $1,900,743 |
| DBS3 | OQE055 Basin | $2,046,261 |
| DBS4 | OQE077 Basin | $1,100,394 |
| DBS5 | OQE076b Basin | $1,671,273 |
| DBS6 | OQE064 Basin | $1,139,572 |
| DBS7 | OQE063 Basin | $2,202,973 |
| DBS8 | South Saratoga Basin | $1,990,293 |
| DBS9 | South Saratoga Basin 2 | $781,374 |
| M1 | Pollution Control Outfall Treatment | $2,492,000 |
| OCS4 | Fox Hollow Reroute | $44,800 |
| PE1 | Pioneer Crossing parallel | $1,286,600 |
| PE2A | East side service 1 | $104,900 |
| PE2B | East side service 2 | $1,025,400 |
| PE4B | Saratoga Road 2 | $859,500 |
| | **Total:** | **$32,075,641** |

## POLLUTION CONTROL AND OUTFALL TREATMENT

The City has supplied a record of all City outfalls that indicates whether the outfall is fitted with a water quality device. It is the City's intention to provide treatment for all outfalls not already protected by upstream treatment devices.

Therefore, Project M1, *Pollution Control Outfall Treatment*, is included within this CFP to add treatment to the City's outfalls where needed. The size and scope of adding these devices will vary from outfall to outfall and location to location. Outfalls that may require additional treatment have been identified in Figure 6-4. Rough costs associated with adding treatment to these outfalls has been included in Table 6-4 below for budgeting purposes.

It is recommended that city personnel conduct an in-field audit of each identified outfall as part of the creation of a prioritization plan to assist in the execution of Project M1. Such an investigation is required to determine the proper type and location of new treatment. For example, instead of treating at the outfall, it may be more effective to treat at multiple locations upstream.

**Table 6-4**
**CFP Project M1 – Pollution Control Outfall Treatment**

| Outfall Facility ID from City Database | Design Treatment Flow (cfs) | Design Bypass Flow (cfs) | Total Estimated Cost (2021 dollars) |
|---|---|---|---|
| 47852 | 5 | 5 | $50,000 |
| 47775 | 66 | 66 | $100,000 |
| 47689 | 97 | 153 | $150,000 |
| 47624 | 58 | 96 | $100,000 |
| 47575 (Engineer's Estimate) | 205 | 219 | $242,000 |
| 47782 | 74 | 151 | $100,000 |
| 47841 | 28 | 52 | $50,000 |
| 47989 | 75 | 126 | $100,000 |
| 32 Misc. Minor Outfalls | - | - | $1,600,000 |
| **Total** | | | **$2,492,000** |

## OPERATIONAL MODIFICATIONS

During the modeling process there were a few locations where recommended changes in operational activities were identified. While these changes will not likely require any significant capital investment, they are an important part of the system's overall performance and should be implemented in the field in the near future. Operational changes are primarily associated with allowable outflow on existing detention basins. The following list shows the location and operational change that should be made. These updates may require physically changing the orifice plate at a basin or may simply require adjustment of control gates depending on how each basin was constructed.

- D21 (Weatherby Dr. & Ring Rd.) – Downsize Orifice from 48" to 30"
- D22 (Maverick Rd . & Holly Rd.) – Downsize Orifice from 30" to 20"

## DEBRIS BASINS

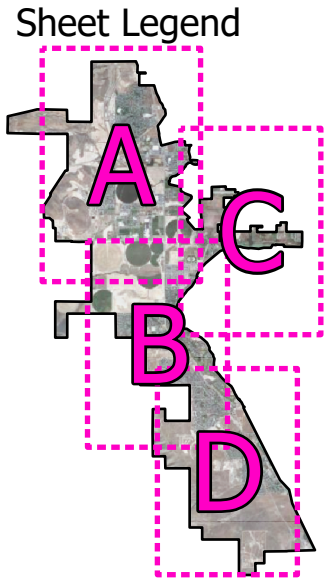
The Lake Mountains just west of a major portion of Saratoga Springs have a history of summer wildfires. In recent years, several drainages have caught fire and nearly all of the mountain has been affected by fire at some point in time. Fire above the City presents a significant storm drainage risk for the City. In at least one instance, debris flows from burned portions of the mountain drainages have clogged or compromised storm drain infrastructure, resulting in flooding for City residents.

Recent flooding and fire activity have resulted in increased focus on these mountain drainages and how new and existing development downstream can be protected. Therefore, the City has recently worked with the US Army Corps of Engineers to identify alluvial fans coming down into the City from the Lake Mountains and their associated risk to the City. With these studies complete, the City now intends to construct debris basins at all the major open channels prior to them flowing through the City.

Consequently, debris basins have been identified and added as projects to the City's CFP, IFFP, and IFA. These debris basin projects have been prioritized in accordance with alluvial fan risk scores presented in the US Army Corps of Engineers *Hydrologic Analysis of Alluvial Fan Areas* study. None of the alluvial plans are in the highest risk classification category; therefore, no debris basins have been placed within the 10-year planning window. The debris basin projects, and their corresponding cost estimates, are all shown on Table 6-3.

Conceptual locations for the identified debris basin projects are shown on Figure 6-3. Final location and sizes are to be determined at the time of detailed design. It should be noted that some debris basins' presumed locations are downstream of reaches of open channel located outside the defined canyons of the Lake Mountain drainages. During detailed design, care should be taken to improve and maintain channels upstream of basins as needed to ensure flow direction does not naturally shift away from the installed debris basins.

## Sheet Legend




## Project Labels

XX Y Y
- Number ID
- Y: N-North, S-South
- XX: D-Detention Basin, C-Culvert, P-Pipe, OC-Open Channel, M-Miscellaneous

## Legend

- Project Boundary
- Outfall
- Existing Culvert
- Future Culvert
- Existing Debris Basin
- Future Debris Basin
- Existing Detention Basin
- Future Basin
- Improve Channel
- Maintain Natural Channel
- Existing Trunk Line
- Future Trunk Line
- Existing SD Pipes
- Master Planned Roads
- 2020 City Boundary
- Annexation Extents

DBN1 CN8 DBN3 CN6 DN3 PN10a PN10b CN1 PN11 PN8a PN8b PN8c PN8e PN6f PN6g PN19 PN12a1 PN12a2 PN23a PE1 PE2B PN3a PN2c PN2b PN21d CN3 CN12 CN13 CN14

Maxar

| | | | | | |
|---|---|---|---|---|---|
| BOWEN COLLINS & ASSOCIATES | STORM DRAIN CAPITAL FACILITIES PLAN | PROPOSED STORM DRAIN PROJECTS | NORTH: NORTH | SCALE: 0 900 1,800 Feet | FIGURE NO. 6-1A |

P:\Saratoga Springs\305-20-03 Storm Drain CFP, IFFP, and IFA Update\4.0 GIS\Storm Drain Master Map 2020.aprx efica 4/20/2021

Sheet Legend

A
B
C
D

Project Labels

XX Y Y
- Number ID
- N-North, S-South
- D-Detention Basin, C-Culvert, P-Pipe, OC-Open Channel, M-Miscellaneous

Legend

- Project Boundary
- Outfall
- Existing Culvert
- Future Culvert
- Existing Debris Basin
- Future Debris Basin
- Existing Detention Basin
- Future Basin
- Improve Channel
- Maintain Natural Channel
- Existing Trunk Line
- Future Trunk Line
- Existing SD Pipes
- Master Planned Roads
- 2020 City Boundary
- Annexation Extents

PN2c
PN21d
CN3
CN12
CN13
CN14
CN5
CN2
OCN1
DBS1b
DBS1a
CS11
CS10
CS9
OCS1
OCS2
DBS4
DBS2
CS8
DBS5
Maxar

| | | | | | |
|---|---|---|---|---|---|
| BOWEN COLLINS & ASSOCIATES | STORM DRAIN CAPITAL FACILITIES PLAN | PROPOSED STORM DRAIN PROJECTS | NORTH: NORTH | SCALE: 0 900 1,800 Feet | FIGURE NO. 6-1B |

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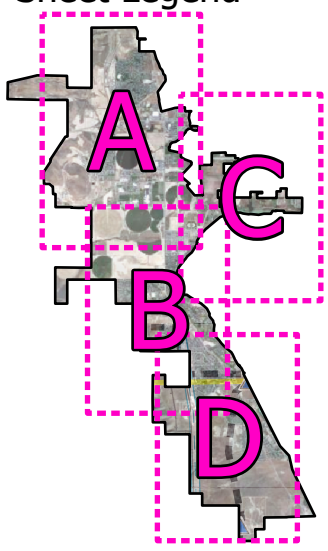
## Sheet Legend




## Project Labels

XX Y Y
- Number ID
- Y: N-North, S-South
- XX: D-Detention Basin, C-Culvert, P-Pipe, OC-Open Channel, M-Miscellaneous

## Legend

- Project Boundary
- Outfall
- Existing Culvert
- Future Culvert
- Existing Debris Basin
- Future Debris Basin
- Existing Detention Basin
- Future Basin
- Improve Channel
- Maintain Natural Channel
- Existing Trunk Line
- Future Trunk Line
- Existing SD Pipes
- Master Planned Roads
- 2020 City Boundary
- Annexation Extents

PE1
PE2B
PE2A
PE4B
PE3
PN2b

Maxar

# STORM DRAIN CAPITAL FACILITIES PLAN

# PROPOSED STORM DRAIN PROJECTS

NORTH:

SCALE: 0 900 1,800 Feet

FIGURE NO. 6-1C

BOWEN COLLINS & ASSOCIATES

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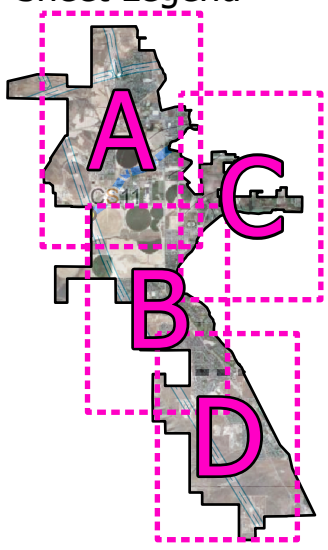
## Sheet Legend




## Project Labels

XX Y Y
- Number ID
- Y: N-North, S-South
- XX: D-Detention Basin, C-Culvert, P-Pipe, OC-Open Channel, M-Miscellaneous

## Legend

- Project Boundary
- Outfall
- Existing Culvert
- Future Culvert
- Existing Debris Basin
- Future Debris Basin
- Existing Detention Basin
- Future Basin
- Improve Channel
- Maintain Natural Channel
- Existing Trunk Line
- Future Trunk Line
- Existing SD Pipes
- Master Planned Roads
- 2020 City Boundary
- Annexation Extents

OCN1
OCS1
OCS2
OCS3
CS10
CS9
DBS4
DBS2
CS8
DBS5
CS13
PS1
DS1*
CS14
DBS6
CS20
CS19
CS18
CS7
CS17
CS6
CS12
CS16
DBS9
CS5
CS4
DBS7
DBS8
CS1

Maxar

| | | | | | |
|---|---|---|---|---|---|
| BOWEN COLLINS & ASSOCIATES | STORM DRAIN CAPITAL FACILITIES PLAN | PROPOSED STORM DRAIN PROJECTS | NORTH: NORTH | SCALE: 0 900 1,800 Feet | FIGURE NO. 6-1D |

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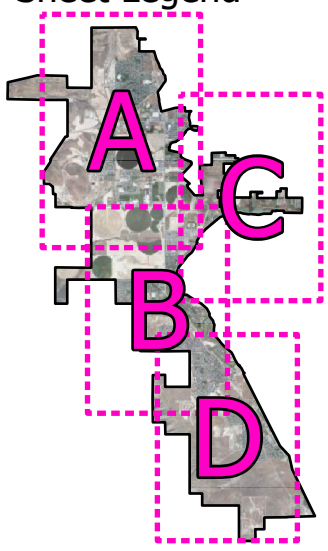
## Sheet Legend




## Project Labels

XX Y Y
- Number ID
- Y: N-North, S-South
- XX: D-Detention Basin, C-Culvert, P-Pipe, OC-Open Channel, M-Miscellaneous

## Legend

- Future Culvert
- Future Debris Basin
- Existing Basin
- Future Basin
- Maintain Natural Channel
- Improved Channels
- Future Trunk Line
- Existing SD Pipes
- No Projected Growth
- Low Projected Growth
- Medium Projected Growth
- High Projected Growth
- Saratoga Springs Boundary

CN8
PN19
PN12a1
PN12a1
PN12a2
PN12a1
CN6
PN23a
PN12a1
PN12a1
PN10a
PN10b
DN3
PN8a
PN8b
PN8c
CN1
PN11
PN6f
PN8e
PN6g
PE1
PE2B
PN3a
PN2c
PN2b
PE3
PN21d
Maxar

| | | | | | |
|---|---|---|---|---|---|
| BOWEN COLLINS & ASSOCIATES | STORM DRAIN CAPITAL FACILITIES PLAN | SHORT TERM GROWTH AND PROJECTS (NEXT 10 YEARS) | NORTH: NORTH | SCALE: 0 940 1,880 Feet | FIGURE NO. 6-2A |

P:\Saratoga Springs\305-20-03 Storm Drain CFP, IFFP, and IFA Update\4.0 GIS\Storm Drain Master Map 2020.aprx efica 4/20/2021

Sheet Legend

A
B
C
D

Project Labels

XX Y Y
- Number ID
- Y: N-North, S-South
- XX: D-Detention Basin, C-Culvert, P-Pipe, OC-Open Channel, M-Miscellaneous

Legend

- Future Culvert
- Future Debris Basin
- Existing Basin
- Future Basin
- Maintain Natural Channel
- Improved Channels
- Future Trunk Line
- Existing SD Pipes
- No Projected Growth
- Low Projected Growth
- Medium Projected Growth
- High Projected Growth
- Saratoga Springs Boundary

PE2B
PE2A
PN2c
PN21d
OCN1
OCS1
OCS4
OCS2
Maxar

BOWEN COLLINS & ASSOCIATES

STORM DRAIN CAPITAL FACILITIES PLAN

SHORT TERM GROWTH AND PROJECTS (NEXT 10 YEARS)

NORTH:

SCALE: 0 940 1,880 Feet

FIGURE NO. 6-2B

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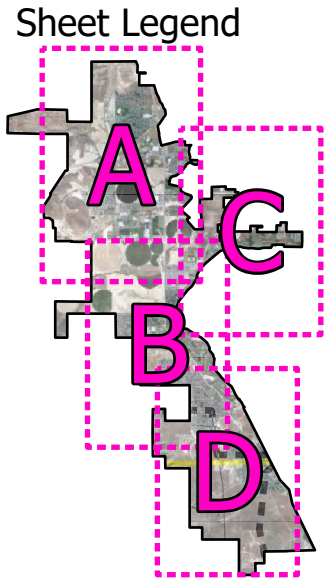
## Sheet Legend




## Project Labels

XX Y Y
- Number ID
- N-North, S-South
- D-Detention Basin, C-Culvert, P-Pipe, OC-Open Channel, M-Miscellaneous

## Legend

- Future Culvert
- Future Debris Basin
- Existing Basin
- Future Basin
- Maintain Natural Channel
- Improved Channels
- Future Trunk Line
- Existing SD Pipes
- No Projected Growth
- Low Projected Growth
- Medium Projected Growth
- High Projected Growth
- Saratoga Springs Boundary

PN12a1
PE1
PE2B
PE2A
PE4B
PE3
PN2b
PN21d

Maxar

# STORM DRAIN CAPITAL FACILITIES PLAN

# SHORT TERM GROWTH AND PROJECTS (NEXT 10 YEARS)

BOWEN COLLINS & ASSOCIATES

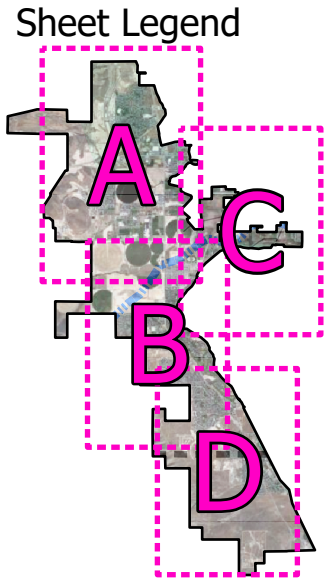
NORTH:

SCALE: 0 940 1,880 Feet

FIGURE NO. 6-2C

P:\Saratoga Springs\305-20-03 Storm Drain CFP, IFFP, and IFA Update\4.0 GIS\Storm Drain Master Map 2020.aprx efica 4/20/2021

## Sheet Legend




## Project Labels

XX Y Y
- Number ID
- N-North, S-South
- D-Detention Basin, C-Culvert, P-Pipe, OC-Open Channel, M-Miscellaneous

## Legend

- Future Culvert
- Future Debris Basin
- Existing Basin
- Future Basin
- Maintain Natural Channel
- Improved Channels
- Future Trunk Line
- Existing SD Pipes
- No Projected Growth
- Low Projected Growth
- Medium Projected Growth
- High Projected Growth
- Saratoga Springs Boundary

OCS1

OCS1A

OCS2

PS1

DS1*

Maxar

BOWEN COLLINS & ASSOCIATES

# STORM DRAIN CAPITAL FACILITIES PLAN

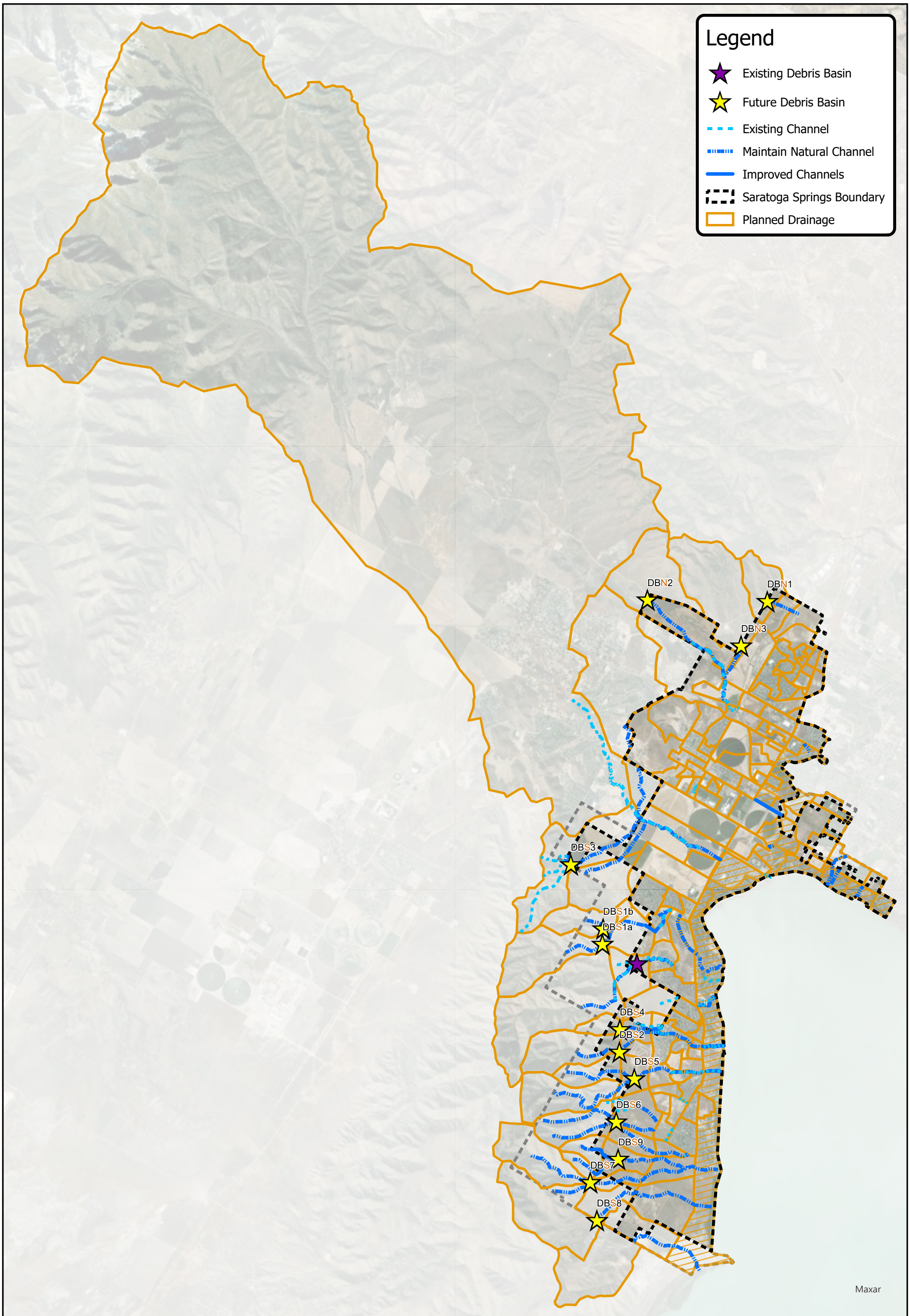
## SHORT TERM GROWTH AND PROJECTS (NEXT 10 YEARS)

NORTH:

SCALE: 0 940 1,880 Feet

FIGURE NO. 6-2D

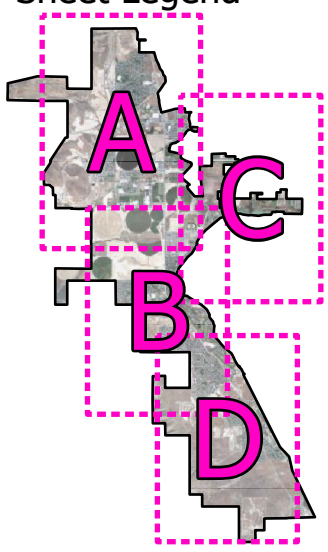
P:\Saratoga Springs\305-20-03 Storm Drain CFP, IFFP, and IFA Update\4.0 GIS\Storm Drain Master Map 2020.aprx efica 4/20/2021




| | | | | | |
|---|---|---|---|---|---|
| BOWEN COLLINS & ASSOCIATES | STORM DRAIN CAPITAL FACILITIES PLAN | DEBRIS BASINS | NORTH: NORTH | SCALE: 0 3,000 6,000 Feet | FIGURE NO. 6-3 |

P:\Saratoga Springs\305-20-03 Storm Drain CFP, IFFP, and IFA Update\4.0 GIS\Storm Drain Master Map 2020.aprx efica 4/20/2021

Sheet Legend




Legend

- Minor outfall with treatment need
- Major outfall w/treatment need
- Outfall with existing treatment
- Existing SD Pipes
- City Boundary
- Existing Basin
- Future Basin
- Natural Channel

Existing treatment maintained by:

- Private
- City
- Unknown

DN5

Treatment project identified at major outfall: 47852

Treatment project identified at major outfall: 47775

Maxar

BOWEN COLLINS & ASSOCIATES

# STORM DRAIN CAPITAL FACILITIES PLAN

## PROJECT M1 POLLUTION CONTROL OUTFALL TREATMENT

NORTH:

SCALE: 0 900 1,800 Feet

FIGURE NO. 6-4A

P:\Saratoga Springs\305-20-03 Storm Drain CFP, IFFP, and IFA Update\4.0 GIS\Storm Drain Master Map 2020.aprx efica 4/20/2021

Sheet Legend

A

B

C

D

Legend

- Minor outfall with treatment need
- Major outfall w/treatment need
- Outfall with existing treatment
- Existing SD Pipes
- City Boundary
- Existing Basin
- Future Basin
- Natural Channel

Existing treatment maintained by:

- Private
- City
- Unknown

Treatment project identified at major outfall 47775

Treatment project identified at major outfall 47689

Treatment project identified at major outfall 47624

Treatment project identified at major outfall 47575

Maxar

BOWEN COLLINS & ASSOCIATES

# STORM DRAIN CAPITAL FACILITIES PLAN

## PROJECT M1 POLLUTION CONTROL OUTFALL TREATMENT

NORTH:

NORTH

SCALE:

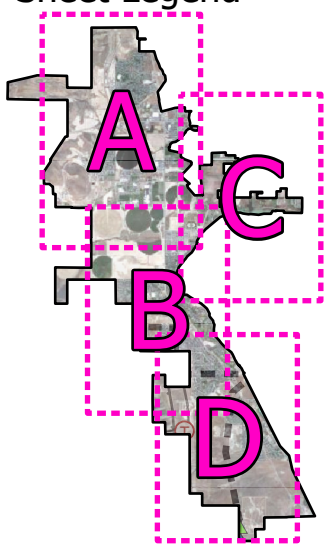
0 900 1,800 Feet

FIGURE NO.

6-4B

P:\Saratoga Springs\305-20-03 Storm Drain CFP, IFFP, and IFA Update\4.0 GIS\Storm Drain Master Map 2020.aprx efica 4/20/2021

Sheet Legend




Legend

- Minor outfall with treatment need
- Major outfall w/treatment need
- Outfall with existing treatment
- Existing SD Pipes
- City Boundary
- Existing Basin
- Future Basin
- Natural Channel

Existing treatment maintained by:

- Private
- City
- Unknown

Treatment project identified at major outfall 47852

Treatment project identified at major outfall 47775

Treatment project identified at major outfall 47689

Maxar

BOWEN COLLINS & ASSOCIATES

# STORM DRAIN CAPITAL FACILITIES PLAN

## PROJECT M1 POLLUTION CONTROL OUTFALL TREATMENT

NORTH:

NORTH

SCALE:

0 900 1,800 Feet

FIGURE NO.

6-4C

P:\Saratoga Springs\305-20-03 Storm Drain CFP, IFFP, and IFA Update\4.0 GIS\Storm Drain Master Map 2020.aprx efica 4/20/2021

Sheet Legend

A

B

C

D

Treatment project identified at major outfall 47624

Treatment project identified at major outfall 47575

Treatment project identified at major outfall 47782

Treatment project identified at major outfall 47841

Treatment project identified at major outfall 47989

Legend

- Minor outfall with treatment need
- Major outfall w/treatment need
- Outfall with existing treatment
- Existing SD Pipes
- City Boundary
- Existing Basin
- Future Basin
- Natural Channel

Existing treatment maintained by:

- Private
- City
- Unknown

Maxar

BOWEN COLLINS & ASSOCIATES

# STORM DRAIN CAPITAL FACILITIES PLAN

## PROJECT M1 POLLUTION CONTROL OUTFALL TREATMENT

NORTH:

NORTH

SCALE:

0 900 1,800 Feet

FIGURE NO.

6-4D

P:\Saratoga Springs\305-20-03 Storm Drain CFP, IFFP, and IFA Update\4.0 GIS\Storm Drain Master Map 2020.aprx efica 4/20/2021

# CHAPTER 7
# AREAS OF ADDITIONAL INTEREST AND PLANNING

The City and BC&A have identified some areas of current or imminent development that have undergone additional planning and coordination. Some areas are also subject to special circumstances related to contractual obligation, historic flow patterns, etc. This section of the CFP provides brief descriptions of these circumstances. More detailed information can be obtained from the City.

## WILDFLOWER DEVELOPMENT

The Wildflower development is a new development in the advanced stages of planning and design (Subbasins PR060C, PR060B, and PR050B). There are several mountain drainages that currently cross this development. The submitted Wildflower Drainage Plan provides for the capture and conveyance of these mountain drainages in their storm drain system. This system conveys both subbasins to the Welby Jacob Canal in three different outfalls (shown on Figure 6-1). The rates of discharge into the canal are governed by an agreement between the Wildflower Development and the canal company. According to City records, the agreement allows 3.02 cfs to be discharged at the two northmost outfalls and 10.54 cfs to be discharged at the south outfall. (The text of the agreement is available in Appendix M of the approved Wildflower Master Utility Report.) The development will need to provide significant detention to achieve these rates of discharge in the 100-year storm event.

For additional information, please see approved Master Plan Utility Report, dated November 2, 2020.

## WILDFLOWER ON-SITE AREA 3 (PREVIOUSLY KNOWN AS WILDFLOWER WEST)

The latest information available to the City and BC&A indicates that the same development group that owns Wildflower now owns subbasin JR150. This development has previously been called Wildflower West but is now known as Wildflower On-Site Area 3.

This area currently drains to an informal detention basin on the property owned by UDOT at the southwest corner of the intersection of SR73/Pioneer Crossing and Mountainview Corridor (see next section for additional discussion). While this detention basin is adequate for capturing and detaining existing undeveloped conditions, it will not be sufficient to meet the drainage needs of projected future development without special consideration. This CFP (as well as the last CFP) has identified improvement projects (e.g. DN3, CN1, PN10a, PN10b, PN8a, PN8b, PN8c, PN8e) necessary to serve this area but these projects, like all others, will be only be constructed as funding allows and may not be completed in full for many years. Thus, the developer will not be allowed to release into the City system until this issue is addressed.

The developer has three options to resolve this issue:

1. The developer can wait for these projects to be completed as the City secures funding;
2. The developer can expedite the construction of identified CFP projects so that the detention requirement within the development can be less restrictive; or
3. The developer can limit all releases into the informal detention basin on UDOT property to flows that match both historic release rates and historic release volumes.

Per the approved Wildflower Master Utility Plan, the current plan for this development is the third option. The peak release rate from Wildflower On-Site Area 3, including pass-through flows from Camp Williams and areas south of SR-73, is not to exceed 185.07 cfs. Total release volume is not to exceed the historic volume.

## UDOT INFORMAL DETENTION BASIN

As described above, the existing property owned by UDOT at the southwest corner of the intersection of SR73/Pioneer Crossing and Mountainview Corridor currently functions as an informal detention bason for flows from southeast. In times past, the City's storm drain master plan identified a project to enlarge this basin to accommodate future growth in the Wildflower area (Project DN3). As noted in the previous section, the current plan being pursued by Wildflower is to detain to both the historic flow rate and historic volume such that no additional detention is needed. Regardless of whether additional volume is needed at this location, it will be imperative that UDOT maintain the existing storage volume at this location to preserve the current detention function. Costs shown in this CFP reflect the difference between current storage and future storage need. If Wildflower detains to both the historic rate and volume, the cost will be applied to upstream basins rather than the existing UDOT basin. Note that as part of Project DN3, the existing drainage channel to the NE will be abandoned and all flow from the basin will be directed to the SE.

## UTAH LAKE/JORDAN RIVER FLOOD PLAINS AND NEARBY DEVELOPMENT

At the east end of the City, there is a significant area of property that is affected by regulatory flood plains of both Utah Lake and the Jordan River. Per City policy, all areas affected by the flood plain must be raised such that the minimum elevation of storm drain catch basin grates is no less than 4498.2, which is the 100-year flood plain elevation of Utah Lake. Above this minimum elevation, additional fill will be needed to provide positive drainage from houses and business to the street and to convey water in the street to the catch basins.

It should be noted that the elevation quoted here is based on the NAVD88 vertical datum. Care should be taken to verify that reported development elevations are consistent with this datum.

## FOX HOLLOW DEVELOPMENT

The Fox Hollow development consists of several phases, some of which are already at or near buildout, and others are still in the planning phases. Phases of this development are located on either side of Village Parkway, west of Redwood Road. This development has existing detention facilities which were found to be insufficient to accommodate runoff from future upstream phases as currently planned. BC&A assisted the City in addressing these deficiencies and finding a solution that will not overwhelm existing facilities, but that can accommodate future growth. A detailed discussion of this area, and the solution accepted by the developer and the City can be found in the technical memo produced by BC&A and last updated on June 7, 2017 (Appendix E).

## HARBOR PARKWAY DRAINAGE AREA

Since the last Saratoga Springs Storm Drain CFP (June 2018), a number of conditions changed such that the plan for detention basin DS1 and the surrounding drainage areas needed to be re-evaluated. A summary of these changes are as follows:

- CRS Engineers has begun designing a debris basin to the west of the previously proposed location of DS1. As part of this project, the city would like to incorporate detention capacity into the basin to accomplish the purposes originally identified for DS1.
- Hansen Allen & Luce (HAL) is designing a secondary water storage pond to the southeast of the proposed debris basin. As part of the design of this facility, an overflow pipeline is needed to convey up to 17 cfs. As much as possible, HAL would like to combine overflow from this facility with the storm drain facilities in the area to minimize costs to the City.

- A development to the north of Harbor Parkway called Westview Estates has been approved to release to the pipe in Harbor Parkway at 1.8 cfs.
- CRS completed an updated survey of existing storm drain pipelines along Harbor Parkway providing more accurate data for capacity evaluation and planning.

BC&A assisted the city in defining these changes in a technical memo produced December 28, 2020 (Appendix G). A summary of recommendations made within that memo are as follows:

- All remaining undeveloped area in applicable subbasins is to be detained to 0.035 cfs/acre.
- Release rate from the new debris basin/detention pond is limited to 16.6 cfs.
- Project PS1a is to include the installation of a new 24-inch pipeline to convey at least 33.6 cfs from the detention basin and pond overflow to at least Lake Mountain Drive.
- Project PS1b is to replace any remaining 15-inch pipeline at the upper end of Harbor Parkway with at least 18-inch pipeline.

If all recommendations are applied to the Harbor Parkway Drainage area, both the future CRS detention basin and the HAL irrigation pond can be safely conveyed through PS1a, PS1b, and the existing City system.

## PN12 ALTERNATIVES

The project that is shown on Figure 6-1 as PN12 is a project to install pipes and a new outfall to convey flow to the Jordan River from Harvest Hills, Riverview Elementary School, and other future developments in Northeast Saratoga Springs. This conveyance is essential to the system because the existing pipes in Redwood Road and Crossroads BLVD do not have the capacity to accept flow from these locations. The proposed project, PN12, is concerning to the City because it requires construction along Redwood Road and through existing neighborhoods. In an effort to avoid construction in these busy areas and to avoid inconveniencing existing neighborhoods, the City and BC&A investigated potential alternatives that accomplish the same goal as PN12. Preliminary analyses showed one possible alternative that is comparable in cost to PN12 while avoiding as much construction in Redwood Road and existing neighborhoods as possible. The recommended alternative is shown in Appendix H. A summary of the recommended alternative is as follows:

- Undeveloped areas to the north (that have not already been approved) will decrease their release rates to 0.05 cfs/acre
- Flow from Harvest Hills and approximately 8 cfs from upstream developments will be sent to the existing school basin
- The existing school basin will be upsized to accommodate additional flows (see figure for details and assumptions)
- Two new crossings will be installed (one on Redwood, one on Crossroads) to intercept flow from the existing pipe on Redwood Road
- 10 cfs from the north side of Crossroads will be send to the south side of Crossroads at Commerce Drive
- Flow on the south side of Crossroads will be routed to the existing natural drainage and into the existing unused outfall

A final analysis comparing PN12 and the PN12 alternative will be completed at a later date.

# APPENDIX A
# HYDROLOGIC DATA

Legend

Subbasins

Saratoga Springs Boundary

TG060

JR160

PR050A

PR060A

PR060B

PR060C

JR150

TG070a

JR140

PR050B

JR086

JR079

PR040C

JR069

JR067

PR020

PR030

JR066

JR065

JR068

JR070

TG070b

JR063

JR050

JR060

PR010

JR032B

JR030

JR095

JR032C

JR035

JR031

TG070c

JR022A

JR010

JR020

JR120

JR130

TG020

TG010A

UL211

LH212

UL152b

UL230

UL240

TG040

UL152a

UL144

UL148

UL146

UL142

UL140

UL132

UL134

UL136

UL130

UL121

UL124

UL120

UL126

UL115

UL110

UL103

UL102

UL101

UL100

UL083

UL080A

UL084

UL082

UL081

UL070B

UL066

UL063

UL060

UL065

UL062

UL061

UL212

UL050

UL213

UL045

UL044

UL043

UL040

UL034

UL041

UL035

UL033

UL032

UL030

UL031

UL024

UL022

UL020

UL010

UL012

Maxar

BOWEN COLLINS & ASSOCIATES

STORM DRAIN CAPITAL FACILITIES PLAN

SUBBASIN BOUNDARIES

NORTH:

SCALE: 0 3,000 6,000 Feet

FIGURE NO. A-1

P:\Saratoga Springs\305-20-03 Storm Drain CFP, IFFP, and IFA Update\4.0 GIS\Storm Drain Master Map 2020.aprx efica 4/20/2021




BOWEN COLLINS & ASSOCIATES

STORM DRAIN CAPITAL FACILITIES PLAN

SUBBASIN BOUNDARIES

NORTH: NORTH

SCALE: 0 3,000 6,000 Feet

FIGURE NO. A-2

P:\Saratoga Springs\305-20-03 Storm Drain CFP, IFFP, and IFA Update\4.0 GIS\Storm Drain Master Map 2020.aprx efica 4/20/2021

# APPENDIX B
# ASSA INPUT AND OUTPUT

# FULL BUILD-OUT CONDITION - NORTH
# 10-YEAR STORM

## Project Description

File Name ..... Saratoga North Buildout_SD_v2_PN12_Option5.SPF

## Project Options

Flow Units ..... CFS
Elevation Type ..... Elevation
Hydrology Method ..... HEC-1
HEC-1 unit hydrograph method ..... SCS Dimensionless
HEC-1 loss method ..... SCS Curve Number
Link Routing Method ..... Hydrodynamic
Enable Overflow Ponding at Nodes ..... YES
Skip Steady State Analysis Time Periods ... NO

## Analysis Options

Start Analysis On ..... Jan 01, 2012 00:00:00
End Analysis On ..... Jan 01, 2012 23:55:00
Start Reporting On ..... Jan 01, 2012 00:00:00
Antecedent Dry Days ..... 0 days
Runoff (Dry Weather) Time Step ..... 0 01:00:00 days hh:mm:ss
Runoff (Wet Weather) Time Step ..... 0 00:01:00 days hh:mm:ss
Reporting Time Step ..... 0 00:01:00 days hh:mm:ss
Routing Time Step ..... 15 seconds

## Number of Elements

| | Qty |
|---|---|
| Rain Gages | 4 |
| Subbasins | 74 |
| Nodes | 263 |
| *Junctions* | 185 |
| *Outfalls* | 12 |
| *Flow Diversions* | 0 |
| *Inlets* | 0 |
| *Storage Nodes* | 66 |
| Links | 258 |
| *Channels* | 3 |
| *Pipes* | 186 |
| *Pumps* | 0 |
| *Orifices* | 11 |
| *Weirs* | 1 |
| *Outlets* | 57 |
| Pollutants | 0 |
| Land Uses | 0 |

## Rainfall Details

| SN | Rain Gage ID | Data Source | Data Source ID | Rainfall Type | Rain Units | State | County | Return Period (years) | Rainfall Depth (inches) | Rainfall Distribution |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 100-Year | Time Series | TS-100yr | Cumulative | inches | | | | 0.00 | |
| 2 | 10-Year | Time Series | TS-10yr | Cumulative | inches | | | | 0.00 | |
| 3 | 2-Year | Time Series | TS-2yr | Cumulative | inches | | | | 0.00 | |
| 4 | NOAA24hr | Time Series | TS-25yr | Cumulative | inches | | | | 0.00 | |

## Subbasin Summary

| SN | Subbasin ID | Area (ac) | Total Rainfall (in) | Total Runoff (in) | Total Runoff Volume (ac-in) | Peak Runoff (cfs) |
|---|---|---|---|---|---|---|
| 1 | IrrigationOverflow | 0.28 | 0.98 | 940.18 | 260.96 | 11.02 |
| 2 | JR010 | 433.17 | 0.98 | 0.59 | 255.14 | 265.26 |
| 3 | JR012 | 30.63 | 0.98 | 0.25 | 7.78 | 4.96 |
| 4 | JR020 | 238.14 | 0.98 | 0.84 | 199.56 | 229.92 |
| 5 | JR022A | 76.92 | 0.98 | 0.72 | 55.08 | 33.99 |
| 6 | JR022A2 | 16.55 | 0.98 | 0.72 | 11.86 | 16.15 |
| 7 | JR022B | 65.28 | 0.98 | 0.72 | 46.74 | 28.84 |
| 8 | JR023 | 24.06 | 0.98 | 0.33 | 8.04 | 10.54 |
| 9 | JR024 | 9.50 | 0.98 | 0.53 | 5.03 | 6.94 |
| 10 | JR025 | 26.71 | 0.98 | 0.81 | 21.66 | 20.59 |
| 11 | JR029 | 20.61 | 0.98 | 0.59 | 12.24 | 26.12 |
| 12 | JR030 | 99.26 | 0.98 | 0.59 | 58.46 | 67.64 |
| 13 | JR031 | 58.80 | 0.98 | 0.72 | 42.22 | 50.63 |
| 14 | JR032A | 24.53 | 0.98 | 0.27 | 6.50 | 11.47 |
| 15 | JR032B | 66.91 | 0.98 | 0.25 | 16.46 | 22.23 |
| 16 | JR032C | 21.75 | 0.98 | 0.24 | 5.11 | 7.64 |
| 17 | JR032Ca | 27.91 | 0.98 | 0.24 | 6.56 | 9.80 |
| 18 | JR032Cb | 16.97 | 0.98 | 0.15 | 2.49 | 4.14 |
| 19 | JR032D | 16.86 | 0.98 | 0.25 | 4.27 | 2.73 |
| 20 | JR035 | 106.40 | 0.98 | 0.27 | 28.30 | 36.77 |
| 21 | JR040 | 26.23 | 0.98 | 0.42 | 10.96 | 15.40 |
| 22 | JR050 | 75.91 | 0.98 | 0.59 | 45.09 | 44.55 |
| 23 | JR060 | 34.02 | 0.98 | 0.77 | 26.30 | 40.52 |
| 24 | JR061 | 27.98 | 0.98 | 0.76 | 21.15 | 29.72 |
| 25 | JR062 | 55.28 | 0.98 | 0.76 | 41.85 | 58.76 |
| 26 | JR063 | 169.69 | 0.98 | 0.59 | 99.78 | 99.57 |
| 27 | JR064A | 27.36 | 0.98 | 0.30 | 8.32 | 12.69 |
| 28 | JR064B | 83.17 | 0.98 | 0.25 | 21.04 | 26.16 |
| 29 | JR065 | 94.86 | 0.98 | 0.79 | 74.47 | 106.79 |
| 30 | JR066 | 81.90 | 0.98 | 0.28 | 22.52 | 27.86 |
| 31 | JR067 | 119.96 | 0.98 | 0.27 | 31.91 | 35.64 |
| 32 | JR068 | 102.05 | 0.98 | 0.83 | 84.80 | 116.06 |
| 33 | JR069 | 77.22 | 0.98 | 0.80 | 61.39 | 88.06 |
| 34 | JR070 | 59.99 | 0.98 | 0.71 | 42.60 | 49.03 |
| 35 | JR071 | 16.88 | 0.98 | 0.39 | 6.65 | 7.44 |
| 36 | JR079 | 55.88 | 0.98 | 0.84 | 46.77 | 58.69 |
| 37 | JR081 | 28.35 | 0.98 | 0.84 | 23.67 | 36.01 |
| 38 | JR-081b | 28.01 | 0.98 | 0.84 | 23.42 | 39.58 |
| 39 | JR082 | 19.87 | 0.98 | 0.83 | 16.55 | 23.73 |
| 40 | JR083 | 36.82 | 0.98 | 0.72 | 26.40 | 37.81 |
| 41 | JR084 | 39.11 | 0.98 | 0.25 | 9.58 | 11.48 |
| 42 | JR085 | 25.52 | 0.98 | 0.27 | 6.76 | 10.96 |
| 43 | JR086 | 138.78 | 0.98 | 0.25 | 34.00 | 47.89 |
| 44 | JR087 | 25.82 | 0.98 | 0.27 | 6.95 | 9.61 |
| 45 | JR088 | 37.93 | 0.98 | 0.27 | 10.05 | 17.02 |
| 46 | JR089 | 33.28 | 0.98 | 0.27 | 8.82 | 13.71 |
| 47 | JR090 | 58.55 | 0.98 | 0.29 | 16.98 | 24.63 |
| 48 | JR091 | 18.12 | 0.98 | 0.59 | 10.63 | 15.71 |
| 49 | JR092 | 8.80 | 0.98 | 0.87 | 7.61 | 8.37 |
| 50 | JR093 | 17.08 | 0.98 | 0.60 | 10.16 | 14.71 |
| 51 | JR094 | 57.08 | 0.98 | 0.59 | 33.85 | 38.90 |
| 52 | JR095A | 26.53 | 0.98 | 0.83 | 22.12 | 45.18 |
| 53 | JR095B | 17.34 | 0.98 | 0.84 | 14.49 | 31.14 |
| 54 | JR096A | 21.46 | 0.98 | 0.27 | 5.69 | 8.47 |
| 55 | JR096B | 4.51 | 0.98 | 0.25 | 1.14 | 0.73 |
| 56 | JR150 | 474.78 | 0.98 | 0.25 | 120.12 | 51.14 |
| 57 | JR160 | 1318.29 | 0.98 | 0.01 | 7.91 | 4.13 |
| 58 | MtSaratoga1 | 136.62 | 0.98 | 0.28 | 37.57 | 59.96 |
| 59 | MtSaratoga2 | 107.59 | 0.98 | 0.33 | 35.83 | 52.84 |
| 60 | MtSaratoga3 | 82.37 | 0.98 | 0.25 | 20.67 | 30.65 |
| 61 | PR030 | 149.87 | 0.98 | 0.30 | 44.81 | 53.74 |
| 62 | PR060A | 726.89 | 0.98 | 0.00 | 2.18 | 2.06 |
| 63 | PRO40C | 131.80 | 0.98 | 0.25 | 33.34 | 27.97 |
| 64 | PRO50A | 1081.30 | 0.98 | 0.01 | 6.49 | 4.28 |
| 65 | PRO50B | 291.50 | 0.98 | 0.25 | 73.75 | 47.19 |
| 66 | Sub-11 | 64.78 | 0.98 | 0.50 | 32.26 | 31.68 |
| 67 | Sub-12 | 9.53 | 0.98 | 0.77 | 7.37 | 12.36 |
| 68 | Sub-13 | 10.31 | 0.98 | 0.25 | 2.59 | 1.74 |
| 69 | Sub-31 | 49.33 | 0.98 | 0.71 | 34.97 | 40.35 |
| 70 | TG010A | 141.70 | 0.98 | 0.84 | 118.74 | 136.80 |
| 71 | TG010B | 52.92 | 0.98 | 0.25 | 13.02 | 15.03 |
| 72 | TG-010C | 11.32 | 0.98 | 0.97 | 10.99 | 23.59 |
| 73 | TG010D | 4.09 | 0.98 | 0.94 | 3.84 | 8.22 |
| 74 | WildflowerPlatA | 6.88 | 0.98 | 0.25 | 1.73 | 1.11 |

## Node Summary

| SN | Element ID | Element Type | Invert Elevation (ft) | Ground/Rim (Max) Elevation (ft) | Initial Water Elevation (ft) | Surcharge Elevation (ft) | Ponded Area (ft²) | Peak Inflow (cfs) | Max HGL Elevation Attained (ft) | Max Surcharge Depth Attained (ft) | Min Freeboard Attained (ft) | Time of Peak Flooding Occurrence (days hh:mm) | Total Flooded Volume (ac-in) | Total Time Flooded (min) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 198 | Junction | 4606.66 | 4612.50 | 0.07 | 4612.50 | 0.00 | 28.88 | 4609.21 | 0.00 | 3.29 | 0 00:00 | 0.00 | 0.00 |
| 2 | 201 | Junction | 4609.17 | 4615.97 | 0.10 | 4615.97 | 0.00 | 23.26 | 4612.46 | 0.00 | 3.51 | 0 00:00 | 0.00 | 0.00 |
| 3 | 201a | Junction | 4606.16 | 4612.50 | 0.03 | 4612.50 | 0.00 | 28.88 | 4608.49 | 0.00 | 4.01 | 0 00:00 | 0.00 | 0.00 |
| 4 | 202 | Junction | 4611.25 | 4616.88 | 0.00 | 4615.88 | 0.00 | 18.60 | 4613.58 | 0.00 | 3.30 | 0 00:00 | 0.00 | 0.00 |
| 5 | 203 | Junction | 4616.56 | 4624.56 | 0.00 | 9235.81 | 0.00 | 18.60 | 4647.51 | 22.95 | 0.00 | 0 00:00 | 0.00 | 0.00 |
| 6 | J0018-0 | Junction | 4545.56 | 4548.66 | 0.00 | 4551.76 | 0.00 | 1.00 | 4545.80 | 0.00 | 2.86 | 0 00:00 | 0.00 | 0.00 |
| 7 | J0018-1 | Junction | 4540.09 | 4544.49 | 0.00 | 4548.89 | 0.00 | 1.00 | 4540.34 | 0.00 | 4.15 | 0 00:00 | 0.00 | 0.00 |
| 8 | J0019-0 | Junction | 4545.76 | 4549.66 | 0.00 | 4553.56 | 0.00 | 1.00 | 4546.28 | 0.00 | 3.38 | 0 00:00 | 0.00 | 0.00 |
| 9 | J0020-1 | Junction | 4535.12 | 4539.32 | 0.00 | 4543.52 | 0.00 | 1.00 | 4535.37 | 0.00 | 3.95 | 0 00:00 | 0.00 | 0.00 |
| 10 | J0021-1 | Junction | 4530.51 | 4534.61 | 0.00 | 4548.71 | 0.00 | 1.00 | 4530.80 | 0.00 | 3.81 | 0 00:00 | 0.00 | 0.00 |
| 11 | J0023-0 | Junction | 4530.35 | 4533.90 | 0.00 | 4547.45 | 0.00 | 1.00 | 4530.67 | 0.00 | 3.23 | 0 00:00 | 0.00 | 0.00 |
| 12 | J0026-1 | Junction | 4546.71 | 4549.51 | 0.00 | 4552.31 | 0.00 | 1.00 | 4547.07 | 0.00 | 2.44 | 0 00:00 | 0.00 | 0.00 |
| 13 | J0038-0 | Junction | 4544.91 | 4550.35 | 0.00 | 4550.35 | 0.00 | 17.00 | 4546.15 | 0.00 | 4.20 | 0 00:00 | 0.00 | 0.00 |
| 14 | J0040-0 | Junction | 4554.09 | 4558.54 | 0.00 | 4558.54 | 0.00 | 3.00 | 4554.56 | 0.00 | 3.98 | 0 00:00 | 0.00 | 0.00 |
| 15 | J0040-1 | Junction | 4553.18 | 4557.73 | 0.00 | 4557.73 | 0.00 | 3.00 | 4553.66 | 0.00 | 4.07 | 0 00:00 | 0.00 | 0.00 |
| 16 | J0041-0 | Junction | 4551.21 | 4555.41 | 0.00 | 4555.41 | 0.00 | 3.00 | 4551.67 | 0.00 | 3.74 | 0 00:00 | 0.00 | 0.00 |
| 17 | J0041-1 | Junction | 4550.28 | 4555.41 | 0.00 | 4555.41 | 0.00 | 3.00 | 4550.76 | 0.00 | 4.65 | 0 00:00 | 0.00 | 0.00 |
| 18 | J0043-0 | Junction | 4558.86 | 4564.71 | 0.00 | 4564.71 | 0.00 | 3.00 | 4559.47 | 0.00 | 5.24 | 0 00:00 | 0.00 | 0.00 |
| 19 | J0043-1 | Junction | 4558.42 | 4563.42 | 0.00 | 4563.42 | 0.00 | 3.00 | 4558.87 | 0.00 | 4.55 | 0 00:00 | 0.00 | 0.00 |
| 20 | J0044-1 | Junction | 4556.59 | 4561.79 | 0.00 | 4561.79 | 0.00 | 3.00 | 4557.04 | 0.00 | 4.75 | 0 00:00 | 0.00 | 0.00 |
| 21 | J0048-0 | Junction | 4560.70 | 4566.85 | 0.00 | 4566.85 | 0.00 | 3.00 | 4561.13 | 0.00 | 5.72 | 0 00:00 | 0.00 | 0.00 |
| 22 | J0050-0 | Junction | 4579.17 | 4587.57 | 0.00 | 4600.00 | 0.00 | 28.84 | 4581.56 | 0.00 | 6.01 | 0 00:00 | 0.00 | 0.00 |
| 23 | J0052-1 | Junction | 4571.48 | 4575.05 | 0.00 | 4575.05 | 0.00 | 0.00 | 4571.48 | 0.00 | 3.57 | 0 00:00 | 0.00 | 0.00 |
| 24 | J0054-1 | Junction | 4561.20 | 4566.85 | 0.00 | 4566.85 | 0.00 | 3.00 | 4561.65 | 0.00 | 5.20 | 0 00:00 | 0.00 | 0.00 |
| 25 | J0071-0 | Junction | 4585.38 | 4589.48 | 0.00 | 4603.58 | 0.00 | 11.06 | 4586.70 | 0.00 | 2.78 | 0 00:00 | 0.00 | 0.00 |
| 26 | J0071-1 | Junction | 4585.32 | 4588.92 | 0.00 | 4612.52 | 0.00 | 11.80 | 4585.86 | 0.00 | 3.06 | 0 00:00 | 0.00 | 0.00 |
| 27 | J0073-0 | Junction | 4605.89 | 4616.51 | 0.00 | 4627.14 | 0.00 | 10.00 | 4607.20 | 0.00 | 9.31 | 0 00:00 | 0.00 | 0.00 |
| 28 | J0073-1 | Junction | 4605.36 | 4612.03 | 0.00 | 4618.70 | 0.00 | 10.00 | 4606.00 | 0.00 | 6.03 | 0 00:00 | 0.00 | 0.00 |
| 29 | J0074-0 | Junction | 4609.03 | 4618.78 | 0.00 | 4628.53 | 0.00 | 15.00 | 4610.51 | 0.00 | 8.27 | 0 00:00 | 0.00 | 0.00 |
| 30 | J0074-1 | Junction | 4608.13 | 4617.03 | 0.00 | 4625.93 | 0.00 | 15.00 | 4609.32 | 0.00 | 7.71 | 0 00:00 | 0.00 | 0.00 |
| 31 | J0075-1 | Junction | 4605.98 | 4617.53 | 0.00 | 4629.08 | 0.00 | 15.00 | 4606.84 | 0.00 | 10.69 | 0 00:00 | 0.00 | 0.00 |
| 32 | J0076-0 | Junction | 4609.87 | 4618.92 | 0.00 | 4627.97 | 0.00 | 15.22 | 4611.84 | 0.00 | 7.08 | 0 00:00 | 0.00 | 0.00 |
| 33 | J0077-0 | Junction | 4610.90 | 4619.15 | 0.00 | 4627.40 | 0.00 | 15.06 | 4614.11 | 0.00 | 5.04 | 0 00:00 | 0.00 | 0.00 |
| 34 | J0078-0 | Junction | 4612.12 | 4620.37 | 0.00 | 4628.62 | 0.00 | 15.02 | 4617.46 | 0.00 | 2.91 | 0 00:00 | 0.00 | 0.00 |
| 35 | J0079-0 | Junction | 4613.74 | 4621.69 | 0.00 | 4629.64 | 0.00 | 15.01 | 4617.94 | 0.00 | 3.75 | 0 00:00 | 0.00 | 0.00 |
| 36 | J0080-0 | Junction | 4614.73 | 4619.33 | 0.00 | 4623.93 | 0.00 | 15.00 | 4619.00 | 0.00 | 0.33 | 0 00:00 | 0.00 | 0.00 |
| 37 | J0080-1 | Junction | 4614.29 | 4620.14 | 0.00 | 4625.99 | 0.00 | 15.01 | 4618.44 | 0.00 | 1.70 | 0 00:00 | 0.00 | 0.00 |
| 38 | J0084-0 | Junction | 4532.69 | 4542.04 | 0.00 | 4551.39 | 0.00 | 17.12 | 4534.59 | 0.00 | 7.45 | 0 00:00 | 0.00 | 0.00 |
| 39 | J0086-0 | Junction | 4534.15 | 4542.55 | 0.00 | 4542.55 | 0.00 | 17.12 | 4535.48 | 0.00 | 7.07 | 0 00:00 | 0.00 | 0.00 |
| 40 | J0086-1 | Junction | 4533.20 | 4541.65 | 0.00 | 4550.10 | 0.00 | 17.12 | 4534.80 | 0.00 | 6.85 | 0 00:00 | 0.00 | 0.00 |
| 41 | J0108-1 | Junction | 4586.74 | 4593.41 | 0.00 | 4600.08 | 0.00 | 10.00 | 4587.32 | 0.00 | 6.09 | 0 00:00 | 0.00 | 0.00 |
| 42 | J0109-1 | Junction | 4586.99 | 4593.23 | 0.00 | 4599.90 | 0.00 | 11.06 | 4587.31 | 0.00 | 9.68 | 0 00:00 | 0.00 | 0.00 |
| 43 | J0110-1 | Junction | 4585.43 | 4590.68 | 0.00 | 4597.35 | 0.00 | 11.06 | 4587.21 | 0.00 | 8.22 | 0 00:00 | 0.00 | 0.00 |
| 44 | J0125-0 | Junction | 4626.22 | 4632.02 | 0.00 | 4637.82 | 0.00 | 10.00 | 4626.85 | 0.00 | 5.17 | 0 00:00 | 0.00 | 0.00 |
| 45 | J0125-1 | Junction | 4617.41 | 4622.06 | 0.00 | 4626.71 | 0.00 | 10.00 | 4618.27 | 0.00 | 3.79 | 0 00:00 | 0.00 | 0.00 |
| 46 | J0126-0 | Junction | 4632.19 | 4638.49 | 0.00 | 4644.79 | 0.00 | 8.00 | 4632.81 | 0.00 | 5.68 | 0 00:00 | 0.00 | 0.00 |
| 47 | J0126-1 | Junction | 4629.13 | 4634.00 | 0.00 | 4657.46 | 0.00 | 10.00 | 4630.03 | 0.00 | 3.97 | 0 00:00 | 0.00 | 0.00 |
| 48 | J0127-0 | Junction | 4606.32 | 4617.37 | 0.00 | 4628.42 | 0.00 | 10.00 | 4607.55 | 0.00 | 9.82 | 0 00:00 | 0.00 | 0.00 |
| 49 | J0129-0 | Junction | 4615.74 | 4620.29 | 0.00 | 4624.84 | 0.00 | 10.00 | 4616.40 | 0.00 | 3.89 | 0 00:00 | 0.00 | 0.00 |
| 50 | J421012 | Junction | 4582.55 | 4590.95 | 0.00 | 4599.35 | 0.00 | 25.00 | 4583.96 | 0.00 | 6.99 | 0 00:00 | 0.00 | 0.00 |
| 51 | J421015 | Junction | 4596.75 | 4601.15 | 0.00 | 4605.55 | 0.00 | 11.06 | 4597.98 | 0.00 | 3.17 | 0 00:00 | 0.00 | 0.00 |
| 52 | J421016 | Junction | 4601.71 | 4610.26 | 0.00 | 4618.81 | 0.00 | 11.06 | 4602.79 | 0.00 | 7.47 | 0 00:00 | 0.00 | 0.00 |
| 53 | J421017 | Junction | 4605.36 | 4614.06 | 0.00 | 4622.76 | 0.00 | 11.06 | 4606.67 | 0.00 | 7.39 | 0 00:00 | 0.00 | 0.00 |
| 54 | J421018 | Junction | 4608.21 | 4614.81 | 0.00 | 4621.41 | 0.00 | 11.06 | 4609.00 | 0.00 | 5.81 | 0 00:00 | 0.00 | 0.00 |
| 55 | J421019 | Junction | 4610.44 | 4615.14 | 0.00 | 4619.84 | 0.00 | 11.06 | 4611.47 | 0.00 | 3.67 | 0 00:00 | 0.00 | 0.00 |
| 56 | J421185 | Junction | 4731.42 | 4749.37 | 0.00 | 4749.37 | 0.00 | 16.42 | 4732.77 | 0.00 | 16.60 | 0 00:00 | 0.00 | 0.00 |
| 57 | J421186 | Junction | 4730.77 | 4747.62 | 0.00 | 4747.62 | 0.00 | 6.51 | 4731.99 | 0.00 | 15.63 | 0 00:00 | 0.00 | 0.00 |
| 58 | J421187 | Junction | 4730.20 | 4746.45 | 0.00 | 4746.45 | 0.00 | 6.51 | 4731.45 | 0.00 | 15.00 | 0 00:00 | 0.00 | 0.00 |
| 59 | J421188 | Junction | 4729.81 | 4745.66 | 0.00 | 4745.66 | 0.00 | 6.50 | 4730.92 | 0.00 | 14.74 | 0 00:00 | 0.00 | 0.00 |
| 60 | J421189 | Junction | 4728.22 | 4739.47 | 0.00 | 4739.47 | 0.00 | 16.39 | 4729.04 | 0.00 | 10.43 | 0 00:00 | 0.00 | 0.00 |
| 61 | J421190 | Junction | 4716.50 | 4729.05 | 0.00 | 4729.05 | 0.00 | 16.39 | 4717.63 | 0.00 | 11.42 | 0 00:00 | 0.00 | 0.00 |
| 62 | J421191 | Junction | 4713.49 | 4725.79 | 0.00 | 4725.79 | 0.00 | 16.39 | 4714.23 | 0.00 | 11.56 | 0 00:00 | 0.00 | 0.00 |
| 63 | J421192 | Junction | 4703.92 | 4713.42 | 0.00 | 4713.42 | 0.00 | 16.39 | 4704.69 | 0.00 | 8.73 | 0 00:00 | 0.00 | 0.00 |
| 64 | J421193 | Junction | 4694.15 | 4701.55 | 0.00 | 4701.55 | 0.00 | 16.39 | 4694.92 | 0.00 | 6.63 | 0 00:00 | 0.00 | 0.00 |
| 65 | J421194 | Junction | 4687.36 | 4694.76 | 0.00 | 4694.76 | 0.00 | 27.90 | 4688.50 | 0.00 | 6.26 | 0 00:00 | 0.00 | 0.00 |
| 66 | J421195 | Junction | 4670.77 | 4676.77 | 0.00 | 4676.77 | 0.00 | 27.90 | 4672.01 | 0.00 | 4.76 | 0 00:00 | 0.00 | 0.00 |
| 67 | J421196 | Junction | 4663.74 | 4670.24 | 0.00 | 4670.24 | 0.00 | 27.90 | 4665.21 | 0.00 | 5.03 | 0 00:00 | 0.00 | 0.00 |
| 68 | J421197 | Junction | 4733.85 | 4743.45 | 0.00 | 4753.05 | 0.00 | 4.78 | 4734.67 | 0.00 | 8.78 | 0 00:00 | 0.00 | 0.00 |
| 69 | J421200 | Junction | 4733.33 | 4743.58 | 0.00 | 4753.83 | 0.00 | 4.78 | 4734.30 | 0.00 | 9.28 | 0 00:00 | 0.00 | 0.00 |
| 70 | J421201 | Junction | 4732.57 | 4746.07 | 0.00 | 4759.57 | 0.00 | 4.78 | 4733.41 | 0.00 | 12.66 | 0 00:00 | 0.00 | 0.00 |
| 71 | J4244 | Junction | 4522.27 | 4528.57 | 0.00 | 4528.57 | 0.00 | 27.49 | 4523.83 | 0.00 | 4.74 | 0 00:00 | 0.00 | 0.00 |
| 72 | J4245 | Junction | 4616.24 | 4622.54 | 0.00 | 4628.84 | 0.00 | 11.06 | 4616.97 | 0.00 | 5.57 | 0 00:00 | 0.00 | 0.00 |
| 73 | J42450 | Junction | 4546.90 | 4554.75 | 0.00 | 4562.60 | 0.00 | 113.08 | 4549.02 | 0.00 | 5.73 | 0 00:00 | 0.00 | 0.00 |
| 74 | J42451 | Junction | 4552.23 | 4560.13 | 0.00 | 4568.03 | 0.00 | 113.08 | 4554.65 | 0.00 | 5.48 | 0 00:00 | 0.00 | 0.00 |
| 75 | J42452 | Junction | 4557.88 | 4566.58 | 0.00 | 4575.28 | 0.00 | 116.47 | 4560.34 | 0.00 | 6.24 | 0 00:00 | 0.00 | 0.00 |
| 76 | J42453 | Junction | 4559.93 | 4570.43 | 0.00 | 4580.93 | 0.00 | 109.08 | 4562.75 | 0.00 | 7.68 | 0 00:00 | 0.00 | 0.00 |
| 77 | J42454 | Junction | 4568.24 | 4570.99 | 0.00 | 4573.74 | 0.00 | 9.70 | 4568.71 | 0.00 | 2.28 | 0 00:00 | 0.00 | 0.00 |
| 78 | J4249 | Junction | 4522.92 | 4529.59 | 0.00 | 4529.59 | 0.00 | 27.49 | 4525.41 | 0.00 | 4.18 | 0 00:00 | 0.00 | 0.00 |
| 79 | J42554 | Junction | 4531.50 | 4542.18 | 0.00 | 4542.18 | 0.00 | 137.95 | 4534.28 | 0.00 | 7.90 | 0 00:00 | 0.00 | 0.00 |
| 80 | J4260 | Junction | 4523.15 | 4529.55 | 0.00 | 4529.55 | 0.00 | 27.49 | 4524.53 | 0.00 | 5.02 | 0 00:00 | 0.00 | 0.00 |
| 81 | J4262 | Junction | 4523.56 | 4529.96 | 0.00 | 4529.96 | 0.00 | 27.49 | 4525.59 | 0.00 | 4.37 | 0 00:00 | 0.00 | 0.00 |
| 82 | J4263 | Junction | 4524.03 | 4531.03 | 0.00 | 4531.03 | 0.00 | 27.49 | 4526.35 | 0.00 | 4.68 | 0 00:00 | 0.00 | 0.00 |
| 83 | J4264 | Junction | 4524.56 | 4531.56 | 0.00 | 4531.56 | 0.00 | 27.49 | 4527.02 | 0.00 | 4.54 | 0 00:00 | 0.00 | 0.00 |
| 84 | J4265 | Junction | 4524.66 | 4532.76 | 0.00 | 4532.76 | 0.00 | 27.49 | 4527.23 | 0.00 | 5.53 | 0 00:00 | 0.00 | 0.00 |
| 85 | J4267 | Junction | 4526.93 | 4533.08 | 0.00 | 4533.08 | 0.00 | 27.49 | 4528.44 | 0.00 | 4.64 | 0 00:00 | 0.00 | 0.00 |
| 86 | J4272 | Junction | 4547.81 | 4553.01 | 0.00 | 4553.01 | 0.00 | 3.00 | 4548.37 | 0.00 | 4.64 | 0 00:00 | 0.00 | 0.00 |
| 87 | J4278 | Junction | 4547.22 | 4551.82 | 0.00 | 4551.82 | 0.00 | 3.00 | 4547.74 | 0.00 | 4.08 | 0 00:00 | 0.00 | 0.00 |

## Node Summary

| SN | Element ID | Element Type | Invert Elevation (ft) | Ground/Rim (Max) Elevation (ft) | Initial Water Elevation (ft) | Surcharge Elevation (ft) | Ponded Area (ft²) | Peak Inflow (cfs) | Max HGL Elevation Attained (ft) | Max Surcharge Depth Attained (ft) | Min Freeboard Attained (ft) | Time of Peak Flooding Occurrence (days hh:mm) | Total Flooded Volume (ac-in) | Total Time Flooded (min) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 88 | J4287 | Junction | 4566.95 | 4570.85 | 0.00 | 4570.85 | 0.00 | 0.00 | 4566.95 | 0.00 | 3.90 | 0 00:00 | 0.00 | 0.00 |
| 89 | J42877 | Junction | 4500.54 | 4509.34 | 0.00 | 4509.34 | 0.00 | 5.00 | 4503.01 | 0.00 | 6.33 | 0 00:00 | 0.00 | 0.00 |
| 90 | J4288 | Junction | 4565.39 | 4569.39 | 0.00 | 4569.39 | 0.00 | 0.00 | 4565.39 | 0.00 | 4.00 | 0 00:00 | 0.00 | 0.00 |
| 91 | J42886 | Junction | 4502.98 | 4506.60 | 0.00 | 4513.27 | 0.00 | 12.04 | 4504.18 | 0.00 | 2.42 | 0 00:00 | 0.00 | 0.00 |
| 92 | J42887 | Junction | 4628.69 | 4635.94 | 0.00 | 4649.19 | 0.00 | 33.87 | 4630.64 | 0.00 | 5.30 | 0 00:00 | 0.00 | 0.00 |
| 93 | J42888 | Junction | 4631.26 | 4638.76 | 0.00 | 4646.76 | 0.00 | 33.87 | 4632.86 | 0.00 | 5.90 | 0 00:00 | 0.00 | 0.00 |
| 94 | J4289 | Junction | 4539.19 | 4545.39 | 0.00 | 4545.39 | 0.00 | 17.00 | 4540.04 | 0.00 | 5.35 | 0 00:00 | 0.00 | 0.00 |
| 95 | J42890 | Junction | 4637.18 | 4645.63 | 0.00 | 4659.08 | 0.00 | 103.68 | 4638.64 | 0.00 | 6.99 | 0 00:00 | 0.00 | 0.00 |
| 96 | J42891 | Junction | 4638.52 | 4645.92 | 0.00 | 4653.32 | 0.00 | 33.44 | 4640.16 | 0.00 | 5.76 | 0 00:00 | 0.00 | 0.00 |
| 97 | J42893 | Junction | 4496.93 | 4500.63 | 0.00 | 4504.33 | 0.00 | 12.04 | 4498.10 | 0.00 | 2.53 | 0 00:00 | 0.00 | 0.00 |
| 98 | J42901 | Junction | 4655.25 | 4661.05 | 0.00 | 4676.85 | 0.00 | 33.43 | 4656.74 | 0.00 | 4.31 | 0 00:00 | 0.00 | 0.00 |
| 99 | J42903 | Junction | 4651.21 | 4656.91 | 0.00 | 4672.61 | 0.00 | 33.43 | 4652.63 | 0.00 | 4.28 | 0 00:00 | 0.00 | 0.00 |
| 100 | J42904 | Junction | 4646.81 | 4652.41 | 0.00 | 4668.01 | 0.00 | 33.44 | 4648.68 | 0.00 | 3.73 | 0 00:00 | 0.00 | 0.00 |
| 101 | J42905 | Junction | 4645.67 | 4651.87 | 0.00 | 4668.07 | 0.00 | 33.44 | 4647.82 | 0.00 | 4.05 | 0 00:00 | 0.00 | 0.00 |
| 102 | J42906 | Junction | 4644.64 | 4651.14 | 0.00 | 4657.64 | 0.00 | 33.44 | 4646.59 | 0.00 | 4.55 | 0 00:00 | 0.00 | 0.00 |
| 103 | J42907 | Junction | 4643.68 | 4650.23 | 0.00 | 4656.78 | 0.00 | 33.44 | 4645.39 | 0.00 | 4.84 | 0 00:00 | 0.00 | 0.00 |
| 104 | J42908 | Junction | 4642.03 | 4649.63 | 0.00 | 4657.23 | 0.00 | 33.44 | 4643.60 | 0.00 | 6.03 | 0 00:00 | 0.00 | 0.00 |
| 105 | J42958 | Junction | 4715.39 | 4728.89 | 0.00 | 4728.89 | 0.00 | 6.49 | 4716.39 | 0.00 | 12.50 | 0 00:00 | 0.00 | 0.00 |
| 106 | J42959 | Junction | 4715.17 | 4726.62 | 0.00 | 4726.62 | 0.00 | 6.49 | 4715.71 | 0.00 | 10.91 | 0 00:00 | 0.00 | 0.00 |
| 107 | J42960 | Junction | 4699.92 | 4706.62 | 0.00 | 4706.62 | 0.00 | 6.49 | 4700.49 | 0.00 | 6.13 | 0 00:00 | 0.00 | 0.00 |
| 108 | J42961 | Junction | 4683.98 | 4689.48 | 0.00 | 4689.48 | 0.00 | 6.49 | 4684.54 | 0.00 | 4.94 | 0 00:00 | 0.00 | 0.00 |
| 109 | J42962 | Junction | 4673.12 | 4679.32 | 0.00 | 4679.32 | 0.00 | 6.49 | 4673.67 | 0.00 | 5.65 | 0 00:00 | 0.00 | 0.00 |
| 110 | J42963 | Junction | 4662.65 | 4678.65 | 0.00 | 4678.65 | 0.00 | 6.49 | 4663.26 | 0.00 | 15.39 | 0 00:00 | 0.00 | 0.00 |
| 111 | J42964 | Junction | 4660.16 | 4667.46 | 0.00 | 4684.76 | 0.00 | 33.43 | 4661.66 | 0.00 | 5.80 | 0 00:00 | 0.00 | 0.00 |
| 112 | J42992 | Junction | 4570.69 | 4575.49 | 0.00 | 4590.00 | 0.00 | 3.70 | 4571.54 | 0.00 | 3.95 | 0 00:00 | 0.00 | 0.00 |
| 113 | J42993 | Junction | 4569.84 | 4574.59 | 0.00 | 4579.34 | 0.00 | 9.72 | 4571.11 | 0.00 | 3.48 | 0 00:00 | 0.00 | 0.00 |
| 114 | J42997 | Junction | 4568.40 | 4572.55 | 0.00 | 4576.70 | 0.00 | 9.71 | 4569.84 | 0.00 | 2.71 | 0 00:00 | 0.00 | 0.00 |
| 115 | J42998 | Junction | 4568.05 | 4573.15 | 0.00 | 4578.25 | 0.00 | 9.70 | 4569.70 | 0.00 | 3.45 | 0 00:00 | 0.00 | 0.00 |
| 116 | J431143 | Junction | 4739.37 | 4742.94 | 0.00 | 4770.00 | 0.00 | 4.78 | 4739.89 | 0.00 | 3.05 | 0 00:00 | 0.00 | 0.00 |
| 117 | J441117-0 | Junction | 4617.87 | 4629.52 | 0.00 | 4636.19 | 0.00 | 10.05 | 4618.60 | 0.00 | 10.92 | 0 00:00 | 0.00 | 0.00 |
| 118 | J441211-0 | Junction | 4626.54 | 4631.04 | 0.00 | 4645.54 | 0.00 | 33.87 | 4628.20 | 0.00 | 2.84 | 0 00:00 | 0.00 | 0.00 |
| 119 | J441211-1 | Junction | 4623.61 | 4630.28 | 0.00 | 4649.95 | 0.00 | 33.86 | 4626.07 | 0.00 | 4.21 | 0 00:00 | 0.00 | 0.00 |
| 120 | J441317-0 | Junction | 4717.08 | 4727.19 | 0.00 | 4727.19 | 0.00 | 6.49 | 4717.92 | 0.00 | 9.27 | 0 00:00 | 0.00 | 0.00 |
| 121 | J441759-0 | Junction | 4508.14 | 4517.96 | 0.00 | 4524.63 | 0.00 | 9.04 | 4509.09 | 0.00 | 8.87 | 0 00:00 | 0.00 | 0.00 |
| 122 | J4466-1 | Junction | 4520.95 | 4529.97 | 0.00 | 4529.97 | 0.00 | 38.36 | 4522.47 | 0.00 | 7.50 | 0 00:00 | 0.00 | 0.00 |
| 123 | JJR060.01-0 | Junction | 4586.22 | 4592.89 | 0.00 | 4599.56 | 0.00 | 14.00 | 4587.13 | 0.00 | 5.76 | 0 00:00 | 0.00 | 0.00 |
| 124 | JJR060.01-1 | Junction | 4561.00 | 4568.67 | 0.00 | 4575.34 | 0.00 | 1.00 | 4561.29 | 0.00 | 7.38 | 0 00:00 | 0.00 | 0.00 |
| 125 | JJR060.02-0 | Junction | 4611.44 | 4618.11 | 0.00 | 4624.78 | 0.00 | 14.00 | 4612.31 | 0.00 | 5.80 | 0 00:00 | 0.00 | 0.00 |
| 126 | JJR060.02-1 | Junction | 4586.88 | 4593.55 | 0.00 | 4600.22 | 0.00 | 14.00 | 4588.70 | 0.00 | 4.85 | 0 00:00 | 0.00 | 0.00 |
| 127 | JJR062.01-0 | Junction | 4648.54 | 4655.21 | 0.00 | 4661.88 | 0.00 | 6.00 | 4648.99 | 0.00 | 6.22 | 0 00:00 | 0.00 | 0.00 |
| 128 | JJR062.01-1 | Junction | 4611.92 | 4618.59 | 0.00 | 4625.26 | 0.00 | 6.00 | 4615.03 | 0.00 | 3.56 | 0 00:00 | 0.00 | 0.00 |
| 129 | JJR062.02-1 | Junction | 4648.89 | 4655.56 | 0.00 | 4662.23 | 0.00 | 6.00 | 4651.50 | 0.00 | 4.06 | 0 00:00 | 0.00 | 0.00 |
| 130 | JJR062.03-0 | Junction | 4696.16 | 4730.16 | 0.00 | 4702.16 | 0.00 | 54.14 | 4699.32 | 0.00 | 30.84 | 0 00:00 | 0.00 | 0.00 |
| 131 | JJR062.04-1 | Junction | 4697.75 | 4715.42 | 0.00 | 4730.09 | 0.00 | 54.15 | 4699.40 | 0.00 | 16.02 | 0 00:00 | 0.00 | 0.00 |
| 132 | Jun-148 | Junction | 4568.49 | 4578.00 | 0.00 | 4578.00 | 0.00 | 92.65 | 4570.62 | 0.00 | 7.38 | 0 00:00 | 0.00 | 0.00 |
| 133 | Jun-149 | Junction | 4738.27 | 4747.17 | 0.00 | 4747.17 | 0.00 | 23.68 | 4738.92 | 0.00 | 8.25 | 0 00:00 | 0.00 | 0.00 |
| 134 | Jun-150 | Junction | 4605.38 | 4615.00 | 0.00 | 4617.00 | 0.00 | 88.65 | 4607.23 | 0.00 | 7.77 | 0 00:00 | 0.00 | 0.00 |
| 135 | Jun-151 | Junction | 4515.73 | 4523.73 | 0.00 | 4523.73 | 0.00 | 137.95 | 4517.99 | 0.00 | 5.74 | 0 00:00 | 0.00 | 0.00 |
| 136 | Jun-159 | Junction | 4694.00 | 4701.00 | 0.00 | 0.00 | 0.00 | 8.00 | 4694.71 | 0.00 | 6.29 | 0 00:00 | 0.00 | 0.00 |
| 137 | Jun-171 | Junction | 4730.00 | 4736.00 | 4731.00 | 4736.00 | 0.00 | 2.06 | 4730.47 | 0.00 | 5.53 | 0 00:00 | 0.00 | 0.00 |
| 138 | Jun-179 | Junction | 4643.71 | 4650.00 | 4643.71 | 0.00 | 0.00 | 1.00 | 4643.92 | 0.00 | 6.08 | 0 00:00 | 0.00 | 0.00 |
| 139 | Jun-180 | Junction | 4664.65 | 4670.00 | 4664.65 | 0.00 | 0.00 | 1.00 | 4664.99 | 0.00 | 5.01 | 0 00:00 | 0.00 | 0.00 |
| 140 | Jun-181 | Junction | 4664.20 | 4670.00 | 4664.20 | 0.00 | 0.00 | 1.00 | 4664.45 | 0.00 | 5.55 | 0 00:00 | 0.00 | 0.00 |
| 141 | Jun-182 | Junction | 4636.96 | 4641.46 | 4636.96 | 4641.46 | 0.00 | 1.00 | 4637.21 | 0.00 | 4.25 | 0 00:00 | 0.00 | 0.00 |
| 142 | Jun-183 | Junction | 4634.42 | 4638.52 | 4634.42 | 4638.52 | 0.00 | 1.00 | 4634.60 | 0.00 | 3.92 | 0 00:00 | 0.00 | 0.00 |
| 143 | Jun-185 | Junction | 4529.00 | 4534.00 | 4529.00 | 4534.00 | 0.00 | 3.00 | 4529.51 | 0.00 | 4.49 | 0 00:00 | 0.00 | 0.00 |
| 144 | Jun-188 | Junction | 4529.68 | 4534.18 | 1236.00 | 4542.00 | 0.00 | 1.00 | 4529.89 | 0.00 | 4.29 | 0 00:00 | 0.00 | 0.00 |
| 145 | Jun-190 | Junction | 4543.09 | 4549.89 | 0.00 | 4549.89 | 0.00 | 17.00 | 4544.14 | 0.00 | 5.75 | 0 00:00 | 0.00 | 0.00 |
| 146 | Jun-196 | Junction | 4660.00 | 4666.00 | 4660.00 | 4666.00 | 0.00 | 65.10 | 4661.80 | 0.00 | 4.20 | 0 00:00 | 0.00 | 0.00 |
| 147 | Jun-198 | Junction | 4507.00 | 4513.00 | 4507.00 | 4513.00 | 0.00 | 12.04 | 4507.81 | 0.00 | 5.19 | 0 00:00 | 0.00 | 0.00 |
| 148 | Jun-213 | Junction | 4560.00 | 4564.00 | 4561.00 | 4566.00 | 0.00 | 53.74 | 4562.54 | 0.00 | 11.46 | 0 00:00 | 0.00 | 0.00 |
| 149 | Jun-214 | Junction | 4544.60 | 4556.00 | 4550.00 | 4556.00 | 0.00 | 53.72 | 4546.26 | 0.00 | 9.74 | 0 00:00 | 0.00 | 0.00 |
| 150 | Jun-216 | Junction | 4501.00 | 4519.00 | 0.00 | 4519.00 | 0.00 | 133.63 | 4503.77 | 0.00 | 15.23 | 0 00:00 | 0.00 | 0.00 |
| 151 | Jun-241 | Junction | 4627.00 | 4635.00 | 4623.00 | 4635.00 | 0.00 | 11.08 | 4628.25 | 0.00 | 6.75 | 0 00:00 | 0.00 | 0.00 |
| 152 | Jun-247 | Junction | 4533.10 | 4548.00 | 4538.00 | 4544.00 | 0.00 | 24.00 | 4534.33 | 0.00 | 13.67 | 0 00:00 | 0.00 | 0.00 |
| 153 | Jun-251 | Junction | 4627.00 | 4633.00 | 4624.00 | 4630.00 | 0.00 | 77.73 | 4628.86 | 0.00 | 4.14 | 0 00:00 | 0.00 | 0.00 |
| 154 | Jun-252 | Junction | 4529.00 | 4538.00 | 0.00 | 0.00 | 0.00 | 84.70 | 4531.07 | 0.00 | 6.93 | 0 00:00 | 0.00 | 0.00 |
| 155 | Jun-253 | Junction | 4618.00 | 4624.00 | 2937.00 | 4622.00 | 0.00 | 52.17 | 4619.85 | 0.00 | 4.15 | 0 00:00 | 0.00 | 0.00 |
| 156 | Jun-256 | Junction | 4546.00 | 4552.00 | 0.00 | 4552.00 | 0.00 | 15.00 | 4547.37 | 0.00 | 4.63 | 0 00:00 | 0.00 | 0.00 |
| 157 | Jun-257 | Junction | 4525.00 | 4534.00 | 0.00 | 4534.00 | 0.00 | 9.00 | 4525.75 | 0.00 | 8.25 | 0 00:00 | 0.00 | 0.00 |
| 158 | Jun-258 | Junction | 4539.00 | 4544.00 | 4540.00 | 4544.00 | 0.00 | 9.00 | 4539.82 | 0.00 | 4.18 | 0 00:00 | 0.00 | 0.00 |
| 159 | Jun-259 | Junction | 4503.00 | 4509.00 | 4503.00 | 4509.00 | 0.00 | 177.89 | 4505.53 | 0.00 | 3.47 | 0 00:00 | 0.00 | 0.00 |
| 160 | Jun-260 | Junction | 4507.00 | 4512.00 | 4508.00 | 4512.00 | 0.00 | 40.00 | 4514.18 | 0.00 | 0.82 | 0 00:00 | 0.00 | 0.00 |
| 161 | Jun-261 | Junction | 4535.00 | 4546.00 | 4542.00 | 4546.00 | 0.00 | 51.91 | 4536.86 | 0.00 | 9.14 | 0 00:00 | 0.00 | 0.00 |
| 162 | Jun-262 | Junction | 4516.02 | 4527.00 | 4523.00 | 4527.00 | 0.00 | 60.03 | 4518.09 | 0.00 | 8.91 | 0 00:00 | 0.00 | 0.00 |
| 163 | Jun-263 | Junction | 4504.06 | 4514.00 | 4510.00 | 4516.00 | 0.00 | 66.42 | 4506.40 | 0.00 | 7.60 | 0 00:00 | 0.00 | 0.00 |
| 164 | Jun-264 | Junction | 4522.00 | 4526.00 | 4522.00 | 4550.00 | 0.00 | 15.00 | 4540.19 | 14.19 | 0.00 | 0 00:00 | 0.00 | 0.00 |
| 165 | Jun-265 | Junction | 4618.00 | 4621.00 | 4618.00 | 4630.00 | 0.00 | 5.00 | 4619.19 | 0.00 | 1.81 | 0 00:00 | 0.00 | 0.00 |
| 166 | Jun-266 | Junction | 4556.00 | 4562.00 | 4557.00 | 4564.00 | 0.00 | 12.17 | 4556.71 | 0.00 | 5.29 | 0 00:00 | 0.00 | 0.00 |
| 167 | Jun-267 | Junction | 4597.00 | 4602.00 | 4598.00 | 8000.00 | 0.00 | 12.17 | 4597.92 | 0.00 | 4.08 | 0 00:00 | 0.00 | 0.00 |
| 168 | Jun-268 | Junction | 4515.00 | 4521.00 | 4516.00 | 4523.00 | 0.00 | 14.89 | 4516.15 | 0.00 | 4.85 | 0 00:00 | 0.00 | 0.00 |
| 169 | Jun-269 | Junction | 4494.30 | 4500.00 | 0.00 | 0.00 | 0.00 | 11.61 | 4495.99 | 0.00 | 4.01 | 0 00:00 | 0.00 | 0.00 |
| 170 | Jun-270 | Junction | 4629.23 | 4636.21 | 0.10 | 4696.21 | 0.00 | 1.74 | 4629.76 | 0.00 | 6.45 | 0 00:00 | 0.00 | 0.00 |
| 171 | Jun-272 | Junction | 4623.33 | 4630.31 | 0.10 | 4690.31 | 0.00 | 2.32 | 4634.99 | 4.68 | 0.00 | 0 00:00 | 0.00 | 0.00 |
| 172 | Jun-277 | Junction | 4685.00 | 4695.00 | 0.00 | 4691.00 | 0.00 | 52.10 | 4686.50 | 0.00 | 8.50 | 0 00:00 | 0.00 | 0.00 |
| 173 | Jun-283 | Junction | 4617.56 | 4624.56 | 0.00 | 4754.56 | 0.00 | 5.10 | 4677.28 | 52.72 | 0.00 | 0 00:00 | 0.00 | 0.00 |
| 174 | Jun-284 | Junction | 4625.76 | 4632.74 | 0.10 | 4692.74 | 0.00 | 1.74 | 4626.41 | 0.00 | 6.33 | 0 00:00 | 0.00 | 0.00 |

## Node Summary

| SN | Element ID | Element Type | Invert Elevation (ft) | Ground/Rim (Max) Elevation (ft) | Initial Water Elevation (ft) | Surcharge Elevation (ft) | Ponded Area (ft²) | Peak Inflow (cfs) | Max HGL Elevation Attained (ft) | Max Surcharge Depth Attained (ft) | Min Freeboard Attained (ft) | Time of Peak Flooding Occurrence (days hh:mm) | Total Flooded Volume (ac-in) | Total Time Flooded (min) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 175 | Jun-285 | Junction | 4627.10 | 4647.10 | 0.00 | 4647.10 | 0.00 | 9.00 | 4647.10 | 0.00 | 0.00 | 0 02:00 | 0.00 | 0.00 |
| 176 | Jun-287 | Junction | 4624.00 | 4694.00 | 4624.00 | 4694.00 | 0.00 | 13.04 | 4652.18 | 0.00 | 41.82 | 0 00:00 | 0.00 | 0.00 |
| 177 | Jun-290 | Junction | 4710.52 | 4718.00 | 0.00 | 4718.00 | 0.00 | 41.28 | 4711.74 | 0.00 | 6.26 | 0 00:00 | 0.00 | 0.00 |
| 178 | Jun-291 | Junction | 4508.00 | 4528.00 | 0.00 | 4528.00 | 0.00 | 15.00 | 4509.52 | 0.00 | 18.48 | 0 00:00 | 0.00 | 0.00 |
| 179 | Jun-292 | Junction | 4504.00 | 4514.00 | 0.00 | 4510.00 | 0.00 | 115.64 | 4507.11 | 0.00 | 6.89 | 0 00:00 | 0.00 | 0.00 |
| 180 | Jun-293 | Junction | 4511.00 | 4525.00 | 0.00 | 3004.00 | 0.00 | 108.66 | 4513.72 | 0.00 | 11.28 | 0 00:00 | 0.00 | 0.00 |
| 181 | Jun-295 | Junction | 4525.09 | 4535.16 | 0.00 | 0.00 | 0.00 | 9.33 | 4525.96 | 0.00 | 9.20 | 0 00:00 | 0.00 | 0.00 |
| 182 | Jun-296 | Junction | 4505.12 | 4507.11 | 0.00 | 0.00 | 0.00 | 9.33 | 4506.08 | 0.00 | 2.54 | 0 00:00 | 0.00 | 0.00 |
| 183 | Jun-297 | Junction | 4501.00 | 4507.00 | 4501.00 | 4507.00 | 0.00 | 24.00 | 4503.29 | 0.00 | 3.71 | 0 00:00 | 0.00 | 0.00 |
| 184 | Jun-300 | Junction | 4579.00 | 4585.00 | 4579.00 | 4585.00 | 0.00 | 0.00 | 4579.00 | 0.00 | 6.00 | 0 00:00 | 0.00 | 0.00 |
| 185 | Jun-301 | Junction | 4578.59 | 4587.64 | 0.00 | 4587.64 | 0.00 | 53.74 | 4580.72 | 0.00 | 6.92 | 0 00:00 | 0.00 | 0.00 |
| 186 | J441761-1 | Outfall | 4491.44 | | | | | 12.04 | 4492.56 | | | | | |
| 187 | Jun-152 | Outfall | 4492.00 | | | | | 177.71 | 4494.51 | | | | | |
| 188 | Jun-187 | Outfall | 4509.00 | | | | | 38.36 | 4510.48 | | | | | |
| 189 | Jun-215 | Outfall | 4506.00 | | | | | 53.72 | 4507.64 | | | | | |
| 190 | Jun-217 | Outfall | 4491.00 | | | | | 133.62 | 4493.63 | | | | | |
| 191 | Jun-221 | Outfall | 4496.13 | | | | | 66.22 | 4498.34 | | | | | |
| 192 | Out-32 | Outfall | 4495.03 | | | | | 5.00 | 4495.89 | | | | | |
| 193 | Out-34 | Outfall | 4726.00 | | | | | 2.05 | 4726.47 | | | | | |
| 194 | Out-35 | Outfall | 4719.00 | | | | | 12.00 | 4719.00 | | | | | |
| 195 | Out-36 | Outfall | 4501.23 | | | | | 23.97 | 4502.52 | | | | | |
| 196 | Out-37 | Outfall | 4487.50 | | | | | 11.58 | 4488.64 | | | | | |
| 197 | Out-41 | Outfall | 0.00 | | | | | 0.00 | 0.00 | | | | | |
| 198 | SN-HHPa | Storage Node | 4727.60 | 4740.00 | 0.00 | | 0.00 | 13.71 | 4729.38 | | | | 0.00 | 0.00 |
| 199 | SN-JR010 | Storage Node | 4586.00 | 5606.00 | 0.00 | | 0.00 | 265.26 | 4594.17 | | | | 0.00 | 0.00 |
| 200 | SN-JR020 | Storage Node | 4517.00 | 4530.00 | 0.00 | | 0.00 | 229.92 | 4524.37 | | | | 0.00 | 0.00 |
| 201 | SN-JR031 | Storage Node | 4554.00 | 4564.00 | 0.00 | | 0.00 | 50.63 | 4558.88 | | | | 0.00 | 0.00 |
| 202 | SN-JR032 | Storage Node | 4660.00 | 4670.00 | 0.00 | | 0.00 | 22.23 | 4663.96 | | | | 0.00 | 0.00 |
| 203 | SN-JR035 | Storage Node | 4558.00 | 4568.00 | 0.00 | | 0.00 | 12.08 | 4560.42 | | | | 0.00 | 0.00 |
| 204 | SN-JR050 | Storage Node | 4620.00 | 4630.00 | 0.00 | | 0.00 | 67.64 | 4625.47 | | | | 0.00 | 0.00 |
| 205 | SN-JR061 | Storage Node | 4632.00 | 4646.00 | 0.00 | | 0.00 | 29.72 | 4636.53 | | | | 0.00 | 0.00 |
| 206 | SN-JR063 | Storage Node | 4552.00 | 4560.00 | 0.00 | | 0.00 | 99.57 | 4558.23 | | | | 0.00 | 0.00 |
| 207 | SN-JR065 | Storage Node | 4660.00 | 4670.00 | 0.00 | | 0.00 | 88.06 | 4665.73 | | | | 0.00 | 0.00 |
| 208 | SN-JR065a | Storage Node | 4690.00 | 4698.00 | 0.00 | | 0.00 | 106.79 | 4695.90 | | | | 0.00 | 0.00 |
| 209 | SN-JR068 | Storage Node | 4632.00 | 4646.00 | 0.00 | | 0.00 | 116.05 | 4638.21 | | | | 0.00 | 0.00 |
| 210 | SN-JR070 | Storage Node | 4565.00 | 4575.00 | 0.00 | | 0.00 | 49.03 | 4569.94 | | | | 0.00 | 0.00 |
| 211 | SN-JR071 | Storage Node | 4509.40 | 4519.40 | 0.00 | | 0.00 | 40.52 | 4512.26 | | | | 0.00 | 0.00 |
| 212 | SN-JR079 | Storage Node | 4635.00 | 4645.00 | 0.00 | | 0.00 | 58.69 | 4640.13 | | | | 0.00 | 0.00 |
| 213 | SN-JR081 | Storage Node | 4536.80 | 4542.00 | 0.00 | | 20.00 | 36.67 | 4539.76 | | | | 0.00 | 0.00 |
| 214 | SN-JR082 | Storage Node | 4685.00 | 4695.00 | 0.00 | | 0.00 | 23.73 | 4689.81 | | | | 0.00 | 0.00 |
| 215 | SN-JR083 | Storage Node | 4685.00 | 4695.00 | 0.00 | | 0.00 | 37.81 | 4689.53 | | | | 0.00 | 0.00 |
| 216 | SN-JR084 | Storage Node | 4743.00 | 4750.00 | 0.00 | | 20.00 | 20.03 | 4745.03 | | | | 0.00 | 0.00 |
| 217 | SN-JR085 | Storage Node | 4685.00 | 4695.00 | 0.00 | | 0.00 | 15.71 | 4690.83 | | | | 0.00 | 0.00 |
| 218 | SN-JR086 | Storage Node | 4618.80 | 4629.60 | 0.00 | | 0.00 | 103.37 | 4626.05 | | | | 0.00 | 0.00 |
| 219 | SN-PR020 | Storage Node | 4720.00 | 4730.00 | 0.00 | | 0.00 | 26.16 | 4723.62 | | | | 0.00 | 0.00 |
| 220 | SN-PR021 | Storage Node | 4618.00 | 4625.00 | 0.00 | | 0.00 | 41.28 | 4619.96 | | | | 0.00 | 0.00 |
| 221 | SN-PR022 | Storage Node | 4628.60 | 3.20 | 0.00 | | 20.00 | 15.82 | 4630.43 | | | | 0.00 | 1435.00 |
| 222 | SN-PR023 | Storage Node | 4628.60 | 3.00 | 0.00 | | 20.00 | 27.85 | 4630.49 | | | | 0.00 | 1435.00 |
| 223 | SN-PR024 | Storage Node | 4573.00 | 4583.00 | 4574.00 | | 0.00 | 20.59 | 4577.41 | | | | 0.00 | 0.00 |
| 224 | SN-PR025 | Storage Node | 4573.00 | 4576.40 | 0.00 | | 20.00 | 10.54 | 4574.41 | | | | 0.00 | 0.00 |
| 225 | SN-PR026 | Storage Node | 4568.20 | 4668.20 | 0.00 | | 20.00 | 36.77 | 4571.80 | | | | 0.00 | 0.00 |
| 226 | SN-PR030 | Storage Node | 4710.00 | 4720.00 | 0.00 | | 0.00 | 53.74 | 4715.09 | | | | 0.00 | 0.00 |
| 227 | SN-PR050 | Storage Node | 4750.00 | 4770.00 | 0.00 | | 0.00 | 47.19 | 4755.50 | | | | 0.00 | 0.00 |
| 228 | SN-PR060 | Storage Node | 5410.00 | 5500.00 | 0.00 | | 0.00 | 2.06 | 5410.94 | | | | 0.00 | 0.00 |
| 229 | Stor-41 | Storage Node | 4620.00 | 4650.00 | 0.00 | | 0.00 | 44.55 | 4625.01 | | | | 0.00 | 0.00 |
| 230 | Stor-43 | Storage Node | 4505.00 | 4515.00 | 0.00 | | 0.00 | 15.39 | 4508.81 | | | | 0.00 | 0.00 |
| 231 | Stor-44 | Storage Node | 4755.00 | 4765.00 | 0.00 | | 0.00 | 70.96 | 4759.25 | | | | 0.00 | 0.00 |
| 232 | Stor-45 | Storage Node | 4700.00 | 4710.00 | 0.00 | | 0.00 | 11.47 | 4703.53 | | | | 0.00 | 0.00 |
| 233 | Stor-46 | Storage Node | 5000.00 | 15.00 | 0.00 | | 0.00 | 8.36 | 5003.78 | | | | 0.00 | 1435.00 |
| 234 | Stor-50 | Storage Node | 4570.00 | 8.00 | 0.00 | | 0.00 | 7.44 | 4573.58 | | | | 0.00 | 1435.00 |
| 235 | Stor-51 | Storage Node | 4542.00 | 4562.00 | 0.00 | | 0.00 | 26.12 | 4546.05 | | | | 0.00 | 0.00 |
| 236 | Stor-53 | Storage Node | 4522.00 | 4550.00 | 0.00 | | 0.00 | 136.80 | 4528.66 | | | | 0.00 | 0.00 |
| 237 | Stor-54 | Storage Node | 4621.00 | 4650.00 | 1.00 | | 0.00 | 36.01 | 4625.65 | | | | 0.00 | 0.00 |
| 238 | Stor-56 | Storage Node | 4680.00 | 4690.00 | 4681.00 | | 0.00 | 9.80 | 4683.48 | | | | 0.00 | 0.00 |
| 239 | Stor-57 | Storage Node | 4632.00 | 4646.00 | 0.00 | | 0.00 | 58.76 | 4636.68 | | | | 0.00 | 0.00 |
| 240 | Stor-58 | Storage Node | 4600.00 | 4616.00 | 4601.00 | | 0.00 | 28.84 | 4604.65 | | | | 0.00 | 0.00 |
| 241 | Stor-59 | Storage Node | 4650.00 | 4660.00 | 4606.00 | | 0.00 | 4.13 | 4653.03 | | | | 0.00 | 0.00 |
| 242 | Stor-61 | Storage Node | 4498.00 | 8.00 | 0.00 | | 0.00 | 31.68 | 4502.42 | | | | 0.00 | 1427.00 |
| 243 | Stor-62 | Storage Node | 4632.00 | 4638.00 | 0.00 | | 0.00 | 12.35 | 4635.91 | | | | 0.00 | 0.00 |
| 244 | Stor-63 | Storage Node | 4690.00 | 4700.00 | 0.00 | | 0.00 | 1.74 | 4692.54 | | | | 0.00 | 0.00 |
| 245 | Stor-64 | Storage Node | 4629.00 | 1725.00 | 0.00 | | 0.00 | 14.71 | 4633.01 | | | | 0.00 | 1435.00 |
| 246 | Stor-65 | Storage Node | 4660.00 | 4670.00 | 0.00 | | 0.00 | 7.64 | 4663.41 | | | | 0.00 | 0.00 |
| 247 | Stor-66 | Storage Node | 4831.00 | 4837.00 | 0.00 | | 0.00 | 1.11 | 4834.07 | | | | 0.00 | 0.00 |
| 248 | Stor-67 | Storage Node | 4695.42 | 4780.00 | 0.00 | | 0.00 | 54.01 | 4699.16 | | | | 0.00 | 0.00 |
| 249 | Stor-68 | Storage Node | 4740.00 | 4750.00 | 0.00 | | 0.00 | 33.65 | 4748.29 | | | | 0.00 | 0.00 |
| 250 | Stor-69 | Storage Node | 4740.00 | 4780.00 | 0.00 | | 0.00 | 64.84 | 4752.07 | | | | 0.00 | 0.00 |
| 251 | Stor-70 | Storage Node | 4542.00 | 4572.00 | 0.00 | | 0.00 | 45.18 | 4546.60 | | | | 0.00 | 0.00 |
| 252 | Stor-71 | Storage Node | 4542.00 | 4562.00 | 0.00 | | 0.00 | 31.14 | 4546.29 | | | | 0.00 | 0.00 |
| 253 | Stor-72 | Storage Node | 4650.00 | 4660.00 | 0.00 | | 0.00 | 8.47 | 4653.38 | | | | 0.00 | 0.00 |
| 254 | Stor-73 | Storage Node | 4660.00 | 4670.00 | 0.00 | | 0.00 | 4.96 | 4662.39 | | | | 0.00 | 0.00 |
| 255 | Stor-74 | Storage Node | 4745.00 | 4765.00 | 0.00 | | 0.00 | 51.14 | 4749.75 | | | | 0.00 | 0.00 |
| 256 | Stor-75 | Storage Node | 4745.00 | 4765.00 | 0.00 | | 0.00 | 27.97 | 4749.36 | | | | 0.00 | 0.00 |
| 257 | Stor-76 | Storage Node | 4650.00 | 4660.00 | 0.00 | | 0.00 | 2.73 | 4653.25 | | | | 0.00 | 0.00 |
| 258 | Stor-77 | Storage Node | 4650.00 | 4660.00 | 0.00 | | 0.00 | 0.73 | 4651.37 | | | | 0.00 | 0.00 |
| 259 | Stor-78 | Storage Node | 4620.00 | 4650.00 | 0.00 | | 0.00 | 38.90 | 4624.77 | | | | 0.00 | 0.00 |
| 260 | Stor-79 | Storage Node | 4565.00 | 4575.00 | 0.00 | | 0.00 | 40.35 | 4569.72 | | | | 0.00 | 0.00 |
| 261 | Stor-80 | Storage Node | 4580.00 | 4586.00 | 0.00 | | 0.00 | 16.15 | 4583.95 | | | | 0.00 | 0.00 |

## Node Summary

| SN | Element ID | Element Type | Invert Elevation (ft) | Ground/Rim (Max) Elevation (ft) | Initial Water Elevation (ft) | Surcharge Elevation (ft) | Ponded Area (ft²) | Peak Inflow (cfs) | Max HGL Elevation Attained (ft) | Max Surcharge Depth Attained (ft) | Min Freeboard Attained (ft) | Time of Peak Flooding Occurrence (days hh:mm) | Total Flooded Volume (ac-in) | Total Time Flooded (min) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 262 | Stor-81 | Storage Node | 4590.00 | 4690.00 | 0.00 | | 0.00 | 35.64 | 4594.10 | | | | 0.00 | 0.00 |
| 263 | Stor-82 | Storage Node | 4650.00 | 4660.00 | 0.00 | | 0.00 | 39.58 | 4654.71 | | | | 0.00 | 0.00 |

## Link Summary

| SN | Element ID | Element Type | From (Inlet) Node | To (Outlet) Node | Length | Inlet Invert Elevation | Outlet Invert Elevation | Average Slope | Diameter or Height | Manning's Roughness | Peak Flow | Design Flow Capacity | Peak Flow/ Design Flow Ratio | Peak Flow Velocity | Peak Flow Depth | Peak Flow Depth/ Total Depth Ratio | Total Time Surcharged | Reported Condition |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | (ft) | (ft) | (ft) | (%) | (ft) | | (cfs) | (cfs) | | (ft/sec) | (ft) | | (min) | |
| 1 | 2 | Pipe | J4278 | J0038-0 | 286.27 | 4547.22 | 4544.91 | 0.8100 | 2.000 | 0.0130 | 3.00 | 20.32 | 0.15 | 2.30 | 0.88 | 0.44 | 0.00 | Calculated |
| 2 | 0017 | Pipe | JJR062.04-1 | JJR062.03-0 | 199.30 | 4697.75 | 4696.16 | 0.8000 | 7.000 | 0.0130 | 54.14 | 570.60 | 0.09 | 5.10 | 2.40 | 0.34 | 0.00 | Calculated |
| 3 | 0028 | Pipe | J0018-0 | J0018-1 | 263.14 | 4545.56 | 4540.09 | 2.0800 | 2.000 | 0.0130 | 1.00 | 32.62 | 0.03 | 4.57 | 0.24 | 0.12 | 0.00 | Calculated |
| 4 | 0029 | Pipe | J0019-0 | J0018-0 | 186.77 | 4545.76 | 4545.56 | 0.1100 | 2.000 | 0.0130 | 1.00 | 7.40 | 0.14 | 2.02 | 0.43 | 0.22 | 0.00 | Calculated |
| 5 | 0030 | Pipe | J0018-1 | J0020-1 | 262.46 | 4540.09 | 4535.12 | 1.8900 | 2.000 | 0.0130 | 1.00 | 31.13 | 0.03 | 4.43 | 0.25 | 0.12 | 0.00 | Calculated |
| 6 | 0031 | Pipe | J0020-1 | J0021-1 | 269.53 | 4535.12 | 4530.51 | 1.7100 | 2.000 | 0.0130 | 1.00 | 29.59 | 0.03 | 3.90 | 0.27 | 0.14 | 0.00 | Calculated |
| 7 | 0033 | Pipe | J0023-0 | Jun-188 | 80.87 | 4530.35 | 4529.68 | 0.8300 | 2.000 | 0.0130 | 1.00 | 20.59 | 0.05 | 4.05 | 0.26 | 0.13 | 0.00 | Calculated |
| 8 | 0034 | Pipe | J0021-1 | J0023-0 | 4.79 | 4530.51 | 4530.35 | 3.3400 | 2.000 | 0.0130 | 1.00 | 41.35 | 0.02 | 3.31 | 0.30 | 0.15 | 0.00 | Calculated |
| 9 | 0037 | Pipe | J0026-1 | J0019-0 | 168.42 | 4546.71 | 4545.76 | 0.5600 | 1.500 | 0.0130 | 1.00 | 7.89 | 0.13 | 2.38 | 0.44 | 0.29 | 0.00 | Calculated |
| 10 | 0055 | Pipe | J0040-0 | J0040-1 | 58.28 | 4554.09 | 4553.18 | 1.5600 | 2.000 | 0.0130 | 3.00 | 28.27 | 0.11 | 5.27 | 0.48 | 0.24 | 0.00 | Calculated |
| 11 | 0056 | Pipe | J0041-0 | J0041-1 | 54.09 | 4551.21 | 4550.28 | 1.7200 | 2.000 | 0.0130 | 3.00 | 29.66 | 0.10 | 5.31 | 0.47 | 0.24 | 0.00 | Calculated |
| 12 | 0057 | Pipe | J0040-1 | J0041-0 | 158.86 | 4553.18 | 4551.21 | 1.2400 | 2.000 | 0.0130 | 3.00 | 25.19 | 0.12 | 5.27 | 0.47 | 0.24 | 0.00 | Calculated |
| 13 | 0058 | Pipe | J0043-0 | J0043-1 | 92.04 | 4558.86 | 4558.42 | 0.4800 | 2.000 | 0.0130 | 3.00 | 15.64 | 0.19 | 4.52 | 0.53 | 0.26 | 0.00 | Calculated |
| 14 | 0059 | Pipe | J0043-1 | J0044-1 | 112.20 | 4558.42 | 4556.59 | 1.6300 | 2.000 | 0.0130 | 3.00 | 28.89 | 0.10 | 5.68 | 0.45 | 0.22 | 0.00 | Calculated |
| 15 | 0062 | Pipe | J0044-1 | J0040-0 | 157.82 | 4556.59 | 4554.09 | 1.5800 | 2.000 | 0.0130 | 3.00 | 28.47 | 0.11 | 5.51 | 0.46 | 0.23 | 0.00 | Calculated |
| 16 | 0063 | Pipe | J0048-0 | J0043-0 | 109.88 | 4560.70 | 4558.86 | 1.6700 | 2.000 | 0.0130 | 3.00 | 29.27 | 0.10 | 4.62 | 0.52 | 0.26 | 0.00 | Calculated |
| 17 | 0068 | Pipe | J421012 | Jun-301 | 167.17 | 4582.55 | 4578.59 | 2.3700 | 2.000 | 0.0130 | 25.33 | 34.82 | 0.73 | 9.80 | 1.70 | 0.85 | 0.00 | Calculated |
| 18 | 0071 | Pipe | J0071-0 | J0071-1 | 6.93 | 4585.38 | 4585.32 | 0.8700 | 1.500 | 0.0130 | 11.80 | 9.77 | 1.21 | 10.58 | 0.93 | 0.62 | 0.00 | > CAPACITY |
| 19 | 0073 | Pipe | J0073-0 | J0073-1 | 213.71 | 4605.89 | 4605.36 | 0.2500 | 2.000 | 0.0130 | 10.00 | 11.27 | 0.89 | 6.61 | 0.97 | 0.49 | 0.00 | Calculated |
| 20 | 0074 | Pipe | J0074-0 | J0074-1 | 128.38 | 4609.03 | 4608.13 | 0.7000 | 2.000 | 0.0130 | 15.00 | 18.94 | 0.79 | 6.34 | 1.41 | 0.70 | 0.00 | Calculated |
| 21 | 0075 | Pipe | J0074-1 | J0075-1 | 166.80 | 4608.13 | 4605.98 | 1.2900 | 2.000 | 0.0130 | 15.00 | 25.68 | 0.58 | 9.28 | 1.02 | 0.51 | 0.00 | Calculated |
| 22 | 0076 | Pipe | J0076-0 | J0074-0 | 244.01 | 4609.87 | 4609.03 | 0.3400 | 2.000 | 0.0130 | 15.00 | 13.27 | 1.13 | 5.24 | 1.72 | 0.86 | 0.00 | > CAPACITY |
| 23 | 0077 | Pipe | J0077-0 | J0076-0 | 295.53 | 4610.90 | 4609.87 | 0.3500 | 2.000 | 0.0130 | 15.22 | 13.36 | 1.14 | 4.91 | 1.98 | 0.99 | 0.00 | > CAPACITY |
| 24 | 0078 | Pipe | J0078-0 | J0077-0 | 319.34 | 4612.12 | 4610.90 | 0.3800 | 2.000 | 0.0130 | 15.06 | 13.98 | 1.08 | 4.80 | 2.00 | 1.00 | 156.00 | SURCHARGED |
| 25 | 0079 | Pipe | J0079-0 | J0078-0 | 370.85 | 4613.74 | 4612.12 | 0.4400 | 2.000 | 0.0130 | 15.02 | 14.95 | 1.00 | 4.89 | 2.00 | 1.00 | 171.00 | SURCHARGED |
| 26 | 0082 | Pipe | J0080-0 | J0080-1 | 95.64 | 4614.73 | 4614.29 | 0.4600 | 2.000 | 0.0130 | 15.01 | 15.34 | 0.98 | 4.89 | 2.00 | 1.00 | 168.00 | SURCHARGED |
| 27 | 0083 | Pipe | J0080-1 | J0079-0 | 98.40 | 4614.29 | 4613.74 | 0.5600 | 2.000 | 0.0130 | 15.01 | 16.91 | 0.89 | 5.07 | 2.00 | 1.00 | 168.00 | SURCHARGED |
| 28 | 0084 | Pipe | J0084-0 | J42554 | 46.28 | 4532.69 | 4532.00 | 1.4900 | 2.000 | 0.0130 | 17.14 | 27.62 | 0.62 | 8.23 | 1.95 | 0.98 | 0.00 | Calculated |
| 29 | 0086 | Pipe | J0086-0 | J0086-1 | 37.43 | 4534.15 | 4533.20 | 2.5400 | 2.000 | 0.0130 | 17.12 | 36.04 | 0.47 | 7.43 | 1.42 | 0.71 | 0.00 | Calculated |
| 30 | 0087 | Pipe | J0086-1 | J0084-0 | 23.45 | 4533.20 | 4532.69 | 2.1700 | 2.000 | 0.0130 | 17.12 | 33.36 | 0.51 | 7.28 | 1.75 | 0.87 | 0.00 | Calculated |
| 31 | 0108 | Pipe | J0073-1 | J0108-1 | 415.01 | 4605.36 | 4586.74 | 4.4900 | 2.000 | 0.0130 | 10.00 | 47.92 | 0.21 | 12.36 | 0.61 | 0.31 | 0.00 | Calculated |
| 32 | 0125 | Pipe | J0125-0 | J0125-1 | 204.43 | 4626.22 | 4617.41 | 4.3100 | 2.000 | 0.0130 | 10.00 | 46.96 | 0.21 | 9.39 | 0.74 | 0.37 | 0.00 | Calculated |
| 33 | 0126 | Pipe | J0126-0 | J0126-1 | 91.91 | 4632.19 | 4629.13 | 3.3300 | 2.000 | 0.0130 | 8.05 | 41.28 | 0.19 | 7.86 | 0.76 | 0.38 | 0.00 | Calculated |
| 34 | 0127 | Pipe | J0127-0 | J0073-0 | 76.24 | 4606.32 | 4605.89 | 0.5600 | 2.250 | 0.0130 | 10.00 | 23.26 | 0.43 | 4.33 | 1.27 | 0.56 | 0.00 | Calculated |
| 35 | 0128 | Pipe | J0126-1 | J0125-0 | 222.85 | 4629.13 | 4626.22 | 1.3100 | 2.000 | 0.0130 | 10.00 | 25.85 | 0.39 | 7.65 | 0.88 | 0.44 | 0.00 | Calculated |
| 36 | 0129 | Pipe | J0129-0 | J0127-0 | 265.66 | 4615.74 | 4606.32 | 3.5500 | 2.000 | 0.0130 | 10.00 | 42.60 | 0.23 | 6.88 | 0.94 | 0.47 | 0.00 | Calculated |
| 37 | 0130 | Pipe | J0125-1 | J0129-0 | 90.94 | 4617.41 | 4615.74 | 1.8400 | 2.000 | 0.0130 | 10.00 | 30.66 | 0.33 | 9.13 | 0.76 | 0.38 | 0.00 | Calculated |
| 38 | 0135 | Pipe | JJR062.01-1 | JJR060.02-0 | 298.60 | 4613.99 | 4612.85 | 0.3800 | 2.000 | 0.0150 | 6.00 | 12.11 | 0.50 | 4.07 | 0.95 | 0.48 | 0.00 | Calculated |
| 39 | 0137 | Pipe | JJR062.02-1 | JJR062.01-0 | 792.41 | 4650.17 | 4648.97 | 0.1500 | 2.000 | 0.0130 | 6.00 | 8.80 | 0.68 | 3.40 | 1.10 | 0.55 | 0.00 | Calculated |
| 40 | 0138 | Pipe | JJR060.02-1 | JJR060.01-0 | 795.82 | 4586.88 | 4586.22 | 0.0800 | 4.000 | 0.0150 | 14.00 | 35.85 | 0.39 | 3.70 | 1.36 | 0.34 | 0.00 | Calculated |
| 41 | 0142 | Pipe | J421185 | J421186 | 174.95 | 4731.42 | 4730.77 | 0.3700 | 1.500 | 0.0130 | 6.51 | 6.40 | 1.02 | 4.05 | 1.28 | 0.86 | 0.00 | > CAPACITY |
| 42 | 0143 | Pipe | J421186 | J421187 | 106.52 | 4730.77 | 4730.20 | 0.5400 | 1.500 | 0.0130 | 6.51 | 7.68 | 0.85 | 4.19 | 1.23 | 0.82 | 0.00 | Calculated |
| 43 | 0144 | Pipe | J421187 | J421188 | 86.44 | 4730.20 | 4729.81 | 0.4500 | 1.500 | 0.0130 | 6.50 | 7.06 | 0.92 | 4.36 | 1.18 | 0.79 | 0.00 | Calculated |
| 44 | 0145 | Pipe | J421189 | J421190 | 156.03 | 4728.22 | 4716.50 | 7.5100 | 1.500 | 0.0130 | 16.39 | 28.79 | 0.57 | 13.51 | 0.97 | 0.65 | 0.00 | Calculated |
| 45 | 0146 | Pipe | J421188 | J421189 | 310.44 | 4729.81 | 4728.22 | 0.5100 | 1.500 | 0.0130 | 6.50 | 7.52 | 0.87 | 5.42 | 0.97 | 0.64 | 0.00 | Calculated |
| 46 | 0147 | Pipe | J421190 | J421191 | 154.82 | 4716.50 | 4713.49 | 1.9400 | 2.000 | 0.0130 | 16.39 | 31.54 | 0.52 | 11.38 | 0.93 | 0.47 | 0.00 | Calculated |
| 47 | 0148 | Pipe | J421191 | J421192 | 129.29 | 4713.49 | 4703.92 | 7.4000 | 2.000 | 0.0130 | 16.39 | 61.55 | 0.27 | 15.04 | 0.76 | 0.38 | 0.00 | Calculated |
| 48 | 0149 | Pipe | J421192 | J421193 | 153.14 | 4703.92 | 4694.15 | 6.3800 | 2.000 | 0.0130 | 16.39 | 57.14 | 0.29 | 14.73 | 0.77 | 0.38 | 0.00 | Calculated |
| 49 | 0150 | Pipe | J421193 | J421194 | 111.47 | 4694.15 | 4687.36 | 6.0900 | 2.000 | 0.0130 | 16.38 | 55.83 | 0.29 | 12.08 | 0.93 | 0.46 | 0.00 | Calculated |
| 50 | 0151 | Pipe | J421194 | J421195 | 396.51 | 4687.36 | 4670.77 | 4.1800 | 2.000 | 0.0130 | 27.90 | 46.27 | 0.60 | 14.28 | 1.19 | 0.60 | 0.00 | Calculated |
| 51 | 0152 | Pipe | J421196 | J42964 | 133.55 | 4663.74 | 4660.16 | 2.6800 | 2.000 | 0.0130 | 27.90 | 37.04 | 0.75 | 11.20 | 1.48 | 0.74 | 0.00 | Calculated |
| 52 | 0153 | Pipe | J421195 | J421196 | 194.50 | 4670.77 | 4663.74 | 3.6100 | 2.000 | 0.0130 | 27.90 | 43.01 | 0.65 | 12.33 | 1.35 | 0.68 | 0.00 | Calculated |
| 53 | 0155 | Pipe | J431143 | J421197 | 42.33 | 4739.37 | 4736.80 | 6.0700 | 1.250 | 0.0130 | 4.78 | 15.92 | 0.30 | 10.55 | 0.50 | 0.40 | 0.00 | Calculated |
| 54 | 0156 | Pipe | J421197 | J421200 | 41.53 | 4733.85 | 4733.33 | 1.2500 | 1.500 | 0.0130 | 4.78 | 11.75 | 0.41 | 4.36 | 0.90 | 0.60 | 0.00 | Calculated |
| 55 | 0157 | Pipe | J421200 | J421201 | 182.31 | 4733.33 | 4732.57 | 0.4200 | 1.500 | 0.0130 | 4.78 | 6.78 | 0.71 | 4.42 | 0.90 | 0.60 | 0.00 | Calculated |
| 56 | 0158 | Pipe | J421201 | J421185 | 171.69 | 4732.57 | 4731.42 | 0.6700 | 1.500 | 0.0130 | 4.77 | 8.60 | 0.56 | 4.97 | 1.06 | 0.71 | 0.00 | Calculated |

## Link Summary

| SN | Element ID | Element Type | From (Inlet) Node | To (Outlet) Node | Length | Inlet Invert Elevation | Outlet Invert Elevation | Average Slope | Diameter or Height | Manning's Roughness | Peak Flow | Design Flow Capacity | Peak Flow/ Design Flow Ratio | Peak Flow Velocity | Peak Flow Depth | Peak Flow Depth/ Total Depth Ratio | Total Time Surcharged | Reported Condition |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | (ft) | (ft) | (ft) | (%) | (ft) | | (cfs) | (cfs) | | (ft/sec) | (ft) | | (min) | |
| 57 | 0167 | Pipe | J441211-1 | SN-JR086 | 133.29 | 4623.61 | 4618.80 | 3.6100 | 2.500 | 0.0130 | 33.70 | 77.92 | 0.43 | 8.01 | 2.48 | 0.99 | 0.00 | Calculated |
| 58 | 0168 | Pipe | J421015 | J0109-1 | 552.12 | 4596.75 | 4586.99 | 1.7700 | 1.500 | 0.0130 | 11.06 | 13.97 | 0.79 | 12.03 | 0.78 | 0.52 | 0.00 | Calculated |
| 59 | 0169 | Pipe | J0110-1 | J0071-0 | 14.91 | 4585.43 | 4585.38 | 0.3400 | 1.500 | 0.0130 | 11.06 | 6.08 | 1.82 | 6.41 | 1.41 | 0.94 | 0.00 | > CAPACITY |
| 60 | 0171 | Pipe | J0108-1 | J421012 | 69.63 | 4586.74 | 4582.55 | 6.0200 | 2.000 | 0.0130 | 10.00 | 55.49 | 0.18 | 7.90 | 0.99 | 0.50 | 0.00 | Calculated |
| 61 | 0172 | Pipe | J42450 | J42554 | 948.50 | 4546.90 | 4531.50 | 1.6200 | 4.500 | 0.0130 | 113.08 | 250.57 | 0.45 | 12.90 | 2.45 | 0.54 | 0.00 | Calculated |
| 62 | 0179 | Pipe | J0054-1 | J0048-0 | 19.46 | 4561.20 | 4560.70 | 2.5700 | 2.000 | 0.0130 | 3.00 | 36.26 | 0.08 | 5.78 | 0.44 | 0.22 | 0.00 | Calculated |
| 63 | 220 | Pipe | J42890 | SN-JR086 | 626.30 | 4637.18 | 4618.80 | 2.9300 | 4.000 | 0.0130 | 69.79 | 246.07 | 0.28 | 9.31 | 2.73 | 0.68 | 0.00 | Calculated |
| 64 | 386 | Pipe | J42451 | J42450 | 386.84 | 4552.23 | 4546.90 | 1.3800 | 4.500 | 0.0130 | 113.08 | 230.83 | 0.49 | 14.05 | 2.27 | 0.50 | 0.00 | Calculated |
| 65 | 1325 | Pipe | J42554 | Jun-151 | 1324.86 | 4531.50 | 4515.73 | 1.1900 | 4.500 | 0.0130 | 137.95 | 214.55 | 0.64 | 15.06 | 2.52 | 0.56 | 0.00 | Calculated |
| 66 | 4453 | Pipe | J421017 | J421016 | 322.70 | 4605.36 | 4601.71 | 1.1300 | 1.500 | 0.0130 | 11.06 | 11.17 | 0.99 | 7.35 | 1.19 | 0.80 | 0.00 | Calculated |
| 67 | 4455 | Pipe | J4260 | J4244 | 14.44 | 4523.15 | 4522.27 | 6.0900 | 3.000 | 0.0130 | 27.49 | 164.65 | 0.17 | 7.98 | 1.47 | 0.49 | 0.00 | Calculated |
| 68 | 4456 | Pipe | J4249 | J4260 | 130.28 | 4522.92 | 4523.15 | -0.1800 | 3.000 | 0.0130 | 27.49 | 28.02 | 0.98 | 5.70 | 1.94 | 0.65 | 0.00 | Calculated |
| 69 | 4466 | Pipe | J4244 | J4466-1 | 154.26 | 4522.27 | 4520.95 | 0.8600 | 3.000 | 0.0130 | 27.49 | 61.70 | 0.45 | 7.54 | 1.54 | 0.51 | 0.00 | Calculated |
| 70 | 4469 | Pipe | J4289 | J4267 | 587.24 | 4539.19 | 4526.93 | 2.0900 | 3.000 | 0.0130 | 17.00 | 96.37 | 0.18 | 7.77 | 1.18 | 0.39 | 0.00 | Calculated |
| 71 | 441117 | Pipe | J441117-0 | J4245 | 144.04 | 4617.87 | 4616.24 | 1.1300 | 4.000 | 0.0130 | 10.05 | 152.81 | 0.07 | 6.42 | 0.73 | 0.18 | 0.00 | Calculated |
| 72 | 441118 | Pipe | J4245 | J421019 | 106.25 | 4616.24 | 4610.44 | 5.4600 | 1.500 | 0.0130 | 11.06 | 24.54 | 0.45 | 10.32 | 0.88 | 0.58 | 0.00 | Calculated |
| 73 | 441173 | Pipe | J42888 | J42887 | 125.82 | 4631.26 | 4628.69 | 2.0400 | 2.500 | 0.0130 | 33.87 | 58.62 | 0.58 | 9.10 | 1.77 | 0.71 | 0.00 | Calculated |
| 74 | 441175 | Pipe | J42890 | J42888 | 305.22 | 4636.68 | 4631.26 | 1.7800 | 2.500 | 0.0130 | 33.87 | 57.12 | 0.59 | 10.79 | 1.53 | 0.61 | 0.00 | Calculated |
| 75 | 441176 | Pipe | J42891 | J42890 | 64.25 | 4638.52 | 4637.18 | 2.0900 | 2.500 | 0.0130 | 33.45 | 59.24 | 0.56 | 10.97 | 1.54 | 0.62 | 0.00 | Calculated |
| 76 | 441182 | Pipe | J42901 | J42903 | 204.98 | 4655.25 | 4651.21 | 1.9700 | 2.500 | 0.0130 | 33.43 | 57.58 | 0.58 | 11.28 | 1.45 | 0.58 | 0.00 | Calculated |
| 77 | 441183 | Pipe | J42903 | J42904 | 197.78 | 4651.21 | 4646.81 | 2.2200 | 2.500 | 0.0130 | 33.44 | 61.18 | 0.55 | 9.75 | 1.65 | 0.66 | 0.00 | Calculated |
| 78 | 441184 | Pipe | J42904 | J42905 | 45.56 | 4646.81 | 4645.67 | 2.5000 | 2.500 | 0.0130 | 33.44 | 64.88 | 0.52 | 7.90 | 2.01 | 0.80 | 0.00 | Calculated |
| 79 | 441185 | Pipe | J42905 | J42906 | 118.84 | 4645.67 | 4644.64 | 0.8700 | 2.500 | 0.0130 | 33.44 | 38.19 | 0.88 | 7.76 | 2.05 | 0.82 | 0.00 | Calculated |
| 80 | 441186 | Pipe | J42906 | J42907 | 87.78 | 4644.64 | 4643.68 | 1.0900 | 2.500 | 0.0130 | 33.44 | 42.89 | 0.78 | 8.67 | 1.83 | 0.73 | 0.00 | Calculated |
| 81 | 441187 | Pipe | J42907 | J42908 | 106.21 | 4643.68 | 4642.03 | 1.5500 | 2.500 | 0.0130 | 33.44 | 51.12 | 0.65 | 9.78 | 1.64 | 0.66 | 0.00 | Calculated |
| 82 | 441193 | Pipe | J42908 | J42891 | 209.09 | 4642.03 | 4638.52 | 1.6800 | 2.500 | 0.0130 | 33.44 | 53.14 | 0.63 | 10.08 | 1.60 | 0.64 | 0.00 | Calculated |
| 83 | 441211 | Pipe | J441211-0 | J441211-1 | 199.60 | 4626.54 | 4623.61 | 1.4700 | 2.500 | 0.0130 | 33.86 | 49.70 | 0.68 | 11.06 | 1.60 | 0.64 | 0.00 | Calculated |
| 84 | 441212 | Pipe | J42887 | J441211-0 | 235.01 | 4628.69 | 4626.54 | 0.9100 | 2.500 | 0.0130 | 33.87 | 39.23 | 0.86 | 8.91 | 1.81 | 0.72 | 0.00 | Calculated |
| 85 | 441262 | Pipe | J421018 | J421017 | 47.33 | 4608.21 | 4605.36 | 6.0200 | 1.500 | 0.0130 | 11.06 | 25.78 | 0.43 | 8.46 | 1.05 | 0.70 | 0.00 | Calculated |
| 86 | 441263 | Pipe | J421019 | J421018 | 99.23 | 4610.44 | 4608.21 | 2.2500 | 1.500 | 0.0130 | 11.06 | 15.75 | 0.70 | 9.07 | 0.98 | 0.65 | 0.00 | Calculated |
| 87 | 441294 | Pipe | J42992 | J42993 | 232.54 | 4570.69 | 4569.84 | 0.3700 | 1.500 | 0.0130 | 3.69 | 6.35 | 0.58 | 3.64 | 1.00 | 0.67 | 0.00 | Calculated |
| 88 | 441307 | Pipe | J42998 | J42454 | 137.51 | 4568.05 | 4568.24 | -0.1400 | 2.000 | 0.0130 | 9.70 | 8.41 | 1.15 | 5.74 | 1.06 | 0.53 | 0.00 | > CAPACITY |
| 89 | 441317 | Pipe | J441317-0 | J42958 | 74.76 | 4717.08 | 4715.39 | 2.2600 | 1.250 | 0.0130 | 6.49 | 9.71 | 0.67 | 6.72 | 0.92 | 0.73 | 0.00 | Calculated |
| 90 | 441318 | Pipe | J42958 | J42959 | 46.91 | 4715.39 | 4715.17 | 0.4700 | 2.000 | 0.0130 | 6.49 | 15.49 | 0.42 | 4.41 | 0.95 | 0.48 | 0.00 | Calculated |
| 91 | 441684 | Pipe | J42959 | J42960 | 297.62 | 4715.17 | 4699.92 | 5.1200 | 1.500 | 0.0130 | 6.49 | 23.78 | 0.27 | 10.91 | 0.55 | 0.37 | 0.00 | Calculated |
| 92 | 441685 | Pipe | J42960 | J42961 | 367.15 | 4699.92 | 4683.98 | 4.3400 | 1.500 | 0.0130 | 6.49 | 21.89 | 0.30 | 10.66 | 0.57 | 0.38 | 0.00 | Calculated |
| 93 | 441686 | Pipe | J42961 | J42962 | 226.41 | 4683.98 | 4673.12 | 4.8000 | 1.500 | 0.0130 | 6.49 | 23.01 | 0.28 | 10.97 | 0.55 | 0.37 | 0.00 | Calculated |
| 94 | 441687 | Pipe | J42962 | J42963 | 213.27 | 4673.12 | 4662.65 | 4.9100 | 1.500 | 0.0130 | 6.49 | 23.27 | 0.28 | 10.72 | 0.58 | 0.39 | 0.00 | Calculated |
| 95 | 441688 | Pipe | J42963 | J42964 | 59.90 | 4662.65 | 4660.16 | 4.1600 | 1.500 | 0.0130 | 6.49 | 21.42 | 0.30 | 6.01 | 1.02 | 0.68 | 0.00 | Calculated |
| 96 | 441689 | Pipe | J42964 | J42901 | 270.52 | 4660.16 | 4655.25 | 1.8200 | 2.500 | 0.0130 | 33.43 | 55.26 | 0.61 | 10.92 | 1.49 | 0.60 | 0.00 | Calculated |
| 97 | 441719 | Pipe | J4262 | J4249 | 49.27 | 4523.56 | 4522.92 | 1.3000 | 3.000 | 0.0130 | 27.49 | 76.02 | 0.36 | 4.81 | 2.26 | 0.75 | 0.00 | Calculated |
| 98 | 441720 | Pipe | J4263 | J4262 | 227.17 | 4524.03 | 4523.56 | 0.2100 | 3.000 | 0.0130 | 27.49 | 30.34 | 0.91 | 5.02 | 2.17 | 0.72 | 0.00 | Calculated |
| 99 | 441721 | Pipe | J4264 | J4263 | 266.50 | 4524.56 | 4524.03 | 0.2000 | 3.000 | 0.0130 | 27.49 | 29.74 | 0.92 | 4.56 | 2.39 | 0.80 | 0.00 | Calculated |
| 100 | 441722 | Pipe | J4265 | J4264 | 28.63 | 4524.66 | 4524.56 | 0.3500 | 3.000 | 0.0130 | 27.49 | 39.42 | 0.70 | 4.35 | 2.51 | 0.84 | 0.00 | Calculated |
| 101 | 441723 | Pipe | J4267 | J4265 | 345.00 | 4526.93 | 4524.66 | 0.6600 | 3.000 | 0.0130 | 27.49 | 54.10 | 0.51 | 5.36 | 2.04 | 0.68 | 0.00 | Calculated |
| 102 | 441727 | Pipe | J0041-1 | J4272 | 222.91 | 4550.28 | 4547.81 | 1.1100 | 2.000 | 0.0130 | 3.00 | 23.81 | 0.13 | 4.63 | 0.52 | 0.26 | 0.00 | Calculated |
| 103 | 441731 | Pipe | J4272 | J4278 | 77.89 | 4547.81 | 4547.22 | 0.7600 | 2.000 | 0.0130 | 3.00 | 19.69 | 0.15 | 4.34 | 0.54 | 0.27 | 0.00 | Calculated |
| 104 | 441739 | Pipe | J0052-1 | J4287 | 311.45 | 4571.48 | 4566.95 | 1.4500 | 2.000 | 0.0130 | 0.00 | 27.28 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | Calculated |
| 105 | 441740 | Pipe | J4287 | J4288 | 109.37 | 4566.95 | 4565.39 | 1.4300 | 2.000 | 0.0130 | 0.00 | 27.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | Calculated |
| 106 | 441759 | Pipe | J441759-0 | Jun-198 | 26.35 | 4508.14 | 4507.00 | 4.3300 | 1.250 | 0.0130 | 9.04 | 13.44 | 0.67 | 9.79 | 0.88 | 0.70 | 0.00 | Calculated |
| 107 | 441760 | Pipe | J42886 | J42893 | 400.52 | 4502.98 | 4496.93 | 1.5100 | 1.500 | 0.0130 | 12.04 | 12.91 | 0.93 | 8.04 | 1.19 | 0.79 | 0.00 | Calculated |
| 108 | 441761 | Pipe | J42893 | J441761-1 | 341.40 | 4496.93 | 4491.44 | 1.6100 | 1.500 | 0.0130 | 12.04 | 13.32 | 0.90 | 8.32 | 1.15 | 0.76 | 0.00 | Calculated |
| 109 | 441792 | Pipe | J421016 | J421015 | 310.72 | 4601.71 | 4596.75 | 1.6000 | 1.500 | 0.0130 | 11.06 | 13.27 | 0.83 | 7.58 | 1.15 | 0.77 | 0.00 | Calculated |
| 110 | 441802 | Pipe | J4288 | J0054-1 | 259.16 | 4565.39 | 4561.20 | 1.6200 | 2.000 | 0.0130 | 0.00 | 28.76 | 0.00 | 0.00 | 0.23 | 0.11 | 0.00 | Calculated |
| 111 | 441896 | Pipe | J42452 | J42451 | 491.53 | 4557.88 | 4552.23 | 1.1500 | 4.500 | 0.0130 | 109.08 | 210.83 | 0.52 | 12.37 | 2.44 | 0.54 | 0.00 | Calculated |
| 112 | 441897 | Pipe | J42453 | J42452 | 244.03 | 4559.93 | 4557.88 | 0.8400 | 4.500 | 0.0130 | 109.08 | 180.24 | 0.61 | 11.23 | 2.64 | 0.59 | 0.00 | Calculated |

## Link Summary

| SN | Element ID | Element Type | From (Inlet) Node | To (Outlet) Node | Length | Inlet Invert Elevation | Outlet Invert Elevation | Average Slope | Diameter or Height | Manning's Roughness | Peak Flow | Design Flow Capacity | Peak Flow/ Design Flow Ratio | Peak Flow Velocity | Peak Flow Depth | Peak Flow Depth/ Total Depth Ratio | Total Time Surcharged | Reported Condition |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | (ft) | (ft) | (ft) | (%) | (ft) | | (cfs) | (cfs) | | (ft/sec) | (ft) | | (min) | |
| 113 | 441900 | Pipe | J42454 | J42453 | 67.10 | 4568.24 | 4559.93 | 12.3800 | 2.000 | 0.0130 | 9.70 | 79.61 | 0.12 | 4.76 | 1.24 | 0.62 | 0.00 | Calculated |
| 114 | 441901 | Pipe | J42997 | J42998 | 38.07 | 4568.40 | 4568.05 | 0.9200 | 2.000 | 0.0130 | 9.70 | 21.69 | 0.45 | 3.73 | 1.54 | 0.77 | 0.00 | Calculated |
| 115 | 441902 | Pipe | J42993 | J42997 | 392.75 | 4569.84 | 4568.40 | 0.3700 | 2.000 | 0.0130 | 9.71 | 13.70 | 0.71 | 4.29 | 1.36 | 0.68 | 0.00 | Calculated |
| 116 | JR060.01 | Pipe | JJR060.01-0 | J0038-0 | 1447.32 | 4586.22 | 4544.91 | 2.8500 | 2.000 | 0.0150 | 14.00 | 33.12 | 0.42 | 8.93 | 1.07 | 0.54 | 0.00 | Calculated |
| 117 | JR060.02 | Pipe | JJR060.02-0 | JJR060.02-1 | 746.10 | 4611.44 | 4586.88 | 3.2900 | 2.000 | 0.0150 | 14.00 | 35.57 | 0.39 | 6.23 | 1.35 | 0.67 | 0.00 | Calculated |
| 118 | JR062.01 | Pipe | JJR062.01-0 | JJR062.01-1 | 492.81 | 4648.54 | 4611.92 | 7.4300 | 2.000 | 0.0150 | 6.00 | 53.45 | 0.11 | 2.97 | 1.23 | 0.61 | 0.00 | Calculated |
| 119 | Link-100 | Pipe | Jun-150 | Jun-148 | 1438.38 | 4605.00 | 4568.49 | 2.5400 | 3.500 | 0.0130 | 88.65 | 161.12 | 0.55 | 15.69 | 1.99 | 0.57 | 0.00 | Calculated |
| 120 | Link-101 | Pipe | Jun-148 | J42453 | 400.38 | 4568.49 | 4559.93 | 2.1400 | 3.500 | 0.0130 | 92.64 | 147.11 | 0.63 | 12.76 | 2.48 | 0.71 | 0.00 | Calculated |
| 121 | Link-112 | Pipe | Jun-171 | Out-34 | 1392.43 | 4716.00 | 4726.00 | -0.7200 | 3.500 | 0.0130 | 2.05 | 53.92 | 0.04 | 2.68 | 0.47 | 0.13 | 0.00 | Calculated |
| 122 | Link-119 | Pipe | Jun-180 | Jun-181 | 54.60 | 4664.65 | 4664.20 | 0.8200 | 1.500 | 0.0130 | 1.00 | 9.54 | 0.10 | 4.01 | 0.30 | 0.20 | 0.00 | Calculated |
| 123 | Link-120 | Pipe | Jun-181 | Jun-179 | 756.57 | 4664.20 | 4643.71 | 2.7100 | 1.500 | 0.0130 | 1.00 | 17.29 | 0.06 | 5.73 | 0.23 | 0.15 | 0.00 | Calculated |
| 124 | Link-121 | Pipe | Jun-179 | Jun-182 | 194.97 | 4643.71 | 4636.96 | 3.4600 | 2.000 | 0.0130 | 1.00 | 42.09 | 0.02 | 4.92 | 0.23 | 0.12 | 0.00 | Calculated |
| 125 | Link-122 | Pipe | Jun-182 | Jun-183 | 114.54 | 4636.96 | 4634.42 | 2.2200 | 2.000 | 0.0130 | 1.00 | 33.69 | 0.03 | 5.48 | 0.22 | 0.11 | 0.00 | Calculated |
| 126 | Link-123 | Pipe | Jun-183 | J0126-0 | 31.28 | 4634.42 | 4632.19 | 7.1300 | 2.000 | 0.0130 | 1.00 | 60.40 | 0.02 | 6.18 | 0.40 | 0.20 | 0.00 | Calculated |
| 127 | Link-125 | Pipe | Jun-185 | Jun-198 | 1316.51 | 4529.00 | 4507.00 | 1.6700 | 1.500 | 0.0130 | 3.05 | 13.58 | 0.22 | 7.11 | 0.64 | 0.43 | 0.00 | Calculated |
| 128 | Link-128 | Pipe | J4466-1 | Jun-187 | 856.39 | 4520.95 | 4509.00 | 1.4000 | 3.000 | 0.0130 | 38.36 | 78.79 | 0.49 | 10.88 | 1.50 | 0.50 | 0.00 | Calculated |
| 129 | Link-133 | Pipe | Jun-190 | J4289 | 340.14 | 4543.09 | 4539.19 | 1.1500 | 3.000 | 0.0130 | 17.00 | 71.42 | 0.24 | 8.81 | 0.95 | 0.32 | 0.00 | Calculated |
| 130 | Link-134 | Pipe | JJR060.01-1 | J0026-1 | 659.12 | 4561.00 | 4546.71 | 2.1700 | 1.250 | 0.0150 | 1.00 | 8.24 | 0.12 | 4.13 | 0.33 | 0.26 | 0.00 | Calculated |
| 131 | Link-137 | Pipe | J0038-0 | Jun-190 | 87.57 | 4544.91 | 4543.09 | 2.0800 | 2.000 | 0.0150 | 17.00 | 28.26 | 0.60 | 9.15 | 1.14 | 0.57 | 0.00 | Calculated |
| 132 | Link-141 | Pipe | J421185 | J421189 | 688.27 | 4731.42 | 4728.22 | 0.4600 | 2.000 | 0.0150 | 9.90 | 13.37 | 0.74 | 5.70 | 1.08 | 0.54 | 0.00 | Calculated |
| 133 | Link-148 | Pipe | Jun-198 | J42886 | 77.02 | 4507.00 | 4502.98 | 5.2200 | 1.500 | 0.0130 | 12.04 | 24.00 | 0.50 | 9.59 | 1.00 | 0.67 | 0.00 | Calculated |
| 134 | Link-153 | Pipe | Jun-159 | Jun-196 | 920.30 | 4694.00 | 4660.00 | 3.6900 | 1.500 | 0.0150 | 8.00 | 17.50 | 0.46 | 9.36 | 1.11 | 0.74 | 0.00 | Calculated |
| 135 | Link-158 | Pipe | Jun-213 | Jun-214 | 1590.15 | 4560.00 | 4544.60 | 0.9700 | 3.000 | 0.0150 | 53.72 | 56.89 | 0.94 | 10.21 | 2.10 | 0.70 | 0.00 | Calculated |
| 136 | Link-166 | Pipe | Jun-213 | Jun-214 | 1590.15 | 4572.00 | 4550.00 | 1.3800 | 2.000 | 0.0150 | 0.00 | 23.06 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | Calculated |
| 137 | Link-169 | Pipe | Jun-214 | Jun-215 | 1487.51 | 4544.60 | 4506.00 | 2.5900 | 3.000 | 0.0150 | 53.72 | 93.12 | 0.58 | 13.52 | 1.65 | 0.55 | 0.00 | Calculated |
| 138 | Link-171 | Pipe | Jun-216 | Jun-217 | 900.45 | 4501.00 | 4491.00 | 1.1100 | 4.500 | 0.0130 | 133.62 | 207.23 | 0.64 | 13.42 | 2.70 | 0.60 | 0.00 | Calculated |
| 139 | Link-208 | Pipe | J0075-1 | J421012 | 780.87 | 4605.98 | 4582.55 | 3.0000 | 2.000 | 0.0130 | 15.00 | 39.19 | 0.38 | 10.37 | 1.13 | 0.57 | 0.00 | Calculated |
| 140 | Link-209 | Pipe | Jun-196 | Jun-251 | 1481.92 | 4660.00 | 4627.00 | 2.2300 | 3.500 | 0.0150 | 65.10 | 130.12 | 0.50 | 13.25 | 1.80 | 0.51 | 0.00 | Calculated |
| 141 | Link-210 | Pipe | Jun-247 | Jun-293 | 949.84 | 4533.10 | 4511.00 | 2.3300 | 2.000 | 0.0130 | 24.00 | 34.51 | 0.70 | 10.13 | 1.61 | 0.81 | 0.00 | Calculated |
| 142 | Link-211 | Pipe | Jun-241 | Jun-253 | 1446.36 | 4627.00 | 4618.00 | 0.6200 | 2.000 | 0.0150 | 11.07 | 15.47 | 0.72 | 5.82 | 1.55 | 0.78 | 0.00 | Calculated |
| 143 | Link-213 | Pipe | Jun-188 | J4267 | 61.41 | 4529.68 | 4526.93 | 4.4800 | 2.000 | 0.0150 | 1.00 | 41.49 | 0.02 | 1.57 | 0.86 | 0.43 | 0.00 | Calculated |
| 144 | Link-214 | Pipe | Jun-252 | Jun-293 | 1094.29 | 4529.00 | 4511.00 | 1.6400 | 4.000 | 0.0150 | 84.66 | 159.66 | 0.53 | 10.77 | 2.40 | 0.60 | 0.00 | Calculated |
| 145 | Link-215 | Pipe | Jun-251 | Jun-252 | 3794.28 | 4627.00 | 4529.00 | 2.5800 | 3.500 | 0.0150 | 77.70 | 140.13 | 0.55 | 13.96 | 1.97 | 0.56 | 0.00 | Calculated |
| 146 | Link-216 | Pipe | J42877 | Out-32 | 2577.64 | 4500.54 | 4495.03 | 0.2100 | 1.500 | 0.0130 | 5.00 | 4.86 | 1.03 | 3.35 | 1.18 | 0.79 | 0.00 | > CAPACITY |
| 147 | Link-217 | Pipe | Jun-253 | Jun-150 | 932.17 | 4618.00 | 4605.00 | 1.3900 | 3.500 | 0.0150 | 52.18 | 101.46 | 0.51 | 10.13 | 1.85 | 0.53 | 0.00 | Calculated |
| 148 | Link-222 | Pipe | Jun-256 | Jun-247 | 1747.10 | 4546.00 | 4533.50 | 0.7200 | 2.000 | 0.0130 | 15.00 | 19.14 | 0.78 | 6.65 | 1.35 | 0.67 | 0.00 | Calculated |
| 149 | Link-223 | Pipe | Jun-257 | Jun-291 | 981.20 | 4525.00 | 4508.00 | 1.7300 | 2.000 | 0.0130 | 9.00 | 29.78 | 0.30 | 5.89 | 1.14 | 0.57 | 0.00 | Calculated |
| 150 | Link-224 | Pipe | Jun-258 | Jun-257 | 855.23 | 4530.00 | 4527.00 | 0.3500 | 2.000 | 0.0130 | 9.00 | 26.80 | 0.34 | 7.68 | 0.81 | 0.40 | 0.00 | Calculated |
| 151 | Link-226 | Pipe | Jun-260 | Jun-259 | 1534.40 | 4512.00 | 4503.00 | 0.5900 | 3.000 | 0.0130 | 40.30 | 51.08 | 0.79 | 8.88 | 2.26 | 0.75 | 0.00 | Calculated |
| 152 | Link-227 | Pipe | Jun-261 | Jun-262 | 1483.80 | 4535.00 | 4516.02 | 1.2800 | 3.000 | 0.0130 | 51.96 | 75.44 | 0.69 | 10.75 | 1.97 | 0.66 | 0.00 | Calculated |
| 153 | Link-228 | Pipe | Jun-262 | Jun-263 | 1287.99 | 4516.02 | 4504.06 | 0.9300 | 3.500 | 0.0130 | 60.20 | 96.95 | 0.62 | 9.93 | 2.17 | 0.62 | 0.00 | Calculated |
| 154 | Link-229 | Pipe | Jun-263 | Jun-221 | 1293.68 | 4504.06 | 4496.13 | 0.6100 | 4.000 | 0.0130 | 66.22 | 112.46 | 0.59 | 8.99 | 2.27 | 0.57 | 0.00 | Calculated |
| 155 | Link-230 | Pipe | Jun-264 | Jun-268 | 1621.69 | 4522.00 | 4515.00 | 0.4300 | 2.000 | 0.0130 | 14.89 | 14.86 | 1.00 | 5.99 | 1.58 | 0.79 | 0.00 | > CAPACITY |
| 156 | Link-231 | Pipe | Jun-265 | J0080-0 | 1485.54 | 4618.00 | 4614.73 | 0.2200 | 2.000 | 0.0150 | 5.00 | 9.20 | 0.54 | 3.11 | 1.53 | 0.76 | 0.00 | Calculated |
| 157 | Link-232 | Pipe | Jun-267 | Jun-266 | 3268.69 | 4597.00 | 4556.00 | 1.2500 | 2.500 | 0.0130 | 12.17 | 45.94 | 0.26 | 8.71 | 0.82 | 0.33 | 0.00 | Calculated |
| 158 | Link-233 | Pipe | Jun-266 | SN-JR081 | 2514.75 | 4556.00 | 4536.80 | 0.7600 | 2.000 | 0.0130 | 2.84 | 19.77 | 0.14 | 1.39 | 1.36 | 0.68 | 0.00 | Calculated |
| 159 | Link-234 | Pipe | Jun-268 | Jun-297 | 2045.61 | 4515.00 | 4501.00 | 0.6800 | 2.500 | 0.0130 | 14.72 | 33.93 | 0.43 | 4.82 | 1.72 | 0.69 | 0.00 | Calculated |
| 160 | Link-236 | Pipe | Jun-269 | Out-37 | 3658.82 | 4494.30 | 4487.50 | 0.1900 | 2.500 | 0.0130 | 11.58 | 17.68 | 0.65 | 4.04 | 1.41 | 0.57 | 0.00 | Calculated |
| 161 | Link-238 | Pipe | Jun-270 | Jun-284 | 653.97 | 4629.23 | 4625.76 | 0.5300 | 1.250 | 0.0130 | 1.74 | 4.71 | 0.37 | 3.50 | 0.59 | 0.47 | 0.00 | Calculated |
| 162 | Link-242 | Pipe | 201 | 198 | 229.94 | 4609.17 | 4606.66 | 1.0900 | 2.000 | 0.0130 | 23.26 | 23.64 | 0.98 | 7.40 | 2.00 | 1.00 | 42.00 | SURCHARGED |
| 163 | Link-244 | Pipe | 203 | 202 | 356.95 | 4616.56 | 4611.25 | 1.4900 | 1.500 | 0.0130 | 18.60 | 12.81 | 1.45 | 10.53 | 1.50 | 1.00 | 34.00 | SURCHARGED |
| 164 | Link-246 | Pipe | JJR062.03-0 | Stor-67 | 292.26 | 4696.16 | 4695.42 | 0.2500 | 7.500 | 0.0150 | 54.01 | 334.87 | 0.16 | 2.98 | 3.45 | 0.46 | 0.00 | Calculated |
| 165 | Link-247 | Pipe | Jun-277 | Jun-196 | 750.35 | 4685.00 | 4660.00 | 3.3300 | 3.000 | 0.0150 | 52.10 | 105.51 | 0.49 | 13.07 | 1.65 | 0.55 | 0.00 | Calculated |
| 166 | Link-248 | Pipe | 201a | Jun-150 | 260.90 | 4606.16 | 4605.38 | 0.3000 | 3.000 | 0.0130 | 28.88 | 36.47 | 0.79 | 5.50 | 2.09 | 0.70 | 0.00 | Calculated |
| 167 | Link-249 | Pipe | 198 | 201a | 168.97 | 4606.66 | 4606.16 | 0.3000 | 3.000 | 0.0130 | 28.88 | 36.28 | 0.80 | 4.70 | 2.44 | 0.81 | 0.00 | Calculated |
| 168 | Link-250 | Pipe | 202 | 201 | 91.79 | 4611.25 | 4609.17 | 2.2700 | 2.000 | 0.0130 | 18.40 | 34.05 | 0.54 | 7.79 | 2.00 | 1.00 | 25.00 | SURCHARGED |

## Link Summary

| SN | Element ID | Element Type | From (Inlet) Node | To (Outlet) Node | Length | Inlet Invert Elevation | Outlet Invert Elevation | Average Slope | Diameter or Height | Manning's Roughness | Peak Flow | Design Flow Capacity | Peak Flow/ Design Flow Ratio | Peak Flow Velocity | Peak Flow Depth | Peak Flow Depth/ Total Depth Ratio | Total Time Surcharged | Reported Condition |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | (ft) | (ft) | (ft) | (%) | (ft) | | (cfs) | (cfs) | | (ft/sec) | (ft) | | (min) | |
| 169 | Link-252 | Pipe | Jun-283 | 203 | 250.13 | 4617.56 | 4616.56 | 0.4000 | 1.500 | 0.0150 | 5.01 | 5.76 | 0.87 | 3.24 | 1.50 | 1.00 | 58.00 | SURCHARGED |
| 170 | Link-253 | Pipe | Jun-272 | Jun-283 | 554.49 | 4623.33 | 4617.56 | 1.0400 | 1.500 | 0.0150 | 3.95 | 9.28 | 0.43 | 3.06 | 1.50 | 1.00 | 29.00 | SURCHARGED |
| 171 | Link-254 | Pipe | Jun-284 | Jun-272 | 487.24 | 4625.76 | 4623.33 | 0.5000 | 1.500 | 0.0130 | 2.32 | 7.42 | 0.31 | 3.41 | 1.08 | 0.72 | 0.00 | Calculated |
| 172 | Link-257 | Pipe | Jun-285 | Jun-287 | 558.11 | 4627.10 | 4624.00 | 0.5600 | 2.000 | 0.0150 | 10.32 | 14.61 | 0.71 | 4.78 | 2.00 | 1.00 | 43.00 | SURCHARGED |
| 173 | Link-258 | Pipe | Jun-287 | 203 | 1230.37 | 4624.00 | 4616.56 | 0.6000 | 2.000 | 0.0150 | 12.75 | 15.25 | 0.84 | 4.93 | 2.00 | 1.00 | 49.00 | SURCHARGED |
| 174 | Link-260 | Pipe | Jun-290 | SN-PR021 | 2954.79 | 4709.00 | 4618.00 | 3.0800 | 3.000 | 0.0130 | 41.28 | 118.02 | 0.35 | 13.30 | 1.59 | 0.53 | 0.00 | Calculated |
| 175 | Link-261 | Pipe | Jun-291 | Jun-216 | 1344.52 | 4508.00 | 4501.00 | 0.5200 | 2.000 | 0.0130 | 15.06 | 16.32 | 0.92 | 5.27 | 1.76 | 0.88 | 0.00 | Calculated |
| 176 | Link-262 | Pipe | Jun-292 | Jun-216 | 131.63 | 4504.00 | 4501.00 | 2.2800 | 4.000 | 0.0150 | 115.63 | 187.94 | 0.62 | 11.68 | 2.94 | 0.73 | 0.00 | Calculated |
| 177 | Link-263 | Pipe | Jun-293 | Jun-292 | 420.02 | 4511.00 | 4504.00 | 1.6700 | 4.000 | 0.0150 | 108.64 | 160.71 | 0.68 | 11.06 | 2.92 | 0.73 | 0.00 | Calculated |
| 178 | Link-265 | Pipe | Jun-266 | Jun-295 | 1421.06 | 4556.00 | 4525.09 | 2.1800 | 2.500 | 0.0150 | 9.33 | 52.43 | 0.18 | 6.97 | 0.79 | 0.32 | 0.00 | Calculated |
| 179 | Link-266 | Pipe | Jun-295 | Jun-296 | 2619.39 | 4525.09 | 4505.12 | 0.7600 | 3.000 | 0.0150 | 9.33 | 50.47 | 0.18 | 5.29 | 0.92 | 0.31 | 0.00 | Calculated |
| 180 | Link-267 | Pipe | Jun-296 | Jun-297 | 975.32 | 4505.12 | 4501.00 | 0.4200 | 3.500 | 0.0150 | 9.32 | 56.67 | 0.16 | 2.13 | 1.63 | 0.46 | 0.00 | Calculated |
| 181 | Link-268 | Pipe | Jun-297 | Out-36 | 33.65 | 4501.00 | 4501.23 | -0.6800 | 3.500 | 0.0130 | 23.97 | 83.18 | 0.29 | 4.85 | 1.79 | 0.51 | 0.00 | Calculated |
| 182 | Link-270 | Pipe | J0071-1 | J0050-0 | 8.98 | 4585.32 | 4579.17 | 68.4900 | 1.500 | 0.0130 | 11.06 | 86.93 | 0.13 | 10.16 | 1.02 | 0.68 | 0.00 | Calculated |
| 183 | Link-274 | Pipe | J0050-0 | Jun-301 | 129.38 | 4579.17 | 4578.59 | 0.4500 | 3.000 | 0.0150 | 28.75 | 38.70 | 0.74 | 5.04 | 2.26 | 0.75 | 0.00 | Calculated |
| 184 | Link-276 | Pipe | Jun-300 | J0052-1 | 567.24 | 4579.00 | 4571.48 | 1.3300 | 2.000 | 0.0150 | 0.00 | 22.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | Calculated |
| 185 | Link-277 | Pipe | Jun-301 | Jun-213 | 1544.10 | 4578.59 | 4560.00 | 1.2000 | 3.000 | 0.0150 | 53.74 | 63.43 | 0.85 | 9.21 | 2.33 | 0.78 | 0.00 | Calculated |
| 186 | Link-98 | Pipe | Jun-149 | Jun-290 | 233.67 | 4716.00 | 4710.52 | 2.3500 | 3.000 | 0.0130 | 23.68 | 229.85 | 0.10 | 16.27 | 0.94 | 0.31 | 0.00 | Calculated |
| 187 | 0110 | Channel | J0109-1 | J0110-1 | 63.57 | 4586.99 | 4585.43 | 2.4500 | 10.000 | 0.0320 | 11.06 | 6785.30 | 0.00 | 0.90 | 1.05 | 0.11 | 0.00 | |
| 188 | Link-103 | Channel | Jun-151 | Jun-259 | 1565.80 | 4515.73 | 4503.00 | 0.8100 | 5.000 | 0.0320 | 137.89 | 817.99 | 0.17 | 4.73 | 2.39 | 0.48 | 0.00 | |
| 189 | Link-225 | Channel | Jun-259 | Jun-152 | 1289.32 | 4503.00 | 4492.00 | 0.8500 | 5.000 | 0.0320 | 177.71 | 837.95 | 0.21 | 5.61 | 2.52 | 0.50 | 0.00 | |
| 190 | O-200W | Orifice | SN-JR081 | J0086-0 | | 4536.80 | 4534.15 | | 1.750 | | 17.12 | | | | | | | |
| 191 | O-540W | Orifice | SN-PR026 | J42453 | | 4568.20 | 4559.93 | | 1.250 | | 10.43 | | | | | | | |
| 192 | O-610W | Orifice | SN-PR025 | J42992 | | 4573.00 | 4570.69 | | 1.000 | | 3.70 | | | | | | | |
| 193 | O-Comm | Orifice | SN-JR071 | J441759-0 | | 4509.40 | 4508.14 | | 1.250 | | 9.04 | | | | | | | |
| 194 | O-HHPark | Orifice | SN-HHPa | J441317-0 | | 4727.60 | 4717.08 | | 1.250 | | 6.49 | | | | | | | |
| 195 | O-Orch | Orifice | SN-JR084 | J431143 | | 4743.00 | 4739.37 | | 1.000 | | 4.78 | | | | | | | |
| 196 | O-Pepp | Orifice | SN-JR086 | J441117-0 | | 4618.80 | 4617.87 | | 1.000 | | 10.05 | | | | | | | |
| 197 | Orifice-27 | Orifice | SN-JR085 | J4245 | | 4685.00 | 4616.24 | | 0.330 | | 1.00 | | | | | | | |
| 198 | Orifice-29 | Orifice | Stor-67 | Jun-277 | | 4695.42 | 4685.00 | | 3.000 | | 52.10 | | | | | | | |
| 199 | O-SMPN | Orifice | SN-PR023 | Jun-241 | | 4628.60 | 4627.00 | | 1.670 | | 11.08 | | | | | | | |
| 200 | O-SMPS | Orifice | SN-PR022 | SN-PR023 | | 4628.60 | 4628.60 | | 1.667 | | 5.21 | | | | | | | |
| 201 | 5cfs | Outlet | Stor-45 | 203 | | 4700.00 | 4616.56 | | | | 5.00 | | | | | | | |
| 202 | OUT-JR010 | Outlet | SN-JR010 | Jun-261 | | 4586.00 | 4535.00 | | | | 38.00 | | | | | | | |
| 203 | OUT-JR020 | Outlet | SN-JR020 | Jun-260 | | 4517.00 | 4507.00 | | | | 40.00 | | | | | | | |
| 204 | OUT-JR032 | Outlet | SN-JR032 | Jun-150 | | 4660.00 | 4605.38 | | | | 8.00 | | | | | | | |
| 205 | OUT-JR050 | Outlet | SN-JR050 | Jun-258 | | 4620.00 | 4539.00 | | | | 9.00 | | | | | | | |
| 206 | OUT-JR062 | Outlet | SN-JR068 | JJR060.02-0 | | 4632.00 | 4611.44 | | | | 8.00 | | | | | | | |
| 207 | OUT-JR063 | Outlet | SN-JR063 | Jun-256 | | 4552.00 | 4546.00 | | | | 15.00 | | | | | | | |
| 208 | OUT-JR070 | Outlet | SN-JR070 | J4466-1 | | 4565.00 | 4520.95 | | | | 10.87 | | | | | | | |
| 209 | OUT-JR082 | Outlet | SN-JR079 | J0080-0 | | 4635.00 | 4614.73 | | | | 10.00 | | | | | | | |
| 210 | Outlet-101 | Outlet | Stor-46 | J0126-1 | | 5000.00 | 4629.13 | | | | 2.00 | | | | | | | |
| 211 | Outlet-102 | Outlet | Stor-57 | Jun-252 | | 4632.00 | 4529.00 | | | | 5.00 | | | | | | | |
| 212 | Outlet-105 | Outlet | SN-JR065a | Jun-251 | | 4690.00 | 4627.00 | | | | 5.00 | | | | | | | |
| 213 | Outlet-107 | Outlet | Stor-50 | J0054-1 | | 4570.00 | 4561.20 | | | | 3.00 | | | | | | | |
| 214 | Outlet-108 | Outlet | Stor-51 | Jun-291 | | 4542.00 | 4508.00 | | | | 4.00 | | | | | | | |
| 215 | Outlet-109 | Outlet | SN-PR021 | Jun-253 | | 4618.00 | 4618.00 | | | | 41.14 | | | | | | | |
| 216 | Outlet-111 | Outlet | Stor-53 | Jun-264 | | 4522.00 | 4522.00 | | | | 15.00 | | | | | | | |
| 217 | Outlet-112 | Outlet | Stor-54 | Jun-265 | | 4621.00 | 4618.00 | | | | 3.00 | | | | | | | |
| 218 | Outlet-114 | Outlet | Stor-56 | Jun-285 | | 4680.00 | 4627.10 | | | | 5.00 | | | | | | | |
| 219 | Outlet-115 | Outlet | Stor-58 | Jun-267 | | 4600.00 | 4597.00 | | | | 12.17 | | | | | | | |
| 220 | Outlet-117 | Outlet | SN-PR024 | Jun-148 | | 4573.00 | 4568.49 | | | | 4.00 | | | | | | | |
| 221 | Outlet-118 | Outlet | Stor-61 | Jun-269 | | 4498.00 | 4494.30 | | | | 11.61 | | | | | | | |
| 222 | Outlet-119 | Outlet | Stor-62 | JJR060.01-1 | | 4632.00 | 4561.00 | | | | 1.00 | | | | | | | |
| 223 | Outlet-120 | Outlet | Stor-63 | Jun-270 | | 4690.00 | 4629.23 | | | | 1.74 | | | | | | | |
| 224 | Outlet-121 | Outlet | Stor-64 | Jun-252 | | 4629.00 | 4529.00 | | | | 2.00 | | | | | | | |

## Link Summary

| SN | Element ID | Element Type | From (Inlet) Node | To (Outlet) Node | Length | Inlet Invert Elevation | Outlet Invert Elevation | Average Slope | Diameter or Height | Manning's Roughness | Peak Flow | Design Flow Capacity | Peak Flow/ Design Flow Ratio | Peak Flow Velocity | Peak Flow Depth | Peak Flow Depth/ Total Depth Ratio | Total Time Surcharged | Reported Condition |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | (ft) | (ft) | (ft) | (%) | (ft) | | (cfs) | (cfs) | | (ft/sec) | (ft) | | (min) | |
| 225 | Outlet-122 | Outlet | Stor-65 | Jun-285 | | 4660.00 | 4627.10 | | | | 4.00 | | | | | | | |
| 226 | Outlet-123 | Outlet | Stor-66 | J421185 | | 4831.00 | 4731.42 | | | | 1.00 | | | | | | | |
| 227 | Outlet-125 | Outlet | Stor-69 | Stor-44 | | 4740.00 | 4755.00 | | | | 12.00 | | | | | | | |
| 228 | Outlet-126 | Outlet | Stor-68 | Stor-44 | | 4740.00 | 4755.00 | | | | 3.00 | | | | | | | |
| 229 | Outlet-127 | Outlet | Stor-70 | Jun-216 | | 4542.00 | 4501.00 | | | | 3.00 | | | | | | | |
| 230 | Outlet-128 | Outlet | Stor-71 | Jun-291 | | 4542.00 | 4508.00 | | | | 2.00 | | | | | | | |
| 231 | Outlet-130 | Outlet | Stor-72 | 198 | | 4650.00 | 4606.66 | | | | 5.00 | | | | | | | |
| 232 | Outlet-131 | Outlet | Stor-59 | Jun-287 | | 4650.00 | 4624.00 | | | | 4.00 | | | | | | | |
| 233 | Outlet-132 | Outlet | Stor-73 | 201 | | 4660.00 | 4609.17 | | | | 4.96 | | | | | | | |
| 234 | Outlet-136 | Outlet | Stor-74 | JJR062.04-1 | | 4745.00 | 4697.75 | | | | 36.23 | | | | | | | |
| 235 | Outlet-137 | Outlet | Stor-75 | JJR062.04-1 | | 4745.00 | 4697.75 | | | | 11.48 | | | | | | | |
| 236 | Outlet-138 | Outlet | Stor-76 | 203 | | 4650.00 | 4616.56 | | | | 2.00 | | | | | | | |
| 237 | Outlet-139 | Outlet | Stor-77 | 198 | | 4650.00 | 4606.66 | | | | 0.72 | | | | | | | |
| 238 | Outlet-140 | Outlet | Stor-78 | Jun-292 | | 4620.00 | 4504.00 | | | | 7.00 | | | | | | | |
| 239 | Outlet-141 | Outlet | Stor-79 | J4267 | | 4565.00 | 4526.93 | | | | 9.49 | | | | | | | |
| 240 | Outlet-142 | Outlet | Stor-80 | J42451 | | 4580.00 | 4552.23 | | | | 4.00 | | | | | | | |
| 241 | Outlet-143 | Outlet | Stor-81 | J0050-0 | | 4590.00 | 4579.17 | | | | 18.00 | | | | | | | |
| 242 | Outlet-144 | Outlet | Stor-82 | Jun-265 | | 4650.00 | 4618.00 | | | | 2.00 | | | | | | | |
| 243 | Outlet-84 | Outlet | SN-JR082 | Jun-180 | | 4685.00 | 4664.65 | | | | 1.00 | | | | | | | |
| 244 | Outlet-86 | Outlet | Stor-57 | Jun-251 | | 4632.00 | 4627.00 | | | | 13.19 | | | | | | | |
| 245 | Outlet-90 | Outlet | SN-JR031 | J42554 | | 4554.00 | 4531.50 | | | | 11.83 | | | | | | | |
| 246 | Outlet-91 | Outlet | SN-JR035 | J42452 | | 4558.00 | 4557.88 | | | | 12.08 | | | | | | | |
| 247 | Outlet-92 | Outlet | SN-JR065a | Jun-196 | | 4690.00 | 4660.00 | | | | 5.00 | | | | | | | |
| 248 | Outlet-93 | Outlet | Stor-41 | Jun-247 | | 4620.00 | 4533.10 | | | | 9.00 | | | | | | | |
| 249 | Outlet-95 | Outlet | SN-JR083 | J0126-0 | | 4685.00 | 4632.19 | | | | 7.00 | | | | | | | |
| 250 | Outlet-96 | Outlet | SN-JR065 | JJR062.02-1 | | 4660.00 | 4648.89 | | | | 6.00 | | | | | | | |
| 251 | Outlet-97 | Outlet | Stor-43 | J42877 | | 4505.00 | 4500.54 | | | | 5.00 | | | | | | | |
| 252 | Outlet-98 | Outlet | Stor-44 | Jun-149 | | 4755.00 | 4738.27 | | | | 23.68 | | | | | | | |
| 253 | Outlet-99 | Outlet | SN-JR061 | Jun-185 | | 4632.00 | 4529.00 | | | | 3.00 | | | | | | | |
| 254 | OUT-PR020 | Outlet | SN-PR020 | Jun-290 | | 4720.00 | 4710.52 | | | | 17.62 | | | | | | | |
| 255 | OUT-PR030 | Outlet | SN-PR030 | Jun-159 | | 4710.00 | 4694.00 | | | | 8.00 | | | | | | | |
| 256 | OUT-PR050 | Outlet | SN-PR050 | Out-35 | | 4750.00 | 4719.00 | | | | 12.00 | | | | | | | |
| 257 | OUT-PR060 | Outlet | SN-PR060 | Jun-171 | | 5410.00 | 4730.00 | | | | 2.06 | | | | | | | |
| 258 | Weir-02 | Weir | SN-JR086 | Out-41 | | 4618.80 | 0.00 | | | | 0.00 | | | | | | | |

# FULL BUILD-OUT CONDITION - NORTH
# 100-YEAR STORM

## Project Description

File Name ..... Saratoga North Buildout_SD_v2_PN12_Option5.SPF

## Project Options

Flow Units ..... CFS
Elevation Type ..... Elevation
Hydrology Method ..... HEC-1
HEC-1 unit hydrograph method ..... SCS Dimensionless
HEC-1 loss method ..... SCS Curve Number
Link Routing Method ..... Hydrodynamic
Enable Overflow Ponding at Nodes ..... YES
Skip Steady State Analysis Time Periods ... NO

## Analysis Options

Start Analysis On ..... Jan 01, 2012 00:00:00
End Analysis On ..... Jan 01, 2012 23:55:00
Start Reporting On ..... Jan 01, 2012 00:00:00
Antecedent Dry Days ..... 0 days
Runoff (Dry Weather) Time Step ..... 0 01:00:00 days hh:mm:ss
Runoff (Wet Weather) Time Step ..... 0 00:01:00 days hh:mm:ss
Reporting Time Step ..... 0 00:01:00 days hh:mm:ss
Routing Time Step ..... 15 seconds

## Number of Elements

| | Qty |
|---|---|
| Rain Gages | 4 |
| Subbasins | 74 |
| Nodes | 263 |
| *Junctions* | 185 |
| *Outfalls* | 12 |
| *Flow Diversions* | 0 |
| *Inlets* | 0 |
| *Storage Nodes* | 66 |
| Links | 258 |
| *Channels* | 3 |
| *Pipes* | 186 |
| *Pumps* | 0 |
| *Orifices* | 11 |
| *Weirs* | 1 |
| *Outlets* | 57 |
| Pollutants | 0 |
| Land Uses | 0 |

## Rainfall Details

| SN | Rain Gage ID | Data Source | Data Source ID | Rainfall Type | Rain Units | State | County | Return Period (years) | Rainfall Depth (inches) | Rainfall Distribution |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 100-Year | Time Series | TS-100yr | Cumulative | inches | | | | 0.00 | |
| 2 | 10-Year | Time Series | TS-10yr | Cumulative | inches | | | | 0.00 | |
| 3 | 2-Year | Time Series | TS-2yr | Cumulative | inches | | | | 0.00 | |
| 4 | NOAA24hr | Time Series | TS-25yr | Cumulative | inches | | | | 0.00 | |

## Subbasin Summary

| SN | Subbasin ID | Area (ac) | Total Rainfall (in) | Total Runoff (in) | Total Runoff Volume (ac-in) | Peak Runoff (cfs) |
|---|---|---|---|---|---|---|
| 1 | IrrigationOverflow | 0.28 | 1.74 | 940.48 | 261.05 | 11.06 |
| 2 | JR010 | 433.17 | 1.74 | 1.08 | 469.12 | 518.64 |
| 3 | JR012 | 30.63 | 1.74 | 0.58 | 17.76 | 11.94 |
| 4 | JR020 | 238.14 | 1.74 | 1.52 | 361.26 | 450.69 |
| 5 | JR022A | 76.92 | 1.74 | 1.33 | 102.54 | 68.21 |
| 6 | JR022A2 | 16.55 | 1.74 | 1.34 | 22.09 | 32.33 |
| 7 | JR022B | 65.28 | 1.74 | 1.33 | 87.02 | 57.88 |
| 8 | JR023 | 24.06 | 1.74 | 0.76 | 18.19 | 25.04 |
| 9 | JR024 | 9.50 | 1.74 | 1.05 | 10.00 | 14.64 |
| 10 | JR025 | 26.71 | 1.74 | 1.48 | 39.58 | 40.68 |
| 11 | JR029 | 20.61 | 1.74 | 1.13 | 23.25 | 51.02 |
| 12 | JR030 | 99.26 | 1.74 | 1.10 | 108.78 | 133.24 |
| 13 | JR031 | 58.80 | 1.74 | 1.34 | 78.85 | 101.91 |
| 14 | JR032A | 24.53 | 1.74 | 0.49 | 11.94 | 22.27 |
| 15 | JR032B | 66.91 | 1.74 | 0.53 | 35.73 | 46.13 |
| 16 | JR032C | 21.75 | 1.74 | 0.44 | 9.48 | 14.80 |
| 17 | JR032Ca | 27.91 | 1.74 | 0.44 | 12.14 | 18.98 |
| 18 | JR032Cb | 16.97 | 1.74 | 0.31 | 5.28 | 8.04 |
| 19 | JR032D | 16.86 | 1.74 | 0.58 | 9.76 | 6.56 |
| 20 | JR035 | 106.40 | 1.74 | 0.57 | 60.22 | 76.11 |
| 21 | JR040 | 26.23 | 1.74 | 0.89 | 23.21 | 34.10 |
| 22 | JR050 | 75.91 | 1.74 | 1.13 | 85.63 | 90.08 |
| 23 | JR060 | 34.02 | 1.74 | 1.42 | 48.35 | 80.07 |
| 24 | JR061 | 27.98 | 1.74 | 1.38 | 38.53 | 58.08 |
| 25 | JR062 | 55.28 | 1.74 | 1.38 | 76.18 | 114.84 |
| 26 | JR063 | 169.69 | 1.74 | 1.06 | 179.70 | 192.21 |
| 27 | JR064A | 27.36 | 1.74 | 0.55 | 14.97 | 24.58 |
| 28 | JR064B | 83.17 | 1.74 | 0.58 | 47.99 | 58.54 |
| 29 | JR065 | 94.86 | 1.74 | 1.42 | 134.80 | 207.90 |
| 30 | JR066 | 81.90 | 1.74 | 0.56 | 45.70 | 56.06 |
| 31 | JR067 | 119.96 | 1.74 | 0.57 | 67.90 | 75.00 |
| 32 | JR068 | 102.05 | 1.74 | 1.51 | 154.30 | 228.83 |
| 33 | JR069 | 77.22 | 1.74 | 1.42 | 109.26 | 170.41 |
| 34 | JR070 | 59.99 | 1.74 | 1.31 | 78.65 | 97.08 |
| 35 | JR071 | 16.88 | 1.74 | 0.78 | 13.10 | 15.05 |
| 36 | JR079 | 55.88 | 1.74 | 1.51 | 84.59 | 114.77 |
| 37 | JR081 | 28.35 | 1.74 | 1.51 | 42.73 | 70.18 |
| 38 | JR-081b | 28.01 | 1.74 | 1.51 | 42.24 | 77.07 |
| 39 | JR082 | 19.87 | 1.74 | 1.50 | 29.82 | 46.18 |
| 40 | JR083 | 36.82 | 1.74 | 1.31 | 48.39 | 74.00 |
| 41 | JR084 | 39.11 | 1.74 | 0.52 | 20.41 | 23.78 |
| 42 | JR085 | 25.52 | 1.74 | 0.51 | 13.09 | 21.30 |
| 43 | JR086 | 138.78 | 1.74 | 0.49 | 67.87 | 93.93 |
| 44 | JR087 | 25.82 | 1.74 | 0.59 | 15.29 | 20.41 |
| 45 | JR088 | 37.93 | 1.74 | 0.50 | 18.89 | 33.01 |
| 46 | JR089 | 33.28 | 1.74 | 0.50 | 16.57 | 26.56 |
| 47 | JR090 | 58.55 | 1.74 | 0.68 | 39.82 | 58.43 |
| 48 | JR091 | 18.12 | 1.74 | 1.14 | 20.67 | 32.40 |
| 49 | JR092 | 8.80 | 1.74 | 1.56 | 13.75 | 16.39 |
| 50 | JR093 | 17.08 | 1.74 | 1.13 | 19.28 | 29.40 |
| 51 | JR094 | 57.08 | 1.74 | 1.12 | 63.98 | 77.97 |
| 52 | JR095A | 26.53 | 1.74 | 1.51 | 39.95 | 87.96 |
| 53 | JR095B | 17.34 | 1.74 | 1.51 | 26.14 | 60.61 |
| 54 | JR096A | 21.46 | 1.74 | 0.49 | 10.43 | 16.41 |
| 55 | JR096B | 4.51 | 1.74 | 0.58 | 2.60 | 1.75 |
| 56 | JR150 | 474.78 | 1.74 | 0.58 | 273.95 | 123.61 |
| 57 | JR160 | 1318.29 | 1.74 | 0.17 | 222.79 | 113.95 |
| 58 | MtSaratoga1 | 136.62 | 1.74 | 0.59 | 80.88 | 126.85 |
| 59 | MtSaratoga2 | 107.59 | 1.74 | 0.69 | 73.81 | 110.49 |
| 60 | MtSaratoga3 | 82.37 | 1.74 | 0.55 | 44.97 | 64.67 |
| 61 | PR030 | 149.87 | 1.74 | 0.67 | 100.87 | 123.18 |
| 62 | PR060A | 726.89 | 1.74 | 0.15 | 109.03 | 89.63 |
| 63 | PRO40C | 131.80 | 1.74 | 0.58 | 76.05 | 65.70 |
| 64 | PRO50A | 1081.30 | 1.74 | 0.17 | 182.74 | 129.57 |
| 65 | PRO50B | 291.50 | 1.74 | 0.58 | 169.07 | 113.54 |
| 66 | Sub-11 | 64.78 | 1.74 | 0.98 | 63.23 | 65.62 |
| 67 | Sub-12 | 9.53 | 1.74 | 1.42 | 13.54 | 24.37 |
| 68 | Sub-13 | 10.31 | 1.74 | 0.54 | 5.58 | 3.94 |
| 69 | Sub-31 | 49.33 | 1.74 | 1.31 | 64.42 | 79.56 |
| 70 | TG010A | 141.70 | 1.74 | 1.52 | 214.96 | 268.16 |
| 71 | TG010B | 52.92 | 1.74 | 0.52 | 27.62 | 31.25 |
| 72 | TG-010C | 11.32 | 1.74 | 1.73 | 19.57 | 46.18 |
| 73 | TG010D | 4.09 | 1.74 | 1.69 | 6.93 | 16.02 |
| 74 | WildflowerPlatA | 6.88 | 1.74 | 0.58 | 3.97 | 2.67 |

## Node Summary

| SN | Element ID | Element Type | Invert Elevation (ft) | Ground/Rim (Max) Elevation (ft) | Initial Water Elevation (ft) | Surcharge Elevation (ft) | Ponded Area (ft²) | Peak Inflow (cfs) | Max HGL Elevation Attained (ft) | Max Surcharge Depth Attained (ft) | Min Freeboard Attained (ft) | Time of Peak Flooding Occurrence (days hh:mm) | Total Flooded Volume (ac-in) | Total Time Flooded (min) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 198 | Junction | 4606.66 | 4612.50 | 0.07 | 4612.50 | 0.00 | 34.00 | 4609.63 | 0.00 | 2.87 | 0 00:00 | 0.00 | 0.00 |
| 2 | 201 | Junction | 4609.17 | 4615.97 | 0.10 | 4615.97 | 0.00 | 28.00 | 4615.09 | 0.00 | 0.88 | 0 00:00 | 0.00 | 0.00 |
| 3 | 201a | Junction | 4606.16 | 4612.50 | 0.03 | 4612.50 | 0.00 | 34.00 | 4608.82 | 0.00 | 3.68 | 0 00:00 | 0.00 | 0.00 |
| 4 | 202 | Junction | 4611.25 | 4616.88 | 0.00 | 4615.88 | 0.00 | 22.38 | 4616.88 | 0.00 | 0.00 | 0 02:13 | 0.00 | 0.00 |
| 5 | 203 | Junction | 4616.56 | 4624.56 | 0.00 | 9235.81 | 0.00 | 22.29 | 4647.71 | 23.15 | 0.00 | 0 00:00 | 0.00 | 0.00 |
| 6 | J0018-0 | Junction | 4545.56 | 4548.66 | 0.00 | 4551.76 | 0.00 | 1.00 | 4545.80 | 0.00 | 2.86 | 0 00:00 | 0.00 | 0.00 |
| 7 | J0018-1 | Junction | 4540.09 | 4544.49 | 0.00 | 4548.89 | 0.00 | 1.00 | 4540.34 | 0.00 | 4.15 | 0 00:00 | 0.00 | 0.00 |
| 8 | J0019-0 | Junction | 4545.76 | 4549.66 | 0.00 | 4553.56 | 0.00 | 1.00 | 4546.28 | 0.00 | 3.38 | 0 00:00 | 0.00 | 0.00 |
| 9 | J0020-1 | Junction | 4535.12 | 4539.32 | 0.00 | 4543.52 | 0.00 | 1.00 | 4535.37 | 0.00 | 3.95 | 0 00:00 | 0.00 | 0.00 |
| 10 | J0021-1 | Junction | 4530.51 | 4534.61 | 0.00 | 4548.71 | 0.00 | 1.00 | 4530.80 | 0.00 | 3.81 | 0 00:00 | 0.00 | 0.00 |
| 11 | J0023-0 | Junction | 4530.35 | 4533.90 | 0.00 | 4547.45 | 0.00 | 1.00 | 4530.67 | 0.00 | 3.23 | 0 00:00 | 0.00 | 0.00 |
| 12 | J0026-1 | Junction | 4546.71 | 4549.51 | 0.00 | 4552.31 | 0.00 | 1.00 | 4547.07 | 0.00 | 2.44 | 0 00:00 | 0.00 | 0.00 |
| 13 | J0038-0 | Junction | 4544.91 | 4550.35 | 0.00 | 4550.35 | 0.00 | 17.00 | 4546.15 | 0.00 | 4.20 | 0 00:00 | 0.00 | 0.00 |
| 14 | J0040-0 | Junction | 4554.09 | 4558.54 | 0.00 | 4558.54 | 0.00 | 3.01 | 4554.56 | 0.00 | 3.98 | 0 00:00 | 0.00 | 0.00 |
| 15 | J0040-1 | Junction | 4553.18 | 4557.73 | 0.00 | 4557.73 | 0.00 | 3.01 | 4553.66 | 0.00 | 4.07 | 0 00:00 | 0.00 | 0.00 |
| 16 | J0041-0 | Junction | 4551.21 | 4555.41 | 0.00 | 4555.41 | 0.00 | 3.00 | 4551.67 | 0.00 | 3.74 | 0 00:00 | 0.00 | 0.00 |
| 17 | J0041-1 | Junction | 4550.28 | 4555.41 | 0.00 | 4555.41 | 0.00 | 3.00 | 4550.76 | 0.00 | 4.65 | 0 00:00 | 0.00 | 0.00 |
| 18 | J0043-0 | Junction | 4558.86 | 4564.71 | 0.00 | 4564.71 | 0.00 | 3.00 | 4559.47 | 0.00 | 5.24 | 0 00:00 | 0.00 | 0.00 |
| 19 | J0043-1 | Junction | 4558.42 | 4563.42 | 0.00 | 4563.42 | 0.00 | 3.00 | 4558.87 | 0.00 | 4.55 | 0 00:00 | 0.00 | 0.00 |
| 20 | J0044-1 | Junction | 4556.59 | 4561.79 | 0.00 | 4561.79 | 0.00 | 3.00 | 4557.04 | 0.00 | 4.75 | 0 00:00 | 0.00 | 0.00 |
| 21 | J0048-0 | Junction | 4560.70 | 4566.85 | 0.00 | 4566.85 | 0.00 | 3.00 | 4561.13 | 0.00 | 5.72 | 0 00:00 | 0.00 | 0.00 |
| 22 | J0050-0 | Junction | 4579.17 | 4587.57 | 0.00 | 4600.00 | 0.00 | 32.04 | 4581.73 | 0.00 | 5.84 | 0 00:00 | 0.00 | 0.00 |
| 23 | J0052-1 | Junction | 4571.48 | 4575.05 | 0.00 | 4575.05 | 0.00 | 0.00 | 4571.48 | 0.00 | 3.57 | 0 00:00 | 0.00 | 0.00 |
| 24 | J0054-1 | Junction | 4561.20 | 4566.85 | 0.00 | 4566.85 | 0.00 | 3.00 | 4561.65 | 0.00 | 5.20 | 0 00:00 | 0.00 | 0.00 |
| 25 | J0071-0 | Junction | 4585.38 | 4589.48 | 0.00 | 4603.58 | 0.00 | 13.69 | 4586.87 | 0.00 | 2.61 | 0 00:00 | 0.00 | 0.00 |
| 26 | J0071-1 | Junction | 4585.32 | 4588.92 | 0.00 | 4612.52 | 0.00 | 15.40 | 4586.01 | 0.00 | 2.91 | 0 00:00 | 0.00 | 0.00 |
| 27 | J0073-0 | Junction | 4605.89 | 4616.51 | 0.00 | 4627.14 | 0.00 | 10.00 | 4607.20 | 0.00 | 9.31 | 0 00:00 | 0.00 | 0.00 |
| 28 | J0073-1 | Junction | 4605.36 | 4612.03 | 0.00 | 4618.70 | 0.00 | 10.00 | 4606.00 | 0.00 | 6.03 | 0 00:00 | 0.00 | 0.00 |
| 29 | J0074-0 | Junction | 4609.03 | 4618.78 | 0.00 | 4628.53 | 0.00 | 15.00 | 4610.51 | 0.00 | 8.27 | 0 00:00 | 0.00 | 0.00 |
| 30 | J0074-1 | Junction | 4608.13 | 4617.03 | 0.00 | 4625.93 | 0.00 | 15.00 | 4609.32 | 0.00 | 7.71 | 0 00:00 | 0.00 | 0.00 |
| 31 | J0075-1 | Junction | 4605.98 | 4617.53 | 0.00 | 4629.08 | 0.00 | 15.00 | 4606.84 | 0.00 | 10.69 | 0 00:00 | 0.00 | 0.00 |
| 32 | J0076-0 | Junction | 4609.87 | 4618.92 | 0.00 | 4627.97 | 0.00 | 15.10 | 4611.84 | 0.00 | 7.08 | 0 00:00 | 0.00 | 0.00 |
| 33 | J0077-0 | Junction | 4610.90 | 4619.15 | 0.00 | 4627.40 | 0.00 | 15.12 | 4615.13 | 0.00 | 4.02 | 0 00:00 | 0.00 | 0.00 |
| 34 | J0078-0 | Junction | 4612.12 | 4620.37 | 0.00 | 4628.62 | 0.00 | 15.11 | 4617.25 | 0.00 | 3.12 | 0 00:00 | 0.00 | 0.00 |
| 35 | J0079-0 | Junction | 4613.74 | 4621.69 | 0.00 | 4629.64 | 0.00 | 15.06 | 4617.94 | 0.00 | 3.75 | 0 00:00 | 0.00 | 0.00 |
| 36 | J0080-0 | Junction | 4614.73 | 4619.33 | 0.00 | 4623.93 | 0.00 | 15.00 | 4619.78 | 0.45 | 0.00 | 0 00:00 | 0.00 | 0.00 |
| 37 | J0080-1 | Junction | 4614.29 | 4620.14 | 0.00 | 4625.99 | 0.00 | 15.08 | 4619.10 | 0.00 | 1.04 | 0 00:00 | 0.00 | 0.00 |
| 38 | J0084-0 | Junction | 4532.69 | 4542.04 | 0.00 | 4551.39 | 0.00 | 23.15 | 4535.52 | 0.00 | 6.52 | 0 00:00 | 0.00 | 0.00 |
| 39 | J0086-0 | Junction | 4534.15 | 4542.55 | 0.00 | 4542.55 | 0.00 | 23.14 | 4536.95 | 0.00 | 5.60 | 0 00:00 | 0.00 | 0.00 |
| 40 | J0086-1 | Junction | 4533.20 | 4541.65 | 0.00 | 4550.10 | 0.00 | 23.15 | 4536.18 | 0.00 | 5.47 | 0 00:00 | 0.00 | 0.00 |
| 41 | J0108-1 | Junction | 4586.74 | 4593.41 | 0.00 | 4600.08 | 0.00 | 10.00 | 4587.32 | 0.00 | 6.09 | 0 00:00 | 0.00 | 0.00 |
| 42 | J0109-1 | Junction | 4586.99 | 4593.23 | 0.00 | 4599.90 | 0.00 | 13.64 | 4587.53 | 0.00 | 9.46 | 0 00:00 | 0.00 | 0.00 |
| 43 | J0110-1 | Junction | 4585.43 | 4590.68 | 0.00 | 4597.35 | 0.00 | 13.93 | 4587.53 | 0.00 | 7.90 | 0 00:00 | 0.00 | 0.00 |
| 44 | J0125-0 | Junction | 4626.22 | 4632.02 | 0.00 | 4637.82 | 0.00 | 10.00 | 4626.85 | 0.00 | 5.17 | 0 00:00 | 0.00 | 0.00 |
| 45 | J0125-1 | Junction | 4617.41 | 4622.06 | 0.00 | 4626.71 | 0.00 | 10.00 | 4618.27 | 0.00 | 3.79 | 0 00:00 | 0.00 | 0.00 |
| 46 | J0126-0 | Junction | 4632.19 | 4638.49 | 0.00 | 4644.79 | 0.00 | 8.00 | 4632.82 | 0.00 | 5.67 | 0 00:00 | 0.00 | 0.00 |
| 47 | J0126-1 | Junction | 4629.13 | 4634.00 | 0.00 | 4657.46 | 0.00 | 10.00 | 4630.03 | 0.00 | 3.97 | 0 00:00 | 0.00 | 0.00 |
| 48 | J0127-0 | Junction | 4606.32 | 4617.37 | 0.00 | 4628.42 | 0.00 | 10.00 | 4607.55 | 0.00 | 9.82 | 0 00:00 | 0.00 | 0.00 |
| 49 | J0129-0 | Junction | 4615.74 | 4620.29 | 0.00 | 4624.84 | 0.00 | 10.00 | 4616.40 | 0.00 | 3.89 | 0 00:00 | 0.00 | 0.00 |
| 50 | J421012 | Junction | 4582.55 | 4590.95 | 0.00 | 4599.35 | 0.00 | 25.00 | 4583.98 | 0.00 | 6.97 | 0 00:00 | 0.00 | 0.00 |
| 51 | J421015 | Junction | 4596.75 | 4601.15 | 0.00 | 4605.55 | 0.00 | 13.64 | 4605.55 | 4.40 | 0.00 | 0 02:30 | 0.00 | 0.00 |
| 52 | J421016 | Junction | 4601.71 | 4610.26 | 0.00 | 4618.81 | 0.00 | 13.64 | 4606.73 | 0.00 | 3.53 | 0 00:00 | 0.00 | 0.00 |
| 53 | J421017 | Junction | 4605.36 | 4614.06 | 0.00 | 4622.76 | 0.00 | 13.64 | 4612.56 | 0.00 | 1.50 | 0 00:00 | 0.00 | 0.00 |
| 54 | J421018 | Junction | 4608.21 | 4614.81 | 0.00 | 4621.41 | 0.00 | 13.64 | 4613.80 | 0.00 | 1.01 | 0 00:00 | 0.00 | 0.00 |
| 55 | J421019 | Junction | 4610.44 | 4615.14 | 0.00 | 4619.84 | 0.00 | 13.64 | 4615.94 | 0.80 | 0.00 | 0 00:00 | 0.00 | 0.00 |
| 56 | J421185 | Junction | 4731.42 | 4749.37 | 0.00 | 4749.37 | 0.00 | 30.21 | 4741.66 | 0.00 | 7.71 | 0 00:00 | 0.00 | 0.00 |
| 57 | J421186 | Junction | 4730.77 | 4747.62 | 0.00 | 4747.62 | 0.00 | 10.22 | 4740.26 | 0.00 | 7.36 | 0 00:00 | 0.00 | 0.00 |
| 58 | J421187 | Junction | 4730.20 | 4746.45 | 0.00 | 4746.45 | 0.00 | 10.22 | 4739.50 | 0.00 | 6.95 | 0 00:00 | 0.00 | 0.00 |
| 59 | J421188 | Junction | 4729.81 | 4745.66 | 0.00 | 4745.66 | 0.00 | 10.23 | 4738.71 | 0.00 | 6.95 | 0 00:00 | 0.00 | 0.00 |
| 60 | J421189 | Junction | 4728.22 | 4739.47 | 0.00 | 4739.47 | 0.00 | 30.21 | 4739.47 | 0.00 | 0.00 | 0 02:09 | 0.00 | 0.00 |
| 61 | J421190 | Junction | 4716.50 | 4729.05 | 0.00 | 4729.05 | 0.00 | 30.21 | 4718.32 | 0.00 | 10.73 | 0 00:00 | 0.00 | 0.00 |
| 62 | J421191 | Junction | 4713.49 | 4725.79 | 0.00 | 4725.79 | 0.00 | 30.20 | 4714.56 | 0.00 | 11.23 | 0 00:00 | 0.00 | 0.00 |
| 63 | J421192 | Junction | 4703.92 | 4713.42 | 0.00 | 4713.42 | 0.00 | 30.20 | 4705.03 | 0.00 | 8.39 | 0 00:00 | 0.00 | 0.00 |
| 64 | J421193 | Junction | 4694.15 | 4701.55 | 0.00 | 4701.55 | 0.00 | 30.20 | 4698.50 | 0.00 | 3.05 | 0 00:00 | 0.00 | 0.00 |
| 65 | J421194 | Junction | 4687.36 | 4694.76 | 0.00 | 4694.76 | 0.00 | 52.14 | 4694.76 | 0.00 | 0.00 | 0 02:04 | 1.03 | 18.00 |
| 66 | J421195 | Junction | 4670.77 | 4676.77 | 0.00 | 4676.77 | 0.00 | 45.91 | 4676.77 | 0.00 | 0.00 | 0 02:13 | 2.02 | 26.00 |
| 67 | J421196 | Junction | 4663.74 | 4670.24 | 0.00 | 4670.24 | 0.00 | 42.98 | 4670.16 | 0.00 | 0.08 | 0 00:00 | 0.00 | 0.00 |
| 68 | J421197 | Junction | 4733.85 | 4743.45 | 0.00 | 4753.05 | 0.00 | 6.01 | 4743.73 | 0.28 | 0.00 | 0 00:00 | 0.00 | 0.00 |
| 69 | J421200 | Junction | 4733.33 | 4743.58 | 0.00 | 4753.83 | 0.00 | 6.12 | 4743.55 | 0.00 | 0.03 | 0 00:00 | 0.00 | 0.00 |
| 70 | J421201 | Junction | 4732.57 | 4746.07 | 0.00 | 4759.57 | 0.00 | 6.17 | 4748.01 | 1.94 | 0.00 | 0 00:00 | 0.00 | 0.00 |
| 71 | J4244 | Junction | 4522.27 | 4528.57 | 0.00 | 4528.57 | 0.00 | 28.00 | 4523.85 | 0.00 | 4.72 | 0 00:00 | 0.00 | 0.00 |
| 72 | J4245 | Junction | 4616.24 | 4622.54 | 0.00 | 4628.84 | 0.00 | 13.67 | 4618.15 | 0.00 | 4.39 | 0 00:00 | 0.00 | 0.00 |
| 73 | J42450 | Junction | 4546.90 | 4554.75 | 0.00 | 4562.60 | 0.00 | 136.92 | 4549.29 | 0.00 | 5.46 | 0 00:00 | 0.00 | 0.00 |
| 74 | J42451 | Junction | 4552.23 | 4560.13 | 0.00 | 4568.03 | 0.00 | 136.91 | 4554.98 | 0.00 | 5.15 | 0 00:00 | 0.00 | 0.00 |
| 75 | J42452 | Junction | 4557.88 | 4566.58 | 0.00 | 4575.28 | 0.00 | 142.51 | 4560.69 | 0.00 | 5.89 | 0 00:00 | 0.00 | 0.00 |
| 76 | J42453 | Junction | 4559.93 | 4570.43 | 0.00 | 4580.93 | 0.00 | 132.91 | 4563.18 | 0.00 | 7.25 | 0 00:00 | 0.00 | 0.00 |
| 77 | J42454 | Junction | 4568.24 | 4570.99 | 0.00 | 4573.74 | 0.00 | 17.69 | 4568.90 | 0.00 | 2.09 | 0 00:00 | 0.00 | 0.00 |
| 78 | J4249 | Junction | 4522.92 | 4529.59 | 0.00 | 4529.59 | 0.00 | 28.00 | 4525.44 | 0.00 | 4.15 | 0 00:00 | 0.00 | 0.00 |
| 79 | J42554 | Junction | 4531.50 | 4542.18 | 0.00 | 4542.18 | 0.00 | 165.43 | 4534.68 | 0.00 | 7.50 | 0 00:00 | 0.00 | 0.00 |
| 80 | J4260 | Junction | 4523.15 | 4529.55 | 0.00 | 4529.55 | 0.00 | 28.00 | 4524.55 | 0.00 | 5.00 | 0 00:00 | 0.00 | 0.00 |
| 81 | J4262 | Junction | 4523.56 | 4529.96 | 0.00 | 4529.96 | 0.00 | 28.00 | 4525.62 | 0.00 | 4.34 | 0 00:00 | 0.00 | 0.00 |
| 82 | J4263 | Junction | 4524.03 | 4531.03 | 0.00 | 4531.03 | 0.00 | 28.00 | 4526.38 | 0.00 | 4.65 | 0 00:00 | 0.00 | 0.00 |
| 83 | J4264 | Junction | 4524.56 | 4531.56 | 0.00 | 4531.56 | 0.00 | 28.00 | 4527.06 | 0.00 | 4.50 | 0 00:00 | 0.00 | 0.00 |
| 84 | J4265 | Junction | 4524.66 | 4532.76 | 0.00 | 4532.76 | 0.00 | 28.00 | 4527.27 | 0.00 | 5.49 | 0 00:00 | 0.00 | 0.00 |
| 85 | J4267 | Junction | 4526.93 | 4533.08 | 0.00 | 4533.08 | 0.00 | 28.00 | 4528.46 | 0.00 | 4.62 | 0 00:00 | 0.00 | 0.00 |
| 86 | J4272 | Junction | 4547.81 | 4553.01 | 0.00 | 4553.01 | 0.00 | 3.01 | 4548.37 | 0.00 | 4.64 | 0 00:00 | 0.00 | 0.00 |
| 87 | J4278 | Junction | 4547.22 | 4551.82 | 0.00 | 4551.82 | 0.00 | 3.01 | 4547.74 | 0.00 | 4.08 | 0 00:00 | 0.00 | 0.00 |

## Node Summary

| SN | Element ID | Element Type | Invert Elevation (ft) | Ground/Rim (Max) Elevation (ft) | Initial Water Elevation (ft) | Surcharge Elevation (ft) | Ponded Area (ft²) | Peak Inflow (cfs) | Max HGL Elevation Attained (ft) | Max Surcharge Depth Attained (ft) | Min Freeboard Attained (ft) | Time of Peak Flooding Occurrence (days hh:mm) | Total Flooded Volume (ac-in) | Total Time Flooded (min) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 88 | J4287 | Junction | 4566.95 | 4570.85 | 0.00 | 4570.85 | 0.00 | 0.00 | 4566.95 | 0.00 | 3.90 | 0 00:00 | 0.00 | 0.00 |
| 89 | J42877 | Junction | 4500.54 | 4509.34 | 0.00 | 4509.34 | 0.00 | 5.00 | 4508.28 | 0.00 | 1.06 | 0 00:00 | 0.00 | 0.00 |
| 90 | J4288 | Junction | 4565.39 | 4569.39 | 0.00 | 4569.39 | 0.00 | 0.00 | 4565.39 | 0.00 | 4.00 | 0 00:00 | 0.00 | 0.00 |
| 91 | J42886 | Junction | 4502.98 | 4506.60 | 0.00 | 4513.27 | 0.00 | 14.29 | 4508.38 | 1.78 | 0.00 | 0 00:00 | 0.00 | 0.00 |
| 92 | J42887 | Junction | 4628.69 | 4635.94 | 0.00 | 4649.19 | 0.00 | 47.99 | 4636.28 | 0.34 | 0.00 | 0 00:00 | 0.00 | 0.00 |
| 93 | J42888 | Junction | 4631.26 | 4638.76 | 0.00 | 4646.76 | 0.00 | 47.99 | 4640.21 | 1.45 | 0.00 | 0 00:00 | 0.00 | 0.00 |
| 94 | J4289 | Junction | 4539.19 | 4545.39 | 0.00 | 4545.39 | 0.00 | 17.00 | 4540.04 | 0.00 | 5.35 | 0 00:00 | 0.00 | 0.00 |
| 95 | J42890 | Junction | 4637.18 | 4645.63 | 0.00 | 4659.08 | 0.00 | 199.37 | 4639.68 | 0.00 | 5.95 | 0 00:00 | 0.00 | 0.00 |
| 96 | J42891 | Junction | 4638.52 | 4645.92 | 0.00 | 4653.32 | 0.00 | 49.55 | 4641.46 | 0.00 | 4.46 | 0 00:00 | 0.00 | 0.00 |
| 97 | J42893 | Junction | 4496.93 | 4500.63 | 0.00 | 4504.33 | 0.00 | 14.28 | 4503.82 | 3.19 | 0.00 | 0 00:00 | 0.00 | 0.00 |
| 98 | J42901 | Junction | 4655.25 | 4661.05 | 0.00 | 4676.85 | 0.00 | 48.79 | 4661.70 | 0.65 | 0.00 | 0 00:00 | 0.00 | 0.00 |
| 99 | J42903 | Junction | 4651.21 | 4656.91 | 0.00 | 4672.61 | 0.00 | 48.79 | 4657.46 | 0.55 | 0.00 | 0 00:00 | 0.00 | 0.00 |
| 100 | J42904 | Junction | 4646.81 | 4652.41 | 0.00 | 4668.01 | 0.00 | 48.79 | 4653.14 | 0.73 | 0.00 | 0 00:00 | 0.00 | 0.00 |
| 101 | J42905 | Junction | 4645.67 | 4651.87 | 0.00 | 4668.07 | 0.00 | 48.80 | 4651.76 | 0.00 | 0.11 | 0 00:00 | 0.00 | 0.00 |
| 102 | J42906 | Junction | 4644.64 | 4651.14 | 0.00 | 4657.64 | 0.00 | 48.80 | 4649.36 | 0.00 | 1.78 | 0 00:00 | 0.00 | 0.00 |
| 103 | J42907 | Junction | 4643.68 | 4650.23 | 0.00 | 4656.78 | 0.00 | 48.79 | 4647.56 | 0.00 | 2.67 | 0 00:00 | 0.00 | 0.00 |
| 104 | J42908 | Junction | 4642.03 | 4649.63 | 0.00 | 4657.23 | 0.00 | 48.79 | 4645.70 | 0.00 | 3.93 | 0 00:00 | 0.00 | 0.00 |
| 105 | J42958 | Junction | 4715.39 | 4728.89 | 0.00 | 4728.89 | 0.00 | 9.22 | 4716.62 | 0.00 | 12.27 | 0 00:00 | 0.00 | 0.00 |
| 106 | J42959 | Junction | 4715.17 | 4726.62 | 0.00 | 4726.62 | 0.00 | 9.22 | 4715.83 | 0.00 | 10.79 | 0 00:00 | 0.00 | 0.00 |
| 107 | J42960 | Junction | 4699.92 | 4706.62 | 0.00 | 4706.62 | 0.00 | 9.22 | 4700.61 | 0.00 | 6.01 | 0 00:00 | 0.00 | 0.00 |
| 108 | J42961 | Junction | 4683.98 | 4689.48 | 0.00 | 4689.48 | 0.00 | 9.22 | 4684.67 | 0.00 | 4.81 | 0 00:00 | 0.00 | 0.00 |
| 109 | J42962 | Junction | 4673.12 | 4679.32 | 0.00 | 4679.32 | 0.00 | 9.22 | 4673.78 | 0.00 | 5.54 | 0 00:00 | 0.00 | 0.00 |
| 110 | J42963 | Junction | 4662.65 | 4678.65 | 0.00 | 4678.65 | 0.00 | 9.22 | 4666.75 | 0.00 | 11.90 | 0 00:00 | 0.00 | 0.00 |
| 111 | J42964 | Junction | 4660.16 | 4667.46 | 0.00 | 4684.76 | 0.00 | 48.79 | 4665.31 | 0.00 | 2.15 | 0 00:00 | 0.00 | 0.00 |
| 112 | J42992 | Junction | 4570.69 | 4575.49 | 0.00 | 4590.00 | 0.00 | 5.52 | 4574.02 | 0.00 | 1.47 | 0 00:00 | 0.00 | 0.00 |
| 113 | J42993 | Junction | 4569.84 | 4574.59 | 0.00 | 4579.34 | 0.00 | 17.68 | 4577.52 | 2.93 | 0.00 | 0 00:00 | 0.00 | 0.00 |
| 114 | J42997 | Junction | 4568.40 | 4572.55 | 0.00 | 4576.70 | 0.00 | 17.68 | 4573.65 | 1.10 | 0.00 | 0 00:00 | 0.00 | 0.00 |
| 115 | J42998 | Junction | 4568.05 | 4573.15 | 0.00 | 4578.25 | 0.00 | 17.69 | 4573.36 | 0.21 | 0.00 | 0 00:00 | 0.00 | 0.00 |
| 116 | J431143 | Junction | 4739.37 | 4742.94 | 0.00 | 4770.00 | 0.00 | 6.01 | 4743.85 | 0.91 | 0.00 | 0 00:00 | 0.00 | 0.00 |
| 117 | J441117-0 | Junction | 4617.87 | 4629.52 | 0.00 | 4636.19 | 0.00 | 12.42 | 4618.70 | 0.00 | 10.82 | 0 00:00 | 0.00 | 0.00 |
| 118 | J441211-0 | Junction | 4626.54 | 4631.04 | 0.00 | 4645.54 | 0.00 | 47.99 | 4631.41 | 0.37 | 0.00 | 0 00:00 | 0.00 | 0.00 |
| 119 | J441211-1 | Junction | 4623.61 | 4630.28 | 0.00 | 4649.95 | 0.00 | 47.58 | 4629.84 | 0.00 | 0.44 | 0 00:00 | 0.00 | 0.00 |
| 120 | J441317-0 | Junction | 4717.08 | 4727.19 | 0.00 | 4727.19 | 0.00 | 9.22 | 4718.52 | 0.00 | 8.67 | 0 00:00 | 0.00 | 0.00 |
| 121 | J441759-0 | Junction | 4508.14 | 4517.96 | 0.00 | 4524.63 | 0.00 | 12.02 | 4511.10 | 0.00 | 6.86 | 0 00:00 | 0.00 | 0.00 |
| 122 | J4466-1 | Junction | 4520.95 | 4529.97 | 0.00 | 4529.97 | 0.00 | 39.00 | 4522.48 | 0.00 | 7.49 | 0 00:00 | 0.00 | 0.00 |
| 123 | JJR060.01-0 | Junction | 4586.22 | 4592.89 | 0.00 | 4599.56 | 0.00 | 14.00 | 4587.13 | 0.00 | 5.76 | 0 00:00 | 0.00 | 0.00 |
| 124 | JJR060.01-1 | Junction | 4561.00 | 4568.67 | 0.00 | 4575.34 | 0.00 | 1.00 | 4561.29 | 0.00 | 7.38 | 0 00:00 | 0.00 | 0.00 |
| 125 | JJR060.02-0 | Junction | 4611.44 | 4618.11 | 0.00 | 4624.78 | 0.00 | 14.00 | 4612.31 | 0.00 | 5.80 | 0 00:00 | 0.00 | 0.00 |
| 126 | JJR060.02-1 | Junction | 4586.88 | 4593.55 | 0.00 | 4600.22 | 0.00 | 14.00 | 4588.70 | 0.00 | 4.85 | 0 00:00 | 0.00 | 0.00 |
| 127 | JJR062.01-0 | Junction | 4648.54 | 4655.21 | 0.00 | 4661.88 | 0.00 | 6.00 | 4648.99 | 0.00 | 6.22 | 0 00:00 | 0.00 | 0.00 |
| 128 | JJR062.01-1 | Junction | 4611.92 | 4618.59 | 0.00 | 4625.26 | 0.00 | 6.00 | 4615.03 | 0.00 | 3.56 | 0 00:00 | 0.00 | 0.00 |
| 129 | JJR062.02-1 | Junction | 4648.89 | 4655.56 | 0.00 | 4662.23 | 0.00 | 6.00 | 4651.50 | 0.00 | 4.06 | 0 00:00 | 0.00 | 0.00 |
| 130 | JJR062.03-0 | Junction | 4696.16 | 4730.16 | 0.00 | 4702.16 | 0.00 | 274.95 | 4705.21 | 0.00 | 24.95 | 0 00:00 | 0.00 | 0.00 |
| 131 | JJR062.04-1 | Junction | 4697.75 | 4715.42 | 0.00 | 4730.09 | 0.00 | 275.34 | 4705.36 | 0.00 | 10.06 | 0 00:00 | 0.00 | 0.00 |
| 132 | Jun-148 | Junction | 4568.49 | 4578.00 | 0.00 | 4578.00 | 0.00 | 107.67 | 4570.88 | 0.00 | 7.12 | 0 00:00 | 0.00 | 0.00 |
| 133 | Jun-149 | Junction | 4738.27 | 4747.17 | 0.00 | 4747.17 | 0.00 | 29.39 | 4738.99 | 0.00 | 8.18 | 0 00:00 | 0.00 | 0.00 |
| 134 | Jun-150 | Junction | 4605.38 | 4615.00 | 0.00 | 4617.00 | 0.00 | 103.68 | 4607.42 | 0.00 | 7.58 | 0 00:00 | 0.00 | 0.00 |
| 135 | Jun-151 | Junction | 4515.73 | 4523.73 | 0.00 | 4523.73 | 0.00 | 165.43 | 4518.19 | 0.00 | 5.54 | 0 00:00 | 0.00 | 0.00 |
| 136 | Jun-159 | Junction | 4694.00 | 4701.00 | 0.00 | 0.00 | 0.00 | 8.00 | 4694.71 | 0.00 | 6.29 | 0 00:00 | 0.00 | 0.00 |
| 137 | Jun-171 | Junction | 4730.00 | 4736.00 | 4731.00 | 4736.00 | 0.00 | 5.00 | 4730.73 | 0.00 | 5.27 | 0 00:00 | 0.00 | 0.00 |
| 138 | Jun-179 | Junction | 4643.71 | 4650.00 | 4643.71 | 0.00 | 0.00 | 1.00 | 4643.92 | 0.00 | 6.08 | 0 00:00 | 0.00 | 0.00 |
| 139 | Jun-180 | Junction | 4664.65 | 4670.00 | 4664.65 | 0.00 | 0.00 | 1.00 | 4664.99 | 0.00 | 5.01 | 0 00:00 | 0.00 | 0.00 |
| 140 | Jun-181 | Junction | 4664.20 | 4670.00 | 4664.20 | 0.00 | 0.00 | 1.00 | 4664.45 | 0.00 | 5.55 | 0 00:00 | 0.00 | 0.00 |
| 141 | Jun-182 | Junction | 4636.96 | 4641.46 | 4636.96 | 4641.46 | 0.00 | 1.00 | 4637.21 | 0.00 | 4.25 | 0 00:00 | 0.00 | 0.00 |
| 142 | Jun-183 | Junction | 4634.42 | 4638.52 | 4634.42 | 4638.52 | 0.00 | 1.00 | 4634.60 | 0.00 | 3.92 | 0 00:00 | 0.00 | 0.00 |
| 143 | Jun-185 | Junction | 4529.00 | 4534.00 | 4529.00 | 4534.00 | 0.00 | 3.00 | 4529.51 | 0.00 | 4.49 | 0 00:00 | 0.00 | 0.00 |
| 144 | Jun-188 | Junction | 4529.68 | 4534.18 | 1236.00 | 4542.00 | 0.00 | 1.00 | 4529.89 | 0.00 | 4.29 | 0 00:00 | 0.00 | 0.00 |
| 145 | Jun-190 | Junction | 4543.09 | 4549.89 | 0.00 | 4549.89 | 0.00 | 17.00 | 4544.14 | 0.00 | 5.75 | 0 00:00 | 0.00 | 0.00 |
| 146 | Jun-196 | Junction | 4660.00 | 4666.00 | 4660.00 | 4666.00 | 0.00 | 112.24 | 4662.62 | 0.00 | 3.38 | 0 00:00 | 0.00 | 0.00 |
| 147 | Jun-198 | Junction | 4507.00 | 4513.00 | 4507.00 | 4513.00 | 0.00 | 15.02 | 4510.31 | 0.00 | 2.69 | 0 00:00 | 0.00 | 0.00 |
| 148 | Jun-213 | Junction | 4560.00 | 4564.00 | 4561.00 | 4566.00 | 0.00 | 56.64 | 4562.77 | 0.00 | 11.23 | 0 00:00 | 0.00 | 0.00 |
| 149 | Jun-214 | Junction | 4544.60 | 4556.00 | 4550.00 | 4556.00 | 0.00 | 56.64 | 4546.31 | 0.00 | 9.69 | 0 00:00 | 0.00 | 0.00 |
| 150 | Jun-216 | Junction | 4501.00 | 4519.00 | 0.00 | 4519.00 | 0.00 | 186.15 | 4504.59 | 0.00 | 14.41 | 0 00:00 | 0.00 | 0.00 |
| 151 | Jun-241 | Junction | 4627.00 | 4635.00 | 4623.00 | 4635.00 | 0.00 | 15.63 | 4628.66 | 0.00 | 6.34 | 0 00:00 | 0.00 | 0.00 |
| 152 | Jun-247 | Junction | 4533.10 | 4548.00 | 4538.00 | 4544.00 | 0.00 | 24.00 | 4534.45 | 0.00 | 13.55 | 0 00:00 | 0.00 | 0.00 |
| 153 | Jun-251 | Junction | 4627.00 | 4633.00 | 4624.00 | 4630.00 | 0.00 | 130.63 | 4629.68 | 0.00 | 3.32 | 0 00:00 | 0.00 | 0.00 |
| 154 | Jun-252 | Junction | 4529.00 | 4538.00 | 0.00 | 0.00 | 0.00 | 137.62 | 4538.00 | 0.00 | 0.00 | 0 04:57 | 0.00 | 0.00 |
| 155 | Jun-253 | Junction | 4618.00 | 4624.00 | 2937.00 | 4622.00 | 0.00 | 61.68 | 4620.07 | 0.00 | 3.93 | 0 00:00 | 0.00 | 0.00 |
| 156 | Jun-256 | Junction | 4546.00 | 4552.00 | 0.00 | 4552.00 | 0.00 | 15.00 | 4547.37 | 0.00 | 4.63 | 0 00:00 | 0.00 | 0.00 |
| 157 | Jun-257 | Junction | 4525.00 | 4534.00 | 0.00 | 4534.00 | 0.00 | 9.00 | 4525.75 | 0.00 | 8.25 | 0 00:00 | 0.00 | 0.00 |
| 158 | Jun-258 | Junction | 4539.00 | 4544.00 | 4540.00 | 4544.00 | 0.00 | 9.00 | 4539.82 | 0.00 | 4.18 | 0 00:00 | 0.00 | 0.00 |
| 159 | Jun-259 | Junction | 4503.00 | 4509.00 | 4503.00 | 4509.00 | 0.00 | 205.41 | 4505.71 | 0.00 | 3.29 | 0 00:00 | 0.00 | 0.00 |
| 160 | Jun-260 | Junction | 4507.00 | 4512.00 | 4508.00 | 4512.00 | 0.00 | 40.00 | 4514.24 | 0.00 | 0.76 | 0 00:00 | 0.00 | 0.00 |
| 161 | Jun-261 | Junction | 4535.00 | 4546.00 | 4542.00 | 4546.00 | 0.00 | 75.73 | 4537.61 | 0.00 | 8.39 | 0 00:00 | 0.00 | 0.00 |
| 162 | Jun-262 | Junction | 4516.02 | 4527.00 | 4523.00 | 4527.00 | 0.00 | 91.24 | 4518.92 | 0.00 | 8.08 | 0 00:00 | 0.00 | 0.00 |
| 163 | Jun-263 | Junction | 4504.06 | 4514.00 | 4510.00 | 4516.00 | 0.00 | 103.51 | 4507.39 | 0.00 | 6.61 | 0 00:00 | 0.00 | 0.00 |
| 164 | Jun-264 | Junction | 4522.00 | 4526.00 | 4522.00 | 4550.00 | 0.00 | 15.00 | 4540.32 | 14.32 | 0.00 | 0 00:00 | 0.00 | 0.00 |
| 165 | Jun-265 | Junction | 4618.00 | 4621.00 | 4618.00 | 4630.00 | 0.00 | 5.00 | 4619.19 | 0.00 | 1.81 | 0 00:00 | 0.00 | 0.00 |
| 166 | Jun-266 | Junction | 4556.00 | 4562.00 | 4557.00 | 4564.00 | 0.00 | 13.01 | 4556.75 | 0.00 | 5.25 | 0 00:00 | 0.00 | 0.00 |
| 167 | Jun-267 | Junction | 4597.00 | 4602.00 | 4598.00 | 8000.00 | 0.00 | 13.00 | 4597.96 | 0.00 | 4.04 | 0 00:00 | 0.00 | 0.00 |
| 168 | Jun-268 | Junction | 4515.00 | 4521.00 | 4516.00 | 4523.00 | 0.00 | 14.90 | 4516.15 | 0.00 | 4.85 | 0 00:00 | 0.00 | 0.00 |
| 169 | Jun-269 | Junction | 4494.30 | 4500.00 | 0.00 | 0.00 | 0.00 | 13.00 | 4496.15 | 0.00 | 3.85 | 0 00:00 | 0.00 | 0.00 |
| 170 | Jun-270 | Junction | 4629.23 | 4636.21 | 0.10 | 4696.21 | 0.00 | 2.00 | 4696.21 | 60.00 | 0.00 | 0 02:13 | 0.00 | 0.00 |
| 171 | Jun-272 | Junction | 4623.33 | 4630.31 | 0.10 | 4690.31 | 0.00 | 4.43 | 4669.17 | 38.86 | 0.00 | 0 00:00 | 0.00 | 0.00 |
| 172 | Jun-277 | Junction | 4685.00 | 4695.00 | 0.00 | 4691.00 | 0.00 | 99.24 | 4687.50 | 0.00 | 7.50 | 0 00:00 | 0.00 | 0.00 |
| 173 | Jun-283 | Junction | 4617.56 | 4624.56 | 0.00 | 4754.56 | 0.00 | 5.29 | 4677.25 | 52.69 | 0.00 | 0 00:00 | 0.00 | 0.00 |
| 174 | Jun-284 | Junction | 4625.76 | 4632.74 | 0.10 | 4692.74 | 0.00 | 2.74 | 4684.37 | 51.63 | 0.00 | 0 00:00 | 0.00 | 0.00 |

## Node Summary

| SN | Element ID | Element Type | Invert Elevation (ft) | Ground/Rim (Max) Elevation (ft) | Initial Water Elevation (ft) | Surcharge Elevation (ft) | Ponded Area (ft²) | Peak Inflow (cfs) | Max HGL Elevation Attained (ft) | Max Surcharge Depth Attained (ft) | Min Freeboard Attained (ft) | Time of Peak Flooding Occurrence (days hh:mm) | Total Flooded Volume (ac-in) | Total Time Flooded (min) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 175 | Jun-285 | Junction | 4627.10 | 4647.10 | 0.00 | 4647.10 | 0.00 | 9.00 | 4647.10 | 0.00 | 0.00 | 0 02:01 | 0.00 | 0.00 |
| 176 | Jun-287 | Junction | 4624.00 | 4694.00 | 4624.00 | 4694.00 | 0.00 | 13.23 | 4649.39 | 0.00 | 44.61 | 0 00:00 | 0.00 | 0.00 |
| 177 | Jun-290 | Junction | 4710.52 | 4718.00 | 0.00 | 4718.00 | 0.00 | 47.38 | 4711.83 | 0.00 | 6.17 | 0 00:00 | 0.00 | 0.00 |
| 178 | Jun-291 | Junction | 4508.00 | 4528.00 | 0.00 | 4528.00 | 0.00 | 15.00 | 4528.00 | 0.00 | 0.00 | 0 03:51 | 0.00 | 0.00 |
| 179 | Jun-292 | Junction | 4504.00 | 4514.00 | 0.00 | 4510.00 | 0.00 | 168.14 | 4510.13 | 0.00 | 3.87 | 0 00:00 | 0.00 | 0.00 |
| 180 | Jun-293 | Junction | 4511.00 | 4525.00 | 0.00 | 3004.00 | 0.00 | 161.14 | 4522.58 | 0.00 | 2.42 | 0 00:00 | 0.00 | 0.00 |
| 181 | Jun-295 | Junction | 4525.09 | 4535.16 | 0.00 | 0.00 | 0.00 | 10.21 | 4526.01 | 0.00 | 9.15 | 0 00:00 | 0.00 | 0.00 |
| 182 | Jun-296 | Junction | 4505.12 | 4507.11 | 0.00 | 0.00 | 0.00 | 10.21 | 4506.13 | 0.00 | 2.49 | 0 00:00 | 0.00 | 0.00 |
| 183 | Jun-297 | Junction | 4501.00 | 4507.00 | 4501.00 | 4507.00 | 0.00 | 24.87 | 4503.33 | 0.00 | 3.67 | 0 00:00 | 0.00 | 0.00 |
| 184 | Jun-300 | Junction | 4579.00 | 4585.00 | 4579.00 | 4585.00 | 0.00 | 0.00 | 4579.00 | 0.00 | 6.00 | 0 00:00 | 0.00 | 0.00 |
| 185 | Jun-301 | Junction | 4578.59 | 4587.64 | 0.00 | 4587.64 | 0.00 | 56.66 | 4580.80 | 0.00 | 6.84 | 0 00:00 | 0.00 | 0.00 |
| 186 | J441761-1 | Outfall | 4491.44 | | | | | 14.28 | 4492.94 | | | | | |
| 187 | Jun-152 | Outfall | 4492.00 | | | | | 205.37 | 4494.69 | | | | | |
| 188 | Jun-187 | Outfall | 4509.00 | | | | | 39.00 | 4510.49 | | | | | |
| 189 | Jun-215 | Outfall | 4506.00 | | | | | 56.64 | 4507.69 | | | | | |
| 190 | Jun-217 | Outfall | 4491.00 | | | | | 186.21 | 4494.34 | | | | | |
| 191 | Jun-221 | Outfall | 4496.13 | | | | | 103.02 | 4499.14 | | | | | |
| 192 | Out-32 | Outfall | 4495.03 | | | | | 5.03 | 4495.89 | | | | | |
| 193 | Out-34 | Outfall | 4726.00 | | | | | 5.00 | 4726.72 | | | | | |
| 194 | Out-35 | Outfall | 4719.00 | | | | | 12.00 | 4719.00 | | | | | |
| 195 | Out-36 | Outfall | 4501.23 | | | | | 24.85 | 4502.54 | | | | | |
| 196 | Out-37 | Outfall | 4487.50 | | | | | 13.00 | 4488.71 | | | | | |
| 197 | Out-41 | Outfall | 0.00 | | | | | 0.00 | 0.00 | | | | | |
| 198 | SN-HHPa | Storage Node | 4727.60 | 4740.00 | 0.00 | | 0.00 | 26.56 | 4730.55 | | | | 0.00 | 0.00 |
| 199 | SN-JR010 | Storage Node | 4586.00 | 5606.00 | 0.00 | | 0.00 | 518.64 | 4596.86 | | | | 0.00 | 0.00 |
| 200 | SN-JR020 | Storage Node | 4517.00 | 4530.00 | 0.00 | | 0.00 | 450.68 | 4526.75 | | | | 0.00 | 0.00 |
| 201 | SN-JR031 | Storage Node | 4554.00 | 4564.00 | 0.00 | | 0.00 | 101.91 | 4560.04 | | | | 0.00 | 0.00 |
| 202 | SN-JR032 | Storage Node | 4660.00 | 4670.00 | 0.00 | | 0.00 | 46.13 | 4664.89 | | | | 0.00 | 0.00 |
| 203 | SN-JR035 | Storage Node | 4558.00 | 4568.00 | 0.00 | | 0.00 | 14.36 | 4560.80 | | | | 0.00 | 0.00 |
| 204 | SN-JR050 | Storage Node | 4620.00 | 4630.00 | 0.00 | | 0.00 | 133.24 | 4626.79 | | | | 0.00 | 0.00 |
| 205 | SN-JR061 | Storage Node | 4632.00 | 4646.00 | 0.00 | | 0.00 | 58.08 | 4637.29 | | | | 0.00 | 0.00 |
| 206 | SN-JR063 | Storage Node | 4552.00 | 4560.00 | 0.00 | | 0.00 | 192.21 | 4559.85 | | | | 0.00 | 0.00 |
| 207 | SN-JR065 | Storage Node | 4660.00 | 4670.00 | 0.00 | | 0.00 | 170.41 | 4666.94 | | | | 0.00 | 0.00 |
| 208 | SN-JR065a | Storage Node | 4690.00 | 4698.00 | 0.00 | | 0.00 | 207.89 | 4697.30 | | | | 0.00 | 0.00 |
| 209 | SN-JR068 | Storage Node | 4632.00 | 4646.00 | 0.00 | | 0.00 | 228.82 | 4639.69 | | | | 0.00 | 0.00 |
| 210 | SN-JR070 | Storage Node | 4565.00 | 4575.00 | 0.00 | | 0.00 | 97.08 | 4571.07 | | | | 0.00 | 0.00 |
| 211 | SN-JR071 | Storage Node | 4509.40 | 4519.40 | 0.00 | | 0.00 | 80.07 | 4514.54 | | | | 0.00 | 0.00 |
| 212 | SN-JR079 | Storage Node | 4635.00 | 4645.00 | 0.00 | | 0.00 | 114.77 | 4641.27 | | | | 0.00 | 0.00 |
| 213 | SN-JR081 | Storage Node | 4536.80 | 4542.00 | 0.00 | | 20.00 | 71.02 | 4541.49 | | | | 0.00 | 0.00 |
| 214 | SN-JR082 | Storage Node | 4685.00 | 4695.00 | 0.00 | | 0.00 | 46.18 | 4690.34 | | | | 0.00 | 0.00 |
| 215 | SN-JR083 | Storage Node | 4685.00 | 4695.00 | 0.00 | | 0.00 | 74.00 | 4690.42 | | | | 0.00 | 0.00 |
| 216 | SN-JR084 | Storage Node | 4743.00 | 4750.00 | 0.00 | | 20.00 | 40.03 | 4745.91 | | | | 0.00 | 0.00 |
| 217 | SN-JR085 | Storage Node | 4685.00 | 4695.00 | 0.00 | | 0.00 | 32.40 | 4693.54 | | | | 0.00 | 0.00 |
| 218 | SN-JR086 | Storage Node | 4618.80 | 4629.60 | 0.00 | | 0.00 | 198.90 | 4629.60 | | | | 13.16 | 82.00 |
| 219 | SN-PR020 | Storage Node | 4720.00 | 4730.00 | 0.00 | | 0.00 | 58.54 | 4724.86 | | | | 0.00 | 0.00 |
| 220 | SN-PR021 | Storage Node | 4618.00 | 4625.00 | 0.00 | | 0.00 | 46.70 | 4620.34 | | | | 0.00 | 0.00 |
| 221 | SN-PR022 | Storage Node | 4628.60 | 3.20 | 0.00 | | 20.00 | 29.77 | 4631.28 | | | | 0.00 | 1435.00 |
| 222 | SN-PR023 | Storage Node | 4628.60 | 3.00 | 0.00 | | 20.00 | 56.06 | 4631.53 | | | | 0.00 | 1435.00 |
| 223 | SN-PR024 | Storage Node | 4573.00 | 4583.00 | 4574.00 | | 0.00 | 40.68 | 4578.21 | | | | 0.00 | 0.00 |
| 224 | SN-PR025 | Storage Node | 4573.00 | 4576.40 | 0.00 | | 20.00 | 25.04 | 4575.53 | | | | 0.00 | 0.00 |
| 225 | SN-PR026 | Storage Node | 4568.20 | 4668.20 | 0.00 | | 20.00 | 76.11 | 4574.84 | | | | 0.00 | 0.00 |
| 226 | SN-PR030 | Storage Node | 4710.00 | 4720.00 | 0.00 | | 0.00 | 123.18 | 4716.64 | | | | 0.00 | 0.00 |
| 227 | SN-PR050 | Storage Node | 4750.00 | 4770.00 | 0.00 | | 0.00 | 113.54 | 4757.61 | | | | 0.00 | 0.00 |
| 228 | SN-PR060 | Storage Node | 5410.00 | 5500.00 | 0.00 | | 0.00 | 89.63 | 5416.93 | | | | 0.00 | 0.00 |
| 229 | Stor-41 | Storage Node | 4620.00 | 4650.00 | 0.00 | | 0.00 | 90.08 | 4626.24 | | | | 0.00 | 0.00 |
| 230 | Stor-43 | Storage Node | 4505.00 | 4515.00 | 0.00 | | 0.00 | 34.10 | 4509.57 | | | | 0.00 | 0.00 |
| 231 | Stor-44 | Storage Node | 4755.00 | 4765.00 | 0.00 | | 0.00 | 137.85 | 4760.60 | | | | 0.00 | 0.00 |
| 232 | Stor-45 | Storage Node | 4700.00 | 4710.00 | 0.00 | | 0.00 | 22.27 | 4703.99 | | | | 0.00 | 0.00 |
| 233 | Stor-46 | Storage Node | 5000.00 | 15.00 | 0.00 | | 0.00 | 16.39 | 5004.26 | | | | 0.00 | 1435.00 |
| 234 | Stor-50 | Storage Node | 4570.00 | 8.00 | 0.00 | | 0.00 | 15.05 | 4574.12 | | | | 0.00 | 1435.00 |
| 235 | Stor-51 | Storage Node | 4542.00 | 4562.00 | 0.00 | | 0.00 | 51.02 | 4546.68 | | | | 0.00 | 0.00 |
| 236 | Stor-53 | Storage Node | 4522.00 | 4550.00 | 0.00 | | 0.00 | 268.16 | 4530.43 | | | | 0.00 | 0.00 |
| 237 | Stor-54 | Storage Node | 4621.00 | 4650.00 | 1.00 | | 0.00 | 70.18 | 4626.43 | | | | 0.00 | 0.00 |
| 238 | Stor-56 | Storage Node | 4680.00 | 4690.00 | 4681.00 | | 0.00 | 18.98 | 4683.96 | | | | 0.00 | 0.00 |
| 239 | Stor-57 | Storage Node | 4632.00 | 4646.00 | 0.00 | | 0.00 | 114.83 | 4637.81 | | | | 0.00 | 0.00 |
| 240 | Stor-58 | Storage Node | 4600.00 | 4616.00 | 4601.00 | | 0.00 | 57.88 | 4605.90 | | | | 0.00 | 0.00 |
| 241 | Stor-59 | Storage Node | 4650.00 | 4660.00 | 4606.00 | | 0.00 | 8.04 | 4653.44 | | | | 0.00 | 0.00 |
| 242 | Stor-61 | Storage Node | 4498.00 | 8.00 | 0.00 | | 0.00 | 65.62 | 4503.52 | | | | 0.00 | 1427.00 |
| 243 | Stor-62 | Storage Node | 4632.00 | 4638.00 | 0.00 | | 0.00 | 24.36 | 4636.37 | | | | 0.00 | 0.00 |
| 244 | Stor-63 | Storage Node | 4690.00 | 4700.00 | 0.00 | | 0.00 | 3.94 | 4693.48 | | | | 0.00 | 0.00 |
| 245 | Stor-64 | Storage Node | 4629.00 | 1725.00 | 0.00 | | 0.00 | 29.40 | 4633.58 | | | | 0.00 | 1435.00 |
| 246 | Stor-65 | Storage Node | 4660.00 | 4670.00 | 0.00 | | 0.00 | 14.80 | 4663.84 | | | | 0.00 | 0.00 |
| 247 | Stor-66 | Storage Node | 4831.00 | 4837.00 | 0.00 | | 0.00 | 2.67 | 4834.50 | | | | 0.00 | 0.00 |
| 248 | Stor-67 | Storage Node | 4695.42 | 4780.00 | 0.00 | | 0.00 | 274.56 | 4705.04 | | | | 0.00 | 0.00 |
| 249 | Stor-68 | Storage Node | 4740.00 | 4750.00 | 0.00 | | 0.00 | 67.67 | 4748.71 | | | | 0.00 | 0.00 |
| 250 | Stor-69 | Storage Node | 4740.00 | 4780.00 | 0.00 | | 0.00 | 122.49 | 4752.54 | | | | 0.00 | 0.00 |
| 251 | Stor-70 | Storage Node | 4542.00 | 4572.00 | 0.00 | | 0.00 | 87.96 | 4547.36 | | | | 0.00 | 0.00 |
| 252 | Stor-71 | Storage Node | 4542.00 | 4562.00 | 0.00 | | 0.00 | 60.61 | 4546.91 | | | | 0.00 | 0.00 |
| 253 | Stor-72 | Storage Node | 4650.00 | 4660.00 | 0.00 | | 0.00 | 16.40 | 4653.85 | | | | 0.00 | 0.00 |
| 254 | Stor-73 | Storage Node | 4660.00 | 4670.00 | 0.00 | | 0.00 | 11.94 | 4663.87 | | | | 0.00 | 0.00 |
| 255 | Stor-74 | Storage Node | 4745.00 | 4765.00 | 0.00 | | 0.00 | 123.61 | 4752.70 | | | | 0.00 | 0.00 |
| 256 | Stor-75 | Storage Node | 4745.00 | 4765.00 | 0.00 | | 0.00 | 65.70 | 4750.76 | | | | 0.00 | 0.00 |
| 257 | Stor-76 | Storage Node | 4650.00 | 4660.00 | 0.00 | | 0.00 | 6.56 | 4653.86 | | | | 0.00 | 0.00 |
| 258 | Stor-77 | Storage Node | 4650.00 | 4660.00 | 0.00 | | 0.00 | 1.74 | 4653.29 | | | | 0.00 | 0.00 |
| 259 | Stor-78 | Storage Node | 4620.00 | 4650.00 | 0.00 | | 0.00 | 77.96 | 4625.82 | | | | 0.00 | 0.00 |
| 260 | Stor-79 | Storage Node | 4565.00 | 4575.00 | 0.00 | | 0.00 | 79.56 | 4570.74 | | | | 0.00 | 0.00 |
| 261 | Stor-80 | Storage Node | 4580.00 | 4586.00 | 0.00 | | 0.00 | 32.33 | 4584.58 | | | | 0.00 | 0.00 |

## Node Summary

| SN | Element ID | Element Type | Invert Elevation (ft) | Ground/Rim (Max) Elevation (ft) | Initial Water Elevation (ft) | Surcharge Elevation (ft) | Ponded Area (ft²) | Peak Inflow (cfs) | Max HGL Elevation Attained (ft) | Max Surcharge Depth Attained (ft) | Min Freeboard Attained (ft) | Time of Peak Flooding Occurrence (days hh:mm) | Total Flooded Volume (ac-in) | Total Time Flooded (min) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 262 | Stor-81 | Storage Node | 4590.00 | 4690.00 | 0.00 | | 0.00 | 75.00 | 4595.43 | | | | 0.00 | 0.00 |
| 263 | Stor-82 | Storage Node | 4650.00 | 4660.00 | 0.00 | | 0.00 | 77.07 | 4655.47 | | | | 0.00 | 0.00 |

## Link Summary

| SN | Element ID | Element Type | From (Inlet) Node | To (Outlet) Node | Length | Inlet Invert Elevation | Outlet Invert Elevation | Average Slope | Diameter or Height | Manning's Roughness | Peak Flow | Design Flow Capacity | Peak Flow/ Design Flow Ratio | Peak Flow Velocity | Peak Flow Depth | Peak Flow Depth/ Total Depth Ratio | Total Time Surcharged | Reported Condition |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | (ft) | (ft) | (ft) | (%) | (ft) | | (cfs) | (cfs) | | (ft/sec) | (ft) | | (min) | |
| 1 | 2 | Pipe | J4278 | J0038-0 | 286.27 | 4547.22 | 4544.91 | 0.8100 | 2.000 | 0.0130 | 3.00 | 20.32 | 0.15 | 2.33 | 0.88 | 0.44 | 0.00 | Calculated |
| 2 | 0017 | Pipe | JJR062.04-1 | JJR062.03-0 | 199.30 | 4697.75 | 4696.16 | 0.8000 | 7.000 | 0.0130 | 274.95 | 570.60 | 0.48 | 7.27 | 7.00 | 1.00 | 180.00 | SURCHARGED |
| 3 | 0028 | Pipe | J0018-0 | J0018-1 | 263.14 | 4545.56 | 4540.09 | 2.0800 | 2.000 | 0.0130 | 1.00 | 32.62 | 0.03 | 4.57 | 0.24 | 0.12 | 0.00 | Calculated |
| 4 | 0029 | Pipe | J0019-0 | J0018-0 | 186.77 | 4545.76 | 4545.56 | 0.1100 | 2.000 | 0.0130 | 1.00 | 7.40 | 0.14 | 2.02 | 0.43 | 0.22 | 0.00 | Calculated |
| 5 | 0030 | Pipe | J0018-1 | J0020-1 | 262.46 | 4540.09 | 4535.12 | 1.8900 | 2.000 | 0.0130 | 1.00 | 31.13 | 0.03 | 4.43 | 0.25 | 0.12 | 0.00 | Calculated |
| 6 | 0031 | Pipe | J0020-1 | J0021-1 | 269.53 | 4535.12 | 4530.51 | 1.7100 | 2.000 | 0.0130 | 1.00 | 29.59 | 0.03 | 3.90 | 0.27 | 0.14 | 0.00 | Calculated |
| 7 | 0033 | Pipe | J0023-0 | Jun-188 | 80.87 | 4530.35 | 4529.68 | 0.8300 | 2.000 | 0.0130 | 1.00 | 20.59 | 0.05 | 4.05 | 0.26 | 0.13 | 0.00 | Calculated |
| 8 | 0034 | Pipe | J0021-1 | J0023-0 | 4.79 | 4530.51 | 4530.35 | 3.3400 | 2.000 | 0.0130 | 1.00 | 41.35 | 0.02 | 3.31 | 0.30 | 0.15 | 0.00 | Calculated |
| 9 | 0037 | Pipe | J0026-1 | J0019-0 | 168.42 | 4546.71 | 4545.76 | 0.5600 | 1.500 | 0.0130 | 1.00 | 7.89 | 0.13 | 2.39 | 0.44 | 0.29 | 0.00 | Calculated |
| 10 | 0055 | Pipe | J0040-0 | J0040-1 | 58.28 | 4554.09 | 4553.18 | 1.5600 | 2.000 | 0.0130 | 3.01 | 28.27 | 0.11 | 5.28 | 0.48 | 0.24 | 0.00 | Calculated |
| 11 | 0056 | Pipe | J0041-0 | J0041-1 | 54.09 | 4551.21 | 4550.28 | 1.7200 | 2.000 | 0.0130 | 3.00 | 29.66 | 0.10 | 5.31 | 0.47 | 0.24 | 0.00 | Calculated |
| 12 | 0057 | Pipe | J0040-1 | J0041-0 | 158.86 | 4553.18 | 4551.21 | 1.2400 | 2.000 | 0.0130 | 3.00 | 25.19 | 0.12 | 5.27 | 0.47 | 0.24 | 0.00 | Calculated |
| 13 | 0058 | Pipe | J0043-0 | J0043-1 | 92.04 | 4558.86 | 4558.42 | 0.4800 | 2.000 | 0.0130 | 3.00 | 15.64 | 0.19 | 4.52 | 0.53 | 0.26 | 0.00 | Calculated |
| 14 | 0059 | Pipe | J0043-1 | J0044-1 | 112.20 | 4558.42 | 4556.59 | 1.6300 | 2.000 | 0.0130 | 3.00 | 28.89 | 0.10 | 5.68 | 0.45 | 0.22 | 0.00 | Calculated |
| 15 | 0062 | Pipe | J0044-1 | J0040-0 | 157.82 | 4556.59 | 4554.09 | 1.5800 | 2.000 | 0.0130 | 3.01 | 28.47 | 0.11 | 5.51 | 0.46 | 0.23 | 0.00 | Calculated |
| 16 | 0063 | Pipe | J0048-0 | J0043-0 | 109.88 | 4560.70 | 4558.86 | 1.6700 | 2.000 | 0.0130 | 3.00 | 29.27 | 0.10 | 4.62 | 0.52 | 0.26 | 0.00 | Calculated |
| 17 | 0068 | Pipe | J421012 | Jun-301 | 167.17 | 4582.55 | 4578.59 | 2.3700 | 2.000 | 0.0130 | 25.52 | 34.82 | 0.73 | 9.75 | 1.71 | 0.86 | 0.00 | Calculated |
| 18 | 0071 | Pipe | J0071-0 | J0071-1 | 6.93 | 4585.38 | 4585.32 | 0.8700 | 1.500 | 0.0130 | 15.40 | 9.77 | 1.58 | 11.98 | 1.05 | 0.70 | 0.00 | > CAPACITY |
| 19 | 0073 | Pipe | J0073-0 | J0073-1 | 213.71 | 4605.89 | 4605.36 | 0.2500 | 2.000 | 0.0130 | 10.00 | 11.27 | 0.89 | 6.61 | 0.97 | 0.49 | 0.00 | Calculated |
| 20 | 0074 | Pipe | J0074-0 | J0074-1 | 128.38 | 4609.03 | 4608.13 | 0.7000 | 2.000 | 0.0130 | 15.00 | 18.94 | 0.79 | 6.34 | 1.41 | 0.70 | 0.00 | Calculated |
| 21 | 0075 | Pipe | J0074-1 | J0075-1 | 166.80 | 4608.13 | 4605.98 | 1.2900 | 2.000 | 0.0130 | 15.00 | 25.68 | 0.58 | 9.28 | 1.02 | 0.51 | 0.00 | Calculated |
| 22 | 0076 | Pipe | J0076-0 | J0074-0 | 244.01 | 4609.87 | 4609.03 | 0.3400 | 2.000 | 0.0130 | 15.00 | 13.27 | 1.13 | 5.25 | 1.72 | 0.86 | 0.00 | > CAPACITY |
| 23 | 0077 | Pipe | J0077-0 | J0076-0 | 295.53 | 4610.90 | 4609.87 | 0.3500 | 2.000 | 0.0130 | 15.10 | 13.36 | 1.13 | 4.88 | 1.98 | 0.99 | 0.00 | > CAPACITY |
| 24 | 0078 | Pipe | J0078-0 | J0077-0 | 319.34 | 4612.12 | 4610.90 | 0.3800 | 2.000 | 0.0130 | 15.12 | 13.98 | 1.08 | 4.82 | 2.00 | 1.00 | 393.00 | SURCHARGED |
| 25 | 0079 | Pipe | J0079-0 | J0078-0 | 370.85 | 4613.74 | 4612.12 | 0.4400 | 2.000 | 0.0130 | 15.11 | 14.95 | 1.01 | 4.90 | 2.00 | 1.00 | 408.00 | SURCHARGED |
| 26 | 0082 | Pipe | J0080-0 | J0080-1 | 95.64 | 4614.73 | 4614.29 | 0.4600 | 2.000 | 0.0130 | 15.08 | 15.34 | 0.98 | 4.90 | 2.00 | 1.00 | 406.00 | SURCHARGED |
| 27 | 0083 | Pipe | J0080-1 | J0079-0 | 98.40 | 4614.29 | 4613.74 | 0.5600 | 2.000 | 0.0130 | 15.06 | 16.91 | 0.89 | 5.07 | 2.00 | 1.00 | 406.00 | SURCHARGED |
| 28 | 0084 | Pipe | J0084-0 | J42554 | 46.28 | 4532.69 | 4532.00 | 1.4900 | 2.000 | 0.0130 | 23.14 | 27.62 | 0.84 | 8.45 | 2.00 | 1.00 | 138.00 | SURCHARGED |
| 29 | 0086 | Pipe | J0086-0 | J0086-1 | 37.43 | 4534.15 | 4533.20 | 2.5400 | 2.000 | 0.0130 | 23.15 | 36.04 | 0.64 | 7.56 | 2.00 | 1.00 | 108.00 | SURCHARGED |
| 30 | 0087 | Pipe | J0086-1 | J0084-0 | 23.45 | 4533.20 | 4532.69 | 2.1700 | 2.000 | 0.0130 | 23.15 | 33.36 | 0.69 | 7.48 | 2.00 | 1.00 | 131.00 | SURCHARGED |
| 31 | 0108 | Pipe | J0073-1 | J0108-1 | 415.01 | 4605.36 | 4586.74 | 4.4900 | 2.000 | 0.0130 | 10.00 | 47.92 | 0.21 | 12.36 | 0.61 | 0.31 | 0.00 | Calculated |
| 32 | 0125 | Pipe | J0125-0 | J0125-1 | 204.43 | 4626.22 | 4617.41 | 4.3100 | 2.000 | 0.0130 | 10.00 | 46.96 | 0.21 | 9.39 | 0.74 | 0.37 | 0.00 | Calculated |
| 33 | 0126 | Pipe | J0126-0 | J0126-1 | 91.91 | 4632.19 | 4629.13 | 3.3300 | 2.000 | 0.0130 | 8.06 | 41.28 | 0.20 | 7.92 | 0.76 | 0.38 | 0.00 | Calculated |
| 34 | 0127 | Pipe | J0127-0 | J0073-0 | 76.24 | 4606.32 | 4605.89 | 0.5600 | 2.250 | 0.0130 | 10.00 | 23.26 | 0.43 | 4.33 | 1.27 | 0.56 | 0.00 | Calculated |
| 35 | 0128 | Pipe | J0126-1 | J0125-0 | 222.85 | 4629.13 | 4626.22 | 1.3100 | 2.000 | 0.0130 | 10.00 | 25.85 | 0.39 | 7.65 | 0.88 | 0.44 | 0.00 | Calculated |
| 36 | 0129 | Pipe | J0129-0 | J0127-0 | 265.66 | 4615.74 | 4606.32 | 3.5500 | 2.000 | 0.0130 | 10.00 | 42.60 | 0.23 | 6.94 | 0.94 | 0.47 | 0.00 | Calculated |
| 37 | 0130 | Pipe | J0125-1 | J0129-0 | 90.94 | 4617.41 | 4615.74 | 1.8400 | 2.000 | 0.0130 | 10.00 | 30.66 | 0.33 | 9.13 | 0.76 | 0.38 | 0.00 | Calculated |
| 38 | 0135 | Pipe | JJR062.01-1 | JJR060.02-0 | 298.60 | 4613.99 | 4612.85 | 0.3800 | 2.000 | 0.0150 | 6.00 | 12.11 | 0.50 | 4.07 | 0.95 | 0.48 | 0.00 | Calculated |
| 39 | 0137 | Pipe | JJR062.02-1 | JJR062.01-0 | 792.41 | 4650.17 | 4648.97 | 0.1500 | 2.000 | 0.0130 | 6.00 | 8.80 | 0.68 | 3.40 | 1.10 | 0.55 | 0.00 | Calculated |
| 40 | 0138 | Pipe | JJR060.02-1 | JJR060.01-0 | 795.82 | 4586.88 | 4586.22 | 0.0800 | 4.000 | 0.0150 | 14.00 | 35.85 | 0.39 | 3.70 | 1.36 | 0.34 | 0.00 | Calculated |
| 41 | 0142 | Pipe | J421185 | J421186 | 174.95 | 4731.42 | 4730.77 | 0.3700 | 1.500 | 0.0130 | 10.22 | 6.40 | 1.60 | 5.79 | 1.50 | 1.00 | 36.00 | SURCHARGED |
| 42 | 0143 | Pipe | J421186 | J421187 | 106.52 | 4730.77 | 4730.20 | 0.5400 | 1.500 | 0.0130 | 10.22 | 7.68 | 1.33 | 5.79 | 1.50 | 1.00 | 33.00 | SURCHARGED |
| 43 | 0144 | Pipe | J421187 | J421188 | 86.44 | 4730.20 | 4729.81 | 0.4500 | 1.500 | 0.0130 | 10.23 | 7.06 | 1.45 | 5.79 | 1.50 | 1.00 | 29.00 | SURCHARGED |
| 44 | 0145 | Pipe | J421189 | J421190 | 156.03 | 4728.22 | 4716.50 | 7.5100 | 1.500 | 0.0130 | 30.21 | 28.79 | 1.05 | 17.09 | 1.50 | 1.00 | 18.00 | SURCHARGED |
| 45 | 0146 | Pipe | J421188 | J421189 | 310.44 | 4729.81 | 4728.22 | 0.5100 | 1.500 | 0.0130 | 10.23 | 7.52 | 1.36 | 5.79 | 1.50 | 1.00 | 18.00 | SURCHARGED |
| 46 | 0147 | Pipe | J421190 | J421191 | 154.82 | 4716.50 | 4713.49 | 1.9400 | 2.000 | 0.0130 | 30.20 | 31.54 | 0.96 | 12.54 | 1.45 | 0.72 | 0.00 | Calculated |
| 47 | 0148 | Pipe | J421191 | J421192 | 129.29 | 4713.49 | 4703.92 | 7.4000 | 2.000 | 0.0130 | 30.20 | 61.55 | 0.49 | 17.79 | 1.09 | 0.54 | 0.00 | Calculated |
| 48 | 0149 | Pipe | J421192 | J421193 | 153.14 | 4703.92 | 4694.15 | 6.3800 | 2.000 | 0.0130 | 30.20 | 57.14 | 0.53 | 16.50 | 1.55 | 0.78 | 0.00 | Calculated |
| 49 | 0150 | Pipe | J421193 | J421194 | 111.47 | 4694.15 | 4687.36 | 6.0900 | 2.000 | 0.0130 | 30.32 | 55.83 | 0.54 | 13.97 | 2.00 | 1.00 | 12.00 | SURCHARGED |
| 50 | 0151 | Pipe | J421194 | J421195 | 396.51 | 4687.36 | 4670.77 | 4.1800 | 2.000 | 0.0130 | 45.91 | 46.27 | 0.99 | 14.91 | 2.00 | 1.00 | 26.00 | SURCHARGED |
| 51 | 0152 | Pipe | J421196 | J42964 | 133.55 | 4663.74 | 4660.16 | 2.6800 | 2.000 | 0.0130 | 42.98 | 37.04 | 1.16 | 13.70 | 2.00 | 1.00 | 31.00 | SURCHARGED |
| 52 | 0153 | Pipe | J421195 | J421196 | 194.50 | 4670.77 | 4663.74 | 3.6100 | 2.000 | 0.0130 | 42.98 | 43.01 | 1.00 | 13.68 | 2.00 | 1.00 | 32.00 | SURCHARGED |
| 53 | 0155 | Pipe | J431143 | J421197 | 42.33 | 4739.37 | 4736.80 | 6.0700 | 1.250 | 0.0130 | 6.01 | 15.92 | 0.38 | 11.12 | 1.25 | 1.00 | 7.00 | SURCHARGED |
| 54 | 0156 | Pipe | J421197 | J421200 | 41.53 | 4733.85 | 4733.33 | 1.2500 | 1.500 | 0.0130 | 6.12 | 11.75 | 0.52 | 4.48 | 1.50 | 1.00 | 29.00 | SURCHARGED |
| 55 | 0157 | Pipe | J421200 | J421201 | 182.31 | 4733.33 | 4732.57 | 0.4200 | 1.500 | 0.0130 | 6.17 | 6.78 | 0.91 | 4.53 | 1.50 | 1.00 | 31.00 | SURCHARGED |
| 56 | 0158 | Pipe | J421201 | J421185 | 171.69 | 4732.57 | 4731.42 | 0.6700 | 1.500 | 0.0130 | 6.45 | 8.60 | 0.75 | 5.47 | 1.50 | 1.00 | 33.00 | SURCHARGED |

## Link Summary

| SN | Element ID | Element Type | From (Inlet) Node | To (Outlet) Node | Length | Inlet Invert Elevation | Outlet Invert Elevation | Average Slope | Diameter or Height | Manning's Roughness | Peak Flow | Design Flow Capacity | Peak Flow/ Design Flow Ratio | Peak Flow Velocity | Peak Flow Depth | Peak Flow Depth/ Total Depth Ratio | Total Time Surcharged | Reported Condition |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | (ft) | (ft) | (ft) | (%) | (ft) | | (cfs) | (cfs) | | (ft/sec) | (ft) | | (min) | |
| 57 | 0167 | Pipe | J441211-1 | SN-JR086 | 133.29 | 4623.61 | 4618.80 | 3.6100 | 2.500 | 0.0130 | 47.12 | 77.92 | 0.60 | 10.05 | 2.50 | 1.00 | 577.00 | SURCHARGED |
| 58 | 0168 | Pipe | J421015 | J0109-1 | 552.12 | 4596.75 | 4586.99 | 1.7700 | 1.500 | 0.0130 | 13.64 | 13.97 | 0.98 | 12.03 | 1.02 | 0.68 | 0.00 | Calculated |
| 59 | 0169 | Pipe | J0110-1 | J0071-0 | 14.91 | 4585.43 | 4585.38 | 0.3400 | 1.500 | 0.0130 | 13.69 | 6.08 | 2.25 | 7.82 | 1.49 | 1.00 | 0.00 | > CAPACITY |
| 60 | 0171 | Pipe | J0108-1 | J421012 | 69.63 | 4586.74 | 4582.55 | 6.0200 | 2.000 | 0.0130 | 10.00 | 55.49 | 0.18 | 8.21 | 1.00 | 0.50 | 0.00 | Calculated |
| 61 | 0172 | Pipe | J42450 | J42554 | 948.50 | 4546.90 | 4531.50 | 1.6200 | 4.500 | 0.0130 | 136.95 | 250.57 | 0.55 | 13.44 | 2.77 | 0.62 | 0.00 | Calculated |
| 62 | 0179 | Pipe | J0054-1 | J0048-0 | 19.46 | 4561.20 | 4560.70 | 2.5700 | 2.000 | 0.0130 | 3.00 | 36.26 | 0.08 | 5.78 | 0.44 | 0.22 | 0.00 | Calculated |
| 63 | 220 | Pipe | J42890 | SN-JR086 | 626.30 | 4637.18 | 4618.80 | 2.9300 | 4.000 | 0.0130 | 153.80 | 246.07 | 0.62 | 14.09 | 3.25 | 0.81 | 0.00 | Calculated |
| 64 | 386 | Pipe | J42451 | J42450 | 386.84 | 4552.23 | 4546.90 | 1.3800 | 4.500 | 0.0130 | 136.92 | 230.83 | 0.59 | 14.61 | 2.57 | 0.57 | 0.00 | Calculated |
| 65 | 1325 | Pipe | J42554 | Jun-151 | 1324.86 | 4531.50 | 4515.73 | 1.1900 | 4.500 | 0.0130 | 165.43 | 214.55 | 0.77 | 15.79 | 2.82 | 0.63 | 0.00 | Calculated |
| 66 | 4453 | Pipe | J421017 | J421016 | 322.70 | 4605.36 | 4601.71 | 1.1300 | 1.500 | 0.0130 | 13.64 | 11.17 | 1.22 | 7.72 | 1.50 | 1.00 | 436.00 | SURCHARGED |
| 67 | 4455 | Pipe | J4260 | J4244 | 14.44 | 4523.15 | 4522.27 | 6.0900 | 3.000 | 0.0130 | 28.00 | 164.65 | 0.17 | 8.00 | 1.49 | 0.50 | 0.00 | Calculated |
| 68 | 4456 | Pipe | J4249 | J4260 | 130.28 | 4522.92 | 4523.15 | -0.1800 | 3.000 | 0.0130 | 28.00 | 28.02 | 1.00 | 5.73 | 1.96 | 0.65 | 0.00 | Calculated |
| 69 | 4466 | Pipe | J4244 | J4466-1 | 154.26 | 4522.27 | 4520.95 | 0.8600 | 3.000 | 0.0130 | 28.00 | 61.70 | 0.45 | 7.57 | 1.55 | 0.52 | 0.00 | Calculated |
| 70 | 4469 | Pipe | J4289 | J4267 | 587.24 | 4539.19 | 4526.93 | 2.0900 | 3.000 | 0.0130 | 17.00 | 96.37 | 0.18 | 7.77 | 1.19 | 0.40 | 0.00 | Calculated |
| 71 | 441117 | Pipe | J441117-0 | J4245 | 144.04 | 4617.87 | 4616.24 | 1.1300 | 4.000 | 0.0130 | 12.45 | 152.81 | 0.08 | 6.68 | 1.34 | 0.34 | 0.00 | Calculated |
| 72 | 441118 | Pipe | J4245 | J421019 | 106.25 | 4616.24 | 4610.44 | 5.4600 | 1.500 | 0.0130 | 13.64 | 24.54 | 0.56 | 10.48 | 1.50 | 1.00 | 135.00 | SURCHARGED |
| 73 | 441173 | Pipe | J42888 | J42887 | 125.82 | 4631.26 | 4628.69 | 2.0400 | 2.500 | 0.0130 | 47.99 | 58.62 | 0.82 | 9.78 | 2.50 | 1.00 | 40.00 | SURCHARGED |
| 74 | 441175 | Pipe | J42890 | J42888 | 305.22 | 4636.68 | 4631.26 | 1.7800 | 2.500 | 0.0130 | 47.99 | 57.12 | 0.84 | 11.03 | 2.50 | 1.00 | 0.00 | SURCHARGED |
| 75 | 441176 | Pipe | J42891 | J42890 | 64.25 | 4638.52 | 4637.18 | 2.0900 | 2.500 | 0.0130 | 49.60 | 59.24 | 0.84 | 11.78 | 2.50 | 1.00 | 0.00 | SURCHARGED |
| 76 | 441182 | Pipe | J42901 | J42903 | 204.98 | 4655.25 | 4651.21 | 1.9700 | 2.500 | 0.0130 | 48.79 | 57.58 | 0.85 | 11.56 | 2.50 | 1.00 | 30.00 | SURCHARGED |
| 77 | 441183 | Pipe | J42903 | J42904 | 197.78 | 4651.21 | 4646.81 | 2.2200 | 2.500 | 0.0130 | 48.79 | 61.18 | 0.80 | 9.94 | 2.50 | 1.00 | 34.00 | SURCHARGED |
| 78 | 441184 | Pipe | J42904 | J42905 | 45.56 | 4646.81 | 4645.67 | 2.5000 | 2.500 | 0.0130 | 48.80 | 64.88 | 0.75 | 9.94 | 2.50 | 1.00 | 39.00 | SURCHARGED |
| 79 | 441185 | Pipe | J42905 | J42906 | 118.84 | 4645.67 | 4644.64 | 0.8700 | 2.500 | 0.0130 | 48.80 | 38.19 | 1.28 | 9.94 | 2.50 | 1.00 | 37.00 | SURCHARGED |
| 80 | 441186 | Pipe | J42906 | J42907 | 87.78 | 4644.64 | 4643.68 | 1.0900 | 2.500 | 0.0130 | 48.79 | 42.89 | 1.14 | 9.94 | 2.50 | 1.00 | 29.00 | SURCHARGED |
| 81 | 441187 | Pipe | J42907 | J42908 | 106.21 | 4643.68 | 4642.03 | 1.5500 | 2.500 | 0.0130 | 48.79 | 51.12 | 0.95 | 10.17 | 2.50 | 1.00 | 12.00 | SURCHARGED |
| 82 | 441193 | Pipe | J42908 | J42891 | 209.09 | 4642.03 | 4638.52 | 1.6800 | 2.500 | 0.0130 | 49.55 | 53.14 | 0.93 | 10.66 | 2.50 | 1.00 | 11.00 | SURCHARGED |
| 83 | 441211 | Pipe | J441211-0 | J441211-1 | 199.60 | 4626.54 | 4623.61 | 1.4700 | 2.500 | 0.0130 | 47.58 | 49.70 | 0.96 | 11.20 | 2.50 | 1.00 | 263.00 | SURCHARGED |
| 84 | 441212 | Pipe | J42887 | J441211-0 | 235.01 | 4628.69 | 4626.54 | 0.9100 | 2.500 | 0.0130 | 47.99 | 39.23 | 1.22 | 9.84 | 2.50 | 1.00 | 47.00 | SURCHARGED |
| 85 | 441262 | Pipe | J421018 | J421017 | 47.33 | 4608.21 | 4605.36 | 6.0200 | 1.500 | 0.0130 | 13.64 | 25.78 | 0.53 | 8.48 | 1.50 | 1.00 | 387.00 | SURCHARGED |
| 86 | 441263 | Pipe | J421019 | J421018 | 99.23 | 4610.44 | 4608.21 | 2.2500 | 1.500 | 0.0130 | 13.64 | 15.75 | 0.87 | 9.19 | 1.50 | 1.00 | 367.00 | SURCHARGED |
| 87 | 441294 | Pipe | J42992 | J42993 | 232.54 | 4570.69 | 4569.84 | 0.3700 | 1.500 | 0.0130 | 5.52 | 6.35 | 0.87 | 4.17 | 1.50 | 1.00 | 26.00 | SURCHARGED |
| 88 | 441307 | Pipe | J42998 | J42454 | 137.51 | 4568.05 | 4568.24 | -0.1400 | 2.000 | 0.0130 | 17.69 | 8.41 | 2.10 | 7.98 | 1.33 | 0.66 | 0.00 | > CAPACITY |
| 89 | 441317 | Pipe | J441317-0 | J42958 | 74.76 | 4717.08 | 4715.39 | 2.2600 | 1.250 | 0.0130 | 9.22 | 9.71 | 0.95 | 7.53 | 1.24 | 0.99 | 0.00 | Calculated |
| 90 | 441318 | Pipe | J42958 | J42959 | 46.91 | 4715.39 | 4715.17 | 0.4700 | 2.000 | 0.0130 | 9.22 | 15.49 | 0.60 | 4.90 | 1.16 | 0.58 | 0.00 | Calculated |
| 91 | 441684 | Pipe | J42959 | J42960 | 297.62 | 4715.17 | 4699.92 | 5.1200 | 1.500 | 0.0130 | 9.22 | 23.78 | 0.39 | 11.94 | 0.68 | 0.45 | 0.00 | Calculated |
| 92 | 441685 | Pipe | J42960 | J42961 | 367.15 | 4699.92 | 4683.98 | 4.3400 | 1.500 | 0.0130 | 9.22 | 21.89 | 0.42 | 11.63 | 0.69 | 0.46 | 0.00 | Calculated |
| 93 | 441686 | Pipe | J42961 | J42962 | 226.41 | 4683.98 | 4673.12 | 4.8000 | 1.500 | 0.0130 | 9.22 | 23.01 | 0.40 | 12.06 | 0.67 | 0.45 | 0.00 | Calculated |
| 94 | 441687 | Pipe | J42962 | J42963 | 213.27 | 4673.12 | 4662.65 | 4.9100 | 1.500 | 0.0130 | 9.22 | 23.27 | 0.40 | 10.93 | 1.08 | 0.72 | 0.00 | Calculated |
| 95 | 441688 | Pipe | J42963 | J42964 | 59.90 | 4662.65 | 4660.16 | 4.1600 | 1.500 | 0.0130 | 10.24 | 21.42 | 0.48 | 7.10 | 1.50 | 1.00 | 18.00 | SURCHARGED |
| 96 | 441689 | Pipe | J42964 | J42901 | 270.52 | 4660.16 | 4655.25 | 1.8200 | 2.500 | 0.0130 | 48.79 | 55.26 | 0.88 | 11.45 | 2.50 | 1.00 | 25.00 | SURCHARGED |
| 97 | 441719 | Pipe | J4262 | J4249 | 49.27 | 4523.56 | 4522.92 | 1.3000 | 3.000 | 0.0130 | 28.00 | 76.02 | 0.37 | 4.84 | 2.29 | 0.76 | 0.00 | Calculated |
| 98 | 441720 | Pipe | J4263 | J4262 | 227.17 | 4524.03 | 4523.56 | 0.2100 | 3.000 | 0.0130 | 28.00 | 30.34 | 0.92 | 5.03 | 2.20 | 0.73 | 0.00 | Calculated |
| 99 | 441721 | Pipe | J4264 | J4263 | 266.50 | 4524.56 | 4524.03 | 0.2000 | 3.000 | 0.0130 | 28.00 | 29.74 | 0.94 | 4.58 | 2.42 | 0.81 | 0.00 | Calculated |
| 100 | 441722 | Pipe | J4265 | J4264 | 28.63 | 4524.66 | 4524.56 | 0.3500 | 3.000 | 0.0130 | 28.00 | 39.42 | 0.71 | 4.37 | 2.56 | 0.85 | 0.00 | Calculated |
| 101 | 441723 | Pipe | J4267 | J4265 | 345.00 | 4526.93 | 4524.66 | 0.6600 | 3.000 | 0.0130 | 28.00 | 54.10 | 0.52 | 5.39 | 2.07 | 0.69 | 0.00 | Calculated |
| 102 | 441727 | Pipe | J0041-1 | J4272 | 222.91 | 4550.28 | 4547.81 | 1.1100 | 2.000 | 0.0130 | 3.01 | 23.81 | 0.13 | 4.63 | 0.52 | 0.26 | 0.00 | Calculated |
| 103 | 441731 | Pipe | J4272 | J4278 | 77.89 | 4547.81 | 4547.22 | 0.7600 | 2.000 | 0.0130 | 3.01 | 19.69 | 0.15 | 4.34 | 0.54 | 0.27 | 0.00 | Calculated |
| 104 | 441739 | Pipe | J0052-1 | J4287 | 311.45 | 4571.48 | 4566.95 | 1.4500 | 2.000 | 0.0130 | 0.00 | 27.28 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | Calculated |
| 105 | 441740 | Pipe | J4287 | J4288 | 109.37 | 4566.95 | 4565.39 | 1.4300 | 2.000 | 0.0130 | 0.00 | 27.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | Calculated |
| 106 | 441759 | Pipe | J441759-0 | Jun-198 | 26.35 | 4508.14 | 4507.00 | 4.3300 | 1.250 | 0.0130 | 12.02 | 13.44 | 0.89 | 10.21 | 1.25 | 1.00 | 130.00 | SURCHARGED |
| 107 | 441760 | Pipe | J42886 | J42893 | 400.52 | 4502.98 | 4496.93 | 1.5100 | 1.500 | 0.0130 | 14.28 | 12.91 | 1.11 | 8.08 | 1.50 | 1.00 | 151.00 | SURCHARGED |
| 108 | 441761 | Pipe | J42893 | J441761-1 | 341.40 | 4496.93 | 4491.44 | 1.6100 | 1.500 | 0.0130 | 14.28 | 13.32 | 1.07 | 8.44 | 1.50 | 1.00 | 141.00 | SURCHARGED |
| 109 | 441792 | Pipe | J421016 | J421015 | 310.72 | 4601.71 | 4596.75 | 1.6000 | 1.500 | 0.0130 | 13.64 | 13.27 | 1.03 | 7.72 | 1.50 | 1.00 | 436.00 | SURCHARGED |
| 110 | 441802 | Pipe | J4288 | J0054-1 | 259.16 | 4565.39 | 4561.20 | 1.6200 | 2.000 | 0.0130 | 0.00 | 28.76 | 0.00 | 0.00 | 0.23 | 0.11 | 0.00 | Calculated |
| 111 | 441896 | Pipe | J42452 | J42451 | 491.53 | 4557.88 | 4552.23 | 1.1500 | 4.500 | 0.0130 | 132.91 | 210.83 | 0.63 | 12.89 | 2.78 | 0.62 | 0.00 | Calculated |
| 112 | 441897 | Pipe | J42453 | J42452 | 244.03 | 4559.93 | 4557.88 | 0.8400 | 4.500 | 0.0130 | 132.91 | 180.24 | 0.74 | 11.66 | 3.03 | 0.67 | 0.00 | Calculated |

## Link Summary

| SN | Element ID | Element Type | From (Inlet) Node | To (Outlet) Node | Length | Inlet Invert Elevation | Outlet Invert Elevation | Average Slope | Diameter or Height | Manning's Roughness | Peak Flow | Design Flow Capacity | Peak Flow/ Design Flow Ratio | Peak Flow Velocity | Peak Flow Depth | Peak Flow Depth/ Total Depth Ratio | Total Time Surcharged | Reported Condition |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | (ft) | (ft) | (ft) | (%) | (ft) | | (cfs) | (cfs) | | (ft/sec) | (ft) | | (min) | |
| 113 | 441900 | Pipe | J42454 | J42453 | 67.10 | 4568.24 | 4559.93 | 12.3800 | 2.000 | 0.0130 | 17.68 | 79.61 | 0.22 | 7.98 | 1.33 | 0.66 | 0.00 | Calculated |
| 114 | 441901 | Pipe | J42997 | J42998 | 38.07 | 4568.40 | 4568.05 | 0.9200 | 2.000 | 0.0130 | 17.69 | 21.69 | 0.82 | 5.63 | 2.00 | 1.00 | 21.00 | SURCHARGED |
| 115 | 441902 | Pipe | J42993 | J42997 | 392.75 | 4569.84 | 4568.40 | 0.3700 | 2.000 | 0.0130 | 17.68 | 13.70 | 1.29 | 5.63 | 2.00 | 1.00 | 21.00 | SURCHARGED |
| 116 | JR060.01 | Pipe | JJR060.01-0 | J0038-0 | 1447.32 | 4586.22 | 4544.91 | 2.8500 | 2.000 | 0.0150 | 14.00 | 33.12 | 0.42 | 8.93 | 1.07 | 0.54 | 0.00 | Calculated |
| 117 | JR060.02 | Pipe | JJR060.02-0 | JJR060.02-1 | 746.10 | 4611.44 | 4586.88 | 3.2900 | 2.000 | 0.0150 | 14.00 | 35.57 | 0.39 | 6.23 | 1.35 | 0.67 | 0.00 | Calculated |
| 118 | JR062.01 | Pipe | JJR062.01-0 | JJR062.01-1 | 492.81 | 4648.54 | 4611.92 | 7.4300 | 2.000 | 0.0150 | 6.00 | 53.45 | 0.11 | 2.97 | 1.23 | 0.61 | 0.00 | Calculated |
| 119 | Link-100 | Pipe | Jun-150 | Jun-148 | 1438.38 | 4605.00 | 4568.49 | 2.5400 | 3.500 | 0.0130 | 103.67 | 161.12 | 0.64 | 16.14 | 2.22 | 0.63 | 0.00 | Calculated |
| 120 | Link-101 | Pipe | Jun-148 | J42453 | 400.38 | 4568.49 | 4559.93 | 2.1400 | 3.500 | 0.0130 | 107.67 | 147.11 | 0.73 | 13.06 | 2.81 | 0.80 | 0.00 | Calculated |
| 121 | Link-112 | Pipe | Jun-171 | Out-34 | 1392.43 | 4716.00 | 4726.00 | -0.7200 | 3.500 | 0.0130 | 5.00 | 53.92 | 0.09 | 3.49 | 0.72 | 0.21 | 0.00 | Calculated |
| 122 | Link-119 | Pipe | Jun-180 | Jun-181 | 54.60 | 4664.65 | 4664.20 | 0.8200 | 1.500 | 0.0130 | 1.00 | 9.54 | 0.10 | 4.01 | 0.30 | 0.20 | 0.00 | Calculated |
| 123 | Link-120 | Pipe | Jun-181 | Jun-179 | 756.57 | 4664.20 | 4643.71 | 2.7100 | 1.500 | 0.0130 | 1.00 | 17.29 | 0.06 | 5.73 | 0.23 | 0.15 | 0.00 | Calculated |
| 124 | Link-121 | Pipe | Jun-179 | Jun-182 | 194.97 | 4643.71 | 4636.96 | 3.4600 | 2.000 | 0.0130 | 1.00 | 42.09 | 0.02 | 4.92 | 0.23 | 0.12 | 0.00 | Calculated |
| 125 | Link-122 | Pipe | Jun-182 | Jun-183 | 114.54 | 4636.96 | 4634.42 | 2.2200 | 2.000 | 0.0130 | 1.00 | 33.69 | 0.03 | 5.48 | 0.22 | 0.11 | 0.00 | Calculated |
| 126 | Link-123 | Pipe | Jun-183 | J0126-0 | 31.28 | 4634.42 | 4632.19 | 7.1300 | 2.000 | 0.0130 | 1.00 | 60.40 | 0.02 | 6.19 | 0.40 | 0.20 | 0.00 | Calculated |
| 127 | Link-125 | Pipe | Jun-185 | Jun-198 | 1316.51 | 4529.00 | 4507.00 | 1.6700 | 1.500 | 0.0130 | 3.06 | 13.58 | 0.23 | 7.11 | 0.99 | 0.66 | 0.00 | Calculated |
| 128 | Link-128 | Pipe | J4466-1 | Jun-187 | 856.39 | 4520.95 | 4509.00 | 1.4000 | 3.000 | 0.0130 | 39.00 | 78.79 | 0.49 | 10.92 | 1.51 | 0.50 | 0.00 | Calculated |
| 129 | Link-133 | Pipe | Jun-190 | J4289 | 340.14 | 4543.09 | 4539.19 | 1.1500 | 3.000 | 0.0130 | 17.00 | 71.42 | 0.24 | 8.81 | 0.95 | 0.32 | 0.00 | Calculated |
| 130 | Link-134 | Pipe | JJR060.01-1 | J0026-1 | 659.12 | 4561.00 | 4546.71 | 2.1700 | 1.250 | 0.0150 | 1.00 | 8.24 | 0.12 | 4.18 | 0.33 | 0.26 | 0.00 | Calculated |
| 131 | Link-137 | Pipe | J0038-0 | Jun-190 | 87.57 | 4544.91 | 4543.09 | 2.0800 | 2.000 | 0.0150 | 17.00 | 28.26 | 0.60 | 9.15 | 1.14 | 0.57 | 0.00 | Calculated |
| 132 | Link-141 | Pipe | J421185 | J421189 | 688.27 | 4731.42 | 4728.22 | 0.4600 | 2.000 | 0.0150 | 20.17 | 13.37 | 1.51 | 6.62 | 2.00 | 1.00 | 12.00 | SURCHARGED |
| 133 | Link-148 | Pipe | Jun-198 | J42886 | 77.02 | 4507.00 | 4502.98 | 5.2200 | 1.500 | 0.0130 | 14.29 | 24.00 | 0.60 | 9.63 | 1.50 | 1.00 | 115.00 | SURCHARGED |
| 134 | Link-153 | Pipe | Jun-159 | Jun-196 | 920.30 | 4694.00 | 4660.00 | 3.6900 | 1.500 | 0.0150 | 8.00 | 17.50 | 0.46 | 9.43 | 1.11 | 0.74 | 0.00 | Calculated |
| 135 | Link-158 | Pipe | Jun-213 | Jun-214 | 1590.15 | 4560.00 | 4544.60 | 0.9700 | 3.000 | 0.0150 | 56.64 | 56.89 | 1.00 | 10.21 | 2.24 | 0.75 | 0.00 | Calculated |
| 136 | Link-166 | Pipe | Jun-213 | Jun-214 | 1590.15 | 4572.00 | 4550.00 | 1.3800 | 2.000 | 0.0150 | 0.00 | 23.06 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | Calculated |
| 137 | Link-169 | Pipe | Jun-214 | Jun-215 | 1487.51 | 4544.60 | 4506.00 | 2.5900 | 3.000 | 0.0150 | 56.64 | 93.12 | 0.61 | 13.69 | 1.70 | 0.57 | 0.00 | Calculated |
| 138 | Link-171 | Pipe | Jun-216 | Jun-217 | 900.45 | 4501.00 | 4491.00 | 1.1100 | 4.500 | 0.0130 | 186.21 | 207.23 | 0.90 | 14.19 | 3.46 | 0.77 | 0.00 | Calculated |
| 139 | Link-208 | Pipe | J0075-1 | J421012 | 780.87 | 4605.98 | 4582.55 | 3.0000 | 2.000 | 0.0130 | 15.00 | 39.19 | 0.38 | 10.43 | 1.14 | 0.57 | 0.00 | Calculated |
| 140 | Link-209 | Pipe | Jun-196 | Jun-251 | 1481.92 | 4660.00 | 4627.00 | 2.2300 | 3.500 | 0.0150 | 112.24 | 130.12 | 0.86 | 14.88 | 2.64 | 0.75 | 0.00 | Calculated |
| 141 | Link-210 | Pipe | Jun-247 | Jun-293 | 949.84 | 4533.10 | 4511.00 | 2.3300 | 2.000 | 0.0130 | 24.23 | 34.51 | 0.70 | 10.35 | 1.68 | 0.84 | 0.00 | Calculated |
| 142 | Link-211 | Pipe | Jun-241 | Jun-253 | 1446.36 | 4627.00 | 4618.00 | 0.6200 | 2.000 | 0.0150 | 15.62 | 15.47 | 1.01 | 6.28 | 1.83 | 0.91 | 0.00 | > CAPACITY |
| 143 | Link-213 | Pipe | Jun-188 | J4267 | 61.41 | 4529.68 | 4526.93 | 4.4800 | 2.000 | 0.0150 | 1.00 | 41.49 | 0.02 | 1.51 | 0.87 | 0.44 | 0.00 | Calculated |
| 144 | Link-214 | Pipe | Jun-252 | Jun-293 | 1094.29 | 4529.00 | 4511.00 | 1.6400 | 4.000 | 0.0150 | 137.25 | 159.66 | 0.86 | 11.39 | 4.00 | 1.00 | 55.00 | SURCHARGED |
| 145 | Link-215 | Pipe | Jun-251 | Jun-252 | 3794.28 | 4627.00 | 4529.00 | 2.5800 | 3.500 | 0.0150 | 130.62 | 140.13 | 0.93 | 15.67 | 3.09 | 0.88 | 0.00 | Calculated |
| 146 | Link-216 | Pipe | J42877 | Out-32 | 2577.64 | 4500.54 | 4495.03 | 0.2100 | 1.500 | 0.0130 | 5.03 | 4.86 | 1.04 | 3.37 | 1.18 | 0.79 | 0.00 | > CAPACITY |
| 147 | Link-217 | Pipe | Jun-253 | Jun-150 | 932.17 | 4618.00 | 4605.00 | 1.3900 | 3.500 | 0.0150 | 61.68 | 101.46 | 0.61 | 10.61 | 2.05 | 0.59 | 0.00 | Calculated |
| 148 | Link-222 | Pipe | Jun-256 | Jun-247 | 1747.10 | 4546.00 | 4533.50 | 0.7200 | 2.000 | 0.0130 | 15.00 | 19.14 | 0.78 | 6.65 | 1.35 | 0.67 | 0.00 | Calculated |
| 149 | Link-223 | Pipe | Jun-257 | Jun-291 | 981.20 | 4525.00 | 4508.00 | 1.7300 | 2.000 | 0.0130 | 9.00 | 29.78 | 0.30 | 5.89 | 1.38 | 0.69 | 0.00 | Calculated |
| 150 | Link-224 | Pipe | Jun-258 | Jun-257 | 855.23 | 4530.00 | 4527.00 | 0.3500 | 2.000 | 0.0130 | 9.00 | 26.80 | 0.34 | 7.68 | 0.81 | 0.40 | 0.00 | Calculated |
| 151 | Link-226 | Pipe | Jun-260 | Jun-259 | 1534.40 | 4512.00 | 4503.00 | 0.5900 | 3.000 | 0.0130 | 40.43 | 51.08 | 0.79 | 9.24 | 2.35 | 0.78 | 0.00 | Calculated |
| 152 | Link-227 | Pipe | Jun-261 | Jun-262 | 1483.80 | 4535.00 | 4516.02 | 1.2800 | 3.000 | 0.0130 | 75.52 | 75.44 | 1.00 | 11.26 | 2.75 | 0.92 | 0.00 | > CAPACITY |
| 153 | Link-228 | Pipe | Jun-262 | Jun-263 | 1287.99 | 4516.02 | 4504.06 | 0.9300 | 3.500 | 0.0130 | 91.08 | 96.95 | 0.94 | 10.69 | 3.03 | 0.87 | 0.00 | Calculated |
| 154 | Link-229 | Pipe | Jun-263 | Jun-221 | 1293.68 | 4504.06 | 4496.13 | 0.6100 | 4.000 | 0.0130 | 103.02 | 112.46 | 0.92 | 9.67 | 3.17 | 0.79 | 0.00 | Calculated |
| 155 | Link-230 | Pipe | Jun-264 | Jun-268 | 1621.69 | 4522.00 | 4515.00 | 0.4300 | 2.000 | 0.0130 | 14.90 | 14.86 | 1.00 | 6.00 | 1.58 | 0.79 | 0.00 | > CAPACITY |
| 156 | Link-231 | Pipe | Jun-265 | J0080-0 | 1485.54 | 4618.00 | 4614.73 | 0.2200 | 2.000 | 0.0150 | 5.00 | 9.20 | 0.54 | 3.11 | 1.53 | 0.76 | 0.00 | Calculated |
| 157 | Link-232 | Pipe | Jun-267 | Jun-266 | 3268.69 | 4597.00 | 4556.00 | 1.2500 | 2.500 | 0.0130 | 13.01 | 45.94 | 0.28 | 8.89 | 0.85 | 0.34 | 0.00 | Calculated |
| 158 | Link-233 | Pipe | Jun-266 | SN-JR081 | 2514.75 | 4556.00 | 4536.80 | 0.7600 | 2.000 | 0.0130 | 2.94 | 19.77 | 0.15 | 1.69 | 1.37 | 0.69 | 0.00 | Calculated |
| 159 | Link-234 | Pipe | Jun-268 | Jun-297 | 2045.61 | 4515.00 | 4501.00 | 0.6800 | 2.500 | 0.0130 | 14.70 | 33.93 | 0.43 | 4.84 | 1.74 | 0.70 | 0.00 | Calculated |
| 160 | Link-236 | Pipe | Jun-269 | Out-37 | 3658.82 | 4494.30 | 4487.50 | 0.1900 | 2.500 | 0.0130 | 13.00 | 17.68 | 0.74 | 4.13 | 1.53 | 0.61 | 0.00 | Calculated |
| 161 | Link-238 | Pipe | Jun-270 | Jun-284 | 653.97 | 4629.23 | 4625.76 | 0.5300 | 1.250 | 0.0130 | 2.57 | 4.71 | 0.55 | 3.74 | 1.25 | 1.00 | 41.00 | SURCHARGED |
| 162 | Link-242 | Pipe | 201 | 198 | 229.94 | 4609.17 | 4606.66 | 1.0900 | 2.000 | 0.0130 | 28.00 | 23.64 | 1.18 | 8.91 | 2.00 | 1.00 | 127.00 | SURCHARGED |
| 163 | Link-244 | Pipe | 203 | 202 | 356.95 | 4616.56 | 4611.25 | 1.4900 | 1.500 | 0.0130 | 22.38 | 12.81 | 1.75 | 12.66 | 1.50 | 1.00 | 122.00 | SURCHARGED |
| 164 | Link-246 | Pipe | JJR062.03-0 | Stor-67 | 292.26 | 4696.16 | 4695.42 | 0.2500 | 7.500 | 0.0150 | 274.56 | 334.87 | 0.82 | 6.37 | 7.50 | 1.00 | 285.00 | SURCHARGED |
| 165 | Link-247 | Pipe | Jun-277 | Jun-196 | 750.35 | 4685.00 | 4660.00 | 3.3300 | 3.000 | 0.0150 | 99.24 | 105.51 | 0.94 | 15.48 | 2.55 | 0.85 | 0.00 | Calculated |
| 166 | Link-248 | Pipe | 201a | Jun-150 | 260.90 | 4606.16 | 4605.38 | 0.3000 | 3.000 | 0.0130 | 34.00 | 36.47 | 0.93 | 5.80 | 2.35 | 0.78 | 0.00 | Calculated |
| 167 | Link-249 | Pipe | 198 | 201a | 168.97 | 4606.66 | 4606.16 | 0.3000 | 3.000 | 0.0130 | 34.00 | 36.28 | 0.94 | 4.97 | 2.81 | 0.94 | 0.00 | Calculated |
| 168 | Link-250 | Pipe | 202 | 201 | 91.79 | 4611.25 | 4609.17 | 2.2700 | 2.000 | 0.0130 | 22.19 | 34.05 | 0.65 | 7.72 | 2.00 | 1.00 | 113.00 | SURCHARGED |

## Link Summary

| SN | Element ID | Element Type | From (Inlet) Node | To (Outlet) Node | Length | Inlet Invert Elevation | Outlet Invert Elevation | Average Slope | Diameter or Height | Manning's Roughness | Peak Flow | Design Flow Capacity | Peak Flow/ Design Flow Ratio | Peak Flow Velocity | Peak Flow Depth | Peak Flow Depth/ Total Depth Ratio | Total Time Surcharged | Reported Condition |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | (ft) | (ft) | (ft) | (%) | (ft) | | (cfs) | (cfs) | | (ft/sec) | (ft) | | (min) | |
| 169 | Link-252 | Pipe | Jun-283 | 203 | 250.13 | 4617.56 | 4616.56 | 0.4000 | 1.500 | 0.0150 | 5.20 | 5.76 | 0.90 | 3.32 | 1.50 | 1.00 | 136.00 | SURCHARGED |
| 170 | Link-253 | Pipe | Jun-272 | Jun-283 | 554.49 | 4623.33 | 4617.56 | 1.0400 | 1.500 | 0.0150 | 4.80 | 9.28 | 0.52 | 3.48 | 1.50 | 1.00 | 118.00 | SURCHARGED |
| 171 | Link-254 | Pipe | Jun-284 | Jun-272 | 487.24 | 4625.76 | 4623.33 | 0.5000 | 1.500 | 0.0130 | 4.43 | 7.42 | 0.60 | 3.74 | 1.50 | 1.00 | 79.00 | SURCHARGED |
| 172 | Link-257 | Pipe | Jun-285 | Jun-287 | 558.11 | 4627.10 | 4624.00 | 0.5600 | 2.000 | 0.0150 | 9.92 | 14.61 | 0.68 | 4.87 | 2.00 | 1.00 | 120.00 | SURCHARGED |
| 173 | Link-258 | Pipe | Jun-287 | 203 | 1230.37 | 4624.00 | 4616.56 | 0.6000 | 2.000 | 0.0150 | 13.15 | 15.25 | 0.86 | 5.06 | 2.00 | 1.00 | 126.00 | SURCHARGED |
| 174 | Link-260 | Pipe | Jun-290 | SN-PR021 | 2954.79 | 4709.00 | 4618.00 | 3.0800 | 3.000 | 0.0130 | 46.70 | 118.02 | 0.40 | 13.71 | 1.82 | 0.61 | 0.00 | Calculated |
| 175 | Link-261 | Pipe | Jun-291 | Jun-216 | 1344.52 | 4508.00 | 4501.00 | 0.5200 | 2.000 | 0.0130 | 15.10 | 16.32 | 0.93 | 5.22 | 2.00 | 1.00 | 212.00 | SURCHARGED |
| 176 | Link-262 | Pipe | Jun-292 | Jun-216 | 131.63 | 4504.00 | 4501.00 | 2.2800 | 4.000 | 0.0150 | 168.15 | 187.94 | 0.89 | 13.69 | 3.80 | 0.95 | 0.00 | Calculated |
| 177 | Link-263 | Pipe | Jun-293 | Jun-292 | 420.02 | 4511.00 | 4504.00 | 1.6700 | 4.000 | 0.0150 | 161.14 | 160.71 | 1.00 | 12.82 | 4.00 | 1.00 | 275.00 | SURCHARGED |
| 178 | Link-265 | Pipe | Jun-266 | Jun-295 | 1421.06 | 4556.00 | 4525.09 | 2.1800 | 2.500 | 0.0150 | 10.21 | 52.43 | 0.19 | 7.17 | 0.83 | 0.33 | 0.00 | Calculated |
| 179 | Link-266 | Pipe | Jun-295 | Jun-296 | 2619.39 | 4525.09 | 4505.12 | 0.7600 | 3.000 | 0.0150 | 10.21 | 50.47 | 0.20 | 5.44 | 0.96 | 0.32 | 0.00 | Calculated |
| 180 | Link-267 | Pipe | Jun-296 | Jun-297 | 975.32 | 4505.12 | 4501.00 | 0.4200 | 3.500 | 0.0150 | 10.21 | 56.67 | 0.18 | 2.26 | 1.67 | 0.48 | 0.00 | Calculated |
| 181 | Link-268 | Pipe | Jun-297 | Out-36 | 33.65 | 4501.00 | 4501.23 | -0.6800 | 3.500 | 0.0130 | 24.85 | 83.18 | 0.30 | 4.91 | 1.82 | 0.52 | 0.00 | Calculated |
| 182 | Link-270 | Pipe | J0071-1 | J0050-0 | 8.98 | 4585.32 | 4579.17 | 68.4900 | 1.500 | 0.0130 | 14.21 | 86.93 | 0.16 | 10.80 | 1.09 | 0.73 | 0.00 | Calculated |
| 183 | Link-274 | Pipe | J0050-0 | Jun-301 | 129.38 | 4579.17 | 4578.59 | 0.4500 | 3.000 | 0.0150 | 31.66 | 38.70 | 0.82 | 5.25 | 2.39 | 0.80 | 0.00 | Calculated |
| 184 | Link-276 | Pipe | Jun-300 | J0052-1 | 567.24 | 4579.00 | 4571.48 | 1.3300 | 2.000 | 0.0150 | 0.00 | 22.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | Calculated |
| 185 | Link-277 | Pipe | Jun-301 | Jun-213 | 1544.10 | 4578.59 | 4560.00 | 1.2000 | 3.000 | 0.0150 | 56.64 | 63.43 | 0.89 | 9.30 | 2.49 | 0.83 | 0.00 | Calculated |
| 186 | Link-98 | Pipe | Jun-149 | Jun-290 | 233.67 | 4716.00 | 4710.52 | 2.3500 | 3.000 | 0.0130 | 29.38 | 229.85 | 0.13 | 17.36 | 1.02 | 0.34 | 0.00 | Calculated |
| 187 | 0110 | Channel | J0109-1 | J0110-1 | 63.57 | 4586.99 | 4585.43 | 2.4500 | 10.000 | 0.0320 | 13.93 | 6785.30 | 0.00 | 0.91 | 1.32 | 0.13 | 0.00 | |
| 188 | Link-103 | Channel | Jun-151 | Jun-259 | 1565.80 | 4515.73 | 4503.00 | 0.8100 | 5.000 | 0.0320 | 165.41 | 817.99 | 0.20 | 5.03 | 2.58 | 0.52 | 0.00 | |
| 189 | Link-225 | Channel | Jun-259 | Jun-152 | 1289.32 | 4503.00 | 4492.00 | 0.8500 | 5.000 | 0.0320 | 205.37 | 837.95 | 0.25 | 5.82 | 2.70 | 0.54 | 0.00 | |
| 190 | O-200W | Orifice | SN-JR081 | J0086-0 | | 4536.80 | 4534.15 | | 1.750 | | 23.14 | | | | | | | |
| 191 | O-540W | Orifice | SN-PR026 | J42453 | | 4568.20 | 4559.93 | | 1.250 | | 14.83 | | | | | | | |
| 192 | O-610W | Orifice | SN-PR025 | J42992 | | 4573.00 | 4570.69 | | 1.000 | | 5.52 | | | | | | | |
| 193 | O-Comm | Orifice | SN-JR071 | J441759-0 | | 4509.40 | 4508.14 | | 1.250 | | 12.02 | | | | | | | |
| 194 | O-HHPark | Orifice | SN-HHPa | J441317-0 | | 4727.60 | 4717.08 | | 1.250 | | 9.22 | | | | | | | |
| 195 | O-Orch | Orifice | SN-JR084 | J431143 | | 4743.00 | 4739.37 | | 1.000 | | 6.01 | | | | | | | |
| 196 | O-Pepp | Orifice | SN-JR086 | J441117-0 | | 4618.80 | 4617.87 | | 1.000 | | 12.42 | | | | | | | |
| 197 | Orifice-27 | Orifice | SN-JR085 | J4245 | | 4685.00 | 4616.24 | | 0.330 | | 1.22 | | | | | | | |
| 198 | Orifice-29 | Orifice | Stor-67 | Jun-277 | | 4695.42 | 4685.00 | | 3.000 | | 99.24 | | | | | | | |
| 199 | O-SMPN | Orifice | SN-PR023 | Jun-241 | | 4628.60 | 4627.00 | | 1.670 | | 15.63 | | | | | | | |
| 200 | O-SMPS | Orifice | SN-PR022 | SN-PR023 | | 4628.60 | 4628.60 | | 1.667 | | 8.37 | | | | | | | |
| 201 | 5cfs | Outlet | Stor-45 | 203 | | 4700.00 | 4616.56 | | | | 5.00 | | | | | | | |
| 202 | OUT-JR010 | Outlet | SN-JR010 | Jun-261 | | 4586.00 | 4535.00 | | | | 38.00 | | | | | | | |
| 203 | OUT-JR020 | Outlet | SN-JR020 | Jun-260 | | 4517.00 | 4507.00 | | | | 40.00 | | | | | | | |
| 204 | OUT-JR032 | Outlet | SN-JR032 | Jun-150 | | 4660.00 | 4605.38 | | | | 8.00 | | | | | | | |
| 205 | OUT-JR050 | Outlet | SN-JR050 | Jun-258 | | 4620.00 | 4539.00 | | | | 9.00 | | | | | | | |
| 206 | OUT-JR062 | Outlet | SN-JR068 | JJR060.02-0 | | 4632.00 | 4611.44 | | | | 8.00 | | | | | | | |
| 207 | OUT-JR063 | Outlet | SN-JR063 | Jun-256 | | 4552.00 | 4546.00 | | | | 15.00 | | | | | | | |
| 208 | OUT-JR070 | Outlet | SN-JR070 | J4466-1 | | 4565.00 | 4520.95 | | | | 11.00 | | | | | | | |
| 209 | OUT-JR082 | Outlet | SN-JR079 | J0080-0 | | 4635.00 | 4614.73 | | | | 10.00 | | | | | | | |
| 210 | Outlet-101 | Outlet | Stor-46 | J0126-1 | | 5000.00 | 4629.13 | | | | 2.00 | | | | | | | |
| 211 | Outlet-102 | Outlet | Stor-57 | Jun-252 | | 4632.00 | 4529.00 | | | | 5.00 | | | | | | | |
| 212 | Outlet-105 | Outlet | SN-JR065a | Jun-251 | | 4690.00 | 4627.00 | | | | 5.00 | | | | | | | |
| 213 | Outlet-107 | Outlet | Stor-50 | J0054-1 | | 4570.00 | 4561.20 | | | | 3.00 | | | | | | | |
| 214 | Outlet-108 | Outlet | Stor-51 | Jun-291 | | 4542.00 | 4508.00 | | | | 4.00 | | | | | | | |
| 215 | Outlet-109 | Outlet | SN-PR021 | Jun-253 | | 4618.00 | 4618.00 | | | | 46.12 | | | | | | | |
| 216 | Outlet-111 | Outlet | Stor-53 | Jun-264 | | 4522.00 | 4522.00 | | | | 15.00 | | | | | | | |
| 217 | Outlet-112 | Outlet | Stor-54 | Jun-265 | | 4621.00 | 4618.00 | | | | 3.00 | | | | | | | |
| 218 | Outlet-114 | Outlet | Stor-56 | Jun-285 | | 4680.00 | 4627.10 | | | | 5.00 | | | | | | | |
| 219 | Outlet-115 | Outlet | Stor-58 | Jun-267 | | 4600.00 | 4597.00 | | | | 13.00 | | | | | | | |
| 220 | Outlet-117 | Outlet | SN-PR024 | Jun-148 | | 4573.00 | 4568.49 | | | | 4.00 | | | | | | | |
| 221 | Outlet-118 | Outlet | Stor-61 | Jun-269 | | 4498.00 | 4494.30 | | | | 13.00 | | | | | | | |
| 222 | Outlet-119 | Outlet | Stor-62 | JJR060.01-1 | | 4632.00 | 4561.00 | | | | 1.00 | | | | | | | |
| 223 | Outlet-120 | Outlet | Stor-63 | Jun-270 | | 4690.00 | 4629.23 | | | | 2.00 | | | | | | | |
| 224 | Outlet-121 | Outlet | Stor-64 | Jun-252 | | 4629.00 | 4529.00 | | | | 2.00 | | | | | | | |

## Link Summary

| SN | Element ID | Element Type | From (Inlet) Node | To (Outlet) Node | Length | Inlet Invert Elevation | Outlet Invert Elevation | Average Slope | Diameter or Height | Manning's Roughness | Peak Flow | Design Flow Capacity | Peak Flow/ Design Flow Ratio | Peak Flow Velocity | Peak Flow Depth | Peak Flow Depth/ Total Depth Ratio | Total Time Surcharged | Reported Condition |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | (ft) | (ft) | (ft) | (%) | (ft) | | (cfs) | (cfs) | | (ft/sec) | (ft) | | (min) | |
| 225 | Outlet-122 | Outlet | Stor-65 | Jun-285 | | 4660.00 | 4627.10 | | | | 4.00 | | | | | | | |
| 226 | Outlet-123 | Outlet | Stor-66 | J421185 | | 4831.00 | 4731.42 | | | | 1.00 | | | | | | | |
| 227 | Outlet-125 | Outlet | Stor-69 | Stor-44 | | 4740.00 | 4755.00 | | | | 12.00 | | | | | | | |
| 228 | Outlet-126 | Outlet | Stor-68 | Stor-44 | | 4740.00 | 4755.00 | | | | 3.00 | | | | | | | |
| 229 | Outlet-127 | Outlet | Stor-70 | Jun-216 | | 4542.00 | 4501.00 | | | | 3.00 | | | | | | | |
| 230 | Outlet-128 | Outlet | Stor-71 | Jun-291 | | 4542.00 | 4508.00 | | | | 2.00 | | | | | | | |
| 231 | Outlet-130 | Outlet | Stor-72 | 198 | | 4650.00 | 4606.66 | | | | 5.00 | | | | | | | |
| 232 | Outlet-131 | Outlet | Stor-59 | Jun-287 | | 4650.00 | 4624.00 | | | | 4.00 | | | | | | | |
| 233 | Outlet-132 | Outlet | Stor-73 | 201 | | 4660.00 | 4609.17 | | | | 6.00 | | | | | | | |
| 234 | Outlet-136 | Outlet | Stor-74 | JJR062.04-1 | | 4745.00 | 4697.75 | | | | 38.00 | | | | | | | |
| 235 | Outlet-137 | Outlet | Stor-75 | JJR062.04-1 | | 4745.00 | 4697.75 | | | | 13.00 | | | | | | | |
| 236 | Outlet-138 | Outlet | Stor-76 | 203 | | 4650.00 | 4616.56 | | | | 2.00 | | | | | | | |
| 237 | Outlet-139 | Outlet | Stor-77 | 198 | | 4650.00 | 4606.66 | | | | 1.00 | | | | | | | |
| 238 | Outlet-140 | Outlet | Stor-78 | Jun-292 | | 4620.00 | 4504.00 | | | | 7.00 | | | | | | | |
| 239 | Outlet-141 | Outlet | Stor-79 | J4267 | | 4565.00 | 4526.93 | | | | 10.00 | | | | | | | |
| 240 | Outlet-142 | Outlet | Stor-80 | J42451 | | 4580.00 | 4552.23 | | | | 4.00 | | | | | | | |
| 241 | Outlet-143 | Outlet | Stor-81 | J0050-0 | | 4590.00 | 4579.17 | | | | 18.00 | | | | | | | |
| 242 | Outlet-144 | Outlet | Stor-82 | Jun-265 | | 4650.00 | 4618.00 | | | | 2.00 | | | | | | | |
| 243 | Outlet-84 | Outlet | SN-JR082 | Jun-180 | | 4685.00 | 4664.65 | | | | 1.00 | | | | | | | |
| 244 | Outlet-86 | Outlet | Stor-57 | Jun-251 | | 4632.00 | 4627.00 | | | | 14.00 | | | | | | | |
| 245 | Outlet-90 | Outlet | SN-JR031 | J42554 | | 4554.00 | 4531.50 | | | | 12.00 | | | | | | | |
| 246 | Outlet-91 | Outlet | SN-JR035 | J42452 | | 4558.00 | 4557.88 | | | | 14.36 | | | | | | | |
| 247 | Outlet-92 | Outlet | SN-JR065a | Jun-196 | | 4690.00 | 4660.00 | | | | 5.00 | | | | | | | |
| 248 | Outlet-93 | Outlet | Stor-41 | Jun-247 | | 4620.00 | 4533.10 | | | | 9.00 | | | | | | | |
| 249 | Outlet-95 | Outlet | SN-JR083 | J0126-0 | | 4685.00 | 4632.19 | | | | 7.00 | | | | | | | |
| 250 | Outlet-96 | Outlet | SN-JR065 | JJR062.02-1 | | 4660.00 | 4648.89 | | | | 6.00 | | | | | | | |
| 251 | Outlet-97 | Outlet | Stor-43 | J42877 | | 4505.00 | 4500.54 | | | | 5.00 | | | | | | | |
| 252 | Outlet-98 | Outlet | Stor-44 | Jun-149 | | 4755.00 | 4738.27 | | | | 29.39 | | | | | | | |
| 253 | Outlet-99 | Outlet | SN-JR061 | Jun-185 | | 4632.00 | 4529.00 | | | | 3.00 | | | | | | | |
| 254 | OUT-PR020 | Outlet | SN-PR020 | Jun-290 | | 4720.00 | 4710.52 | | | | 18.00 | | | | | | | |
| 255 | OUT-PR030 | Outlet | SN-PR030 | Jun-159 | | 4710.00 | 4694.00 | | | | 8.00 | | | | | | | |
| 256 | OUT-PR050 | Outlet | SN-PR050 | Out-35 | | 4750.00 | 4719.00 | | | | 12.00 | | | | | | | |
| 257 | OUT-PR060 | Outlet | SN-PR060 | Jun-171 | | 5410.00 | 4730.00 | | | | 5.00 | | | | | | | |
| 258 | Weir-02 | Weir | SN-JR086 | Out-41 | | 4618.80 | 0.00 | | | | 0.00 | | | | | | | |

# FULL BUILD-OUT CONDITION - TICKVILLE
# 10-YEAR STORM

## Project Description

File Name ..... Saratoga Tickville Buildout_SD_v1.SPF

## Project Options

Flow Units ..... CFS
Elevation Type ..... Elevation
Hydrology Method ..... HEC-1
HEC-1 unit hydrograph method ..... SCS Dimensionless
HEC-1 loss method ..... SCS Curve Number
Link Routing Method ..... Hydrodynamic
Enable Overflow Ponding at Nodes ..... YES
Skip Steady State Analysis Time Periods ... NO

## Analysis Options

Start Analysis On ..... Jan 01, 2012 00:00:00
End Analysis On ..... Jan 01, 2012 16:00:00
Start Reporting On ..... Jan 01, 2012 00:00:00
Antecedent Dry Days ..... 0 days
Runoff (Dry Weather) Time Step ..... 0 01:00:00 days hh:mm:ss
Runoff (Wet Weather) Time Step ..... 0 00:05:00 days hh:mm:ss
Reporting Time Step ..... 0 00:05:00 days hh:mm:ss
Routing Time Step ..... 30 seconds

## Number of Elements

| | Qty |
|---|---|
| Rain Gages | 4 |
| Subbasins | 10 |
| Nodes | 33 |
| *Junctions* | 21 |
| *Outfalls* | 2 |
| *Flow Diversions* | 0 |
| *Inlets* | 0 |
| *Storage Nodes* | 10 |
| Links | 31 |
| *Channels* | 17 |
| *Pipes* | 4 |
| *Pumps* | 0 |
| *Orifices* | 0 |
| *Weirs* | 0 |
| *Outlets* | 10 |
| Pollutants | 0 |
| Land Uses | 0 |

## Rainfall Details

| SN | Rain Gage ID | Data Source | Data Source ID | Rainfall Type | Rain Units | State | County | Return Period (years) | Rainfall Depth (inches) | Rainfall Distribution |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 100-Year | Time Series | TS-100yr | Cumulative | inches | | | | 0.00 | |
| 2 | 10-Year | Time Series | TS-2yr | Cumulative | inches | | | | 0.00 | |
| 3 | 2-Year | Time Series | TS-2yr | Cumulative | inches | | | | 0.00 | |
| 4 | NOAA24hr | Time Series | NOAA24 | Cumulative | inches | | | | 0.00 | |

## Subbasin Summary

| SN | Subbasin ID | Area (ac) | Total Rainfall (in) | Total Runoff (in) | Total Runoff Volume (ac-in) | Peak Runoff (cfs) |
|---|---|---|---|---|---|---|
| 1 | JR010 | 427.25 | 0.64 | 0.39 | 165.34 | 146.18 |
| 2 | TG010 | 183.33 | 0.64 | 0.39 | 70.95 | 57.82 |
| 3 | TG020 | 1552.02 | 0.64 | 0.19 | 290.23 | 114.42 |
| 4 | TG030 | 38.99 | 0.64 | 0.33 | 12.79 | 18.66 |
| 5 | TG040 | 484.12 | 0.64 | 0.07 | 34.37 | 26.12 |
| 6 | TG060 | 40567.11 | 0.64 | 0.01 | 243.40 | 53.97 |
| 7 | TG070 | 2074.97 | 0.64 | 0.06 | 132.80 | 52.18 |
| 8 | TG070B | 200.68 | 0.64 | 0.32 | 64.62 | 73.57 |
| 9 | TG080 | 56.57 | 0.64 | 0.32 | 18.21 | 10.50 |
| 10 | UL152 | 83.50 | 0.64 | 0.39 | 32.31 | 25.51 |

## Node Summary

| SN | Element ID | Element Type | Invert Elevation (ft) | Ground/Rim (Max) Elevation (ft) | Initial Water Elevation (ft) | Surcharge Elevation (ft) | Ponded Area (ft²) | Peak Inflow (cfs) | Max HGL Elevation Attained (ft) | Max Surcharge Depth Attained (ft) | Min Freeboard Attained (ft) | Time of Peak Flooding Occurrence (days hh:mm) | Total Flooded Volume (ac-in) | Total Time Flooded (min) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | J0016-0 | Junction | 4535.00 | 4546.00 | 4546.00 | 4546.00 | 0.00 | 213.20 | 4537.67 | 0.00 | 8.33 | 0 00:00 | 0.00 | 0.00 |
| 2 | JTG010.02-0 | Junction | 4502.15 | 4513.18 | 0.00 | 4513.18 | 0.00 | 213.10 | 4505.24 | 0.00 | 7.94 | 0 00:00 | 0.00 | 0.00 |
| 3 | JTG010.03-1 | Junction | 4501.58 | 4509.72 | 0.00 | 4516.39 | 0.00 | 212.97 | 4504.18 | 0.00 | 7.40 | 0 00:00 | 0.00 | 0.00 |
| 4 | JTG010.04-0 | Junction | 4537.00 | 4546.00 | 4537.00 | 4550.00 | 0.00 | 214.98 | 4540.14 | 0.00 | 6.86 | 0 00:00 | 0.00 | 0.00 |
| 5 | JTG010.05-0 | Junction | 4591.30 | 4597.97 | 0.00 | 4604.64 | 0.00 | 139.37 | 4592.94 | 0.00 | 8.36 | 0 00:00 | 0.00 | 0.00 |
| 6 | JTG010.08-1 | Junction | 4669.46 | 4699.13 | 0.00 | 4699.80 | 0.00 | 43.15 | 4671.59 | 0.00 | 27.54 | 0 00:00 | 0.00 | 0.00 |
| 7 | JTG020.01-1 | Junction | 4652.00 | 4658.67 | 0.00 | 4665.34 | 0.00 | 89.63 | 4653.58 | 0.00 | 8.42 | 0 00:00 | 0.00 | 0.00 |
| 8 | JTG020.02-0 | Junction | 5929.34 | 5936.01 | 0.00 | 5942.68 | 0.00 | 0.00 | 5929.34 | 0.00 | 10.00 | 0 00:00 | 0.00 | 0.00 |
| 9 | JTG020.02-1 | Junction | 4708.14 | 4714.81 | 0.00 | 4721.48 | 0.00 | 39.00 | 4708.87 | 0.00 | 9.27 | 0 00:00 | 0.00 | 0.00 |
| 10 | JTG030.05-0 | Junction | 4693.33 | 4700.00 | 0.00 | 4706.67 | 0.00 | 8.26 | 4693.65 | 0.00 | 9.68 | 0 00:00 | 0.00 | 0.00 |
| 11 | JTG030.05-1 | Junction | 4610.80 | 4617.50 | 0.00 | 4624.10 | 0.00 | 99.40 | 4621.06 | 0.00 | 8.47 | 0 00:00 | 0.00 | 0.00 |
| 12 | JTG040.0-0 | Junction | 4960.00 | 4966.00 | 0.00 | 6.00 | 0.00 | 8.00 | 4960.22 | 0.00 | 9.78 | 0 00:00 | 0.00 | 0.00 |
| 13 | JTG070.01-1 | Junction | 4652.71 | 4659.38 | 0.00 | 4666.05 | 0.00 | 51.13 | 4654.30 | 0.00 | 8.41 | 0 00:00 | 0.00 | 0.00 |
| 14 | JTG070.02-1 | Junction | 4746.00 | 4752.00 | 0.00 | 4752.00 | 0.00 | 39.71 | 4746.74 | 0.00 | 9.26 | 0 00:00 | 0.00 | 0.00 |
| 15 | JTG070.03-1 | Junction | 5142.62 | 5149.29 | 0.00 | 5155.96 | 0.00 | 56.29 | 5143.52 | 0.00 | 9.10 | 0 00:00 | 0.00 | 0.00 |
| 16 | Jun-193 | Junction | 4664.00 | 4670.00 | 4664.00 | 4670.00 | 0.00 | 10.00 | 4664.31 | 0.00 | 9.69 | 0 00:00 | 0.00 | 0.00 |
| 17 | Jun-197 | Junction | 6952.33 | 6962.33 | 0.00 | 0.00 | 0.00 | 53.97 | 6953.01 | 0.00 | 9.32 | 0 00:00 | 0.00 | 0.00 |
| 18 | Jun-198 | Junction | 4545.00 | 4551.00 | 4545.00 | 4553.00 | 0.00 | 14.68 | 4545.64 | 0.00 | 9.36 | 0 00:00 | 0.00 | 0.00 |
| 19 | Jun-199 | Junction | 4655.00 | 4662.00 | 0.00 | 4665.00 | 0.00 | 20.90 | 4655.70 | 0.00 | 9.30 | 0 00:00 | 0.00 | 0.00 |
| 20 | Jun-200 | Junction | 4758.70 | 4764.70 | 0.10 | 4764.70 | 0.00 | 66.05 | 4761.93 | 0.00 | 6.77 | 0 00:00 | 0.00 | 0.00 |
| 21 | Jun-201 | Junction | 4758.00 | 4764.00 | 0.10 | 4764.00 | 0.00 | 39.70 | 4759.77 | 0.00 | 4.23 | 0 00:00 | 0.00 | 0.00 |
| 22 | JTG010.01-1 | Outfall | 4500.00 | | | | | 212.97 | 4502.49 | | | | | |
| 23 | Out-28 | Outfall | 4500.00 | | | | | 66.00 | 4500.00 | | | | | |
| 24 | SN-TG010 | Storage Node | 4563.00 | 4573.00 | 0.00 | | 0.00 | 57.81 | 4568.54 | | | | 0.00 | 0.00 |
| 25 | SN-TG030 | Storage Node | 4714.00 | 4724.00 | 0.00 | | 0.00 | 18.64 | 4718.27 | | | | 0.00 | 0.00 |
| 26 | SN-TG040 | Storage Node | 4980.00 | 4990.00 | 0.00 | | 0.00 | 26.11 | 4984.48 | | | | 0.00 | 0.00 |
| 27 | SN-TG070 | Storage Node | 5163.00 | 5173.00 | 0.00 | | 0.00 | 52.18 | 5163.00 | | | | 0.00 | 0.00 |
| 28 | Stor-41 | Storage Node | 5940.00 | 5960.00 | 0.00 | | 0.00 | 114.42 | 5947.62 | | | | 0.00 | 0.00 |
| 29 | Stor-42 | Storage Node | 4555.00 | 4561.00 | 0.00 | | 0.00 | 25.51 | 4558.98 | | | | 0.00 | 0.00 |
| 30 | Stor-43 | Storage Node | 4666.00 | 4690.00 | 0.00 | | 0.00 | 17.42 | 4666.01 | | | | 0.00 | 0.00 |
| 31 | Stor-44 | Storage Node | 4540.00 | 4560.00 | 0.00 | | 0.00 | 146.09 | 4547.62 | | | | 0.00 | 0.00 |
| 32 | Stor-45 | Storage Node | 4752.00 | 4772.00 | 0.00 | | 0.00 | 73.55 | 4757.95 | | | | 0.00 | 0.00 |
| 33 | Stor-46 | Storage Node | 4674.00 | 4680.00 | 0.00 | | 0.00 | 10.50 | 4678.65 | | | | 0.00 | 0.00 |

## Link Summary

| SN | Element ID | Element Type | From (Inlet) Node | To (Outlet) Node | Length | Inlet Invert Elevation | Outlet Invert Elevation | Average Slope | Diameter or Height | Manning's Roughness | Peak Flow | Design Flow Capacity | Peak Flow/ Design Flow Ratio | Peak Flow Velocity | Peak Flow Depth | Peak Flow Depth/ Total Depth Ratio | Total Time Surcharged | Reported Condition |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | (ft) | (ft) | (ft) | (%) | (ft) | | (cfs) | (cfs) | | (ft/sec) | (ft) | | (min) | |
| 1 | 0016 | Pipe | J0016-0 | JTG010.02-0 | 3728.94 | 4535.00 | 4502.15 | 0.8800 | 8.376 | 0.0130 | 213.10 | 967.61 | 0.22 | 12.71 | 2.88 | 0.34 | 0.00 | Calculated |
| 2 | 0161 | Pipe | JTG010.04-0 | J0016-0 | 332.15 | 4537.00 | 4535.00 | 0.6000 | 9.000 | 0.0130 | 213.20 | 968.92 | 0.22 | 11.99 | 2.91 | 0.32 | 0.00 | Calculated |
| 3 | Link-153 | Pipe | Jun-201 | JTG070.02-1 | 1145.83 | 4758.00 | 4746.00 | 1.0500 | 3.500 | 0.0130 | 39.71 | 102.96 | 0.39 | 12.81 | 1.25 | 0.36 | 0.00 | Calculated |
| 4 | Link-154 | Pipe | Jun-200 | Jun-201 | 649.51 | 4758.70 | 4758.00 | 0.1100 | 3.500 | 0.0130 | 39.70 | 33.03 | 1.20 | 5.40 | 2.50 | 0.71 | 0.00 | > CAPACITY |
| 5 | Link-141 | Channel | Jun-193 | JTG030.05-1 | 1933.55 | 4664.00 | 4619.53 | 2.3000 | 10.000 | 0.0320 | 10.00 | 6568.84 | 0.00 | 1.38 | 0.92 | 0.09 | 0.00 | |
| 6 | Link-145 | Channel | JTG020.01-1 | JTG030.05-1 | 4527.12 | 4652.00 | 4619.53 | 0.7200 | 10.000 | 0.0320 | 89.40 | 3668.29 | 0.02 | 4.47 | 1.54 | 0.15 | 0.00 | |
| 7 | Link-147 | Channel | Jun-197 | JTG010.08-1 | 77127.60 | 6952.33 | 4669.46 | 2.9600 | 10.000 | 0.0320 | 43.15 | 7451.93 | 0.01 | 2.98 | 1.29 | 0.13 | 0.00 | |
| 8 | Link-148 | Channel | Jun-198 | JTG010.04-0 | 1953.04 | 4545.00 | 4537.00 | 0.4100 | 10.000 | 0.0320 | 14.65 | 2772.19 | 0.01 | 0.66 | 1.82 | 0.18 | 0.00 | |
| 9 | Link-149 | Channel | Stor-43 | JTG010.08-1 | 1649.73 | 4666.00 | 4669.46 | -0.2100 | 10.000 | 0.0320 | 17.42 | 1983.65 | 0.01 | 1.36 | 1.07 | 0.11 | 0.00 | |
| 10 | TG010.01 | Channel | JTG010.03-1 | JTG010.01-1 | 222.25 | 4501.58 | 4500.00 | 0.7100 | 10.000 | 0.0320 | 212.97 | 3652.08 | 0.06 | 5.55 | 2.54 | 0.25 | 0.00 | |
| 11 | TG010.02 | Channel | JTG010.02-0 | JTG010.03-1 | 184.83 | 4502.15 | 4501.58 | 0.3100 | 10.000 | 0.0320 | 212.97 | 2405.38 | 0.09 | 4.78 | 2.84 | 0.28 | 0.00 | |
| 12 | TG010.04 | Channel | JTG010.05-0 | JTG010.04-0 | 3846.91 | 4591.30 | 4537.00 | 1.4100 | 10.000 | 0.0320 | 139.33 | 5146.08 | 0.03 | 4.76 | 2.36 | 0.24 | 0.00 | |
| 13 | TG010.07 | Channel | JTG020.01-1 | JTG070.01-1 | 320.00 | 4652.00 | 4652.71 | -0.2200 | 10.000 | 0.0320 | 50.63 | 2040.27 | 0.02 | 2.45 | 1.58 | 0.16 | 0.00 | |
| 14 | TG010.08 | Channel | JTG070.01-1 | Jun-199 | 705.67 | 4652.71 | 4655.00 | -0.3200 | 10.000 | 0.0320 | 15.20 | 2467.46 | 0.01 | 1.42 | 1.08 | 0.11 | 0.00 | |
| 15 | TG020.01 | Channel | JTG020.02-1 | JTG020.01-1 | 3032.22 | 4708.14 | 4652.00 | 1.8500 | 10.000 | 0.0320 | 39.00 | 5893.71 | 0.01 | 3.43 | 1.16 | 0.12 | 0.00 | |
| 16 | TG020.02 | Channel | JTG020.02-0 | JTG020.02-1 | 12794.68 | 5929.34 | 4708.14 | 9.5400 | 10.000 | 0.0320 | 0.00 | 13381.71 | 0.00 | 0.00 | 0.37 | 0.04 | 0.00 | |
| 17 | TG030.02 | Channel | JTG030.05-1 | JTG010.05-0 | 3085.88 | 4619.53 | 4591.30 | 0.9100 | 10.000 | 0.0320 | 99.37 | 4142.85 | 0.02 | 4.77 | 1.58 | 0.16 | 0.00 | |
| 18 | TG030.05 | Channel | JTG030.05-0 | Jun-193 | 2123.76 | 4693.33 | 4664.00 | 1.3800 | 10.000 | 0.0320 | 8.00 | 5090.22 | 0.00 | 2.42 | 0.31 | 0.03 | 0.00 | |
| 19 | TG040.01 | Channel | JTG040.0-0 | JTG030.05-0 | 5331.65 | 4959.53 | 4693.33 | 4.9900 | 10.000 | 0.0320 | 8.26 | 9687.00 | 0.00 | 4.07 | 0.26 | 0.03 | 0.00 | |
| 20 | TG070.01 | Channel | JTG070.02-1 | JTG070.01-1 | 5099.54 | 4735.62 | 4652.71 | 1.6300 | 10.000 | 0.0320 | 39.64 | 5858.48 | 0.01 | 2.81 | 1.16 | 0.12 | 0.00 | |
| 21 | TG070.02 | Channel | JTG070.03-1 | Jun-200 | 14667.21 | 5142.62 | 4735.62 | 2.7700 | 10.000 | 0.0320 | 66.05 | 7007.77 | 0.01 | 4.09 | 1.99 | 0.20 | 0.00 | |
| 22 | Outlet-94 | Outlet | Stor-41 | JTG020.02-1 | | 5940.00 | 4708.14 | | | | 39.00 | | | | | | | |
| 23 | Outlet-95 | Outlet | Stor-42 | Jun-198 | | 4555.00 | 4545.00 | | | | 14.68 | | | | | | | |
| 24 | Outlet-96 | Outlet | Stor-43 | Jun-199 | | 4666.00 | 4655.00 | | | | 20.90 | | | | | | | |
| 25 | Outlet-97 | Outlet | Stor-44 | JTG010.04-0 | | 4540.00 | 4537.00 | | | | 84.00 | | | | | | | |
| 26 | Outlet-98 | Outlet | Stor-45 | JTG070.01-1 | | 4752.00 | 4652.71 | | | | 4.00 | | | | | | | |
| 27 | Outlet-99 | Outlet | Stor-46 | Jun-193 | | 4674.00 | 4664.00 | | | | 1.00 | | | | | | | |
| 28 | OUT-TG010 | Outlet | SN-TG010 | Out-28 | | 4563.00 | 4500.00 | | | | 66.00 | | | | | | | |
| 29 | OUT-TG030 | Outlet | SN-TG030 | Jun-193 | | 4714.00 | 4664.00 | | | | 1.00 | | | | | | | |
| 30 | OUT-TG040 | Outlet | SN-TG040 | JTG040.0-0 | | 4980.00 | 4960.00 | | | | 8.00 | | | | | | | |
| 31 | OUT-TG070 | Outlet | SN-TG070 | JTG070.03-1 | | 5163.00 | 5142.62 | | | | 56.29 | | | | | | | |

# FULL BUILD-OUT CONDITION - TICKVILLE
# 100-YEAR STORM

## Project Description

File Name ..... Saratoga Tickville Buildout_SD_v1.SPF

## Project Options

Flow Units ..... CFS
Elevation Type ..... Elevation
Hydrology Method ..... HEC-1
HEC-1 unit hydrograph method ..... SCS Dimensionless
HEC-1 loss method ..... SCS Curve Number
Link Routing Method ..... Hydrodynamic
Enable Overflow Ponding at Nodes ..... YES
Skip Steady State Analysis Time Periods ... NO

## Analysis Options

Start Analysis On ..... Jan 01, 2012 00:00:00
End Analysis On ..... Jan 01, 2012 16:00:00
Start Reporting On ..... Jan 01, 2012 00:00:00
Antecedent Dry Days ..... 0 days
Runoff (Dry Weather) Time Step ..... 0 01:00:00 days hh:mm:ss
Runoff (Wet Weather) Time Step ..... 0 00:05:00 days hh:mm:ss
Reporting Time Step ..... 0 00:05:00 days hh:mm:ss
Routing Time Step ..... 30 seconds

## Number of Elements

| | Qty |
|---|---|
| Rain Gages | 4 |
| Subbasins | 10 |
| Nodes | 33 |
| *Junctions* | 21 |
| *Outfalls* | 2 |
| *Flow Diversions* | 0 |
| *Inlets* | 0 |
| *Storage Nodes* | 10 |
| Links | 31 |
| *Channels* | 17 |
| *Pipes* | 4 |
| *Pumps* | 0 |
| *Orifices* | 0 |
| *Weirs* | 0 |
| *Outlets* | 10 |
| Pollutants | 0 |
| Land Uses | 0 |

## Rainfall Details

| SN | Rain Gage ID | Data Source | Data Source ID | Rainfall Type | Rain Units | State | County | Return Period (years) | Rainfall Depth (inches) | Rainfall Distribution |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 100-Year | Time Series | TS-100yr | Cumulative | inches | | | | 0.00 | |
| 2 | 10-Year | Time Series | TS-2yr | Cumulative | inches | | | | 0.00 | |
| 3 | 2-Year | Time Series | TS-2yr | Cumulative | inches | | | | 0.00 | |
| 4 | NOAA24hr | Time Series | NOAA24 | Cumulative | inches | | | | 0.00 | |

## Subbasin Summary

| SN | Subbasin ID | Area (ac) | Total Rainfall (in) | Total Runoff (in) | Total Runoff Volume (ac-in) | Peak Runoff (cfs) |
|---|---|---|---|---|---|---|
| 1 | JR010 | 427.25 | 1.74 | 1.08 | 462.71 | 489.51 |
| 2 | TG010 | 183.33 | 1.74 | 1.05 | 192.50 | 190.47 |
| 3 | TG020 | 1552.02 | 1.74 | 0.56 | 861.37 | 389.59 |
| 4 | TG030 | 38.99 | 1.74 | 0.90 | 35.17 | 62.74 |
| 5 | TG040 | 484.12 | 1.74 | 0.28 | 135.07 | 107.67 |
| 6 | TG060 | 40567.11 | 1.74 | 0.12 | 4827.49 | 1026.88 |
| 7 | TG070 | 2074.97 | 1.74 | 0.24 | 495.92 | 211.95 |
| 8 | TG070B | 200.68 | 1.74 | 0.94 | 189.44 | 256.36 |
| 9 | TG080 | 56.57 | 1.74 | 0.89 | 50.06 | 34.28 |
| 10 | UL152 | 83.50 | 1.74 | 1.05 | 87.50 | 83.64 |

## Node Summary

| SN | Element ID | Element Type | Invert Elevation (ft) | Ground/Rim (Max) Elevation (ft) | Initial Water Elevation (ft) | Surcharge Elevation (ft) | Ponded Area (ft²) | Peak Inflow (cfs) | Max HGL Elevation Attained (ft) | Max Surcharge Depth Attained (ft) | Min Freeboard Attained (ft) | Time of Peak Flooding Occurrence (days hh:mm) | Total Flooded Volume (ac-in) | Total Time Flooded (min) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | J0016-0 | Junction | 4535.00 | 4546.00 | 4546.00 | 4546.00 | 0.00 | 690.02 | 4540.36 | 0.00 | 5.64 | 0 00:00 | 0.00 | 0.00 |
| 2 | JTG010.02-0 | Junction | 4502.15 | 4513.18 | 0.00 | 4513.18 | 0.00 | 690.02 | 4507.66 | 0.00 | 5.52 | 0 00:00 | 0.00 | 0.00 |
| 3 | JTG010.03-1 | Junction | 4501.58 | 4509.72 | 0.00 | 4516.39 | 0.00 | 690.02 | 4506.41 | 0.00 | 5.17 | 0 00:00 | 0.00 | 0.00 |
| 4 | JTG010.04-0 | Junction | 4537.00 | 4546.00 | 4537.00 | 4550.00 | 0.00 | 690.76 | 4543.44 | 0.00 | 3.56 | 0 00:00 | 0.00 | 0.00 |
| 5 | JTG010.05-0 | Junction | 4591.30 | 4597.97 | 0.00 | 4604.64 | 0.00 | 606.81 | 4594.90 | 0.00 | 6.40 | 0 00:00 | 0.00 | 0.00 |
| 6 | JTG010.08-1 | Junction | 4669.46 | 4699.13 | 0.00 | 4699.80 | 0.00 | 955.78 | 4681.20 | 0.00 | 17.93 | 0 00:00 | 0.00 | 0.00 |
| 7 | JTG020.01-1 | Junction | 4652.00 | 4658.67 | 0.00 | 4665.34 | 0.00 | 556.97 | 4656.16 | 0.00 | 5.84 | 0 00:00 | 0.00 | 0.00 |
| 8 | JTG020.02-0 | Junction | 5929.34 | 5936.01 | 0.00 | 5942.68 | 0.00 | 0.00 | 5929.34 | 0.00 | 10.00 | 0 00:00 | 0.00 | 0.00 |
| 9 | JTG020.02-1 | Junction | 4708.14 | 4714.81 | 0.00 | 4721.48 | 0.00 | 39.00 | 4708.87 | 0.00 | 9.27 | 0 00:00 | 0.00 | 0.00 |
| 10 | JTG030.05-0 | Junction | 4693.33 | 4700.00 | 0.00 | 4706.67 | 0.00 | 8.00 | 4693.65 | 0.00 | 9.68 | 0 00:00 | 0.00 | 0.00 |
| 11 | JTG030.05-1 | Junction | 4610.80 | 4617.50 | 0.00 | 4624.10 | 0.00 | 566.87 | 4623.50 | 0.00 | 6.03 | 0 00:00 | 0.00 | 0.00 |
| 12 | JTG040.0-0 | Junction | 4960.00 | 4966.00 | 0.00 | 6.00 | 0.00 | 8.00 | 4960.21 | 0.00 | 9.79 | 0 00:00 | 0.00 | 0.00 |
| 13 | JTG070.01-1 | Junction | 4652.71 | 4659.38 | 0.00 | 4666.05 | 0.00 | 518.23 | 4657.86 | 0.00 | 4.85 | 0 00:00 | 0.00 | 0.00 |
| 14 | JTG070.02-1 | Junction | 4746.00 | 4752.00 | 0.00 | 4752.00 | 0.00 | 85.12 | 4747.15 | 0.00 | 8.85 | 0 00:00 | 0.00 | 0.00 |
| 15 | JTG070.03-1 | Junction | 5142.62 | 5149.29 | 0.00 | 5155.96 | 0.00 | 164.00 | 5144.13 | 0.00 | 8.49 | 0 00:00 | 0.00 | 0.00 |
| 16 | Jun-193 | Junction | 4664.00 | 4670.00 | 4664.00 | 4670.00 | 0.00 | 10.00 | 4664.31 | 0.00 | 9.69 | 0 00:00 | 0.00 | 0.00 |
| 17 | Jun-197 | Junction | 6952.33 | 6962.33 | 0.00 | 0.00 | 0.00 | 1026.86 | 6956.09 | 0.00 | 6.24 | 0 00:00 | 0.00 | 0.00 |
| 18 | Jun-198 | Junction | 4545.00 | 4551.00 | 4545.00 | 4553.00 | 0.00 | 18.00 | 4545.72 | 0.00 | 9.28 | 0 00:00 | 0.00 | 0.00 |
| 19 | Jun-199 | Junction | 4655.00 | 4662.00 | 0.00 | 4665.00 | 0.00 | 445.41 | 4659.53 | 0.00 | 5.47 | 0 00:00 | 0.00 | 0.00 |
| 20 | Jun-200 | Junction | 4758.70 | 4764.70 | 0.10 | 4764.70 | 0.00 | 164.00 | 4766.72 | 0.00 | 1.98 | 0 00:00 | 0.00 | 0.00 |
| 21 | Jun-201 | Junction | 4758.00 | 4764.00 | 0.10 | 4764.00 | 0.00 | 85.12 | 4761.07 | 0.00 | 2.93 | 0 00:00 | 0.00 | 0.00 |
| 22 | JTG010.01-1 | Outfall | 4500.00 | | | | | 690.02 | 4504.56 | | | | | |
| 23 | Out-28 | Outfall | 4500.00 | | | | | 66.00 | 4500.00 | | | | | |
| 24 | SN-TG010 | Storage Node | 4563.00 | 4573.00 | 0.00 | | 0.00 | 190.43 | 4569.66 | | | | 0.00 | 0.00 |
| 25 | SN-TG030 | Storage Node | 4714.00 | 4724.00 | 0.00 | | 0.00 | 62.67 | 4719.92 | | | | 0.00 | 0.00 |
| 26 | SN-TG040 | Storage Node | 4980.00 | 4990.00 | 0.00 | | 0.00 | 107.65 | 4987.41 | | | | 0.00 | 0.00 |
| 27 | SN-TG070 | Storage Node | 5163.00 | 5173.00 | 0.00 | | 0.00 | 211.95 | 5169.56 | | | | 0.00 | 0.00 |
| 28 | Stor-41 | Storage Node | 5940.00 | 5960.00 | 0.00 | | 0.00 | 389.59 | 5955.31 | | | | 0.00 | 0.00 |
| 29 | Stor-42 | Storage Node | 4555.00 | 4561.00 | 0.00 | | 0.00 | 83.61 | 4560.91 | | | | 0.00 | 0.00 |
| 30 | Stor-43 | Storage Node | 4666.00 | 4690.00 | 0.00 | | 0.00 | 445.41 | 4666.10 | | | | 0.00 | 0.00 |
| 31 | Stor-44 | Storage Node | 4540.00 | 4560.00 | 0.00 | | 0.00 | 489.25 | 4549.94 | | | | 0.00 | 0.00 |
| 32 | Stor-45 | Storage Node | 4752.00 | 4772.00 | 0.00 | | 0.00 | 256.30 | 4762.09 | | | | 0.00 | 0.00 |
| 33 | Stor-46 | Storage Node | 4674.00 | 4690.00 | 0.00 | | 0.00 | 34.28 | 4680.65 | | | | 0.00 | 0.00 |

## Link Summary

| SN | Element ID | Element Type | From (Inlet) Node | To (Outlet) Node | Length | Inlet Invert Elevation | Outlet Invert Elevation | Average Slope | Diameter or Height | Manning's Roughness | Peak Flow | Design Flow Capacity | Peak Flow/ Design Flow Ratio | Peak Flow Velocity | Peak Flow Depth | Peak Flow Depth/ Total Depth Ratio | Total Time Surcharged | Reported Condition |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | (ft) | (ft) | (ft) | (%) | (ft) | | (cfs) | (cfs) | | (ft/sec) | (ft) | | (min) | |
| 1 | 0016 | Pipe | J0016-0 | JTG010.02-0 | 3728.94 | 4535.00 | 4502.15 | 0.8800 | 8.376 | 0.0130 | 690.02 | 967.61 | 0.71 | 18.23 | 5.44 | 0.65 | 0.00 | Calculated |
| 2 | 0161 | Pipe | JTG010.04-0 | J0016-0 | 332.15 | 4537.00 | 4535.00 | 0.6000 | 9.000 | 0.0130 | 690.02 | 968.92 | 0.71 | 15.61 | 5.90 | 0.66 | 0.00 | Calculated |
| 3 | Link-153 | Pipe | Jun-201 | JTG070.02-1 | 1145.83 | 4758.00 | 4746.00 | 1.0500 | 3.500 | 0.0130 | 85.12 | 102.96 | 0.83 | 14.18 | 2.11 | 0.60 | 0.00 | Calculated |
| 4 | Link-154 | Pipe | Jun-200 | Jun-201 | 649.51 | 4758.70 | 4758.00 | 0.1100 | 3.500 | 0.0130 | 85.12 | 33.03 | 2.58 | 9.08 | 3.29 | 0.94 | 0.00 | > CAPACITY |
| 5 | Link-141 | Channel | Jun-193 | JTG030.05-1 | 1933.55 | 4664.00 | 4619.53 | 2.3000 | 10.000 | 0.0320 | 10.00 | 6568.84 | 0.00 | 0.60 | 2.14 | 0.21 | 0.00 | |
| 6 | Link-145 | Channel | JTG020.01-1 | JTG030.05-1 | 4527.12 | 4652.00 | 4619.53 | 0.7200 | 10.000 | 0.0320 | 556.87 | 3668.29 | 0.15 | 7.56 | 4.06 | 0.41 | 0.00 | |
| 7 | Link-147 | Channel | Jun-197 | JTG010.08-1 | 77127.60 | 6952.33 | 4669.46 | 2.9600 | 10.000 | 0.0320 | 955.78 | 7451.93 | 0.13 | 6.46 | 6.87 | 0.69 | 0.00 | |
| 8 | Link-148 | Channel | Jun-198 | JTG010.04-0 | 1953.04 | 4545.00 | 4537.00 | 0.4100 | 10.000 | 0.0320 | 18.00 | 2772.19 | 0.01 | 0.49 | 3.23 | 0.32 | 0.00 | |
| 9 | Link-149 | Channel | Stor-43 | JTG010.08-1 | 1649.73 | 4666.00 | 4669.46 | -0.2100 | 12.000 | 0.0320 | 445.41 | 2993.62 | 0.15 | 3.45 | 5.92 | 0.49 | 0.00 | |
| 10 | TG010.01 | Channel | JTG010.03-1 | JTG010.01-1 | 222.25 | 4501.58 | 4500.00 | 0.7100 | 10.000 | 0.0320 | 690.02 | 3652.08 | 0.19 | 7.58 | 4.70 | 0.47 | 0.00 | |
| 11 | TG010.02 | Channel | JTG010.02-0 | JTG010.03-1 | 184.83 | 4502.15 | 4501.58 | 0.3100 | 10.000 | 0.0320 | 690.02 | 2405.38 | 0.29 | 6.56 | 5.17 | 0.52 | 0.00 | |
| 12 | TG010.04 | Channel | JTG010.05-0 | JTG010.04-0 | 3846.91 | 4591.30 | 4537.00 | 1.4100 | 10.000 | 0.0320 | 606.71 | 5146.08 | 0.12 | 6.29 | 5.02 | 0.50 | 0.00 | |
| 13 | TG010.07 | Channel | JTG020.01-1 | JTG070.01-1 | 320.00 | 4652.00 | 4652.71 | -0.2200 | 10.000 | 0.0320 | 517.97 | 2040.27 | 0.25 | 5.76 | 4.65 | 0.47 | 0.00 | |
| 14 | TG010.08 | Channel | JTG070.01-1 | Jun-199 | 705.67 | 4652.71 | 4655.00 | -0.3200 | 10.000 | 0.0320 | 445.41 | 2467.46 | 0.18 | 4.68 | 4.84 | 0.48 | 0.00 | |
| 15 | TG020.01 | Channel | JTG020.02-1 | JTG020.01-1 | 3032.22 | 4708.14 | 4652.00 | 1.8500 | 10.000 | 0.0320 | 39.00 | 5893.71 | 0.01 | 1.87 | 2.44 | 0.24 | 0.00 | |
| 16 | TG020.02 | Channel | JTG020.02-0 | JTG020.02-1 | 12794.68 | 5929.34 | 4708.14 | 9.5400 | 10.000 | 0.0320 | 0.00 | 13381.71 | 0.00 | 0.00 | 0.37 | 0.04 | 0.00 | |
| 17 | TG030.02 | Channel | JTG030.05-1 | JTG010.05-0 | 3085.88 | 4619.53 | 4591.30 | 0.9100 | 10.000 | 0.0320 | 566.81 | 4142.85 | 0.14 | 8.52 | 3.79 | 0.38 | 0.00 | |
| 18 | TG030.05 | Channel | JTG030.05-0 | Jun-193 | 2123.76 | 4693.33 | 4664.00 | 1.3800 | 10.000 | 0.0320 | 8.00 | 5090.22 | 0.00 | 2.42 | 0.31 | 0.03 | 0.00 | |
| 19 | TG040.01 | Channel | JTG040.0-0 | JTG030.05-0 | 5331.65 | 4959.53 | 4693.33 | 4.9900 | 10.000 | 0.0320 | 8.00 | 9687.00 | 0.00 | 2.87 | 0.26 | 0.03 | 0.00 | |
| 20 | TG070.01 | Channel | JTG070.02-1 | JTG070.01-1 | 5099.54 | 4735.62 | 4652.71 | 1.6300 | 10.000 | 0.0320 | 85.01 | 5858.48 | 0.01 | 2.18 | 3.09 | 0.31 | 0.00 | |
| 21 | TG070.02 | Channel | JTG070.03-1 | Jun-200 | 14667.21 | 5142.62 | 4735.62 | 2.7700 | 10.000 | 0.0320 | 164.00 | 7007.77 | 0.02 | 6.48 | 4.68 | 0.47 | 0.00 | |
| 22 | Outlet-94 | Outlet | Stor-41 | JTG020.02-1 | | 5940.00 | 4708.14 | | | | 39.00 | | | | | | | |
| 23 | Outlet-95 | Outlet | Stor-42 | Jun-198 | | 4555.00 | 4545.00 | | | | 18.00 | | | | | | | |
| 24 | Outlet-96 | Outlet | Stor-43 | Jun-199 | | 4666.00 | 4655.00 | | | | 445.41 | | | | | | | |
| 25 | Outlet-97 | Outlet | Stor-44 | JTG010.04-0 | | 4540.00 | 4537.00 | | | | 84.00 | | | | | | | |
| 26 | Outlet-98 | Outlet | Stor-45 | JTG070.01-1 | | 4752.00 | 4652.71 | | | | 4.00 | | | | | | | |
| 27 | Outlet-99 | Outlet | Stor-46 | Jun-193 | | 4674.00 | 4664.00 | | | | 1.00 | | | | | | | |
| 28 | OUT-TG010 | Outlet | SN-TG010 | Out-28 | | 4563.00 | 4500.00 | | | | 66.00 | | | | | | | |
| 29 | OUT-TG030 | Outlet | SN-TG030 | Jun-193 | | 4714.00 | 4664.00 | | | | 1.00 | | | | | | | |
| 30 | OUT-TG040 | Outlet | SN-TG040 | JTG040.0-0 | | 4980.00 | 4960.00 | | | | 8.00 | | | | | | | |
| 31 | OUT-TG070 | Outlet | SN-TG070 | JTG070.03-1 | | 5163.00 | 5142.62 | | | | 164.00 | | | | | | | |

# FULL BUILD-OUT CONDITION - SOUTH
# 10-YEAR STORM

## Project Description

File Name ..... Saratoga South Buildout_SD_v1.SPF

## Project Options

Flow Units ..... CFS
Elevation Type ..... Elevation
Hydrology Method ..... HEC-1
HEC-1 unit hydrograph method ..... SCS Dimensionless
HEC-1 loss method ..... SCS Curve Number
Link Routing Method ..... Hydrodynamic
Enable Overflow Ponding at Nodes ..... YES
Skip Steady State Analysis Time Periods ... NO

## Analysis Options

| | | |
|---|---|---|
| Start Analysis On ..... | Jan 01, 2012 | 00:00:00 |
| End Analysis On ..... | Jan 01, 2012 | 23:55:00 |
| Start Reporting On ..... | Jan 01, 2012 | 00:00:00 |
| Antecedent Dry Days ..... | 0 | days |
| Runoff (Dry Weather) Time Step ..... | 0 01:00:00 | days hh:mm:ss |
| Runoff (Wet Weather) Time Step ..... | 0 00:05:00 | days hh:mm:ss |
| Reporting Time Step ..... | 0 00:05:00 | days hh:mm:ss |
| Routing Time Step ..... | 30 | seconds |

## Number of Elements

| | Qty |
|---|---|
| Rain Gages ..... | 3 |
| Subbasins..... | 73 |
| Nodes..... | 324 |
| *Junctions* ..... | 266 |
| *Outfalls* ..... | 11 |
| *Flow Diversions* ..... | 0 |
| *Inlets* ..... | 0 |
| *Storage Nodes* ..... | 47 |
| Links..... | 319 |
| *Channels* ..... | 70 |
| *Pipes* ..... | 200 |
| *Pumps* ..... | 0 |
| *Orifices* ..... | 11 |
| *Weirs* ..... | 0 |
| *Outlets* ..... | 38 |
| Pollutants ..... | 0 |
| Land Uses ..... | 0 |

## Rainfall Details

| SN | Rain Gage ID | Data Source | Data Source ID | Rainfall Type | Rain Units | State | County | Return Period (years) | Rainfall Depth (inches) | Rainfall Distribution |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 100-Year | Time Series | TS-100yr | Cumulative | inches | | | | 0.00 | |
| 2 | 10-Year | Time Series | TS-10yr | Cumulative | inches | | | | 0.00 | |
| 3 | 2Yr | Time Series | TS-100yr | Cumulative | inches | | | | 0.00 | |

## Subbasin Summary

| SN | Subbasin ID | Area (ac) | Total Rainfall (in) | Total Runoff (in) | Total Runoff Volume (ac-in) | Peak Runoff (cfs) |
|---|---|---|---|---|---|---|
| 1 | Sub-16 | 31.04 | 0.98 | 0.27 | 8.22 | 12.73 |
| 2 | UDOT1 | 17.67 | 0.98 | 0.41 | 7.28 | 9.28 |
| 3 | UDOT2 | 18.76 | 0.98 | 0.86 | 16.10 | 22.75 |
| 4 | UDOT3 | 7.93 | 0.98 | 0.86 | 6.81 | 9.63 |
| 5 | UDOT4 | 45.00 | 0.98 | 0.86 | 38.61 | 54.59 |
| 6 | UDOT5 | 17.33 | 0.98 | 0.86 | 14.90 | 21.04 |
| 7 | UL010 | 358.46 | 0.98 | 0.47 | 168.83 | 227.02 |
| 8 | UL012 | 765.62 | 0.98 | 0.04 | 26.80 | 10.83 |
| 9 | UL020 | 470.76 | 0.98 | 0.59 | 276.80 | 348.45 |
| 10 | UL022 | 242.19 | 0.98 | 0.27 | 64.18 | 84.01 |
| 11 | UL024 | 933.42 | 0.98 | 0.01 | 5.60 | 3.72 |
| 12 | UL030 | 205.10 | 0.98 | 0.43 | 88.60 | 115.96 |
| 13 | UL031 | 123.79 | 0.98 | 0.27 | 32.81 | 46.25 |
| 14 | UL032 | 233.02 | 0.98 | 0.25 | 57.09 | 73.66 |
| 15 | UL033 | 88.85 | 0.98 | 0.04 | 3.11 | 1.86 |
| 16 | UL034 | 156.46 | 0.98 | 0.04 | 5.48 | 3.34 |
| 17 | UL035 | 586.06 | 0.98 | 0.00 | 0.00 | 0.00 |
| 18 | UL040 | 143.49 | 0.98 | 0.27 | 38.03 | 54.55 |
| 19 | UL041 | 67.25 | 0.98 | 0.27 | 17.82 | 25.57 |
| 20 | UL042 | 67.44 | 0.98 | 0.25 | 16.52 | 23.75 |
| 21 | UL043 | 157.01 | 0.98 | 0.25 | 38.47 | 54.31 |
| 22 | UL044 | 305.29 | 0.98 | 0.23 | 69.00 | 98.87 |
| 23 | UL045 | 422.26 | 0.98 | 0.00 | 0.42 | 0.65 |
| 24 | UL050 | 65.15 | 0.98 | 0.27 | 17.26 | 24.34 |
| 25 | UL060 | 78.53 | 0.98 | 0.32 | 25.44 | 35.86 |
| 26 | UL061 | 33.56 | 0.98 | 0.29 | 9.87 | 12.93 |
| 27 | UL062 | 54.26 | 0.98 | 0.31 | 17.04 | 24.93 |
| 28 | UL063 | 92.95 | 0.98 | 0.29 | 27.33 | 40.02 |
| 29 | UL064 | 191.89 | 0.98 | 0.27 | 50.85 | 72.95 |
| 30 | UL065 | 557.40 | 0.98 | 0.00 | 0.00 | 0.00 |
| 31 | UL066 | 262.96 | 0.98 | 0.00 | 0.79 | 0.77 |
| 32 | UL070A | 26.99 | 0.98 | 0.27 | 7.15 | 9.87 |
| 33 | UL070B | 56.32 | 0.98 | 0.27 | 14.92 | 20.58 |
| 34 | UL070C | 39.85 | 0.98 | 0.27 | 10.56 | 14.57 |
| 35 | UL080A | 61.41 | 0.98 | 0.27 | 16.27 | 20.75 |
| 36 | UL080B | 14.32 | 0.98 | 0.27 | 3.79 | 4.84 |
| 37 | UL080C | 22.82 | 0.98 | 0.27 | 6.05 | 7.72 |
| 38 | UL081 | 107.65 | 0.98 | 0.27 | 28.53 | 44.14 |
| 39 | UL082 | 84.13 | 0.98 | 0.33 | 28.10 | 40.77 |
| 40 | UL083 | 63.50 | 0.98 | 0.32 | 20.57 | 30.08 |
| 41 | UL084 | 562.59 | 0.98 | 0.00 | 0.00 | 0.00 |
| 42 | UL090 | 29.46 | 0.98 | 0.32 | 9.52 | 12.15 |
| 43 | UL100a | 30.14 | 0.98 | 0.27 | 7.99 | 11.46 |
| 44 | UL100b | 18.32 | 0.98 | 0.27 | 4.85 | 6.96 |
| 45 | UL100c | 30.63 | 0.98 | 0.27 | 8.12 | 10.47 |
| 46 | UL101 | 41.98 | 0.98 | 0.27 | 11.12 | 16.65 |
| 47 | UL102 | 85.78 | 0.98 | 0.29 | 25.22 | 36.94 |
| 48 | UL103 | 130.47 | 0.98 | 0.01 | 0.78 | 0.64 |
| 49 | UL110 | 75.22 | 0.98 | 0.27 | 19.93 | 26.79 |
| 50 | UL115 | 204.91 | 0.98 | 0.28 | 56.35 | 67.04 |
| 51 | UL120 | 153.99 | 0.98 | 0.32 | 49.89 | 70.32 |
| 52 | UL121 | 131.78 | 0.98 | 0.31 | 41.38 | 52.74 |
| 53 | UL124 | 295.07 | 0.98 | 0.25 | 72.29 | 86.20 |
| 54 | UL126 | 1502.76 | 0.98 | 0.00 | 0.00 | 0.00 |
| 55 | UL130 | 199.88 | 0.98 | 0.57 | 113.73 | 125.42 |
| 56 | UL132 | 106.78 | 0.98 | 0.32 | 34.60 | 44.09 |
| 57 | UL134 | 275.88 | 0.98 | 0.32 | 89.38 | 113.88 |
| 58 | UL136 | 740.74 | 0.98 | 0.01 | 4.44 | 2.64 |
| 59 | UL140 | 102.75 | 0.98 | 0.36 | 37.30 | 41.69 |
| 60 | UL142a | 29.17 | 0.98 | 0.27 | 7.73 | 9.96 |
| 61 | UL142b | 28.54 | 0.98 | 0.27 | 7.56 | 9.75 |
| 62 | UL144a | 35.02 | 0.98 | 0.27 | 9.28 | 16.22 |
| 63 | UL144b | 111.53 | 0.98 | 0.27 | 29.56 | 47.08 |
| 64 | UL144c | 41.60 | 0.98 | 0.27 | 11.02 | 19.27 |
| 65 | UL146 | 43.67 | 0.98 | 0.32 | 14.15 | 20.68 |
| 66 | UL148 | 301.52 | 0.98 | 0.01 | 1.81 | 1.28 |
| 67 | UL150 | 50.72 | 0.98 | 0.29 | 14.91 | 19.23 |
| 68 | UL152 | 407.67 | 0.98 | 0.59 | 239.71 | 270.34 |
| 69 | UL152B | 43.02 | 0.98 | 0.25 | 10.88 | 18.45 |
| 70 | UL212 | 110.34 | 0.98 | 0.27 | 29.24 | 42.45 |
| 71 | UL212B | 9.06 | 0.98 | 0.25 | 2.23 | 3.20 |
| 72 | UL213A | 6.59 | 0.98 | 0.25 | 1.67 | 1.04 |
| 73 | UL213B | 47.58 | 0.98 | 0.27 | 12.61 | 14.87 |

## Node Summary

| SN | Element ID | Element Type | Invert Elevation (ft) | Ground/Rim (Max) Elevation (ft) | Initial Water Elevation (ft) | Surcharge Elevation (ft) | Ponded Area (ft²) | Peak Inflow (cfs) | Max HGL Elevation Attained (ft) | Max Surcharge Depth Attained (ft) | Min Freeboard Attained (ft) | Time of Peak Flooding Occurrence (days hh:mm) | Total Flooded Volume (ac-in) | Total Time Flooded (min) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | J0004-0 | Junction | 4525.19 | 4530.79 | 0.00 | 4536.39 | 0.00 | 78.20 | 4527.05 | 0.00 | 3.74 | 0 00:00 | 0.00 | 0.00 |
| 2 | J0006-0 | Junction | 4578.80 | 4586.35 | 0.00 | 4586.35 | 0.00 | 78.42 | 4582.97 | 0.00 | 3.38 | 0 00:00 | 0.00 | 0.00 |
| 3 | J0012-1 | Junction | 4586.70 | 4592.86 | 0.00 | 4592.86 | 0.00 | 20.18 | 4587.76 | 0.00 | 5.10 | 0 00:00 | 0.00 | 0.00 |
| 4 | J0014-1 | Junction | 4721.70 | 4725.70 | 0.00 | 4732.37 | 0.00 | 0.00 | 4721.70 | 0.00 | 4.00 | 0 00:00 | 0.00 | 0.00 |
| 5 | J0131.0 | Junction | 4591.24 | 4594.79 | 0.00 | 4598.34 | 0.00 | 13.35 | 4592.95 | 0.00 | 1.84 | 0 00:00 | 0.00 | 0.00 |
| 6 | J42112 | Junction | 4599.43 | 4605.33 | 0.00 | 0.00 | 0.00 | 21.82 | 4605.33 | 0.00 | 0.00 | 0 02:23 | 9.08 | 126.00 |
| 7 | J42117 | Junction | 4597.20 | 4602.90 | 0.00 | 4608.60 | 0.00 | 19.18 | 4608.60 | 5.70 | 0.00 | 0 01:53 | 0.00 | 0.00 |
| 8 | J42118 | Junction | 4610.41 | 4615.21 | 0.00 | 0.00 | 0.00 | 21.82 | 4611.66 | 0.00 | 3.55 | 0 00:00 | 0.00 | 0.00 |
| 9 | J42154 | Junction | 4521.79 | 4530.29 | 0.00 | 4536.96 | 0.00 | 119.99 | 4523.43 | 0.00 | 6.86 | 0 00:00 | 0.00 | 0.00 |
| 10 | J42155 | Junction | 4525.14 | 4536.04 | 0.00 | 4542.71 | 0.00 | 119.99 | 4528.33 | 0.00 | 7.71 | 0 00:00 | 0.00 | 0.00 |
| 11 | J42156 | Junction | 4527.51 | 4540.26 | 0.00 | 4546.93 | 0.00 | 119.99 | 4530.91 | 0.00 | 9.35 | 0 00:00 | 0.00 | 0.00 |
| 12 | J42157 | Junction | 4512.22 | 4529.67 | 0.00 | 4536.34 | 0.00 | 138.03 | 4514.06 | 0.00 | 15.61 | 0 00:00 | 0.00 | 0.00 |
| 13 | J42175 | Junction | 4688.48 | 4696.88 | 0.00 | 4703.55 | 0.00 | 11.44 | 4689.70 | 0.00 | 7.18 | 0 00:00 | 0.00 | 0.00 |
| 14 | J42176 | Junction | 4691.51 | 4699.51 | 0.00 | 4706.18 | 0.00 | 11.45 | 4692.56 | 0.00 | 6.95 | 0 00:00 | 0.00 | 0.00 |
| 15 | J42177 | Junction | 4694.19 | 4701.99 | 0.00 | 4708.66 | 0.00 | 11.45 | 4695.07 | 0.00 | 6.92 | 0 00:00 | 0.00 | 0.00 |
| 16 | J42178 | Junction | 4703.44 | 4711.94 | 0.00 | 4718.61 | 0.00 | 11.46 | 4704.14 | 0.00 | 7.80 | 0 00:00 | 0.00 | 0.00 |
| 17 | J42180 | Junction | 4743.73 | 4755.03 | 0.00 | 4761.70 | 0.00 | 0.00 | 4743.73 | 0.00 | 11.30 | 0 00:00 | 0.00 | 0.00 |
| 18 | J42181 | Junction | 4730.23 | 4738.33 | 0.00 | 4745.00 | 0.00 | 0.00 | 4730.23 | 0.00 | 8.10 | 0 00:00 | 0.00 | 0.00 |
| 19 | J42223 | Junction | 4541.72 | 4547.72 | 0.00 | 4554.39 | 0.00 | 119.99 | 4543.40 | 0.00 | 4.32 | 0 00:00 | 0.00 | 0.00 |
| 20 | J4224 | Junction | 4534.11 | 4539.51 | 0.00 | 4544.91 | 0.00 | 41.61 | 4535.51 | 0.00 | 4.00 | 0 00:00 | 0.00 | 0.00 |
| 21 | J4225 | Junction | 4538.76 | 4543.31 | 0.00 | 4557.36 | 0.00 | 41.60 | 4540.63 | 0.00 | 2.68 | 0 00:00 | 0.00 | 0.00 |
| 22 | J4226 | Junction | 4542.66 | 4544.36 | 0.00 | 4559.06 | 0.00 | 41.60 | 4544.34 | 0.00 | 0.82 | 0 00:00 | 0.00 | 0.00 |
| 23 | J42264 | Junction | 4608.40 | 4617.30 | 0.00 | 4627.97 | 0.00 | 28.61 | 4609.79 | 0.00 | 7.51 | 0 00:00 | 0.00 | 0.00 |
| 24 | J42265 | Junction | 4616.61 | 4625.16 | 0.00 | 4631.83 | 0.00 | 18.21 | 4617.37 | 0.00 | 7.79 | 0 00:00 | 0.00 | 0.00 |
| 25 | J42266 | Junction | 4620.24 | 4630.84 | 0.00 | 4637.51 | 0.00 | 18.21 | 4621.26 | 0.00 | 9.58 | 0 00:00 | 0.00 | 0.00 |
| 26 | J42267 | Junction | 4622.52 | 4631.27 | 0.00 | 4639.94 | 0.00 | 18.21 | 4623.62 | 0.00 | 7.65 | 0 00:00 | 0.00 | 0.00 |
| 27 | J42268 | Junction | 4630.23 | 4638.98 | 0.00 | 4655.65 | 0.00 | 18.21 | 4631.25 | 0.00 | 7.73 | 0 00:00 | 0.00 | 0.00 |
| 28 | J42269 | Junction | 4633.51 | 4641.96 | 0.00 | 4660.63 | 0.00 | 18.21 | 4634.58 | 0.00 | 7.38 | 0 00:00 | 0.00 | 0.00 |
| 29 | J42270 | Junction | 4638.41 | 4646.21 | 0.00 | 4655.88 | 0.00 | 18.20 | 4639.42 | 0.00 | 6.79 | 0 00:00 | 0.00 | 0.00 |
| 30 | J42271 | Junction | 4646.69 | 4654.24 | 0.00 | 4661.79 | 0.00 | 18.20 | 4647.52 | 0.00 | 6.72 | 0 00:00 | 0.00 | 0.00 |
| 31 | J42273 | Junction | 4657.67 | 4666.52 | 0.00 | 4673.19 | 0.00 | 18.20 | 4658.51 | 0.00 | 8.01 | 0 00:00 | 0.00 | 0.00 |
| 32 | J42274 | Junction | 4666.87 | 4675.87 | 0.00 | 4682.54 | 0.00 | 18.20 | 4667.72 | 0.00 | 8.15 | 0 00:00 | 0.00 | 0.00 |
| 33 | J42275 | Junction | 4670.16 | 4678.16 | 0.00 | 4684.83 | 0.00 | 18.20 | 4671.05 | 0.00 | 7.11 | 0 00:00 | 0.00 | 0.00 |
| 34 | J42277 | Junction | 4672.54 | 4680.24 | 0.00 | 4686.91 | 0.00 | 18.19 | 4673.54 | 0.00 | 6.70 | 0 00:00 | 0.00 | 0.00 |
| 35 | J42278 | Junction | 4677.64 | 4685.14 | 0.00 | 4691.81 | 0.00 | 18.19 | 4678.56 | 0.00 | 6.58 | 0 00:00 | 0.00 | 0.00 |
| 36 | J42279 | Junction | 4682.15 | 4689.30 | 0.00 | 4695.97 | 0.00 | 11.42 | 4682.88 | 0.00 | 6.42 | 0 00:00 | 0.00 | 0.00 |
| 37 | J42280 | Junction | 4683.00 | 4690.90 | 0.00 | 4697.57 | 0.00 | 11.43 | 4684.07 | 0.00 | 6.83 | 0 00:00 | 0.00 | 0.00 |
| 38 | J42282 | Junction | 4687.53 | 4695.98 | 0.00 | 4702.65 | 0.00 | 11.44 | 4688.46 | 0.00 | 7.52 | 0 00:00 | 0.00 | 0.00 |
| 39 | J42284 | Junction | 4589.18 | 4593.08 | 0.00 | 4599.75 | 0.00 | 3.38 | 4589.94 | 0.00 | 3.14 | 0 00:00 | 0.00 | 0.00 |
| 40 | J42285 | Junction | 4588.82 | 4592.92 | 0.00 | 4599.59 | 0.00 | 3.38 | 4589.63 | 0.00 | 3.29 | 0 00:00 | 0.00 | 0.00 |
| 41 | J42286 | Junction | 4586.66 | 4598.71 | 0.00 | 4605.38 | 0.00 | 3.38 | 4587.53 | 0.00 | 11.18 | 0 00:00 | 0.00 | 0.00 |
| 42 | J42287 | Junction | 4587.63 | 4596.28 | 0.00 | 4602.95 | 0.00 | 3.38 | 4588.69 | 0.00 | 7.59 | 0 00:00 | 0.00 | 0.00 |
| 43 | J42302 | Junction | 4500.54 | 4509.44 | 0.00 | 4518.34 | 0.00 | 73.45 | 4502.72 | 0.00 | 6.72 | 0 00:00 | 0.00 | 0.00 |
| 44 | J42303 | Junction | 4704.40 | 4712.02 | 0.00 | 4719.02 | 0.00 | 12.83 | 4705.12 | 0.00 | 6.90 | 0 00:00 | 0.00 | 0.00 |
| 45 | J42304 | Junction | 4685.80 | 4691.87 | 0.00 | 4697.58 | 0.00 | 12.83 | 4686.62 | 0.00 | 5.25 | 0 00:00 | 0.00 | 0.00 |
| 46 | J42305 | Junction | 4681.10 | 4687.53 | 0.00 | 4693.88 | 0.00 | 12.83 | 4681.91 | 0.00 | 5.62 | 0 00:00 | 0.00 | 0.00 |
| 47 | J42306 | Junction | 4518.99 | 4525.39 | 0.00 | 4531.79 | 0.00 | 69.26 | 4520.40 | 0.00 | 4.99 | 0 00:00 | 0.00 | 0.00 |
| 48 | J42307 | Junction | 4545.94 | 4551.54 | 0.00 | 4557.14 | 0.00 | 106.44 | 4547.95 | 0.00 | 3.59 | 0 00:00 | 0.00 | 0.00 |
| 49 | J42308 | Junction | 4600.10 | 4608.82 | 0.00 | 4608.82 | 0.00 | 34.60 | 4601.51 | 0.00 | 7.31 | 0 00:00 | 0.00 | 0.00 |
| 50 | J42309 | Junction | 4614.55 | 4623.90 | 0.00 | 4623.90 | 0.00 | 26.54 | 4620.76 | 0.00 | 3.14 | 0 00:00 | 0.00 | 0.00 |
| 51 | J42310 | Junction | 4635.90 | 4643.89 | 0.00 | 4643.89 | 0.00 | 42.91 | 4643.89 | 0.00 | 0.00 | 0 23:44 | 0.16 | 1.00 |
| 52 | J42311 | Junction | 4652.14 | 4657.74 | 0.00 | 4663.34 | 0.00 | 57.52 | 4661.60 | 3.86 | 0.00 | 0 00:00 | 0.00 | 0.00 |
| 53 | J42312 | Junction | 4663.13 | 4669.03 | 0.00 | 4674.93 | 0.00 | 12.83 | 4665.56 | 0.00 | 3.47 | 0 00:00 | 0.00 | 0.00 |
| 54 | J42333 | Junction | 4610.34 | 4619.04 | 0.00 | 4627.74 | 0.00 | 38.09 | 4611.55 | 0.00 | 7.49 | 0 00:00 | 0.00 | 0.00 |
| 55 | J42334 | Junction | 4602.31 | 4610.41 | 0.00 | 4618.51 | 0.00 | 38.10 | 4603.91 | 0.00 | 6.50 | 0 00:00 | 0.00 | 0.00 |
| 56 | J42335 | Junction | 4601.32 | 4609.92 | 0.00 | 4618.52 | 0.00 | 38.10 | 4602.53 | 0.00 | 7.39 | 0 00:00 | 0.00 | 0.00 |
| 57 | J42336 | Junction | 4595.34 | 4600.34 | 0.00 | 4605.34 | 0.00 | 38.10 | 4596.65 | 0.00 | 3.69 | 0 00:00 | 0.00 | 0.00 |
| 58 | J42337 | Junction | 4619.90 | 4626.60 | 0.00 | 4633.30 | 0.00 | 38.09 | 4621.00 | 0.00 | 5.60 | 0 00:00 | 0.00 | 0.00 |
| 59 | J42340 | Junction | 4584.36 | 4588.76 | 0.00 | 4593.16 | 0.00 | 38.10 | 4585.59 | 0.00 | 3.17 | 0 00:00 | 0.00 | 0.00 |
| 60 | J42341 | Junction | 4590.49 | 4594.89 | 0.00 | 4599.29 | 0.00 | 38.10 | 4592.23 | 0.00 | 2.66 | 0 00:00 | 0.00 | 0.00 |
| 61 | J42346 | Junction | 4747.50 | 4757.40 | 0.00 | 4767.30 | 0.00 | 24.93 | 4748.31 | 0.00 | 9.09 | 0 00:00 | 0.00 | 0.00 |
| 62 | J42347 | Junction | 4706.85 | 4722.55 | 0.00 | 4738.25 | 0.00 | 24.92 | 4707.85 | 0.00 | 14.70 | 0 00:00 | 0.00 | 0.00 |
| 63 | J42348 | Junction | 4677.52 | 4683.92 | 0.00 | 4690.32 | 0.00 | 24.91 | 4678.46 | 0.00 | 5.46 | 0 00:00 | 0.00 | 0.00 |
| 64 | J42349 | Junction | 4670.58 | 4676.48 | 0.00 | 4682.38 | 0.00 | 24.90 | 4671.72 | 0.00 | 4.76 | 0 00:00 | 0.00 | 0.00 |
| 65 | J42350 | Junction | 4666.48 | 4674.28 | 0.00 | 4682.08 | 0.00 | 24.90 | 4667.31 | 0.00 | 6.97 | 0 00:00 | 0.00 | 0.00 |
| 66 | J42357 | Junction | 4670.80 | 4675.10 | 0.00 | 4679.40 | 0.00 | 13.35 | 4671.53 | 0.00 | 3.57 | 0 00:00 | 0.00 | 0.00 |
| 67 | J42358 | Junction | 4617.19 | 4622.39 | 0.00 | 4627.59 | 0.00 | 13.35 | 4617.84 | 0.00 | 4.55 | 0 00:00 | 0.00 | 0.00 |
| 68 | J42359 | Junction | 4589.72 | 4593.12 | 0.00 | 4596.52 | 0.00 | 13.36 | 4590.80 | 0.00 | 2.32 | 0 00:00 | 0.00 | 0.00 |
| 69 | J4236 | Junction | 4549.45 | 4553.85 | 0.00 | 4567.25 | 0.00 | 41.61 | 4550.81 | 0.00 | 3.04 | 0 00:00 | 0.00 | 0.00 |
| 70 | J42363 | Junction | 4588.99 | 4592.79 | 0.00 | 4596.59 | 0.00 | 36.26 | 4590.01 | 0.00 | 2.78 | 0 00:00 | 0.00 | 0.00 |
| 71 | J42364 | Junction | 4621.30 | 4627.60 | 0.00 | 4633.90 | 0.00 | 13.35 | 4622.18 | 0.00 | 5.42 | 0 00:00 | 0.00 | 0.00 |
| 72 | J42365 | Junction | 4812.97 | 4819.17 | 0.00 | 4825.37 | 0.00 | 0.00 | 4812.97 | 0.00 | 6.20 | 0 00:00 | 0.00 | 0.00 |
| 73 | J42366 | Junction | 4809.24 | 4818.24 | 0.00 | 4827.24 | 0.00 | 0.00 | 4809.24 | 0.00 | 9.00 | 0 00:00 | 0.00 | 0.00 |
| 74 | J42367 | Junction | 4786.31 | 4790.81 | 0.00 | 4795.31 | 0.00 | 0.00 | 4786.31 | 0.00 | 4.50 | 0 00:00 | 0.00 | 0.00 |
| 75 | J42368 | Junction | 4758.99 | 4764.89 | 0.00 | 4770.79 | 0.00 | 0.00 | 4758.99 | 0.00 | 5.90 | 0 00:00 | 0.00 | 0.00 |
| 76 | J4237 | Junction | 4580.68 | 4585.88 | 0.00 | 9166.56 | 0.00 | 41.38 | 4581.83 | 0.00 | 4.05 | 0 00:00 | 0.00 | 0.00 |
| 77 | J42370 | Junction | 4749.05 | 4760.55 | 0.00 | 4772.05 | 0.00 | 0.00 | 4749.05 | 0.00 | 11.50 | 0 00:00 | 0.00 | 0.00 |
| 78 | J42371 | Junction | 4745.20 | 4754.40 | 0.00 | 4763.60 | 0.00 | 0.00 | 4745.20 | 0.00 | 9.20 | 0 00:00 | 0.00 | 0.00 |
| 79 | J42393 | Junction | 4585.90 | 4597.47 | 0.00 | 4609.04 | 0.00 | 75.58 | 4587.72 | 0.00 | 9.75 | 0 00:00 | 0.00 | 0.00 |
| 80 | J42394 | Junction | 4586.59 | 4597.69 | 0.00 | 4608.79 | 0.00 | 75.58 | 4588.75 | 0.00 | 8.94 | 0 00:00 | 0.00 | 0.00 |
| 81 | J42402 | Junction | 4585.83 | 4595.68 | 0.00 | 4605.53 | 0.00 | 18.66 | 4588.76 | 0.00 | 6.92 | 0 00:00 | 0.00 | 0.00 |
| 82 | J42420 | Junction | 4713.66 | 4725.36 | 0.00 | 4737.06 | 0.00 | 24.93 | 4714.41 | 0.00 | 10.95 | 0 00:00 | 0.00 | 0.00 |
| 83 | J42436 | Junction | 4689.65 | 4696.32 | 0.00 | 4702.99 | 0.00 | 24.91 | 4693.31 | 0.00 | 3.01 | 0 00:00 | 0.00 | 0.00 |
| 84 | J42440 | Junction | 4744.06 | 4754.86 | 0.00 | 4765.66 | 0.00 | 0.00 | 4744.06 | 0.00 | 10.80 | 0 00:00 | 0.00 | 0.00 |
| 85 | J42442 | Junction | 4775.41 | 4781.21 | 0.00 | 4789.41 | 0.00 | 9.59 | 4776.05 | 0.00 | 5.16 | 0 00:00 | 0.00 | 0.00 |
| 86 | J42443 | Junction | 4713.69 | 4721.59 | 0.00 | 4728.49 | 0.00 | 12.35 | 4714.55 | 0.00 | 7.04 | 0 00:00 | 0.00 | 0.00 |
| 87 | J42458 | Junction | 4585.91 | 4597.91 | 0.00 | 4609.91 | 0.00 | 3.38 | 4586.86 | 0.00 | 11.05 | 0 00:00 | 0.00 | 0.00 |

## Node Summary

| SN | Element ID | Element Type | Invert Elevation (ft) | Ground/Rim (Max) Elevation (ft) | Initial Water Elevation (ft) | Surcharge Elevation (ft) | Ponded Area (ft²) | Peak Inflow (cfs) | Max HGL Elevation Attained (ft) | Max Surcharge Depth Attained (ft) | Min Freeboard Attained (ft) | Time of Peak Flooding Occurrence (days hh:mm) | Total Flooded Volume (ac-in) | Total Time Flooded (min) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 88 | J42459 | Junction | 4584.43 | 4595.48 | 0.00 | 4606.53 | 0.00 | 3.38 | 4585.18 | 0.00 | 10.30 | 0 00:00 | 0.00 | 0.00 |
| 89 | J42460 | Junction | 4582.66 | 4594.71 | 0.00 | 4606.76 | 0.00 | 3.38 | 4583.56 | 0.00 | 11.15 | 0 00:00 | 0.00 | 0.00 |
| 90 | J42461 | Junction | 4579.30 | 4590.20 | 0.00 | 4601.10 | 0.00 | 6.00 | 4580.17 | 0.00 | 10.03 | 0 00:00 | 0.00 | 0.00 |
| 91 | J42462 | Junction | 4581.42 | 4595.62 | 0.00 | 4609.82 | 0.00 | 6.00 | 4582.01 | 0.00 | 13.61 | 0 00:00 | 0.00 | 0.00 |
| 92 | J42494 | Junction | 4599.72 | 4608.72 | 0.00 | 4608.72 | 0.00 | 38.68 | 4601.42 | 0.00 | 7.30 | 0 00:00 | 0.00 | 0.00 |
| 93 | J42495 | Junction | 4603.33 | 4612.28 | 0.00 | 4621.23 | 0.00 | 38.48 | 4604.65 | 0.00 | 7.63 | 0 00:00 | 0.00 | 0.00 |
| 94 | J42496 | Junction | 4612.58 | 4622.18 | 0.00 | 4631.78 | 0.00 | 38.48 | 4613.65 | 0.00 | 8.53 | 0 00:00 | 0.00 | 0.00 |
| 95 | J42497 | Junction | 4632.36 | 4641.66 | 0.00 | 4650.96 | 0.00 | 38.48 | 4633.41 | 0.00 | 8.25 | 0 00:00 | 0.00 | 0.00 |
| 96 | J42498 | Junction | 4640.79 | 4649.84 | 0.00 | 4658.89 | 0.00 | 38.48 | 4641.91 | 0.00 | 7.93 | 0 00:00 | 0.00 | 0.00 |
| 97 | J42499 | Junction | 4650.81 | 4659.71 | 0.00 | 4668.61 | 0.00 | 38.48 | 4651.88 | 0.00 | 7.83 | 0 00:00 | 0.00 | 0.00 |
| 98 | J42500 | Junction | 4652.77 | 4662.12 | 0.00 | 4671.47 | 0.00 | 38.48 | 4654.19 | 0.00 | 7.93 | 0 00:00 | 0.00 | 0.00 |
| 99 | J42516 | Junction | 4653.02 | 4664.07 | 0.00 | 4675.12 | 0.00 | 38.48 | 4655.04 | 0.00 | 9.03 | 0 00:00 | 0.00 | 0.00 |
| 100 | J42517 | Junction | 4655.67 | 4665.42 | 0.00 | 4675.17 | 0.00 | 38.48 | 4656.95 | 0.00 | 8.47 | 0 00:00 | 0.00 | 0.00 |
| 101 | J42518 | Junction | 4656.94 | 4666.44 | 0.00 | 4675.94 | 0.00 | 38.48 | 4658.38 | 0.00 | 8.06 | 0 00:00 | 0.00 | 0.00 |
| 102 | J42519 | Junction | 4658.11 | 4667.16 | 0.00 | 4676.21 | 0.00 | 38.65 | 4659.54 | 0.00 | 7.62 | 0 00:00 | 0.00 | 0.00 |
| 103 | J42520 | Junction | 4669.61 | 4682.46 | 0.00 | 4695.31 | 0.00 | 39.47 | 4670.61 | 0.00 | 11.85 | 0 00:00 | 0.00 | 0.00 |
| 104 | J42521 | Junction | 4670.25 | 4680.20 | 0.00 | 4690.15 | 0.00 | 38.49 | 4672.13 | 0.00 | 8.07 | 0 00:00 | 0.00 | 0.00 |
| 105 | J42522 | Junction | 4670.60 | 4680.05 | 0.00 | 4689.50 | 0.00 | 38.48 | 4672.63 | 0.00 | 7.42 | 0 00:00 | 0.00 | 0.00 |
| 106 | J42523 | Junction | 4671.79 | 4678.79 | 0.00 | 4685.79 | 0.00 | 38.48 | 4673.75 | 0.00 | 5.04 | 0 00:00 | 0.00 | 0.00 |
| 107 | J42525 | Junction | 4672.21 | 4681.46 | 0.00 | 4690.71 | 0.00 | 38.48 | 4674.43 | 0.00 | 7.03 | 0 00:00 | 0.00 | 0.00 |
| 108 | J42526 | Junction | 4673.18 | 4681.88 | 0.00 | 4690.58 | 0.00 | 37.84 | 4675.31 | 0.00 | 6.57 | 0 00:00 | 0.00 | 0.00 |
| 109 | J42527 | Junction | 4674.07 | 4682.32 | 0.00 | 4690.57 | 0.00 | 37.84 | 4675.90 | 0.00 | 6.42 | 0 00:00 | 0.00 | 0.00 |
| 110 | J42528 | Junction | 4678.70 | 4688.75 | 0.00 | 4698.80 | 0.00 | 37.84 | 4679.84 | 0.00 | 8.91 | 0 00:00 | 0.00 | 0.00 |
| 111 | J42529 | Junction | 4680.22 | 4686.92 | 0.00 | 4693.62 | 0.00 | 37.84 | 4681.75 | 0.00 | 5.17 | 0 00:00 | 0.00 | 0.00 |
| 112 | J42530 | Junction | 4692.15 | 4706.20 | 0.00 | 4720.25 | 0.00 | 37.84 | 4693.21 | 0.00 | 12.99 | 0 00:00 | 0.00 | 0.00 |
| 113 | J42531 | Junction | 4693.08 | 4703.98 | 0.00 | 4714.88 | 0.00 | 37.84 | 4694.70 | 0.00 | 9.28 | 0 00:00 | 0.00 | 0.00 |
| 114 | J42532 | Junction | 4693.66 | 4702.01 | 0.00 | 4710.36 | 0.00 | 37.84 | 4695.59 | 0.00 | 6.42 | 0 00:00 | 0.00 | 0.00 |
| 115 | J42533 | Junction | 4695.91 | 4701.91 | 0.00 | 4707.91 | 0.00 | 37.84 | 4697.26 | 0.00 | 4.65 | 0 00:00 | 0.00 | 0.00 |
| 116 | J42538 | Junction | 4595.69 | 4610.69 | 0.00 | 4625.69 | 0.00 | 71.06 | 4597.10 | 0.00 | 13.59 | 0 00:00 | 0.00 | 0.00 |
| 117 | J42540 | Junction | 4597.65 | 4612.65 | 0.00 | 4627.65 | 0.00 | 38.68 | 4599.04 | 0.00 | 13.61 | 0 00:00 | 0.00 | 0.00 |
| 118 | J42722 | Junction | 4586.25 | 4594.25 | 0.00 | 4602.25 | 0.00 | 85.39 | 4587.80 | 0.00 | 6.45 | 0 00:00 | 0.00 | 0.00 |
| 119 | J42745 | Junction | 4755.35 | 4761.10 | 0.00 | 4766.85 | 0.00 | 16.25 | 4756.33 | 0.00 | 4.77 | 0 00:00 | 0.00 | 0.00 |
| 120 | J42746 | Junction | 4758.90 | 4764.40 | 0.00 | 4769.90 | 0.00 | 16.24 | 4759.73 | 0.00 | 4.67 | 0 00:00 | 0.00 | 0.00 |
| 121 | J42747 | Junction | 4704.88 | 4709.53 | 0.00 | 4714.18 | 0.00 | 16.16 | 4706.03 | 0.00 | 3.50 | 0 00:00 | 0.00 | 0.00 |
| 122 | J42748 | Junction | 4703.71 | 4709.86 | 0.00 | 4716.01 | 0.00 | 16.16 | 4704.75 | 0.00 | 5.11 | 0 00:00 | 0.00 | 0.00 |
| 123 | J42788 | Junction | 4596.35 | 4603.40 | 0.00 | 4610.45 | 0.00 | 0.65 | 4598.58 | 0.00 | 4.82 | 0 00:00 | 0.00 | 0.00 |
| 124 | J42808 | Junction | 4594.84 | 4601.49 | 0.00 | 4608.34 | 0.00 | 13.61 | 4598.58 | 0.00 | 2.91 | 0 00:00 | 0.00 | 0.00 |
| 125 | J42809 | Junction | 4594.91 | 4601.61 | 0.00 | 4608.31 | 0.00 | 14.84 | 4598.58 | 0.00 | 3.03 | 0 00:00 | 0.00 | 0.00 |
| 126 | J42810 | Junction | 4595.00 | 4600.90 | 4596.00 | 4606.80 | 0.00 | 16.24 | 4598.58 | 0.00 | 2.32 | 0 00:00 | 0.00 | 0.00 |
| 127 | J42811 | Junction | 4595.04 | 4600.54 | 0.00 | 4606.04 | 0.00 | 16.90 | 4598.58 | 0.00 | 1.96 | 0 00:00 | 0.00 | 0.00 |
| 128 | J42812 | Junction | 4595.09 | 4601.24 | 0.00 | 4607.39 | 0.00 | 17.26 | 4598.58 | 0.00 | 2.66 | 0 00:00 | 0.00 | 0.00 |
| 129 | J42813 | Junction | 4595.72 | 4601.42 | 0.00 | 4607.12 | 0.00 | 9.96 | 4598.58 | 0.00 | 2.84 | 0 00:00 | 0.00 | 0.00 |
| 130 | J42814 | Junction | 4595.42 | 4600.92 | 0.00 | 4606.42 | 0.00 | 18.77 | 4598.58 | 0.00 | 2.34 | 0 00:00 | 0.00 | 0.00 |
| 131 | J42815 | Junction | 4595.33 | 4601.43 | 0.00 | 4607.53 | 0.00 | 18.09 | 4598.58 | 0.00 | 2.85 | 0 00:00 | 0.00 | 0.00 |
| 132 | J42816 | Junction | 4595.25 | 4601.25 | 0.00 | 4607.25 | 0.00 | 17.68 | 4598.58 | 0.00 | 2.67 | 0 00:00 | 0.00 | 0.00 |
| 133 | J42821 | Junction | 4619.88 | 4624.58 | 0.00 | 0.00 | 0.00 | 21.82 | 4621.02 | 0.00 | 3.56 | 0 00:00 | 0.00 | 0.00 |
| 134 | J42824 | Junction | 4645.94 | 4654.69 | 0.00 | 5000.00 | 0.00 | 60.70 | 4651.11 | 0.00 | 3.58 | 0 00:00 | 0.00 | 0.00 |
| 135 | J42833 | Junction | 4716.01 | 4720.71 | 0.00 | 4725.41 | 0.00 | 16.17 | 4716.72 | 0.00 | 3.99 | 0 00:00 | 0.00 | 0.00 |
| 136 | J42834 | Junction | 4723.25 | 4729.80 | 0.00 | 4736.35 | 0.00 | 16.16 | 4724.11 | 0.00 | 5.69 | 0 00:00 | 0.00 | 0.00 |
| 137 | J42835 | Junction | 4742.72 | 4749.37 | 0.00 | 4756.02 | 0.00 | 16.25 | 4743.50 | 0.00 | 5.87 | 0 00:00 | 0.00 | 0.00 |
| 138 | J42836 | Junction | 4753.59 | 4759.29 | 0.00 | 4764.99 | 0.00 | 16.26 | 4754.47 | 0.00 | 4.82 | 0 00:00 | 0.00 | 0.00 |
| 139 | J42853 | Junction | 4666.81 | 4672.06 | 0.00 | 5000.00 | 0.00 | 60.70 | 4681.53 | 9.47 | 0.00 | 0 00:00 | 0.00 | 0.00 |
| 140 | J42854 | Junction | 4651.03 | 4657.83 | 0.00 | 5000.00 | 0.00 | 60.70 | 4658.92 | 1.09 | 0.00 | 0 00:00 | 0.00 | 0.00 |
| 141 | J42855 | Junction | 4668.88 | 4674.28 | 0.00 | 5000.00 | 0.00 | 16.38 | 4685.93 | 11.65 | 0.00 | 0 00:00 | 0.00 | 0.00 |
| 142 | J42856 | Junction | 4669.95 | 4674.45 | 0.00 | 5000.00 | 0.00 | 16.38 | 4685.99 | 11.54 | 0.00 | 0 00:00 | 0.00 | 0.00 |
| 143 | J42857 | Junction | 4678.77 | 4683.37 | 0.00 | 4787.97 | 0.00 | 16.38 | 4681.00 | 0.00 | 2.37 | 0 00:00 | 0.00 | 0.00 |
| 144 | J42858 | Junction | 4696.01 | 4701.26 | 0.00 | 4706.51 | 0.00 | 16.17 | 4696.77 | 0.00 | 4.49 | 0 00:00 | 0.00 | 0.00 |
| 145 | J42859 | Junction | 4700.55 | 4707.90 | 0.00 | 4715.25 | 0.00 | 16.17 | 4701.46 | 0.00 | 6.44 | 0 00:00 | 0.00 | 0.00 |
| 146 | J42885 | Junction | 4616.20 | 4626.17 | 0.00 | 0.00 | 0.00 | 21.82 | 4617.37 | 0.00 | 8.80 | 0 00:00 | 0.00 | 0.00 |
| 147 | J441024-0 | Junction | 4572.78 | 4586.00 | 4575.50 | 4587.00 | 0.00 | 37.99 | 4574.83 | 0.00 | 11.17 | 0 00:00 | 0.00 | 0.00 |
| 148 | J441024-1 | Junction | 4572.60 | 4585.23 | 0.00 | 4587.23 | 0.00 | 43.40 | 4574.40 | 0.00 | 10.83 | 0 00:00 | 0.00 | 0.00 |
| 149 | J441032-1 | Junction | 4592.84 | 4599.09 | 0.00 | 4605.34 | 0.00 | 3.38 | 4593.25 | 0.00 | 5.84 | 0 00:00 | 0.00 | 0.00 |
| 150 | J441557-0 | Junction | 4693.78 | 4701.38 | 0.00 | 4708.98 | 0.00 | 37.84 | 4695.92 | 0.00 | 5.46 | 0 00:00 | 0.00 | 0.00 |
| 151 | J441560-0 | Junction | 4704.00 | 4710.00 | 0.00 | 4713.57 | 0.00 | 105.89 | 4706.84 | 0.00 | 12.16 | 0 00:00 | 0.00 | 0.00 |
| 152 | J441565-1 | Junction | 4693.98 | 4708.08 | 0.00 | 4722.18 | 0.00 | 37.84 | 4696.49 | 0.00 | 11.59 | 0 00:00 | 0.00 | 0.00 |
| 153 | J441657-0 | Junction | 4638.41 | 4643.98 | 0.00 | 4647.00 | 0.00 | 79.17 | 4640.69 | 0.00 | 3.29 | 0 00:00 | 0.00 | 0.00 |
| 154 | J441660-0 | Junction | 4645.74 | 4654.22 | 0.00 | 4660.89 | 0.00 | 60.72 | 4647.88 | 0.00 | 6.34 | 0 00:00 | 0.00 | 0.00 |
| 155 | J441673-1 | Junction | 4723.25 | 4729.80 | 0.00 | 4736.35 | 0.00 | 16.16 | 4724.65 | 0.00 | 5.15 | 0 00:00 | 0.00 | 0.00 |
| 156 | J441823.0 | Junction | 4636.38 | 4643.08 | 0.00 | 4649.78 | 0.00 | 13.35 | 4637.13 | 0.00 | 5.95 | 0 00:00 | 0.00 | 0.00 |
| 157 | J44269-1 | Junction | 4721.40 | 4727.07 | 0.00 | 4733.74 | 0.00 | 0.00 | 4721.40 | 0.00 | 10.00 | 0 00:00 | 0.00 | 0.00 |
| 158 | J44279-1 | Junction | 4589.18 | 4592.62 | 0.00 | 4599.29 | 0.00 | 3.38 | 4590.09 | 0.00 | 2.53 | 0 00:00 | 0.00 | 0.00 |
| 159 | J4429-0 | Junction | 4621.41 | 4632.89 | 0.00 | 4632.89 | 0.00 | 21.82 | 4622.77 | 0.00 | 10.12 | 0 00:00 | 0.00 | 0.00 |
| 160 | J44488-1 | Junction | 4592.40 | 4597.30 | 0.00 | 4602.20 | 0.00 | 38.10 | 4593.89 | 0.00 | 3.41 | 0 00:00 | 0.00 | 0.00 |
| 161 | J44563-1 | Junction | 4588.62 | 4592.48 | 0.00 | 4599.15 | 0.00 | 3.38 | 4589.52 | 0.00 | 2.96 | 0 00:00 | 0.00 | 0.00 |
| 162 | J44598-1 | Junction | 4658.85 | 4664.25 | 0.00 | 4659.65 | 0.00 | 24.90 | 4660.05 | 0.00 | 4.20 | 0 00:00 | 0.00 | 0.00 |
| 163 | J44599-0 | Junction | 4647.46 | 4658.96 | 0.00 | 4670.46 | 0.00 | 12.09 | 4648.66 | 0.00 | 10.30 | 0 00:00 | 0.00 | 0.00 |
| 164 | J44612-0 | Junction | 4634.84 | 4641.34 | 0.00 | 4641.84 | 0.00 | 24.31 | 4636.76 | 0.00 | 4.58 | 0 00:00 | 0.00 | 0.00 |
| 165 | J44681.0 | Junction | 4591.92 | 4596.82 | 0.00 | 4601.72 | 0.00 | 18.66 | 4592.66 | 0.00 | 4.16 | 0 00:00 | 0.00 | 0.00 |
| 166 | JUL010.04-0 | Junction | 4614.13 | 4620.80 | 0.00 | 4627.47 | 0.00 | 194.51 | 4615.59 | 0.00 | 8.54 | 0 00:00 | 0.00 | 0.00 |
| 167 | JUL010.04-1 | Junction | 4495.70 | 4502.37 | 0.00 | 4509.04 | 0.00 | 190.68 | 4497.98 | 0.00 | 7.72 | 0 00:00 | 0.00 | 0.00 |
| 168 | JUL010.08-0 | Junction | 4675.67 | 4682.34 | 0.00 | 4689.01 | 0.00 | 196.69 | 4677.06 | 0.00 | 8.61 | 0 00:00 | 0.00 | 0.00 |
| 169 | JUL010.10-0 | Junction | 5849.45 | 5856.12 | 0.00 | 5862.79 | 0.00 | 10.82 | 5849.67 | 0.00 | 9.78 | 0 00:00 | 0.00 | 0.00 |
| 170 | JUL010.10-1 | Junction | 4812.10 | 4818.77 | 0.00 | 4825.44 | 0.00 | 227.01 | 4813.47 | 0.00 | 8.63 | 0 00:00 | 0.00 | 0.00 |
| 171 | JUL020.02-0 | Junction | 4865.89 | 4872.56 | 0.00 | 4879.23 | 0.00 | 136.14 | 4866.95 | 0.00 | 8.94 | 0 00:00 | 0.00 | 0.00 |
| 172 | JUL020.06-0 | Junction | 5072.86 | 5079.53 | 0.00 | 5086.20 | 0.00 | 44.64 | 5073.39 | 0.00 | 9.47 | 0 00:00 | 0.00 | 0.00 |
| 173 | JUL020.10-0 | Junction | 5162.24 | 5168.91 | 0.00 | 5175.58 | 0.00 | 44.36 | 5162.81 | 0.00 | 9.43 | 0 00:00 | 0.00 | 0.00 |
| 174 | JUL020.12-0 | Junction | 5346.59 | 5353.26 | 0.00 | 5359.93 | 0.00 | 0.00 | 5346.59 | 0.00 | 10.00 | 0 00:00 | 0.00 | 0.00 |

## Node Summary

| SN | Element ID | Element Type | Invert Elevation (ft) | Ground/Rim (Max) Elevation (ft) | Initial Water Elevation (ft) | Surcharge Elevation (ft) | Ponded Area (ft²) | Peak Inflow (cfs) | Max HGL Elevation Attained (ft) | Max Surcharge Depth Attained (ft) | Min Freeboard Attained (ft) | Time of Peak Flooding Occurrence (days hh:mm) | Total Flooded Volume (ac-in) | Total Time Flooded (min) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 175 | JUL030.02-0 | Junction | 4580.07 | 4586.74 | 0.00 | 4593.41 | 0.00 | 105.32 | 4581.09 | 0.00 | 8.98 | 0 00:00 | 0.00 | 0.00 |
| 176 | JUL030.04-0 | Junction | 4587.21 | 4593.88 | 0.00 | 4600.55 | 0.00 | 105.32 | 4588.20 | 0.00 | 9.01 | 0 00:00 | 0.00 | 0.00 |
| 177 | JUL030.08-1 | Junction | 4618.14 | 4624.81 | 0.00 | 4631.48 | 0.00 | 105.33 | 4619.18 | 0.00 | 8.96 | 0 00:00 | 0.00 | 0.00 |
| 178 | JUL030.12-1 | Junction | 4623.65 | 4630.32 | 0.00 | 4636.99 | 0.00 | 105.66 | 4624.79 | 0.00 | 8.86 | 0 00:00 | 0.00 | 0.00 |
| 179 | JUL030.14-0 | Junction | 5067.12 | 5073.79 | 0.00 | 5080.46 | 0.00 | 44.36 | 5067.65 | 0.00 | 9.47 | 0 00:00 | 0.00 | 0.00 |
| 180 | JUL030.14-1 | Junction | 4769.44 | 4776.11 | 0.00 | 4782.78 | 0.00 | 44.04 | 4769.99 | 0.00 | 9.45 | 0 00:00 | 0.00 | 0.00 |
| 181 | JUL030.16-0 | Junction | 5222.41 | 5229.08 | 0.00 | 5235.75 | 0.00 | 3.34 | 5222.51 | 0.00 | 9.90 | 0 00:00 | 0.00 | 0.00 |
| 182 | JUL031.06-1 | Junction | 4887.75 | 4894.42 | 0.00 | 4901.09 | 0.00 | 62.05 | 4888.42 | 0.00 | 9.33 | 0 00:00 | 0.00 | 0.00 |
| 183 | JUL031.10-0 | Junction | 6622.71 | 6629.38 | 0.00 | 6636.05 | 0.00 | 0.00 | 6622.71 | 0.00 | 10.00 | 0 00:00 | 0.00 | 0.00 |
| 184 | JUL031.10-1 | Junction | 5457.22 | 5463.89 | 0.00 | 5470.56 | 0.00 | 21.37 | 5457.52 | 0.00 | 9.70 | 0 00:00 | 0.00 | 0.00 |
| 185 | JUL033.02-0 | Junction | 5974.93 | 5981.60 | 0.00 | 5988.27 | 0.00 | 1.86 | 5974.99 | 0.00 | 9.94 | 0 00:00 | 0.00 | 0.00 |
| 186 | JUL033.02-1 | Junction | 5352.23 | 5358.90 | 0.00 | 5365.57 | 0.00 | 1.90 | 5352.29 | 0.00 | 9.94 | 0 00:00 | 0.00 | 0.00 |
| 187 | JUL034.02-0 | Junction | 5708.23 | 5714.90 | 0.00 | 5721.57 | 0.00 | 3.34 | 5708.31 | 0.00 | 9.92 | 0 00:00 | 0.00 | 0.00 |
| 188 | JUL040.06-0 | Junction | 5281.46 | 5288.13 | 0.00 | 5294.80 | 0.00 | 11.50 | 5281.65 | 0.00 | 9.81 | 0 00:00 | 0.00 | 0.00 |
| 189 | JUL041.02-1 | Junction | 4627.15 | 4637.63 | 0.00 | 4644.30 | 0.00 | 38.19 | 4628.30 | 0.00 | 9.33 | 0 00:00 | 0.00 | 0.00 |
| 190 | JUL041.04-0 | Junction | 5183.21 | 5189.88 | 0.00 | 5196.55 | 0.00 | 0.00 | 5183.21 | 0.00 | 10.00 | 0 00:00 | 0.00 | 0.00 |
| 191 | JUL041.04-1 | Junction | 4741.62 | 4748.29 | 0.00 | 4748.29 | 0.00 | 38.38 | 4742.14 | 0.00 | 9.48 | 0 00:00 | 0.00 | 0.00 |
| 192 | JUL045.02-0 | Junction | 6540.33 | 6547.00 | 0.00 | 6553.67 | 0.00 | 0.65 | 6540.36 | 0.00 | 9.97 | 0 00:00 | 0.00 | 0.00 |
| 193 | JUL065.02-0 | Junction | 6574.33 | 6581.00 | 0.00 | 6587.67 | 0.00 | 0.00 | 6574.33 | 0.00 | 10.00 | 0 00:00 | 0.00 | 0.00 |
| 194 | JUL066.02-0 | Junction | 6216.13 | 6222.80 | 0.00 | 6229.47 | 0.00 | 0.77 | 6216.16 | 0.00 | 9.97 | 0 00:00 | 0.00 | 0.00 |
| 195 | JUL070.02-0 | Junction | 4581.13 | 4587.80 | 0.00 | 4594.47 | 0.00 | 75.58 | 4581.88 | 0.00 | 9.25 | 0 00:00 | 0.00 | 0.00 |
| 196 | JUL070.04-0 | Junction | 4647.09 | 4655.74 | 0.00 | 4662.41 | 0.00 | 63.70 | 4647.78 | 0.00 | 9.31 | 0 00:00 | 0.00 | 0.00 |
| 197 | JUL070.04-1 | Junction | 4590.98 | 4604.49 | 0.00 | 4611.16 | 0.00 | 63.31 | 4592.32 | 0.00 | 12.17 | 0 00:00 | 0.00 | 0.00 |
| 198 | JUL070.06-0 | Junction | 4659.93 | 4666.60 | 0.00 | 4673.27 | 0.00 | 51.24 | 4660.57 | 0.00 | 9.36 | 0 00:00 | 0.00 | 0.00 |
| 199 | JUL070.10-0 | Junction | 5083.29 | 5089.96 | 0.00 | 5096.63 | 0.00 | 34.49 | 5083.70 | 0.00 | 9.59 | 0 00:00 | 0.00 | 0.00 |
| 200 | JUL070.10-1 | Junction | 4779.12 | 4812.06 | 0.00 | 4818.73 | 0.00 | 42.63 | 4779.63 | 0.00 | 32.43 | 0 00:00 | 0.00 | 0.00 |
| 201 | JUL070.12-0 | Junction | 5214.49 | 5221.16 | 0.00 | 5227.83 | 0.00 | 34.50 | 5214.91 | 0.00 | 9.58 | 0 00:00 | 0.00 | 0.00 |
| 202 | JUL070.14-0 | Junction | 5261.14 | 5267.81 | 0.00 | 5274.48 | 0.00 | 0.00 | 5261.14 | 0.00 | 10.00 | 0 00:00 | 0.00 | 0.00 |
| 203 | JUL080.02-0 | Junction | 4572.00 | 4585.13 | 0.00 | 4591.80 | 0.00 | 56.79 | 4572.72 | 0.00 | 12.41 | 0 00:00 | 0.00 | 0.00 |
| 204 | JUL080.04-0 | Junction | 4595.90 | 4602.57 | 0.00 | 4603.24 | 0.00 | 27.86 | 4596.17 | 0.00 | 9.73 | 0 00:00 | 0.00 | 0.00 |
| 205 | JUL080.04-1 | Junction | 4634.00 | 4642.69 | 0.00 | 4643.36 | 0.00 | 24.31 | 4634.43 | 0.00 | 8.26 | 0 00:00 | 0.00 | 0.00 |
| 206 | JUL080.06-0 | Junction | 4635.30 | 4642.00 | 0.00 | 4642.31 | 0.00 | 12.35 | 4636.76 | 0.00 | 5.24 | 0 00:00 | 0.00 | 0.00 |
| 207 | JUL080.06-1 | Junction | 4695.88 | 4702.55 | 0.00 | 4709.22 | 0.00 | 12.35 | 4696.15 | 0.00 | 6.40 | 0 00:00 | 0.00 | 0.00 |
| 208 | JUL080.08-0 | Junction | 4696.80 | 4703.47 | 0.00 | 4704.14 | 0.00 | 12.35 | 4697.61 | 0.00 | 5.86 | 0 00:00 | 0.00 | 0.00 |
| 209 | JUL080.08-1 | Junction | 4711.67 | 4718.34 | 0.00 | 4728.90 | 0.00 | 12.35 | 4711.92 | 0.00 | 6.42 | 0 00:00 | 0.00 | 0.00 |
| 210 | JUL080.10-0 | Junction | 4770.94 | 4777.61 | 0.00 | 4784.28 | 0.00 | 9.59 | 4771.15 | 0.00 | 6.46 | 0 00:00 | 0.00 | 0.00 |
| 211 | JUL080.10-1 | Junction | 4717.35 | 4724.02 | 0.00 | 4729.69 | 0.00 | 12.36 | 4718.68 | 0.00 | 5.34 | 0 00:00 | 0.00 | 0.00 |
| 212 | JUL080.12-0 | Junction | 4776.51 | 4783.18 | 0.00 | 4789.85 | 0.00 | 9.59 | 4778.21 | 0.00 | 4.97 | 0 00:00 | 0.00 | 0.00 |
| 213 | JUL080.12-1 | Junction | 4878.08 | 4884.75 | 0.00 | 4891.42 | 0.00 | 7.60 | 4878.27 | 0.00 | 9.81 | 0 00:00 | 0.00 | 0.00 |
| 214 | JUL080.14-0 | Junction | 5014.70 | 5021.37 | 0.00 | 5028.04 | 0.00 | 3.00 | 5014.80 | 0.00 | 9.90 | 0 00:00 | 0.00 | 0.00 |
| 215 | JUL080.16-0 | Junction | 5227.63 | 5234.30 | 0.00 | 5240.97 | 0.00 | 3.00 | 5227.73 | 0.00 | 9.90 | 0 00:00 | 0.00 | 0.00 |
| 216 | JUL084.02-0 | Junction | 6213.33 | 6220.00 | 0.00 | 6226.67 | 0.00 | 0.00 | 6213.33 | 0.00 | 10.00 | 0 00:00 | 0.00 | 0.00 |
| 217 | JUL100.02-1 | Junction | 4850.00 | 4860.00 | 0.00 | 4853.00 | 0.00 | 2.00 | 4850.72 | 0.00 | 9.28 | 0 00:00 | 0.00 | 0.00 |
| 218 | JUL100.04-0 | Junction | 5012.74 | 5019.41 | 0.00 | 5026.08 | 0.00 | 4.62 | 5012.87 | 0.00 | 9.87 | 0 00:00 | 0.00 | 0.00 |
| 219 | JUL100.06-0 | Junction | 5193.10 | 5199.77 | 0.00 | 5206.44 | 0.00 | 0.64 | 5193.14 | 0.00 | 9.96 | 0 00:00 | 0.00 | 0.00 |
| 220 | JUL120.02-0 | Junction | 4505.93 | 4512.60 | 0.00 | 4519.27 | 0.00 | 134.70 | 4507.43 | 0.00 | 8.50 | 0 00:00 | 0.00 | 0.00 |
| 221 | JUL120.04-0 | Junction | 4541.49 | 4548.16 | 0.00 | 4554.83 | 0.00 | 135.08 | 4542.77 | 0.00 | 8.72 | 0 00:00 | 0.00 | 0.00 |
| 222 | JUL120.04-1 | Junction | 4506.91 | 4513.58 | 0.00 | 4520.25 | 0.00 | 134.70 | 4511.10 | 0.00 | 10.63 | 0 00:00 | 0.00 | 0.00 |
| 223 | JUL120.06-0 | Junction | 4574.18 | 4580.85 | 0.00 | 4587.52 | 0.00 | 137.49 | 4575.50 | 0.00 | 8.68 | 0 00:00 | 0.00 | 0.00 |
| 224 | JUL120.06-1 | Junction | 4541.09 | 4547.76 | 0.00 | 4554.43 | 0.00 | 136.73 | 4543.37 | 0.00 | 7.72 | 0 00:00 | 0.00 | 0.00 |
| 225 | JUL121.02-0 | Junction | 4704.50 | 4710.00 | 0.00 | 4712.11 | 0.00 | 115.08 | 4706.96 | 0.00 | 12.54 | 0 00:00 | 0.00 | 0.00 |
| 226 | JUL121.04-0 | Junction | 5110.19 | 5116.86 | 0.00 | 5123.53 | 0.00 | 0.00 | 5110.19 | 0.00 | 10.00 | 0 00:00 | 0.00 | 0.00 |
| 227 | JUL121.07-0 | Junction | 5108.32 | 5114.99 | 0.00 | 5121.66 | 0.00 | 0.00 | 5108.32 | 0.00 | 10.00 | 0 00:00 | 0.00 | 0.00 |
| 228 | JUL121.07-1 | Junction | 5027.00 | 5033.67 | 0.00 | 5040.34 | 0.00 | 0.00 | 5027.00 | 0.00 | 10.00 | 0 00:00 | 0.00 | 0.00 |
| 229 | JUL126.02-0 | Junction | 6714.13 | 6720.80 | 0.00 | 6727.47 | 0.00 | 0.00 | 6714.13 | 0.00 | 15.87 | 0 00:00 | 0.00 | 0.00 |
| 230 | JUL130.02-0 | Junction | 4566.45 | 4573.12 | 0.00 | 4579.79 | 0.00 | 62.76 | 4567.26 | 0.00 | 9.19 | 0 00:00 | 0.00 | 0.00 |
| 231 | JUL130.02-1 | Junction | 4505.04 | 4511.71 | 0.00 | 4518.38 | 0.00 | 62.76 | 4505.89 | 0.00 | 9.15 | 0 00:00 | 0.00 | 0.00 |
| 232 | JUL130.04-0 | Junction | 4581.26 | 4587.93 | 0.00 | 4594.60 | 0.00 | 62.78 | 4582.38 | 0.00 | 8.88 | 0 00:00 | 0.00 | 0.00 |
| 233 | JUL130.04-1 | Junction | 4567.91 | 4574.58 | 0.00 | 4581.25 | 0.00 | 62.78 | 4570.06 | 0.00 | 7.85 | 0 00:00 | 0.00 | 0.00 |
| 234 | JUL130.06-0 | Junction | 4590.00 | 4603.44 | 0.00 | 4610.11 | 0.00 | 62.32 | 4590.76 | 0.00 | 12.68 | 0 00:00 | 0.00 | 0.00 |
| 235 | JUL130.06-1 | Junction | 4582.55 | 4589.22 | 0.00 | 4595.89 | 0.00 | 62.78 | 4584.22 | 0.00 | 8.33 | 0 00:00 | 0.00 | 0.00 |
| 236 | JUL130.08-0 | Junction | 4592.42 | 4604.78 | 0.00 | 4611.45 | 0.00 | 62.33 | 4594.09 | 0.00 | 10.69 | 0 00:00 | 0.00 | 0.00 |
| 237 | JUL130.08-1 | Junction | 4594.64 | 4602.65 | 0.00 | 4609.32 | 0.00 | 38.39 | 4598.58 | 0.00 | 4.07 | 0 00:00 | 0.00 | 0.00 |
| 238 | JUL132.02-1 | Junction | 4760.63 | 4767.30 | 0.00 | 4773.97 | 0.00 | 16.22 | 4761.72 | 0.00 | 5.58 | 0 00:00 | 0.00 | 0.00 |
| 239 | JUL152.02-0 | Junction | 4545.80 | 4550.50 | 0.01 | 4565.23 | 0.00 | 59.01 | 4548.57 | 0.00 | 1.93 | 0 00:00 | 0.00 | 0.00 |
| 240 | JUL152.02-1 | Junction | 4542.50 | 4548.50 | 0.01 | 4562.66 | 0.00 | 59.02 | 4545.84 | 0.00 | 2.66 | 0 00:00 | 0.00 | 0.00 |
| 241 | JUL152.04-1 | Junction | 4546.00 | 4550.20 | 0.01 | 4550.20 | 0.00 | 59.01 | 4549.12 | 0.00 | 1.08 | 0 00:00 | 0.00 | 0.00 |
| 242 | Jun-131 | Junction | 4559.02 | 4563.45 | 0.00 | 0.00 | 0.00 | 28.83 | 4560.26 | 0.00 | 3.19 | 0 00:00 | 0.00 | 0.00 |
| 243 | Jun-192 | Junction | 4732.10 | 4745.71 | 0.00 | 474.71 | 0.00 | 12.83 | 4732.85 | 0.00 | 12.86 | 0 00:00 | 0.00 | 0.00 |
| 244 | Jun-194 | Junction | 4704.00 | 6.00 | 0.00 | 0.00 | 0.00 | 16.00 | 4704.81 | 0.00 | 1.19 | 0 00:00 | 0.00 | 0.00 |
| 245 | Jun-195 | Junction | 5000.00 | 5010.00 | 0.00 | 5012.00 | 0.00 | 3.85 | 5000.12 | 0.00 | 9.88 | 0 00:00 | 0.00 | 0.00 |
| 246 | Jun-204 | Junction | 5010.00 | 5020.00 | 0.00 | 5021.00 | 0.00 | 1.28 | 5010.09 | 0.00 | 9.91 | 0 00:00 | 0.00 | 0.00 |
| 247 | Jun-206 | Junction | 4795.00 | 4805.00 | 4796.00 | 4807.00 | 0.00 | 28.65 | 4795.40 | 0.00 | 9.60 | 0 00:00 | 0.00 | 0.00 |
| 248 | Jun-208 | Junction | 4880.00 | 4887.00 | 4881.00 | 4898.00 | 0.00 | 66.03 | 4888.66 | 0.00 | 9.34 | 0 00:00 | 0.00 | 0.00 |
| 249 | Jun-210 | Junction | 4635.00 | 4642.09 | 0.00 | 4644.00 | 0.00 | 28.63 | 4635.87 | 0.00 | 6.22 | 0 00:00 | 0.00 | 0.00 |
| 250 | Jun-211 | Junction | 4646.72 | 4658.00 | 0.00 | 4650.00 | 0.00 | 28.65 | 4647.85 | 0.00 | 10.15 | 0 00:00 | 0.00 | 0.00 |
| 251 | Jun-212 | Junction | 4636.03 | 4646.00 | 0.00 | 4649.00 | 0.00 | 10.40 | 4636.68 | 0.00 | 9.32 | 0 00:00 | 0.00 | 0.00 |
| 252 | Jun-214 | Junction | 4825.00 | 4835.00 | 0.00 | 5000.00 | 0.00 | 4.00 | 4825.37 | 0.00 | 9.63 | 0 00:00 | 0.00 | 0.00 |
| 253 | Jun-216 | Junction | 4579.44 | 4590.84 | 0.00 | 4592.00 | 0.00 | 10.84 | 4580.75 | 0.00 | 10.09 | 0 00:00 | 0.00 | 0.00 |
| 254 | Jun-217 | Junction | 4678.00 | 4685.00 | 0.00 | 4700.00 | 0.00 | 23.59 | 4678.80 | 0.00 | 6.20 | 0 00:00 | 0.00 | 0.00 |
| 255 | Jun-218 | Junction | 4580.35 | 4590.35 | 0.00 | 4599.00 | 0.00 | 10.84 | 4581.75 | 0.00 | 8.60 | 0 00:00 | 0.00 | 0.00 |
| 256 | Jun-219 | Junction | 4849.00 | 4855.00 | 4849.00 | 4862.00 | 0.00 | 9.59 | 4849.21 | 0.00 | 9.79 | 0 00:00 | 0.00 | 0.00 |
| 257 | Jun-220 | Junction | 4642.00 | 4648.00 | 4642.00 | 4648.00 | 0.00 | 31.05 | 4643.18 | 0.00 | 4.82 | 0 00:00 | 0.00 | 0.00 |
| 258 | Jun-221 | Junction | 4597.20 | 4602.90 | 0.00 | 4608.60 | 0.00 | 0.39 | 4598.58 | 0.00 | 4.32 | 0 00:00 | 0.00 | 0.00 |
| 259 | Jun-222 | Junction | 4559.00 | 4565.00 | 0.01 | 4565.00 | 0.00 | 59.06 | 4560.66 | 0.00 | 4.34 | 0 00:00 | 0.00 | 0.00 |
| 260 | Jun-223 | Junction | 4617.45 | 4623.45 | 0.10 | 4623.45 | 0.00 | 59.00 | 4619.25 | 0.00 | 4.20 | 0 00:00 | 0.00 | 0.00 |
| 261 | Jun-224 | Junction | 4542.28 | 4546.90 | 0.00 | 4550.90 | 0.00 | 12.73 | 4543.03 | 0.00 | 3.87 | 0 00:00 | 0.00 | 0.00 |

## Node Summary

| SN | Element ID | Element Type | Invert Elevation (ft) | Ground/Rim (Max) Elevation (ft) | Initial Water Elevation (ft) | Surcharge Elevation (ft) | Ponded Area (ft²) | Peak Inflow (cfs) | Max HGL Elevation Attained (ft) | Max Surcharge Depth Attained (ft) | Min Freeboard Attained (ft) | Time of Peak Flooding Occurrence (days hh:mm) | Total Flooded Volume (ac-in) | Total Time Flooded (min) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 262 | Jun-225 | Junction | 4507.59 | 4511.74 | 0.00 | 4511.74 | 0.00 | 12.61 | 4511.74 | 0.00 | 0.00 | 0 01:56 | 0.00 | 0.00 |
| 263 | Jun-226 | Junction | 4504.95 | 4509.00 | 0.00 | 4509.00 | 0.00 | 12.65 | 4505.75 | 0.00 | 3.25 | 0 00:00 | 0.00 | 0.00 |
| 264 | Jun-228 | Junction | 4527.09 | 4531.00 | 0.00 | 4540.00 | 0.00 | 12.71 | 4528.37 | 0.00 | 2.63 | 0 00:00 | 0.00 | 0.00 |
| 265 | Jun-229 | Junction | 4521.04 | 4525.61 | 0.00 | 4525.61 | 0.00 | 12.62 | 4521.84 | 0.00 | 3.77 | 0 00:00 | 0.00 | 0.00 |
| 266 | UL024.02-0 | Junction | 7100.00 | 7106.67 | 0.00 | 7113.34 | 0.00 | 3.72 | 7100.09 | 0.00 | 9.91 | 0 00:00 | 0.00 | 0.00 |
| 267 | J0008-1 | Outfall | 4494.53 | | | | | 64.14 | 4494.53 | | | | | |
| 268 | J42797 | Outfall | 4520.54 | | | | | 41.60 | 4521.87 | | | | | |
| 269 | J44298-1 | Outfall | 4498.50 | | | | | 138.03 | 4500.11 | | | | | |
| 270 | J44325-1 | Outfall | 4502.46 | | | | | 62.76 | 4503.28 | | | | | |
| 271 | JUL010.02-1 | Outfall | 4491.00 | | | | | 182.91 | 4493.24 | | | | | |
| 272 | JUL020.02-1 | Outfall | 4490.00 | | | | | 135.92 | 4491.06 | | | | | |
| 273 | JUL030.02-1 | Outfall | 4501.37 | | | | | 105.31 | 4502.39 | | | | | |
| 274 | JUL070.02-1 | Outfall | 4500.32 | | | | | 75.57 | 4501.07 | | | | | |
| 275 | JUL080.02-1 | Outfall | 4493.46 | | | | | 56.67 | 4494.18 | | | | | |
| 276 | JUL120.02-1 | Outfall | 4504.59 | | | | | 134.70 | 4505.98 | | | | | |
| 277 | Out-29 | Outfall | 4495.00 | | | | | 12.57 | 4495.74 | | | | | |
| 278 | JUL040.04-1 | Storage Node | 4745.00 | 4755.00 | 0.00 | | 0.00 | 11.46 | 4747.83 | | | | 0.00 | 0.00 |
| 279 | Jun-205 | Storage Node | 4820.00 | 4850.00 | 0.00 | | 0.00 | 33.94 | 4823.81 | | | | 0.00 | 0.00 |
| 280 | SN-UL020 | Storage Node | 4886.00 | 4900.00 | 0.00 | | 0.00 | 348.44 | 4893.55 | | | | 0.00 | 0.00 |
| 281 | SN-UL022 | Storage Node | 5183.00 | 5193.00 | 0.00 | | 0.00 | 84.01 | 5187.59 | | | | 0.00 | 0.00 |
| 282 | SN-UL030 | Storage Node | 4908.00 | 4918.00 | 0.00 | | 0.00 | 115.96 | 4913.35 | | | | 0.00 | 0.00 |
| 283 | SN-UL031 | Storage Node | 5478.00 | 5488.00 | 0.00 | | 0.00 | 46.25 | 5482.21 | | | | 0.00 | 0.00 |
| 284 | SN-UL032 | Storage Node | 5088.00 | 5098.00 | 0.00 | | 0.00 | 73.66 | 5092.39 | | | | 0.00 | 0.00 |
| 285 | SN-UL041 | Storage Node | 4762.00 | 4772.00 | 0.00 | | 0.00 | 0.00 | 4762.00 | | | | 0.00 | 0.00 |
| 286 | SN-UL043 | Storage Node | 5204.00 | 5214.00 | 0.00 | | 0.00 | 0.00 | 5204.00 | | | | 0.00 | 0.00 |
| 287 | SN-UL044 | Storage Node | 5302.00 | 5312.00 | 0.00 | | 0.00 | 98.87 | 5307.74 | | | | 0.00 | 0.00 |
| 288 | SN-UL051 | Storage Node | 4691.00 | 4701.00 | 0.00 | | 0.00 | 42.45 | 4695.40 | | | | 0.00 | 0.00 |
| 289 | SN-UL060 | Storage Node | 4592.80 | 4.40 | 0.00 | | 20.00 | 35.86 | 4595.60 | | | | 0.00 | 1435.00 |
| 290 | SN-UL060B | Storage Node | 4654.40 | 5.80 | 0.00 | | 20.00 | 37.82 | 4656.49 | | | | 0.00 | 1435.00 |
| 291 | SN-UL063 | Storage Node | 4788.10 | 10.90 | 0.00 | | 20.00 | 40.02 | 4790.24 | | | | 0.00 | 1435.00 |
| 292 | SN-UL064 | Storage Node | 5235.00 | 5245.00 | 0.00 | | 0.00 | 72.94 | 5239.50 | | | | 0.00 | 0.00 |
| 293 | SN-UL070 | Storage Node | 4680.00 | 4690.00 | 0.00 | | 0.00 | 20.58 | 4683.84 | | | | 0.00 | 0.00 |
| 294 | SN-UL080B | Storage Node | 4578.58 | 4587.00 | 0.00 | | 20.00 | 38.00 | 4579.50 | | | | 0.00 | 0.00 |
| 295 | SN-UL081 | Storage Node | 4723.60 | 6.80 | 0.00 | | 20.00 | 44.14 | 4726.57 | | | | 0.00 | 1435.00 |
| 296 | SN-UL082 | Storage Node | 4899.00 | 4909.00 | 0.00 | | 0.00 | 44.77 | 4905.76 | | | | 0.00 | 0.00 |
| 297 | SN-UL083 | Storage Node | 5248.00 | 5258.00 | 0.00 | | 0.00 | 30.08 | 5252.51 | | | | 0.00 | 0.00 |
| 298 | SN-UL090 | Storage Node | 4592.80 | 4599.00 | 0.00 | | 20.00 | 12.15 | 4595.45 | | | | 0.00 | 0.00 |
| 299 | SN-UL100A | Storage Node | 4599.80 | 4607.20 | 0.00 | | 20.00 | 28.56 | 4603.92 | | | | 0.00 | 0.00 |
| 300 | SN-UL100B | Storage Node | 4723.40 | 4724.40 | 0.00 | | 20.00 | 0.00 | 4723.40 | | | | 0.00 | 0.00 |
| 301 | SN-UL101 | Storage Node | 5033.00 | 5043.00 | 0.00 | | 0.00 | 16.65 | 5037.08 | | | | 0.00 | 0.00 |
| 302 | SN-UL102 | Storage Node | 5033.00 | 5043.00 | 0.00 | | 0.00 | 36.94 | 5037.65 | | | | 0.00 | 0.00 |
| 303 | SN-UL110 | Storage Node | 4597.00 | 4602.60 | 0.00 | | 20.00 | 39.88 | 4600.85 | | | | 0.00 | 0.00 |
| 304 | SN-UL115 | Storage Node | 5033.00 | 5043.00 | 0.00 | | 0.00 | 67.04 | 5038.17 | | | | 0.00 | 0.00 |
| 305 | SN-UL121 | Storage Node | 4718.00 | 4728.00 | 0.00 | | 0.00 | 0.00 | 4718.00 | | | | 0.00 | 0.00 |
| 306 | SN--UL121 | Storage Node | 4702.20 | 4712.20 | 0.00 | | 20.00 | 105.61 | 4705.90 | | | | 0.00 | 0.00 |
| 307 | SN-UL124 | Storage Node | 4893.00 | 4903.50 | 0.00 | | 0.00 | 0.00 | 4893.00 | | | | 0.00 | 0.00 |
| 308 | SN-UL124B | Storage Node | 5047.00 | 5057.00 | 0.00 | | 0.00 | 86.20 | 5050.98 | | | | 0.00 | 0.00 |
| 309 | SN-UL130 | Storage Node | 4612.00 | 4622.00 | 0.00 | | 0.00 | 125.42 | 4618.25 | | | | 0.00 | 0.00 |
| 310 | SN-UL134 | Storage Node | 4825.00 | 4500.00 | 0.00 | | 0.00 | 113.87 | 4830.68 | | | | 0.00 | 1419.00 |
| 311 | SN-UL140 | Storage Node | 4577.00 | 4587.00 | 0.00 | | 0.00 | 41.69 | 4580.85 | | | | 0.00 | 0.00 |
| 312 | SN-UL144 | Storage Node | 4625.00 | 4634.40 | 0.00 | | 20.00 | 78.99 | 4632.03 | | | | 0.00 | 0.00 |
| 313 | Stor-39 | Storage Node | 4680.00 | 10.00 | 0.00 | | 0.00 | 70.32 | 4681.95 | | | | 0.00 | 1414.00 |
| 314 | Stor-39·1 | Storage Node | 4830.00 | 4838.00 | 0.00 | | 0.00 | 20.68 | 4834.11 | | | | 0.00 | 0.00 |
| 315 | Stor-41 | Storage Node | 4745.00 | 4755.00 | 0.00 | | 0.00 | 79.88 | 4749.55 | | | | 0.00 | 0.00 |
| 316 | Stor-45 | Storage Node | 4636.03 | 15.00 | 0.00 | | 0.00 | 44.09 | 4640.73 | | | | 0.00 | 773.00 |
| 317 | Stor-48 | Storage Node | 4587.00 | 4595.00 | 0.00 | | 20.00 | 41.01 | 4588.01 | | | | 0.00 | 0.00 |
| 318 | Stor-49 | Storage Node | 4760.00 | 4770.00 | 0.00 | | 0.00 | 23.75 | 4764.31 | | | | 0.00 | 0.00 |
| 319 | Stor-50 | Storage Node | 4640.00 | 4660.00 | 0.00 | | 0.00 | 270.33 | 4647.57 | | | | 0.00 | 0.00 |
| 320 | Stor-51 | Storage Node | 4590.00 | 4596.00 | 0.00 | | 0.00 | 14.87 | 4592.42 | | | | 0.00 | 0.00 |
| 321 | Stor-52 | Storage Node | 4630.00 | 4640.00 | 0.00 | | 0.00 | 18.45 | 4634.15 | | | | 0.00 | 0.00 |
| 322 | Stor-53 | Storage Node | 4600.00 | 4606.00 | 0.00 | | 0.00 | 1.04 | 4601.32 | | | | 0.00 | 0.00 |
| 323 | Stor-54 | Storage Node | 4760.00 | 4770.00 | 0.00 | | 0.00 | 3.20 | 4761.62 | | | | 0.00 | 0.00 |
| 324 | Stor-55 | Storage Node | 4655.00 | 4665.00 | 0.00 | | 0.00 | 59.55 | 4663.41 | | | | 0.00 | 0.00 |

## Link Summary

| SN | Element ID | Element Type | From (Inlet) Node | To (Outlet) Node | Length | Inlet Invert Elevation | Outlet Invert Elevation | Average Slope | Diameter or Height | Manning's Roughness | Peak Flow | Design Flow Capacity | Peak Flow/ Design Flow Ratio | Peak Flow Velocity | Peak Flow Depth | Peak Flow Depth/ Total Depth Ratio | Total Time Surcharged | Reported Condition |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | (ft) | (ft) | (ft) | (%) | (ft) | | (cfs) | (cfs) | | (ft/sec) | (ft) | | (min) | |
| 1 | 0001 | Pipe | J42306 | J42302 | 251.32 | 4518.99 | 4500.54 | 7.3400 | 3.000 | 0.0130 | 73.45 | 180.72 | 0.41 | 20.66 | 1.28 | 0.57 | 0.00 | Calculated |
| 2 | 0002 | Pipe | J44488-1 | J42341 | 61.97 | 4592.40 | 4590.49 | 3.0800 | 3.000 | 0.0130 | 38.10 | 117.10 | 0.33 | 9.82 | 1.61 | 0.54 | 0.00 | Calculated |
| 3 | 0004 | Pipe | J0004-0 | J42306 | 174.71 | 4525.19 | 4518.99 | 3.5500 | 3.000 | 0.0130 | 69.26 | 125.65 | 0.55 | 18.55 | 1.17 | 0.54 | 0.00 | Calculated |
| 4 | 0005 | Pipe | J42307 | J0004-0 | 648.84 | 4545.94 | 4525.19 | 3.2000 | 3.000 | 0.0130 | 78.20 | 119.28 | 0.66 | 18.24 | 1.31 | 0.60 | 0.00 | Calculated |
| 5 | 0006 | Pipe | J0006-0 | J42307 | 858.65 | 4578.80 | 4545.94 | 3.8300 | 3.000 | 0.0130 | 106.44 | 130.48 | 0.82 | 20.73 | 1.23 | 0.75 | 0.00 | Calculated |
| 6 | 0007 | Pipe | J42340 | J0006-0 | 150.67 | 4584.36 | 4578.80 | 3.6900 | 3.000 | 0.0130 | 38.10 | 128.13 | 0.30 | 14.26 | 1.21 | 0.50 | 0.00 | Calculated |
| 7 | 0008 | Pipe | J42302 | J0008-1 | 199.41 | 4500.54 | 4496.64 | 1.9600 | 3.000 | 0.0130 | 64.14 | 93.28 | 0.69 | 13.44 | 1.50 | 0.66 | 0.00 | Calculated |
| 8 | 0009 | Pipe | J42341 | J42340 | 613.10 | 4590.49 | 4584.36 | 1.0000 | 3.000 | 0.0130 | 38.10 | 66.69 | 0.57 | 10.94 | 1.48 | 0.49 | 0.00 | Calculated |
| 9 | 0013 | Pipe | J42308 | J0012-1 | 307.90 | 4600.22 | 4587.41 | 4.1600 | 1.500 | 0.0130 | 20.18 | 21.43 | 0.94 | 13.57 | 1.16 | 0.82 | 0.00 | Calculated |
| 10 | 0131 | Pipe | J0131.0 | J42359 | 454.58 | 4591.24 | 4589.72 | 0.3300 | 2.000 | 0.0130 | 13.36 | 13.08 | 1.02 | 5.79 | 1.39 | 0.70 | 0.00 | > CAPACITY |
| 11 | 0132 | Pipe | J42358 | J0131.0 | 387.78 | 4617.19 | 4591.24 | 6.6900 | 2.000 | 0.0130 | 13.35 | 58.52 | 0.23 | 7.64 | 1.18 | 0.59 | 0.00 | Calculated |
| 12 | 0134 | Pipe | J42359 | J42363 | 77.73 | 4589.72 | 4588.99 | 0.9400 | 2.500 | 0.0130 | 13.37 | 39.75 | 0.34 | 9.23 | 1.04 | 0.42 | 0.00 | Calculated |
| 13 | 0139 | Pipe | J42824 | J441660-0 | 4.34 | 4645.94 | 4645.74 | 4.6100 | 2.000 | 0.0130 | 60.72 | 48.56 | 1.25 | 19.33 | 2.00 | 1.00 | 9.00 | SURCHARGED |
| 14 | 0165 | Pipe | JUL120.04-1 | JUL120.02-0 | 60.27 | 4506.91 | 4505.93 | 1.6300 | 5.000 | 0.0130 | 134.70 | 418.86 | 0.32 | 7.90 | 2.84 | 0.57 | 0.00 | Calculated |
| 15 | 0166 | Pipe | JUL120.06-1 | JUL120.04-0 | 64.47 | 4541.09 | 4541.49 | -0.6200 | 2.500 | 0.0130 | 135.08 | 289.13 | 0.47 | 6.11 | 1.78 | 0.71 | 0.00 | Calculated |
| 16 | 0182 | Pipe | J44269-1 | J0014-1 | 357.60 | 4721.40 | 4721.70 | -0.0800 | 1.500 | 0.0130 | 0.00 | 3.04 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | Calculated |
| 17 | 0183 | Pipe | J42533 | J441565-1 | 49.88 | 4695.91 | 4693.98 | 3.8700 | 4.000 | 0.0130 | 37.84 | 282.55 | 0.13 | 6.31 | 1.93 | 0.48 | 0.00 | Calculated |
| 18 | 4442 | Pipe | JUL130.08-0 | JUL130.06-0 | 96.06 | 4592.42 | 4590.00 | 2.5200 | 4.000 | 0.0130 | 62.32 | 227.99 | 0.27 | 19.38 | 1.21 | 0.30 | 0.00 | Calculated |
| 19 | 4449 | Pipe | J42393 | JUL070.02-0 | 232.19 | 4585.90 | 4581.00 | 2.1100 | 4.500 | 0.0130 | 75.58 | 281.86 | 0.27 | 20.12 | 1.29 | 0.29 | 0.00 | Calculated |
| 20 | 4489 | Pipe | J42118 | J42112 | 399.04 | 4610.41 | 4599.43 | 2.7500 | 2.000 | 0.0130 | 21.82 | 37.53 | 0.58 | 9.96 | 1.63 | 0.81 | 0.00 | Calculated |
| 21 | 4490 | Pipe | J42112 | J42117 | 330.31 | 4599.43 | 4597.20 | 0.6800 | 2.500 | 0.0130 | 19.18 | 33.70 | 0.57 | 7.21 | 2.50 | 1.00 | 126.00 | SURCHARGED |
| 22 | 44174 | Pipe | J42420 | J42347 | 45.63 | 4713.66 | 4706.85 | 14.9200 | 2.500 | 0.0130 | 24.92 | 158.46 | 0.16 | 16.18 | 0.88 | 0.35 | 0.00 | Calculated |
| 23 | 44175 | Pipe | J42346 | J42420 | 424.20 | 4747.50 | 4713.66 | 7.9800 | 2.500 | 0.0130 | 24.93 | 115.85 | 0.22 | 18.91 | 0.78 | 0.31 | 0.00 | Calculated |
| 24 | 44177 | Pipe | J42436 | J42348 | 293.89 | 4692.40 | 4677.52 | 5.0600 | 2.500 | 0.0130 | 24.91 | 92.29 | 0.27 | 15.06 | 0.93 | 0.37 | 0.00 | Calculated |
| 25 | 44178 | Pipe | J42347 | J42436 | 398.35 | 4706.85 | 4692.40 | 3.6300 | 2.500 | 0.0130 | 24.91 | 78.12 | 0.32 | 13.82 | 0.99 | 0.39 | 0.00 | Calculated |
| 26 | 44181 | Pipe | JUL100.02-1 | Jun-219 | 698.24 | 4850.00 | 4849.00 | 0.1400 | 2.000 | 0.0130 | 2.01 | 8.56 | 0.23 | 4.39 | 0.45 | 0.23 | 0.00 | Calculated |
| 27 | 44182 | Pipe | J42365 | J42366 | 223.60 | 4812.97 | 4809.24 | 1.6700 | 2.000 | 0.0130 | 0.00 | 29.22 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | Calculated |
| 28 | 44183 | Pipe | J42366 | J42367 | 346.57 | 4809.24 | 4786.31 | 6.6200 | 2.000 | 0.0130 | 0.00 | 58.19 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | Calculated |
| 29 | 44184 | Pipe | J42368 | J42370 | 153.82 | 4758.99 | 4749.05 | 6.4600 | 2.000 | 0.0130 | 0.00 | 57.51 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | Calculated |
| 30 | 44185 | Pipe | J42367 | J42368 | 353.16 | 4786.31 | 4758.99 | 7.7400 | 2.000 | 0.0130 | 0.00 | 62.92 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | Calculated |
| 31 | 44186 | Pipe | JUL080.12-0 | J42442 | 29.30 | 4777.64 | 4775.41 | 7.6100 | 2.500 | 0.0130 | 9.59 | 113.16 | 0.08 | 10.49 | 0.60 | 0.24 | 0.00 | Calculated |
| 32 | 44187 | Pipe | J42442 | JUL080.10-0 | 51.22 | 4775.41 | 4773.28 | 4.1600 | 2.500 | 0.0130 | 9.59 | 83.64 | 0.11 | 10.44 | 0.61 | 0.24 | 0.00 | Calculated |
| 33 | 44236 | Pipe | J42223 | J42156 | 262.90 | 4541.72 | 4527.51 | 5.4100 | 4.000 | 0.0130 | 119.99 | 333.95 | 0.36 | 14.29 | 2.54 | 0.64 | 0.00 | Calculated |
| 34 | 44237 | Pipe | J42156 | J42155 | 254.58 | 4527.51 | 4525.14 | 0.9300 | 4.000 | 0.0130 | 119.99 | 138.59 | 0.87 | 10.83 | 3.29 | 0.82 | 0.00 | Calculated |
| 35 | 44238 | Pipe | J42155 | J42154 | 394.76 | 4525.14 | 4521.79 | 0.8500 | 4.000 | 0.0130 | 119.99 | 132.32 | 0.91 | 15.13 | 2.41 | 0.60 | 0.00 | Calculated |
| 36 | 44268 | Pipe | J42180 | J42181 | 179.46 | 4743.73 | 4730.23 | 7.5200 | 2.500 | 0.0130 | 0.00 | 112.50 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | Calculated |
| 37 | 44269 | Pipe | J42181 | J44269-1 | 56.95 | 4730.23 | 4721.40 | 15.5000 | 2.500 | 0.0130 | 0.00 | 161.51 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | Calculated |
| 38 | 44275 | Pipe | J0014-1 | J42178 | 196.83 | 4721.70 | 4703.44 | 9.2800 | 1.500 | 0.0130 | 0.00 | 31.99 | 0.00 | 0.00 | 0.35 | 0.23 | 0.00 | Calculated |
| 39 | 44276 | Pipe | J42178 | J42177 | 144.52 | 4703.44 | 4694.19 | 6.4000 | 1.500 | 0.0130 | 11.45 | 26.58 | 0.43 | 12.15 | 0.79 | 0.53 | 0.00 | Calculated |
| 40 | 44277 | Pipe | J42177 | J42176 | 64.41 | 4694.19 | 4691.51 | 4.1600 | 1.500 | 0.0130 | 11.45 | 21.43 | 0.53 | 9.55 | 0.96 | 0.64 | 0.00 | Calculated |
| 41 | 44278 | Pipe | J42176 | J42175 | 144.48 | 4691.51 | 4688.48 | 2.1000 | 1.500 | 0.0130 | 11.44 | 15.21 | 0.75 | 7.98 | 1.13 | 0.76 | 0.00 | Calculated |
| 42 | 44279 | Pipe | J441032-1 | J44279-1 | 134.87 | 4592.84 | 4589.20 | 2.7000 | 2.000 | 0.0130 | 3.38 | 37.16 | 0.09 | 3.83 | 0.65 | 0.32 | 0.00 | Calculated |
| 43 | 44298 | Pipe | J42157 | J44298-1 | 171.98 | 4512.22 | 4498.50 | 7.9800 | 4.000 | 0.0130 | 138.03 | 405.72 | 0.34 | 26.66 | 1.72 | 0.43 | 0.00 | Calculated |
| 44 | 44299 | Pipe | J42154 | J42157 | 88.84 | 4521.79 | 4512.22 | 10.7700 | 4.000 | 0.0130 | 119.99 | 471.45 | 0.25 | 23.40 | 1.73 | 0.43 | 0.00 | Calculated |
| 45 | 44375 | Pipe | JUL152.04-1 | JUL152.02-0 | 93.37 | 4546.00 | 4545.80 | 0.2100 | 4.000 | 0.0130 | 59.01 | 66.48 | 0.89 | 6.05 | 2.95 | 0.74 | 0.00 | Calculated |
| 46 | 44455 | Pipe | J42265 | J42264 | 120.43 | 4616.61 | 4608.40 | 6.8200 | 2.000 | 0.0130 | 18.21 | 59.07 | 0.31 | 10.88 | 1.06 | 0.54 | 0.00 | Calculated |
| 47 | 44458 | Pipe | J42175 | J42282 | 60.29 | 4688.48 | 4687.53 | 1.5800 | 1.500 | 0.0130 | 11.44 | 13.19 | 0.87 | 8.44 | 1.07 | 0.72 | 0.00 | Calculated |
| 48 | 44459 | Pipe | J42304 | J42305 | 77.04 | 4685.80 | 4681.10 | 6.1000 | 1.500 | 0.0130 | 12.83 | 25.95 | 0.49 | 13.03 | 0.82 | 0.55 | 0.00 | Calculated |
| 49 | 44460 | Pipe | J42303 | J42304 | 262.21 | 4704.40 | 4685.80 | 7.0900 | 1.500 | 0.0130 | 12.83 | 27.98 | 0.46 | 14.05 | 0.77 | 0.51 | 0.00 | Calculated |
| 50 | 44461 | Pipe | J42309 | J42308 | 286.81 | 4616.43 | 4600.22 | 5.6500 | 1.500 | 0.0130 | 34.60 | 24.97 | 1.39 | 29.36 | 1.11 | 0.88 | 0.00 | > CAPACITY |
| 51 | 44462 | Pipe | J42310 | J42309 | 390.20 | 4636.19 | 4616.43 | 5.0600 | 1.500 | 0.0130 | 26.54 | 23.64 | 1.12 | 25.08 | 1.37 | 1.00 | 2.00 | SURCHARGED |
| 52 | 44463 | Pipe | J42311 | J42310 | 212.12 | 4652.14 | 4636.19 | 7.5200 | 1.500 | 0.0130 | 42.91 | 28.80 | 1.49 | 30.40 | 1.31 | 1.00 | 1.00 | SURCHARGED |
| 53 | 44464 | Pipe | J42312 | J42311 | 173.46 | 4663.13 | 4652.14 | 6.3400 | 1.500 | 0.0130 | 57.52 | 26.44 | 2.18 | 36.92 | 1.29 | 1.00 | 1.00 | SURCHARGED |
| 54 | 44465 | Pipe | J42305 | J42312 | 220.69 | 4681.18 | 4663.13 | 8.1800 | 1.500 | 0.0130 | 12.83 | 30.04 | 0.43 | 23.43 | 0.66 | 0.50 | 0.00 | Calculated |
| 55 | 44471 | Pipe | J42266 | J42265 | 101.03 | 4620.24 | 4616.61 | 3.5900 | 2.000 | 0.0130 | 18.21 | 42.88 | 0.42 | 13.44 | 0.88 | 0.45 | 0.00 | Calculated |
| 56 | 44472 | Pipe | J42267 | J42266 | 78.65 | 4622.52 | 4620.24 | 2.9000 | 2.000 | 0.0130 | 18.21 | 38.52 | 0.47 | 10.74 | 1.05 | 0.53 | 0.00 | Calculated |

## Link Summary

| SN | Element ID | Element Type | From (Inlet) Node | To (Outlet) Node | Length | Inlet Invert Elevation | Outlet Invert Elevation | Average Slope | Diameter or Height | Manning's Roughness | Peak Flow | Design Flow Capacity | Peak Flow/ Design Flow Ratio | Peak Flow Velocity | Peak Flow Depth | Peak Flow Depth/ Total Depth Ratio | Total Time Surcharged | Reported Condition |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | (ft) | (ft) | (ft) | (%) | (ft) | | (cfs) | (cfs) | | (ft/sec) | (ft) | | (min) | |
| 57 | 44473 | Pipe | J42268 | J42267 | 286.17 | 4630.23 | 4622.52 | 2.6900 | 2.000 | 0.0130 | 18.21 | 37.13 | 0.49 | 10.76 | 1.05 | 0.53 | 0.00 | Calculated |
| 58 | 44474 | Pipe | J42269 | J42268 | 113.63 | 4633.51 | 4630.23 | 2.8900 | 2.000 | 0.0130 | 18.21 | 38.44 | 0.47 | 10.99 | 1.03 | 0.52 | 0.00 | Calculated |
| 59 | 44475 | Pipe | J42270 | J42269 | 157.43 | 4638.41 | 4633.51 | 3.1100 | 2.000 | 0.0130 | 18.21 | 39.91 | 0.46 | 11.06 | 1.03 | 0.52 | 0.00 | Calculated |
| 60 | 44476 | Pipe | J42271 | J42270 | 146.39 | 4646.69 | 4638.41 | 5.6600 | 2.000 | 0.0130 | 18.20 | 53.80 | 0.34 | 12.92 | 0.91 | 0.46 | 0.00 | Calculated |
| 61 | 44486 | Pipe | J42333 | J42334 | 261.69 | 4610.34 | 4602.31 | 3.0700 | 3.000 | 0.0130 | 38.10 | 116.84 | 0.33 | 11.76 | 1.40 | 0.47 | 0.00 | Calculated |
| 62 | 44487 | Pipe | J42334 | J42335 | 49.00 | 4602.31 | 4601.32 | 2.0200 | 3.000 | 0.0130 | 38.10 | 94.81 | 0.40 | 11.76 | 1.40 | 0.47 | 0.00 | Calculated |
| 63 | 44488 | Pipe | J42336 | J44488-1 | 76.23 | 4595.34 | 4592.40 | 3.8600 | 3.000 | 0.0130 | 38.10 | 130.99 | 0.29 | 11.79 | 1.40 | 0.47 | 0.00 | Calculated |
| 64 | 44489 | Pipe | J42335 | J42336 | 160.46 | 4601.32 | 4595.34 | 3.7300 | 3.000 | 0.0130 | 38.10 | 128.76 | 0.30 | 13.56 | 1.26 | 0.42 | 0.00 | Calculated |
| 65 | 44490 | Pipe | JUL041.02-1 | J42337 | 157.17 | 4627.15 | 4619.90 | 4.6100 | 3.000 | 0.0130 | 38.09 | 143.25 | 0.27 | 15.75 | 1.12 | 0.37 | 0.00 | Calculated |
| 66 | 44491 | Pipe | J42337 | J42333 | 200.01 | 4619.90 | 4610.34 | 4.7800 | 3.000 | 0.0130 | 38.09 | 145.82 | 0.26 | 15.21 | 1.15 | 0.38 | 0.00 | Calculated |
| 67 | 44500 | Pipe | J42273 | J42271 | 194.14 | 4657.67 | 4646.69 | 5.6600 | 2.000 | 0.0130 | 18.20 | 53.80 | 0.34 | 14.66 | 0.83 | 0.42 | 0.00 | Calculated |
| 68 | 44501 | Pipe | J42274 | J42273 | 167.33 | 4666.87 | 4657.67 | 5.5000 | 2.000 | 0.0130 | 18.20 | 53.05 | 0.34 | 14.39 | 0.84 | 0.42 | 0.00 | Calculated |
| 69 | 44502 | Pipe | J42275 | J42274 | 48.57 | 4670.16 | 4666.87 | 6.7700 | 2.000 | 0.0130 | 18.20 | 58.88 | 0.31 | 13.83 | 0.87 | 0.44 | 0.00 | Calculated |
| 70 | 44503 | Pipe | J42277 | J42275 | 52.50 | 4672.54 | 4670.16 | 4.5300 | 2.000 | 0.0130 | 18.20 | 48.17 | 0.38 | 12.43 | 0.94 | 0.47 | 0.00 | Calculated |
| 71 | 44504 | Pipe | J42278 | J42277 | 116.40 | 4677.64 | 4672.54 | 4.3800 | 2.000 | 0.0130 | 18.19 | 47.35 | 0.38 | 12.16 | 0.96 | 0.48 | 0.00 | Calculated |
| 72 | 44505 | Pipe | J42279 | J42278 | 125.33 | 4682.15 | 4677.64 | 3.6000 | 2.000 | 0.0130 | 11.42 | 42.91 | 0.27 | 9.33 | 0.82 | 0.41 | 0.00 | Calculated |
| 73 | 44506 | Pipe | J42280 | J42279 | 83.40 | 4683.00 | 4682.15 | 1.0200 | 2.000 | 0.0130 | 11.42 | 22.84 | 0.50 | 8.34 | 0.89 | 0.45 | 0.00 | Calculated |
| 74 | 44507 | Pipe | J42282 | J42280 | 320.83 | 4687.53 | 4683.00 | 1.4100 | 2.000 | 0.0130 | 11.43 | 26.88 | 0.43 | 7.30 | 0.99 | 0.50 | 0.00 | Calculated |
| 75 | 44548 | Pipe | J44279-1 | J42284 | 3.93 | 4589.20 | 4589.18 | 0.5100 | 1.250 | 0.0130 | 3.38 | 4.61 | 0.73 | 3.95 | 0.82 | 0.66 | 0.00 | Calculated |
| 76 | 44549 | Pipe | J42284 | J42285 | 29.92 | 4589.18 | 4588.82 | 1.2000 | 1.250 | 0.0130 | 3.38 | 7.09 | 0.48 | 4.17 | 0.79 | 0.63 | 0.00 | Calculated |
| 77 | 44551 | Pipe | J42287 | J42286 | 339.89 | 4587.63 | 4586.66 | 0.2900 | 1.250 | 0.0130 | 3.38 | 3.45 | 0.98 | 3.33 | 0.96 | 0.77 | 0.00 | Calculated |
| 78 | 44563 | Pipe | J42285 | J44563-1 | 4.04 | 4588.82 | 4588.62 | 4.9500 | 1.250 | 0.0130 | 3.38 | 14.37 | 0.24 | 3.77 | 0.86 | 0.69 | 0.00 | Calculated |
| 79 | 44564 | Pipe | J44563-1 | J42287 | 259.33 | 4588.62 | 4587.63 | 0.3800 | 1.250 | 0.0130 | 3.38 | 3.99 | 0.85 | 3.27 | 0.98 | 0.79 | 0.00 | Calculated |
| 80 | 44576 | Pipe | J42458 | J42459 | 397.01 | 4585.91 | 4584.43 | 0.3700 | 1.250 | 0.0130 | 3.38 | 3.94 | 0.86 | 3.80 | 0.85 | 0.68 | 0.00 | Calculated |
| 81 | 44577 | Pipe | J42286 | J42458 | 161.65 | 4586.66 | 4585.91 | 0.4600 | 1.250 | 0.0130 | 3.38 | 4.40 | 0.77 | 3.54 | 0.91 | 0.73 | 0.00 | Calculated |
| 82 | 44578 | Pipe | J42459 | J42460 | 295.67 | 4584.43 | 4582.66 | 0.6000 | 1.250 | 0.0130 | 3.38 | 5.00 | 0.68 | 3.94 | 0.83 | 0.66 | 0.00 | Calculated |
| 83 | 44579 | Pipe | J42460 | J42462 | 294.77 | 4582.66 | 4581.42 | 0.4200 | 1.250 | 0.0130 | 3.38 | 4.19 | 0.81 | 3.97 | 0.82 | 0.66 | 0.00 | Calculated |
| 84 | 44591 | Pipe | J42394 | J42393 | 33.11 | 4586.59 | 4585.90 | 2.0800 | 4.500 | 0.0130 | 75.58 | 283.88 | 0.27 | 11.12 | 1.99 | 0.44 | 0.00 | Calculated |
| 85 | 44592 | Pipe | JUL070.04-1 | J42394 | 29.30 | 4590.98 | 4586.59 | 14.9800 | 3.500 | 0.0130 | 63.25 | 389.44 | 0.16 | 13.16 | 1.75 | 0.50 | 0.00 | Calculated |
| 86 | 44596 | Pipe | J42348 | J42349 | 139.92 | 4677.52 | 4670.58 | 4.9600 | 2.500 | 0.0130 | 24.90 | 91.35 | 0.27 | 12.92 | 1.04 | 0.42 | 0.00 | Calculated |
| 87 | 44597 | Pipe | J42349 | J42350 | 137.24 | 4670.58 | 4666.48 | 2.9900 | 2.500 | 0.0130 | 24.90 | 70.90 | 0.35 | 13.88 | 0.98 | 0.39 | 0.00 | Calculated |
| 88 | 44598 | Pipe | J42350 | J44598-1 | 97.53 | 4666.48 | 4648.85 | 18.0800 | 2.500 | 0.0130 | 24.90 | 114.73 | 0.22 | 13.39 | 1.01 | 0.40 | 0.00 | Calculated |
| 89 | 44599 | Pipe | J44599-0 | JUL070.04-0 | 99.31 | 4647.46 | 4647.09 | 0.3700 | 2.500 | 0.0130 | 12.50 | 25.04 | 0.50 | 7.77 | 0.94 | 0.38 | 0.00 | Calculated |
| 90 | 44600 | Pipe | J44598-1 | SN-UL060B | 215.22 | 4648.85 | 4654.40 | -2.5800 | 2.500 | 0.0130 | 24.92 | 58.98 | 0.42 | 10.99 | 1.41 | 0.56 | 0.00 | Calculated |
| 91 | 44601 | Pipe | J42443 | JUL080.08-1 | 37.32 | 4713.69 | 4712.70 | 2.6500 | 2.500 | 0.0130 | 12.35 | 66.81 | 0.18 | 9.23 | 0.79 | 0.32 | 0.00 | Calculated |
| 92 | 44602 | Pipe | JUL080.10-1 | J42443 | 45.20 | 4718.12 | 4713.69 | 9.8000 | 2.500 | 0.0130 | 12.35 | 128.41 | 0.10 | 10.76 | 0.71 | 0.28 | 0.00 | Calculated |
| 93 | 44603 | Pipe | JUL080.08-0 | JUL080.06-1 | 20.31 | 4695.94 | 4695.33 | 3.0000 | 2.500 | 0.0150 | 12.35 | 75.66 | 0.16 | 15.87 | 0.54 | 0.22 | 0.00 | Calculated |
| 94 | 44609 | Pipe | J42370 | J42371 | 80.61 | 4749.05 | 4745.20 | 4.7800 | 2.500 | 0.0130 | 0.00 | 89.64 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | Calculated |
| 95 | 44610 | Pipe | J42440 | J42180 | 60.80 | 4744.06 | 4743.73 | 0.5400 | 2.500 | 0.0130 | 0.00 | 30.22 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | Calculated |
| 96 | 44611 | Pipe | J42371 | J42440 | 72.46 | 4745.20 | 4744.06 | 1.5700 | 2.500 | 0.0130 | 0.00 | 51.45 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | Calculated |
| 97 | 44612 | Pipe | J44612-0 | JUL080.04-1 | 101.80 | 4634.84 | 4634.16 | 0.6700 | 2.500 | 0.0150 | 24.31 | 29.05 | 0.84 | 6.43 | 1.80 | 0.72 | 0.00 | Calculated |
| 98 | 44681 | Pipe | J44681.0 | J42402 | 105.85 | 4591.92 | 4585.83 | 5.7500 | 2.500 | 0.0130 | 18.66 | 98.38 | 0.19 | 5.55 | 1.62 | 0.65 | 0.00 | Calculated |
| 99 | 44754 | Pipe | J42540 | J42538 | 116.87 | 4597.65 | 4595.69 | 1.6800 | 4.000 | 0.0130 | 38.68 | 186.02 | 0.21 | 11.94 | 1.23 | 0.31 | 0.00 | Calculated |
| 100 | 44803 | Pipe | J42531 | J42530 | 133.82 | 4693.08 | 4692.15 | 0.6900 | 4.000 | 0.0130 | 37.84 | 119.75 | 0.32 | 10.23 | 1.34 | 0.34 | 0.00 | Calculated |
| 101 | 44819 | Pipe | J42532 | J42531 | 163.01 | 4693.66 | 4693.08 | 0.3600 | 4.000 | 0.0130 | 37.84 | 85.68 | 0.44 | 7.03 | 1.77 | 0.44 | 0.00 | Calculated |
| 102 | 44868 | Pipe | J42885 | J42118 | 219.08 | 4616.20 | 4610.41 | 2.6400 | 2.000 | 0.0130 | 21.82 | 36.78 | 0.59 | 11.55 | 1.21 | 0.61 | 0.00 | Calculated |
| 103 | 44869 | Pipe | JUL132.02-1 | J42746 | 73.42 | 4760.58 | 4758.90 | 2.2900 | 2.000 | 0.0130 | 16.24 | 34.73 | 0.47 | 10.86 | 0.96 | 0.48 | 0.00 | Calculated |
| 104 | 44870 | Pipe | J42746 | J42745 | 58.80 | 4758.90 | 4755.35 | 6.0400 | 2.000 | 0.0130 | 16.25 | 55.59 | 0.29 | 11.78 | 0.90 | 0.45 | 0.00 | Calculated |
| 105 | 44871 | Pipe | J42747 | J42748 | 51.61 | 4704.88 | 4703.71 | 2.2700 | 2.000 | 0.0130 | 16.16 | 34.06 | 0.47 | 9.17 | 1.08 | 0.55 | 0.00 | Calculated |
| 106 | 44891 | Pipe | J42722 | JUL120.06-0 | 302.46 | 4586.25 | 4574.18 | 3.9900 | 4.500 | 0.0130 | 85.38 | 392.84 | 0.22 | 20.48 | 1.43 | 0.32 | 0.00 | Calculated |
| 107 | 44892 | Pipe | J42538 | J42722 | 208.08 | 4595.69 | 4586.25 | 4.5400 | 4.000 | 0.0130 | 71.07 | 305.95 | 0.23 | 17.00 | 1.48 | 0.37 | 0.00 | Calculated |
| 108 | 44893 | Pipe | J42402 | J42722 | 309.33 | 4585.83 | 4586.25 | -0.1400 | 2.500 | 0.0130 | 18.66 | 15.11 | 1.23 | 4.66 | 2.02 | 0.81 | 0.00 | > CAPACITY |
| 109 | 441024 | Pipe | J441024-0 | J441024-1 | 45.76 | 4572.78 | 4572.60 | 0.3900 | 4.000 | 0.0130 | 37.99 | 90.09 | 0.42 | 6.35 | 1.92 | 0.48 | 0.00 | Calculated |
| 110 | 441025 | Pipe | J441024-1 | JUL080.02-0 | 113.83 | 4572.60 | 4572.00 | 0.5300 | 4.000 | 0.0130 | 43.40 | 104.29 | 0.42 | 12.92 | 1.26 | 0.31 | 0.00 | Calculated |
| 111 | 441032 | Pipe | J42264 | SN-UL100A | 310.46 | 4608.40 | 4599.80 | 2.7700 | 2.000 | 0.0130 | 28.56 | 37.65 | 0.76 | 10.08 | 1.69 | 0.85 | 0.00 | Calculated |
| 112 | 441350 | Pipe | J42461 | J441024-1 | 287.92 | 4579.30 | 4576.75 | 0.8900 | 1.500 | 0.0130 | 6.00 | 9.89 | 0.61 | 5.74 | 0.86 | 0.57 | 0.00 | Calculated |

## Link Summary

| SN | Element ID | Element Type | From (Inlet) Node | To (Outlet) Node | Length | Inlet Invert Elevation | Outlet Invert Elevation | Average Slope | Diameter or Height | Manning's Roughness | Peak Flow | Design Flow Capacity | Peak Flow/ Design Flow Ratio | Peak Flow Velocity | Peak Flow Depth | Peak Flow Depth/ Total Depth Ratio | Total Time Surcharged | Reported Condition |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | (ft) | (ft) | (ft) | (%) | (ft) | | (cfs) | (cfs) | | (ft/sec) | (ft) | | (min) | |
| 113 | 441371 | Pipe | J42462 | J42461 | 52.39 | 4581.42 | 4579.30 | 4.0500 | 1.500 | 0.0130 | 6.00 | 21.13 | 0.28 | 6.99 | 0.73 | 0.49 | 0.00 | Calculated |
| 114 | 441436 | Pipe | J42494 | J42540 | 331.86 | 4599.72 | 4597.65 | 0.6200 | 4.000 | 0.0130 | 38.68 | 113.45 | 0.34 | 8.65 | 1.54 | 0.39 | 0.00 | Calculated |
| 115 | 441437 | Pipe | J42495 | J42494 | 61.65 | 4603.33 | 4599.72 | 5.8600 | 2.500 | 0.0130 | 38.48 | 99.26 | 0.39 | 12.44 | 1.51 | 0.60 | 0.00 | Calculated |
| 116 | 441438 | Pipe | J42496 | J42495 | 116.23 | 4612.58 | 4603.33 | 7.9600 | 2.500 | 0.0130 | 38.48 | 115.71 | 0.33 | 16.66 | 1.19 | 0.48 | 0.00 | Calculated |
| 117 | 441439 | Pipe | J42497 | J42496 | 257.91 | 4632.36 | 4612.58 | 7.6700 | 2.500 | 0.0130 | 38.48 | 113.59 | 0.34 | 19.48 | 1.06 | 0.42 | 0.00 | Calculated |
| 118 | 441440 | Pipe | J42498 | J42497 | 109.73 | 4640.79 | 4632.36 | 7.6800 | 2.500 | 0.0130 | 38.48 | 113.69 | 0.34 | 18.91 | 1.08 | 0.43 | 0.00 | Calculated |
| 119 | 441441 | Pipe | J42499 | J42498 | 122.16 | 4650.81 | 4640.79 | 8.2000 | 2.500 | 0.0130 | 38.48 | 117.47 | 0.33 | 18.61 | 1.09 | 0.44 | 0.00 | Calculated |
| 120 | 441443 | Pipe | J42500 | J42499 | 33.62 | 4652.77 | 4650.81 | 5.8300 | 2.500 | 0.0130 | 38.48 | 99.04 | 0.39 | 15.74 | 1.25 | 0.50 | 0.00 | Calculated |
| 121 | 441444 | Pipe | J42516 | J42500 | 164.63 | 4653.02 | 4652.77 | 0.1500 | 4.000 | 0.0130 | 38.48 | 55.98 | 0.69 | 7.45 | 1.72 | 0.43 | 0.00 | Calculated |
| 122 | 441445 | Pipe | J42517 | J42516 | 91.67 | 4655.67 | 4653.02 | 2.8900 | 4.000 | 0.0130 | 38.48 | 244.23 | 0.16 | 7.87 | 1.65 | 0.41 | 0.00 | Calculated |
| 123 | 441446 | Pipe | J42518 | J42517 | 74.23 | 4656.94 | 4655.67 | 1.7100 | 4.000 | 0.0130 | 38.48 | 187.89 | 0.20 | 10.20 | 1.36 | 0.34 | 0.00 | Calculated |
| 124 | 441447 | Pipe | J42519 | J42518 | 46.59 | 4658.11 | 4656.94 | 2.5100 | 4.000 | 0.0130 | 38.48 | 227.63 | 0.17 | 9.49 | 1.43 | 0.36 | 0.00 | Calculated |
| 125 | 441448 | Pipe | J42520 | J42519 | 297.76 | 4669.61 | 4658.11 | 3.8600 | 4.000 | 0.0130 | 38.65 | 282.29 | 0.14 | 12.00 | 1.21 | 0.30 | 0.00 | Calculated |
| 126 | 441449 | Pipe | J42521 | J42520 | 190.80 | 4670.25 | 4669.61 | 0.3400 | 4.000 | 0.0130 | 39.47 | 83.19 | 0.47 | 9.71 | 1.44 | 0.36 | 0.00 | Calculated |
| 127 | 441450 | Pipe | J42522 | J42521 | 68.15 | 4670.60 | 4670.25 | 0.5100 | 4.000 | 0.0130 | 38.49 | 102.94 | 0.37 | 6.33 | 1.96 | 0.49 | 0.00 | Calculated |
| 128 | 441451 | Pipe | J42523 | J42522 | 279.34 | 4671.79 | 4670.60 | 0.4300 | 4.000 | 0.0130 | 38.48 | 93.75 | 0.41 | 6.14 | 2.00 | 0.50 | 0.00 | Calculated |
| 129 | 441453 | Pipe | J42526 | J42525 | 310.37 | 4673.18 | 4672.21 | 0.3100 | 4.000 | 0.0130 | 37.84 | 80.30 | 0.47 | 5.42 | 2.18 | 0.54 | 0.00 | Calculated |
| 130 | 441454 | Pipe | J42525 | J42523 | 168.96 | 4672.21 | 4671.79 | 0.2500 | 4.000 | 0.0130 | 38.48 | 71.62 | 0.54 | 5.78 | 2.09 | 0.52 | 0.00 | Calculated |
| 131 | 441455 | Pipe | J42528 | J42527 | 87.74 | 4678.70 | 4674.07 | 5.2800 | 3.000 | 0.0130 | 37.84 | 153.22 | 0.25 | 10.83 | 1.49 | 0.50 | 0.00 | Calculated |
| 132 | 441456 | Pipe | J42527 | J42526 | 8.34 | 4674.07 | 4673.18 | 10.6700 | 3.000 | 0.0130 | 37.84 | 217.89 | 0.17 | 7.65 | 1.98 | 0.66 | 0.00 | Calculated |
| 133 | 441457 | Pipe | J42529 | J42528 | 156.08 | 4680.22 | 4678.70 | 0.9700 | 4.000 | 0.0130 | 37.84 | 141.75 | 0.27 | 10.28 | 1.34 | 0.33 | 0.00 | Calculated |
| 134 | 441458 | Pipe | J42530 | J42529 | 407.26 | 4692.15 | 4680.22 | 2.9300 | 4.000 | 0.0130 | 37.84 | 245.85 | 0.15 | 10.72 | 1.30 | 0.32 | 0.00 | Calculated |
| 135 | 441557 | Pipe | J441557-0 | J42532 | 17.99 | 4693.78 | 4693.66 | 0.6700 | 4.000 | 0.0130 | 37.84 | 117.32 | 0.32 | 5.89 | 2.03 | 0.51 | 0.00 | Calculated |
| 136 | 441565 | Pipe | J441560-0 | SN--UL121 | 175.84 | 4704.00 | 4702.20 | 1.0200 | 4.000 | 0.0130 | 105.61 | 145.33 | 0.73 | 16.50 | 3.07 | 0.77 | 0.00 | Calculated |
| 137 | 441566 | Pipe | J441565-1 | J441557-0 | 177.41 | 4693.98 | 4693.78 | 0.1100 | 4.000 | 0.0130 | 37.84 | 48.23 | 0.78 | 4.99 | 2.32 | 0.58 | 0.00 | Calculated |
| 138 | 441570 | Pipe | Jun-221 | J42788 | 215.43 | 4597.20 | 4596.35 | 0.3900 | 2.500 | 0.0130 | 0.39 | 25.76 | 0.02 | 0.28 | 1.80 | 0.72 | 0.00 | Calculated |
| 139 | 441571 | Pipe | J42788 | J42813 | 97.62 | 4596.35 | 4595.72 | 0.6500 | 2.500 | 0.0130 | 0.77 | 32.95 | 0.02 | 0.47 | 2.36 | 0.95 | 0.00 | Calculated |
| 140 | 441585 | Pipe | J42809 | J42808 | 104.07 | 4594.91 | 4594.84 | 0.0700 | 4.000 | 0.0130 | 13.61 | 37.25 | 0.37 | 2.23 | 3.70 | 0.93 | 0.00 | Calculated |
| 141 | 441586 | Pipe | J42808 | JUL130.08-1 | 194.26 | 4594.84 | 4594.64 | 0.1000 | 4.000 | 0.0130 | 12.69 | 46.09 | 0.28 | 1.96 | 3.84 | 0.96 | 0.00 | Calculated |
| 142 | 441587 | Pipe | J42810 | J42809 | 321.57 | 4595.00 | 4594.91 | 0.0300 | 4.000 | 0.0130 | 14.84 | 24.03 | 0.62 | 2.36 | 3.62 | 0.91 | 0.00 | Calculated |
| 143 | 441588 | Pipe | J42811 | J42810 | 269.26 | 4595.04 | 4595.00 | 0.0100 | 4.000 | 0.0130 | 16.24 | 17.51 | 0.93 | 2.41 | 3.56 | 0.89 | 0.00 | Calculated |
| 144 | 441589 | Pipe | J42812 | J42811 | 58.61 | 4595.09 | 4595.04 | 0.0900 | 4.000 | 0.0130 | 16.90 | 41.96 | 0.40 | 2.41 | 3.51 | 0.88 | 0.00 | Calculated |
| 145 | 441590 | Pipe | J42813 | J42814 | 380.68 | 4595.72 | 4595.42 | 0.0800 | 4.000 | 0.0130 | 9.09 | 40.32 | 0.23 | 1.41 | 3.01 | 0.75 | 0.00 | Calculated |
| 146 | 441591 | Pipe | J42814 | J42815 | 168.72 | 4595.42 | 4595.33 | 0.0500 | 4.000 | 0.0130 | 18.09 | 33.18 | 0.55 | 2.65 | 3.20 | 0.80 | 0.00 | Calculated |
| 147 | 441592 | Pipe | J42815 | J42816 | 117.51 | 4595.33 | 4595.25 | 0.0700 | 4.000 | 0.0130 | 17.68 | 37.48 | 0.47 | 2.63 | 3.29 | 0.82 | 0.00 | Calculated |
| 148 | 441593 | Pipe | J42816 | J42812 | 134.40 | 4595.25 | 4595.09 | 0.1200 | 4.000 | 0.0130 | 17.26 | 49.56 | 0.35 | 2.51 | 3.41 | 0.85 | 0.00 | Calculated |
| 149 | 441595 | Pipe | J42821 | J42885 | 108.22 | 4619.88 | 4616.20 | 3.4000 | 2.000 | 0.0130 | 21.82 | 41.72 | 0.52 | 11.61 | 1.15 | 0.58 | 0.00 | Calculated |
| 150 | 441606 | Pipe | J42833 | J42747 | 161.30 | 4716.01 | 4704.88 | 6.9000 | 2.000 | 0.0130 | 16.16 | 59.42 | 0.27 | 11.26 | 0.92 | 0.47 | 0.00 | Calculated |
| 151 | 441607 | Pipe | J42834 | J42833 | 156.83 | 4723.25 | 4716.01 | 4.6200 | 2.000 | 0.0130 | 16.17 | 48.61 | 0.33 | 14.13 | 0.77 | 0.39 | 0.00 | Calculated |
| 152 | 441608 | Pipe | J42745 | J42836 | 40.49 | 4755.35 | 4753.59 | 4.3500 | 2.000 | 0.0130 | 16.26 | 47.17 | 0.34 | 11.42 | 0.92 | 0.46 | 0.00 | Calculated |
| 153 | 441609 | Pipe | J42836 | J42835 | 277.79 | 4753.59 | 4742.72 | 3.9100 | 2.000 | 0.0130 | 16.25 | 44.75 | 0.36 | 13.28 | 0.81 | 0.41 | 0.00 | Calculated |
| 154 | 441633 | Pipe | J42853 | J42854 | 236.15 | 4666.81 | 4651.03 | 6.6800 | 2.000 | 0.0130 | 60.70 | 58.48 | 1.04 | 19.32 | 2.00 | 1.00 | 14.00 | SURCHARGED |
| 155 | 441634 | Pipe | J42854 | J42824 | 60.07 | 4651.03 | 4645.94 | 8.4700 | 2.000 | 0.0130 | 60.70 | 65.85 | 0.92 | 19.32 | 2.00 | 1.00 | 18.00 | SURCHARGED |
| 156 | 441638 | Pipe | J42858 | J42857 | 294.07 | 4696.01 | 4678.77 | 5.8600 | 2.000 | 0.0130 | 16.38 | 54.77 | 0.30 | 14.06 | 1.13 | 0.68 | 0.00 | Calculated |
| 157 | 441639 | Pipe | J42748 | J42859 | 132.28 | 4703.71 | 4700.55 | 2.3900 | 2.000 | 0.0130 | 16.17 | 34.97 | 0.46 | 10.32 | 0.98 | 0.50 | 0.00 | Calculated |
| 158 | 441640 | Pipe | J42859 | J42858 | 121.62 | 4700.55 | 4696.01 | 3.7300 | 2.000 | 0.0130 | 16.17 | 43.71 | 0.37 | 12.18 | 0.87 | 0.44 | 0.00 | Calculated |
| 159 | 441662 | Pipe | J441660-0 | J441657-0 | 278.01 | 4645.74 | 4638.61 | 2.5600 | 2.500 | 0.0130 | 60.69 | 65.69 | 0.92 | 14.26 | 2.10 | 0.84 | 0.00 | Calculated |
| 160 | 441673 | Pipe | J42835 | J441673-1 | 384.26 | 4742.72 | 4723.40 | 5.0300 | 2.000 | 0.0130 | 16.16 | 50.73 | 0.32 | 10.10 | 1.00 | 0.51 | 0.00 | Calculated |
| 161 | 441674 | Pipe | J441673-1 | J42834 | 6.19 | 4723.40 | 4723.25 | 2.4200 | 2.000 | 0.0130 | 16.16 | 35.22 | 0.46 | 9.60 | 1.04 | 0.53 | 0.00 | Calculated |
| 162 | 441822 | Pipe | J42364 | J42358 | 138.70 | 4621.30 | 4617.19 | 2.9600 | 2.000 | 0.0130 | 13.35 | 38.94 | 0.34 | 12.03 | 0.77 | 0.38 | 0.00 | Calculated |
| 163 | 441823 | Pipe | J441823.0 | J42364 | 395.78 | 4636.38 | 4621.30 | 3.8100 | 2.000 | 0.0130 | 13.35 | 44.16 | 0.30 | 11.01 | 0.82 | 0.41 | 0.00 | Calculated |
| 164 | 441866 | Pipe | J4224 | J42797 | 406.19 | 4534.11 | 4520.54 | 3.3400 | 2.500 | 0.0130 | 41.60 | 74.97 | 0.55 | 15.20 | 1.35 | 0.55 | 0.00 | Calculated |
| 165 | 441867 | Pipe | J4225 | J4224 | 292.91 | 4538.76 | 4534.11 | 1.5900 | 2.500 | 0.0130 | 41.61 | 51.68 | 0.81 | 12.27 | 1.61 | 0.65 | 0.00 | Calculated |
| 166 | 441868 | Pipe | J4226 | J4225 | 171.06 | 4542.66 | 4538.76 | 2.2800 | 2.500 | 0.0130 | 41.60 | 61.93 | 0.67 | 11.17 | 1.76 | 0.71 | 0.00 | Calculated |
| 167 | 441869 | Pipe | J4236 | J4226 | 170.49 | 4549.45 | 4542.66 | 3.9800 | 2.500 | 0.0130 | 41.60 | 81.86 | 0.51 | 13.32 | 1.51 | 0.61 | 0.00 | Calculated |
| 168 | 441870 | Pipe | J42363 | J4237 | 89.88 | 4588.99 | 4580.68 | 9.2500 | 2.500 | 0.0130 | 36.26 | 124.72 | 0.29 | 17.73 | 1.09 | 0.43 | 0.00 | Calculated |

## Link Summary

| SN | Element ID | Element Type | From (Inlet) Node | To (Outlet) Node | Length | Inlet Invert Elevation | Outlet Invert Elevation | Average Slope | Diameter or Height | Manning's Roughness | Peak Flow | Design Flow Capacity | Peak Flow/ Design Flow Ratio | Peak Flow Velocity | Peak Flow Depth | Peak Flow Depth/ Total Depth Ratio | Total Time Surcharged | Reported Condition |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | (ft) | (ft) | (ft) | (%) | (ft) | | (cfs) | (cfs) | | (ft/sec) | (ft) | | (min) | |
| 169 | 441871 | Pipe | J4237 | J4236 | 581.40 | 4580.68 | 4546.45 | 5.8900 | 2.500 | 0.0130 | 41.33 | 95.06 | 0.43 | 16.77 | 1.25 | 0.50 | 0.00 | Calculated |
| 170 | 441905 | Pipe | J42357 | J441823.0 | 776.29 | 4670.80 | 4636.38 | 4.4300 | 2.000 | 0.0130 | 13.35 | 47.64 | 0.28 | 12.62 | 0.74 | 0.37 | 0.00 | Calculated |
| 171 | Link-111 | Pipe | Jun-192 | J42303 | 401.24 | 4732.10 | 4704.40 | 6.9000 | 1.500 | 0.0130 | 12.83 | 27.60 | 0.46 | 14.92 | 0.74 | 0.49 | 0.00 | Calculated |
| 172 | Link-140 | Pipe | Jun-194 | SN-UL110 | 1878.62 | 4704.00 | 4597.00 | 5.7000 | 2.000 | 0.0150 | 16.00 | 46.79 | 0.34 | 9.44 | 1.40 | 0.70 | 0.00 | Calculated |
| 173 | Link-142 | Pipe | J42855 | J42853 | 248.17 | 4668.88 | 4666.81 | 0.8300 | 2.000 | 0.0130 | 16.38 | 20.66 | 0.79 | 5.77 | 2.00 | 1.00 | 13.00 | SURCHARGED |
| 174 | Link-144 | Pipe | J42856 | J42855 | 44.57 | 4669.95 | 4668.88 | 2.4000 | 2.000 | 0.0130 | 16.38 | 35.05 | 0.47 | 7.45 | 2.00 | 1.00 | 11.00 | SURCHARGED |
| 175 | Link-146 | Pipe | J42857 | J42856 | 163.82 | 4678.77 | 4669.95 | 5.3800 | 2.000 | 0.0150 | 16.38 | 45.49 | 0.36 | 9.91 | 1.76 | 1.00 | 1.00 | SURCHARGED |
| 176 | Link-161 | Pipe | J441657-0 | SN-UL144 | 130.26 | 4638.41 | 4625.00 | 10.2900 | 2.500 | 0.0150 | 78.99 | 114.06 | 0.69 | 16.36 | 2.38 | 0.96 | 0.00 | Calculated |
| 177 | Link-167 | Pipe | SN-UL124 | Jun-208 | 148.53 | 4894.50 | 4892.60 | 1.2800 | 3.000 | 0.0130 | 0.00 | 75.44 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | Calculated |
| 178 | Link-168 | Pipe | SN-UL124 | Jun-208 | 154.42 | 4894.50 | 4885.12 | 6.0700 | 3.000 | 0.0130 | 0.00 | 164.39 | 0.00 | 0.00 | 1.50 | 0.50 | 0.00 | Calculated |
| 179 | Link-169 | Pipe | SN-UL124 | Jun-208 | 141.64 | 4898.50 | 4885.93 | 8.8700 | 3.000 | 0.0130 | 0.00 | 198.70 | 0.00 | 0.00 | 1.37 | 0.46 | 0.00 | Calculated |
| 180 | Link-170 | Pipe | Jun-210 | JUL130.08-1 | 1113.69 | 4635.00 | 4594.64 | 3.6200 | 4.000 | 0.0130 | 28.63 | 273.45 | 0.10 | 3.82 | 2.40 | 0.60 | 0.00 | Calculated |
| 181 | Link-171 | Pipe | Jun-211 | Jun-210 | 267.29 | 4646.72 | 4635.00 | 4.3800 | 2.500 | 0.0130 | 28.63 | 85.89 | 0.33 | 15.57 | 1.00 | 0.40 | 0.00 | Calculated |
| 182 | Link-172 | Pipe | Jun-212 | JUL130.08-1 | 1046.14 | 4636.03 | 4594.64 | 3.9600 | 2.000 | 0.0130 | 10.40 | 45.00 | 0.23 | 9.85 | 1.33 | 0.66 | 0.00 | Calculated |
| 183 | Link-175 | Pipe | Jun-216 | SN-UL080B | 90.76 | 4579.44 | 4578.58 | 0.9500 | 2.000 | 0.0150 | 10.82 | 19.09 | 0.57 | 8.07 | 1.06 | 0.53 | 0.00 | Calculated |
| 184 | Link-176 | Pipe | Jun-217 | Jun-220 | 703.02 | 4678.00 | 4642.00 | 5.1200 | 3.000 | 0.0130 | 23.53 | 150.93 | 0.16 | 11.72 | 0.99 | 0.33 | 0.00 | Calculated |
| 185 | Link-177 | Pipe | Jun-218 | Jun-216 | 134.93 | 4580.35 | 4579.44 | 0.6700 | 2.000 | 0.0150 | 10.84 | 16.10 | 0.67 | 4.93 | 1.35 | 0.67 | 0.00 | Calculated |
| 186 | Link-180 | Pipe | Jun-220 | Stor-48 | 1133.40 | 4642.00 | 4587.00 | 4.8500 | 2.500 | 0.0130 | 31.38 | 90.36 | 0.35 | 21.89 | 0.90 | 0.36 | 0.00 | Calculated |
| 187 | Link-182 | Pipe | Jun-222 | JUL152.04-1 | 1011.34 | 4559.00 | 4546.00 | 1.2900 | 4.000 | 0.0130 | 59.01 | 162.86 | 0.36 | 7.70 | 2.39 | 0.60 | 0.00 | Calculated |
| 188 | Link-183 | Pipe | Jun-223 | Jun-222 | 3054.43 | 4617.45 | 4559.00 | 1.9100 | 3.000 | 0.0130 | 59.06 | 92.27 | 0.64 | 14.03 | 1.73 | 0.58 | 0.00 | Calculated |
| 189 | Link-184 | Pipe | J42117 | J42223 | 1932.67 | 4597.20 | 4541.72 | 2.8700 | 1.500 | 0.0150 | 16.44 | 15.42 | 1.07 | 10.33 | 1.50 | 1.00 | 59.00 | SURCHARGED |
| 190 | Link-185 | Pipe | Jun-131 | J42223 | 383.16 | 4559.02 | 4541.72 | 4.5200 | 2.000 | 0.0150 | 28.83 | 41.66 | 0.69 | 12.08 | 1.44 | 0.72 | 0.00 | Calculated |
| 191 | Link-186 | Pipe | JUL152.02-1 | J42223 | 435.60 | 4542.50 | 4541.72 | 0.1800 | 4.000 | 0.0150 | 59.70 | 52.68 | 1.13 | 8.65 | 2.51 | 0.63 | 0.00 | > CAPACITY |
| 192 | Link-187 | Pipe | Jun-224 | Jun-228 | 257.10 | 4542.28 | 4527.09 | 5.9100 | 1.500 | 0.0130 | 12.71 | 25.53 | 0.50 | 10.09 | 1.00 | 0.68 | 0.00 | Calculated |
| 193 | Link-188 | Pipe | Jun-225 | Jun-226 | 153.80 | 4507.59 | 4504.95 | 1.7200 | 1.500 | 0.0130 | 12.65 | 13.76 | 0.92 | 8.90 | 1.14 | 0.77 | 0.00 | Calculated |
| 194 | Link-189 | Pipe | Jun-226 | Out-29 | 278.78 | 4504.95 | 4495.00 | 3.5700 | 2.000 | 0.0130 | 12.57 | 42.74 | 0.29 | 11.29 | 0.76 | 0.38 | 0.00 | Calculated |
| 195 | Link-190 | Pipe | Jun-228 | Jun-229 | 315.87 | 4527.09 | 4521.04 | 1.9200 | 1.500 | 0.0130 | 12.62 | 14.54 | 0.87 | 9.68 | 1.02 | 0.69 | 0.00 | Calculated |
| 196 | Link-191 | Pipe | Jun-229 | Jun-225 | 283.63 | 4521.04 | 4507.59 | 4.7400 | 1.500 | 0.0130 | 12.61 | 22.87 | 0.55 | 9.00 | 1.14 | 0.77 | 0.00 | Calculated |
| 197 | Link-192 | Pipe | J0012-1 | J0006-0 | 168.74 | 4586.70 | 4578.80 | 4.6800 | 2.500 | 0.0150 | 78.42 | 76.92 | 1.02 | 15.98 | 0.82 | 1.00 | 0.00 | > CAPACITY |
| 198 | Link-89 | Pipe | J4429-0 | J42821 | 64.52 | 4621.41 | 4619.88 | 2.3700 | 2.000 | 0.0130 | 21.82 | 34.84 | 0.63 | 10.58 | 1.25 | 0.62 | 0.00 | Calculated |
| 199 | UL130.08 | Pipe | JUL130.08-1 | JUL130.08-0 | 3982.32 | 4594.64 | 4592.42 | 0.0600 | 4.000 | 0.0130 | 38.33 | 33.92 | 1.13 | 4.08 | 2.80 | 0.70 | 0.00 | > CAPACITY |
| 200 | UL152.02 | Pipe | JUL152.02-0 | JUL152.02-1 | 953.65 | 4545.80 | 4542.50 | 0.3500 | 4.000 | 0.0150 | 59.02 | 73.23 | 0.81 | 5.97 | 3.03 | 0.76 | 0.00 | Calculated |
| 201 | 0014 | Channel | J44269-1 | SN-UL100B | 230.07 | 4721.40 | 4723.40 | -0.8700 | 10.000 | 0.0320 | 0.00 | 4038.48 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 202 | 0163 | Channel | JUL130.06-1 | JUL130.04-0 | 345.73 | 4582.55 | 4581.26 | 0.3700 | 10.000 | 0.0320 | 62.78 | 2645.81 | 0.02 | 3.51 | 1.40 | 0.14 | 0.00 | |
| 203 | 0164 | Channel | JUL130.04-1 | JUL130.02-0 | 548.67 | 4567.91 | 4566.45 | 0.2700 | 10.000 | 0.0320 | 62.76 | 1442.42 | 0.04 | 3.69 | 1.48 | 0.15 | 0.00 | |
| 204 | 0174 | Channel | JUL080.04-0 | SN-UL080B | 66.45 | 4595.90 | 4578.58 | 26.0600 | 10.000 | 0.0320 | 27.85 | 22113.60 | 0.00 | 6.28 | 0.59 | 0.06 | 0.00 | |
| 205 | 0175 | Channel | JUL121.02-0 | J441560-0 | 79.84 | 4704.50 | 4704.00 | 0.6300 | 15.000 | 0.0320 | 105.89 | 8660.18 | 0.01 | 2.75 | 2.65 | 0.18 | 0.00 | |
| 206 | 44325 | Channel | JUL130.02-1 | J44325-1 | 79.93 | 4505.04 | 4502.46 | 3.2300 | 10.000 | 0.0320 | 62.76 | 7781.94 | 0.01 | 6.42 | 0.84 | 0.08 | 0.00 | |
| 207 | 44617 | Channel | JUL080.06-0 | J44612-0 | 26.82 | 4635.30 | 4634.84 | 1.7200 | 6.000 | 0.0320 | 13.15 | 1879.97 | 0.01 | 1.03 | 1.69 | 0.28 | 0.00 | |
| 208 | Link-147 | Channel | JUL100.04-0 | JUL080.12-1 | 1719.35 | 5012.74 | 4878.08 | 7.8300 | 10.000 | 0.0320 | 4.60 | 12121.89 | 0.00 | 3.30 | 0.16 | 0.02 | 0.00 | |
| 209 | Link-153 | Channel | Jun-195 | Jun-204 | 400.02 | 5000.00 | 5010.00 | -2.5000 | 10.000 | 0.0320 | 1.27 | 6848.45 | 0.00 | 1.23 | 0.10 | 0.01 | 0.00 | |
| 210 | Link-157 | Channel | Jun-195 | Jun-205 | 2694.56 | 5000.00 | 4825.00 | 6.4900 | 10.000 | 0.0320 | 3.69 | 11038.45 | 0.00 | 2.89 | 0.12 | 0.01 | 0.00 | |
| 211 | Link-162 | Channel | Jun-206 | Jun-211 | 1988.02 | 4795.00 | 4646.72 | 7.4600 | 10.000 | 0.0320 | 28.65 | 11829.43 | 0.00 | 3.24 | 0.77 | 0.08 | 0.00 | |
| 212 | Link-166 | Channel | Jun-208 | JUL121.02-0 | 2490.27 | 4888.00 | 4698.77 | 7.6000 | 10.000 | 0.0320 | 65.98 | 11757.85 | 0.01 | 4.11 | 1.56 | 0.16 | 0.00 | |
| 213 | Link-179 | Channel | Jun-219 | JUL080.12-0 | 937.32 | 4849.00 | 4776.51 | 7.7300 | 6.000 | 0.0320 | 9.59 | 3992.06 | 0.00 | 0.84 | 0.95 | 0.16 | 0.00 | |
| 214 | Link-181 | Channel | Jun-214 | Jun-205 | 2506.49 | 4825.00 | 4820.00 | 0.2000 | 10.000 | 0.0320 | 4.00 | 1934.57 | 0.00 | 0.34 | 2.09 | 0.21 | 0.00 | |
| 215 | UL010.02 | Channel | JUL010.04-1 | JUL010.02-1 | 602.83 | 4495.70 | 4491.00 | 0.7800 | 10.000 | 0.0320 | 182.91 | 3824.59 | 0.05 | 5.58 | 2.25 | 0.23 | 0.00 | |
| 216 | UL010.04 | Channel | JUL010.04-0 | JUL010.04-1 | 2983.35 | 4614.13 | 4495.70 | 3.9700 | 10.000 | 0.0320 | 190.68 | 8630.02 | 0.02 | 8.60 | 1.84 | 0.19 | 0.00 | |
| 217 | UL010.06 | Channel | JUL010.08-0 | JUL010.04-0 | 1243.78 | 4675.67 | 4614.13 | 4.9500 | 10.000 | 0.0320 | 194.51 | 9634.74 | 0.02 | 10.79 | 1.41 | 0.14 | 0.00 | |
| 218 | UL010.08 | Channel | JUL010.10-1 | JUL010.08-0 | 2580.17 | 4812.10 | 4675.67 | 5.2900 | 10.000 | 0.0320 | 196.69 | 9960.10 | 0.02 | 11.33 | 1.38 | 0.14 | 0.00 | |
| 219 | UL010.10 | Channel | JUL010.10-0 | JUL010.10-1 | 13317.42 | 5849.45 | 4812.10 | 7.7900 | 10.000 | 0.0320 | 10.16 | 12088.87 | 0.00 | 3.46 | 0.69 | 0.07 | 0.00 | |
| 220 | UL020.02 | Channel | JUL020.02-0 | JUL020.02-1 | 5989.44 | 4865.89 | 4490.00 | 6.2800 | 10.000 | 0.0320 | 135.92 | 10851.01 | 0.01 | 10.60 | 1.06 | 0.11 | 0.00 | |
| 221 | UL020.06 | Channel | JUL020.06-0 | JUL020.02-0 | 3258.08 | 5072.86 | 4865.89 | 6.3500 | 10.000 | 0.0320 | 42.14 | 10917.06 | 0.00 | 4.57 | 0.80 | 0.08 | 0.00 | |
| 222 | UL020.10 | Channel | JUL020.10-0 | JUL020.06-0 | 1432.67 | 5162.24 | 5072.86 | 6.2400 | 10.000 | 0.0320 | 44.64 | 10818.82 | 0.00 | 8.87 | 0.54 | 0.05 | 0.00 | |
| 223 | UL020.12 | Channel | JUL020.12-0 | JUL020.10-0 | 2121.66 | 5346.59 | 5162.24 | 8.6900 | 10.000 | 0.0320 | 0.00 | 12767.82 | 0.00 | 0.00 | 0.29 | 0.03 | 0.00 | |
| 224 | UL024.02 | Channel | UL024.02-0 | JUL020.06-0 | 13152.72 | 7100.00 | 5072.86 | 15.4100 | 10.000 | 0.0320 | 3.26 | 17004.63 | 0.00 | 2.34 | 0.27 | 0.03 | 0.00 | |

## Link Summary

| SN | Element ID | Element Type | From (Inlet) Node | To (Outlet) Node | Length | Inlet Invert Elevation | Outlet Invert Elevation | Average Slope | Diameter or Height | Manning's Roughness | Peak Flow | Design Flow Capacity | Peak Flow/ Design Flow Ratio | Peak Flow Velocity | Peak Flow Depth | Peak Flow Depth/ Total Depth Ratio | Total Time Surcharged | Reported Condition |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | (ft) | (ft) | (ft) | (%) | (ft) | | (cfs) | (cfs) | | (ft/sec) | (ft) | | (min) | |
| 225 | UL030.02 | Channel | JUL030.02-0 | JUL030.02-1 | 1830.00 | 4580.07 | 4501.37 | 4.3000 | 10.000 | 0.0320 | 105.31 | 8982.45 | 0.01 | 8.58 | 1.02 | 0.10 | 0.00 | |
| 226 | UL030.04 | Channel | JUL030.04-0 | JUL030.02-0 | 140.00 | 4587.21 | 4580.07 | 5.1000 | 10.000 | 0.0320 | 105.32 | 9781.78 | 0.01 | 8.71 | 1.01 | 0.10 | 0.00 | |
| 227 | UL030.06 | Channel | JUL030.08-1 | JUL030.04-0 | 758.01 | 4618.14 | 4587.21 | 4.0800 | 10.000 | 0.0320 | 105.32 | 8749.55 | 0.01 | 8.41 | 1.04 | 0.10 | 0.00 | |
| 228 | UL030.08 | Channel | JUL030.12-1 | JUL030.08-1 | 170.70 | 4623.65 | 4618.14 | 3.2300 | 10.000 | 0.0320 | 105.33 | 7782.01 | 0.01 | 7.68 | 1.12 | 0.11 | 0.00 | |
| 229 | UL030.12 | Channel | JUL030.14-1 | JUL030.12-1 | 2350.79 | 4769.44 | 4623.65 | 6.2000 | 10.000 | 0.0320 | 43.81 | 10786.73 | 0.00 | 4.46 | 0.84 | 0.08 | 0.00 | |
| 230 | UL030.14 | Channel | JUL030.14-0 | JUL030.14-1 | 4235.97 | 5067.12 | 4769.44 | 7.0300 | 10.000 | 0.0320 | 44.04 | 11482.37 | 0.00 | 7.37 | 0.54 | 0.05 | 0.00 | |
| 231 | UL030.16 | Channel | JUL030.16-0 | JUL030.14-0 | 1610.07 | 5222.41 | 5067.12 | 9.6400 | 10.000 | 0.0320 | 3.10 | 13451.86 | 0.00 | 1.55 | 0.31 | 0.03 | 0.00 | |
| 232 | UL031.02 | Channel | JUL031.06-1 | JUL030.12-1 | 4234.97 | 4887.75 | 4623.65 | 6.2400 | 10.000 | 0.0320 | 61.87 | 10816.63 | 0.01 | 6.90 | 0.90 | 0.09 | 0.00 | |
| 233 | UL031.06 | Channel | JUL031.10-1 | JUL031.06-1 | 5099.63 | 5457.22 | 4887.75 | 11.1700 | 10.000 | 0.0320 | 21.05 | 14474.35 | 0.00 | 3.96 | 0.48 | 0.05 | 0.00 | |
| 234 | UL031.10 | Channel | JUL031.10-0 | JUL031.10-1 | 5746.18 | 6622.71 | 5457.22 | 20.2800 | 10.000 | 0.0320 | 0.00 | 19507.32 | 0.00 | 0.00 | 0.15 | 0.01 | 0.00 | |
| 235 | UL033.01 | Channel | JUL033.02-1 | JUL030.14-0 | 2500.15 | 5352.23 | 5067.12 | 11.4000 | 10.000 | 0.0320 | 1.58 | 14627.03 | 0.00 | 0.97 | 0.29 | 0.03 | 0.00 | |
| 236 | UL033.02 | Channel | JUL033.02-0 | JUL033.02-1 | 2601.27 | 5974.93 | 5352.23 | 23.9400 | 10.000 | 0.0320 | 1.90 | 21192.38 | 0.00 | 3.74 | 0.06 | 0.01 | 0.00 | |
| 237 | UL034.02 | Channel | JUL034.02-0 | JUL030.16-0 | 2372.14 | 5708.23 | 5222.41 | 20.4800 | 10.000 | 0.0320 | 3.34 | 19602.01 | 0.00 | 4.16 | 0.09 | 0.01 | 0.00 | |
| 238 | UL040.06 | Channel | JUL040.06-0 | JUL040.04-1 | 3563.10 | 5281.46 | 4611.85 | 18.7900 | 10.000 | 0.0320 | 11.46 | 16806.90 | 0.00 | 1.27 | 1.50 | 0.15 | 0.00 | |
| 239 | UL041.02 | Channel | JUL041.04-1 | JUL041.02-1 | 1969.22 | 4741.62 | 4627.15 | 5.8100 | 10.000 | 0.0320 | 38.19 | 10443.16 | 0.00 | 4.19 | 0.83 | 0.08 | 0.00 | |
| 240 | UL041.04 | Channel | JUL041.04-0 | JUL041.04-1 | 4898.39 | 5183.21 | 4741.62 | 9.0200 | 10.000 | 0.0320 | 0.00 | 13005.17 | 0.00 | 0.00 | 0.26 | 0.03 | 0.00 | |
| 241 | UL045.02 | Channel | JUL045.02-0 | JUL040.06-0 | 6044.57 | 6540.33 | 5281.46 | 20.8300 | 10.000 | 0.0320 | 0.50 | 19767.00 | 0.00 | 0.45 | 0.11 | 0.01 | 0.00 | |
| 242 | UL065.02 | Channel | JUL065.02-0 | JUL070.14-0 | 9092.99 | 6574.33 | 5261.14 | 14.4400 | 10.000 | 0.0320 | 0.00 | 16460.52 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 243 | UL066.02 | Channel | JUL066.02-0 | JUL070.12-0 | 5475.30 | 6216.13 | 5214.49 | 18.2900 | 10.000 | 0.0320 | 0.68 | 18526.14 | 0.00 | 0.94 | 0.21 | 0.02 | 0.00 | |
| 244 | UL070.02 | Channel | JUL070.02-0 | JUL070.02-1 | 1259.30 | 4581.13 | 4500.32 | 6.4200 | 10.000 | 0.0320 | 75.57 | 10972.38 | 0.01 | 8.77 | 0.75 | 0.07 | 0.00 | |
| 245 | UL070.04 | Channel | JUL070.04-0 | JUL070.04-1 | 925.09 | 4647.09 | 4590.98 | 6.0700 | 10.000 | 0.0320 | 63.31 | 10667.46 | 0.01 | 5.21 | 1.01 | 0.10 | 0.00 | |
| 246 | UL070.06 | Channel | JUL070.06-0 | JUL070.04-0 | 254.18 | 4659.93 | 4647.09 | 5.0500 | 10.000 | 0.0320 | 51.23 | 9735.20 | 0.01 | 6.82 | 0.66 | 0.07 | 0.00 | |
| 247 | UL070.08 | Channel | JUL070.10-1 | JUL070.06-0 | 1632.52 | 4779.12 | 4659.93 | 7.3000 | 10.000 | 0.0320 | 42.47 | 11703.71 | 0.00 | 6.60 | 0.58 | 0.06 | 0.00 | |
| 248 | UL070.10 | Channel | JUL070.10-0 | JUL070.10-1 | 3787.32 | 5083.29 | 4779.12 | 8.0300 | 10.000 | 0.0320 | 30.31 | 12275.10 | 0.00 | 6.30 | 0.46 | 0.05 | 0.00 | |
| 249 | UL070.12 | Channel | JUL070.12-0 | JUL070.10-0 | 1304.35 | 5214.49 | 5083.29 | 10.0600 | 10.000 | 0.0320 | 34.49 | 13737.35 | 0.00 | 8.56 | 0.41 | 0.04 | 0.00 | |
| 250 | UL070.14 | Channel | JUL070.14-0 | JUL070.10-0 | 1606.64 | 5261.14 | 5083.29 | 11.0700 | 10.000 | 0.0320 | 0.00 | 14411.22 | 0.00 | 0.00 | 0.20 | 0.02 | 0.00 | |
| 251 | UL080.02 | Channel | JUL080.02-0 | JUL080.02-1 | 1930.63 | 4572.00 | 4493.46 | 4.0700 | 10.000 | 0.0320 | 56.67 | 8736.33 | 0.01 | 6.84 | 0.72 | 0.07 | 0.00 | |
| 252 | UL080.04 | Channel | JUL080.04-1 | JUL080.04-0 | 714.39 | 4634.00 | 4595.90 | 5.3300 | 6.000 | 0.0320 | 24.28 | 3315.10 | 0.01 | 6.42 | 0.35 | 0.06 | 0.00 | |
| 253 | UL080.06 | Channel | JUL080.06-1 | JUL080.06-0 | 1080.62 | 4695.88 | 4635.30 | 5.6100 | 6.000 | 0.0320 | 12.35 | 3398.84 | 0.00 | 2.14 | 0.84 | 0.14 | 0.00 | |
| 254 | UL080.08 | Channel | JUL080.08-1 | JUL080.08-0 | 222.77 | 4711.67 | 4696.80 | 6.6800 | 6.000 | 0.0320 | 12.35 | 3708.76 | 0.00 | 2.10 | 0.53 | 0.09 | 0.00 | |
| 255 | UL080.10 | Channel | JUL080.10-0 | JUL080.10-1 | 762.19 | 4770.94 | 4717.35 | 7.0300 | 6.000 | 0.0320 | 9.58 | 3806.38 | 0.00 | 1.07 | 0.77 | 0.13 | 0.00 | |
| 256 | UL080.12 | Channel | JUL080.12-1 | Jun-219 | 425.95 | 4878.08 | 4849.00 | 6.8300 | 10.000 | 0.0320 | 7.59 | 11317.51 | 0.00 | 3.81 | 0.20 | 0.02 | 0.00 | |
| 257 | UL080.14 | Channel | JUL080.14-0 | JUL080.12-1 | 1665.80 | 5014.70 | 4878.08 | 8.2000 | 10.000 | 0.0320 | 3.00 | 12404.48 | 0.00 | 2.67 | 0.15 | 0.01 | 0.00 | |
| 258 | UL080.16 | Channel | JUL080.16-0 | JUL080.14-0 | 2076.56 | 5227.63 | 5014.70 | 10.2500 | 10.000 | 0.0320 | 3.00 | 13870.09 | 0.00 | 2.96 | 0.10 | 0.01 | 0.00 | |
| 259 | UL084.02 | Channel | JUL084.02-0 | JUL080.16-0 | 6970.28 | 6213.33 | 5227.63 | 14.1400 | 10.000 | 0.0320 | 0.00 | 16288.47 | 0.00 | 0.00 | 0.05 | 0.00 | 0.00 | |
| 260 | UL100.06 | Channel | JUL100.06-0 | JUL100.04-0 | 2084.49 | 5193.10 | 5012.74 | 8.6500 | 10.000 | 0.0320 | 0.62 | 12740.99 | 0.00 | 0.70 | 0.09 | 0.01 | 0.00 | |
| 261 | UL120.02 | Channel | JUL120.02-0 | JUL120.02-1 | 57.03 | 4505.93 | 4504.59 | 2.3500 | 10.000 | 0.0320 | 134.70 | 6639.47 | 0.02 | 7.23 | 1.44 | 0.14 | 0.00 | |
| 262 | UL120.04 | Channel | JUL120.04-0 | JUL120.04-1 | 925.42 | 4541.49 | 4511.73 | 3.2200 | 10.000 | 0.0320 | 134.70 | 7767.48 | 0.02 | 8.40 | 1.28 | 0.13 | 0.00 | |
| 263 | UL120.06 | Channel | JUL120.06-0 | JUL120.06-1 | 1129.14 | 4574.18 | 4541.09 | 2.9300 | 10.000 | 0.0320 | 136.73 | 7414.94 | 0.02 | 5.67 | 1.79 | 0.18 | 0.00 | |
| 264 | UL121.04 | Channel | JUL121.04-0 | SN-UL124 | 3799.86 | 5110.19 | 4831.56 | 7.3300 | 10.000 | 0.0320 | 0.00 | 10355.45 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 265 | UL121.06 | Channel | JUL121.07-1 | SN-UL124 | 3124.82 | 5027.00 | 4831.56 | 6.2500 | 10.000 | 0.0320 | 0.00 | 8969.60 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 266 | UL121.07 | Channel | JUL121.07-0 | JUL121.07-1 | 942.14 | 5108.32 | 5027.00 | 8.6300 | 10.000 | 0.0320 | 0.00 | 12725.47 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 267 | UL126.02 | Channel | JUL126.02-0 | JUL121.07-1 | 13758.00 | 6720.00 | 5027.00 | 12.3100 | 10.000 | 0.0320 | 0.00 | 15194.41 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 268 | UL130.02 | Channel | JUL130.02-0 | JUL130.02-1 | 1842.72 | 4566.45 | 4505.04 | 3.3300 | 10.000 | 0.0320 | 62.76 | 7907.20 | 0.01 | 6.46 | 0.83 | 0.08 | 0.00 | |
| 269 | UL130.04 | Channel | JUL130.04-0 | JUL130.04-1 | 1221.65 | 4581.26 | 4567.91 | 1.0900 | 10.000 | 0.0320 | 62.78 | 4527.94 | 0.01 | 2.89 | 1.63 | 0.16 | 0.00 | |
| 270 | UL130.06 | Channel | JUL130.06-0 | JUL130.06-1 | 176.18 | 4590.00 | 4582.55 | 4.2300 | 10.000 | 0.0320 | 62.32 | 8907.03 | 0.01 | 4.13 | 1.21 | 0.12 | 0.00 | |
| 271 | O-Mav | Orifice | SN-UL110 | J44681.0 | | 4597.00 | 4591.92 | | 1.667 | | 18.66 | | | | | | | |
| 272 | O-Pond | Orifice | SN-UL144 | J4429-0 | | 4625.00 | 4621.41 | | 1.500 | | 21.82 | | | | | | | |
| 273 | Orifice-27 | Orifice | SN--UL121 | J42533 | | 4702.20 | 4695.91 | | 2.500 | | 37.84 | | | | | | | |
| 274 | Orifice-28 | Orifice | Stor-41 | JUL041.04-1 | | 4745.00 | 4741.62 | | 2.320 | | 38.38 | | | | | | | |
| 275 | O-Rock | Orifice | SN-UL063 | JUL070.10-1 | | 4788.10 | 4779.12 | | 1.670 | | 12.34 | | | | | | | |
| 276 | O-Still | Orifice | SN-UL100B | J0014-1 | | 4723.40 | 4721.70 | | 0.420 | | 0.00 | | | | | | | |
| 277 | O-Summ | Orifice | SN-UL100A | J441032-1 | | 4599.80 | 4592.84 | | 0.670 | | 3.38 | | | | | | | |
| 278 | O-Swain | Orifice | SN-UL060B | J44599-0 | | 4654.40 | 4647.46 | | 1.670 | | 12.09 | | | | | | | |
| 279 | O-Waym | Orifice | SN-UL081 | JUL080.10-1 | | 4723.60 | 4717.35 | | 0.670 | | 2.82 | | | | | | | |
| 280 | O-WildF | Orifice | SN-UL090 | J42462 | | 4592.80 | 4581.42 | | 0.670 | | 2.64 | | | | | | | |

## Link Summary

| SN | Element ID | Element Type | From (Inlet) Node | To (Outlet) Node | Length | Inlet Invert Elevation | Outlet Invert Elevation | Average Slope | Diameter or Height | Manning's Roughness | Peak Flow | Design Flow Capacity | Peak Flow/ Design Flow Ratio | Peak Flow Velocity | Peak Flow Depth | Peak Flow Depth/ Total Depth Ratio | Total Time Surcharged | Reported Condition |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | (ft) | (ft) | (ft) | (%) | (ft) | | (cfs) | (cfs) | | (ft/sec) | (ft) | | (min) | |
| 281 | O-WildL | Orifice | SN-UL060 | J42394 | | 4592.80 | 4586.59 | | 1.500 | | 12.47 | | | | | | | |
| 282 | Link-178 | Outlet | Stor-48 | Jun-218 | | 4587.00 | 4580.35 | | | | 4.86 | | | | | | | |
| 283 | Outlet-100 | Outlet | SN-UL101 | JUL100.02-1 | | 5033.00 | 4850.00 | | | | 2.00 | | | | | | | |
| 284 | Outlet-106 | Outlet | Stor-45 | Jun-212 | | 4636.03 | 4636.03 | | | | 10.40 | | | | | | | |
| 285 | Outlet-108 | Outlet | Jun-205 | Jun-206 | | 4820.00 | 4795.00 | | | | 28.65 | | | | | | | |
| 286 | Outlet-111 | Outlet | SN-UL080B | J441024-0 | | 4578.58 | 4572.78 | | | | 37.99 | | | | | | | |
| 287 | Outlet-112 | Outlet | Stor-48 | Jun-218 | | 4587.00 | 4580.35 | | | | 5.98 | | | | | | | |
| 288 | Outlet-113 | Outlet | Stor-49 | Jun-192 | | 4760.00 | 4732.10 | | | | 3.00 | | | | | | | |
| 289 | Outlet-114 | Outlet | Stor-50 | Jun-223 | | 4640.00 | 4617.45 | | | | 58.00 | | | | | | | |
| 290 | Outlet-115 | Outlet | SN-UL134 | Jun-205 | | 4825.00 | 4820.00 | | | | 28.00 | | | | | | | |
| 291 | Outlet-116 | Outlet | Stor-51 | J4237 | | 4590.00 | 4580.68 | | | | 6.69 | | | | | | | |
| 292 | Outlet-117 | Outlet | Stor-52 | Jun-223 | | 4630.00 | 4617.45 | | | | 1.00 | | | | | | | |
| 293 | Outlet-118 | Outlet | Stor-53 | J4236 | | 4600.00 | 4549.45 | | | | 0.72 | | | | | | | |
| 294 | Outlet-119 | Outlet | Stor-54 | Jun-192 | | 4760.00 | 4732.10 | | | | 1.21 | | | | | | | |
| 295 | Outlet-120 | Outlet | Stor-55 | J42312 | | 4655.00 | 4663.13 | | | | 5.00 | | | | | | | |
| 296 | Outlet-91 | Outlet | SN-UL115 | Jun-194 | | 5033.00 | 4704.00 | | | | 16.00 | | | | | | | |
| 297 | Outlet-92 | Outlet | Stor-39·1 | Jun-214 | | 4830.00 | 4825.00 | | | | 4.00 | | | | | | | |
| 298 | Outlet-95 | Outlet | Stor-39 | J42525 | | 4680.00 | 4672.21 | | | | 11.69 | | | | | | | |
| 299 | Outlet-96 | Outlet | Stor-39 | J42494 | | 4680.00 | 4599.72 | | | | 3.90 | | | | | | | |
| 300 | Outlet-97 | Outlet | Stor-39 | J42538 | | 4680.00 | 4595.69 | | | | 54.67 | | | | | | | |
| 301 | OUT-UL020 | Outlet | SN-UL020 | JUL020.02-0 | | 4886.00 | 4865.89 | | | | 94.00 | | | | | | | |
| 302 | OUT-UL022 | Outlet | SN-UL022 | JUL020.10-0 | | 5183.00 | 5162.24 | | | | 44.36 | | | | | | | |
| 303 | OUT-UL030 | Outlet | SN-UL030 | JUL031.06-1 | | 4908.00 | 4887.75 | | | | 41.00 | | | | | | | |
| 304 | OUT-UL031 | Outlet | SN-UL031 | JUL031.10-1 | | 5478.00 | 5457.22 | | | | 21.37 | | | | | | | |
| 305 | OUT-UL032 | Outlet | SN-UL032 | JUL030.14-0 | | 5088.00 | 5067.12 | | | | 41.79 | | | | | | | |
| 306 | OUT-UL041 | Outlet | SN-UL041 | JUL041.04-1 | | 4762.00 | 4741.62 | | | | 0.00 | | | | | | | |
| 307 | OUT-UL043 | Outlet | SN-UL043 | JUL041.04-0 | | 5204.00 | 5183.21 | | | | 0.00 | | | | | | | |
| 308 | OUT-UL044 | Outlet | SN-UL044 | JUL040.06-0 | | 5302.00 | 5281.46 | | | | 11.00 | | | | | | | |
| 309 | OUT-UL051 | Outlet | SN-UL051 | J42357 | | 4691.00 | 4670.80 | | | | 13.35 | | | | | | | |
| 310 | OUT-UL064 | Outlet | SN-UL064 | JUL070.12-0 | | 5235.00 | 5214.49 | | | | 34.50 | | | | | | | |
| 311 | OUT-UL070 | Outlet | SN-UL070 | JUL070.06-0 | | 4680.00 | 4659.93 | | | | 8.80 | | | | | | | |
| 312 | OUT-UL082 | Outlet | SN-UL082 | JUL070.10-0 | | 4899.00 | 5083.29 | | | | 4.00 | | | | | | | |
| 313 | OUT-UL083 | Outlet | SN-UL083 | JUL080.16-0 | | 5248.00 | 5227.63 | | | | 3.00 | | | | | | | |
| 314 | OUT-UL102 | Outlet | SN-UL102 | JUL100.04-0 | | 5033.00 | 5012.74 | | | | 4.00 | | | | | | | |
| 315 | OUT-UL121 | Outlet | SN-UL121 | JUL121.02-0 | | 4718.00 | 4704.50 | | | | 0.00 | | | | | | | |
| 316 | OUT-UL124 | Outlet | SN-UL124B | Jun-208 | | 5047.00 | 4880.00 | | | | 66.03 | | | | | | | |
| 317 | OUT-UL130 | Outlet | SN-UL130 | JUL130.08-0 | | 4612.00 | 4592.42 | | | | 24.00 | | | | | | | |
| 318 | OUT-UL140 | Outlet | SN-UL140 | Jun-131 | | 4577.00 | 4559.02 | | | | 28.83 | | | | | | | |
| 319 | UL040.02 | Outlet | JUL040.04-1 | Jun-192 | | 4745.00 | 4732.10 | | | | 9.83 | | | | | | | |

# FULL BUILD-OUT CONDITION - SOUTH
# 100-YEAR STORM

## Project Description

File Name ..... Saratoga South Buildout_SD_v1.SPF

## Project Options

Flow Units ..... CFS
Elevation Type ..... Elevation
Hydrology Method ..... HEC-1
HEC-1 unit hydrograph method ..... SCS Dimensionless
HEC-1 loss method ..... SCS Curve Number
Link Routing Method ..... Hydrodynamic
Enable Overflow Ponding at Nodes ..... YES
Skip Steady State Analysis Time Periods ... NO

## Analysis Options

| | | |
|---|---|---|
| Start Analysis On ..... | Jan 01, 2012 | 00:00:00 |
| End Analysis On ..... | Jan 01, 2012 | 23:55:00 |
| Start Reporting On ..... | Jan 01, 2012 | 00:00:00 |
| Antecedent Dry Days ..... | 0 | days |
| Runoff (Dry Weather) Time Step ..... | 0 01:00:00 | days hh:mm:ss |
| Runoff (Wet Weather) Time Step ..... | 0 00:05:00 | days hh:mm:ss |
| Reporting Time Step ..... | 0 00:05:00 | days hh:mm:ss |
| Routing Time Step ..... | 30 | seconds |

## Number of Elements

| | Qty |
|---|---|
| Rain Gages ..... | 3 |
| Subbasins..... | 73 |
| Nodes..... | 325 |
| *Junctions* ..... | 266 |
| *Outfalls* ..... | 11 |
| *Flow Diversions* ..... | 0 |
| *Inlets* ..... | 0 |
| *Storage Nodes* ..... | 48 |
| Links..... | 320 |
| *Channels* ..... | 70 |
| *Pipes* ..... | 200 |
| *Pumps* ..... | 0 |
| *Orifices* ..... | 11 |
| *Weirs* ..... | 0 |
| *Outlets* ..... | 39 |
| Pollutants ..... | 0 |
| Land Uses ..... | 0 |

## Rainfall Details

| SN | Rain Gage ID | Data Source | Data Source ID | Rainfall Type | Rain Units | State | County | Return Period (years) | Rainfall Depth (inches) | Rainfall Distribution |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 100-Year | Time Series | TS-100yr | Cumulative | inches | | | | 0.00 | |
| 2 | 10-Year | Time Series | TS-10yr | Cumulative | inches | | | | 0.00 | |
| 3 | 2Yr | Time Series | TS-100yr | Cumulative | inches | | | | 0.00 | |

## Subbasin Summary

| SN | Subbasin ID | Area (ac) | Total Rainfall (in) | Total Runoff (in) | Total Runoff Volume (ac-in) | Peak Runoff (cfs) |
|---|---|---|---|---|---|---|
| 1 | Sub-16 | 31.04 | 1.74 | 0.48 | 14.83 | 24.63 |
| 2 | UDOT1 | 17.67 | 1.74 | 0.74 | 13.02 | 17.95 |
| 3 | UDOT2 | 18.76 | 1.74 | 1.57 | 29.44 | 45.50 |
| 4 | UDOT3 | 7.93 | 1.74 | 1.57 | 12.46 | 19.25 |
| 5 | UDOT4 | 45.00 | 1.74 | 1.57 | 70.65 | 109.16 |
| 6 | UDOT5 | 17.33 | 1.74 | 1.57 | 27.24 | 42.08 |
| 7 | UL010 | 358.46 | 1.74 | 0.86 | 308.63 | 439.06 |
| 8 | UL012 | 765.62 | 1.74 | 0.29 | 220.50 | 140.49 |
| 9 | UL020 | 470.76 | 1.74 | 1.05 | 494.29 | 673.55 |
| 10 | UL022 | 242.19 | 1.74 | 0.52 | 126.42 | 165.44 |
| 11 | UL024 | 933.42 | 1.74 | 0.17 | 157.75 | 113.10 |
| 12 | UL030 | 205.10 | 1.74 | 0.77 | 158.14 | 223.71 |
| 13 | UL031 | 123.79 | 1.74 | 0.49 | 60.91 | 89.52 |
| 14 | UL032 | 233.02 | 1.74 | 0.47 | 110.22 | 144.21 |
| 15 | UL033 | 88.85 | 1.74 | 0.10 | 8.80 | 8.62 |
| 16 | UL034 | 156.46 | 1.74 | 0.10 | 15.49 | 15.56 |
| 17 | UL035 | 586.06 | 1.74 | 0.10 | 58.02 | 41.24 |
| 18 | UL040 | 143.49 | 1.74 | 0.48 | 68.59 | 105.64 |
| 19 | UL041 | 67.25 | 1.74 | 0.48 | 32.14 | 49.52 |
| 20 | UL042 | 67.44 | 1.74 | 0.44 | 29.88 | 45.98 |
| 21 | UL043 | 157.01 | 1.74 | 0.46 | 72.85 | 105.26 |
| 22 | UL044 | 305.29 | 1.74 | 0.44 | 134.02 | 192.54 |
| 23 | UL045 | 422.26 | 1.74 | 0.24 | 100.08 | 87.70 |
| 24 | UL050 | 65.15 | 1.74 | 0.48 | 31.14 | 47.10 |
| 25 | UL060 | 78.53 | 1.74 | 0.58 | 45.63 | 69.39 |
| 26 | UL061 | 33.56 | 1.74 | 0.53 | 17.75 | 24.94 |
| 27 | UL062 | 54.26 | 1.74 | 0.56 | 30.60 | 48.35 |
| 28 | UL063 | 92.95 | 1.74 | 0.53 | 49.17 | 77.61 |
| 29 | UL064 | 191.89 | 1.74 | 0.49 | 94.41 | 141.33 |
| 30 | UL065 | 557.40 | 1.74 | 0.09 | 47.94 | 32.22 |
| 31 | UL066 | 262.96 | 1.74 | 0.15 | 39.44 | 33.66 |
| 32 | UL070A | 26.99 | 1.74 | 0.48 | 12.90 | 19.08 |
| 33 | UL070B | 56.32 | 1.74 | 0.48 | 26.92 | 39.79 |
| 34 | UL070C | 39.85 | 1.74 | 0.48 | 19.05 | 28.17 |
| 35 | UL080A | 61.41 | 1.74 | 0.48 | 29.35 | 40.14 |
| 36 | UL080B | 14.32 | 1.74 | 0.48 | 6.84 | 9.37 |
| 37 | UL080C | 22.82 | 1.74 | 0.48 | 10.91 | 14.93 |
| 38 | UL081 | 107.65 | 1.74 | 0.48 | 51.46 | 85.41 |
| 39 | UL082 | 84.13 | 1.74 | 0.60 | 50.40 | 79.01 |
| 40 | UL083 | 63.50 | 1.74 | 0.58 | 36.89 | 58.32 |
| 41 | UL084 | 562.59 | 1.74 | 0.10 | 55.70 | 39.58 |
| 42 | UL090 | 29.46 | 1.74 | 0.58 | 17.12 | 23.51 |
| 43 | UL100a | 30.14 | 1.74 | 0.48 | 14.41 | 22.19 |
| 44 | UL100b | 18.32 | 1.74 | 0.48 | 8.74 | 13.48 |
| 45 | UL100c | 30.63 | 1.74 | 0.48 | 14.64 | 20.26 |
| 46 | UL101 | 41.98 | 1.74 | 0.48 | 20.06 | 32.19 |
| 47 | UL102 | 85.78 | 1.74 | 0.53 | 45.38 | 71.62 |
| 48 | UL103 | 130.47 | 1.74 | 0.17 | 22.05 | 22.62 |
| 49 | UL110 | 75.22 | 1.74 | 0.48 | 35.95 | 51.73 |
| 50 | UL115 | 204.91 | 1.74 | 0.50 | 101.43 | 129.28 |
| 51 | UL120 | 153.99 | 1.74 | 0.58 | 89.47 | 136.06 |
| 52 | UL121 | 131.78 | 1.74 | 0.57 | 74.85 | 102.03 |
| 53 | UL124 | 295.07 | 1.74 | 0.45 | 131.90 | 166.23 |
| 54 | UL126 | 1502.76 | 1.74 | 0.09 | 129.24 | 72.48 |
| 55 | UL130 | 199.88 | 1.74 | 1.03 | 206.68 | 243.19 |
| 56 | UL132 | 106.78 | 1.74 | 0.62 | 66.42 | 86.78 |
| 57 | UL134 | 275.88 | 1.74 | 0.60 | 165.53 | 221.01 |
| 58 | UL136 | 740.74 | 1.74 | 0.17 | 125.18 | 76.01 |
| 59 | UL140 | 102.75 | 1.74 | 0.65 | 67.20 | 80.49 |
| 60 | UL142a | 29.17 | 1.74 | 0.48 | 13.94 | 19.29 |
| 61 | UL142b | 28.54 | 1.74 | 0.48 | 13.64 | 18.86 |
| 62 | UL144a | 35.02 | 1.74 | 0.49 | 17.23 | 31.41 |
| 63 | UL144b | 111.53 | 1.74 | 0.49 | 54.87 | 91.19 |
| 64 | UL144c | 41.60 | 1.74 | 0.49 | 20.47 | 37.33 |
| 65 | UL146 | 43.67 | 1.74 | 0.59 | 25.94 | 40.12 |
| 66 | UL148 | 301.52 | 1.74 | 0.17 | 50.96 | 40.13 |
| 67 | UL150 | 50.72 | 1.74 | 0.53 | 27.03 | 37.22 |
| 68 | UL152 | 407.67 | 1.74 | 1.05 | 427.24 | 521.99 |
| 69 | UL152B | 43.02 | 1.74 | 0.58 | 24.82 | 39.10 |
| 70 | UL212 | 110.34 | 1.74 | 0.48 | 52.74 | 82.26 |
| 71 | UL212B | 9.06 | 1.74 | 0.44 | 4.02 | 6.20 |
| 72 | UL213A | 6.59 | 1.74 | 0.58 | 3.82 | 2.50 |
| 73 | UL213B | 47.58 | 1.74 | 0.48 | 22.70 | 28.66 |

## Node Summary

| SN | Element ID | Element Type | Invert Elevation (ft) | Ground/Rim (Max) Elevation (ft) | Initial Water Elevation (ft) | Surcharge Elevation (ft) | Ponded Area (ft²) | Peak Inflow (cfs) | Max HGL Elevation Attained (ft) | Max Surcharge Depth Attained (ft) | Min Freeboard Attained (ft) | Time of Peak Flooding Occurrence (days hh:mm) | Total Flooded Volume (ac-in) | Total Time Flooded (min) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | J0004-0 | Junction | 4525.19 | 4530.79 | 0.00 | 4536.39 | 0.00 | 82.97 | 4527.13 | 0.00 | 3.66 | 0 00:00 | 0.00 | 0.00 |
| 2 | J0006-0 | Junction | 4578.80 | 4586.35 | 0.00 | 4586.35 | 0.00 | 75.92 | 4583.21 | 0.00 | 3.14 | 0 00:00 | 0.00 | 0.00 |
| 3 | J0012-1 | Junction | 4586.70 | 4592.86 | 0.00 | 4592.86 | 0.00 | 20.33 | 4587.67 | 0.00 | 5.19 | 0 00:00 | 0.00 | 0.00 |
| 4 | J0014-1 | Junction | 4721.70 | 4725.70 | 0.00 | 4732.37 | 0.00 | 0.00 | 4721.70 | 0.00 | 4.00 | 0 00:00 | 0.00 | 0.00 |
| 5 | J0131.0 | Junction | 4591.24 | 4594.79 | 0.00 | 4598.34 | 0.00 | 15.00 | 4593.50 | 0.00 | 1.29 | 0 00:00 | 0.00 | 0.00 |
| 6 | J42112 | Junction | 4599.43 | 4605.33 | 0.00 | 0.00 | 0.00 | 24.43 | 4605.33 | 0.00 | 0.00 | 0 02:43 | 20.41 | 201.00 |
| 7 | J42117 | Junction | 4597.20 | 4602.90 | 0.00 | 4608.60 | 0.00 | 19.76 | 4608.60 | 5.70 | 0.00 | 0 01:55 | 0.00 | 0.00 |
| 8 | J42118 | Junction | 4610.41 | 4615.21 | 0.00 | 0.00 | 0.00 | 24.43 | 4611.79 | 0.00 | 3.42 | 0 00:00 | 0.00 | 0.00 |
| 9 | J42154 | Junction | 4521.79 | 4530.29 | 0.00 | 4536.96 | 0.00 | 145.85 | 4523.65 | 0.00 | 6.64 | 0 00:00 | 0.00 | 0.00 |
| 10 | J42155 | Junction | 4525.14 | 4536.04 | 0.00 | 4542.71 | 0.00 | 145.85 | 4534.07 | 0.00 | 1.97 | 0 00:00 | 0.00 | 0.00 |
| 11 | J42156 | Junction | 4527.51 | 4540.26 | 0.00 | 4546.93 | 0.00 | 145.85 | 4536.40 | 0.00 | 3.86 | 0 00:00 | 0.00 | 0.00 |
| 12 | J42157 | Junction | 4512.22 | 4529.67 | 0.00 | 4536.34 | 0.00 | 183.07 | 4514.43 | 0.00 | 15.24 | 0 00:00 | 0.00 | 0.00 |
| 13 | J42175 | Junction | 4688.48 | 4696.88 | 0.00 | 4703.55 | 0.00 | 22.19 | 4694.12 | 0.00 | 2.76 | 0 00:00 | 0.00 | 0.00 |
| 14 | J42176 | Junction | 4691.51 | 4699.51 | 0.00 | 4706.18 | 0.00 | 22.19 | 4704.42 | 4.91 | 0.00 | 0 00:00 | 0.00 | 0.00 |
| 15 | J42177 | Junction | 4694.19 | 4701.99 | 0.00 | 4708.66 | 0.00 | 22.19 | 4708.66 | 6.67 | 0.00 | 0 01:59 | 0.00 | 0.00 |
| 16 | J42178 | Junction | 4703.44 | 4711.94 | 0.00 | 4718.61 | 0.00 | 22.19 | 4718.28 | 6.34 | 0.00 | 0 00:00 | 0.00 | 0.00 |
| 17 | J42180 | Junction | 4743.73 | 4755.03 | 0.00 | 4761.70 | 0.00 | 0.00 | 4743.73 | 0.00 | 11.30 | 0 00:00 | 0.00 | 0.00 |
| 18 | J42181 | Junction | 4730.23 | 4738.33 | 0.00 | 4745.00 | 0.00 | 0.00 | 4730.23 | 0.00 | 8.10 | 0 00:00 | 0.00 | 0.00 |
| 19 | J42223 | Junction | 4541.72 | 4547.72 | 0.00 | 4554.39 | 0.00 | 145.88 | 4543.77 | 0.00 | 3.95 | 0 00:00 | 0.00 | 0.00 |
| 20 | J4224 | Junction | 4534.11 | 4539.51 | 0.00 | 4544.91 | 0.00 | 66.59 | 4536.10 | 0.00 | 3.41 | 0 00:00 | 0.00 | 0.00 |
| 21 | J4225 | Junction | 4538.76 | 4543.31 | 0.00 | 4557.36 | 0.00 | 66.59 | 4552.74 | 9.43 | 0.00 | 0 00:00 | 0.00 | 0.00 |
| 22 | J4226 | Junction | 4542.66 | 4544.36 | 0.00 | 4559.06 | 0.00 | 66.59 | 4559.86 | 14.70 | 0.00 | 0 02:01 | 0.00 | 0.00 |
| 23 | J42264 | Junction | 4608.40 | 4617.30 | 0.00 | 4627.97 | 0.00 | 54.82 | 4624.10 | 6.80 | 0.00 | 0 00:00 | 0.00 | 0.00 |
| 24 | J42265 | Junction | 4616.61 | 4625.16 | 0.00 | 4631.83 | 0.00 | 34.73 | 4627.96 | 2.80 | 0.00 | 0 00:00 | 0.00 | 0.00 |
| 25 | J42266 | Junction | 4620.24 | 4630.84 | 0.00 | 4637.51 | 0.00 | 34.73 | 4631.27 | 0.43 | 0.00 | 0 00:00 | 0.00 | 0.00 |
| 26 | J42267 | Junction | 4622.52 | 4631.27 | 0.00 | 4639.94 | 0.00 | 34.73 | 4633.99 | 2.72 | 0.00 | 0 00:00 | 0.00 | 0.00 |
| 27 | J42268 | Junction | 4630.23 | 4638.98 | 0.00 | 4655.65 | 0.00 | 34.73 | 4642.07 | 3.09 | 0.00 | 0 00:00 | 0.00 | 0.00 |
| 28 | J42269 | Junction | 4633.51 | 4641.96 | 0.00 | 4660.63 | 0.00 | 34.73 | 4645.60 | 3.64 | 0.00 | 0 00:00 | 0.00 | 0.00 |
| 29 | J42270 | Junction | 4638.41 | 4646.21 | 0.00 | 4655.88 | 0.00 | 34.73 | 4650.62 | 4.41 | 0.00 | 0 00:00 | 0.00 | 0.00 |
| 30 | J42271 | Junction | 4646.69 | 4654.24 | 0.00 | 4661.79 | 0.00 | 35.12 | 4657.38 | 3.14 | 0.00 | 0 00:00 | 0.00 | 0.00 |
| 31 | J42273 | Junction | 4657.67 | 4666.52 | 0.00 | 4673.19 | 0.00 | 35.54 | 4659.41 | 0.00 | 7.11 | 0 00:00 | 0.00 | 0.00 |
| 32 | J42274 | Junction | 4666.87 | 4675.87 | 0.00 | 4682.54 | 0.00 | 35.45 | 4668.18 | 0.00 | 7.69 | 0 00:00 | 0.00 | 0.00 |
| 33 | J42275 | Junction | 4670.16 | 4678.16 | 0.00 | 4684.83 | 0.00 | 35.44 | 4671.58 | 0.00 | 6.58 | 0 00:00 | 0.00 | 0.00 |
| 34 | J42277 | Junction | 4672.54 | 4680.24 | 0.00 | 4686.91 | 0.00 | 35.44 | 4674.20 | 0.00 | 6.04 | 0 00:00 | 0.00 | 0.00 |
| 35 | J42278 | Junction | 4677.64 | 4685.14 | 0.00 | 4691.81 | 0.00 | 35.44 | 4679.12 | 0.00 | 6.02 | 0 00:00 | 0.00 | 0.00 |
| 36 | J42279 | Junction | 4682.15 | 4689.30 | 0.00 | 4695.97 | 0.00 | 22.12 | 4683.25 | 0.00 | 6.05 | 0 00:00 | 0.00 | 0.00 |
| 37 | J42280 | Junction | 4683.00 | 4690.90 | 0.00 | 4697.57 | 0.00 | 22.15 | 4684.67 | 0.00 | 6.23 | 0 00:00 | 0.00 | 0.00 |
| 38 | J42282 | Junction | 4687.53 | 4695.98 | 0.00 | 4702.65 | 0.00 | 22.19 | 4688.99 | 0.00 | 6.99 | 0 00:00 | 0.00 | 0.00 |
| 39 | J42284 | Junction | 4589.18 | 4593.08 | 0.00 | 4599.75 | 0.00 | 4.02 | 4590.33 | 0.00 | 2.75 | 0 00:00 | 0.00 | 0.00 |
| 40 | J42285 | Junction | 4588.82 | 4592.92 | 0.00 | 4599.59 | 0.00 | 4.02 | 4590.15 | 0.00 | 2.77 | 0 00:00 | 0.00 | 0.00 |
| 41 | J42286 | Junction | 4586.66 | 4598.71 | 0.00 | 4605.38 | 0.00 | 4.02 | 4587.69 | 0.00 | 11.02 | 0 00:00 | 0.00 | 0.00 |
| 42 | J42287 | Junction | 4587.63 | 4596.28 | 0.00 | 4602.95 | 0.00 | 4.02 | 4588.97 | 0.00 | 7.31 | 0 00:00 | 0.00 | 0.00 |
| 43 | J42302 | Junction | 4500.54 | 4509.44 | 0.00 | 4518.34 | 0.00 | 78.39 | 4502.85 | 0.00 | 6.59 | 0 00:00 | 0.00 | 0.00 |
| 44 | J42303 | Junction | 4704.40 | 4712.02 | 0.00 | 4719.02 | 0.00 | 20.73 | 4705.37 | 0.00 | 6.65 | 0 00:00 | 0.00 | 0.00 |
| 45 | J42304 | Junction | 4685.80 | 4691.87 | 0.00 | 4697.58 | 0.00 | 20.73 | 4687.00 | 0.00 | 4.87 | 0 00:00 | 0.00 | 0.00 |
| 46 | J42305 | Junction | 4681.10 | 4687.53 | 0.00 | 4693.88 | 0.00 | 20.73 | 4682.13 | 0.00 | 5.40 | 0 00:00 | 0.00 | 0.00 |
| 47 | J42306 | Junction | 4518.99 | 4525.39 | 0.00 | 4531.79 | 0.00 | 73.97 | 4520.46 | 0.00 | 4.93 | 0 00:00 | 0.00 | 0.00 |
| 48 | J42307 | Junction | 4545.94 | 4551.54 | 0.00 | 4557.14 | 0.00 | 113.25 | 4548.06 | 0.00 | 3.48 | 0 00:00 | 0.00 | 0.00 |
| 49 | J42308 | Junction | 4600.10 | 4608.82 | 0.00 | 4608.82 | 0.00 | 19.87 | 4601.44 | 0.00 | 7.38 | 0 00:00 | 0.00 | 0.00 |
| 50 | J42309 | Junction | 4614.55 | 4623.90 | 0.00 | 4623.90 | 0.00 | 19.87 | 4617.46 | 0.00 | 6.44 | 0 00:00 | 0.00 | 0.00 |
| 51 | J42310 | Junction | 4635.90 | 4643.89 | 0.00 | 4643.89 | 0.00 | 19.87 | 4637.29 | 0.00 | 6.60 | 0 00:00 | 0.00 | 0.00 |
| 52 | J42311 | Junction | 4652.14 | 4657.74 | 0.00 | 4663.34 | 0.00 | 19.87 | 4653.08 | 0.00 | 4.66 | 0 00:00 | 0.00 | 0.00 |
| 53 | J42312 | Junction | 4663.13 | 4669.03 | 0.00 | 4674.93 | 0.00 | 24.64 | 4664.18 | 0.00 | 4.85 | 0 00:00 | 0.00 | 0.00 |
| 54 | J42333 | Junction | 4610.34 | 4619.04 | 0.00 | 4627.74 | 0.00 | 44.97 | 4611.67 | 0.00 | 7.37 | 0 00:00 | 0.00 | 0.00 |
| 55 | J42334 | Junction | 4602.31 | 4610.41 | 0.00 | 4618.51 | 0.00 | 44.97 | 4604.09 | 0.00 | 6.32 | 0 00:00 | 0.00 | 0.00 |
| 56 | J42335 | Junction | 4601.32 | 4609.92 | 0.00 | 4618.52 | 0.00 | 44.97 | 4602.65 | 0.00 | 7.27 | 0 00:00 | 0.00 | 0.00 |
| 57 | J42336 | Junction | 4595.34 | 4600.34 | 0.00 | 4605.34 | 0.00 | 44.97 | 4596.80 | 0.00 | 3.54 | 0 00:00 | 0.00 | 0.00 |
| 58 | J42337 | Junction | 4619.90 | 4626.60 | 0.00 | 4633.30 | 0.00 | 44.97 | 4621.11 | 0.00 | 5.49 | 0 00:00 | 0.00 | 0.00 |
| 59 | J42340 | Junction | 4584.36 | 4588.76 | 0.00 | 4593.16 | 0.00 | 44.97 | 4585.71 | 0.00 | 3.05 | 0 00:00 | 0.00 | 0.00 |
| 60 | J42341 | Junction | 4590.49 | 4594.89 | 0.00 | 4599.29 | 0.00 | 44.97 | 4592.43 | 0.00 | 2.46 | 0 00:00 | 0.00 | 0.00 |
| 61 | J42346 | Junction | 4747.50 | 4757.40 | 0.00 | 4767.30 | 0.00 | 48.35 | 4748.66 | 0.00 | 8.74 | 0 00:00 | 0.00 | 0.00 |
| 62 | J42347 | Junction | 4706.85 | 4722.55 | 0.00 | 4738.25 | 0.00 | 48.32 | 4708.35 | 0.00 | 14.20 | 0 00:00 | 0.00 | 0.00 |
| 63 | J42348 | Junction | 4677.52 | 4683.92 | 0.00 | 4690.32 | 0.00 | 48.29 | 4678.94 | 0.00 | 4.98 | 0 00:00 | 0.00 | 0.00 |
| 64 | J42349 | Junction | 4670.58 | 4676.48 | 0.00 | 4682.38 | 0.00 | 48.29 | 4672.33 | 0.00 | 4.15 | 0 00:00 | 0.00 | 0.00 |
| 65 | J42350 | Junction | 4666.48 | 4674.28 | 0.00 | 4682.08 | 0.00 | 48.29 | 4667.74 | 0.00 | 6.54 | 0 00:00 | 0.00 | 0.00 |
| 66 | J42357 | Junction | 4670.80 | 4675.10 | 0.00 | 4679.40 | 0.00 | 15.00 | 4671.57 | 0.00 | 3.53 | 0 00:00 | 0.00 | 0.00 |
| 67 | J42358 | Junction | 4617.19 | 4622.39 | 0.00 | 4627.59 | 0.00 | 15.00 | 4617.88 | 0.00 | 4.51 | 0 00:00 | 0.00 | 0.00 |
| 68 | J42359 | Junction | 4589.72 | 4593.12 | 0.00 | 4596.52 | 0.00 | 15.00 | 4590.96 | 0.00 | 2.16 | 0 00:00 | 0.00 | 0.00 |
| 69 | J4236 | Junction | 4549.45 | 4553.85 | 0.00 | 4567.25 | 0.00 | 66.59 | 4567.25 | 13.40 | 0.00 | 0 02:01 | 0.00 | 0.00 |
| 70 | J42363 | Junction | 4588.99 | 4592.79 | 0.00 | 4596.59 | 0.00 | 60.07 | 4590.41 | 0.00 | 2.38 | 0 00:00 | 0.00 | 0.00 |
| 71 | J42364 | Junction | 4621.30 | 4627.60 | 0.00 | 4633.90 | 0.00 | 15.00 | 4622.25 | 0.00 | 5.35 | 0 00:00 | 0.00 | 0.00 |
| 72 | J42365 | Junction | 4812.97 | 4819.17 | 0.00 | 4825.37 | 0.00 | 0.00 | 4812.97 | 0.00 | 6.20 | 0 00:00 | 0.00 | 0.00 |
| 73 | J42366 | Junction | 4809.24 | 4818.24 | 0.00 | 4827.24 | 0.00 | 0.00 | 4809.24 | 0.00 | 9.00 | 0 00:00 | 0.00 | 0.00 |
| 74 | J42367 | Junction | 4786.31 | 4790.81 | 0.00 | 4795.31 | 0.00 | 0.00 | 4786.31 | 0.00 | 4.50 | 0 00:00 | 0.00 | 0.00 |
| 75 | J42368 | Junction | 4758.99 | 4764.89 | 0.00 | 4770.79 | 0.00 | 0.00 | 4758.99 | 0.00 | 5.90 | 0 00:00 | 0.00 | 0.00 |
| 76 | J4237 | Junction | 4580.68 | 4585.88 | 0.00 | 9166.56 | 0.00 | 66.23 | 4582.27 | 0.00 | 3.61 | 0 00:00 | 0.00 | 0.00 |
| 77 | J42370 | Junction | 4749.05 | 4760.55 | 0.00 | 4772.05 | 0.00 | 0.00 | 4749.05 | 0.00 | 11.50 | 0 00:00 | 0.00 | 0.00 |
| 78 | J42371 | Junction | 4745.20 | 4754.40 | 0.00 | 4763.60 | 0.00 | 0.00 | 4745.20 | 0.00 | 9.20 | 0 00:00 | 0.00 | 0.00 |
| 79 | J42393 | Junction | 4585.90 | 4597.47 | 0.00 | 4609.04 | 0.00 | 148.86 | 4588.59 | 0.00 | 8.88 | 0 00:00 | 0.00 | 0.00 |
| 80 | J42394 | Junction | 4586.59 | 4597.69 | 0.00 | 4608.79 | 0.00 | 148.86 | 4589.93 | 0.00 | 7.76 | 0 00:00 | 0.00 | 0.00 |
| 81 | J42402 | Junction | 4585.83 | 4595.68 | 0.00 | 4605.53 | 0.00 | 22.84 | 4589.25 | 0.00 | 6.43 | 0 00:00 | 0.00 | 0.00 |
| 82 | J42420 | Junction | 4713.66 | 4725.36 | 0.00 | 4737.06 | 0.00 | 48.33 | 4714.82 | 0.00 | 10.54 | 0 00:00 | 0.00 | 0.00 |
| 83 | J42436 | Junction | 4689.65 | 4696.32 | 0.00 | 4702.99 | 0.00 | 48.29 | 4693.75 | 0.00 | 2.57 | 0 00:00 | 0.00 | 0.00 |
| 84 | J42440 | Junction | 4744.06 | 4754.86 | 0.00 | 4765.66 | 0.00 | 0.00 | 4744.06 | 0.00 | 10.80 | 0 00:00 | 0.00 | 0.00 |
| 85 | J42442 | Junction | 4775.41 | 4781.21 | 0.00 | 4789.41 | 0.00 | 56.55 | 4777.39 | 0.00 | 3.82 | 0 00:00 | 0.00 | 0.00 |
| 86 | J42443 | Junction | 4713.69 | 4721.59 | 0.00 | 4728.49 | 0.00 | 59.81 | 4716.56 | 0.00 | 5.03 | 0 00:00 | 0.00 | 0.00 |
| 87 | J42458 | Junction | 4585.91 | 4597.91 | 0.00 | 4609.91 | 0.00 | 4.01 | 4587.04 | 0.00 | 10.87 | 0 00:00 | 0.00 | 0.00 |

## Node Summary

| SN | Element ID | Element Type | Invert Elevation (ft) | Ground/Rim (Max) Elevation (ft) | Initial Water Elevation (ft) | Surcharge Elevation (ft) | Ponded Area (ft²) | Peak Inflow (cfs) | Max HGL Elevation Attained (ft) | Max Surcharge Depth Attained (ft) | Min Freeboard Attained (ft) | Time of Peak Flooding Occurrence (days hh:mm) | Total Flooded Volume (ac-in) | Total Time Flooded (min) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 88 | J42459 | Junction | 4584.43 | 4595.48 | 0.00 | 4606.53 | 0.00 | 4.01 | 4585.28 | 0.00 | 10.20 | 0 00:00 | 0.00 | 0.00 |
| 89 | J42460 | Junction | 4582.66 | 4594.71 | 0.00 | 4606.76 | 0.00 | 4.01 | 4583.71 | 0.00 | 11.00 | 0 00:00 | 0.00 | 0.00 |
| 90 | J42461 | Junction | 4579.30 | 4590.20 | 0.00 | 4601.10 | 0.00 | 7.49 | 4580.32 | 0.00 | 9.88 | 0 00:00 | 0.00 | 0.00 |
| 91 | J42462 | Junction | 4581.42 | 4595.62 | 0.00 | 4609.82 | 0.00 | 7.49 | 4582.11 | 0.00 | 13.51 | 0 00:00 | 0.00 | 0.00 |
| 92 | J42494 | Junction | 4599.72 | 4608.72 | 0.00 | 4608.72 | 0.00 | 65.26 | 4602.05 | 0.00 | 6.67 | 0 00:00 | 0.00 | 0.00 |
| 93 | J42495 | Junction | 4603.33 | 4612.28 | 0.00 | 4621.23 | 0.00 | 53.97 | 4605.05 | 0.00 | 7.23 | 0 00:00 | 0.00 | 0.00 |
| 94 | J42496 | Junction | 4612.58 | 4622.18 | 0.00 | 4631.78 | 0.00 | 53.97 | 4613.91 | 0.00 | 8.27 | 0 00:00 | 0.00 | 0.00 |
| 95 | J42497 | Junction | 4632.36 | 4641.66 | 0.00 | 4650.96 | 0.00 | 53.96 | 4633.64 | 0.00 | 8.02 | 0 00:00 | 0.00 | 0.00 |
| 96 | J42498 | Junction | 4640.79 | 4649.84 | 0.00 | 4658.89 | 0.00 | 53.94 | 4642.18 | 0.00 | 7.66 | 0 00:00 | 0.00 | 0.00 |
| 97 | J42499 | Junction | 4650.81 | 4659.71 | 0.00 | 4668.61 | 0.00 | 53.92 | 4652.14 | 0.00 | 7.57 | 0 00:00 | 0.00 | 0.00 |
| 98 | J42500 | Junction | 4652.77 | 4662.12 | 0.00 | 4671.47 | 0.00 | 53.97 | 4654.58 | 0.00 | 7.54 | 0 00:00 | 0.00 | 0.00 |
| 99 | J42516 | Junction | 4653.02 | 4664.07 | 0.00 | 4675.12 | 0.00 | 54.06 | 4655.49 | 0.00 | 8.58 | 0 00:00 | 0.00 | 0.00 |
| 100 | J42517 | Junction | 4655.67 | 4665.42 | 0.00 | 4675.17 | 0.00 | 54.02 | 4657.29 | 0.00 | 8.13 | 0 00:00 | 0.00 | 0.00 |
| 101 | J42518 | Junction | 4656.94 | 4666.44 | 0.00 | 4675.94 | 0.00 | 54.00 | 4658.73 | 0.00 | 7.71 | 0 00:00 | 0.00 | 0.00 |
| 102 | J42519 | Junction | 4658.11 | 4667.16 | 0.00 | 4676.21 | 0.00 | 54.24 | 4659.89 | 0.00 | 7.27 | 0 00:00 | 0.00 | 0.00 |
| 103 | J42520 | Junction | 4669.61 | 4682.46 | 0.00 | 4695.31 | 0.00 | 55.77 | 4670.80 | 0.00 | 11.66 | 0 00:00 | 0.00 | 0.00 |
| 104 | J42521 | Junction | 4670.25 | 4680.20 | 0.00 | 4690.15 | 0.00 | 54.16 | 4672.52 | 0.00 | 7.68 | 0 00:00 | 0.00 | 0.00 |
| 105 | J42522 | Junction | 4670.60 | 4680.05 | 0.00 | 4689.50 | 0.00 | 53.65 | 4673.09 | 0.00 | 6.96 | 0 00:00 | 0.00 | 0.00 |
| 106 | J42523 | Junction | 4671.79 | 4678.79 | 0.00 | 4685.79 | 0.00 | 53.62 | 4674.23 | 0.00 | 4.56 | 0 00:00 | 0.00 | 0.00 |
| 107 | J42525 | Junction | 4672.21 | 4681.46 | 0.00 | 4690.71 | 0.00 | 53.62 | 4674.98 | 0.00 | 6.48 | 0 00:00 | 0.00 | 0.00 |
| 108 | J42526 | Junction | 4673.18 | 4681.88 | 0.00 | 4690.58 | 0.00 | 53.56 | 4675.89 | 0.00 | 5.99 | 0 00:00 | 0.00 | 0.00 |
| 109 | J42527 | Junction | 4674.07 | 4682.32 | 0.00 | 4690.57 | 0.00 | 53.56 | 4676.47 | 0.00 | 5.85 | 0 00:00 | 0.00 | 0.00 |
| 110 | J42528 | Junction | 4678.70 | 4688.75 | 0.00 | 4698.80 | 0.00 | 53.56 | 4680.16 | 0.00 | 8.59 | 0 00:00 | 0.00 | 0.00 |
| 111 | J42529 | Junction | 4680.22 | 4686.92 | 0.00 | 4693.62 | 0.00 | 53.56 | 4682.09 | 0.00 | 4.83 | 0 00:00 | 0.00 | 0.00 |
| 112 | J42530 | Junction | 4692.15 | 4706.20 | 0.00 | 4720.25 | 0.00 | 53.56 | 4693.42 | 0.00 | 12.78 | 0 00:00 | 0.00 | 0.00 |
| 113 | J42531 | Junction | 4693.08 | 4703.98 | 0.00 | 4714.88 | 0.00 | 53.56 | 4695.04 | 0.00 | 8.94 | 0 00:00 | 0.00 | 0.00 |
| 114 | J42532 | Junction | 4693.66 | 4702.01 | 0.00 | 4710.36 | 0.00 | 53.56 | 4696.01 | 0.00 | 6.00 | 0 00:00 | 0.00 | 0.00 |
| 115 | J42533 | Junction | 4695.91 | 4701.91 | 0.00 | 4707.91 | 0.00 | 53.56 | 4697.63 | 0.00 | 4.28 | 0 00:00 | 0.00 | 0.00 |
| 116 | J42538 | Junction | 4595.69 | 4610.69 | 0.00 | 4625.69 | 0.00 | 140.82 | 4597.84 | 0.00 | 12.85 | 0 00:00 | 0.00 | 0.00 |
| 117 | J42540 | Junction | 4597.65 | 4612.65 | 0.00 | 4627.65 | 0.00 | 65.21 | 4599.63 | 0.00 | 13.02 | 0 00:00 | 0.00 | 0.00 |
| 118 | J42722 | Junction | 4586.25 | 4594.25 | 0.00 | 4602.25 | 0.00 | 158.66 | 4588.47 | 0.00 | 5.78 | 0 00:00 | 0.00 | 0.00 |
| 119 | J42745 | Junction | 4755.35 | 4761.10 | 0.00 | 4766.85 | 0.00 | 31.46 | 4756.93 | 0.00 | 4.17 | 0 00:00 | 0.00 | 0.00 |
| 120 | J42746 | Junction | 4758.90 | 4764.40 | 0.00 | 4769.90 | 0.00 | 31.44 | 4760.22 | 0.00 | 4.18 | 0 00:00 | 0.00 | 0.00 |
| 121 | J42747 | Junction | 4704.88 | 4709.53 | 0.00 | 4714.18 | 0.00 | 31.32 | 4714.18 | 4.65 | 0.00 | 0 01:52 | 0.05 | 5.00 |
| 122 | J42748 | Junction | 4703.71 | 4709.86 | 0.00 | 4716.01 | 0.00 | 30.35 | 4716.01 | 6.15 | 0.00 | 0 01:52 | 0.00 | 0.00 |
| 123 | J42788 | Junction | 4596.35 | 4603.40 | 0.00 | 4610.45 | 0.00 | 8.67 | 4608.17 | 4.77 | 0.00 | 0 00:00 | 0.00 | 0.00 |
| 124 | J42808 | Junction | 4594.84 | 4601.49 | 0.00 | 4608.34 | 0.00 | 32.07 | 4608.34 | 6.85 | 0.00 | 0 02:15 | 0.00 | 0.00 |
| 125 | J42809 | Junction | 4594.91 | 4601.61 | 0.00 | 4608.31 | 0.00 | 32.02 | 4608.31 | 6.70 | 0.00 | 0 02:15 | 0.00 | 0.00 |
| 126 | J42810 | Junction | 4595.00 | 4600.90 | 4596.00 | 4606.80 | 0.00 | 33.64 | 4606.80 | 5.90 | 0.00 | 0 02:15 | 0.00 | 0.00 |
| 127 | J42811 | Junction | 4595.04 | 4600.54 | 0.00 | 4606.04 | 0.00 | 34.46 | 4606.04 | 5.50 | 0.00 | 0 02:16 | 0.00 | 0.00 |
| 128 | J42812 | Junction | 4595.09 | 4601.24 | 0.00 | 4607.39 | 0.00 | 34.91 | 4606.65 | 5.41 | 0.00 | 0 00:00 | 0.00 | 0.00 |
| 129 | J42813 | Junction | 4595.72 | 4601.42 | 0.00 | 4607.12 | 0.00 | 19.29 | 4607.12 | 5.70 | 0.00 | 0 02:16 | 0.04 | 0.00 |
| 130 | J42814 | Junction | 4595.42 | 4600.92 | 0.00 | 4606.42 | 0.00 | 37.01 | 4606.42 | 5.50 | 0.00 | 0 02:16 | 0.07 | 1.00 |
| 131 | J42815 | Junction | 4595.33 | 4601.43 | 0.00 | 4607.53 | 0.00 | 36.03 | 4607.33 | 5.90 | 0.00 | 0 00:00 | 0.00 | 0.00 |
| 132 | J42816 | Junction | 4595.25 | 4601.25 | 0.00 | 4607.25 | 0.00 | 35.46 | 4607.25 | 6.00 | 0.00 | 0 02:16 | 0.00 | 0.00 |
| 133 | J42821 | Junction | 4619.88 | 4624.58 | 0.00 | 0.00 | 0.00 | 24.43 | 4621.11 | 0.00 | 3.47 | 0 00:00 | 0.00 | 0.00 |
| 134 | J42824 | Junction | 4645.94 | 4654.69 | 0.00 | 5000.00 | 0.00 | 78.44 | 4664.92 | 10.23 | 0.00 | 0 00:00 | 0.00 | 0.00 |
| 135 | J42833 | Junction | 4716.01 | 4720.71 | 0.00 | 4725.41 | 0.00 | 31.30 | 4717.76 | 0.00 | 2.95 | 0 00:00 | 0.00 | 0.00 |
| 136 | J42834 | Junction | 4723.25 | 4729.80 | 0.00 | 4736.35 | 0.00 | 31.29 | 4724.49 | 0.00 | 5.31 | 0 00:00 | 0.00 | 0.00 |
| 137 | J42835 | Junction | 4742.72 | 4749.37 | 0.00 | 4756.02 | 0.00 | 31.48 | 4743.86 | 0.00 | 5.51 | 0 00:00 | 0.00 | 0.00 |
| 138 | J42836 | Junction | 4753.59 | 4759.29 | 0.00 | 4764.99 | 0.00 | 31.47 | 4754.93 | 0.00 | 4.36 | 0 00:00 | 0.00 | 0.00 |
| 139 | J42853 | Junction | 4666.81 | 4672.06 | 0.00 | 5000.00 | 0.00 | 91.19 | 4709.85 | 37.79 | 0.00 | 0 00:00 | 0.00 | 0.00 |
| 140 | J42854 | Junction | 4651.03 | 4657.83 | 0.00 | 5000.00 | 0.00 | 78.44 | 4676.59 | 18.76 | 0.00 | 0 00:00 | 0.00 | 0.00 |
| 141 | J42855 | Junction | 4668.88 | 4674.28 | 0.00 | 5000.00 | 0.00 | 18.97 | 4713.52 | 39.24 | 0.00 | 0 00:00 | 0.00 | 0.00 |
| 142 | J42856 | Junction | 4669.95 | 4674.45 | 0.00 | 5000.00 | 0.00 | 18.96 | 4715.13 | 40.68 | 0.00 | 0 00:00 | 0.00 | 0.00 |
| 143 | J42857 | Junction | 4678.77 | 4683.37 | 0.00 | 4787.97 | 0.00 | 21.29 | 4728.75 | 45.38 | 0.00 | 0 00:00 | 0.00 | 0.00 |
| 144 | J42858 | Junction | 4696.01 | 4701.26 | 0.00 | 4706.51 | 0.00 | 43.12 | 4706.51 | 5.25 | 0.00 | 0 02:00 | 9.49 | 22.00 |
| 145 | J42859 | Junction | 4700.55 | 4707.90 | 0.00 | 4715.25 | 0.00 | 30.35 | 4715.25 | 7.35 | 0.00 | 0 01:52 | 0.00 | 0.00 |
| 146 | J42885 | Junction | 4616.20 | 4626.17 | 0.00 | 0.00 | 0.00 | 24.43 | 4617.46 | 0.00 | 8.71 | 0 00:00 | 0.00 | 0.00 |
| 147 | J441024-0 | Junction | 4572.78 | 4586.00 | 4575.50 | 4587.00 | 0.00 | 71.72 | 4575.84 | 0.00 | 10.16 | 0 00:00 | 0.00 | 0.00 |
| 148 | J441024-1 | Junction | 4572.60 | 4585.23 | 0.00 | 4587.23 | 0.00 | 79.15 | 4575.21 | 0.00 | 10.02 | 0 00:00 | 0.00 | 0.00 |
| 149 | J441032-1 | Junction | 4592.84 | 4599.09 | 0.00 | 4605.34 | 0.00 | 4.02 | 4593.28 | 0.00 | 5.81 | 0 00:00 | 0.00 | 0.00 |
| 150 | J441557-0 | Junction | 4693.78 | 4701.38 | 0.00 | 4708.98 | 0.00 | 53.56 | 4696.43 | 0.00 | 4.95 | 0 00:00 | 0.00 | 0.00 |
| 151 | J441560-0 | Junction | 4704.00 | 4710.00 | 0.00 | 4713.57 | 0.00 | 150.25 | 4708.94 | 0.00 | 10.06 | 0 00:00 | 0.00 | 0.00 |
| 152 | J441565-1 | Junction | 4693.98 | 4708.08 | 0.00 | 4722.18 | 0.00 | 53.56 | 4697.10 | 0.00 | 10.98 | 0 00:00 | 0.00 | 0.00 |
| 153 | J441657-0 | Junction | 4638.41 | 4643.98 | 0.00 | 4647.00 | 0.00 | 114.57 | 4647.00 | 3.02 | 0.00 | 0 02:00 | 3.94 | 21.00 |
| 154 | J441660-0 | Junction | 4645.74 | 4654.22 | 0.00 | 4660.89 | 0.00 | 78.44 | 4660.89 | 6.67 | 0.00 | 0 01:51 | 0.00 | 0.00 |
| 155 | J441673-1 | Junction | 4723.25 | 4729.80 | 0.00 | 4736.35 | 0.00 | 31.35 | 4725.40 | 0.00 | 4.40 | 0 00:00 | 0.00 | 0.00 |
| 156 | J441823.0 | Junction | 4636.38 | 4643.08 | 0.00 | 4649.78 | 0.00 | 15.00 | 4637.18 | 0.00 | 5.90 | 0 00:00 | 0.00 | 0.00 |
| 157 | J44269-1 | Junction | 4721.40 | 4727.07 | 0.00 | 4733.74 | 0.00 | 0.00 | 4721.40 | 0.00 | 10.00 | 0 00:00 | 0.00 | 0.00 |
| 158 | J44279-1 | Junction | 4589.18 | 4592.62 | 0.00 | 4599.29 | 0.00 | 4.02 | 4590.44 | 0.00 | 2.18 | 0 00:00 | 0.00 | 0.00 |
| 159 | J4429-0 | Junction | 4621.41 | 4632.89 | 0.00 | 4632.89 | 0.00 | 24.43 | 4622.89 | 0.00 | 10.00 | 0 00:00 | 0.00 | 0.00 |
| 160 | J44488-1 | Junction | 4592.40 | 4597.30 | 0.00 | 4602.20 | 0.00 | 44.97 | 4594.08 | 0.00 | 3.22 | 0 00:00 | 0.00 | 0.00 |
| 161 | J44563-1 | Junction | 4588.62 | 4592.48 | 0.00 | 4599.15 | 0.00 | 4.02 | 4590.05 | 0.00 | 2.43 | 0 00:00 | 0.00 | 0.00 |
| 162 | J44598-1 | Junction | 4658.85 | 4664.25 | 0.00 | 4659.65 | 0.00 | 48.29 | 4660.79 | 0.00 | 3.46 | 0 00:00 | 0.00 | 0.00 |
| 163 | J44599-0 | Junction | 4647.46 | 4658.96 | 0.00 | 4670.46 | 0.00 | 17.83 | 4648.95 | 0.00 | 10.01 | 0 00:00 | 0.00 | 0.00 |
| 164 | J44612-0 | Junction | 4634.84 | 4641.34 | 0.00 | 4641.84 | 0.00 | 127.73 | 4640.16 | 0.00 | 1.18 | 0 00:00 | 0.00 | 0.00 |
| 165 | J44681.0 | Junction | 4591.92 | 4596.82 | 0.00 | 4601.72 | 0.00 | 22.84 | 4592.75 | 0.00 | 4.07 | 0 00:00 | 0.00 | 0.00 |
| 166 | JUL010.04-0 | Junction | 4614.13 | 4620.80 | 0.00 | 4627.47 | 0.00 | 208.09 | 4615.66 | 0.00 | 8.47 | 0 00:00 | 0.00 | 0.00 |
| 167 | JUL010.04-1 | Junction | 4495.70 | 4502.37 | 0.00 | 4509.04 | 0.00 | 207.72 | 4498.14 | 0.00 | 7.56 | 0 00:00 | 0.00 | 0.00 |
| 168 | JUL010.08-0 | Junction | 4675.67 | 4682.34 | 0.00 | 4689.01 | 0.00 | 208.34 | 4677.11 | 0.00 | 8.56 | 0 00:00 | 0.00 | 0.00 |
| 169 | JUL010.10-0 | Junction | 5849.45 | 5856.12 | 0.00 | 5862.79 | 0.00 | 140.49 | 5850.45 | 0.00 | 9.00 | 0 00:00 | 0.00 | 0.00 |
| 170 | JUL010.10-1 | Junction | 4812.10 | 4818.77 | 0.00 | 4825.44 | 0.00 | 209.09 | 4813.52 | 0.00 | 8.58 | 0 00:00 | 0.00 | 0.00 |
| 171 | JUL020.02-0 | Junction | 4865.89 | 4872.56 | 0.00 | 4879.23 | 0.00 | 246.22 | 4867.37 | 0.00 | 8.52 | 0 00:00 | 0.00 | 0.00 |
| 172 | JUL020.06-0 | Junction | 5072.86 | 5079.53 | 0.00 | 5086.20 | 0.00 | 158.53 | 5073.98 | 0.00 | 8.88 | 0 00:00 | 0.00 | 0.00 |
| 173 | JUL020.10-0 | Junction | 5162.24 | 5168.91 | 0.00 | 5175.58 | 0.00 | 48.00 | 5162.85 | 0.00 | 9.39 | 0 00:00 | 0.00 | 0.00 |
| 174 | JUL020.12-0 | Junction | 5346.59 | 5353.26 | 0.00 | 5359.93 | 0.00 | 0.00 | 5346.59 | 0.00 | 10.00 | 0 00:00 | 0.00 | 0.00 |

## Node Summary

| SN | Element ID | Element Type | Invert Elevation (ft) | Ground/Rim (Max) Elevation (ft) | Initial Water Elevation (ft) | Surcharge Elevation (ft) | Ponded Area (ft²) | Peak Inflow (cfs) | Max HGL Elevation Attained (ft) | Max Surcharge Depth Attained (ft) | Min Freeboard Attained (ft) | Time of Peak Flooding Occurrence (days hh:mm) | Total Flooded Volume (ac-in) | Total Time Flooded (min) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 175 | JUL030.02-0 | Junction | 4580.07 | 4586.74 | 0.00 | 4593.41 | 0.00 | 169.03 | 4581.41 | 0.00 | 8.66 | 0 00:00 | 0.00 | 0.00 |
| 176 | JUL030.04-0 | Junction | 4587.21 | 4593.88 | 0.00 | 4600.55 | 0.00 | 169.03 | 4588.52 | 0.00 | 8.69 | 0 00:00 | 0.00 | 0.00 |
| 177 | JUL030.08-1 | Junction | 4618.14 | 4624.81 | 0.00 | 4631.48 | 0.00 | 169.05 | 4619.50 | 0.00 | 8.64 | 0 00:00 | 0.00 | 0.00 |
| 178 | JUL030.12-1 | Junction | 4623.65 | 4630.32 | 0.00 | 4636.99 | 0.00 | 169.84 | 4625.15 | 0.00 | 8.50 | 0 00:00 | 0.00 | 0.00 |
| 179 | JUL030.14-0 | Junction | 5067.12 | 5073.79 | 0.00 | 5080.46 | 0.00 | 69.89 | 5067.81 | 0.00 | 9.31 | 0 00:00 | 0.00 | 0.00 |
| 180 | JUL030.14-1 | Junction | 4769.44 | 4776.11 | 0.00 | 4782.78 | 0.00 | 69.10 | 4770.15 | 0.00 | 9.29 | 0 00:00 | 0.00 | 0.00 |
| 181 | JUL030.16-0 | Junction | 5222.41 | 5229.08 | 0.00 | 5235.75 | 0.00 | 15.43 | 5222.67 | 0.00 | 9.74 | 0 00:00 | 0.00 | 0.00 |
| 182 | JUL031.06-1 | Junction | 4887.75 | 4894.42 | 0.00 | 4901.09 | 0.00 | 106.31 | 4888.67 | 0.00 | 9.08 | 0 00:00 | 0.00 | 0.00 |
| 183 | JUL031.10-0 | Junction | 6622.71 | 6629.38 | 0.00 | 6636.05 | 0.00 | 41.24 | 6623.08 | 0.00 | 9.63 | 0 00:00 | 0.00 | 0.00 |
| 184 | JUL031.10-1 | Junction | 5457.22 | 5463.89 | 0.00 | 5470.56 | 0.00 | 65.87 | 5457.80 | 0.00 | 9.42 | 0 00:00 | 0.00 | 0.00 |
| 185 | JUL033.02-0 | Junction | 5974.93 | 5981.60 | 0.00 | 5988.27 | 0.00 | 8.62 | 5975.07 | 0.00 | 9.86 | 0 00:00 | 0.00 | 0.00 |
| 186 | JUL033.02-1 | Junction | 5352.23 | 5358.90 | 0.00 | 5365.57 | 0.00 | 8.58 | 5352.40 | 0.00 | 9.83 | 0 00:00 | 0.00 | 0.00 |
| 187 | JUL034.02-0 | Junction | 5708.23 | 5714.90 | 0.00 | 5721.57 | 0.00 | 15.56 | 5708.44 | 0.00 | 9.79 | 0 00:00 | 0.00 | 0.00 |
| 188 | JUL040.06-0 | Junction | 5281.46 | 5288.13 | 0.00 | 5294.80 | 0.00 | 97.77 | 5282.13 | 0.00 | 9.33 | 0 00:00 | 0.00 | 0.00 |
| 189 | JUL041.02-1 | Junction | 4627.15 | 4637.63 | 0.00 | 4644.30 | 0.00 | 45.01 | 4628.41 | 0.00 | 9.22 | 0 00:00 | 0.00 | 0.00 |
| 190 | JUL041.04-0 | Junction | 5183.21 | 5189.88 | 0.00 | 5196.55 | 0.00 | 0.00 | 5183.21 | 0.00 | 10.00 | 0 00:00 | 0.00 | 0.00 |
| 191 | JUL041.04-1 | Junction | 4741.62 | 4748.29 | 0.00 | 4748.29 | 0.00 | 45.08 | 4742.19 | 0.00 | 9.43 | 0 00:00 | 0.00 | 0.00 |
| 192 | JUL045.02-0 | Junction | 6540.33 | 6547.00 | 0.00 | 6553.67 | 0.00 | 87.69 | 6540.91 | 0.00 | 9.42 | 0 00:00 | 0.00 | 0.00 |
| 193 | JUL065.02-0 | Junction | 6574.33 | 6581.00 | 0.00 | 6587.67 | 0.00 | 32.22 | 6574.68 | 0.00 | 9.65 | 0 00:00 | 0.00 | 0.00 |
| 194 | JUL066.02-0 | Junction | 6216.13 | 6222.80 | 0.00 | 6229.47 | 0.00 | 33.66 | 6216.47 | 0.00 | 9.66 | 0 00:00 | 0.00 | 0.00 |
| 195 | JUL070.02-0 | Junction | 4581.13 | 4587.80 | 0.00 | 4594.47 | 0.00 | 148.86 | 4582.24 | 0.00 | 8.89 | 0 00:00 | 0.00 | 0.00 |
| 196 | JUL070.04-0 | Junction | 4647.09 | 4655.74 | 0.00 | 4662.41 | 0.00 | 132.23 | 4648.14 | 0.00 | 8.95 | 0 00:00 | 0.00 | 0.00 |
| 197 | JUL070.04-1 | Junction | 4590.98 | 4604.49 | 0.00 | 4611.16 | 0.00 | 132.21 | 4593.36 | 0.00 | 11.13 | 0 00:00 | 0.00 | 0.00 |
| 198 | JUL070.06-0 | Junction | 4659.93 | 4666.60 | 0.00 | 4673.27 | 0.00 | 115.27 | 4660.97 | 0.00 | 8.96 | 0 00:00 | 0.00 | 0.00 |
| 199 | JUL070.10-0 | Junction | 5083.29 | 5089.96 | 0.00 | 5096.63 | 0.00 | 92.45 | 5084.06 | 0.00 | 9.23 | 0 00:00 | 0.00 | 0.00 |
| 200 | JUL070.10-1 | Junction | 4779.12 | 4812.06 | 0.00 | 4818.73 | 0.00 | 105.71 | 4780.00 | 0.00 | 32.06 | 0 00:00 | 0.00 | 0.00 |
| 201 | JUL070.12-0 | Junction | 5214.49 | 5221.16 | 0.00 | 5227.83 | 0.00 | 71.31 | 5215.12 | 0.00 | 9.37 | 0 00:00 | 0.00 | 0.00 |
| 202 | JUL070.14-0 | Junction | 5261.14 | 5267.81 | 0.00 | 5274.48 | 0.00 | 30.93 | 5261.51 | 0.00 | 9.63 | 0 00:00 | 0.00 | 0.00 |
| 203 | JUL080.02-0 | Junction | 4572.00 | 4585.13 | 0.00 | 4591.80 | 0.00 | 95.12 | 4572.98 | 0.00 | 12.15 | 0 00:00 | 0.00 | 0.00 |
| 204 | JUL080.04-0 | Junction | 4595.90 | 4602.57 | 0.00 | 4603.24 | 0.00 | 57.58 | 4596.32 | 0.00 | 9.58 | 0 00:00 | 0.00 | 0.00 |
| 205 | JUL080.04-1 | Junction | 4634.00 | 4642.69 | 0.00 | 4643.36 | 0.00 | 57.21 | 4634.72 | 0.00 | 7.97 | 0 00:00 | 0.00 | 0.00 |
| 206 | JUL080.06-0 | Junction | 4635.30 | 4642.00 | 0.00 | 4642.31 | 0.00 | 72.03 | 4640.16 | 0.00 | 1.84 | 0 00:00 | 0.00 | 0.00 |
| 207 | JUL080.06-1 | Junction | 4695.88 | 4702.55 | 0.00 | 4709.22 | 0.00 | 59.79 | 4696.56 | 0.00 | 5.99 | 0 00:00 | 0.00 | 0.00 |
| 208 | JUL080.08-0 | Junction | 4696.80 | 4703.47 | 0.00 | 4704.14 | 0.00 | 59.81 | 4698.89 | 0.00 | 4.58 | 0 00:00 | 0.00 | 0.00 |
| 209 | JUL080.08-1 | Junction | 4711.67 | 4718.34 | 0.00 | 4728.90 | 0.00 | 59.81 | 4712.32 | 0.00 | 6.02 | 0 00:00 | 0.00 | 0.00 |
| 210 | JUL080.10-0 | Junction | 4770.94 | 4777.61 | 0.00 | 4784.28 | 0.00 | 56.55 | 4771.56 | 0.00 | 6.05 | 0 00:00 | 0.00 | 0.00 |
| 211 | JUL080.10-1 | Junction | 4717.35 | 4724.02 | 0.00 | 4729.69 | 0.00 | 60.29 | 4719.85 | 0.00 | 4.17 | 0 00:00 | 0.00 | 0.00 |
| 212 | JUL080.12-0 | Junction | 4776.51 | 4783.18 | 0.00 | 4789.85 | 0.00 | 57.22 | 4779.55 | 0.00 | 3.63 | 0 00:00 | 0.00 | 0.00 |
| 213 | JUL080.12-1 | Junction | 4878.08 | 4884.75 | 0.00 | 4891.42 | 0.00 | 55.45 | 4878.70 | 0.00 | 9.38 | 0 00:00 | 0.00 | 0.00 |
| 214 | JUL080.14-0 | Junction | 5014.70 | 5021.37 | 0.00 | 5028.04 | 0.00 | 41.01 | 5015.19 | 0.00 | 9.51 | 0 00:00 | 0.00 | 0.00 |
| 215 | JUL080.16-0 | Junction | 5227.63 | 5234.30 | 0.00 | 5240.97 | 0.00 | 41.94 | 5228.09 | 0.00 | 9.54 | 0 00:00 | 0.00 | 0.00 |
| 216 | JUL084.02-0 | Junction | 6213.33 | 6220.00 | 0.00 | 6226.67 | 0.00 | 39.58 | 6213.73 | 0.00 | 9.60 | 0 00:00 | 0.00 | 0.00 |
| 217 | JUL100.02-1 | Junction | 4850.00 | 4860.00 | 0.00 | 4853.00 | 0.00 | 2.00 | 4850.74 | 0.00 | 9.26 | 0 00:00 | 0.00 | 0.00 |
| 218 | JUL100.04-0 | Junction | 5012.74 | 5019.41 | 0.00 | 5026.08 | 0.00 | 26.38 | 5013.12 | 0.00 | 9.62 | 0 00:00 | 0.00 | 0.00 |
| 219 | JUL100.06-0 | Junction | 5193.10 | 5199.77 | 0.00 | 5206.44 | 0.00 | 22.62 | 5193.43 | 0.00 | 9.67 | 0 00:00 | 0.00 | 0.00 |
| 220 | JUL120.02-0 | Junction | 4505.93 | 4512.60 | 0.00 | 4519.27 | 0.00 | 256.79 | 4508.11 | 0.00 | 7.82 | 0 00:00 | 0.00 | 0.00 |
| 221 | JUL120.04-0 | Junction | 4541.49 | 4548.16 | 0.00 | 4554.83 | 0.00 | 257.37 | 4543.33 | 0.00 | 8.16 | 0 00:00 | 0.00 | 0.00 |
| 222 | JUL120.04-1 | Junction | 4506.91 | 4513.58 | 0.00 | 4520.25 | 0.00 | 256.80 | 4513.47 | 0.00 | 8.26 | 0 00:00 | 0.00 | 0.00 |
| 223 | JUL120.06-0 | Junction | 4574.18 | 4580.85 | 0.00 | 4587.52 | 0.00 | 259.78 | 4576.07 | 0.00 | 8.11 | 0 00:00 | 0.00 | 0.00 |
| 224 | JUL120.06-1 | Junction | 4541.09 | 4547.76 | 0.00 | 4554.43 | 0.00 | 259.59 | 4544.17 | 0.00 | 6.92 | 0 00:00 | 0.00 | 0.00 |
| 225 | JUL121.02-0 | Junction | 4704.50 | 4710.00 | 0.00 | 4712.11 | 0.00 | 175.32 | 4708.95 | 0.00 | 10.55 | 0 00:00 | 0.00 | 0.00 |
| 226 | JUL121.04-0 | Junction | 5110.19 | 5116.86 | 0.00 | 5123.53 | 0.00 | 0.00 | 5110.19 | 0.00 | 10.00 | 0 00:00 | 0.00 | 0.00 |
| 227 | JUL121.07-0 | Junction | 5108.32 | 5114.99 | 0.00 | 5121.66 | 0.00 | 0.00 | 5108.32 | 0.00 | 10.00 | 0 00:00 | 0.00 | 0.00 |
| 228 | JUL121.07-1 | Junction | 5027.00 | 5033.67 | 0.00 | 5040.34 | 0.00 | 71.35 | 5027.77 | 0.00 | 9.23 | 0 00:00 | 0.00 | 0.00 |
| 229 | JUL126.02-0 | Junction | 6714.13 | 6720.80 | 0.00 | 6727.47 | 0.00 | 72.47 | 6720.60 | 0.00 | 9.40 | 0 00:00 | 0.00 | 0.00 |
| 230 | JUL130.02-0 | Junction | 4566.45 | 4573.12 | 0.00 | 4579.79 | 0.00 | 87.14 | 4567.43 | 0.00 | 9.02 | 0 00:00 | 0.00 | 0.00 |
| 231 | JUL130.02-1 | Junction | 4505.04 | 4511.71 | 0.00 | 4518.38 | 0.00 | 86.65 | 4506.07 | 0.00 | 8.97 | 0 00:00 | 0.00 | 0.00 |
| 232 | JUL130.04-0 | Junction | 4581.26 | 4587.93 | 0.00 | 4594.60 | 0.00 | 90.90 | 4582.63 | 0.00 | 8.63 | 0 00:00 | 0.00 | 0.00 |
| 233 | JUL130.04-1 | Junction | 4567.91 | 4574.58 | 0.00 | 4581.25 | 0.00 | 89.41 | 4570.40 | 0.00 | 7.51 | 0 00:00 | 0.00 | 0.00 |
| 234 | JUL130.06-0 | Junction | 4590.00 | 4603.44 | 0.00 | 4610.11 | 0.00 | 79.97 | 4590.87 | 0.00 | 12.57 | 0 00:00 | 0.00 | 0.00 |
| 235 | JUL130.06-1 | Junction | 4582.55 | 4589.22 | 0.00 | 4595.89 | 0.00 | 90.90 | 4584.57 | 0.00 | 7.98 | 0 00:00 | 0.00 | 0.00 |
| 236 | JUL130.08-0 | Junction | 4592.42 | 4604.78 | 0.00 | 4611.45 | 0.00 | 83.69 | 4594.34 | 0.00 | 10.44 | 0 00:00 | 0.00 | 0.00 |
| 237 | JUL130.08-1 | Junction | 4594.64 | 4602.65 | 0.00 | 4609.32 | 0.00 | 59.67 | 4609.32 | 6.67 | 0.00 | 0 02:15 | 0.00 | 0.00 |
| 238 | JUL132.02-1 | Junction | 4760.63 | 4767.30 | 0.00 | 4773.97 | 0.00 | 31.41 | 4762.47 | 0.00 | 4.83 | 0 00:00 | 0.00 | 0.00 |
| 239 | JUL152.02-0 | Junction | 4545.80 | 4550.50 | 0.01 | 4565.23 | 0.00 | 59.01 | 4548.57 | 0.00 | 1.93 | 0 00:00 | 0.00 | 0.00 |
| 240 | JUL152.02-1 | Junction | 4542.50 | 4548.50 | 0.01 | 4562.66 | 0.00 | 59.03 | 4546.04 | 0.00 | 2.46 | 0 00:00 | 0.00 | 0.00 |
| 241 | JUL152.04-1 | Junction | 4546.00 | 4550.20 | 0.01 | 4550.20 | 0.00 | 59.01 | 4549.12 | 0.00 | 1.08 | 0 00:00 | 0.00 | 0.00 |
| 242 | Jun-131 | Junction | 4559.02 | 4563.45 | 0.00 | 0.00 | 0.00 | 35.57 | 4560.53 | 0.00 | 2.92 | 0 00:00 | 0.00 | 0.00 |
| 243 | Jun-192 | Junction | 4732.10 | 4745.71 | 0.00 | 474.71 | 0.00 | 20.73 | 4733.14 | 0.00 | 12.57 | 0 00:00 | 0.00 | 0.00 |
| 244 | Jun-194 | Junction | 4704.00 | 6.00 | 0.00 | 0.00 | 0.00 | 16.00 | 4704.81 | 0.00 | 1.19 | 0 00:00 | 0.00 | 0.00 |
| 245 | Jun-195 | Junction | 5000.00 | 5010.00 | 0.00 | 5012.00 | 0.00 | 109.77 | 5000.93 | 0.00 | 9.07 | 0 00:00 | 0.00 | 0.00 |
| 246 | Jun-204 | Junction | 5010.00 | 5020.00 | 0.00 | 5021.00 | 0.00 | 40.13 | 5010.68 | 0.00 | 9.32 | 0 00:00 | 0.00 | 0.00 |
| 247 | Jun-206 | Junction | 4795.00 | 4805.00 | 4796.00 | 4807.00 | 0.00 | 36.00 | 4795.46 | 0.00 | 9.54 | 0 00:00 | 0.00 | 0.00 |
| 248 | Jun-208 | Junction | 4880.00 | 4887.00 | 4881.00 | 4898.00 | 0.00 | 85.67 | 4888.77 | 0.00 | 9.23 | 0 00:00 | 0.00 | 0.00 |
| 249 | Jun-210 | Junction | 4635.00 | 4642.09 | 0.00 | 4644.00 | 0.00 | 36.00 | 4635.98 | 0.00 | 6.11 | 0 00:00 | 0.00 | 0.00 |
| 250 | Jun-211 | Junction | 4646.72 | 4658.00 | 0.00 | 4650.00 | 0.00 | 36.00 | 4648.03 | 0.00 | 9.97 | 0 00:00 | 0.00 | 0.00 |
| 251 | Jun-212 | Junction | 4636.03 | 4646.00 | 0.00 | 4649.00 | 0.00 | 11.00 | 4636.70 | 0.00 | 9.30 | 0 00:00 | 0.00 | 0.00 |
| 252 | Jun-214 | Junction | 4825.00 | 4835.00 | 0.00 | 5000.00 | 0.00 | 21.58 | 4827.08 | 0.00 | 7.92 | 0 00:00 | 0.00 | 0.00 |
| 253 | Jun-216 | Junction | 4579.44 | 4590.84 | 0.00 | 4592.00 | 0.00 | 15.22 | 4582.20 | 0.00 | 8.64 | 0 00:00 | 0.00 | 0.00 |
| 254 | Jun-217 | Junction | 4678.00 | 4685.00 | 0.00 | 4700.00 | 0.00 | 45.53 | 4679.13 | 0.00 | 5.87 | 0 00:00 | 0.00 | 0.00 |
| 255 | Jun-218 | Junction | 4580.35 | 4590.35 | 0.00 | 4599.00 | 0.00 | 15.22 | 4583.27 | 0.00 | 7.08 | 0 00:00 | 0.00 | 0.00 |
| 256 | Jun-219 | Junction | 4849.00 | 4855.00 | 4849.00 | 4862.00 | 0.00 | 57.26 | 4849.60 | 0.00 | 9.40 | 0 00:00 | 0.00 | 0.00 |
| 257 | Jun-220 | Junction | 4642.00 | 4648.00 | 4642.00 | 4648.00 | 0.00 | 59.93 | 4643.75 | 0.00 | 4.25 | 0 00:00 | 0.00 | 0.00 |
| 258 | Jun-221 | Junction | 4597.20 | 4602.90 | 0.00 | 4608.60 | 0.00 | 8.64 | 4608.60 | 5.70 | 0.00 | 0 02:16 | 0.01 | 0.00 |
| 259 | Jun-222 | Junction | 4559.00 | 4565.00 | 0.01 | 4565.00 | 0.00 | 59.08 | 4560.66 | 0.00 | 4.34 | 0 00:00 | 0.00 | 0.00 |
| 260 | Jun-223 | Junction | 4617.45 | 4623.45 | 0.10 | 4623.45 | 0.00 | 59.00 | 4619.25 | 0.00 | 4.20 | 0 00:00 | 0.00 | 0.00 |
| 261 | Jun-224 | Junction | 4542.28 | 4546.90 | 0.00 | 4550.90 | 0.00 | 24.63 | 4550.90 | 4.00 | 0.00 | 0 02:00 | 0.52 | 13.00 |

## Node Summary

| SN | Element ID | Element Type | Invert Elevation (ft) | Ground/Rim (Max) Elevation (ft) | Initial Water Elevation (ft) | Surcharge Elevation (ft) | Ponded Area (ft²) | Peak Inflow (cfs) | Max HGL Elevation Attained (ft) | Max Surcharge Depth Attained (ft) | Min Freeboard Attained (ft) | Time of Peak Flooding Occurrence (days hh:mm) | Total Flooded Volume (ac-in) | Total Time Flooded (min) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 262 | Jun-225 | Junction | 4507.59 | 4511.74 | 0.00 | 4511.74 | 0.00 | 20.57 | 4511.74 | 0.00 | 0.00 | 0 01:58 | 1.26 | 21.00 |
| 263 | Jun-226 | Junction | 4504.95 | 4509.00 | 0.00 | 4509.00 | 0.00 | 16.17 | 4505.87 | 0.00 | 3.13 | 0 00:00 | 0.00 | 0.00 |
| 264 | Jun-228 | Junction | 4527.09 | 4531.00 | 0.00 | 4540.00 | 0.00 | 21.05 | 4540.00 | 9.00 | 0.00 | 0 01:52 | 0.00 | 0.00 |
| 265 | Jun-229 | Junction | 4521.04 | 4525.61 | 0.00 | 4525.61 | 0.00 | 21.04 | 4525.61 | 0.00 | 0.00 | 0 01:56 | 0.00 | 0.00 |
| 266 | UL024.02-0 | Junction | 7100.00 | 7106.67 | 0.00 | 7113.34 | 0.00 | 113.10 | 7100.72 | 0.00 | 9.28 | 0 00:00 | 0.00 | 0.00 |
| 267 | J0008-1 | Outfall | 4494.53 | | | | | 68.48 | 4494.53 | | | | | |
| 268 | J42797 | Outfall | 4520.54 | | | | | 66.58 | 4522.38 | | | | | |
| 269 | J44298-1 | Outfall | 4498.50 | | | | | 183.07 | 4500.38 | | | | | |
| 270 | J44325-1 | Outfall | 4502.46 | | | | | 86.31 | 4503.45 | | | | | |
| 271 | JUL010.02-1 | Outfall | 4491.00 | | | | | 206.88 | 4493.39 | | | | | |
| 272 | JUL020.02-1 | Outfall | 4490.00 | | | | | 245.50 | 4491.48 | | | | | |
| 273 | JUL030.02-1 | Outfall | 4501.37 | | | | | 168.98 | 4502.70 | | | | | |
| 274 | JUL070.02-1 | Outfall | 4500.32 | | | | | 148.85 | 4501.43 | | | | | |
| 275 | JUL080.02-1 | Outfall | 4493.46 | | | | | 94.88 | 4494.43 | | | | | |
| 276 | JUL120.02-1 | Outfall | 4504.59 | | | | | 256.80 | 4506.58 | | | | | |
| 277 | Out-29 | Outfall | 4495.00 | | | | | 16.18 | 4495.85 | | | | | |
| 278 | JUL040.04-1 | Storage Node | 4745.00 | 4755.00 | 0.00 | | 0.00 | 96.14 | 4750.65 | | | | 0.00 | 0.00 |
| 279 | Jun-205 | Storage Node | 4820.00 | 4850.00 | 0.00 | | 0.00 | 141.14 | 4827.07 | | | | 0.00 | 0.00 |
| 280 | SN-UL020 | Storage Node | 4886.00 | 4900.00 | 0.00 | | 0.00 | 673.53 | 4896.39 | | | | 0.00 | 0.00 |
| 281 | SN-UL022 | Storage Node | 5183.00 | 5193.00 | 0.00 | | 0.00 | 165.44 | 5189.12 | | | | 0.00 | 0.00 |
| 282 | SN-UL030 | Storage Node | 4908.00 | 4918.00 | 0.00 | | 0.00 | 223.71 | 4914.97 | | | | 0.00 | 0.00 |
| 283 | SN-UL031 | Storage Node | 5478.00 | 5488.00 | 0.00 | | 0.00 | 89.52 | 5483.19 | | | | 0.00 | 0.00 |
| 284 | SN-UL032 | Storage Node | 5088.00 | 5098.00 | 0.00 | | 0.00 | 144.20 | 5093.78 | | | | 0.00 | 0.00 |
| 285 | SN-UL041 | Storage Node | 4762.00 | 4772.00 | 0.00 | | 0.00 | 0.00 | 4762.00 | | | | 0.00 | 0.00 |
| 286 | SN-UL043 | Storage Node | 5204.00 | 5214.00 | 0.00 | | 0.00 | 0.00 | 5204.00 | | | | 0.00 | 0.00 |
| 287 | SN-UL044 | Storage Node | 5302.00 | 5312.00 | 0.00 | | 0.00 | 192.53 | 5309.22 | | | | 0.00 | 0.00 |
| 288 | SN-UL051 | Storage Node | 4691.00 | 4701.00 | 0.00 | | 0.00 | 82.25 | 4696.29 | | | | 0.00 | 0.00 |
| 289 | SN-UL060 | Storage Node | 4592.80 | 4.40 | 0.00 | | 20.00 | 69.38 | 4597.76 | | | | 0.00 | 1435.00 |
| 290 | SN-UL060B | Storage Node | 4654.40 | 5.80 | 0.00 | | 20.00 | 73.16 | 4657.96 | | | | 0.00 | 1435.00 |
| 291 | SN-UL063 | Storage Node | 4788.10 | 10.90 | 0.00 | | 20.00 | 77.61 | 4791.98 | | | | 0.00 | 1435.00 |
| 292 | SN-UL064 | Storage Node | 5235.00 | 5245.00 | 0.00 | | 0.00 | 141.32 | 5240.73 | | | | 0.00 | 0.00 |
| 293 | SN-UL070 | Storage Node | 4680.00 | 4690.00 | 0.00 | | 0.00 | 39.79 | 4684.51 | | | | 0.00 | 0.00 |
| 294 | SN-UL080B | Storage Node | 4578.58 | 4587.00 | 0.00 | | 20.00 | 71.72 | 4581.40 | | | | 0.00 | 0.00 |
| 295 | SN-UL081 | Storage Node | 4723.60 | 6.80 | 0.00 | | 20.00 | 85.41 | 4728.59 | | | | 0.00 | 1435.00 |
| 296 | SN-UL082 | Storage Node | 4899.00 | 4909.00 | 0.00 | | 0.00 | 83.01 | 4906.83 | | | | 0.00 | 0.00 |
| 297 | SN-UL083 | Storage Node | 5248.00 | 5258.00 | 0.00 | | 0.00 | 58.32 | 5253.23 | | | | 0.00 | 0.00 |
| 298 | SN-UL090 | Storage Node | 4592.80 | 4599.00 | 0.00 | | 20.00 | 23.50 | 4597.21 | | | | 0.00 | 0.00 |
| 299 | SN-UL100A | Storage Node | 4599.80 | 4607.20 | 0.00 | | 20.00 | 54.82 | 4605.48 | | | | 0.00 | 0.00 |
| 300 | SN-UL100B | Storage Node | 4723.40 | 4724.40 | 0.00 | | 20.00 | 0.00 | 4723.40 | | | | 0.00 | 0.00 |
| 301 | SN-UL101 | Storage Node | 5033.00 | 5043.00 | 0.00 | | 0.00 | 32.18 | 5037.62 | | | | 0.00 | 0.00 |
| 302 | SN-UL102 | Storage Node | 5033.00 | 5043.00 | 0.00 | | 0.00 | 71.62 | 5038.46 | | | | 0.00 | 0.00 |
| 303 | SN-UL110 | Storage Node | 4597.00 | 4602.60 | 0.00 | | 20.00 | 66.34 | 4602.35 | | | | 0.00 | 0.00 |
| 304 | SN-UL115 | Storage Node | 5033.00 | 5043.00 | 0.00 | | 0.00 | 129.28 | 5039.42 | | | | 0.00 | 0.00 |
| 305 | SN-UL121 | Storage Node | 4718.00 | 4728.00 | 0.00 | | 0.00 | 0.00 | 4718.00 | | | | 0.00 | 0.00 |
| 306 | SN--UL121 | Storage Node | 4702.20 | 4712.20 | 0.00 | | 20.00 | 149.18 | 4708.35 | | | | 0.00 | 0.00 |
| 307 | SN-UL124 | Storage Node | 4893.00 | 4903.50 | 0.00 | | 0.00 | 64.86 | 4895.50 | | | | 0.00 | 0.00 |
| 308 | SN-UL124B | Storage Node | 5047.00 | 5057.00 | 0.00 | | 0.00 | 166.23 | 5052.48 | | | | 0.00 | 0.00 |
| 309 | SN-UL130 | Storage Node | 4612.00 | 4622.00 | 0.00 | | 0.00 | 243.18 | 4620.05 | | | | 0.00 | 0.00 |
| 310 | SN-UL134 | Storage Node | 4825.00 | 4500.00 | 0.00 | | 0.00 | 221.01 | 4832.34 | | | | 0.00 | 1417.00 |
| 311 | SN-UL140 | Storage Node | 4577.00 | 4587.00 | 0.00 | | 0.00 | 80.49 | 4581.93 | | | | 0.00 | 0.00 |
| 312 | SN-UL144 | Storage Node | 4625.00 | 4634.40 | 0.00 | | 20.00 | 99.34 | 4633.62 | | | | 0.00 | 0.00 |
| 313 | Stor-39 | Storage Node | 4680.00 | 10.00 | 0.00 | | 0.00 | 136.05 | 4683.45 | | | | 0.00 | 1413.00 |
| 314 | Stor-39·1 | Storage Node | 4830.00 | 4838.00 | 0.00 | | 0.00 | 40.11 | 4834.76 | | | | 0.00 | 0.00 |
| 315 | Stor-41 | Storage Node | 4745.00 | 4755.00 | 0.00 | | 0.00 | 154.77 | 4750.84 | | | | 0.00 | 0.00 |
| 316 | Stor-45 | Storage Node | 4636.03 | 15.00 | 0.00 | | 0.00 | 86.78 | 4641.79 | | | | 0.00 | 1431.00 |
| 317 | Stor-48 | Storage Node | 4587.00 | 4595.00 | 0.00 | | 20.00 | 79.21 | 4588.91 | | | | 0.00 | 0.00 |
| 318 | Stor-49 | Storage Node | 4760.00 | 4770.00 | 0.00 | | 0.00 | 45.98 | 4764.97 | | | | 0.00 | 0.00 |
| 319 | Stor-50 | Storage Node | 4640.00 | 4660.00 | 0.00 | | 0.00 | 521.98 | 4650.14 | | | | 0.00 | 0.00 |
| 320 | Stor-51 | Storage Node | 4590.00 | 4596.00 | 0.00 | | 0.00 | 28.66 | 4593.40 | | | | 0.00 | 0.00 |
| 321 | Stor-52 | Storage Node | 4630.00 | 4640.00 | 0.00 | | 0.00 | 39.10 | 4634.96 | | | | 0.00 | 0.00 |
| 322 | Stor-53 | Storage Node | 4600.00 | 4606.00 | 0.00 | | 0.00 | 2.50 | 4601.93 | | | | 0.00 | 0.00 |
| 323 | Stor-54 | Storage Node | 4760.00 | 4770.00 | 0.00 | | 0.00 | 6.19 | 4762.04 | | | | 0.00 | 0.00 |
| 324 | Stor-55 | Storage Node | 4655.00 | 4665.00 | 0.00 | | 0.00 | 110.63 | 4664.18 | | | | 0.00 | 0.00 |
| 325 | Stor-56 | Storage Node | 4825.00 | 4835.00 | 0.00 | | 0.00 | 439.05 | 4833.65 | | | | 0.00 | 0.00 |

## Link Summary

| SN | Element ID | Element Type | From (Inlet) Node | To (Outlet) Node | Length | Inlet Invert Elevation | Outlet Invert Elevation | Average Slope | Diameter or Height | Manning's Roughness | Peak Flow | Design Flow Capacity | Peak Flow/ Design Flow Ratio | Peak Flow Velocity | Peak Flow Depth | Peak Flow Depth/ Total Depth Ratio | Total Time Surcharged | Reported Condition |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | (ft) | (ft) | (ft) | (%) | (ft) | | (cfs) | (cfs) | | (ft/sec) | (ft) | | (min) | |
| 1 | 0001 | Pipe | J42306 | J42302 | 251.32 | 4518.99 | 4500.54 | 7.3400 | 3.000 | 0.0130 | 78.39 | 180.72 | 0.43 | 20.93 | 1.61 | 0.59 | 0.00 | Calculated |
| 2 | 0002 | Pipe | J44488-1 | J42341 | 61.97 | 4592.40 | 4590.49 | 3.0800 | 3.000 | 0.0130 | 44.97 | 117.10 | 0.38 | 10.09 | 1.81 | 0.60 | 0.00 | Calculated |
| 3 | 0004 | Pipe | J0004-0 | J42306 | 174.71 | 4525.19 | 4518.99 | 3.5500 | 3.000 | 0.0130 | 73.97 | 125.65 | 0.59 | 19.00 | 1.45 | 0.57 | 0.00 | Calculated |
| 4 | 0005 | Pipe | J42307 | J0004-0 | 648.84 | 4545.94 | 4525.19 | 3.2000 | 3.000 | 0.0130 | 82.97 | 119.28 | 0.70 | 18.72 | 1.63 | 0.62 | 0.00 | Calculated |
| 5 | 0006 | Pipe | J0006-0 | J42307 | 858.65 | 4578.80 | 4545.94 | 3.8300 | 3.000 | 0.0130 | 113.25 | 130.48 | 0.87 | 20.93 | 1.52 | 0.78 | 0.00 | Calculated |
| 6 | 0007 | Pipe | J42340 | J0006-0 | 150.67 | 4584.36 | 4578.80 | 3.6900 | 3.000 | 0.0130 | 44.97 | 128.13 | 0.35 | 14.08 | 1.41 | 0.50 | 0.00 | Calculated |
| 7 | 0008 | Pipe | J42302 | J0008-1 | 199.41 | 4500.54 | 4496.64 | 1.9600 | 3.000 | 0.0130 | 68.48 | 93.28 | 0.73 | 13.65 | 1.89 | 0.70 | 0.00 | Calculated |
| 8 | 0009 | Pipe | J42341 | J42340 | 613.10 | 4590.49 | 4584.36 | 1.0000 | 3.000 | 0.0130 | 44.97 | 66.69 | 0.67 | 11.35 | 1.64 | 0.55 | 0.00 | Calculated |
| 9 | 0013 | Pipe | J42308 | J0012-1 | 307.90 | 4600.22 | 4587.41 | 4.1600 | 1.500 | 0.0130 | 20.33 | 21.43 | 0.95 | 13.34 | 1.18 | 1.00 | 0.00 | Calculated |
| 10 | 0131 | Pipe | J0131.0 | J42359 | 454.58 | 4591.24 | 4589.72 | 0.3300 | 2.000 | 0.0130 | 15.00 | 13.08 | 1.15 | 5.80 | 1.62 | 0.81 | 0.00 | > CAPACITY |
| 11 | 0132 | Pipe | J42358 | J0131.0 | 387.78 | 4617.19 | 4591.24 | 6.6900 | 2.000 | 0.0130 | 15.00 | 58.52 | 0.26 | 7.63 | 1.35 | 0.67 | 0.00 | Calculated |
| 12 | 0134 | Pipe | J42359 | J42363 | 77.73 | 4589.72 | 4588.99 | 0.9400 | 2.500 | 0.0130 | 15.06 | 39.75 | 0.38 | 9.75 | 1.30 | 0.52 | 0.00 | Calculated |
| 13 | 0139 | Pipe | J42824 | J441660-0 | 4.34 | 4645.94 | 4645.74 | 4.6100 | 2.000 | 0.0130 | 78.44 | 48.56 | 1.62 | 24.97 | 2.00 | 1.00 | 30.00 | SURCHARGED |
| 14 | 0165 | Pipe | JUL120.04-1 | JUL120.02-0 | 60.27 | 4506.91 | 4505.93 | 1.6300 | 5.000 | 0.0130 | 256.79 | 418.86 | 0.61 | 11.91 | 3.59 | 0.72 | 0.00 | Calculated |
| 15 | 0166 | Pipe | JUL120.06-1 | JUL120.04-0 | 64.47 | 4541.09 | 4541.49 | -0.6200 | 2.500 | 0.0130 | 257.37 | 289.13 | 0.89 | 9.49 | 2.17 | 0.87 | 0.00 | Calculated |
| 16 | 0182 | Pipe | J44269-1 | J0014-1 | 357.60 | 4721.40 | 4721.70 | -0.0800 | 1.500 | 0.0130 | 0.00 | 3.04 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | Calculated |
| 17 | 0183 | Pipe | J42533 | J441565-1 | 49.88 | 4695.91 | 4693.98 | 3.8700 | 4.000 | 0.0130 | 53.56 | 282.55 | 0.19 | 6.75 | 2.42 | 0.60 | 0.00 | Calculated |
| 18 | 4442 | Pipe | JUL130.08-0 | JUL130.06-0 | 96.06 | 4592.42 | 4590.00 | 2.5200 | 4.000 | 0.0130 | 79.97 | 227.99 | 0.35 | 20.43 | 1.39 | 0.35 | 0.00 | Calculated |
| 19 | 4449 | Pipe | J42393 | JUL070.02-0 | 232.19 | 4585.90 | 4581.00 | 2.1100 | 4.500 | 0.0130 | 148.86 | 281.86 | 0.53 | 23.26 | 1.90 | 0.42 | 0.00 | Calculated |
| 20 | 4489 | Pipe | J42118 | J42112 | 399.04 | 4610.41 | 4599.43 | 2.7500 | 2.000 | 0.0130 | 24.43 | 37.53 | 0.65 | 10.03 | 1.69 | 0.85 | 0.00 | Calculated |
| 21 | 4490 | Pipe | J42112 | J42117 | 330.31 | 4599.43 | 4597.20 | 0.6800 | 2.500 | 0.0130 | 19.76 | 33.70 | 0.59 | 7.48 | 2.50 | 1.00 | 201.00 | SURCHARGED |
| 22 | 44174 | Pipe | J42420 | J42347 | 45.63 | 4713.66 | 4706.85 | 14.9200 | 2.500 | 0.0130 | 48.32 | 158.46 | 0.30 | 18.25 | 1.33 | 0.53 | 0.00 | Calculated |
| 23 | 44175 | Pipe | J42346 | J42420 | 424.20 | 4747.50 | 4713.66 | 7.9800 | 2.500 | 0.0130 | 48.33 | 115.85 | 0.42 | 21.68 | 1.16 | 0.46 | 0.00 | Calculated |
| 24 | 44177 | Pipe | J42436 | J42348 | 293.89 | 4692.40 | 4677.52 | 5.0600 | 2.500 | 0.0130 | 48.29 | 92.29 | 0.52 | 17.30 | 1.38 | 0.55 | 0.00 | Calculated |
| 25 | 44178 | Pipe | J42347 | J42436 | 398.35 | 4706.85 | 4692.40 | 3.6300 | 2.500 | 0.0130 | 48.29 | 78.12 | 0.62 | 16.21 | 1.46 | 0.58 | 0.00 | Calculated |
| 26 | 44181 | Pipe | JUL100.02-1 | Jun-219 | 698.24 | 4850.00 | 4849.00 | 0.1400 | 2.000 | 0.0130 | 2.03 | 8.56 | 0.24 | 4.37 | 0.65 | 0.32 | 0.00 | Calculated |
| 27 | 44182 | Pipe | J42365 | J42366 | 223.60 | 4812.97 | 4809.24 | 1.6700 | 2.000 | 0.0130 | 0.00 | 29.22 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | Calculated |
| 28 | 44183 | Pipe | J42366 | J42367 | 346.57 | 4809.24 | 4786.31 | 6.6200 | 2.000 | 0.0130 | 0.00 | 58.19 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | Calculated |
| 29 | 44184 | Pipe | J42368 | J42370 | 153.82 | 4758.99 | 4749.05 | 6.4600 | 2.000 | 0.0130 | 0.00 | 57.51 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | Calculated |
| 30 | 44185 | Pipe | J42367 | J42368 | 353.16 | 4786.31 | 4758.99 | 7.7400 | 2.000 | 0.0130 | 0.00 | 62.92 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | Calculated |
| 31 | 44186 | Pipe | JUL080.12-0 | J42442 | 29.30 | 4777.64 | 4775.41 | 7.6100 | 2.500 | 0.0130 | 56.55 | 113.16 | 0.50 | 13.78 | 1.95 | 0.78 | 0.00 | Calculated |
| 32 | 44187 | Pipe | J42442 | JUL080.10-0 | 51.22 | 4775.41 | 4773.28 | 4.1600 | 2.500 | 0.0130 | 56.55 | 83.64 | 0.68 | 15.45 | 1.74 | 0.70 | 0.00 | Calculated |
| 33 | 44236 | Pipe | J42223 | J42156 | 262.90 | 4541.72 | 4527.51 | 5.4100 | 4.000 | 0.0130 | 145.85 | 333.95 | 0.44 | 14.34 | 3.03 | 0.76 | 0.00 | Calculated |
| 34 | 44237 | Pipe | J42156 | J42155 | 254.58 | 4527.51 | 4525.14 | 0.9300 | 4.000 | 0.0130 | 145.85 | 138.59 | 1.05 | 11.61 | 4.00 | 1.00 | 14.00 | SURCHARGED |
| 35 | 44238 | Pipe | J42155 | J42154 | 394.76 | 4525.14 | 4521.79 | 0.8500 | 4.000 | 0.0130 | 145.85 | 132.32 | 1.10 | 15.26 | 2.93 | 0.73 | 0.00 | > CAPACITY |
| 36 | 44268 | Pipe | J42180 | J42181 | 179.46 | 4743.73 | 4730.23 | 7.5200 | 2.500 | 0.0130 | 0.00 | 112.50 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | Calculated |
| 37 | 44269 | Pipe | J42181 | J44269-1 | 56.95 | 4730.23 | 4721.40 | 15.5000 | 2.500 | 0.0130 | 0.00 | 161.51 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | Calculated |
| 38 | 44275 | Pipe | J0014-1 | J42178 | 196.83 | 4721.70 | 4703.44 | 9.2800 | 1.500 | 0.0130 | 0.00 | 31.99 | 0.00 | 0.00 | 0.75 | 0.50 | 0.00 | Calculated |
| 39 | 44276 | Pipe | J42178 | J42177 | 144.52 | 4703.44 | 4694.19 | 6.4000 | 1.500 | 0.0130 | 22.19 | 26.58 | 0.84 | 12.59 | 1.50 | 1.00 | 13.00 | SURCHARGED |
| 40 | 44277 | Pipe | J42177 | J42176 | 64.41 | 4694.19 | 4691.51 | 4.1600 | 1.500 | 0.0130 | 22.19 | 21.43 | 1.04 | 12.56 | 1.50 | 1.00 | 22.00 | SURCHARGED |
| 41 | 44278 | Pipe | J42176 | J42175 | 144.48 | 4691.51 | 4688.48 | 2.1000 | 1.500 | 0.0130 | 22.19 | 15.21 | 1.46 | 12.56 | 1.50 | 1.00 | 25.00 | SURCHARGED |
| 42 | 44279 | Pipe | J441032-1 | J44279-1 | 134.87 | 4592.84 | 4589.20 | 2.7000 | 2.000 | 0.0130 | 4.02 | 37.16 | 0.11 | 3.86 | 0.84 | 0.42 | 0.00 | Calculated |
| 43 | 44298 | Pipe | J42157 | J44298-1 | 171.98 | 4512.22 | 4498.50 | 7.9800 | 4.000 | 0.0130 | 183.07 | 405.72 | 0.45 | 28.33 | 2.04 | 0.51 | 0.00 | Calculated |
| 44 | 44299 | Pipe | J42154 | J42157 | 88.84 | 4521.79 | 4512.22 | 10.7700 | 4.000 | 0.0130 | 145.85 | 471.45 | 0.31 | 23.68 | 2.03 | 0.51 | 0.00 | Calculated |
| 45 | 44375 | Pipe | JUL152.04-1 | JUL152.02-0 | 93.37 | 4546.00 | 4545.80 | 0.2100 | 4.000 | 0.0130 | 59.01 | 66.48 | 0.89 | 6.06 | 2.95 | 0.74 | 0.00 | Calculated |
| 46 | 44455 | Pipe | J42265 | J42264 | 120.43 | 4616.61 | 4608.40 | 6.8200 | 2.000 | 0.0130 | 34.73 | 59.07 | 0.59 | 11.05 | 2.00 | 1.00 | 19.00 | SURCHARGED |
| 47 | 44458 | Pipe | J42175 | J42282 | 60.29 | 4688.48 | 4687.53 | 1.5800 | 1.500 | 0.0130 | 22.19 | 13.19 | 1.68 | 12.60 | 1.48 | 0.99 | 0.00 | > CAPACITY |
| 48 | 44459 | Pipe | J42304 | J42305 | 77.04 | 4685.80 | 4681.10 | 6.1000 | 1.500 | 0.0130 | 20.73 | 25.95 | 0.80 | 14.78 | 1.11 | 0.74 | 0.00 | Calculated |
| 49 | 44460 | Pipe | J42303 | J42304 | 262.21 | 4704.40 | 4685.80 | 7.0900 | 1.500 | 0.0130 | 20.73 | 27.98 | 0.74 | 15.19 | 1.08 | 0.72 | 0.00 | Calculated |
| 50 | 44461 | Pipe | J42309 | J42308 | 286.81 | 4616.43 | 4600.22 | 5.6500 | 1.500 | 0.0130 | 19.87 | 24.97 | 0.80 | 14.04 | 1.12 | 0.75 | 0.00 | Calculated |
| 51 | 44462 | Pipe | J42310 | J42309 | 390.20 | 4636.19 | 4616.43 | 5.0600 | 1.500 | 0.0130 | 19.87 | 23.64 | 0.84 | 14.65 | 1.08 | 0.72 | 0.00 | Calculated |
| 52 | 44463 | Pipe | J42311 | J42310 | 212.12 | 4652.14 | 4636.19 | 7.5200 | 1.500 | 0.0130 | 19.87 | 28.80 | 0.69 | 15.56 | 1.02 | 0.68 | 0.00 | Calculated |
| 53 | 44464 | Pipe | J42312 | J42311 | 173.46 | 4663.13 | 4652.14 | 6.3400 | 1.500 | 0.0130 | 19.87 | 26.44 | 0.75 | 15.77 | 1.01 | 0.67 | 0.00 | Calculated |
| 54 | 44465 | Pipe | J42305 | J42312 | 220.69 | 4681.18 | 4663.13 | 8.1800 | 1.500 | 0.0130 | 20.73 | 30.04 | 0.69 | 23.41 | 1.00 | 0.66 | 0.00 | Calculated |
| 55 | 44471 | Pipe | J42266 | J42265 | 101.03 | 4620.24 | 4616.61 | 3.5900 | 2.000 | 0.0130 | 34.73 | 42.88 | 0.81 | 14.30 | 2.00 | 1.00 | 17.00 | SURCHARGED |
| 56 | 44472 | Pipe | J42267 | J42266 | 78.65 | 4622.52 | 4620.24 | 2.9000 | 2.000 | 0.0130 | 34.73 | 38.52 | 0.90 | 11.64 | 2.00 | 1.00 | 16.00 | SURCHARGED |

## Link Summary

| SN | Element ID | Element Type | From (Inlet) Node | To (Outlet) Node | Length | Inlet Invert Elevation | Outlet Invert Elevation | Average Slope | Diameter or Height | Manning's Roughness | Peak Flow | Design Flow Capacity | Peak Flow/ Design Flow Ratio | Peak Flow Velocity | Peak Flow Depth | Peak Flow Depth/ Total Depth Ratio | Total Time Surcharged | Reported Condition |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | (ft) | (ft) | (ft) | (%) | (ft) | | (cfs) | (cfs) | | (ft/sec) | (ft) | | (min) | |
| 57 | 44473 | Pipe | J42268 | J42267 | 286.17 | 4630.23 | 4622.52 | 2.6900 | 2.000 | 0.0130 | 34.73 | 37.13 | 0.94 | 11.71 | 2.00 | 1.00 | 14.00 | SURCHARGED |
| 58 | 44474 | Pipe | J42269 | J42268 | 113.63 | 4633.51 | 4630.23 | 2.8900 | 2.000 | 0.0130 | 34.73 | 38.44 | 0.90 | 12.07 | 2.00 | 1.00 | 13.00 | SURCHARGED |
| 59 | 44475 | Pipe | J42270 | J42269 | 157.43 | 4638.41 | 4633.51 | 3.1100 | 2.000 | 0.0130 | 34.73 | 39.91 | 0.87 | 12.07 | 2.00 | 1.00 | 11.00 | SURCHARGED |
| 60 | 44476 | Pipe | J42271 | J42270 | 146.39 | 4646.69 | 4638.41 | 5.6600 | 2.000 | 0.0130 | 34.73 | 53.80 | 0.65 | 14.25 | 2.00 | 1.00 | 7.00 | SURCHARGED |
| 61 | 44486 | Pipe | J42333 | J42334 | 261.69 | 4610.34 | 4602.31 | 3.0700 | 3.000 | 0.0130 | 44.97 | 116.84 | 0.38 | 12.16 | 1.55 | 0.52 | 0.00 | Calculated |
| 62 | 44487 | Pipe | J42334 | J42335 | 49.00 | 4602.31 | 4601.32 | 2.0200 | 3.000 | 0.0130 | 44.97 | 94.81 | 0.47 | 12.16 | 1.55 | 0.52 | 0.00 | Calculated |
| 63 | 44488 | Pipe | J42336 | J44488-1 | 76.23 | 4595.34 | 4592.40 | 3.8600 | 3.000 | 0.0130 | 44.97 | 130.99 | 0.34 | 11.99 | 1.57 | 0.52 | 0.00 | Calculated |
| 64 | 44489 | Pipe | J42335 | J42336 | 160.46 | 4601.32 | 4595.34 | 3.7300 | 3.000 | 0.0130 | 44.97 | 128.76 | 0.35 | 13.94 | 1.40 | 0.47 | 0.00 | Calculated |
| 65 | 44490 | Pipe | JUL041.02-1 | J42337 | 157.17 | 4627.15 | 4619.90 | 4.6100 | 3.000 | 0.0130 | 44.97 | 143.25 | 0.31 | 16.33 | 1.24 | 0.41 | 0.00 | Calculated |
| 66 | 44491 | Pipe | J42337 | J42333 | 200.01 | 4619.90 | 4610.34 | 4.7800 | 3.000 | 0.0130 | 44.97 | 145.82 | 0.31 | 15.75 | 1.27 | 0.42 | 0.00 | Calculated |
| 67 | 44500 | Pipe | J42273 | J42271 | 194.14 | 4657.67 | 4646.69 | 5.6600 | 2.000 | 0.0130 | 35.12 | 53.80 | 0.65 | 16.76 | 1.68 | 0.94 | 0.00 | Calculated |
| 68 | 44501 | Pipe | J42274 | J42273 | 167.33 | 4666.87 | 4657.67 | 5.5000 | 2.000 | 0.0130 | 35.54 | 53.05 | 0.67 | 16.93 | 1.33 | 0.75 | 0.00 | Calculated |
| 69 | 44502 | Pipe | J42275 | J42274 | 48.57 | 4670.16 | 4666.87 | 6.7700 | 2.000 | 0.0130 | 35.45 | 58.88 | 0.60 | 15.80 | 1.36 | 0.68 | 0.00 | Calculated |
| 70 | 44503 | Pipe | J42277 | J42275 | 52.50 | 4672.54 | 4670.16 | 4.5300 | 2.000 | 0.0130 | 35.44 | 48.17 | 0.74 | 13.66 | 1.54 | 0.77 | 0.00 | Calculated |
| 71 | 44504 | Pipe | J42278 | J42277 | 116.40 | 4677.64 | 4672.54 | 4.3800 | 2.000 | 0.0130 | 35.44 | 47.35 | 0.75 | 13.41 | 1.56 | 0.78 | 0.00 | Calculated |
| 72 | 44505 | Pipe | J42279 | J42278 | 125.33 | 4682.15 | 4677.64 | 3.6000 | 2.000 | 0.0130 | 22.12 | 42.91 | 0.52 | 10.36 | 1.28 | 0.64 | 0.00 | Calculated |
| 73 | 44506 | Pipe | J42280 | J42279 | 83.40 | 4683.00 | 4682.15 | 1.0200 | 2.000 | 0.0130 | 22.12 | 22.84 | 0.97 | 9.55 | 1.38 | 0.69 | 0.00 | Calculated |
| 74 | 44507 | Pipe | J42282 | J42280 | 320.83 | 4687.53 | 4683.00 | 1.4100 | 2.000 | 0.0130 | 22.15 | 26.88 | 0.82 | 8.41 | 1.56 | 0.78 | 0.00 | Calculated |
| 75 | 44548 | Pipe | J44279-1 | J42284 | 3.93 | 4589.20 | 4589.18 | 0.5100 | 1.250 | 0.0130 | 4.02 | 4.61 | 0.87 | 3.97 | 1.19 | 0.95 | 0.00 | Calculated |
| 76 | 44549 | Pipe | J42284 | J42285 | 29.92 | 4589.18 | 4588.82 | 1.2000 | 1.250 | 0.0130 | 4.02 | 7.09 | 0.57 | 4.18 | 1.20 | 0.96 | 0.00 | Calculated |
| 77 | 44551 | Pipe | J42287 | J42286 | 339.89 | 4587.63 | 4586.66 | 0.2900 | 1.250 | 0.0130 | 4.02 | 3.45 | 1.16 | 3.42 | 1.14 | 0.91 | 0.00 | > CAPACITY |
| 78 | 44563 | Pipe | J42285 | J44563-1 | 4.04 | 4588.82 | 4588.62 | 4.9500 | 1.250 | 0.0130 | 4.02 | 14.37 | 0.28 | 3.78 | 1.25 | 1.00 | 87.00 | SURCHARGED |
| 79 | 44564 | Pipe | J44563-1 | J42287 | 259.33 | 4588.62 | 4587.63 | 0.3800 | 1.250 | 0.0130 | 4.02 | 3.99 | 1.01 | 3.30 | 1.25 | 1.00 | 127.00 | SURCHARGED |
| 80 | 44576 | Pipe | J42458 | J42459 | 397.01 | 4585.91 | 4584.43 | 0.3700 | 1.250 | 0.0130 | 4.01 | 3.94 | 1.02 | 3.85 | 0.99 | 0.79 | 0.00 | > CAPACITY |
| 81 | 44577 | Pipe | J42286 | J42458 | 161.65 | 4586.66 | 4585.91 | 0.4600 | 1.250 | 0.0130 | 4.01 | 4.40 | 0.91 | 3.58 | 1.08 | 0.87 | 0.00 | Calculated |
| 82 | 44578 | Pipe | J42459 | J42460 | 295.67 | 4584.43 | 4582.66 | 0.6000 | 1.250 | 0.0130 | 4.01 | 5.00 | 0.80 | 4.03 | 0.95 | 0.76 | 0.00 | Calculated |
| 83 | 44579 | Pipe | J42460 | J42462 | 294.77 | 4582.66 | 4581.42 | 0.4200 | 1.250 | 0.0130 | 4.01 | 4.19 | 0.96 | 4.11 | 0.93 | 0.74 | 0.00 | Calculated |
| 84 | 44591 | Pipe | J42394 | J42393 | 33.11 | 4586.59 | 4585.90 | 2.0800 | 4.500 | 0.0130 | 148.86 | 283.88 | 0.52 | 13.13 | 3.02 | 0.67 | 0.00 | Calculated |
| 85 | 44592 | Pipe | JUL070.04-1 | J42394 | 29.30 | 4590.98 | 4586.59 | 14.9800 | 3.500 | 0.0130 | 132.08 | 389.44 | 0.34 | 15.70 | 2.86 | 0.82 | 0.00 | Calculated |
| 86 | 44596 | Pipe | J42348 | J42349 | 139.92 | 4677.52 | 4670.58 | 4.9600 | 2.500 | 0.0130 | 48.29 | 91.35 | 0.53 | 14.71 | 1.58 | 0.63 | 0.00 | Calculated |
| 87 | 44597 | Pipe | J42349 | J42350 | 137.24 | 4670.58 | 4666.48 | 2.9900 | 2.500 | 0.0130 | 48.29 | 70.90 | 0.68 | 15.69 | 1.50 | 0.60 | 0.00 | Calculated |
| 88 | 44598 | Pipe | J42350 | J44598-1 | 97.53 | 4666.48 | 4648.85 | 18.0800 | 2.500 | 0.0130 | 48.29 | 114.73 | 0.42 | 14.63 | 1.59 | 0.64 | 0.00 | Calculated |
| 89 | 44599 | Pipe | J44599-0 | JUL070.04-0 | 99.31 | 4647.46 | 4647.09 | 0.3700 | 2.500 | 0.0130 | 18.46 | 25.04 | 0.74 | 8.66 | 1.25 | 0.50 | 0.00 | Calculated |
| 90 | 44600 | Pipe | J44598-1 | SN-UL060B | 215.22 | 4648.85 | 4654.40 | -2.5800 | 2.500 | 0.0130 | 48.26 | 58.98 | 0.82 | 13.23 | 2.15 | 0.86 | 0.00 | Calculated |
| 91 | 44601 | Pipe | J42443 | JUL080.08-1 | 37.32 | 4713.69 | 4712.70 | 2.6500 | 2.500 | 0.0130 | 59.81 | 66.81 | 0.90 | 13.20 | 2.17 | 0.87 | 0.00 | Calculated |
| 92 | 44602 | Pipe | JUL080.10-1 | J42443 | 45.20 | 4718.12 | 4713.69 | 9.8000 | 2.500 | 0.0130 | 59.81 | 128.41 | 0.47 | 13.52 | 2.11 | 0.85 | 0.00 | Calculated |
| 93 | 44603 | Pipe | JUL080.08-0 | JUL080.06-1 | 20.31 | 4695.94 | 4695.33 | 3.0000 | 2.500 | 0.0150 | 59.79 | 75.66 | 0.79 | 21.48 | 1.38 | 0.55 | 0.00 | Calculated |
| 94 | 44609 | Pipe | J42370 | J42371 | 80.61 | 4749.05 | 4745.20 | 4.7800 | 2.500 | 0.0130 | 0.00 | 89.64 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | Calculated |
| 95 | 44610 | Pipe | J42440 | J42180 | 60.80 | 4744.06 | 4743.73 | 0.5400 | 2.500 | 0.0130 | 0.00 | 30.22 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | Calculated |
| 96 | 44611 | Pipe | J42371 | J42440 | 72.46 | 4745.20 | 4744.06 | 1.5700 | 2.500 | 0.0130 | 0.00 | 51.45 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | Calculated |
| 97 | 44612 | Pipe | J44612-0 | JUL080.04-1 | 101.80 | 4634.84 | 4634.16 | 0.6700 | 2.500 | 0.0150 | 57.21 | 29.05 | 1.97 | 11.75 | 2.43 | 0.97 | 0.00 | > CAPACITY |
| 98 | 44681 | Pipe | J44681.0 | J42402 | 105.85 | 4591.92 | 4585.83 | 5.7500 | 2.500 | 0.0130 | 22.84 | 98.38 | 0.23 | 6.58 | 1.66 | 0.67 | 0.00 | Calculated |
| 99 | 44754 | Pipe | J42540 | J42538 | 116.87 | 4597.65 | 4595.69 | 1.6800 | 4.000 | 0.0130 | 65.20 | 186.02 | 0.35 | 13.37 | 2.06 | 0.52 | 0.00 | Calculated |
| 100 | 44803 | Pipe | J42531 | J42530 | 133.82 | 4693.08 | 4692.15 | 0.6900 | 4.000 | 0.0130 | 53.56 | 119.75 | 0.45 | 11.27 | 1.61 | 0.40 | 0.00 | Calculated |
| 101 | 44819 | Pipe | J42532 | J42531 | 163.01 | 4693.66 | 4693.08 | 0.3600 | 4.000 | 0.0130 | 53.56 | 85.68 | 0.63 | 7.75 | 2.16 | 0.54 | 0.00 | Calculated |
| 102 | 44868 | Pipe | J42885 | J42118 | 219.08 | 4616.20 | 4610.41 | 2.6400 | 2.000 | 0.0130 | 24.43 | 36.78 | 0.66 | 11.62 | 1.32 | 0.66 | 0.00 | Calculated |
| 103 | 44869 | Pipe | JUL132.02-1 | J42746 | 73.42 | 4760.58 | 4758.90 | 2.2900 | 2.000 | 0.0130 | 31.44 | 34.73 | 0.91 | 11.87 | 1.57 | 0.79 | 0.00 | Calculated |
| 104 | 44870 | Pipe | J42746 | J42745 | 58.80 | 4758.90 | 4755.35 | 6.0400 | 2.000 | 0.0130 | 31.46 | 55.59 | 0.57 | 12.90 | 1.44 | 0.73 | 0.00 | Calculated |
| 105 | 44871 | Pipe | J42747 | J42748 | 51.61 | 4704.88 | 4703.71 | 2.2700 | 2.000 | 0.0130 | 30.35 | 34.06 | 0.89 | 9.81 | 2.00 | 1.00 | 22.00 | SURCHARGED |
| 106 | 44891 | Pipe | J42722 | JUL120.06-0 | 302.46 | 4586.25 | 4574.18 | 3.9900 | 4.500 | 0.0130 | 158.63 | 392.84 | 0.40 | 22.61 | 2.05 | 0.46 | 0.00 | Calculated |
| 107 | 44892 | Pipe | J42538 | J42722 | 208.08 | 4595.69 | 4586.25 | 4.5400 | 4.000 | 0.0130 | 140.86 | 305.95 | 0.46 | 20.07 | 2.18 | 0.55 | 0.00 | Calculated |
| 108 | 44893 | Pipe | J42402 | J42722 | 309.33 | 4585.83 | 4586.25 | -0.1400 | 2.500 | 0.0130 | 22.84 | 15.11 | 1.51 | 5.37 | 2.36 | 0.94 | 0.00 | > CAPACITY |
| 109 | 441024 | Pipe | J441024-0 | J441024-1 | 45.76 | 4572.78 | 4572.60 | 0.3900 | 4.000 | 0.0130 | 71.72 | 90.09 | 0.80 | 7.53 | 2.84 | 0.71 | 0.00 | Calculated |
| 110 | 441025 | Pipe | J441024-1 | JUL080.02-0 | 113.83 | 4572.60 | 4572.00 | 0.5300 | 4.000 | 0.0130 | 79.15 | 104.29 | 0.76 | 15.00 | 1.75 | 0.44 | 0.00 | Calculated |
| 111 | 441032 | Pipe | J42264 | SN-UL100A | 310.46 | 4608.40 | 4599.80 | 2.7700 | 2.000 | 0.0130 | 54.82 | 37.65 | 1.46 | 17.45 | 2.00 | 1.00 | 30.00 | SURCHARGED |
| 112 | 441350 | Pipe | J42461 | J441024-1 | 287.92 | 4579.30 | 4576.75 | 0.8900 | 1.500 | 0.0130 | 7.49 | 9.89 | 0.76 | 6.01 | 1.00 | 0.66 | 0.00 | Calculated |

## Link Summary

| SN | Element ID | Element Type | From (Inlet) Node | To (Outlet) Node | Length | Inlet Invert Elevation | Outlet Invert Elevation | Average Slope | Diameter or Height | Manning's Roughness | Peak Flow | Design Flow Capacity | Peak Flow/ Design Flow Ratio | Peak Flow Velocity | Peak Flow Depth | Peak Flow Depth/ Total Depth Ratio | Total Time Surcharged | Reported Condition |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | (ft) | (ft) | (ft) | (%) | (ft) | | (cfs) | (cfs) | | (ft/sec) | (ft) | | (min) | |
| 113 | 441371 | Pipe | J42462 | J42461 | 52.39 | 4581.42 | 4579.30 | 4.0500 | 1.500 | 0.0130 | 7.49 | 21.13 | 0.35 | 7.22 | 0.85 | 0.57 | 0.00 | Calculated |
| 114 | 441436 | Pipe | J42494 | J42540 | 331.86 | 4599.72 | 4597.65 | 0.6200 | 4.000 | 0.0130 | 65.21 | 113.45 | 0.57 | 9.46 | 2.15 | 0.54 | 0.00 | Calculated |
| 115 | 441437 | Pipe | J42495 | J42494 | 61.65 | 4603.33 | 4599.72 | 5.8600 | 2.500 | 0.0130 | 53.98 | 99.26 | 0.54 | 13.63 | 2.02 | 0.81 | 0.00 | Calculated |
| 116 | 441438 | Pipe | J42496 | J42495 | 116.23 | 4612.58 | 4603.33 | 7.9600 | 2.500 | 0.0130 | 53.97 | 115.71 | 0.47 | 17.36 | 1.51 | 0.61 | 0.00 | Calculated |
| 117 | 441439 | Pipe | J42497 | J42496 | 257.91 | 4632.36 | 4612.58 | 7.6700 | 2.500 | 0.0130 | 53.97 | 113.59 | 0.48 | 20.89 | 1.30 | 0.52 | 0.00 | Calculated |
| 118 | 441440 | Pipe | J42498 | J42497 | 109.73 | 4640.79 | 4632.36 | 7.6800 | 2.500 | 0.0130 | 53.96 | 113.69 | 0.47 | 20.27 | 1.33 | 0.53 | 0.00 | Calculated |
| 119 | 441441 | Pipe | J42499 | J42498 | 122.16 | 4650.81 | 4640.79 | 8.2000 | 2.500 | 0.0130 | 53.94 | 117.47 | 0.46 | 19.82 | 1.35 | 0.54 | 0.00 | Calculated |
| 120 | 441443 | Pipe | J42500 | J42499 | 33.62 | 4652.77 | 4650.81 | 5.8300 | 2.500 | 0.0130 | 53.92 | 99.04 | 0.54 | 16.63 | 1.57 | 0.63 | 0.00 | Calculated |
| 121 | 441444 | Pipe | J42516 | J42500 | 164.63 | 4653.02 | 4652.77 | 0.1500 | 4.000 | 0.0130 | 53.97 | 55.98 | 0.96 | 7.89 | 2.13 | 0.53 | 0.00 | Calculated |
| 122 | 441445 | Pipe | J42517 | J42516 | 91.67 | 4655.67 | 4653.02 | 2.8900 | 4.000 | 0.0130 | 54.06 | 244.23 | 0.22 | 8.38 | 2.03 | 0.51 | 0.00 | Calculated |
| 123 | 441446 | Pipe | J42518 | J42517 | 74.23 | 4656.94 | 4655.67 | 1.7100 | 4.000 | 0.0130 | 54.02 | 187.89 | 0.29 | 10.60 | 1.70 | 0.43 | 0.00 | Calculated |
| 124 | 441447 | Pipe | J42519 | J42518 | 46.59 | 4658.11 | 4656.94 | 2.5100 | 4.000 | 0.0130 | 54.00 | 227.63 | 0.24 | 9.98 | 1.78 | 0.45 | 0.00 | Calculated |
| 125 | 441448 | Pipe | J42520 | J42519 | 297.76 | 4669.61 | 4658.11 | 3.8600 | 4.000 | 0.0130 | 54.24 | 282.29 | 0.19 | 12.80 | 1.48 | 0.37 | 0.00 | Calculated |
| 126 | 441449 | Pipe | J42521 | J42520 | 190.80 | 4670.25 | 4669.61 | 0.3400 | 4.000 | 0.0130 | 55.77 | 83.19 | 0.67 | 10.82 | 1.72 | 0.43 | 0.00 | Calculated |
| 127 | 441450 | Pipe | J42522 | J42521 | 68.15 | 4670.60 | 4670.25 | 0.5100 | 4.000 | 0.0130 | 54.16 | 102.94 | 0.53 | 7.02 | 2.37 | 0.59 | 0.00 | Calculated |
| 128 | 441451 | Pipe | J42523 | J42522 | 279.34 | 4671.79 | 4670.60 | 0.4300 | 4.000 | 0.0130 | 53.65 | 93.75 | 0.57 | 6.62 | 2.46 | 0.62 | 0.00 | Calculated |
| 129 | 441453 | Pipe | J42526 | J42525 | 310.37 | 4673.18 | 4672.21 | 0.3100 | 4.000 | 0.0130 | 53.56 | 80.30 | 0.67 | 5.84 | 2.74 | 0.68 | 0.00 | Calculated |
| 130 | 441454 | Pipe | J42525 | J42523 | 168.96 | 4672.21 | 4671.79 | 0.2500 | 4.000 | 0.0130 | 53.62 | 71.62 | 0.75 | 6.19 | 2.60 | 0.65 | 0.00 | Calculated |
| 131 | 441455 | Pipe | J42528 | J42527 | 87.74 | 4678.70 | 4674.07 | 5.2800 | 3.000 | 0.0130 | 53.56 | 153.22 | 0.35 | 11.16 | 1.93 | 0.64 | 0.00 | Calculated |
| 132 | 441456 | Pipe | J42527 | J42526 | 8.34 | 4674.07 | 4673.18 | 10.6700 | 3.000 | 0.0130 | 53.56 | 217.89 | 0.25 | 8.36 | 2.55 | 0.85 | 0.00 | Calculated |
| 133 | 441457 | Pipe | J42529 | J42528 | 156.08 | 4680.22 | 4678.70 | 0.9700 | 4.000 | 0.0130 | 53.56 | 141.75 | 0.38 | 10.81 | 1.67 | 0.42 | 0.00 | Calculated |
| 134 | 441458 | Pipe | J42530 | J42529 | 407.26 | 4692.15 | 4680.22 | 2.9300 | 4.000 | 0.0130 | 53.56 | 245.85 | 0.22 | 11.69 | 1.57 | 0.39 | 0.00 | Calculated |
| 135 | 441557 | Pipe | J441557-0 | J42532 | 17.99 | 4693.78 | 4693.66 | 0.6700 | 4.000 | 0.0130 | 53.56 | 117.32 | 0.46 | 6.48 | 2.50 | 0.63 | 0.00 | Calculated |
| 136 | 441565 | Pipe | J441560-0 | SN--UL121 | 175.84 | 4704.00 | 4702.20 | 1.0200 | 4.000 | 0.0130 | 149.18 | 145.33 | 1.03 | 17.80 | 4.00 | 1.00 | 188.00 | SURCHARGED |
| 137 | 441566 | Pipe | J441565-1 | J441557-0 | 177.41 | 4693.98 | 4693.78 | 0.1100 | 4.000 | 0.0130 | 53.56 | 48.23 | 1.11 | 5.53 | 2.88 | 0.72 | 0.00 | > CAPACITY |
| 138 | 441570 | Pipe | Jun-221 | J42788 | 215.43 | 4597.20 | 4596.35 | 0.3900 | 2.500 | 0.0130 | 8.64 | 25.76 | 0.34 | 1.76 | 2.50 | 1.00 | 352.00 | SURCHARGED |
| 139 | 441571 | Pipe | J42788 | J42813 | 97.62 | 4596.35 | 4595.72 | 0.6500 | 2.500 | 0.0130 | 8.67 | 32.95 | 0.26 | 1.77 | 2.50 | 1.00 | 367.00 | SURCHARGED |
| 140 | 441585 | Pipe | J42809 | J42808 | 104.07 | 4594.91 | 4594.84 | 0.0700 | 4.000 | 0.0130 | 32.07 | 37.25 | 0.86 | 3.22 | 4.00 | 1.00 | 358.00 | SURCHARGED |
| 141 | 441586 | Pipe | J42808 | JUL130.08-1 | 194.26 | 4594.84 | 4594.64 | 0.1000 | 4.000 | 0.0130 | 32.14 | 46.09 | 0.70 | 3.13 | 4.00 | 1.00 | 360.00 | SURCHARGED |
| 142 | 441587 | Pipe | J42810 | J42809 | 321.57 | 4595.00 | 4594.91 | 0.0300 | 4.000 | 0.0130 | 32.02 | 24.03 | 1.33 | 3.19 | 4.00 | 1.00 | 357.00 | SURCHARGED |
| 143 | 441588 | Pipe | J42811 | J42810 | 269.26 | 4595.04 | 4595.00 | 0.0100 | 4.000 | 0.0130 | 33.64 | 17.51 | 1.92 | 3.16 | 4.00 | 1.00 | 356.00 | SURCHARGED |
| 144 | 441589 | Pipe | J42812 | J42811 | 58.61 | 4595.09 | 4595.04 | 0.0900 | 4.000 | 0.0130 | 34.46 | 41.96 | 0.82 | 3.12 | 4.00 | 1.00 | 357.00 | SURCHARGED |
| 145 | 441590 | Pipe | J42813 | J42814 | 380.68 | 4595.72 | 4595.42 | 0.0800 | 4.000 | 0.0130 | 18.15 | 40.32 | 0.45 | 1.62 | 4.00 | 1.00 | 349.00 | SURCHARGED |
| 146 | 441591 | Pipe | J42814 | J42815 | 168.72 | 4595.42 | 4595.33 | 0.0500 | 4.000 | 0.0130 | 36.03 | 33.18 | 1.09 | 3.20 | 4.00 | 1.00 | 354.00 | SURCHARGED |
| 147 | 441592 | Pipe | J42815 | J42816 | 117.51 | 4595.33 | 4595.25 | 0.0700 | 4.000 | 0.0130 | 35.46 | 37.48 | 0.95 | 3.19 | 4.00 | 1.00 | 355.00 | SURCHARGED |
| 148 | 441593 | Pipe | J42816 | J42812 | 134.40 | 4595.25 | 4595.09 | 0.1200 | 4.000 | 0.0130 | 34.91 | 49.56 | 0.70 | 3.15 | 4.00 | 1.00 | 355.00 | SURCHARGED |
| 149 | 441595 | Pipe | J42821 | J42885 | 108.22 | 4619.88 | 4616.20 | 3.4000 | 2.000 | 0.0130 | 24.43 | 41.72 | 0.59 | 11.84 | 1.25 | 0.62 | 0.00 | Calculated |
| 150 | 441606 | Pipe | J42833 | J42747 | 161.30 | 4716.01 | 4704.88 | 6.9000 | 2.000 | 0.0130 | 31.32 | 59.42 | 0.53 | 12.04 | 1.85 | 0.94 | 0.00 | Calculated |
| 151 | 441607 | Pipe | J42834 | J42833 | 156.83 | 4723.25 | 4716.01 | 4.6200 | 2.000 | 0.0130 | 31.30 | 48.61 | 0.64 | 15.65 | 1.46 | 0.75 | 0.00 | Calculated |
| 152 | 441608 | Pipe | J42745 | J42836 | 40.49 | 4755.35 | 4753.59 | 4.3500 | 2.000 | 0.0130 | 31.47 | 47.17 | 0.67 | 12.83 | 1.44 | 0.73 | 0.00 | Calculated |
| 153 | 441609 | Pipe | J42836 | J42835 | 277.79 | 4753.59 | 4742.72 | 3.9100 | 2.000 | 0.0130 | 31.48 | 44.75 | 0.70 | 15.45 | 1.22 | 0.62 | 0.00 | Calculated |
| 154 | 441633 | Pipe | J42853 | J42854 | 236.15 | 4666.81 | 4651.03 | 6.6800 | 2.000 | 0.0130 | 78.44 | 58.48 | 1.34 | 24.97 | 2.00 | 1.00 | 33.00 | SURCHARGED |
| 155 | 441634 | Pipe | J42854 | J42824 | 60.07 | 4651.03 | 4645.94 | 8.4700 | 2.000 | 0.0130 | 78.44 | 65.85 | 1.19 | 24.97 | 2.00 | 1.00 | 35.00 | SURCHARGED |
| 156 | 441638 | Pipe | J42858 | J42857 | 294.07 | 4696.01 | 4678.77 | 5.8600 | 2.000 | 0.0130 | 21.29 | 54.77 | 0.39 | 14.65 | 2.00 | 1.00 | 25.00 | SURCHARGED |
| 157 | 441639 | Pipe | J42748 | J42859 | 132.28 | 4703.71 | 4700.55 | 2.3900 | 2.000 | 0.0130 | 30.35 | 34.97 | 0.87 | 11.11 | 2.00 | 1.00 | 23.00 | SURCHARGED |
| 158 | 441640 | Pipe | J42859 | J42858 | 121.62 | 4700.55 | 4696.01 | 3.7300 | 2.000 | 0.0130 | 30.35 | 43.71 | 0.69 | 12.98 | 2.00 | 1.00 | 24.00 | SURCHARGED |
| 159 | 441662 | Pipe | J441660-0 | J441657-0 | 278.01 | 4645.74 | 4638.61 | 2.5600 | 2.500 | 0.0130 | 78.44 | 65.69 | 1.19 | 15.98 | 2.50 | 1.00 | 29.00 | SURCHARGED |
| 160 | 441673 | Pipe | J42835 | J441673-1 | 384.26 | 4742.72 | 4723.40 | 5.0300 | 2.000 | 0.0130 | 31.35 | 50.73 | 0.62 | 11.98 | 1.53 | 0.78 | 0.00 | Calculated |
| 161 | 441674 | Pipe | J441673-1 | J42834 | 6.19 | 4723.40 | 4723.25 | 2.4200 | 2.000 | 0.0130 | 31.29 | 35.22 | 0.89 | 11.52 | 1.58 | 0.81 | 0.00 | Calculated |
| 162 | 441822 | Pipe | J42364 | J42358 | 138.70 | 4621.30 | 4617.19 | 2.9600 | 2.000 | 0.0130 | 15.00 | 38.94 | 0.39 | 12.38 | 0.82 | 0.41 | 0.00 | Calculated |
| 163 | 441823 | Pipe | J441823.0 | J42364 | 395.78 | 4636.38 | 4621.30 | 3.8100 | 2.000 | 0.0130 | 15.00 | 44.16 | 0.34 | 11.34 | 0.88 | 0.44 | 0.00 | Calculated |
| 164 | 441866 | Pipe | J4224 | J42797 | 406.19 | 4534.11 | 4520.54 | 3.3400 | 2.500 | 0.0130 | 66.58 | 74.97 | 0.89 | 16.53 | 1.89 | 0.77 | 0.00 | Calculated |
| 165 | 441867 | Pipe | J4225 | J4224 | 292.91 | 4538.76 | 4534.11 | 1.5900 | 2.500 | 0.0130 | 66.59 | 51.68 | 1.29 | 14.34 | 2.23 | 0.90 | 0.00 | > CAPACITY |
| 166 | 441868 | Pipe | J4226 | J4225 | 171.06 | 4542.66 | 4538.76 | 2.2800 | 2.500 | 0.0130 | 66.59 | 61.93 | 1.08 | 13.57 | 2.50 | 1.00 | 24.00 | SURCHARGED |
| 167 | 441869 | Pipe | J4236 | J4226 | 170.49 | 4549.45 | 4542.66 | 3.9800 | 2.500 | 0.0130 | 66.59 | 81.86 | 0.81 | 13.57 | 2.50 | 1.00 | 16.00 | SURCHARGED |
| 168 | 441870 | Pipe | J42363 | J4237 | 89.88 | 4588.99 | 4580.68 | 9.2500 | 2.500 | 0.0130 | 60.08 | 124.72 | 0.48 | 19.78 | 1.50 | 0.60 | 0.00 | Calculated |

## Link Summary

| SN | Element ID | Element Type | From (Inlet) Node | To (Outlet) Node | Length | Inlet Invert Elevation | Outlet Invert Elevation | Average Slope | Diameter or Height | Manning's Roughness | Peak Flow | Design Flow Capacity | Peak Flow/ Design Flow Ratio | Peak Flow Velocity | Peak Flow Depth | Peak Flow Depth/ Total Depth Ratio | Total Time Surcharged | Reported Condition |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | (ft) | (ft) | (ft) | (%) | (ft) | | (cfs) | (cfs) | | (ft/sec) | (ft) | | (min) | |
| 169 | 441871 | Pipe | J4237 | J4236 | 581.40 | 4580.68 | 4546.45 | 5.8900 | 2.500 | 0.0130 | 66.03 | 95.06 | 0.69 | 17.81 | 2.04 | 0.82 | 0.00 | Calculated |
| 170 | 441905 | Pipe | J42357 | J441823.0 | 776.29 | 4670.80 | 4636.38 | 4.4300 | 2.000 | 0.0130 | 15.00 | 47.64 | 0.31 | 13.03 | 0.79 | 0.39 | 0.00 | Calculated |
| 171 | Link-111 | Pipe | Jun-192 | J42303 | 401.24 | 4732.10 | 4704.40 | 6.9000 | 1.500 | 0.0130 | 20.73 | 27.60 | 0.75 | 16.47 | 1.00 | 0.67 | 0.00 | Calculated |
| 172 | Link-140 | Pipe | Jun-194 | SN-UL110 | 1878.62 | 4704.00 | 4597.00 | 5.7000 | 2.000 | 0.0150 | 16.00 | 46.79 | 0.34 | 9.52 | 1.40 | 0.70 | 0.00 | Calculated |
| 173 | Link-142 | Pipe | J42855 | J42853 | 248.17 | 4668.88 | 4666.81 | 0.8300 | 2.000 | 0.0130 | 18.98 | 20.66 | 0.92 | 6.04 | 2.00 | 1.00 | 32.00 | SURCHARGED |
| 174 | Link-144 | Pipe | J42856 | J42855 | 44.57 | 4669.95 | 4668.88 | 2.4000 | 2.000 | 0.0130 | 18.97 | 35.05 | 0.54 | 7.50 | 2.00 | 1.00 | 31.00 | SURCHARGED |
| 175 | Link-146 | Pipe | J42857 | J42856 | 163.82 | 4678.77 | 4669.95 | 5.3800 | 2.000 | 0.0150 | 18.96 | 45.49 | 0.42 | 10.16 | 2.00 | 1.00 | 27.00 | SURCHARGED |
| 176 | Link-161 | Pipe | J441657-0 | SN-UL144 | 130.26 | 4638.41 | 4625.00 | 10.2900 | 2.500 | 0.0150 | 99.34 | 114.06 | 0.87 | 20.24 | 2.50 | 1.00 | 31.00 | SURCHARGED |
| 177 | Link-167 | Pipe | SN-UL124 | Jun-208 | 148.53 | 4894.50 | 4892.60 | 1.2800 | 3.000 | 0.0130 | 13.89 | 75.44 | 0.18 | 7.39 | 0.93 | 0.31 | 0.00 | Calculated |
| 178 | Link-168 | Pipe | SN-UL124 | Jun-208 | 154.42 | 4894.50 | 4885.12 | 6.0700 | 3.000 | 0.0130 | 37.66 | 164.39 | 0.23 | 7.53 | 2.00 | 0.67 | 0.00 | Calculated |
| 179 | Link-169 | Pipe | SN-UL124 | Jun-208 | 141.64 | 4898.50 | 4885.93 | 8.8700 | 3.000 | 0.0130 | 0.00 | 198.70 | 0.00 | 0.00 | 1.42 | 0.47 | 0.00 | Calculated |
| 180 | Link-170 | Pipe | Jun-210 | JUL130.08-1 | 1113.69 | 4635.00 | 4594.64 | 3.6200 | 4.000 | 0.0130 | 36.00 | 273.45 | 0.13 | 4.63 | 2.49 | 0.62 | 0.00 | Calculated |
| 181 | Link-171 | Pipe | Jun-211 | Jun-210 | 267.29 | 4646.72 | 4635.00 | 4.3800 | 2.500 | 0.0130 | 36.00 | 85.89 | 0.42 | 16.44 | 1.14 | 0.46 | 0.00 | Calculated |
| 182 | Link-172 | Pipe | Jun-212 | JUL130.08-1 | 1046.14 | 4636.03 | 4594.64 | 3.9600 | 2.000 | 0.0130 | 11.00 | 45.00 | 0.24 | 10.21 | 1.34 | 0.67 | 0.00 | Calculated |
| 183 | Link-175 | Pipe | Jun-216 | SN-UL080B | 90.76 | 4579.44 | 4578.58 | 0.9500 | 2.000 | 0.0150 | 15.22 | 19.09 | 0.80 | 7.72 | 2.00 | 1.00 | 100.00 | SURCHARGED |
| 184 | Link-176 | Pipe | Jun-217 | Jun-220 | 703.02 | 4678.00 | 4642.00 | 5.1200 | 3.000 | 0.0130 | 45.44 | 150.93 | 0.30 | 13.94 | 1.44 | 0.48 | 0.00 | Calculated |
| 185 | Link-177 | Pipe | Jun-218 | Jun-216 | 134.93 | 4580.35 | 4579.44 | 0.6700 | 2.000 | 0.0150 | 15.22 | 16.10 | 0.95 | 4.93 | 2.00 | 1.00 | 98.00 | SURCHARGED |
| 186 | Link-180 | Pipe | Jun-220 | Stor-48 | 1133.40 | 4642.00 | 4587.00 | 4.8500 | 2.500 | 0.0130 | 60.59 | 90.36 | 0.67 | 23.97 | 1.40 | 0.56 | 0.00 | Calculated |
| 187 | Link-182 | Pipe | Jun-222 | JUL152.04-1 | 1011.34 | 4559.00 | 4546.00 | 1.2900 | 4.000 | 0.0130 | 59.01 | 162.86 | 0.36 | 7.73 | 2.39 | 0.60 | 0.00 | Calculated |
| 188 | Link-183 | Pipe | Jun-223 | Jun-222 | 3054.43 | 4617.45 | 4559.00 | 1.9100 | 3.000 | 0.0130 | 59.08 | 92.27 | 0.64 | 14.05 | 1.73 | 0.58 | 0.00 | Calculated |
| 189 | Link-184 | Pipe | J42117 | J42223 | 1932.67 | 4597.20 | 4541.72 | 2.8700 | 1.500 | 0.0150 | 16.39 | 15.42 | 1.06 | 10.19 | 1.50 | 1.00 | 118.00 | SURCHARGED |
| 190 | Link-185 | Pipe | Jun-131 | J42223 | 383.16 | 4559.02 | 4541.72 | 4.5200 | 2.000 | 0.0150 | 35.56 | 41.66 | 0.85 | 13.32 | 1.64 | 0.82 | 0.00 | Calculated |
| 191 | Link-186 | Pipe | JUL152.02-1 | J42223 | 435.60 | 4542.50 | 4541.72 | 0.1800 | 4.000 | 0.0150 | 59.44 | 52.68 | 1.13 | 8.65 | 2.79 | 0.70 | 0.00 | > CAPACITY |
| 192 | Link-187 | Pipe | Jun-224 | Jun-228 | 257.10 | 4542.28 | 4527.09 | 5.9100 | 1.500 | 0.0130 | 21.05 | 25.53 | 0.82 | 11.91 | 1.50 | 1.00 | 17.00 | SURCHARGED |
| 193 | Link-188 | Pipe | Jun-225 | Jun-226 | 153.80 | 4507.59 | 4504.95 | 1.7200 | 1.500 | 0.0130 | 16.17 | 13.76 | 1.17 | 10.57 | 1.21 | 0.81 | 0.00 | > CAPACITY |
| 194 | Link-189 | Pipe | Jun-226 | Out-29 | 278.78 | 4504.95 | 4495.00 | 3.5700 | 2.000 | 0.0130 | 16.18 | 42.74 | 0.38 | 12.00 | 0.89 | 0.44 | 0.00 | Calculated |
| 195 | Link-190 | Pipe | Jun-228 | Jun-229 | 315.87 | 4527.09 | 4521.04 | 1.9200 | 1.500 | 0.0130 | 21.04 | 14.54 | 1.45 | 11.97 | 1.50 | 1.00 | 15.00 | SURCHARGED |
| 196 | Link-191 | Pipe | Jun-229 | Jun-225 | 283.63 | 4521.04 | 4507.59 | 4.7400 | 1.500 | 0.0130 | 20.57 | 22.87 | 0.90 | 11.64 | 1.50 | 1.00 | 15.00 | SURCHARGED |
| 197 | Link-192 | Pipe | J0012-1 | J0006-0 | 168.74 | 4586.70 | 4578.80 | 4.6800 | 2.500 | 0.0150 | 75.92 | 76.92 | 0.99 | 15.51 | 1.14 | 1.00 | 0.00 | Calculated |
| 198 | Link-89 | Pipe | J4429-0 | J42821 | 64.52 | 4621.41 | 4619.88 | 2.3700 | 2.000 | 0.0130 | 24.43 | 34.84 | 0.70 | 10.77 | 1.36 | 0.68 | 0.00 | Calculated |
| 199 | UL130.08 | Pipe | JUL130.08-1 | JUL130.08-0 | 3982.32 | 4594.64 | 4592.42 | 0.0600 | 4.000 | 0.0130 | 59.69 | 33.92 | 1.76 | 6.17 | 2.96 | 0.74 | 0.00 | > CAPACITY |
| 200 | UL152.02 | Pipe | JUL152.02-0 | JUL152.02-1 | 953.65 | 4545.80 | 4542.50 | 0.3500 | 4.000 | 0.0150 | 59.03 | 73.23 | 0.81 | 5.97 | 3.13 | 0.78 | 0.00 | Calculated |
| 201 | 0014 | Channel | J44269-1 | SN-UL100B | 230.07 | 4721.40 | 4723.40 | -0.8700 | 10.000 | 0.0320 | 0.00 | 4038.48 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 202 | 0163 | Channel | JUL130.06-1 | JUL130.04-0 | 345.73 | 4582.55 | 4581.26 | 0.3700 | 10.000 | 0.0320 | 90.90 | 2645.81 | 0.03 | 4.05 | 1.68 | 0.17 | 0.00 | |
| 203 | 0164 | Channel | JUL130.04-1 | JUL130.02-0 | 548.67 | 4567.91 | 4566.45 | 0.2700 | 10.000 | 0.0320 | 87.14 | 1442.42 | 0.06 | 4.29 | 1.73 | 0.17 | 0.00 | |
| 204 | 0174 | Channel | JUL080.04-0 | SN-UL080B | 66.45 | 4595.90 | 4578.58 | 26.0600 | 10.000 | 0.0320 | 57.58 | 22113.60 | 0.00 | 6.38 | 1.62 | 0.16 | 0.00 | |
| 205 | 0175 | Channel | JUL121.02-0 | J441560-0 | 79.84 | 4704.50 | 4704.00 | 0.6300 | 15.000 | 0.0320 | 150.25 | 8660.18 | 0.02 | 2.83 | 4.67 | 0.31 | 0.00 | |
| 206 | 44325 | Channel | JUL130.02-1 | J44325-1 | 79.93 | 4505.04 | 4502.46 | 3.2300 | 10.000 | 0.0320 | 86.31 | 7781.94 | 0.01 | 7.11 | 1.01 | 0.10 | 0.00 | |
| 207 | 44617 | Channel | JUL080.06-0 | J44612-0 | 26.82 | 4635.30 | 4634.84 | 1.7200 | 6.000 | 0.0320 | 126.35 | 1879.97 | 0.07 | 2.20 | 5.09 | 0.85 | 0.00 | |
| 208 | Link-147 | Channel | JUL100.04-0 | JUL080.12-1 | 1719.35 | 5012.74 | 4878.08 | 7.8300 | 10.000 | 0.0320 | 25.97 | 12121.89 | 0.00 | 6.03 | 0.45 | 0.05 | 0.00 | |
| 209 | Link-153 | Channel | Jun-195 | Jun-204 | 400.02 | 5000.00 | 5010.00 | -2.5000 | 10.000 | 0.0320 | 40.08 | 6848.45 | 0.01 | 4.72 | 0.79 | 0.08 | 0.00 | |
| 210 | Link-157 | Channel | Jun-195 | Jun-205 | 2694.56 | 5000.00 | 4825.00 | 6.4900 | 10.000 | 0.0320 | 109.19 | 11038.45 | 0.01 | 9.96 | 1.17 | 0.12 | 0.00 | |
| 211 | Link-162 | Channel | Jun-206 | Jun-211 | 1988.02 | 4795.00 | 4646.72 | 7.4600 | 10.000 | 0.0320 | 36.00 | 11829.43 | 0.00 | 3.56 | 0.89 | 0.09 | 0.00 | |
| 212 | Link-166 | Channel | Jun-208 | JUL121.02-0 | 2490.27 | 4888.00 | 4698.77 | 7.6000 | 10.000 | 0.0320 | 85.32 | 11757.85 | 0.01 | 4.43 | 2.58 | 0.26 | 0.00 | |
| 213 | Link-179 | Channel | Jun-219 | JUL080.12-0 | 937.32 | 4849.00 | 4776.51 | 7.7300 | 6.000 | 0.0320 | 57.22 | 3992.06 | 0.01 | 2.34 | 1.82 | 0.30 | 0.00 | |
| 214 | Link-181 | Channel | Jun-214 | Jun-205 | 2506.49 | 4825.00 | 4820.00 | 0.2000 | 10.000 | 0.0320 | 17.58 | 1934.57 | 0.01 | 0.34 | 4.58 | 0.46 | 0.00 | |
| 215 | UL010.02 | Channel | JUL010.04-1 | JUL010.02-1 | 602.83 | 4495.70 | 4491.00 | 0.7800 | 10.000 | 0.0320 | 206.88 | 3824.59 | 0.05 | 5.78 | 2.41 | 0.24 | 0.00 | |
| 216 | UL010.04 | Channel | JUL010.04-0 | JUL010.04-1 | 2983.35 | 4614.13 | 4495.70 | 3.9700 | 10.000 | 0.0320 | 207.72 | 8630.02 | 0.02 | 7.53 | 1.98 | 0.20 | 0.00 | |
| 217 | UL010.06 | Channel | JUL010.08-0 | JUL010.04-0 | 1243.78 | 4675.67 | 4614.13 | 4.9500 | 10.000 | 0.0320 | 208.09 | 9634.74 | 0.02 | 10.80 | 1.49 | 0.15 | 0.00 | |
| 218 | UL010.08 | Channel | JUL010.10-1 | JUL010.08-0 | 2580.17 | 4812.10 | 4675.67 | 5.2900 | 10.000 | 0.0320 | 208.34 | 9960.10 | 0.02 | 11.35 | 1.43 | 0.14 | 0.00 | |
| 219 | UL010.10 | Channel | JUL010.10-0 | JUL010.10-1 | 13317.42 | 5849.45 | 4812.10 | 7.7900 | 10.000 | 0.0320 | 137.09 | 12088.87 | 0.01 | 9.16 | 1.21 | 0.12 | 0.00 | |
| 220 | UL020.02 | Channel | JUL020.02-0 | JUL020.02-1 | 5989.44 | 4865.89 | 4490.00 | 6.2800 | 10.000 | 0.0320 | 245.50 | 10851.01 | 0.02 | 12.79 | 1.48 | 0.15 | 0.00 | |
| 221 | UL020.06 | Channel | JUL020.06-0 | JUL020.02-0 | 3258.08 | 5072.86 | 4865.89 | 6.3500 | 10.000 | 0.0320 | 152.22 | 10917.06 | 0.01 | 9.28 | 1.30 | 0.13 | 0.00 | |
| 222 | UL020.10 | Channel | JUL020.10-0 | JUL020.06-0 | 1432.67 | 5162.24 | 5072.86 | 6.2400 | 10.000 | 0.0320 | 49.00 | 10818.82 | 0.00 | 8.99 | 0.85 | 0.09 | 0.00 | |
| 223 | UL020.12 | Channel | JUL020.12-0 | JUL020.10-0 | 2121.66 | 5346.59 | 5162.24 | 8.6900 | 10.000 | 0.0320 | 0.00 | 12767.82 | 0.00 | 0.00 | 0.31 | 0.03 | 0.00 | |
| 224 | UL024.02 | Channel | UL024.02-0 | JUL020.06-0 | 13152.72 | 7100.00 | 5072.86 | 15.4100 | 10.000 | 0.0320 | 110.53 | 17004.63 | 0.01 | 10.42 | 0.92 | 0.09 | 0.00 | |

## Link Summary

| SN | Element ID | Element Type | From (Inlet) Node | To (Outlet) Node | Length | Inlet Invert Elevation | Outlet Invert Elevation | Average Slope | Diameter or Height | Manning's Roughness | Peak Flow | Design Flow Capacity | Peak Flow/ Design Flow Ratio | Peak Flow Velocity | Peak Flow Depth | Peak Flow Depth/ Total Depth Ratio | Total Time Surcharged | Reported Condition |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | (ft) | (ft) | (ft) | (%) | (ft) | | (cfs) | (cfs) | | (ft/sec) | (ft) | | (min) | |
| 225 | UL030.02 | Channel | JUL030.02-0 | JUL030.02-1 | 1830.00 | 4580.07 | 4501.37 | 4.3000 | 10.000 | 0.0320 | 168.98 | 8982.45 | 0.02 | 9.98 | 1.34 | 0.13 | 0.00 | |
| 226 | UL030.04 | Channel | JUL030.04-0 | JUL030.02-0 | 140.00 | 4587.21 | 4580.07 | 5.1000 | 10.000 | 0.0320 | 169.03 | 9781.78 | 0.02 | 10.08 | 1.32 | 0.13 | 0.00 | |
| 227 | UL030.06 | Channel | JUL030.08-1 | JUL030.04-0 | 758.01 | 4618.14 | 4587.21 | 4.0800 | 10.000 | 0.0320 | 169.03 | 8749.55 | 0.02 | 9.78 | 1.36 | 0.14 | 0.00 | |
| 228 | UL030.08 | Channel | JUL030.12-1 | JUL030.08-1 | 170.70 | 4623.65 | 4618.14 | 3.2300 | 10.000 | 0.0320 | 169.05 | 7782.01 | 0.02 | 8.87 | 1.47 | 0.15 | 0.00 | |
| 229 | UL030.12 | Channel | JUL030.14-1 | JUL030.12-1 | 2350.79 | 4769.44 | 4623.65 | 6.2000 | 10.000 | 0.0320 | 68.55 | 10786.73 | 0.01 | 5.42 | 1.09 | 0.11 | 0.00 | |
| 230 | UL030.14 | Channel | JUL030.14-0 | JUL030.14-1 | 4235.97 | 5067.12 | 4769.44 | 7.0300 | 10.000 | 0.0320 | 69.10 | 11482.37 | 0.01 | 8.70 | 0.70 | 0.07 | 0.00 | |
| 231 | UL030.16 | Channel | JUL030.16-0 | JUL030.14-0 | 1610.07 | 5222.41 | 5067.12 | 9.6400 | 10.000 | 0.0320 | 15.04 | 13451.86 | 0.00 | 2.95 | 0.47 | 0.05 | 0.00 | |
| 232 | UL031.02 | Channel | JUL031.06-1 | JUL030.12-1 | 4234.97 | 4887.75 | 4623.65 | 6.2400 | 10.000 | 0.0320 | 105.45 | 10816.63 | 0.01 | 7.04 | 1.21 | 0.12 | 0.00 | |
| 233 | UL031.06 | Channel | JUL031.10-1 | JUL031.06-1 | 5099.63 | 5457.22 | 4887.75 | 11.1700 | 10.000 | 0.0320 | 65.31 | 14474.35 | 0.00 | 7.61 | 0.75 | 0.07 | 0.00 | |
| 234 | UL031.10 | Channel | JUL031.10-0 | JUL031.10-1 | 5746.18 | 6622.71 | 5457.22 | 20.2800 | 10.000 | 0.0320 | 40.87 | 19507.32 | 0.00 | 7.84 | 0.48 | 0.05 | 0.00 | |
| 235 | UL033.01 | Channel | JUL033.02-1 | JUL030.14-0 | 2500.15 | 5352.23 | 5067.12 | 11.4000 | 10.000 | 0.0320 | 8.05 | 14627.03 | 0.00 | 1.73 | 0.43 | 0.04 | 0.00 | |
| 236 | UL033.02 | Channel | JUL033.02-0 | JUL033.02-1 | 2601.27 | 5974.93 | 5352.23 | 23.9400 | 10.000 | 0.0320 | 8.58 | 21192.38 | 0.00 | 6.15 | 0.15 | 0.02 | 0.00 | |
| 237 | UL034.02 | Channel | JUL034.02-0 | JUL030.16-0 | 2372.14 | 5708.23 | 5222.41 | 20.4800 | 10.000 | 0.0320 | 15.43 | 19602.01 | 0.00 | 6.77 | 0.23 | 0.02 | 0.00 | |
| 238 | UL040.06 | Channel | JUL040.06-0 | JUL040.04-1 | 3563.10 | 5281.46 | 4611.85 | 18.7900 | 10.000 | 0.0320 | 96.14 | 16806.90 | 0.01 | 3.52 | 2.95 | 0.30 | 0.00 | |
| 239 | UL041.02 | Channel | JUL041.04-1 | JUL041.02-1 | 1969.22 | 4741.62 | 4627.15 | 5.8100 | 10.000 | 0.0320 | 45.01 | 10443.16 | 0.00 | 4.26 | 0.92 | 0.09 | 0.00 | |
| 240 | UL041.04 | Channel | JUL041.04-0 | JUL041.04-1 | 4898.39 | 5183.21 | 4741.62 | 9.0200 | 10.000 | 0.0320 | 0.00 | 13005.17 | 0.00 | 0.00 | 0.28 | 0.03 | 0.00 | |
| 241 | UL045.02 | Channel | JUL045.02-0 | JUL040.06-0 | 6044.57 | 6540.33 | 5281.46 | 20.8300 | 10.000 | 0.0320 | 86.77 | 19767.00 | 0.00 | 12.56 | 0.62 | 0.06 | 0.00 | |
| 242 | UL065.02 | Channel | JUL065.02-0 | JUL070.14-0 | 9092.99 | 6574.33 | 5261.14 | 14.4400 | 10.000 | 0.0320 | 30.93 | 16460.52 | 0.00 | 8.21 | 0.36 | 0.04 | 0.00 | |
| 243 | UL066.02 | Channel | JUL066.02-0 | JUL070.12-0 | 5475.30 | 6216.13 | 5214.49 | 18.2900 | 10.000 | 0.0320 | 33.31 | 18526.14 | 0.00 | 6.27 | 0.48 | 0.05 | 0.00 | |
| 244 | UL070.02 | Channel | JUL070.02-0 | JUL070.02-1 | 1259.30 | 4581.13 | 4500.32 | 6.4200 | 10.000 | 0.0320 | 148.85 | 10972.38 | 0.01 | 10.98 | 1.11 | 0.11 | 0.00 | |
| 245 | UL070.04 | Channel | JUL070.04-0 | JUL070.04-1 | 925.09 | 4647.09 | 4590.98 | 6.0700 | 10.000 | 0.0320 | 132.21 | 10667.46 | 0.01 | 5.80 | 1.71 | 0.17 | 0.00 | |
| 246 | UL070.06 | Channel | JUL070.06-0 | JUL070.04-0 | 254.18 | 4659.93 | 4647.09 | 5.0500 | 10.000 | 0.0320 | 115.25 | 9735.20 | 0.01 | 9.13 | 1.04 | 0.10 | 0.00 | |
| 247 | UL070.08 | Channel | JUL070.10-1 | JUL070.06-0 | 1632.52 | 4779.12 | 4659.93 | 7.3000 | 10.000 | 0.0320 | 105.44 | 11703.71 | 0.01 | 9.26 | 0.96 | 0.10 | 0.00 | |
| 248 | UL070.10 | Channel | JUL070.10-0 | JUL070.10-1 | 3787.32 | 5083.29 | 4779.12 | 8.0300 | 10.000 | 0.0320 | 88.00 | 12275.10 | 0.01 | 9.22 | 0.82 | 0.08 | 0.00 | |
| 249 | UL070.12 | Channel | JUL070.12-0 | JUL070.10-0 | 1304.35 | 5214.49 | 5083.29 | 10.0600 | 10.000 | 0.0320 | 70.85 | 13737.35 | 0.01 | 9.67 | 0.69 | 0.07 | 0.00 | |
| 250 | UL070.14 | Channel | JUL070.14-0 | JUL070.10-0 | 1606.64 | 5261.14 | 5083.29 | 11.0700 | 10.000 | 0.0320 | 29.76 | 14411.22 | 0.00 | 4.77 | 0.56 | 0.06 | 0.00 | |
| 251 | UL080.02 | Channel | JUL080.02-0 | JUL080.02-1 | 1930.63 | 4572.00 | 4493.46 | 4.0700 | 10.000 | 0.0320 | 94.88 | 8736.33 | 0.01 | 8.14 | 0.97 | 0.10 | 0.00 | |
| 252 | UL080.04 | Channel | JUL080.04-1 | JUL080.04-0 | 714.39 | 4634.00 | 4595.90 | 5.3300 | 6.000 | 0.0320 | 57.18 | 3315.10 | 0.02 | 8.94 | 0.57 | 0.10 | 0.00 | |
| 253 | UL080.06 | Channel | JUL080.06-1 | JUL080.06-0 | 1080.62 | 4695.88 | 4635.30 | 5.6100 | 6.000 | 0.0320 | 59.77 | 3398.84 | 0.02 | 2.15 | 2.75 | 0.46 | 0.00 | |
| 254 | UL080.08 | Channel | JUL080.08-1 | JUL080.08-0 | 222.77 | 4711.67 | 4696.80 | 6.6800 | 6.000 | 0.0320 | 59.81 | 3708.76 | 0.02 | 3.45 | 1.37 | 0.23 | 0.00 | |
| 255 | UL080.10 | Channel | JUL080.10-0 | JUL080.10-1 | 762.19 | 4770.94 | 4717.35 | 7.0300 | 6.000 | 0.0320 | 56.54 | 3806.38 | 0.01 | 2.84 | 1.55 | 0.26 | 0.00 | |
| 256 | UL080.12 | Channel | JUL080.12-1 | Jun-219 | 425.95 | 4878.08 | 4849.00 | 6.8300 | 10.000 | 0.0320 | 55.25 | 11317.51 | 0.00 | 8.07 | 0.61 | 0.06 | 0.00 | |
| 257 | UL080.14 | Channel | JUL080.14-0 | JUL080.12-1 | 1665.80 | 5014.70 | 4878.08 | 8.2000 | 10.000 | 0.0320 | 40.80 | 12404.48 | 0.00 | 6.70 | 0.55 | 0.06 | 0.00 | |
| 258 | UL080.16 | Channel | JUL080.16-0 | JUL080.14-0 | 2076.56 | 5227.63 | 5014.70 | 10.2500 | 10.000 | 0.0320 | 41.01 | 13870.09 | 0.00 | 8.00 | 0.47 | 0.05 | 0.00 | |
| 259 | UL084.02 | Channel | JUL084.02-0 | JUL080.16-0 | 6970.28 | 6213.33 | 5227.63 | 14.1400 | 10.000 | 0.0320 | 38.94 | 16288.47 | 0.00 | 8.55 | 0.43 | 0.04 | 0.00 | |
| 260 | UL100.06 | Channel | JUL100.06-0 | JUL100.04-0 | 2084.49 | 5193.10 | 5012.74 | 8.6500 | 10.000 | 0.0320 | 22.38 | 12740.99 | 0.00 | 5.94 | 0.35 | 0.04 | 0.00 | |
| 261 | UL120.02 | Channel | JUL120.02-0 | JUL120.02-1 | 57.03 | 4505.93 | 4504.59 | 2.3500 | 10.000 | 0.0320 | 256.80 | 6639.47 | 0.04 | 8.67 | 2.08 | 0.21 | 0.00 | |
| 262 | UL120.04 | Channel | JUL120.04-0 | JUL120.04-1 | 925.42 | 4541.49 | 4511.73 | 3.2200 | 10.000 | 0.0320 | 256.80 | 7767.48 | 0.03 | 10.23 | 1.83 | 0.18 | 0.00 | |
| 263 | UL120.06 | Channel | JUL120.06-0 | JUL120.06-1 | 1129.14 | 4574.18 | 4541.09 | 2.9300 | 10.000 | 0.0320 | 259.59 | 7414.94 | 0.04 | 7.21 | 2.48 | 0.25 | 0.00 | |
| 264 | UL121.04 | Channel | JUL121.04-0 | SN-UL124 | 3799.86 | 5110.19 | 4831.56 | 7.3300 | 10.000 | 0.0320 | 0.00 | 10355.45 | 0.00 | 0.00 | 1.25 | 0.12 | 0.00 | |
| 265 | UL121.06 | Channel | JUL121.07-1 | SN-UL124 | 3124.82 | 5027.00 | 4831.56 | 6.2500 | 10.000 | 0.0320 | 64.86 | 8969.60 | 0.01 | 3.31 | 1.60 | 0.16 | 0.00 | |
| 266 | UL121.07 | Channel | JUL121.07-0 | JUL121.07-1 | 942.14 | 5108.32 | 5027.00 | 8.6300 | 10.000 | 0.0320 | 0.00 | 12725.47 | 0.00 | 0.00 | 0.39 | 0.04 | 0.00 | |
| 267 | UL126.02 | Channel | JUL126.02-0 | JUL121.07-1 | 13758.00 | 6720.00 | 5027.00 | 12.3100 | 10.000 | 0.0320 | 71.35 | 15194.41 | 0.00 | 10.73 | 0.67 | 0.07 | 0.00 | |
| 268 | UL130.02 | Channel | JUL130.02-0 | JUL130.02-1 | 1842.72 | 4566.45 | 4505.04 | 3.3300 | 10.000 | 0.0320 | 86.65 | 7907.20 | 0.01 | 7.20 | 1.00 | 0.10 | 0.00 | |
| 269 | UL130.04 | Channel | JUL130.04-0 | JUL130.04-1 | 1221.65 | 4581.26 | 4567.91 | 1.0900 | 10.000 | 0.0320 | 89.41 | 4527.94 | 0.02 | 3.43 | 1.92 | 0.19 | 0.00 | |
| 270 | UL130.06 | Channel | JUL130.06-0 | JUL130.06-1 | 176.18 | 4590.00 | 4582.55 | 4.2300 | 10.000 | 0.0320 | 79.97 | 8907.03 | 0.01 | 4.38 | 1.44 | 0.14 | 0.00 | |
| 271 | O-Mav | Orifice | SN-UL110 | J44681.0 | | 4597.00 | 4591.92 | | 1.667 | | 22.84 | | | | | | | |
| 272 | O-Pond | Orifice | SN-UL144 | J4429-0 | | 4625.00 | 4621.41 | | 1.500 | | 24.43 | | | | | | | |
| 273 | Orifice-27 | Orifice | SN--UL121 | J42533 | | 4702.20 | 4695.91 | | 2.500 | | 53.56 | | | | | | | |
| 274 | Orifice-28 | Orifice | Stor-41 | JUL041.04-1 | | 4745.00 | 4741.62 | | 2.320 | | 45.08 | | | | | | | |
| 275 | O-Rock | Orifice | SN-UL063 | JUL070.10-1 | | 4788.10 | 4779.12 | | 1.670 | | 18.82 | | | | | | | |
| 276 | O-Still | Orifice | SN-UL100B | J0014-1 | | 4723.40 | 4721.70 | | 0.420 | | 0.00 | | | | | | | |
| 277 | O-Summ | Orifice | SN-UL100A | J441032-1 | | 4599.80 | 4592.84 | | 0.670 | | 4.02 | | | | | | | |
| 278 | O-Swain | Orifice | SN-UL060B | J44599-0 | | 4654.40 | 4647.46 | | 1.670 | | 17.83 | | | | | | | |
| 279 | O-Waym | Orifice | SN-UL081 | JUL080.10-1 | | 4723.60 | 4717.35 | | 0.670 | | 3.75 | | | | | | | |
| 280 | O-WildF | Orifice | SN-UL090 | J42462 | | 4592.80 | 4581.42 | | 0.670 | | 3.51 | | | | | | | |

## Link Summary

| SN | Element ID | Element Type | From (Inlet) Node | To (Outlet) Node | Length | Inlet Invert Elevation | Outlet Invert Elevation | Average Slope | Diameter or Height | Manning's Roughness | Peak Flow | Design Flow Capacity | Peak Flow/ Design Flow Ratio | Peak Flow Velocity | Peak Flow Depth | Peak Flow Depth/ Total Depth Ratio | Total Time Surcharged | Reported Condition |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | (ft) | (ft) | (ft) | (%) | (ft) | | (cfs) | (cfs) | | (ft/sec) | (ft) | | (min) | |
| 281 | O-WildL | Orifice | SN-UL060 | J42394 | | 4592.80 | 4586.59 | | 1.500 | | 17.87 | | | | | | | |
| 282 | Link-178 | Outlet | Stor-48 | Jun-218 | | 4587.00 | 4580.35 | | | | 6.82 | | | | | | | |
| 283 | Outlet-100 | Outlet | SN-UL101 | JUL100.02-1 | | 5033.00 | 4850.00 | | | | 2.00 | | | | | | | |
| 284 | Outlet-106 | Outlet | Stor-45 | Jun-212 | | 4636.03 | 4636.03 | | | | 11.00 | | | | | | | |
| 285 | Outlet-108 | Outlet | Jun-205 | Jun-206 | | 4820.00 | 4795.00 | | | | 36.00 | | | | | | | |
| 286 | Outlet-111 | Outlet | SN-UL080B | J441024-0 | | 4578.58 | 4572.78 | | | | 71.72 | | | | | | | |
| 287 | Outlet-112 | Outlet | Stor-48 | Jun-218 | | 4587.00 | 4580.35 | | | | 8.40 | | | | | | | |
| 288 | Outlet-113 | Outlet | Stor-49 | Jun-192 | | 4760.00 | 4732.10 | | | | 3.00 | | | | | | | |
| 289 | Outlet-114 | Outlet | Stor-50 | Jun-223 | | 4640.00 | 4617.45 | | | | 58.00 | | | | | | | |
| 290 | Outlet-115 | Outlet | SN-UL134 | Jun-205 | | 4825.00 | 4820.00 | | | | 28.00 | | | | | | | |
| 291 | Outlet-116 | Outlet | Stor-51 | J4237 | | 4590.00 | 4580.68 | | | | 8.00 | | | | | | | |
| 292 | Outlet-117 | Outlet | Stor-52 | Jun-223 | | 4630.00 | 4617.45 | | | | 1.00 | | | | | | | |
| 293 | Outlet-118 | Outlet | Stor-53 | J4236 | | 4600.00 | 4549.45 | | | | 0.82 | | | | | | | |
| 294 | Outlet-119 | Outlet | Stor-54 | Jun-192 | | 4760.00 | 4732.10 | | | | 1.45 | | | | | | | |
| 295 | Outlet-120 | Outlet | Stor-55 | J42312 | | 4655.00 | 4663.13 | | | | 5.00 | | | | | | | |
| 296 | Outlet-121 | Outlet | Stor-56 | JUL010.10-1 | | 4825.00 | 4812.10 | | | | 72.00 | | | | | | | |
| 297 | Outlet-91 | Outlet | SN-UL115 | Jun-194 | | 5033.00 | 4704.00 | | | | 16.00 | | | | | | | |
| 298 | Outlet-92 | Outlet | Stor-39·1 | Jun-214 | | 4830.00 | 4825.00 | | | | 4.00 | | | | | | | |
| 299 | Outlet-95 | Outlet | Stor-39 | J42525 | | 4680.00 | 4672.21 | | | | 43.50 | | | | | | | |
| 300 | Outlet-96 | Outlet | Stor-39 | J42494 | | 4680.00 | 4599.72 | | | | 14.50 | | | | | | | |
| 301 | Outlet-97 | Outlet | Stor-39 | J42538 | | 4680.00 | 4595.69 | | | | 77.92 | | | | | | | |
| 302 | OUT-UL020 | Outlet | SN-UL020 | JUL020.02-0 | | 4886.00 | 4865.89 | | | | 94.00 | | | | | | | |
| 303 | OUT-UL022 | Outlet | SN-UL022 | JUL020.10-0 | | 5183.00 | 5162.24 | | | | 48.00 | | | | | | | |
| 304 | OUT-UL030 | Outlet | SN-UL030 | JUL031.06-1 | | 4908.00 | 4887.75 | | | | 41.00 | | | | | | | |
| 305 | OUT-UL031 | Outlet | SN-UL031 | JUL031.10-1 | | 5478.00 | 5457.22 | | | | 25.00 | | | | | | | |
| 306 | OUT-UL032 | Outlet | SN-UL032 | JUL030.14-0 | | 5088.00 | 5067.12 | | | | 47.00 | | | | | | | |
| 307 | OUT-UL041 | Outlet | SN-UL041 | JUL041.04-1 | | 4762.00 | 4741.62 | | | | 0.00 | | | | | | | |
| 308 | OUT-UL043 | Outlet | SN-UL043 | JUL041.04-0 | | 5204.00 | 5183.21 | | | | 0.00 | | | | | | | |
| 309 | OUT-UL044 | Outlet | SN-UL044 | JUL040.06-0 | | 5302.00 | 5281.46 | | | | 11.00 | | | | | | | |
| 310 | OUT-UL051 | Outlet | SN-UL051 | J42357 | | 4691.00 | 4670.80 | | | | 15.00 | | | | | | | |
| 311 | OUT-UL064 | Outlet | SN-UL064 | JUL070.12-0 | | 5235.00 | 5214.49 | | | | 38.00 | | | | | | | |
| 312 | OUT-UL070 | Outlet | SN-UL070 | JUL070.06-0 | | 4680.00 | 4659.93 | | | | 10.01 | | | | | | | |
| 313 | OUT-UL082 | Outlet | SN-UL082 | JUL070.10-0 | | 4899.00 | 5083.29 | | | | 4.00 | | | | | | | |
| 314 | OUT-UL083 | Outlet | SN-UL083 | JUL080.16-0 | | 5248.00 | 5227.63 | | | | 3.00 | | | | | | | |
| 315 | OUT-UL102 | Outlet | SN-UL102 | JUL100.04-0 | | 5033.00 | 5012.74 | | | | 4.00 | | | | | | | |
| 316 | OUT-UL121 | Outlet | SN-UL121 | JUL121.02-0 | | 4718.00 | 4704.50 | | | | 0.00 | | | | | | | |
| 317 | OUT-UL124 | Outlet | SN-UL124B | Jun-208 | | 5047.00 | 4880.00 | | | | 81.00 | | | | | | | |
| 318 | OUT-UL130 | Outlet | SN-UL130 | JUL130.08-0 | | 4612.00 | 4592.42 | | | | 24.00 | | | | | | | |
| 319 | OUT-UL140 | Outlet | SN-UL140 | Jun-131 | | 4577.00 | 4559.02 | | | | 35.57 | | | | | | | |
| 320 | UL040.02 | Outlet | JUL040.04-1 | Jun-192 | | 4745.00 | 4732.10 | | | | 16.67 | | | | | | | |

# APPENDIX C
# COST ESTIMATE

**Table C-1**
**Conceptual Cost Estimate - Pipes**
**Saratoga Springs Storm Drainage Capital Facility Plan**

| Project ID | Project Name | Pipe Length (ft) | Diameter (in) | Catch Basin / Inlet Box (EA) | Junction Box / Manhole (EA) | Outlet Works (EA) | % of Length in Existing Road | Asphalt Road Repair ($yd^2$) | Subtotal Cost | Contingency | Engineering, Legal, Admin. | Estimated Project Cost (includes Contingency, Engineering, Admin, and Legal Fees) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **Unit Cost** | **Varies by Diameter** | **n/a** | **$3,700** | **$5,300** | **$20,000** | **n/a** | **$56** | **n/a** | **10%** | **10%** | **n/a** |
| PE1 | Pioneer Crossing parallel | 3613 | 30 | 9 | 12 | 1 | 80% | 6806 | $ 1,072,156 | $ 107,216 | $ 107,216 | $ 1,286,600 |
| PE2A | East side service 1 | 494 | 30 | 1 | 1 | 0 | 0% | 0 | $ 87,451 | $ 8,745 | $ 8,745 | $ 104,900 |
| PE2B | East side service 2 | 2628 | 48 | 6 | 8 | 1 | 0% | 0 | $ 854,508 | $ 85,451 | $ 85,451 | $ 1,025,400 |
| PE3 | Saratoga Road 6 | 1311 | 30 | 3 | 4 | 1 | 100% | 3088 | $ 433,675 | $ 43,367 | $ 43,367 | $ 520,400 |
| PE4A | Saratoga Road 1 | 499 | 24 | 1 | 1 | 0 | 100% | 1137 | $ 139,788 | $ 13,979 | $ 13,979 | complete |
| PE4B | Saratoga Road 2 | 2272 | 30 | 5 | 7 | 0 | 100% | 5349 | $ 716,212 | $ 71,621 | $ 71,621 | $ 859,500 |
| PE5A | Saratoga Road 4 | 891 | 24 | 2 | 2 | 0 | 100% | 2030 | $ 251,584 | $ 25,158 | $ 25,158 | complete |
| PE5B | Saratoga Road 5 | 263 | 24 | 0 | 0 | 1 | 0% | 0 | $ 55,315 | $ 5,531 | $ 5,531 | complete |
| PE6 | 2300 West (Lehi) 3 | 1719 | 24 | 4 | 5 | 1 | 80% | 3132 | $ 467,807 | $ 46,781 | $ 46,781 | complete |
| PE7 | 2300 West (Lehi) 1 | 3054 | 36 | 7 | 10 | 1 | 80% | 6061 | $ 1,035,591 | $ 103,559 | $ 103,559 | complete |
| PN2a | Redwood Rd. Near Grandview Blvd | 3890 | 24 | 9 | 12 | 0 | 60% | 5317 | $ 917,617 | $ 91,762 | $ 91,762 | complete |
| PN2b | Redwood Road & Pony Express Extension | 3552 | 36 | 13 | 1 | 0 | 0% | 0 | $ 747,322 | $ 74,732 | $ 74,732 | $ 896,800 |
| PN2c | Pony Express Crossing | 95 | 24 | 1 | 1 | 0 | 100% | 217 | $ 33,976 | $ 3,398 | $ 3,398 | $ 40,800 |
| PN3a | Fairfield Road | 2008 | 24 | 5 | 6 | 1 | 100% | 4574 | $ 596,634 | $ 59,663 | $ 59,663 | $ 716,000 |
| PN3b | 800 West (Fairfield to 400 N) | 1820 | 30 | 4 | 6 | 0 | 100% | 4286 | $ 575,954 | $ 57,595 | $ 57,595 | complete |
| PN6d | Conveyance south of Market Street | 1237 | 24 | 3 | 4 | 0 | 0% | 0 | $ 198,396 | $ 19,840 | $ 19,840 | complete |
| PN6e | Pioneer Crossing to Market Street | 1015 | 24 | 2 | 3 | 0 | 0% | 0 | $ 159,659 | $ 15,966 | $ 15,966 | complete |
| PN6f | Pioneer Crossing to Exchange Dr | 1554 | 24 | 3 | 5 | 0 | 0% | 0 | $ 246,336 | $ 24,634 | $ 24,634 | $ 295,600 |

| Project ID | Project Name | Pipe Length (ft) | Diameter (in) | Catch Basin / Inlet Box (EA) | Junction Box / Manhole (EA) | Outlet Works (EA) | % of Length in Existing Road | Asphalt Road Repair ($yd^2$) | Subtotal Cost | Contingency | Engineering, Legal, Admin. | Estimated Project Cost (includes Contingency, Engineering, Admin, and Legal Fees) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **Unit Cost** | **Varies by Diameter** | **n/a** | **$3,700** | **$5,300** | **$20,000** | **n/a** | **$56** | **n/a** | **10%** | **10%** | **n/a** |
| PN6g | Market Street | 920 | 24 | 2 | 3 | 0 | 0% | 0 | $ 146,901 | $ 14,690 | $ 14,690 | $ 176,300 |
| PN8a | 1200 N 1 | 1371 | 42 | 3 | 4 | 0 | 100% | 3480 | $ 562,252 | $ 56,225 | $ 56,225 | $ 674,700 |
| PN8b | 1200 N 2 | 3858 | 42 | 9 | 12 | 1 | 0% | 0 | $ 1,059,009 | $ 105,901 | $ 105,901 | $ 1,270,800 |
| PN8c | Redwood Rd. (1200 N to Market) | 343 | 48 | 0 | 1 | 1 | 100% | 894 | $ 175,973 | $ 17,597 | $ 17,597 | $ 211,200 |
| PN8e | The Crossing Outfall | 76 | 48 | 0 | 0 | 0 | 100% | 199 | $ 33,548 | $ 3,355 | $ 3,355 | $ 40,300 |
| PN10a | Wildflower Outlet | 726 | 84 | 1 | 2 | 0 | 80% | 1679 | $ 560,726 | $ 56,073 | $ 56,073 | $ 672,900 |
| PN10b | Pioneer Crossing (DN3 to 1200 N) | 631 | 42 | 1 | 2 | 0 | 80% | 1282 | $ 240,319 | $ 24,032 | $ 24,032 | $ 288,400 |
| PN11 | 1200 North 3 | 926 | 18 | 2 | 3 | 0 | 0% | 0 | $ 136,336 | $ 13,634 | $ 13,634 | $ 163,600 |
| PN12** | Harvest Hills to Jordan River | 4862 | 36 | 12 | 16 | 1 | 53% | 6392 | $ 1,457,539 | $ 145,754 | $ 145,754 | $ 1,749,000 |
| PN16 | 1900 North/Redwood Rd | 19 | 24 | 0 | 0 | 0 | 100% | 43 | $ 4,953 | $ 495 | $ 495 | complete |
| PN18b | SR-73 2 | 354 | 36 | 0 | 1 | 0 | 0% | 0 | $ 74,540 | $ 7,454 | $ 7,454 | complete |
| PN19 | Extension of line near storage units | 944 | 24 | 2 | 3 | 0 | 100% | 2151 | $ 270,786 | $ 27,079 | $ 27,079 | $ 324,900 |
| PN21a | 400 South 1 | 1394 | 36 | 3 | 4 | 0 | 100% | 3458 | $ 498,623 | $ 49,862 | $ 49,862 | complete |
| PN21d | 400 South 4 | 698 | 36 | 1 | 2 | 0 | 100% | 1732 | $ 247,829 | $ 24,783 | $ 24,783 | $ 297,400 |
| PN23a | 1400 N Line Extension 2 | 798 | 15 | 1 | 2 | 0 | 100% | 1742 | $ 199,719 | $ 19,972 | $ 19,972 | $ 239,700 |
| PS1* | Harbor Parkway Basin Conveyance | 2178 | 24 | 5 | 7 | 1 | 100% | 4961 | $ 646,457 | $ 64,646 | $ 64,646 | $ 775,700 |
| Totals | | | | | | | | | $ 14,905,490 | $ 1,490,549 | $ 1,490,549 | $ 12,630,900 |

**Table C-2**
**Conceptual Cost Estimate - Culverts**
**Saratoga Springs Storm Drainage Capital Facility Plan**

| Project ID | Project Name | Estimated 3'x6' Box Culvert Equivalents in Project | Subtotal Cost | Contingency | Engineering, Legal, Admin. | Estimated Project Cost (includes Contingency, Engineering, Admin, and Legal Fees) |
|---|---|---|---|---|---|---|
| | **Unit Cost** | **$80,100** | **n/a** | **10%** | **10%** | **n/a** |
| CN1 | Mountain View Corridor 5 | 1 | $ 80,100 | $ 8,010 | $ 8,010 | $ 96,100 |
| CN2 | Foothill Blvd 6 | 1 | $ 80,100 | $ 8,010 | $ 8,010 | $ 96,100 |
| CN3 | Foothill Blvd & Tickville Wash | 6 | $ 480,600 | $ 48,060 | $ 48,060 | $ 576,700 |
| CN4 | Mountain View Corridor 1 | 1 | $ 80,100 | $ 8,010 | $ 8,010 | $ 96,100 |
| CN5 | Mountain View Corridor 2 | 1 | $ 80,100 | $ 8,010 | $ 8,010 | $ 96,100 |
| CN6 | Saratoga Parkway 1 | 2 | $ 160,200 | $ 16,020 | $ 16,020 | $ 192,200 |
| CN8 | Mountain View Corridor 3 | 1 | $ 80,100 | $ 8,010 | $ 8,010 | $ 96,100 |
| CN12 | Planned Collector | 6 | $ 480,600 | $ 48,060 | $ 48,060 | $ 576,700 |
| CN13 | Major Planned Collector | 6 | $ 480,600 | $ 48,060 | $ 48,060 | $ 576,700 |
| CN14 | Planned Collector | 6 | $ 480,600 | $ 48,060 | $ 48,060 | $ 576,700 |
| CS1 | Redwood Road & Little Canyon | 4 | $ 320,400 | $ 32,040 | $ 32,040 | $ 384,500 |
| CS4 | Bonneville Dr. & Olaf Canyon | 2 | $ 160,200 | $ 16,020 | $ 16,020 | $ 192,200 |
| CS5 | Bonneville Dr. & Limekiln Canyon | 1 | $ 80,100 | $ 8,010 | $ 8,010 | $ 96,100 |
| CS6 | Foothill Blvd 1 | 1 | $ 80,100 | $ 8,010 | $ 8,010 | $ 96,100 |
| CS7 | Foothill Blvd 2 | 1 | $ 80,100 | $ 8,010 | $ 8,010 | $ 96,100 |
| CS8 | Foothill Blvd & Clark Canyon | 1 | $ 80,100 | $ 8,010 | $ 8,010 | $ 96,100 |
| CS9 | Foothill Blvd 3 | 1 | $ 80,100 | $ 8,010 | $ 8,010 | $ 96,100 |
| CS10 | Foothill Blvd 4 | 1 | $ 80,100 | $ 8,010 | $ 8,010 | $ 96,100 |
| CS11 | Foothill Blvd & Israel Canyon | 2 | $ 160,200 | $ 16,020 | $ 16,020 | $ 192,200 |
| CS12 | Planned Collector 2 | 1 | $ 80,100 | $ 8,010 | $ 8,010 | $ 96,100 |
| CS13 | Foothill Blvd & Harbor Parkway | 1 | $ 80,100 | $ 8,010 | $ 8,010 | $ 96,100 |
| CS14 | Foothill Blvd 5 | 1 | $ 80,100 | $ 8,010 | $ 8,010 | $ 96,100 |
| CS16 | Planned Collector 2 | 1 | $ 80,100 | $ 8,010 | $ 8,010 | $ 96,100 |
| CS17 | Planned Collector | 1 | $ 80,100 | $ 8,010 | $ 8,010 | $ 96,100 |
| CS18 | Planned Collector | 1 | $ 80,100 | $ 8,010 | $ 8,010 | $ 96,100 |
| CS19 | Planned Collector | 1 | $ 80,100 | $ 8,010 | $ 8,010 | $ 96,100 |
| CS20 | Planned Collector | 1 | $ 80,100 | $ 8,010 | $ 8,010 | $ 96,100 |
| Total | | | | | | $ 4,613,300 |

**Table C-3**
**Conceptual Cost Estimate - Improved Channels**
**Saratoga Springs Storm Drainage Capital Facility Plan**

| Project ID | Project Name | Channel Length (ft) | Channel estimated bottom width (ft) | Channel Imporvements Excluding Armoring such as Excavation, Permitting, Surface Restoration, etc. ($/LF) | Channel Rip Rap Armoring ($/LF) | Subtotal Cost | Contingency | Additional Permitting Cost | Engineering, Legal, Admin. | Estimated Project Cost (includes Contingency, Engineering, Admin, and Legal Fees) |
|---|---|---|---|---|---|---|---|---|---|---|
| | **Unit Cost** | **n/a** | **n/a** | ***width specific*** | ***width specific*** | **n/a** | **10%** | **n/a** | **10%** | **n/a** |
| OCN1 | Clay Pit Reroute | 1451 | 4 | $ 122 | $ 98 | $ 319,246 | $ 31,925 | | $ 31,925 | $ 383,100 |
| OCS1 | Village Parkway & Redwood Road | 1986 | 4 | $ 122 | $ 98 | $ 436,842 | $ 43,684 | $ 100,000 | $ 43,684 | $ 624,200 |
| OCS2 | Clark Canyon | 1259 | 4 | $ 122 | $ 98 | $ 277,045 | $ 27,705 | $ 100,000 | $ 27,705 | $ 432,500 |
| OCS4 | Fox Hollow Reroute | 306 | 4 | $ 122 | $ - | $ 37,336 | $ 3,734 | | $ 3,734 | $ 44,800 |

**Table C-4**
**Conceptual Cost Estimate - Detention Basins**
**Saratoga Springs Storm Drainage Capital Facility Plan**

| Project ID | Project Name | Volume (acre-ft) | Footprint (acre) | Footprint ($ft^2$) | Excavation and Hauling ($yd^3$) | Landscaping ($yd^2$) | Inlet Apron | Outlet Structure | Emergency Spillway | Land Acquisition (acre) | Subtotal Cost | Contingency | Engineering, Legal, Admin. | Estimated Project Cost (includes Contingency, Engineering, Admin, and Legal Fees) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **Unit Cost** | **n/a** | **n/a** | **n/a** | **$19** | **$3** | **$16,000** | **$21,400** | **$6,700** | **$187,000** | **n/a** | **10%** | **10%** | **n/a** |
| DN3 | Mountain View Corridor 1 (New) | 23 | 5 | 217,800 | 42,700 | 24,200 | 1 | 1 | 1 | 5.0 | $ 1,842,244 | $ 184,224 | $ 184,224 | $ 331,605 |
| DS1 | Harbor Parkway (Conctruction cost per Design Engineer) | 9 | 2 | 87,120 | 16,700 | 9,680 | 1 | 1 | 1 | 2.0 | $ 1,180,000 | $ 118,000 | $ 118,000 | $ 1,416,000 |

**Table C-3**
**Conceptual Cost Estimate - Improved Channels**
**Saratoga Springs Storm Drainage Capital Facility Plan**

| Project ID | 100yr Design Flow | Project Name | Cost (2021 Dollars) |
|---|---|---|---|
| DBS1a | 565 | Upper South Basin | $3,803,670 |
| DBS1b | 198 | Upper North Basin | $1,749,628 |
| N/A | 955 | Israel Canyon Basin (Complete) | $4,988,700 |
| DBS3 | 251 | OQE055 Basin | $2,046,261 |
| DBS4 | 82 | OQE077 Basin | $1,100,394 |
| DBS2 | 225 | OQE076 Basin | $1,900,743 |
| DBS5 | 184 | OQE076b Basin | $1,671,273 |
| DBS6 | 89 | OQE064 Basin | $1,139,572 |
| DBS7 | 279 | OQE063 Basin | $2,202,973 |
| DBN1 | 37 | Wildflower Area 1 Basin | $848,536 |
| DBN2 | 105 | Wildflower Area 3 Basin | $1,229,122 |
| DBN3 | 80 | Wildflower Area 2 Basin | $1,089,201 |
| DBS8 | 241 | South Saratoga Basin | $1,990,293 |
| DBS9 | 25 | South Saratoga Basin 2 | $781,374 |
| | | Total (not counting Israel Canyon): | $21,553,041 |

# APPENDIX D
# SUPPLEMENTAL FIGURES

## Sheet Legend

A
B
C
D

## Project Labels

XX Y Y
- Number ID
- Y: N-North, S-South
- XX: D-Detention Basin, C-Culvert, P-Pipe, OC-Open Channel, M-Miscellaneous

## Legend

- Project Boundary
- Outfall
- Existing Culvert
- Future Culvert
- Existing Debris Basin
- Future Debris Basin
- Drainage FLow Direction
- Existing Basin
- Future Basin
- Improve Channel
- Maintain Natural Channel
- Existing Trunk Line
- Future Trunk Line
- Canal
- Existing Channel
- 2020 City Boundary
- Annexation2020
- Planned Drainage
- Local Drainage Only
- Existing SD Pipes
- Master Planned Roads

Detain to 36 cfs (historic)
DBN1
CN8
Wildflower Detain to 3.54 cfs (per canal agreement) & pass 36 cfs
Wildflower Detain to 3.02 cfs (per canal agreement)
Detain to existing design
Detain to 0.10 cfs/ac
Detain to existing design
Detain to 0.05 cfs/ac
DN5
PN19
Detain to 0.05 cfs/ac
Detain to 0.18 cfs/ac (historic)
Detain to historic
DBN3
Detain to existing design
Detain to 0.20 cfs/ac
Wildflower On Site 3a Detain to 38 cfs & retain to historic volume (per approved concept)
Wildflower Detain to 10.54 cfs (per canal agreement)
Detain to existing design
Detain to existing design
Detain to existing design
Detain to existing design
PN12a1
Detain to 0.15 cfs/ac
PN12a1
Detain to 0.20 cfs/ac
PN12a2
Wildflower On Site 3b Detain to 11 cfs & retain to historic volume (per approved concept)
Detain to 0.08 cfs/ac
Detain to 0.08 cfs/ac (new dev)
Detain to 0.20 cfs/ac (if tying to City pipes)
Detain to 0.08 cfs/ac
CN6
PN23a
PN12a1
PN12a1
PN12a1
Detain to 0.10 cfs/ac
Detain to existing design
DN3
Detain to 0.10 cfs/ac
Detain to 0.13 cfs/ac
PN10a
PN10b
CN1
PN8a
PN8b
PN8c
PN11
Detain to 0.12 cfs/ac
Detain to 0.12 cfs/ac
Detain to 0.10 cfs/ac
Detain to existing design
Detain to 0.09 cfs/ac
PN6f
PN8e
Detain to 0.12 cfs/ac
Mt. Saratoga 2 Detain to 28 cfs (local) and pass 11 cfs (irrigation), Total=39 cfs (per approved concept)
Tickville Spur Detain to 71 cfs
Detain to 0.12 cfs/ac
PN6g
PE1
Detain to 0.09 cfs/ac
Detain to existing design
Detain to existing design
Detain to existing design
Detain to 0.2 cfs/ac (approved design)
Detain to existing design
Detain to 0.17 cfs/ac
Detain to 0.20 cfs/ac
Detain to 0.20 cfs/ac
PE2B
Detain to 0.20 cfs/ac
Detain to 0.2 cfs/ac (downstream of 24-inch)
Detain to 0.20 cfs/ac
Detain to ex. design
Detain to ex. design
Detain to ex. design
Detain to 0.2 cfs/ac (downstream of 18-inch) 0.1 cfs/ac (upstream of 18-inch)
Mt. Saratoga 1 Detain to 6.94 cfs (local) and pass 71 cfs, Total = 77.94 cfs (per approved concept)
Detain to 0.20 cfs/ac
PN3a
Detain to existing design
Detain to 0.20 cfs/ac
Detain to 0.20 cfs/ac
Detain to 0.20 cfs/ac
PN2c
PN2b
Detain to 0.20 cfs/ac if to tickville for higher discharge (0.085 cfs/ac if to 4th)
Detain to existing design
Park and 400 S Detain to approved design
PN21d
Detain to 0.016 cfs/ac
Tickville Detain to 659 cfs
CN3
CN12
CN13
CN14
Detain to 0.016 cfs/ac
Detain to 0.20 cfs/ac
Maxar

BOWEN COLLINS & ASSOCIATES

# STORM DRAIN CAPITAL FACILITIES PLAN

# PROPOSED STORM DRAIN PROJECTS W/ALLOWABLE RELEASES

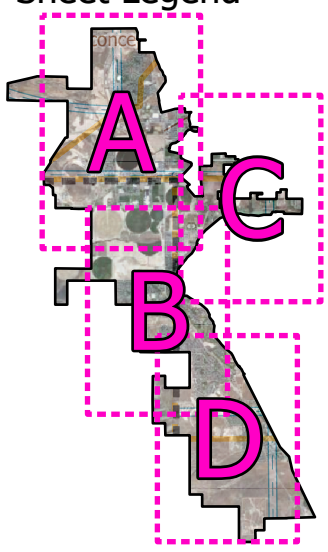
NORTH: NORTH

SCALE: 0 900 1,800 Feet

FIGURE NO. D-1A

P:\Saratoga Springs\305-20-03 Storm Drain CFP, IFFP, and IFA Update\4.0 GIS\Storm Drain Master Map 2020.aprx efica 4/20/2021

## Sheet Legend




## Project Labels

XX Y Y

- Number ID
- N-North
- S-South
- D-Detention Basin
- C-Culvert
- P-Pipe
- OC-Open Channel
- M-Miscellaneous

## Legend

- Project Boundary
- Outfall
- Existing Culvert
- Future Culvert
- Existing Debris Basin
- Future Debris Basin
- Drainage FLow Direction
- Existing Basin
- Future Basin
- Improve Channel
- Maintain Natural Channel
- Existing Trunk Line
- Future Trunk Line
- Canal
- Existing Channel
- 2020 City Boundary
- Annexation2020
- Planned Drainage
- Local Drainage Only
- Existing SD Pipes
- Master Planned Roads

Detain to 0.20 cfs/ac
Detain to 0.2 cfs/ac (downstream of 24-inch)
Detain to 0.20 cfs/ac
Detain to ex. design
Detain to ex. design
Detain to ex. design
Detain to 0.20 cfs/ac
Detain to 0.20 cfs/ac
PN2c
PN2
Detain to 0.20 cfs/ac if to tickville for higher discharge (0.085 cfs/ac if to 4th)
Detain to existing design
Park and 400 S Detain to approved design
PN21d
CN3
CN12
CN13
CN14
Detain to 0.016 cfs/ac
Detain to 0.20 cfs/ac
CN5
CN2
Detain to 0.20 cfs/ac
Detain to ??? (Does UDOT agreement affect area?)
Detain to existing design
Detain to existing design
Detain to 0.016 cfs/ac
Detain to 0.10 cfs/ac
Detain to ???
Detain to 0.08 cfs/ac
OCN1
Detain to 0.10 cfs/ac
Detain to 0.08 cfs/ac
Detain to existing design
Detain to 0.13 cfs/ac (local) 10 cfs (regional, combined max release for DBS1a & DBS1b)
DBS1b
CS11
DBS1a
Detain to existing design
Detain to 0.08 cfs/ac
Detain to existing design
Detain to 0.10 cfs/ac (local) 10 cfs (regional, combined max release for DBS1a & DBS1b)
Detain to 0.08 cfs/ac
Stillwater Detain to existing design
Stillwater Detain to existing design
OCS1
Detain to 0.05 cfs/ac
Fox Hollow N1 (West) Detain to existing design
FH N1 (East) Detain to ex. design
Fox Hollow N2 Detain to approved design
Fox Hollow N4 (North) Detain to approved esign
CS10
CS9
OCS3
Detain to 0.05 cfs/ac
Detain to 0.05 cfs/ac
Fox Hollow N3/N6 Detain to existing design
Fox N4 (South) Detain to 0.20 cfs/ac
OCS2
Detain to 0.05 cfs/ac
DBS4
Fox Hollow N5 Detain to Fox Hollow N4 (North) basin approved design
Detain to 0.17 cfs/ac
Fox Hollow N12 Detain to 0.20 cfs/ac w/ outfall to SE, 0.05 cfs/ac w/ outfall to NE
Detain to existing design
Redwood Rd and Wildlife Blvd Detain to existing design
DBS2
Detain to existing design
CS8
Detain to 0.20 cfs/ac
Detain to 0.20 cfs/ac
Detain to ex design
Detain to 0.07 cfs/ac
Detain to 0.12 cfs/ac
DBS5
Maxar
Detain to 0.2 cfs/ac (approved design)
Detain to 0.15 cfs/ac
Detain to 0.035 cfs/ac
Detain to 0.05 cfs/ac

BOWEN COLLINS & ASSOCIATES

# STORM DRAIN CAPITAL FACILITIES PLAN

# PROPOSED STORM DRAIN PROJECTS W/ALLOWABLE RELEASES

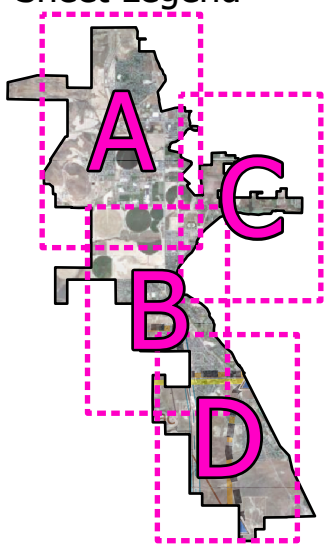
NORTH:

SCALE: 0 900 1,800 Feet

FIGURE NO. D-1B

P:\Saratoga Springs\305-20-03 Storm Drain CFP, IFFP, and IFA Update\4.0 GIS\Storm Drain Master Map 2020.aprx efica 4/20/2021

## Sheet Legend




## Project Labels

XX Y Y

- Number ID
- N-North
- S-South
- D-Detention Basin
- C-Culvert
- P-Pipe
- OC-Open Channel
- M-Miscellaneous

## Legend

- Project Boundary
- Outfall
- Existing Culvert
- Future Culvert
- Existing Debris Basin
- Future Debris Basin
- Drainage FLow Direction
- Existing Basin
- Future Basin
- Improve Channel
- Maintain Natural Channel
- Existing Trunk Line
- Future Trunk Line
- Canal
- Existing Channel
- 2020 City Boundary
- Annexation2020
- Planned Drainage
- Local Drainage Only
- Existing SD Pipes
- Master Planned Roads

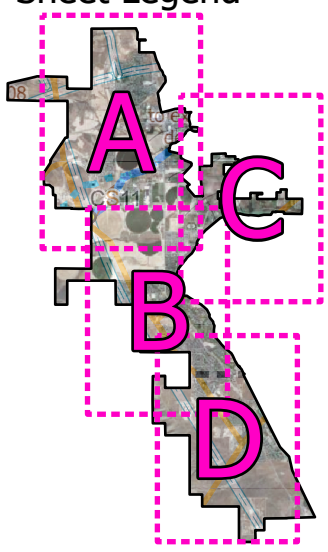
Detain to existing design
Detain to 0.20 cfs/ac
PE1
Detain to existing design
Detain to 0.20 cfs/ac
Detain to 0.20 cfs/ac
PE2B
PE2A
Detain to 0.20 cfs/ac
Detain to 0.20 cfs/ac
Detain to 0.20 cfs/ac
Detain to 0.12 cfs/ac
Detain to 0.12 cfs/ac
PE4B
Detain to 0.20 cfs/ac
Detain to 0.20 cfs/ac
Detain to 0.20 cfs/ac
PE3
PN2b
Detain to existing design
Park and 400 S Detain to approved design
Detain to ???
Detain to 0.10 cfs/ac

Maxar

| | | | | | |
|---|---|---|---|---|---|
| BOWEN COLLINS & ASSOCIATES | STORM DRAIN CAPITAL FACILITIES PLAN | PROPOSED STORM DRAIN PROJECTS W/ALLOWABLE RELEASES | NORTH: NORTH | SCALE: 0 900 1,800 Feet | FIGURE NO. D-1C |

P:\Saratoga Springs\305-20-03 Storm Drain CFP, IFFP, and IFA Update\4.0 GIS\Storm Drain Master Map 2020.aprx efica 4/20/2021

## Sheet Legend




## Project Labels

XX Y Y
- Number ID
- N-North
- S-South
- D-Detention Basin
- C-Culvert
- P-Pipe
- OC-Open Channel
- M-Miscellaneous

## Legend

- Project Boundary
- Outfall
- Existing Culvert
- Future Culvert
- Existing Debris Basin
- Future Debris Basin
- Drainage FLow Direction
- Existing Basin
- Future Basin
- Improve Channel
- Maintain Natural Channel
- Existing Trunk Line
- Future Trunk Line
- Canal
- Existing Channel
- 2020 City Boundary
- Annexation2020
- Planned Drainage
- Local Drainage Only
- Existing SD Pipes
- Master Planned Roads

Detain to 0.10 cfs/ac
Detain to existing design
Detain to existing design
Stillwater Detain to existing design
Stillwater Detain to existing design
OCS1
Detain to 0.05 cfs/ac
Fox Hollow N1 (West) Detain to existing design
FH N1 (East) Detain to ex. design
Detain to 0.05 cfs/ac
OCS1
CS10
CS9
Fox Hollow N2 Detain to approved design
Fox Hollow N4 (North) Detain to approved esign
OCS2
Detain to 0.05 cfs/ac
DBS4
Fox Hollow N3/N6 Detain to existing design
Fox Hollow N5 Detain to Fox Hollow N4 (North) basin approved design
Fox N4 (South) Detain to 0.20 cfs/ac
Detain to 0.17 cfs/ac
Fox Hollow N12 Detain to 0.20 cfs/ac w/ outfall to SE, 0.05 cfs/ac w/ outfall to NE
Detain to existing design
Redwood Rd and Wildlife Blvd Detain to existing design
Detain to 0.2 cfs/ac (to city) no det req'd (local)
DBS2
CS8
Detain to existing design
Detain to 0.20 cfs/ac
Detain to 0.07 cfs/ac
Detain to 0.20 cfs/ac
DBS5
Detain to 0.2 cfs/ac (approved design)
Detain to ex design
Detain to 0.15 cfs/ac
Detain to 0.12 cfs/ac
Detain to 0.035 cfs/ac
CS13
PS1
Detain to existing design
DS1*
Detain to 0.035 cfs/ac
CS14
Detain to 0.05 cfs/ac
DBS6
CS20
Detain to 0.20 cfs/ac
CS19
CS18
CS7
Detain to 0.20 cfs/ac
CS17
Detain to 0.20 cfs/ac
CS6
CS12
CS16
Detain to historic (local) 6 cfs (regional)
DBS9
CS5
Detain to 0.20 cfs/ac
Detain to 0.10 cfs/ac
CS4
Detain to 0.20 cfs/ac
Detain to 0.20 cfs/ac
Detain to 0.10 cfs/ac
DBS7
Detain to 0.07 cfs/ac
Detain to 0.20 cfs/ac
CS1
Detain to 0.20 cfs/ac
DBS8
Detain to 0.12 cfs/ac
Detain to 0.18 cfs/ac
Maxar

| | | | | | |
|---|---|---|---|---|---|
| BOWEN COLLINS & ASSOCIATES | STORM DRAIN CAPITAL FACILITIES PLAN | PROPOSED STORM DRAIN PROJECTS W/ALLOWABLE RELEASES | NORTH: NORTH | SCALE: 0 900 1,800 Feet | FIGURE NO. D-1D |

P:\Saratoga Springs\305-20-03 Storm Drain CFP, IFFP, and IFA Update\4.0 GIS\Storm Drain Master Map 2020.aprx efica 4/20/2021

# APPENDIX E
# FOX HOLLOW AREA MEMO

Bowen Collins
& Associates, Inc.
CONSULTING ENGINEERS

# TECHNICAL MEMORANDUM

| | |
|---|---|
| **TO:** | Shawn Herring/Don Lyster<br>Region Engineering & Surveying<br>1776 N State St. #110<br>Orem, UT 84057 |
| **COPIES:** | Gordon Miner, M.E.M., P.E.<br>City of Saratoga Springs |
| **FROM:** | Keith Larson, P.E./Justin Dietrich, E.I.T<br>Bowen Collins and Associates<br>154 E 1400 S<br>Draper, UT 84020 |
| **DATE:** | Updated 7 June 2017 |
| **SUBJECT:** | Fox Hollow Storm Drain Analysis – Revised Concept, Increased Upper Detention |




## FOX HOLLOW STORM DRAIN ANALYSIS – REVISED CONCEPT, INCREASED UPPER DETENTION

### INTRODUCTION

Region Engineering & Surveying has retained Bowen Collins & Associates (BC&A) to conduct analysis and prepare a technical memorandum regarding storm drainage within the City of Saratoga Springs (the City) with respect to the Fox Hollow Development. BC&A prepared a memorandum regarding the development dated May 5, 2017 that contained recommendations for new storm drain infrastructure within and near the Fox Hollow development to assist the developer in complying with City's requirements. That memorandum was based on generally following the original concept outlined in the City's Master Development Agreement (MDA).

Since the publication of that memorandum, Region Engineering & Surveying has been looking at what will be required to implement the recommendations. Based on analysis of the property identified for a proposed new detention basin just west of Redwood Road, Region has discovered that building the detention basin as proposed will result in a deep and costly excavation. To avoid constructing a basins that is both expensive and difficult to maintain, Region has requested that BC&A look into a revised drainage concept for the area. The purpose of this memorandum is to summarize our analysis of this revised concept.

### MODELING APPROACH

Model updates implemented prior the May 5, 2017 memorandum have been documented in that memorandum. In addition to those updates, the following changes were made to the model:

- **Raise the Elevation of the Village Parkway "South" Basin** – The original concept contained in the City's MDA called for two detention basins to be constructed just west of Redwood Road on both the north and south of Village Parkway. These detention basins would be connected by a pipeline and would operate jointly to detain flow coming from

west. The problem with this approach is that the elevation of the property to the south is significantly higher than the property to the north. By operating the basins together, elevations in the South Basin must be limited to the elevations of the North Basins. This puts the useable volume of the South Basin deep in the ground.

To improve the efficient use of volume in the South Basin, it is proposed that operation of the basins be separated. Instead of acting jointly, the South Basin will be placed at a higher elevation and cascade down into the North Basin. While this will require the effective volume of the South Basin to all be above the North Basin, this is more consistent with the topography of the area and also removes an upper limit on the elevation of useable volume in the South Basin. The model has been updated to reflect this concept.

- **Increased Detention in Upper Basins –** There is a consequence to separating the basins. In the original concept, volume in the South Basin was being used to supplement deficiencies in available volume in the North Basin. With the South Basin now being above the North Basin, this cannot occur. To eliminate the volume deficiency in the North Basin, it is proposed that detention in the undeveloped upper areas of Fox Hollow be increased. Originally, these areas were planned to have a release rate of 0.2 cfs/acre. By increasing detention such that the release rate in these areas is reduced to 0.05 cfs/acre, the volume deficiency in the North Basin can be eliminated. The model has been updated to reflect these reduced release rates.

With these enhancements to the model in place, the 100-year design storm was used to analyze existing and proposed detention and major conveyance infrastructure. The major conveyance infrastructure analyzed this way included the main area drainage channel that in part parallels Village Parkway and the 48-inch crossing of Redwood Road. The 25-year design storm was used to verify the capacity of other modeled conveyance pipes such as those along the main drainage path through the Stillwater development. This modeling approach is consistent with Saratoga Springs Standards and Specifications for storm drain analysis and design. It should be noted that the modeled infrastructure includes only the principal infrastructure used to convey storm water through or away from development phases, not the minor infrastructure (e.g. collection pipes and catch basins) that is or will be located within the development phases.

This analysis has produced findings for several key parts of the system. These parts are the detention basin above Stillwater and Fox Hollow N1, the open channel conveyance next to Village Parkway, and the detention basin at the bottom of Fox Hollows (near the Redwood Road and Village Parkway intersection). See Figure 1 for a map of improvements and drainage basins.

## FINDINGS

### Detention Above Stillwater and Fox Hollows N1

As discussed in the previous memorandum, there is some existing natural detention near Kollman Lane immediately west of Fox Hollow N1. With the proposed changes, this detention will effectively be replaced with detention constructed in association with development in the area above the existing basin. With this new detention in place, this discharge can be rerouted to the Fox Hollow development's main open channel (see the *Open Channel Conveyance next to Village Parkway* section below). Once that occurs, the natural detention near Kollman Lane can be eliminated. It should be emphasized that the Kollman Pond cannot be eliminated until the channel is rerouted to the main drainage channel to the south.

### Open Channel Conveyance next to Village Parkway

Storm drainage in this area depends on an open channel that conveys runoff from the undeveloped area west of Fox Hollow N6 and runoff generated in the Fox Hollow development through a couple

cascading detention basins and finally to the main 48-inch outfall which crosses under Redwood Road near the Village Park intersection. This channel is interrupted by 3 road crossings, all of which have 30-inch circular culverts to convey flow.

In the original master plan and for one of the alternatives in the May 5, 2017 memorandum, the lowest of these culverts (at Village Court Road) was identified to be upsized through a future master planned project. However, with the increase in detention in the upper areas of Fox Hollow, all these 30-inch culverts appear to have sufficient capacity to convey the design storm and the Village Court Road culvert no longer needs to be upsized.

### Detention at the Bottom of Fox Hollows (near Redwood Road and Village Parkway Intersection)

The most significant analysis was completed with regard to detention at the bottom of the Fox Hollow development. Based on the revised concept of placing the South Basin at a higher elevation than the North Basin, the following improvements are recommended to meet the design requirements of Saratoga Springs:

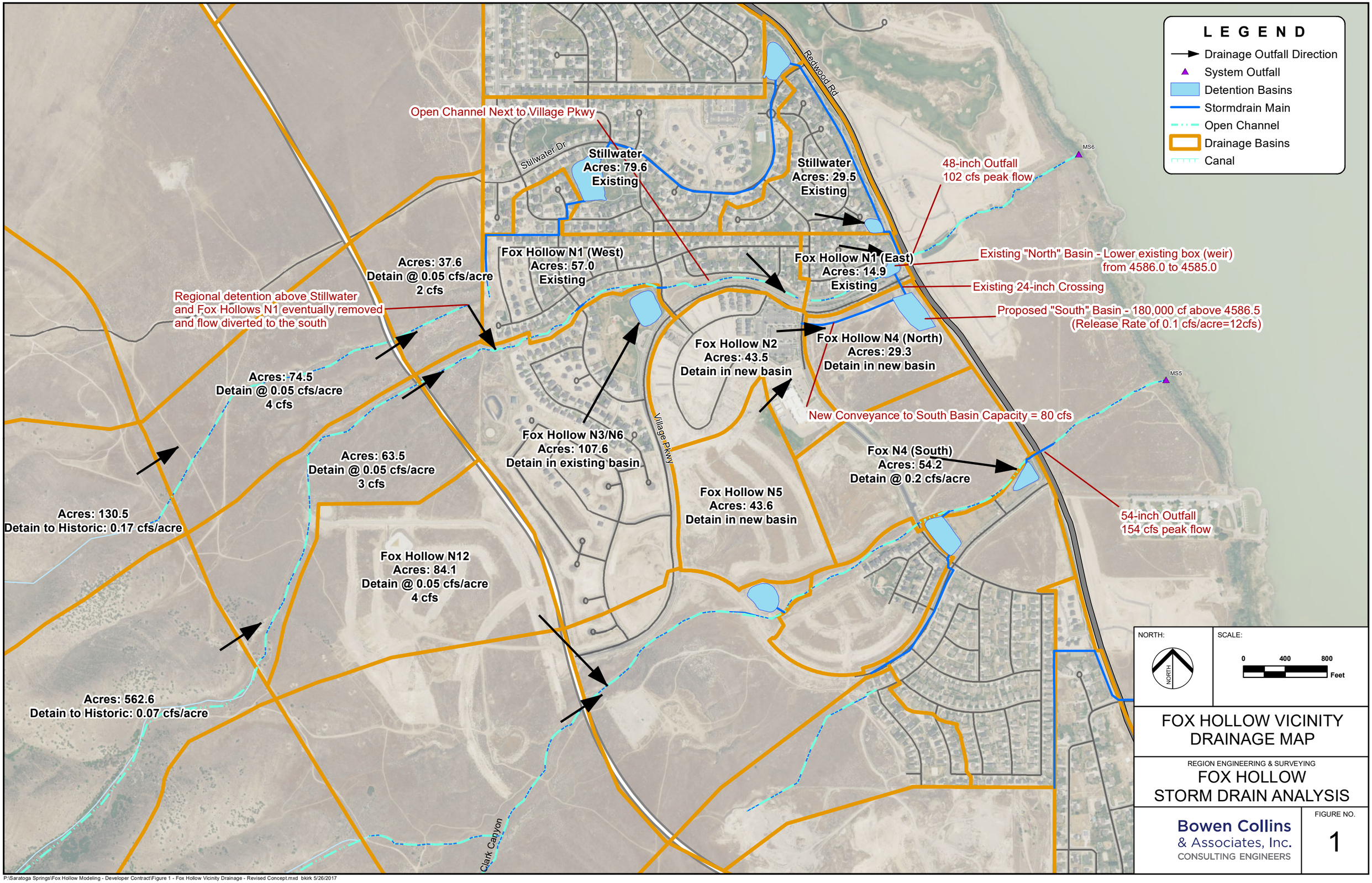
1. A new conveyance channel/pipe will need to be constructed from Fox Hollow N5, N2, and the existing school to the new detention basin. The expectation is that existing infrastructure will be intercepted in Swainson Avenue south of the intersection with Village Parkway, which will convey runoff from these areas as well as Fox Hollow Phase N4 (North) to the new south detention basin. This conveyance will need to be designed for a peak flow of 80 cfs.
2. A new detention basin will need to be constructed near the southwest corner of Village Parkway and Redwood Road. This new South Basin should be designed to operate at elevations above the water surface in the North Basin on the other side of the road. The volume required for this basin is at least 180,000 cubic feet (4.13 AF) of storage. For this basin to operate properly, the requisite storage volume must be situated above 4585.0 ft in elevation. Additionally, all components of the this pond (specifically the outlet facilities and water quality device) must be designed to accommodate 18 inches of potential backwater from the North Pond (maximum elevation during overflow condition is 4586.5 ft). There is no hydraulic limit on the upper elevation for storage, but this elevation will obviously be limited by topography and City depth limitations.
3. Flow out of the South Basin will need to be limited to 12 cfs. This is based on the available capacity in downstream facilities and corresponds to approximately 0.1 cfs/acre. It should be noted that there may be an orifice on the existing 24-inch crossing pipe that connects the South Basin to the north. Survey results are unclear due to some standing water in the crossing pipe, but one survey result indicated an orifice in the manhole on the north side of Village Parkway, through which the 24-inch crossing pipe connects the north and south basins. If there is an orifice in this manhole, or any other flow restriction in the 24-inch crossing, it should be removed.
4. Water quality control will need to be addressed in the design of the South Basin. Because it is now at an higher elevation than the North Basin, it should be possible to install a water quality device to treat the South Basin on its own. Because of the way the basin will be designed, peak discharge from the basin will be 12 cfs in both the 5-year and 100-year storm.
5. The orifice on the North Basin's outlet needs to be removed. The original basin design drawings call for a 13-inch orifice on the basin's 18-inch underdrain outlet pipe. This orifice is too small to convey the runoff now being considered for the basin.
6. The existing detention basin on the northwest corner of Village Parkway and Redwood Road will need to accommodate additional undetained runoff. One option for this would be to

increase its storage volume. However, there is available conveyance capacity downstream of this basin so it is also acceptable to allow higher discharge from this basin, which appears to be much more feasible than increasing storage capacity. To accomodate sufficient discharge from this basin to keep it from overtopping, the crest of the emergency overflow needs to be lowered 12 inches (to elevation 4585.00).

## CONCLUSIONS

In summary, the South Basin can be constructed at a higher elevation to detain flow from Phases N4 and N5 of the Fox Hollow development. However, there are some particular design considerations that must be addressed in order to provide adequate drainage for the City's design storm events. This includes reducing the allowable release rate for future properties in Fox Hollow to 0.05 cfs/acre and making some immediate modifications at the existing North Basin. It is our opinion that, with the improvements proposed within this document, the planning changes outlined for the Fox Hollow area can comply with City standards and are feasible solutions to the storm drain needs in the area.

# APPENDIX




# FOX HOLLOW VICINITY DRAINAGE MAP

REGION ENGINEERING & SURVEYING

## FOX HOLLOW STORM DRAIN ANALYSIS

Bowen Collins & Associates, Inc.
CONSULTING ENGINEERS

FIGURE NO.
1

P:\Saratoga Springs\Fox Hollow Modeling - Developer Contract\Figure 1 - Fox Hollow Vicinity Drainage - Revised Concept.mxd bkirk 5/26/2017

# APPENDIX F
# WATER QUALITY DEVICES LIST

**Table F-1**
**Water Quality Device List**

| Facility ID from City Database | Address | Location Description | Owner |
|---|---|---|---|
| 45850 | Fairway Blve/Chip Shot Loop | O.F. E of fairway on G.C. of Vlg Pkwy E of Redwood | SSD |
| 45853 | Aspen Hills Blvd | - | City |
| 45858 | Aspen Hills Blvd/Redwood Rd | - | City |
| 45861 | Spinnaker Bay Dr | SE Bend, O.F. 41 | Unlisted |
| 45864 | Spinnaker Bay Dr/Beacon Dr | O.F. 40 | Unlisted |
| 45867 | Catamaran Way | O.F. 39 | Unlisted |
| 45870 | Spinnaker Bay Dr/Wayside Dr | O.F. 38 | Unlisted |
| 45873 | Cottontail Loop | SE of SE bend, O.F. 32 | Unlisted |
| 45876 | Swainson Ave | NE of school, O.F. 32 | Unlisted |
| 45879 | 1312 N Commerce Dr | - | City O.F. 47 |
| 45882 | Riverside Dr/Jordan Ridge Blvd | East of intersection | City |
| 45886 | 264 North 750 West | Back field | ASD, no O.F. # |
| 45889 | Riverside Dr/Jordan Cove Ln | Behind lots, adjacent river | City O.F. 36 |
| 45896 | 484 W Pony Express Pkwy | SE of parking lot | ASD, no O.F. # |
| 45900 | 354 W Crossroads Blvd | Field near clinic | IHC |
| 45909 | 87 E Commerce Dr | Near McDonald's parking lot | Unlisted |
| 45913 | 400 North/Carlton Ave | NW | City |
| 45916 | Gordoba Dr | Field | Unlisted |
| 45920 | 1361 N Redwood Rd | South of Wendy's | Unlisted |
| 45924 | 400 North/Carlton Ave | SW, O.F. at 400 N Redwood | City |
| 45928 | 3548 S Spinnaker Bay Dr | - | City |
| 45932 | Tiger Heron Dr/Heron Hills Ave | NW | City |
| 45935 | 34 W Market St | - | City |
| 45939 | Riverside Dr | South of southernmost roudabout | City |
| 45943 | Saratoga Dr | NE of church | City |
| 45946 | 400 South/School House Rd | NE most lot | City, O.F. 46 |
| 45949 | 41 East 1140 North | - | Riverbend Medical |
| 45953 | Ridge Rd | - | Hillcrest Condos |
| 45956 | 558 W Pony Express Pkwy | East of SE church parking | Church, no O.F. # |
| 45961 | Waterview Dr | East of Waterview Dr, O.F. 32 | Unlisted |
| 45964 | Pavillion Cir | Behind NW most lot | City, O.F. 30 |
| 45976 | Alameda Way/400 East | Field | City |
| 45979 | Swainson Ave | Sage Hills Elem. Btwn parking lots, O.F. 32 | Unlisted |
| 45983 | Summerhill Dr/Stillwater Dr | Field | Church |
| 45986 | Weatherby Dr/Ring Rd | Near T, O.F. canal to G.C. pond | Church |
| 45990 | Aspen Hills Blvd | Near Church | Church |
| 45996 | 273 W Aspen Hills Blvd | Back field | ASD |
| 45999 | Riverbend Rd | East of Riverbend Rd | City O.F. 43 |
| 46005 | 87 E Commerce Dr | Open field | Denny's |
| 46014 | Riverside Dr | North roundabout | City |
| 46024 | 1178 S Pondside Dr | SE of parking lot | Church, O.F. 18 |
| 46026 | 2211 E Lakeview Dr | Shoreline Park, O.F. LL pond | City |
| 46030 | 163 W Ring Rd | O.F. canal to G.C. pond | Church |
| 46038 | Riverside Dr/Pioneer Crossing | SW | City |
| 46041 | - | Mt Saratoga Park | Unlisted |
| 46042 | - | Mt Saratoga Park #2 | Unlisted |
| 46076 | W 400 N/N Thunder BLVD | South of Residences | Unlisted |
| 46083 | - | E of Black Bittern Way | Unlisted |
| 46084 | - | E of Black Bittern Way #w | Unlisted |
| 46087 | Mason Ct/W 400 N | SW of cul-de-sac | Unlisted |
| 46097 | Waterside Dr/Parkway Blvd | NE | City, O.F. 19 |
| 46109 | 2148 N Stagecoach Dr | Southeast corner of Extra Space Storage Property | Unlisted |
| 46110 | E 400 S/N Saratoga Rd | SE of Police Department | Unlisted |
| 46111 | E 400 S/N Saratoga Rd | SE of Police Department | Unlisted |
| 46112 | Aspen Hills Blvd/N Redwood Rd | NW | Unlisted |
| 46113 | Aspen Hills Blvd/N Redwood Rd | NW | Unlisted |
| 48030 | 136 W Crossroads Blvd | East side of parking lot | Walmart |
| 48035 | Aspen Hills Blvd | Near Shay Park | City |
| 48760 | 148 W UT-145 | Near Les Schwab | Unlisted |
| 48761 | - | SE of West Blue Violet Dr | Unlisted |
| 48762 | - | SE of West Blue Violet Dr | Unlisted |
| 48808 | W 7350 N/W Reagan Dr | NE | Unlisted |
| 48809 | Village Pkwy/Deer Meadow Dr | Near church | Unlisted |
| 48811 | Exchange Dr/Intermountain Dr | NW | Unlisted |
| 48812 | - | S of Utah Lake Parkway Trail near Saratoga Rd | Unlisted |
| 48814 | Lehi-Fairfield Rd | N of Lexington Green | Unlisted |
| 48817 | N Providence Dr | N end | Unlisted |
| 48818 | - | NE of Bluebell Dr | Unlisted |
| 48819 | - | NE of Bluebell Dr | Unlisted |
| 48820 | N Starhaven Ln | - | Unlisted |
| 48821 | N Starhaven Ln | - | Unlisted |
| 48822 | 1920 W 7350 N | - | Unlisted |
| 48823 | 2120 W 7350 N | - | Unlisted |

# APPENDIX G
# HARBOR PARKWAY MEMO

BOWEN COLLINS & ASSOCIATES

# TECHNICAL MEMORANDUM

| | |
|---|---|
| **Date:** | December 28, 2020 |
| **To:** | Jeremy Lapin, P.E., Saratoga Springs City<br>Mark Atencio, P.E., Hansen Allen & Luce<br>Mark Chandler, P.E., CRS Engineers<br>File |
| **From:** | Keith Larson, P.E.<br>Emily Fica, E.I.T |
| **Project:** | Storm Drain Master Planning Coordination |
| **Subject:** | Harbor Parkway Drainage |
| **Project #:** | |

## INTRODUCTION

Bowen Collins & Associates (BC&A) prepared the most recent version of the Saratoga Springs Storm Drain Master Plan (June 2018). In this master plan, a new detention basin (Project DS1) was recommended for construction at the west end of Harbor Parkway. Since the writing of the master plan, however, a number of conditions have changed such that the plan for this detention basin and drainage in the area needs to be re-evaluated. Recent changes in the area include:

- CRS Engineers has begun designing a debris basin further to the west to help protect development in the City from potential debris flows associated with recent fire activity in the area. As part of this project, the city would like to build detention capacity into the basin to accomplish the purposes originally identified for master planned basin to the east (Project DS1). Because the basin will be constructed further upstream than previously planned, the design approach for drainage in the area must be modified.
- Hansen Allen & Luce (HAL) is designing a secondary water storage pond in the area. The pond sits just south and slightly east of where the new debris basin is proposed. As part of the design of this facility, an overflow pipeline is needed to convey up to 17 cfs. As much as possible, HAL would like to combine the overflow from this facility with the storm drain facilities in the area to minimize cost for the City.
- Plans have been received for a development currently called Westview Estates that sits just northwest of Harbor Parkway. Unbeknownst to BC&A at the time the master plan was prepared, this development had already been approved for storm drain release rates that are slightly higher than what was recommended in the master plan.
- CRS completed an updated survey of existing storm drain pipelines along Harbor Parkway providing more accurate data for capacity evaluation and planning.

The purpose of this memorandum is to develop a revised master plan for drainage in the area that takes into account these recent changes. The memorandum will also outline design guidance for the Harbor Parkway Storm Drain System that can be used in the design and construction of the new debris basin and secondary pond.

## RECOMMENDED DRAINAGE APPROACH

Recommended modifications to the City's master plan drainage approach are shown in Figure 1 and Figure 2 and are summarized in the following sections.

***Drainage Areas.*** The proposed detention pond will serve two upstream master planned drainage areas. The drainage area directly upstream of the proposed detention pond and to the southwest of Foothill Boulevard is expected to develop; as such, it is recommended that this area detains to a pre-development release rate of 0.035 cfs per acre for a total of 10.6 cfs. The basis of this release rate is discussed in a subsequent section of this memorandum. The second drainage area, which is further upstream, is not expected to develop, so this area will flow undetained to the proposed detention pond, and is expected to release approximately 6.0 cfs.

In addition to those basins, there are two master planned drainage areas downstream of the proposed basin which flow into the Harbor Parkway storm drain pipes. One of those areas (the existing development known as Harbor Park) is already completely developed. The other area (immediately to the west) has a portion dedicated to serving 9 acres of the Wellsprings Complex at 0.2 cfs per acre for a total of 1.8 cfs. The part of this drainage area which does not consist of the Wellsprings Complex should be required to release at a maximum of 0.035 cfs per acre for a total of 2.4 cfs. The combined total flow from these two areas is 4.2 cfs.

The drainage areas and their corresponding release rates are shown in Figure 1, attached.

***Existing Infrastructure Capacity.*** As discussed in the introduction, the Harbor Park outfall must be capable or conveying flow from two sources – upstream storm runoff (flow to be determined) and overflow from the secondary water storage pond (17 cfs). Under most circumstances, these flows will not need to be conveyed at the same time. Correspondingly, this memo will initially focus on conveying these flows independent of each other. However, a section is included at the end of the memo considering the unlikely but possible event where both events occur simultaneously.

The existing pipeline that follows Harbor Parkway begins as a 15-inch diameter pipe and gradually gets larger until flowing into Utah Lake. Pipes and their corresponding capacities, as well as proposed infrastructure and locations, are shown in Figure 2. There are two potential bottlenecks that will define available capacity for this outfall.

- **15-inch Pipeline –** The first potential bottleneck is located at the stretch of 15-inch pipe, which has a current capacity of 15.8 cfs. After accounting for the 1.8 cfs dedicated to the Wellsprings Complex and 2.4 cfs dedicated to the upstream drainage area, the 15-inch pipe only has 11.6 cfs of remaining capacity for flow from the future CRS basin and irrigation overflow.

  While the detention basin could theoretically be designed to detain storm water to this release rate, the total capacity of the pipeline is inadequate to convey the minimum required 17 cfs from the secondary pond overflow. Thus, this section of pipeline must be replaced. In order to increase capacity through this stretch of pipe, it is recommended the 15-inch pipe be increased to at least an 18-inch pipe. Increasing this pipe size will provide a total capacity of 25.7 cfs. This is adequate to convey secondary pond overflows of 17 cfs and also provides a total of 21.5 cfs of capacity for flow from the future detention basin after accounting for 4.2 cfs from other upstream developments.

- **18-inch Pipeline Just West of Redwood Road –** If the 15-inch pipeline is replaced as recommended, the remaining bottleneck for the Harbor Park outfall is located at the downstream end of the existing 18-inch pipe where its slope flattens before crossing Redwood Road. The capacity through this stretch is 25.3 cfs. This is enough to convey the 17 cfs from the secondary pond. After accounting for 4.2 cfs from upstream of Harbor Parkway and 4.5 cfs from the existing Harbor Parkway development[1], there is 16.6 cfs of remaining capacity. To avoid having to replace this pipeline, it is recommended that 16.6 cfs be established as the recommended maximum release rate from the detention basin.

***Provisions for Combined Flows.*** While storm runoff and secondary pond overflow should not generally occur at the same time, it is prudent to consider what may happen if they do. If the detention basin is releasing at 16.6 cfs and the irrigation pond is flowing at 17 cfs, these two flows will join upstream of existing Harbor Parkway pipes and flow at a total of 33.6 cfs. This significantly exceeds the capacity of the 18-inch pipe on Harbor Parkway (25.3 cfs).

Given the low probability of these two events occurring at the same time, it is reasonable to assume that surcharging during this infrequent occurrence will be acceptable as long as the surcharged flow can be safely conveyed in the road section. This is likely a reasonable plan for the lower section of Harbor Parkway but may not work for the upper section where permanent road facilities do not yet exist. For this reason, it is recommended that the upper section of drainage pipe be increased in size to 24-inches to convey the combined flow from the future detention basin and irrigation overflow pipe (33.6 cfs).

Additionally, it is recommended that this capacity be maintained until the outfall reaches a location in which curb and gutter is sufficient to convey any flow in excess of the existing 18-inch pipe capacity in the cross section of Harbor Parkway without spilling into adjacent properties. Harbor Parkway was designed with mountable curb (APWA Type D) which may limit its conveyance capacity, especially at the top end of the street. Therefore, it is recommended the 33.6 cfs of capacity (i.e. 24-inch pipe) be extended slightly further to the east (approximately to S Lake Vista Drive) to make sure any surcharging that does occur is captured and conveyed in the roadway. At the location the 24-inch pipeline is transitioned back to an 18-inch pipeline, the system should be designed to allow bubble-up of any flows in excess of the downstream capacity.

## CONCLUSION

The Harbor Parkway drainage area has had a number of conditions which have changed since the writing of the last Saratoga Springs Master Plan. These changes include Project DS1 moving further downstream, 17 cfs of irrigation overflow needing to be conveyed through City storm drain pipes, and approved flow being higher than planned. As a result, BC&A has addressed the changes and made the recommendations within this memo. Key components of the recommendations are as follows:

- All remaining undeveloped area to be detained to 0.035 cfs/acre

[1] The 4.5 cfs from the built-out area is currently limited by capacity that can be captured by the existing catch basins. The developed area which is upstream of the bottleneck may actually produce 12.9 cfs of runoff, but only 4.5 cfs can fit through the existing catch basins. If these basins were to increase in size or quantity, more flow could get into the Harbor Parkway pipeline and the remaining capacity of the pipe would decrease. However, this does not appear to be a concern as a) no plans currently exist to add inlet capacity, and b) since the flow currently in excess of inlet capacity is already being conveyed in the curb and gutter, adding inlet capacity might allow the City to capture more flow at the top of the system but would not increase the amount of flow conveyed in the curb and gutter through the capacity critical sections (i.e. capturing more flow through the addition of inlets would result in more flow bubbling up in the critical capacity sections but this would be equal to or less than what was being conveyed in the curb and gutter without the additional inlet capacity.)

- Release rate from new detention pond limited to 16.6 cfs
- Installation of a new 24-inch pipeline to convey at least 33.6 cfs from the detention basin and pond overflow to at least Lake Vista Drive
- Replacement of any remaining 15-inch pipeline at the upper end of Harbor Parkway with at least 18-inch pipeline.

If all recommendations are applied to the Harbor Parkway Drainage area, both the future CRS detention basin and the HAL irrigation pond can be safely conveyed through the City system.

# Figure 1 - Harbor Parkway Contributing Drainage Areas

**Project Labels**

XX Y Z

- Number ID
- N-North
- S-South
- D-Detention Basin
- C-Culvert
- P-Pipe
- OC-Open Channel
- M-Miscellaneous

**Legend**

- ProjectSeperator2017
- Outfall
- Existing Culvert
- Future Culvert
- Drainage FLow Direction
- Existing Basin
- Future Basin
- Improved Channels
- Maintain Natural Channel
- Existing Trunk Line
- Future Trunk Line
- Existing Channel
- Canal
- Planned Drainage
- Local Drainage Only
- Existing SD Pipes
- Master Planned Roads
- Existing Roads
- 2017 City Boundary
- Annexation Extents

Area is OK to detain and release to the North at 0.20 cfs/acre

Approximate new location of regional detention basin

Area above regional detention basin. Either not developed or detained to historic. Release approximately 6.0 cfs.

Area upstream of regional detention basin. **Developable area at 0.035 cfs per acre in local detention basins (10.6 cfs).** Local basins will outfall to the regional basin.

Area to detain and release to the North at 0.1 cfs/acre

Westview Estates lies in this area and has been approved by City to release at 0.2 cfs/acre. **Westview Estates is approved to send 21.39 cfs to the North and 1.78 cfs to the South.**

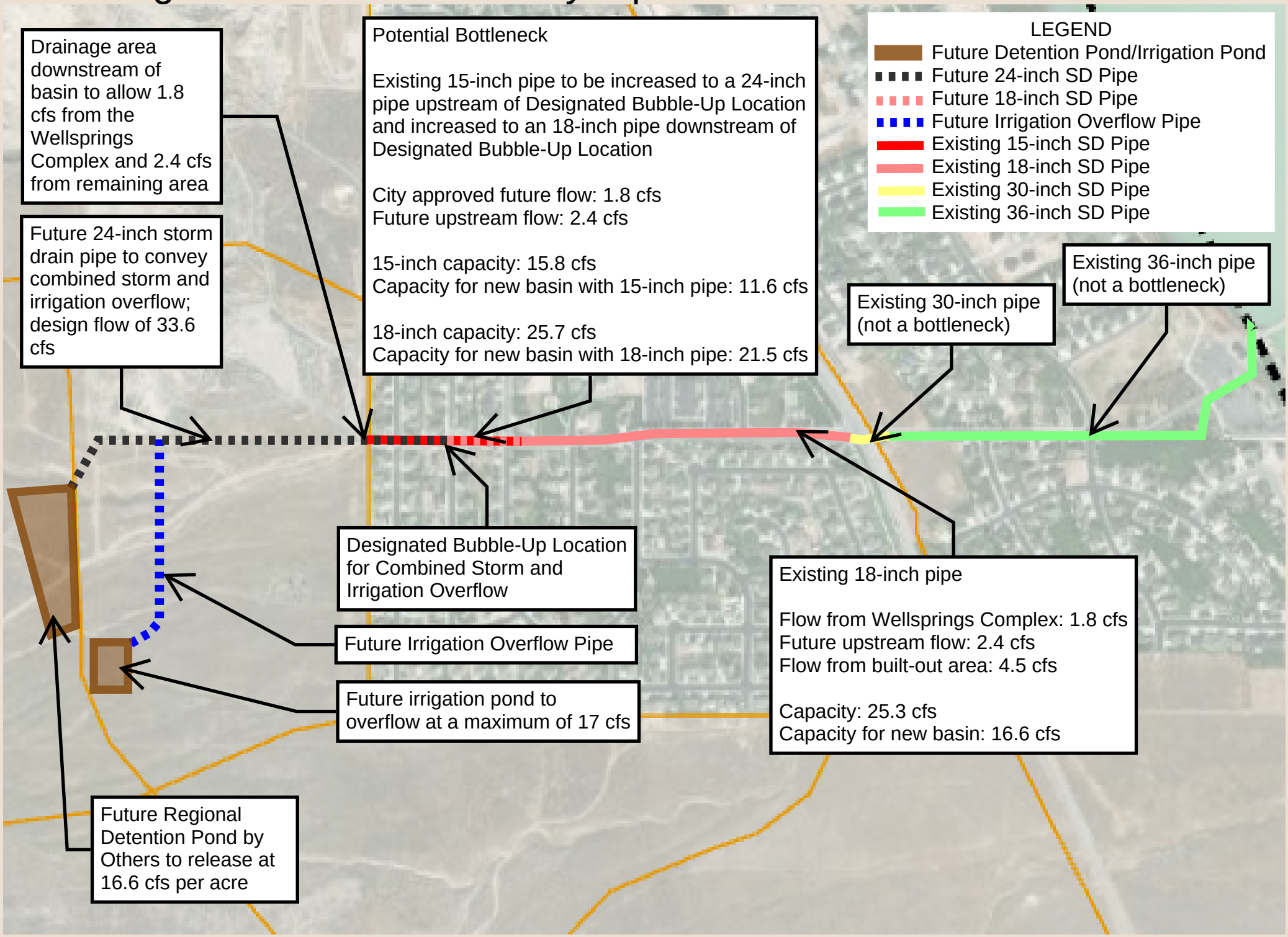
Area downstream of regional detention basin. **Developable area at 0.035 cfs per acre in local detention basins (2.4 cfs).**

Approximate new location of future irrigation pond

| | | | | | |
|---|---|---|---|---|---|
| BOWEN COLLINS & ASSOCIATES Celebrating 20 Years | SARATOGA SPRINGS<br>STORM DRAIN CAPITAL FACILITIES PLAN | PROPOSED STORM DRAIN PROJECTS W/ ALLOWABLE RELEASES | NORTH: NORTH | SCALE: 0 625 1,250 2,500 Feet | FIGURE NO. D-1C |

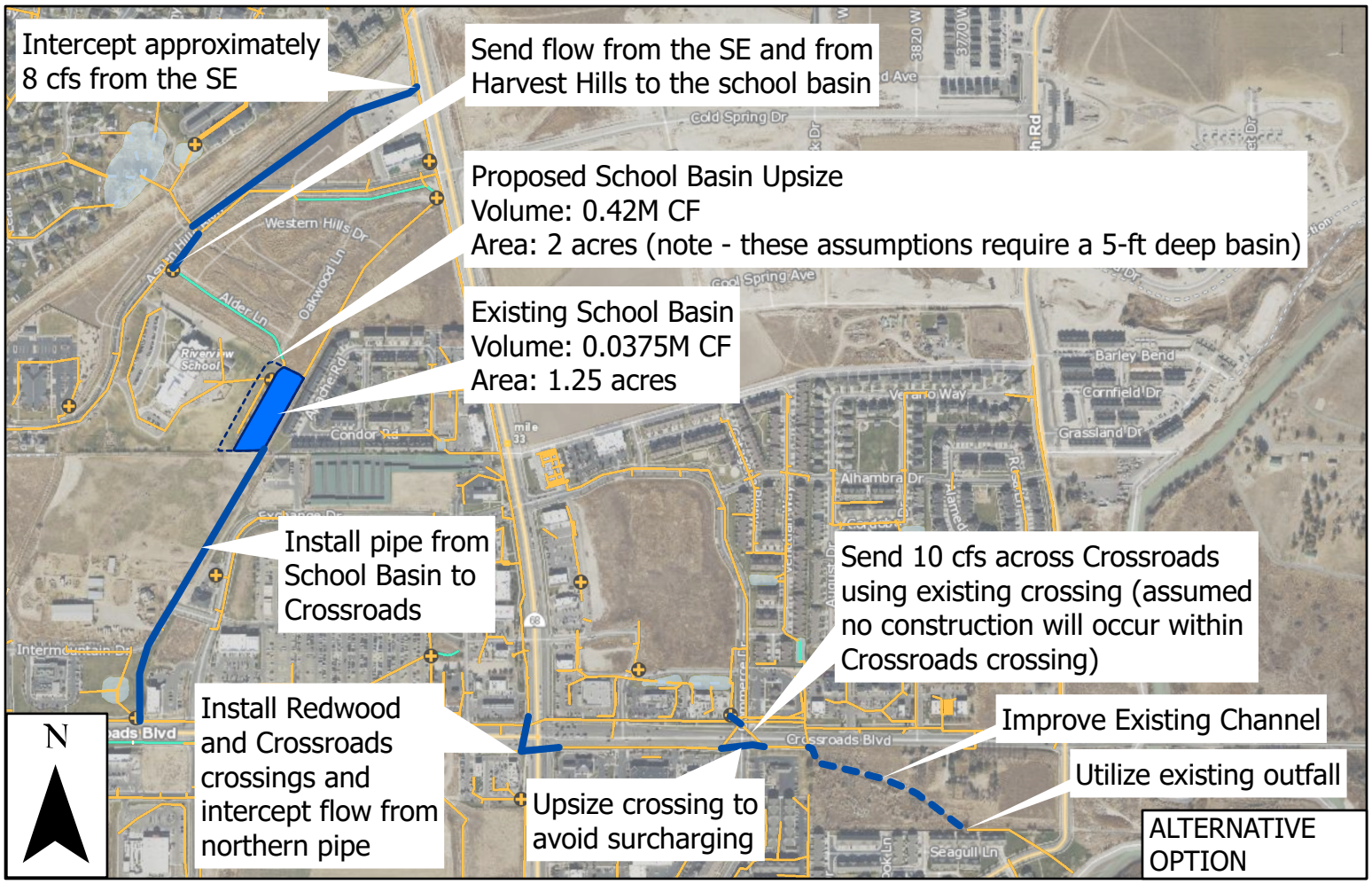
P:\Saratoga Springs\305-17-04 2017 Storm Drain Capital Facilities Plan, IFFP & IFA Update\4.0 GIS\Figure D-1_CFP.mxd jdietrich 6/26/2018

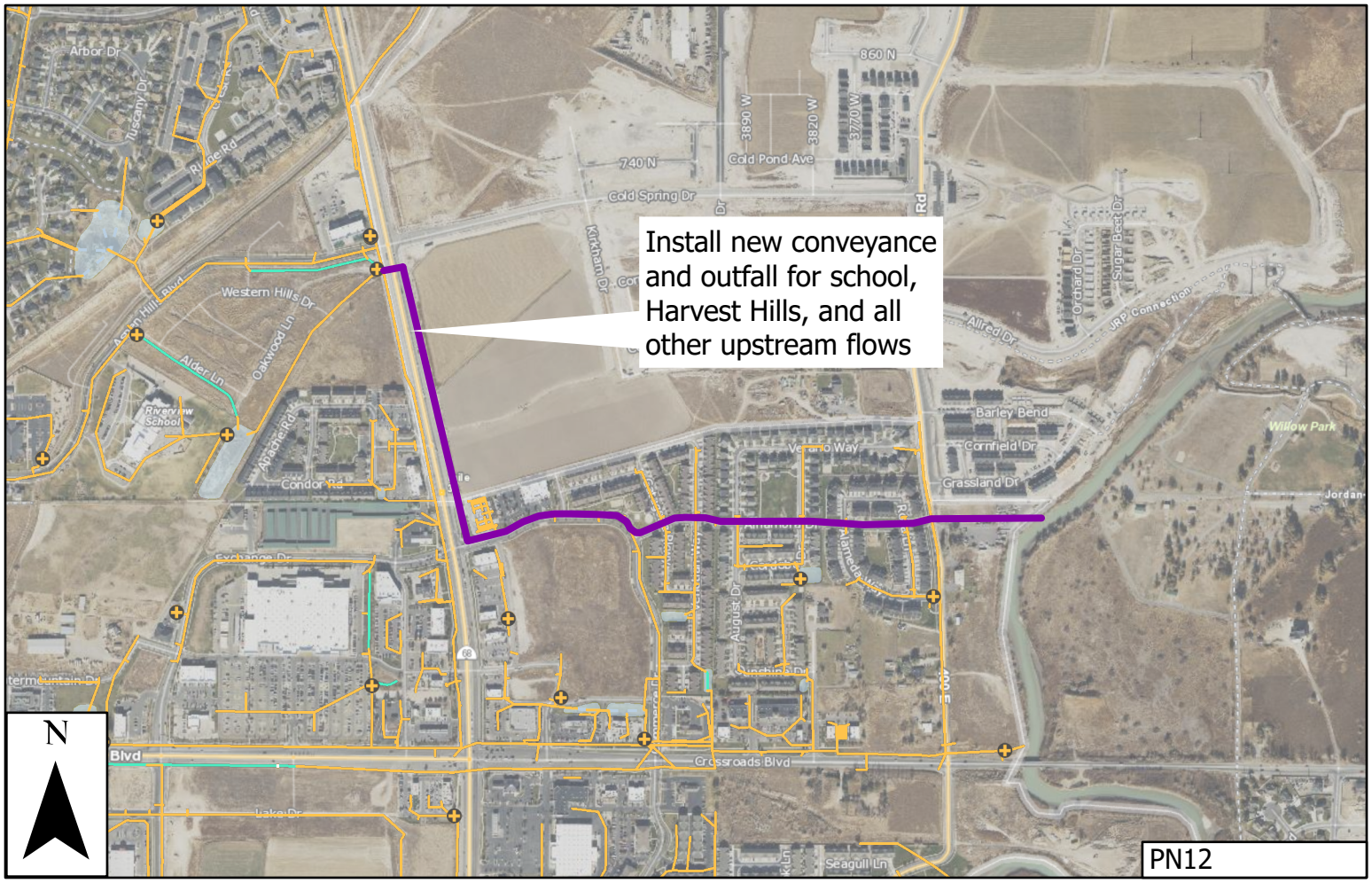
# Figure 2 - Harbor Parkway Pipes and Overland Flow Route



# APPENDIX H
# PN12 ALTERNATIVE ANALYSIS

# PN12 ALTERNATIVE SUMMARY

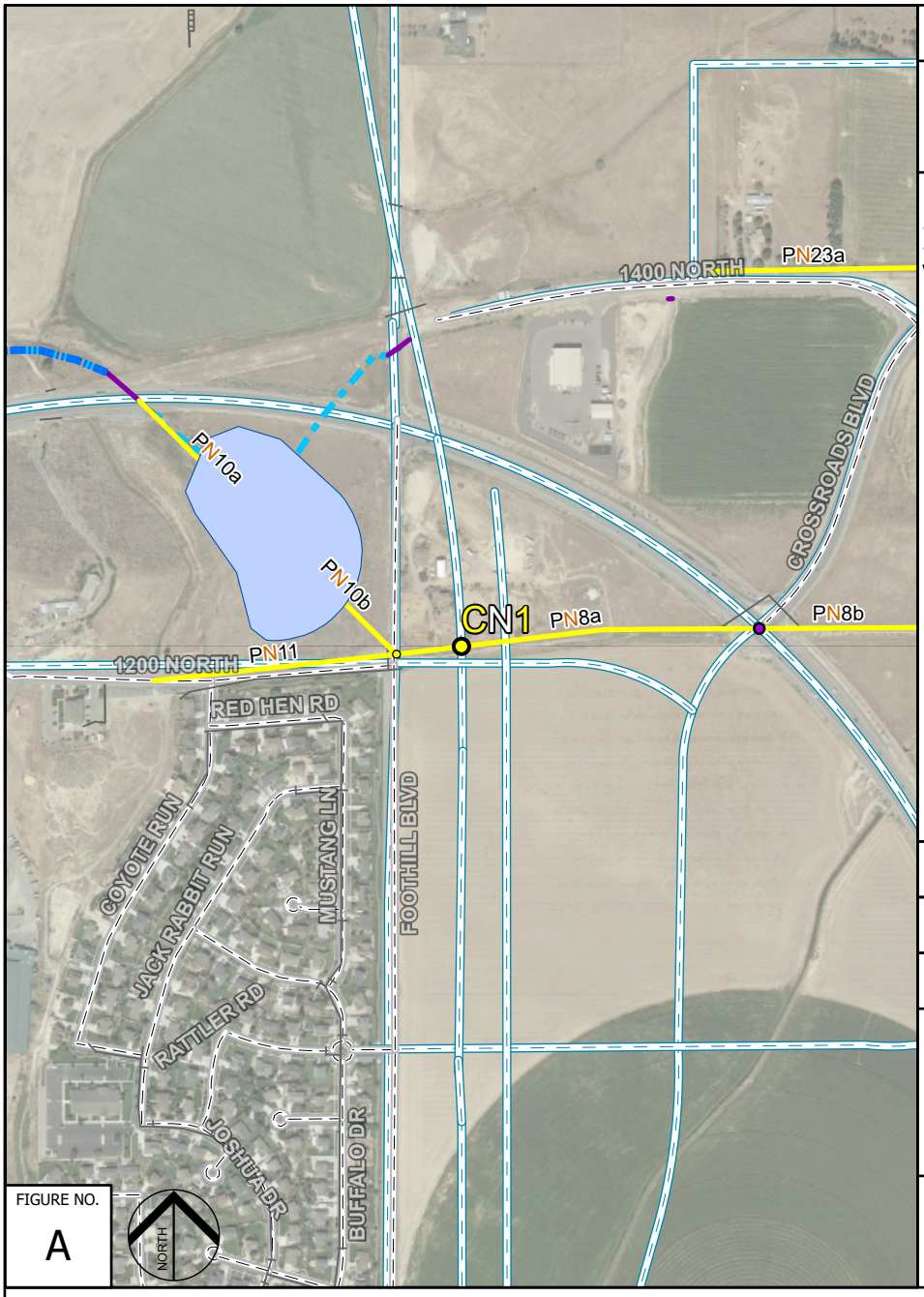


# APPENDIX I
# PROJECT SUMMARY SHEETS

# IMPROVEMENT PROJECT SUMMARY

Saratoga Springs




**Project ID:** CN1

**Project Name:**

Mountain View Corridor 5

**Project Description:**

Install culvert under future Mountain View Corridor

**Project Components:**

| *Quantity* | *Size* | *Design Flow* |
|---|---|---|
| 1 Culvert | 24-SF Box | 116 cfs |

**Cost Estimate (2021 Dollars):**

$96,100

**Project Need:**

Install a culvert under future Mountain View Corridor to provide capacity for upstream development.

**Potential Consequences of Failing to Complete the Project:**

Flow from PR030 and the Wildflower Development will not have a way to convey flow to the City system and will likely flood near Mountatin View Corridor.

**Project Triggers:**

This project must be completed in conjunction with the construction of Mountain View Corridor.

**Project Timing:** This project is within the 10-year planning window (2021 - 2031).

# IMPROVEMENT PROJECT SUMMARY

Saratoga Springs

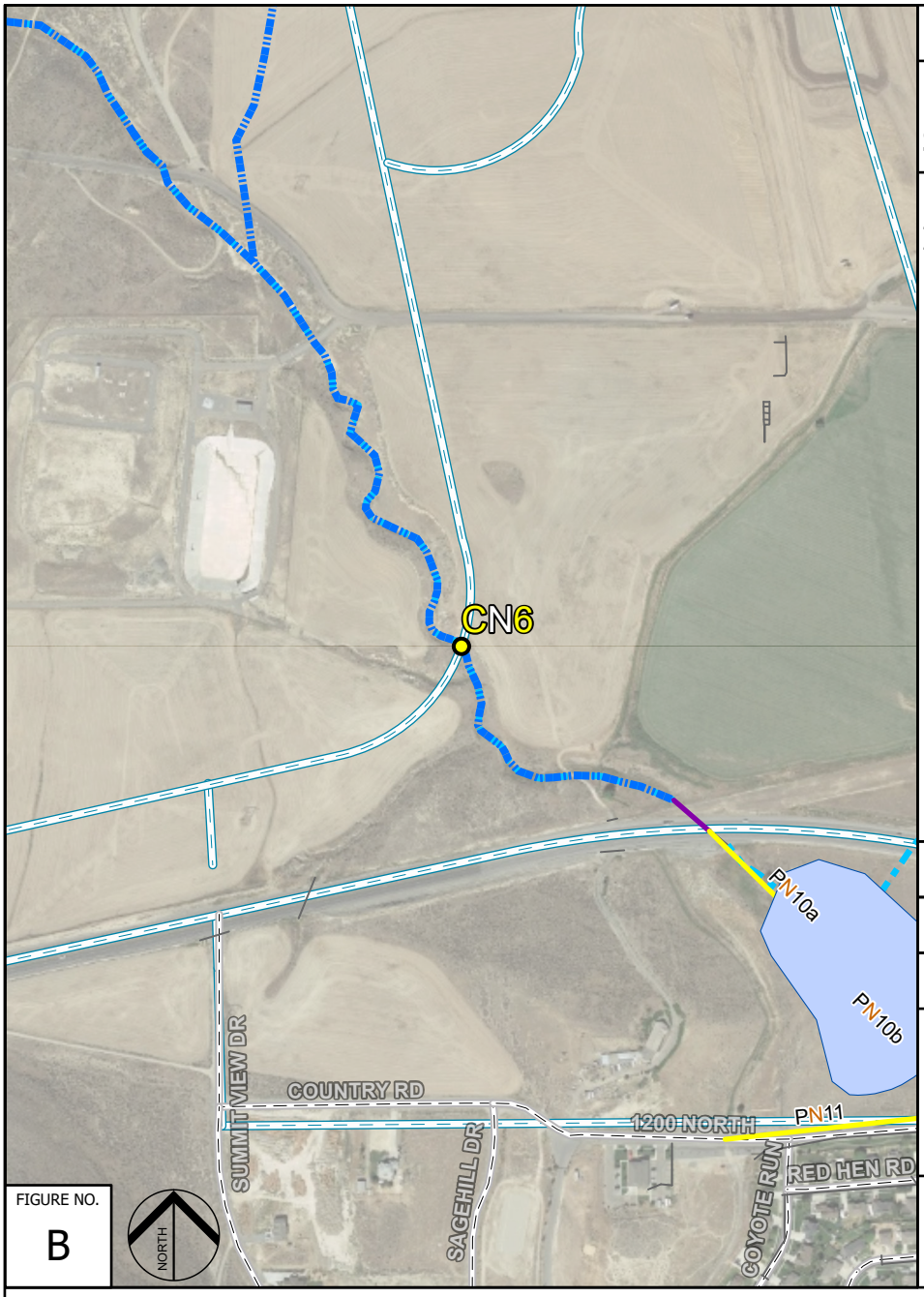



FIGURE NO. B

**Project ID:** CN6

**Project Name:**

Saratoga Parkway 1

**Project Description:**
Install culvert under future Saratoga Parkway

**Project Components:**

| *Quantity* | *Size* | *Design Flow* |
|---|---|---|
| 1 Culvert | 32-SF Box | 160 cfs |

**Cost Estimate (2021 Dollars):**

$192,200

**Project Need:**
Install a culvert under future Mountain View Corridor to provide capacity for the Wildflower development.

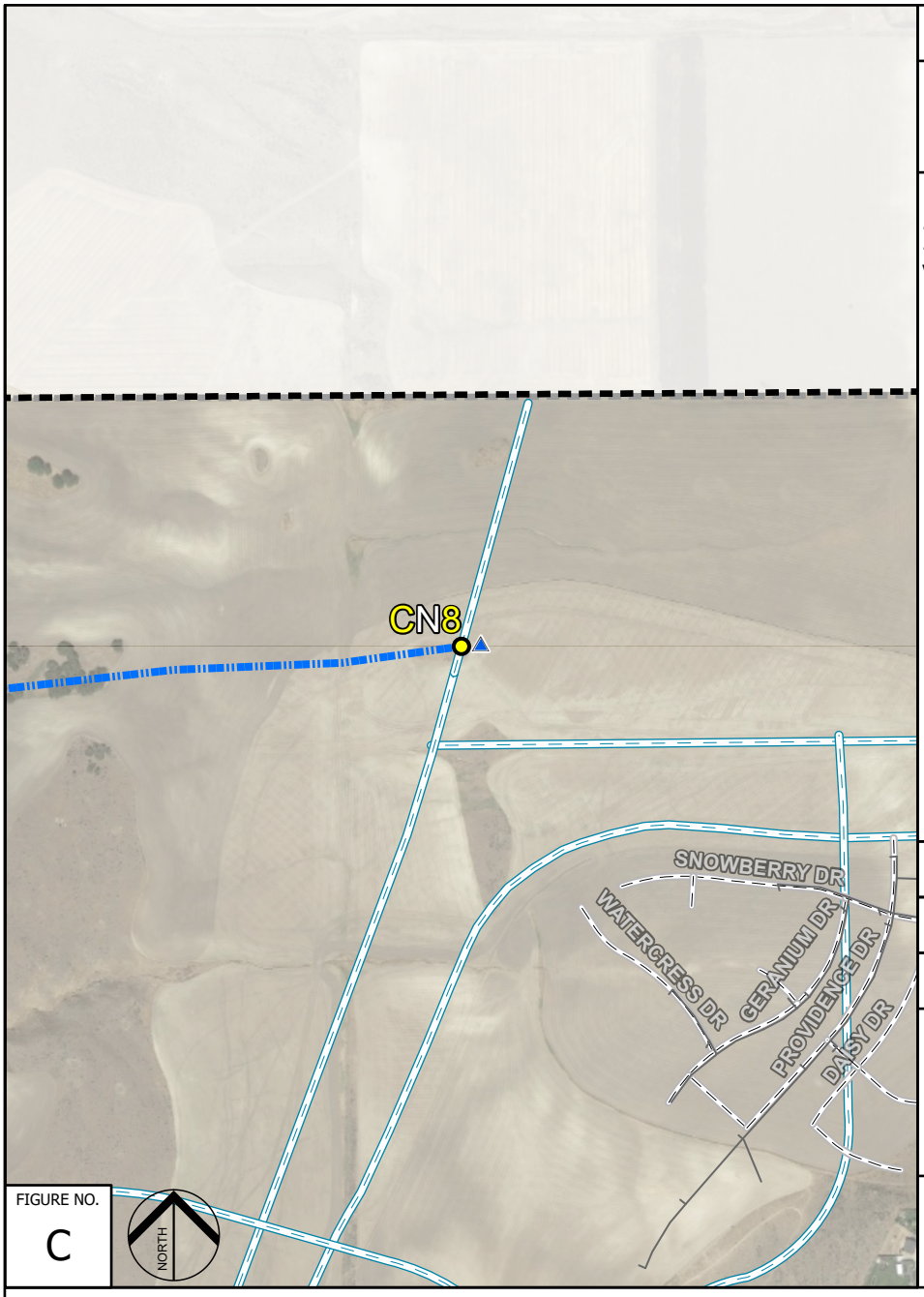
**Potential Consequences of Failing to Complete the Project:**
Flow from the Wildflower development and offsite areas will flood future Mountain View Corridor.

**Project Triggers:**
This project must be completed in conjunction with the construction of Mountain View Corridor.

**Project Timing:** This project is within the 10-year planning window (2021 - 2031).

# IMPROVEMENT PROJECT SUMMARY

Saratoga Springs




**Project ID:** CN8

**Project Name:**

Mountain View Corridor 3

**Project Description:**
Install culvert under future Mountain View Corridor

**Project Components:**

| *Quantity* | *Size* | *Design Flow* |
|---|---|---|
| 1 Culvert | 42-inch dia | 60 cfs |

**Cost Estimate (2021 Dollars):**

$96,100

**Project Need:**
Install a culvert under future Mountain View Corridor to provide capacity for the Wildflower development and offsite flows.

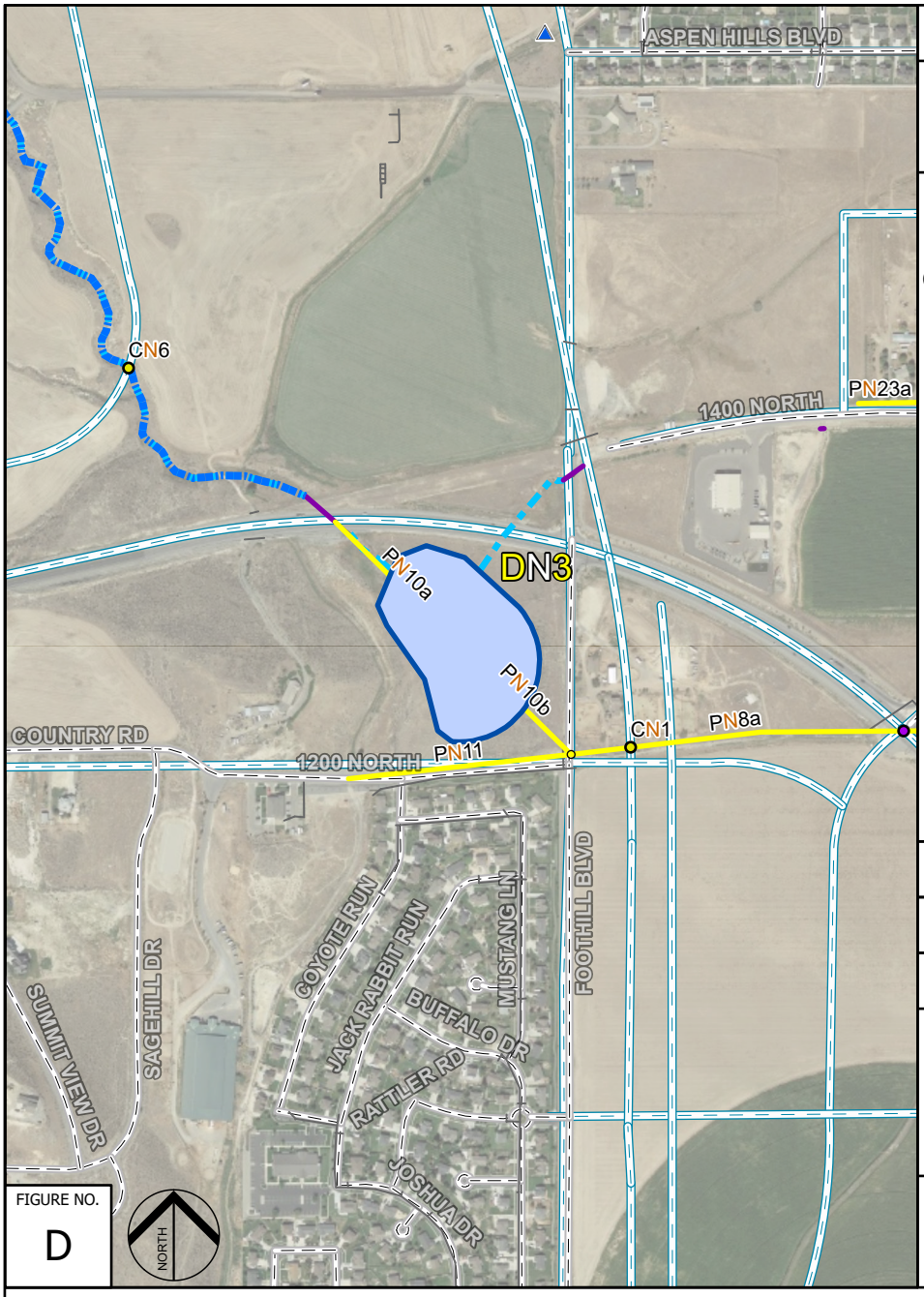
**Potential Consequences of Failing to Complete the Project:**
Flow from the Wildflower development and offsite areas will flood future Mountain View Corridor.

**Project Triggers:**
This project must be completed in conjunction with the construction of Mountain View Corridor.

**Project Timing:** This project is within the 10-year planning window (2021 - 2031).

# IMPROVEMENT PROJECT SUMMARY

Saratoga Springs




**Project ID:** DN3

**Project Name:**

Mountain View Corridor 1 (New)

**Project Description:**

Regional Detention to limit flow to capacity of downstream infrastructure

**Project Components:**

| *Quantity* | *Size* | *Design Flow* |
|---|---|---|
| 7.94 Acres | 23-AF | 100 cfs |

**Cost Estimate (2021 Dollars):**

$331,605

**Project Need:**

Improve the existing acting detention basin to detain flows from the Wildflower development to historic rates and volumes. Sizing of this detention basin will change depending on retention/detention design in the Wildflower development.

**Potential Consequences of Failing to Complete the Project:**

Flow from the Wildflower development may flood the existing channel. Note that as part of DN3, the existing channel and culvert to the NE will be abandoned and all flow from DN3 will go to the SE through PN10b.

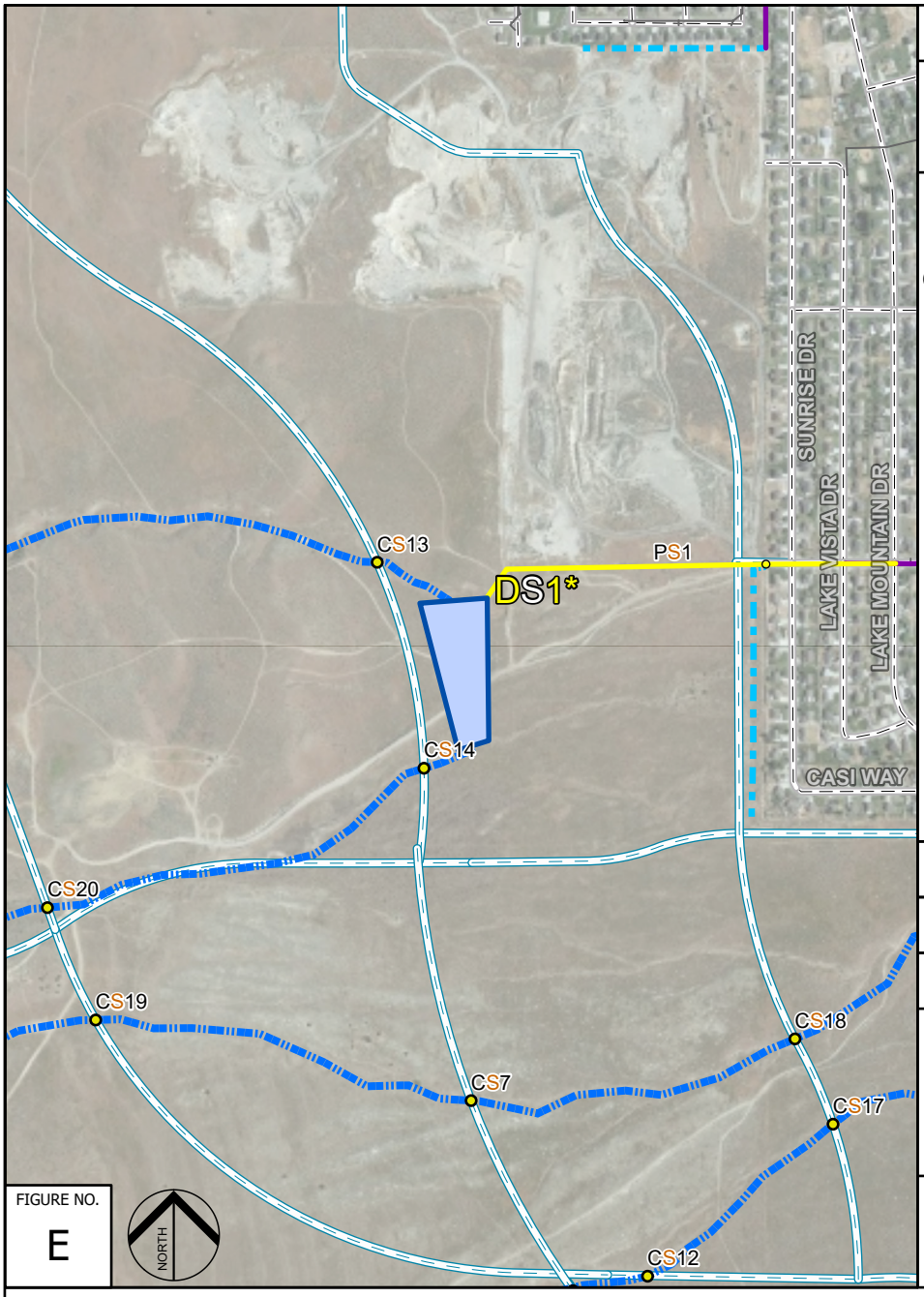
**Project Triggers:**

This project must be completed before (or at the time of) Wildflower construction. This project should be completed in conjunction with PN10a and PN10b.

**Project Timing:** This project is within the 10-year planning window (2021 - 2031).

# IMPROVEMENT PROJECT SUMMARY

Saratoga Springs




**Project ID:** DS1*

**Project Name:**

Harbor Parkway

**Project Description:**

New Pond to limit flow to capacity of existing pipe

**Project Components:**

| *Quantity* | *Size* | *Design Flow* |
|---|---|---|
| 4.37 Acres | 9-AF | 17 cfs |

**Cost Estimate (2021 Dollars):**

$1,416,000

**Project Need:**

Install a new detention/debris basin combo to detain open channel flows and development in UL044.

**Potential Consequences of Failing to Complete the Project:**

Open channel flows and corresponding alluvial fans may result in flooding of existing and future development in UL042 and UL040.

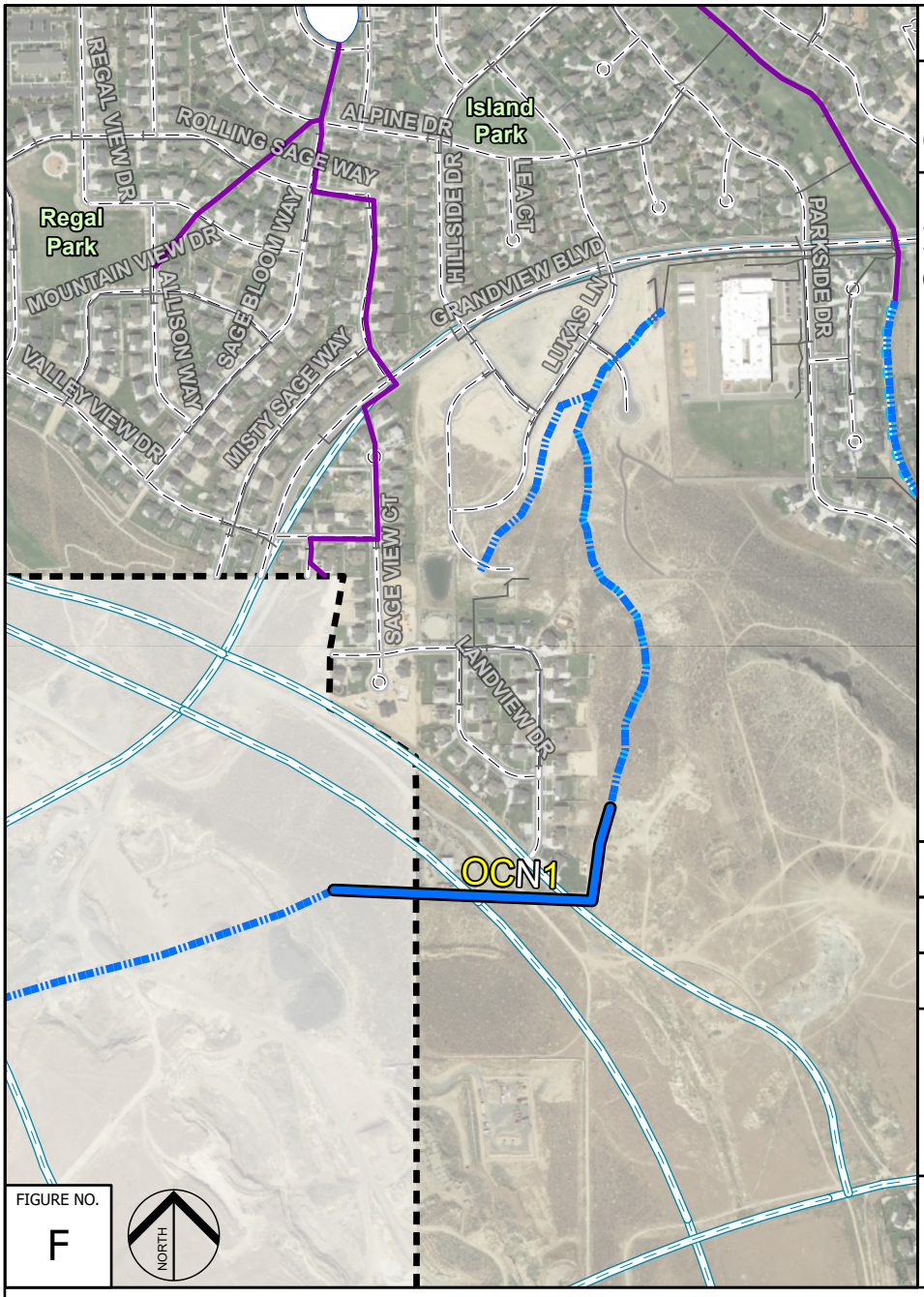
**Project Triggers:**

This project is currently in design and is being partially funded via a grant from NRCS. The cost estimate shown does not subtract any funds provided by the grant.

**Project Timing:** This project is within the 10-year planning window (2021 - 2031).

# IMPROVEMENT PROJECT SUMMARY

Saratoga Springs




**Project ID:** OCN1

**Project Name:**

Clay Pit Reroute

**Project Description:**

Improve existing channel through development

**Project Components:**

| *Quantity* | *Size* | *Design Flow* |
|---|---|---|
| 1,451 LF | 4-feet wide | 36 cfs |

**Cost Estimate (2021 Dollars):**

$383,100

**Project Need:**

Improve open channel conveyance from Redwood Road to Utah Lake.

**Potential Consequences of Failing to Complete the Project:**

Flow from future and existing developments upstream of channel will flood areas surrounding the existing open channel.

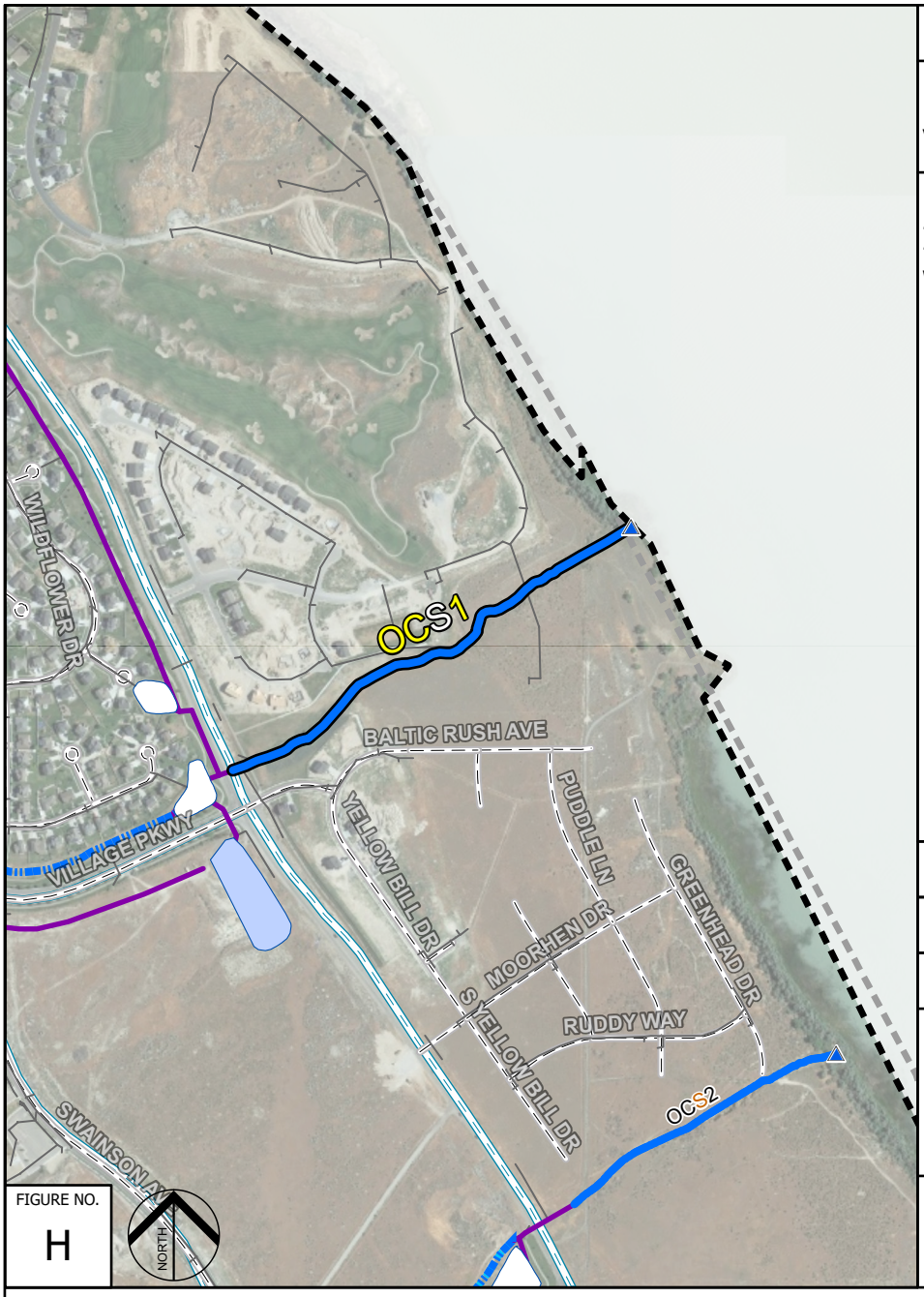
**Project Triggers:**

This project must be completed in conjunction with DBS1a and DBS1b.

**Project Timing:** This project is within the 10-year planning window (2021 - 2031).

# IMPROVEMENT PROJECT SUMMARY

Saratoga Springs




**Project ID:** OCS1

**Project Name:**

Village Parkway & Redwood Road

**Project Description:**

Improve existing channel to Utah Lake with Riprap and Vegetation as Required

**Project Components:**

| *Quantity* | *Size* | *Design Flow* |
|---|---|---|
| 1,986 LF | 4-feet wide | 109 cfs |

**Cost Estimate (2021 Dollars):**

$624,200

**Project Need:**

Improve open channel conveyance from future debris basins DBS1a and DBS1b to existing pipe at Grandview Blvd.

**Potential Consequences of Failing to Complete the Project:**

Future DBS1a and DBS1b will not have a way to be conveyed into the city system and will cause flooding and erosion downstream.

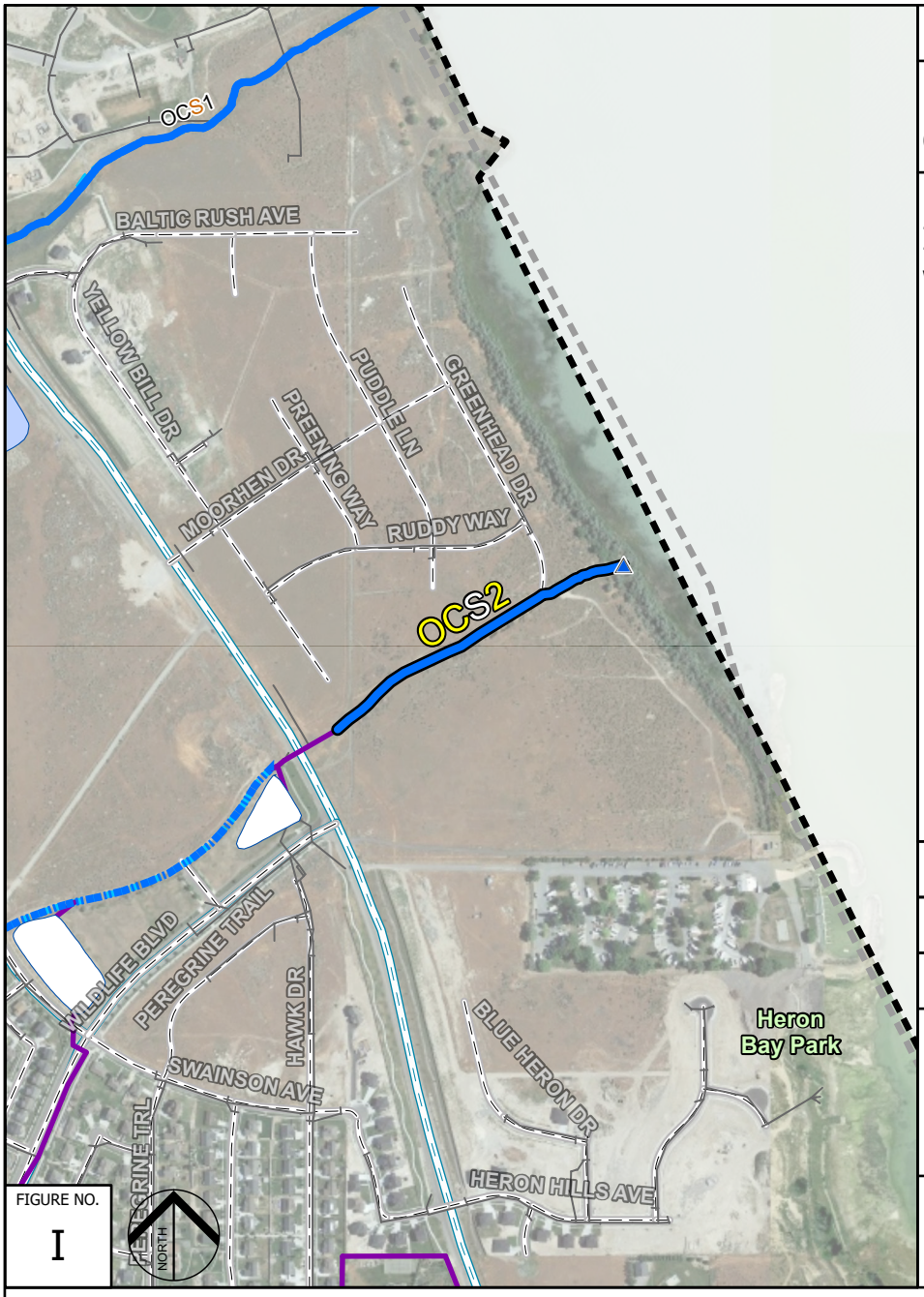
**Project Triggers:**

This project must be completed in conjunction with DBS1a and DBS1b.

**Project Timing:** This project is within the 10-year planning window (2021 - 2031).

# IMPROVEMENT PROJECT SUMMARY

Saratoga Springs




**Project ID:** OCS2

**Project Name:**

Clark Canyon

**Project Description:**
Improve existing channel to Utal Lake with Riprap and Vegetaion as Required

**Project Components:**

| *Quantity* | *Size* | *Design Flow* |
|---|---|---|
| 1,259 LF | 4-feet wide | 151 cfs |

**Cost Estimate (2021 Dollars):**

$432,500

**Project Need:**
Improve open channel conveyance from future debris basins DBS1a and DBS1b to existing pipe at Grandview Blvd.

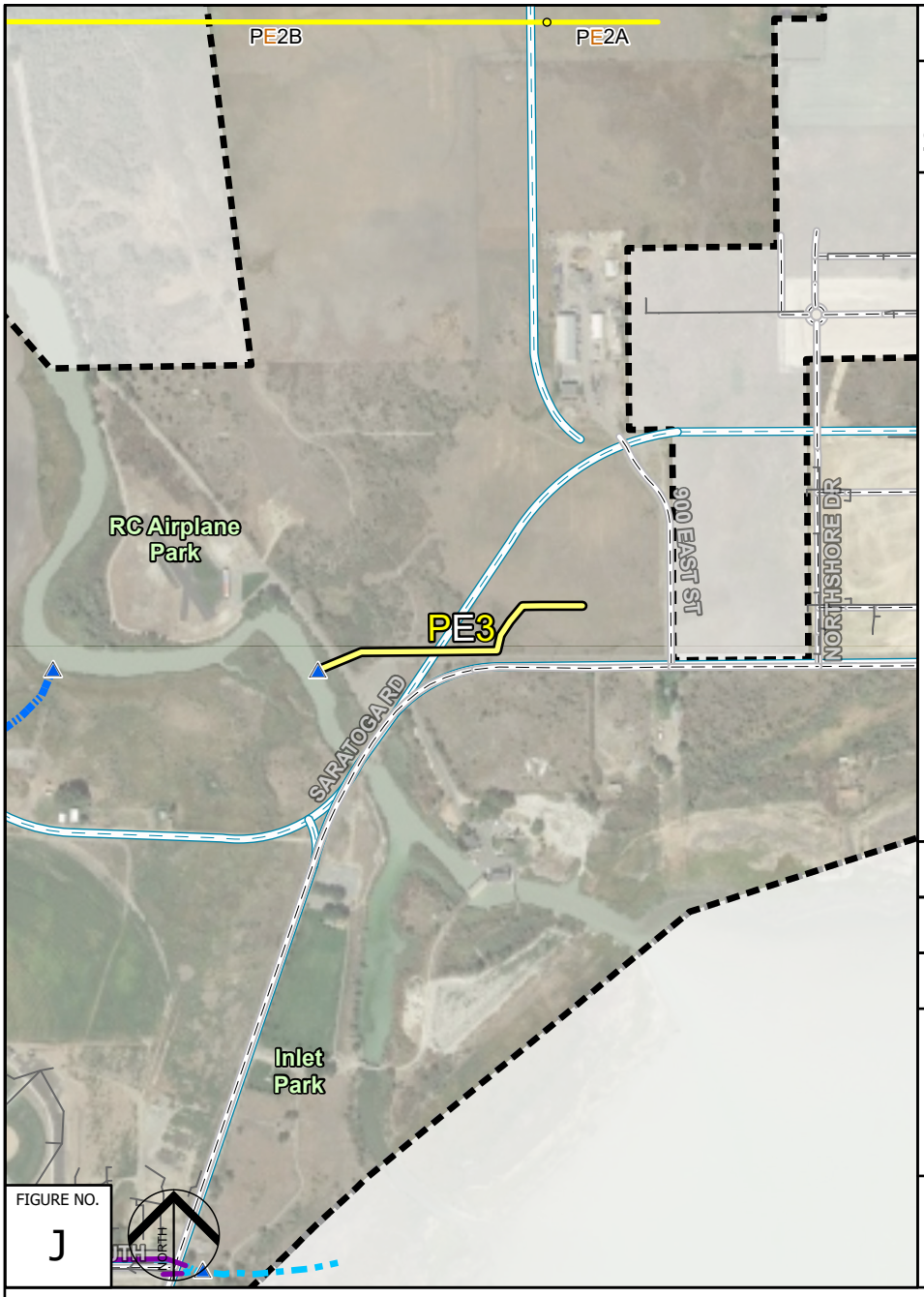
**Potential Consequences of Failing to Complete the Project:**
Future DBS1a and DBS1b will not have a way to be conveyed into the city system and will cause flooding and erosion downstream.

**Project Triggers:**
This project must be completed in conjunction with DBS1a and DBS1b.

**Project Timing:** This project is within the 10-year planning window (2021 - 2031).

# IMPROVEMENT PROJECT SUMMARY

Saratoga Springs




**Project ID:** PE3

**Project Name:**

Saratoga Road 6

**Project Description:**

New pipe for future development

**Project Components:**

| *Quantity* | *Size* | *Design Flow* |
|---|---|---|
| 1,311 LF | 30-inch | 27 cfs |

**Cost Estimate (2021 Dollars):**

$520,400

**Project Need:**

Install new pipe to provide capacity for future development in JR110, which is part of the Northshore development.

**Potential Consequences of Failing to Complete the Project:**

Future development in Northshore will not have a way to convey flow to an outfall.

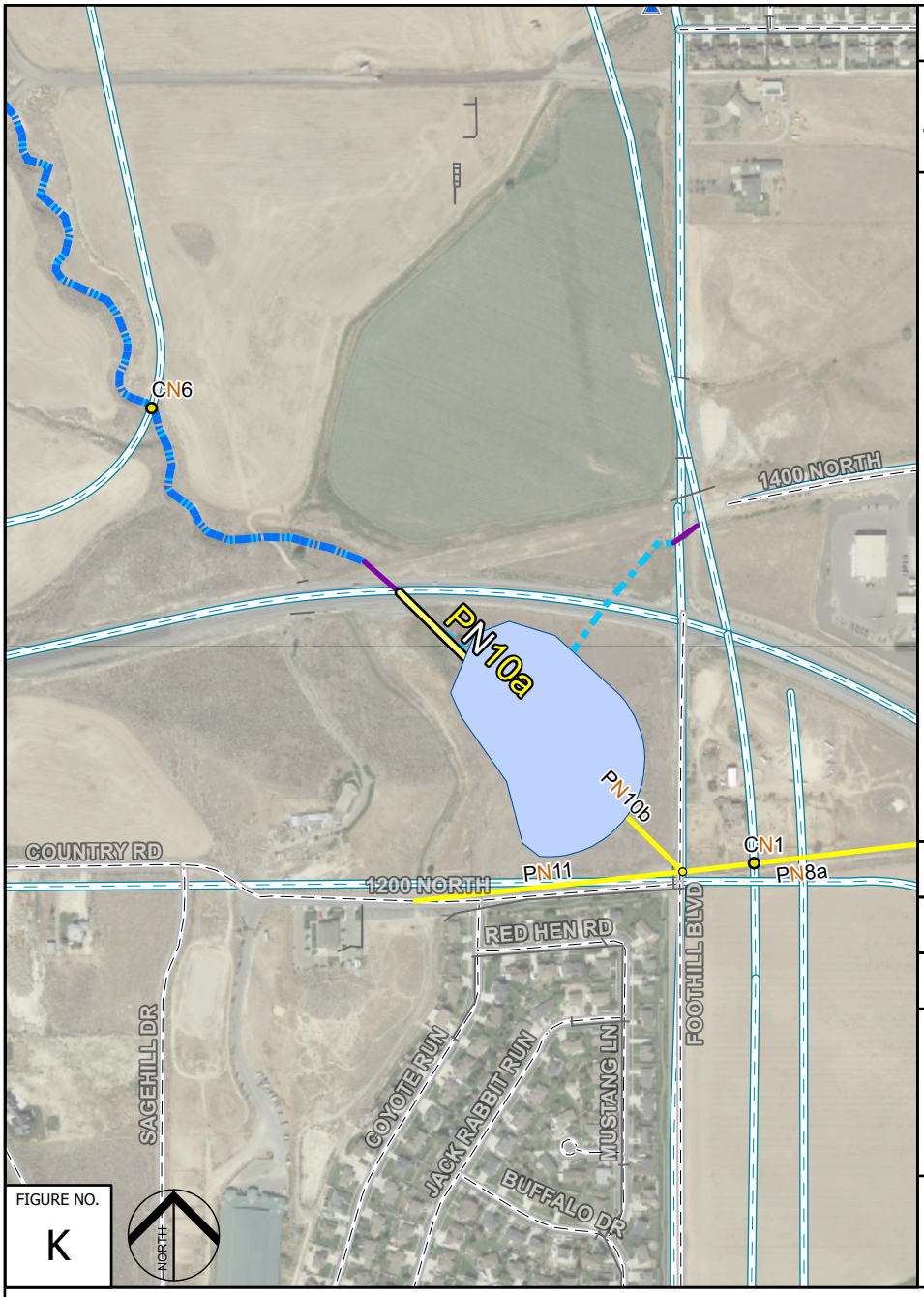
**Project Triggers:**

This project must be completed before (or at the time of) development construction in JR110.

**Project Timing:** This project is within the 10-year planning window (2021 - 2031).

# IMPROVEMENT PROJECT SUMMARY

Saratoga Springs




**Project ID:** PN10a

**Project Name:**

Wildflower Outlet

**Project Description:**

New pipe from Wildflower to Future Detention

**Project Components:**

| *Quantity* | *Size* | *Design Flow* |
|---|---|---|
| 726 LF | 84-inch | 285 cfs |

**Cost Estimate (2021 Dollars):**

$672,900

**Project Need:**

Install a pipe to convey flow from existing SR-73 crossing to future detention basin DN3. Note that this pipe must be sized to convey flow from the 100-year storm.

**Potential Consequences of Failing to Complete the Project:**

Flow from the Wildflower development will flood after passing under SR-73 and may cause problems near the existing acting detention basin or may cause flooding downstream near W 8350 N.

**Project Triggers:**

This project must be completed before (or at the time of) development construction in the Wildflower development and DN3.

**Project Timing:** This project is within the 10-year planning window (2021 - 2031).

# IMPROVEMENT PROJECT SUMMARY

Saratoga Springs

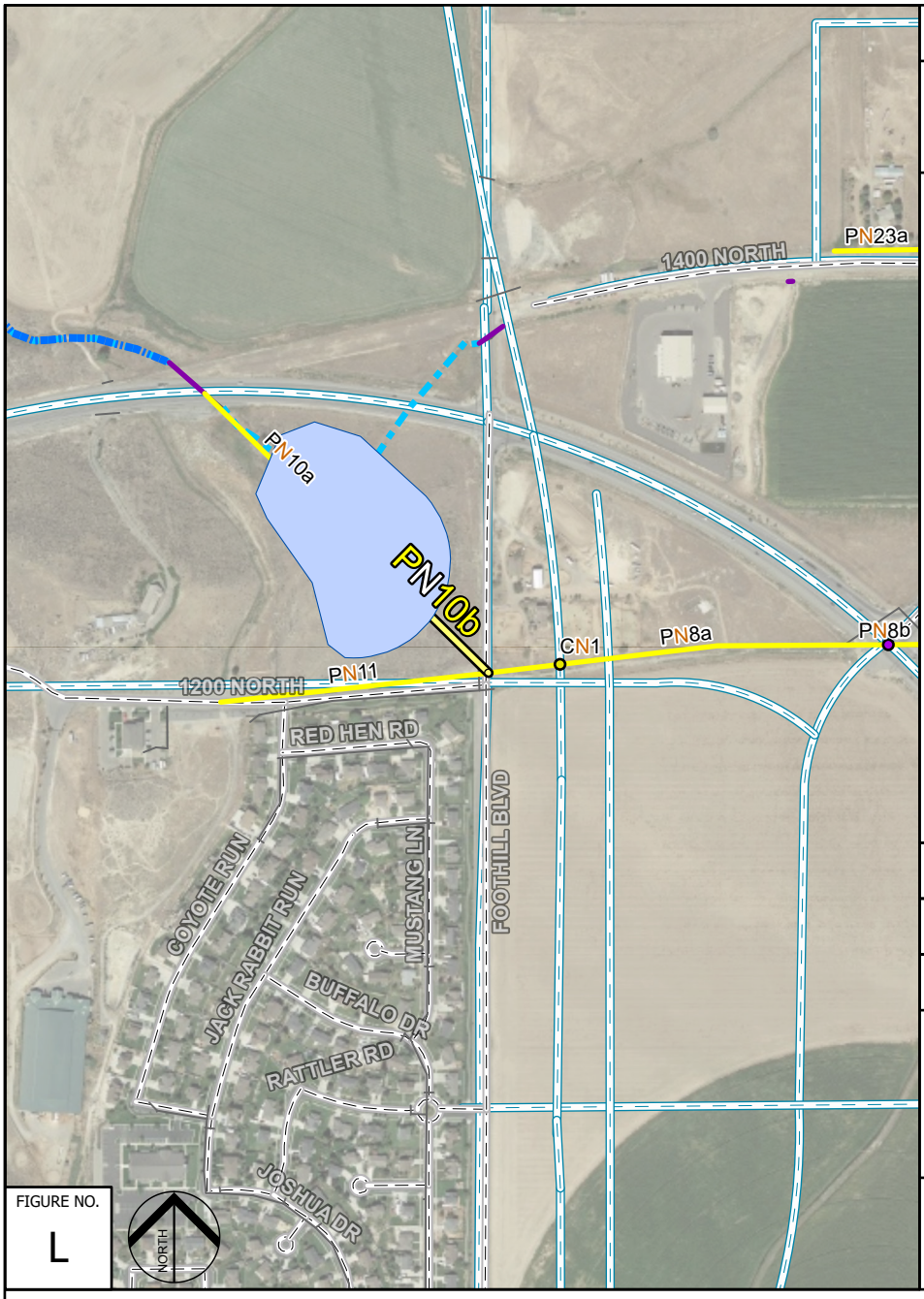



FIGURE NO. L

**Project ID:** PN10b

**Project Name:**

Pioneer Crossing (DN3 to 1200 N)

**Project Description:**

New pipe for future development

**Project Components:**

| *Quantity* | *Size* | *Design Flow* |
|---|---|---|
| 631 LF | 42-inch | 100 cfs |

**Cost Estimate (2021 Dollars):**

$288,400

**Project Need:**

Install a pipe to convey flow from future detention basin DN3 to the City system.

**Potential Consequences of Failing to Complete the Project:**

Flow from DN3 (and therefore the Wildflower development) will not have a way to get into the City system. flooding may occur near W 8350 N.

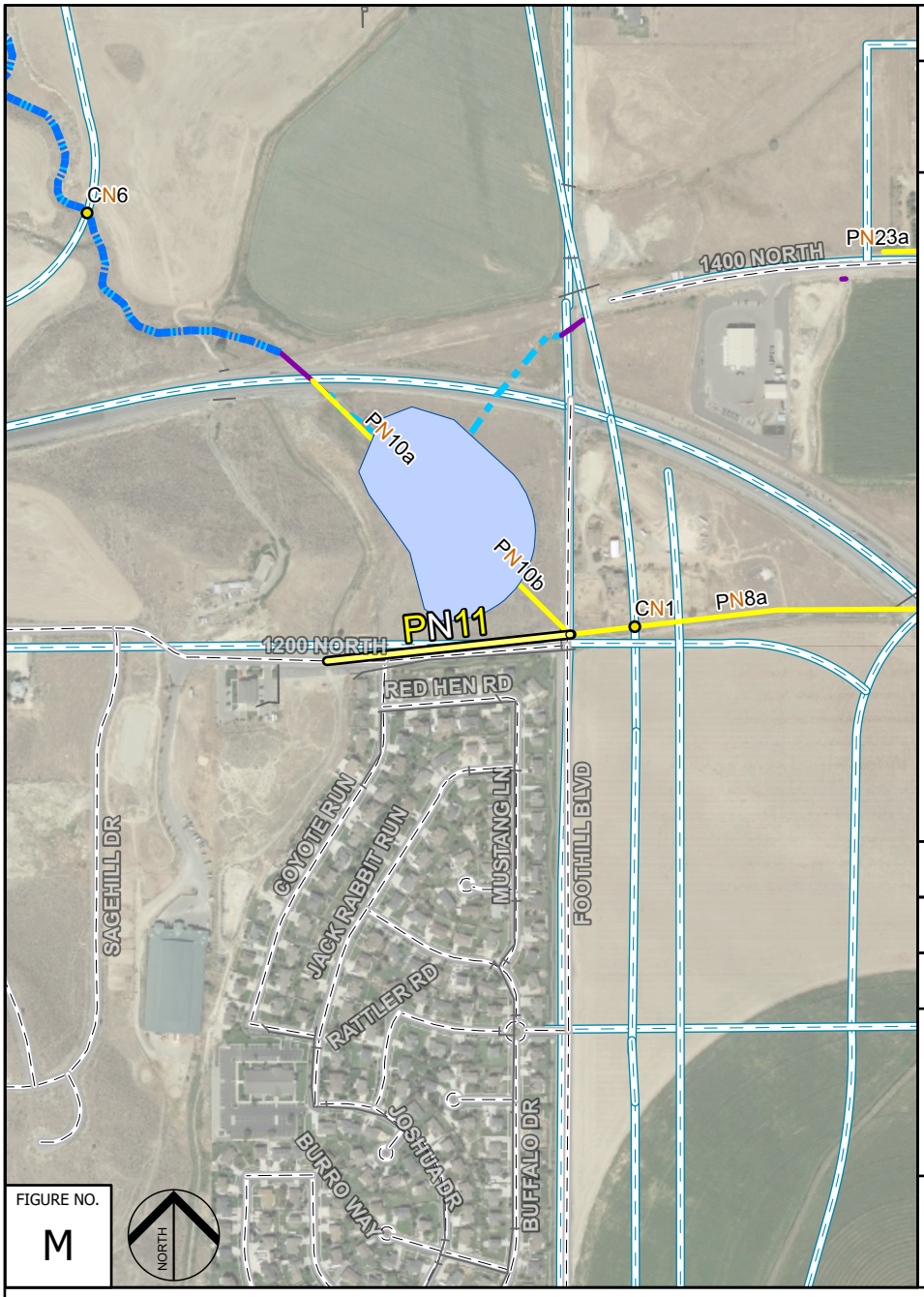
**Project Triggers:**

This project must be completed before (or at the time of) development construction in the Wildflower development and DN3.

**Project Timing:** This project is within the 10-year planning window (2021 - 2031).

# IMPROVEMENT PROJECT SUMMARY

Saratoga Springs




**Project ID:** PN11

**Project Name:**

1200 North 3

**Project Description:**

New pipe for future development

**Project Components:**

| *Quantity* | *Size* | *Design Flow* |
|---|---|---|
| 924 LF | 18-inch | 8 cfs |

**Cost Estimate (2021 Dollars):**

$163,600

**Project Need:**

Install new pipe to provide capacity for future development in PR030.

**Potential Consequences of Failing to Complete the Project:**

Future developments in PR030 will not have a way to convey flow to the City system and may cause flooding.

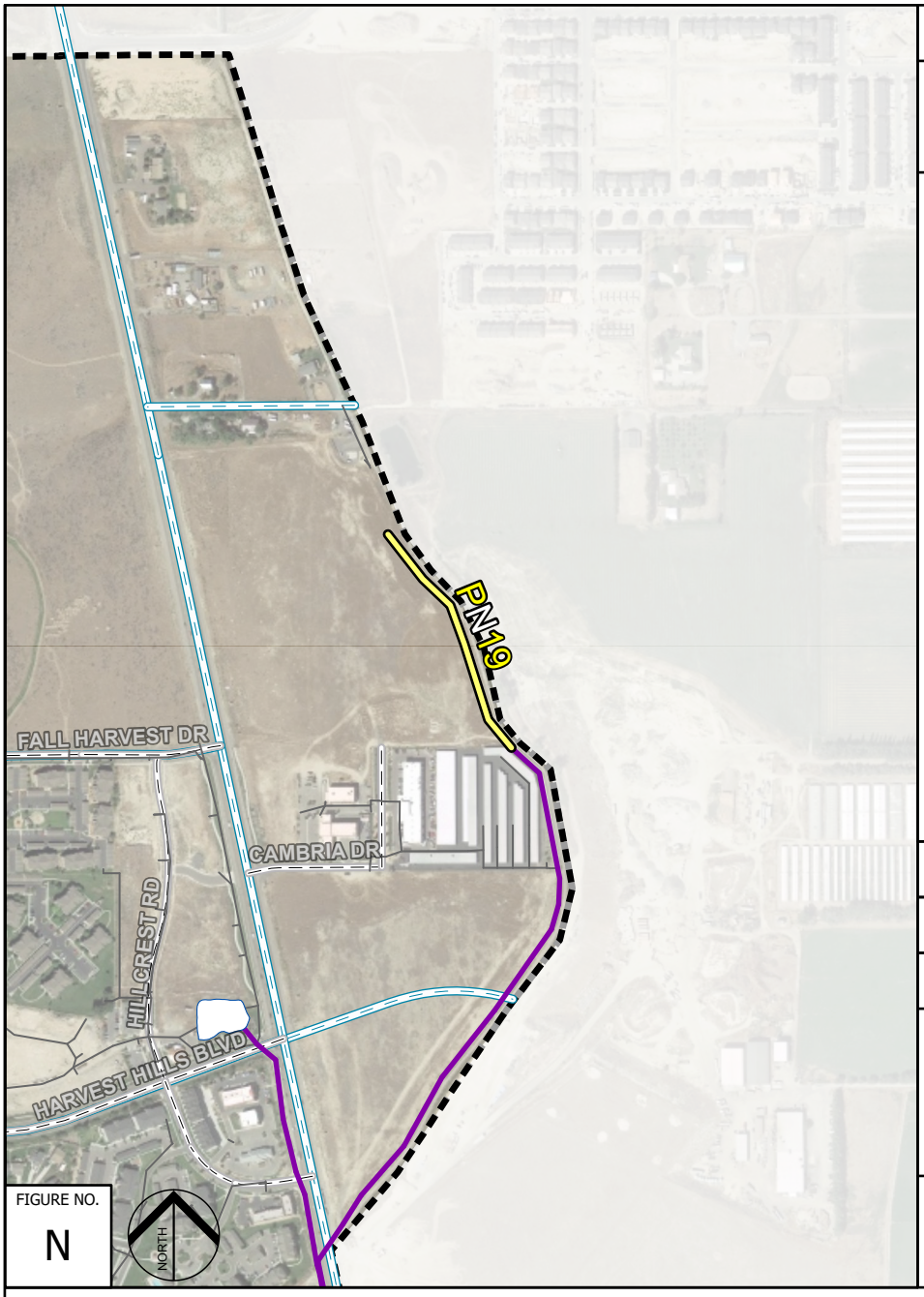
**Project Triggers:**

This project must be completed before (or at the time of) development construction in PR030 and the Wildflower area.

**Project Timing:** This project is within the 10-year planning window (2021 - 2031).

# IMPROVEMENT PROJECT SUMMARY

Saratoga Springs




**Project ID:** PN19

**Project Name:**

Extension of line near storage units

**Project Description:**

New pipe for future development

**Project Components:**

| *Quantity* | *Size* | *Design Flow* |
|---|---|---|
| 944 LF | 24-inch | 10 cfs |

**Cost Estimate (2021 Dollars):**

$324,900

**Project Need:**

Install new extention pipe near storage units to provide capacity for future developments in JR079 and JR081.

**Potential Consequences of Failing to Complete the Project:**

Future developments in JR079 and JR081 will not have a way to convey flow into the City system and will likely flood into the canal without permission.

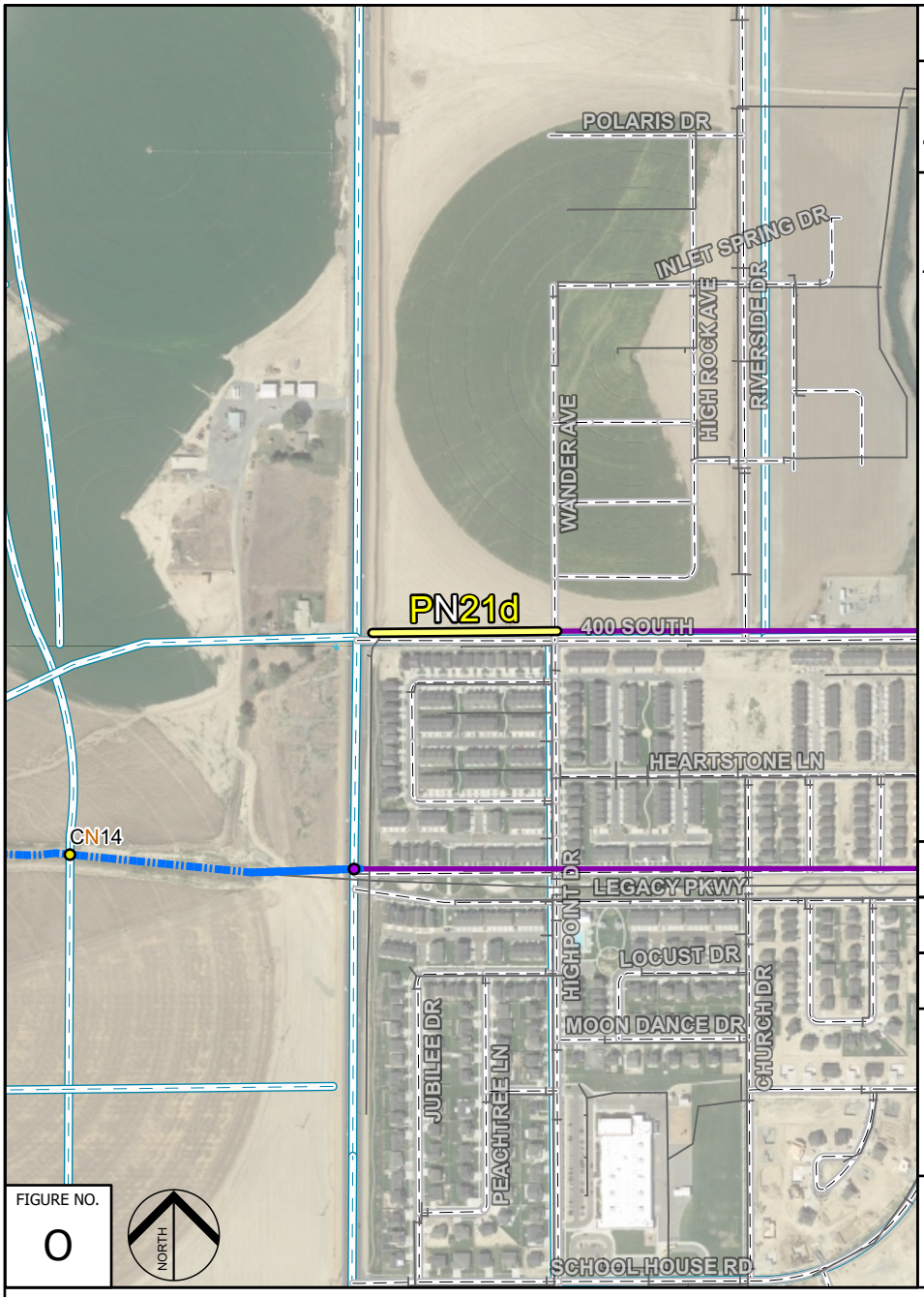
**Project Triggers:**

This project must be completed before (or at the time of) development construction in JR079 and JR081.

**Project Timing:** This project is within the 10-year planning window (2021 - 2031).

# IMPROVEMENT PROJECT SUMMARY

Saratoga Springs




**Project ID:** PN21d

**Project Name:**

400 South 4

**Project Description:**

New pipe in old canal alignment for new outfall to Utah Lake

**Project Components:**

| *Quantity* | *Size* | *Design Flow* |
|---|---|---|
| 698 LF | 36-inch | 76 cfs |

**Cost Estimate (2021 Dollars):**

$297,400

**Project Need:**

Install new pipe to provide capacity for future and existing development in TG010C and potentially JR010.

**Potential Consequences of Failing to Complete the Project:**

Pipes in Redwood Road near E 400 S will flood and flow will not be conveyed to the outfall. Additionally, JR010 will not be allowed to send flow to E 400 S and will be forced to send flow to Tickville at a lower release rate.

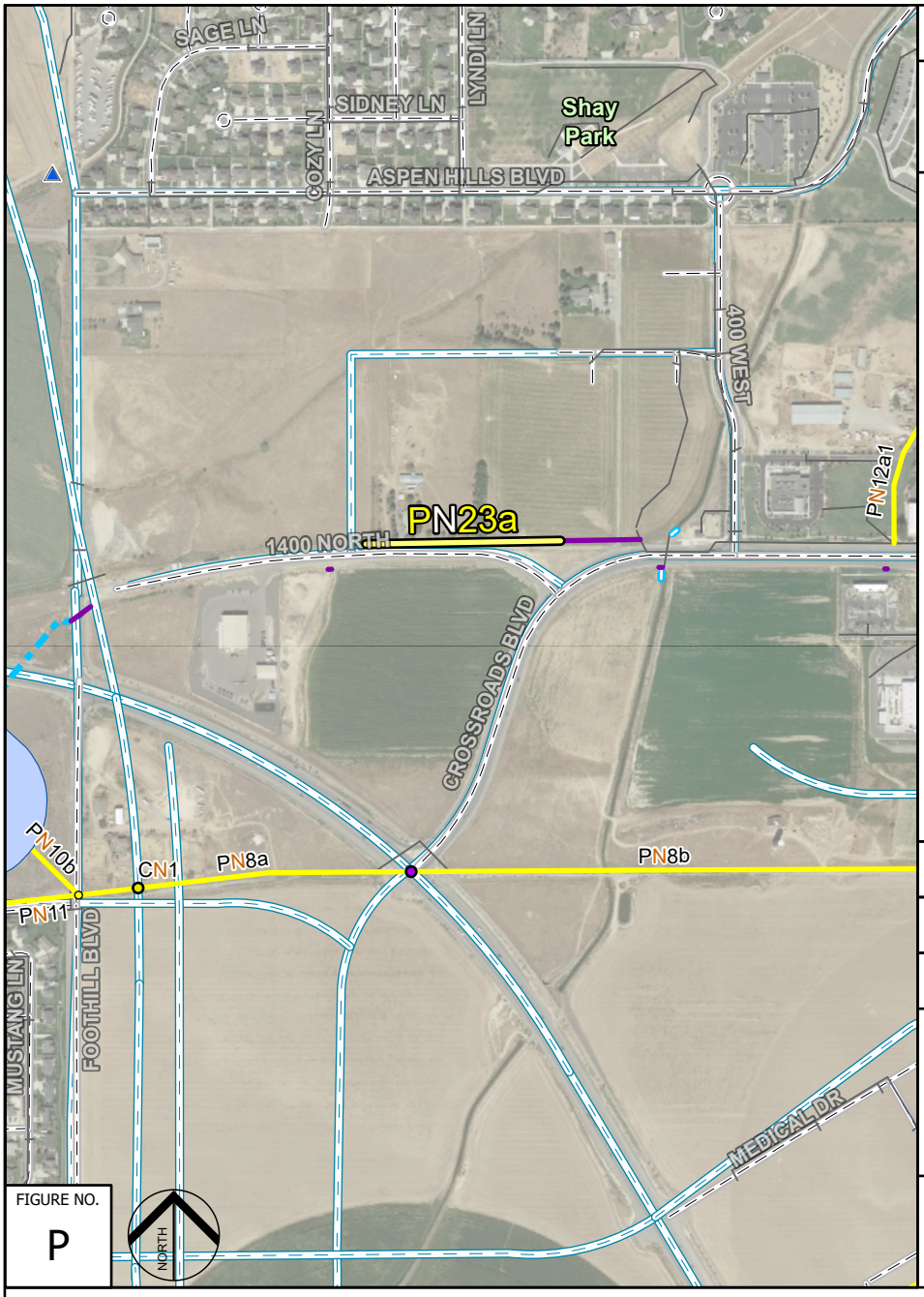
**Project Triggers:**

This project must be completed before development construction in JR010 and should be completed as soon as possible in order to convey flow from Redwood Road and E 400 S.

**Project Timing:** This project is within the 10-year planning window (2021 - 2031).

# IMPROVEMENT PROJECT SUMMARY

Saratoga Springs




**Project ID:** PN23a

**Project Name:**

1400 N Line Extension

**Project Description:**

New Pipe for Future Development

**Project Components:**

| *Quantity* | *Size* | *Design Flow* |
|---|---|---|
| 798 LF | 15-inch | 9.9 cfs |

**Cost Estimate (2021 Dollars):**

$239,700

**Project Need:**

Install new pipe extention on 1400 N to provide capacity for future development in JR069.

**Potential Consequences of Failing to Complete the Project:**

Future developments in JR069 will not have a way to convey flow to the City system and may cause flooding near W 1400 N.

**Project Triggers:**

This project must be completed before (or at the time of) development construction in the western portions of JR069.

**Project Timing:** This project is within the 10-year planning window (2021 - 2031).

# IMPROVEMENT PROJECT SUMMARY

Saratoga Springs

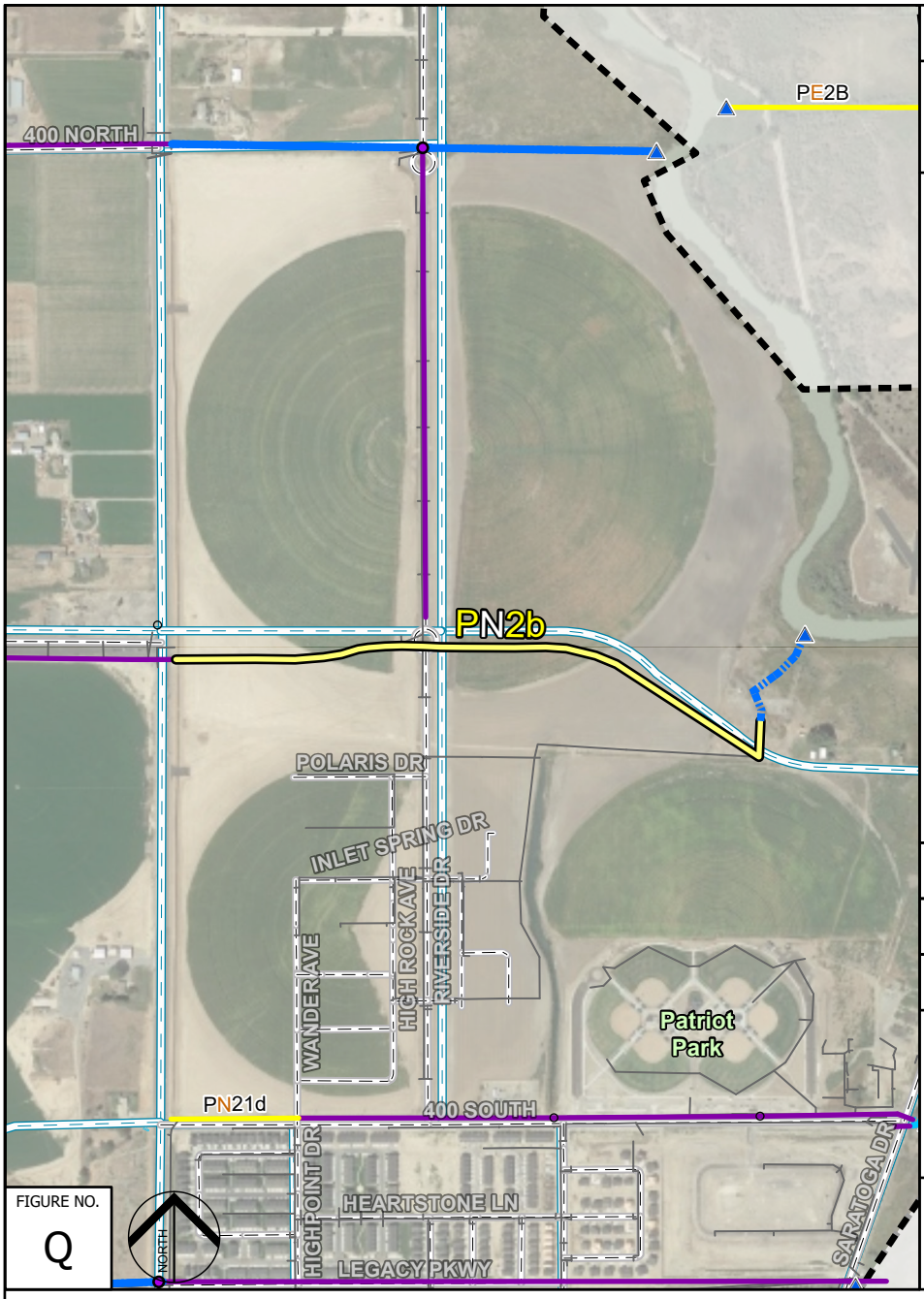



FIGURE NO. Q

**Project ID:** PN2b

**Project Name:**

Redwood Road & Pony Express Extension

**Project Description:**

New pipe for future and existing development

**Project Components:**

| *Quantity* | *Size* | *Design Flow* |
|---|---|---|
| 3,552 LF | 36-inch | 30 cfs |

**Cost Estimate (2021 Dollars):**

$869,800

**Project Need:**

Install new pipe to convey flow from Pony Express to the Jordan River; outfall to be shared with southern portions of Jordan Promenade.

**Potential Consequences of Failing to Complete the Project:**

Future and existing developments in JR022B will not have a way to convey flow to the City system and may cause flooding in the outfall JR022B is currently utilizing or in Pony Express.

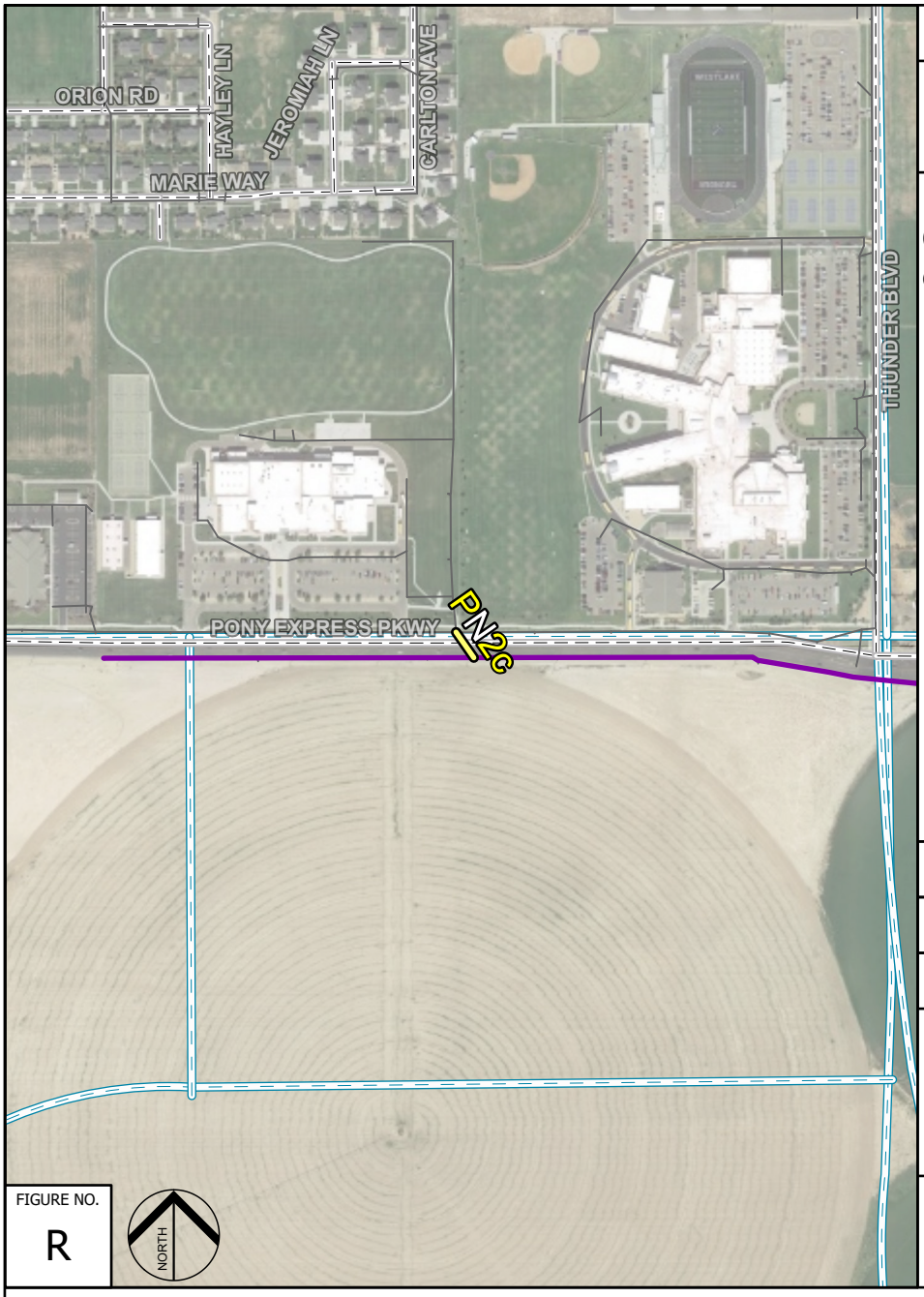
**Project Triggers:**

This project must be completed before JR022B sends flow to Pony Express. This project is currently in design and the engineer's (PEPG) cost estimate is reflected above.

**Project Timing:** This project is within the 10-year planning window (2021 - 2031).

# IMPROVEMENT PROJECT SUMMARY

Saratoga Springs




**Project ID:** PN2c

**Project Name:**

Pony Express Crossing

**Project Description:**

Connect existing infrastructure to existing PN2a

**Project Components:**

| *Quantity* | *Size* | *Design Flow* |
|---|---|---|
| 95 LF | 24-inch | 13 cfs |

**Cost Estimate (2021 Dollars):**

$40,800

**Project Need:**

Install new pipe to convey flow JR022B to existing project PN2a.

**Potential Consequences of Failing to Complete the Project:**

Future and existing developments in JR022B will not have a way to convey flow to the City system and may cause flooding in the outfall JR022B is currently utilizing or in Pony Express.

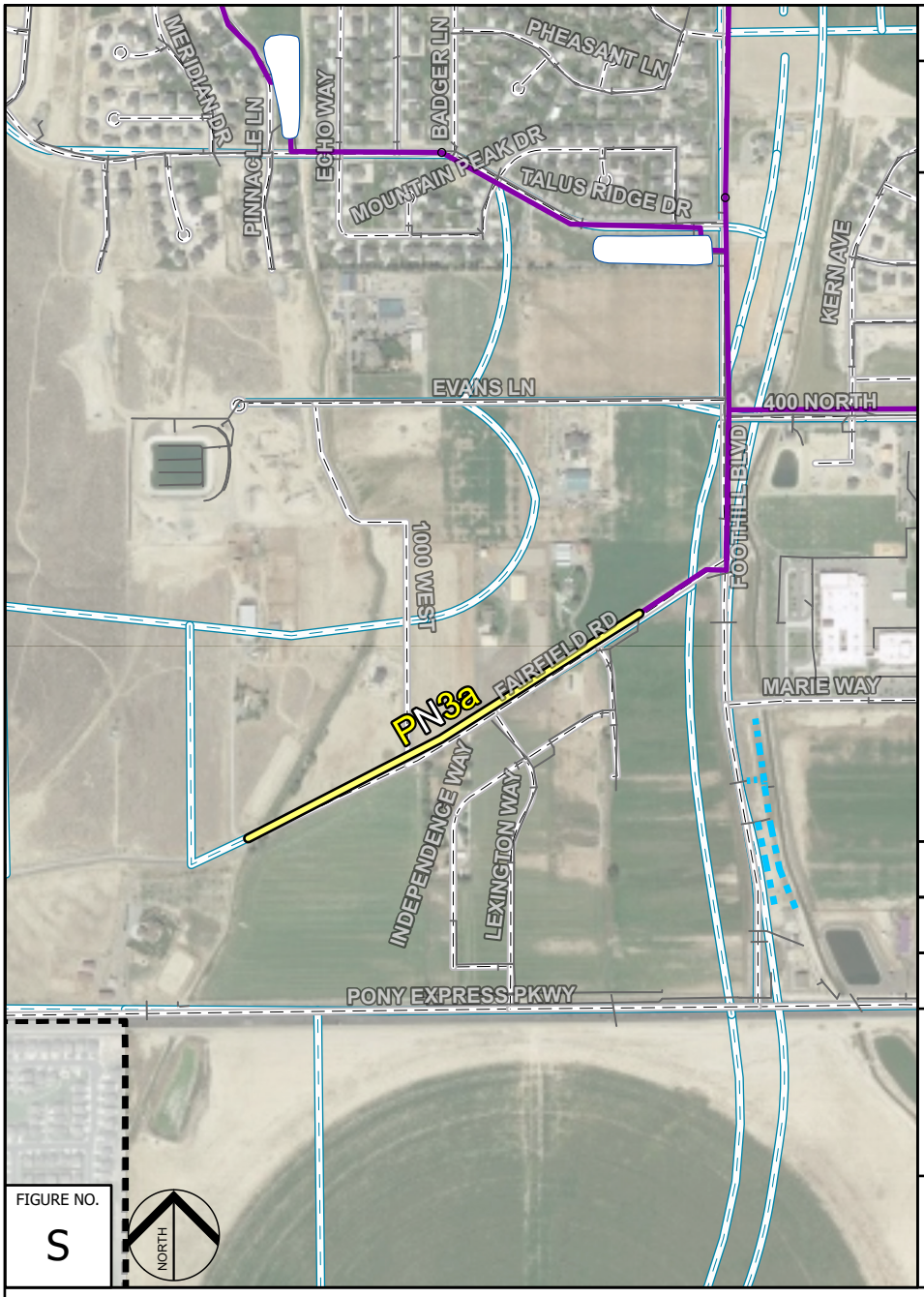
**Project Triggers:**

This project must be completed before JR022B sends flow to Pony Express.

**Project Timing:** This project is within the 10-year planning window (2021 - 2031).

# IMPROVEMENT PROJECT SUMMARY

Saratoga Springs




**Project ID:** PN3a

**Project Name:**

Fairfield Road

**Project Description:**

New pipe for future development

**Project Components:**

| *Quantity* | *Size* | *Design Flow* |
|---|---|---|
| 2,008 LF | 24-inch | 15 cfs |

**Cost Estimate (2021 Dollars):**

$716,000

**Project Need:**

Install new pipe to provide capacity for future development - Subbasin JR032C requires this project in order to drain to the City system.

**Potential Consequences of Failing to Complete the Project:**

Future developments in JR032C will not have a way to convey flow into the City system and consequently will not be able to develop.

**Project Triggers:**

This project must be completed before (or at the time of) development construction in JR032C.

**Project Timing:** This project is within the 10-year planning window (2021 - 2031).

# IMPROVEMENT PROJECT SUMMARY

Saratoga Springs

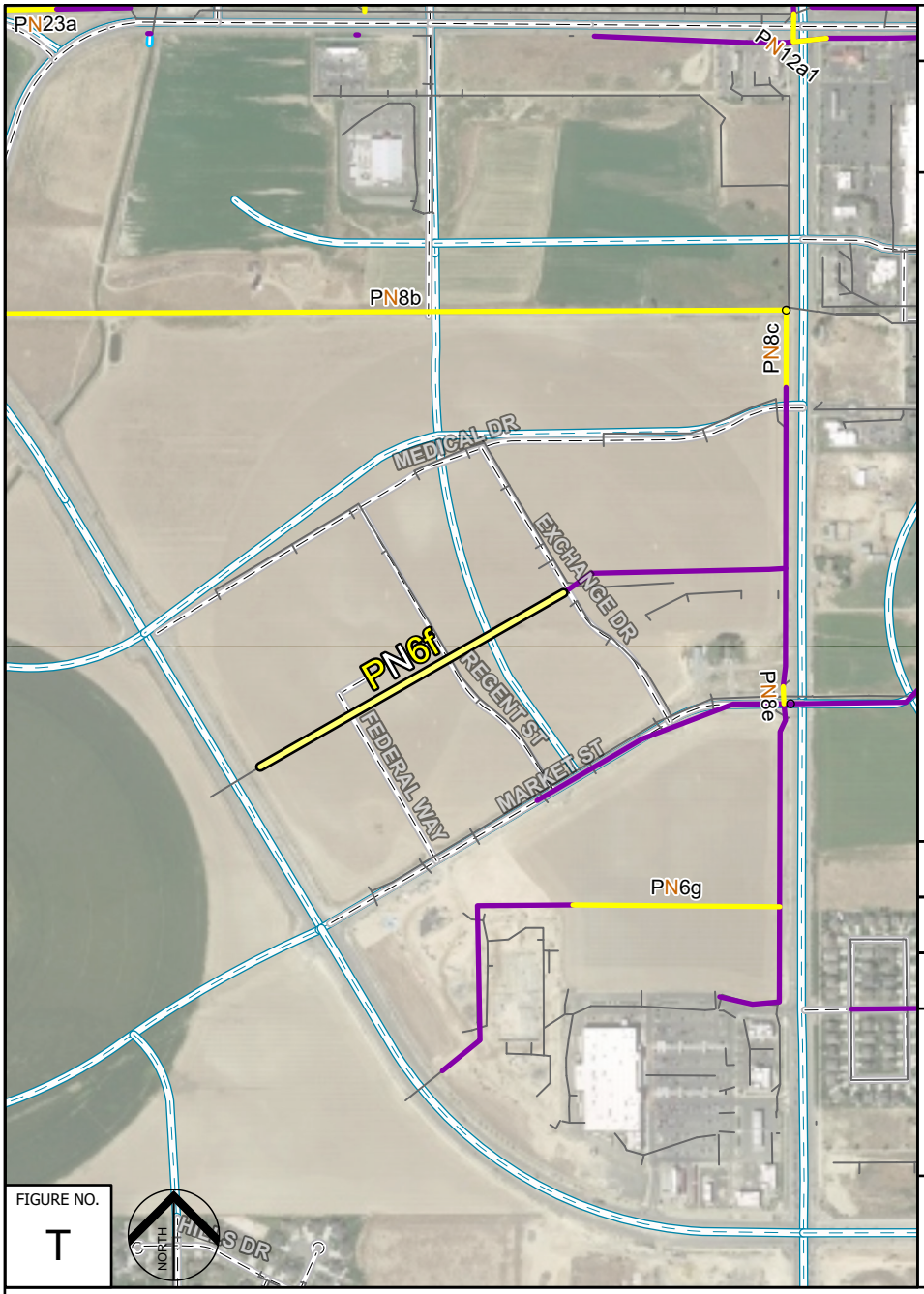



FIGURE NO.
T

**Project ID:** PN6f

**Project Name:**
Pioneer Crossing to Exchange Dr

**Project Description:**
Pipe for future development

**Project Components:**

| *Quantity* | *Size* | *Design Flow* |
|---|---|---|
| 1,544 LF | 24-inch | 19 cfs |

**Cost Estimate (2021 Dollars):**
$295,600

**Project Need:**
Install new pipe to provide capacity for future development in the Suburban Land Reserve area (subbasin JR063).

**Potential Consequences of Failing to Complete the Project:**
Future developments in the Suburban Land Reserve area will not have any way to convey flow to the City system and will flood into Pioneer Crossing.

**Project Triggers:**
This project must be completed prior to development construction in JR063; it is suggested that this project be constructed in conjunction with UofU medical center and other developments in JR094 and JR050 to minimize costs.

**Project Timing:** This project is within the 10-year planning window (2021 - 2031).

# IMPROVEMENT PROJECT SUMMARY

Saratoga Springs

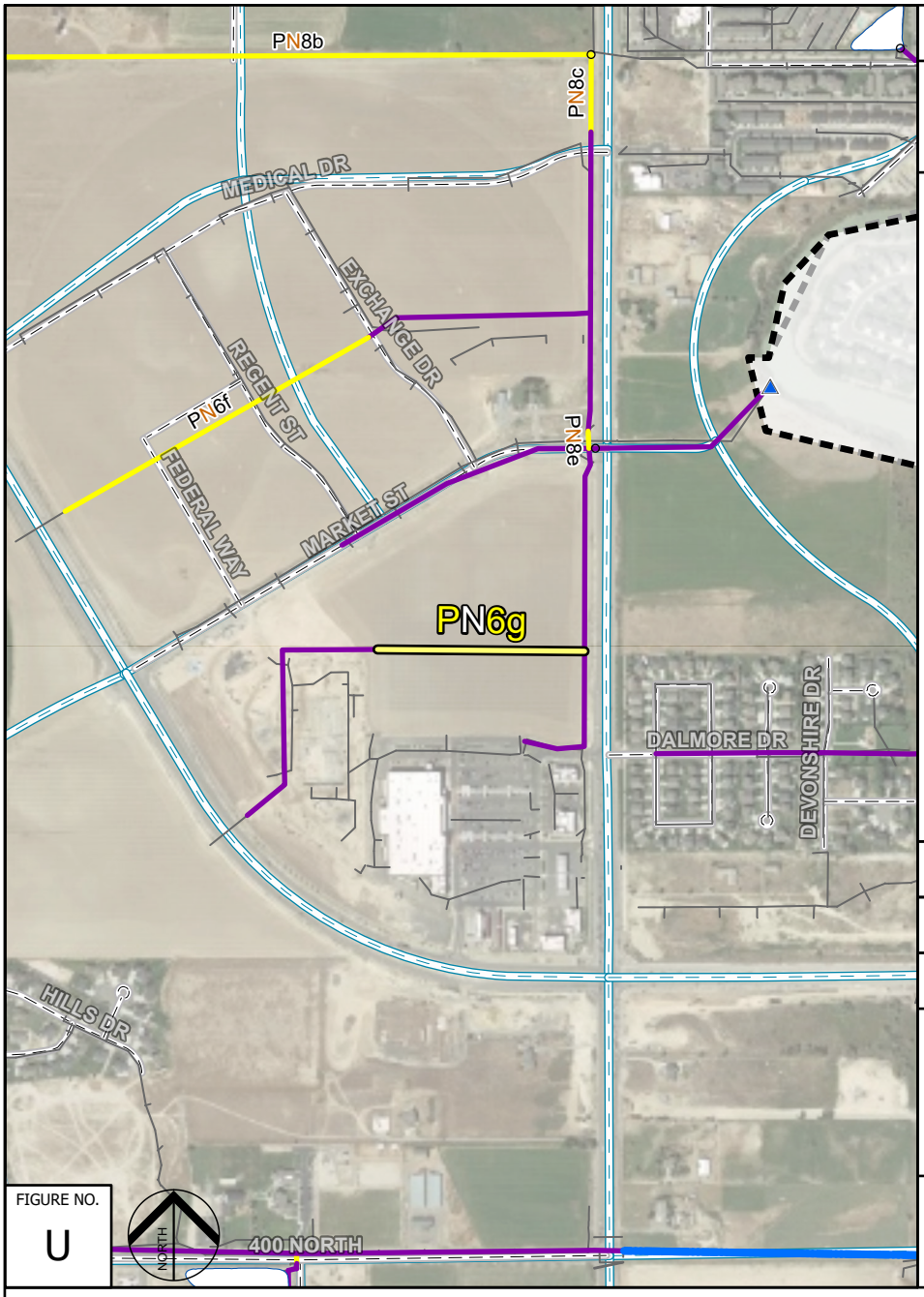



FIGURE NO. U

**Project ID:** PN6g

**Project Name:**

Market Street

**Project Description:**

New pipe for future development

**Project Components:**

| *Quantity* | *Size* | *Design Flow* |
|---|---|---|
| 920 LF | 24-inch | 15 cfs |

**Cost Estimate (2021 Dollars):**

$176,300

**Project Need:**

Install new pipe to provide capacity for future development in the Suburban Land Reserve area (subbasin JR030).

**Potential Consequences of Failing to Complete the Project:**

Future developments in the Suburban Land Reserve area will not have a way to convey flow to the City system and will flood into JR095.

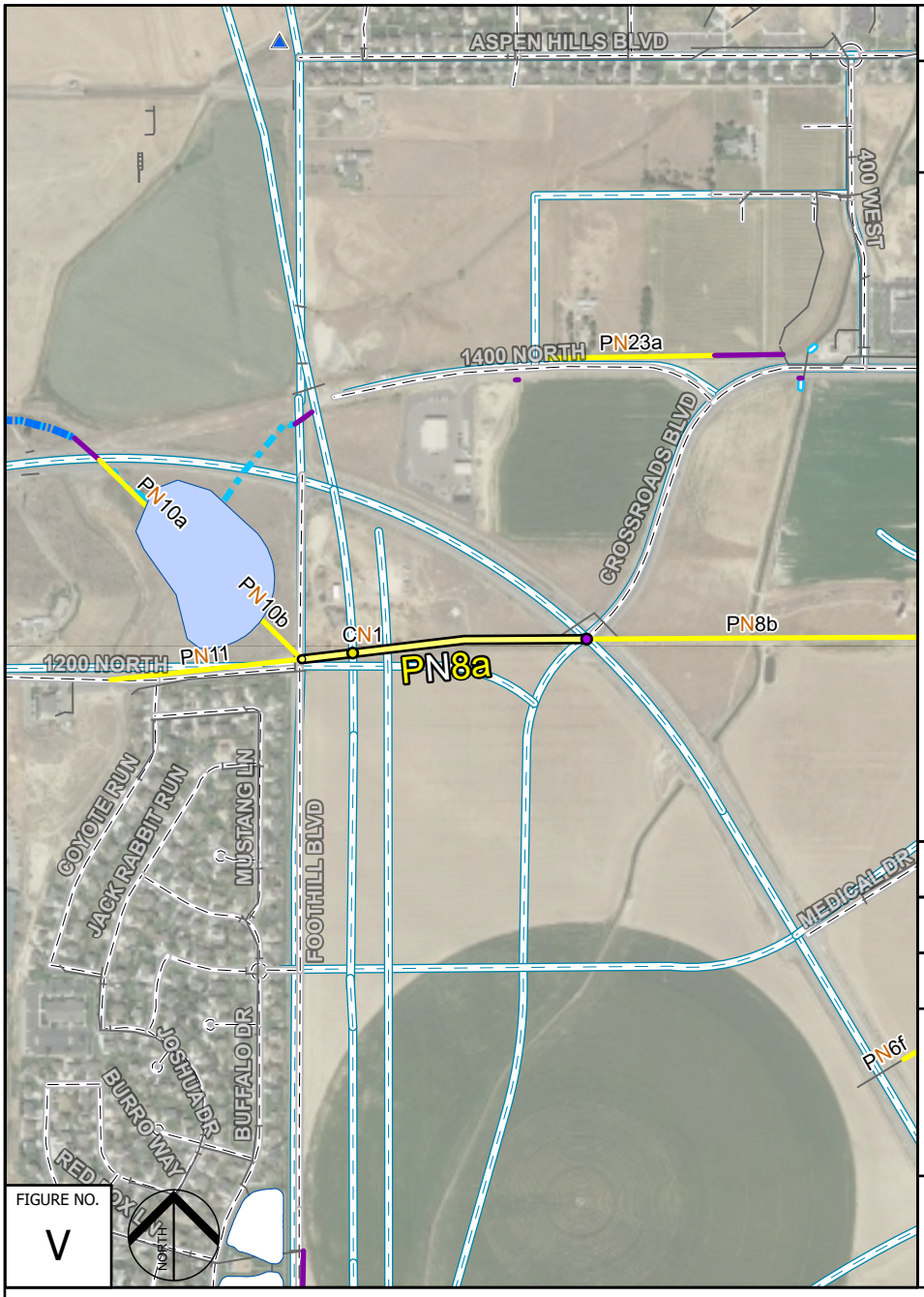
**Project Triggers:**

This project must be completed before (or at the time of) development construction in JR030.

**Project Timing:** This project is within the 10-year planning window (2021 - 2031).

# IMPROVEMENT PROJECT SUMMARY

Saratoga Springs




**Project ID:** PN8a

**Project Name:**

1200 N 1

**Project Description:**

New pipe for future development

**Project Components:**

| *Quantity* | *Size* | *Design Flow* |
|---|---|---|
| 1,371 LF | 42-inch | 116 cfs |

**Cost Estimate (2021 Dollars):**

$674,700

**Project Need:**

Install new pipe to provide capacity for future development in PR030 and the Wildflower development.

**Potential Consequences of Failing to Complete the Project:**

Future developments in PR030 and the Wildflower area will not have a way to convey flow to the City system and may cause flooding.

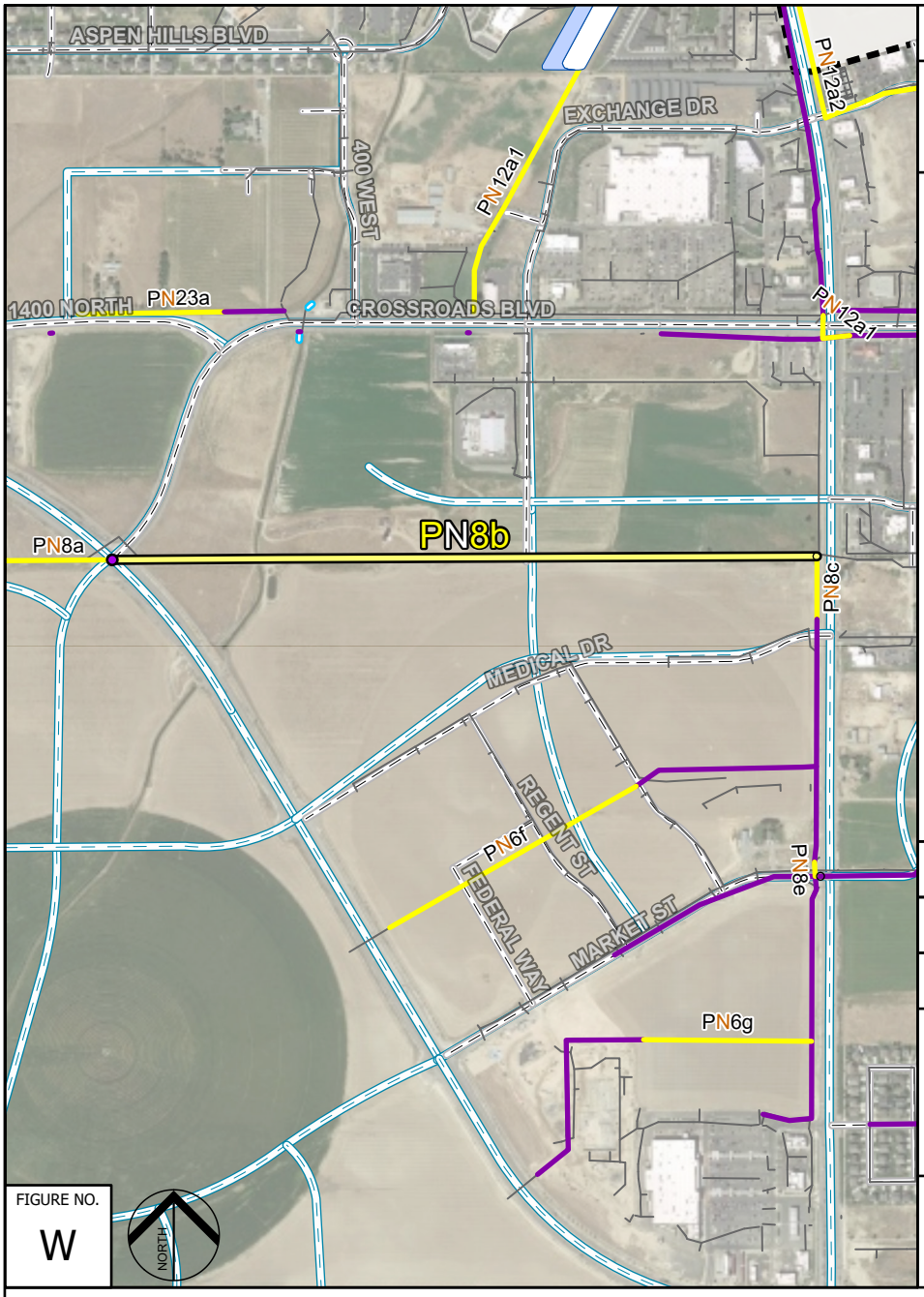
**Project Triggers:**

This project must be completed before (or at the time of) development construction in PR030 and the Wildflower area. It may be beneficial to construct this project in conjunction with development construction in JR065.

**Project Timing:** This project is within the 10-year planning window (2021 - 2031).

# IMPROVEMENT PROJECT SUMMARY

Saratoga Springs




**Project ID:** PN8b

**Project Name:**

1200 N 2

**Project Description:**

New pipe for future development

**Project Components:**

| *Quantity* | *Size* | *Design Flow* |
|---|---|---|
| 3,858 LF | 42-inch | 131 cfs |

**Cost Estimate (2021 Dollars):**

$1,270,800

**Project Need:**

Install new pipe to provide capacity to upstream areas, including JR065 and the Wildflower development.

**Potential Consequences of Failing to Complete the Project:**

Future upstream developments will not have a way to convey flow into the City system and will flood near W 8350 N.

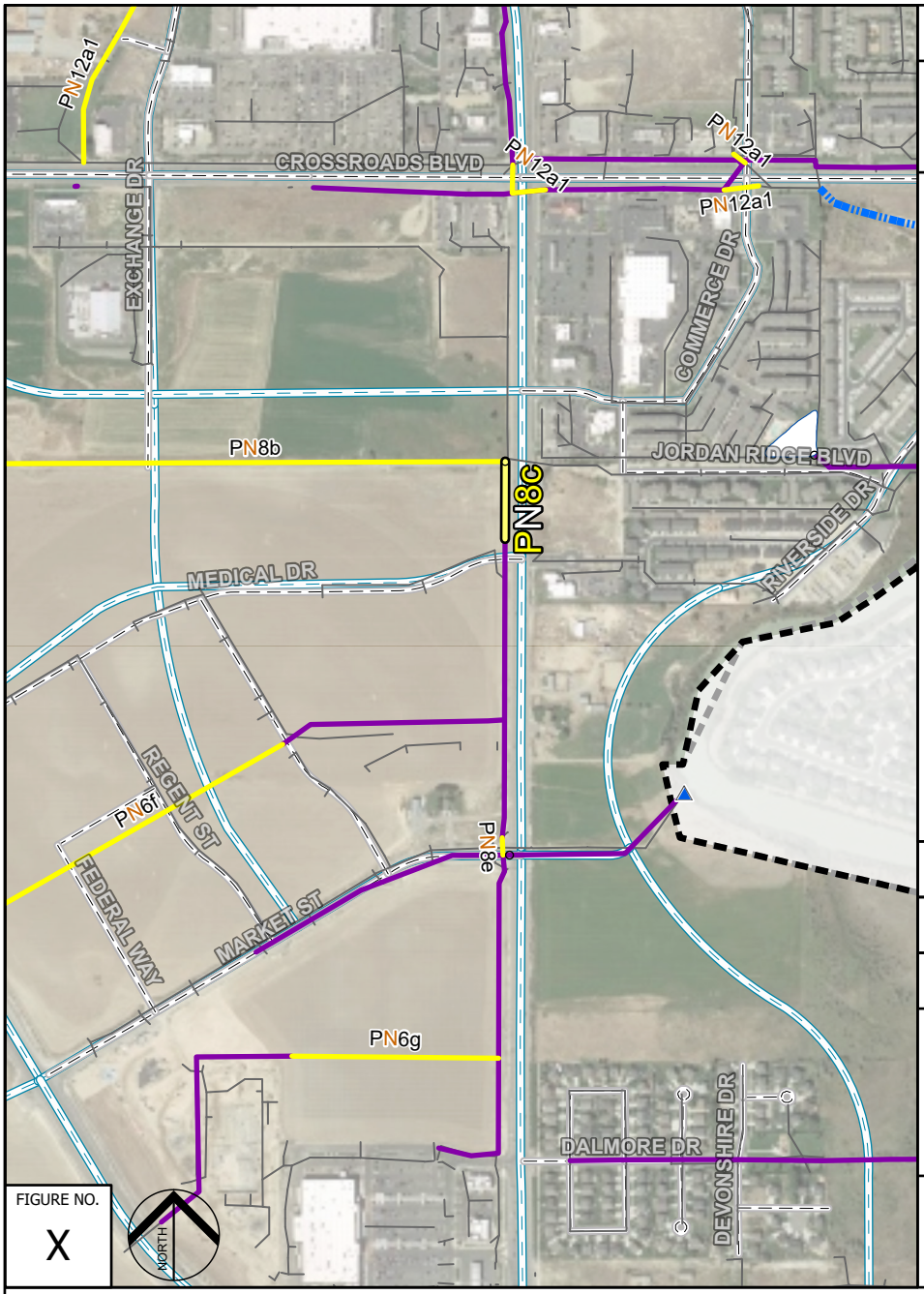
**Project Triggers:**

This project must be completed before (or at the time of) development in JR065 and must be completed before PN8a, PN11, and PN10 (which services Wildflower).

**Project Timing:** This project is within the 10-year planning window (2021 - 2031).

# IMPROVEMENT PROJECT SUMMARY

Saratoga Springs




**Project ID:** PN8c

**Project Name:**

Redwood Rd. (1200 N to Market)

**Project Description:**

New pipe for future development

**Project Components:**

| *Quantity* | *Size* | *Design Flow* |
|---|---|---|
| 343 LF | 48-inch | 140 cfs |

**Cost Estimate (2021 Dollars):**

$211,200

**Project Need:**

Install new pipe to provide capacity for future development in PR030, Wildflower development, JR065, and other upstream basins.

**Potential Consequences of Failing to Complete the Project:**

Future developments in PR030, the Wildflower area, JR065, and other upstream areas will not have a way to convey flow to the City system and may cause flooding.

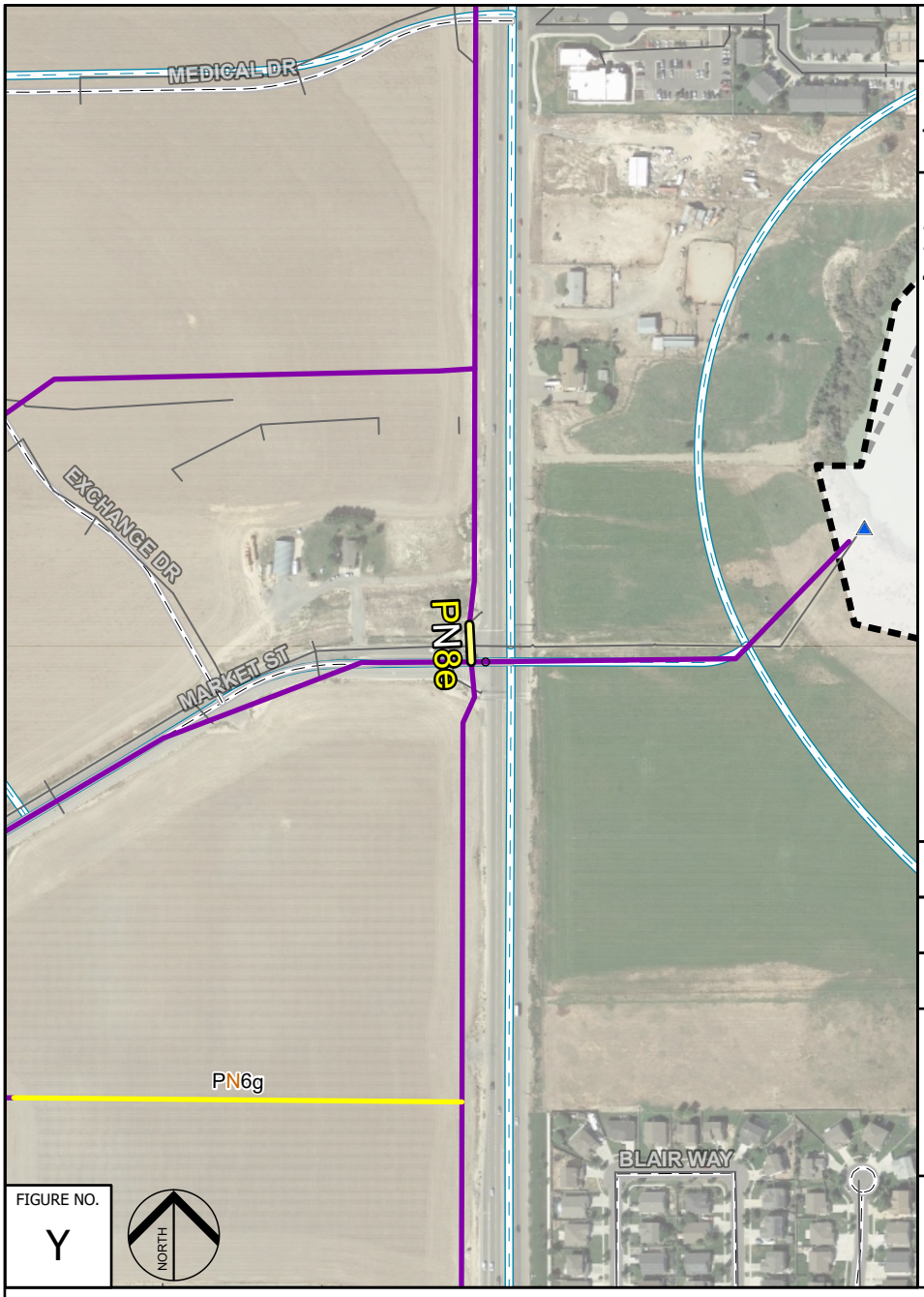
**Project Triggers:**

This project must be completed before (or at the time of) development construction in PR030 and the Wildflower area. It may be beneficial to construct this project in conjunction with development construction in JR093.

**Project Timing:** This project is within the 10-year planning window (2021 - 2031).

# IMPROVEMENT PROJECT SUMMARY

Saratoga Springs




**Project ID:** PN8e

**Project Name:**

The Crossing Outfall

**Project Description:**

Incease existing 30-inch pipe to a 48-inch pipe

**Project Components:**

| *Quantity* | *Size* | *Design Flow* |
|---|---|---|
| 76 LF | 48-inch | 170 cfs |

**Cost Estimate (2021 Dollars):**

$40,300

**Project Need:**

Increase size of existing pipe to provide capacity for future and existing development, including areas from Market Street to the Wildflower Development.

**Potential Consequences of Failing to Complete the Project:**

As areas to the south and west develop and send flow into the existing pipe, flooding will occur at the corner of Market Street and Redwood and may cause surcharging/flooding to the south.

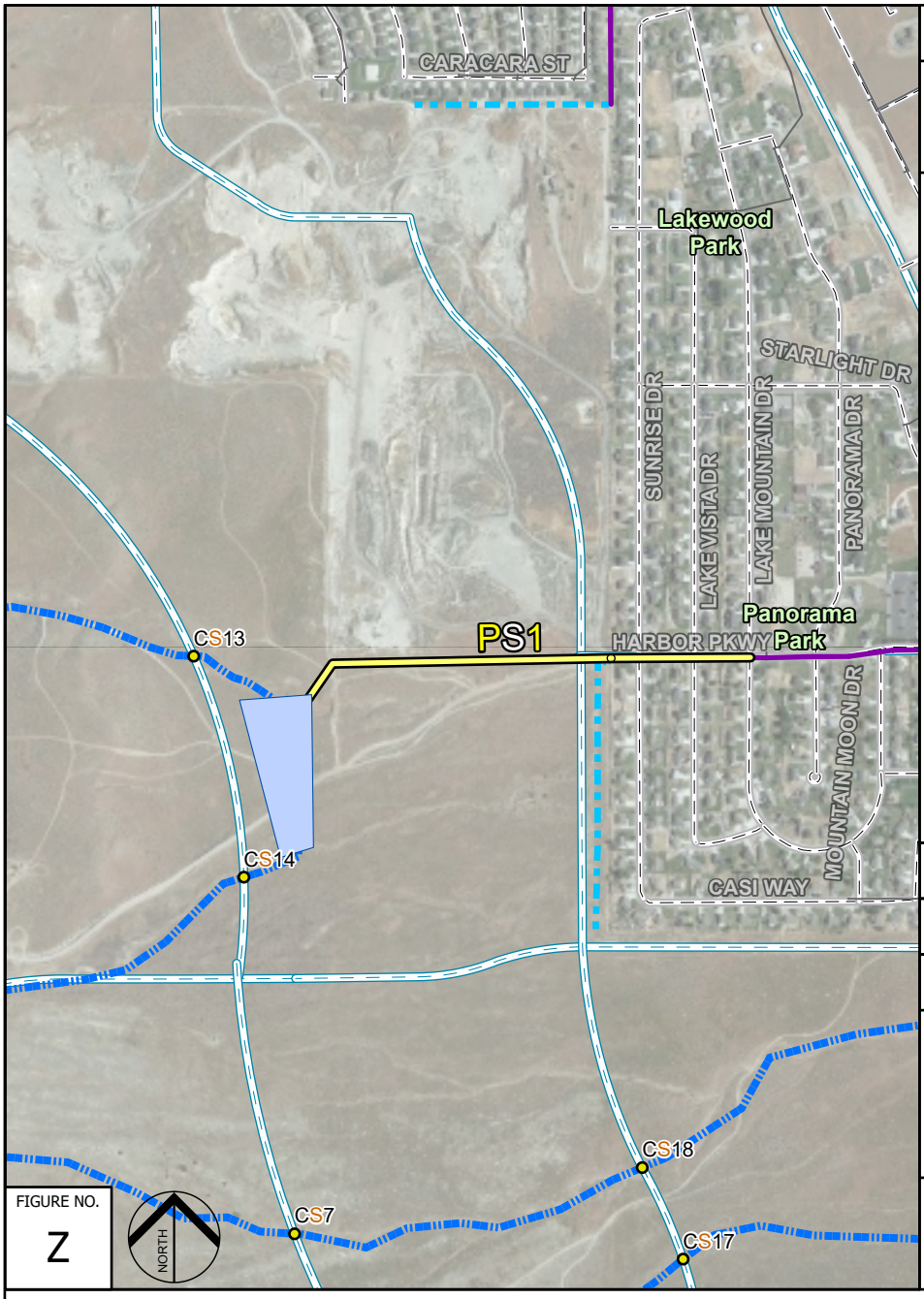
**Project Triggers:**

This project must be completed prior to buildout condition to the north; it is suggested that this project be constructed in conjunction with The Village to minimize costs.

**Project Timing:** This project is within the 10-year planning window (2021 - 2031).

# IMPROVEMENT PROJECT SUMMARY

Saratoga Springs




**Project ID:** PS1*

**Project Name:**

Harbor Parkway Basin Outfall

**Project Description:**

Pipe to connect discharge from Harbor Parkway basin to City System and upsize existing system

**Project Components:**

| *Quantity* | *Size* | *Design Flow* |
|---|---|---|
| 2,178 LF | 24-inch | 34 cfs |

**Cost Estimate (2021 Dollars):**

$775,700

**Project Need:**

Install a new pipe to convey flow from future detention/debris basin DS1 to existing pipes in E Harbor Parkway and upsize existing 15-inch pipe in Harbor Parkway. See Harbor Parkway Drainage Memo (12/28/2020) for more information.

**Potential Consequences of Failing to Complete the Project:**

Flows from DS1 (and potential overflow from future irrigation pond) will not have a way to be conveyed to the overland flow route on Harbor Parkway.

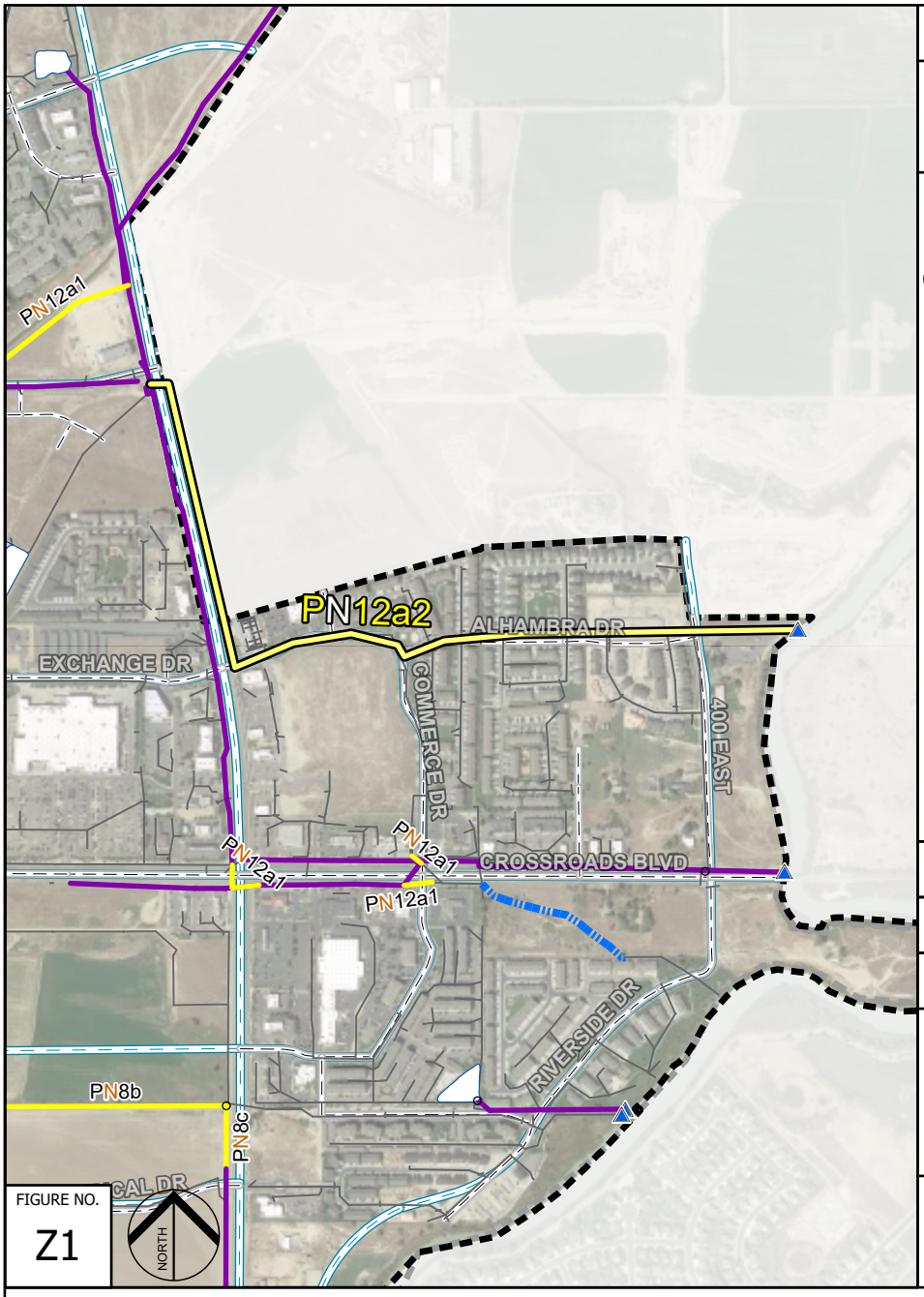
**Project Triggers:**

This project is currently in design and is being partially funded via a grant from NRCS. The cost estimate shown does not subtract any funds provided by the grant.

**Project Timing:** This project is within the 10-year planning window (2021 - 2031).

# IMPROVEMENT PROJECT SUMMARY

Saratoga Springs




**Project ID:** PN12alt2

**Project Name:**

Harvest Hills to Jordan River

**Project Description:**

New pipe to provide additional outfall to Jordan River

**Project Components:**

| *Quantity* | *Size* | *Design Flow* |
|---|---|---|
| 4,862 LF | 36-inch | 60 cfs |

**Cost Estimate (2021 Dollars):**

$1,749,000

**Project Need:**

Install a new outfall to convey some flow from existing pipe on N Redwood Road.

**Potential Consequences of Failing to Complete the Project:**

The existing outfall from N Redwood Road to W 8750 N will run out of capacity and flood.

**Project Triggers:**

This project must be completed before (or at the time of) development construction in JR079, JR081, and JR082.

**Project Timing:** This project is within the 10-year planning window (2021 - 2031).

# IMPROVEMENT PROJECT SUMMARY

Saratoga Springs

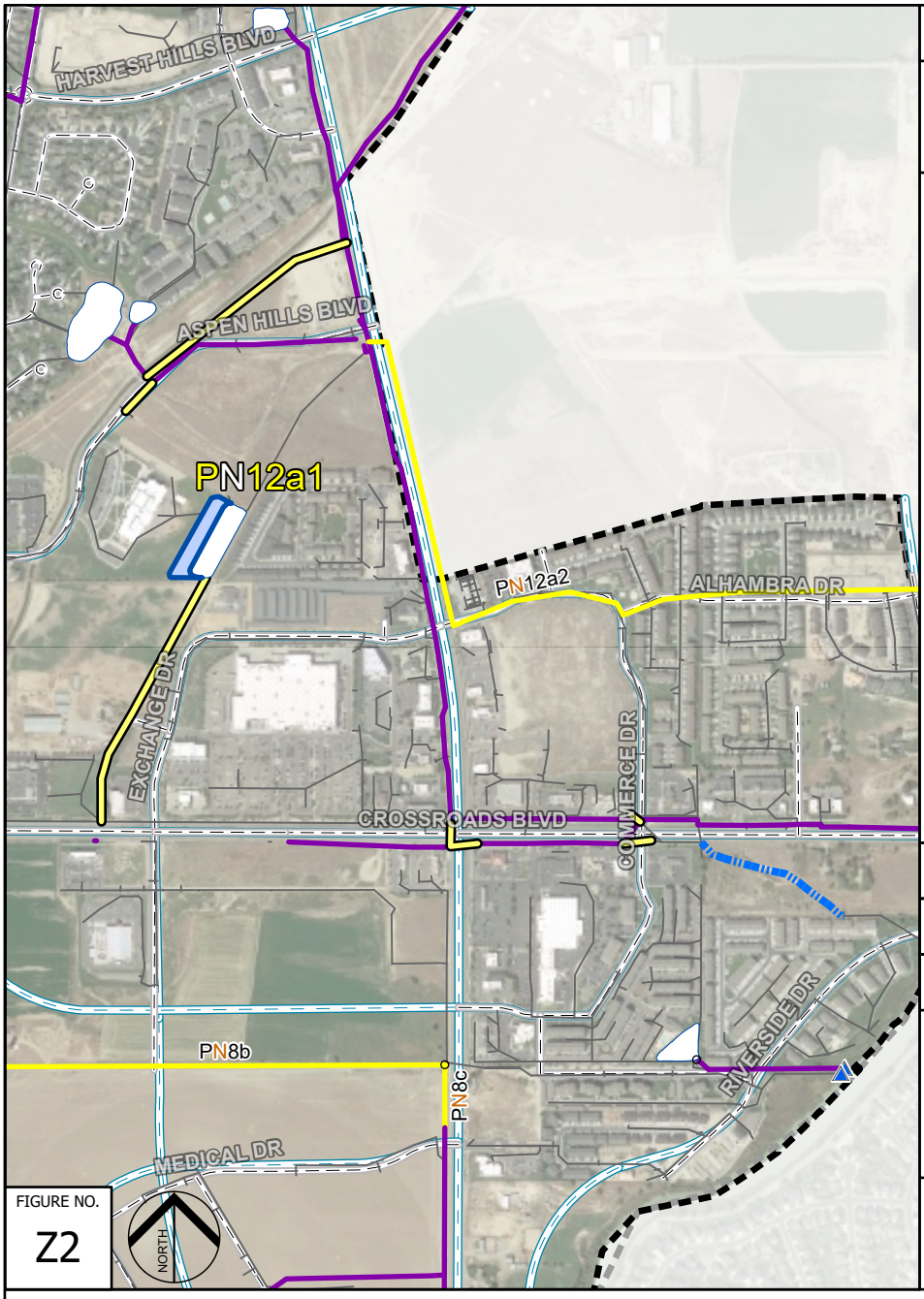



FIGURE NO.
Z2

**Project ID:** PN12alt1

**Project Name:**

Alternative to PN12

**Project Description:**
New pipe for future development. Project components are not listed as this project is an alternative to project PN12.

**Project Components:**

| *Quantity* | *Size* | *Design Flow* |
|---|---|---|
| 0 | 0- | 0 |

**Cost Estimate (2021 Dollars):**

N/A

**Project Need:**
This project is an alternative to project PN12. Additional analysis is needed to determine which project is to be completed. Install a series of new pipes and extend existing school basin to provide capacity for upstream developments.

**Potential Consequences of Failing to Complete the Project:**
This project (or PN12) must be completed to keep the existing outfall on Crossroads BLVD from flooding and potentially damaging people and property

**Project Triggers:**
This project (or PN12) must be completed prior to development construction at the North end of Redwood Road

**Project Timing:** This project is within the 10-year planning window (2021 - 2031).

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