MEMORANDUM

To: **Steve Nicaise**

From: **Nasir Raza**

Date: **January 15, 2020**

Subject: **I-69 – US 41 TO US 60 – Canoe Creek Impacts – Hydrology & Hydraulic Concept Design Summary**

The purpose of this memo is to document impacts to the North Fork Canoe Creek floodplain, between US 41 and US 60, that would result from construction of Central Alternative 1[1]. This involves the requisite hydrologic/hydraulic analyses to prepare a concept level drainage/mitigation design for the proposed I-69 and associated improvements for US 41 and US 60. The analysis is based on the hydrologic (HMS) and hydraulic (HEC-RAS) models approved by the Federal Emergency Management Agency (FEMA) for the Flood Insurance Study (FIS) of Henderson County, Kentucky dated September 29, 2017.

The purpose of concept level drainage design is to recommend proposed culverts/bridges, a regional drainage channel, a regional detention basin and to confirm the construction cost estimates for the recommended Central Alternative 1 alignment for I-69. The primary purpose of the proposed regional channel, along the south side of I-69 between US 41 and US 60, is to intercept and convey flows that cross the proposed I-69 and associated interchanges within the project limits. The regional detention basin serves to reduce peak flows as they cross Kimsey Lane and US 41, thereby reducing proposed structures sizes for the proposed I-69 roadway and ramps at the I-69 / US 41 interchange. It also limits flows downstream of US 41, where flooding has been an occasional, but longstanding concern. Two regional detention basin concepts are presented: a) ultimate detention basin size for greater reduction of flows downstream and b) interim regional detention basin for mitigating any increased flows due to the proposed I-69 and associated improvements as well as to provide some reduction of flows downstream. These major drainage features achieve the goal of complying with Federal Emergency Management Agency (FEMA) regulations with regards to prevention of adverse impacts during the 100-year flood event.

[1] Central Alternatives 1A and 1B as described in the DEIS are physically the same alternative. The only difference between them is that Central Alternative 1A would include tolls on both the new I-69 bridge and on the US 41 bridge. Central Alternative 1B would only include tolls on the new I-69 bridge. Any reference in this document to Central Alternative 1 applies to both Central Alternative 1A and Central Alternative 1B.

Task Description

Central Alternative 1 begins at existing I-69 in Indiana, approximately 1 mile east of the US 41 interchange. The alternative would continue south across the Ohio River just west of a gas transmission line. It would remain just west of the gas transmission line near the Green River State Forest, then turn southwest where an access road for the gas transmission line would bridge over the alternative. The alternative would continue south to US 60 where an interchange would be provided. As part of the US 60 interchange, US 60 would be relocated approximately 400 feet south, which would require a new bridge over the CSX Railroad east of the interchange. The alternative would continue southwest and tie into to US 41 via an interchange approximately 2 miles south of the US 60 interchange. From the alternative's interchange with US 41 to KY 425, the existing four-lane US 41 would be modernized to meet interstate standards through improvements to ramps and merge areas. Central Alternative 1 would parallel North Fork Canoe Creek to the north, intersecting with several tributaries. The alignment would also impact the stream's floodplain in the area near the US 60 and US 41 interchanges.

Available ArcGIS spatial data was used during the hydrologic and hydraulic analysis and concept design process. This data includes the following:

- Indiana and Kentucky government boundaries
- Indiana and Kentucky aerial photography
- FEMA GIS stream & floodplain data for Indiana and Kentucky
- FEMA FIS 21101CV000A & 21101CV000B dated September 29, 2017
- U.S. Geological Survey (USGS) GIS data (Hydrologic Unit Code [HUC] & Streamstats)
- National Land Cover Database (NLCD)
- USGS National Hydrography Dataset
- Natural Resources Conservation Service (NRCS) soil surveys and GIS datasets
- Project specific LiDAR Digital Elevation Model (DEM) and contour mapping obtained from internet site http://kygeonet.maps.arcgis.com/home/webmap/viewer.html?webmap=b5ff91df6309491090c20333c8f58f52; according to the website the web map provides access to LiDAR point cloud data tiles for the Commonwealth of Kentucky. This data was used to create the 5-foot DEM. The DEM was created in August 30, 2016 and updated on April 30, 2018.

Field survey was done to obtain information on existing roadway, culverts/bridges and channel sections at Kimsey Lane, US 41, CSX Railroad and North Fork Canoe Creek within the project limits.

Hydrology

The basis for the North Fork Canoe Creek hydrology is the US Army Corps of Engineers' (USACE) HMS model that was developed for the effective Henderson County, Kentucky FEMA FIS dated September 29, 2017. Significant features of the FEMA FIS HMS model include the following (also refer to Exhibits 1-3):

1. Use of National Oceanic and Atmospheric Administration (NOAA) Atlas 14 precipitation for the 2-, 10-, 50-, 100- and 500-year frequency storm events; the NOAA 14 precipitation values in the HMS model were verified.
2. Use of NRCS Runoff Curve Number (RCN) to estimate runoff losses.
3. Use of NRCS TR 55 method to estimate time of concentration.
4. Use of Clark storage coefficient; no documentation was found regarding how the Clark coefficient values were estimated in the FEMA FIS HMS model.
5. Use of Elevation-Storage-Discharge tables to enter effect of existing storage areas such as the impoundment upstream of US 41 and US 60 as these highways are significantly higher above adjacent ground.

Please note that backup documentation for the FEMA FIS HMS model was not available.

Parsons Existing Condition HMS model includes the following modifications to the FEMA FIS HMS model (refer to Exhibits 1-3):

1. RCNs for all areas contributing runoff to Canoe Creek within project limits were modified/verified based on land use images and photos from Google Earth Pro and hydrologic groups from recent soil data on the NRCS website. Refer to Exhibits 2A and 2C.
2. Time of concentration values were recalculated for all drainage areas described above based on contour mapping and land use images and photos from Google Earth Pro. Refer to Exhibit 2. Please note that the pixilated and jagged lines used for Time of Concentration flow path in the FEMA FIS GIS shape files was giving unreasonably longer and incorrect distances in the FEMA FIS HMS model.
3. Clark storage coefficient values were estimated for all drainage areas described above. Guidance for estimate of the Clark storage coefficient was obtained from the *Final Report on Determination of Unit Hydrograph Parameters for Indiana Watersheds* by Jared Wilkerson and Venkatesh Merwade dated September 2010; the southern region parameters were used as they are in the vicinity of the project watershed.
4. Drainage areas 1 and 2, north of the existing railroad, were split into 1A, 1B, 2A and 2B so that design flows could be obtained at specific locations across proposed I-69. The more detailed delineations for areas 1A, 1B, 2A and 2B required minor changes to Area 4 as well. Refer to Exhibit 2A.

5. The storage area upstream of US 41 was modified, based on the project contour mapping. The updated storage area is different than in the FEMA FIS HMS model. The storage area upstream of Kimsey Lane was eliminated as it is included within the storage area upstream of US 41. Refer to Exhibit 3. Discharges at US 41 were estimated based on the HEC-RAS analysis of flows at different elevations. In this regard, the 2-, 10-, 50-, 100- and 500-year flows and corresponding water surface elevations were interpolated to obtain flows at the same elevations where storage volumes were computed. Consequently, updated stage-storage-discharge tables were prepared and input within the HEC HMS model.
6. Drainage area 20 was included with the drainage areas (east of railroad) that contribute to the flows at the North Fork Canoe Creek/railroad crossing as there is the main railroad bridge for Canoe Creek but also two overflow railroad bridges further south. Refer to Exhibit 9 for location of the bridges.
7. Split flow was modeled at the North Fork Canoe Creek/railroad crossing. A portion of the flow crosses to the east through the three railroad bridges. However, a significant portion of the flow remains east of the railroad and flows to the south to equalize through culverts/bridges at Kimsey Lane. Refer to Exhibit 9 for location of the bridges/culverts. Although, all backwater hydraulic modeling for the project has been done in GeoHEC-RAS, this split/diversion flow was modeled in HEC-RAS version 4.0 as this software better models lateral flows. HEC-RAS used the flows generated by the HEC HMS model to apportion flows crossing through the railroad bridges and the flow remaining east of the railroad and flowing south to Kimsey Lane. A conservative assumption was made that tailwater for the Railroad bridges is based on the flow from the east side of the railroad only. After a HEC-RAS lateral flow analysis was conducted upstream of the Railroad bridges, the resulting reduced flows were input within the original GeoHEC-RAS model after appropriate adjustments through a spreadsheet. The flows west of the railroad were added back into the flows exiting the railroad bridges. Please refer to Appendices A and B for these analyses.

   Note: At Kimsey Lane and downstream, the flows from the east and west sides of the railroad combine and therefore downstream flows (south of Kimsey Lane) are the same as estimated by the HEC HMS model.

Parsons' Proposed Condition HMS model includes a proposed regional channel along the east side of the proposed I-69 for interception and conveyance of offsite flows generated in drainage areas north and west of the proposed I-69 and associated interchanges at Highways 41 and 60. The proposed regional channel discharges into the proposed regional detention basin upstream/northeast of Kimsey Lane (refer to Exhibits 1-4). The proposed "eight point" regional drainage channel consists of a low flow channel with a bottom width of 60 feet, depth of 2 feet

and side slopes of 4H:1V. The overbanks on either side of the low flow channel are 30 feet wide and depth varies from 4 to 8 feet. The proposed ultimate regional detention basin will have a storage area of about 250 acres and storage volume of 2050 acre-feet for a depth of about 13 feet (water surface elevation: 386.3 ft) for the 100-year 24-hour storm event runoff. The proposed interim regional detention basin will have a storage area of about 120 acres and storage volume of 1800 acre-feet for a depth of about 14 feet (water surface elevation: 387.2 ft) for the 100-year 24-hour storm event runoff. The storage volume includes the detention basins as well as the surrounding area upto the water surface elevations cited above. The side slopes are considered to be 10H:1V for safety purposes and this large depth. Refer to Exhibit 9 for location, extent and typical sections of the proposed regional drainage channel and bridges/culverts as well as the proposed regional detention basin. The existing condition HMS model was updated by splitting drainage areas 4 and 10 to west and east of the proposed I-69 regional flood conveyance channel. The split drainage areas required a recomputation of areas, RCNs, Time of Concentration and Clark Unit Hydrograph parameters. At Kimsey Lane, these split flows were combined. The increased impervious area due to the proposed I-69 pavement increased the RCN values and resulting discharges but not significantly.

Table 1: Comparison of Flows from FEMA FIS HMS Model with Parsons' Existing and Proposed Condition (with and without detention) HMS Models indicates the impact of changes to the FEMA FIS HMS model. The most significant changes are:

- Splitting of the original Areas 1 and 2
- Increased existing storage upstream of US 41
- Split of flow along east and west sides of the railroad downstream of North Fork Canoe Creek/railroad crossing; Refer to Exhibit 9 for location of the bridges.
- Proposed regional flood conveyance channel along the east side of proposed I-69 and corresponding split of drainage areas east and west of this channel
- RCNs and drainage areas in the FEMA FIS HMS model were reviewed and found to be reasonable based on an independent analysis of the hydrologic soil groups and land uses. However, in addition to the above changes, other factors that served to significantly increase the discharges above the FEMA FIS discharges are:
- A recalculation of Clark's storage parameters as backup calculations for the FEMA FIS model were not available.
- A reevaluation of time of concentration as the GIS file with the FEMA FIS hydrology information showed jagged and longer flow paths that were greatly inaccurate.
- Change in peak flow times.
- Increase in impervious areas due to proposed I-69 pavement. However, this was not a significant change with regards to the larger watershed.

In order to reduce flows at US 41 such that smaller and less expensive structures can be considered for the proposed I-69 roadway and ramps at the I-69 / US 41 interchange, a regional

detention basin is proposed upstream of US 41. This proposed regional detention basin reduces peak flows not only at the I-69 roadway structure but at its ramps and further downstream to be about the same as FEMA FIS peak flows or less. The proposed interim regional detention basin also reduces peak flows at the I-69 roadway structures as well as further downstream but the reduction of peak flows is relatively less.

FEMA process for hydrology resubmittal during the Conditional Letter of Map Revision (CLOMR) and subsequent Letter of Map Revision (LOMR) requires an explanation as to why the effective FEMA hydrology has been revised. This clarification is provided above and is based on splitting the North Fork Canoe Creek flows west and east of the railroad which acts as a drainage divide, updating times of concentrations based on corrected flow path lengths, and correcting runoff curve numbers.

Project hydrology exhibits include:

- Exhibit 1: FEMA FIS Drainage Areas
- Exhibit 2A: Modified FEMA FIS Drainage Areas for Existing Conditions
- Exhibit 2B: Modified FEMA FIS Drainage Areas for Proposed Conditions
- Exhibit 2C: Soils Map for Existing Conditions
- Exhibit 2D: Soils Map for Proposed Conditions
- Exhibit 3: Existing Storage Upstream of US 41
- Exhibit 4A: Potential Proposed Regional Detention Basin Upstream of US 41
- Exhibit 4B: Potential Proposed Interim Regional Detention Basin Upstream of US 41

Appendix A includes the following hydrology backup documentation:

- A-1: Precipitation from NOAA 14
- A-2: Summary of Clark Unit Hydrograph Storage Coefficient R and Time of Concentration Tc for North Fork Canoe Creek Modified Drainage Areas
- A-3: Runoff Curve Numbers and Percent Impervious
- A-4: Stream Lengths
- A-5: Time of Concentration Tc
- A-6: Clark Parameters Documentation
- A-7: Existing Condition Lateral Weir Flow Analysis East of Creek/Railroad Crossing
- A-8: Proposed Condition Lateral Weir Flow Analysis East of Creek/Railroad Crossing
- A-9: Diversion of Flows at Canoe Creek/Railroad Crossing
- A-10A: Elevation-Storage-Discharge relationship for existing condition storage upstream of US 41
- A-10B: Elevation-Storage-Discharge relationship for ultimate and interim conditions storage upstream of US 41
- A-11: FEMA FIS HMS Summary Tables and Schematic Flow Diagram

- A-12: Parsons Existing Condition HMS Summary Tables and Schematic Flow Diagram
- A-13: Parsons Proposed Condition HMS Summary Tables and Schematic Flow Diagram
- A-14: Parsons Proposed Condition with Ultimate Detention HMS Summary Tables and Schematic Flow Diagram
- A-15: Parsons Proposed Condition with Interim Detention HMS Summary Tables and Schematic Flow Diagram

Hydraulics

The basis for the project North Fork Canoe Creek hydraulics is the USACE's HEC-RAS model that was developed for the effective Henderson County, Kentucky Federal Emergency Management Agency (FEMA) Flood Insurance Study (FIS) dated September 29, 2017. The most significant feature of this HEC-RAS model is the absence of detailed backwater hydraulic modeling upstream/north of Kimsey Lane. Parsons' existing condition HEC-RAS hydraulic model evaluates the floodplain/floodway hydraulics along the north and south sides of the existing railroad between US 41 and US 60 and along the east side of the proposed I-69 alignment. The high railroad embankment serves as a drainage divide splitting up North Fork Canoe Creek flows. Parsons' proposed condition HEC-RAS hydraulic model evaluates the floodplain/floodway changes as a result of the proposed regional flood conveyance channel along the east side of the proposed I-69.

Parsons' existing condition HEC-RAS hydraulic model is essentially the extension of the effective FEMA FIS HEC-RAS model to the north – from its most upstream limits at Kimsey Lane to US 60. This involved:

- Using LiDAR data obtained from the internet to develop contour mapping used to model cross sections upstream of the FEMA FIS HEC-RAS model cross sections; it was verified that this LiDAR data used the same NAD 83, Kentucky Single Zone coordinate system.
- Modeling two tributaries to North Fork Canoe Creek – along east and west sides of the existing railroad; these tributaries are north of Kimsey Lane.
- Modeling cross sections at appropriate spacing and alignment with the railroad embankment dividing the sections across the two tributaries.
- Modeling the two existing bridges across Highway 41 based on field survey data. Refer to Exhibit 9 for location of the bridges. These bridges include:
  - Three 30-foot span bridge for Canoe Creek across US 41
  - Two 31-foot end spans and a 39-foot middle span bridge for Van Wyck Road across US 41.

- Modeling the existing culverts across Kimsey Lane based on field survey data. Refer to Exhibit 9 for location of the culverts. These culverts include:
  - 222-inch diameter corrugated metal pipe (CMP) culvert for Canoe Creek across Kimsey Lane
  - 264" x 105" arch corrugated metal pipe (ACMP) culvert across Kimsey Lane on both east and west sides of the railroad.
- Modeling existing culverts across US 60 based on as-built plan; these culverts include:
  - Two existing culverts east of the existing railroad: a) 17-foot wide x 9-foot high super box culvert and b) 12-foot wide x 8-foot high super box culvert
  - One culvert west of the existing railroad: 100-inch diameter circular corrugated metal pipe culvert.
- North Fork Canoe Creek flows overtop Kimsey Lane for the 2- to 500-year design storm events.
- North Fork Canoe Creek 50- and 100-year flows are shown to overtop US 41 in a sag within US 41 north of the North Fork Canoe Creek bridge as per the FEMA FIS HEC-RAS model. However, recent project survey data indicated US 41 pavement to be higher than in the FEMA FIS HEC-RAS hydraulic model and the 50- and 100-year flows do not overtop the US 41 pavement in Parsons' HEC-RAS existing conditions model.

Parsons' proposed condition HEC-RAS hydraulic model is based on the guidance within the KYTC Drainage Guidance Manual (August 2010). General guidance is stated within Section DR 102-1 with regards to prevention of overtopping during the design storm event and complying with the National Flood Insurance Program for the 100-year base flood. Section DR 102-3 suggests: "Design a drainage system for the proposed condition that does not significantly change the quality or quantity of flow as compared to existing condition". It also states that "post-development discharge and velocity should not significantly exceed the pre-development discharge and velocity. In some cases, this will require the use of energy dissipaters and/or detention basin storage before disposal." Section DR 401 and specifically Table 402-1 indicates that Interstates are to be designed for a storm of 50-year return interval and checked for the 100-year storm. Similar criteria are indicated for US 41 and US 60 as their average daily traffic (ADT) is likely to be greater than 2,000 vehicles. Parsons' proposed condition HEC-RAS model includes the following changes to the Parsons Existing Condition HEC-RAS model (see Exhibit 9 for a Schematic Plan of Proposed Drainage Improvements):

- Proposed 3-10'x6' box culverts at a) proposed I-69 just south of US 60 and b) US 60 just west of proposed I-69.

- Proposed upstream and downstream channel improvements for the above 3-10'x6' box culverts in order to lower tailwater elevations and avoid adverse impact to the railroad which is in close proximity to the I-69 interchange improvements at US 41.
- Proposed bridges for proposed I-69 and its ramps are to be at least the same size as the existing 3-30 ft span bridge across US 41. As there are many possible configurations for the proposed I-69 interchange the proposed bridges will be refined at the next stage of design. Refer to Exhibit 9 for location of the bridges.
- Proposed regional flood conveyance channel mainly along the east side of proposed I-69 from US 60 to US 41. As stated earlier, this proposed "eight point" regional drainage channel consists of a low flow channel with a bottom width of 60 feet, depth of 2 feet and side slopes of 4H:1V. The overbanks on either side of the low channel are 30 feet wide and depth varies from 4 to 10 feet. A 20-foot buffer is proposed between the toe of the proposed I-69 embankment and the top of this channel. As flow velocities are relatively low – generally about 2 ft/second, therefore channel lining other than hydroseeding is not anticipated. At the inlet and outlet ends of bridges/culverts and outfall into the proposed regional detention basin riprap is likely to be required due to increased velocities at these constricted and/or steep sections.

Please note that the existing culverts at US 60 were not changed as these culverts are not overtopped and are outside the limits of disturbance of the proposed US 60 realignment project. During final design this area can potentially be regraded and these culverts either kept or removed or replaced in kind. Existing culverts east of the railroad are a) 17-foot wide x 9-foot high super box culvert and b) 12-foot wide x 8-foot high super box culvert while the existing culvert west of the railroad is a 100" diameter pipe culvert. Also, the North Fork Canoe Creek existing 3-30 ft spans bridge at US 41 is unchanged for the option wherein the existing roadway is retained. It may be replaced/upgraded based on structural/hydraulic considerations while making sure to not increase downstream flows.

Table 2: Comparison of Water Surface Elevations from FEMA FIS HEC-RAS Model with Parsons' Existing and Proposed Condition (with and without detention basins) HEC-RAS Models indicates the impact of changes to the FEMA FIS HEC-RAS model. The Parsons existing condition model for the 50-year storm shows decrease of water surface elevation down to 0.6 feet at certain sections to increase of 1.6 feet at a location downstream of the project area. It also indicates that the Parsons proposed condition HEC-RAS models for the 50-year storm result in generally lower water surface elevations compared to the existing condition HEC-RAS model for the 50-year storm throughout the project length. At a couple of locations within the project right of way the water surface elevations are higher; however, outside and upstream of project right of way the proposed water surface elevations are about the same or lower than existing conditions.

FEMA process for hydraulics resubmittal during the CLOMR and subsequent LOMR phase involves a four-step process:

1) Duplicate Effective Model is prepared by using the Effective FIS HEC-RAS model and replicating the results by using recent version of HEC-RAS software,
2) Corrected Effective Model is prepared by correcting errors and including additional cross sections to the Duplicate Effective Model,
3) Existing or Pre-Project Conditions Model includes changes to existing conditions since the effective model was prepared and
4) Revised or Post-Project Conditions Model includes the project improvements to the Existing Conditions Model.

At this stage of the project, Duplicate, Corrected Effective, Existing Conditions and Proposed Conditions models have not been prepared. The Corrected Effective and Existing Conditions Models are essentially the same as no new development has occurred since the effective model was prepared for FEMA. The Proposed Conditions Model will need to be modified as detailed design for the proposed highway and bridges is prepared.

Project hydraulics exhibits include:

- Exhibit 5a & 5b: FEMA FIS Floodplain/Floodway Maps 1 and 2
- Exhibit 6a, 6b & 6c: Existing Condition Floodplain
- Exhibit 6d & 6e: Existing Condition Profile
- Exhibit 7a, 7b & 7c: Proposed Condition Floodplain
- Exhibit 7d & 7e: Proposed Condition Profile
- Exhibit 7f: Proposed Condition with Detention Floodplain
- Exhibit 7g: Proposed Condition with Detention Profile
- Exhibit 7h: Proposed Condition with Interim Detention Profile
- Exhibits 8a, 8b, 8c, 8d and 8e: FEMA FIS, Existing and Proposed Ultimate and Interim Conditions (with and without Detention) Cross Sections
- Exhibit 9a: Proposed Drainage Improvements Schematic with Ultimate Detention Basin
- Exhibit 9b: Proposed Drainage Improvements Schematic with Interim Detention Basin

Appendix B includes the following hydraulics backup documentation:

- B-1: Proposed Regional Drainage Channel along south side of Proposed I-69 from Highway 60 to Highway 41
- B-2: FEMA FIS HEC-RAS Summary Table
- B-3: Parsons Existing Condition HEC-RAS Plan Canoex3 Summary Table
- B-4: Parsons Proposed Condition HEC-RAS Plan Canoepr3 Summary Table

- B-5A: Parsons Proposed Condition with Ultimate Detention HEC-RAS Plan Candet3 Summary Table
- B-5B: Parsons Proposed Condition with Interim Detention HEC-RAS Plan Candet4 Summary Table
- B-6: Parsons Existing Condition HEC-RAS Cross Sections
- B-7: Parsons Proposed Condition HEC-RAS Cross Sections
- B-8: Parsons Proposed Condition with Ultimate Detention HEC-RAS Cross Sections
- B-9 Parsons Proposed Condition with Interim Detention HEC-RAS Cross Sections

Tables

Canoe Creek Flood Impact Study on Proposed I69

Table 1: Comparison of Flows from FEMA FIS HMS Model with Parsons Existing and Proposed Condition HMS Models

Drainage Area/ Concentration Point DA/CP	Location	HECRAS Cross Section ID	FEMA Drainage Area	Parsons Existing Drainage Area	Parsons Proposed Drainage Area	FEMA Flows (Canoe_Creek_Basin.hms)				Parsons Existing Condition Model (Canex1.hms) - Flows Adjusted for Split Flow at Canoe Creek/Railroad Crossing (Lateral Weir Flow Spreadsheet based on HECRAS Model Canoe073019.prj and GeoHecras plan Canoex3)					Parsons Proposed Condition Model (Canpr1.hms) - Flows Adjusted for Split Flow at Canoe Creek/Railroad Crossing (Lateral Weir Flow Spreadsheet based on HECRAS Model Canoe07311.prj and GeoHecras plan Canpr3)					Parsons Proposed Condition Flows With Ultimate (larger) Detention Basin Model (Candet3.hms) Split Flow at Canoe Creek/Railroad Crossing modeled with HMS Diversion based on Lateral Weir Flow Spreadsheet which is based on HECRAS Model Canoe07311.prj					Parsons Proposed Condition Flows With Phase I (smaller) Detention Basin Model (Candet4.hms) Split Flow at Canoe Creek/Railroad Crossing modeled with HMS Diversion based on Lateral Weir Flow Spreadsheet which is based on HECRAS Model Canoe07311.prj				
			sq mi	sq mi	sq mi	Q10	Q50	Q100	Q500	Q2	Q10	Q50	Q100	Q500	Q2	Q10	Q50	Q100	Q500	Q2	Q10	Q50	Q100	Q500	Q2	Q10	Q50	Q100	Q500
Downstream of Canoe Creek Crossing at Railroad																															
J-28	Just below confluence with Tiger Ditch	450.5	19.75	19.79	19.79	2823.9	4291.0	4974.1	7011.3	2427.6	3894.2	5535.5	6309.5	8299.0	2424.0	3880.0	5522.1	6299.1	8287.9	1730.2	2921.0	4332.2	5004.8	6723.8	1785.1	2994.5	4432.2	5121.7	6935.8
J-28	Just below confluence with Tiger Ditch	4899.4	19.75	19.79	19.79	2823.9	4291.0	4974.1	7011.3	2427.6	3894.2	5535.5	6309.5	8299.0	2424.0	3880.0	5522.1	6299.1	8287.9	1730.2	2921.0	4332.2	5004.8	6723.8	1785.1	2994.5	4432.2	5121.7	6935.8
J-35	Appx 1300 ft ds from 5th St	5738.9 D	15.58	15.62	15.62	2208.5	3178.0	3774.5	5739.5	1856.8	2737.1	3939.7	4431.4	5639.4	1864.1	2694.3	3918.3	4408.0	5615.2	1167.7	1871.8	2696.0	3077.5	4015.4	1229.4	1946.8	2786.1	3165.4	4210.2
J-35	Appx 1300 ft ds from 5th St	12027.9 L	15.58	15.62	15.62	2208.5	3178.0	3774.5	5739.5	1856.8	2737.1	3939.7	4431.4	5639.4	1864.1	2694.3	3918.3	4408.0	5615.2	1167.7	1871.8	2696.0	3077.5	4015.4	1229.4	1946.8	2786.1	3165.4	4210.2
US-41_Stor outflow	At US-41; Exist Outflow =NF0+NF40+NF3+NF8+NF1A+NF1B+NF2A+NF4+NF9+NF7+NF8+NF10+NF20+NF16+NF12+NF14+NF5+NF17; Prop Outflow=Kimsey_Stor+NF-17	12458.1	13.27	13.31	13.31	2019.8	2927.2	3469.8	5245.5	1647.9	2426.5	2954.0	3221.7	4143.0	1656.7	2434.9	2960.6	3229.5	4155.8	339.5	821.8	1824.0	2259.5	2822.0	653.2	1495.0	2336.5	2622.3	2963.0
US-41_Stor outflow	At US-41; Exist Outflow =NF0+NF40+NF3+NF8+NF1A+NF1B+NF2A+NF4+NF9+NF7+NF8+NF10+NF20+NF16+NF12+NF14+NF5+NF17; Prop Outflow=Kimsey_Stor+NF-17	16397.3	13.27	13.31	13.31	2019.8	2927.2	3469.8	5245.5	1647.9	2426.5	2954.0	3221.7	4143.0	1656.7	2434.9	2960.6	3229.5	4155.8	339.5	821.8	1824.0	2259.5	2822.0	653.2	1495.0	2336.5	2622.3	2963.0
US-41_Stor inflow	At US-41; Exist Inflow =NF0+NF40+NF3+NF8+NF1A+NF1B+NF2A+NF4+NF9+NF7+NF8+NF10+NF20+NF16+NF12+NF14+NF5+NF17; Prop Outflow=Kimsey_Stor+NF-17	16904.1 P	13.27	13.31	13.31	2117.9	3002.4	3635.0	5320.4	2047.7	3687.2	5616.6	6662.1	9453.9	2085.5	3752.1	5682.8	6705.6	9515.4	2106.4	3811.9	5809.1	6880.4	9825.8	2106.4	3811.9	5809.1	6880.4	9825.8
J_Kimsey	At Kimsey Lane; Exist Outflow =NF0+NF40+NF3+NF8+NF1A+NF1B+NF2A+NF4+NF9+NF7+NF8+NF10+NF20=NF16+NF12+NF14+NF5; Prop Kimsey_Stor=J-4D3+NF10B+J-7+NF12+J-14	17534.5	12.96	12.99	12.99	2095.9	2970.3	3602.7	5267.6	2043.4	3677.0	5598.8	6647.8	9438.2	2067.9	3720.6	5632.9	6649.5	9440.3	1542.5	2569.5	3634.5	4100.4	5285.0	1542.5	2569.5	3634.5	4100.4	5285.0
J_Kimsey	At Kimsey Lane; Exist Outflow =NF0+NF40+NF3+NF8+NF1A+NF1B+NF2A+NF4+NF9+NF7+NF8+NF10+NF20=NF16+NF12+NF14+NF5; Prop Kimsey_Stor=J-4D3+NF10B+J-7+NF12+J-14	17702.9	12.96	12.99	12.99	2095.9	2970.3	3602.7	5267.6	2043.4	3677.0	5598.8	6647.8	9438.2	2067.9	3720.6	5632.9	6649.5	9440.3	1542.5	2569.5	3634.5	4100.4	5285.0	1542.5	2569.5	3634.5	4100.4	5285.0
J_Kimsey	At Kimsey Lane; Exist Inflow =NF0+NF40+NF3+NF8+NF1A+NF1B+NF2A+NF4+NF9+NF7+NF8+NF10+NF20=NF16+NF12+NF14+NF5; Prop Kimsey_Stor=J-4D3+NF10B+J-7+NF12+J-14	18470. Q	13.0	12.99	12.99	2694.4	4317.4	5136.6	7334.5	1621.3	2467.1	3393.3	3862.7	5049.9	2359.6	4015.7	5620.0	6393.7	8476.2	1542.5	2569.5	3634.5	4100.4	5285.0	1542.5	2569.5	3634.5	4100.4	5285.0
J-7/J-Kimsey	Appx 3800 ft below/southwest of Zion Larue Lane; J7=NF0+NF40+NF3+NF8+NF1A+NF1B+NF2A+NF2B+NF4+NF9+NF7; Prop Condition includes areas east of RR plus only NF7 west of RR:	19922.4	9.98	10.66	7.47	2000.6	3246.0	3879.4	5603.5	1275.0	1944.2	2675.0	3048.0	3965.9	1530.4	2554.5	3423.0	3829.5	4850.8	1530.4	2569.5	3634.5	4100.4	5285.0	1530.4	2569.5	3634.5	4100.4	5285.0
J-9/D-RR1	Appx 3800 ft below/southwest of Zion Larue Lane; J9=NF0+NF40+NF3+NF8+NF1A+NF1B+NF4+NF9+NF20; Prop Condition: J-9=J-9U	21591.5/22935	9.0	9.74	7.38	1821.2	2951.6	3521.1	5064.7	1191.7	1791.1	2429.6	2750.1	3516.3	1523.0	2542.5	3404.6	3806.2	4815.9	976.9	1470.0	1679.5	1770.4	1963.6	976.9	1470.0	1679.5	1770.4	1963.6
East of Railroad																															
D-RR1	Canoe Creek/Railroad Crossing; A portion of J9U that crosses RR=NF0+NF40+NF3+NF8+NF9+NF20	21712.38	N/A	7.27	7.27	N/A	N/A	N/A	N/A	764.8	975.8	1105.1	1175.3	1301.9	976.9	1470.0	1679.5	1770.4	1963.6	976.9	1470.0	1679.5	1770.4	1963.6	976.9	1470.0	1679.5	1770.4	1963.6
J-9U	J9U=NF0+NF40+NF3+NF8+NF9+NF20	23120	N/A	7.27	7.27	N/A	N/A	N/A	N/A	1212.0	2217.2	3373.9	3998.6	5282.7	1212.0	2217.2	3373.8	3998.6	5282.7	1218.1	2224.4	3382.9	4021.3	5723.8	1218.1	2224.4	3382.9	4021.3	5723.8

Canoe Creek Flood Impact Study on Proposed I69

Table 1: Comparison of Flows from FEMA FIS HMS Model with Parsons Existing and Proposed Condition HMS Models

Drainage Area/ Concentration Point DA/CP	Location	HECRAS Cross Section ID	FEMA Drainage Area	Parsons Existing Drainage Area	Parsons Proposed Drainage Area	FEMA Flows (Canoe_Creek_Basin.hms)				Parsons Existing Condition Model (Canex1.hms) - Flows Adjusted for Split Flow at Canoe Creek/Railroad Crossing (Lateral Weir Flow Spreadsheet based on HECRAS Model Canoe073019.prj and GeoHecras plan Canoex3)					Parsons Proposed Condition Model (Canpr1.hms) - Flows Adjusted for Split Flow at Canoe Creek/Railroad Crossing (Lateral Weir Flow Spreadsheet based on HECRAS Model Canoe07311.prj and GeoHecras plan Canpr3)					Parsons Proposed Condition Flows With Ultimate (larger) Detention Basin Model (Candet3.hms) Split Flow at Canoe Creek/Railroad Crossing modeled with HMS Diversion based on Lateral Weir Flow Spreadsheet which is based on HECRAS Model Canoe07311.prj					Parsons Proposed Condition Flows With Phase I (smaller) Detention Basin Model (Candet4.hms) Split Flow at Canoe Creek/Railroad Crossing modeled with HMS Diversion based on Lateral Weir Flow Spreadsheet which is based on HECRAS Model Canoe07311.prj				
			sq mi	sq mi	sq mi	Q10	Q50	Q100	Q500	Q2	Q10	Q50	Q100	Q500	Q2	Q10	Q50	Q100	Q500	Q2	Q10	Q50	Q100	Q500	Q2	Q10	Q50	Q100	Q500
J-8	J8=NF0+NF40+NF3+NF8	24550.6	6.38	6.39	6.39	1532.8	2434.6	2876.2	4060.3	1182.3	2167.0	3295.7	3953.8	5556.9	1188.7	2173.5	3306.8	3962.5	5565.7	1188.7	2173.5	3306.8	3962.5	5565.7	1188.7	2173.5	3306.8	3962.5	5565.7
J-3	J3=NF0+NF40+NF3	26291.9	5.22	5.23	5.23	1310.8	2078.8	2455.4	3475.9	1137.2	2105.4	3233.3	3851.2	5366.6	1143.2	2113.6	3246.4	3860.2	5375.4	1143.2	2113.6	3246.4	3860.2	5375.4	1143.2	2113.6	3246.4	3860.2	5375.4
J-3	J3=NF0+NF40+NF3	28796.5	5.22	5.23	5.23	1310.8	2078.8	2455.4	3475.9	1137.2	2105.4	3233.3	3851.2	5366.6	1143.2	2113.6	3246.4	3860.2	5375.4	1143.2	2113.6	3246.4	3860.2	5375.4	1143.2	2113.6	3246.4	3860.2	5375.4
J-040	J040=NF0+NF40	29900.3	4.96	4.97	4.97	1317.0	2129.6	2515.9	3482.4	1152.5	2137.6	3252.3	3843.4	5311.5	1156.8	2143.8	3260.3	3850.2	5318.0	1156.8	2143.8	3260.3	3850.2	5318.0	1156.8	2143.8	3260.3	3850.2	5318.0
NF0		32983.9	2.42	2.43	2.43	710.3	1123.8	1323.5	1834.9	472.6	897.5	1413.6	1662.2	2296.3	477.5	903.3	1419.9	1668.6	2302.9	477.5	903.3	1419.9	1668.6	2302.9	477.5	903.3	1419.9	1668.6	2302.9
NF0		33116	2.42	2.43	2.43	710.3	1123.8	1323.5	1834.9	472.6	897.5	1413.6	1662.2	2296.3	477.5	903.3	1419.9	1668.6	2302.9	477.5	903.3	1419.9	1668.6	2302.9	477.5	903.3	1419.9	1668.6	2302.9
NF0		33442.3	2.42	2.43	2.43	710.3	1123.8	1323.5	1834.9	472.6	897.5	1413.6	1662.2	2296.3	477.5	903.3	1419.9	1668.6	2302.9	477.5	903.3	1419.9	1668.6	2302.9	477.5	903.3	1419.9	1668.6	2302.9
NF0		34775.6	2.42	2.43	2.43	710.3	1123.8	1323.5	1834.9	472.6	897.5	1413.6	1662.2	2296.3	477.5	903.3	1419.9	1668.6	2302.9	477.5	903.3	1419.9	1668.6	2302.9	477.5	903.3	1419.9	1668.6	2302.9
NF0		36058.4	2.42	2.43	2.43	710.3	1123.8	1323.5	1834.9	472.6	897.5	1413.6	1662.2	2296.3	477.5	903.3	1419.9	1668.6	2302.9	477.5	903.3	1419.9	1668.6	2302.9	477.5	903.3	1419.9	1668.6	2302.9
NF0		37046.5	2.42	2.43	2.43	710.3	1123.8	1323.5	1834.9	472.6	897.5	1413.6	1662.2	2296.3	477.5	903.3	1419.9	1668.6	2302.9	477.5	903.3	1419.9	1668.6	2302.9	477.5	903.3	1419.9	1668.6	2302.9
NF0		38011.5	2.42	2.43	2.43	710.3	1123.8	1323.5	1834.9	472.6	897.5	1413.6	1662.2	2296.3	477.5	903.3	1419.9	1668.6	2302.9	477.5	903.3	1419.9	1668.6	2302.9	477.5	903.3	1419.9	1668.6	2302.9
West of Railroad																													
NF1A	NF1 in FEMA HMS model was split into NF1A and NF1B by Parsons	31238.12	N/A	1.16	1.16	N/A	N/A	N/A	N/A	223.7	439.8	707.3	836.9	1169.3	251.5	474.9	746.6	877.4	1211.4	251.5	474.9	746.6	877.4	1211.4	251.5	474.9	746.6	877.4	1211.4
NF1A	NF1=2.08, NF2= 0.9' NF1A=1.164, NF1B=0.96, NF2A=, NF2B=0.25	31040.61	N/A	1.16	1.16	N/A	N/A	N/A	N/A	223.7	439.8	707.3	836.9	1169.3	251.5	474.9	746.6	877.4	1211.4	251.5	474.9	746.6	877.4	1211.4	251.5	474.9	746.6	877.4	1211.4
NF1A		30943.45	N/A	1.16	1.16	N/A	N/A	N/A	N/A	223.7	439.8	707.3	836.9	1169.3	251.5	474.9	746.6	877.4	1211.4	251.5	474.9	746.6	877.4	1211.4	251.5	474.9	746.6	877.4	1211.4
NF1A		30716	N/A	1.16	1.16	N/A	N/A	N/A	N/A	223.7	439.8	707.3	836.9	1169.3	251.5	474.9	746.6	877.4	1211.4	251.5	474.9	746.6	877.4	1211.4	251.5	474.9	746.6	877.4	1211.4
NF1A		30363	N/A	1.16	1.16	N/A	N/A	N/A	N/A	223.7	439.8	707.3	836.9	1169.3	251.5	474.9	746.6	877.4	1211.4	251.5	474.9	746.6	877.4	1211.4	251.5	474.9	746.6	877.4	1211.4
NF1A		30083	N/A	1.16	1.16	N/A	N/A	N/A	N/A	223.7	439.8	707.3	836.9	1169.3	251.5	474.9	746.6	877.4	1211.4	251.5	474.9	746.6	877.4	1211.4	251.5	474.9	746.6	877.4	1211.4
NF1A		28532	N/A	1.16	1.16	N/A	N/A	N/A	N/A	223.7	439.8	707.3	836.9	1169.3	251.5	474.9	746.6	877.4	1211.4	251.5	474.9	746.6	877.4	1211.4	251.5	474.9	746.6	877.4	1211.4
J-1	J1=NF1A+NF1B in Ex and Prop; J1=N1 in FEMA FIS	27158	2.08	2.07	2.07	724.6	1147.0	1351.7	1875.6	351.8	700.9	1136.1	1347.9	1892.5	382.1	738.9	1178.8	1391.9	1938.9	382.1	738.9	1178.8	1391.9	1938.9	382.1	738.9	1178.8	1391.9	1938.9
J-4	J4=NF1A+NF1B+NF4 in Ex; J4=NF1A+NF1B+NF4A in Prop; no J4 in FEMA FIS	25956	N/A	2.47	2.36	N/A	N/A	N/A	N/A	426.9	815.3	1324.5	1574.8	2214.4	435.7	840.6	1335.5	1572.4	2187.1	435.7	840.6	1335.5	1572.4	2187.1	435.7	840.6	1335.5	1572.4	2187.1
J-4	J4=NF1A+NF1B+NF4 in Ex; J4=NF1A+NF1B+NF4A in Prop; no J4 in FEMA FIS	24827	N/A	2.47	2.36	N/A	N/A	N/A	N/A	426.9	815.3	1324.5	1574.8	2214.4	435.7	840.6	1335.5	1572.4	2187.1	435.7	840.6	1335.5	1572.4	2187.1	435.7	840.6	1335.5	1572.4	2187.1
J-4	J4=NF1A+NF1B+NF4 in Ex; J4=NF1A+NF1B+NF4A in Prop; no J4 in FEMA FIS	23524	N/A	2.47	2.36	N/A	N/A	N/A	N/A	426.9	815.3	1324.5	1574.8	2214.4	435.7	840.6	1335.5	1572.4	2187.1	435.7	840.6	1335.5	1572.4	2187.1	435.7	840.6	1335.5	1572.4	2187.1
Flows affected by Proposed I-69 Regional Channel																													
Flows along Proposed I-69 Channel																													
J-4D1	J4D1=NF1A+NF1B+NF4A+NF2A in Prop; no J4D1 in Ex or FEMA FIS	22935		3.19	3.19										546.1	1072.5	1725.1	2035.8	2852.3	546.1	1072.5	1725.1	2035.8	2852.3	546.1	1072.5	1725.1	2035.8	2852.3
J-4D1	J4D1=NF1A+NF1B+NF4A+NF2A in Prop; no J4D1 in Ex or FEMA FIS	21097		3.19	3.19										546.1	1072.5	1725.1	2035.8	2852.3	546.1	1072.5	1725.1	2035.8	2852.3	546.1	1072.5	1725.1	2035.8	2852.3
Cross sections below are only for the regional low flow channel																													
J-4D2	J4D2=NF1A+NF1B+NF4+NF2A+NF2B+NF10A in Prop; no J4D2 in Ex or FEMA FIS	19206		3.35	3.35										569.9	1115.2	1797.5	2122.5	2977.3	569.9	1115.2	1797.5	2122.5	2977.3	569.9	1115.2	1797.5	2122.5	2977.3
J-4D3	J4D3=NF1A+NF1B+NF4+NF2A+NF2B+NF5+NF10A; no J4D3 in FEMA FIS HMS	18255		3.83	3.83										610.9	1182.6	1900.3	2242.9	3143.3	610.9	1182.6	1900.3	2242.9	3143.3	610.9	1182.6	1900.3	2242.9	3143.3
J-4D3	J4D3=NF1A+NF1B+NF4+NF2A+NF2B+NF5+NF10A; no J4D3 in FEMA FIS HMS	18114		3.83	3.83										610.9	1182.6	1900.3	2242.9	3143.3	610.9	1182.6	1900.3	2242.9	3143.3	610.9	1182.6	1900.3	2242.9	3143.3

Canoe Creek Flood Impact Study on Proposed I69

Table 2: Comparison of Water Surface Elevations from FEMA FIS HECRAS Model with Parsons Existing and Proposed Condition HECRAS Models

Drainage Area/ Concentration Point DA/CP	Location	HECRAS Cross Section ID	FEMA Drainage Area	FEMA Flows		Parsons Drainage Area	Parsons Existing Flows		Parsons Proposed Flows		Parsons Proposed Detention Flows		Parsons Proposed Interim Detention Flows		FEMA WSEL		Parsons Existing WSEL		Parsons Proposed WSEL		Parsons Proposed Detention WSEL		Parsons Proposed Interim Detention WSEL		Parsons Exist - FEMA WSEL		Parsons Prop - FEMA WSEL		Parsons Prop - Exist WSEL		Parsons Prop Detention - FEMA WSEL		Parsons Prop Detention - Exist WSEL	
			sq mi	Q50	Q100	sq mi	Q50	Q100	Q50	Q100	Q50	Q100	Q50	Q100	Q50	Q100	Q50	Q100	Q50	Q100	Q50	Q100	Q50	Q100	Q50	Q100	Q50	Q100	Q50	Q100	Q50	Q100	Q50	Q100
Downstream of Canoe Creek Crossing at Railroad																																		
J-28	Just below confluence with Tiger Ditch	450.5	19.75	4290	4970	19.79	5535.5	6309.5	5522.1	6299.1	4332.2	5004.8	4432.2	5121.7	376.1	375.9	376.5	377.2	376.4	377.2	375.2	375.9	375.3	376.0	0.35	1.30	0.34	1.29	-0.01	-0.01	-0.95	0.03	-1.30	-1.27
J-28	Just below confluence with Tiger Ditch	4899.4	19.75	4290	4970	19.79	5535.5	6309.5	5522.1	6299.1	4332.2	5004.8	4432.2	5121.7	380.0	380.7	380.7	381.8	381.2	381.8	380.0	380.8	380.2	380.9	0.73	1.08	1.23	1.09	0.50	0.01	0.05	0.05	-0.68	-1.03
J-35	Appx 1300 ft ds from 5th St	5738.9 D	15.58	3180	3770	15.62	3939.7	4431.4	3918.3	4408	2696	3077.5	2786.1	3165.4	380.3	380.9	381.4	382.0	381.4	382.0	380.3	381.0	380.4	381.1	1.19	1.03	1.14	1.03	-0.05	0.00	0.04	0.03	-1.15	-1.00
J-35	Appx 1300 ft ds from 5th St	12027.9 L	15.58	3180	3770	15.62	3939.7	4431.4	3918.3	4408	2696	3077.5	2786.1	3165.4	384.0	385.2	385.6	386.5	385.5	386.5	383.7	384.1	383.8	384.3	1.59	1.37	1.54	1.33	-0.05	-0.04	-0.26	-1.06	-1.85	-2.43
US-41_Stor	US-41	12458.1	13.27	2970	3470	13.31	2954	######	2960.60	3229.50	1824.00	2259.50	2336.50	2622.30	384.5	385.6	386.0	386.9	386.0	386.9	384.2	384.6	384.2	384.8	1.51	1.32	1.46	1.29	-0.05	-0.03	-0.33	-1.00	-1.84	-2.32
US-41_Stor	US-41	16397.3	13.27	2970	3470	13.31	2954	3221.7	2960.6	3229.5	1824	2259.5	2336.5	2622.3	387.4	387.6	387.6	388.3	387.6	388.3	385.4	386.3	386.5	387.2	0.18	0.78	0.16	0.77	-0.02	-0.01	-2.02	-1.26	-2.20	-2.04
Kimsey_Stor	Kimsey Lane; Kimsey_Stor=NF0+NF40+NF3+NF8+NF1A +NF1B+NF2A+NF4+NF9+NF7+NF8+NF10+ NF20=NF16+NF12+NF14+NF5	16904.1 P	12.96	2970	3600	13.31	5616.6	6662.1	5682.8	6705.6	5809.1	6880.4	5809.1	6880.4	387.6	387.8	387.7	388.5	387.7	388.5	385.4	386.3	386.5	387.2	0.15	0.70	0.13	0.70	-0.02	0.00	-2.18	-1.46	-2.33	-2.16
Kimsey_Stor	Kimsey Lane; Kimsey_Stor=NF0+NF40+NF3+NF8+NF1A +NF1B+NF2A+NF4+NF9+NF7+NF8+NF10+ NF20=NF16+NF12+NF14+NF5	17729	12.96	2970	3600	12.99	5598.8	6647.8	5620	6393.71	3634.5	4100.4	3634.5	4100.4	387.6	387.8	387.8	388.5	387.8	388.5	385.4	386.3	386.5	387.2	0.19	0.69	0.16	0.69	-0.03	0.00	-2.22	-1.53	-2.41	-2.22
J-7	Appx 3400 ft below Zion Larue Lane; J7=NF0+NF40+NF3+NF8+NF1A+NF1B+NF 2A+NF4+NF9+NF7	18470. Q	9.97	3245	3880	12.99	3393.3	3862.7	5620	6393.71	3634.5	4100.4	3634.5	4100.4	387.7	387.9	387.9	388.6	387.8	388.6	385.4	386.3	386.5	387.2	0.20	0.69	0.17	0.69	-0.03	0.00	-2.25	-1.57	-2.45	-2.26
J-9/D-RR1	Appx 3400 ft below Zion Larue Lane; J7=NF0+NF40+NF3+NF8+NF1A+NF1B+NF 2A+NF4+NF9+NF7	21591.5/22935	9.97	3245	3880	7.38	2429.6	2750.1	3404.6	3806.21	1679.51	1770.41	1679.5	1770.4	388.7	389.0	388.1	388.7	388.3	388.9	385.4	386.3	388.8	387.2	-0.56	-0.25	-0.39	-0.13	0.17	0.12	-3.27	-2.68	-2.71	-2.43
East of Railroad																																		
D-RR1	Canoe Creek/Railroad Crossing; A portion of J9U that crosses RR=NF0+NF40+NF3+NF8+NF9+NF20	21712.38	N/A	N/A	N/A	7.27	1105.1	1175.3	1679.5	1770.41	1679.51	1770.41	1679.5	1770.4	N/A	N/A	389.6	389.0	385.1	388.9	385.4	386.3	386.5	387.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-4.17	-2.69
J-9U	Canoe Creek/Railroad Crossing; J9=NF0+NF40+NF3+NF8+NF1A+NF1B+NF 4+NF9	23120	8.99	N/A	N/A	7.27	1105.1	1175.3	1679.5	3998.61	3382.9	4021.3	3382.9	4021.3	N/A	N/A	390.1	389.9	390.0	390.0	389.2	389.4	389.2	389.5	N/A	N/A	N/A	N/A	-0.14	0.18	N/A	N/A	-0.95	-0.49
J-8	J8=NF0+NF40+NF3+NF8	24550.6	6.38	N/A	N/A	6.39	3295.7	3953.8	3306.8	3962.5	3306.8	3962.5	3306.8	3962.5	N/A	N/A	390.7	390.8	390.7	390.9	390.6	390.8	390.6	390.8	N/A	N/A	N/A	N/A	-0.04	0.04	N/A	N/A	-0.15	-0.04
J-3	J8=NF0+NF40+NF3+NF8	26291.9	5.22	N/A	N/A	5.23	3233.3	3851.2	3246.4	3860.2	3246.4	3860.2	3246.4	3860.2	N/A	N/A	392.6	392.9	392.7	392.9	392.7	393.0	392.8	393.0	N/A	N/A	N/A	N/A	0.04	-0.02	N/A	N/A	0.10	0.03
J-3	J3=NF0+NF40+NF3	27541.3	5.22	N/A	N/A	5.23	3233.3	3851.2	3246.4	3860.2	3246.4	3860.2	3246.4	3860.2	N/A	N/A	394.5	394.7	394.5	394.7	394.5	394.7	394.5	394.7	N/A	N/A	N/A	N/A	0.00	0.00	N/A	N/A	0.00	0.00
J-040	J040=NF0+NF40	28796.5	5.22	N/A	N/A	5.23	3246.4	3860.2	3246.4	3860.2	3246.4	3860.2	3246.4	3860.2	N/A	N/A	396.0	396.2	396.0	396.2	396.0	396.2	396.0	396.2	N/A	N/A	N/A	N/A	0.01	0.01	N/A	N/A	0.02	0.01
J-040	J040=NF0+NF40	29900.3	4.97	N/A	N/A	4.97	3252.3	3843.4	3260.3	3850.2	3260.3	3850.2	3260.3	3850.2	N/A	N/A	397.5	397.8	397.5	397.8	397.5	397.8	397.5	397.8	N/A	N/A	N/A	N/A	0.00	0.01	N/A	N/A	0.00	0.01
NF0		32983.9	2.43	N/A	N/A	2.43	1413.6	1662.2	1419.9	1668.6	1419.9	1668.6	1419.9	1668.6	N/A	N/A	402.4	402.6	402.4	402.6	402.4	402.6	402.4	402.6	N/A	N/A	N/A	N/A	0.01	0.00	N/A	N/A	0.01	0.00
NF0		33116	2.43	N/A	N/A	2.43	1413.6	1662.2	1419.9	1668.6	1419.9	1668.6	1419.9	1668.6	N/A	N/A	402.9	403.3	402.9	403.3	402.9	403.3	402.9	403.3	N/A	N/A	N/A	N/A	0.01	0.01	N/A	N/A	0.01	0.01
NF0		33442.3	2.43	N/A	N/A	2.43	1413.6	1662.2	1419.9	1668.6	1419.9	1668.6	1419.9	1668.6	N/A	N/A	403.8	404.2	403.9	404.2	403.9	404.2	403.9	404.2	N/A	N/A	N/A	N/A	0.02	0.01	N/A	N/A	0.02	0.01
NF0		34775.6	2.43	N/A	N/A	2.43	1413.6	1662.2	1419.9	1668.6	1419.9	1668.6	1419.9	1668.6	N/A	N/A	406.5	406.6	406.5	406.6	406.5	406.6	406.5	406.6	N/A	N/A	N/A	N/A	0.00	0.00	N/A	N/A	0.00	0.00
NF0		36058.4	2.43	N/A	N/A	2.43	1413.6	1662.2	1419.9	1668.6	1419.9	1668.6	1419.9	1668.6	N/A	N/A	409.1	409.3	409.1	409.3	409.1	409.3	409.1	409.3	N/A	N/A	N/A	N/A	0.01	0.01	N/A	N/A	0.01	0.01
NF0		37046.5	2.43	N/A	N/A	2.43	1413.6	1662.2	1419.9	1668.6	1419.9	1668.6	1419.9	1668.6	N/A	N/A	412.4	412.6	412.4	412.6	412.4	412.6	412.4	412.6	N/A	N/A	N/A	N/A	0.01	0.00	N/A	N/A	0.01	0.00
NF0		38011.5	2.43	N/A	N/A	2.43	1413.6	1662.2	1419.9	1668.6	1419.9	1668.6	1419.9	1668.6	N/A	N/A	416.5	416.7	416.5	416.7	416.5	416.7	416.5	416.7	N/A	N/A	N/A	N/A	0.01	0.01	N/A	N/A	0.01	0.01
West of Railroad																																		
NF1A	NF1 in FEMA HMS model was split into NF1	31238.12	1.164	N/A	N/A	1.16	707.3	836.9	746.6	877.4	746.6	877.4	746.6	877.4	N/A	N/A	408.2	408.1	408.2	408.1	408.2	408.1	408.2	408.1	N/A	N/A	N/A	N/A	-0.01	-0.01	N/A	N/A	-0.01	-0.01
NF1A	NF1=2.08, NF2= 0.9' NF1A=1.164, NF1B=0.	31040.61	1.164	N/A	N/A	1.16	707.3	836.9	746.6	877.4	746.6	877.4	746.6	877.4	N/A	N/A	408.2	408.2	408.2	408.2	408.2	408.2	408.2	408.2	N/A	N/A	N/A	N/A	0.00	0.00	N/A	N/A	0.00	0.00
NF1A		30943.45	1.164	N/A	N/A	1.16	707.3	836.9	746.6	877.4	746.6	877.4	746.6	877.4	N/A	N/A	401.5	401.9	404.9	405.5	404.9	405.5	404.9	405.5	N/A	N/A	N/A	N/A	3.47	3.57	N/A	N/A	3.47	3.57
NF1A		28532	1.164	N/A	N/A	1.16	707.3	836.9	746.6	877.4	746.6	877.4	746.6	877.4	N/A	N/A	397.9	398.3	395.5	395.8	395.5	395.8	395.8	396.1	N/A	N/A	N/A	N/A	-2.38	-2.48	N/A	N/A	-2.38	-2.48
J-1	J1=NF1A+NF1B in Ex and Prop; J1=N1 in FEMA FIS	27158	N/A	N/A	N/A	2.07	1136.1	1347.9	1178.8	1391.9	1178.8	1391.9	1178.8	1391.9	394.7	395.4	394.3	394.7	394.3	394.7	N/A	N/A	N/A	N/A	N/A	N/A	-0.32	-0.70	N/A	N/A	-0.32	-0.70	N/A	N/A
J-4	J4=NF1A+NF1B+NF4 in Ex; J4=NF1A+NF1B+NF4A in Prop; no J4 in FEMA FIS	25956	2.125	N/A	N/A	2.36	1324.5	1574.8	1335.5	1572.4	1335.5	1572.4	1335.5	1572.4	394.0	394.7	392.5	392.8	392.5	392.8	N/A	N/A	N/A	N/A	N/A	N/A	-1.45	-1.87	N/A	N/A	-1.45	-1.82	N/A	N/A
J-4	J4=NF1A+NF1B+NF4 in Ex; J4=NF1A+NF1B+NF4A in Prop; no J4 in FEMA FIS	24827	2.125	N/A	N/A	2.36	1324.5	1574.8	1335.5	1572.4	1335.5	1572.4	1335.5	1572.4	393.9	393.1	389.9	390.4	389.9	390.2	N/A	N/A	N/A	N/A	N/A	N/A	-3.97	-2.69	N/A	N/A	-3.98	-2.89	N/A	N/A
J-4	J4=NF1A+NF1B+NF4 in Ex; J4=NF1A+NF1B+NF4A in Prop; no J4 in FEMA FIS	23524	2.47	N/A	N/A	2.36	1324.5	1574.8	1335.5	1572.4	1335.5	1572.4	1335.5	1572.4	N/A	N/A	388.3	388.7	388.9	389.5	387.2	387.5	386.6	386.9	N/A	N/A	N/A	N/A	0.56	0.78	N/A	N/A	-1.09	-1.21
J-4D1	J4=NF1A+NF1B+NF4 in Ex; J4=NF1A+NF1B+NF4A in Prop; no J4 in FEMA FIS	22935	3.19	N/A	N/A	3.19	N/A	N/A	1725.1	2035.8	1725.1	2035.8	1725.1	2035.8	N/A	N/A	388.3	388.7	388.9	389.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.56	0.78	N/A	N/A	N/A	N/A
J-4D2	J4=NF1A+NF1B+NF4 in Ex; J4=NF1A+NF1B+NF4A in Prop; no J4 in FEMA FIS	21097	3.35	N/A	N/A	3.19	N/A	N/A	1797.5	2122.5	1725.1	2035.8	1725.1	2035.8	N/A	N/A	388.3	388.7	388.9	389.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.56	0.78	N/A	N/A	N/A	N/A

Exhibits

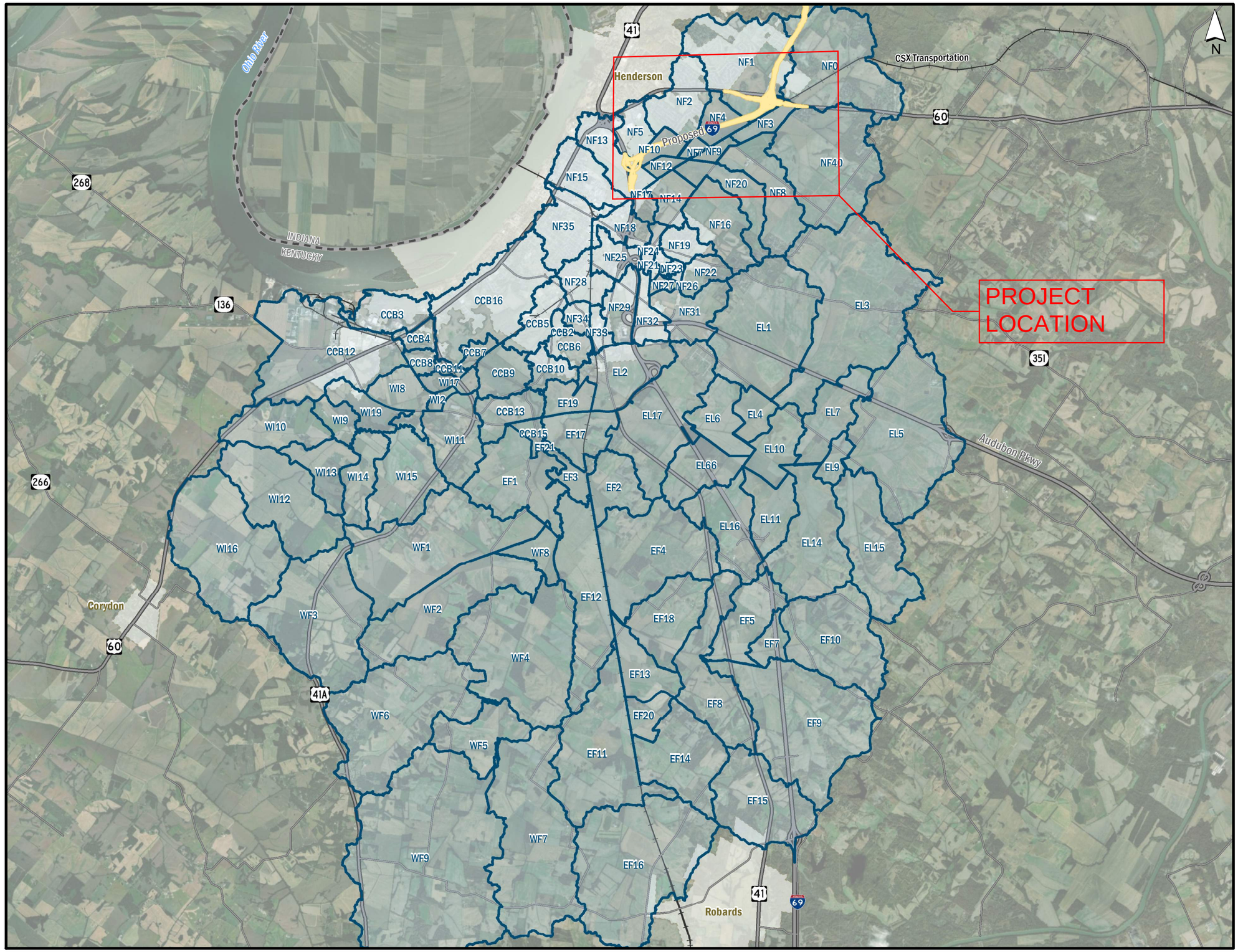


EXHIBIT 1: FEMA FIS DRAINAGE AREAS

- FEMA FIS Drainage Areas
- Proposed I-69
- Major Routes
- State Highway
- Railroad
- State/County Line
- City/Town Boundary

ORX 69 OHIO RIVER CROSSING

I-69 — US 41 TO US 60

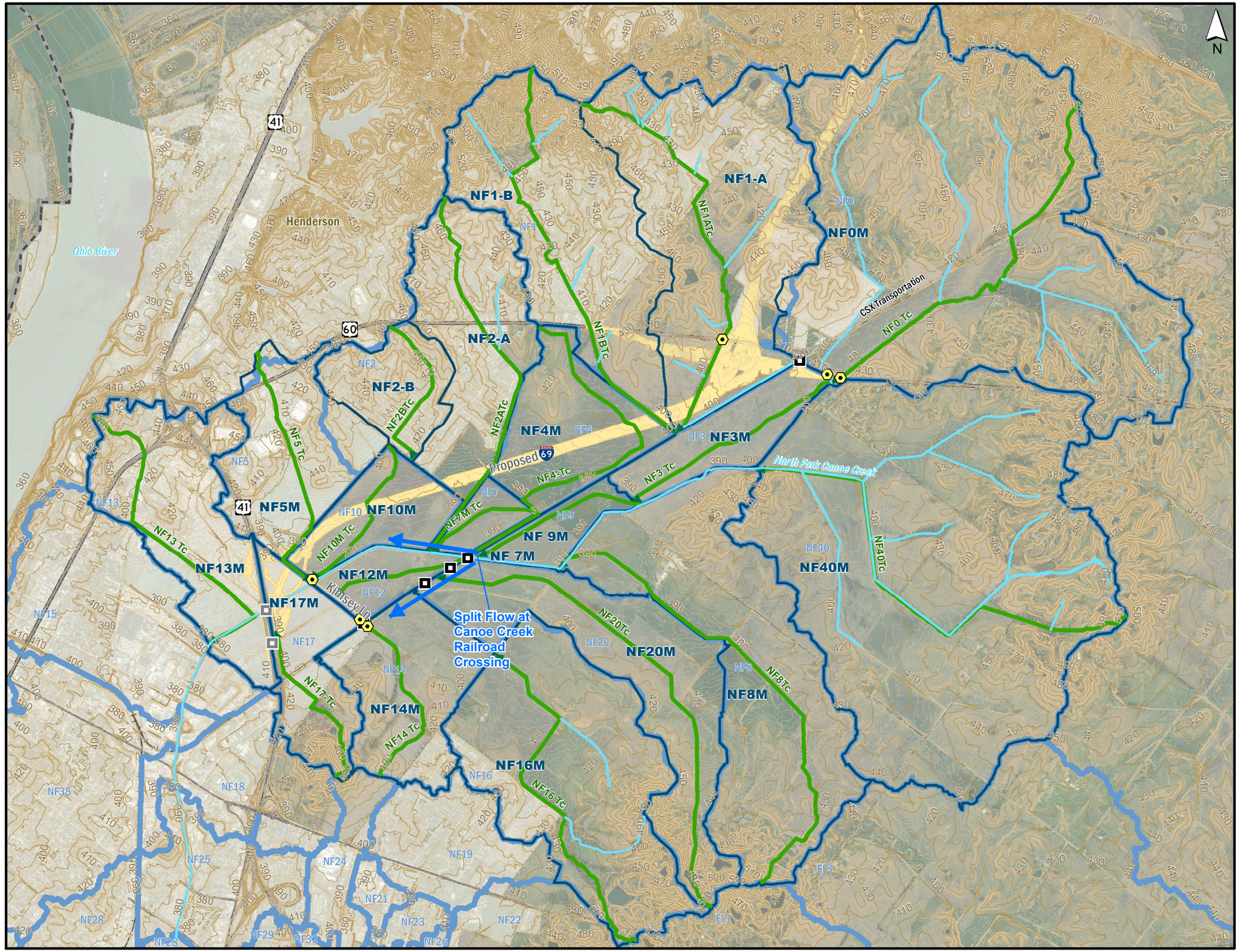
CANOE CREEK IMPACTS

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0 4,500 9,000 18,000 Feet

Data Source: Commonwealth of Kentucky, U.S. Geological Survey, ESRI

EXHIBIT 2A: MODIFIED FEMA FIS DRAINAGE AREAS FOR EXISTING CONDITIONS

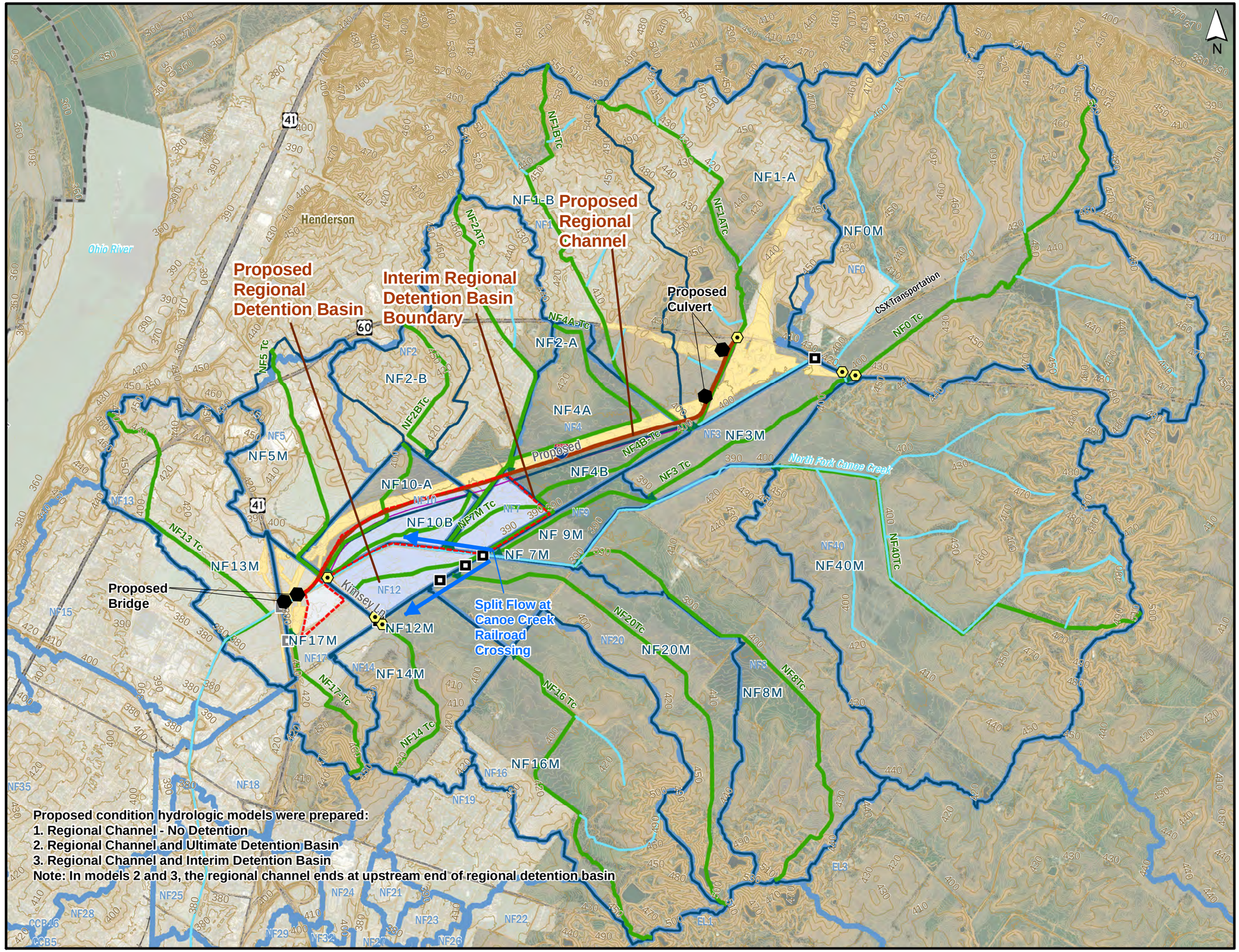


- Modified FEMA FIS Drainage Area
- FEMA FIS Drainage Area
- Time of Concentration Flow Path
- Streams
- Existing Culvert
- Existing Railroad Bridge
- Existing Roadway Bridge
- Contour
- Proposed I-69
- Major Routes
- State Highway
- Railroad
- State/County Line
- City/Town Boundary

0 1,000 2,000 4,000 Feet

Data Source: Commonwealth of Kentucky, U.S. Geological Survey, ESRI

EXHIBIT 2B: MODIFIED FEMA FIS DRAINAGE AREAS FOR PROPOSED CONDITIONS



- Modified FEMA FIS Drainage Area
- FEMA FIS Drainage Area
- Time of Concentration Flow Path
- Streams
- Existing Culvert
- Existing Railroad Bridge
- Existing Roadway Bridge
- Contour
- Proposed Regional Channel
- Proposed I-69
- Major Routes
- State Highway
- Railroad
- State/County Line
- City/Town Boundary
- Proposed Detention Basin
- Interim Detention Basin Boundary

0 1,000 2,000 4,000 Feet

Data Source: Commonwealth of Kentucky, U.S. Geological Survey, ESRI

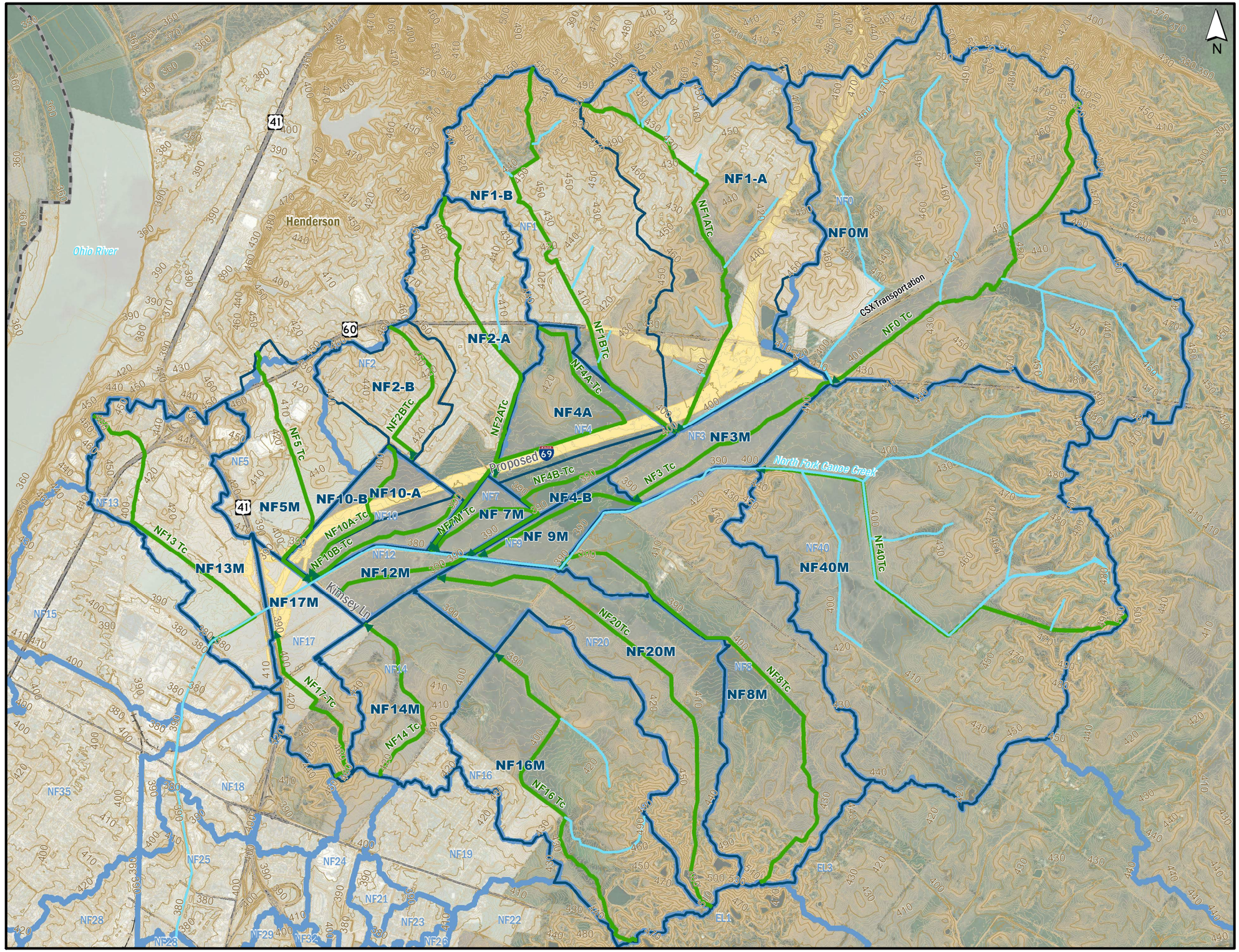


EXHIBIT 2B: MODIFIED FEMA FIS DRAINAGE AREAS FOR PROPOSED CONDITIONS

- Modified FEMA FIS Drainage Area
- FEMA FIS Drainage Area
- Time of Concentration Flow Path
- Streams
- Contour
- Proposed I-69
- Major Routes
- State Highway
- Railroad
- State/County Line
- City/Town Boundary

ORX 69 OHIO RIVER CROSSING

I-69 — US 41 TO US 60

CANOE CREEK IMPACTS

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0 1,000 2,000 4,000 Feet

Data Source: Commonwealth of Kentucky, U.S. Geological Survey, ESRI

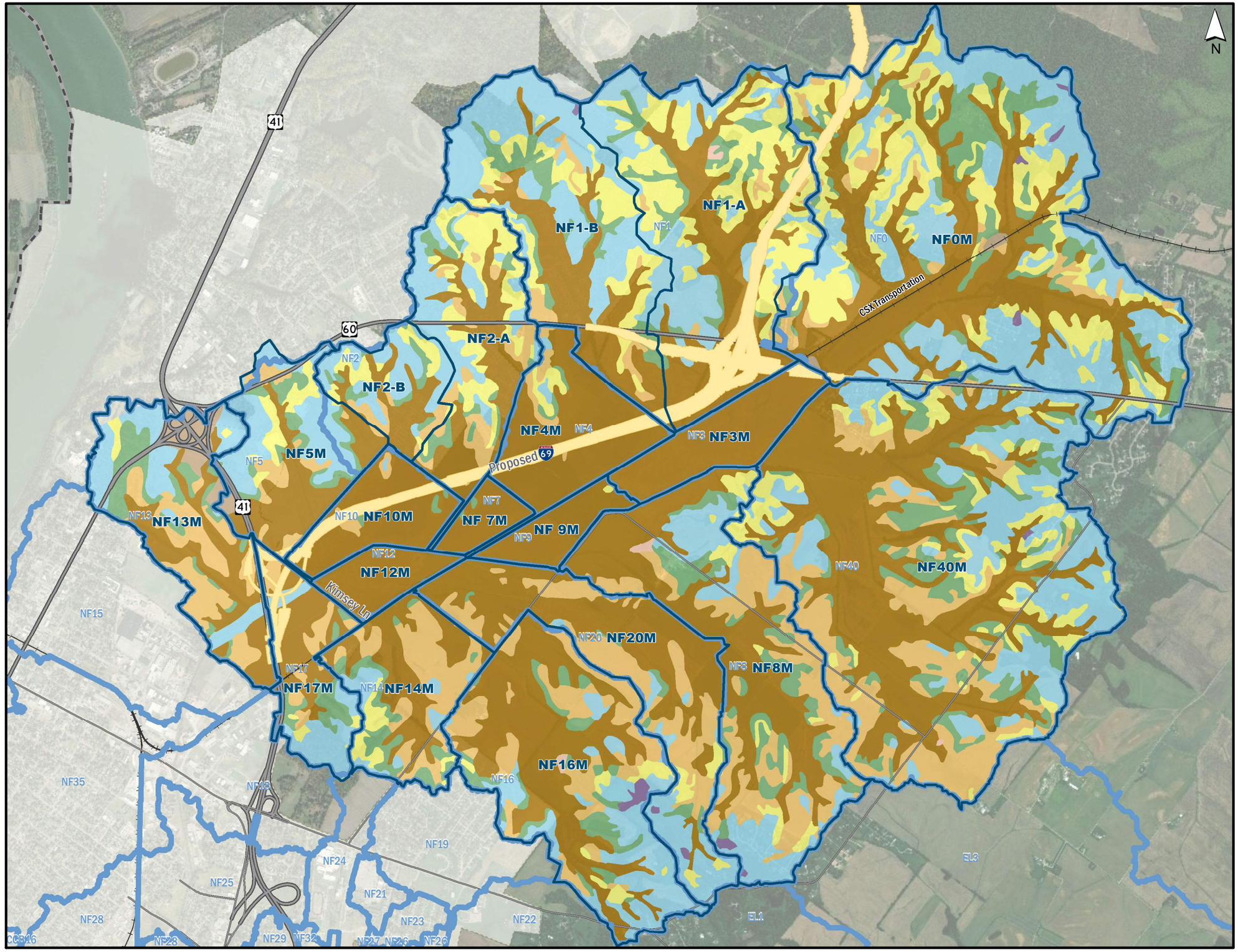


EXHIBIT 2C: SOILS MAP FOR EXISTING CONDITIONS

- Hydrologic Soil Group A
- Hydrologic Soil Group B
- Hydrologic Soil Group C
- Hydrologic Soil Group D
- Hydrologic Soil Group B/D
- Hydrologic Soil Group C/D
- Manmande
- Gullied Land
- Modified FEMA FIS Drainage Area
- FEMA FIS Drainage Area
- Proposed I-69
- Major Routes
- State Highway
- Railroad
- State/County Line
- City/Town Boundary

ORX 69 OHIO RIVER CROSSING

I-69 — US 41 TO US 60

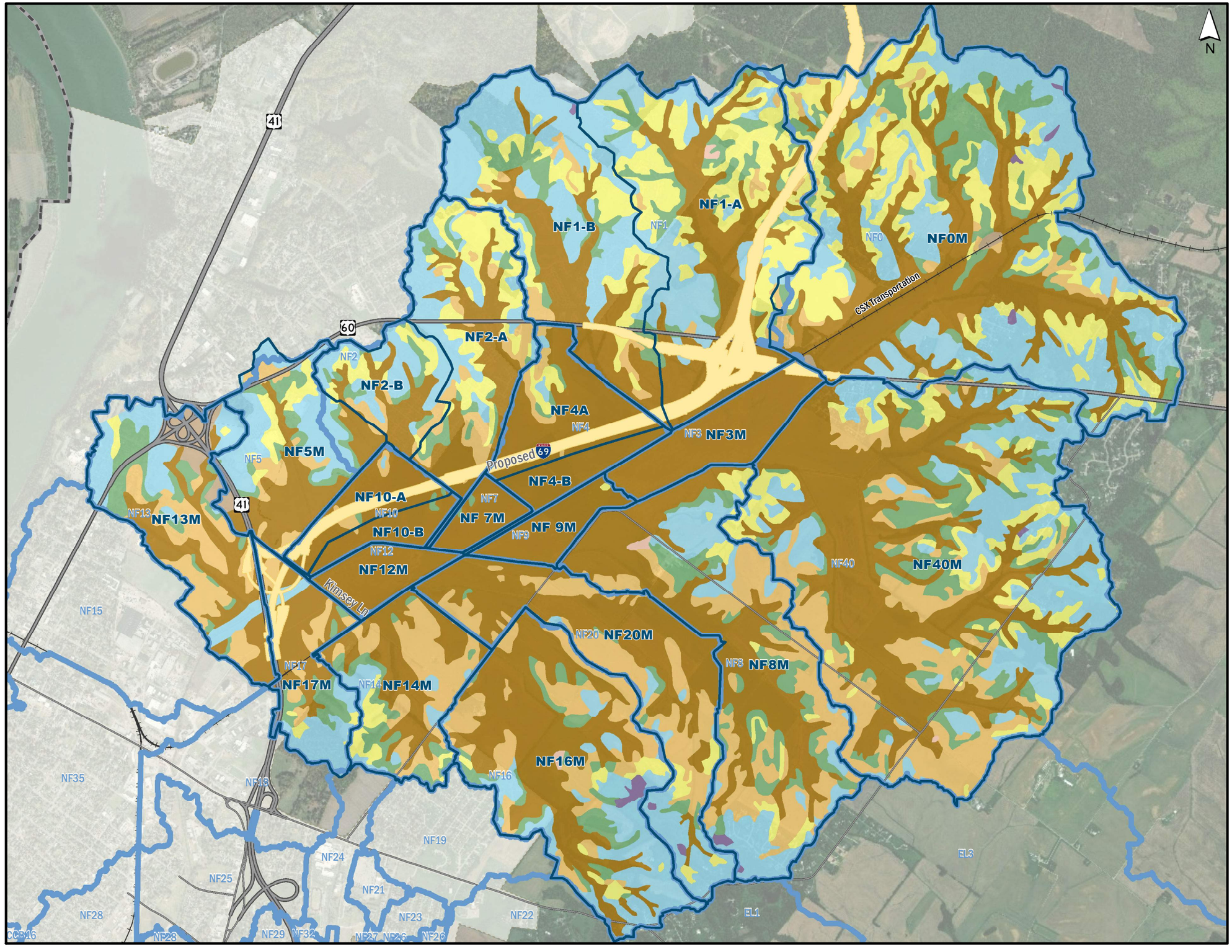
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0 1,000 2,000 4,000 Feet

Data Source: Commonwealth of Kentucky, U.S. Geological Survey, ESRI

EXHIBIT 2D: SOILS MAP FOR PROPOSED CONDITIONS



- Hydrologic Soil Group A
- Hydrologic Soil Group B
- Hydrologic Soil Group C
- Hydrologic Soil Group D
- Hydrologic Soil Group B/D
- Hydrologic Soil Group C/D
- Manmande
- Gullied Land
- Modified FEMA FIS Drainage Area
- FEMA FIS Drainage Area
- Proposed I-69
- Major Routes
- State Highway
- Railroad
- State/County Line
- City/Town Boundary

OHIO RIVER CROSSING

I-69 — US 41 TO US 60

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0 1,000 2,000 4,000 Feet

Data Source: Commonwealth of Kentucky, U.S. Geological Survey, ESRI

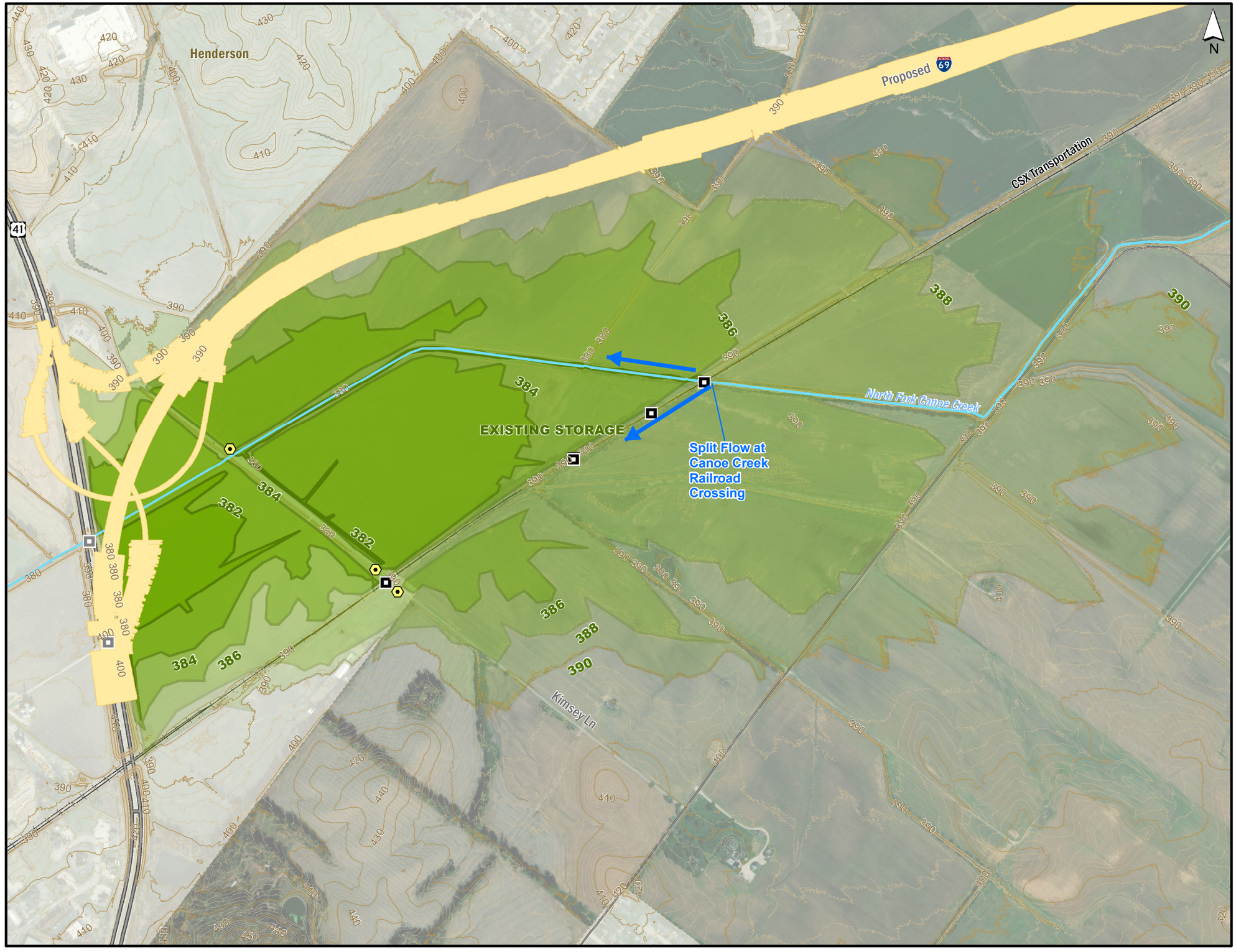


EXHIBIT 3: EXISTING STORAGE UPSTREAM OF HWY 41

- Existing Storage Area at El 382-feet
- Existing Storage Area at El 384-feet
- Existing Storage Area at El 386-feet
- Existing Storage Area at El 388-feet
- Existing Storage Area at El 390-feet
- Stream
- Existing Culvert
- Existing Railroad Bridge
- Existing Roadway Bridge
- Contour
- Proposed I-69
- Major Routes
- State Highway
- Railroad
- State/County Line
- City/Town Boundary

Note:
1. Proposed I-69 shown for context only.
2. Higher storage areas include lower storage areas.

0 375 750 1,500 Feet

Data Source: Commonwealth of Kentucky, U.S. Geological Survey, ESRI

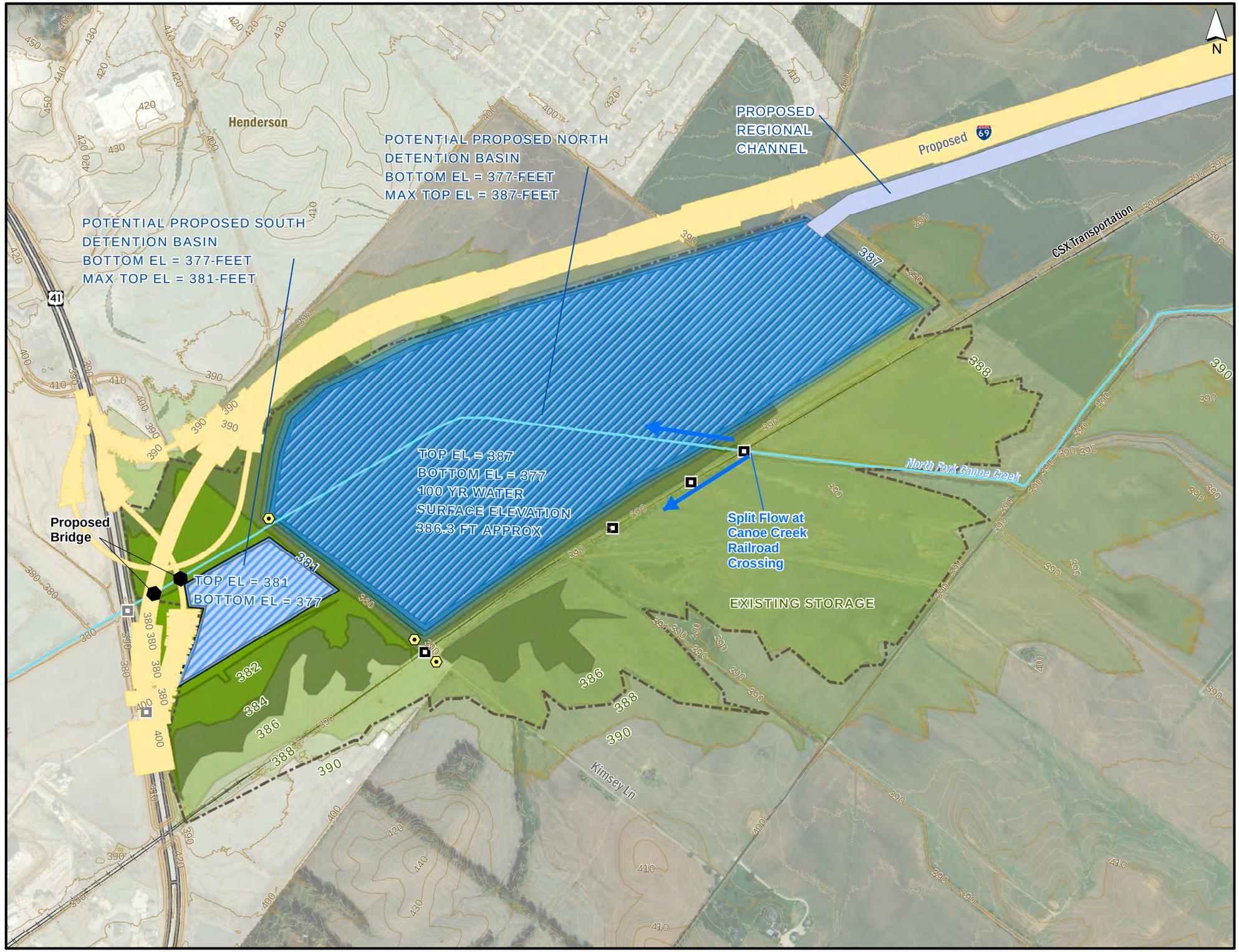


EXHIBIT 4A: POTENTIAL PROPOSED REGIONAL DETENTION BASIN UPSTREAM OF HWY 41

- Proposed Storage Side Slope
- Proposed Storage Basin Bottom
- Existing Storage upto El 388-feet
- Existing Storage Area at El 382-feet
- Existing Storage Area at El 384-feet
- Existing Storage Area at El 386-feet
- Existing Storage Area at El 388-feet
- Existing Storage Area at El 390-feet
- Stream
- Existing Culvert
- Existing Railroad Bridge
- Existing Roadway Bridge
- Contour
- Proposed I-69
- Major Routes
- State Highway
- Railroad
- State/County Line
- City/Town Boundary

Note:
1. Proposed detention basin is schematic.

2. Existing storage area east of railroad at elevation 386 ft is not utilized in design calculations for proposed detention basin.

3. Low flow channel is maintained for Canoe Creek - especially at the lower end from Kimsey Lane to Hwy 41.

0 375 750 1,500
Feet

Data Source: Commonwealth of Kentucky, U.S. Geological Survey, ESRI

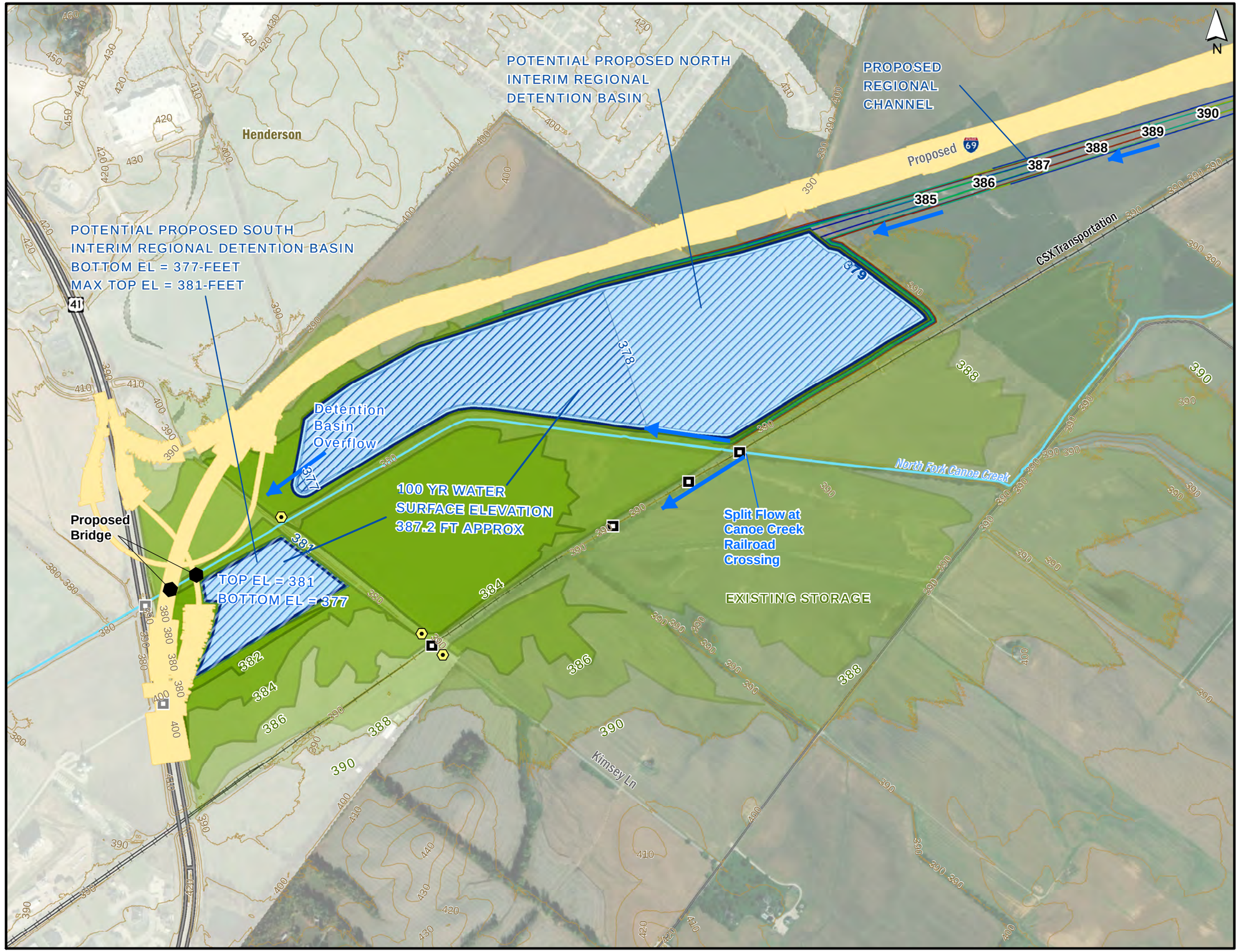


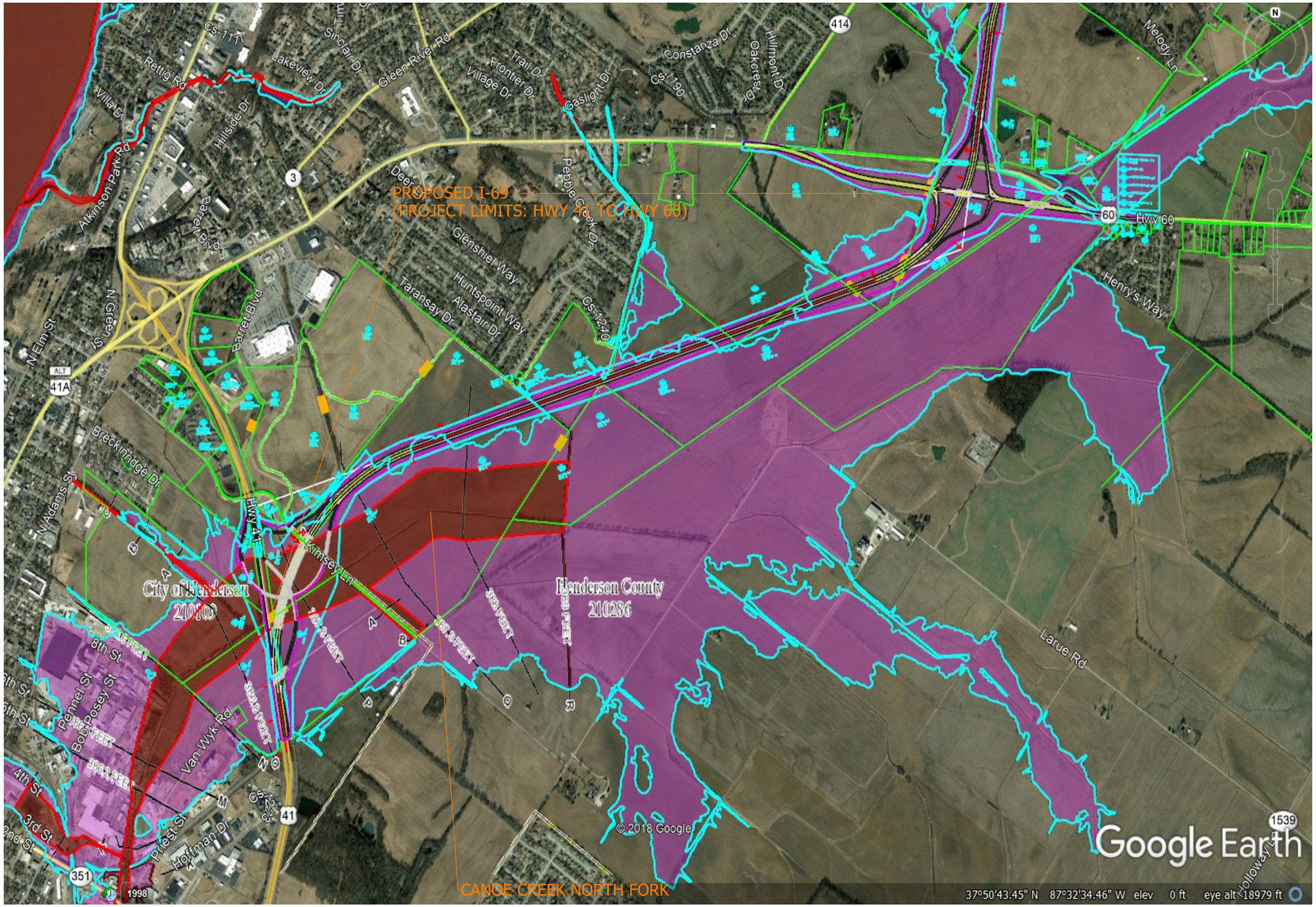
EXHIBIT 4B: POTENTIAL PROPOSED INTERIM REGIONAL DETENTION BASIN UPSTREAM OF HWY 41

- Proposed Storage Side Slope
- Proposed Storage Basin Bottom
- Existing Storage upto El 388-feet
- Existing Storage Area at El 382-feet
- Existing Storage Area at El 384-feet
- Existing Storage Area at El 386-feet
- Existing Storage Area at El 388-feet
- Existing Storage Area at El 390-feet
- Stream
- Existing Culvert
- Existing Railroad Bridge
- Existing Roadway Bridge
- Contour
- Proposed I-69
- Major Routes
- State Highway
- Railroad
- State/County Line
- City/Town Boundary

Note:
1. Proposed detention basin is schematic.
2. Existing storage area east of railroad at elevation 386 ft is not utilized in design calculations for proposed detention basin.
3. Low flow channel is maintained for Canoe Creek.
4. Earth berm along north side of Canoe Creek adjacent to detention basin can have appropriate openings to enable Canoe Creek overflows to enter.

0 390 780 1,560 Feet

Data Source: Commonwealth of Kentucky, U.S. Geological Survey, ESRI



FEMA 100 YR FLOODWAY

FEMA 100 YR FLOODPLAIN

OHIO RIVER CROSSING

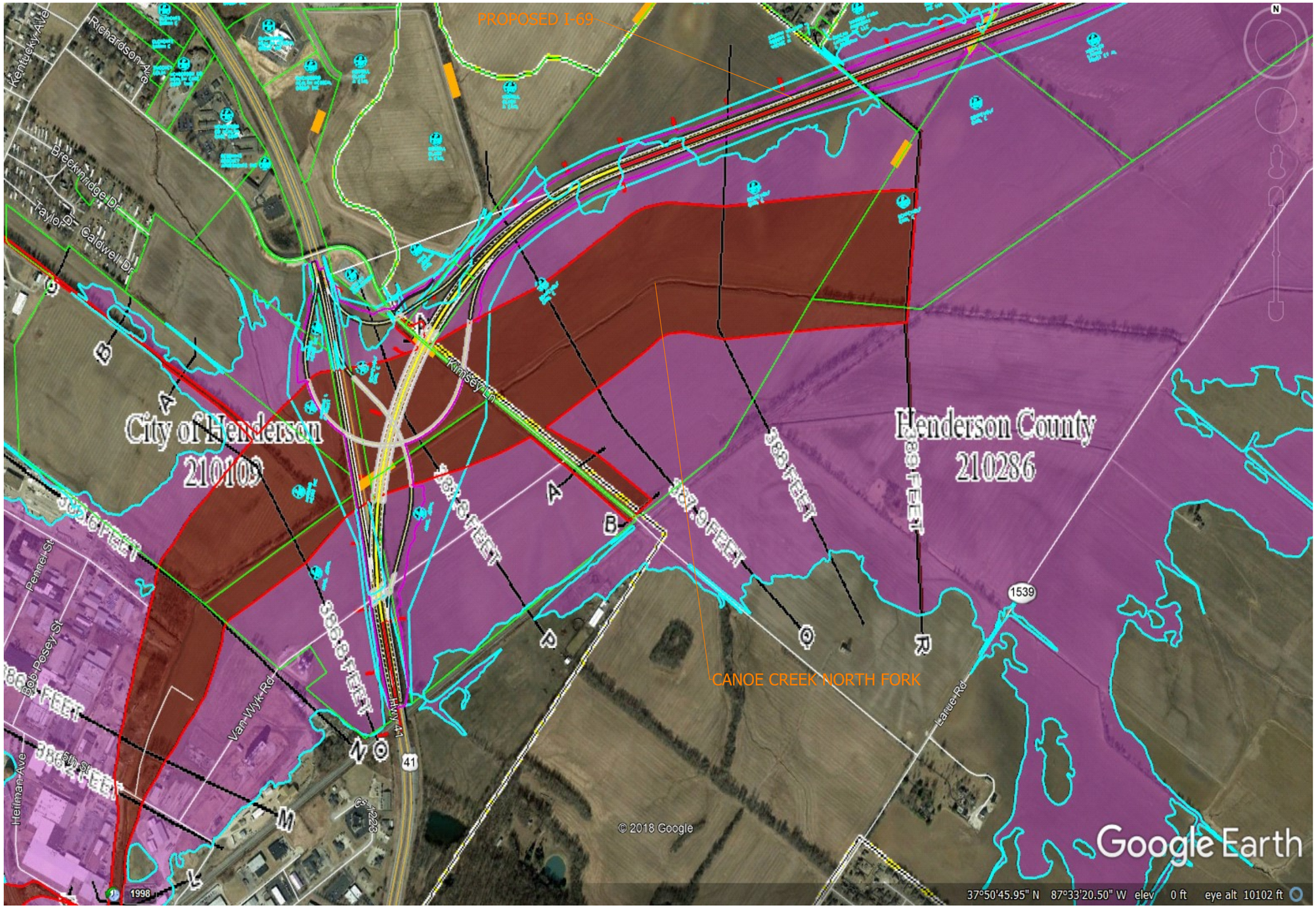
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I-69 — US 41 TO US 60 — CANOE CREEK IMPACTS

N.T.S.

EXHIBIT 5A: FEMA FIS FLOODPLAIN/FLOODWAY MAP

08/10/2019



FEMA 100 YR FLOODWAY

FEMA 100 YR FLOODPLAIN

OHIO RIVER CROSSING

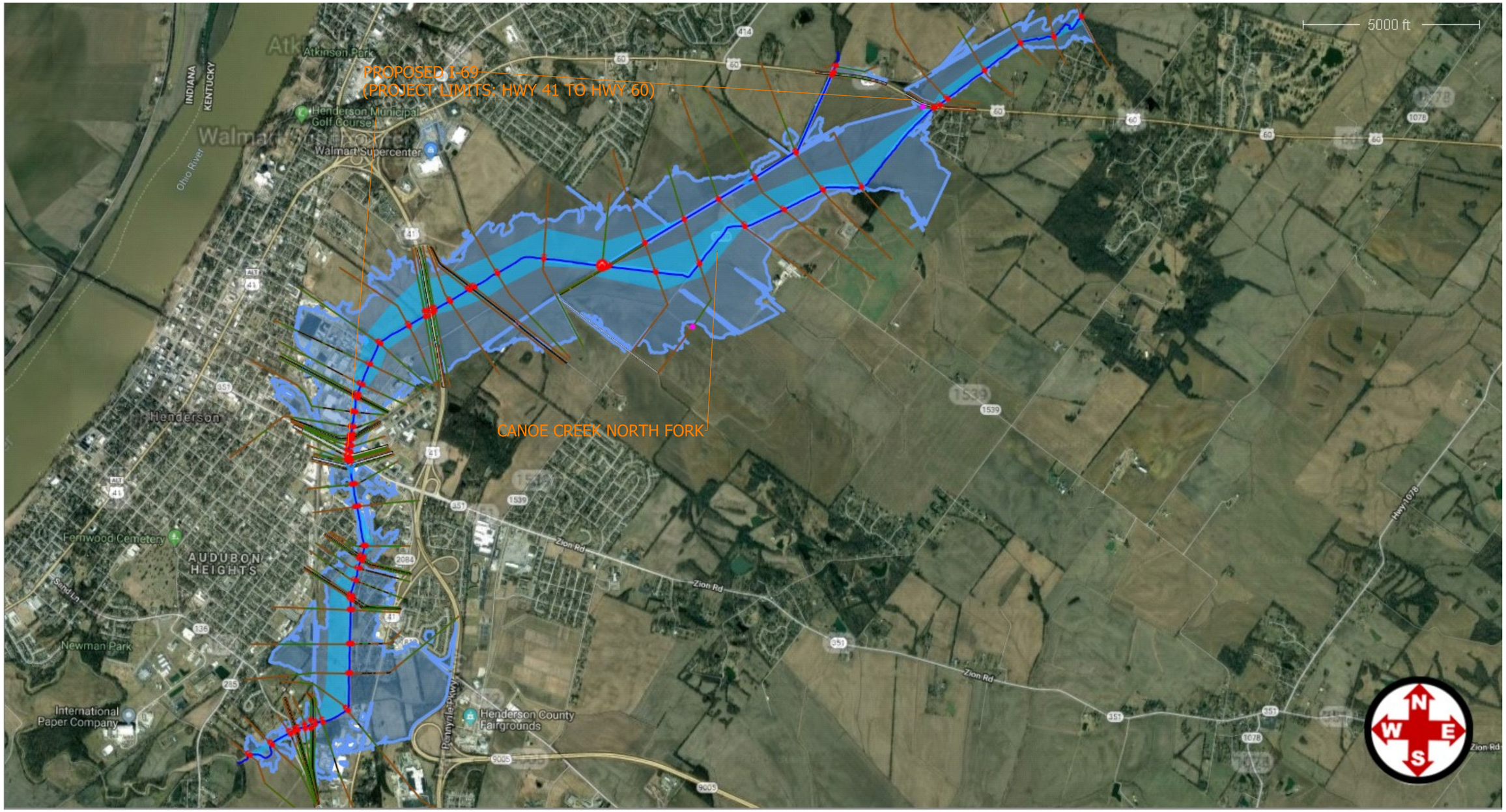
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I-69 — US 41 TO US 60 — CANOE CREEK IMPACTS

N.T.S.

EXHIBIT 5B: FEMA FIS FLOODPLAIN/FLOODWAY MAP

08/10/2019



EXISTING 100 YR FLOODWAY

EXISTING 100 YR FLOODPLAIN

OHIO RIVER CROSSING

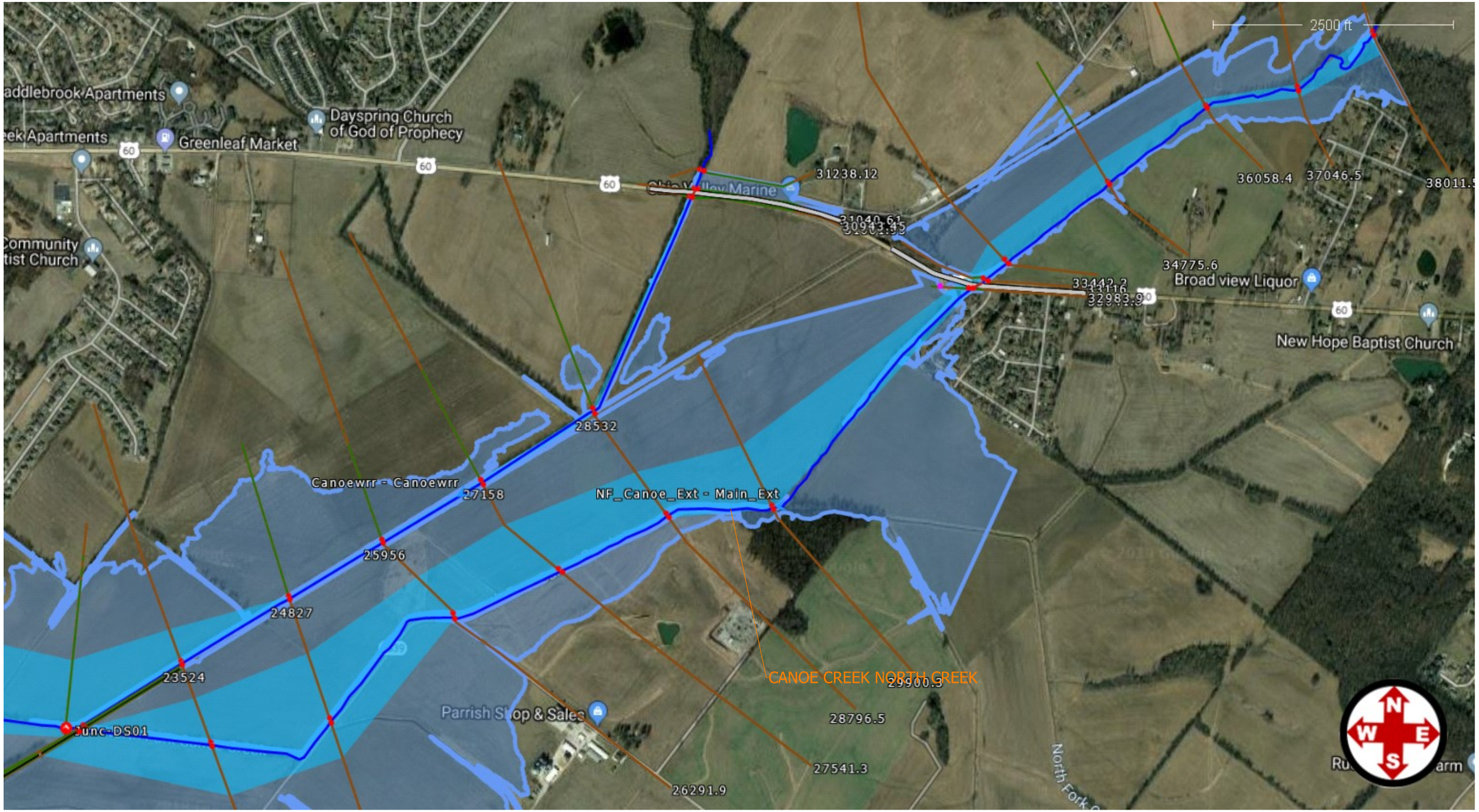
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I-69 — US 41 TO US 60 — CANOE CREEK IMPACTS

N.T.S.

EXHIBIT 6A: EXISTING CONDITION FLOODPLAIN

08/10/2019



EXISTING 100 YR FLOODWAY

EXISTING 100 YR FLOODPLAIN

ORX 69 OHIO RIVER CROSSING

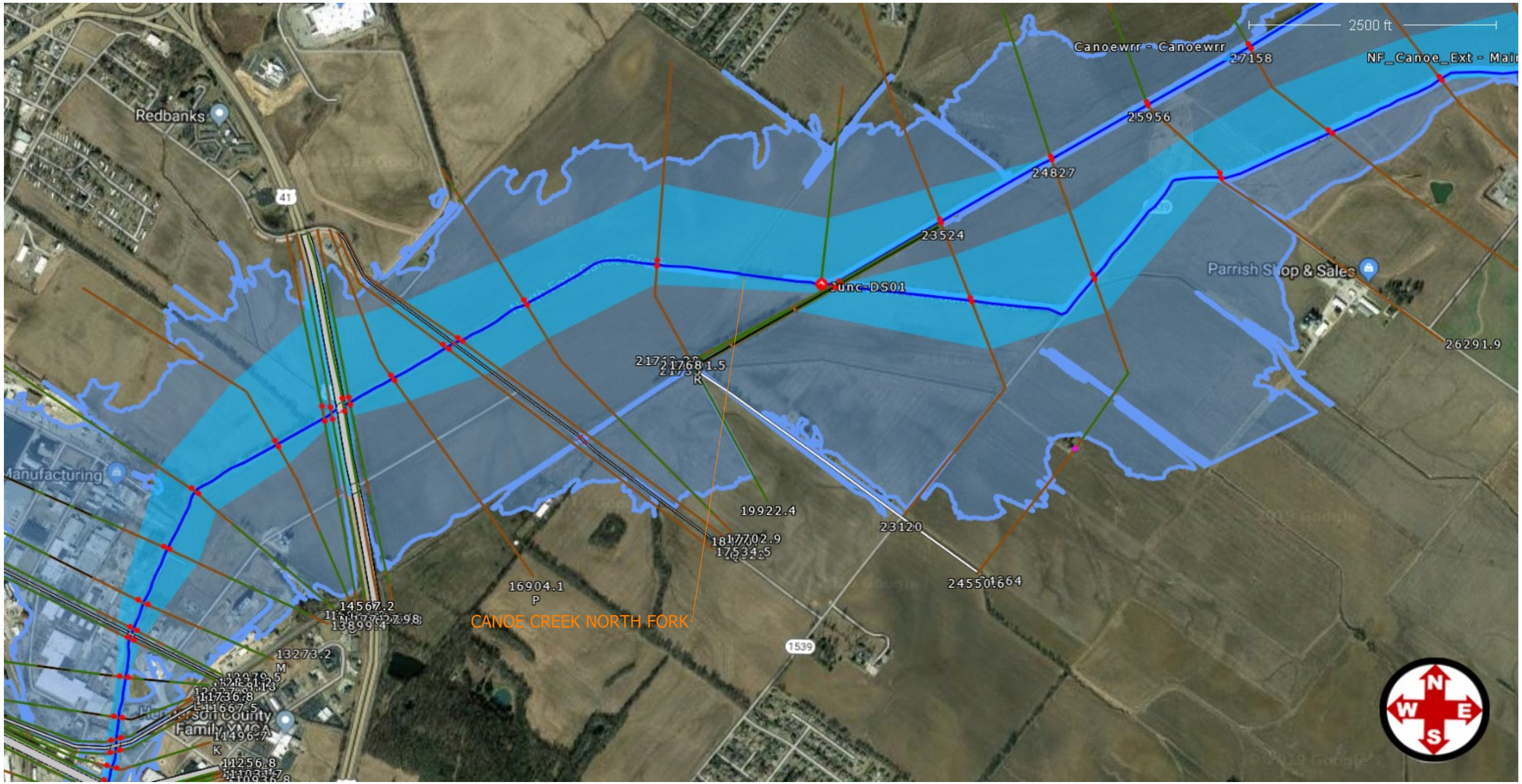
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I-69 — US 41 TO US 60 — CANOE CREEK IMPACTS

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EXHIBIT 6B: EXISTING CONDITION FLOODPLAIN

08/10/2019



EXISTING 100 YR FLOODWAY

EXISTING 100 YR FLOODPLAIN

ORX 69 OHIO RIVER CROSSING

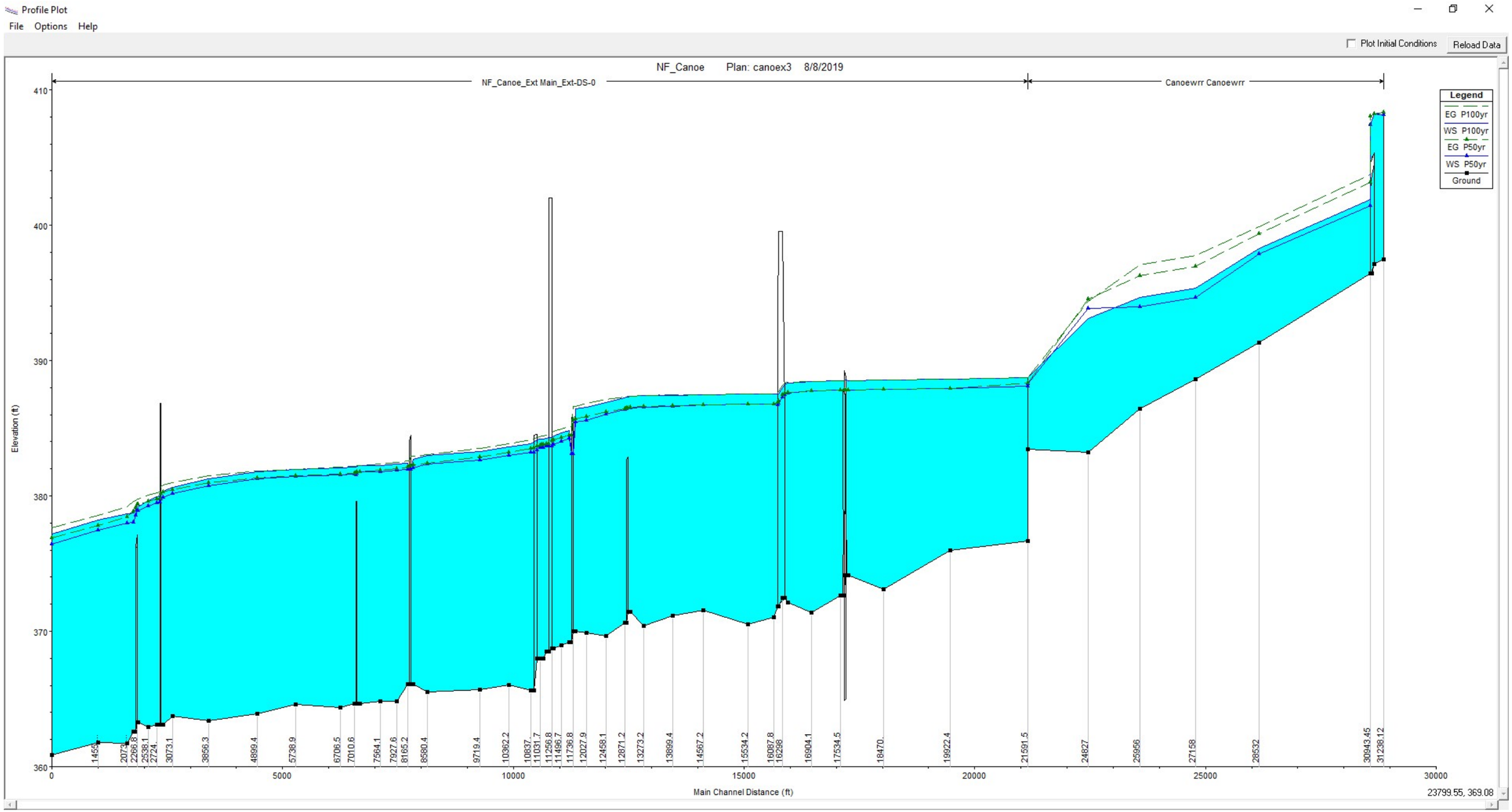
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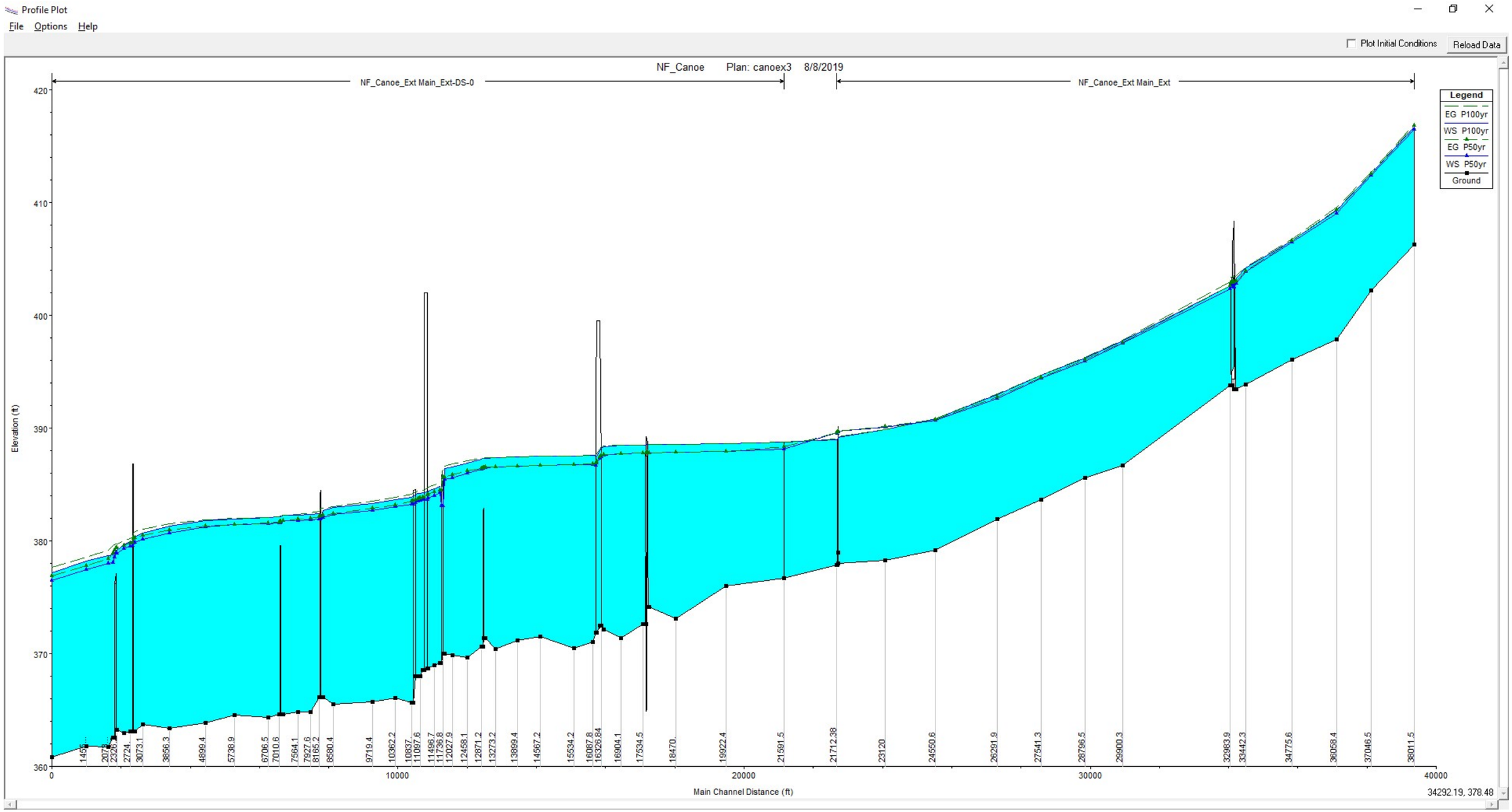
EXHIBIT 6C: EXISTING CONDITION FLOODPLAIN

08/10/2019



CANOE CREEK NORTH FORK AND WEST RIVER TRIBUTARY

ORX 69 OHIO RIVER CROSSING	PARSONS 101 W. Ohio St., Suite 2121 Indianapolis, IN 46204 Bus (317) 616-1000 Fax (317) 616-1033	I-69 — US 41 to US 60 — CANOE CREEK IMPACTS	
		EXHIBIT 6D: EXISTING CONDITION PROFILE	08/10/2019



CANOE CREEK NORTH FORK

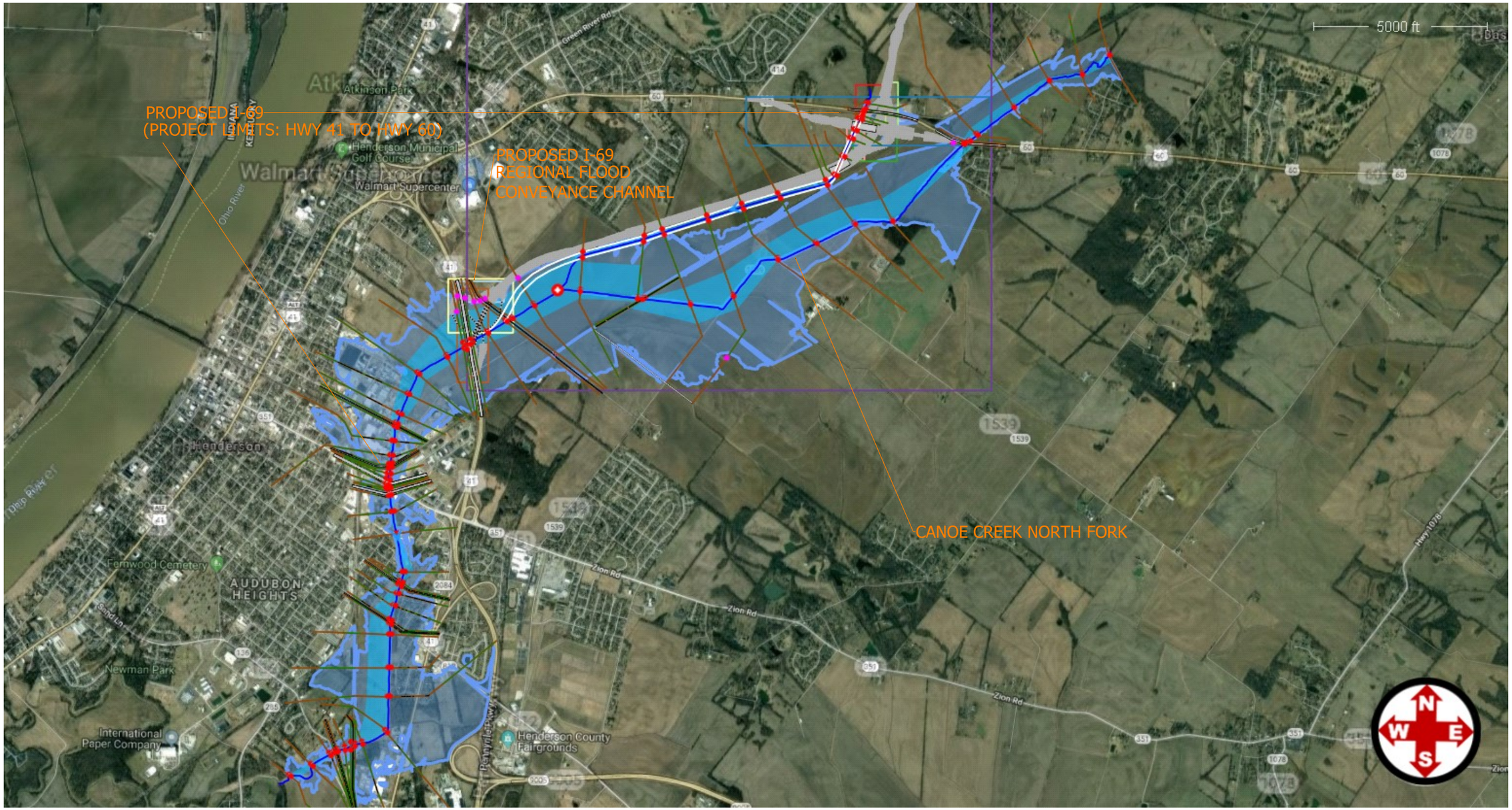
ORX 69 OHIO RIVER CROSSING

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I-69 — US 41 TO US 60 — CANOE CREEK IMPACTS

EXHIBIT 6E: EXISTING CONDITION PROFILE

08/10/2019



PROPOSED 100 YR FLOODWAY

PROPOSED 100 YR FLOODPLAIN

ORX 69 OHIO RIVER CROSSING

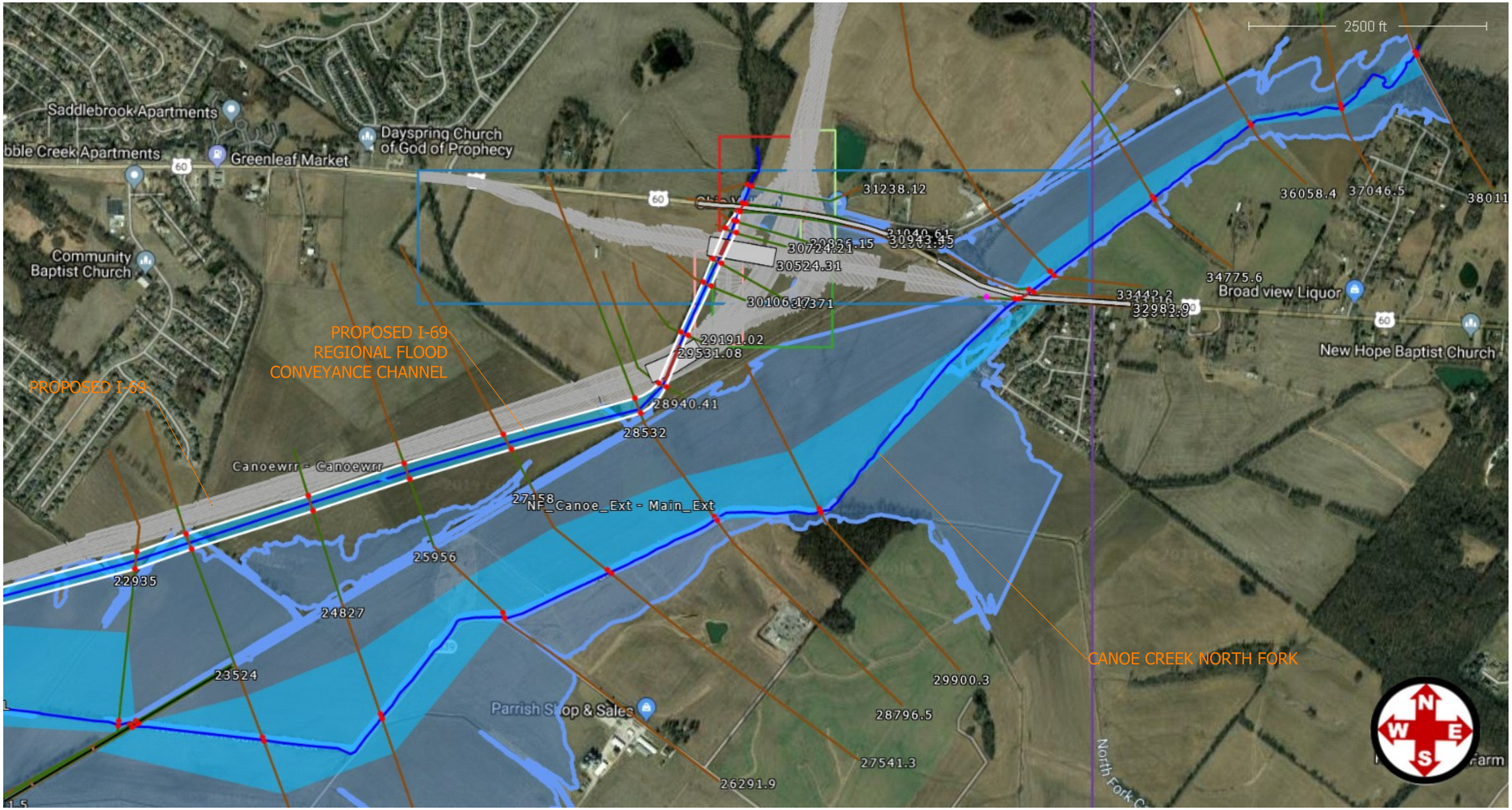
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I-69 — US 42 TO US 60 — CANOE CREEK IMPACTS

N.T.S.

EXHIBIT 7A: PROPOSED CONDITION FLOODPLAIN

08/10/2019



PROPOSED 100 YR FLOODWAY

PROPOSED 100 YR FLOODPLAIN

OHIO RIVER CROSSING

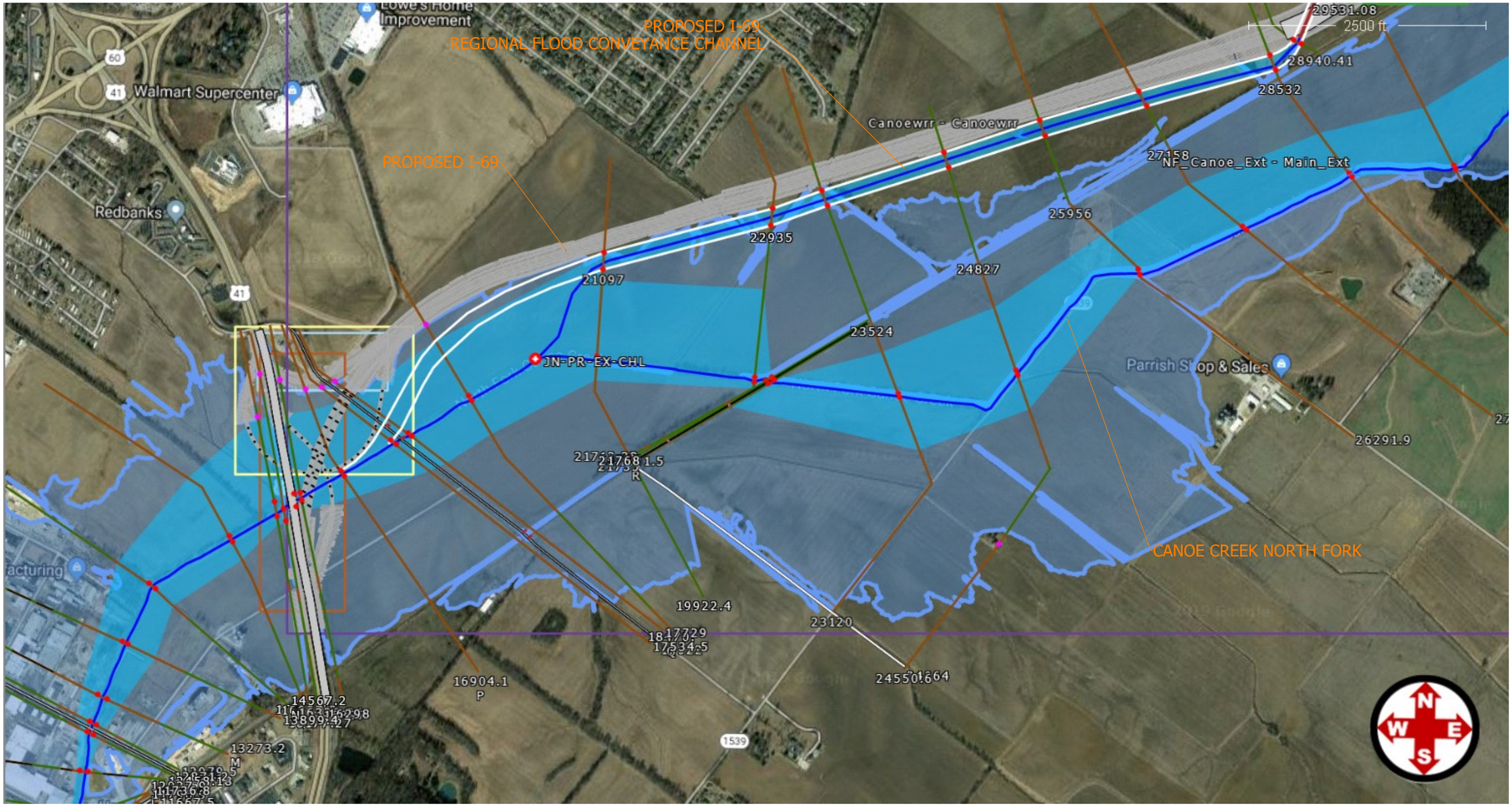
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I-69 — US 41 TO US 60 — CANOE CREEK IMPACTS

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EXHIBIT 7B: PROPOSED CONDITION FLOODPLAIN

08/10/2019



PROPOSED 100 YR FLOODWAY

PROPOSED 100 YR FLOODPLAIN

OHIO RIVER CROSSING

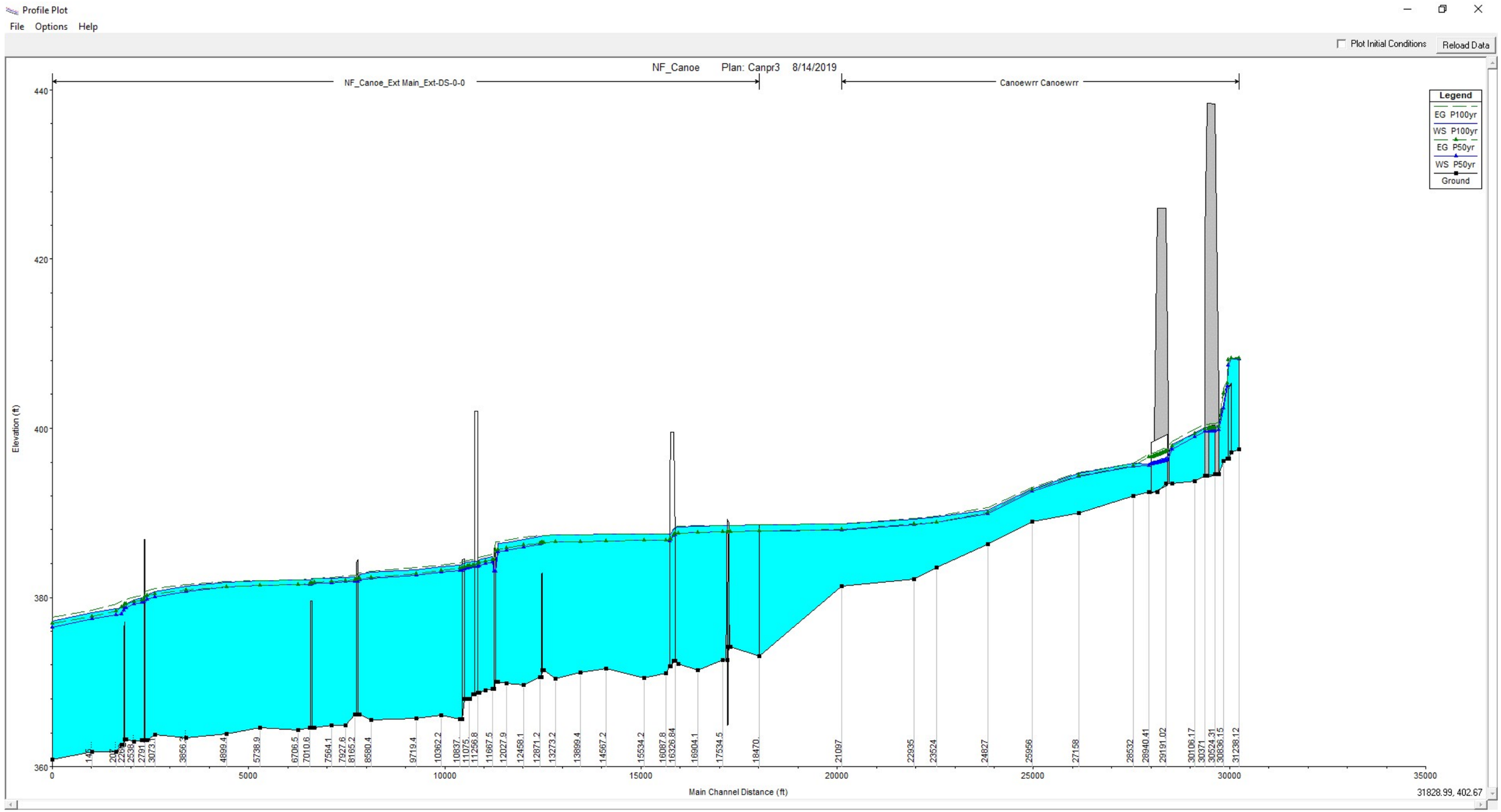
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I-69 — US 41 TO US 60 — CANOE CREEK IMPACTS

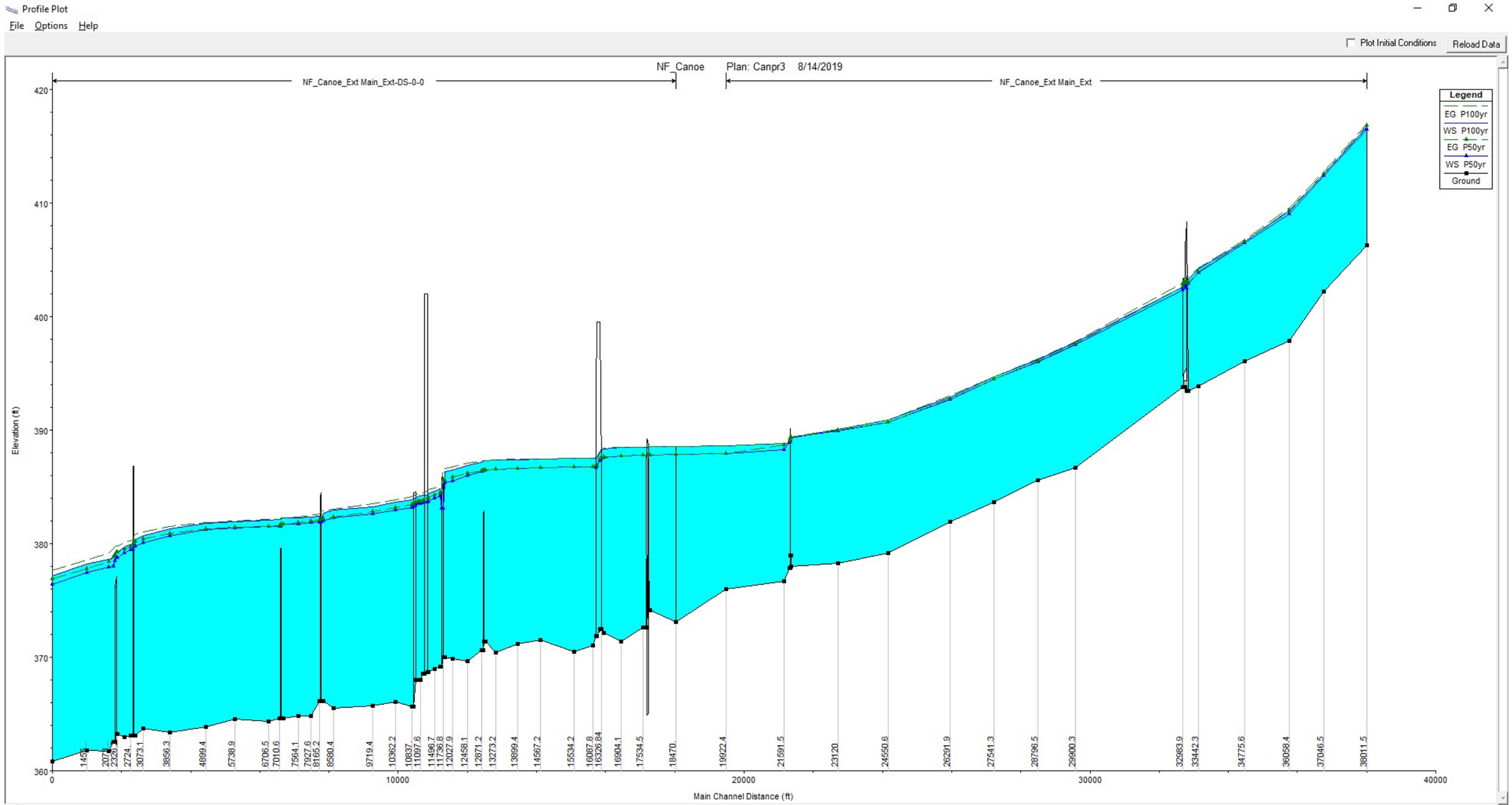
N.T.S.

EXHIBIT 7C: PROPOSED CONDITION FLOODPLAIN

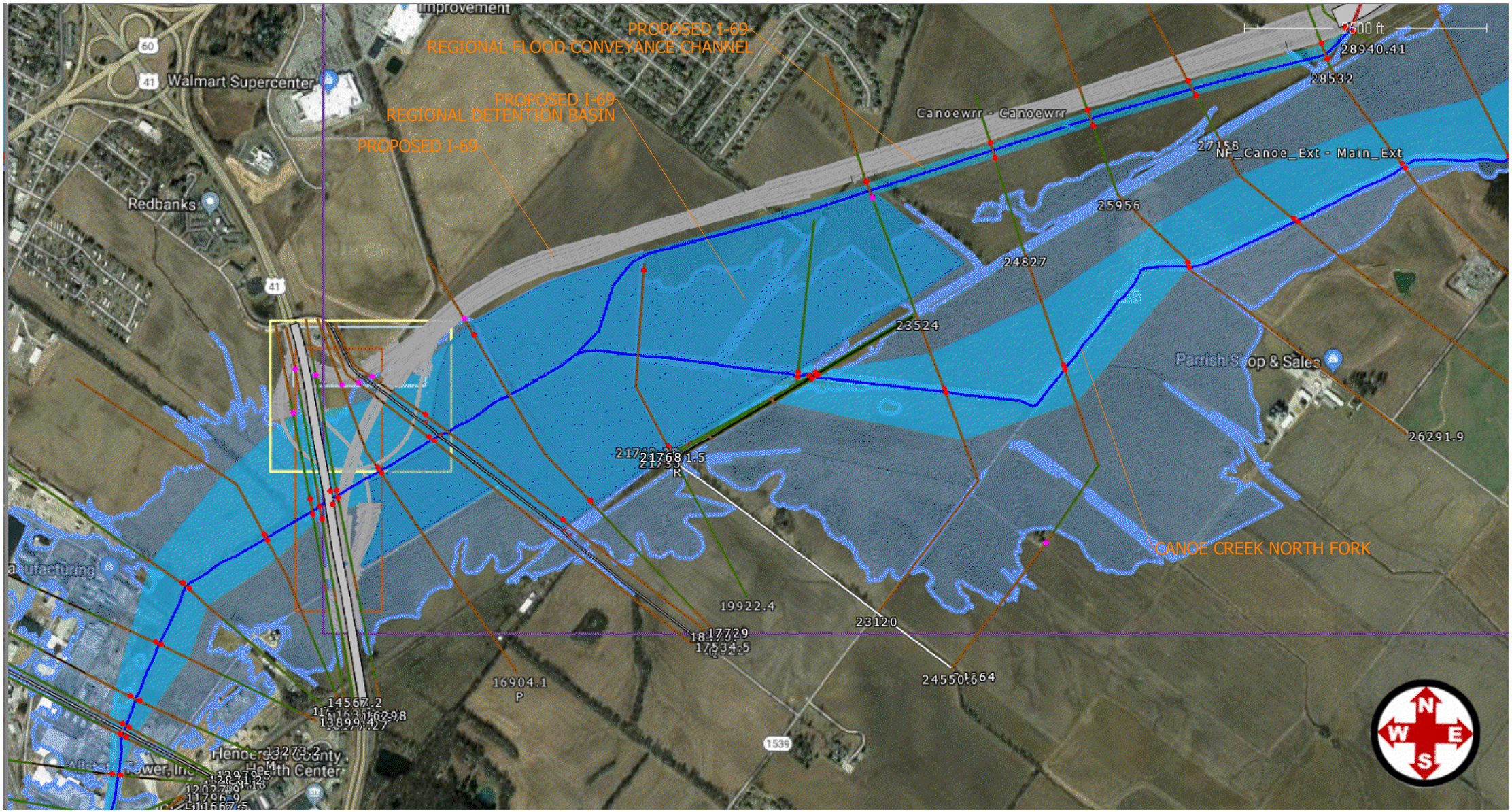
08/10/2019



CANOE CREEK NORTH FORK AND WEST RIVER TRIBUTARY



CANOE CREEK NORTH FORK



PROPOSED 100 YR FLOODWAY

PROPOSED 100 YR FLOODPLAIN

NOTE: THE 100 YR FLOODPLAIN FOR BOTH ULTIMATE AND INTERIM DETENTION BASINS IS GENERALLY THE SAME AT THIS SCALE.

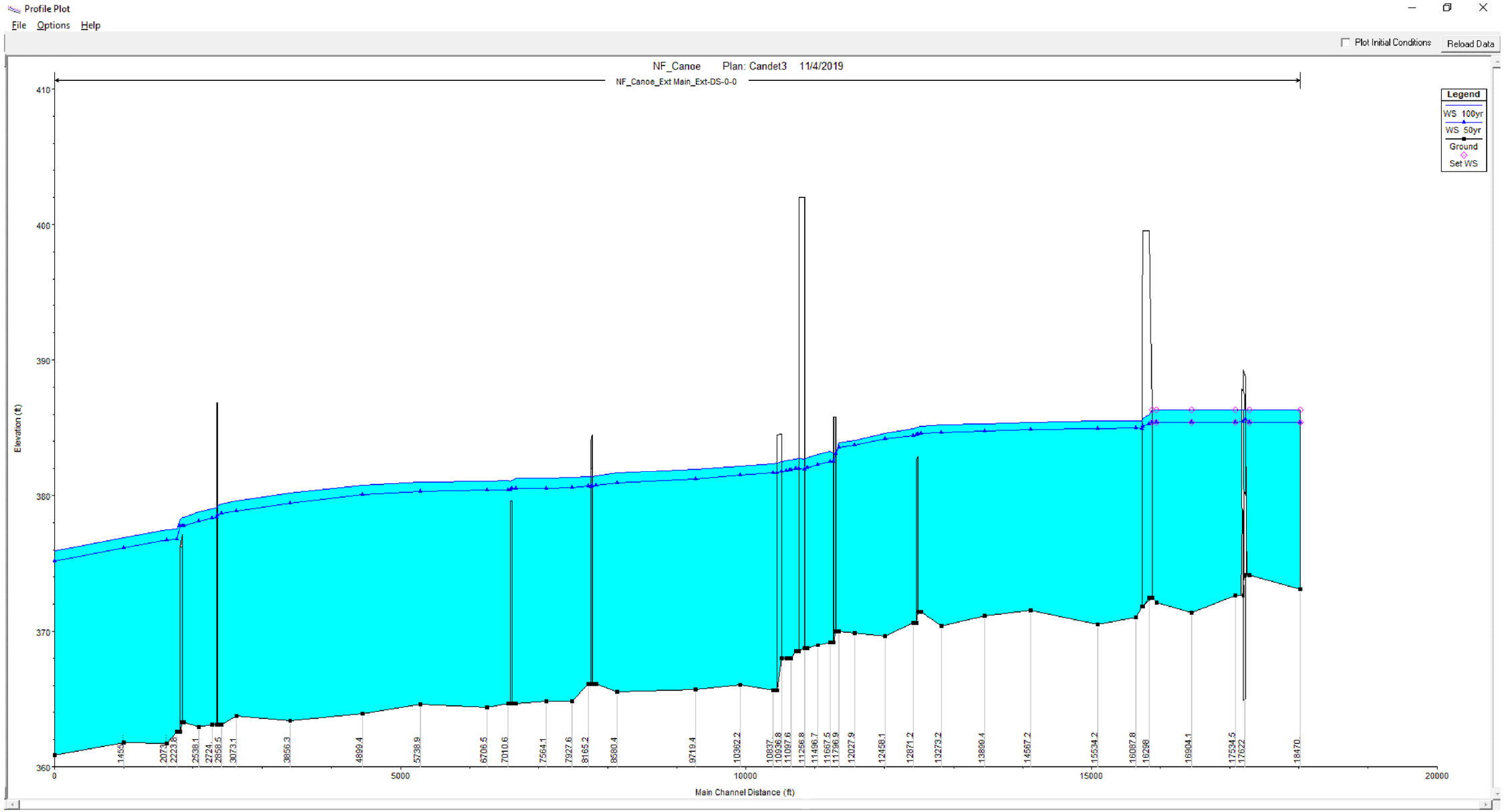
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I-69 — US 41 TO US 60 — CANOE CREEK IMPACTS

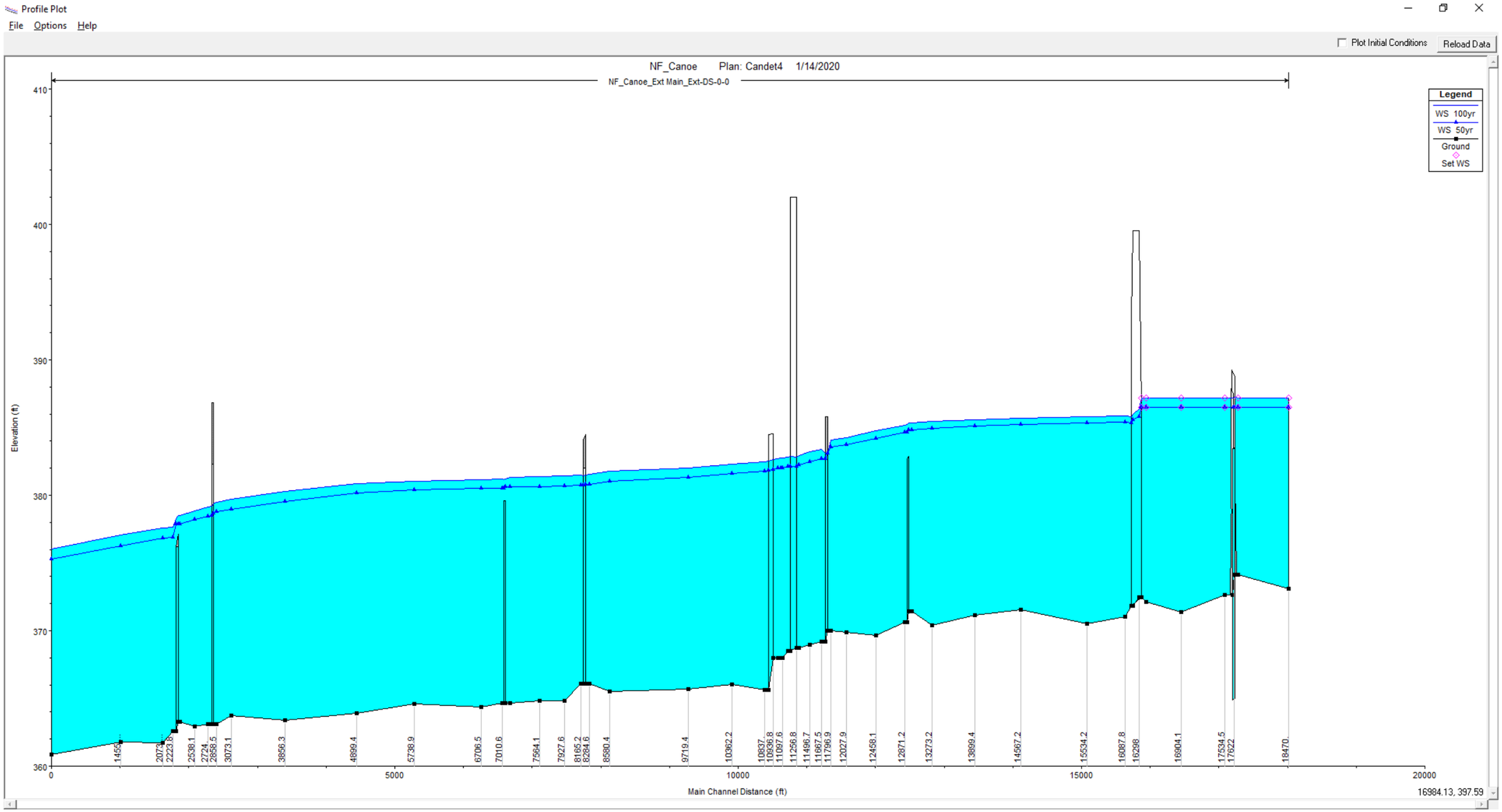
N.T.S.

EXHIBIT 7F: PROPOSED CONDITION WITH DETENTION FLOODPLAIN

1/15/2020



CANOE CREEK NORTH FORK



CANOE CREEK NORTH FORK

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I-69 — US 41 TO US 60 — CANOE CREEK IMPACTS

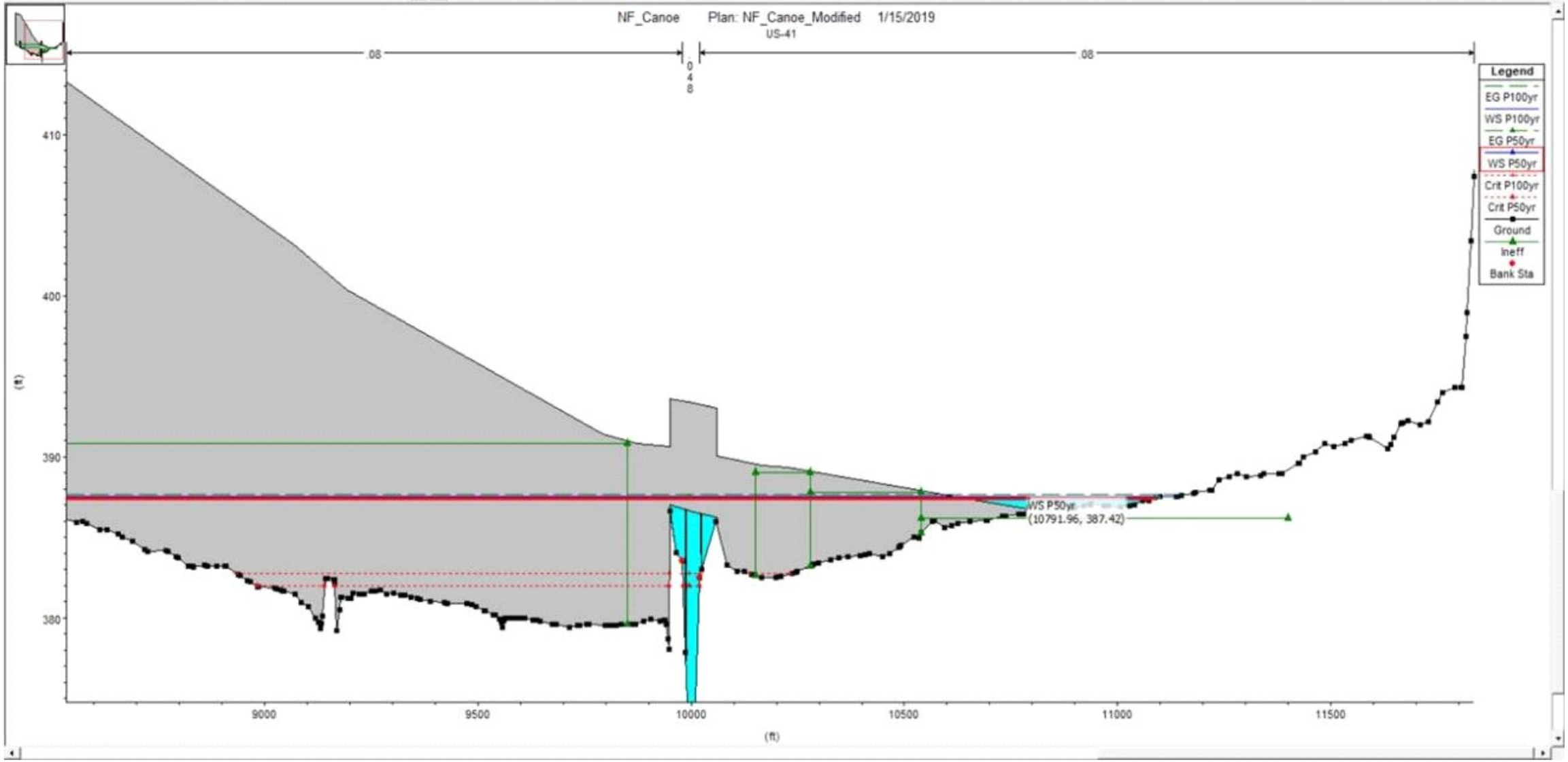
EXHIBIT 7H: PROPOSED CONDITION WITH INTERIM DETENTION PROFILE

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Cross Section

File Options Help

River: NF_Canoe | Reach: Main | River Sta.: 16251.8 BR U | Reload Data



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I-69 — US 41 TO US 60 — CANOE CREEK IMPACTS

EXHIBIT 8A: FEMA FIS CROSS SECTION AT HWY 41

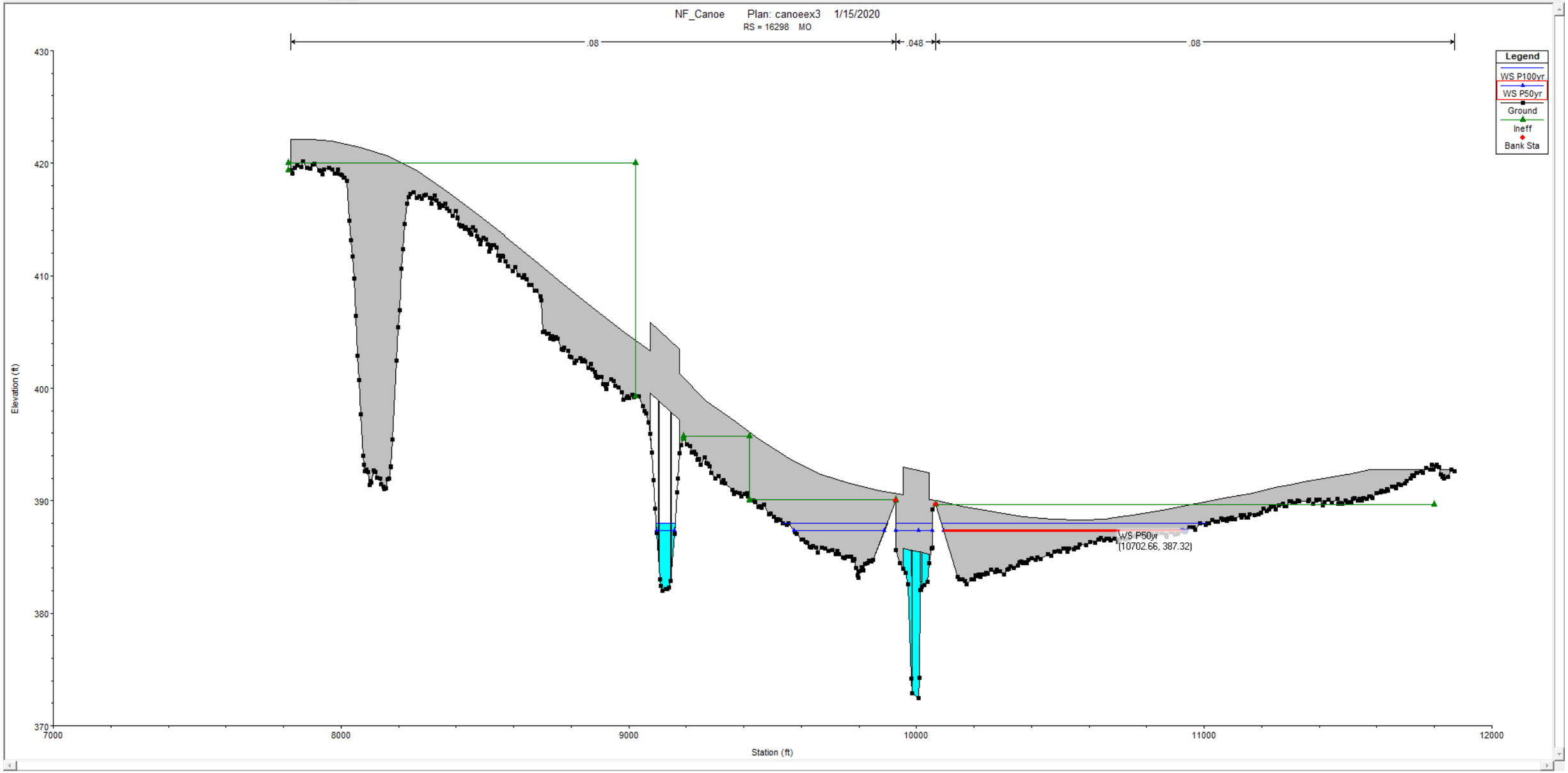
08/10/2019

Cross Section

File Options Help

River: NF_Canoe_Ext | 11960.43, 377.81 | Reload Data

Reach: Main_Ext-DS-0 | River Sta.: 16298 MO U



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I-69 — US 41 TO US 60 — CANOE CREEK IMPACTS

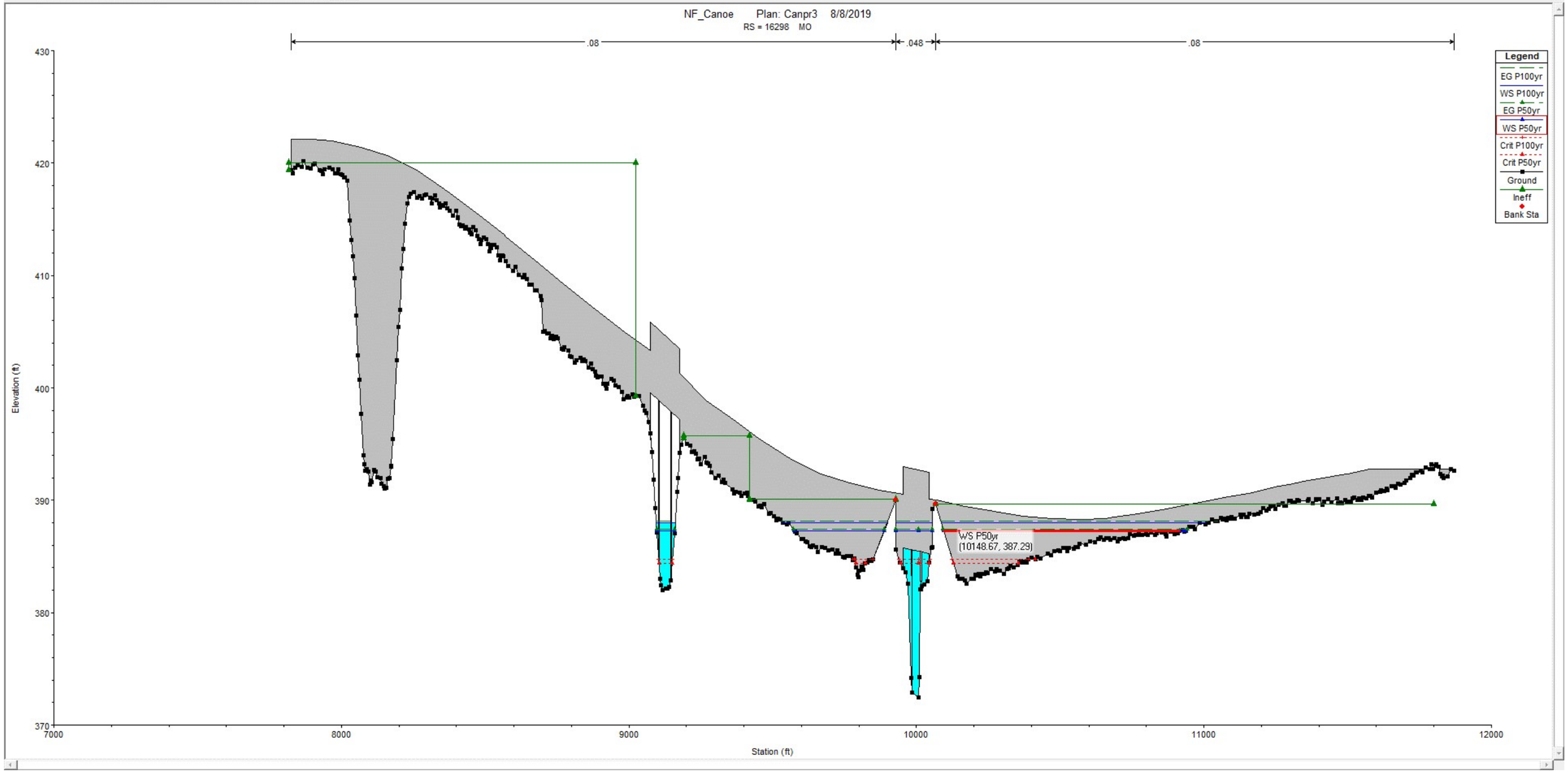
EXHIBIT 8B: EXISTING CONDITION X SECTION AT HWY 41

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Cross Section

File Options Help

River: NF_Canoe_Ext Reach: Main_Ext-DS-0-0 River Sta.: 16298 MO U Reload Data



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I-69 — US 41 TO US 60 — CANOE CREEK IMPACTS

EXHIBIT 8C: PROP CONDITION X SECTION AT HWY 41

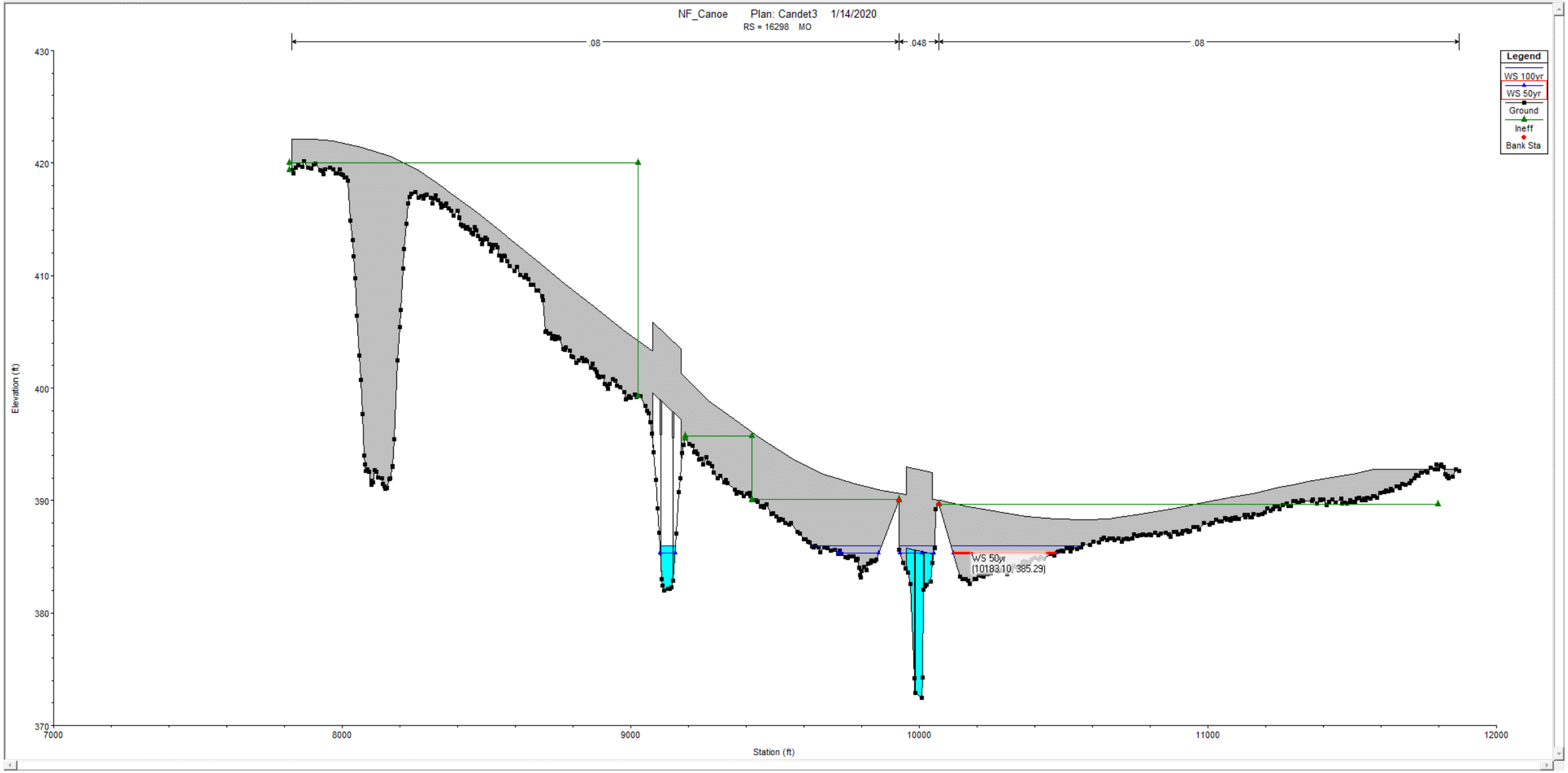
08/10/2019

Cross Section

File Options Help

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Reach: Main_Ext-DS-0-0 | River Sta.: 16298 MO U



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I-69 — US 41 TO US 60 — CANOE CREEK IMPACTS

EXHIBIT 8D: PROP CONDITION WITH DETENTION X SECTION AT HWY 41

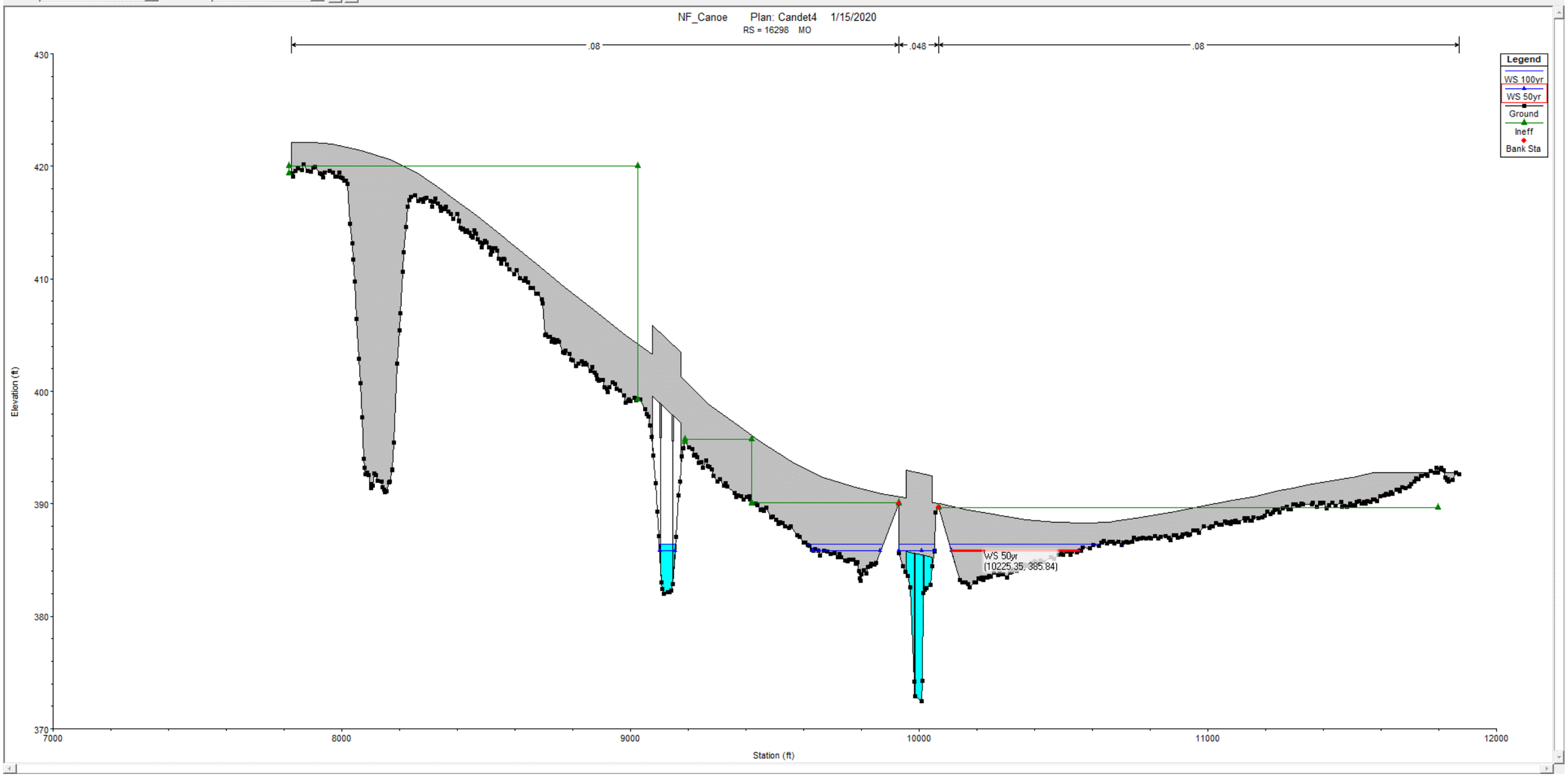
1/15/2020

Cross Section

File Options Help

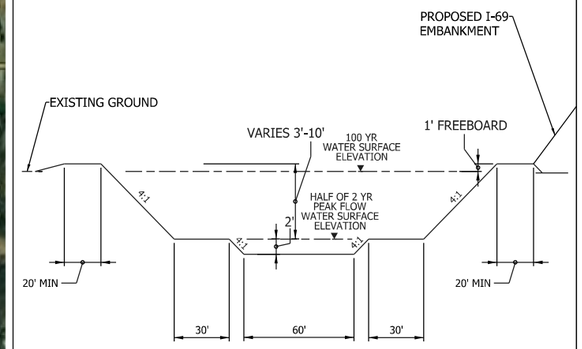
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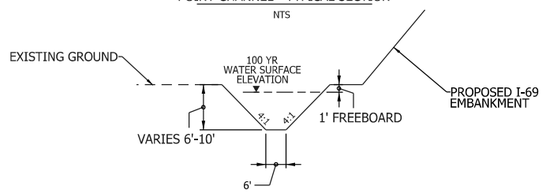
PARSONS 101 W. Ohio St., Suite 2121 Indianapolis, IN 46204 Bus (317) 616-1000 Fax (317) 616-1033	I-69 — US 41 TO US 60 — CANOE CREEK IMPACTS	
	EXHIBIT 8E: PROP CONDITION WITH INTERIM DETENTION X SECTION AT HWY 41	1/15/2020





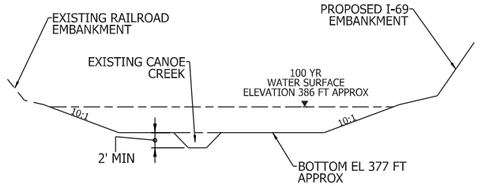
REGIONAL FLOOD CONVEYANCE EIGHT POINT CHANNEL - TYPICAL SECTION

NTS



REGIONAL FLOOD CONVEYANCE TRAPEZOIDAL CHANNEL - TYPICAL SECTION

NTS



PROPOSED REGIONAL DETENTION BASIN - TYPICAL SECTION

NTS

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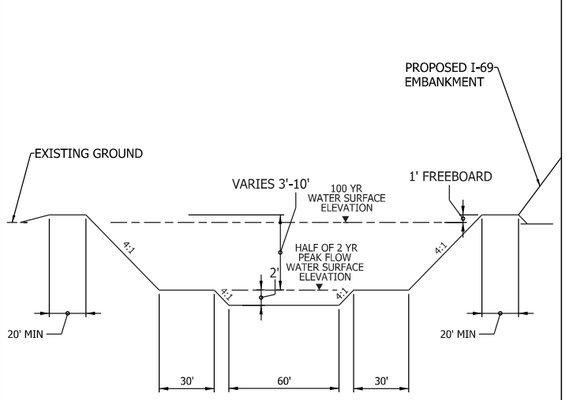
I-69 OHIO RIVER CROSSING

SCALE: 1" = 1000'
0' 500' 1000'

EXHIBIT 9A: PROPOSED DRAINAGE IMPROVEMENTS SCHEMATIC WITH ULTIMATE DETENTION BASIN

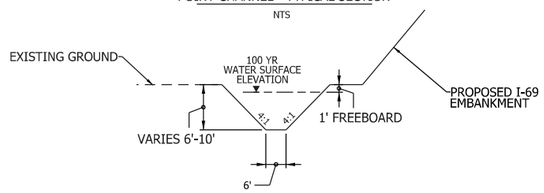
1/15/2020





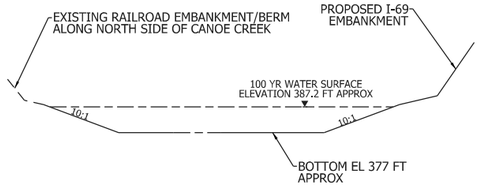
REGIONAL FLOOD CONVEYANCE EIGHT POINT CHANNEL - TYPICAL SECTION

NTS



REGIONAL FLOOD CONVEYANCE TRAPEZOIDAL CHANNEL - TYPICAL SECTION

NTS



PROPOSED REGIONAL DETENTION BASIN - TYPICAL SECTION

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I-69 OHIO RIVER CROSSING

SCALE: 1" = 1000'
0' 500' 1000'

EXHIBIT 9B: PROPOSED DRAINAGE IMPROVEMENTS SCHEMATIC WITH INTERIM DETENTION BASIN

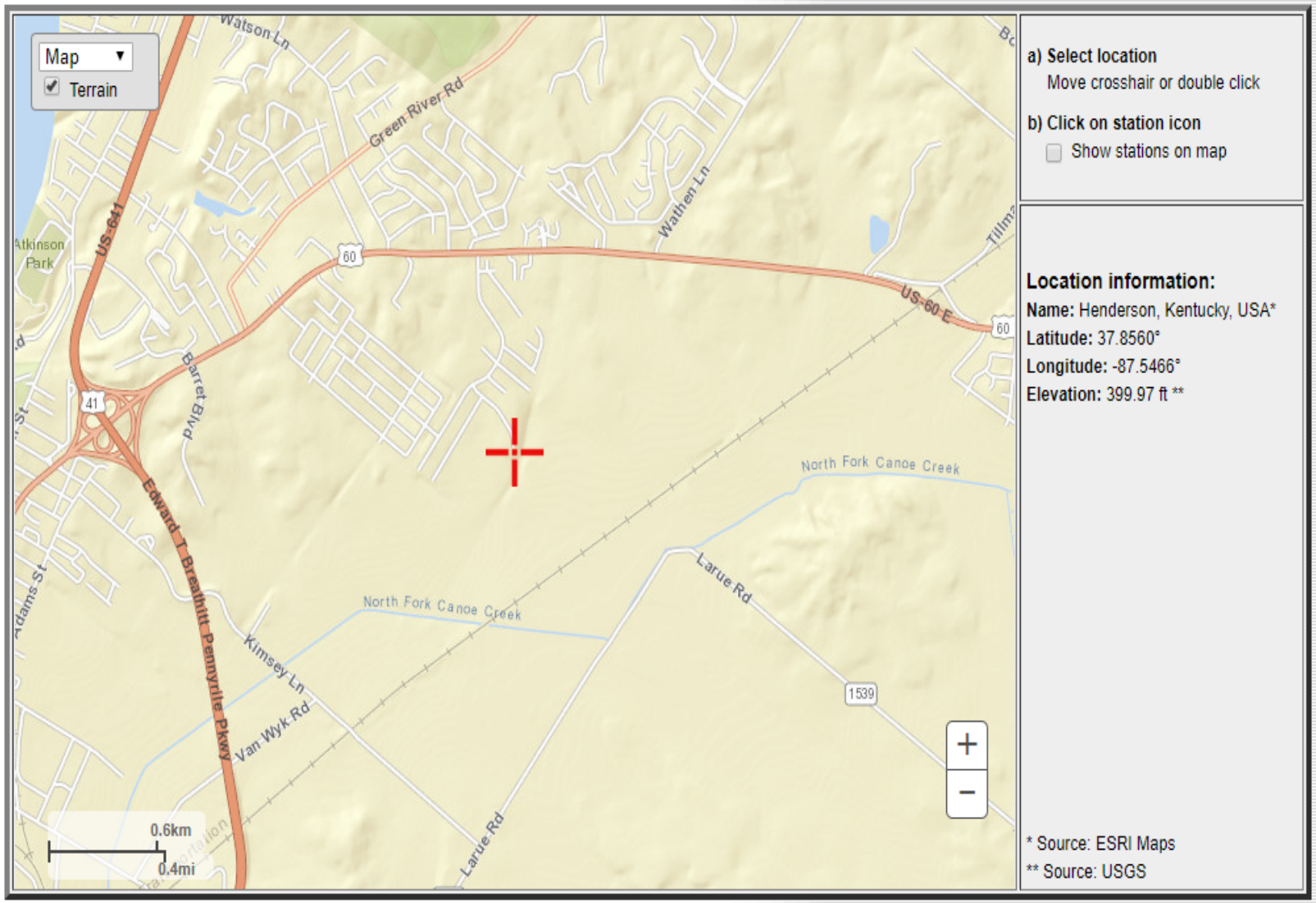
1/15/2020

Appendices

Appendix A

Appendix A-1

Canoe Creek Flood Impact Study on Proposed I69
Precipitation from NOAA 14



POINT PRECIPITATION FREQUENCY (PF) ESTIMATES

WITH 90% CONFIDENCE INTERVALS AND SUPPLEMENTARY INFORMATION
NOAA Atlas 14, Volume 2, Version 3

Canoe Creek Flood Impact Study on Proposed I69
Precipitation from NOAA 14

WITH 90% CONFIDENCE INTERVALS AND SUPPLEMENTARY INFORMATION
NOAA Atlas 14, Volume 2, Version 3

PF tabular | PF graphical | Supplementary information | Print page

PDS-based precipitation frequency estimates with 90% confidence intervals (in inches)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.390 (0.356-0.428)	0.460 (0.421-0.506)	0.544 (0.497-0.597)	0.612 (0.557-0.670)	0.698 (0.633-0.763)	0.766 (0.691-0.836)	0.832 (0.747-0.907)	0.901 (0.804-0.983)	0.990 (0.877-1.08)	1.06 (0.932-1.16)
10-min	0.608 (0.554-0.666)	0.720 (0.658-0.791)	0.848 (0.775-0.930)	0.947 (0.861-1.04)	1.07 (0.970-1.17)	1.16 (1.05-1.27)	1.25 (1.13-1.37)	1.35 (1.20-1.47)	1.46 (1.30-1.60)	1.55 (1.37-1.70)
15-min	0.745 (0.680-0.817)	0.881 (0.805-0.968)	1.04 (0.952-1.14)	1.17 (1.06-1.28)	1.32 (1.20-1.45)	1.44 (1.30-1.57)	1.56 (1.40-1.70)	1.68 (1.50-1.83)	1.83 (1.62-1.99)	1.94 (1.71-2.12)
30-min	0.988 (0.901-1.08)	1.18 (1.08-1.30)	1.43 (1.31-1.57)	1.62 (1.48-1.78)	1.87 (1.70-2.05)	2.07 (1.86-2.25)	2.26 (2.03-2.46)	2.46 (2.19-2.68)	2.72 (2.41-2.97)	2.92 (2.57-3.19)
60-min	1.21 (1.10-1.32)	1.45 (1.33-1.60)	1.80 (1.64-1.97)	2.07 (1.88-2.26)	2.43 (2.20-2.66)	2.73 (2.46-2.97)	3.02 (2.72-3.30)	3.34 (2.98-3.64)	3.76 (3.34-4.11)	4.10 (3.61-4.49)
2-hr	1.45 (1.33-1.59)	1.76 (1.61-1.92)	2.19 (2.01-2.40)	2.54 (2.32-2.78)	3.02 (2.74-3.29)	3.40 (3.08-3.70)	3.80 (3.42-4.14)	4.22 (3.77-4.59)	4.79 (4.25-5.22)	5.24 (4.62-5.72)
3-hr	1.56 (1.43-1.71)	1.89 (1.73-2.07)	2.36 (2.15-2.58)	2.74 (2.50-3.00)	3.28 (2.97-3.57)	3.71 (3.35-4.05)	4.17 (3.74-4.54)	4.65 (4.14-5.06)	5.32 (4.69-5.80)	5.87 (5.14-6.40)
6-hr	1.92 (1.76-2.10)	2.31 (2.12-2.54)	2.88 (2.63-3.16)	3.35 (3.05-3.67)	4.01 (3.64-4.38)	4.56 (4.10-4.97)	5.14 (4.60-5.59)	5.74 (5.11-6.25)	6.61 (5.82-7.20)	7.31 (6.38-7.97)
12-hr	2.27 (2.08-2.48)	2.74 (2.51-3.00)	3.40 (3.11-3.72)	3.94 (3.59-4.31)	4.71 (4.27-5.13)	5.33 (4.81-5.80)	5.99 (5.38-6.52)	6.68 (5.96-7.27)	7.66 (6.77-8.34)	8.45 (7.40-9.21)
24-hr	2.73 (2.55-2.92)	3.28 (3.07-3.52)	4.08 (3.82-4.38)	4.73 (4.42-5.07)	5.65 (5.25-6.03)	6.39 (5.91-6.83)	7.17 (6.60-7.65)	7.99 (7.31-8.54)	9.14 (8.28-9.79)	10.1 (9.05-10.8)
2-day	3.25 (3.02-3.50)	3.91 (3.63-4.21)	4.87 (4.52-5.24)	5.66 (5.24-6.09)	6.79 (6.25-7.31)	7.73 (7.09-8.32)	8.73 (7.96-9.41)	9.80 (8.87-10.6)	11.3 (10.1-12.3)	12.6 (11.2-13.7)
3-day	3.46 (3.22-3.73)	4.16 (3.87-4.48)	5.16 (4.80-5.57)	6.00 (5.56-6.47)	7.21 (6.65-7.77)	8.22 (7.55-8.86)	9.30 (8.49-10.0)	10.5 (9.49-11.3)	12.2 (10.9-13.2)	13.6 (12.0-14.8)
4-day	3.68 (3.42-3.97)	4.40 (4.10-4.75)	5.46 (5.08-5.89)	6.34 (5.88-6.84)	7.63 (7.05-8.23)	8.71 (8.01-9.40)	9.88 (9.03-10.7)	11.1 (10.1-12.1)	13.0 (11.6-14.1)	14.5 (12.9-15.8)
7-day	4.28 (3.97-4.62)	5.12 (4.75-5.55)	6.34 (5.88-6.87)	7.37 (6.82-7.98)	8.87 (8.16-9.61)	10.1 (9.28-11.0)	11.5 (10.5-12.5)	13.0 (11.7-14.1)	15.1 (13.5-16.5)	16.9 (14.9-18.6)
10-day	4.82 (4.47-5.24)	5.77 (5.36-6.27)	7.14 (6.62-7.76)	8.28 (7.66-8.99)	9.93 (9.14-10.8)	11.3 (10.4-12.3)	12.8 (11.6-13.9)	14.4 (13.0-15.7)	16.7 (14.9-18.2)	18.6 (16.4-20.4)
20-day	6.64 (6.25-7.08)	7.89 (7.41-8.41)	9.46 (8.88-10.1)	10.7 (10.1-11.4)	12.5 (11.7-13.3)	13.9 (12.9-14.8)	15.3 (14.2-16.4)	16.8 (15.5-18.0)	18.8 (17.2-20.2)	20.4 (18.5-22.0)
30-day	8.18 (7.72-8.68)	9.67 (9.12-10.3)	11.4 (10.8-12.1)	12.8 (12.1-13.6)	14.8 (13.8-15.7)	16.3 (15.2-17.3)	17.8 (16.6-18.9)	19.3 (17.9-20.6)	21.4 (19.7-22.9)	23.0 (21.1-24.7)
45-day	10.3 (9.75-10.9)	12.1 (11.5-12.8)	14.1 (13.4-14.9)	15.7 (14.9-16.6)	17.8 (16.8-18.8)	19.5 (18.3-20.6)	21.1 (19.8-22.3)	22.8 (21.3-24.1)	25.0 (23.2-26.5)	26.6 (24.6-28.4)
60-day	12.2 (11.6-12.9)	14.4 (13.6-15.2)	16.7 (15.8-17.6)	18.4 (17.5-19.4)	20.7 (19.6-21.9)	22.5 (21.2-23.7)	24.2 (22.8-25.5)	25.9 (24.3-27.3)	28.0 (26.2-29.7)	29.6 (27.5-31.4)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

Estimates from the table in CSV format: Precipitation frequency estimates ▾ Submit

Appendix A-2

Canoe Creek Flood Impact Study on Proposed I69

Hydrologic Parameters for Modified FEMA FIS Hydrology Model for Existing and Proposed Conditions

Clark Unit Hydrograph Storage Coefficient R for Canoe Creek North Fork Modified Drainage Areas

Drainage Area ID	Time of Concentration	Drainage Area		Length of Flow Path from Outlet to Most Distant Point		Streams Length in Drainage Area		Perimeter of Drainage Area		Length from Outlet to Centroid of Drainage Area= .5L		Drainage Area/Streams Length		Streams lengths/ Perimeter	Storage Coefficient		Lag Time
	Tc	A		L		Ls		Lp		Lca		C		Rf	Log R	R	L
	hr	sq mi	sq m	mi	m	mi	m	mi	m	mi	m	mi	m		hr	hr	hr
NF0	1.03	2.43	6295772.0	2.07	3328	7.93	12762	8.40	13517	1.03	1663.85	0.31	493.30	0.94	0.29	1.97	37.1
NF40	2.02	2.54	6577305.0	2.13	3435	6.29	10126	7.89	12701	1.07	1717.48	0.40	649.56	0.80	-0.06	0.88	72.6
NF1A	1.08	1.16	3015148.5	2.11	3395	4.10	6598	5.91	9511	1.05	1697.53	0.28	456.98	0.69	0.22	1.67	38.7
NF1B	1.96	0.91	2354395.5	2.19	3525	3.12	5014	5.24	8433	1.10	1762.55	0.29	469.55	0.59	0.14	1.37	70.5
NF2A	1.43	0.58	1506766.2	1.96	3161	2.31	3716	4.65	7483	0.98	1580.42	0.25	405.47	0.50	0.12	1.33	51.3
NF2B	0.84	0.25	657189.2	0.83	1337	0.83	1337	2.26	3637	0.42	668.56	0.31	491.49	0.37	-0.77	0.17	30.1
NF3M	2.30	0.26	676249.0	1.14	1832	1.14	1832	2.82	4543	0.57	915.77	0.23	369.22	0.40	-0.23	0.58	82.6
NF4M	2.78	0.40	1036000.0	1.56	2511	1.56	2511	3.61	5812	0.78	1255.38	0.26	412.62	0.43	-0.11	0.77	100.0
NF4A	0.69	0.29	756539.0	1.38	2222	1.38	2222	2.62	4222	0.69	1111.03	0.21	340.47	0.53	0.11	1.29	25.0
NF4B	2.08	0.11	297073.0	0.89	1435	1.29	2070	2.69	4324	0.45	717.30	0.09	143.54	0.48	0.67	4.69	75.0
NF5M	0.55	0.48	1250970.0	1.29	2070	1.29	2070	3.91	6298	0.64	1034.79	0.38	604.45	0.33	-0.77	0.17	19.6
NF7M	1.57	0.09	226366.0	0.57	914	0.57	914	1.34	2155	0.28	456.90	0.15	247.71	0.42	-0.24	0.58	56.3
NF8M	0.53	1.16	3008544.0	2.46	3965	2.46	3965	6.78	10911	1.23	1982.49	0.47	758.77	0.36	-0.54	0.29	18.9
NF9M	2.28	0.13	345247.0	0.88	1421	0.88	1421	2.01	3239	0.44	710.28	0.15	243.03	0.44	0.08	1.20	82.2
NF10M	1.66	0.25	654234.0	0.84	1355	0.84	1355	2.24	3607	0.42	677.26	0.30	483.00	0.38	-0.74	0.18	59.9
NF10A	0.83	0.16	413882.0	0.85	1375	0.85	1375	2.11	3404	0.43	687.33	0.19	301.08	0.40	-0.20	0.62	29.9
NF10B	2.49	0.09	240352.0	0.85	1364	0.85	1364	1.79	2878	0.42	682.13	0.11	176.18	0.47	0.42	2.66	89.5
NF12M	1.60	0.14	356384.0	0.66	1068	0.66	1068	1.71	2748	0.33	534.19	0.21	333.57	0.39	-0.49	0.32	57.6
NF13M	0.84	0.63	1634549.0	1.67	2684	1.67	2684	4.91	7895	0.83	1342.05	0.38	608.97	0.34	-0.60	0.25	30.3
NF14M	0.78	0.45	1160579.0	0.95	1528	0.95	1528	3.34	5379	0.47	764.11	0.47	759.42	0.28	-1.27	0.05	28.0
NF16M	0.84	1.01	2608648.0	1.88	3023	2.88	4636	5.16	8297	0.94	1511.44	0.35	562.70	0.56	-0.18	0.66	30.2
NF17M	0.84	0.32	816368.0	0.92	1482	0.92	1482	3.52	5665	0.46	741.17	0.34	550.73	0.26	-1.01	0.10	30.4
NF20M	1.83	0.75	1940428.0	2.47	3968	2.47	3968	6.16	9912	1.23	1984.05	0.30	489.00	0.40	-0.04	0.91	65.8

Note: Lag time estimated for a comparison hydrologic HMS model using SCS hydrograph based on Kentucky Drainage Manual

Appendix A-3

Canoe Creek Flood Impact Study on Proposed I69
Hydrologic Parameters for Modified FEMA FIS Hydrology Model for Existing and Proposed Conditions

Runoff Curve Numbers and Percent Impervious

Drainage Area ID	Drainage Area		Row Crops (good), Open Space (poor), HSG B		Row Crops (good), Open Space (poor), HSG C		Row Crops (good), Open Space (poor), HSG D		Woods (fair) HSG B		Woods (fair), HSG C		Woods (fair), HSG D		Woods (fair), HSG B/D		Woods (fair), HSG C/D		Residential 1/3 ac, HSG B		Residential, HSG C		Residential, HSG D		Commercial/Misc, HSG B		Commercial/Misc, HSG C		Commercial/Misc, HSG D		Proposed I69 Paved (P) Area		Proposed I69 Unpaved (UP) Area		Original Area RCN	Updated Area RCN	Proposed RCN with original RCN	Proposed RCN with updated RCN	Percent Impervious for Proposed	Proposed RCN - Updated RCN	Comments
	A		RCNob	Aob	RCNcb	Acb	RCNod	Aod	RCNwb	Awb	RCNwc	Awc	RCNwd	Awd	RCNwbd	Awbd	RCNwcd	Awcd	RCNrb	Arb	RCNrc	Arc	RCNrd	Ard	RCNcb	Acb	RCNcc	Acc	RCNcd	Acd	RCNp	Ap	RCNup	Aup	RCNo	RCNu	RCNpo	RCNpu			
	sq mi	Acres		sq mi		sq mi		sq mi		sq mi		sq mi		sq mi		sq mi		sq mi		sq mi		sq mi		sq mi		sq mi		sq mi		sq mi		sq mi								
NF0M	2.43	1555.7	76	0.42	84	1.00	88	0.42	60	0.20	73		79		73		79	0.07	68	0.17	79	0.08	84	0.08	92		94		95		98	0.0089	89	0.0162	79.8	80.0	79.9	80.1	0.4%	0.13	1 ac Residential; mostly row crops in good condition
NF40M	2.54	1625.3	76	0.19	84	1.50	88	0.43	60	0.22	73		79	0.09	73		79		68	0.06	79	0.06	84		92		94		95		98		89		81.0	81.2	81.0	81.2		0.00	1 ac Residential; mostly row crops in good condition
NF1A	1.16	745.1	70	0.31	80	0.60	85	0.13	60		73		79		73		79		72		81	0.03	86	0.09	92		94		95		98	0.0303	89	0.1029	79.3	77.7	80.6	79.2	2.6%	1.53	1/3 ac residential; average of open space and row crops good
NF1B	0.91	581.8	70	0.03	80	0.36	85	0.13	60	0.20	73		79		73		79		72	0.06	81	0.12	86	0.02	92		94		95		98	0.0111	89	0.0056	79.3	75.5	79.6	75.8	1.2%	0.36	1/3 ac residential; average of open space and row crops good
NF2A	0.58	372.3	70	0.04	80	0.05	85	0.08	60		73		79		73		79		72	0.31	81	0.03	86	0.07	92		94		95		98	0.0039	89	0.0077	80.8	76.4	81.0	76.7	0.7%	0.31	1/3 ac residential; average of open space and row crops good
NF2B	0.25	162.4	70	0.05	80	0.02	85	0.02	60		73		79		73		79		72	0.05	81	0.08	86	0.04	92		94		95		98		89		80.8	77.9	80.8	77.9		0.00	1/3 ac residential; average of open space and row crops good
NF3M	0.26	167.1	78		85	0.26	89		60		73		79		73		79		72		81		86		92		94		95		98	0.0059	89	0.0019	85.0	85.0	85.3	85.3	2.2%	0.32	mostly row crops in good condition
NF4M	0.40	256.0	78	0.01	85	0.35	89	0.04	60		73		79		73		79		72		81		86		92		94		95		98	0.0132	89	0.0265	86.3	85.2	86.9	85.9	3.3%	0.67	mostly row crops in good condition
NF4A	0.29	186.9	78	0.01	85	0.24	89	0.04	60		73		79		73		79		72		81		86		92		94		95		98	0.0132	89	0.0265	86.3	85.3	87.1	86.2	4.5%	0.91	mostly row crops in good condition
NF4B	0.11	73.4	78		85	0.11	89		60		73		79		73		79		72		81		86		92		94		95		98		89		86.3	85.0	86.3	85.0		0.00	mostly row crops in good condition
NF5M	0.48	309.1	78	0.06	85	0.16	89	0.02	60		73		79		73		79		72	0.02	81		86	0.02	92	0.08	94	0.08	95	0.04	98	0.0007	89	0.0038	84.2	87.3	84.3	87.4	0.1%	0.03	row crops in good condition and commercial
NF7M	0.09	55.9	78		85	0.09	89		60		73		79		73		79		72		81		86		92		94		95		98		89		84.2	85.0	84.2	85.0		0.00	mostly row crops in good condition
NF8M	1.16	743.4	78	0.07	85	0.93	89	0.05	60		73		79		73		79		68	0.09	79	0.01	84	0.01	92		94		95		98		89		82.1	83.4		83.4		0.00	1 ac Residential; mostly row crops in good condition
NF9M	0.13	85.3	78		85	0.13	89		60		73		79		73		79		72		81		86		92		94		95		98		89		83.8	85.0	83.8	85.0		0.00	mostly row crops in good
NF10M	0.25	161.7	78		85	0.23	89	0.02	60		73		79		73		79		72		81		86		92		94		95		98	0.0224	89	0.0187	85.0	85.3	86.4	86.7	8.9%	1.40	mostly row crops in good condition
NF10A	0.16	102.3	78		85	0.14	89	0.02	60		73		79		73		79		72		81		86		92		94		95		98	0.0224	89	0.0187	85.0	85.5	87.3	87.7	14.0%	2.16	mostly row crops in good condition
NF10B	0.09	59.4	78		85	0.09	89		60		73		79		73		79		72		81		86		92		94		95		98		89		85.0	85.0	85.0	85.0		0.00	mostly row crops in good condition
NF12M	0.14	88.1	78		85	0.14	89		60		73		79		73		79		72		81		86		92		94		95		98		89		85.0	85.0	85.0	85.0		0.00	mostly row crops in good condition
NF13M	0.63	403.9	78	0.03	85	0.18	89	0.12	60		73		79		73		79		79	0.09	86	0.13	89	0.03	92		94		95	0.05	98	0.0035	89	0.0158	85.5	85.4	85.7	85.6	0.6%	0.16	Average of Town/mobile homes and 1/3 ac residential; mostly row crops in good condition
NF14M	0.45	286.8	78	0.03	85	0.22	89	0.15	60		73		79		73		79		72		81	0.03	86	0.02	92		94		95		98		89		82.6	85.6	82.6	85.6		0.00	1/3 ac residential; row crops good condition
NF16M	1.01	644.6	78	0.20	85	0.54	89	0.17	60		73		79		73		79		72	0.10	81		86		92		94		95		98		89		82.3	83.0	82.3	83.0		0.00	1/3 ac residential; row crops good condition
NF17M	0.32	201.7	78	0.03	85	0.15	89	0.03	60	0.06	73	0.02	79	0.03	73		79		72		81		86		92		94		95		98	0.0134	89	0.0409	80.4	78.6	82.3	80.8	4.3%	2.17	row crops good condition; woods fair condition
NF20M	0.75	479.5	78	0.10	85	0.31	89	0.24	60	0.10	73	0	79		73		79		72		81		86		92		94		95						83.2	84.0	83.2	84.0		0.00	row crops good condition; woods fair condition

https://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx

Appendix A-4

Canoe Creek Flood Impact Study on Proposed I69
Stream Lengths

DA ID/ Stream Description	Stream Length	Cumulative Stream Lengths	
	ft	ft	mi
NF0M			
Main Stream (NF0MTc)		10918	2.07
Other Streams			
0	9549		
1	546		
2	6364		
3	3023		
4	2596		
5	4157		
6	634		
7	1890		
8	2195	30954	5.86
Total Main & Other Streams		41872	7.93
NF40M			
Main Stream (NF40MTc)		11270	2.13
Other Streams			
0	4961		
1	4941		
2	2196		
3	2196		
4	818		
5	3767		
6	3073	21951	4.16
Total Main & Other Streams		33221	6.29
NF1A			
Main Stream (NF1ATc)		11139	2.11
Other Streams			
1	1162		
2	843		
3	798		
4	2184		
5	1011		
6	857		
7	497		
8	3157	10508	1.99
Total Main & Other Streams		21647	4.10
NF1B			
Main Stream (NF1BTc)		11565	2.19
Other Streams			

Canoe Creek Flood Impact Study on Proposed I69
Stream Lengths

DA ID/ Stream Description	Stream Length	Cumulative Stream Lengths	
	ft	ft	mi
0	1164.69		
1	820.18		
2	967.77		
3	1932.38	4885	0.93
Total Main & Other Streams		16450	3.12
NF2A			
Main Stream (NF2ATc)		10370	1.96
Other Streams			
0			
1	1821.71	1822	0.35
Total Main & Other Streams		12192	2.31
NF2B			
Main Stream (NF2BTc)		4387	0.83
Other Streams			
0	0	0	
Total Main & Other Streams		4387	0.83
NF3M			
Main Stream (NF3MTc)		6009	1.14
Other Streams			
0	0	0	
Total Main & Other Streams		6009	1.14
NF4			
Main Stream (NF4ATc)		8237	1.56
Other Streams			
0			
Total Main & Other Streams		8237	1.56
NF4A			
Main Stream (NF4ATc)		7290	1.38
Other Streams			
0			
Total Main & Other Streams		7290	1.38
NF4B			
Main Stream (NF4BTc)		4707	0.89
Other Streams			
0	0	0	
Total Main & Other Streams		4707	0.89

Canoe Creek Flood Impact Study on Proposed I69
Stream Lengths

DA ID/ Stream Description	Stream Length	Cumulative Stream Lengths	
	ft	ft	mi
NF5M			
Main Stream (NF5MTc)		6790	1.29
Other Streams			
0	0	0	
Total Main & Other Streams		6790	1.29
NF7M			
Main Stream (NF7MTc)		2998	0.57
Other Streams			
0	0	0	
Total Main & Other Streams		2998	0.57
NF8M			
Main Stream (NF8MTc)		13008	2.46
Other Streams			
0	0	0	
Total Main & Other Streams		13008	2.46
NF9M			
Main Stream (NF9MTc)		4661	0.88
Other Streams			
0	0	0	
Total Main & Other Streams		4661	0.88
NF10M			
Main Stream (NF10MTc)		4444	0.84
Other Streams			
0	0	0	
Total Main & Other Streams		4444	0.84
NF10A			
Main Stream (NF10ATc)		4510	0.85
Other Streams			
0			
Total Main & Other Streams		4510	0.85
NF10B			
Main Stream (NF10BTc)		4476	0.85
Other Streams			
0	0	0	
Total Main & Other Streams		4476	0.85
NF12M			

Canoe Creek Flood Impact Study on Proposed I69
Stream Lengths

DA ID/ Stream Description	Stream Length	Cumulative Stream Lengths	
	ft	ft	mi
Main Stream (NF12MTc)		3505	0.66
Other Streams			
0	0	0	
Total Main & Other Streams		3505	0.66
NF13M			
Main Stream (NF13MTc)		8806	1.67
Other Streams			
0	0	0	
Total Main & Other Streams		8806	1.67
NF14M			
Main Stream (NF14MTc)		5014	0.95
Other Streams			
0	0	0	
Total Main & Other Streams		5014	0.95
NF16M			
Main Stream (NF16MTc)		9918	1.88
Other Streams			
0	2222.405		
1	3069.768	5292	
Total Main & Other Streams		15210	2.88
NF17M			
Main Stream (NF17MTc)		4863	0.92
Other Streams			
0	0	0	
Total Main & Other Streams		4863	0.92
NF20M			
Main Stream (NF20MTc)		13019	2.47
Other Streams			
0	0	0	
Total Main & Other Streams		13019	2.47

Appendix A-5

Canoe Creek Flood Impact Study on Proposed I69

Hydrologic Parameters for Modified FEMA FIS Hydrology Model for Existing and Proposed Conditions

Time of Concentration Tc for Area NF0M

Drainage Area ID	Manning's Roughness	Sheet Flow Land Use	Sheet Flow Length	Sheet Flow U/S El	Sheet Flow D/S El	Sheet Flow Slope	Precipitation 2 yr 24 hr	Sheet Flow Travel Time	Shallow/Channel Flow Length	Shallow/Channel Flow U/S El	Shallow/Channel Flow D/S El	Shallow/Channel Flow Slope	Shallow/Channel Flow Land Use	Shallow Flow Velocity	Shallow Flow Time	Channel Bottom Width	Channel Depth	Channel Side Slope H:V	Channel Manning's Roughness	Channel Flow Velocity	Channel Flow Time	Time of Concentration
DA ID	n		Lsf	Eusf	Edsf	Ssf	P2	Tsf	Lsc	Eusf	Edsf	Ssc		Vsc	Tsc	W	D	SS	n	Vch	Tch	Tc
			ft	ft	ft	ft/ft	inches	hr	ft	ft	ft	ft/ft		ft/sec	hr	ft	ft			ft/sec	hr	hr
NF0M	0.8	Woods	90	577	568	0.100	3.28	0.30	10887	<=Total					0.10	<=Total					0.64	1.03
		Dense							1562	568	446	0.078	Unpaved	4.51	0.10							
		Underbrush							2480	446	418	0.011	Channel			8.0	2.0	4.0	0.045	4.1	0.17	
									3415	418	400	0.005	Channel			8.0	6.0	1.0	0.045	5.2	0.18	
									3430	400	394	0.002	Channel			8.0	6.0	1.0	0.045	3.3	0.29	

Time of Concentration MF40MTc for Area NF40M

Drainage Area ID	Manning's Roughness	Sheet Flow Land Use	Sheet Flow Length	Sheet Flow U/S El	Sheet Flow D/S El	Sheet Flow Slope	Precipitation 2 yr 24 hr	Sheet Flow Travel Time	Shallow/Channel Flow Length	Shallow/Channel Flow U/S El	Shallow/Channel Flow D/S El	Shallow/Channel Flow Slope	Shallow/Channel Flow Land Use	Shallow Flow Velocity	Shallow Flow Time	Channel Bottom Width	Channel Depth	Channel Side Slope H:V	Channel Manning's Roughness	Channel Flow Velocity	Channel Flow Time	Time of Concentration
DA ID	n		Lsf	Eusf	Edsf	Ssf	P2	Tsf	Lsc	Eusf	Edsf	Ssc		Vsc	Tsc	W	D	SS	n	Vch	Tch	Tc
			ft	ft	ft	ft/ft	inches	hr	ft	ft	ft	ft/ft		ft/sec	hr	ft	ft			ft/sec	hr	hr
NF40M	0.17	Cultivated	140	421.2	420	0.009	3.28	0.33	11120	<=Total					0.72	<=Total					0.97	2.02
		Soil							2400	420	412	0.003	Unpaved	0.93	0.72							
		Residue							3360	412	402	0.003	Channel			5.0	3.0	2.0	0.045	2.7	0.35	
		Cover							2200	402	397	0.002	Channel			6.0	3.0	2.0	0.045	2.2	0.28	
		> 20%							2040	397	392	0.002	Channel			8.0	4.0	2.0	0.045	2.7	0.21	
									1120	392	391	0.001	Channel			10.0	5.0	2.0	0.045	2.2	0.14	

Time of Concentration Tc for Area NF40M

Drainage Area ID	Manning's Roughness	Sheet Flow Land Use	Sheet Flow Length	Sheet Flow U/S El	Sheet Flow D/S El	Sheet Flow Slope	Precipitation 2 yr 24 hr	Sheet Flow Travel Time	Shallow/Channel Flow Length	Shallow/Channel Flow U/S El	Shallow/Channel Flow D/S El	Shallow/Channel Flow Slope	Shallow/Channel Flow Land Use	Shallow Flow Velocity	Shallow Flow Time	Channel Bottom Width	Channel Depth	Channel Side Slope H:V	Channel Manning's Roughness	Channel Flow Velocity	Channel Flow Time	Time of Concentration
DA ID	n		Lsf	Eusf	Edsf	Ssf	P2	Tsf	Lsc	Eusf	Edsf	Ssc		Vsc	Tsc	W	D	SS	n	Vch	Tch	Tc
			ft	ft	ft	ft/ft	inches	hr	ft	ft	ft	ft/ft		ft/sec	hr	ft	ft			ft/sec	hr	hr
NF40M	0.8	Woods	110	520	512	0.073	3.28	0.40	12360	<=Total					0.07	<=Total					0.67	1.14
		Dense							970	512	452	0.062	Unpaved	4.01	0.07							
		Underbrush							2830	452	412	0.014	Channel			7.0	2.0	2.0	0.045	10.1	0.08	
									8560	412	388	0.003	Channel			6.0	6.0	2.0	0.045	4.0	0.59	

Time of Concentration Tc for Area NF1A

Drainage Area ID	Manning's Roughness	Sheet Flow Land Use	Sheet Flow Length	Sheet Flow U/S El	Sheet Flow D/S El	Sheet Flow Slope	Precipitation 2 yr 24 hr	Sheet Flow Travel Time	Shallow/Channel Flow Length	Shallow/Channel Flow U/S El	Shallow/Channel Flow D/S El	Shallow/Channel Flow Slope	Shallow/Channel Flow Land Use	Shallow Flow Velocity	Shallow Flow Time	Channel Bottom Width	Channel Depth	Channel Side Slope H:V	Channel Manning's Roughness	Channel Flow Velocity	Channel Flow Time	Time of Concentration
DA ID	n		Lsf	Eusf	Edsf	Ssf	P2	Tsf	Lsc	Eusf	Edsf	Ssc		Vsc	Tsc	W	D	SS	n	Vch	Tch	Tc
			ft	ft	ft	ft/ft	inches	hr	ft	ft	ft	ft/ft		ft/sec	hr	ft	ft			ft/sec	hr	hr
NF1A	0.8	Woods	130	546	520	0.200	3.28	0.30	11000	<=Total					0.10						0.67	1.08
		Dense							498	510	470	0.080	Unpaved	4.57	0.03							
		Underbrush							892	470	432	0.043	Unpaved	3.33	0.07							
									2491	432	412	0.008	Channel			4.0	4.0	2.0	0.045	4.99	0.14	
									595	412	410	0.003	Channel			6.0	6.0	1.5	0.045	3.97	0.04	
									3894	410	398	0.003	Channel			7.0	6.0	1.5	0.045	4.05	0.27	
									2630	398	394	0.002	Channel			8.0	6.0	1.0	0.045	3.30	0.22	

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Time of Concentration Tc for Area NF1B

Drainage Area ID	Manning's Roughness	Sheet Flow Land Use	Sheet Flow Length	Sheet Flow U/S El	Sheet Flow D/S El	Sheet Flow Slope	Precipitation 2 yr 24 hr	Sheet Flow Travel Time	Shallow/Channel Flow Length	Shallow/Channel Flow U/S El	Shallow/Channel Flow D/S El	Shallow/Channel Flow Slope	Shallow/Channel Flow Land Use	Shallow Flow Velocity	Shallow Flow Time	Channel Bottom Width	Channel Depth	Channel Side Slope H:V	Channel Manning's Roughness	Channel Flow Velocity	Channel Flow Time	Time of Concentration
DA ID	n		Lsf	Eusf	Edsf	Ssf	P2	Tsf	Lsc	Eusf	Edsf	Ssc		Vsc	Tsc	W	D	SS	n	Vch	Tch	Tc
			ft	ft	ft	ft/ft	inches	hr	ft	ft	ft	ft/ft		ft/sec	hr	ft	ft			ft/sec	hr	hr
NF1B	0.8	Woods	100	564	544	0.200	3.28	0.25	11485	<=Total					1.25						0.47	1.96
		Dense							138	544	510	0.246	Unpaved	8.01	0.00							
		Underbrush							219	510	486	0.110	Unpaved	5.34	0.01							
									244	486	472	0.057	Unpaved	3.86	0.02							
									1730	472	446	0.015	Unpaved	1.98	0.24							
									801	446	438	0.010	Paved	2.03	0.11							
									631	432	430	0.003	Unpaved	0.91	0.19							
									2405	430	418	0.005	Unpaved	1	0.67							
									2584	410	400	0.004	Natural			10.0	4.0	1.5	0.045	3.97	0.18	
									2733	400	394	0.002	Natural			7.0	4.0	1.5	0.045	2.67	0.28	

Time of Concentration Tc for Area NF2A

Drainage Area ID	Manning's Roughness	Sheet Flow Land Use	Sheet Flow Length	Sheet Flow U/S El	Sheet Flow D/S El	Sheet Flow Slope	Precipitation 2 yr 24 hr	Sheet Flow Travel Time	Shallow/Channel Flow Length	Shallow/Channel Flow U/S El	Shallow/Channel Flow D/S El	Shallow/Channel Flow Slope	Shallow/Channel Flow Land Use	Shallow Flow Velocity	Shallow Flow Time	Channel Bottom Width	Channel Depth	Channel Side Slope H:V	Channel Manning's Roughness	Channel Flow Velocity	Channel Flow Time	Time of Concentration
DA ID	n		Lsf	Eusf	Edsf	Ssf	P2	Tsf	Lsc	Eusf	Edsf	Ssc		Vsc	Tsc	W	D	SS	n	Vch	Tch	Tc
			ft	ft	ft	ft/ft	inches	hr	ft	ft	ft	ft/ft		ft/sec	hr	ft	ft			ft/sec	hr	hr
NF2A	0.8	Woods	110	494	492	0.018	3.28	0.69	10237	<=Total					0.25						0.49	1.43
		Dense							248	492	456	0.145	Unpaved	6.15	0.01							
		Underbrush							1881	456	420	0.019	Unpaved	2.23	0.23							
									1208	416	406	0.008	Channel			7.0	6.0	1.5	0.045	6.6	0.05	
									1735	406	396	0.006	Channel			9.0	6.0	2.0	0.045	5.9	0.08	
									2365	396	388	0.003	Channel			5.0	6.0	2.0	0.045	3.9	0.17	
									2800	388	380	0.003	Channel			7.0	6.0	1.7	0.045	4.1	0.19	

Time of Concentration Tc for Area NF2B

Drainage Area ID	Manning's Roughness	Sheet Flow Land Use	Sheet Flow Length	Sheet Flow U/S El	Sheet Flow D/S El	Sheet Flow Slope	Precipitation 2 yr 24 hr	Sheet Flow Travel Time	Shallow Flow Length	Shallow Flow U/S El	Shallow Flow D/S El	Shallow Flow Slope	Shallow Flow Land Use	Shallow Flow Velocity	Shallow Flow Time	Time of Concentration
DA ID	n		Lsf	Eusf	Edsf	Ssf	P2	Tsf	Lsc	Eusf	Edsf	Ssc		Vsc	Tsc	Tc
			ft	ft	ft	ft/ft	inches	hr	ft	ft	ft	ft/ft		ft/sec	hr	hr
NF2B	0.17	Cultivated	107	464	462	0.019	3.28	0.1934	4248	<=Total					0.6436	0.8369
		Soil							381	462	438	0.063	Unpaved	4.05	0.03	
		Residue							184	438	436	0.011	Unpaved	1.68	0.03	
		Cover							1613	434	412	0.014	Unpaved	1.88	0.24	
		> 20%							1908	412	400	0.006	paved	1.6	0.3313	
									162	400	396	0.025	paved	2.5	0.0180	

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Time of Concentration Tc for Area NF3M

Drainage Area ID	Manning's Roughness	Sheet Flow Land Use	Sheet Flow Length	Sheet Flow U/S El	Sheet Flow D/S El	Sheet Flow Slope	Precipitation 2 yr 24 hr	Sheet Flow Travel Time	Shallow Flow Length	Shallow Flow U/S El	Shallow Flow D/S El	Shallow Flow Slope	Shallow Flow Land Use	Shallow Flow Velocity	Shallow Flow Time	Time of Concentration
DA ID	n		Lsf	Eusf	Edsf	Ssf	P2	Tsf	Lsc	Eusf	Edsf	Ssc		Vsc	Tsc	Tc
			ft	ft	ft	ft/ft	inches	hr	ft	ft	ft	ft/ft		ft/sec	hr	hr
NF3M	0.17	Cultivated	60	404	402	0.033	3.28	0.0966	5945	<=Total					2.1986	2.2952
		Soil							5745	402	390	0.002	Unpaved	0.74	2.16	
		Residue							200	390	388	0.010	Unpaved	1.61	0.03	
		Cover														
		> 20%														

Time of Concentration Tc for Area NF4M

Drainage Area ID	Manning's Roughness	Sheet Flow Land Use	Sheet Flow Length	Sheet Flow U/S El	Sheet Flow D/S El	Sheet Flow Slope	Precipitation 2 yr 24 hr	Sheet Flow Travel Time	Shallow/Channel Flow Length	Shallow/Channel Flow U/S El	Shallow/Channel Flow D/S El	Shallow/Channel Flow Slope	Shallow/Channel Flow Land Use	Shallow Flow Velocity	Shallow Flow Time	Channel Bottom Width	Channel Depth	Channel Side Slope H:V	Channel Manning's Roughness	Channel Flow Velocity	Channel Flow Time	Time of Concentration
DA ID	n		Lsf	Eusf	Edsf	Ssf	P2	Tsf	Lsc	Eusf	Edsf	Ssc		Vsc	Tsc	W	D	SS	n	Vch	Tch	Tc
			ft	ft	ft	ft/ft	inches	hr	ft	ft	ft	ft/ft		ft/sec	hr	ft	ft			ft/sec	hr	hr
NF4M	0.2	Dense	104	428.5	424	0.043	3.28	0.15	10234	<=Total					1.08						1.55	2.78
		Grass							253	424	414	0.040	Unpaved	3.21	0.02							
									1035	414	406	0.008	Unpaved	1.42	0.20							
									2141	406	399	0.003	Unpaved	0.92	0.64							
									840	399	395	0.005	Unpaved	1.11	0.21							
									3350	395	390	0.001	Channel			4.0	1.0	90.0	0.045	0.70	1.33	
									530	388	386	0.004	Channel			6.0	2.0	5.0	0.045	2.37	0.06	
									2085	386	380	0.003	Channel			5.0	6.0	2.0	0.045	3.76	0.15	

Time of Concentration Tc for Area NF4A

Drainage Area ID	Manning's Roughness	Sheet Flow Land Use	Sheet Flow Length	Sheet Flow U/S El	Sheet Flow D/S El	Sheet Flow Slope	Precipitation 2 yr 24 hr	Sheet Flow Travel Time	Shallow/Channel Flow Length	Shallow/Channel Flow U/S El	Shallow/Channel Flow D/S El	Shallow/Channel Flow Slope	Shallow/Channel Flow Land Use	Shallow Flow Velocity	Shallow Flow Time	Channel Bottom Width	Channel Depth	Channel Side Slope H:V	Channel Manning's Roughness	Channel Flow Velocity	Channel Flow Time	Time of Concentration
DA ID	n		Lsf	Eusf	Edsf	Ssf	P2	Tsf	Lsc	Eusf	Edsf	Ssc		Vsc	Tsc	W	D	SS	n	Vch	Tch	Tc
			ft	ft	ft	ft/ft	inches	hr	ft	ft	ft	ft/ft		ft/sec	hr	ft	ft			ft/sec	hr	hr
NF4A	0.2	Dense	104	428.5	424	0.043	3.28	0.15	7154	<=Total					0.22						0.32	0.69
		Grass							253	424	414	0.040	Unpaved	3.21	0.02							
									1035	414	406	0.008	Unpaved	1.42	0.20							
									2141	406	399	0.003	Unpaved	0.92	0.64							
									3725	399	392	0.002	Channel			6.0	4.0	4.0	0.035	3.27	0.32	

Time of Concentration Tc for Area NF4B

Drainage Area ID	Manning's Roughness	Sheet Flow Land Use	Sheet Flow Length	Sheet Flow U/S El	Sheet Flow D/S El	Sheet Flow Slope	Precipitation 2 yr 24 hr	Sheet Flow Travel Time	Shallow/Channel Flow Length	Shallow/Channel Flow U/S El	Shallow/Channel Flow D/S El	Shallow/Channel Flow Slope	Shallow/Channel Flow Land Use	Shallow Flow Velocity	Shallow Flow Time	Channel Bottom Width	Channel Depth	Channel Side Slope H:V	Channel Manning's Roughness	Channel Flow Velocity	Channel Flow Time	Time of Concentration
DA ID	n		Lsf	Eusf	Edsf	Ssf	P2	Tsf	Lsc	Eusf	Edsf	Ssc		Vsc	Tsc	W	D	SS	n	Vch	Tch	Tc
			ft	ft	ft	ft/ft	inches	hr	ft	ft	ft	ft/ft		ft/sec	hr	ft	ft			ft/sec	hr	hr
NF4B	0.2	Dense	106	398	397.3	0.006	3.28	0.34	4529	<=Total					1.68						0.06	2.08
		Grass							212	397.3	396	0.006	Unpaved	1.28	0.05							
									3787	396	390	0.002	Unpaved	0.64	1.64							
									530	388	386	0.004	Channel			6.0	2.0	5.0	0.045	2.4	0.06	

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Time of Concentration Tc for Area NF5M

Drainage Area ID	Manning's Roughness	Sheet Flow Land Use	Sheet Flow Length	Sheet Flow U/S El	Sheet Flow D/S El	Sheet Flow Slope	Precipitation 2 yr 24 hr	Sheet Flow Travel Time	Shallow/Channel Flow Length	Shallow/Channel Flow U/S El	Shallow/Channel Flow D/S El	Shallow/Channel Flow Slope	Shallow/Channel Flow Land Use	Shallow Flow Velocity	Shallow Flow Time	Channel Bottom Width	Channel Depth	Channel Side Slope H:V	Channel Manning's Roughness	Channel Flow Velocity	Channel Flow Time	Time of Concentration
DA ID	n		Lsf	Eusf	Edsf	Ssf	P2	Tsf	Lsc	Eusf	Edsf	Ssc		Vsc	Tsc	W	D	SS	n	Vch	Tch	Tc
			ft	ft	ft	ft/ft	inches	hr	ft	ft	ft	ft/ft		ft/sec	hr	ft	ft			ft/sec	hr	hr
NF5M	0.1	Short	85	428.5	427.0	0.018	3.28	0.11	6609	<=Total					0.13						0.31	0.55
		Grass							150	427.0	424	0.020	paved	2.87	0.01							
									634	424	418	0.009	Unpaved	1.57	0.11							
									3858	416	386	0.008	Channel			3.0	4.0	1.5	0.045	4.8	0.22	
									1077	386	382	0.004	Channel			3.0	4.0	1.5	0.045	3.4	0.09	
									890	382	376	0.007	Channel			6.0	4.0	1.5	0.045	4.9	0.05	

Time of Concentration Tc for Area NF7M

Drainage Area ID	Manning's Roughness	Sheet Flow Land Use	Sheet Flow Length	Sheet Flow U/S El	Sheet Flow D/S El	Sheet Flow Slope	Precipitation 2 yr 24 hr	Sheet Flow Travel Time	Shallow/Channel Flow Length	Shallow/Channel Flow U/S El	Shallow/Channel Flow D/S El	Shallow/Channel Flow Slope	Shallow/Channel Flow Land Use	Shallow Flow Velocity	Shallow Flow Time	Channel Bottom Width	Channel Depth	Channel Side Slope H:V	Channel Manning's Roughness	Channel Flow Velocity	Channel Flow Time	Time of Concentration
DA ID	n		Lsf	Eusf	Edsf	Ssf	P2	Tsf	Lsc	Eusf	Edsf	Ssc		Vsc	Tsc	W	D	SS	n	Vch	Tch	Tc
			ft	ft	ft	ft/ft	inches	hr	ft	ft	ft	ft/ft		ft/sec	hr	ft	ft			ft/sec	hr	hr
NF7M	0.2	Dense	110	390	388	0.018	3.28	0.23	2890	<=Total					1.34						0.00	1.57
		Grass							2890	388	384	0.001	Unpaved	0.60	1.34							

Time of Concentration Tc for Area NF8M

Drainage Area ID	Manning's Roughness	Sheet Flow Land Use	Sheet Flow Length	Sheet Flow U/S El	Sheet Flow D/S El	Sheet Flow Slope	Precipitation 2 yr 24 hr	Sheet Flow Travel Time	Shallow/Channel Flow Length	Shallow/Channel Flow U/S El	Shallow/Channel Flow D/S El	Shallow/Channel Flow Slope	Shallow/Channel Flow Land Use	Shallow Flow Velocity	Shallow Flow Time	Channel Bottom Width	Channel Depth	Channel Side Slope H:V	Channel Manning's Roughness	Channel Flow Velocity	Channel Flow Time	Time of Concentration
DA ID	n		Lsf	Eusf	Edsf	Ssf	P2	Tsf	Lsc	Eusf	Edsf	Ssc		Vsc	Tsc	W	D	SS	n	Vch	Tch	Tc
			ft	ft	ft	ft/ft	inches	hr	ft	ft	ft	ft/ft		ft/sec	hr	ft	ft			ft/sec	hr	hr
NF8M	0.8	Woods	112	507	492	0.134	3.28	0.31	1370	<=Total					0.04						0.18	0.53
		Dense							540	492	456	0.067	Unpaved	4.17	0.04							
	Underbrush								830	454	436	0.022	Channel			4.0	4.0	2.5	0.045	8.3	0.03	
									1850	433	413	0.011	Channel			12.0	4.0	3.0	0.045	6.5	0.08	
									2120	413	384	0.014	Channel			6.0	6.0	3.0	0.045	8.6	0.07	

Time of Concentration Tc for Area NF9M

Drainage Area ID	Manning's Roughness	Sheet Flow Land Use	Sheet Flow Length	Sheet Flow U/S El	Sheet Flow D/S El	Sheet Flow Slope	Precipitation 2 yr 24 hr	Sheet Flow Travel Time	Shallow/Channel Flow Length	Shallow/Channel Flow U/S El	Shallow/Channel Flow D/S El	Shallow/Channel Flow Slope	Shallow/Channel Flow Land Use	Shallow Flow Velocity	Shallow Flow Time	Channel Bottom Width	Channel Depth	Channel Side Slope H:V	Channel Manning's Roughness	Channel Flow Velocity	Channel Flow Time	Time of Concentration
DA ID	n		Lsf	Eusf	Edsf	Ssf	P2	Tsf	Lsc	Eusf	Edsf	Ssc		Vsc	Tsc	W	D	SS	n	Vch	Tch	Tc
			ft	ft	ft	ft/ft	inches	hr	ft	ft	ft	ft/ft		ft/sec	hr	ft	ft			ft/sec	hr	hr
NF9M	0.2	Dense	100	392	391.7	0.003	3.28	0.43	4560.626	<=Total											1.85	2.28
		Grass							4560.626	391.7	386	0.001	Unpaved	0.57	2.22							
			alternate flow velocity using channel formula						4660.626			0.001	Channel			1000.0	0.5	100.0	0.045	0.7	1.85	

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Time of Concentration Tc for Area NF10M

Drainage Area ID	Manning's Roughness	Sheet Flow Land Use	Sheet Flow Length	Sheet Flow U/S El	Sheet Flow D/S El	Sheet Flow Slope	Precipitation 2 yr 24 hr	Sheet Flow Travel Time	Shallow/Channel Flow Length	Shallow/Channel Flow U/S El	Shallow/Channel Flow D/S El	Shallow/Channel Flow Slope	Shallow/Channel Flow Land Use	Shallow Flow Velocity	Shallow Flow Time	Channel Bottom Width	Channel Depth	Channel Side Slope H:V	Channel Manning's Roughness	Channel Flow Velocity	Channel Flow Time	Time of Concentration
DA ID	n		Lsf	Eusf	Edsf	Ssf	P2	Tsf	Lsc	Eusf	Edsf	Ssc		Vsc	Tsc	W	D	SS	n	Vch	Tch	Tc
			ft	ft	ft	ft/ft	inches	hr	ft	ft	ft	ft/ft		ft/sec	hr	ft	ft			ft/sec	hr	hr
NF10M	0.2	Dense	100	400	398.5	0.015	3.28	0.23	172521.4						1.43						0.00	1.66
		Grass							550	398.5	394	0.008	Unpaved	1.46	0.10							
									1100	394	388	0.005	Unpaved	1.19	0.26							
									295	388	386	0.007	Unpaved	1.33	0.06							
									2400	386	382	0.002	Unpaved	0.66	1.01							

Time of Concentration Tc for Area NF10A

Drainage Area ID	Manning's Roughness	Sheet Flow Land Use	Sheet Flow Length	Sheet Flow U/S El	Sheet Flow D/S El	Sheet Flow Slope	Precipitation 2 yr 24 hr	Sheet Flow Travel Time	Shallow/Channel Flow Length	Shallow/Channel Flow U/S El	Shallow/Channel Flow D/S El	Shallow/Channel Flow Slope	Shallow/Channel Flow Land Use	Shallow Flow Velocity	Shallow Flow Time	Channel Bottom Width	Channel Depth	Channel Side Slope H:V	Channel Manning's Roughness	Channel Flow Velocity	Channel Flow Time	Time of Concentration
DA ID	n		Lsf	Eusf	Edsf	Ssf	P2	Tsf	Lsc	Eusf	Edsf	Ssc		Vsc	Tsc	W	D	SS	n	Vch	Tch	Tc
			ft	ft	ft	ft/ft	inches	hr	ft	ft	ft	ft/ft		ft/sec	hr	ft	ft			ft/sec	hr	hr
NF10A	0.2	Dense	100	400	398.5	0.015	3.28	0.23	4349	<=Total					0.36						0.24	0.83
		Grass							550	398.5	394	0.008	Unpaved	1.46	0.10							
									1100	394	388	0.005	Unpaved	1.19	0.26							
									295	388	386	0.007	Unpaved	1.33	0.06							
									284	386	385.2	0.003	Channel			6.0000	2.0000	5.0000	0.045	2.6000	0.03	
									2120	385.2	382	0.002	Channel			60.0000	2.0000	4.0000	0.035	2.8000	0.21	

Time of Concentration Tc for Area NF10B

Drainage Area ID	Manning's Roughness	Sheet Flow Land Use	Sheet Flow Length	Sheet Flow U/S El	Sheet Flow D/S El	Sheet Flow Slope	Precipitation 2 yr 24 hr	Sheet Flow Travel Time	Shallow/Channel Flow Length	Shallow/Channel Flow U/S El	Shallow/Channel Flow D/S El	Shallow/Channel Flow Slope	Shallow/Channel Flow Land Use	Shallow Flow Velocity	Shallow Flow Time	Channel Bottom Width	Channel Depth	Channel Side Slope H:V	Channel Manning's Roughness	Channel Flow Velocity	Channel Flow Time	Time of Concentration
DA ID	n		Lsf	Eusf	Edsf	Ssf	P2	Tsf	Lsc	Eusf	Edsf	Ssc		Vsc	Tsc	W	D	SS	n	Vch	Tch	Tc
			ft	ft	ft	ft/ft	inches	hr	ft	ft	ft	ft/ft		ft/sec	hr	ft	ft			ft/sec	hr	hr
NF10B	0.2	Dense	110	388	387.0	0.009	3.28	0.30	4320	<=Total					2.19						0.00	2.49
		Grass							4320	387.0	382	0.001	Unpaved	0.55	2.19							

Time of Concentration Tc for Area NF12M

Drainage Area ID	Manning's Roughness	Sheet Flow Land Use	Sheet Flow Length	Sheet Flow U/S El	Sheet Flow D/S El	Sheet Flow Slope	Precipitation 2 yr 24 hr	Sheet Flow Travel Time	Shallow/Channel Flow Length	Shallow/Channel Flow U/S El	Shallow/Channel Flow D/S El	Shallow/Channel Flow Slope	Shallow/Channel Flow Land Use	Shallow Flow Velocity	Shallow Flow Time	Channel Bottom Width	Channel Depth	Channel Side Slope H:V	Channel Manning's Roughness	Channel Flow Velocity	Channel Flow Time	Time of Concentration
DA ID	n		Lsf	Eusf	Edsf	Ssf	P2	Tsf	Lsc	Eusf	Edsf	Ssc		Vsc	Tsc	W	D	SS	n	Vch	Tch	Tc
			ft	ft	ft	ft/ft	inches	hr	ft	ft	ft	ft/ft		ft/sec	hr	ft	ft			ft/sec	hr	hr
NF12M	0.2	Dense	100	390	388.0	0.020	3.28	0.20	3405.21						1.40						0.00	1.60
		Grass							3405.21	388.0	382	0.002	Unpaved	0.68	1.40							

Canoe Creek Flood Impact Study on Proposed I69

Hydrologic Parameters for Modified FEMA FIS Hydrology Model for Existing and Proposed Conditions

Time of Concentration Tc for Area NF13M

Drainage Area ID	Manning's Roughness	Sheet Flow Land Use	Sheet Flow Length	Sheet Flow U/S El	Sheet Flow D/S El	Sheet Flow Slope	Precipitation 2 yr 24 hr	Sheet Flow Travel Time	Shallow/Channel Flow Length	Shallow/Channel Flow U/S El	Shallow/Channel Flow D/S El	Shallow/Channel Flow Slope	Shallow/Channel Flow Land Use	Shallow Flow Velocity	Shallow Flow Time	Channel Bottom Width	Channel Depth	Channel Side Slope H:V	Channel Manning's Roughness	Channel Flow Velocity	Channel Flow Time	Time of Concentration
DA ID	n		Lsf	Eusf	Edsf	Ssf	P2	Tsf	Lsc	Eusf	Edsf	Ssc		Vsc	Tsc	W	D	SS	n	Vch	Tch	Tc
			ft	ft	ft	ft/ft	inches	hr	ft	ft	ft	ft/ft		ft/sec	hr	ft	ft			ft/sec	hr	hr
NF13M	0.2	Dense	104	475	464.0	0.106	3.28	0.11	72014	<=Total					0.30						0.44	0.84
		Grass							2450	464.0	414	0.020	Unpaved	2.30	0.30							
									6300	408	374	0.005	Channel			5.0	4.0	2.0	0.045	4.0	0.44	

Time of Concentration Tc for Area NF14M

Drainage Area ID	Manning's Roughness	Sheet Flow Land Use	Sheet Flow Length	Sheet Flow U/S El	Sheet Flow D/S El	Sheet Flow Slope	Precipitation 2 yr 24 hr	Sheet Flow Travel Time	Shallow/Channel Flow Length	Shallow/Channel Flow U/S El	Shallow/Channel Flow D/S El	Shallow/Channel Flow Slope	Shallow/Channel Flow Land Use	Shallow Flow Velocity	Shallow Flow Time	Channel Bottom Width	Channel Depth	Channel Side Slope H:V	Channel Manning's Roughness	Channel Flow Velocity	Channel Flow Time	Time of Concentration
DA ID	n		Lsf	Eusf	Edsf	Ssf	P2	Tsf	Lsc	Eusf	Edsf	Ssc		Vsc	Tsc	W	D	SS	n	Vch	Tch	Tc
			ft	ft	ft	ft/ft	inches	hr	ft	ft	ft	ft/ft		ft/sec	hr	ft	ft			ft/sec	hr	hr
NF14M	0.05	Fallow	135	433	424.0	0.067	3.28	0.05	4866	<=Total					0.21						0.52	0.78
		Field							1516	424.0	400	0.016	Unpaved	2.03	0.21							
									3350	400	382	0.005	Channel			6.0	1.0	5.0	0.045	1.8	0.52	

Time of Concentration Tc for Area NF16M

Drainage Area ID	Manning's Roughness	Sheet Flow Land Use	Sheet Flow Length	Sheet Flow U/S El	Sheet Flow D/S El	Sheet Flow Slope	Precipitation 2 yr 24 hr	Sheet Flow Travel Time	Shallow/Channel Flow Length	Shallow/Channel Flow U/S El	Shallow/Channel Flow D/S El	Shallow/Channel Flow Slope	Shallow/Channel Flow Land Use	Shallow Flow Velocity	Shallow Flow Time	Channel Bottom Width	Channel Depth	Channel Side Slope H:V	Channel Manning's Roughness	Channel Flow Velocity	Channel Flow Time	Time of Concentration
DA ID	n		Lsf	Eusf	Edsf	Ssf	P2	Tsf	Lsc	Eusf	Edsf	Ssc		Vsc	Tsc	W	D	SS	n	Vch	Tch	Tc
			ft	ft	ft	ft/ft	inches	hr	ft	ft	ft	ft/ft		ft/sec	hr	ft	ft			ft/sec	hr	hr
NF16M	0.1	Short	110	489	481.0	0.073	3.28	0.08	9740	<=Total					0.34						0.42	0.84
		Grass							2900	481.0	420	0.021	Unpaved	2.34	0.34							
									1040	414	409	0.005	Channel			8.0	6.0	3.0	0.045	4.2	0.07	
									5800	409	388	0.004	Channel			6.0	6.0	2.0	0.045	4.6	0.35	

Time of Concentration Tc for Area NF17M

Drainage Area ID	Manning's Roughness	Sheet Flow Land Use	Sheet Flow Length	Sheet Flow U/S El	Sheet Flow D/S El	Sheet Flow Slope	Precipitation 2 yr 24 hr	Sheet Flow Travel Time	Shallow/Channel Flow Length	Shallow/Channel Flow U/S El	Shallow/Channel Flow D/S El	Shallow/Channel Flow Slope	Shallow/Channel Flow Land Use	Shallow Flow Velocity	Shallow Flow Time	Channel Bottom Width	Channel Depth	Channel Side Slope H:V	Channel Manning's Roughness	Channel Flow Velocity	Channel Flow Time	Time of Concentration
DA ID	n		Lsf	Eusf	Edsf	Ssf	P2	Tsf	Lsc	Eusf	Edsf	Ssc		Vsc	Tsc	W	D	SS	n	Vch	Tch	Tc
			ft	ft	ft	ft/ft	inches	hr	ft	ft	ft	ft/ft		ft/sec	hr	ft	ft			ft/sec	hr	hr
NF17M	0.8	Woods	53	492.5	492	0.009	3.28	0.50	4810	<=Total					0.03						0.31	0.84
		Dense							240	492	454	0.158	Unpaved	6.42	0.01							
		Underbrush							260	454	440	0.054	Unpaved	3.74	0.02							
									1020	440	410	0.029	Channel			3.0	2.0	3.0	0.045	6.17	0.05	
									920	410	400	0.011	Channel			5.0	2.0	4.0	0.045	3.93	0.07	
									240	400	394	0.025	Channel			7.0	2.0	4.0	0.045	6.15	0.01	
									870	394	387.5	0.007	Channel			10.0	2.0	6.0	0.045	3.26	0.07	
									1260	387.5	380	0.006	Channel			6.0	2.0	4.0	0.045	2.96	0.12	

Canoe Creek Flood Impact Study on Proposed I69

Hydrologic Parameters for Modified FEMA FIS Hydrology Model for Existing and Proposed Conditions

Time of Concentration Tc for Area NF20M

Drainage Area ID	Manning's Roughness	Sheet Flow Land Use	Sheet Flow Length	Sheet Flow U/S El	Sheet Flow D/S El	Sheet Flow Slope	Precipitation 2 yr 24 hr	Sheet Flow Travel Time	Shallow/Channel Flow Length	Shallow/Channel Flow U/S El	Shallow/Channel Flow D/S El	Shallow/Channel Flow Slope	Shallow/Channel Flow Land Use	Shallow Flow Velocity	Shallow Flow Time	Channel Bottom Width	Channel Depth	Channel Side Slope H:V	Channel Manning's Roughness	Channel Flow Velocity	Channel Flow Time	Time of Concentration
DA ID	n		Lsf	Eusf	Edsf	Ssf	P2	Tsf	Lsc	Eusf	Edsf	Ssc		Vsc	Tsc	W	D	SS	n	Vch	Tch	Tc
			ft	ft	ft	ft/ft	inches	hr	ft	ft	ft	ft/ft		ft/sec	hr	ft	ft			ft/sec	hr	hr
NF20M	0.8	Woods	135	513	503	0.074	3.28	0.46	12216	<=Total					0.03						1.34	1.83
		Dense							410	498	471	0.066	Unpaved	4.14	0.03							
		Underbrush							5063	452	396	0.011	Channel			6.0	4.0	3.0	0.045	7.7	0.18	
									3883	396	388	0.002	Channel			8.0	3.0	4.0	0.045	2.2	0.49	
									2860	388	386	0.001	Channel			300.0	2.0	350.0	0.045	1.2	0.66	

Appendix A-6

JOINT TRANSPORTATION RESEARCH PROGRAM

FHWA/IN/JTRP-2010/5

Final Report

DETERMINATION OF UNIT HYDROGRAPH PARAMETERS FOR INDIANA WATERSHEDS

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September 2010

6.7 Regression Models – South Region

The regression models provided the poorest fits for the southern region. Because of the small variation among the different watersheds because of the small variation of R and t_c. Referring to the optimized R values in Table 6.2, it is clear that the storage effects of the watersheds vary little across the southern region making this variable difficult to discriminate. The regression models for R do not contain any variables relating to slope, possibly because of the consistency (small variation) in the slope across the region. The variables selected to predict R are all based on stream network and basin shape parameters. The prediction of t_c in the southern region shows a dependence on land cover/land use with the inclusion of the urban land cover and curve number parameters.

Table 6.5. Summary of best South Region regression equations.

Regression Model	Transform	Scenario	R^2
$log(R) = 2.012 + 1.450 \log(L_{ca}) - 2.361 \log(C) + 1.215 \log(R_f)$	Log Model 1	1	0.88
$log(t_c) = -3.283+0.266\ log(ULC)+2.693\ log(CN)+1.696\ log(R_f) - 0.568\ log(H)$	Log Model 1	1	0.95
$log\ (t_c) = -3.503 + 0.179\ log(ULC) + 2.205\ log(CN)$	Log Model 1	2	0.69

All variables are log base 10 transformed.
Refer to Tables 3.1 and 3.2 for definitions of the independent variables

Table 3.1 Definition of geomorphologic parameters

Parameters, *Symbol*	**Definition**
Drainage area, A_w	The total area projected upon a horizontal plane contributing overland flow to the stream segment of the given order and all segments of lower order.
Basin perimeter, L_p	The length measured along the divide of the drainage basin as projected on to the horizontal plane of the map.
Basin length L_b	The longest dimension of a basin parallel to the principal drainage line.
L_{ca}, L_{ca}	The length from the basin outlet to a point adjacent to the centroid.
Form factor, R_{ff}	A dimensionless parameter defined as the ratio of basin area, A_w to the square of basin length, L_b^2
Circulatory ratio, R_c	A dimensionless parameter defined as the ratio of the basin area of a given order, A_w to the area A_p of a circle having a circumference equal to the basin perimeter, L_p.
Elongation ratio, R_e	The ratio of diameter of a circle, D_c (with the same area as that of the basin) to length, L_b. (D_c/L_b)
Basin shape factor, S_b	The square of maximum straight-line length of basin (from mouth to divide) divided by total area.
Unity shape factor, R_u	The ratio of the basin length, L_b to the square root of the basin area, A_w.
Basin relief, H	The maximum vertical distance between the lowest (outlet) and the highest (divide) points in the watershed.
Relief ratio, R_h	A dimensionless quantity, defined as the ratio of maximum basin relief, H to horizontal distance along the longest dimension of the basin parallel to the principal drainage line, L_b.
Relative relief, R_p	The ratio of basin relief, H to the length of the perimeter, L_p.
Drainage density, D	The ratio of the total length of all streams within a watershed to the watershed area, A_w.
Ruggedness number, R_n	Product of relief, H and drainage density, D.
Channel Maintenance, C	The ratio of the drainage area to the total length of all streams in the network.
Fineness ratio, R_f	The ratio of channel lengths to the length of basin perimeter.
Stream frequency, C_f	The total number of streams within A_w.
Basin slope (%), L_s	Average grid slope computed by ArcGIS.
Main channel slope, C_s	Slope of a line drawn along the measured profile of main channel.

Table B.1. Extracted Geomorphologic Parameters

Station Name	Station No.	Region	Lp (m)	Lb (m)	Lca (m)	Rff (m^2/m^2)	Ap (m)	Rc (m^2/m^2)	Re (m/m)	Sb (m^2/m^2)
WEESAU CREEK	03328430	N	37440	8974	4483	0.328	111548101	0.236	0.646	1.44
GALENA RIVER	04096100	N	36420	9413	4776	0.300	105552952	0.252	0.618	1.39
FORKER CREEK	04100252	N	71820	16365	7971	0.186	410469889	0.121	0.486	3.63
RIMMELL BRANCH	04100295	N	45120	10790	4834	0.238	162005099	0.171	0.550	3.18
SOLOMON CREEK	04100377	N	91260	23155	13790	0.131	662752587	0.106	0.408	5.86
FISH CREEK	04177720	N	86580	10999	2568	0.796	596520902	0.162	1.007	0.73
SPY RUN CREEK	04182810	N	34620	7216	3434	0.681	95377213	0.372	0.931	1.26
COBB DITCH	05517890	N	59220	16801	8814	0.289	279079097	0.293	0.607	2.73
IROQUOIS RIVER	05521000	N	83760	14577	4654	0.359	558295131	0.137	0.676	0.65
JUDAY CREEK	04101370	N	61260	16906	9195	0.260	298637601	0.249	0.576	2.76
WHITEWATER RIVER	03274650	C	37320	5520	4203	0.967	110834195	0.266	1.110	0.62
LITTLE MISS RIVER	03325311	C	42180	14125	4514	0.125	141580569	0.177	0.400	4.24
BIG LICK CREEK	03326070	C	72120	16996	7684	0.246	413906207	0.172	0.560	3.46
KOKOMO CREEK	03333600	C	57960	13021	5932	0.385	267329728	0.244	0.700	0.66
BUCK CREEK	03347500	C	81540	16305	8135	0.332	529092880	0.167	0.650	1.85
CROOKED CREEK	03351310	C	56520	15897	8410	0.181	254211275	0.180	0.480	4.11
PLEASANT RUN	03353120	C	29340	8451	3916	0.280	68503178	0.292	0.597	2.42
LITTLE BUCK CREEK	03353637	C	65280	16573	8535	0.190	339117963	0.153	0.491	3.60
WEST FRK LICK CRK	03353700	C	57900	14867	7123	0.336	266776537	0.278	0.654	2.41
PLUM CREEK	03357350	C	19140	5780	2716	0.232	29152404	0.266	0.543	2.57
LITTLE INDIAN CRK	03302300	S	54960	15505	6664	0.179	240372041	0.179	0.478	3.24
WEST FORK BLUE RIV	03302680	S	44280	12159	6584	0.329	156029144	0.311	0.647	2.55
CROOKED CREEK	03303400	S	28560	6593	3283	0.472	64909298	0.316	0.775	1.77
BUSSERON CREEK	03342100	S	42060	11146	5626	0.335	140776136	0.296	0.653	2.22
HARBERTS CREEK	03366200	S	44460	13021	6672	0.134	157300252	0.144	0.413	5.86
BRUSH CREEK	03368000	S	45120	13154	5695	0.171	162005099	0.183	0.467	4.87
BACK CREEK	03371520	S	54240	14200	7462	0.310	234115337	0.267	0.628	2.07
STEPHENS CREEK	03372300	S	34200	8979	3786	0.349	93077072	0.302	0.666	2.02
PATOKA RIVER	03374455	S	34800	8586	4028	0.442	96371583	0.338	0.750	1.49
HALL CREEK	03375800	S	50160	13516	6803	0.308	200219125	0.281	0.626	2.07

Appendix A-7

Canoe Creek Flood Impact Study on Proposed I69

Canoe Creek North Fork - Existing Condition Lateral Weir Flow Analysis East of Creek/Railroad Crossing

HECRAS Existing Condition Model flows (canoeex in geohecras) without Lateral Weir East of Canoe Creek North Fork / Railraod (RR) Crossing

XS ID	38011.5	32983.9	29900.3	28796.5	27541.3	26291.9	24550.6	23120	21768	21745	21712.38	21591.5	19922.4	18470	17702.9	17534.5	16904.1	16397.3	12458.1	12027.9	4899.4	31238.12	28532	27158	25956	23524
P100yr	1662.2	1662.2	3843.4	3851.2	3851.2	3851.2	3953.8	4013.8	4013.8	4013.8	4013.8	5535.2	5833.1	6647.8	6647.8	6647.8	6662.1	3221.7	3221.7	4431.4	6309.5	836.9	836.9	1347.9	1574.8	1574.8
Floodway	1662.2	1662.2	3843.4	3851.2	3851.2	3851.2	3953.8	4013.8	3899.04	3899.04	3899.04	5535.2	5833.1	6647.8	6647.8	6647.8	6662.1	3221.7	3221.7	4431.4	6309.5	836.9	836.9	1347.9	1574.8	1574.8
P500yr	2296.3	2296.3	5311.5	5366.6	5366.6	5366.6	5556.9	5716.3	5716.3	5716.3	5716.3	7904.6	8354.2	9438.2	9438.2	9438.2	9453.9	4143	4143	5639.4	8299	1169.3	1169.3	1892.5	2214.4	2214.4
P50yr	1413.6	1413.6	3252.3	3233.3	3233.3	3233.3	3295.7	3373.8	3373.8	3373.8	3373.8	4635.1	4880.5	5598.8	5598.8	5598.8	5616.6	2954	2954	3939.7	5535.5	707.3	707.3	1136.1	1324.5	1324.5
P10yr	897.5	897.5	2137.6	2105.4	2105.4	2105.4	2167	2217.2	2217.2	2217.2	2217.2	3001	3154.1	3677	3677	3677	3687.2	2426.5	2426.5	2737.1	3894.2	439.8	439.8	700.9	815.3	815.3
P2yr	472.6	472.6	1152.5	1137.2	1137.2	1137.2	1182.3	1212	1212	1212	1212	1613.8	1697.1	2043.4	2043.4	2043.4	2047.7	1647.9	1647.9	1856.8	2427.6	223.7	223.7	351.8	426.9	426.9

HECRAS Existing Condition Model flows (canoeex2 in geohecras) with Lateral Weir East of Canoe Creek North Fork / RR Crossing AND assuming cross sections between Kimsey Lane and RR have flow only from east side of RR

XS ID	38011.5	32983.9	29900.3	28796.5	27541.3	26291.9	24550.6	23120	21768	21745	21712.38	21591.5	19922.4	18470	17702.9	17534.5	16904.1	16397.3	12458.1	12027.9	4899.4	31238.12	28532	27158	25956	23524
P100yr	1662.2	1662.2	3843.4	3851.2	3851.2	3851.2	3953.8	4013.8	4013.8	4013.8	4013.8	4013.8	4013.8	4013.8	6647.8	6647.8	6662.1	3221.7	3221.7	4431.4	6309.5	836.9	836.9	1347.9	1574.8	1574.8
Floodway	1662.2	1662.2	3843.4	3851.2	3851.2	3851.2	3953.8	4013.8	3899.04	3899.04	3899.04	3899.04	3899.04	3899.04	6647.8	6647.8	6662.1	3221.7	3221.7	4431.4	6309.5	836.9	836.9	1347.9	1574.8	1574.8
P500yr	2296.3	2296.3	5311.5	5366.6	5366.6	5366.6	5556.9	5716.3	5716.3	5716.3	5716.3	5716.3	5716.3	5716.3	9438.2	9438.2	9453.9	4143	4143	5639.4	8299	1169.3	1169.3	1892.5	2214.4	2214.4
P50yr	1413.6	1413.6	3252.3	3233.3	3233.3	3233.3	3295.7	3373.8	3373.8	3373.8	3373.8	3373.8	3373.8	3373.8	5598.8	5598.8	5616.6	2954	2954	3939.7	5535.5	707.3	707.3	1136.1	1324.5	1324.5
P10yr	897.5	897.5	2137.6	2105.4	2105.4	2105.4	2167	2217.2	2217.2	2217.2	2217.2	2217.2	2217.2	2217.2	3677	3677	3687.2	2426.5	2426.5	2737.1	3894.2	439.8	439.8	700.9	815.3	815.3
P2yr	472.6	472.6	1152.5	1137.2	1137.2	1137.2	1182.3	1212	1212	1212	1212	1212	1212	1212	2043.4	2043.4	2047.7	1647.9	1647.9	1856.8	2427.6	223.7	223.7	351.8	426.9	426.9

HECRAS Existing Condition Model flows (canoeex2 in hecras) with Lateral Weir East of Canoe Creek North Fork / RR Crossing AND assuming cross sections between Kimsey Lane and RR have flow only from east side of RR

XS ID	38011.5	32983.9	29900.3	28796.5	27541.3	26291.9	24550.6	23120	21768	21745	21712.38	21591.5	19922.4	18470	17702.9	17534.5	16904.1	16397.3	12458.1	12027.9	4899.4	31238.12	28532	27158	25956	23524			
P100yr	1662.2	1662.2	3843.4	3851.2	3851.2	3851.2	3953.8	3998.61	1175.3	1175.3	1175.3	1175.3	1175.3	1175.3	3809.3	3809.3	3823.6	383.2	383.2	1592.9	3471	836.9	836.9	1347.9	1574.8	1574.8	4013.8	reduced to	1175.3 at XS 21591.5, 1922.4 & 18470
Floodway	1662.2	1662.2	3843.4	3851.2	3851.2	3851.2	3953.8	3377.66	818.18	818.18	818.18	818.18	818.18	818.18	3452.18	3452.18	3466.48	26.08	26.08	1235.78	3113.88	836.9	836.9	1347.9	1574.8	1574.8	4013.8	reduced to	818.18 at XS 21591.5, 1922.4 & 18470
P500yr	2296.3	2296.3	5311.5	5366.6	5366.6	5366.6	5556.9	5282.68	1301.9	1301.9	1301.9	1301.9	1301.9	1301.9	5023.8	5023.8	5039.5	4.14	4.14	1496.4	4156	1169.3	1169.3	1892.5	2214.4	2214.4	5716.3	reduced to	1301.9 at XS 21591.5, 1922.4 & 18470
P50yr	1413.6	1413.6	3252.3	3233.3	3233.3	3233.3	3295.7	3373.8	1105.08	1105.08	1105.08	1105.08	1105.08	1105.08	3330.08	3330.08	3347.88	685.28	685.28	1670.98	3266.78	707.3	707.3	1136.1	1324.5	1324.5	3373.8	reduced to	1105.08 at XS 21591.5, 1922.4 & 18470
P10yr	897.5	897.5	2137.6	2105.4	2105.4	2105.4	2167	2217.2	975.78	975.78	975.78	975.78	975.78	975.78	2435.58	2435.58	2445.78	1185.08	1185.08	1495.68	2652.78	439.8	439.8	700.9	815.3	815.3	2217.2	reduced to	975.78 at XS 21591.5, 1922.4 & 18470
P2yr	472.6	472.6	1152.5	1137.2	1137.2	1137.2	1182.3	1212	764.77	764.77	764.77	764.77	764.77	764.77	1596.17	1596.17	1600.47	1200.67	1200.67	1409.57	1980.37	223.7	223.7	351.8	426.9	426.9	1212	reduced to	764.77 at XS 21591.5, 1922.4 & 18470

HECRAS Existing Condition Model flows (canoeex3 in geohecras) with Lateral Weir East of Canoe Creek North Fork / RR Crossing AND recomputing final flows downstream of this crossing based on reduced flows from RR bridges combining with flows along the west side of RR

XS ID	38011.5	32983.9	29900.3	28796.5	27541.3	26291.9	24550.6	23120	21768	21745	21712.38	21591.5	19922.4	18470	17702.9	17534.5	16904.1	16397.3	12458.1	12027.9	4899.4	31238.12	28532	27158	25956	23524			
P100yr	1662.2	1662.2	3843.4	3851.2	3851.2	3851.2	3953.8	3998.61	1175.3	1175.3	1175.3	2750.1	3048	3862.7	6647.8	6647.8	6662.1	3221.7	3221.7	4431.4	6309.5	836.9	836.9	1347.9	1574.8	1574.8			
Floodway	1662.2	1662.2	3843.4	3851.2	3851.2	3851.2	3953.8	3377.66	818.18	818.18	818.18	2392.98	2690.88	3505.58	6647.8	6647.8	6662.1	3221.7	3221.7	4431.4	6309.5	836.9	836.9	1347.9	1574.8	1574.8	818.18	increased to	1175.3
P500yr	2296.3	2296.3	5311.5	5366.6	5366.6	5366.6	5556.9	5282.68	1301.9	1301.9	1301.9	3516.3	3965.9	5049.9	9438.2	9438.2	9453.9	4143	4143	5639.4	8299	1169.3	1169.3	1892.5	2214.4	2214.4	for floodway flows at		
P50yr	1413.6	1413.6	3252.3	3233.3	3233.3	3233.3	3295.7	3373.8	1105.08	1105.08	1105.08	2429.58	2674.98	3393.28	5598.8	5598.8	5616.6	2954	2954	3939.7	5535.5	707.3	707.3	1136.1	1324.5	1324.5	XS 21768, 21745 and 21712.38		
P10yr	897.5	897.5	2137.6	2105.4	2105.4	2105.4	2167	2217.2	975.78	975.78	975.78	1791.08	1944.18	2467.08	3677	3677	3687.2	2426.5	2426.5	2737.1	3894.2	439.8	439.8	700.9	815.3	815.3			
P2yr	472.6	472.6	1152.5	1137.2	1137.2	1137.2	1182.3	1212	764.77	764.77	764.77	1191.67	1274.97	1621.27	2043.4	2043.4	2047.7	1647.9	1647.9	1856.8	2427.6	223.7	223.7	351.8	426.9	426.9			

Appendix A-8

Canoe Creek Flood Impact Study on Proposed I69

Canoe Creek North Fork - Proposed Condition Lateral Weir Flow Analysis East of Creek/Railroad Crossing

HECRAS Existing Condition Model flows (canoeex in geohecras) without Lateral Weir East of Canoe Creek North Fork / Railraod (RR) Crossing

XS ID	38011.5	32983.9	29900.3	28796.5	27541.3	26291.9	24550.6	23120	21768	21745	21712.38	21591.5	19922.4	18470	17702.9	17534.5	16904.1	16397.3	12458.1	12027.9	4899.4	31238.12	28532	27158	25956	23524
P100yr	1662.2	1662.2	3843.4	3851.2	3851.2	3851.2	3953.8	4013.8	4013.8	4013.8	4013.8	5535.2	5833.1	6647.8	6647.8	6647.8	6662.1	3221.7	3221.7	4431.4	6309.5	836.9	836.9	1347.9	1574.8	1574.8
Floodway	1662.2	1662.2	3843.4	3851.2	3851.2	3851.2	3953.8	4013.8	3899.04	3899.04	3899.04	5535.2	5833.1	6647.8	6647.8	6647.8	6662.1	3221.7	3221.7	4431.4	6309.5	836.9	836.9	1347.9	1574.8	1574.8
P500yr	2296.3	2296.3	5311.5	5366.6	5366.6	5366.6	5556.9	5716.3	5716.3	5716.3	5716.3	7904.6	8354.2	9438.2	9438.2	9438.2	9453.9	4143	4143	5639.4	8299	1169.3	1169.3	1892.5	2214.4	2214.4
P50yr	1413.6	1413.6	3252.3	3233.3	3233.3	3233.3	3295.7	3373.8	3373.8	3373.8	3373.8	4635.1	4880.5	5598.8	5598.8	5598.8	5616.6	2954	2954	3939.7	5535.5	707.3	707.3	1136.1	1324.5	1324.5
P10yr	897.5	897.5	2137.6	2105.4	2105.4	2105.4	2167	2217.2	2217.2	2217.2	2217.2	3001	3154.1	3677	3677	3677	3687.2	2426.5	2426.5	2737.1	3894.2	439.8	439.8	700.9	815.3	815.3
P2yr	472.6	472.6	1152.5	1137.2	1137.2	1137.2	1182.3	1212	1212	1212	1212	1613.8	1697.1	2043.4	2043.4	2043.4	2047.7	1647.9	1647.9	1856.8	2427.6	223.7	223.7	351.8	426.9	426.9

HECRAS Existing Condition Model flows (canoeex2 in geohecras) with Lateral Weir East of Canoe Creek North Fork / RR Crossing AND assuming cross sections between Kimsey Lane and RR have flow only from east side of RR

XS ID	38011.5	32983.9	29900.3	28796.5	27541.3	26291.9	24550.6	23120	21768	21745	21712.38	21591.5	19922.4	18470	17702.9	17534.5	16904.1	16397.3	12458.1	12027.9	4899.4	31238.12	28532	27158	25956	23524
P100yr	1662.2	1662.2	3843.4	3851.2	3851.2	3851.2	3953.8	4013.8	4013.8	4013.8	4013.8	4013.8	4013.8	4013.8	6647.8	6647.8	6662.1	3221.7	3221.7	4431.4	6309.5	836.9	836.9	1347.9	1574.8	1574.8
Floodway	1662.2	1662.2	3843.4	3851.2	3851.2	3851.2	3953.8	4013.8	3899.04	3899.04	3899.04	3899.04	3899.04	3899.04	6647.8	6647.8	6662.1	3221.7	3221.7	4431.4	6309.5	836.9	836.9	1347.9	1574.8	1574.8
P500yr	2296.3	2296.3	5311.5	5366.6	5366.6	5366.6	5556.9	5716.3	5716.3	5716.3	5716.3	5716.3	5716.3	5716.3	9438.2	9438.2	9453.9	4143	4143	5639.4	8299	1169.3	1169.3	1892.5	2214.4	2214.4
P50yr	1413.6	1413.6	3252.3	3233.3	3233.3	3233.3	3295.7	3373.8	3373.8	3373.8	3373.8	3373.8	3373.8	3373.8	5598.8	5598.8	5616.6	2954	2954	3939.7	5535.5	707.3	707.3	1136.1	1324.5	1324.5
P10yr	897.5	897.5	2137.6	2105.4	2105.4	2105.4	2167	2217.2	2217.2	2217.2	2217.2	2217.2	2217.2	2217.2	3677	3677	3687.2	2426.5	2426.5	2737.1	3894.2	439.8	439.8	700.9	815.3	815.3
P2yr	472.6	472.6	1152.5	1137.2	1137.2	1137.2	1182.3	1212	1212	1212	1212	1212	1212	1212	2043.4	2043.4	2047.7	1647.9	1647.9	1856.8	2427.6	223.7	223.7	351.8	426.9	426.9

HECRAS Existing Condition Model flows (canoeex2 in hecras) with Lateral Weir East of Canoe Creek North Fork / RR Crossing AND assuming cross sections between Kimsey Lane and RR have flow only from east side of RR

XS ID	38011.5	32983.9	29900.3	28796.5	27541.3	26291.9	24550.6	23120	21768	21745	21712.38	21591.5	19922.4	18470	17702.9	17534.5	16904.1	16397.3	12458.1	12027.9	4899.4	31238.12	28532	27158	25956	23524			
P100yr	1662.2	1662.2	3843.4	3851.2	3851.2	3851.2	3953.8	3998.61	1175.3	1175.3	1175.3	1175.3	1175.3	1175.3	3809.3	3809.3	3823.6	383.2	383.2	1592.9	3471	836.9	836.9	1347.9	1574.8	1574.8	4013.8	reduced to	1175.3 at XS 21591.5, 1922.4 & 18470
Floodway	1662.2	1662.2	3843.4	3851.2	3851.2	3851.2	3953.8	3377.66	818.18	818.18	818.18	818.18	818.18	818.18	3452.18	3452.18	3466.48	26.08	26.08	1235.78	3113.88	836.9	836.9	1347.9	1574.8	1574.8	4013.8	reduced to	818.18 at XS 21591.5, 1922.4 & 18470
P500yr	2296.3	2296.3	5311.5	5366.6	5366.6	5366.6	5556.9	5282.68	1301.9	1301.9	1301.9	1301.9	1301.9	1301.9	5023.8	5023.8	5039.5	4.14	4.14	1496.4	4156	1169.3	1169.3	1892.5	2214.4	2214.4	5716.3	reduced to	1301.9 at XS 21591.5, 1922.4 & 18470
P50yr	1413.6	1413.6	3252.3	3233.3	3233.3	3233.3	3295.7	3373.8	1105.08	1105.08	1105.08	1105.08	1105.08	1105.08	3330.08	3330.08	3347.88	685.28	685.28	1670.98	3266.78	707.3	707.3	1136.1	1324.5	1324.5	3373.8	reduced to	1105.08 at XS 21591.5, 1922.4 & 18470
P10yr	897.5	897.5	2137.6	2105.4	2105.4	2105.4	2167	2217.2	975.78	975.78	975.78	975.78	975.78	975.78	2435.58	2435.58	2445.78	1185.08	1185.08	1495.68	2652.78	439.8	439.8	700.9	815.3	815.3	2217.2	reduced to	975.78 at XS 21591.5, 1922.4 & 18470
P2yr	472.6	472.6	1152.5	1137.2	1137.2	1137.2	1182.3	1212	764.77	764.77	764.77	764.77	764.77	764.77	1596.17	1596.17	1600.47	1200.67	1200.67	1409.57	1980.37	223.7	223.7	351.8	426.9	426.9	1212	reduced to	764.77 at XS 21591.5, 1922.4 & 18470

HECRAS Existing Condition Model flows (canoeex3 in geohecras) with Lateral Weir East of Canoe Creek North Fork / RR Crossing AND recomputing final flows downstream of this crossing based on reduced flows from RR bridges combining with flows along the west side of RR

XS ID	38011.5	32983.9	29900.3	28796.5	27541.3	26291.9	24550.6	23120	21768	21745	21712.38	21591.5	19922.4	18470	17702.9	17534.5	16904.1	16397.3	12458.1	12027.9	4899.4	31238.12	28532	27158	25956	23524			
P100yr	1662.2	1662.2	3843.4	3851.2	3851.2	3851.2	3953.8	3998.61	1175.3	1175.3	1175.3	2750.1	3048	3862.7	6647.8	6647.8	6662.1	3221.7	3221.7	4431.4	6309.5	836.9	836.9	1347.9	1574.8	1574.8			
Floodway	1662.2	1662.2	3843.4	3851.2	3851.2	3851.2	3953.8	3377.66	818.18	818.18	818.18	2392.98	2690.88	3505.58	6647.8	6647.8	6662.1	3221.7	3221.7	4431.4	6309.5	836.9	836.9	1347.9	1574.8	1574.8	818.18	increased to	1175.3
P500yr	2296.3	2296.3	5311.5	5366.6	5366.6	5366.6	5556.9	5282.68	1301.9	1301.9	1301.9	3516.3	3965.9	5049.9	9438.2	9438.2	9453.9	4143	4143	5639.4	8299	1169.3	1169.3	1892.5	2214.4	2214.4	for floodway flows at		
P50yr	1413.6	1413.6	3252.3	3233.3	3233.3	3233.3	3295.7	3373.8	1105.08	1105.08	1105.08	2429.58	2674.98	3393.28	5598.8	5598.8	5616.6	2954	2954	3939.7	5535.5	707.3	707.3	1136.1	1324.5	1324.5	XS 21768, 21745 and 21712.38		
P10yr	897.5	897.5	2137.6	2105.4	2105.4	2105.4	2167	2217.2	975.78	975.78	975.78	1791.08	1944.18	2467.08	3677	3677	3687.2	2426.5	2426.5	2737.1	3894.2	439.8	439.8	700.9	815.3	815.3			
P2yr	472.6	472.6	1152.5	1137.2	1137.2	1137.2	1182.3	1212	764.77	764.77	764.77	1191.67	1274.97	1621.27	2043.4	2043.4	2047.7	1647.9	1647.9	1856.8	2427.6	223.7	223.7	351.8	426.9	426.9			

Canoe Creek Flood Impact Study on Proposed I69
Proposed Condition with Detention - Lateral Weir Flow Analysis East of Creek/Railroad Crossing

HECRAS Proposed Condition Model flows (canpr1 in geohecras) without Lateral Weir East of Canoe Creek North Fork / Railraod (RR) Crossing

XS ID	38011.5	32983.9	29900.3	28796.5	27541.3	26291.9	24550.6	23120	21768	21745	21712.38	21591.5	19922.4	18470	17534.5	16904.1	16397.3	12458.1	12027.9	4899.4	31238.1	28532	27158	25956	23524	22935
P100yr	1668.6	1668.6	3850.2	3860.2	3860.2	3860.2	3962.5	4021.3	4021.3	4021.3	4021.3	4062	4085.3	6649.5	6649.5	6705.6	3229.5	3229.5	4408	6299.1	877.4	877.4	1391.9	1572.4	1572.4	2035.8
Floodway	1668.6	1668.6	3850.2	3860.2	3860.2	3860.2	3962.5	4021.3	4021.3	4021.3	4021.3	4062	4085.3	6649.5	6649.5	6705.6	3229.5	3229.5	4408	6299.1	877.4	877.4	1391.9	1572.4	1572.4	2035.8
P500yr	2302.9	2302.9	5318	5375.4	5375.4	5375.4	5565.7	5723.8	5723.8	5723.8	5723.8	5780	5814.9	9440.3	9440.3	9515.4	4155.8	4155.8	5615.2	8287.9	1211.4	1211.4	1938.9	2187.1	2187.1	2852.3
P50yr	1419.9	1419.9	3260.3	3246.4	3246.4	3246.4	3306.8	3382.9	3382.9	3382.9	3382.9	3417.5	3435.9	5632.9	5632.9	5682.8	2960.6	2960.6	3918.3	5522.1	746.6	746.6	1178.8	1335.5	1335.5	1725.1
P10yr	903.3	903.3	2143.8	2113.6	2113.6	2113.6	2173.5	2224.4	2224.4	2224.4	2224.4	2247.4	2259.4	3720.6	3720.6	3752.1	2434.9	2434.9	2694.3	3880	474.9	474.9	738.9	840.6	840.6	1072.5
P2yr	477.5	477.5	1156.8	1143.2	1143.2	1143.2	1188.7	1218.1	1218.1	1218.1	1218.1	1231.3	1238.7	2067.9	2067.9	2085.5	1656.7	1656.7	1864.1	2424	251.5	251.5	382.1	435.7	435.7	546.1

HECRAS Proposed Condition Model flows (canpr2 in geohecras) with Lateral Weir East of Canoe Creek North Fork / RR Crossing AND assuming cross sections between Kimsey Lane and RR have flow only from east side of RR

XS ID	38011.5	32983.9	29900.3	28796.5	27541.3	26291.9	24550.6	23120	21768	21745	21712.38	21591.5	19922.4	18470	17534.5	16904.1	16397.3	12458.1	12027.9	4899.4	31238.1	28532	27158	25956	23524	22935
P100yr	1668.6	1668.6	3850.2	3860.2	3860.2	3860.2	3962.5	4021.3	4021.3	4021.3	4021.3	4021.3	4021.3	4021.3	6649.5	6705.6	3229.5	3229.5	4408	6299.1	877.4	877.4	1391.9	1572.4	1572.4	2035.8
Floodway	1668.6	1668.6	3850.2	3860.2	3860.2	3860.2	3962.5	4021.3	4021.3	4021.3	4021.3	4021.3	4021.3	4021.3	6649.5	6705.6	3229.5	3229.5	4408	6299.1	877.4	877.4	1391.9	1572.4	1572.4	2035.8
P500yr	2302.9	2302.9	5318	5375.4	5375.4	5375.4	5565.7	5723.8	5723.8	5723.8	5723.8	5723.8	5723.8	5723.8	9440.3	9515.4	4155.8	4155.8	5615.2	8287.9	1211.4	1211.4	1938.9	2187.1	2187.1	2852.3
P50yr	1419.9	1419.9	3260.3	3246.4	3246.4	3246.4	3306.8	3382.9	3382.9	3382.9	3382.9	3382.9	3382.9	3382.9	5632.9	5682.8	2960.6	2960.6	3918.3	5522.1	746.6	746.6	1178.8	1335.5	1335.5	1725.1
P10yr	903.3	903.3	2143.8	2113.6	2113.6	2113.6	2173.5	2224.4	2224.4	2224.4	2224.4	2224.4	2224.4	2224.4	3720.6	3752.1	2434.9	2434.9	2694.3	3880	474.9	474.9	738.9	840.6	840.6	1072.5
P2yr	477.5	477.5	1156.8	1143.2	1143.2	1143.2	1188.7	1218.1	1218.1	1218.1	1218.1	1218.1	1218.1	1218.1	2067.9	2085.5	1656.7	1656.7	1864.1	2424	251.5	251.5	382.1	435.7	435.7	546.1

HECRAS Proposed Condition Model flows (canpr2 in hecras) with Lateral Weir East of Canoe Creek North Fork / RR Crossing AND assuming cross sections between Kimsey Lane and RR have flow only from east side of RR

XS ID	38011.5	32983.9	29900.3	28796.5	27541.3	26291.9	24550.6	23120	21768	21745	21712.38	21591.5	19922.4	18470	17534.5	16904.1	16397.3	12458.1	12027.9	4899.4	31238.1	28532	27158	25956	23524	22935		
P100yr	1668.6	1668.6	3850.2	3860.2	3860.2	3860.2	3962.5	3998.61	1770.41	1770.41	1770.41	1770.41	1770.41	1770.41	4398.6	4454.71	978.6	978.6	2157.1	4048.21	877.4	877.4	1391.9	1572.4	1572.4	2035.8	4021.3 reduced to	1770.41 at XS 21591.5, 1922.4 & 18470
Floodway	1668.6	1668.6	3850.2	3860.2	3860.2	3860.2	3962.5	3377.66	1770.41	1770.41	1770.41	1770.41	1770.41	1770.41	4398.6	4454.71	978.6	978.6	2157.1	4048.21	877.4	877.4	1391.9	1572.4	1572.4	2035.8	4021.3 reduced to	1770.41 at XS 21591.5, 1922.4 & 18470
P500yr	2302.9	2302.9	5318	5375.4	5375.4	5375.4	5565.7	5282.68	1963.55	1963.55	1963.55	1963.55	1963.55	1963.55	5680.05	5755.15	395.55	395.55	1854.95	4527.65	1211.4	1211.4	1938.9	2187.1	2187.1	2852.3	5723.8 reduced to	1963.55 at XS 21591.5, 1922.4 & 18470
P50yr	1419.9	1419.9	3260.3	3246.4	3246.4	3246.4	3306.8	3373.8	1679.51	1679.51	1679.51	1679.51	1679.51	1679.51	3929.51	3979.41	1257.21	1257.21	2214.91	3818.71	746.6	746.6	1178.8	1335.5	1335.5	1725.1	3382.9 reduced to	1679.51 at XS 21591.5, 1922.4 & 18470
P10yr	903.3	903.3	2143.8	2113.6	2113.6	2113.6	2173.5	2217.2	1470.02	1470.02	1470.02	1470.02	1470.02	1470.02	2966.22	2997.72	1680.52	1680.52	1939.92	3125.62	474.9	474.9	738.9	840.6	840.6	1072.5	2224.4 reduced to	1470.02 at XS 21591.5, 1922.4 & 18470
P2yr	477.5	477.5	1156.8	1143.2	1143.2	1143.2	1188.7	1212	976.92	976.92	976.92	976.92	976.92	976.92	1826.72	1844.32	1415.52	1415.52	1622.92	2182.82	251.5	251.5	382.1	435.7	435.7	546.1	1218.1 reduced to	976.92 at XS 21591.5, 1922.4 & 18470

HECRAS Proposed Condition Model flows (canpr3 in geohecras) with Lateral Weir East of Canoe Creek North Fork / RR Crossing AND recomputing final flows downstream of this crossing based on reduced flows from RR bridges combining with flows along the west side of RR

XS ID	38011.5	32983.9	29900.3	28796.5	27541.3	26291.9	24550.6	23120	21768	21745	21712.38	21591.5	19922.4	18470	17534.5	16904.1	16397.3	12458.1	12027.9	4899.4	31238.1	28532	27158	25956	23524	22935			
P100yr	1668.6	1668.6	3850.2	3860.2	3860.2	3860.2	3962.5	3998.61	1770.41	1770.41	1770.41	3806.21	3829.51	6393.71	6649.5	6705.6	3229.5	3229.5	4408	6299.1	877.4	877.4	1391.9	1572.4	1572.4	2035.8			
Floodway	1668.6	1668.6	3850.2	3860.2	3860.2	3860.2	3962.5	3377.66	1770.41	1770.41	1770.41	3806.21	3829.51	6393.71	6649.5	6705.6	3229.5	3229.5	4408	6299.1	877.4	877.4	1391.9	1572.4	1572.4	2035.8	1770.41	increased to	1770.41
P500yr	2302.9	2302.9	5318	5375.4	5375.4	5375.4	5565.7	5282.68	1963.55	1963.55	1963.55	4815.85	4850.75	8476.15	9440.3	9515.4	4155.8	4155.8	5615.2	8287.9	1211.4	1211.4	1938.9	2187.1	2187.1	2852.3	for floodway flows at		
P50yr	1419.9	1419.9	3260.3	3246.4	3246.4	3246.4	3306.8	3373.8	1679.51	1679.51	1679.51	3404.61	3423.01	5620.01	5632.9	5682.8	2960.6	2960.6	3918.3	5522.1	746.6	746.6	1178.8	1335.5	1335.5	1725.1	XS 21768, 21745 and 21712.38		
P10yr	903.3	903.3	2143.8	2113.6	2113.6	2113.6	2173.5	2217.2	1470.02	1470.02	1470.02	2542.52	2554.52	4015.72	3720.6	3752.1	2434.9	2434.9	2694.3	3880	474.9	474.9	738.9	840.6	840.6	1072.5			
P2yr	477.5	477.5	1156.8	1143.2	1143.2	1143.2	1188.7	1212	976.92	976.92	976.92	1523.02	1530.42	2359.62	2067.9	2085.5	1656.7	1656.7	1864.1	2424	251.5	251.5	382.1	435.7	435.7	546.1			

Appendix A-9

Canoe Creek Flood Impact Study on Proposed I69
Diversion of Flows at Canoe Creek/Railroad Crossing

Total Flow at J_9U	Flow Across Railroad to J_9	Flow going southwest to Kimsey Lane while remaining east of Railroad to J_14
5723.8	1963.55	3760.25
4021.3	1770.41	2250.89
3382.9	1679.51	1703.39
2224.4	1470.02	754.38
1218.1	976.92	241.18
Extrapolated flow below is based on ratio of 3760.25/5723.8 in first row above		
7000	2401.350501	4598.649499

Notes on Diversion of Flows at Canoe Creek/Railroad Crossing at concentration point J_9U:

1. Part of flow goes across Railroad to concentration point J_9
2. Remaining flow remains along east side of Railroad and goes towards Kimsey Lane at concentration point J_14
3. Flow from J_14 goes to US 41 at J_US41
4. HMS concentration point J_9U shows total flow before diversion at the US 41/Railroad crossing.
5. HMS concentration point J_9 shows diverted flow across the railroad at the US 41/Railroad crossing.
6. HMS file Candet3.hms location: C:\Canoe Creek\Canoe Creek\Hydrology 062519\canoe-pr-hms-parsons\Candet3
7. HEC-RAS and GeoHECRAS Cross Section 21768 as shown also in Excel file Canoe H-H Summary Data 10-10-19 v2.xlsx and worksheet "lateral weir prop flows 080119" shows the "Flow Across to Railroad" as provided in table above.
8. GeoHECRAS plan is Candet3 and file Canoe101019.ghr is located at: P:\PROJECTS\649004 1-69 Ohio River Bridge\Canoe Creek Floodplain Study\Hydraulics\canoe101019PL

Appendix A-10

Appendix A-10A

Canoe Creek Flood Impact Study on Proposed I69

Pre-final Elevation-Storage-Discharge Table - Accepted

US 41 - Existing Upstream Elevation-Storage-Discharge in Parsons HMS Model Canex1.hms

Elevation ft	Area ac	Volume ac-ft	Cum. Vol ac-ft	Discharge cfs
372.49				
382	22.35			
384	132.71	155.06	155.06	1547.68
386	252.17	384.88	539.94	2474.61
388	491.43	743.6	1283.54	3233.82
390	737.78	1229.21	2512.75	5000

Note: Discharge is based on GeoHECRAS model "canoe073019.ghr" and plan "canoeex" for Existing Conditions

Final Elevation-Storage-Discharge Table - Used for Confirmation Only

US 41 - Existing Upstream Elevation-Storage-Discharge in earlier iteration of Parsons HMS Model Caneex1.hms

Elevation ft	Area ac	Volume ac-ft	Cum. Vol ac-ft	Discharge cfs
372.49				
382	22.35			
384	132.71	155.06	155.06	1600.62
386	252.17	384.88	539.94	2554.18
388	491.43	743.6	1283.54	3277.35
390	737.78	1229.21	2512.75	5000

Note: Discharge is based on GeoHECRAS model "canoe073019.ghr" and and earlier iteration in plan "canoeex" for Existing Conditions

US 41 - Existing Upstream Water Surface Elevation-Discharge - First Estimate

Elevation	Discharge	Interpolated Elevation	Interpolated Discharge
ft	cfs	ft	cfs
388.61	3623.2	388	3369.80
387.13	3008.4	387	2955.88
386.58	2786.2	386	2515.81
385.27	2175.5	385	2009.69
384.18	1506.1	384	1482.91
372.49	0		

Canoe Creek Flood Impact Study on Proposed I69

US 41 - Existing Upstream Water Surface Elevation-Discharge - Second Estimate

Elevation	Discharge	Interpolated Elevation	Interpolated Discharge
ft	cfs	ft	cfs
389.09	3623.2	388	3134.05
387.72	3008.4	387	2764.70
387.05	2786.2	386	2334.63
385.63	2175.5	385	1858.42
384.3	1506.1	384	1467.84
372.49	0		

US 41 - Existing Upstream Water Surface Elevation-Discharge - Pre-final/Third Estimate - Accepted

Elevation	Discharge	Interpolated Elevation	Interpolated Discharge
ft	cfs	ft	cfs
389.4	4139.4	388	3233.82
387.91	3175.6	387	2817.54
387.19	2882.7	386	2474.61
385.62	2344.3	385	1980.58
384.34	1593.4	384	1547.68
372.49	0		

US 41 - Existing Upstream Water Surface Elevation-Discharge - Final/Fourth Estimate - for Confirmation Only

Elevation	Discharge	Interpolated Elevation	Interpolated Discharge
ft	cfs	ft	cfs
389.4	4143	388	3277.35
387.91	3221.7	387	2890.16
387.19	2954	386	2554.18
385.62	2426.5	385	2049.37
384.34	1647.9	384	1600.62
372.49	0		

Canoe Creek Flood Impact Study on Proposed I69
US 41 - Existing Upstream Elevation-Discharge-Storage in FEMA FIS HMS Model for Comparison Purposes Only

Elevation ft	Discharge cfs	Storage ac-ft
383.9	976	65.81
385.69	2096	155.69
386.52	2651	202.79
386.95	2970	229.49
387.65	3602	277.08
388.02	4287	303.79
388.48	5268	337.7
389.2	7300	400

Appendix A-10 B

Canoe Creek Flood Impact Study on Proposed I69

Proposed Elevation-Storage-Discharge relationship for storage upstream of US 41

Final Elevation-Storage-Discharge Table - Accepted

US 41 - Proposed Upstream Elevation-Storage-Discharge in Parsons HMS Model Candet3.hms

Elevation ft	Area ac	Volume ac-ft	Cum. Vol ac-ft	Discharge cfs
373.15	0		0	0
376	1.00	1.43	1.43	100
377	195.97	98.48	99.91	150
378	198.55	197.26	297.17	200
379	201.12	199.83	497.00	250
380	203.70	202.41	699.41	300
381	206.28	204.99	904.40	400
382	212.85	209.56	1113.97	516
383	219.42	216.13	1330.10	716
384	225.99	222.70	1552.81	1070
385	232.56	229.27	1782.08	1660
386	245.92	239.24	2021.32	2227
387	259.29	252.60	2273.93	2578
388	491.43	375.36	2649.29	2700
389	614.61	553.02	3202.30	3000
390	737.78	676.19	3878.50	3500

Note: Discharge is based on GeoHECRAS model "canoe101019.ghr" and
plan "candet1" for Proposed Conditions with Detention upstream of US 41

Canoe Creek Flood Impact Study on Proposed I69

Proposed Elevation-Storage-Discharge relationship for Interim/Phase 1 storage upstream of US 41

Final Interim/Phase 1 Elevation-Storage-Discharge Table - Accepted

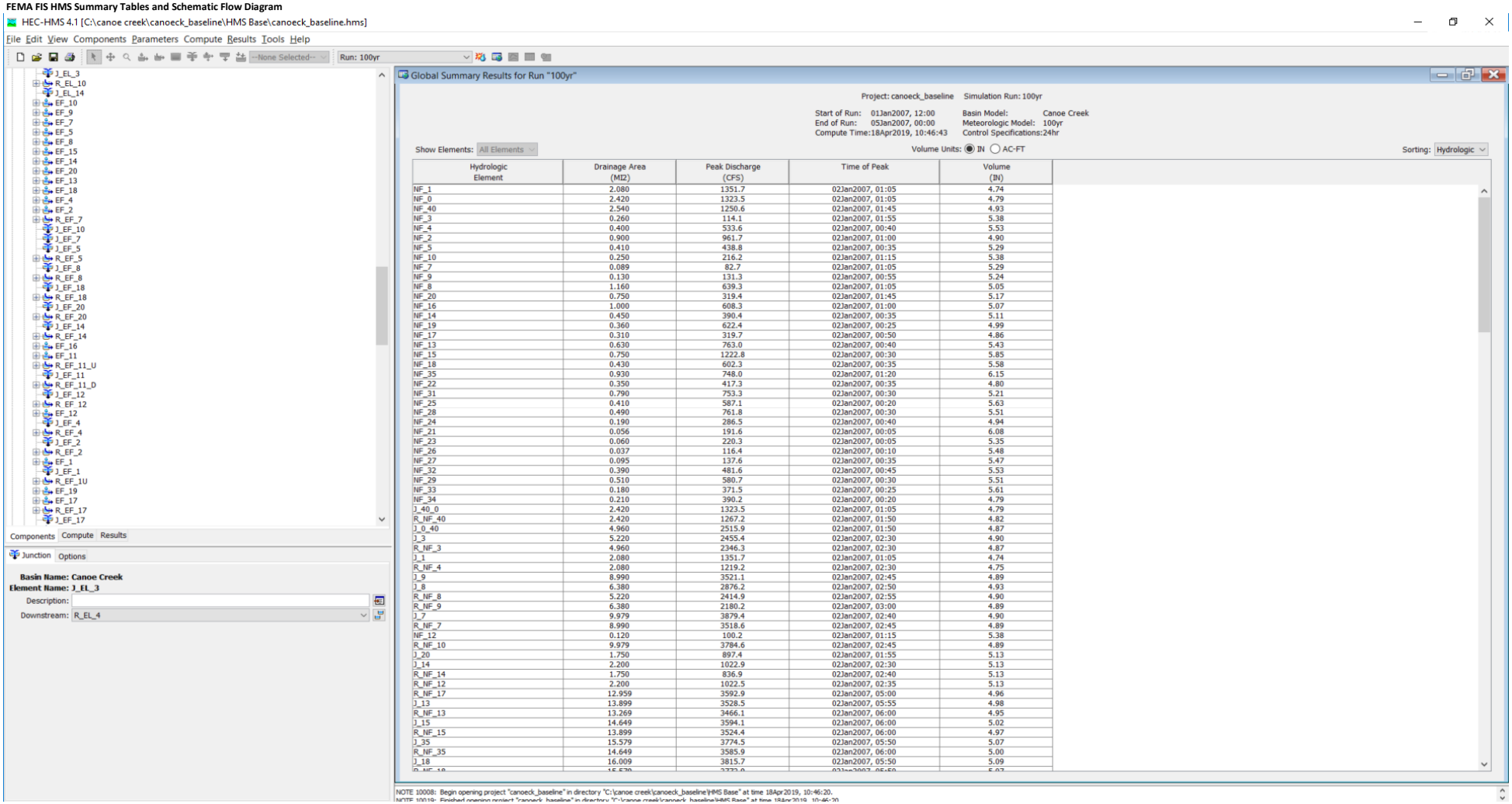
US 41 - Proposed Interim/Phase 1 Upstream Elevation-Storage-Discharge in Parsons HMS Model Candet4.hms

Elevation ft	Area ac	Volume ac-ft	Cum. Vol ac-ft	Discharge cfs
373.15	0.0		0	0
376	1.0	1.4	1.4	100
377	15.1	8	9	150
378	61.4	38	48	200
379	126.4	94	142	250
380	129.3	128	270	300
381	132.3	131	400	400
382	142.3	137	538	516
383	177.5	160	698	716
384	215.9	197	894	1070
385	240.7	228	1123	1660
386	268.9	255	1377	2227
387	361.5	315	1693	2578
388	491.4	426	2119	2700
389	614.6	553	2672	3000
390	737.8	676	3348	3500
392			5000	5000

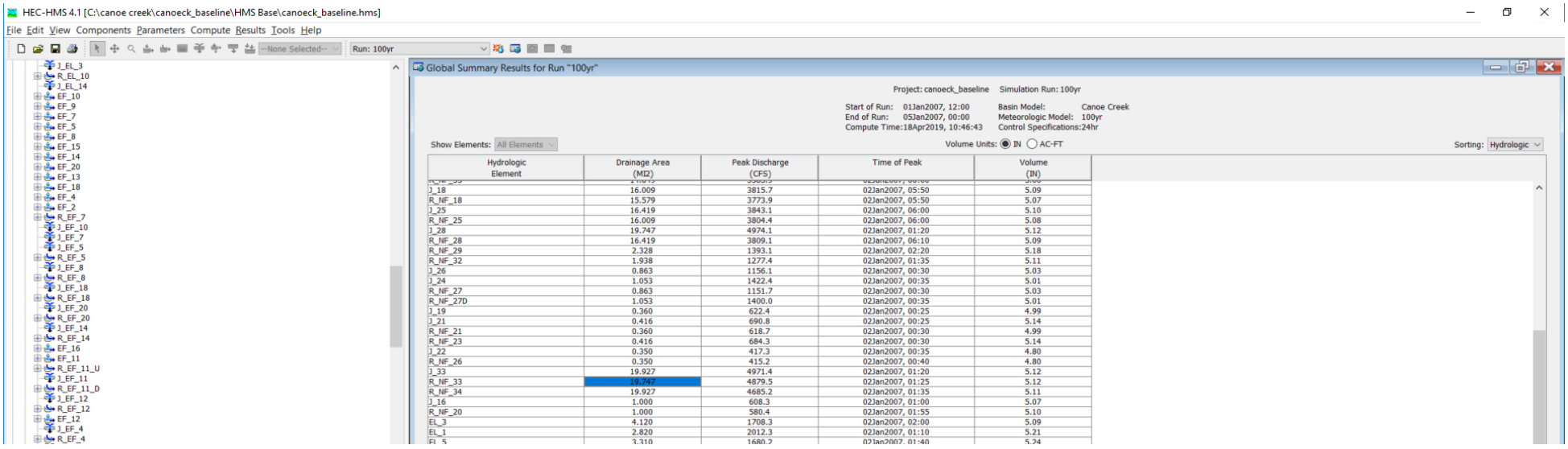
Note: Discharge is based on GeoHECRAS model "canoe101019.ghr" and
plan "candet1" for Proposed Conditions with Detention upstream of US 41

Appendix A-11

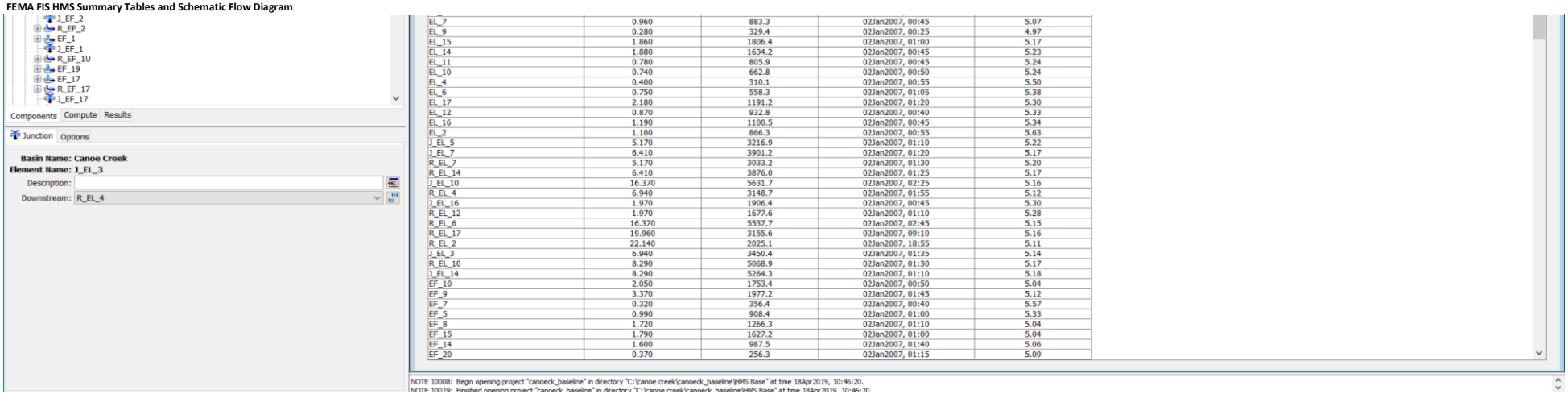
Canoe Creek Flood Impact Study on Proposed I69
FEMA FIS HMS Summary Tables and Schematic Flow Diagram



Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
NF_1	2.080	1351.7	02Jan2007, 01:05	4.74
NF_0	2.420	1323.5	02Jan2007, 01:05	4.79
NF_40	2.540	1250.6	02Jan2007, 01:45	4.93
NF_3	0.260	114.1	02Jan2007, 01:55	5.38
NF_4	0.400	533.6	02Jan2007, 00:40	5.53
NF_2	0.900	961.7	02Jan2007, 01:00	4.90
NF_5	0.410	438.8	02Jan2007, 00:35	5.29
NF_10	0.250	216.2	02Jan2007, 01:15	5.38
NF_7	0.089	82.7	02Jan2007, 01:05	5.29
NF_9	0.130	131.3	02Jan2007, 00:55	5.24
NF_8	1.160	639.3	02Jan2007, 01:05	5.05
NF_20	0.750	319.4	02Jan2007, 01:45	5.17
NF_16	1.000	608.3	02Jan2007, 01:00	5.07
NF_14	0.450	390.4	02Jan2007, 00:35	5.11
NF_19	0.360	622.4	02Jan2007, 00:25	4.99
NF_17	0.310	319.7	02Jan2007, 00:50	4.86
NF_13	0.630	763.0	02Jan2007, 00:40	5.43
NF_15	0.750	1222.8	02Jan2007, 00:30	5.85
NF_18	0.430	602.3	02Jan2007, 00:35	5.58
NF_35	0.930	748.0	02Jan2007, 01:20	6.15
NF_22	0.350	417.3	02Jan2007, 00:35	4.80
NF_31	0.790	753.3	02Jan2007, 00:30	5.21
NF_25	0.410	587.1	02Jan2007, 00:20	5.63
NF_28	0.490	761.8	02Jan2007, 00:30	5.51
NF_24	0.190	286.5	02Jan2007, 00:40	4.94
NF_21	0.056	191.6	02Jan2007, 00:05	6.08
NF_23	0.060	220.3	02Jan2007, 00:05	5.35
NF_26	0.037	116.4	02Jan2007, 00:10	5.48
NF_27	0.095	137.6	02Jan2007, 00:35	5.47
NF_32	0.390	481.6	02Jan2007, 00:45	5.53
NF_29	0.510	580.7	02Jan2007, 00:30	5.51
NF_33	0.180	371.5	02Jan2007, 00:25	5.61
NF_34	0.210	390.2	02Jan2007, 00:20	4.79
J_40_0	2.420	1323.5	02Jan2007, 01:05	4.79
R_NF_40	2.420	1267.2	02Jan2007, 01:50	4.82
J_0_40	4.960	2515.9	02Jan2007, 01:50	4.87
J_3	5.220	2455.4	02Jan2007, 02:30	4.90
R_NF_3	4.960	2346.3	02Jan2007, 02:30	4.87
J_1	2.080	1351.7	02Jan2007, 01:05	4.74
R_NF_4	2.080	1219.2	02Jan2007, 02:30	4.75
J_9	8.990	3521.1	02Jan2007, 02:45	4.89
J_8	6.380	2876.2	02Jan2007, 02:50	4.93
R_NF_8	5.220	2414.9	02Jan2007, 02:55	4.90
R_NF_9	6.380	2180.2	02Jan2007, 03:00	4.89
J_7	9.979	3879.4	02Jan2007, 02:40	4.90
R_NF_7	8.990	3518.6	02Jan2007, 02:45	4.89
NF_12	0.120	100.2	02Jan2007, 01:15	5.38
R_NF_10	9.979	3784.6	02Jan2007, 02:45	4.89
J_20	1.750	897.4	02Jan2007, 01:55	5.13
J_14	2.200	1022.9	02Jan2007, 02:30	5.13
R_NF_14	1.750	836.9	02Jan2007, 02:40	5.13
R_NF_12	2.200	1022.5	02Jan2007, 02:35	5.13
R_NF_17	12.959	3592.9	02Jan2007, 05:00	4.96
J_13	13.899	3528.5	02Jan2007, 05:55	4.98
R_NF_13	13.269	3466.1	02Jan2007, 06:00	4.95
J_15	14.649	3594.1	02Jan2007, 06:00	5.02
R_NF_15	13.899	3524.4	02Jan2007, 06:00	4.97
J_35	15.579	3774.5	02Jan2007, 05:50	5.07
R_NF_35	14.649	3585.9	02Jan2007, 06:00	5.00
J_18	16.009	3815.7	02Jan2007, 05:50	5.09



Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
J_18	16.009	3815.7	02Jan2007, 05:50	5.09
R_NF_18	15.579	3773.9	02Jan2007, 05:50	5.07
J_25	16.419	3843.1	02Jan2007, 06:00	5.10
R_NF_25	16.009	3804.4	02Jan2007, 06:00	5.08
J_28	19.747	4974.1	02Jan2007, 01:20	5.12
R_NF_28	16.419	3809.1	02Jan2007, 06:10	5.09
R_NF_29	2.328	1393.1	02Jan2007, 02:20	5.18
R_NF_32	1.938	1277.4	02Jan2007, 01:35	5.11
J_26	0.863	1156.1	02Jan2007, 00:30	5.03
J_24	1.053	1422.4	02Jan2007, 00:35	5.01
R_NF_27	0.863	1151.7	02Jan2007, 00:30	5.03
R_NF_27D	1.053	1400.0	02Jan2007, 00:35	5.01
J_19	0.360	622.4	02Jan2007, 00:25	4.99
J_21	0.416	690.8	02Jan2007, 00:25	5.14
R_NF_21	0.360	618.7	02Jan2007, 00:30	4.99
R_NF_23	0.416	684.3	02Jan2007, 00:30	5.14
J_22	0.350	417.3	02Jan2007, 00:35	4.80
R_NF_26	0.350	415.2	02Jan2007, 00:40	4.80
J_33	19.927	4971.4	02Jan2007, 01:20	5.12
R_NF_33	19.747	4879.5	02Jan2007, 01:25	5.12
R_NF_34	19.927	4685.2	02Jan2007, 01:35	5.11
J_16	1.000	608.3	02Jan2007, 01:00	5.07
R_NF_20	1.000	580.4	02Jan2007, 01:55	5.10
EL_3	4.120	1708.3	02Jan2007, 02:00	5.09
EL_1	2.820	2012.3	02Jan2007, 01:10	5.21
EL_5	3.310	1680.2	02Jan2007, 01:40	5.24

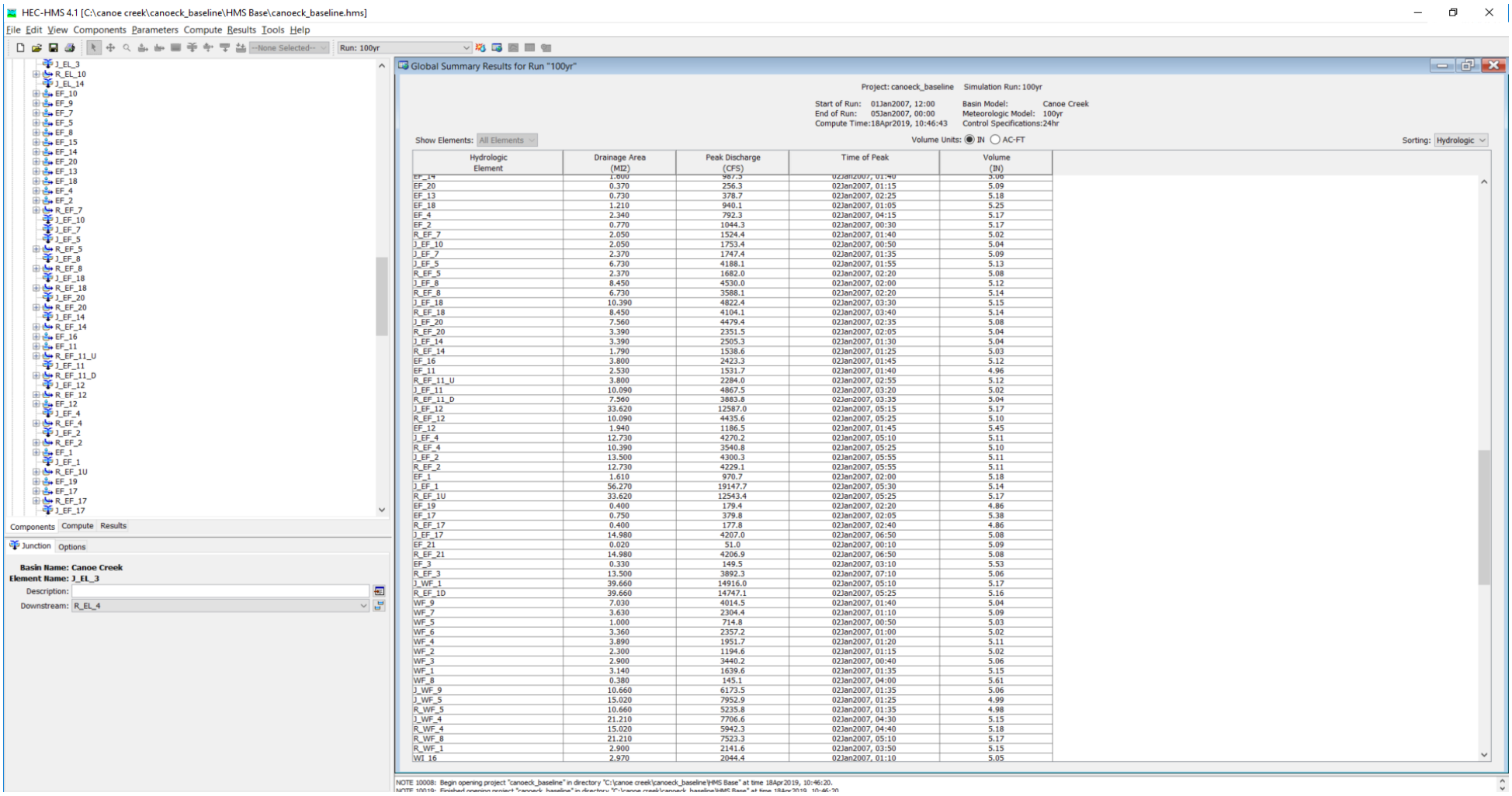


EL_7	0.960	883.3	02Jan2007, 00:45	5.07
EL_9	0.280	329.4	02Jan2007, 00:25	4.97
EL_15	1.860	1806.4	02Jan2007, 01:00	5.17
EL_14	1.880	1634.2	02Jan2007, 00:45	5.23
EL_11	0.780	805.9	02Jan2007, 00:45	5.24
EL_10	0.740	662.8	02Jan2007, 00:50	5.24
EL_4	0.400	310.1	02Jan2007, 00:55	5.50
EL_6	0.750	558.3	02Jan2007, 01:05	5.38
EL_17	2.180	1191.2	02Jan2007, 01:20	5.30
EL_12	0.870	932.8	02Jan2007, 00:40	5.33
EL_16	1.190	1100.5	02Jan2007, 00:45	5.34
EL_2	1.100	866.3	02Jan2007, 00:55	5.63
J_EL_5	5.170	3216.9	02Jan2007, 01:10	5.22
J_EL_7	6.410	3901.2	02Jan2007, 01:20	5.17
R_EL_7	5.170	3033.2	02Jan2007, 01:30	5.20
R_EL_14	6.410	3876.0	02Jan2007, 01:25	5.17
J_EL_10	16.370	5631.7	02Jan2007, 02:25	5.16
R_EL_4	6.940	3148.7	02Jan2007, 01:55	5.12
J_EL_16	1.970	1906.4	02Jan2007, 00:45	5.30
R_EL_12	1.970	1677.6	02Jan2007, 01:10	5.28
R_EL_6	16.370	5537.7	02Jan2007, 02:45	5.15
R_EL_17	19.960	3155.6	02Jan2007, 09:10	5.16
R_EL_2	22.140	2025.1	02Jan2007, 18:55	5.11
J_EL_3	6.940	3450.4	02Jan2007, 01:35	5.14
R_EL_10	8.290	5068.9	02Jan2007, 01:30	5.17
J_EL_14	8.290	5264.3	02Jan2007, 01:10	5.18
EF_10	2.050	1753.4	02Jan2007, 00:50	5.04
EF_9	3.370	1977.2	02Jan2007, 01:45	5.12
EF_7	0.320	356.4	02Jan2007, 00:40	5.57
EF_5	0.990	908.4	02Jan2007, 01:00	5.33
EF_8	1.720	1266.3	02Jan2007, 01:10	5.04
EF_15	1.790	1627.2	02Jan2007, 01:00	5.04
EF_14	1.600	987.5	02Jan2007, 01:40	5.06
EF_20	0.370	256.3	02Jan2007, 01:15	5.09

NOTE 10008: Begin opening project "canoeck_baseline" in directory "C:\canoe creek\canoeck_baseline\HMS Base" at time 18Apr2019, 10:46:20.
NOTE 10019: Finished opening project "canoeck_baseline" in directory "C:\canoe creek\canoeck_baseline\HMS Base" at time 18Apr2019, 10:46:20.

HEC-HMS 4.1 [C:\canoe creek\canoeck_baseline\HMS Base\canoeck_baseline.hms]

File Edit View Components Parameters Compute Results Tools Help



Global Summary Results for Run "100yr"

Project: canoeck_baseline Simulation Run: 100yr

Start of Run: 01Jan2007, 12:00
End of Run: 05Jan2007, 00:00
Compute Time: 18Apr2019, 10:46:43

Basin Model: Canoe Creek
Meteorologic Model: 100yr
Control Specifications: 24hr

Show Elements: All Elements
Volume Units: IN AC-FT
Sorting: Hydrologic

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
EF_14	1.600	987.5	02Jan2007, 01:40	5.06
EF_20	0.370	256.3	02Jan2007, 01:15	5.09
EF_13	0.730	378.7	02Jan2007, 02:25	5.18
EF_18	1.210	940.1	02Jan2007, 01:05	5.25
EF_4	2.340	792.3	02Jan2007, 04:15	5.17
EF_2	0.770	1044.3	02Jan2007, 00:30	5.17
R_EF_7	2.050	1524.4	02Jan2007, 01:40	5.02
J_EF_10	2.050	1753.4	02Jan2007, 00:50	5.04
J_EF_7	2.370	1747.4	02Jan2007, 01:35	5.09
J_EF_5	6.730	4188.1	02Jan2007, 01:55	5.13
R_EF_5	2.370	1682.0	02Jan2007, 02:20	5.08
J_EF_8	8.450	4530.0	02Jan2007, 02:00	5.12
R_EF_8	6.730	3588.1	02Jan2007, 02:20	5.14
J_EF_18	10.390	4822.4	02Jan2007, 03:30	5.15
R_EF_18	8.450	4104.1	02Jan2007, 03:40	5.14
J_EF_20	7.560	4479.4	02Jan2007, 02:35	5.08
R_EF_20	3.390	2351.5	02Jan2007, 02:05	5.04
J_EF_14	3.390	2505.3	02Jan2007, 01:30	5.04
R_EF_14	1.790	1538.6	02Jan2007, 01:25	5.03
EF_16	3.800	2423.3	02Jan2007, 01:45	5.12
EF_11	2.530	1531.7	02Jan2007, 01:40	4.96
R_EF_11_U	3.800	2284.0	02Jan2007, 02:55	5.12
J_EF_11	10.090	4867.5	02Jan2007, 03:20	5.02
R_EF_11_D	7.560	3883.8	02Jan2007, 03:35	5.04
J_EF_12	33.620	12587.0	02Jan2007, 05:15	5.17
R_EF_12	10.090	4435.6	02Jan2007, 05:25	5.10
EF_12	1.940	1186.5	02Jan2007, 01:45	5.45
J_EF_4	12.730	4270.2	02Jan2007, 05:10	5.11
R_EF_4	10.390	3540.8	02Jan2007, 05:25	5.10
J_EF_2	13.500	4300.3	02Jan2007, 05:55	5.11
R_EF_2	12.730	4229.1	02Jan2007, 05:55	5.11
EF_1	1.610	970.7	02Jan2007, 02:00	5.18
J_EF_1	56.270	19147.7	02Jan2007, 05:30	5.14
R_EF_1U	33.620	12543.4	02Jan2007, 05:25	5.17
EF_19	0.400	179.4	02Jan2007, 02:20	4.86
EF_17	0.750	379.8	02Jan2007, 02:05	5.38
R_EF_17	0.400	177.8	02Jan2007, 02:40	4.86
J_EF_17	14.980	4207.0	02Jan2007, 06:50	5.08
EF_21	0.020	51.0	02Jan2007, 00:10	5.09
R_EF_21	14.980	4206.9	02Jan2007, 06:50	5.08
EF_3	0.330	149.5	02Jan2007, 03:10	5.53
R_EF_3	13.500	3892.3	02Jan2007, 07:10	5.06
J_WF_1	39.660	14916.0	02Jan2007, 05:10	5.17
R_EF_1D	39.660	14747.1	02Jan2007, 05:25	5.16
WF_9	7.030	4014.5	02Jan2007, 01:40	5.04
WF_7	3.630	2304.4	02Jan2007, 01:10	5.09
WF_5	1.000	714.8	02Jan2007, 00:50	5.03
WF_6	3.360	2357.2	02Jan2007, 01:00	5.02
WF_4	3.890	1951.7	02Jan2007, 01:20	5.11
WF_2	2.300	1194.6	02Jan2007, 01:15	5.02
WF_3	2.900	3440.2	02Jan2007, 00:40	5.06
WF_1	3.140	1639.6	02Jan2007, 01:35	5.15
WF_8	0.380	145.1	02Jan2007, 04:00	5.61
J_WF_9	10.660	6173.5	02Jan2007, 01:35	5.06
J_WF_5	15.020	7952.9	02Jan2007, 01:25	4.99
R_WF_5	10.660	5235.8	02Jan2007, 01:35	4.98
J_WF_4	21.210	7706.6	02Jan2007, 04:30	5.15
R_WF_4	15.020	5942.3	02Jan2007, 04:40	5.18
R_WF_8	21.210	7523.3	02Jan2007, 05:10	5.17
R_WF_1	2.900	2141.6	02Jan2007, 03:50	5.15
WI_16	2.970	2044.4	02Jan2007, 01:10	5.05

NOTE 10008: Begin opening project "canoeck_baseline" in directory "C:\canoe creek\canoeck_baseline\HMS Base" at time 18Apr2019, 10:46:20.
NOTE 10019: Finished opening project "canoeck_baseline" in directory "C:\canoe creek\canoeck_baseline\HMS Base" at time 18Apr2019, 10:46:20.

Canoe Creek Flood Impact Study on Proposed I69
FEMA FIS HMS Summary Tables and Schematic Flow Diagram

HEC-HMS 4.1 [C:\canoe creek\canoeck_baseline\HMS Base\canoeck_baseline.hms]

File Edit View Components Parameters Compute Results Tools Help

Run: 100yr

Components Compute Results

Junction Options

Basin Name: Canoe Creek

Global Summary Results for Run "100yr"

Project: canoeck_baseline Simulation Run: 100yr

Start of Run: 01Jan2007, 12:00 Basin Model: Canoe Creek
End of Run: 05Jan2007, 00:00 Meteorologic Model: 100yr
Compute Time:18Apr2019, 10:46:43 Control Specifications:24hr

Show Elements: All Elements Volume Units: IN AC-FT Sorting: Hydrologic

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
WI_16	2.970	2044.4	02Jan2007, 01:10	5.05
WI_12	2.060	1889.4	02Jan2007, 01:05	5.18
WI_10	1.030	956.6	02Jan2007, 01:00	5.16
WI_13	0.710	663.6	02Jan2007, 01:00	5.20
WI_9	0.350	561.4	02Jan2007, 00:25	5.17
WI_14	0.700	766.2	02Jan2007, 00:45	5.05
WI_15	1.340	1470.2	02Jan2007, 00:50	5.22
WI_19	0.500	355.7	02Jan2007, 01:25	4.81
WI_8	0.630	869.9	02Jan2007, 00:30	5.13
WI_11	1.040	667.4	02Jan2007, 01:40	4.94
WI_17	0.260	392.4	02Jan2007, 00:20	4.41
WI_2	0.092	32.3	02Jan2007, 02:55	4.02
R_WI_12	2.970	1971.4	02Jan2007, 01:30	5.04
J_WI_12	5.030	3677.1	02Jan2007, 01:20	5.10
J_WI_13	6.770	5066.0	02Jan2007, 01:20	5.12
R_WI_13	5.030	3617.7	02Jan2007, 01:30	5.10
J_WI_9	7.820	5559.5	02Jan2007, 01:15	5.04
R_WI_9	6.770	4716.9	02Jan2007, 01:20	5.03
J_WI_19	9.660	6640.1	02Jan2007, 01:25	5.04
R_WI_19	7.820	5217.1	02Jan2007, 01:30	5.02
J_WI_8	10.290	6753.7	02Jan2007, 01:35	5.03
R_WI_8	9.660	6371.4	02Jan2007, 01:40	5.03
J_WI_11	11.330	6904.7	02Jan2007, 01:35	4.98
R_WI_11	10.290	6241.0	02Jan2007, 01:35	4.98
J_WI_2	11.422	6790.7	02Jan2007, 01:45	4.97
R_WI_2	11.330	6766.6	02Jan2007, 01:45	4.97
J_WI_17	116.379	21357.8	02Jan2007, 09:00	5.03
R_WI_17	11.422	6606.6	02Jan2007, 02:00	4.96
CC_15	0.170	111.9	02Jan2007, 01:40	4.98
R_CC_13	56.440	14980.6	02Jan2007, 08:50	5.14
CC_13	0.590	533.9	02Jan2007, 00:45	5.23
R_SEL_U	80.570	16057.6	02Jan2007, 09:15	5.13
R_CC_6	23.240	2025.5	02Jan2007, 19:15	5.13
J_CC_2	20.527	4984.2	02Jan2007, 01:25	5.10
CC_2	0.060	116.2	02Jan2007, 00:10	4.21
R_CC_2	20.467	4965.4	02Jan2007, 01:25	5.10
J_CC_5	21.107	5102.9	02Jan2007, 01:05	5.04
R_CC_5	20.527	4635.3	02Jan2007, 01:25	5.04
CC_5	0.580	770.9	02Jan2007, 00:35	5.02
J_CC_9	81.170	16155.1	02Jan2007, 09:15	5.12
J_CC_7	104.607	20198.8	02Jan2007, 09:10	5.05
R_CC_7	81.170	16077.5	02Jan2007, 09:20	5.12
R_CC_16	21.107	3823.8	02Jan2007, 08:05	4.80
CC_16	2.160	801.8	02Jan2007, 03:20	4.70
R_CC_11	104.607	20137.4	02Jan2007, 09:15	5.04
CC_11	0.090	208.2	02Jan2007, 00:10	4.66
J_CC_8	119.309	21527.2	02Jan2007, 09:05	5.03
R_CC_8	116.379	21271.0	02Jan2007, 09:10	5.03
CC_12	2.760	1917.1	02Jan2007, 01:20	5.16
CC_4	0.230	302.1	02Jan2007, 00:30	4.52
R_CC_4	119.309	21442.1	02Jan2007, 09:15	5.02
J_CC_4	119.539	21454.6	02Jan2007, 09:15	5.02
CC_OUT	120.229	21319.4	02Jan2007, 09:45	5.01
R_CC_3	119.539	21279.4	02Jan2007, 09:45	5.01
CC_3	0.690	942.2	02Jan2007, 00:35	5.61
CC_6	0.330	417.4	02Jan2007, 00:35	4.73
CC_7	0.170	81.4	02Jan2007, 02:20	4.64
CC_8	0.170	205.5	02Jan2007, 00:35	4.77
CC_9	0.600	202.5	02Jan2007, 03:50	4.73
CC_10	0.300	363.7	02Jan2007, 00:50	4.83
HWY_425	56.440	17201.5	02Jan2007, 06:40	5.14
RES_32	2.328	1395.5	02Jan2007, 02:10	5.18
Gardenmile_RES	1.938	1283.5	02Jan2007, 01:30	5.11

HEC-HMS 4.1 [C:\canoe creek\canoeck_baseline\HMS Base\canoeck_baseline.hms]

File Edit View Components Parameters Compute Results Tools Help

Run: 100yr

Components Compute Results

Junction Options

Basin Name: Canoe Creek
Element Name: J_EL_3
Description:
Downstream: R_EL_4

Global Summary Results for Run "100yr"

Project: canoeck_baseline Simulation Run: 100yr

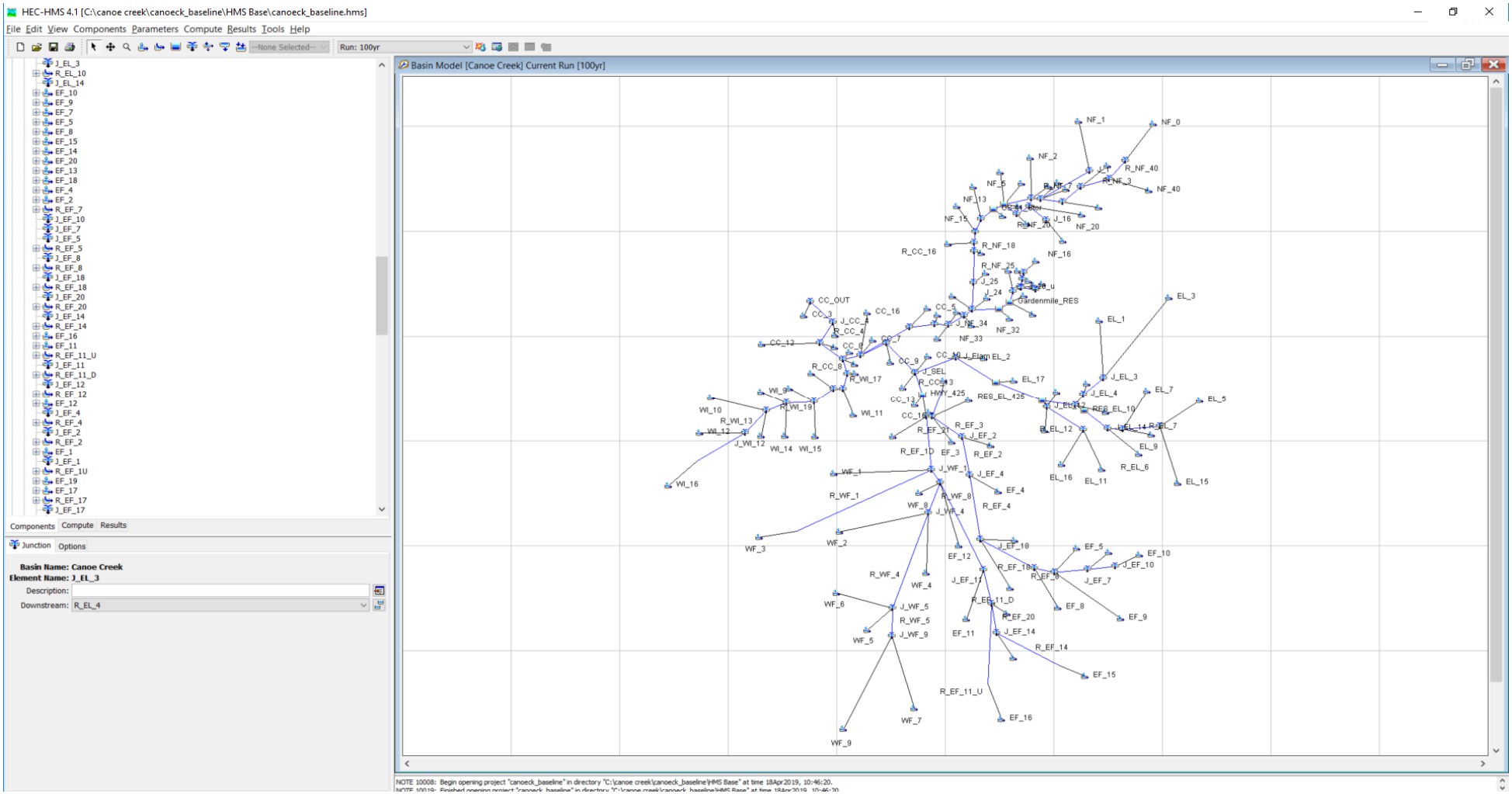
Start of Run: 01Jan2007, 12:00 Basin Model: Canoe Creek
End of Run: 05Jan2007, 00:00 Meteorologic Model: 100yr
Compute Time:18Apr2019, 10:46:43 Control Specifications:24hr

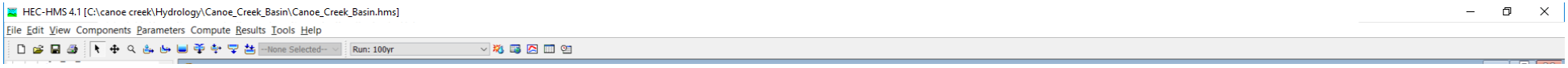
Show Elements: All Elements Volume Units: IN AC-FT Sorting: Hydrologic

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
J_WI_13	6.770	5066.0	02Jan2007, 01:20	5.12
R_WI_13	5.030	3617.7	02Jan2007, 01:30	5.10
J_WI_9	7.820	5559.5	02Jan2007, 01:15	5.04
R_WI_9	6.770	4716.9	02Jan2007, 01:20	5.03
J_WI_19	9.660	6640.1	02Jan2007, 01:25	5.04
R_WI_19	7.820	5217.1	02Jan2007, 01:30	5.02
J_WI_8	10.290	6753.7	02Jan2007, 01:35	5.03
R_WI_8	9.660	6371.4	02Jan2007, 01:40	5.03
J_WI_11	11.330	6904.7	02Jan2007, 01:35	4.98
R_WI_11	10.290	6241.0	02Jan2007, 01:35	4.98
J_WI_2	11.422	6790.7	02Jan2007, 01:45	4.97
R_WI_2	11.330	6766.6	02Jan2007, 01:45	4.97
J_WI_17	116.379	21357.8	02Jan2007, 09:00	5.03
R_WI_17	11.422	6606.6	02Jan2007, 02:00	4.96
CC_15	0.170	111.9	02Jan2007, 01:40	4.98
R_CC_13	56.440	14980.6	02Jan2007, 08:50	5.14
CC_13	0.590	533.9	02Jan2007, 00:45	5.23
R_SEL_U	80.570	16057.6	02Jan2007, 09:15	5.13
R_CC_6	23.240	2025.5	02Jan2007, 19:15	5.13
J_CC_2	20.527	4984.2	02Jan2007, 01:25	5.10
CC_2	0.060	116.2	02Jan2007, 00:10	4.21
R_CC_2	20.467	4965.4	02Jan2007, 01:25	5.10
J_CC_5	21.107	5102.9	02Jan2007, 01:05	5.04
R_CC_5	20.527	4635.3	02Jan2007, 01:25	5.04
CC_5	0.580	770.9	02Jan2007, 00:35	5.02
J_CC_9	81.170	16155.1	02Jan2007, 09:15	5.12
J_CC_7	104.607	20198.8	02Jan2007, 09:10	5.05
R_CC_7	81.170	16077.5	02Jan2007, 09:20	5.12
R_CC_16	21.107	3823.8	02Jan2007, 08:05	4.80
CC_16	2.160	801.8	02Jan2007, 03:20	4.70
R_CC_11	104.607	20137.4	02Jan2007, 09:15	5.04
CC_11	0.090	208.2	02Jan2007, 00:10	4.66
J_CC_8	119.309	21527.2	02Jan2007, 09:05	5.03
R_CC_8	116.379	21271.0	02Jan2007, 09:10	5.03
CC_12	2.760	1917.1	02Jan2007, 01:20	5.16
CC_4	0.230	302.1	02Jan2007, 00:30	4.52
R_CC_4	119.309	21442.1	02Jan2007, 09:15	5.02
J_CC_4	119.539	21454.6	02Jan2007, 09:15	5.02
CC_OUT	120.229	21319.4	02Jan2007, 09:45	5.01
R_CC_3	119.539	21279.4	02Jan2007, 09:45	5.01
CC_3	0.690	942.2	02Jan2007, 00:35	5.61
CC_6	0.330	417.4	02Jan2007, 00:35	4.73
CC_7	0.170	81.4	02Jan2007, 02:20	4.64
CC_8	0.170	205.5	02Jan2007, 00:35	4.77
CC_9	0.600	202.5	02Jan2007, 03:50	4.73
CC_10	0.300	363.7	02Jan2007, 00:50	4.83
HWY_425	56.440	17201.5	02Jan2007, 06:40	5.14
RES_32	2.328	1395.5	02Jan2007, 02:10	5.18
Gardenmile_RES	1.938	1283.5	02Jan2007, 01:30	5.11

Kimsey_Stor	12.959	3602.7	02Jan2007, 04:55	4.96
US-41_Stor	13.269	3469.8	02Jan2007, 05:55	4.95
RES_EL_10	8.290	2497.6	02Jan2007, 04:10	5.17
RES_PEN_Pk	19.960	3184.0	02Jan2007, 08:40	5.17
RES_EL_425	22.140	2028.2	02Jan2007, 18:30	5.12
J_SEL	80.570	16280.2	02Jan2007, 09:00	5.14
J_Elam	23.240	2027.2	02Jan2007, 18:50	5.14
J_NF_34	20.467	4983.2	02Jan2007, 01:20	5.10
J_EL_4	7.340	3390.1	02Jan2007, 01:50	5.14
J_EL_12	3.590	3034.0	02Jan2007, 01:00	5.31

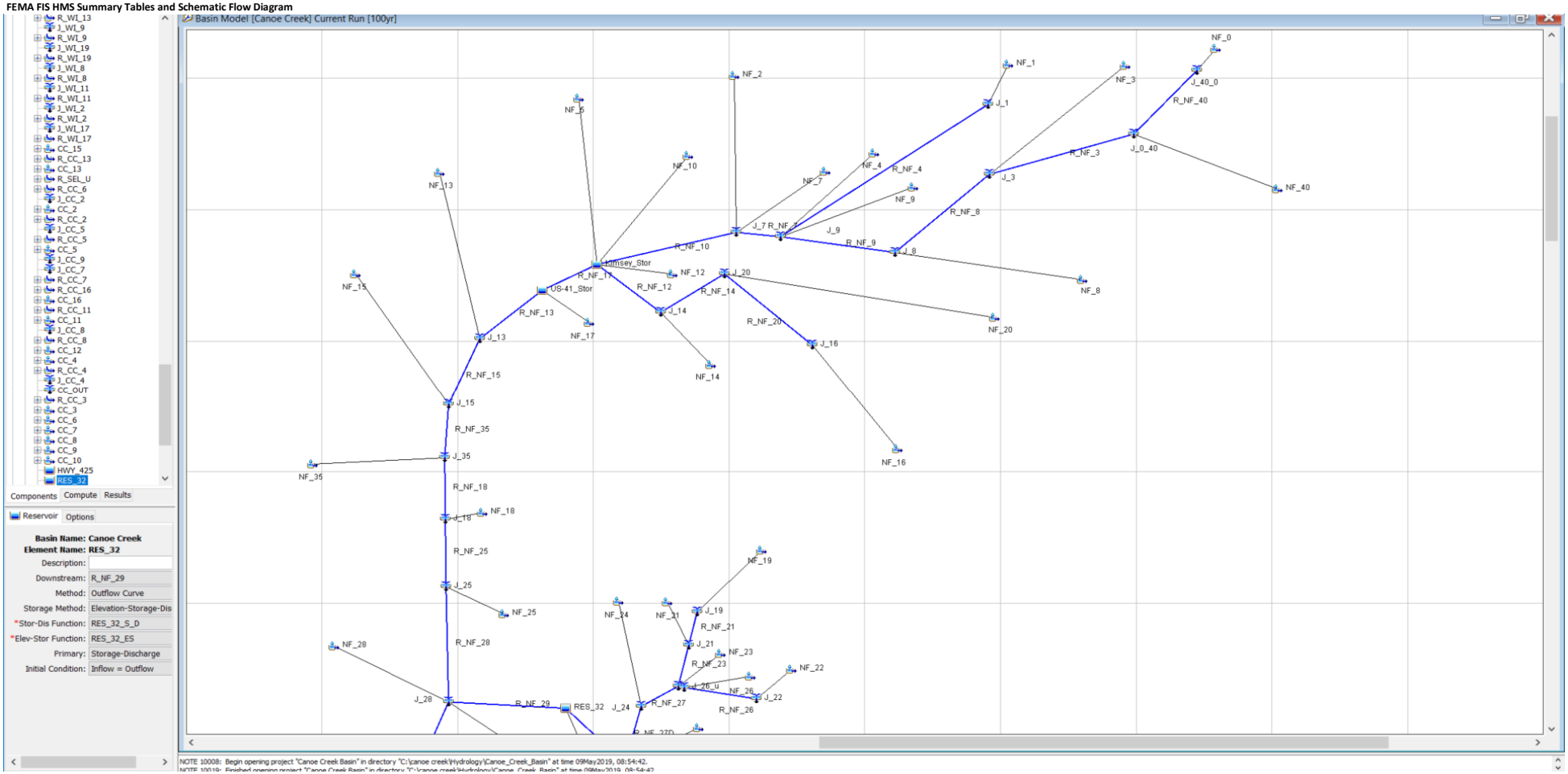
NOTE 10008: Begin opening project "canoeck_baseline" in directory "C:\canoe creek\canoeck_baseline\HMS Base" at time 18Apr2019, 10:46:20.





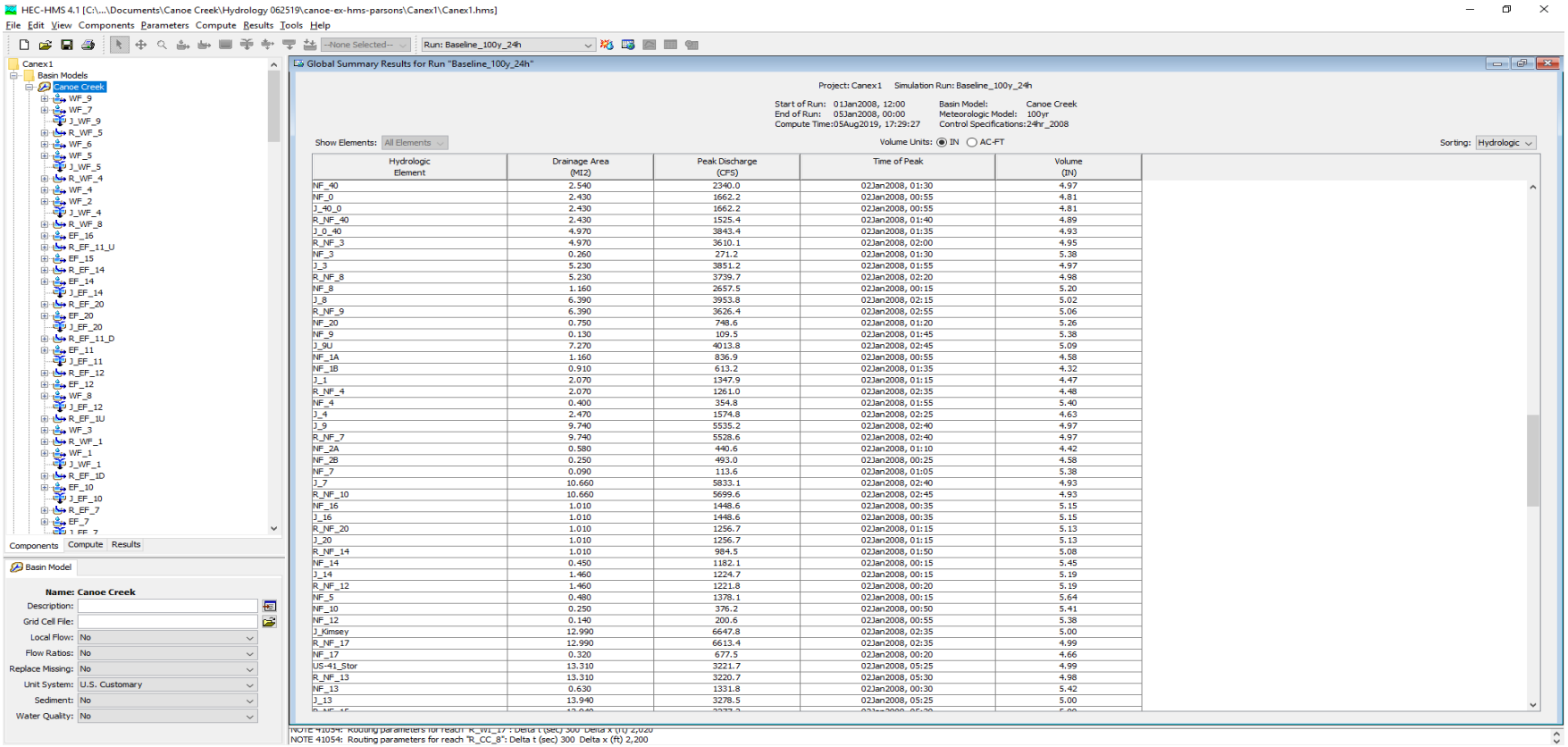
Canoe Creek Flood Impact Study on Proposed I69

FEMA FIS HMS Summary Tables and Schematic Flow Diagram

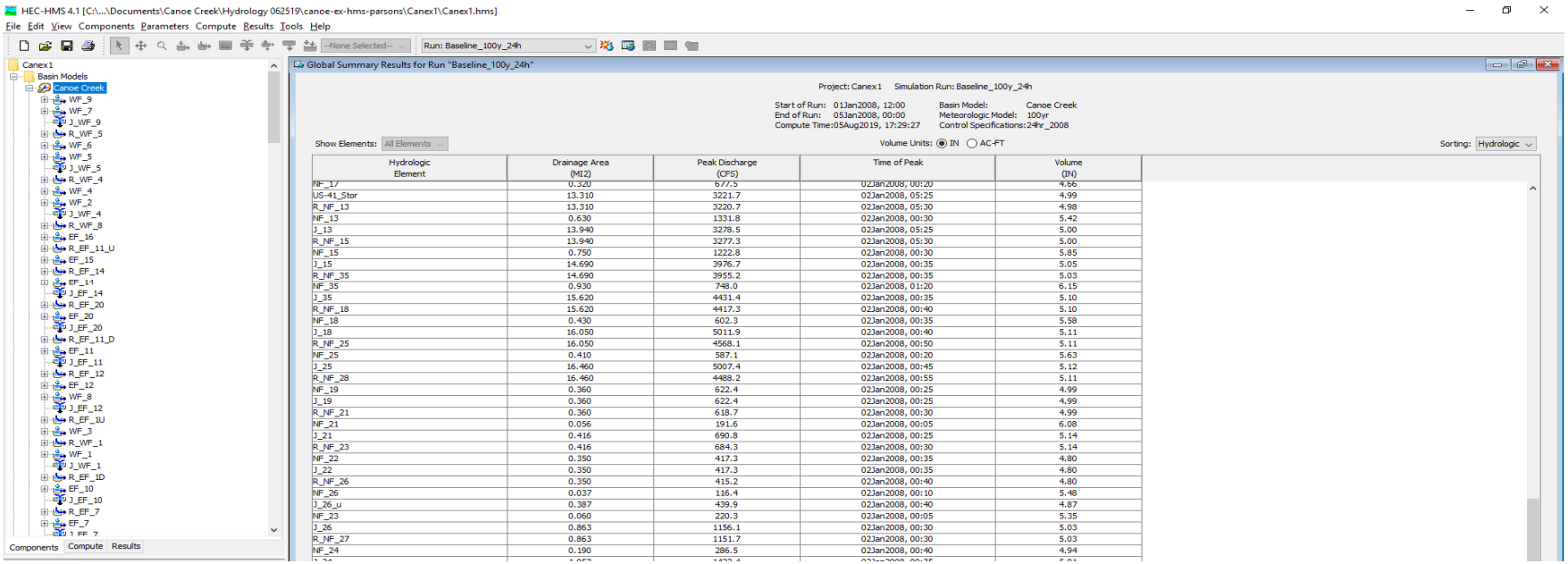


Appendix A-12

Canoe Creek Flood Impact Study on Proposed I69
Parsons Existing Condition HMS Summary Tables and Schematic Flow Diagram

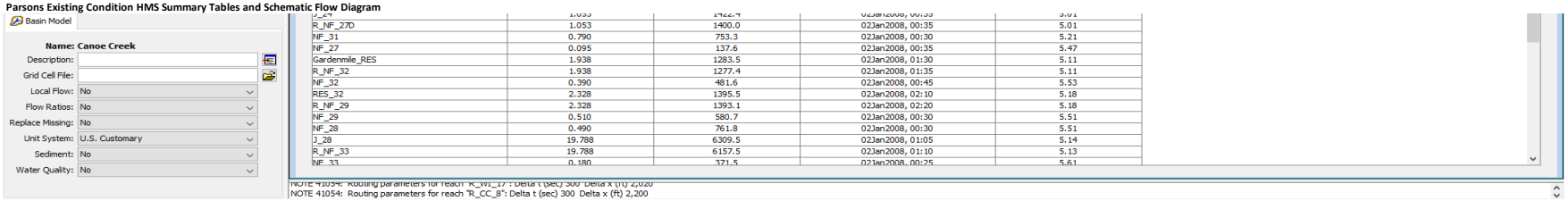


Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
NF_40	2.540	2340.0	02Jan2008, 01:30	4.97
NF_0	2.430	1662.2	02Jan2008, 00:55	4.81
J_40_0	2.430	1662.2	02Jan2008, 00:55	4.81
R_NF_40	2.430	1525.4	02Jan2008, 01:40	4.89
J_0_40	4.970	3843.4	02Jan2008, 01:35	4.93
R_NF_3	4.970	3610.1	02Jan2008, 02:00	4.95
NF_3	0.260	271.2	02Jan2008, 01:30	5.38
J_3	5.230	3851.2	02Jan2008, 01:55	4.97
R_NF_8	5.230	3739.7	02Jan2008, 02:20	4.98
NF_8	1.160	2657.5	02Jan2008, 00:15	5.20
J_8	6.390	3953.8	02Jan2008, 02:15	5.02
R_NF_9	6.390	3626.4	02Jan2008, 02:55	5.06
NF_20	0.750	748.6	02Jan2008, 01:20	5.26
NF_9	0.130	109.5	02Jan2008, 01:45	5.38
J_9U	7.270	4013.8	02Jan2008, 02:45	5.09
NF_1A	1.160	836.9	02Jan2008, 00:55	4.58
NF_1B	0.910	613.2	02Jan2008, 01:35	4.32
J_1	2.070	1347.9	02Jan2008, 01:15	4.47
R_NF_4	2.070	1261.0	02Jan2008, 02:35	4.48
NF_4	0.400	354.8	02Jan2008, 01:55	5.40
J_4	2.470	1574.8	02Jan2008, 02:25	4.63
J_9	9.740	5535.2	02Jan2008, 02:40	4.97
R_NF_7	9.740	5528.6	02Jan2008, 02:40	4.97
NF_2A	0.580	440.6	02Jan2008, 01:10	4.42
NF_2B	0.250	493.0	02Jan2008, 00:25	4.58
NF_7	0.090	113.6	02Jan2008, 01:05	5.38
J_7	10.660	5833.1	02Jan2008, 02:40	4.93
R_NF_10	10.660	5699.6	02Jan2008, 02:45	4.93
NF_16	1.010	1448.6	02Jan2008, 00:35	5.15
J_16	1.010	1448.6	02Jan2008, 00:35	5.15
R_NF_20	1.010	1256.7	02Jan2008, 01:15	5.13
J_20	1.010	1256.7	02Jan2008, 01:15	5.13
R_NF_14	1.010	984.5	02Jan2008, 01:50	5.08
NF_14	0.450	1182.1	02Jan2008, 00:15	5.45
J_14	1.460	1224.7	02Jan2008, 00:15	5.19
R_NF_12	1.460	1221.8	02Jan2008, 00:20	5.19
NF_5	0.480	1378.1	02Jan2008, 00:15	5.64
NF_10	0.250	376.2	02Jan2008, 00:50	5.41
NF_12	0.140	200.6	02Jan2008, 00:55	5.38
J_Kimsey	12.990	6647.8	02Jan2008, 02:35	5.00
R_NF_17	12.990	6613.4	02Jan2008, 02:35	4.99
NF_17	0.320	677.5	02Jan2008, 00:20	4.66
US-41_Stor	13.310	3221.7	02Jan2008, 05:25	4.99
R_NF_13	13.310	3220.7	02Jan2008, 05:30	4.98
NF_13	0.630	1331.8	02Jan2008, 00:30	5.42
J_13	13.940	3278.5	02Jan2008, 05:25	5.00



Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
NF_17	0.320	677.5	02Jan2008, 00:20	4.66
US-41_Stor	13.310	3221.7	02Jan2008, 05:25	4.99
R_NF_13	13.310	3220.7	02Jan2008, 05:30	4.98
NF_13	0.630	1331.8	02Jan2008, 00:30	5.42
J_13	13.940	3278.5	02Jan2008, 05:25	5.00
R_NF_15	13.940	3277.3	02Jan2008, 05:30	5.00
NF_15	0.750	1222.8	02Jan2008, 00:30	5.85
J_15	14.690	3976.7	02Jan2008, 00:35	5.05
R_NF_35	14.690	3955.2	02Jan2008, 00:35	5.03
NF_35	0.930	748.0	02Jan2008, 01:20	6.15
J_35	15.620	4431.4	02Jan2008, 00:35	5.10
R_NF_18	15.620	4417.3	02Jan2008, 00:40	5.10
NF_18	0.430	602.3	02Jan2008, 00:35	5.58
J_18	16.050	5011.9	02Jan2008, 00:40	5.11
R_NF_25	16.050	4568.1	02Jan2008, 00:50	5.11
NF_25	0.410	587.1	02Jan2008, 00:20	5.63
J_25	16.460	5007.4	02Jan2008, 00:45	5.12
R_NF_28	16.460	4488.2	02Jan2008, 00:55	5.11
NF_19	0.360	622.4	02Jan2008, 00:25	4.99
J_19	0.360	622.4	02Jan2008, 00:25	4.99
R_NF_21	0.360	618.7	02Jan2008, 00:30	4.99
NF_21	0.056	191.6	02Jan2008, 00:05	6.08
J_21	0.416	690.8	02Jan2008, 00:25	5.14
R_NF_23	0.416	684.3	02Jan2008, 00:30	5.14
NF_22	0.350	417.3	02Jan2008, 00:35	4.80
J_22	0.350	417.3	02Jan2008, 00:35	4.80
R_NF_26	0.350	415.2	02Jan2008, 00:40	4.80
NF_26	0.037	116.4	02Jan2008, 00:10	5.48
J_26_u	0.387	439.9	02Jan2008, 00:40	4.87
NF_23	0.060	220.3	02Jan2008, 00:05	5.35
J_26	0.863	1156.1	02Jan2008, 00:30	5.03
R_NF_27	0.863	1151.7	02Jan2008, 00:30	5.03
NF_24	0.190	286.5	02Jan2008, 00:40	4.94

Canoe Creek Flood Impact Study on Proposed I69
Parsons Existing Condition HMS Summary Tables and Schematic Flow Diagram



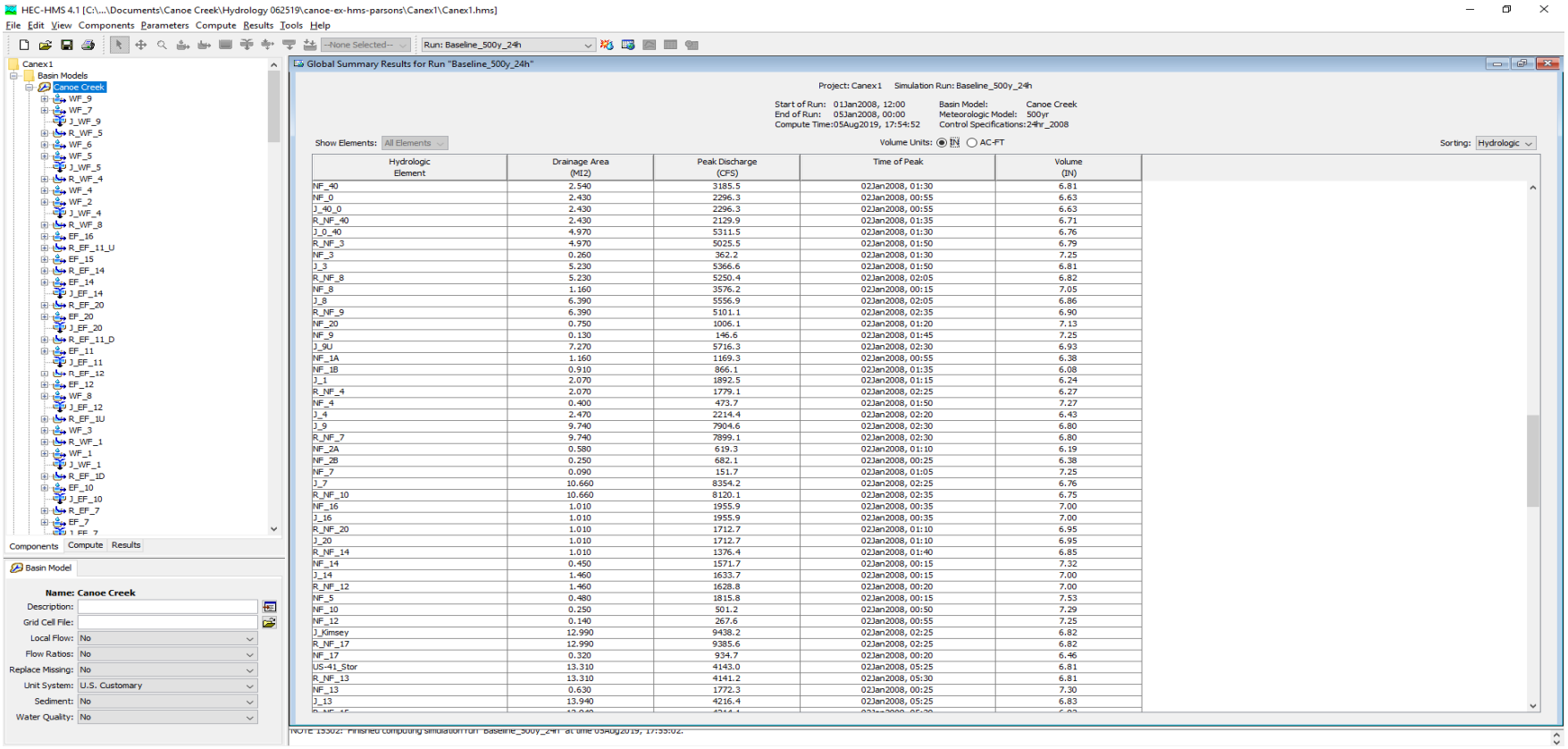
Basin Model

Name: Canoe Creek

Description:
Grid Cell File:
Local Flow: No
Flow Ratios: No
Replace Missing: No
Unit System: U.S. Customary
Sediment: No
Water Quality: No

R_NF_27D	1.053	1400.0	02Jan2008, 00:35	5.01
NF_31	0.790	753.3	02Jan2008, 00:30	5.21
NF_27	0.095	137.6	02Jan2008, 00:35	5.47
Gardenmile_RES	1.938	1283.5	02Jan2008, 01:30	5.11
R_NF_32	1.938	1277.4	02Jan2008, 01:35	5.11
NF_32	0.390	481.6	02Jan2008, 00:45	5.53
RES_32	2.328	1395.5	02Jan2008, 02:10	5.18
R_NF_29	2.328	1393.1	02Jan2008, 02:20	5.18
NF_29	0.510	580.7	02Jan2008, 00:30	5.51
NF_28	0.490	761.8	02Jan2008, 00:30	5.51
J_28	19.788	6309.5	02Jan2008, 01:05	5.14
R_NF_33	19.788	6157.5	02Jan2008, 01:10	5.13
NF_33	0.180	371.5	02Jan2008, 00:25	5.61

NOTE 41054: Routing parameters for reach "R_WI_17": Delta t (sec) 300 Delta x (ft) 2,020
NOTE 41054: Routing parameters for reach "R_CC_8": Delta t (sec) 300 Delta x (ft) 2,200



HEC-HMS 4.1 [C:\...\Documents\Canoe Creek\Hydrology 062519\canoe-ex-hms-parsons\Canex1\Canex1.hms]

File Edit View Components Parameters Compute Results Tools Help

Run: Baseline_500y_24h

Canex1
Basin Models
Canoe Creek
WF_9
WF_7
J_WF_9
R_WF_5
WF_6
WF_5
J_WF_5
R_WF_4
WF_4
WF_2
J_WF_4
R_WF_8
EF_16
R_EF_11_U
EF_15
R_EF_14
EF_14
J_EF_14
R_EF_20
EF_20
J_EF_20
R_EF_11_D
EF_11
J_EF_11
R_EF_12
EF_12
WF_8
J_EF_12
R_EF_1U
WF_3
R_WF_1
WF_1
J_WF_1
R_EF_1D
EF_10
J_EF_10
R_EF_7
EF_7

Components Compute Results

Basin Model

Name: Canoe Creek

Description:
Grid Cell File:
Local Flow: No
Flow Ratios: No
Replace Missing: No
Unit System: U.S. Customary
Sediment: No
Water Quality: No

Global Summary Results for Run "Baseline_500y_24h"

Project: Canex1 Simulation Run: Baseline_500y_24h

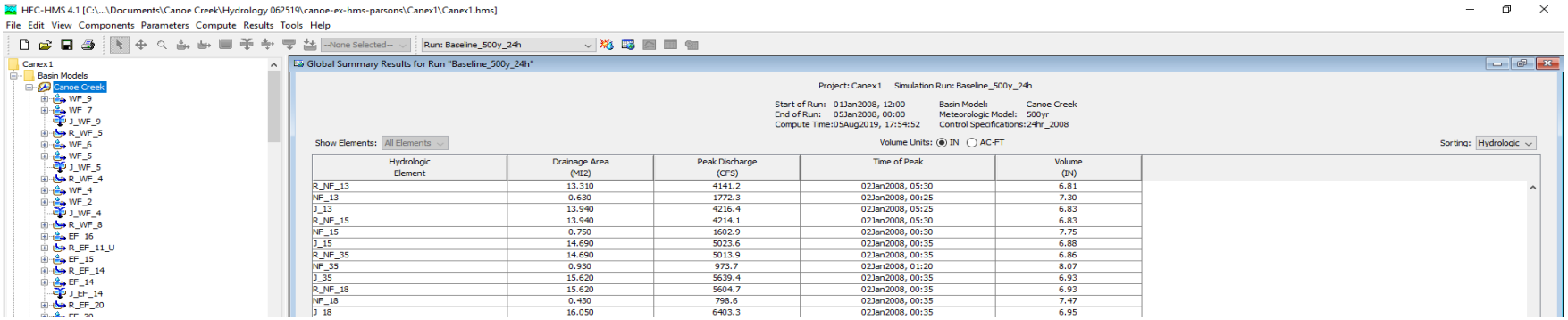
Start of Run: 01Jan2008, 12:00
End of Run: 05Jan2008, 00:00
Compute Time:05Aug2019, 17:54:52

Basin Model: Canoe Creek
Meteorologic Model: 500yr
Control Specifications:24hr_2008

Show Elements: All Elements
Volume Units: IN AC-FT
Sorting: Hydrologic

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
NF_40	2.540	3185.5	02Jan2008, 01:30	6.81
NF_0	2.430	2296.3	02Jan2008, 00:55	6.63
J_40_0	2.430	2296.3	02Jan2008, 00:55	6.63
R_NF_40	2.430	2129.9	02Jan2008, 01:35	6.71
J_0_40	4.970	5311.5	02Jan2008, 01:30	6.76
R_NF_3	4.970	5025.5	02Jan2008, 01:50	6.79
NF_3	0.260	362.2	02Jan2008, 01:30	7.25
J_3	5.230	5366.6	02Jan2008, 01:50	6.81
R_NF_8	5.230	5250.4	02Jan2008, 02:05	6.82
NF_8	1.160	3576.2	02Jan2008, 00:15	7.05
J_8	6.390	5556.9	02Jan2008, 02:05	6.86
R_NF_9	6.390	5101.1	02Jan2008, 02:35	6.90
NF_20	0.750	1006.1	02Jan2008, 01:20	7.13
NF_9	0.130	146.6	02Jan2008, 01:45	7.25
J_9U	7.270	5716.3	02Jan2008, 02:30	6.93
NF_1A	1.160	1169.3	02Jan2008, 00:55	6.38
NF_1B	0.910	866.1	02Jan2008, 01:35	6.08
J_1	2.070	1892.5	02Jan2008, 01:15	6.24
R_NF_4	2.070	1779.1	02Jan2008, 02:25	6.27
NF_4	0.400	473.7	02Jan2008, 01:50	7.27
J_4	2.470	2214.4	02Jan2008, 02:20	6.43
J_9	9.740	7904.6	02Jan2008, 02:30	6.80
R_NF_7	9.740	7899.1	02Jan2008, 02:30	6.80
NF_2A	0.580	619.3	02Jan2008, 01:10	6.19
NF_2B	0.250	682.1	02Jan2008, 00:25	6.38
NF_7	0.090	151.7	02Jan2008, 01:05	7.25
J_7	10.660	8354.2	02Jan2008, 02:25	6.76
R_NF_10	10.660	8120.1	02Jan2008, 02:35	6.75
NF_16	1.010	1955.9	02Jan2008, 00:35	7.00
J_16	1.010	1955.9	02Jan2008, 00:35	7.00
R_NF_20	1.010	1712.7	02Jan2008, 01:10	6.95
J_20	1.010	1712.7	02Jan2008, 01:10	6.95
R_NF_14	1.010	1376.4	02Jan2008, 01:40	6.85
NF_14	0.450	1571.7	02Jan2008, 00:15	7.32
J_14	1.460	1633.7	02Jan2008, 00:15	7.00
R_NF_12	1.460	1628.8	02Jan2008, 00:20	7.00
NF_5	0.480	1815.8	02Jan2008, 00:15	7.53
NF_10	0.250	501.2	02Jan2008, 00:50	7.29
NF_12	0.140	267.6	02Jan2008, 00:55	7.25
J_Kinsey	12.990	9438.2	02Jan2008, 02:25	6.82
R_NF_17	12.990	9385.6	02Jan2008, 02:25	6.82
NF_17	0.320	934.7	02Jan2008, 00:20	6.46
US-41_Stor	13.310	4143.0	02Jan2008, 05:25	6.81
R_NF_13	13.310	4141.2	02Jan2008, 05:30	6.81
NF_13	0.630	1772.3	02Jan2008, 00:25	7.30
J_13	13.940	4216.4	02Jan2008, 05:25	6.83

NOTE 15002: Finished computing simulation run "Baseline_500y_24h" at time 05Aug2019, 17:55:02.



HEC-HMS 4.1 [C:\...\Documents\Canoe Creek\Hydrology 062519\canoe-ex-hms-parsons\Canex1\Canex1.hms]

File Edit View Components Parameters Compute Results Tools Help

Run: Baseline_500y_24h

Canex1
Basin Models
Canoe Creek
WF_9
WF_7
J_WF_9
R_WF_5
WF_6
WF_5
J_WF_5
R_WF_4
WF_4
WF_2
J_WF_4
R_WF_8
EF_16
R_EF_11_U
EF_15
R_EF_14
EF_14
J_EF_14
R_EF_20

Global Summary Results for Run "Baseline_500y_24h"

Project: Canex1 Simulation Run: Baseline_500y_24h

Start of Run: 01Jan2008, 12:00
End of Run: 05Jan2008, 00:00
Compute Time:05Aug2019, 17:54:52

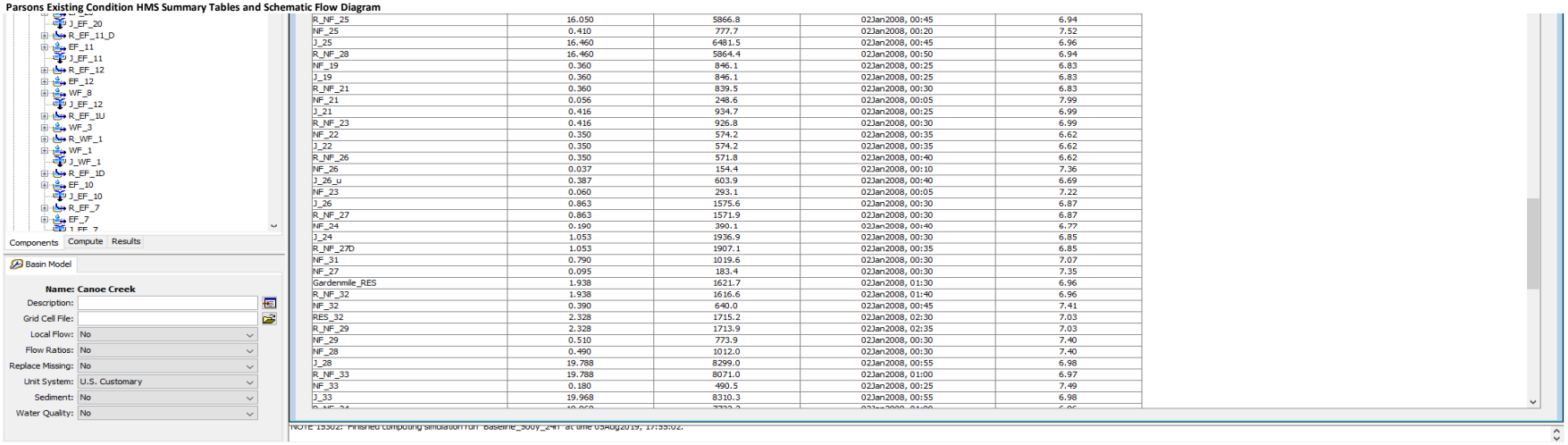
Basin Model: Canoe Creek
Meteorologic Model: 500yr
Control Specifications:24hr_2008

Show Elements: All Elements
Volume Units: IN AC-FT
Sorting: Hydrologic

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
R_NF_13	13.310	4141.2	02Jan2008, 05:30	6.81
NF_13	0.630	1772.3	02Jan2008, 00:25	7.30
J_13	13.940	4216.4	02Jan2008, 05:25	6.83
R_NF_15	13.940	4214.1	02Jan2008, 05:30	6.83
NF_15	0.750	1602.9	02Jan2008, 00:30	7.75
J_15	14.690	5023.6	02Jan2008, 00:35	6.88
R_NF_35	14.690	5013.9	02Jan2008, 00:35	6.86
NF_35	0.930	973.7	02Jan2008, 01:20	8.07
J_35	15.620	5639.4	02Jan2008, 00:35	6.93
R_NF_18	15.620	5604.7	02Jan2008, 00:35	6.93
NF_18	0.430	798.6	02Jan2008, 00:35	7.47
J_18	16.050	6403.3	02Jan2008, 00:35	6.95

Canoe Creek Flood Impact Study on Proposed I69

Parsons Existing Condition HMS Summary Tables and Schematic Flow Diagram



R_NF_25	16.050	5866.8	02Jan2008, 00:45	6.94
NF_25	0.410	777.7	02Jan2008, 00:20	7.52
J_25	16.460	6481.5	02Jan2008, 00:45	6.96
R_NF_28	16.460	5864.4	02Jan2008, 00:50	6.94
NF_19	0.360	846.1	02Jan2008, 00:25	6.83
J_19	0.360	846.1	02Jan2008, 00:25	6.83
R_NF_21	0.360	839.5	02Jan2008, 00:30	6.83
NF_21	0.056	248.6	02Jan2008, 00:05	7.99
J_21	0.416	934.7	02Jan2008, 00:25	6.99
R_NF_23	0.416	926.8	02Jan2008, 00:30	6.99
NF_22	0.350	574.2	02Jan2008, 00:35	6.62
J_22	0.350	574.2	02Jan2008, 00:35	6.62
R_NF_26	0.350	571.8	02Jan2008, 00:40	6.62
NF_26	0.037	154.4	02Jan2008, 00:10	7.36
J_26_u	0.387	603.9	02Jan2008, 00:40	6.69
NF_23	0.060	293.1	02Jan2008, 00:05	7.22
J_26	0.863	1575.6	02Jan2008, 00:30	6.87
R_NF_27	0.863	1571.9	02Jan2008, 00:30	6.87
NF_24	0.190	390.1	02Jan2008, 00:40	6.77
J_24	1.053	1936.9	02Jan2008, 00:30	6.85
R_NF_27D	1.053	1907.1	02Jan2008, 00:35	6.85
NF_31	0.790	1019.6	02Jan2008, 00:30	7.07
NF_27	0.095	183.4	02Jan2008, 00:30	7.35
Gardenmile_RES	1.938	1621.7	02Jan2008, 01:30	6.96
R_NF_32	1.938	1616.6	02Jan2008, 01:40	6.96
NF_32	0.390	640.0	02Jan2008, 00:45	7.41
RES_32	2.328	1715.2	02Jan2008, 02:30	7.03
R_NF_29	2.328	1713.9	02Jan2008, 02:35	7.03
NF_29	0.510	773.9	02Jan2008, 00:30	7.40
NF_28	0.490	1012.0	02Jan2008, 00:30	7.40
J_28	19.788	8299.0	02Jan2008, 00:55	6.98
R_NF_33	19.788	8071.0	02Jan2008, 01:00	6.97
NF_33	0.180	490.5	02Jan2008, 00:25	7.49
J_33	19.968	8310.3	02Jan2008, 00:55	6.98

NOTE 15302: Finished computing simulation run "Baseline_50y_24h" at time 05Aug2019, 17:55:02.

HEC-HMS 4.1 [C:\...\Documents\Canoe Creek\Hydrology 062519\canoe-ex-hms-parsons\Canex1\Canex1.hms]

File Edit View Components Parameters Compute Results Tools Help

Run: Baseline_50y_24h

Global Summary Results for Run "Baseline_50y_24h"

Project: Canex1 Simulation Run: Baseline_50y_24h

Start of Run: 01Jan2008, 12:00 Basin Model: Canoe Creek
End of Run: 05Jan2008, 00:00 Meteorologic Model: 50yr
Compute Time: 05Aug2019, 17:56:45 Control Specifications: 24hr_2008

Show Elements: All Elements Volume Units: IN AC-FT Sorting: Hydrologic

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
NF_40	2.540	2006.3	02Jan2008, 01:30	4.26
NF_0	2.430	1413.6	02Jan2008, 00:55	4.11
J_40_0	2.430	1413.6	02Jan2008, 00:55	4.11
R_NF_40	2.430	1286.2	02Jan2008, 01:45	4.17
J_0_40	4.970	3252.3	02Jan2008, 01:35	4.22
R_NF_3	4.970	3032.2	02Jan2008, 02:05	4.22
NF_3	0.260	235.0	02Jan2008, 01:30	4.64
J_3	5.230	3233.3	02Jan2008, 02:00	4.24
R_NF_8	5.230	3119.1	02Jan2008, 02:25	4.24
NF_8	1.160	2293.7	02Jan2008, 00:20	4.47
J_8	6.390	3295.7	02Jan2008, 02:25	4.28
R_NF_9	6.390	3059.8	02Jan2008, 03:00	4.33
NF_20	0.750	646.4	02Jan2008, 01:20	4.53
NF_9	0.130	94.8	02Jan2008, 01:45	4.64
J_9U	7.270	3373.8	02Jan2008, 02:55	4.36
NF_1A	1.160	707.3	02Jan2008, 00:55	3.89
NF_1B	0.910	515.0	02Jan2008, 01:35	3.64
J_1	2.070	1136.1	02Jan2008, 01:15	3.78
R_NF_4	2.070	1059.2	02Jan2008, 02:35	3.79
NF_4	0.400	307.6	02Jan2008, 01:55	4.66
J_4	2.470	1324.5	02Jan2008, 02:30	3.93
J_9	9.740	4635.1	02Jan2008, 02:45	4.25
R_NF_7	9.740	4629.8	02Jan2008, 02:45	4.25
NF_2A	0.580	371.0	02Jan2008, 01:10	3.73
NF_2B	0.250	418.7	02Jan2008, 00:25	3.89
NF_7	0.090	98.5	02Jan2008, 01:05	4.64
J_7	10.660	4880.5	02Jan2008, 02:45	4.22
R_NF_10	10.660	4782.2	02Jan2008, 02:50	4.21
NF_16	1.010	1247.6	02Jan2008, 00:35	4.43
J_16	1.010	1247.6	02Jan2008, 00:35	4.43
R_NF_20	1.010	1074.9	02Jan2008, 01:15	4.45
J_20	1.010	1074.9	02Jan2008, 01:15	4.45
R_NF_14	1.010	828.9	02Jan2008, 02:00	4.41
NF_14	0.450	1026.9	02Jan2008, 00:15	4.71
J_14	1.460	1066.5	02Jan2008, 00:15	4.51
R_NF_12	1.460	1064.9	02Jan2008, 00:20	4.51
NF_5	0.480	1203.5	02Jan2008, 00:15	4.90
NF_10	0.250	326.4	02Jan2008, 00:50	4.68
NF_12	0.140	173.9	02Jan2008, 00:55	4.64
J_Kimsey	12.990	5598.8	02Jan2008, 02:40	4.28
R_NF_17	12.990	5575.2	02Jan2008, 02:40	4.28
NF_17	0.320	576.6	02Jan2008, 00:25	3.96
US-41_Stor	13.310	2954.0	02Jan2008, 05:20	4.27
R_NF_13	13.310	2953.1	02Jan2008, 05:25	4.27
NF_13	0.630	1157.3	02Jan2008, 00:30	4.69
J_13	13.940	3004.7	02Jan2008, 05:20	4.29

NOTE 15302: Finished computing simulation run "Baseline_50y_24h" at time 05Aug2019, 17:56:55.

HEC-HMS 4.1 [C:\...\Documents\Canoe Creek\Hydrology 062519\canoe-ex-hms-parsons\Canex1\Canex1.hms]

File Edit View Components Parameters Compute Results Tools Help

Run: Baseline_50y_24h

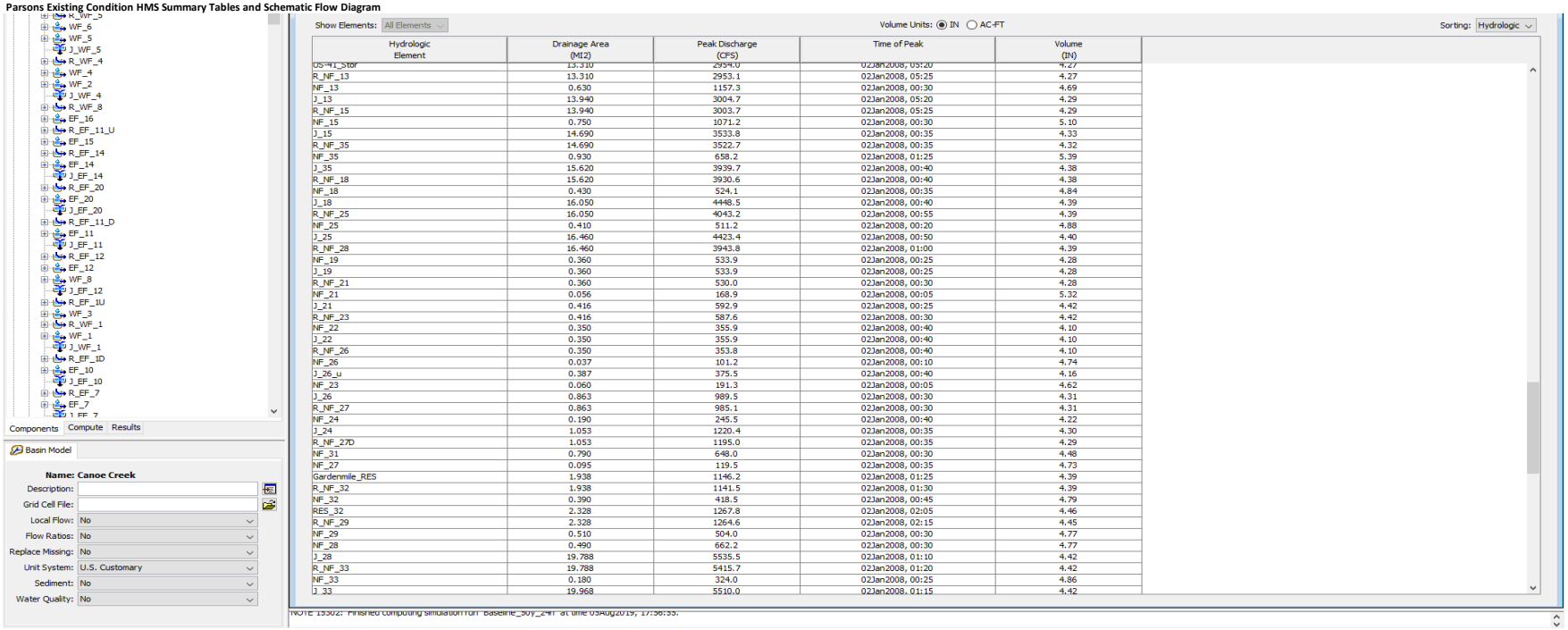
Global Summary Results for Run "Baseline_50y_24h"

Project: Canex1 Simulation Run: Baseline_50y_24h

Start of Run: 01Jan2008, 12:00 Basin Model: Canoe Creek
End of Run: 05Jan2008, 00:00 Meteorologic Model: 50yr
Compute Time: 05Aug2019, 17:56:45 Control Specifications: 24hr_2008

Canoe Creek Flood Impact Study on Proposed I69

Parsons Existing Condition HMS Summary Tables and Schematic Flow Diagram

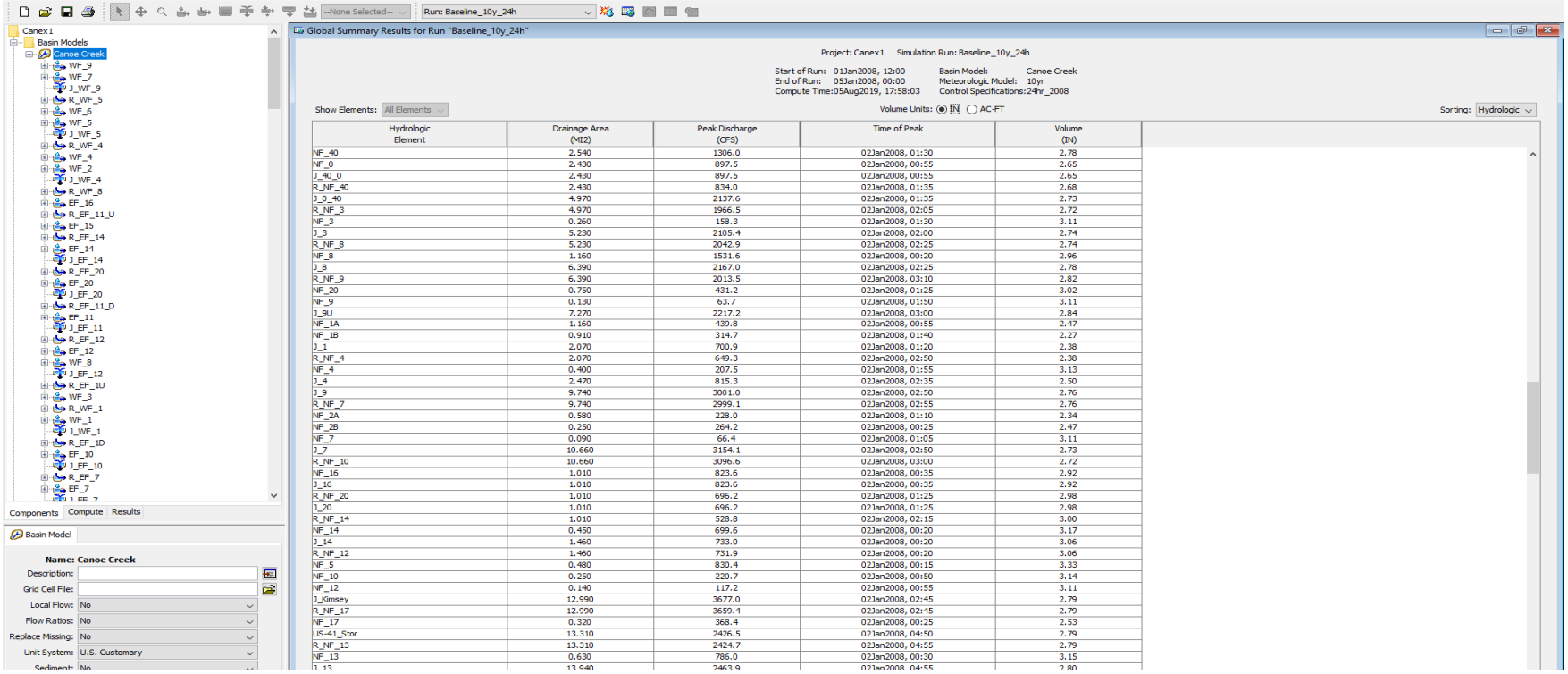


Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
US-41_Stor	13.310	2594.0	02Jan2008, 05:20	4.27
R_NF_13	13.310	2953.1	02Jan2008, 05:25	4.27
NF_13	0.630	1157.3	02Jan2008, 00:30	4.69
J_13	13.940	3004.7	02Jan2008, 05:20	4.29
R_NF_15	13.940	3003.7	02Jan2008, 05:25	4.29
NF_15	0.750	1071.2	02Jan2008, 00:30	5.10
J_15	14.690	3533.8	02Jan2008, 00:35	4.33
R_NF_35	14.690	3522.7	02Jan2008, 00:35	4.32
NF_35	0.930	658.2	02Jan2008, 01:25	5.39
J_35	15.620	3939.7	02Jan2008, 00:40	4.38
R_NF_18	15.620	3930.6	02Jan2008, 00:40	4.38
NF_18	0.430	524.1	02Jan2008, 00:35	4.84
J_18	16.050	4448.5	02Jan2008, 00:40	4.39
R_NF_25	16.050	4043.2	02Jan2008, 00:55	4.39
NF_25	0.410	511.2	02Jan2008, 00:20	4.88
J_25	16.460	4423.4	02Jan2008, 00:50	4.40
R_NF_28	16.460	3943.8	02Jan2008, 01:00	4.39
NF_19	0.360	533.9	02Jan2008, 00:25	4.28
J_19	0.360	533.9	02Jan2008, 00:25	4.28
R_NF_21	0.360	530.0	02Jan2008, 00:30	4.28
NF_21	0.056	168.9	02Jan2008, 00:05	5.32
J_21	0.416	592.9	02Jan2008, 00:25	4.42
R_NF_23	0.416	587.6	02Jan2008, 00:30	4.42
NF_22	0.350	355.9	02Jan2008, 00:40	4.10
J_22	0.350	355.9	02Jan2008, 00:40	4.10
R_NF_26	0.350	353.8	02Jan2008, 00:40	4.10
NF_26	0.037	101.2	02Jan2008, 00:10	4.74
J_26_u	0.387	375.5	02Jan2008, 00:40	4.16
NF_23	0.060	191.3	02Jan2008, 00:05	4.62
J_26	0.863	989.5	02Jan2008, 00:30	4.31
R_NF_27	0.863	985.1	02Jan2008, 00:30	4.31
NF_24	0.190	245.5	02Jan2008, 00:40	4.22
J_24	1.053	1220.4	02Jan2008, 00:35	4.30
R_NF_27D	1.053	1195.0	02Jan2008, 00:35	4.29
NF_31	0.790	648.0	02Jan2008, 00:30	4.48
NF_27	0.095	119.5	02Jan2008, 00:35	4.73
Gardenmile_RES	1.938	1146.2	02Jan2008, 01:25	4.39
R_NF_32	1.938	1141.5	02Jan2008, 01:30	4.39
NF_32	0.390	418.5	02Jan2008, 00:45	4.79
RES_32	2.328	1267.8	02Jan2008, 02:05	4.46
R_NF_29	2.328	1264.6	02Jan2008, 02:15	4.45
NF_29	0.510	504.0	02Jan2008, 00:30	4.77
NF_28	0.490	662.2	02Jan2008, 00:30	4.77
J_28	19.788	5535.5	02Jan2008, 01:10	4.42
R_NF_33	19.788	5415.7	02Jan2008, 01:20	4.42
NF_33	0.180	324.0	02Jan2008, 00:25	4.86
J_33	19.968	5510.0	02Jan2008, 01:15	4.42

NOTE 15002: Finished computing simulation run "Baseline_30y_24h" at time 05Aug2019, 17:56:55.

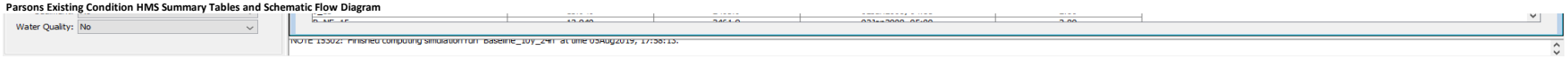
HEC-HMS 4.1 [C:\...\Documents\Canoe Creek\Hydrology 062519\canoe-ex-hms-parsons\Canex1\Canex1.hms]

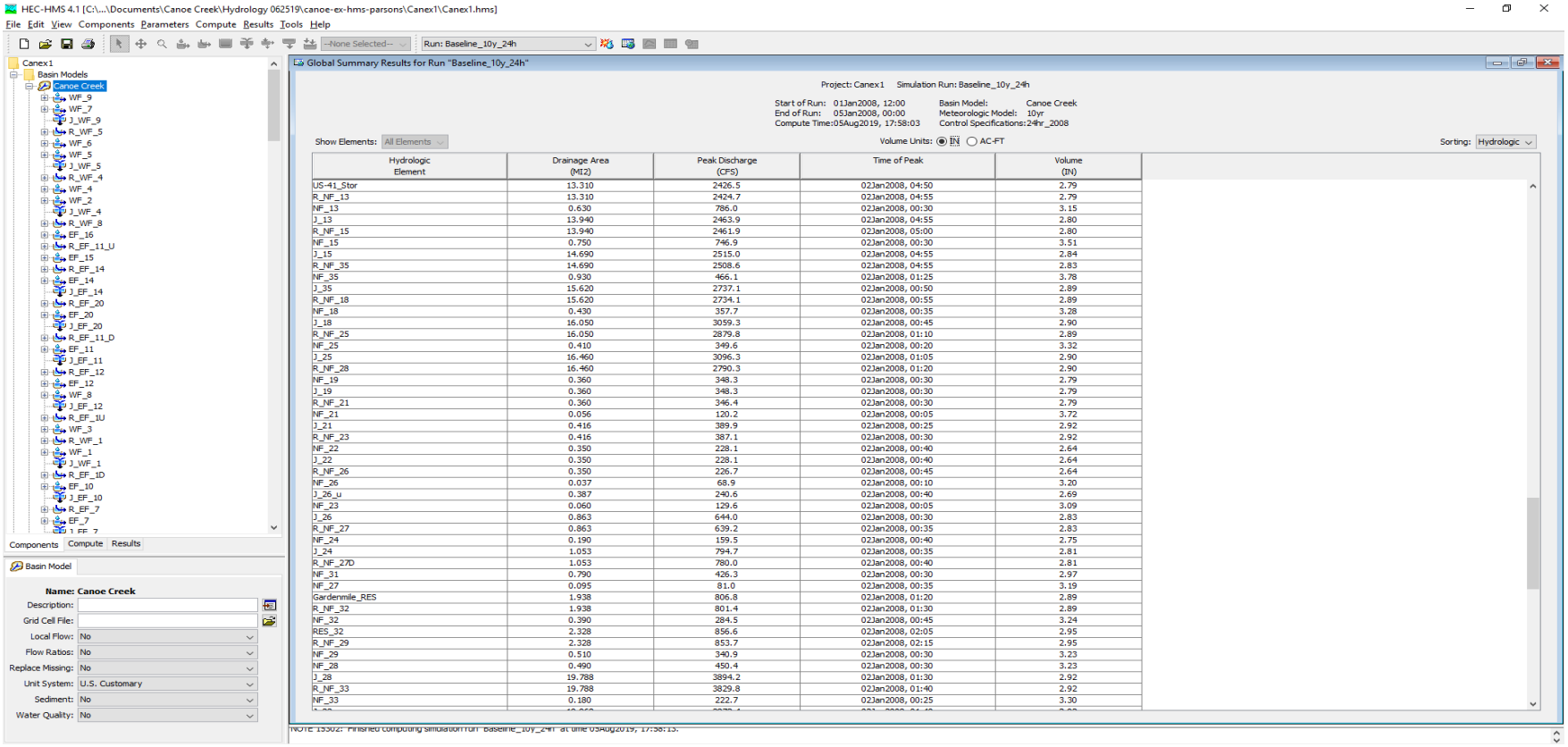
File Edit View Components Parameters Compute Results Tools Help



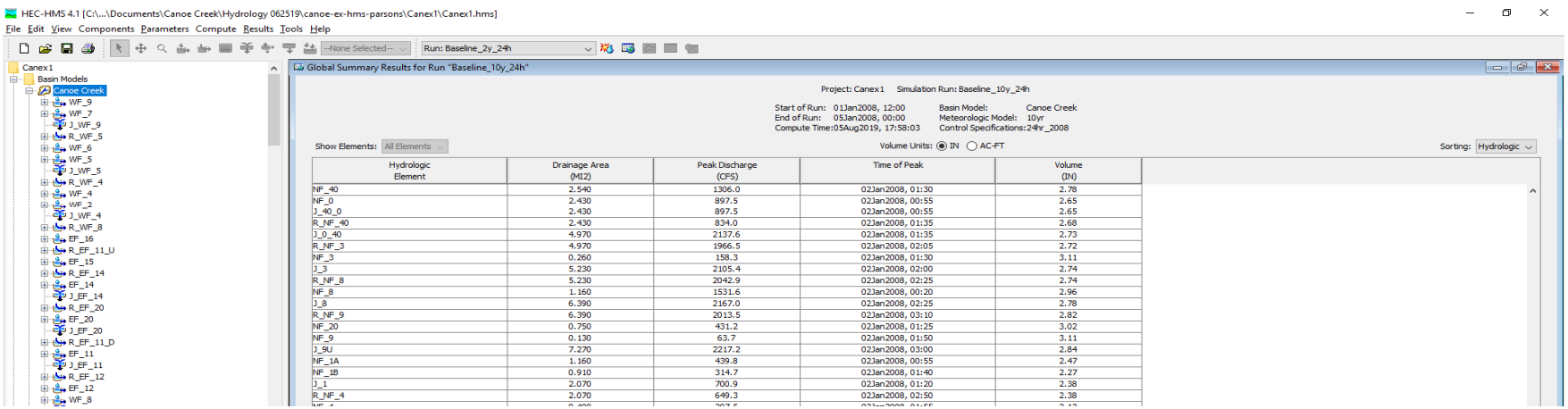
Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
NF_40	2.540	1306.0	02Jan2008, 01:30	2.78
NF_0	2.430	897.5	02Jan2008, 00:55	2.65
J_40_0	2.430	897.5	02Jan2008, 00:55	2.65
R_NF_40	2.430	834.0	02Jan2008, 01:35	2.68
J_0_40	4.970	2137.6	02Jan2008, 01:35	2.73
R_NF_3	4.970	1966.5	02Jan2008, 02:05	2.72
NF_3	0.260	158.3	02Jan2008, 01:30	3.11
J_3	5.230	2105.4	02Jan2008, 02:00	2.74
R_NF_8	5.230	2042.9	02Jan2008, 02:25	2.74
NF_8	1.160	1531.6	02Jan2008, 00:20	2.96
J_8	6.390	2167.0	02Jan2008, 02:25	2.78
R_NF_9	6.390	2013.5	02Jan2008, 03:10	2.82
NF_20	0.750	431.2	02Jan2008, 01:25	3.02
NF_9	0.130	63.7	02Jan2008, 01:50	3.11
J_9U	7.270	2217.2	02Jan2008, 03:00	2.84
NF_1A	1.160	439.8	02Jan2008, 00:55	2.47
NF_1B	0.910	314.7	02Jan2008, 01:40	2.27
J_1	2.070	700.9	02Jan2008, 01:20	2.38
R_NF_4	2.070	649.3	02Jan2008, 02:50	2.38
NF_4	0.400	207.5	02Jan2008, 01:55	3.13
J_4	2.470	815.3	02Jan2008, 02:35	2.50
J_9	9.740	3001.0	02Jan2008, 02:50	2.76
R_NF_7	9.740	2999.1	02Jan2008, 02:55	2.76
NF_2A	0.580	228.0	02Jan2008, 01:10	2.34
NF_2B	0.250	264.2	02Jan2008, 00:25	2.47
NF_7	0.090	66.4	02Jan2008, 01:05	3.11
J_7	10.660	3154.1	02Jan2008, 02:50	2.73
R_NF_10	10.660	3096.6	02Jan2008, 03:00	2.72
NF_16	1.010	823.6	02Jan2008, 00:35	2.92
J_16	1.010	823.6	02Jan2008, 00:35	2.92
R_NF_20	1.010	696.2	02Jan2008, 01:25	2.98
J_20	1.010	696.2	02Jan2008, 01:25	2.98
R_NF_14	1.010	528.8	02Jan2008, 02:15	3.00
NF_14	0.450	699.6	02Jan2008, 00:20	3.17
J_14	1.460	733.0	02Jan2008, 00:20	3.06
R_NF_12	1.460	731.9	02Jan2008, 00:20	3.06
NF_5	0.480	830.4	02Jan2008, 00:15	3.33
NF_10	0.250	220.7	02Jan2008, 00:50	3.14
NF_12	0.140	117.2	02Jan2008, 00:55	3.11
J_Kimsey	12.990	3677.0	02Jan2008, 02:45	2.79
R_NF_17	12.990	3659.4	02Jan2008, 02:45	2.79
NF_17	0.320	368.4	02Jan2008, 00:25	2.53
US-41_Stor	13.310	2426.5	02Jan2008, 04:50	2.79
R_NF_13	13.310	2424.7	02Jan2008, 04:55	2.79
NF_13	0.630	786.0	02Jan2008, 00:30	3.15
J_13	13.940	2463.9	02Jan2008, 04:55	2.80

Canoe Creek Flood Impact Study on Proposed I69
Parsons Existing Condition HMS Summary Tables and Schematic Flow Diagram



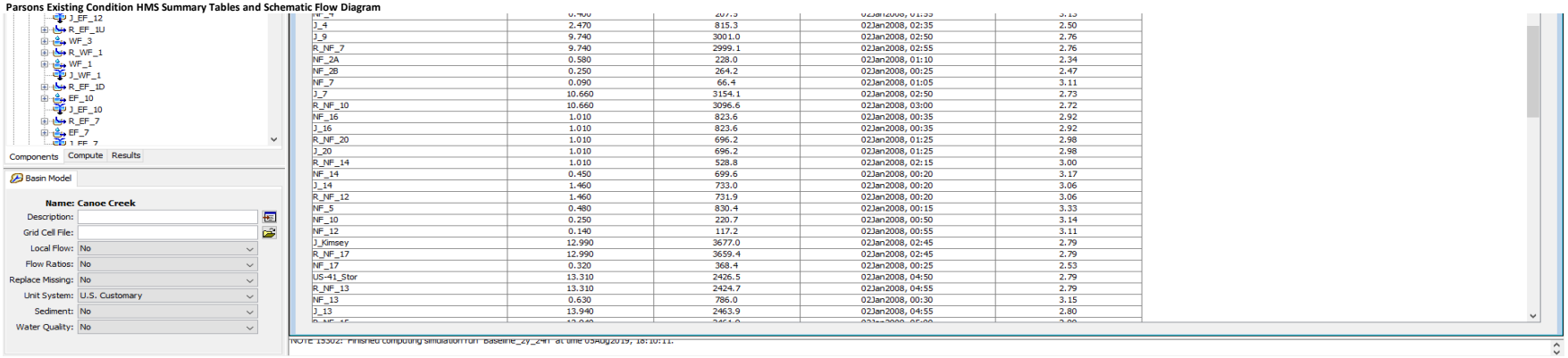


Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
US-41_Stor	13.310	2426.5	02Jan2008, 04:50	2.79
R_NF_13	13.310	2424.7	02Jan2008, 04:55	2.79
NF_13	0.630	786.0	02Jan2008, 00:30	3.15
J_13	13.940	2463.9	02Jan2008, 04:55	2.80
R_NF_15	13.940	2461.9	02Jan2008, 05:00	2.80
NF_15	0.750	746.9	02Jan2008, 00:30	3.51
J_15	14.690	2515.0	02Jan2008, 04:55	2.84
R_NF_35	14.690	2508.6	02Jan2008, 04:55	2.83
NF_35	0.930	466.1	02Jan2008, 01:25	3.78
J_35	15.620	2737.1	02Jan2008, 00:50	2.89
R_NF_18	15.620	2734.1	02Jan2008, 00:55	2.89
NF_18	0.430	357.7	02Jan2008, 00:35	3.28
J_18	16.050	3059.3	02Jan2008, 00:45	2.90
R_NF_25	16.050	2879.8	02Jan2008, 01:10	2.89
NF_25	0.410	349.6	02Jan2008, 00:20	3.32
J_25	16.460	3096.3	02Jan2008, 01:05	2.90
R_NF_28	16.460	2790.3	02Jan2008, 01:20	2.90
NF_19	0.360	348.3	02Jan2008, 00:30	2.79
J_19	0.360	348.3	02Jan2008, 00:30	2.79
R_NF_21	0.360	346.4	02Jan2008, 00:30	2.79
NF_21	0.056	120.2	02Jan2008, 00:05	3.72
J_21	0.416	389.9	02Jan2008, 00:25	2.92
R_NF_23	0.416	387.1	02Jan2008, 00:30	2.92
NF_22	0.350	228.1	02Jan2008, 00:40	2.64
J_22	0.350	228.1	02Jan2008, 00:40	2.64
R_NF_26	0.350	226.7	02Jan2008, 00:45	2.64
NF_26	0.037	68.9	02Jan2008, 00:10	3.20
J_26_u	0.387	240.6	02Jan2008, 00:40	2.69
NF_23	0.060	129.6	02Jan2008, 00:05	3.09
J_26	0.863	644.0	02Jan2008, 00:30	2.83
R_NF_27	0.863	639.2	02Jan2008, 00:35	2.83
NF_24	0.190	159.5	02Jan2008, 00:40	2.75
J_24	1.053	794.7	02Jan2008, 00:35	2.81
R_NF_27D	1.053	780.0	02Jan2008, 00:40	2.81
NF_31	0.790	426.3	02Jan2008, 00:30	2.97
NF_27	0.095	81.0	02Jan2008, 00:35	3.19
Gardenmile_RES	1.938	806.8	02Jan2008, 01:20	2.89
R_NF_32	1.938	801.4	02Jan2008, 01:30	2.89
NF_32	0.390	284.5	02Jan2008, 00:45	3.24
RES_32	2.328	856.6	02Jan2008, 02:05	2.95
R_NF_29	2.328	853.7	02Jan2008, 02:15	2.95
NF_29	0.510	340.9	02Jan2008, 00:30	3.23
NF_28	0.490	450.4	02Jan2008, 00:30	3.23
J_28	19.788	3894.2	02Jan2008, 01:30	2.92
R_NF_33	19.788	3829.8	02Jan2008, 01:40	2.92
NF_33	0.180	222.7	02Jan2008, 00:25	3.30

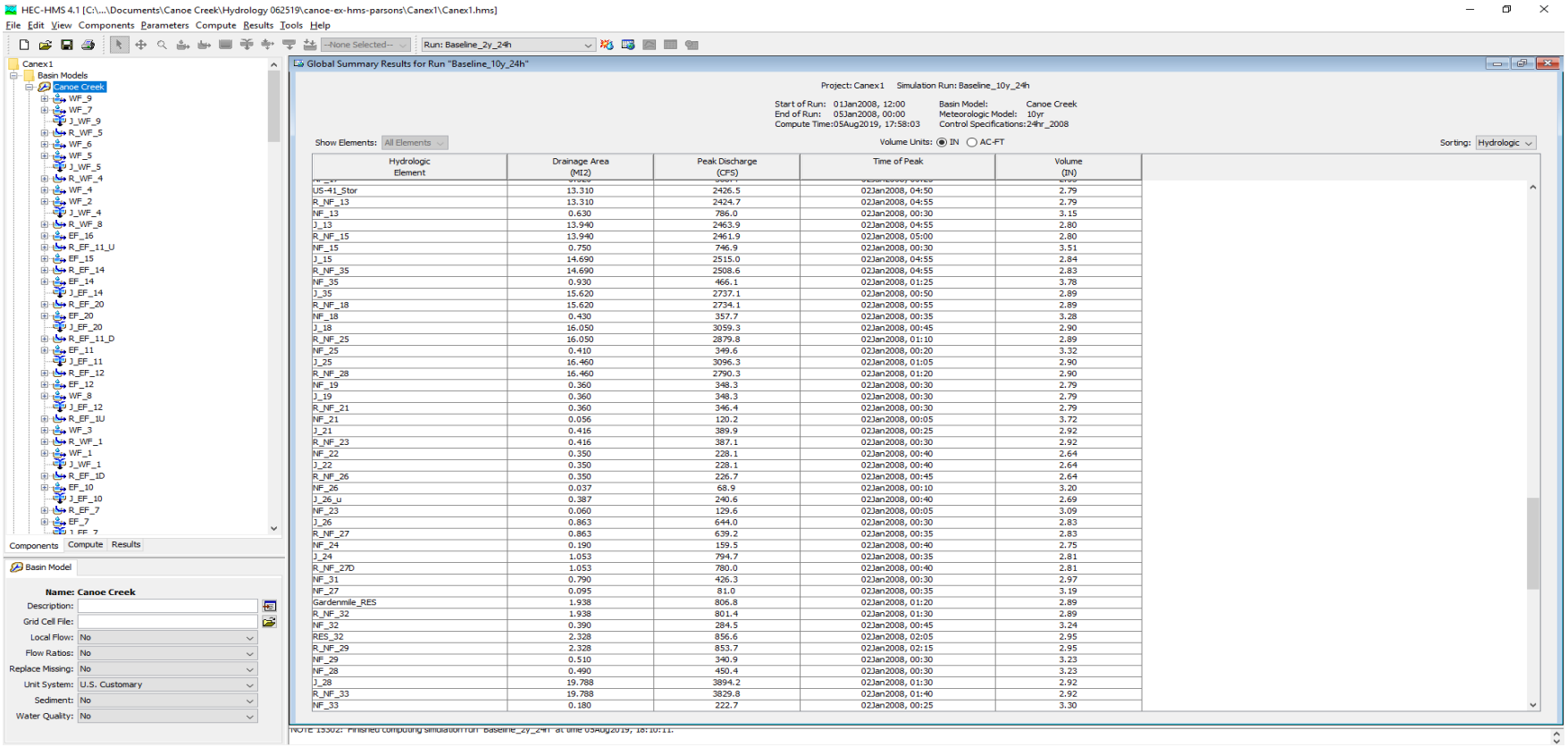


Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
NF_40	2.540	1306.0	02Jan2008, 01:30	2.78
NF_0	2.430	897.5	02Jan2008, 00:55	2.65
J_40_0	2.430	897.5	02Jan2008, 00:55	2.65
R_NF_40	2.430	834.0	02Jan2008, 01:35	2.68
J_0_40	4.970	2137.6	02Jan2008, 01:35	2.73
R_NF_3	4.970	1966.5	02Jan2008, 02:05	2.72
NF_3	0.260	158.3	02Jan2008, 01:30	3.11
J_3	5.230	2105.4	02Jan2008, 02:00	2.74
R_NF_8	5.230	2042.9	02Jan2008, 02:25	2.74
NF_8	1.160	1531.6	02Jan2008, 00:20	2.96
J_8	6.390	2167.0	02Jan2008, 02:25	2.78
R_NF_9	6.390	2013.5	02Jan2008, 03:10	2.82
NF_20	0.750	431.2	02Jan2008, 01:25	3.02
NF_9	0.130	63.7	02Jan2008, 01:50	3.11
J_9U	7.270	2217.2	02Jan2008, 03:00	2.84
NF_1A	1.160	439.8	02Jan2008, 00:55	2.47
NF_1B	0.910	314.7	02Jan2008, 01:40	2.27
J_1	2.070	700.9	02Jan2008, 01:20	2.38
R_NF_4	2.070	649.3	02Jan2008, 02:50	2.38

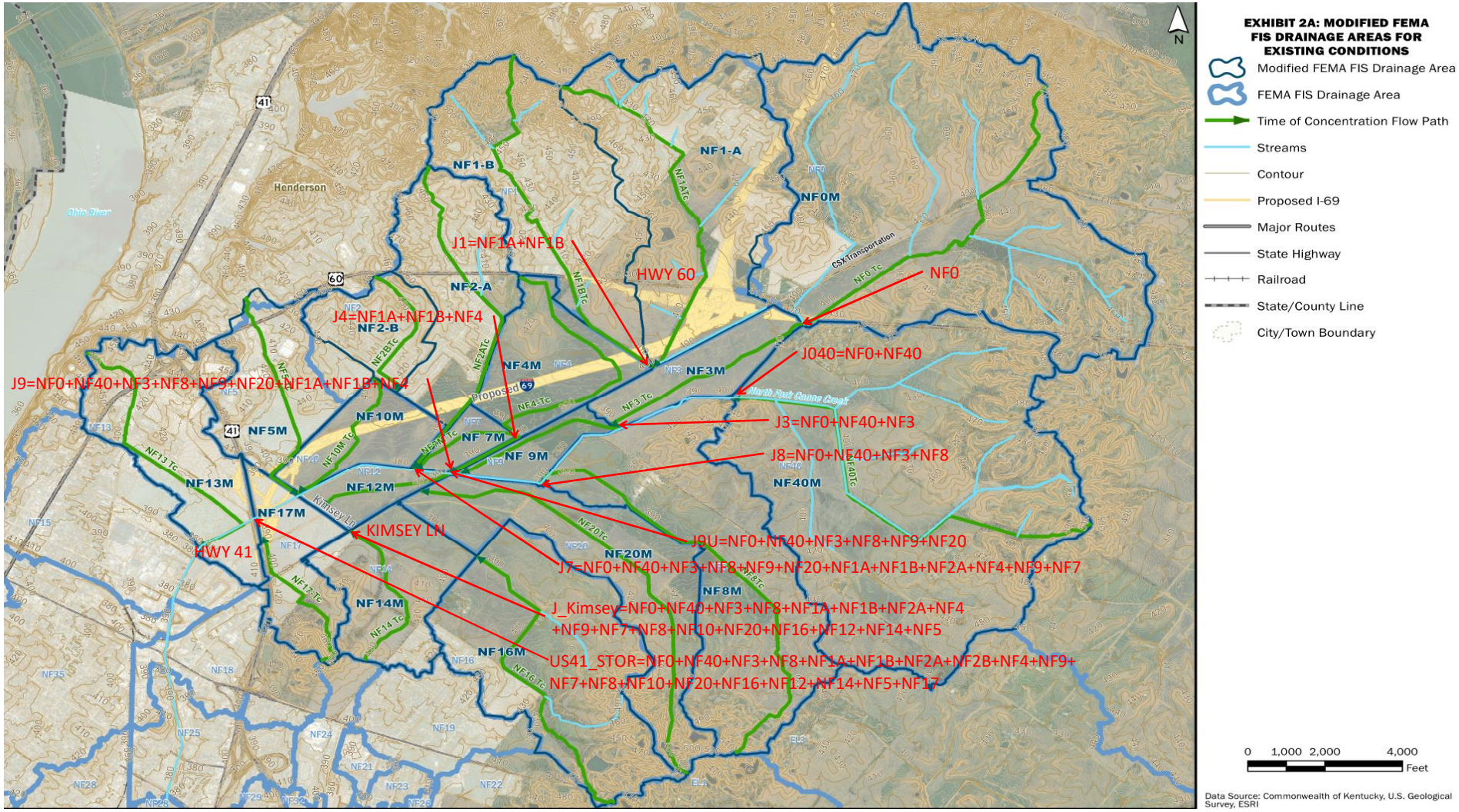
Canoe Creek Flood Impact Study on Proposed I69
Parsons Existing Condition HMS Summary Tables and Schematic Flow Diagram



J_4	2.470	815.3	02Jan2008, 02:35	2.50
J_9	9.740	3001.0	02Jan2008, 02:50	2.76
R_NF_7	9.740	2999.1	02Jan2008, 02:55	2.76
NF_2A	0.580	228.0	02Jan2008, 01:10	2.34
NF_2B	0.250	264.2	02Jan2008, 00:25	2.47
NF_7	0.090	66.4	02Jan2008, 01:05	3.11
J_7	10.660	3154.1	02Jan2008, 02:50	2.73
R_NF_10	10.660	3096.6	02Jan2008, 03:00	2.72
NF_16	1.010	823.6	02Jan2008, 00:35	2.92
J_16	1.010	823.6	02Jan2008, 00:35	2.92
R_NF_20	1.010	696.2	02Jan2008, 01:25	2.98
J_20	1.010	696.2	02Jan2008, 01:25	2.98
R_NF_14	1.010	528.8	02Jan2008, 02:15	3.00
NF_14	0.450	699.6	02Jan2008, 00:20	3.17
J_14	1.460	733.0	02Jan2008, 00:20	3.06
R_NF_12	1.460	731.9	02Jan2008, 00:20	3.06
NF_5	0.480	830.4	02Jan2008, 00:15	3.33
NF_10	0.250	220.7	02Jan2008, 00:50	3.14
NF_12	0.140	117.2	02Jan2008, 00:55	3.11
J_Kimsey	12.990	3677.0	02Jan2008, 02:45	2.79
R_NF_17	12.990	3659.4	02Jan2008, 02:45	2.79
NF_17	0.320	368.4	02Jan2008, 00:25	2.53
US-41_Stor	13.310	2426.5	02Jan2008, 04:50	2.79
R_NF_13	13.310	2424.7	02Jan2008, 04:55	2.79
NF_13	0.630	786.0	02Jan2008, 00:30	3.15
J_13	13.940	2463.9	02Jan2008, 04:55	2.80



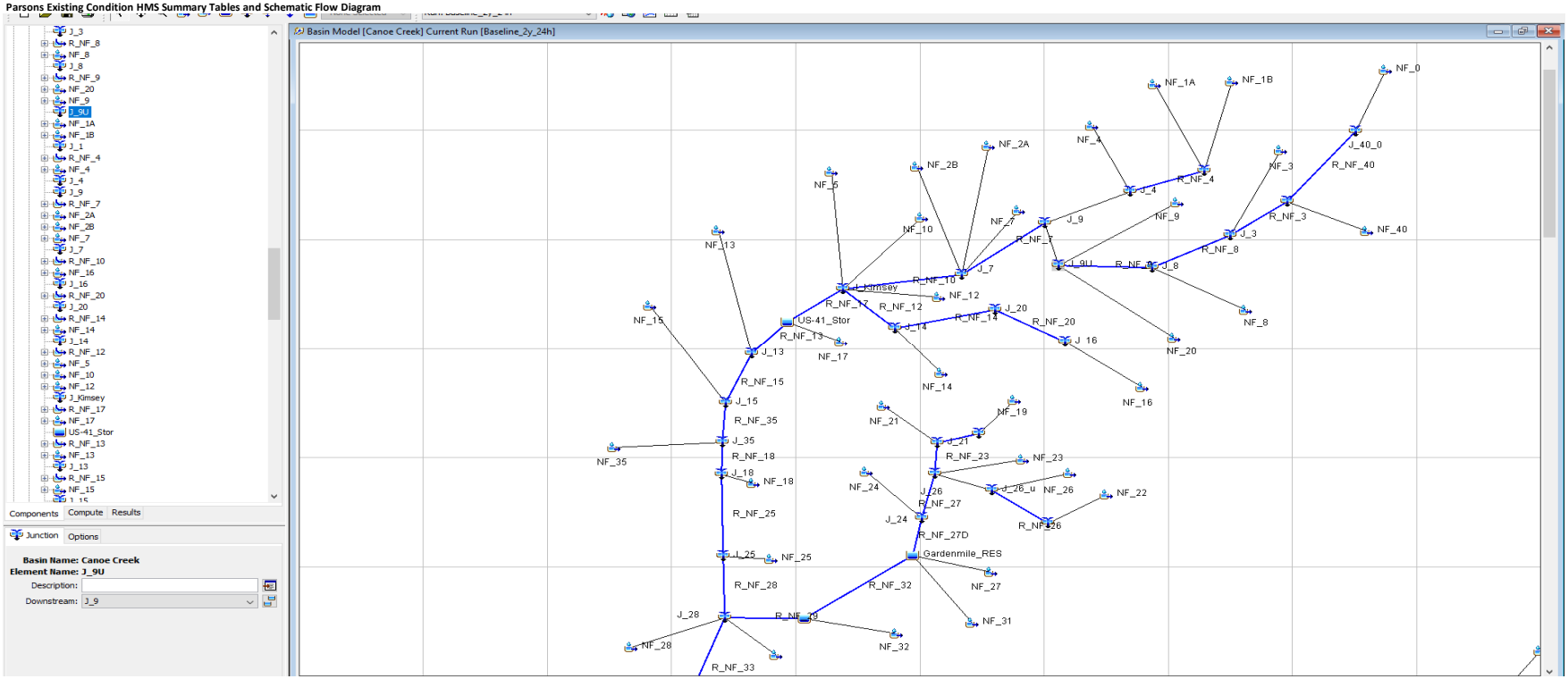
Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
US-41_Stor	13.310	2426.5	02Jan2008, 04:50	2.79
R_NF_13	13.310	2424.7	02Jan2008, 04:55	2.79
NF_13	0.630	786.0	02Jan2008, 00:30	3.15
J_13	13.940	2463.9	02Jan2008, 04:55	2.80
R_NF_15	13.940	2461.9	02Jan2008, 05:00	2.80
NF_15	0.750	746.9	02Jan2008, 00:30	3.51
J_15	14.690	2515.0	02Jan2008, 04:55	2.84
R_NF_35	14.690	2508.6	02Jan2008, 04:55	2.83
NF_35	0.930	466.1	02Jan2008, 01:25	3.78
J_35	15.620	2737.1	02Jan2008, 00:50	2.89
R_NF_18	15.620	2734.1	02Jan2008, 00:55	2.89
NF_18	0.430	357.7	02Jan2008, 00:35	3.28
J_18	16.050	3059.3	02Jan2008, 00:45	2.90
R_NF_25	16.050	2879.8	02Jan2008, 01:10	2.89
NF_25	0.410	349.6	02Jan2008, 00:20	3.32
J_25	16.460	3096.3	02Jan2008, 01:05	2.90
R_NF_28	16.460	2790.3	02Jan2008, 01:20	2.90
NF_19	0.360	348.3	02Jan2008, 00:30	2.79
J_19	0.360	348.3	02Jan2008, 00:30	2.79
R_NF_21	0.360	346.4	02Jan2008, 00:30	2.79
NF_21	0.056	120.2	02Jan2008, 00:05	3.72
J_21	0.416	389.9	02Jan2008, 00:25	2.92
R_NF_23	0.416	387.1	02Jan2008, 00:30	2.92
NF_22	0.350	228.1	02Jan2008, 00:40	2.64
J_22	0.350	228.1	02Jan2008, 00:40	2.64
R_NF_26	0.350	226.7	02Jan2008, 00:45	2.64
NF_26	0.037	68.9	02Jan2008, 00:10	3.20
J_26_u	0.387	240.6	02Jan2008, 00:40	2.69
NF_23	0.060	129.6	02Jan2008, 00:05	3.09
J_26	0.863	644.0	02Jan2008, 00:30	2.83
R_NF_27	0.863	639.2	02Jan2008, 00:35	2.83
NF_24	0.190	159.5	02Jan2008, 00:40	2.75
J_24	1.053	794.7	02Jan2008, 00:35	2.81
R_NF_27D	1.053	780.0	02Jan2008, 00:40	2.81
NF_31	0.790	426.3	02Jan2008, 00:30	2.97
NF_27	0.095	81.0	02Jan2008, 00:35	3.19
Gardenmile_RES	1.938	806.8	02Jan2008, 01:20	2.89
R_NF_32	1.938	801.4	02Jan2008, 01:30	2.89
NF_32	0.390	284.5	02Jan2008, 00:45	3.24
RES_32	2.328	856.6	02Jan2008, 02:05	2.95
R_NF_29	2.328	853.7	02Jan2008, 02:15	2.95
NF_29	0.510	340.9	02Jan2008, 00:30	3.23
NF_28	0.490	450.4	02Jan2008, 00:30	3.23
J_28	19.788	3894.2	02Jan2008, 01:30	2.92
R_NF_33	19.788	3829.8	02Jan2008, 01:40	2.92
NF_33	0.180	222.7	02Jan2008, 00:25	3.30

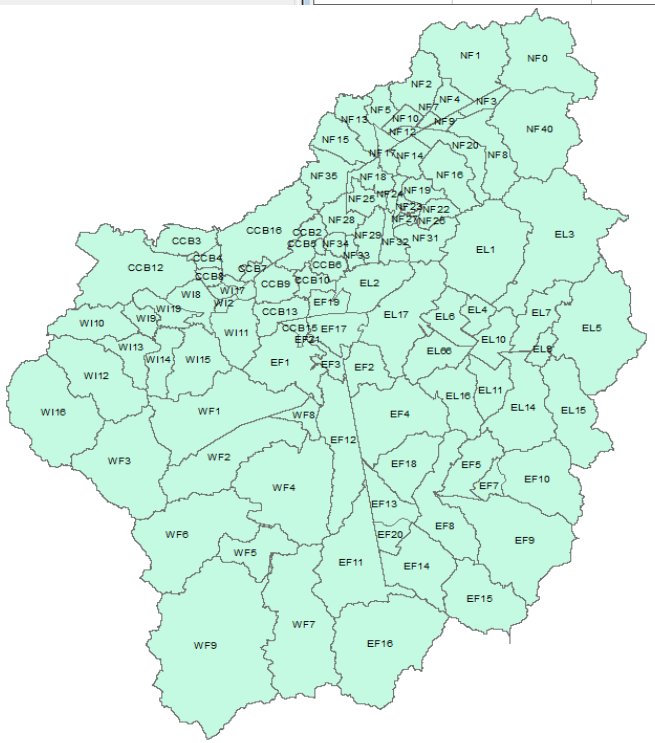

J1=NF1A+NF1B
HWY 60
NF0
J4=NF1A+NF1B+NF4
J040=NF0+NF40
J9=NF0+NF40+NF3+NF8+NF9+NF20+NF1A+NF1B+NF4
J3=NF0+NF40+NF3
J8=NF0+NF40+NF3+NF8
KIMSEY LN
HWY 41
J9U=NF0+NF40+NF3+NF8+NF9+NF20
J7=NF0+NF40+NF3+NF8+NF9+NF20+NF1A+NF1B+NF2A+NF4+NF9+NF7
J_Kimsey=NF0+NF40+NF3+NF8+NF1A+NF1B+NF2A+NF4
+NF9+NF7+NF8+NF10+NF20+NF16+NF12+NF14+NF5
US41_STOR=NF0+NF40+NF3+NF8+NF1A+NF1B+NF2A+NF2B+NF4+NF9+
NF7+NF8+NF10+NF20+NF16+NF12+NF14+NF5+NF17
NF1-A
NF1-B
NF0M
NF2-A
NF2-B
NF4M
NF3M
NF5M
NF10M
NF 7M
NF 9M
NF13M
NF12M
NF17M
NF14M
NF16M
NF40M
NF20M
NF8M
Henderson
Ohio River
Proposed I-69
CSXTransportation
North Fork Canoe Creek
Kimsey Ln
N
EXHIBIT 2A: MODIFIED FEMA FIS DRAINAGE AREAS FOR EXISTING CONDITIONS
Modified FEMA FIS Drainage Area
FEMA FIS Drainage Area
Time of Concentration Flow Path
Streams
Contour
Proposed I-69
Major Routes
State Highway
Railroad
State/County Line
City/Town Boundary
0 1,000 2,000 4,000
Feet
Data Source: Commonwealth of Kentucky, U.S. Geological Survey, ESRI


HEC-HMS 4.1 [C:\...\Documents\Canoe Creek\Hydrology 062519\canoe-ex-hms-parsons\Canex1\Canex1.hms]
File Edit View Components Parameters Compute Results Tools Help

Canoe Creek Flood Impact Study on Proposed I69

Parsons Existing Condition HMS Summary Tables and Schematic Flow Diagram





Appendix A-13

HEC-HMS 4.1 [C:\...\Documents\Canoe Creek\Hydrology 062519\canoe-pr-hms-parsons\Canpr1\Canpr1.hms]

File Edit View Components Parameters Compute Results Tools Help

Project: Canpr1 Simulation Run: Baseline_100y_24h

Start of Run: 01Jan2008, 12:00 Basin Model: Canoe Creek
End of Run: 05Jan2008, 00:00 Meteorologic Model: 100yr
Compute Time:05Aug2019, 18:55:48 Control Specifications:24hr_2008

Show Elements: All Elements Volume Units: (•) IN ( ) AC-FT Sorting: Hydrologic

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
NF_40	2.540	2340.0	02Jan2008, 01:30	4.97
NF_0	2.430	1668.6	02Jan2008, 00:55	4.83
J_40_0	2.430	1668.6	02Jan2008, 00:55	4.83
R_NF_40	2.430	1531.8	02Jan2008, 01:40	4.91
J_0_40	4.970	3850.2	02Jan2008, 01:35	4.94
R_NF_3	4.970	3616.6	02Jan2008, 02:00	4.96
NF_3	0.260	273.7	02Jan2008, 01:30	5.45
J_3	5.230	3860.2	02Jan2008, 01:55	4.99
R_NF_8	5.230	3747.8	02Jan2008, 02:20	4.99
NF_8	1.160	2657.5	02Jan2008, 00:15	5.20
J_8	6.390	3962.5	02Jan2008, 02:15	5.03
R_NF_9	6.390	3633.4	02Jan2008, 02:55	5.07
NF_20	0.750	748.6	02Jan2008, 01:20	5.26
NF_9	0.130	109.5	02Jan2008, 01:45	5.38
J_9U	7.270	4021.3	02Jan2008, 02:45	5.10
NF_4B	0.110	43.1	02Jan2008, 02:00	5.38
J_9	7.380	4062.0	02Jan2008, 02:45	5.10
R_NF_7	7.380	4059.3	02Jan2008, 02:50	5.10
NF_7	0.090	113.6	02Jan2008, 01:05	5.38
J_7	7.470	4085.3	02Jan2008, 02:50	5.10
R_NF_10	7.470	3992.2	02Jan2008, 02:55	5.09
NF_16	1.010	1448.6	02Jan2008, 00:35	5.15
J_16	1.010	1448.6	02Jan2008, 00:35	5.15
R_NF_20	1.010	1256.7	02Jan2008, 01:15	5.13
J_20	1.010	1256.7	02Jan2008, 01:15	5.13
R_NF_14	1.010	984.5	02Jan2008, 01:50	5.08
NF_14	0.450	1182.1	02Jan2008, 00:15	5.45
J_14	1.460	1224.7	02Jan2008, 00:15	5.19
R_NF_12	1.460	1221.8	02Jan2008, 00:20	5.19
NF_12	0.140	200.6	02Jan2008, 00:55	5.38
NF_10B	0.090	50.2	02Jan2008, 02:10	5.38
J_7D1	9.160	4799.9	02Jan2008, 02:40	5.12
NF-1A	1.160	877.4	02Jan2008, 00:55	4.81
NF_1B	0.910	621.6	02Jan2008, 01:35	4.38
J_1	2.070	1391.9	02Jan2008, 01:15	4.62
R_NF_4	2.070	1374.7	02Jan2008, 01:40	4.62
NF-4A	0.290	314.6	02Jan2008, 00:35	5.59
J_4	2.360	1572.4	02Jan2008, 01:35	4.74
R_NF_2A	2.360	1569.1	02Jan2008, 01:40	4.74
NF_2A	0.580	445.4	02Jan2008, 01:10	4.47
NF_2B	0.250	493.0	02Jan2008, 00:25	4.58
J_4D1	3.190	2035.8	02Jan2008, 01:30	4.68
R_NF_10A	3.190	2027.9	02Jan2008, 01:40	4.68
NF_10A	0.160	262.7	02Jan2008, 00:35	5.89
J_4D2	3.350	2122.5	02Jan2008, 01:40	4.73
NF_5	0.480	1380.4	02Jan2008, 00:15	5.65
J_4D3	3.830	2242.9	02Jan2008, 01:35	4.85

NOTE 41054: Routing parameters for reach "R_CC_3": Delta t (sec) 300 Delta x (ft) 2,204
NOTE 15302: Finished computing simulation run "Baseline_100y_24h" at time 05Aug2019, 18:56:00.

Components Compute Results

Subbasin Loss Transform Options

Basin Name: Canoe Creek
Element Name: NF_32

Description:
Downstream: RES_32
*Area (MI2) 0.39
Latitude Degrees:
Latitude Minutes:
Latitude Seconds:
Longitude Degrees:
Longitude Minutes:

HEC-HMS 4.1 [C:\...\Documents\Canoe Creek\Hydrology 062519\canoe-pr-hms-parsons\Canpr1\Canpr1.hms]

File Edit View Components Parameters Compute Results Tools Help

Project: Canpr1 Simulation Run: Baseline_100y_24h

Start of Run: 01Jan2008, 12:00 Basin Model: Canoe Creek
End of Run: 05Jan2008, 00:00 Meteorologic Model: 100yr
Compute Time:05Aug2019, 18:55:48 Control Specifications:24hr_2008

Show Elements: All Elements Volume Units: (•) IN ( ) AC-FT Sorting: Hydrologic

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
R_NF_17	12.990	6649.5	02Jan2008, 02:20	5.03
J_Kimsey	12.990	6649.5	02Jan2008, 02:20	5.03
NF_17	0.320	719.5	02Jan2008, 00:20	5.00
US-41_Stor	13.310	3229.5	02Jan2008, 05:25	5.03
R_NF_13	13.310	3228.6	02Jan2008, 05:25	5.03
NF_13	0.630	1337.5	02Jan2008, 00:30	5.46
J_13	13.940	3287.0	02Jan2008, 05:20	5.05
R_NF_15	13.940	3285.9	02Jan2008, 05:25	5.05
NF_15	0.750	1222.8	02Jan2008, 00:30	5.85
J_15	14.690	3960.0	02Jan2008, 00:35	5.09
R_NF_35	14.690	3931.8	02Jan2008, 00:35	5.08
NF_35	0.930	748.0	02Jan2008, 01:20	6.15
J_35	15.620	4408.0	02Jan2008, 00:35	5.14
R_NF_18	15.620	4391.6	02Jan2008, 00:40	5.14
NF_18	0.430	602.3	02Jan2008, 00:35	5.58
J_18	16.050	4986.2	02Jan2008, 00:40	5.15
R_NF_25	16.050	4551.0	02Jan2008, 00:50	5.15
NF_25	0.410	587.1	02Jan2008, 00:20	5.63
J_25	16.460	4989.9	02Jan2008, 00:50	5.16
R_NF_28	16.460	4473.4	02Jan2008, 00:55	5.15
NF_19	0.360	622.4	02Jan2008, 00:25	4.99
J_19	0.360	622.4	02Jan2008, 00:25	4.99
R_NF_21	0.360	618.7	02Jan2008, 00:30	4.99
NF_21	0.056	191.6	02Jan2008, 00:05	6.08
J_21	0.416	690.8	02Jan2008, 00:25	5.14
R_NF_23	0.416	684.3	02Jan2008, 00:30	5.14
NF_22	0.350	417.3	02Jan2008, 00:35	4.80
J_22	0.350	417.3	02Jan2008, 00:35	4.80
R_NF_26	0.350	415.2	02Jan2008, 00:40	4.80
NF_26	0.037	116.4	02Jan2008, 00:10	5.48
J_26_u	0.387	439.9	02Jan2008, 00:40	4.87
NF_23	0.060	220.3	02Jan2008, 00:05	5.35
J_26	0.863	1156.1	02Jan2008, 00:30	5.03
R_NF_27	0.863	1151.7	02Jan2008, 00:30	5.03
NF_24	0.190	286.5	02Jan2008, 00:40	4.94
J_24	1.053	1422.4	02Jan2008, 00:35	5.01
R_NF_27D	1.053	1400.0	02Jan2008, 00:35	5.01
NF_31	0.790	753.3	02Jan2008, 00:30	5.21
NF_27	0.095	137.6	02Jan2008, 00:35	5.47

Components Compute Results

Subbasin Loss Transform Options

Basin Name: Canoe Creek
Element Name: NF_32

Downstream: RES_32
*Area (MI2): 0.39
Latitude Degrees:
Latitude Minutes:
Latitude Seconds:
Longitude Degrees:
Longitude Minutes:

Gardenmile_RES	1.938	1283.5	02Jan2008, 01:30	5.11
R_NF_32	1.938	1277.4	02Jan2008, 01:35	5.11
NF_32	0.390	481.6	02Jan2008, 00:45	5.53
RES_32	2.328	1395.5	02Jan2008, 02:10	5.18
R_NF_29	2.328	1393.1	02Jan2008, 02:20	5.18
NF_29	0.510	580.7	02Jan2008, 00:30	5.51
NF_28	0.490	761.8	02Jan2008, 00:30	5.51
J_28	19.788	6299.1	02Jan2008, 01:05	5.17

NOTE 15302: Finished computing simulation run "Baseline_100y_24h" at time 05Aug2019, 18:56:00.

HEC-HMS 4.1 [C:\...\Documents\Canoe Creek\Hydrology 062519\canoe-pr-hms-parsons\Canpr1\Canpr1.hms]

File Edit View Components Parameters Compute Results Tools Help

Run: Baseline_500y_24h

Project: Canpr1 Simulation Run: Baseline_500y_24h

Start of Run: 01Jan2008, 12:00
End of Run: 05Jan2008, 00:00
Compute Time:05Aug2019, 19:00:18
Basin Model: Canoe Creek
Meteorologic Model: 500yr
Control Specifications:24hr_2008

Show Elements: All Elements
Volume Units: IN AC-FT
Sorting: Hydrologic

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
NF_40	2.540	3185.5	02Jan2008, 01:30	6.81
NF_0	2.430	2302.9	02Jan2008, 00:55	6.66
J_40_0	2.430	2302.9	02Jan2008, 00:55	6.66
R_NF_40	2.430	2136.1	02Jan2008, 01:35	6.74
J_0_40	4.970	5318.0	02Jan2008, 01:30	6.77
R_NF_3	4.970	5032.2	02Jan2008, 01:50	6.80
NF_3	0.260	364.6	02Jan2008, 01:30	7.33
J_3	5.230	5375.4	02Jan2008, 01:50	6.83
R_NF_8	5.230	5259.3	02Jan2008, 02:05	6.84
NF_8	1.160	3576.2	02Jan2008, 00:15	7.05
J_8	6.390	5565.7	02Jan2008, 02:05	6.87
R_NF_9	6.390	5108.4	02Jan2008, 02:35	6.91
NF_20	0.750	1006.1	02Jan2008, 01:20	7.13
NF_9	0.130	146.6	02Jan2008, 01:45	7.25
J_9U	7.270	5723.8	02Jan2008, 02:30	6.94
NF_4B	0.110	58.2	02Jan2008, 02:00	7.25
J_9	7.380	5780.0	02Jan2008, 02:30	6.94
R_NF_7	7.380	5772.1	02Jan2008, 02:35	6.94
NF_7	0.090	151.7	02Jan2008, 01:05	7.25
J_7	7.470	5814.9	02Jan2008, 02:30	6.94
R_NF_10	7.470	5653.2	02Jan2008, 02:40	6.93
NF_16	1.010	1955.9	02Jan2008, 00:35	7.00
J_16	1.010	1955.9	02Jan2008, 00:35	7.00
R_NF_20	1.010	1712.7	02Jan2008, 01:10	6.95
J_20	1.010	1712.7	02Jan2008, 01:10	6.95
R_NF_14	1.010	1376.4	02Jan2008, 01:40	6.85
NF_14	0.450	1571.7	02Jan2008, 00:15	7.32
J_14	1.460	1633.7	02Jan2008, 00:15	7.00
R_NF_12	1.460	1628.8	02Jan2008, 00:20	7.00
NF_12	0.140	267.6	02Jan2008, 00:55	7.25
NF_10B	0.090	67.5	02Jan2008, 02:10	7.25
J_7D1	9.160	6812.7	02Jan2008, 02:25	6.95
NF-1A	1.160	1211.4	02Jan2008, 00:55	6.63
NF_1B	0.910	874.8	02Jan2008, 01:35	6.15
J_1	2.070	1938.9	02Jan2008, 01:10	6.42
R_NF_4	2.070	1917.1	02Jan2008, 01:35	6.41
NF-4A	0.290	418.2	02Jan2008, 00:35	7.47
J_4	2.360	2187.1	02Jan2008, 01:30	6.54
R_NF_2A	2.360	2182.8	02Jan2008, 01:35	6.54
NF_2A	0.580	624.4	02Jan2008, 01:10	6.25
NF_2B	0.250	682.1	02Jan2008, 00:25	6.38
J_4D1	3.190	2852.3	02Jan2008, 01:25	6.47
R_NF_10A	3.190	2841.6	02Jan2008, 01:35	6.47
NF_10A	0.160	344.5	02Jan2008, 00:35	7.79
J_4D2	3.350	2977.3	02Jan2008, 01:30	6.53
NF_5	0.480	1817.9	02Jan2008, 00:15	7.54
J_4D3	3.830	3143.3	02Jan2008, 01:30	6.66

NOTE 15302: Finished computing simulation run "Baseline_500y_24h" at time 05Aug2019, 19:00:28.

Components Compute Results

Subbasin Loss Transform Options

Basin Name: Canoe Creek
Element Name: NF_32
Description:
Downstream: RES_32
*Area (MI2): 0.39
Latitude Degrees:
Latitude Minutes:
Latitude Seconds:
Longitude Degrees:
Longitude Minutes:

HEC-HMS 4.1 [C:\...\Documents\Canoe Creek\Hydrology 062519\canoe-pr-hms-parsons\Canpr1\Canpr1.hms]

File Edit View Components Parameters Compute Results Tools Help

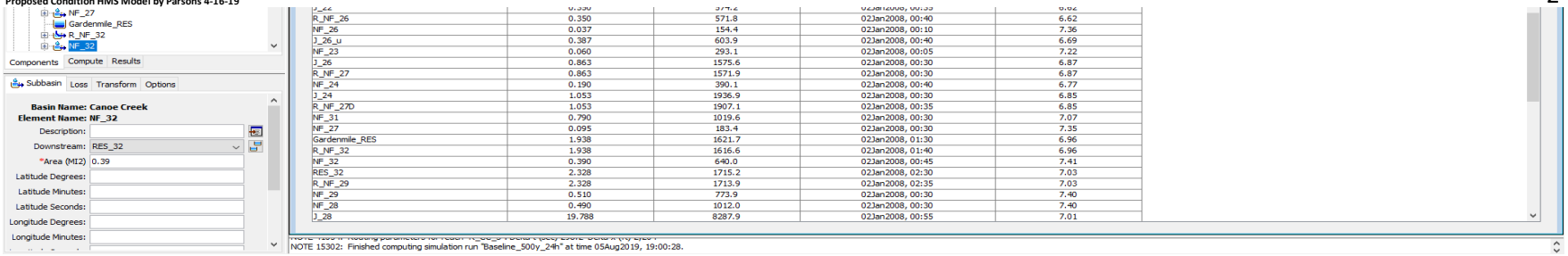
Run: Baseline_500y_24h

Project: Canpr1 Simulation Run: Baseline_500y_24h

Start of Run: 01Jan2008, 12:00
End of Run: 05Jan2008, 00:00
Compute Time:05Aug2019, 19:00:18
Basin Model: Canoe Creek
Meteorologic Model: 500yr
Control Specifications:24hr_2008

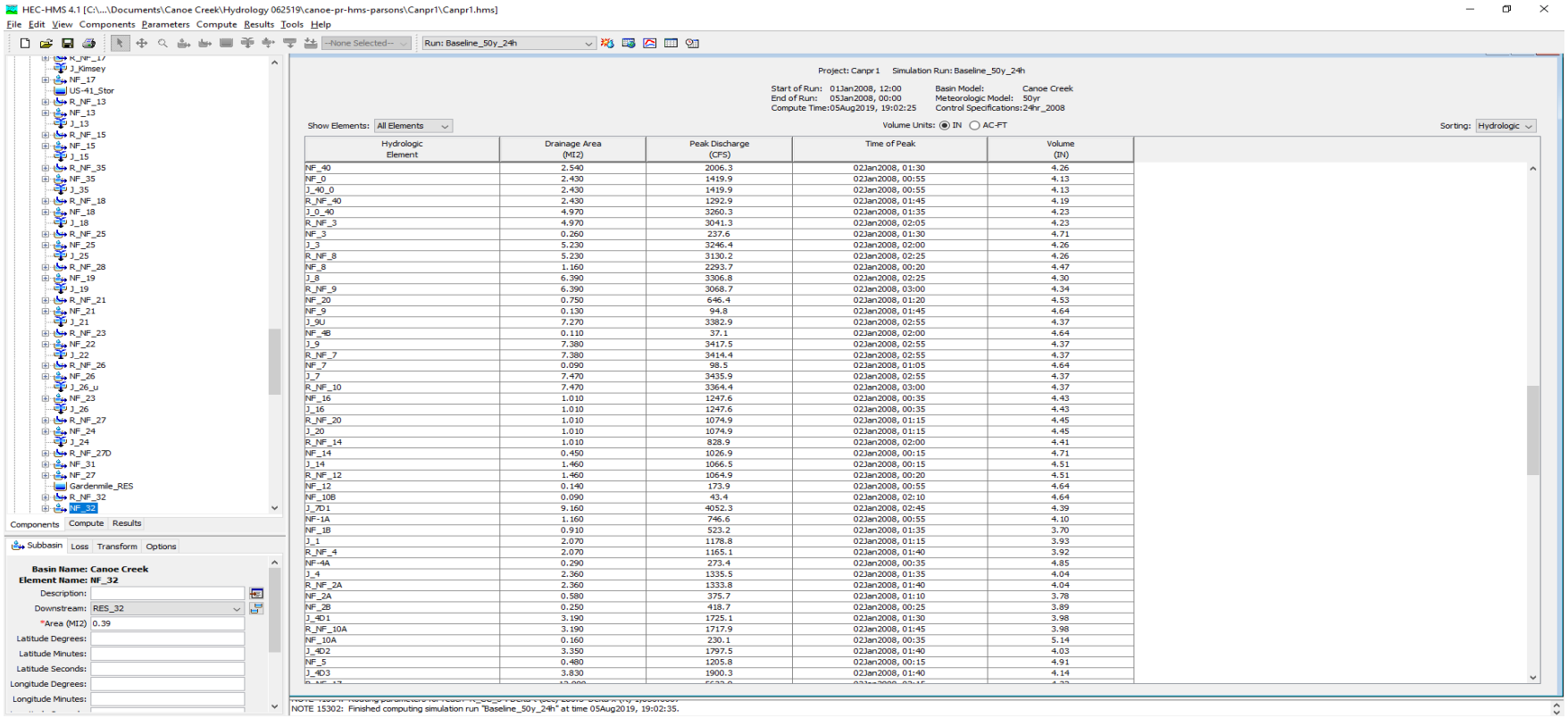
Show Elements: All Elements
Volume Units: IN AC-FT
Sorting: Hydrologic

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
R_NF_17	12.990	9440.3	02Jan2008, 02:15	6.86
J_Kimsey	12.990	9440.3	02Jan2008, 02:15	6.86
NF_17	0.320	976.9	02Jan2008, 00:20	6.83
US-41_Stor	13.310	4155.8	02Jan2008, 05:20	6.86
R_NF_13	13.310	4154.1	02Jan2008, 05:25	6.86
NF_13	0.630	1778.1	02Jan2008, 00:25	7.33
J_13	13.940	4230.3	02Jan2008, 05:20	6.88
R_NF_15	13.940	4227.9	02Jan2008, 05:25	6.88
NF_15	0.750	1602.9	02Jan2008, 00:30	7.75
J_15	14.690	4999.0	02Jan2008, 00:35	6.92
R_NF_35	14.690	4989.7	02Jan2008, 00:35	6.91
NF_35	0.930	973.7	02Jan2008, 01:20	8.07
J_35	15.620	5615.2	02Jan2008, 00:35	6.98
R_NF_18	15.620	5575.9	02Jan2008, 00:35	6.98
NF_18	0.430	798.6	02Jan2008, 00:35	7.47
J_18	16.050	6374.5	02Jan2008, 00:35	6.99
R_NF_25	16.050	5847.6	02Jan2008, 00:45	6.99
NF_25	0.410	777.7	02Jan2008, 00:20	7.52
J_25	16.460	6462.4	02Jan2008, 00:45	7.00
R_NF_28	16.460	5850.8	02Jan2008, 00:50	6.99
NF_19	0.360	846.1	02Jan2008, 00:25	6.83
J_19	0.360	846.1	02Jan2008, 00:25	6.83
R_NF_21	0.360	839.5	02Jan2008, 00:30	6.83
NF_21	0.056	248.6	02Jan2008, 00:05	7.99
J_21	0.416	934.7	02Jan2008, 00:25	6.99
R_NF_23	0.416	926.8	02Jan2008, 00:30	6.99
NF_22	0.350	574.2	02Jan2008, 00:35	6.62



R_NF_26	0.350	571.8	02Jan2008, 00:40	6.62
NF_26	0.037	154.4	02Jan2008, 00:10	7.36
J_26_u	0.387	603.9	02Jan2008, 00:40	6.69
NF_23	0.060	293.1	02Jan2008, 00:05	7.22
J_26	0.863	1575.6	02Jan2008, 00:30	6.87
R_NF_27	0.863	1571.9	02Jan2008, 00:30	6.87
NF_24	0.190	390.1	02Jan2008, 00:40	6.77
J_24	1.053	1936.9	02Jan2008, 00:30	6.85
R_NF_27D	1.053	1907.1	02Jan2008, 00:35	6.85
NF_31	0.790	1019.6	02Jan2008, 00:30	7.07
NF_27	0.095	183.4	02Jan2008, 00:30	7.35
Gardenmile_RES	1.938	1621.7	02Jan2008, 01:30	6.96
R_NF_32	1.938	1616.6	02Jan2008, 01:40	6.96
NF_32	0.390	640.0	02Jan2008, 00:45	7.41
RES_32	2.328	1715.2	02Jan2008, 02:30	7.03
R_NF_29	2.328	1713.9	02Jan2008, 02:35	7.03
NF_29	0.510	773.9	02Jan2008, 00:30	7.40
NF_28	0.490	1012.0	02Jan2008, 00:30	7.40
J_28	19.788	8287.9	02Jan2008, 00:55	7.01

NOTE 15302: Finished computing simulation run "Baseline_50y_24h" at time 05Aug2019, 19:00:28.



HEC-HMS 4.1 [C:\...\Documents\Canoe Creek\Hydrology 062519\canoe-pr-hms-parsons\Canpr1\Canpr1.hms]

File Edit View Components Parameters Compute Results Tools Help

Components Compute Results

Subbasin Loss Transform Options

Basin Name: Canoe Creek
Element Name: NF_32
Description:
Downstream: RES_32
*Area (MI2) 0.39
Latitude Degrees:
Latitude Minutes:
Latitude Seconds:
Longitude Degrees:
Longitude Minutes:

Run: Baseline_50y_24h

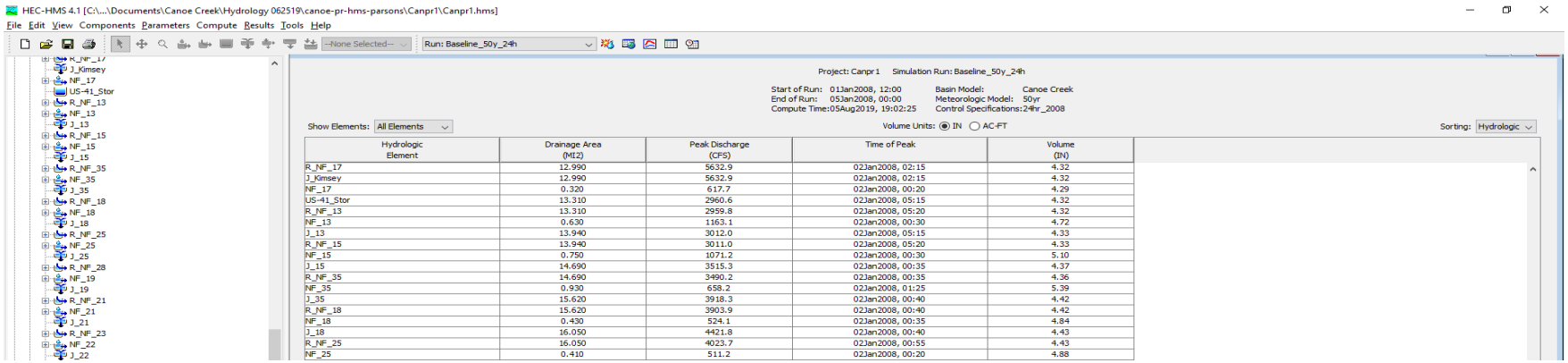
Project: Canpr1 Simulation Run: Baseline_50y_24h

Start of Run: 01Jan2008, 12:00 Basin Model: Canoe Creek
End of Run: 05Jan2008, 00:00 Meteorologic Model: 50yr
Compute Time:05Aug2019, 19:02:25 Control Specifications:24hr_2008

Show Elements: All Elements Volume Units: IN AC-FT Sorting: Hydrologic

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
NF_40	2.540	2006.3	02Jan2008, 01:30	4.26
NF_0	2.430	1419.9	02Jan2008, 00:55	4.13
J_40_0	2.430	1419.9	02Jan2008, 00:55	4.13
R_NF_40	2.430	1292.9	02Jan2008, 01:45	4.19
J_0_40	4.970	3260.3	02Jan2008, 01:35	4.23
R_NF_3	4.970	3041.3	02Jan2008, 02:05	4.23
NF_3	0.260	237.6	02Jan2008, 01:30	4.71
J_3	5.230	3246.4	02Jan2008, 02:00	4.26
R_NF_8	5.230	3130.2	02Jan2008, 02:25	4.26
NF_8	1.160	2293.7	02Jan2008, 00:20	4.47
J_8	6.390	3306.8	02Jan2008, 02:25	4.30
R_NF_9	6.390	3068.7	02Jan2008, 03:00	4.34
NF_20	0.750	646.4	02Jan2008, 01:20	4.53
NF_9	0.130	94.8	02Jan2008, 01:45	4.64
J_9U	7.270	3382.9	02Jan2008, 02:55	4.37
NF_48	0.110	37.1	02Jan2008, 02:00	4.64
J_9	7.380	3417.5	02Jan2008, 02:55	4.37
R_NF_7	7.380	3414.4	02Jan2008, 02:55	4.37
NF_7	0.090	98.5	02Jan2008, 01:05	4.64
J_7	7.470	3435.9	02Jan2008, 02:55	4.37
R_NF_10	7.470	3364.4	02Jan2008, 03:00	4.37
NF_16	1.010	1247.6	02Jan2008, 00:35	4.43
J_16	1.010	1247.6	02Jan2008, 00:35	4.43
R_NF_20	1.010	1074.9	02Jan2008, 01:15	4.45
J_20	1.010	1074.9	02Jan2008, 01:15	4.45
R_NF_14	1.010	828.9	02Jan2008, 02:00	4.41
NF_14	0.450	1026.9	02Jan2008, 00:15	4.71
J_14	1.460	1066.5	02Jan2008, 00:15	4.51
R_NF_12	1.460	1064.9	02Jan2008, 00:20	4.51
NF_12	0.140	173.9	02Jan2008, 00:55	4.64
NF_10B	0.090	43.4	02Jan2008, 02:10	4.64
J_7D1	9.160	4052.3	02Jan2008, 02:45	4.39
NF-1A	1.160	746.6	02Jan2008, 00:55	4.10
NF_1B	0.910	523.2	02Jan2008, 01:35	3.70
J_1	2.070	1178.8	02Jan2008, 01:15	3.93
R_NF_4	2.070	1165.1	02Jan2008, 01:40	3.92
NF-4A	0.290	273.4	02Jan2008, 00:35	4.85
J_4	2.360	1335.5	02Jan2008, 01:35	4.04
R_NF_2A	2.360	1333.8	02Jan2008, 01:40	4.04
NF_2A	0.580	375.7	02Jan2008, 01:10	3.78
NF_2B	0.250	418.7	02Jan2008, 00:25	3.89
J_4D1	3.190	1725.1	02Jan2008, 01:30	3.98
R_NF_10A	3.190	1717.9	02Jan2008, 01:45	3.98
NF_10A	0.160	230.1	02Jan2008, 00:35	5.14
J_4D2	3.350	1797.5	02Jan2008, 01:40	4.03
NF_5	0.480	1205.8	02Jan2008, 00:15	4.91
J_4D3	3.830	1900.3	02Jan2008, 01:40	4.14

NOTE 15302: Finished computing simulation run "Baseline_50y_24h" at time 05Aug2019, 19:02:35.



HEC-HMS 4.1 [C:\...\Documents\Canoe Creek\Hydrology 062519\canoe-pr-hms-parsons\Canpr1\Canpr1.hms]

File Edit View Components Parameters Compute Results Tools Help

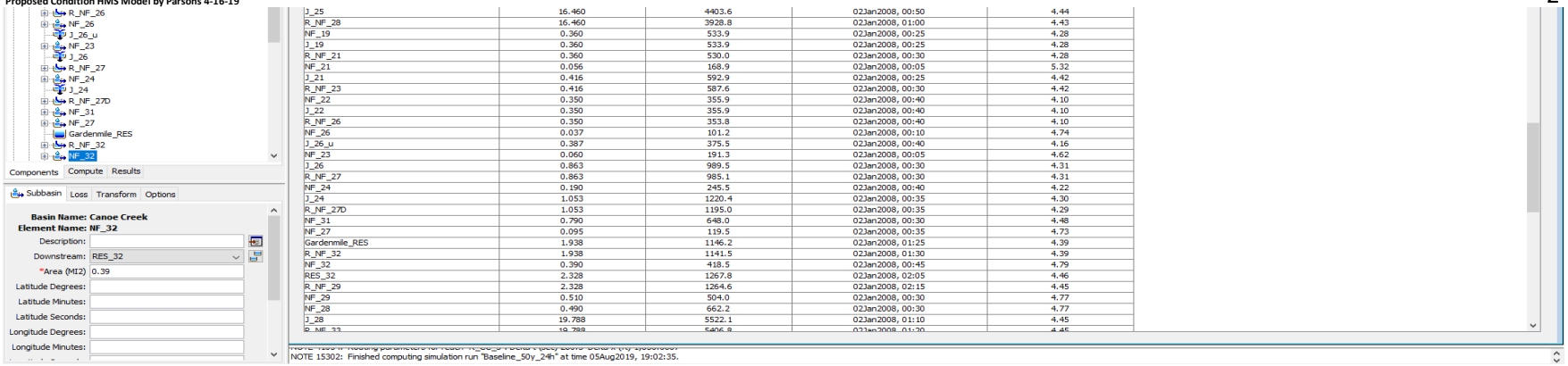
Run: Baseline_50y_24h

Project: Canpr1 Simulation Run: Baseline_50y_24h

Start of Run: 01Jan2008, 12:00 Basin Model: Canoe Creek
End of Run: 05Jan2008, 00:00 Meteorologic Model: 50yr
Compute Time:05Aug2019, 19:02:25 Control Specifications:24hr_2008

Show Elements: All Elements Volume Units: IN AC-FT Sorting: Hydrologic

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
R_NF_17	12.990	5632.9	02Jan2008, 02:15	4.32
J_Kimsey	12.990	5632.9	02Jan2008, 02:15	4.32
NF_17	0.320	617.7	02Jan2008, 00:20	4.29
US-41_Stor	13.310	2960.6	02Jan2008, 05:15	4.32
R_NF_13	13.310	2959.8	02Jan2008, 05:20	4.32
NF_13	0.630	1163.1	02Jan2008, 00:30	4.72
J_13	13.940	3012.0	02Jan2008, 05:15	4.33
R_NF_15	13.940	3011.0	02Jan2008, 05:20	4.33
NF_15	0.750	1071.2	02Jan2008, 00:30	5.10
J_15	14.690	3515.3	02Jan2008, 00:35	4.37
R_NF_35	14.690	3490.2	02Jan2008, 00:35	4.36
NF_35	0.930	658.2	02Jan2008, 01:25	5.39
J_35	15.620	3918.3	02Jan2008, 00:40	4.42
R_NF_18	15.620	3903.9	02Jan2008, 00:40	4.42
NF_18	0.430	524.1	02Jan2008, 00:35	4.84
J_18	16.050	4421.8	02Jan2008, 00:40	4.43
R_NF_25	16.050	4023.7	02Jan2008, 00:55	4.43
NF_25	0.410	511.2	02Jan2008, 00:20	4.88



J_25	16.460	4403.6	02Jan2008, 00:50	4.44
R_NF_28	16.460	3928.8	02Jan2008, 01:00	4.43
NF_19	0.360	533.9	02Jan2008, 00:25	4.28
J_19	0.360	533.9	02Jan2008, 00:25	4.28
R_NF_21	0.360	530.0	02Jan2008, 00:30	4.28
NF_21	0.056	168.9	02Jan2008, 00:05	5.32
J_21	0.416	592.9	02Jan2008, 00:25	4.42
R_NF_23	0.416	587.6	02Jan2008, 00:30	4.42
NF_22	0.350	355.9	02Jan2008, 00:40	4.10
J_22	0.350	355.9	02Jan2008, 00:40	4.10
R_NF_26	0.350	353.8	02Jan2008, 00:40	4.10
NF_26	0.037	101.2	02Jan2008, 00:10	4.74
J_26_u	0.387	375.5	02Jan2008, 00:40	4.16
NF_23	0.060	191.3	02Jan2008, 00:05	4.62
J_26	0.863	989.5	02Jan2008, 00:30	4.31
R_NF_27	0.863	985.1	02Jan2008, 00:30	4.31
NF_24	0.190	245.5	02Jan2008, 00:40	4.22
J_24	1.053	1220.4	02Jan2008, 00:35	4.30
R_NF_27D	1.053	1195.0	02Jan2008, 00:35	4.29
NF_31	0.790	648.0	02Jan2008, 00:30	4.48
NF_27	0.095	119.5	02Jan2008, 00:35	4.73
Gardenmile_RES	1.938	1146.2	02Jan2008, 01:25	4.39
R_NF_32	1.938	1141.5	02Jan2008, 01:30	4.39
NF_32	0.390	418.5	02Jan2008, 00:45	4.79
RES_32	2.328	1267.8	02Jan2008, 02:05	4.46
R_NF_29	2.328	1264.6	02Jan2008, 02:15	4.45
NF_29	0.510	504.0	02Jan2008, 00:30	4.77
NF_28	0.490	662.2	02Jan2008, 00:30	4.77
J_28	19.788	5522.1	02Jan2008, 01:10	4.45
R_NF_33	19.788	5406.8	02Jan2008, 01:20	4.45

NOTE 15302: Finished computing simulation run "Baseline_50y_24h" at time 05Aug2019, 19:02:35.

Components | Compute | Results

Subbasin | Loss | Transform | Options

Basin Name: Canoe Creek
Element Name: NF_32

Description:
Downstream: RES_32
*Area (MI2): 0.39
Latitude Degrees:
Latitude Minutes:
Latitude Seconds:
Longitude Degrees:
Longitude Minutes:

HEC-HMS 4.1 [C:\...\Documents\Canoe Creek\Hydrology 062519\canoe-pr-hms-parsons\Canpr1\Canpr1.hms]

File Edit View Components Parameters Compute Results Tools Help

Run: Baseline_10y_24h

Project: Canpr1 Simulation Run: Baseline_10y_24h

Start of Run: 01Jan2008, 12:00 Basin Model: Canoe Creek
End of Run: 05Jan2008, 00:00 Meteorologic Model: 10yr
Compute Time: 05Aug2019, 19:08:24 Control Specifications: 24hr_2008

Show Elements: All Elements Volume Units: IN AC-FT Sorting: Hydrologic

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
NF_40	2.540	1306.0	02Jan2008, 01:30	2.78
NF_0	2.430	903.3	02Jan2008, 00:55	2.67
J_40_0	2.430	903.3	02Jan2008, 00:55	2.67
R_NF_40	2.430	840.0	02Jan2008, 01:35	2.70
J_0_40	4.970	2143.8	02Jan2008, 01:30	2.74
R_NF_3	4.970	1972.7	02Jan2008, 02:05	2.73
NF_3	0.260	160.9	02Jan2008, 01:30	3.17
J_3	5.230	2113.6	02Jan2008, 02:00	2.75
R_NF_8	5.230	2049.3	02Jan2008, 02:25	2.75
NF_8	1.160	1531.6	02Jan2008, 00:20	2.96
J_8	6.390	2173.5	02Jan2008, 02:25	2.79
R_NF_9	6.390	2020.5	02Jan2008, 03:05	2.83
NF_20	0.750	431.2	02Jan2008, 01:25	3.02
NF_9	0.130	63.7	02Jan2008, 01:50	3.11
J_9U	7.270	2224.4	02Jan2008, 03:00	2.85
NF_4B	0.110	24.6	02Jan2008, 02:00	3.11
J_9	7.380	2247.4	02Jan2008, 03:00	2.86
R_NF_7	7.380	2245.2	02Jan2008, 03:00	2.86
NF_7	0.090	66.4	02Jan2008, 01:05	3.11
J_7	7.470	2259.4	02Jan2008, 03:00	2.86
R_NF_10	7.470	2218.0	02Jan2008, 03:10	2.85
NF_16	1.010	823.6	02Jan2008, 00:35	2.92
J_16	1.010	823.6	02Jan2008, 00:35	2.92
R_NF_20	1.010	696.2	02Jan2008, 01:25	2.98
J_20	1.010	696.2	02Jan2008, 01:25	2.98
R_NF_14	1.010	528.8	02Jan2008, 02:15	3.00
NF_14	0.450	699.6	02Jan2008, 00:20	3.17
J_14	1.460	733.0	02Jan2008, 00:20	3.06
R_NF_12	1.460	731.9	02Jan2008, 00:20	3.06
NF_12	0.140	117.2	02Jan2008, 00:55	3.11
NF_10B	0.090	29.0	02Jan2008, 02:15	3.11
J_7D1	9.160	2714.1	02Jan2008, 02:50	2.89
NF-1A	1.160	474.9	02Jan2008, 00:55	2.65
NF_1B	0.910	321.9	02Jan2008, 01:40	2.32
J_1	2.070	738.9	02Jan2008, 01:15	2.51
R_NF_4	2.070	729.7	02Jan2008, 01:50	2.50
NF-4A	0.290	186.0	02Jan2008, 00:35	3.29
J_4	2.360	840.6	02Jan2008, 01:40	2.60
R_NF_2A	2.360	838.9	02Jan2008, 01:45	2.60
NF_2A	0.580	232.2	02Jan2008, 01:10	2.38
NF_2B	0.250	264.2	02Jan2008, 00:25	2.47
J_4D1	3.190	1072.5	02Jan2008, 01:40	2.55
R_NF_10A	3.190	1067.7	02Jan2008, 01:55	2.55
NF_10A	0.160	160.6	02Jan2008, 00:35	3.56
J_4D2	3.350	1115.2	02Jan2008, 01:50	2.60
NF_5	0.480	832.8	02Jan2008, 00:15	3.35
J_4D3	3.830	1182.6	02Jan2008, 01:50	2.69
R_NF_17	12.990	3720.6	02Jan2008, 02:30	2.83

NOTE 41054: Routing parameters for reach "R_WI_19": Delta t (sec) 300 Delta x (ft) 1,683.3333

HEC-HMS 4.1 [C:\...\Documents\Canoe Creek\Hydrology 062519\canoe-pr-hms-parsons\Canpr1\Canpr1.hms]

File Edit View Components Parameters Compute Results Tools Help

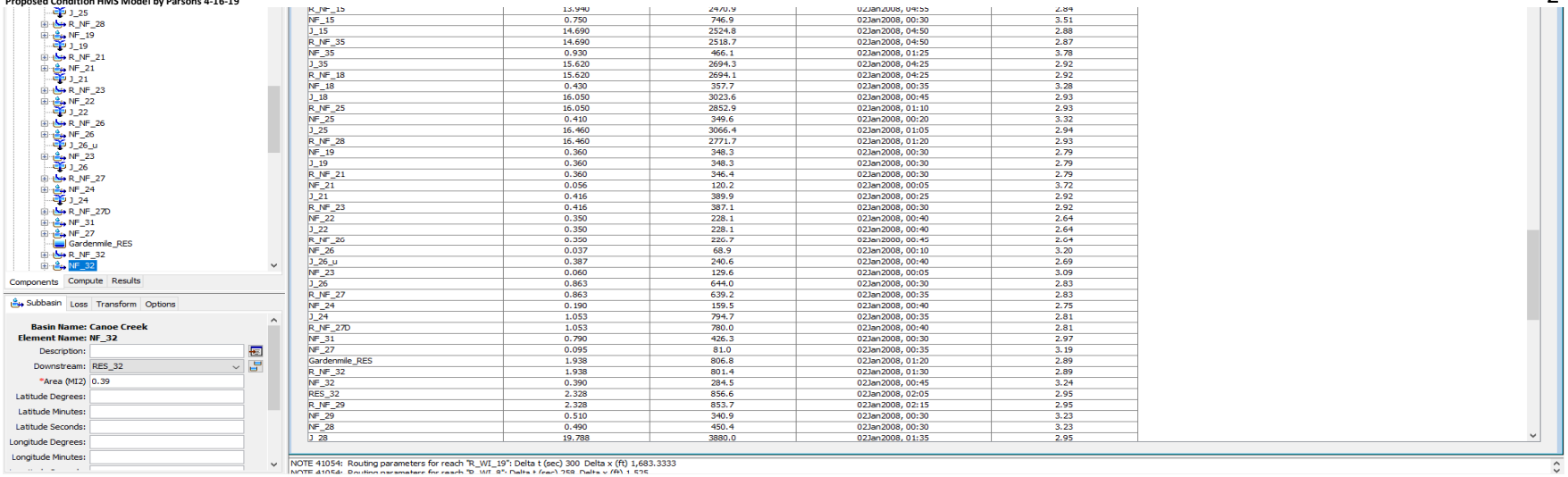
Run: Baseline_10y_24h

Project: Canpr1 Simulation Run: Baseline_10y_24h

Start of Run: 01Jan2008, 12:00 Basin Model: Canoe Creek
End of Run: 05Jan2008, 00:00 Meteorologic Model: 10yr
Compute Time: 05Aug2019, 19:08:24 Control Specifications: 24hr_2008

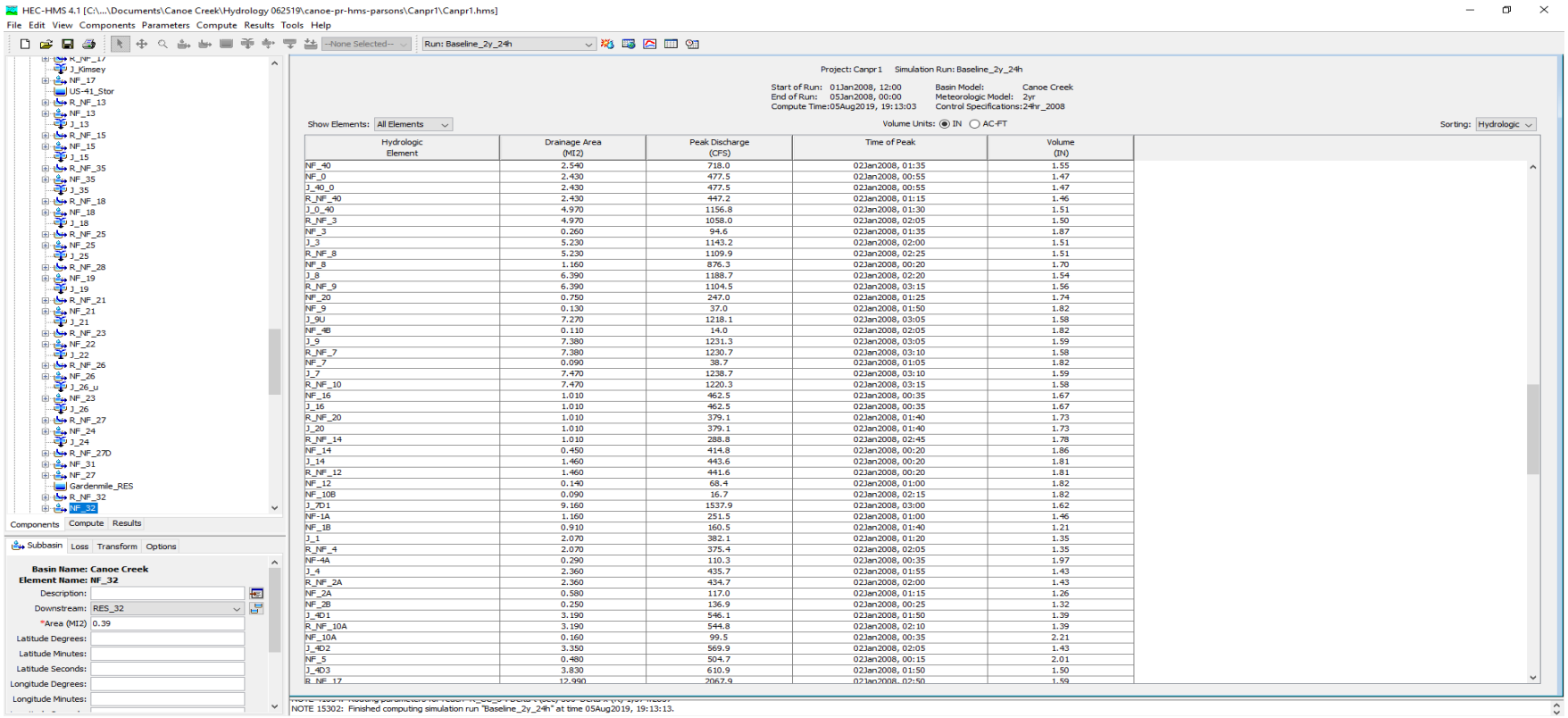
Show Elements: All Elements Volume Units: IN AC-FT Sorting: Hydrologic

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
J_4D3	3.830	1182.6	02Jan2008, 01:50	2.69
R_NF_17	12.990	3720.6	02Jan2008, 02:30	2.83
J_Kimsey	12.990	3720.6	02Jan2008, 02:30	2.83
NF_17	0.320	405.1	02Jan2008, 00:25	2.81
US-41_Stor	13.310	2434.9	02Jan2008, 04:45	2.83
R_NF_13	13.310	2433.1	02Jan2008, 04:50	2.83
NF_13	0.630	791.8	02Jan2008, 00:30	3.18
J_13	13.940	2472.9	02Jan2008, 04:50	2.84



R_NF_15	13.940	2470.9	02Jan2008, 04:55	2.84
NF_15	0.750	746.9	02Jan2008, 00:30	3.51
J_15	14.690	2524.8	02Jan2008, 04:50	2.88
R_NF_35	14.690	2518.7	02Jan2008, 04:50	2.87
NF_35	0.930	466.1	02Jan2008, 01:25	3.78
J_35	15.620	2694.3	02Jan2008, 04:25	2.92
R_NF_18	15.620	2694.1	02Jan2008, 04:25	2.92
NF_18	0.430	357.7	02Jan2008, 00:35	3.28
J_18	16.050	3023.6	02Jan2008, 00:45	2.93
R_NF_25	16.050	2852.9	02Jan2008, 01:10	2.93
NF_25	0.410	349.6	02Jan2008, 00:20	3.32
J_25	16.460	3066.4	02Jan2008, 01:05	2.94
R_NF_28	16.460	2771.7	02Jan2008, 01:20	2.93
NF_19	0.360	348.3	02Jan2008, 00:30	2.79
J_19	0.360	348.3	02Jan2008, 00:30	2.79
R_NF_21	0.360	346.4	02Jan2008, 00:30	2.79
NF_21	0.056	120.2	02Jan2008, 00:05	3.72
J_21	0.416	389.9	02Jan2008, 00:25	2.92
R_NF_23	0.416	387.1	02Jan2008, 00:30	2.92
NF_22	0.350	228.1	02Jan2008, 00:40	2.64
J_22	0.350	228.1	02Jan2008, 00:40	2.64
R_NF_26	0.350	226.7	02Jan2008, 00:45	2.64
NF_26	0.037	68.9	02Jan2008, 00:10	3.20
J_26_u	0.387	240.6	02Jan2008, 00:40	2.69
NF_23	0.060	129.6	02Jan2008, 00:05	3.09
J_26	0.863	644.0	02Jan2008, 00:30	2.83
R_NF_27	0.863	639.2	02Jan2008, 00:35	2.83
NF_24	0.190	159.5	02Jan2008, 00:40	2.75
J_24	1.053	794.7	02Jan2008, 00:35	2.81
R_NF_27D	1.053	780.0	02Jan2008, 00:40	2.81
NF_31	0.790	426.3	02Jan2008, 00:30	2.97
NF_27	0.095	81.0	02Jan2008, 00:35	3.19
Gardenmile_RES	1.938	806.8	02Jan2008, 01:20	2.89
R_NF_32	1.938	801.4	02Jan2008, 01:30	2.89
NF_32	0.390	284.5	02Jan2008, 00:45	3.24
RES_32	2.328	856.6	02Jan2008, 02:05	2.95
R_NF_29	2.328	853.7	02Jan2008, 02:15	2.95
NF_29	0.510	340.9	02Jan2008, 00:30	3.23
NF_28	0.490	450.4	02Jan2008, 00:30	3.23
J_28	19.788	3880.0	02Jan2008, 01:35	2.95

NOTE 41054: Routing parameters for reach "R_WI_19": Delta t (sec) 300 Delta x (ft) 1,683.3333



HEC-HMS 4.1 [C:\...\Documents\Canoe Creek\Hydrology 062519\canoe-pr-hms-parsons\Canpr1\Canpr1.hms]

File Edit View Components Parameters Compute Results Tools Help

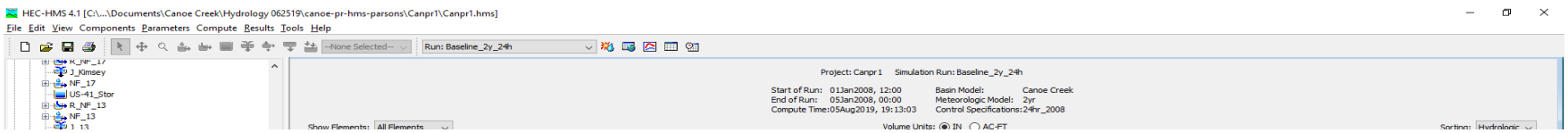
Project: Canpr1 Simulation Run: Baseline_2y_24h

Start of Run: 01Jan2008, 12:00 Basin Model: Canoe Creek
End of Run: 05Jan2008, 00:00 Meteorologic Model: 2yr
Compute Time:05Aug2019, 19:13:03 Control Specifications:24hr_2008

Show Elements: All Elements Volume Units: (IN) (AC-FT) Sorting: Hydrologic

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
NF_40	2.540	718.0	02Jan2008, 01:35	1.55
NF_0	2.430	477.5	02Jan2008, 00:55	1.47
J_40_0	2.430	477.5	02Jan2008, 00:55	1.47
R_NF_40	2.430	447.2	02Jan2008, 01:15	1.46
J_0_40	4.970	1156.8	02Jan2008, 01:30	1.51
R_NF_3	4.970	1058.0	02Jan2008, 02:05	1.50
NF_3	0.260	94.6	02Jan2008, 01:35	1.87
J_3	5.230	1143.2	02Jan2008, 02:00	1.51
R_NF_8	5.230	1109.9	02Jan2008, 02:25	1.51
NF_8	1.160	876.3	02Jan2008, 00:20	1.70
J_8	6.390	1188.7	02Jan2008, 02:20	1.54
R_NF_9	6.390	1104.5	02Jan2008, 03:15	1.56
NF_20	0.750	247.0	02Jan2008, 01:25	1.74
NF_9	0.130	37.0	02Jan2008, 01:50	1.82
J_9U	7.270	1218.1	02Jan2008, 03:05	1.58
NF_4B	0.110	14.0	02Jan2008, 02:05	1.82
J_9	7.380	1231.3	02Jan2008, 03:05	1.59
R_NF_7	7.380	1230.7	02Jan2008, 03:10	1.58
NF_7	0.090	38.7	02Jan2008, 01:05	1.82
J_7	7.470	1238.7	02Jan2008, 03:10	1.59
R_NF_10	7.470	1220.3	02Jan2008, 03:15	1.58
NF_16	1.010	462.5	02Jan2008, 00:35	1.67
J_16	1.010	462.5	02Jan2008, 00:35	1.67
R_NF_20	1.010	379.1	02Jan2008, 01:40	1.73
J_20	1.010	379.1	02Jan2008, 01:40	1.73
R_NF_14	1.010	288.8	02Jan2008, 02:45	1.78
NF_14	0.450	414.8	02Jan2008, 00:20	1.86
J_14	1.460	443.6	02Jan2008, 00:20	1.81
R_NF_12	1.460	441.6	02Jan2008, 00:20	1.81
NF_12	0.140	68.4	02Jan2008, 01:00	1.82
NF_10B	0.090	16.7	02Jan2008, 02:15	1.82
J_7D1	9.160	1537.9	02Jan2008, 03:00	1.62
NF-1A	1.160	251.5	02Jan2008, 01:00	1.46
NF_1B	0.910	160.5	02Jan2008, 01:40	1.21
J_1	2.070	382.1	02Jan2008, 01:20	1.35
R_NF_4	2.070	375.4	02Jan2008, 02:05	1.35
NF-4A	0.290	110.3	02Jan2008, 00:35	1.97
J_4	2.360	435.7	02Jan2008, 01:55	1.43
R_NF_2A	2.360	434.7	02Jan2008, 02:00	1.43
NF_2A	0.580	117.0	02Jan2008, 01:15	1.26
NF_2B	0.250	136.9	02Jan2008, 00:25	1.32
J_4D1	3.190	546.1	02Jan2008, 01:50	1.39
R_NF_10A	3.190	544.8	02Jan2008, 02:10	1.39
NF_10A	0.160	99.5	02Jan2008, 00:35	2.21
J_4D2	3.350	569.9	02Jan2008, 02:05	1.43
NF_5	0.480	504.7	02Jan2008, 00:15	2.01
J_4D3	3.830	610.9	02Jan2008, 01:50	1.50
R_NF_17	12.990	2067.9	02Jan2008, 02:50	1.59

NOTE 15302: Finished computing simulation run "Baseline_2y_24h" at time 05Aug2019, 19:13:13.

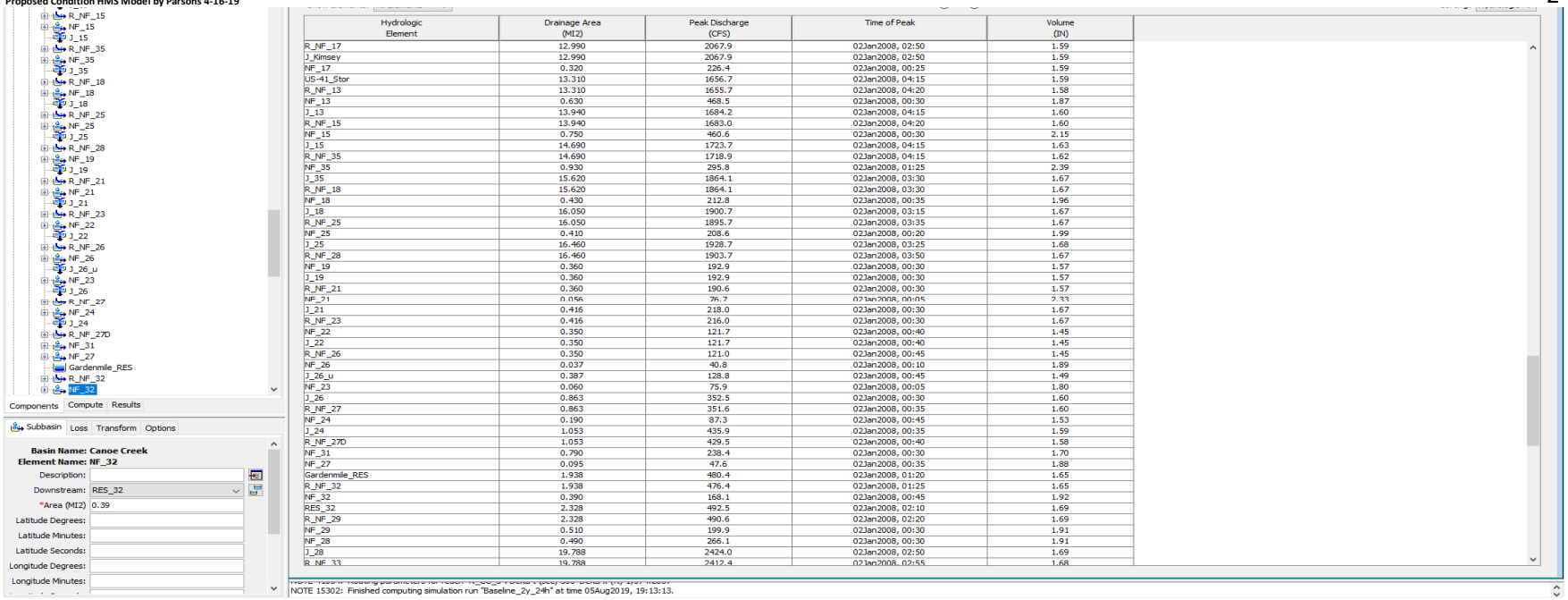


HEC-HMS 4.1 [C:\...\Documents\Canoe Creek\Hydrology 062519\canoe-pr-hms-parsons\Canpr1\Canpr1.hms]

File Edit View Components Parameters Compute Results Tools Help

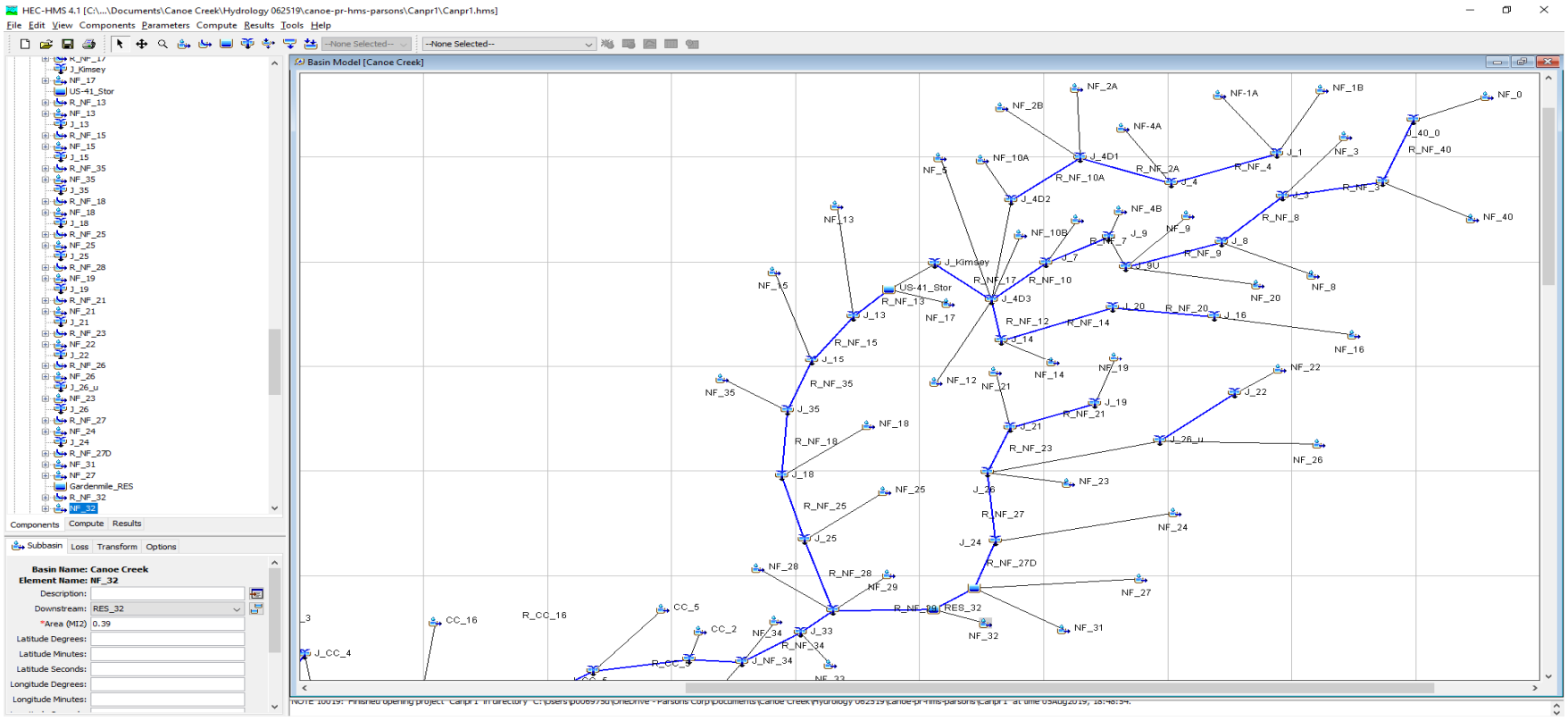
Project: Canpr1 Simulation Run: Baseline_2y_24h

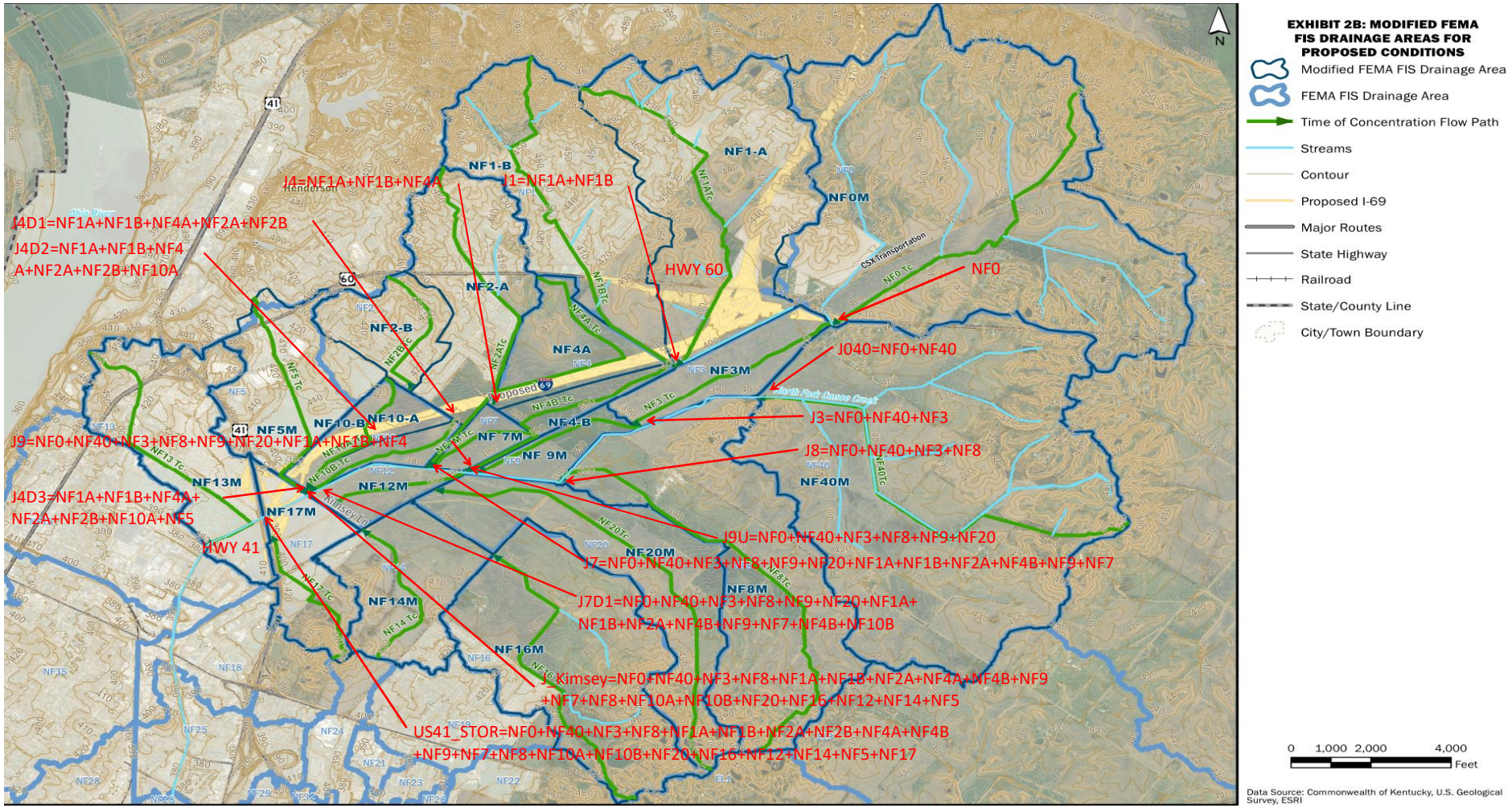
Start of Run: 01Jan2008, 12:00 Basin Model: Canoe Creek
End of Run: 05Jan2008, 00:00 Meteorologic Model: 2yr
Compute Time:05Aug2019, 19:13:03 Control Specifications:24hr_2008



Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
R_NF_17	12.990	2067.9	02Jan2008, 02:50	1.59
J_Kimsey	12.990	2067.9	02Jan2008, 02:50	1.59
NF_17	0.320	226.4	02Jan2008, 00:25	1.59
US-41_Stor	13.310	1656.7	02Jan2008, 04:15	1.59
R_NF_13	13.310	1655.7	02Jan2008, 04:20	1.58
NF_13	0.630	468.5	02Jan2008, 00:30	1.87
J_13	13.940	1684.2	02Jan2008, 04:15	1.60
R_NF_15	13.940	1683.0	02Jan2008, 04:20	1.60
NF_15	0.750	460.6	02Jan2008, 00:30	2.15
J_15	14.690	1723.7	02Jan2008, 04:15	1.63
R_NF_35	14.690	1718.9	02Jan2008, 04:15	1.62
NF_35	0.930	295.8	02Jan2008, 01:25	2.39
J_35	15.620	1864.1	02Jan2008, 03:30	1.67
R_NF_18	15.620	1864.1	02Jan2008, 03:30	1.67
NF_18	0.430	212.8	02Jan2008, 00:35	1.96
J_18	16.050	1900.7	02Jan2008, 03:15	1.67
R_NF_25	16.050	1895.7	02Jan2008, 03:35	1.67
NF_25	0.410	208.6	02Jan2008, 00:20	1.99
J_25	16.460	1928.7	02Jan2008, 03:25	1.68
R_NF_28	16.460	1903.7	02Jan2008, 03:50	1.67
NF_19	0.360	192.9	02Jan2008, 00:30	1.57
J_19	0.360	192.9	02Jan2008, 00:30	1.57
R_NF_21	0.360	190.6	02Jan2008, 00:30	1.57
NF_21	0.166	76.7	02Jan2008, 00:05	2.33
J_21	0.416	218.0	02Jan2008, 00:30	1.67
R_NF_23	0.416	216.0	02Jan2008, 00:30	1.67
NF_22	0.350	121.7	02Jan2008, 00:40	1.45
J_22	0.350	121.7	02Jan2008, 00:40	1.45
R_NF_26	0.350	121.0	02Jan2008, 00:45	1.45
NF_26	0.037	40.8	02Jan2008, 00:10	1.89
J_26_u	0.387	128.8	02Jan2008, 00:45	1.49
NF_23	0.060	75.9	02Jan2008, 00:05	1.80
J_26	0.863	352.5	02Jan2008, 00:30	1.60
R_NF_27	0.863	351.6	02Jan2008, 00:35	1.60
NF_24	0.190	87.3	02Jan2008, 00:45	1.53
J_24	1.053	435.9	02Jan2008, 00:35	1.59
R_NF_27D	1.053	429.5	02Jan2008, 00:40	1.58
NF_31	0.790	238.4	02Jan2008, 00:30	1.70
NF_27	0.095	47.6	02Jan2008, 00:35	1.88
Gardenmile_RES	1.938	480.4	02Jan2008, 01:20	1.65
R_NF_32	1.938	476.4	02Jan2008, 01:25	1.65
NF_32	0.390	168.1	02Jan2008, 00:45	1.92
RES_32	2.328	492.5	02Jan2008, 02:10	1.69
R_NF_29	2.328	490.6	02Jan2008, 02:20	1.69
NF_29	0.510	199.9	02Jan2008, 00:30	1.91
NF_28	0.490	266.1	02Jan2008, 00:30	1.91
J_28	19.788	2424.0	02Jan2008, 02:50	1.69
R_NF_33	19.788	2412.4	02Jan2008, 02:55	1.68

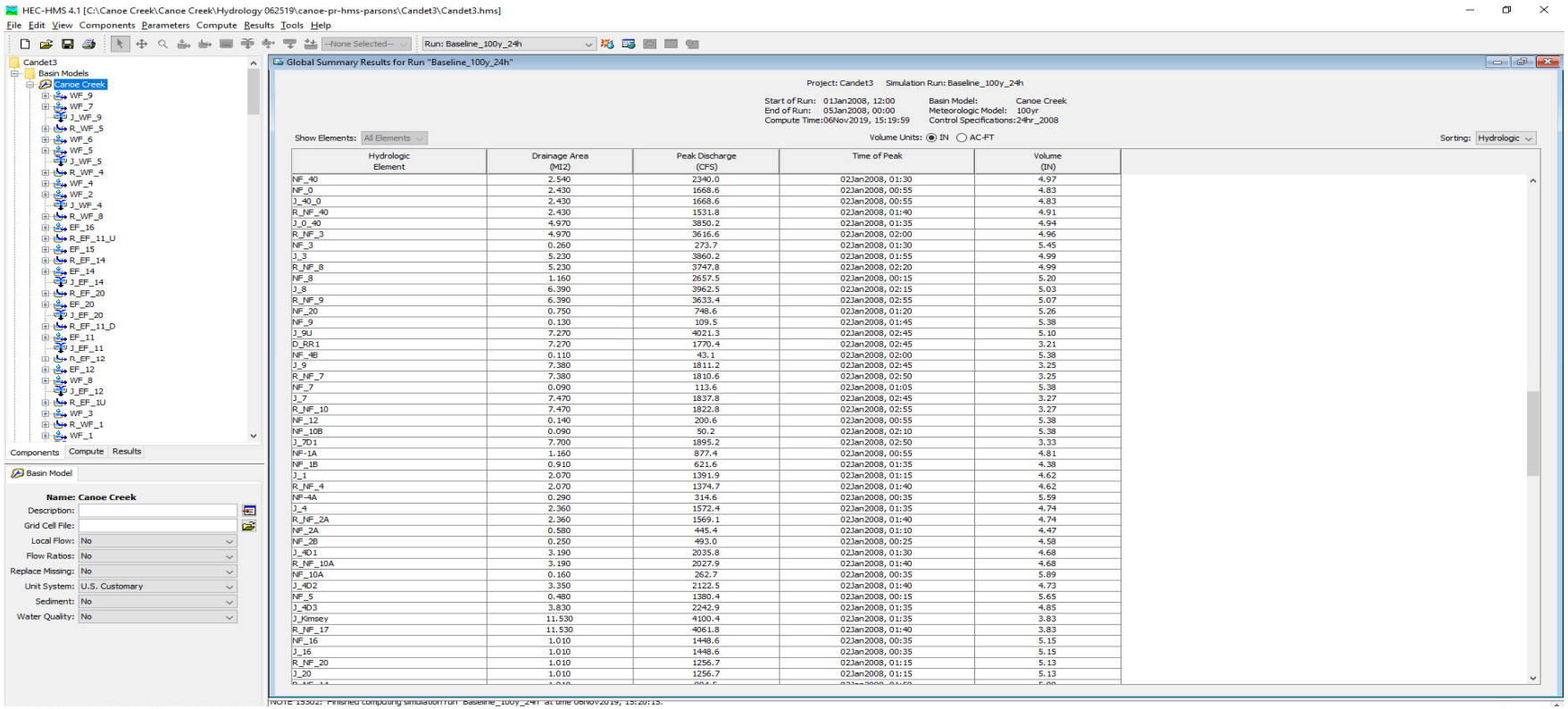
NOTE 15302: Finished computing simulation run "Baseline_2y_24h" at time 05Aug2019, 19:13:13.




J4=NF1A+NF1B+NF4A
J1=NF1A+NF1B
J4D1=NF1A+NF1B+NF4A+NF2A+NF2B
J4D2=NF1A+NF1B+NF4
A+NF2A+NF2B+NF10A
HWY 60
NF0
J040=NF0+NF40
J3=NF0+NF40+NF3
J8=NF0+NF40+NF3+NF8
J9=NF0+NF40+NF3+NF8+NF9+NF20+NF1A+NF1B+NF4
J4D3=NF1A+NF1B+NF4A+
NF2A+NF2B+NF10A+NF5
HWY 41
J9U=NF0+NF40+NF3+NF8+NF9+NF20
J7=NF0+NF40+NF3+NF8+NF9+NF20+NF1A+NF1B+NF2A+NF4B+NF9+NF7
J7D1=NF0+NF40+NF3+NF8+NF9+NF20+NF1A+
NF1B+NF2A+NF4B+NF9+NF7+NF4B+NF10B
J Kimsey=NF0+NF40+NF3+NF8+NF1A+NF1B+NF2A+NF4A+NF4B+NF9
+NF7+NF8+NF10A+NF10B+NF20+NF16+NF12+NF14+NF5
US41_STOR=NF0+NF40+NF3+NF8+NF1A+NF1B+NF2A+NF2B+NF4A+NF4B
+NF9+NF7+NF8+NF10A+NF10B+NF20+NF16+NF12+NF14+NF5+NF17
NF1-A
NF1-B
NF0M
NF2-A
NF2-B
NF4A
NF3M
NF4-B
NF 7M
NF 9M
NF5M
NF10-A
NF10-B
NF13M
NF12M
NF17M
NF20M
NF8M
NF40M
NF14M
NF16M
Proposed I-69
Henderson
Ohio River
North Fork Canoe Creek
CSX Transportation
Kimsey Ln
N
EXHIBIT 2B: MODIFIED FEMA FIS DRAINAGE AREAS FOR PROPOSED CONDITIONS
Modified FEMA FIS Drainage Area
FEMA FIS Drainage Area
Time of Concentration Flow Path
Streams
Contour
Proposed I-69
Major Routes
State Highway
Railroad
State/County Line
City/Town Boundary
0 1,000 2,000 4,000
Feet
Data Source: Commonwealth of Kentucky, U.S. Geological Survey, ESRI

Appendix A-14

Canoe Creek Flood Impact Study on Proposed I69
Parsons Proposed Detention Condition HMS Summary Tables and Schematic Flow Diagram



Global Summary Results for Run "Baseline_100y_24h"

Project: Candet3 Simulation Run: Baseline_100y_24h

Start of Run: 01Jan2008, 12:00 Basin Model: Canoe Creek
End of Run: 05Jan2008, 00:00 Meteorologic Model: 100yr
Compute Time:06Nov2019, 15:19:59 Control Specifications:24hr_2008

Show Elements: All Elements Volume Units: (•) IN ( ) AC-FT Sorting: Hydrologic

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
NF_40	2.540	2340.0	02Jan2008, 01:30	4.97
NF_0	2.430	1668.6	02Jan2008, 00:55	4.83
J_40_0	2.430	1668.6	02Jan2008, 00:55	4.83
R_NF_40	2.430	1531.8	02Jan2008, 01:40	4.91
J_0_40	4.970	3850.2	02Jan2008, 01:35	4.94
R_NF_3	4.970	3616.6	02Jan2008, 02:00	4.96
NF_3	0.260	273.7	02Jan2008, 01:30	5.45
J_3	5.230	3860.2	02Jan2008, 01:55	4.99
R_NF_8	5.230	3747.8	02Jan2008, 02:20	4.99
NF_8	1.160	2657.5	02Jan2008, 00:15	5.20
J_8	6.390	3962.5	02Jan2008, 02:15	5.03
R_NF_9	6.390	3633.4	02Jan2008, 02:55	5.07
NF_20	0.750	748.6	02Jan2008, 01:20	5.26
NF_9	0.130	109.5	02Jan2008, 01:45	5.38
J_9U	7.270	4021.3	02Jan2008, 02:45	5.10
D_RR1	7.270	1770.4	02Jan2008, 02:45	3.21
NF_4B	0.110	43.1	02Jan2008, 02:00	5.38
J_9	7.380	1811.2	02Jan2008, 02:45	3.25
R_NF_7	7.380	1810.6	02Jan2008, 02:50	3.25
NF_7	0.090	113.6	02Jan2008, 01:05	5.38
J_7	7.470	1837.8	02Jan2008, 02:45	3.27
R_NF_10	7.470	1822.8	02Jan2008, 02:55	3.27
NF_12	0.140	200.6	02Jan2008, 00:55	5.38
NF_10B	0.090	50.2	02Jan2008, 02:10	5.38
J_7D1	7.700	1895.2	02Jan2008, 02:50	3.33
NF-1A	1.160	877.4	02Jan2008, 00:55	4.81
NF_1B	0.910	621.6	02Jan2008, 01:35	4.38
J_1	2.070	1391.9	02Jan2008, 01:15	4.62
R_NF_4	2.070	1374.7	02Jan2008, 01:40	4.62
NF-4A	0.290	314.6	02Jan2008, 00:35	5.59
J_4	2.360	1572.4	02Jan2008, 01:35	4.74
R_NF_2A	2.360	1569.1	02Jan2008, 01:40	4.74
NF_2A	0.580	445.4	02Jan2008, 01:10	4.47
NF_2B	0.250	493.0	02Jan2008, 00:25	4.58
J_4D1	3.190	2035.8	02Jan2008, 01:30	4.68
R_NF_10A	3.190	2027.9	02Jan2008, 01:40	4.68
NF_10A	0.160	262.7	02Jan2008, 00:35	5.89
J_4D2	3.350	2122.5	02Jan2008, 01:40	4.73
NF_5	0.480	1380.4	02Jan2008, 00:15	5.65
J_4D3	3.830	2242.9	02Jan2008, 01:35	4.85
J_Kimsey	11.530	4100.4	02Jan2008, 01:35	3.83
R_NF_17	11.530	4061.8	02Jan2008, 01:40	3.83
NF_16	1.010	1448.6	02Jan2008, 00:35	5.15
J_16	1.010	1448.6	02Jan2008, 00:35	5.15
R_NF_20	1.010	1256.7	02Jan2008, 01:15	5.13
J_20	1.010	1256.7	02Jan2008, 01:15	5.13

Global Summary Results for Run "Baseline_100y_24h"

Project: Candet3 Simulation Run: Baseline_100y_24h

Start of Run: 01Jan2008, 12:00 Basin Model: Canoe Creek
End of Run: 05Jan2008, 00:00 Meteorologic Model: 100yr
Compute Time:06Nov2019, 15:19:59 Control Specifications:24hr_2008

Show Elements: All Elements Volume Units: (•) IN ( ) AC-FT Sorting: Hydrologic

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
R_NF_14	1.010	984.5	02Jan2008, 01:50	5.08
NF_14	0.450	1182.1	02Jan2008, 00:15	5.45
J_14	1.460	3027.5	02Jan2008, 02:35	14.56
R_NF_12	1.460	3026.4	02Jan2008, 02:35	14.56
NF_17	0.320	719.5	02Jan2008, 00:20	5.00
J_US41	13.310	6880.4	02Jan2008, 02:15	5.04
US41_PStor	13.310	2259.5	02Jan2008, 06:35	4.95
R_NF_13	13.310	2258.4	02Jan2008, 06:40	4.95
NF_13	0.630	1337.5	02Jan2008, 00:30	5.46
J_13	13.940	2308.6	02Jan2008, 06:35	4.97
R_NF_15	13.940	2307.2	02Jan2008, 06:40	4.97
NF_15	0.750	1222.8	02Jan2008, 00:30	5.85
J_15	14.690	2643.3	02Jan2008, 00:30	5.01
R_NF_35	14.690	2636.8	02Jan2008, 00:30	4.99
NF_35	0.930	748.0	02Jan2008, 01:20	6.15
J_35	15.620	3077.5	02Jan2008, 00:35	5.06
R_NF_18	15.620	3063.1	02Jan2008, 00:35	5.06
NF_18	0.430	602.3	02Jan2008, 00:35	5.58
J_18	16.050	3665.4	02Jan2008, 00:35	5.08
R_NF_25	16.050	3254.4	02Jan2008, 00:45	5.07
NF_25	0.410	587.1	02Jan2008, 00:20	5.63
J_25	16.460	3700.5	02Jan2008, 00:45	5.08
R_NF_28	16.460	3227.9	02Jan2008, 00:50	5.07
NF_19	0.360	622.4	02Jan2008, 00:25	4.99
J_19	0.360	622.4	02Jan2008, 00:25	4.99
R_NF_21	0.360	618.7	02Jan2008, 00:30	4.99
NF_21	0.056	191.6	02Jan2008, 00:05	6.08
J_21	0.416	690.8	02Jan2008, 00:25	5.14
R_NF_23	0.416	684.3	02Jan2008, 00:30	5.14
NF_22	0.350	417.3	02Jan2008, 00:35	4.80
J_22	0.350	417.3	02Jan2008, 00:35	4.80
R_NF_26	0.350	415.2	02Jan2008, 00:40	4.80
NF_26	0.037	116.4	02Jan2008, 00:10	5.48
J_26_u	0.387	439.9	02Jan2008, 00:40	4.87
NF_23	0.060	220.3	02Jan2008, 00:05	5.35
J_26	0.863	1156.1	02Jan2008, 00:30	5.03
R_NF_27	0.863	1151.7	02Jan2008, 00:30	5.03
NF_24	0.190	286.5	02Jan2008, 00:40	4.94
J_24	1.053	1422.4	02Jan2008, 00:35	5.01
R_NF_27D	1.053	1400.0	02Jan2008, 00:35	5.01
NF_31	0.790	753.3	02Jan2008, 00:30	5.21
NF_27	0.095	137.6	02Jan2008, 00:35	5.47

Canoe Creek Flood Impact Study on Proposed I69
Parsons Proposed Detention Condition HMS Summary Tables and Schematic Flow Diagram

R_NF_32	1.938	1277.4	02Jan2008, 01:35	5.11
NF_32	0.390	481.6	02Jan2008, 00:45	5.53
RES_32	2.328	1395.5	02Jan2008, 02:10	5.18

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Run: Baseline_100y_24h

Global Summary Results for Run "Baseline_100y_24h"

Project: Candet3 Simulation Run: Baseline_100y_24h

Start of Run: 01Jan2008, 12:00 Basin Model: Canoe Creek
End of Run: 05Jan2008, 00:00 Meteorologic Model: 100yr
Compute Time:06Nov2019, 15:19:59 Control Specifications:24hr_2008

Show Elements: All Elements Volume Units: (•) IN ( ) AC-FT Sorting: Hydrologic

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
R_NF_29	2.328	1393.1	02Jan2008, 02:20	5.18
NF_29	0.510	580.7	02Jan2008, 00:30	5.51
NF_28	0.490	761.8	02Jan2008, 00:30	5.51
J_28	19.788	5004.8	02Jan2008, 00:50	5.10
R_NF_33	19.788	4829.5	02Jan2008, 00:55	5.10
NF_33	0.180	371.5	02Jan2008, 00:25	5.61
J_33	19.968	5023.1	02Jan2008, 00:50	5.10
R_NF_34	19.968	4585.7	02Jan2008, 01:00	5.09
CC_6	0.330	417.4	02Jan2008, 00:35	4.73
NF_34	0.210	390.2	02Jan2008, 00:20	4.79
J_NF_34	20.508	5113.9	02Jan2008, 00:50	5.08
R_CC_2	20.508	5028.6	02Jan2008, 00:55	5.08
CC_2	0.060	116.2	02Jan2008, 00:10	4.21
J_CC_2	20.568	5064.1	02Jan2008, 00:55	5.07
R_CC_5	20.568	4692.6	02Jan2008, 00:55	5.02
CC_5	0.580	770.9	02Jan2008, 00:35	5.02
J_CC_5	21.148	5346.6	02Jan2008, 00:45	5.02
R_CC_16	21.148	2965.9	02Jan2008, 07:40	4.72
CC_16	2.160	801.8	02Jan2008, 03:20	4.70
CC_7	0.170	81.4	02Jan2008, 02:20	4.64
J_CC_7	104.648	19328.4	02Jan2008, 09:10	5.03
R_CC_11	104.648	19268.2	02Jan2008, 09:15	5.02
WI_16	2.970	2044.4	02Jan2008, 01:10	5.05
R_WI_12	2.970	1971.4	02Jan2008, 01:30	5.04
WI_12	2.060	1889.4	02Jan2008, 01:05	5.18
J_WI_12	5.030	3677.1	02Jan2008, 01:20	5.10
R_WI_13	5.030	3617.7	02Jan2008, 01:30	5.10
WI_10	1.030	956.6	02Jan2008, 01:00	5.16
WI_13	0.710	663.6	02Jan2008, 01:00	5.20
J_WI_13	6.770	5066.0	02Jan2008, 01:20	5.12
R_WI_9	6.770	4716.9	02Jan2008, 01:20	5.03
WI_14	0.700	766.2	02Jan2008, 00:45	5.05
WI_9	0.350	561.4	02Jan2008, 00:25	5.17
J_WI_9	7.820	5559.5	02Jan2008, 01:15	5.04
R_WI_19	7.820	5217.1	02Jan2008, 01:30	5.02
WI_15	1.340	1470.2	02Jan2008, 00:50	5.22
WI_19	0.500	355.7	02Jan2008, 01:25	4.81
J_WI_19	9.660	6640.1	02Jan2008, 01:25	5.04
R_WI_8	9.660	6371.4	02Jan2008, 01:40	5.03
WI_8	0.630	869.9	02Jan2008, 00:30	5.13
J_WI_8	10.290	6753.7	02Jan2008, 01:35	5.03
R_WI_11	10.290	6241.0	02Jan2008, 01:35	4.98
WI_11	1.040	667.4	02Jan2008, 01:40	4.94
J_WI_11	11.330	6904.7	02Jan2008, 01:35	4.98
R_WI_2	11.330	6766.6	02Jan2008, 01:45	4.97
WI_2	0.092	32.3	02Jan2008, 02:55	4.02

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Run: Baseline_500y_24h

Global Summary Results for Run "Baseline_500y_24h"

Project: Candet3 Simulation Run: Baseline_500y_24h

Start of Run: 01Jan2008, 12:00 Basin Model: Canoe Creek
End of Run: 05Jan2008, 00:00 Meteorologic Model: 500yr
Compute Time:06Nov2019, 15:32:20 Control Specifications:24hr_2008

Show Elements: All Elements Volume Units: (•) IN ( ) AC-FT Sorting: Hydrologic

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
NF_40	2.540	3185.5	02Jan2008, 01:30	6.81
NF_0	2.430	2302.9	02Jan2008, 00:55	6.66
J_40_0	2.430	2302.9	02Jan2008, 00:55	6.66
R_NF_40	2.430	2136.1	02Jan2008, 01:35	6.74
J_0_40	4.970	5318.0	02Jan2008, 01:30	6.77
R_NF_3	4.970	5032.2	02Jan2008, 01:50	6.80
NF_3	0.260	364.6	02Jan2008, 01:30	7.33
J_3	5.230	5375.4	02Jan2008, 01:50	6.83
R_NF_8	5.230	5259.3	02Jan2008, 02:05	6.84
NF_8	1.160	3576.2	02Jan2008, 00:15	7.05
J_8	6.390	5565.7	02Jan2008, 02:05	6.87
R_NF_9	6.390	5108.4	02Jan2008, 02:35	6.91
NF_20	0.750	1006.1	02Jan2008, 01:20	7.13
NF_9	0.130	146.6	02Jan2008, 01:45	7.25
J_9U	7.270	5723.8	02Jan2008, 02:30	6.94
D_RR1	7.270	1963.6	02Jan2008, 02:30	3.86
NF_4B	0.110	58.2	02Jan2008, 02:00	7.25
J_9	7.380	2019.7	02Jan2008, 02:30	3.91
R_NF_7	7.380	2018.5	02Jan2008, 02:35	3.91
NF_7	0.090	151.7	02Jan2008, 01:05	7.25
J_7	7.470	2062.9	02Jan2008, 02:30	3.95
R_NF_10	7.470	2042.8	02Jan2008, 02:35	3.94
NF_12	0.140	267.6	02Jan2008, 00:55	7.25
NF_10B	0.090	67.5	02Jan2008, 02:10	7.25
J_7D1	7.700	2152.9	02Jan2008, 02:25	4.04
NF-1A	1.160	1211.4	02Jan2008, 00:55	6.63
NF_1B	0.910	874.8	02Jan2008, 01:35	6.15
J_1	2.070	1938.9	02Jan2008, 01:10	6.42
R_NF_4	2.070	1917.1	02Jan2008, 01:35	6.41
NF-4A	0.290	418.2	02Jan2008, 00:35	7.47
J_4	2.360	2187.1	02Jan2008, 01:30	6.54
R_NF_2A	2.360	2182.8	02Jan2008, 01:35	6.54
NF_2A	0.580	624.4	02Jan2008, 01:10	6.25
NF_2B	0.250	682.1	02Jan2008, 00:25	6.38
J_4D1	3.190	2852.3	02Jan2008, 01:25	6.47
R_NF_10A	3.190	2841.6	02Jan2008, 01:35	6.47

Canoe Creek Flood Impact Study on Proposed I69
Parsons Proposed Detention Condition HMS Summary Tables and Schematic Flow Diagram

Replace Missing:	No
Unit System:	U.S. Customary
Sediment:	No
Water Quality:	No

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
NF_10A	0.160	344.5	02Jan2008, 00:35	7.79
J_4D2	3.350	2977.3	02Jan2008, 01:30	6.53
NF_5	0.480	1817.9	02Jan2008, 00:15	7.54
J_4D3	3.830	3143.3	02Jan2008, 01:30	6.66
J_Kimsey	11.530	5285.0	02Jan2008, 01:30	4.91
R_NF_17	11.530	5237.4	02Jan2008, 01:30	4.91
NF_16	1.010	1955.9	02Jan2008, 00:35	7.00
J_16	1.010	1955.9	02Jan2008, 00:35	7.00
R_NF_20	1.010	1712.7	02Jan2008, 01:10	6.95
J_20	1.010	1712.7	02Jan2008, 01:10	6.95

NOTE 15302: Finished computing simulation run "Baseline_500y_24h" at time 06Nov2019, 15:32:32.

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Run: Baseline_500y_24h

Candet3
- Basin Models
  - Canoe Creek
    - WF_9
    - WF_7
    - J_WF_9
    - R_WF_5
    - WF_6
    - WF_5
    - J_WF_5
    - R_WF_4
    - WF_4
    - WF_2
    - J_WF_4
    - R_WF_8
    - EF_16
    - R_EF_11_U
    - EF_15
    - R_EF_14
    - EF_14
    - J_EF_14
    - R_EF_20
    - EF_20
    - J_EF_20
    - R_EF_11_D
    - EF_11
    - J_EF_11
    - R_EF_12
    - EF_12
    - WF_8
    - J_EF_12
    - R_EF_1U
    - WF_3
    - R_WF_1
    - WF_1

Components | Compute | Results

Basin Model

Name: Canoe Creek

Description:	
Grid Cell File:	
Local Flow:	No
Flow Ratios:	No
Replace Missing:	No
Unit System:	U.S. Customary
Sediment:	No
Water Quality:	No

Global Summary Results for Run "Baseline_500y_24h"

Project: Candet3 Simulation Run: Baseline_500y_24h

Start of Run: 01Jan2008, 12:00
End of Run: 05Jan2008, 00:00
Compute Time: 06Nov2019, 15:32:20

Basin Model: Canoe Creek
Meteorologic Model: 500yr
Control Specifications: 24hr_2008

Show Elements: All Elements

Volume Units: (•) IN ( ) AC-FT

Sorting: Hydrologic

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
NF_14	0.450	1571.7	02Jan2008, 00:15	7.32
J_14	1.460	4864.5	02Jan2008, 02:20	22.32
R_NF_12	1.460	4861.4	02Jan2008, 02:20	22.32
NF_17	0.320	976.9	02Jan2008, 00:20	6.83
J_US41	13.310	9825.8	02Jan2008, 02:10	6.87
US41_PStor	13.310	2822.0	02Jan2008, 06:35	6.73
R_NF_13	13.310	2821.8	02Jan2008, 06:40	6.73
NF_13	0.630	1778.1	02Jan2008, 00:25	7.33
J_13	13.940	2887.5	02Jan2008, 06:20	6.76
R_NF_15	13.940	2887.1	02Jan2008, 06:25	6.75
NF_15	0.750	1602.9	02Jan2008, 00:30	7.75
J_15	14.690	3477.0	02Jan2008, 00:30	6.80
R_NF_35	14.690	3445.0	02Jan2008, 00:30	6.78
NF_35	0.930	973.7	02Jan2008, 01:20	8.07
J_35	15.620	4015.4	02Jan2008, 00:35	6.86
R_NF_18	15.620	3997.8	02Jan2008, 00:35	6.86
NF_18	0.430	798.6	02Jan2008, 00:35	7.47
J_18	16.050	4796.4	02Jan2008, 00:35	6.88
R_NF_25	16.050	4261.6	02Jan2008, 00:45	6.87
NF_25	0.410	777.7	02Jan2008, 00:20	7.52
J_25	16.460	4891.5	02Jan2008, 00:40	6.88
R_NF_28	16.460	4314.6	02Jan2008, 00:45	6.87
NF_19	0.360	846.1	02Jan2008, 00:25	6.83
J_19	0.360	846.1	02Jan2008, 00:25	6.83
R_NF_21	0.360	839.5	02Jan2008, 00:30	6.83
NF_21	0.056	248.6	02Jan2008, 00:05	7.99
J_21	0.416	934.7	02Jan2008, 00:25	6.99
R_NF_23	0.416	926.8	02Jan2008, 00:30	6.99
NF_22	0.350	574.2	02Jan2008, 00:35	6.62
J_22	0.350	574.2	02Jan2008, 00:35	6.62
R_NF_26	0.350	571.8	02Jan2008, 00:40	6.62
NF_26	0.037	154.4	02Jan2008, 00:10	7.36
J_26_u	0.387	603.9	02Jan2008, 00:40	6.69
NF_23	0.060	293.1	02Jan2008, 00:05	7.22
J_26	0.863	1575.6	02Jan2008, 00:30	6.87
R_NF_27	0.863	1571.9	02Jan2008, 00:30	6.87
NF_24	0.190	390.1	02Jan2008, 00:40	6.77
J_24	1.053	1936.9	02Jan2008, 00:30	6.85
R_NF_27D	1.053	1907.1	02Jan2008, 00:35	6.85
NF_31	0.790	1019.6	02Jan2008, 00:30	7.07
NF_27	0.095	183.4	02Jan2008, 00:30	7.35
Gardenmile_RES	1.938	1621.7	02Jan2008, 01:30	6.96
R_NF_32	1.938	1616.6	02Jan2008, 01:40	6.96
NF_32	0.390	640.0	02Jan2008, 00:45	7.41
RES_32	2.328	1715.2	02Jan2008, 02:30	7.03
R_NF_29	2.328	1713.9	02Jan2008, 02:35	7.03

NOTE 15302: Finished computing simulation run "Baseline_500y_24h" at time 06Nov2019, 15:32:32.

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Run: Baseline_500y_24h

Candet3
- Basin Models
  - Canoe Creek
    - WF_9
    - WF_7
    - J_WF_9
    - R_WF_5
    - WF_6
    - WF_5
    - J_WF_5
    - R_WF_4
    - WF_4
    - WF_2
    - J_WF_4
    - R_WF_8
    - EF_16
    - R_EF_11_U
    - EF_15
    - R_EF_14
    - EF_14
    - J_EF_14
    - R_EF_20
    - EF_20
    - J_EF_20
    - R_EF_11_D
    - EF_11
    - J_EF_11
    - R_EF_12
    - EF_12
    - WF_8
    - J_EF_12
    - R_EF_1U
    - WF_3
    - R_WF_1
    - WF_1

Components | Compute | Results

Basin Model

Global Summary Results for Run "Baseline_500y_24h"

Project: Candet3 Simulation Run: Baseline_500y_24h

Start of Run: 01Jan2008, 12:00
End of Run: 05Jan2008, 00:00
Compute Time: 06Nov2019, 15:32:20

Basin Model: Canoe Creek
Meteorologic Model: 500yr
Control Specifications: 24hr_2008

Show Elements: All Elements

Volume Units: (•) IN ( ) AC-FT

Sorting: Hydrologic

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
NF_29	0.510	773.9	02Jan2008, 00:30	7.40
NF_28	0.490	1012.0	02Jan2008, 00:30	7.40
J_28	19.788	6723.8	02Jan2008, 00:50	6.91
R_NF_33	19.788	6487.5	02Jan2008, 00:50	6.91
NF_33	0.180	490.5	02Jan2008, 00:25	7.49
J_33	19.968	6767.6	02Jan2008, 00:45	6.91
R_NF_34	19.968	6208.6	02Jan2008, 00:55	6.90
CC_6	0.330	575.2	02Jan2008, 00:35	6.54
NF_34	0.210	535.2	02Jan2008, 00:20	6.61
J_NF_34	20.508	7001.7	02Jan2008, 00:45	6.89
R_CC_2	20.508	6862.1	02Jan2008, 00:50	6.88
CC_2	0.060	164.5	02Jan2008, 00:10	5.95
J_CC_2	20.568	6918.2	02Jan2008, 00:50	6.88
R_CC_5	20.568	6475.9	02Jan2008, 00:50	6.81
CC_5	0.580	1047.3	02Jan2008, 00:35	6.86
J_CC_5	21.148	7417.1	02Jan2008, 00:45	6.81
R_CC_16	21.148	4132.3	02Jan2008, 06:15	6.48
CC_16	2.160	1113.7	02Jan2008, 03:20	6.51
CC_7	0.170	113.4	02Jan2008, 02:20	6.44
J_CC_7	104.648	27079.4	02Jan2008, 08:35	6.87
R_CC_11	104.648	26968.0	02Jan2008, 08:40	6.86
WI_16	2.970	2790.6	02Jan2008, 01:10	6.89
R_WI_12	2.970	2693.5	02Jan2008, 01:30	6.89
WI_12	2.060	2552.8	02Jan2008, 01:05	7.04
J_WI_12	5.030	5024.2	02Jan2008, 01:15	6.95
R_WI_13	5.030	4942.0	02Jan2008, 01:25	6.95
WI_10	1.030	1294.9	02Jan2008, 01:00	7.02
WI_13	0.710	896.8	02Jan2008, 01:00	7.05

Canoe Creek Flood Impact Study on Proposed I69
Parsons Proposed Detention Condition HMS Summary Tables and Schematic Flow Diagram

Name: Canoe Creek
Description:
Grid Cell File:
Local Flow: No
Flow Ratios: No
Replace Missing: No
Unit System: U.S. Customary
Sediment: No
Water Quality: No

J_WI_13	6.770	6920.3	02Jan2008, 01:20	6.97
R_WI_9	6.770	6500.8	02Jan2008, 01:20	6.86
WI_14	0.700	1041.7	02Jan2008, 00:45	6.89
WI_9	0.350	756.9	02Jan2008, 00:25	7.03
J_WI_9	7.820	7672.7	02Jan2008, 01:10	6.87
R_WI_19	7.820	7194.5	02Jan2008, 01:30	6.85
WI_15	1.340	1981.2	02Jan2008, 00:50	7.08
WI_19	0.500	489.8	02Jan2008, 01:25	6.63
J_WI_19	9.660	9174.9	02Jan2008, 01:20	6.87
R_WI_8	9.660	8794.4	02Jan2008, 01:35	6.86
WI_8	0.630	1177.4	02Jan2008, 00:30	6.98
J_WI_8	10.290	9335.2	02Jan2008, 01:30	6.87
R_WI_11	10.290	8693.1	02Jan2008, 01:30	6.81
WI_11	1.040	914.5	02Jan2008, 01:40	6.77
J_WI_11	11.330	9597.3	02Jan2008, 01:35	6.80
R_WI_2	11.330	9418.7	02Jan2008, 01:40	6.80
WI_2	0.092	46.6	02Jan2008, 02:50	5.73
J_WI_2	11.422	9452.6	02Jan2008, 01:40	6.79

NOTE 15302: Finished computing simulation run "Baseline_50y_24h" at time 06Nov2019, 15:32:32.

HEC-HMS 4.1 [C:\Canoe Creek\Canoe Creek\Hydrology 062519\canoe-pr-hms-parsons\Candet3\Candet3.hms]

File Edit View Components Parameters Compute Results Tools Help

Run: Baseline_50y_24h

Candet3
Basin Models
Canoe Creek
WF_9
WF_7
J_WF_9
R_WF_5
WF_6
WF_5
J_WF_5
R_WF_4
WF_4
WF_2
J_WF_4
R_WF_8
EF_16
R_EF_11_U
EF_15
R_EF_14
EF_14
J_EF_14
R_EF_20
EF_20
J_EF_20
R_EF_11_D
EF_11
J_EF_11
R_EF_12
EF_12
WF_8
J_EF_12
R_EF_1U
WF_3
R_WF_1
WF_1

Components Compute Results

Basin Model

Name: Canoe Creek
Description:
Grid Cell File:
Local Flow: No
Flow Ratios: No
Replace Missing: No
Unit System: U.S. Customary
Sediment: No
Water Quality: No

Global Summary Results for Run "Baseline_50y_24h"

Project: Candet3 Simulation Run: Baseline_50y_24h

Start of Run: 01Jan2008, 12:00
End of Run: 05Jan2008, 00:00
Compute Time:06Nov2019, 15:34:26
Basin Model: Canoe Creek
Meteorologic Model: 50yr
Control Specifications:24hr_2008

Show Elements: All Elements
Volume Units: (IN) AC-FT
Sorting: Hydrologic

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
NF_40	2.540	2006.3	02Jan2008, 01:30	4.26
NF_0	2.430	1419.9	02Jan2008, 00:55	4.13
J_40_0	2.430	1419.9	02Jan2008, 00:55	4.13
R_NF_40	2.430	1292.9	02Jan2008, 01:45	4.19
J_0_40	4.970	3260.3	02Jan2008, 01:35	4.23
R_NF_3	4.970	3041.3	02Jan2008, 02:05	4.23
NF_3	0.260	237.6	02Jan2008, 01:30	4.71
J_3	5.230	3246.4	02Jan2008, 02:00	4.26
R_NF_8	5.230	3130.2	02Jan2008, 02:25	4.26
NF_8	1.160	2293.7	02Jan2008, 00:20	4.47
J_8	6.390	3306.8	02Jan2008, 02:25	4.30
R_NF_9	6.390	3068.7	02Jan2008, 03:00	4.34
NF_20	0.750	646.4	02Jan2008, 01:20	4.53
J_9	0.130	94.8	02Jan2008, 01:45	4.64
J_9U	7.270	3382.9	02Jan2008, 02:55	4.37
D_RR1	7.270	1679.5	02Jan2008, 02:55	2.92
NF_4B	0.110	37.1	02Jan2008, 02:00	4.64
J_9	7.380	1714.1	02Jan2008, 02:55	2.95
R_NF_7	7.380	1713.6	02Jan2008, 02:55	2.95
NF_7	0.090	98.5	02Jan2008, 01:05	4.64
J_7	7.470	1735.1	02Jan2008, 02:55	2.97
R_NF_10	7.470	1721.9	02Jan2008, 03:00	2.96
NF_12	0.140	173.9	02Jan2008, 00:55	4.64
NF_10B	0.090	43.4	02Jan2008, 02:10	4.64
J_7D1	7.700	1782.6	02Jan2008, 02:55	3.01
NF-1A	1.160	746.6	02Jan2008, 00:55	4.10
NF_1B	0.910	523.2	02Jan2008, 01:35	3.70
J_1	2.070	1178.8	02Jan2008, 01:15	3.93
R_NF_4	2.070	1165.1	02Jan2008, 01:40	3.92
NF-4A	0.290	273.4	02Jan2008, 00:35	4.85
J_4	2.360	1335.5	02Jan2008, 01:35	4.04
R_NF_2A	2.360	1333.8	02Jan2008, 01:40	4.04
NF_2A	0.580	375.7	02Jan2008, 01:10	3.78
NF_2B	0.250	418.7	02Jan2008, 00:25	3.89
J_4D1	3.190	1725.1	02Jan2008, 01:30	3.98
R_NF_10A	3.190	1717.9	02Jan2008, 01:45	3.98
NF_10A	0.160	230.1	02Jan2008, 00:35	5.14
J_4D2	3.350	1797.5	02Jan2008, 01:40	4.03
NF_5	0.480	1205.8	02Jan2008, 00:15	4.91
J_4D3	3.830	1900.3	02Jan2008, 01:40	4.14
J_Kimsey	11.530	3634.5	02Jan2008, 01:40	3.39
R_NF_17	11.530	3601.8	02Jan2008, 01:45	3.39
NF_16	1.010	1247.6	02Jan2008, 00:35	4.43
J_16	1.010	1247.6	02Jan2008, 00:35	4.43
R_NF_20	1.010	1074.9	02Jan2008, 01:15	4.45
J_20	1.010	1074.9	02Jan2008, 01:15	4.45

NOTE 15302: Finished computing simulation run "Baseline_50y_24h" at time 06Nov2019, 15:34:38.

HEC-HMS 4.1 [C:\Canoe Creek\Canoe Creek\Hydrology 062519\canoe-pr-hms-parsons\Candet3\Candet3.hms]

File Edit View Components Parameters Compute Results Tools Help

Run: Baseline_50y_24h

Candet3
Basin Models
Canoe Creek
WF_9
WF_7
J_WF_9
R_WF_5
WF_6
WF_5
J_WF_5
R_WF_4
WF_4
WF_2
J_WF_4
R_WF_8
EF_16
R_EF_11_U
EF_15
R_EF_14
EF_14
J_EF_14
R_EF_20
EF_20
J_EF_20
R_EF_11_D
EF_11
J_EF_11
R_EF_12
EF_12
WF_8

Global Summary Results for Run "Baseline_50y_24h"

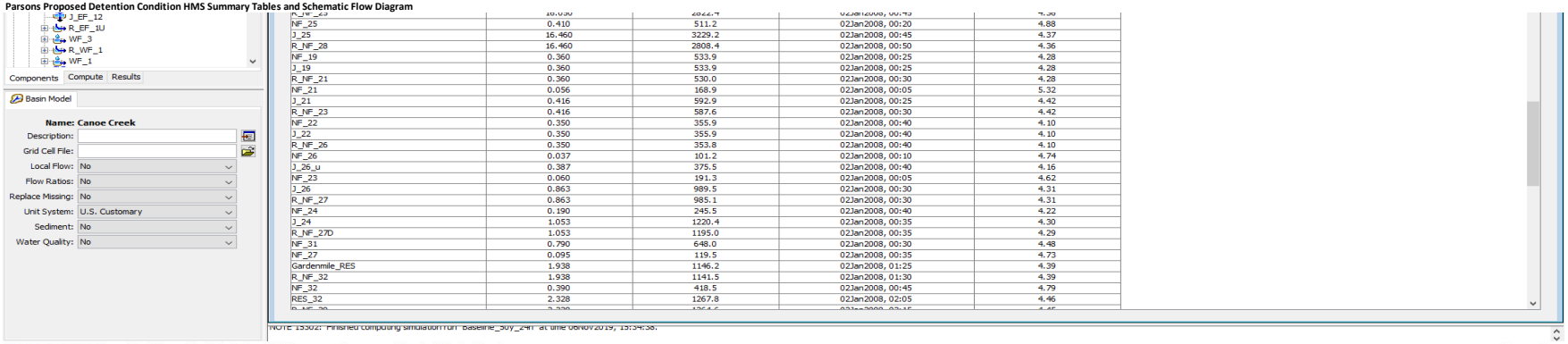
Project: Candet3 Simulation Run: Baseline_50y_24h

Start of Run: 01Jan2008, 12:00
End of Run: 05Jan2008, 00:00
Compute Time:06Nov2019, 15:34:26
Basin Model: Canoe Creek
Meteorologic Model: 50yr
Control Specifications:24hr_2008

Show Elements: All Elements
Volume Units: (IN) AC-FT
Sorting: Hydrologic

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
R_NF_14	1.010	828.9	02Jan2008, 02:00	4.41
NF_14	0.450	1026.9	02Jan2008, 00:15	4.71
J_14	1.460	2365.0	02Jan2008, 02:40	11.71
R_NF_12	1.460	2364.4	02Jan2008, 02:40	11.71
NF_17	0.320	617.7	02Jan2008, 00:20	4.29
J_US41	13.310	5809.1	02Jan2008, 02:15	4.32
US41_PStor	13.310	1824.0	02Jan2008, 06:55	4.25
R_NF_13	13.310	1823.1	02Jan2008, 07:00	4.25
NF_13	0.630	1163.1	02Jan2008, 00:30	4.72
J_13	13.940	1865.3	02Jan2008, 06:55	4.27
R_NF_15	13.940	1864.2	02Jan2008, 07:00	4.26
NF_15	0.750	1071.2	02Jan2008, 00:30	5.10
J_15	14.690	2312.4	02Jan2008, 00:30	4.31
R_NF_35	14.690	2306.4	02Jan2008, 00:30	4.29
NF_35	0.930	658.2	02Jan2008, 01:25	5.39
J_35	15.620	2696.0	02Jan2008, 00:35	4.36
R_NF_18	15.620	2678.7	02Jan2008, 00:35	4.36
NF_18	0.430	524.1	02Jan2008, 00:35	4.84
J_18	16.050	3202.8	02Jan2008, 00:35	4.37

Canoe Creek Flood Impact Study on Proposed I69
Parsons Proposed Detention Condition HMS Summary Tables and Schematic Flow Diagram



NF_25	0.410	511.2	02Jan2008, 00:20	4.88
J_25	16.460	3229.2	02Jan2008, 00:45	4.37
R_NF_28	16.460	2808.4	02Jan2008, 00:50	4.36
NF_19	0.360	533.9	02Jan2008, 00:25	4.28
J_19	0.360	533.9	02Jan2008, 00:25	4.28
R_NF_21	0.360	530.0	02Jan2008, 00:30	4.28
NF_21	0.056	168.9	02Jan2008, 00:05	5.32
J_21	0.416	592.9	02Jan2008, 00:25	4.42
R_NF_23	0.416	587.6	02Jan2008, 00:30	4.42
NF_22	0.350	355.9	02Jan2008, 00:40	4.10
J_22	0.350	355.9	02Jan2008, 00:40	4.10
R_NF_26	0.350	353.8	02Jan2008, 00:40	4.10
NF_26	0.037	101.2	02Jan2008, 00:10	4.74
J_26_U	0.387	375.5	02Jan2008, 00:40	4.16
NF_23	0.060	191.3	02Jan2008, 00:05	4.62
J_26	0.863	989.5	02Jan2008, 00:30	4.31
R_NF_27	0.863	985.1	02Jan2008, 00:30	4.31
NF_24	0.190	245.5	02Jan2008, 00:40	4.22
J_24	1.053	1220.4	02Jan2008, 00:35	4.30
R_NF_27D	1.053	1195.0	02Jan2008, 00:35	4.29
NF_31	0.790	648.0	02Jan2008, 00:30	4.48
NF_27	0.095	119.5	02Jan2008, 00:35	4.73
Gardenmile_RES	1.938	1146.2	02Jan2008, 01:25	4.39
R_NF_32	1.938	1141.5	02Jan2008, 01:30	4.39
NF_32	0.390	418.5	02Jan2008, 00:45	4.79
RES_32	2.328	1267.8	02Jan2008, 02:05	4.46

HEC-HMS 4.1 [C:\Canoe Creek\Canoe Creek\Hydrology 062519\canoe-pr-hms-parsons\Candet3\Candet3.hms]

File Edit View Components Parameters Compute Results Tools Help

Run: Baseline_50y_24h

Global Summary Results for Run "Baseline_50y_24h"

Project: Candet3 Simulation Run: Baseline_50y_24h

Start of Run: 01Jan2008, 12:00
End of Run: 05Jan2008, 00:00
Compute Time:06Nov2019, 15:34:26

Basin Model: Canoe Creek
Meteorologic Model: 50yr
Control Specifications:24hr_2008

Show Elements: All Elements

Volume Units: (•) IN ( ) AC-FT

Sorting: Hydrologic

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
R_NF_29	2.328	1264.6	02Jan2008, 02:15	4.45
NF_29	0.510	504.0	02Jan2008, 00:30	4.77
NF_28	0.490	662.2	02Jan2008, 00:30	4.77
J_28	19.788	4332.2	02Jan2008, 00:50	4.39
R_NF_33	19.788	4177.2	02Jan2008, 01:00	4.39
NF_33	0.180	324.0	02Jan2008, 00:25	4.86
J_33	19.968	4337.3	02Jan2008, 00:50	4.39
R_NF_34	19.968	3954.3	02Jan2008, 01:05	4.38
CC_6	0.330	355.4	02Jan2008, 00:35	4.02
NF_34	0.210	333.1	02Jan2008, 00:20	4.09
J_NF_34	20.508	4385.9	02Jan2008, 00:50	4.37
R_CC_2	20.508	4317.0	02Jan2008, 01:00	4.37
CC_2	0.060	97.4	02Jan2008, 00:10	3.54
J_CC_2	20.568	4344.7	02Jan2008, 00:55	4.36
R_CC_5	20.568	4005.3	02Jan2008, 01:00	4.31
CC_5	0.580	661.7	02Jan2008, 00:35	4.30
J_CC_6	21.148	4550.8	02Jan2008, 00:50	4.31
R_CC_16	21.148	2417.3	02Jan2008, 08:05	4.03
CC_16	2.160	680.2	02Jan2008, 03:20	4.00
CC_7	0.170	69.0	02Jan2008, 02:20	3.94
J_CC_7	104.648	16384.5	02Jan2008, 09:45	4.31
R_CC_11	104.648	16339.9	02Jan2008, 09:45	4.31
WI_16	2.970	1750.5	02Jan2008, 01:10	4.33
R_WI_12	2.970	1688.9	02Jan2008, 01:35	4.32
WI_12	2.060	1626.9	02Jan2008, 01:05	4.46
J_WI_12	5.030	3149.3	02Jan2008, 01:20	4.38
R_WI_13	5.030	3104.5	02Jan2008, 01:30	4.38
WI_10	1.030	822.8	02Jan2008, 01:00	4.44
WI_13	0.710	571.3	02Jan2008, 01:00	4.47
J_WI_13	6.770	4342.6	02Jan2008, 01:20	4.40
R_WI_9	6.770	4027.8	02Jan2008, 01:20	4.31
WI_14	0.700	657.4	02Jan2008, 00:45	4.33
WI_9	0.350	483.8	02Jan2008, 00:25	4.45
J_WI_9	7.820	4749.6	02Jan2008, 01:15	4.32
R_WI_19	7.820	4450.2	02Jan2008, 01:35	4.31
WI_15	1.340	1267.7	02Jan2008, 00:50	4.49
WI_19	0.500	303.0	02Jan2008, 01:25	4.11
J_WI_19	9.660	5663.9	02Jan2008, 01:25	4.32
R_WI_8	9.660	5432.7	02Jan2008, 01:40	4.31
WI_8	0.630	748.2	02Jan2008, 00:30	4.41
J_WI_8	10.290	5751.6	02Jan2008, 01:35	4.32
R_WI_11	10.290	5288.8	02Jan2008, 01:40	4.27
WI_11	1.040	570.2	02Jan2008, 01:40	4.22
J_WI_11	11.330	5859.1	02Jan2008, 01:40	4.27
R_WI_2	11.330	5736.6	02Jan2008, 01:50	4.26
WI_2	0.092	26.9	02Jan2008, 02:55	3.36

HEC-HMS 4.1 [C:\Canoe Creek\Canoe Creek\Hydrology 062519\canoe-pr-hms-parsons\Candet3\Candet3.hms]

File Edit View Components Parameters Compute Results Tools Help

Run: Baseline_10y_24h

Global Summary Results for Run "Baseline_10y_24h"

Project: Candet3 Simulation Run: Baseline_10y_24h

Start of Run: 01Jan2008, 12:00
End of Run: 05Jan2008, 00:00
Compute Time:06Nov2019, 15:36:13

Basin Model: Canoe Creek
Meteorologic Model: 10yr
Control Specifications:24hr_2008

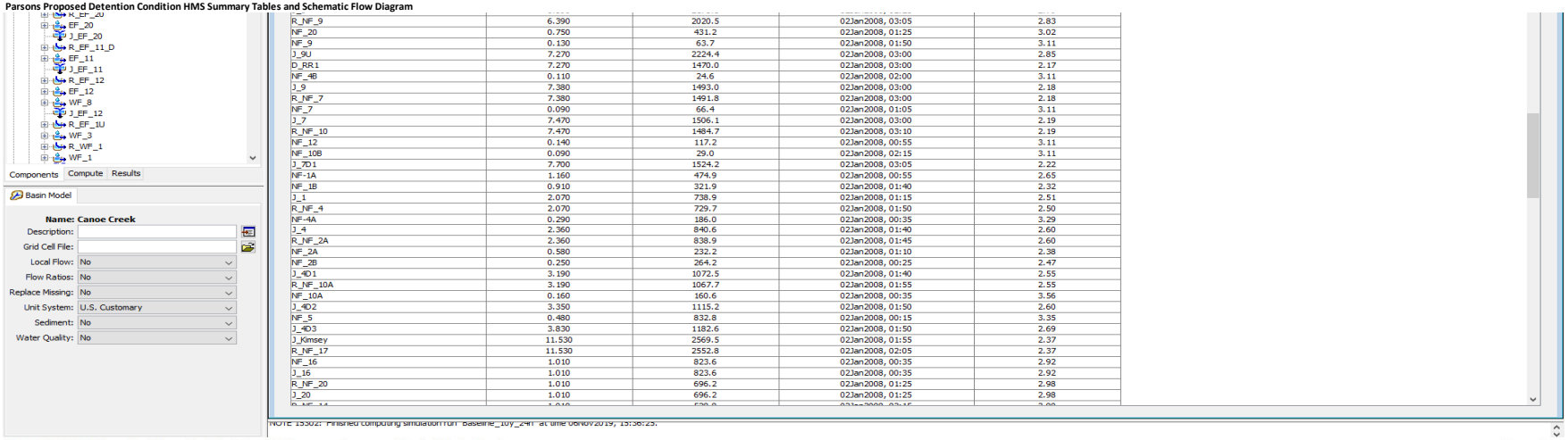
Show Elements: All Elements

Volume Units: (•) IN ( ) AC-FT

Sorting: Hydrologic

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
NF_40	2.540	1306.0	02Jan2008, 01:30	2.78
NF_0	2.430	903.3	02Jan2008, 00:55	2.67
J_40_0	2.430	903.3	02Jan2008, 00:55	2.67
R_NF_40	2.430	840.0	02Jan2008, 01:35	2.70
J_0_40	4.970	2143.8	02Jan2008, 01:30	2.74
R_NF_3	4.970	1972.7	02Jan2008, 02:05	2.73
NF_3	0.260	160.9	02Jan2008, 01:30	3.17
J_3	5.230	2113.6	02Jan2008, 02:00	2.75
R_NF_8	5.230	2049.3	02Jan2008, 02:25	2.75
NF_8	1.160	1531.6	02Jan2008, 00:20	2.96
J_8	6.390	2173.5	02Jan2008, 02:25	2.79

Canoe Creek Flood Impact Study on Proposed I69
Parsons Proposed Detention Condition HMS Summary Tables and Schematic Flow Diagram



R_NF_9	6.390	2020.5	02Jan2008, 03:05	2.83
NF_20	0.750	431.2	02Jan2008, 01:25	3.02
NF_9	0.130	63.7	02Jan2008, 01:50	3.11
J_9U	7.270	2224.4	02Jan2008, 03:00	2.85
D_RR1	7.270	1470.0	02Jan2008, 03:00	2.17
NF_4B	0.110	24.6	02Jan2008, 02:00	3.11
J_9	7.380	1493.0	02Jan2008, 03:00	2.18
R_NF_7	7.380	1491.8	02Jan2008, 03:00	2.18
NF_7	0.090	66.4	02Jan2008, 01:05	3.11
J_7	7.470	1506.1	02Jan2008, 03:00	2.19
R_NF_10	7.470	1484.7	02Jan2008, 03:10	2.19
NF_12	0.140	117.2	02Jan2008, 00:55	3.11
NF_10B	0.090	29.0	02Jan2008, 02:15	3.11
J_7D1	7.700	1524.2	02Jan2008, 03:05	2.22
NF-1A	1.160	474.9	02Jan2008, 00:55	2.65
NF_1B	0.910	321.9	02Jan2008, 01:40	2.32
J_1	2.070	738.9	02Jan2008, 01:15	2.51
R_NF_4	2.070	729.7	02Jan2008, 01:50	2.50
NF-4A	0.290	186.0	02Jan2008, 00:35	3.29
J_4	2.360	840.6	02Jan2008, 01:40	2.60
R_NF_2A	2.360	838.9	02Jan2008, 01:45	2.60
NF_2A	0.580	232.2	02Jan2008, 01:10	2.38
NF_2B	0.250	264.2	02Jan2008, 00:25	2.47
J_4D1	3.190	1072.5	02Jan2008, 01:40	2.55
R_NF_10A	3.190	1067.7	02Jan2008, 01:55	2.55
NF_10A	0.160	160.6	02Jan2008, 00:35	3.56
J_4D2	3.350	1115.2	02Jan2008, 01:50	2.60
NF_5	0.480	832.8	02Jan2008, 00:15	3.35
J_4D3	3.830	1182.6	02Jan2008, 01:50	2.69
J_Kimsey	11.530	2569.5	02Jan2008, 01:55	2.37
R_NF_17	11.530	2552.8	02Jan2008, 02:05	2.37
NF_16	1.010	823.6	02Jan2008, 00:35	2.92
J_16	1.010	823.6	02Jan2008, 00:35	2.92
R_NF_20	1.010	696.2	02Jan2008, 01:25	2.98
J_20	1.010	696.2	02Jan2008, 01:25	2.98

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File Edit View Components Parameters Compute Results Tools Help

Run: Baseline_10y_24h

Global Summary Results for Run "Baseline_10y_24h"

Project: Candet3 Simulation Run: Baseline_10y_24h

Start of Run: 01Jan2008, 12:00 Basin Model: Canoe Creek
End of Run: 05Jan2008, 00:00 Meteorologic Model: 10yr
Compute Time:06Nov2019, 15:36:13 Control Specifications:24hr_2008

Show Elements: All Elements Volume Units: (IN) (AC-FT) Sorting: Hydrologic

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
R_NF_14	1.010	528.8	02Jan2008, 02:15	3.00
NF_14	0.450	699.6	02Jan2008, 00:20	3.17
J_14	1.460	1252.3	02Jan2008, 02:35	6.46
R_NF_12	1.460	1252.0	02Jan2008, 02:35	6.46
NF_17	0.320	405.1	02Jan2008, 00:25	2.81
J_US41	13.310	3811.9	02Jan2008, 02:25	2.83
US41_PStor	13.310	821.8	02Jan2008, 08:15	2.81
R_J_13	13.310	821.5	02Jan2008, 08:20	2.81
NF_13	0.630	791.8	02Jan2008, 00:30	3.18
J_13	13.940	938.8	02Jan2008, 00:30	2.83
R_NF_15	13.940	871.8	02Jan2008, 00:35	2.83
NF_15	0.750	746.9	02Jan2008, 00:30	3.51
J_15	14.690	1608.3	02Jan2008, 00:30	2.86
R_NF_35	14.690	1590.7	02Jan2008, 00:30	2.85
NF_35	0.930	466.1	02Jan2008, 01:25	3.78
J_35	15.620	1871.8	02Jan2008, 00:35	2.90
R_NF_18	15.620	1855.3	02Jan2008, 00:35	2.90
NF_18	0.430	357.7	02Jan2008, 00:35	3.28
J_18	16.050	2213.0	02Jan2008, 00:35	2.91
R_NF_25	16.050	1943.5	02Jan2008, 00:50	2.91
NF_25	0.410	349.6	02Jan2008, 00:20	3.32
J_25	16.460	2210.7	02Jan2008, 00:45	2.92
R_NF_28	16.460	1906.4	02Jan2008, 00:55	2.90
NF_19	0.360	348.3	02Jan2008, 00:30	2.79
J_19	0.360	348.3	02Jan2008, 00:30	2.79
R_NF_21	0.360	346.4	02Jan2008, 00:30	2.79
NF_21	0.056	120.2	02Jan2008, 00:05	3.72
J_21	0.416	389.9	02Jan2008, 00:25	2.92
R_NF_23	0.416	387.1	02Jan2008, 00:30	2.92
NF_22	0.350	228.1	02Jan2008, 00:40	2.64
J_22	0.350	228.1	02Jan2008, 00:40	2.64
R_NF_26	0.350	226.7	02Jan2008, 00:45	2.64
NF_26	0.037	68.9	02Jan2008, 00:10	3.20
J_26_u	0.387	240.6	02Jan2008, 00:40	2.69
NF_23	0.060	129.6	02Jan2008, 00:05	3.09
J_26	0.863	644.0	02Jan2008, 00:30	2.83
R_NF_27	0.863	639.2	02Jan2008, 00:35	2.83
NF_24	0.190	159.5	02Jan2008, 00:40	2.75
J_24	1.053	794.7	02Jan2008, 00:35	2.81
R_NF_27D	1.053	780.0	02Jan2008, 00:40	2.81
NF_31	0.790	426.3	02Jan2008, 00:30	2.97
NF_27	0.095	81.0	02Jan2008, 00:35	3.19
Gardenmile_RES	1.938	806.8	02Jan2008, 01:20	2.89
R_NF_32	1.938	801.4	02Jan2008, 01:30	2.89
NF_32	0.390	284.5	02Jan2008, 00:45	3.24
RES_32	2.328	856.6	02Jan2008, 02:05	2.95

Components Compute Results

Subbasin Loss Transform Options

Basin Name: Canoe Creek
Element Name: EF_18

Description:
Downstream: J_EF_18
*Area (MI2) 1.21
Latitude Degrees:
Latitude Minutes:
Latitude Seconds:
Longitude Degrees:
Longitude Minutes:
Longitude Seconds:
Canopy Method: --None--
Surface Method: --None--
Loss Method: SCS Curve Number
Transform Method: Clark Unit Hydrograph

HEC-HMS 4.1 [C:\Canoe Creek\Canoe Creek\Hydrology 062519\canoe-pr-hms-parsons\Candet3\Candet3.hms]

File Edit View Components Parameters Compute Results Tools Help

Run: Baseline_10y_24h

Global Summary Results for Run "Baseline_10y_24h"

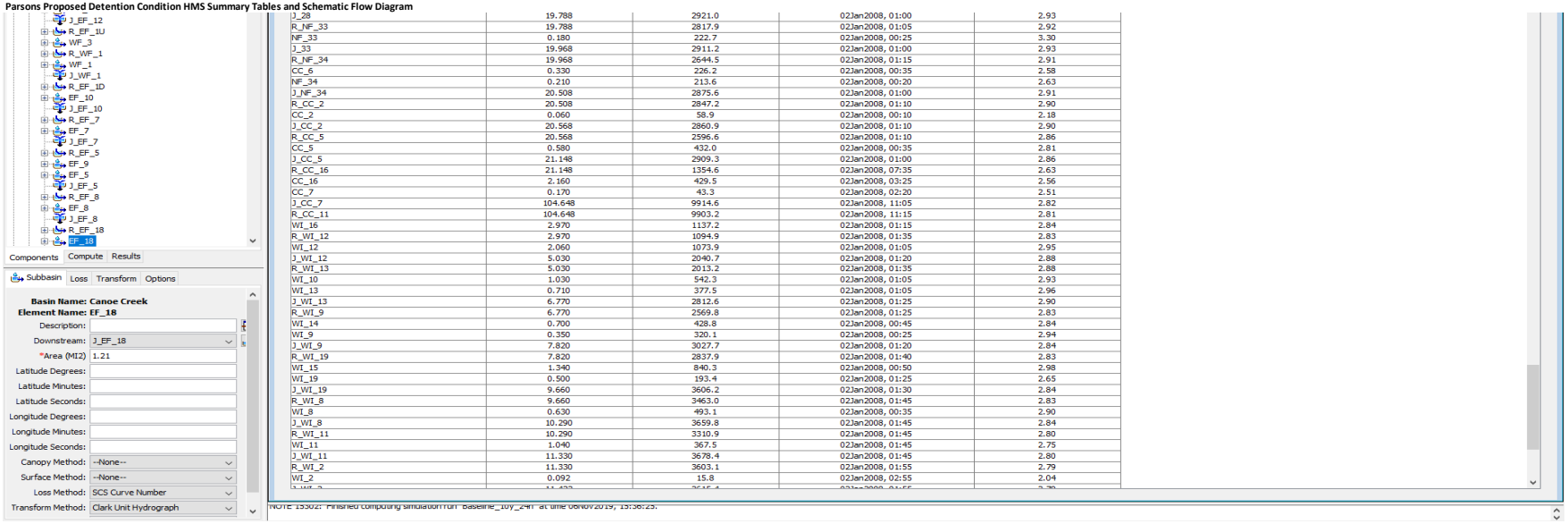
Project: Candet3 Simulation Run: Baseline_10y_24h

Start of Run: 01Jan2008, 12:00 Basin Model: Canoe Creek
End of Run: 05Jan2008, 00:00 Meteorologic Model: 10yr
Compute Time:06Nov2019, 15:36:13 Control Specifications:24hr_2008

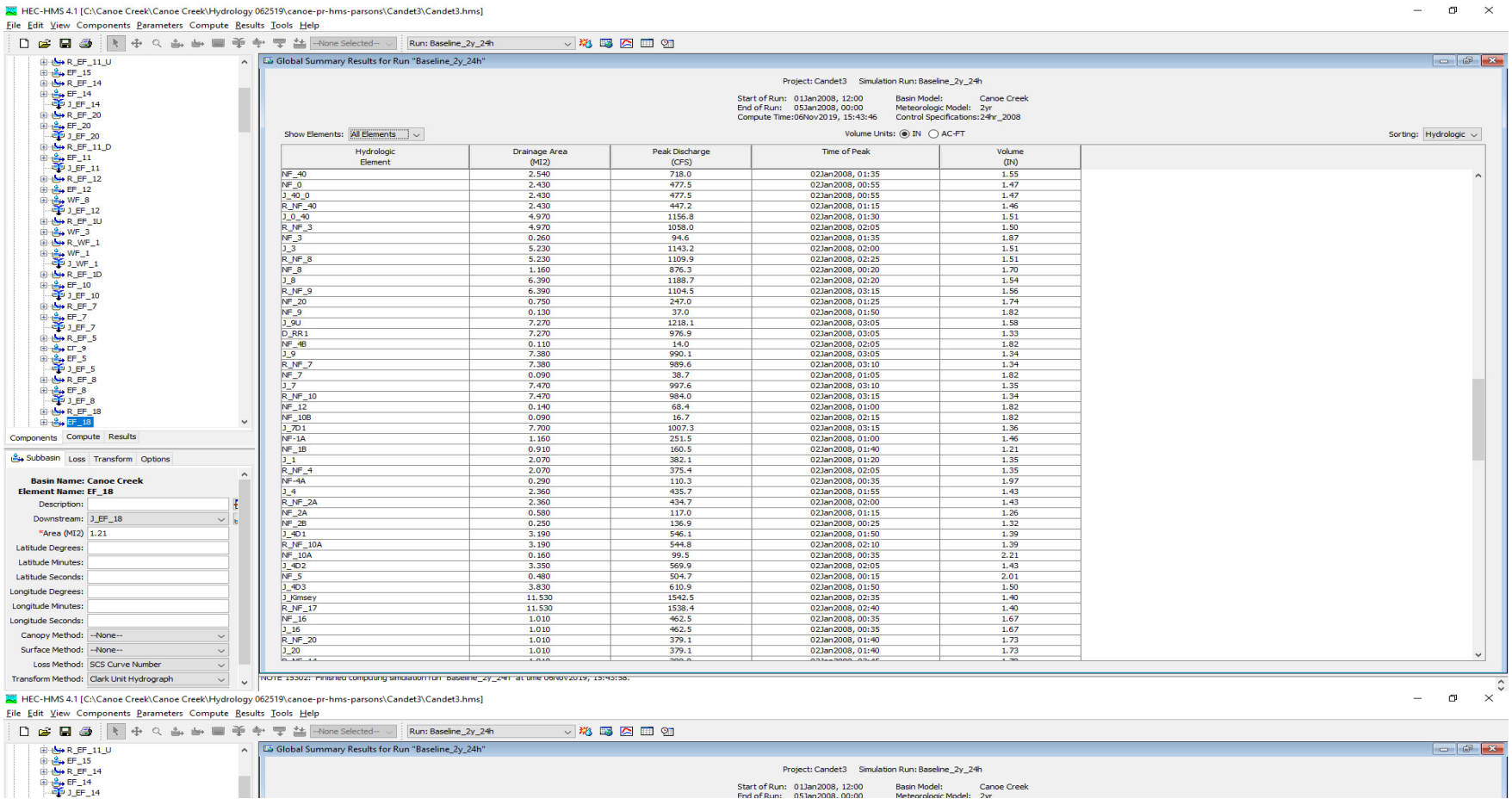
Show Elements: All Elements Volume Units: (IN) (AC-FT) Sorting: Hydrologic

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
R_NF_29	2.328	853.7	02Jan2008, 02:15	2.95
NF_29	0.510	340.9	02Jan2008, 00:30	3.23
NF_28	0.490	450.4	02Jan2008, 00:30	3.23

Canoe Creek Flood Impact Study on Proposed I69
Parsons Proposed Detention Condition HMS Summary Tables and Schematic Flow Diagram

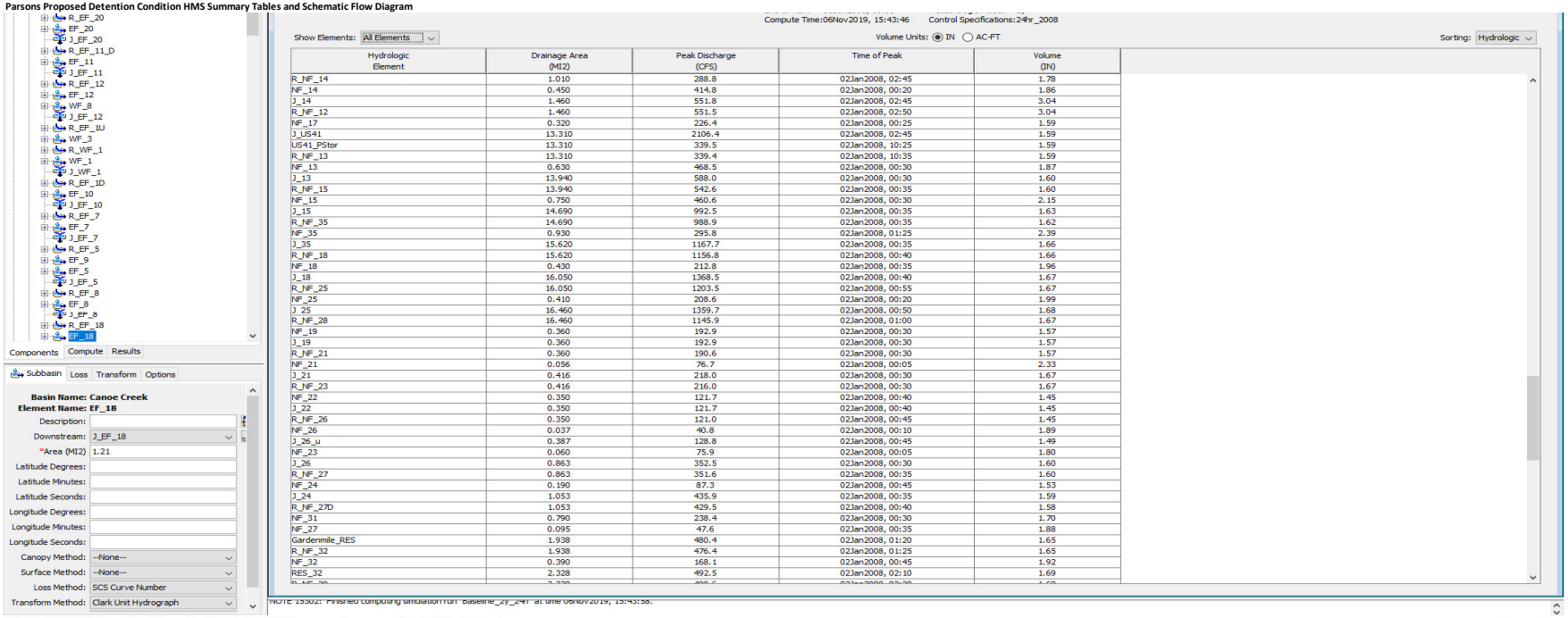


J_28	19.788	2921.0	02Jan2008, 01:00	2.93
R_NF_33	19.788	2817.9	02Jan2008, 01:05	2.92
NF_33	0.180	222.7	02Jan2008, 00:25	3.30
J_33	19.968	2911.2	02Jan2008, 01:00	2.93
R_NF_34	19.968	2644.5	02Jan2008, 01:15	2.91
CC_6	0.330	226.2	02Jan2008, 00:35	2.58
NF_34	0.210	213.6	02Jan2008, 00:20	2.63
J_NF_34	20.508	2875.6	02Jan2008, 01:00	2.91
R_CC_2	20.508	2847.2	02Jan2008, 01:10	2.90
CC_2	0.060	58.9	02Jan2008, 00:10	2.18
J_CC_2	20.568	2860.9	02Jan2008, 01:10	2.90
R_CC_5	20.568	2596.6	02Jan2008, 01:10	2.86
CC_5	0.580	432.0	02Jan2008, 00:35	2.81
J_CC_5	21.148	2909.3	02Jan2008, 01:00	2.86
R_CC_16	21.148	1354.6	02Jan2008, 07:35	2.63
CC_16	2.160	429.5	02Jan2008, 03:25	2.56
CC_7	0.170	43.3	02Jan2008, 02:20	2.51
J_CC_7	104.648	9914.6	02Jan2008, 11:05	2.82
R_CC_11	104.648	9903.2	02Jan2008, 11:15	2.81
WI_16	2.970	1137.2	02Jan2008, 01:15	2.84
R_WI_12	2.970	1094.9	02Jan2008, 01:35	2.83
WI_12	2.060	1073.9	02Jan2008, 01:05	2.95
J_WI_12	5.030	2040.7	02Jan2008, 01:20	2.88
R_WI_13	5.030	2013.2	02Jan2008, 01:35	2.88
WI_10	1.030	542.3	02Jan2008, 01:05	2.93
WI_13	0.710	377.5	02Jan2008, 01:05	2.96
J_WI_13	6.770	2812.6	02Jan2008, 01:25	2.90
R_WI_9	6.770	2569.8	02Jan2008, 01:25	2.83
WI_14	0.700	428.8	02Jan2008, 00:45	2.84
WI_9	0.350	320.1	02Jan2008, 00:25	2.94
J_WI_9	7.820	3027.7	02Jan2008, 01:20	2.84
R_WI_19	7.820	2837.9	02Jan2008, 01:40	2.83
WI_15	1.340	840.3	02Jan2008, 00:50	2.98
WI_19	0.500	193.4	02Jan2008, 01:25	2.65
J_WI_19	9.660	3606.2	02Jan2008, 01:30	2.84
R_WI_8	9.660	3463.0	02Jan2008, 01:45	2.83
WI_8	0.630	493.1	02Jan2008, 00:35	2.90
J_WI_8	10.290	3659.8	02Jan2008, 01:45	2.84
R_WI_11	10.290	3310.9	02Jan2008, 01:45	2.80
WI_11	1.040	367.5	02Jan2008, 01:45	2.75
J_WI_11	11.330	3678.4	02Jan2008, 01:45	2.80
R_WI_2	11.330	3603.1	02Jan2008, 01:55	2.79
WI_2	0.092	15.8	02Jan2008, 02:55	2.04



Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
NF_40	2.540	718.0	02Jan2008, 01:35	1.55
NF_0	2.430	477.5	02Jan2008, 00:55	1.47
J_40_0	2.430	477.5	02Jan2008, 00:55	1.47
R_NF_40	2.430	447.2	02Jan2008, 01:15	1.46
J_0_40	4.970	1156.8	02Jan2008, 01:30	1.51
R_NF_3	4.970	1058.0	02Jan2008, 02:05	1.50
NF_3	0.260	94.6	02Jan2008, 01:35	1.87
J_3	5.230	1143.2	02Jan2008, 02:00	1.51
R_NF_8	5.230	1109.9	02Jan2008, 02:25	1.51
NF_8	1.160	876.3	02Jan2008, 00:20	1.70
J_8	6.390	1188.7	02Jan2008, 02:20	1.54
R_NF_9	6.390	1104.5	02Jan2008, 03:15	1.56
NF_20	0.750	247.0	02Jan2008, 01:25	1.74
NF_9	0.130	37.0	02Jan2008, 01:50	1.82
J_9U	7.270	1218.1	02Jan2008, 03:05	1.58
D_RR1	7.270	976.9	02Jan2008, 03:05	1.33
NF_4B	0.110	14.0	02Jan2008, 02:05	1.82
J_9	7.380	990.1	02Jan2008, 03:05	1.34
R_NF_7	7.380	989.6	02Jan2008, 03:10	1.34
NF_7	0.090	38.7	02Jan2008, 01:05	1.82
J_7	7.470	997.6	02Jan2008, 03:10	1.35
R_NF_10	7.470	984.0	02Jan2008, 03:15	1.34
NF_12	0.140	68.4	02Jan2008, 01:00	1.82
NF_10B	0.090	16.7	02Jan2008, 02:15	1.82
J_7D1	7.700	1007.3	02Jan2008, 03:15	1.36
NF-1A	1.160	251.5	02Jan2008, 01:00	1.46
NF_1B	0.910	160.5	02Jan2008, 01:40	1.21
J_1	2.070	382.1	02Jan2008, 01:20	1.35
R_NF_4	2.070	375.4	02Jan2008, 02:05	1.35
NF-4A	0.290	110.3	02Jan2008, 00:35	1.97
J_4	2.360	435.7	02Jan2008, 01:55	1.43
R_NF_2A	2.360	434.7	02Jan2008, 02:00	1.43
NF_2A	0.580	117.0	02Jan2008, 01:15	1.26
NF_2B	0.250	136.9	02Jan2008, 00:25	1.32
J_4D1	3.190	546.1	02Jan2008, 01:50	1.39
R_NF_10A	3.190	544.8	02Jan2008, 02:10	1.39
NF_10A	0.160	99.5	02Jan2008, 00:35	2.21
J_4D2	3.350	569.9	02Jan2008, 02:05	1.43
NF_5	0.480	504.7	02Jan2008, 00:15	2.01
J_4D3	3.830	610.9	02Jan2008, 01:50	1.50
J_Kimsey	11.530	1542.5	02Jan2008, 02:35	1.40
R_NF_17	11.530	1538.4	02Jan2008, 02:40	1.40
NF_16	1.010	462.5	02Jan2008, 00:35	1.67
J_16	1.010	462.5	02Jan2008, 00:35	1.67
R_NF_20	1.010	379.1	02Jan2008, 01:40	1.73
J_20	1.010	379.1	02Jan2008, 01:40	1.73

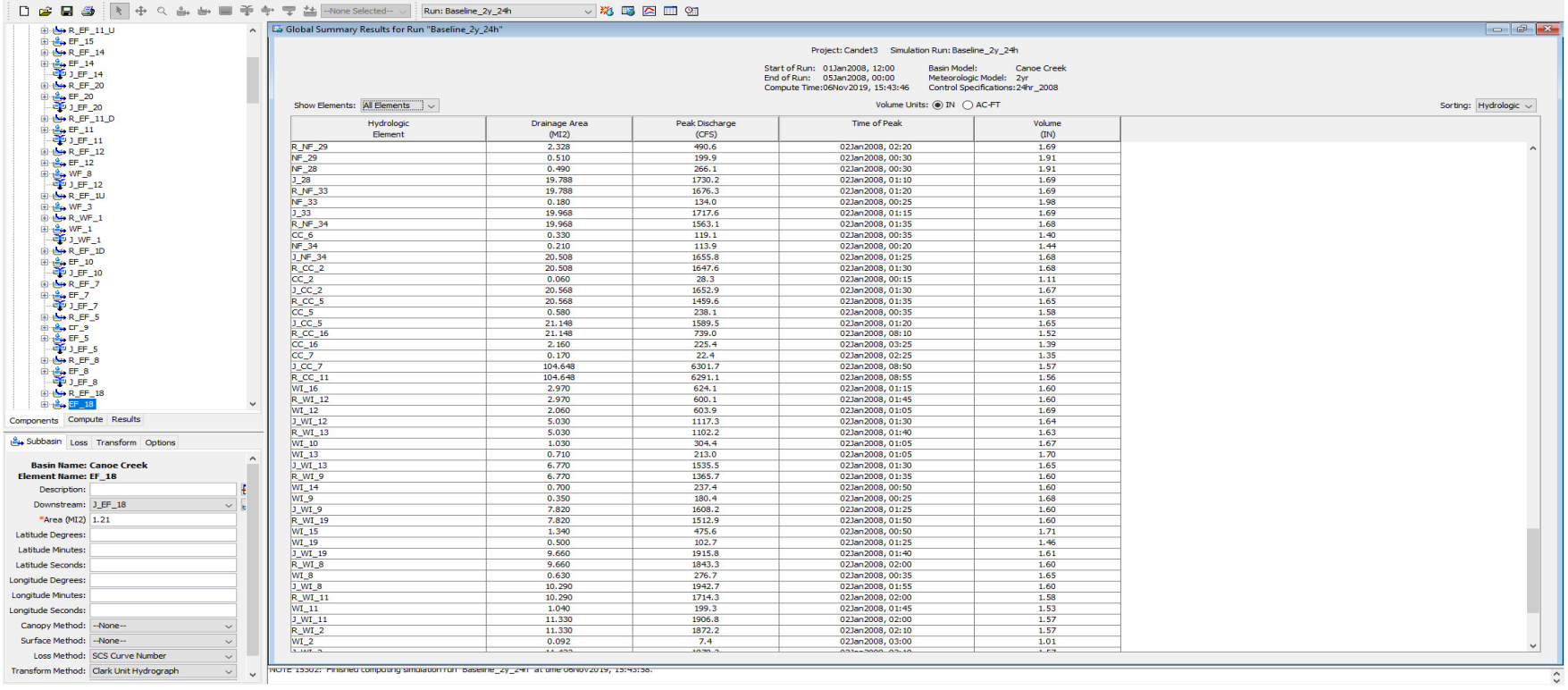
Canoe Creek Flood Impact Study on Proposed I69
Parsons Proposed Detention Condition HMS Summary Tables and Schematic Flow Diagram



Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
R_NF_14	1.010	288.8	02Jan2008, 02:45	1.78
NF_14	0.450	414.8	02Jan2008, 00:20	1.86
J_14	1.460	551.8	02Jan2008, 02:45	3.04
R_NF_12	1.460	551.5	02Jan2008, 02:50	3.04
NF_17	0.320	226.4	02Jan2008, 00:25	1.59
J_US41	13.310	2106.4	02Jan2008, 02:45	1.59
US41_PStor	13.310	339.5	02Jan2008, 10:25	1.59
R_NF_13	13.310	339.4	02Jan2008, 10:35	1.59
NF_13	0.630	468.5	02Jan2008, 00:30	1.87
J_13	13.940	588.0	02Jan2008, 00:30	1.60
R_NF_15	13.940	542.6	02Jan2008, 00:35	1.60
NF_15	0.750	460.6	02Jan2008, 00:30	2.15
J_15	14.690	992.5	02Jan2008, 00:35	1.63
R_NF_35	14.690	988.9	02Jan2008, 00:35	1.62
NF_35	0.930	295.8	02Jan2008, 01:25	2.39
J_35	15.620	1167.7	02Jan2008, 00:35	1.66
R_NF_18	15.620	1156.8	02Jan2008, 00:40	1.66
NF_18	0.430	212.8	02Jan2008, 00:35	1.96
J_18	16.050	1368.5	02Jan2008, 00:40	1.67
R_NF_25	16.050	1203.5	02Jan2008, 00:55	1.67
NF_25	0.410	208.6	02Jan2008, 00:20	1.99
J_25	16.460	1359.7	02Jan2008, 00:50	1.68
R_NF_28	16.460	1145.9	02Jan2008, 01:00	1.67
NF_19	0.360	192.9	02Jan2008, 00:30	1.57
J_19	0.360	192.9	02Jan2008, 00:30	1.57
R_NF_21	0.360	190.6	02Jan2008, 00:30	1.57
NF_21	0.056	76.7	02Jan2008, 00:05	2.33
J_21	0.416	218.0	02Jan2008, 00:30	1.67
R_NF_23	0.416	216.0	02Jan2008, 00:30	1.67
NF_22	0.350	121.7	02Jan2008, 00:40	1.45
J_22	0.350	121.7	02Jan2008, 00:40	1.45
R_NF_26	0.350	121.0	02Jan2008, 00:45	1.45
NF_26	0.037	40.8	02Jan2008, 00:10	1.89
J_25_U	0.387	128.8	02Jan2008, 00:45	1.49
NF_23	0.060	75.9	02Jan2008, 00:05	1.80
J_26	0.863	352.5	02Jan2008, 00:30	1.60
R_NF_27	0.863	351.6	02Jan2008, 00:35	1.60
NF_24	0.190	87.3	02Jan2008, 00:45	1.53
J_24	1.053	435.9	02Jan2008, 00:35	1.59
R_NF_27D	1.053	429.5	02Jan2008, 00:40	1.58
NF_31	0.790	238.4	02Jan2008, 00:30	1.70
NF_27	0.095	47.6	02Jan2008, 00:35	1.88
Gardenmile_RES	1.938	480.4	02Jan2008, 01:20	1.65
R_NF_32	1.938	476.4	02Jan2008, 01:25	1.65
NF_32	0.390	168.1	02Jan2008, 00:45	1.92
RES_32	2.328	492.5	02Jan2008, 02:10	1.69

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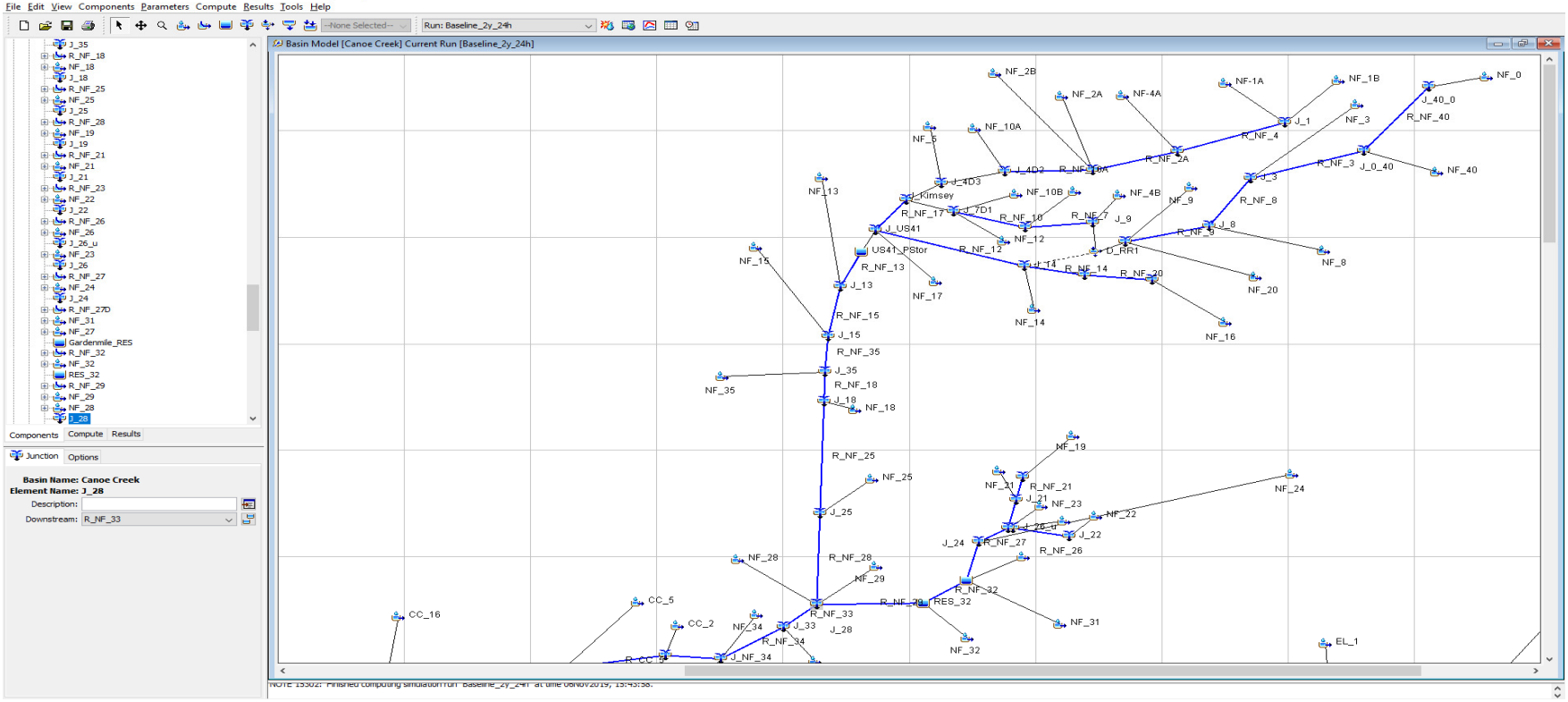
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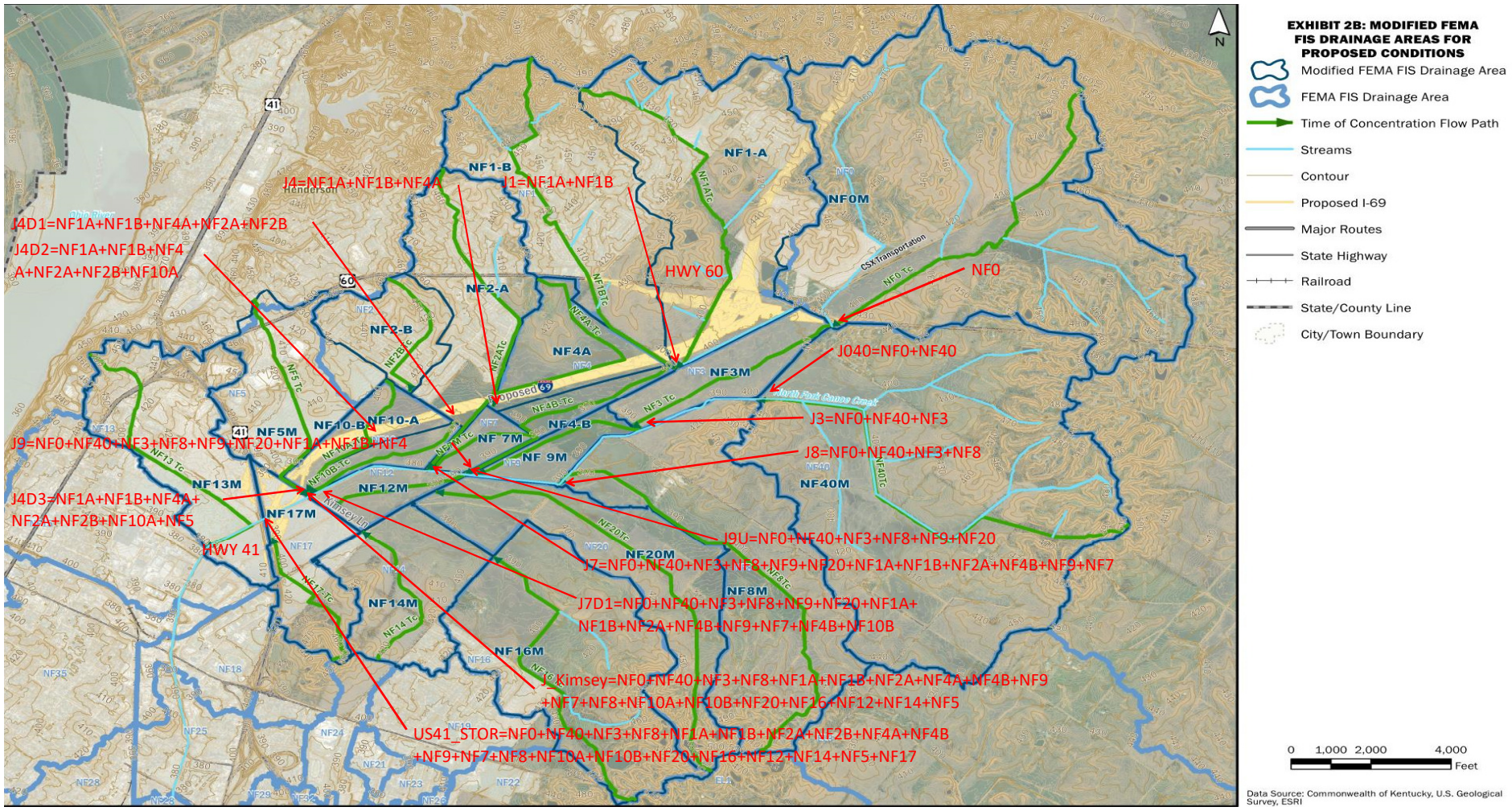


Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
R_NF_29	2.328	490.6	02Jan2008, 02:20	1.69
NF_29	0.510	199.9	02Jan2008, 00:30	1.91
NF_28	0.490	266.1	02Jan2008, 00:30	1.91
J_28	19.788	1730.2	02Jan2008, 01:10	1.69
R_NF_33	19.788	1676.3	02Jan2008, 01:20	1.69
NF_33	0.180	134.0	02Jan2008, 00:25	1.98
J_33	19.968	1717.6	02Jan2008, 01:15	1.69
R_NF_34	19.968	1563.1	02Jan2008, 01:35	1.68
CC_6	0.330	119.1	02Jan2008, 00:35	1.40
NF_34	0.210	113.9	02Jan2008, 00:20	1.44
J_NF_34	20.508	1655.8	02Jan2008, 01:25	1.68
R_CC_2	20.508	1647.6	02Jan2008, 01:30	1.68
CC_2	0.060	28.3	02Jan2008, 00:15	1.11
J_CC_2	20.568	1652.9	02Jan2008, 01:30	1.67
R_CC_5	20.568	1459.6	02Jan2008, 01:35	1.65
CC_5	0.580	238.1	02Jan2008, 00:35	1.58
J_CC_5	21.148	1589.5	02Jan2008, 01:20	1.65
R_CC_16	21.148	739.0	02Jan2008, 08:10	1.52
CC_16	2.160	225.4	02Jan2008, 03:25	1.39
CC_7	0.170	22.4	02Jan2008, 02:25	1.35
J_CC_7	104.648	6301.7	02Jan2008, 08:50	1.57
R_CC_11	104.648	6291.1	02Jan2008, 08:55	1.56
WI_16	2.970	624.1	02Jan2008, 01:15	1.60
R_WI_12	2.970	600.1	02Jan2008, 01:45	1.60
WI_12	2.060	603.9	02Jan2008, 01:05	1.69
J_WI_12	5.030	1117.3	02Jan2008, 01:30	1.64
R_WI_13	5.030	1102.2	02Jan2008, 01:40	1.63
WI_10	1.030	304.4	02Jan2008, 01:05	1.67
WI_13	0.710	213.0	02Jan2008, 01:05	1.70
J_WI_13	6.770	1535.5	02Jan2008, 01:30	1.65
R_WI_9	6.770	1365.7	02Jan2008, 01:35	1.60
WI_14	0.700	237.4	02Jan2008, 00:50	1.60
WI_9	0.350	180.4	02Jan2008, 00:25	1.68
WI_9	7.820	1608.2	02Jan2008, 01:25	1.60
R_WI_19	7.820	1512.9	02Jan2008, 01:50	1.60
WI_15	1.340	475.6	02Jan2008, 00:50	1.71
WI_19	0.500	102.7	02Jan2008, 01:25	1.46
J_WI_19	9.660	1915.8	02Jan2008, 01:40	1.61
R_WI_8	9.660	1843.3	02Jan2008, 02:00	1.60
WI_8	0.630	276.7	02Jan2008, 00:35	1.65
J_WI_8	10.290	1942.7	02Jan2008, 01:55	1.60
R_WI_11	10.290	1714.3	02Jan2008, 02:00	1.58
WI_11	1.040	199.3	02Jan2008, 01:45	1.53
J_WI_11	11.330	1906.8	02Jan2008, 02:00	1.57
R_WI_2	11.330	1872.2	02Jan2008, 02:10	1.57
WI_2	0.092	7.4	02Jan2008, 03:00	1.01

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Canoe Creek Flood Impact Study on Proposed I69
Parsons Proposed Detention Condition HMS Summary Tables and Schematic Flow Diagram



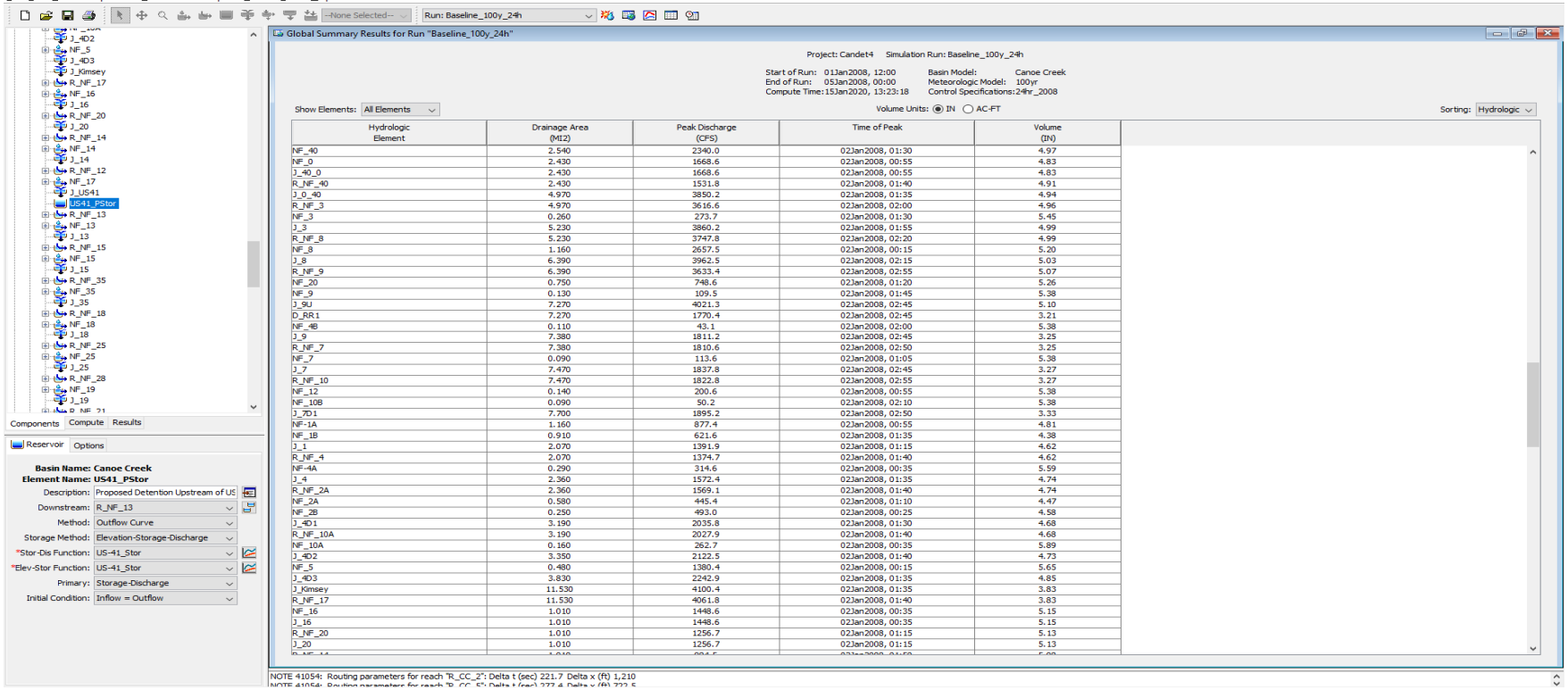

J4=NF1A+NF1B+NF4A
J1=NF1A+NF1B
J4D1=NF1A+NF1B+NF4A+NF2A+NF2B
J4D2=NF1A+NF1B+NF4
A+NF2A+NF2B+NF10A
HWY 60
NF0
J040=NF0+NF40
J3=NF0+NF40+NF3
J9=NF0+NF40+NF3+NF8+NF9+NF20+NF1A+NF1B+NF4
J8=NF0+NF40+NF3+NF8
J4D3=NF1A+NF1B+NF4A+
NF2A+NF2B+NF10A+NF5
HWY 41
J9U=NF0+NF40+NF3+NF8+NF9+NF20
J7=NF0+NF40+NF3+NF8+NF9+NF20+NF1A+NF1B+NF2A+NF4B+NF9+NF7
J7D1=NF0+NF40+NF3+NF8+NF9+NF20+NF1A+
NF1B+NF2A+NF4B+NF9+NF7+NF4B+NF10B
J_Kimsey=NF0+NF40+NF3+NF8+NF1A+NF1B+NF2A+NF4A+NF4B+NF9
+NF7+NF8+NF10A+NF10B+NF20+NF16+NF12+NF14+NF5
US41_STOR=NF0+NF40+NF3+NF8+NF1A+NF1B+NF2A+NF2B+NF4A+NF4B
+NF9+NF7+NF8+NF10A+NF10B+NF20+NF16+NF12+NF14+NF5+NF17
NF1-A
NF1-B
NF0M
NF2-A
NF2-B
NF4A
NF3M
NF4-B
NF 7M
NF 9M
NF5M
NF10-B
NF10-A
NF13M
NF12M
NF17M
NF20M
NF8M
NF14M
NF16M
NF40M
Proposed I-69
CSX Transportation
North Fork Canoe Creek
Kimsey Ln
Henderson
Ohio River
N
EXHIBIT 2B: MODIFIED FEMA
FIS DRAINAGE AREAS FOR
PROPOSED CONDITIONS
Modified FEMA FIS Drainage Area
FEMA FIS Drainage Area
Time of Concentration Flow Path
Streams
Contour
Proposed I-69
Major Routes
State Highway
Railroad
State/County Line
City/Town Boundary
0 1,000 2,000 4,000
Feet
Data Source: Commonwealth of Kentucky, U.S. Geological Survey, ESRI

Appendix A-15

Canoe Creek Flood Impact Study on Proposed I69
Parsons Proposed Phase 1 Detention Condition HMS Summary Tables and Schematic Flow Diagram

HEC-HMS 4.1 [P:\PROJECTS\649004 1-69 Ohio River Bridge\Canoe Creek Floodplain Study\010620\HMS 010620\HMS Candet4\Candet4.hms]

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Global Summary Results for Run "Baseline_100y_24h"

Project: Candet4 Simulation Run: Baseline_100y_24h

Start of Run: 01Jan2008, 12:00 Basin Model: Canoe Creek
End of Run: 05Jan2008, 00:00 Meteorologic Model: 100yr
Compute Time: 15Jan2020, 13:23:18 Control Specifications: 24hr_2008

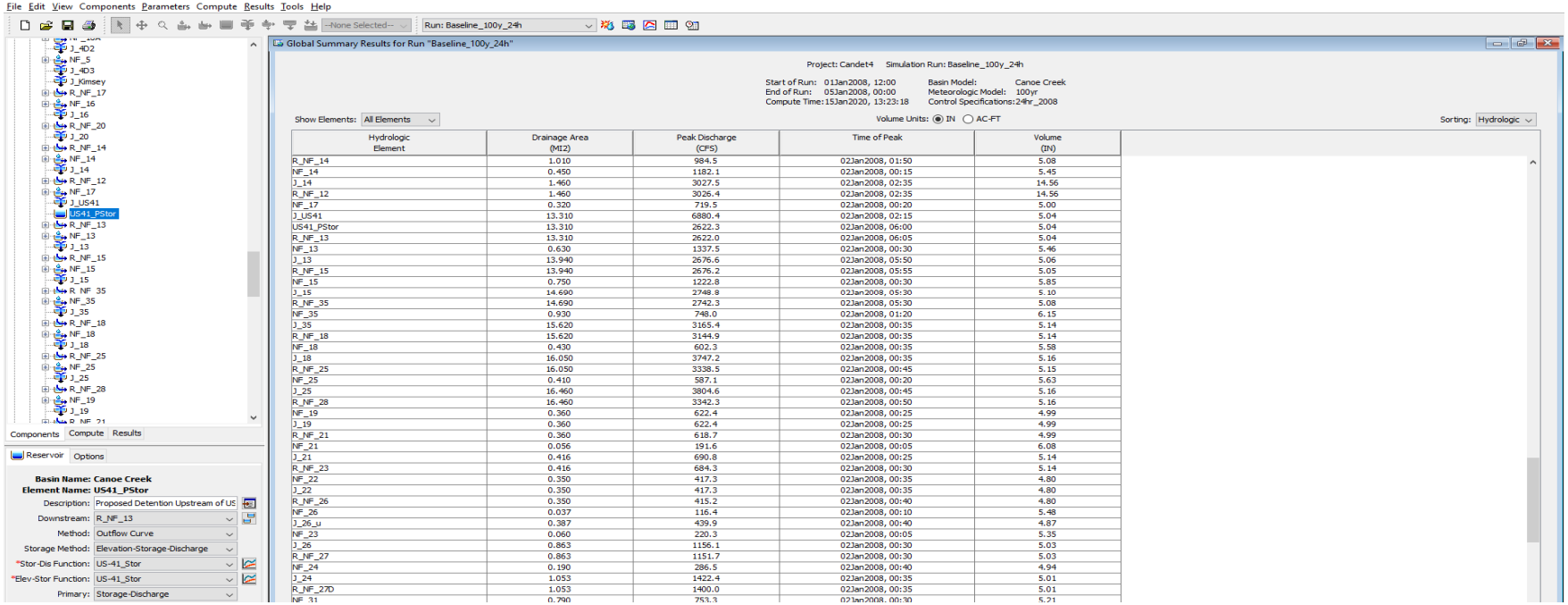
Show Elements: All Elements Volume Units: IN AC-FT Sorting: Hydrologic

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
NF_40	2.540	2340.0	02Jan2008, 01:30	4.97
NF_0	2.430	1668.6	02Jan2008, 00:55	4.83
J_40_0	2.430	1668.6	02Jan2008, 00:55	4.83
R_NF_40	2.430	1531.8	02Jan2008, 01:40	4.91
J_0_40	4.970	3850.2	02Jan2008, 01:35	4.94
R_NF_3	4.970	3616.6	02Jan2008, 02:00	4.96
NF_3	0.260	273.7	02Jan2008, 01:30	5.45
J_3	5.230	3860.2	02Jan2008, 01:55	4.99
R_NF_8	5.230	3747.8	02Jan2008, 02:20	4.99
NF_8	1.160	2657.5	02Jan2008, 00:15	5.20
J_8	6.390	3962.5	02Jan2008, 02:15	5.03
R_NF_9	6.390	3633.4	02Jan2008, 02:55	5.07
NF_20	0.750	748.6	02Jan2008, 01:20	5.26
NF_9	0.130	109.5	02Jan2008, 01:45	5.38
J_9U	7.270	4021.3	02Jan2008, 02:45	5.10
D_RR1	7.270	1770.4	02Jan2008, 02:45	3.21
NF_4B	0.110	43.1	02Jan2008, 02:00	5.38
J_9	7.380	1811.2	02Jan2008, 02:45	3.25
R_NF_7	7.380	1810.6	02Jan2008, 02:50	3.25
NF_7	0.090	113.6	02Jan2008, 01:05	5.38
J_7	7.470	1837.8	02Jan2008, 02:45	3.27
R_NF_10	7.470	1822.8	02Jan2008, 02:55	3.27
NF_12	0.140	200.6	02Jan2008, 00:55	5.38
NF_10B	0.090	50.2	02Jan2008, 02:10	5.38
J_7D1	7.700	1895.2	02Jan2008, 02:50	3.33
NF-1A	1.160	877.4	02Jan2008, 00:55	4.81
NF_1B	0.910	621.6	02Jan2008, 01:35	4.38
J_1	2.070	1391.9	02Jan2008, 01:15	4.62
R_NF_4	2.070	1374.7	02Jan2008, 01:40	4.62
NF-4A	0.290	314.6	02Jan2008, 00:35	5.59
J_4	2.360	1572.4	02Jan2008, 01:35	4.74
R_NF_2A	2.360	1569.1	02Jan2008, 01:40	4.74
NF_2A	0.580	445.4	02Jan2008, 01:10	4.47
NF_2B	0.250	493.0	02Jan2008, 00:25	4.58
J_4D1	3.190	2035.8	02Jan2008, 01:30	4.68
R_NF_10A	3.190	2027.9	02Jan2008, 01:40	4.68
NF_10A	0.160	262.7	02Jan2008, 00:35	5.89
J_4D2	3.350	2122.5	02Jan2008, 01:40	4.73
NF_5	0.480	1380.4	02Jan2008, 00:15	5.65
J_4D3	3.830	2242.9	02Jan2008, 01:35	4.85
J_Kimsey	11.530	4100.4	02Jan2008, 01:35	3.83
R_NF_17	11.530	4061.8	02Jan2008, 01:40	3.83
NF_16	1.010	1448.6	02Jan2008, 00:35	5.15
J_16	1.010	1448.6	02Jan2008, 00:35	5.15
R_NF_20	1.010	1256.7	02Jan2008, 01:15	5.13
J_20	1.010	1256.7	02Jan2008, 01:15	5.13

NOTE 41054: Routing parameters for reach "R_CC_2": Delta t (sec) 221.7 Delta x (ft) 1,210

HEC-HMS 4.1 [P:\PROJECTS\649004 1-69 Ohio River Bridge\Canoe Creek Floodplain Study\010620\HMS 010620\HMS Candet4\Candet4.hms]

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Global Summary Results for Run "Baseline_100y_24h"

Project: Candet4 Simulation Run: Baseline_100y_24h

Start of Run: 01Jan2008, 12:00 Basin Model: Canoe Creek
End of Run: 05Jan2008, 00:00 Meteorologic Model: 100yr
Compute Time: 15Jan2020, 13:23:18 Control Specifications: 24hr_2008

Show Elements: All Elements Volume Units: IN AC-FT Sorting: Hydrologic

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
R_NF_14	1.010	984.5	02Jan2008, 01:50	5.08
NF_14	0.450	1182.1	02Jan2008, 00:15	5.45
J_14	1.460	3027.5	02Jan2008, 02:35	14.56
R_NF_12	1.460	3026.4	02Jan2008, 02:35	14.56
NF_17	0.320	719.5	02Jan2008, 00:20	5.00
J_US41	13.310	6880.4	02Jan2008, 02:15	5.04
US41_PStor	13.310	2622.3	02Jan2008, 06:00	5.04
R_NF_13	13.310	2622.0	02Jan2008, 06:05	5.04
NF_13	0.630	1337.5	02Jan2008, 00:30	5.46
J_13	13.940	2676.6	02Jan2008, 05:50	5.06
R_NF_15	13.940	2676.2	02Jan2008, 05:55	5.05
NF_15	0.750	1222.8	02Jan2008, 00:30	5.85
J_15	14.690	2748.8	02Jan2008, 05:30	5.10
R_NF_35	14.690	2742.3	02Jan2008, 05:30	5.08
NF_35	0.930	748.0	02Jan2008, 01:20	6.15
J_35	15.620	3165.4	02Jan2008, 00:35	5.14
R_NF_18	15.620	3144.9	02Jan2008, 00:35	5.14
NF_18	0.430	602.3	02Jan2008, 00:35	5.58
J_18	16.050	3747.2	02Jan2008, 00:35	5.16
R_NF_25	16.050	3338.5	02Jan2008, 00:45	5.15
NF_25	0.410	587.1	02Jan2008, 00:20	5.63
J_25	16.460	3804.6	02Jan2008, 00:45	5.16
R_NF_28	16.460	3342.3	02Jan2008, 00:50	5.16
NF_19	0.360	622.4	02Jan2008, 00:25	4.99
J_19	0.360	622.4	02Jan2008, 00:25	4.99
R_NF_21	0.360	618.7	02Jan2008, 00:30	4.99
NF_21	0.056	191.6	02Jan2008, 00:05	6.08
J_21	0.416	690.8	02Jan2008, 00:25	5.14
R_NF_23	0.416	684.3	02Jan2008, 00:30	5.14
NF_22	0.350	417.3	02Jan2008, 00:35	4.80
J_22	0.350	417.3	02Jan2008, 00:35	4.80
R_NF_26	0.350	415.2	02Jan2008, 00:40	4.80
NF_26	0.037	116.4	02Jan2008, 00:10	5.48
J_26_u	0.387	439.9	02Jan2008, 00:40	4.87
NF_23	0.060	220.3	02Jan2008, 00:05	5.35
J_26	0.863	1156.1	02Jan2008, 00:30	5.03
R_NF_27	0.863	1151.7	02Jan2008, 00:30	5.03
NF_24	0.190	286.5	02Jan2008, 00:40	4.94
J_24	1.053	1422.4	02Jan2008, 00:35	5.01
R_NF_27D	1.053	1400.0	02Jan2008, 00:35	5.01
NF_31	0.790	753.3	02Jan2008, 00:30	5.21

Canoe Creek Flood Impact Study on Proposed I69
Parsons Proposed Phase 1 Detention Condition HMS Summary Tables and Schematic Flow Diagram

Initial Condition: Inflow = Outflow

NF_27	0.095	137.6	02Jan2008, 00:35	5.47
Gardenmile_RES	1.938	1283.5	02Jan2008, 01:30	5.11
R_NF_32	1.938	1277.4	02Jan2008, 01:35	5.11
NF_32	0.390	481.6	02Jan2008, 00:45	5.53
RES_32	2.328	1395.5	02Jan2008, 02:10	5.18

NOTE 41054: Routing parameters for reach "R_CC_2": Delta t (sec) 221.7 Delta x (ft) 1,210

HEC-HMS 4.1 [P:\PROJECTS\649004 1-69 Ohio River Bridge\Canoe Creek Floodplain Study\010620\HMS 010620\HMS Candet4\Candet4.hms]

File Edit View Components Parameters Compute Results Tools Help

Run: Baseline_100y_24h

Global Summary Results for Run "Baseline_100y_24h"

Project: Candet4 Simulation Run: Baseline_100y_24h

Start of Run: 01Jan2008, 12:00 Basin Model: Canoe Creek
End of Run: 05Jan2008, 00:00 Meteorologic Model: 100yr
Compute Time: 15Jan2020, 13:23:18 Control Specifications: 24hr_2008

Show Elements: All Elements Volume Units: (•) IN ( ) AC-FT Sorting: Hydrologic

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
Gardenmile_RES	1.938	1283.5	02Jan2008, 01:30	5.11
R_NF_32	1.938	1277.4	02Jan2008, 01:35	5.11
NF_32	0.390	481.6	02Jan2008, 00:45	5.53
RES_32	2.328	1395.5	02Jan2008, 02:10	5.18
R_NF_29	2.328	1393.1	02Jan2008, 02:20	5.18
NF_29	0.510	580.7	02Jan2008, 00:30	5.51
NF_28	0.490	761.8	02Jan2008, 00:30	5.51
J_28	19.788	5121.7	02Jan2008, 00:55	5.18
R_NF_33	19.788	4955.9	02Jan2008, 01:00	5.17
NF_33	0.180	371.5	02Jan2008, 00:25	5.61
J_33	19.968	5137.9	02Jan2008, 00:50	5.18
R_NF_34	19.968	4717.2	02Jan2008, 01:05	5.17
CC_6	0.330	417.4	02Jan2008, 00:35	4.73
NF_34	0.210	390.2	02Jan2008, 00:20	4.79
J_NF_34	20.508	5226.3	02Jan2008, 00:50	5.16
R_CC_2	20.508	5144.9	02Jan2008, 00:55	5.16
CC_2	0.060	116.2	02Jan2008, 00:10	4.21
J_CC_2	20.568	5180.5	02Jan2008, 00:55	5.15
R_CC_5	20.568	4804.1	02Jan2008, 01:00	5.10
CC_5	0.580	770.9	02Jan2008, 00:35	5.02
J_CC_5	21.148	5448.2	02Jan2008, 00:50	5.10
R_CC_16	21.148	3393.1	02Jan2008, 07:25	4.88
CC_16	2.160	801.8	02Jan2008, 03:20	4.70
CC_7	0.170	81.4	02Jan2008, 02:20	4.64
J_CC_7	104.648	19736.7	02Jan2008, 09:05	5.06
R_CC_11	104.648	19676.2	02Jan2008, 09:15	5.06
WI_16	2.970	2044.4	02Jan2008, 01:10	5.05
R_WI_12	2.970	1971.4	02Jan2008, 01:30	5.04
WI_12	2.060	1889.4	02Jan2008, 01:05	5.18
J_WI_12	5.030	3677.1	02Jan2008, 01:20	5.10
R_WI_13	5.030	3617.7	02Jan2008, 01:30	5.10
WI_10	1.030	956.6	02Jan2008, 01:00	5.16
WI_13	0.710	663.6	02Jan2008, 01:00	5.20
J_WI_13	6.770	5066.0	02Jan2008, 01:20	5.12
R_WI_9	6.770	4716.9	02Jan2008, 01:20	5.03
WI_14	0.700	766.2	02Jan2008, 00:45	5.05
WI_9	0.350	561.4	02Jan2008, 00:25	5.17
J_WI_9	7.820	5559.5	02Jan2008, 01:15	5.04
R_WI_19	7.820	5217.1	02Jan2008, 01:30	5.02
WI_15	1.340	1470.2	02Jan2008, 00:50	5.22
WI_19	0.500	355.7	02Jan2008, 01:25	4.81
J_WI_19	9.660	6640.1	02Jan2008, 01:25	5.04
R_WI_8	9.660	6371.4	02Jan2008, 01:40	5.03
WI_8	0.630	869.9	02Jan2008, 00:30	5.13
J_WI_8	10.290	6753.7	02Jan2008, 01:35	5.03
R_WI_11	10.290	6241.0	02Jan2008, 01:35	4.98

Components Compute Results

Reservoir Options

Basin Name: Canoe Creek
Element Name: US41_PStor

Description: Proposed Detention Upstream of US
Downstream: R_NF_13
Method: Outflow Curve
Storage Method: Elevation-Storage-Discharge
*Stor-Dis Function: US-41_Stor
*Elev-Stor Function: US-41_Stor
Primary: Storage-Discharge
Initial Condition: Inflow = Outflow

NOTE 41054: Routing parameters for reach "R_CC_2": Delta t (sec) 221.7 Delta x (ft) 1,210

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Run: Baseline_2y_24h

Global Summary Results for Run "Baseline_2y_24h"

Project: Candet4 Simulation Run: Baseline_2y_24h

Start of Run: 01Jan2008, 12:00 Basin Model: Canoe Creek
End of Run: 05Jan2008, 00:00 Meteorologic Model: 2yr
Compute Time: 15Jan2020, 13:28:11 Control Specifications: 24hr_2008

Show Elements: All Elements Volume Units: (•) IN ( ) AC-FT Sorting: Hydrologic

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
NF_40	2.540	718.0	02Jan2008, 01:35	1.55
NF_0	2.430	477.5	02Jan2008, 00:55	1.47
J_40_0	2.430	477.5	02Jan2008, 00:55	1.47
R_NF_40	2.430	447.2	02Jan2008, 01:15	1.46
J_0_40	4.970	1156.8	02Jan2008, 01:30	1.51
NF_3	4.970	1058.0	02Jan2008, 02:05	1.50
NF_3	0.260	94.6	02Jan2008, 01:35	1.87
J_3	5.230	1143.2	02Jan2008, 02:00	1.51
R_NF_8	5.230	1109.9	02Jan2008, 02:25	1.51
NF_8	1.160	876.3	02Jan2008, 00:20	1.70
J_8	6.390	1188.7	02Jan2008, 02:20	1.54
R_NF_9	6.390	1104.5	02Jan2008, 03:15	1.56
NF_20	0.750	247.0	02Jan2008, 01:25	1.74
NF_9	0.130	37.0	02Jan2008, 01:50	1.82
J_9U	7.270	1218.1	02Jan2008, 03:05	1.58
D_RR1	7.270	976.9	02Jan2008, 03:05	1.33
NF_4B	0.110	14.0	02Jan2008, 02:05	1.82
J_9	7.380	990.1	02Jan2008, 03:05	1.34
R_NF_7	7.380	989.6	02Jan2008, 03:10	1.34
NF_7	0.090	38.7	02Jan2008, 01:05	1.82
J_7	7.470	997.6	02Jan2008, 03:10	1.35
R_NF_10	7.470	984.0	02Jan2008, 03:15	1.34
NF_12	0.140	68.4	02Jan2008, 01:00	1.82
NF_10B	0.090	16.7	02Jan2008, 02:15	1.82
J_7D1	7.700	1007.3	02Jan2008, 03:15	1.36
NF-1A	1.160	251.5	02Jan2008, 01:00	1.46
NF_1B	0.910	160.5	02Jan2008, 01:40	1.21
J_1	2.070	382.1	02Jan2008, 01:20	1.35
R_NF_4	2.070	375.4	02Jan2008, 02:05	1.35
NF-4A	0.290	110.3	02Jan2008, 00:35	1.97
J_4	2.360	435.7	02Jan2008, 01:55	1.43
R_NF_2A	2.360	434.7	02Jan2008, 02:00	1.43
NF_2A	0.580	117.0	02Jan2008, 01:15	1.26

Components Compute Results

Reservoir Options

Basin Name: Canoe Creek
Element Name: US41_PStor

Description: Proposed Detention Upstream of US

Canoe Creek Flood Impact Study on Proposed I69
Parsons Proposed Phase 1 Detention Condition HMS Summary Tables and Schematic Flow Diagram

NF_28	0.250	136.9	02Jan2008, 00:25	1.32
J_4D1	3.190	546.1	02Jan2008, 01:50	1.39
R_NF_10A	3.190	544.8	02Jan2008, 02:10	1.39
NF_10A	0.160	99.5	02Jan2008, 00:35	2.21
J_4D2	3.350	569.9	02Jan2008, 02:05	1.43
NF_5	0.480	504.7	02Jan2008, 00:15	2.01
J_4D3	3.830	610.9	02Jan2008, 01:50	1.50
J_Kimsey	11.530	1542.5	02Jan2008, 02:35	1.40
R_NF_17	11.530	1538.4	02Jan2008, 02:40	1.40
NF_16	1.010	462.5	02Jan2008, 00:35	1.67
J_16	1.010	462.5	02Jan2008, 00:35	1.67
R_NF_20	1.010	379.1	02Jan2008, 01:40	1.73
J_20	1.010	379.1	02Jan2008, 01:40	1.73

Method: Outflow Curve
Storage Method: Elevation-Storage-Discharge
*Stor-Dis Function: US-41_Stor
*Elev-Stor Function: US-41_Stor
Primary: Storage-Discharge
Initial Condition: Inflow = Outflow

NOTE 15302: Finished computing simulation run "Baseline_2y_24h" at time 15Jan2020, 13:28:41.

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Run: Baseline_2y_24h

Components Compute Results

Reservoir Options

Basin Name: Canoe Creek
Element Name: US41_PStor

Description: Proposed Detention Upstream of US
Downstream: R_NF_13
Method: Outflow Curve
Storage Method: Elevation-Storage-Discharge
*Stor-Dis Function: US-41_Stor
*Elev-Stor Function: US-41_Stor
Primary: Storage-Discharge
Initial Condition: Inflow = Outflow

Global Summary Results for Run "Baseline_2y_24h"

Project: Candet4 Simulation Run: Baseline_2y_24h

Start of Run: 01Jan2008, 12:00
End of Run: 05Jan2008, 00:00
Compute Time: 15Jan2020, 13:28:11
Basin Model: Canoe Creek
Meteorologic Model: 2yr
Control Specifications: 24hr_2008

Show Elements: All Elements
Volume Units: IN AC-FT
Sorting: Hydrologic

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
R_NF_14	1.010	288.8	02Jan2008, 02:45	1.78
NF_14	0.450	414.8	02Jan2008, 00:20	1.86
J_14	1.460	551.8	02Jan2008, 02:45	3.04
R_NF_12	1.460	551.5	02Jan2008, 02:50	3.04
NF_17	0.320	226.4	02Jan2008, 00:25	1.59
J_US41	13.310	2106.4	02Jan2008, 02:45	1.59
US41_PStor	13.310	653.2	02Jan2008, 06:55	1.59
R_NF_13	13.310	652.9	02Jan2008, 07:05	1.59
NF_13	0.630	468.5	02Jan2008, 00:30	1.87
J_13	13.940	672.3	02Jan2008, 07:00	1.60
R_NF_15	13.940	671.8	02Jan2008, 07:05	1.60
NF_15	0.750	460.6	02Jan2008, 00:30	2.15
J_15	14.690	1054.4	02Jan2008, 00:35	1.63
R_NF_35	14.690	1050.6	02Jan2008, 00:35	1.62
NF_35	0.930	295.8	02Jan2008, 01:25	2.39
J_35	15.620	1229.4	02Jan2008, 00:35	1.66
R_NF_18	15.620	1221.4	02Jan2008, 00:40	1.66
NF_18	0.430	212.8	02Jan2008, 00:35	1.96
J_18	16.050	1433.1	02Jan2008, 00:40	1.67
R_NF_25	16.050	1262.8	02Jan2008, 00:55	1.67
NF_25	0.410	208.6	02Jan2008, 00:20	1.99
J_25	16.460	1416.8	02Jan2008, 00:50	1.68
R_NF_28	16.460	1197.2	02Jan2008, 01:00	1.67
NF_19	0.360	192.9	02Jan2008, 00:30	1.57
J_19	0.360	192.9	02Jan2008, 00:30	1.57
R_NF_21	0.360	190.6	02Jan2008, 00:30	1.57
NF_21	0.056	76.7	02Jan2008, 00:05	2.33
J_21	0.416	218.0	02Jan2008, 00:30	1.67
R_NF_23	0.416	216.0	02Jan2008, 00:30	1.67
NF_22	0.350	121.7	02Jan2008, 00:40	1.45
J_22	0.350	121.7	02Jan2008, 00:40	1.45
R_NF_26	0.350	121.0	02Jan2008, 00:45	1.45
NF_26	0.037	40.8	02Jan2008, 00:10	1.89
J_26_u	0.387	128.8	02Jan2008, 00:45	1.49
NF_23	0.060	75.9	02Jan2008, 00:05	1.80
J_26	0.863	352.5	02Jan2008, 00:30	1.60
R_NF_27	0.863	351.6	02Jan2008, 00:35	1.60
NF_24	0.190	87.3	02Jan2008, 00:45	1.53
J_24	1.053	435.9	02Jan2008, 00:35	1.59
R_NF_27D	1.053	429.5	02Jan2008, 00:40	1.58
NF_31	0.790	238.4	02Jan2008, 00:30	1.70
NF_27	0.095	47.6	02Jan2008, 00:35	1.88
Gardenmile_RES	1.938	480.4	02Jan2008, 01:20	1.65
R_NF_32	1.938	476.4	02Jan2008, 01:25	1.65
NF_32	0.390	168.1	02Jan2008, 00:45	1.92
RES_32	2.328	492.5	02Jan2008, 02:10	1.69

NOTE 15302: Finished computing simulation run "Baseline_2y_24h" at time 15Jan2020, 13:28:41.

HEC-HMS 4.1 [P:\PROJECTS\649004 1-69 Ohio River Bridge\Canoe Creek Floodplain Study\010620\HMS 010620\HMS Candet4\Candet4.hms]

File Edit View Components Parameters Compute Results Tools Help

Run: Baseline_2y_24h

Components Compute Results

Global Summary Results for Run "Baseline_2y_24h"

Project: Candet4 Simulation Run: Baseline_2y_24h

Start of Run: 01Jan2008, 12:00
End of Run: 05Jan2008, 00:00
Compute Time: 15Jan2020, 13:28:11
Basin Model: Canoe Creek
Meteorologic Model: 2yr
Control Specifications: 24hr_2008

Show Elements: All Elements
Volume Units: IN AC-FT
Sorting: Hydrologic

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
Gardenmile_RES	1.938	480.4	02Jan2008, 01:20	1.65
R_NF_32	1.938	476.4	02Jan2008, 01:25	1.65
NF_32	0.390	168.1	02Jan2008, 00:45	1.92
RES_32	2.328	492.5	02Jan2008, 02:10	1.69
R_NF_29	2.328	490.6	02Jan2008, 02:20	1.69
NF_29	0.510	199.9	02Jan2008, 00:30	1.91
NF_28	0.490	266.1	02Jan2008, 00:30	1.91
J_28	19.788	1785.1	02Jan2008, 01:10	1.69
R_NF_33	19.788	1731.9	02Jan2008, 01:20	1.69
NF_33	0.180	134.0	02Jan2008, 00:25	1.98
J_33	19.968	1771.5	02Jan2008, 01:15	1.69
R_NF_34	19.968	1617.6	02Jan2008, 01:35	1.68
CC_6	0.330	119.1	02Jan2008, 00:35	1.40
NF_34	0.210	113.9	02Jan2008, 00:20	1.44
J_NF_34	20.508	1706.7	02Jan2008, 01:25	1.68
R_CC_2	20.508	1698.4	02Jan2008, 01:35	1.68
CC_2	0.060	28.3	02Jan2008, 00:15	1.11
J_CC_2	20.568	1703.7	02Jan2008, 01:30	1.67
R_CC_5	20.568	1508.0	02Jan2008, 01:35	1.65
CC_5	0.580	238.1	02Jan2008, 00:35	1.58
J_CC_5	21.148	1633.4	02Jan2008, 01:25	1.64
R_CC_16	21.148	917.7	02Jan2008, 09:35	1.54
CC_16	2.160	225.4	02Jan2008, 03:25	1.39
CC_7	0.170	22.4	02Jan2008, 02:25	1.35
J_CC_7	104.648	6482.2	02Jan2008, 09:00	1.57

Canoe Creek Flood Impact Study on Proposed I69
Parsons Proposed Phase 1 Detention Condition HMS Summary Tables and Schematic Flow Diagram

Reservoir | Options

Basin Name: Canoe Creek
Element Name: US41_PStor

Description: Proposed Detention Upstream of US
Downstream: R_NF_13
Method: Outflow Curve
Storage Method: Elevation-Storage-Discharge
*Stor-Dis Function: US-41_Stor
*Elev-Stor Function: US-41_Stor
Primary: Storage-Discharge
Initial Condition: Inflow = Outflow

WI_16	2.970	624.1	02Jan2008, 01:15	1.60
R_WI_12	2.970	600.1	02Jan2008, 01:45	1.60
WI_12	2.060	603.9	02Jan2008, 01:05	1.69
J_WI_12	5.030	1117.3	02Jan2008, 01:30	1.64
R_WI_13	5.030	1102.2	02Jan2008, 01:40	1.63
WI_10	1.030	304.4	02Jan2008, 01:05	1.67
WI_13	0.710	213.0	02Jan2008, 01:05	1.70
J_WI_13	6.770	1535.5	02Jan2008, 01:30	1.65
R_WI_9	6.770	1365.7	02Jan2008, 01:35	1.60
WI_14	0.700	237.4	02Jan2008, 00:50	1.60
WI_9	0.350	180.4	02Jan2008, 00:25	1.68
J_WI_9	7.820	1608.2	02Jan2008, 01:25	1.60
R_WI_19	7.820	1512.9	02Jan2008, 01:50	1.60
WI_15	1.340	475.6	02Jan2008, 00:50	1.71
WI_19	0.500	102.7	02Jan2008, 01:25	1.46
J_WI_19	9.660	1915.8	02Jan2008, 01:40	1.61
R_WI_8	9.660	1843.3	02Jan2008, 02:00	1.60
WI_8	0.630	276.7	02Jan2008, 00:35	1.65
J_WI_8	10.290	1942.7	02Jan2008, 01:55	1.60
R_WI_11	10.290	1714.3	02Jan2008, 02:00	1.58

NOTE 15302: Finished computing simulation run "Baseline_2y_24h" at time 15Jan2020, 13:28:41.

HEC-HMS 4.1 [P:\PROJECTS\649004 1-69 Ohio River Bridge\Canoe Creek Floodplain Study\010620\HMS 010620\HMS Candet4\Candet4.hms]

File Edit View Components Parameters Compute Results Tools Help

Run: Baseline_10y_24h

Components | Compute | Results

- J_4D2
- NF_5
- J_4D3
- J_Kimsey
- R_NF_17
- NF_16
- J_16
- R_NF_20
- J_20
- R_NF_14
- NF_14
- J_14
- R_NF_12
- NF_17
- J_US41
- US41_PStor
- R_NF_13
- NF_13
- J_13
- R_NF_15
- NF_15
- J_15
- R_NF_35
- NF_35
- J_35
- R_NF_18
- NF_18
- J_18
- R_NF_25
- NF_25
- J_25
- R_NF_28
- NF_19
- J_19

Reservoir | Options

Basin Name: Canoe Creek
Element Name: US41_PStor

Description: Proposed Detention Upstream of US
Downstream: R_NF_13
Method: Outflow Curve
Storage Method: Elevation-Storage-Discharge
*Stor-Dis Function: US-41_Stor
*Elev-Stor Function: US-41_Stor
Primary: Storage-Discharge
Initial Condition: Inflow = Outflow

Global Summary Results for Run "Baseline_10y_24h"

Project: Candet4 Simulation Run: Baseline_10y_24h

Start of Run: 01Jan2008, 12:00
End of Run: 05Jan2008, 00:00
Compute Time: 15Jan2020, 13:31:17

Basin Model: Canoe Creek
Meteorologic Model: 10yr
Control Specifications: 24hr_2008

Show Elements: All Elements
Volume Units: IN AC-FT
Sorting: Hydrologic

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
NF_40	2.540	1306.0	02Jan2008, 01:30	2.78
NF_0	2.430	903.3	02Jan2008, 00:55	2.67
J_40_0	2.430	903.3	02Jan2008, 00:55	2.67
R_NF_40	2.430	840.0	02Jan2008, 01:35	2.70
J_0_40	4.970	2143.8	02Jan2008, 01:30	2.74
R_NF_3	4.970	1972.7	02Jan2008, 02:05	2.73
NF_3	0.260	160.9	02Jan2008, 01:30	3.17
J_3	5.230	2113.6	02Jan2008, 02:00	2.75
R_NF_8	5.230	2049.3	02Jan2008, 02:25	2.75
NF_8	1.160	1531.6	02Jan2008, 00:20	2.96
J_8	6.390	2173.5	02Jan2008, 02:25	2.79
R_NF_9	6.390	2020.5	02Jan2008, 03:05	2.83
NF_20	0.750	431.2	02Jan2008, 01:25	3.02
NF_9	0.130	63.7	02Jan2008, 01:50	3.11
J_9U	7.270	2224.4	02Jan2008, 03:00	2.85
D_RR1	7.270	1470.0	02Jan2008, 03:00	2.17
NF_4B	0.110	24.6	02Jan2008, 02:00	3.11
J_9	7.380	1493.0	02Jan2008, 03:00	2.18
R_NF_7	7.380	1491.8	02Jan2008, 03:00	2.18
NF_7	0.090	66.4	02Jan2008, 01:05	3.11
J_7	7.470	1506.1	02Jan2008, 03:00	2.19
R_NF_10	7.470	1484.7	02Jan2008, 03:10	2.19
NF_10	0.140	117.2	02Jan2008, 00:55	3.11
NF_10B	0.090	29.0	02Jan2008, 02:15	3.11
J_7D1	7.700	1524.2	02Jan2008, 03:05	2.22
NF-1A	1.160	474.9	02Jan2008, 00:55	2.65
NF_1B	0.910	321.9	02Jan2008, 01:40	2.32
J_1	2.070	738.9	02Jan2008, 01:15	2.51
R_NF_4	2.070	729.7	02Jan2008, 01:50	2.50
NF-4A	0.290	186.0	02Jan2008, 00:35	3.29
J_4	2.360	840.6	02Jan2008, 01:40	2.60
R_NF_2A	2.360	838.9	02Jan2008, 01:45	2.60
NF_2A	0.580	232.2	02Jan2008, 01:10	2.38
NF_2B	0.250	264.2	02Jan2008, 00:25	2.47
J_4D1	3.190	1072.5	02Jan2008, 01:40	2.55
R_NF_10A	3.190	1067.7	02Jan2008, 01:55	2.55
NF_10A	0.160	160.6	02Jan2008, 00:35	3.56
J_4D2	3.350	1115.2	02Jan2008, 01:50	2.60
NF_5	0.480	832.8	02Jan2008, 00:15	3.35
J_4D3	3.830	1182.6	02Jan2008, 01:50	2.69
J_Kimsey	11.530	2569.5	02Jan2008, 01:55	2.37
R_NF_17	11.530	2552.8	02Jan2008, 02:05	2.37
NF_16	1.010	823.6	02Jan2008, 00:35	2.92
J_16	1.010	823.6	02Jan2008, 00:35	2.92
R_NF_20	1.010	696.2	02Jan2008, 01:25	2.98
J_20	1.010	696.2	02Jan2008, 01:25	2.98

NOTE 15302: Finished computing simulation run "Baseline_10y_24h" at time 15Jan2020, 13:31:48.

HEC-HMS 4.1 [P:\PROJECTS\649004 1-69 Ohio River Bridge\Canoe Creek Floodplain Study\010620\HMS 010620\HMS Candet4\Candet4.hms]

File Edit View Components Parameters Compute Results Tools Help

Run: Baseline_10y_24h

Global Summary Results for Run "Baseline_10y_24h"

Project: Candet4 Simulation Run: Baseline_10y_24h

Start of Run: 01Jan2008, 12:00
End of Run: 05Jan2008, 00:00
Compute Time: 15Jan2020, 13:31:17

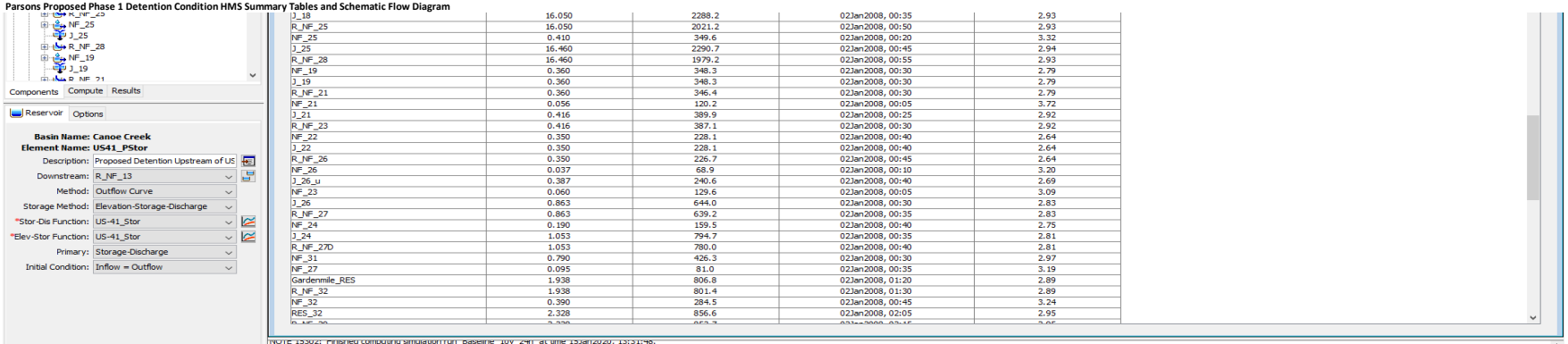
Basin Model: Canoe Creek
Meteorologic Model: 10yr
Control Specifications: 24hr_2008

Show Elements: All Elements
Volume Units: IN AC-FT
Sorting: Hydrologic

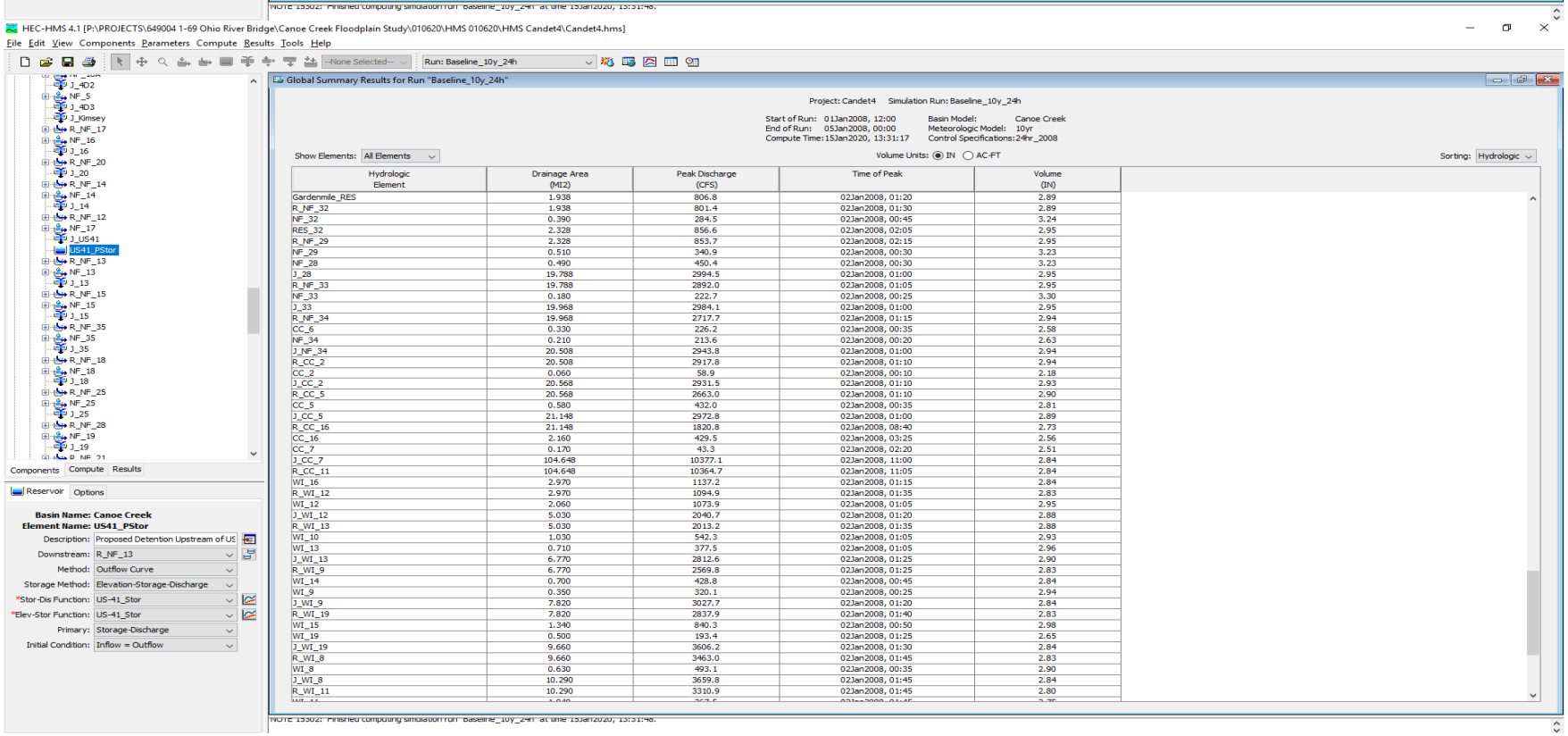
Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
R_NF_14	1.010	528.8	02Jan2008, 02:15	3.00
NF_14	0.450	699.6	02Jan2008, 00:20	3.17
J_14	1.460	1252.3	02Jan2008, 02:35	6.46
R_NF_12	1.460	1252.0	02Jan2008, 02:35	6.46
NF_17	0.320	405.1	02Jan2008, 00:25	2.81
J_US41	13.310	3811.9	02Jan2008, 02:25	2.83
US41_PStor	13.310	1495.0	02Jan2008, 06:15	2.83
R_NF_13	13.310	1493.8	02Jan2008, 06:20	2.83
NF_13	0.630	791.8	02Jan2008, 00:30	3.18
J_13	13.940	1526.8	02Jan2008, 06:20	2.85
R_NF_15	13.940	1525.4	02Jan2008, 06:25	2.85
NF_15	0.750	746.9	02Jan2008, 00:30	3.51
J_15	14.690	1681.2	02Jan2008, 00:30	2.88
R_NF_35	14.690	1665.7	02Jan2008, 00:30	2.87
NF_35	0.930	466.1	02Jan2008, 01:25	3.78
J_35	15.620	1946.8	02Jan2008, 00:35	2.92
R_NF_18	15.620	1930.4	02Jan2008, 00:35	2.92
NF_18	0.430	357.7	02Jan2008, 00:35	3.28

Canoe Creek Flood Impact Study on Proposed I69

Parsons Proposed Phase 1 Detention Condition HMS Summary Tables and Schematic Flow Diagram



J_18	16.050	2288.2	02Jan2008, 00:35	2.93
R_NF_25	16.050	2021.2	02Jan2008, 00:50	2.93
NF_25	0.410	349.6	02Jan2008, 00:20	3.32
J_25	16.460	2290.7	02Jan2008, 00:45	2.94
R_NF_28	16.460	1979.2	02Jan2008, 00:55	2.93
NF_19	0.360	348.3	02Jan2008, 00:30	2.79
J_19	0.360	348.3	02Jan2008, 00:30	2.79
R_NF_21	0.360	346.4	02Jan2008, 00:30	2.79
NF_21	0.056	120.2	02Jan2008, 00:05	3.72
J_21	0.416	389.9	02Jan2008, 00:25	2.92
R_NF_23	0.416	387.1	02Jan2008, 00:30	2.92
NF_22	0.350	228.1	02Jan2008, 00:40	2.64
J_22	0.350	228.1	02Jan2008, 00:40	2.64
R_NF_26	0.350	226.7	02Jan2008, 00:45	2.64
NF_26	0.037	68.9	02Jan2008, 00:10	3.20
J_26_u	0.387	240.6	02Jan2008, 00:40	2.69
NF_23	0.060	129.6	02Jan2008, 00:05	3.09
J_26	0.863	644.0	02Jan2008, 00:30	2.83
R_NF_27	0.863	639.2	02Jan2008, 00:35	2.83
NF_24	0.190	159.5	02Jan2008, 00:40	2.75
J_24	1.053	794.7	02Jan2008, 00:35	2.81
R_NF_27D	1.053	780.0	02Jan2008, 00:40	2.81
NF_31	0.790	426.3	02Jan2008, 00:30	2.97
NF_27	0.095	81.0	02Jan2008, 00:35	3.19
Gardenmile_RES	1.938	806.8	02Jan2008, 01:20	2.89
R_NF_32	1.938	801.4	02Jan2008, 01:30	2.89
NF_32	0.390	284.5	02Jan2008, 00:45	3.24
RES_32	2.328	856.6	02Jan2008, 02:05	2.95



HEC-HMS 4.1 [P:\PROJECTS\649004 1-69 Ohio River Bridge\Canoe Creek Floodplain Study\010620\HMS 010620\HMS Candet4\Candet4.hms]

File Edit View Components Parameters Compute Results Tools Help

Run: Baseline_10y_24h

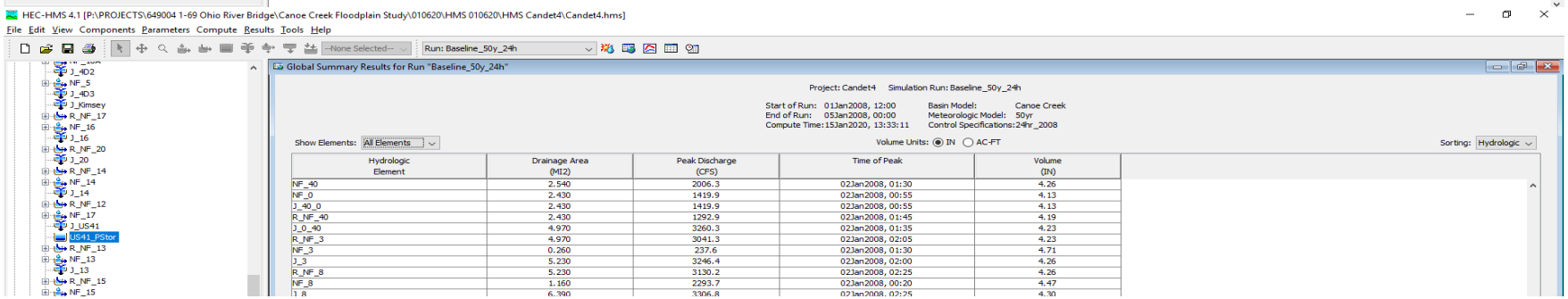
Global Summary Results for Run "Baseline_10y_24h"

Project: Candet4 Simulation Run: Baseline_10y_24h

Start of Run: 01Jan2008, 12:00 Basin Model: Canoe Creek
End of Run: 05Jan2008, 00:00 Meteorologic Model: 10yr
Compute Time: 15Jan2020, 13:31:17 Control Specifications: 24hr_2008

Show Elements: All Elements Volume Units: IN AC-FT Sorting: Hydrologic

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
Gardenmile_RES	1.938	806.8	02Jan2008, 01:20	2.89
R_NF_32	1.938	801.4	02Jan2008, 01:30	2.89
NF_32	0.390	284.5	02Jan2008, 00:45	3.24
RES_32	2.328	856.6	02Jan2008, 02:05	2.95
R_NF_29	2.328	853.7	02Jan2008, 02:15	2.95
NF_29	0.510	340.9	02Jan2008, 00:30	3.23
NF_28	0.490	450.4	02Jan2008, 00:30	3.23
J_28	19.788	2994.5	02Jan2008, 01:00	2.95
R_NF_33	19.788	2892.0	02Jan2008, 01:05	2.95
NF_33	0.180	222.7	02Jan2008, 00:25	3.30
J_33	19.968	2984.1	02Jan2008, 01:00	2.95
R_NF_34	19.968	2717.7	02Jan2008, 01:15	2.94
CC_6	0.330	226.2	02Jan2008, 00:35	2.58
NF_34	0.210	213.6	02Jan2008, 00:20	2.63
J_NF_34	20.508	2943.8	02Jan2008, 01:00	2.94
R_CC_2	20.508	2917.8	02Jan2008, 01:10	2.94
CC_2	0.060	58.9	02Jan2008, 00:10	2.18
J_CC_2	20.568	2931.5	02Jan2008, 01:10	2.93
R_CC_5	20.568	2663.0	02Jan2008, 01:10	2.90
CC_5	0.580	432.0	02Jan2008, 00:35	2.81
J_CC_5	21.148	2972.8	02Jan2008, 01:00	2.89
R_CC_16	21.148	1820.8	02Jan2008, 08:40	2.73
CC_16	2.160	429.5	02Jan2008, 03:25	2.56
CC_7	0.170	43.3	02Jan2008, 02:20	2.51
J_CC_7	104.648	10377.1	02Jan2008, 11:00	2.84
R_CC_11	104.648	10364.7	02Jan2008, 11:05	2.84
WI_16	2.970	1137.2	02Jan2008, 01:15	2.84
R_WI_12	2.970	1094.9	02Jan2008, 01:35	2.83
WI_12	2.060	1073.9	02Jan2008, 01:05	2.95
J_WI_12	5.030	2040.7	02Jan2008, 01:20	2.88
R_WI_13	5.030	2013.2	02Jan2008, 01:35	2.88
WI_10	1.030	542.3	02Jan2008, 01:05	2.93
WI_13	0.710	377.5	02Jan2008, 01:05	2.96
J_WI_13	6.770	2812.6	02Jan2008, 01:25	2.90
R_WI_9	6.770	2569.8	02Jan2008, 01:25	2.83
WI_14	0.700	428.8	02Jan2008, 00:45	2.84
WI_9	0.350	320.1	02Jan2008, 00:25	2.94
J_WI_9	7.820	3027.7	02Jan2008, 01:20	2.84
R_WI_19	7.820	2837.9	02Jan2008, 01:40	2.83
WI_15	1.340	840.3	02Jan2008, 00:50	2.98
WI_19	0.500	193.4	02Jan2008, 01:25	2.65
J_WI_19	9.660	3606.2	02Jan2008, 01:30	2.84
R_WI_8	9.660	3463.0	02Jan2008, 01:45	2.83
WI_8	0.630	493.1	02Jan2008, 00:35	2.90
J_WI_8	10.290	3659.8	02Jan2008, 01:45	2.84
R_WI_11	10.290	3310.9	02Jan2008, 01:45	2.80



HEC-HMS 4.1 [P:\PROJECTS\649004 1-69 Ohio River Bridge\Canoe Creek Floodplain Study\010620\HMS 010620\HMS Candet4\Candet4.hms]

File Edit View Components Parameters Compute Results Tools Help

Run: Baseline_50y_24h

Global Summary Results for Run "Baseline_50y_24h"

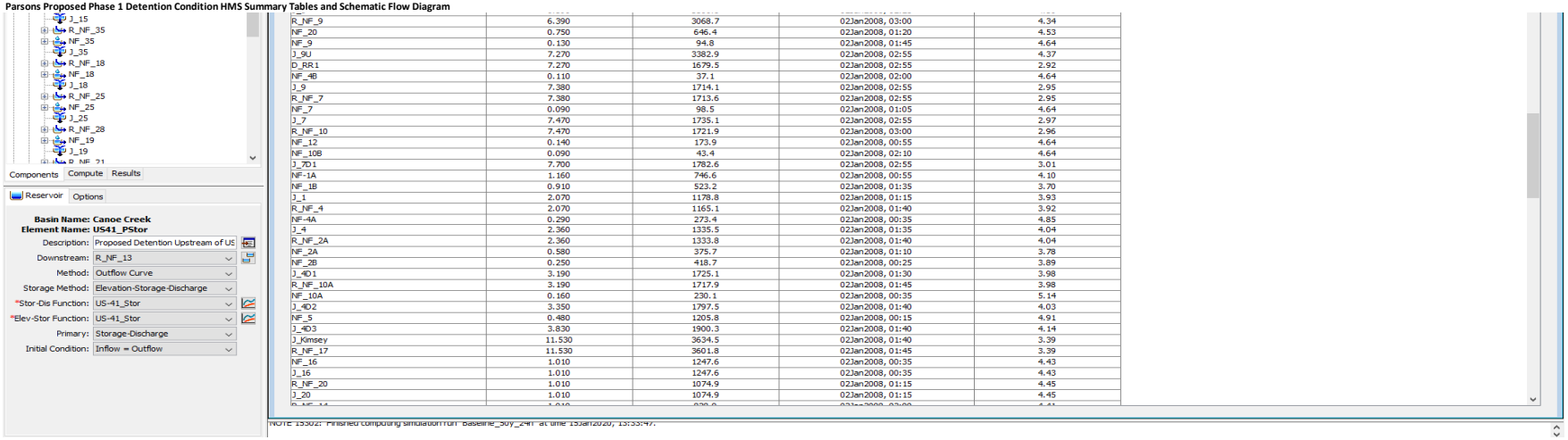
Project: Candet4 Simulation Run: Baseline_50y_24h

Start of Run: 01Jan2008, 12:00 Basin Model: Canoe Creek
End of Run: 05Jan2008, 00:00 Meteorologic Model: 50yr
Compute Time: 15Jan2020, 13:33:11 Control Specifications: 24hr_2008

Show Elements: All Elements Volume Units: IN AC-FT Sorting: Hydrologic

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
NF_40	2.540	2006.3	02Jan2008, 01:30	4.26
NF_0	2.430	1419.9	02Jan2008, 00:55	4.13
J_40_0	2.430	1419.9	02Jan2008, 00:55	4.13
R_NF_40	2.430	1292.9	02Jan2008, 01:45	4.19
J_0_40	4.970	3260.3	02Jan2008, 01:35	4.23
R_NF_3	4.970	3041.3	02Jan2008, 02:05	4.23
NF_3	0.260	237.6	02Jan2008, 01:30	4.71
J_3	5.230	3246.4	02Jan2008, 02:00	4.26
R_NF_8	5.230	3130.2	02Jan2008, 02:25	4.26
NF_8	1.160	2293.7	02Jan2008, 00:20	4.47

Canoe Creek Flood Impact Study on Proposed I69
Parsons Proposed Phase 1 Detention Condition HMS Summary Tables and Schematic Flow Diagram



R_NF_9	6.390	3068.7	02Jan2008, 03:00	4.34
NF_20	0.750	646.4	02Jan2008, 01:20	4.53
NF_9	0.130	94.8	02Jan2008, 01:45	4.64
J_9U	7.270	3382.9	02Jan2008, 02:55	4.37
D_RR1	7.270	1679.5	02Jan2008, 02:55	2.92
NF_4B	0.110	37.1	02Jan2008, 02:00	4.64
J_9	7.380	1714.1	02Jan2008, 02:55	2.95
R_NF_7	7.380	1713.6	02Jan2008, 02:55	2.95
NF_7	0.090	98.5	02Jan2008, 01:05	4.64
J_7	7.470	1735.1	02Jan2008, 02:55	2.97
R_NF_10	7.470	1721.9	02Jan2008, 03:00	2.96
NF_12	0.140	173.9	02Jan2008, 00:55	4.64
NF_10B	0.090	43.4	02Jan2008, 02:10	4.64
J_7D1	7.700	1782.6	02Jan2008, 02:55	3.01
NF-1A	1.160	746.6	02Jan2008, 00:55	4.10
NF_1B	0.910	523.2	02Jan2008, 01:35	3.70
J_1	2.070	1178.8	02Jan2008, 01:15	3.93
R_NF_4	2.070	1165.1	02Jan2008, 01:40	3.92
NF-4A	0.290	273.4	02Jan2008, 00:35	4.85
J_4	2.360	1335.5	02Jan2008, 01:35	4.04
R_NF_2A	2.360	1333.8	02Jan2008, 01:40	4.04
NF_2A	0.580	375.7	02Jan2008, 01:10	3.78
NF_2B	0.250	418.7	02Jan2008, 00:25	3.89
J_4D1	3.190	1725.1	02Jan2008, 01:30	3.98
R_NF_10A	3.190	1717.9	02Jan2008, 01:45	3.98
NF_10A	0.160	230.1	02Jan2008, 00:35	5.14
J_4D2	3.350	1797.5	02Jan2008, 01:40	4.03
NF_5	0.480	1205.8	02Jan2008, 00:15	4.91
J_4D3	3.830	1900.3	02Jan2008, 01:40	4.14
J_Kimsey	11.530	3634.5	02Jan2008, 01:40	3.39
R_NF_17	11.530	3601.8	02Jan2008, 01:45	3.39
NF_16	1.010	1247.6	02Jan2008, 00:35	4.43
J_16	1.010	1247.6	02Jan2008, 00:35	4.43
R_NF_20	1.010	1074.9	02Jan2008, 01:15	4.45
J_20	1.010	1074.9	02Jan2008, 01:15	4.45

HEC-HMS 4.1 [P:\PROJECTS\649004 1-69 Ohio River Bridge\Canoe Creek Floodplain Study\010620\HMS 010620\HMS Candet4\Candet4.hms]

File Edit View Components Parameters Compute Results Tools Help

Components Compute Results

Reservoir Options

Basin Name: Canoe Creek
Element Name: US41_PStor

Description: Proposed Detention Upstream of US
Downstream: R_NF_13
Method: Outflow Curve
Storage Method: Elevation-Storage-Discharge
*Stor-Dis Function: US-41_Stor
*Elev-Stor Function: US-41_Stor
Primary: Storage-Discharge
Initial Condition: Inflow = Outflow

Run: Baseline_50y_24h

Global Summary Results for Run "Baseline_50y_24h"

Project: Candet4 Simulation Run: Baseline_50y_24h

Start of Run: 01Jan2008, 12:00
End of Run: 05Jan2008, 00:00
Compute Time: 15Jan2020, 13:33:11

Basin Model: Canoe Creek
Meteorologic Model: 50yr
Control Specifications: 24hr_2008

Show Elements: All Elements
Volume Units: IN AC-FT
Sorting: Hydrologic

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
R_NF_14	1.010	828.9	02Jan2008, 02:00	4.41
NF_14	0.450	1026.9	02Jan2008, 00:15	4.71
J_14	1.460	2365.0	02Jan2008, 02:40	11.71
R_NF_12	1.460	2364.4	02Jan2008, 02:40	11.71
NF_17	0.320	617.7	02Jan2008, 00:20	4.29
J_US41	13.310	5809.1	02Jan2008, 02:15	4.32
US41_PStor	13.310	2336.5	02Jan2008, 06:00	4.32
R_NF_13	13.310	2335.4	02Jan2008, 06:05	4.32
NF_13	0.630	1163.1	02Jan2008, 00:30	4.72
J_13	13.940	2383.0	02Jan2008, 06:00	4.34
R_NF_15	13.940	2381.7	02Jan2008, 06:05	4.34
NF_15	0.750	1071.2	02Jan2008, 00:30	5.10
J_15	14.690	2442.9	02Jan2008, 06:00	4.38
R_NF_35	14.690	2436.9	02Jan2008, 06:00	4.36
NF_35	0.930	658.2	02Jan2008, 01:25	5.39
J_35	15.620	2786.1	02Jan2008, 00:35	4.42
R_NF_18	15.620	2767.4	02Jan2008, 00:35	4.42
NF_18	0.430	524.1	02Jan2008, 00:35	4.84
J_18	16.050	3291.6	02Jan2008, 00:35	4.43
R_NF_25	16.050	2917.2	02Jan2008, 00:45	4.43
NF_25	0.410	511.2	02Jan2008, 00:20	4.88
J_25	16.460	3324.0	02Jan2008, 00:45	4.44
R_NF_28	16.460	2908.4	02Jan2008, 00:50	4.44
NF_19	0.360	533.9	02Jan2008, 00:25	4.28
J_19	0.360	533.9	02Jan2008, 00:25	4.28
R_NF_21	0.360	530.0	02Jan2008, 00:30	4.28
NF_21	0.056	168.9	02Jan2008, 00:05	5.32
J_21	0.416	592.9	02Jan2008, 00:25	4.42
R_NF_23	0.416	587.6	02Jan2008, 00:30	4.42
NF_22	0.350	355.9	02Jan2008, 00:40	4.10
J_22	0.350	355.9	02Jan2008, 00:40	4.10
R_NF_26	0.350	353.8	02Jan2008, 00:40	4.10
NF_26	0.037	101.2	02Jan2008, 00:10	4.74
J_26_u	0.387	375.5	02Jan2008, 00:40	4.16
NF_23	0.060	191.3	02Jan2008, 00:05	4.62
J_26	0.863	989.5	02Jan2008, 00:30	4.31
R_NF_27	0.863	985.1	02Jan2008, 00:30	4.31
NF_24	0.190	245.5	02Jan2008, 00:40	4.22
J_24	1.053	1220.4	02Jan2008, 00:35	4.30
R_NF_27D	1.053	1195.0	02Jan2008, 00:35	4.29
NF_31	0.790	648.0	02Jan2008, 00:30	4.48
NF_27	0.095	119.5	02Jan2008, 00:35	4.73
Gardenmile_RES	1.938	1146.2	02Jan2008, 01:25	4.39
R_NF_32	1.938	1141.5	02Jan2008, 01:30	4.39
NF_32	0.390	418.5	02Jan2008, 00:45	4.79
RES_32	2.328	1267.8	02Jan2008, 02:05	4.46

HEC-HMS 4.1 [P:\PROJECTS\649004 1-69 Ohio River Bridge\Canoe Creek Floodplain Study\010620\HMS 010620\HMS Candet4\Candet4.hms]

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Components Compute Results

Reservoir Options

Basin Name: Canoe Creek
Element Name: US41_PStor

Description: Proposed Detention Upstream of US
Downstream: R_NF_13
Method: Outflow Curve
Storage Method: Elevation-Storage-Discharge
*Stor-Dis Function: US-41_Stor
*Elev-Stor Function: US-41_Stor
Primary: Storage-Discharge
Initial Condition: Inflow = Outflow

Run: Baseline_50y_24h

Global Summary Results for Run "Baseline_50y_24h"

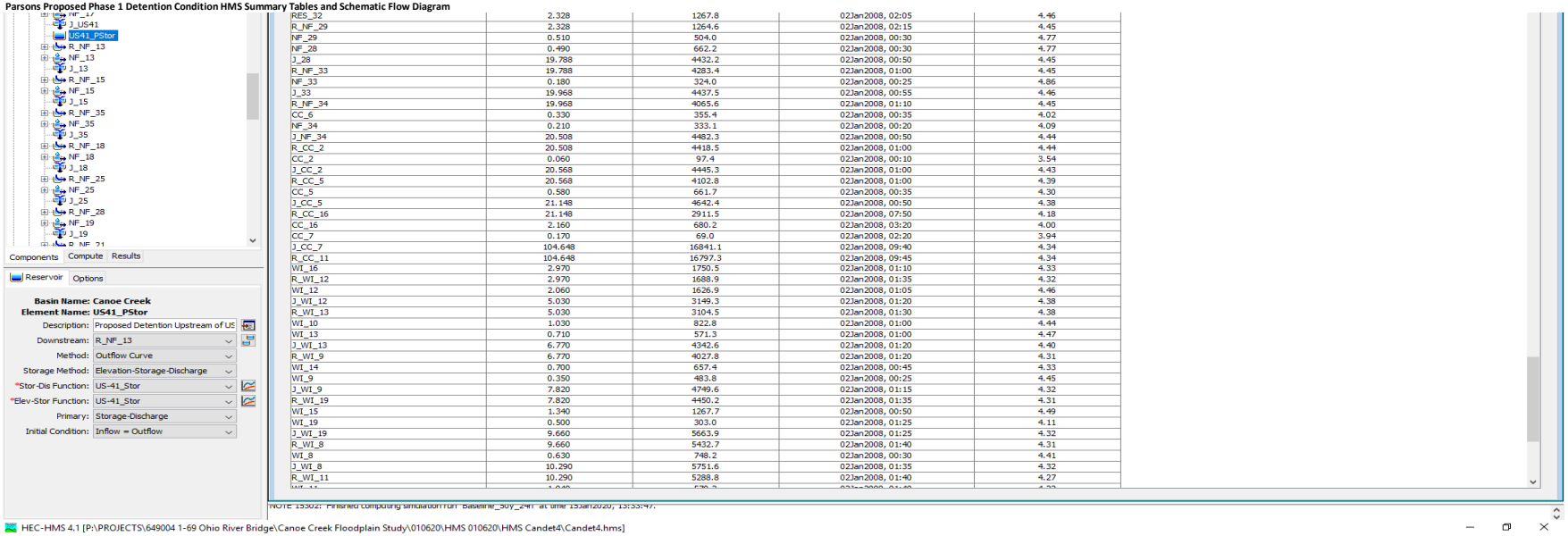
Project: Candet4 Simulation Run: Baseline_50y_24h

Start of Run: 01Jan2008, 12:00
End of Run: 05Jan2008, 00:00
Compute Time: 15Jan2020, 13:33:11

Basin Model: Canoe Creek
Meteorologic Model: 50yr
Control Specifications: 24hr_2008

Show Elements: All Elements
Volume Units: IN AC-FT
Sorting: Hydrologic

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
Gardenmile_RES	1.938	1146.2	02Jan2008, 01:25	4.39
R_NF_32	1.938	1141.5	02Jan2008, 01:30	4.39
NF_32	0.390	418.5	02Jan2008, 00:45	4.79



RES_32	2.328	1267.8	02Jan2008, 02:05	4.46
R_NF_29	2.328	1264.6	02Jan2008, 02:15	4.45
NF_29	0.510	504.0	02Jan2008, 00:30	4.77
NF_28	0.490	662.2	02Jan2008, 00:30	4.77
J_28	19.788	4432.2	02Jan2008, 00:50	4.45
R_NF_33	19.788	4283.4	02Jan2008, 01:00	4.45
NF_33	0.180	324.0	02Jan2008, 00:25	4.86
J_33	19.968	4437.5	02Jan2008, 00:55	4.46
R_NF_34	19.968	4065.6	02Jan2008, 01:10	4.45
CC_6	0.330	355.4	02Jan2008, 00:35	4.02
NF_34	0.210	333.1	02Jan2008, 00:20	4.09
J_NF_34	20.508	4482.3	02Jan2008, 00:50	4.44
R_CC_2	20.508	4418.5	02Jan2008, 01:00	4.44
CC_2	0.060	97.4	02Jan2008, 00:10	3.54
J_CC_2	20.568	4445.3	02Jan2008, 01:00	4.43
R_CC_5	20.568	4102.8	02Jan2008, 01:00	4.39
CC_5	0.580	661.7	02Jan2008, 00:35	4.30
J_CC_5	21.148	4642.4	02Jan2008, 00:50	4.38
R_CC_16	21.148	2911.5	02Jan2008, 07:50	4.18
CC_16	2.160	680.2	02Jan2008, 03:20	4.00
CC_7	0.170	69.0	02Jan2008, 02:20	3.94
J_CC_7	104.648	16841.1	02Jan2008, 09:40	4.34
R_CC_11	104.648	16797.3	02Jan2008, 09:45	4.34
WI_16	2.970	1750.5	02Jan2008, 01:10	4.33
R_WI_12	2.970	1688.9	02Jan2008, 01:35	4.32
WI_12	2.060	1626.9	02Jan2008, 01:05	4.46
J_WI_12	5.030	3149.3	02Jan2008, 01:20	4.38
R_WI_13	5.030	3104.5	02Jan2008, 01:30	4.38
WI_10	1.030	822.8	02Jan2008, 01:00	4.44
WI_13	0.710	571.3	02Jan2008, 01:00	4.47
J_WI_13	6.770	4342.6	02Jan2008, 01:20	4.40
R_WI_9	6.770	4027.8	02Jan2008, 01:20	4.31
WI_14	0.700	657.4	02Jan2008, 00:45	4.33
WI_9	0.350	483.8	02Jan2008, 00:25	4.45
J_WI_9	7.820	4749.6	02Jan2008, 01:15	4.32
R_WI_19	7.820	4450.2	02Jan2008, 01:35	4.31
WI_15	1.340	1267.7	02Jan2008, 00:50	4.49
WI_19	0.500	303.0	02Jan2008, 01:25	4.11
J_WI_19	9.660	5663.9	02Jan2008, 01:25	4.32
R_WI_8	9.660	5432.7	02Jan2008, 01:40	4.31
WI_8	0.630	748.2	02Jan2008, 00:30	4.41
J_WI_8	10.290	5751.6	02Jan2008, 01:35	4.32
R_WI_11	10.290	5288.8	02Jan2008, 01:40	4.27

NOTE 15302: Finished computing simulation run "Baseline_50y_24h" at time 15Jan2020, 13:33:47.

HEC-HMS 4.1 [P:\PROJECTS\649004 1-69 Ohio River Bridge\Canoe Creek Floodplain Study\010620\HMS 010620\HMS Candet4\Candet4.hms]

File Edit View Components Parameters Compute Results Tools Help

Run: Baseline_500y_24h

Global Summary Results for Run "Baseline_500y_24h"

Project: Candet4 Simulation Run: Baseline_500y_24h

Start of Run: 01Jan2008, 12:00 Basin Model: Canoe Creek
End of Run: 05Jan2008, 00:00 Meteorologic Model: 500yr
Compute Time: 15Jan2020, 13:34:51 Control Specifications: 24hr_2008

Show Elements: All Elements Volume Units: IN AC-FT Sorting: Hydrologic

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
NF_40	2.540	3185.5	02Jan2008, 01:30	6.81
NF_0	2.430	2302.9	02Jan2008, 00:55	6.66
J_40_0	2.430	2302.9	02Jan2008, 00:55	6.66
R_NF_40	2.430	2136.1	02Jan2008, 01:35	6.74
J_0_40	4.970	5318.0	02Jan2008, 01:30	6.77
R_NF_3	4.970	5032.2	02Jan2008, 01:50	6.80
NF_3	0.260	364.6	02Jan2008, 01:30	7.33
J_3	5.230	5375.4	02Jan2008, 01:50	6.83
R_NF_8	5.230	5259.3	02Jan2008, 02:05	6.84
NF_8	1.160	3576.2	02Jan2008, 00:15	7.05
J_8	6.390	5565.7	02Jan2008, 02:05	6.87
R_NF_9	6.390	5108.4	02Jan2008, 02:35	6.91
NF_20	0.750	1006.1	02Jan2008, 01:20	7.13
NF_9	0.130	146.6	02Jan2008, 01:45	7.25
J_9U	7.270	5723.8	02Jan2008, 02:30	6.94
D_RR1	7.270	1963.6	02Jan2008, 02:30	3.86
NF_4B	0.110	58.2	02Jan2008, 02:00	7.25
J_9	7.380	2019.7	02Jan2008, 02:30	3.91
R_NF_7	7.380	2018.5	02Jan2008, 02:35	3.91
NF_7	0.090	151.7	02Jan2008, 01:05	7.25
J_7	7.470	2062.9	02Jan2008, 02:30	3.95
R_NF_10	7.470	2042.8	02Jan2008, 02:35	3.94
NF_12	0.140	267.6	02Jan2008, 00:55	7.25
NF_10B	0.090	67.5	02Jan2008, 02:10	7.25
J_7D1	7.700	2152.9	02Jan2008, 02:25	4.04
NF-1A	1.160	1211.4	02Jan2008, 00:55	6.63
NF_1B	0.910	874.8	02Jan2008, 01:35	6.15
J_1	2.070	1938.9	02Jan2008, 01:10	6.42
R_NF_4	2.070	1917.1	02Jan2008, 01:35	6.41
NF-4A	0.290	418.2	02Jan2008, 00:35	7.47
J_4	2.360	2187.1	02Jan2008, 01:30	6.54
R_NF_2A	2.360	2182.8	02Jan2008, 01:35	6.54
NF_2A	0.580	624.4	02Jan2008, 01:10	6.25
NF_2B	0.250	682.1	02Jan2008, 00:25	6.38
J_4D1	3.190	2852.3	02Jan2008, 01:25	6.47
R_NF_10A	3.190	2841.6	02Jan2008, 01:35	6.47
NF_10A	0.160	344.5	02Jan2008, 00:35	7.79
J_4D2	3.350	2977.3	02Jan2008, 01:30	6.53
NF_5	0.480	1817.9	02Jan2008, 00:15	7.54
J_4D3	3.830	3143.3	02Jan2008, 01:30	6.66
J_Kimsey	11.530	5285.0	02Jan2008, 01:30	4.91
R_NF_17	11.530	5237.4	02Jan2008, 01:30	4.91
NF_16	1.010	1955.9	02Jan2008, 00:35	7.00
J_16	1.010	1955.9	02Jan2008, 00:35	7.00
R_NF_20	1.010	1712.7	02Jan2008, 01:10	6.95
J_20	1.010	1712.7	02Jan2008, 01:10	6.95

NOTE 15302: Finished computing simulation run "Baseline_500y_24h" at time 15Jan2020, 13:35:23.

HEC-HMS 4.1 [P:\PROJECTS\649004 1-69 Ohio River Bridge\Canoe Creek Floodplain Study\010620\HMS 010620\HMS Candet4\Candet4.hms]

File Edit View Components Parameters Compute Results Tools Help

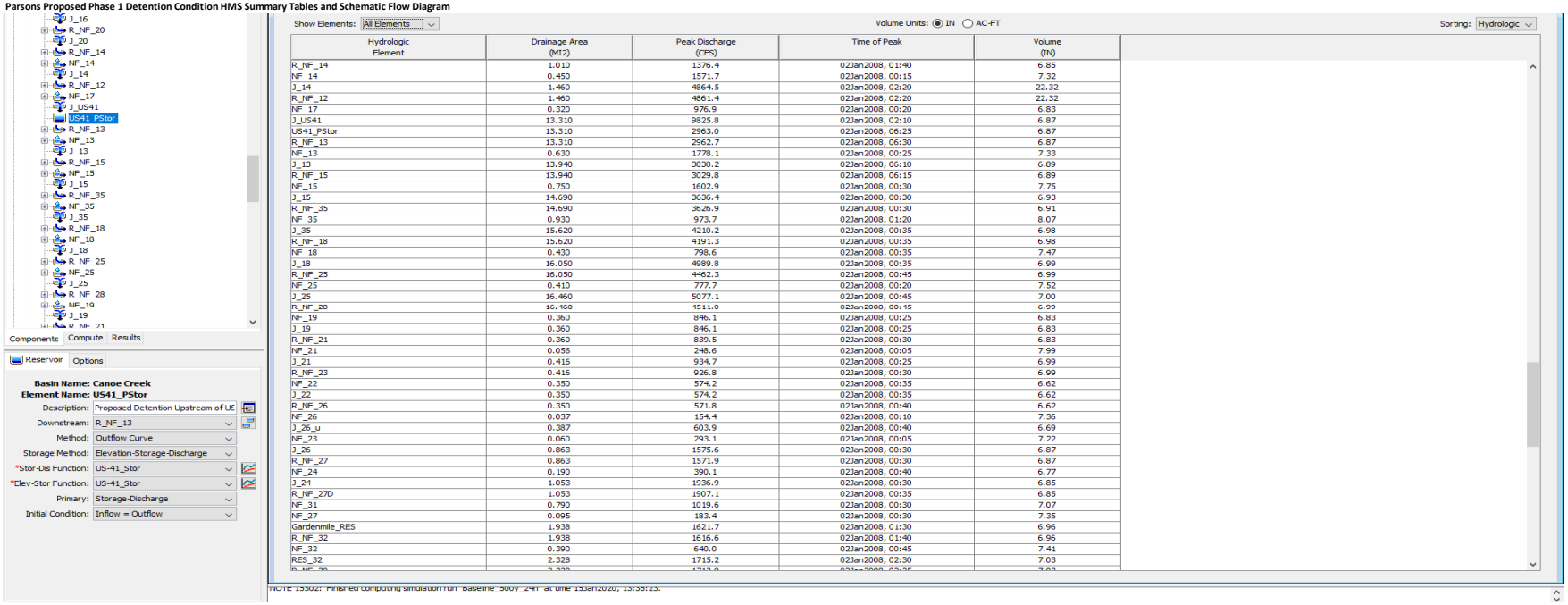
Run: Baseline_500y_24h

Global Summary Results for Run "Baseline_500y_24h"

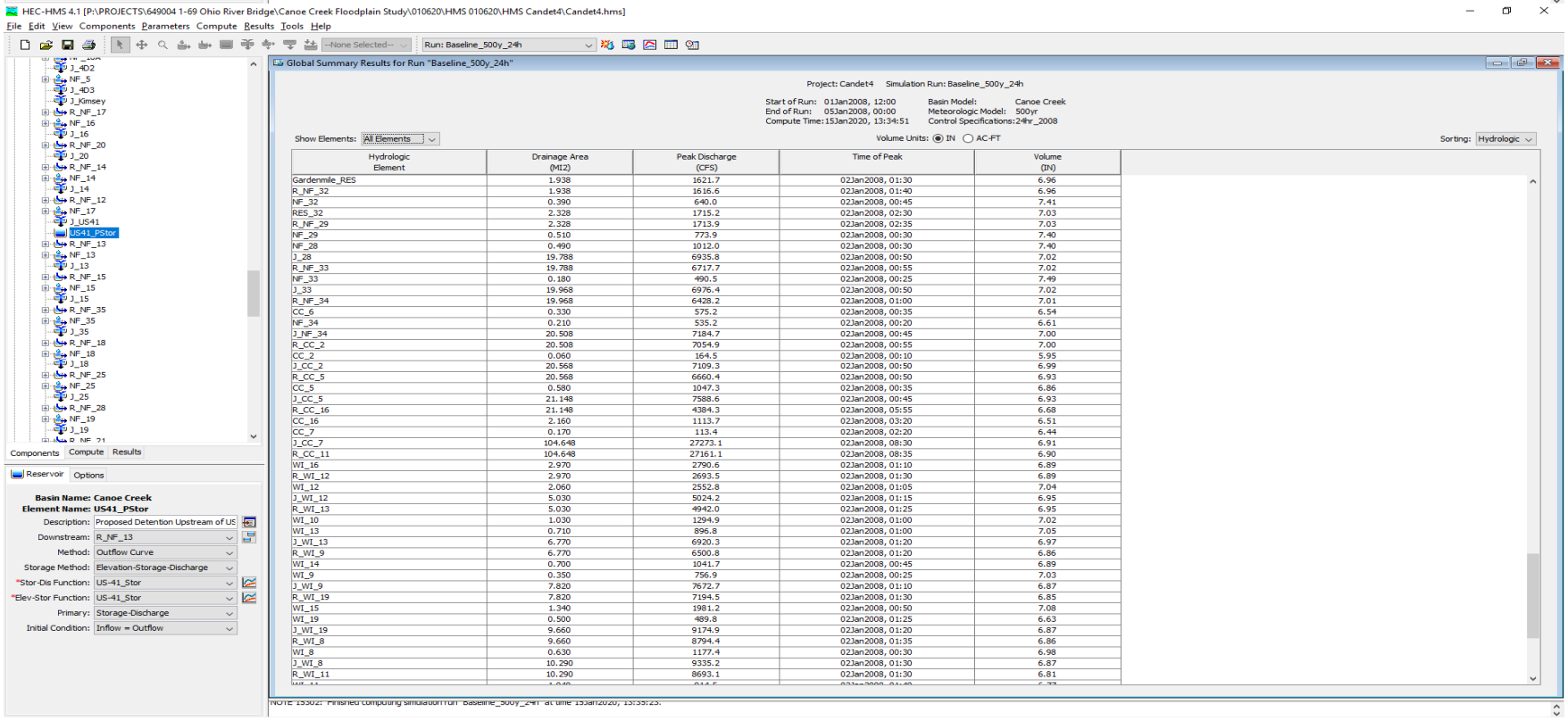
Project: Candet4 Simulation Run: Baseline_500y_24h

Start of Run: 01Jan2008, 12:00 Basin Model: Canoe Creek
End of Run: 05Jan2008, 00:00 Meteorologic Model: 500yr
Compute Time: 15Jan2020, 13:34:51 Control Specifications: 24hr_2008

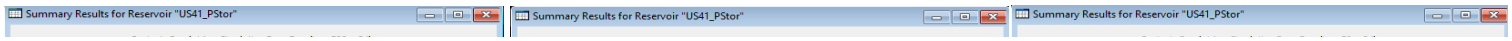
Canoe Creek Flood Impact Study on Proposed I69
Parsons Proposed Phase 1 Detention Condition HMS Summary Tables and Schematic Flow Diagram



Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
R_NF_14	1.010	1376.4	02Jan2008, 01:40	6.85
NF_14	0.450	1571.7	02Jan2008, 00:15	7.32
J_14	1.460	4864.5	02Jan2008, 02:20	22.32
R_NF_12	1.460	4861.4	02Jan2008, 02:20	22.32
NF_17	0.320	976.9	02Jan2008, 00:20	6.83
J_US41	13.310	9825.8	02Jan2008, 02:10	6.87
US41_PStor	13.310	2963.0	02Jan2008, 06:25	6.87
R_NF_13	13.310	2962.7	02Jan2008, 06:30	6.87
NF_13	0.630	1778.1	02Jan2008, 00:25	7.33
J_13	13.940	3030.2	02Jan2008, 06:10	6.89
R_NF_15	13.940	3029.8	02Jan2008, 06:15	6.89
NF_15	0.750	1602.9	02Jan2008, 00:30	7.75
J_15	14.690	3636.4	02Jan2008, 00:30	6.93
R_NF_35	14.690	3626.9	02Jan2008, 00:30	6.91
NF_35	0.930	973.7	02Jan2008, 01:20	8.07
J_35	15.620	4210.2	02Jan2008, 00:35	6.98
R_NF_18	15.620	4191.3	02Jan2008, 00:35	6.98
NF_18	0.430	798.6	02Jan2008, 00:35	7.47
J_18	16.050	4989.8	02Jan2008, 00:35	6.99
R_NF_25	16.050	4462.3	02Jan2008, 00:45	6.99
NF_25	0.410	777.7	02Jan2008, 00:20	7.52
J_25	16.460	5077.1	02Jan2008, 00:45	7.00
R_NF_28	16.460	4511.0	02Jan2008, 00:45	6.99
NF_19	0.360	846.1	02Jan2008, 00:25	6.83
J_19	0.360	846.1	02Jan2008, 00:25	6.83
R_NF_21	0.360	839.5	02Jan2008, 00:30	6.83
NF_21	0.056	248.6	02Jan2008, 00:05	7.99
J_21	0.416	934.7	02Jan2008, 00:25	6.99
R_NF_23	0.416	926.8	02Jan2008, 00:30	6.99
NF_22	0.350	574.2	02Jan2008, 00:35	6.62
J_22	0.350	574.2	02Jan2008, 00:35	6.62
R_NF_26	0.350	571.8	02Jan2008, 00:40	6.62
NF_26	0.037	154.4	02Jan2008, 00:10	7.36
J_26_u	0.387	603.9	02Jan2008, 00:40	6.69
NF_23	0.060	293.1	02Jan2008, 00:05	7.22
J_26	0.863	1575.6	02Jan2008, 00:30	6.87
R_NF_27	0.863	1571.9	02Jan2008, 00:30	6.87
NF_24	0.190	390.1	02Jan2008, 00:40	6.77
J_24	1.053	1936.9	02Jan2008, 00:30	6.85
R_NF_27D	1.053	1907.1	02Jan2008, 00:35	6.85
NF_31	0.790	1019.6	02Jan2008, 00:30	7.07
NF_27	0.095	183.4	02Jan2008, 00:30	7.35
Gardenmile_RES	1.938	1621.7	02Jan2008, 01:30	6.96
R_NF_32	1.938	1616.6	02Jan2008, 01:40	6.96
NF_32	0.390	640.0	02Jan2008, 00:45	7.41
RES_32	2.328	1715.2	02Jan2008, 02:30	7.03



Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
Gardenmile_RES	1.938	1621.7	02Jan2008, 01:30	6.96
R_NF_32	1.938	1616.6	02Jan2008, 01:40	6.96
NF_32	0.390	640.0	02Jan2008, 00:45	7.41
RES_32	2.328	1715.2	02Jan2008, 02:30	7.03
R_NF_29	2.328	1713.9	02Jan2008, 02:35	7.03
NF_29	0.510	773.9	02Jan2008, 00:30	7.40
NF_28	0.490	1012.0	02Jan2008, 00:30	7.40
J_28	19.788	6935.8	02Jan2008, 00:50	7.02
R_NF_33	19.788	6717.7	02Jan2008, 00:55	7.02
NF_33	0.180	490.5	02Jan2008, 00:25	7.49
J_33	19.968	6976.4	02Jan2008, 00:50	7.02
R_NF_34	19.968	6428.2	02Jan2008, 01:00	7.01
CC_6	0.330	575.2	02Jan2008, 00:35	6.54
NF_34	0.210	535.2	02Jan2008, 00:20	6.61
J_NF_34	20.508	7184.7	02Jan2008, 00:45	7.00
R_CC_2	20.508	7054.9	02Jan2008, 00:55	7.00
CC_2	0.060	164.5	02Jan2008, 00:10	5.95
J_CC_2	20.568	7109.3	02Jan2008, 00:50	6.99
R_CC_5	20.568	6660.4	02Jan2008, 00:50	6.93
CC_5	0.580	1047.3	02Jan2008, 00:35	6.86
J_CC_5	21.148	7588.6	02Jan2008, 00:45	6.93
R_CC_16	21.148	4384.3	02Jan2008, 05:55	6.68
CC_16	2.160	1113.7	02Jan2008, 03:20	6.51
CC_7	0.170	113.4	02Jan2008, 02:20	6.44
J_CC_7	104.648	27273.1	02Jan2008, 08:30	6.91
R_CC_11	104.648	27161.1	02Jan2008, 08:35	6.90
WI_16	2.970	2790.6	02Jan2008, 01:10	6.89
R_WI_12	2.970	2693.5	02Jan2008, 01:30	6.89
WI_12	2.060	2552.8	02Jan2008, 01:05	7.04
J_WI_12	5.030	5024.2	02Jan2008, 01:15	6.95
R_WI_13	5.030	4942.0	02Jan2008, 01:25	6.95
WI_10	1.030	1294.9	02Jan2008, 01:00	7.02
WI_13	0.710	896.8	02Jan2008, 01:00	7.05
J_WI_13	6.770	6920.3	02Jan2008, 01:20	6.97
R_WI_9	6.770	6500.8	02Jan2008, 01:20	6.86
WI_14	0.700	1041.7	02Jan2008, 00:45	6.89
WI_9	0.350	756.9	02Jan2008, 00:25	7.03
J_WI_9	7.820	7672.7	02Jan2008, 01:10	6.87
R_WI_19	7.820	7194.5	02Jan2008, 01:30	6.85
WI_15	1.340	1981.2	02Jan2008, 00:50	7.08
WI_19	0.500	489.8	02Jan2008, 01:25	6.63
J_WI_19	9.660	9174.9	02Jan2008, 01:20	6.87
R_WI_8	9.660	8794.4	02Jan2008, 01:35	6.86
WI_8	0.630	1177.4	02Jan2008, 00:30	6.98
J_WI_8	10.290	9335.2	02Jan2008, 01:30	6.87
R_WI_11	10.290	8693.1	02Jan2008, 01:30	6.81



Canoe Creek Flood Impact Study on Proposed I69
Parsons Proposed Phase 1 Detention Condition HMS Summary Tables and Schematic Flow Diagram

Project: Candet4 Simulation Run: Baseline_500y_24h
Reservoir: US41_PStor

Start of Run:	01Jan2008, 12:00	Basin Model:	Canoe Creek
End of Run:	05Jan2008, 00:00	Meteorologic Model:	500yr
Compute Time:	15Jan2020, 13:34:51	Control Specifications:	24hr_2008

Volume Units: (•) IN ( ) AC-FT

Computed Results

Peak Inflow:	9825.8 (CFS)	Date/Time of Peak Inflow:	02Jan2008, 02:10
Peak Discharge:	2963.0 (CFS)	Date/Time of Peak Discharge:	02Jan2008, 06:25
Inflow Volume:	6.87 (IN)	Peak Storage:	2586.1 (AC-FT)
Discharge Volume:	6.87 (IN)	Peak Elevation:	388.8 (FT)

Project: Candet4 Simulation Run: Baseline_100y_24h
Reservoir: US41_PStor

Start of Run:	01Jan2008, 12:00	Basin Model:	Canoe Creek
End of Run:	05Jan2008, 00:00	Meteorologic Model:	100yr
Compute Time:	15Jan2020, 13:23:18	Control Specifications:	24hr_2008

Volume Units: (•) IN ( ) AC-FT

Computed Results

Peak Inflow:	6880.4 (CFS)	Date/Time of Peak Inflow:	02Jan2008, 02:15
Peak Discharge:	2622.3 (CFS)	Date/Time of Peak Discharge:	02Jan2008, 06:00
Inflow Volume:	5.04 (IN)	Peak Storage:	1795.7 (AC-FT)
Discharge Volume:	5.04 (IN)	Peak Elevation:	387.2 (FT)

Project: Candet4 Simulation Run: Baseline_50y_24h
Reservoir: US41_PStor

Start of Run:	01Jan2008, 12:00	Basin Model:	Canoe Creek
End of Run:	05Jan2008, 00:00	Meteorologic Model:	50yr
Compute Time:	15Jan2020, 13:33:11	Control Specifications:	24hr_2008

Volume Units: (•) IN ( ) AC-FT

Computed Results

Peak Inflow:	5809.1 (CFS)	Date/Time of Peak Inflow:	02Jan2008, 02:15
Peak Discharge:	2336.5 (CFS)	Date/Time of Peak Discharge:	02Jan2008, 06:00
Inflow Volume:	4.32 (IN)	Peak Storage:	1543.0 (AC-FT)
Discharge Volume:	4.32 (IN)	Peak Elevation:	386.5 (FT)

Summary Results for Reservoir "US41_PStor"

Project: Candet4 Simulation Run: Baseline_10y_24h
Reservoir: US41_PStor

Start of Run:	01Jan2008, 12:00	Basin Model:	Canoe Creek
End of Run:	05Jan2008, 00:00	Meteorologic Model:	10yr
Compute Time:	15Jan2020, 13:31:17	Control Specifications:	24hr_2008

Volume Units: (•) IN ( ) AC-FT

Computed Results

Peak Inflow:	3811.9 (CFS)	Date/Time of Peak Inflow:	02Jan2008, 02:25
Peak Discharge:	1495.0 (CFS)	Date/Time of Peak Discharge:	02Jan2008, 06:15
Inflow Volume:	2.83 (IN)	Peak Storage:	1058.9 (AC-FT)
Discharge Volume:	2.83 (IN)	Peak Elevation:	384.7 (FT)

Summary Results for Reservoir "US41_PStor"

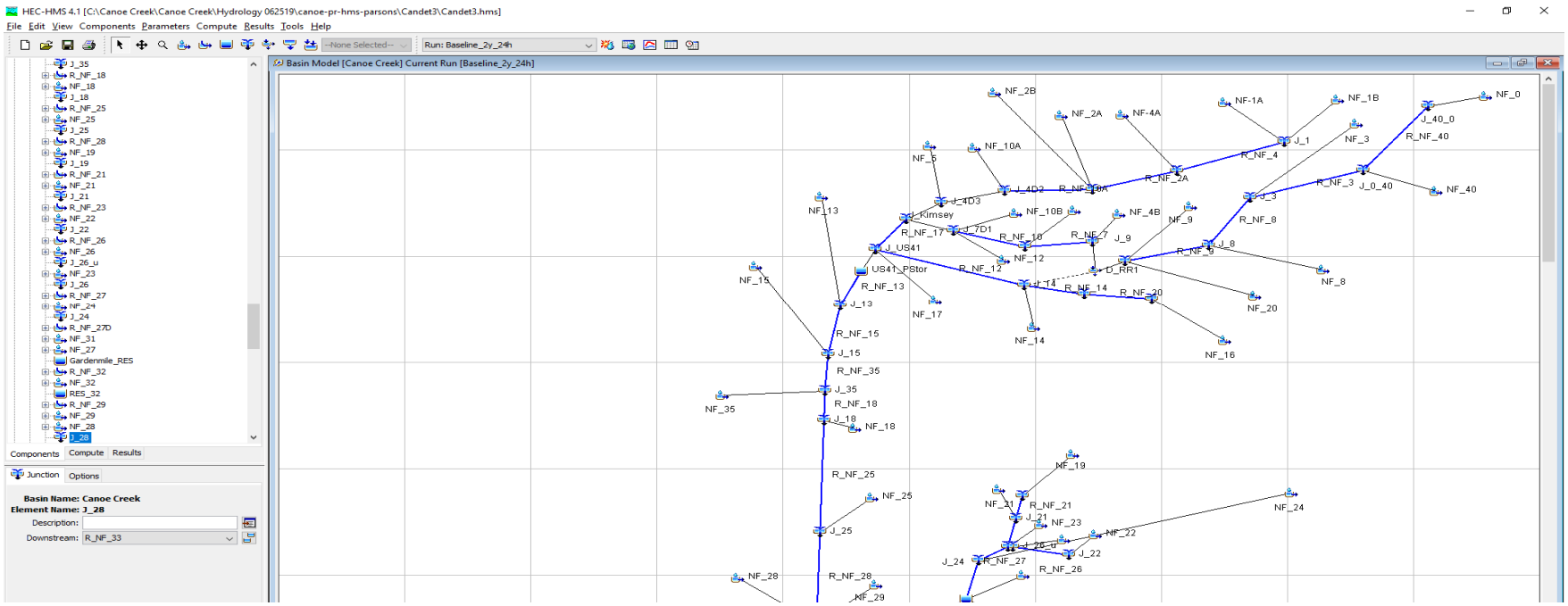
Project: Candet4 Simulation Run: Baseline_2y_24h
Reservoir: US41_PStor

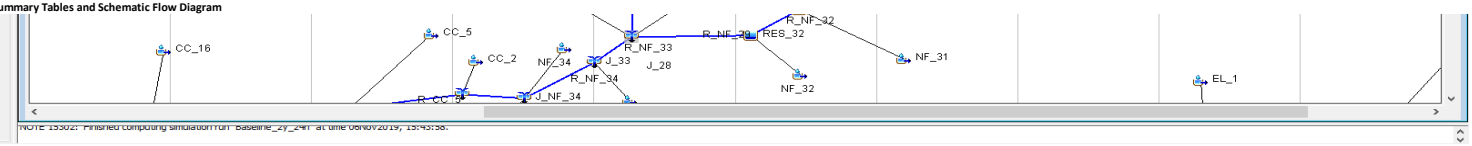
Start of Run:	01Jan2008, 12:00	Basin Model:	Canoe Creek
End of Run:	05Jan2008, 00:00	Meteorologic Model:	2yr
Compute Time:	15Jan2020, 13:28:11	Control Specifications:	24hr_2008

Volume Units: (•) IN ( ) AC-FT

Computed Results

Peak Inflow:	2106.4 (CFS)	Date/Time of Peak Inflow:	02Jan2008, 02:45
Peak Discharge:	653.2 (CFS)	Date/Time of Peak Discharge:	02Jan2008, 06:55
Inflow Volume:	1.59 (IN)	Peak Storage:	626.2 (AC-FT)
Discharge Volume:	1.59 (IN)	Peak Elevation:	382.5 (FT)





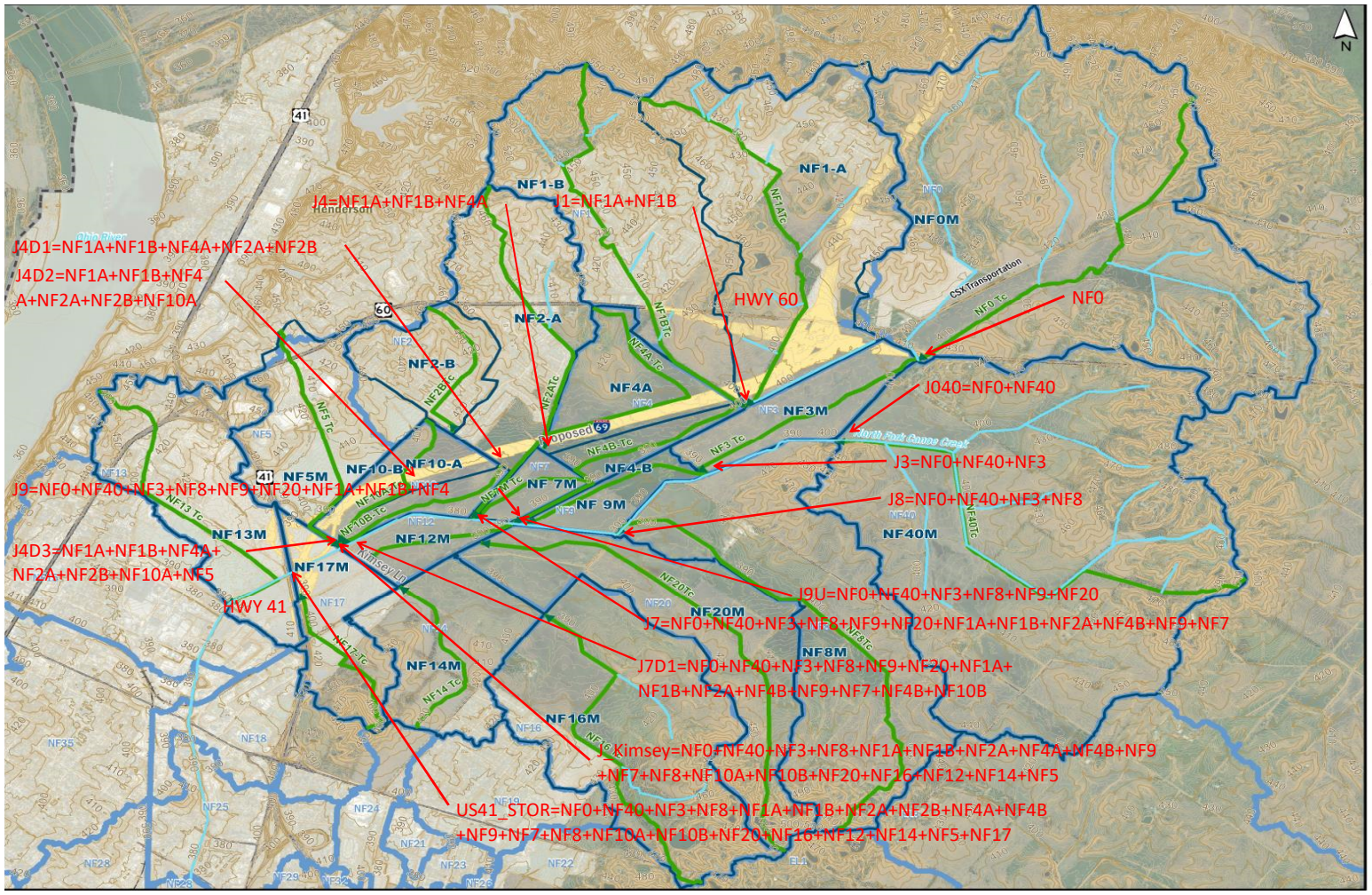


EXHIBIT 2B: MODIFIED FEMA FIS DRAINAGE AREAS FOR PROPOSED CONDITIONS

- Modified FEMA FIS Drainage Area
- FEMA FIS Drainage Area
- Time of Concentration Flow Path
- Streams
- Contour
- Proposed I-69
- Major Routes
- State Highway
- Railroad
- State/County Line
- City/Town Boundary

Appendix B

Appendix B-1

Canoe Creek Flood Impact Study on Proposed I69
Proposed Regional Drainage Channel along south side of Proposed I-69 from Highway 60 to Highway 41

XS	Concentration Point CP	100yr Discharge Q100	500yr Discharge Q500	50yr Discharge Q50	10yr Discharge Q10	2yr Discharge Q2	Exist Flowline El	Exist Ground El	Channel Length to U/S XS	U/S Exist Ground Slope	Proposed Flowline El	U/S Channel Length	U/S Channel Slope	Bottom Width Wb	Side Slopes (H/V)	Low Flow Channel Depth Dl	Free board	Overbank Width Wo	Overbank Depth Do	Channel Top Width Ctw	100yr Flow Depth WSEL100	2yr Flow Depth WSEL2	100yr Flow Velocity V100	2yr Flow Velocity V2	Comments
		cfs	cfs	cfs	cfs	cfs	ft	ft	ft	ft/ft	ft	ft	ft/ft	ft	ft/ft	ft	ft	ft	ft	ft	ft	ft	ft/sec	ft/sec	
30943.45	NF1A	852.7	1180.2	724.4	458.1	239.4	396.44	408			396.4														Trapezoidal Channel alignment and side slopes to be adjusted to avoid highway and ramps at the proposed I-69/Highway 60 interchange improvements
30724.21	NF1A	852.7	1180.2	724.4	458.1	239.4	394.55	404	219	0.00863	394.6	219	0.0086	6	4	9.4	4.8			81.6	4.66		7.43		
30371	NF1A	852.7	1180.2	724.4	458.1	239.4	394.39	402			394.4														
29531.08	NF1A	852.7	1180.2	724.4	458.1	239.4	393.46	402	835	0.001114	393.5	835	0.0011	12	4	8.5	2.0			80.3	6.53		3.43		
28940	NF1A	852.7	1180.2	724.4	458.1	239.4	392.48	400			392.5			60	4	7.5	2.7	30	5.5	180.2	4.84	1.6	2.79	2.07	Eight Point Channel
28532	NF1A	852.7	1180.2	724.4	458.1	239.4		398	331.5	0.006033	392.0	331.5	0.00145	60	4	6.0	1.2	30	4.0	168.0	4.84	1.6	2.79	2.07	
27158	J4=NF1A+NF1B+NF4	1558.2	2170.3	1320.9	830.1	445.4		397	1424	0.000702	390.0	1424	0.00140	60	4	7.0	2.1	30	5.0	176.0	4.9	1.63	2.76	2.06	
25956	J4=NF1A+NF1B+NF4	1558.2	2170.3	1320.9	830.1	445.4		395.5	1089	0.001377	388.5	1089	0.00138	60	4	7	2.1	30	5	176	4.92	1.63	2.75	2.05	
24827	J4=NF1A+NF1B+NF4	1558.2	2170.3	1320.9	830.1	445.4	385	392	1062	0.003296	386.3	1062	0.00207	60	4	5.7	1.2	30	3.7	165.6	4.47	1.45	3.14	2.33	
23524	J4D1=J4+NF2A	1808.6	2536.5	1529.5	954.7	542.9		390	1348	0.001484	383.4	1352	0.00214	60	4	6.6	1.9	30	4.6	172.8	4.75	1.61	3.34	2.53	
21591.5/22935	J4D1=J4+NF2A	1808.6	2536.5	1529.5	954.7	542.9		390	554	0	382.2	555	0.00216	60	4	7.8	3.1	30	5.8	182.4	4.74	1.61	3.35	2.54	
19922.4/21097	J4D1=J4+NF2A	1808.6	2536.5	1529.5	954.7	542.9		388	1855	0.001078	381.0	3757	0.00141	60	4	7	1.7	30	5	176	5.26	1.82	2.91	2.21	
18470/19206	J4D2=J4D1+NF2B+NF5+NF10	2326.2	3122.1	2026.5	1397.9	816.3	374	385	1995	0.001504	376.2	1995	0.00241	60	4	8.8	4.2	30	6.8	190.4	4.65	1.98	4.43	3.04	Eight Point Channel alignment and side slopes will have to be adjusted to avoid proposed I-69 highway and ramps
17702.9/18255	J4D2=J4D1+NF2B+NF5+NF10	2326.2	3122.1	2026.5	1397.9	816.3	374.13	383	1128	0.001773	374.1	1128	0.00186	60	4	8.9	3.9	30	6.9	191.2	4.97	2.13	4.05	2.79	
17534.5/18114	J4D2=J4D1+NF2B+NF5+NF10	2326.2	3122.1	2026.5	1397.9	816.3	372.63	384	138	35	373.8	138	0.00217	60	4	10.2	5.4	30	8.2	201.6	4.78	2.04	4.27	2.94	
16904.1	J4D2=J4D1+NF2B+NF5+NF10	2326.2	3122.1	2026.5	1397.9	816.3	371.38	384	607	0	372.5	607	0.00214	60	4	11.5	6.7	30	9.5	212	4.8	2.05	4.25	2.92	
16397.3	NF10	2326.2	3122.1	2026.5	1397.9	816.3	372.11	382	511	0.003914	372.1	511	0.00076	60	4	9.9	3.6	30	7.89	199.12	6.25	2.76	2.96	2.08	

Some minor modifications have been made for longitudinal slopes and the more detailed hydraulic analyis is within the GeoHECRAS models - see HECRAS summary tables
Manning's roughness values for channel and overbank areas are 0.035 and 0.055 respectively

Appendix B-2

Canoe Creek North Fork - Flood Impact Study
FEMA FIS HECRAS Summary Table

2017 FIS + 389.0

387.9

387.8

386.8

386.6

386.4

HEC-RAS Plan: NF_Canoe_Mod River: NF_Canoe Reach: Main

Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Main	21591.5 R	P100yr	3880.00	377.29	388.98	387.02	389.01	0.000575	2.49	4024.46	3231.97	0.17
Main	21591.5 R	Floodway	3880.00	377.29	389.79	387.11	389.82	0.000344	2.04	4109.90	1052.71	0.13
Main	21591.5 R	P500yr	5600.00	377.29	390.52	387.33	390.54	0.000303	2.00	6506.64	4222.87	0.13
Main	21591.5 R	P50yr	3245.00	377.29	388.67	386.86	388.70	0.000575	2.43	3553.52	2991.59	0.17
Main	21591.5 R	P10yr	2060.00	377.29	387.84	385.02	387.86	0.000961	2.47	2323.90	2664.43	0.18
Main	19622.4	P100yr	3880.00	376.15	388.01	385.54	388.02	0.000196	1.47	6499.58	2803.48	0.10
Main	19622.4	Floodway	3880.00	376.15	388.78	385.90	388.80	0.000301	1.92	4283.76	1041.89	0.12
Main	19622.4	P500yr	5600.00	376.15	390.08	385.78	390.08	0.000082	1.10	11172.99	3872.76	0.07
Main	19622.4	P50yr	3245.00	376.15	387.77	385.42	387.78	0.000174	1.36	5991.48	2695.86	0.09
Main	19622.4	P10yr	2060.00	376.15	386.48	383.77	386.50	0.000309	1.67	3463.98	1965.26	0.12
Main	18470. Q	P100yr	3880.00	375.15	387.87	384.42	387.87	0.000054	0.89	10087.22	3452.30	0.06
Main	18470. Q	Floodway	3880.00	375.15	388.45	384.52	388.46	0.000179	1.55	4898.79	953.55	0.10
Main	18470. Q	P500yr	5600.00	375.15	390.01	384.62	390.01	0.000032	0.74	15874.78	4250.86	0.04
Main	18470. Q	P50yr	3245.00	375.15	387.65	384.32	387.65	0.000054	0.81	9515.49	3403.12	0.05
Main	18470. Q	P10yr	2060.00	375.15	386.30	383.95	386.30	0.000075	0.86	6114.06	2787.72	0.06
Main	17702.9	P100yr	3880.00	374.63	387.83	383.63	387.84	0.000029	0.62	12543.34	3517.64	0.04
Main	17702.9	Floodway	3880.00	374.63	388.36	383.72	388.36	0.000074	1.03	6771.35	1190.26	0.06
Main	17702.9	P500yr	5270.00	374.63	389.99	383.86	390.00	0.000018	0.57	18475.03	4121.22	0.03
Main	17702.9	P50yr	2970.00	374.63	387.62	383.47	387.62	0.000023	0.54	11972.48	3349.30	0.03
Main	17702.9	P10yr	2100.00	374.63	386.26	383.16	386.27	0.000035	0.60	8374.50	2740.51	0.04
Main	17626.8		Culvert									
Main	17534.5	P100yr	3880.00	372.77	387.80	383.86	387.80	0.000037	0.85	11229.02	3047.76	0.05
Main	17534.5	Floodway	3880.00	372.77	388.34	381.53	388.35	0.000084	1.33	6271.23	1195.28	0.07
Main	17534.5	P500yr	5270.00	372.77	389.95	384.26	389.95	0.000022	0.74	16960.64	3983.87	0.04
Main	17534.5	P50yr	2970.00	372.77	387.61	380.69	387.61	0.000029	0.75	10722.24	3015.68	0.04
Main	17534.5	P10yr	2100.00	372.77	386.25	379.38	386.25	0.000048	0.88	7192.32	2746.19	0.05
Main	16904.1 P	P100yr	3880.00	372.83	387.76	382.75	387.77	0.000096	1.29	6488.60	2429.77	0.07
Main	16904.1 P	Floodway	3880.00	372.83	388.27	382.75	388.29	0.000149	1.67	4894.01	1038.57	0.09
Main	16904.1 P	P500yr	5270.00	372.83	389.92	385.30	389.93	0.000061	1.17	9945.47	2907.67	0.06
Main	16904.1 P	P50yr	2970.00	372.83	387.58	381.91	387.59	0.000073	1.12	6217.21	2394.55	0.06
Main	16904.1 P	P10yr	2100.00	372.83	386.20	380.53	386.20	0.000101	1.18	4252.94	1936.07	0.07
Main	16397.3	P100yr	3470.00	373.47	387.56	382.09	387.65	0.000590	3.38	2357.75	2890.58	0.18
Main	16397.3	Floodway	3470.00	373.47	388.17	382.10	388.20	0.000244	2.25	3737.08	1043.11	0.12
Main	16397.3	P500yr	5250.00	373.47	389.87	383.20	389.89	0.000146	1.91	7283.52	3328.63	0.09
Main	16397.3	P50yr	2930.00	373.47	387.42	381.72	387.49	0.000455	2.94	2240.98	2831.40	0.16
Main	16397.3	P10yr	2020.00	373.47	386.04	380.94	386.10	0.000419	2.57	1389.05	2138.38	0.15
Main	16251.8		Bridge									
Main	16087.8	P100yr	3470.00	372.87	386.99	381.63	387.09	0.000501	3.13	2442.26	2846.50	0.19
Main	16087.8	Floodway	3470.00	372.87	387.61	381.64	387.68	0.000415	2.72	2813.25	1158.14	0.18
Main	16087.8	P500yr	5250.00	372.87	389.29	384.12	389.31	0.000160	1.88	7542.49	3401.21	0.10
Main	16087.8	P50yr	2930.00	372.87	386.20	380.81	386.31	0.000715	3.21	1854.33	2505.51	0.20
Main	16087.8	P10yr	2020.00	372.87	385.23	379.39	385.35	0.000774	3.06	1009.89	2086.96	0.20
Main	15534.2 O	P100yr	3470.00	372.16	386.78	382.91	386.81	0.000304	2.22	3806.82	2439.00	0.13
Main	15534.2 O	Floodway	3470.00	372.16	387.40	382.89	387.44	0.000332	2.42	3541.63	1050.98	0.13
Main	15534.2 O	P500yr	5250.00	372.16	389.19	383.57	389.21	0.000146	1.79	7250.04	2865.02	0.09
Main	15534.2 O	P50yr	2930.00	372.16	385.92	382.65	385.96	0.000426	2.47	2754.82	2165.73	0.15
Main	15534.2 O	P10yr	2020.00	372.16	384.96	379.99	385.00	0.000409	2.27	1871.95	1860.86	0.14
Main	14567.2 N	P100yr	3470.00	371.86	386.65	379.65	386.68	0.000082	1.31	6378.55	2103.68	0.08
Main	14567.2 N	Floodway	3470.00	371.86	387.26	379.65	387.28	0.000085	1.39	5514.17	746.12	0.08
Main	14567.2 N	P500yr	5250.00	371.86	389.10	380.62	389.11	0.000063	1.37	8896.31	3152.86	0.07
Main	14567.2 N	P50yr	2930.00	371.86	385.77	379.26	385.78	0.000094	1.30	5472.50	1757.04	0.08
Main	14567.2 N	P10yr	2020.00	371.86	384.83	378.51	384.84	0.000080	1.11	4510.76	1468.08	0.07
Main	13899.4	P100yr	3470.00	371.82	386.56	381.07	386.58	0.000158	2.09	5210.49	2239.63	0.11
Main	13899.4	Floodway	3470.00	371.82	387.16	381.06	387.20	0.000157	2.16	4127.61	670.00	0.11
Main	13899.4	P500yr	5250.00	371.82	389.04	382.50	389.06	0.000098	1.88	8213.49	2540.72	0.09
Main	13899.4	P50yr	2930.00	371.82	385.65	379.46	385.69	0.000210	2.27	4111.94	2082.41	0.13
Main	13899.4	P10yr	2020.00	371.82	384.72	378.16	384.76	0.000203	2.09	3003.17	1754.10	0.12
Main	13273.2 M	P100yr	3470.00	372.03	386.44	381.16	386.47	0.000214	1.99	4876.87	1828.84	0.12
Main	13273.2 M	Floodway	3470.00	372.03	386.96	381.09	387.04	0.000425	2.93	2289.25	446.31	0.18
Main	13273.2 M	P500yr	5250.00	372.03	388.97	382.50	388.99	0.000112	1.73	8060.91	2531.34	0.09
Main	13273.2 M	P50yr	2930.00	372.03	385.49	379.84	385.53	0.000318	2.23	3687.17	1455.44	0.15
Main	13273.2 M	P10yr	2020.00	372.03	384.59	378.38	384.62	0.000227	2.10	2703.81	1049.67	0.13
Main	12979.5	P100yr	3470.00	371.87	386.33	382.37	386.38	0.000323	2.57	3370.76	2132.27	0.15
Main	12979.5	Floodway	3470.00	371.87	386.75	382.26	386.88	0.000567	3.51	1846.02	320.00	0.21
Main	12979.5	P500yr	5250.00	371.87	388.90	383.41	388.94	0.000199	2.40	5281.52	2892.33	0.13

HEC-RAS Plan: NF_Canoe_Mod River: NF_Canoe Reach: Main (Continued)

Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Main	12979.5	P50yr	2930.00	371.87	385.34	381.80	385.41	0.000452	2.80	2630.39	1795.07	0.18
Main	12979.5	P10yr	2020.00	371.87	384.46	380.75	384.53	0.000428	2.51	1981.33	1267.63	0.17
Main	12921.8		Bridge									
Main	12871.2	P100yr	3470.00	370.00	386.16	379.42	386.26	0.000438	3.03	2190.75	1888.74	0.18
Main	12871.2	Floodway	3470.00	370.00	386.55	379.41	386.69	0.000504	3.34	1562.67	250.00	0.19
Main	12871.2	P500yr	5250.00	370.00	388.78	382.56	388.87	0.000302	2.99	3462.12	2724.51	0.16
Main	12871.2	P50yr	2930.00	370.00	385.11	378.70	385.23	0.000577	3.19	1678.20	1328.93	0.20
Main	12871.2	P10yr	2020.00	370.00	384.22	377.26	384.32	0.000495	2.72	1246.90	1017.02	0.18

B 2

Canoe Creek North Fork - Flood Impact Study
FEMA FIS HECRAS Summary Table

Main	12458.1	P100yr	3470.00	369.67	385.60	378.37	385.93	0.001096	4.64	848.62	574.16	0.28
Main	12458.1	Floodway	3470.00	369.67	386.07	378.38	386.37	0.000943	4.43	838.11	116.37	0.26
Main	12458.1	P500yr	5250.00	369.67	388.20	380.38	388.56	0.000938	5.09	1315.37	1043.27	0.27
Main	12458.1	P50yr	2930.00	369.67	384.51	377.65	384.84	0.001234	4.56	666.59	369.70	0.29
Main	12458.1	P10yr	2020.00	369.67	383.85	376.26	384.04	0.000781	3.45	587.54	101.02	0.23
Main	12027.9 L	P100yr	3770.00	369.87	385.16	379.09	385.48	0.000988	4.65	1033.76	1422.22	0.27
Main	12027.9 L	Floodway	3770.00	369.87	385.65	379.09	385.96	0.000929	4.52	907.50	111.86	0.26
Main	12027.9 L	P500yr	5740.00	369.87	387.85	381.35	388.19	0.000810	5.01	1647.82	1860.69	0.26
Main	12027.9 L	P50yr	3180.00	369.87	383.98	378.27	384.31	0.001203	4.67	748.15	1005.51	0.29
Main	12027.9 L	P10yr	2210.00	369.87	383.54	376.81	383.72	0.000709	3.45	686.64	775.21	0.22
Main	11796.9	P100yr	3770.00	369.98	385.00	378.09	385.24	0.000748	3.99	1163.88	947.16	0.24
Main	11796.9	Floodway	3770.00	369.98	385.51	378.10	385.75	0.000673	3.93	1094.36	182.00	0.23
Main	11796.9	P500yr	5740.00	369.98	387.82	379.86	387.95	0.000397	3.51	3343.67	1493.53	0.18
Main	11796.9	P50yr	3180.00	369.98	383.78	377.48	384.03	0.000924	4.01	927.85	700.10	0.26
Main	11796.9	P10yr	2210.00	369.98	383.42	376.26	383.55	0.000534	2.95	887.33	418.82	0.19
Main	11736.8		Bridge									
Main	11667.5	P100yr	3770.00	369.19	383.94	376.58	384.20	0.000777	4.07	1030.22	545.79	0.24
Main	11667.5	Floodway	3770.00	369.19	384.45	376.58	384.68	0.000686	3.89	1010.73	146.13	0.23
Main	11667.5	P500yr	5740.00	369.19	386.77	378.43	386.14	0.000896	4.96	1410.40	1447.43	0.27
Main	11667.5	P50yr	3180.00	369.19	383.10	375.93	383.33	0.000789	3.84	880.10	297.24	0.24
Main	11667.5	P10yr	2210.00	369.19	381.56	374.71	381.72	0.000600	3.34	667.75	121.17	0.23
Main	11496.7 K	P100yr	3770.00	368.97	383.70	377.05	384.02	0.001113	4.57	979.14	398.32	0.26
Main	11496.7 K	Floodway	3770.00	368.97	384.25	377.06	384.53	0.000914	4.32	937.11	145.00	0.26
Main	11496.7 K	P500yr	5740.00	368.97	385.56	379.09	385.96	0.001124	5.28	1532.31	1080.81	0.30
Main	11496.7 K	P50yr	3180.00	368.97	382.66	376.38	383.15	0.001155	4.37	786.90	196.23	0.29
Main	11496.7 K	P10yr	2210.00	368.97	381.34	375.09	381.56	0.000936	3.78	589.84	97.30	0.25
Main	11331.	P100yr	3770.00	368.71	383.45	377.28	383.81	0.001339	4.90	1023.95	381.15	0.31
Main	11331.	Floodway	3770.00	368.71	383.99	377.28	384.33	0.001357	4.73	854.92	146.85	0.31
Main	11331.	P500yr	5740.00	368.71	385.38	379.19	385.73	0.001357	5.14	1700.07	632.90	0.32
Main	11331.	P50yr	3180.00	368.71	382.57	376.61	382.92	0.001411	4.82	751.92	223.36	0.31
Main	11331.	P10yr	2210.00	368.71	381.12	375.31	381.38	0.001046	4.12	536.01	73.52	0.27
Main	11256.8		Bridge									
Main	11171.4	P100yr	3770.00	368.53	383.31	375.52	383.50	0.000428	3.59	1470.68	280.89	0.19
Main	11171.4	Floodway	3770.00	368.53	383.86	375.52	384.03	0.000360	3.40	1419.31	165.11	0.17
Main	11171.4	P500yr	5740.00	368.53	385.17	377.12	385.43	0.000630	4.42	1957.18	580.04	0.21
Main	11171.4	P50yr	3180.00	368.53	382.44	374.99	382.60	0.000405	3.31	1267.01	204.30	0.18
Main	11171.4	P10yr	2210.00	368.53	381.03	373.91	381.14	0.000336	2.73	998.04	178.68	0.16
Main	11097.6	P100yr	3770.00	368.00	383.21	375.62	383.44	0.000608	3.92	1289.97	499.03	0.22
Main	11097.6	Floodway	3770.00	368.00	383.76	375.61	383.98	0.000547	3.77	1129.81	172.04	0.20
Main	11097.6	P500yr	5740.00	368.00	385.13	377.39	385.39	0.000614	4.43	2247.68	931.99	0.23
Main	11097.6	P50yr	3180.00	368.00	382.33	374.99	382.54	0.000525	3.74	922.31	365.76	0.22
Main	11097.6	P10yr	2210.00	368.00	380.96	373.83	381.10	0.000521	3.07	719.48	94.82	0.19
Main	11075.	P100yr	3770.00	368.00	383.20	375.60	383.43	0.000601	3.90	1380.49	738.65	0.22
Main	11075.	Floodway	3770.00	368.00	383.76	375.62	383.96	0.000535	3.72	1166.19	162.04	0.20
Main	11075.	P500yr	5740.00	368.00	385.13	377.40	385.37	0.000585	4.33	2423.54	972.33	0.22
Main	11075.	P50yr	3180.00	368.00	382.32	375.00	382.52	0.000509	3.69	1000.69	482.35	0.22
Main	11075.	P10yr	2210.00	368.00	380.94	373.82	381.09	0.000524	3.08	718.32	94.75	0.19
Main	11031.7 J	P100yr	3770.00	368.00	383.17	375.61	383.40	0.000636	3.85	1330.90	701.11	0.22
Main	11031.7 J	Floodway	3770.00	368.00	383.73	375.61	383.94	0.000534	3.69	1166.65	170.37	0.21
Main	11031.7 J	P500yr	5740.00	368.00	385.10	377.39	385.35	0.000603	4.28	2410.36	835.93	0.22
Main	11031.7 J	P50yr	3180.00	368.00	382.29	374.99	382.50	0.000553	3.69	963.48	491.02	0.22
Main	11031.7 J	P10yr	2210.00	368.00	380.92	373.82	381.07	0.000540	3.08	735.87	266.70	0.20
Main	10936.8		Bridge									
Main	10837.	P100yr	3770.00	365.65	382.68	374.99	383.15	0.000741	4.28	999.87	336.02	0.24
Main	10837.	Floodway	3770.00	365.65	383.37	374.99	383.62	0.000626	4.07	1067.73	138.82	0.22

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2017 FIS

HEC-RAS Plan: NF_Canoe_Mod River: NF_Canoe Reach: Main (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Main	10837.	P500yr	5740.00	365.65	384.98	377.01	385.22	0.000621	4.44	2335.93	606.68	0.22
Main	10837.	P50yr	3180.00	365.65	382.03	374.27	382.27	0.000712	3.98	892.53	284.50	0.23
Main	10837.	P10yr	2210.00	365.65	380.30	372.88	380.49	0.000646	3.45	683.68	234.64	0.21
Main	10362.2 I	P100yr	3770.00	366.04	382.65	374.00	382.84	0.000434	3.56	1286.15	483.48	0.19
Main	10362.2 I	Floodway	3770.00	366.04	383.19	374.00	383.35	0.000384	3.36	1250.49	154.59	0.17
Main	10362.2 I	P500yr	5740.00	366.04	384.70	375.75	384.96	0.000499	4.27	1980.22	1270.03	0.21
Main	10362.2 I	P50yr	3180.00	366.04	381.82	373.37	381.98	0.000408	3.28	1100.29	232.27	0.18
Main	10362.2 I	P10yr	2210.00	366.04	380.11	372.18	380.22	0.000370	2.77	840.76	130.03	0.17
Main	9719.4 H	P100yr	3770.00	365.69	382.29	374.35	382.51	0.000612	3.76	1089.32	169.76	0.22
Main	9719.4 H	Floodway	3770.00	365.69	382.88	374.34	383.07	0.000518	3.55	1112.68	127.70	0.20
Main	9719.4 H	P500yr	5740.00	365.69	384.25	376.11	384.57	0.000715	4.61	1504.99	281.73	0.24
Main	9719.4 H	P50yr	3180.00	365.69	381.48	373.73	381.67	0.000599	3.50	953.62	159.85	0.21
Main	9719.4 H	P10yr	2210.00	365.69	379.79	372.50	379.93	0.000571	3.04	729.00	109.27	0.20
Main	8580.4 G	P100yr	3770.00	365.52	381.93	373.47	382.02	0.000274	2.89	2600.27	570.77	0.15

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Canoe Creek North Fork - Flood Impact Study

FEMA FIS HECRAS Summary Table

Main	8580.4	G	Floodway	3770.00	365.52	382.54	373.47	382.63	0.000266	2.89	2304.56	346.30	0.14
Main	8580.4	G	P500yr	5740.00	365.52	383.91	375.27	384.01	0.000285	3.26	3598.85	890.29	0.15
Main	8580.4	G	P50yr	3180.00	365.52	381.08	372.83	381.18	0.000291	2.83	2176.34	530.11	0.15
Main	8580.4	G	P10yr	2210.00	365.52	379.32	371.65	379.42	0.000342	2.80	1314.84	479.25	0.16
Main	8284.6		P100yr	3770.00	366.12	381.64	373.18	381.87	0.000330	3.84	992.07	435.92	0.20
Main	8284.6		Floodway	3770.00	366.12	382.30	373.18	382.50	0.000436	3.60	1095.24	101.21	0.19
Main	8284.6		P500yr	5740.00	366.12	383.57	374.91	383.84	0.000582	4.45	1763.38	480.51	0.22
Main	8284.6		P50yr	3180.00	366.12	380.85	372.56	381.04	0.000475	3.50	919.16	367.66	0.19
Main	8284.6		P10yr	2210.00	366.12	378.18	371.42	379.31	0.000395	2.90	768.52	309.51	0.17
Main	8211.8			Bridge									
Main	8165.2		P100yr	3770.00	366.12	381.56	373.17	381.73	0.000487	3.35	1170.16	485.69	0.19
Main	8165.2		Floodway	3770.00	366.12	382.14	373.18	382.30	0.000428	3.18	1188.60	125.66	0.18
Main	8165.2		P500yr	5740.00	366.12	383.02	374.93	383.30	0.000581	4.36	1417.58	549.90	0.23
Main	8165.2		P50yr	3180.00	366.12	380.77	372.56	380.92	0.000464	3.09	1053.24	438.59	0.19
Main	8165.2		P10yr	2210.00	366.12	379.10	371.42	379.21	0.000447	2.67	839.44	317.08	0.18
Main	7927.6		P100yr	3770.00	364.85	381.48	372.93	381.61	0.000332	3.25	2361.94	734.37	0.17
Main	7927.6		Floodway	3770.00	364.85	382.06	372.94	382.20	0.000328	3.36	1860.09	316.08	0.17
Main	7927.6		P500yr	5740.00	364.85	382.96	374.78	383.12	0.000396	3.86	3282.55	890.95	0.18
Main	7927.6		P50yr	3180.00	364.85	380.68	372.27	380.81	0.000345	3.19	1888.31	585.63	0.17
Main	7927.6		P10yr	2210.00	364.85	378.97	371.04	379.11	0.000383	3.02	1022.90	457.76	0.17
Main	7564.1	F	P100yr	3770.00	364.85	381.37	372.92	381.49	0.000319	3.27	2437.29	1059.62	0.16
Main	7564.1	F	Floodway	3770.00	364.85	381.96	372.94	382.09	0.000292	3.22	2210.33	405.45	0.16
Main	7564.1	F	P500yr	5740.00	364.85	382.81	374.77	382.97	0.000397	3.92	3250.62	1371.30	0.18
Main	7564.1	F	P50yr	3180.00	364.85	380.56	372.27	380.69	0.000334	3.19	1985.04	921.44	0.16
Main	7564.1	F	P10yr	2210.00	364.85	378.83	371.04	378.97	0.000386	3.09	1033.30	690.00	0.17
Main	7123.8		P100yr	3770.00	364.64	381.36	372.68	381.37	0.000067	1.57	5481.05	1454.08	0.08
Main	7123.8		Floodway	3770.00	364.64	381.96	372.67	381.98	0.000075	1.50	5216.56	675.39	0.08
Main	7123.8		P500yr	5740.00	364.64	382.80	375.21	382.83	0.000110	1.91	6805.32	1740.65	0.10
Main	7123.8		P50yr	3180.00	364.64	380.55	372.04	380.57	0.000092	1.53	4742.40	1366.25	0.09
Main	7123.8		P10yr	2210.00	364.64	378.80	370.80	378.82	0.000117	1.52	3214.94	1000.88	0.09
Main	7086.8			Bridge									
Main	7010.6		P100yr	3770.00	364.64	381.11	372.67	381.19	0.000239	2.71	3757.47	1647.27	0.14
Main	7010.6		Floodway	3770.00	364.64	381.75	372.67	381.81	0.000197	2.55	3704.95	736.29	0.13
Main	7010.6		P500yr	5740.00	364.64	382.64	374.50	382.73	0.000258	3.06	5264.67	1753.56	0.15
Main	7010.6		P50yr	3180.00	364.64	380.45	372.04	380.53	0.000248	2.66	3103.31	1497.31	0.14
Main	7010.6		P10yr	2210.00	364.64	378.60	370.80	378.71	0.000348	2.79	1469.06	926.17	0.16
Main	6706.5	E	P100yr	3770.00	364.35	381.05	372.30	381.11	0.000184	2.45	4551.31	1530.65	0.12
Main	6706.5	E	Floodway	3770.00	364.35	381.66	372.30	381.74	0.000207	2.69	3360.14	688.54	0.13
Main	6706.5	E	P500yr	5740.00	364.35	382.56	374.12	382.64	0.000194	2.72	6508.54	1792.18	0.13
Main	6706.5	E	P50yr	3180.00	364.35	380.39	371.66	380.45	0.000193	2.42	3739.93	1429.84	0.13
Main	6706.5	E	P10yr	2210.00	364.35	378.50	370.44	378.60	0.000306	2.71	1608.07	1072.65	0.15
Main	5738.9	D	P100yr	3770.00	364.57	380.93	371.96	380.96	0.000124	1.97	6057.21	2524.82	0.10
Main	5738.9	D	Floodway	3770.00	364.57	381.47	371.96	381.54	0.000204	2.51	3405.54	661.17	0.13
Main	5738.9	D	P500yr	5740.00	364.57	382.45	373.76	382.48	0.000126	2.16	8374.04	2587.24	0.10
Main	5738.9	D	P50yr	3180.00	364.57	380.25	371.34	380.29	0.000135	1.97	5030.03	2353.07	0.10
Main	5738.9	D	P10yr	2210.00	364.57	378.23	370.18	378.31	0.000279	2.49	2071.01	1434.73	0.15
Main	4899.4		P100yr	4970.00	363.89	380.72	372.85	380.80	0.000255	3.04	5779.27	3008.45	0.15
Main	4899.4		Floodway	4970.00	363.89	381.13	372.85	381.28	0.000433	3.73	2936.79	690.30	0.18
Main	4899.4		P500yr	7010.00	363.89	382.30	374.54	382.35	0.000188	2.77	6936.14	3837.87	0.13
Main	4899.4		P50yr	4290.00	363.89	379.99	372.18	380.10	0.000340	3.32	4252.71	2623.56	0.17
Main	4899.4		P10yr	2820.00	363.89	377.74	370.52	377.95	0.000597	3.85	1133.38	803.96	0.21

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② Without consideration of BW effects from Canoe Ck.

2017 FIS ↓

380.1 ②

HEC-RAS Plan: NF_Canoe_Mod River: NF_Canoe Reach: Main (Continued)

Reach	River Sta		Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Main	3856.3	C	P100yr	4970.00	363.41	380.14	372.05	380.38	0.000650	4.19	1981.75	1358.09	0.23
Main	3856.3	C	Floodway	4970.00	363.41	380.56	372.04	380.77	0.000588	3.95	2230.42	832.75	0.21
Main	3856.3	C	P500yr	7010.00	363.41	381.83	373.72	382.04	0.000537	4.20	3843.16	2148.77	0.21
Main	3856.3	C	P50yr	4290.00	363.41	379.36	371.43	379.60	0.000683	4.08	1450.02	780.29	0.23
Main	3856.3	C	P10yr	2820.00	363.41	377.00	369.85	377.22	0.000844	3.77	759.48	116.93	0.24
Main	3073.1		P100yr	4970.00	363.74	379.57	372.10	379.87	0.000656	4.62	1608.08	1234.87	0.23
Main	3073.1		Floodway	4970.00	363.74	380.04	372.09	380.32	0.000577	4.44	1608.25	260.35	0.22
Main	3073.1		P500yr	7010.00	363.74	381.17	373.60	381.54	0.000745	5.35	2108.18	1504.21	0.25
Main	3073.1		P50yr	4290.00	363.74	378.80	371.49	379.08	0.000657	4.43	1366.96	1150.00	0.23
Main	3073.1		P10yr	2820.00	363.74	376.36	370.00	376.61	0.000729	3.97	755.71	789.45	0.23
Main	2858.5		P100yr	4970.00	363.09	379.35	372.27	379.70	0.000812	4.91	1239.14	495.07	0.26
Main	2858.5		Floodway	4970.00	363.09	379.86	372.27	380.17	0.000691	4.66	1323.12	169.01	0.24
Main	2858.5		P500yr	7010.00	363.09	380.79	374.04	381.31	0.001037	6.01	1487.41	1212.53	0.30
Main	2858.5		P50yr	4290.00	363.09	378.61	371.64	378.92	0.000774	4.58	1122.27	346.72	0.25
Main	2858.5		P10yr	2820.00	363.09	376.19	370.12	376.44	0.000857	4.04	780.35	128.11	0.25

Canoe Creek North Fork - Flood Impact Study
FEMA FIS HECRAS Summary Table

Main	2791.8			Bridge								
Main	2724.		P100yr	4970.00	363.09	378.99	372.45	379.23	0.000866	3.90	1274.14	398.43	0.25
Main	2724.		Floodway	4970.00	363.09	379.49	372.45	379.70	0.000717	3.65	1362.00	175.83	0.23
Main	2724.		P500yr	7010.00	363.09	380.36	373.97	380.71	0.001050	4.61	1520.46	579.18	0.28
Main	2724.		P50yr	4290.00	363.09	378.28	371.85	378.49	0.000857	3.72	1153.85	343.70	0.25
Main	2724.		P10yr	2820.00	363.09	375.91	370.10	376.11	0.001029	3.56	791.31	139.38	0.26
Main	2538.1	B	P100yr	4970.00	362.94	378.75	372.09	379.05	0.000850	4.53	1546.25	436.91	0.26
Main	2538.1	B	Floodway	4970.00	362.94	379.24	372.09	379.54	0.000773	4.47	1292.25	178.31	0.25
Main	2538.1	B	P500yr	7010.00	362.94	380.13	373.90	380.51	0.000962	5.27	2132.55	651.90	0.28
Main	2538.1	B	P50yr	4290.00	362.94	378.03	371.36	378.31	0.000881	4.33	1292.37	333.79	0.26
Main	2538.1	B	P10yr	2820.00	362.94	375.62	369.76	375.88	0.001175	4.10	702.39	155.23	0.28
Main	2326.2		P100yr	4970.00	363.25	378.38	371.56	378.81	0.000972	5.45	1321.41	356.50	0.28
Main	2326.2		Floodway	4970.00	363.25	378.87	371.56	379.31	0.000912	5.42	1064.67	136.61	0.27
Main	2326.2		P500yr	7010.00	363.25	379.61	373.15	380.21	0.001247	6.60	1827.26	486.63	0.32
Main	2326.2		P50yr	4290.00	363.25	377.69	370.94	378.09	0.000937	5.14	1100.57	305.52	0.27
Main	2326.2		P10yr	2820.00	363.25	375.33	369.39	375.64	0.000983	4.47	643.09	100.57	0.27
Main	2266.8			Bridge								
Main	2223.8		P100yr	4970.00	362.58	377.48	373.08	378.28	0.002227	7.36	899.00	307.82	0.41
Main	2223.8		Floodway	4970.00	362.58	377.86	373.08	378.61	0.001987	7.13	854.29	135.00	0.39
Main	2223.8		P500yr	7010.00	362.58	379.29	374.89	380.16	0.002128	8.04	1469.02	585.63	0.41
Main	2223.8		P50yr	4290.00	362.58	376.74	372.38	377.47	0.002241	7.01	754.15	218.44	0.41
Main	2223.8		P10yr	2820.00	362.58	374.56	370.62	375.17	0.002562	6.26	461.12	84.42	0.42
Main	2073.1		P100yr	4970.00	361.75	377.42	370.61	377.86	0.001189	5.33	993.20	181.13	0.30
Main	2073.1		Floodway	4970.00	361.75	377.83	370.63	378.23	0.001052	5.11	1016.61	123.26	0.28
Main	2073.1		P500yr	7010.00	361.75	379.21	372.28	379.76	0.001241	6.10	1552.90	473.42	0.32
Main	2073.1		P50yr	4290.00	361.75	376.67	369.98	377.06	0.001171	5.01	878.03	128.56	0.30
Main	2073.1		P10yr	2820.00	361.75	374.49	368.39	374.78	0.001033	4.29	657.43	84.85	0.27
Main	1455.4	A	P100yr	4970.00	361.78	376.88	370.14	377.22	0.000626	4.89	1547.34	441.36	0.26
Main	1455.4	A	Floodway	4970.00	361.78	377.28	370.15	377.65	0.000608	4.96	1181.69	169.61	0.25
Main	1455.4	A	P500yr	7010.00	361.78	378.75	371.65	379.10	0.000787	5.24	2432.64	498.19	0.25
Main	1455.4	A	P50yr	4290.00	361.78	376.10	369.55	376.43	0.000656	4.74	1216.00	395.49	0.25
Main	1455.4	A	P10yr	2820.00	361.78	373.91	368.07	374.18	0.000699	4.13	689.70	99.28	0.25
Main	450.5		P100yr	4970.00	360.84	375.88	369.03	376.31	0.001001	5.41	1280.13	326.07	0.29
Main	450.5		Floodway	4970.00	360.84	376.36	369.01	376.75	0.001001	5.18	1248.22	246.07	0.27
Main	450.5		P500yr	7010.00	360.84	377.73	370.64	378.22	0.001001	6.00	1973.69	450.47	0.29
Main	450.5		P50yr	4290.00	360.84	375.10	368.43	375.50	0.001000	5.15	1028.60	270.87	0.28
Main	450.5		P10yr	2820.00	360.84	372.92	366.95	373.22	0.001001	4.40	673.90	103.05	0.27

378.8 (2)

376.9

Appendix B-3

B

Canoe Creek Flood Impact Study on Proposed I69
Parsons HECRAS Model canoe073119.ghrj Backup Data
Parsons Existing Condition HECRAS Plan Canoex3 Summary Table

River	Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
NF_Canoe_Ex	Main_Ext	38011.5	P100yr	1662.2	406.27	416.71		416.98	0.003398	5.3	866.29	1006.96	0.38
NF_Canoe_Ex	Main_Ext	38011.5	Floodway	1662.2	406.27	417.71		418.08	0.003416	5.56	523.78	244.27	0.38
NF_Canoe_Ex	Main_Ext	38011.5	P500yr	2296.3	406.27	417.14		417.34	0.003034	5.1	1328.74	1167.2	0.36
NF_Canoe_Ex	Main_Ext	38011.5	P50yr	1413.6	406.27	416.48	413.98	416.81	0.003635	5.42	657.88	785.02	0.39
NF_Canoe_Ex	Main_Ext	38011.5	P10yr	897.5	406.27	415.72	412.52	416.15	0.00382	5.32	214.45	272.13	0.39
NF_Canoe_Ex	Main_Ext	38011.5	P2yr	472.6	406.27	414.04		414.29	0.002781	4.01	117.86	25.6	0.33
NF_Canoe_Ex	Main_Ext	37046.5	P100yr	1662.2	402.18	412.58	411.55	412.72	0.003351	4.21	886.1	622.26	0.36
NF_Canoe_Ex	Main_Ext	37046.5	Floodway	1662.2	402.18	413.61	411.62	413.87	0.003274	4.79	487.62	136.33	0.37
NF_Canoe_Ex	Main_Ext	37046.5	P500yr	2296.3	402.18	412.96	411.86	413.12	0.003746	4.69	1138.9	710.48	0.39
NF_Canoe_Ex	Main_Ext	37046.5	P50yr	1413.6	402.18	412.39	411.33	412.53	0.003143	4.04	775.83	567.67	0.35
NF_Canoe_Ex	Main_Ext	37046.5	P10yr	897.5	402.18	411.58	408.58	411.76	0.003148	4.05	432.58	325.5	0.34
NF_Canoe_Ex	Main_Ext	37046.5	P2yr	472.6	402.18	409.66	406.76	410.02	0.004262	4.81	98.23	20.55	0.39
NF_Canoe_Ex	Main_Ext	36058.4	P100yr	1662.2	397.85	409.33	406.79	409.6	0.00289	5.28	824.53	654.18	0.34
NF_Canoe_Ex	Main_Ext	36058.4	Floodway	1662.2	397.85	410.38	406.81	410.76	0.002956	5.64	443.32	108.72	0.34
NF_Canoe_Ex	Main_Ext	36058.4	P500yr	2296.3	397.85	409.89	409.29	410.09	0.002496	5.16	1209.8	708.9	0.32
NF_Canoe_Ex	Main_Ext	36058.4	P50yr	1413.6	397.85	409.06	406.14	409.37	0.003149	5.38	651.29	623.86	0.36
NF_Canoe_Ex	Main_Ext	36058.4	P10yr	897.5	397.85	408.45	404.53	408.77	0.002815	4.8	324.06	398.55	0.33
NF_Canoe_Ex	Main_Ext	36058.4	P2yr	472.6	397.85	406.84	402.72	407.05	0.002136	3.7	127.58	23.83	0.28
NF_Canoe_Ex	Main_Ext	34775.6	P100yr	1662.2	396.04	406.61	404.08	406.73	0.001714	3.9	1161.07	913.66	0.27
NF_Canoe_Ex	Main_Ext	34775.6	Floodway	1662.2	396.04	407.63	404.08	407.81	0.001754	4.19	743.16	254.35	0.27
NF_Canoe_Ex	Main_Ext	34775.6	P500yr	2296.3	396.04	406.84	406.22	406.99	0.002299	4.62	1348.64	1022.45	0.31
NF_Canoe_Ex	Main_Ext	34775.6	P50yr	1413.6	396.04	406.49	403.44	406.6	0.001514	3.62	1060.57	847.91	0.25
NF_Canoe_Ex	Main_Ext	34775.6	P10yr	897.5	396.04	405.92	401.82	406.06	0.001566	3.52	628.75	723.16	0.25
NF_Canoe_Ex	Main_Ext	34775.6	P2yr	472.6	396.04	404.19	400.1	404.38	0.001998	3.55	133.06	26.68	0.28
NF_Canoe_Ex	Main_Ext	33442.3	P100yr	1662.2	393.87	404.22	401.74	404.3	0.001919	3.17	1208.42	851.84	0.28
NF_Canoe_Ex	Main_Ext	33442.3	Floodway	1662.2	393.87	406.14	401.84	406.21	0.000849	2.69	1021.14	291.82	0.2
NF_Canoe_Ex	Main_Ext	33442.3	P500yr	2296.3	393.87	405.25	403.64	405.28	0.000791	2.37	2119.13	927.93	0.19
NF_Canoe_Ex	Main_Ext	33442.3	P50yr	1413.6	393.87	403.83	401.23	403.95	0.002731	3.56	887.17	807.88	0.33
NF_Canoe_Ex	Main_Ext	33442.3	P10yr	897.5	393.87	402.56	399.92	402.93	0.003851	5.14	212.71	120.66	0.4
NF_Canoe_Ex	Main_Ext	33442.3	P2yr	472.6	393.87	401.23	398.17	401.44	0.00246	3.74	144.45	42.3	0.31

B

Canoe Creek Flood Impact Study on Proposed I69
Parsons HECRAS Model canoe073119.ghrj Backup Data
Parsons Existing Condition HECRAS Plan Canoex3 Summary Table

River	Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
NF_Canoe_Ex	Main_Ext	33116	P100yr	1662.2	393.48	403.32	400.52	403.54	0.003489	4.52	555.76	183.88	0.38
NF_Canoe_Ex	Main_Ext	33116	Floodway	1662.2	393.48	405.28	401.75	405.68	0.003165	5.14	342.57	120.58	0.38
NF_Canoe_Ex	Main_Ext	33116	P500yr	2296.3	393.48	404.66	401.37	404.86	0.002697	4.46	868.39	326.46	0.35
NF_Canoe_Ex	Main_Ext	33116	P50yr	1413.6	393.48	402.86	399.85	403.05	0.003362	4.34	477.65	154.44	0.37
NF_Canoe_Ex	Main_Ext	33116	P10yr	897.5	393.48	401.7	398.9	401.88	0.002937	3.9	326.07	108.03	0.34
NF_Canoe_Ex	Main_Ext	33116	P2yr	472.6	393.48	400.73	397.68	400.82	0.001589	2.84	234.6	82.74	0.25
NF_Canoe_Ex	Main_Ext	33041.8		Mult Open									
NF_Canoe_Ex	Main_Ext	32983.9	P100yr	1662.2	393.79	402.64	399.74	402.95	0.004876	5.22	394.32	282.64	0.44
NF_Canoe_Ex	Main_Ext	32983.9	Floodway	1662.2	393.79	403.63	401.89	404.01	0.004953	5.62	470.32	206.32	0.45
NF_Canoe_Ex	Main_Ext	32983.9	P500yr	2296.3	393.79	403.32	400.73	403.67	0.005861	5.94	620.7	368.9	0.49
NF_Canoe_Ex	Main_Ext	32983.9	P50yr	1413.6	393.79	402.37	399.36	402.63	0.00416	4.75	370.84	261.71	0.41
NF_Canoe_Ex	Main_Ext	32983.9	P10yr	897.5	393.79	401.55	398.24	401.71	0.002873	3.78	302.95	169.66	0.33
NF_Canoe_Ex	Main_Ext	32983.9	P2yr	472.6	393.79	400.71	397.05	400.78	0.001404	2.55	240.97	70.23	0.23
NF_Canoe_Ex	Main_Ext	29900.3	P100yr	3843.4	386.71	397.75		397.79	0.001211	2.99	3394.75	1667.15	0.22
NF_Canoe_Ex	Main_Ext	29900.3	Floodway	3843.4	386.71	398.77		398.83	0.001201	3.1	2461.01	723.54	0.21
NF_Canoe_Ex	Main_Ext	29900.3	P500yr	5311.5	386.71	398.26		398.3	0.001184	3.06	4268.09	1779.92	0.22
NF_Canoe_Ex	Main_Ext	29900.3	P50yr	3252.3	386.71	397.53		397.57	0.001232	2.97	3023.05	1659.33	0.22
NF_Canoe_Ex	Main_Ext	29900.3	P10yr	2137.6	386.71	397.01		397.04	0.001242	2.87	2174.65	1497.59	0.21
NF_Canoe_Ex	Main_Ext	29900.3	P2yr	1152.5	386.71	396.35		396.42	0.001463	3.07	1243.71	1378.69	0.23
NF_Canoe_Ex	Main_Ext	28796.5	P100yr	3851.2	385.59	396.21		396.29	0.001519	3.83	2815.75	1424.68	0.26
NF_Canoe_Ex	Main_Ext	28796.5	Floodway	3851.2	385.59	397.23		397.34	0.001499	4	1971.98	564.59	0.27
NF_Canoe_Ex	Main_Ext	28796.5	P500yr	5366.6	385.59	396.76		396.83	0.00149	3.9	3605.99	1480.58	0.26
NF_Canoe_Ex	Main_Ext	28796.5	P50yr	3233.3	385.59	395.96		396.05	0.001532	3.8	2463.03	1410.41	0.27
NF_Canoe_Ex	Main_Ext	28796.5	P10yr	2105.4	385.59	395.43		395.53	0.001508	3.67	1723.76	1355.1	0.26
NF_Canoe_Ex	Main_Ext	28796.5	P2yr	1137.2	385.59	394.75		394.86	0.001346	3.34	925.33	1004.7	0.24
NF_Canoe_Ex	Main_Ext	27541.3	P100yr	3851.2	383.63	394.68		394.71	0.000916	2.93	3667.46	1719.69	0.2
NF_Canoe_Ex	Main_Ext	27541.3	Floodway	3851.2	383.63	395.7		395.75	0.000899	2.87	2701.23	760.96	0.2
NF_Canoe_Ex	Main_Ext	27541.3	P500yr	5366.6	383.63	395.19		395.23	0.000951	2.87	4555.68	1741.58	0.21

B

Canoe Creek Flood Impact Study on Proposed I69
Parsons HECRAS Model canoe073119.ghrj Backup Data
Parsons Existing Condition HECRAS Plan Canoex3 Summary Table

River	Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
NF_Canoe_Ex	Main_Ext	27541.3	P50yr	3233.3	383.63	394.45		394.48	0.000898	2.86	3271.82	1711.84	0.2
NF_Canoe_Ex	Main_Ext	27541.3	P10yr	2105.4	383.63	393.92		393.97	0.000906	2.8	2380.78	1681.12	0.2
NF_Canoe_Ex	Main_Ext	27541.3	P2yr	1137.2	383.63	393.3		393.36	0.000953	2.77	1357.74	1584.72	0.2
NF_Canoe_Ex	Main_Ext	26291.9	P100yr	3851.2	381.94	392.94		393.02	0.00226	4.12	2432.9	1481.95	0.31
NF_Canoe_Ex	Main_Ext	26291.9	Floodway	3851.2	381.94	393.89		394	0.002364	4.31	1772.93	562.42	0.32
NF_Canoe_Ex	Main_Ext	26291.9	P500yr	5366.6	381.94	393.32		393.41	0.002563	4.42	3024.07	1623.48	0.33
NF_Canoe_Ex	Main_Ext	26291.9	P50yr	3233.3	381.94	392.64		392.73	0.002478	4.3	2018.9	1258.46	0.32
NF_Canoe_Ex	Main_Ext	26291.9	P10yr	2105.4	381.94	392.22		392.31	0.00209	3.93	1538.25	1080.83	0.29
NF_Canoe_Ex	Main_Ext	26291.9	P2yr	1137.2	381.94	391.72	389.47	391.81	0.001652	3.39	1018.53	995.88	0.26
NF_Canoe_Ex	Main_Ext	24550.6	P100yr	3953.8	379.15	390.82	389.51	390.84	0.000747	2.01	4761.99	3107.4	0.17
NF_Canoe_Ex	Main_Ext	24550.6	Floodway	3953.8	379.15	392.09	389.79	392.11	0.000578	1.89	3751.3	1116.97	0.15
NF_Canoe_Ex	Main_Ext	24550.6	P500yr	5556.9	379.15	391.47	389.73	391.48	0.000578	1.92	6445.64	3133.58	0.15
NF_Canoe_Ex	Main_Ext	24550.6	P50yr	3295.7	379.15	390.71	389.49	390.73	0.000619	1.84	4482.65	3087.01	0.15
NF_Canoe_Ex	Main_Ext	24550.6	P10yr	2167	379.15	390.1	389.27	390.12	0.000787	2.3	2934.96	2774.64	0.17
NF_Canoe_Ex	Main_Ext	24550.6	P2yr	1182.3	379.15	389.48	387.67	389.51	0.001006	2.57	1662.58	2348.85	0.19
NF_Canoe_Ex	Main_Ext	24064		Lat Struct									
NF_Canoe_Ex	Main_Ext	23120	P100yr	3998.61	378.26	389.86		389.88	0.000591	2.25	4606.52	2425.17	0.15
NF_Canoe_Ex	Main_Ext	23120	Floodway	3377.66	378.26	391.57		391.59	0.000235	1.58	4376.07	1049.15	0.1
NF_Canoe_Ex	Main_Ext	23120	P500yr	5282.68	378.26	390.77		390.78	0.000414	2	7247.2	3287.18	0.13
NF_Canoe_Ex	Main_Ext	23120	P50yr	3373.8	378.26	390.1		390.11	0.000313	1.67	5206.64	2650.23	0.11
NF_Canoe_Ex	Main_Ext	23120	P10yr	2217.2	378.26	389.39		389.4	0.000346	1.68	3644.12	1777.06	0.12
NF_Canoe_Ex	Main_Ext	23120	P2yr	1212	378.26	388.55		388.57	0.000456	1.85	2176.52	1738	0.13
NF_Canoe_Ex	Main_Ext	21768	P100yr	1175.3	378.03	389.18	383.08	389.21	0.000287	1.6	950.49	2639.94	0.12
NF_Canoe_Ex	Main_Ext	21768	Floodway	818.18	378.03	391.43	382.27	391.43	0.000021	0.52	2632.96	542.72	0.03
NF_Canoe_Ex	Main_Ext	21768	P500yr	1301.9	378.03	390.33	383.34	390.35	0.000139	1.26	1284.58	2793.04	0.09
NF_Canoe_Ex	Main_Ext	21768	P50yr	1105.08	378.03	389.74	382.94	389.75	0.000158	1.26	1111.05	2757.48	0.09
NF_Canoe_Ex	Main_Ext	21768	P10yr	975.78	378.03	388.95	382.65	388.97	0.000247	1.44	882.13	2320.83	0.11
NF_Canoe_Ex	Main_Ext	21768	P2yr	764.77	378.03	388.03	382.14	388.06	0.000281	1.48	647.16	1223.58	0.12

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Canoe Creek Flood Impact Study on Proposed I69
Parsons HECRAS Model canoe073119.ghrj Backup Data
Parsons Existing Condition HECRAS Plan Canoex3 Summary Table

River	Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
NF_Canoe_Ex	Main_Ext	21745	P100yr	1175.3	378.97	389.15	383.79	389.2	0.000521	2.11	668.31	1371.55	0.16
NF_Canoe_Ex	Main_Ext	21745	Floodway	818.18	378.97	391.43	382.96	391.43	0.000044	0.76	1983.39	534.8	0.05
NF_Canoe_Ex	Main_Ext	21745	P500yr	1301.9	378.97	390.31	384.08	390.35	0.000296	1.78	918.34	2518.87	0.12
NF_Canoe_Ex	Main_Ext	21745	P50yr	1105.08	378.97	389.71	383.63	389.75	0.000343	1.79	782.91	2068.81	0.13
NF_Canoe_Ex	Main_Ext	21745	P10yr	975.78	378.97	388.92	383.35	388.97	0.000397	1.89	628.51	938.86	0.14
NF_Canoe_Ex	Main_Ext	21745	P2yr	764.77	378.97	388.01	382.84	388.05	0.00039	1.86	494.05	232.01	0.14
NF_Canoe_Ex	Main_Ext	21735		Mult Open									
NF_Canoe_Ex	Main_Ext	21712.38	P100yr	1175.3	377.89	388.99	383.25	389.04	0.000379	1.78	722.04	2038.21	0.13
NF_Canoe_Ex	Main_Ext	21712.38	Floodway	818.18	377.89	391.28	382.46	391.29	0.000029	0.61	2348.82	534.8	0.04
NF_Canoe_Ex	Main_Ext	21712.38	P500yr	1301.9	377.89	390.1	383.51	390.13	0.000226	1.56	899.13	2753.51	0.11
NF_Canoe_Ex	Main_Ext	21712.38	P50yr	1105.08	377.89	389.57	383.09	389.6	0.000226	1.47	813.76	2537.92	0.11
NF_Canoe_Ex	Main_Ext	21712.38	P10yr	975.78	377.89	388.82	382.83	388.85	0.000297	1.54	694.07	1831.95	0.12
NF_Canoe_Ex	Main_Ext	21712.38	P2yr	764.77	377.89	387.95	382.33	387.99	0.000336	1.57	558.27	1512.68	0.12
NF_Canoe_Ex	Main_Ext-DS-0	21591.5 R	P100yr	2750.1	376.67	388.73	386.43	388.74	0.000143	1.16	4877.59	2941.13	0.08
NF_Canoe_Ex	Main_Ext-DS-0	21591.5 R	Floodway	2392.98	376.67	389.72	385.46	390.14	0.003059	5.62	567.21	791.5	0.38
NF_Canoe_Ex	Main_Ext-DS-0	21591.5 R	P500yr	3516.3	376.67	390.05	387.01	390.05	0.00003	0.58	12433.66	3273.59	0.04
NF_Canoe_Ex	Main_Ext-DS-0	21591.5 R	P50yr	2429.58	376.67	388.11	386.22	388.33	0.00218	4.47	710.86	2897.4	0.31
NF_Canoe_Ex	Main_Ext-DS-0	21591.5 R	P10yr	1791.08	376.67	387	385.41	387.3	0.003005	5.1	478.79	2437.6	0.36
NF_Canoe_Ex	Main_Ext-DS-0	21591.5 R	P2yr	1191.67	376.67	386.39	382.66	386.62	0.002249	4.28	373.33	2025.07	0.31
NF_Canoe_Ex	Main_Ext-DS-0	19922.4	P100yr	3048	376	388.6	384.73	388.61	0.00005	0.71	8832.11	3519.59	0.05
NF_Canoe_Ex	Main_Ext-DS-0	19922.4	Floodway	2690.88	376	389.53	385.37	389.53	0.000087	1.01	5114.7	1065	0.07
NF_Canoe_Ex	Main_Ext-DS-0	19922.4	P500yr	3965.9	376	389.99	384.95	390	0.000033	0.65	12085.55	3925.98	0.04
NF_Canoe_Ex	Main_Ext-DS-0	19922.4	P50yr	2674.98	376	387.91	384.68	387.91	0.000068	0.76	7290.41	3021.13	0.06
NF_Canoe_Ex	Main_Ext-DS-0	19922.4	P10yr	1944.18	376	386.54	384.48	386.55	0.000141	1.1	4496.48	2173.23	0.08
NF_Canoe_Ex	Main_Ext-DS-0	19922.4	P2yr	1274.97	376	385.5	382.22	385.51	0.00028	1.46	2582.9	1751.88	0.11
NF_Canoe_Ex	Main_Ext-DS-0	18470. Q	P100yr	3862.7	373.1	388.56	383.68	388.56	0.000026	0.53	13450.54	3856.55	0.04
NF_Canoe_Ex	Main_Ext-DS-0	18470. Q	Floodway	3505.58	373.1	389.42	384.04	389.42	0.000072	0.95	6174.23	953.55	0.06
NF_Canoe_Ex	Main_Ext-DS-0	18470. Q	P500yr	5049.9	373.1	389.96	383.83	389.96	0.00002	0.53	17286.01	4197.36	0.03
NF_Canoe_Ex	Main_Ext-DS-0	18470. Q	P50yr	3393.28	373.1	387.85	383.61	387.85	0.000033	0.55	11535.22	3544.9	0.04

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Canoe Creek Flood Impact Study on Proposed I69
Parsons HECRAS Model canoe073119.ghrj Backup Data
Parsons Existing Condition HECRAS Plan Canoex3 Summary Table

River	Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
NF_Canoe_Ex	Main_Ext-DS-0	18470. Q	P10yr	2467.08	373.1	386.43	383.46	386.43	0.000055	0.63	7842.24	3067.68	0.05
NF_Canoe_Ex	Main_Ext-DS-0	18470. Q	P2yr	1621.27	373.1	385.33	383.27	385.33	0.000077	0.8	5229.56	2592.03	0.06
NF_Canoe_Ex	Main_Ext-DS-0	17702.9	P100yr	6647.8	374.13	388.52	383.9	388.53	0.000054	0.93	16532.26	3859.41	0.05
NF_Canoe_Ex	Main_Ext-DS-0	17702.9	Floodway	6647.8	374.13	389.31	384.39	389.32	0.000158	1.69	7727.79	1190.26	0.09
NF_Canoe_Ex	Main_Ext-DS-0	17702.9	P500yr	9438.2	374.13	389.93	384.29	389.93	0.000053	1.01	22171.4	4178.76	0.05
NF_Canoe_Ex	Main_Ext-DS-0	17702.9	P50yr	5598.8	374.13	387.81	383.75	387.81	0.000061	0.95	13822.91	3708.19	0.06
NF_Canoe_Ex	Main_Ext-DS-0	17702.9	P10yr	3677	374.13	386.37	383.54	386.38	0.000086	1	9082.74	2855	0.06
NF_Canoe_Ex	Main_Ext-DS-0	17702.9	P2yr	2043.4	374.13	385.26	379.98	385.27	0.000084	1.01	6051.68	2639.72	0.06
NF_Canoe_Ex	Main_Ext-DS-0	17622		Mult Open									
NF_Canoe_Ex	Main_Ext-DS-0	17534.5	P100yr	6647.8	372.63	388.51		388.51	0.000061	0.92	15492.95	3671.13	0.06
NF_Canoe_Ex	Main_Ext-DS-0	17534.5	Floodway	6647.8	372.63	389.27		389.28	0.00018	1.68	7400.13	1197.27	0.1
NF_Canoe_Ex	Main_Ext-DS-0	17534.5	P500yr	9438.2	372.63	389.92		389.92	0.000053	0.95	20987.46	4206.95	0.05
NF_Canoe_Ex	Main_Ext-DS-0	17534.5	P50yr	5598.8	372.63	387.79		387.79	0.000071	0.94	13014.63	3239.43	0.06
NF_Canoe_Ex	Main_Ext-DS-0	17534.5	P10yr	3677	372.63	386.37		386.37	0.000103	1.04	8646.25	2906.04	0.07
NF_Canoe_Ex	Main_Ext-DS-0	17534.5	P2yr	2043.4	372.63	384.9		384.91	0.000204	1.29	4566.68	2666.03	0.1
NF_Canoe_Ex	Main_Ext-DS-0	16904.1 P	P100yr	6662.1	371.38	388.46		388.46	0.000095	1.24	12173.04	2531.41	0.07
NF_Canoe_Ex	Main_Ext-DS-0	16904.1 P	Floodway	6662.1	371.38	389.14		389.16	0.000237	2.06	6354.11	1038.57	0.11
NF_Canoe_Ex	Main_Ext-DS-0	16904.1 P	P500yr	9453.9	371.38	389.87		389.88	0.000085	1.29	16084.57	3130.79	0.07
NF_Canoe_Ex	Main_Ext-DS-0	16904.1 P	P50yr	5616.6	371.38	387.73		387.74	0.000108	1.26	10358.77	2452.1	0.08
NF_Canoe_Ex	Main_Ext-DS-0	16904.1 P	P10yr	3687.2	371.38	386.29		386.3	0.000128	1.22	7058.67	2088.05	0.08
NF_Canoe_Ex	Main_Ext-DS-0	16904.1 P	P2yr	2047.7	371.38	384.79		384.79	0.00016	1.18	4191.71	1745.02	0.09
NF_Canoe_Ex	Main_Ext-DS-0	16397.3	P100yr	3221.7	372.11	388.34	382.46	388.39	0.000307	2.19	2054.25	3105.28	0.13
NF_Canoe_Ex	Main_Ext-DS-0	16397.3	Floodway	3221.7	372.11	389.09	380.89	389.1	0.000062	1.03	6102.76	1043.11	0.06
NF_Canoe_Ex	Main_Ext-DS-0	16397.3	P500yr	4143	372.11	389.86	382.71	389.86	0.000013	0.5	16347.93	3549.82	0.03
NF_Canoe_Ex	Main_Ext-DS-0	16397.3	P50yr	2954	372.11	387.6	381.31	387.65	0.000354	2.22	1862.16	2995.52	0.13
NF_Canoe_Ex	Main_Ext-DS-0	16397.3	P10yr	2426.5	372.11	386.13	379.74	386.18	0.00049	2.34	1478.86	2601.8	0.15
NF_Canoe_Ex	Main_Ext-DS-0	16397.3	P2yr	1647.9	372.11	384.6	378.41	384.65	0.000521	2.25	1092.92	1963.93	0.15
NF_Canoe_Ex	Main_Ext-DS-0	16326.84	P100yr	3221.7	372.49	388.21	379.93	388.34	0.000695	2.95	1260.6	1526.54	0.19

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Canoe Creek Flood Impact Study on Proposed I69
Parsons HECRAS Model canoe073119.ghrj Backup Data
Parsons Existing Condition HECRAS Plan Canoex3 Summary Table

River	Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
NF_Canoe_Ex	Main_Ext-DS-0	16326.84	Floodway	3221.7	372.49	388.96	379.93	389.06	0.000505	2.66	1406.81	1745.43	0.16
NF_Canoe_Ex	Main_Ext-DS-0	16326.84	P500yr	4143	372.49	389.84	381.1	389.85	0.000149	1.46	5764.81	1975.17	0.09
NF_Canoe_Ex	Main_Ext-DS-0	16326.84	P50yr	2954	372.49	387.46	379.56	387.59	0.00083	3.03	1117.4	1361.23	0.2
NF_Canoe_Ex	Main_Ext-DS-0	16326.84	P10yr	2426.5	372.49	385.95	378.78	386.1	0.001301	3.27	838.86	872.71	0.25
NF_Canoe_Ex	Main_Ext-DS-0	16326.84	P2yr	1647.9	372.49	384.43	377.5	384.57	0.001357	3.12	587.69	414.25	0.25
NF_Canoe_Ex	Main_Ext-DS-0	16298		Mult Open									
NF_Canoe_Ex	Main_Ext-DS-0	16177.27	P100yr	3221.7	371.84	387.53	380.4	387.59	0.000554	2.43	2757.88	1301.47	0.17
NF_Canoe_Ex	Main_Ext-DS-0	16177.27	Floodway	3221.7	371.84	388.38	380.4	388.41	0.000267	1.8	3989.09	1601.47	0.12
NF_Canoe_Ex	Main_Ext-DS-0	16177.27	P500yr	4143	371.84	388.88	381.6	388.91	0.000286	1.95	4785.24	1827.9	0.12
NF_Canoe_Ex	Main_Ext-DS-0	16177.27	P50yr	2954	371.84	386.71	380.02	386.91	0.001409	3.76	912.84	1064.41	0.27
NF_Canoe_Ex	Main_Ext-DS-0	16177.27	P10yr	2426.5	371.84	385.37	379.22	385.6	0.001938	4.03	688.81	374.23	0.31
NF_Canoe_Ex	Main_Ext-DS-0	16177.27	P2yr	1647.9	371.84	384.02	377.83	384.23	0.001724	3.7	495.4	126.49	0.28
NF_Canoe_Ex	Main_Ext-DS-0	16087.8	P100yr	3221.7	371.06	387.55	377.61	387.56	0.000024	0.69	10201.7	3058.11	0.04
NF_Canoe_Ex	Main_Ext-DS-0	16087.8	Floodway	3221.7	371.06	388.39	377.62	388.39	0.00004	0.94	6829.36	1156.14	0.05
NF_Canoe_Ex	Main_Ext-DS-0	16087.8	P500yr	4143	371.06	388.89	378.36	388.89	0.000022	0.72	13239.19	3605.6	0.04
NF_Canoe_Ex	Main_Ext-DS-0	16087.8	P50yr	2954	371.06	386.79	377.36	386.8	0.000049	0.94	5595.66	2928.89	0.05
NF_Canoe_Ex	Main_Ext-DS-0	16087.8	P10yr	2426.5	371.06	385.43	376.87	385.47	0.00018	1.66	1768.7	2356.91	0.1
NF_Canoe_Ex	Main_Ext-DS-0	16087.8	P2yr	1647.9	371.06	384.08	375.97	384.11	0.000157	1.4	1375.5	1898.59	0.09
NF_Canoe_Ex	Main_Ext-DS-0	15534.2	O P100yr	3221.7	370.5	387.54	380.3	387.54	0.000031	0.69	10694.54	2959.38	0.04
NF_Canoe_Ex	Main_Ext-DS-0	15534.2	O Floodway	3221.7	370.5	388.36	380.3	388.36	0.000055	0.97	6713.19	1050.98	0.05
NF_Canoe_Ex	Main_Ext-DS-0	15534.2	O P500yr	4143	370.5	388.87	382.59	388.88	0.000024	0.66	13939.1	3299.82	0.04
NF_Canoe_Ex	Main_Ext-DS-0	15534.2	O P50yr	2954	370.5	386.77	379.89	386.77	0.000044	0.77	8986.09	2795.52	0.05
NF_Canoe_Ex	Main_Ext-DS-0	15534.2	O P10yr	2426.5	370.5	385.37	379.02	385.38	0.000092	0.99	6064.74	2467.69	0.07
NF_Canoe_Ex	Main_Ext-DS-0	15534.2	O P2yr	1647.9	370.5	383.99	377.56	384	0.000168	1.25	3478.17	1702.77	0.09
NF_Canoe_Ex	Main_Ext-DS-0	14567.2	N P100yr	3221.7	371.55	387.49	378.65	387.49	0.000067	1.2	6399.49	2598.04	0.07
NF_Canoe_Ex	Main_Ext-DS-0	14567.2	N Floodway	3221.7	371.55	388.28	378.65	388.29	0.000073	1.33	5367.19	746.12	0.07
NF_Canoe_Ex	Main_Ext-DS-0	14567.2	N P500yr	4143	371.55	388.83	381.4	388.84	0.00006	1.25	7781.84	3140.09	0.07
NF_Canoe_Ex	Main_Ext-DS-0	14567.2	N P50yr	2954	371.55	386.7	378.28	386.71	0.000085	1.28	5589.16	1844.93	0.08
NF_Canoe_Ex	Main_Ext-DS-0	14567.2	N P10yr	2426.5	371.55	385.24	377.52	385.26	0.000145	1.48	4094.08	1362.28	0.1

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Canoe Creek Flood Impact Study on Proposed I69
Parsons HECRAS Model canoe073119.ghrj Backup Data
Parsons Existing Condition HECRAS Plan Canoex3 Summary Table

River	Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
NF_Canoe_Ex	Main_Ext-DS-0	14567.2	N P2yr	1647.9	371.55	383.8	376.27	383.82	0.000194	1.67	2627.28	976.67	0.11
NF_Canoe_Ex	Main_Ext-DS-0	13899.4	P100yr	3221.7	371.14	387.44	378.92	387.45	0.000068	1.4	6703.53	2422.58	0.07
NF_Canoe_Ex	Main_Ext-DS-0	13899.4	Floodway	3221.7	371.14	388.23	378.93	388.24	0.000078	1.57	5003.98	670	0.08
NF_Canoe_Ex	Main_Ext-DS-0	13899.4	P500yr	4143	371.14	388.79	381.45	388.8	0.000059	1.4	8337.77	2670.66	0.07
NF_Canoe_Ex	Main_Ext-DS-0	13899.4	P50yr	2954	371.14	386.63	378.48	386.65	0.000089	1.53	5731.77	2278.51	0.08
NF_Canoe_Ex	Main_Ext-DS-0	13899.4	P10yr	2426.5	371.14	385.12	377.38	385.15	0.000166	1.9	3905.18	2038.45	0.11
NF_Canoe_Ex	Main_Ext-DS-0	13899.4	P2yr	1647.9	371.14	383.62	376.05	383.67	0.000262	2.14	2156.06	1362.54	0.13
NF_Canoe_Ex	Main_Ext-DS-0	13273.2	M P100yr	3221.7	370.4	387.39	378.97	387.4	0.000091	1.32	6096.15	2056.24	0.08
NF_Canoe_Ex	Main_Ext-DS-0	13273.2	M Floodway	3221.7	370.4	388.11	378.95	388.16	0.000202	2.07	2720.67	446.31	0.12
NF_Canoe_Ex	Main_Ext-DS-0	13273.2	M P500yr	4143	370.4	388.75	381.64	388.76	0.000072	1.29	7810.56	2633.84	0.07
NF_Canoe_Ex	Main_Ext-DS-0	13273.2	M P50yr	2954	370.4	386.57	378.49	386.58	0.00013	1.47	5061.14	1990.46	0.09
NF_Canoe_Ex	Main_Ext-DS-0	13273.2	M P10yr	2426.5	370.4	384.99	377.42	385.02	0.000251	2.01	3163.75	1178.01	0.13
NF_Canoe_Ex	Main_Ext-DS-0	13273.2	M P2yr	1647.9	370.4	383.41	376.05	383.47	0.000384	2.24	1621.53	838.49	0.15
NF_Canoe_Ex	Main_Ext-DS-0	12979.5	P100yr	3221.7	371.41	387.33	378.8	387.36	0.000153	1.93	3960.38	2484.82	0.1
NF_Canoe_Ex	Main_Ext-DS-0	12979.5	Floodway	3221.7	371.41	388.01	378.8	388.09	0.000246	2.55	2228.12	320	0.13
NF_Canoe_Ex	Main_Ext-DS-0	12979.5	P500yr	4143	371.41	388.7	380.03	388.72	0.000133	1.95	4976.61	2845.18	0.1
NF_Canoe_Ex	Main_Ext-DS-0	12979.5	P50yr	2954	371.41	386.49	378.41	386.53	0.000203	2.1	3334.81	2094.74	0.12
NF_Canoe_Ex	Main_Ext-DS-0	12979.5	P10yr	2426.5	371.41	384.84	377.57	384.92	0.000405	2.63	2111.71	1765.92	0.16
NF_Canoe_Ex	Main_Ext-DS-0	12979.5	P2yr	1647.9	371.41	383.19	376.15	383.3	0.000672	2.9	968.47	882.22	0.2
NF_Canoe_Ex	Main_Ext-DS-0	12921.8		Bridge									
NF_Canoe_Ex	Main_Ext-DS-0	12871.2	P100yr	3221.7	370.62	387.24	378.8	387.3	0.000232	2.5	2739.88	2301.97	0.13
NF_Canoe_Ex	Main_Ext-DS-0	12871.2	Floodway	3221.7	370.62	387.89	378.79	387.99	0.000291	2.91	1843.68	250	0.15
NF_Canoe_Ex	Main_Ext-DS-0	12871.2	P500yr	4143	370.62	388.61	379.99	388.67	0.000214	2.6	3406.02	2670.42	0.13
NF_Canoe_Ex	Main_Ext-DS-0	12871.2	P50yr	2954	370.62	386.37	378.41	386.45	0.000296	2.67	2319.09	2007.65	0.15
NF_Canoe_Ex	Main_Ext-DS-0	12871.2	P10yr	2426.5	370.62	384.62	377.6	384.75	0.000545	3.19	1468.71	1157.78	0.19
NF_Canoe_Ex	Main_Ext-DS-0	12871.2	P2yr	1647.9	370.62	383.15	376.24	383.29	0.000676	3.12	755.06	579.06	0.21
NF_Canoe_Ex	Main_Ext-DS-0	12458.1	P100yr	3221.7	369.67	386.92	378.03	387.12	0.00056	3.63	1074.85	718.34	0.2
NF_Canoe_Ex	Main_Ext-DS-0	12458.1	Floodway	3221.7	369.67	387.64	378.05	387.82	0.000463	3.45	1032.5	126.07	0.19

B

Canoe Creek Flood Impact Study on Proposed I69
Parsons HECRAS Model canoe073119.ghrj Backup Data
Parsons Existing Condition HECRAS Plan Canoex3 Summary Table

River	Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
NF_Canoe_Ex	Main_Ext-DS-0	12458.1	P500yr	4143	369.67	388.25	379.18	388.48	0.000574	3.99	1325.48	1047.1	0.21
NF_Canoe_Ex	Main_Ext-DS-0	12458.1	P50yr	2954	369.67	386.02	377.68	386.23	0.000673	3.73	919.04	581.4	0.22
NF_Canoe_Ex	Main_Ext-DS-0	12458.1	P10yr	2426.5	369.67	384.18	376.91	384.42	0.000979	3.96	620.66	127.19	0.26
NF_Canoe_Ex	Main_Ext-DS-0	12458.1	P2yr	1647.9	369.67	382.81	375.59	382.98	0.000808	3.29	501.49	78.12	0.23
NF_Canoe_Ex	Main_Ext-DS-0	12027.9 L	P100yr	4431.4	369.87	386.53	379.82	386.82	0.000779	4.54	1346.03	1626.39	0.25
NF_Canoe_Ex	Main_Ext-DS-0	12027.9 L	Floodway	4431.4	369.87	387.24	379.87	387.54	0.00077	4.51	1084.61	111.86	0.24
NF_Canoe_Ex	Main_Ext-DS-0	12027.9 L	P500yr	5639.4	369.87	387.85	381.29	388.18	0.000783	4.93	1647.25	1859.83	0.25
NF_Canoe_Ex	Main_Ext-DS-0	12027.9 L	P50yr	3939.7	369.87	385.57	379.31	385.88	0.000903	4.58	1128.7	1470.47	0.26
NF_Canoe_Ex	Main_Ext-DS-0	12027.9 L	P10yr	2737.1	369.87	383.73	377.59	383.99	0.000997	4.16	711.24	903.27	0.27
NF_Canoe_Ex	Main_Ext-DS-0	12027.9 L	P2yr	1856.8	369.87	382.43	376.21	382.61	0.000872	3.44	556.94	374.67	0.24
NF_Canoe_Ex	Main_Ext-DS-0	11796.9	P100yr	4431.4	369.98	386.41	378.74	386.63	0.000588	3.91	1475.8	1303.79	0.22
NF_Canoe_Ex	Main_Ext-DS-0	11796.9	Floodway	4431.4	369.98	387.14	378.75	387.35	0.000517	3.84	1390.31	182	0.21
NF_Canoe_Ex	Main_Ext-DS-0	11796.9	P500yr	5639.4	369.98	387.82	379.78	387.95	0.000384	3.45	3342.47	1493.22	0.18
NF_Canoe_Ex	Main_Ext-DS-0	11796.9	P50yr	3939.7	369.98	385.43	378.26	385.66	0.000682	3.93	1259.58	1026.95	0.23
NF_Canoe_Ex	Main_Ext-DS-0	11796.9	P10yr	2737.1	369.98	383.56	376.95	383.75	0.000762	3.57	890.73	588.89	0.23
NF_Canoe_Ex	Main_Ext-DS-0	11796.9	P2yr	1856.8	369.98	382.3	375.75	382.44	0.000513	2.96	699.38	196.38	0.19
NF_Canoe_Ex	Main_Ext-DS-0	11736.8		Bridge									
NF_Canoe_Ex	Main_Ext-DS-0	11667.5	P100yr	4431.4	369.19	384.83	377.25	385.11	0.000756	4.28	1208.38	808.87	0.24
NF_Canoe_Ex	Main_Ext-DS-0	11667.5	Floodway	4431.4	369.19	385.55	377.24	385.8	0.000651	4.06	1184.85	160	0.22
NF_Canoe_Ex	Main_Ext-DS-0	11667.5	P500yr	5639.4	369.19	386.02	378.33	386.35	0.000793	4.74	1463.6	1566.15	0.25
NF_Canoe_Ex	Main_Ext-DS-0	11667.5	P50yr	3939.7	369.19	384.25	376.76	384.5	0.000751	4.09	1087.29	639.89	0.24
NF_Canoe_Ex	Main_Ext-DS-0	11667.5	P10yr	2737.1	369.19	382.42	375.4	382.62	0.000796	3.63	777.73	133.15	0.24
NF_Canoe_Ex	Main_Ext-DS-0	11667.5	P2yr	1856.8	369.19	380.75	374.19	380.91	0.000815	3.2	580.58	99.61	0.23
NF_Canoe_Ex	Main_Ext-DS-0	11496.7 K	P100yr	4431.4	368.97	384.63	377.78	384.95	0.001005	4.67	1240	492.15	0.28
NF_Canoe_Ex	Main_Ext-DS-0	11496.7 K	Floodway	4431.4	368.97	385.36	377.76	385.66	0.000821	4.45	1098.78	145	0.25
NF_Canoe_Ex	Main_Ext-DS-0	11496.7 K	P500yr	5639.4	368.97	385.85	378.99	386.2	0.000962	4.98	1628.39	1280.72	0.28
NF_Canoe_Ex	Main_Ext-DS-0	11496.7 K	P50yr	3939.7	368.97	384.02	377.25	384.33	0.001046	4.54	1065.31	430.23	0.28
NF_Canoe_Ex	Main_Ext-DS-0	11496.7 K	P10yr	2737.1	368.97	382.18	375.79	382.45	0.001024	4.15	681.1	124.91	0.27
NF_Canoe_Ex	Main_Ext-DS-0	11496.7 K	P2yr	1856.8	368.97	380.56	374.55	380.76	0.000887	3.57	520.07	81.61	0.25

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Canoe Creek Flood Impact Study on Proposed I69
Parsons HECRAS Model canoe073119.ghrj Backup Data
Parsons Existing Condition HECRAS Plan Canoex3 Summary Table

River	Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
NF_Canoe_Ex	Main_Ext-DS-0	11331	P100yr	4431.4	368.71	384.44	377.98	384.75	0.001341	4.71	1365.97	488.79	0.31
NF_Canoe_Ex	Main_Ext-DS-0	11331	Floodway	4431.4	368.71	385.16	377.98	385.49	0.001177	4.7	1035.87	156.82	0.29
NF_Canoe_Ex	Main_Ext-DS-0	11331	P500yr	5639.4	368.71	385.7	379.11	386	0.001115	4.78	1815.49	788.49	0.29
NF_Canoe_Ex	Main_Ext-DS-0	11331	P50yr	3939.7	368.71	383.8	377.47	384.13	0.001351	4.78	1140.6	421.71	0.31
NF_Canoe_Ex	Main_Ext-DS-0	11331	P10yr	2737.1	368.71	381.93	376.04	382.25	0.001193	4.57	631.69	160.26	0.29
NF_Canoe_Ex	Main_Ext-DS-0	11331	P2yr	1856.8	368.71	380.36	374.77	380.59	0.000984	3.86	481.59	69.86	0.26
NF_Canoe_Ex	Main_Ext-DS-0	11256.8		Bridge									
NF_Canoe_Ex	Main_Ext-DS-0	11171.4	P100yr	4431.4	368.53	384.28	376.13	384.47	0.000422	3.77	1721.69	434.09	0.19
NF_Canoe_Ex	Main_Ext-DS-0	11171.4	Floodway	4431.4	368.53	385.02	376.13	385.2	0.000354	3.59	1614.08	170.6	0.18
NF_Canoe_Ex	Main_Ext-DS-0	11171.4	P500yr	5639.4	368.53	385.52	377.04	385.76	0.000459	4.19	2052.06	669.42	0.2
NF_Canoe_Ex	Main_Ext-DS-0	11171.4	P50yr	3939.7	368.53	383.65	375.71	383.84	0.000414	3.6	1559.06	325.34	0.19
NF_Canoe_Ex	Main_Ext-DS-0	11171.4	P10yr	2737.1	368.53	381.82	374.52	381.96	0.000377	3.07	1144.71	193.07	0.17
NF_Canoe_Ex	Main_Ext-DS-0	11171.4	P2yr	1856.8	368.53	380.28	373.45	380.38	0.000325	2.54	868.76	164.96	0.16
NF_Canoe_Ex	Main_Ext-DS-0	11097.6	P100yr	4431.4	368	384.21	376.26	384.43	0.000541	3.94	1785.56	675.95	0.21
NF_Canoe_Ex	Main_Ext-DS-0	11097.6	Floodway	4431.4	368	384.93	376.27	385.16	0.000522	3.92	1330.21	172.04	0.2
NF_Canoe_Ex	Main_Ext-DS-0	11097.6	P500yr	5639.4	368	385.49	377.31	385.72	0.000511	4.13	2432.73	1017.61	0.21
NF_Canoe_Ex	Main_Ext-DS-0	11097.6	P50yr	3939.7	368	383.57	375.79	383.79	0.000567	3.88	1464.58	559.18	0.21
NF_Canoe_Ex	Main_Ext-DS-0	11097.6	P10yr	2737.1	368	381.72	374.49	381.91	0.000587	3.46	795.53	104.4	0.21
NF_Canoe_Ex	Main_Ext-DS-0	11097.6	P2yr	1856.8	368	380.21	373.33	380.34	0.000495	2.85	650.79	90.23	0.19
NF_Canoe_Ex	Main_Ext-DS-0	11075	P100yr	4431.4	368	384.21	376.26	384.42	0.000523	3.88	1912.02	908.92	0.21
NF_Canoe_Ex	Main_Ext-DS-0	11075	Floodway	4431.4	368	384.92	376.26	385.14	0.000511	3.88	1354.99	162.04	0.2
NF_Canoe_Ex	Main_Ext-DS-0	11075	P500yr	5639.4	368	385.49	377.31	385.7	0.000484	4.02	2628.22	999.87	0.2
NF_Canoe_Ex	Main_Ext-DS-0	11075	P50yr	3939.7	368	383.56	375.79	383.77	0.000556	3.84	1555.17	865.1	0.21
NF_Canoe_Ex	Main_Ext-DS-0	11075	P10yr	2737.1	368	381.71	374.49	381.9	0.000583	3.45	862.85	321.68	0.21
NF_Canoe_Ex	Main_Ext-DS-0	11075	P2yr	1856.8	368	380.2	373.34	380.33	0.000497	2.86	649.74	90.16	0.19
NF_Canoe_Ex	Main_Ext-DS-0	11031.7 J	P100yr	4431.4	368	384.18	376.26	384.39	0.000545	3.84	1894.45	781.52	0.21
NF_Canoe_Ex	Main_Ext-DS-0	11031.7 J	Floodway	4431.4	368	384.9	376.26	385.12	0.000495	3.83	1365.54	170.37	0.2
NF_Canoe_Ex	Main_Ext-DS-0	11031.7 J	P500yr	5639.4	368	385.47	377.31	385.68	0.000497	3.96	2619.66	867.28	0.2

B

Canoe Creek Flood Impact Study on Proposed I69
Parsons HECRAS Model canoe073119.ghrj Backup Data
Parsons Existing Condition HECRAS Plan Canoex3 Summary Table

River	Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
NF_Canoe_Ex	Main_Ext-DS-0	11031.7 J	P50yr	3939.7	368	383.53	375.79	383.75	0.000585	3.82	1531.42	709.72	0.21
NF_Canoe_Ex	Main_Ext-DS-0	11031.7 J	P10yr	2737.1	368	381.69	374.49	381.87	0.000615	3.43	857.07	423.06	0.21
NF_Canoe_Ex	Main_Ext-DS-0	11031.7 J	P2yr	1856.8	368	380.18	373.33	380.31	0.000501	2.87	650.08	151.85	0.19
NF_Canoe_Ex	Main_Ext-DS-0	10936.8	Bridge										
NF_Canoe_Ex	Main_Ext-DS-0	10837	P100yr	4431.4	365.65	383.85	375.72	384.15	0.000736	4.53	1134.96	407.31	0.24
NF_Canoe_Ex	Main_Ext-DS-0	10837	Floodway	4431.4	365.65	384.59	375.73	384.85	0.000587	4.23	1236.89	138.62	0.22
NF_Canoe_Ex	Main_Ext-DS-0	10837	P500yr	5639.4	365.65	385.4	376.91	385.6	0.000508	4.11	2548.64	633.39	0.2
NF_Canoe_Ex	Main_Ext-DS-0	10837	P50yr	3939.7	365.65	383.22	375.19	383.49	0.000719	4.31	1046.4	389.75	0.23
NF_Canoe_Ex	Main_Ext-DS-0	10837	P10yr	2737.1	365.65	381.47	373.67	381.67	0.000641	3.67	823.54	270	0.22
NF_Canoe_Ex	Main_Ext-DS-0	10837	P2yr	1856.8	365.65	379.51	372.27	379.67	0.000625	3.23	593.12	107.84	0.21
NF_Canoe_Ex	Main_Ext-DS-0	10362.2 I	P100yr	4431.4	366.04	383.64	374.63	383.84	0.000427	3.73	1603.97	903.93	0.19
NF_Canoe_Ex	Main_Ext-DS-0	10362.2 I	Floodway	4431.4	366.04	384.42	374.64	384.6	0.00035	3.53	1483.53	157.5	0.17
NF_Canoe_Ex	Main_Ext-DS-0	10362.2 I	P500yr	5639.4	366.04	385.17	375.67	385.38	0.000411	3.97	2153.08	1329.71	0.19
NF_Canoe_Ex	Main_Ext-DS-0	10362.2 I	P50yr	3939.7	366.04	383	374.17	383.19	0.000424	3.59	1390.64	640.5	0.19
NF_Canoe_Ex	Main_Ext-DS-0	10362.2 I	P10yr	2737.1	366.04	381.28	372.86	381.41	0.000365	2.99	1006.62	177.39	0.17
NF_Canoe_Ex	Main_Ext-DS-0	10362.2 I	P2yr	1856.8	366.04	379.32	371.7	379.42	0.000363	2.57	743.75	115.81	0.16
NF_Canoe_Ex	Main_Ext-DS-0	9719.4 H	P100yr	4431.4	365.69	383.28	375	383.52	0.000592	3.95	1277.35	213.71	0.22
NF_Canoe_Ex	Main_Ext-DS-0	9719.4 H	Floodway	4431.4	365.69	384.13	375	384.34	0.000486	3.69	1271.78	127.7	0.19
NF_Canoe_Ex	Main_Ext-DS-0	9719.4 H	P500yr	5639.4	365.69	384.8	376.03	385.07	0.000578	4.28	1646.26	437.61	0.22
NF_Canoe_Ex	Main_Ext-DS-0	9719.4 H	P50yr	3939.7	365.69	382.66	374.53	382.87	0.000585	3.77	1152.55	186.92	0.21
NF_Canoe_Ex	Main_Ext-DS-0	9719.4 H	P10yr	2737.1	365.69	380.97	373.18	381.13	0.000548	3.21	876.36	143.2	0.2
NF_Canoe_Ex	Main_Ext-DS-0	9719.4 H	P2yr	1856.8	365.69	379.01	371.97	379.14	0.000534	2.85	650.7	94.2	0.19
NF_Canoe_Ex	Main_Ext-DS-0	8580.4 G	P100yr	4431.4	365.52	382.97	374.13	383.06	0.000244	2.88	3126.68	772.55	0.14
NF_Canoe_Ex	Main_Ext-DS-0	8580.4 G	Floodway	4431.4	365.52	383.84	374.12	383.93	0.000235	2.88	2756.98	348.3	0.14
NF_Canoe_Ex	Main_Ext-DS-0	8580.4 G	P500yr	5639.4	365.52	384.55	375.18	384.63	0.00022	2.95	3917.77	949.11	0.14
NF_Canoe_Ex	Main_Ext-DS-0	8580.4 G	P50yr	3939.7	365.52	382.33	373.65	382.41	0.000252	2.83	2802.78	666.26	0.14
NF_Canoe_Ex	Main_Ext-DS-0	8580.4 G	P10yr	2737.1	365.52	380.59	372.33	380.68	0.000275	2.68	1932.46	509.33	0.14
NF_Canoe_Ex	Main_Ext-DS-0	8580.4 G	P2yr	1856.8	365.52	378.53	371.16	378.64	0.000355	2.72	964.49	400.13	0.16

B

Canoe Creek Flood Impact Study on Proposed I69
Parsons HECRAS Model canoe073119.ghrj Backup Data
Parsons Existing Condition HECRAS Plan Canoex3 Summary Table

River	Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
NF_Canoe_Ex	Main_Ext-DS-0	8284.6	P100yr	4431.4	366.12	382.69	373.8	382.91	0.000497	3.92	1310.76	454.84	0.2
NF_Canoe_Ex	Main_Ext-DS-0	8284.6	Floodway	4431.4	366.12	383.57	373.8	383.79	0.000424	3.8	1225.92	104.49	0.19
NF_Canoe_Ex	Main_Ext-DS-0	8284.6	P500yr	5639.4	366.12	384.26	374.83	384.48	0.000457	4.08	1914.35	591.13	0.2
NF_Canoe_Ex	Main_Ext-DS-0	8284.6	P50yr	3939.7	366.12	382.08	373.33	382.28	0.000469	3.69	1228.46	443.25	0.19
NF_Canoe_Ex	Main_Ext-DS-0	8284.6	P10yr	2737.1	366.12	380.4	372.07	380.56	0.000404	3.15	878.52	347.22	0.18
NF_Canoe_Ex	Main_Ext-DS-0	8284.6	P2yr	1856.8	366.12	378.42	370.95	378.53	0.000367	2.66	701.85	281.7	0.16
NF_Canoe_Ex	Main_Ext-DS-0	8211.8		Bridge									
NF_Canoe_Ex	Main_Ext-DS-0	8165.2	P100yr	4431.4	366.12	382.42	373.8	382.61	0.000495	3.58	1316.21	508.51	0.2
NF_Canoe_Ex	Main_Ext-DS-0	8165.2	Floodway	4431.4	366.12	383.3	373.81	383.47	0.000413	3.35	1333.77	125.66	0.18
NF_Canoe_Ex	Main_Ext-DS-0	8165.2	P500yr	5639.4	366.12	383.69	374.84	383.94	0.000531	4.01	1532.69	612.1	0.21
NF_Canoe_Ex	Main_Ext-DS-0	8165.2	P50yr	3939.7	366.12	381.95	373.34	382.12	0.000461	3.35	1236.5	498.02	0.19
NF_Canoe_Ex	Main_Ext-DS-0	8165.2	P10yr	2737.1	366.12	380.33	372.07	380.46	0.000406	2.81	996.9	381.68	0.17
NF_Canoe_Ex	Main_Ext-DS-0	8165.2	P2yr	1856.8	366.12	378.35	370.95	378.44	0.000454	2.52	744.05	313.73	0.18
NF_Canoe_Ex	Main_Ext-DS-0	7927.6	P100yr	4431.4	364.85	382.36	373.6	382.48	0.000305	3.29	2910.67	824.9	0.16
NF_Canoe_Ex	Main_Ext-DS-0	7927.6	Floodway	4431.4	364.85	383.23	373.6	383.37	0.000301	3.41	2229.95	316.08	0.16
NF_Canoe_Ex	Main_Ext-DS-0	7927.6	P500yr	5639.4	364.85	383.66	374.69	383.78	0.000286	3.39	3724.6	932.25	0.16
NF_Canoe_Ex	Main_Ext-DS-0	7927.6	P50yr	3939.7	364.85	381.89	373.1	382.01	0.0003	3.18	2612.93	791.04	0.16
NF_Canoe_Ex	Main_Ext-DS-0	7927.6	P10yr	2737.1	364.85	380.25	371.73	380.37	0.000312	2.96	1648.39	531.96	0.16
NF_Canoe_Ex	Main_Ext-DS-0	7927.6	P2yr	1856.8	364.85	378.22	370.52	378.34	0.000377	2.84	734.98	226.84	0.17
NF_Canoe_Ex	Main_Ext-DS-0	7564.1 F	P100yr	4431.4	364.85	382.26	373.61	382.38	0.000298	3.3	2937.81	1255.24	0.16
NF_Canoe_Ex	Main_Ext-DS-0	7564.1 F	Floodway	4431.4	364.85	383.15	373.6	383.26	0.000259	3.21	2690.97	405.45	0.15
NF_Canoe_Ex	Main_Ext-DS-0	7564.1 F	P500yr	5639.4	364.85	383.56	374.68	383.68	0.000287	3.45	3669.43	1465.62	0.16
NF_Canoe_Ex	Main_Ext-DS-0	7564.1 F	P50yr	3939.7	364.85	381.79	373.11	381.9	0.000289	3.17	2672.64	1131.66	0.16
NF_Canoe_Ex	Main_Ext-DS-0	7564.1 F	P10yr	2737.1	364.85	380.14	371.73	380.26	0.000305	2.98	1748.5	855.74	0.16
NF_Canoe_Ex	Main_Ext-DS-0	7564.1 F	P2yr	1856.8	364.85	378.07	370.51	378.2	0.000379	2.9	724.34	298.71	0.17
NF_Canoe_Ex	Main_Ext-DS-0	7123.8	P100yr	4431.4	364.64	382.25	374.39	382.27	0.000082	1.6	6298.12	1673.57	0.08
NF_Canoe_Ex	Main_Ext-DS-0	7123.8	Floodway	4431.4	364.64	383.15	374.4	383.16	0.000067	1.52	6018.46	675.39	0.08
NF_Canoe_Ex	Main_Ext-DS-0	7123.8	P500yr	5639.4	364.64	383.55	375.17	383.57	0.00008	1.69	7491.54	1833.58	0.08
NF_Canoe_Ex	Main_Ext-DS-0	7123.8	P50yr	3939.7	364.64	381.78	372.85	381.79	0.000079	1.53	5865.95	1599.86	0.08

B

Canoe Creek Flood Impact Study on Proposed I69
Parsons HECRAS Model canoe073119.ghrj Backup Data
Parsons Existing Condition HECRAS Plan Canoex3 Summary Table

River	Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
NF_Canoe_Ex	Main_Ext-DS-0	7123.8	P10yr	2737.1	364.64	380.13	371.51	380.15	0.000086	1.43	4356.94	1320.97	0.08
NF_Canoe_Ex	Main_Ext-DS-0	7123.8	P2yr	1856.8	364.64	378.03	370.33	378.06	0.000137	1.54	2637.56	921.14	0.1
NF_Canoe_Ex	Main_Ext-DS-0	7086.8		Bridge									
NF_Canoe_Ex	Main_Ext-DS-0	7010.6	P100yr	4431.4	364.64	382.1	373.33	382.17	0.000199	2.61	4732.52	1731.65	0.13
NF_Canoe_Ex	Main_Ext-DS-0	7010.6	Floodway	4431.4	364.64	383.03	373.34	383.09	0.000157	2.43	4652.77	736.29	0.12
NF_Canoe_Ex	Main_Ext-DS-0	7010.6	P500yr	5639.4	364.64	383.46	374.41	383.51	0.000175	2.62	6064.92	1839.2	0.12
NF_Canoe_Ex	Main_Ext-DS-0	7010.6	P50yr	3939.7	364.64	381.59	372.84	381.66	0.000203	2.56	4230.1	1690.2	0.13
NF_Canoe_Ex	Main_Ext-DS-0	7010.6	P10yr	2737.1	364.64	379.96	371.51	380.04	0.000246	2.57	2619.79	1432.81	0.14
NF_Canoe_Ex	Main_Ext-DS-0	7010.6	P2yr	1856.8	364.64	377.85	370.32	377.96	0.000367	2.72	1007.31	637.94	0.16
NF_Canoe_Ex	Main_Ext-DS-0	6706.5 E	P100yr	4431.4	364.35	382.06	372.96	382.1	0.000149	2.33	5821.02	1731.83	0.11
NF_Canoe_Ex	Main_Ext-DS-0	6706.5 E	Floodway	4431.4	364.35	382.96	372.95	383.03	0.000168	2.58	4256.4	688.54	0.12
NF_Canoe_Ex	Main_Ext-DS-0	6706.5 E	P500yr	5639.4	364.35	383.42	374.04	383.45	0.000127	2.29	7616.15	1861.82	0.11
NF_Canoe_Ex	Main_Ext-DS-0	6706.5 E	P50yr	3939.7	364.35	381.54	372.47	381.59	0.000154	2.3	5164.81	1671.83	0.11
NF_Canoe_Ex	Main_Ext-DS-0	6706.5 E	P10yr	2737.1	364.35	379.9	371.13	379.96	0.000195	2.36	3153.5	1377.85	0.12
NF_Canoe_Ex	Main_Ext-DS-0	6706.5 E	P2yr	1856.8	364.35	377.75	369.94	377.85	0.000326	2.65	994.4	685.58	0.16
NF_Canoe_Ex	Main_Ext-DS-0	5738.9 D	P100yr	4431.4	364.57	381.96	372.6	381.98	0.000096	1.84	7620.11	2553.51	0.09
NF_Canoe_Ex	Main_Ext-DS-0	5738.9 D	Floodway	4431.4	364.57	382.81	372.6	382.86	0.000165	2.39	4290.68	661.17	0.11
NF_Canoe_Ex	Main_Ext-DS-0	5738.9 D	P500yr	5639.4	364.57	383.33	373.67	383.35	0.000081	1.81	9725.99	2734.02	0.08
NF_Canoe_Ex	Main_Ext-DS-0	5738.9 D	P50yr	3939.7	364.57	381.44	372.14	381.47	0.0001	1.82	6836.04	2543.78	0.09
NF_Canoe_Ex	Main_Ext-DS-0	5738.9 D	P10yr	2737.1	364.57	379.76	370.83	379.79	0.00014	1.95	4278.77	2139.5	0.11
NF_Canoe_Ex	Main_Ext-DS-0	5738.9 D	P2yr	1856.8	364.57	377.43	369.69	377.53	0.000333	2.56	1104.4	876.56	0.16
NF_Canoe_Ex	Main_Ext-DS-0	4899.4	P100yr	6309.5	363.89	381.8	374	381.86	0.000206	2.83	8182.11	3506.02	0.13
NF_Canoe_Ex	Main_Ext-DS-0	4899.4	Floodway	6309.5	363.89	382.51	374.01	382.64	0.000381	3.69	3851.63	660.3	0.17
NF_Canoe_Ex	Main_Ext-DS-0	4899.4	P500yr	8299	363.89	383.21	375.45	383.25	0.000154	2.61	11463.98	4197.43	0.12
NF_Canoe_Ex	Main_Ext-DS-0	4899.4	P50yr	5535.5	363.89	381.27	373.36	381.33	0.000228	2.9	6981.79	3338.09	0.14
NF_Canoe_Ex	Main_Ext-DS-0	4899.4	P10yr	3894.2	363.89	379.42	371.77	379.57	0.000437	3.64	3191.02	2396.44	0.19
NF_Canoe_Ex	Main_Ext-DS-0	4899.4	P2yr	2427.6	363.89	376.9	369.99	377.12	0.000651	3.79	795.62	467.33	0.22
NF_Canoe_Ex	Main_Ext-DS-0	3856.3 C	P100yr	6309.5	363.41	381.29	373.19	381.51	0.000583	4.25	3200.73	1960.72	0.22

B

Canoe Creek Flood Impact Study on Proposed I69
Parsons HECRAS Model canoe073119.ghrj Backup Data
Parsons Existing Condition HECRAS Plan Canoex3 Summary Table

River	Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
NF_Canoe_Ex	Main_Ext-DS-0	3856.3 C	Floodway	6309.5	363.41	382.08	373.19	382.24	0.000443	3.7	3499.32	832.75	0.18
NF_Canoe_Ex	Main_Ext-DS-0	3856.3 C	P500yr	8299	363.41	382.83	374.63	383	0.000446	4.04	5029.28	2341.96	0.2
NF_Canoe_Ex	Main_Ext-DS-0	3856.3 C	P50yr	5535.5	363.41	380.72	372.55	380.96	0.000614	4.22	2564.13	1654.42	0.22
NF_Canoe_Ex	Main_Ext-DS-0	3856.3 C	P10yr	3894.2	363.41	378.74	371.03	378.99	0.000738	4.06	1216.61	490.8	0.24
NF_Canoe_Ex	Main_Ext-DS-0	3856.3 C	P2yr	2427.6	363.41	376.16	369.36	376.37	0.000798	3.64	670.39	97.75	0.24
NF_Canoe_Ex	Main_Ext-DS-0	3073.1	P100yr	6309.5	363.74	380.66	373.13	381	0.000717	5.12	1947.01	1361.52	0.25
NF_Canoe_Ex	Main_Ext-DS-0	3073.1	Floodway	6309.5	363.74	381.55	373.13	381.85	0.000571	4.77	1999.69	260.35	0.22
NF_Canoe_Ex	Main_Ext-DS-0	3073.1	P500yr	8299	363.74	382.13	374.45	382.53	0.000767	5.68	2414.4	1611.21	0.26
NF_Canoe_Ex	Main_Ext-DS-0	3073.1	P50yr	5535.5	363.74	380.15	372.56	380.46	0.000659	4.78	1787.96	1301.49	0.24
NF_Canoe_Ex	Main_Ext-DS-0	3073.1	P10yr	3894.2	363.74	378.13	371.12	378.42	0.000704	4.4	1162.19	1087.43	0.24
NF_Canoe_Ex	Main_Ext-DS-0	3073.1	P2yr	2427.6	363.74	375.54	369.54	375.76	0.000753	3.78	657.04	704.72	0.23
NF_Canoe_Ex	Main_Ext-DS-0	2858.5	P100yr	6309.5	363.09	380.34	373.38	380.79	0.000962	5.65	1405.54	856.35	0.29
NF_Canoe_Ex	Main_Ext-DS-0	2858.5	Floodway	6309.5	363.09	381.32	373.38	381.69	0.000719	5.15	1582.09	181.89	0.25
NF_Canoe_Ex	Main_Ext-DS-0	2858.5	P500yr	8299	363.09	381.66	374.97	382.28	0.001138	6.59	1653.91	1596.7	0.32
NF_Canoe_Ex	Main_Ext-DS-0	2858.5	P50yr	5535.5	363.09	379.89	372.76	380.28	0.000848	5.18	1328.75	627.75	0.27
NF_Canoe_Ex	Main_Ext-DS-0	2858.5	P10yr	3894.2	363.09	377.96	371.27	378.26	0.000804	4.47	1024.17	206.65	0.25
NF_Canoe_Ex	Main_Ext-DS-0	2858.5	P2yr	2427.6	363.09	375.35	369.64	375.58	0.00094	3.92	675.68	118.9	0.26
NF_Canoe_Ex	Main_Ext-DS-0	2791.8		Bridge									
NF_Canoe_Ex	Main_Ext-DS-0	2724	P100yr	6309.5	363.09	379.93	373.49	380.23	0.000988	4.38	1439.42	556.27	0.27
NF_Canoe_Ex	Main_Ext-DS-0	2724	Floodway	6309.5	363.09	380.91	373.48	381.15	0.000688	3.9	1617.43	181.89	0.23
NF_Canoe_Ex	Main_Ext-DS-0	2724	P500yr	8299	363.09	381.24	374.72	381.61	0.001143	4.93	1683.46	665.26	0.3
NF_Canoe_Ex	Main_Ext-DS-0	2724	P50yr	5535.5	363.09	379.51	372.89	379.77	0.000884	4.06	1364.82	483.13	0.26
NF_Canoe_Ex	Main_Ext-DS-0	2724	P10yr	3894.2	363.09	377.64	371.45	377.85	0.000921	3.71	1050.09	269.04	0.25
NF_Canoe_Ex	Main_Ext-DS-0	2724	P2yr	2427.6	363.09	375.07	369.63	375.27	0.001117	3.57	680.34	126.3	0.27
NF_Canoe_Ex	Main_Ext-DS-0	2538.1 B	P100yr	6309.5	362.94	379.68	373.36	380.03	0.000937	5.06	1929.86	574.28	0.27
NF_Canoe_Ex	Main_Ext-DS-0	2538.1 B	Floodway	6309.5	362.94	380.62	373.35	380.98	0.000785	4.91	1539.08	178.31	0.26
NF_Canoe_Ex	Main_Ext-DS-0	2538.1 B	P500yr	8299	362.94	381.02	374.84	381.41	0.00095	5.52	2543.62	872.63	0.28
NF_Canoe_Ex	Main_Ext-DS-0	2538.1 B	P50yr	5535.5	362.94	379.28	372.67	379.59	0.000849	4.69	1756.18	512.91	0.26
NF_Canoe_Ex	Main_Ext-DS-0	2538.1 B	P10yr	3894.2	362.94	377.37	370.95	377.66	0.000954	4.33	1086.92	281.2	0.27

B

Canoe Creek Flood Impact Study on Proposed I69
Parsons HECRAS Model canoe073119.ghrj Backup Data
Parsons Existing Condition HECRAS Plan Canoex3 Summary Table

River	Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
NF_Canoe_Ex	Main_Ext-DS-0	2538.1 B	P2yr	2427.6	362.94	374.77	369.25	375.03	0.001326	4.07	596.92	101.82	0.3
NF_Canoe_Ex	Main_Ext-DS-0	2326.2	P100yr	6309.5	363.25	379.2	372.65	379.75	0.001169	6.25	1640.93	437.11	0.31
NF_Canoe_Ex	Main_Ext-DS-0	2326.2	Floodway	6309.5	363.25	380.17	372.65	380.73	0.001012	6.12	1242.48	136.61	0.29
NF_Canoe_Ex	Main_Ext-DS-0	2326.2	P500yr	8299	363.25	380.45	374.04	381.1	0.001297	7.02	2297.57	614.27	0.33
NF_Canoe_Ex	Main_Ext-DS-0	2326.2	P50yr	5535.5	363.25	378.89	372.05	379.35	0.001001	5.69	1510.19	399.04	0.29
NF_Canoe_Ex	Main_Ext-DS-0	2326.2	P10yr	3894.2	363.25	377.03	370.55	377.42	0.000991	5.06	910.45	218.08	0.28
NF_Canoe_Ex	Main_Ext-DS-0	2326.2	P2yr	2427.6	363.25	374.49	368.91	374.78	0.001004	4.27	571.97	75.8	0.27
NF_Canoe_Ex	Main_Ext-DS-0	2266.8		Bridge									
NF_Canoe_Ex	Main_Ext-DS-0	2223.8	P100yr	6309.5	362.58	378.74	374.31	379.59	0.002142	7.81	1265.39	515.44	0.41
NF_Canoe_Ex	Main_Ext-DS-0	2223.8	Floodway	6309.5	362.58	379.27	374.31	380.12	0.001971	7.73	1043.7	135	0.4
NF_Canoe_Ex	Main_Ext-DS-0	2223.8	P500yr	8299	362.58	380.21	375.93	381.07	0.002028	8.25	1853.69	627	0.41
NF_Canoe_Ex	Main_Ext-DS-0	2223.8	P50yr	5535.5	362.58	378.03	373.72	378.87	0.002213	7.61	1042.27	429.32	0.41
NF_Canoe_Ex	Main_Ext-DS-0	2223.8	P10yr	3894.2	362.58	376.23	371.94	376.94	0.002312	6.85	663.05	182.5	0.41
NF_Canoe_Ex	Main_Ext-DS-0	2223.8	P2yr	2427.6	362.58	373.7	370.06	374.29	0.002953	6.16	395.49	69.69	0.44
NF_Canoe_Ex	Main_Ext-DS-0	2073.1	P100yr	6309.5	361.75	378.66	371.75	379.19	0.001231	5.88	1325.97	375.82	0.31
NF_Canoe_Ex	Main_Ext-DS-0	2073.1	Floodway	6309.5	361.75	379.24	371.73	379.72	0.001095	5.64	1192.56	123.26	0.29
NF_Canoe_Ex	Main_Ext-DS-0	2073.1	P500yr	8299	361.75	380.12	373.19	380.69	0.001217	6.36	2127.81	747.35	0.32
NF_Canoe_Ex	Main_Ext-DS-0	2073.1	P50yr	5535.5	361.75	377.97	371.12	378.45	0.00121	5.58	1104	223.26	0.31
NF_Canoe_Ex	Main_Ext-DS-0	2073.1	P10yr	3894.2	361.75	376.17	369.6	376.53	0.001132	4.83	818.2	111.06	0.29
NF_Canoe_Ex	Main_Ext-DS-0	2073.1	P2yr	2427.6	361.75	373.61	367.9	373.88	0.001049	4.15	584.96	80.31	0.27
NF_Canoe_Ex	Main_Ext-DS-0	1455.4 A	P100yr	6309.5	361.78	378.19	371.19	378.54	0.000775	5.11	2157.05	484.75	0.26
NF_Canoe_Ex	Main_Ext-DS-0	1455.4 A	Floodway	6309.5	361.78	378.68	371.2	379.12	0.000845	5.47	1418.37	169.61	0.27
NF_Canoe_Ex	Main_Ext-DS-0	1455.4 A	P500yr	8299	361.78	379.68	372.46	380.04	0.000761	5.46	2905.46	522.08	0.26
NF_Canoe_Ex	Main_Ext-DS-0	1455.4 A	P50yr	5535.5	361.78	377.46	370.6	377.81	0.000804	5	1809.41	463.35	0.26
NF_Canoe_Ex	Main_Ext-DS-0	1455.4 A	P10yr	3894.2	361.78	375.58	369.19	375.9	0.000879	4.64	1021.94	352.71	0.26
NF_Canoe_Ex	Main_Ext-DS-0	1455.4 A	P2yr	2427.6	361.78	373.01	367.6	373.26	0.000963	4.01	607.84	86.99	0.26
NF_Canoe_Ex	Main_Ext-DS-0	450.5	P100yr	6309.5	360.84	377.18	370.12	377.65	0.001001	5.83	1731.7	418.96	0.29
NF_Canoe_Ex	Main_Ext-DS-0	450.5	Floodway	6309.5	360.84	377.77	370.1	378.2	0.001002	5.54	1595.83	246.07	0.27

B

Canoe Creek Flood Impact Study on Proposed I69
Parsons HECRAS Model canoe073119.ghrj Backup Data
Parsons Existing Condition HECRAS Plan Canoex3 Summary Table

River	Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
NF_Canoe_Ex	Main_Ext-DS-0	450.5	P500yr	8299	360.84	378.66	371.57	379.17	0.001002	6.29	2401.62	531.41	0.3
NF_Canoe_Ex	Main_Ext-DS-0	450.5	P50yr	5535.5	360.84	376.45	369.51	376.9	0.001	5.6	1458.98	359.64	0.29
NF_Canoe_Ex	Main_Ext-DS-0	450.5	P10yr	3894.2	360.84	374.58	368.06	374.96	0.001001	4.98	901.49	209.38	0.28
NF_Canoe_Ex	Main_Ext-DS-0	450.5	P2yr	2427.6	360.84	371.98	366.49	372.27	0.001001	4.28	588.58	83.13	0.27
Canoewrr	Canoewrr	31238.12	P100yr	836.9	397.48	408.13	402.93	408.35	0.001997	3.74	225.79	997.34	0.29
Canoewrr	Canoewrr	31238.12	Floodway	836.9	397.48	413.08	402.93	413.14	0.00028	1.92	436.87	43.1	0.11
Canoewrr	Canoewrr	31238.12	P500yr	1169.3	397.48	408.02	404.02	408.46	0.004137	5.33	220.49	990.01	0.41
Canoewrr	Canoewrr	31238.12	P50yr	707.3	397.48	408.16	402.43	408.31	0.001403	3.14	227.33	999.39	0.24
Canoewrr	Canoewrr	31238.12	P10yr	439.8	397.48	406.56	401.25	406.67	0.001299	2.71	162.46	914.29	0.22
Canoewrr	Canoewrr	31238.12	P2yr	223.7	397.48	403.43	400.04	403.54	0.001524	2.68	83.44	19.36	0.23
Canoewrr	Canoewrr	31040.61	P100yr	836.9	397.15	408.23	401.86	408.23	0.00001	0.3	5070.82	1128.77	0.02
Canoewrr	Canoewrr	31040.61	Floodway	836.9	397.15	413.02	401.86	413.08	0.000286	1.94	432.03	36.92	0.1
Canoewrr	Canoewrr	31040.61	P500yr	1169.3	397.15	408.23	402.92	408.23	0.000019	0.42	5070.86	1128.77	0.03
Canoewrr	Canoewrr	31040.61	P50yr	707.3	397.15	408.23	401.41	408.23	0.000007	0.26	5070.82	1128.77	0.02
Canoewrr	Canoewrr	31040.61	P10yr	439.8	397.15	406.36	400.35	406.44	0.000919	2.37	186.55	991.11	0.19
Canoewrr	Canoewrr	31040.61	P2yr	223.7	397.15	403.22	399.28	403.29	0.000934	2.23	100.33	444.97	0.18
Canoewrr	Canoewrr	31001.95		Culvert									
Canoewrr	Canoewrr	30943.45	P100yr	836.9	396.44	401.92	401.92	403.73	0.027075	10.81	77.45	21.32	1
Canoewrr	Canoewrr	30943.45	Floodway	836.9	396.44	406.94	401.92	407.18	0.001736	3.99	209.88	28.85	0.26
Canoewrr	Canoewrr	30943.45	P500yr	1169.3	396.44	402.94	402.94	405.04	0.026155	11.64	100.43	177.4	1
Canoewrr	Canoewrr	30943.45	P50yr	707.3	396.44	401.47	401.47	403.14	0.027493	10.39	68.05	20.21	1
Canoewrr	Canoewrr	30943.45	P10yr	439.8	396.44	404.35	400.37	404.51	0.001622	3.22	136.47	538.84	0.25
Canoewrr	Canoewrr	30943.45	P2yr	223.7	396.44	402.34	399.19	402.45	0.001423	2.58	86.74	22.36	0.23
Canoewrr	Canoewrr	28532	P100yr	836.9	391.32	398.3	398.3	399.9	0.028053	10.17	82.26	408.77	1
Canoewrr	Canoewrr	28532	Floodway	836.9	391.32	403.61	398.3	403.74	0.001155	2.82	296.81	59.32	0.22
Canoewrr	Canoewrr	28532	P500yr	1169.3	391.32	399.26	399.26	401.03	0.02635	10.68	109.47	946.24	1
Canoewrr	Canoewrr	28532	P50yr	707.3	391.32	397.86	397.86	399.38	0.028429	9.88	71.6	61.84	1
Canoewrr	Canoewrr	28532	P10yr	439.8	391.32	400.77	396.66	400.88	0.00138	2.71	162.01	1191.18	0.24
Canoewrr	Canoewrr	28532	P2yr	223.7	391.32	398.32	395.22	398.43	0.001972	2.7	82.78	433.74	0.27

B

Canoe Creek Flood Impact Study on Proposed I69
Parsons HECRAS Model canoe073119.ghrj Backup Data
Parsons Existing Condition HECRAS Plan Canoex3 Summary Table

River	Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Canoewrr	Canoewrr	27158	P100yr	1347.9	388.62	395.36	395.36	397.73	0.027518	12.36	109.08	226.37	1
Canoewrr	Canoewrr	27158	Floodway	1347.9	388.62	402.16	395.36	402.32	0.000956	3.2	421.28	54.34	0.2
Canoewrr	Canoewrr	27158	P500yr	1892.5	388.62	397.25	397.25	399.27	0.026401	11.4	166.04	555.71	1
Canoewrr	Canoewrr	27158	P50yr	1136.1	388.62	394.65	394.65	396.93	0.028307	12.13	93.64	59.69	1
Canoewrr	Canoewrr	27158	P10yr	700.9	388.62	398.86	393.17	398.98	0.001381	2.89	242.55	1047.95	0.24
Canoewrr	Canoewrr	27158	P2yr	351.8	388.62	396.4	391.64	396.51	0.00116	2.61	134.79	402.79	0.21
Canoewrr	Canoewrr	25956	P100yr	1574.8	386.43	394.65	394.65	397.04	0.027876	12.42	126.83	629.18	1
Canoewrr	Canoewrr	25956	Floodway	1574.8	386.43	399.89	394.65	400.34	0.002773	5.39	292.31	32.78	0.32
Canoewrr	Canoewrr	25956	P500yr	2214.4	386.43	397	396.41	397.01	0.000337	1.63	3082.35	1158.75	0.12
Canoewrr	Canoewrr	25956	P50yr	1324.5	386.43	393.98	393.98	396.24	0.028316	12.07	109.76	499.2	1
Canoewrr	Canoewrr	25956	P10yr	815.3	386.43	396.4	392.08	396.67	0.00262	4.33	215.4	981.78	0.32
Canoewrr	Canoewrr	25956	P2yr	426.9	386.43	394.15	390.33	394.37	0.002677	3.74	113.99	531.17	0.31
Canoewrr	Canoewrr	24827	P100yr	1574.8	383.23	393.08	391.5	394.36	0.011534	9.17	185.75	1280.57	0.67
Canoewrr	Canoewrr	24827	Floodway	1574.8	383.23	393	391.5	394.41	0.012821	9.51	165.58	28.98	0.7
Canoewrr	Canoewrr	24827	P500yr	2214.4	383.23	393.26	393.26	395.6	0.02061	12.43	194.33	1311.85	0.9
Canoewrr	Canoewrr	24827	P50yr	1324.5	383.23	393.86	390.83	394.52	0.005414	6.65	225.96	1456.12	0.47
Canoewrr	Canoewrr	24827	P10yr	815.3	383.23	393.51	389.1	393.8	0.002461	4.37	206.54	1352.67	0.31
Canoewrr	Canoewrr	24827	P2yr	426.9	383.23	391.82	387.36	391.98	0.001688	3.21	132.9	1017.64	0.25
Canoewrr	Canoewrr	23524	P100yr	1574.8	383.47	388.72		388.75	0.00202	2.83	1409.45	1022.17	0.28
Canoewrr	Canoewrr	23524	Floodway	1574.8	383.47	390.14		390.17	0.001266	2.29	1098.15	375.18	0.22
Canoewrr	Canoewrr	23524	P500yr	2214.4	383.47	390.04		390.05	0.000528	1.48	3064.77	1482.36	0.14
Canoewrr	Canoewrr	23524	P50yr	1324.5	383.47	388.29		388.35	0.003962	3.78	984.36	964.69	0.38
Canoewrr	Canoewrr	23524	P10yr	815.3	383.47	387.64	387.64	387.86	0.011046	5.8	424.1	746.3	0.63
Canoewrr	Canoewrr	23524	P2yr	426.9	383.47	387.32	387.32	387.57	0.009787	5.21	207.15	571.35	0.59

Appendix B-4

B

Canoe Creek Flood Impact Study on Proposed I69
Parsons HECRAS Model canoe073119.ghrj Backup Data
Parsons Proposed Condition HECRAS Plan Canoepr3 Summary Table

River	Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
NF_Canoe_	Main_Ext	38011.5	P100yr	1668.6	406.27	416.72		416.99	0.003389	5.29	872.22	1009.14	0.37
NF_Canoe_	Main_Ext	38011.5	Floodway	1668.6	406.27	417.72		418.09	0.003406	5.56	528.14	246	0.38
NF_Canoe_	Main_Ext	38011.5	P500yr	2302.9	406.27	417.14		417.34	0.003042	5.11	1330.87	1168.22	0.36
NF_Canoe_	Main_Ext	38011.5	P50yr	1419.9	406.27	416.49	414	416.81	0.003621	5.41	663.83	788.02	0.39
NF_Canoe_	Main_Ext	38011.5	P10yr	903.3	406.27	415.74	412.53	416.17	0.003837	5.34	219.85	300.19	0.39
NF_Canoe_	Main_Ext	38011.5	P2yr	477.5	406.27	414.07		414.32	0.002779	4.02	118.76	25.67	0.33
NF_Canoe_	Main_Ext	37046.5	P100yr	1668.6	402.18	412.58	411.56	412.73	0.003369	4.23	886.94	623.25	0.36
NF_Canoe_	Main_Ext	37046.5	Floodway	1668.6	402.18	413.61	411.65	413.88	0.00328	4.8	488.95	136.6	0.37
NF_Canoe_	Main_Ext	37046.5	P500yr	2302.9	402.18	412.96	411.86	413.12	0.003742	4.69	1142.13	711.28	0.39
NF_Canoe_	Main_Ext	37046.5	P50yr	1419.9	402.18	412.4	411.34	412.54	0.003158	4.05	777.34	568.52	0.35
NF_Canoe_	Main_Ext	37046.5	P10yr	903.3	402.18	411.59	408.6	411.77	0.003139	4.05	436.83	327.67	0.34
NF_Canoe_	Main_Ext	37046.5	P2yr	477.5	402.18	409.7	406.79	410.06	0.004256	4.82	99.04	20.63	0.39
NF_Canoe_	Main_Ext	36058.4	P100yr	1668.6	397.85	409.34	406.83	409.6	0.002885	5.28	828.7	654.82	0.34
NF_Canoe_	Main_Ext	36058.4	Floodway	1668.6	397.85	410.38	406.82	410.76	0.002954	5.64	445.96	109.36	0.34
NF_Canoe_	Main_Ext	36058.4	P500yr	2302.9	397.85	409.9	409.29	410.1	0.002492	5.15	1213.8	709.11	0.32
NF_Canoe_	Main_Ext	36058.4	P50yr	1419.9	397.85	409.07	406.17	409.38	0.003126	5.36	657.78	624.34	0.36
NF_Canoe_	Main_Ext	36058.4	P10yr	903.3	397.85	408.45	404.55	408.78	0.002832	4.82	326.4	400.78	0.33
NF_Canoe_	Main_Ext	36058.4	P2yr	477.5	397.85	406.88	402.74	407.09	0.002137	3.71	128.54	23.91	0.28
NF_Canoe_	Main_Ext	34775.6	P100yr	1668.6	396.04	406.61	404.09	406.73	0.001719	3.91	1163.49	915.02	0.27
NF_Canoe_	Main_Ext	34775.6	Floodway	1668.6	396.04	407.65	404.09	407.82	0.001746	4.18	747.81	255.01	0.27
NF_Canoe_	Main_Ext	34775.6	P500yr	2302.9	396.04	406.84	406.23	407	0.002299	4.62	1351.84	1025.2	0.31
NF_Canoe_	Main_Ext	34775.6	P50yr	1419.9	396.04	406.49	403.44	406.6	0.001516	3.62	1064.25	850.2	0.25
NF_Canoe_	Main_Ext	34775.6	P10yr	903.3	396.04	405.94	401.85	406.07	0.001555	3.51	636.92	726.05	0.25
NF_Canoe_	Main_Ext	34775.6	P2yr	477.5	396.04	404.22	400.11	404.42	0.002002	3.56	134.03	27.02	0.28
NF_Canoe_	Main_Ext	33442.3	P100yr	1668.6	393.87	404.23	401.75	404.31	0.001905	3.16	1215.31	852.37	0.28
NF_Canoe_	Main_Ext	33442.3	Floodway	1668.6	393.87	406.18	401.86	406.25	0.00082	2.65	1039.36	293.45	0.19
NF_Canoe_	Main_Ext	33442.3	P500yr	2302.9	393.87	405.27	403.65	405.3	0.000779	2.36	2134.57	929.52	0.19

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Canoe Creek Flood Impact Study on Proposed I69
Parsons HECRAS Model canoe073119.ghrj Backup Data
Parsons Proposed Condition HECRAS Plan Canoepr3 Summary Table

River	Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
NF_Canoe_	Main_Ext	33442.3	P50yr	1419.9	393.87	403.85	401.25	403.95	0.002711	3.55	896.09	811.2	0.33
NF_Canoe_	Main_Ext	33442.3	P10yr	903.3	393.87	402.57	399.94	402.94	0.003872	5.15	214.16	129.38	0.4
NF_Canoe_	Main_Ext	33442.3	P2yr	477.5	393.87	401.24	398.18	401.45	0.002494	3.77	144.88	42.37	0.31
NF_Canoe_	Main_Ext	33116	P100yr	1668.6	393.48	403.33	400.53	403.55	0.003494	4.53	557.51	184.43	0.38
NF_Canoe_	Main_Ext	33116	Floodway	1668.6	393.48	405.34	401.77	405.74	0.003059	5.09	350.65	122.28	0.37
NF_Canoe_	Main_Ext	33116	P500yr	2302.9	393.48	404.69	401.37	404.88	0.002665	4.45	876.06	332.34	0.35
NF_Canoe_	Main_Ext	33116	P50yr	1419.9	393.48	402.87	399.87	403.07	0.003367	4.34	479.39	154.97	0.37
NF_Canoe_	Main_Ext	33116	P10yr	903.3	393.48	401.71	398.9	401.88	0.002969	3.92	326.47	108.21	0.34
NF_Canoe_	Main_Ext	33116	P2yr	477.5	393.48	400.73	397.7	400.83	0.001621	2.87	234.7	82.77	0.25
NF_Canoe_	Main_Ext	33041.8		Mult Open									
NF_Canoe_	Main_Ext	32983.9	P100yr	1668.6	393.79	402.64	399.75	402.96	0.004903	5.23	394.63	282.81	0.44
NF_Canoe_	Main_Ext	32983.9	Floodway	1668.6	393.79	403.64	401.91	404.02	0.004944	5.62	471.94	206.15	0.45
NF_Canoe_	Main_Ext	32983.9	P500yr	2302.9	393.79	403.34	400.73	403.68	0.005814	5.93	624.19	369.52	0.49
NF_Canoe_	Main_Ext	32983.9	P50yr	1419.9	393.79	402.38	399.38	402.64	0.00418	4.76	371.41	262.02	0.41
NF_Canoe_	Main_Ext	32983.9	P10yr	903.3	393.79	401.55	398.25	401.71	0.002906	3.8	303.1	169.85	0.33
NF_Canoe_	Main_Ext	32983.9	P2yr	477.5	393.79	400.71	397.05	400.78	0.001433	2.57	241.03	70.26	0.23
NF_Canoe_	Main_Ext	29900.3	P100yr	3850.2	386.71	397.76		397.79	0.001211	2.99	3399.02	1667.24	0.22
NF_Canoe_	Main_Ext	29900.3	Floodway	3850.2	386.71	398.78		398.83	0.001203	3.1	2462.46	723.55	0.21
NF_Canoe_	Main_Ext	29900.3	P500yr	5318	386.71	398.26		398.3	0.001186	3.06	4268.85	1779.97	0.22
NF_Canoe_	Main_Ext	29900.3	P50yr	3260.3	386.71	397.53		397.57	0.001231	2.97	3028.67	1659.44	0.22
NF_Canoe_	Main_Ext	29900.3	P10yr	2143.8	386.71	397.01		397.05	0.001237	2.87	2182.77	1508.71	0.21
NF_Canoe_	Main_Ext	29900.3	P2yr	1156.8	386.71	396.36		396.42	0.00145	3.06	1252.72	1380.78	0.23
NF_Canoe_	Main_Ext	28796.5	P100yr	3860.2	385.59	396.22		396.3	0.001511	3.82	2825.93	1424.96	0.26
NF_Canoe_	Main_Ext	28796.5	Floodway	3860.2	385.59	397.23		397.34	0.001493	3.99	1980.79	566.7	0.27
NF_Canoe_	Main_Ext	28796.5	P500yr	5375.4	385.59	396.76		396.83	0.001486	3.89	3612.95	1480.93	0.26
NF_Canoe_	Main_Ext	28796.5	P50yr	3246.4	385.59	395.97		396.06	0.00152	3.79	2478.36	1411.4	0.26

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Canoe Creek Flood Impact Study on Proposed I69
Parsons HECRAS Model canoe073119.ghrj Backup Data
Parsons Proposed Condition HECRAS Plan Canoepr3 Summary Table

River	Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
NF_Canoe	Main_Ext	28796.5	P10yr	2113.6	385.59	395.44		395.53	0.001509	3.67	1734.85	1356.52	0.26
NF_Canoe	Main_Ext	28796.5	P2yr	1143.2	385.59	394.75		394.87	0.001356	3.35	927.35	1005.19	0.25
NF_Canoe	Main_Ext	27541.3	P100yr	3860.2	383.63	394.68		394.72	0.000912	2.92	3677.79	1719.9	0.2
NF_Canoe	Main_Ext	27541.3	Floodway	3860.2	383.63	395.71		395.76	0.000896	2.86	2709.35	761.69	0.2
NF_Canoe	Main_Ext	27541.3	P500yr	5375.4	383.63	395.2		395.23	0.000949	2.87	4563.44	1741.7	0.21
NF_Canoe	Main_Ext	27541.3	P50yr	3246.4	383.63	394.45		394.49	0.000903	2.87	3274.32	1711.89	0.2
NF_Canoe	Main_Ext	27541.3	P10yr	2113.6	383.63	393.93		393.97	0.000911	2.8	2383.34	1681.28	0.2
NF_Canoe	Main_Ext	27541.3	P2yr	1143.2	383.63	393.31		393.37	0.000935	2.74	1378.46	1587.06	0.2
NF_Canoe	Main_Ext	26291.9	P100yr	3860.2	381.94	392.92		393	0.002338	4.19	2401.03	1475.37	0.31
NF_Canoe	Main_Ext	26291.9	Floodway	3860.2	381.94	393.88		394	0.002422	4.36	1757.25	559.07	0.32
NF_Canoe	Main_Ext	26291.9	P500yr	5375.4	381.94	393.28		393.38	0.002695	4.53	2968.13	1609.83	0.34
NF_Canoe	Main_Ext	26291.9	P50yr	3246.4	381.94	392.68		392.77	0.002358	4.19	2067.04	1304.11	0.31
NF_Canoe	Main_Ext	26291.9	P10yr	2113.6	381.94	392.25		392.33	0.002023	3.87	1563.21	1088.6	0.29
NF_Canoe	Main_Ext	26291.9	P2yr	1143.2	381.94	391.7	391.21	391.79	0.001758	3.49	995.28	993.06	0.27
NF_Canoe	Main_Ext	24550.6	P100yr	3962.5	379.15	390.86	389.51	390.88	0.000701	1.96	4869.13	3109.37	0.16
NF_Canoe	Main_Ext	24550.6	Floodway	3962.5	379.15	392.06	389.78	392.08	0.000583	1.9	3767.32	1133.08	0.15
NF_Canoe	Main_Ext	24550.6	P500yr	5565.7	379.15	391.58	389.73	391.59	0.000505	1.81	6732.77	3137.75	0.14
NF_Canoe	Main_Ext	24550.6	P50yr	3306.8	379.15	390.67	389.47	390.68	0.000676	1.93	4358.66	3076.28	0.16
NF_Canoe	Main_Ext	24550.6	P10yr	2173.5	379.15	390.08	389.27	390.1	0.000827	2.37	2887.09	2760.67	0.17
NF_Canoe	Main_Ext	24550.6	P2yr	1188.7	379.15	389.52	387.68	389.55	0.000919	2.47	1738.46	2388.43	0.18
NF_Canoe	Main_Ext	24064		Lat Struct									
NF_Canoe	Main_Ext	23120	P100yr	3998.61	378.26	390.04		390.06	0.000473	2.04	5050.86	2571.55	0.14
NF_Canoe	Main_Ext	23120	Floodway	3377.66	378.26	391.55		391.56	0.000222	1.54	4532.52	1098.17	0.1
NF_Canoe	Main_Ext	23120	P500yr	5282.68	378.26	391.01		391.02	0.00031	1.76	8063.55	3388.65	0.11
NF_Canoe	Main_Ext	23120	P50yr	3373.8	378.26	389.96		389.97	0.000373	1.8	4845.76	2516.54	0.12
NF_Canoe	Main_Ext	23120	P10yr	2217.2	378.26	389.26		389.28	0.000418	1.84	3423.4	1765.89	0.13

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Canoe Creek Flood Impact Study on Proposed I69
Parsons HECRAS Model canoe073119.ghrj Backup Data
Parsons Proposed Condition HECRAS Plan Canoepr3 Summary Table

River	Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
NF_Canoe_	Main_Ext	23120	P2yr	1212	378.26	388.35		388.38	0.00072	2.3	1827.76	1728.69	0.17
NF_Canoe_	Main_Ext	21768	P100yr	1770.41	378.03	389.29	384.56	389.35	0.000589	2.32	982.48	2702.6	0.17
NF_Canoe_	Main_Ext	21768	Floodway	1770.41	378.03	391.12	384.2	391.19	0.000389	2.21	889.99	545.09	0.14
NF_Canoe_	Main_Ext	21768	P500yr	1963.55	378.03	390.66	385.02	390.68	0.000158	1.39	2248.45	2793.04	0.09
NF_Canoe_	Main_Ext	21768	P50yr	1679.51	378.03	389.35	384.21	389.4	0.000505	2.16	997.96	2720.26	0.16
NF_Canoe_	Main_Ext	21768	P10yr	1470.02	378.03	388.48	383.66	388.56	0.000748	2.49	753.2	2007.18	0.19
NF_Canoe_	Main_Ext	21768	P2yr	976.92	378.03	387.41	382.66	387.47	0.000589	2.32	530.26	474.18	0.17
NF_Canoe_	Main_Ext	21745	P100yr	1770.41	378.97	389.22	385.43	389.34	0.001146	3.11	680.33	1511.95	0.23
NF_Canoe_	Main_Ext	21745	Floodway	1770.41	378.97	391.05	385.19	391.17	0.00069	2.91	676.16	533.32	0.19
NF_Canoe_	Main_Ext	21745	P500yr	1963.55	378.97	390.62	385.7	390.67	0.00043	2.21	1402.09	2781.66	0.15
NF_Canoe_	Main_Ext	21745	P50yr	1679.51	378.97	389.28	385.27	389.38	0.000992	2.9	692.43	1623.16	0.22
NF_Canoe_	Main_Ext	21745	P10yr	1470.02	378.97	388.41	384.81	388.54	0.001135	3.2	547.91	436.28	0.23
NF_Canoe_	Main_Ext	21745	P2yr	976.92	378.97	387.35	383.35	387.46	0.000977	2.86	412.37	119.28	0.21
NF_Canoe_	Main_Ext	21735		Mult Open									
NF_Canoe_	Main_Ext	21712.38	P100yr	1770.41	377.89	388.86	384.57	388.96	0.000951	2.77	700.14	1873.92	0.21
NF_Canoe_	Main_Ext	21712.38	Floodway	1770.41	377.89	390.39	384.54	390.51	0.000742	2.84	652.43	533.32	0.19
NF_Canoe_	Main_Ext	21712.38	P500yr	1963.55	377.89	390.12	385.05	390.2	0.000508	2.34	902.6	2757.18	0.16
NF_Canoe_	Main_Ext	21712.38	P50yr	1679.51	377.89	388.96	384.23	389.05	0.000793	2.56	716.69	1997.6	0.19
NF_Canoe_	Main_Ext	21712.38	P10yr	1470.02	377.89	388.19	383.82	388.29	0.001058	2.79	594.8	1540.96	0.22
NF_Canoe_	Main_Ext	21712.38	P2yr	976.92	377.89	387.27	382.83	387.36	0.000755	2.59	461.89	1349.45	0.19
NF_Canoe_	Main_Ext	21591.5 R	P100yr	3806.21	376.67	388.85	387.32	388.86	0.000245	1.53	5052.15	2946.16	0.1
NF_Canoe_	Main_Ext	21591.5 R	Floodway	3806.21	376.67	390.4	387.84	390.41	0.000196	1.52	4952.58	1070.9	0.1
NF_Canoe_	Main_Ext	21591.5 R	P500yr	4815.85	376.67	390.15	387.7	390.15	0.000053	0.77	12685.54	3090.55	0.05
NF_Canoe_	Main_Ext	21591.5 R	P50yr	3404.61	376.67	388.28	386.94	388.66	0.003755	5.89	746.27	2907.72	0.41
NF_Canoe_	Main_Ext	21591.5 R	P10yr	2542.52	376.67	387.41	386.34	387.83	0.004338	6.22	561.37	2819.56	0.43
NF_Canoe_	Main_Ext	21591.5 R	P2yr	1523.02	376.67	386.83	383.59	387.08	0.00253	4.64	446.74	2288.07	0.33

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Canoe Creek Flood Impact Study on Proposed I69
Parsons HECRAS Model canoe073119.ghrj Backup Data
Parsons Proposed Condition HECRAS Plan Canoepr3 Summary Table

River	Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
NF_Canoe_	Main_Ext	19922.4	P100yr	3829.51	376	388.64	384.87	388.65	0.000075	0.86	8814.57	3385.6	0.06
NF_Canoe_	Main_Ext	19922.4	Floodway	3829.51	376	390.15	385.7	390.16	0.000119	1.25	5774.99	1065	0.08
NF_Canoe_	Main_Ext	19922.4	P500yr	4850.75	376	390.06	385.08	390.06	0.000046	0.77	11832.69	3693.77	0.05
NF_Canoe_	Main_Ext	19922.4	P50yr	3423.01	376	387.94	384.79	387.95	0.000106	0.96	7332.84	2973.09	0.07
NF_Canoe_	Main_Ext	19922.4	P10yr	2554.52	376	386.5	384.61	386.5	0.000258	1.48	4402.8	2140.74	0.11
NF_Canoe_	Main_Ext	19922.4	P2yr	1530.42	376	385.43	382.86	385.45	0.000459	1.86	2460.07	1740.3	0.14
NF_Canoe_	Main_Ext-[	18470.	Q P100yr	6393.71	373.1	388.55	381.09	388.56	0.000056	0.77	14051.12	3523.82	0.05
NF_Canoe_	Main_Ext-[	18470.	Q Floodway	6393.71	373.1	390	381.09	390.01	0.000091	1.12	8947.66	1145.4	0.07
NF_Canoe_	Main_Ext-[	18470.	Q P500yr	8476.15	373.1	389.99	381.8	390	0.000047	0.81	17537.71	3788.48	0.05
NF_Canoe_	Main_Ext-[	18470.	Q P50yr	5620.01	373.1	387.83	380.81	387.83	0.000067	0.79	12301.47	3239.21	0.06
NF_Canoe_	Main_Ext-[	18470.	Q P10yr	4015.72	373.1	386.28	380.16	386.29	0.000111	0.9	8569.79	2959.21	0.07
NF_Canoe_	Main_Ext-[	18470.	Q P2yr	2359.62	373.1	385.19	379.38	385.19	0.000107	0.94	6020.39	2482.95	0.07
NF_Canoe_	Main_Ext-[	17729	P100yr	6393.71	374.13	388.52	378.9	388.52	0.000039	0.84	17305.54	3701.24	0.05
NF_Canoe_	Main_Ext-[	17729	Floodway	6393.71	374.13	389.94	378.9	389.95	0.000071	1.24	9602.17	1182.26	0.06
NF_Canoe_	Main_Ext-[	17729	P500yr	8476.15	374.13	389.96	379.62	389.97	0.000035	0.87	22824.1	3968.8	0.04
NF_Canoe_	Main_Ext-[	17729	P50yr	5620.01	374.13	387.79	378.59	387.79	0.000047	0.88	14638.56	3572.34	0.05
NF_Canoe_	Main_Ext-[	17729	P10yr	4015.72	374.13	386.22	377.92	386.22	0.000073	0.98	9655.49	2722.78	0.06
NF_Canoe_	Main_Ext-[	17729	P2yr	2359.62	374.13	385.13	377.12	385.13	0.000065	0.88	6780.83	2565.53	0.06
NF_Canoe_	Main_Ext-[	17622		Mult Open									
NF_Canoe_	Main_Ext-[	17534.5	P100yr	6649.5	372.63	388.51	378.77	388.51	0.000045	0.82	16636.6	3560.36	0.05
NF_Canoe_	Main_Ext-[	17534.5	Floodway	6649.5	372.63	389.92	378.77	389.93	0.000083	1.22	9447.24	1173.27	0.07
NF_Canoe_	Main_Ext-[	17534.5	P500yr	9440.3	372.63	389.95	379.76	389.96	0.000043	0.88	22073.39	3999.47	0.05
NF_Canoe_	Main_Ext-[	17534.5	P50yr	5632.9	372.63	387.77	378.37	387.77	0.000051	0.82	14171.95	3139.98	0.05
NF_Canoe_	Main_Ext-[	17534.5	P10yr	3720.6	372.63	386.19	377.53	386.19	0.00007	0.85	9464.56	2835.11	0.06
NF_Canoe_	Main_Ext-[	17534.5	P2yr	2067.9	372.63	384.88	376.66	384.88	0.000079	0.8	5876.06	2631.52	0.06

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Canoe Creek Flood Impact Study on Proposed I69
Parsons HECRAS Model canoe073119.ghrj Backup Data
Parsons Proposed Condition HECRAS Plan Canoepr3 Summary Table

River	Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
NF_Canoe_	Main_Ext-[	16904.1	P P100yr	6705.6	371.38	388.46	383.37	388.47	0.000098	1.26	12018.55	2499.79	0.07
NF_Canoe_	Main_Ext-[	16904.1	P Floodway	6705.6	371.38	389.82	384.19	389.85	0.000191	1.93	6859.84	1006.57	0.1
NF_Canoe_	Main_Ext-[	16904.1	P P500yr	9515.4	371.38	389.91	383.72	389.92	0.000087	1.31	15789.73	2793.58	0.07
NF_Canoe_	Main_Ext-[	16904.1	P P50yr	5682.8	371.38	387.72	383.03	387.72	0.000114	1.29	10184.85	2416.06	0.08
NF_Canoe_	Main_Ext-[	16904.1	P P10yr	3752.1	371.38	386.12	382.81	386.13	0.000154	1.31	6614.09	2034.12	0.09
NF_Canoe_	Main_Ext-[	16904.1	P P2yr	2085.5	371.38	384.8	380.17	384.81	0.000163	1.19	4176.43	1715.99	0.09
NF_Canoe_	Main_Ext-[	16397	P100yr	3229.5	372.11	388.34	382.41	388.39	0.000343	2.14	2030.97	2953.91	0.12
NF_Canoe_	Main_Ext-[	16397	Floodway	3229.5	372.11	389.78	380.89	389.78	0.00005	0.88	6620.99	1011.11	0.05
NF_Canoe_	Main_Ext-[	16397	P500yr	4155.8	372.11	389.89	382.73	389.89	0.000013	0.45	15859.07	3194.89	0.02
NF_Canoe_	Main_Ext-[	16397	P50yr	2960.6	372.11	387.58	381.32	387.63	0.000394	2.2	1836.84	2943.22	0.13
NF_Canoe_	Main_Ext-[	16397	P10yr	2434.9	372.11	385.93	379.76	385.99	0.000583	2.44	1414.52	2378.53	0.16
NF_Canoe_	Main_Ext-[	16397	P2yr	1656.7	372.11	384.61	378.42	384.67	0.000544	2.27	1088.13	1949.28	0.15
NF_Canoe_	Main_Ext-[	16326.84	P100yr	3229.5	372.49	388.21	379.93	388.33	0.000699	2.96	1259.81	1525.48	0.19
NF_Canoe_	Main_Ext-[	16326.84	Floodway	3229.5	372.49	389.76	379.92	389.77	0.000108	1.24	4701.84	1038.65	0.08
NF_Canoe_	Main_Ext-[	16326.84	P500yr	4155.8	372.49	389.87	381.13	389.89	0.000147	1.45	5818.23	1989.7	0.09
NF_Canoe_	Main_Ext-[	16326.84	P50yr	2960.6	372.49	387.44	379.56	387.57	0.000844	3.05	1112.79	1357.49	0.21
NF_Canoe_	Main_Ext-[	16326.84	P10yr	2434.9	372.49	385.73	378.8	385.9	0.001482	3.43	799.57	793.31	0.26
NF_Canoe_	Main_Ext-[	16326.84	P2yr	1656.7	372.49	384.44	377.51	384.59	0.001363	3.13	589.7	416.25	0.25
NF_Canoe_	Main_Ext-[	16298		Mult Open									
NF_Canoe_	Main_Ext-[	16177.27	P100yr	3229.5	371.84	387.51	380.42	387.57	0.000572	2.47	2704.03	1289.01	0.17
NF_Canoe_	Main_Ext-[	16177.27	Floodway	3229.5	371.84	388.29	380.41	388.34	0.000376	2.11	2955.81	1107.77	0.14
NF_Canoe_	Main_Ext-[	16177.27	P500yr	4155.8	371.84	388.91	381.62	388.94	0.000281	1.94	4808.24	1808.16	0.12
NF_Canoe_	Main_Ext-[	16177.27	P50yr	2960.6	371.84	386.68	380.03	386.88	0.001437	3.79	907.35	1044.25	0.27
NF_Canoe_	Main_Ext-[	16177.27	P10yr	2434.9	371.84	385.17	379.23	385.42	0.002178	4.22	657.32	277.7	0.32
NF_Canoe_	Main_Ext-[	16177.27	P2yr	1656.7	371.84	384.03	377.85	384.24	0.001736	3.71	496.87	126.86	0.29
NF_Canoe_	Main_Ext-[	16087.8	P100yr	3229.5	371.06	387.53	377.62	387.53	0.000024	0.68	9959.79	2858.01	0.04

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Canoe Creek Flood Impact Study on Proposed I69
Parsons HECRAS Model canoe073119.ghrj Backup Data
Parsons Proposed Condition HECRAS Plan Canoepr3 Summary Table

River	Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
NF_Canoe_	Main_Ext-[	16087.8	Floodway	3229.5	371.06	388.3	377.62	388.31	0.000041	0.95	6689.63	1148.14	0.05
NF_Canoe_	Main_Ext-[	16087.8	P500yr	4155.8	371.06	388.92	378.38	388.93	0.00002	0.68	12567.25	2860.52	0.04
NF_Canoe_	Main_Ext-[	16087.8	P50yr	2960.6	371.06	386.76	377.38	386.77	0.00005	0.95	5565.99	2815.26	0.05
NF_Canoe_	Main_Ext-[	16087.8	P10yr	2434.9	371.06	385.23	376.88	385.27	0.000198	1.71	1711.38	2291.38	0.11
NF_Canoe_	Main_Ext-[	16087.8	P2yr	1656.7	371.06	384.09	375.98	384.12	0.000158	1.4	1378.98	1896.98	0.09
NF_Canoe_	Main_Ext-[	15534.2	O P100yr	3229.5	370.5	387.51	380.31	387.51	0.000032	0.69	10637.63	2952.57	0.04
NF_Canoe_	Main_Ext-[	15534.2	O Floodway	3229.5	370.5	388.27	380.3	388.28	0.000058	0.99	6624.35	1050.98	0.06
NF_Canoe_	Main_Ext-[	15534.2	O P500yr	4155.8	370.5	388.91	382.58	388.91	0.000024	0.66	14029.34	3306.16	0.04
NF_Canoe_	Main_Ext-[	15534.2	O P50yr	2960.6	370.5	386.74	379.9	386.74	0.000045	0.78	8920.14	2793.18	0.05
NF_Canoe_	Main_Ext-[	15534.2	O P10yr	2434.9	370.5	385.16	379.04	385.17	0.000114	1.09	5648.43	2413.98	0.07
NF_Canoe_	Main_Ext-[	15534.2	O P2yr	1656.7	370.5	384.01	377.56	384.01	0.000167	1.24	3498.71	1706.21	0.09
NF_Canoe_	Main_Ext-[	14567.2	N P100yr	3229.5	371.55	387.46	378.65	387.47	0.000068	1.21	6372.65	2577.05	0.07
NF_Canoe_	Main_Ext-[	14567.2	N Floodway	3229.5	371.55	388.19	378.65	388.21	0.000076	1.35	5301.68	746.12	0.07
NF_Canoe_	Main_Ext-[	14567.2	N P500yr	4155.8	371.55	388.86	381.67	388.87	0.00006	1.24	7818.26	3155.03	0.07
NF_Canoe_	Main_Ext-[	14567.2	N P50yr	2960.6	371.55	386.67	378.27	386.68	0.000087	1.29	5556.11	1811.02	0.08
NF_Canoe_	Main_Ext-[	14567.2	N P10yr	2434.9	371.55	385.01	377.52	385.03	0.000174	1.59	3852.13	1311.88	0.11
NF_Canoe_	Main_Ext-[	14567.2	N P2yr	1656.7	371.55	383.81	376.3	383.83	0.000194	1.67	2638.61	978.09	0.11
NF_Canoe_	Main_Ext-[	13899.4	P100yr	3229.5	371.14	387.41	378.94	387.42	0.000069	1.41	6670.84	2416.31	0.07
NF_Canoe_	Main_Ext-[	13899.4	Floodway	3229.5	371.14	388.14	378.94	388.15	0.000081	1.59	4943.6	670	0.08
NF_Canoe_	Main_Ext-[	13899.4	P500yr	4155.8	371.14	388.82	381.46	388.83	0.000058	1.39	8381.12	2673.91	0.07
NF_Canoe_	Main_Ext-[	13899.4	P50yr	2960.6	371.14	386.6	378.48	386.62	0.000091	1.55	5690.97	2274.98	0.08
NF_Canoe_	Main_Ext-[	13899.4	P10yr	2434.9	371.14	384.86	377.4	384.9	0.000206	2.08	3586.06	1945.18	0.12
NF_Canoe_	Main_Ext-[	13899.4	P2yr	1656.7	371.14	383.63	376.07	383.68	0.000262	2.14	2168.48	1363.74	0.13
NF_Canoe_	Main_Ext-[	13273.2	M P100yr	3229.5	370.4	387.36	378.98	387.37	0.000093	1.33	6060.81	2052.24	0.08
NF_Canoe_	Main_Ext-[	13273.2	M Floodway	3229.5	370.4	388.02	378.97	388.07	0.000211	2.11	2678.37	446.31	0.12
NF_Canoe_	Main_Ext-[	13273.2	M P500yr	4155.8	370.4	388.78	381.76	388.79	0.000071	1.29	7856.25	2638.79	0.07
NF_Canoe_	Main_Ext-[	13273.2	M P50yr	2960.6	370.4	386.53	378.52	386.55	0.000133	1.49	5016.38	1989.56	0.1

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Canoe Creek Flood Impact Study on Proposed I69
Parsons HECRAS Model canoe073119.ghrj Backup Data
Parsons Proposed Condition HECRAS Plan Canoepr3 Summary Table

River	Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
NF_Canoe_	Main_Ext-[	13273.2	M P10yr	2434.9	370.4	384.69	377.43	384.73	0.000317	2.24	2837.76	1088.8	0.14
NF_Canoe_	Main_Ext-[	13273.2	M P2yr	1656.7	370.4	383.42	376.07	383.48	0.000384	2.25	1631.19	840.93	0.16
NF_Canoe_	Main_Ext-[	12979.5	P100yr	3229.5	371.41	387.3	378.81	387.33	0.000156	1.94	3938.62	2473.46	0.11
NF_Canoe_	Main_Ext-[	12979.5	Floodway	3229.5	371.41	387.91	378.81	387.99	0.000257	2.59	2196.45	320	0.14
NF_Canoe_	Main_Ext-[	12979.5	P500yr	4155.8	371.41	388.73	380.05	388.76	0.000132	1.95	5003.86	2853.48	0.1
NF_Canoe_	Main_Ext-[	12979.5	P50yr	2960.6	371.41	386.45	378.4	386.49	0.000209	2.13	3306.74	2080.88	0.12
NF_Canoe_	Main_Ext-[	12979.5	P10yr	2434.9	371.41	384.5	377.55	384.6	0.000531	2.92	1857.36	1483.85	0.18
NF_Canoe_	Main_Ext-[	12979.5	P2yr	1656.7	371.41	383.2	376.14	383.32	0.000673	2.91	974.89	889.96	0.2
NF_Canoe_	Main_Ext-[	12921.8		Bridge									
NF_Canoe_	Main_Ext-[	12871.2	P100yr	3229.5	370.62	387.21	378.8	387.27	0.000236	2.52	2724.84	2293.13	0.13
NF_Canoe_	Main_Ext-[	12871.2	Floodway	3229.5	370.62	387.79	378.8	387.89	0.000304	2.96	1817.64	250	0.15
NF_Canoe_	Main_Ext-[	12871.2	P500yr	4155.8	370.62	388.65	380	388.71	0.000213	2.59	3424.16	2695.05	0.13
NF_Canoe_	Main_Ext-[	12871.2	P50yr	2960.6	370.62	386.33	378.41	386.41	0.000304	2.7	2299.32	2001.75	0.15
NF_Canoe_	Main_Ext-[	12871.2	P10yr	2434.9	370.62	384.17	377.62	384.34	0.000737	3.58	1249.37	959.71	0.22
NF_Canoe_	Main_Ext-[	12871.2	P2yr	1656.7	370.62	383.16	376.26	383.3	0.000678	3.13	761.02	582.22	0.21
NF_Canoe_	Main_Ext-[	12458.1	P100yr	3229.5	369.67	386.89	378.06	387.09	0.000571	3.65	1068.43	714.29	0.21
NF_Canoe_	Main_Ext-[	12458.1	Floodway	3229.5	369.67	387.53	378.06	387.71	0.000483	3.5	1018.24	126.07	0.19
NF_Canoe_	Main_Ext-[	12458.1	P500yr	4155.8	369.67	388.29	379.19	388.52	0.00057	3.99	1333.18	1050.1	0.21
NF_Canoe_	Main_Ext-[	12458.1	P50yr	2960.6	369.67	385.97	377.69	386.19	0.000689	3.76	911.05	580.58	0.22
NF_Canoe_	Main_Ext-[	12458.1	P10yr	2434.9	369.67	383.63	376.93	383.91	0.001259	4.29	567.14	83.79	0.29
NF_Canoe_	Main_Ext-[	12458.1	P2yr	1656.7	369.67	382.82	375.61	382.99	0.000813	3.3	502.32	78.18	0.23
NF_Canoe_	Main_Ext-[	12027.9	L P100yr	4408	369.87	386.49	379.83	386.78	0.000781	4.53	1337.95	1620.34	0.25
NF_Canoe_	Main_Ext-[	12027.9	L Floodway	4408	369.87	387.12	379.85	387.43	0.00079	4.54	1071.14	111.86	0.24
NF_Canoe_	Main_Ext-[	12027.9	L P500yr	5615.2	369.87	387.9	381.28	388.22	0.000763	4.88	1658.86	1877.47	0.25
NF_Canoe_	Main_Ext-[	12027.9	L P50yr	3918.3	369.87	385.52	379.27	385.83	0.000912	4.59	1117.16	1463.84	0.26
NF_Canoe_	Main_Ext-[	12027.9	L P10yr	2694.3	369.87	383.03	377.54	383.35	0.001344	4.53	625.13	578.44	0.3

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Canoe Creek Flood Impact Study on Proposed I69
Parsons HECRAS Model canoe073119.ghrj Backup Data
Parsons Proposed Condition HECRAS Plan Canoepr3 Summary Table

River	Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
NF_Canoe_	Main_Ext-[	12027.9 L	P2yr	1864.1	369.87	382.44	376.22	382.62	0.000874	3.44	557.98	376.28	0.24
NF_Canoe_	Main_Ext-[	11796.9	P100yr	4408	369.98	386.37	378.73	386.59	0.00059	3.91	1467.85	1302.2	0.22
NF_Canoe_	Main_Ext-[	11796.9	Floodway	4408	369.98	387.01	378.73	387.22	0.000533	3.87	1367.66	182	0.21
NF_Canoe_	Main_Ext-[	11796.9	P500yr	5615.2	369.98	387.88	379.76	388	0.000372	3.4	3381.2	1511.17	0.18
NF_Canoe_	Main_Ext-[	11796.9	P50yr	3918.3	369.98	385.38	378.24	385.61	0.000689	3.94	1247.99	1017.42	0.23
NF_Canoe_	Main_Ext-[	11796.9	P10yr	2694.3	369.98	382.82	376.89	383.05	0.000931	3.97	773.08	245.11	0.26
NF_Canoe_	Main_Ext-[	11796.9	P2yr	1864.1	369.98	382.31	375.76	382.45	0.000515	2.97	700.67	196.98	0.19
NF_Canoe_	Main_Ext-[	11736.8		Bridge									
NF_Canoe_	Main_Ext-[	11667.5	P100yr	4408	369.19	384.82	377.22	385.09	0.000753	4.27	1204.69	803.41	0.24
NF_Canoe_	Main_Ext-[	11667.5	Floodway	4408	369.19	385.45	377.22	385.7	0.000666	4.08	1168.57	160	0.22
NF_Canoe_	Main_Ext-[	11667.5	P500yr	5615.2	369.19	386	378.31	386.33	0.000792	4.73	1459.13	1560.96	0.25
NF_Canoe_	Main_Ext-[	11667.5	P50yr	3918.3	369.19	384.21	376.73	384.46	0.000754	4.09	1080.47	628.18	0.24
NF_Canoe_	Main_Ext-[	11667.5	P10yr	2694.3	369.19	382.35	375.35	382.55	0.000799	3.61	768.03	131.8	0.24
NF_Canoe_	Main_Ext-[	11667.5	P2yr	1864.1	369.19	380.77	374.21	380.93	0.000815	3.2	581.88	99.69	0.23
NF_Canoe_	Main_Ext-[	11496.7 K	P100yr	4408	368.97	384.61	377.75	384.93	0.001002	4.66	1235.1	490.39	0.28
NF_Canoe_	Main_Ext-[	11496.7 K	Floodway	4408	368.97	385.26	377.77	385.56	0.000845	4.48	1083.31	145	0.26
NF_Canoe_	Main_Ext-[	11496.7 K	P500yr	5615.2	368.97	385.83	378.97	386.18	0.000963	4.97	1621.15	1268.73	0.28
NF_Canoe_	Main_Ext-[	11496.7 K	P50yr	3918.3	368.97	383.98	377.21	384.3	0.001053	4.55	1054.89	426.42	0.28
NF_Canoe_	Main_Ext-[	11496.7 K	P10yr	2694.3	368.97	382.11	375.77	382.37	0.001024	4.13	672.15	121.39	0.27
NF_Canoe_	Main_Ext-[	11496.7 K	P2yr	1864.1	368.97	380.57	374.56	380.77	0.00089	3.58	521.1	81.86	0.25
NF_Canoe_	Main_Ext-[	11331	P100yr	4408	368.71	384.43	377.96	384.73	0.00134	4.7	1360.2	487.94	0.31
NF_Canoe_	Main_Ext-[	11331	Floodway	4408	368.71	385.04	377.96	385.38	0.001226	4.75	1017.65	156.72	0.3
NF_Canoe_	Main_Ext-[	11331	P500yr	5615.2	368.71	385.68	379.09	385.98	0.001118	4.78	1807.66	774.74	0.29
NF_Canoe_	Main_Ext-[	11331	P50yr	3918.3	368.71	383.76	377.45	384.09	0.001351	4.8	1126.55	417.08	0.31
NF_Canoe_	Main_Ext-[	11331	P10yr	2694.3	368.71	381.86	375.98	382.17	0.001187	4.54	620.42	155.82	0.29
NF_Canoe_	Main_Ext-[	11331	P2yr	1864.1	368.71	380.37	374.78	380.6	0.000987	3.86	482.42	69.92	0.26

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Canoe Creek Flood Impact Study on Proposed I69
Parsons HECRAS Model canoe073119.ghrj Backup Data
Parsons Proposed Condition HECRAS Plan Canoepr3 Summary Table

River	Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
NF_Canoe_	Main_Ext-[	11256.8		Bridge									
NF_Canoe_	Main_Ext-[	11171.4	P100yr	4408	368.53	384.26	376.1	384.46	0.000419	3.75	1717.69	432.39	0.19
NF_Canoe_	Main_Ext-[	11171.4	Floodway	4408	368.53	384.9	376.1	385.09	0.000362	3.61	1593.67	170.03	0.18
NF_Canoe_	Main_Ext-[	11171.4	P500yr	5615.2	368.53	385.5	377.02	385.74	0.000458	4.18	2046.14	663.85	0.2
NF_Canoe_	Main_Ext-[	11171.4	P50yr	3918.3	368.53	383.61	375.69	383.8	0.000415	3.6	1548.57	320.48	0.19
NF_Canoe_	Main_Ext-[	11171.4	P10yr	2694.3	368.53	381.75	374.46	381.89	0.000375	3.04	1131.23	191.79	0.17
NF_Canoe_	Main_Ext-[	11171.4	P2yr	1864.1	368.53	380.29	373.47	380.39	0.000326	2.55	870.66	165.17	0.16
NF_Canoe_	Main_Ext-[	11097.6	P100yr	4408	368	384.2	376.24	384.41	0.000539	3.93	1777.81	674	0.21
NF_Canoe_	Main_Ext-[	11097.6	Floodway	4408	368	384.81	376.24	385.04	0.000536	3.94	1309.12	172.04	0.2
NF_Canoe_	Main_Ext-[	11097.6	P500yr	5615.2	368	385.47	377.29	385.69	0.000511	4.12	2421.41	1016.94	0.21
NF_Canoe_	Main_Ext-[	11097.6	P50yr	3918.3	368	383.52	375.77	383.75	0.000572	3.88	1443.82	549.5	0.21
NF_Canoe_	Main_Ext-[	11097.6	P10yr	2694.3	368	381.66	374.44	381.84	0.000585	3.44	788.41	103.25	0.21
NF_Canoe_	Main_Ext-[	11097.6	P2yr	1864.1	368	380.23	373.35	380.35	0.000496	2.86	651.8	90.3	0.19
NF_Canoe_	Main_Ext-[	11075	P100yr	4408	368	384.19	376.25	384.4	0.000521	3.87	1903.68	908.05	0.21
NF_Canoe_	Main_Ext-[	11075	Floodway	4408	368	384.8	376.25	385.02	0.000525	3.9	1335.13	162.04	0.2
NF_Canoe_	Main_Ext-[	11075	P500yr	5615.2	368	385.47	377.29	385.68	0.000484	4.01	2615.8	998.47	0.2
NF_Canoe_	Main_Ext-[	11075	P50yr	3918.3	368	383.52	375.77	383.73	0.000561	3.84	1532.13	861.53	0.21
NF_Canoe_	Main_Ext-[	11075	P10yr	2694.3	368	381.64	374.44	381.83	0.000582	3.42	847.22	309.69	0.21
NF_Canoe_	Main_Ext-[	11075	P2yr	1864.1	368	380.21	373.34	380.34	0.000499	2.86	650.75	90.23	0.19
NF_Canoe_	Main_Ext-[	11031.7	J P100yr	4408	368	384.17	376.24	384.38	0.000543	3.83	1886.13	780.68	0.21
NF_Canoe_	Main_Ext-[	11031.7	J Floodway	4408	368	384.78	376.25	385.01	0.00051	3.86	1344.55	170.37	0.2
NF_Canoe_	Main_Ext-[	11031.7	J P500yr	5615.2	368	385.45	377.3	385.66	0.000497	3.96	2607.2	865.42	0.2
NF_Canoe_	Main_Ext-[	11031.7	J P50yr	3918.3	368	383.49	375.76	383.71	0.000591	3.82	1507.83	708.57	0.22
NF_Canoe_	Main_Ext-[	11031.7	J P10yr	2694.3	368	381.62	374.44	381.8	0.000612	3.41	845.62	404.86	0.21
NF_Canoe_	Main_Ext-[	11031.7	J P2yr	1864.1	368	380.19	373.34	380.32	0.000503	2.87	651.27	153	0.19

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Canoe Creek Flood Impact Study on Proposed I69
Parsons HECRAS Model canoe073119.ghrj Backup Data
Parsons Proposed Condition HECRAS Plan Canoepr3 Summary Table

River	Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
NF_Canoe_	Main_Ext-[	10936.8		Bridge									
NF_Canoe_	Main_Ext-[	10837	P100yr	4408	365.65	383.84	375.7	384.14	0.000731	4.52	1133.37	406.75	0.24
NF_Canoe_	Main_Ext-[	10837	Floodway	4408	365.65	384.48	375.71	384.74	0.000602	4.25	1221.12	138.62	0.22
NF_Canoe_	Main_Ext-[	10837	P500yr	5615.2	365.65	385.39	376.9	385.59	0.000507	4.1	2540.52	632.6	0.2
NF_Canoe_	Main_Ext-[	10837	P50yr	3918.3	365.65	383.18	375.16	383.45	0.000721	4.31	1041.05	388.82	0.23
NF_Canoe_	Main_Ext-[	10837	P10yr	2694.3	365.65	381.4	373.6	381.6	0.000636	3.65	815.57	269.49	0.21
NF_Canoe_	Main_Ext-[	10837	P2yr	1864.1	365.65	379.52	372.29	379.68	0.000628	3.24	593.97	108.49	0.21
NF_Canoe_	Main_Ext-[	10362.2	I P100yr	4408	366.04	383.63	374.63	383.83	0.000424	3.72	1600.65	899.18	0.19
NF_Canoe_	Main_Ext-[	10362.2	I Floodway	4408	366.04	384.3	374.61	384.49	0.000359	3.55	1464.9	157.5	0.17
NF_Canoe_	Main_Ext-[	10362.2	I P500yr	5615.2	366.04	385.15	375.65	385.37	0.00041	3.96	2147.57	1327.29	0.19
NF_Canoe_	Main_Ext-[	10362.2	I P50yr	3918.3	366.04	382.96	374.15	383.15	0.000425	3.59	1377.37	626.81	0.19
NF_Canoe_	Main_Ext-[	10362.2	I P10yr	2694.3	366.04	381.21	372.82	381.35	0.000362	2.97	996.56	170.89	0.17
NF_Canoe_	Main_Ext-[	10362.2	I P2yr	1864.1	366.04	379.32	371.71	379.43	0.000365	2.58	744.56	115.94	0.16
NF_Canoe_	Main_Ext-[	9719.4	H P100yr	4408	365.69	383.27	374.98	383.51	0.000587	3.93	1275.88	213.4	0.22
NF_Canoe_	Main_Ext-[	9719.4	H Floodway	4408	365.69	384	374.98	384.21	0.000499	3.71	1255.76	127.7	0.2
NF_Canoe_	Main_Ext-[	9719.4	H P500yr	5615.2	365.69	384.78	376	385.05	0.000576	4.27	1642.76	434.77	0.22
NF_Canoe_	Main_Ext-[	9719.4	H P50yr	3918.3	365.69	382.62	374.51	382.83	0.000587	3.76	1145	184.88	0.21
NF_Canoe_	Main_Ext-[	9719.4	H P10yr	2694.3	365.69	380.91	373.14	381.06	0.000545	3.19	867.55	141.17	0.2
NF_Canoe_	Main_Ext-[	9719.4	H P2yr	1864.1	365.69	379.02	371.99	379.14	0.000537	2.86	651.2	94.25	0.19
NF_Canoe_	Main_Ext-[	8580.4	G P100yr	4408	365.52	382.97	374.09	383.05	0.000242	2.87	3124.54	772.16	0.14
NF_Canoe_	Main_Ext-[	8580.4	G Floodway	4408	365.52	383.7	374.1	383.79	0.000243	2.91	2709.29	348.3	0.14
NF_Canoe_	Main_Ext-[	8580.4	G P500yr	5615.2	365.52	384.53	375.17	384.61	0.000219	2.94	3911.58	947.86	0.14
NF_Canoe_	Main_Ext-[	8580.4	G P50yr	3918.3	365.52	382.29	373.63	382.37	0.000254	2.83	2780.76	641.48	0.14
NF_Canoe_	Main_Ext-[	8580.4	G P10yr	2694.3	365.52	380.53	372.27	380.61	0.000275	2.67	1902.11	507.69	0.14
NF_Canoe_	Main_Ext-[	8580.4	G P2yr	1864.1	365.52	378.53	371.17	378.64	0.000357	2.73	965.36	400.78	0.16
NF_Canoe_	Main_Ext-[	8284.6	P100yr	4408	366.12	382.69	373.78	382.9	0.000492	3.9	1310.58	454.81	0.2

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Canoe Creek Flood Impact Study on Proposed I69
Parsons HECRAS Model canoe073119.ghrj Backup Data
Parsons Proposed Condition HECRAS Plan Canoepr3 Summary Table

River	Reach	River Sta		Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
NF_Canoe_	Main_Ext-[	8284.6		Floodway	4408	366.12	383.43	373.79	383.65	0.000436	3.82	1211.29	104.49	0.19
NF_Canoe_	Main_Ext-[	8284.6		P500yr	5615.2	366.12	384.25	374.82	384.47	0.000455	4.07	1912.1	587.7	0.2
NF_Canoe_	Main_Ext-[	8284.6		P50yr	3918.3	366.12	382.03	373.32	382.24	0.00047	3.69	1222.68	442.52	0.19
NF_Canoe_	Main_Ext-[	8284.6		P10yr	2694.3	366.12	380.35	372.02	380.5	0.000398	3.12	873.27	345.28	0.18
NF_Canoe_	Main_Ext-[	8284.6		P2yr	1864.1	366.12	378.42	370.96	378.54	0.00037	2.67	701.96	281.75	0.16
NF_Canoe_	Main_Ext-[	8211.8		Bridge										
NF_Canoe_	Main_Ext-[	8165.2		P100yr	4408	366.12	382.42	373.77	382.61	0.000489	3.56	1316.46	508.55	0.2
NF_Canoe_	Main_Ext-[	8165.2		Floodway	4408	366.12	383.16	373.77	383.34	0.000425	3.37	1316.89	125.66	0.18
NF_Canoe_	Main_Ext-[	8165.2		P500yr	5615.2	366.12	383.69	374.81	383.93	0.000527	4	1531.8	611.7	0.21
NF_Canoe_	Main_Ext-[	8165.2		P50yr	3918.3	366.12	381.91	373.32	382.08	0.000462	3.34	1229.87	497.53	0.19
NF_Canoe_	Main_Ext-[	8165.2		P10yr	2694.3	366.12	380.28	372.01	380.4	0.000403	2.78	989.34	373.55	0.17
NF_Canoe_	Main_Ext-[	8165.2		P2yr	1864.1	366.12	378.35	370.96	378.45	0.000458	2.53	744.26	313.74	0.18
NF_Canoe_	Main_Ext-[	7927.6		P100yr	4408	364.85	382.37	373.58	382.49	0.000302	3.27	2912.03	825.03	0.16
NF_Canoe_	Main_Ext-[	7927.6		Floodway	4408	364.85	383.09	373.58	383.24	0.000312	3.45	2186.37	316.08	0.16
NF_Canoe_	Main_Ext-[	7927.6		P500yr	5615.2	364.85	383.66	374.68	383.77	0.000284	3.38	3721.35	932	0.16
NF_Canoe_	Main_Ext-[	7927.6		P50yr	3918.3	364.85	381.85	373.09	381.97	0.000302	3.19	2587.79	786.56	0.16
NF_Canoe_	Main_Ext-[	7927.6		P10yr	2694.3	364.85	380.19	371.69	380.31	0.000311	2.94	1617.19	526.05	0.16
NF_Canoe_	Main_Ext-[	7927.6		P2yr	1864.1	364.85	378.22	370.53	378.34	0.00038	2.85	735.13	227.16	0.17
NF_Canoe_	Main_Ext-[	7564.1	F	P100yr	4408	364.85	382.26	373.58	382.38	0.000294	3.28	2939.74	1255.92	0.16
NF_Canoe_	Main_Ext-[	7564.1	F	Floodway	4408	364.85	383	373.58	383.12	0.00027	3.26	2633.47	405.45	0.15
NF_Canoe_	Main_Ext-[	7564.1	F	P500yr	5615.2	364.85	383.56	374.67	383.67	0.000285	3.44	3666.92	1465.44	0.16
NF_Canoe_	Main_Ext-[	7564.1	F	P50yr	3918.3	364.85	381.75	373.1	381.86	0.000291	3.18	2649.67	1127.04	0.16
NF_Canoe_	Main_Ext-[	7564.1	F	P10yr	2694.3	364.85	380.08	371.68	380.2	0.000305	2.97	1715.34	850.08	0.16
NF_Canoe_	Main_Ext-[	7564.1	F	P2yr	1864.1	364.85	378.07	370.51	378.2	0.000382	2.91	724.25	298.24	0.17
NF_Canoe_	Main_Ext-[	7123.8		P100yr	4408	364.64	382.25	374.37	382.27	0.000081	1.59	6301.37	1674	0.08
NF_Canoe_	Main_Ext-[	7123.8		Floodway	4408	364.64	383	374.37	383.02	0.00007	1.54	5922.56	675.39	0.08

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Canoe Creek Flood Impact Study on Proposed I69
Parsons HECRAS Model canoe073119.ghrj Backup Data
Parsons Proposed Condition HECRAS Plan Canoepr3 Summary Table

River	Reach	River Sta		Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
NF_Canoe_	Main_Ext-[	7123.8		P500yr	5615.2	364.64	383.55	375.15	383.57	0.000079	1.69	7487.52	1833.06	0.08
NF_Canoe_	Main_Ext-[	7123.8		P50yr	3918.3	364.64	381.74	372.83	381.75	0.00008	1.53	5828.38	1585.79	0.08
NF_Canoe_	Main_Ext-[	7123.8		P10yr	2694.3	364.64	380.07	371.44	380.09	0.000086	1.43	4302.73	1315.69	0.08
NF_Canoe_	Main_Ext-[	7123.8		P2yr	1864.1	364.64	378.03	370.33	378.06	0.000138	1.55	2636.93	920.99	0.1
NF_Canoe_	Main_Ext-[	7086.8		Bridge										
NF_Canoe_	Main_Ext-[	7010.6		P100yr	4408	364.64	382.11	373.32	382.17	0.000196	2.59	4738.17	1731.94	0.13
NF_Canoe_	Main_Ext-[	7010.6		Floodway	4408	364.64	382.88	373.31	382.94	0.000165	2.47	4540.78	736.29	0.12
NF_Canoe_	Main_Ext-[	7010.6		P500yr	5615.2	364.64	383.45	374.4	383.51	0.000174	2.61	6060.89	1838.79	0.12
NF_Canoe_	Main_Ext-[	7010.6		P50yr	3918.3	364.64	381.55	372.82	381.61	0.000205	2.57	4185.73	1688.69	0.13
NF_Canoe_	Main_Ext-[	7010.6		P10yr	2694.3	364.64	379.9	371.46	379.98	0.000248	2.57	2557.3	1422.57	0.14
NF_Canoe_	Main_Ext-[	7010.6		P2yr	1864.1	364.64	377.85	370.34	377.96	0.00037	2.73	1005.86	636.99	0.16
NF_Canoe_	Main_Ext-[	6706.5	E	P100yr	4408	364.35	382.06	372.93	382.11	0.000147	2.31	5829.31	1732.64	0.11
NF_Canoe_	Main_Ext-[	6706.5	E	Floodway	4408	364.35	382.81	372.93	382.88	0.000176	2.62	4149.3	688.54	0.12
NF_Canoe_	Main_Ext-[	6706.5	E	P500yr	5615.2	364.35	383.41	374.01	383.45	0.000126	2.28	7611.06	1861.51	0.11
NF_Canoe_	Main_Ext-[	6706.5	E	P50yr	3918.3	364.35	381.5	372.45	381.55	0.000156	2.31	5106.86	1661.46	0.11
NF_Canoe_	Main_Ext-[	6706.5	E	P10yr	2694.3	364.35	379.83	371.09	379.9	0.000197	2.36	3077.62	1371.93	0.13
NF_Canoe_	Main_Ext-[	6706.5	E	P2yr	1864.1	364.35	377.74	369.96	377.85	0.000329	2.66	992.14	683.31	0.16
NF_Canoe_	Main_Ext-[	5738.9	D	P100yr	4408	364.57	381.96	372.58	381.99	0.000095	1.82	7632.05	2553.76	0.09
NF_Canoe_	Main_Ext-[	5738.9	D	Floodway	4408	364.57	382.64	372.59	382.7	0.000174	2.44	4182.47	661.17	0.12
NF_Canoe_	Main_Ext-[	5738.9	D	P500yr	5615.2	364.57	383.33	373.65	383.35	0.000081	1.8	9720.76	2732.37	0.08
NF_Canoe_	Main_Ext-[	5738.9	D	P50yr	3918.3	364.57	381.39	372.12	381.42	0.000102	1.83	6764.16	2542.04	0.09
NF_Canoe_	Main_Ext-[	5738.9	D	P10yr	2694.3	364.57	379.69	370.79	379.73	0.000142	1.96	4178.73	2102.82	0.11
NF_Canoe_	Main_Ext-[	5738.9	D	P2yr	1864.1	364.57	377.43	369.7	377.53	0.000337	2.57	1098.19	869.88	0.16
NF_Canoe_	Main_Ext-[	4899.4		P100yr	6299.1	363.89	381.81	374	381.86	0.000204	2.82	8203.51	3508.4	0.13
NF_Canoe_	Main_Ext-[	4899.4		Floodway	6299.1	363.89	382.32	374.01	382.46	0.00041	3.81	3729.01	660.3	0.18
NF_Canoe_	Main_Ext-[	4899.4		P500yr	8287.9	363.89	383.21	375.43	383.25	0.000154	2.61	11456.72	4196.44	0.12

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Canoe Creek Flood Impact Study on Proposed I69
Parsons HECRAS Model canoe073119.ghrj Backup Data
Parsons Proposed Condition HECRAS Plan Canoepr3 Summary Table

River	Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
NF_Canoe_	Main_Ext-[	4899.4	P50yr	5522.1	363.89	381.22	373.35	381.28	0.000231	2.91	6870.04	3322.24	0.14
NF_Canoe_	Main_Ext-[	4899.4	P10yr	3880	363.89	379.33	371.76	379.5	0.000464	3.74	3033.81	2339.66	0.19
NF_Canoe_	Main_Ext-[	4899.4	P2yr	2424	363.89	376.9	369.99	377.11	0.000652	3.79	793.06	466.5	0.22
NF_Canoe_	Main_Ext-[	3856.3 C	P100yr	6299.1	363.41	381.3	373.15	381.52	0.000576	4.23	3218.31	1963.49	0.22
NF_Canoe_	Main_Ext-[	3856.3 C	Floodway	6299.1	363.41	381.85	373.18	382.03	0.000494	3.87	3304.88	832.75	0.19
NF_Canoe_	Main_Ext-[	3856.3 C	P500yr	8287.9	363.41	382.82	374.64	382.99	0.000446	4.03	5026.15	2341.56	0.2
NF_Canoe_	Main_Ext-[	3856.3 C	P50yr	5522.1	363.41	380.66	372.55	380.9	0.000631	4.26	2497.41	1612.9	0.23
NF_Canoe_	Main_Ext-[	3856.3 C	P10yr	3880	363.41	378.63	371.03	378.88	0.000771	4.11	1177.57	422.02	0.24
NF_Canoe_	Main_Ext-[	3856.3 C	P2yr	2424	363.41	376.16	369.35	376.36	0.000798	3.64	669.6	97.59	0.24
NF_Canoe_	Main_Ext-[	3073.1	P100yr	6299.1	363.74	380.68	373.13	381.02	0.00071	5.09	1953.75	1363.4	0.25
NF_Canoe_	Main_Ext-[	3073.1	Floodway	6299.1	363.74	381.27	373.11	381.59	0.000619	4.9	1928.34	260.35	0.23
NF_Canoe_	Main_Ext-[	3073.1	P500yr	8287.9	363.74	382.13	374.45	382.53	0.000765	5.67	2413.99	1611.12	0.26
NF_Canoe_	Main_Ext-[	3073.1	P50yr	5522.1	363.74	380.07	372.54	380.39	0.000674	4.81	1764.43	1293.29	0.24
NF_Canoe_	Main_Ext-[	3073.1	P10yr	3880	363.74	377.99	371.11	378.29	0.000741	4.47	1117.53	1058.01	0.24
NF_Canoe_	Main_Ext-[	3073.1	P2yr	2424	363.74	375.53	369.53	375.75	0.000754	3.78	656.22	704.26	0.23
NF_Canoe_	Main_Ext-[	2858.5	P100yr	6299.1	363.09	380.36	373.37	380.81	0.000952	5.63	1409.74	864.5	0.28
NF_Canoe_	Main_Ext-[	2858.5	Floodway	6299.1	363.09	381.03	373.37	381.42	0.00078	5.28	1529.72	181.89	0.26
NF_Canoe_	Main_Ext-[	2858.5	P500yr	8287.9	363.09	381.66	374.96	382.27	0.001135	6.58	1653.94	1596.75	0.32
NF_Canoe_	Main_Ext-[	2858.5	P50yr	5522.1	363.09	379.81	372.75	380.21	0.000864	5.2	1315.74	600.08	0.27
NF_Canoe_	Main_Ext-[	2858.5	P10yr	3880	363.09	377.81	371.25	378.12	0.000844	4.53	1002.19	196.3	0.26
NF_Canoe_	Main_Ext-[	2858.5	P2yr	2424	363.09	375.34	369.62	375.57	0.000941	3.92	674.68	118.81	0.26
NF_Canoe_	Main_Ext-[	2791.8		Bridge									
NF_Canoe_	Main_Ext-[	2724	P100yr	6299.1	363.09	379.96	373.49	380.25	0.000975	4.36	1444.44	557.66	0.27
NF_Canoe_	Main_Ext-[	2724	Floodway	6299.1	363.09	380.95	373.49	381.18	0.000677	3.88	1624.45	181.89	0.23
NF_Canoe_	Main_Ext-[	2724	P500yr	8287.9	363.09	381.23	374.72	381.61	0.001141	4.93	1682.71	664.27	0.3
NF_Canoe_	Main_Ext-[	2724	P50yr	5522.1	363.09	379.43	372.88	379.69	0.000905	4.09	1351.2	470.71	0.26

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Canoe Creek Flood Impact Study on Proposed I69
Parsons HECRAS Model canoe073119.ghrj Backup Data
Parsons Proposed Condition HECRAS Plan Canoepr3 Summary Table

River	Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
NF_Canoe_	Main_Ext-[	2724	P10yr	3880	363.09	377.49	371.44	377.71	0.000974	3.78	1026.04	245.65	0.26
NF_Canoe_	Main_Ext-[	2724	P2yr	2424	363.09	375.06	369.63	375.26	0.001118	3.57	679.27	126.18	0.27
NF_Canoe_	Main_Ext-[	2538.1 B	P100yr	6299.1	362.94	379.71	373.35	380.06	0.000921	5.03	1944.66	578.58	0.27
NF_Canoe_	Main_Ext-[	2538.1 B	Floodway	6299.1	362.94	380.66	373.35	381.01	0.000772	4.88	1546.71	178.31	0.25
NF_Canoe_	Main_Ext-[	2538.1 B	P500yr	8287.9	362.94	381.01	374.84	381.41	0.000949	5.51	2541.67	871.53	0.28
NF_Canoe_	Main_Ext-[	2538.1 B	P50yr	5522.1	362.94	379.19	372.66	379.51	0.000874	4.74	1720.39	499.19	0.26
NF_Canoe_	Main_Ext-[	2538.1 B	P10yr	3880	362.94	377.2	370.95	377.5	0.001024	4.43	1040.69	266.73	0.27
NF_Canoe_	Main_Ext-[	2538.1 B	P2yr	2424	362.94	374.76	369.24	375.02	0.001326	4.07	596.05	101.69	0.3
NF_Canoe_	Main_Ext-[	2326.2	P100yr	6299.1	363.25	379.24	372.64	379.79	0.001149	6.21	1659.13	441.61	0.31
NF_Canoe_	Main_Ext-[	2326.2	Floodway	6299.1	363.25	380.22	372.63	380.77	0.000995	6.08	1249.11	136.61	0.29
NF_Canoe_	Main_Ext-[	2326.2	P500yr	8287.9	363.25	380.45	374.04	381.1	0.001295	7.01	2295.5	613.95	0.33
NF_Canoe_	Main_Ext-[	2326.2	P50yr	5522.1	363.25	378.79	372.04	379.26	0.001031	5.74	1472.2	385.3	0.29
NF_Canoe_	Main_Ext-[	2326.2	P10yr	3880	363.25	376.84	370.53	377.25	0.001054	5.16	870.69	206.13	0.29
NF_Canoe_	Main_Ext-[	2326.2	P2yr	2424	363.25	374.49	368.91	374.77	0.001004	4.27	571.34	75.77	0.27
NF_Canoe_	Main_Ext-[	2266.8		Bridge									
NF_Canoe_	Main_Ext-[	2223.8	P100yr	6299.1	362.58	378.73	374.32	379.58	0.002143	7.81	1262.22	514.28	0.41
NF_Canoe_	Main_Ext-[	2223.8	Floodway	6299.1	362.58	379.26	374.32	380.11	0.001971	7.72	1042.37	135	0.4
NF_Canoe_	Main_Ext-[	2223.8	P500yr	8287.9	362.58	380.2	376.34	381.06	0.002029	8.25	1850.48	626.23	0.41
NF_Canoe_	Main_Ext-[	2223.8	P50yr	5522.1	362.58	378.02	373.7	378.85	0.002213	7.6	1038.71	426.25	0.41
NF_Canoe_	Main_Ext-[	2223.8	P10yr	3880	362.58	376.21	371.94	376.92	0.002316	6.85	659.58	181.63	0.41
NF_Canoe_	Main_Ext-[	2223.8	P2yr	2424	362.58	373.69	370.06	374.28	0.00296	6.16	394.79	69.57	0.44
NF_Canoe_	Main_Ext-[	2073.1	P100yr	6299.1	361.75	378.65	371.73	379.18	0.001232	5.87	1322.37	374.56	0.31
NF_Canoe_	Main_Ext-[	2073.1	Floodway	6299.1	361.75	379.23	371.73	379.71	0.001094	5.63	1191.37	123.26	0.29
NF_Canoe_	Main_Ext-[	2073.1	P500yr	8287.9	361.75	380.11	373.18	380.68	0.001218	6.36	2122.5	746.69	0.32
NF_Canoe_	Main_Ext-[	2073.1	P50yr	5522.1	361.75	377.96	371.1	378.44	0.00121	5.57	1101.28	221.99	0.31
NF_Canoe_	Main_Ext-[	2073.1	P10yr	3880	361.75	376.15	369.59	376.51	0.00113	4.82	816.01	110.68	0.29

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Canoe Creek Flood Impact Study on Proposed I69
Parsons HECRAS Model canoe073119.ghrj Backup Data
Parsons Proposed Condition HECRAS Plan Canoepr3 Summary Table

River	Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
NF_Canoe_	Main_Ext-[	2073.1	P2yr	2424	361.75	373.6	367.89	373.87	0.00105	4.15	584.15	80.26	0.27
NF_Canoe_	Main_Ext-[	1455.4 A	P100yr	6299.1	361.78	378.18	371.16	378.53	0.000776	5.11	2152.07	484.51	0.26
NF_Canoe_	Main_Ext-[	1455.4 A	Floodway	6299.1	361.78	378.67	371.17	379.11	0.000844	5.47	1416.74	169.61	0.27
NF_Canoe_	Main_Ext-[	1455.4 A	P500yr	8287.9	361.78	379.67	372.45	380.03	0.000761	5.46	2901.54	521.87	0.26
NF_Canoe_	Main_Ext-[	1455.4 A	P50yr	5522.1	361.78	377.45	370.6	377.79	0.000805	4.99	1803.49	462.87	0.26
NF_Canoe_	Main_Ext-[	1455.4 A	P10yr	3880	361.78	375.56	369.18	375.88	0.000879	4.63	1014.95	351.02	0.26
NF_Canoe_	Main_Ext-[	1455.4 A	P2yr	2424	361.78	373	367.61	373.25	0.000964	4.01	606.91	86.93	0.26
NF_Canoe_	Main_Ext-[	450.5	P100yr	6299.1	360.84	377.17	370.12	377.64	0.001002	5.83	1727.05	418.41	0.29
NF_Canoe_	Main_Ext-[	450.5	Floodway	6299.1	360.84	377.76	370.09	378.19	0.001002	5.54	1593.29	246.07	0.27
NF_Canoe_	Main_Ext-[	450.5	P500yr	8287.9	360.84	378.65	371.56	379.16	0.001002	6.29	2397.98	530.81	0.3
NF_Canoe_	Main_Ext-[	450.5	P50yr	5522.1	360.84	376.44	369.51	376.89	0.001	5.59	1454.42	359.22	0.29
NF_Canoe_	Main_Ext-[	450.5	P10yr	3880	360.84	374.56	368.04	374.94	0.001002	4.98	897.38	206.19	0.28
NF_Canoe_	Main_Ext-[	450.5	P2yr	2424	360.84	371.97	366.48	372.26	0.001001	4.28	587.62	82.98	0.27
Canoewrr	Canoewrr	31238.12	P100yr	877.4	397.48	408.12	403.07	408.36	0.002208	3.93	225.24	996.63	0.3
Canoewrr	Canoewrr	31238.12	Floodway	877.4	397.48	412.77	403.07	412.83	0.000337	2.07	423.3	43.1	0.12
Canoewrr	Canoewrr	31238.12	P500yr	1211.4	397.48	408.01	404.15	408.48	0.004483	5.54	219.67	988.51	0.43
Canoewrr	Canoewrr	31238.12	P50yr	746.6	397.48	408.15	402.59	408.32	0.00157	3.32	226.89	998.81	0.25
Canoewrr	Canoewrr	31238.12	P10yr	474.9	397.48	406.47	401.43	406.6	0.001595	2.98	159.22	906.19	0.25
Canoewrr	Canoewrr	31238.12	P2yr	251.5	397.48	403.53	400.22	403.67	0.00181	2.95	85.36	19.53	0.25
Canoewrr	Canoewrr	31040.61	P100yr	877.4	397.15	408.23	402	408.23	0.000011	0.32	5070.86	1128.77	0.02
Canoewrr	Canoewrr	31040.61	Floodway	877.4	397.15	412.7	402	412.77	0.00034	2.09	420	36.92	0.11
Canoewrr	Canoewrr	31040.61	P500yr	1211.4	397.15	408.23	403.04	408.23	0.000021	0.44	5070.86	1128.77	0.03
Canoewrr	Canoewrr	31040.61	P50yr	746.6	397.15	408.23	401.55	408.23	0.000008	0.27	5070.82	1128.77	0.02
Canoewrr	Canoewrr	31040.61	P10yr	474.9	397.15	406.21	400.5	406.32	0.001183	2.63	180.73	988.39	0.21
Canoewrr	Canoewrr	31040.61	P2yr	251.5	397.15	403.27	399.44	403.36	0.001147	2.48	101.38	485.76	0.19
Canoewrr	Canoewrr	31001.95		Culvert									

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Canoe Creek Flood Impact Study on Proposed I69
Parsons HECRAS Model canoe073119.ghrj Backup Data
Parsons Proposed Condition HECRAS Plan Canoepr3 Summary Table

River	Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Canoewrr	Canoewrr	30943.45	P100yr	877.4	396.44	405.49	402.05	405.91	0.003415	5.2	170.79	734.94	0.38
Canoewrr	Canoewrr	30943.45	Floodway	877.4	396.44	405.51	402.05	405.93	0.003533	5.2	168.86	28.36	0.38
Canoewrr	Canoewrr	30943.45	P500yr	1211.4	396.44	406.63	403.04	406.64	0.000181	1.33	2501.71	1125.81	0.09
Canoewrr	Canoewrr	30943.45	P50yr	746.6	396.44	404.94	401.61	405.31	0.003327	4.88	153.38	643.84	0.37
Canoewrr	Canoewrr	30943.45	P10yr	474.9	396.44	403.55	400.52	403.81	0.002966	4.11	115.42	291.42	0.34
Canoewrr	Canoewrr	30943.45	P2yr	251.5	396.44	401.94	399.37	402.11	0.002396	3.22	78.02	21.38	0.3
Canoewrr	Canoewrr	30836.15	P100yr	877.4	396.13	402.87	402.87	404.69	0.02718	10.82	81.09	385.55	1
Canoewrr	Canoewrr	30836.15	Floodway	877.4	396.13	402.87	402.87	404.69	0.02718	10.82	81.09	22.34	1
Canoewrr	Canoewrr	30836.15	P500yr	1211.4	396.13	403.86	403.86	405.95	0.026051	11.6	104.47	720.52	1
Canoewrr	Canoewrr	30836.15	P50yr	746.6	396.13	402.43	402.43	404.12	0.027749	10.44	71.49	134.21	1
Canoewrr	Canoewrr	30836.15	P10yr	474.9	396.13	401.36	401.36	402.74	0.029261	9.43	50.34	18.23	1
Canoewrr	Canoewrr	30836.15	P2yr	251.5	396.13	400.15	400.15	401.2	0.031847	8.24	30.51	14.53	1
Canoewrr	Canoewrr	30724.21	P100yr	877.4	394.55	400.38	397.54	400.77	0.0025	5.01	174.96	76.65	0.37
Canoewrr	Canoewrr	30724.21	Floodway	877.4	394.55	400.38	397.54	400.77	0.0025	5.01	174.96	76.65	0.37
Canoewrr	Canoewrr	30724.21	P500yr	1211.4	394.55	402.03	398.25	402.48	0.002083	5.4	224.28	89.81	0.35
Canoewrr	Canoewrr	30724.21	P50yr	746.6	394.55	399.86	397.23	400.2	0.002473	4.69	159.32	72.48	0.36
Canoewrr	Canoewrr	30724.21	P10yr	474.9	394.55	398.64	396.53	398.87	0.002391	3.87	122.68	62.71	0.34
Canoewrr	Canoewrr	30724.21	P2yr	251.5	394.55	397.41	395.85	397.54	0.00221	2.93	85.78	52.88	0.31
Canoewrr	Canoewrr	30524.31		Culvert									
Canoewrr	Canoewrr	30371	P100yr	877.4	394.39	400.07	397.38	400.49	0.001471	5.18	169.34	87.61	0.38
Canoewrr	Canoewrr	30371	Floodway	877.4	394.39	400.07	397.38	400.49	0.001471	5.18	169.34	75.46	0.38
Canoewrr	Canoewrr	30371	P500yr	1211.4	394.39	401.18	398.11	401.74	0.001545	5.98	202.48	630.47	0.4
Canoewrr	Canoewrr	30371	P50yr	746.6	394.39	399.59	397.08	399.95	0.001429	4.82	155.04	71.62	0.37
Canoewrr	Canoewrr	30371	P10yr	474.9	394.39	398.47	396.39	398.71	0.0013	3.91	121.58	62.64	0.34
Canoewrr	Canoewrr	30371	P2yr	251.5	394.39	397.31	395.7	397.44	0.001109	2.89	87.08	53.38	0.3

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Canoe Creek Flood Impact Study on Proposed I69
Parsons HECRAS Model canoe073119.ghrj Backup Data
Parsons Proposed Condition HECRAS Plan Canoepr3 Summary Table

River	Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Canoewrr	Canoewrr	30106.17	P100yr	877.4	393.79	399.41	396.97	399.91	0.003403	5.71	153.75	74.91	0.42
Canoewrr	Canoewrr	30106.17	Floodway	877.4	393.79	399.41	396.97	399.91	0.003403	5.71	153.75	74.91	0.42
Canoewrr	Canoewrr	30106.17	P500yr	1211.4	393.79	400.43	397.73	401.12	0.00371	6.66	181.8	246.12	0.46
Canoewrr	Canoewrr	30106.17	P50yr	746.6	393.79	398.97	396.63	399.4	0.003231	5.27	141.74	71.4	0.41
Canoewrr	Canoewrr	30106.17	P10yr	474.9	393.79	397.95	395.9	398.22	0.002705	4.17	113.97	63.29	0.36
Canoewrr	Canoewrr	30106.17	P2yr	251.5	393.79	396.93	395.17	397.06	0.00195	2.93	85.85	55.08	0.29
Canoewrr	Canoewrr	29531.08	P100yr	877.4	393.46	398.03	396.09	398.43	0.001946	5.03	174.31	76.75	0.42
Canoewrr	Canoewrr	29531.08	Floodway	877.4	393.46	398.03	396.09	398.43	0.001946	5.03	174.31	66.62	0.42
Canoewrr	Canoewrr	29531.08	P500yr	1211.4	393.46	399.18	396.68	399.65	0.001726	5.52	219.31	249.98	0.41
Canoewrr	Canoewrr	29531.08	P50yr	746.6	393.46	397.55	395.83	397.91	0.00208	4.81	155.09	62.71	0.43
Canoewrr	Canoewrr	29531.08	P10yr	474.9	393.46	396.42	395.25	396.71	0.002573	4.28	110.92	53.7	0.45
Canoewrr	Canoewrr	29531.08	P2yr	251.5	393.46	395.31	394.68	395.53	0.003796	3.73	67.41	44.83	0.5
Canoewrr	Canoewrr	29191.02		Culvert									
Canoewrr	Canoewrr	28940.41	P100yr	877.4	392.48	395.75	395.46	396.99	0.009123	8.94	98.17	57.93	0.87
Canoewrr	Canoewrr	28940.41	Floodway	877.4	392.48	395.75	395.46	396.99	0.009124	8.94	98.17	56.19	0.87
Canoewrr	Canoewrr	28940.41	P500yr	1211.4	392.48	396.18	396.18	398.03	0.01154	10.91	111.02	64.05	1
Canoewrr	Canoewrr	28940.41	P50yr	746.6	392.48	395.59	395.16	396.58	0.007866	8.01	93.16	54.85	0.8
Canoewrr	Canoewrr	28940.41	P10yr	474.9	392.48	395.11	394.46	395.67	0.005534	6.02	78.91	51.05	0.65
Canoewrr	Canoewrr	28940.41	P2yr	251.5	392.48	394.49	393.77	394.76	0.003805	4.17	60.3	46.08	0.52
Canoewrr	Canoewrr	28532	P100yr	877.4	392	395.82	393.8	395.9	0.000755	2.21	397.32	164.51	0.24
Canoewrr	Canoewrr	28532	Floodway	877.4	392	395.82	393.8	395.9	0.000755	2.21	397.32	150.59	0.24
Canoewrr	Canoewrr	28532	P500yr	1211.4	392	396.61	394.35	396.7	0.000678	2.34	518.43	174.11	0.23
Canoewrr	Canoewrr	28532	P50yr	746.6	392	395.48	393.63	395.55	0.000802	2.16	346.01	160.32	0.25
Canoewrr	Canoewrr	28532	P10yr	474.9	392	394.66	393.22	394.73	0.000986	2.09	227.52	151.45	0.29
Canoewrr	Canoewrr	28532	P2yr	251.5	392	393.79	392.8	393.86	0.001291	2.09	120.16	82.39	0.29
Canoewrr	Canoewrr	27158	P100yr	1391.9	390	394.66	392.49	394.77	0.000857	2.64	526.34	217.9	0.25

B

Canoe Creek Flood Impact Study on Proposed I69
Parsons HECRAS Model canoe073119.ghrj Backup Data
Parsons Proposed Condition HECRAS Plan Canoepr3 Summary Table

River	Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Canoewrr	Canoewrr	27158	Floodway	1391.9	390	394.66	392.49	394.77	0.000858	2.64	526.29	157.29	0.25
Canoewrr	Canoewrr	27158	P500yr	1938.9	390	395.43	392.85	395.57	0.000909	2.98	650.08	400.56	0.26
Canoewrr	Canoewrr	27158	P50yr	1178.8	390	394.33	392.33	394.42	0.000829	2.49	473.82	183.74	0.25
Canoewrr	Canoewrr	27158	P10yr	738.9	390	393.5	391.61	393.57	0.000765	2.11	349.38	166.63	0.24
Canoewrr	Canoewrr	27158	P2yr	382.1	390	392.6	391.06	392.65	0.000698	1.74	219.49	158.06	0.25
Canoewrr	Canoewrr	25956	P100yr	1572.4	389	392.78	391.62	393.03	0.002532	4.02	391.18	397.89	0.44
Canoewrr	Canoewrr	25956	Floodway	1572.4	389	392.72	391.62	392.99	0.002702	4.11	382.17	149.78	0.45
Canoewrr	Canoewrr	25956	P500yr	2187.1	389	393.51	392.02	393.81	0.002411	4.35	502.86	581.05	0.43
Canoewrr	Canoewrr	25956	P50yr	1335.5	389	392.53	391.44	392.75	0.002425	3.78	353.24	261.81	0.43
Canoewrr	Canoewrr	25956	P10yr	840.6	389	391.93	390.75	392.09	0.002067	3.16	265.96	178.79	0.41
Canoewrr	Canoewrr	25956	P2yr	435.7	389	391.17	390.15	391.29	0.001903	2.72	159.9	153.05	0.45
Canoewrr	Canoewrr	24827	P100yr	1572.4	386.3	390.39	388.91	390.59	0.001851	3.6	437.34	617.17	0.37
Canoewrr	Canoewrr	24827	Floodway	1572.4	386.3	391.07	388.91	391.2	0.001002	2.9	542.91	158.13	0.28
Canoewrr	Canoewrr	24827	P500yr	2187.1	386.3	390.89	389.32	391.17	0.002255	4.25	514.83	908.55	0.41
Canoewrr	Canoewrr	24827	P50yr	1335.5	386.3	389.89	388.74	390.1	0.002268	3.69	361.92	169.34	0.42
Canoewrr	Canoewrr	24827	P10yr	840.6	386.3	388.9	388.05	389.13	0.003402	3.84	218.93	158.62	0.54
Canoewrr	Canoewrr	24827	P2yr	435.7	386.3	388.08	387.44	388.29	0.003943	3.65	119.48	90.43	0.51
Canoewrr	Canoewrr	23524	P100yr	1572.4	383.5	389.5	386.12	389.57	0.000407	2.11	743.45	1453.36	0.18
Canoewrr	Canoewrr	23524	Floodway	1572.4	383.5	390.62	386.12	390.66	0.000207	1.68	933.61	170.4	0.13
Canoewrr	Canoewrr	23524	P500yr	2187.1	383.5	390.83	386.51	390.84	0.000066	0.97	4933.63	1609.07	0.07
Canoewrr	Canoewrr	23524	P50yr	1335.5	383.5	388.85	385.94	388.92	0.000458	2.1	636.57	1194.71	0.19
Canoewrr	Canoewrr	23524	P10yr	840.6	383.5	387.45	385.25	387.51	0.000608	2.02	416.23	820.04	0.21
Canoewrr	Canoewrr	23524	P2yr	435.7	383.5	386.17	384.65	386.22	0.000821	1.91	228.55	168.17	0.26
Canoewrr	Canoewrr	22935	P100yr	2035.8	382.2	389.27		389.34	0.000361	2.19	927.88	176.54	0.17
Canoewrr	Canoewrr	22935	Floodway	2035.8	382.2	390.49		390.54	0.000193	1.77	1148.98	181.6	0.12
Canoewrr	Canoewrr	22935	P500yr	2852.3	382.2	390.66		390.75	0.000346	2.41	1251.01	380.89	0.17
Canoewrr	Canoewrr	22935	P50yr	1725.1	382.2	388.61		388.68	0.000378	2.12	813.06	171.26	0.17

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Canoe Creek Flood Impact Study on Proposed I69
Parsons HECRAS Model canoe073119.ghrj Backup Data
Parsons Proposed Condition HECRAS Plan Canoepr3 Summary Table

River	Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Canoewrr	Canoewrr	22935	P10yr	1072.5	382.2	387.18		387.23	0.000392	1.86	576.61	159.83	0.17
Canoewrr	Canoewrr	22935	P2yr	546.1	382.2	385.91		385.94	0.000332	1.44	379.74	149.65	0.16
Canoewrr	Canoewrr	21097	P100yr	2035.8	381.3	388.67		388.73	0.000304	2.08	983.41	179.23	0.15
Canoewrr	Canoewrr	21097	Floodway	2035.8	381.3	390.19		390.23	0.000147	1.63	1246.42	175.6	0.11
Canoewrr	Canoewrr	21097	P500yr	2852.3	381.3	390.07		390.16	0.000296	2.31	1292.96	276.82	0.15
Canoewrr	Canoewrr	21097	P50yr	1725.1	381.3	387.97		388.03	0.000322	2.01	860.03	176.46	0.16
Canoewrr	Canoewrr	21097	P10yr	1072.5	381.3	386.53		386.58	0.000323	1.74	617.17	161.85	0.16
Canoewrr	Canoewrr	21097	P2yr	546.1	381.3	385.43		385.45	0.000215	1.23	443.48	153.02	0.13

Appendix B-5A

Canoe Creek Flood Impact Study on Proposed I69
Parsons HECRAS Model canoe101019.ghrj Backup Data
Parsons Proposed Condition HECRAS Plan Candet3 Summary Table

River	Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
NF_Canoe_	Main_Ext	38011.5	100yr	1668.6	406.27	416.72		416.99	0.00339	5.29	871.98	1009.05	0.37
NF_Canoe_	Main_Ext	38011.5	500yr	2302.9	406.27	417.14		417.34	0.003042	5.11	1330.87	1168.22	0.36
NF_Canoe_	Main_Ext	38011.5	50yr	1419.9	406.27	416.49	414	416.81	0.00362	5.41	663.88	788.04	0.39
NF_Canoe_	Main_Ext	38011.5	10yr	903.3	406.27	415.74	412.53	416.17	0.003837	5.34	219.85	300.19	0.39
NF_Canoe_	Main_Ext	38011.5	2yr	477.5	406.27	414.07		414.32	0.002779	4.02	118.76	25.67	0.33
NF_Canoe_	Main_Ext	37046.5	100yr	1668.6	402.18	412.58	411.56	412.73	0.003369	4.23	886.92	623.23	0.36
NF_Canoe_	Main_Ext	37046.5	500yr	2302.9	402.18	412.96	411.86	413.12	0.003742	4.69	1142.13	711.28	0.39
NF_Canoe_	Main_Ext	37046.5	50yr	1419.9	402.18	412.4	411.34	412.54	0.003158	4.05	777.32	568.52	0.35
NF_Canoe_	Main_Ext	37046.5	10yr	903.3	402.18	411.59	408.6	411.77	0.003139	4.05	436.83	327.67	0.34
NF_Canoe_	Main_Ext	37046.5	2yr	477.5	402.18	409.7	406.79	410.06	0.004256	4.82	99.04	20.63	0.39
NF_Canoe_	Main_Ext	36058.4	100yr	1668.6	397.85	409.34	406.83	409.6	0.002884	5.28	828.74	654.82	0.34
NF_Canoe_	Main_Ext	36058.4	500yr	2302.9	397.85	409.9	409.29	410.1	0.002492	5.15	1213.8	709.11	0.32
NF_Canoe_	Main_Ext	36058.4	50yr	1419.9	397.85	409.07	406.17	409.38	0.003126	5.36	657.8	624.34	0.36
NF_Canoe_	Main_Ext	36058.4	10yr	903.3	397.85	408.45	404.55	408.78	0.002832	4.82	326.4	400.78	0.33
NF_Canoe_	Main_Ext	36058.4	2yr	477.5	397.85	406.88	402.74	407.09	0.002137	3.71	128.54	23.91	0.28
NF_Canoe_	Main_Ext	34775.6	100yr	1668.6	396.04	406.61	404.09	406.73	0.001719	3.91	1163.47	915	0.27
NF_Canoe_	Main_Ext	34775.6	500yr	2302.9	396.04	406.84	406.23	407	0.002299	4.62	1351.84	1025.2	0.31
NF_Canoe_	Main_Ext	34775.6	50yr	1419.9	396.04	406.49	403.44	406.6	0.001516	3.62	1064.23	850.18	0.25
NF_Canoe_	Main_Ext	34775.6	10yr	903.3	396.04	405.94	401.85	406.07	0.001555	3.51	636.92	726.05	0.25
NF_Canoe_	Main_Ext	34775.6	2yr	477.5	396.04	404.22	400.11	404.42	0.002001	3.56	134.03	27.02	0.28
NF_Canoe_	Main_Ext	33442.3	100yr	1668.6	393.87	404.23	401.75	404.31	0.001905	3.16	1215.34	852.37	0.28
NF_Canoe_	Main_Ext	33442.3	500yr	2302.9	393.87	405.27	403.65	405.3	0.000779	2.36	2134.57	929.52	0.19
NF_Canoe_	Main_Ext	33442.3	50yr	1419.9	393.87	403.85	401.25	403.95	0.002711	3.55	896.19	811.24	0.33
NF_Canoe_	Main_Ext	33442.3	10yr	903.3	393.87	402.57	399.94	402.94	0.003873	5.15	214.14	129.29	0.4
NF_Canoe_	Main_Ext	33442.3	2yr	477.5	393.87	401.24	398.18	401.44	0.002504	3.78	144.62	42.33	0.31
NF_Canoe_	Main_Ext	33116	100yr	1668.6	393.48	403.33	400.53	403.55	0.003494	4.53	557.54	184.43	0.38
NF_Canoe_	Main_Ext	33116	500yr	2302.9	393.48	404.69	401.37	404.88	0.002665	4.45	876.07	332.34	0.35

Canoe Creek Flood Impact Study on Proposed I69
Parsons HECRAS Model canoe101019.ghrj Backup Data
Parsons Proposed Condition HECRAS Plan Candet3 Summary Table

NF_Canoe_	Main_Ext	33116	50yr	1419.9	393.48	402.87	399.87	403.07	0.003366	4.34	479.45	154.99	0.37
NF_Canoe_	Main_Ext	33116	10yr	903.3	393.48	401.71	398.9	401.88	0.002969	3.92	326.45	108.2	0.34
NF_Canoe_	Main_Ext	33116	2yr	477.5	393.48	400.72	397.7	400.82	0.001631	2.88	233.96	82.54	0.25
NF_Canoe_	Main_Ext	33041.8		Mult Open									
NF_Canoe_	Main_Ext	32983.9	100yr	1668.6	393.79	402.64	399.75	402.96	0.004903	5.23	394.64	282.82	0.44
NF_Canoe_	Main_Ext	32983.9	500yr	2302.9	393.79	403.34	400.73	403.68	0.005814	5.93	624.19	369.52	0.49
NF_Canoe_	Main_Ext	32983.9	50yr	1419.9	393.79	402.38	399.38	402.64	0.004179	4.76	371.44	262.04	0.41
NF_Canoe_	Main_Ext	32983.9	10yr	903.3	393.79	401.55	398.25	401.71	0.002907	3.8	303.08	169.83	0.33
NF_Canoe_	Main_Ext	32983.9	2yr	477.5	393.79	400.7	397.05	400.77	0.001441	2.58	240.42	69.88	0.23
NF_Canoe_	Main_Ext	29900.3	100yr	3850.2	386.71	397.76		397.79	0.001211	2.99	3398.97	1667.24	0.22
NF_Canoe_	Main_Ext	29900.3	500yr	5318	386.71	398.26		398.3	0.001186	3.06	4268.85	1779.97	0.22
NF_Canoe_	Main_Ext	29900.3	50yr	3260.3	386.71	397.53		397.57	0.001231	2.97	3028.52	1659.44	0.22
NF_Canoe_	Main_Ext	29900.3	10yr	2143.8	386.71	397.01		397.05	0.001236	2.87	2182.86	1508.74	0.21
NF_Canoe_	Main_Ext	29900.3	2yr	1156.8	386.71	396.36	393.72	396.43	0.001441	3.05	1256.01	1381.32	0.23
NF_Canoe_	Main_Ext	28796.5	100yr	3860.2	385.59	396.22		396.3	0.00151	3.82	2826.49	1424.97	0.26
NF_Canoe_	Main_Ext	28796.5	500yr	5375.4	385.59	396.76		396.83	0.001486	3.89	3613.18	1480.94	0.26
NF_Canoe_	Main_Ext	28796.5	50yr	3246.4	385.59	395.98		396.06	0.001518	3.79	2479.39	1411.46	0.26
NF_Canoe_	Main_Ext	28796.5	10yr	2113.6	385.59	395.44		395.53	0.00151	3.67	1734.44	1356.47	0.26
NF_Canoe_	Main_Ext	28796.5	2yr	1143.2	385.59	394.74		394.86	0.001377	3.38	918.43	1003.04	0.25
NF_Canoe_	Main_Ext	27541.3	100yr	3860.2	383.63	394.68		394.72	0.000916	2.93	3672.6	1719.79	0.2
NF_Canoe_	Main_Ext	27541.3	500yr	5375.4	383.63	395.19		395.23	0.000954	2.87	4556	1741.59	0.21
NF_Canoe_	Main_Ext	27541.3	50yr	3246.4	383.63	394.45		394.48	0.000909	2.88	3267.64	1711.76	0.2
NF_Canoe_	Main_Ext	27541.3	10yr	2113.6	383.63	393.93		393.97	0.000909	2.8	2385.04	1681.38	0.2
NF_Canoe_	Main_Ext	27541.3	2yr	1143.2	383.63	393.33		393.38	0.000896	2.69	1408.37	1590.44	0.2
NF_Canoe_	Main_Ext	26291.9	100yr	3860.2	381.94	392.97		393.04	0.002174	4.04	2476.59	1489.31	0.3
NF_Canoe_	Main_Ext	26291.9	500yr	5375.4	381.94	393.4		393.48	0.002318	4.22	3151.79	1660.06	0.31
NF_Canoe_	Main_Ext	26291.9	50yr	3246.4	381.94	392.74		392.82	0.002141	4	2154.08	1358.75	0.3
NF_Canoe_	Main_Ext	26291.9	10yr	2113.6	381.94	392.24		392.33	0.002045	3.89	1556.34	1086.57	0.29

Canoe Creek Flood Impact Study on Proposed I69
Parsons HECRAS Model canoe101019.ghrj Backup Data
Parsons Proposed Condition HECRAS Plan Candet3 Summary Table

NF_Canoe_	Main_Ext	26291.9	2yr	1143.2	381.94	391.63	389.47	391.75	0.002031	3.74	931.3	987	0.29
NF_Canoe_	Main_Ext	24550.6	100yr	3962.5	379.15	390.78	389.51	390.8	0.000801	2.07	4659.01	3105.51	0.17
NF_Canoe_	Main_Ext	24550.6	500yr	5565.7	379.15	391.29	389.73	391.31	0.000732	2.11	5983.56	3126.85	0.17
NF_Canoe_	Main_Ext	24550.6	50yr	3306.8	379.15	390.56	389.47	390.58	0.000804	2.13	4092.56	3042.65	0.17
NF_Canoe_	Main_Ext	24550.6	10yr	2173.5	379.15	390.09	389.27	390.11	0.000812	2.34	2906.22	2764.56	0.17
NF_Canoe_	Main_Ext	24550.6	2yr	1188.7	379.15	389.59	387.68	389.61	0.000762	2.26	1878.46	2422.97	0.17
NF_Canoe_	Main_Ext	24064		Lat Struct									
NF_Canoe_	Main_Ext	23120	100yr	4021.3	378.26	389.37		389.4	0.001176	3.1	3605.71	1770.58	0.21
NF_Canoe_	Main_Ext	23120	500yr	5723.8	378.26	390.13		390.16	0.000869	2.79	5282.5	2689.67	0.19
NF_Canoe_	Main_Ext	23120	50yr	3382.9	378.26	389.15		389.18	0.001168	3.05	3218.77	1761.26	0.21
NF_Canoe_	Main_Ext	23120	10yr	2224.4	378.26	388.72	387.99	388.76	0.00108	2.87	2473.73	1745.66	0.2
NF_Canoe_	Main_Ext	23120	2yr	1218.1	378.26	388.09	385.92	388.16	0.001362	3.11	1390.53	1654.32	0.23
NF_Canoe_	Main_Ext	21768	100yr	1770.41	378.03	387.15	384.56	387.41	0.002317	4.53	489.35	421.2	0.33
NF_Canoe_	Main_Ext	21768	500yr	1963.55	378.03	388.76	385.02	388.87	0.001142	3.08	827.93	2138.56	0.23
NF_Canoe_	Main_Ext	21768	50yr	1679.51	378.03	386.8	384.21	387.09	0.002665	4.74	436.93	288.68	0.36
NF_Canoe_	Main_Ext	21768	10yr	1470.02	378.03	386.31	383.66	386.62	0.002904	4.78	372.17	137.8	0.37
NF_Canoe_	Main_Ext	21768	2yr	976.92	378.03	385.17	382.66	385.48	0.003238	4.61	240.88	100.76	0.38
NF_Canoe_	Main_Ext	21745	100yr	1770.41	378.97	386.86	385.43	387.33	0.004561	5.99	355.97	111.36	0.46
NF_Canoe_	Main_Ext	21745	500yr	1963.55	378.97	388.63	385.7	388.83	0.001819	4.07	580.6	577.88	0.3
NF_Canoe_	Main_Ext	21745	50yr	1679.51	378.97	386.41	385.27	386.99	0.005818	6.57	306.49	104.44	0.52
NF_Canoe_	Main_Ext	21745	10yr	1470.02	378.97	385.76	384.81	386.47	0.007498	7.1	242.59	93.79	0.58
NF_Canoe_	Main_Ext	21745	2yr	976.92	378.97	384.58	383.35	385.32	0.00893	6.94	146.9	63.87	0.62
NF_Canoe_	Main_Ext	21735		Mult Open									
NF_Canoe_	Main_Ext	21712.38	100yr	1770.41	377.89	386.3		386.87	0.005388	6.44	331.4	966.66	0.5
NF_Canoe_	Main_Ext	21712.38	500yr	1963.55	377.89	388.2		388.38	0.001872	3.71	596.43	1542.57	0.29
NF_Canoe_	Main_Ext	21712.38	50yr	1679.51	377.89	385.4		386.35	0.009658	8.01	231.04	428.6	0.65
NF_Canoe_	Main_Ext	21712.38	10yr	1470.02	377.89	383.82	383.82	385.63	0.024252	10.78	136.32	37.74	1

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NF_Canoe_	Main_Ext	21712.38		2yr	976.92	377.89	382.83	382.83	384.3	0.025532	9.7	100.7	34.24	1
NF_Canoe_	Main_Ext	21591.5	R	100yr	1770.4	376.67	386.3		386.84	0.005378	6.58	359.26	2478.18	0.48
NF_Canoe_	Main_Ext	21591.5	R	500yr	1963.6	376.67	388.2		388.33	0.00133	3.5	729.11	3002.03	0.24
NF_Canoe_	Main_Ext	21591.5	R	50yr	1679.5	376.67	385.4	383.97	386.45	0.010103	8.6	239	2115.25	0.64
NF_Canoe_	Main_Ext	21591.5	R	10yr	1470	376.67	383.44	383.44	385.77	0.02584	12.25	119.96	1399.52	1
NF_Canoe_	Main_Ext	21591.5	R	2yr	976.9	376.67	382.05	382.05	384.01	0.026894	11.24	86.9	1379.94	1
NF_Canoe_	Main_Ext	19922.4		100yr	4100.4	376	386.3	378.04	386.3	0.000004	0.25	16232.46	2120.46	0.02
NF_Canoe_	Main_Ext	19922.4		500yr	5285	376	388.2	378.15	388.2	0.000003	0.27	20159.24	3179.15	0.01
NF_Canoe_	Main_Ext	19922.4		50yr	3634.5	376	385.4	378	385.4	0.000004	0.25	14440.21	1997.3	0.02
NF_Canoe_	Main_Ext	19922.4		10yr	2569.5	376	383.1	377.87	383.1	0.000007	0.26	10070.67	1850.65	0.02
NF_Canoe_	Main_Ext	19922.4		2yr	1530.42	376	380.4	377.7	380.4	0.000023	0.3	5146.8	1796.65	0.03
NF_Canoe_	Main_Ext-DS-0-0	18470.	Q	100yr	4100.4	373.1	386.3		386.3	0.000003	0.21	19588.03	2970.93	0.01
NF_Canoe_	Main_Ext-DS-0-0	18470.	Q	500yr	5285	373.1	388.2		388.2	0.000002	0.23	24173.36	3397.74	0.01
NF_Canoe_	Main_Ext-DS-0-0	18470.	Q	50yr	3634.5	373.1	385.4		385.4	0.000003	0.21	17446.62	2695.77	0.01
NF_Canoe_	Main_Ext-DS-0-0	18470.	Q	10yr	2569.5	373.1	383.1		383.1	0.000004	0.21	12415.91	2141.19	0.01
NF_Canoe_	Main_Ext-DS-0-0	18470.	Q	2yr	1542.5	373.1	380.4		380.4	0.000011	0.23	6840.82	2037.19	0.02
NF_Canoe_	Main_Ext-DS-0-0	17729		100yr	4100.4	374.13	386.3		386.3	0.000003	0.24	19062.13	2748.4	0.01
NF_Canoe_	Main_Ext-DS-0-0	17729		500yr	5285	374.13	388.2		388.21	0.000003	0.25	25305.12	3663.36	0.01
NF_Canoe_	Main_Ext-DS-0-0	17729		50yr	3634.5	374.13	385.4		385.4	0.000004	0.24	16644.36	2642.93	0.01
NF_Canoe_	Main_Ext-DS-0-0	17729		10yr	2569.5	374.13	383.1		383.1	0.000006	0.24	10961.83	2293.55	0.02
NF_Canoe_	Main_Ext-DS-0-0	17729		2yr	1542.5	374.13	380.4		380.4	0.000014	0.26	5923.55	1755.52	0.02
NF_Canoe_	Main_Ext-DS-0-0	17622			Mult Open									
NF_Canoe_	Main_Ext-DS-0-0	17534.5		100yr	4100.4	372.63	386.3		386.3	0.000078	0.9	9782.35	2845.09	0.06
NF_Canoe_	Main_Ext-DS-0-0	17534.5		500yr	5285	372.63	388.2		388.2	0.000034	0.69	15570.44	3369.74	0.04
NF_Canoe_	Main_Ext-DS-0-0	17534.5		50yr	3634.5	372.63	385.4		385.41	0.00014	1.12	7269.95	2714.27	0.08
NF_Canoe_	Main_Ext-DS-0-0	17534.5		10yr	2569.5	372.63	383.1		383.14	0.000508	2.25	1885.26	1216.73	0.15
NF_Canoe_	Main_Ext-DS-0-0	17534.5		2yr	1542.5	372.63	380.4		380.44	0.000702	2.29	991.54	197.71	0.17

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NF_Canoe_	Main_Ext-DS-0-0	16904.1	P	100yr	6880.4	371.38	386.3		386.32	0.000443	2.26	7080.08	2088.77	0.15
NF_Canoe_	Main_Ext-DS-0-0	16904.1	P	500yr	9825.8	371.38	388.2		388.22	0.000243	1.96	11526.74	2514.51	0.11
NF_Canoe_	Main_Ext-DS-0-0	16904.1	P	50yr	5809.1	371.38	385.4		385.43	0.000679	2.57	5297.14	1847.65	0.18
NF_Canoe_	Main_Ext-DS-0-0	16904.1	P	10yr	3811.9	371.38	383.1		383.39	0.004949	6.2	1616.27	1259.66	0.46
NF_Canoe_	Main_Ext-DS-0-0	16904.1	P	2yr	2106.4	371.38	382.12	382.12	382.71	0.006252	6.98	676.86	787.2	0.52
NF_Canoe_	Main_Ext-DS-0-0	16397		100yr	2259.5	372.11	386.3		386.3	0.000027	0.55	9350.44	2715.81	0.04
NF_Canoe_	Main_Ext-DS-0-0	16397		500yr	2822	372.11	388.2		388.2	0.000011	0.41	14907.29	3085.39	0.02
NF_Canoe_	Main_Ext-DS-0-0	16397		50yr	1824	372.11	385.4		385.4	0.000032	0.59	7171.53	2227.7	0.04
NF_Canoe_	Main_Ext-DS-0-0	16397		10yr	821.8	372.11	383.1		383.1	0.000065	0.67	2882.33	1525.67	0.05
NF_Canoe_	Main_Ext-DS-0-0	16397		2yr	339.5	372.11	380.4		380.43	0.000248	1.37	419.12	370.83	0.1
NF_Canoe_	Main_Ext-DS-0-0	16326.84		100yr	2259.5	372.49	386.3		386.41	0.000909	2.84	902.49	934.34	0.21
NF_Canoe_	Main_Ext-DS-0-0	16326.84		500yr	2822	372.49	388.2		388.29	0.000536	2.59	1258.37	1523.77	0.17
NF_Canoe_	Main_Ext-DS-0-0	16326.84		50yr	1824	372.49	385.4		385.51	0.000996	2.76	742.7	670.09	0.22
NF_Canoe_	Main_Ext-DS-0-0	16326.84		10yr	821.8	372.49	383.1		383.17	0.000606	2.11	416.38	167.5	0.16
NF_Canoe_	Main_Ext-DS-0-0	16326.84		2yr	339.5	372.49	380.4		380.43	0.000202	1.35	252.26	40.28	0.09
NF_Canoe_	Main_Ext-DS-0-0	16298			Mult Open									
NF_Canoe_	Main_Ext-DS-0-0	16177.27		100yr	2259.5	371.84	385.49	378.93	385.68	0.001575	3.66	707.97	429.79	0.28
NF_Canoe_	Main_Ext-DS-0-0	16177.27		500yr	2822	371.84	387.01	379.83	387.09	0.000682	2.65	2115.15	1164.78	0.19
NF_Canoe_	Main_Ext-DS-0-0	16177.27		50yr	1824	371.84	384.97	378.18	385.13	0.00136	3.3	627.69	169.04	0.25
NF_Canoe_	Main_Ext-DS-0-0	16177.27		10yr	821.8	371.84	383.46	375.95	383.52	0.000509	2.09	428.89	109.82	0.15
NF_Canoe_	Main_Ext-DS-0-0	16177.27		2yr	339.5	371.84	381.1	374.4	381.13	0.000175	1.28	264.56	42.48	0.09
NF_Canoe_	Main_Ext-DS-0-0	16087.8		100yr	2259.5	371.06	385.54	376.69	385.57	0.000149	1.52	1800.94	2373.56	0.09
NF_Canoe_	Main_Ext-DS-0-0	16087.8		500yr	2822	371.06	387.04	377.25	387.05	0.000024	0.66	9053.1	2839.64	0.04
NF_Canoe_	Main_Ext-DS-0-0	16087.8		50yr	1824	371.06	385.01	376.2	385.04	0.000123	1.33	1646.76	2243.46	0.08
NF_Canoe_	Main_Ext-DS-0-0	16087.8		10yr	821.8	371.06	383.48	374.68	383.48	0.000054	0.78	1201.78	1559.66	0.05
NF_Canoe_	Main_Ext-DS-0-0	16087.8		2yr	339.5	371.06	381.11	373.51	381.11	0.000031	0.5	676.64	187.32	0.04
NF_Canoe_	Main_Ext-DS-0-0	15534.2	O	100yr	2259.5	370.5	385.49	378.71	385.5	0.000072	0.88	6311.25	2513.61	0.06
NF_Canoe_	Main_Ext-DS-0-0	15534.2	O	500yr	2822	370.5	387.03	379.68	387.03	0.000033	0.68	9555.85	2842.6	0.04

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NF_Canoe_	Main_Ext-DS-0-0	15534.2	O	50yr	1824	370.5	384.97	377.91	384.97	0.000077	0.88	5257.98	2294.56	0.06
NF_Canoe_	Main_Ext-DS-0-0	15534.2	O	10yr	821.8	370.5	383.44	375.54	383.45	0.000084	0.88	2571.28	1559.19	0.06
NF_Canoe_	Main_Ext-DS-0-0	15534.2	O	2yr	339.5	370.5	381.04	373.66	381.07	0.000188	1.34	291.54	275.04	0.09
NF_Canoe_	Main_Ext-DS-0-0	14567.2	N	100yr	2259.5	371.55	385.39	377.26	385.41	0.000113	1.33	4248.54	1406.16	0.09
NF_Canoe_	Main_Ext-DS-0-0	14567.2	N	500yr	2822	371.55	386.97	378.08	386.98	0.000067	1.16	5873.68	2070.6	0.07
NF_Canoe_	Main_Ext-DS-0-0	14567.2	N	50yr	1824	371.55	384.87	376.58	384.88	0.000109	1.24	3704.84	1198.87	0.08
NF_Canoe_	Main_Ext-DS-0-0	14567.2	N	10yr	821.8	371.55	383.36	374.69	383.37	0.000067	0.95	2222.57	876.82	0.06
NF_Canoe_	Main_Ext-DS-0-0	14567.2	N	2yr	339.5	371.55	380.93	373.47	380.94	0.000089	0.94	591.37	420.52	0.07
NF_Canoe_	Main_Ext-DS-0-0	13899.4		100yr	2259.5	371.14	385.3	377.12	385.32	0.000126	1.68	4121.6	2093.67	0.09
NF_Canoe_	Main_Ext-DS-0-0	13899.4		500yr	2822	371.14	386.93	378.21	386.94	0.000068	1.37	6083.94	2313.53	0.07
NF_Canoe_	Main_Ext-DS-0-0	13899.4		50yr	1824	371.14	384.78	376.38	384.8	0.000124	1.61	3482.37	1915.98	0.09
NF_Canoe_	Main_Ext-DS-0-0	13899.4		10yr	821.8	371.14	383.3	374.31	383.32	0.000084	1.18	1834.93	1255.96	0.07
NF_Canoe_	Main_Ext-DS-0-0	13899.4		2yr	339.5	371.14	380.87	372.96	380.89	0.000077	0.95	471.61	296.07	0.07
NF_Canoe_	Main_Ext-DS-0-0	13273.2	M	100yr	2259.5	370.4	385.2	377.13	385.23	0.00019	1.73	3401.14	1252.06	0.11
NF_Canoe_	Main_Ext-DS-0-0	13273.2	M	500yr	2822	370.4	386.87	378.26	386.89	0.000096	1.3	5448.38	2005.25	0.08
NF_Canoe_	Main_Ext-DS-0-0	13273.2	M	50yr	1824	370.4	384.68	376.36	384.7	0.00018	1.69	2825.11	1086.63	0.11
NF_Canoe_	Main_Ext-DS-0-0	13273.2	M	10yr	821.8	370.4	383.24	374.32	383.26	0.000109	1.18	1485.8	793.63	0.08
NF_Canoe_	Main_Ext-DS-0-0	13273.2	M	2yr	339.5	370.4	380.82	372.99	380.83	0.000099	1.01	376.72	163.79	0.08
NF_Canoe_	Main_Ext-DS-0-0	12979.5		100yr	2259.5	371.41	385.1	377.26	385.15	0.000292	2.28	2298.82	1843.37	0.14
NF_Canoe_	Main_Ext-DS-0-0	12979.5		500yr	2822	371.41	386.81	378.2	386.85	0.000154	1.87	3577.7	2222.24	0.1
NF_Canoe_	Main_Ext-DS-0-0	12979.5		50yr	1824	371.41	384.58	376.46	384.63	0.000281	2.14	1913.24	1556.4	0.13
NF_Canoe_	Main_Ext-DS-0-0	12979.5		10yr	821.8	371.41	383.19	374.49	383.22	0.000167	1.45	969.78	883.8	0.1
NF_Canoe_	Main_Ext-DS-0-0	12979.5		2yr	339.5	371.41	380.78	373.22	380.8	0.000119	1.04	325.34	62.17	0.08
NF_Canoe_	Main_Ext-DS-0-0	12921.8			Bridge									
NF_Canoe_	Main_Ext-DS-0-0	12871.2		100yr	2259.5	370.62	384.94	377.34	385.03	0.000387	2.76	1622.8	1219.2	0.17
NF_Canoe_	Main_Ext-DS-0-0	12871.2		500yr	2822	370.62	386.73	378.22	386.78	0.000227	2.39	2491.07	2123.6	0.13
NF_Canoe_	Main_Ext-DS-0-0	12871.2		50yr	1824	370.62	384.43	376.58	384.51	0.000349	2.51	1374.98	1095.14	0.16
NF_Canoe_	Main_Ext-DS-0-0	12871.2		10yr	821.8	370.62	383.12	374.38	383.16	0.000171	1.57	742.64	567.57	0.11

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NF_Canoe_	Main_Ext-DS-0-0	12871.2	2yr	339.5	370.62	380.77	372.83	380.78	0.0001	1.04	327.64	65.89	0.08
NF_Canoe_	Main_Ext-DS-0-0	12458.1	100yr	2259.5	369.67	384.6	376.65	384.79	0.000706	3.47	683.59	431.04	0.22
NF_Canoe_	Main_Ext-DS-0-0	12458.1	500yr	2822	369.67	386.45	377.49	386.62	0.000518	3.37	991.01	665.47	0.19
NF_Canoe_	Main_Ext-DS-0-0	12458.1	50yr	1824	369.67	384.18	375.91	384.31	0.000553	2.97	620.71	127.22	0.19
NF_Canoe_	Main_Ext-DS-0-0	12458.1	10yr	821.8	369.67	383.04	373.75	383.08	0.000182	1.58	519.91	79.42	0.11
NF_Canoe_	Main_Ext-DS-0-0	12458.1	2yr	339.5	369.67	380.74	372.21	380.75	0.000056	0.9	376.13	54.2	0.06
NF_Canoe_	Main_Ext-DS-0-0	12027.9	L 100yr	3077.5	369.87	384.1	378.12	384.4	0.001069	4.45	763.5	1032.27	0.28
NF_Canoe_	Main_Ext-DS-0-0	12027.9	L 500yr	4015.4	369.87	386.05	379.4	386.33	0.000771	4.38	1237.62	1556.56	0.25
NF_Canoe_	Main_Ext-DS-0-0	12027.9	L 50yr	2696	369.87	383.72	377.53	383.98	0.000971	4.11	710.01	899.06	0.26
NF_Canoe_	Main_Ext-DS-0-0	12027.9	L 10yr	1871.8	369.87	382.71	376.24	382.88	0.000764	3.31	588.02	489.99	0.23
NF_Canoe_	Main_Ext-DS-0-0	12027.9	L 2yr	1167.7	369.87	380.44	374.84	380.6	0.000947	3.13	373.1	187.08	0.24
NF_Canoe_	Main_Ext-DS-0-0	11796.9	100yr	3077.5	369.98	383.93	377.36	384.15	0.000808	3.79	952.92	713.09	0.24
NF_Canoe_	Main_Ext-DS-0-0	11796.9	500yr	4015.4	369.98	385.93	378.35	386.14	0.000579	3.76	1370.48	1156.01	0.21
NF_Canoe_	Main_Ext-DS-0-0	11796.9	50yr	2696	369.98	383.56	376.9	383.74	0.000741	3.52	889.93	584.62	0.23
NF_Canoe_	Main_Ext-DS-0-0	11796.9	10yr	1871.8	369.98	382.6	375.77	382.72	0.000466	2.85	741.3	213.92	0.18
NF_Canoe_	Main_Ext-DS-0-0	11796.9	2yr	1167.7	369.98	380.31	374.56	380.41	0.000511	2.56	455.83	76.32	0.18
NF_Canoe_	Main_Ext-DS-0-0	11736.8		Bridge									
NF_Canoe_	Main_Ext-DS-0-0	11667.5	100yr	3077.5	369.19	383.28	375.81	383.48	0.000685	3.62	909.98	357.17	0.22
NF_Canoe_	Main_Ext-DS-0-0	11667.5	500yr	4015.4	369.19	384.67	376.83	384.9	0.000663	3.96	1172.18	761.72	0.23
NF_Canoe_	Main_Ext-DS-0-0	11667.5	50yr	2696	369.19	382.53	375.35	382.73	0.000732	3.51	793.33	135.92	0.23
NF_Canoe_	Main_Ext-DS-0-0	11667.5	10yr	1871.8	369.19	381.07	374.2	381.21	0.000744	3.06	612.32	106.07	0.22
NF_Canoe_	Main_Ext-DS-0-0	11667.5	2yr	1167.7	369.19	378.76	373.03	378.88	0.000537	2.71	431.36	68.07	0.19
NF_Canoe_	Main_Ext-DS-0-0	11496.7	K 100yr	3077.5	368.97	383.07	376.25	383.33	0.001001	4.1	829.73	224.15	0.27
NF_Canoe_	Main_Ext-DS-0-0	11496.7	K 500yr	4015.4	368.97	384.49	377.32	384.76	0.000879	4.32	1197.71	477.02	0.26
NF_Canoe_	Main_Ext-DS-0-0	11496.7	K 50yr	2696	368.97	382.32	375.77	382.57	0.000957	4.01	698.34	132.83	0.26
NF_Canoe_	Main_Ext-DS-0-0	11496.7	K 10yr	1871.8	368.97	380.89	374.57	381.07	0.000795	3.43	548.03	88.23	0.23
NF_Canoe_	Main_Ext-DS-0-0	11496.7	K 2yr	1167.7	368.97	378.61	373.3	378.76	0.000765	3.07	380.32	64.58	0.22

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NF_Canoe_	Main_Ext-DS-0-0	11331	100yr	3077.5	368.71	382.82	376.48	383.13	0.001218	4.49	820.4	321.75	0.29
NF_Canoe_	Main_Ext-DS-0-0	11331	500yr	4015.4	368.71	384.32	377.55	384.59	0.001181	4.37	1323.08	482.43	0.29
NF_Canoe_	Main_Ext-DS-0-0	11331	50yr	2696	368.71	382.08	375.99	382.38	0.001126	4.4	657.14	171.76	0.28
NF_Canoe_	Main_Ext-DS-0-0	11331	10yr	1871.8	368.71	380.71	374.79	380.92	0.000874	3.7	506.31	71.55	0.24
NF_Canoe_	Main_Ext-DS-0-0	11331	2yr	1167.7	368.71	378.45	373.5	378.62	0.000871	3.27	357.07	60.65	0.24
NF_Canoe_	Main_Ext-DS-0-0	11256.8		Bridge									
NF_Canoe_	Main_Ext-DS-0-0	11171.4	100yr	3077.5	368.53	382.72	374.88	382.86	0.000347	3.12	1325.73	221.9	0.17
NF_Canoe_	Main_Ext-DS-0-0	11171.4	500yr	4015.4	368.53	384.19	375.76	384.35	0.000357	3.45	1697.41	423.78	0.17
NF_Canoe_	Main_Ext-DS-0-0	11171.4	50yr	2696	368.53	381.98	374.47	382.11	0.000344	2.96	1176.02	196.01	0.17
NF_Canoe_	Main_Ext-DS-0-0	11171.4	10yr	1871.8	368.53	380.64	373.48	380.73	0.000283	2.44	929.12	171.5	0.15
NF_Canoe_	Main_Ext-DS-0-0	11171.4	2yr	1167.7	368.53	378.39	372.42	378.46	0.000311	2.13	589.16	127.95	0.15
NF_Canoe_	Main_Ext-DS-0-0	11097.6	100yr	3077.5	368	382.62	374.87	382.81	0.000521	3.49	1013.46	415.42	0.2
NF_Canoe_	Main_Ext-DS-0-0	11097.6	500yr	4015.4	368	384.13	375.87	384.31	0.000461	3.62	1743.29	665.31	0.19
NF_Canoe_	Main_Ext-DS-0-0	11097.6	50yr	2696	368	381.89	374.44	382.07	0.000533	3.34	817.02	185.37	0.2
NF_Canoe_	Main_Ext-DS-0-0	11097.6	10yr	1871.8	368	380.58	373.36	380.7	0.000434	2.74	684.14	92.49	0.18
NF_Canoe_	Main_Ext-DS-0-0	11097.6	2yr	1167.7	368	378.34	372.23	378.43	0.000412	2.37	492.48	78.65	0.17
NF_Canoe_	Main_Ext-DS-0-0	11075	100yr	3077.5	368	382.62	374.88	382.8	0.000504	3.43	1071.18	578.83	0.2
NF_Canoe_	Main_Ext-DS-0-0	11075	500yr	4015.4	368	384.12	375.86	384.3	0.000446	3.56	1865.83	904.09	0.19
NF_Canoe_	Main_Ext-DS-0-0	11075	50yr	2696	368	381.88	374.41	382.05	0.000526	3.32	901.47	361.27	0.2
NF_Canoe_	Main_Ext-DS-0-0	11075	10yr	1871.8	368	380.57	373.36	380.69	0.000435	2.74	683.2	92.43	0.18
NF_Canoe_	Main_Ext-DS-0-0	11075	2yr	1167.7	368	378.33	372.22	378.42	0.000414	2.37	491.72	78.59	0.17
NF_Canoe_	Main_Ext-DS-0-0	11031.7 J	100yr	3077.5	368	382.6	374.89	382.77	0.000538	3.42	1022.81	572.52	0.2
NF_Canoe_	Main_Ext-DS-0-0	11031.7 J	500yr	4015.4	368	384.1	375.86	384.28	0.000464	3.53	1849.61	777.02	0.19
NF_Canoe_	Main_Ext-DS-0-0	11031.7 J	50yr	2696	368	381.86	374.44	382.03	0.000557	3.3	886.19	444.16	0.2
NF_Canoe_	Main_Ext-DS-0-0	11031.7 J	10yr	1871.8	368	380.55	373.36	380.67	0.000444	2.74	689.76	201.67	0.18
NF_Canoe_	Main_Ext-DS-0-0	11031.7 J	2yr	1167.7	368	378.31	372.23	378.4	0.000417	2.38	490.25	91.13	0.17
NF_Canoe_	Main_Ext-DS-0-0	10936.8		Bridge									

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NF_Canoe_	Main_Ext-DS-0-0	10837		100yr	3077.5	365.65	382.38	374.13	382.58	0.000592	3.7	935.01	302.88	0.21
NF_Canoe_	Main_Ext-DS-0-0	10837		500yr	4015.4	365.65	383.75	375.26	384	0.000625	4.15	1120.48	402.15	0.22
NF_Canoe_	Main_Ext-DS-0-0	10837		50yr	2696	365.65	381.66	373.61	381.85	0.000581	3.53	846.7	271.5	0.21
NF_Canoe_	Main_Ext-DS-0-0	10837		10yr	1871.8	365.65	379.93	372.29	380.08	0.000536	3.07	640.36	180.57	0.19
NF_Canoe_	Main_Ext-DS-0-0	10837		2yr	1167.7	365.65	377.47	370.88	377.59	0.00055	2.74	426.64	65.08	0.19
NF_Canoe_	Main_Ext-DS-0-0	10362.2	I	100yr	3077.5	366.04	382.2	373.27	382.34	0.000337	3.05	1176.13	360.25	0.16
NF_Canoe_	Main_Ext-DS-0-0	10362.2	I	500yr	4015.4	366.04	383.57	374.24	383.74	0.000359	3.41	1580.51	884.4	0.17
NF_Canoe_	Main_Ext-DS-0-0	10362.2	I	50yr	2696	366.04	381.49	372.81	381.61	0.00033	2.88	1040.94	198.84	0.16
NF_Canoe_	Main_Ext-DS-0-0	10362.2	I	10yr	1871.8	366.04	379.77	371.73	379.87	0.000304	2.44	798.4	124.03	0.15
NF_Canoe_	Main_Ext-DS-0-0	10362.2	I	2yr	1167.7	366.04	377.29	370.55	377.36	0.000343	2.17	539.09	87.67	0.15
NF_Canoe_	Main_Ext-DS-0-0	9719.4	H	100yr	3077.5	365.69	381.93	373.59	382.09	0.000469	3.2	1027.71	166.65	0.19
NF_Canoe_	Main_Ext-DS-0-0	9719.4	H	500yr	4015.4	365.69	383.27	374.61	383.47	0.000487	3.58	1275.99	213.43	0.2
NF_Canoe_	Main_Ext-DS-0-0	9719.4	H	50yr	2696	365.69	381.21	373.14	381.36	0.000479	3.07	912.46	151.2	0.19
NF_Canoe_	Main_Ext-DS-0-0	9719.4	H	10yr	1871.8	365.69	379.52	372	379.63	0.000451	2.68	700.31	103.24	0.18
NF_Canoe_	Main_Ext-DS-0-0	9719.4	H	2yr	1167.7	365.69	377.03	370.78	377.12	0.00043	2.42	482.11	75.63	0.17
NF_Canoe_	Main_Ext-DS-0-0	8580.4	G	100yr	3077.5	365.52	381.65	372.72	381.72	0.000208	2.48	2460.32	553.23	0.13
NF_Canoe_	Main_Ext-DS-0-0	8580.4	G	500yr	4015.4	365.52	383.03	373.73	383.1	0.000196	2.59	3153.72	777.61	0.13
NF_Canoe_	Main_Ext-DS-0-0	8580.4	G	50yr	2696	365.52	380.9	372.28	380.97	0.000229	2.49	2084.21	520.24	0.13
NF_Canoe_	Main_Ext-DS-0-0	8580.4	G	10yr	1871.8	365.52	379.15	371.18	379.23	0.000267	2.45	1233.68	473.62	0.14
NF_Canoe_	Main_Ext-DS-0-0	8580.4	G	2yr	1167.7	365.52	376.6	370.03	376.68	0.00034	2.31	511.46	90.67	0.15
NF_Canoe_	Main_Ext-DS-0-0	8284.6		100yr	3077.5	366.12	381.45	372.45	381.61	0.000373	3.19	974.28	417.43	0.17
NF_Canoe_	Main_Ext-DS-0-0	8284.6		500yr	4015.4	366.12	382.8	373.41	382.97	0.000395	3.51	1325.71	457.19	0.18
NF_Canoe_	Main_Ext-DS-0-0	8284.6		50yr	2696	366.12	380.73	372.02	380.87	0.000354	3	908	358.18	0.17
NF_Canoe_	Main_Ext-DS-0-0	8284.6		10yr	1871.8	366.12	379.05	370.97	379.14	0.000297	2.49	756.85	304.74	0.15
NF_Canoe_	Main_Ext-DS-0-0	8284.6		2yr	1167.7	366.12	376.5	369.9	376.58	0.000327	2.18	536.67	88.71	0.15
NF_Canoe_	Main_Ext-DS-0-0	8211.8			Bridge									
NF_Canoe_	Main_Ext-DS-0-0	8165.2		100yr	3077.5	366.12	381.39	372.46	381.51	0.000345	2.78	1143.54	469.5	0.16
NF_Canoe_	Main_Ext-DS-0-0	8165.2		500yr	4015.4	366.12	382.57	373.42	382.73	0.000386	3.19	1342.44	515.32	0.18

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NF_Canoe_	Main_Ext-DS-0-0	8165.2		50yr	2696	366.12	380.67	372.02	380.77	0.000347	2.65	1039.57	431.23	0.16
NF_Canoe_	Main_Ext-DS-0-0	8165.2		10yr	1871.8	366.12	378.99	370.97	379.07	0.000338	2.3	824.87	316.58	0.15
NF_Canoe_	Main_Ext-DS-0-0	8165.2		2yr	1167.7	366.12	376.43	369.9	376.5	0.000337	2.2	530.53	80.75	0.15
NF_Canoe_	Main_Ext-DS-0-0	7927.6		100yr	3077.5	364.85	381.33	372.15	381.43	0.000237	2.74	2272.53	721.65	0.14
NF_Canoe_	Main_Ext-DS-0-0	7927.6		500yr	4015.4	364.85	382.53	373.18	382.63	0.000233	2.9	3016.79	841.19	0.14
NF_Canoe_	Main_Ext-DS-0-0	7927.6		50yr	2696	364.85	380.6	371.67	380.7	0.000258	2.75	1841.14	570.84	0.14
NF_Canoe_	Main_Ext-DS-0-0	7927.6		10yr	1871.8	364.85	378.89	370.55	378.99	0.000286	2.59	985.31	456.22	0.15
NF_Canoe_	Main_Ext-DS-0-0	7927.6		2yr	1167.7	364.85	376.34	369.33	376.42	0.00033	2.28	512.03	71.8	0.15
NF_Canoe_	Main_Ext-DS-0-0	7564.1	F	100yr	3077.5	364.85	381.25	372.16	381.34	0.000224	2.72	2373.92	1036.61	0.14
NF_Canoe_	Main_Ext-DS-0-0	7564.1	F	500yr	4015.4	364.85	382.45	373.18	382.54	0.000225	2.9	3047.71	1295.16	0.14
NF_Canoe_	Main_Ext-DS-0-0	7564.1	F	50yr	2696	364.85	380.51	371.69	380.61	0.000246	2.73	1956.54	910.73	0.14
NF_Canoe_	Main_Ext-DS-0-0	7564.1	F	10yr	1871.8	364.85	378.78	370.55	378.89	0.000283	2.63	1011.23	679.47	0.15
NF_Canoe_	Main_Ext-DS-0-0	7564.1	F	2yr	1167.7	364.85	376.22	369.33	376.3	0.000325	2.32	523.09	91.65	0.15
NF_Canoe_	Main_Ext-DS-0-0	7123.8		100yr	3077.5	364.64	381.25	371.91	381.26	0.000061	1.31	5380.73	1434.32	0.07
NF_Canoe_	Main_Ext-DS-0-0	7123.8		500yr	4015.4	364.64	382.45	372.93	382.46	0.000062	1.41	6479.46	1697.57	0.07
NF_Canoe_	Main_Ext-DS-0-0	7123.8		50yr	2696	364.64	380.5	371.45	380.52	0.000068	1.31	4698.95	1355.6	0.07
NF_Canoe_	Main_Ext-DS-0-0	7123.8		10yr	1871.8	364.64	378.77	370.35	378.78	0.000086	1.3	3186.99	997.27	0.08
NF_Canoe_	Main_Ext-DS-0-0	7123.8		2yr	1167.7	364.64	376.13	369.16	376.17	0.0002	1.7	1328	564.78	0.12
NF_Canoe_	Main_Ext-DS-0-0	7086.8			Bridge									
NF_Canoe_	Main_Ext-DS-0-0	7010.6		100yr	3077.5	364.64	381.08	371.92	381.13	0.000162	2.23	3726.45	1629.28	0.11
NF_Canoe_	Main_Ext-DS-0-0	7010.6		500yr	4015.4	364.64	382.35	372.94	382.39	0.000145	2.26	4973.66	1743.85	0.11
NF_Canoe_	Main_Ext-DS-0-0	7010.6		50yr	2696	364.64	380.43	371.46	380.49	0.000181	2.26	3081.12	1492.47	0.12
NF_Canoe_	Main_Ext-DS-0-0	7010.6		10yr	1871.8	364.64	378.62	370.34	378.7	0.000246	2.35	1484.85	935.42	0.14
NF_Canoe_	Main_Ext-DS-0-0	7010.6		2yr	1167.7	364.64	376.03	369.18	376.1	0.000325	2.26	517.74	84.78	0.15
NF_Canoe_	Main_Ext-DS-0-0	6706.5	E	100yr	3077.5	364.35	381.04	371.55	381.08	0.000123	2.01	4536.74	1527.92	0.1
NF_Canoe_	Main_Ext-DS-0-0	6706.5	E	500yr	4015.4	364.35	382.31	372.56	382.35	0.000108	2	6157.09	1763.72	0.1
NF_Canoe_	Main_Ext-DS-0-0	6706.5	E	50yr	2696	364.35	380.38	371.08	380.43	0.000139	2.05	3733.77	1429.15	0.11
NF_Canoe_	Main_Ext-DS-0-0	6706.5	E	10yr	1871.8	364.35	378.55	369.96	378.62	0.000212	2.26	1658.11	1081.21	0.13

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NF_Canoe_	Main_Ext-DS-0-0	6706.5	E	2yr	1167.7	364.35	375.94	368.79	376.01	0.000291	2.15	542.18	81.36	0.14
NF_Canoe_	Main_Ext-DS-0-0	5738.9	D	100yr	3077.5	364.57	380.96	371.23	380.98	0.000081	1.59	6105.48	2525.99	0.08
NF_Canoe_	Main_Ext-DS-0-0	5738.9	D	500yr	4015.4	364.57	382.24	372.22	382.26	0.000068	1.57	8057.32	2562.69	0.08
NF_Canoe_	Main_Ext-DS-0-0	5738.9	D	50yr	2696	364.57	380.29	370.78	380.31	0.000095	1.66	5083.37	2360.19	0.09
NF_Canoe_	Main_Ext-DS-0-0	5738.9	D	10yr	1871.8	364.57	378.38	369.72	378.43	0.000179	2.01	2272.75	1512.27	0.12
NF_Canoe_	Main_Ext-DS-0-0	5738.9	D	2yr	1167.7	364.57	375.65	368.61	375.72	0.000306	2.13	549.7	88.21	0.14
NF_Canoe_	Main_Ext-DS-0-0	4899.4		100yr	5004.8	363.89	380.77	372.89	380.85	0.000259	3.02	5882.08	3058.49	0.15
NF_Canoe_	Main_Ext-DS-0-0	4899.4		500yr	6723.8	363.89	382.1	374.33	382.15	0.000196	2.8	8871.61	3704.29	0.13
NF_Canoe_	Main_Ext-DS-0-0	4899.4		50yr	4332.2	363.89	380.04	372.23	380.15	0.000333	3.3	4352.76	2636.83	0.17
NF_Canoe_	Main_Ext-DS-0-0	4899.4		10yr	2921	363.89	377.92	370.65	378.13	0.000585	3.85	1256.44	893.07	0.21
NF_Canoe_	Main_Ext-DS-0-0	4899.4		2yr	1730.2	363.89	375.12	368.95	375.3	0.000702	3.43	506.38	69.98	0.22
NF_Canoe_	Main_Ext-DS-0-0	3856.3	C	100yr	5004.8	363.41	380.16	372.08	380.42	0.000675	4.27	2008.2	1375.56	0.23
NF_Canoe_	Main_Ext-DS-0-0	3856.3	C	500yr	6723.8	363.41	381.61	373.51	381.83	0.000557	4.23	3583.18	2064.97	0.22
NF_Canoe_	Main_Ext-DS-0-0	3856.3	C	50yr	4332.2	363.41	379.42	371.48	379.66	0.000679	4.08	1475.03	814.1	0.23
NF_Canoe_	Main_Ext-DS-0-0	3856.3	C	10yr	2921	363.41	377.19	369.96	377.41	0.000834	3.81	784.56	160.78	0.24
NF_Canoe_	Main_Ext-DS-0-0	3856.3	C	2yr	1730.2	363.41	374.41	368.39	374.57	0.000689	3.29	525.34	73.79	0.22
NF_Canoe_	Main_Ext-DS-0-0	3073.1		100yr	5004.8	363.74	379.61	372.11	379.9	0.000657	4.63	1617.82	1238.57	0.23
NF_Canoe_	Main_Ext-DS-0-0	3073.1		500yr	6723.8	363.74	380.96	373.41	381.32	0.000734	5.26	2043.31	1439.21	0.25
NF_Canoe_	Main_Ext-DS-0-0	3073.1		50yr	4332.2	363.74	378.86	371.53	379.14	0.000655	4.43	1384.92	1155.31	0.23
NF_Canoe_	Main_Ext-DS-0-0	3073.1		10yr	2921	363.74	376.55	370.11	376.8	0.000728	4.02	782.76	813.93	0.23
NF_Canoe_	Main_Ext-DS-0-0	3073.1		2yr	1730.2	363.74	373.8	368.6	373.98	0.000824	3.44	504.62	502.38	0.24
NF_Canoe_	Main_Ext-DS-0-0	2858.5		100yr	5004.8	363.09	379.38	372.29	379.73	0.000815	4.93	1243.86	501.82	0.26
NF_Canoe_	Main_Ext-DS-0-0	2858.5		500yr	6723.8	363.09	380.61	373.79	381.1	0.001006	5.87	1454.23	1016.03	0.29
NF_Canoe_	Main_Ext-DS-0-0	2858.5		50yr	4332.2	363.09	378.67	371.69	378.98	0.000774	4.6	1130.95	354.27	0.25
NF_Canoe_	Main_Ext-DS-0-0	2858.5		10yr	2921	363.09	376.38	370.23	376.63	0.000847	4.08	804.6	130.15	0.25
NF_Canoe_	Main_Ext-DS-0-0	2858.5		2yr	1730.2	363.09	373.57	368.66	373.78	0.00097	3.72	486.86	91.29	0.26
NF_Canoe_	Main_Ext-DS-0-0	2791.8			Bridge									

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NF_Canoe_	Main_Ext-DS-0-0	2724		100yr	5004.8	363.09	379.02	372.48	379.25	0.00087	3.91	1278.65	400.38	0.25
NF_Canoe_	Main_Ext-DS-0-0	2724		500yr	6723.8	363.09	380.2	373.79	380.52	0.001021	4.52	1487.89	569.6	0.28
NF_Canoe_	Main_Ext-DS-0-0	2724		50yr	4332.2	363.09	378.33	371.88	378.55	0.000854	3.73	1162.96	348.18	0.25
NF_Canoe_	Main_Ext-DS-0-0	2724		10yr	2921	363.09	376.09	370.23	376.29	0.001019	3.58	816.71	142.94	0.26
NF_Canoe_	Main_Ext-DS-0-0	2724		2yr	1730.2	363.09	373.34	368.66	373.54	0.001243	3.57	485.1	97.09	0.28
NF_Canoe_	Main_Ext-DS-0-0	2538.1	B	100yr	5004.8	362.94	378.78	372.13	379.07	0.000853	4.55	1555.86	440.9	0.26
NF_Canoe_	Main_Ext-DS-0-0	2538.1	B	500yr	6723.8	362.94	379.95	373.69	380.32	0.000952	5.19	2050.87	629.03	0.28
NF_Canoe_	Main_Ext-DS-0-0	2538.1	B	50yr	4332.2	362.94	378.09	371.4	378.37	0.000857	4.34	1311.19	336.86	0.26
NF_Canoe_	Main_Ext-DS-0-0	2538.1	B	10yr	2921	362.94	375.81	369.88	376.07	0.001146	4.13	731.93	168.65	0.28
NF_Canoe_	Main_Ext-DS-0-0	2538.1	B	2yr	1730.2	362.94	373.05	368.23	373.29	0.001312	3.91	442.92	78.92	0.29
NF_Canoe_	Main_Ext-DS-0-0	2326.2		100yr	5004.8	363.25	378.41	371.59	378.84	0.000977	5.47	1329.69	357.57	0.28
NF_Canoe_	Main_Ext-DS-0-0	2326.2		500yr	6723.8	363.25	379.44	372.95	380.02	0.001221	6.47	1748.68	466.55	0.32
NF_Canoe_	Main_Ext-DS-0-0	2326.2		50yr	4332.2	363.25	377.75	370.98	378.14	0.000935	5.15	1117.7	306.33	0.27
NF_Canoe_	Main_Ext-DS-0-0	2326.2		10yr	2921	363.25	375.51	369.5	375.83	0.000984	4.54	661.78	109.07	0.27
NF_Canoe_	Main_Ext-DS-0-0	2326.2		2yr	1730.2	363.25	372.81	367.97	373.04	0.001033	3.85	449.77	69.34	0.26
NF_Canoe_	Main_Ext-DS-0-0	2266.8			Bridge									
NF_Canoe_	Main_Ext-DS-0-0	2223.8		100yr	5004.8	362.58	377.52	373.11	378.31	0.002226	7.38	907.2	313.64	0.41
NF_Canoe_	Main_Ext-DS-0-0	2223.8		500yr	6723.8	362.58	379.06	374.66	379.93	0.002153	7.98	1381.08	560.46	0.41
NF_Canoe_	Main_Ext-DS-0-0	2223.8		50yr	4332.2	362.58	376.79	372.41	377.53	0.002238	7.03	763.11	223.22	0.41
NF_Canoe_	Main_Ext-DS-0-0	2223.8		10yr	2921	362.58	374.74	370.75	375.36	0.002531	6.32	475.81	86.43	0.42
NF_Canoe_	Main_Ext-DS-0-0	2223.8		2yr	1730.2	362.58	372.05	368.91	372.57	0.003017	5.8	298.3	53.73	0.43
NF_Canoe_	Main_Ext-DS-0-0	2073.1		100yr	5004.8	361.75	377.46	370.65	377.9	0.001191	5.34	999.76	183.78	0.3
NF_Canoe_	Main_Ext-DS-0-0	2073.1		500yr	6723.8	361.75	378.99	372.07	379.53	0.001236	6.01	1456.28	423.67	0.32
NF_Canoe_	Main_Ext-DS-0-0	2073.1		50yr	4332.2	361.75	376.72	370.03	377.12	0.001172	5.03	884.46	131.61	0.3
NF_Canoe_	Main_Ext-DS-0-0	2073.1		10yr	2921	361.75	374.67	368.52	374.96	0.001044	4.35	672.26	85.75	0.27
NF_Canoe_	Main_Ext-DS-0-0	2073.1		2yr	1730.2	361.75	371.95	366.9	372.18	0.001028	3.77	458.77	71.74	0.26
NF_Canoe_	Main_Ext-DS-0-0	1455.4	A	100yr	5004.8	361.78	376.92	370.18	377.26	0.000825	4.9	1564.06	442.82	0.26
NF_Canoe_	Main_Ext-DS-0-0	1455.4	A	500yr	6723.8	361.78	378.53	371.47	378.88	0.00077	5.19	2322.14	492.85	0.26

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NF_Canoe_	Main_Ext-DS-0-0	1455.4	A	50yr	4332.2	361.78	376.15	369.6	376.48	0.000856	4.76	1236.64	400.53	0.26
NF_Canoe_	Main_Ext-DS-0-0	1455.4	A	10yr	2921	361.78	374.08	368.18	374.36	0.000898	4.19	707.28	105.43	0.26
NF_Canoe_	Main_Ext-DS-0-0	1455.4	A	2yr	1730.2	361.78	371.32	366.67	371.53	0.001052	3.69	468.29	78.39	0.27
NF_Canoe_	Main_Ext-DS-0-0	450.5		100yr	5004.8	360.84	375.91	369.07	376.35	0.001001	5.43	1272.42	328.95	0.29
NF_Canoe_	Main_Ext-DS-0-0	450.5		500yr	6723.8	360.84	377.51	370.44	377.99	0.001001	5.94	1875.2	435.66	0.29
NF_Canoe_	Main_Ext-DS-0-0	450.5		50yr	4332.2	360.84	375.15	368.46	375.55	0.001	5.17	1042.67	274.32	0.28
NF_Canoe_	Main_Ext-DS-0-0	450.5		10yr	2921	360.84	373.1	367.07	373.4	0.001	4.46	691.97	108.84	0.27
NF_Canoe_	Main_Ext-DS-0-0	450.5		2yr	1730.2	360.84	370.26	365.55	370.5	0.001001	3.88	455.19	73.15	0.26
Canoewrr	Canoewrr	31238.12		100yr	877.4	397.48	408.12	403.07	408.36	0.002208	3.93	225.24	996.63	0.3
Canoewrr	Canoewrr	31238.12		500yr	1211.4	397.48	408.01	404.15	408.48	0.004483	5.54	219.67	988.51	0.43
Canoewrr	Canoewrr	31238.12		50yr	746.6	397.48	408.15	402.59	408.32	0.00157	3.32	226.89	998.81	0.25
Canoewrr	Canoewrr	31238.12		10yr	474.9	397.48	406.47	401.43	406.6	0.001595	2.98	159.22	906.19	0.25
Canoewrr	Canoewrr	31238.12		2yr	251.5	397.48	403.53	400.22	403.67	0.00181	2.95	85.36	19.53	0.25
Canoewrr	Canoewrr	31040.61		100yr	877.4	397.15	408.23	402	408.23	0.000011	0.32	5070.86	1128.77	0.02
Canoewrr	Canoewrr	31040.61		500yr	1211.4	397.15	408.23	403.04	408.23	0.000021	0.44	5070.86	1128.77	0.03
Canoewrr	Canoewrr	31040.61		50yr	746.6	397.15	408.23	401.55	408.23	0.000008	0.27	5070.82	1128.77	0.02
Canoewrr	Canoewrr	31040.61		10yr	474.9	397.15	406.21	400.5	406.32	0.001183	2.63	180.73	988.39	0.21
Canoewrr	Canoewrr	31040.61		2yr	251.5	397.15	403.27	399.44	403.36	0.001147	2.48	101.38	485.76	0.19
Canoewrr	Canoewrr	31001.95			Culvert									
Canoewrr	Canoewrr	30943.45		100yr	877.4	396.44	405.49	402.05	405.91	0.003415	5.2	170.79	734.94	0.38
Canoewrr	Canoewrr	30943.45		500yr	1211.4	396.44	406.63	403.04	406.64	0.000181	1.33	2501.71	1125.81	0.09
Canoewrr	Canoewrr	30943.45		50yr	746.6	396.44	404.94	401.61	405.31	0.003327	4.88	153.38	643.84	0.37
Canoewrr	Canoewrr	30943.45		10yr	474.9	396.44	403.55	400.52	403.81	0.002966	4.11	115.42	291.42	0.34
Canoewrr	Canoewrr	30943.45		2yr	251.5	396.44	401.94	399.37	402.11	0.002396	3.22	78.02	21.38	0.3
Canoewrr	Canoewrr	30836.15		100yr	877.4	396.13	402.87	402.87	404.69	0.02718	10.82	81.09	385.55	1
Canoewrr	Canoewrr	30836.15		500yr	1211.4	396.13	403.86	403.86	405.95	0.026051	11.6	104.47	720.52	1
Canoewrr	Canoewrr	30836.15		50yr	746.6	396.13	402.43	402.43	404.12	0.027749	10.44	71.49	134.21	1
Canoewrr	Canoewrr	30836.15		10yr	474.9	396.13	401.36	401.36	402.74	0.029261	9.43	50.34	18.23	1

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Canoewrr	Canoewrr	30836.15	2yr	251.5	396.13	400.15	400.15	401.2	0.031847	8.24	30.51	14.53	1
Canoewrr	Canoewrr	30724.21	100yr	877.4	394.55	400.38	397.54	400.77	0.0025	5.01	174.96	76.65	0.37
Canoewrr	Canoewrr	30724.21	500yr	1211.4	394.55	402.03	398.25	402.48	0.002083	5.4	224.28	89.81	0.35
Canoewrr	Canoewrr	30724.21	50yr	746.6	394.55	399.86	397.23	400.2	0.002473	4.69	159.32	72.48	0.36
Canoewrr	Canoewrr	30724.21	10yr	474.9	394.55	398.64	396.53	398.87	0.002391	3.87	122.68	62.71	0.34
Canoewrr	Canoewrr	30724.21	2yr	251.5	394.55	397.41	395.85	397.54	0.00221	2.93	85.78	52.88	0.31
Canoewrr	Canoewrr	30524.31		Culvert									
Canoewrr	Canoewrr	30371	100yr	877.4	394.39	400.07	397.38	400.49	0.001471	5.18	169.34	87.61	0.38
Canoewrr	Canoewrr	30371	500yr	1211.4	394.39	401.18	398.11	401.74	0.001545	5.98	202.48	630.47	0.4
Canoewrr	Canoewrr	30371	50yr	746.6	394.39	399.59	397.08	399.95	0.001429	4.82	155.04	71.62	0.37
Canoewrr	Canoewrr	30371	10yr	474.9	394.39	398.47	396.39	398.71	0.0013	3.91	121.58	62.64	0.34
Canoewrr	Canoewrr	30371	2yr	251.5	394.39	397.31	395.7	397.44	0.001109	2.89	87.08	53.38	0.3
Canoewrr	Canoewrr	30106.17	100yr	877.4	393.79	399.41	396.97	399.91	0.003403	5.71	153.75	74.91	0.42
Canoewrr	Canoewrr	30106.17	500yr	1211.4	393.79	400.43	397.73	401.12	0.00371	6.66	181.8	246.12	0.46
Canoewrr	Canoewrr	30106.17	50yr	746.6	393.79	398.97	396.63	399.4	0.003231	5.27	141.74	71.4	0.41
Canoewrr	Canoewrr	30106.17	10yr	474.9	393.79	397.95	395.9	398.22	0.002705	4.17	113.97	63.29	0.36
Canoewrr	Canoewrr	30106.17	2yr	251.5	393.79	396.93	395.17	397.06	0.00195	2.93	85.85	55.08	0.29
Canoewrr	Canoewrr	29531.08	100yr	877.4	393.46	398.03	396.09	398.43	0.001947	5.03	174.3	76.71	0.42
Canoewrr	Canoewrr	29531.08	500yr	1211.4	393.46	399.18	396.68	399.65	0.001726	5.52	219.31	249.98	0.41
Canoewrr	Canoewrr	29531.08	50yr	746.6	393.46	397.55	395.83	397.91	0.00208	4.81	155.09	62.71	0.43
Canoewrr	Canoewrr	29531.08	10yr	474.9	393.46	396.42	395.25	396.71	0.002573	4.28	110.92	53.7	0.45
Canoewrr	Canoewrr	29531.08	2yr	251.5	393.46	395.31	394.68	395.53	0.003796	3.73	67.41	44.84	0.5
Canoewrr	Canoewrr	29191.02		Culvert									
Canoewrr	Canoewrr	28940.41	100yr	877.4	392.48	395.75	395.46	396.99	0.009122	8.94	98.17	57.93	0.87
Canoewrr	Canoewrr	28940.41	500yr	1211.4	392.48	396.18	396.18	398.03	0.01154	10.91	111.02	64.05	1
Canoewrr	Canoewrr	28940.41	50yr	746.6	392.48	395.59	395.16	396.58	0.007866	8.01	93.16	54.85	0.8
Canoewrr	Canoewrr	28940.41	10yr	474.9	392.48	395.11	394.46	395.67	0.005534	6.02	78.91	51.05	0.65

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Canoewrr	Canoewrr	28940.41	2yr	251.5	392.48	394.49	393.77	394.76	0.003804	4.17	60.3	46.08	0.52
Canoewrr	Canoewrr	28532	100yr	877.4	392	395.82	393.8	395.9	0.000755	2.21	397.36	164.52	0.24
Canoewrr	Canoewrr	28532	500yr	1211.4	392	396.61	394.35	396.7	0.000678	2.34	518.41	174.11	0.23
Canoewrr	Canoewrr	28532	50yr	746.6	392	395.48	393.63	395.55	0.000802	2.16	346.01	160.32	0.25
Canoewrr	Canoewrr	28532	10yr	474.9	392	394.66	393.22	394.73	0.000986	2.09	227.55	151.46	0.29
Canoewrr	Canoewrr	28532	2yr	251.5	392	393.79	392.8	393.85	0.001298	2.1	119.94	82.36	0.29
Canoewrr	Canoewrr	27158	100yr	1391.9	390	394.66	392.49	394.77	0.000857	2.64	526.5	217.98	0.25
Canoewrr	Canoewrr	27158	500yr	1938.9	390	395.43	392.85	395.57	0.000909	2.98	650.04	400.54	0.26
Canoewrr	Canoewrr	27158	50yr	1178.8	390	394.33	392.33	394.42	0.000829	2.49	473.81	183.73	0.25
Canoewrr	Canoewrr	27158	10yr	738.9	390	393.51	391.61	393.58	0.00076	2.11	350.17	166.68	0.24
Canoewrr	Canoewrr	27158	2yr	382.1	390	392.62	391.06	392.67	0.00068	1.72	221.79	158.21	0.24
Canoewrr	Canoewrr	25956	100yr	1572.4	389	392.83	391.62	393.07	0.002421	3.96	397.52	417.68	0.43
Canoewrr	Canoewrr	25956	500yr	2187.1	389	393.51	392.02	393.8	0.002417	4.35	502.4	580.46	0.43
Canoewrr	Canoewrr	25956	50yr	1335.5	389	392.53	391.44	392.75	0.002419	3.78	353.57	263.04	0.43
Canoewrr	Canoewrr	25956	10yr	840.6	389	391.83	390.75	392	0.002401	3.35	251.1	171.66	0.44
Canoewrr	Canoewrr	25956	2yr	435.7	389	391.06	390.15	391.2	0.00236	3.02	144.2	151.95	0.52
Canoewrr	Canoewrr	24827	100yr	1572.4	386.3	390.19	388.91	390.42	0.002263	3.86	407.22	326.41	0.41
Canoewrr	Canoewrr	24827	500yr	2187.1	386.3	390.91	389.32	391.19	0.002212	4.22	518.31	924.59	0.41
Canoewrr	Canoewrr	24827	50yr	1335.5	386.3	389.88	388.74	390.09	0.002289	3.7	360.7	169.25	0.42
Canoewrr	Canoewrr	24827	10yr	840.6	386.3	389.14	388.05	389.31	0.002359	3.32	252.84	161.22	0.44
Canoewrr	Canoewrr	24827	2yr	435.7	386.3	388.34	387.44	388.49	0.002444	3.08	141.68	153.03	0.53
Canoewrr	Canoewrr	23524	100yr	1572.4	383.5	387.67	386.11	387.86	0.001702	3.49	450.59	169.46	0.36
Canoewrr	Canoewrr	23524	500yr	2187.1	383.5	388.43	386.52	388.66	0.001701	3.85	568.26	177.31	0.36
Canoewrr	Canoewrr	23524	50yr	1335.5	383.5	387.35	385.95	387.52	0.001699	3.33	401.42	166.09	0.36
Canoewrr	Canoewrr	23524	10yr	840.6	383.5	386.57	385.25	386.71	0.001699	2.94	286.39	157.95	0.37
Canoewrr	Canoewrr	23524	2yr	435.7	383.5	385.74	384.65	385.84	0.0017	2.59	168.37	147.04	0.41

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River	Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
NF_Canoe_	Main_Ext	38011.5	100yr Base	1668.6	406.27	416.72		416.99	0.00339	5.29	871.98	1009.05	0.37
NF_Canoe_	Main_Ext	38011.5	100yr FW	2302.9	406.27	417.14		417.34	0.003042	5.11	1330.87	1168.22	0.36
NF_Canoe_	Main_Ext	37046.5	100yr Base	1668.6	402.18	412.58	411.56	412.73	0.003369	4.23	886.92	623.23	0.36
NF_Canoe_	Main_Ext	37046.5	100yr FW	2302.9	402.18	412.96	411.86	413.12	0.003742	4.69	1142.13	711.28	0.39
NF_Canoe_	Main_Ext	36058.4	100yr Base	1668.6	397.85	409.34	406.83	409.6	0.002884	5.28	828.74	654.82	0.34
NF_Canoe_	Main_Ext	36058.4	100yr FW	2302.9	397.85	409.9	409.29	410.1	0.002492	5.15	1213.8	709.11	0.32
NF_Canoe_	Main_Ext	34775.6	100yr Base	1668.6	396.04	406.61	404.09	406.73	0.001719	3.91	1163.47	915	0.27
NF_Canoe_	Main_Ext	34775.6	100yr FW	2302.9	396.04	406.84	406.23	407	0.002299	4.62	1351.84	1025.2	0.31
NF_Canoe_	Main_Ext	33442.3	100yr Base	1668.6	393.87	404.23	401.75	404.31	0.001905	3.16	1215.34	852.37	0.28
NF_Canoe_	Main_Ext	33442.3	100yr FW	2302.9	393.87	405.27	403.65	405.3	0.000779	2.36	2134.57	929.52	0.19
NF_Canoe_	Main_Ext	33116	100yr Base	1668.6	393.48	403.33	400.53	403.55	0.003494	4.53	557.54	184.43	0.38
NF_Canoe_	Main_Ext	33116	100yr FW	2302.9	393.48	404.69	401.37	404.88	0.002665	4.45	876.07	332.34	0.35
NF_Canoe_	Main_Ext	33041.8		Mult Open									
NF_Canoe_	Main_Ext	32983.9	100yr Base	1668.6	393.79	402.64	399.75	402.96	0.004903	5.23	394.64	282.82	0.44
NF_Canoe_	Main_Ext	32983.9	100yr FW	2302.9	393.79	403.34	400.73	403.68	0.005814	5.93	624.19	369.52	0.49
NF_Canoe_	Main_Ext	29900.3	100yr Base	3850.2	386.71	397.76		397.79	0.001211	2.99	3398.97	1667.24	0.22
NF_Canoe_	Main_Ext	29900.3	100yr FW	5318	386.71	398.26		398.3	0.001186	3.06	4268.85	1779.97	0.22
NF_Canoe_	Main_Ext	28796.5	100yr Base	3860.2	385.59	396.22		396.3	0.00151	3.82	2826.49	1424.97	0.26
NF_Canoe_	Main_Ext	28796.5	100yr FW	5375.4	385.59	396.76		396.83	0.001486	3.89	3613.18	1480.94	0.26
NF_Canoe_	Main_Ext	27541.3	100yr Base	3860.2	383.63	394.68		394.72	0.000916	2.93	3672.6	1719.79	0.2
NF_Canoe_	Main_Ext	27541.3	100yr FW	5375.4	383.63	395.19		395.23	0.000954	2.87	4556	1741.59	0.21

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NF_Canoe_	Main_Ext	26291.9	100yr Base	3860.2	381.94	392.97		393.04	0.002174	4.04	2476.59	1489.31	0.3
NF_Canoe_	Main_Ext	26291.9	100yr FW	5375.4	381.94	393.4		393.48	0.002318	4.22	3151.79	1660.06	0.31
NF_Canoe_	Main_Ext	24550.6	100yr Base	3962.5	379.15	390.78	389.51	390.8	0.000801	2.07	4659.01	3105.51	0.17
NF_Canoe_	Main_Ext	24550.6	100yr FW	5565.7	379.15	391.29	389.73	391.31	0.000732	2.11	5983.56	3126.85	0.17
NF_Canoe_	Main_Ext	24064	Lat Struct										
NF_Canoe_	Main_Ext	23120	100yr Base	4021.3	378.26	389.37		389.4	0.001176	3.1	3605.71	1770.58	0.21
NF_Canoe_	Main_Ext	23120	100yr FW	5723.8	378.26	390.13		390.16	0.000869	2.79	5282.5	2689.67	0.19
NF_Canoe_	Main_Ext	21768	100yr Base	1770.41	378.03	387.15	384.56	387.41	0.002317	4.53	489.35	421.2	0.33
NF_Canoe_	Main_Ext	21768	100yr FW	1963.55	378.03	388.76	385.02	388.87	0.001142	3.08	827.93	2138.56	0.23
NF_Canoe_	Main_Ext	21745	100yr Base	1770.41	378.97	386.86	385.43	387.33	0.004561	5.99	355.97	111.36	0.46
NF_Canoe_	Main_Ext	21745	100yr FW	1963.55	378.97	388.63	385.7	388.83	0.001819	4.07	580.6	577.88	0.3
NF_Canoe_	Main_Ext	21735	Mult Open										
NF_Canoe_	Main_Ext	21712.38	100yr Base	1770.41	377.89	386.3		386.87	0.005388	6.44	331.4	966.66	0.5
NF_Canoe_	Main_Ext	21712.38	100yr FW	1963.55	377.89	388.2		388.38	0.001872	3.71	596.43	1542.57	0.29
NF_Canoe_	Main_Ext	21591.5 R	100yr Base	1770.4	376.67	386.3		386.84	0.005378	6.58	359.26	2478.18	0.48
NF_Canoe_	Main_Ext	21591.5 R	100yr FW	1963.6	376.67	388.2		388.33	0.00133	3.5	729.11	3002.03	0.24
NF_Canoe_	Main_Ext	19922.4	100yr Base	4100.4	376	386.3	378.04	386.3	0.000004	0.25	16232.46	2120.46	0.02
NF_Canoe_	Main_Ext	19922.4	100yr FW	5285	376	388.2	378.15	388.2	0.000003	0.27	20159.24	3179.15	0.01
NF_Canoe_	Main_Ext-DS-0-0	18470. Q	100yr Base	4100.4	373.1	386.3		386.3	0.000003	0.21	19588.03	2970.93	0.01
NF_Canoe_	Main_Ext-DS-0-0	18470. Q	100yr FW	4100.4	373.1	388.2		388.2	0.000001	0.18	23151.49	2108.19	0.01
NF_Canoe_	Main_Ext-DS-0-0	17729	100yr Base	4100.4	374.13	386.3		386.3	0.000003	0.24	19062.13	2748.4	0.01
NF_Canoe_	Main_Ext-DS-0-0	17729	100yr FW	4100.4	374.13	388.2		388.2	0.000002	0.2	20847.97	2051.42	0.01

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NF_Canoe_	Main_Ext-DS-0-0	17622		Mult Open									
NF_Canoe_	Main_Ext-DS-0-0	17534.5	100yr Base	4100.4	372.63	386.3		386.3	0.000078	0.9	9782.35	2845.09	0.06
NF_Canoe_	Main_Ext-DS-0-0	17534.5	100yr FW	4100.4	372.63	388.2		388.2	0.000048	0.82	8916.37	1438.99	0.05
NF_Canoe_	Main_Ext-DS-0-0	16904.1 P	100yr Base	6880.4	371.38	386.3		386.32	0.000443	2.26	7080.08	2088.77	0.15
NF_Canoe_	Main_Ext-DS-0-0	16904.1 P	100yr FW	6880.4	371.38	388.2		388.23	0.000275	2.08	5982.2	922.23	0.12
NF_Canoe_	Main_Ext-DS-0-0	16397	100yr Base	2259.5	372.11	386.3		386.3	0.000027	0.55	9350.44	2715.81	0.04
NF_Canoe_	Main_Ext-DS-0-0	16397	100yr FW	2259.5	372.11	388.2		388.2	0.000017	0.52	7317.27	995.67	0.03
NF_Canoe_	Main_Ext-DS-0-0	16326.84	100yr Base	2259.5	372.49	386.3		386.41	0.000909	2.84	902.49	934.34	0.21
NF_Canoe_	Main_Ext-DS-0-0	16326.84	100yr FW	2259.5	372.49	388.2		388.29	0.000448	2.37	954.89	986.41	0.15
NF_Canoe_	Main_Ext-DS-0-0	16298		Mult Open									
NF_Canoe_	Main_Ext-DS-0-0	16177.27	100yr Base	2259.5	371.84	385.49	378.93	385.68	0.001575	3.66	707.97	429.79	0.28
NF_Canoe_	Main_Ext-DS-0-0	16177.27	100yr FW	2259.5	371.84	386.01	378.93	386.22	0.001459	3.65	618.63	669.84	0.27
NF_Canoe_	Main_Ext-DS-0-0	16087.8	100yr Base	2259.5	371.06	385.54	376.69	385.57	0.000149	1.52	1800.94	2373.56	0.09
NF_Canoe_	Main_Ext-DS-0-0	16087.8	100yr FW	2259.5	371.06	386.06	376.69	386.1	0.000148	1.57	1514.58	1138.01	0.09
NF_Canoe_	Main_Ext-DS-0-0	15534.2 O	100yr Base	2259.5	370.5	385.49	378.71	385.5	0.000072	0.88	6311.25	2513.61	0.06
NF_Canoe_	Main_Ext-DS-0-0	15534.2 O	100yr FW	2259.5	370.5	386	378.72	386.01	0.000113	1.16	4235.66	1050.98	0.07
NF_Canoe_	Main_Ext-DS-0-0	14567.2 N	100yr Base	2259.5	371.55	385.39	377.26	385.41	0.000113	1.33	4248.54	1406.16	0.09
NF_Canoe_	Main_Ext-DS-0-0	14567.2 N	100yr FW	2259.5	371.55	385.87	377.27	385.88	0.000122	1.44	3566.67	746.12	0.09
NF_Canoe_	Main_Ext-DS-0-0	13899.4	100yr Base	2259.5	371.14	385.3	377.12	385.32	0.000126	1.68	4121.6	2093.67	0.09
NF_Canoe_	Main_Ext-DS-0-0	13899.4	100yr FW	2259.5	371.14	385.78	377.12	385.8	0.000117	1.67	3365.84	670	0.09
NF_Canoe_	Main_Ext-DS-0-0	13273.2 M	100yr Base	2259.5	370.4	385.2	377.13	385.23	0.00019	1.73	3401.14	1252.06	0.11
NF_Canoe_	Main_Ext-DS-0-0	13273.2 M	100yr FW	2259.5	370.4	385.62	377.13	385.68	0.000334	2.24	1615.57	381.32	0.15

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NF_Canoe_	Main_Ext-DS-0-0	12979.5	100yr Base	2259.5	371.41	385.1	377.26	385.15	0.000292	2.28	2298.82	1843.37	0.14
NF_Canoe_	Main_Ext-DS-0-0	12979.5	100yr FW	2259.5	371.41	385.47	377.27	385.56	0.000373	2.65	1415.89	320	0.16
NF_Canoe_	Main_Ext-DS-0-0	12921.8	Bridge										
NF_Canoe_	Main_Ext-DS-0-0	12871.2	100yr Base	2259.5	370.62	384.94	377.34	385.03	0.000387	2.76	1622.8	1219.2	0.17
NF_Canoe_	Main_Ext-DS-0-0	12871.2	100yr FW	2259.5	370.62	385.28	377.33	385.39	0.000419	2.95	1190.96	250	0.17
NF_Canoe_	Main_Ext-DS-0-0	12458.1	100yr Base	2259.5	369.67	384.6	376.65	384.79	0.000706	3.47	683.59	431.04	0.22
NF_Canoe_	Main_Ext-DS-0-0	12458.1	100yr FW	2259.5	369.67	385.01	376.65	385.17	0.000599	3.29	715.51	114.88	0.2
NF_Canoe_	Main_Ext-DS-0-0	12027.9 L	100yr Base	3077.5	369.87	384.1	378.12	384.4	0.001069	4.45	763.5	1032.27	0.28
NF_Canoe_	Main_Ext-DS-0-0	12027.9 L	100yr FW	3077.5	369.87	384.57	378.12	384.84	0.000928	4.2	785.82	111.86	0.25
NF_Canoe_	Main_Ext-DS-0-0	11796.9	100yr Base	3077.5	369.98	383.93	377.36	384.15	0.000808	3.79	952.92	713.09	0.24
NF_Canoe_	Main_Ext-DS-0-0	11796.9	100yr FW	3077.5	369.98	384.41	377.35	384.62	0.000702	3.69	903.04	146.71	0.23
NF_Canoe_	Main_Ext-DS-0-0	11736.8	Bridge										
NF_Canoe_	Main_Ext-DS-0-0	11667.5	100yr Base	3077.5	369.19	383.28	375.81	383.48	0.000685	3.62	909.98	357.17	0.22
NF_Canoe_	Main_Ext-DS-0-0	11667.5	100yr FW	3077.5	369.19	383.76	375.81	383.94	0.000591	3.44	917.14	129.95	0.21
NF_Canoe_	Main_Ext-DS-0-0	11496.7 K	100yr Base	3077.5	368.97	383.07	376.25	383.33	0.001001	4.1	829.73	224.15	0.27
NF_Canoe_	Main_Ext-DS-0-0	11496.7 K	100yr FW	3077.5	368.97	383.58	376.25	383.81	0.000808	3.85	840.78	144.52	0.24
NF_Canoe_	Main_Ext-DS-0-0	11331	100yr Base	3077.5	368.71	382.82	376.48	383.13	0.001218	4.49	820.4	321.75	0.29
NF_Canoe_	Main_Ext-DS-0-0	11331	100yr FW	3077.5	368.71	383.38	376.48	383.65	0.000991	4.21	771.4	126.29	0.27
NF_Canoe_	Main_Ext-DS-0-0	11256.8	Bridge										
NF_Canoe_	Main_Ext-DS-0-0	11171.4	100yr Base	3077.5	368.53	382.72	374.88	382.86	0.000347	3.12	1325.73	221.9	0.17
NF_Canoe_	Main_Ext-DS-0-0	11171.4	100yr FW	3077.5	368.53	383.29	374.89	383.41	0.000305	2.94	1290.73	144.44	0.15
NF_Canoe_	Main_Ext-DS-0-0	11097.6	100yr Base	3077.5	368	382.62	374.87	382.81	0.000521	3.49	1013.46	415.42	0.2

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NF_Canoe_	Main_Ext-DS-0-0	11097.6	100yr FW	3077.5	368	383.21	374.87	383.37	0.00044	3.27	1034.14	172.04	0.18
NF_Canoe_	Main_Ext-DS-0-0	11075	100yr Base	3077.5	368	382.62	374.88	382.8	0.000504	3.43	1071.18	578.83	0.2
NF_Canoe_	Main_Ext-DS-0-0	11075	100yr FW	3077.5	368	383.2	374.89	383.36	0.000431	3.24	1076.3	162.04	0.18
NF_Canoe_	Main_Ext-DS-0-0	11031.7 J	100yr Base	3077.5	368	382.6	374.89	382.77	0.000538	3.42	1022.81	572.52	0.2
NF_Canoe_	Main_Ext-DS-0-0	11031.7 J	100yr FW	3077.5	368	383.18	374.89	383.34	0.000436	3.22	1072.79	170.37	0.18
NF_Canoe_	Main_Ext-DS-0-0	10936.8	Bridge										
NF_Canoe_	Main_Ext-DS-0-0	10837	100yr Base	3077.5	365.65	382.38	374.13	382.58	0.000592	3.7	935.01	302.88	0.21
NF_Canoe_	Main_Ext-DS-0-0	10837	100yr FW	3077.5	365.65	382.82	374.12	383	0.000506	3.52	992.42	132.93	0.2
NF_Canoe_	Main_Ext-DS-0-0	10362.2 I	100yr Base	3077.5	366.04	382.2	373.27	382.34	0.000337	3.05	1176.13	360.25	0.16
NF_Canoe_	Main_Ext-DS-0-0	10362.2 I	100yr FW	3077.5	366.04	382.67	373.25	382.8	0.000285	2.89	1211.71	152.57	0.15
NF_Canoe_	Main_Ext-DS-0-0	9719.4 H	100yr Base	3077.5	365.69	381.93	373.59	382.09	0.000469	3.2	1027.71	166.65	0.19
NF_Canoe_	Main_Ext-DS-0-0	9719.4 H	100yr FW	3077.5	365.69	382.44	373.6	382.58	0.000401	3.04	1056.1	127.7	0.17
NF_Canoe_	Main_Ext-DS-0-0	8580.4 G	100yr Base	3077.5	365.52	381.65	372.72	381.72	0.000208	2.48	2460.32	553.23	0.13
NF_Canoe_	Main_Ext-DS-0-0	8580.4 G	100yr FW	3077.5	365.52	382.17	372.72	382.24	0.000203	2.49	2176.76	348.3	0.12
NF_Canoe_	Main_Ext-DS-0-0	8284.6	100yr Base	3077.5	366.12	381.45	372.45	381.61	0.000373	3.19	974.28	417.43	0.17
NF_Canoe_	Main_Ext-DS-0-0	8284.6	100yr FW	3077.5	366.12	382.01	372.45	382.15	0.000315	3.01	1065.37	100.77	0.16
NF_Canoe_	Main_Ext-DS-0-0	8211.8	Bridge										
NF_Canoe_	Main_Ext-DS-0-0	8165.2	100yr Base	3077.5	366.12	381.39	372.46	381.51	0.000345	2.78	1143.54	469.5	0.16
NF_Canoe_	Main_Ext-DS-0-0	8165.2	100yr FW	3077.5	366.12	381.95	372.45	382.06	0.000304	2.65	1164.43	125.66	0.15
NF_Canoe_	Main_Ext-DS-0-0	7927.6	100yr Base	3077.5	364.85	381.33	372.15	381.43	0.000237	2.74	2272.53	721.65	0.14
NF_Canoe_	Main_Ext-DS-0-0	7927.6	100yr FW	3077.5	364.85	381.89	372.15	381.99	0.000233	2.8	1806.71	316.08	0.14
NF_Canoe_	Main_Ext-DS-0-0	7564.1 F	100yr Base	3077.5	364.85	381.25	372.16	381.34	0.000224	2.72	2373.92	1036.61	0.14

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NF_Canoe_	Main_Ext-DS-0-0	7564.1	F	100yr FW	3077.5	364.85	381.82	372.15	381.91	0.000206	2.69	2153.41	405.45	0.13
NF_Canoe_	Main_Ext-DS-0-0	7123.8		100yr Base	3077.5	364.64	381.25	371.91	381.26	0.000061	1.31	5380.73	1434.32	0.07
NF_Canoe_	Main_Ext-DS-0-0	7123.8		100yr FW	3077.5	364.64	381.82	371.92	381.83	0.000053	1.25	5121.99	675.39	0.07
NF_Canoe_	Main_Ext-DS-0-0	7086.8		Bridge										
NF_Canoe_	Main_Ext-DS-0-0	7010.6		100yr Base	3077.5	364.64	381.08	371.92	381.13	0.000162	2.23	3726.45	1629.28	0.11
NF_Canoe_	Main_Ext-DS-0-0	7010.6		100yr FW	3077.5	364.64	381.68	371.92	381.72	0.000135	2.1	3653.25	736.29	0.11
NF_Canoe_	Main_Ext-DS-0-0	6706.5	E	100yr Base	3077.5	364.35	381.04	371.55	381.08	0.000123	2.01	4536.74	1527.92	0.1
NF_Canoe_	Main_Ext-DS-0-0	6706.5	E	100yr FW	3077.5	364.35	381.62	371.54	381.67	0.000141	2.21	3331.16	688.54	0.11
NF_Canoe_	Main_Ext-DS-0-0	5738.9	D	100yr Base	3077.5	364.57	380.96	371.23	380.98	0.000081	1.59	6105.48	2525.99	0.08
NF_Canoe_	Main_Ext-DS-0-0	5738.9	D	100yr FW	3077.5	364.57	381.49	371.23	381.54	0.000135	2.04	3420.33	661.17	0.1
NF_Canoe_	Main_Ext-DS-0-0	4899.4		100yr Base	5004.8	363.89	380.77	372.89	380.85	0.000259	3.02	5882.08	3058.49	0.15
NF_Canoe_	Main_Ext-DS-0-0	4899.4		100yr FW	5004.8	363.89	381.16	372.88	381.31	0.000432	3.73	2961.23	660.3	0.18
NF_Canoe_	Main_Ext-DS-0-0	3856.3	C	100yr Base	5004.8	363.41	380.16	372.08	380.42	0.000675	4.27	2008.2	1375.56	0.23
NF_Canoe_	Main_Ext-DS-0-0	3856.3	C	100yr FW	5004.8	363.41	380.6	372.09	380.81	0.000584	3.94	2264.6	832.75	0.21
NF_Canoe_	Main_Ext-DS-0-0	3073.1		100yr Base	5004.8	363.74	379.61	372.11	379.9	0.000657	4.63	1617.82	1238.57	0.23
NF_Canoe_	Main_Ext-DS-0-0	3073.1		100yr FW	5004.8	363.74	380.08	372.13	380.36	0.000577	4.45	1618.7	260.35	0.22
NF_Canoe_	Main_Ext-DS-0-0	2858.5		100yr Base	5004.8	363.09	379.38	372.29	379.73	0.000815	4.93	1243.86	501.82	0.26
NF_Canoe_	Main_Ext-DS-0-0	2858.5		100yr FW	5004.8	363.09	379.9	372.29	380.21	0.000692	4.68	1329.67	169.55	0.24
NF_Canoe_	Main_Ext-DS-0-0	2791.8		Bridge										
NF_Canoe_	Main_Ext-DS-0-0	2724		100yr Base	5004.8	363.09	379.02	372.48	379.25	0.00087	3.91	1278.65	400.38	0.25
NF_Canoe_	Main_Ext-DS-0-0	2724		100yr FW	5004.8	363.09	379.53	372.47	379.74	0.000717	3.66	1368.49	176.15	0.23
NF_Canoe_	Main_Ext-DS-0-0	2538.1	B	100yr Base	5004.8	362.94	378.78	372.13	379.07	0.000853	4.55	1555.86	440.9	0.26

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NF_Canoe_	Main_Ext-DS-0-0	2538.1	B	100yr FW	5004.8	362.94	379.27	372.13	379.57	0.000774	4.48	1298.64	178.31	0.25
NF_Canoe_	Main_Ext-DS-0-0	2326.2		100yr Base	5004.8	363.25	378.41	371.59	378.84	0.000977	5.47	1329.69	357.57	0.28
NF_Canoe_	Main_Ext-DS-0-0	2326.2		100yr FW	5004.8	363.25	378.9	371.58	379.35	0.000915	5.44	1069.26	136.61	0.28
NF_Canoe_	Main_Ext-DS-0-0	2266.8		Bridge										
NF_Canoe_	Main_Ext-DS-0-0	2223.8		100yr Base	5004.8	362.58	377.52	373.11	378.31	0.002226	7.38	907.2	313.64	0.41
NF_Canoe_	Main_Ext-DS-0-0	2223.8		100yr FW	5004.8	362.58	377.9	373.11	378.65	0.001986	7.14	859.6	135	0.39
NF_Canoe_	Main_Ext-DS-0-0	2073.1		100yr Base	5004.8	361.75	377.46	370.65	377.9	0.001191	5.34	999.76	183.78	0.3
NF_Canoe_	Main_Ext-DS-0-0	2073.1		100yr FW	5004.8	361.75	377.86	370.66	378.27	0.001053	5.12	1023.51	123.26	0.28
NF_Canoe_	Main_Ext-DS-0-0	1455.4	A	100yr Base	5004.8	361.78	376.92	370.18	377.26	0.000825	4.9	1564.06	442.82	0.26
NF_Canoe_	Main_Ext-DS-0-0	1455.4	A	100yr FW	5004.8	361.78	377.32	370.18	377.69	0.000809	4.97	1188.37	169.61	0.26
NF_Canoe_	Main_Ext-DS-0-0	450.5		100yr Base	5004.8	360.84	375.91	369.07	376.35	0.001001	5.43	1272.42	328.95	0.29
NF_Canoe_	Main_Ext-DS-0-0	450.5		100yr FW	5004.8	360.84	376.4	369.04	376.79	0.001001	5.19	1257.98	246.07	0.27
Canoewrr	Canoewrr	31238.12		100yr Base	877.4	397.48	408.12	403.07	408.36	0.002208	3.93	225.24	996.63	0.3
Canoewrr	Canoewrr	31238.12		100yr FW	877.4	397.48	408.12	403.07	408.36	0.002208	3.93	225.24	996.63	0.3
Canoewrr	Canoewrr	31040.61		100yr Base	877.4	397.15	408.23	402	408.23	0.000011	0.32	5070.86	1128.77	0.02
Canoewrr	Canoewrr	31040.61		100yr FW	877.4	397.15	408.23	402	408.23	0.000011	0.32	5070.86	1128.77	0.02
Canoewrr	Canoewrr	31001.95		Culvert										
Canoewrr	Canoewrr	30943.45		100yr Base	877.4	396.44	405.49	402.05	405.91	0.003415	5.2	170.79	734.94	0.38
Canoewrr	Canoewrr	30943.45		100yr FW	877.4	396.44	405.49	402.05	405.91	0.003415	5.2	170.79	734.94	0.38
Canoewrr	Canoewrr	30836.15		100yr Base	877.4	396.13	402.87	402.87	404.69	0.02718	10.82	81.09	385.55	1
Canoewrr	Canoewrr	30836.15		100yr FW	877.4	396.13	402.87	402.87	404.69	0.02718	10.82	81.09	385.55	1
Canoewrr	Canoewrr	30724.21		100yr Base	877.4	394.55	400.38	397.54	400.77	0.0025	5.01	174.96	76.65	0.37

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Canoewrr	Canoewrr	30724.21	100yr FW	877.4	394.55	400.38	397.54	400.77	0.0025	5.01	174.96	76.65	0.37
Canoewrr	Canoewrr	30524.31		Culvert									
Canoewrr	Canoewrr	30371	100yr Base	877.4	394.39	400.07	397.38	400.49	0.001471	5.18	169.34	87.61	0.38
Canoewrr	Canoewrr	30371	100yr FW	877.4	394.39	400.07	397.38	400.49	0.001471	5.18	169.34	87.61	0.38
Canoewrr	Canoewrr	30106.17	100yr Base	877.4	393.79	399.41	396.97	399.91	0.003403	5.71	153.75	74.91	0.42
Canoewrr	Canoewrr	30106.17	100yr FW	877.4	393.79	399.41	396.97	399.91	0.003403	5.71	153.75	74.91	0.42
Canoewrr	Canoewrr	29531.08	100yr Base	877.4	393.46	398.03	396.09	398.43	0.001947	5.03	174.3	76.71	0.42
Canoewrr	Canoewrr	29531.08	100yr FW	877.4	393.46	398.03	396.09	398.43	0.001947	5.03	174.3	76.71	0.42
Canoewrr	Canoewrr	29191.02		Culvert									
Canoewrr	Canoewrr	28940.41	100yr Base	877.4	392.48	395.75	395.46	396.99	0.009122	8.94	98.17	57.93	0.87
Canoewrr	Canoewrr	28940.41	100yr FW	877.4	392.48	395.75	395.46	396.99	0.009122	8.94	98.17	57.93	0.87
Canoewrr	Canoewrr	28532	100yr Base	877.4	392	395.82	393.8	395.9	0.000755	2.21	397.36	164.52	0.24
Canoewrr	Canoewrr	28532	100yr FW	877.4	392	395.82	393.8	395.9	0.000755	2.21	397.36	164.52	0.24
Canoewrr	Canoewrr	27158	100yr Base	1391.9	390	394.66	392.49	394.77	0.000857	2.64	526.5	217.98	0.25
Canoewrr	Canoewrr	27158	100yr FW	1391.9	390	394.66	392.49	394.77	0.000857	2.64	526.5	217.98	0.25
Canoewrr	Canoewrr	25956	100yr Base	1572.4	389	392.83	391.62	393.07	0.002421	3.96	397.52	417.68	0.43
Canoewrr	Canoewrr	25956	100yr FW	1572.4	389	392.83	391.62	393.07	0.002421	3.96	397.52	417.68	0.43
Canoewrr	Canoewrr	24827	100yr Base	1572.4	386.3	390.19	388.91	390.42	0.002263	3.86	407.22	326.41	0.41
Canoewrr	Canoewrr	24827	100yr FW	1572.4	386.3	390.19	388.91	390.42	0.002263	3.86	407.22	326.41	0.41
Canoewrr	Canoewrr	23524	100yr Base	1572.4	383.5	387.67	386.11	387.86	0.001702	3.49	450.59	169.46	0.36
Canoewrr	Canoewrr	23524	100yr FW	1572.4	383.5	387.67	386.11	387.86	0.001702	3.49	450.59	169.46	0.36

Appendix B-5B

Canoe Creek Flood Impact Study on Proposed I69
Parsons HECRAS Model GeoRAScanoe101019.ghr Backup Data
Parsons Proposed Condition with Interim Detention Basin HECRAS Plan Candet4 Summary Table

River	Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
NF_Canoe_	Main_Ext	38011.5	100yr	1668.6	406.27	416.72		416.99	0.00339	5.29	871.98	1009.05	0.37
NF_Canoe_	Main_Ext	38011.5	500yr	2302.9	406.27	417.14		417.34	0.003042	5.11	1330.87	1168.22	0.36
NF_Canoe_	Main_Ext	38011.5	50yr	1419.9	406.27	416.49	414	416.81	0.00362	5.41	663.88	788.04	0.39
NF_Canoe_	Main_Ext	38011.5	10yr	903.3	406.27	415.74	412.53	416.17	0.003837	5.34	219.85	300.19	0.39
NF_Canoe_	Main_Ext	38011.5	2yr	477.5	406.27	414.07		414.32	0.002779	4.02	118.76	25.67	0.33
NF_Canoe_	Main_Ext	37046.5	100yr	1668.6	402.18	412.58	411.56	412.73	0.003369	4.23	886.92	623.23	0.36
NF_Canoe_	Main_Ext	37046.5	500yr	2302.9	402.18	412.96	411.86	413.12	0.003742	4.69	1142.13	711.28	0.39
NF_Canoe_	Main_Ext	37046.5	50yr	1419.9	402.18	412.4	411.34	412.54	0.003158	4.05	777.32	568.52	0.35
NF_Canoe_	Main_Ext	37046.5	10yr	903.3	402.18	411.59	408.6	411.77	0.003139	4.05	436.83	327.67	0.34
NF_Canoe_	Main_Ext	37046.5	2yr	477.5	402.18	409.7	406.79	410.06	0.004256	4.82	99.04	20.63	0.39
NF_Canoe_	Main_Ext	36058.4	100yr	1668.6	397.85	409.34	406.83	409.6	0.002884	5.28	828.74	654.82	0.34
NF_Canoe_	Main_Ext	36058.4	500yr	2302.9	397.85	409.9	409.29	410.1	0.002492	5.15	1213.8	709.11	0.32
NF_Canoe_	Main_Ext	36058.4	50yr	1419.9	397.85	409.07	406.17	409.38	0.003126	5.36	657.8	624.34	0.36
NF_Canoe_	Main_Ext	36058.4	10yr	903.3	397.85	408.45	404.55	408.78	0.002832	4.82	326.4	400.78	0.33
NF_Canoe_	Main_Ext	36058.4	2yr	477.5	397.85	406.88	402.74	407.09	0.002137	3.71	128.54	23.91	0.28
NF_Canoe_	Main_Ext	34775.6	100yr	1668.6	396.04	406.61	404.09	406.73	0.001719	3.91	1163.47	915	0.27
NF_Canoe_	Main_Ext	34775.6	500yr	2302.9	396.04	406.84	406.23	407	0.002299	4.62	1351.84	1025.2	0.31
NF_Canoe_	Main_Ext	34775.6	50yr	1419.9	396.04	406.49	403.44	406.6	0.001516	3.62	1064.23	850.18	0.25
NF_Canoe_	Main_Ext	34775.6	10yr	903.3	396.04	405.94	401.85	406.07	0.001555	3.51	636.92	726.05	0.25
NF_Canoe_	Main_Ext	34775.6	2yr	477.5	396.04	404.22	400.11	404.42	0.002001	3.56	134.03	27.02	0.28
NF_Canoe_	Main_Ext	33442.3	100yr	1668.6	393.87	404.23	401.75	404.31	0.001905	3.16	1215.34	852.37	0.28
NF_Canoe_	Main_Ext	33442.3	500yr	2302.9	393.87	405.27	403.65	405.3	0.000779	2.36	2134.57	929.52	0.19
NF_Canoe_	Main_Ext	33442.3	50yr	1419.9	393.87	403.85	401.25	403.95	0.002711	3.55	896.19	811.24	0.33
NF_Canoe_	Main_Ext	33442.3	10yr	903.3	393.87	402.57	399.94	402.94	0.003873	5.15	214.14	129.27	0.4
NF_Canoe_	Main_Ext	33442.3	2yr	477.5	393.87	401.24	398.18	401.44	0.002504	3.78	144.62	42.33	0.31
NF_Canoe_	Main_Ext	33116	100yr	1668.6	393.48	403.33	400.53	403.55	0.003494	4.53	557.54	184.43	0.38
NF_Canoe_	Main_Ext	33116	500yr	2302.9	393.48	404.69	401.37	404.88	0.002665	4.45	876.06	332.34	0.35

Canoe Creek Flood Impact Study on Proposed I69
Parsons HECRAS Model GeoRAScanoe101019.ghr Backup Data
Parsons Proposed Condition with Interim Detention Basin HECRAS Plan Candet4 Summary Table

NF_Canoe_	Main_Ext	33116	50yr	1419.9	393.48	402.87	399.87	403.07	0.003366	4.34	479.45	154.99	0.37
NF_Canoe_	Main_Ext	33116	10yr	903.3	393.48	401.71	398.9	401.88	0.002969	3.92	326.44	108.2	0.34
NF_Canoe_	Main_Ext	33116	2yr	477.5	393.48	400.72	397.7	400.82	0.001631	2.88	233.96	82.54	0.25
NF_Canoe_	Main_Ext	33041.8		Mult Open									
NF_Canoe_	Main_Ext	32983.9	100yr	1668.6	393.79	402.64	399.75	402.96	0.004903	5.23	394.64	282.82	0.44
NF_Canoe_	Main_Ext	32983.9	500yr	2302.9	393.79	403.34	400.73	403.68	0.005814	5.93	624.19	369.52	0.49
NF_Canoe_	Main_Ext	32983.9	50yr	1419.9	393.79	402.38	399.38	402.64	0.004179	4.76	371.44	262.04	0.41
NF_Canoe_	Main_Ext	32983.9	10yr	903.3	393.79	401.55	398.25	401.71	0.002907	3.8	303.08	169.83	0.33
NF_Canoe_	Main_Ext	32983.9	2yr	477.5	393.79	400.7	397.05	400.77	0.001441	2.58	240.42	69.88	0.23
NF_Canoe_	Main_Ext	29900.3	100yr	3850.2	386.71	397.76		397.79	0.001211	2.99	3398.97	1667.24	0.22
NF_Canoe_	Main_Ext	29900.3	500yr	5318	386.71	398.26		398.3	0.001186	3.06	4268.85	1779.97	0.22
NF_Canoe_	Main_Ext	29900.3	50yr	3260.3	386.71	397.53		397.57	0.001231	2.97	3028.52	1659.44	0.22
NF_Canoe_	Main_Ext	29900.3	10yr	2143.8	386.71	397.01		397.05	0.001236	2.87	2182.86	1508.74	0.21
NF_Canoe_	Main_Ext	29900.3	2yr	1156.8	386.71	396.36	393.72	396.43	0.001441	3.05	1256.01	1381.32	0.23
NF_Canoe_	Main_Ext	28796.5	100yr	3860.2	385.59	396.22		396.3	0.00151	3.82	2826.45	1424.97	0.26
NF_Canoe_	Main_Ext	28796.5	500yr	5375.4	385.59	396.76		396.83	0.001486	3.89	3613.18	1480.94	0.26
NF_Canoe_	Main_Ext	28796.5	50yr	3246.4	385.59	395.98		396.06	0.001518	3.79	2479.43	1411.46	0.26
NF_Canoe_	Main_Ext	28796.5	10yr	2113.6	385.59	395.44		395.53	0.00151	3.67	1734.48	1356.48	0.26
NF_Canoe_	Main_Ext	28796.5	2yr	1143.2	385.59	394.74		394.86	0.001377	3.38	918.43	1003.04	0.25
NF_Canoe_	Main_Ext	27541.3	100yr	3860.2	383.63	394.68		394.72	0.000916	2.93	3672.7	1719.79	0.2
NF_Canoe_	Main_Ext	27541.3	500yr	5375.4	383.63	395.19		395.23	0.000953	2.87	4556.47	1741.59	0.21
NF_Canoe_	Main_Ext	27541.3	50yr	3246.4	383.63	394.45		394.48	0.000909	2.88	3267.48	1711.75	0.2
NF_Canoe_	Main_Ext	27541.3	10yr	2113.6	383.63	393.93		393.97	0.000909	2.8	2384.88	1681.37	0.2
NF_Canoe_	Main_Ext	27541.3	2yr	1143.2	383.63	393.33		393.38	0.000896	2.69	1408.37	1590.44	0.2
NF_Canoe_	Main_Ext	26291.9	100yr	3860.2	381.94	392.97		393.04	0.002179	4.05	2474.36	1488.86	0.3
NF_Canoe_	Main_Ext	26291.9	500yr	5375.4	381.94	393.38		393.46	0.002374	4.26	3121.75	1649.33	0.32
NF_Canoe_	Main_Ext	26291.9	50yr	3246.4	381.94	392.75		392.82	0.002137	4	2155.7	1359.62	0.3
NF_Canoe_	Main_Ext	26291.9	10yr	2113.6	381.94	392.24		392.33	0.002044	3.89	1556.81	1086.7	0.29

Canoe Creek Flood Impact Study on Proposed I69
Parsons HECRAS Model GeoRAScanoe101019.ghr Backup Data
Parsons Proposed Condition with Interim Detention Basin HECRAS Plan Candet4 Summary Table

NF_Canoe_	Main_Ext	26291.9	2yr	1143.2	381.94	391.63	389.47	391.75	0.002031	3.74	931.3	987	0.29
NF_Canoe_	Main_Ext	24550.6	100yr	3962.5	379.15	390.78	389.51	390.8	0.000798	2.07	4665.1	3105.62	0.17
NF_Canoe_	Main_Ext	24550.6	500yr	5565.7	379.15	391.33	389.73	391.35	0.000693	2.07	6087.85	3128.38	0.16
NF_Canoe_	Main_Ext	24550.6	50yr	3306.8	379.15	390.56	389.47	390.58	0.000807	2.14	4087.75	3042.08	0.17
NF_Canoe_	Main_Ext	24550.6	10yr	2173.5	379.15	390.09	389.27	390.11	0.000813	2.35	2904.98	2764.28	0.17
NF_Canoe_	Main_Ext	24550.6	2yr	1188.7	379.15	389.59	387.68	389.61	0.000762	2.26	1878.46	2422.97	0.17
NF_Canoe_	Main_Ext	24064		Lat Struct									
NF_Canoe_	Main_Ext	23120	100yr	4021.3	378.26	389.49		389.52	0.00099	2.86	3820.11	1808.33	0.2
NF_Canoe_	Main_Ext	23120	500yr	5723.8	378.26	390.34		390.36	0.000676	2.49	5876.4	2972.05	0.17
NF_Canoe_	Main_Ext	23120	50yr	3382.9	378.26	389.2		389.23	0.001075	2.94	3310.15	1763.33	0.2
NF_Canoe_	Main_Ext	23120	10yr	2224.4	378.26	388.73	387.97	388.76	0.001073	2.86	2479.91	1745.78	0.2
NF_Canoe_	Main_Ext	23120	2yr	1218.1	378.26	388.09	385.92	388.16	0.001362	3.11	1390.53	1654.32	0.23
NF_Canoe_	Main_Ext	21768	100yr	1770.41	378.03	387.73	384.56	387.9	0.001759	3.69	586.51	711.24	0.29
NF_Canoe_	Main_Ext	21768	500yr	1963.55	378.03	389.35	385.02	389.42	0.000691	2.53	997.77	2720.1	0.18
NF_Canoe_	Main_Ext	21768	50yr	1679.51	378.03	387.17	384.21	387.4	0.002065	4.28	491.49	422.89	0.31
NF_Canoe_	Main_Ext	21768	10yr	1470.02	378.03	386.36	383.66	386.65	0.002802	4.71	378.07	145.71	0.36
NF_Canoe_	Main_Ext	21768	2yr	976.92	378.03	385.17	382.66	385.48	0.003238	4.61	240.88	100.76	0.38
NF_Canoe_	Main_Ext	21745	100yr	1770.41	378.97	387.54	385.43	387.84	0.00283	4.92	434.47	122.41	0.37
NF_Canoe_	Main_Ext	21745	500yr	1963.55	378.97	389.25	385.7	389.4	0.001386	3.41	686.99	1572.79	0.26
NF_Canoe_	Main_Ext	21745	50yr	1679.51	378.97	386.93	385.27	387.33	0.00392	5.58	362.93	112.3	0.43
NF_Canoe_	Main_Ext	21745	10yr	1470.02	378.97	385.87	384.81	386.53	0.006872	6.86	252.6	95.71	0.56
NF_Canoe_	Main_Ext	21745	2yr	976.92	378.97	384.58	383.35	385.32	0.00893	6.94	146.9	63.87	0.62
NF_Canoe_	Main_Ext	21735		Mult Open									
NF_Canoe_	Main_Ext	21712.38	100yr	1770.41	377.89	387.2		387.49	0.002622	4.79	452.05	1290.37	0.35
NF_Canoe_	Main_Ext	21712.38	500yr	1963.55	377.89	388.8		388.93	0.00122	3.12	691.09	1814.47	0.24
NF_Canoe_	Main_Ext	21712.38	50yr	1679.51	377.89	386.5		386.95	0.004137	5.73	357.53	1016.72	0.44
NF_Canoe_	Main_Ext	21712.38	10yr	1470.02	377.89	384.7		385.82	0.012533	8.53	178.15	209.79	0.73

Canoe Creek Flood Impact Study on Proposed I69
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Parsons Proposed Condition with Interim Detention Basin HECRAS Plan Candet4 Summary Table

NF_Canoe_	Main_Ext	21712.38		2yr	976.92	377.89	382.83	382.83	384.3	0.025532	9.7	100.7	34.24	1
NF_Canoe_	Main_Ext	21591.5	R	100yr	1770.4	378.38	387.2		387.38	0.002527		518.41	2998.24	0
NF_Canoe_	Main_Ext	21591.5	R	500yr	1963.6	378.38	388.8		388.8	0.000068		4979.42	3066.52	0
NF_Canoe_	Main_Ext	21591.5	R	50yr	1679.5	378.38	386.5		386.79	0.004083		390.65	2689.85	0
NF_Canoe_	Main_Ext	21591.5	R	10yr	1470	378.38	384.7	383.44	385.89	0.012914		168.14	1891.06	0
NF_Canoe_	Main_Ext	21591.5	R	2yr	976.9	378.38	382.5		384.07	0.019817		97.05	1451.64	0
NF_Canoe_	Main_Ext	19922.4		100yr	4100.4	377.7	387.2	378.63	387.2	0.000012	0.44	11970.21	2596.76	0.03
NF_Canoe_	Main_Ext	19922.4		500yr	5285	377.7	388.8	378.81	388.8	0.00001	0.45	15477.19	3580.85	0.03
NF_Canoe_	Main_Ext	19922.4		50yr	3634.5	377.7	386.5	378.57	386.5	0.000013	0.44	10503.01	2319.16	0.03
NF_Canoe_	Main_Ext	19922.4		10yr	2569.5	377.7	384.7	378.38	384.7	0.000016	0.43	6841.03	1951.54	0.03
NF_Canoe_	Main_Ext	19922.4		2yr	1530.42	377.7	382.5	378.19	382.5	0.000022	0.4	3929.36	874.36	0.03
NF_Canoe_	Main_Ext-DS-0-0	18470.	Q	100yr	4100.4	377.2	387.2		387.2	0.000012	0.45	13513.2	3170.26	0.03
NF_Canoe_	Main_Ext-DS-0-0	18470.	Q	500yr	5285	377.2	388.8		388.8	0.00001	0.46	17380.2	3569.1	0.02
NF_Canoe_	Main_Ext-DS-0-0	18470.	Q	50yr	3634.5	377.2	386.5		386.5	0.000013	0.46	11826.32	3014.98	0.03
NF_Canoe_	Main_Ext-DS-0-0	18470.	Q	10yr	2569.5	377.2	384.7		384.7	0.000018	0.47	7700.12	2186.22	0.03
NF_Canoe_	Main_Ext-DS-0-0	18470.	Q	2yr	1542.5	377.2	382.5		382.5	0.000029	0.48	3331.96	1095.28	0.04
NF_Canoe_	Main_Ext-DS-0-0	17729		100yr	4100.4	374.13	387.2		387.21	0.000002	0.21	21799.84	3293.97	0.01
NF_Canoe_	Main_Ext-DS-0-0	17729		500yr	5285	374.13	388.8		388.81	0.000002	0.23	27526.09	3739.08	0.01
NF_Canoe_	Main_Ext-DS-0-0	17729		50yr	3634.5	374.13	386.5		386.52	0.000002	0.21	19624.74	2905.21	0.01
NF_Canoe_	Main_Ext-DS-0-0	17729		10yr	2569.5	374.13	384.7		384.7	0.000002	0.19	14824.9	2548.7	0.01
NF_Canoe_	Main_Ext-DS-0-0	17729		2yr	1542.5	374.13	382.5		382.5	0.000003	0.16	9670.87	1945.3	0.01
NF_Canoe_	Main_Ext-DS-0-0	17622			Mult Open									
NF_Canoe_	Main_Ext-DS-0-0	17534.5		100yr	4100.4	372.63	387.2		387.2	0.00004	0.69	12428.52	3008.36	0.04
NF_Canoe_	Main_Ext-DS-0-0	17534.5		500yr	5285	372.63	388.8		388.8	0.000024	0.61	17693.8	3609.6	0.04
NF_Canoe_	Main_Ext-DS-0-0	17534.5		50yr	3634.5	372.63	386.5		386.5	0.000052	0.75	10356.15	2900.42	0.05
NF_Canoe_	Main_Ext-DS-0-0	17534.5		10yr	2569.5	372.63	384.7		384.71	0.000151	1.09	5409.23	2610.99	0.08
NF_Canoe_	Main_Ext-DS-0-0	17534.5		2yr	1542.5	372.63	382.5		382.52	0.000248	1.53	1434.35	297.93	0.1

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Parsons Proposed Condition with Interim Detention Basin HECRAS Plan Candet4 Summary Table

NF_Canoe_	Main_Ext-DS-0-0	16904.1	P	100yr	6880.4	371.38	387.2		387.21	0.000242	1.81	9069.04	2396.18	0.11
NF_Canoe_	Main_Ext-DS-0-0	16904.1	P	500yr	9825.8	371.38	388.8		388.81	0.000166	1.69	13047.28	2561.26	0.09
NF_Canoe_	Main_Ext-DS-0-0	16904.1	P	50yr	5809.1	371.38	386.5		386.51	0.000268	1.79	7501.04	2119.18	0.12
NF_Canoe_	Main_Ext-DS-0-0	16904.1	P	10yr	3811.9	371.38	384.7		384.73	0.0006	2.27	4043.51	1725.19	0.17
NF_Canoe_	Main_Ext-DS-0-0	16904.1	P	2yr	2106.4	371.38	382.5		382.78	0.003562	5.25	992.23	874.55	0.39
NF_Canoe_	Main_Ext-DS-0-0	16397		100yr	2622.3	372.11	387.2		387.2	0.000018	0.49	11894.05	2938.03	0.03
NF_Canoe_	Main_Ext-DS-0-0	16397		500yr	2963	372.11	388.8		388.8	0.000008	0.37	16789.29	3188.87	0.02
NF_Canoe_	Main_Ext-DS-0-0	16397		50yr	2336.5	372.11	386.5		386.5	0.000024	0.53	9900.66	2786.92	0.03
NF_Canoe_	Main_Ext-DS-0-0	16397		10yr	1495	372.11	384.7		384.7	0.00004	0.63	5687.1	2014.74	0.04
NF_Canoe_	Main_Ext-DS-0-0	16397		2yr	653.2	372.11	382.5		382.5	0.000087	0.73	2032.58	1274.29	0.06
NF_Canoe_	Main_Ext-DS-0-0	16326.84		100yr	2622.3	372.49	387.2		387.31	0.000746	2.81	1068.49	1313.11	0.19
NF_Canoe_	Main_Ext-DS-0-0	16326.84		500yr	2963	372.49	388.8		388.89	0.000457	2.5	1375	1717.71	0.15
NF_Canoe_	Main_Ext-DS-0-0	16326.84		50yr	2336.5	372.49	386.5		386.61	0.000865	2.83	938.96	990.69	0.2
NF_Canoe_	Main_Ext-DS-0-0	16326.84		10yr	1495	372.49	384.7		384.8	0.000969	2.65	629.17	478.92	0.21
NF_Canoe_	Main_Ext-DS-0-0	16326.84		2yr	653.2	372.49	382.5		382.56	0.000397	1.9	353.62	87.64	0.13
NF_Canoe_	Main_Ext-DS-0-0	16298			Mult Open									
NF_Canoe_	Main_Ext-DS-0-0	16177.27		100yr	2622.3	371.84	385.78	379.52	386.01	0.0018	3.99	755.65	591.41	0.3
NF_Canoe_	Main_Ext-DS-0-0	16177.27		500yr	2963	371.84	387.3	380.03	387.36	0.000643	2.4	2459.02	1252.55	0.18
NF_Canoe_	Main_Ext-DS-0-0	16177.27		50yr	2336.5	371.84	385.33	379.06	385.55	0.001833	3.91	683.11	358.94	0.3
NF_Canoe_	Main_Ext-DS-0-0	16177.27		10yr	1495	371.84	384.2	377.52	384.35	0.001337	3.23	517.75	131.94	0.25
NF_Canoe_	Main_Ext-DS-0-0	16177.27		2yr	653.2	371.84	381.95	375.48	382.02	0.000454	2.17	301.59	44.89	0.15
NF_Canoe_	Main_Ext-DS-0-0	16087.8		100yr	2622.3	371.06	385.84	377.06	385.88	0.000176	1.68	1890.07	2560.65	0.1
NF_Canoe_	Main_Ext-DS-0-0	16087.8		500yr	2963	371.06	387.32	377.39	387.32	0.000022	0.66	9570	2853.53	0.04
NF_Canoe_	Main_Ext-DS-0-0	16087.8		50yr	2336.5	371.06	385.39	376.77	385.42	0.00017	1.6	1757.09	2341.12	0.1
NF_Canoe_	Main_Ext-DS-0-0	16087.8		10yr	1495	371.06	384.24	375.76	384.26	0.000119	1.23	1421.63	1972.37	0.08
NF_Canoe_	Main_Ext-DS-0-0	16087.8		2yr	653.2	371.06	381.97	374.34	381.98	0.000075	0.82	813.73	833.52	0.06
NF_Canoe_	Main_Ext-DS-0-0	15534.2	O	100yr	2622.3	370.5	385.8	379.34	385.8	0.000073	0.92	6930.82	2582.31	0.06
NF_Canoe_	Main_Ext-DS-0-0	15534.2	O	500yr	2963	370.5	387.3	379.9	387.31	0.00003	0.67	10169.53	2909.14	0.04

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NF_Canoe_	Main_Ext-DS-0-0	15534.2	O	50yr	2336.5	370.5	385.33	378.86	385.34	0.000089	0.97	5989.73	2461.74	0.07
NF_Canoe_	Main_Ext-DS-0-0	15534.2	O	10yr	1495	370.5	384.18	377.24	384.18	0.000112	1.02	3796.79	1755.47	0.07
NF_Canoe_	Main_Ext-DS-0-0	15534.2	O	2yr	653.2	370.5	381.84	374.97	381.89	0.000387	1.91	681.53	607	0.13
NF_Canoe_	Main_Ext-DS-0-0	14567.2	N	100yr	2622.3	371.55	385.69	377.8	385.7	0.000124	1.43	4552.14	1472.76	0.09
NF_Canoe_	Main_Ext-DS-0-0	14567.2	N	500yr	2963	371.55	387.25	378.28	387.26	0.000063	1.15	6162.25	2337	0.07
NF_Canoe_	Main_Ext-DS-0-0	14567.2	N	50yr	2336.5	371.55	385.21	377.37	385.23	0.000138	1.44	4061.31	1357.63	0.09
NF_Canoe_	Main_Ext-DS-0-0	14567.2	N	10yr	1495	371.55	384.05	376.01	384.06	0.000132	1.38	2869.12	1014.15	0.09
NF_Canoe_	Main_Ext-DS-0-0	14567.2	N	2yr	653.2	371.55	381.58	374.3	381.61	0.000212	1.43	937.22	610.42	0.11
NF_Canoe_	Main_Ext-DS-0-0	13899.4		100yr	2622.3	371.14	385.59	377.8	385.61	0.000137	1.79	4469.3	2121.71	0.1
NF_Canoe_	Main_Ext-DS-0-0	13899.4		500yr	2963	371.14	387.21	378.47	387.22	0.000064	1.35	6426.87	2384.77	0.07
NF_Canoe_	Main_Ext-DS-0-0	13899.4		50yr	2336.5	371.14	385.1	377.25	385.13	0.000157	1.85	3874.2	2033.43	0.1
NF_Canoe_	Main_Ext-DS-0-0	13899.4		10yr	1495	371.14	383.93	375.76	383.96	0.000163	1.73	2488.14	1494.11	0.1
NF_Canoe_	Main_Ext-DS-0-0	13899.4		2yr	653.2	371.14	381.43	373.89	381.47	0.000201	1.59	674.83	416.07	0.11
NF_Canoe_	Main_Ext-DS-0-0	13273.2	M	100yr	2622.3	370.4	385.48	377.85	385.51	0.000215	1.81	3716.67	1420.32	0.12
NF_Canoe_	Main_Ext-DS-0-0	13273.2	M	500yr	2963	370.4	387.16	378.52	387.17	0.000088	1.27	5810.08	2023.08	0.08
NF_Canoe_	Main_Ext-DS-0-0	13273.2	M	50yr	2336.5	370.4	384.97	377.25	385	0.000236	1.95	3144.43	1173.79	0.12
NF_Canoe_	Main_Ext-DS-0-0	13273.2	M	10yr	1495	370.4	383.81	375.76	383.84	0.000226	1.78	1967.68	890.43	0.12
NF_Canoe_	Main_Ext-DS-0-0	13273.2	M	2yr	653.2	370.4	381.26	373.89	381.3	0.000349	1.74	489.18	319.26	0.14
NF_Canoe_	Main_Ext-DS-0-0	12979.5		100yr	2622.3	371.41	385.36	377.88	385.42	0.000327	2.46	2493.45	1878.88	0.15
NF_Canoe_	Main_Ext-DS-0-0	12979.5		500yr	2963	371.41	387.11	378.42	387.13	0.000145	1.85	3793.79	2383.71	0.1
NF_Canoe_	Main_Ext-DS-0-0	12979.5		50yr	2336.5	371.41	384.84	377.41	384.91	0.000378	2.53	2106.01	1763.32	0.16
NF_Canoe_	Main_Ext-DS-0-0	12979.5		10yr	1495	371.41	383.68	375.87	383.74	0.000377	2.28	1286.46	1010.53	0.15
NF_Canoe_	Main_Ext-DS-0-0	12979.5		2yr	653.2	371.41	381.13	374.09	381.19	0.000415	1.87	348.76	73.44	0.15
NF_Canoe_	Main_Ext-DS-0-0	12921.8			Bridge									
NF_Canoe_	Main_Ext-DS-0-0	12871.2		100yr	2622.3	370.62	385.18	377.92	385.28	0.000452	3.04	1738.22	1324.41	0.18
NF_Canoe_	Main_Ext-DS-0-0	12871.2		500yr	2963	370.62	387.02	378.42	387.08	0.000217	2.39	2633.98	2193.03	0.13
NF_Canoe_	Main_Ext-DS-0-0	12871.2		50yr	2336.5	370.62	384.63	377.47	384.75	0.000502	3.07	1472.88	1158.27	0.19
NF_Canoe_	Main_Ext-DS-0-0	12871.2		10yr	1495	370.62	383.48	375.94	383.57	0.000446	2.62	912.29	664.08	0.17

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NF_Canoe_	Main_Ext-DS-0-0	12871.2	2yr	653.2	370.62	381.07	373.9	381.13	0.00035	1.88	346.75	77.38	0.14
NF_Canoe_	Main_Ext-DS-0-0	12458.1	100yr	2622.3	369.67	384.75	377.2	384.99	0.000893	3.95	707.57	445.27	0.25
NF_Canoe_	Main_Ext-DS-0-0	12458.1	500yr	2963	369.67	386.74	377.71	386.91	0.000509	3.41	1041.96	697.79	0.19
NF_Canoe_	Main_Ext-DS-0-0	12458.1	50yr	2336.5	369.67	384.22	376.78	384.45	0.000889	3.79	625.97	137.57	0.25
NF_Canoe_	Main_Ext-DS-0-0	12458.1	10yr	1495	369.67	383.24	375.29	383.36	0.000555	2.79	535.76	80.52	0.19
NF_Canoe_	Main_Ext-DS-0-0	12458.1	2yr	653.2	369.67	380.97	373.28	381.02	0.00019	1.68	388.98	55.04	0.11
NF_Canoe_	Main_Ext-DS-0-0	12027.9	L 100yr	3165.4	369.87	384.26	378.26	384.56	0.001054	4.48	788.33	1080.02	0.28
NF_Canoe_	Main_Ext-DS-0-0	12027.9	L 500yr	4210.2	369.87	386.35	379.62	386.63	0.000753	4.41	1305.92	1596.29	0.24
NF_Canoe_	Main_Ext-DS-0-0	12027.9	L 50yr	2786.1	369.87	383.76	377.67	384.03	0.001019	4.22	715.33	917.23	0.27
NF_Canoe_	Main_Ext-DS-0-0	12027.9	L 10yr	1946.8	369.87	382.9	376.36	383.08	0.000748	3.34	610.12	548.26	0.23
NF_Canoe_	Main_Ext-DS-0-0	12027.9	L 2yr	1229.4	369.87	380.65	374.97	380.8	0.000981	3.17	388.13	199.15	0.25
NF_Canoe_	Main_Ext-DS-0-0	11796.9	100yr	3165.4	369.98	384.09	377.45	384.32	0.00079	3.81	982.86	730.67	0.24
NF_Canoe_	Main_Ext-DS-0-0	11796.9	500yr	4210.2	369.98	386.24	378.54	386.45	0.000567	3.79	1437.67	1287.1	0.21
NF_Canoe_	Main_Ext-DS-0-0	11796.9	50yr	2786.1	369.98	383.59	377	383.78	0.000779	3.62	895.25	610.76	0.24
NF_Canoe_	Main_Ext-DS-0-0	11796.9	10yr	1946.8	369.98	382.79	375.89	382.91	0.000488	2.88	769.19	238.66	0.19
NF_Canoe_	Main_Ext-DS-0-0	11796.9	2yr	1229.4	369.98	380.51	374.68	380.62	0.000519	2.61	471.19	77.56	0.19
NF_Canoe_	Main_Ext-DS-0-0	11736.8		Bridge									
NF_Canoe_	Main_Ext-DS-0-0	11667.5	100yr	3165.4	369.19	383.4	375.92	383.61	0.000688	3.67	930.41	393.76	0.23
NF_Canoe_	Main_Ext-DS-0-0	11667.5	500yr	4210.2	369.19	384.83	377.03	385.08	0.000685	4.07	1206.31	805.81	0.23
NF_Canoe_	Main_Ext-DS-0-0	11667.5	50yr	2786.1	369.19	382.68	375.45	382.88	0.00073	3.56	813.88	154.92	0.23
NF_Canoe_	Main_Ext-DS-0-0	11667.5	10yr	1946.8	369.19	381.22	374.33	381.37	0.000741	3.1	629.21	111.79	0.22
NF_Canoe_	Main_Ext-DS-0-0	11667.5	2yr	1229.4	369.19	378.97	373.15	379.09	0.000546	2.76	445.24	69.04	0.19
NF_Canoe_	Main_Ext-DS-0-0	11496.7	K 100yr	3165.4	368.97	383.19	376.37	383.45	0.001	4.14	855.12	237.59	0.27
NF_Canoe_	Main_Ext-DS-0-0	11496.7	K 500yr	4210.2	368.97	384.64	377.54	384.93	0.000902	4.43	1244.01	493.59	0.26
NF_Canoe_	Main_Ext-DS-0-0	11496.7	K 50yr	2786.1	368.97	382.46	375.88	382.72	0.000985	4.06	718.6	143.4	0.26
NF_Canoe_	Main_Ext-DS-0-0	11496.7	K 10yr	1946.8	368.97	381.04	374.69	381.23	0.000813	3.48	561.57	91.27	0.24
NF_Canoe_	Main_Ext-DS-0-0	11496.7	K 2yr	1229.4	368.97	378.81	373.43	378.96	0.000781	3.13	393.34	66.04	0.23

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NF_Canoe_	Main_Ext-DS-0-0	11331	100yr	3165.4	368.71	382.94	376.58	383.25	0.001211	4.51	859.75	340.53	0.29
NF_Canoe_	Main_Ext-DS-0-0	11331	500yr	4210.2	368.71	384.48	377.76	384.75	0.001187	4.45	1378.44	490.64	0.29
NF_Canoe_	Main_Ext-DS-0-0	11331	50yr	2786.1	368.71	382.22	376.12	382.53	0.00117	4.45	681.9	182.29	0.29
NF_Canoe_	Main_Ext-DS-0-0	11331	10yr	1946.8	368.71	380.86	374.91	381.08	0.000895	3.77	516.74	72.25	0.25
NF_Canoe_	Main_Ext-DS-0-0	11331	2yr	1229.4	368.71	378.65	373.63	378.82	0.000883	3.33	369.04	61.59	0.24
NF_Canoe_	Main_Ext-DS-0-0	11256.8		Bridge									
NF_Canoe_	Main_Ext-DS-0-0	11171.4	100yr	3165.4	368.53	382.84	374.97	382.98	0.000354	3.17	1352.66	231.27	0.17
NF_Canoe_	Main_Ext-DS-0-0	11171.4	500yr	4210.2	368.53	384.33	375.93	384.51	0.000374	3.56	1736.31	440.29	0.18
NF_Canoe_	Main_Ext-DS-0-0	11171.4	50yr	2786.1	368.53	382.12	374.57	382.25	0.000349	3.01	1202.63	198.47	0.17
NF_Canoe_	Main_Ext-DS-0-0	11171.4	10yr	1946.8	368.53	380.78	373.58	380.88	0.000288	2.49	953.84	174.11	0.15
NF_Canoe_	Main_Ext-DS-0-0	11171.4	2yr	1229.4	368.53	378.58	372.52	378.65	0.000313	2.18	614.47	132.57	0.15
NF_Canoe_	Main_Ext-DS-0-0	11097.6	100yr	3165.4	368	382.74	374.97	382.93	0.000525	3.53	1064.09	452.07	0.2
NF_Canoe_	Main_Ext-DS-0-0	11097.6	500yr	4210.2	368	384.28	376.05	384.47	0.000474	3.71	1818.82	703.68	0.2
NF_Canoe_	Main_Ext-DS-0-0	11097.6	50yr	2786.1	368	382.02	374.55	382.2	0.000541	3.4	844.47	225.97	0.2
NF_Canoe_	Main_Ext-DS-0-0	11097.6	10yr	1946.8	368	380.72	373.46	380.84	0.000444	2.79	697.21	93.36	0.18
NF_Canoe_	Main_Ext-DS-0-0	11097.6	2yr	1229.4	368	378.53	372.33	378.62	0.000421	2.42	507.74	79.84	0.17
NF_Canoe_	Main_Ext-DS-0-0	11075	100yr	3165.4	368	382.73	374.97	382.92	0.000522	3.52	1116.92	602.89	0.2
NF_Canoe_	Main_Ext-DS-0-0	11075	500yr	4210.2	368	384.27	376.06	384.46	0.000458	3.64	1949.37	912.82	0.19
NF_Canoe_	Main_Ext-DS-0-0	11075	50yr	2786.1	368	382.02	374.54	382.19	0.00053	3.37	931.62	395.62	0.2
NF_Canoe_	Main_Ext-DS-0-0	11075	10yr	1946.8	368	380.71	373.47	380.83	0.000445	2.8	696.24	93.29	0.18
NF_Canoe_	Main_Ext-DS-0-0	11075	2yr	1229.4	368	378.52	372.33	378.61	0.000423	2.43	506.95	79.78	0.17
NF_Canoe_	Main_Ext-DS-0-0	11031.7 J	100yr	3165.4	368	382.71	374.98	382.9	0.000556	3.51	1080.77	597.94	0.21
NF_Canoe_	Main_Ext-DS-0-0	11031.7 J	500yr	4210.2	368	384.26	376.05	384.44	0.000476	3.61	1933.94	785.5	0.2
NF_Canoe_	Main_Ext-DS-0-0	11031.7 J	50yr	2786.1	368	381.99	374.55	382.17	0.000566	3.35	908.96	455.05	0.2
NF_Canoe_	Main_Ext-DS-0-0	11031.7 J	10yr	1946.8	368	380.69	373.46	380.81	0.000456	2.8	705.65	221.38	0.18
NF_Canoe_	Main_Ext-DS-0-0	11031.7 J	2yr	1229.4	368	378.5	372.33	378.59	0.000426	2.43	505.42	94.07	0.17
NF_Canoe_	Main_Ext-DS-0-0	10936.8		Bridge									

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NF_Canoe_	Main_Ext-DS-0-0	10837		100yr	3165.4	365.65	382.49	374.24	382.7	0.0006	3.76	949.72	308.62	0.21
NF_Canoe_	Main_Ext-DS-0-0	10837		500yr	4210.2	365.65	383.95	375.49	384.22	0.000642	4.26	1149.78	412.58	0.22
NF_Canoe_	Main_Ext-DS-0-0	10837		50yr	2786.1	365.65	381.78	373.73	381.98	0.000594	3.6	861.98	275.15	0.21
NF_Canoe_	Main_Ext-DS-0-0	10837		10yr	1946.8	365.65	380.08	372.43	380.23	0.000546	3.13	657.74	191.95	0.19
NF_Canoe_	Main_Ext-DS-0-0	10837		2yr	1229.4	365.65	377.68	371.03	377.8	0.000567	2.79	440.46	66.8	0.19
NF_Canoe_	Main_Ext-DS-0-0	10362.2	I	100yr	3165.4	366.04	382.31	373.36	382.46	0.000343	3.1	1201.52	390.42	0.17
NF_Canoe_	Main_Ext-DS-0-0	10362.2	I	500yr	4210.2	366.04	383.77	374.44	383.95	0.000367	3.49	1649.47	946.11	0.18
NF_Canoe_	Main_Ext-DS-0-0	10362.2	I	50yr	2786.1	366.04	381.61	372.91	381.74	0.000337	2.94	1061.87	211.28	0.16
NF_Canoe_	Main_Ext-DS-0-0	10362.2	I	10yr	1946.8	366.04	379.92	371.82	380.01	0.00031	2.5	816.58	126.64	0.15
NF_Canoe_	Main_Ext-DS-0-0	10362.2	I	2yr	1229.4	366.04	377.5	370.66	377.57	0.000346	2.21	557.5	90.35	0.15
NF_Canoe_	Main_Ext-DS-0-0	9719.4	H	100yr	3165.4	365.69	382.04	373.71	382.2	0.000476	3.25	1045.83	167.57	0.19
NF_Canoe_	Main_Ext-DS-0-0	9719.4	H	500yr	4210.2	365.69	383.47	374.8	383.67	0.000501	3.68	1318.34	222.18	0.2
NF_Canoe_	Main_Ext-DS-0-0	9719.4	H	50yr	2786.1	365.69	381.33	373.25	381.48	0.000488	3.12	930.13	154.97	0.19
NF_Canoe_	Main_Ext-DS-0-0	9719.4	H	10yr	1946.8	365.69	379.66	372.11	379.77	0.000464	2.73	714.85	106.27	0.18
NF_Canoe_	Main_Ext-DS-0-0	9719.4	H	2yr	1229.4	365.69	377.23	370.9	377.32	0.000443	2.47	497.51	77.51	0.17
NF_Canoe_	Main_Ext-DS-0-0	8580.4	G	100yr	3165.4	365.52	381.76	372.82	381.83	0.00021	2.5	2514.56	556.36	0.13
NF_Canoe_	Main_Ext-DS-0-0	8580.4	G	500yr	4210.2	365.52	383.22	373.91	383.29	0.000199	2.64	3250.63	795.72	0.13
NF_Canoe_	Main_Ext-DS-0-0	8580.4	G	50yr	2786.1	365.52	381.01	372.38	381.09	0.000231	2.52	2140.42	526.28	0.13
NF_Canoe_	Main_Ext-DS-0-0	8580.4	G	10yr	1946.8	365.52	379.28	371.29	379.37	0.000271	2.49	1297.43	478.82	0.14
NF_Canoe_	Main_Ext-DS-0-0	8580.4	G	2yr	1229.4	365.52	376.79	370.14	376.87	0.000346	2.36	529.94	108.87	0.15
NF_Canoe_	Main_Ext-DS-0-0	8284.6		100yr	3165.4	366.12	381.55	372.56	381.71	0.000384	3.26	983.48	430.37	0.17
NF_Canoe_	Main_Ext-DS-0-0	8284.6		500yr	4210.2	366.12	382.98	373.59	383.16	0.000412	3.63	1349.92	462.63	0.18
NF_Canoe_	Main_Ext-DS-0-0	8284.6		50yr	2786.1	366.12	380.83	372.14	380.98	0.000367	3.07	917.58	366.34	0.17
NF_Canoe_	Main_Ext-DS-0-0	8284.6		10yr	1946.8	366.12	379.17	371.07	379.28	0.000307	2.56	768.13	309.36	0.15
NF_Canoe_	Main_Ext-DS-0-0	8284.6		2yr	1229.4	366.12	376.69	370.01	376.77	0.000334	2.23	552.2	95.72	0.15
NF_Canoe_	Main_Ext-DS-0-0	8211.8			Bridge									
NF_Canoe_	Main_Ext-DS-0-0	8165.2		100yr	3165.4	366.12	381.49	372.56	381.61	0.000352	2.83	1159.17	476.21	0.16
NF_Canoe_	Main_Ext-DS-0-0	8165.2		500yr	4210.2	366.12	382.72	373.59	382.89	0.000403	3.3	1367.64	523.91	0.18

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NF_Canoe_	Main_Ext-DS-0-0	8165.2		50yr	2786.1	366.12	380.77	372.13	380.88	0.000356	2.71	1053.24	438.59	0.16
NF_Canoe_	Main_Ext-DS-0-0	8165.2		10yr	1946.8	366.12	379.11	371.08	379.2	0.000345	2.35	840.87	317.13	0.16
NF_Canoe_	Main_Ext-DS-0-0	8165.2		2yr	1229.4	366.12	376.61	370.01	376.69	0.000347	2.25	545.75	82.11	0.15
NF_Canoe_	Main_Ext-DS-0-0	7927.6		100yr	3165.4	364.85	381.43	372.26	381.53	0.00024	2.78	2332.7	731.27	0.14
NF_Canoe_	Main_Ext-DS-0-0	7927.6		500yr	4210.2	364.85	382.68	373.39	382.78	0.00024	2.96	3110.19	857.58	0.14
NF_Canoe_	Main_Ext-DS-0-0	7927.6		50yr	2786.1	364.85	380.7	371.78	380.8	0.000262	2.78	1900.49	590.43	0.15
NF_Canoe_	Main_Ext-DS-0-0	7927.6		10yr	1946.8	364.85	379.02	370.65	379.12	0.000291	2.64	1042.91	458.65	0.15
NF_Canoe_	Main_Ext-DS-0-0	7927.6		2yr	1229.4	364.85	376.52	369.45	376.61	0.000339	2.34	525.34	74.19	0.15
NF_Canoe_	Main_Ext-DS-0-0	7564.1	F	100yr	3165.4	364.85	381.35	372.25	381.44	0.000227	2.75	2429.09	1056.65	0.14
NF_Canoe_	Main_Ext-DS-0-0	7564.1	F	500yr	4210.2	364.85	382.6	373.39	382.69	0.000233	2.97	3129.88	1321.57	0.14
NF_Canoe_	Main_Ext-DS-0-0	7564.1	F	50yr	2786.1	364.85	380.61	371.79	380.71	0.00025	2.77	2014.06	932.17	0.14
NF_Canoe_	Main_Ext-DS-0-0	7564.1	F	10yr	1946.8	364.85	378.91	370.66	379.01	0.000288	2.68	1075.65	711.04	0.15
NF_Canoe_	Main_Ext-DS-0-0	7564.1	F	2yr	1229.4	364.85	376.4	369.45	376.49	0.000335	2.39	539.86	94.58	0.15
NF_Canoe_	Main_Ext-DS-0-0	7123.8		100yr	3165.4	364.64	381.35	372.02	381.36	0.000062	1.32	5470.66	1452.47	0.07
NF_Canoe_	Main_Ext-DS-0-0	7123.8		500yr	4210.2	364.64	382.59	373.26	382.61	0.000064	1.44	6613.22	1715.27	0.07
NF_Canoe_	Main_Ext-DS-0-0	7123.8		50yr	2786.1	364.64	380.6	371.58	380.62	0.000069	1.33	4792.74	1386.66	0.07
NF_Canoe_	Main_Ext-DS-0-0	7123.8		10yr	1946.8	364.64	378.89	370.46	378.91	0.000086	1.31	3282.3	1011.26	0.08
NF_Canoe_	Main_Ext-DS-0-0	7123.8		2yr	1229.4	364.64	376.32	369.29	376.35	0.000198	1.69	1434.05	596.16	0.12
NF_Canoe_	Main_Ext-DS-0-0	7086.8			Bridge									
NF_Canoe_	Main_Ext-DS-0-0	7010.6		100yr	3165.4	364.64	381.18	372	381.24	0.000163	2.24	3826.31	1678.58	0.11
NF_Canoe_	Main_Ext-DS-0-0	7010.6		500yr	4210.2	364.64	382.5	373.11	382.54	0.000149	2.3	5119.39	1748.81	0.11
NF_Canoe_	Main_Ext-DS-0-0	7010.6		50yr	2786.1	364.64	380.53	371.57	380.59	0.000181	2.28	3186.21	1515.34	0.12
NF_Canoe_	Main_Ext-DS-0-0	7010.6		10yr	1946.8	364.64	378.74	370.45	378.82	0.000249	2.39	1570.06	998.81	0.14
NF_Canoe_	Main_Ext-DS-0-0	7010.6		2yr	1229.4	364.64	376.2	369.29	376.28	0.000334	2.32	531.4	92.36	0.15
NF_Canoe_	Main_Ext-DS-0-0	6706.5	E	100yr	3165.4	364.35	381.14	371.65	381.18	0.000123	2.02	4662.43	1555.49	0.1
NF_Canoe_	Main_Ext-DS-0-0	6706.5	E	500yr	4210.2	364.35	382.46	372.75	382.49	0.00011	2.04	6350.14	1781.4	0.1
NF_Canoe_	Main_Ext-DS-0-0	6706.5	E	50yr	2786.1	364.35	380.49	371.2	380.53	0.000139	2.07	3862.12	1443.37	0.11
NF_Canoe_	Main_Ext-DS-0-0	6706.5	E	10yr	1946.8	364.35	378.67	370.06	378.74	0.000214	2.29	1771.92	1100.45	0.13

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NF_Canoe_	Main_Ext-DS-0-0	6706.5	E	2yr	1229.4	364.35	376.11	368.89	376.18	0.000299	2.22	555.33	85.27	0.14
NF_Canoe_	Main_Ext-DS-0-0	5738.9	D	100yr	3165.4	364.57	381.06	371.33	381.08	0.000081	1.6	6259.8	2529.76	0.08
NF_Canoe_	Main_Ext-DS-0-0	5738.9	D	500yr	4210.2	364.57	382.39	372.4	382.41	0.00007	1.6	8278.97	2577.32	0.08
NF_Canoe_	Main_Ext-DS-0-0	5738.9	D	50yr	2786.1	364.57	380.39	370.9	380.42	0.000094	1.66	5245.5	2394.7	0.09
NF_Canoe_	Main_Ext-DS-0-0	5738.9	D	10yr	1946.8	364.57	378.5	369.82	378.55	0.000177	2.02	2440.2	1652.83	0.12
NF_Canoe_	Main_Ext-DS-0-0	5738.9	D	2yr	1229.4	364.57	375.81	368.71	375.88	0.000319	2.19	564.15	93.99	0.15
NF_Canoe_	Main_Ext-DS-0-0	4899.4		100yr	5121.7	363.89	380.88	372.98	380.95	0.000252	2.99	6115.68	3140.06	0.14
NF_Canoe_	Main_Ext-DS-0-0	4899.4		500yr	6935.8	363.89	382.25	374.48	382.3	0.000191	2.78	9216.57	3810.66	0.13
NF_Canoe_	Main_Ext-DS-0-0	4899.4		50yr	4432.2	363.89	380.16	372.33	380.26	0.00032	3.25	4579.66	2703.7	0.16
NF_Canoe_	Main_Ext-DS-0-0	4899.4		10yr	2994.5	363.89	378.04	370.74	378.25	0.000576	3.86	1351.82	942.96	0.21
NF_Canoe_	Main_Ext-DS-0-0	4899.4		2yr	1785.1	363.89	375.27	369.06	375.46	0.000702	3.47	517.16	70.65	0.22
NF_Canoe_	Main_Ext-DS-0-0	3856.3	C	100yr	5121.7	363.41	380.28	372.19	380.54	0.000665	4.27	2122.84	1444.56	0.23
NF_Canoe_	Main_Ext-DS-0-0	3856.3	C	500yr	6935.8	363.41	381.77	373.68	381.98	0.000542	4.21	3776.27	2129.52	0.21
NF_Canoe_	Main_Ext-DS-0-0	3856.3	C	50yr	4432.2	363.41	379.54	371.57	379.78	0.000673	4.1	1535.88	895.13	0.23
NF_Canoe_	Main_Ext-DS-0-0	3856.3	C	10yr	2994.5	363.41	377.32	370.05	377.54	0.000827	3.83	806.23	173.82	0.24
NF_Canoe_	Main_Ext-DS-0-0	3856.3	C	2yr	1785.1	363.41	374.56	368.48	374.73	0.000692	3.33	536.56	74.48	0.22
NF_Canoe_	Main_Ext-DS-0-0	3073.1		100yr	5121.7	363.74	379.72	372.22	380.02	0.00066	4.67	1653.22	1252.02	0.24
NF_Canoe_	Main_Ext-DS-0-0	3073.1		500yr	6935.8	363.74	381.11	373.56	381.48	0.000742	5.32	2091.43	1495.79	0.25
NF_Canoe_	Main_Ext-DS-0-0	3073.1		50yr	4432.2	363.74	378.98	371.63	379.27	0.000653	4.46	1423.84	1166.73	0.23
NF_Canoe_	Main_Ext-DS-0-0	3073.1		10yr	2994.5	363.74	376.68	370.19	376.93	0.000728	4.06	804.7	849.46	0.24
NF_Canoe_	Main_Ext-DS-0-0	3073.1		2yr	1785.1	363.74	373.95	368.68	374.14	0.000819	3.46	516.76	514.33	0.24
NF_Canoe_	Main_Ext-DS-0-0	2858.5		100yr	5121.7	363.09	379.49	372.39	379.85	0.000825	4.99	1261.19	524.69	0.26
NF_Canoe_	Main_Ext-DS-0-0	2858.5		500yr	6935.8	363.09	380.75	373.97	381.26	0.001029	5.98	1478.8	1149.89	0.3
NF_Canoe_	Main_Ext-DS-0-0	2858.5		50yr	4432.2	363.09	378.79	371.78	379.1	0.000778	4.64	1149.7	370.11	0.25
NF_Canoe_	Main_Ext-DS-0-0	2858.5		10yr	2994.5	363.09	376.51	370.33	376.77	0.000841	4.11	821.92	131.59	0.25
NF_Canoe_	Main_Ext-DS-0-0	2858.5		2yr	1785.1	363.09	373.72	368.74	373.94	0.000978	3.74	501.02	94.02	0.26
NF_Canoe_	Main_Ext-DS-0-0	2791.8		Bridge										

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NF_Canoe_	Main_Ext-DS-0-0	2724		100yr	5121.7	363.09	379.12	372.57	379.36	0.000876	3.95	1296.24	414.68	0.25
NF_Canoe_	Main_Ext-DS-0-0	2724		500yr	6935.8	363.09	380.33	373.91	380.66	0.001043	4.59	1511.9	576.68	0.28
NF_Canoe_	Main_Ext-DS-0-0	2724		50yr	4432.2	363.09	378.45	371.97	378.67	0.000853	3.75	1182.4	357.7	0.25
NF_Canoe_	Main_Ext-DS-0-0	2724		10yr	2994.5	363.09	376.22	370.32	376.42	0.001012	3.59	835.14	145.49	0.26
NF_Canoe_	Main_Ext-DS-0-0	2724		2yr	1785.1	363.09	373.49	368.74	373.69	0.001261	3.57	499.64	100.92	0.28
NF_Canoe_	Main_Ext-DS-0-0	2538.1	B	100yr	5121.7	362.94	378.88	372.25	379.18	0.000856	4.59	1595.32	457.86	0.26
NF_Canoe_	Main_Ext-DS-0-0	2538.1	B	500yr	6935.8	362.94	380.08	373.83	380.46	0.00096	5.25	2110.99	646.6	0.28
NF_Canoe_	Main_Ext-DS-0-0	2538.1	B	50yr	4432.2	362.94	378.21	371.49	378.49	0.000852	4.37	1351.35	345.83	0.26
NF_Canoe_	Main_Ext-DS-0-0	2538.1	B	10yr	2994.5	362.94	375.94	369.96	376.2	0.001127	4.15	754.62	178.8	0.28
NF_Canoe_	Main_Ext-DS-0-0	2538.1	B	2yr	1785.1	362.94	373.19	368.31	373.43	0.001319	3.93	454.26	80.62	0.29
NF_Canoe_	Main_Ext-DS-0-0	2326.2		100yr	5121.7	363.25	378.5	371.7	378.94	0.000987	5.53	1364.45	363.09	0.28
NF_Canoe_	Main_Ext-DS-0-0	2326.2		500yr	6935.8	363.25	379.56	373.1	380.16	0.001241	6.57	1806.19	479.48	0.32
NF_Canoe_	Main_Ext-DS-0-0	2326.2		50yr	4432.2	363.25	377.86	371.07	378.26	0.000936	5.19	1153.31	307.99	0.27
NF_Canoe_	Main_Ext-DS-0-0	2326.2		10yr	2994.5	363.25	375.64	369.6	375.96	0.000985	4.58	676.04	117.19	0.27
NF_Canoe_	Main_Ext-DS-0-0	2326.2		2yr	1785.1	363.25	372.95	368.03	373.19	0.001031	3.89	459.57	69.88	0.27
NF_Canoe_	Main_Ext-DS-0-0	2266.8			Bridge									
NF_Canoe_	Main_Ext-DS-0-0	2223.8		100yr	5121.7	362.58	377.64	373.22	378.44	0.002224	7.43	935.56	336.53	0.41
NF_Canoe_	Main_Ext-DS-0-0	2223.8		500yr	6935.8	362.58	379.23	374.81	380.1	0.002135	8.03	1445.85	580.97	0.41
NF_Canoe_	Main_Ext-DS-0-0	2223.8		50yr	4432.2	362.58	376.9	372.53	377.65	0.002229	7.07	784.43	232.84	0.41
NF_Canoe_	Main_Ext-DS-0-0	2223.8		10yr	2994.5	362.58	374.86	370.87	375.49	0.002512	6.37	486.39	87.85	0.42
NF_Canoe_	Main_Ext-DS-0-0	2223.8		2yr	1785.1	362.58	372.19	369.03	372.72	0.003008	5.84	305.72	54.38	0.43
NF_Canoe_	Main_Ext-DS-0-0	2073.1		100yr	5121.7	361.75	377.58	370.76	378.02	0.001194	5.4	1022.1	192.53	0.3
NF_Canoe_	Main_Ext-DS-0-0	2073.1		500yr	6935.8	361.75	379.15	372.22	379.7	0.00124	6.07	1527.05	459.26	0.32
NF_Canoe_	Main_Ext-DS-0-0	2073.1		50yr	4432.2	361.75	376.84	370.13	377.24	0.001174	5.08	900.1	139.03	0.3
NF_Canoe_	Main_Ext-DS-0-0	2073.1		10yr	2994.5	361.75	374.79	368.59	375.09	0.001048	4.39	682.9	87.24	0.27
NF_Canoe_	Main_Ext-DS-0-0	2073.1		2yr	1785.1	361.75	372.09	366.98	372.32	0.001033	3.81	468.72	72.45	0.26
NF_Canoe_	Main_Ext-DS-0-0	1455.4	A	100yr	5121.7	361.78	377.04	370.27	377.39	0.000819	4.92	1619.96	447.58	0.26
NF_Canoe_	Main_Ext-DS-0-0	1455.4	A	500yr	6935.8	361.78	378.7	371.61	379.05	0.000768	5.22	2404.25	496.83	0.26

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NF_Canoe_	Main_Ext-DS-0-0	1455.4	A	50yr	4432.2	361.78	376.27	369.68	376.61	0.000852	4.78	1285.61	409.85	0.26
NF_Canoe_	Main_Ext-DS-0-0	1455.4	A	10yr	2994.5	361.78	374.21	368.26	374.48	0.000898	4.23	720.39	109.1	0.26
NF_Canoe_	Main_Ext-DS-0-0	1455.4	A	2yr	1785.1	361.78	371.46	366.76	371.67	0.001044	3.73	479.28	79.1	0.27
NF_Canoe_	Main_Ext-DS-0-0	450.5		100yr	5121.7	360.84	376.04	369.17	376.47	0.001001	5.47	1314.05	338.51	0.29
NF_Canoe_	Main_Ext-DS-0-0	450.5		500yr	6935.8	360.84	377.68	370.61	378.16	0.001001	5.99	1947.54	446.68	0.29
NF_Canoe_	Main_Ext-DS-0-0	450.5		50yr	4432.2	360.84	375.27	368.56	375.68	0.001	5.21	1076.1	282.34	0.28
NF_Canoe_	Main_Ext-DS-0-0	450.5		10yr	2994.5	360.84	373.22	367.15	373.53	0.001	4.5	705.5	112.99	0.27
NF_Canoe_	Main_Ext-DS-0-0	450.5		2yr	1785.1	360.84	370.41	365.63	370.64	0.001001	3.92	465.62	73.87	0.26
Canoewrr	Canoewrr	31238.12		100yr	877.4	397.48	408.12	403.07	408.36	0.002208	3.93	225.24	996.63	0.3
Canoewrr	Canoewrr	31238.12		500yr	1211.4	397.48	408.01	404.15	408.48	0.004483	5.54	219.67	988.51	0.43
Canoewrr	Canoewrr	31238.12		50yr	746.6	397.48	408.15	402.59	408.32	0.00157	3.32	226.9	998.81	0.25
Canoewrr	Canoewrr	31238.12		10yr	474.9	397.48	406.47	401.43	406.6	0.001595	2.98	159.22	906.19	0.25
Canoewrr	Canoewrr	31238.12		2yr	251.5	397.48	403.53	400.22	403.67	0.00181	2.95	85.36	19.53	0.25
Canoewrr	Canoewrr	31040.61		100yr	877.4	397.15	408.23	402	408.23	0.000011	0.32	5070.86	1128.77	0.02
Canoewrr	Canoewrr	31040.61		500yr	1211.4	397.15	408.23	403.04	408.23	0.000021	0.44	5070.86	1128.77	0.03
Canoewrr	Canoewrr	31040.61		50yr	746.6	397.15	408.23	401.55	408.23	0.000008	0.27	5070.86	1128.77	0.02
Canoewrr	Canoewrr	31040.61		10yr	474.9	397.15	406.21	400.5	406.32	0.001183	2.63	180.73	988.39	0.21
Canoewrr	Canoewrr	31040.61		2yr	251.5	397.15	403.27	399.44	403.36	0.001147	2.48	101.38	485.76	0.19
Canoewrr	Canoewrr	31001.95			Culvert									
Canoewrr	Canoewrr	30943.45		100yr	877.4	396.44	405.49	402.05	405.91	0.003415	5.2	170.79	734.94	0.38
Canoewrr	Canoewrr	30943.45		500yr	1211.4	396.44	406.63	403.04	406.64	0.000181	1.33	2501.71	1125.81	0.09
Canoewrr	Canoewrr	30943.45		50yr	746.6	396.44	404.94	401.61	405.31	0.003327	4.88	153.38	643.84	0.37
Canoewrr	Canoewrr	30943.45		10yr	474.9	396.44	403.55	400.52	403.81	0.002966	4.11	115.42	291.42	0.34
Canoewrr	Canoewrr	30943.45		2yr	251.5	396.44	401.94	399.37	402.11	0.002396	3.22	78.02	21.38	0.3
Canoewrr	Canoewrr	30836.15		100yr	877.4	396.13	402.87	402.87	404.69	0.02718	10.82	81.09	385.55	1
Canoewrr	Canoewrr	30836.15		500yr	1211.4	396.13	403.86	403.86	405.95	0.026051	11.6	104.47	720.52	1
Canoewrr	Canoewrr	30836.15		50yr	746.6	396.13	402.43	402.43	404.12	0.027749	10.44	71.49	134.21	1
Canoewrr	Canoewrr	30836.15		10yr	474.9	396.13	401.36	401.36	402.74	0.029261	9.43	50.34	18.23	1

Canoe Creek Flood Impact Study on Proposed I69
Parsons HECRAS Model GeoRAScanoe101019.ghr Backup Data
Parsons Proposed Condition with Interim Detention Basin HECRAS Plan Candet4 Summary Table

Canoewrr	Canoewrr	30836.15	2yr	251.5	396.13	400.15	400.15	401.2	0.031847	8.24	30.51	14.53	1
Canoewrr	Canoewrr	30724.21	100yr	877.4	394.55	400.39	397.54	400.78	0.002491	5.01	175.16	76.71	0.37
Canoewrr	Canoewrr	30724.21	500yr	1211.4	394.55	402.03	398.25	402.48	0.002076	5.4	224.48	89.86	0.35
Canoewrr	Canoewrr	30724.21	50yr	746.6	394.55	399.87	397.23	400.21	0.002462	4.68	159.53	72.54	0.36
Canoewrr	Canoewrr	30724.21	10yr	474.9	394.55	398.64	396.53	398.87	0.002394	3.87	122.63	62.7	0.34
Canoewrr	Canoewrr	30724.21	2yr	251.5	394.55	397.38	395.85	397.52	0.002279	2.96	85	52.67	0.31
Canoewrr	Canoewrr	30524.31		Culvert									
Canoewrr	Canoewrr	30371	100yr	877.4	394.39	400.08	397.38	400.5	0.001464	5.17	169.57	87.89	0.38
Canoewrr	Canoewrr	30371	500yr	1211.4	394.39	401.19	398.11	401.74	0.001541	5.98	202.66	632.17	0.4
Canoewrr	Canoewrr	30371	50yr	746.6	394.39	399.6	397.08	399.96	0.001422	4.81	155.28	71.69	0.37
Canoewrr	Canoewrr	30371	10yr	474.9	394.39	398.47	396.39	398.71	0.001302	3.91	121.53	62.63	0.34
Canoewrr	Canoewrr	30371	2yr	251.5	394.39	397.28	395.7	397.42	0.001146	2.92	86.23	53.16	0.3
Canoewrr	Canoewrr	30106.17	100yr	877.4	393.79	399.42	396.97	399.92	0.003379	5.69	154.07	75.01	0.42
Canoewrr	Canoewrr	30106.17	500yr	1211.4	393.79	400.44	397.73	401.13	0.003694	6.65	182.05	248.83	0.45
Canoewrr	Canoewrr	30106.17	50yr	746.6	393.79	398.98	396.63	399.41	0.003205	5.25	142.08	71.5	0.41
Canoewrr	Canoewrr	30106.17	10yr	474.9	393.79	397.95	395.9	398.22	0.002711	4.17	113.89	63.27	0.36
Canoewrr	Canoewrr	30106.17	2yr	251.5	393.79	396.88	395.17	397.02	0.002047	2.97	84.62	54.72	0.3
Canoewrr	Canoewrr	29531.08	100yr	877.4	393.46	398.09	396.09	398.47	0.001869	4.97	176.46	113.03	0.41
Canoewrr	Canoewrr	29531.08	500yr	1211.4	393.46	399.21	396.68	399.68	0.001699	5.5	220.35	251.61	0.41
Canoewrr	Canoewrr	29531.08	50yr	746.6	393.46	397.63	395.83	397.97	0.001946	4.72	158.24	63.35	0.41
Canoewrr	Canoewrr	29531.08	10yr	474.9	393.46	396.58	395.25	396.84	0.002134	4.05	117.32	55.01	0.41
Canoewrr	Canoewrr	29531.08	2yr	251.5	393.46	395.51	394.68	395.69	0.002631	3.34	75.24	46.43	0.43
Canoewrr	Canoewrr	29191.02		Culvert									
Canoewrr	Canoewrr	28940.41	100yr	877.4	392.8	396.54	395.79	397.49	0.00587	7.83	112.05	66.73	0.71
Canoewrr	Canoewrr	28940.41	500yr	1211.4	392.8	396.83	396.51	398.39	0.00871	10.03	120.8	70.99	0.88
Canoewrr	Canoewrr	28940.41	50yr	746.6	392.8	396.36	395.48	397.12	0.004983	6.99	106.83	64.19	0.65
Canoewrr	Canoewrr	28940.41	10yr	474.9	392.8	395.86	394.79	396.28	0.003334	5.17	91.87	56.96	0.52

Canoe Creek Flood Impact Study on Proposed I69
Parsons HECRAS Model GeoRAScanoe101019.ghr Backup Data
Parsons Proposed Condition with Interim Detention Basin HECRAS Plan Candet4 Summary Table

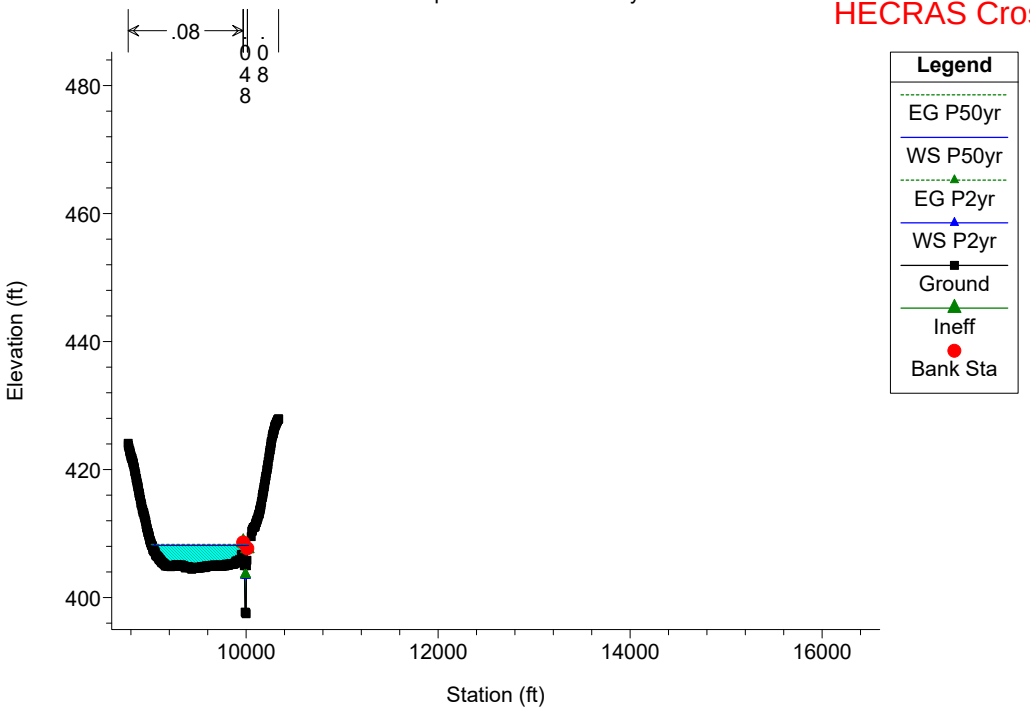
Canoewrr	Canoewrr	28940.41	2yr	251.5	392.8	395.16	394.1	395.36	0.002227	3.55	70.81	48.94	0.41
Canoewrr	Canoewrr	28532	100yr	877.4	392.8	396.06	394.61	396.18	0.001447	2.8	313.85	161.01	0.34
Canoewrr	Canoewrr	28532	500yr	1211.4	392.8	396.72	395.16	396.85	0.001301	2.94	411.85	169.04	0.31
Canoewrr	Canoewrr	28532	50yr	746.6	392.8	395.78	394.42	395.9	0.001523	2.74	272.97	157.57	0.35
Canoewrr	Canoewrr	28532	10yr	474.9	392.8	395.12	394.01	395.23	0.001724	2.63	180.57	149.89	0.41
Canoewrr	Canoewrr	28532	2yr	251.5	392.8	394.42	393.6	394.5	0.001832	2.34	107.34	82.5	0.34
Canoewrr	Canoewrr	27158	100yr	1391.9	389.9	393.89	392.39	394.06	0.001597	3.29	422.71	171.13	0.35
Canoewrr	Canoewrr	27158	500yr	1938.9	389.9	394.63	392.76	394.83	0.001576	3.61	536.45	215.84	0.35
Canoewrr	Canoewrr	27158	50yr	1178.8	389.9	393.57	392.23	393.73	0.001604	3.15	374.74	168.1	0.35
Canoewrr	Canoewrr	27158	10yr	738.9	389.9	392.81	391.52	392.93	0.001638	2.8	263.44	160.85	0.36
Canoewrr	Canoewrr	27158	2yr	382.1	389.9	392	390.95	392.1	0.001693	2.56	149.25	153.08	0.43
Canoewrr	Canoewrr	25956	100yr	1572.4	387.7	391.8	390.32	392	0.001836	3.59	438.59	179.96	0.37
Canoewrr	Canoewrr	25956	500yr	2187.1	387.7	392.52	390.72	392.77	0.001853	3.97	551.44	267.85	0.37
Canoewrr	Canoewrr	25956	50yr	1335.5	387.7	391.48	390.15	391.66	0.001829	3.42	391.04	166.39	0.37
Canoewrr	Canoewrr	25956	10yr	840.6	387.7	390.73	389.46	390.87	0.001804	3	280.04	159.17	0.38
Canoewrr	Canoewrr	25956	2yr	435.7	387.7	389.91	388.85	390.02	0.001772	2.64	165.22	151.38	0.42
Canoewrr	Canoewrr	24827	100yr	1572.4	385.6	389.58	388.22	389.79	0.002068	3.74	420.5	171.58	0.4
Canoewrr	Canoewrr	24827	500yr	2187.1	385.6	390.29	388.61	390.56	0.002063	4.12	531.1	439.81	0.4
Canoewrr	Canoewrr	24827	50yr	1335.5	385.6	389.27	388.04	389.47	0.002069	3.57	374.08	168.23	0.4
Canoewrr	Canoewrr	24827	10yr	840.6	385.6	388.53	387.36	388.68	0.002077	3.17	265.49	160.48	0.41
Canoewrr	Canoewrr	24827	2yr	435.7	385.6	387.73	386.75	387.85	0.002082	2.84	153.28	152.51	0.47
Canoewrr	Canoewrr	23524	100yr	1572.4	382.92	386.93	385.53	387.14	0.002001	3.7	425.48	166.34	0.39
Canoewrr	Canoewrr	23524	500yr	2187.1	382.92	387.65	385.93	387.91	0.002	4.07	536.88	173.84	0.39
Canoewrr	Canoewrr	23524	50yr	1335.5	382.92	386.62	385.36	386.81	0.002003	3.53	378.44	163.08	0.39
Canoewrr	Canoewrr	23524	10yr	840.6	382.92	385.87	384.68	386.02	0.002001	3.12	269.26	153.55	0.4
Canoewrr	Canoewrr	23524	2yr	435.7	382.92	385.07	384.07	385.19	0.002003	2.79	156.11	143.26	0.46

Appendix B-6

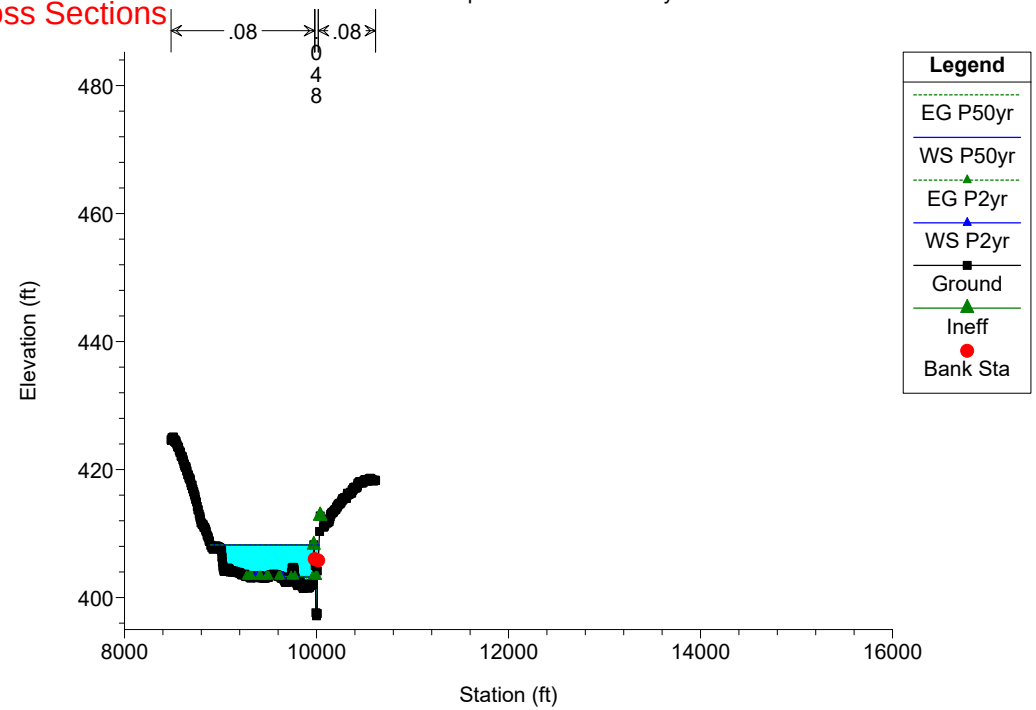
Appendix B-6

Parsons Existing Condition HECRAS Cross Sections

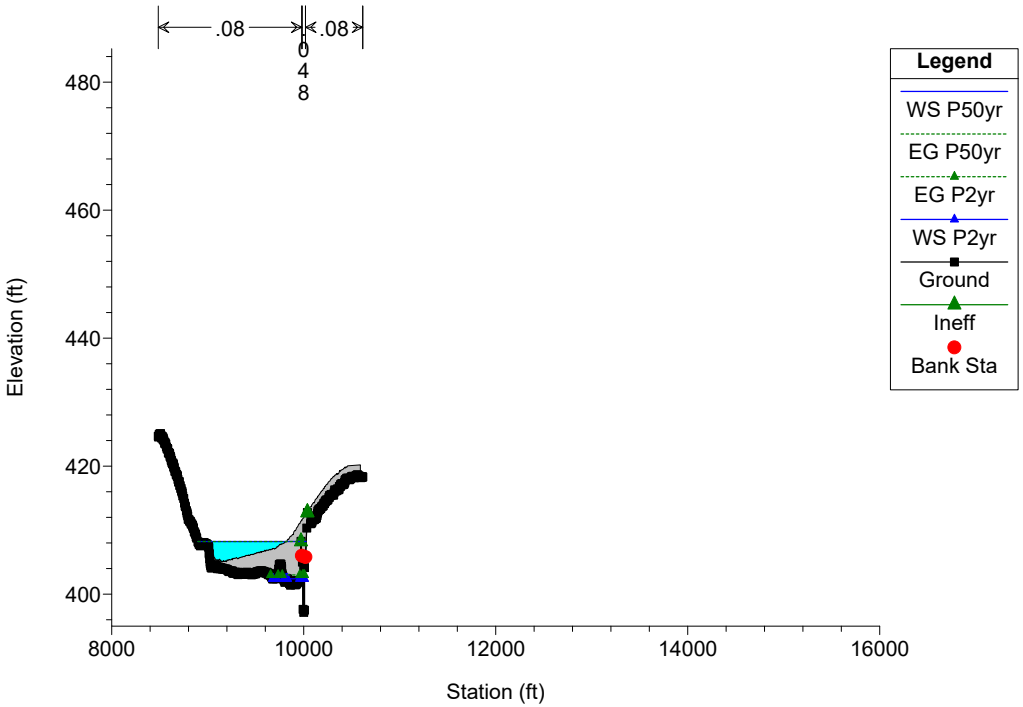
NF_Canoe Plan: canoex3 9/9/2019
RS = 31238.12 XS Upstream/North of Hwy 60 and west of RR



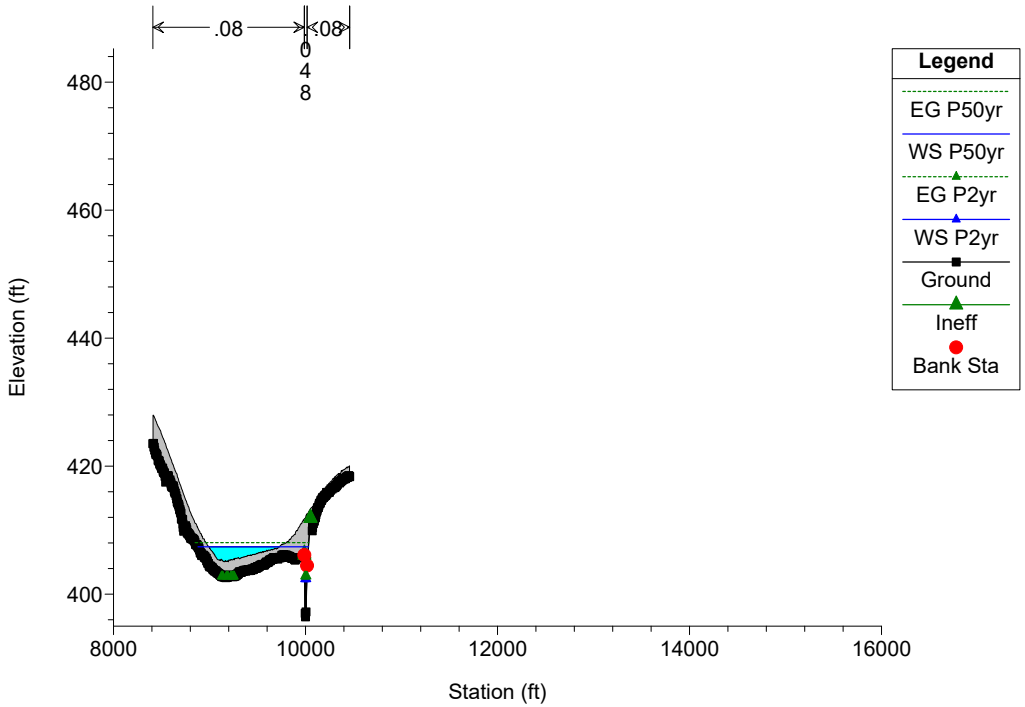
NF_Canoe Plan: canoex3 9/9/2019
RS = 31040.61 XS Just upstream/North of Hwy 60 and west of RR



NF_Canoe Plan: canoex3 9/9/2019
RS = 31001.95 Culv



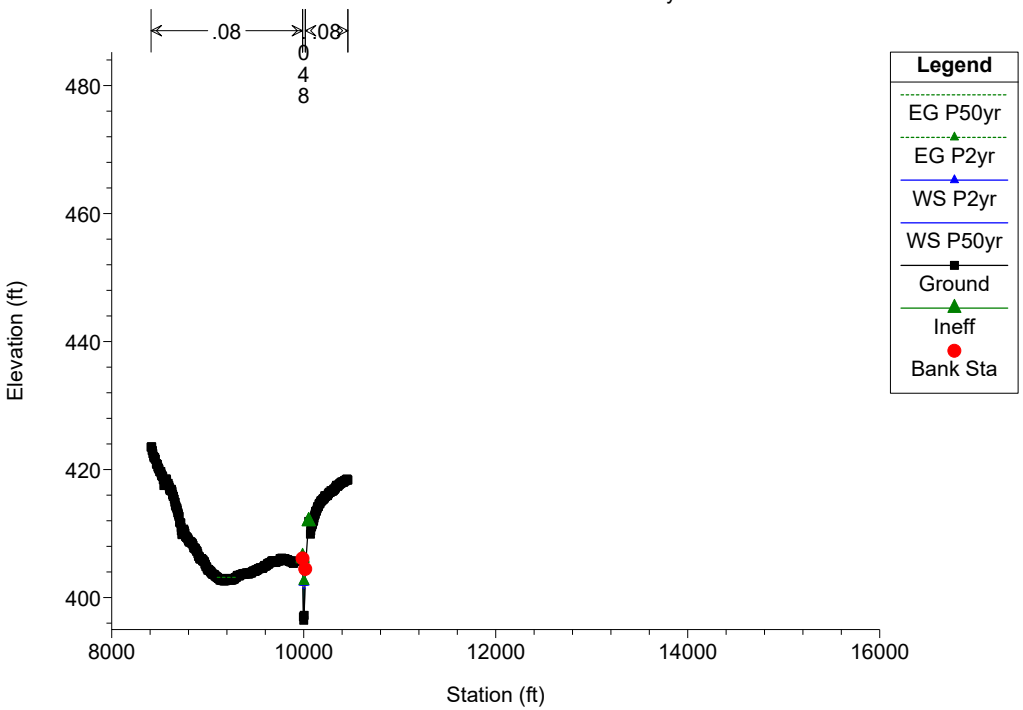
NF_Canoe Plan: canoex3 9/9/2019
RS = 31001.95 Culv



1 in Horiz. = 2000 ft 1 in Vert. = 30 ft

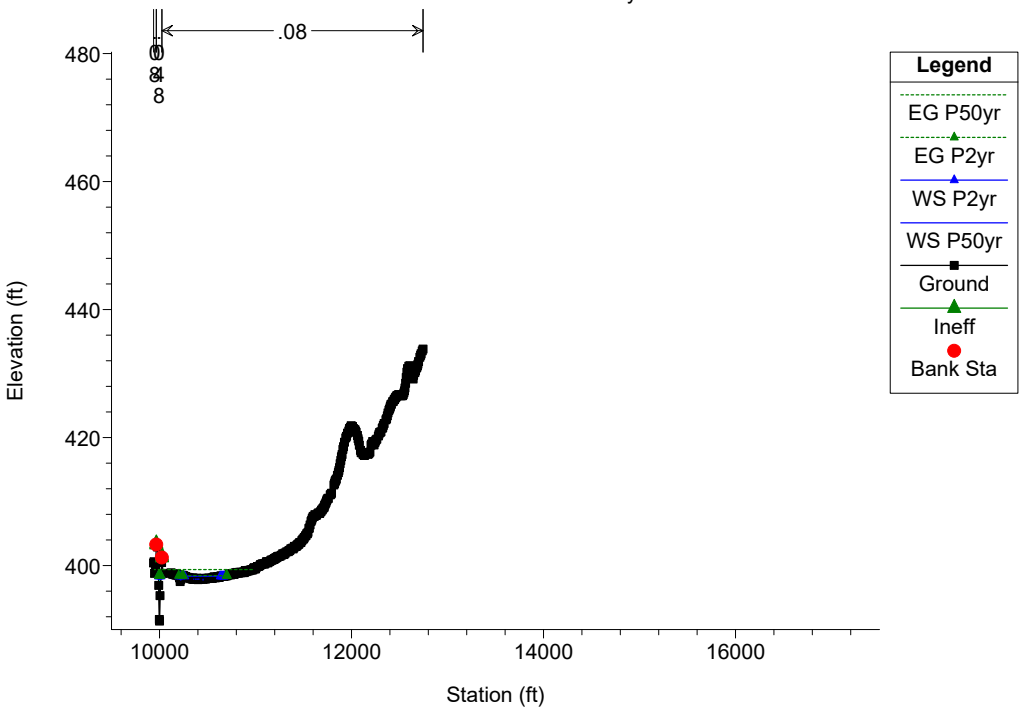
NF_Canoe Plan: canoex3 9/9/2019

: 30943.45 XS Just downstream/South of Hwy 60 and west of RR



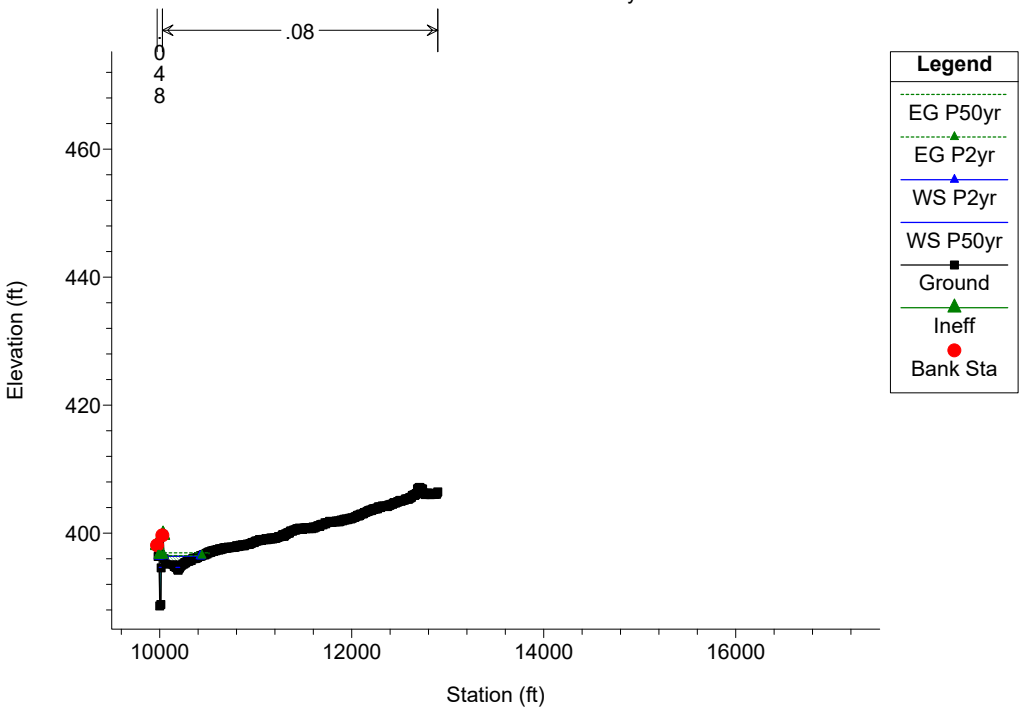
NF_Canoe Plan: canoex3 9/9/2019

RS = 28532 XS downstream/south of Hwy 60 and west of RR



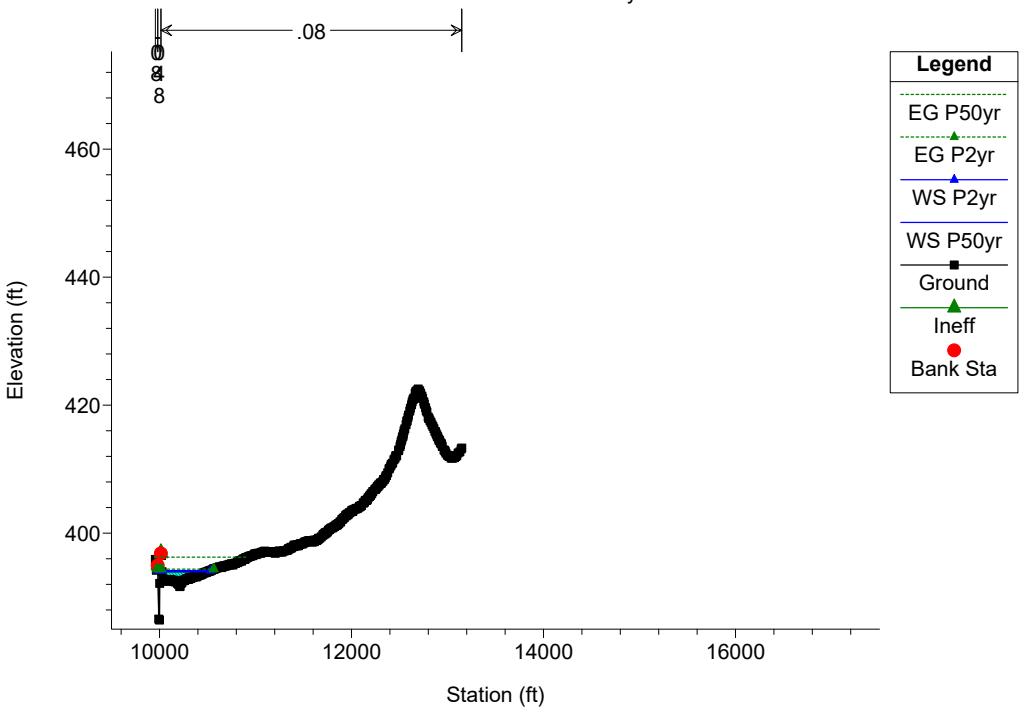
NF_Canoe Plan: canoex3 9/9/2019

RS = 27158 XS downstream/south of Hwy 60 and west of RR



NF_Canoe Plan: canoex3 9/9/2019

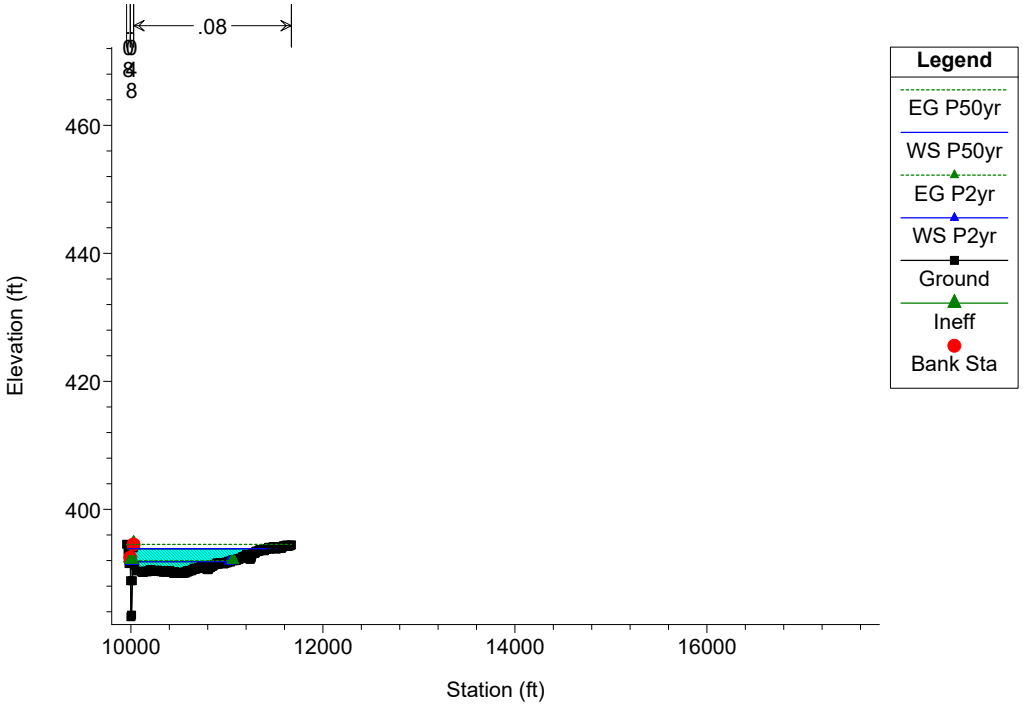
RS = 25956 XS downstream/south of Hwy 60 and west of RR



1 in Horiz. = 2000 ft 1 in Vert. = 30 ft

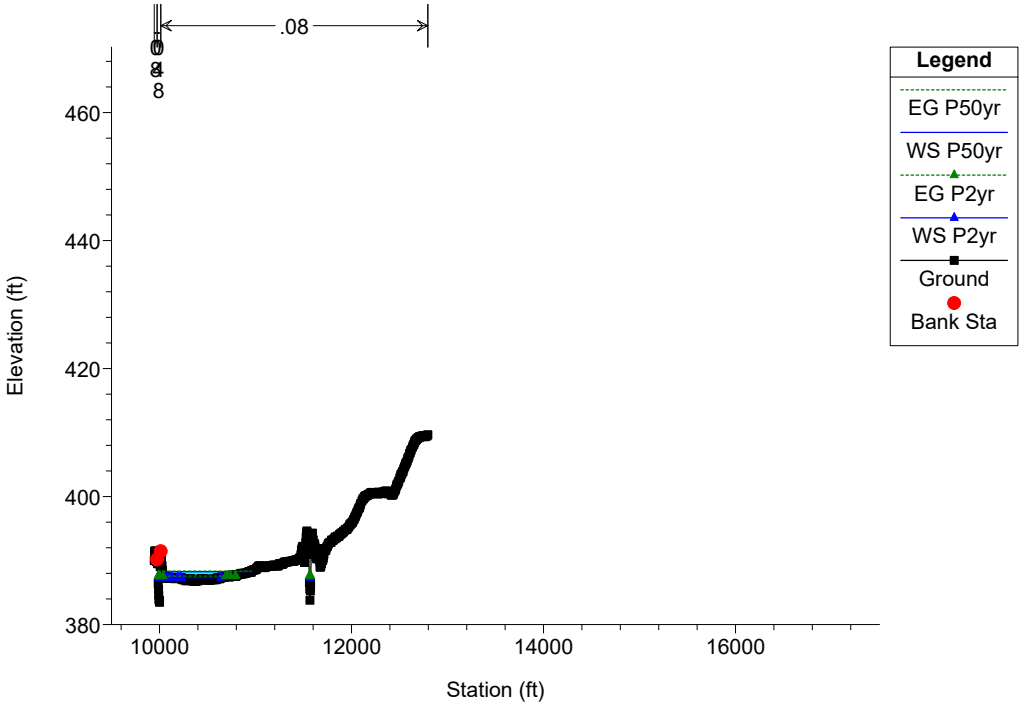
NF_Canoe Plan: canoex3 9/9/2019

RS = 24827 XS downstream/south of Hwy 60 and west of RR



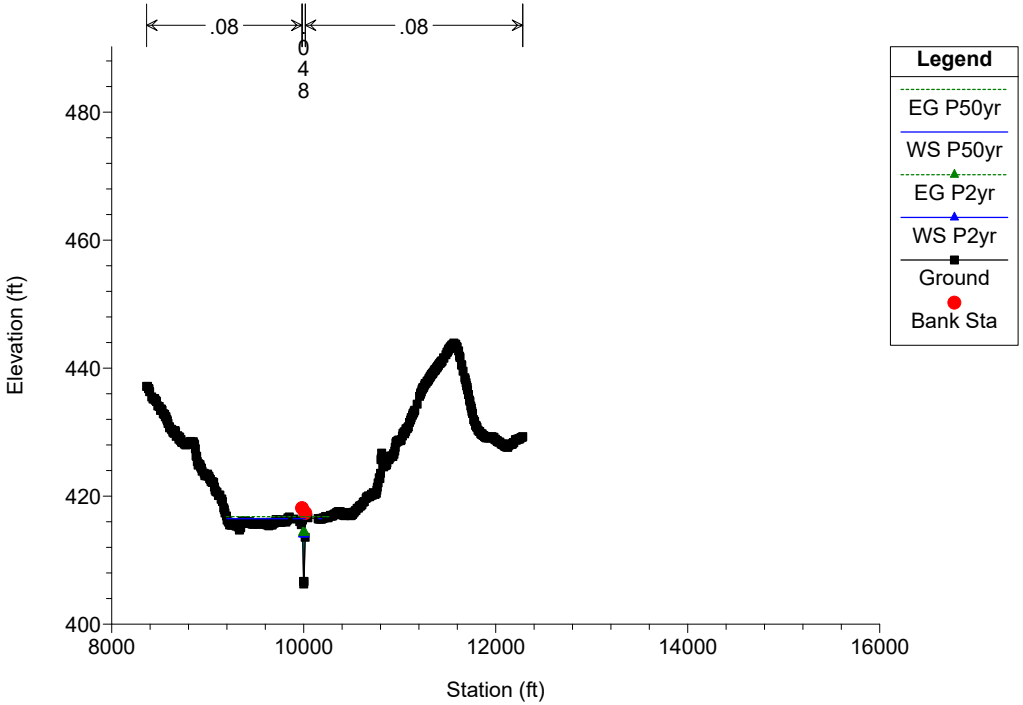
NF_Canoe Plan: canoex3 9/9/2019

RS = 23524 XS downstream/south of Hwy 60 and west of RR



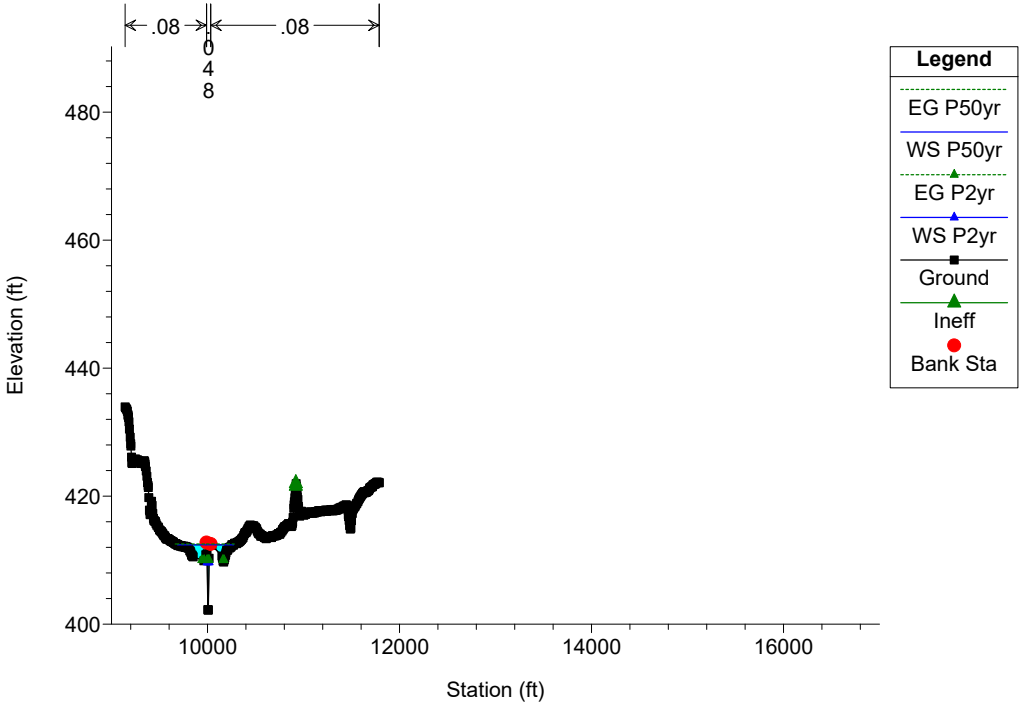
NF_Canoe Plan: canoex3 9/9/2019

RS = 38011.5 XS Upstream/North of Hwy 60 and east of RR



NF_Canoe Plan: canoex3 9/9/2019

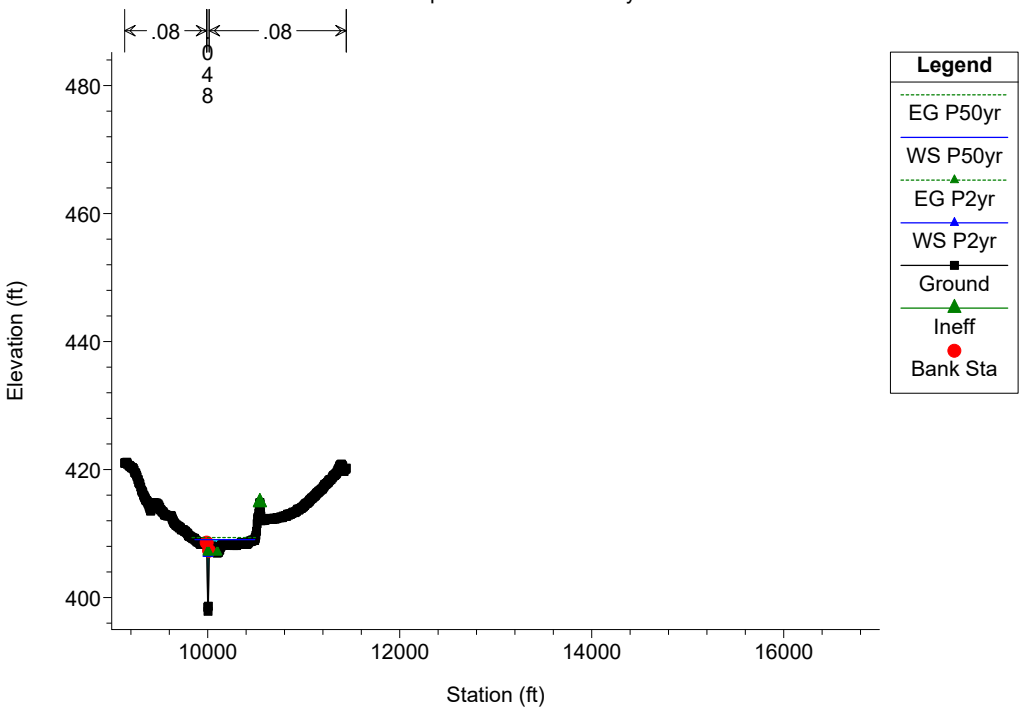
RS = 37046.5 XS Upstream/North of Hwy 60 and east of RR



1 in Horiz. = 2000 ft 1 in Vert. = 30 ft

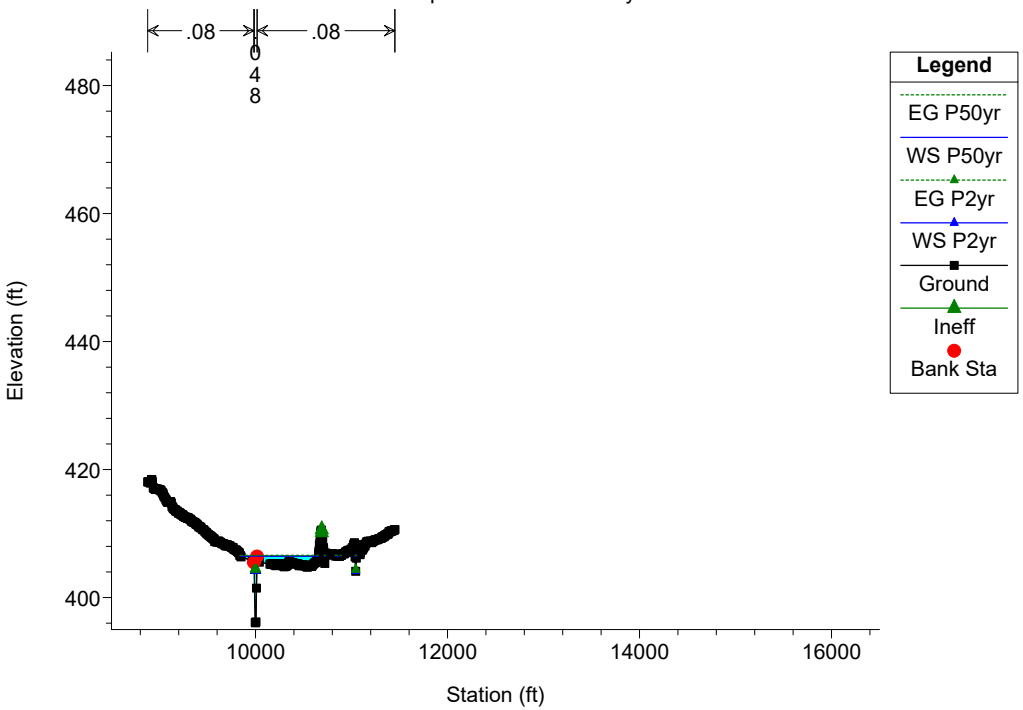
NF_Canoe Plan: canoex3 9/9/2019

RS = 36058.4 XS Upstream/North of Hwy 60 and east of RR



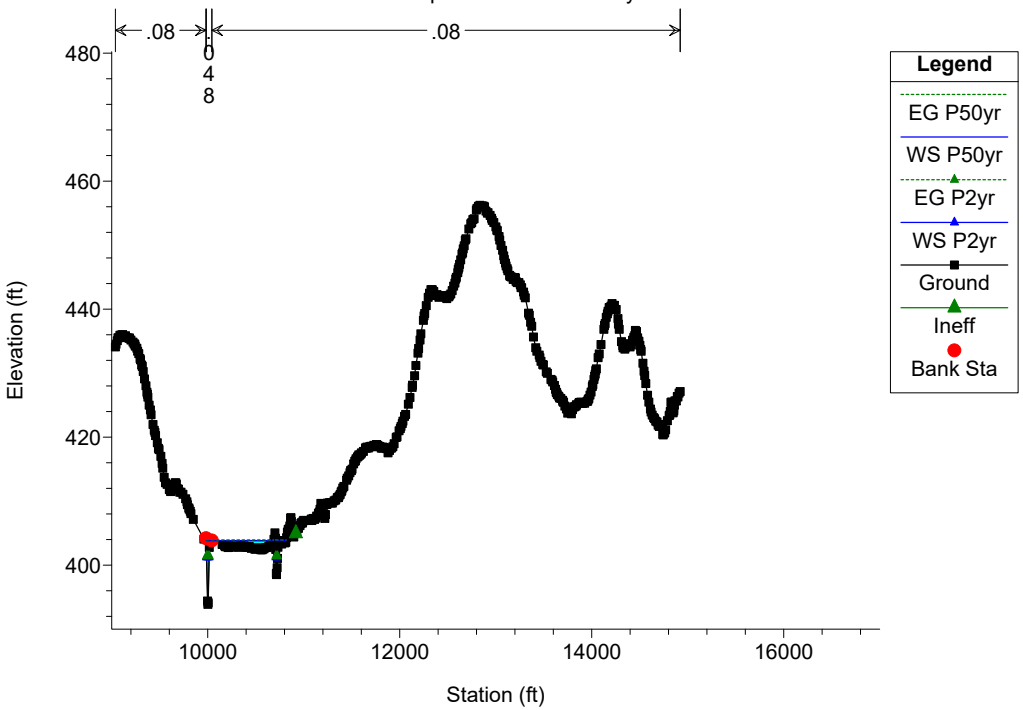
NF_Canoe Plan: canoex3 9/9/2019

RS = 34775.6 XS Upstream/North of Hwy 60 and east of RR



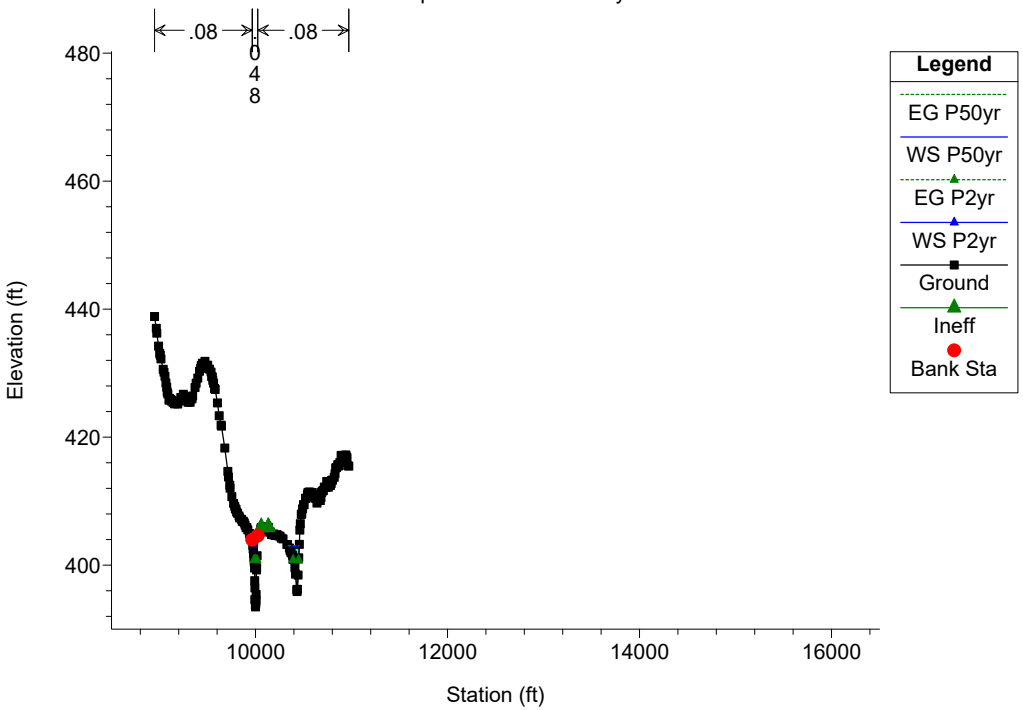
NF_Canoe Plan: canoex3 9/9/2019

RS = 33442.3 XS Upstream/North of Hwy 60 and east of RR



NF_Canoe Plan: canoex3 9/9/2019

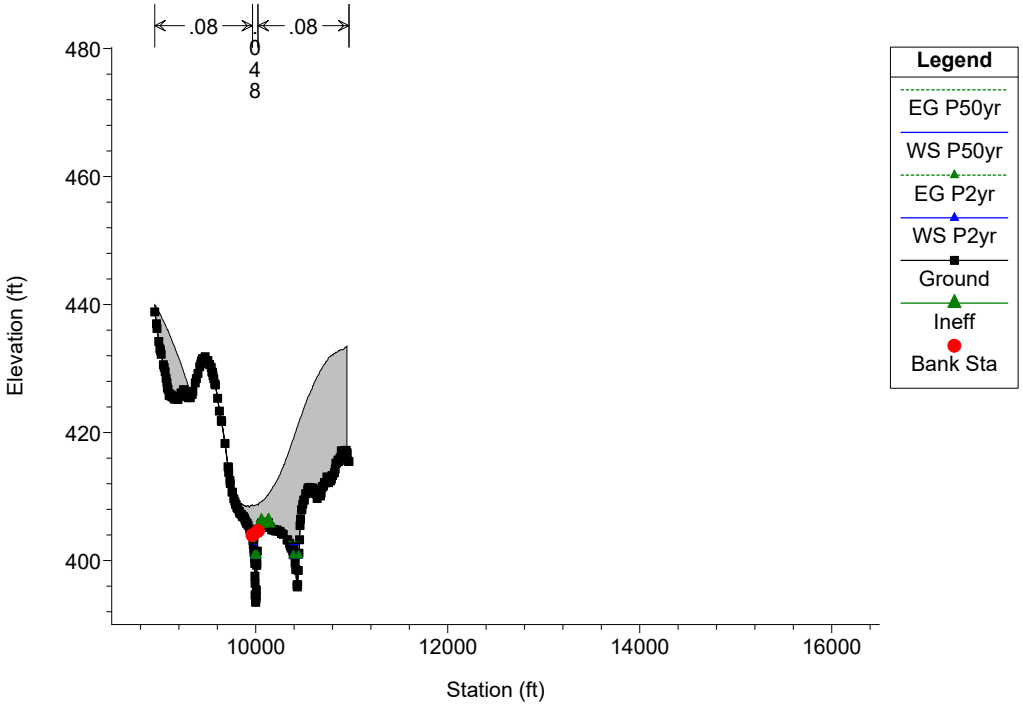
RS = 33116 XS Upstream/North of Hwy 60 and east of RR



1 in Horiz. = 2000 ft 1 in Vert. = 30 ft

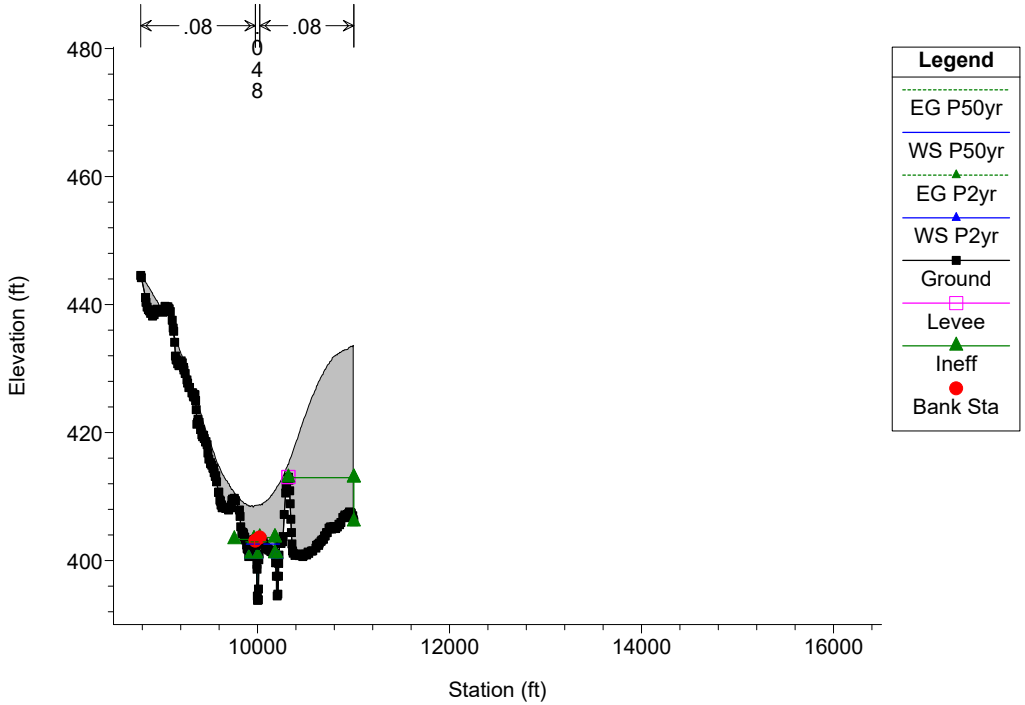
NF_Canoe Plan: canoex3 9/9/2019

RS = 33041.8 MO



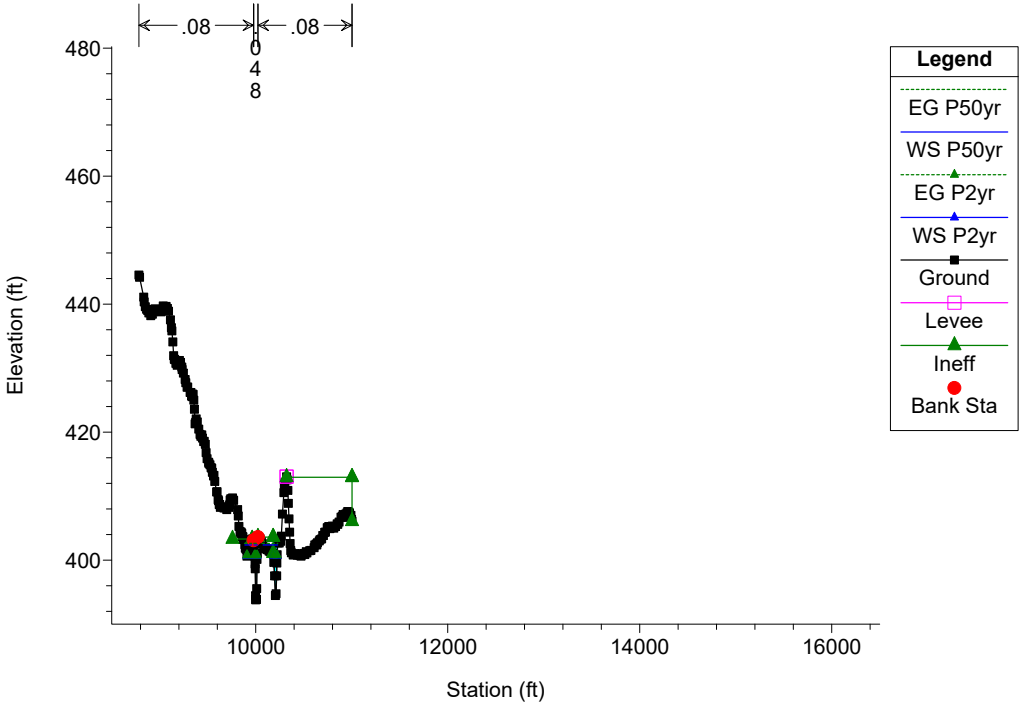
NF_Canoe Plan: canoex3 9/9/2019

RS = 33041.8 MO



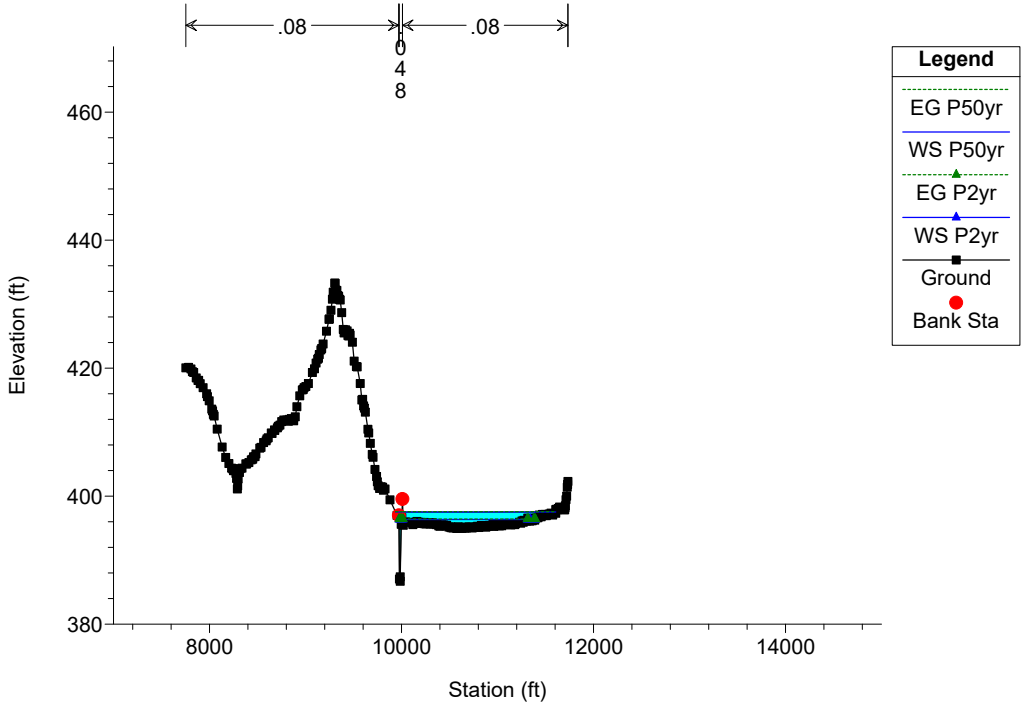
NF_Canoe Plan: canoex3 9/9/2019

RS = 32983.9 Downstream/south of Hwy 60 and east of RR



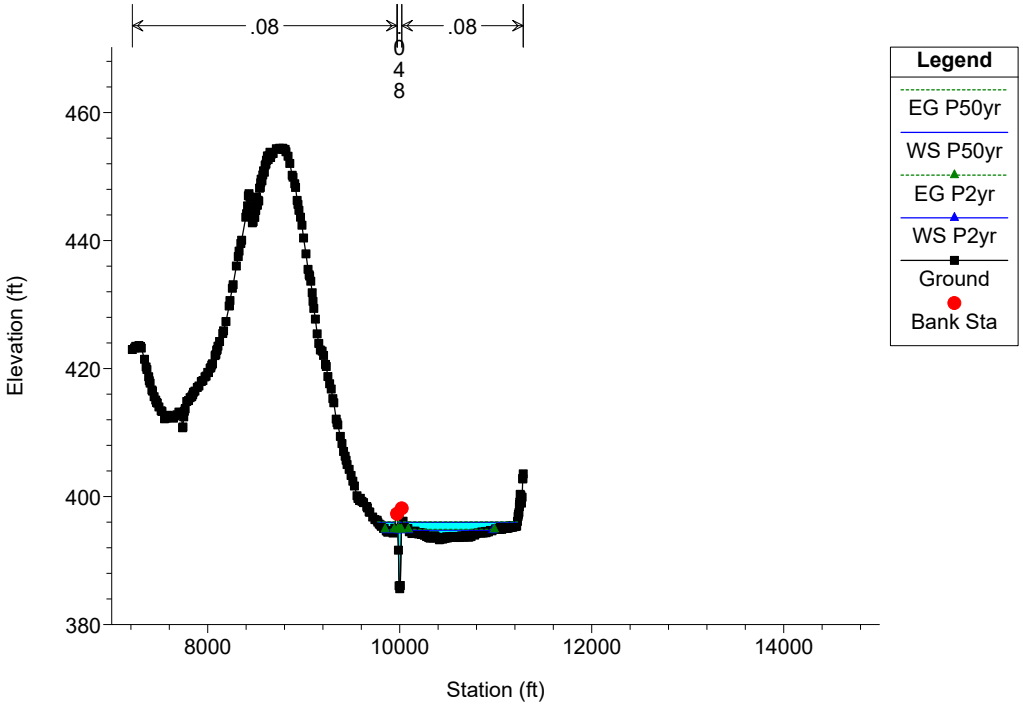
NF_Canoe Plan: canoex3 9/9/2019

RS = 29900.3 Downstream/south of Hwy 60 and east of RR

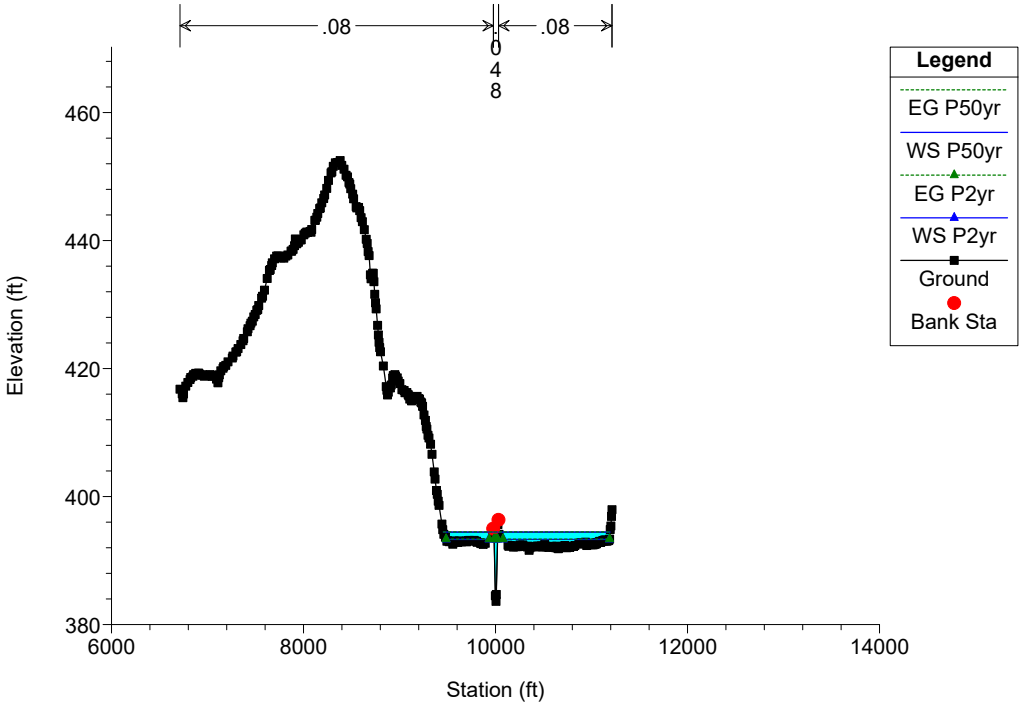


1 in Horiz. = 2000 ft 1 in Vert. = 30 ft

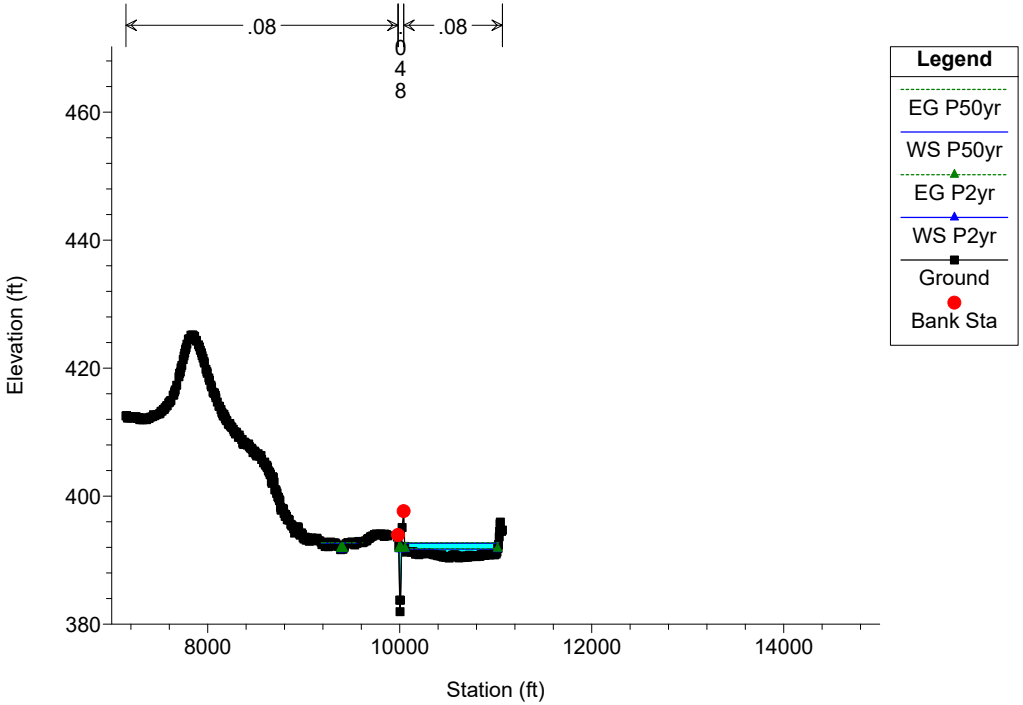
NF_Canoe Plan: canoex3 9/9/2019
RS = 28796.5 Downstream/south of Hwy 60 and east of RR



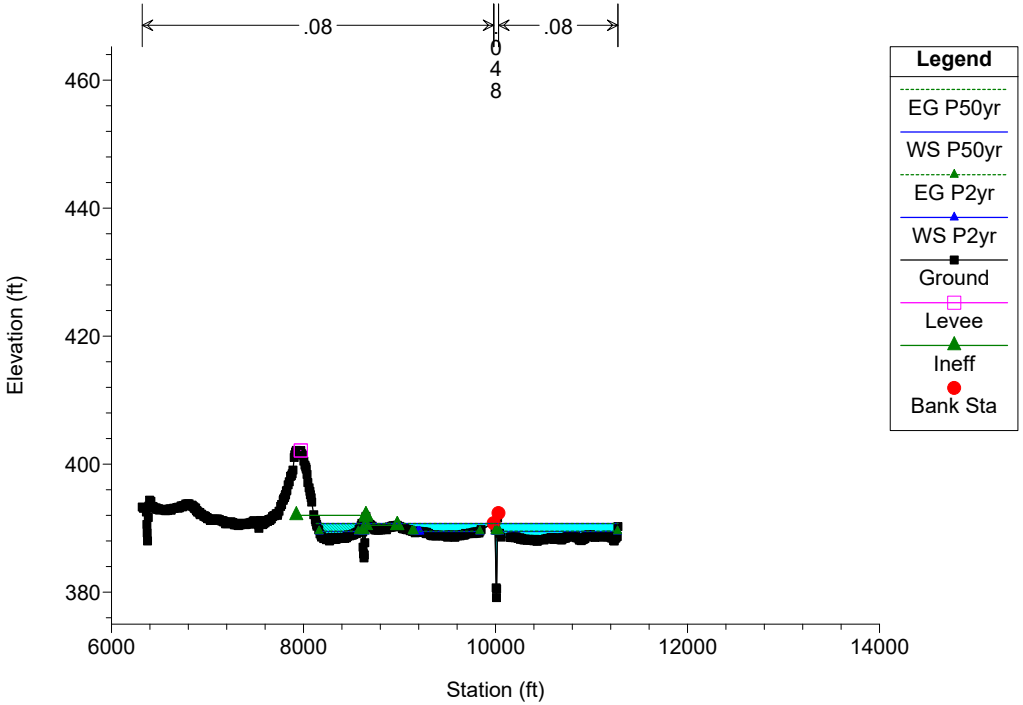
NF_Canoe Plan: canoex3 9/9/2019
RS = 27541.3 Downstream/south of Hwy 60 and east of RR



NF_Canoe Plan: canoex3 9/9/2019
RS = 26291.9 Downstream/south of Hwy 60 and east of RR

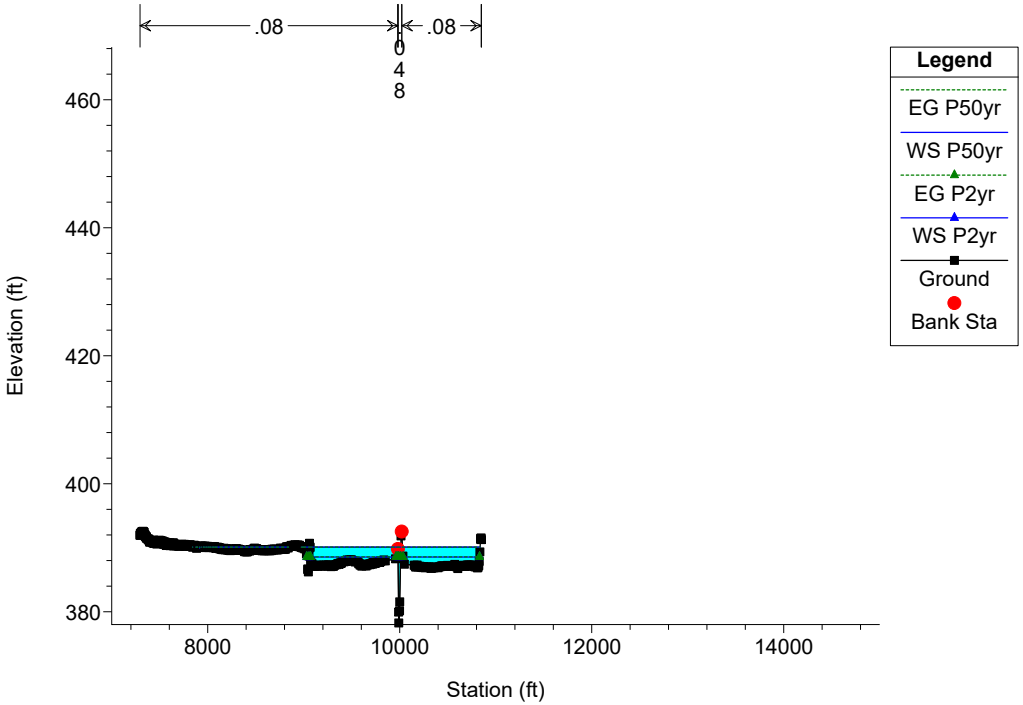


NF_Canoe Plan: canoex3 9/9/2019
RS = 24550.6 Downstream/south of Hwy 60 and east of RR

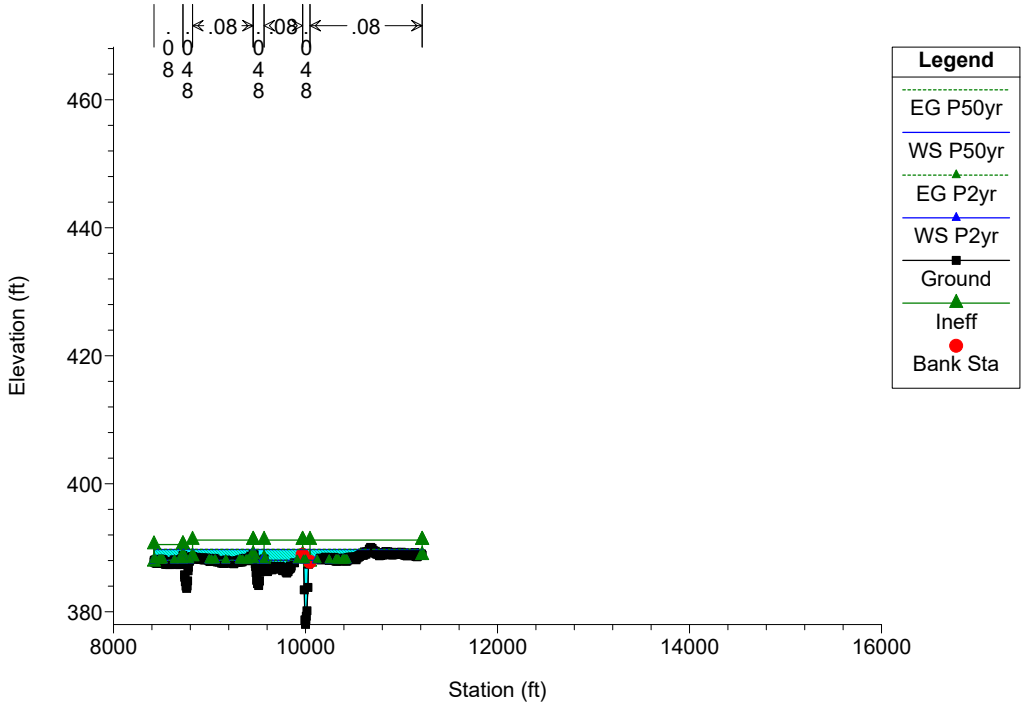


1 in Horiz. = 2000 ft 1 in Vert. = 30 ft

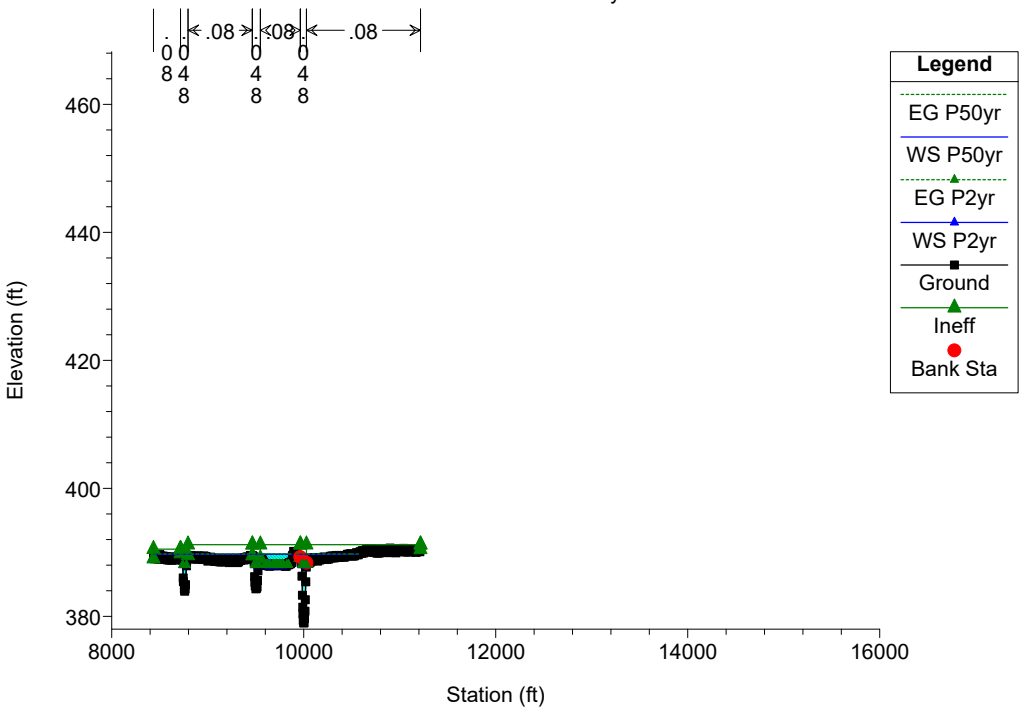
NF_Canoe Plan: canoex3 9/9/2019
RS = 23120 Downstream/south of Hwy 60 and east of RR



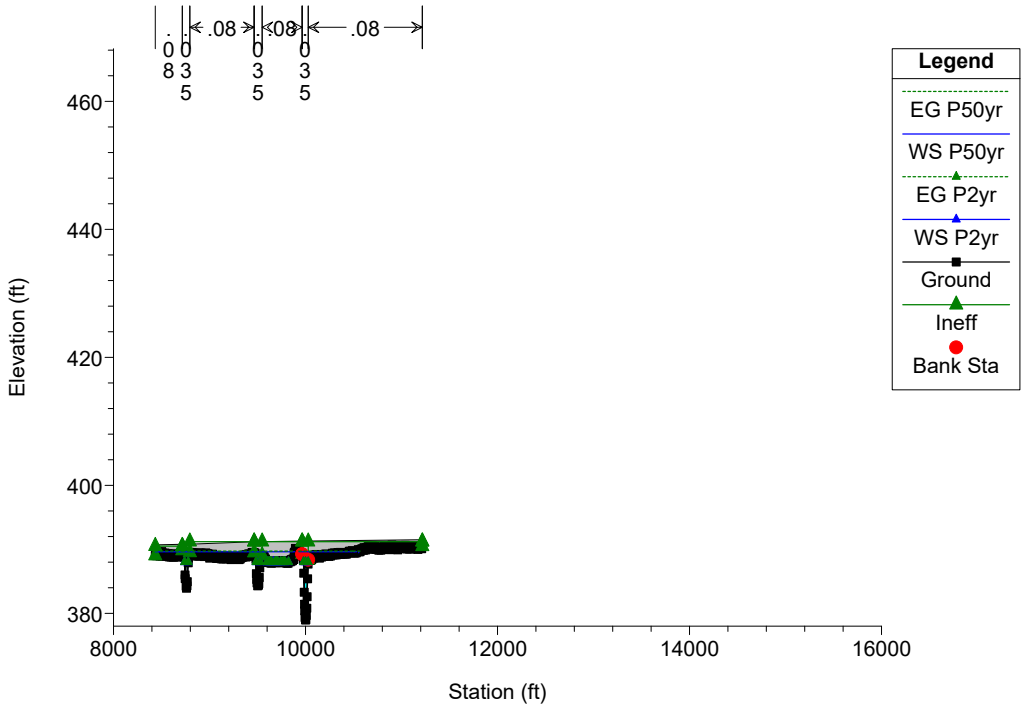
NF_Canoe Plan: canoex3 9/9/2019
RS = 21768 Downstream/south of Hwy 60 and east of RR



NF_Canoe Plan: canoex3 9/9/2019
RS = 21745 Downstream/south of Hwy 60 and east of RR



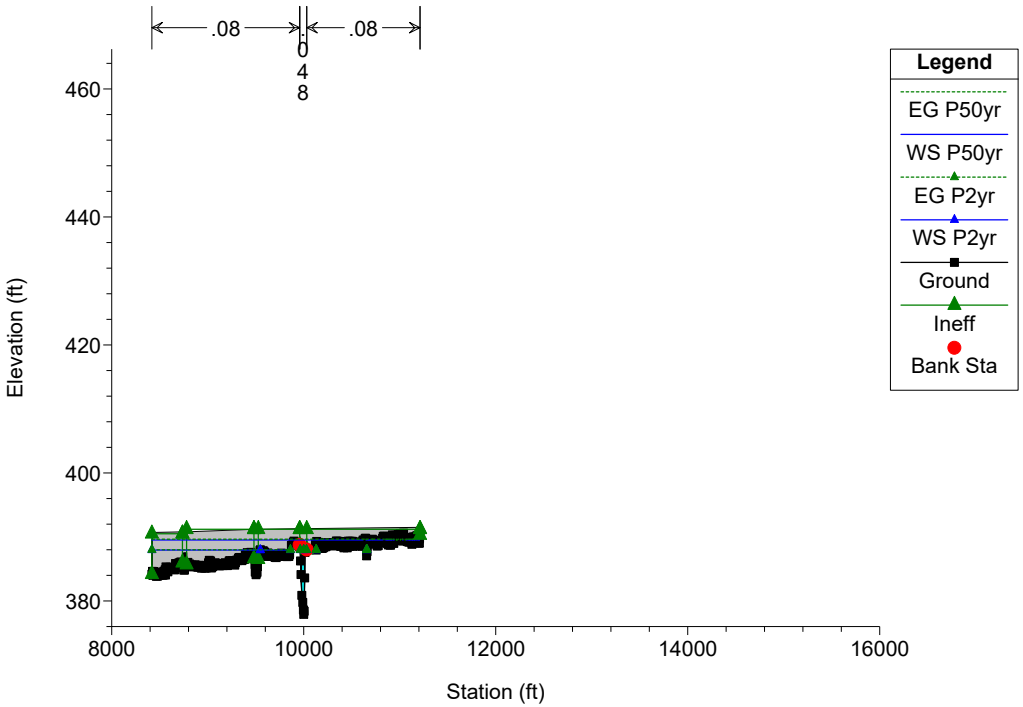
NF_Canoe Plan: canoex3 9/9/2019
RS = 21735 MO



1 in Horiz. = 2000 ft 1 in Vert. = 30 ft

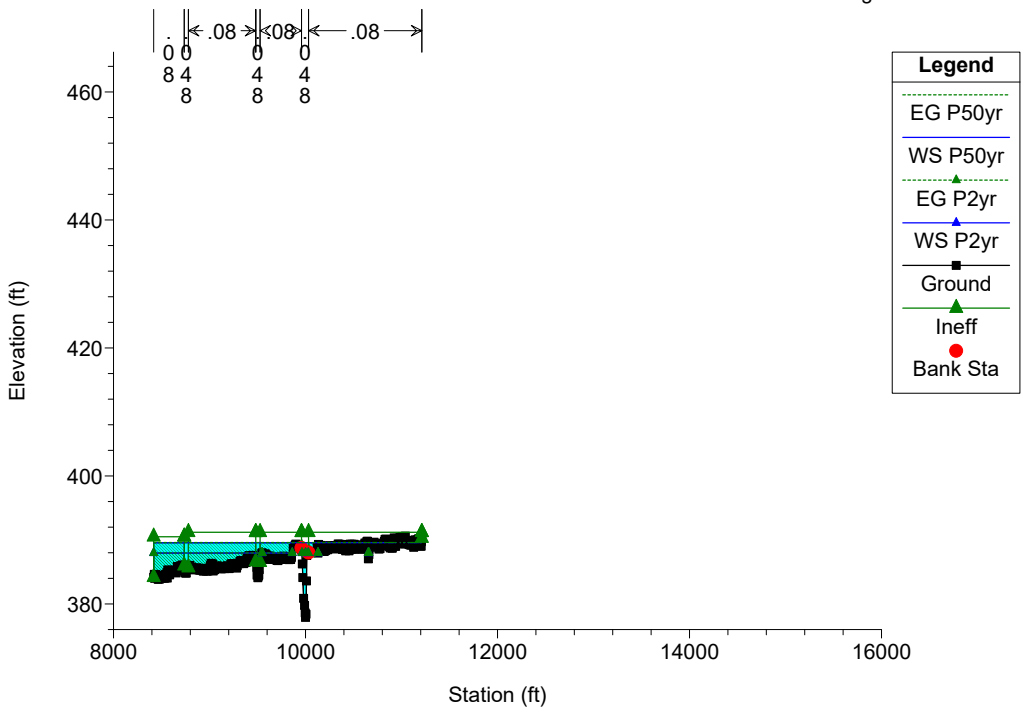
NF_Canoe Plan: canoex3 9/9/2019

RS = 21735 MO



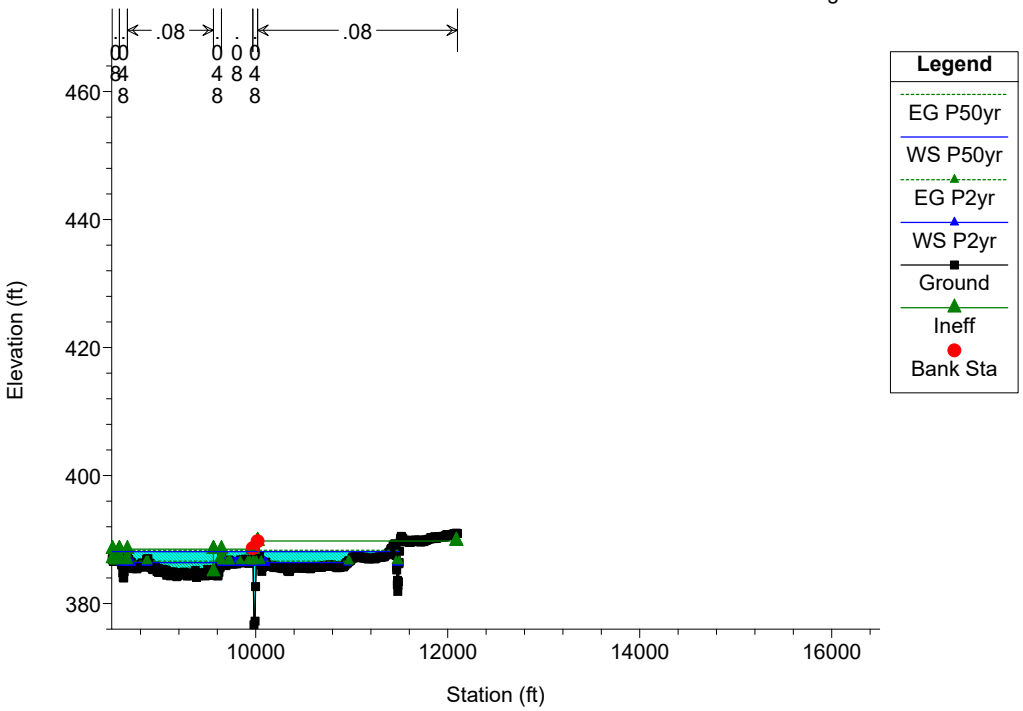
NF_Canoe Plan: canoex3 9/9/2019

RS = 21712.38 West/downstream of Canoe Creek North Fork/Railroad Crossing and



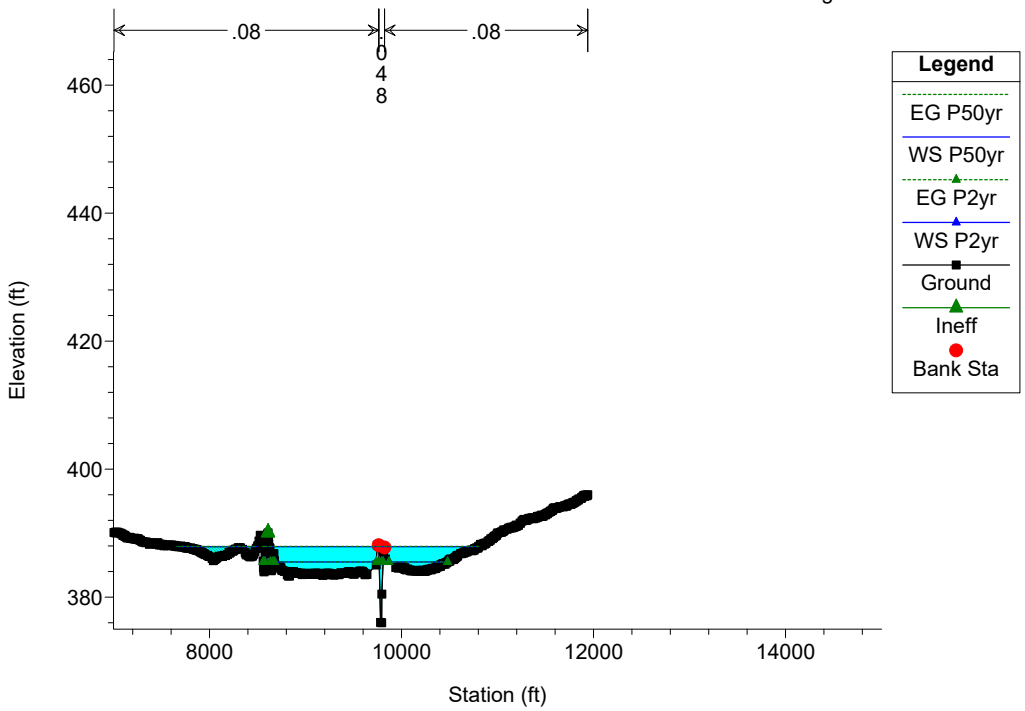
NF_Canoe Plan: canoex3 9/9/2019

RS = 21591.5 R XS west of Canoe Creek North Form/RR crossing



NF_Canoe Plan: canoex3 9/9/2019

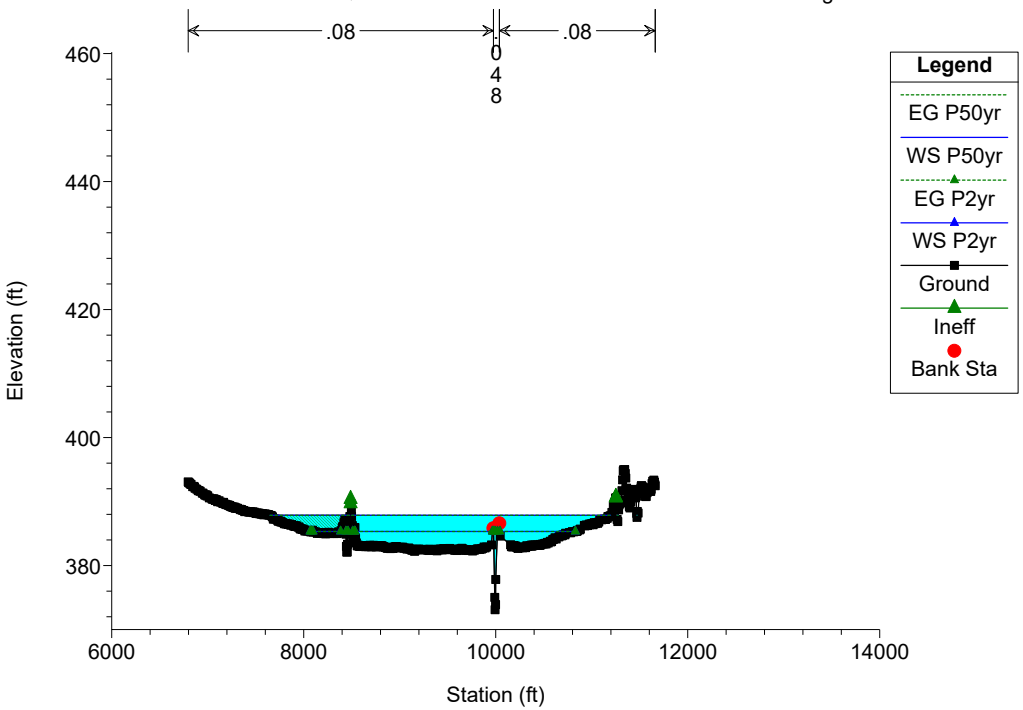
RS = 19922.4 XS west of Canoe Creek North Form/RR crossing



1 in Horiz. = 2000 ft 1 in Vert. = 30 ft

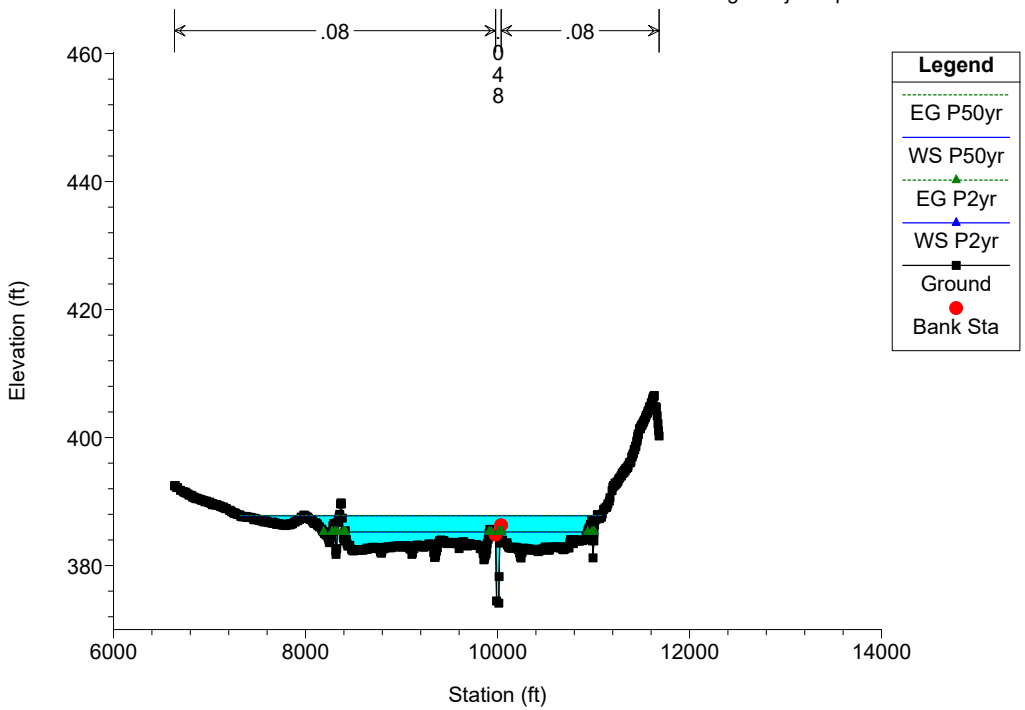
NF_Canoe Plan: canoex3 9/9/2019

RS = 18470. Q XS west of Canoe Creek North Form/RR crossing



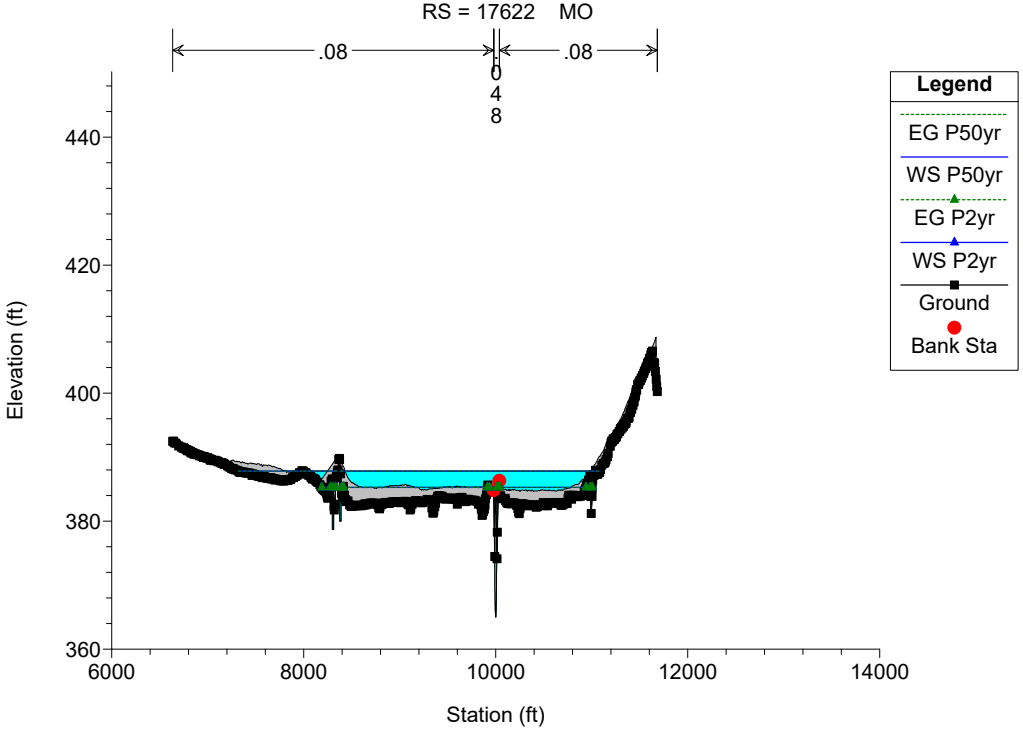
NF_Canoe Plan: canoex3 9/9/2019

RS = 17702.9 XS west of Canoe Creek North Form/RR crossing and just upstream/



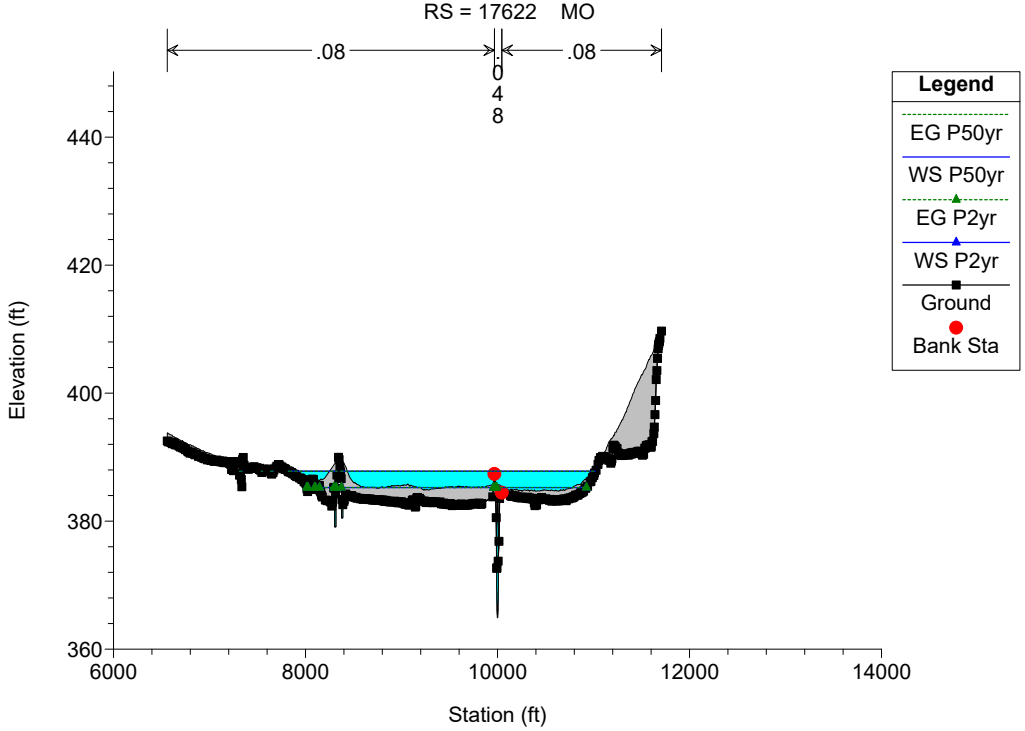
NF_Canoe Plan: canoex3 9/9/2019

RS = 17622 MO



NF_Canoe Plan: canoex3 9/9/2019

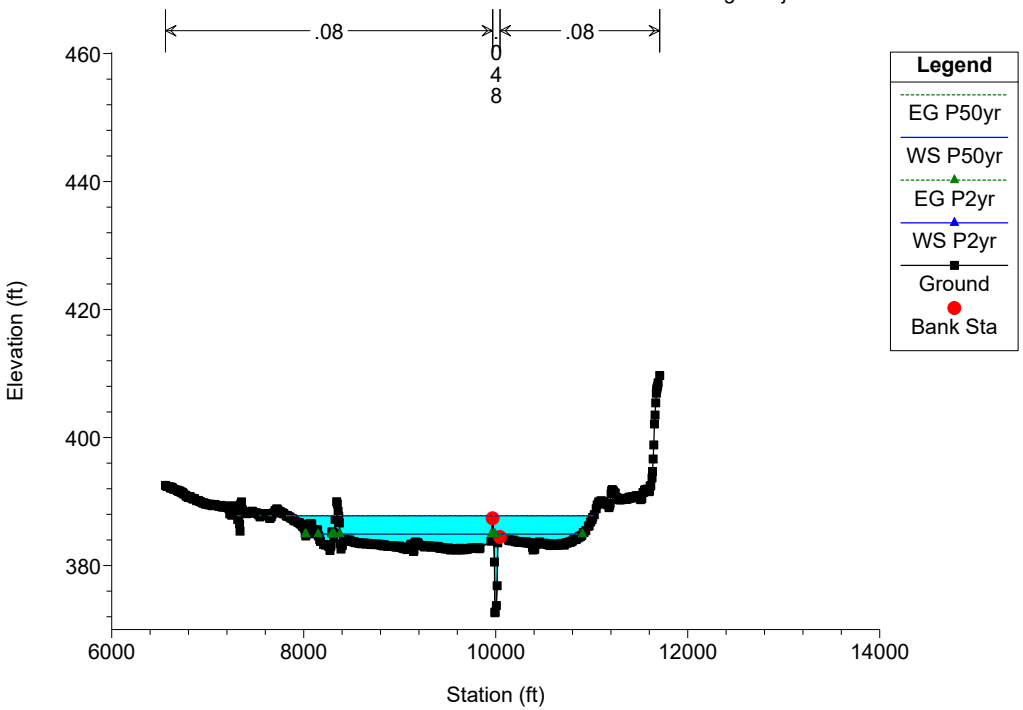
RS = 17622 MO



1 in Horiz. = 2000 ft 1 in Vert. = 30 ft

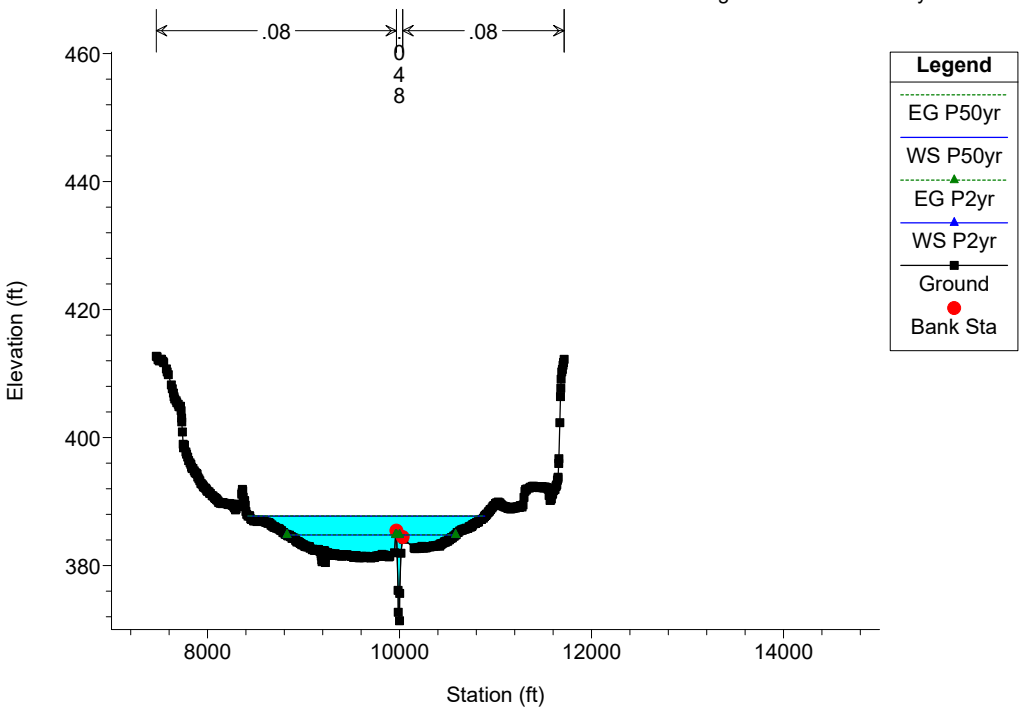
NF_Canoe Plan: canoex3 9/9/2019

RS = 17534.5 XS west of Canoe Creek North Form/RR crossing and just downstrea



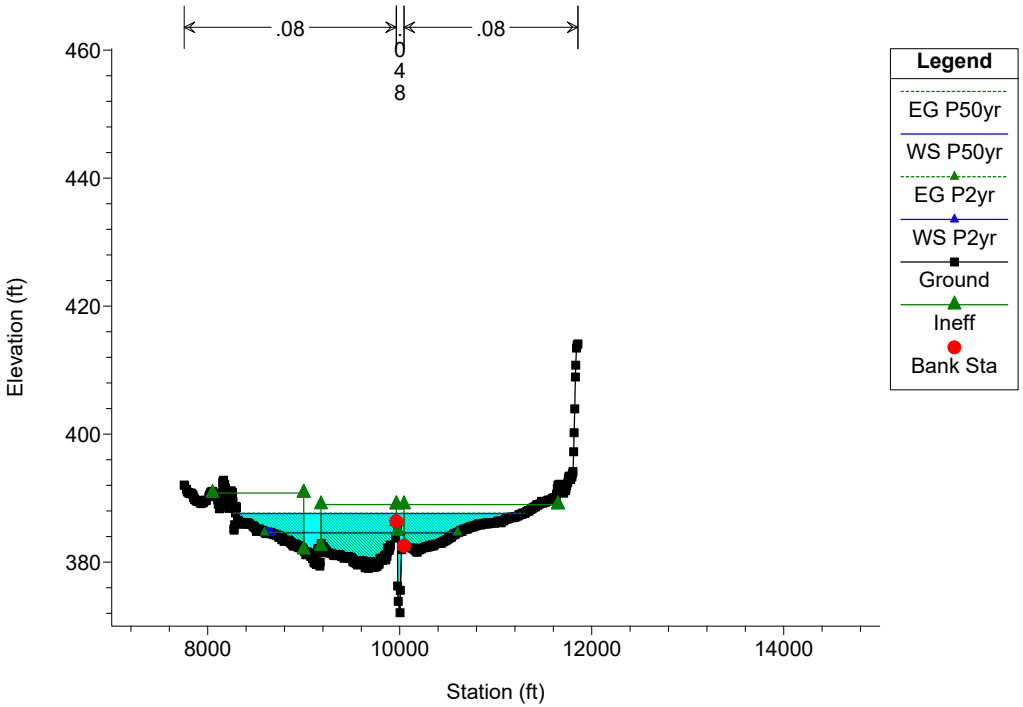
NF_Canoe Plan: canoex3 9/9/2019

RS = 16904.1 P XS west of Canoe Creek North Form/RR crossing and between Kimsey



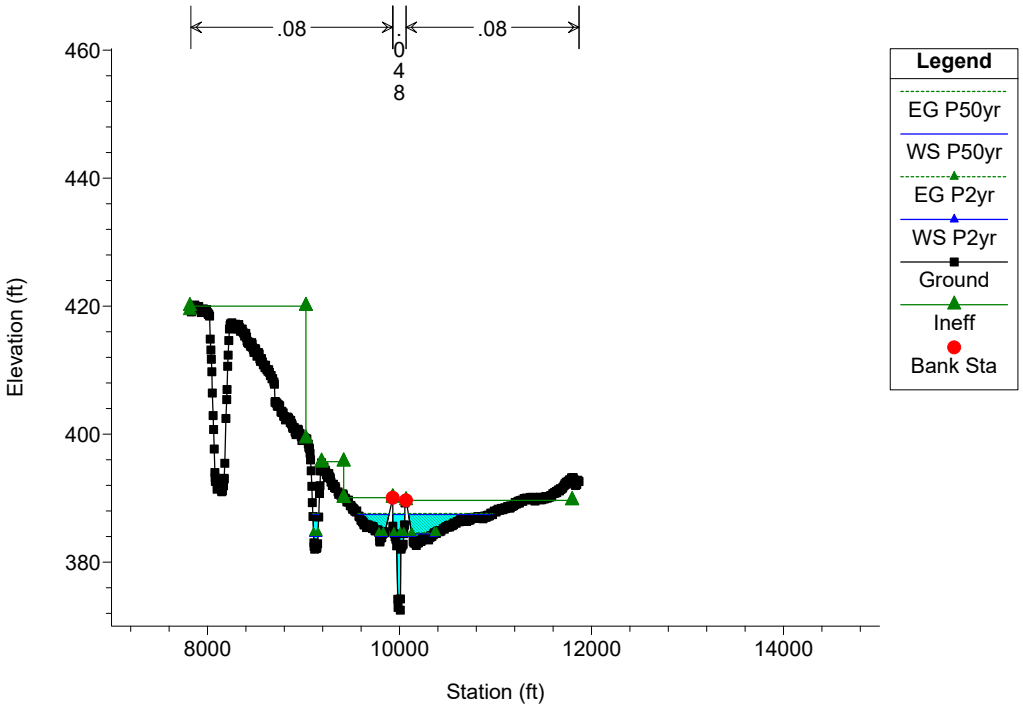
NF_Canoe Plan: canoex3 9/9/2019

RS = 16397.3 XS west of Canoe Creek North Fork/RR crossing and just north/ups



NF_Canoe Plan: canoex3 9/9/2019

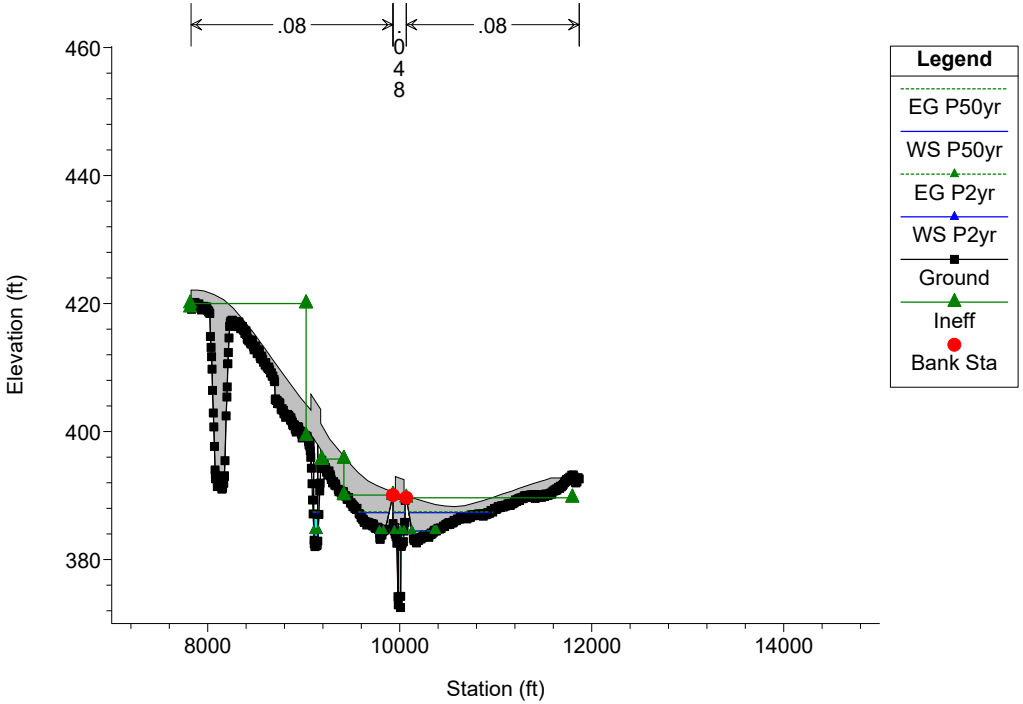
RS = 16326.84 XS west of Canoe Creek North Fork/RR crossing and just north/ups



1 in Horiz. = 2000 ft 1 in Vert. = 30 ft

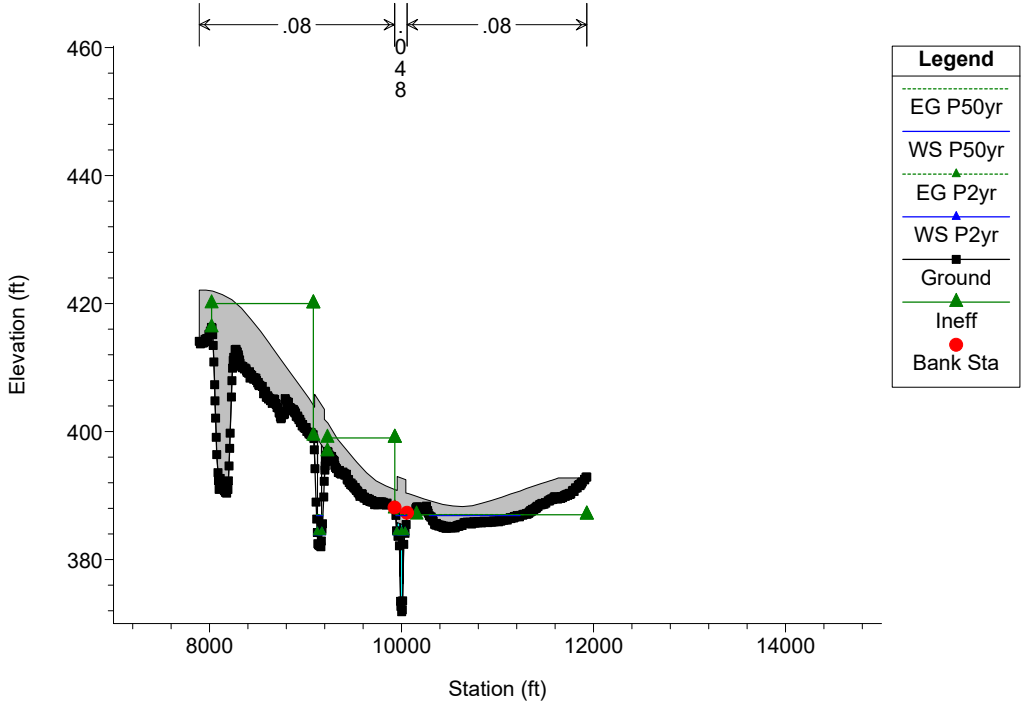
NF_Canoe Plan: canoex3 9/9/2019

RS = 16298 MO



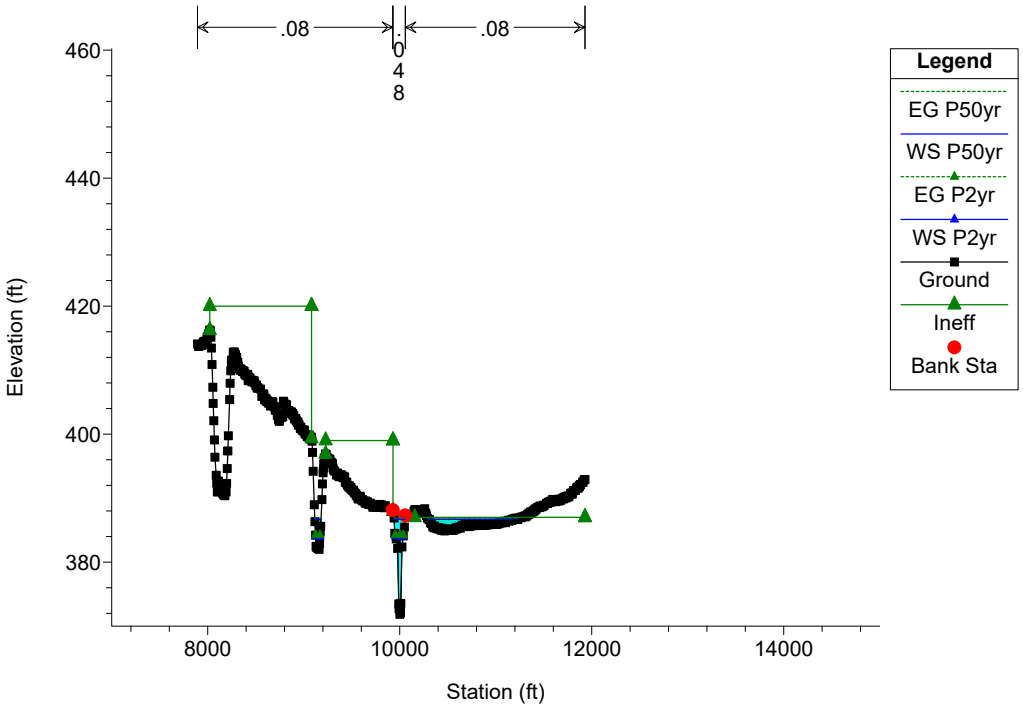
NF_Canoe Plan: canoex3 9/9/2019

RS = 16298 MO



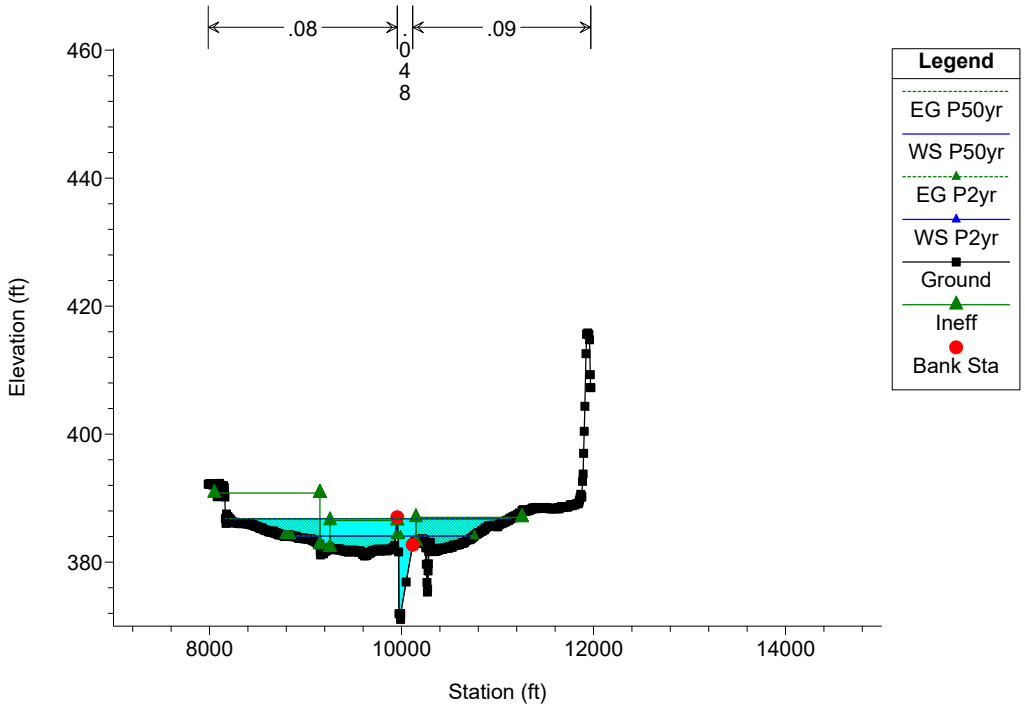
NF_Canoe Plan: canoex3 9/9/2019

RS = 16177.27 XS west of Canoe Creek North Fork/RR crossing and just south/dow



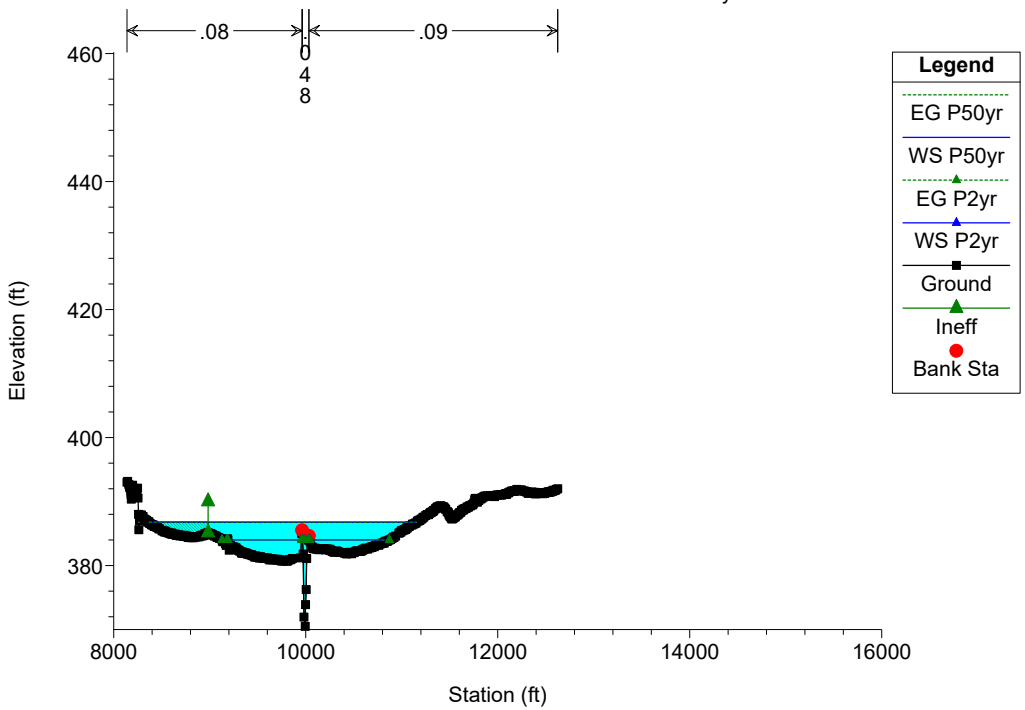
NF_Canoe Plan: canoex3 9/9/2019

RS = 16087.8 XS west of Canoe Creek North Fork/RR crossing and south/downstre

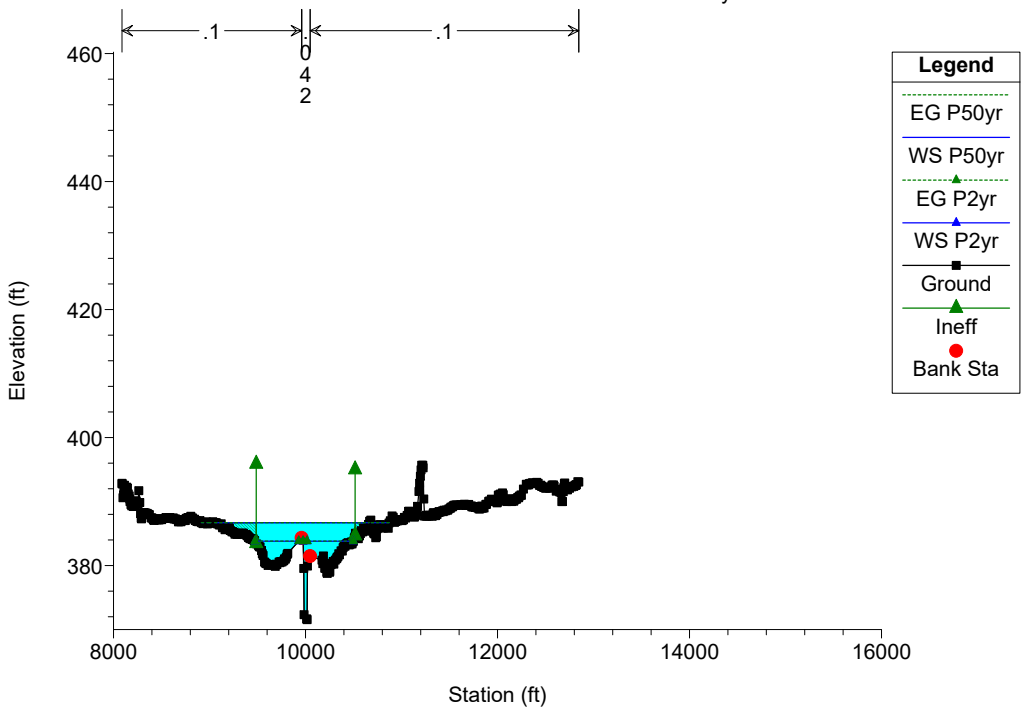


1 in Horiz. = 2000 ft 1 in Vert. = 30 ft

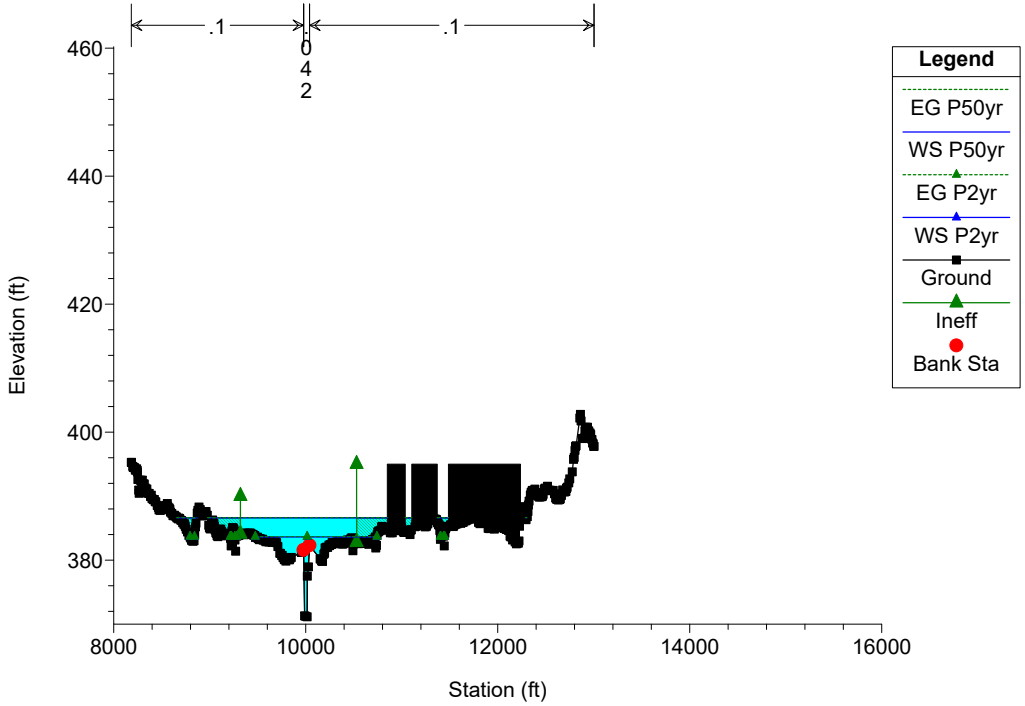
NF_Canoe Plan: canoex3 9/9/2019
RS = 15534.2 O XS south/downstream of Hwy 41



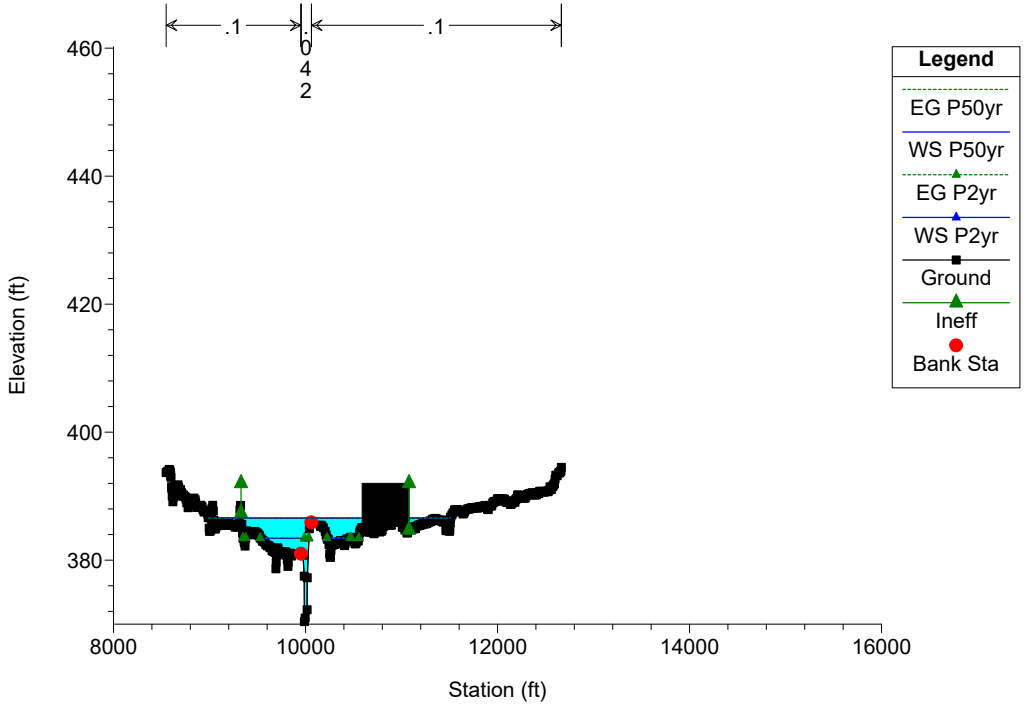
NF_Canoe Plan: canoex3 9/9/2019
RS = 14567.2 N XS south/downstream of Hwy 41



NF_Canoe Plan: canoex3 9/9/2019
RS = 13899.4 XS south/downstream of Hwy 41

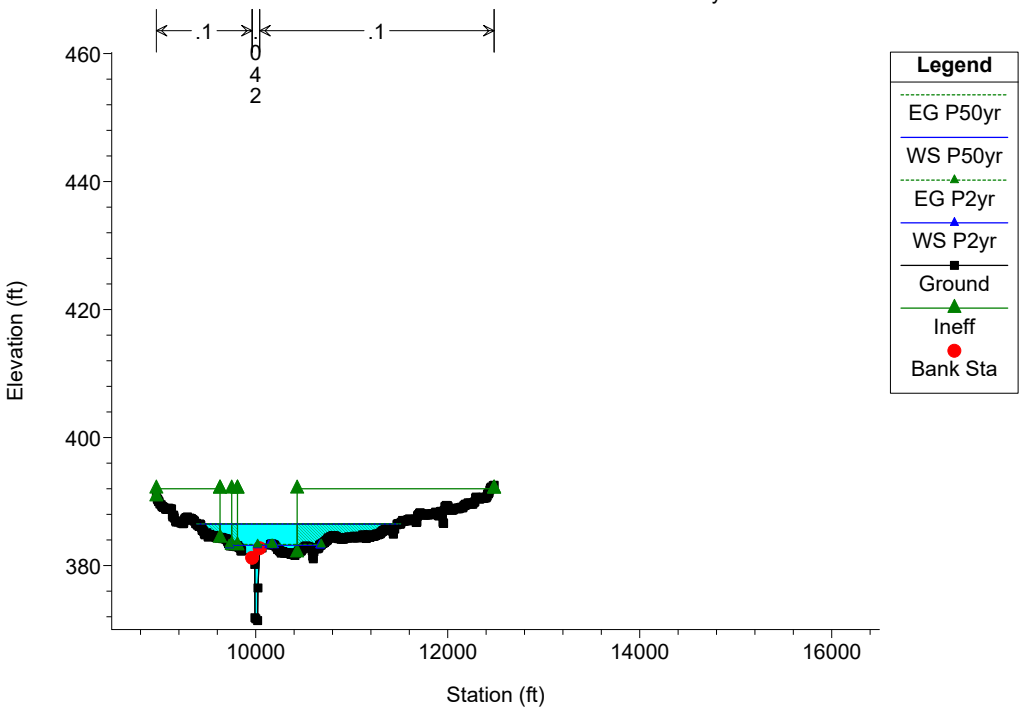


NF_Canoe Plan: canoex3 9/9/2019
RS = 13273.2 M XS south/downstream of Hwy 41

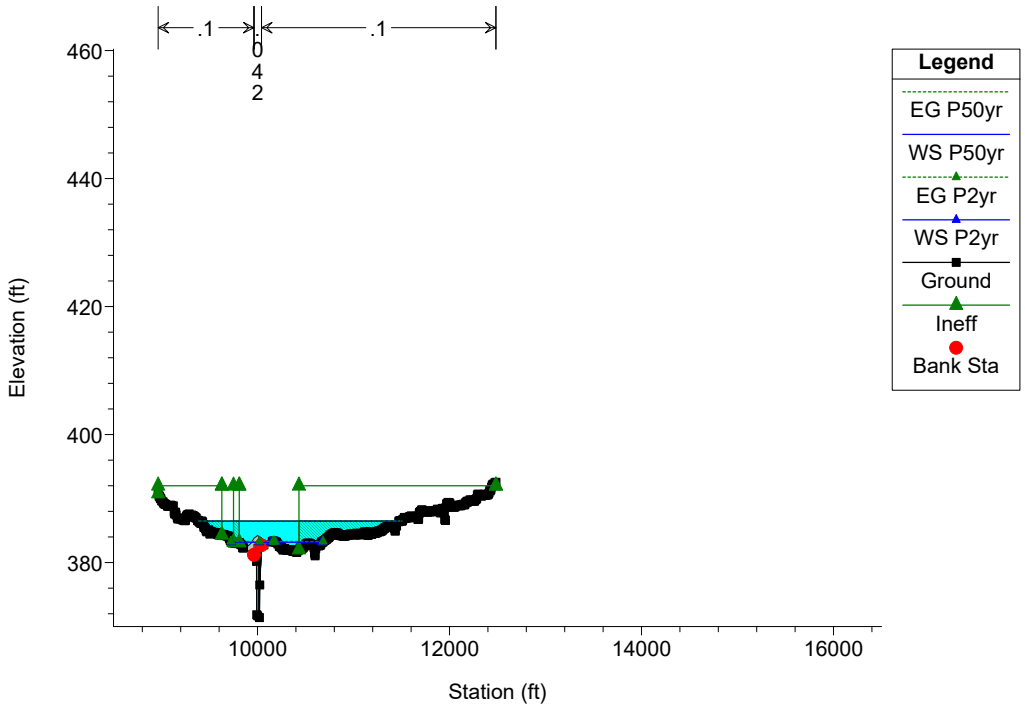


1 in Horiz. = 2000 ft 1 in Vert. = 30 ft

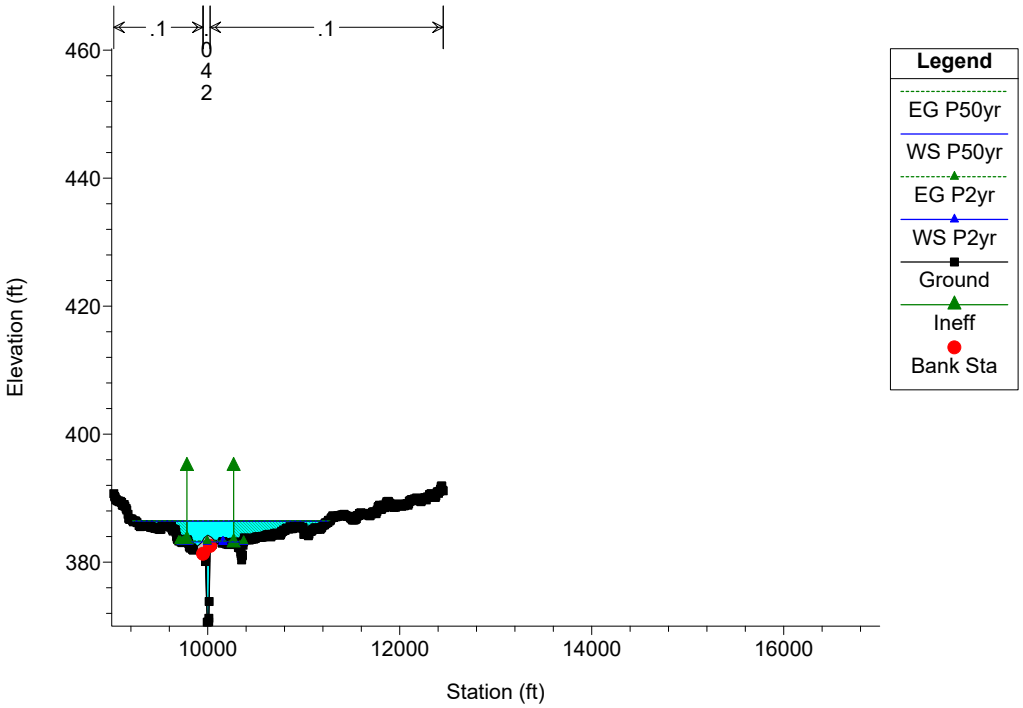
NF_Canoe Plan: canoex3 9/9/2019
RS = 12979.5 XS south/downstream of Hwy 41



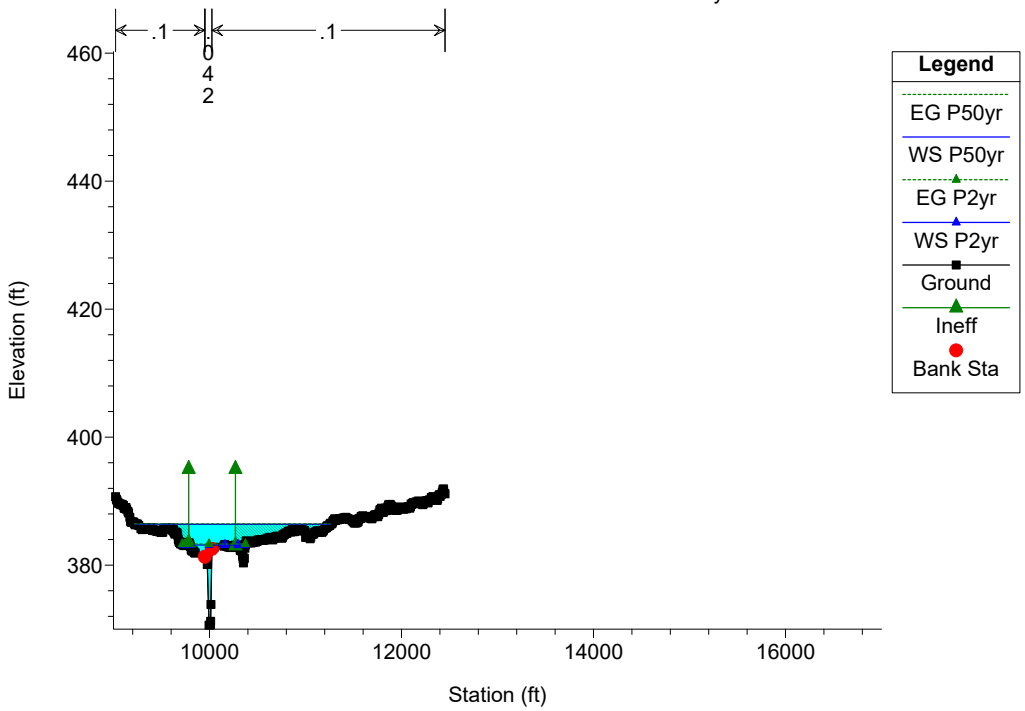
NF_Canoe Plan: canoex3 9/9/2019
RS = 12921.8 BR 5th Street



NF_Canoe Plan: canoex3 9/9/2019
RS = 12921.8 BR 5th Street



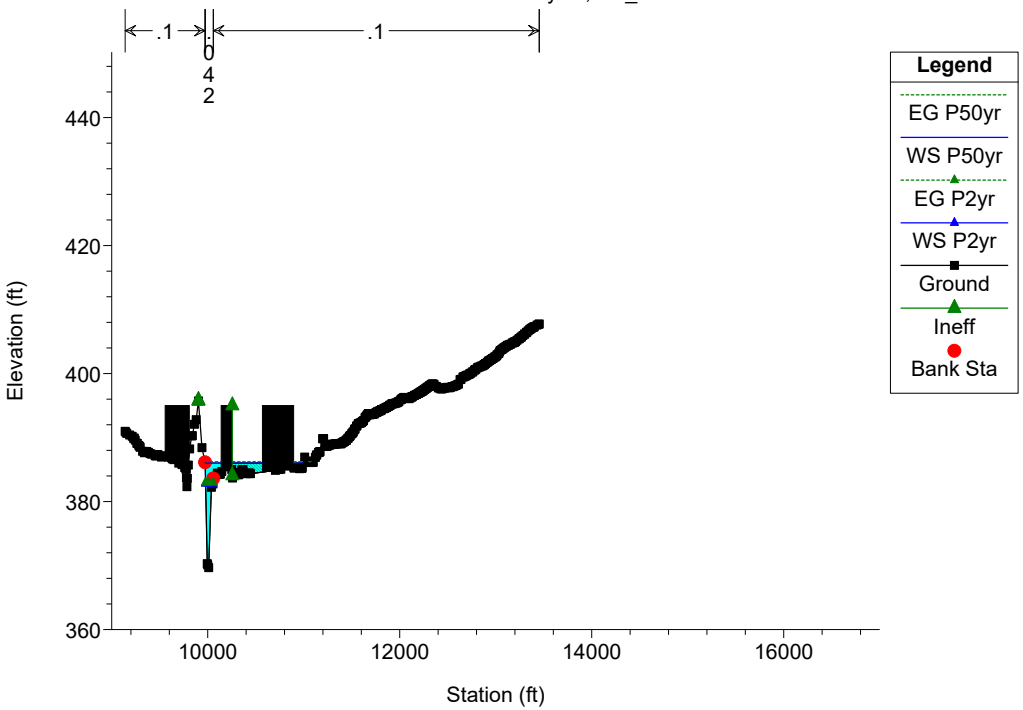
NF_Canoe Plan: canoex3 9/9/2019
RS = 12871.2 XS south/downstream of Hwy 41



1 in Horiz. = 2000 ft 1 in Vert. = 30 ft

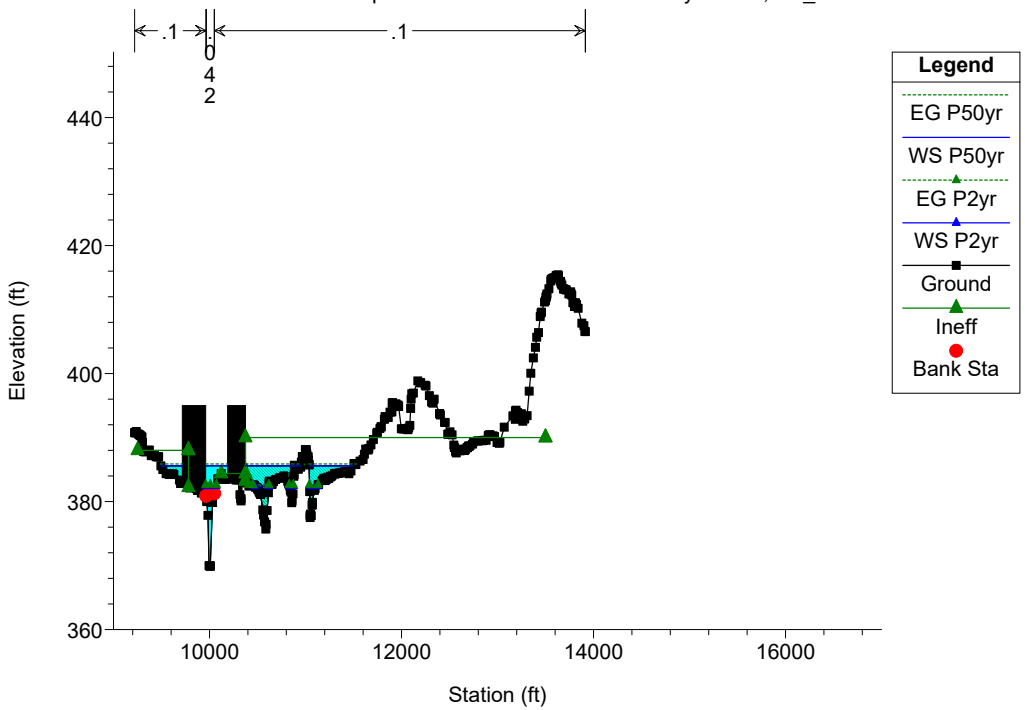
NF_Canoe Plan: canoex3 9/9/2019

RS = 12458.1 Survey xs, XS_12331.



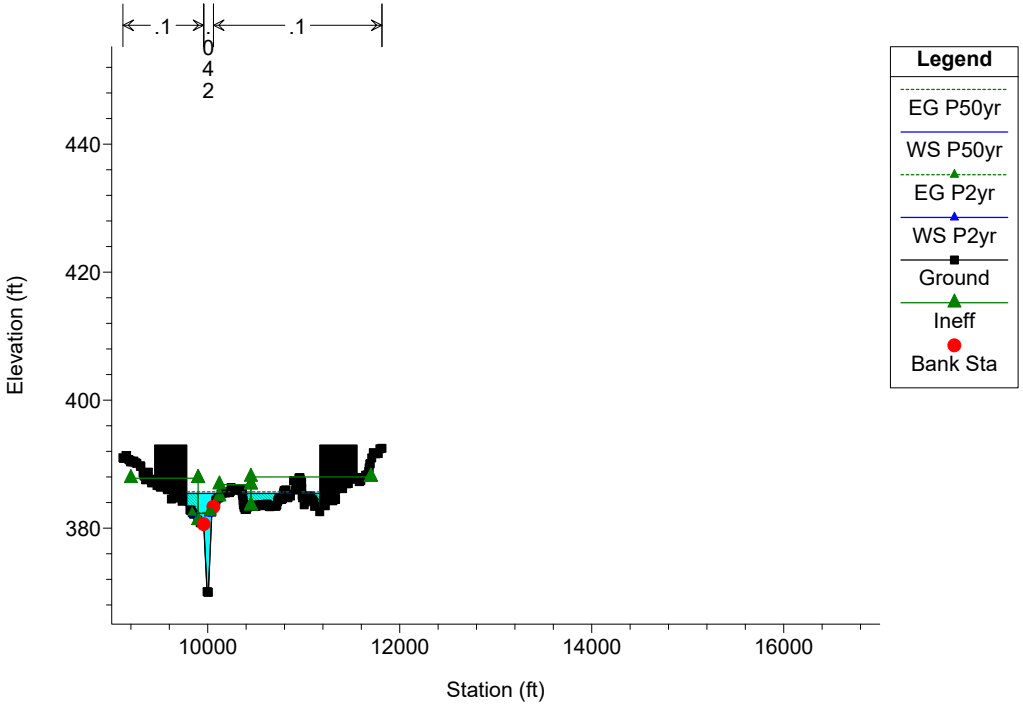
NF_Canoe Plan: canoex3 9/9/2019

RS = 12027.9 L Interpolated based on UPS-DS Survey inverts, XS_11680.



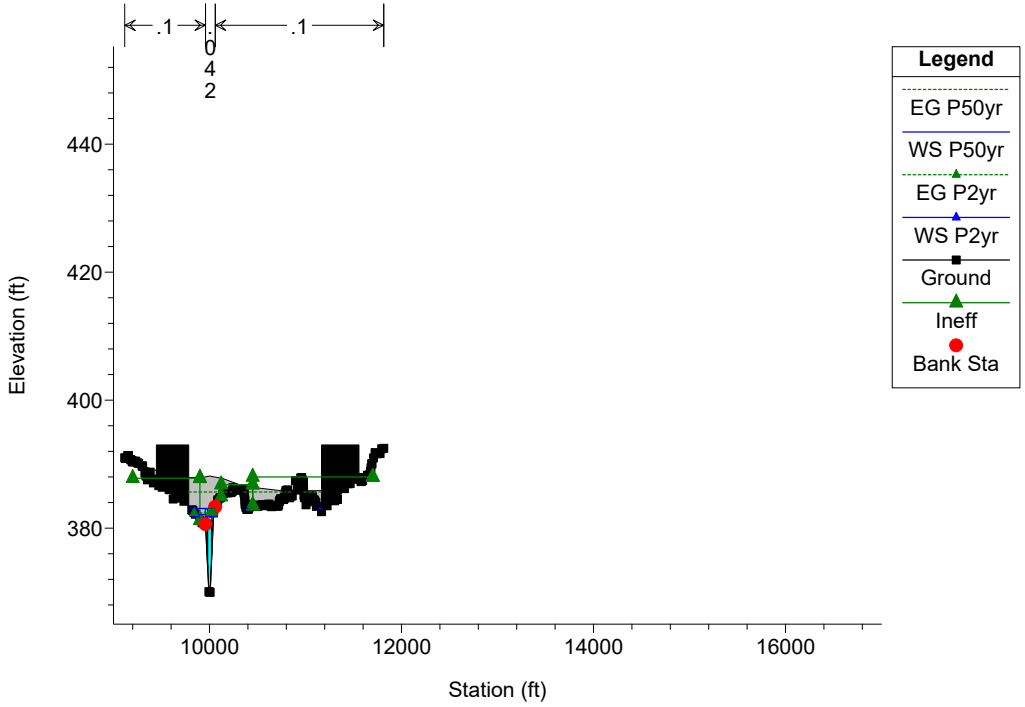
NF_Canoe Plan: canoex3 9/9/2019

RS = 11796.9 Interpolated based on UPS-DS Survey inverts, BR_11600_US.



NF_Canoe Plan: canoex3 9/9/2019

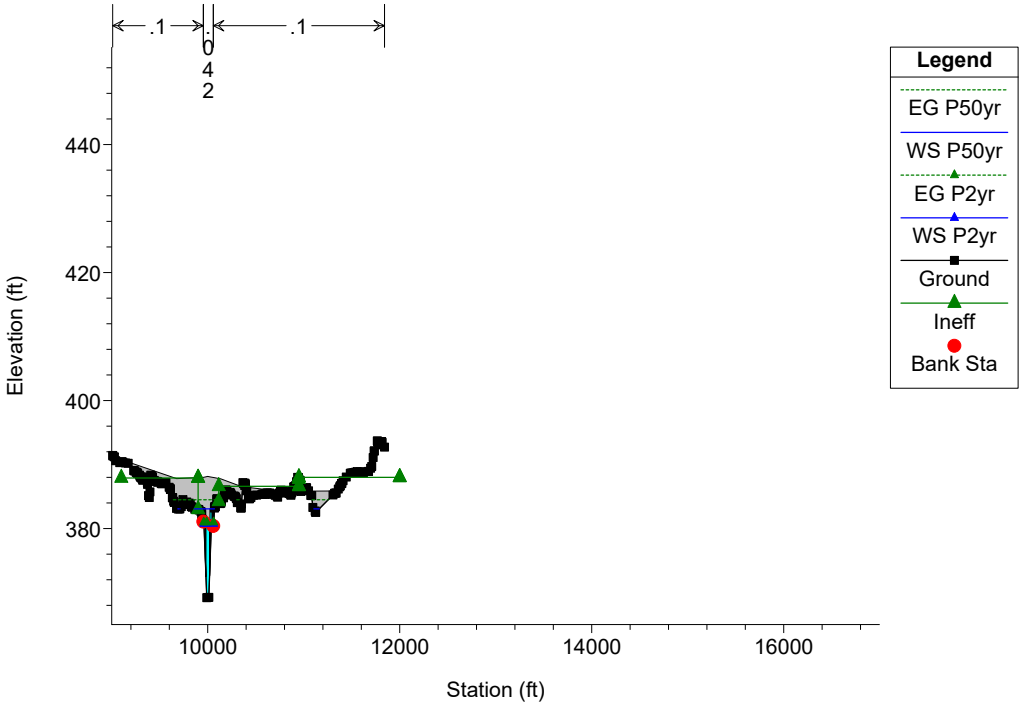
RS = 11736.8 BR CSX Railroad Bridge



1 in Horiz. = 2000 ft 1 in Vert. = 30 ft

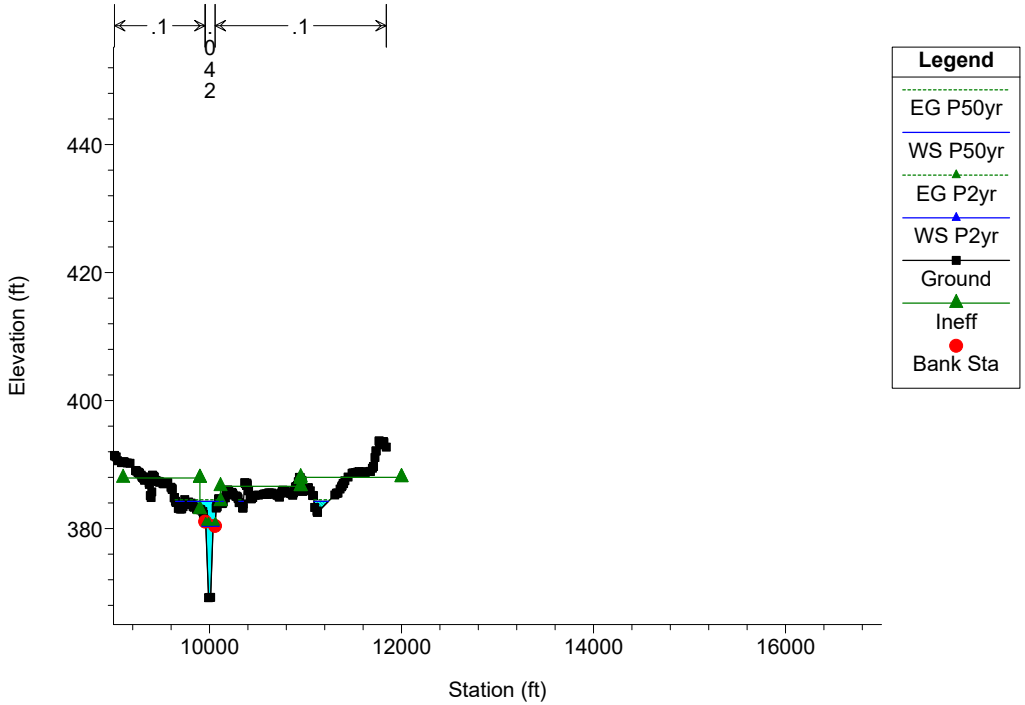
NF_Canoe Plan: canoex3 9/9/2019

RS = 11736.8 BR CSX Railroad Bridge



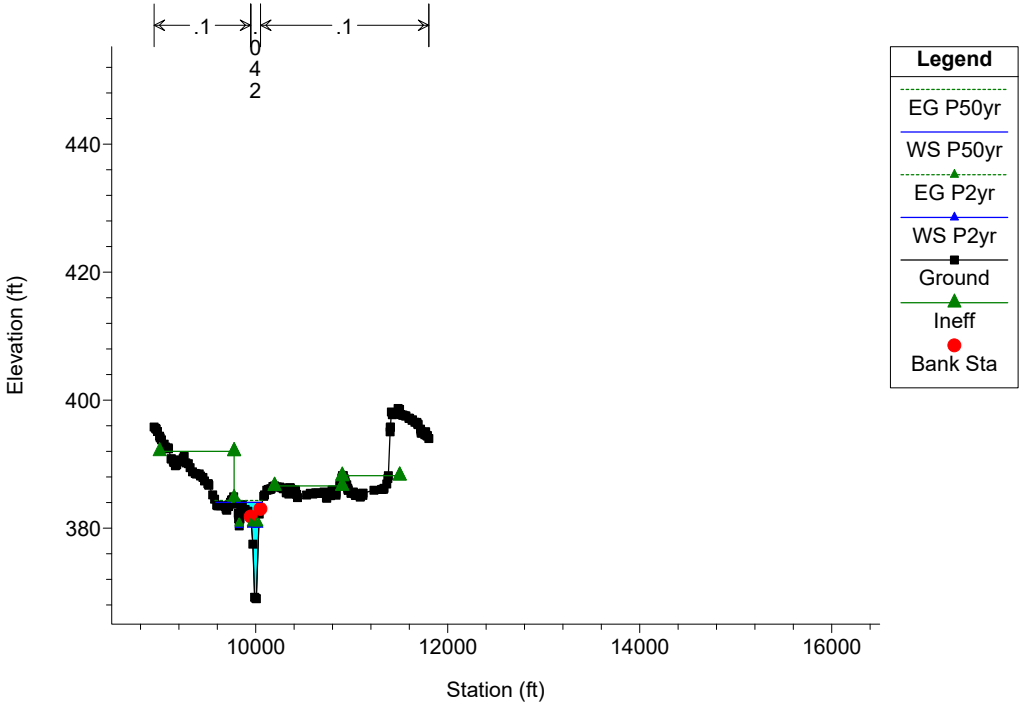
NF_Canoe Plan: canoex3 9/9/2019

RS = 11667.5 Interpolated based on UPS-DS Survey inverts, BR_11600_DS.



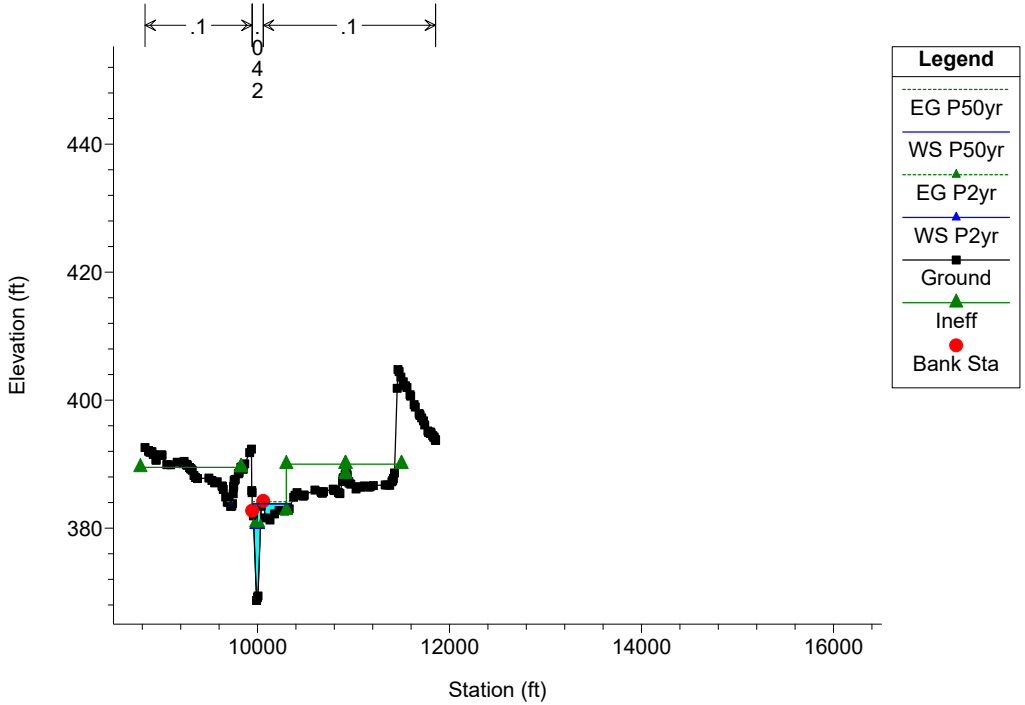
NF_Canoe Plan: canoex3 9/9/2019

RS = 11496.7 K Survey xs, XS_11370.



NF_Canoe Plan: canoex3 9/9/2019

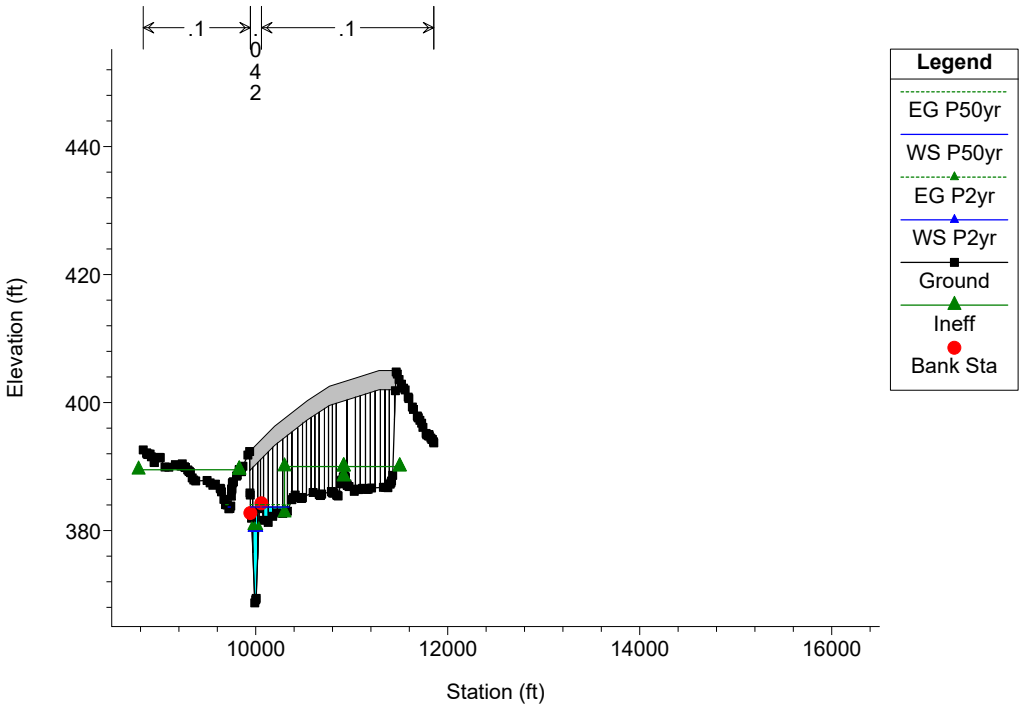
RS = 11331. Interpolated based on UPS-DS Survey inverts, BR_11130_US.



1 in Horiz. = 2000 ft 1 in Vert. = 30 ft

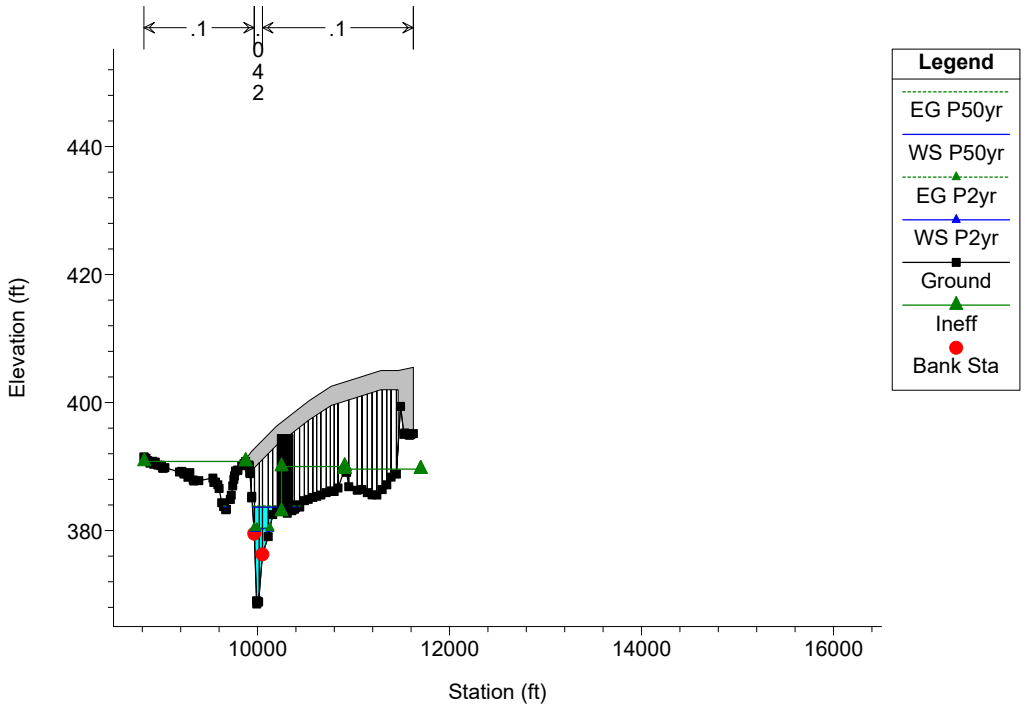
NF_Canoe Plan: canoex3 9/9/2019

RS = 11256.8 BR 2nd Street



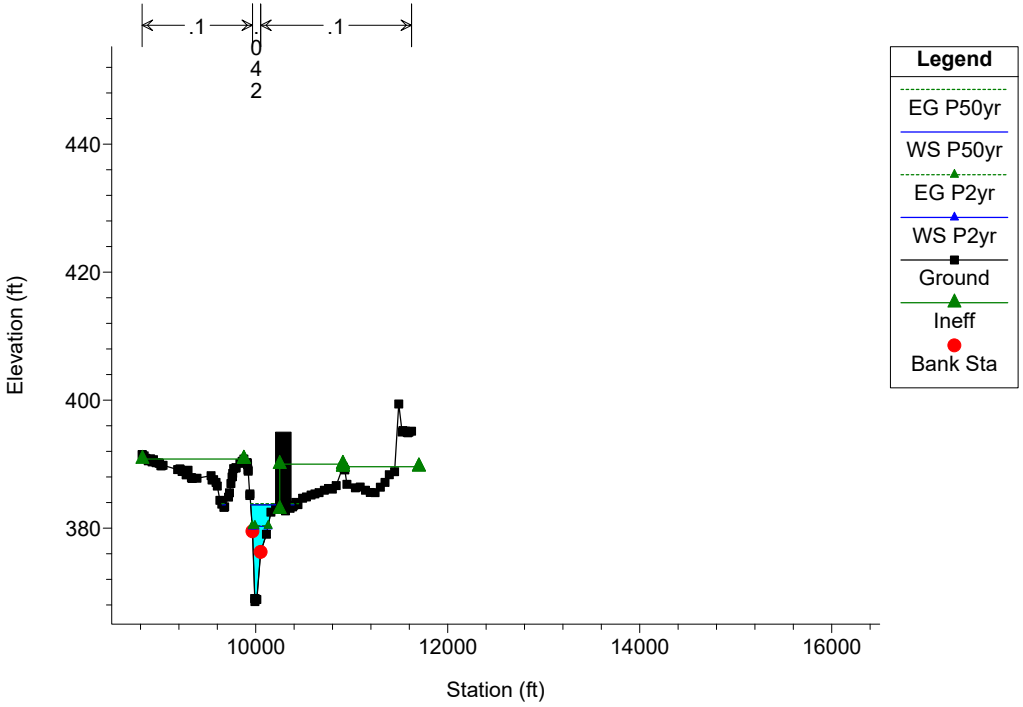
NF_Canoe Plan: canoex3 9/9/2019

RS = 11256.8 BR 2nd Street



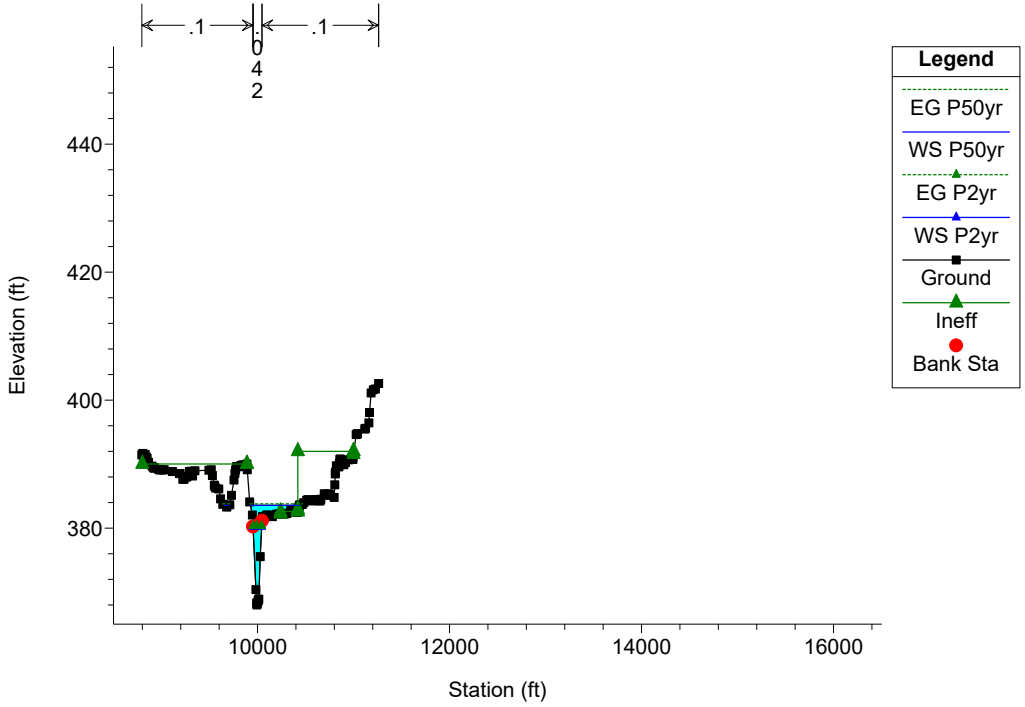
NF_Canoe Plan: canoex3 9/9/2019

RS = 11171.4 Interpolated based on UPS-DS Survey inverts, BR_11130_DS.



NF_Canoe Plan: canoex3 9/9/2019

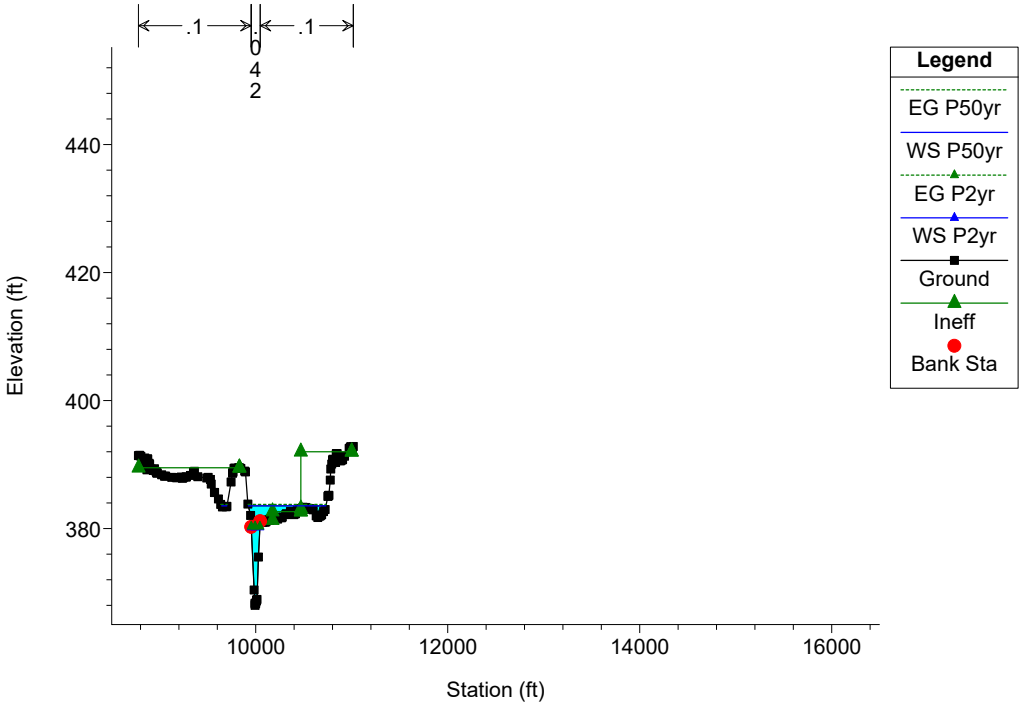
RS = 11097.6 Interpolated based on UPS-DS Survey inverts, XS_10948.



1 in Horiz. = 2000 ft 1 in Vert. = 30 ft

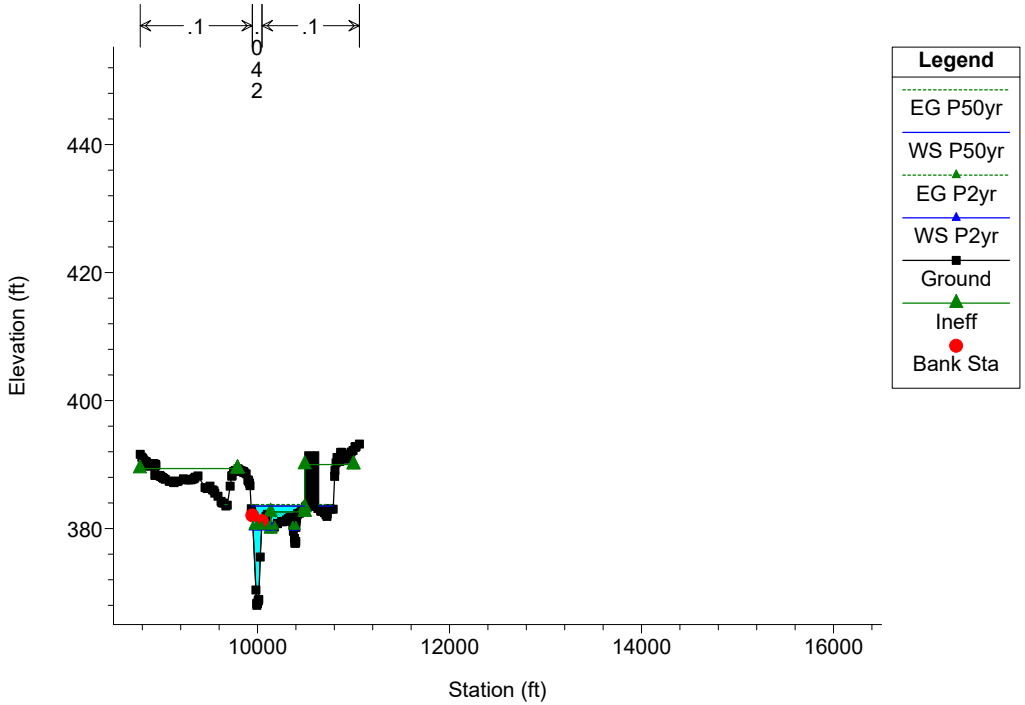
NF_Canoe Plan: canoex3 9/9/2019

RS = 11075. Survey xs, XS_10948.



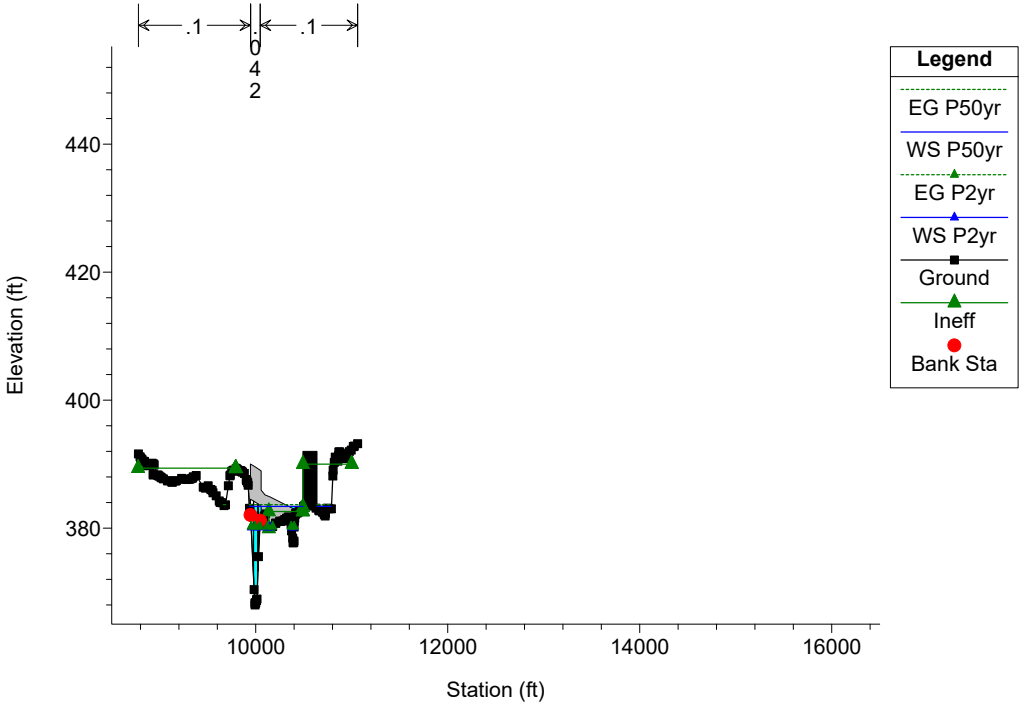
NF_Canoe Plan: canoex3 9/9/2019

RS = 11031.7 J Interpolated based on UPS-DS Survey inverts, BR_10810_US.



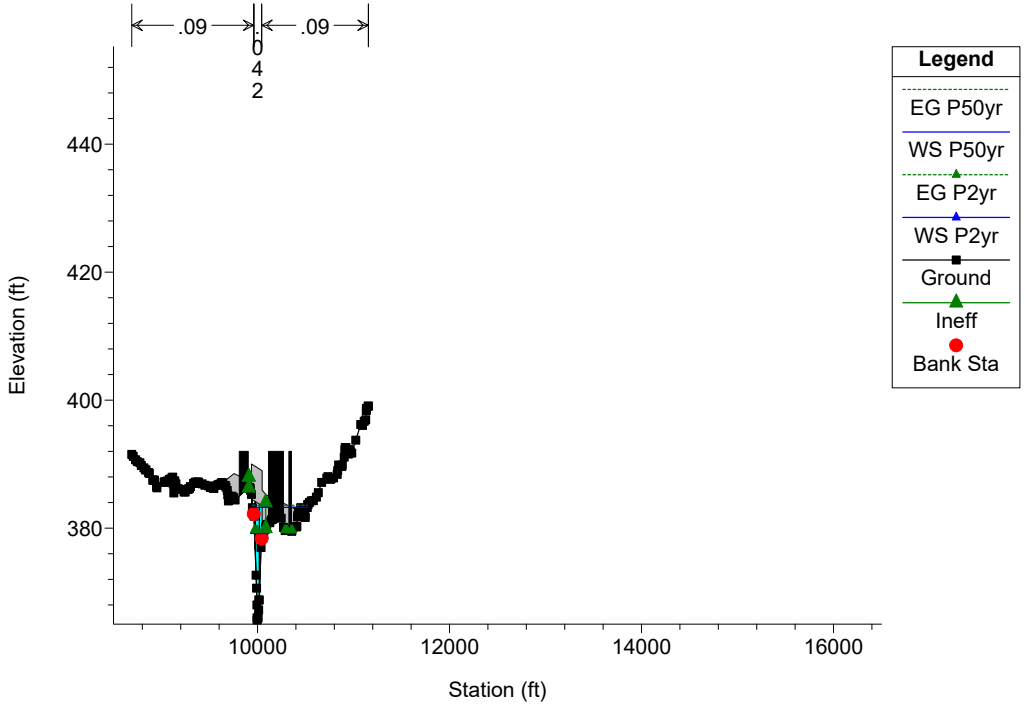
NF_Canoe Plan: canoex3 9/9/2019

RS = 10936.8 BR Priest Street



NF_Canoe Plan: canoex3 9/9/2019

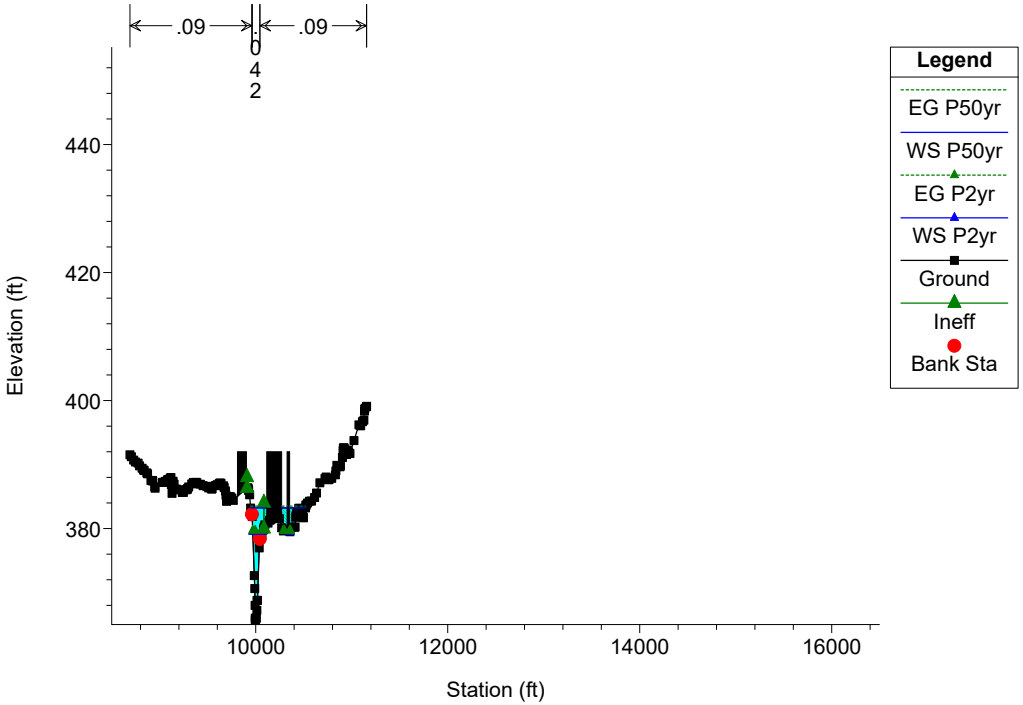
RS = 10936.8 BR Priest Street



1 in Horiz. = 2000 ft 1 in Vert. = 30 ft

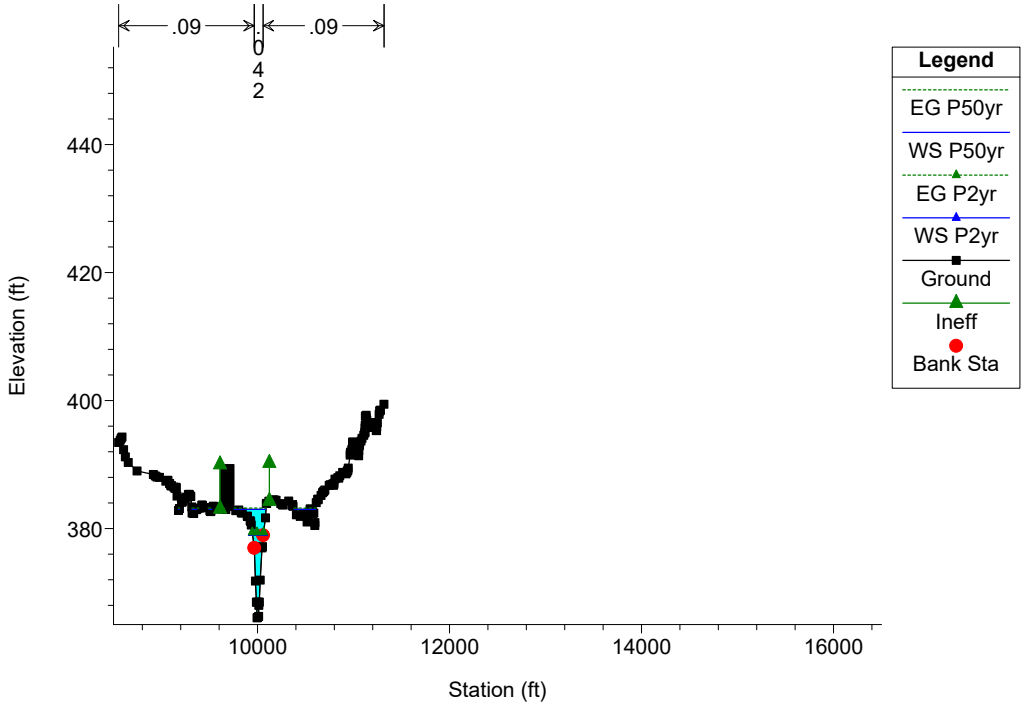
NF_Canoe Plan: canoex3 9/9/2019

RS = 10837. Interpolated based on UPS-DS Survey inverts, BR_10810_DS.



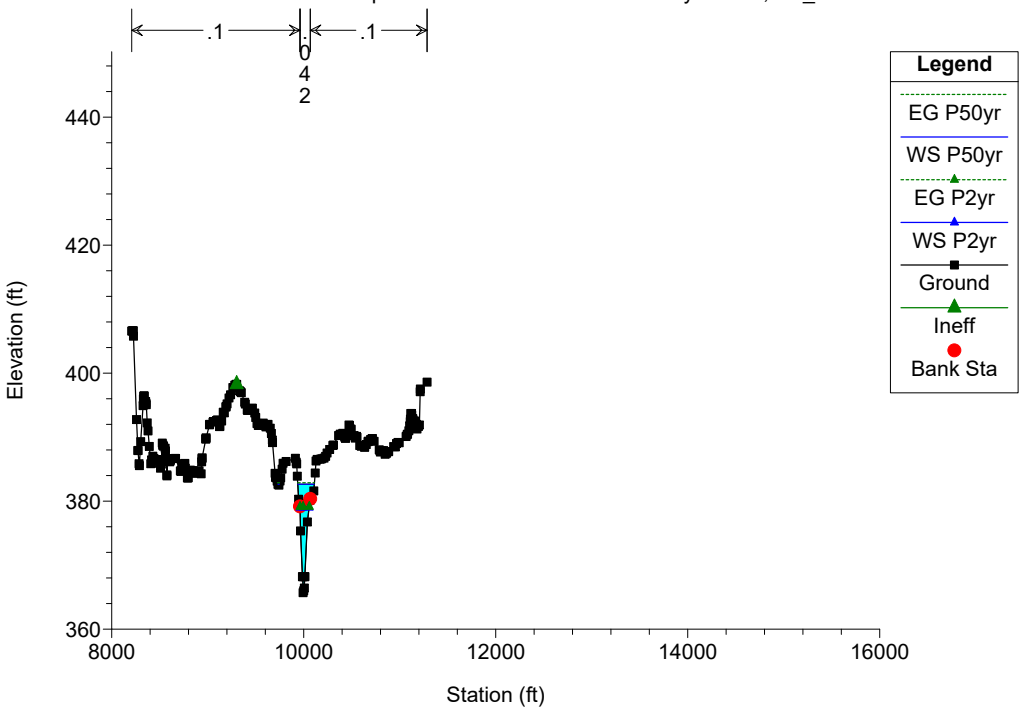
NF_Canoe Plan: canoex3 9/9/2019

RS = 10362.2 I Interpolated based on UPS-DS Survey inverts, Xs_10625.



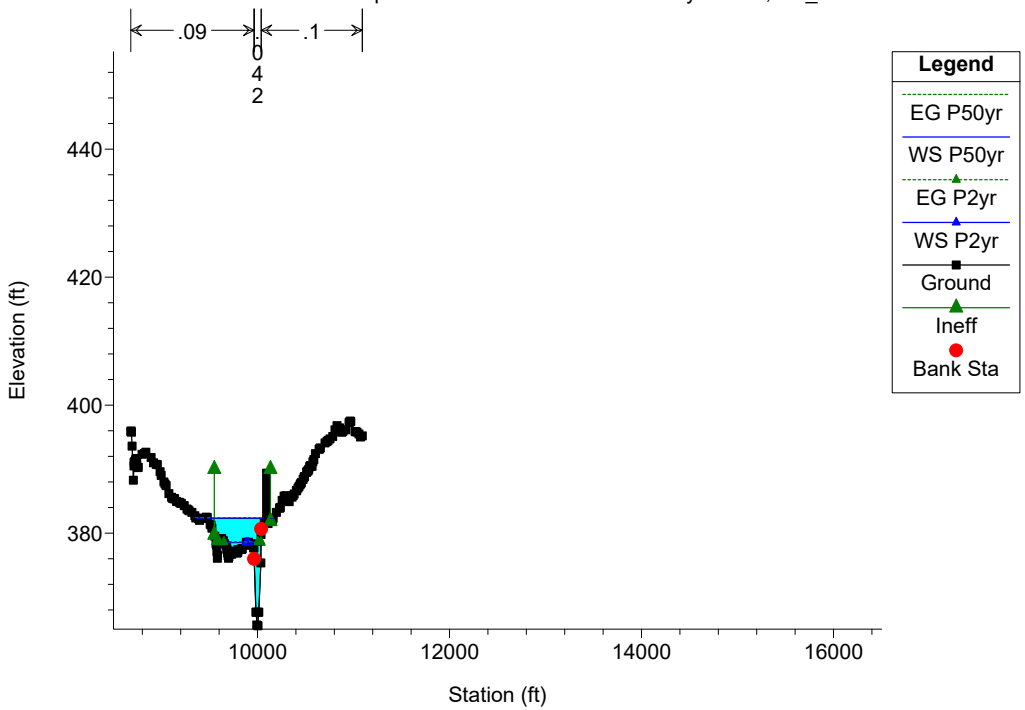
NF_Canoe Plan: canoex3 9/9/2019

RS = 9719.4 H Interpolated based on UPS-DS Survey inverts, XS_8812.



NF_Canoe Plan: canoex3 9/9/2019

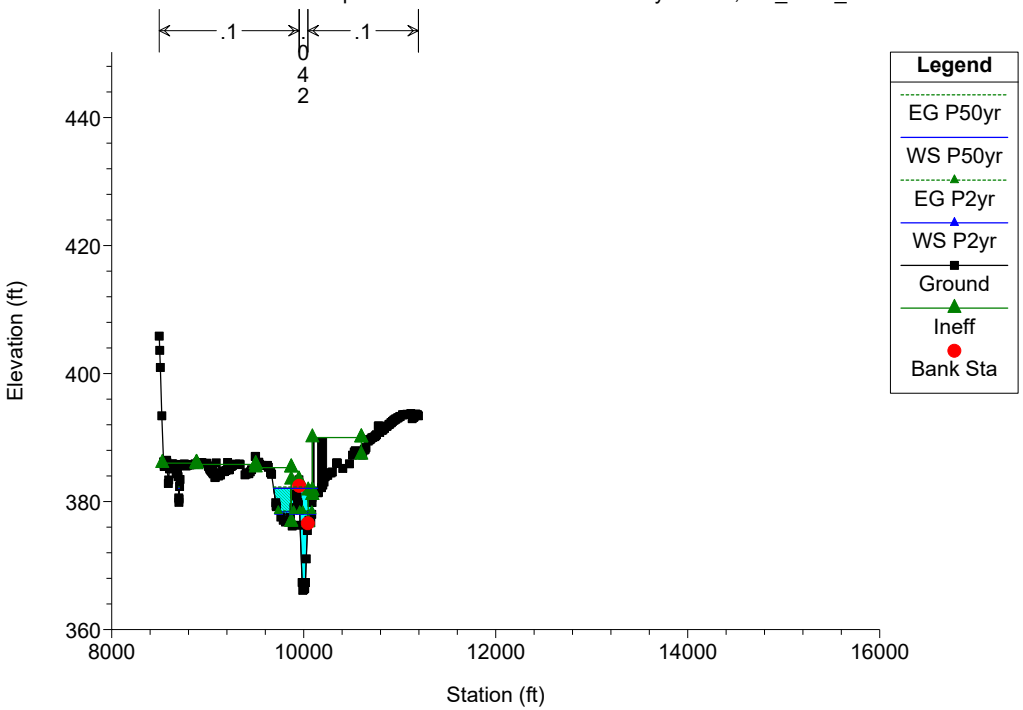
RS = 8580.4 G Interpolated based on UPS-DS Survey inverts, XS_8253.



1 in Horiz. = 2000 ft 1 in Vert. = 30 ft

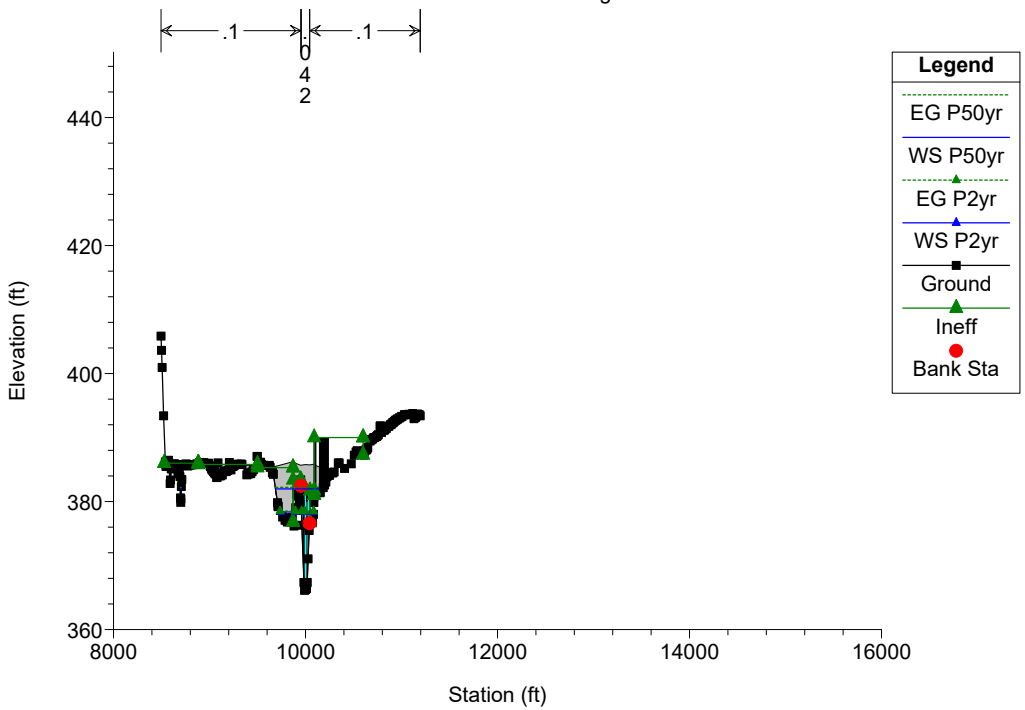
NF_Canoe Plan: canoex3 9/9/2019

RS = 8284.6 Interpolated based on UPS-DS Survey inverts, BR_8085_US.



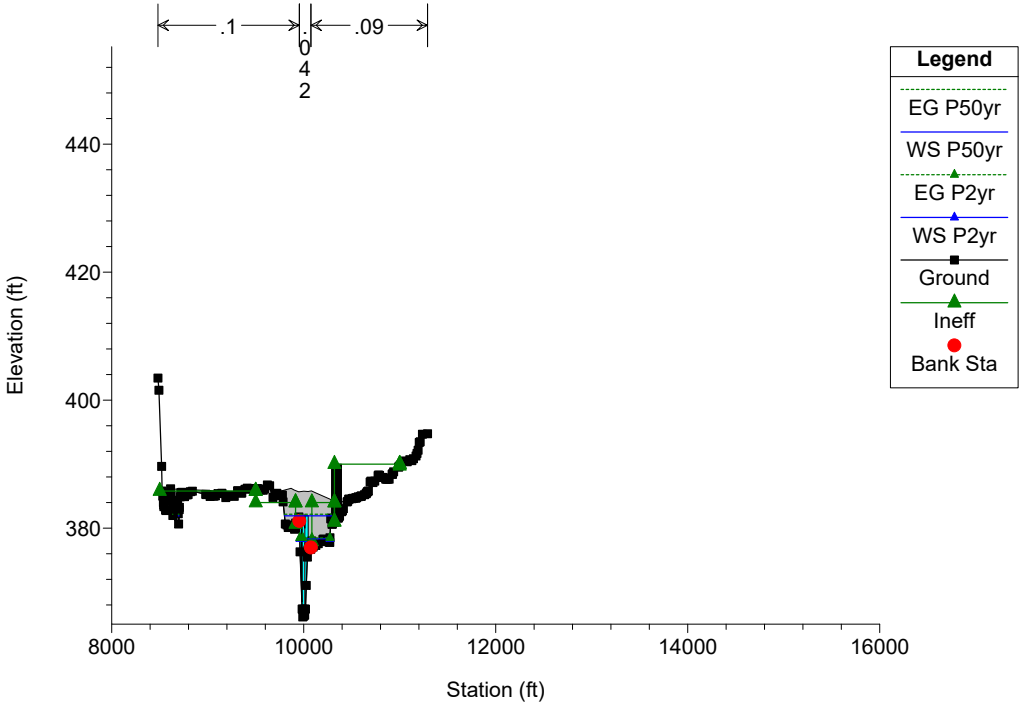
NF_Canoe Plan: canoex3 9/9/2019

RS = 8211.8 BR Washington Street



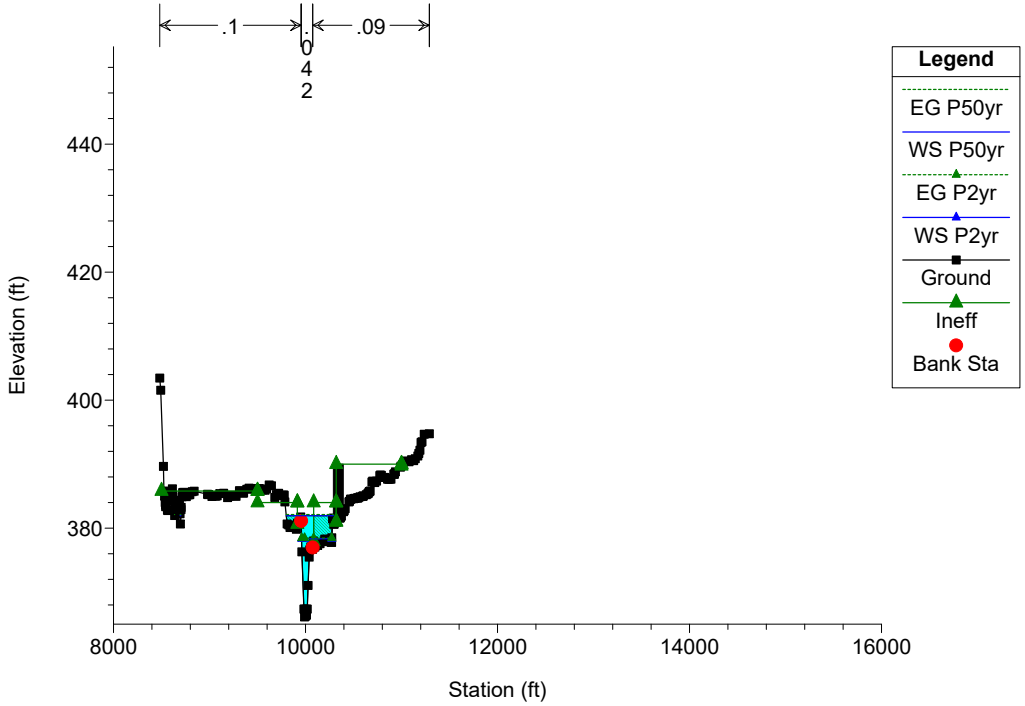
NF_Canoe Plan: canoex3 9/9/2019

RS = 8211.8 BR Washington Street



NF_Canoe Plan: canoex3 9/9/2019

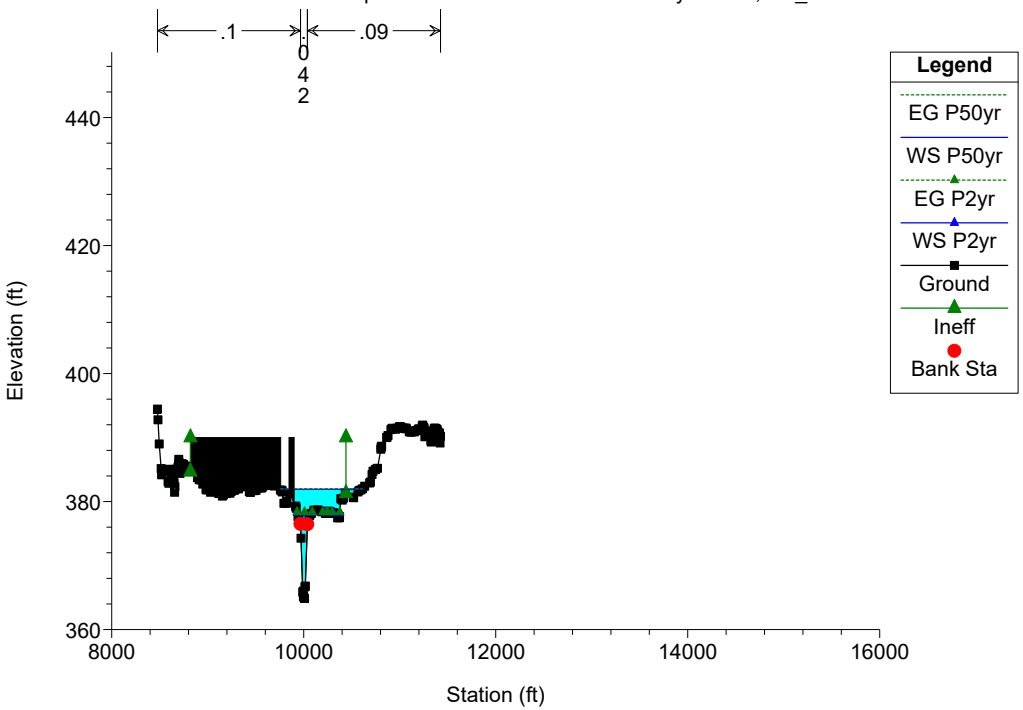
RS = 8165.2 Interpolated based on UPS-DS Survey inverts, BR_8085_DS.



1 in Horiz. = 2000 ft 1 in Vert. = 30 ft

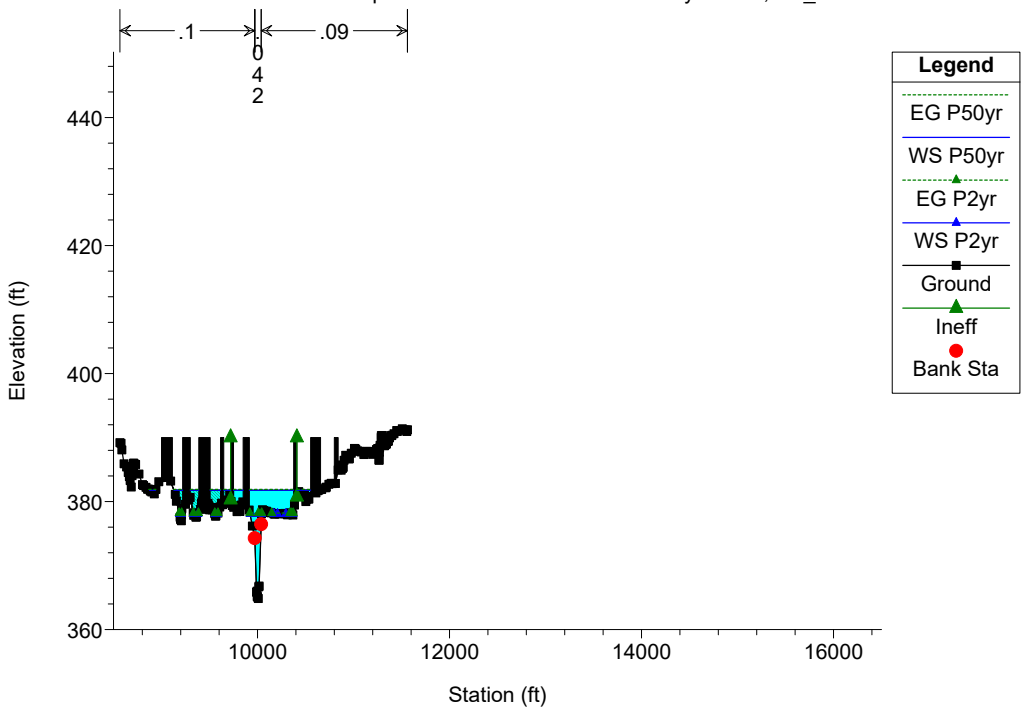
NF_Canoe Plan: canoex3 9/9/2019

RS = 7927.6 Interpolated based on UPS-DS Survey inverts, XS_7940.



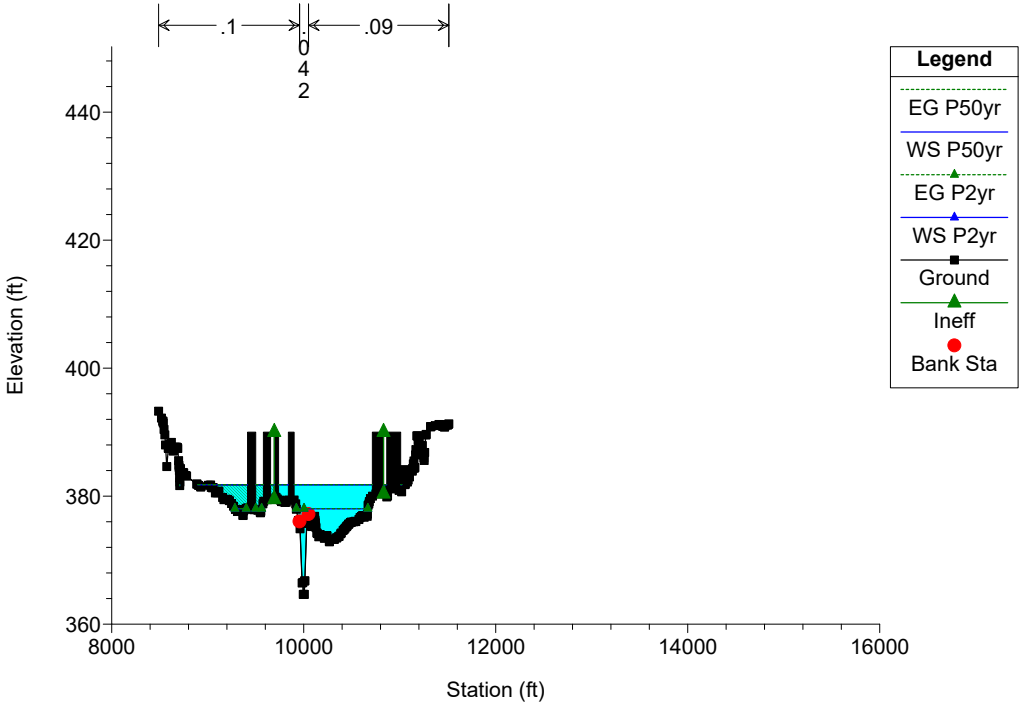
NF_Canoe Plan: canoex3 9/9/2019

RS = 7564.1 F Interpolated based on UPS-DS Survey inverts, XS_7212.



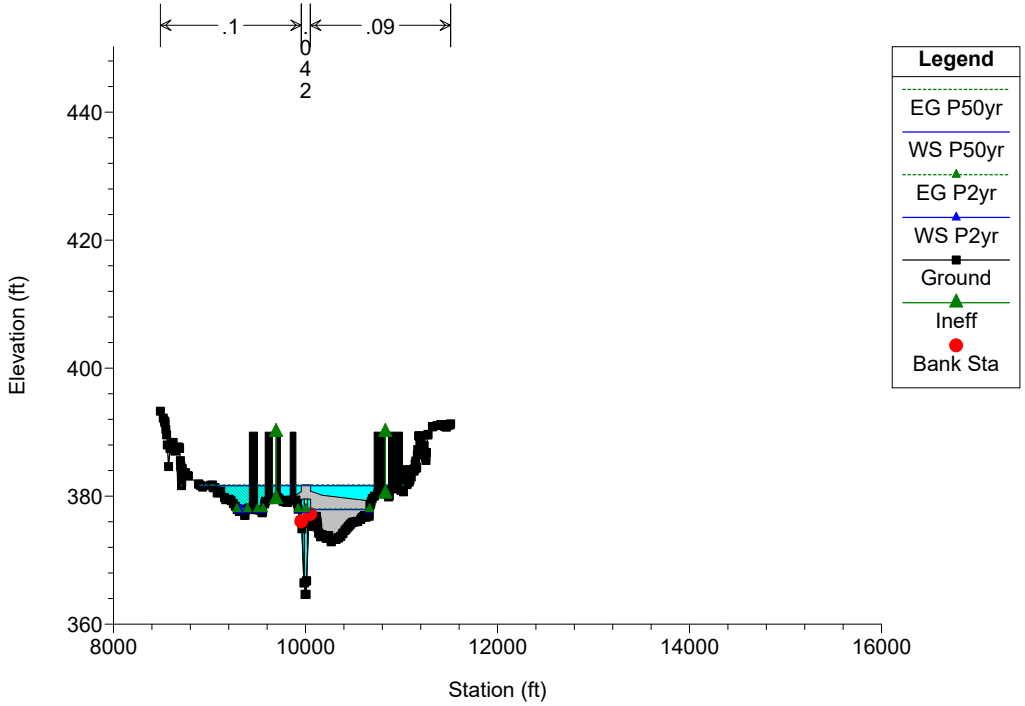
NF_Canoe Plan: canoex3 9/9/2019

RS = 7123.8 Interpolated based on UPS-DS Survey inverts, BR_6960_US.



NF_Canoe Plan: canoex3 9/9/2019

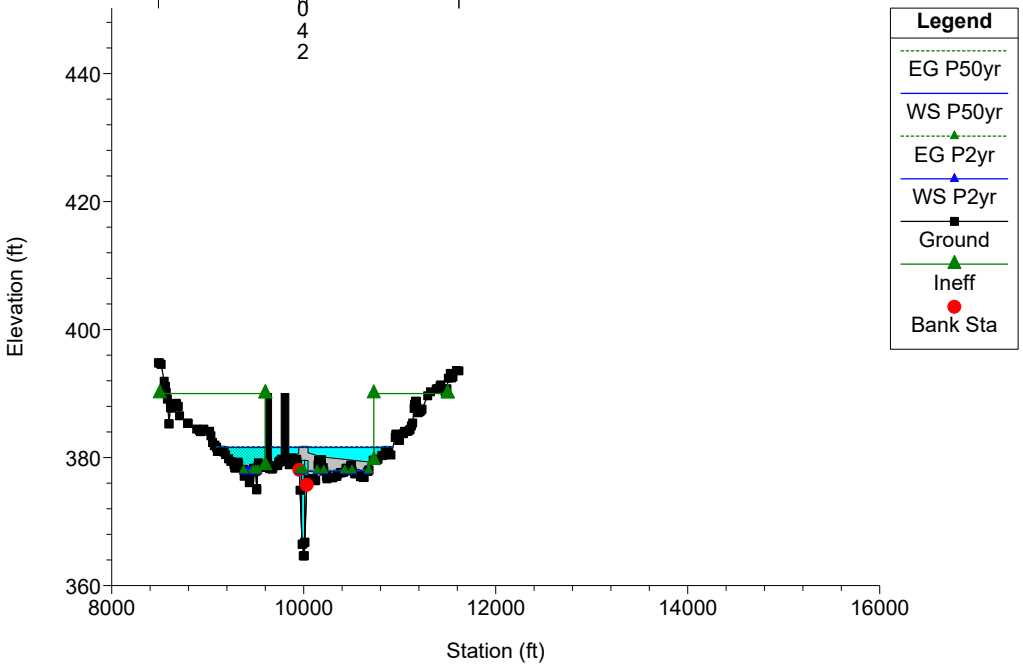
RS = 7086.8 BR Airline Road



1 in Horiz. = 2000 ft 1 in Vert. = 30 ft

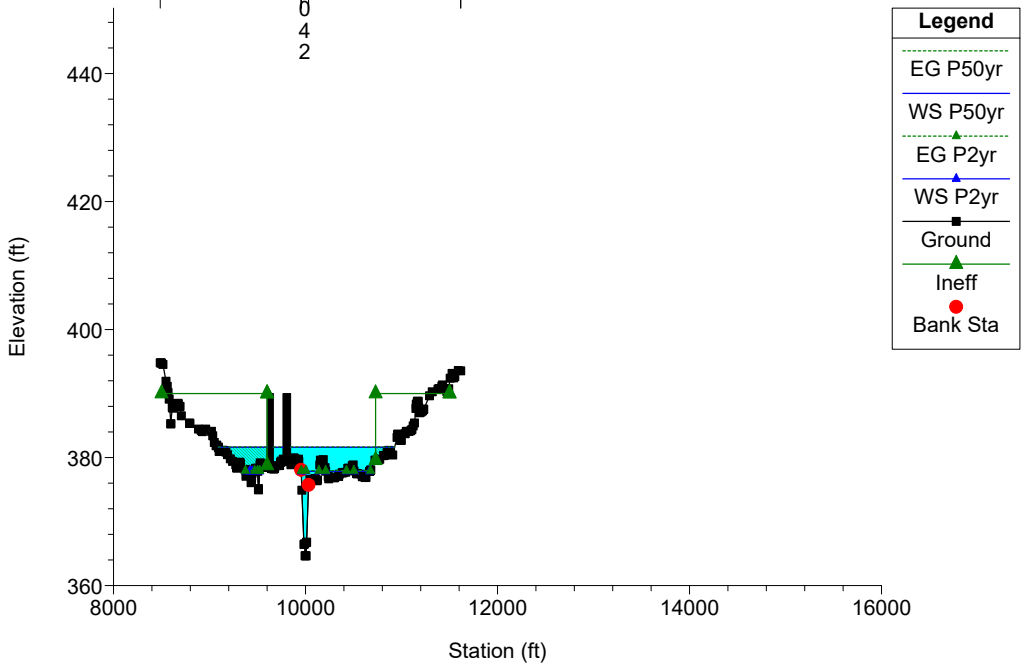
NF_Canoe Plan: canoex3 9/9/2019

RS = 7086.8 BR Airline Road



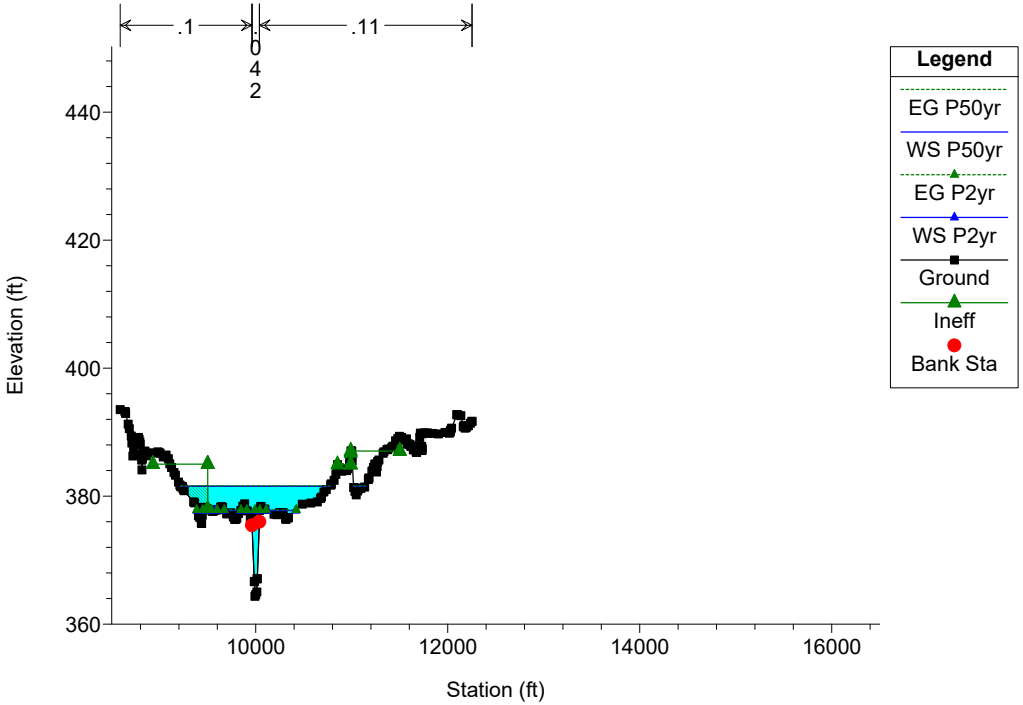
NF_Canoe Plan: canoex3 9/9/2019

RS = 7010.6 Interpolated based on UPS-DS Survey inverts, BR_6960_DS.



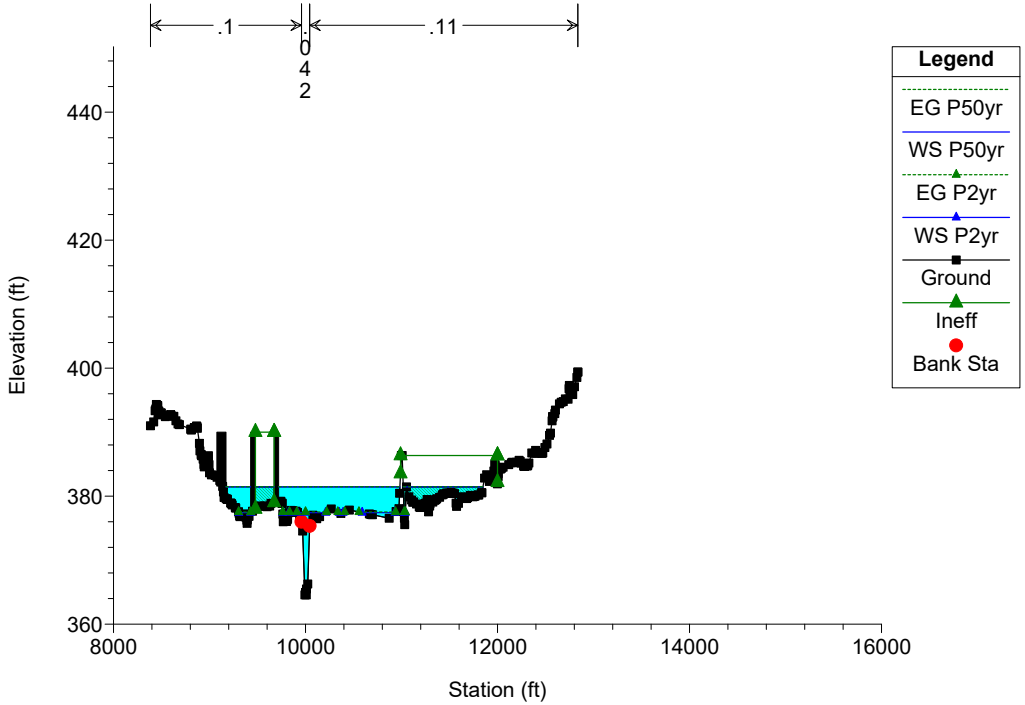
NF_Canoe Plan: canoex3 9/9/2019

RS = 6706.5 E Interpolated based on UPS-DS Survey inverts, XS_6822.



NF_Canoe Plan: canoex3 9/9/2019

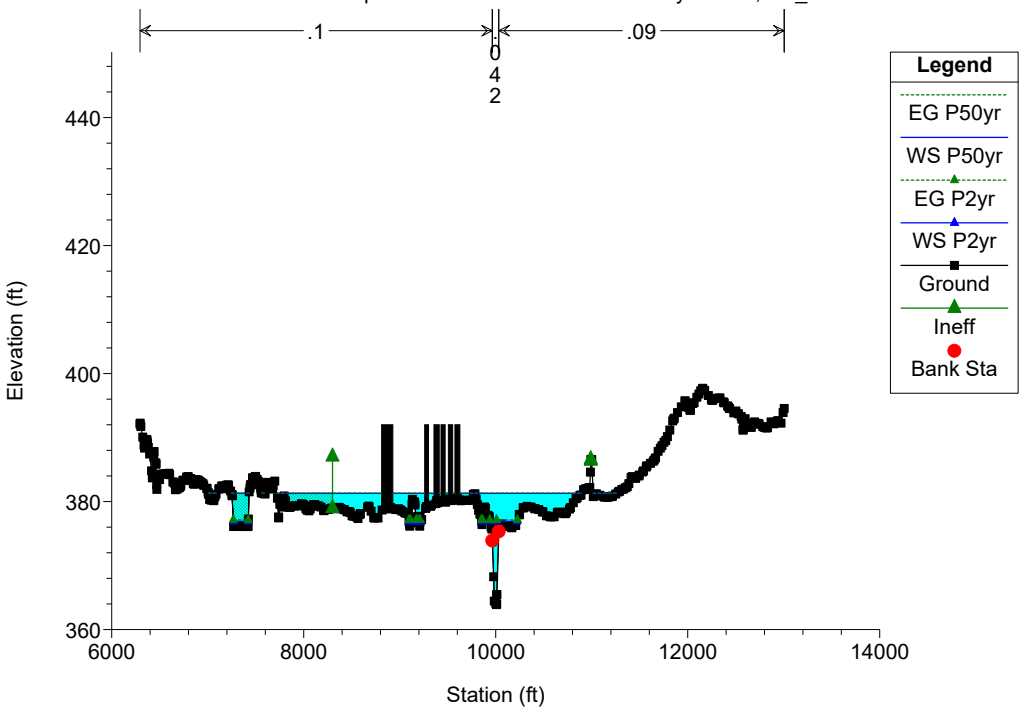
RS = 5738.9 D Interpolated based on UPS-DS Survey inverts, XS_3980.



1 in Horiz. = 2000 ft 1 in Vert. = 30 ft

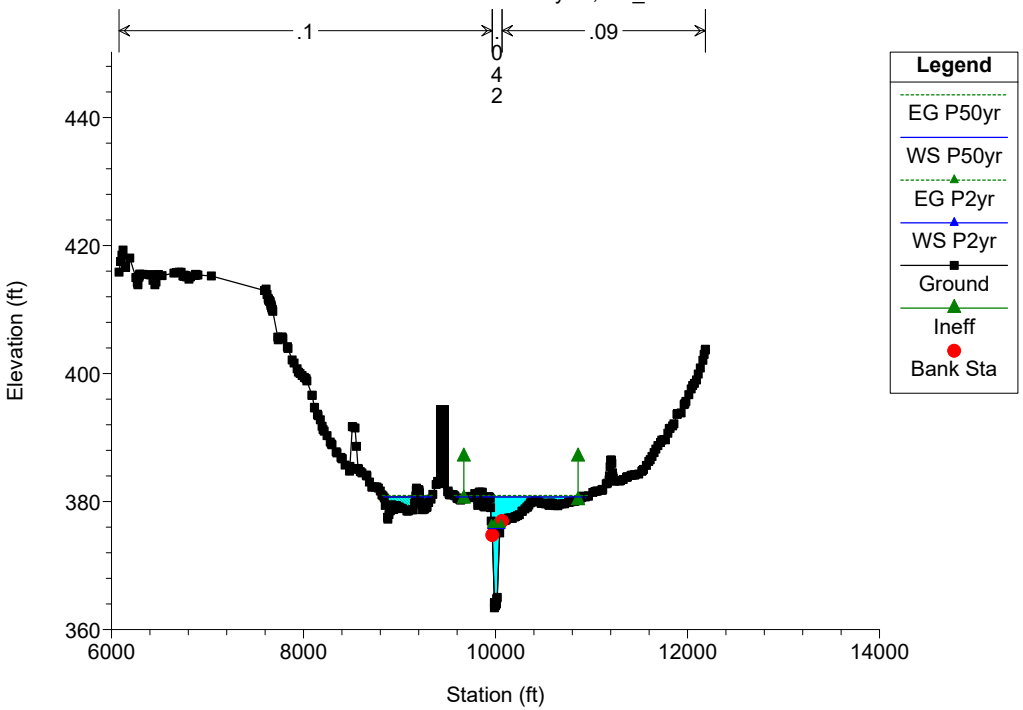
NF_Canoe Plan: canoex3 9/9/2019

RS = 4899.4 Interpolated based on UPS-DS Survey inverts, XS_3980.



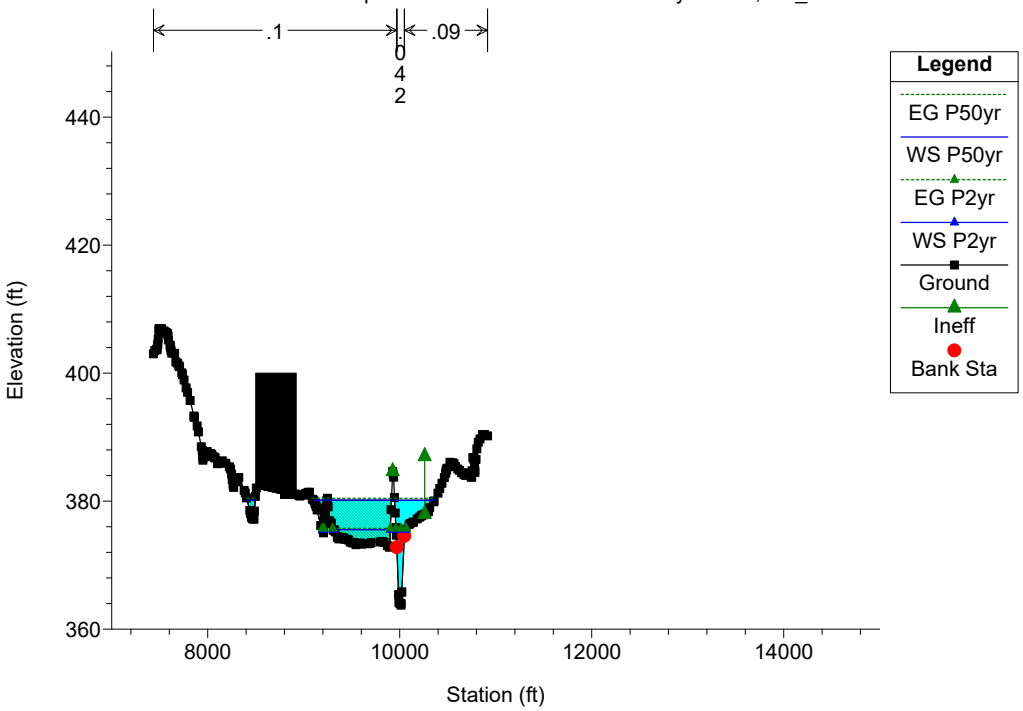
NF_Canoe Plan: canoex3 9/9/2019

RS = 3856.3 C Survey xs, XS_3729.



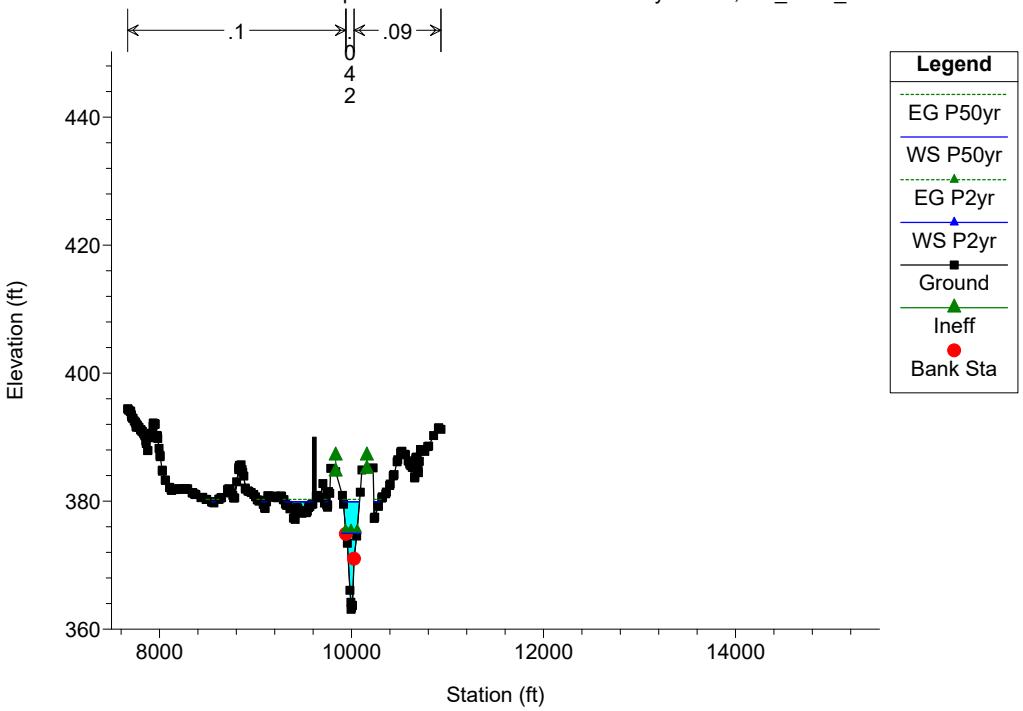
NF_Canoe Plan: canoex3 9/9/2019

RS = 3073.1 Interpolated based on UPS-DS Survey inverts, XS_3729.



NF_Canoe Plan: canoex3 9/9/2019

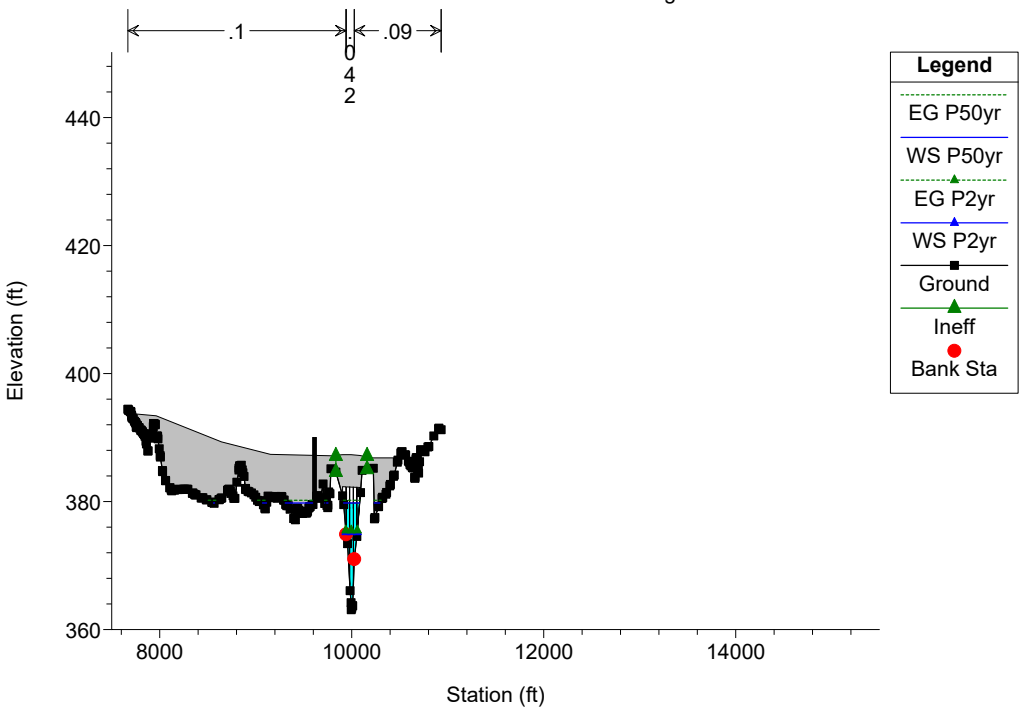
RS = 2858.5 Interpolated based on UPS-DS Survey inverts, BR_2665_US.



1 in Horiz. = 2000 ft 1 in Vert. = 30 ft

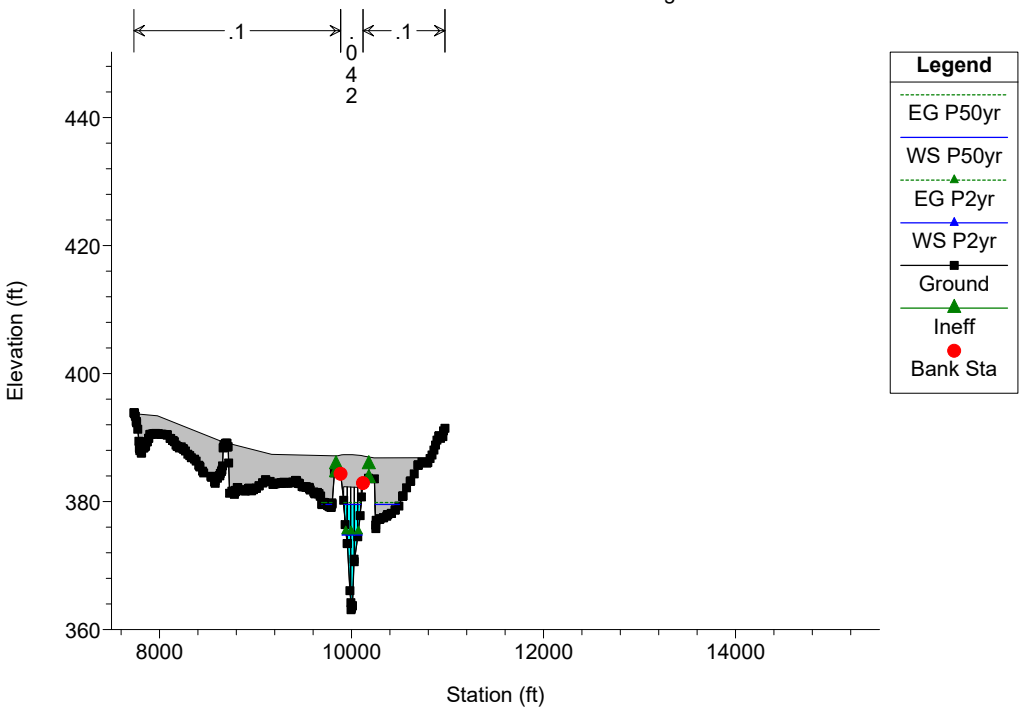
NF_Canoe Plan: canoex3 9/9/2019

RS = 2791.8 BR Railroad Bridge



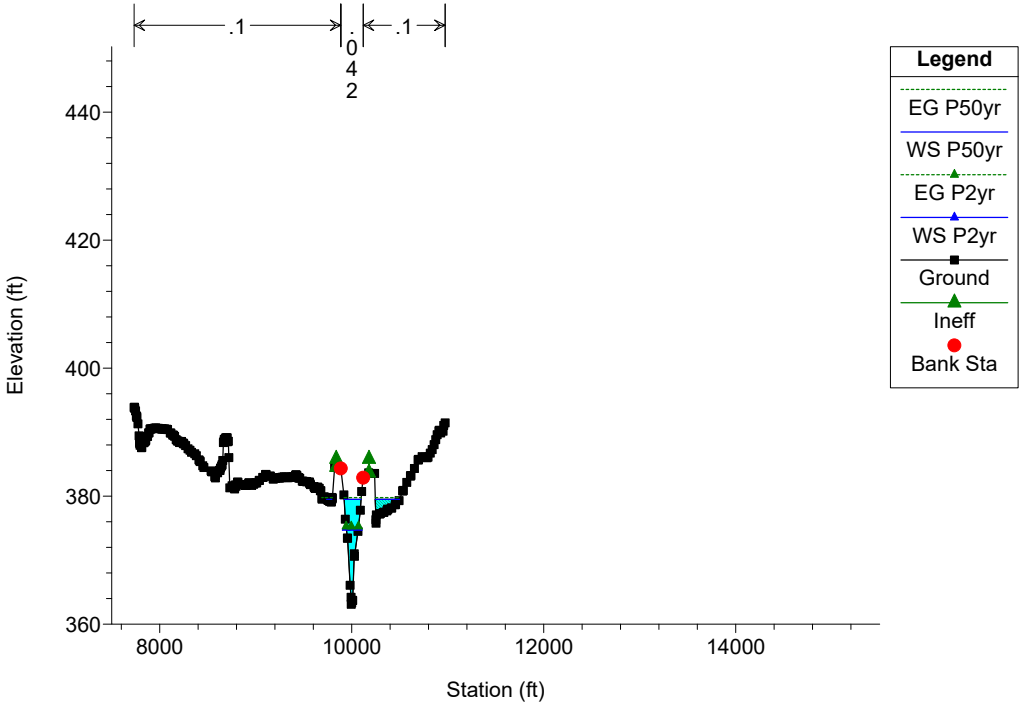
NF_Canoe Plan: canoex3 9/9/2019

RS = 2791.8 BR Railroad Bridge



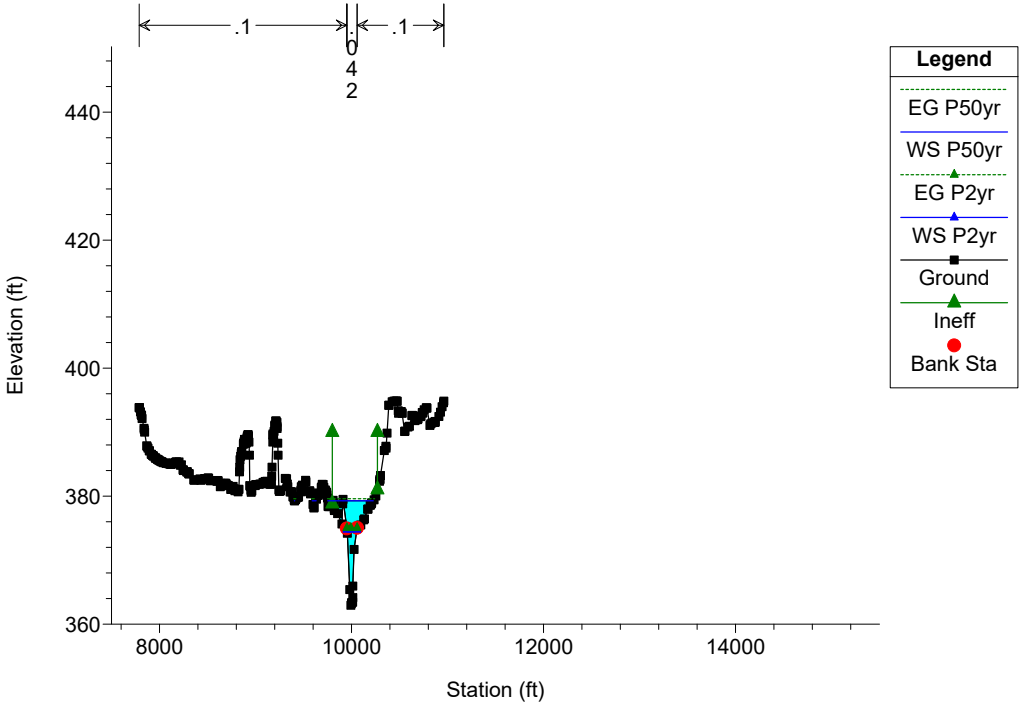
NF_Canoe Plan: canoex3 9/9/2019

RS = 2724. Interpolated based on UPS-DS Survey inverts, BR_2665_DS.



NF_Canoe Plan: canoex3 9/9/2019

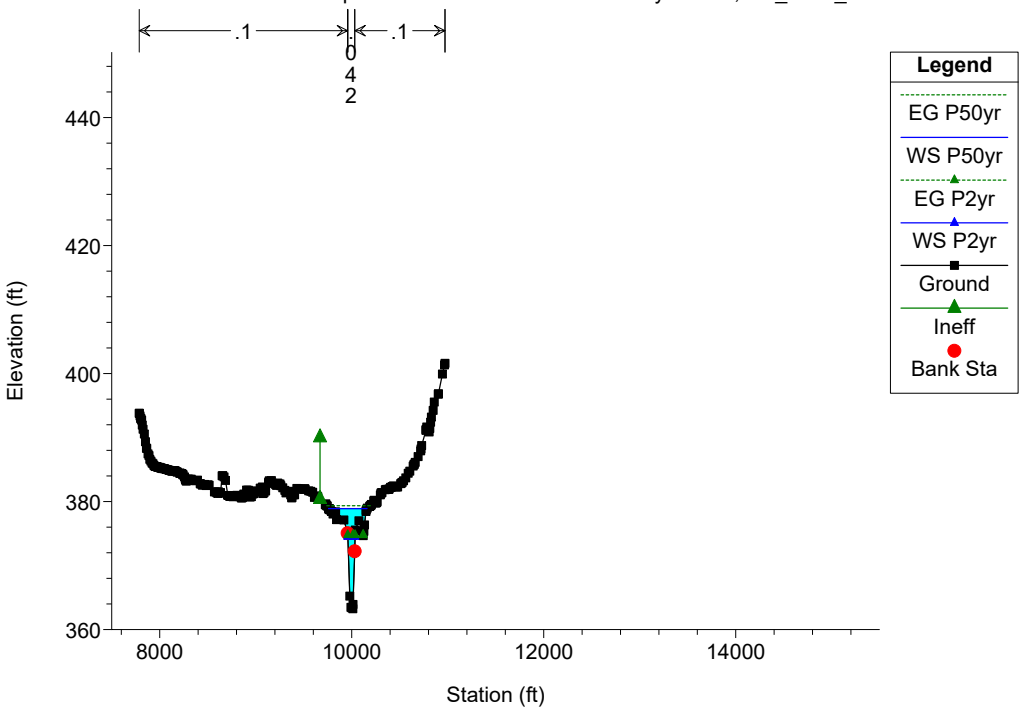
RS = 2538.1 B Survey xs, XS_2411.



1 in Horiz. = 2000 ft 1 in Vert. = 30 ft

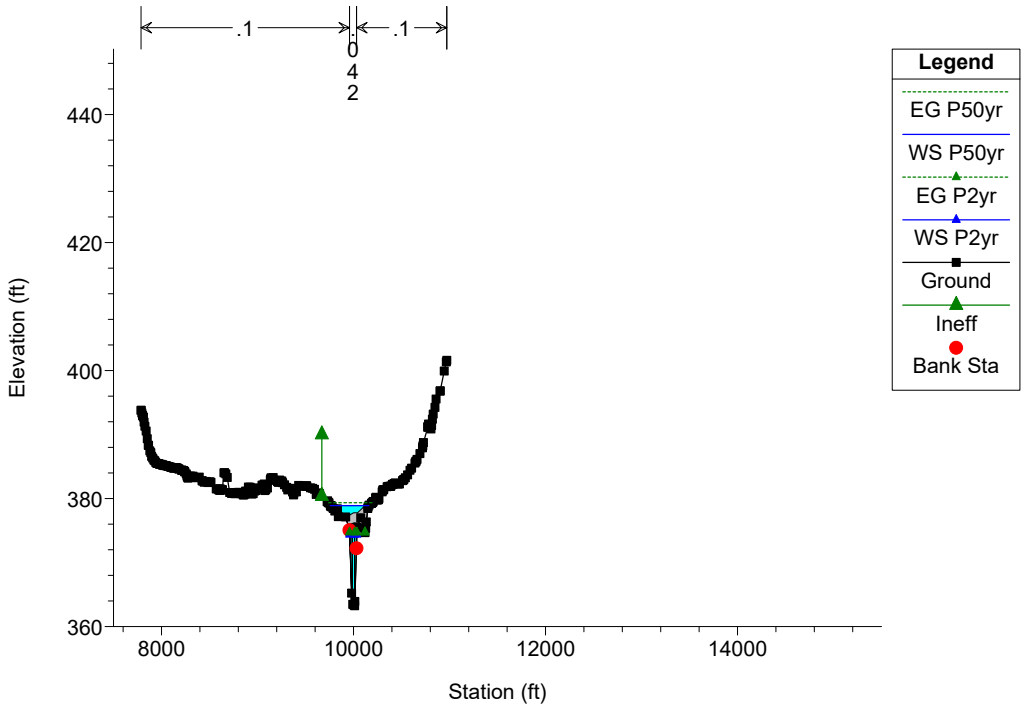
NF_Canoe Plan: canoex3 9/9/2019

RS = 2326.2 Interpolated based on UPS-DS Survey inverts, BR_2140_US.



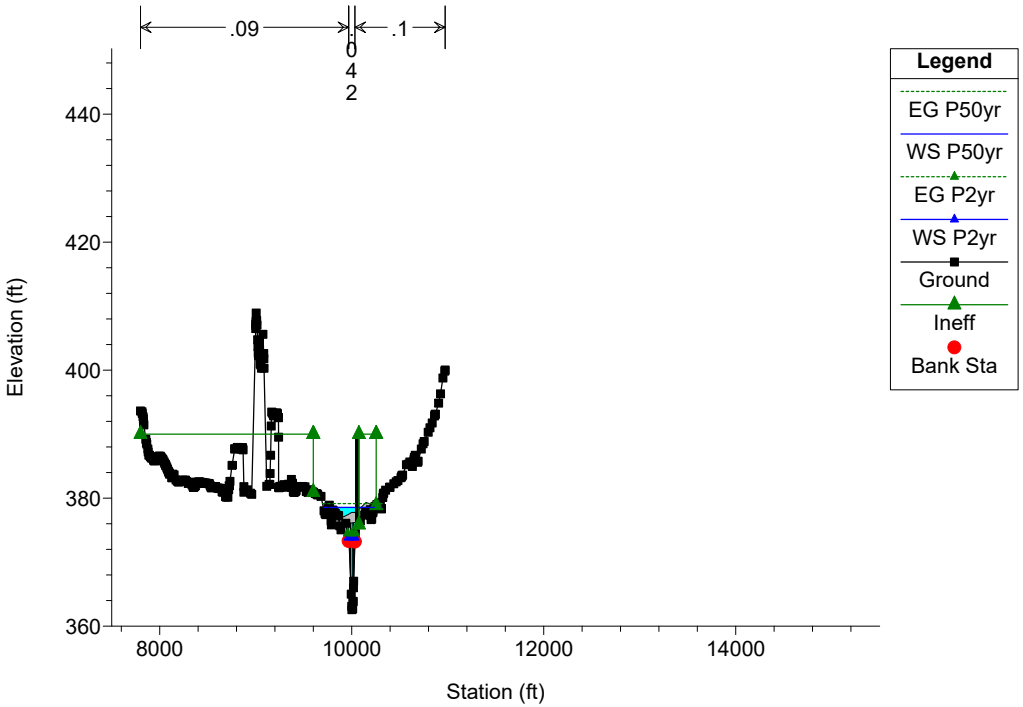
NF_Canoe Plan: canoex3 9/9/2019

RS = 2266.8 BR KY-136



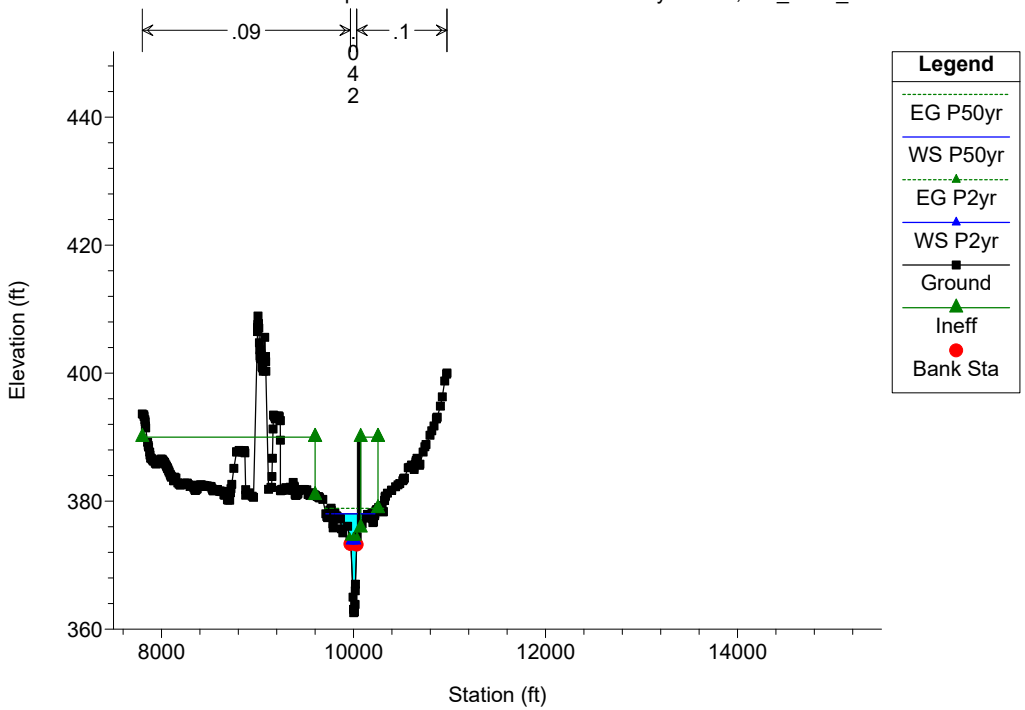
NF_Canoe Plan: canoex3 9/9/2019

RS = 2266.8 BR KY-136



NF_Canoe Plan: canoex3 9/9/2019

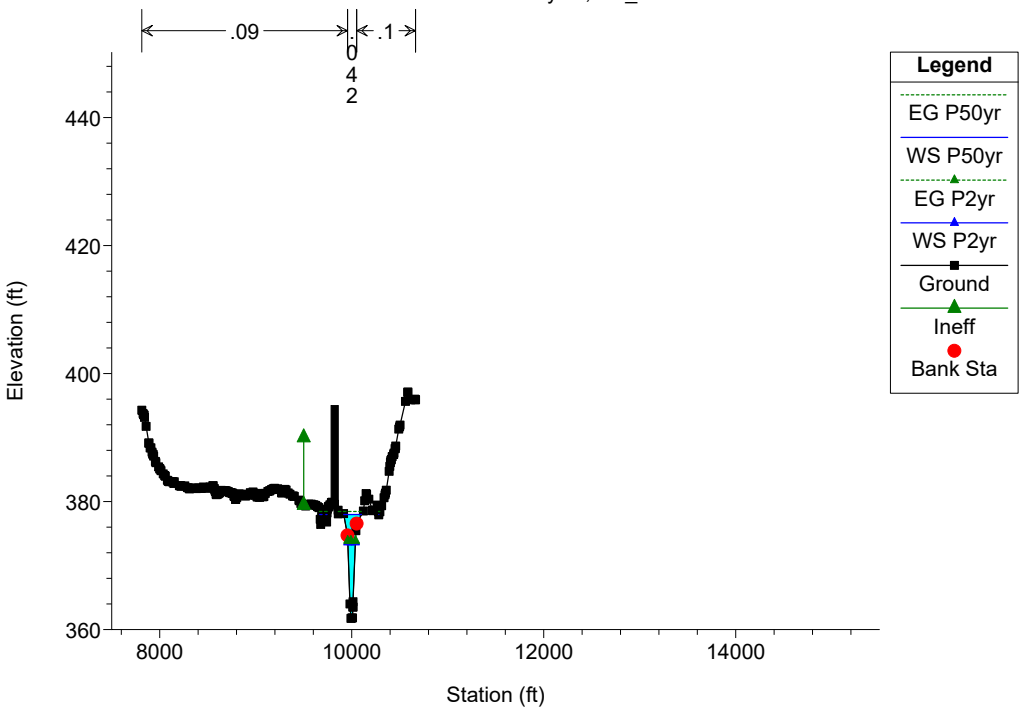
RS = 2223.8 Interpolated based on UPS-DS Survey inverts, BR_2140_DS.



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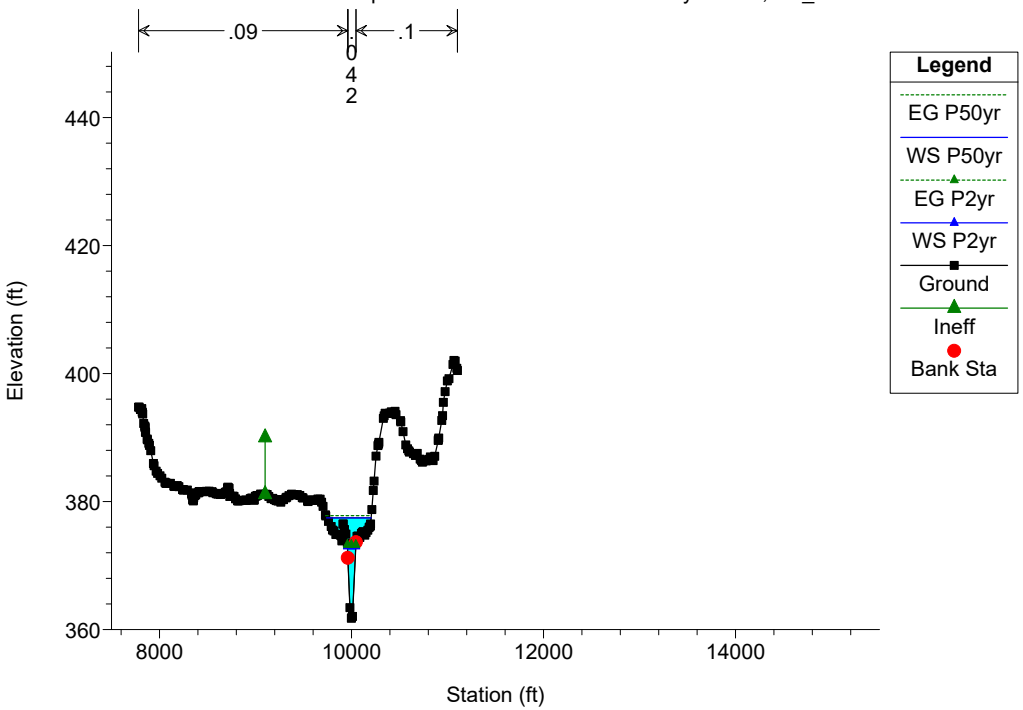
NF_Canoe Plan: canoex3 9/9/2019

RS = 2073.1 Survey xs, XS_1946.



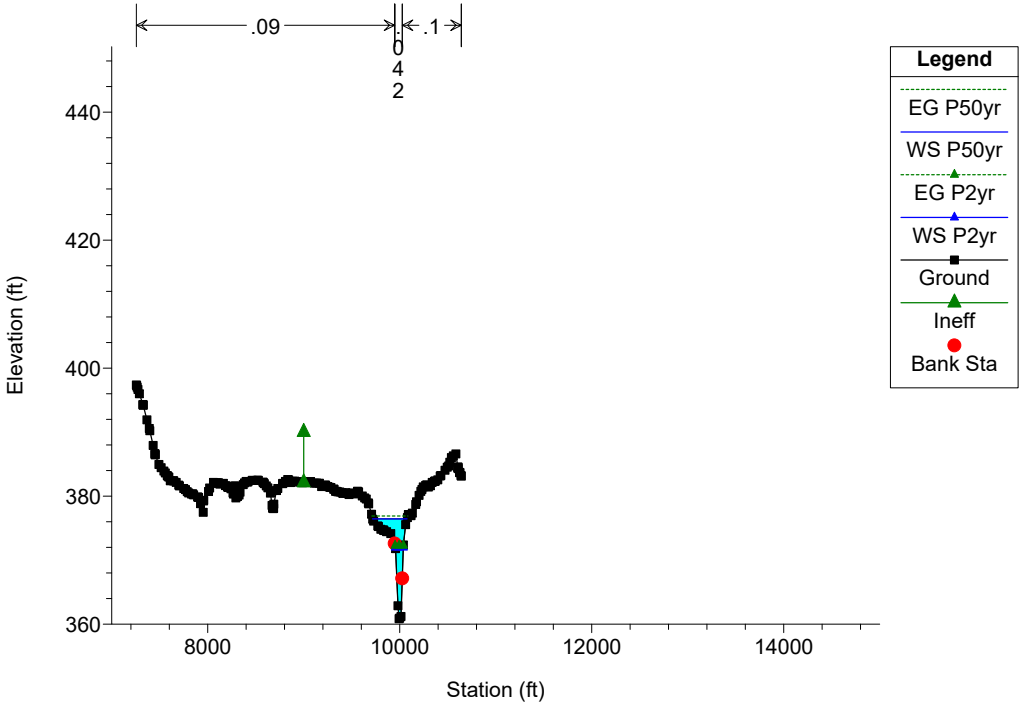
NF_Canoe Plan: canoex3 9/9/2019

RS = 1455.4 A Interpolated based on UPS-DS Survey inverts, XS_1946.



NF_Canoe Plan: canoex3 9/9/2019

RS = 450.5 Survey xs, XS_324.



1 in Horiz. = 2000 ft 1 in Vert. = 30 ft

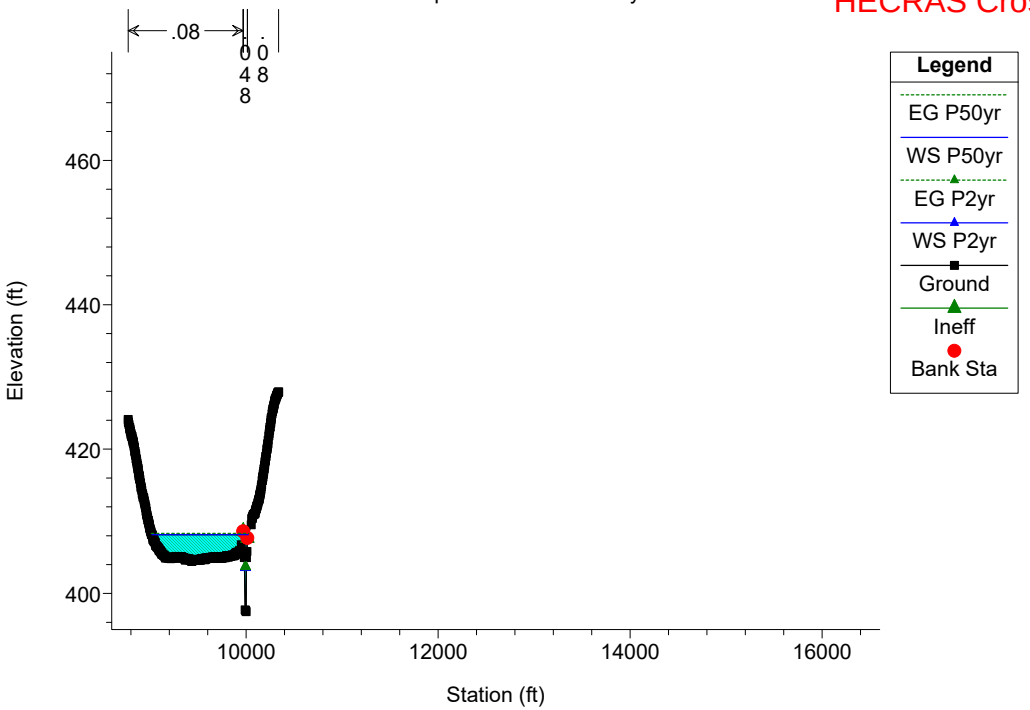
Appendix B-7

Appendix B-7

Parsons Proposed Condition HECRAS Cross Sections

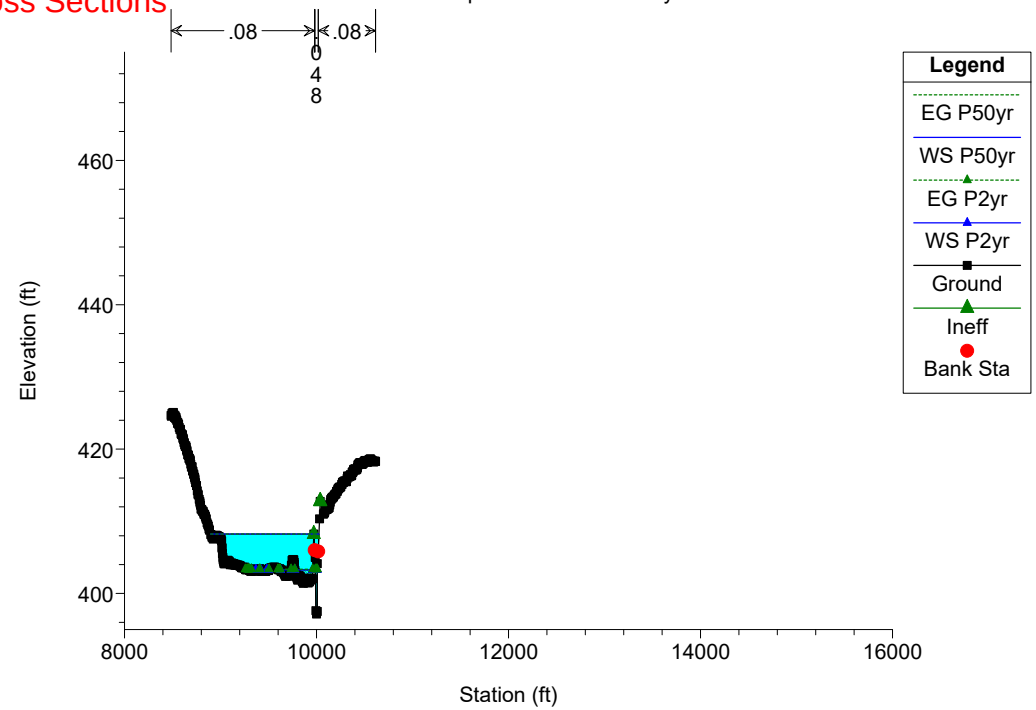
NF_Canoe Plan: Canpr3 9/9/2019

RS = 31238.12 XS Upstream/North of Hwy 60 and west of RR



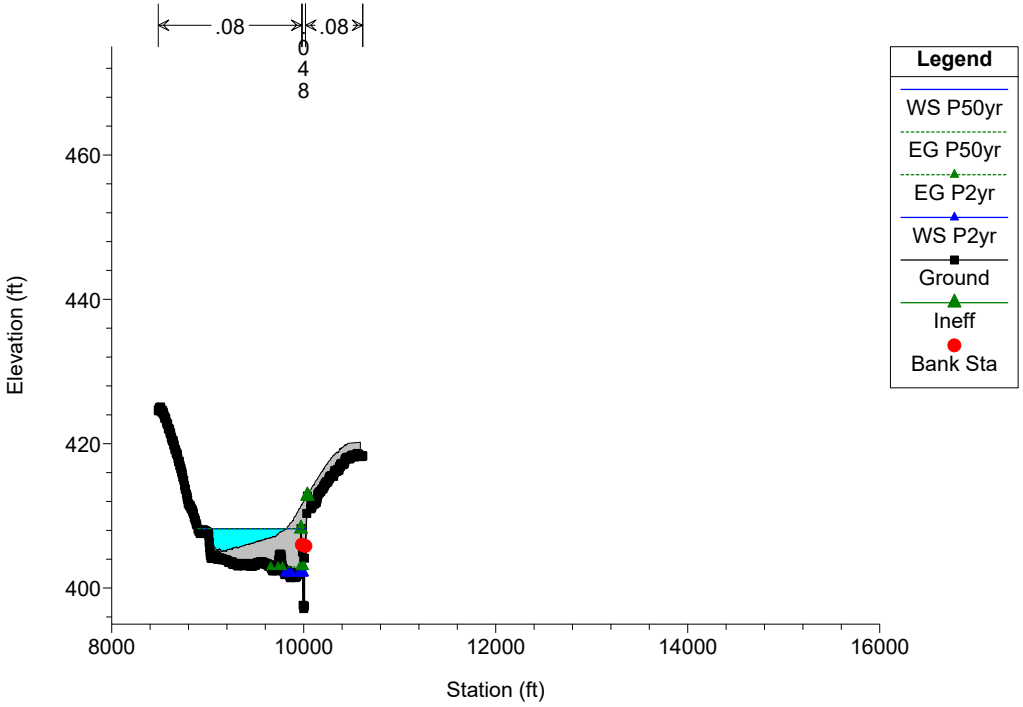
NF_Canoe Plan: Canpr3 9/9/2019

RS = 31040.61 XS Just upstream/North of Hwy 60 and west of RR



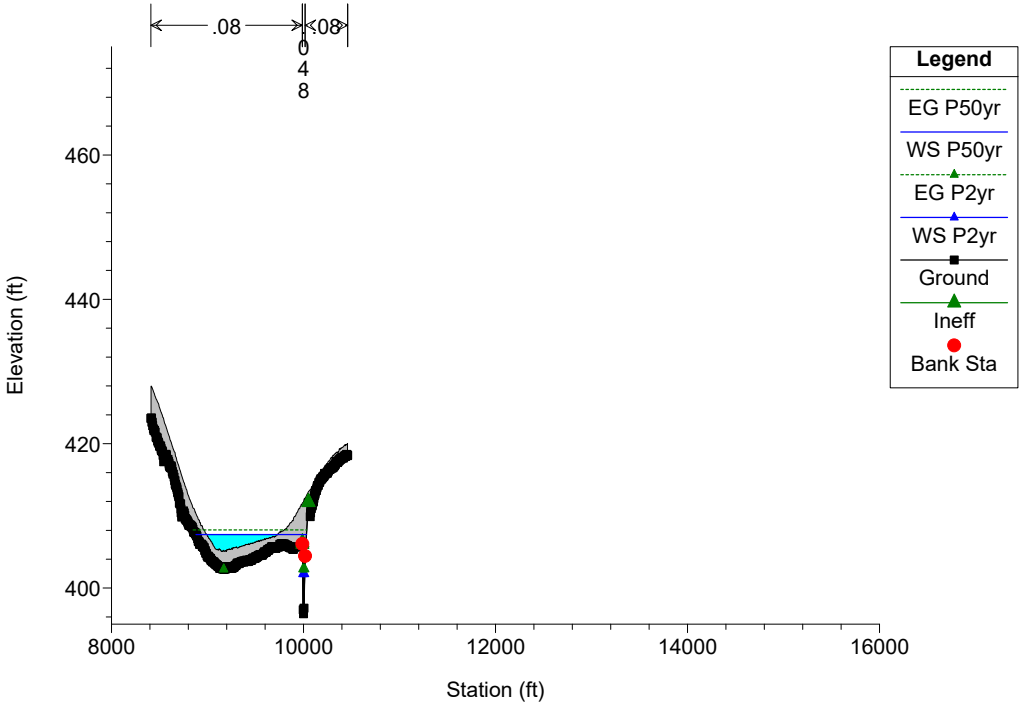
NF_Canoe Plan: Canpr3 9/9/2019

RS = 31001.95 Culv



NF_Canoe Plan: Canpr3 9/9/2019

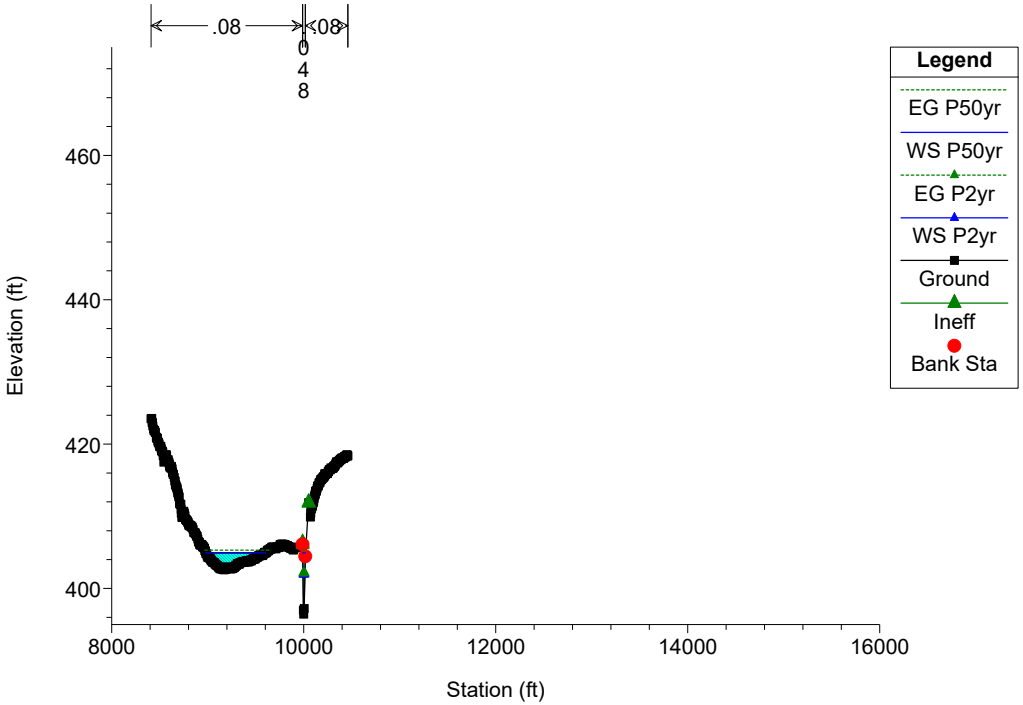
RS = 31001.95 Culv



1 in Horiz. = 2000 ft 1 in Vert. = 26.60017 ft

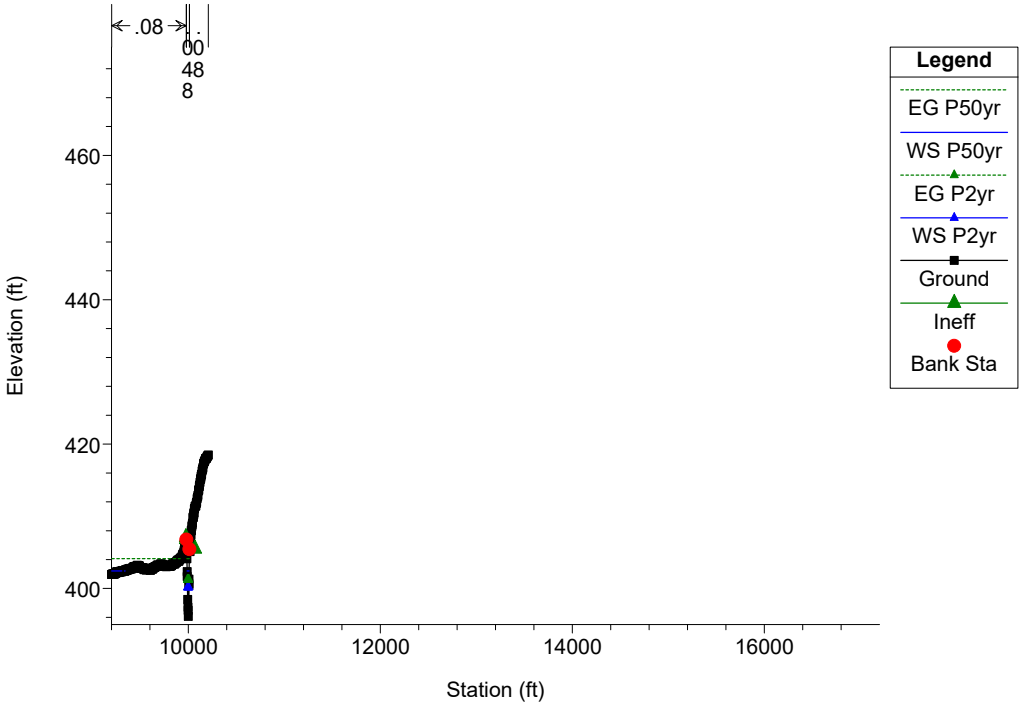
NF_Canoe Plan: Canpr3 9/9/2019

RS = 30943.45 XS Just downstream/South of Hwy 60 and west of RR



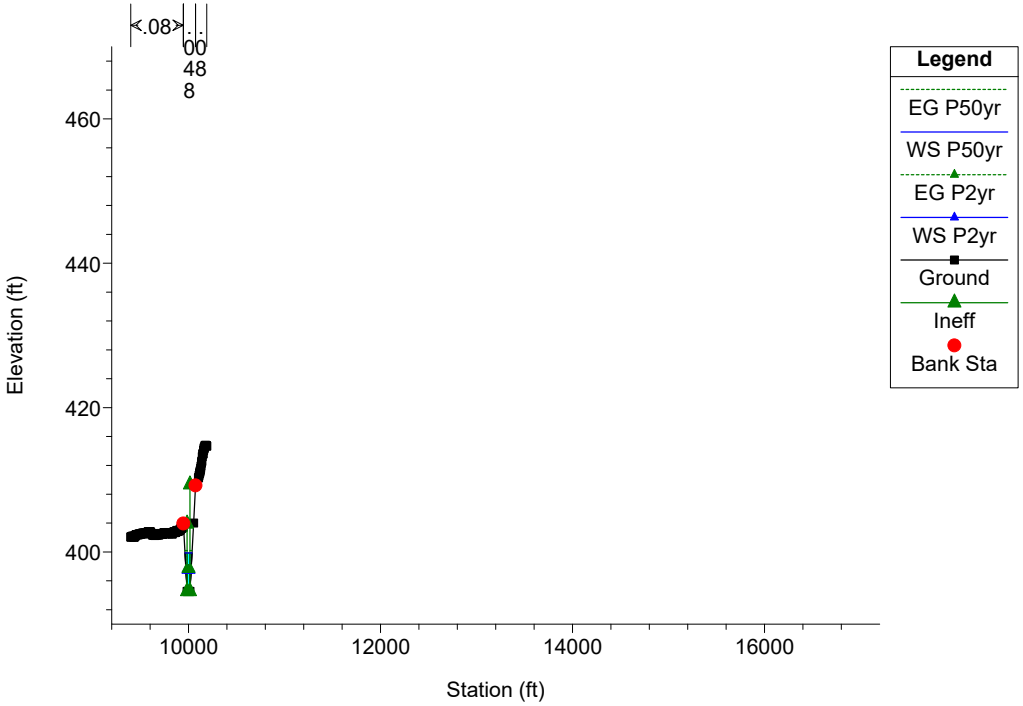
NF_Canoe Plan: Canpr3 9/9/2019

RS = 30836.15



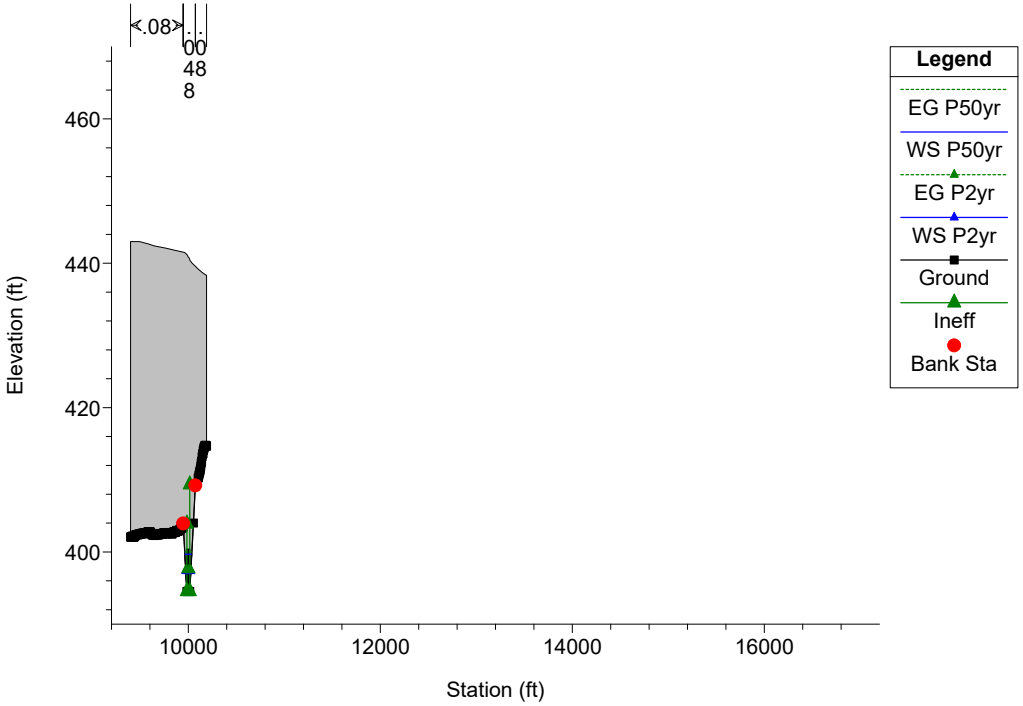
NF_Canoe Plan: Canpr3 9/9/2019

RS = 30724.21



NF_Canoe Plan: Canpr3 9/9/2019

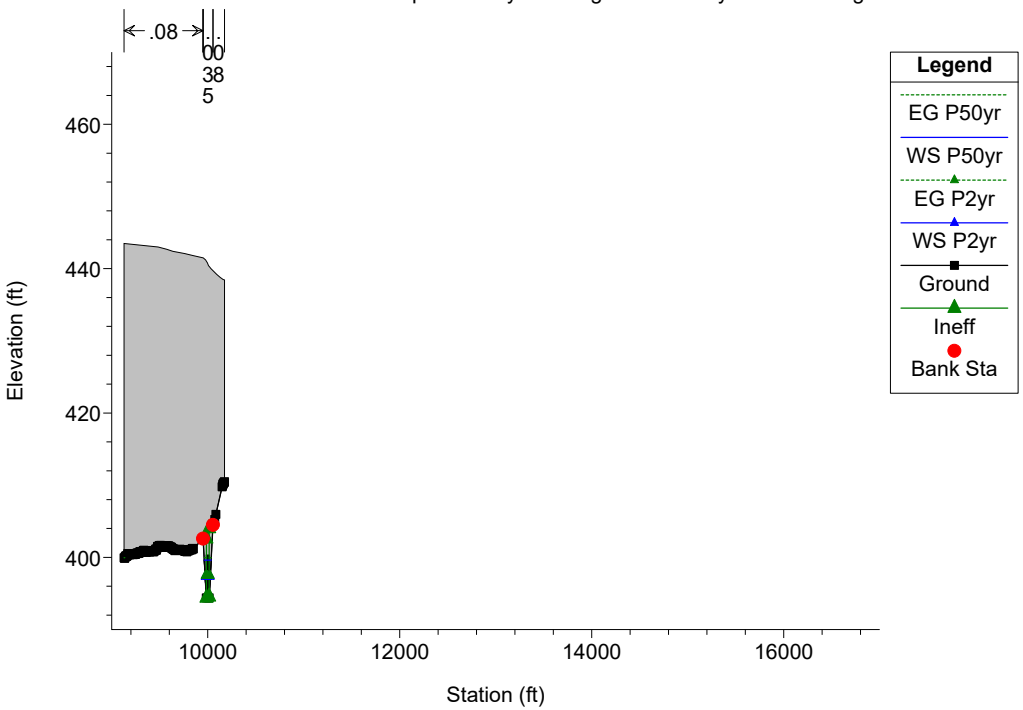
RS = 30524.31 Culv Proposed Hwy 60 Bridge at I-60/Hwy 60 Interchange



1 in Horiz. = 2000 ft 1 in Vert. = 26.60017 ft

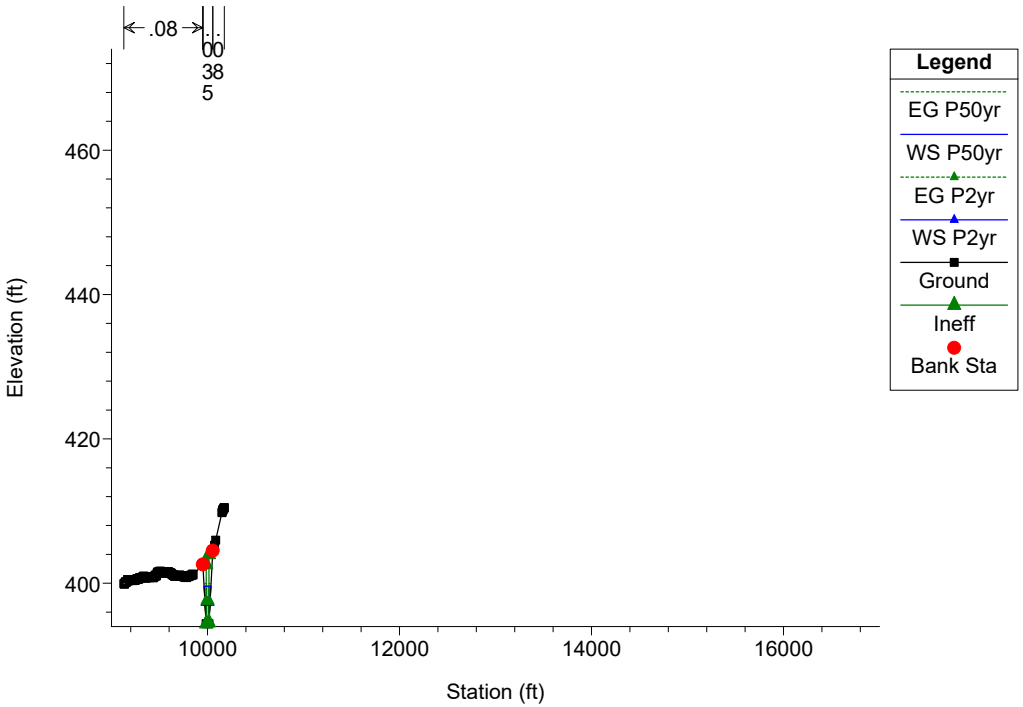
NF_Canoe Plan: Canpr3 9/9/2019

RS = 30524.31 Culv Proposed Hwy 60 Bridge at I-60/Hwy 60 Interchange



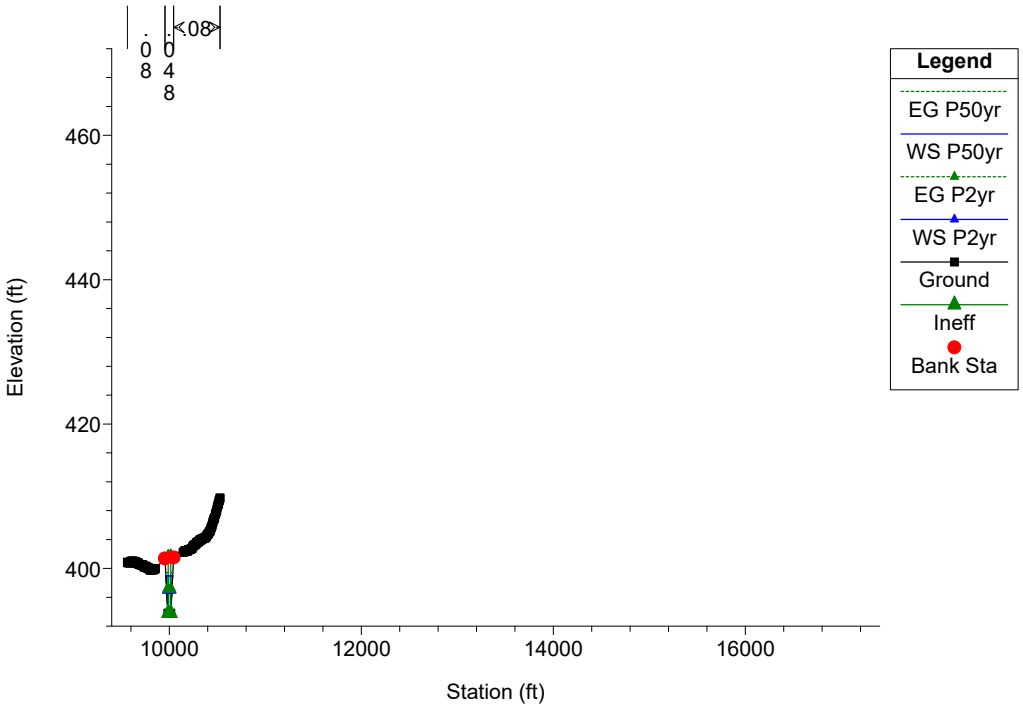
NF_Canoe Plan: Canpr3 9/9/2019

RS = 30371



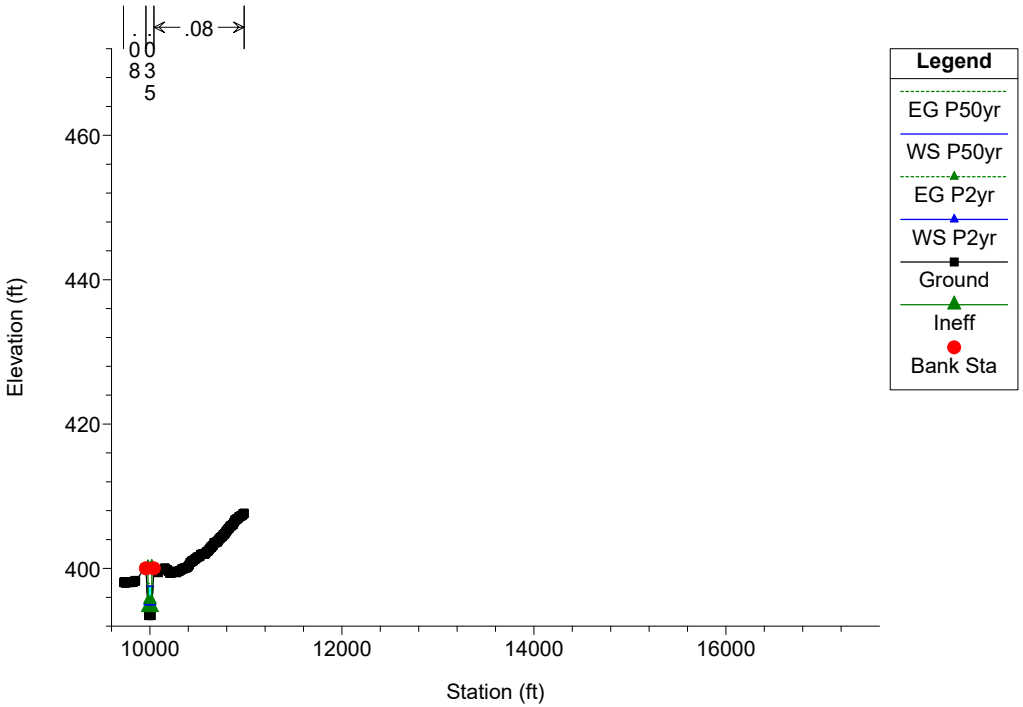
NF_Canoe Plan: Canpr3 9/9/2019

RS = 30106.17



NF_Canoe Plan: Canpr3 9/9/2019

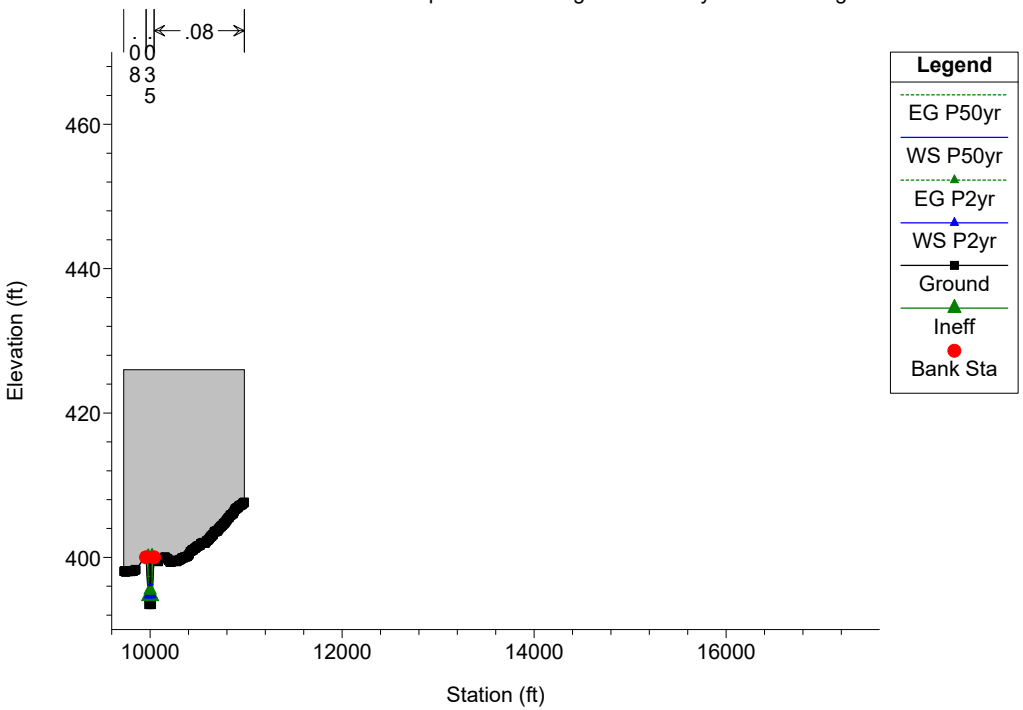
RS = 29531.08



1 in Horiz. = 2000 ft 1 in Vert. = 26.60017 ft

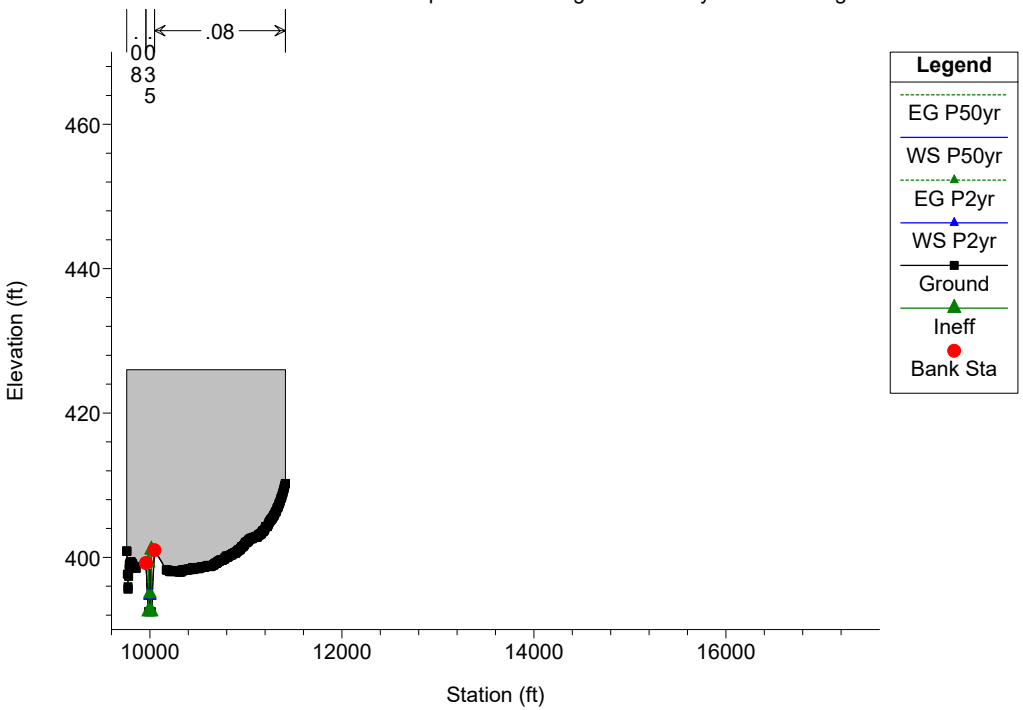
NF_Canoe Plan: Canpr3 9/9/2019

RS = 29191.02 Culv Proposed I-69 Bridge at I-69/Hwy 60 Interchange



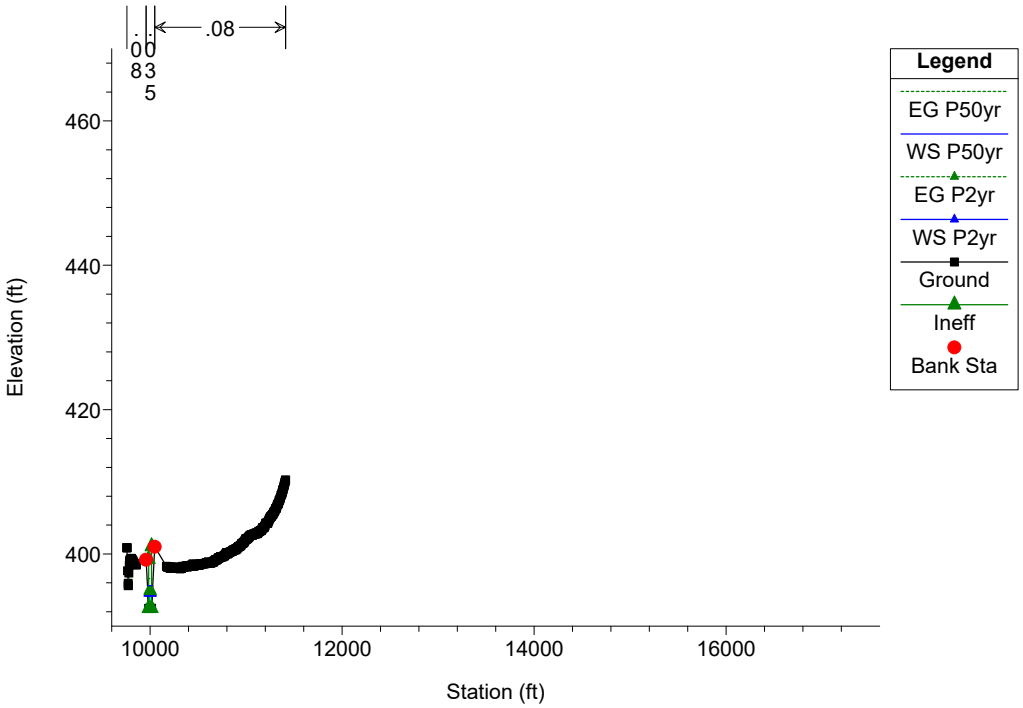
NF_Canoe Plan: Canpr3 9/9/2019

RS = 29191.02 Culv Proposed I-69 Bridge at I-69/Hwy 60 Interchange



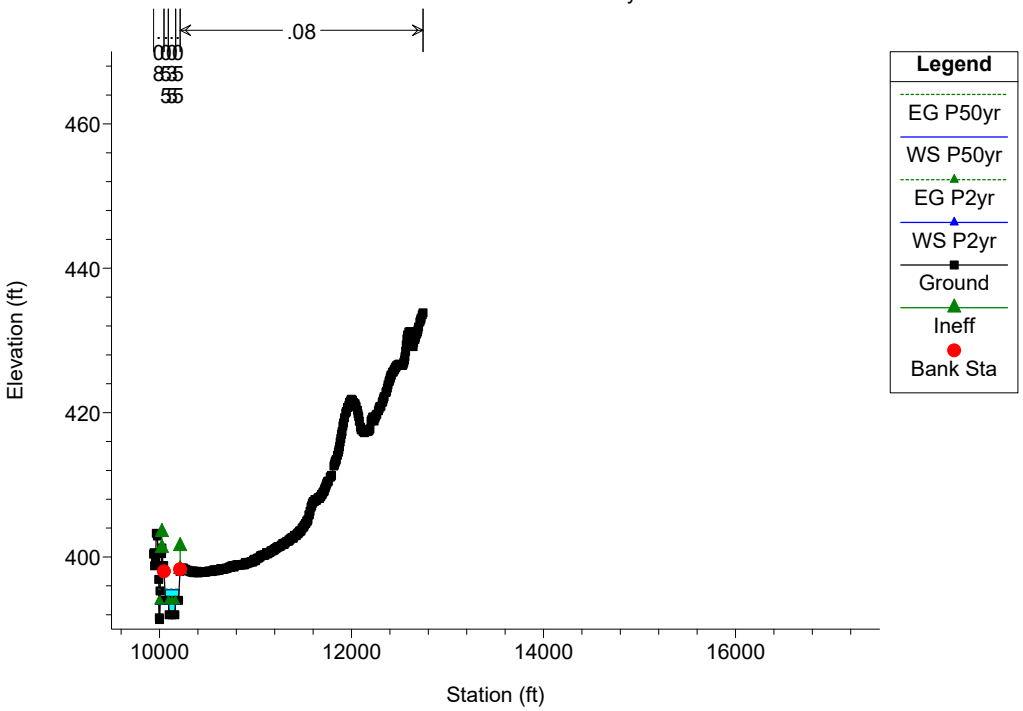
NF_Canoe Plan: Canpr3 9/9/2019

RS = 28940.41



NF_Canoe Plan: Canpr3 9/9/2019

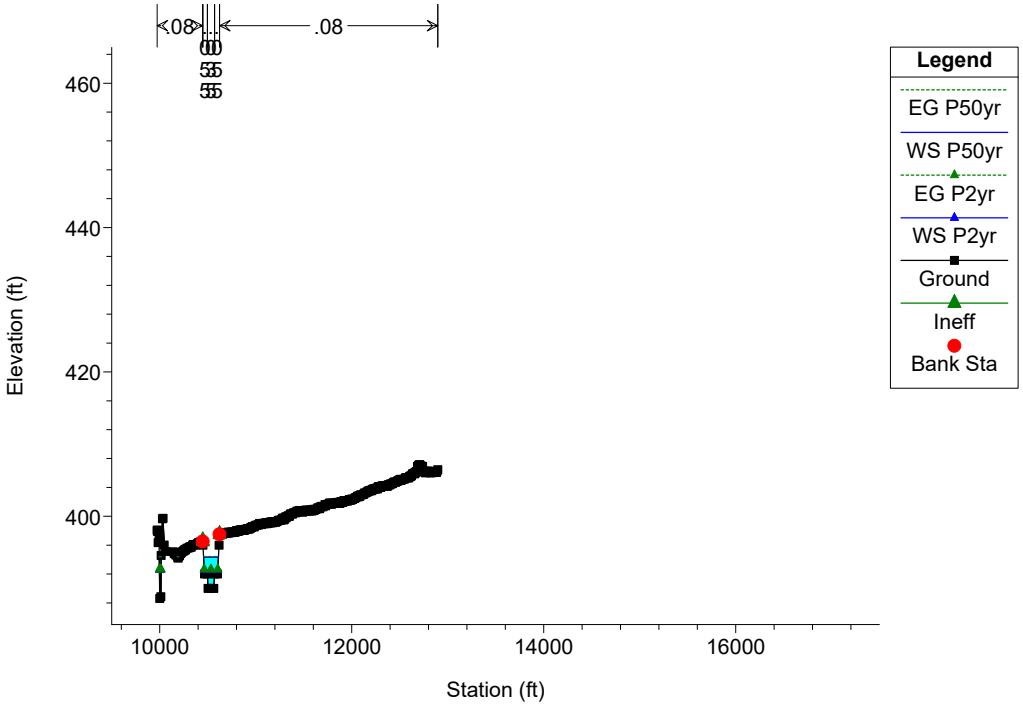
RS = 28532 XS downstream/south of Hwy 60 and west of RR



1 in Horiz. = 2000 ft 1 in Vert. = 26.60017 ft

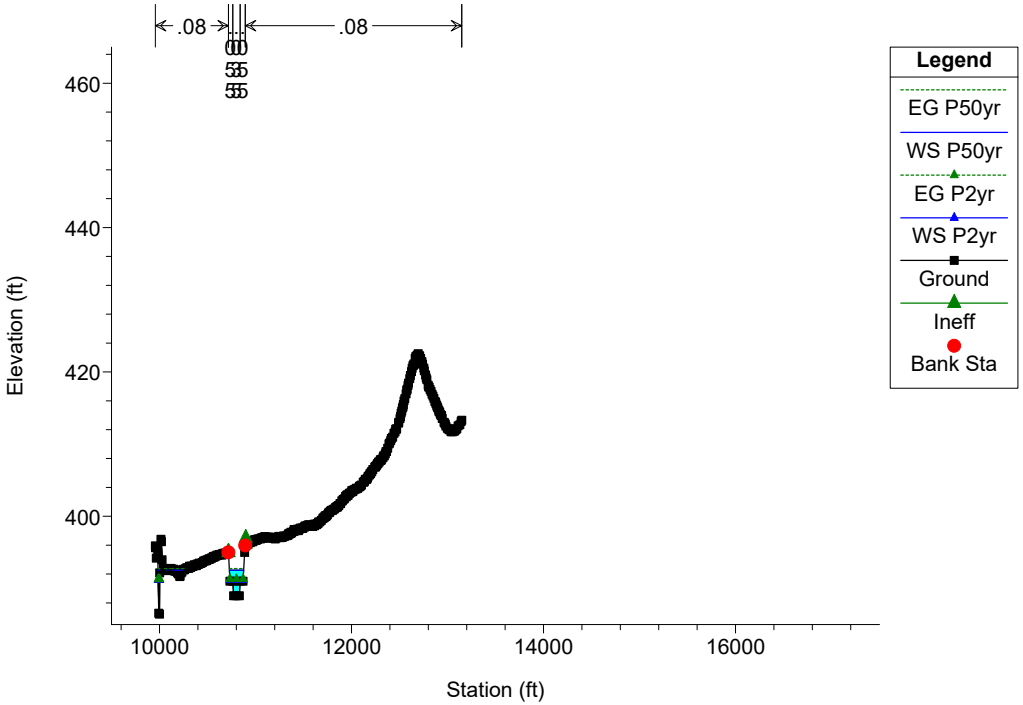
NF_Canoe Plan: Canpr3 9/9/2019

RS = 27158 XS downstream/south of Hwy 60 and west of RR



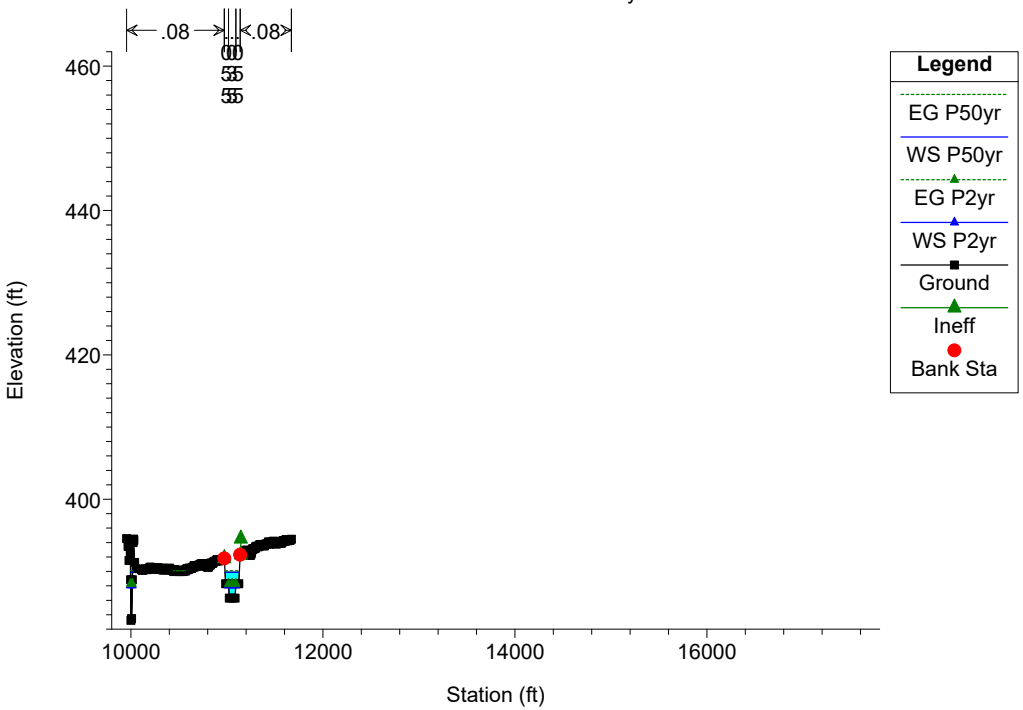
NF_Canoe Plan: Canpr3 9/9/2019

RS = 25956 XS downstream/south of Hwy 60 and west of RR



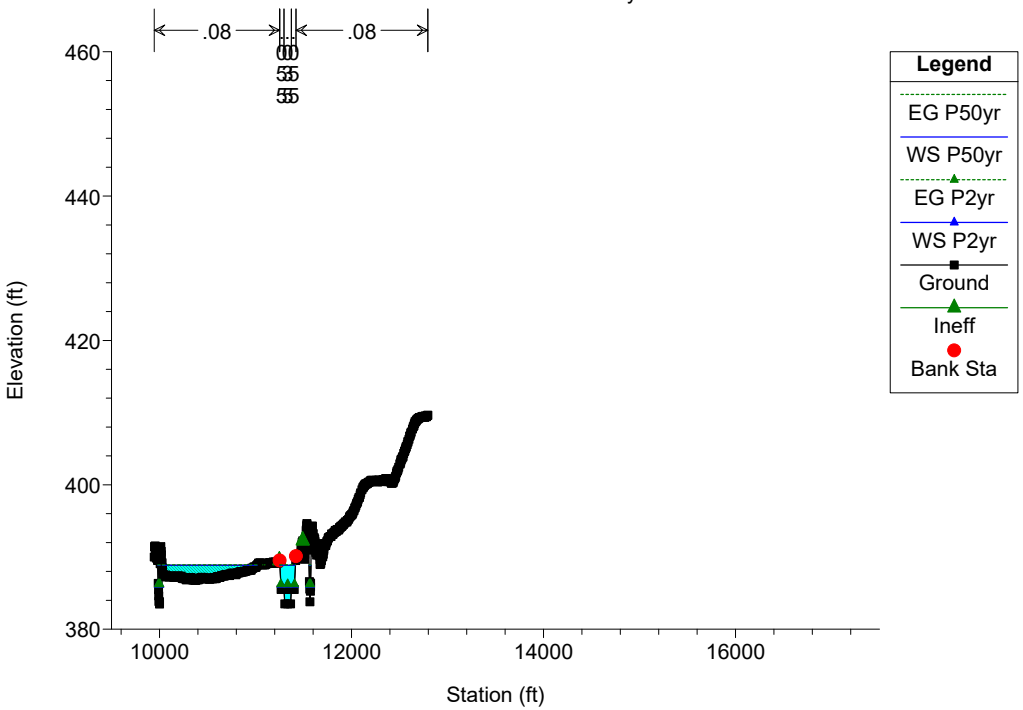
NF_Canoe Plan: Canpr3 9/9/2019

RS = 24827 XS downstream/south of Hwy 60 and west of RR



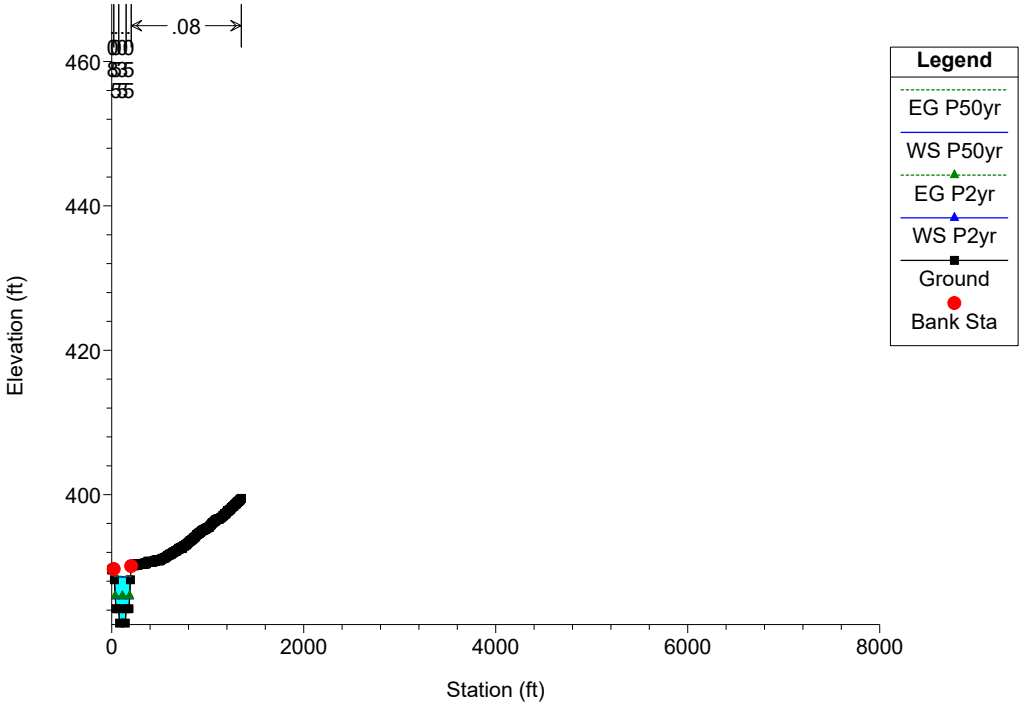
NF_Canoe Plan: Canpr3 9/9/2019

RS = 23524 XS downstream/south of Hwy 60 and west of RR

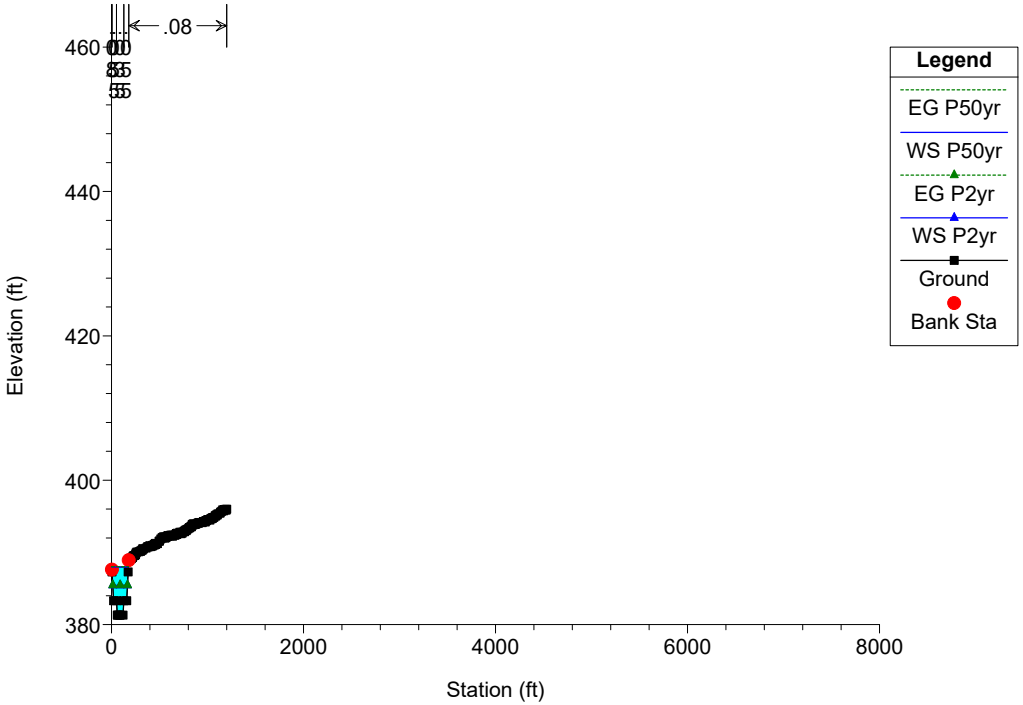


1 in Horiz. = 2000 ft 1 in Vert. = 26.60017 ft

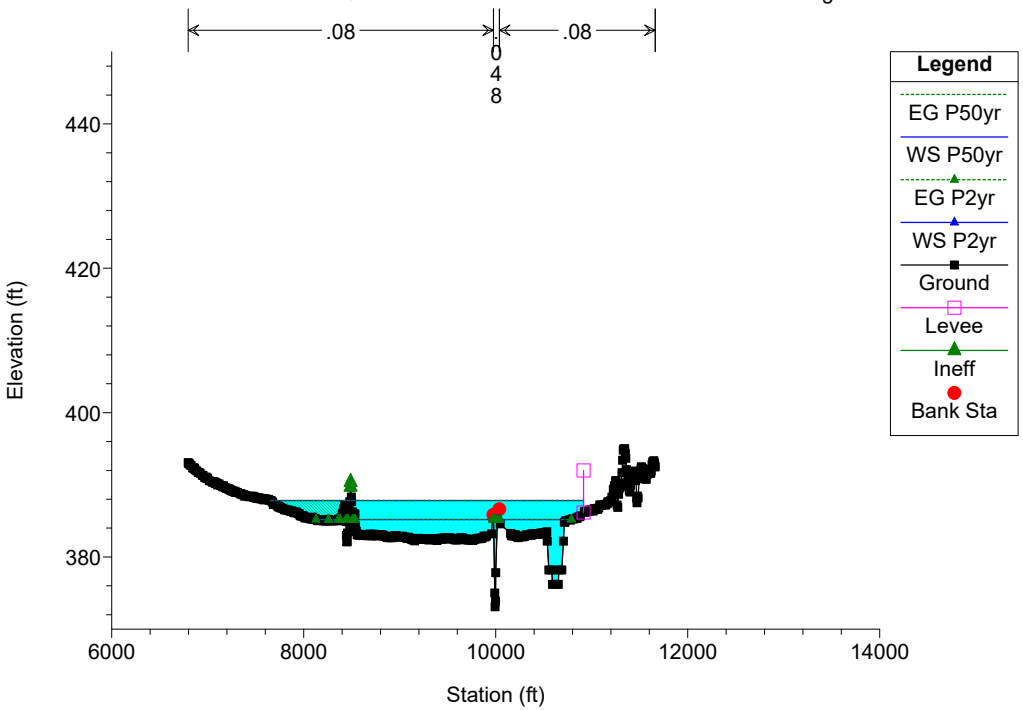
NF_Canoe Plan: Canpr3 9/9/2019
RS = 22935



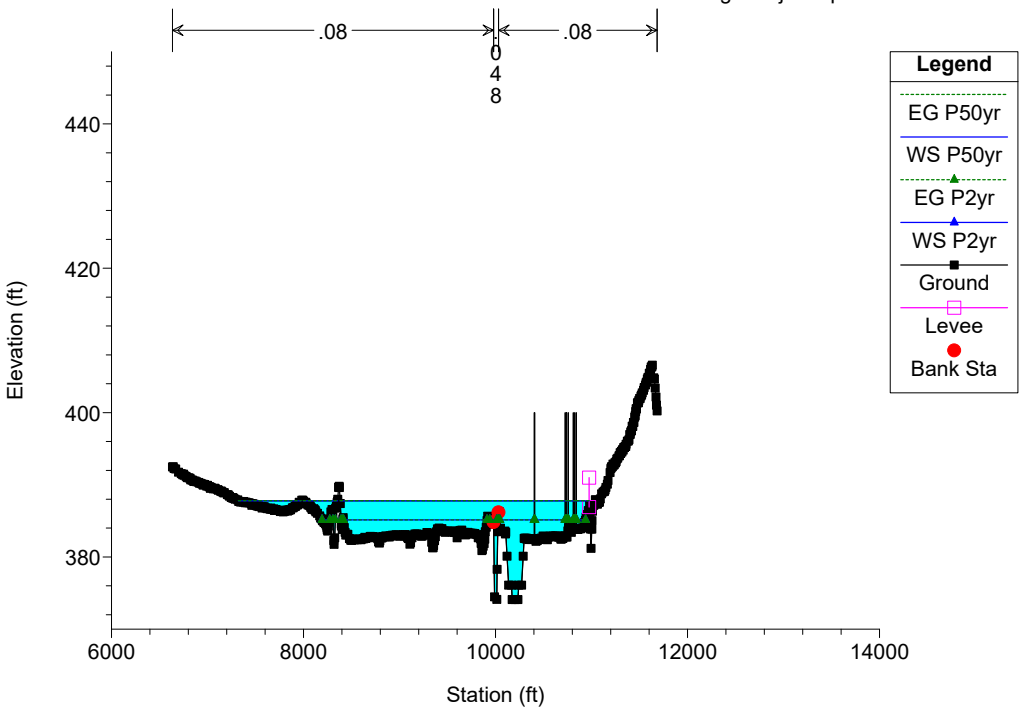
NF_Canoe Plan: Canpr3 9/9/2019
RS = 21097



NF_Canoe Plan: Canpr3 9/9/2019
RS = 18470. Q XS west of Canoe Creek North Form/RR crossing



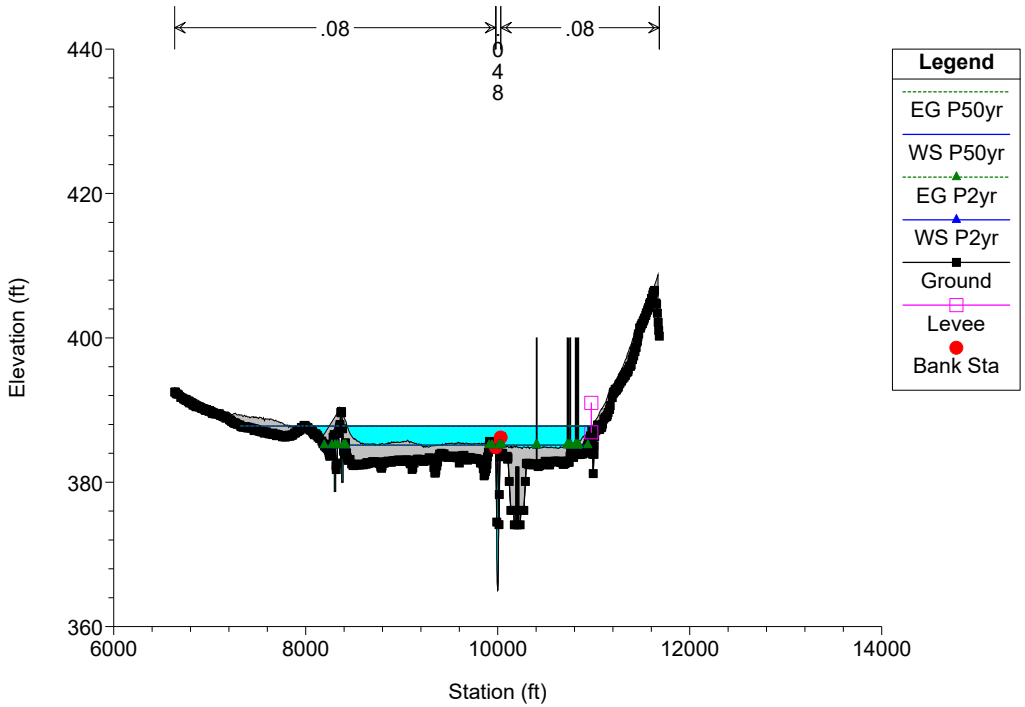
NF_Canoe Plan: Canpr3 9/9/2019
RS = 17729 XS west of Canoe Creek North Form/RR crossing and just upstream/



1 in Horiz. = 2000 ft 1 in Vert. = 26.60017 ft

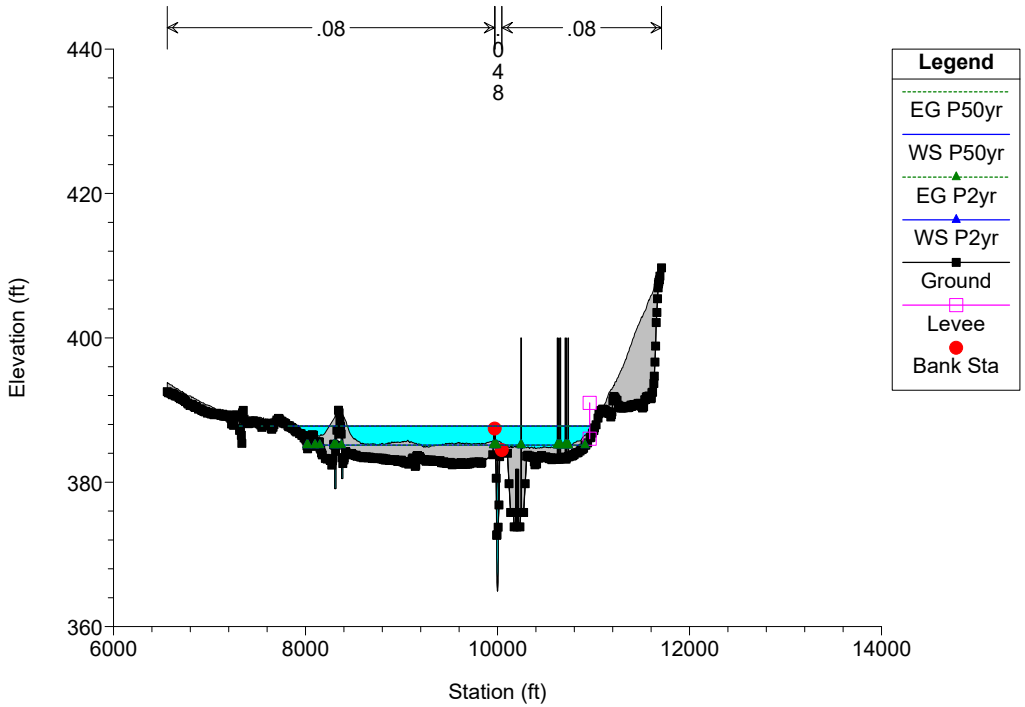
NF_Canoe Plan: Canpr3 9/9/2019

RS = 17622 MO



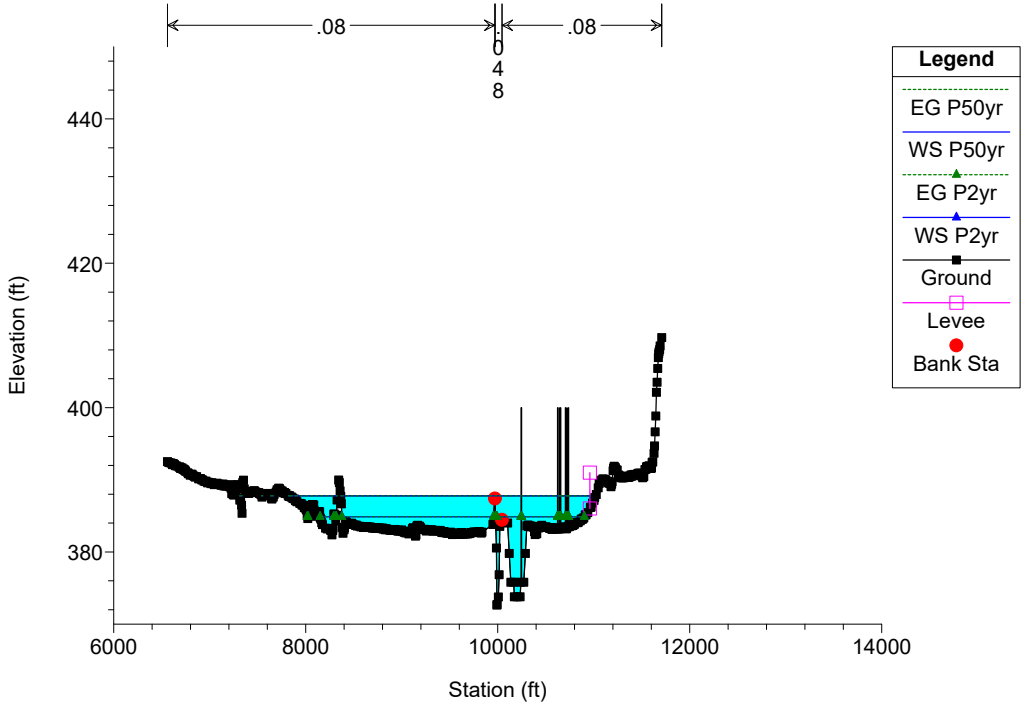
NF_Canoe Plan: Canpr3 9/9/2019

RS = 17622 MO



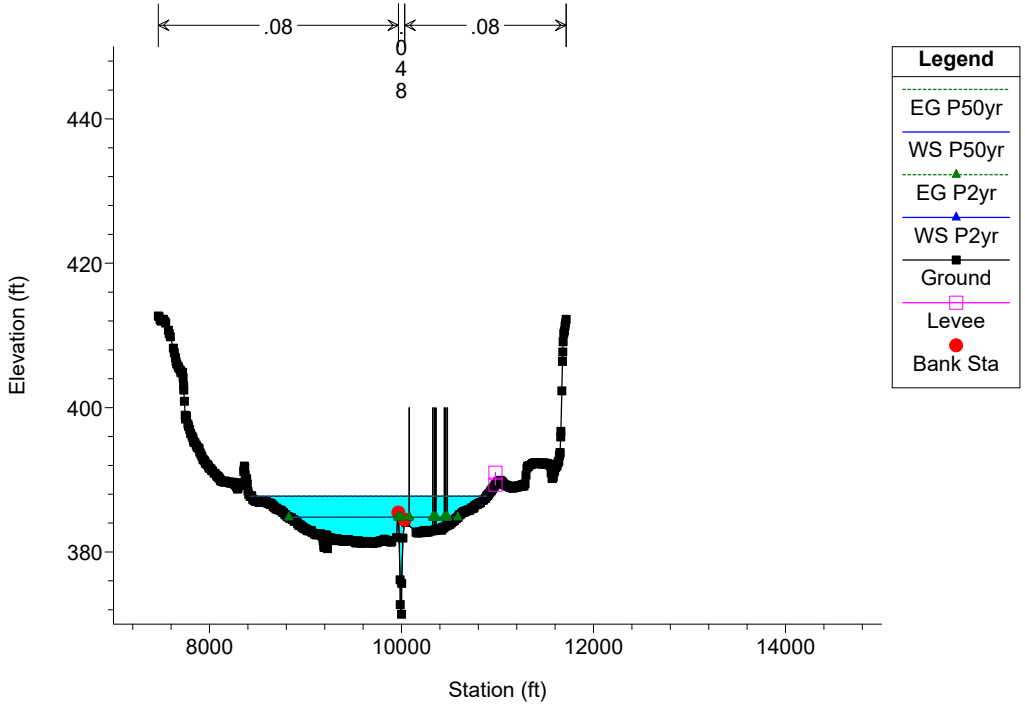
NF_Canoe Plan: Canpr3 9/9/2019

RS = 17534.5 XS west of Canoe Creek North Form/RR crossing and just downstrea



NF_Canoe Plan: Canpr3 9/9/2019

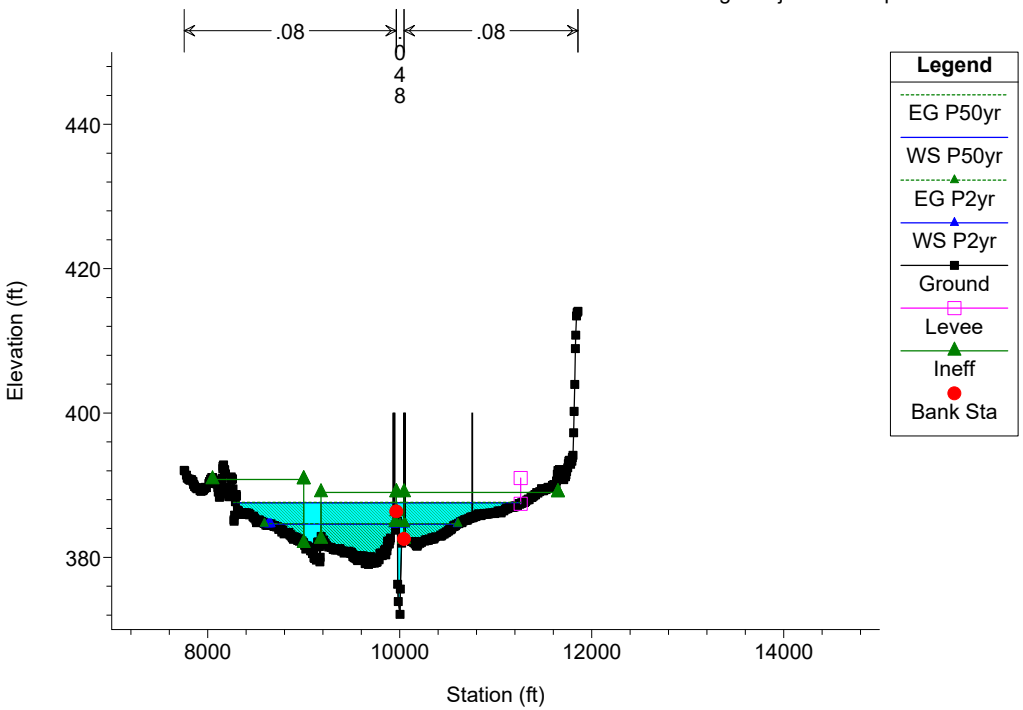
RS = 16904.1 P XS west of Canoe Creek North Form/RR crossing and between Kimsey



1 in Horiz. = 2000 ft 1 in Vert. = 26.60017 ft

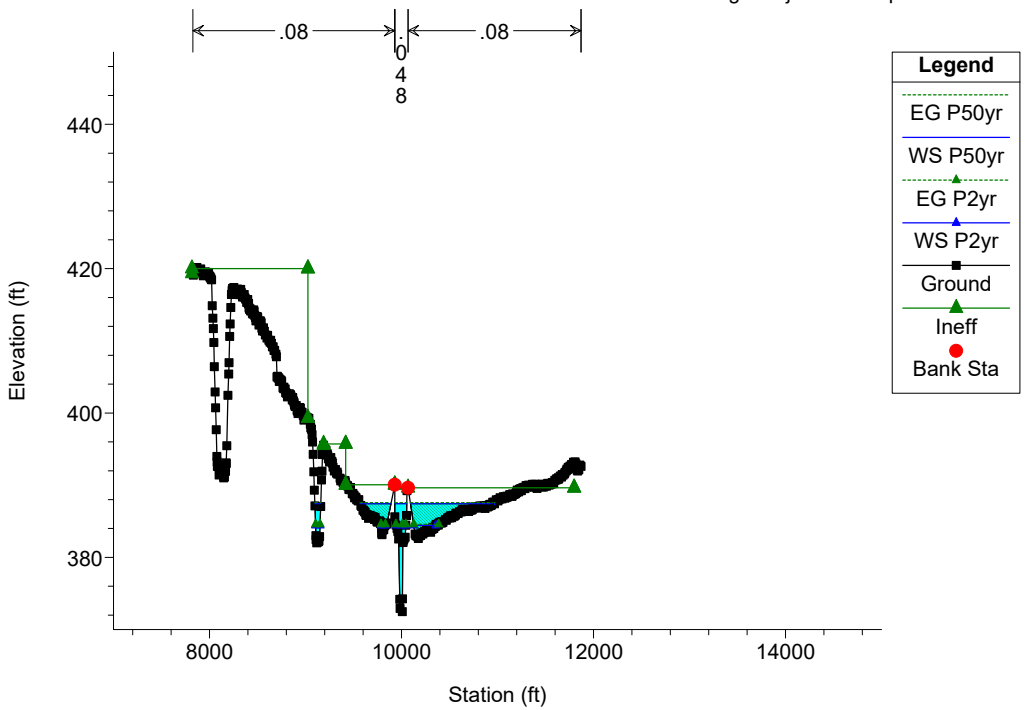
NF_Canoe Plan: Canpr3 9/9/2019

RS = 16397 XS west of Canoe Creek North Fork/RR crossing and just north/ups



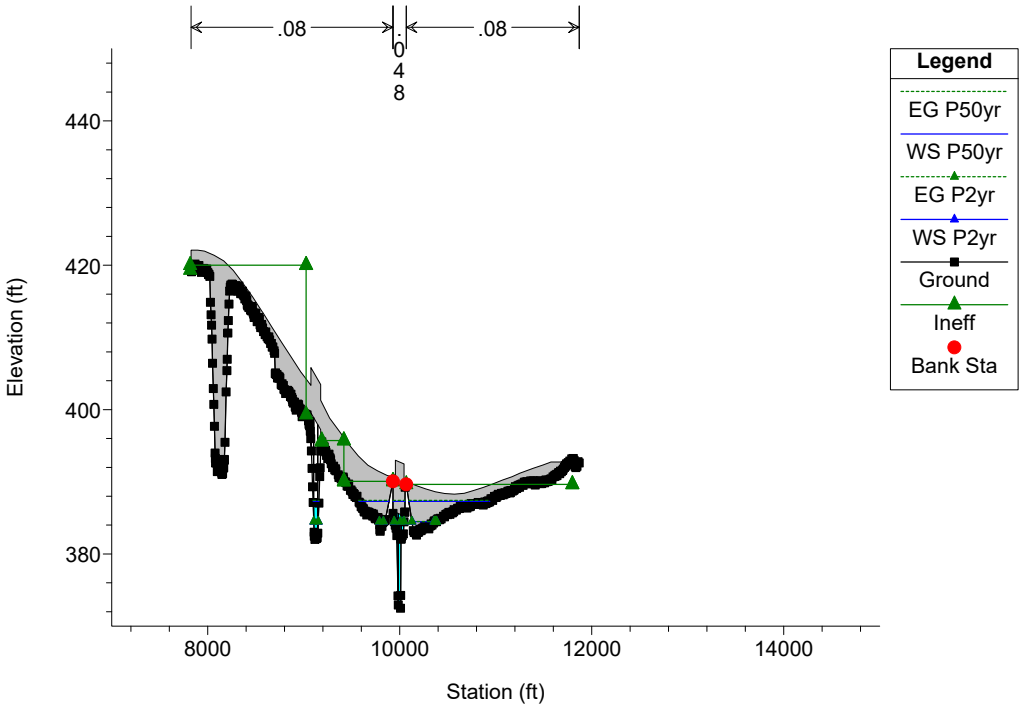
NF_Canoe Plan: Canpr3 9/9/2019

RS = 16326.84 XS west of Canoe Creek North Fork/RR crossing and just north/ups



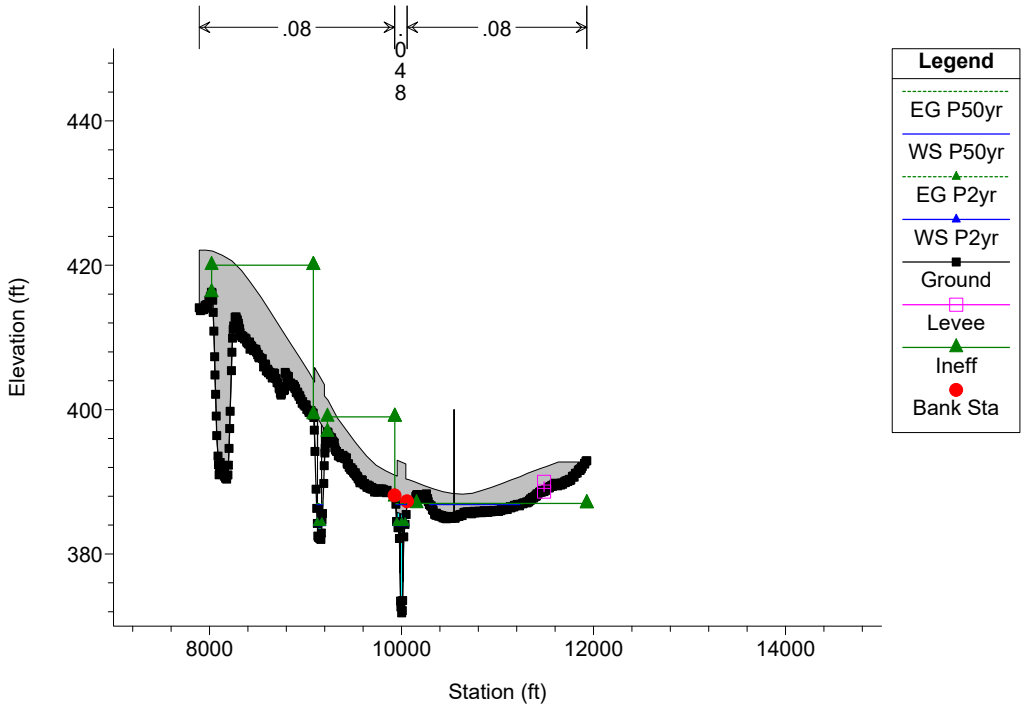
NF_Canoe Plan: Canpr3 9/9/2019

RS = 16298 MO



NF_Canoe Plan: Canpr3 9/9/2019

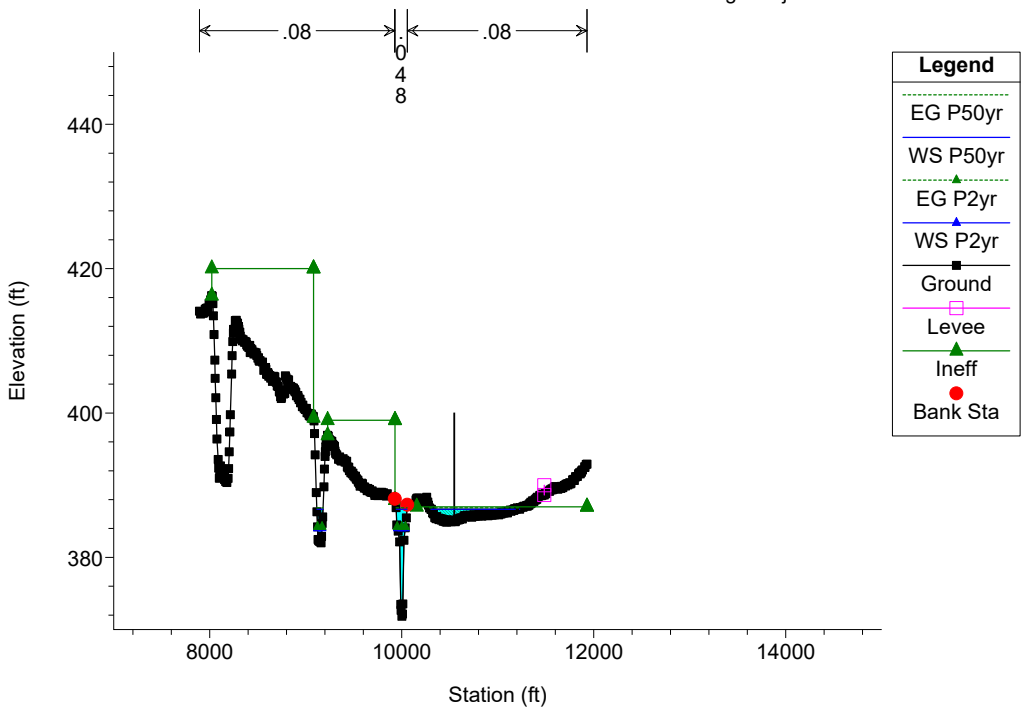
RS = 16298 MO



1 in Horiz. = 2000 ft 1 in Vert. = 26.60017 ft

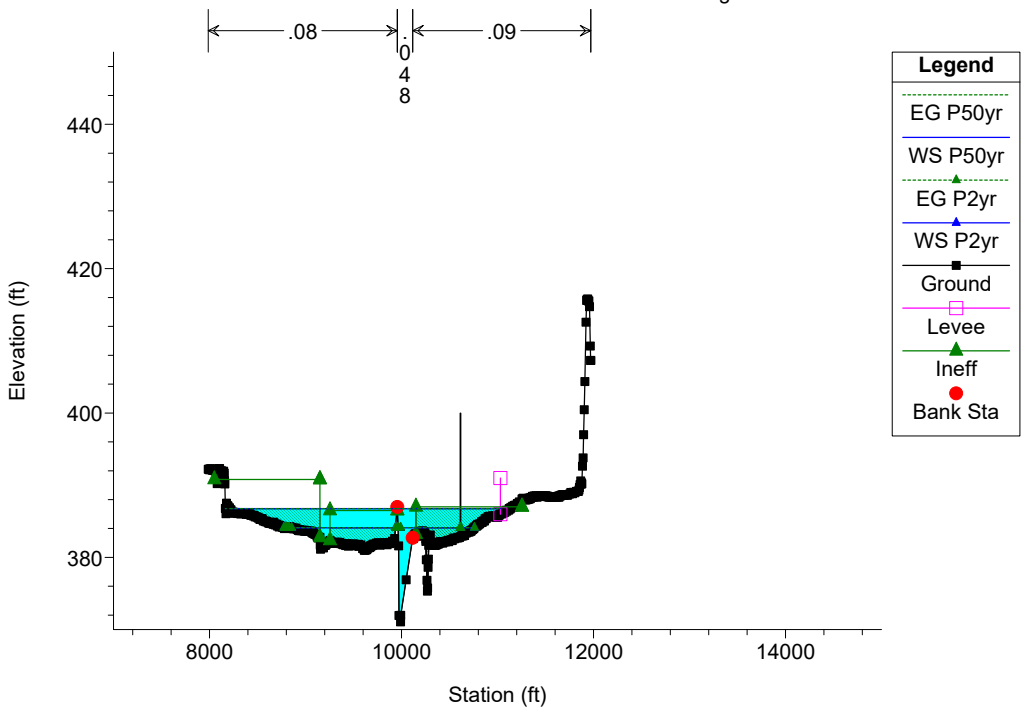
NF_Canoe Plan: Canpr3 9/9/2019

RS = 16177.27 XS west of Canoe Creek North Fork/RR crossing and just south/dow



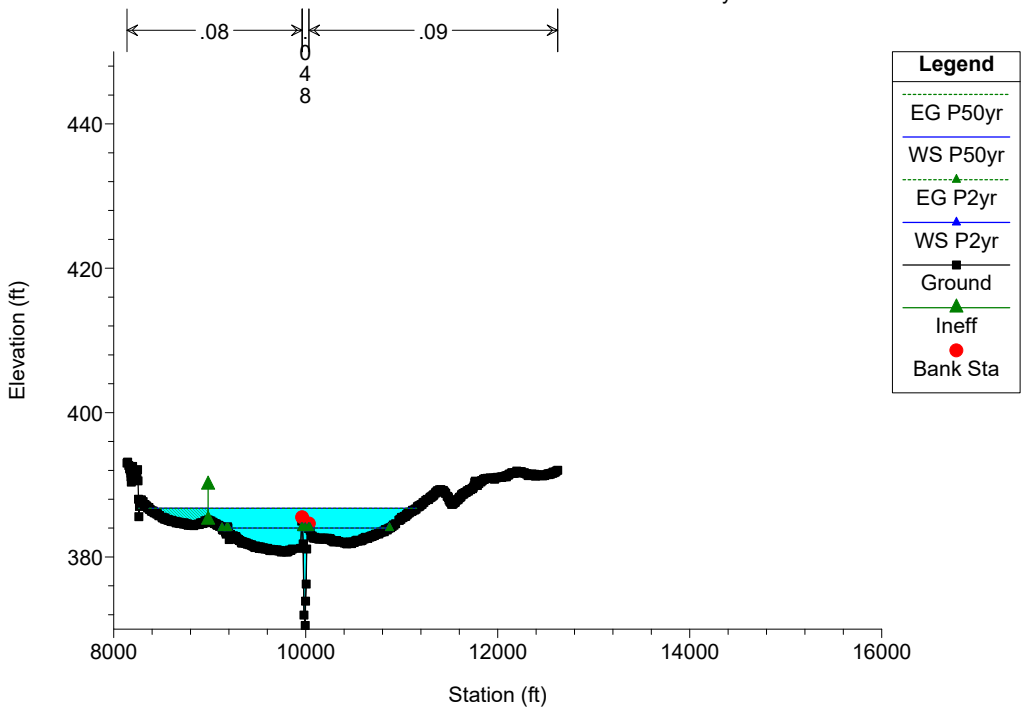
NF_Canoe Plan: Canpr3 9/9/2019

RS = 16087.8 XS west of Canoe Creek North Fork/RR crossing and south/downstre



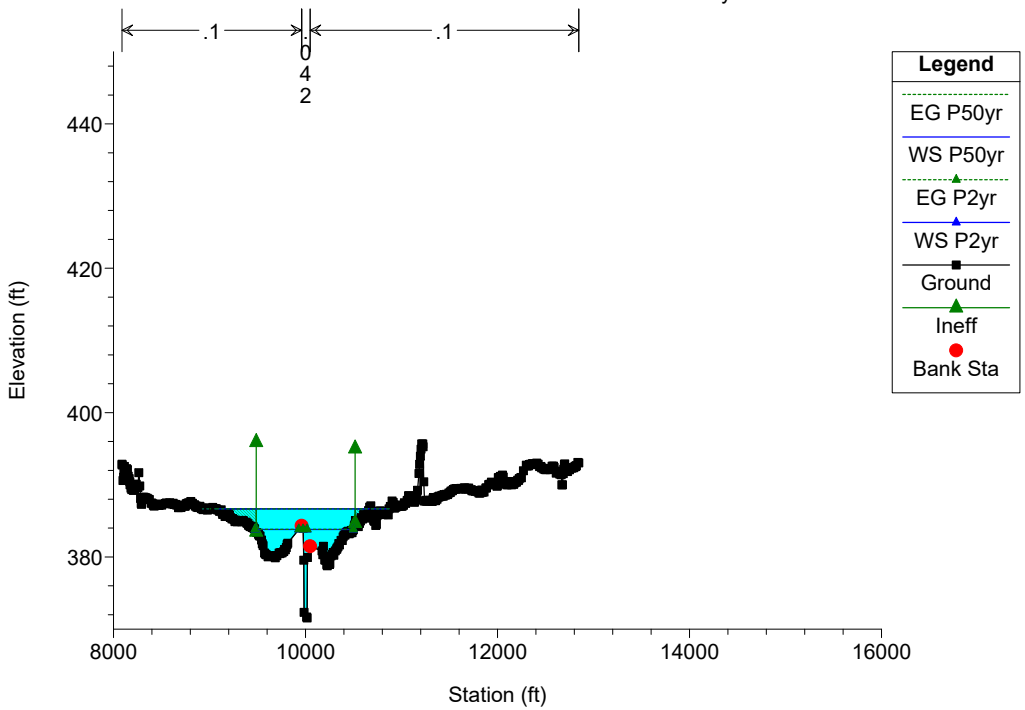
NF_Canoe Plan: Canpr3 9/9/2019

RS = 15534.2 O XS south/downstream of Hwy 41



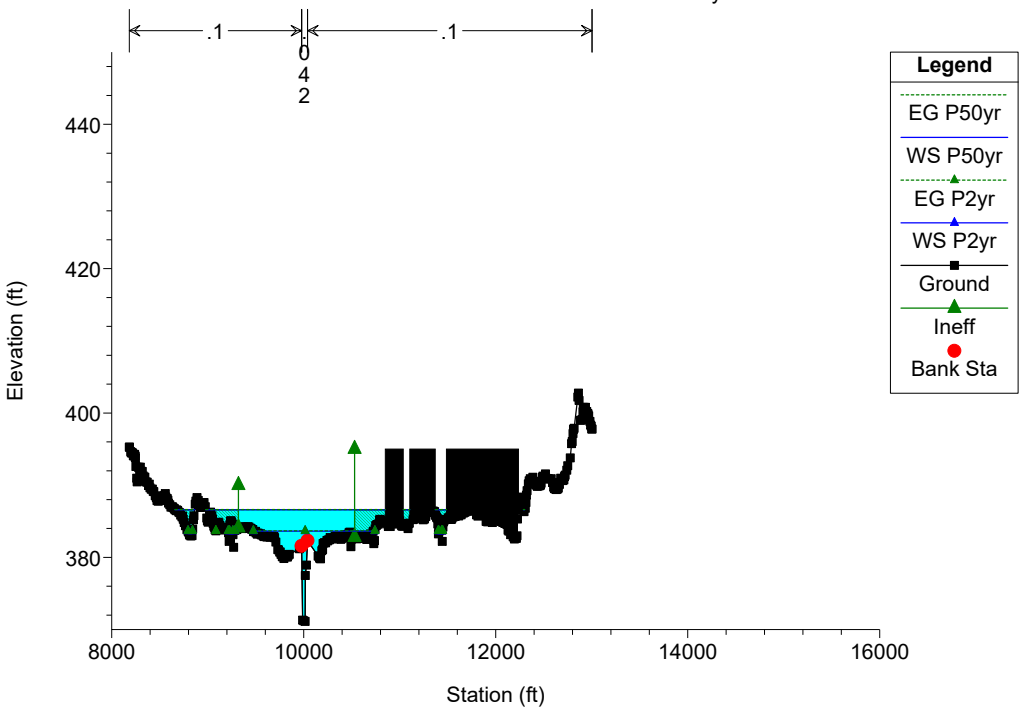
NF_Canoe Plan: Canpr3 9/9/2019

RS = 14567.2 N XS south/downstream of Hwy 41

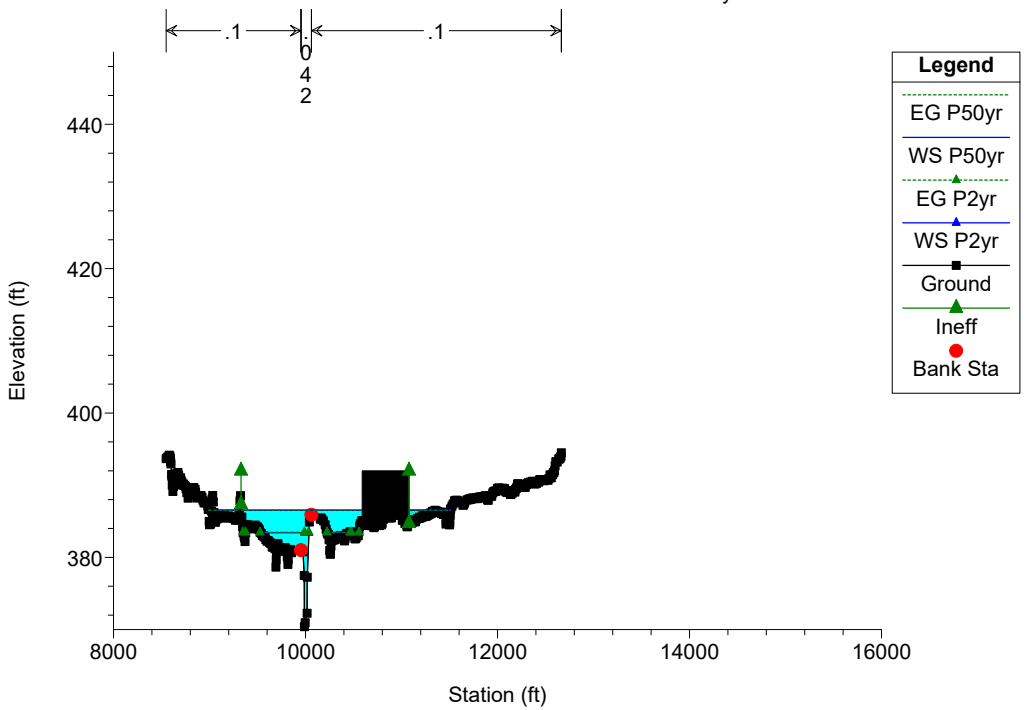


1 in Horiz. = 2000 ft 1 in Vert. = 26.60017 ft

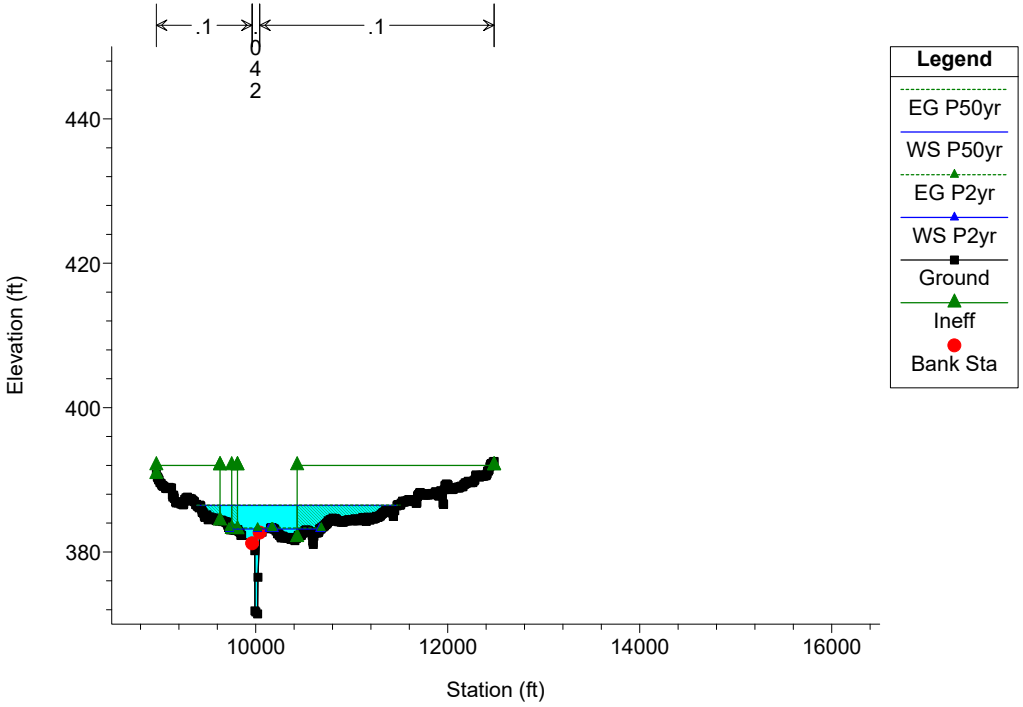
NF_Canoe Plan: Canpr3 9/9/2019
RS = 13899.4 XS south/downstream of Hwy 41



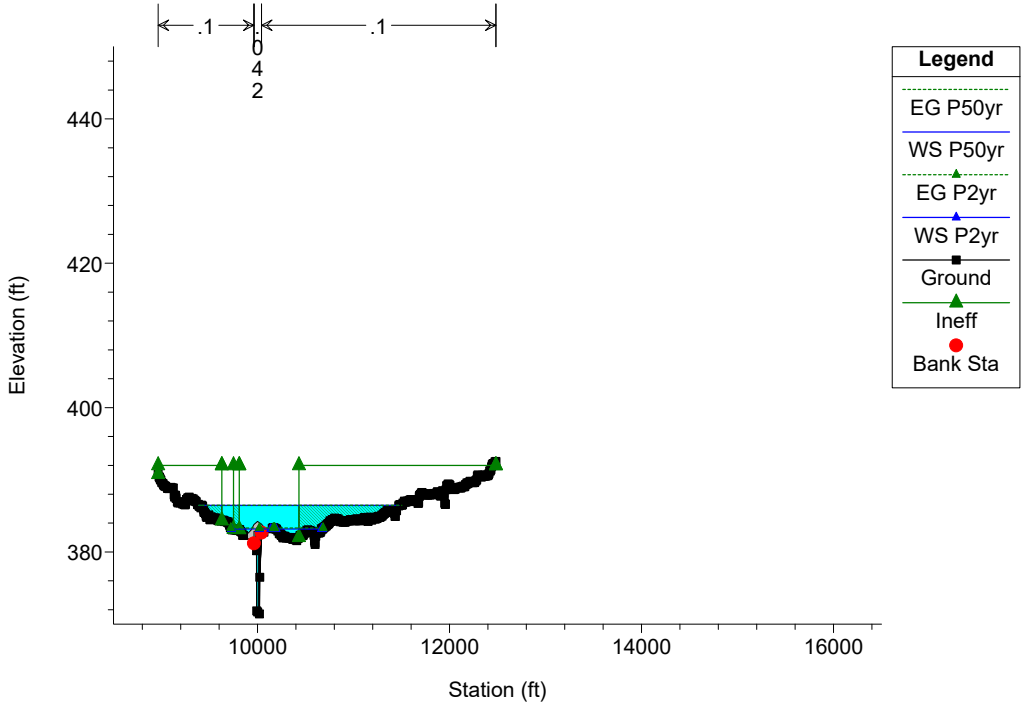
NF_Canoe Plan: Canpr3 9/9/2019
RS = 13273.2 M XS south/downstream of Hwy 41



NF_Canoe Plan: Canpr3 9/9/2019
RS = 12979.5 XS south/downstream of Hwy 41



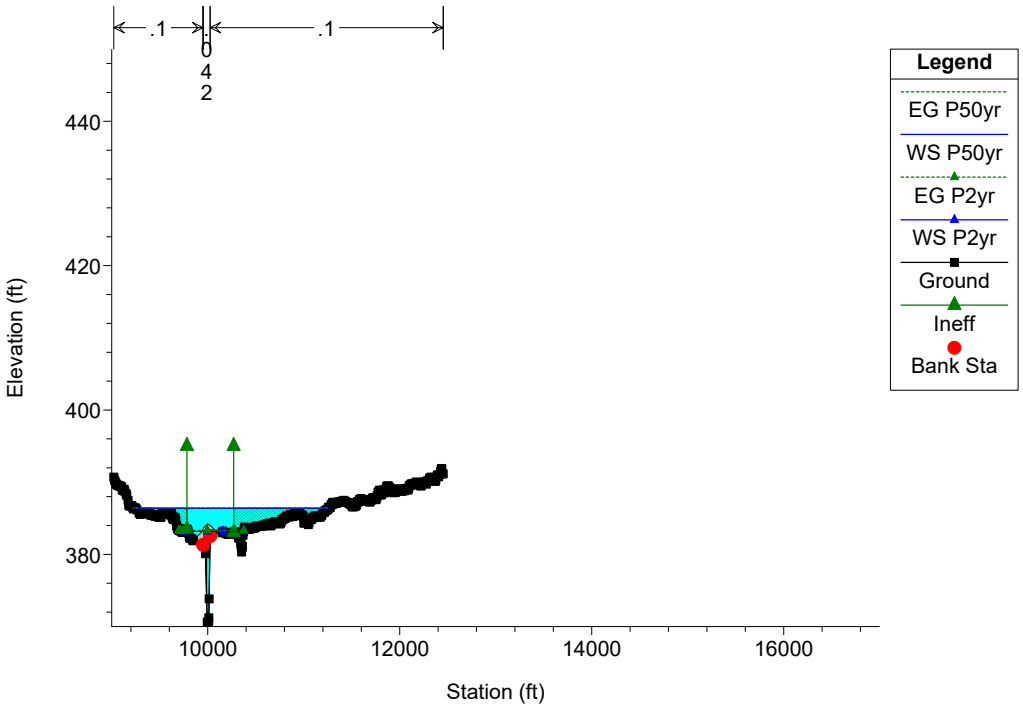
NF_Canoe Plan: Canpr3 9/9/2019
RS = 12921.8 BR 5th Street



1 in Horiz. = 2000 ft 1 in Vert. = 26.60017 ft

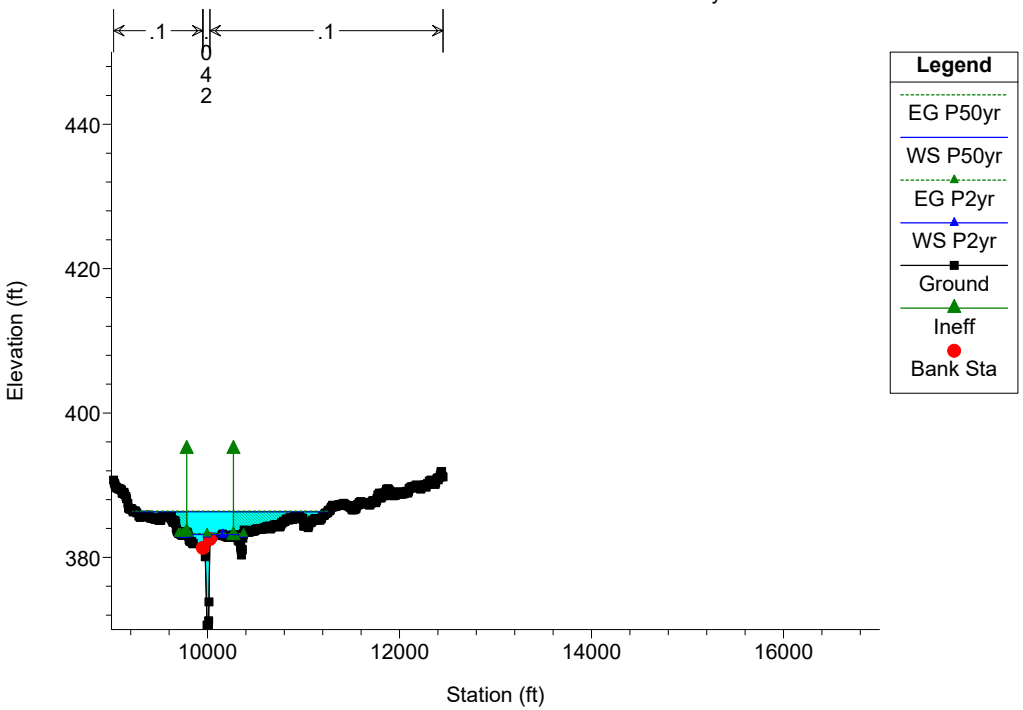
NF_Canoe Plan: Canpr3 9/9/2019

RS = 12921.8 BR 5th Street



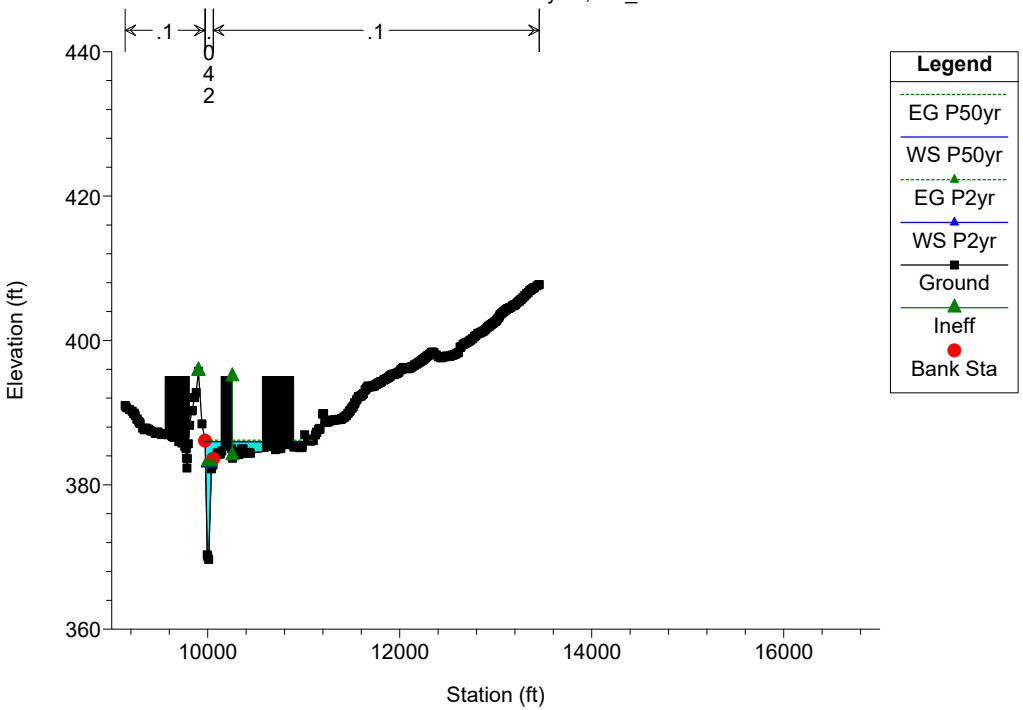
NF_Canoe Plan: Canpr3 9/9/2019

RS = 12871.2 XS south/downstream of Hwy 41



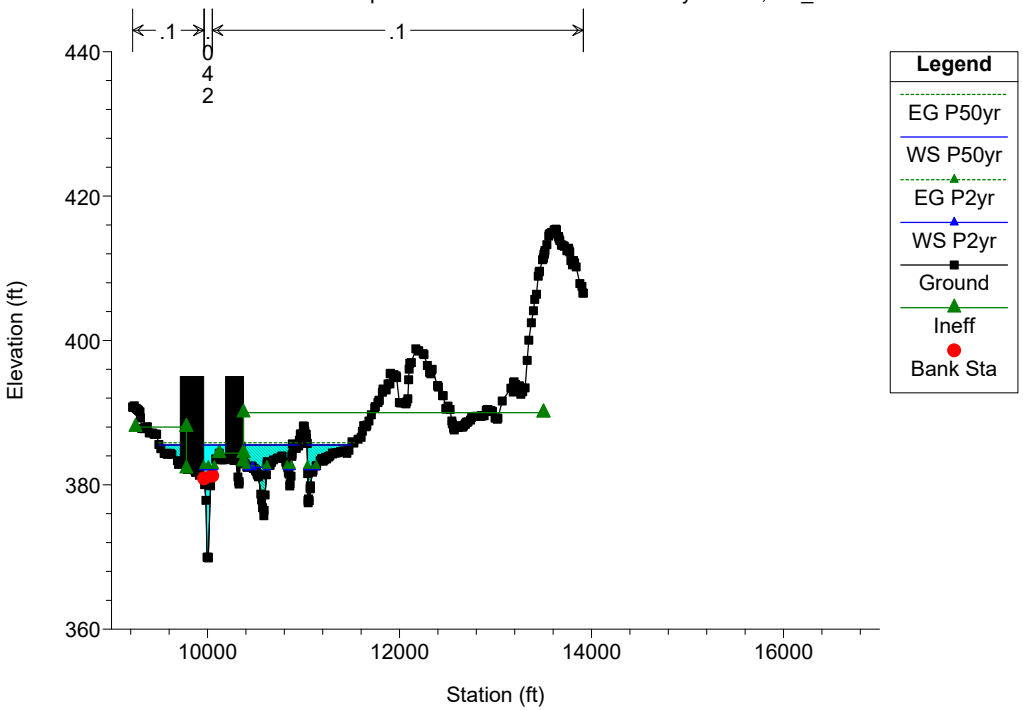
NF_Canoe Plan: Canpr3 9/9/2019

RS = 12458.1 Survey xs, XS_12331.



NF_Canoe Plan: Canpr3 9/9/2019

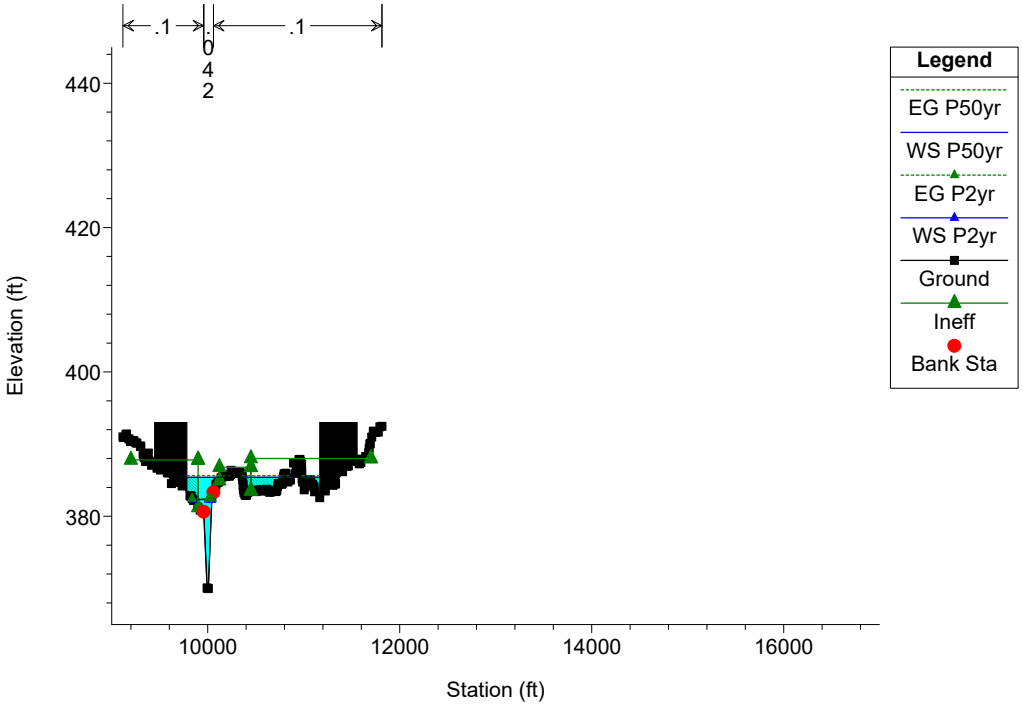
RS = 12027.9 L Interpolated based on UPS-DS Survey inverts, XS_11680.



1 in Horiz. = 2000 ft 1 in Vert. = 26.60017 ft

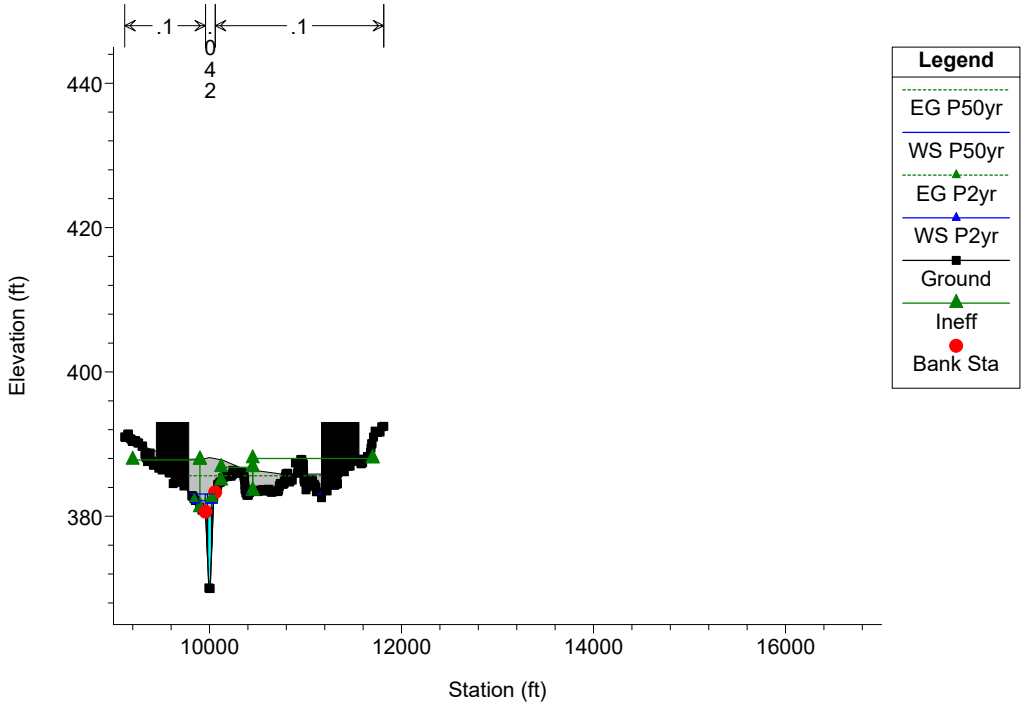
NF_Canoe Plan: Canpr3 9/9/2019

RS = 11796.9 Interpolated based on UPS-DS Survey inverts, BR_11600_US.



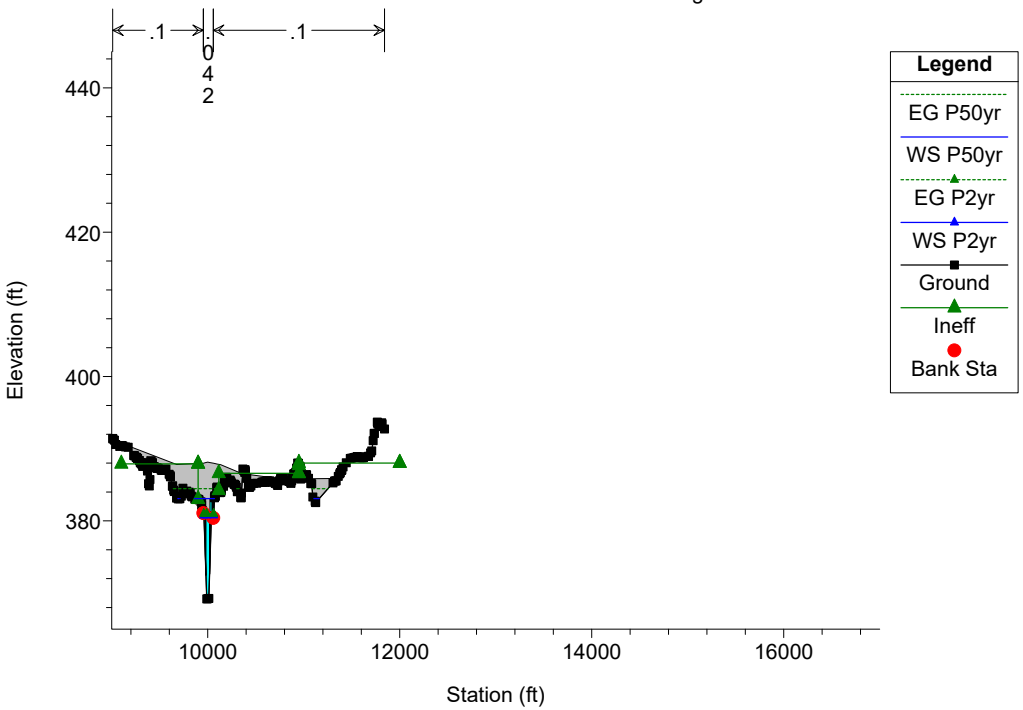
NF_Canoe Plan: Canpr3 9/9/2019

RS = 11736.8 BR CSX Railroad Bridge



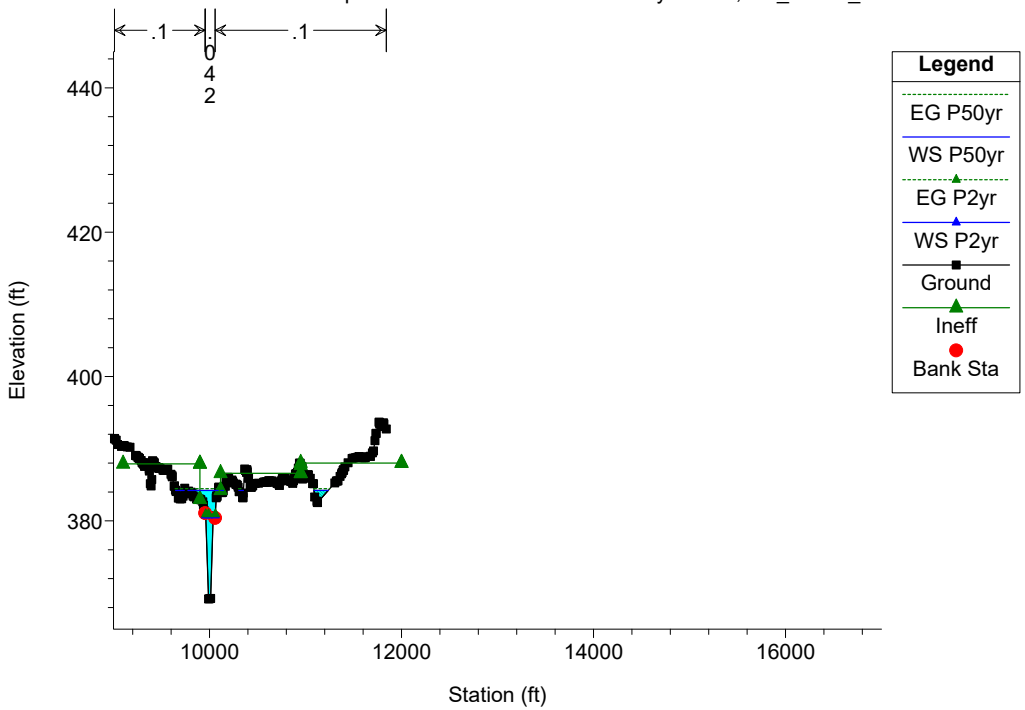
NF_Canoe Plan: Canpr3 9/9/2019

RS = 11736.8 BR CSX Railroad Bridge



NF_Canoe Plan: Canpr3 9/9/2019

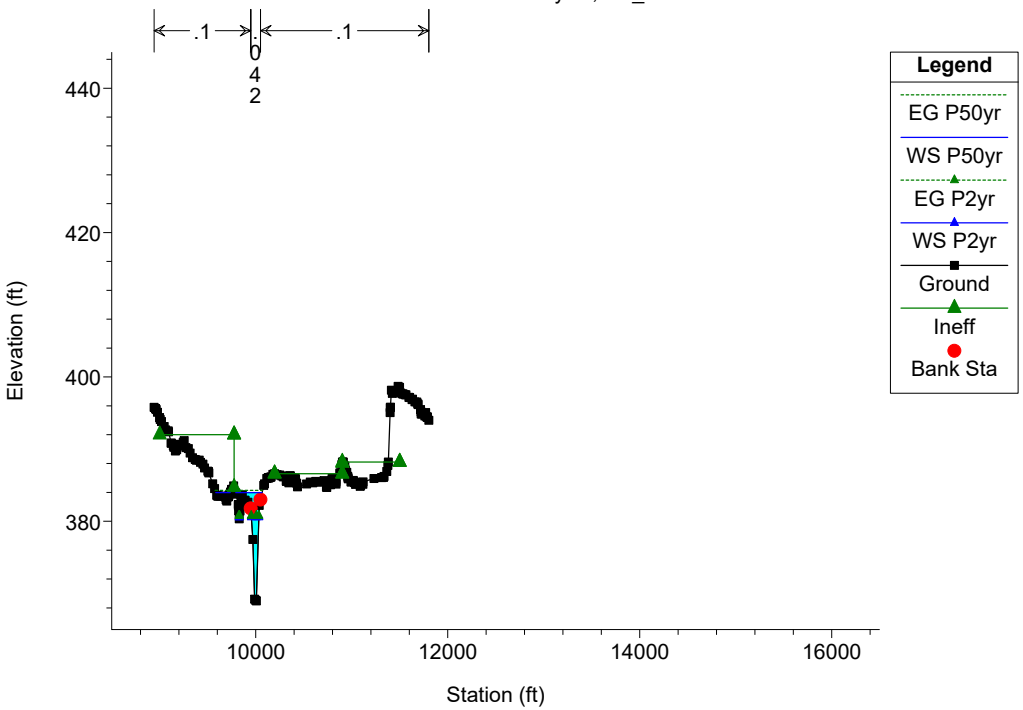
RS = 11667.5 Interpolated based on UPS-DS Survey inverts, BR_11600_DS.



1 in Horiz. = 2000 ft 1 in Vert. = 26.60017 ft

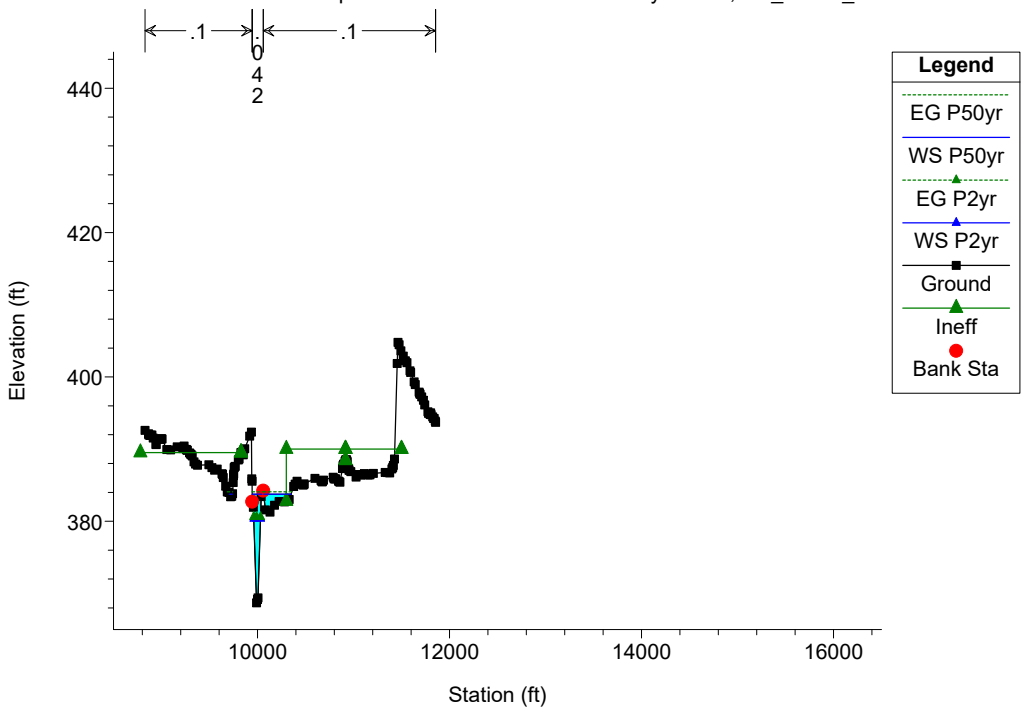
NF_Canoe Plan: Canpr3 9/9/2019

RS = 11496.7 K Survey xs, XS_11370.



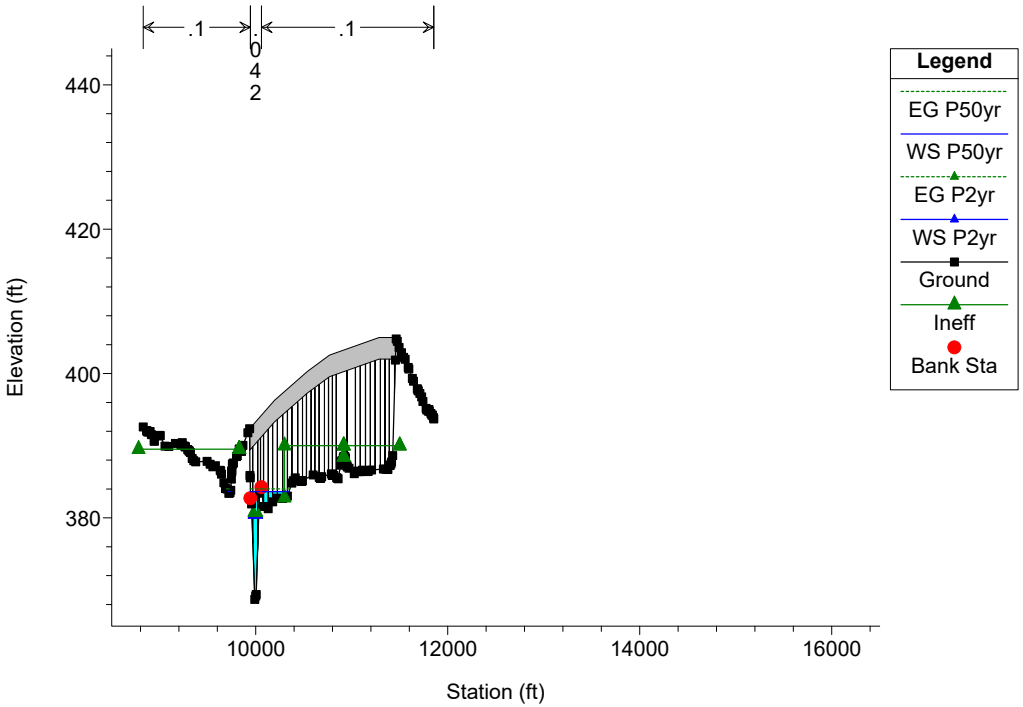
NF_Canoe Plan: Canpr3 9/9/2019

RS = 11331. Interpolated based on UPS-DS Survey inverts, BR_11130_US.



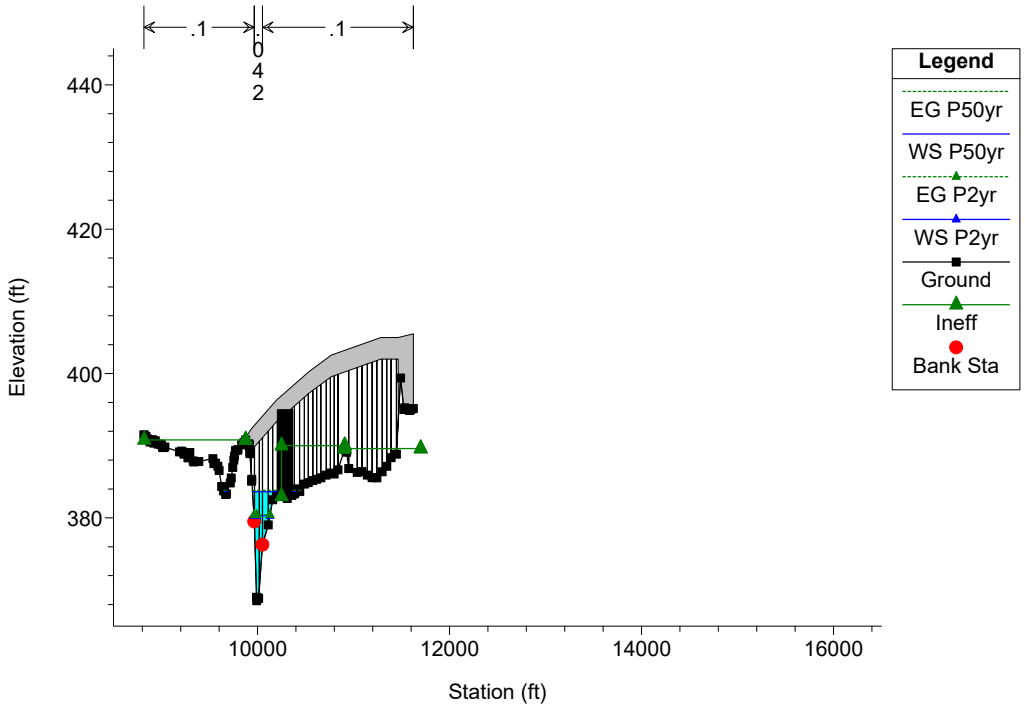
NF_Canoe Plan: Canpr3 9/9/2019

RS = 11256.8 BR 2nd Street



NF_Canoe Plan: Canpr3 9/9/2019

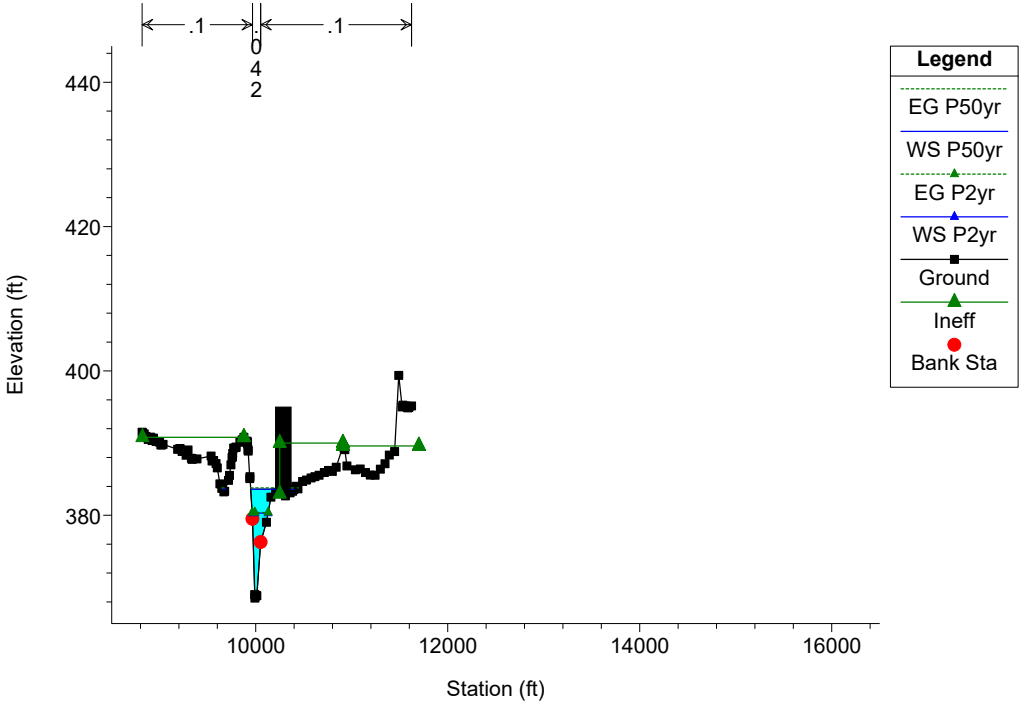
RS = 11256.8 BR 2nd Street



1 in Horiz. = 2000 ft 1 in Vert. = 26.60017 ft

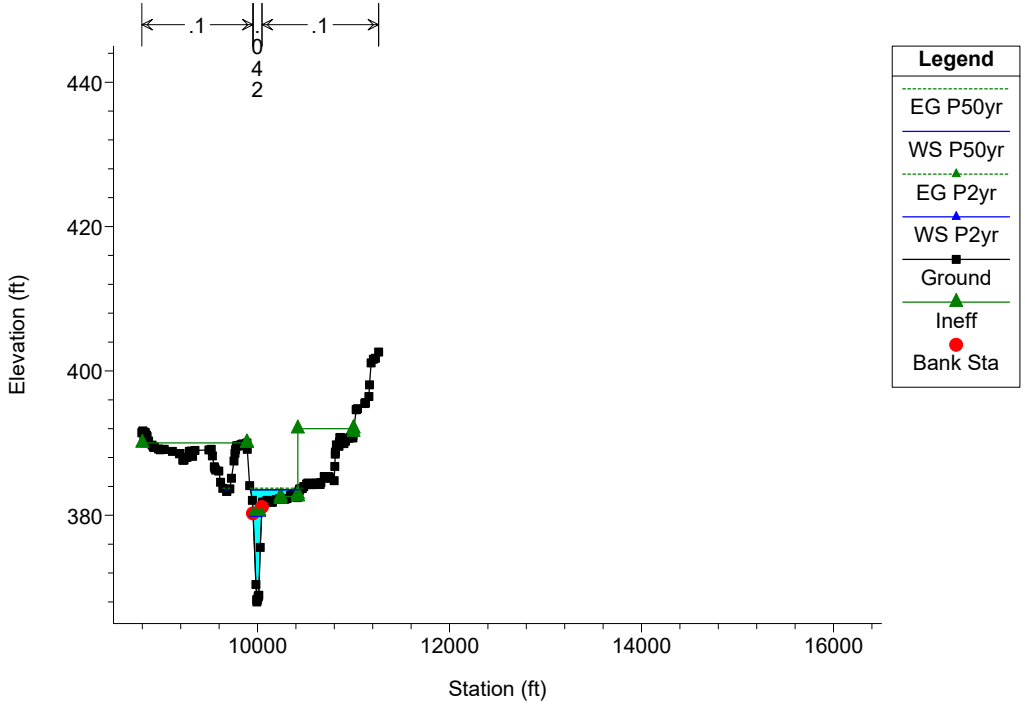
NF_Canoe Plan: Canpr3 9/9/2019

RS = 11171.4 Interpolated based on UPS-DS Survey inverts, BR_11130_DS.



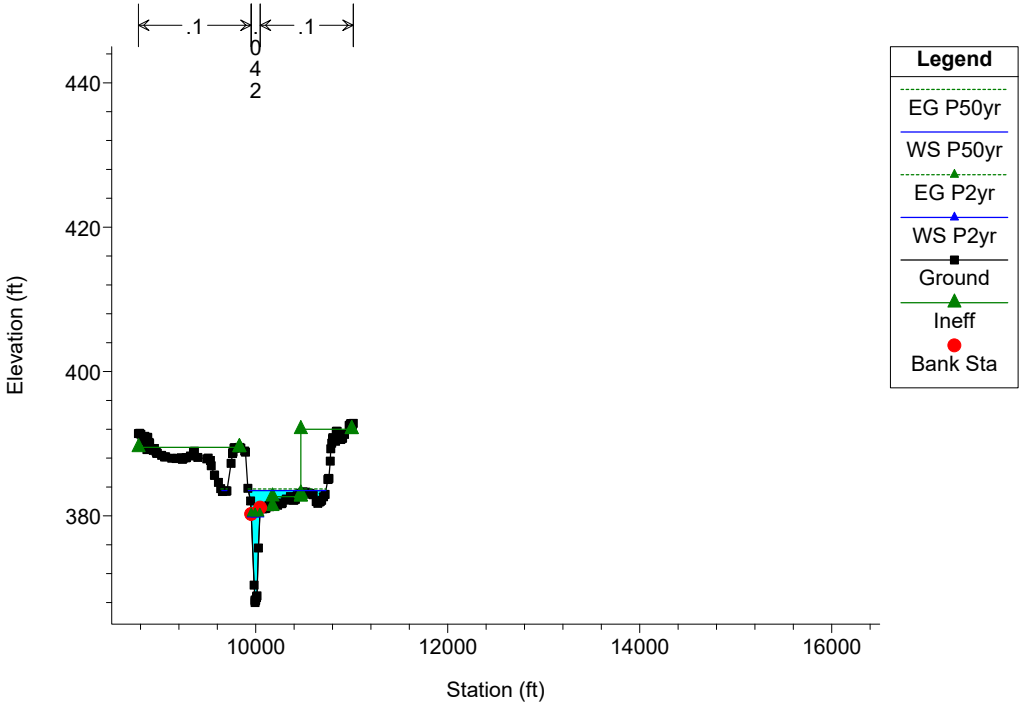
NF_Canoe Plan: Canpr3 9/9/2019

RS = 11097.6 Interpolated based on UPS-DS Survey inverts, XS_10948.



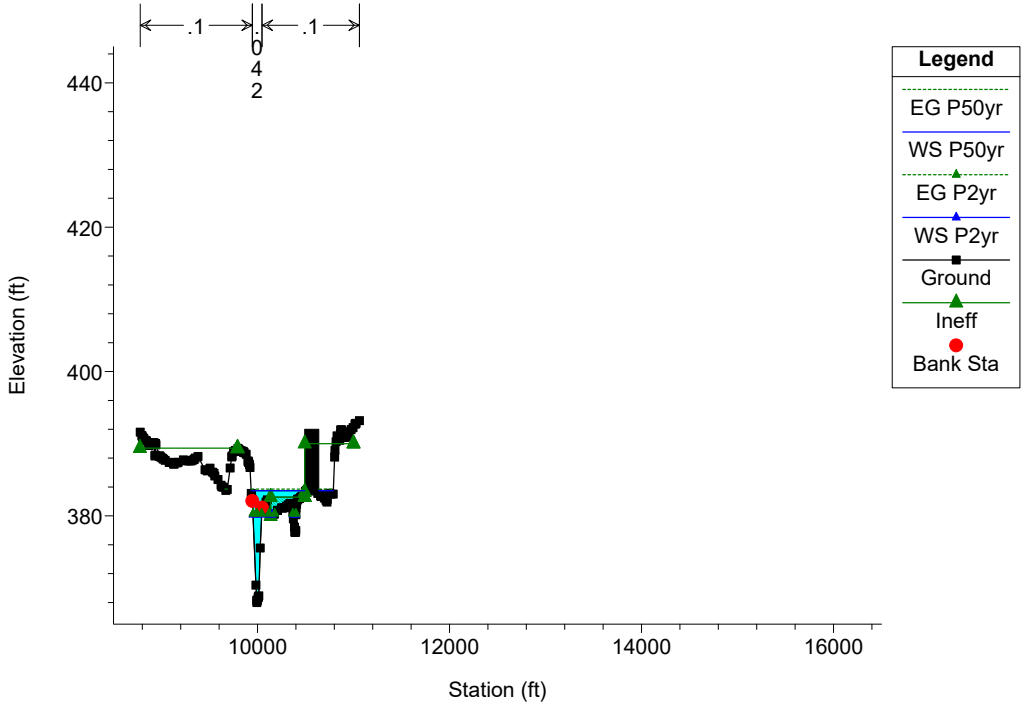
NF_Canoe Plan: Canpr3 9/9/2019

RS = 11075. Survey xs, XS_10948.



NF_Canoe Plan: Canpr3 9/9/2019

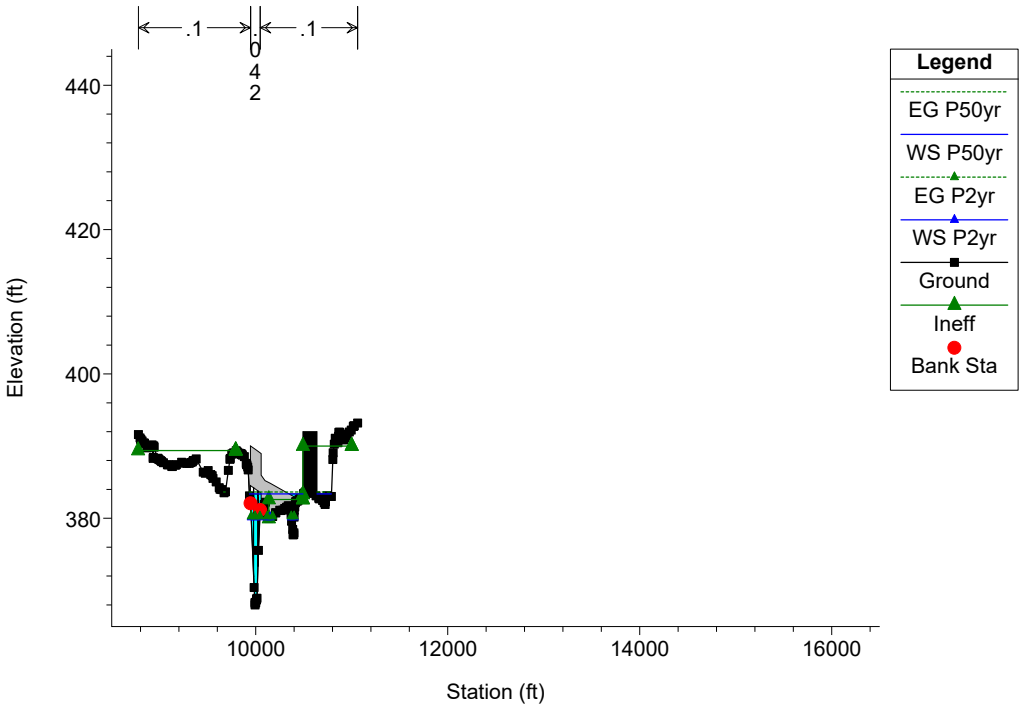
RS = 11031.7 J Interpolated based on UPS-DS Survey inverts, BR_10810_US.



1 in Horiz. = 2000 ft 1 in Vert. = 26.60017 ft

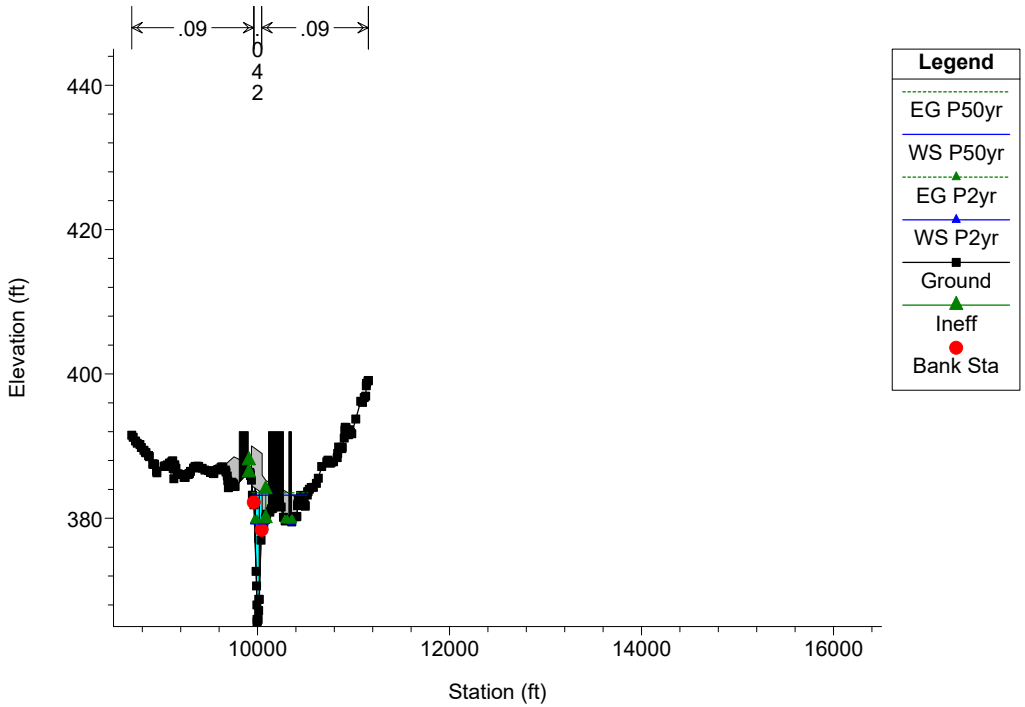
NF_Canoe Plan: Canpr3 9/9/2019

RS = 10936.8 BR Priest Street



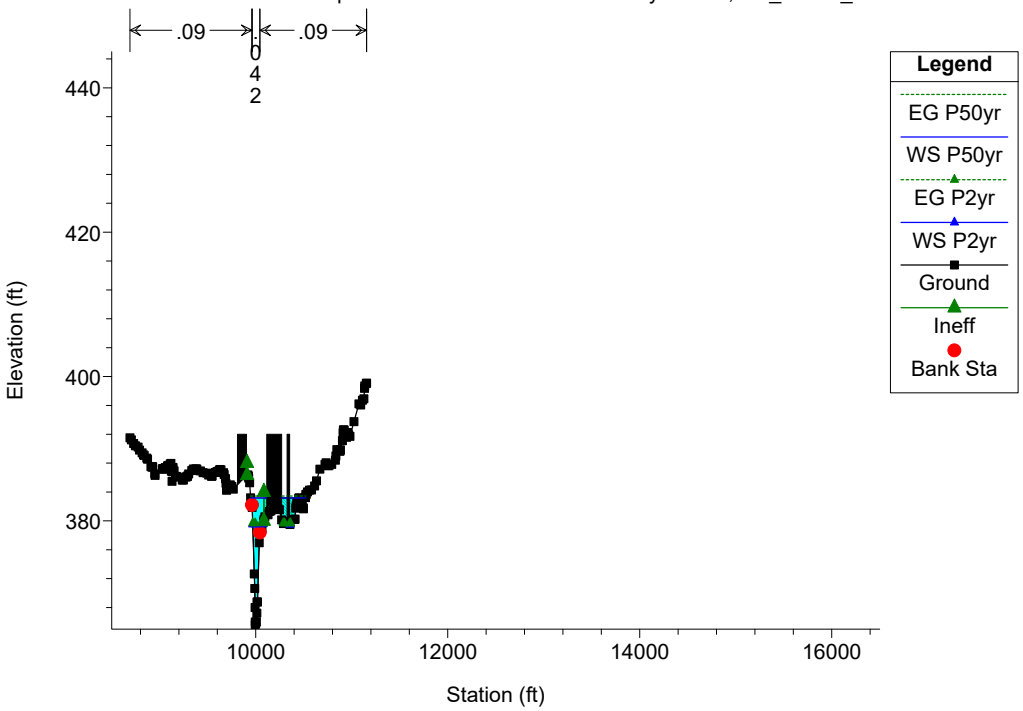
NF_Canoe Plan: Canpr3 9/9/2019

RS = 10936.8 BR Priest Street



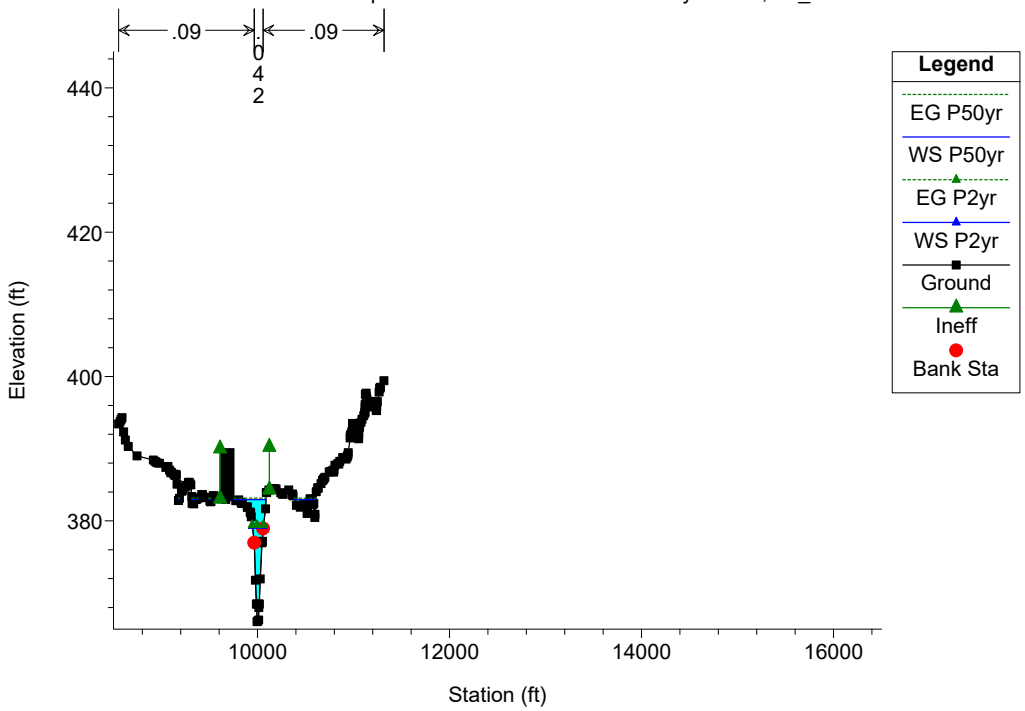
NF_Canoe Plan: Canpr3 9/9/2019

RS = 10837. Interpolated based on UPS-DS Survey inverts, BR_10810_DS.



NF_Canoe Plan: Canpr3 9/9/2019

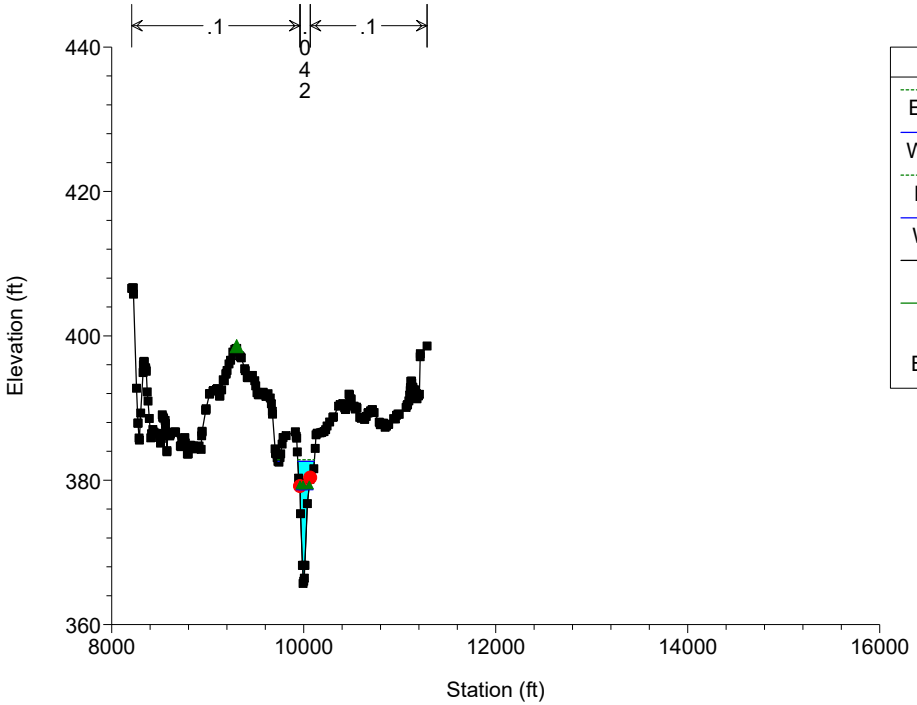
RS = 10362.2 I Interpolated based on UPS-DS Survey inverts, Xs_10625.



1 in Horiz. = 2000 ft 1 in Vert. = 26.60017 ft

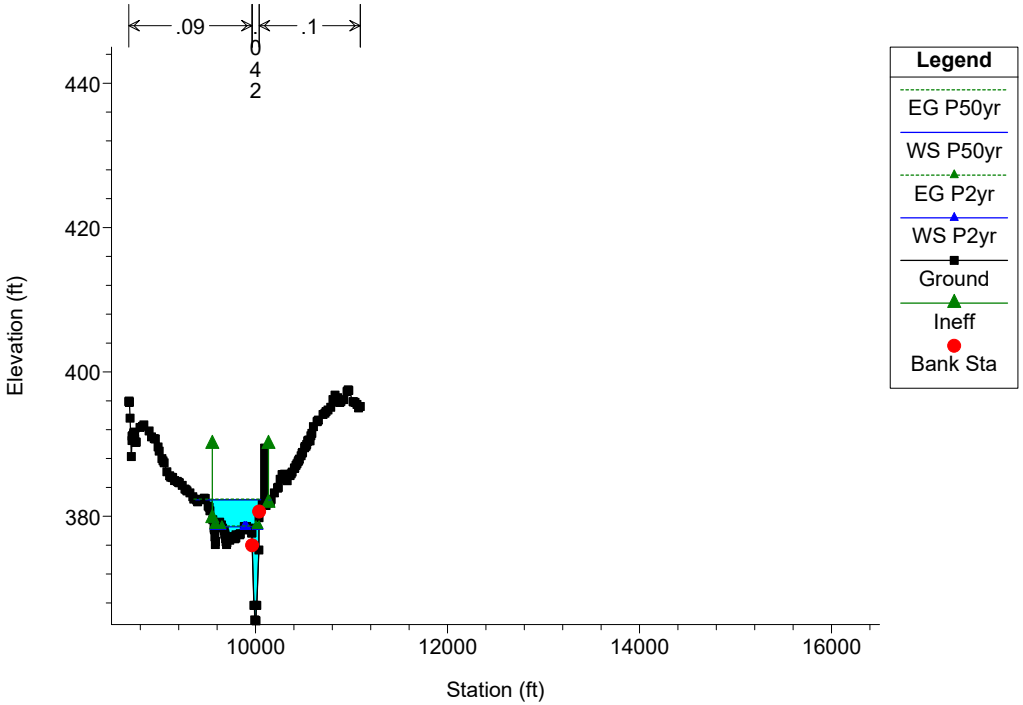
NF_Canoe Plan: Canpr3 9/9/2019

RS = 9719.4 H Interpolated based on UPS-DS Survey inverts, XS_8812.



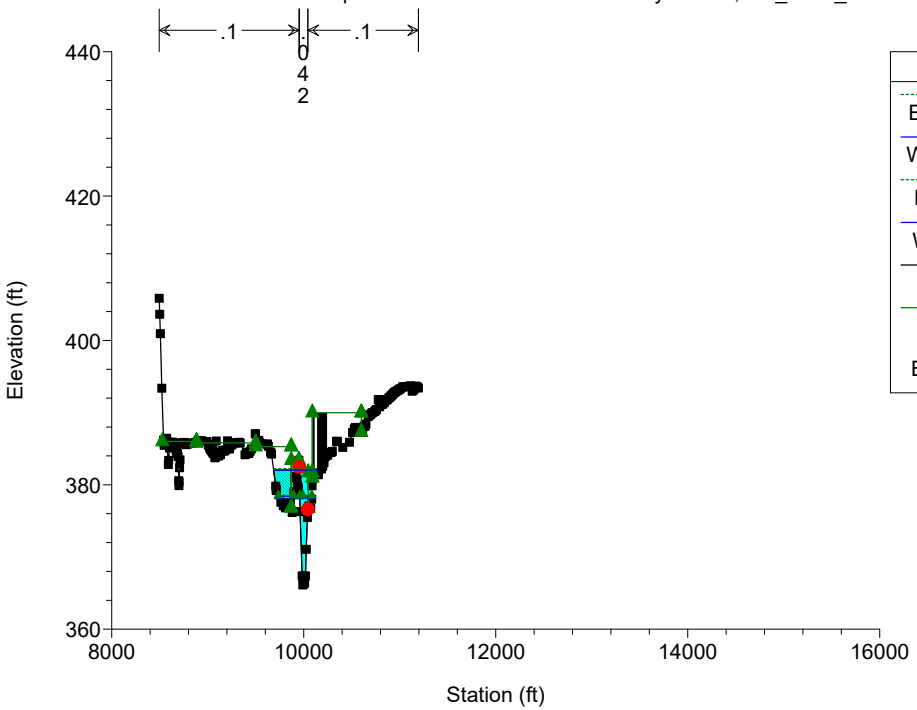
NF_Canoe Plan: Canpr3 9/9/2019

RS = 8580.4 G Interpolated based on UPS-DS Survey inverts, XS_8253.



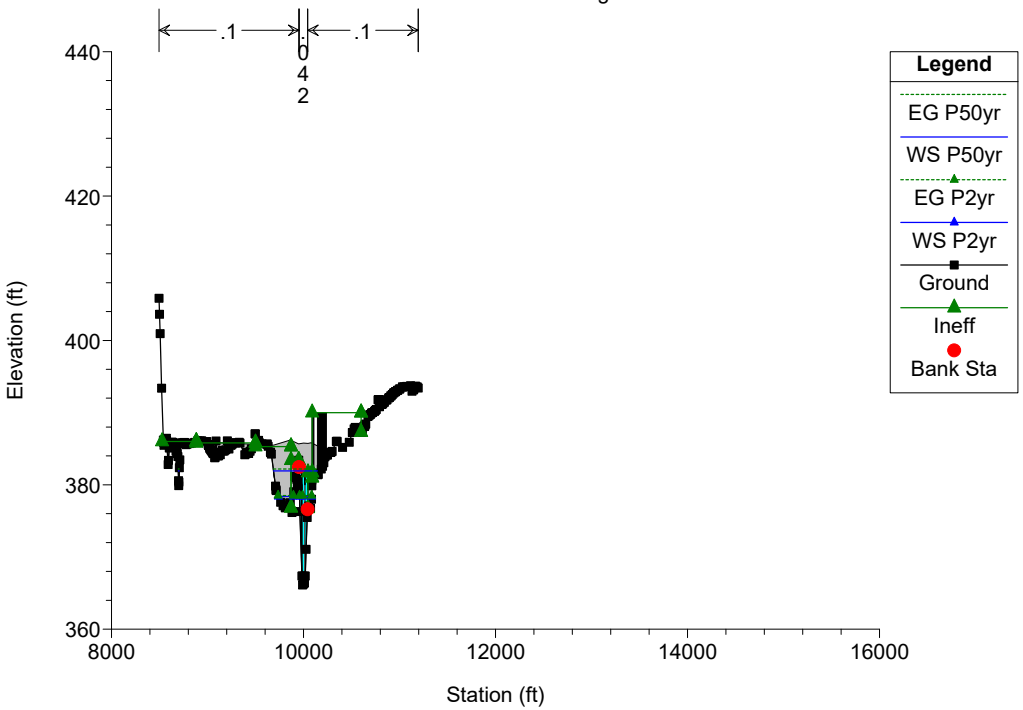
NF_Canoe Plan: Canpr3 9/9/2019

RS = 8284.6 Interpolated based on UPS-DS Survey inverts, BR_8085_US.



NF_Canoe Plan: Canpr3 9/9/2019

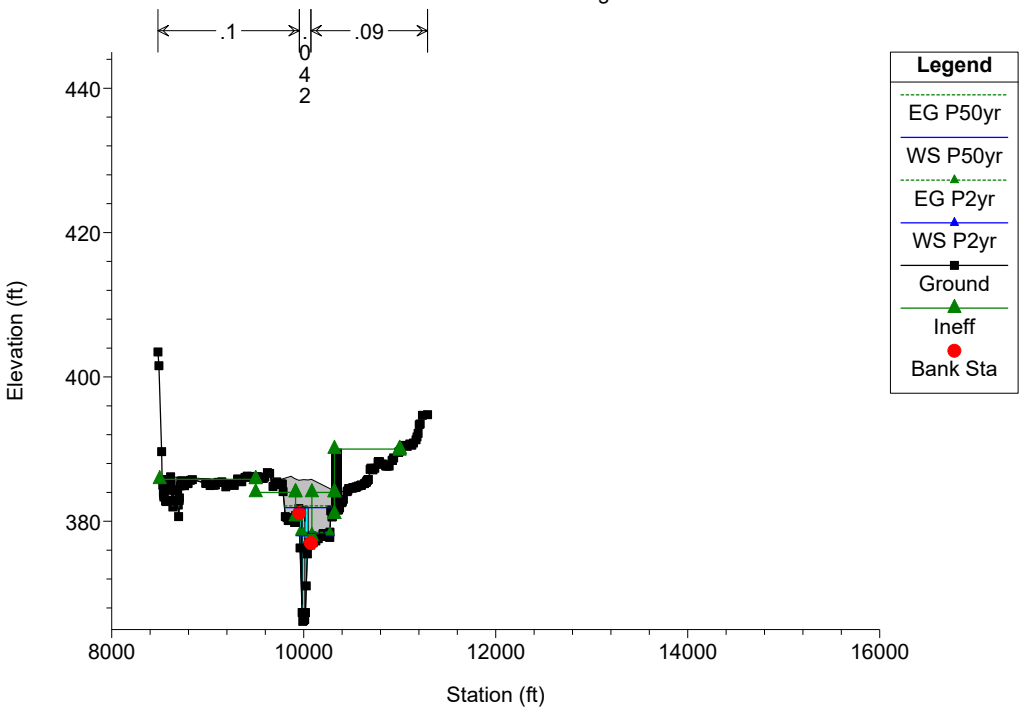
RS = 8211.8 BR Washington Street



1 in Horiz. = 2000 ft 1 in Vert. = 26.60017 ft

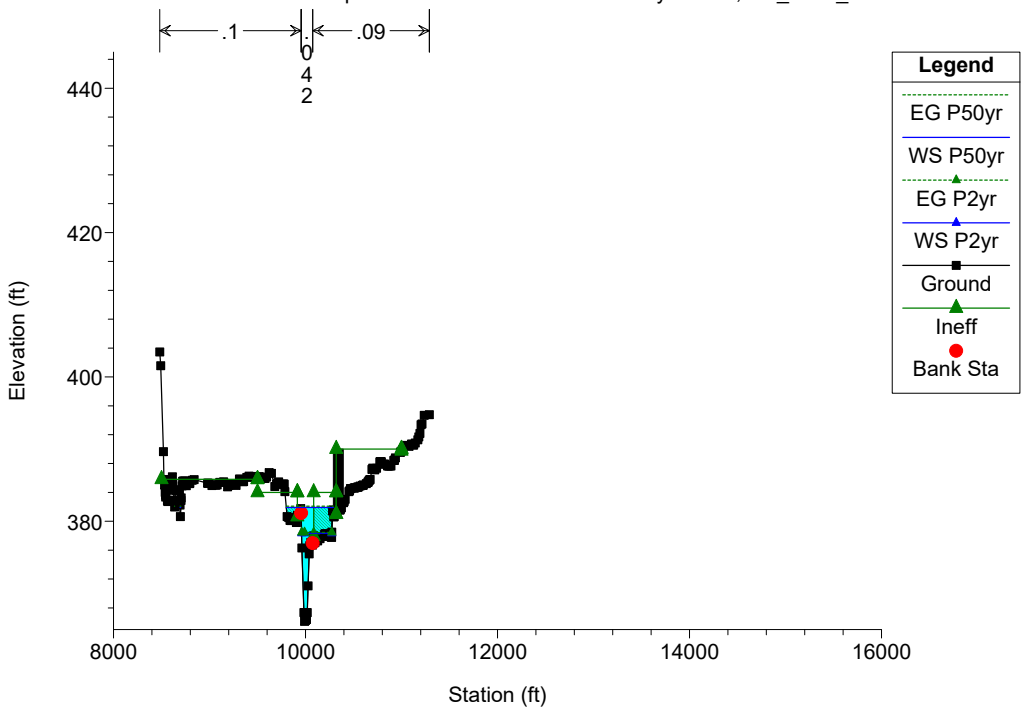
NF_Canoe Plan: Canpr3 9/9/2019

RS = 8211.8 BR Washington Street



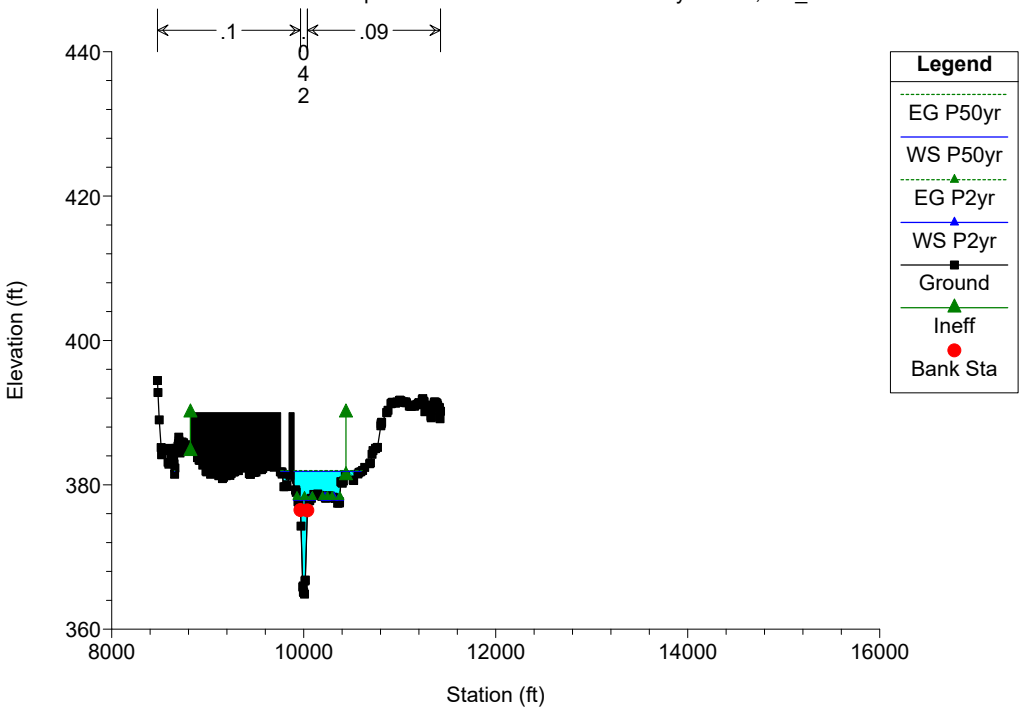
NF_Canoe Plan: Canpr3 9/9/2019

RS = 8165.2 Interpolated based on UPS-DS Survey inverts, BR_8085_DS.



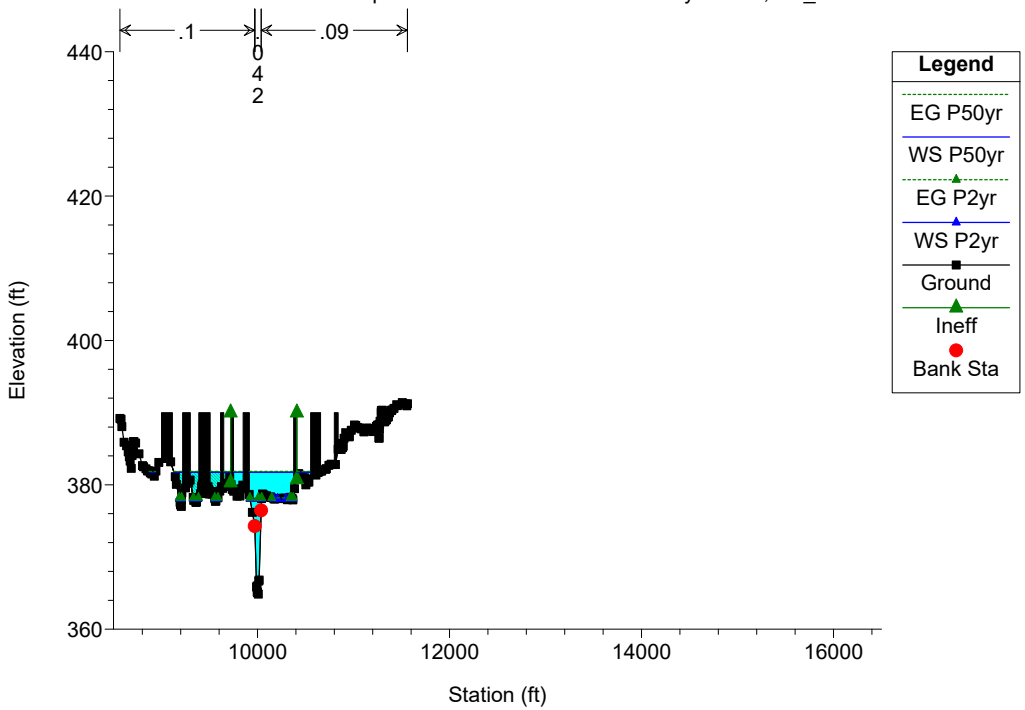
NF_Canoe Plan: Canpr3 9/9/2019

RS = 7927.6 Interpolated based on UPS-DS Survey inverts, XS_7940.



NF_Canoe Plan: Canpr3 9/9/2019

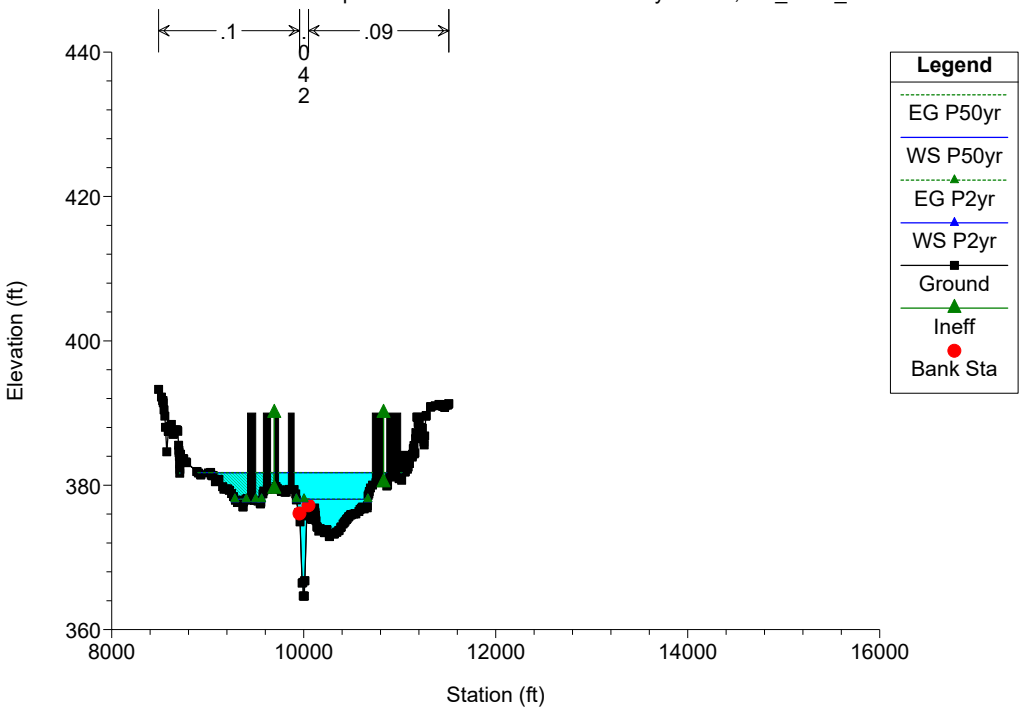
RS = 7564.1 F Interpolated based on UPS-DS Survey inverts, XS_7212.



1 in Horiz. = 2000 ft 1 in Vert. = 26.60017 ft

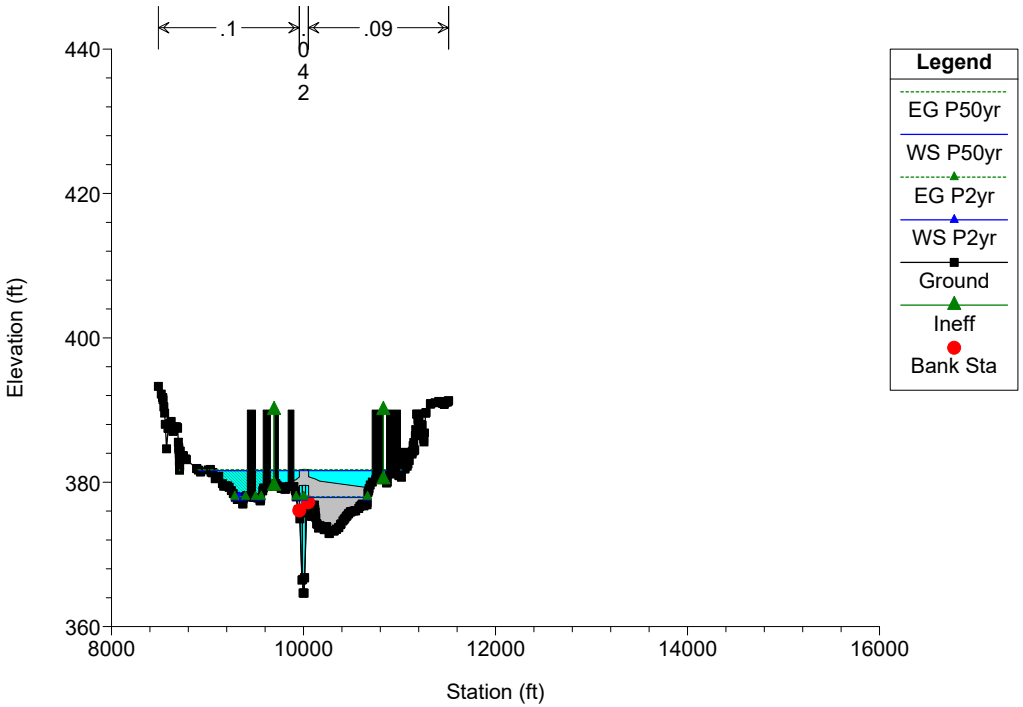
NF_Canoe Plan: Canpr3 9/9/2019

RS = 7123.8 Interpolated based on UPS-DS Survey inverts, BR_6960_US.



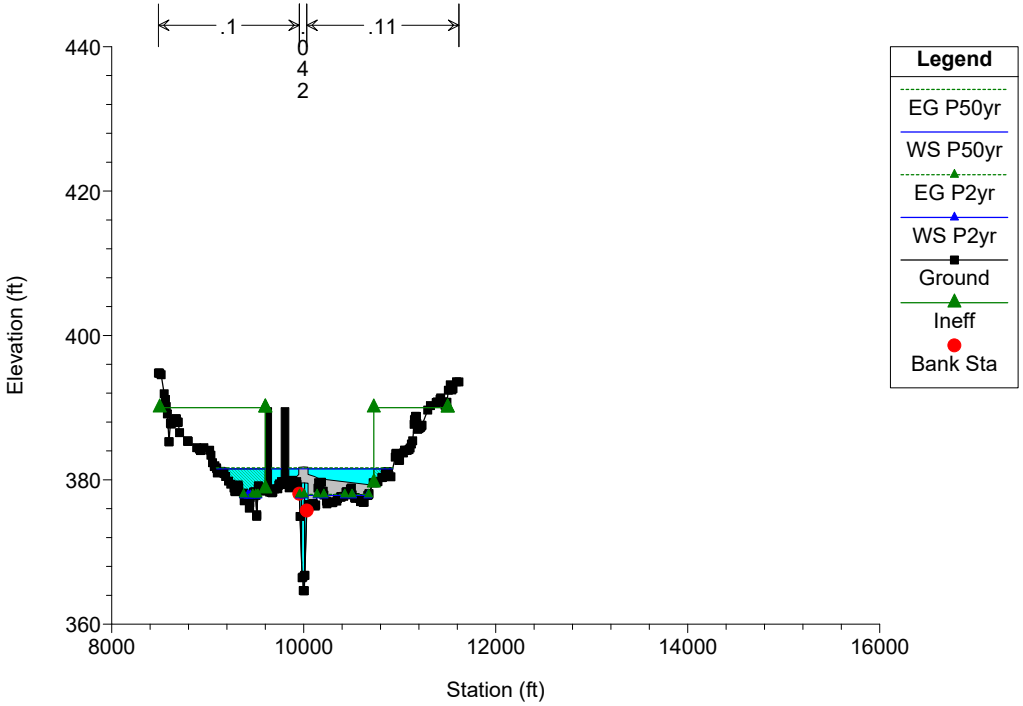
NF_Canoe Plan: Canpr3 9/9/2019

RS = 7086.8 BR Airline Road



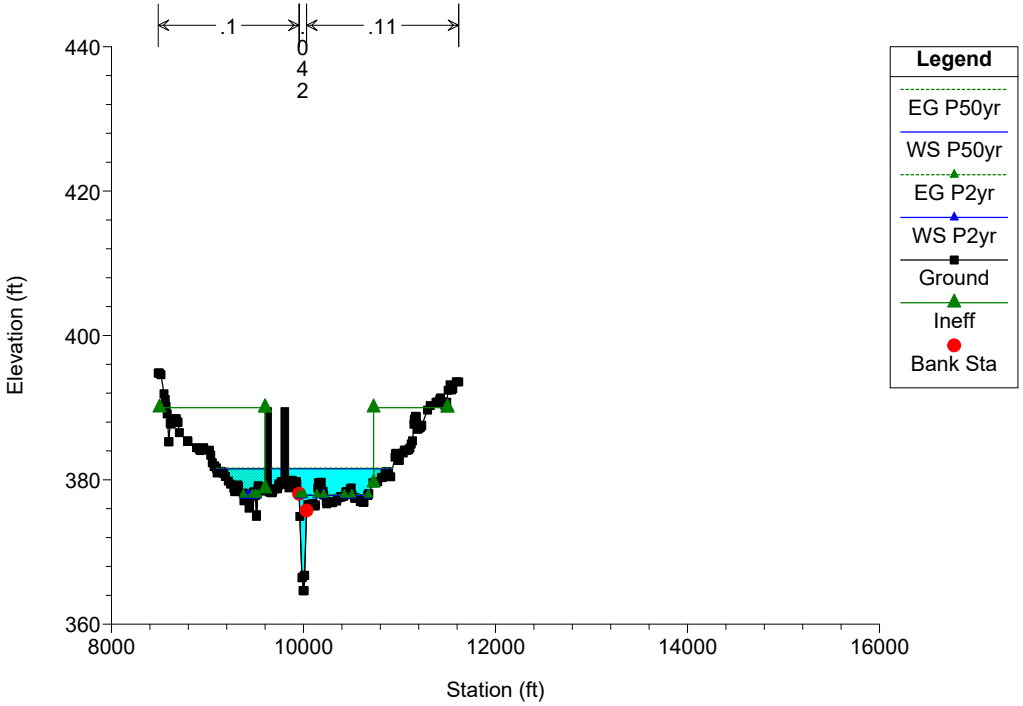
NF_Canoe Plan: Canpr3 9/9/2019

RS = 7086.8 BR Airline Road



NF_Canoe Plan: Canpr3 9/9/2019

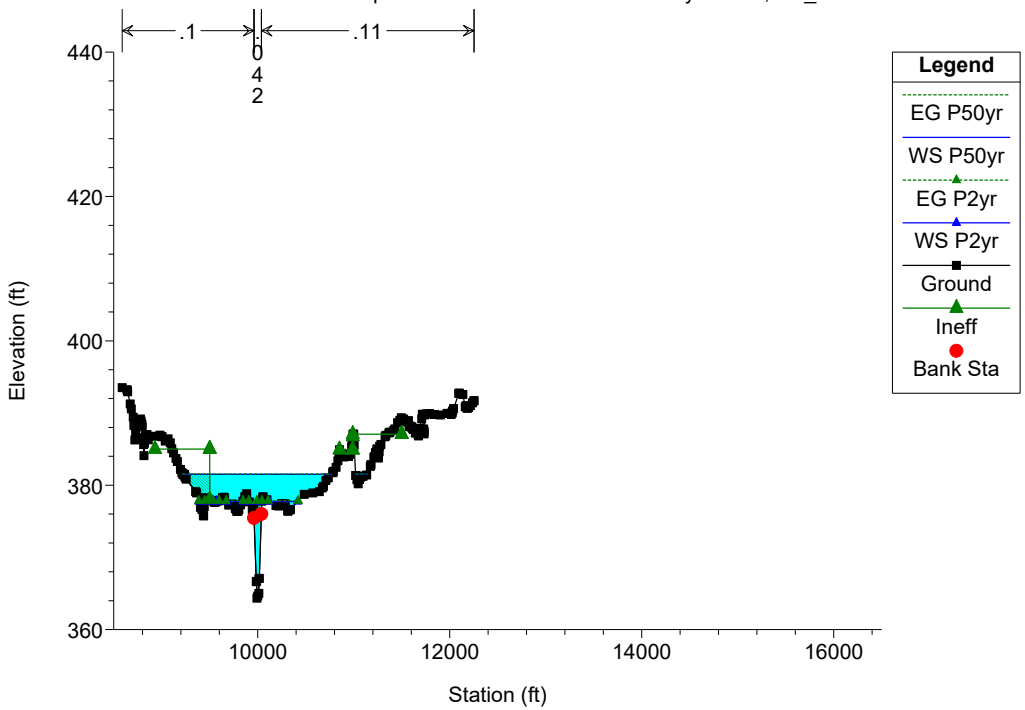
RS = 7010.6 Interpolated based on UPS-DS Survey inverts, BR_6960_DS.



1 in Horiz. = 2000 ft 1 in Vert. = 26.60017 ft

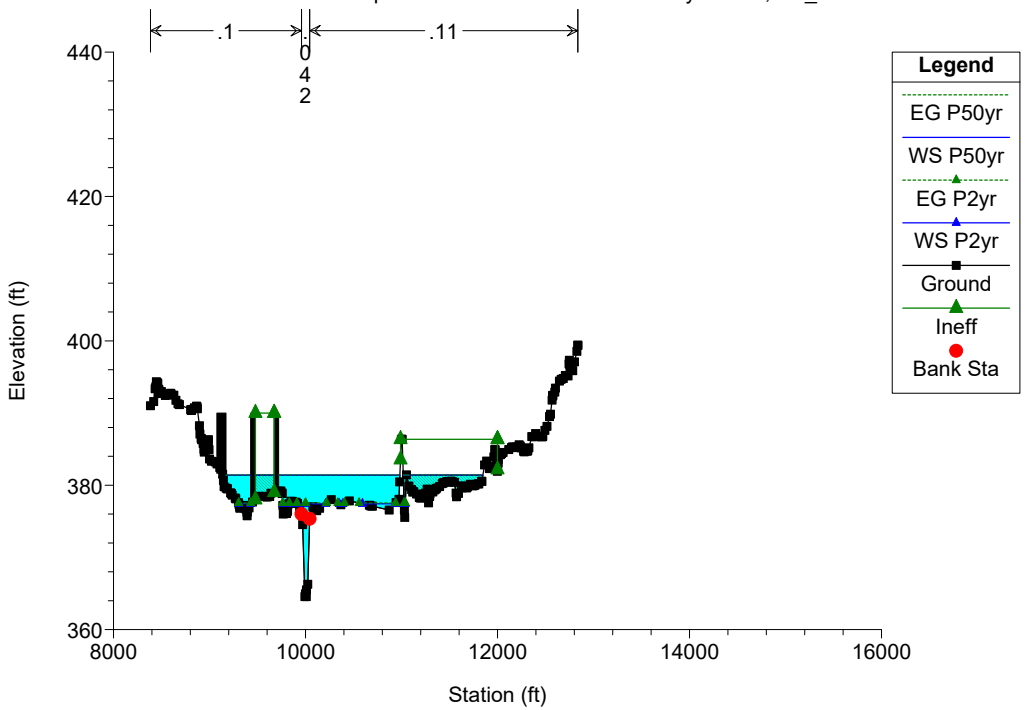
NF_Canoe Plan: Canpr3 9/9/2019

RS = 6706.5 E Interpolated based on UPS-DS Survey inverts, XS_6822.



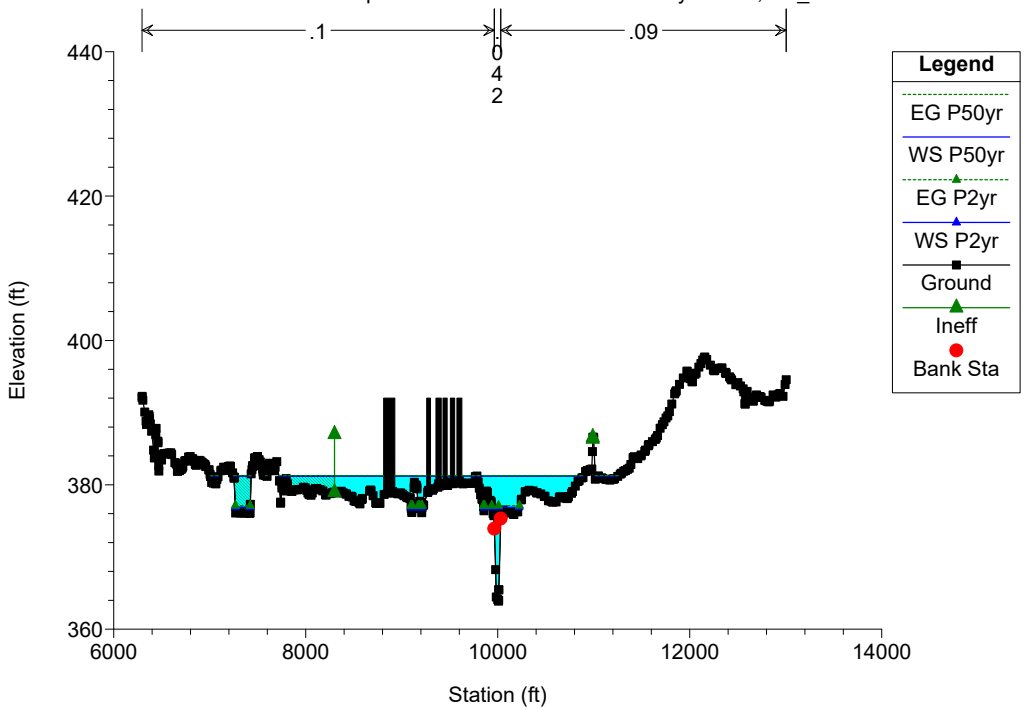
NF_Canoe Plan: Canpr3 9/9/2019

RS = 5738.9 D Interpolated based on UPS-DS Survey inverts, XS_3980.



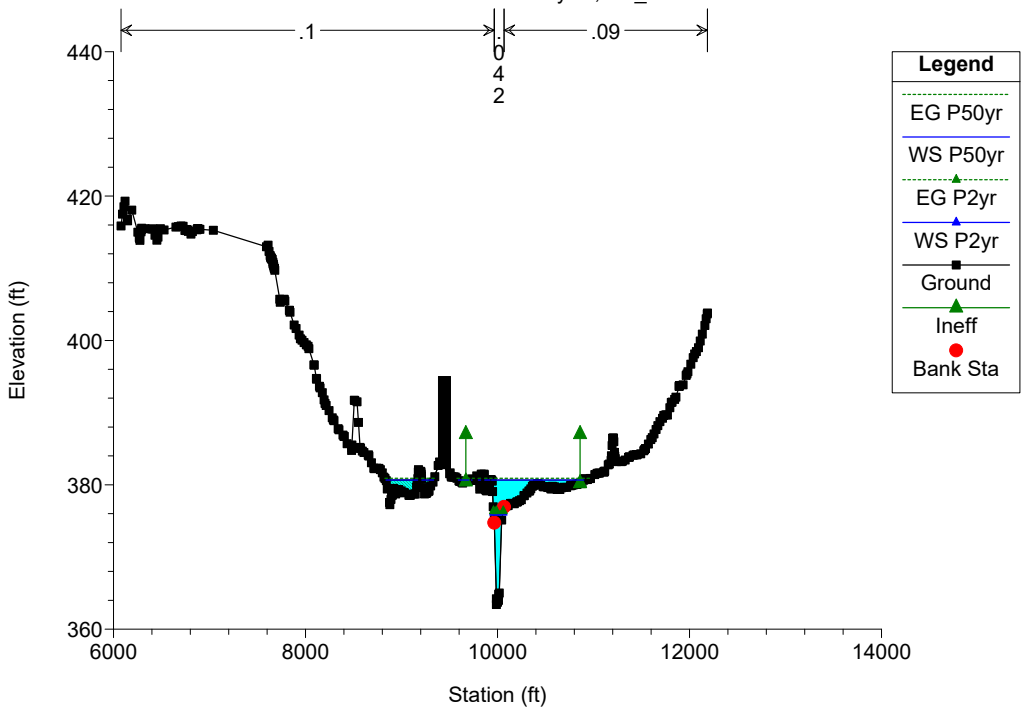
NF_Canoe Plan: Canpr3 9/9/2019

RS = 4899.4 Interpolated based on UPS-DS Survey inverts, XS_3980.



NF_Canoe Plan: Canpr3 9/9/2019

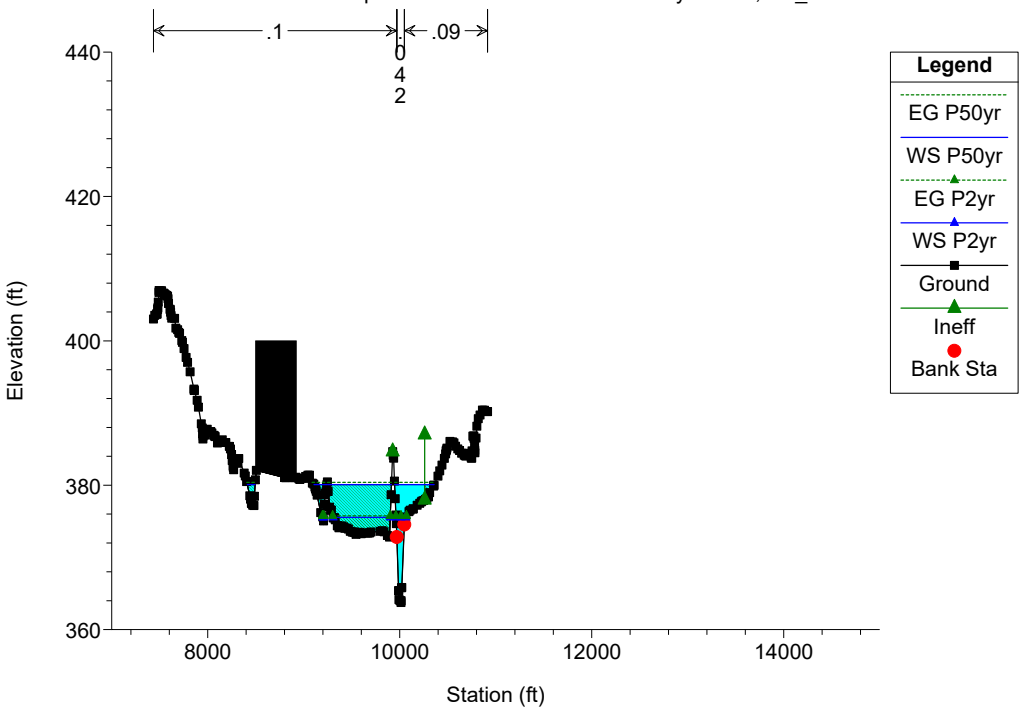
RS = 3856.3 C Survey xs, XS_3729.



1 in Horiz. = 2000 ft 1 in Vert. = 26.60017 ft

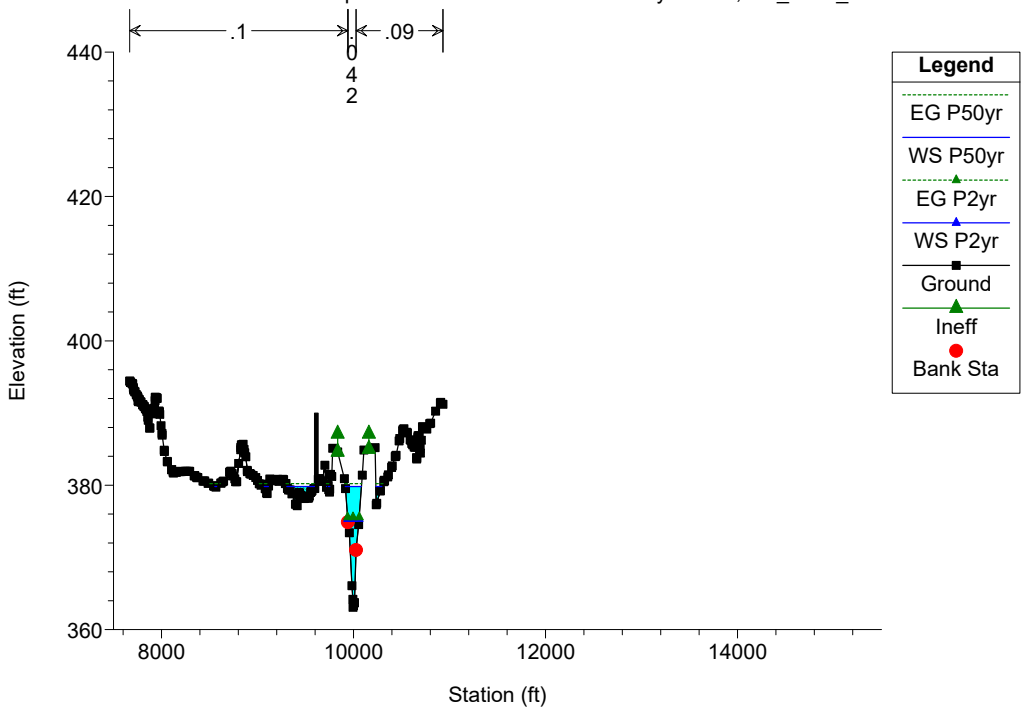
NF_Canoe Plan: Canpr3 9/9/2019

RS = 3073.1 Interpolated based on UPS-DS Survey inverts, XS_3729.



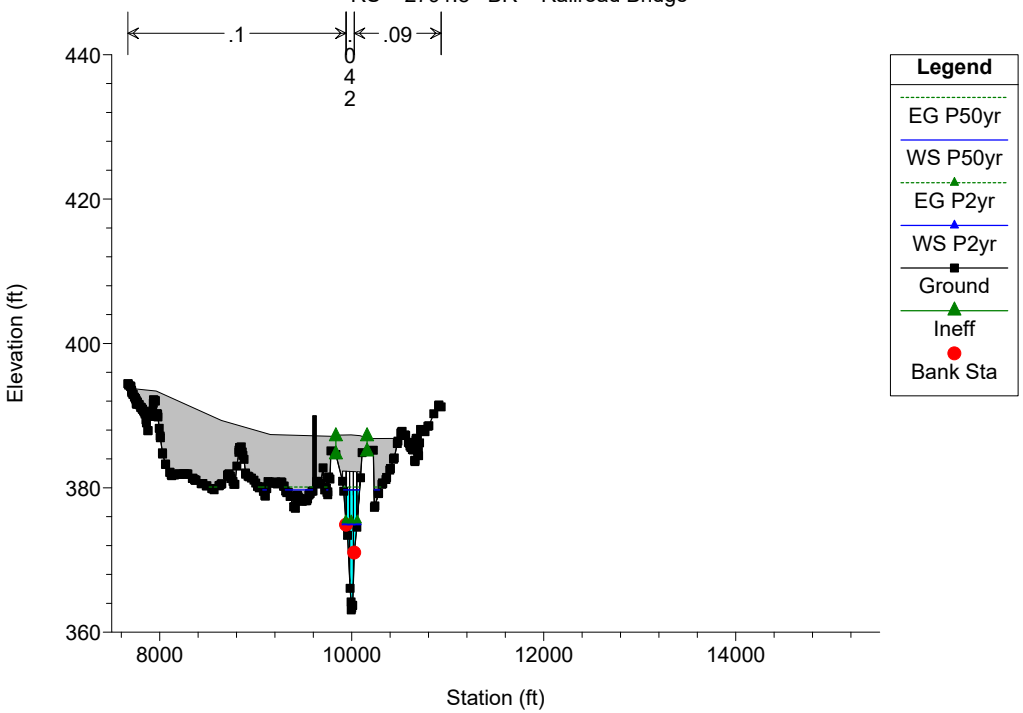
NF_Canoe Plan: Canpr3 9/9/2019

RS = 2858.5 Interpolated based on UPS-DS Survey inverts, BR_2665_US.



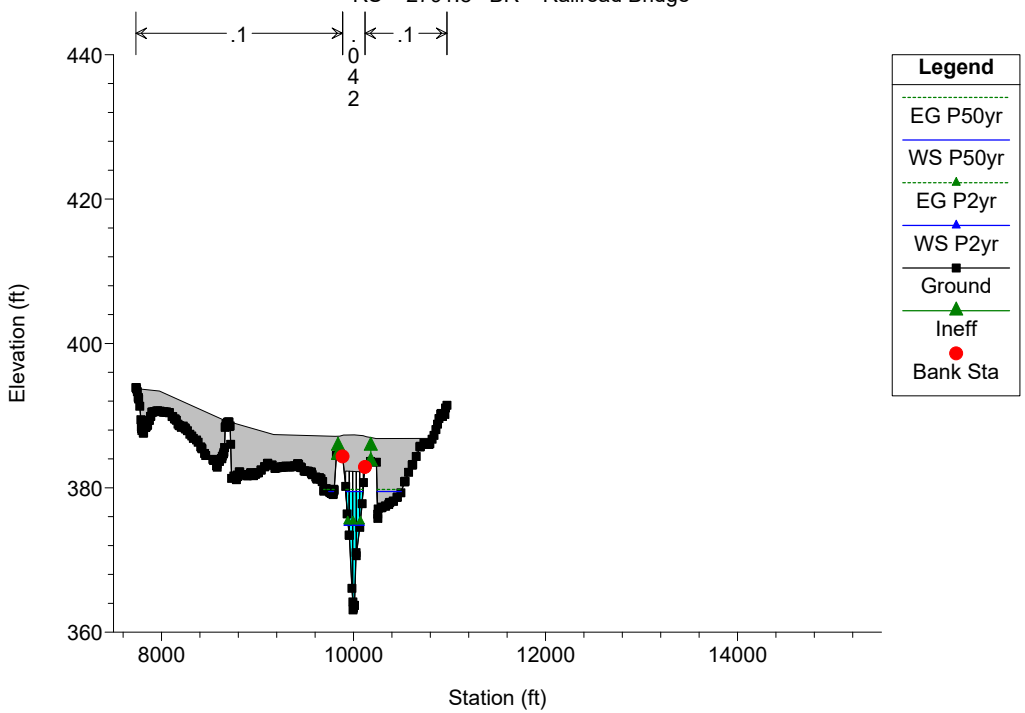
NF_Canoe Plan: Canpr3 9/9/2019

RS = 2791.8 BR Railroad Bridge



NF_Canoe Plan: Canpr3 9/9/2019

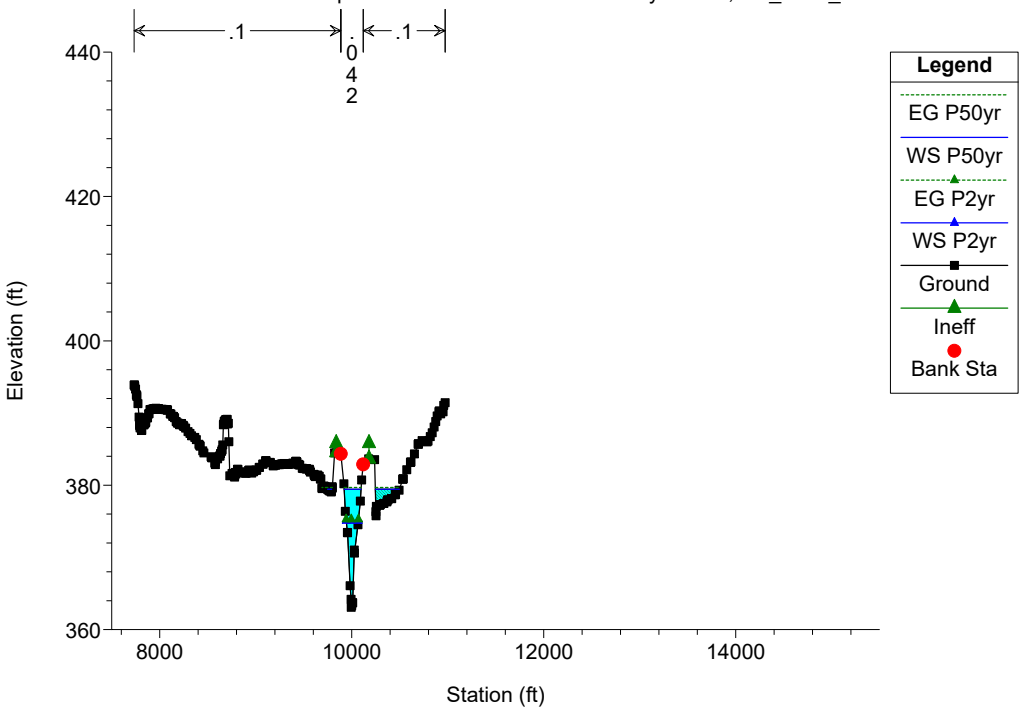
RS = 2791.8 BR Railroad Bridge



1 in Horiz. = 2000 ft 1 in Vert. = 26.60017 ft

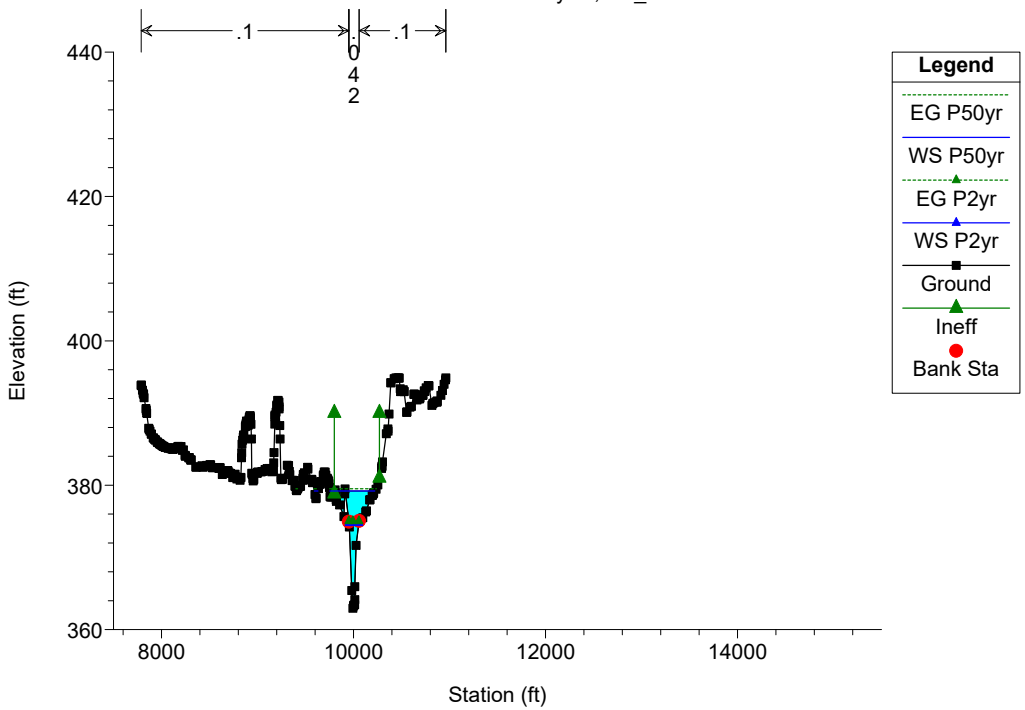
NF_Canoe Plan: Canpr3 9/9/2019

RS = 2724. Interpolated based on UPS-DS Survey inverts, BR_2665_DS.



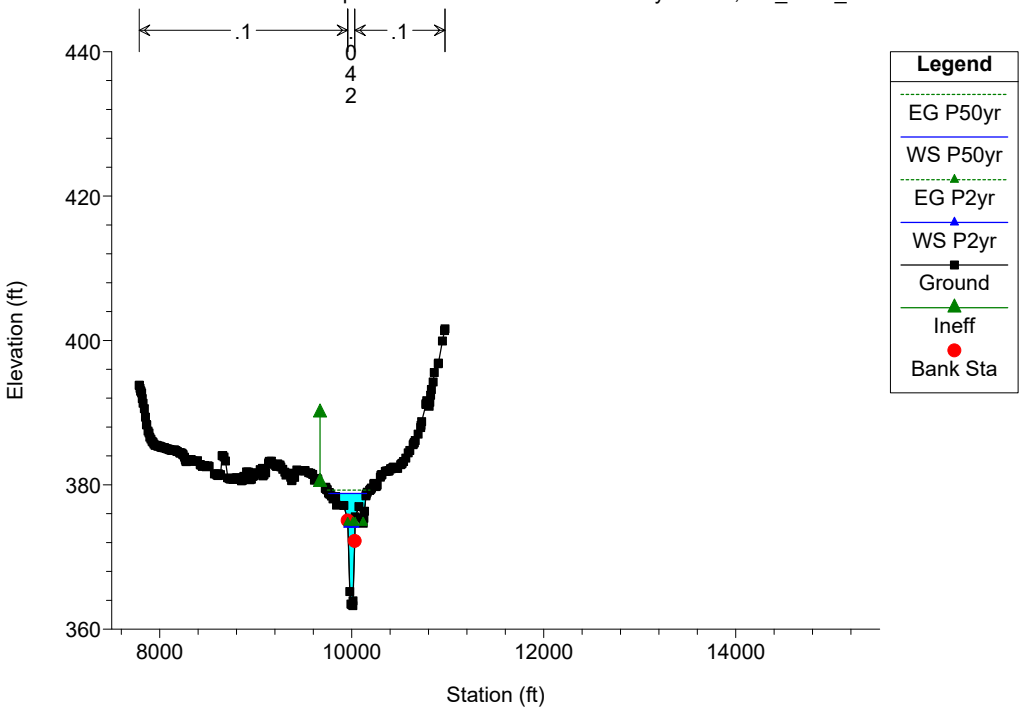
NF_Canoe Plan: Canpr3 9/9/2019

RS = 2538.1 B Survey xs, XS_2411.



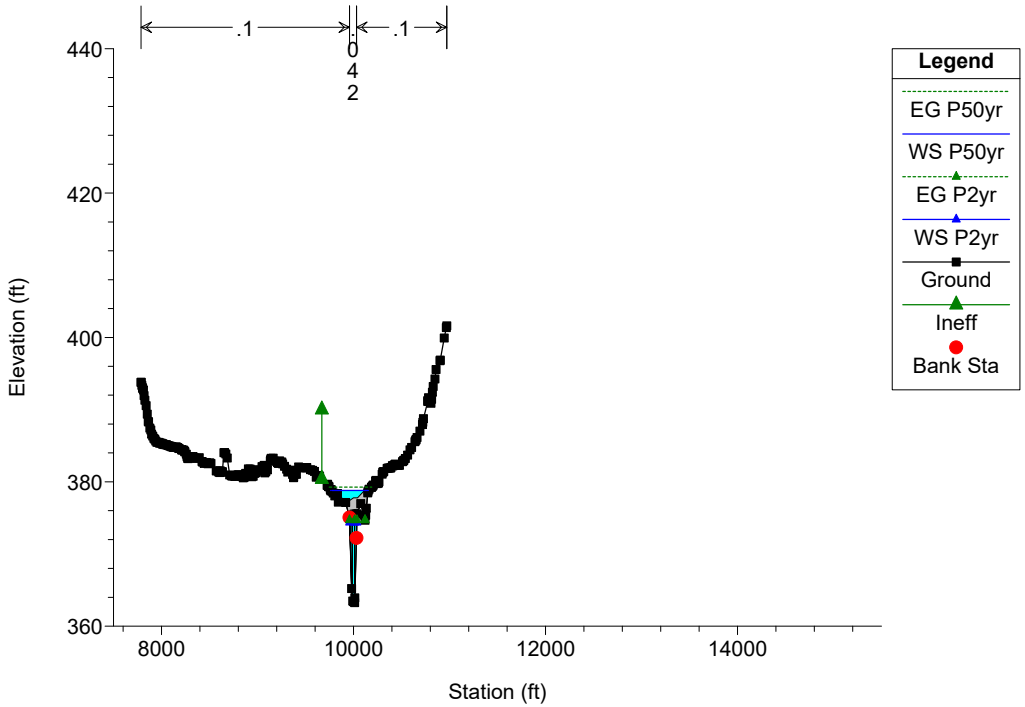
NF_Canoe Plan: Canpr3 9/9/2019

RS = 2326.2 Interpolated based on UPS-DS Survey inverts, BR_2140_US.



NF_Canoe Plan: Canpr3 9/9/2019

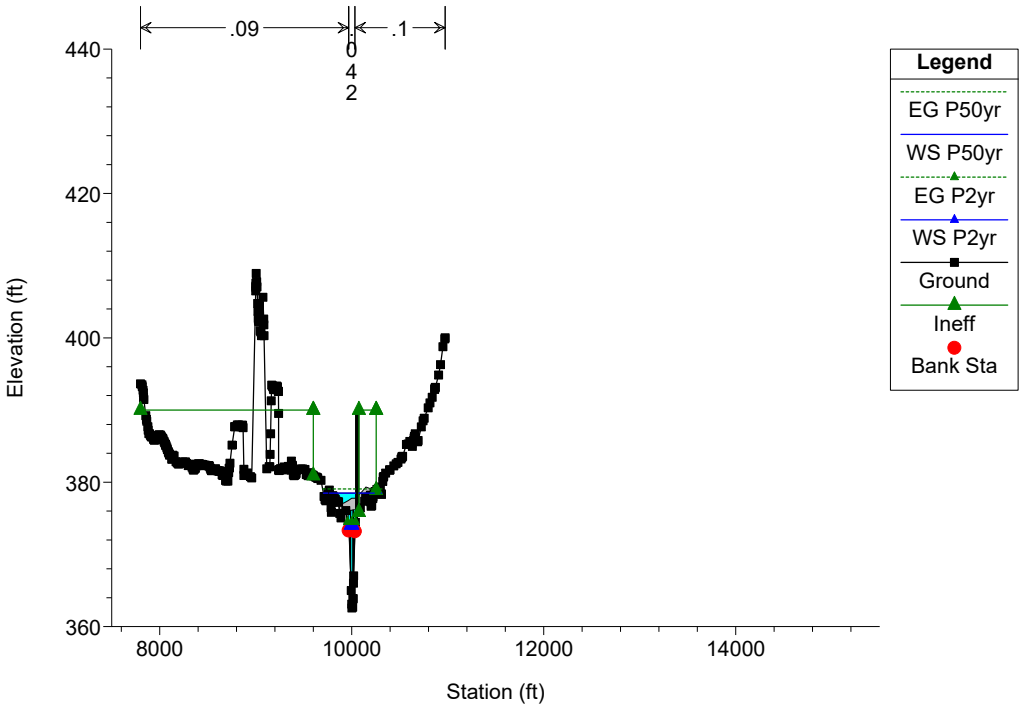
RS = 2266.8 BR KY-136



1 in Horiz. = 2000 ft 1 in Vert. = 26.60017 ft

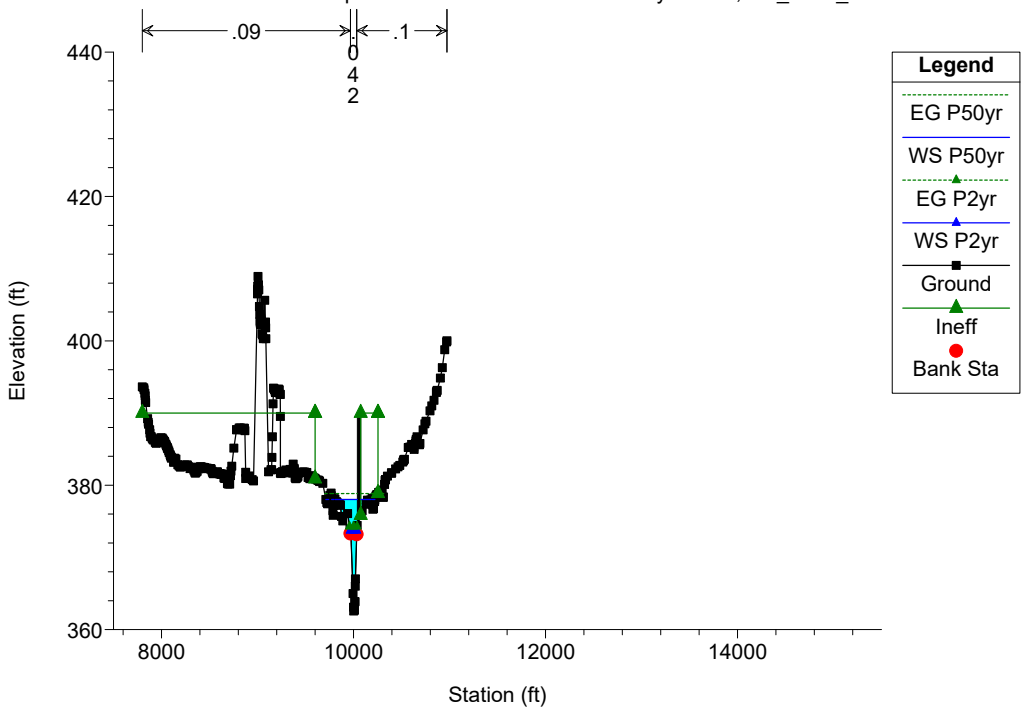
NF_Canoe Plan: Canpr3 9/9/2019

RS = 2266.8 BR KY-136



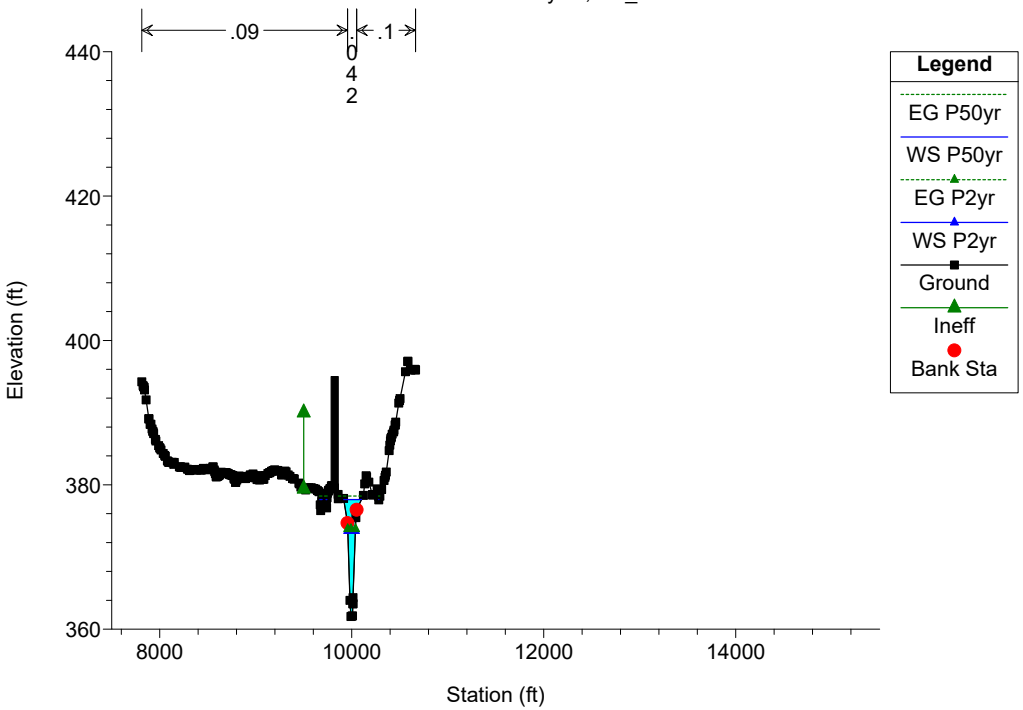
NF_Canoe Plan: Canpr3 9/9/2019

RS = 2223.8 Interpolated based on UPS-DS Survey inverts, BR_2140_DS.



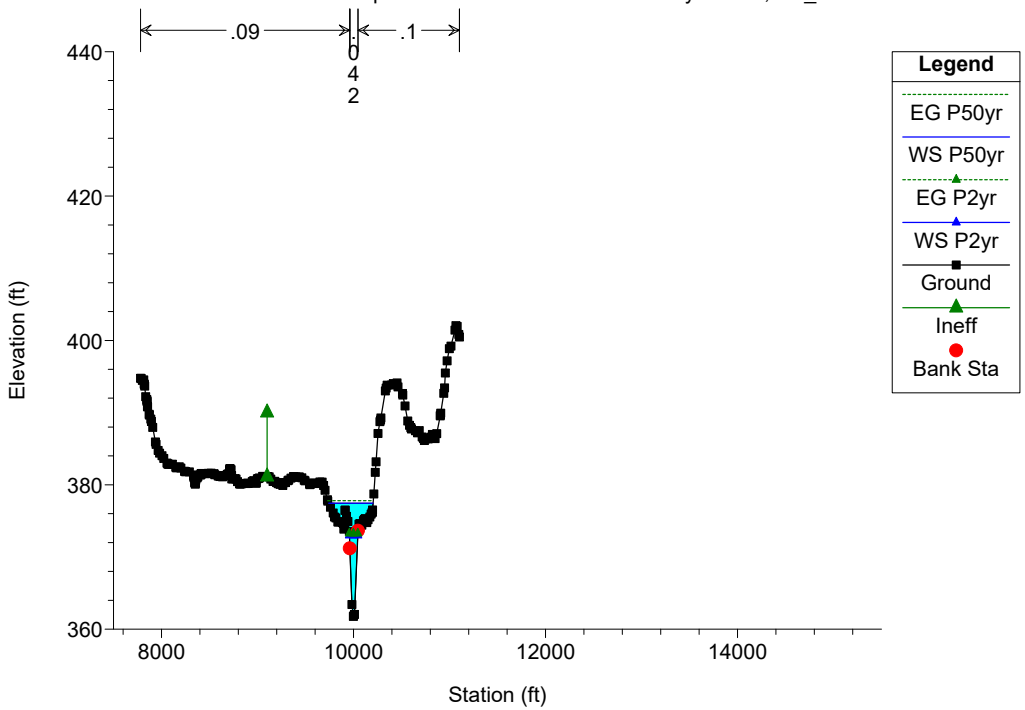
NF_Canoe Plan: Canpr3 9/9/2019

RS = 2073.1 Survey xs, XS_1946.



NF_Canoe Plan: Canpr3 9/9/2019

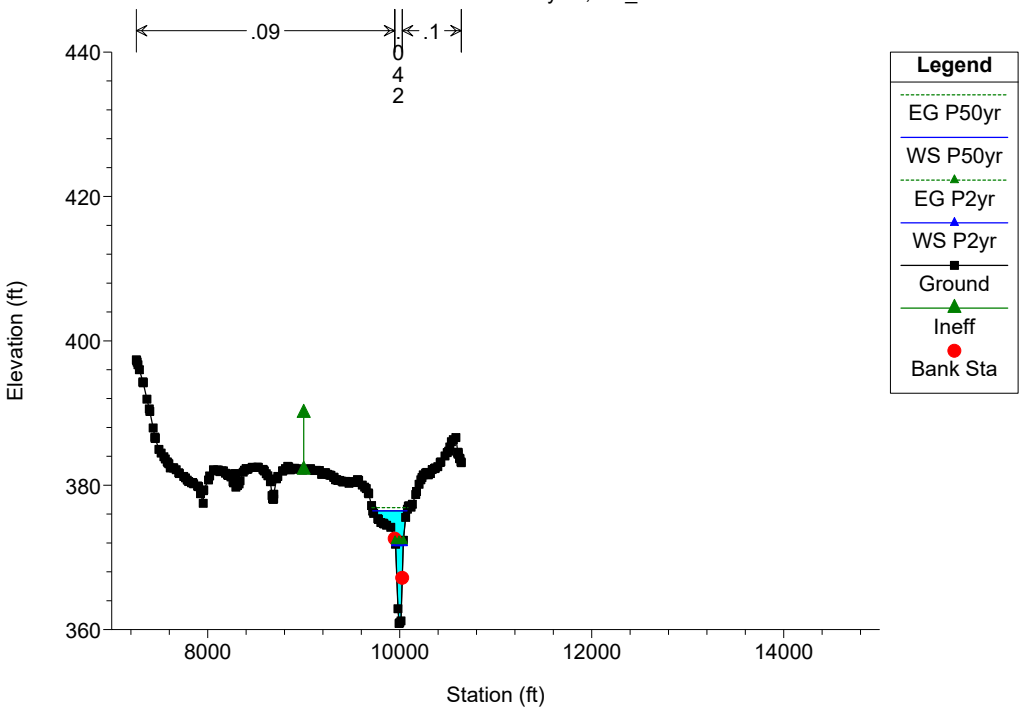
RS = 1455.4 A Interpolated based on UPS-DS Survey inverts, XS_1946.



1 in Horiz. = 2000 ft 1 in Vert. = 26.60017 ft

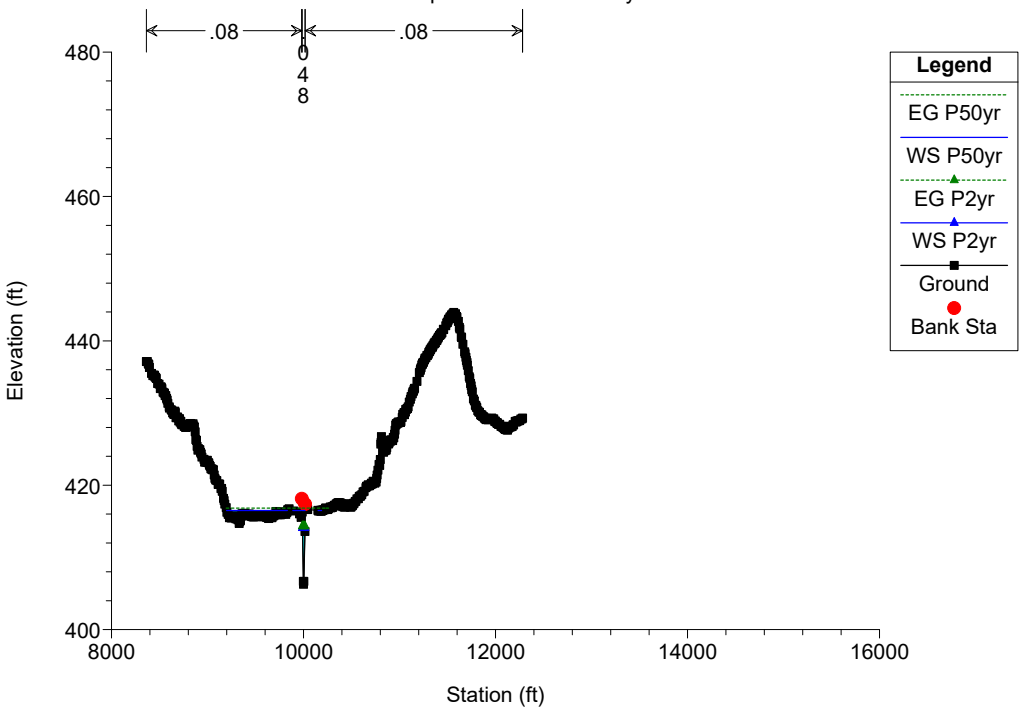
NF_Canoe Plan: Canpr3 9/9/2019

RS = 450.5 Survey xs, XS_324.



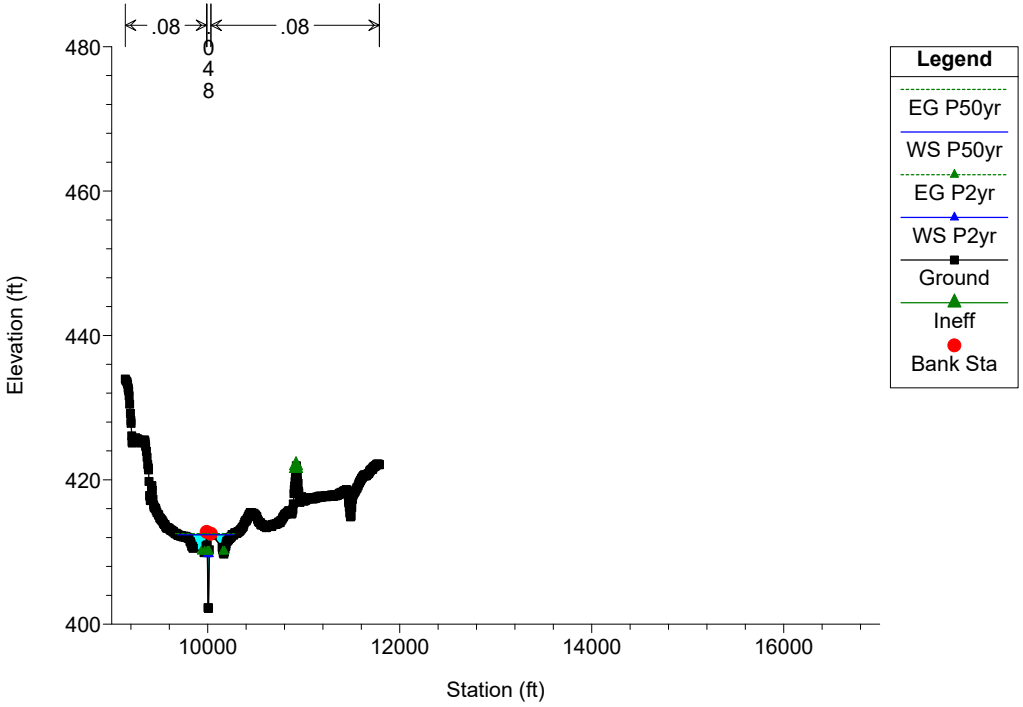
NF_Canoe Plan: Canpr3 9/9/2019

RS = 38011.5 XS Upstream/North of Hwy 60 and east of RR



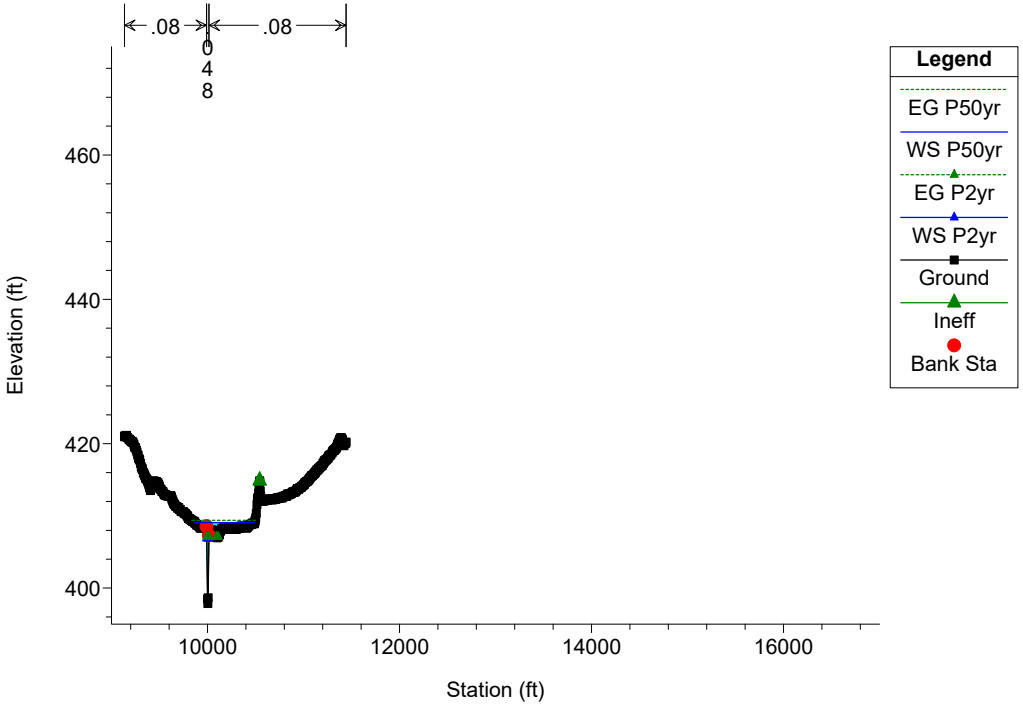
NF_Canoe Plan: Canpr3 9/9/2019

RS = 37046.5 XS Upstream/North of Hwy 60 and east of RR



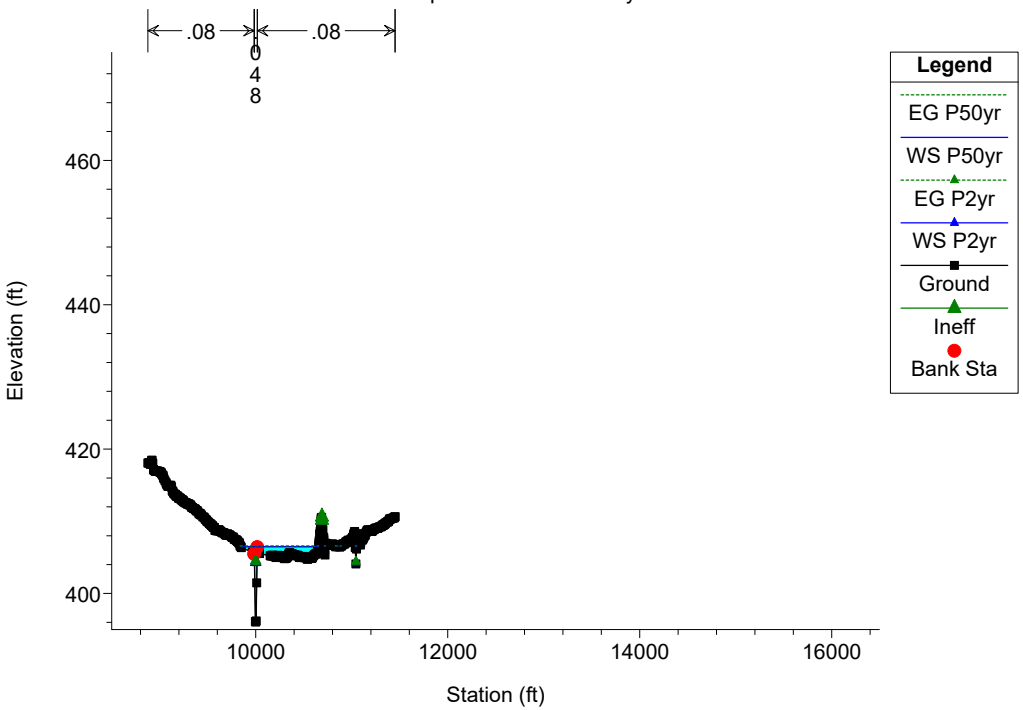
NF_Canoe Plan: Canpr3 9/9/2019

RS = 36058.4 XS Upstream/North of Hwy 60 and east of RR

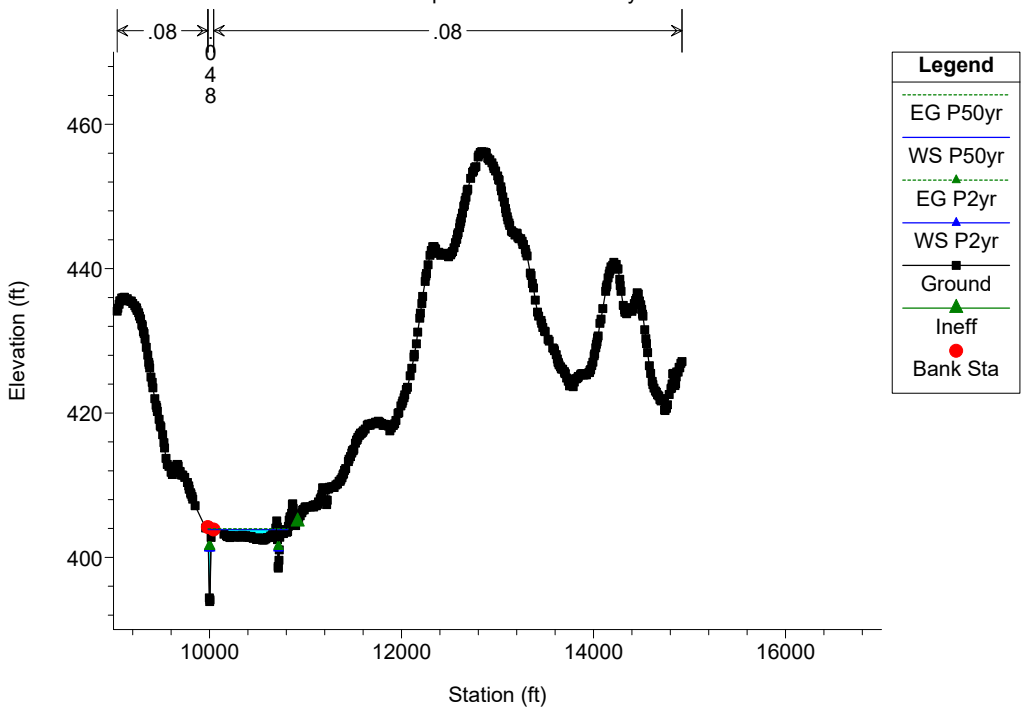


1 in Horiz. = 2000 ft 1 in Vert. = 26.60017 ft

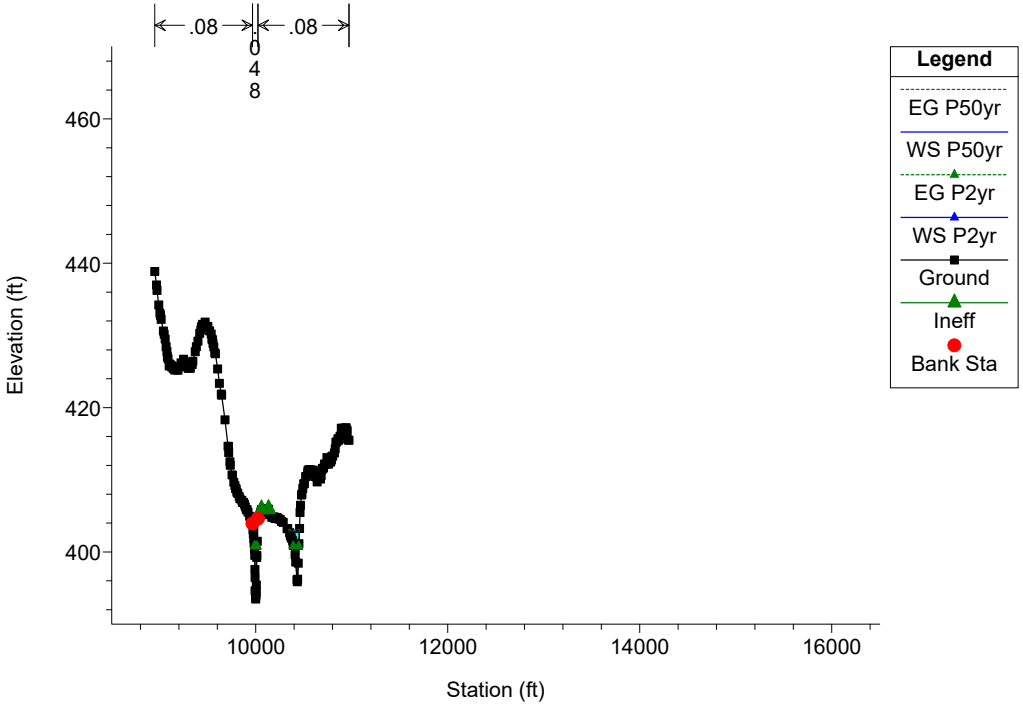
NF_Canoe Plan: Canpr3 9/9/2019
RS = 34775.6 XS Upstream/North of Hwy 60 and east of RR



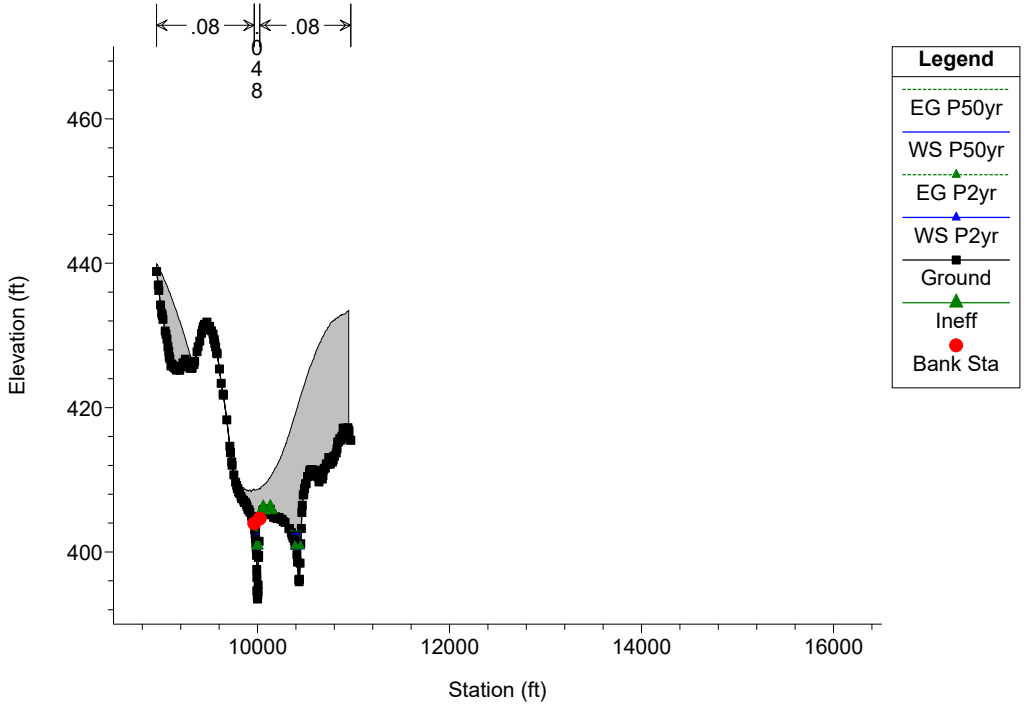
NF_Canoe Plan: Canpr3 9/9/2019
RS = 33442.3 XS Upstream/North of Hwy 60 and east of RR



NF_Canoe Plan: Canpr3 9/9/2019
RS = 33116 XS Upstream/North of Hwy 60 and east of RR



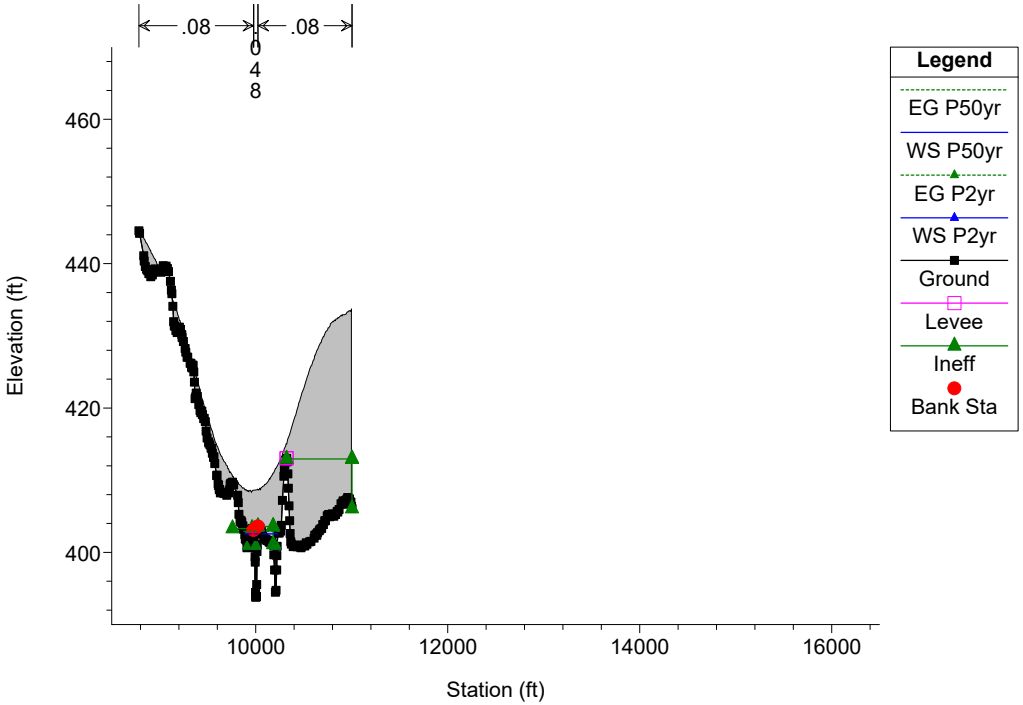
NF_Canoe Plan: Canpr3 9/9/2019
RS = 33041.8 MO



1 in Horiz. = 2000 ft 1 in Vert. = 26.60017 ft

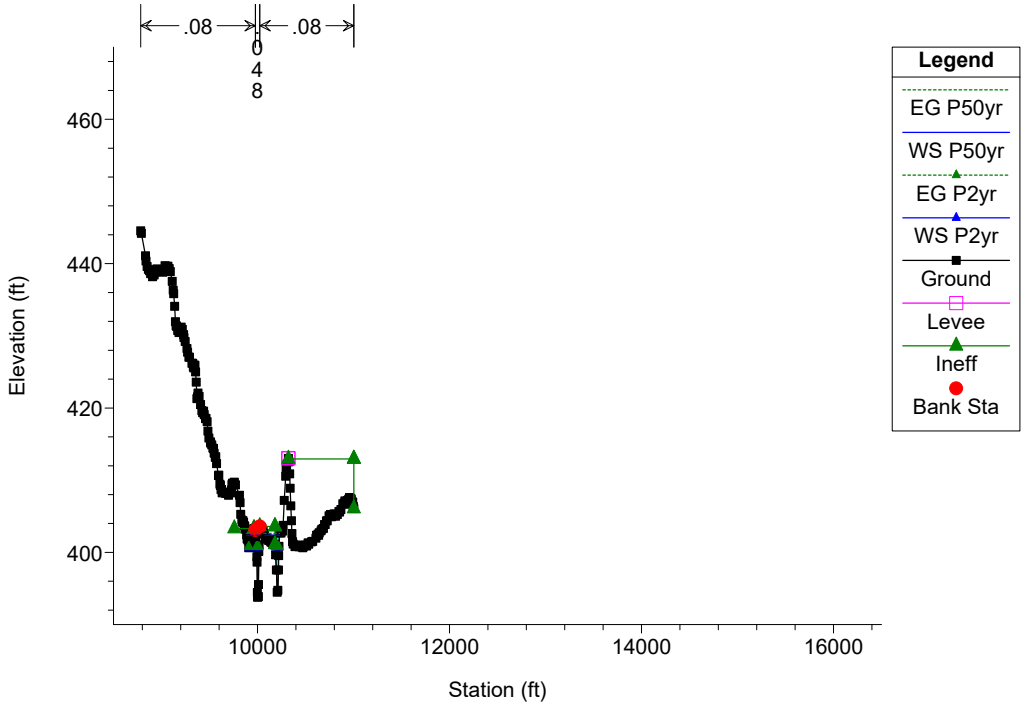
NF_Canoe Plan: Canpr3 9/9/2019

RS = 33041.8 MO



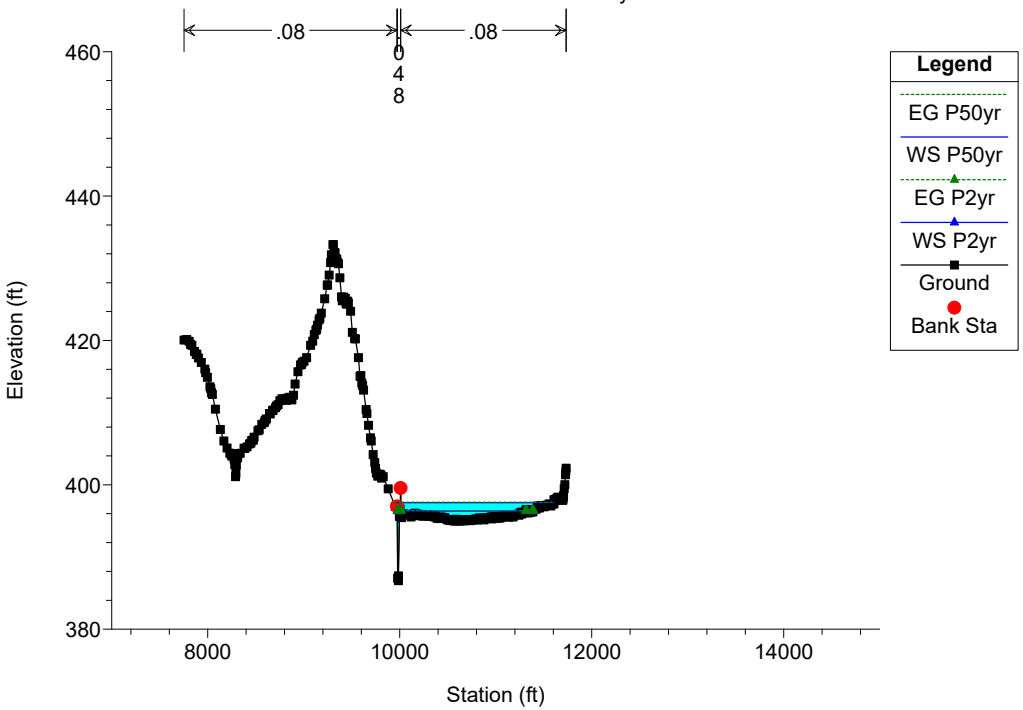
NF_Canoe Plan: Canpr3 9/9/2019

RS = 32983.9 Downstream/south of Hwy 60 and east of RR



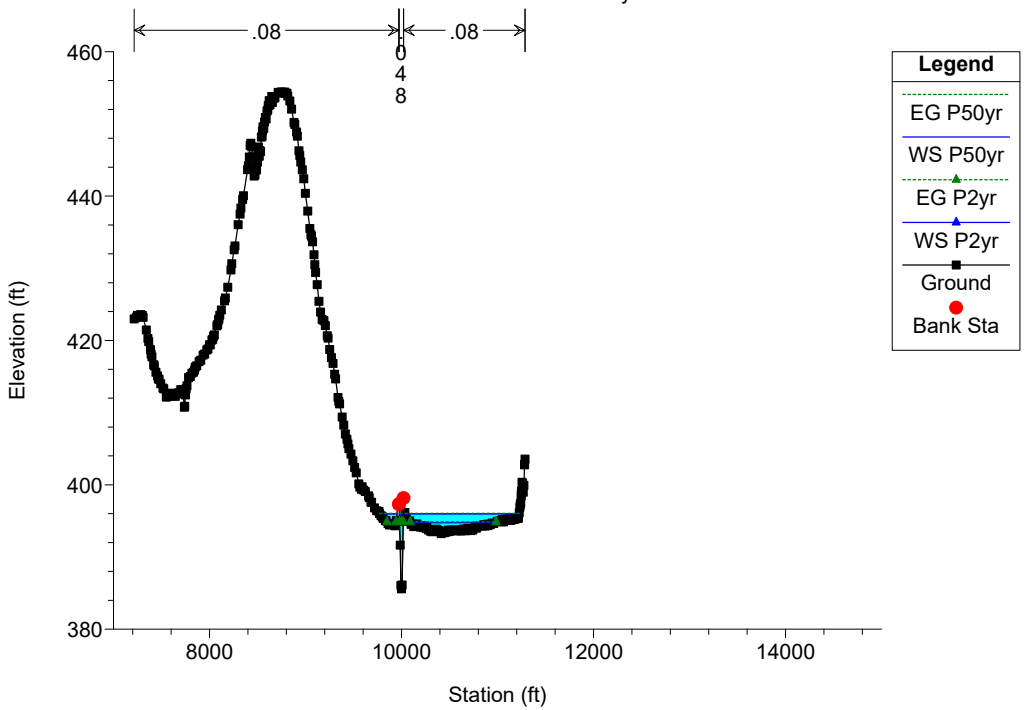
NF_Canoe Plan: Canpr3 9/9/2019

RS = 29900.3 Downstream/south of Hwy 60 and east of RR



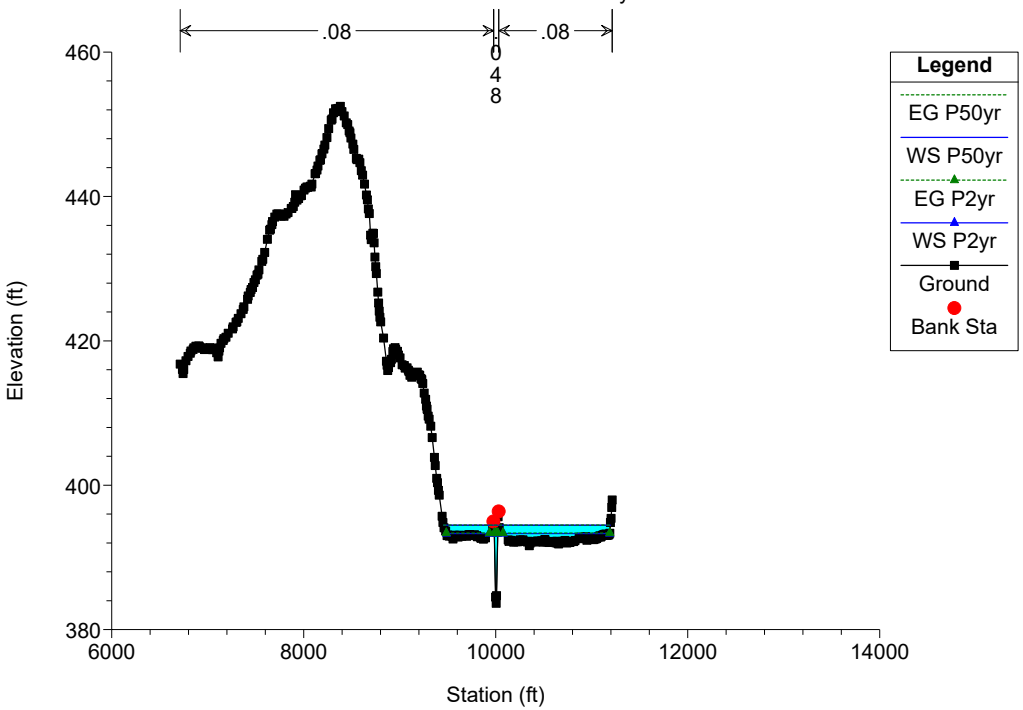
NF_Canoe Plan: Canpr3 9/9/2019

RS = 28796.5 Downstream/south of Hwy 60 and east of RR

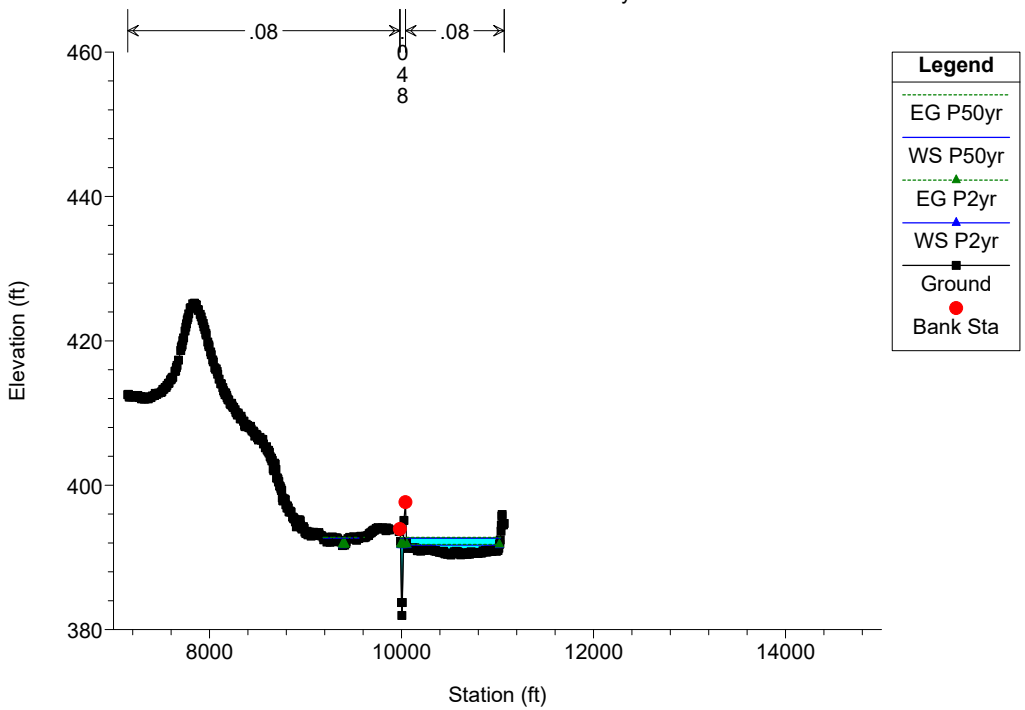


1 in Horiz. = 2000 ft 1 in Vert. = 26.60017 ft

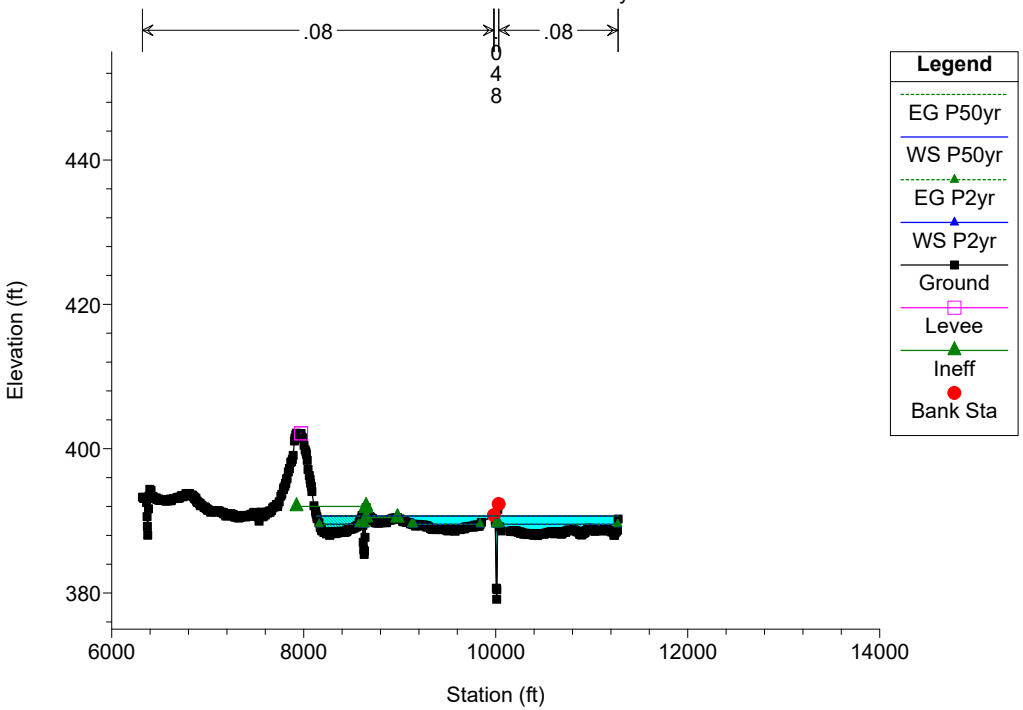
NF_Canoe Plan: Canpr3 9/9/2019
RS = 27541.3 Downstream/south of Hwy 60 and east of RR



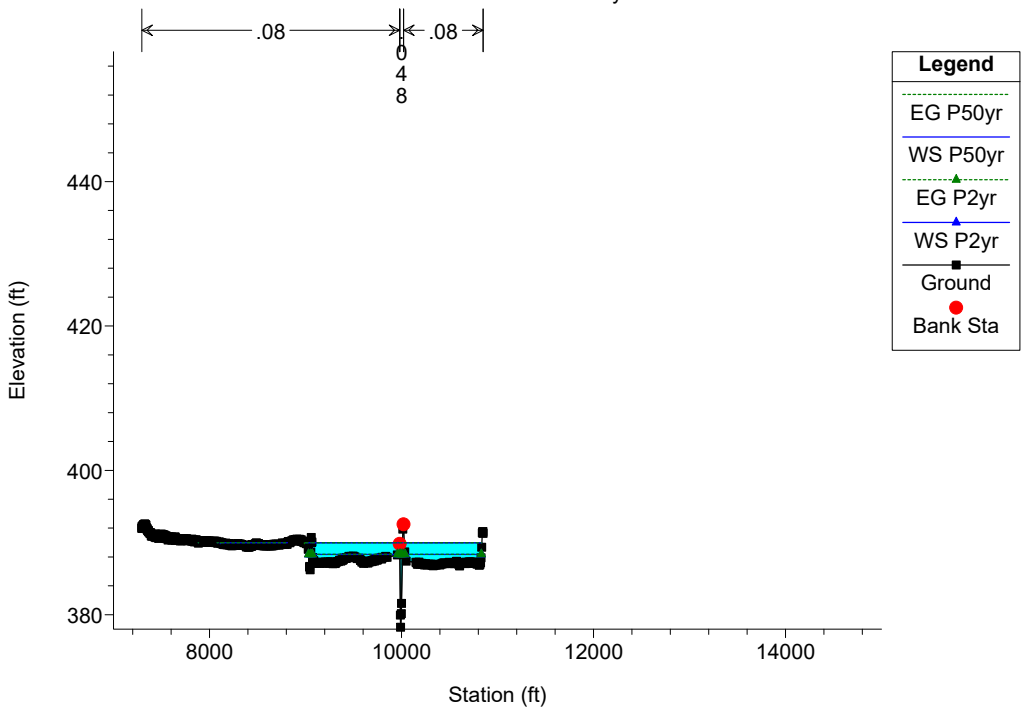
NF_Canoe Plan: Canpr3 9/9/2019
RS = 26291.9 Downstream/south of Hwy 60 and east of RR



NF_Canoe Plan: Canpr3 9/9/2019
RS = 24550.6 Downstream/south of Hwy 60 and east of RR



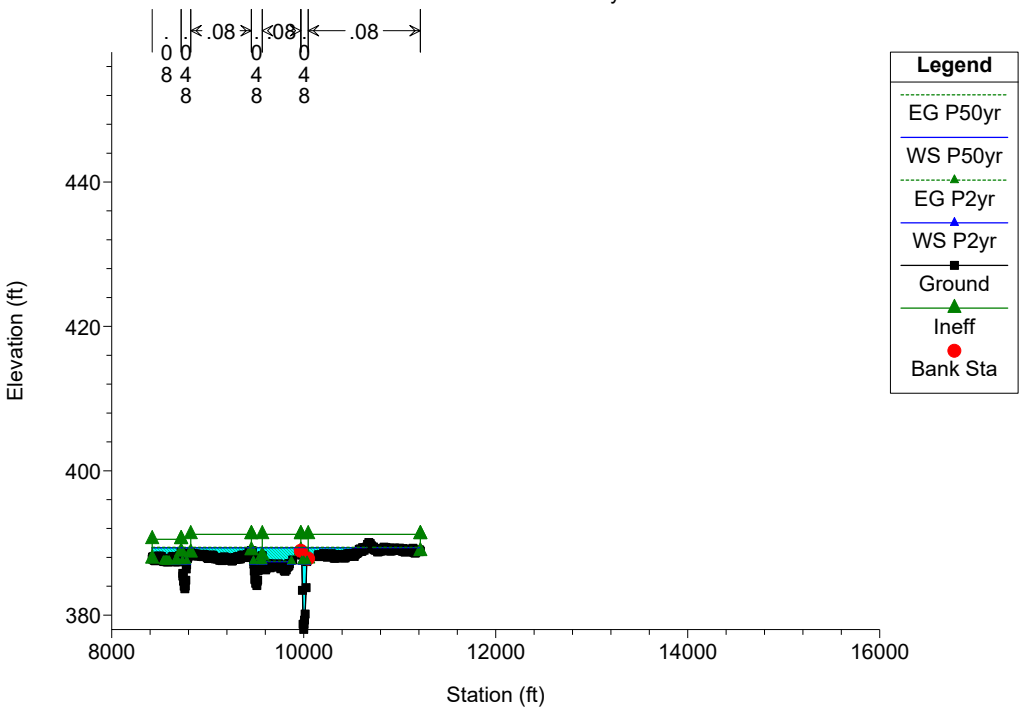
NF_Canoe Plan: Canpr3 9/9/2019
RS = 23120 Downstream/south of Hwy 60 and east of RR



1 in Horiz. = 2000 ft 1 in Vert. = 26.60017 ft

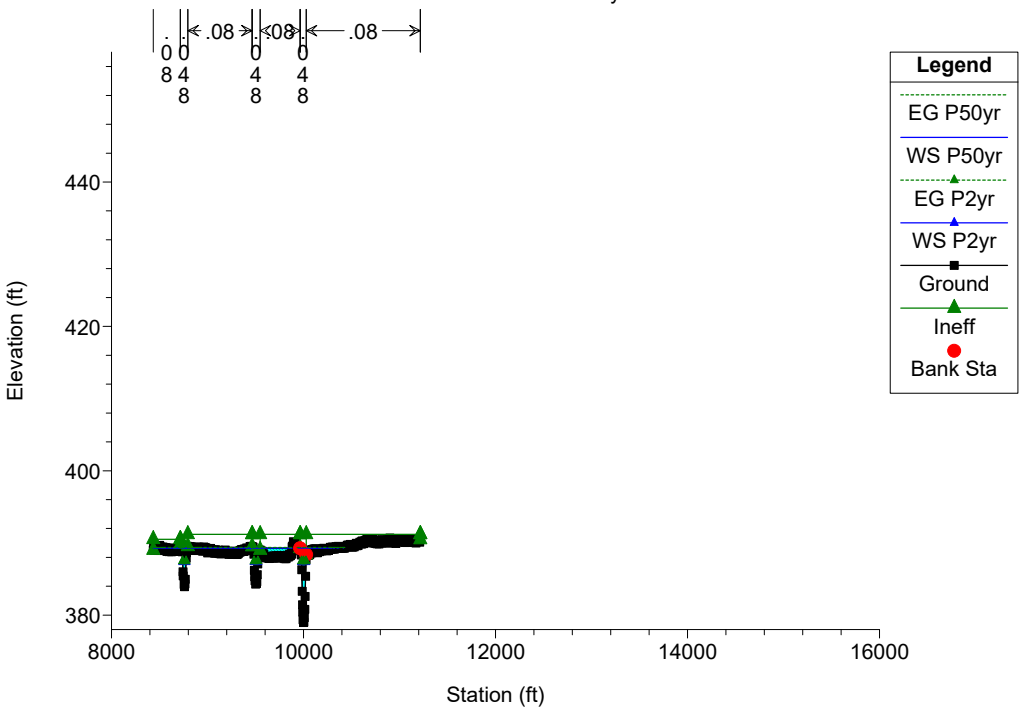
NF_Canoe Plan: Canpr3 9/9/2019

RS = 21768 Downstream/south of Hwy 60 and east of RR



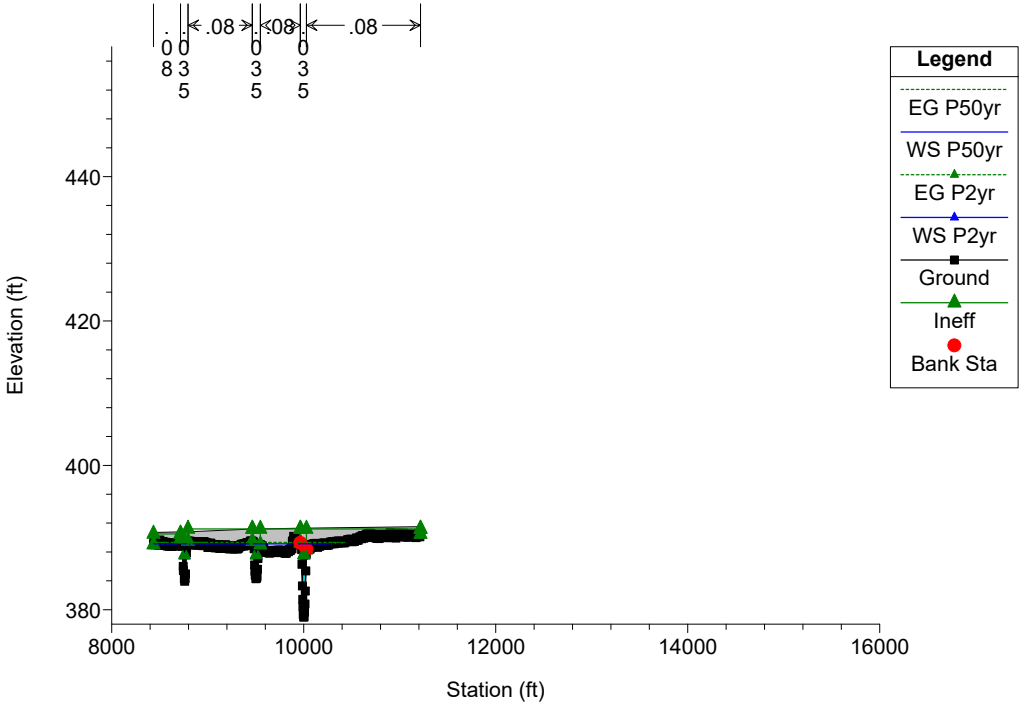
NF_Canoe Plan: Canpr3 9/9/2019

RS = 21745 Downstream/south of Hwy 60 and east of RR



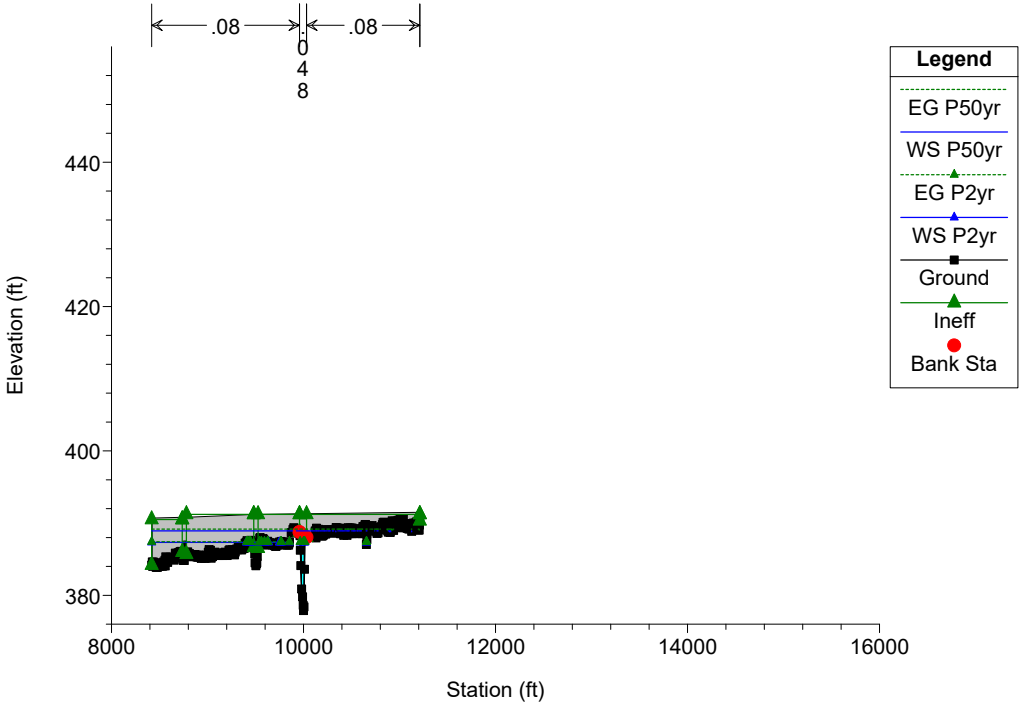
NF_Canoe Plan: Canpr3 9/9/2019

RS = 21735 MO



NF_Canoe Plan: Canpr3 9/9/2019

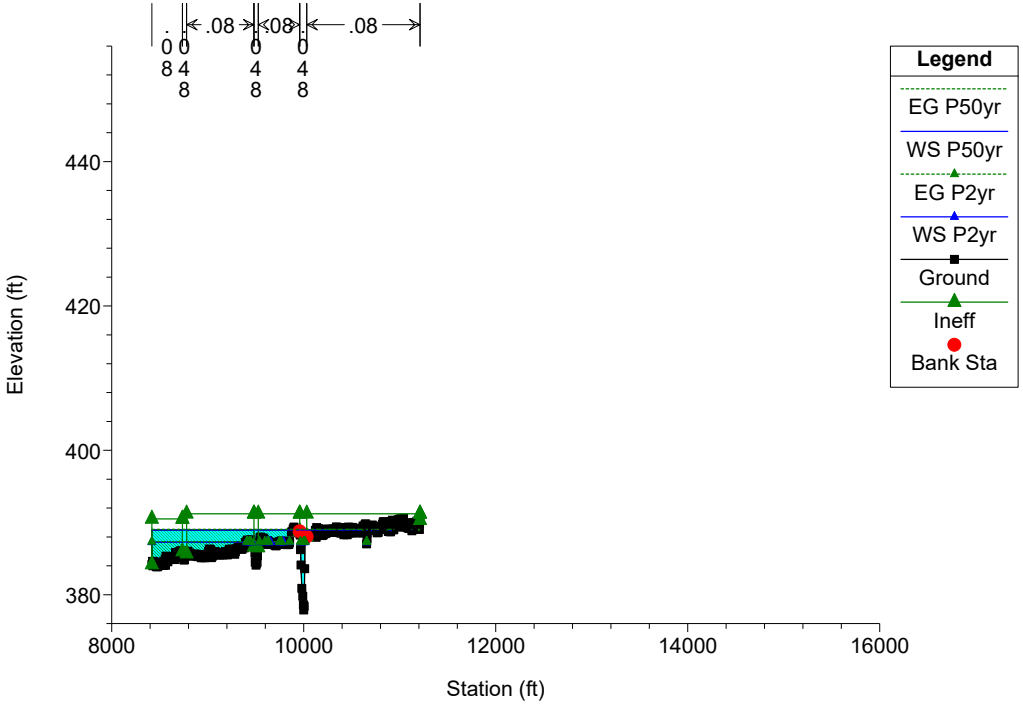
RS = 21735 MO



1 in Horiz. = 2000 ft 1 in Vert. = 26.60017 ft

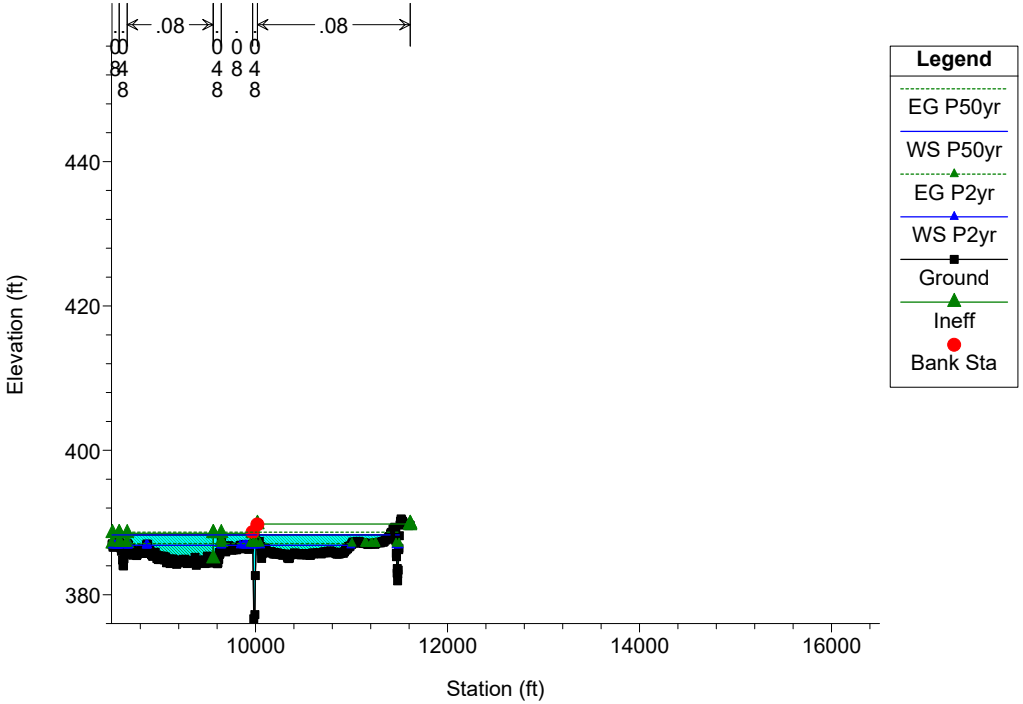
NF_Canoe Plan: Canpr3 9/9/2019

RS = 21712.38 West/downstream of Canoe Creek North Fork/Railroad Crossing and



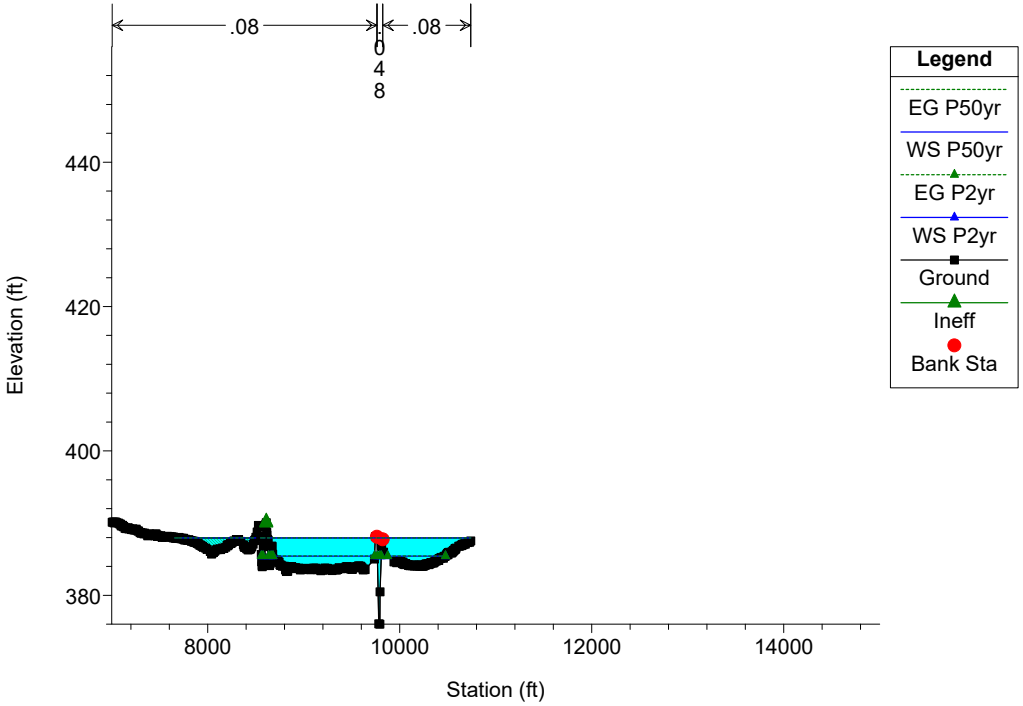
NF_Canoe Plan: Canpr3 9/9/2019

RS = 21591.5 R XS west of Canoe Creek North Form/RR crossing



NF_Canoe Plan: Canpr3 9/9/2019

RS = 19922.4 XS west of Canoe Creek North Form/RR crossing



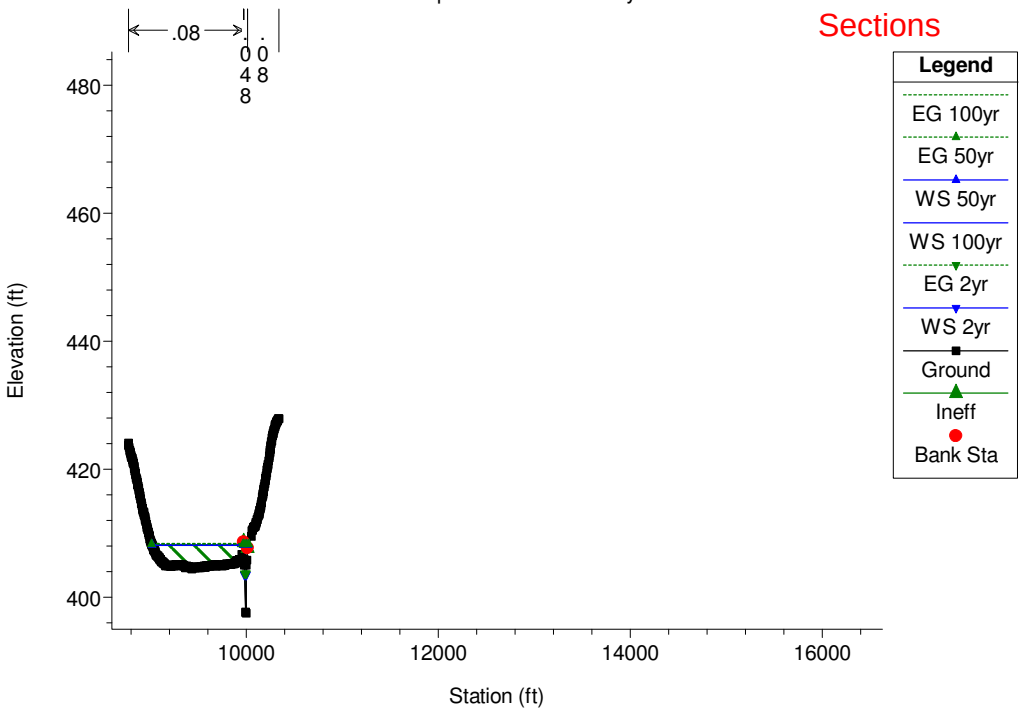
1 in Horiz. = 2000 ft 1 in Vert. = 26.60017 ft

Appendix B-8

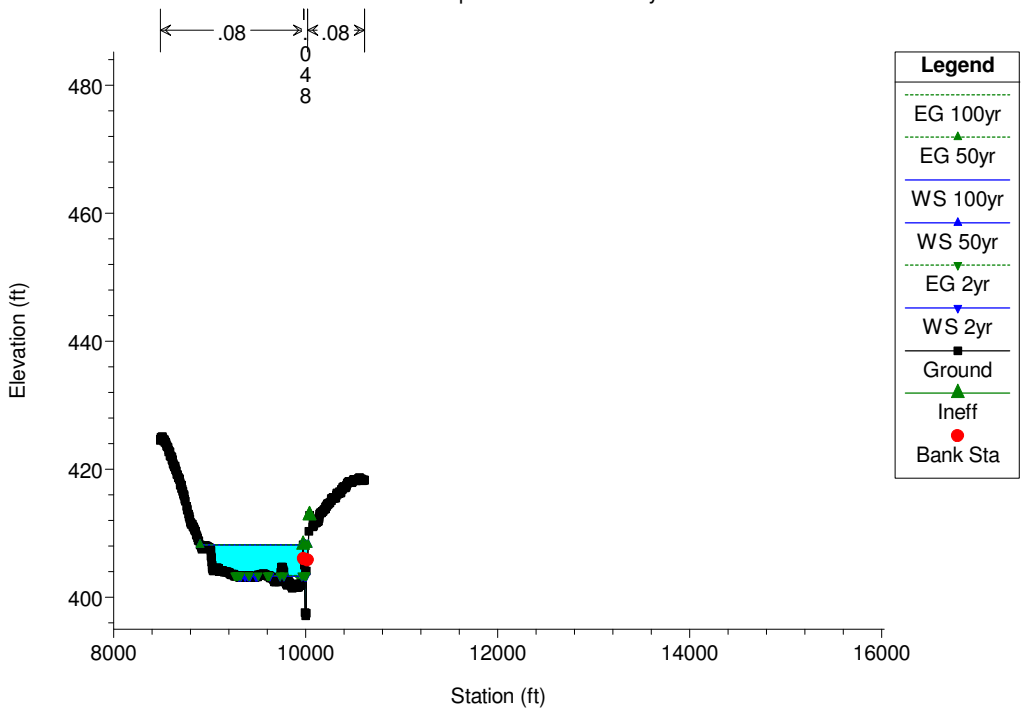
Appendix B-8

Parsons Proposed Detention Condition HECRAS Cross Sections

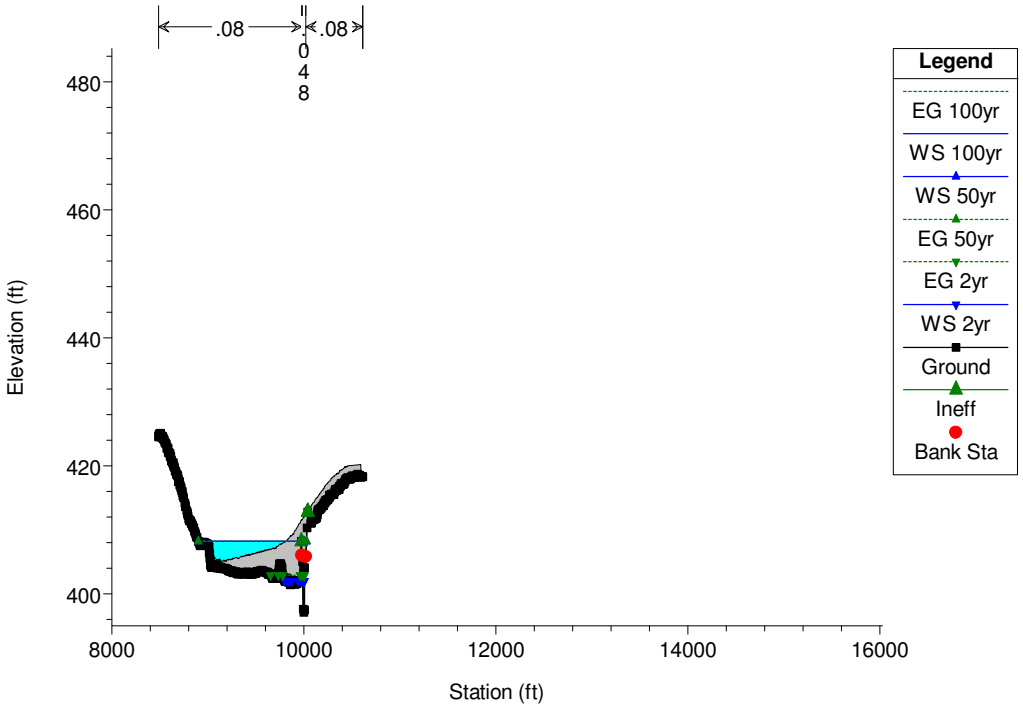
NF_Canoe Plan: Candet3 11/6/2019
RS = 31238.12 XS Upstream/North of Hwy 60 and west of RR



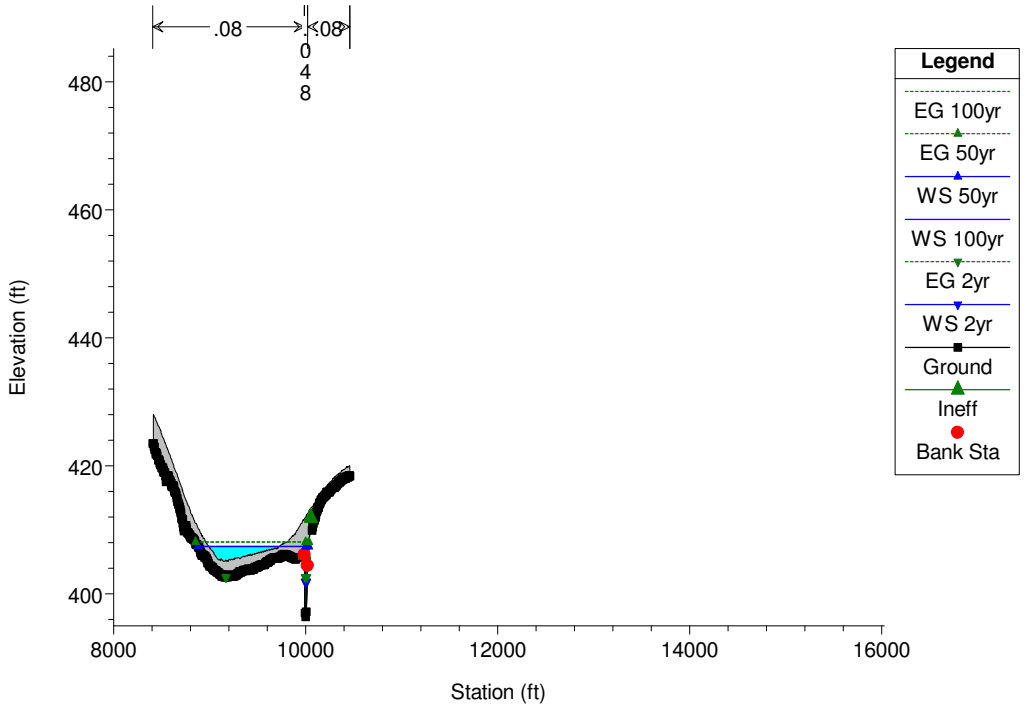
NF_Canoe Plan: Candet3 11/6/2019
RS = 31040.61 XS Just upstream/North of Hwy 60 and west of RR



NF_Canoe Plan: Candet3 11/6/2019
RS = 31001.95 Culv



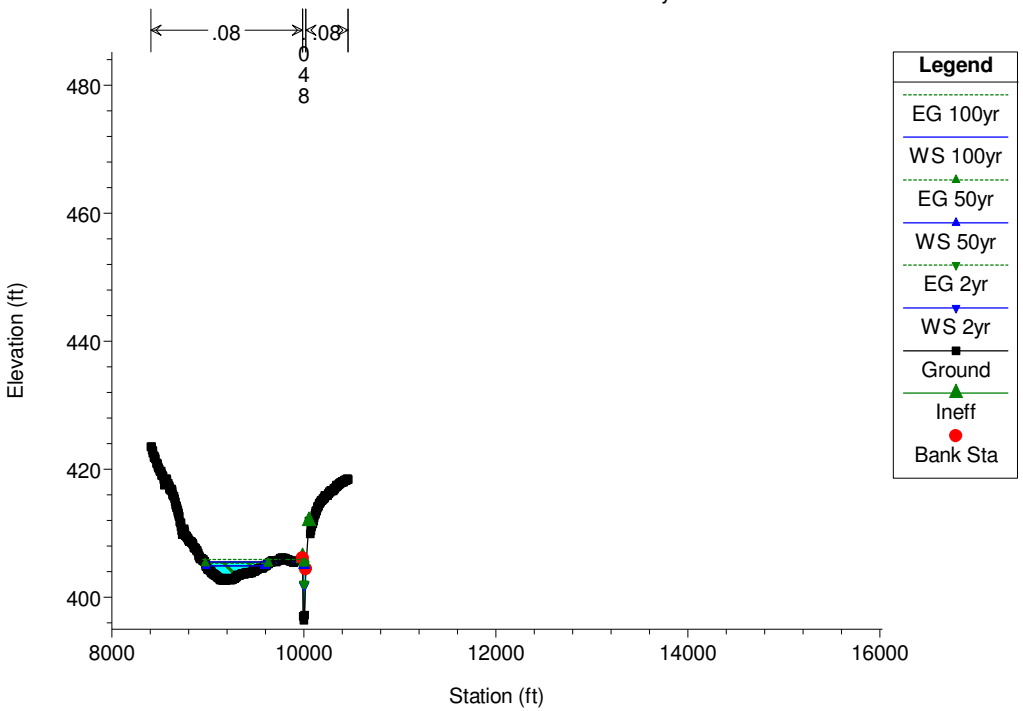
NF_Canoe Plan: Candet3 11/6/2019
RS = 31001.95 Culv



1 in Horiz. = 2000 ft 1 in Vert. = 30 ft

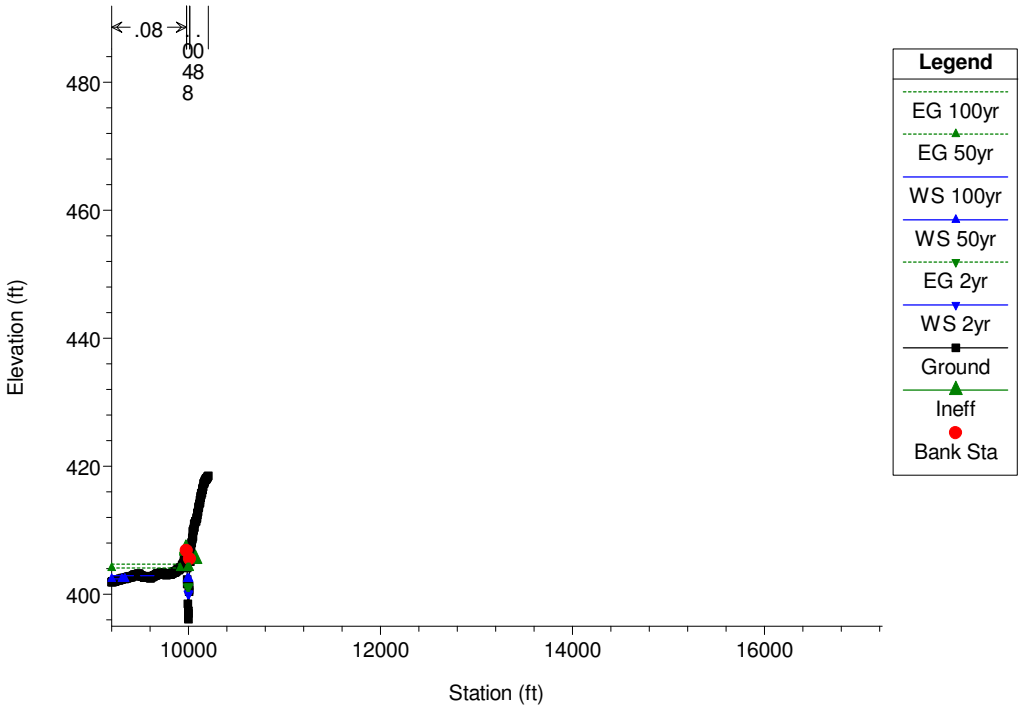
NF_Canoe Plan: Candet3 11/6/2019

RS = 30943.45 XS Just downstream/South of Hwy 60 and west of RR



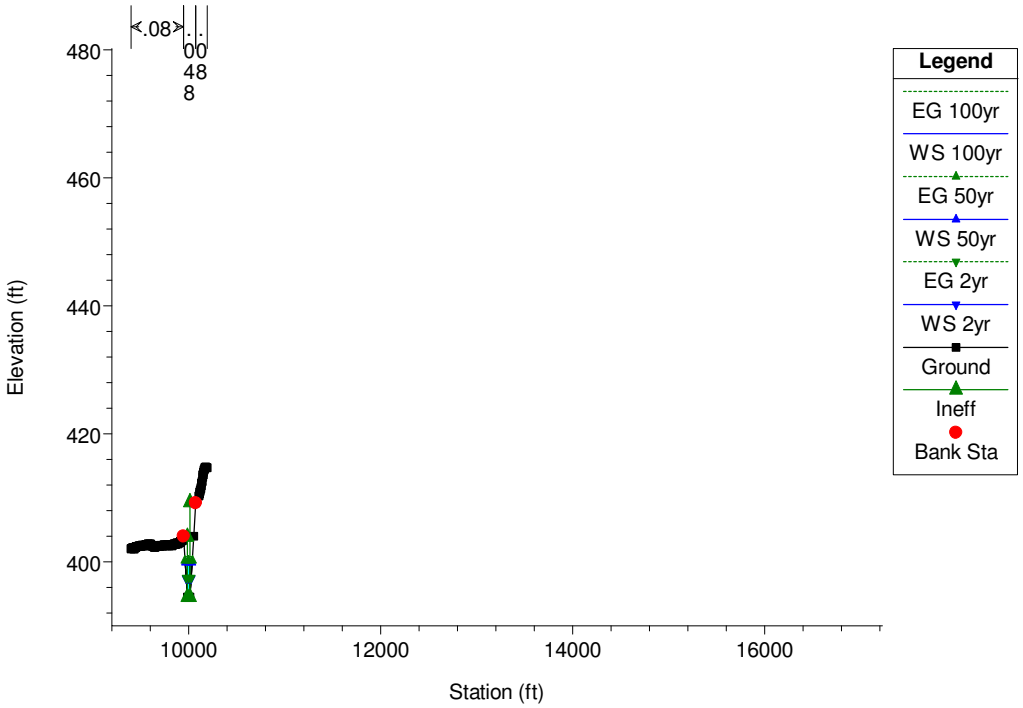
NF_Canoe Plan: Candet3 11/6/2019

RS = 30836.15



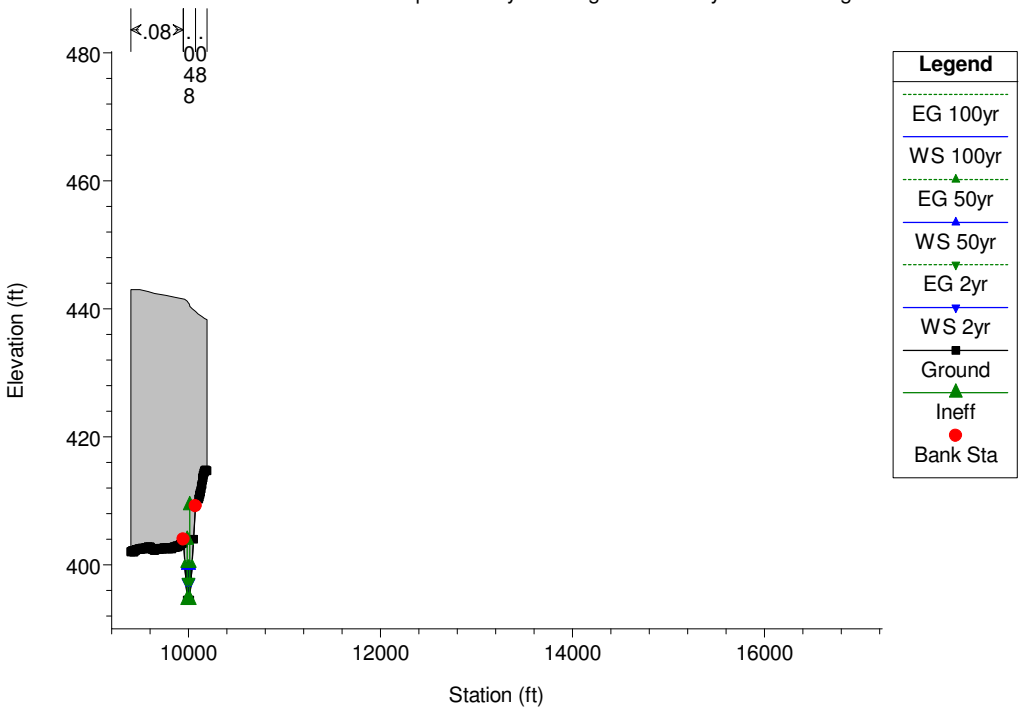
NF_Canoe Plan: Candet3 11/6/2019

RS = 30724.21



NF_Canoe Plan: Candet3 11/6/2019

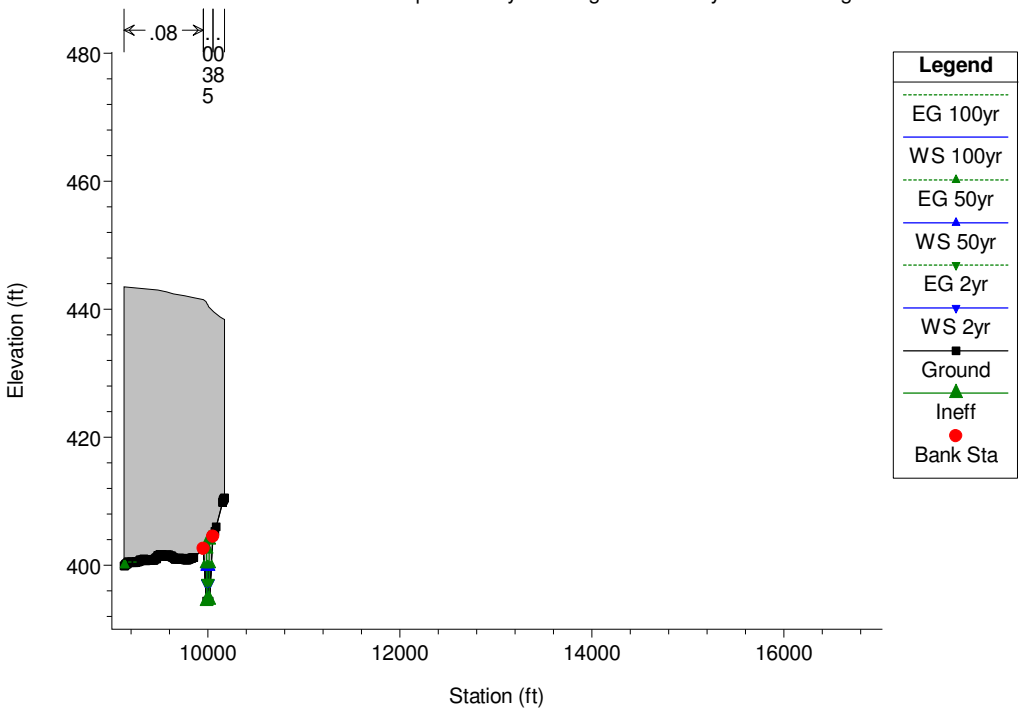
RS = 30524.31 Culv Proposed Hwy 60 Bridge at I-60/Hwy 60 Interchange



1 in Horiz. = 2000 ft 1 in Vert. = 30 ft

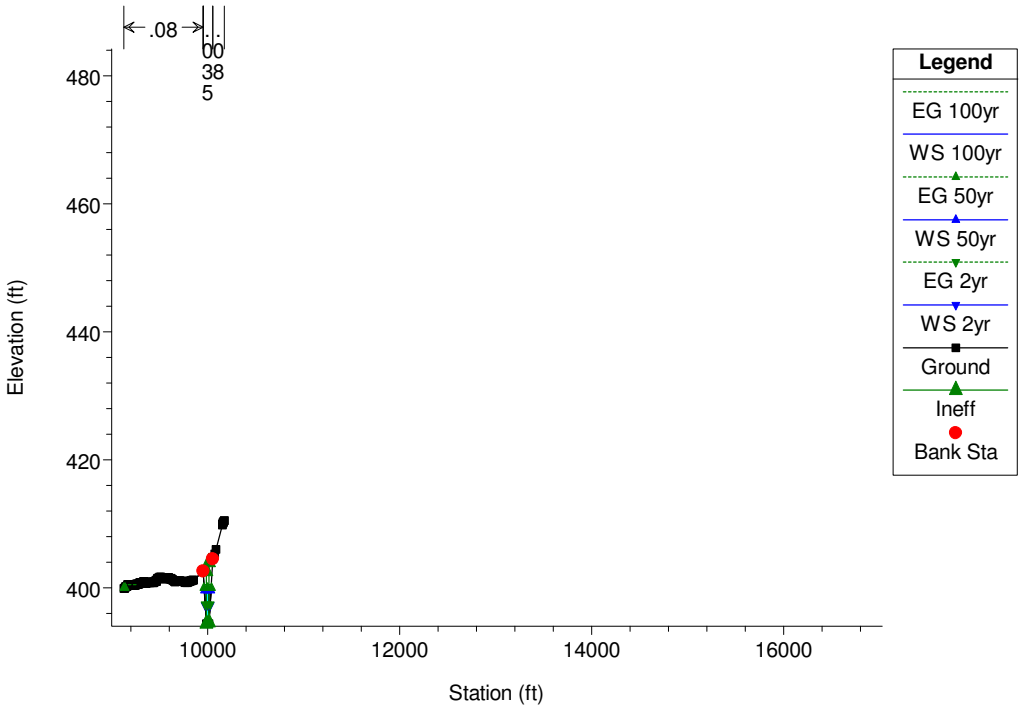
NF_Canoe Plan: Candet3 11/6/2019

RS = 30524.31 Culv Proposed Hwy 60 Bridge at I-60/Hwy 60 Interchange



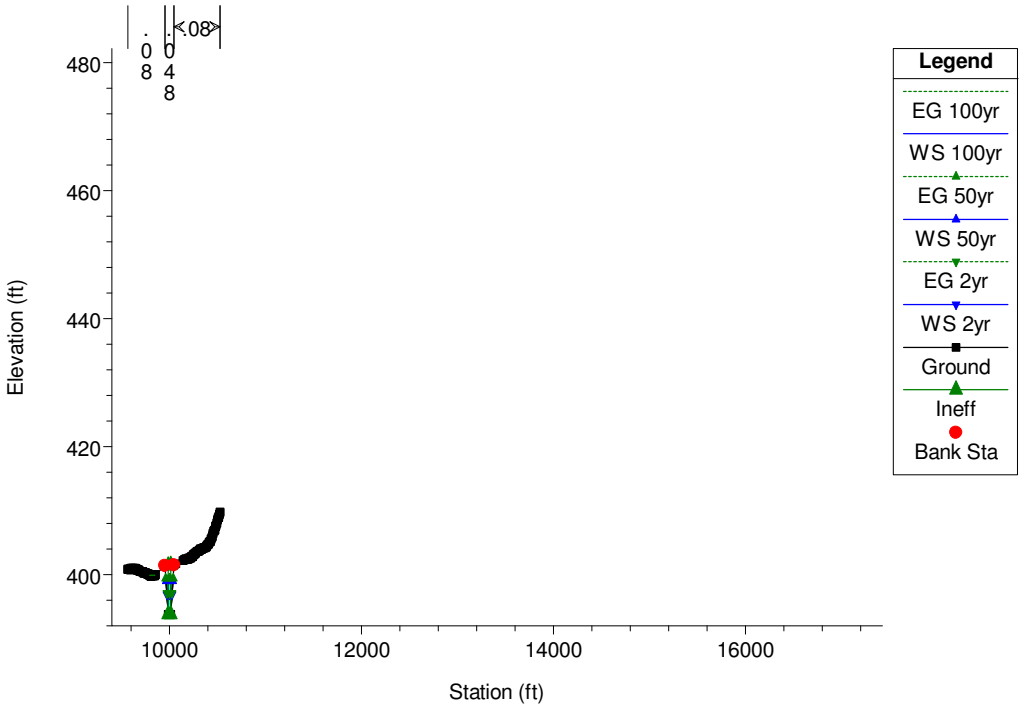
NF_Canoe Plan: Candet3 11/6/2019

RS = 30371



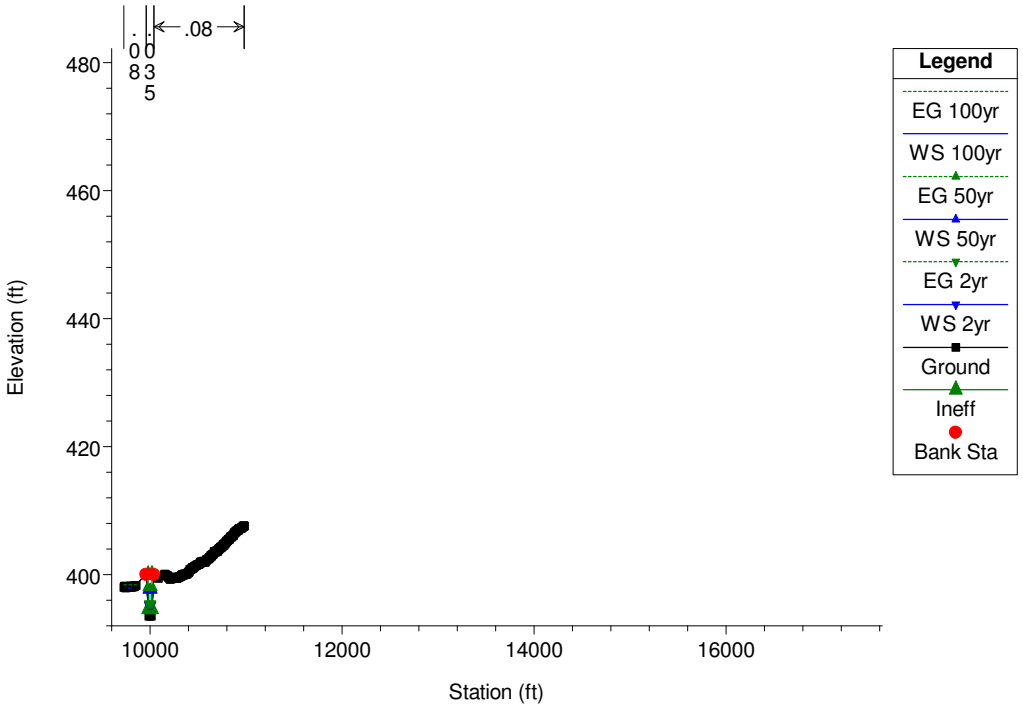
NF_Canoe Plan: Candet3 11/6/2019

RS = 30106.17



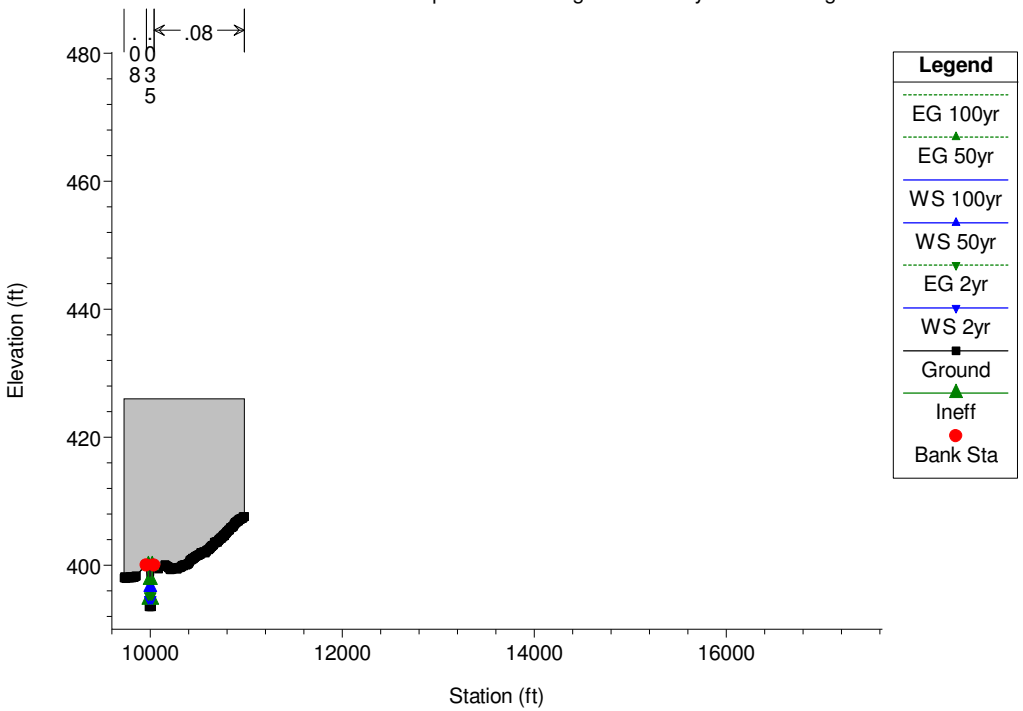
NF_Canoe Plan: Candet3 11/6/2019

RS = 29531.08

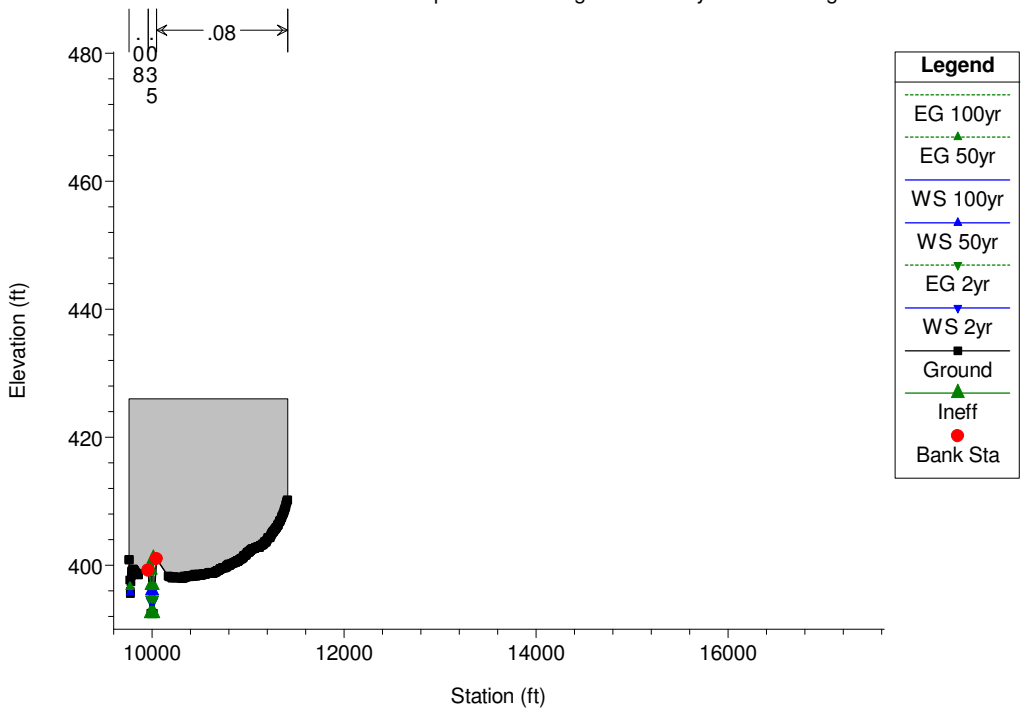


1 in Horiz. = 2000 ft 1 in Vert. = 30 ft

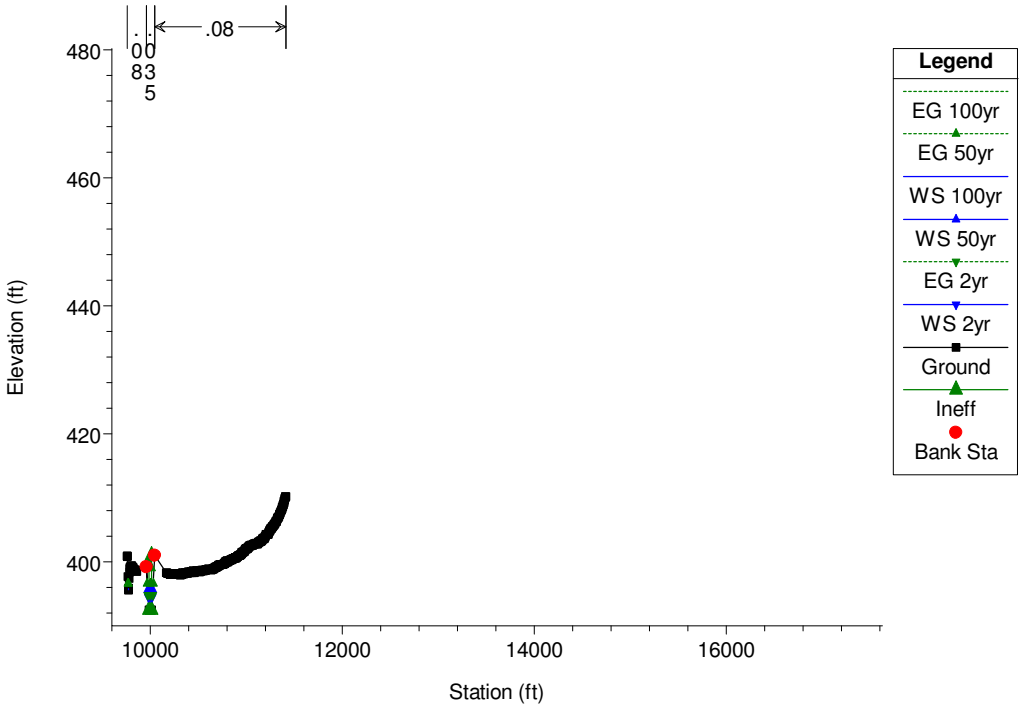
NF_Canoe Plan: Candet3 11/6/2019
RS = 29191.02 Culv Proposed I-69 Bridge at I-69/Hwy 60 Interchange



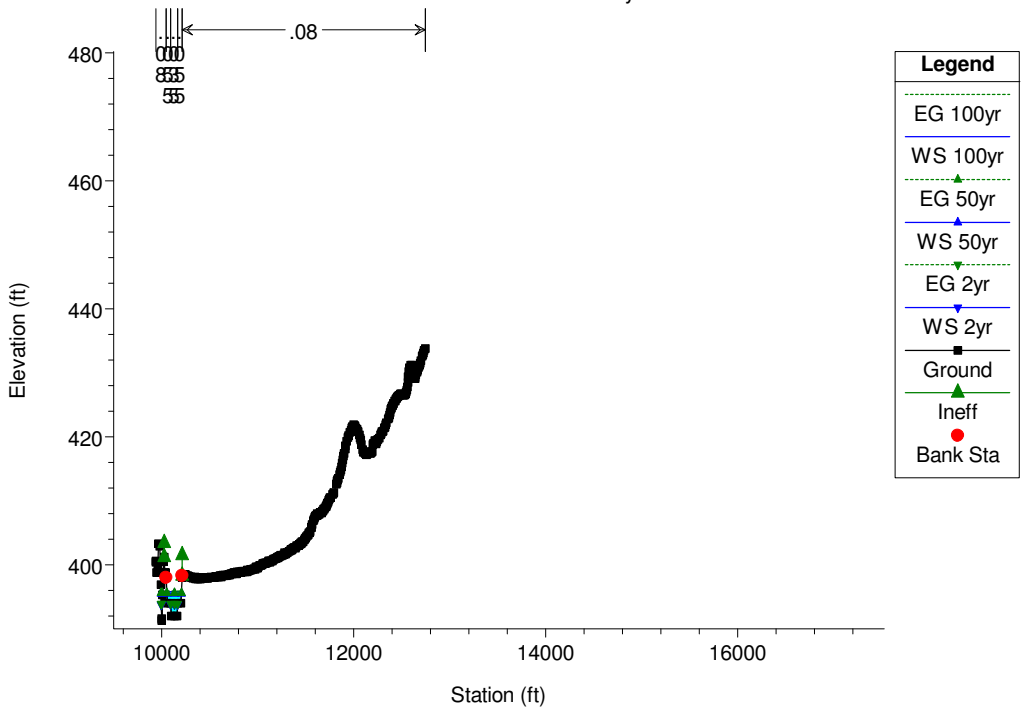
NF_Canoe Plan: Candet3 11/6/2019
RS = 29191.02 Culv Proposed I-69 Bridge at I-69/Hwy 60 Interchange



NF_Canoe Plan: Candet3 11/6/2019
RS = 28940.41

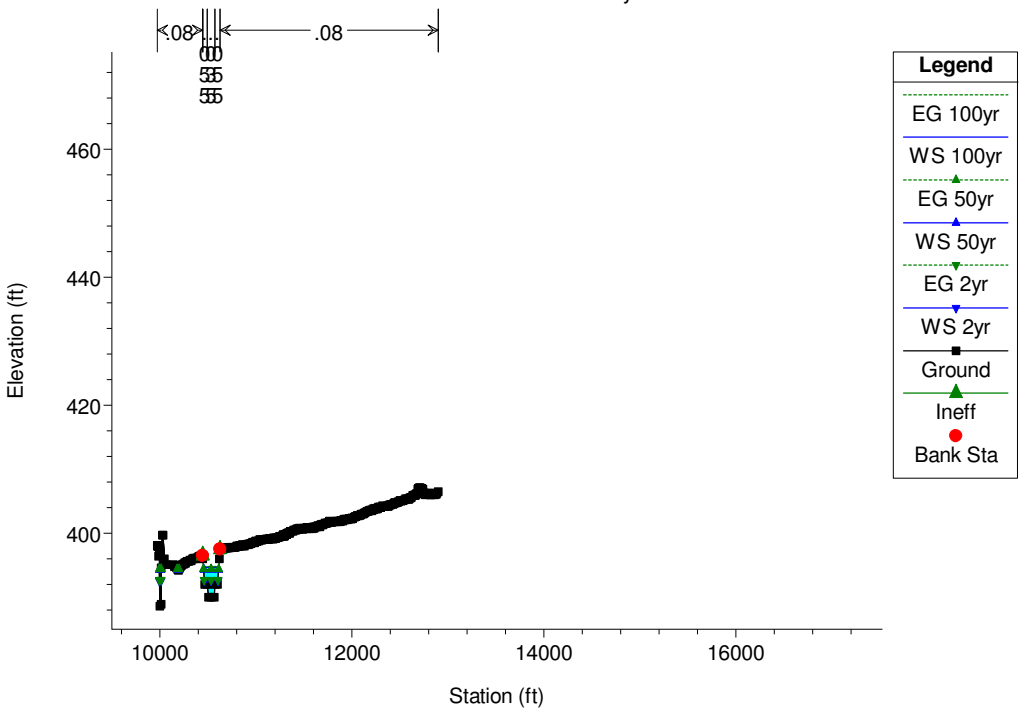


NF_Canoe Plan: Candet3 11/6/2019
RS = 28532 XS downstream/south of Hwy 60 and west of RR

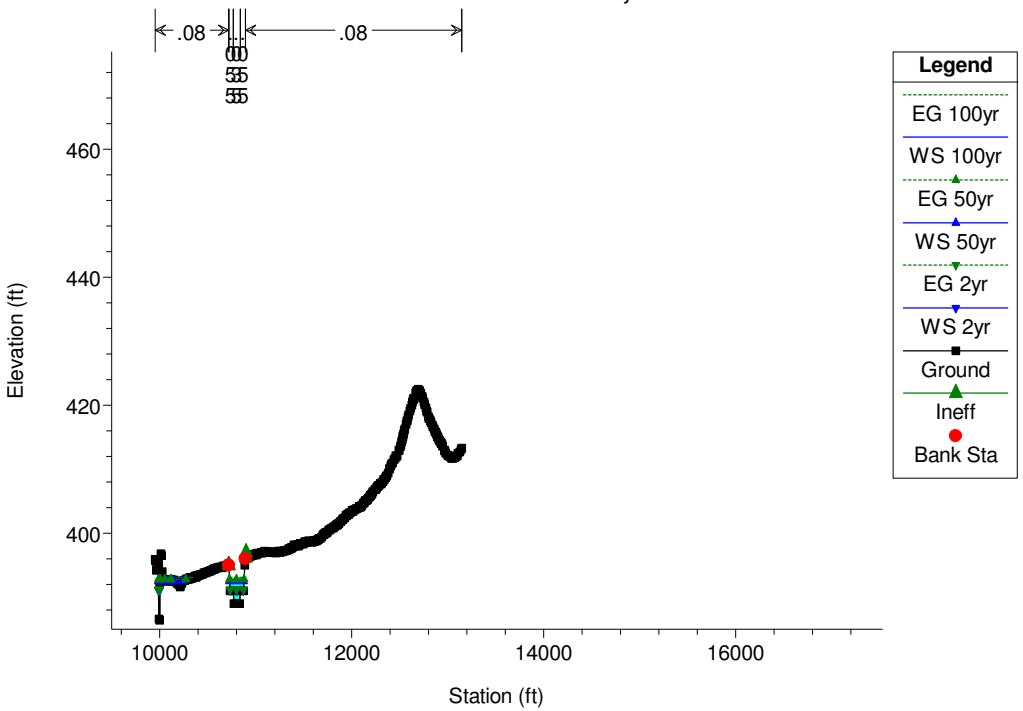


1 in Horiz. = 2000 ft 1 in Vert. = 30 ft

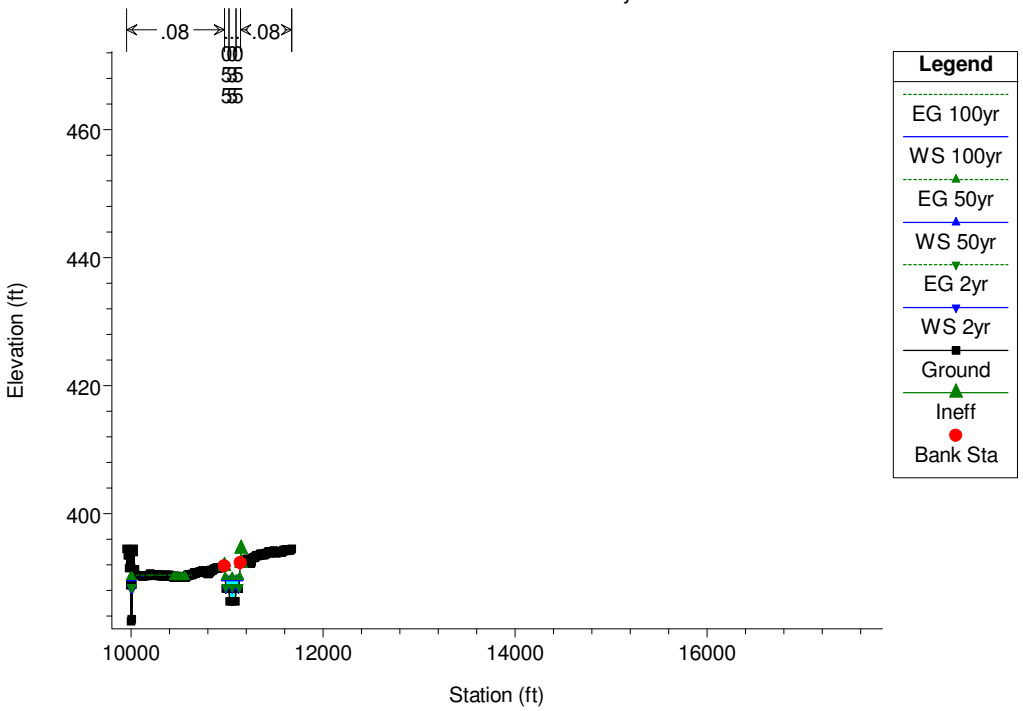
NF_Canoe Plan: Candet3 11/6/2019
RS = 27158 XS downstream/south of Hwy 60 and west of RR



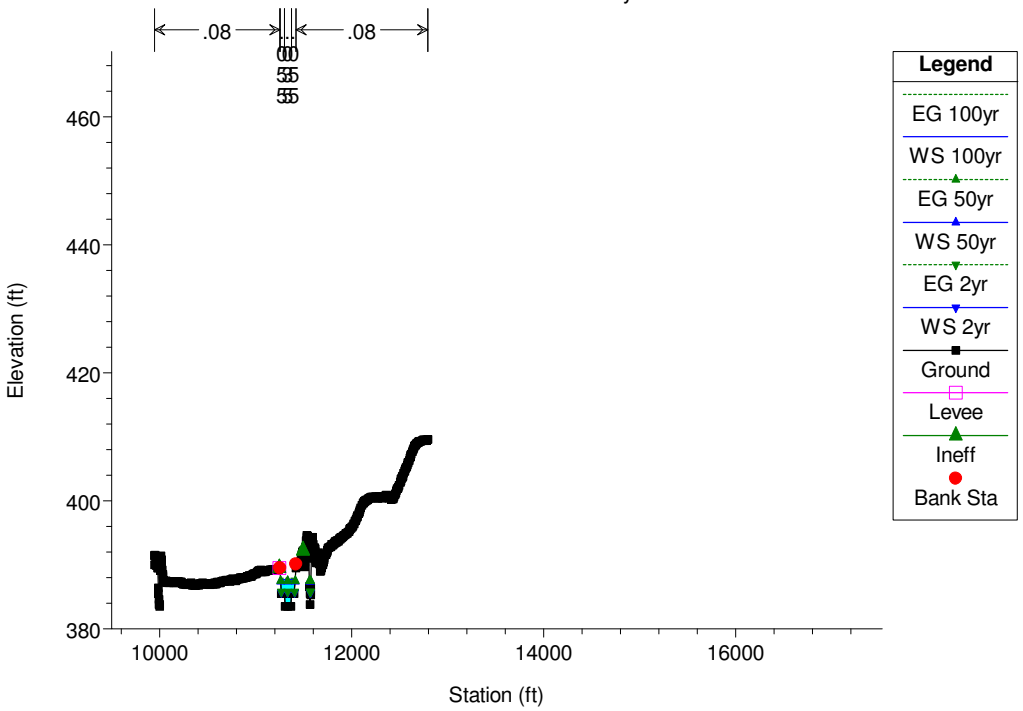
NF_Canoe Plan: Candet3 11/6/2019
RS = 25956 XS downstream/south of Hwy 60 and west of RR



NF_Canoe Plan: Candet3 11/6/2019
RS = 24827 XS downstream/south of Hwy 60 and west of RR



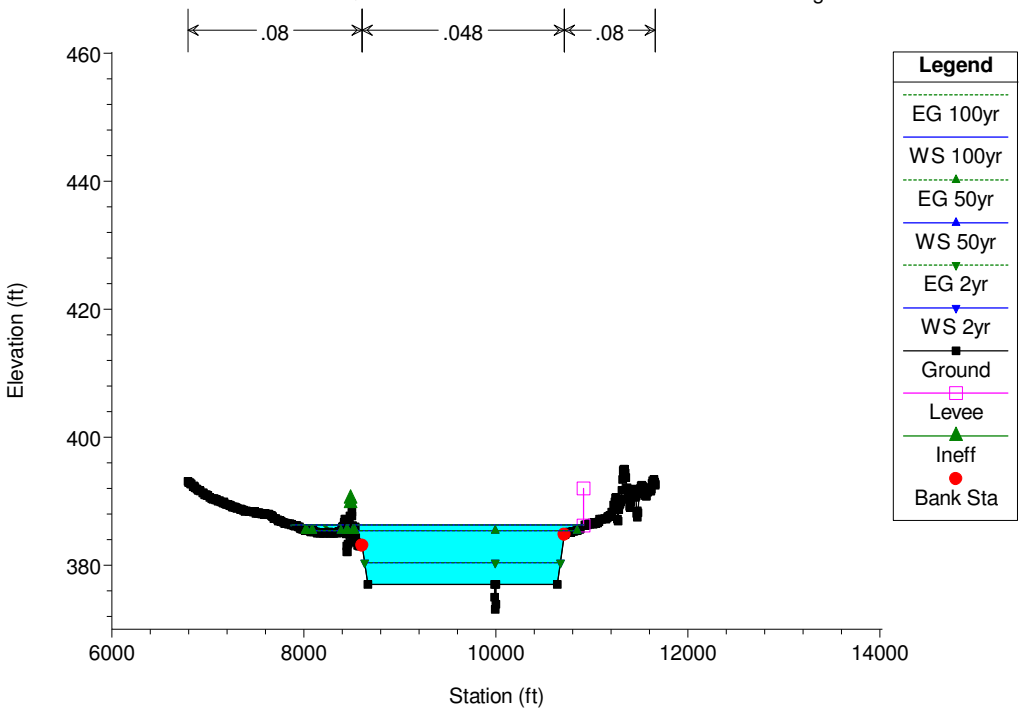
NF_Canoe Plan: Candet3 11/6/2019
RS = 23524 XS downstream/south of Hwy 60 and west of RR



1 in Horiz. = 2000 ft 1 in Vert. = 30 ft

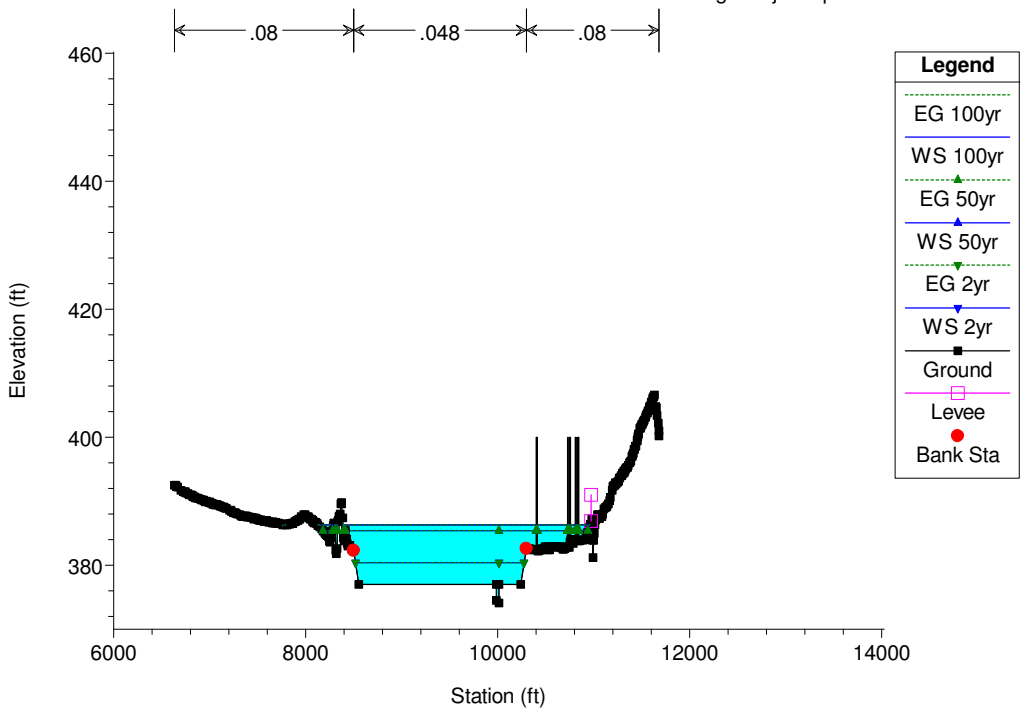
NF_Canoe Plan: Candet3 11/6/2019

RS = 18470. Q XS west of Canoe Creek North Form/RR crossing



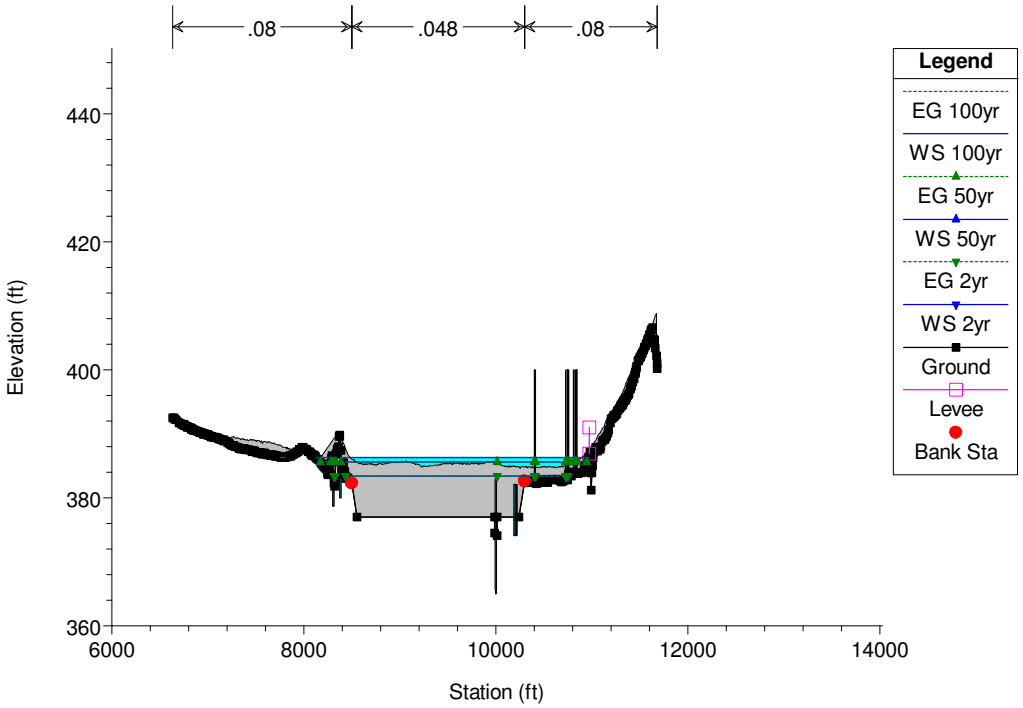
NF_Canoe Plan: Candet3 11/6/2019

RS = 17729 XS west of Canoe Creek North Form/RR crossing and just upstream/



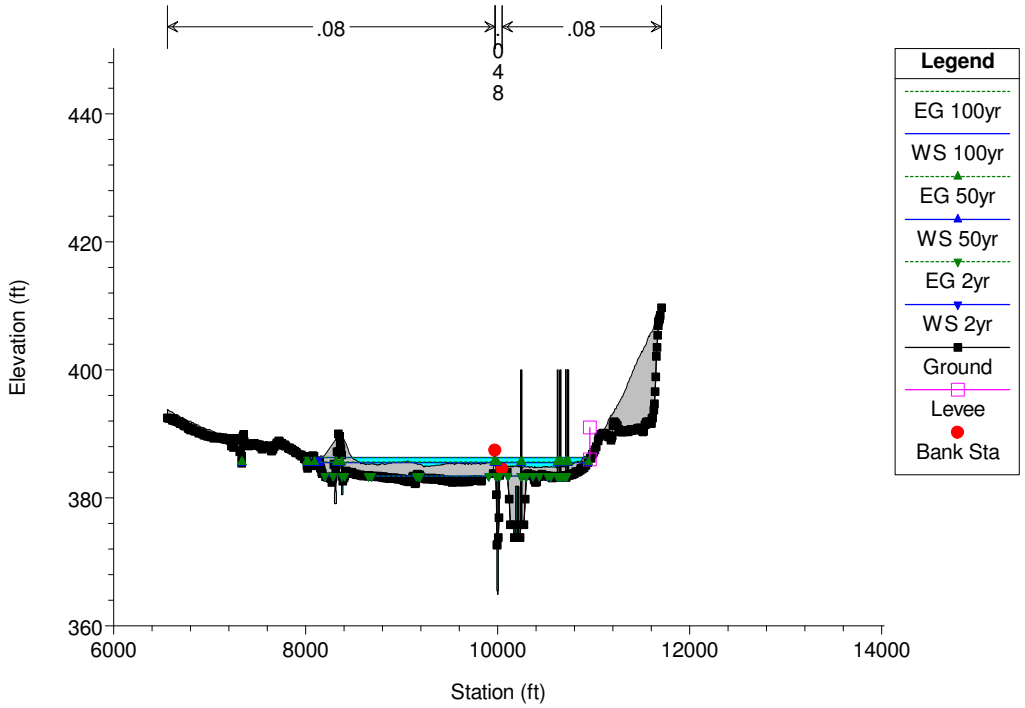
NF_Canoe Plan: Candet3 11/6/2019

RS = 17622 MO



NF_Canoe Plan: Candet3 11/6/2019

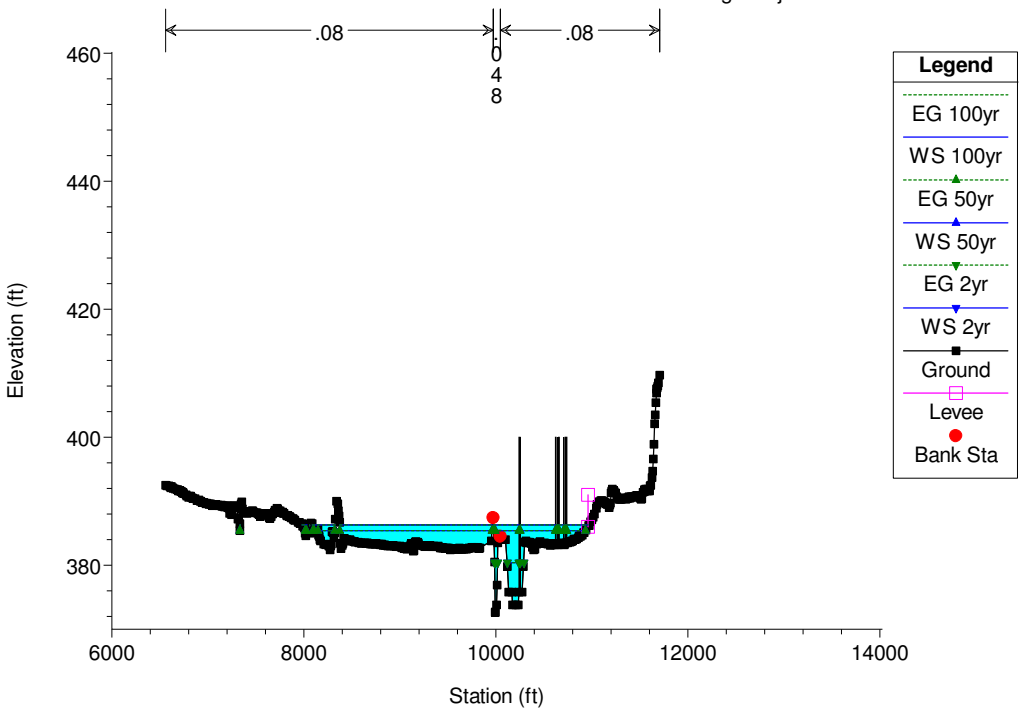
RS = 17622 MO



1 in Horiz. = 2000 ft 1 in Vert. = 30 ft

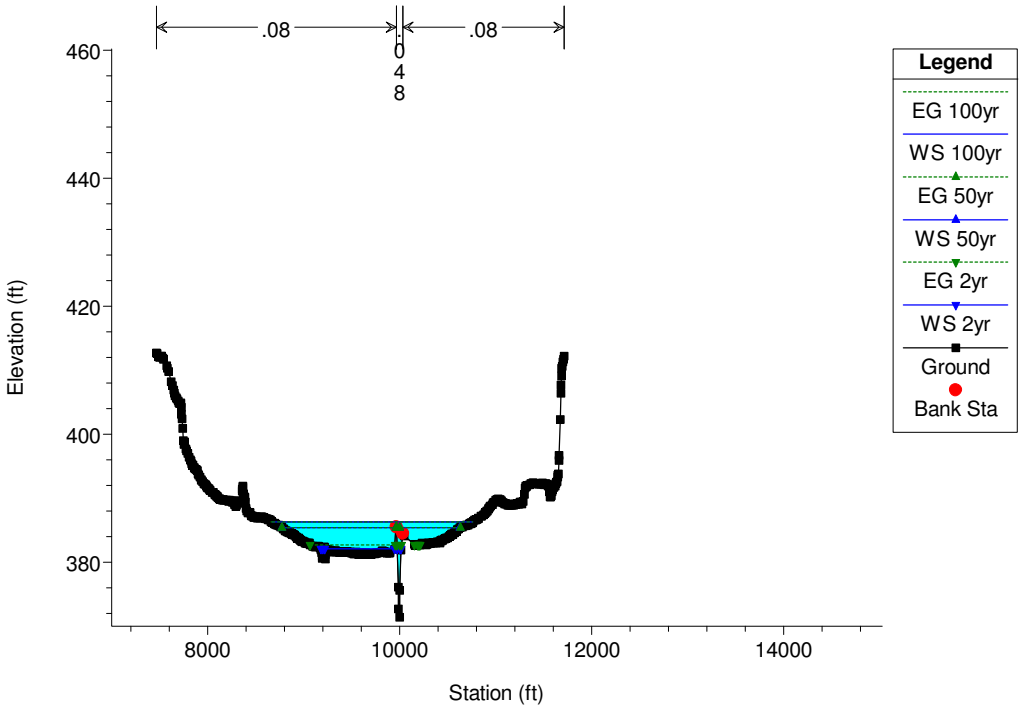
NF_Canoe Plan: Candet3 11/6/2019

RS = 17534.5 XS west of Canoe Creek North Form/RR crossing and just downstrea



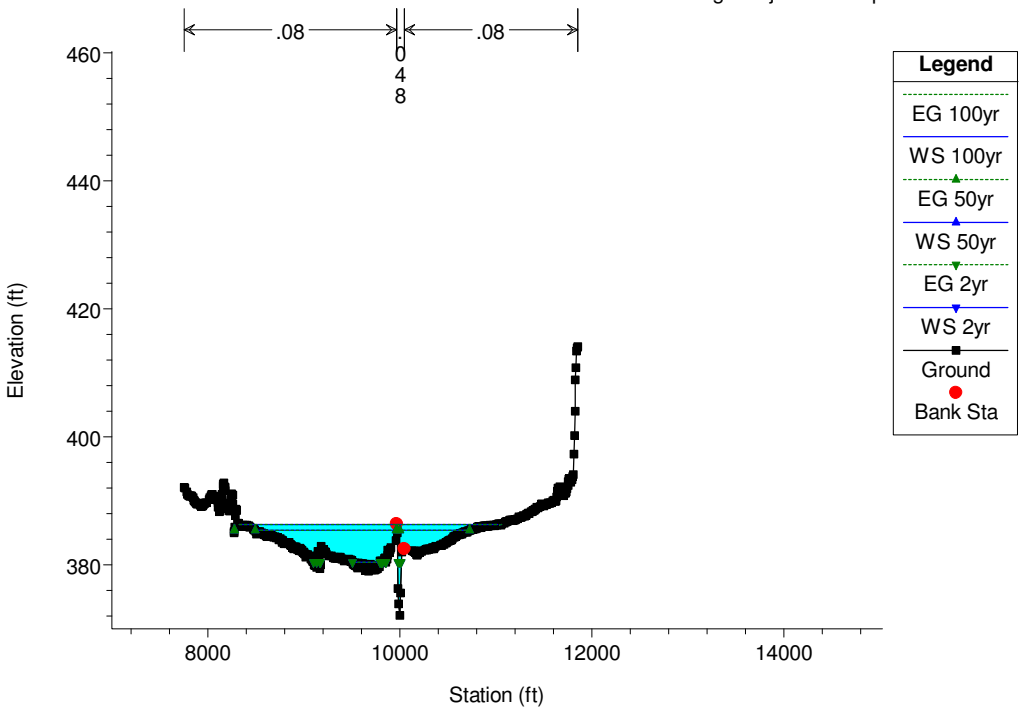
NF_Canoe Plan: Candet3 11/6/2019

RS = 16904.1 P XS west of Canoe Creek North Form/RR crossing and between Kimsey



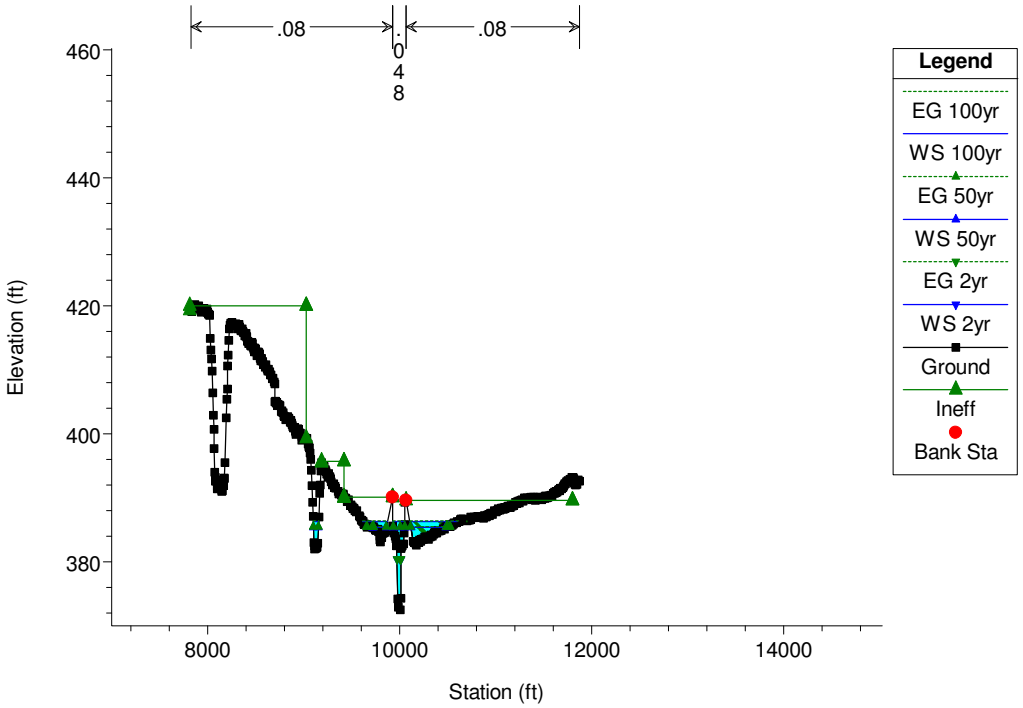
NF_Canoe Plan: Candet3 11/6/2019

RS = 16397 XS west of Canoe Creek North Fork/RR crossing and just north/ups



NF_Canoe Plan: Candet3 11/6/2019

RS = 16326.84 XS west of Canoe Creek North Fork/RR crossing and just north/ups

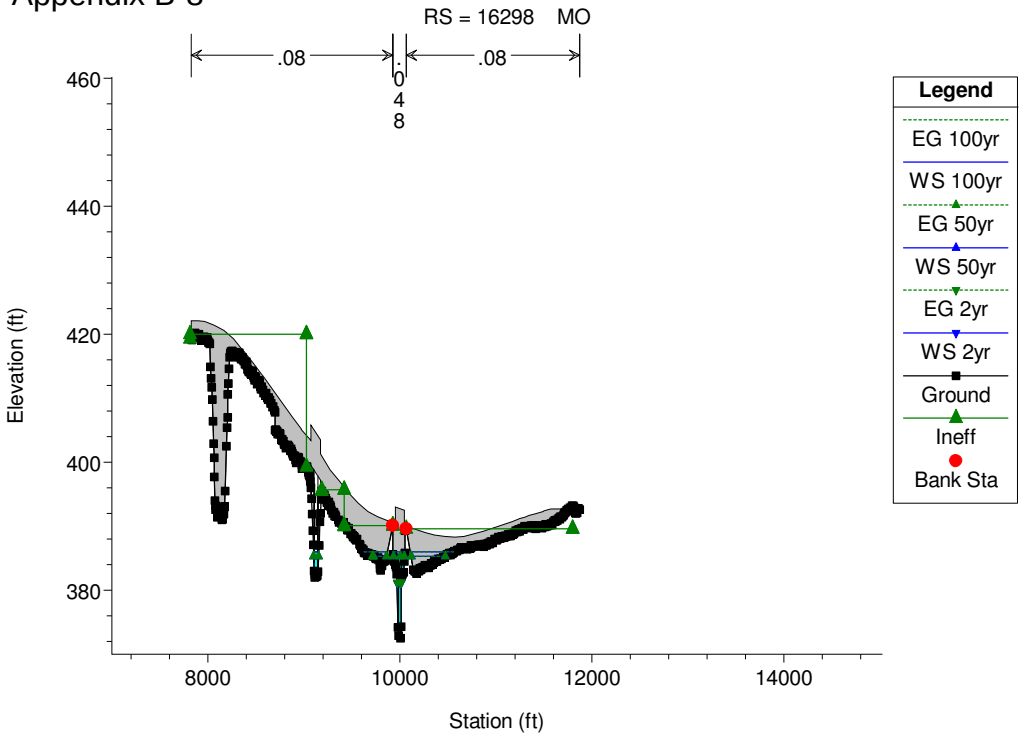


1 in Horiz. = 2000 ft 1 in Vert. = 30 ft

Appendix B-8

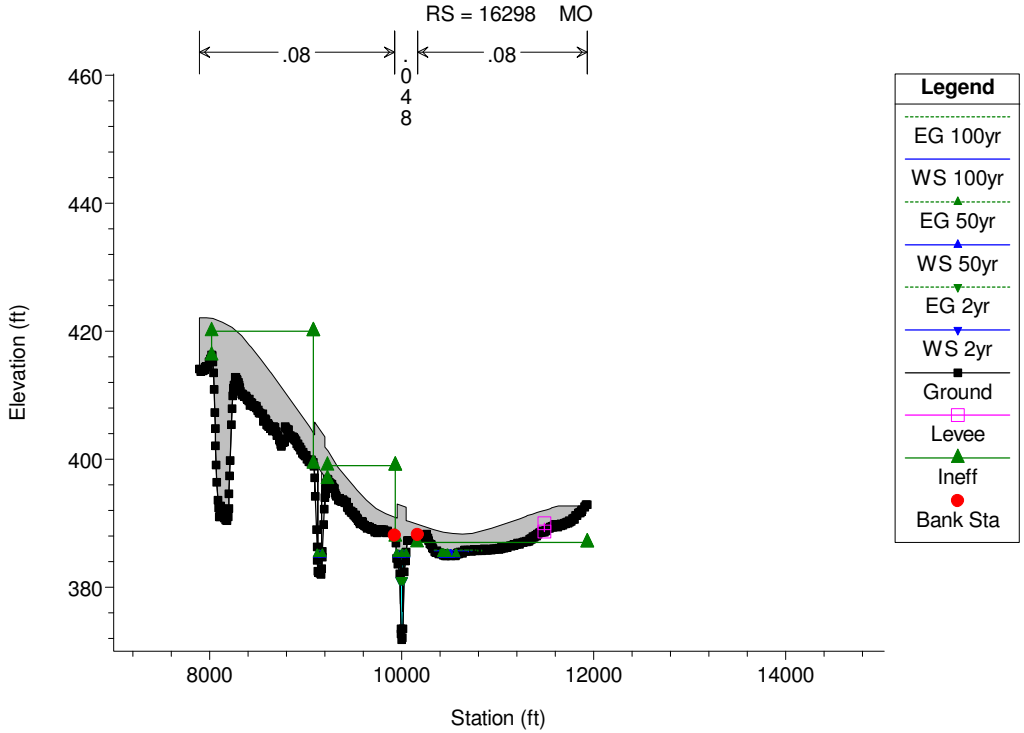
NF_Canoe Plan: Candet3 11/6/2019

RS = 16298 MO



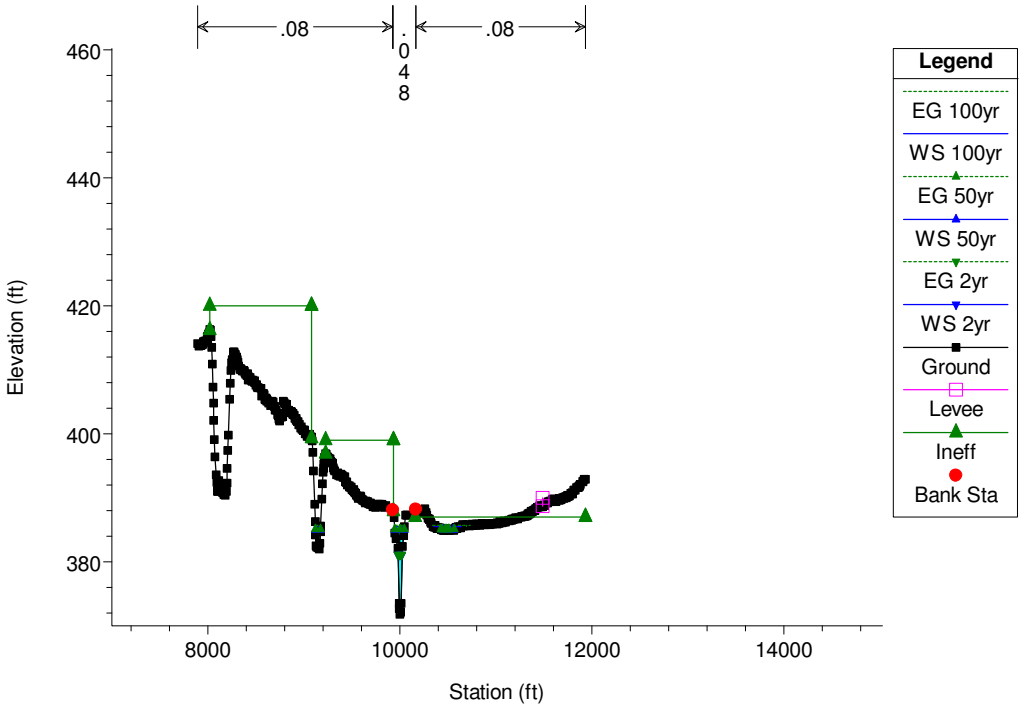
NF_Canoe Plan: Candet3 11/6/2019

RS = 16298 MO



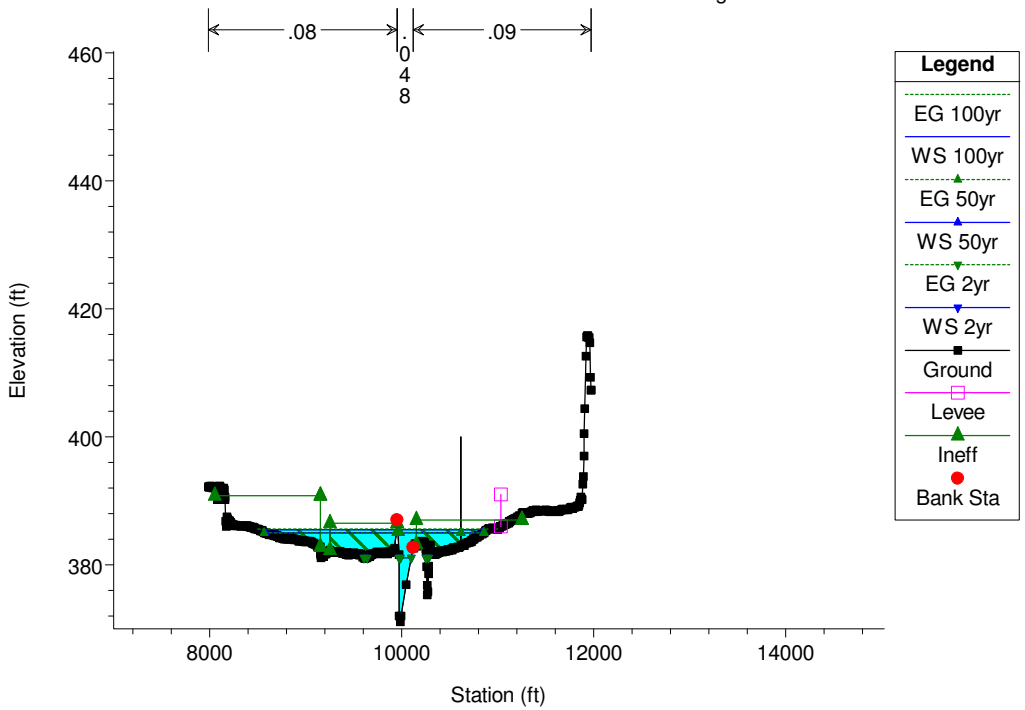
NF_Canoe Plan: Candet3 11/6/2019

RS = 16177.27 XS west of Canoe Creek North Fork/RR crossing and just south/dow



NF_Canoe Plan: Candet3 11/6/2019

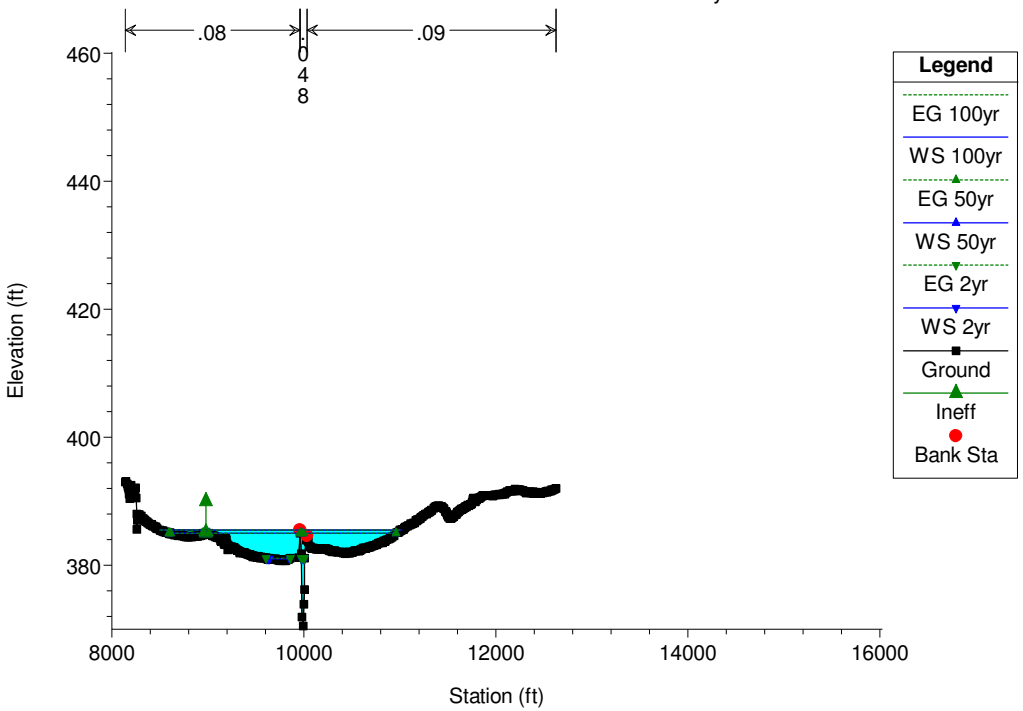
RS = 16087.8 XS west of Canoe Creek North Fork/RR crossing and south/downstre



1 in Horiz. = 2000 ft 1 in Vert. = 30 ft

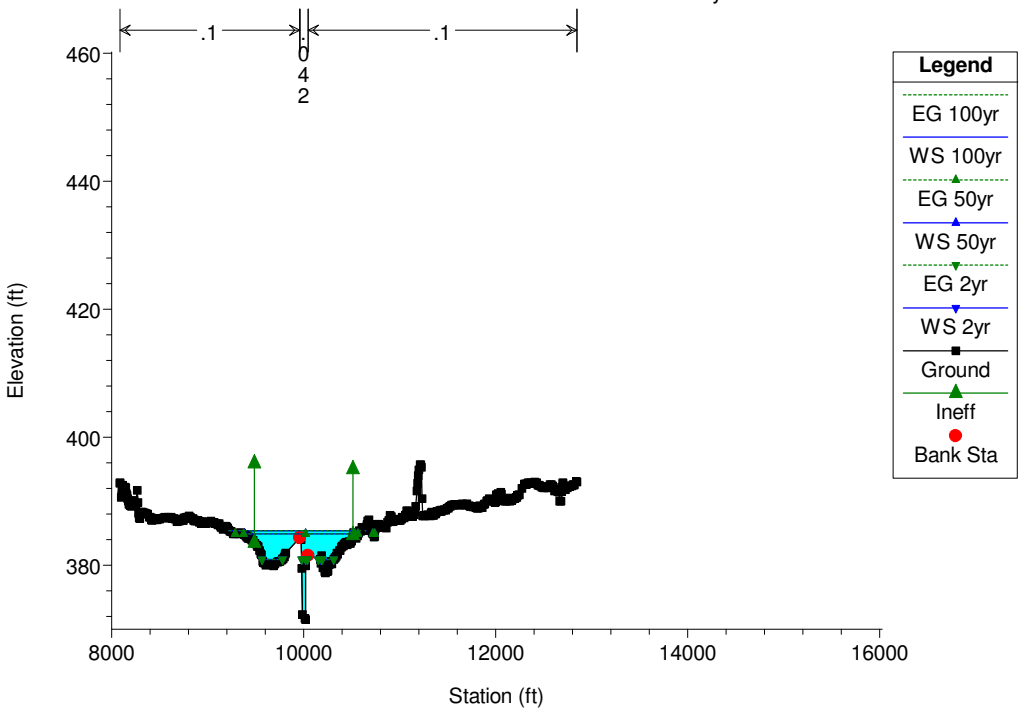
NF_Canoe Plan: Candet3 11/6/2019

RS = 15534.2 O XS south/downstream of Hwy 41



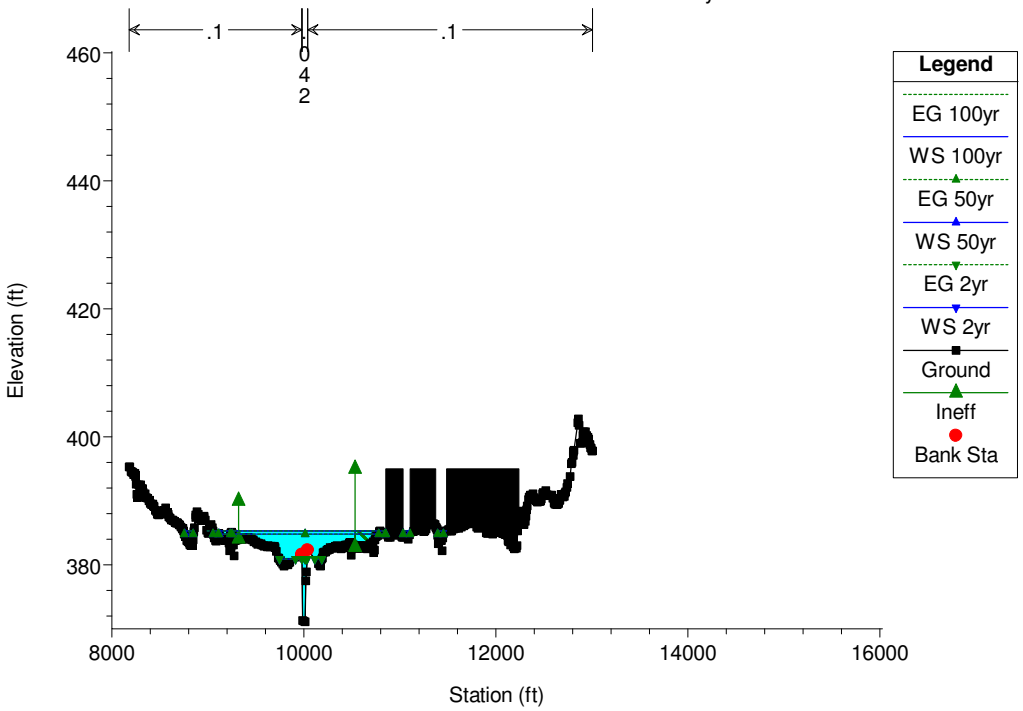
NF_Canoe Plan: Candet3 11/6/2019

RS = 14567.2 N XS south/downstream of Hwy 41



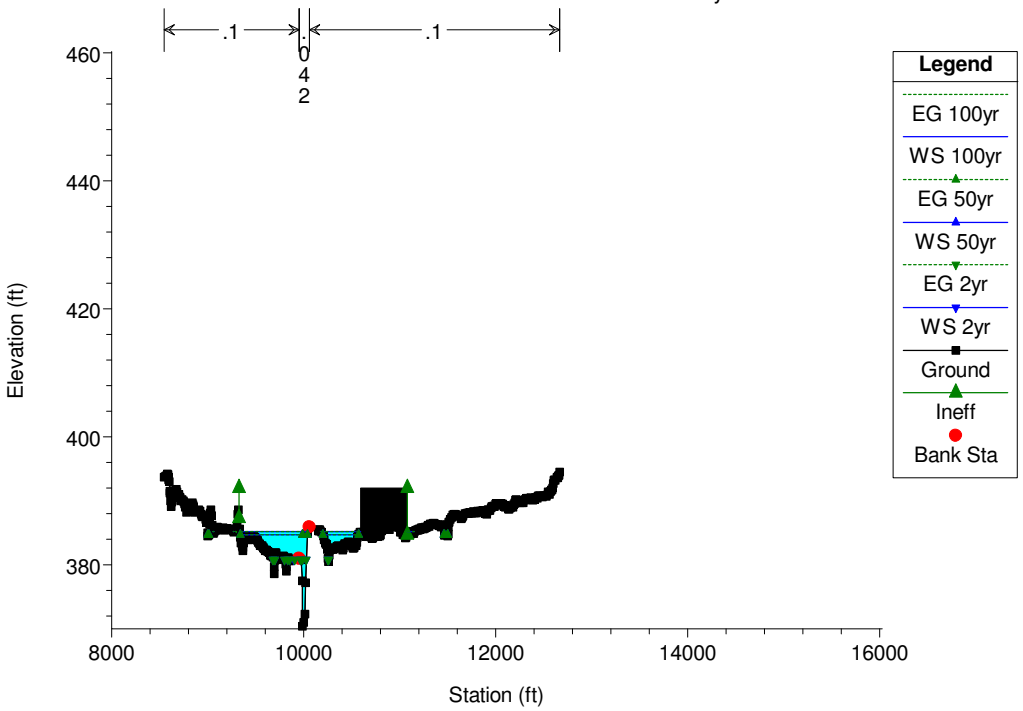
NF_Canoe Plan: Candet3 11/6/2019

RS = 13899.4 XS south/downstream of Hwy 41



NF_Canoe Plan: Candet3 11/6/2019

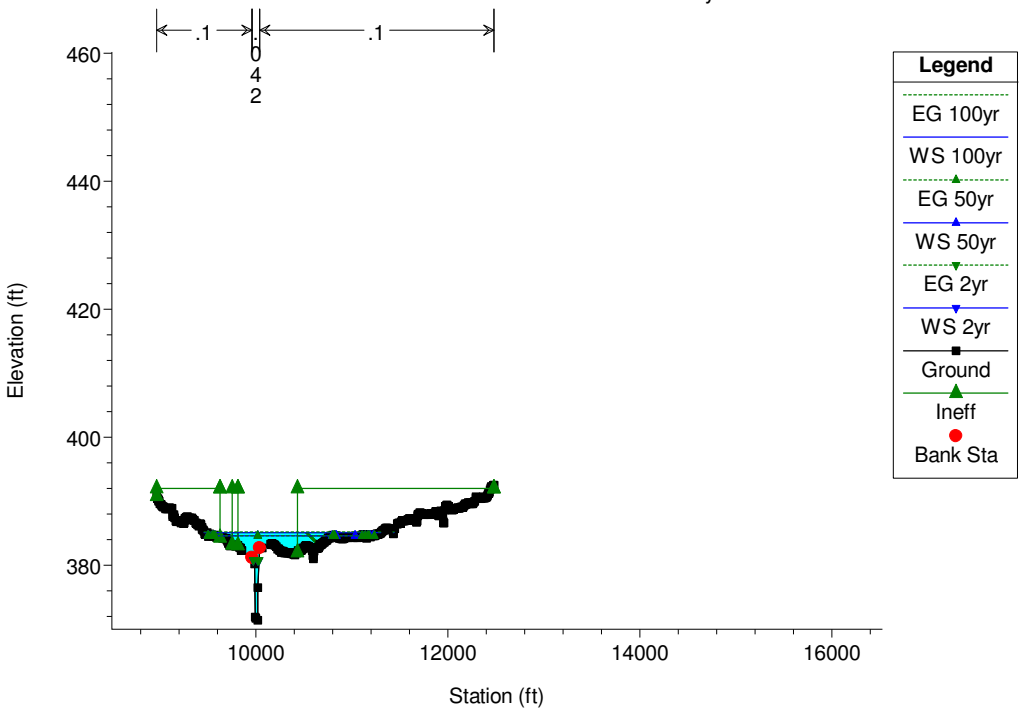
RS = 13273.2 M XS south/downstream of Hwy 41



1 in Horiz. = 2000 ft 1 in Vert. = 30 ft

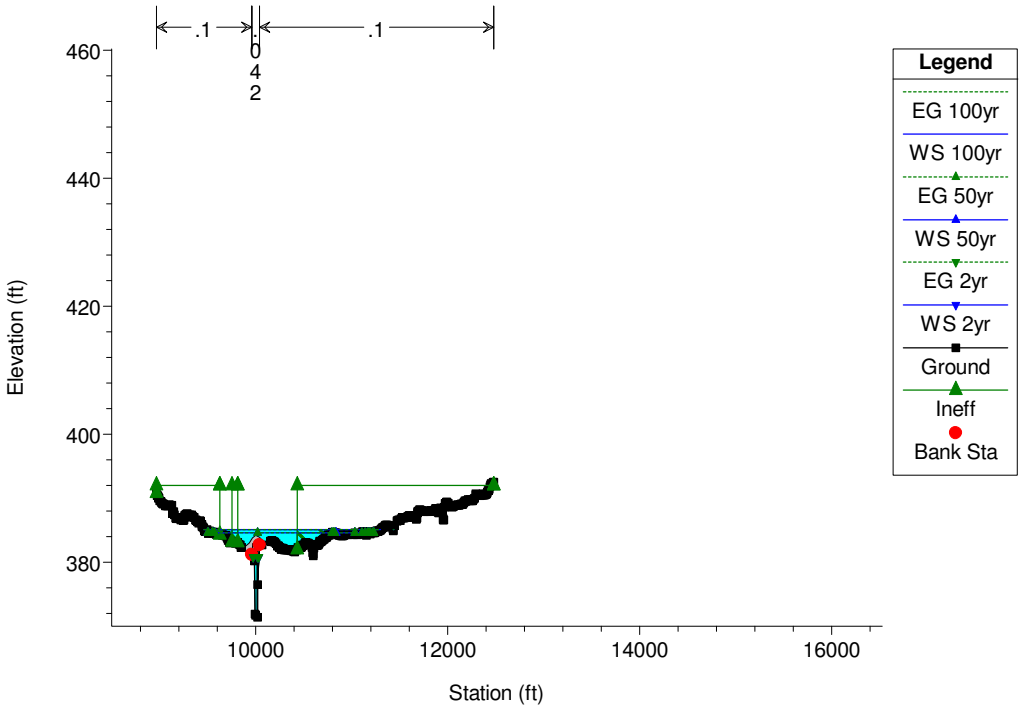
NF_Canoe Plan: Candet3 11/6/2019

RS = 12979.5 XS south/downstream of Hwy 41



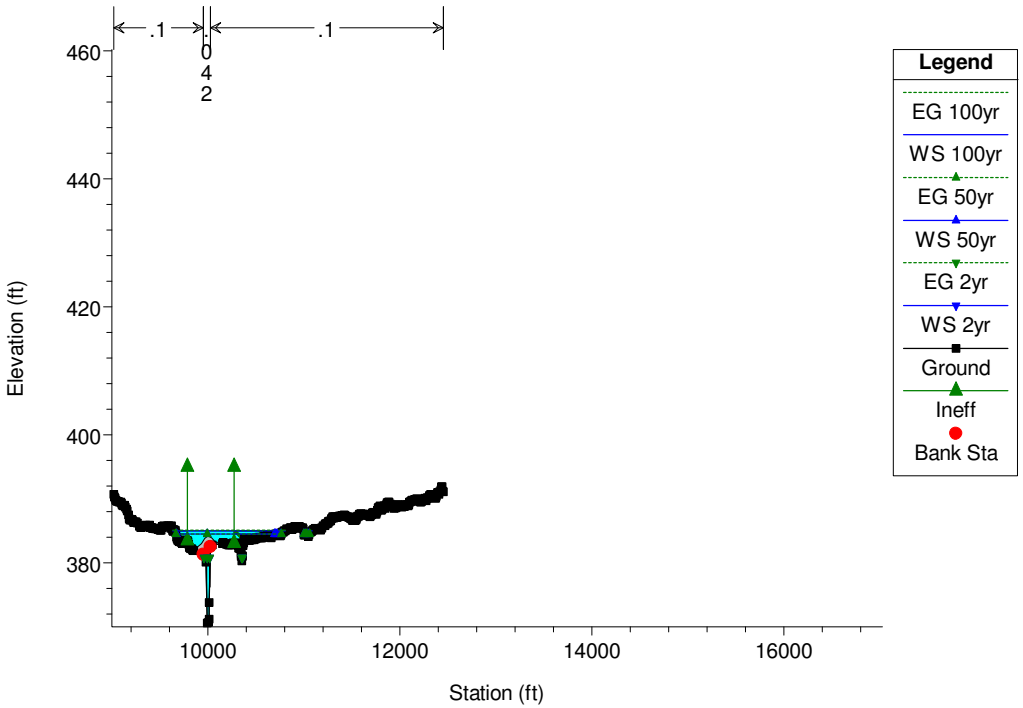
NF_Canoe Plan: Candet3 11/6/2019

RS = 12921.8 BR 5th Street



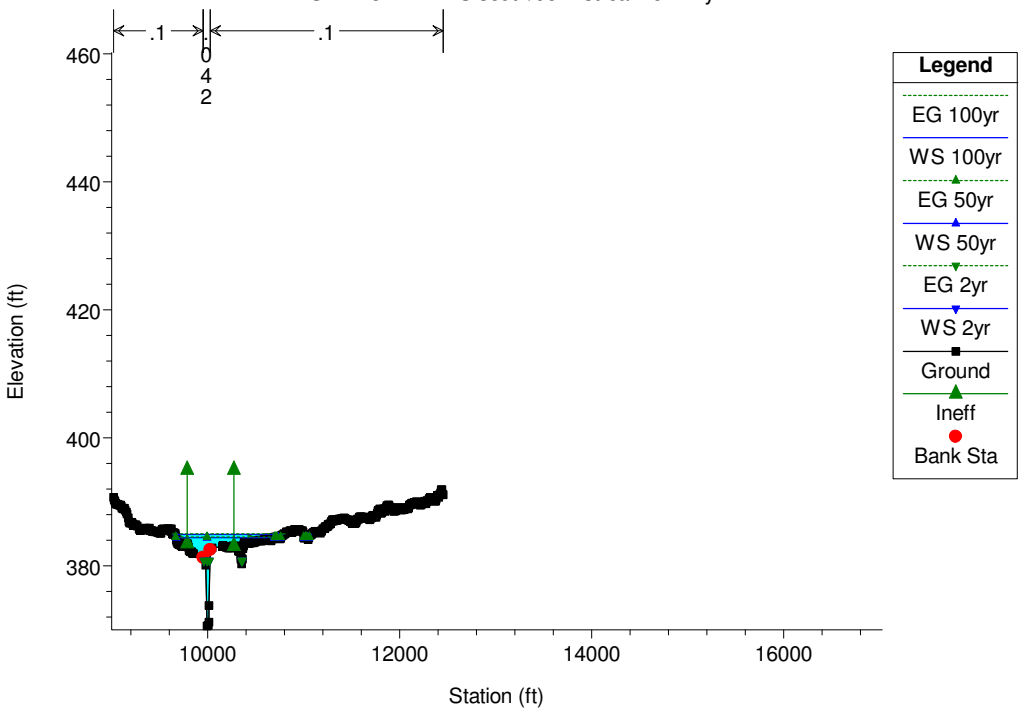
NF_Canoe Plan: Candet3 11/6/2019

RS = 12921.8 BR 5th Street



NF_Canoe Plan: Candet3 11/6/2019

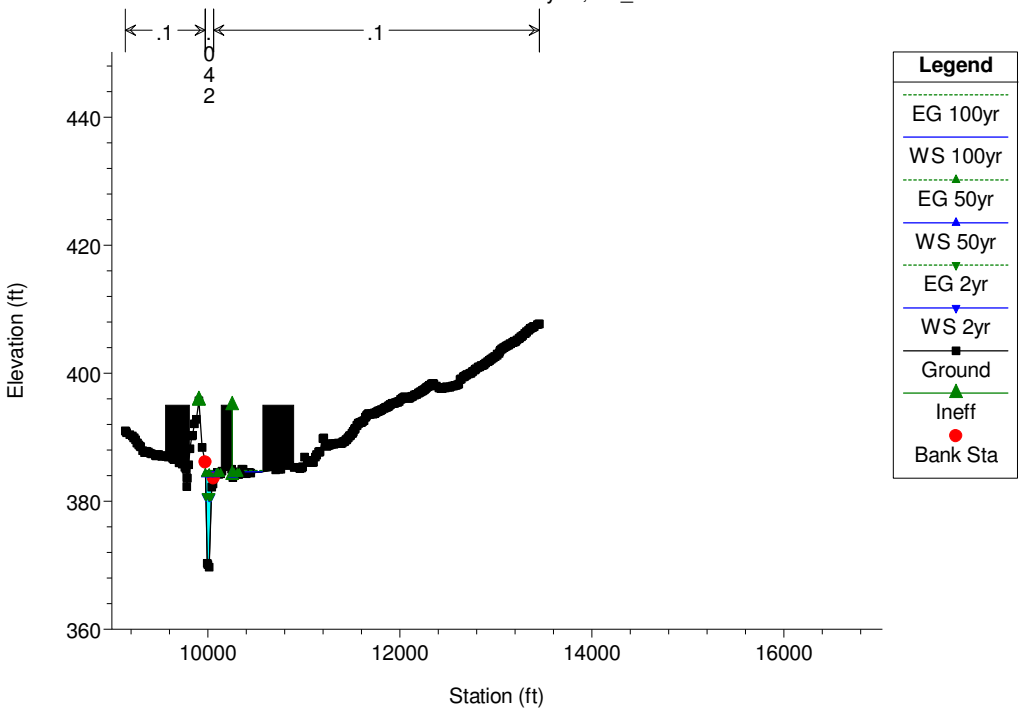
RS = 12871.2 XS south/downstream of Hwy 41



1 in Horiz. = 2000 ft 1 in Vert. = 30 ft

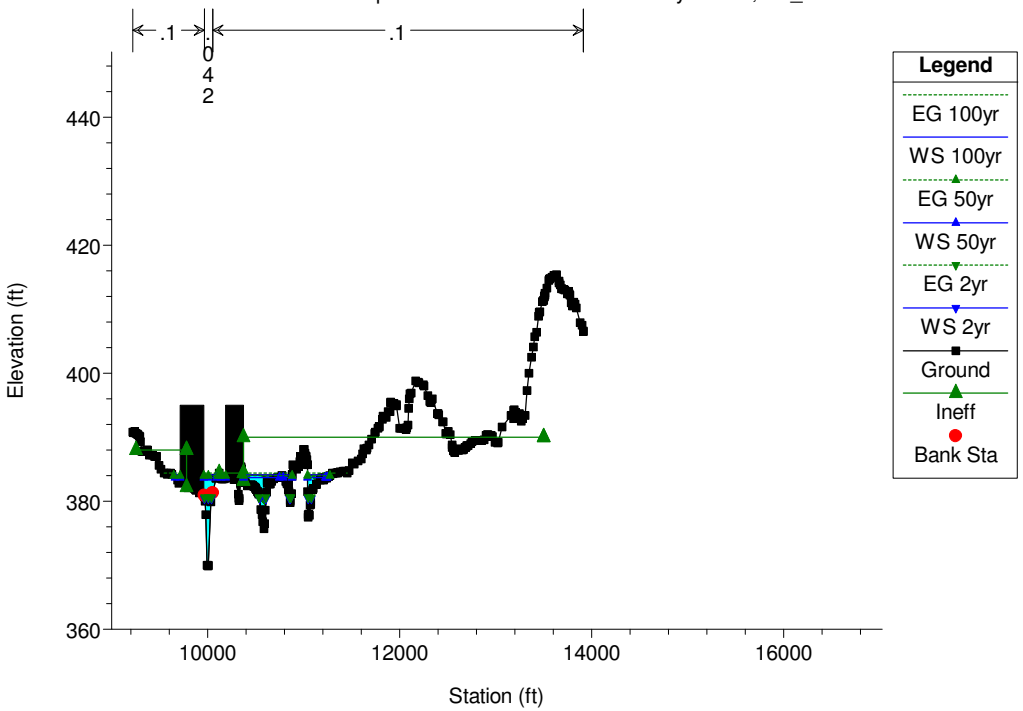
NF_Canoe Plan: Candet3 11/6/2019

RS = 12458.1 Survey xs, XS_12331.



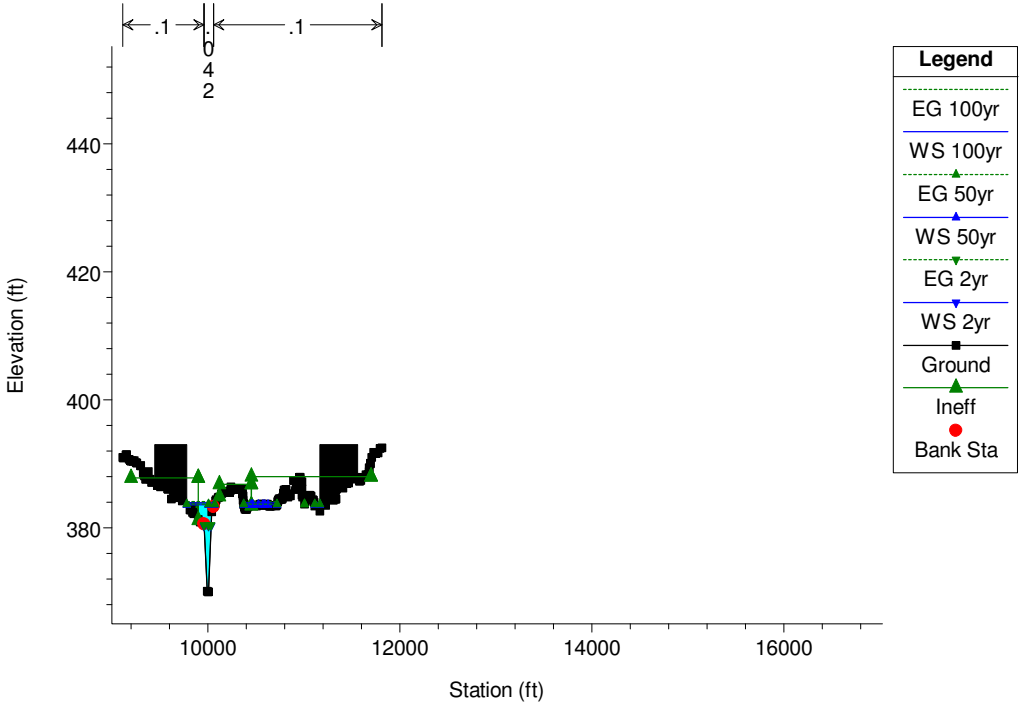
NF_Canoe Plan: Candet3 11/6/2019

RS = 12027.9 L Interpolated based on UPS-DS Survey inverts, XS_11680.



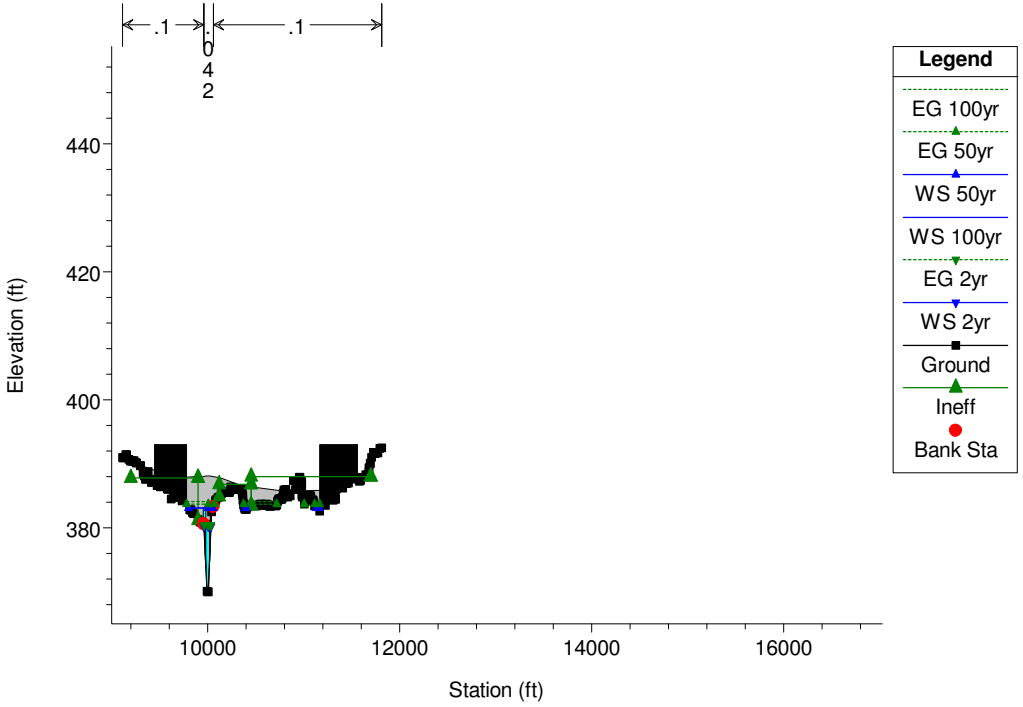
NF_Canoe Plan: Candet3 11/6/2019

RS = 11796.9 Interpolated based on UPS-DS Survey inverts, BR_11600_US.



NF_Canoe Plan: Candet3 11/6/2019

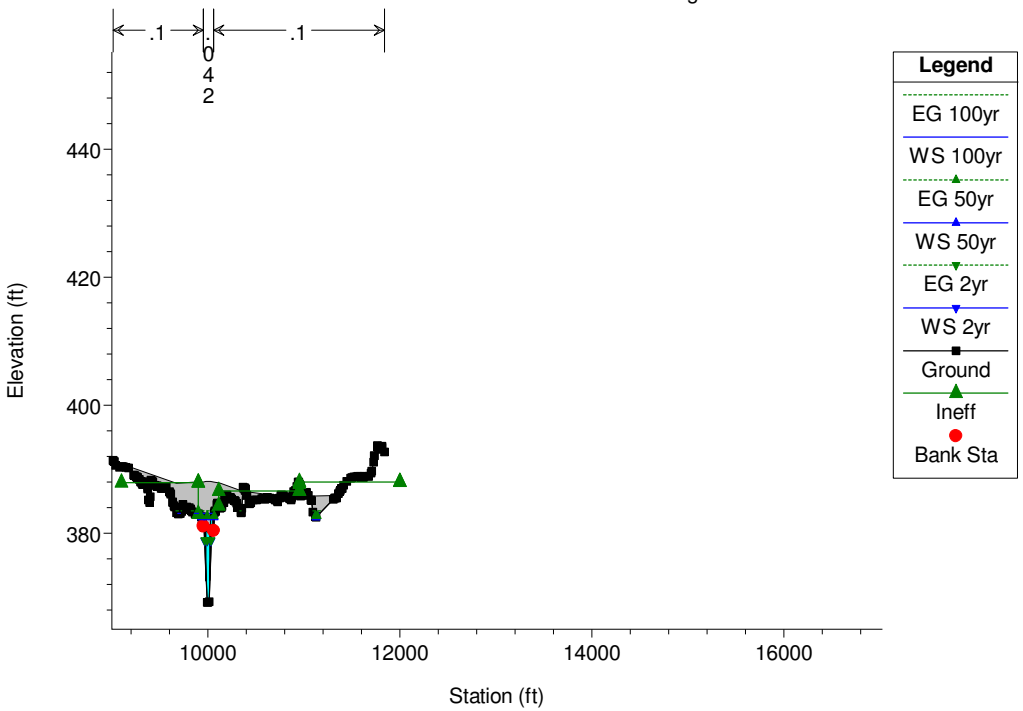
RS = 11736.8 BR CSX Railroad Bridge



1 in Horiz. = 2000 ft 1 in Vert. = 30 ft

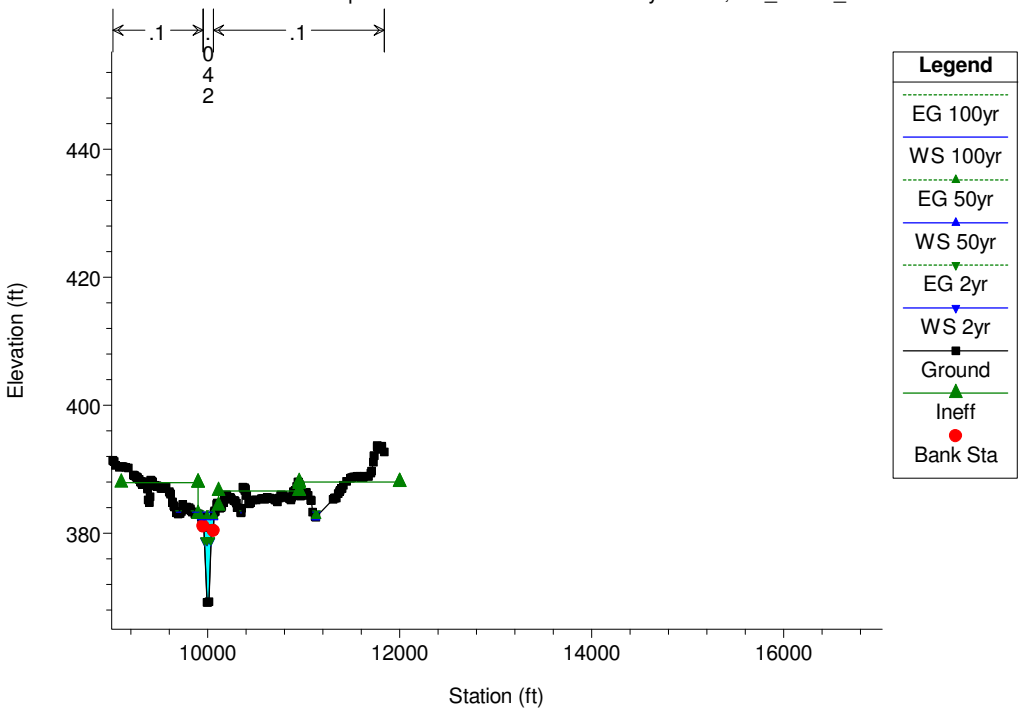
NF_Canoe Plan: Candet3 11/6/2019

RS = 11736.8 BR CSX Railroad Bridge



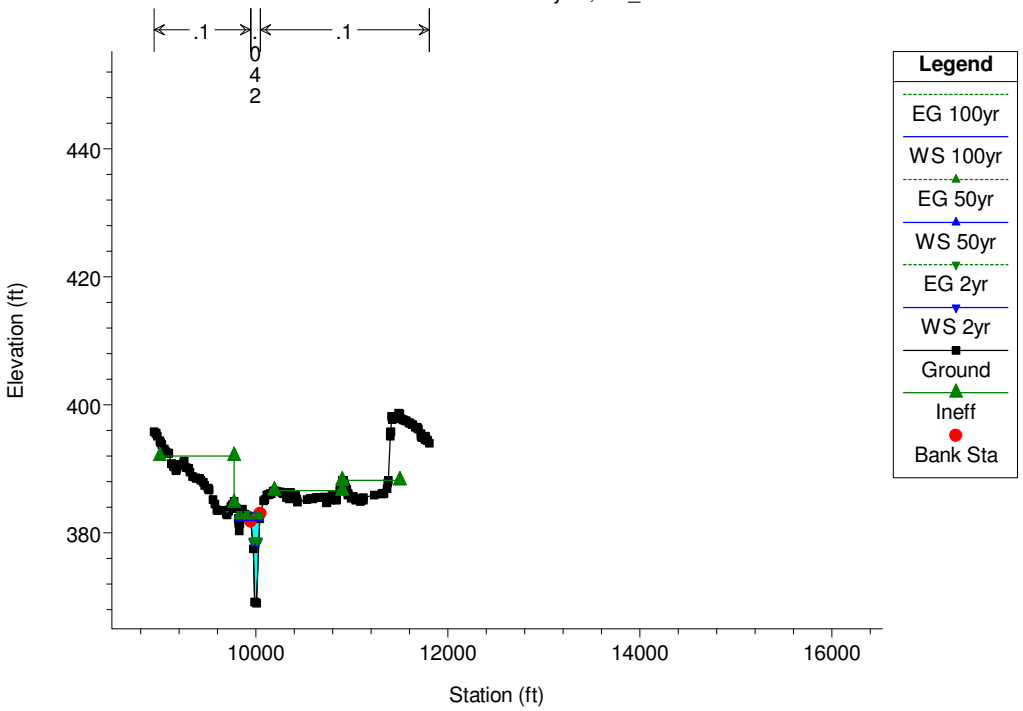
NF_Canoe Plan: Candet3 11/6/2019

RS = 11667.5 Interpolated based on UPS-DS Survey inverts, BR_11600_DS.



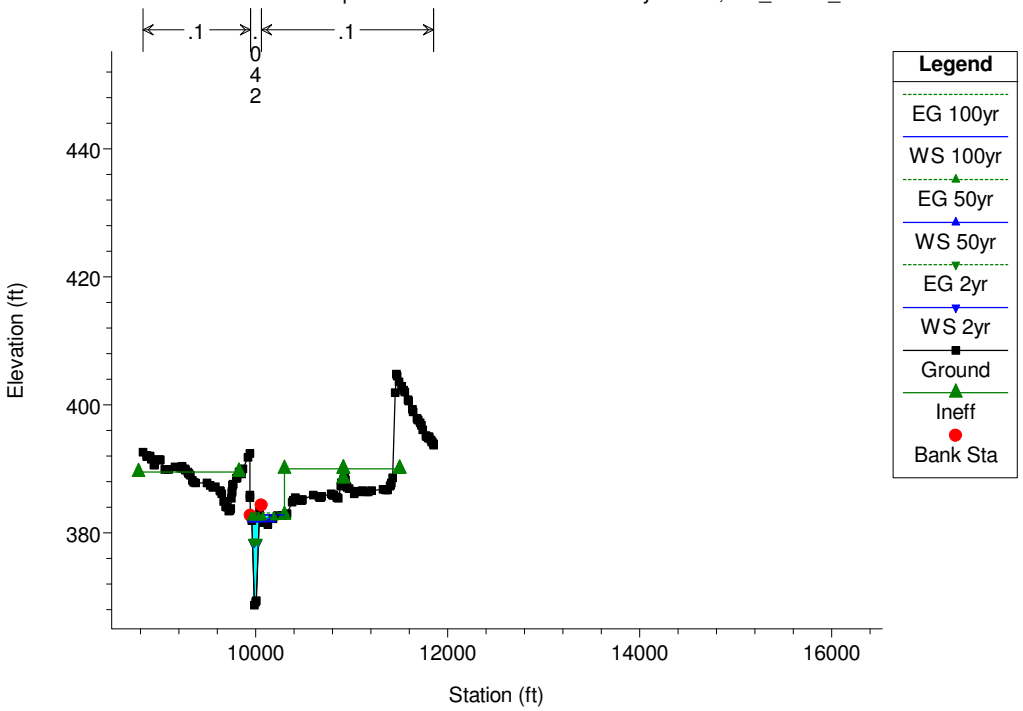
NF_Canoe Plan: Candet3 11/6/2019

RS = 11496.7 K Survey xs, XS_11370.



NF_Canoe Plan: Candet3 11/6/2019

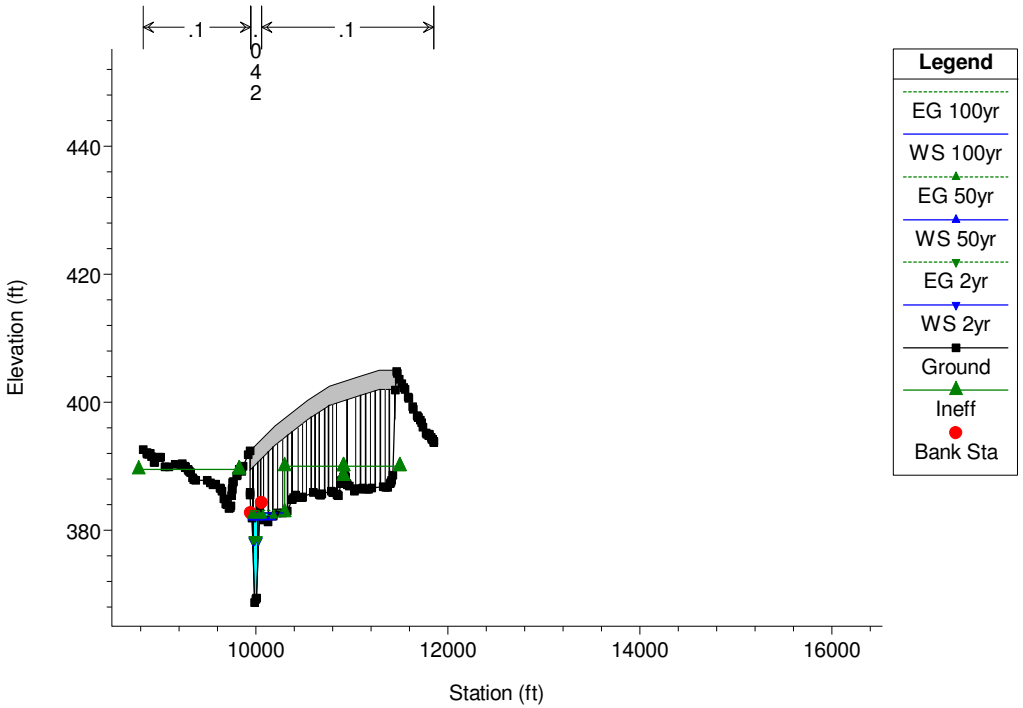
RS = 11331. Interpolated based on UPS-DS Survey inverts, BR_11130_US.



1 in Horiz. = 2000 ft 1 in Vert. = 30 ft

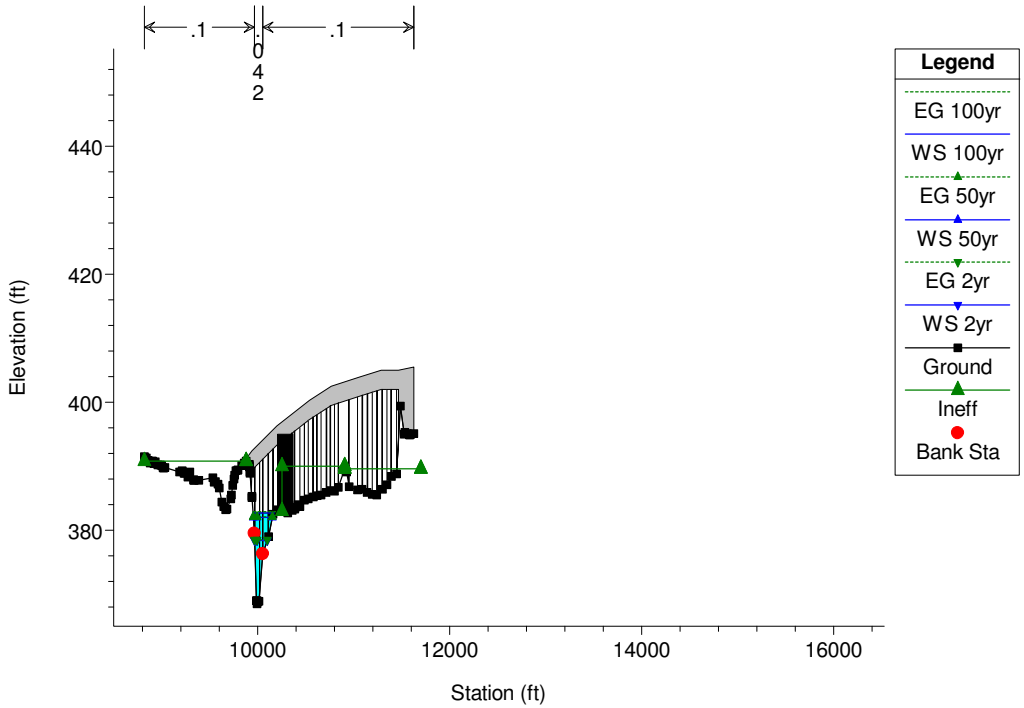
NF_Canoe Plan: Candet3 11/6/2019

RS = 11256.8 BR 2nd Street



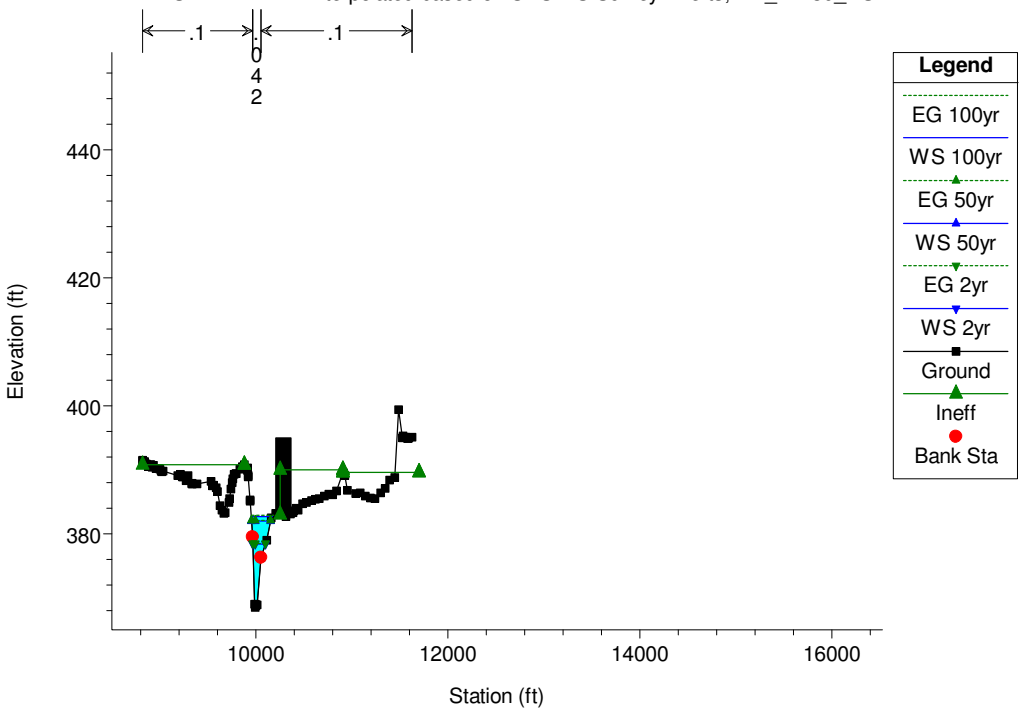
NF_Canoe Plan: Candet3 11/6/2019

RS = 11256.8 BR 2nd Street



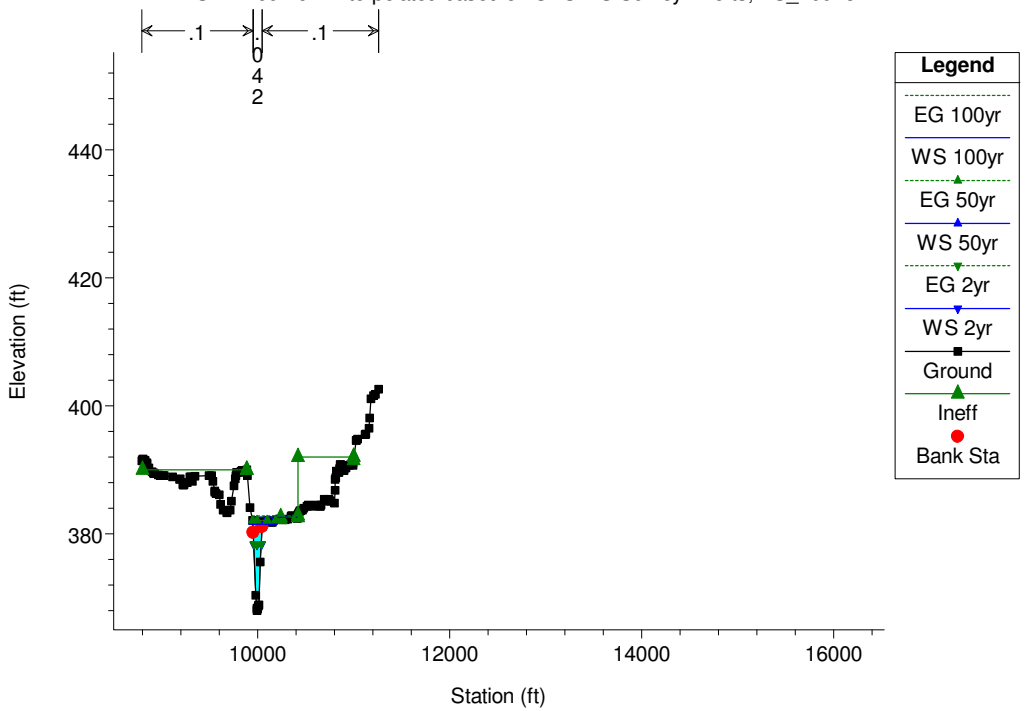
NF_Canoe Plan: Candet3 11/6/2019

RS = 11171.4 Interpolated based on UPS-DS Survey inverts, BR_11130_DS.



NF_Canoe Plan: Candet3 11/6/2019

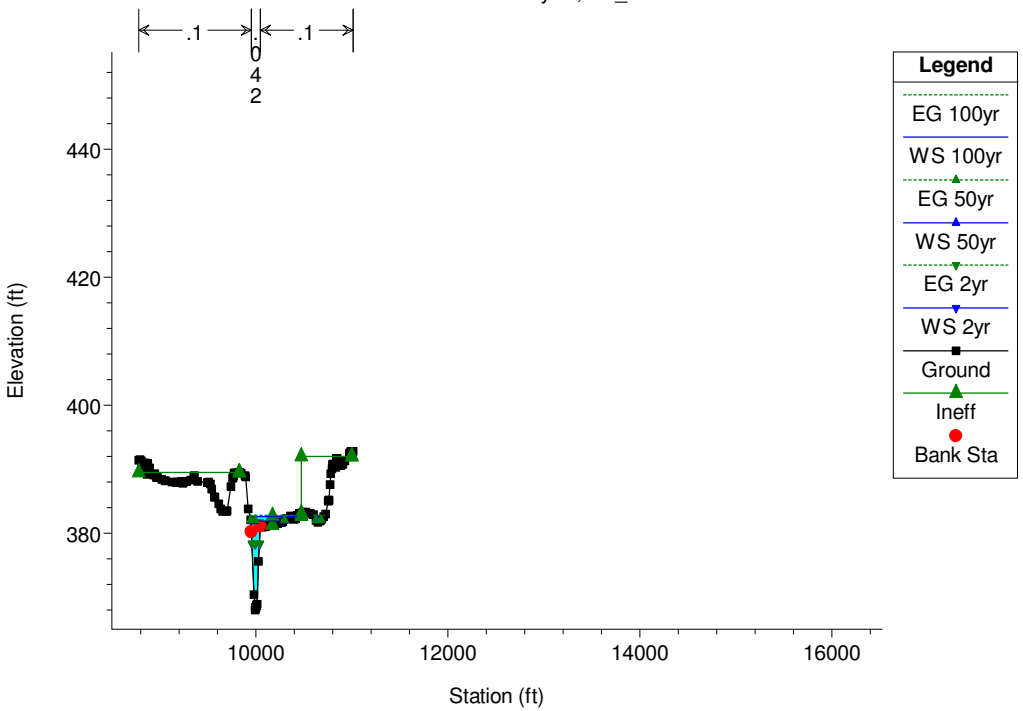
RS = 11097.6 Interpolated based on UPS-DS Survey inverts, XS_10948.



1 in Horiz. = 2000 ft 1 in Vert. = 30 ft

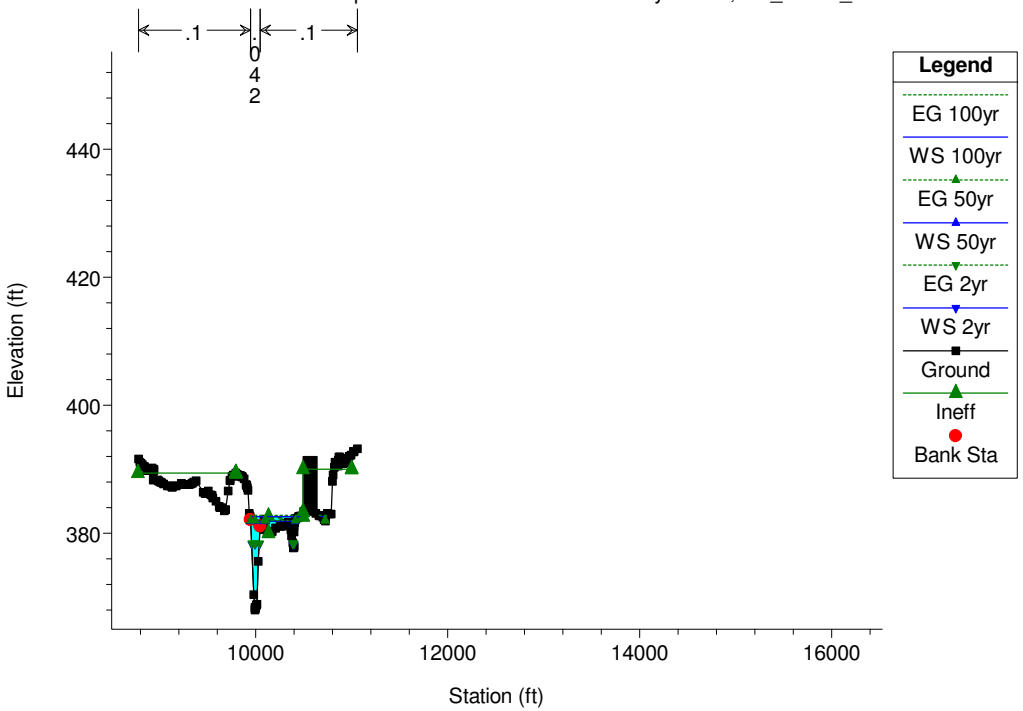
NF_Canoe Plan: Candet3 11/6/2019

RS = 11075. Survey xs, XS_10948.



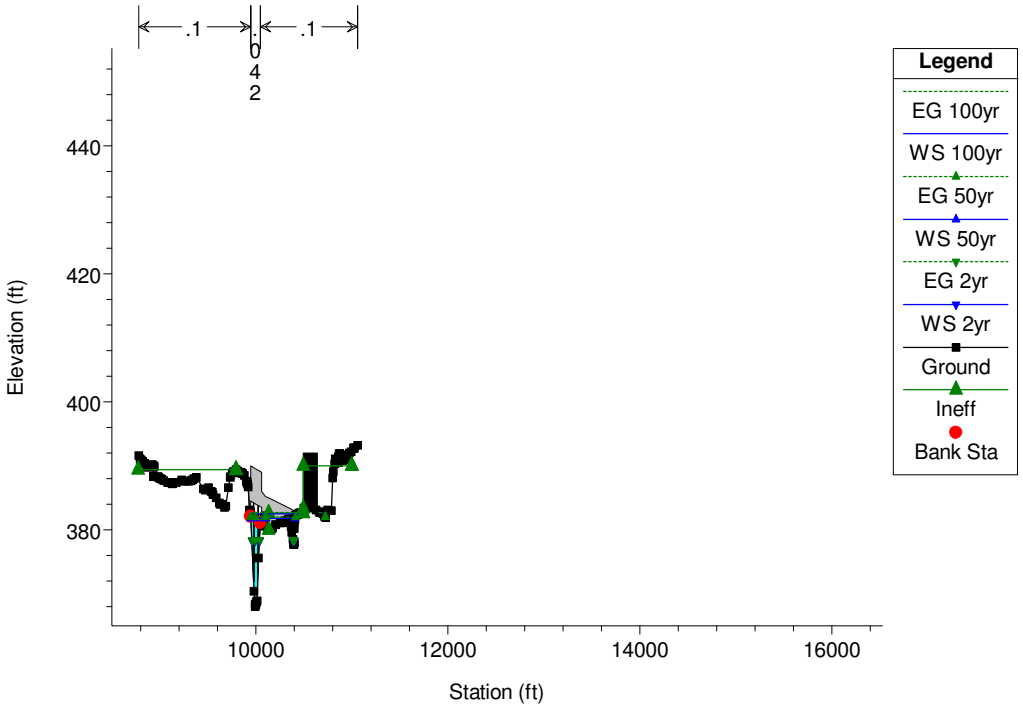
NF_Canoe Plan: Candet3 11/6/2019

RS = 11031.7 J Interpolated based on UPS-DS Survey inverts, BR_10810_US.



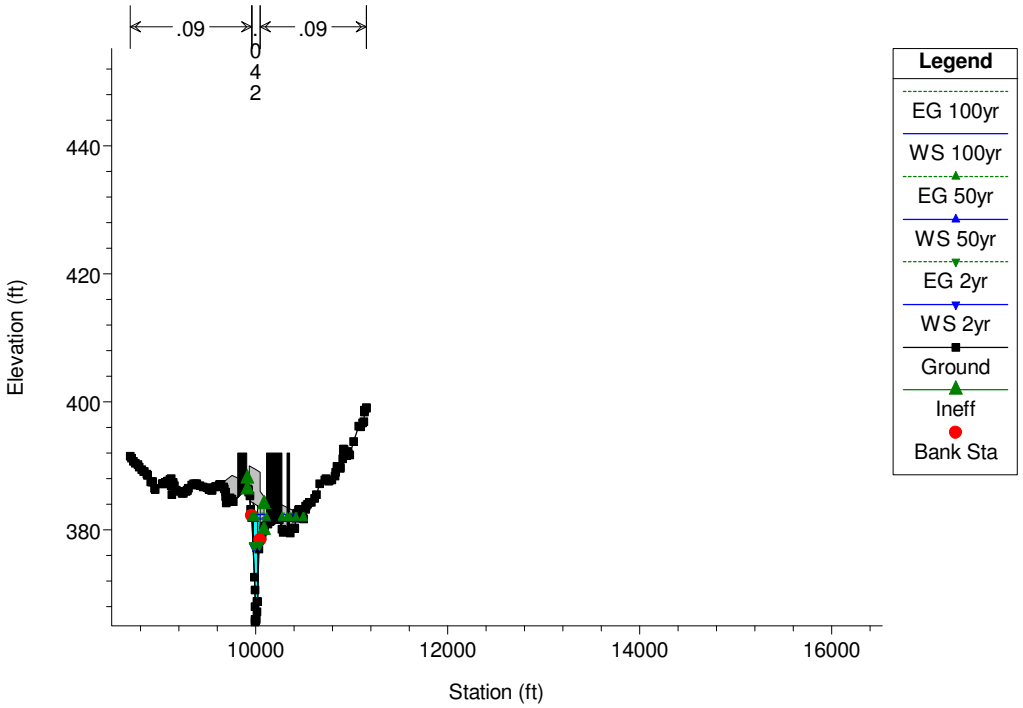
NF_Canoe Plan: Candet3 11/6/2019

RS = 10936.8 BR Priest Street



NF_Canoe Plan: Candet3 11/6/2019

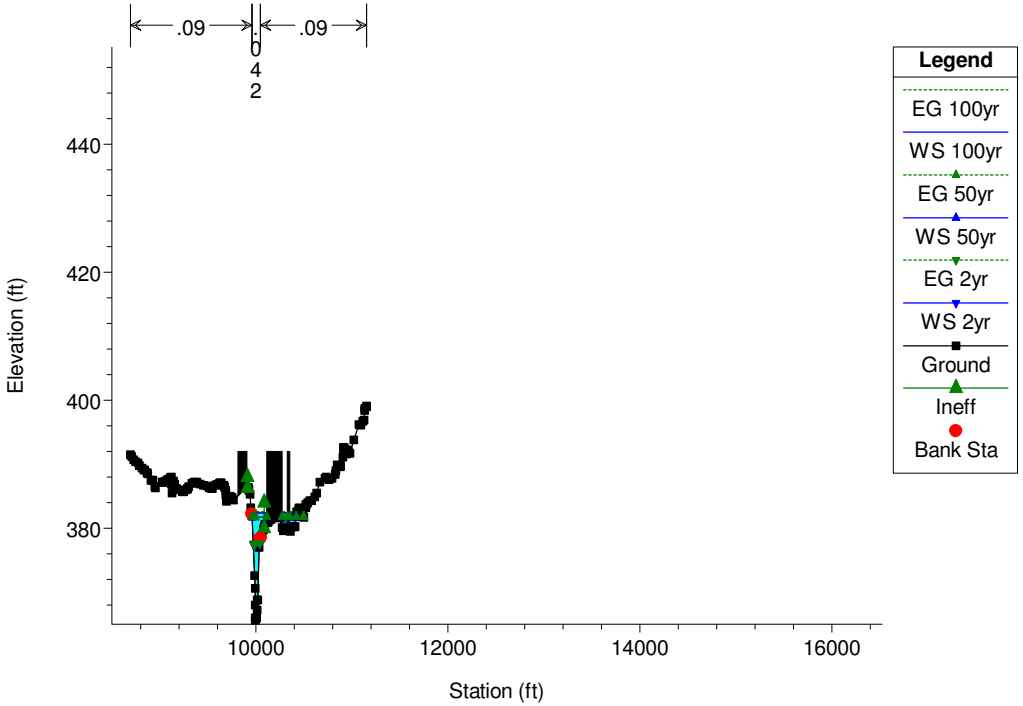
RS = 10936.8 BR Priest Street



1 in Horiz. = 2000 ft 1 in Vert. = 30 ft

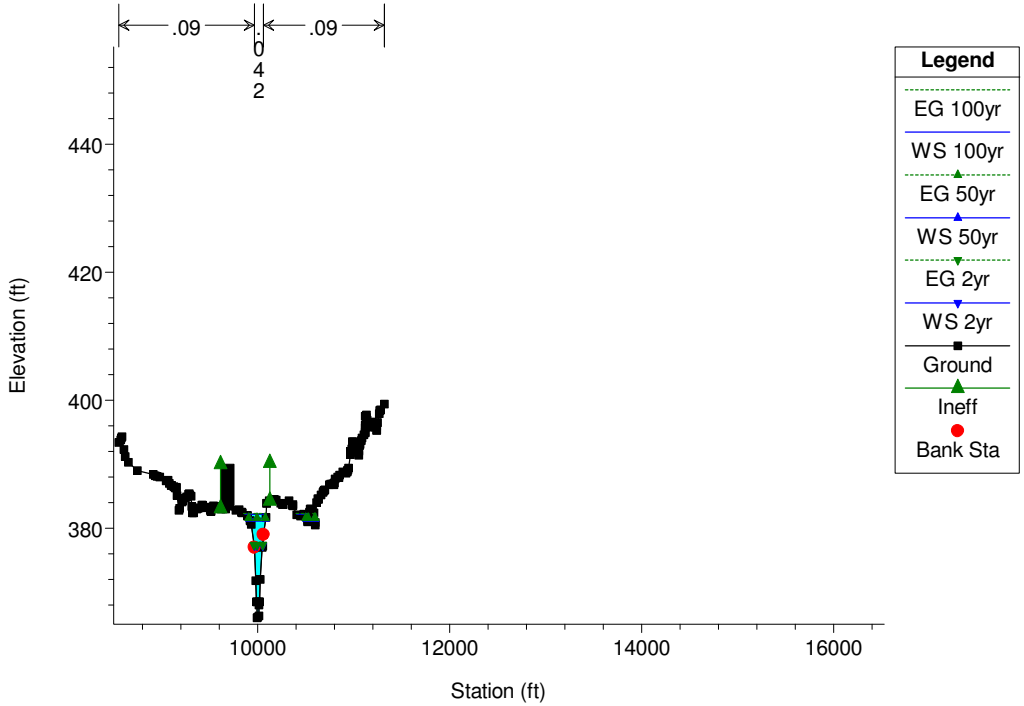
NF_Canoe Plan: Candet3 11/6/2019

RS = 10837. Interpolated based on UPS-DS Survey inverts, BR_10810_DS.



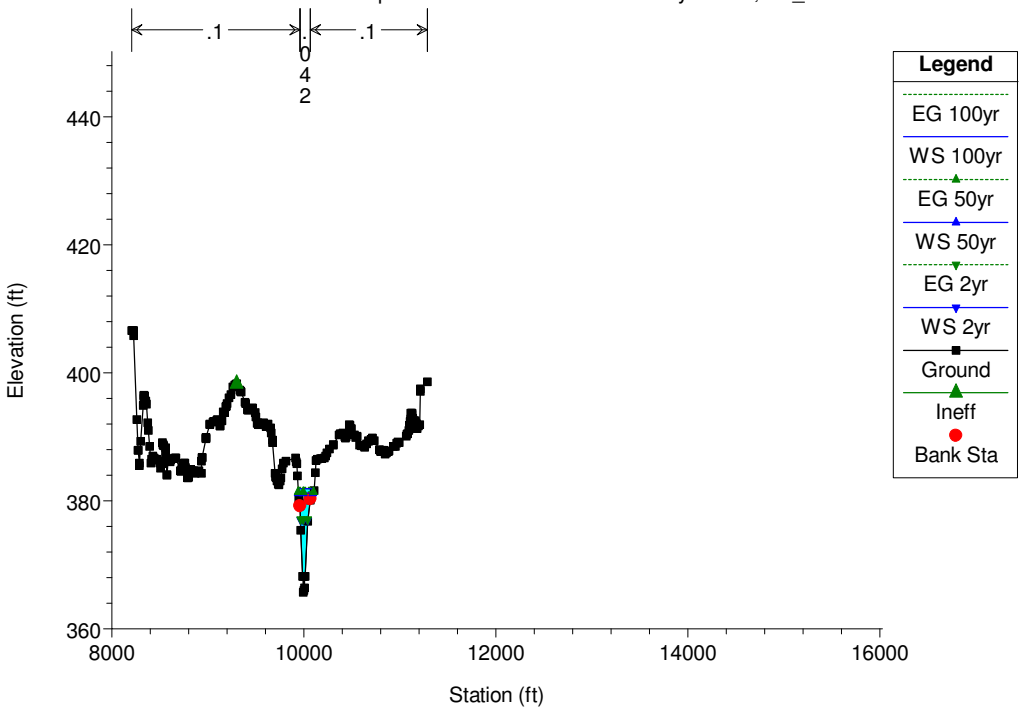
NF_Canoe Plan: Candet3 11/6/2019

RS = 10362.2 I Interpolated based on UPS-DS Survey inverts, Xs_10625.



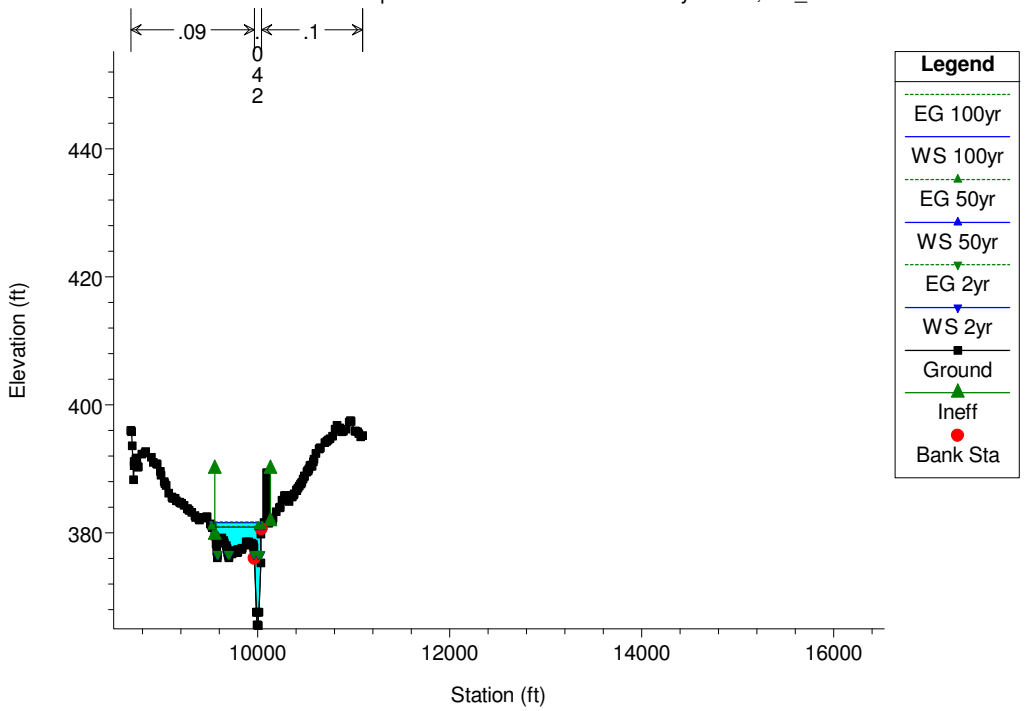
NF_Canoe Plan: Candet3 11/6/2019

RS = 9719.4 H Interpolated based on UPS-DS Survey inverts, XS_8812.



NF_Canoe Plan: Candet3 11/6/2019

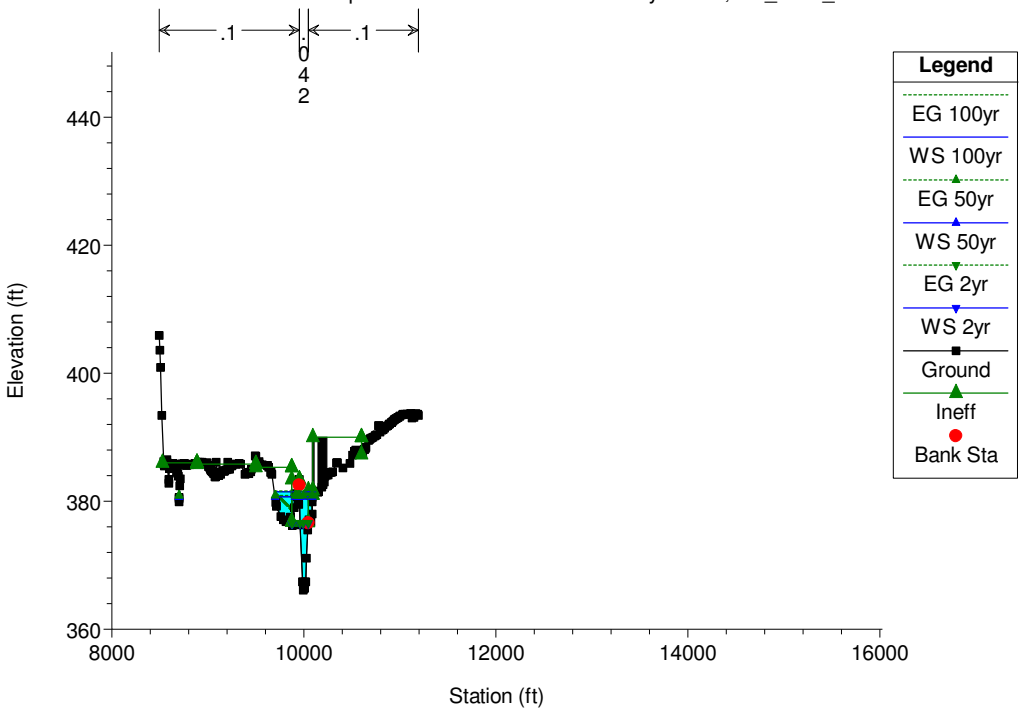
RS = 8580.4 G Interpolated based on UPS-DS Survey inverts, XS_8253.



1 in Horiz. = 2000 ft 1 in Vert. = 30 ft

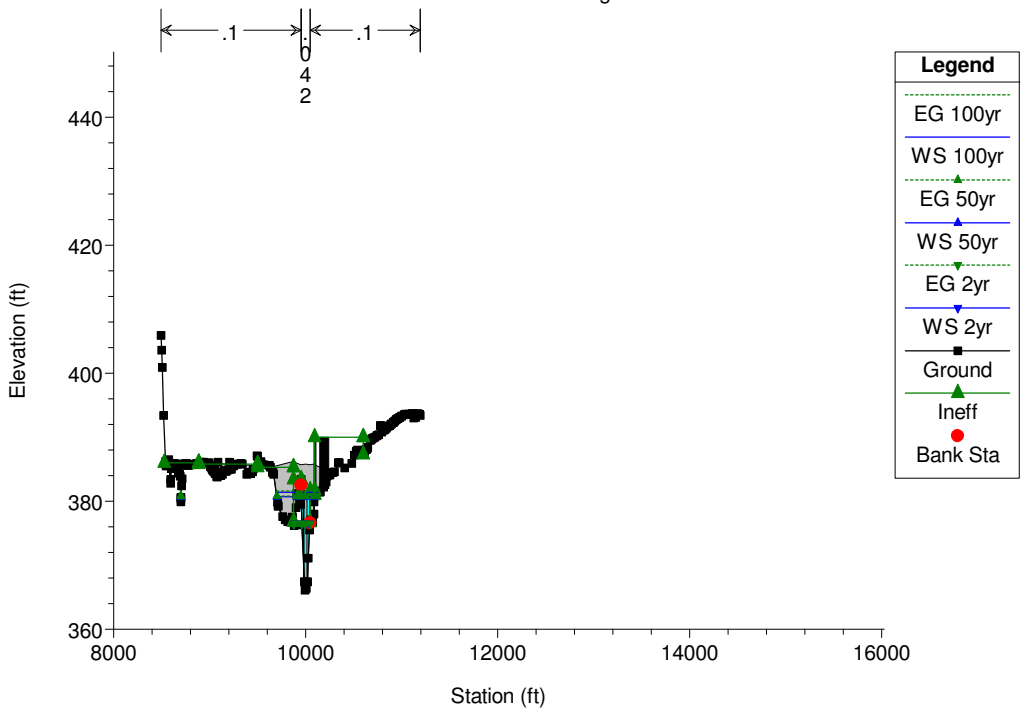
NF_Canoe Plan: Candet3 11/6/2019

RS = 8284.6 Interpolated based on UPS-DS Survey inverts, BR_8085_US.



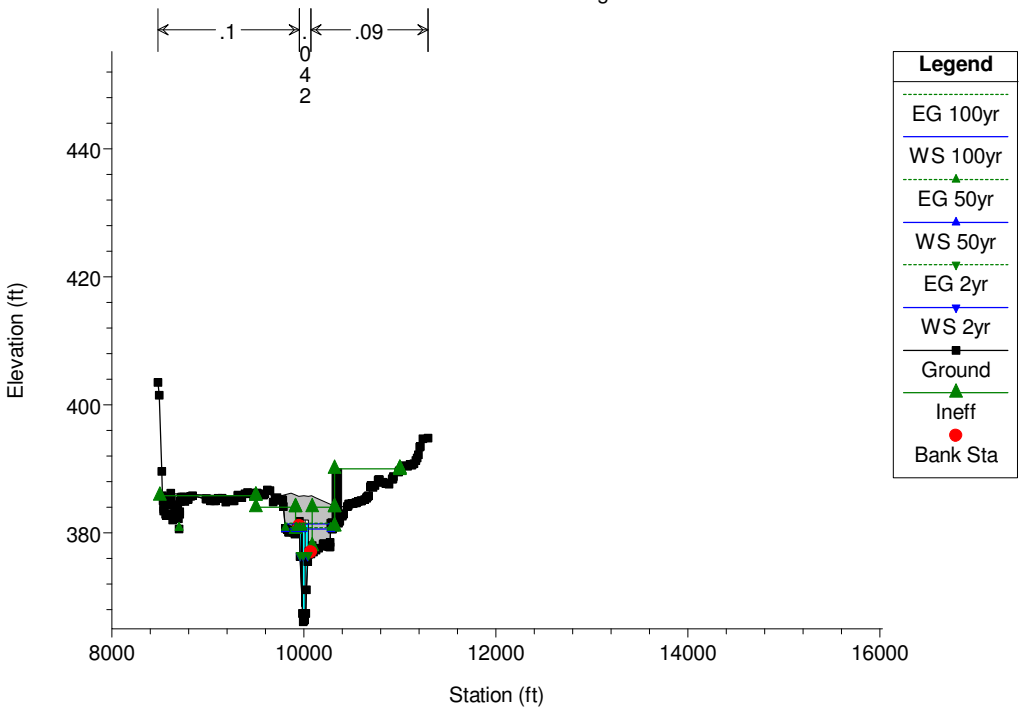
NF_Canoe Plan: Candet3 11/6/2019

RS = 8211.8 BR Washington Street



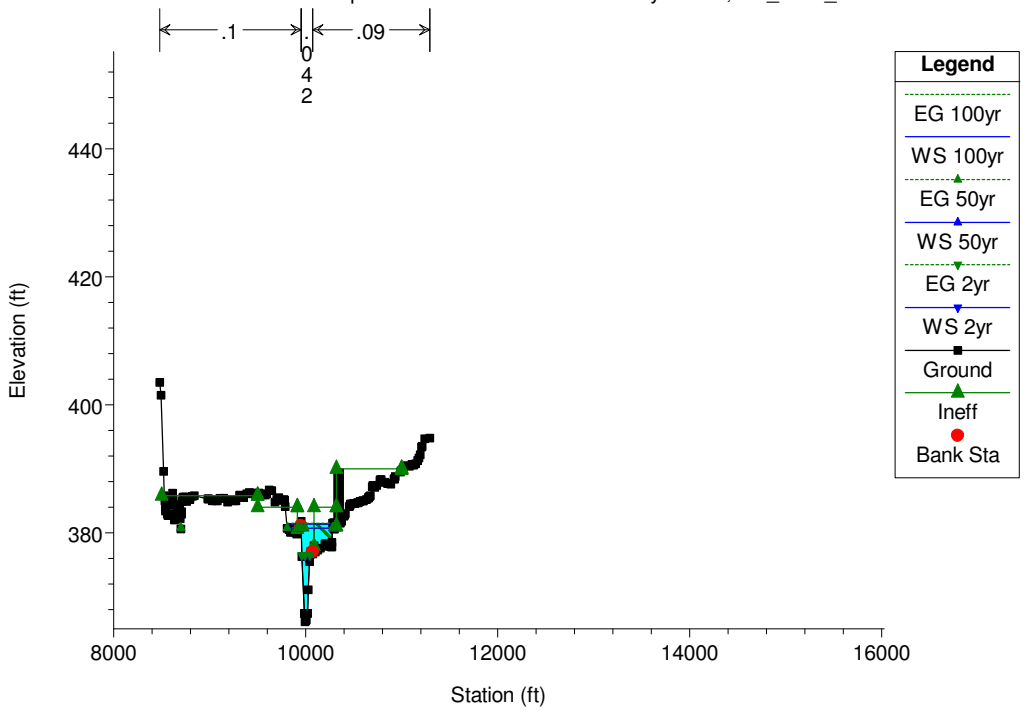
NF_Canoe Plan: Candet3 11/6/2019

RS = 8211.8 BR Washington Street



NF_Canoe Plan: Candet3 11/6/2019

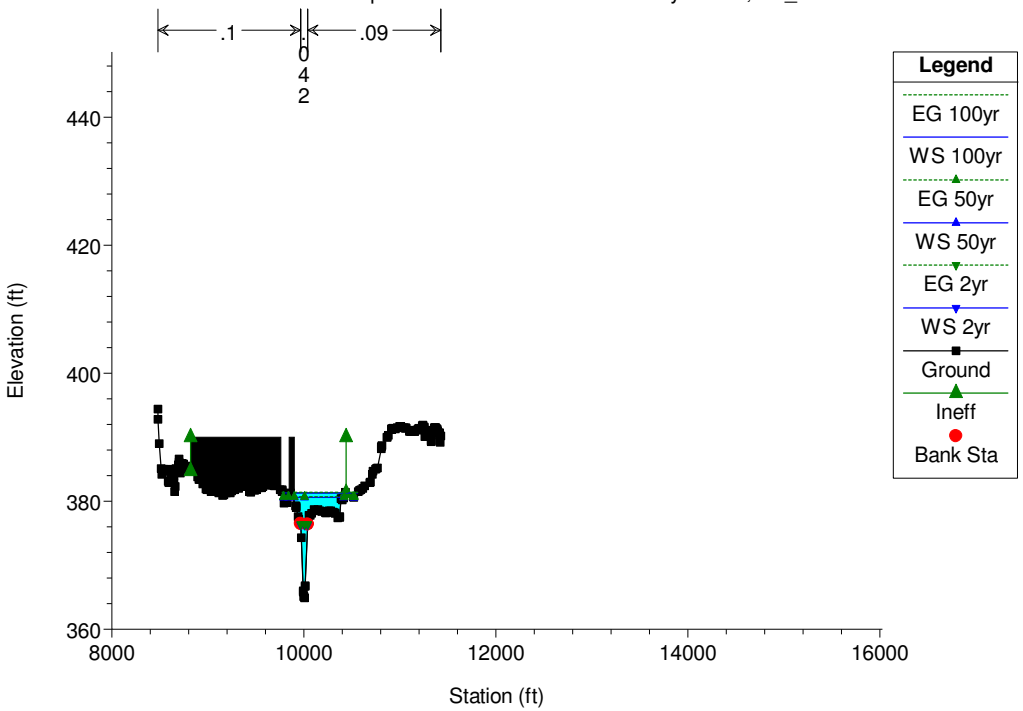
RS = 8165.2 Interpolated based on UPS-DS Survey inverts, BR_8085_DS.



1 in Horiz. = 2000 ft 1 in Vert. = 30 ft

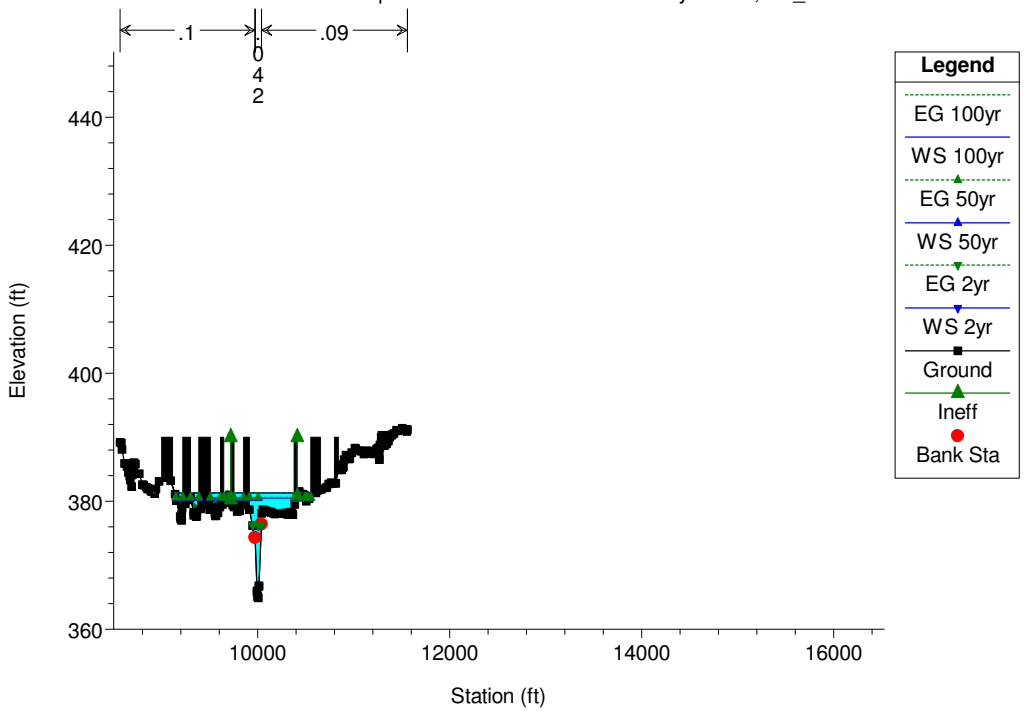
NF_Canoe Plan: Candet3 11/6/2019

RS = 7927.6 Interpolated based on UPS-DS Survey inverts, XS_7940.



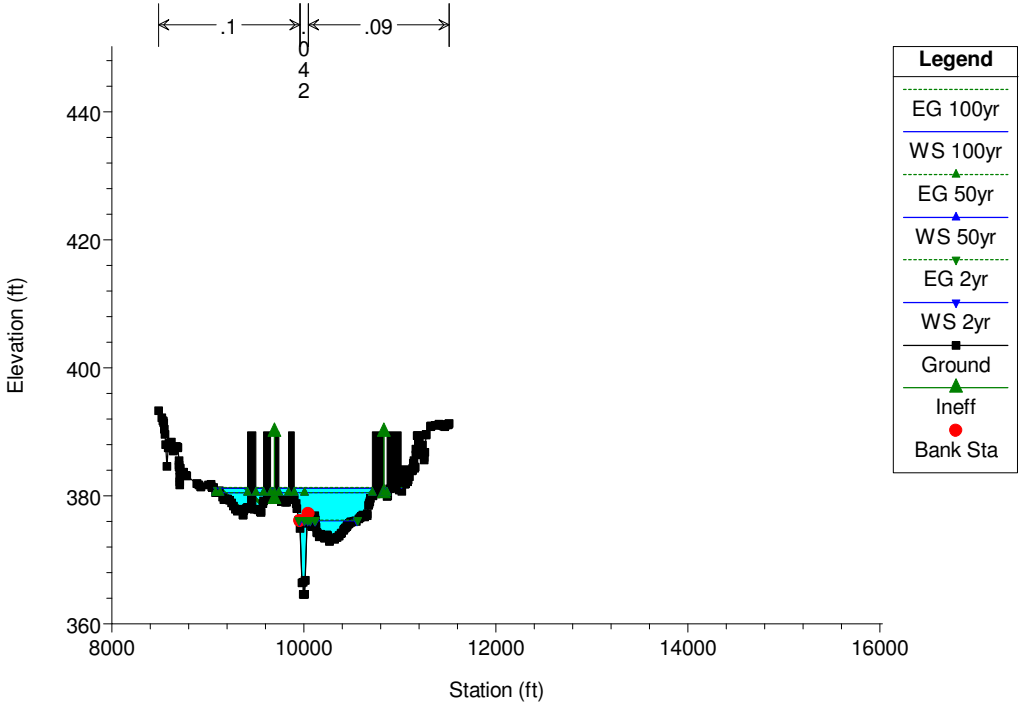
NF_Canoe Plan: Candet3 11/6/2019

RS = 7564.1 F Interpolated based on UPS-DS Survey inverts, XS_7212.



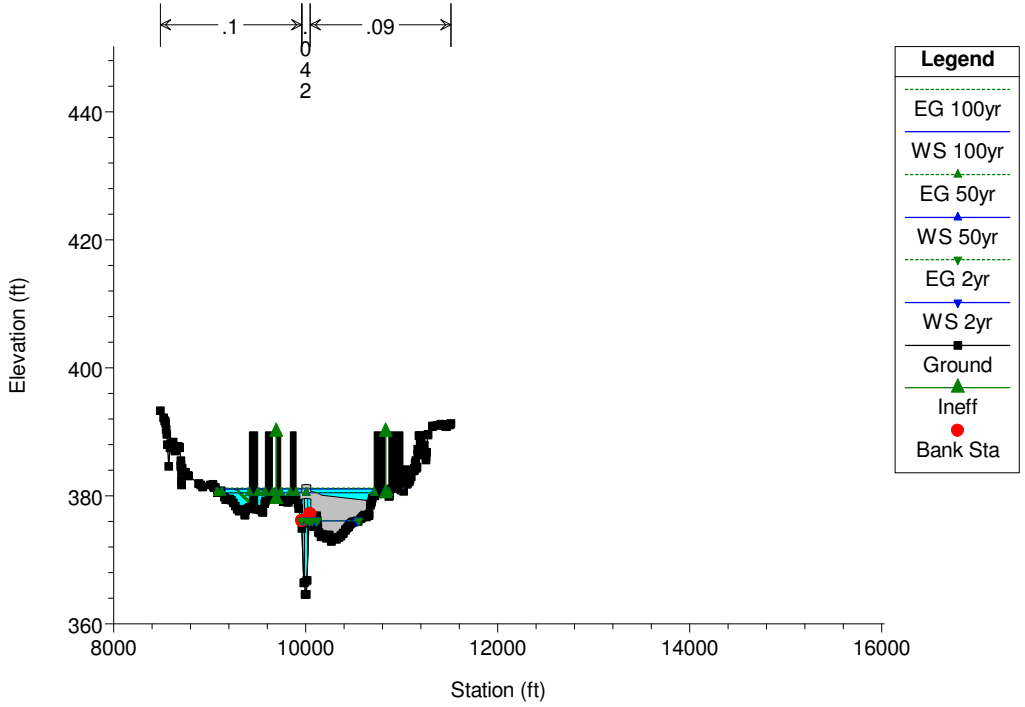
NF_Canoe Plan: Candet3 11/6/2019

RS = 7123.8 Interpolated based on UPS-DS Survey inverts, BR_6960_US.



NF_Canoe Plan: Candet3 11/6/2019

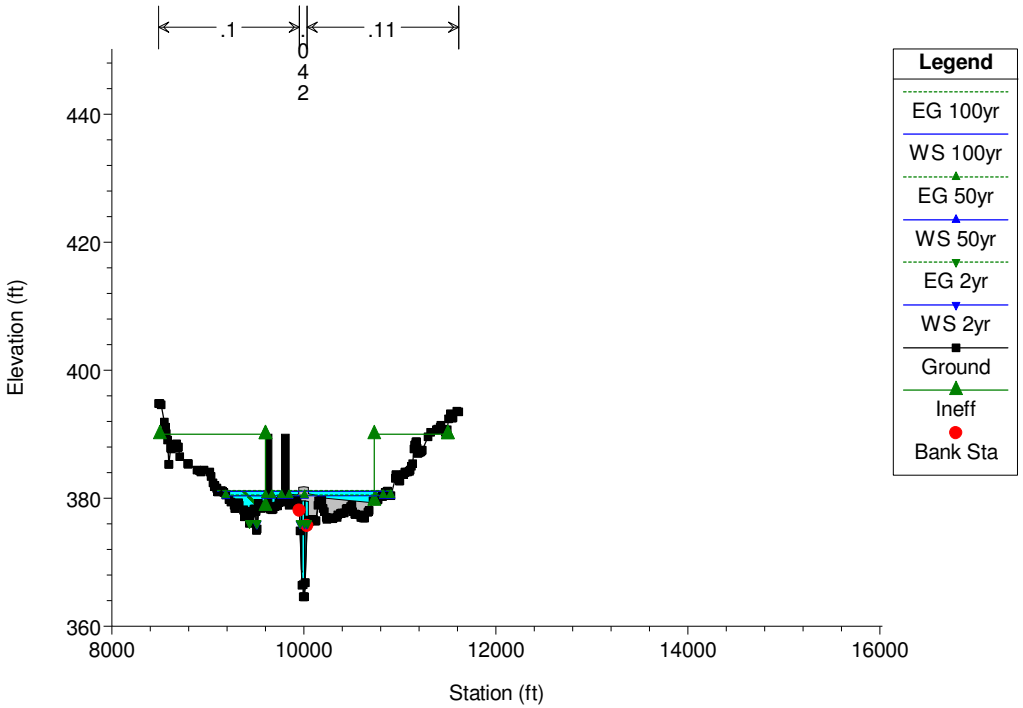
RS = 7086.8 BR Airline Road



1 in Horiz. = 2000 ft 1 in Vert. = 30 ft

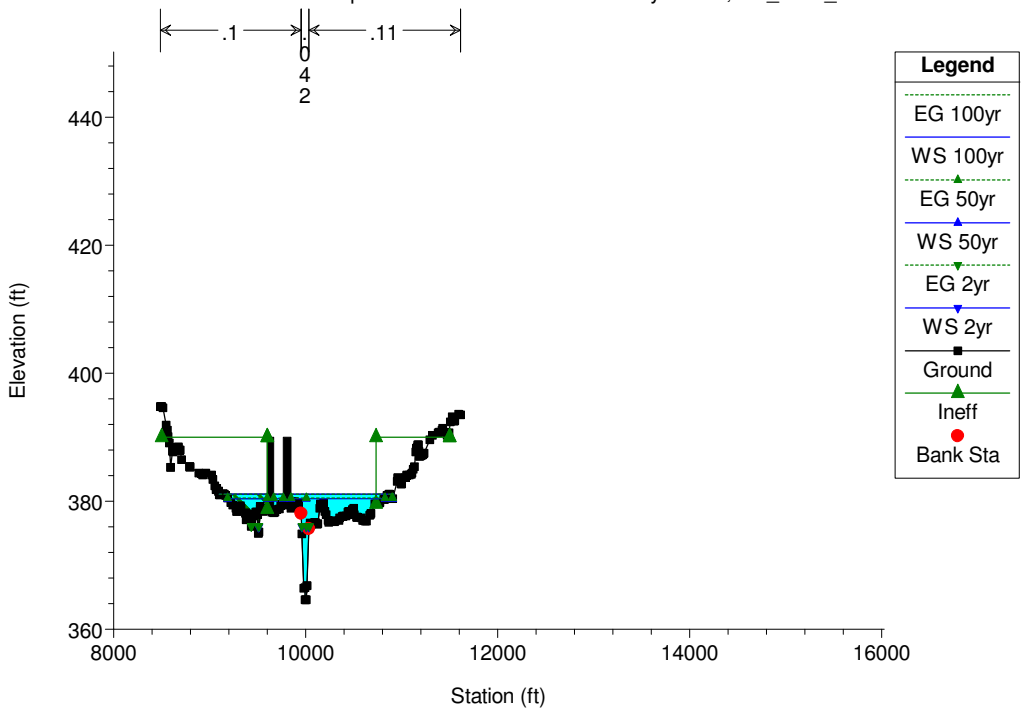
NF_Canoe Plan: Candet3 11/6/2019

RS = 7086.8 BR Airline Road



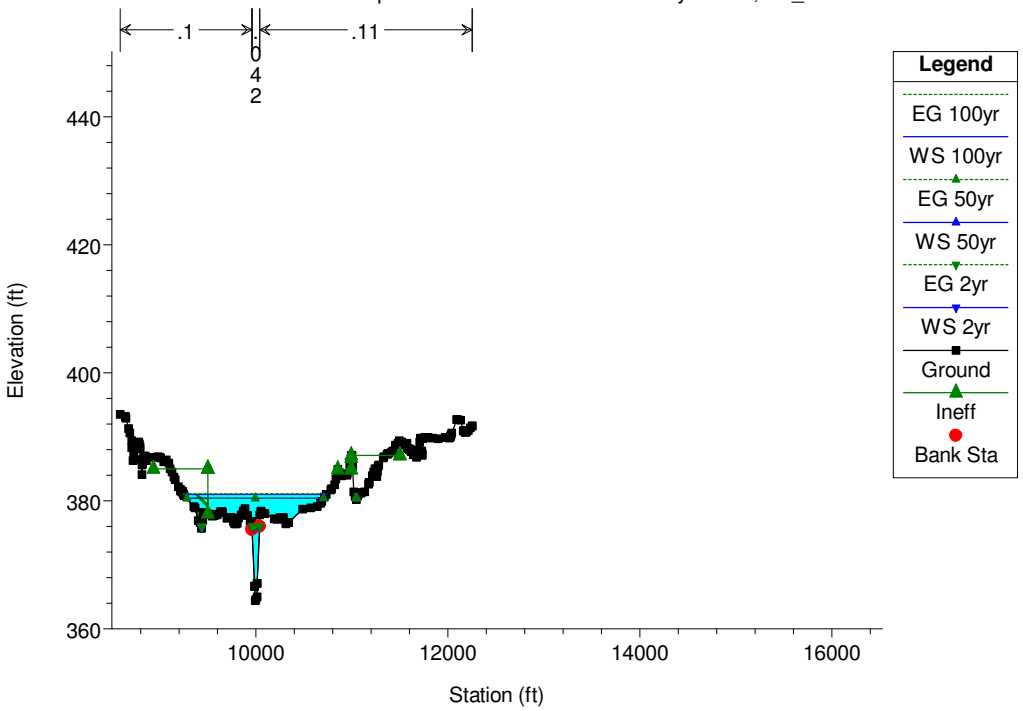
NF_Canoe Plan: Candet3 11/6/2019

RS = 7010.6 Interpolated based on UPS-DS Survey inverts, BR_6960_DS.



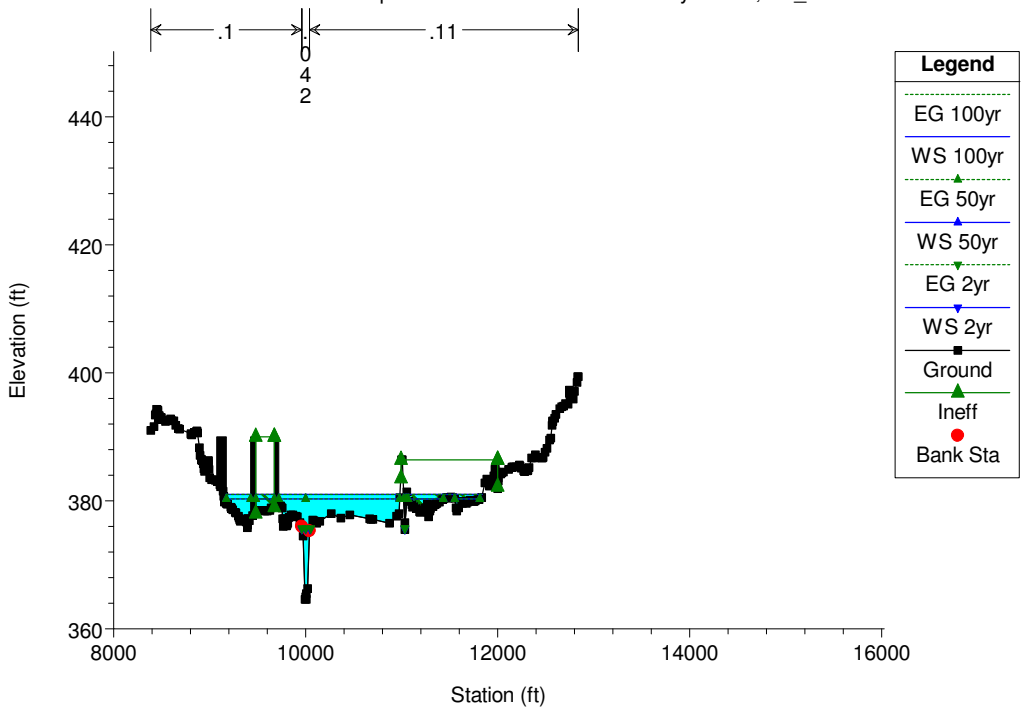
NF_Canoe Plan: Candet3 11/6/2019

RS = 6706.5 E Interpolated based on UPS-DS Survey inverts, XS_6822.



NF_Canoe Plan: Candet3 11/6/2019

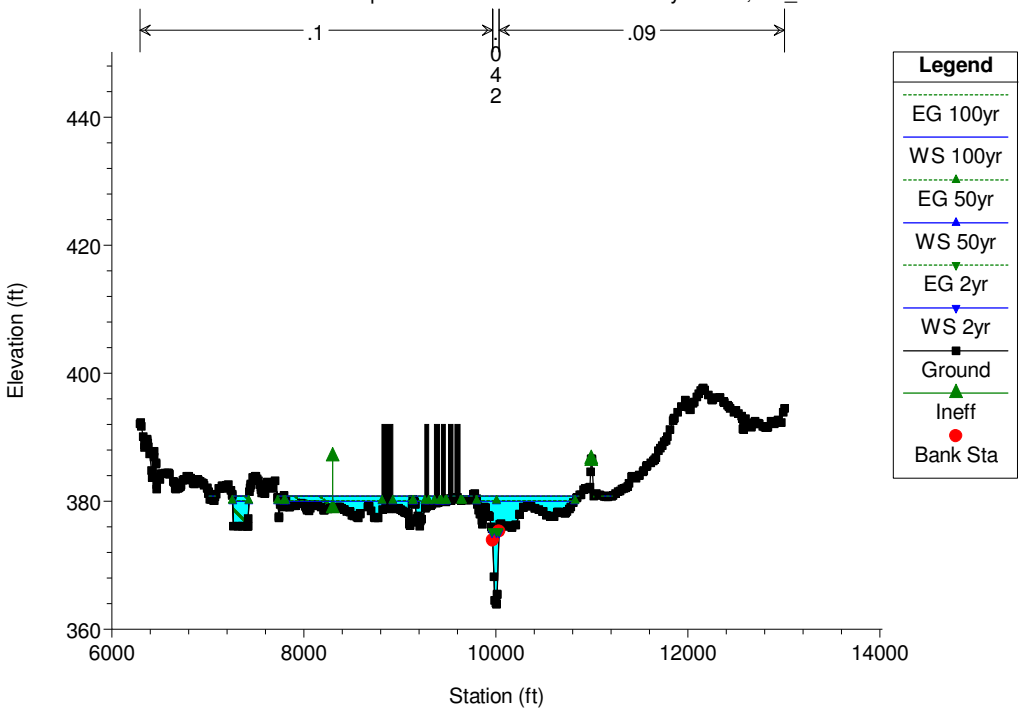
RS = 5738.9 D Interpolated based on UPS-DS Survey inverts, XS_3980.



1 in Horiz. = 2000 ft 1 in Vert. = 30 ft

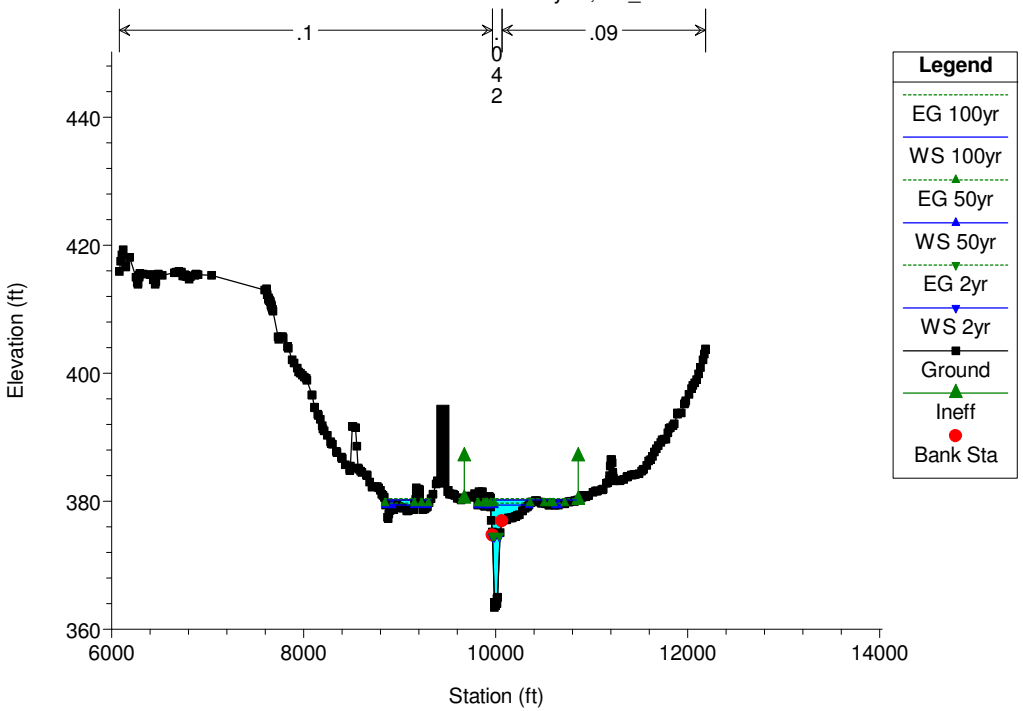
NF_Canoe Plan: Candet3 11/6/2019

RS = 4899.4 Interpolated based on UPS-DS Survey inverts, XS_3980.



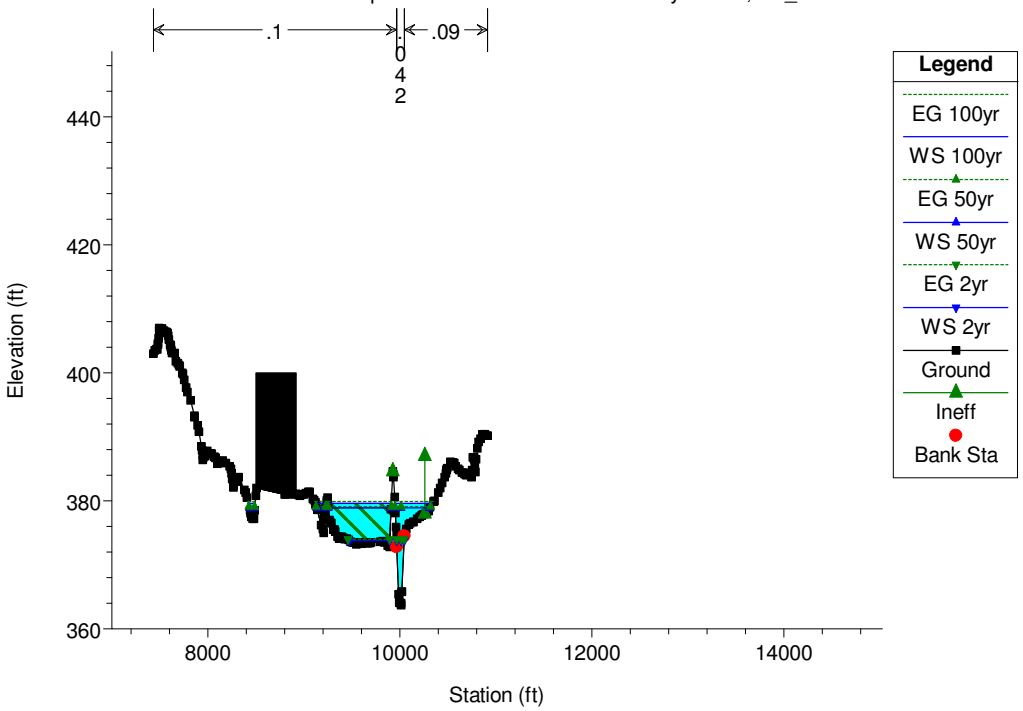
NF_Canoe Plan: Candet3 11/6/2019

RS = 3856.3 C Survey xs, XS_3729.



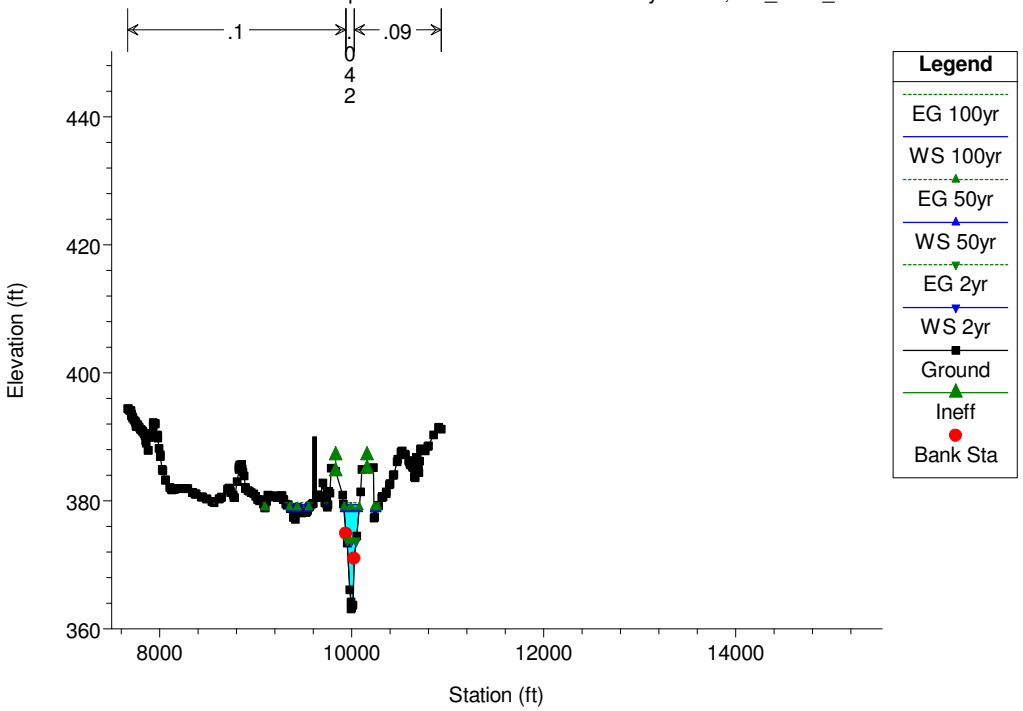
NF_Canoe Plan: Candet3 11/6/2019

RS = 3073.1 Interpolated based on UPS-DS Survey inverts, XS_3729.



NF_Canoe Plan: Candet3 11/6/2019

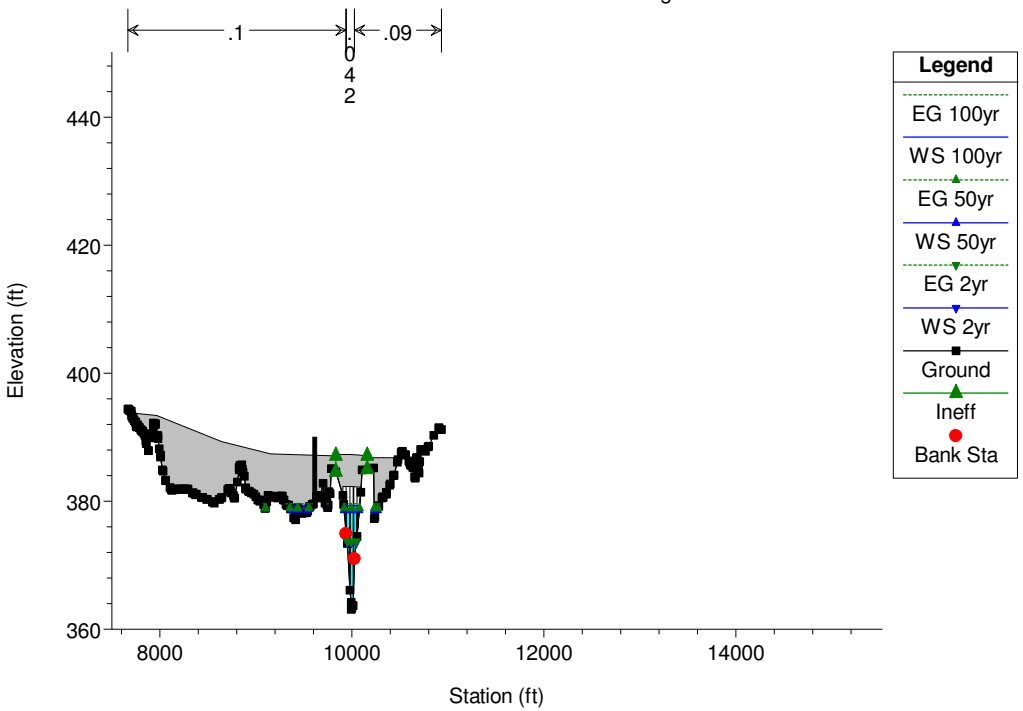
RS = 2858.5 Interpolated based on UPS-DS Survey inverts, BR_2665_US.



1 in Horiz. = 2000 ft 1 in Vert. = 30 ft

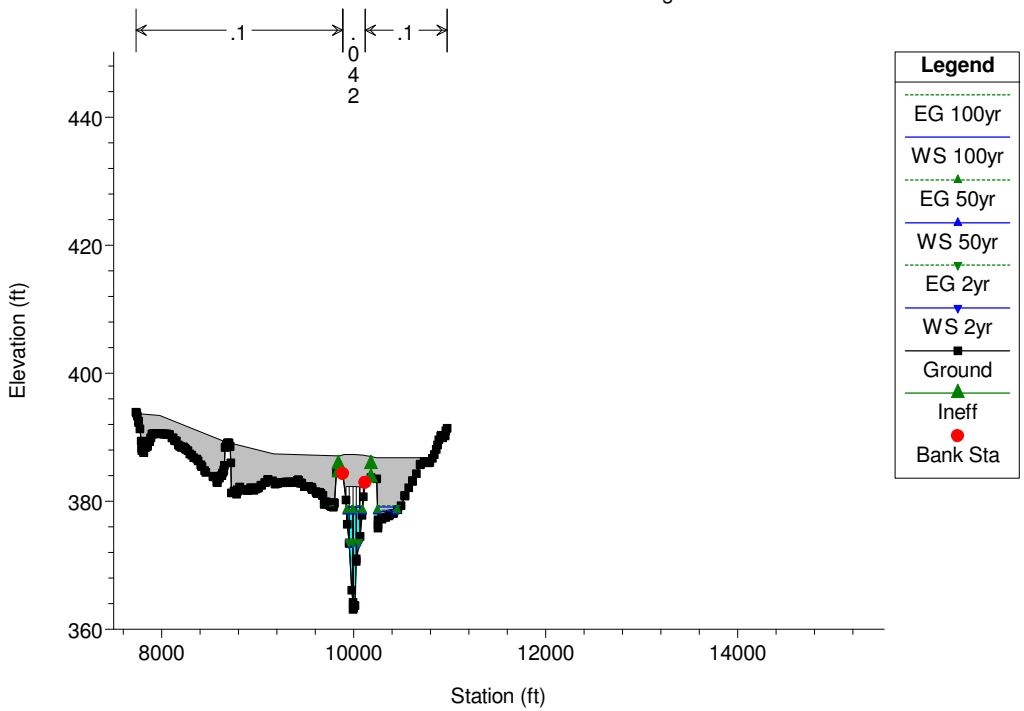
NF_Canoe Plan: Candet3 11/6/2019

RS = 2791.8 BR Railroad Bridge



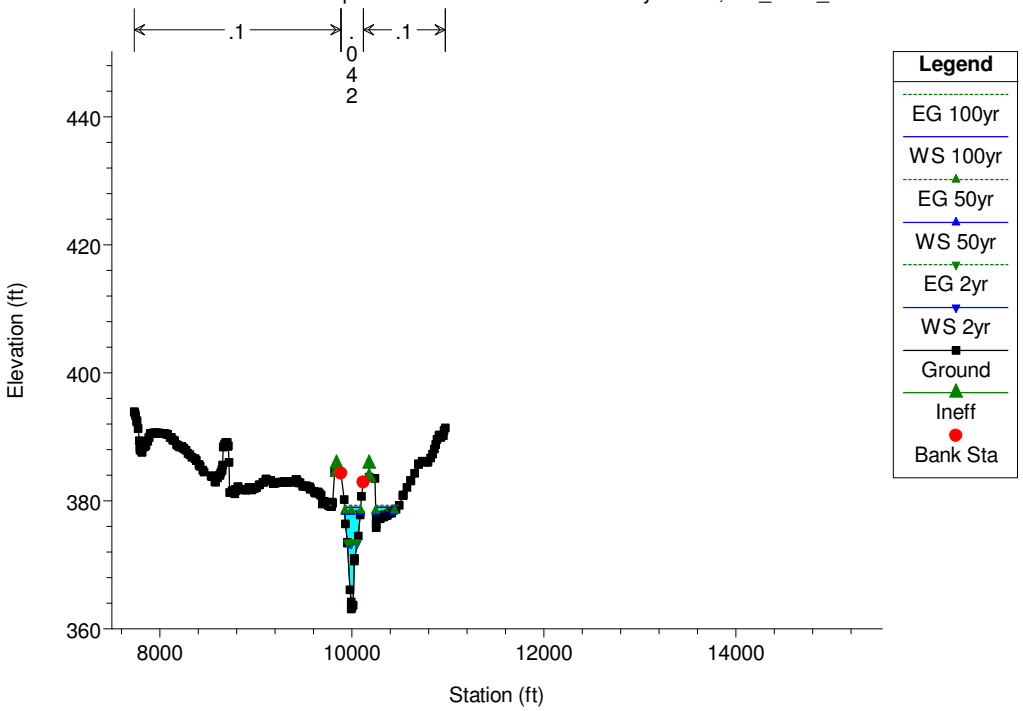
NF_Canoe Plan: Candet3 11/6/2019

RS = 2791.8 BR Railroad Bridge



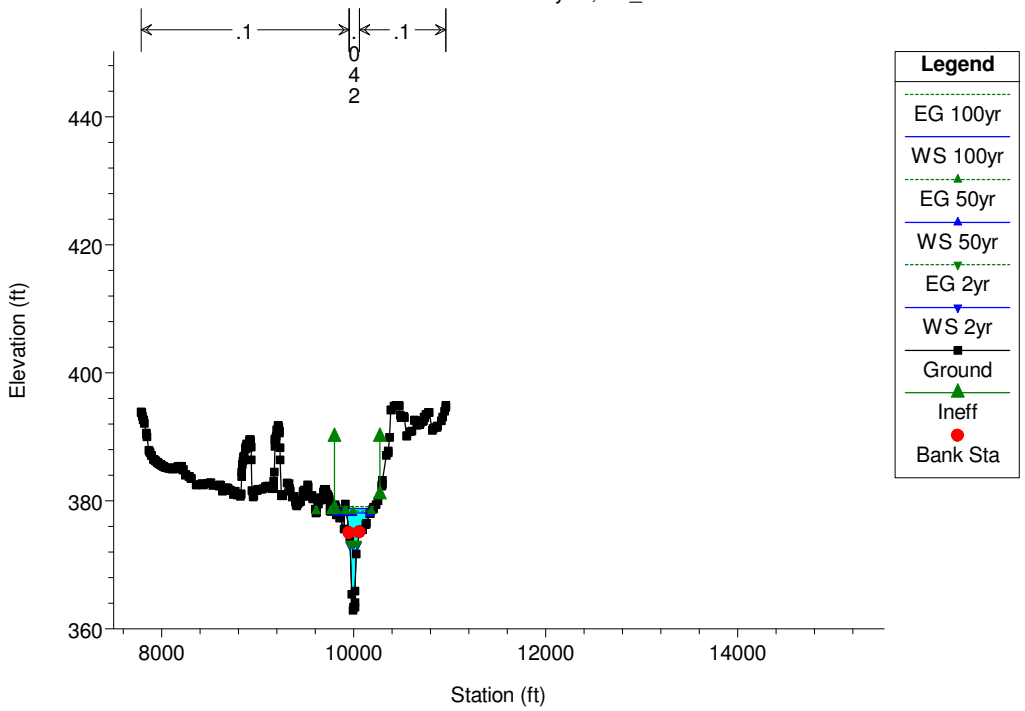
NF_Canoe Plan: Candet3 11/6/2019

RS = 2724. Interpolated based on UPS-DS Survey inverts, BR_2665_DS.



NF_Canoe Plan: Candet3 11/6/2019

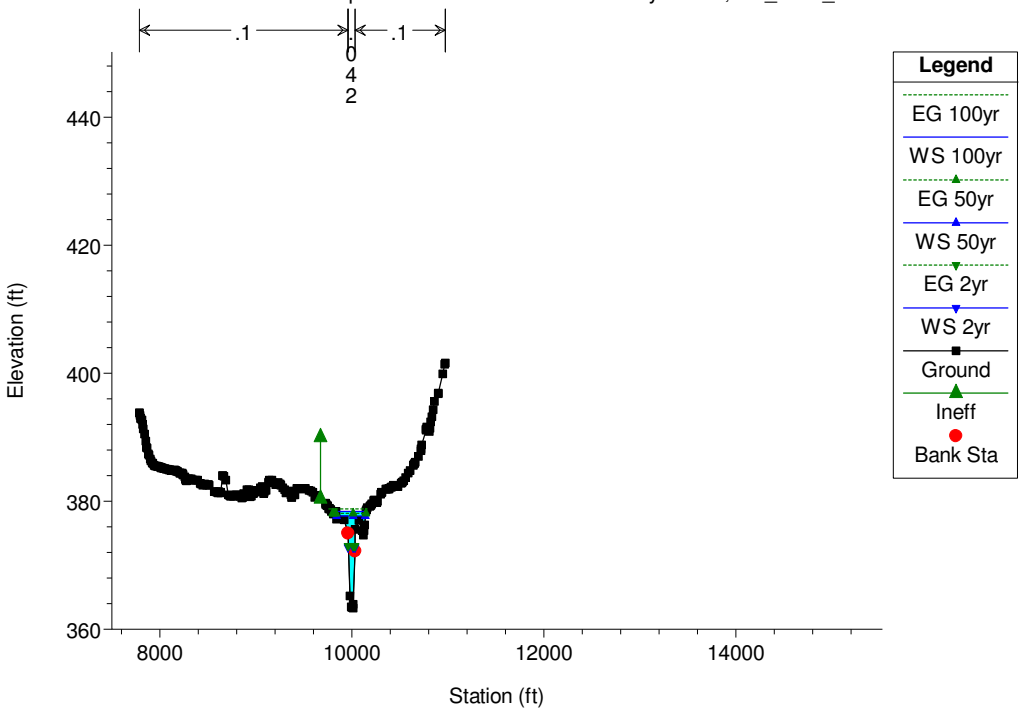
RS = 2538.1 B Survey xs, XS_2411.



1 in Horiz. = 2000 ft 1 in Vert. = 30 ft

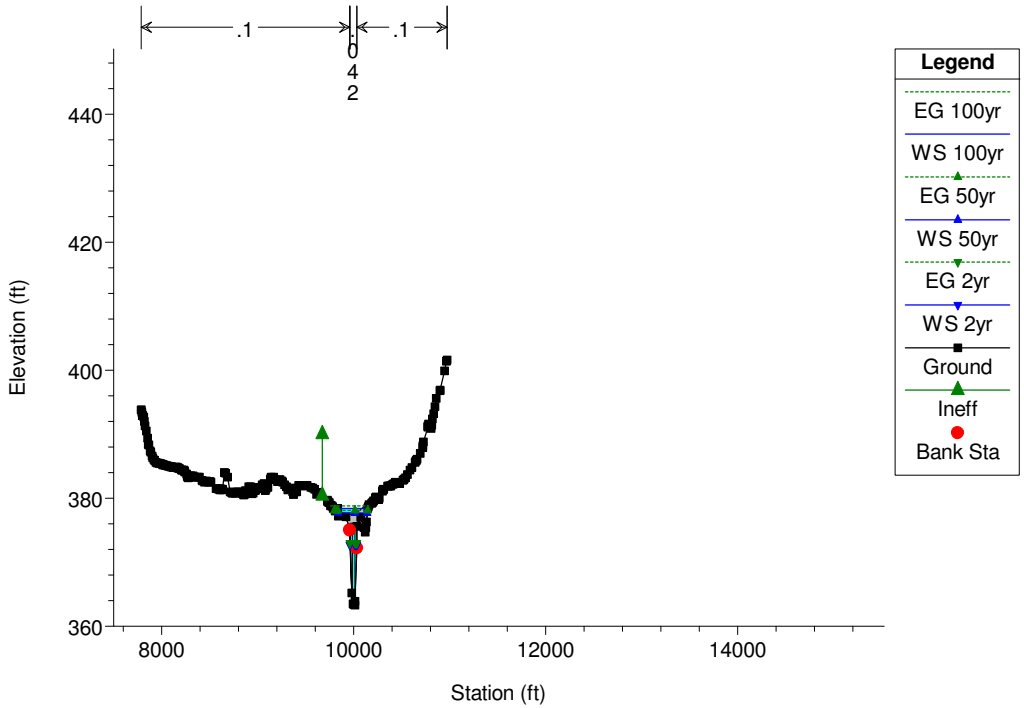
NF_Canoe Plan: Candet3 11/6/2019

RS = 2326.2 Interpolated based on UPS-DS Survey inverts, BR_2140_US.



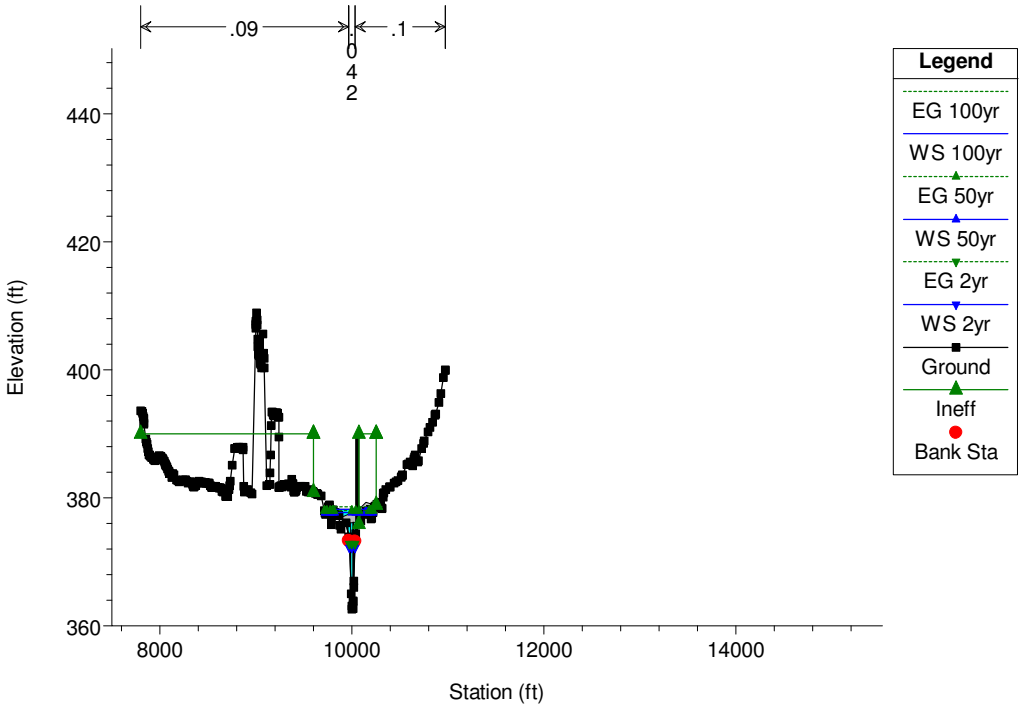
NF_Canoe Plan: Candet3 11/6/2019

RS = 2266.8 BR KY-136



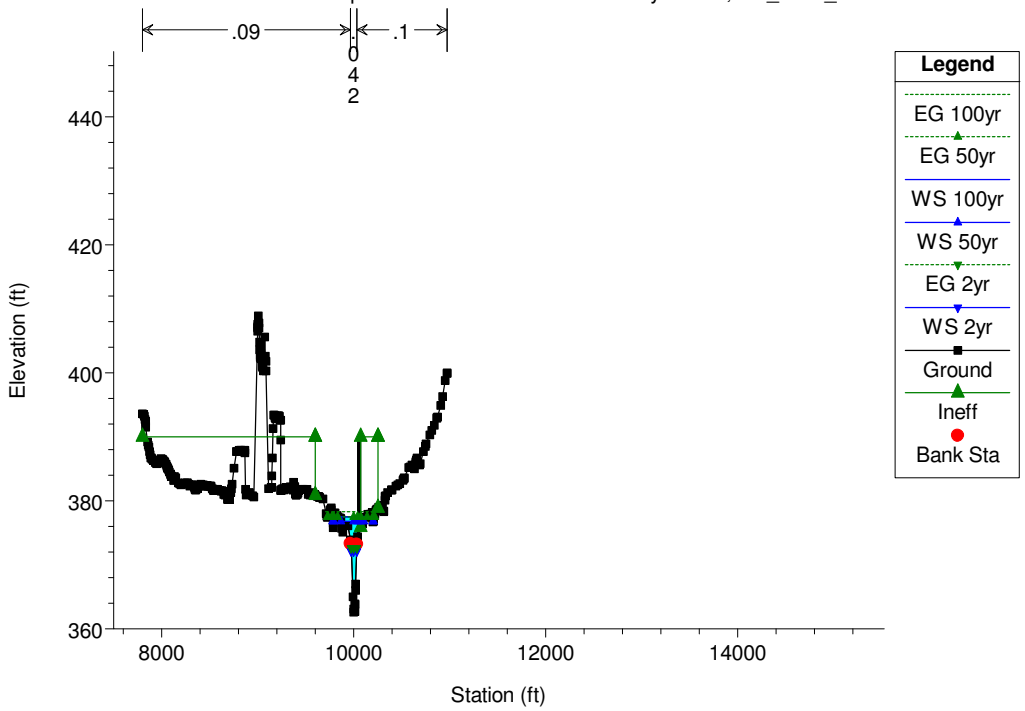
NF_Canoe Plan: Candet3 11/6/2019

RS = 2266.8 BR KY-136



NF_Canoe Plan: Candet3 11/6/2019

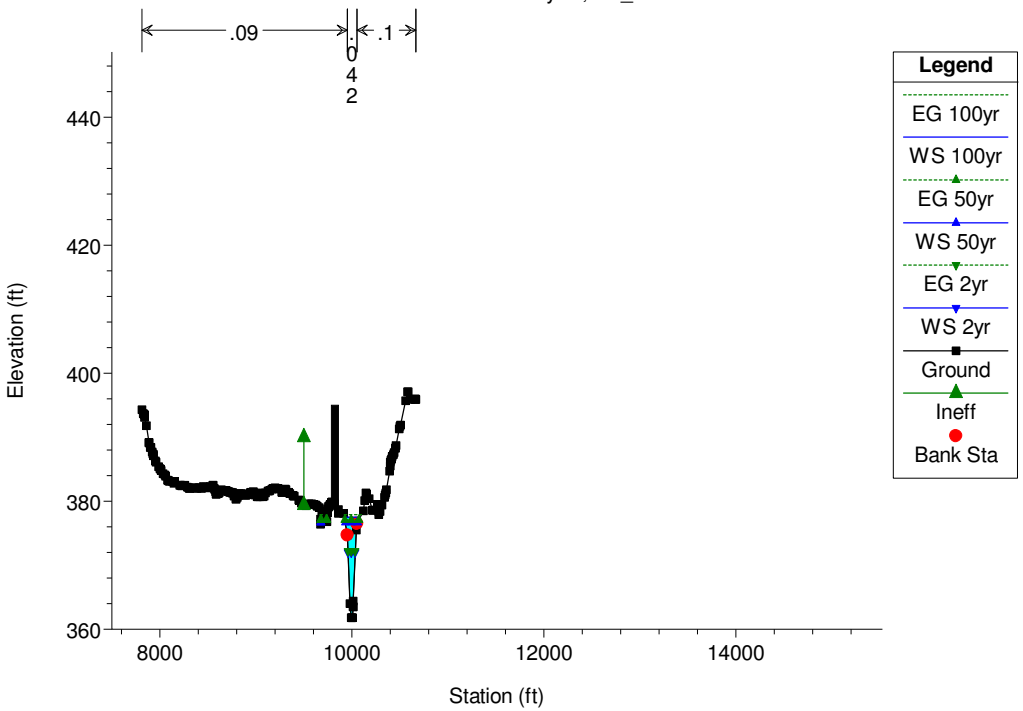
RS = 2223.8 Interpolated based on UPS-DS Survey inverts, BR_2140_DS.



1 in Horiz. = 2000 ft 1 in Vert. = 30 ft

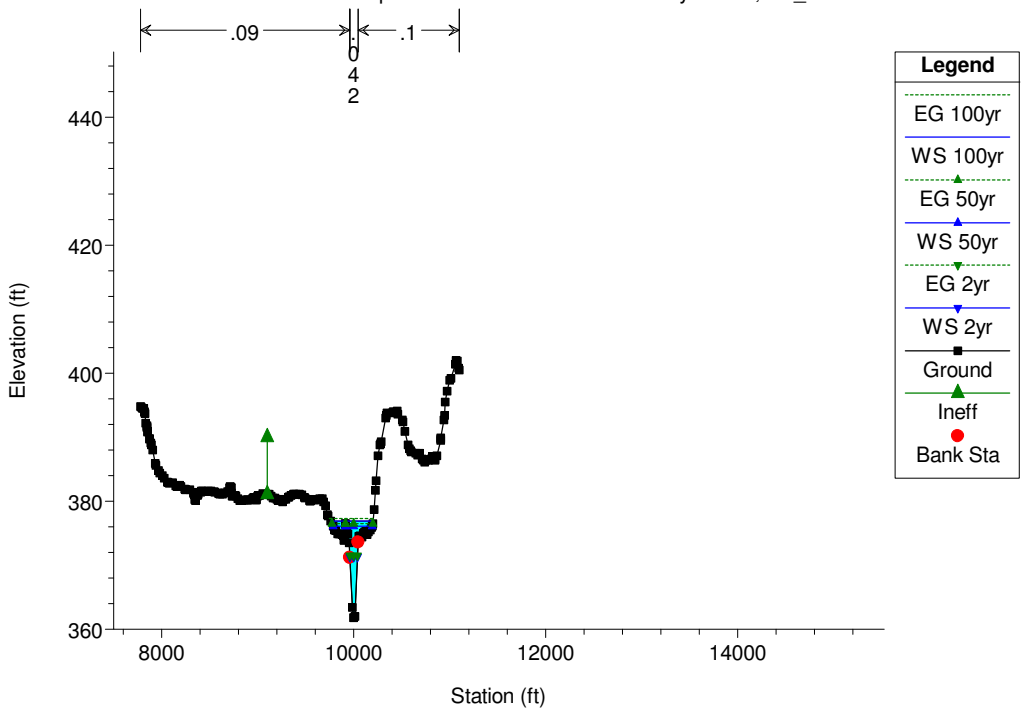
NF_Canoe Plan: Candet3 11/6/2019

RS = 2073.1 Survey xs, XS_1946.



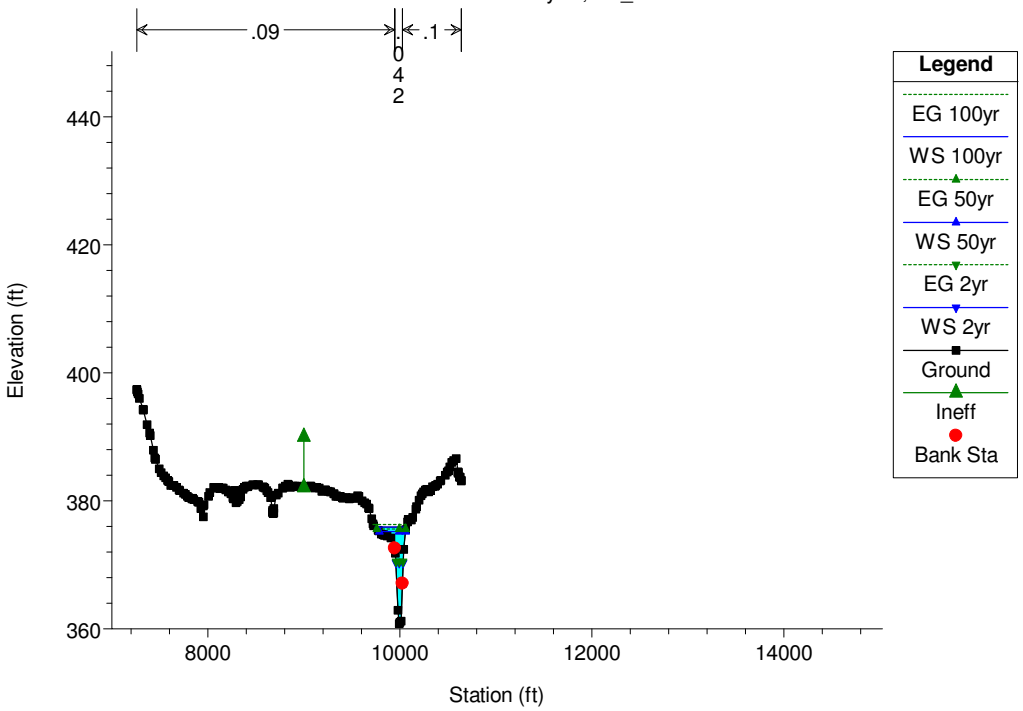
NF_Canoe Plan: Candet3 11/6/2019

RS = 1455.4 A Interpolated based on UPS-DS Survey inverts, XS_1946.



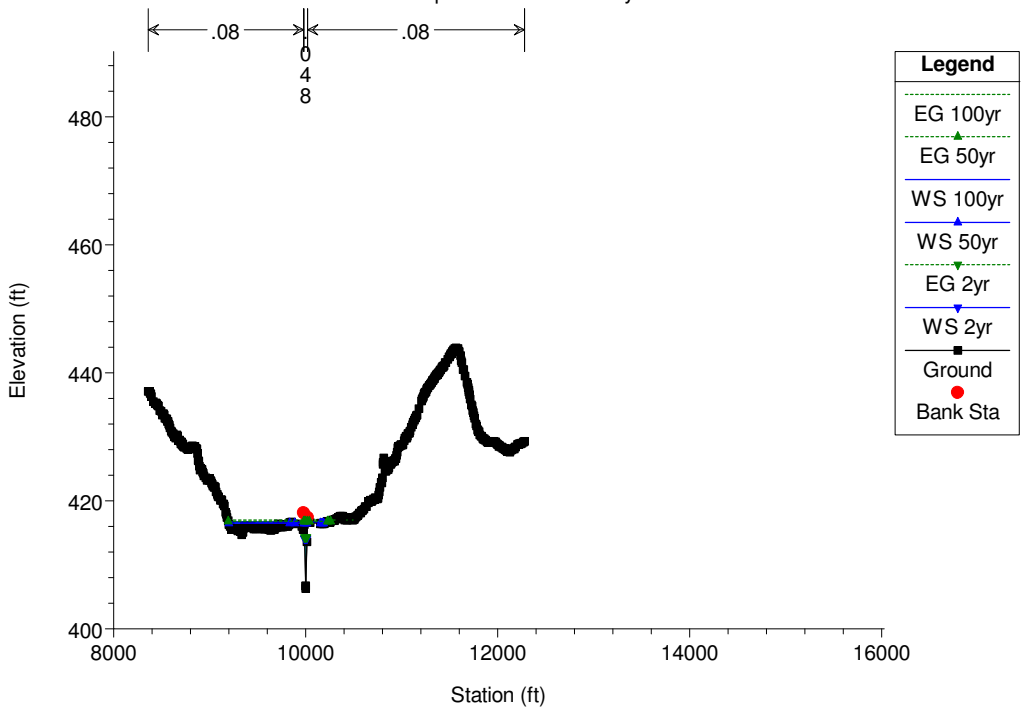
NF_Canoe Plan: Candet3 11/6/2019

RS = 450.5 Survey xs, XS_324.



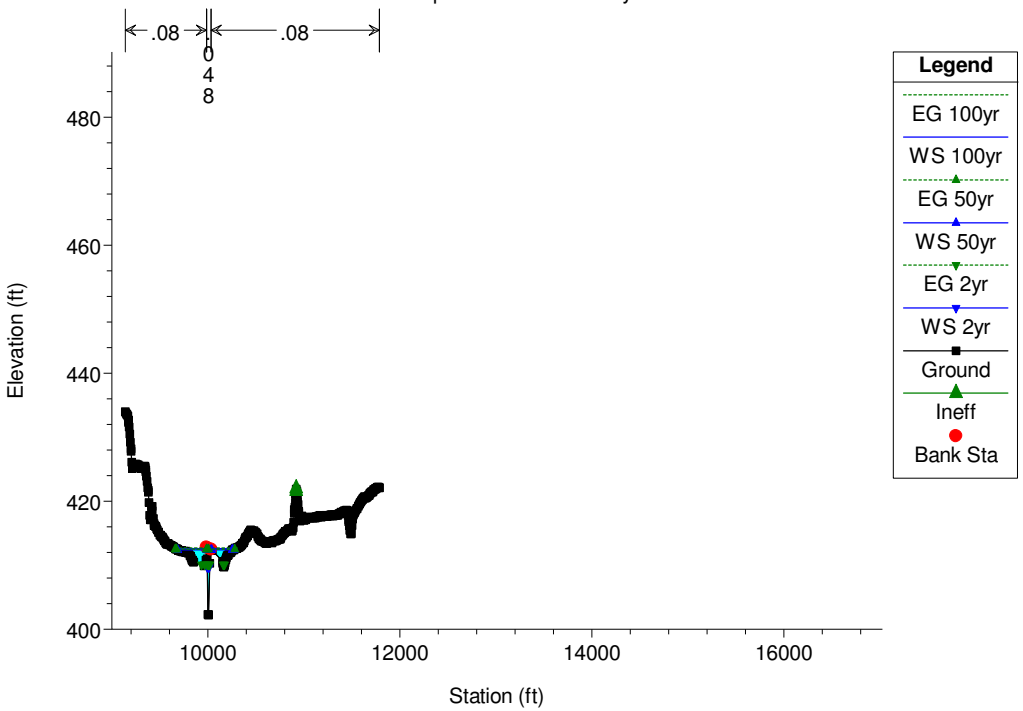
NF_Canoe Plan: Candet3 11/6/2019

RS = 38011.5 XS Upstream/North of Hwy 60 and east of RR

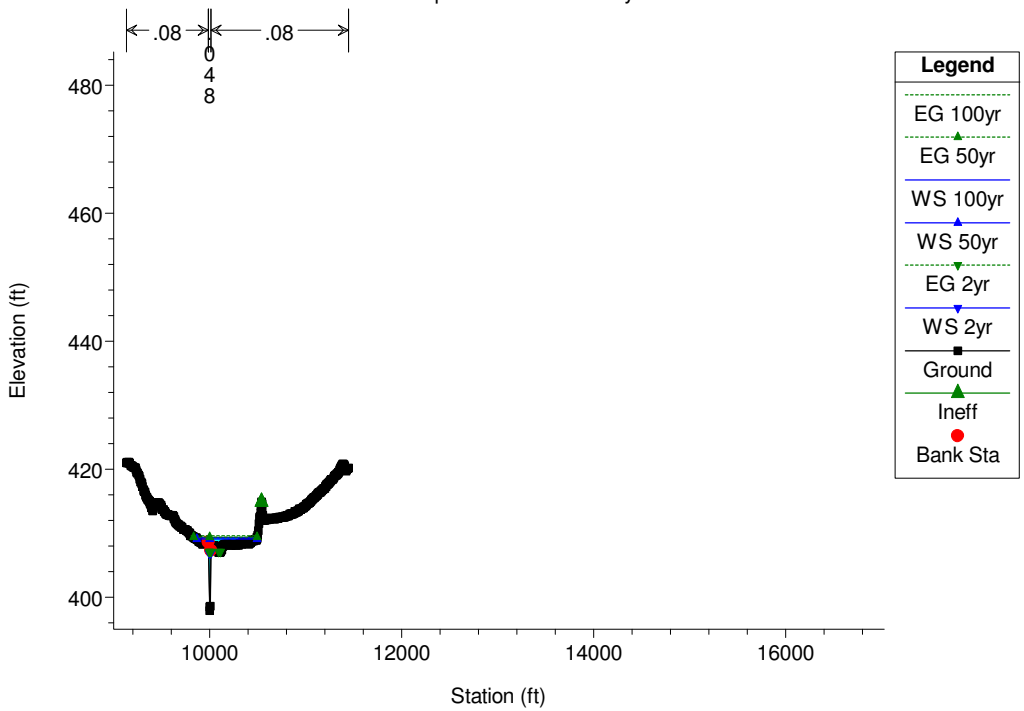


1 in Horiz. = 2000 ft 1 in Vert. = 30 ft

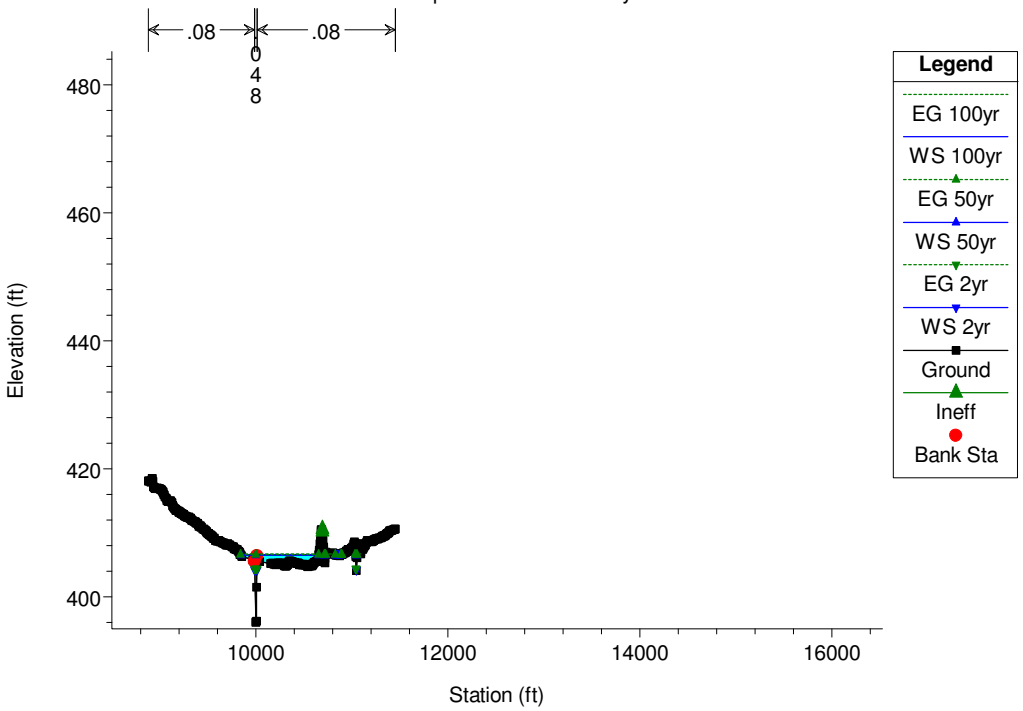
NF_Canoe Plan: Candet3 11/6/2019
RS = 37046.5 XS Upstream/North of Hwy 60 and east of RR



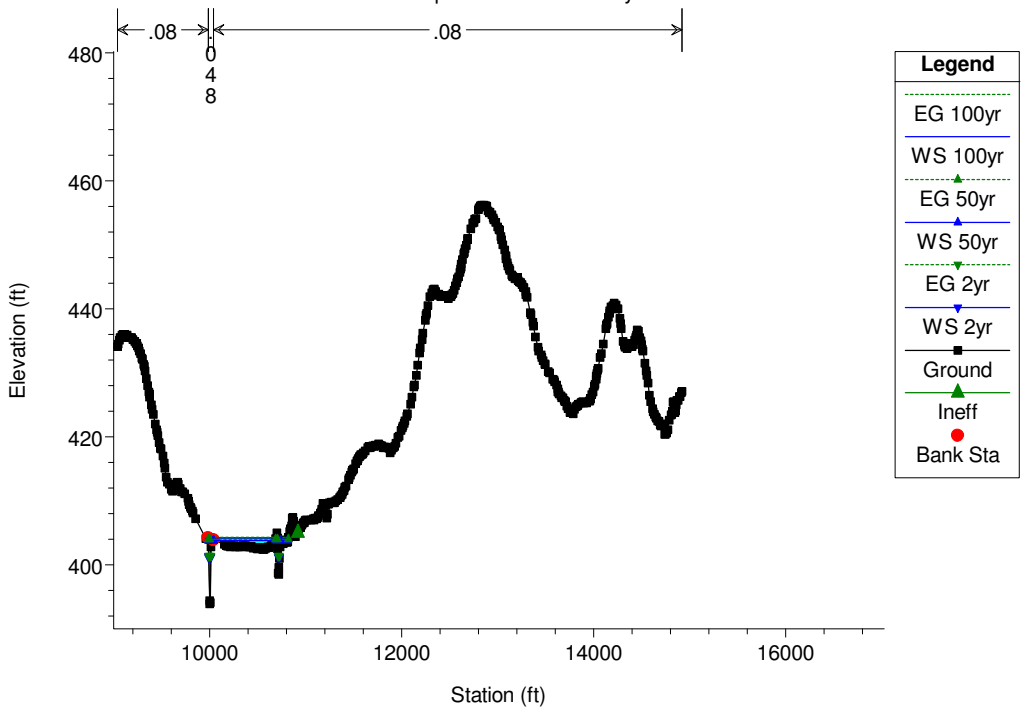
NF_Canoe Plan: Candet3 11/6/2019
RS = 36058.4 XS Upstream/North of Hwy 60 and east of RR



NF_Canoe Plan: Candet3 11/6/2019
RS = 34775.6 XS Upstream/North of Hwy 60 and east of RR



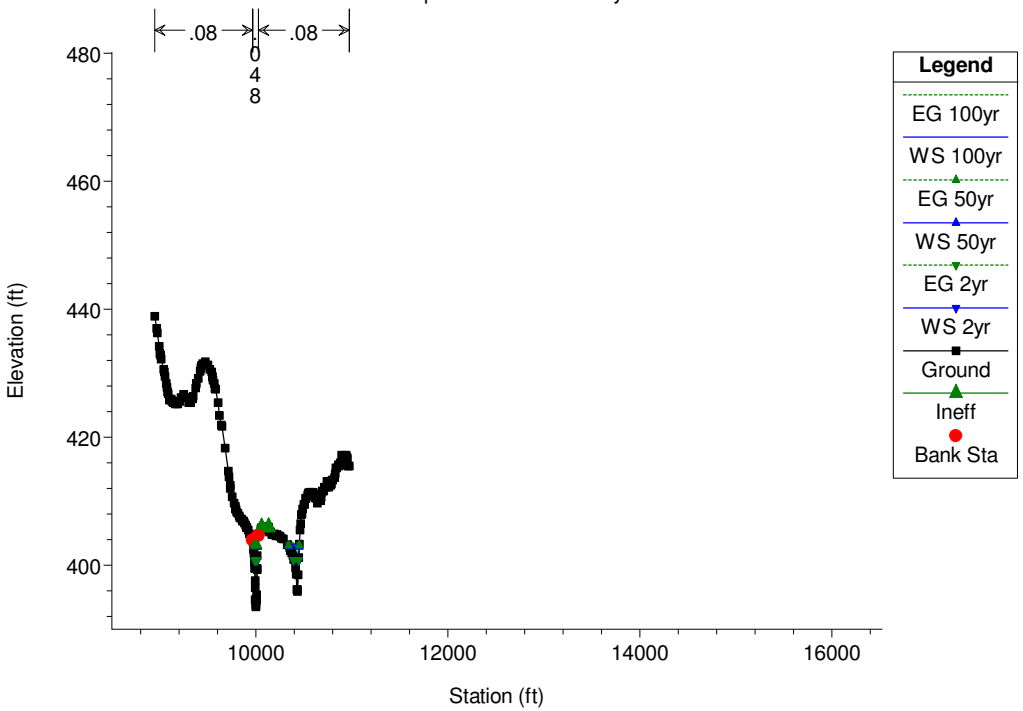
NF_Canoe Plan: Candet3 11/6/2019
RS = 33442.3 XS Upstream/North of Hwy 60 and east of RR



1 in Horiz. = 2000 ft 1 in Vert. = 30 ft

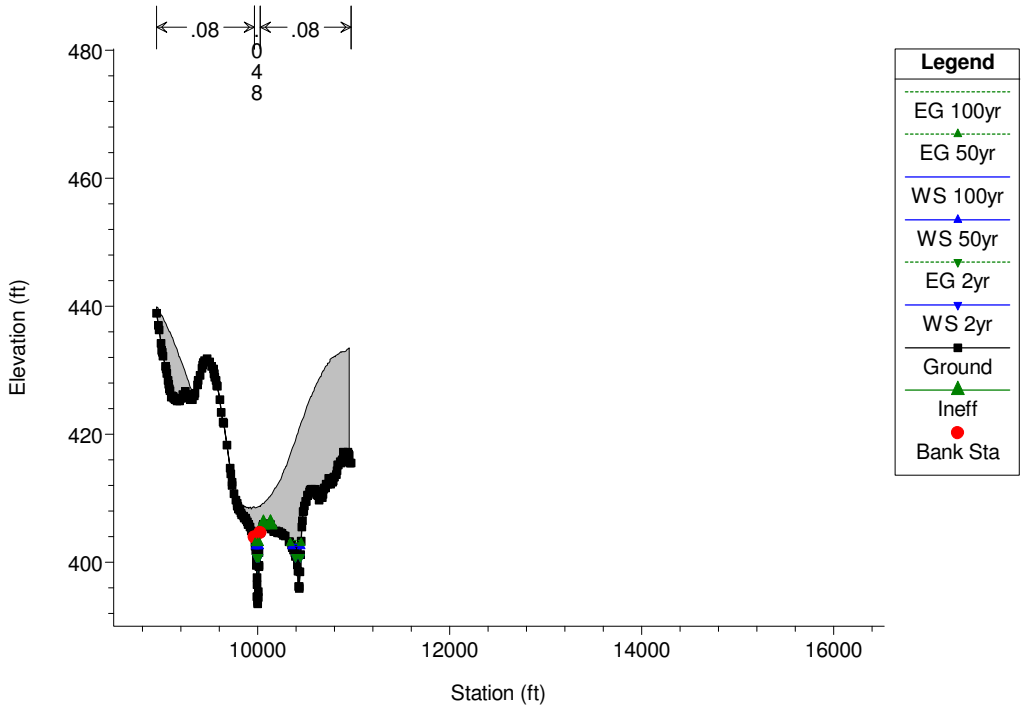
NF_Canoe Plan: Candet3 11/6/2019

RS = 33116 XS Upstream/North of Hwy 60 and east of RR



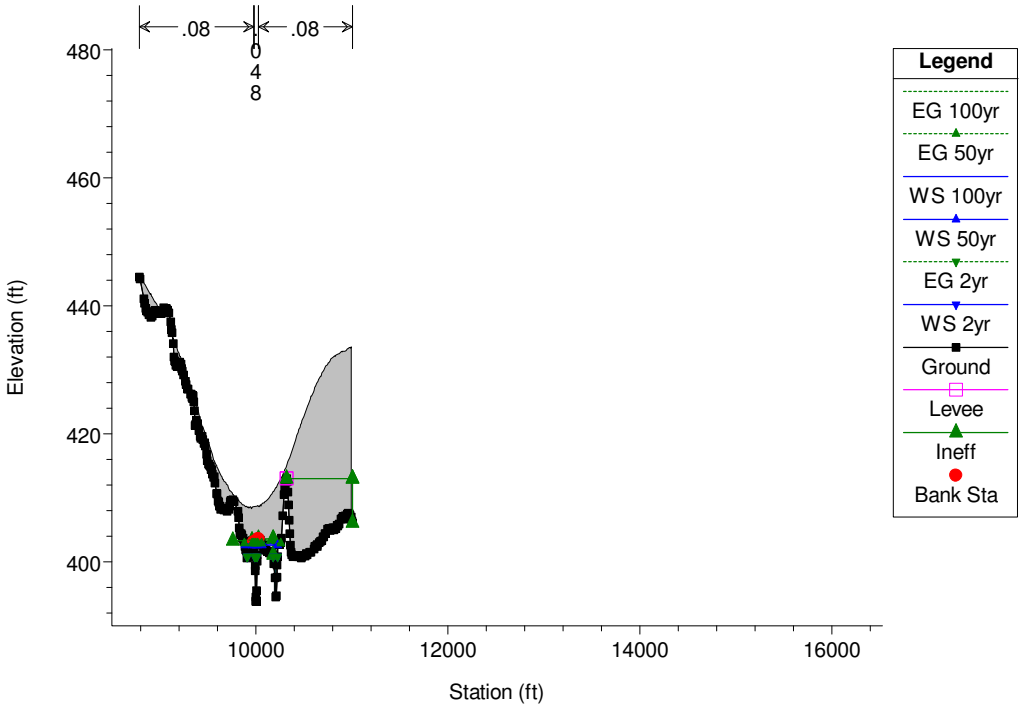
NF_Canoe Plan: Candet3 11/6/2019

RS = 33041.8 MO



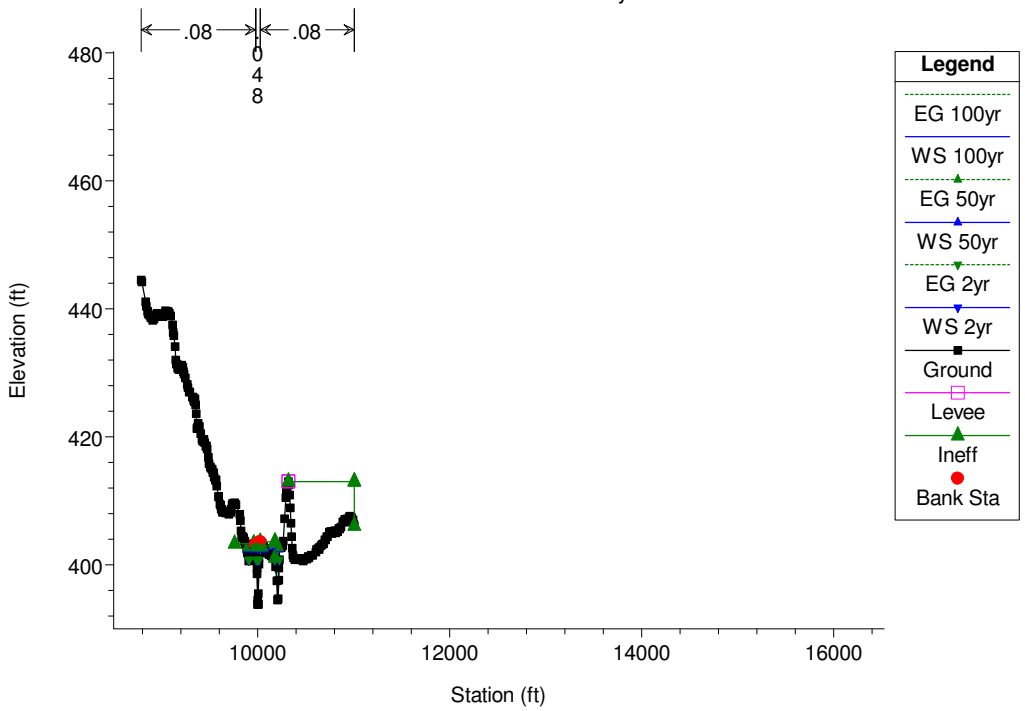
NF_Canoe Plan: Candet3 11/6/2019

RS = 33041.8 MO



NF_Canoe Plan: Candet3 11/6/2019

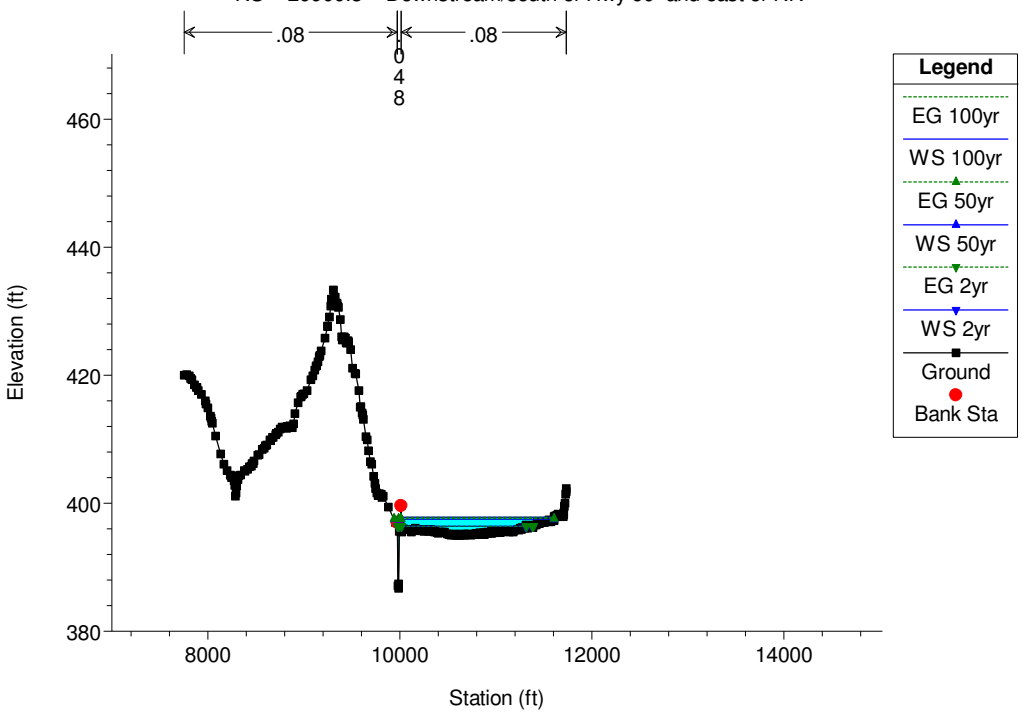
RS = 32983.9 Downstream/south of Hwy 60 and east of RR



1 in Horiz. = 2000 ft 1 in Vert. = 30 ft

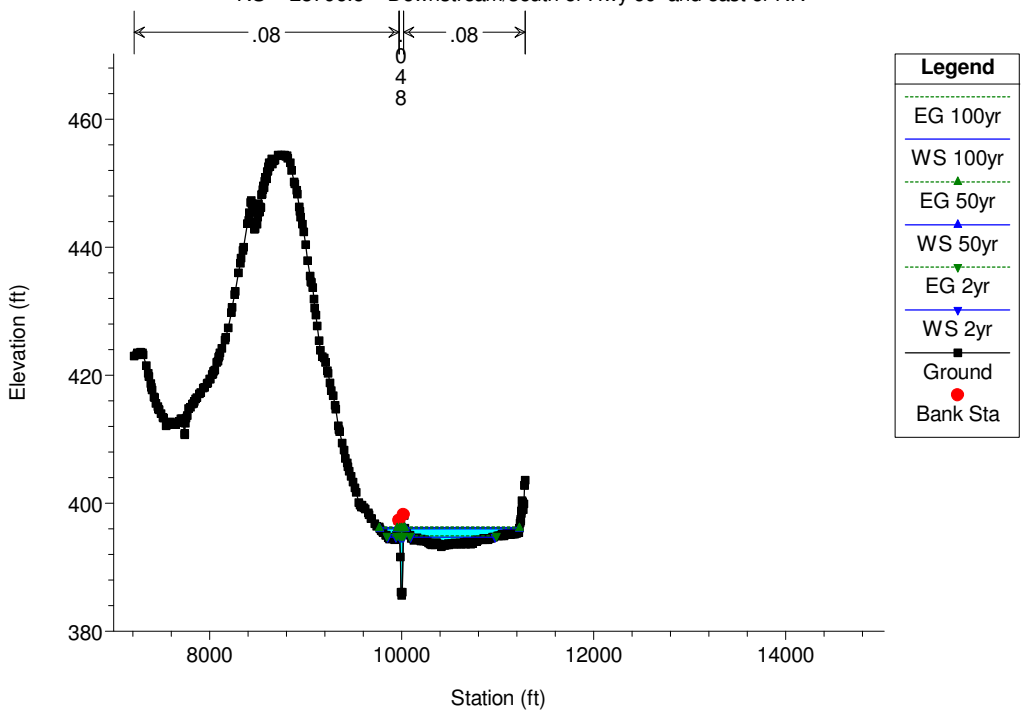
NF_Canoe Plan: Candet3 11/6/2019

RS = 29900.3 Downstream/south of Hwy 60 and east of RR



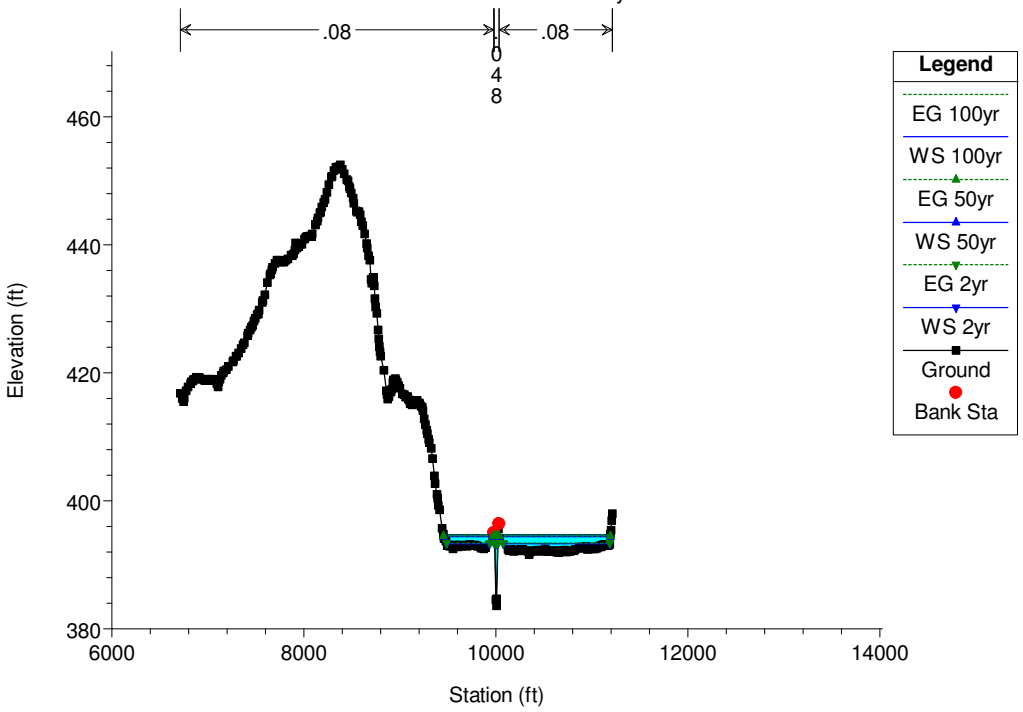
NF_Canoe Plan: Candet3 11/6/2019

RS = 28796.5 Downstream/south of Hwy 60 and east of RR



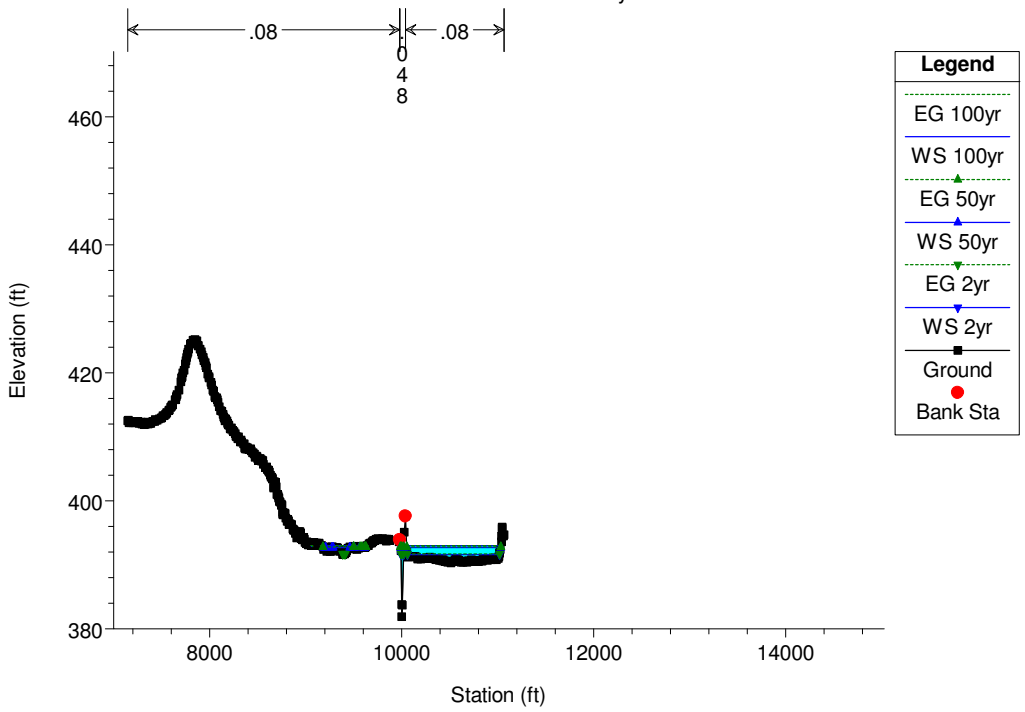
NF_Canoe Plan: Candet3 11/6/2019

RS = 27541.3 Downstream/south of Hwy 60 and east of RR



NF_Canoe Plan: Candet3 11/6/2019

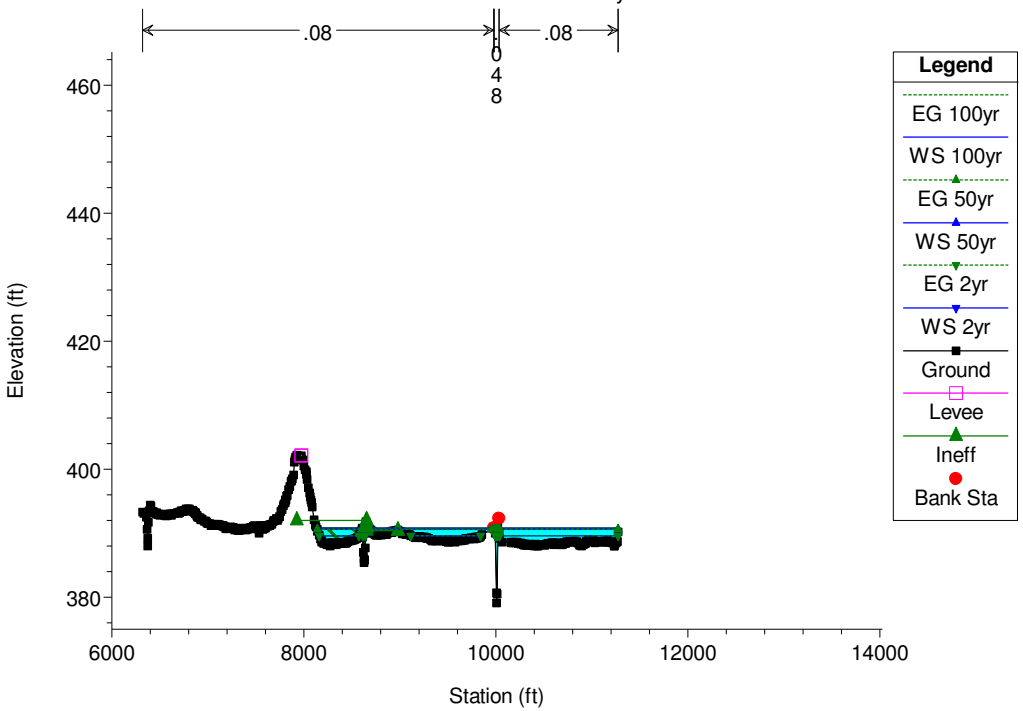
RS = 26291.9 Downstream/south of Hwy 60 and east of RR



1 in Horiz. = 2000 ft 1 in Vert. = 30 ft

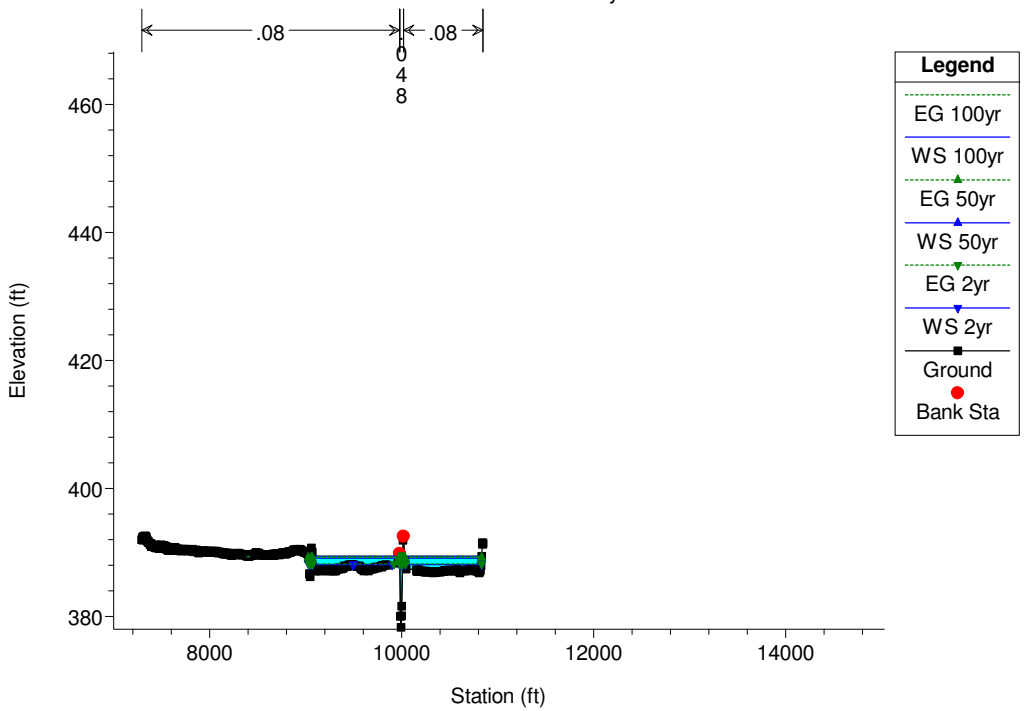
NF_Canoe Plan: Candet3 11/6/2019

RS = 24550.6 Downstream/south of Hwy 60 and east of RR



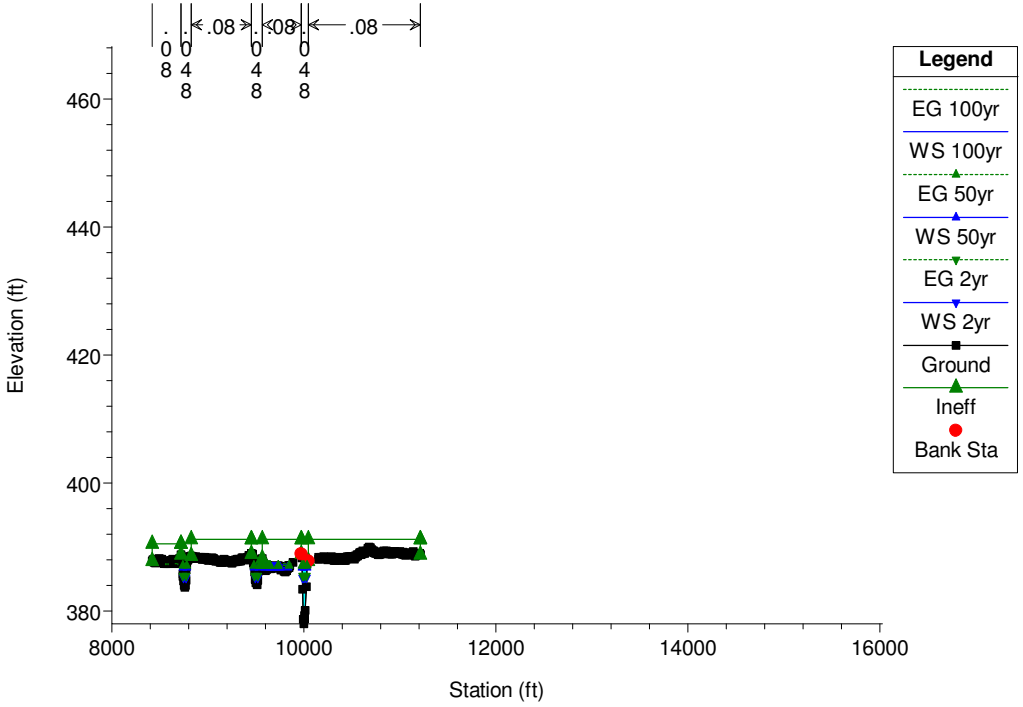
NF_Canoe Plan: Candet3 11/6/2019

RS = 23120 Downstream/south of Hwy 60 and east of RR



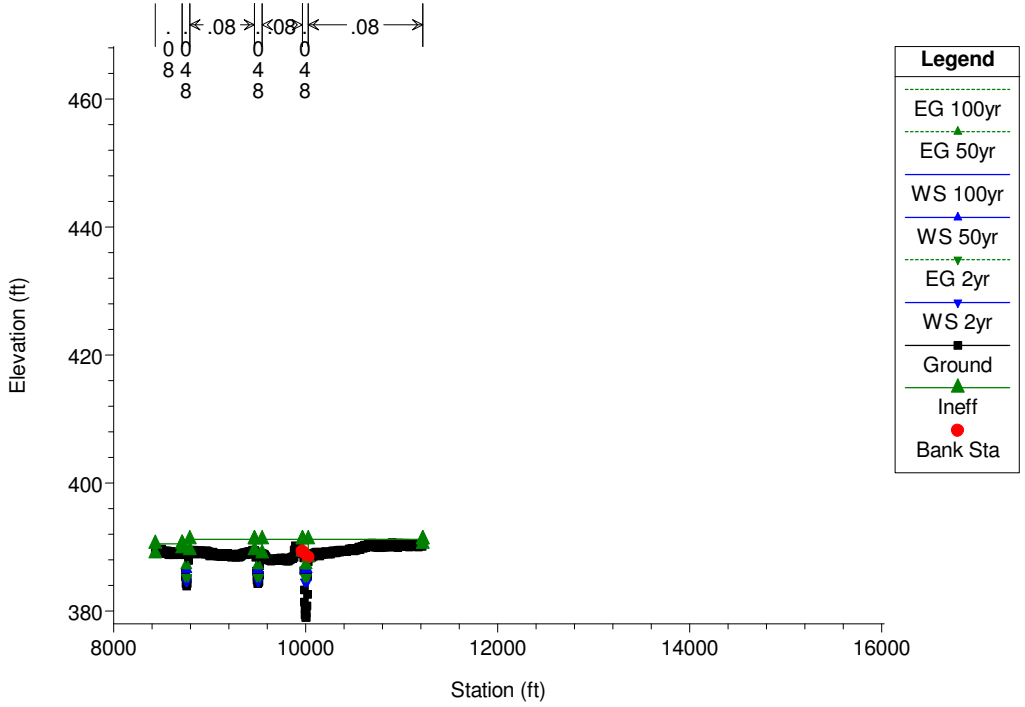
NF_Canoe Plan: Candet3 11/6/2019

RS = 21768 Downstream/south of Hwy 60 and east of RR



NF_Canoe Plan: Candet3 11/6/2019

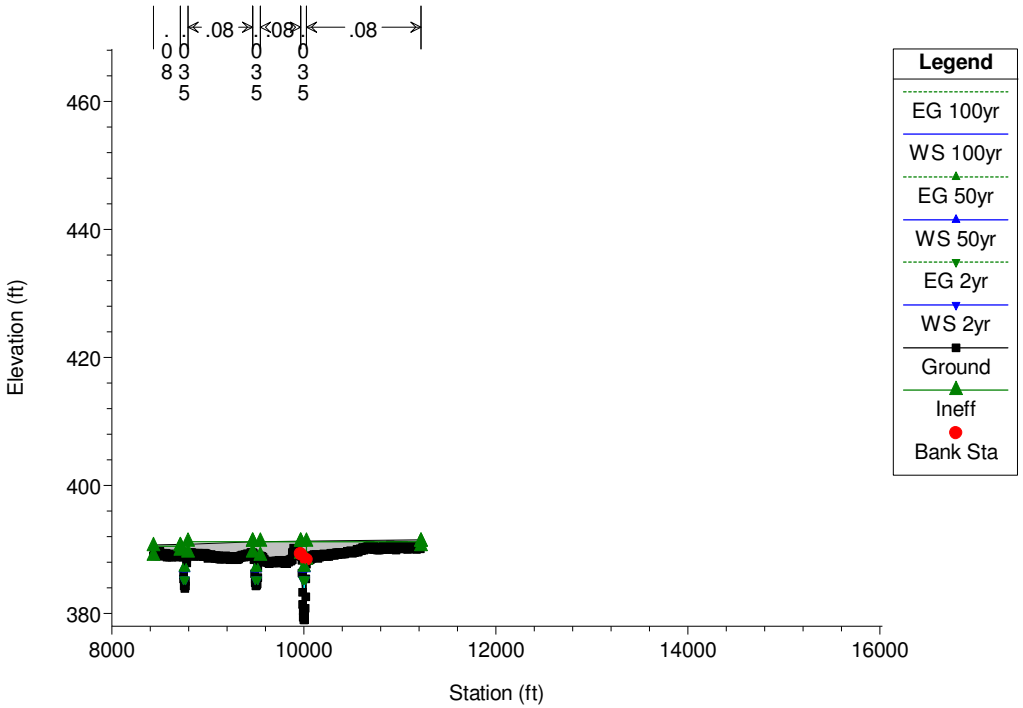
RS = 21745 Downstream/south of Hwy 60 and east of RR



1 in Horiz. = 2000 ft 1 in Vert. = 30 ft

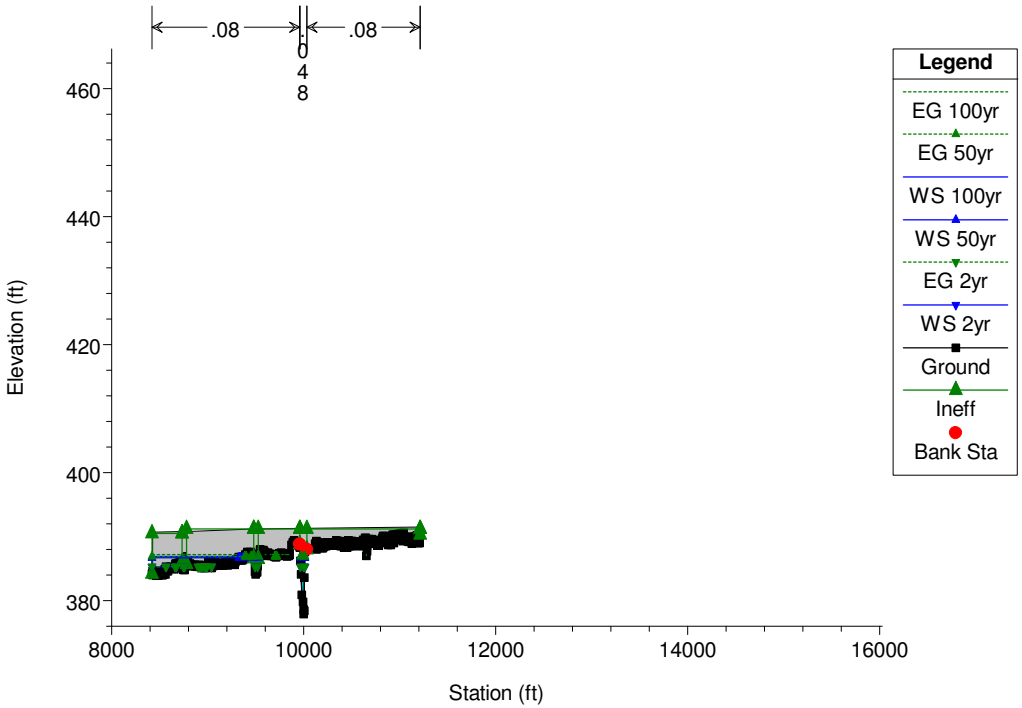
NF_Canoe Plan: Candet3 11/6/2019

RS = 21735 MO



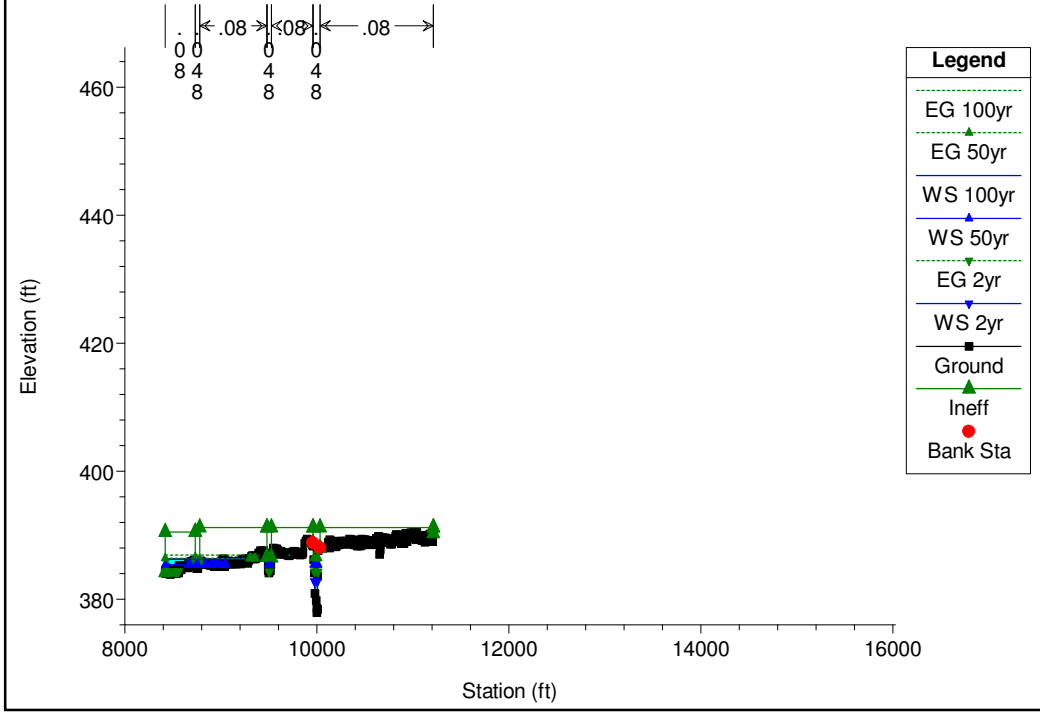
NF_Canoe Plan: Candet3 11/6/2019

RS = 21735 MO



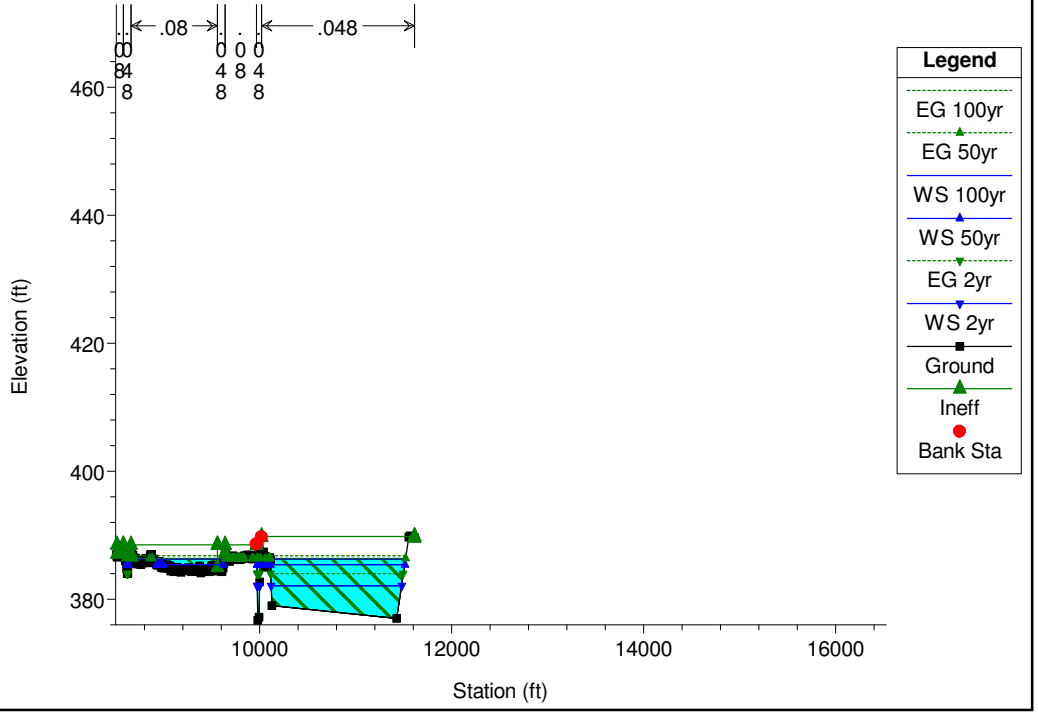
NF_Canoe Plan: Candet3 11/6/2019

RS = 21712.38 West/downstream of Canoe Creek North Fork/Railroad Crossing and



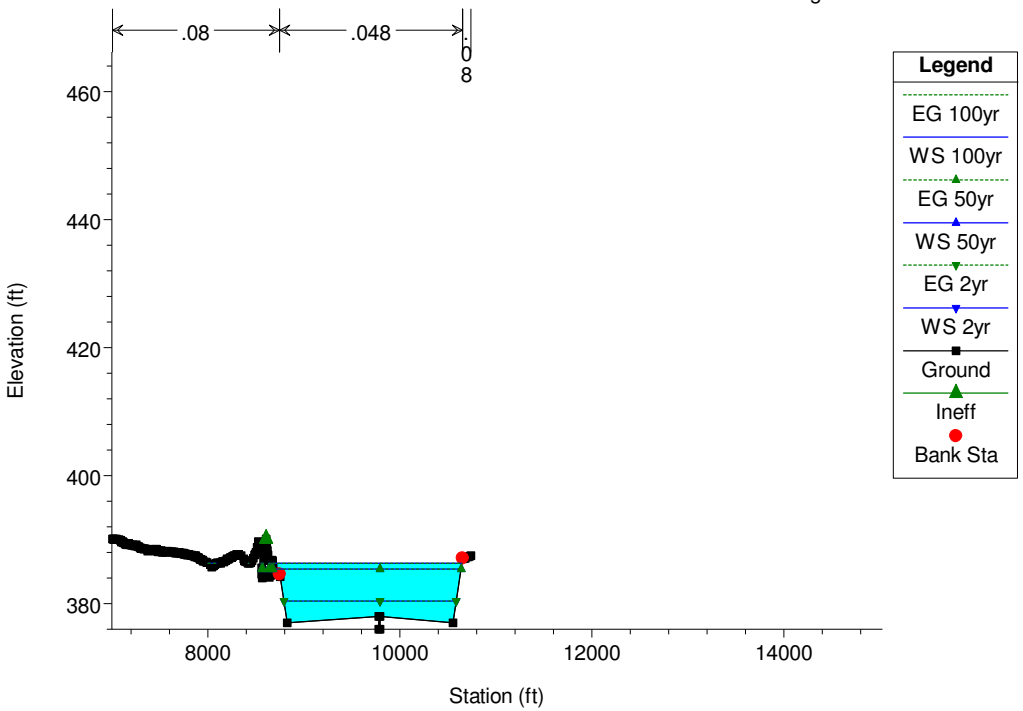
NF_Canoe Plan: Candet3 11/6/2019

RS = 21591.5 R XS west of Canoe Creek North Form/RR crossing



1 in Horiz. = 2000 ft 1 in Vert. = 30 ft

RS = 19922.4 XS west of Canoe Creek North Form/RR crossing

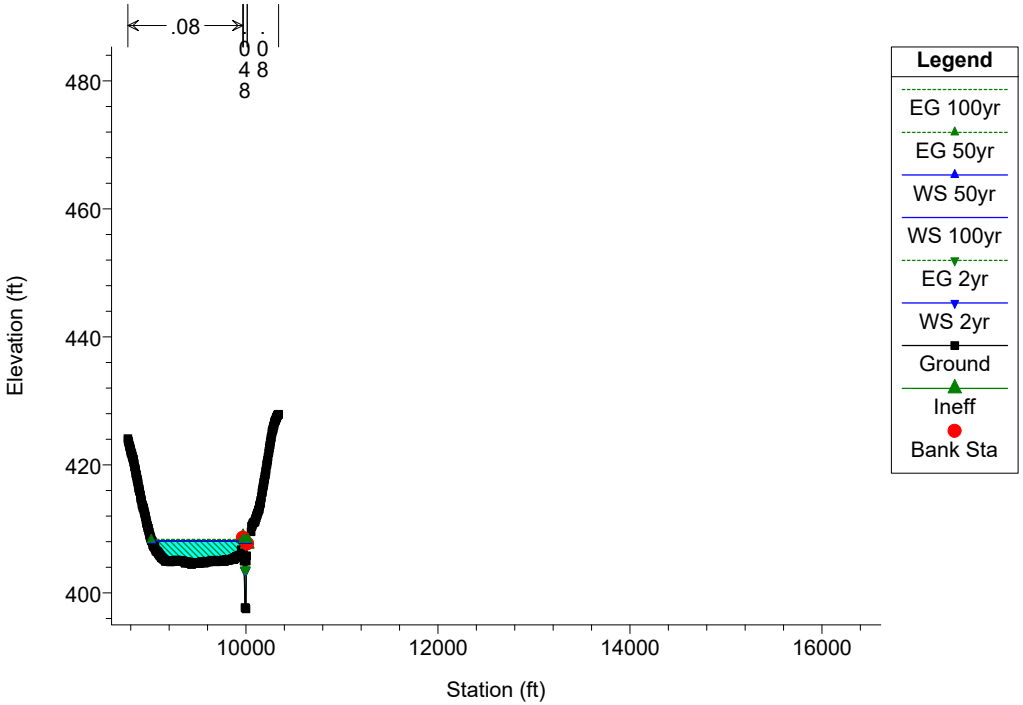


1 in Horiz. = 2000 ft 1 in Vert. = 30 ft

Appendix B-9

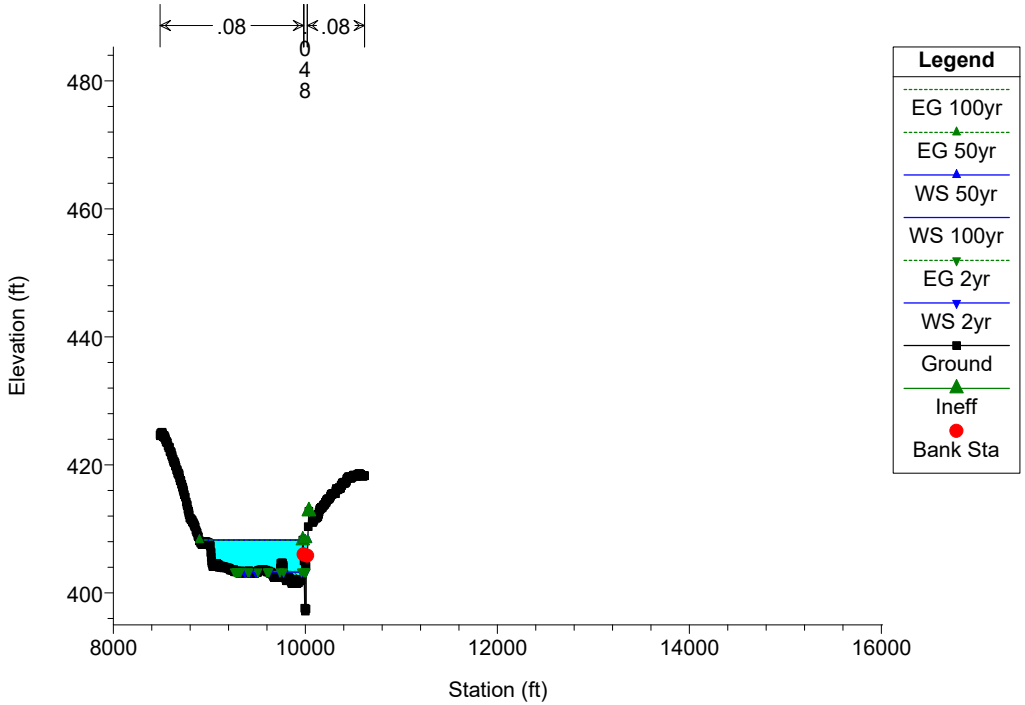
NF_Canoe Plan: Candet4 1/17/2020

RS = 31238.12 XS Upstream/North of Hwy 60 and west of RR



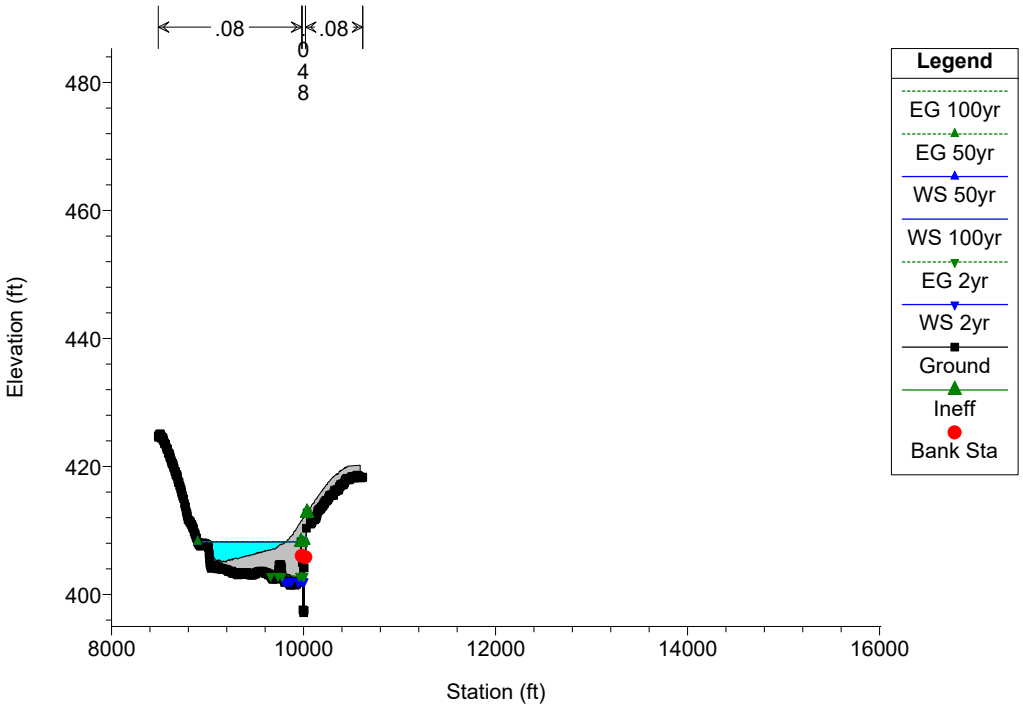
NF_Canoe Plan: Candet4 1/17/2020

RS = 31040.61 XS Just upstream/North of Hwy 60 and west of RR



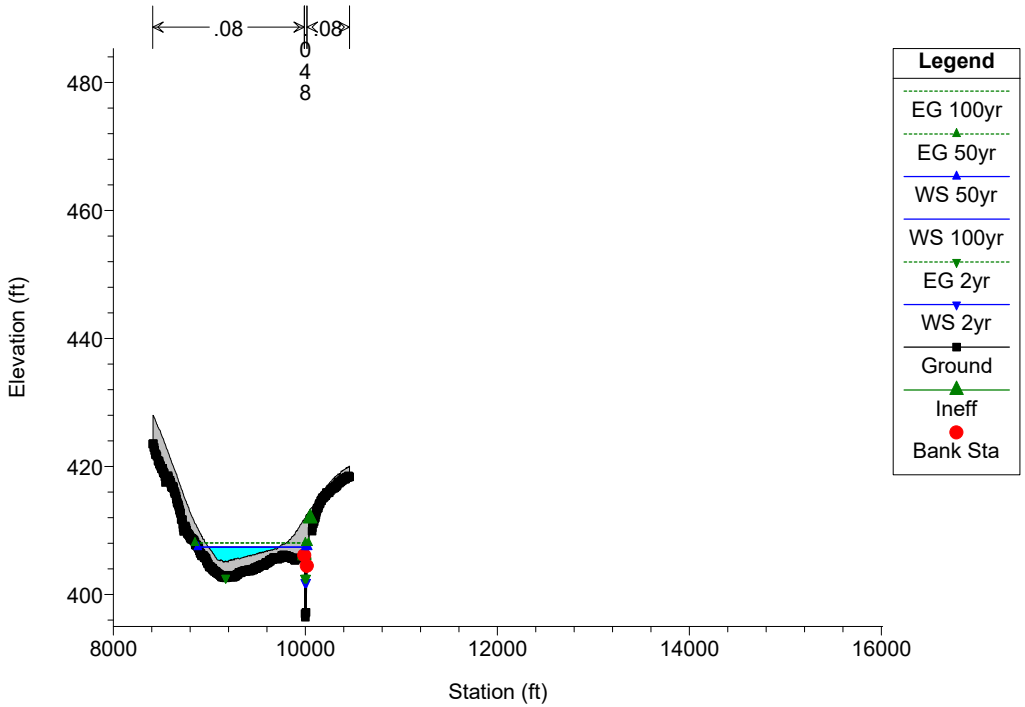
NF_Canoe Plan: Candet4 1/17/2020

RS = 31001.95 Culv



NF_Canoe Plan: Candet4 1/17/2020

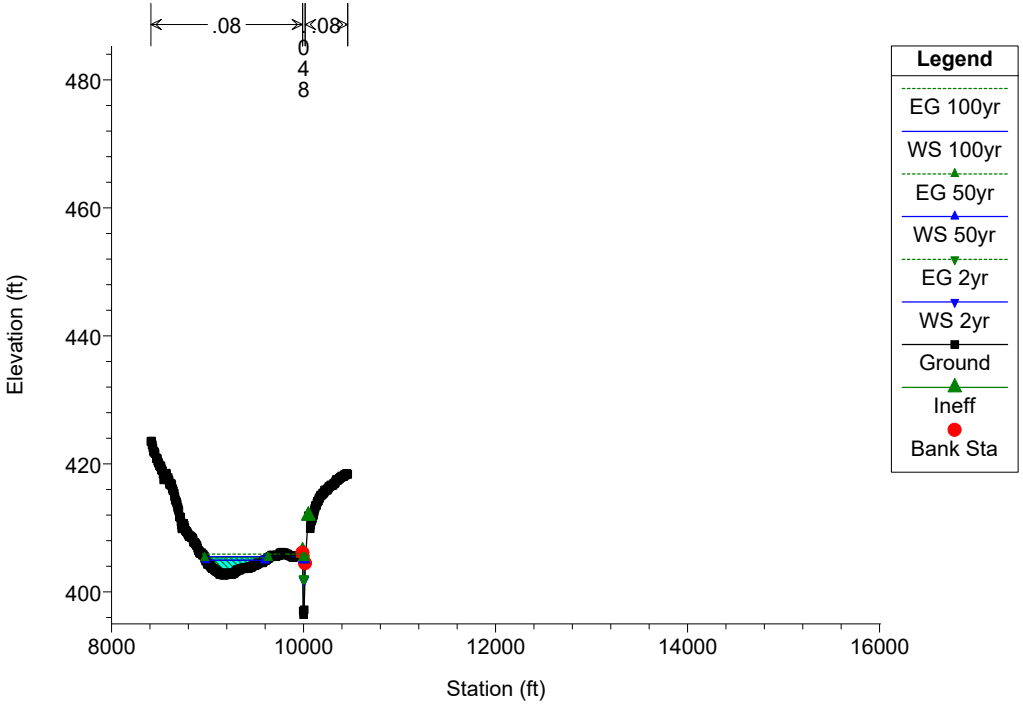
RS = 31001.95 Culv



1 in Horiz. = 2000 ft 1 in Vert. = 30 ft

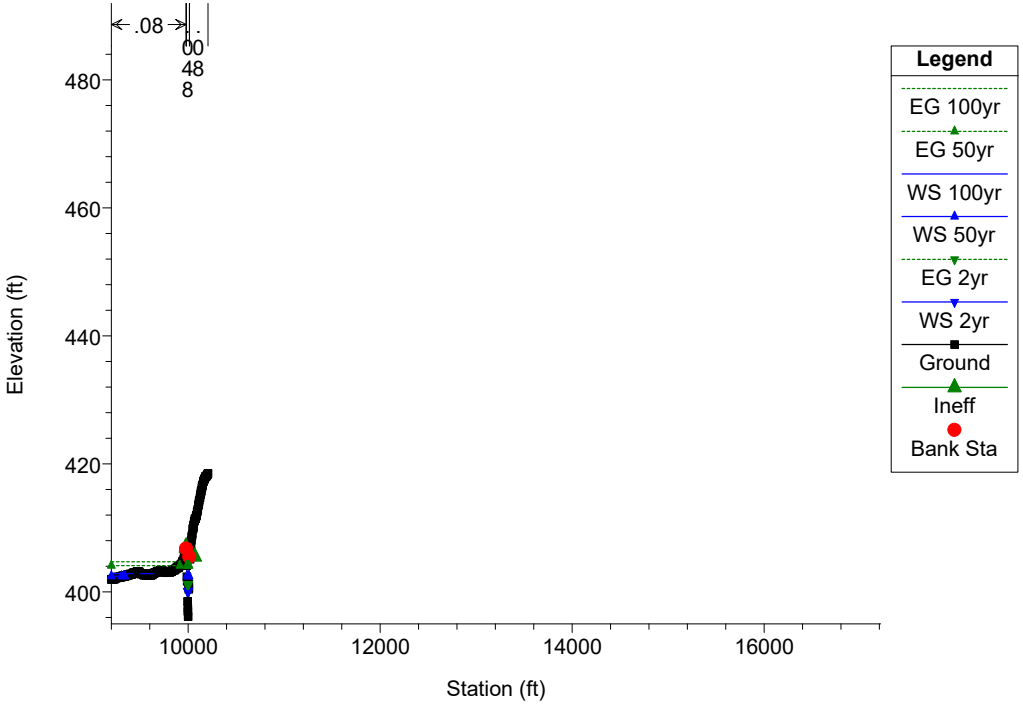
NF_Canoe Plan: Candet4 1/17/2020

RS = 30943.45 XS Just downstream/South of Hwy 60 and west of RR



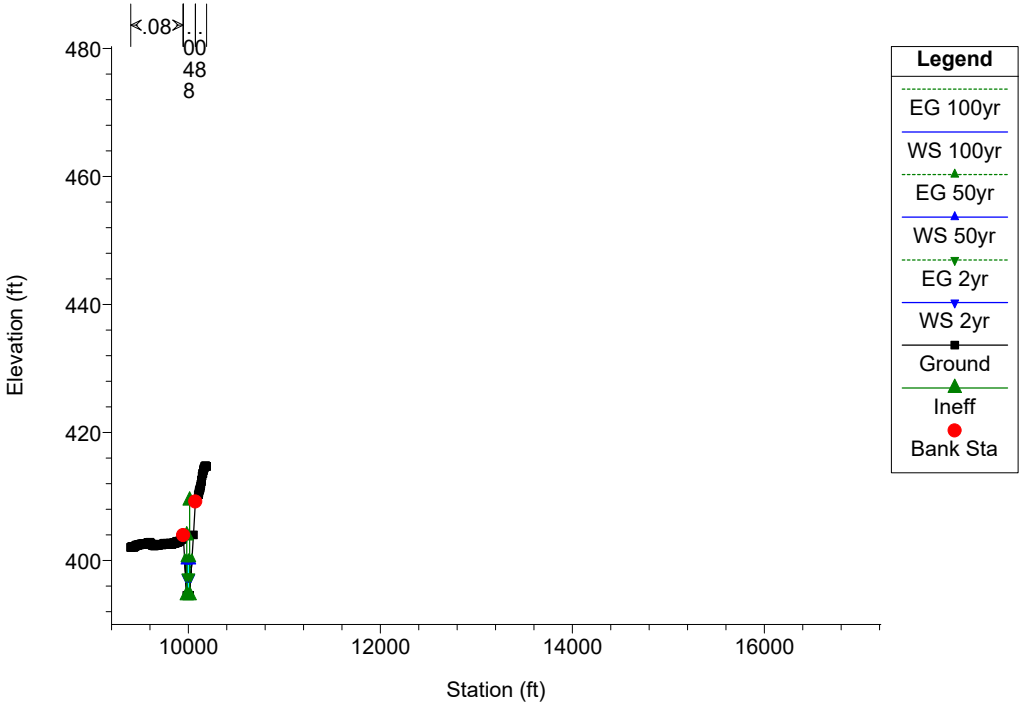
NF_Canoe Plan: Candet4 1/17/2020

RS = 30836.15



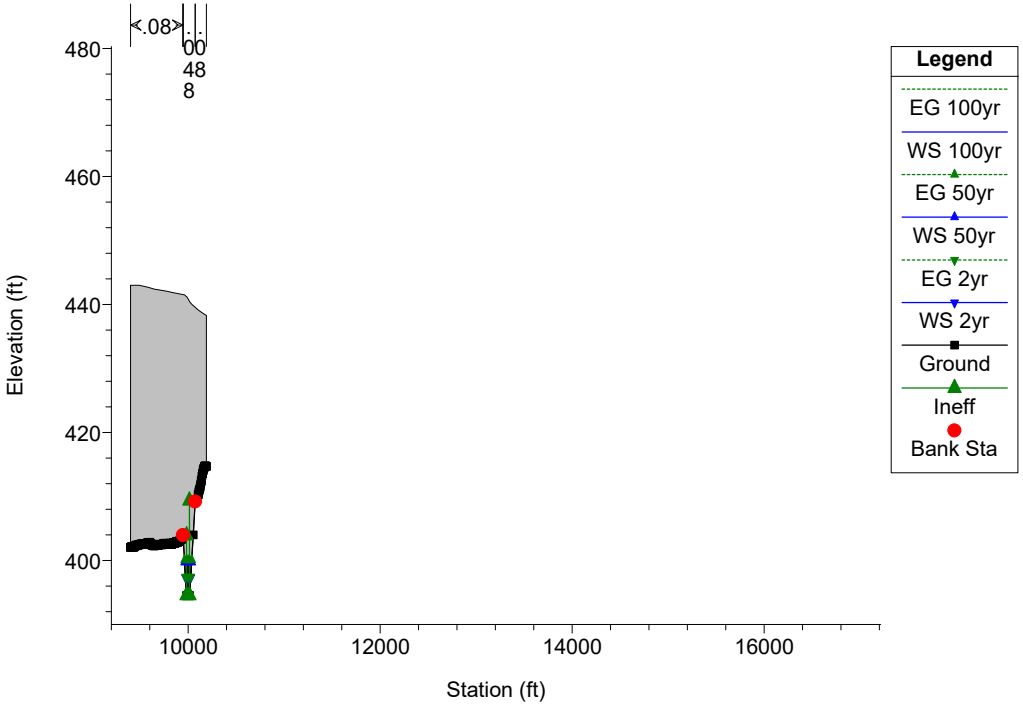
NF_Canoe Plan: Candet4 1/17/2020

RS = 30724.21



NF_Canoe Plan: Candet4 1/17/2020

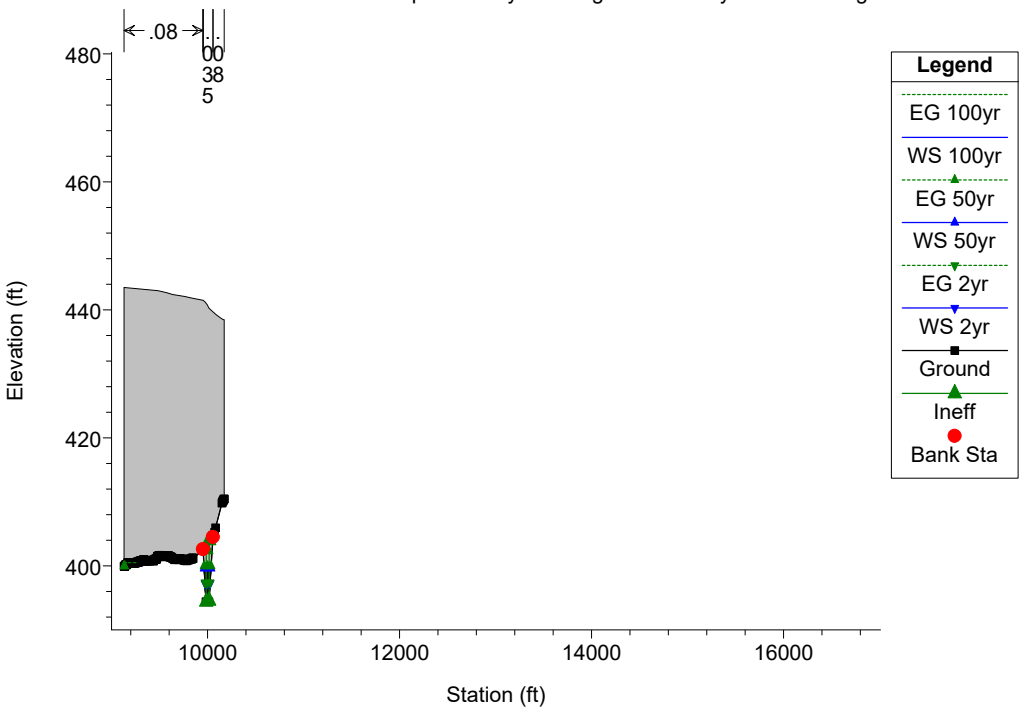
RS = 30524.31 Culv Proposed Hwy 60 Bridge at I-60/Hwy 60 Interchange



1 in Horiz. = 2000 ft 1 in Vert. = 30 ft

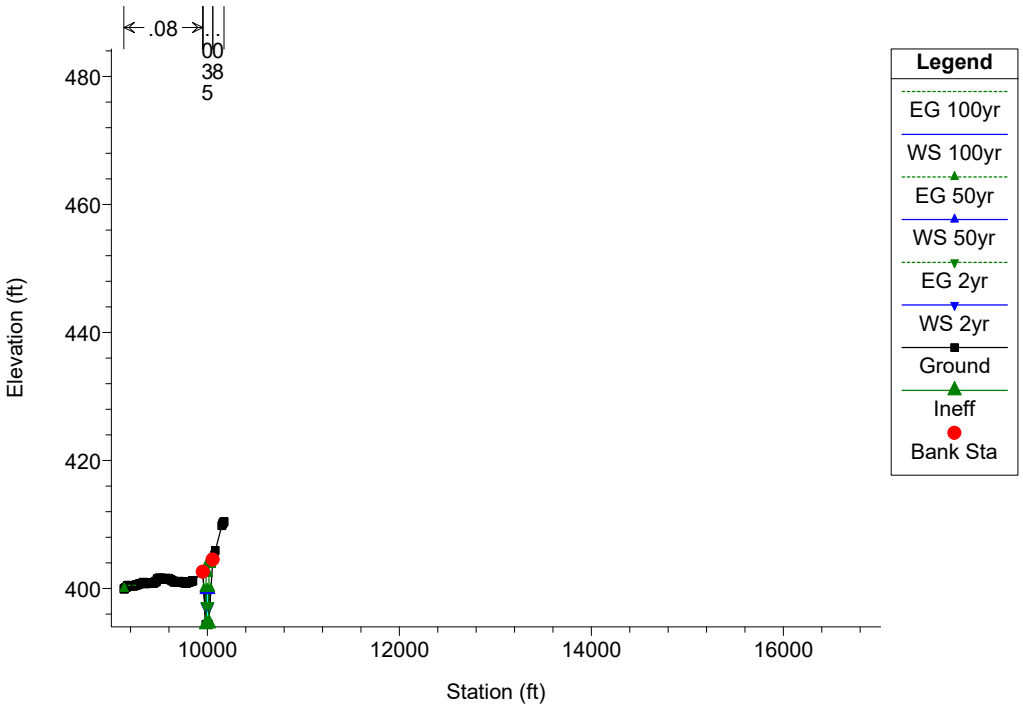
NF_Canoe Plan: Candet4 1/17/2020

RS = 30524.31 Culv Proposed Hwy 60 Bridge at I-60/Hwy 60 Interchange



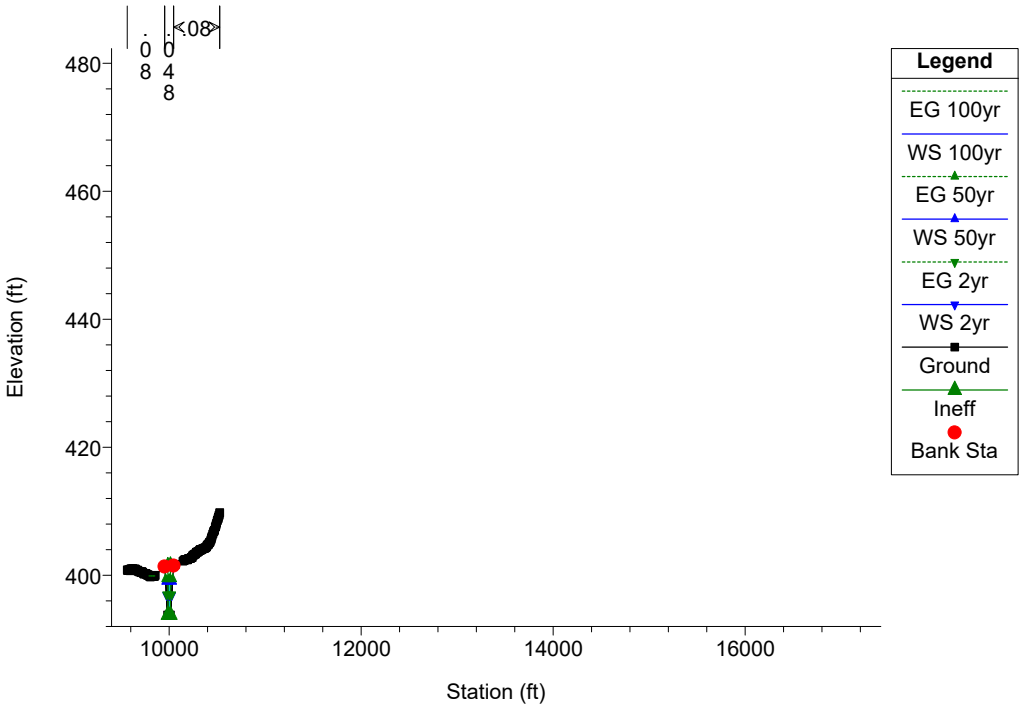
NF_Canoe Plan: Candet4 1/17/2020

RS = 30371



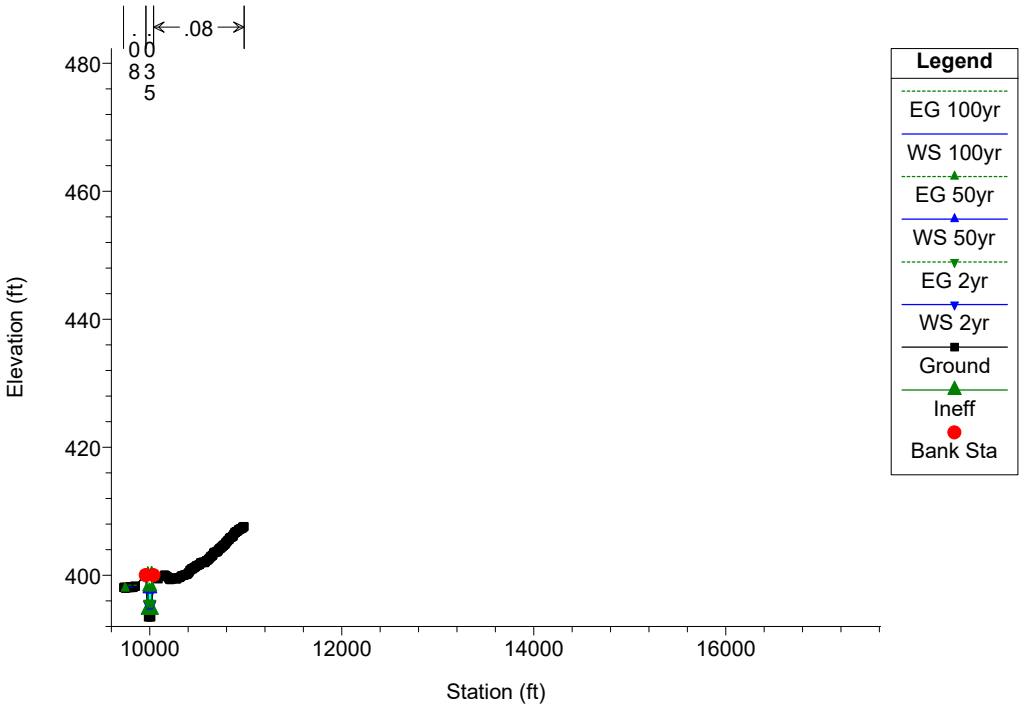
NF_Canoe Plan: Candet4 1/17/2020

RS = 30106.17



NF_Canoe Plan: Candet4 1/17/2020

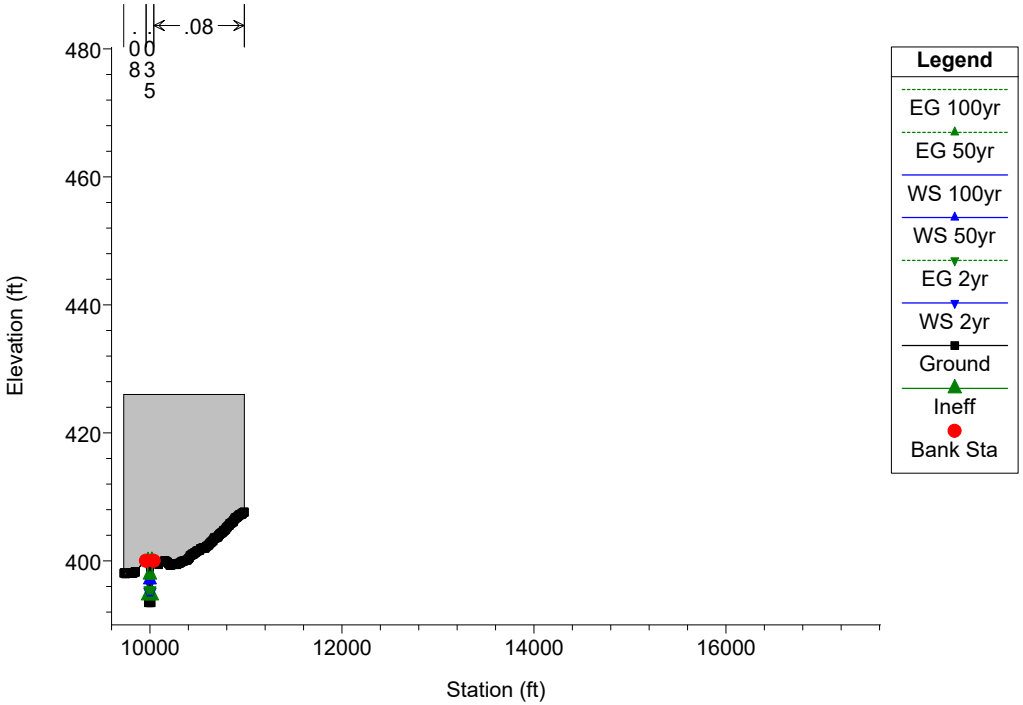
RS = 29531.08



1 in Horiz. = 2000 ft 1 in Vert. = 30 ft

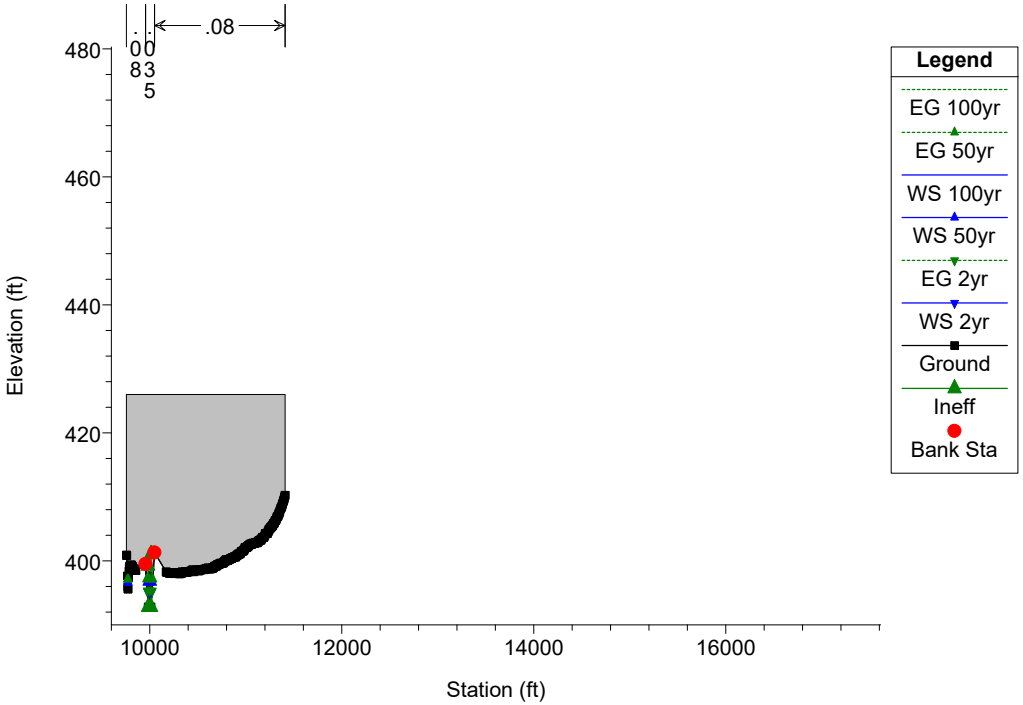
NF_Canoe Plan: Candet4 1/17/2020

RS = 29191.02 Culv Proposed I-69 Bridge at I-69/Hwy 60 Interchange



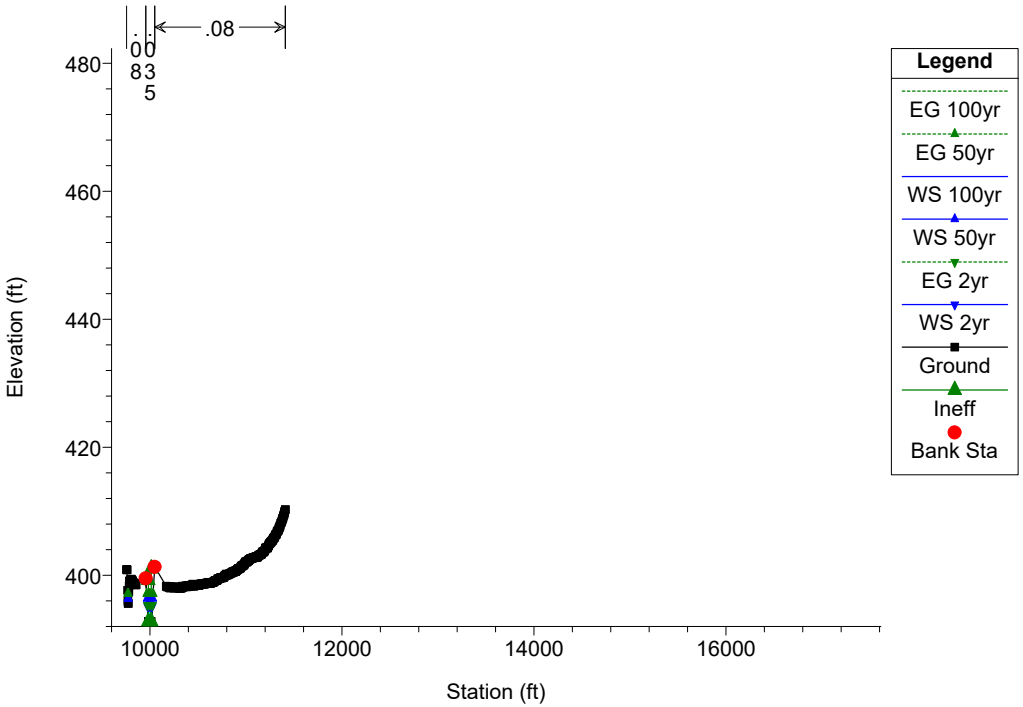
NF_Canoe Plan: Candet4 1/17/2020

RS = 29191.02 Culv Proposed I-69 Bridge at I-69/Hwy 60 Interchange



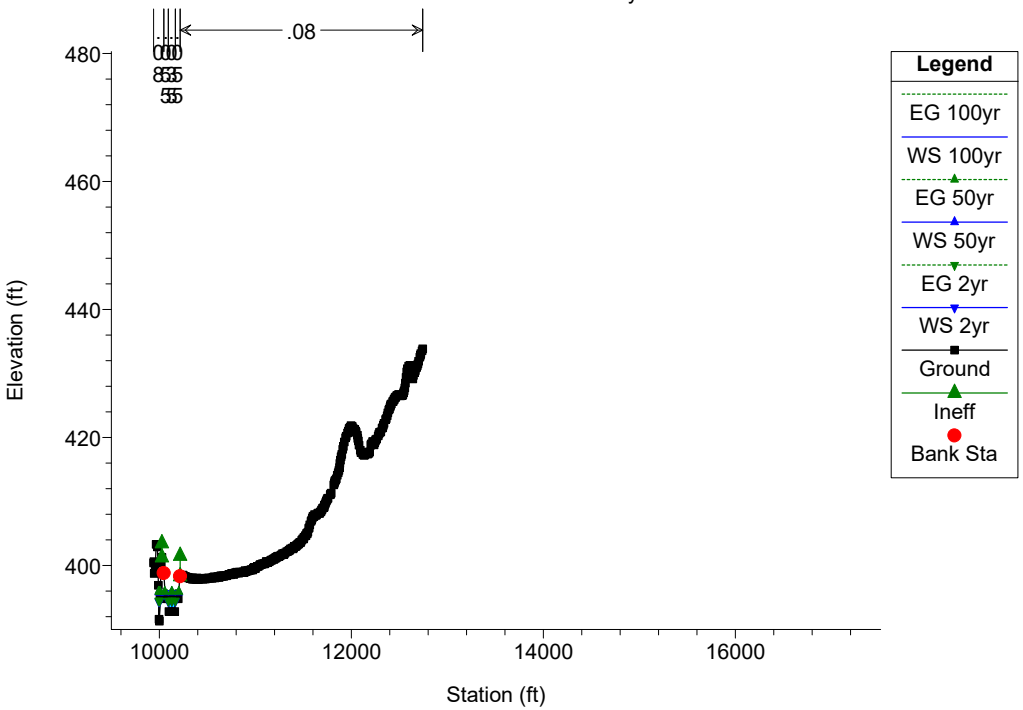
NF_Canoe Plan: Candet4 1/17/2020

RS = 28940.41



NF_Canoe Plan: Candet4 1/17/2020

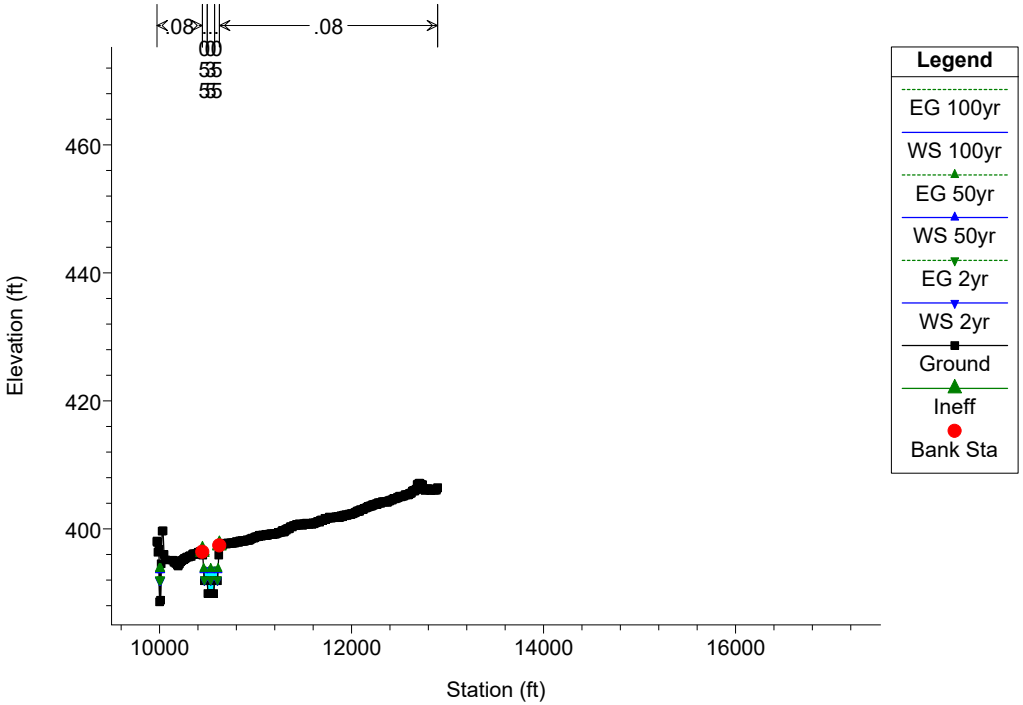
RS = 28532 XS downstream/south of Hwy 60 and west of RR



1 in Horiz. = 2000 ft 1 in Vert. = 30 ft

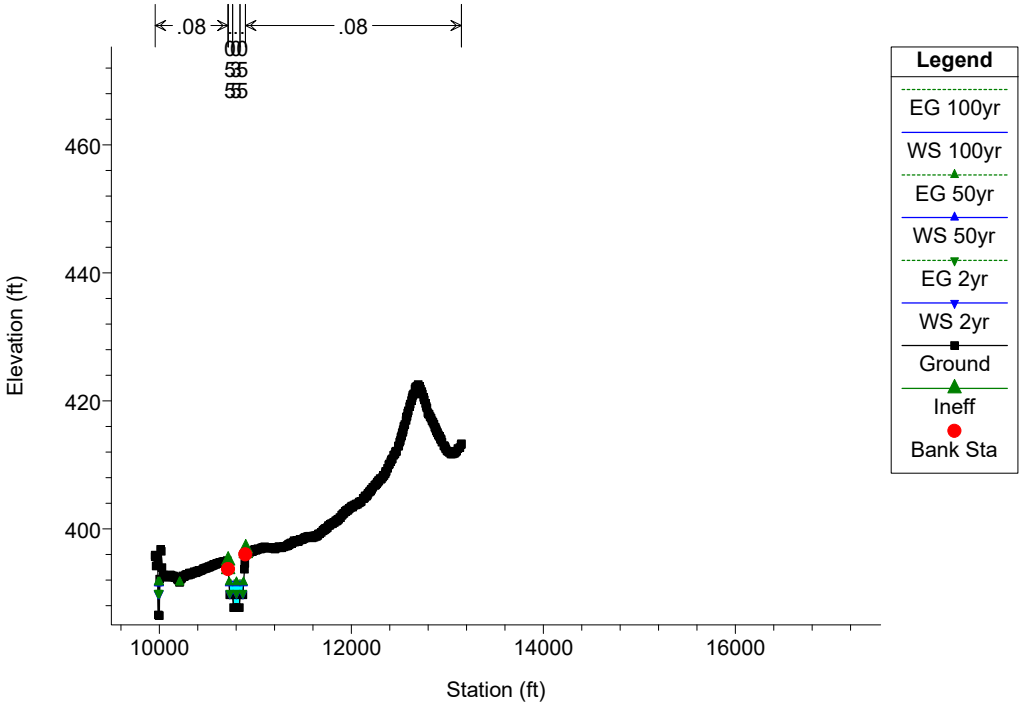
NF_Canoe Plan: Candet4 1/17/2020

RS = 27158 XS downstream/south of Hwy 60 and west of RR



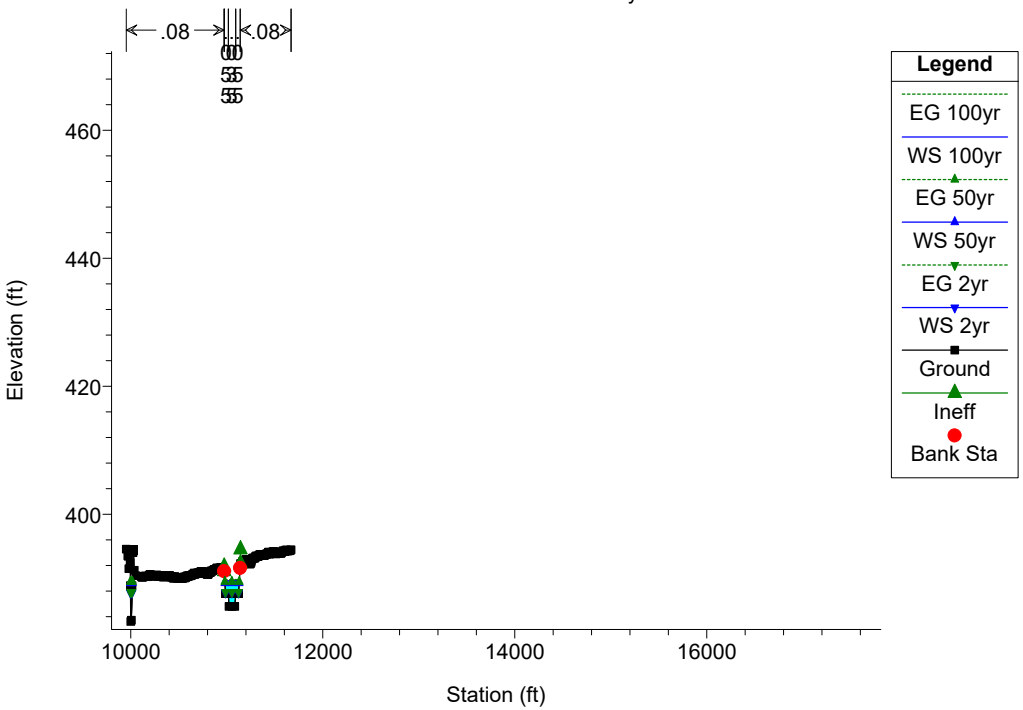
NF_Canoe Plan: Candet4 1/17/2020

RS = 25956 XS downstream/south of Hwy 60 and west of RR



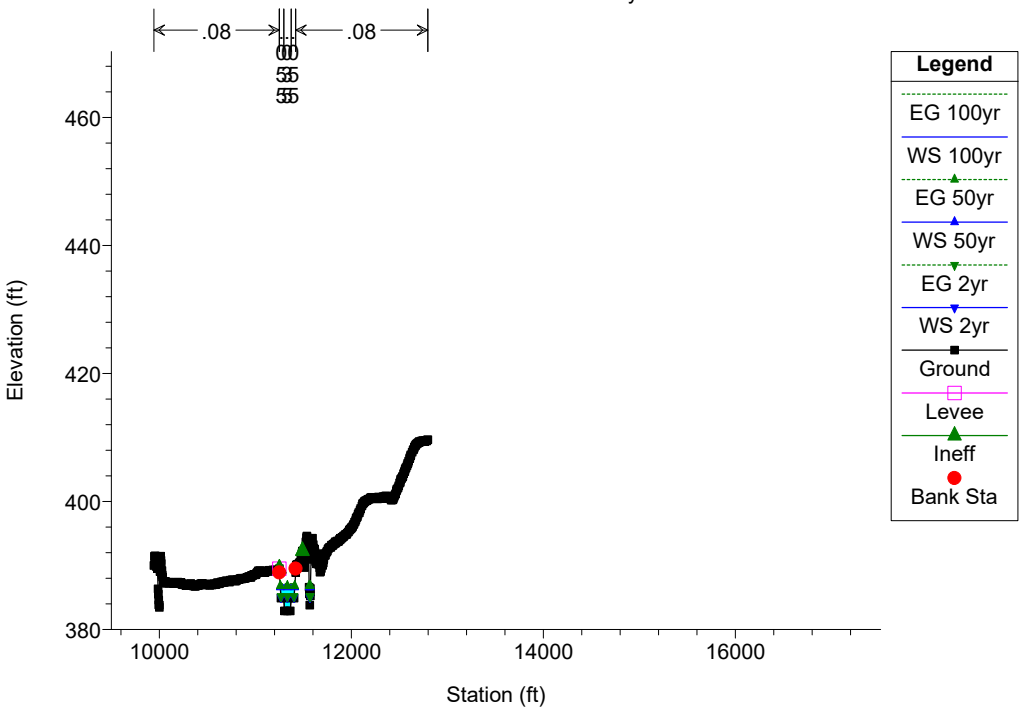
NF_Canoe Plan: Candet4 1/17/2020

RS = 24827 XS downstream/south of Hwy 60 and west of RR



NF_Canoe Plan: Candet4 1/17/2020

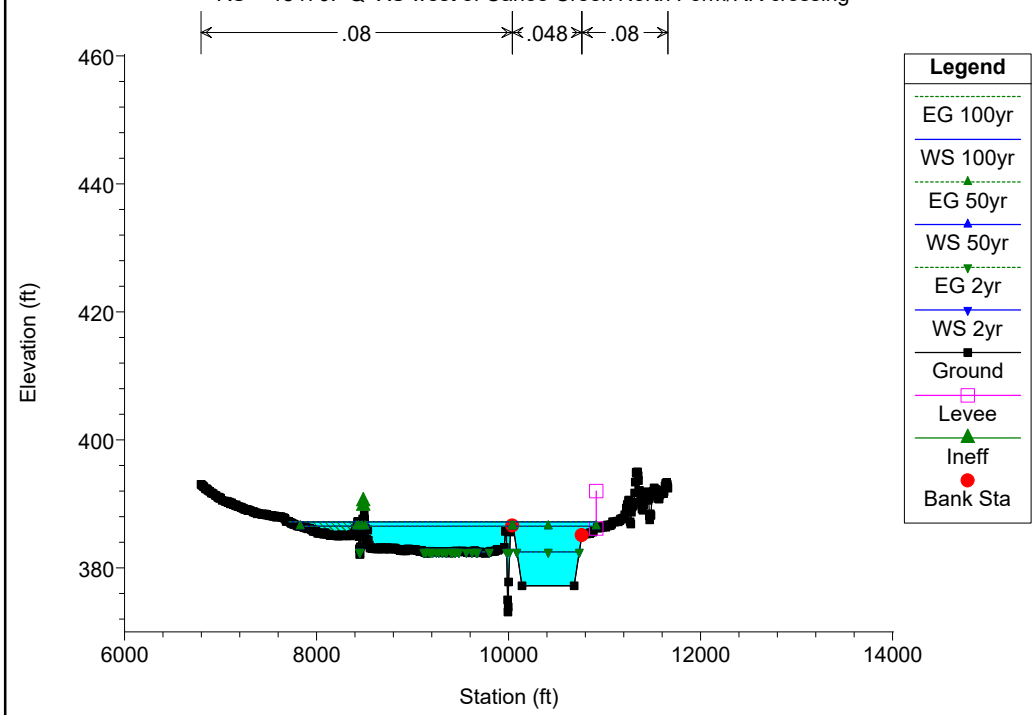
RS = 23524 XS downstream/south of Hwy 60 and west of RR



1 in Horiz. = 2000 ft 1 in Vert. = 30 ft

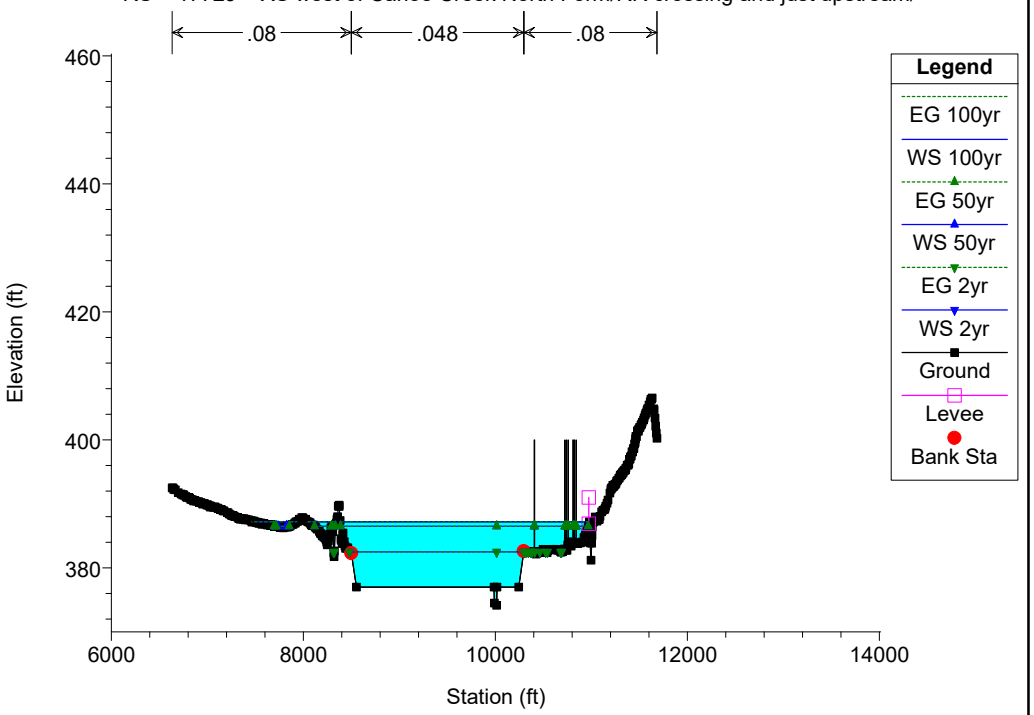
NF_Canoe Plan: Candet4 1/17/2020

RS = 18470. Q XS west of Canoe Creek North Form/RR crossing



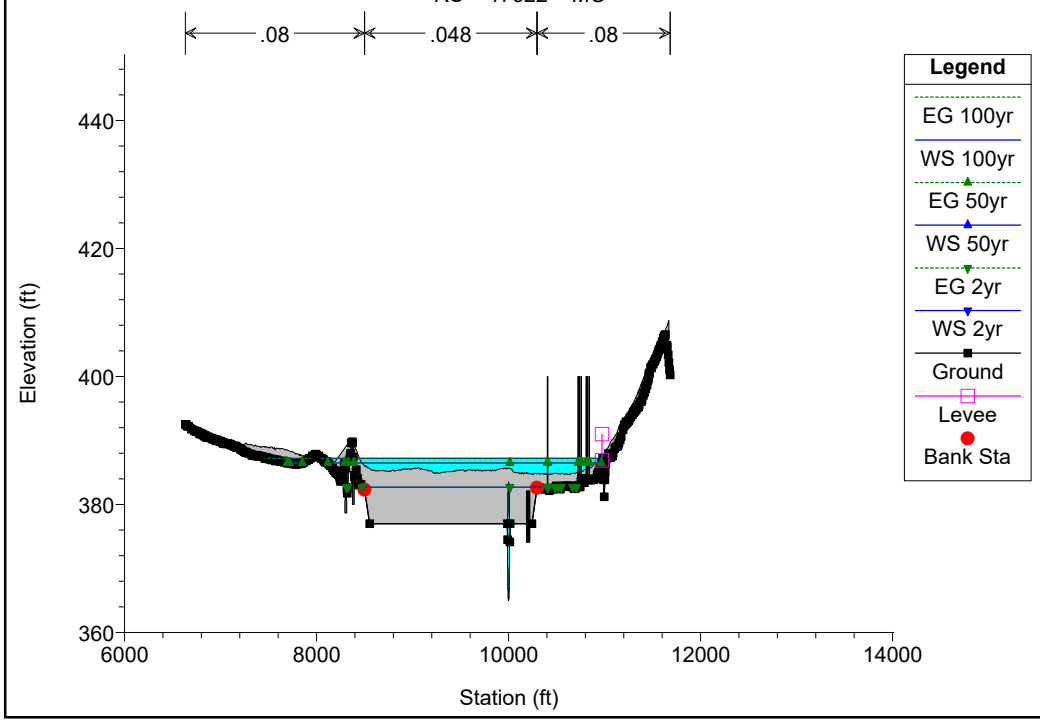
NF_Canoe Plan: Candet4 1/17/2020

RS = 17729 XS west of Canoe Creek North Form/RR crossing and just upstream/



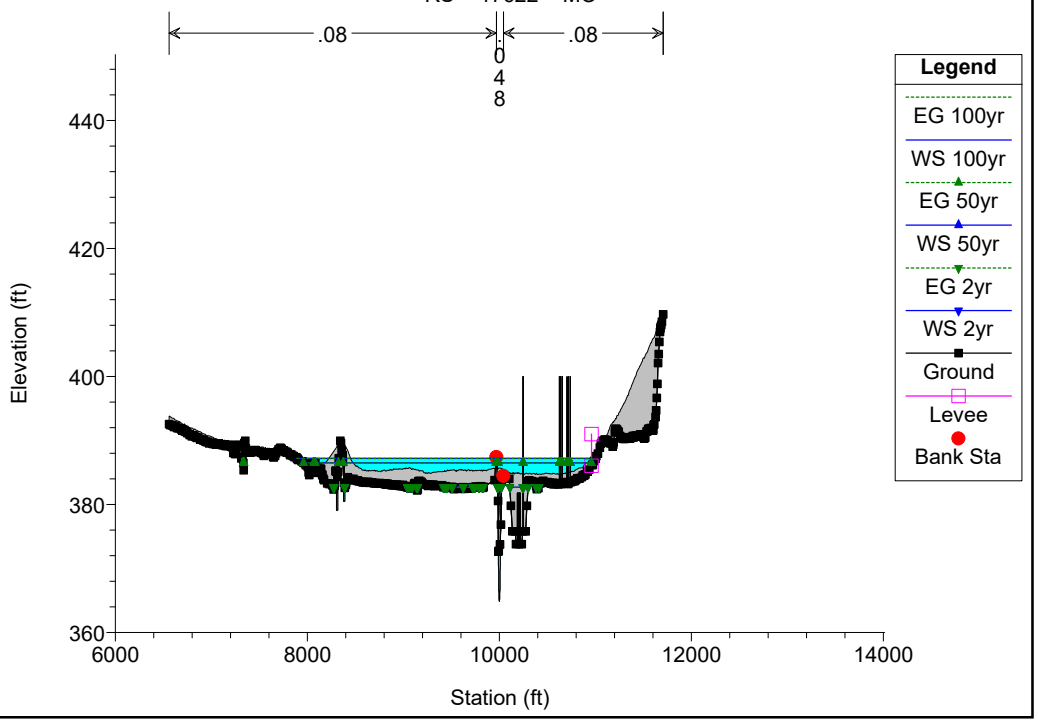
NF_Canoe Plan: Candet4 1/17/2020

RS = 17622 MO



NF_Canoe Plan: Candet4 1/17/2020

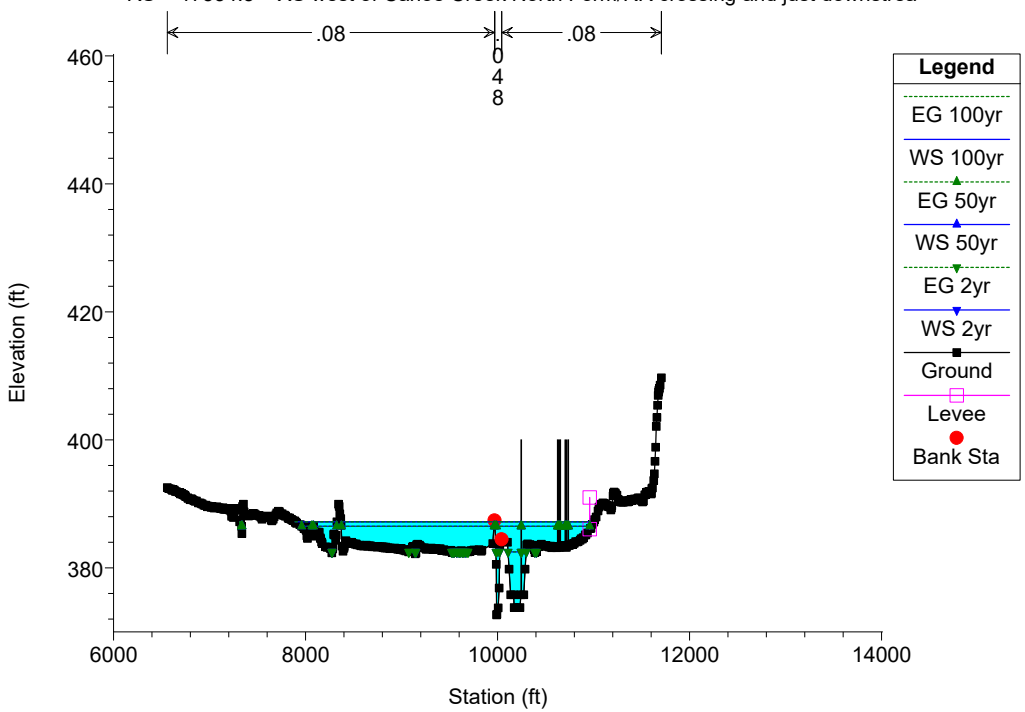
RS = 17622 MO



1 in Horiz. = 2000 ft 1 in Vert. = 30 ft

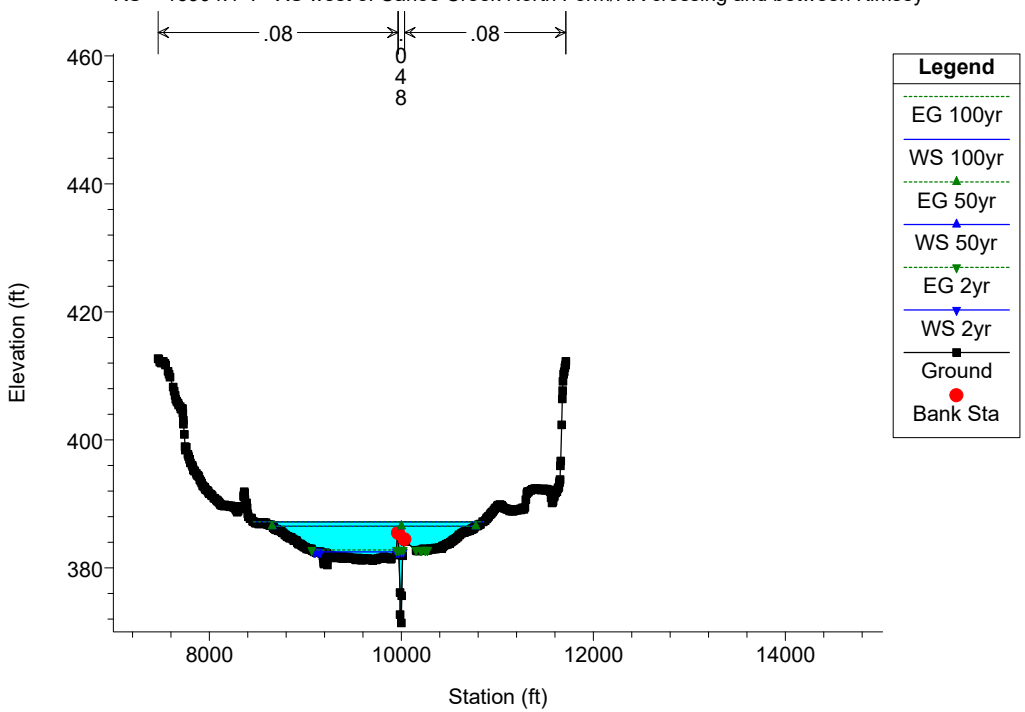
NF_Canoe Plan: Candet4 1/17/2020

RS = 17534.5 XS west of Canoe Creek North Form/RR crossing and just downstrea



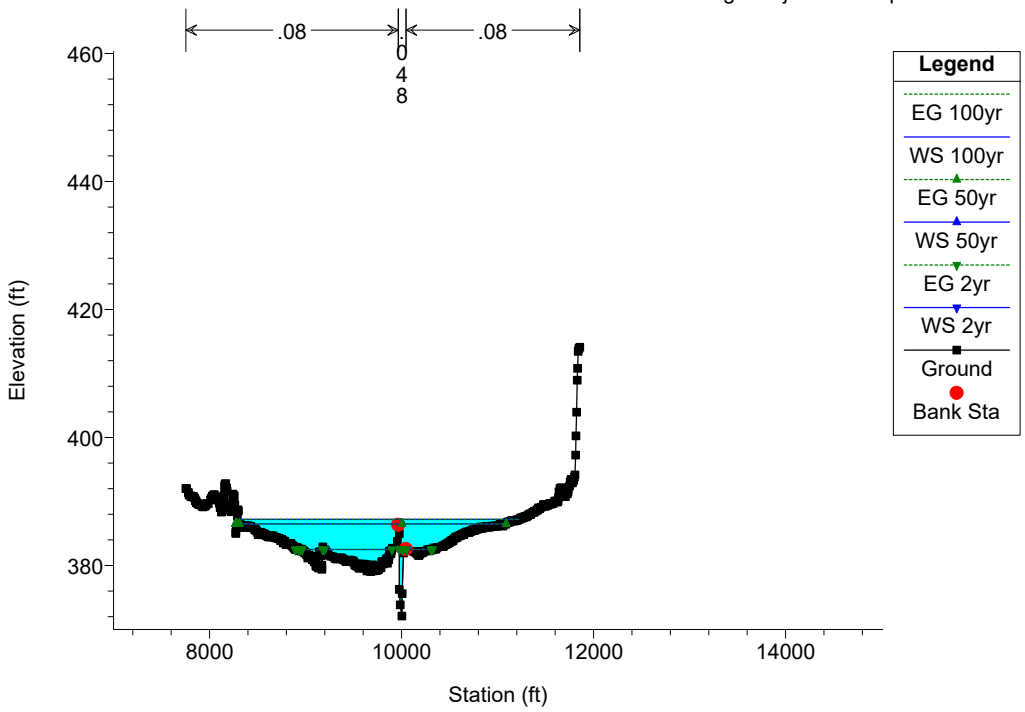
NF_Canoe Plan: Candet4 1/17/2020

RS = 16904.1 P XS west of Canoe Creek North Form/RR crossing and between Kimsey



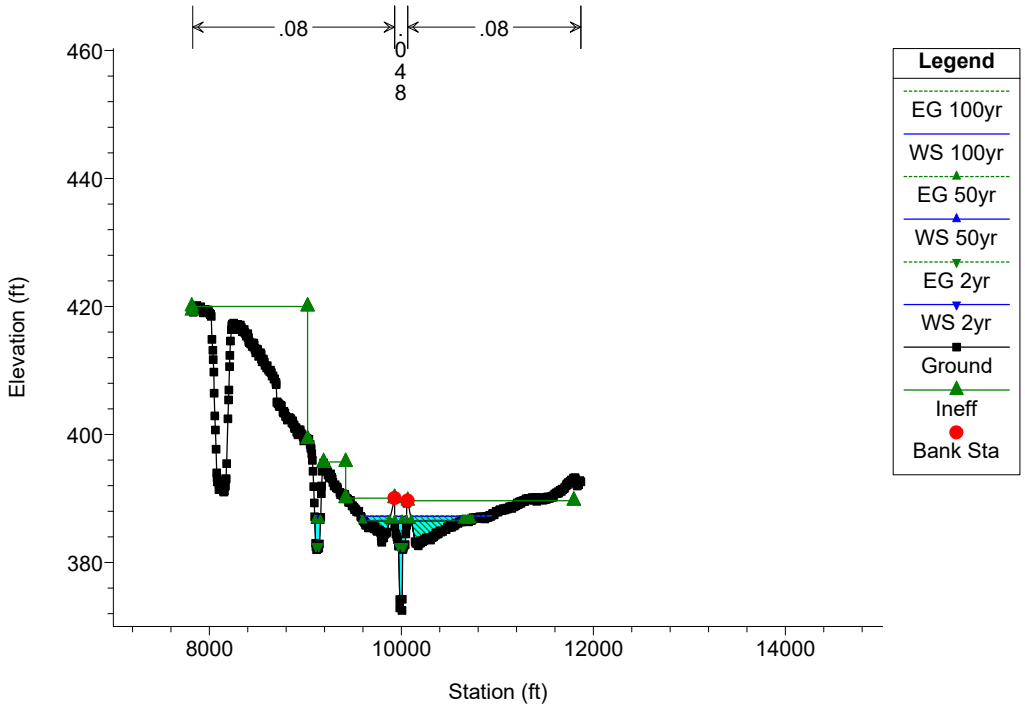
NF_Canoe Plan: Candet4 1/17/2020

RS = 16397 XS west of Canoe Creek North Fork/RR crossing and just north/ups

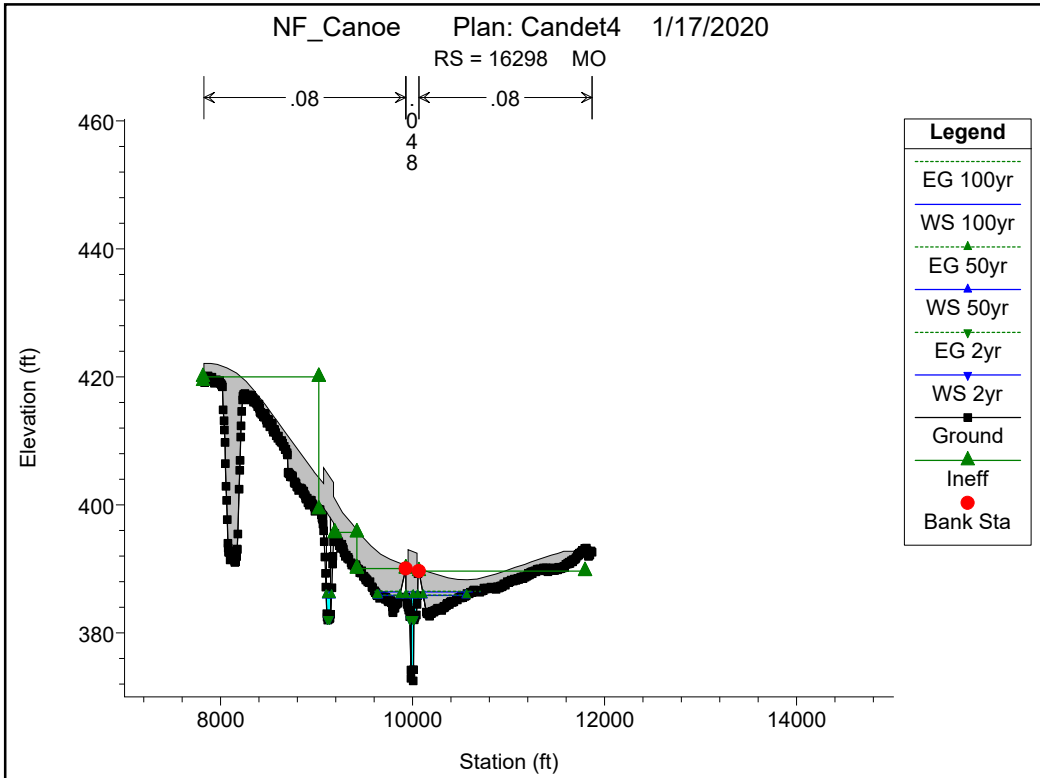


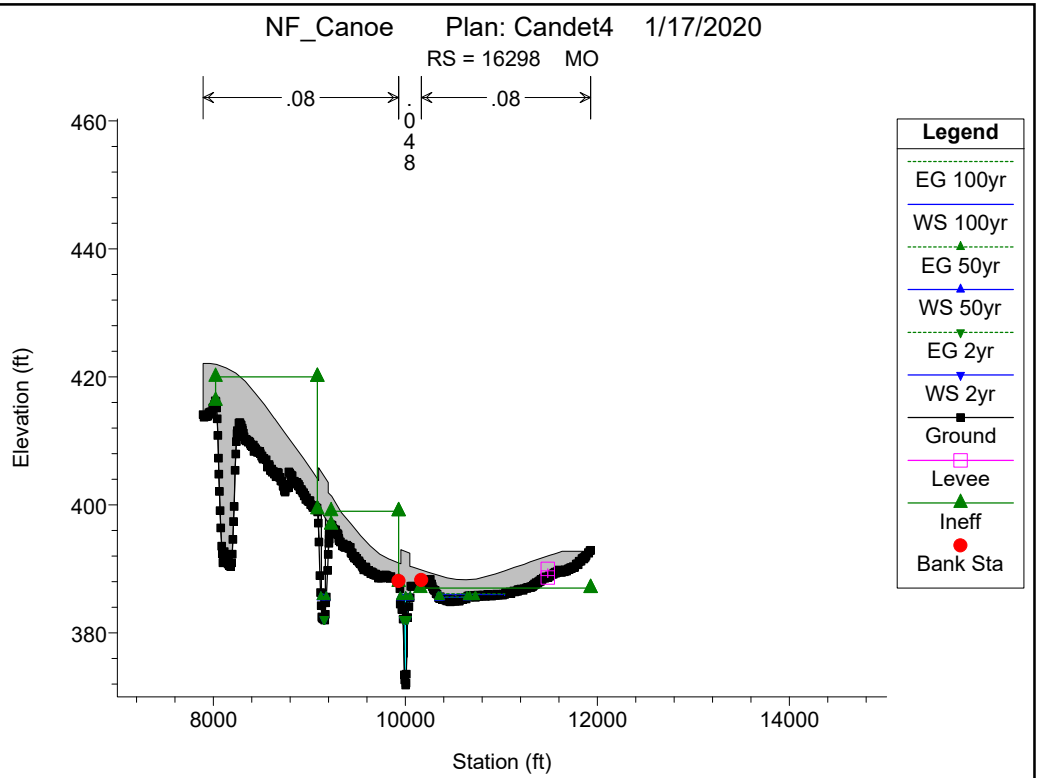
NF_Canoe Plan: Candet4 1/17/2020

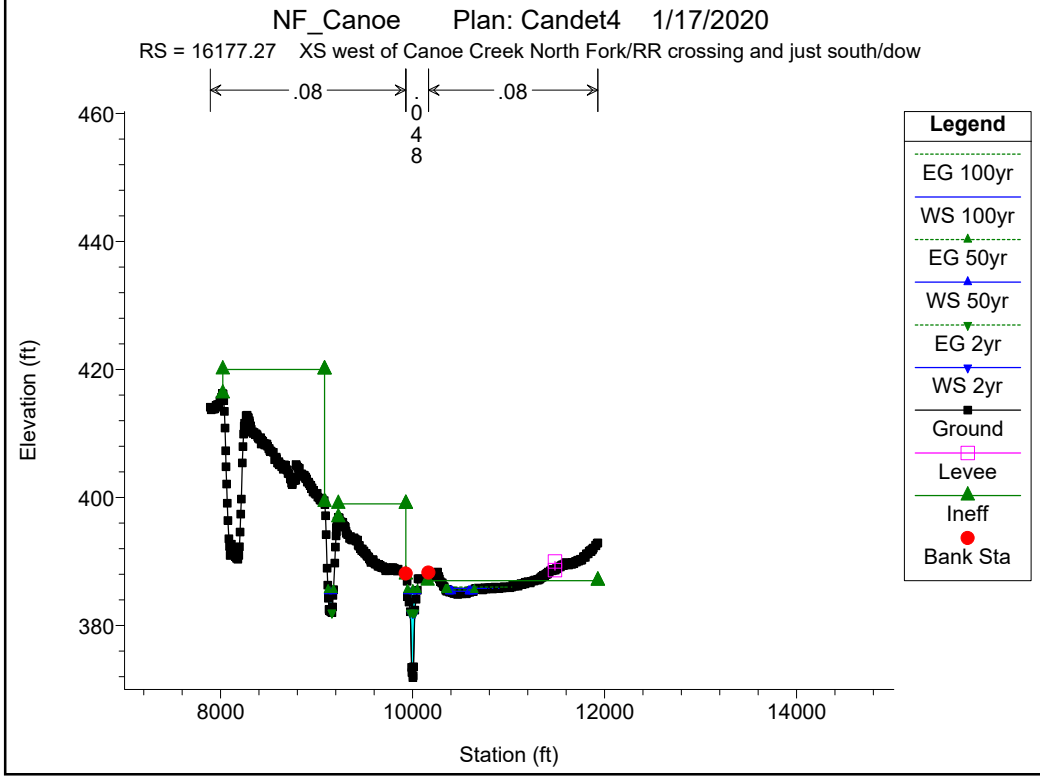
RS = 16326.84 XS west of Canoe Creek North Fork/RR crossing and just north/ups

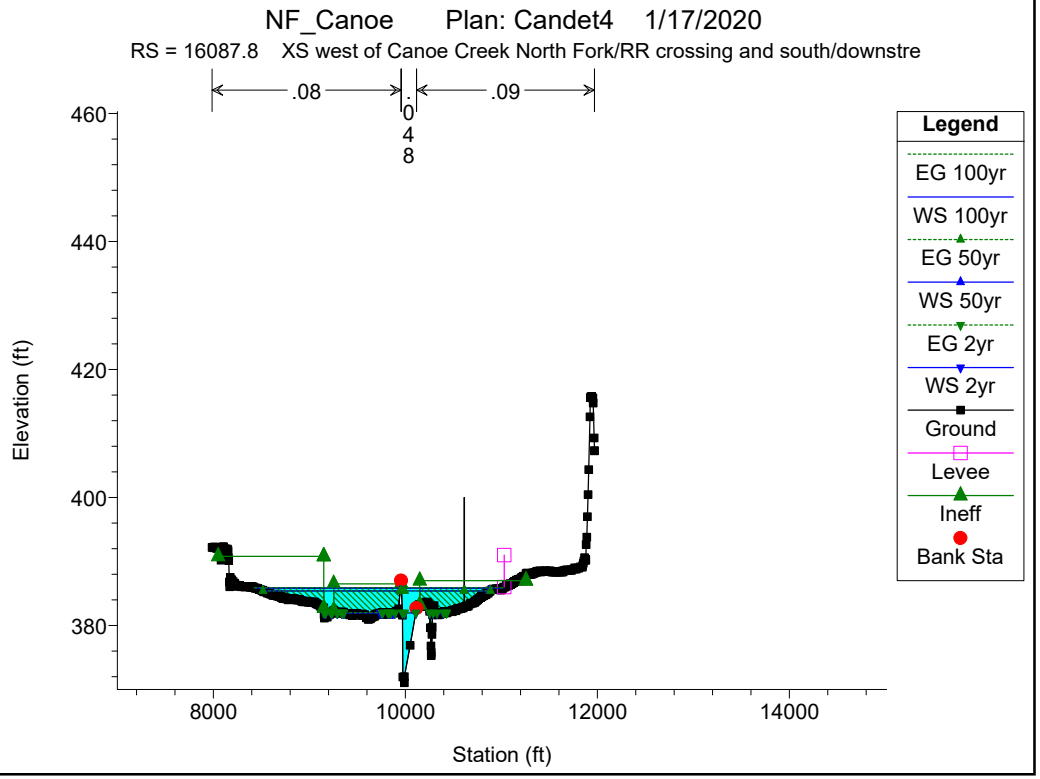


1 in Horiz. = 2000 ft 1 in Vert. = 30 ft

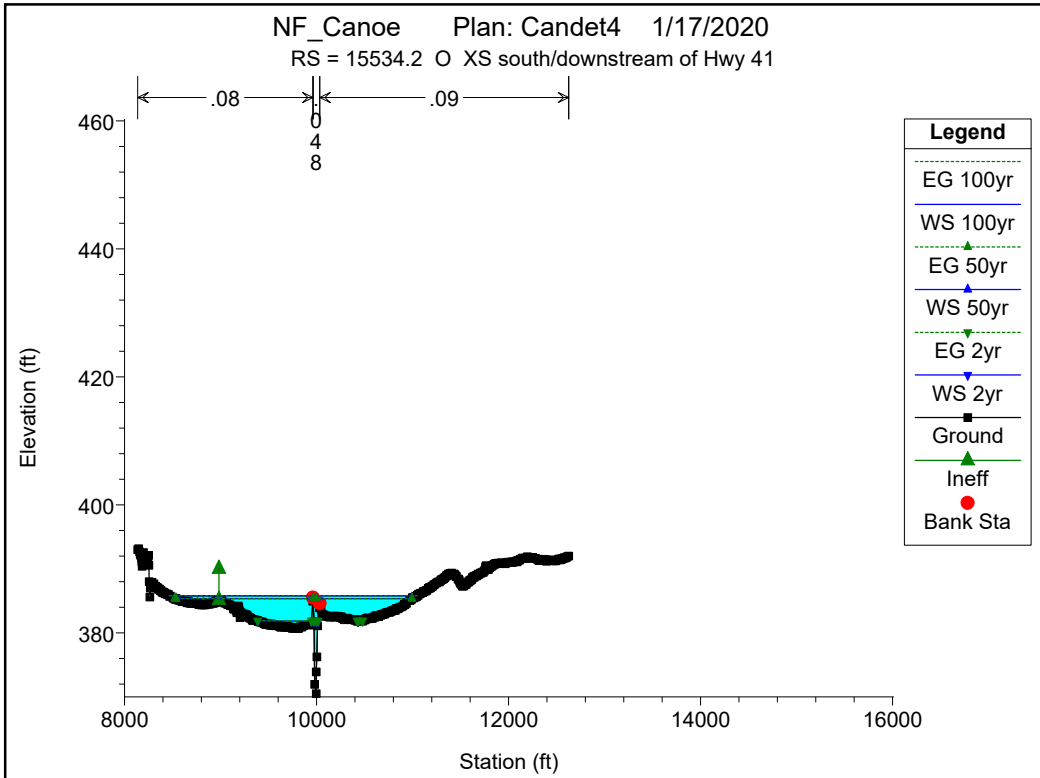


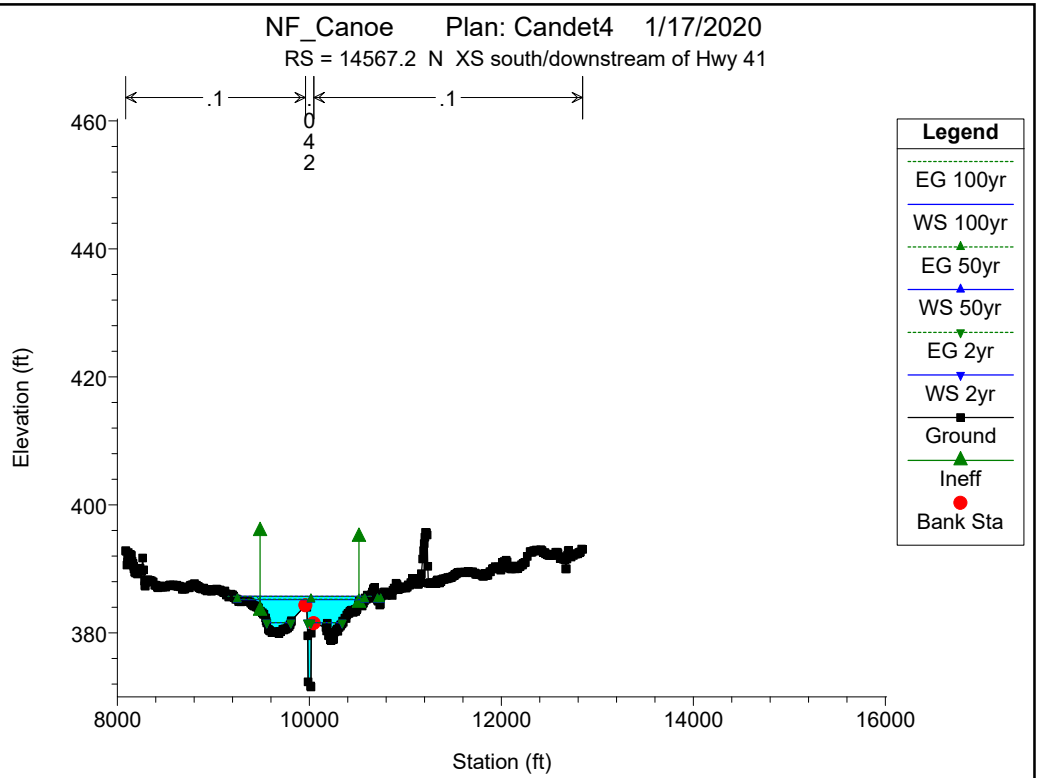


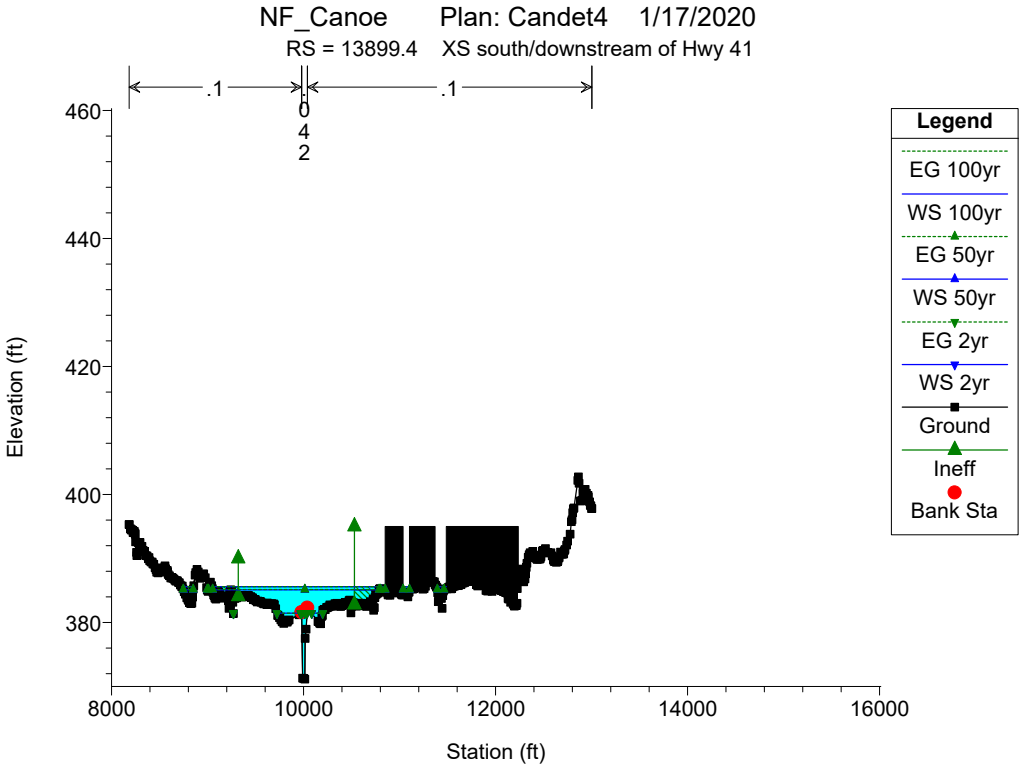


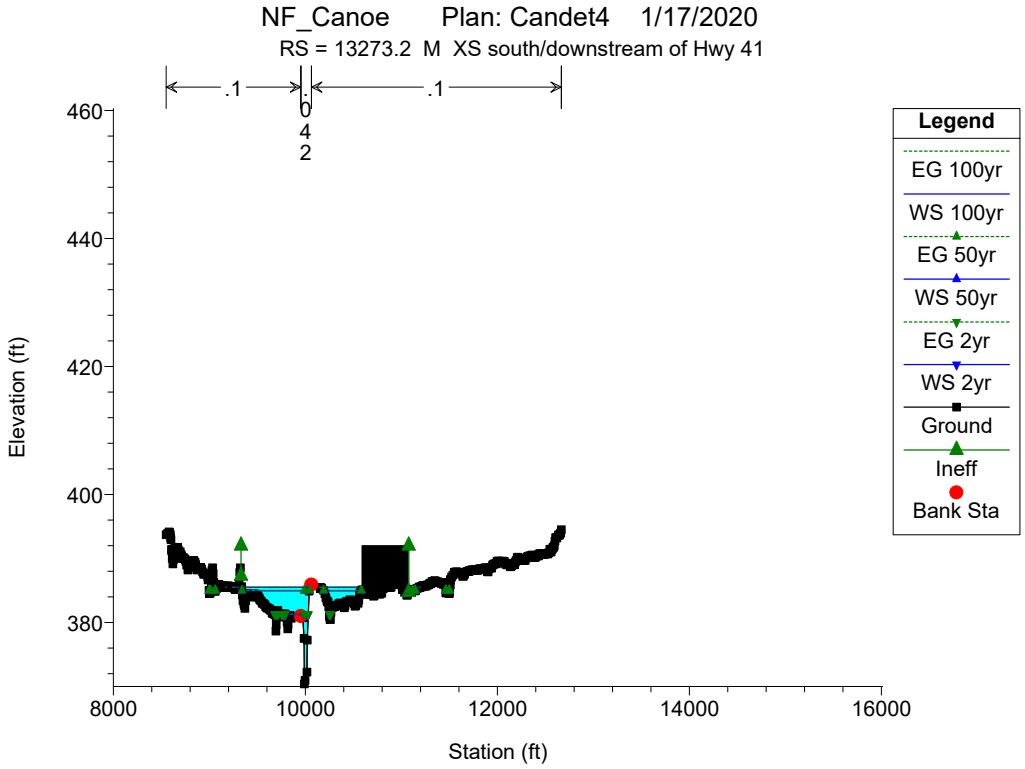


1 in Horiz. = 2000 ft 1 in Vert. = 30 ft



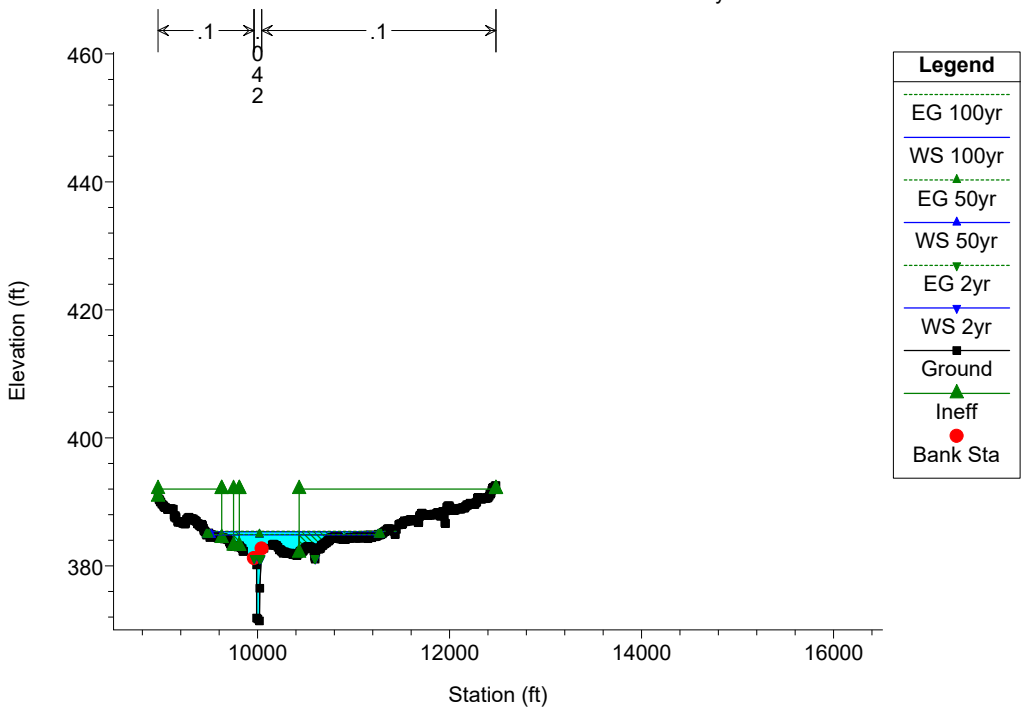




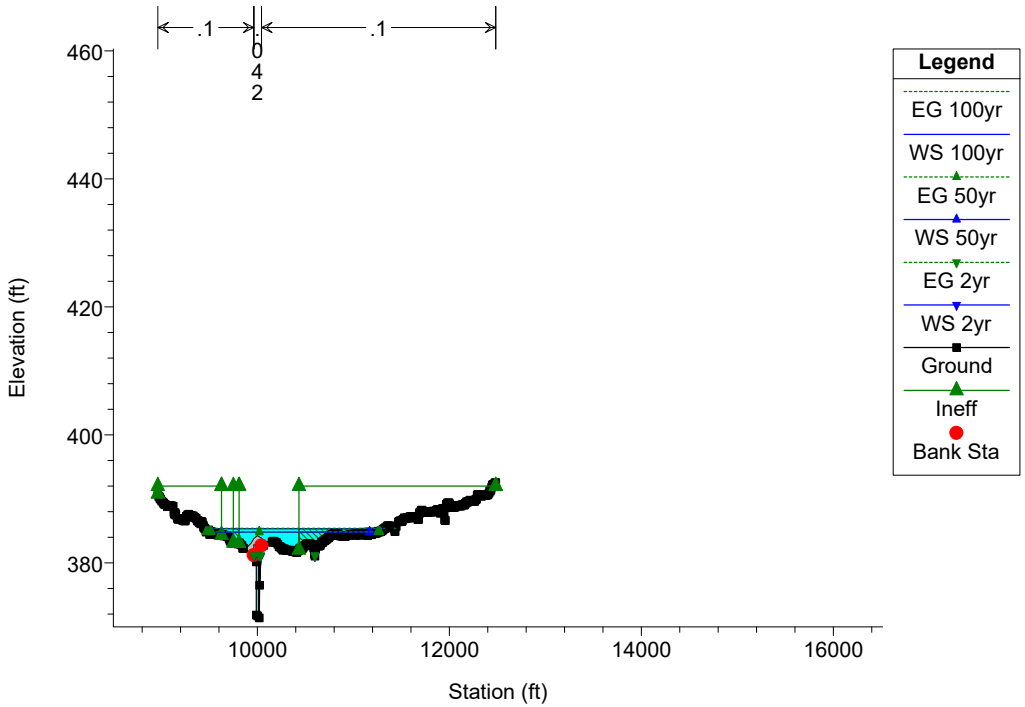


1 in Horiz. = 2000 ft 1 in Vert. = 30 ft

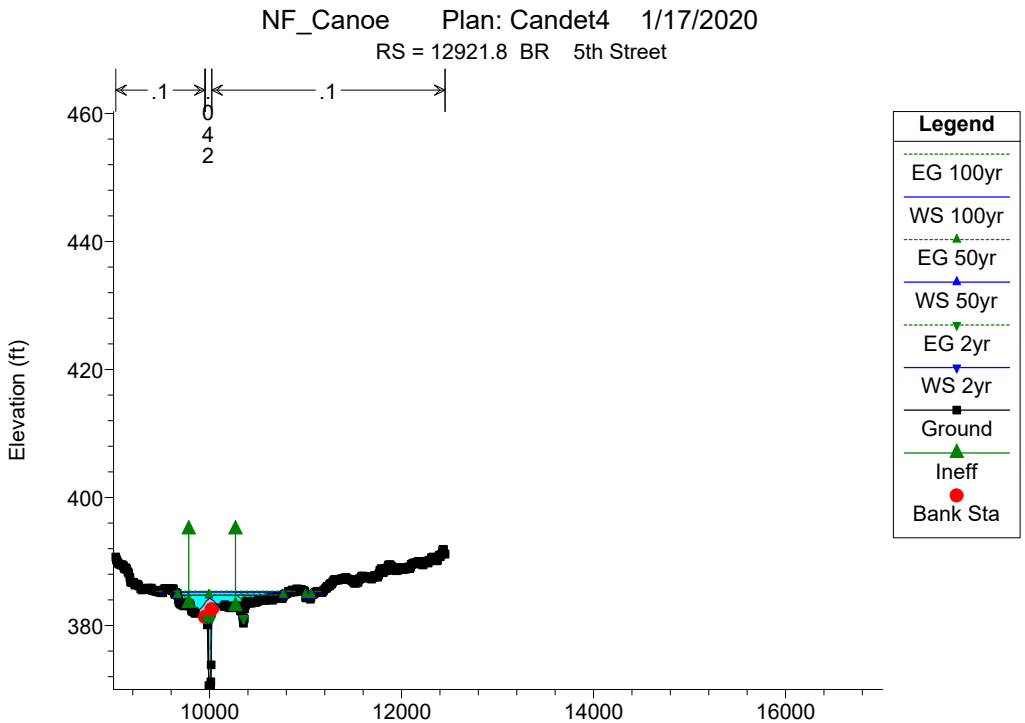
NF_Canoe Plan: Candet4 1/17/2020
RS = 12979.5 XS south/downstream of Hwy 41



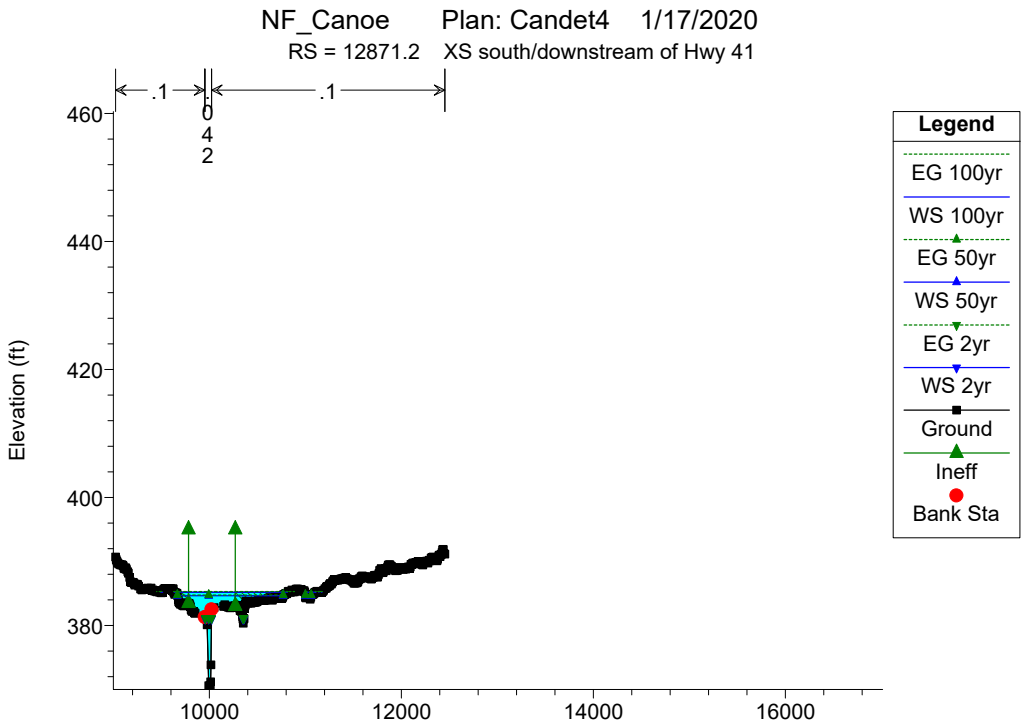
NF_Canoe Plan: Candet4 1/17/2020
RS = 12921.8 BR 5th Street



NF_Canoe Plan: Candet4 1/17/2020
RS = 12921.8 BR 5th Street



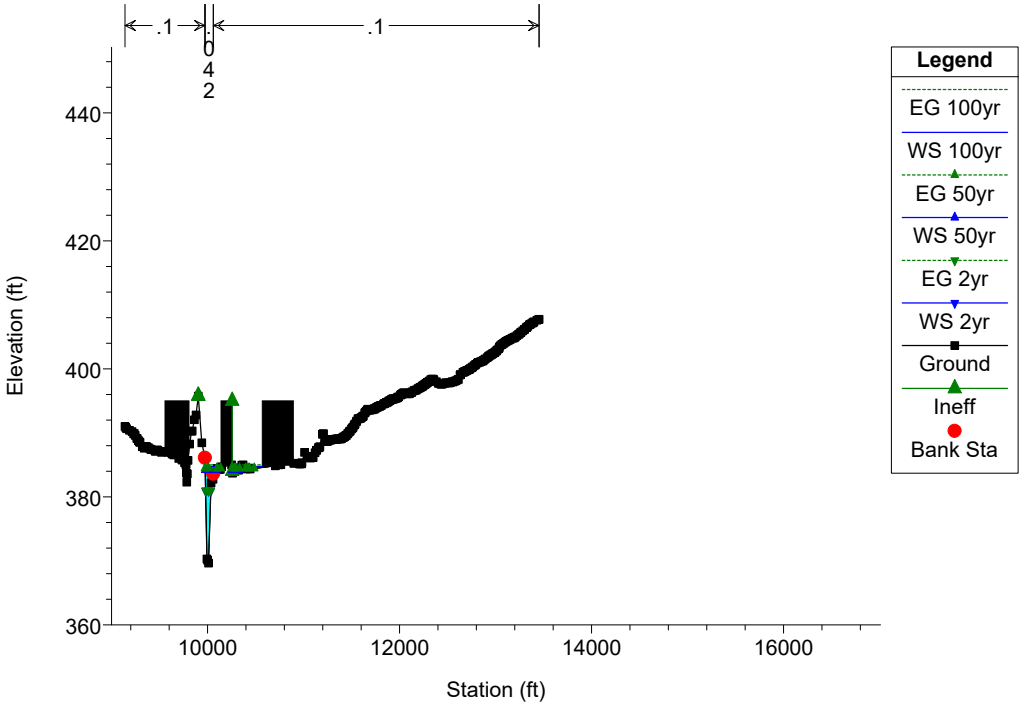
NF_Canoe Plan: Candet4 1/17/2020
RS = 12871.2 XS south/downstream of Hwy 41



1 in Horiz. = 2000 ft 1 in Vert. = 30 ft

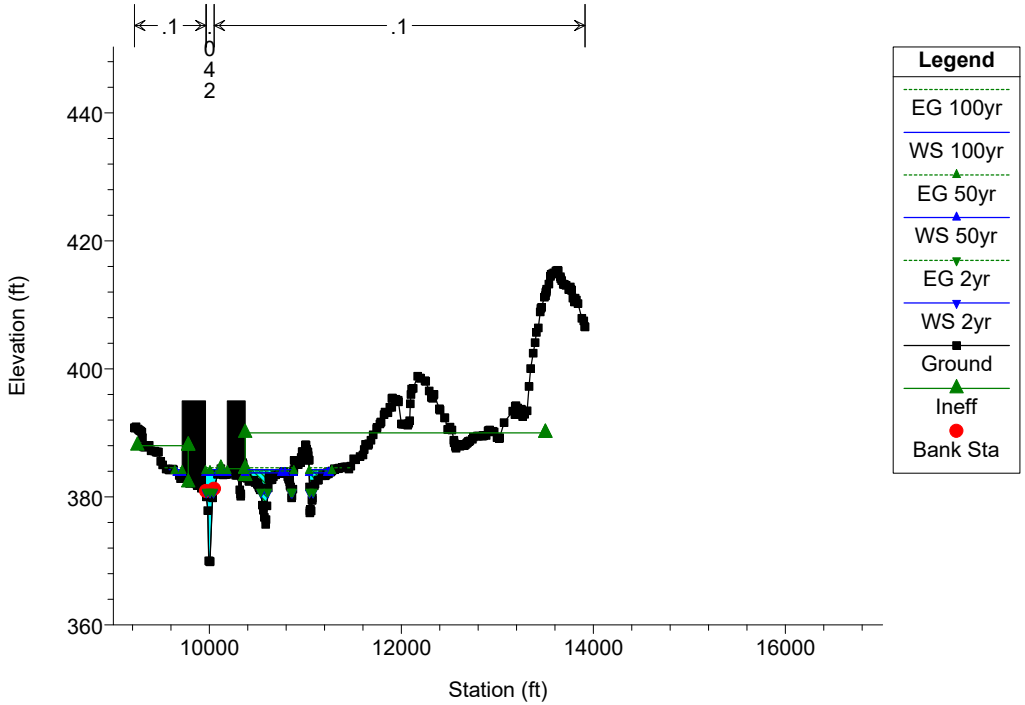
NF_Canoe Plan: Candet4 1/17/2020

RS = 12458.1 Survey xs, XS_12331.



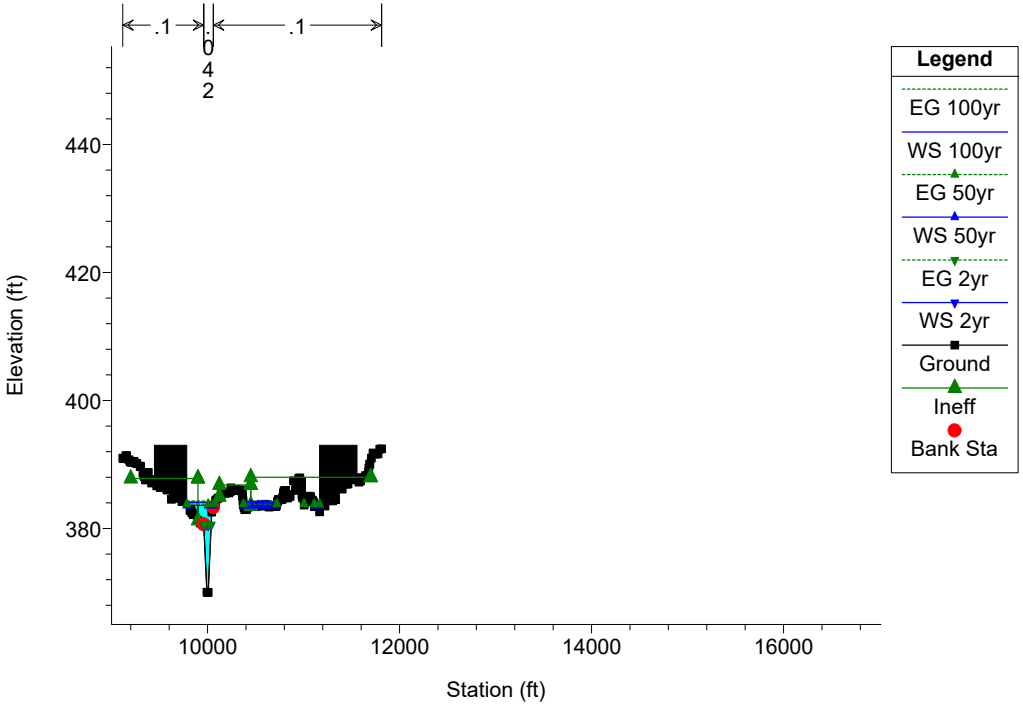
NF_Canoe Plan: Candet4 1/17/2020

RS = 12027.9 L Interpolated based on UPS-DS Survey inverts, XS_11680.



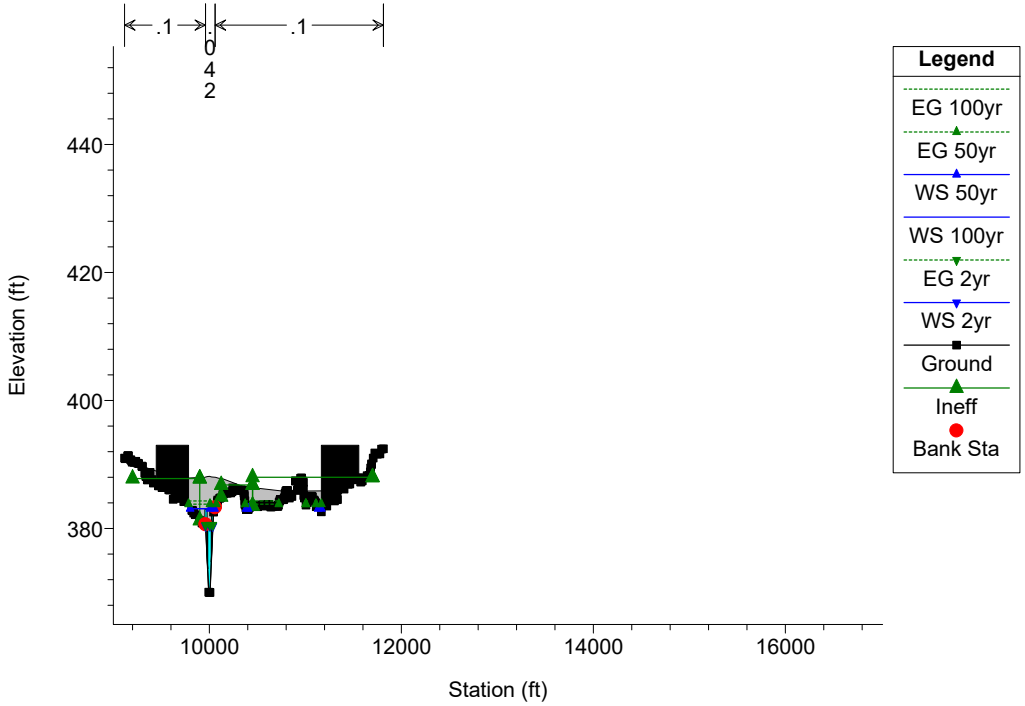
NF_Canoe Plan: Candet4 1/17/2020

RS = 11796.9 Interpolated based on UPS-DS Survey inverts, BR_11600_US.

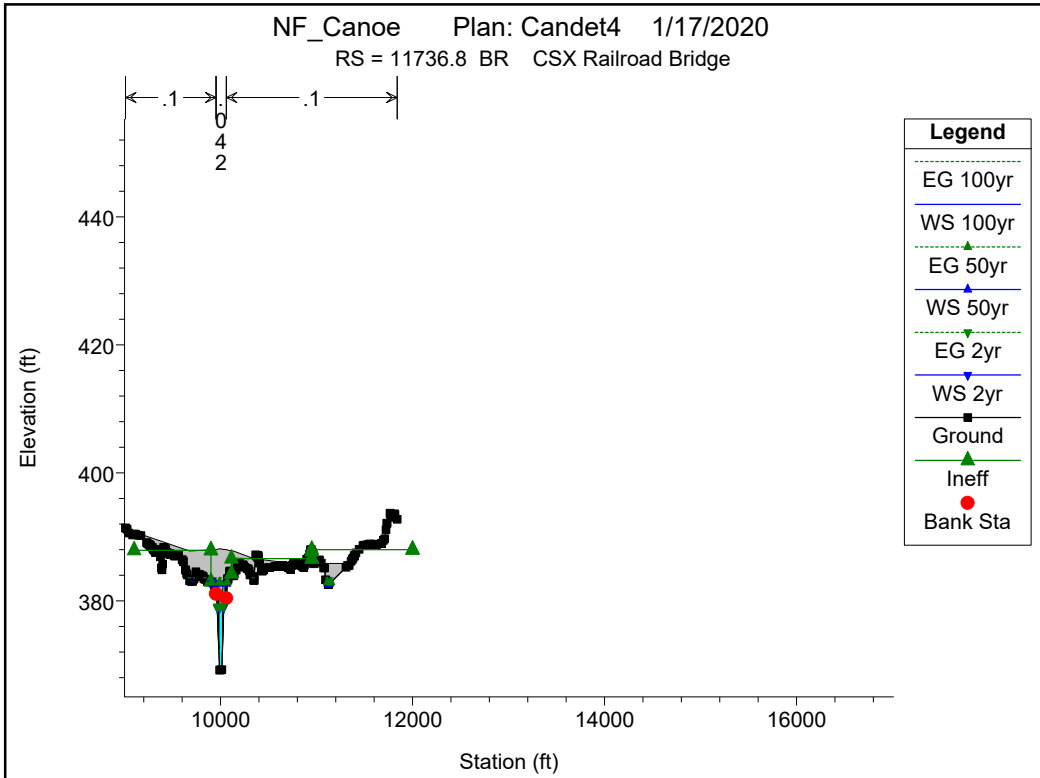


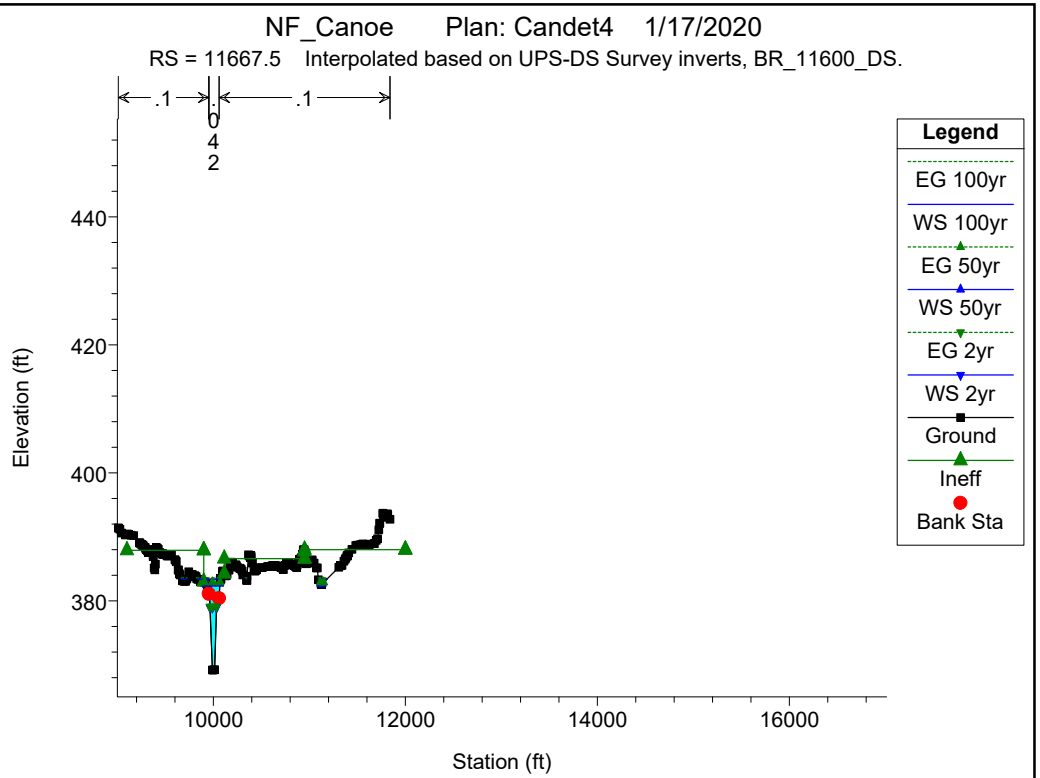
NF_Canoe Plan: Candet4 1/17/2020

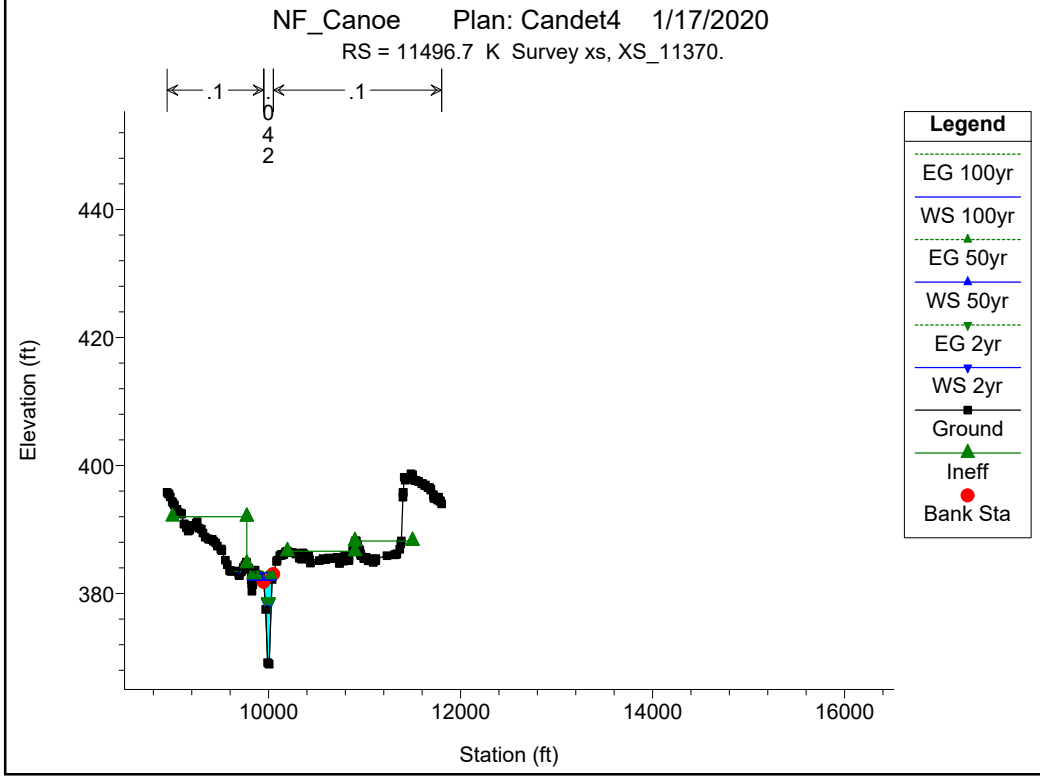
RS = 11736.8 BR CSX Railroad Bridge

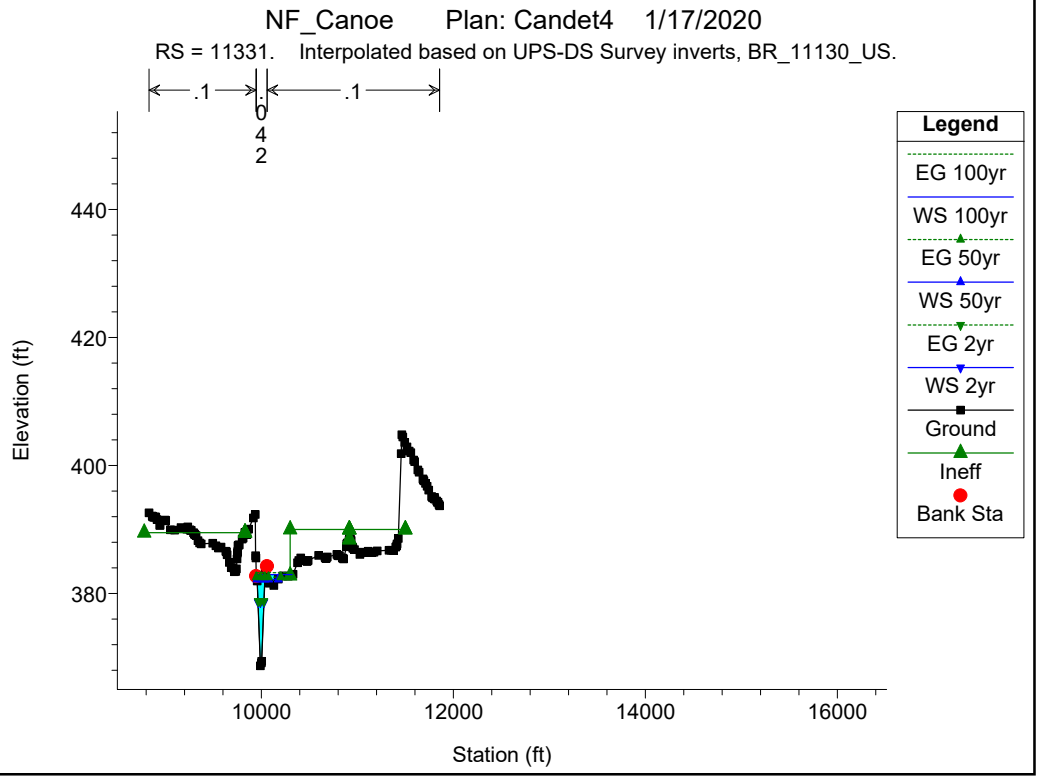


1 in Horiz. = 2000 ft 1 in Vert. = 30 ft





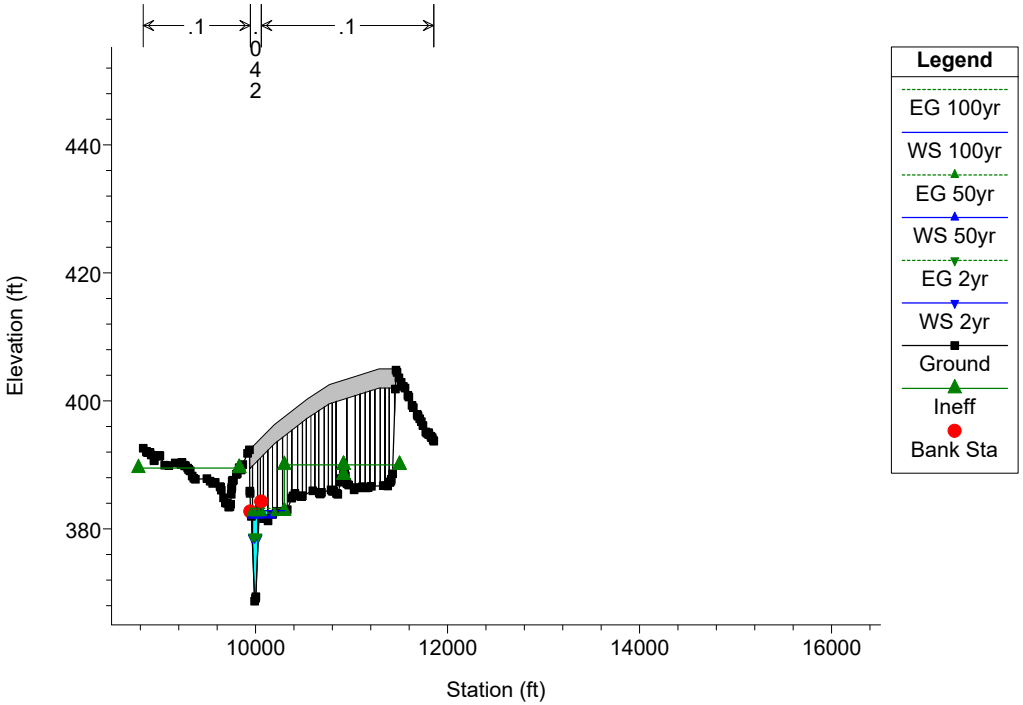




1 in Horiz. = 2000 ft 1 in Vert. = 30 ft

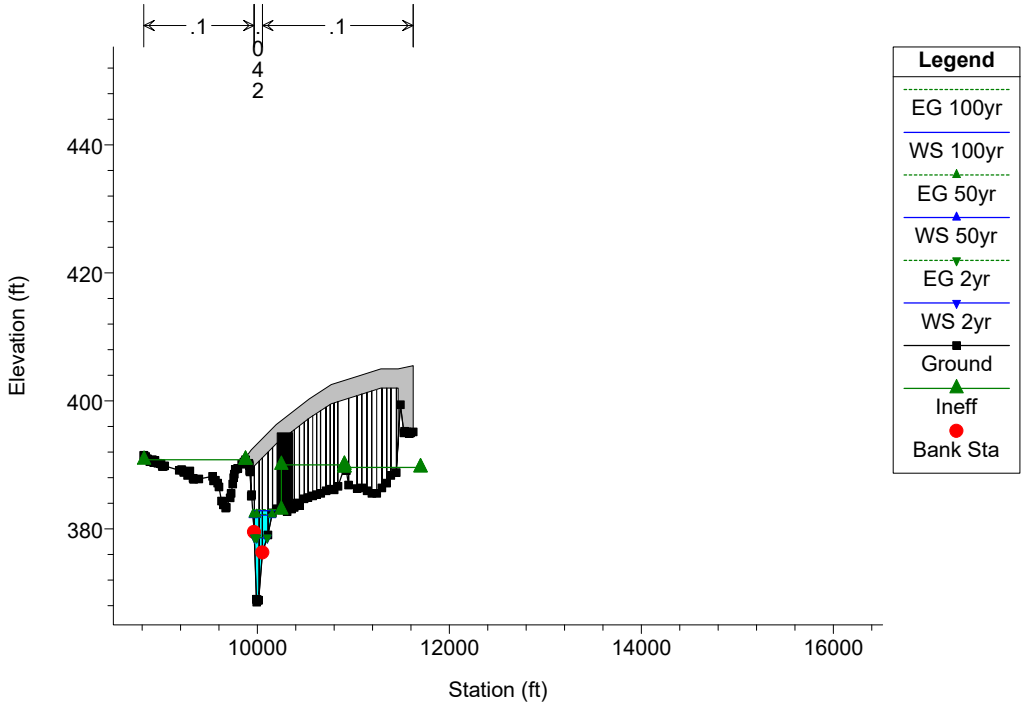
NF_Canoe Plan: Candet4 1/17/2020

RS = 11256.8 BR 2nd Street



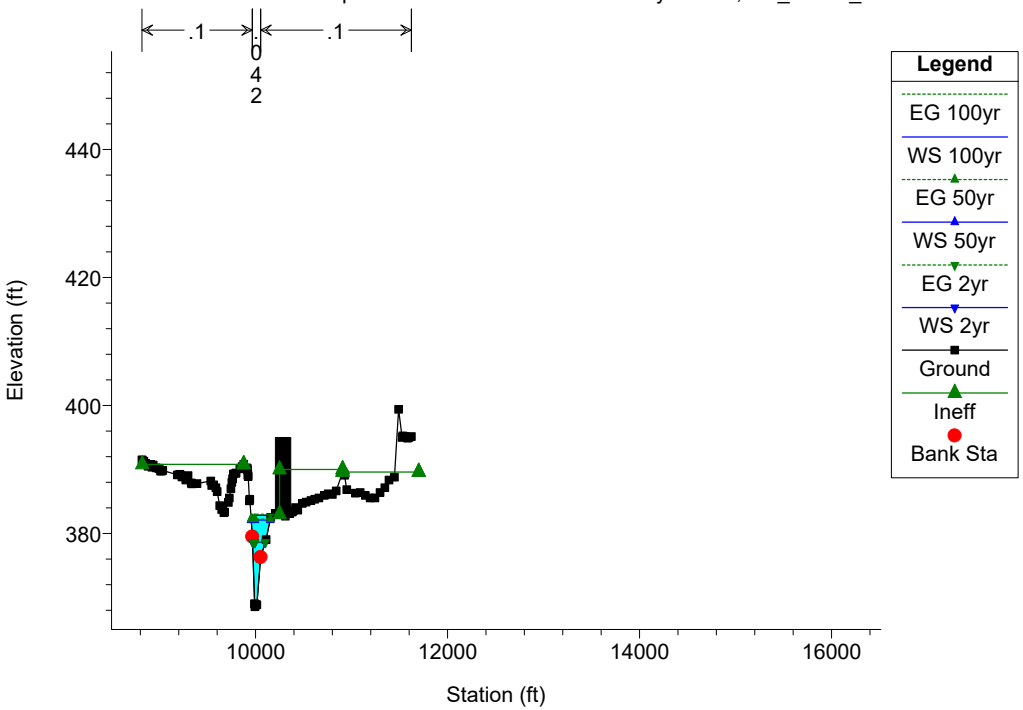
NF_Canoe Plan: Candet4 1/17/2020

RS = 11256.8 BR 2nd Street



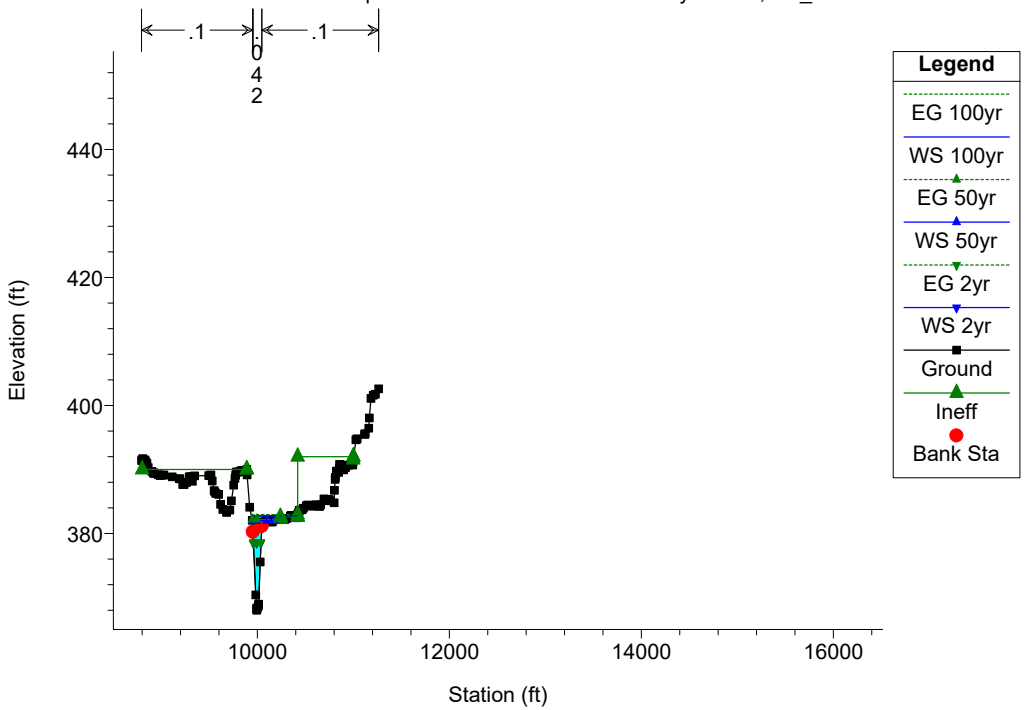
NF_Canoe Plan: Candet4 1/17/2020

RS = 11171.4 Interpolated based on UPS-DS Survey inverts, BR_11130_DS.



NF_Canoe Plan: Candet4 1/17/2020

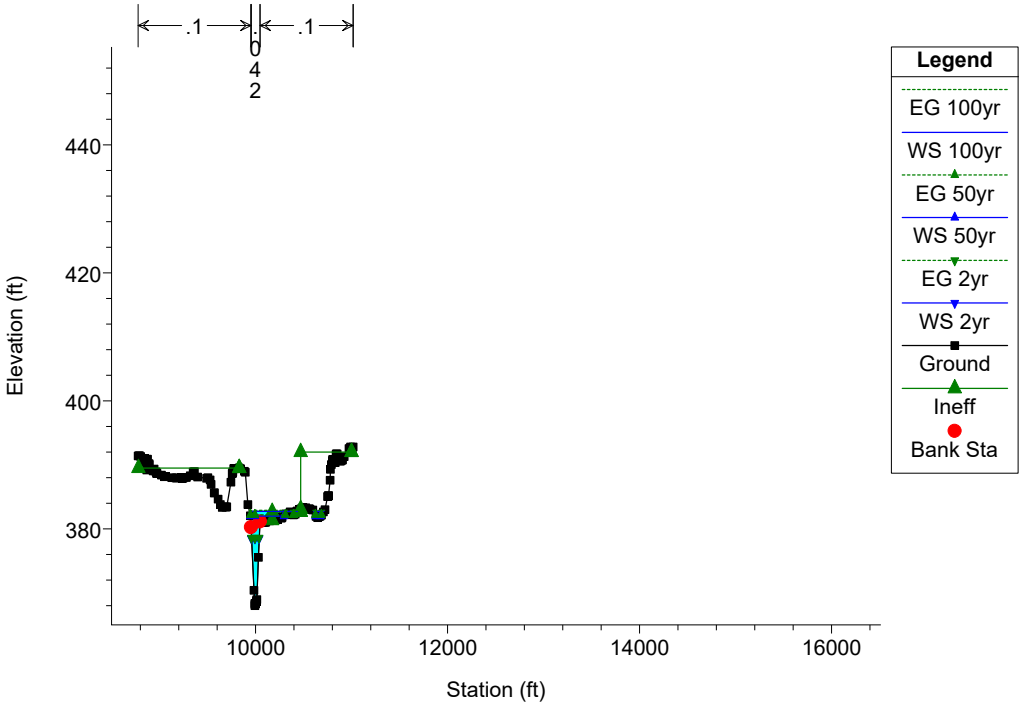
RS = 11097.6 Interpolated based on UPS-DS Survey inverts, XS_10948.



1 in Horiz. = 2000 ft 1 in Vert. = 30 ft

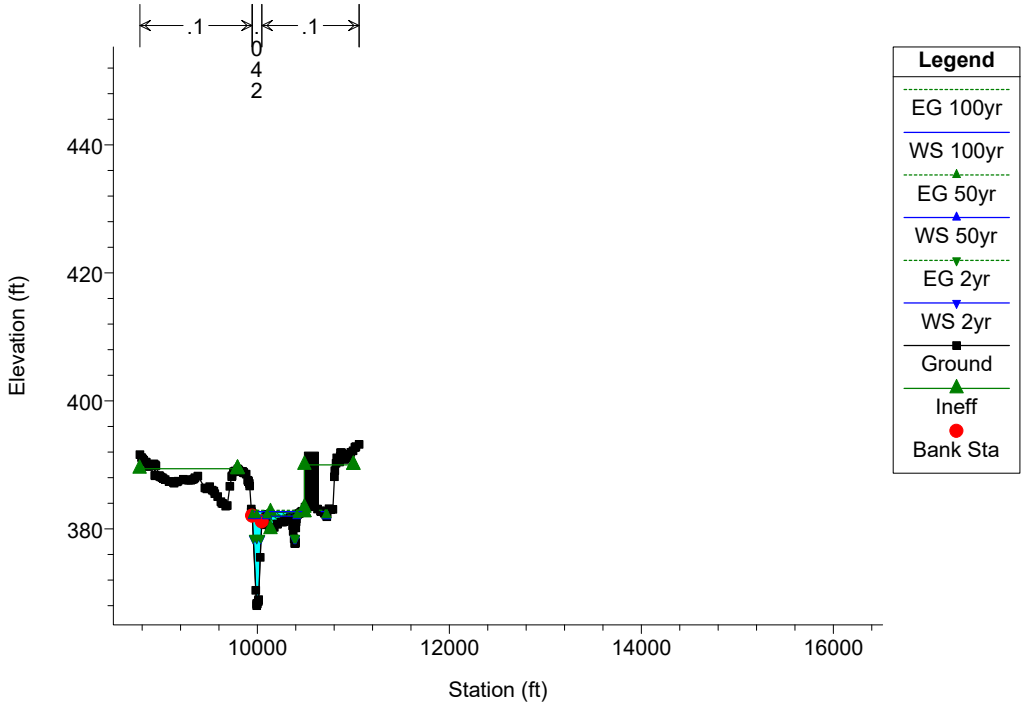
NF_Canoe Plan: Candet4 1/17/2020

RS = 11075. Survey xs, XS_10948.



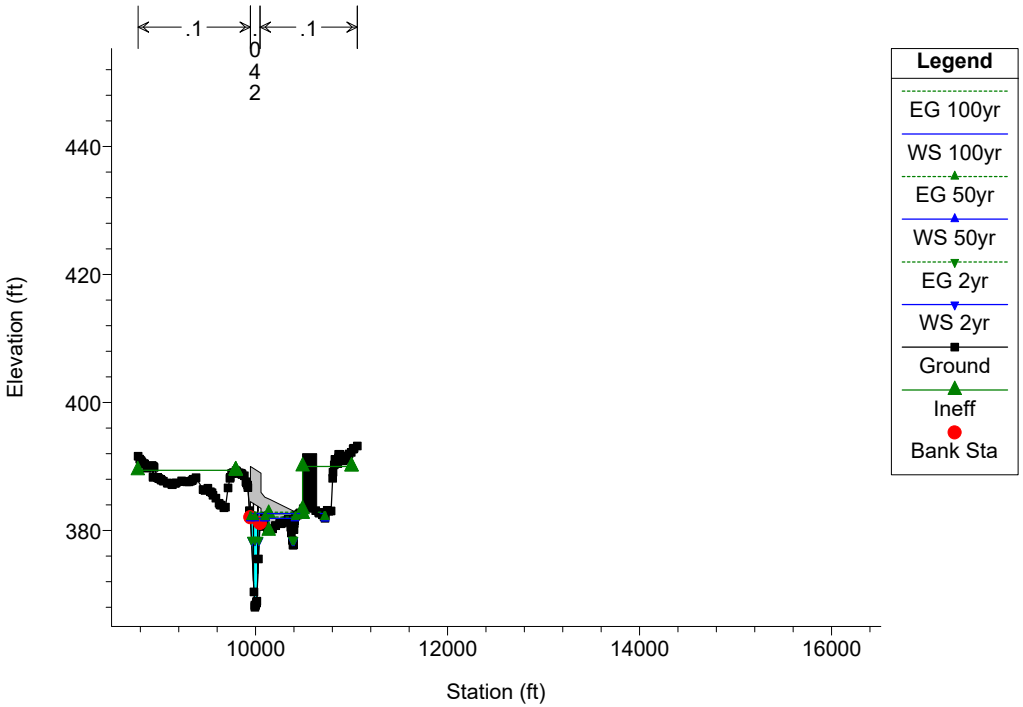
NF_Canoe Plan: Candet4 1/17/2020

RS = 11031.7 J Interpolated based on UPS-DS Survey inverts, BR_10810_US.



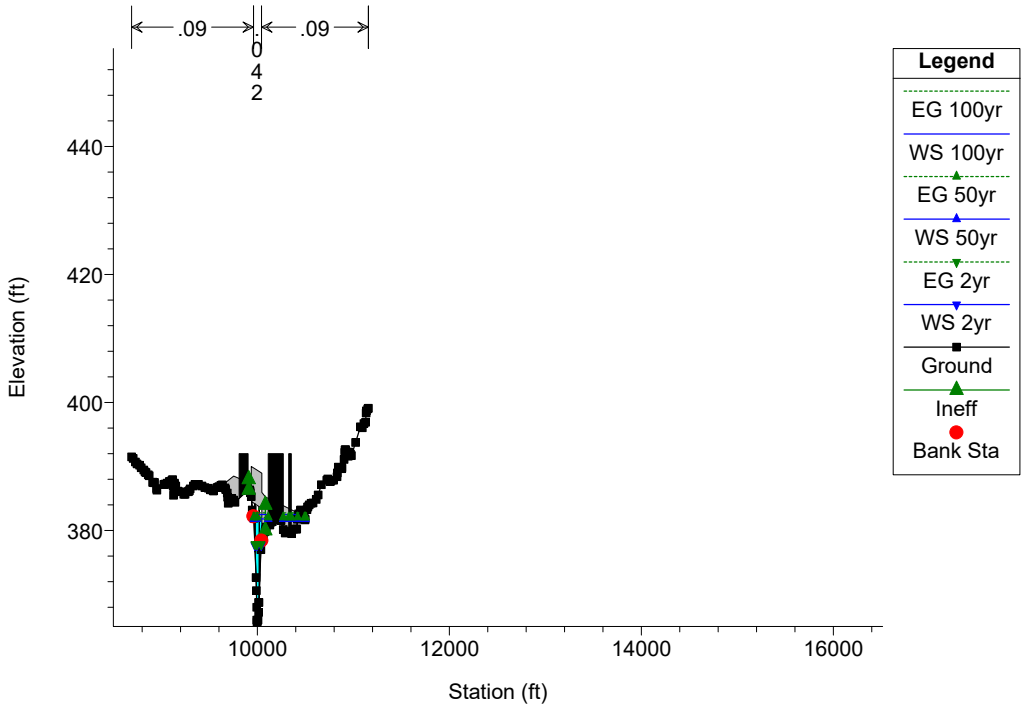
NF_Canoe Plan: Candet4 1/17/2020

RS = 10936.8 BR Priest Street



NF_Canoe Plan: Candet4 1/17/2020

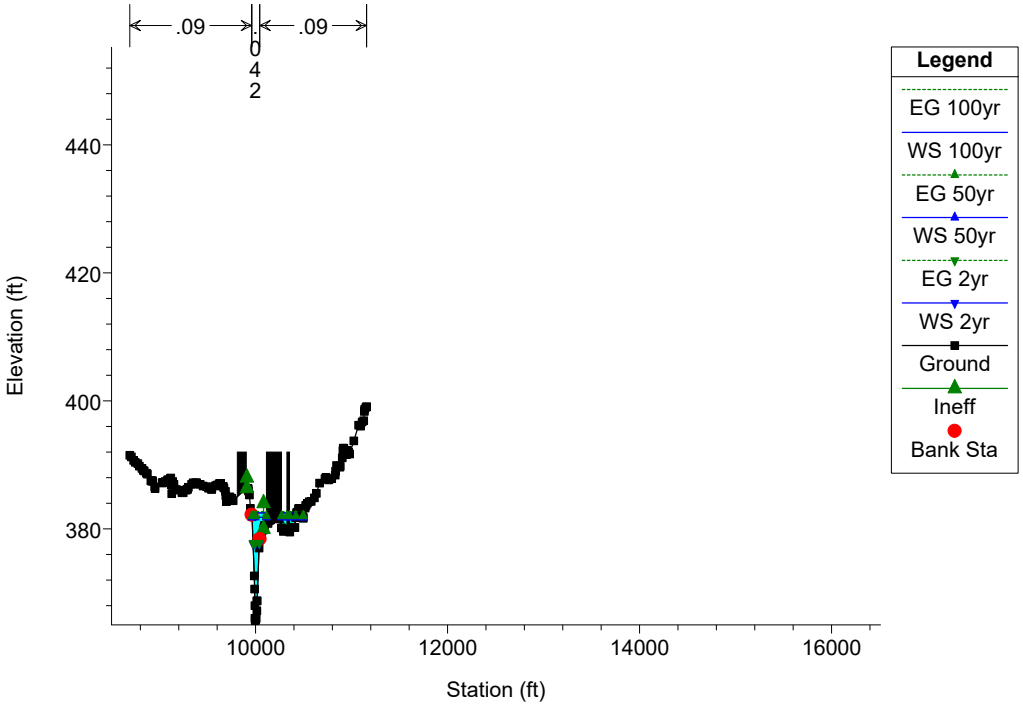
RS = 10936.8 BR Priest Street



1 in Horiz. = 2000 ft 1 in Vert. = 30 ft

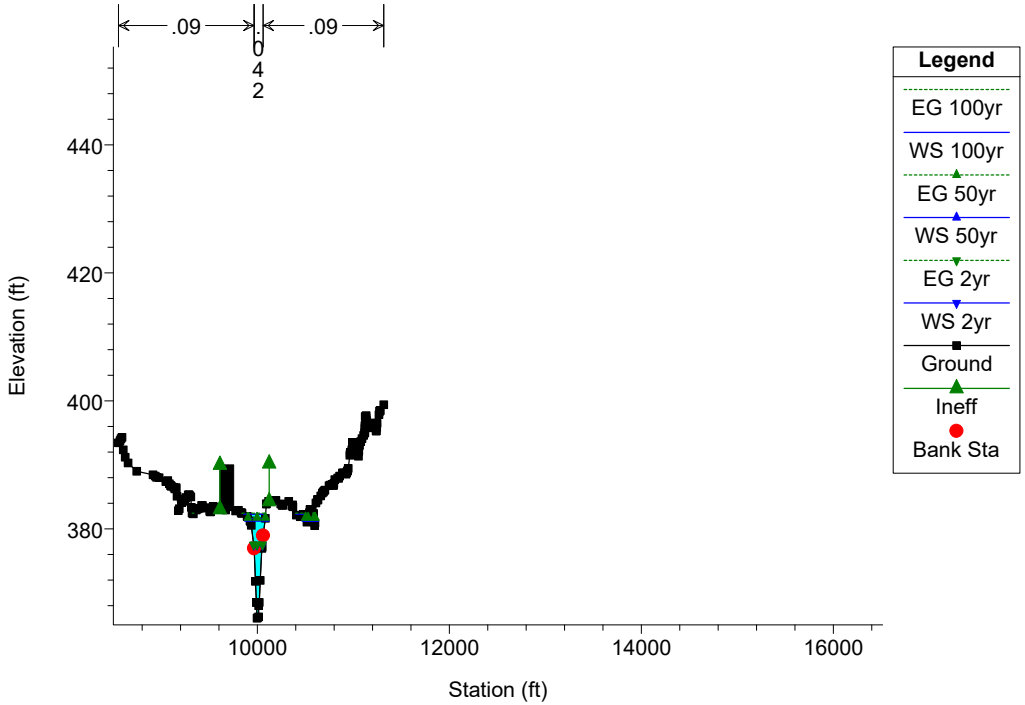
NF_Canoe Plan: Candet4 1/17/2020

RS = 10837. Interpolated based on UPS-DS Survey inverts, BR_10810_DS.



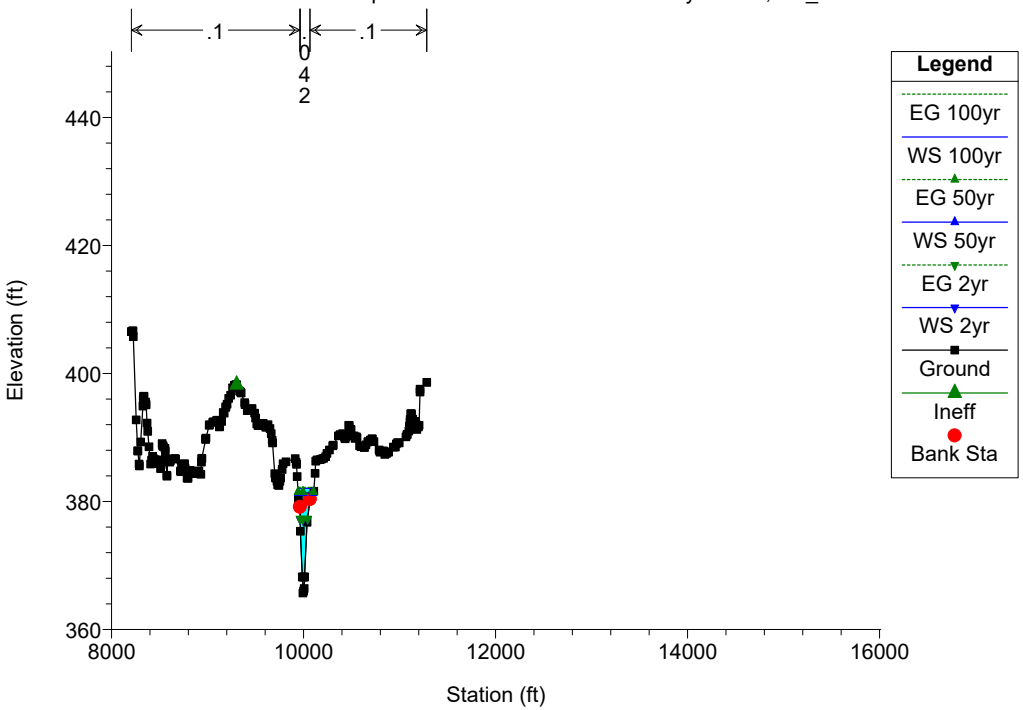
NF_Canoe Plan: Candet4 1/17/2020

RS = 10362.2 I Interpolated based on UPS-DS Survey inverts, Xs_10625.



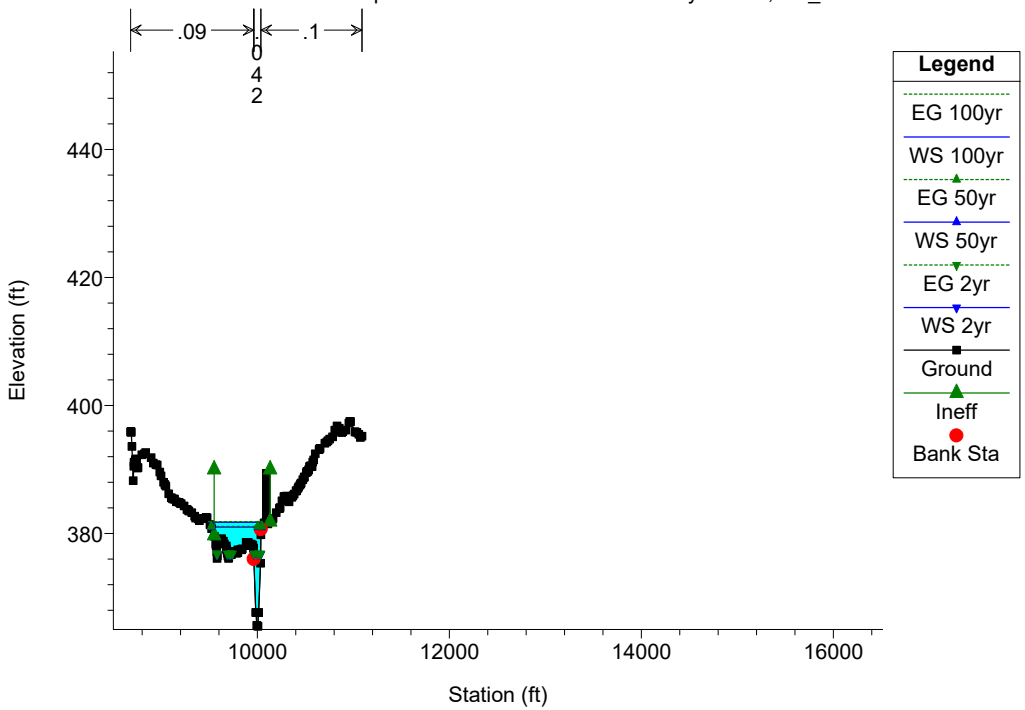
NF_Canoe Plan: Candet4 1/17/2020

RS = 9719.4 H Interpolated based on UPS-DS Survey inverts, XS_8812.

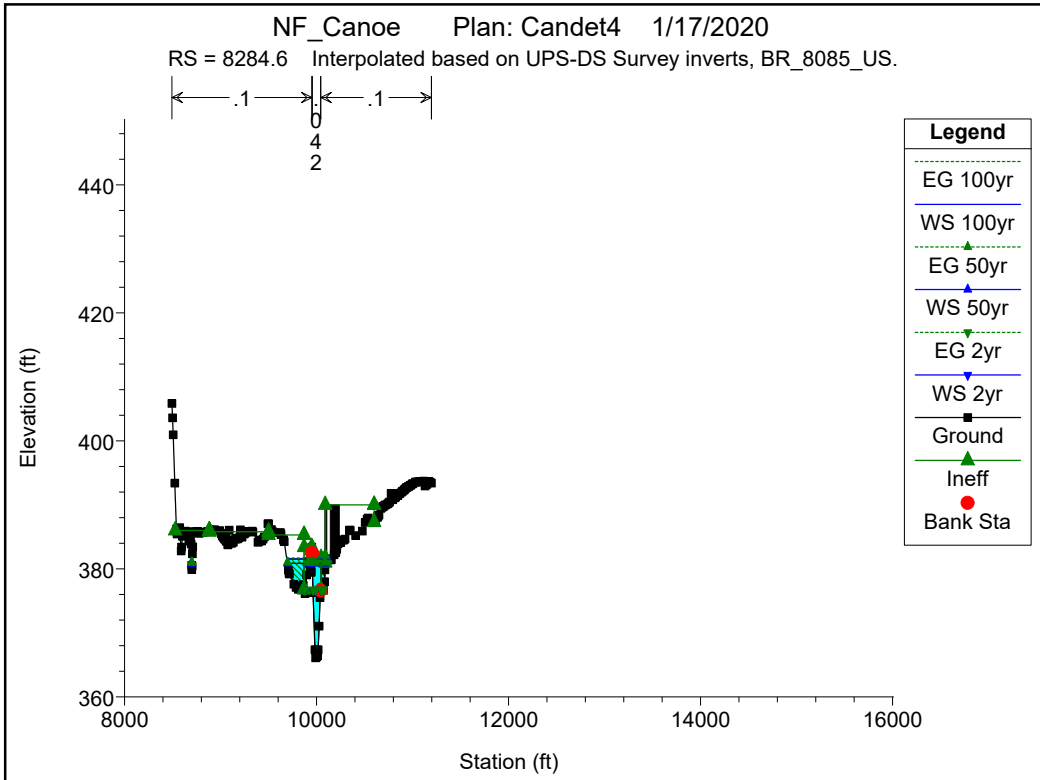


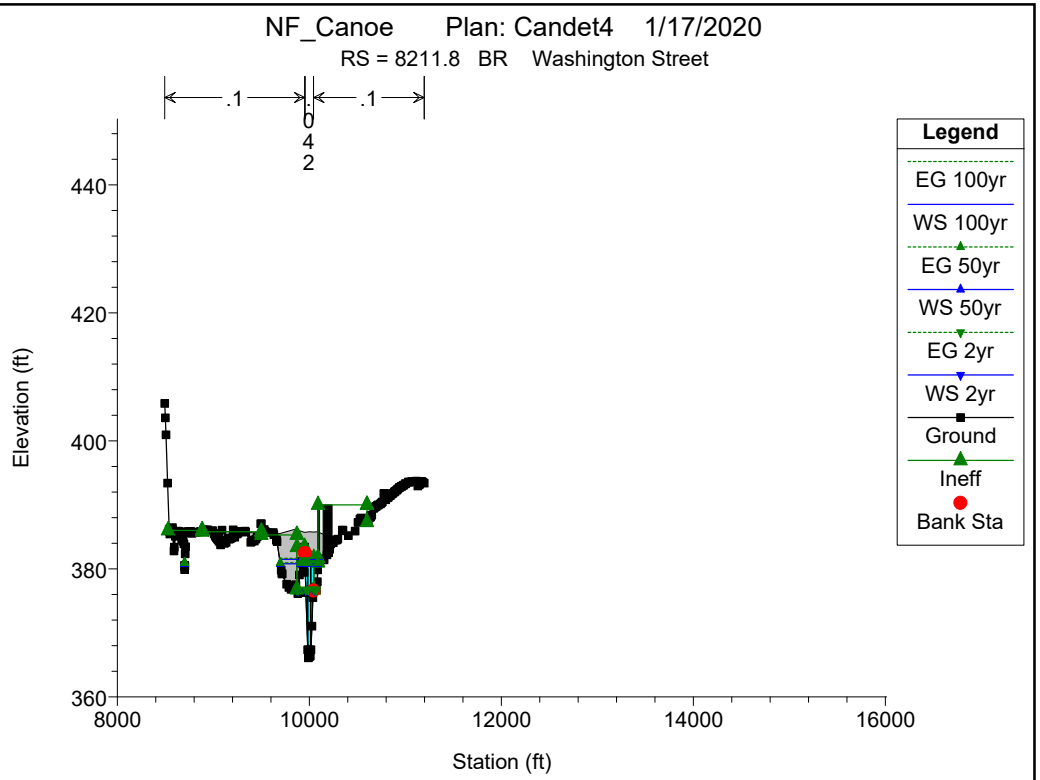
NF_Canoe Plan: Candet4 1/17/2020

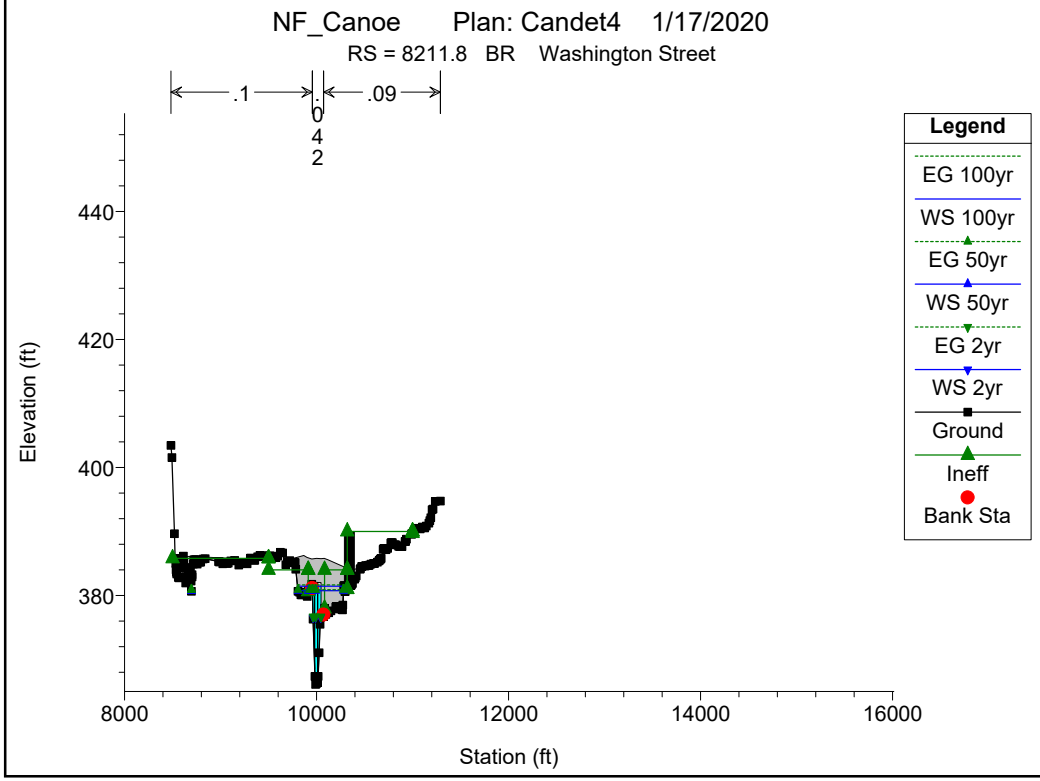
RS = 8580.4 G Interpolated based on UPS-DS Survey inverts, XS_8253.

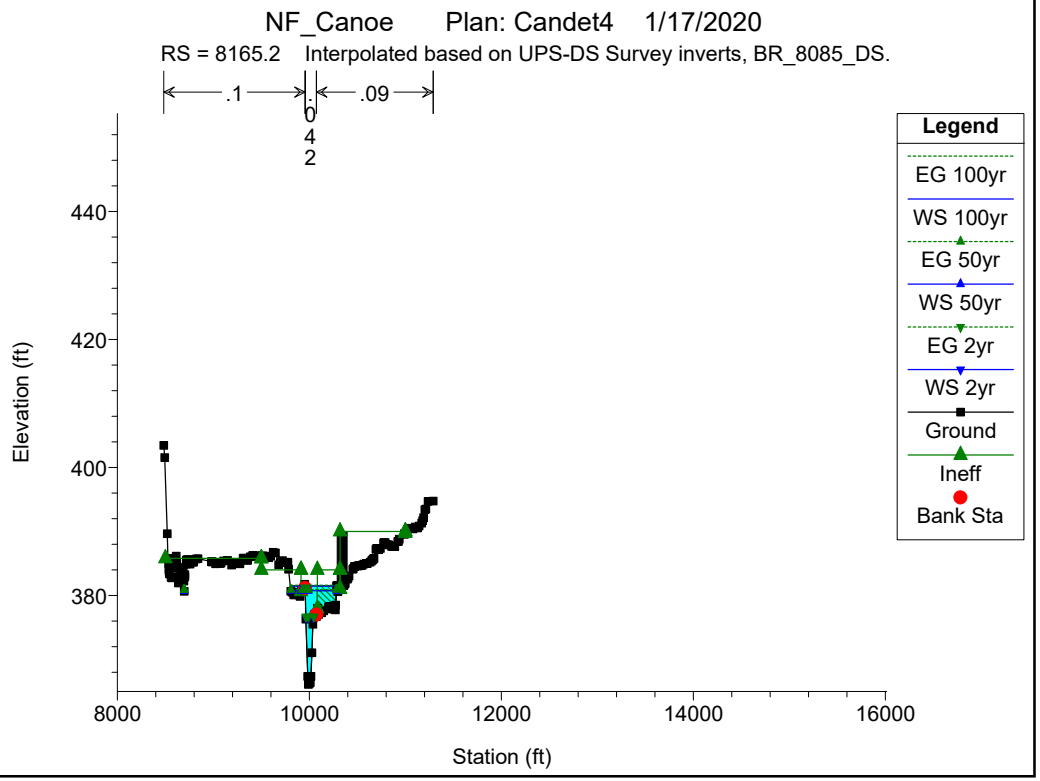


1 in Horiz. = 2000 ft 1 in Vert. = 30 ft





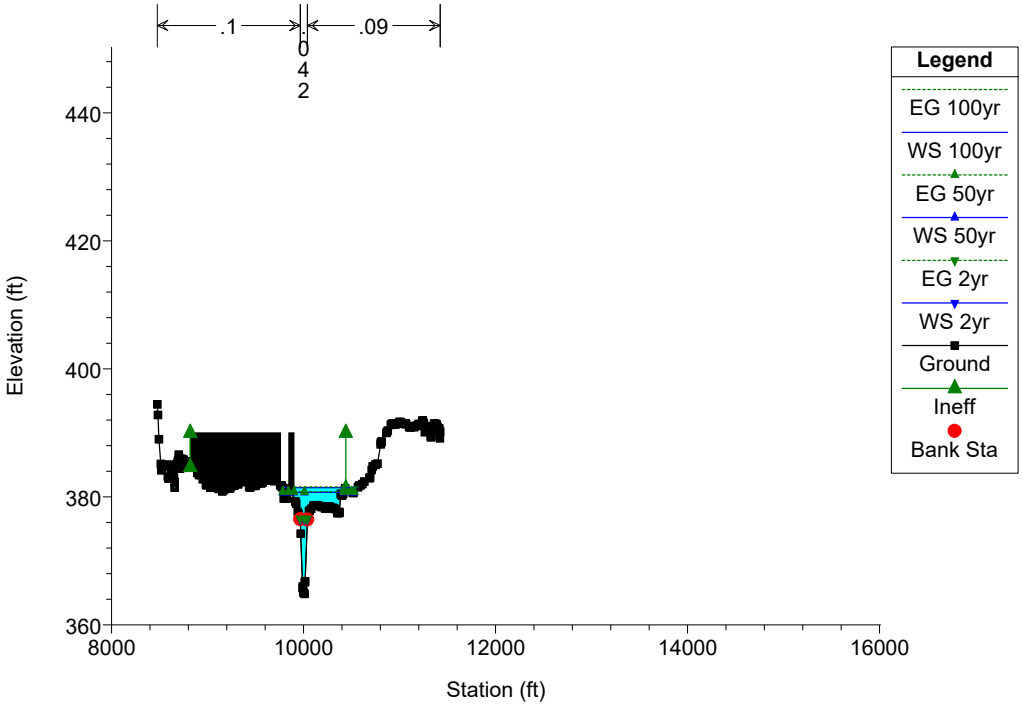




1 in Horiz. = 2000 ft 1 in Vert. = 30 ft

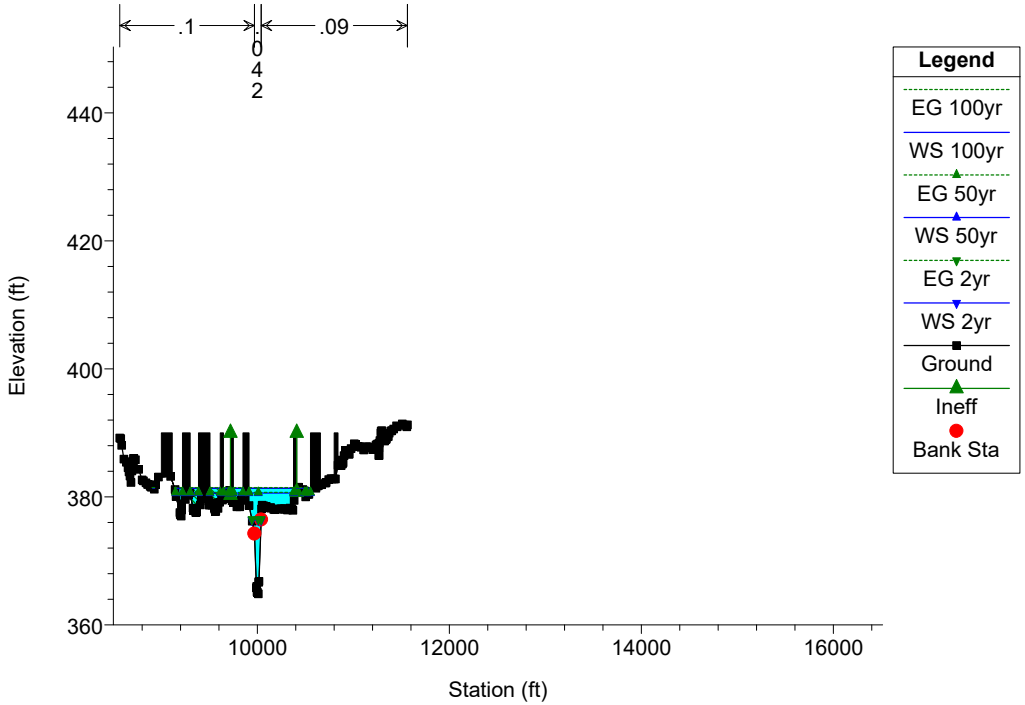
NF_Canoe Plan: Candet4 1/17/2020

RS = 7927.6 Interpolated based on UPS-DS Survey inverts, XS_7940.



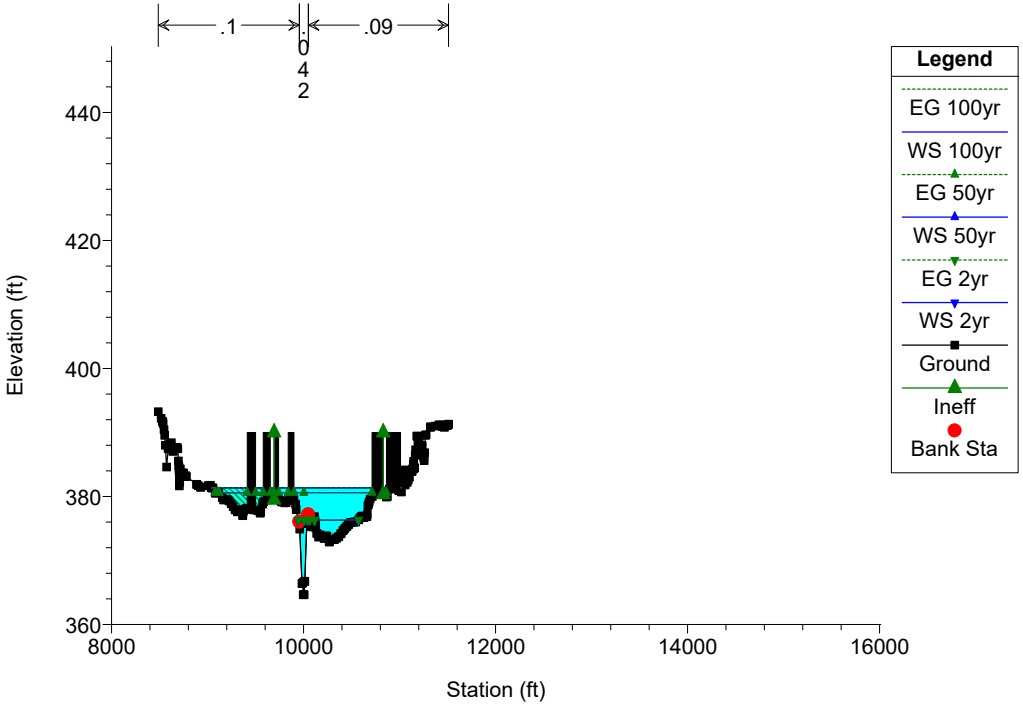
NF_Canoe Plan: Candet4 1/17/2020

RS = 7564.1 F Interpolated based on UPS-DS Survey inverts, XS_7212.



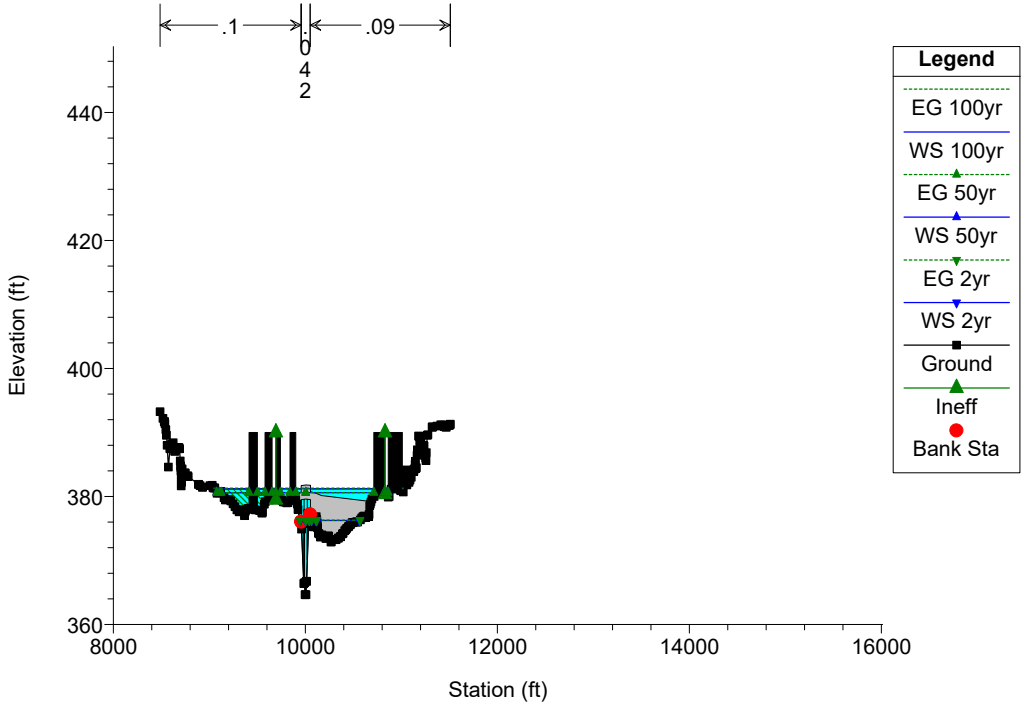
NF_Canoe Plan: Candet4 1/17/2020

RS = 7123.8 Interpolated based on UPS-DS Survey inverts, BR_6960_US.

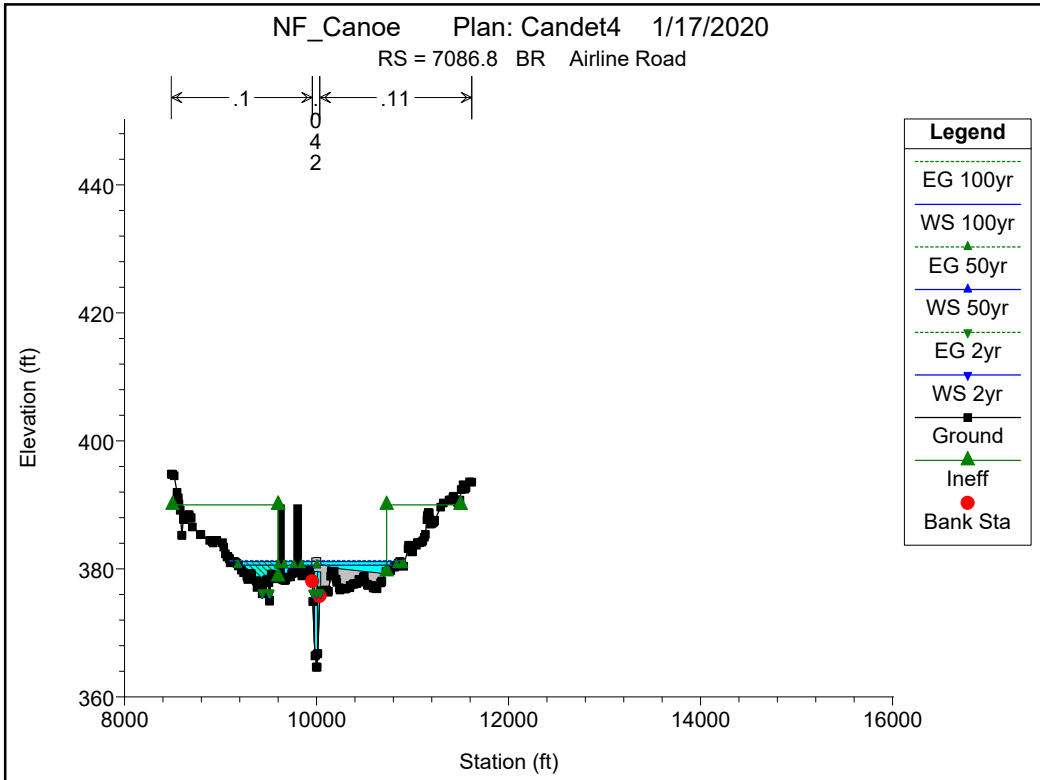


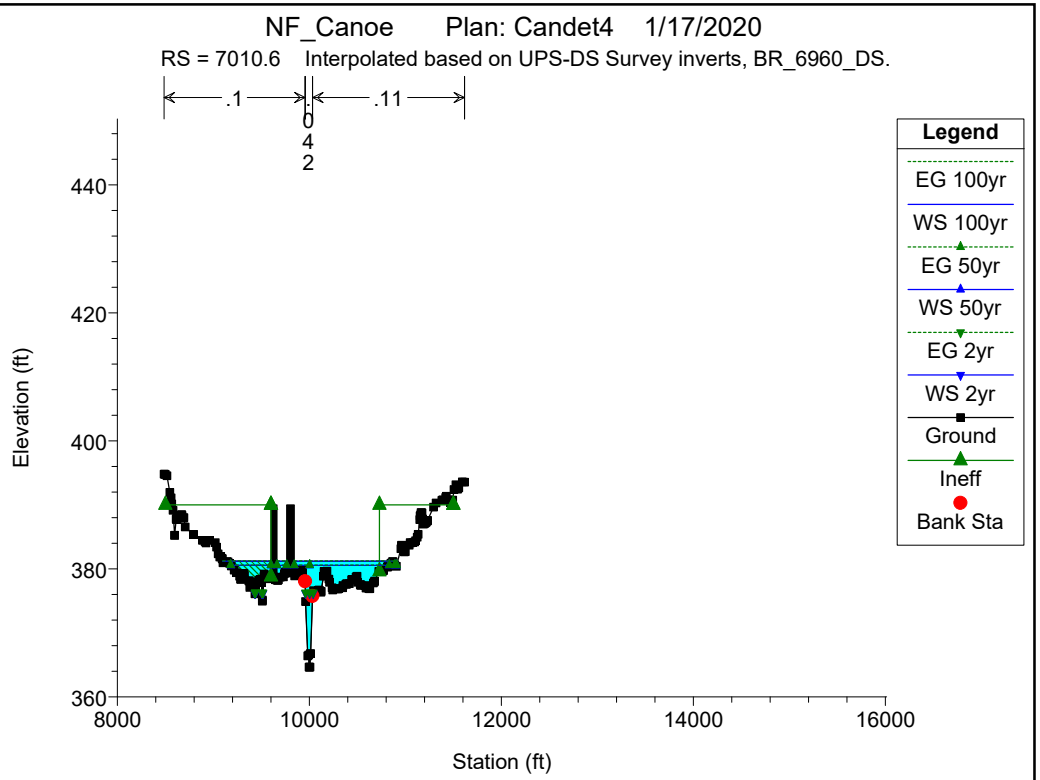
NF_Canoe Plan: Candet4 1/17/2020

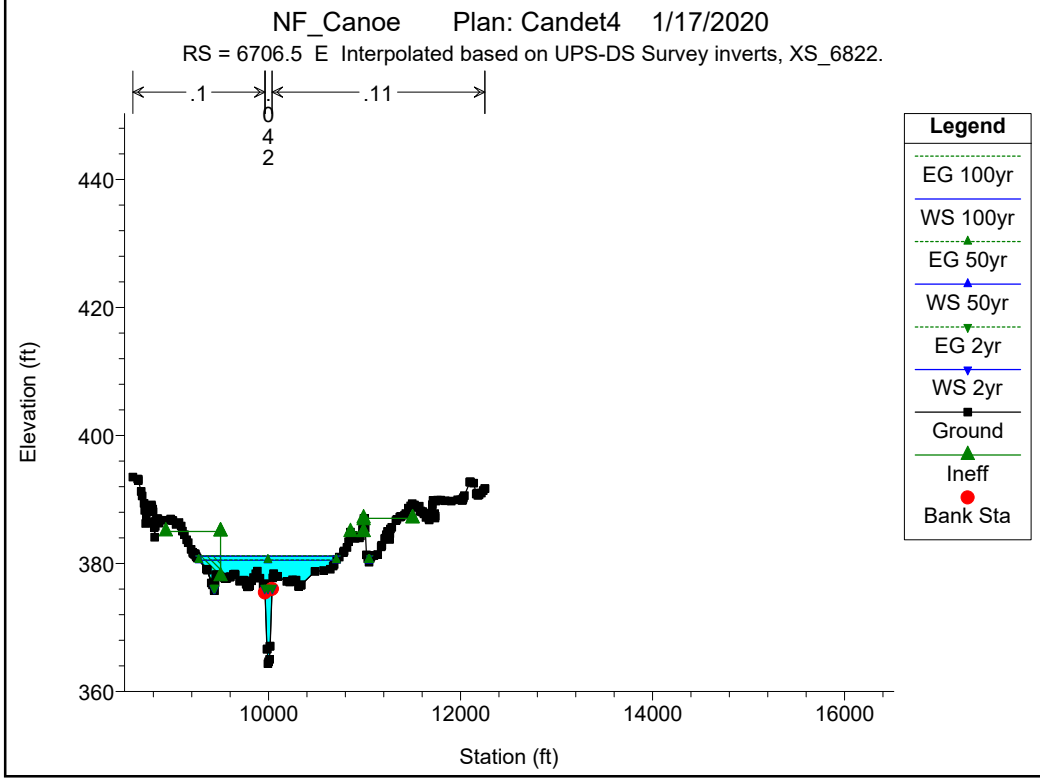
RS = 7086.8 BR Airline Road

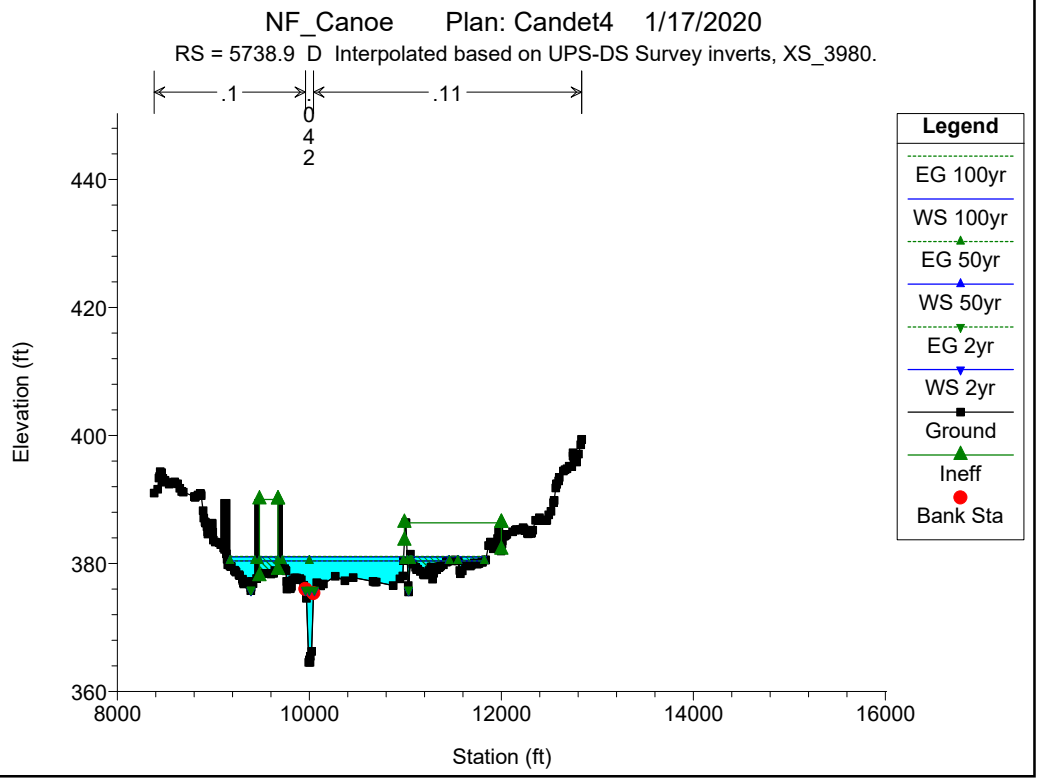


1 in Horiz. = 2000 ft 1 in Vert. = 30 ft

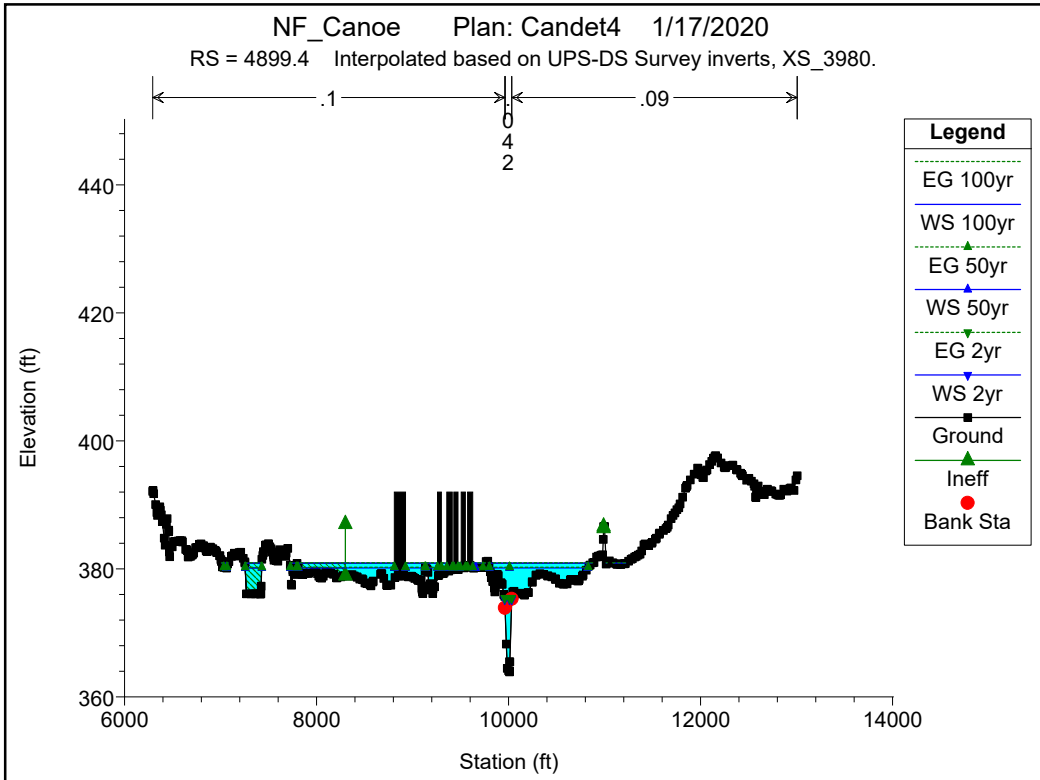


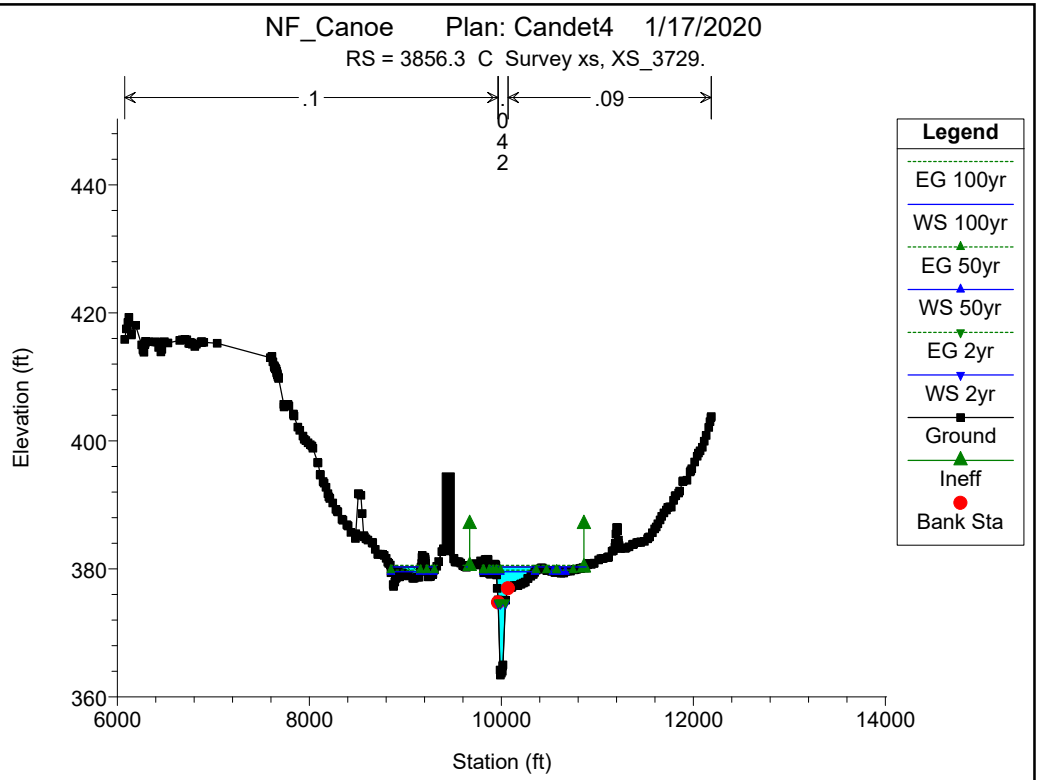


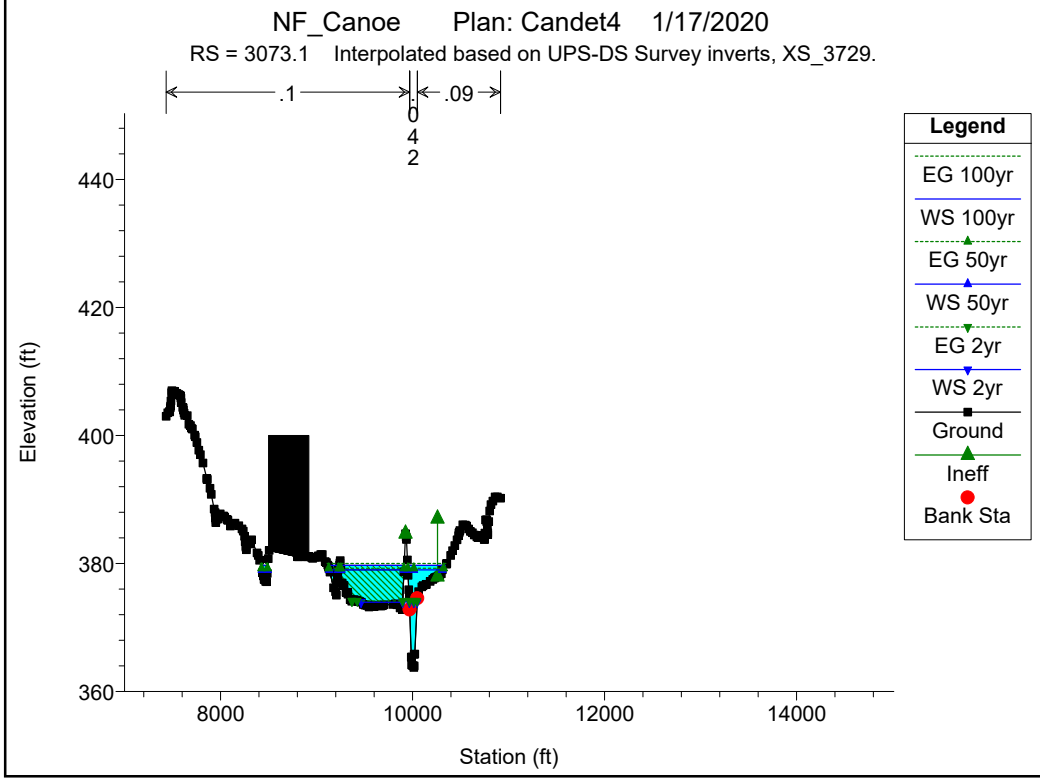


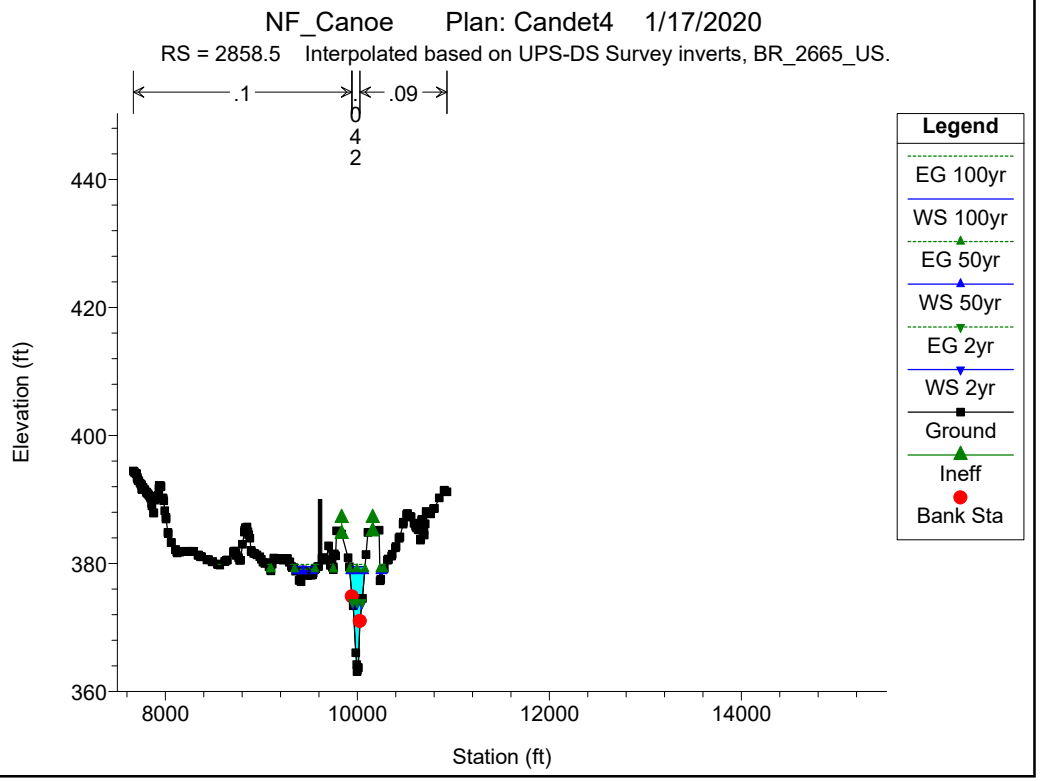


1 in Horiz. = 2000 ft 1 in Vert. = 30 ft

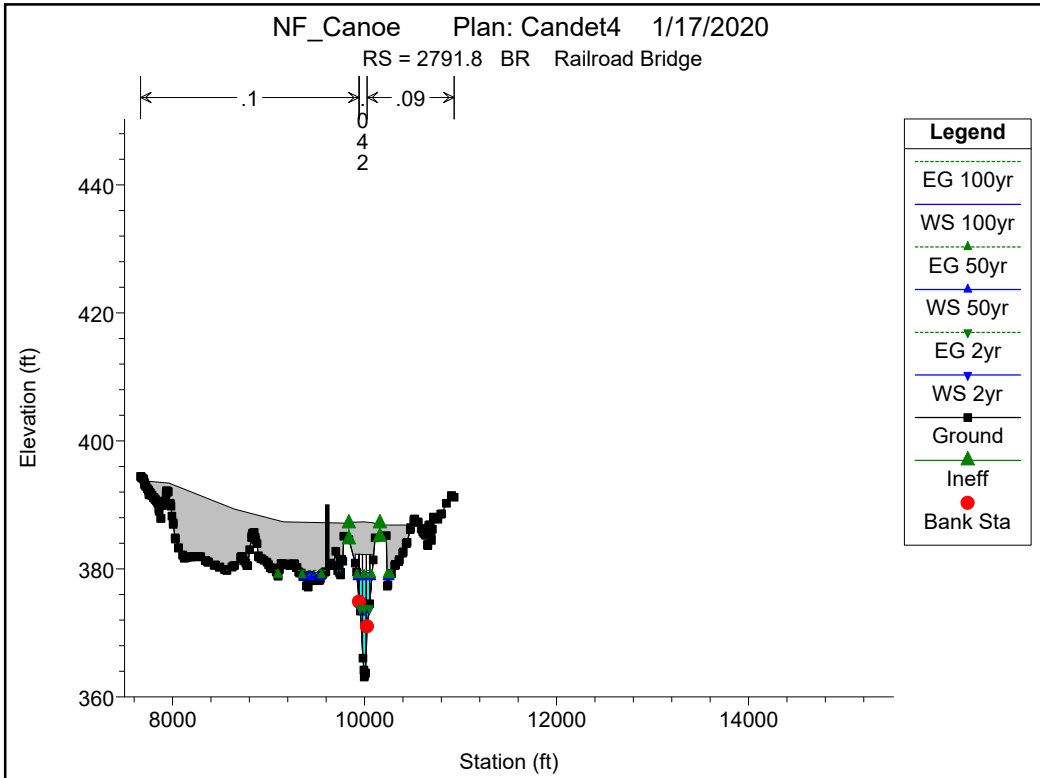


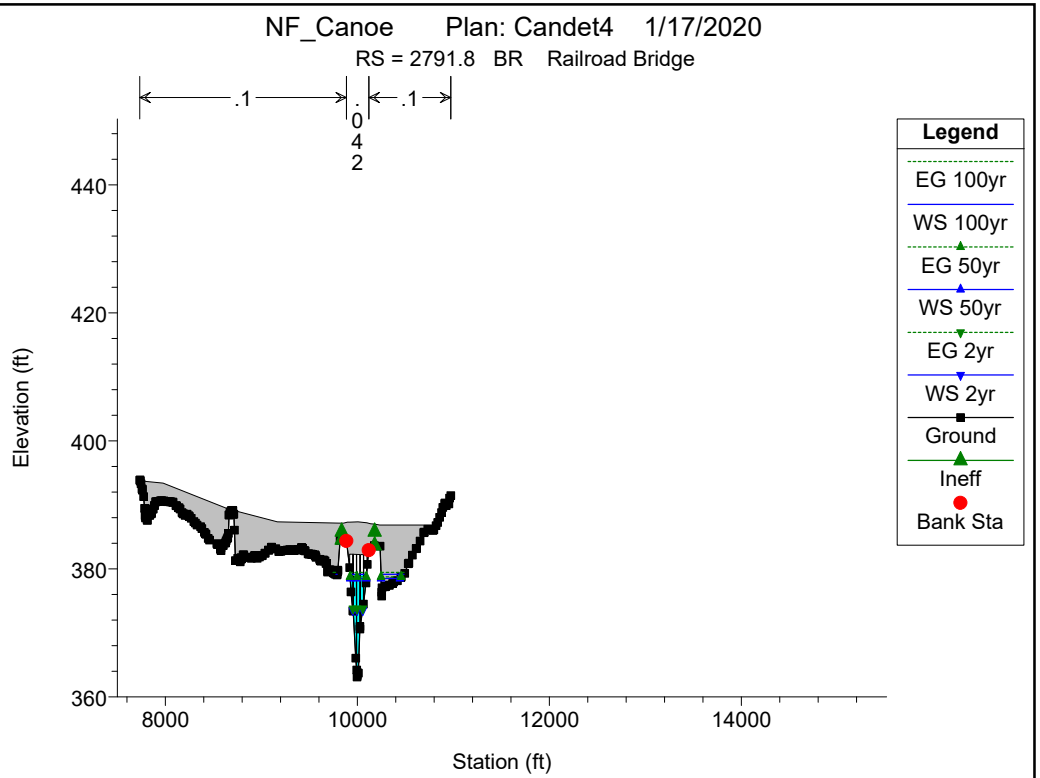


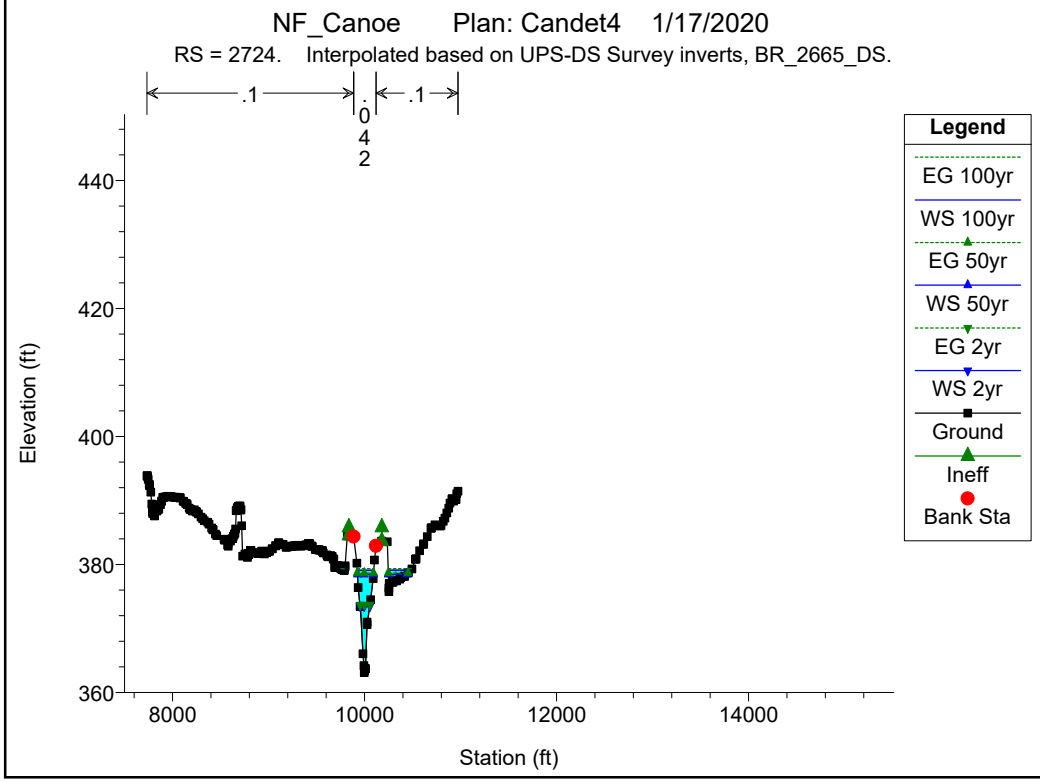


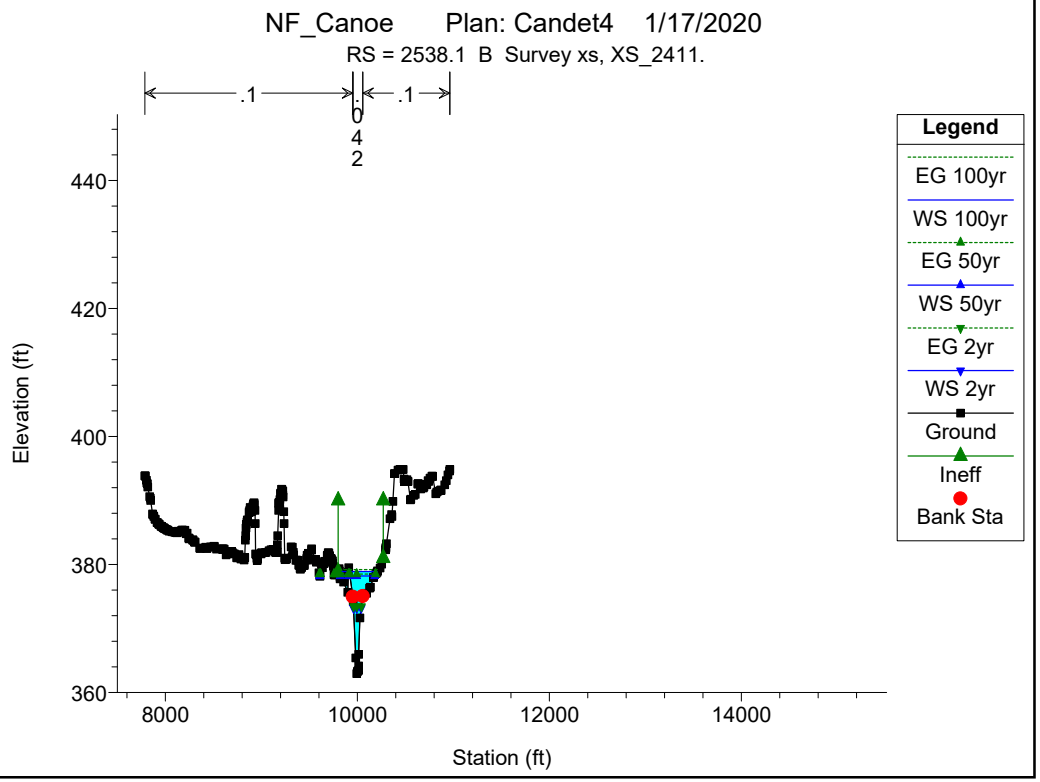


1 in Horiz. = 2000 ft 1 in Vert. = 30 ft





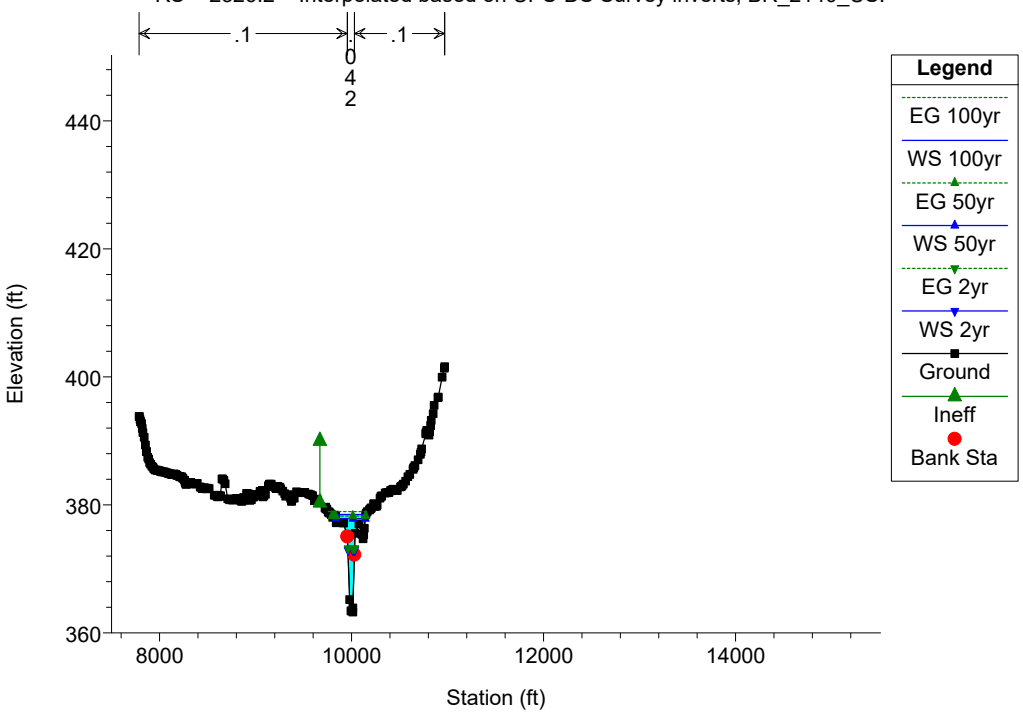




1 in Horiz. = 2000 ft 1 in Vert. = 30 ft

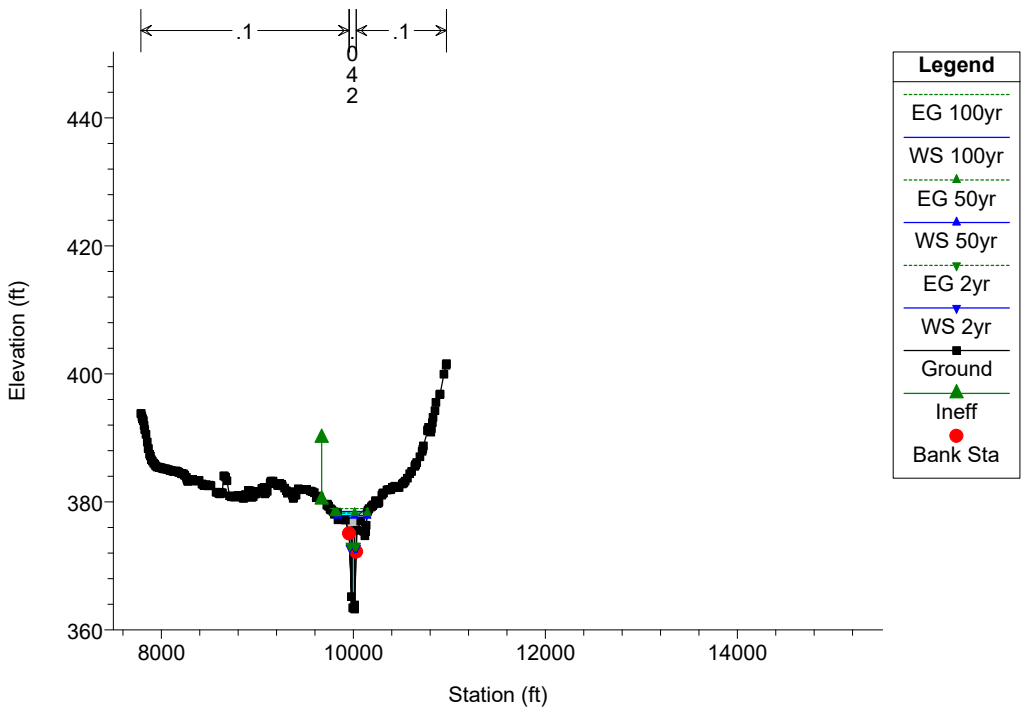
NF_Canoe Plan: Candet4 1/17/2020

RS = 2326.2 Interpolated based on UPS-DS Survey inverts, BR_2140_US.



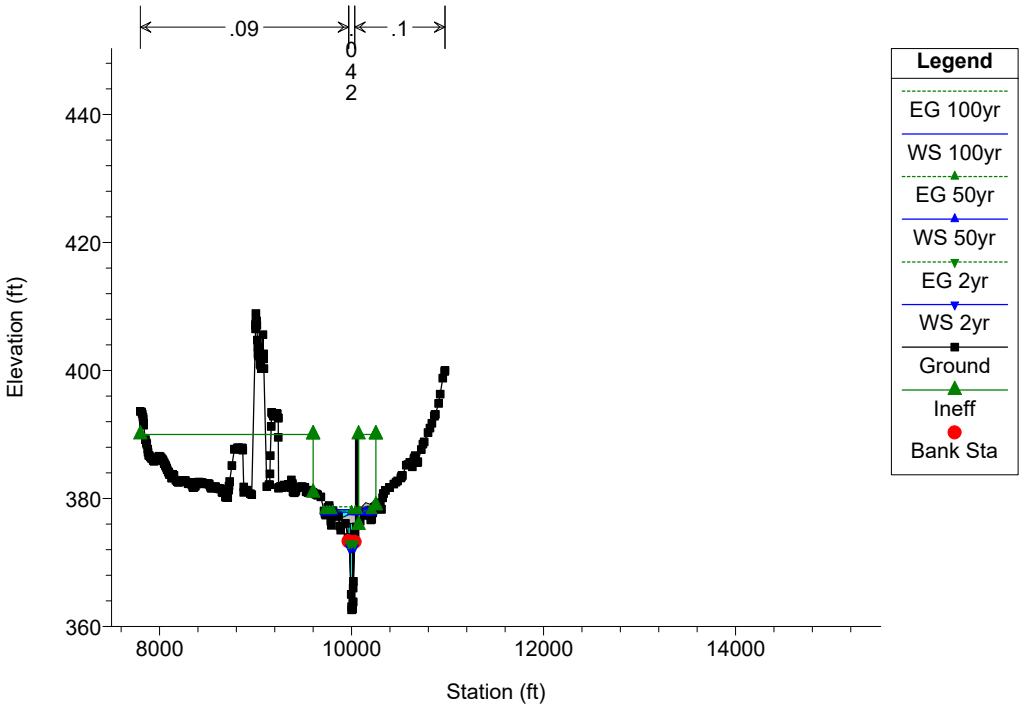
NF_Canoe Plan: Candet4 1/17/2020

RS = 2266.8 BR KY-136



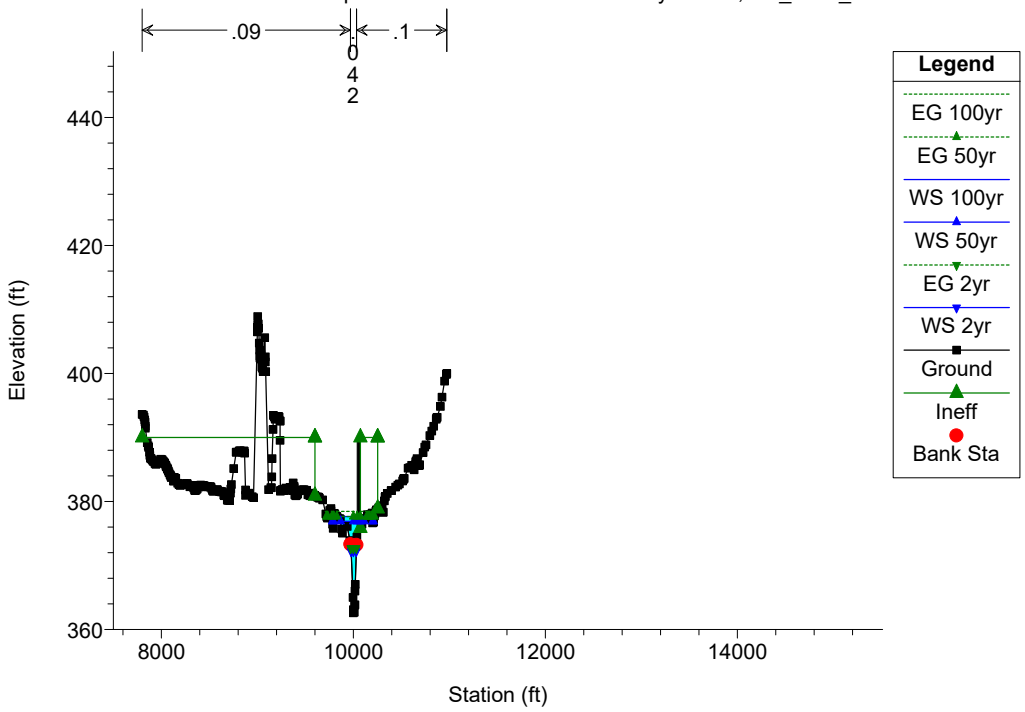
NF_Canoe Plan: Candet4 1/17/2020

RS = 2266.8 BR KY-136



NF_Canoe Plan: Candet4 1/17/2020

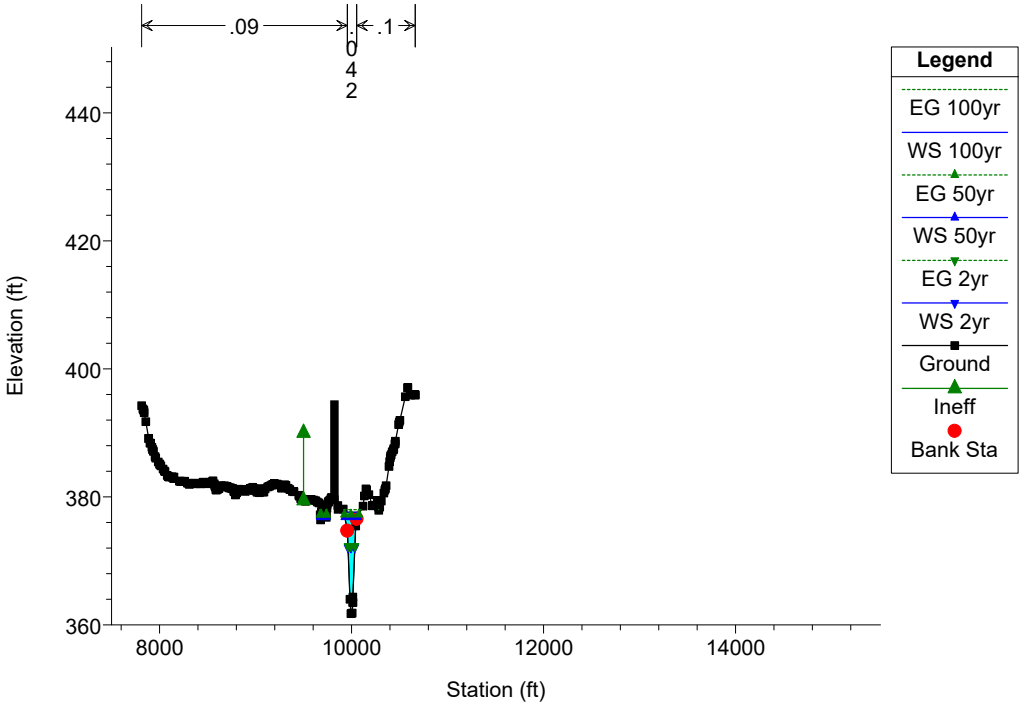
RS = 2223.8 Interpolated based on UPS-DS Survey inverts, BR_2140_DS.



1 in Horiz. = 2000 ft 1 in Vert. = 30 ft

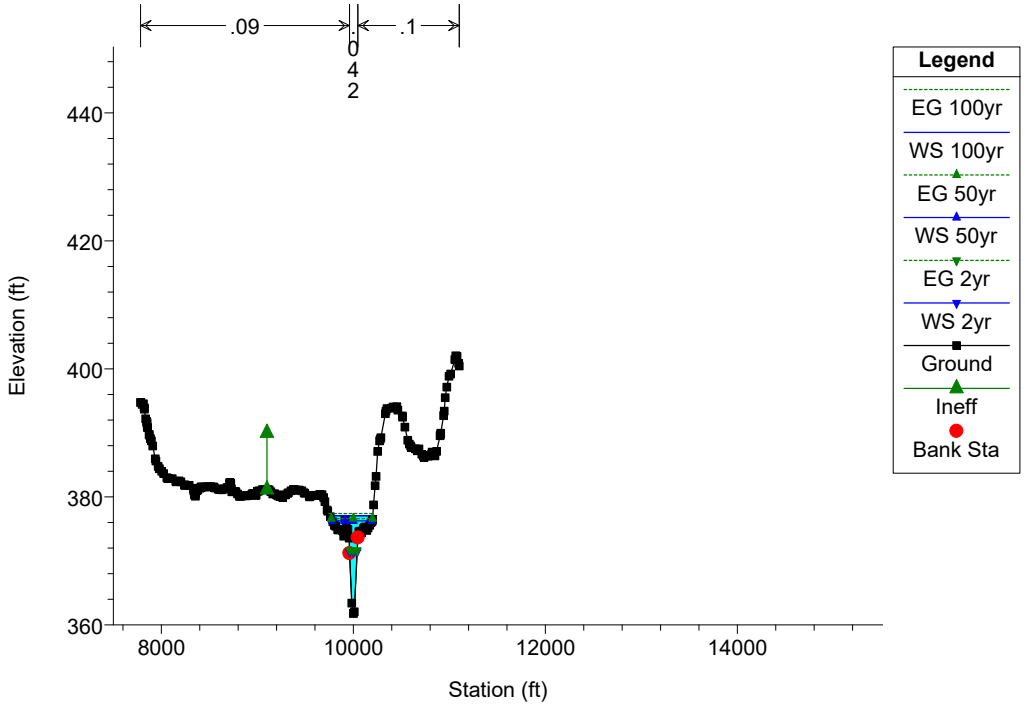
NF_Canoe Plan: Candet4 1/17/2020

RS = 2073.1 Survey xs, XS_1946.



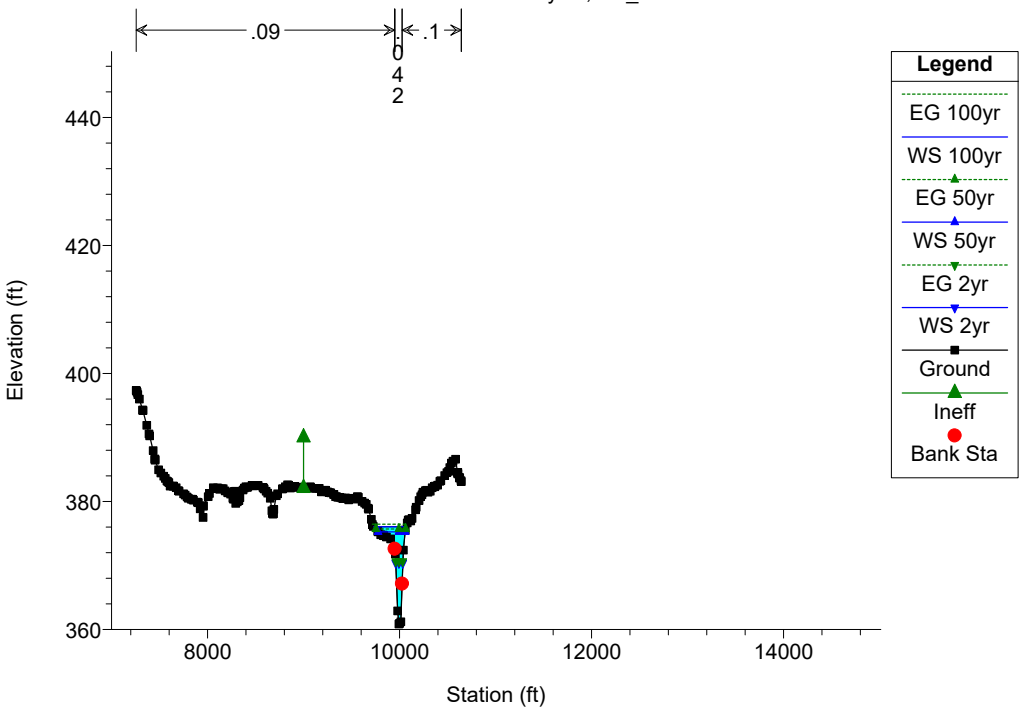
NF_Canoe Plan: Candet4 1/17/2020

RS = 1455.4 A Interpolated based on UPS-DS Survey inverts, XS_1946.



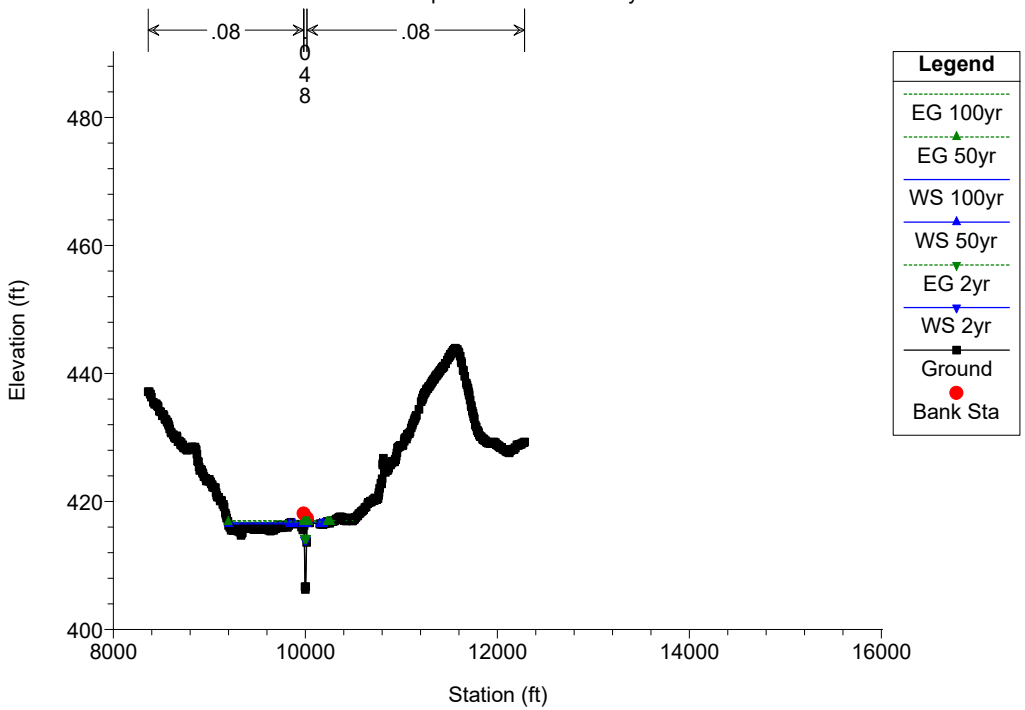
NF_Canoe Plan: Candet4 1/17/2020

RS = 450.5 Survey xs, XS_324.



NF_Canoe Plan: Candet4 1/17/2020

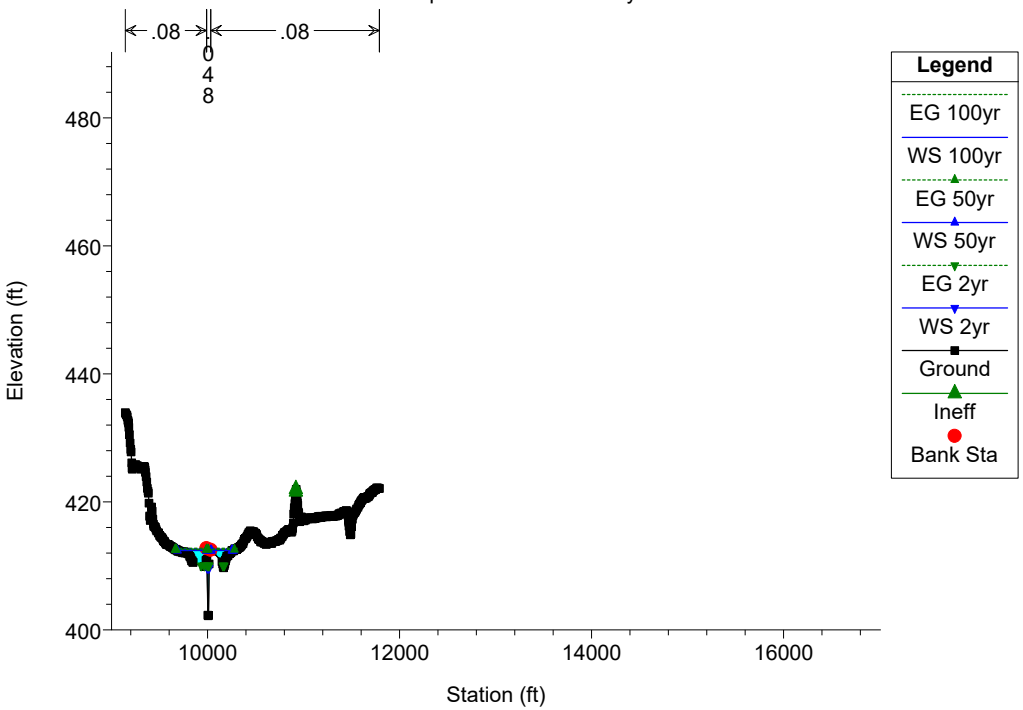
RS = 38011.5 XS Upstream/North of Hwy 60 and east of RR



1 in Horiz. = 2000 ft 1 in Vert. = 30 ft

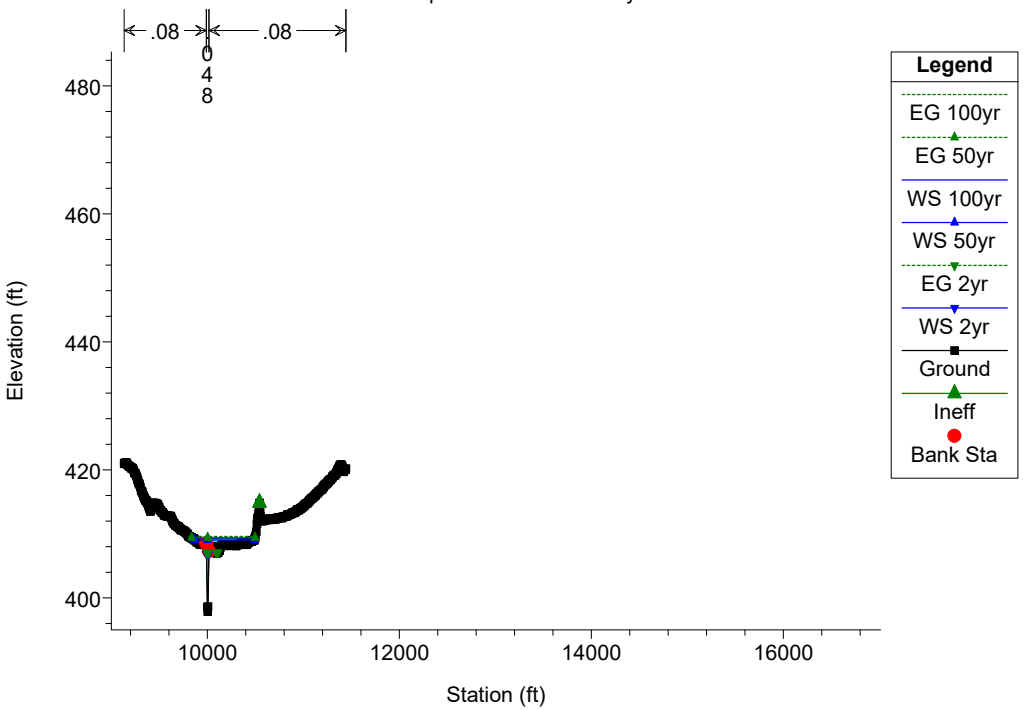
NF_Canoe Plan: Candet4 1/17/2020

RS = 37046.5 XS Upstream/North of Hwy 60 and east of RR



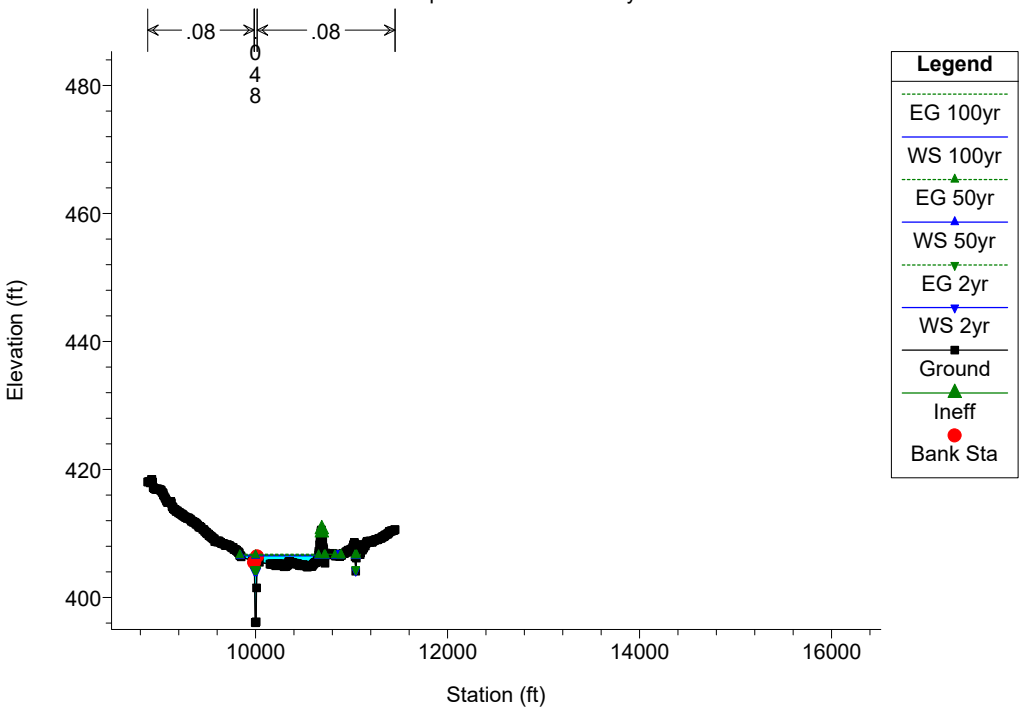
NF_Canoe Plan: Candet4 1/17/2020

RS = 36058.4 XS Upstream/North of Hwy 60 and east of RR



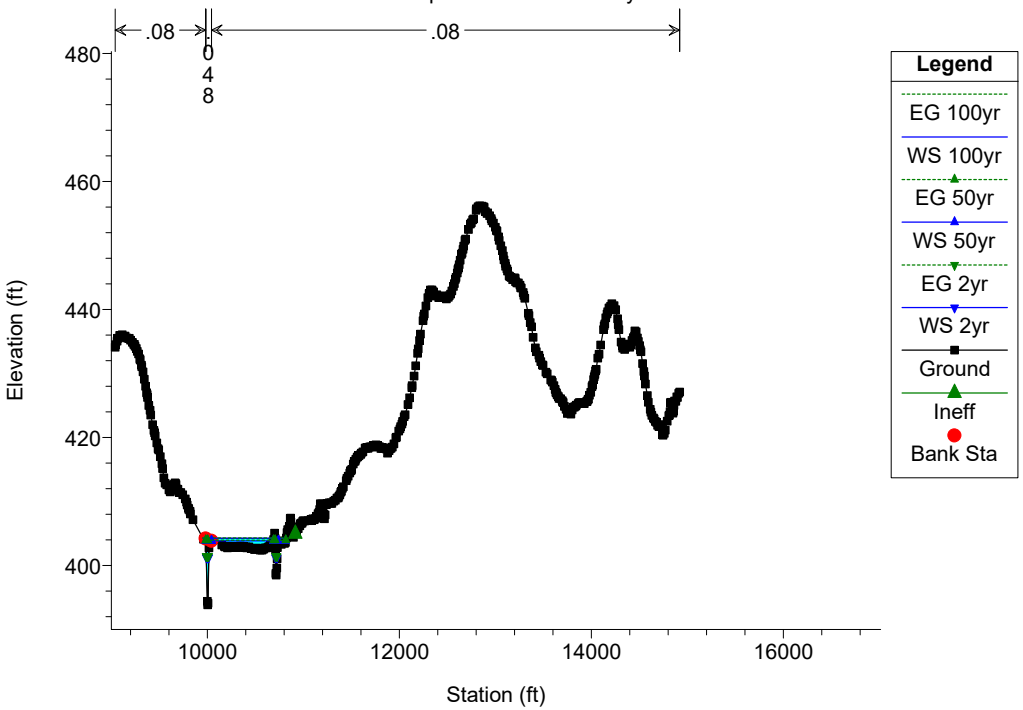
NF_Canoe Plan: Candet4 1/17/2020

RS = 34775.6 XS Upstream/North of Hwy 60 and east of RR

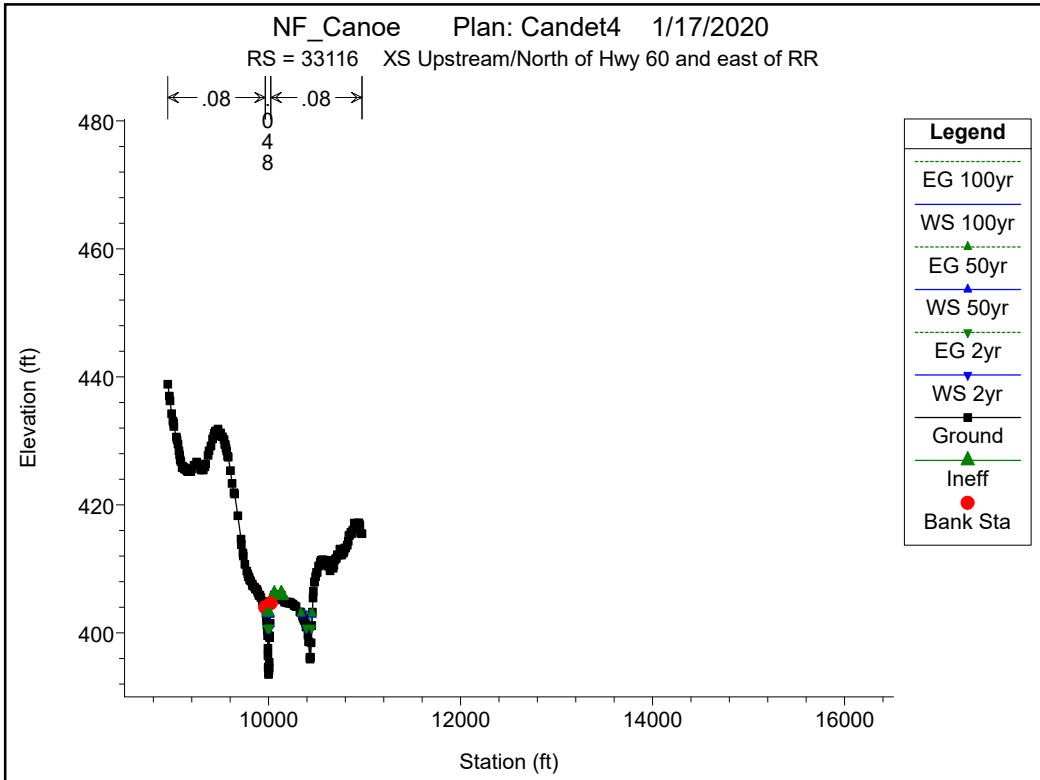


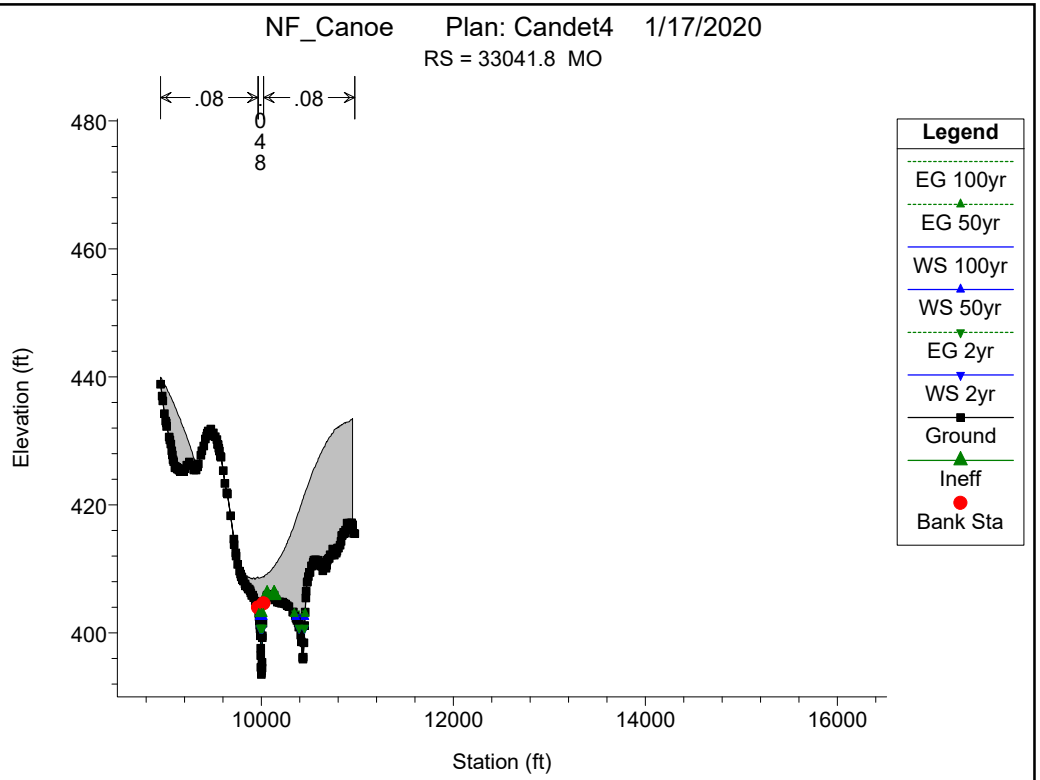
NF_Canoe Plan: Candet4 1/17/2020

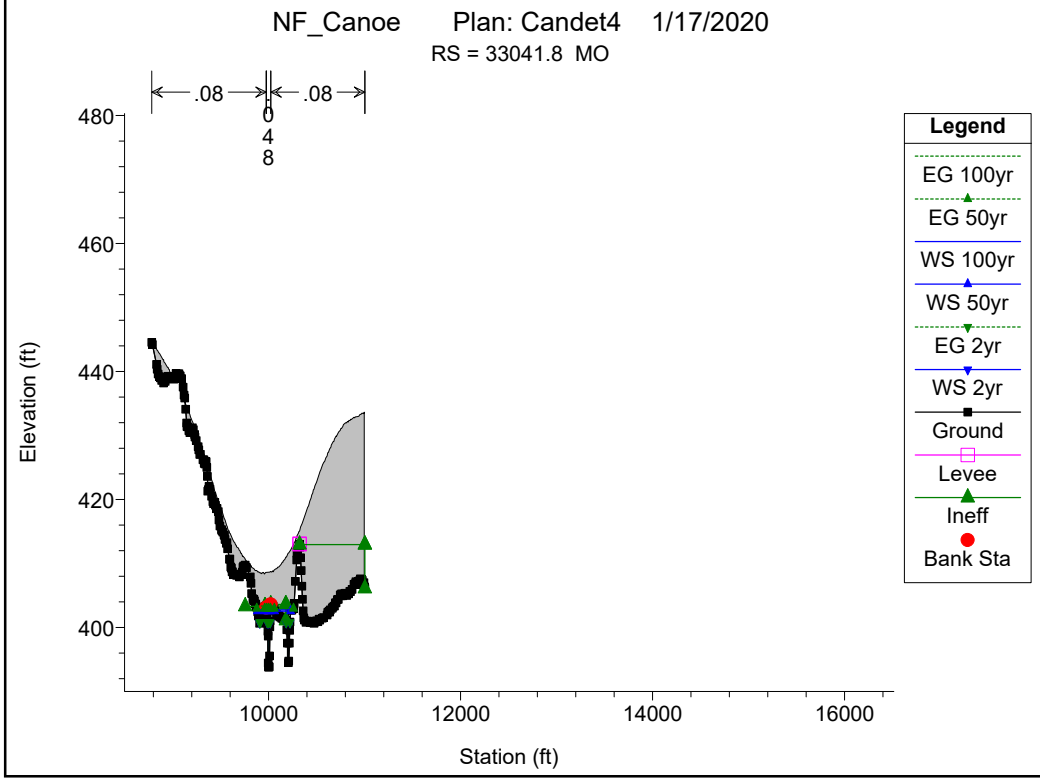
RS = 33442.3 XS Upstream/North of Hwy 60 and east of RR

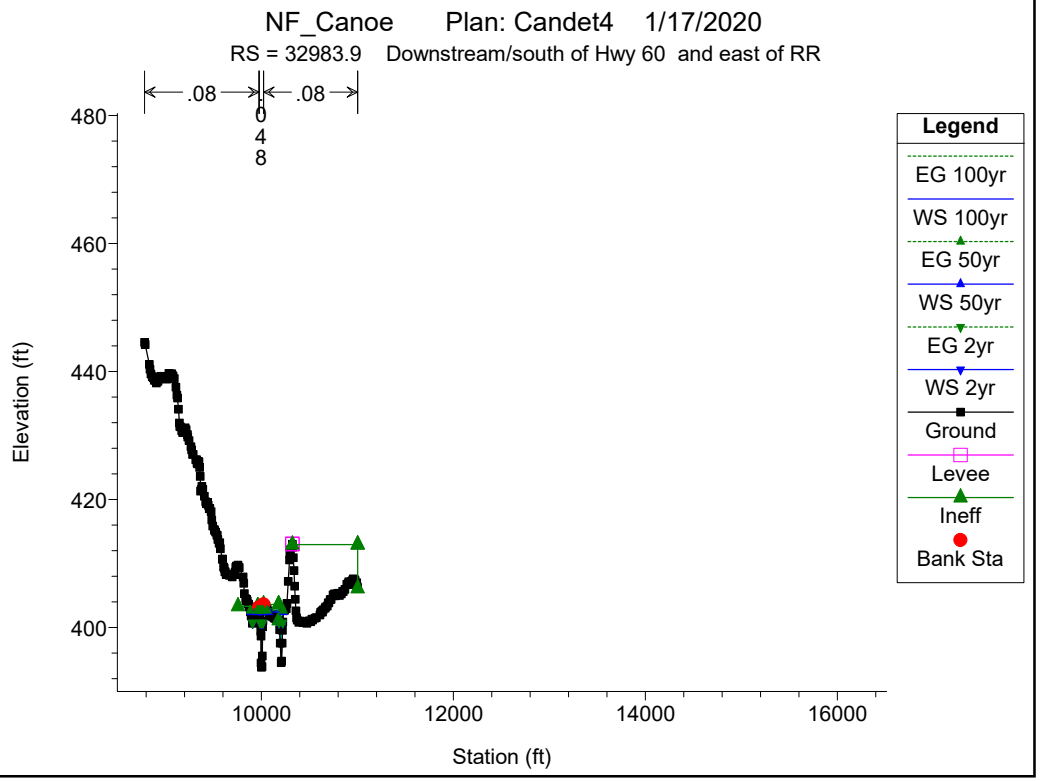


1 in Horiz. = 2000 ft 1 in Vert. = 30 ft

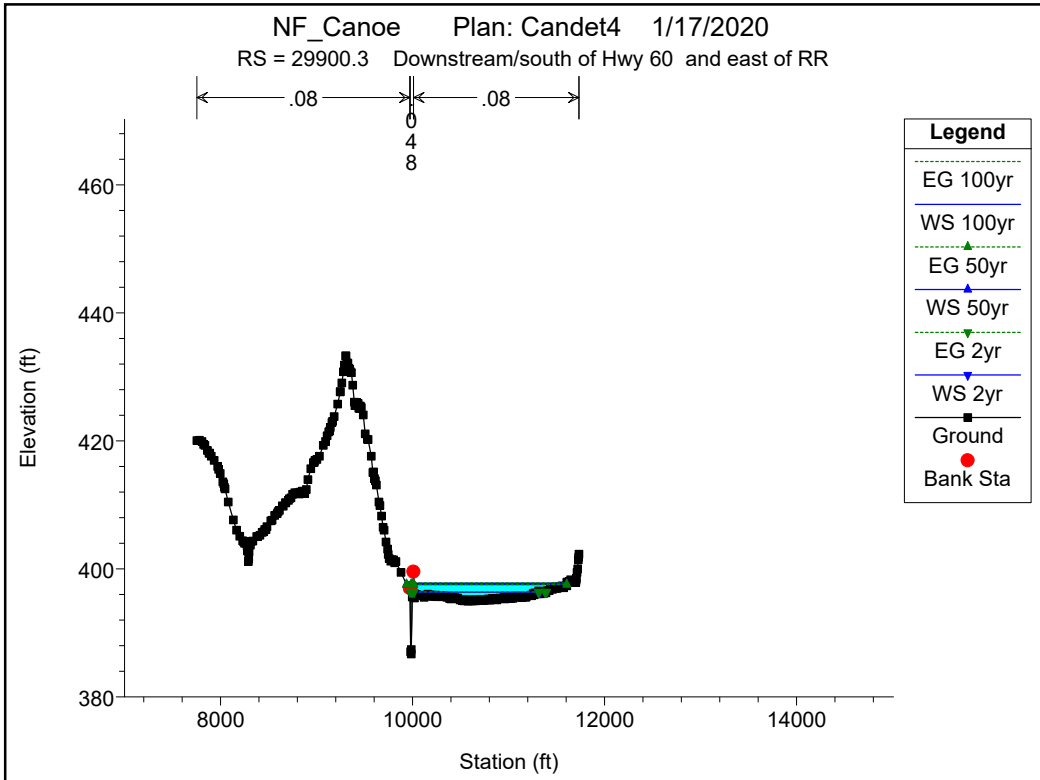


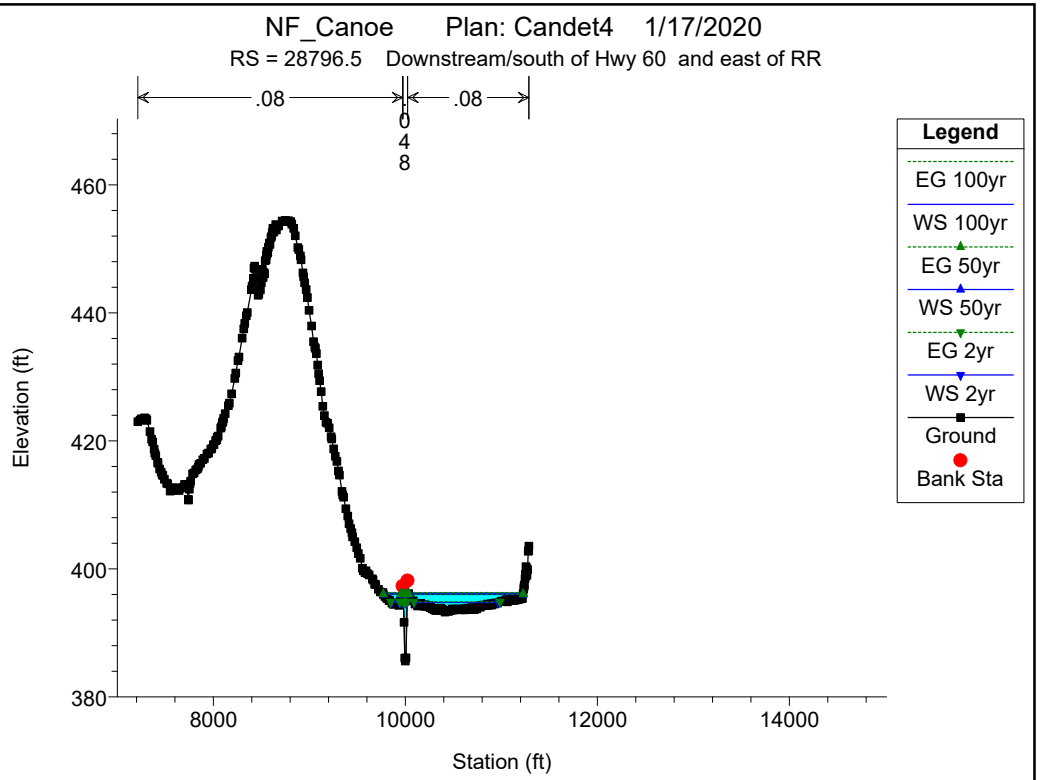


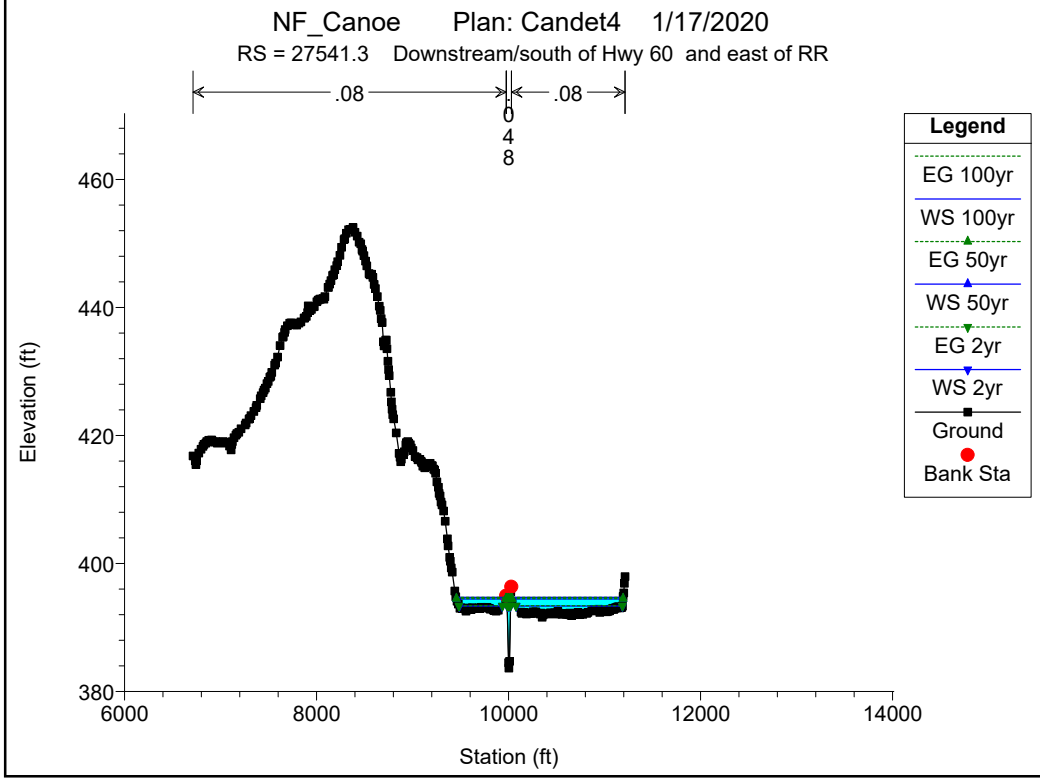


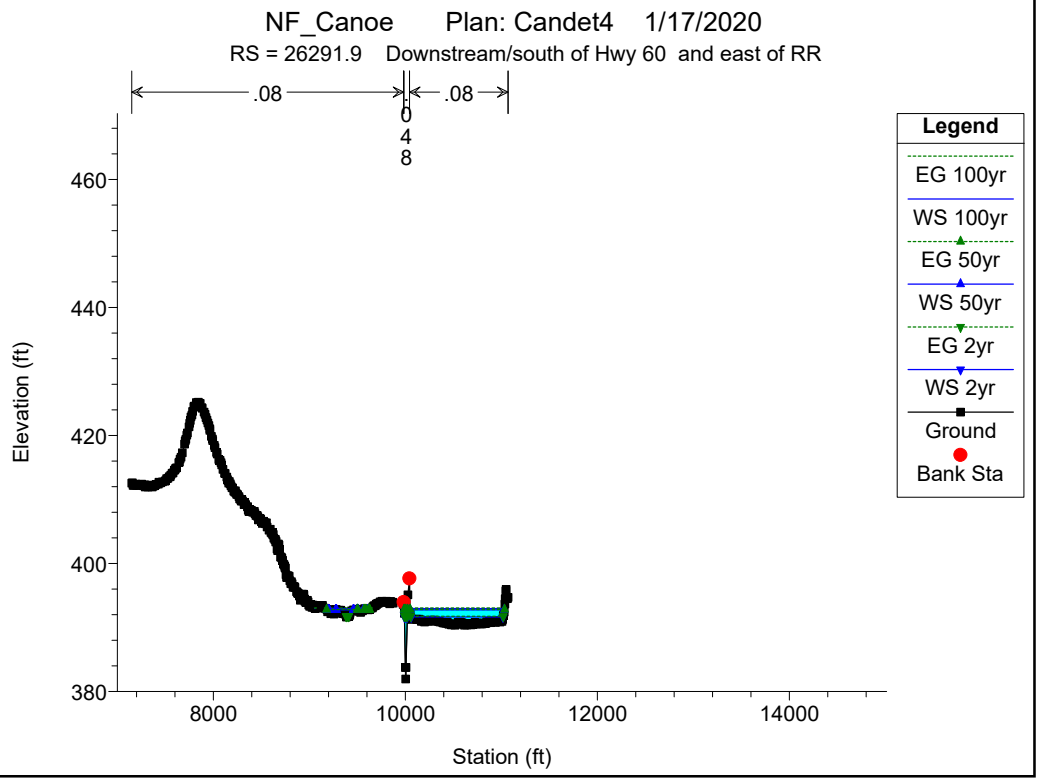


1 in Horiz. = 2000 ft 1 in Vert. = 30 ft

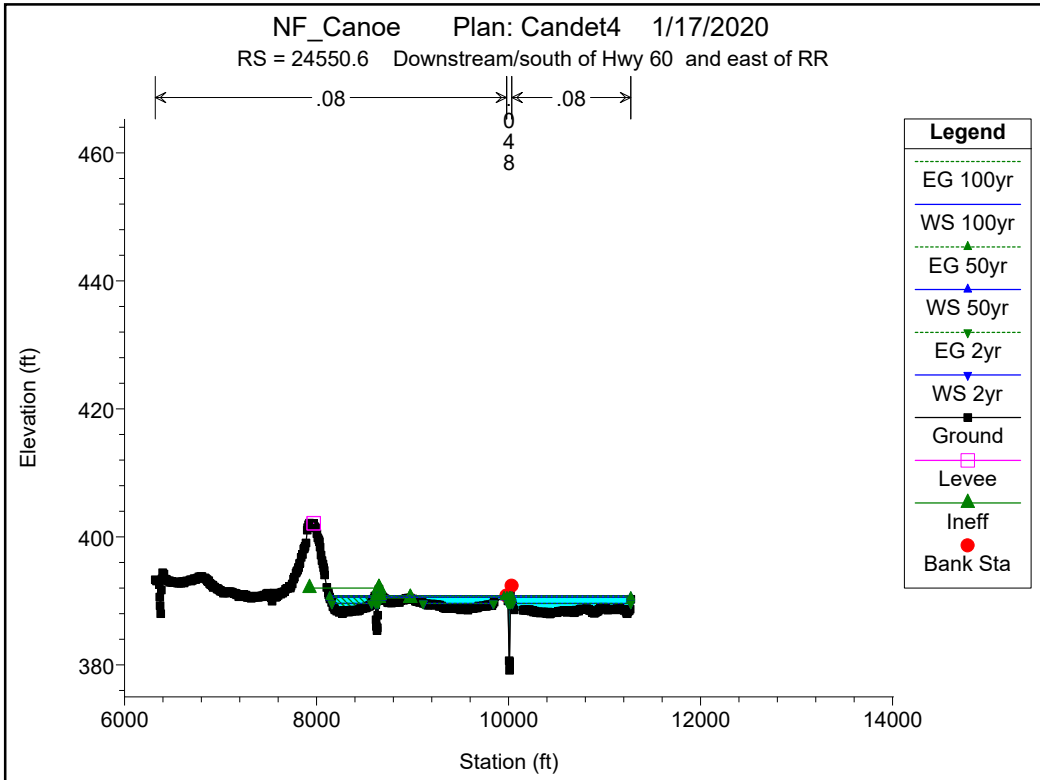


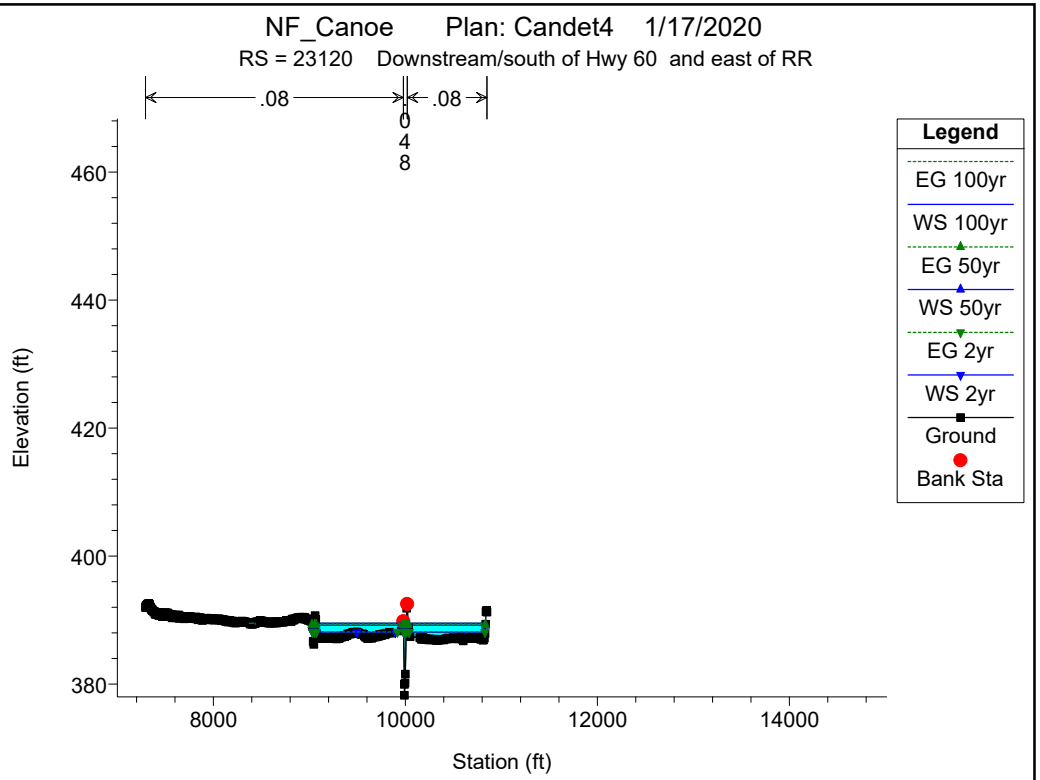


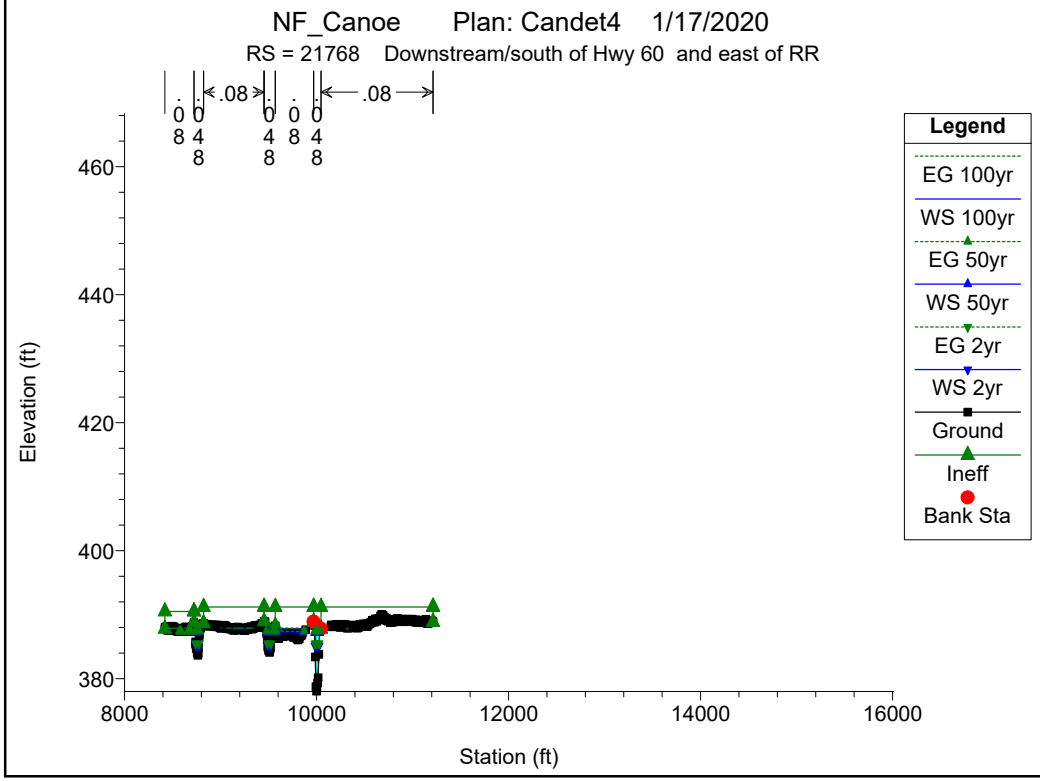


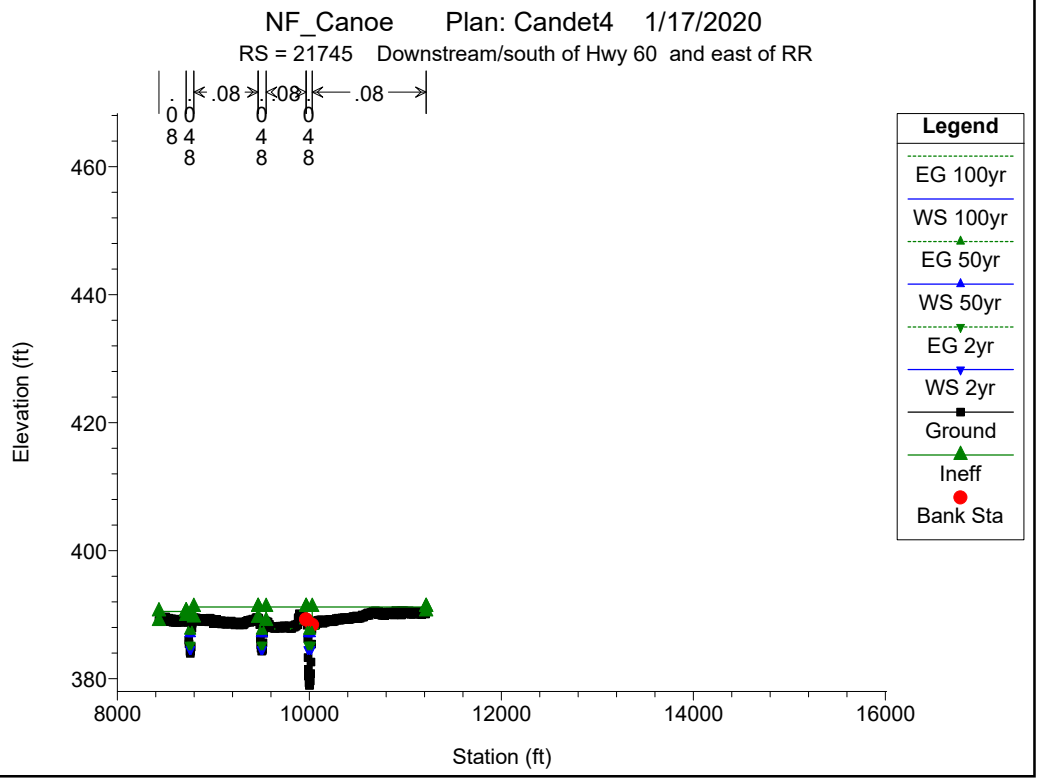


1 in Horiz. = 2000 ft 1 in Vert. = 30 ft

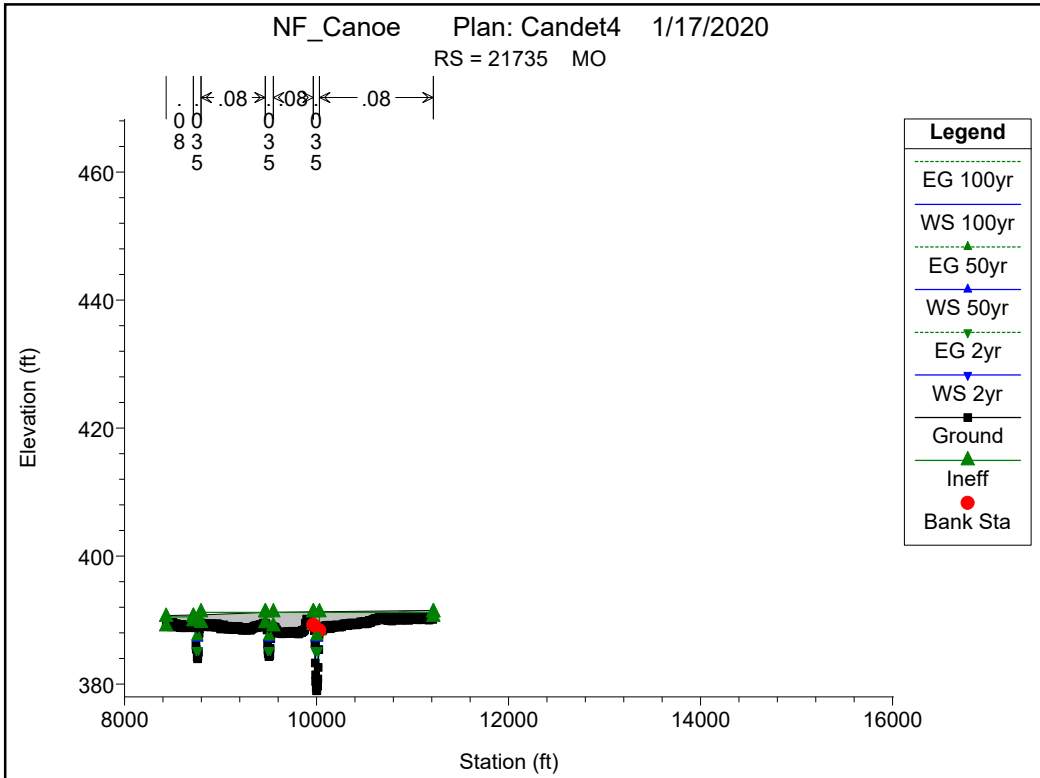


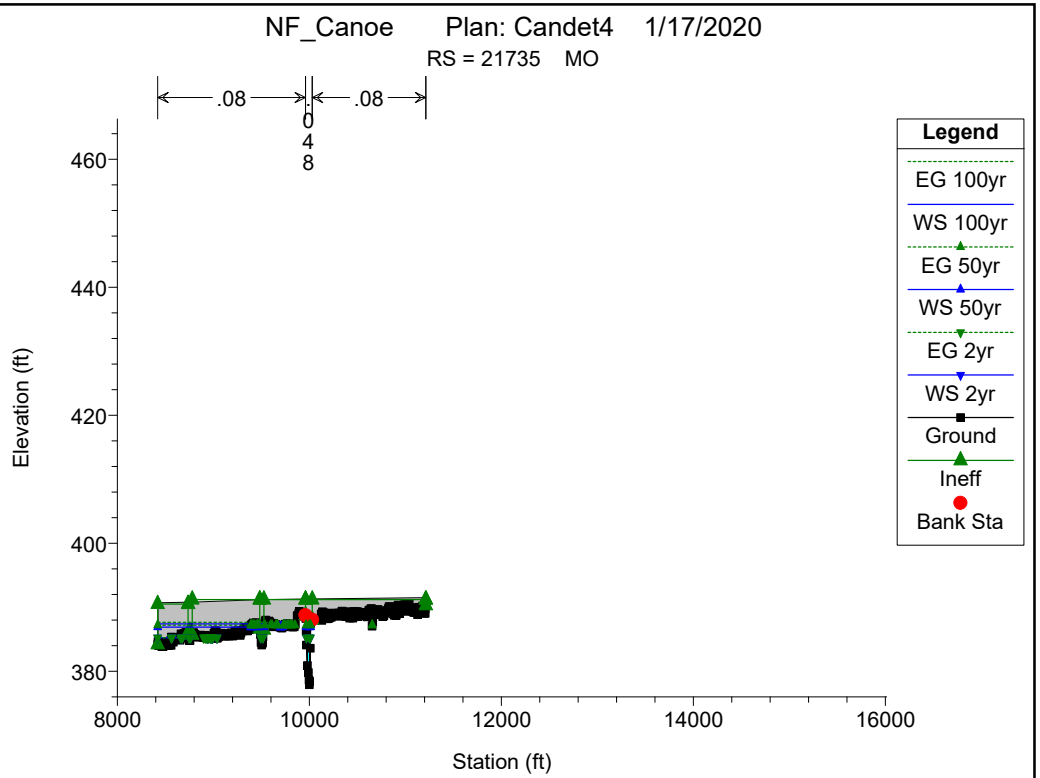


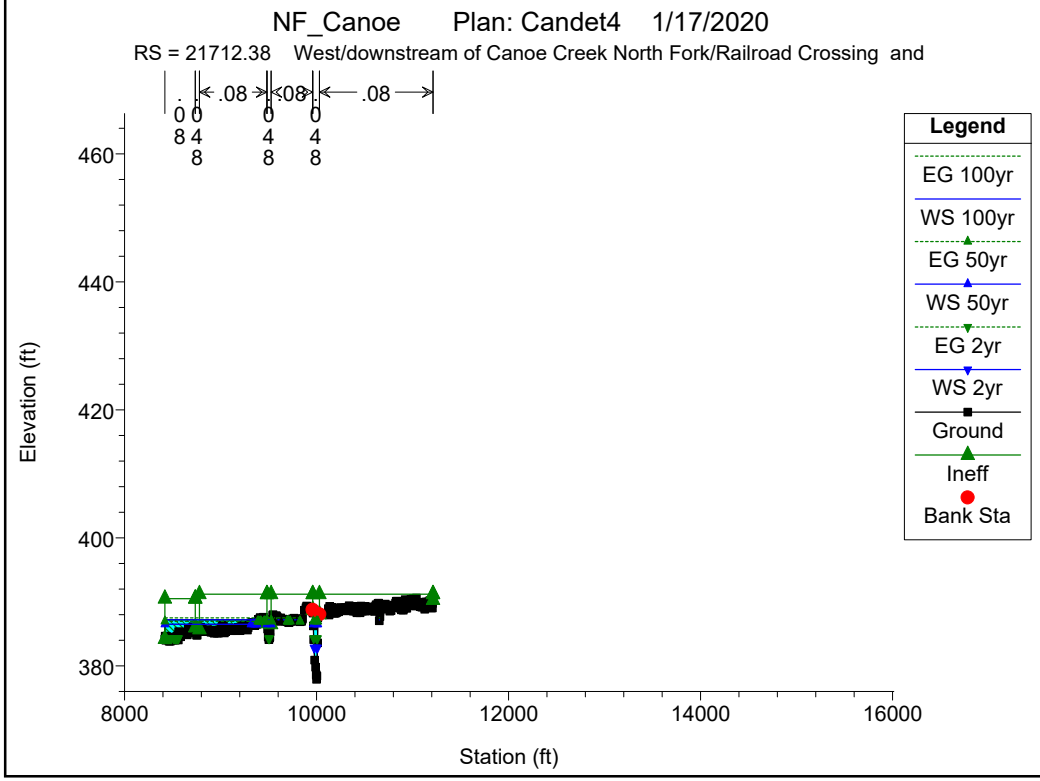


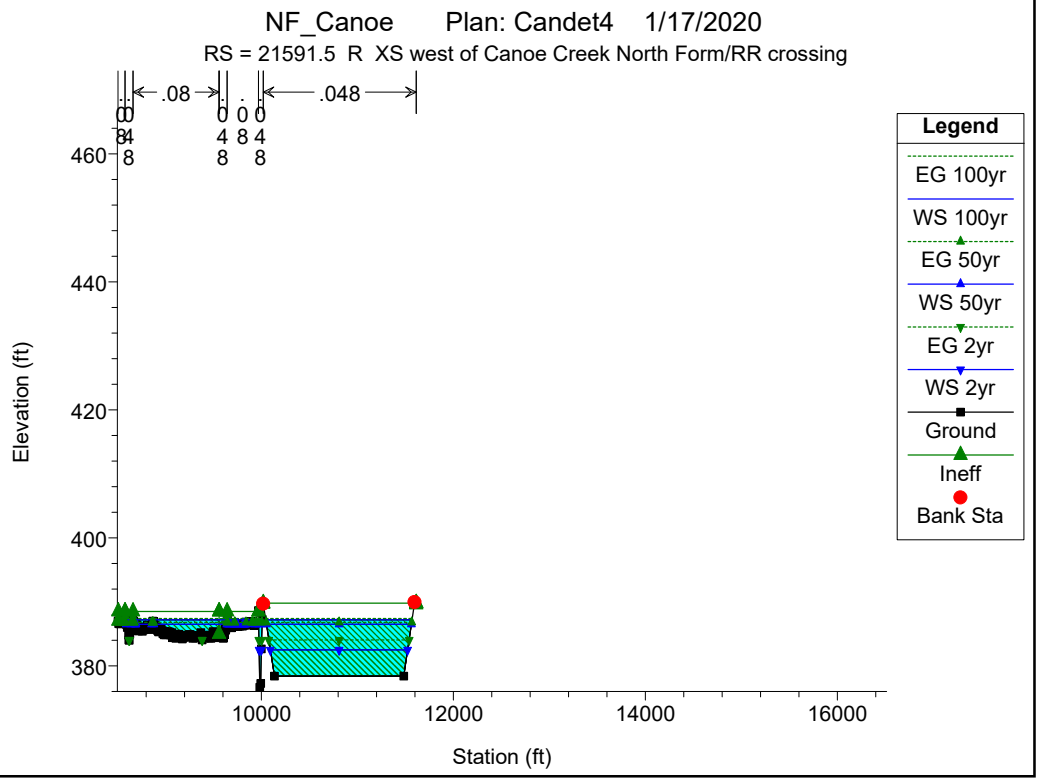


1 in Horiz. = 2000 ft 1 in Vert. = 30 ft





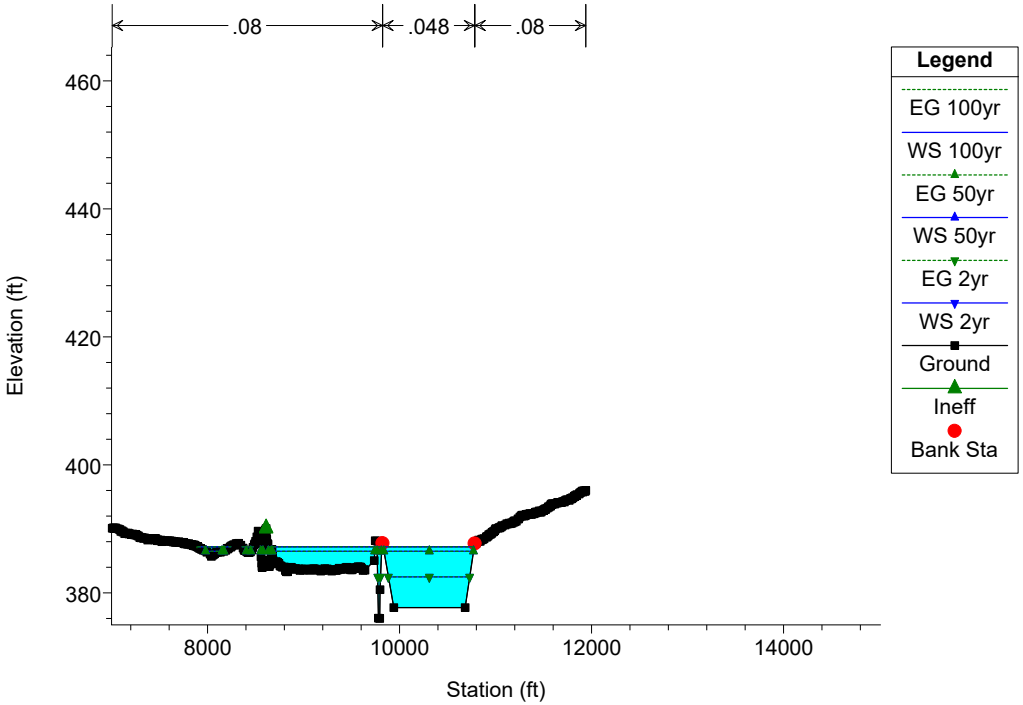




1 in Horiz. = 2000 ft 1 in Vert. = 30 ft

NF_Canoe Plan: Candet4 1/17/2020

RS = 19922.4 XS west of Canoe Creek North Form/RR crossing



1 in Horiz. = 2000 ft 1 in Vert. = 30 ft