



East Branch Trout Brook

Flood Mitigation & Culvert Replacement Assessment

West Hartford, Connecticut

September 2018



Engineering | Planning | Landscape Architecture | Environmental Science

East Branch Trout Brook

Flood Mitigation & Culvert Replacement Assessment

West Hartford, Connecticut

September 2018

Prepared for:

Town of West Hartford
50 South Main Street
West Hartford, CT 06107

MMI #1197-21

Prepared by:

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ABBREVIATIONS/ACRONYMS AND DEFINITIONS

ACR	Annual Chance of Recurrence
CFS	Cubic Feet per Second
CLEAR	Center for Land Use Education and Research
CMP	Corrugated Metal Pipe
CFS	cubic feet per second
CFSM	cubic feet per second per square mile
CN	Runoff Curve Number
CPP	Corrugated Plastic Pipe
CTDOT	Connecticut Department of Transportation
DEEP	Connecticut Department of Energy & Environmental Protection
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
FIS	Flood Insurance Study
FMA	Flood Mitigation Assistance
GIS	Geographic Information System
GPS	Global Positioning System
HDPE	High Density Polyethylene
HEC-HMS	Hydrologic Engineering Center – Hydrologic Modeling System
HEC-RAS	Hydrologic Engineering Center – River Analysis System
HSG	Hydrologic Soil Group
IDF	intensity/duration/frequency
LOMR	Letter of Map Revision
MDC	Metropolitan District Commission
MMI	Milone & MacBroom, Inc.
NAD	North American Datum
NAVD88	North American Vertical Datum of 1988
Nddb	Natural Diversity Data Base
NFIP	National Flood Insurance Program
NGVD29	National Geodetic Vertical Datum of 1929
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
NRCC	Northeast Regional Climate Center
NRCS	Natural Resources Conservation Service
NSS	National Streamflow Statistics
NWMCC	National Water Main Cleaning Co.
PDM	Pre-Disaster Mitigation
PVC	Polyvinyl Chloride
RCP	Reinforced Concrete Pipe
SCS	Soil Conservation Service
SFHA	Special Flood Hazard Area
STA	River Station
TIN	Triangulated Irregular Network
the Town	Town of West Hartford
TP-40	U.S. Weather Service Technical Paper No. 40
USACE	United States Army Corps of Engineers
USGS	United States Geological Survey

1.0 INTRODUCTION

The East Branch Trout Brook is a tributary of Trout Brook and the Park River that ultimately drains to the Connecticut River. The brook drains a 1.4-square-mile watershed and flows through the central portion of West Hartford including through, beneath, and around residential areas and the former University of Connecticut (UConn) West Hartford campus. Refer to Figure 1-1 for a delineation of the East Branch Trout Brook watershed at the study area.

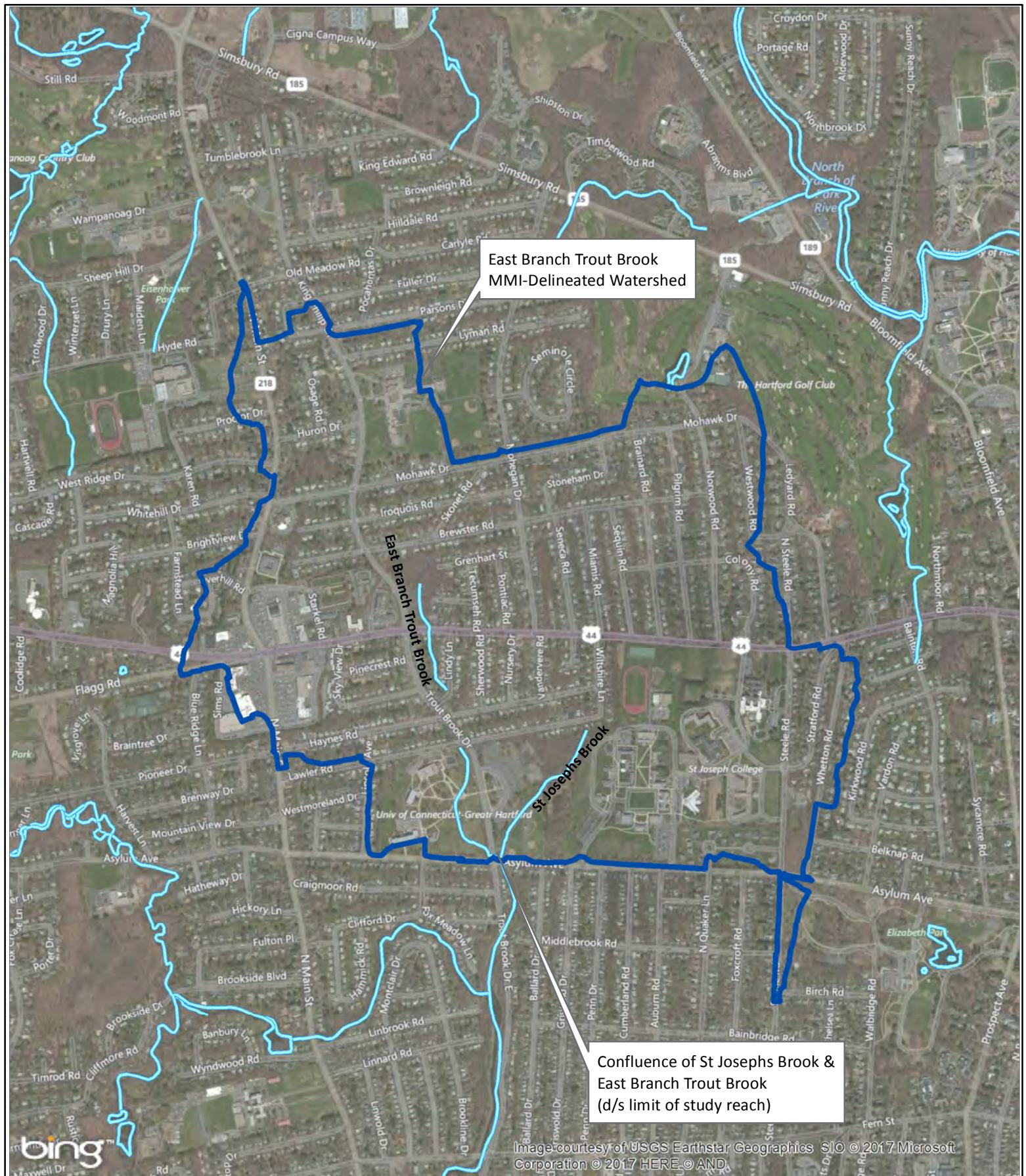
Current Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRMs) indicate that the 1 percent annual chance of exceedance (1% ACE, or 100-year flood) AE zone affects a number of single-family residential homes along Haynes Road, Lindy Lane, and Asylum Avenue as well as the former UConn campus. The FEMA Flood Insurance Study (FIS) for Hartford County was updated in September 2011; however, the detailed analysis that supports the FIS was conducted in June 1985 (FIS issued August 19, 1991). Large impervious areas, undersized culverts, and a wide low-lying floodplain contribute to flooding problems.

In late 2016, Milone & MacBroom, Inc. (MMI) was retained to provide engineering services to evaluate flooding on the East Branch Trout Brook between Lawler Road and just north of Albany Avenue to the north of the former UConn campus. The goal of the analysis was to identify the cause(s) of and propose measures to alleviate flooding in the project area. Included in the assessment was an updated hydrologic and hydraulic analysis of the East Branch Trout Brook that better characterized flooding conditions and identified conditions that were exacerbating flooding. Results were presented in an interim report in 2017.

The results of the 2017 analysis found that large impervious areas, undersized culverts in the brook, and development within the natural floodplain contribute to the flooding problems. At that time, replacement of four undersized culvert crossings were recommended with larger structures to provide adequate conveyance and reduce the level of impounded water behind them. This was predicted to reduce the water surface elevation of floodwaters upstream of those culverts and provide significant flood mitigation for affected properties in the area.

The subject supplemental assessment seeks to build upon the results of the earlier analysis by evaluating the downstream impacts of replacing each culvert with a larger structure, with a specific focus on quantifying the volume and timing of the release of impounded water that would result from increasing the undersized culverts. This assessment assumes that upgrading all four culverts is the final stage of the flood mitigation implementation project, and that the culverts would be replaced in order starting downstream and working upstream. The revised flow information for each phase and storm event were used to create a revised hydraulic assessment to calculate the changes to the floodplain for each phase of the implementation.

For ease of review, the subject document includes all relevant materials from the earlier effort, such that the reader is not required to review multiple documents.



SOURCE(S):
(c)2009 Microsoft Corporation

**Figure 1-1: East Branch Trout Brook
Watershed Map**

LOCATION:
West Hartford, CT

N

Flood Mitigation Assessment

MXD: Y:\1197-21\Maps\MMI Watersheds.mxd

Map By: BeckyM
MMI#: 1197-21-3
Original: 1/9/2017
Revision: 2/16/2017
Scale: 1 inch = 1,500 feet

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1.1 Data Collection

MMI collected and reviewed available mapping, data, and aerial photography of the project area. The following information was obtained and reviewed:

1. United States Geological Survey (USGS) *StreamStats* web application to determine contributing watershed areas and regional regression analysis of stream flows at the intersection of Lawler Road and Trout Brook Drive
2. Natural Resources Conservation Service (NRCS) Soil Survey web application, hydrologic soil groups
3. Storm Drainage Investigation and Analysis Report by Milone & MacBroom Inc., University of Connecticut – Greater Hartford Campus, 1700 and 1800 Asylum Avenue, March 11, 2016
4. FEMA FIS floodway data, flows, flood profile, and other FIS excerpts
5. FEMA FIRM Panel 0361F effective September 26, 2008
6. Scanned copy of FEMA WSP-2 data for Trout Brook revised September 1, 1982
7. West Hartford Flood Plain Management Study, Soil Conservation Service, August 1986
8. Flood Insurance Study Detail Report: Trout Brook, North Branch Park River, Tumbledown Brook, Rockledge Brook, 1982
9. App Geo CAD files of stormwater, telecom, topography, and traffic signals
10. App Geo GIS shapefiles for addresses, adjacent towns, conduits, catch basins, driveways and walkways, fiber optic cables, hydrology annotation, parcels, poles, rights-of-way, rivers or streams, road edge, storm manholes, storm outfalls, storm pipes, street centerlines, structures, topographic lines, town boundary, and traffic signals
11. CAD file from the Metropolitan District Commission (MDC) with utility information
12. CAD file of base map from the Town of West Hartford including topography, structures, parcels, roadways, etc.
13. CD from the Town of West Hartford containing the following:
 - Trout Brook Improvements Asylum Avenue Plan and Profile, FG Associates circa December 1990
 - Trout Brook Improvements Asylum Avenue Details, FG Associates circa December 1990
 - CAD files for Trout Brook Drive
 - Department of Transportation (DOT) Trout Brook profiles, 1990
 - CAD file of Trout Brook Drive at University of Connecticut Easement, Town of West Hartford Division of Engineering, January 1990
14. PDF Plan: East Branch of Trout Brook Flood Control Project, Town of West Hartford Division of Engineering, February 2012
15. PDF Plan Set: 2355 Albany Avenue Culvert Replacement, Town of West Hartford Division of Engineering, February 9, 2012, including plan view, details, and profile
16. PDF Plans: Town of West Hartford Engineering Maps covering project area
17. PDF Plans: General Location Survey (4 sheets), University of Connecticut Hartford Campus, LRC Group, May - June 2009
18. 2355 Albany Avenue Culvert project description and PDF plans, May 29, 2012
19. Asylum Avenue Culvert DOT Inspection, April 11, 2016
20. Trout Brook Drive Culvert DOT Inspection, March 31, 2016
21. Lindy Lane Culvert Inspection dated February 27, 1985, with PDF Detail Sheet dated September 17, 1992

1.2 Site Investigation

MMI engineers completed a field walk through the project reach in September 2016 from Lawler Street to King Phillip Drive to assess the condition of the channel and culverts. A photo log documenting the site investigations is included in Appendix A. The following work was undertaken:

- Channel dimensions were measured.
- Vegetation, debris, sedimentation, and other conditions affecting flood conveyance of the channel were noted.
- The project reach was photodocumented.
- The hydraulic dimensions of structures were measured and recorded, and the general condition of each structure was noted.
- Bank conditions and vegetation cover were evaluated for determination of Manning's coefficients.
- Interviews with residents were conducted in order to identify previous instances of flooding.

The data collected was correlated with the water damage and evacuation data provided by the West Hartford Fire Department.

1.3 Field Survey

MMI completed topographic survey of visible drainage outfalls and cross culverts that discharge directly into the East Branch Trout Brook. Structure information including pipe sizes and types was added to the compiled base mapping of the project area. Survey included eight stream cross sections and five structure crossings (with multiple sections at each structure) in support of the hydraulic model of the brook. Culvert mapping is included herein as Appendix B.

1.4 Stream Crossings

Table 1-1 summarizes the existing stream crossing and culverted sections of East Branch Trout Brook within the project reach. Typically, bridge and culvert crossings provide greater hydraulic opening sizes moving downstream along a watercourse to accommodate incremental flow increases resulting from greater watershed areas. This general rule of stream crossings does not occur along the study reach of the East Branch Trout Brook, likely due to aging infrastructure and changes in engineering methods over time. The decreased capacity in the downstream sections could contribute to observed flooding.

TABLE 1-1
Existing Structure Summary

	Street Crossing/Identifier	Structure Type and Size	Area of Opening (sf)
U/S [↑] D/S [↓]	Albany Avenue	4'x6' concrete box culvert	24
	d/s of Albany Avenue	6'x10' concrete box culvert	60
	Lindy Lane	54" RPC, 84"x58" elliptical RCP	72.7
	Junction Chamber	---	---
	Haynes Road, Lawler Road	54" RCP	15.9
	UConn pedestrian walkway	(2x) 72" RCP	56.5
	Trout Brook Drive	(2x) 76"x48" elliptical RCP	40.2

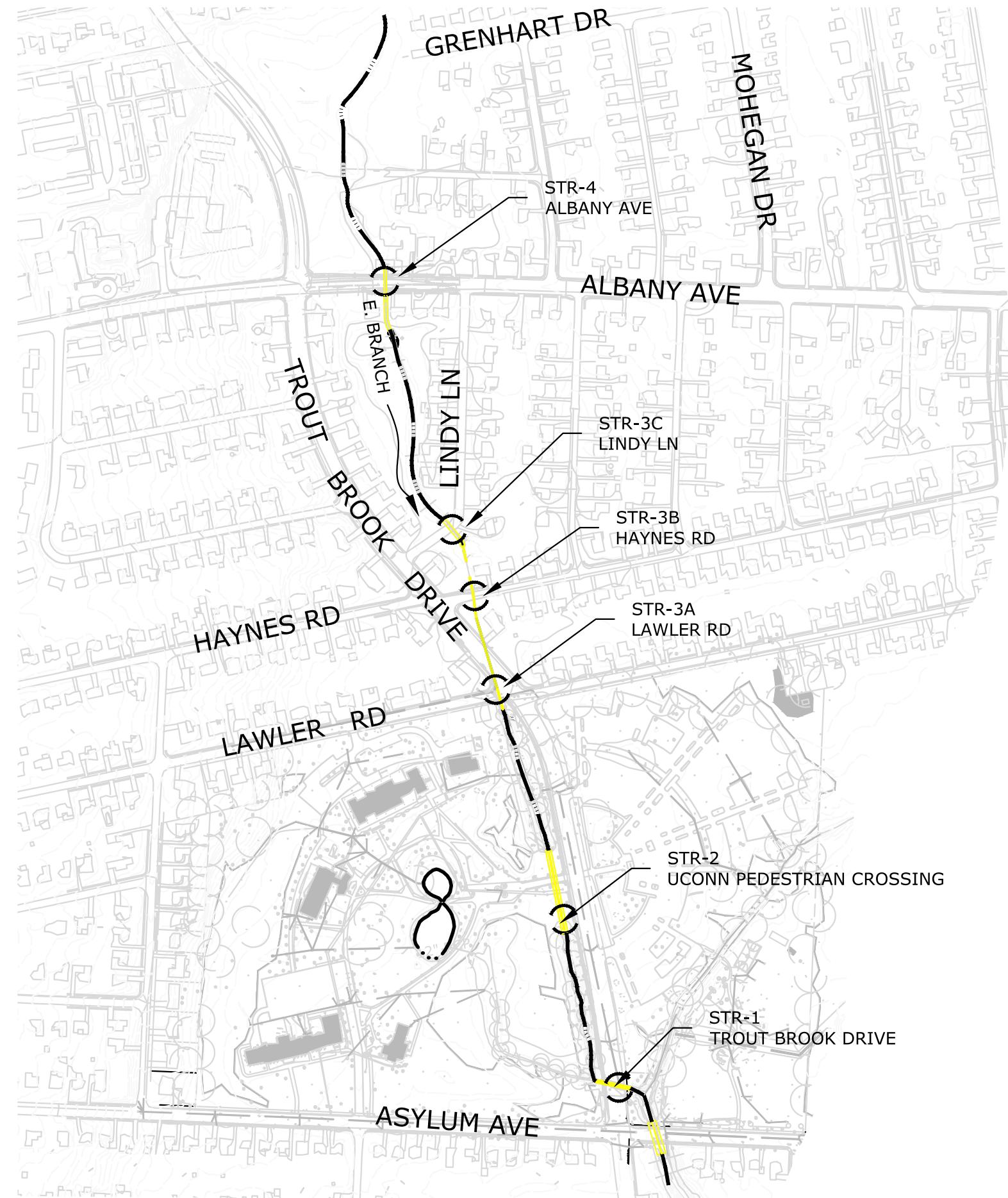
U/S = upstream

D/S = downstream

sf = square feet

RCP = reinforced concrete pipe

Figure 1-2 shows the location of the study reach of East Branch Trout Brook as well as the location of the four culverts analyzed for replacement.



0 200' 400'
1/2" 1"
SCALE 1" = 400'

1"=400'
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FIG. 1-2
SHEET NO.

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2.0 HYDROLOGIC ASSESSMENT

The previous study of East Branch Trout Brook (MMI, 2017) utilized hydrologic estimations of peak flows computed by the Federal Emergency Management Agency (FEMA) to model the floodplain and develop flood risk mapping. In order to quantify the volume of water impounded behind the undersized culverts and to assess the potential increase in downstream flows as a result of increasing the culvert size, a hydrologic model of the entire watershed was created using the United States Army Corps of Engineers (USACE) hydrologic model entitled *Hydraulic Engineering Center Hydrologic Modeling System* (HEC-HMS) version 4.2.1. This hydrologic modeling program forecasts the rate of surface water runoff and river flow rates based on numerous factors, including soil types, land use, and storage behind undersized culverts.

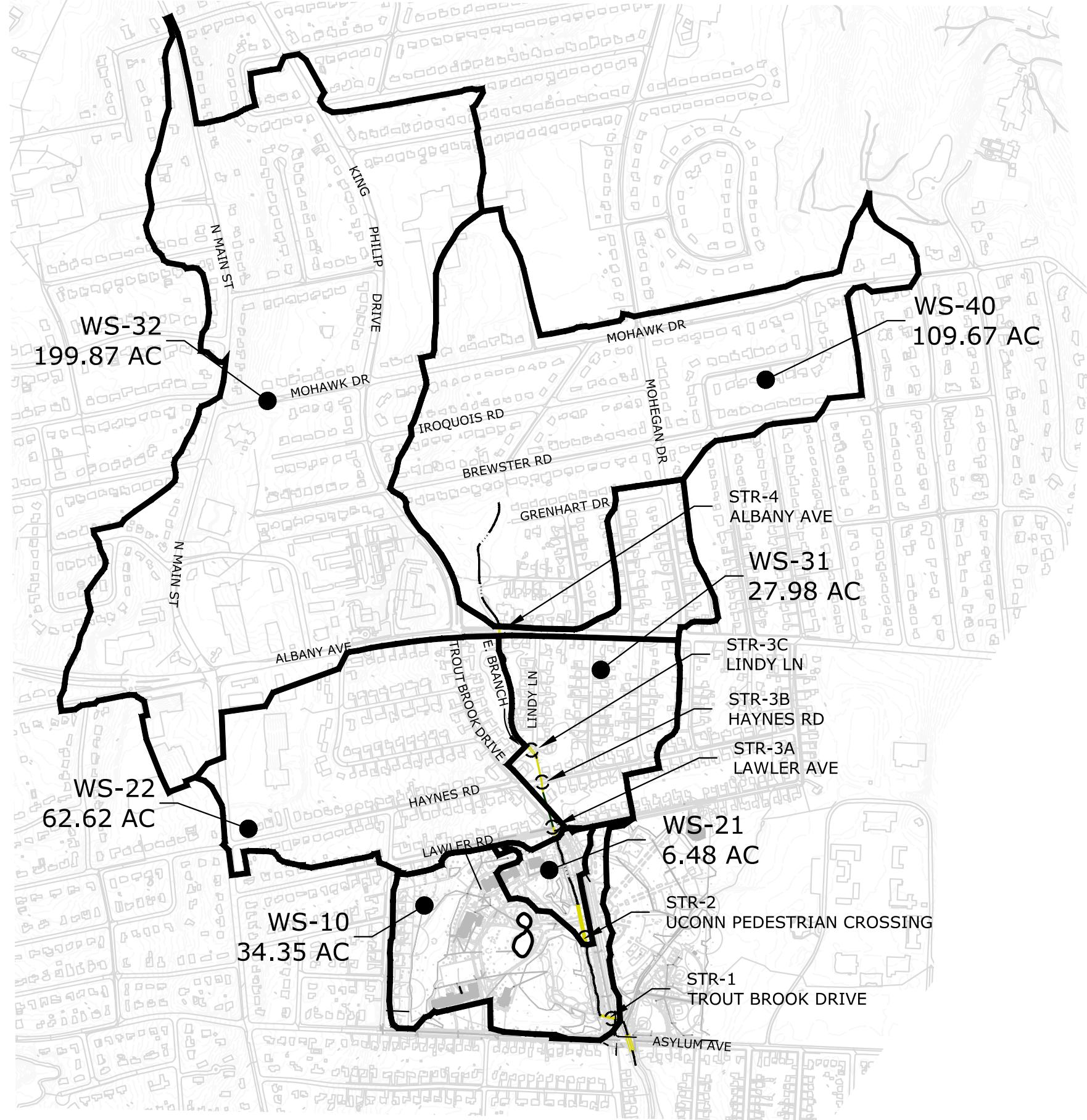
The HEC-HMS modeling program was used to create a rainfall-runoff model of the watershed and assess how the timing of the various sub-watersheds contributes to peak flows in East Branch Trout Brook. These existing conditions flows were then modified to reflect the storage lost through the incremental replacement of the undersized crossings with appropriately sized structures. The model input data includes information such as contributing watershed area, the runoff curve number (CN), the lag time of the watershed, the available storage volume within the watershed, the channel routing, and rainfall data for the area. Each of these elements is described in the ensuing text. Hydrologic computations are included in Appendix C.

2.1 Watershed Delineations

Mapping data for the East Branch Trout Brook watershed was obtained from the Town of West Hartford as well as base maps and utility information from the Metropolitan District Commission (MDC), various GIS and CAD files from App Geo, and plan sets related to various developments completed in the East Branch Trout Brook watershed. The information included 2-foot topographic contours and the location of roadways, buildings, and parking lots. Mapping of the stormwater collection and conveyance systems was also provided by the Town. The data and mapping were compiled by MMI to create a composite map of the stormwater collection systems in the East Branch Trout Brook watershed.

The overall East Branch Trout Brook watershed was delineated using the compiled topographic base mapping, with consideration given to the location and drainage patterns of catch basins and storm sewer systems. Due to the urbanized nature of the watershed, a high percentage of runoff within the East Branch Trout Brook watershed is collected by stormwater systems and conveyed into the brook. While detailed survey of the stormwater systems was not performed, the routing and timing of these systems was estimated based upon the best available mapping and field observation.

In order to properly account for the numerous flow inputs into the main stem of East Branch Trout Brook, the watershed was divided into six sub-watersheds for analysis. MMI identifies these sub-watersheds as WS-10, WS-21, WS-22, WS-31, WS-32 and WS-40. Figure 2-1 depicts the extent of the watersheds. Table 2-1 lists the delineated watershed and the area for each watershed identified.



0 400' 800'
1/2" 1"
SCALE: 1" = 800'

FIG. 2-1**MILONE & MACBROOM**

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REVISIONS

OVERALL WATERSHED

EAST BRANCH TROUT BROOK FLOOD MITIGATION ASSESSMENT

WEST HARTFORD CONNECTICUT

DESIGNED	FRM	JCM
DRAWN	DRAWN	CHECKED
1"=800'		
SCALE	MAY 31, 2018	
DATE	1197-21	
PROJECT NO.		
SHEET NO.		

TABLE 2-1
East Branch Trout Brook Sub-watershed Description

Sub-watershed	Associated Culvert		Area (Ac)
	ID	Name	
WS-40	Str-4	Albany Avenue	109.67
WS-32	Str-3	Lindy Lane	199.87
WS-31	Str-3	Lindy Lane	27.98
WS-22	Str-2	UConn Pedestrian Crossing	62.62
WS-21	Str-2	UConn Pedestrian Crossing	6.48
WS-10	Str-1	Trout Brook Drive	34.35

2.1.1 Albany Avenue (Str-4)

The Albany Avenue culvert is the most upstream culvert in the study reach, the contributing watershed of which is WS-40. The watershed includes the drainage area to the north starting at a point between Lyman Road and Mohawk Drive, and extends west to east from King Philip Drive to Pilgrim Road. Overland flow starts in an undeveloped wetland area and forms a stream channel in the center of the watershed, approximately 800 feet upstream of Albany Avenue.

2.1.2 Lindy Lane (Str-3)

The culvert south of the Albany Ave culvert is the longest structure in the study reach. It crosses Lindy Lane, Haynes Road and Lawler Avenue. Watershed WS-31, to the east of the structure, contributes to the flow by discharging stormwater through underground stormwater pipes coming from Haynes Road. Watershed WS-31 includes area to the north of Lawler Road starting at Albany Avenue, and extends west to east from Trout Brook Drive to Vandervere Road. Overland flow starts in a residential lot at the intersection of Albany Avenue and Nursery Drive and continues south through residential areas until it reaches impervious surface and is collected by stormwater systems and conveyed into the culvert.

Underground storm pipes convey runoff from watershed WS-32 to its discharge at the downstream end of the Albany Ave culvert. WS-32 includes area to the north starting at Miller Road and extends west to east from Overhill Road to Mohegan Drive. Overland flow starts in a woods/shrub area in the backyard of a residential lot and continues for about 800 feet until it is collected by stormwater pipes and discharged into Albany Avenue culvert.

2.1.3 UConn Pedestrian Bridge (Str-2)

The UConn Pedestrian crossing is about 500 feet downstream of the Lawler Road crossing. The contributing watershed WS-21 is approximately 6.48 acres in size. The watershed includes area to the north of the outlet of the pedestrian crossing, starting at Lawler Road. Overland flow collects from within the lawn area on the former UConn campus until it reaches the East Branch Trout Brook.

Watershed WS-22 is to the west of Lindy Lane and it discharges through a stormwater pipe next to the outlet of the Lindy Lane culvert. The watershed area includes area to the north of Lawler Road starting

at Albany Avenue, and extends west to east from North Main Street to Trout Brook Drive. Overland flow starts in a forested area in the backyard of a residential lot and continues for about 700 feet until it is collected by stormwater pipes and discharged into the East Branch Trout Brook.

2.1.4 Trout Brook Drive (Str-1)

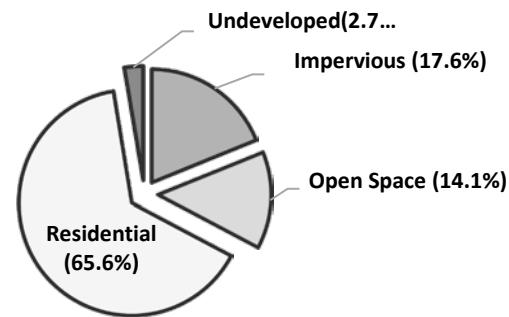
The Trout Brook Drive culvert is the most downstream culvert in the study reach. Overland runoff from Watershed WS-10 flows to the Trout Brook Drive culvert before leaving the watershed. The watershed area includes area to the north of Asylum Avenue starting at Lawler Road and reaches west to east from Lincoln Avenue to Trout Brook Drive. Overland flow starts in a woods/shrub area in the backyard of a residential lot and continues through the lawn of the former UConn campus, eventually it flows through a yard drain that gets discharged into a stormwater retention basin. The flow leaves the retention basin and flows through a swale until it flows into the East Branch Trout Brook just upstream of Trout Brook Drive.

2.2 Land Use and Runoff Curve Numbers (CN)

The predominant type of land use in the contributing watershed of East Branch Trout Brook is $\frac{1}{2}$ -acre and $\frac{1}{4}$ -acre residential lots (65.6 percent). The remaining area is a relatively even mixture of impervious and open space (17.6 and 14.1 percent respectively). The residential areas include large expanses of rooftop and paved parking areas, which have the effect of increasing runoff as compared with natural conditions. Table 2-2 presents the percentage of land-use types throughout the watershed. Figure 2-2 is a watershed map of East Branch Trout Brook showing land cover.

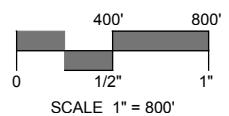
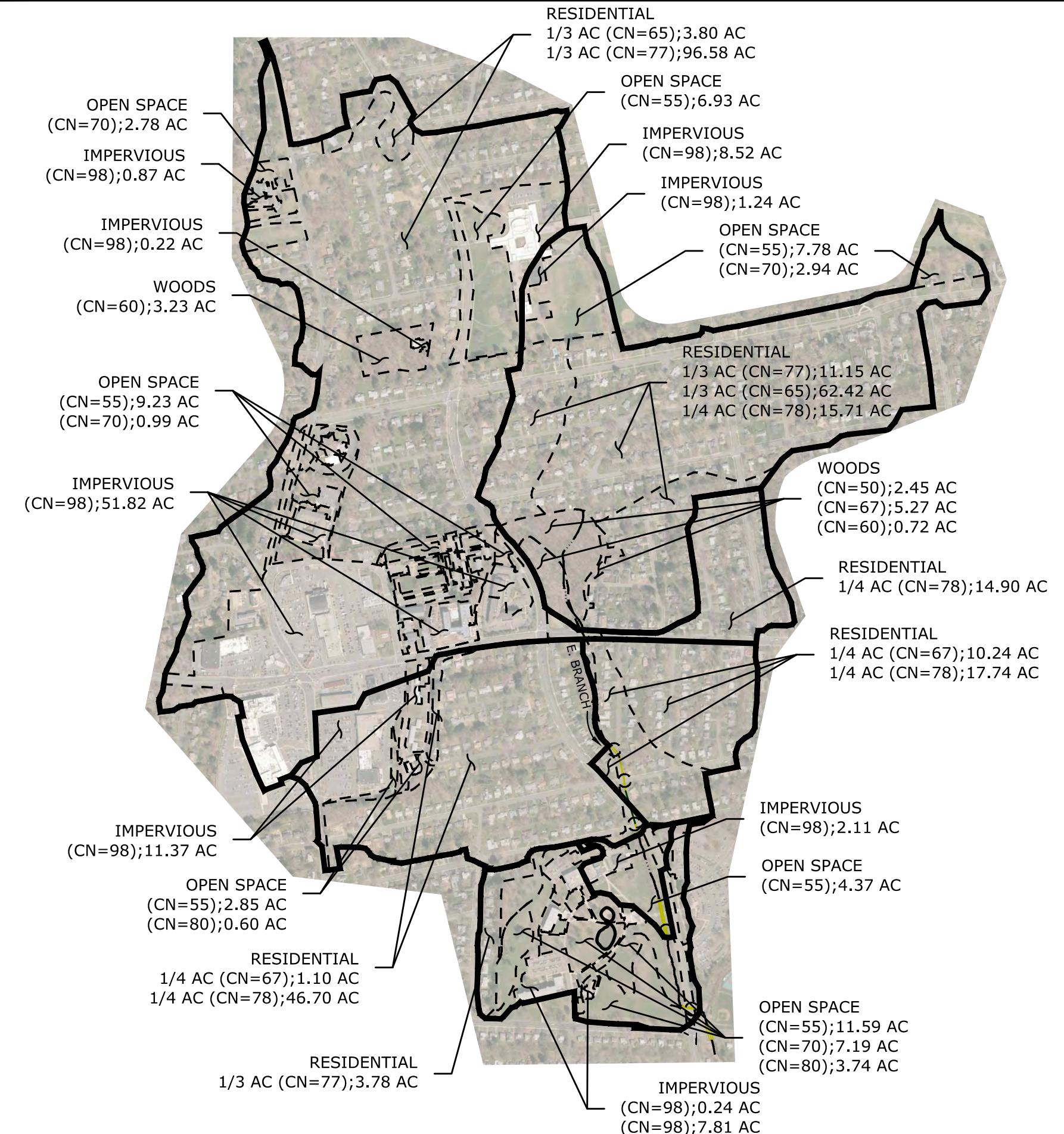
**TABLE 2-2
Land Use Types in the East Branch Trout Brook Watershed**

Land Use Type	Area (Acres)	Percentage
Residential	284.12	65.6%
Impervious	76.15	17.6%
Open Space	60.99	14.1%
Undeveloped	11.67	2.7%
Total	432.93	100%



The runoff curve number (CN) system was developed by the Natural Resources Conservation Service (NRCS) to combine the land use and soil characteristics into one rating that estimates how much rainfall runoff will occur for a given region. CNs range from 30 to 98 based on a combination of underlying soil types and existing land uses. The CN values that NRCS has researched and made available in their TR-55 publication are national averages, which can misrepresent regional variations in soil types and development practices. Analysis have shown that the TR-55 published CN values for residential areas are consistently higher than local land use practice in suburban Connecticut towns. MMI has recomputed composite CN values for residential areas based on typical Connecticut site plans and zoning.

CN values for open space provided in the TR-55 manual correspond with figure 22-23 from Chow's Handbook of Applied Hydrology and assumes ground cover densities of 30%, 65%, and 90% cover. In Connecticut, suburban residential lawns usually provide full ground cover with few, if any, areas of bare soil and therefore it is appropriate to use the Chow Figure 22-23 CN values for 100% ground cover rather than the higher Soil Conservation Service (SCS) CN values for >75% ground cover.

**FIG. 2-2**

LAND USE
EAST BRANCH TROUT BROOK
FLOOD MITIGATION ASSESSMENT
WEST HARTFORD
CONNECTICUT

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The CN values for woods provided in the TR-55 Table 2.2c are based upon small farm wood lots, occasionally grazed or cut for firewood. These values may overestimate runoff in Connecticut forest lands which are left wild and unmanaged. Both the SCS Hydrology Manual (NEH4) and Chow's Handbook of Applied Hydrology provide guidance on selecting CN values for humid forested areas. The key factors include soil types and the thickness and condition of the humus organic material, mixed with mineral soils, in the O1 and A1 horizons. Connecticut woodland soils typically have three to eight inches of organic/topsoil material. MMI obtained CN values for forest lands by assuming four inches of a loose humus (MacBroom, 1998).

Land use was classified for each subwatershed based on aerial imagery. Based on the cover type and conditions presented in Table 2-2 of the TR-55 user's manual (USDA, 1986), combined with MMI composite values, land use was delineated into impervious (paved), residential (by lot size), open space, and undeveloped (woods). Calculations of the weighted curve numbers for each subwatershed are presented in Appendix B.

2.3 Surficial Materials and Soil Types

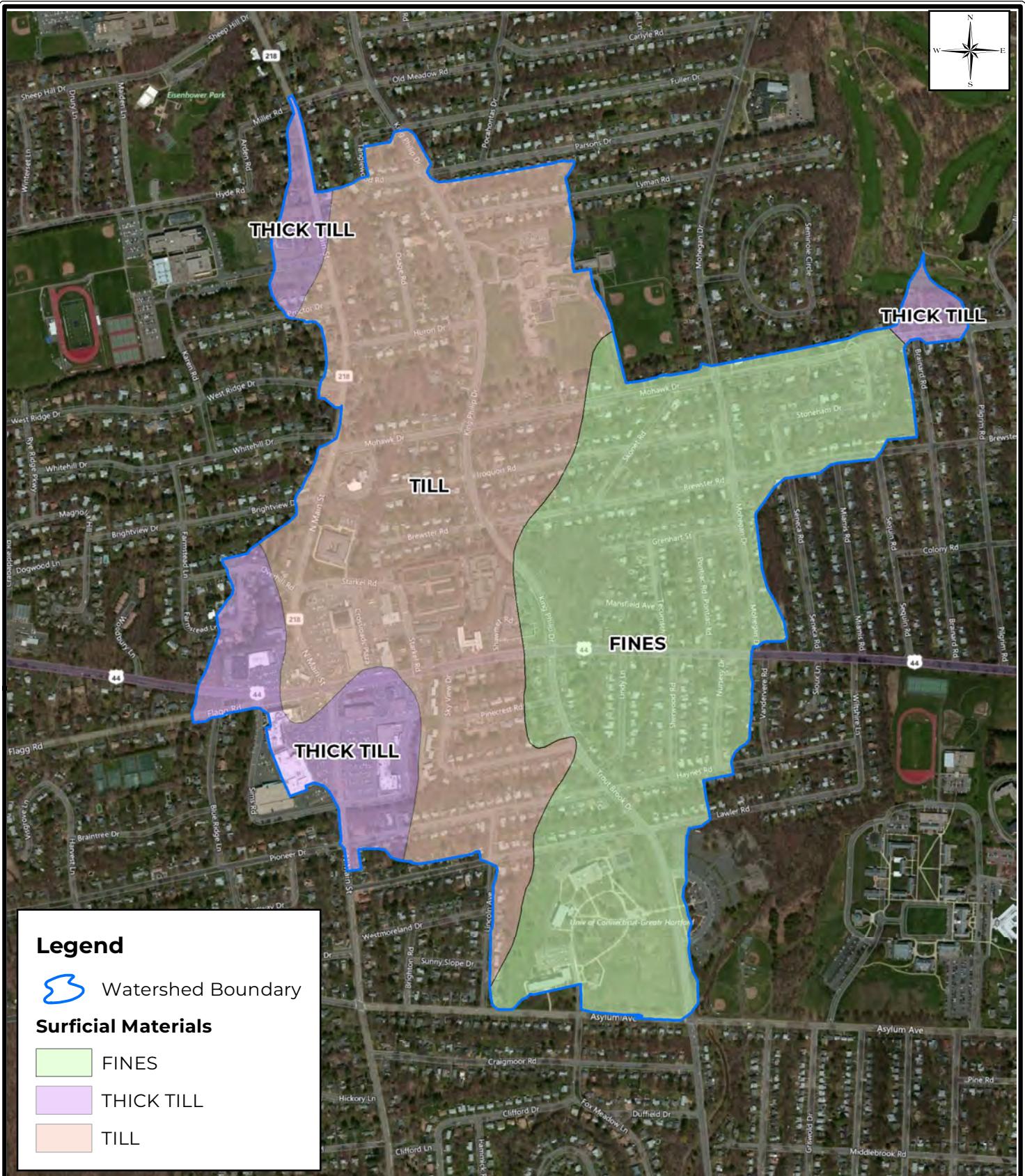
Most of Connecticut's surficial material is glacially derived, either deposited directly from the ice, or deposited from meltwater that was "laid down" in glacial streams, lakes and ponds. Glacial ice-laid deposits dominate the uplands of Connecticut, while meltwater deposits dominate the low lying valleys. The East Branch Trout Brook watershed covers land in the former category, dominated by uplands and glacial-laid deposits. Such deposits are characterized by a non-stratified mixtures of varying grain-sizes ranging from clays to large boulders. The matrix of most of these tills are sands and silts, and are typically well mixed and poorly sorted or stratified. They are also very dense, overly consolidated, and poorly drained, making them difficult to dig or plow, and cause high rates of runoff.

Surficial materials in the East Branch Trout Brook watershed include till, fines and thick till. Thin till is defined as a till layer generally less than 15 feet thick, and includes bedrock outcroppings where till is absence, and can be loose to moderately compact. Thick till is defined as layers greater than 15 feet, can commonly exceed 100 feet, and is often much more compacted than thin till. Table 2-3 lists the surficial materials in order of their respective percentages.

TABLE 2-3
Summary of Surficial Material Types

Surficial Material	Acres	Percent
Till	202.24	45.87%
Fines	187.19	42.45%
Thick Till	51.50	11.68%

Figure 2-3 depicts the surficial materials in the watershed. The types of surficial geology present within a watershed influence both the amount of infiltration that may occur during a storm event and the amount of base flow that can be provided to a stream. The high percentage of till and fines present in the study reach suggest that the soil types will likely have low permeability and a very slow infiltration rate.



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Figure 2-3: Surficial Materials

East Branch Trout Brook
Culvert Replacement Assessment

West Hartford, Connecticut

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PROJ. NO.: 1197-21		
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FIG. 2-3

The East Branch Trout Brook watershed can be classified by a number of different soil types with the primary being Udorthents-Urban land complex, Broadbrook-Urban land complex, Brancroft-Urban land complex, and Broadbrook silt loam. The vast majority (74.3 percent) of the soil types in the area of interest are considered to be urbanized and are mapped as Udorthents-Urban land complex, Broadbrook-Urban land complex, Brancroft-Urban land complex or Urban land complex combined with another soil type. Appendix B lists the soil types, descriptions, and their respective percentages in the East Branch Trout Brook watershed.

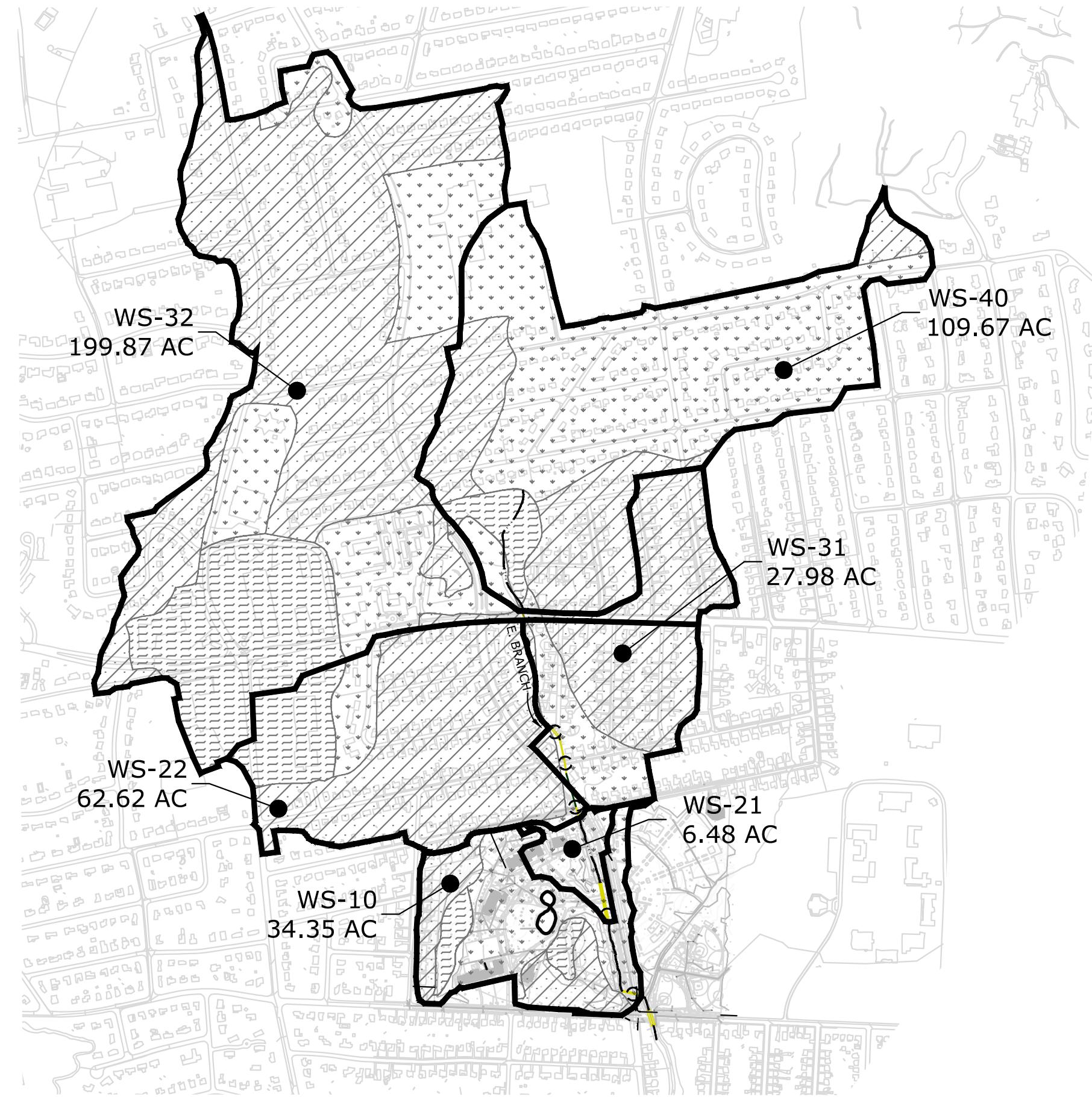
Soils are classified into hydrologic soil groups (HGS) to indicate the minimum rate of infiltration obtained after prolonged wetting. The hydrologic soil groups (A, B, C, and D) are one element in determining runoff characteristics. The most excessively drained or permeable soils that promote the most infiltration are included as Group A while at the other extreme Group D soils typically have impervious cover or other restrictions that restrict infiltration. Sandy soils would generally be considered HSG A or B because of their high potential infiltration capacity. HSG D soils have the lowest infiltration capacity and, hence, generate the highest runoff rates. The HGS is a means of characterizing the ability of the soil to infiltrate water during a rainfall event. A variety of hydrologic soil groups are present in the East Branch Trout Brook watershed with Groups B and C being the most prevalent. Figure 2-4 depicts the soil types in the watershed.

2.4 Time of Concentration

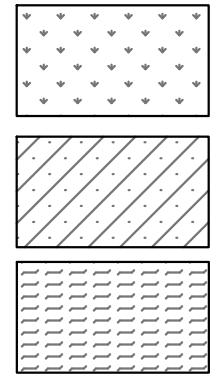
Time of concentration is defined as the time it takes a drop of water to travel from the most hydrologically distant point in a watershed to a watershed outlet. This generally defines how quickly after the start of a rainfall event that peak flows will be observed in the stream channel or outlet point. For each sub-watershed, sheet flow, shallow concentrated flow, lake or reservoir flow, and channel flow values were determined based on the available topography and mapping data. Table 3-1 from the TR-55 manual was used to determine the roughness coefficient for the surface of the sheet flow in each sub-watershed. The shallow concentrated flow uses a fixed roughness coefficient based on whether the surface is paved or unpaved. Table 3-1 from HEC-RAS Hydraulic Reference Manual was used to determine the roughness coefficient of segments of channelized flow. Calculations of the time of concentration for each sub-watershed are presented in Appendix B. Figure 2-5 depicts the time of concentration path for each watershed.

The HEC-HMS model requires input of lag time rather than time of concentration. Although there are varying definitions of lag time, it is typically taken as the length of time from the start of runoff to the peak of flow through the watershed. NRCS has established an average relationship between lag time and the time of concentration as follows: $T_l=0.6T_c$ (where: T_l = lag time and T_c = time of concentration). The coefficient of 0.6 in the equation accounts for the fact that on average the time to peak flow in the watershed is 60 percent of the time it takes water from the outer limits of the watershed to reach the outlet. This is an average and varies depending upon the general shape of the contributing watershed.

The sub-watershed WS-10 (34.35 AC) has a total T_c of 21 min. The surface of the sheet flow consists of grass surface giving a roughness coefficient of 0.15. The sheet flow usually has the longest time of concentration, and this is true for each sub-watershed in this project. The T_c path starts on an unpaved surface in residential yard area, enters the roadways, and eventually enters a small yard drain pipe that discharges into what appears to be a small stormwater management pond. This is the only sub-watershed that contains any type of standing water, which slows travel times down as water flows and expands inside the pond. Flow then discharges from pond through a small channel and enters a bigger pipe that discharges into a swale and eventually enters a double culvert that discharges the water into the East Branch Trout Brook.



LEGEND



SOIL B
SOIL C
SOIL D

NRCS SOILS HYDROLOGIC CLASSIFICATION
EAST BRANCH TROUT BROOK
FLOOD MITIGATION ASSESSMENT
WEST HARTFORD
CONNECTICUT

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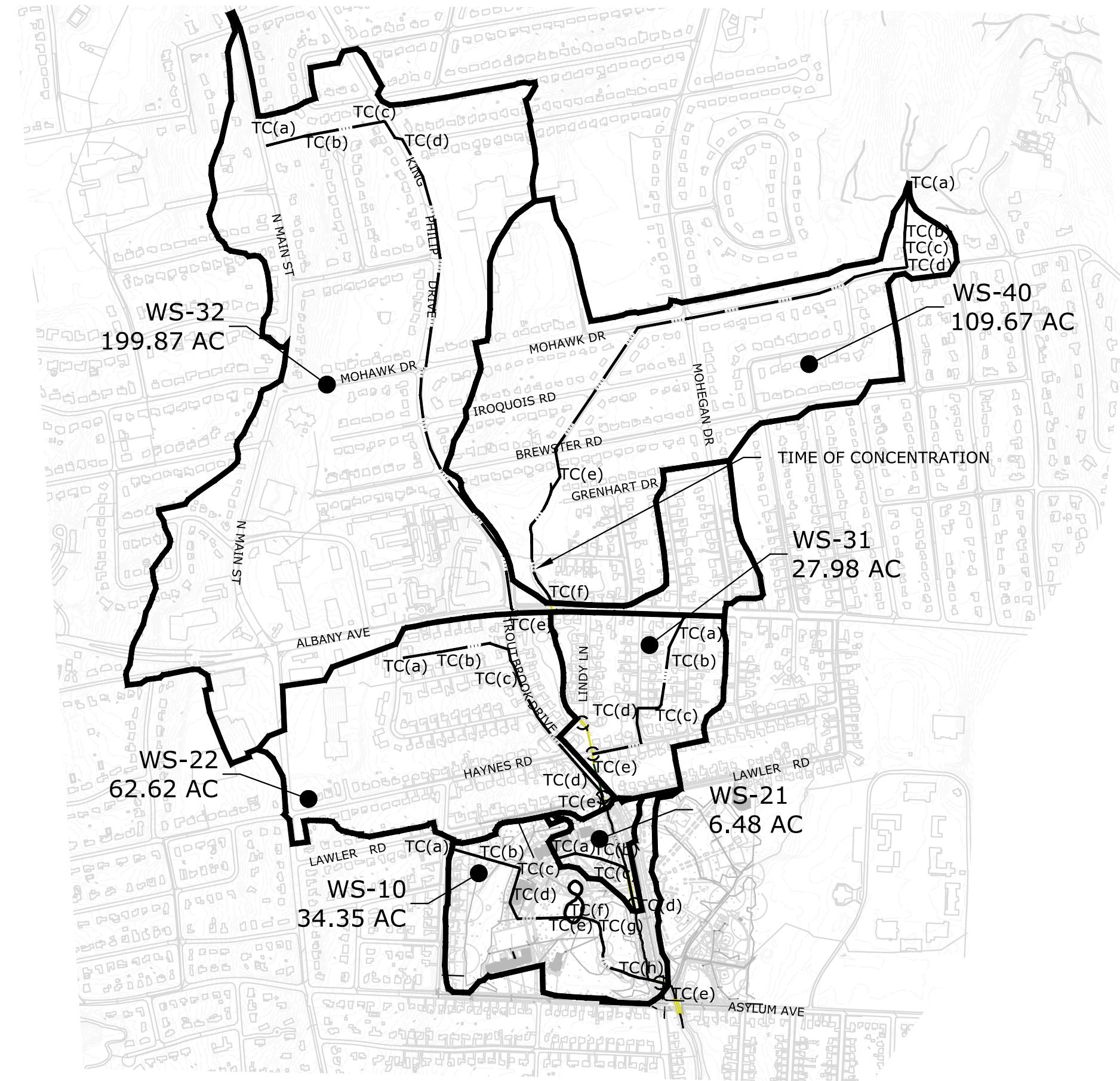
FIG. 2-4

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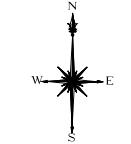
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LEGEND

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REVISIONS

TIME OF CONCENTRATION

EAST BRANCH TROUT BROOK
FLOOD MITIGATION ASSESSMENT
WEST HARTFORD
CONNECTICUT

0 400' 800'
1/2" 1"
SCALE 1" = 800'

MAY 31, 2018
1197-21
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FIG. 2-5
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The smallest sub-watershed in this study is WS-21 (6.48 AC) with a T_c of 19 min, the shortest T_c of all the six sub-watersheds. The time of concentration path first hits a grass surface during the sheet flow period, where a roughness coefficient of 0.15 was used. The path continues through a grass surface during its shallow concentrated flow phase and finally enters a pipe that discharges into the main channel.

The time of concentration path for WS-22 (62.62 AC) begins in a wooded/forested area which yields a high Manning's roughness coefficient. As flow develops into shallow concentrated flow, the path continues through more open space before reaching paved roadways and entering into a storm drainage system. The path follows the storm drainage system for approximately 1,000 linear feet before it finally reaches a bigger pipe that discharges directly into the stream for a total T_c of 34 min.

The sub-watershed WS-31 (27.98 AC) has a total T_c of 35 min. The sheet flow path consists of a mixture of grass and shrubs with a relatively small change in elevation. The flow then concentrates into shallow concentrated flow on an unpaved surface that transitions to pavement before the last segment of channelized flow inside the storm drainage system.

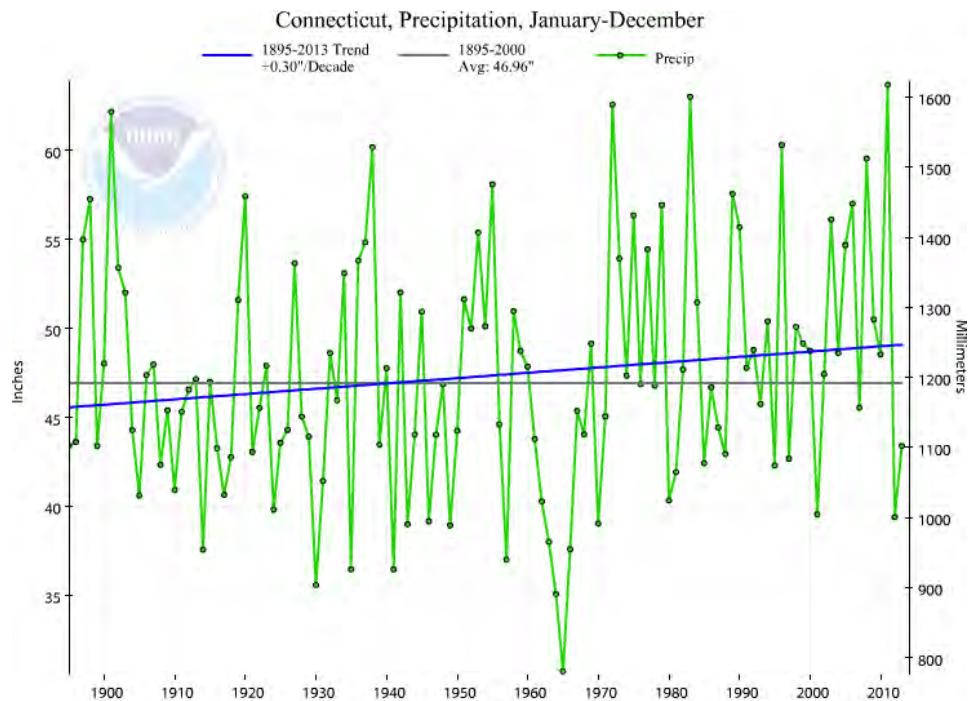
Sub-watershed WS-32 (199.87 AC) has a similar but longer flow path to WS-31. The total T_c is 51 min, the longest T_c of all six sub-watershed. The first two segments of both sheet flow, and shallow concentrated flow occur in forested areas, which have cause flows to be very slow and make time of concentrations closer to natural conditions. Overland flow then intersects a paved roadway and enters the storm drainage system, before flowing into East Branch Trout Brook.

The last sub-watershed is WS-40 (109.67 AC) and has a total T_c of 37 min. Its overland flows begins as sheet flow in a residential yard with grass/shrub surface. The flow then transitions into shallow concentrated flow as it intersects with a roadway. It travels along a paved roadway for a short distance before entering the storm drainage system and being discharged into the East Branch Trout Brook.

2.5 Precipitation

Precipitation is a critical element in hydrologic modeling. The total depth of rainfall during a storm event as well as the intensity of the rainfall play a strong role in dictating the overall runoff from a watershed. The effects of urbanization are exacerbated by the changes in rainfall patterns. Connecticut's mean annual precipitation has increased approximately 0.96 inches per decade through the last century. This trend is depicted graphically on Figure 2-6. The data are suggestive of a trend toward increased rainfall (and therefore runoff) in Connecticut.

FIGURE 2-6
Precipitation Trends in Connecticut 1895 – 2008
(Source: NOAA)



Historically, the standard of practice for design engineers in Connecticut has been to use rainfall data published in TP-40 by the United States Weather Bureau in 1961. TP-40 predicts rainfall depths over a 24-hour period equated to a storm frequency (e.g., 100-year storm or 1 percent ACR) based on storm data from the first half of the 20th century.

Although the NRCC data has been available for several years, it is only recently that the use of NRCC data has begun to be adopted for engineering design purposes. The CT DOT began requiring the use of the NRCC dataset for bridge and culvert designs in December 2014. The hydrologic model was run using NRCC data. The following table summarizes the rainfall data input to the HEC-HMS model.

TABLE 2-4
Rainfall Depth over 24-Hour Period

Rainfall Data Source	Total Rainfall (Inches) by Storm Recurrence Interval					
	2-YR (50% ACR)	10-YR (10% ACR)	25-YR (4% ACR)	50-YR (2% ACR)	100-YR (1% ACR)	500-YR (0.2% ACR)
Northeast Regional Climate Center (NRCC)	3.28	4.89	6.14	7.30	8.69	13.01

ACR = Annual Chance of Recurrence

2.6 Storage

Each of the four culverts in the study reach of East Branch Trout Brook were found to have insufficient capacity to convey most flood flows without impounding water and causing flooding upstream. Quantification of the volume of impounded water is necessary in order to then calculate the impact the release of that water will have on downstream flooding once the culverts are replaced with properly sized structures.

In order to compute the volume of water upstream of each culvert, the town of West Hartford topographic contours were used to develop a stage/storage relationship curve for each crossing. These curves were input to the hydrology model, which was then used in conjunction with a stage/discharge relationship curve to determine the amount of storage being developed at various flows. This provided results for the existing conditions model. To model proposed conditions, the performance curves of each culvert were modified to reflect the proposed replacement culverts, and the changes to peak flows as a result of the loss of storage was computed by HEC-HMS.

Table 2-5 table provides a summary of the total amount of available storage behind each of the four assessed culverts under existing conditions.

TABLE 2-5
Total Storage Upstream of Each Culvert
(Existing Conditions, Prior to Overtopping)

Culvert Location	Total Storage (ac-feet)
Albany Avenue	6.89
Lindy Lane and Lawler Avenue	4.07
UConn Pedestrian Crossing	2.65
Trout Brook Drive	3.93
Total Storage	17.54

2.7 Hydrologic HEC-HMS Model Setup

The preceding information was used as input data to a rainfall-runoff hydrologic model called HEC-HMS, which simulates the hydrologic response (flow) of a basin to a given input of rainfall. The U.S. Army Corps of Engineers (USACE) developed the model, called the Hydraulic Engineering Center Hydrologic Modeling System (HEC-HMS). The model is a windows-based computational model with a graphical user interface (GUI) which allows for the easy manipulation of hydrologic elements such as basin and river reaches and the easy input of basin characteristics.

In HEC-HMS, a project is created that contains separate “models” including the Basin Model, the Precipitation Model, and the Control Model. The user may specify different data sets for each model. The hydrologic simulation is completed by using the data set for each model. The Basin Model contains the basin and routing parameters of the model, as well as connectivity data for the basin. The Precipitation Model contains the rainfall data, either historical or hypothetical, for the model. The

Control Model contains all the timing information for the model, including model time steps and start and stops date and times of the simulation. Table 2-6 presents a description of each hydrologic element used. Figure 2-7 presents a diagram of the HEC-HMS model. Table 2-7 presents a summary of input data per each of the four watersheds.

TABLE 2-6
Description of Hydrologic Elements Used

Hydrologic Element	Description
Sub-basin 	The sub-basin is used to represent the physical watershed. Given precipitation, outflow from the sub-basin element is calculated by subtracting precipitation losses, calculating surface runoff, and adding baseflow. In this project there are six sub-basins: WS-10, WS-21, WS-22, WS-31, WS-32 and WS-40
Reach 	The reach is used to convey streamflow in the basin model. Inflow to the reach can come from one or many upstream elements. Outflow from the reach is calculated by accounting for translation and attenuation. Channel losses can optionally be included in the routing. There are four reaches in this model labeled as: Reach-0, Reach-10, Reach-20, and Reach-30. Reach-10, 20, and 30 is routing the flow from the outflow of one culvert to the inflow of another, Reach-0 is routing the flow from the outflow of the most downstream culvert to the sink.
Junction 	The junction is used to combine streamflow from elements located upstream of the junction. Inflow to the junction can come from one or many upstream elements. Outflow is calculated by summing all inflows. A junction was added upstream of each culvert in order to calculate the total flow coming from all contributing elements. Junctions were also added to the two most upstream culverts to account for the flow entering the structure from underground stormwater pipe to the middle of the culvert.
Reservoir 	The reservoir is used to model the detention and attenuation of a hydrograph caused by a reservoir or detention pond. Inflow to the reservoir element can come from one or many upstream elements. Outflow from the reservoir can be calculated using one of three routing methods. Each reservoir in this study: Str-1, Str-2, Str-3, and Str-4 represent the culverts present in the project reach.
Sink 	The sink is used to represent the outlet of the physical watershed. Inflow to the sink can come from one or many upstream elements. There is no outflow from the sink.

FIGURE 2-7
HEC-HMS Model Diagram

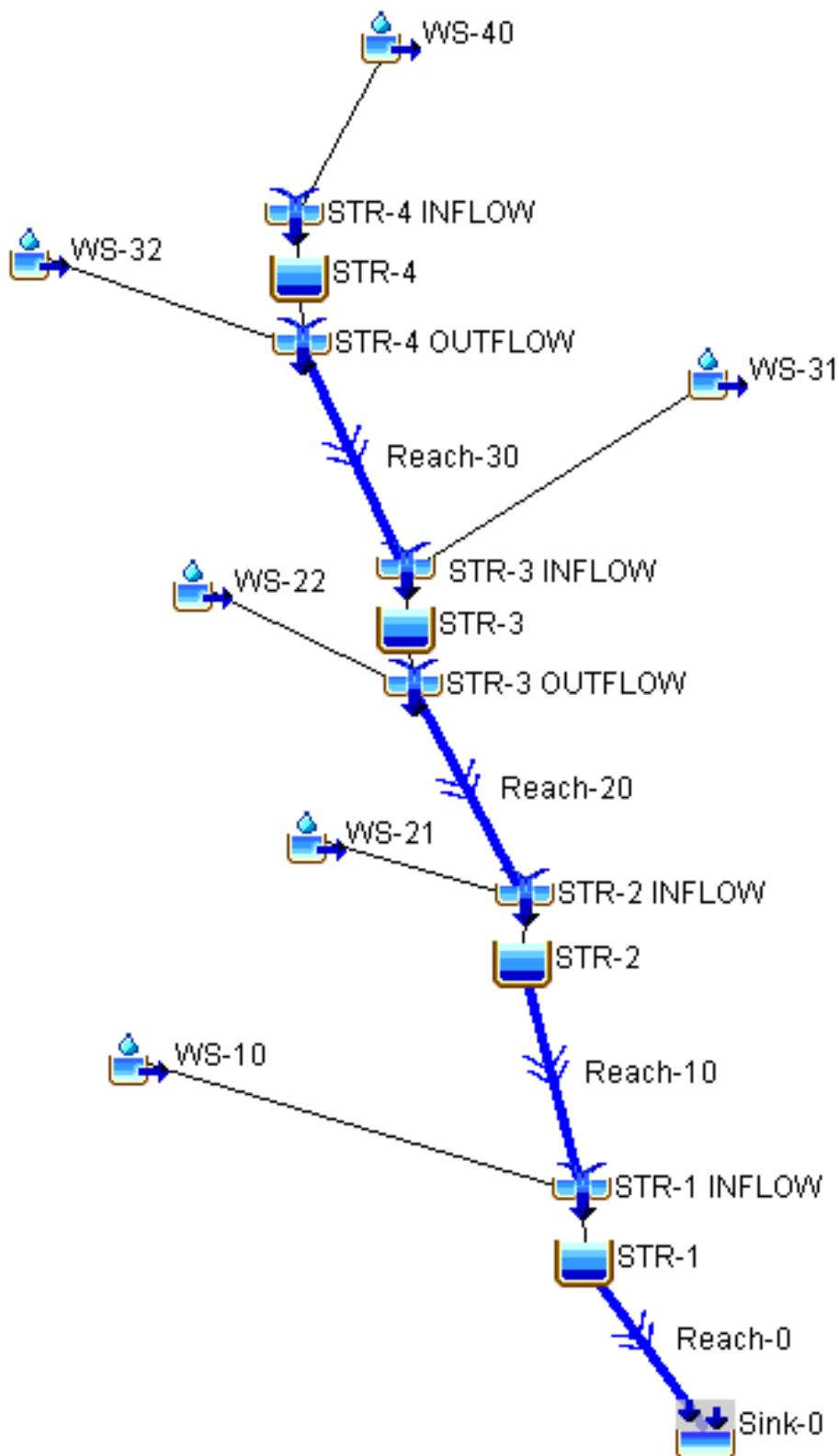


TABLE 2-7
Summary of HEC-HMS Model Watershed Input

Watershed Name	Structure	Analysis Point (Bridge Crossing)	Drainage Area (ac)	Composite CN	Time of Concentration (min.)	Lag Time (min.)
WS-40	STR-4	Albany Ave	190.67	68	37	22.20
WS-32	STR-3	Lindy Lane	199.87	81	51	30.6
WS-31	STR-3	Lindy Lane	27.98	74	35	21.0
WS-22	STR-2	UConn Pedestrian Bridge	62.62	66	34	20.4
WS-21	STR-2	UConn Pedestrian Bridge	6.48	69	19	11.4
WS-10	STR-1	Trout Brook Drive	34.35	73	21	12.6

2.8 Existing Conditions Results

The overall peak flows that were computed by HEC-HMS under existing conditions compare reasonably well as compared to those predicted by FEMA at Trout Brook Drive, however the location that the peak occurs was different. Specifically, HEC-HMS predicts that higher flows occur much higher up in the watershed. Table 2-8 summarizes the 100-year flows at each culvert as computed by scaling the FEMA flows to various locations in the watershed based upon watershed size, and as compared with the new output from HEC-HMS. The 2017 MMI analysis utilized the FEMA flows as the basis for the floodplain mapping.

TABLE 2-8
Comparison of Predicted Peak Flows Upstream of Each Roadway Crossing
For the 100-year Flood

	FEMA (cfs)	HEC-HMS (cfs)
Albany Avenue	260	167.9
Lindy Lane and Lawler Avenue	320	783.7
UConn Pedestrian Crossing	480	880.8
Trout Brook Drive	630	806.9

Sub-watershed WS-30 is a primary contributor of peak flows to the East Branch Trout Brook, as it is large, contains a majority of the poorly draining soils (Hydrologic group C and D) and impervious areas, and is drained entirely by subsurface drainage systems. The modeling predicts that the majority of the peak flows will runoff from the watershed quickly, and end up in East Branch Trout Brook upstream of the UConn pedestrian crossing, rather than the more traditional estimation by FEMA that the peak flows increase linearly as drainage area increases.

The change in the location of the peak flow, as well as the influence of the storage behind the existing culverts causes flood flows to decrease in the downstream direction, with the worst flows occurring just downstream of the Lindy Lane area and near the former UConn campus. This changes the sizes of the proposed replacement culverts from those computed during the 2017 MMI analysis, which utilized FEMA peak flows as a design basis.

2.9 Culvert Replacement Hydrologic Results

In order to predict the effects of replacing each undersized culvert with an adequately sized structure, the preceding “existing conditions” hydrologic model was modified to reflect the lost storage at each successive culvert crossing. The culverts were replaced in successive order, beginning at the downstream end of the East Branch Trout Brook in order to maximize the benefits to the floodplain. Table 2-9 shows the order in which the replacement of the structures was modified.

TABLE 2-9
Four Phases of Culvert Replacement along East Branch Trout Brook

	Number of Culverts Replaced				
	Existing Conditions (None)	Phase 1	Phase 2	Phase 3	Phase 4
Albany Avenue	-	-	-	-	Replace
Lindy Lane and Lawler Avenue	-	-	-	Replace	Replace
UConn Pedestrian Crossing	-	-	Replace	Replace	Replace
Trout Brook Drive	-	Replace	Replace	Replace	Replace

Tables 2- 10 through 2-16 summarize the peak flows for the various storm events in all phases of culvert replacement.

TABLE 2-10
HEC-HMS Predicted Peak Flood Flows
Existing Conditions

	Peak Discharge (CFS)					
	2-Year	10-Year	25-Year	50-Year	100-Year	500-Year
Model Start – U/S	44.8	110.3	165.8	165.8	283.7	507.9
Albany Ave – U/S	44.8	110.3	165.8	165.8	283.7	507.9
Albany Ave – D/S	43.7	100	129.9	129.9	167.9	292.2
Lindy La – U/S	225.9	399.2	537.7	629.6	783.7	1,231.7
Lindy La – D/S	176.4	305	566.8	643.3	783.7	1,231.7
UConn Ped Bridge – U/S	192.2	333.4	608.8	727.5	913.4	1,462.2
UConn Ped Bridge – D/S	192.1	333.3	555.3	660.0	880.8	1,432.8
Trout Brook Dr – U/S	199.4	344.7	572.1	679.2	901.1	1,482.7
Trout Brook Dr – D/S	198.6	333.1	506.0	615.1	806.9	1,427.1

TABLE 2-11
HEC-HMS Predicted Peak Flood Flows
Culvert Replacement Phase 1

	Peak Discharge (CFS)					
	2-Year	10-Year	25-Year	50-Year	100-Year	500-Year
Model Start – U/S	44.8	110.3	165.8	165.8	283.7	507.9
Albany Ave – U/S	44.8	110.3	165.8	165.8	283.7	507.9
Albany Ave – D/S	43.7	100	129.9	129.9	167.9	292.2
Lindy La – U/S	209.7	399.2	537.7	629.6	783.7	1,231.7
Lindy La – D/S	172	305	566.8	643.3	783.7	1,231.7
UConn Ped Bridge – U/S	186.6	333.4	608.8	727.5	913.4	1,462.2
UConn Ped Bridge – D/S	186.5	333.3	555.3	660.0	880.8	1,432.8
Trout Brook Dr – U/S	192.9	344.7	572.1	679.2	901.1	1,482.7
Trout Brook Dr – D/S	192.9	344.4	569.9	675.6	898.1	1,481.7

Note: Shaded cells indicate structures that have been replaced.

TABLE 2-12
HEC-HMS Predicted Peak Flood Flows
Culvert Replacement Phase 2

	Peak Discharge (CFS)					
	2-Year	10-Year	25-Year	50-Year	100-Year	500-Year
Model Start – U/S	44.8	110.3	165.8	165.8	283.7	507.9
Albany Ave – U/S	44.8	110.3	165.8	165.8	283.7	507.9
Albany Ave – D/S	43.7	100.0	129.9	129.9	167.9	292.2
Lindy La – U/S	209.7	399.2	537.7	629.6	783.7	1,231.7
Lindy La – D/S	172.0	305.0	566.8	643.3	783.7	1,231.7
UConn Ped Bridge – U/S	186.6	333.4	608.8	727.5	913.4	1,462.2
UConn Ped Bridge – D/S	186.5	333.4	611.8	727.6	889.7	1,443.6
Trout Brook Dr – U/S	193.1	344.9	603.8	741.7	920.5	1,501.2
Trout Brook Dr – D/S	193.0	344.6	596.2	738.2	918.7	1,500.3

Note: Shaded cells indicate structures that have been replaced.

TABLE 2-13
HEC-HMS Predicted Peak Flood Flows
Culvert Replacement Phase 3

	Peak Discharge (CFS)					
	2-Year	10-Year	25-Year	50-Year	100-Year	500-Year
Model Start – U/S	44.8	110.3	165.8	165.8	283.7	507.9
Albany Ave – U/S	44.8	110.3	165.8	165.8	283.7	507.9
Albany Ave – D/S	43.7	100	129.9	129.9	167.9	391.7
Lindy La – U/S	209.7	399.2	537.7	629.6	783.7	1,395.4
Lindy La – D/S	206.5	398.3	529.8	605.4	757.9	1,390.6
UConn Ped Bridge – U/S	226.0	445.7	596.8	696.4	856.5	1,611.6
UConn Ped Bridge – D/S	225.9	445.7	596.7	696.5	837.8	1,583.8
Trout Brook Dr – U/S	234.3	462.4	621.8	726.3	862.4	1,628.7
Trout Brook Dr – D/S	234.1	460.5	620.2	724.5	860.8	1,627.0

Note: Shaded cells indicate structures that have been replaced.

TABLE 2-14
HEC-HMS Predicted Peak Flood Flows
Culvert Replacement Phase 4

	Peak Discharge (CFS)					
	2-Year	10-Year	25-Year	50-Year	100-Year	500-Year
Model Start – U/S	44.8	110.3	165.8	165.8	283.7	507.9
Albany Ave – U/S	44.8	110.3	165.8	165.8	283.7	507.9
Albany Ave – D/S	44.5	108.3	160.4	160.4	255.0	391.7
Lindy La – U/S	209.9	405.6	567.1	659.4	876.7	1,395.4
Lindy La – D/S	206.7	404.6	556.4	620.5	868.8	1,390.6
UConn Ped Bridge – U/S	226.4	454.5	626.4	706.5	984.4	1,611.6
UConn Ped Bridge – D/S	226.3	454.3	626.4	706.5	931.1	1,583.8
Trout Brook Dr – U/S	234.9	471.2	650.9	738.6	952.4	1,628.7
Trout Brook Dr – D/S	234.7	468.8	648.8	737.5	950.2	1,627.0

Note: Shaded cells indicate structures that have been replaced.

TABLE 2-15
HEC-HMS Predicted Peak Flood Flows
Comparison of 100-Year Peak Flow for All Phases

ID	Location	Peak Discharge (CFS)				
		Existing	Phase 1	Phase 2	Phase 3	Phase 4
1	Model Start – U/S	283.7	283.7	283.7	283.7	283.7
2	Albany Ave – U/S	283.7	283.7	283.7	283.7	283.7
3	Albany Ave – D/S	167.9	167.9	167.9	167.9	255.0
4	Lindy La – U/S	783.7	783.7	783.7	783.7	876.7
5	Lindy La – D/S	783.7	783.7	783.7	757.9	868.8
6	UConn Ped Bridge – U/S	913.4	913.4	913.4	856.5	984.4
7	UConn Ped Bridge – D/S	880.8	880.8	889.7	837.8	931.1
8	Trout Brook Dr – U/S	901.1	901.1	920.5	862.4	952.4
9	Trout Brook Dr – D/S	806.9	898.1	918.7	860.8	950.2

Note: Shaded cells indicate structures that have been replaced.

TABLE 2-16
HEC-HMS Predicted Peak Flood Flows
Comparison of Peak Flows from Existing to Phase 4 at the Trout Brook Drive Outlet

	Peak Discharge (CFS)					
	2-Year	10-Year	25-Year	50-Year	100-Year	500-Year
Existing Conditions	198.6	333.1	506.0	615.1	806.9	1427.1
All Four Culverts Replaced (Phase 4)	234.7	468.8	648.8	737.5	950.2	1627.0
Change (cfs)	36.1	135.7	142.8	122.4	143.3	199.9
Change (%)	+18%	+41%	+28%	+20%	+18%	+14%

The HEC-HMS results reflect the incremental increase of downstream flows as the size of each culvert is increased and the resultant backwater storage behind each is released. An overall increase in flow magnitude of 143 cfs is expected at Trout Brook Drive during the 100-year event. These changes are measured at the downstream extents of the study reach and it is important to note that the severity of the changes will diminish at points farther downstream, as the East Branch Trout Brook watershed will constitute a smaller and smaller percentage as the overall watershed increases. The specific impacts on flooding and floodplain extents are evaluated in Section 3.0.

3.0 HYDRAULIC ANALYSIS

3.1 Lindy Lane Pipe and Culvert Hydraulics

Flooding upstream of the Lindy Lane culvert represents one of the more significant problem areas within the study reach. The culvert is comprised of multiple sections with reduced cross-sectional area from upstream to downstream. Hand calculations were performed to determine inlet/outlet control of the Lindy Lane culvert and to identify which of the culverted portions of the brook are contributing to overtopping of banks.

The Lindy Lane crossing consists of two concrete pipes (one round, one elliptical) that convey flow under the roadway and downstream for approximately 33 linear feet. The pipes then enter a large concrete junction chamber that funnels the flow into a single 54" reinforced concrete pipe (RCP). The junction chamber is curved around a 30-degree bend and was constructed from multiple segments of 15-foot-wide by 6-foot-high concrete box culvert to a total length of approximately 26 feet. A single 54-inch discharge pipe flows from this chamber to approximately 550 feet downstream at its outlet just past Lawler Road, north of the UConn campus.

Head losses through the various segments of the Lindy Lane culvert were evaluated to identify which segment acted as the limiting hydraulic factor. This analysis concluded that the upstream (dual pipe) segment of culvert at Lindy Lane does in fact have adequate capacity to convey the FEMA 100-year flow (320 cubic feet per second [cfs]), but the segment leaving the junction chamber (single 54-inch pipe) is undersized. Results of this analysis are included in Appendix C.

Including the pressure flow resulting from the combining of flow at the junction chamber, the 54-inch pipe's capacity is estimated at approximately 148 cfs. This pressure flow results in the surcharge of the existing yard drain by nearly 1.2 feet of water. The hydraulic grade lines and flood elevations that were computed by hand were input to the Hydrologic Engineering Center – *River Analysis System* (HEC-RAS) hydraulic model of Trout Brook as the model is not capable of analyzing such a complicated multi-shape culvert structure.

A Manning's analysis of the required culvert size for the existing slope indicates that a 4.5-foot-high by 10-foot-wide box culvert (minimum 44-square-foot area) would be necessary to convey the FEMA 100-year flow of 320 cfs.

3.2 Existing Conditions Hydraulic Model

A copy of the September 1970 WSP-2 model input data was obtained from the Town of West Hartford and confirmed by FEMA to be the most current model in its files. The WSP-2 program was an early generation hydraulic model used by FEMA in the 1960s and 1970s. Conversion of the WSP-2 data is not straightforward, and the topography has significantly changed since the 1970 model. Therefore, the re-creation of the FEMA model was discarded in favor of creating a new model that more accurately represents existing project geometry and utilizes state-of-the-art hydraulic modeling technology.

Hydraulic modeling was developed in the United States Army Corps of Engineers (USACE) HEC-RAS computer program (version 5.0.3). The model is used to compute water surface profiles for one-dimensional, steady state, and gradually varied flow. By creating cross sections of the existing and

proposed channel geometry, this model can accommodate a full network of channels, a dendritic system, or a single river reach. HEC-RAS is capable of modeling water surface profiles under subcritical, supercritical, and mixed-flow conditions. Hydraulic computations are included in Appendix D.

Water surface profiles are computed from one cross section to the next by solving the one-dimensional energy equation with an iterative procedure called the standard step method. Energy losses are evaluated by friction (Manning's Equation) and the contraction/expansion coefficient multiplied by the change in velocity head at each section. The momentum equation is used in situations where the water surface profile is rapidly varied such as hydraulic jumps. These situations include mixed-flow regime calculations, hydraulics of dams and bridges, and evaluating profiles at a river confluence.

The model of East Branch Trout Brook combines data from topographic base mapping, surveyed cross sections and culvert dimensions, channel and overbank roughness, and stream flows. A digital elevation model (DEM) was created from town-provided surface topography (2-foot contours) and supplemental wet-surveyed sections completed by MMI in 2016. A total of 55 cross sections between Brewster Road and the southern crossing of Trout Brook Drive were used to create the HEC-RAS model, which included FEMA lettered cross sections C through K. All elevations in the current FIS and FIRMs are referenced to North American Vertical Datum of 1988 (NAVD88).

The flow data utilized in the FEMA WSP-2 hydraulic model was applied in the current HEC-RAS analysis. The FEMA model applied flow changes at more locations than are noted in the effective FIS for Hartford County, and by utilizing these additional flow changes, MMI was able to more accurately represent the flooding conditions experienced within the project reach. Many of these flow changes occur immediately upstream or downstream of the project area culverts.

The culvert downstream of Lindy Lane is comprised of three distinct culvert sizes. HEC-RAS limits the input for a given culvert to a single size; it does not allow for midsection pipe changes. Therefore, the most restrictive pipe (single 54" RCP) was used in the model for evaluation purposes.

Water surface elevations were calculated at each cross section using the one-dimensional energy equation, which considers losses due to friction and transitions between cross sections. Frictional losses were evaluated by Manning's roughness coefficients (*n*-values) at each cross section and solving the Manning's equation. Manning's *n*-values for the overbanks and channel ranged from 0.03 to 0.12 and 0.04 to 0.1, respectively. Floodplain depth mapping was created using the HEC-RAS software.

Water surface elevations were computed using a subcritical (i.e., deep and tranquil) flow regime. All computed water surface elevations were limited to critical depth, therefore producing conservatively high estimates of flooding depths. The subcritical flow regime requires a downstream boundary condition. The downstream boundary condition for the FEMA 100-year flow was set at elevation 87 feet, which reflects the published FEMA elevation at lettered Section "C" (per the 2008 FIRM).

The MMI-developed Existing Conditions model of East Branch Trout Brook predicts flooding extents that closely match those in the published FEMA FIS. Figure 3-1 depicts the predicted flooding extents in blue as compared to the effective FEMA limits shown in red. Flooding extents at Albany Avenue, Lindy Lane, and the former UConn campus are quite similar. However, FEMA predicts a larger flood extent in the Haynes Road area. The difference in mapping is likely a result of older topographic information available when FEMA developed its original study. A comparison of predicted 100-year water surface elevations (WSE) between the FEMA published data and the MMI Existing Conditions Model output is provided in Table 3-1.



Fig. 3-1

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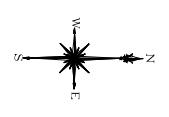


TABLE 3-1
Comparison of FEMA Effective WSE and MMI Existing Conditions WSE

Location and Description	HEC-RAS Station	FEMA Effective 100-Year WSE (feet)	MMI Existing Conditions 100-Year WSE (feet)
FEMA Section K upstream limit of model	35+50	103.6	103.3
FEMA Section J d/s of Albany Avenue culvert	30+50	100.7	100.6
FEMA Section I	27+50	100.3	100.4
FEMA Section H u/s face of Lindy Lane culvert	24+50	100.1	100.4
FEMA Section G d/s of Lindy Lane culvert	17+50	94.6	96.7
FEMA Section H d/s of UConn culvert	10+00	91.3	91.9
FEMA Section E d/s of Trout Brook Drive	4+00	87.9	88.5
FEMA Section D u/s of Asylum Avenue	3+00	87.9	88.7

d/s = downstream; u/s = upstream; WSE = water surface elevation

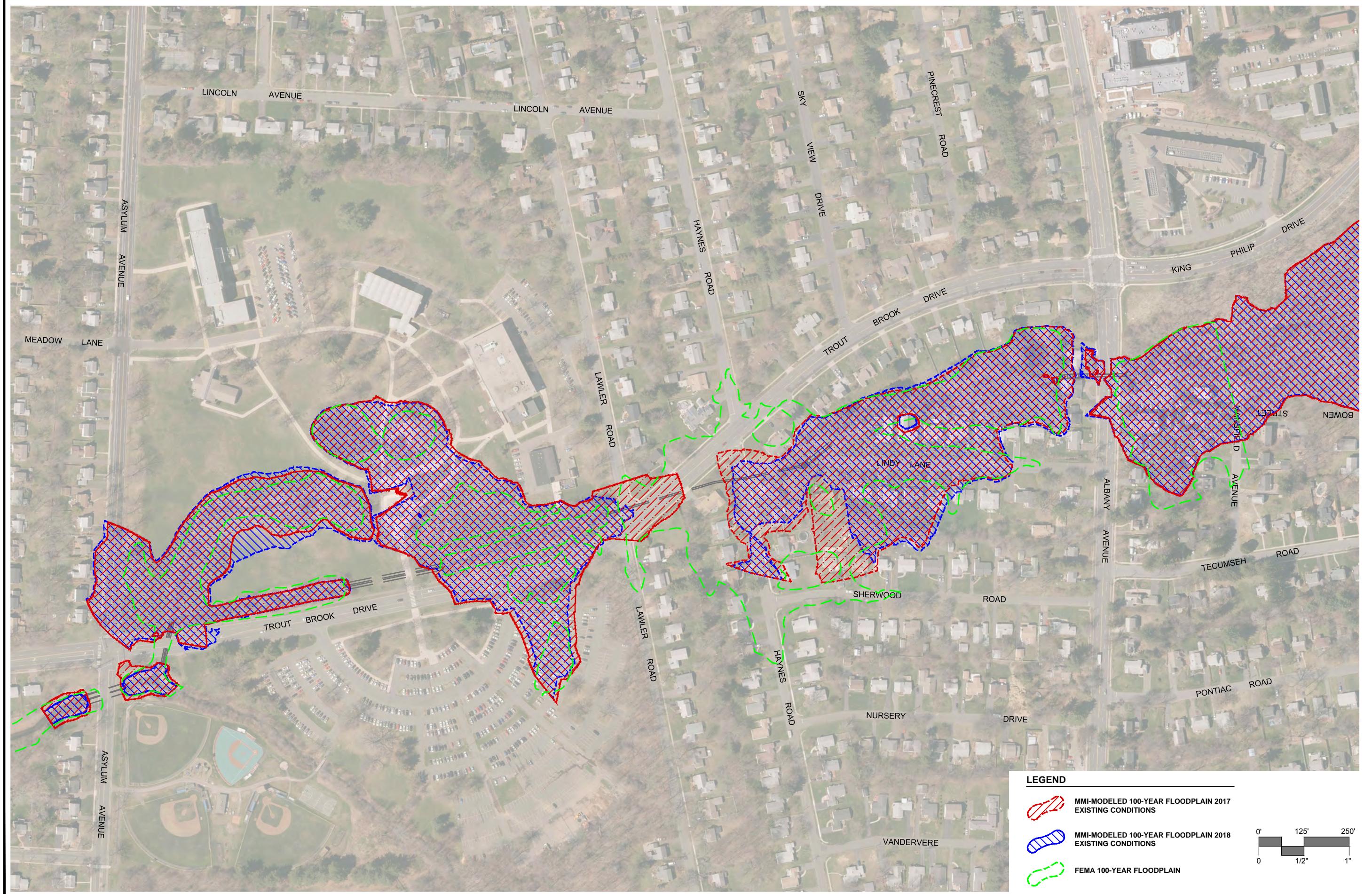
The flooding extents shown in Figure 3-1 reflect the floodplain under free-flowing conditions, which does not account for the effects of debris blockages upstream of culverts. At Lindy Lane, it has been anecdotally reported that woody debris can exacerbate flooding by preventing water from entering the culvert.

3.3 Existing Conditions – Revised Floodplain Mapping

The existing conditions model was updated with the flows computed from the HEC-HMS model described in Section 2 and was used to generate updated floodplain maps of existing conditions, as well as mapping the predicted benefits during various stages of culvert upgrades along the East Branch Trout Brook corridor. The goal of the updated mapping was to provide a more realistic view of flooding in the watershed by accounting for the effects of storage behind each culvert on downstream properties.

The existing conditions HEC-RAS modeling was rerun using the updated HMS modeled hydrology. The HEC-HMS model was set up to account for the storage of water behind undersized culverts, and the resulting flows were input at key flow change locations in the HEC-RAS hydraulic modeling software.

The existing conditions was rerun using the new flows. Specifically, because the new flows are higher near Lindy Lane, the Lindy Lane culvert hydraulic grade line computations (performed in 2017 outside of HEC-RAS) were recomputed using the higher flows, and the revised flooding levels input to the existing conditions HEC-RAS model manually. Even with the elevated flows, the floodplain extents were relatively similar to those predicted in 2017. Figure 3-2 presents a comparison between the 2017 existing conditions floodplain extents and the 2018 existing conditions floodplain extents.

**LEGEND**

MMI-MODELED 100-YEAR FLOODPLAIN 2017
EXISTING CONDITIONS

MMI-MODELED 100-YEAR FLOODPLAIN 2018
EXISTING CONDITIONS

FEMA 100-YEAR FLOODPLAIN

**FIG. 3-2**

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COMPARISON OF MMI-MODELED FLOODPLAINS EX. CONDITIONS 2017 VS 2018			REVISIONS
DESIGNED	FRM DRAWN	JCM CHECKED	
			1"=250'
SCALE			NOV. 6, 2018
DATE			1197-21
PROJECT NO.			

3.4 Culvert Replacement – Floodplain During Interim Phases

In order to determine the downstream effects of replacing each culvert in East Branch Trout Brook, new hydraulic models for each phase were run, starting with the replacement of the downstream-most culvert (Trout Brook Drive), and advancing in the upstream direction until all four crossings were replaced.

The 2017 report developed recommended culvert sizing for the replacements at each of the four crossings in the subject reach based upon the FEMA flows. For Lindy Lane (STR-03), and the UConn Pedestrian Crossing, the FEMA flow were significantly lower than those computed during the updated HMS analysis. The 100-year FEMA flow for Lindy Lane was 320 cubic feet per second (cfs). The revised flow under the new analysis was computed as 784 cfs, which would require that a larger structure be installed at the crossing than initially indicated. The 100-year FEMA flow for the UConn Pedestrian Crossing is 480 cfs. The revised flow under the new analysis was computed as 881 cfs. Like Lindy Lane, a larger structure is warranted.

The proposed conditions hydraulic modeling was iterated until a structure could accommodate the 100-year flood without overtopping at each of the two culvert sites and provide adequate flood relief from the properties located in the upstream areas. Table 3-2 presents a comparison between the existing conditions culvert, the previously (2017) proposed culvert, and the revised proposed structure.

TABLE 3-2
Comparison of Predicted Peak Flows Upstream of Lindy Lane and UConn Pedestrian Bridge
For the 100-year Flood

	Existing Conditions	2017 MMI Evaluation	2018 MMI Evaluation
Lindy Lane Culvert			
100-Year Discharge	-	320 cfs ¹	784 cfs ²
Size / Type	54" RCP	6'x12' Box	(2x) 6'x9' Box
UConn Pedestrian Crossing Culvert			
100-Year Discharge	-	480 cfs ¹	881 cfs ²
Size / Type	54" RCP	(2x) 5'x10' Box	(2x) 6'x10' Box

¹FEMA 100-year flow

²HEC-HMS 100-year flow

The revisions to the proposed replacement culverts input to the model. The following Figures 3-3 through 3-6 present the four phases of culvert replacement as compared with the phase before it. Figure 3-7 presents the overall change from existing conditions to the final condition in which all culverts are upgraded.

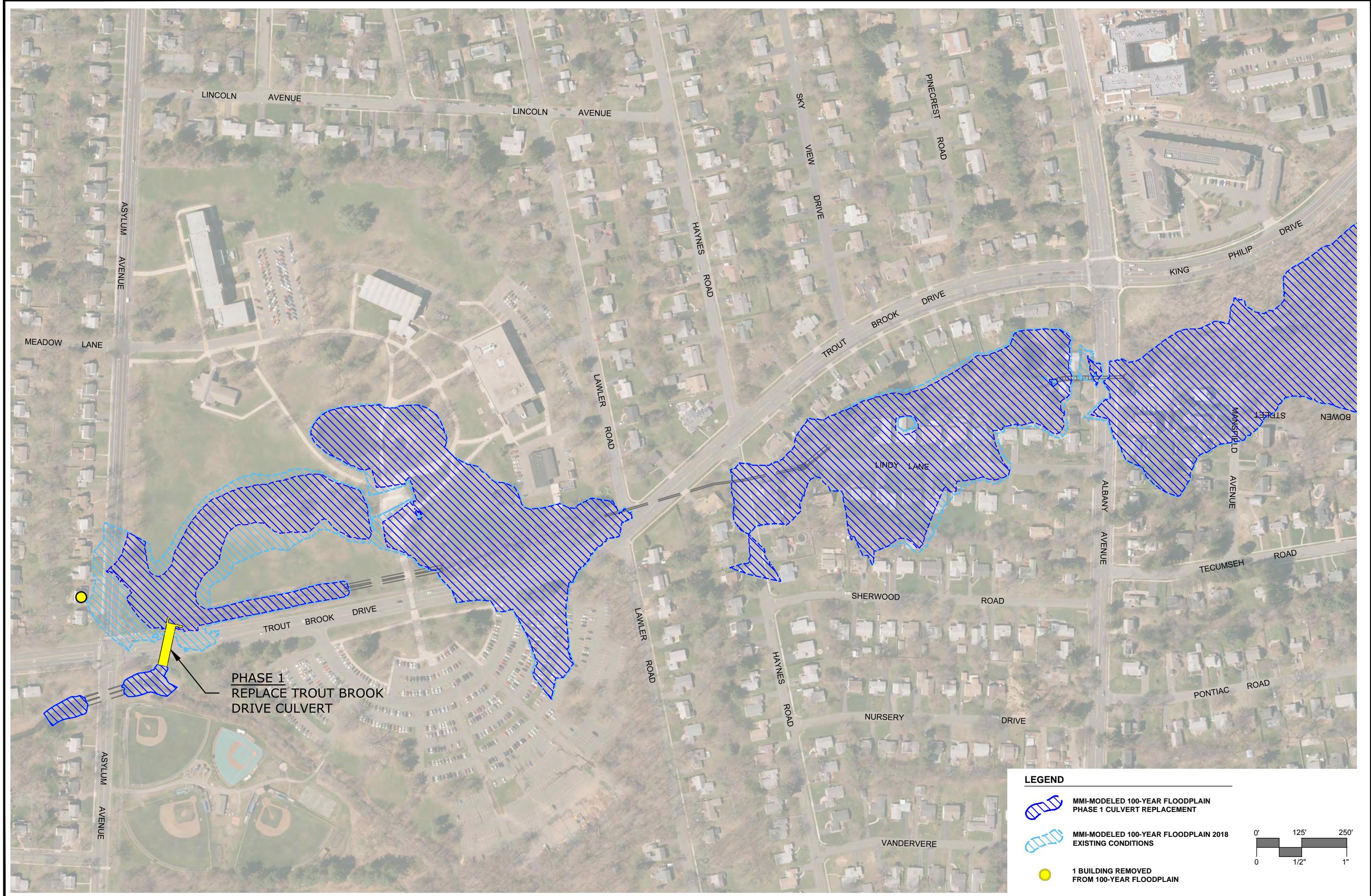


FIG. 3-3

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COMPARISON OF EX. CONDITIONS VS PHASE 1 MMI-MODELED FLOODPLAINS		
	REVISIONS	
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ALBANY AVENUE TO ASYLUM AVENUE		
WEST HARTFORD, CONNECTICUT		

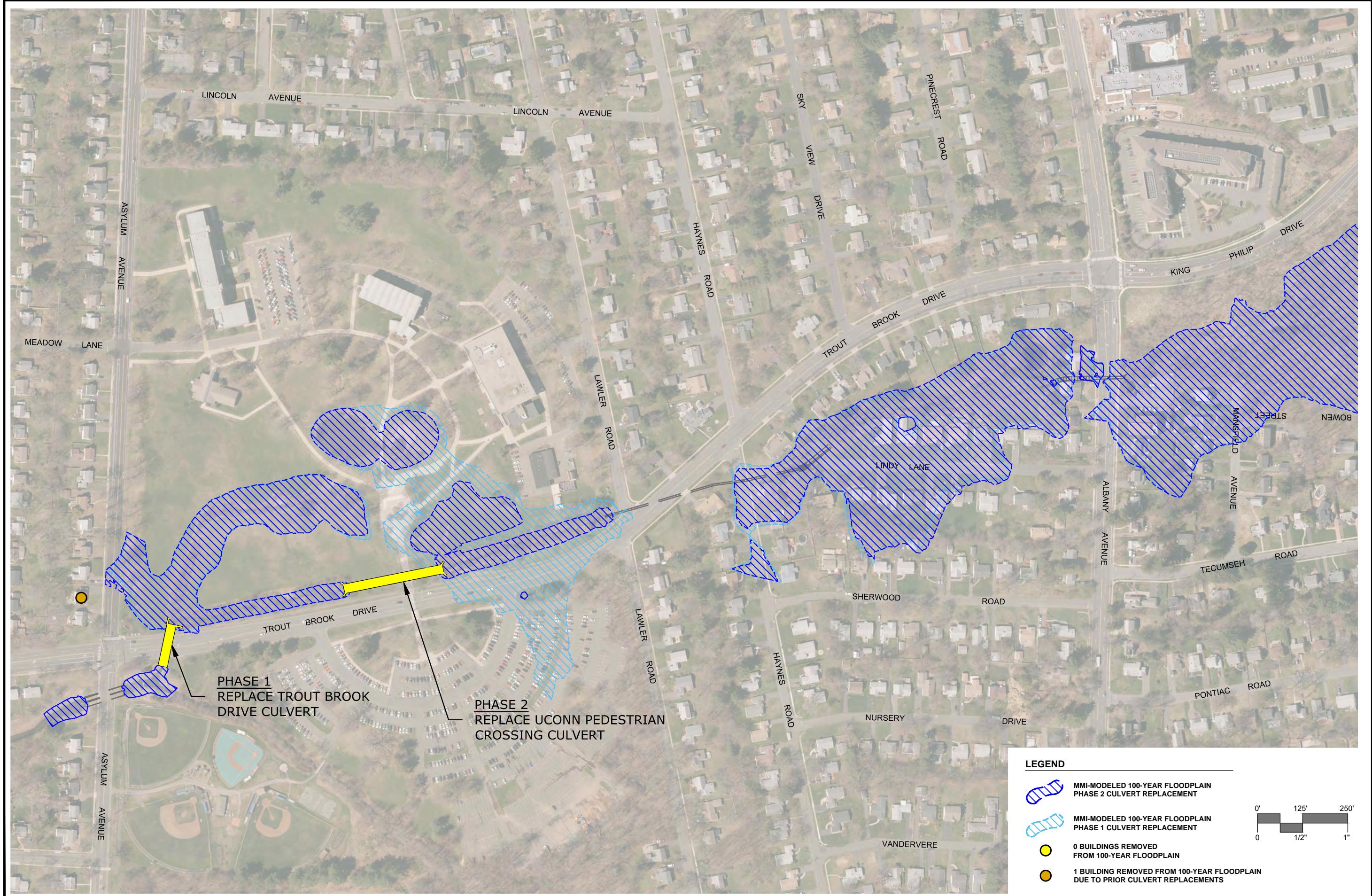


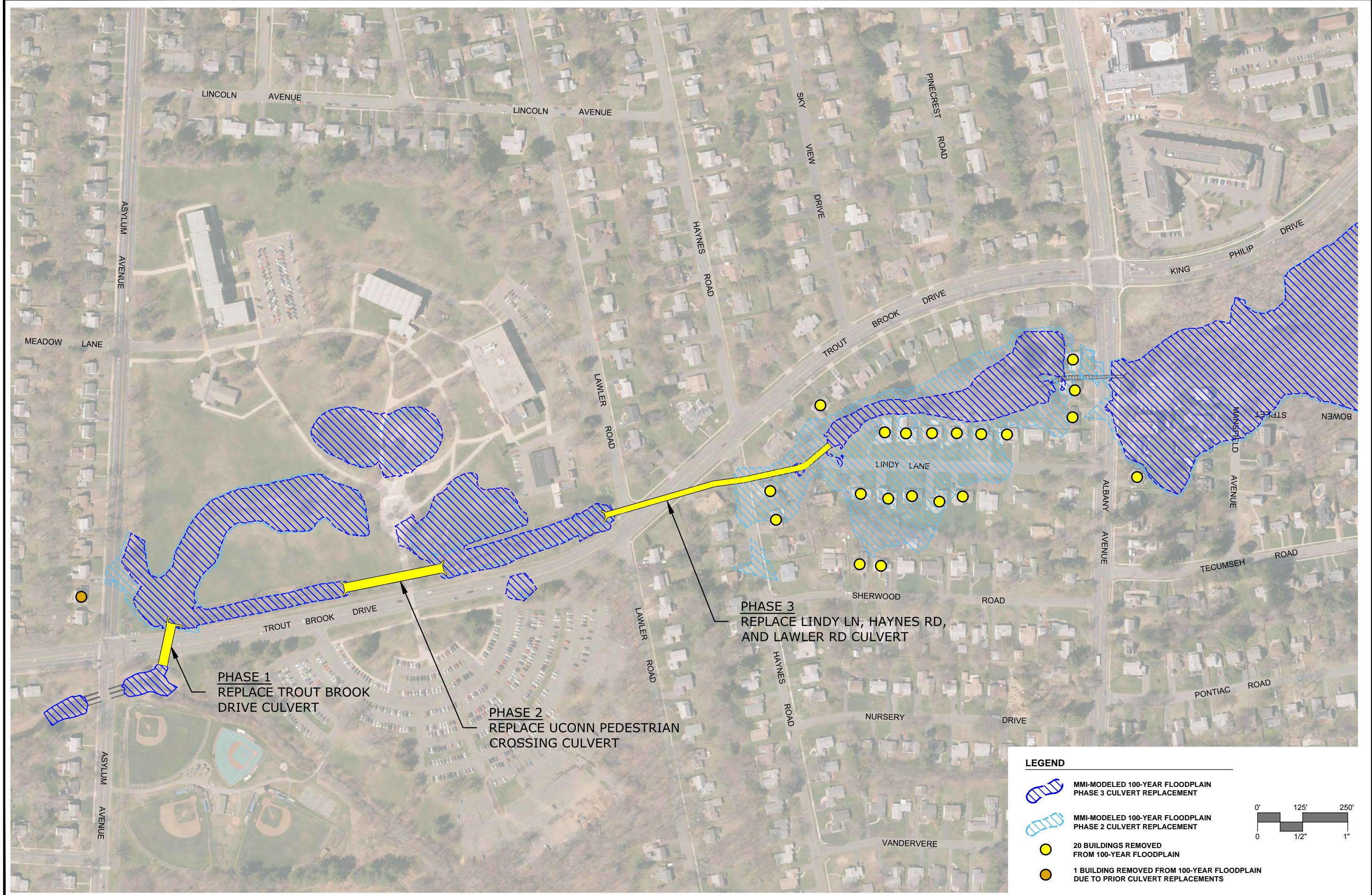
FIG. 3-4



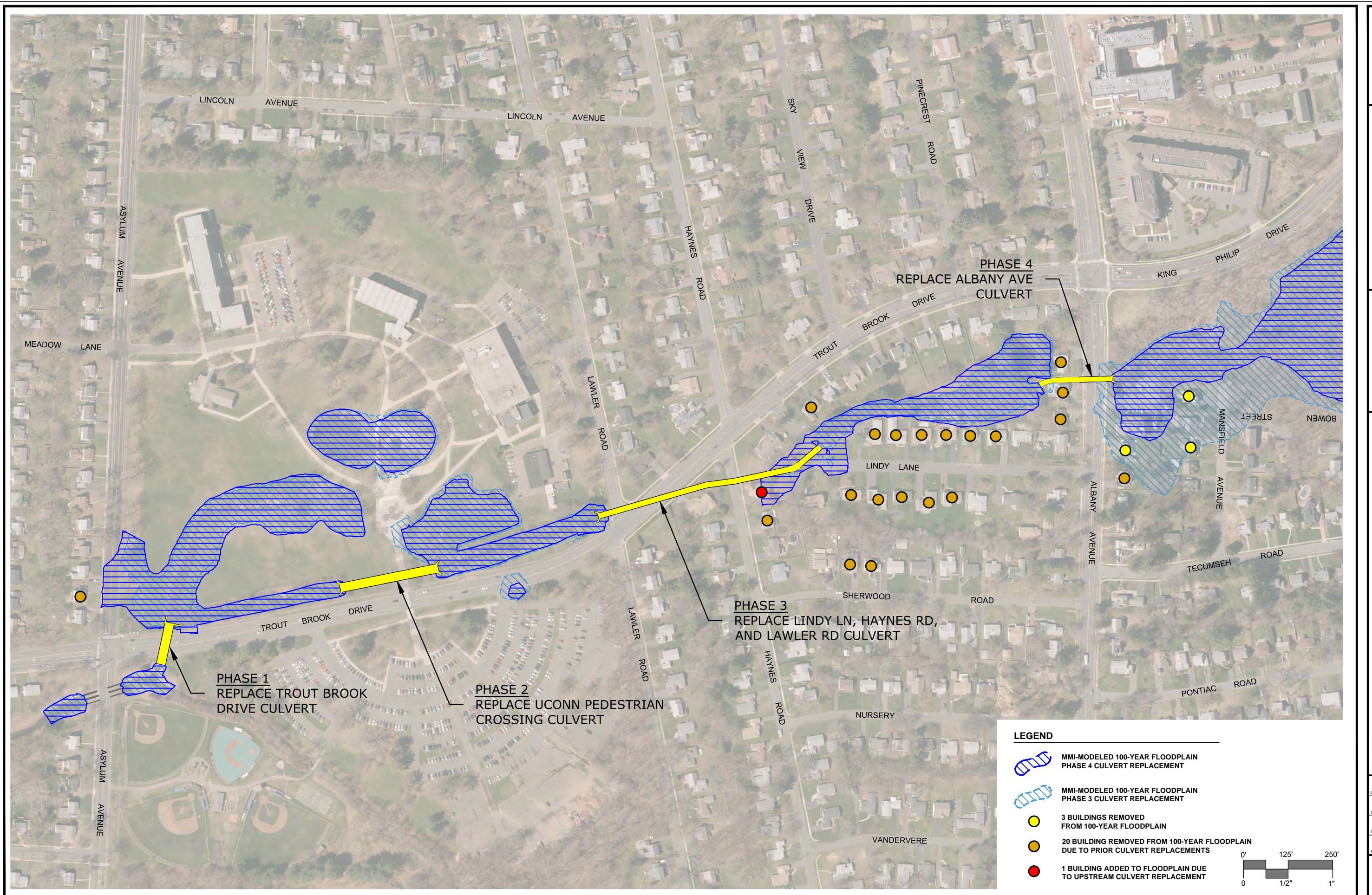
REVISIONS

COMPARISON OF PHASE 1 VS PHASE 2 MMI-MODELED FLOODPLAINS	
EAST BRANCH TROUT BROOK FLOOD MITIGATION ASSESSMENT	REVISIONS
ALBANY AVENUE TO ASYLUM AVENUE WEST HARTFORD, CONNECTICUT	

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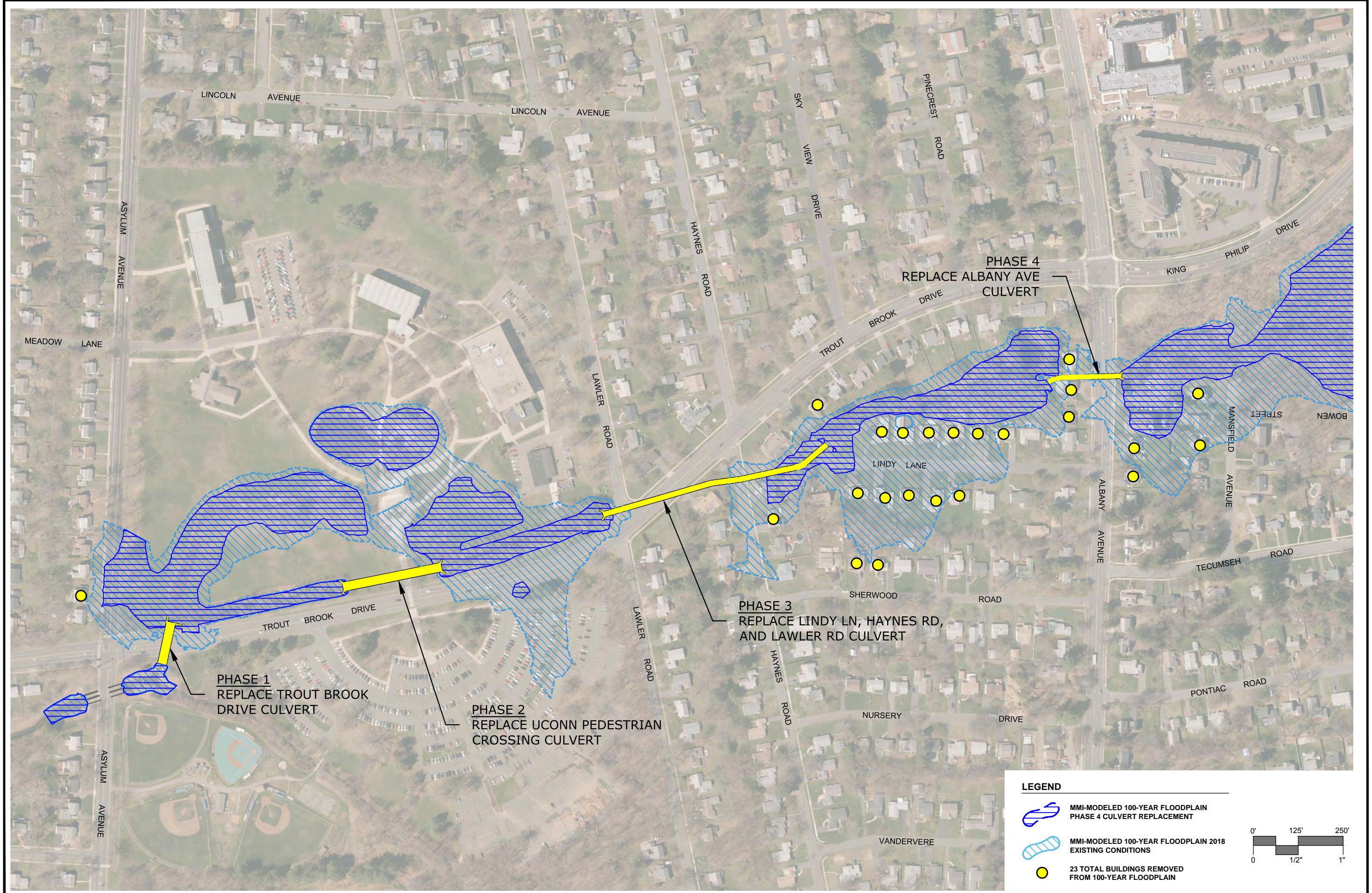


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FIG. 3-6		

FIG. 3-6



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COMPARISON OF PHASE 4 VS EX. CONDITIONS 2018 MMI-MODELED FLOODPLAINS	REVISIONS

**EAST BRANCH TROUT BROOK
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ALBANY AVENUE TO ASYLUM AVENUE
WEST HARTFORD, CONNECTICUT

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SCALE	1"=250'	
DATE	NOV. 6, 2018	
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Replacement of the undersized culverts in sequence from downstream to upstream causes an increase in downstream flood flows because of the release of impounded waters. As depicted in the preceding figures, the release of stored water as each culvert is incrementally replaced has a negligible effect on the floodplain directly downstream of it but does reflect minor increases in flooding extents. The associated increases in flood flow rates varies, but upon completion of all four culvert removals there will a 143 cfs increase of water flowing downstream during a the 100-year storm event. The percentages shown in Table 3-3 are relative to the East Branch Trout Brook watershed only and are not representative of increases in Trout Brook, where the contributing watershed and peak flows are much larger, and the timing of peak flows is different from the East Branch Trout Brook. The East Branch combines with Saint Joseph's Brook just upstream of Asylum Avenue. The two streams merge to form Trout Brook, which flows south through the center of West Hartford.

TABLE 3-3 (REPEATED FROM 2-16)
Comparison of HEC-HMS Peak Flows from Existing to Phase 4 at the Trout Brook Drive Outlet

	Peak Discharge (CFS)					
	2-Year	10-Year	25-Year	50-Year	100-Year	500-Year
Existing Conditions	198.6	333.1	506	615.1	806.9	1427.1
All Four Culverts Replaced (Phase 4)	234.7	468.8	648.8	737.5	950.2	1627.0
Change (cfs)	36.1	135.7	142.8	122.4	143.3	199.9
Change (%)	+18%	+41%	+28%	+20%	+18%	+14%

Table 3-4 provides a comparison of peak flows relative to the flows in Trout Brook as provided by the Federal Emergency Management Agency (FEMA) 1991 Flood Insurance Study (FIS) as it crosses Park Road, approximately 2 miles downstream of the confluence of the East Branch Trout Brook and Saint Joseph's Brook.

TABLE 3-4
Comparison of Peak Flows from Phase 4 in East Branch Trout Brook
To Peak Flows in Trout Brook at Park Road

	Peak Discharge (CFS)			
	10-Year	50-Year	100-Year	500-Year
East Branch Trout Brook Phase 4 Culverts Replaced Change (cfs)	+136	+122	+143	+200
Trout Brook at Park Road	1,720	3,210	4,240	6,700

The increased downstream flows from the East Branch Trout Brook will not be mathematically additive with the flows in Trout Brook, given the timing of peak flows in the two streams. In light of the comparative watershed sizes, East Branch Trout Brook would be expected to peak earlier than the main stem Trout Brook, therefore lessening the downstream impact. Ignoring that discrepancy for a moment,

and assuming that the East Branch Trout Brook peak flow occurred simultaneously with that of Trout Brook, the additional flow caused by upsizing the four culverts would represent a 3.4% increase in Trout Brook flows during the 100-year flood. This is a modest increase that is unlikely to cause significant changes in the Trout Brook floodplain.

As identified in Table 2-5, a total of 17.54 acre-feet of storage will be lost in the watershed once all four of the culverts are replaced. In order to maintain downstream flood flows to current conditions, additional storage in the watershed could be sought. Four potential areas are shown in Figure 3-8. Reclaiming floodplain along the East Branch Trout Brook corridor can help alleviate the effects of excessive development in the watershed, filling of the natural floodplain, and loss of storage behind undersized culverts; however, this would require work on private land and potentially in regulated wetlands.

FIGURE 3-8
Potential Locations for Floodplain Reclamation Along East Branch Trout Brook

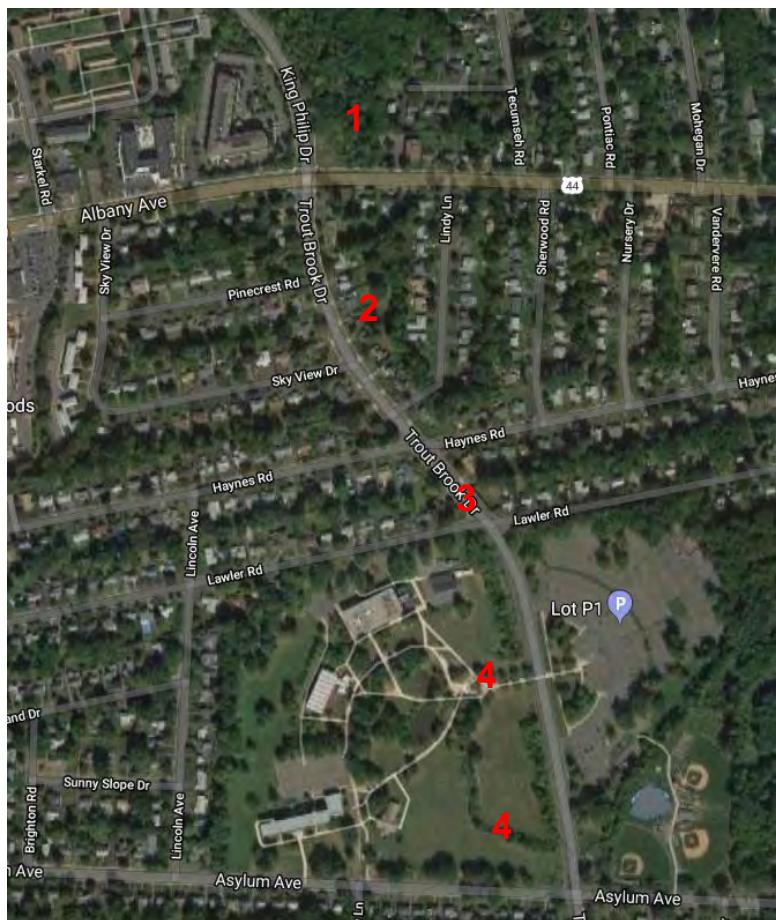


Table 3-5 provides an estimate of total storage available for reclamation at each of the potential sites, and concept sketches of these sites can be found in Appendix F. A total of 17.54 acre-feet is the overall volume of storage lost under Phase 4 where all culverts are replaced. Approximately 17.9 acre-feet of storage is available between the four potential sites. The two sites providing the most potential storage are the former UConn campus, and the wooded area upstream of Albany Avenue.

TABLE 3-5
Potential Locations for Floodplain Reclamation

No.	Location	Area (acre)	Total Storage (ac-feet)
1	Upstream of Albany Avenue	1.2	4.8
2	Upstream of Lindy Lane	0.7	2.0
3	Downstream of Haynes Road	0.3	0.9
4	Former UConn Campus	3.4	10.2
Total Storage			17.9

3.5 Other Alternatives Analyzed

A number of other alternatives were evaluated in 2017 and are included below for completeness.

3.5.1 Vegetation clearing from Trout Brook Drive at the former UConn campus

Manning's roughness coefficients along the modeled channel banks were revised from 0.08 to 0.04 to simulate clearing of the floodplain area through this reach. This assumes that low, brushy vegetation would be replaced by low-density riparian vegetation but not an open, grassy lawn. The hydraulic model does not predict any reduction in flood elevations through the cleared reach or upstream. Although this option would improve conveyance of the channel and the appearance of the watercourse, it would not be sufficient to address the flooding problems in the study area. Combined with other culvert or channel improvements, however, clearing may help increase conveyance through the project reach.

3.5.2 Construct a Compound Channel Through the Former UConn Campus.

Providing a widened channel by excavating along the western bank and removing the existing pedestrian access crossing does not result in an appreciable reduction of peak water surface elevations. Although channel modifications could be completed that would increase channel efficiency and storage within the watershed, there is no direct benefit to the floodplain elevation affecting nearby properties from the extensive regrading efforts in terms of flood elevations in the study reach.

3.5.3 Construct a Floodplain Bench Upstream of Lindy Lane.

A wooded residential area along the west bank of Trout Brook Drive extends from the outlet of the Albany Avenue conduit to the dual pipe inlet at Lindy Lane. This represents approximately 650 linear feet of stream channel. Under existing conditions, the floodplain in this reach becomes constricted at a point approximately 350 feet upstream of Lindy Lane. Carving out additional flow area through the creation of a floodplain bench may have the potential to reduce flood flows through this area.

A small pond is located behind the residence at 1426 Trout Brook Drive, which would mark the northern end of a potential floodplain shelf on the west bank of the brook. Conceptual grading was evaluated by modifying cross section geometries between this pond and the inlet of the Lindy Lane culvert. An

4.0 COST OPINION

Preliminary budgetary estimates for the recommended culvert replacements were developed in the previous assessment. Table 4-1 provides a summary of these conceptual budgetary estimates, updated to account for the larger culvert sizes.

TABLE 4-1
Budgetary Estimates for Culvert Replacements along East Branch Trout Brook

Location	Traffic Management	Type	Estimated Cost
Trout Brook Drive	w/Road Closed and Detour	(2x) 5'x12' Concrete Box	\$700,000
UConn Pedestrian Crossing	w/Access Closed	(2x) 6'x10' Concrete Box	\$1,100,000
Lawler Avenue, Trout Brook Drive, Haynes Road	w/Alternating Traffic and Road Closed	(2x) 6'x9' Concrete Box	\$1,980,000
Lindy Lane	w/Road Closed and Detour	(2x) 6'x9' Concrete Box	\$385,000
Albany Avenue	w/Road Closed and Detour	6'x12' Concrete Box	\$450,000
	w/Alternating Traffic	6'x12' Concrete Box	\$700,000

It should be noted that these estimates are for order-of-magnitude comparison and have been developed without topographic survey, formal design, utility information, or review of private property impacts. Prices were estimated using 2016 Connecticut DOT pricing guidelines and estimated quantities. Conflicts with existing utilities or existing foundations were not considered in this phase. Detailed water and traffic control plans will depend upon the final configuration and location of each culvert subject to more advanced survey and design.

The estimates are based on the sketches presented in Appendix E, which utilize the existing culvert configuration, location, and length for the proposed replacement. Culvert shortening, daylighting, and other reconfigurations may impact the estimated costs for water and traffic control. For example, the UConn pedestrian crossing replacements were estimated based on the 275 linear feet of existing culvert. Future development of the former UConn property may allow for a smaller culvert installation and up to approximately 245 linear feet of channel daylighting. Similarly, for the Lindy Lane/Lawler Avenue culvert, many opportunities for daylighting exist along the corridor.

approximately 90-foot-wide floodplain shelf that tapers to the Lindy Lane inlet was evaluated. The model predicts that this floodplain shelf would effectively lower flood elevations through this reach but would not result in the removal of additional buildings from the floodplain as compared to the downstream culvert replacements. The 100-year flood elevation reduction is approximately 0.6 foot between Albany Avenue and Lindy Lane.

The combination of the Lindy Lane culvert replacement and the excavation of a floodplain shelf reduces water surface elevations by 0.8 foot at the outlet of the Albany Avenue culvert. The shelf does not provide additional water surface elevation reduction at the inlet of Lindy Lane.

5.0 CONCLUSION

The preceding analysis demonstrates that the four culverted portions of the East Branch Trout Brook are undersized to convey 100-year flood flows, causing flooding of nearby homes and properties. The replacement of those culverts with adequately sized structures will reduce the risk of flooding for those homes and properties adjacent to the brook, potentially increasing the property values and eliminating the need to carry flood insurance. The release of stored water as each culvert is incrementally replaced has a negligible effect on the floodplain directly downstream of it but does reflect minor increases in flooding extents.

The times of concentration and therefore timing of peak flows in the East Branch Trout Brook and Trout Brook will be offset, particularly in light of the effects of West Hartford Reservoirs. Replacing all four culverts with larger structures allows the previously flooded water to flow downstream more quickly, causing modest increases in flows downstream in Trout Brook that are unlikely to cause significant changes in the Trout Brook floodplain.



APPENDIX A

PHOTO LOG



Site Photo Log

EAST TROUT BROOK FLOOD MITIGATION

October 3, 2016

Pictures were taken September 29, 2016

MMI #1197-21

Downstream of Asylum Avenue Culvert and Storm Drainage Outfall



Weir Upstream of Asylum Avenue



Downstream of Trout Brook Drive Culvert and Weir Upstream of Asylum Avenue



Upstream of Trout Brook Drive Culvert



Dense Vegetation Upstream of Trout Brook Drive



Looking North along Trout Brook Drive with East Trout Brook on Left



Downstream End of Pedestrian Crossing Culverts



Downstream End of Lawler Avenue Culverts



Junction Chamber at Manhole 2 near Lindy Lane, with Debris inside Chamber



Upstream of Lindy Lane Culverts, Reportedly Clogs with Debris during Flood Events



Looking North along Lindy Lane, Most of the Street is within the FEMA 100-Year Floodplain



Large Trees along East Trout Brook Downstream of Albany Avenue Culvert



Downstream of Albany Avenue Culvert



Downstream of Mansfield Avenue (Paper Road, No Real Road) Culverts



Flood Channel in伍ooded Area North of Albany Avenue, Natural Flood Storage Area





APPENDIX B

CULVERT MAPPING

MAPPING NOTES:

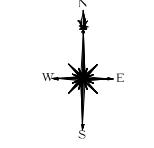
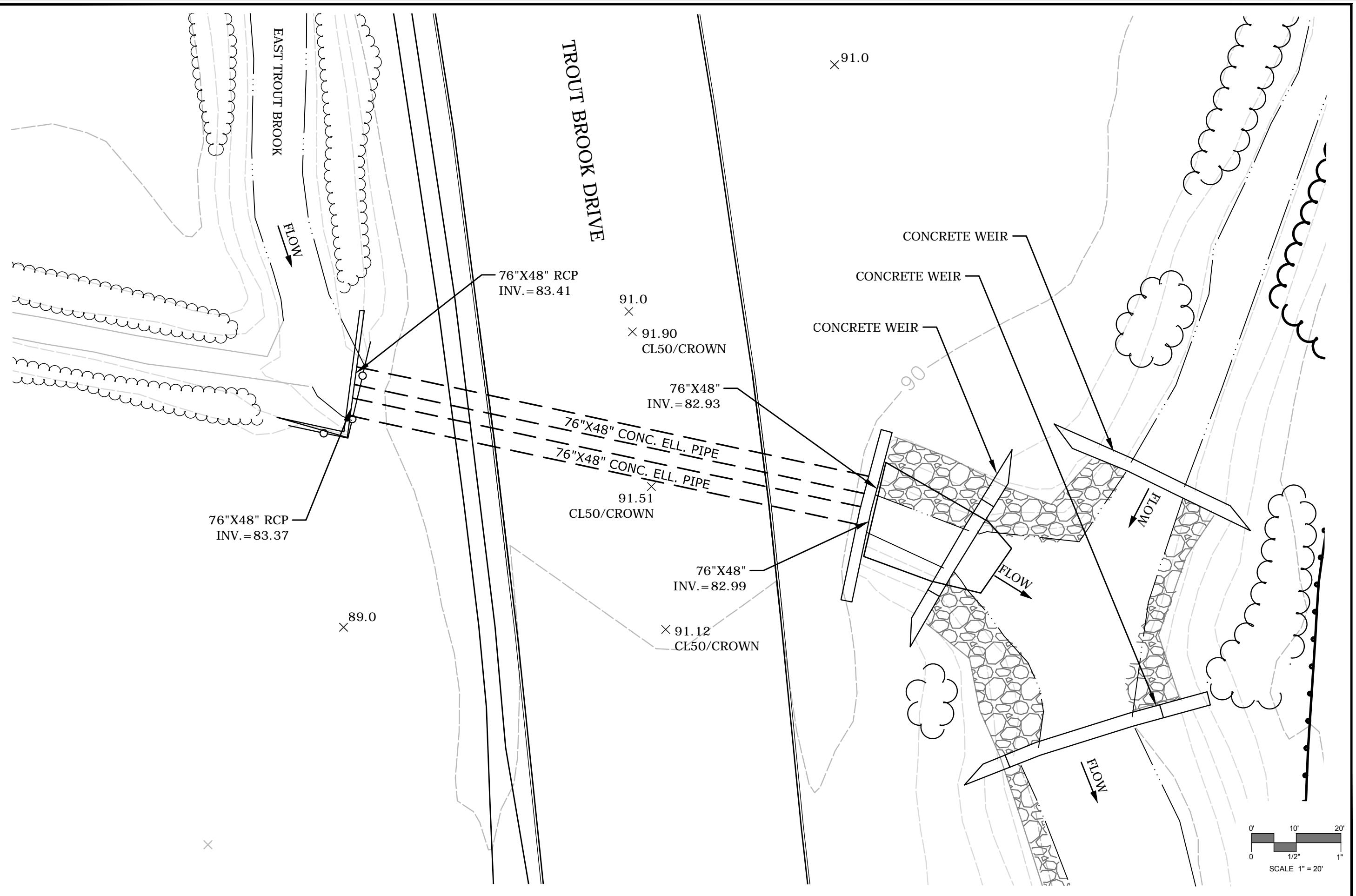
1. TOPOGRAPHIC INFORMATION BASED UPON LIDAR TOPOGRAPHY OBTAINED FROM THE TOWN OF WEST HARTFORD GIS SERVICES DATED MAY 2015. SOURCE DATA WAS PROVIDED AS 2-FOOT CONTOUR INFORMATION REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88).
2. ADDITIONAL TOPOGRAPHIC AND PLANIMETRIC DATA IN THE PROJECT AREA WAS OBTAINED BY GROUND SURVEY PERFORMED BY MILONE AND MACBROOM, INC., ON NOVEMBER 11, 2016 AND IS REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88).
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4. CAD FILE FILE OF BASE MAP FROM THE TOWN OF WEST HARTFORD INCLUDING TOPOGRAPHY, STRUCTURES, PARCELS, ROADWAYS, ETC.
5. INFORMATION REGARDING THE LOCATION OF EXISTING UTILITIES IS BASED UPON AVAILABLE INFORMATION AND MAY BE INCOMPLETE, AND WHERE SHOWN SHOULD BE CONSIDERED APPROXIMATE. ALL UTILITY LOCATIONS THAT DO NOT MATCH THE VERTICAL OR HORIZONTAL CONTROL SHOWN ON THE PLANS SHALL IMMEDIATELY BE BROUGHT TO THE ATTENTION OF THE ENGINEER FOR RESOLUTION.
6. CAD FILES FROM THE METROPOLITAN DISTRICT COMMISSION (MDC) WITH UTILITY INFORMATION.
7. UNITED STATES GEOLOGICAL SURVEY (USGS) STREAMSTATS WEB APPLICATION TO DETERMINE CONTRIBUTING WATERSHED AREAS.
8. NATURAL RESOURCES CONSERVATION SERVICE (NRCS) SOIL SURVEY WEB APPLICATION, HYDROLOGIC SOIL GROUPS.
- 9.
10. MILONE & MACBROOM INC. ACCEPTS NO RESPONSIBILITY FOR THE ACCURACY OF MAPS AND DATA THAT HAVE BEEN SUPPLIED BY OTHERS.



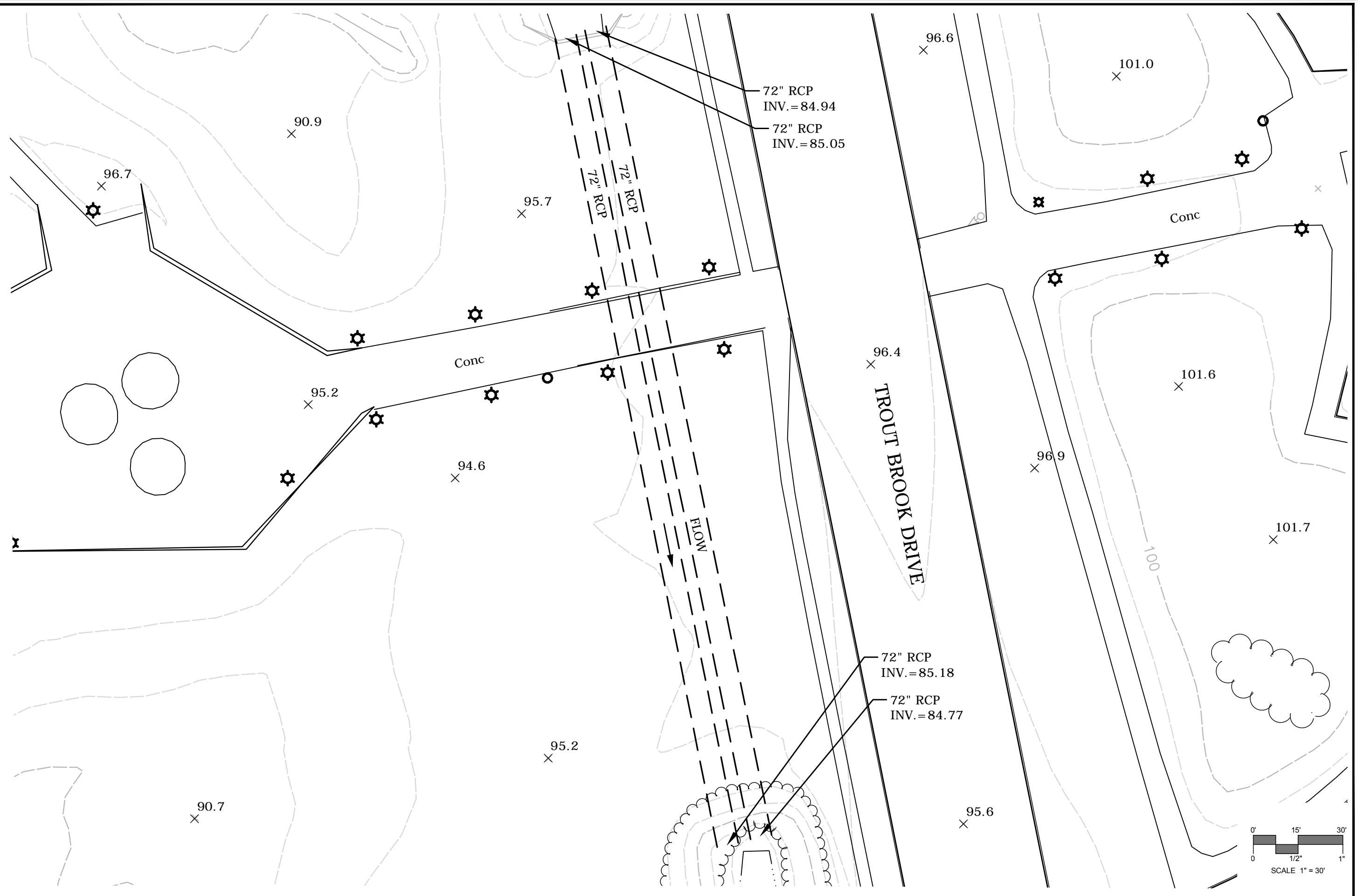
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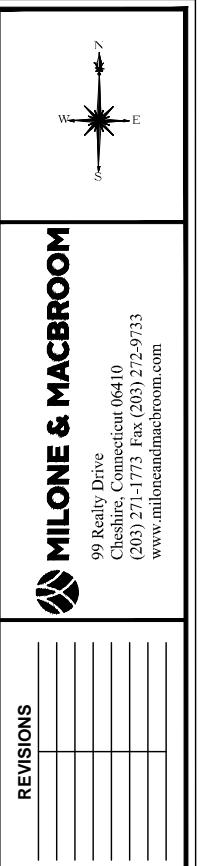


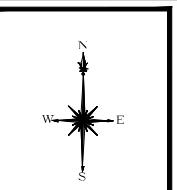
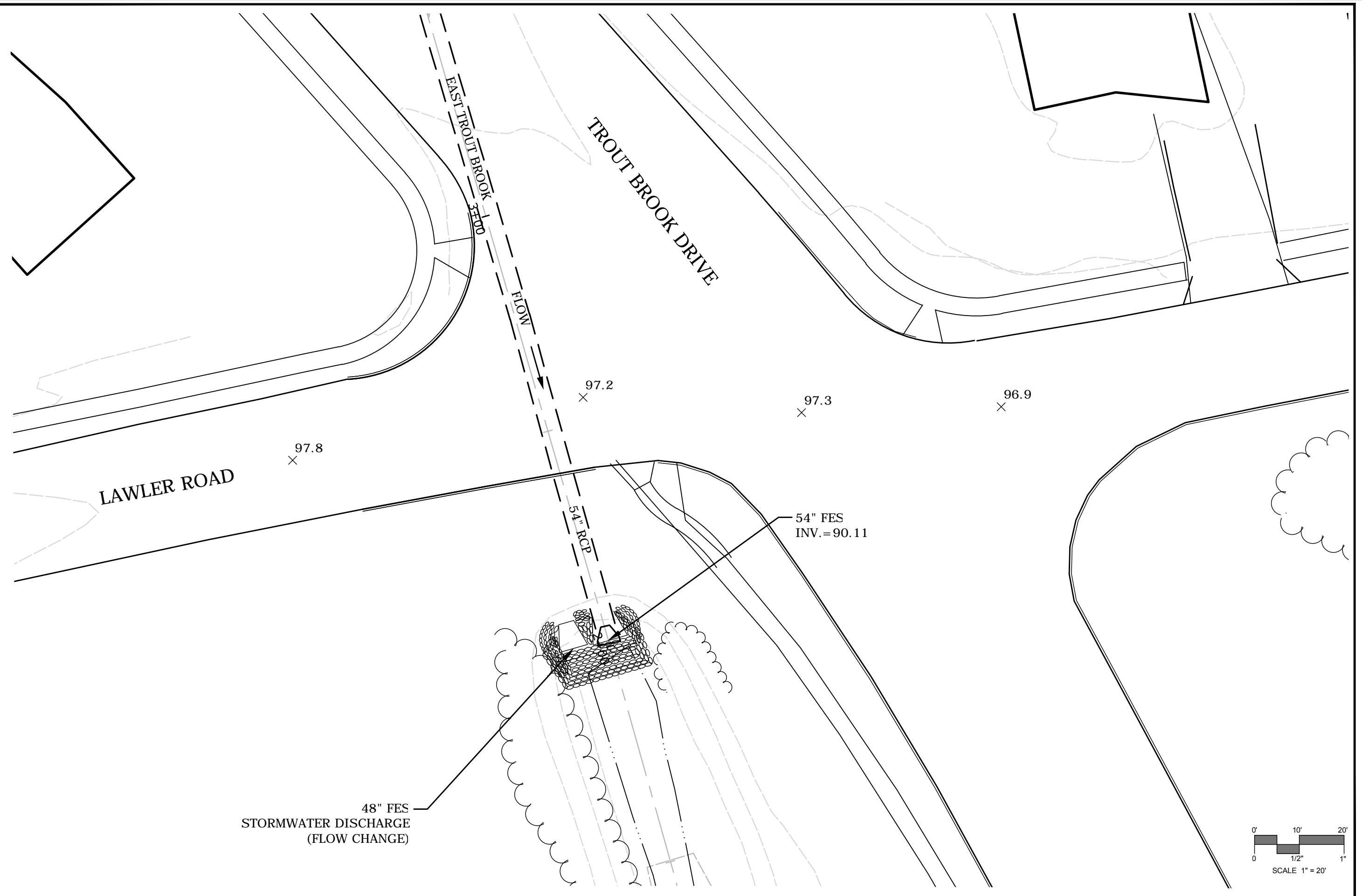
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STRUCTURE 2 - UCONN PEDESTRIAN CROSSING
EAST BRANCH TROUT BROOK
FLOOD MITIGATION ASSESSMENT
WEST HARTFORD
CONNECTICUT

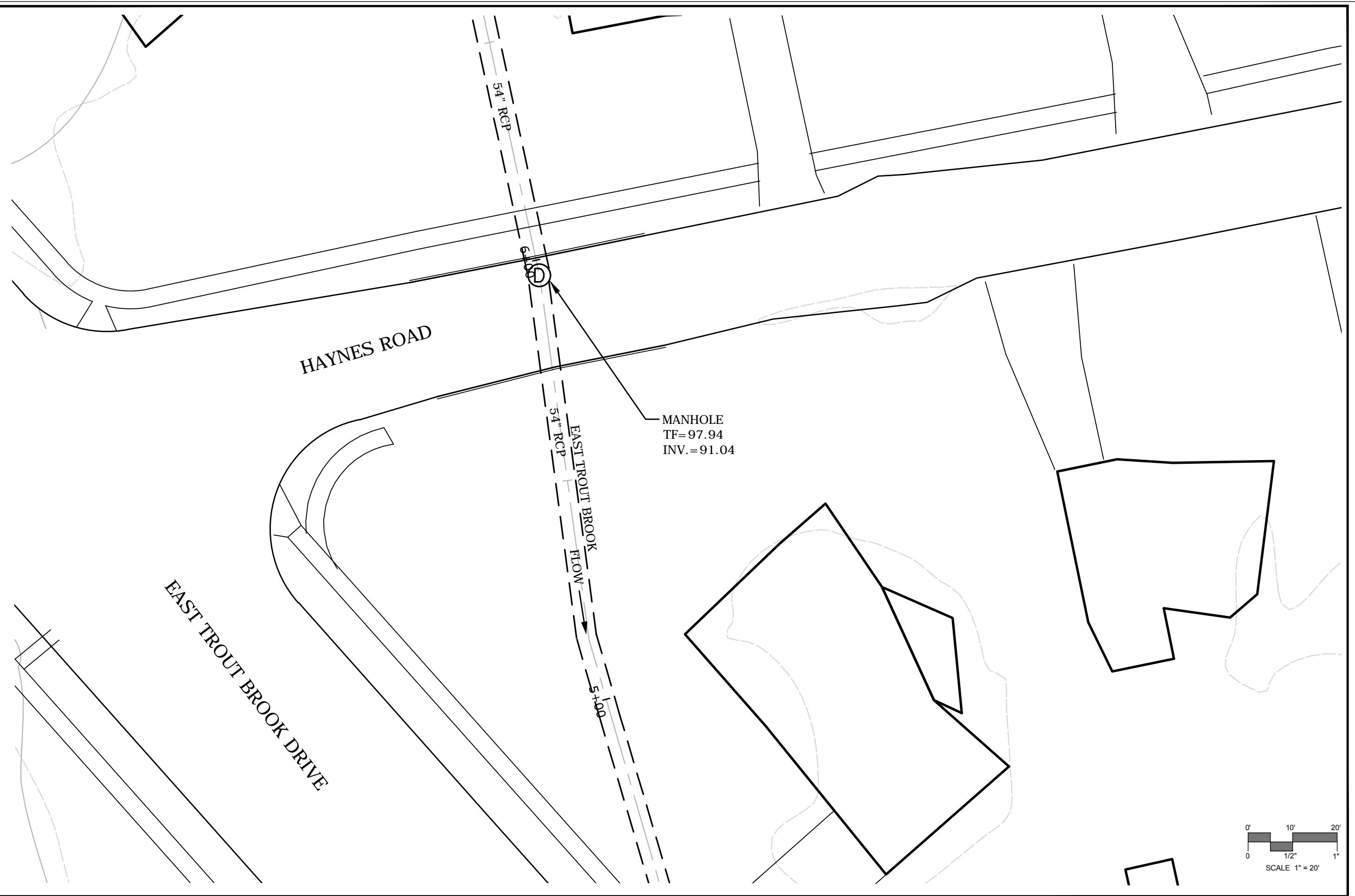
DESIGNED DRAWN CHECKED
1"=30'
SCALE
MAY 31, 2018
DATE
1197-21
PROJECT NO.
STR-02
SHEET NO.





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REVISIONS

DESIGNED DRAWN CHECKED

1"=20'

MAY 31, 2018

1197-21

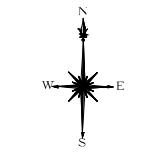
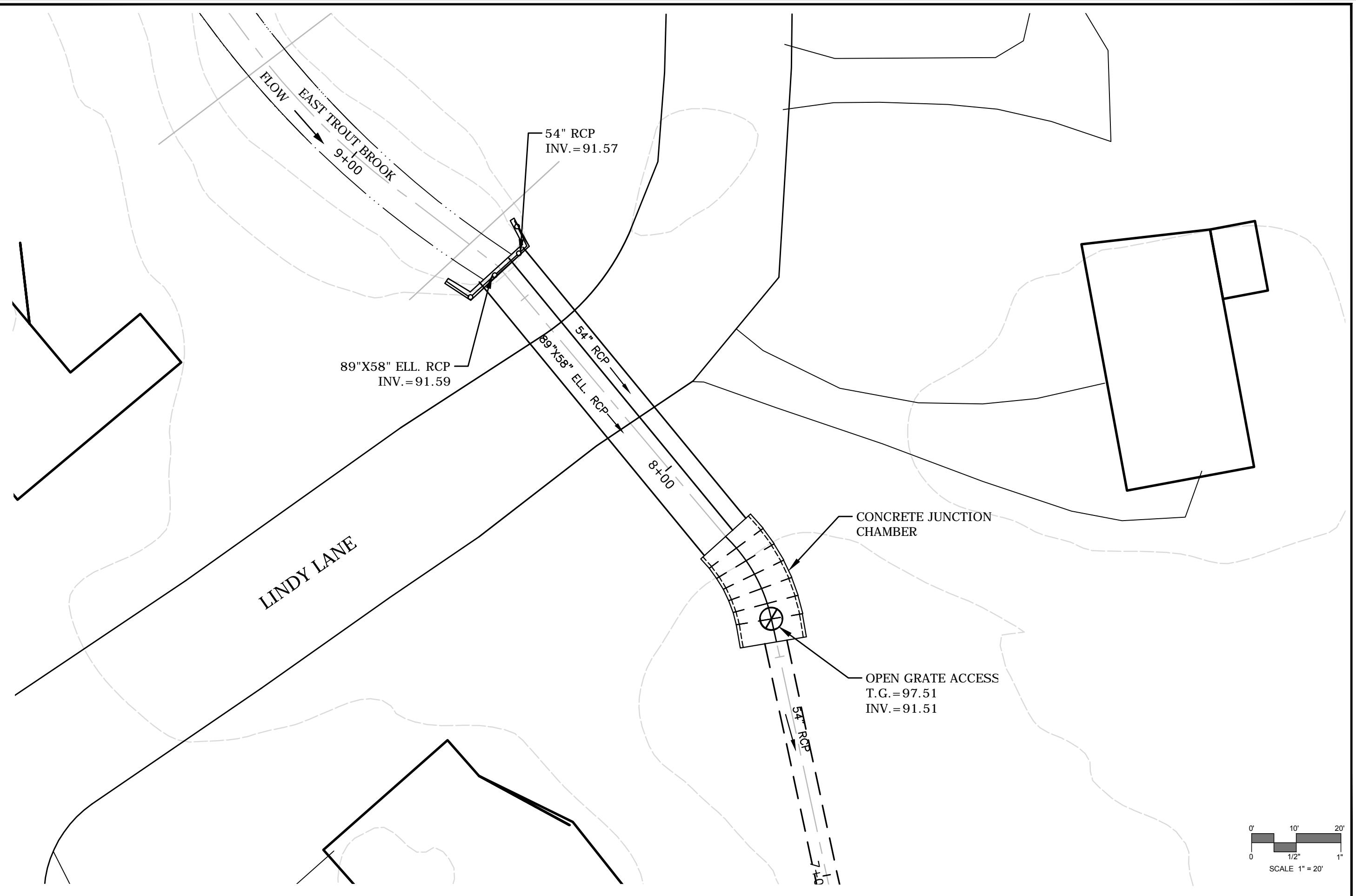
PROJECT NO.

SHEET NO.

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Drawing: V:\DESIGN\1197-21-DE\CAD\EBTB-HEC-HMS BASE.DWG Layout Tab:STR-03C

Plotted by: FERNANDAM On this date: Wed, 2018 August 22 - 4:31pm

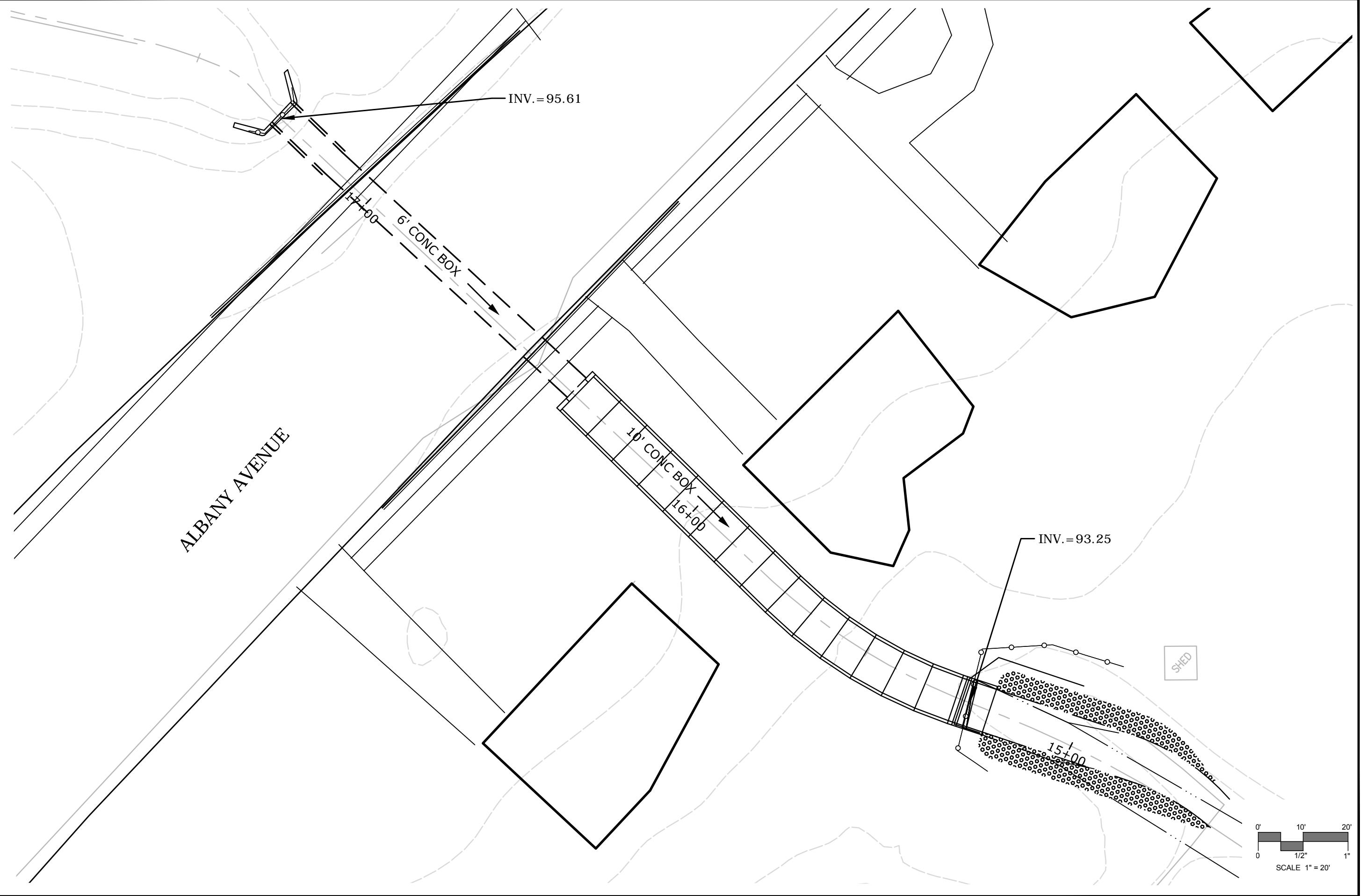


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STRUCTURE 3C - LINDY LA		REVISIONS
1	EAST BRANCH TROUT BROOK	
1	FLOOD MITIGATION ASSESSMENT	
1	WEST HARTFORD	
1	CONNECTICUT	

STR-03C



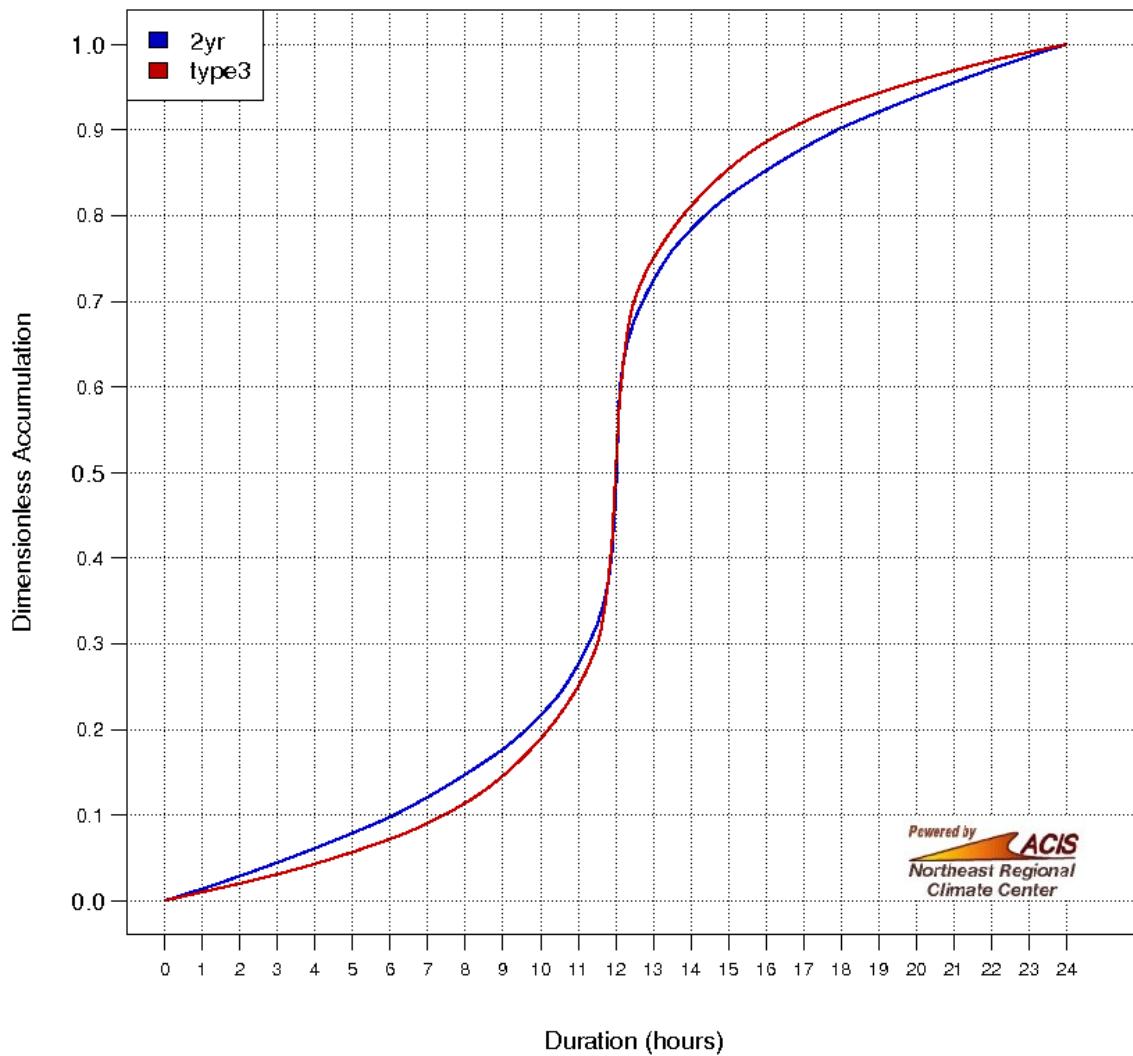
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1" = 20'		
SCALE		
MAY 31, 2018		
DATE		
1197-21		
PROJECT NO.		
SHEET NO.		
STR-04		



APPENDIX C

HYDROLOGIC COMPUTATIONS

**Precipitation Distribution
(41.779N, -72.737W) – 2yr/Type3 – Smoothed**



Time (hours)	2yr Accumulation (dimensionless)	Type III Curve (dimensionless)
0.0	0.0000	0.0000
0.1	0.0013	0.0010
0.2	0.0027	0.0020
0.3	0.0041	0.0030
0.4	0.0054	0.0040
0.5	0.0068	0.0050
0.6	0.0082	0.0060
0.7	0.0096	0.0070
0.8	0.0110	0.0080
0.9	0.0124	0.0090
1.0	0.0139	0.0100
1.1	0.0153	0.0110
1.2	0.0168	0.0120
1.3	0.0182	0.0130
1.4	0.0197	0.0140
1.5	0.0212	0.0150
1.6	0.0227	0.0160
1.7	0.0242	0.0170
1.8	0.0257	0.0180

Precipitation Distribution Curve

1.9	0.0272	0.0190
2.0	0.0287	0.0200
2.1	0.0303	0.0210
2.2	0.0318	0.0220
2.3	0.0334	0.0231
2.4	0.0349	0.0241
2.5	0.0365	0.0252
2.6	0.0381	0.0263
2.7	0.0397	0.0274
2.8	0.0413	0.0285
2.9	0.0429	0.0296
3.0	0.0445	0.0308
3.1	0.0462	0.0319
3.2	0.0478	0.0331
3.3	0.0494	0.0343
3.4	0.0511	0.0355
3.5	0.0528	0.0367
3.6	0.0544	0.0379
3.7	0.0561	0.0392
3.8	0.0578	0.0404
3.9	0.0595	0.0417
4.0	0.0612	0.0430
4.1	0.0630	0.0443
4.2	0.0647	0.0456
4.3	0.0664	0.0470
4.4	0.0682	0.0483
4.5	0.0700	0.0497
4.6	0.0717	0.0511
4.7	0.0735	0.0525
4.8	0.0753	0.0539
4.9	0.0771	0.0553
5.0	0.0789	0.0567
5.1	0.0807	0.0582
5.2	0.0826	0.0597
5.3	0.0844	0.0612
5.4	0.0863	0.0627
5.5	0.0881	0.0642
5.6	0.0900	0.0657
5.7	0.0919	0.0673
5.8	0.0938	0.0688
5.9	0.0957	0.0704
6.0	0.0976	0.0720
6.1	0.0998	0.0736
6.2	0.1020	0.0753
6.3	0.1043	0.0770
6.4	0.1065	0.0788
6.5	0.1089	0.0806
6.6	0.1112	0.0825
6.7	0.1136	0.0844
6.8	0.1160	0.0864
6.9	0.1185	0.0884
7.0	0.1210	0.0905
7.1	0.1235	0.0926
7.2	0.1260	0.0948
7.3	0.1286	0.0970
7.4	0.1312	0.0993
7.5	0.1339	0.1016
7.6	0.1365	0.1040
7.7	0.1392	0.1064
7.8	0.1419	0.1089
7.9	0.1446	0.1114
8.0	0.1474	0.1140
8.1	0.1502	0.1167
8.2	0.1530	0.1194
8.3	0.1559	0.1223

Precipitation Distribution Curve

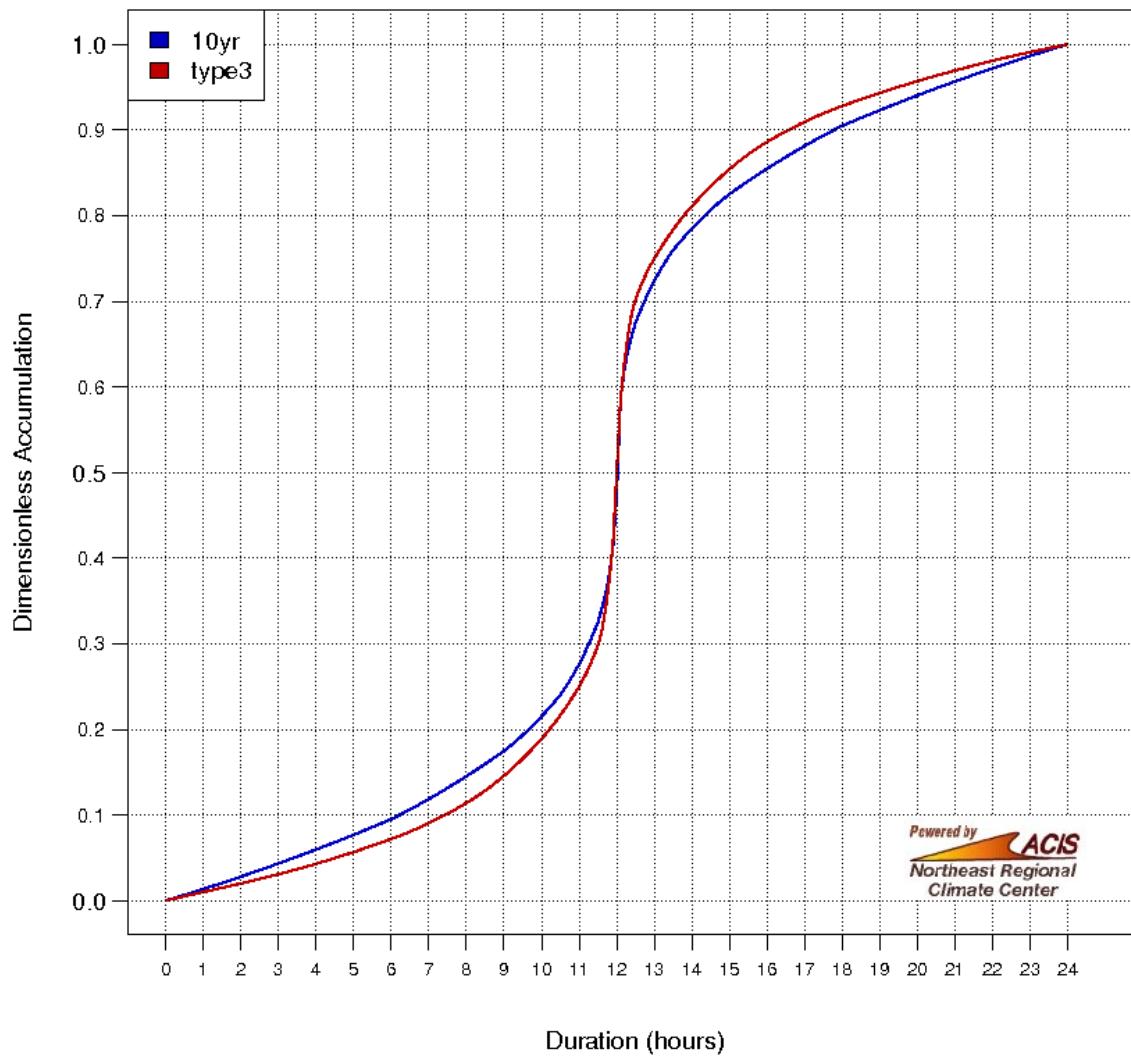
8.4	0.1588	0.1253
8.5	0.1617	0.1284
8.6	0.1647	0.1317
8.7	0.1677	0.1350
8.8	0.1707	0.1385
8.9	0.1737	0.1421
9.0	0.1768	0.1458
9.1	0.1802	0.1496
9.2	0.1837	0.1535
9.3	0.1873	0.1575
9.4	0.1911	0.1617
9.5	0.1950	0.1659
9.6	0.1990	0.1703
9.7	0.2031	0.1748
9.8	0.2074	0.1794
9.9	0.2118	0.1842
10.0	0.2163	0.1890
10.1	0.2210	0.1940
10.2	0.2257	0.1993
10.3	0.2307	0.2048
10.4	0.2357	0.2105
10.5	0.2409	0.2165
10.6	0.2472	0.2227
10.7	0.2538	0.2292
10.8	0.2608	0.2359
10.9	0.2682	0.2428
11.0	0.2759	0.2500
11.1	0.2841	0.2578
11.2	0.2928	0.2664
11.3	0.3020	0.2760
11.4	0.3116	0.2866
11.5	0.3216	0.2980
11.6	0.3355	0.3143
11.7	0.3502	0.3394
11.8	0.3716	0.3733
11.9	0.4046	0.4166
12.0	0.4704	0.5000
12.1	0.5954	0.5840
12.2	0.6284	0.6267
12.3	0.6498	0.6606
12.4	0.6645	0.6857
12.5	0.6784	0.7020
12.6	0.6884	0.7134
12.7	0.6980	0.7240
12.8	0.7072	0.7336
12.9	0.7159	0.7422
13.0	0.7241	0.7500
13.1	0.7318	0.7572
13.2	0.7392	0.7641
13.3	0.7462	0.7708
13.4	0.7528	0.7773
13.5	0.7591	0.7835
13.6	0.7643	0.7895
13.7	0.7693	0.7952
13.8	0.7743	0.8007
13.9	0.7790	0.8060
14.0	0.7837	0.8110
14.1	0.7882	0.8158
14.2	0.7926	0.8206
14.3	0.7969	0.8252
14.4	0.8010	0.8297
14.5	0.8050	0.8341
14.6	0.8089	0.8383
14.7	0.8127	0.8425
14.8	0.8163	0.8465

Precipitation Distribution Curve

14.9	0.8198	0.8504
15.0	0.8232	0.8543
15.1	0.8263	0.8579
15.2	0.8293	0.8615
15.3	0.8323	0.8650
15.4	0.8353	0.8683
15.5	0.8383	0.8716
15.6	0.8412	0.8747
15.7	0.8441	0.8777
15.8	0.8470	0.8806
15.9	0.8498	0.8833
16.0	0.8526	0.8860
16.1	0.8554	0.8886
16.2	0.8581	0.8911
16.3	0.8608	0.8936
16.4	0.8635	0.8960
16.5	0.8661	0.8984
16.6	0.8688	0.9007
16.7	0.8714	0.9030
16.8	0.8740	0.9052
16.9	0.8765	0.9074
17.0	0.8790	0.9095
17.1	0.8815	0.9116
17.2	0.8840	0.9136
17.3	0.8864	0.9156
17.4	0.8888	0.9175
17.5	0.8911	0.9194
17.6	0.8935	0.9212
17.7	0.8957	0.9230
17.8	0.8980	0.9247
17.9	0.9002	0.9264
18.0	0.9024	0.9280
18.1	0.9043	0.9296
18.2	0.9062	0.9312
18.3	0.9081	0.9327
18.4	0.9100	0.9343
18.5	0.9119	0.9358
18.6	0.9137	0.9373
18.7	0.9156	0.9388
18.8	0.9174	0.9403
18.9	0.9193	0.9418
19.0	0.9211	0.9433
19.1	0.9229	0.9447
19.2	0.9247	0.9461
19.3	0.9265	0.9475
19.4	0.9283	0.9489
19.5	0.9300	0.9503
19.6	0.9318	0.9517
19.7	0.9336	0.9530
19.8	0.9353	0.9544
19.9	0.9370	0.9557
20.0	0.9388	0.9570
20.1	0.9405	0.9583
20.2	0.9422	0.9596
20.3	0.9439	0.9609
20.4	0.9456	0.9621
20.5	0.9472	0.9634
20.6	0.9489	0.9646
20.7	0.9506	0.9658
20.8	0.9522	0.9670
20.9	0.9538	0.9682
21.0	0.9555	0.9694
21.1	0.9571	0.9706
21.2	0.9587	0.9718
21.3	0.9603	0.9729

21.4	0.9619	0.9741
21.5	0.9635	0.9752
21.6	0.9651	0.9764
21.7	0.9666	0.9775
21.8	0.9682	0.9786
21.9	0.9697	0.9797
22.0	0.9713	0.9808
22.1	0.9728	0.9818
22.2	0.9743	0.9829
22.3	0.9758	0.9839
22.4	0.9773	0.9850
22.5	0.9788	0.9860
22.6	0.9803	0.9870
22.7	0.9818	0.9880
22.8	0.9832	0.9890
22.9	0.9847	0.9900
23.0	0.9861	0.9909
23.1	0.9876	0.9919
23.2	0.9890	0.9928
23.3	0.9904	0.9938
23.4	0.9918	0.9947
23.5	0.9932	0.9956
23.6	0.9946	0.9965
23.7	0.9959	0.9974
23.8	0.9973	0.9983
23.9	0.9987	0.9991
24.0	1.0000	1.0000

**Precipitation Distribution
(41.779N, -72.737W) – 10yr/Type3 – Smoothed**



Time (hours)	10yr Accumulation (dimensionless)	Type III Curve (dimensionless)
0.0	0.0000	0.0000
0.1	0.0013	0.0010
0.2	0.0026	0.0020
0.3	0.0040	0.0030
0.4	0.0053	0.0040
0.5	0.0066	0.0050
0.6	0.0080	0.0060
0.7	0.0094	0.0070
0.8	0.0107	0.0080
0.9	0.0121	0.0090
1.0	0.0135	0.0100
1.1	0.0149	0.0110
1.2	0.0163	0.0120
1.3	0.0178	0.0130
1.4	0.0192	0.0140
1.5	0.0206	0.0150
1.6	0.0221	0.0160
1.7	0.0235	0.0170
1.8	0.0250	0.0180

Precipitation Distribution Curve

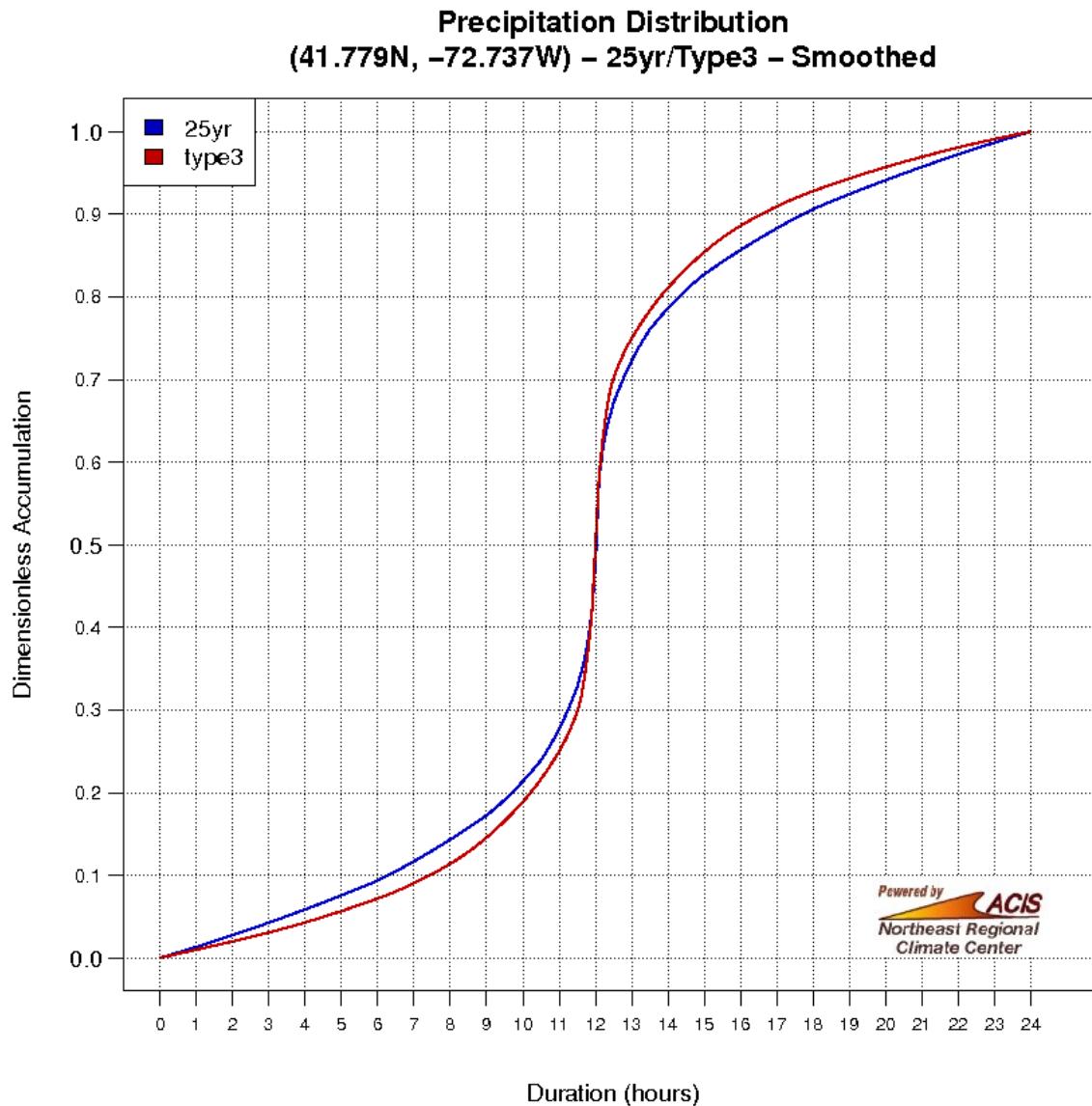
1.9	0.0265	0.0190
2.0	0.0280	0.0200
2.1	0.0295	0.0210
2.2	0.0310	0.0220
2.3	0.0325	0.0231
2.4	0.0340	0.0241
2.5	0.0356	0.0252
2.6	0.0371	0.0263
2.7	0.0387	0.0274
2.8	0.0402	0.0285
2.9	0.0418	0.0296
3.0	0.0434	0.0308
3.1	0.0450	0.0319
3.2	0.0466	0.0331
3.3	0.0482	0.0343
3.4	0.0498	0.0355
3.5	0.0514	0.0367
3.6	0.0531	0.0379
3.7	0.0547	0.0392
3.8	0.0564	0.0404
3.9	0.0580	0.0417
4.0	0.0597	0.0430
4.1	0.0614	0.0443
4.2	0.0631	0.0456
4.3	0.0648	0.0470
4.4	0.0665	0.0483
4.5	0.0682	0.0497
4.6	0.0699	0.0511
4.7	0.0716	0.0525
4.8	0.0734	0.0539
4.9	0.0751	0.0553
5.0	0.0769	0.0567
5.1	0.0787	0.0582
5.2	0.0805	0.0597
5.3	0.0823	0.0612
5.4	0.0841	0.0627
5.5	0.0859	0.0642
5.6	0.0877	0.0657
5.7	0.0895	0.0673
5.8	0.0914	0.0688
5.9	0.0932	0.0704
6.0	0.0951	0.0720
6.1	0.0973	0.0736
6.2	0.0995	0.0753
6.3	0.1018	0.0770
6.4	0.1041	0.0788
6.5	0.1065	0.0806
6.6	0.1088	0.0825
6.7	0.1112	0.0844
6.8	0.1137	0.0864
6.9	0.1161	0.0884
7.0	0.1186	0.0905
7.1	0.1212	0.0926
7.2	0.1237	0.0948
7.3	0.1263	0.0970
7.4	0.1290	0.0993
7.5	0.1316	0.1016
7.6	0.1343	0.1040
7.7	0.1370	0.1064
7.8	0.1397	0.1089
7.9	0.1424	0.1114
8.0	0.1452	0.1140
8.1	0.1480	0.1167
8.2	0.1509	0.1194
8.3	0.1538	0.1223

8.4	0.1567	0.1253
8.5	0.1596	0.1284
8.6	0.1626	0.1317
8.7	0.1656	0.1350
8.8	0.1687	0.1385
8.9	0.1717	0.1421
9.0	0.1748	0.1458
9.1	0.1783	0.1496
9.2	0.1819	0.1535
9.3	0.1856	0.1575
9.4	0.1894	0.1617
9.5	0.1934	0.1659
9.6	0.1975	0.1703
9.7	0.2017	0.1748
9.8	0.2061	0.1794
9.9	0.2106	0.1842
10.0	0.2152	0.1890
10.1	0.2200	0.1940
10.2	0.2248	0.1993
10.3	0.2299	0.2048
10.4	0.2350	0.2105
10.5	0.2403	0.2165
10.6	0.2467	0.2227
10.7	0.2535	0.2292
10.8	0.2607	0.2359
10.9	0.2682	0.2428
11.0	0.2761	0.2500
11.1	0.2849	0.2578
11.2	0.2942	0.2664
11.3	0.3040	0.2760
11.4	0.3144	0.2866
11.5	0.3252	0.2980
11.6	0.3407	0.3143
11.7	0.3571	0.3394
11.8	0.3800	0.3733
11.9	0.4137	0.4166
12.0	0.4751	0.5000
12.1	0.5863	0.5840
12.2	0.6200	0.6267
12.3	0.6429	0.6606
12.4	0.6593	0.6857
12.5	0.6748	0.7020
12.6	0.6856	0.7134
12.7	0.6960	0.7240
12.8	0.7058	0.7336
12.9	0.7151	0.7422
13.0	0.7239	0.7500
13.1	0.7318	0.7572
13.2	0.7393	0.7641
13.3	0.7465	0.7708
13.4	0.7533	0.7773
13.5	0.7597	0.7835
13.6	0.7650	0.7895
13.7	0.7701	0.7952
13.8	0.7752	0.8007
13.9	0.7800	0.8060
14.0	0.7848	0.8110
14.1	0.7894	0.8158
14.2	0.7939	0.8206
14.3	0.7983	0.8252
14.4	0.8025	0.8297
14.5	0.8066	0.8341
14.6	0.8106	0.8383
14.7	0.8144	0.8425
14.8	0.8181	0.8465

Precipitation Distribution Curve

14.9	0.8217	0.8504
15.0	0.8252	0.8543
15.1	0.8283	0.8579
15.2	0.8313	0.8615
15.3	0.8344	0.8650
15.4	0.8374	0.8683
15.5	0.8404	0.8716
15.6	0.8433	0.8747
15.7	0.8462	0.8777
15.8	0.8491	0.8806
15.9	0.8520	0.8833
16.0	0.8548	0.8860
16.1	0.8576	0.8886
16.2	0.8603	0.8911
16.3	0.8630	0.8936
16.4	0.8657	0.8960
16.5	0.8684	0.8984
16.6	0.8710	0.9007
16.7	0.8737	0.9030
16.8	0.8763	0.9052
16.9	0.8788	0.9074
17.0	0.8814	0.9095
17.1	0.8839	0.9116
17.2	0.8863	0.9136
17.3	0.8888	0.9156
17.4	0.8912	0.9175
17.5	0.8935	0.9194
17.6	0.8959	0.9212
17.7	0.8982	0.9230
17.8	0.9005	0.9247
17.9	0.9027	0.9264
18.0	0.9049	0.9280
18.1	0.9068	0.9296
18.2	0.9086	0.9312
18.3	0.9105	0.9327
18.4	0.9123	0.9343
18.5	0.9141	0.9358
18.6	0.9159	0.9373
18.7	0.9177	0.9388
18.8	0.9195	0.9403
18.9	0.9213	0.9418
19.0	0.9231	0.9433
19.1	0.9249	0.9447
19.2	0.9266	0.9461
19.3	0.9284	0.9475
19.4	0.9301	0.9489
19.5	0.9318	0.9503
19.6	0.9335	0.9517
19.7	0.9352	0.9530
19.8	0.9369	0.9544
19.9	0.9386	0.9557
20.0	0.9403	0.9570
20.1	0.9420	0.9583
20.2	0.9436	0.9596
20.3	0.9453	0.9609
20.4	0.9469	0.9621
20.5	0.9486	0.9634
20.6	0.9502	0.9646
20.7	0.9518	0.9658
20.8	0.9534	0.9670
20.9	0.9550	0.9682
21.0	0.9566	0.9694
21.1	0.9582	0.9706
21.2	0.9598	0.9718
21.3	0.9613	0.9729

21.4	0.9629	0.9741
21.5	0.9644	0.9752
21.6	0.9660	0.9764
21.7	0.9675	0.9775
21.8	0.9690	0.9786
21.9	0.9705	0.9797
22.0	0.9720	0.9808
22.1	0.9735	0.9818
22.2	0.9750	0.9829
22.3	0.9765	0.9839
22.4	0.9779	0.9850
22.5	0.9794	0.9860
22.6	0.9808	0.9870
22.7	0.9822	0.9880
22.8	0.9837	0.9890
22.9	0.9851	0.9900
23.0	0.9865	0.9909
23.1	0.9879	0.9919
23.2	0.9893	0.9928
23.3	0.9906	0.9938
23.4	0.9920	0.9947
23.5	0.9934	0.9956
23.6	0.9947	0.9965
23.7	0.9960	0.9974
23.8	0.9974	0.9983
23.9	0.9987	0.9991
24.0	1.0000	1.0000



Time (hours)	25yr Accumulation (dimensionless)	Type III Curve (dimensionless)
0.0	0.0000	0.0000
0.1	0.0013	0.0010
0.2	0.0026	0.0020
0.3	0.0039	0.0030
0.4	0.0052	0.0040
0.5	0.0065	0.0050
0.6	0.0079	0.0060
0.7	0.0092	0.0070
0.8	0.0106	0.0080
0.9	0.0119	0.0090
1.0	0.0133	0.0100
1.1	0.0147	0.0110
1.2	0.0161	0.0120
1.3	0.0175	0.0130
1.4	0.0189	0.0140
1.5	0.0203	0.0150
1.6	0.0218	0.0160
1.7	0.0232	0.0170
1.8	0.0246	0.0180

Precipitation Distribution Curve

1.9	0.0261	0.0190
2.0	0.0276	0.0200
2.1	0.0290	0.0210
2.2	0.0305	0.0220
2.3	0.0320	0.0231
2.4	0.0335	0.0241
2.5	0.0350	0.0252
2.6	0.0366	0.0263
2.7	0.0381	0.0274
2.8	0.0396	0.0285
2.9	0.0412	0.0296
3.0	0.0428	0.0308
3.1	0.0443	0.0319
3.2	0.0459	0.0331
3.3	0.0475	0.0343
3.4	0.0491	0.0355
3.5	0.0506	0.0367
3.6	0.0523	0.0379
3.7	0.0539	0.0392
3.8	0.0555	0.0404
3.9	0.0571	0.0417
4.0	0.0588	0.0430
4.1	0.0604	0.0443
4.2	0.0621	0.0456
4.3	0.0638	0.0470
4.4	0.0655	0.0483
4.5	0.0671	0.0497
4.6	0.0688	0.0511
4.7	0.0706	0.0525
4.8	0.0723	0.0539
4.9	0.0740	0.0553
5.0	0.0757	0.0567
5.1	0.0775	0.0582
5.2	0.0793	0.0597
5.3	0.0810	0.0612
5.4	0.0828	0.0627
5.5	0.0846	0.0642
5.6	0.0864	0.0657
5.7	0.0882	0.0673
5.8	0.0900	0.0688
5.9	0.0918	0.0704
6.0	0.0936	0.0720
6.1	0.0958	0.0736
6.2	0.0981	0.0753
6.3	0.1003	0.0770
6.4	0.1026	0.0788
6.5	0.1049	0.0806
6.6	0.1073	0.0825
6.7	0.1096	0.0844
6.8	0.1121	0.0864
6.9	0.1145	0.0884
7.0	0.1170	0.0905
7.1	0.1195	0.0926
7.2	0.1220	0.0948
7.3	0.1246	0.0970
7.4	0.1272	0.0993
7.5	0.1298	0.1016
7.6	0.1325	0.1040
7.7	0.1351	0.1064
7.8	0.1378	0.1089
7.9	0.1405	0.1114
8.0	0.1433	0.1140
8.1	0.1461	0.1167
8.2	0.1489	0.1194
8.3	0.1518	0.1223

Precipitation Distribution Curve

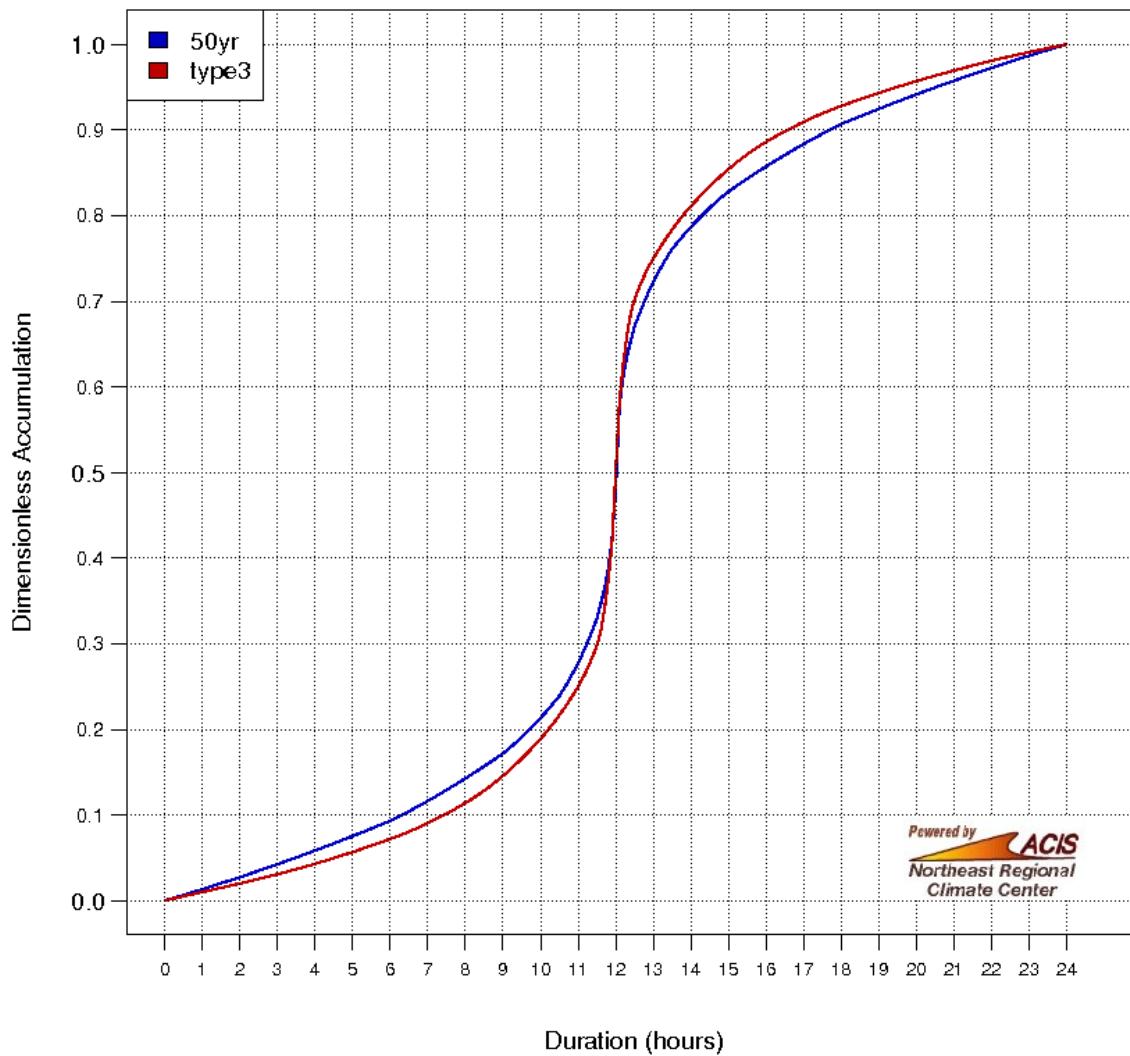
8.4	0.1547	0.1253
8.5	0.1576	0.1284
8.6	0.1605	0.1317
8.7	0.1635	0.1350
8.8	0.1665	0.1385
8.9	0.1696	0.1421
9.0	0.1726	0.1458
9.1	0.1762	0.1496
9.2	0.1798	0.1535
9.3	0.1836	0.1575
9.4	0.1875	0.1617
9.5	0.1916	0.1659
9.6	0.1957	0.1703
9.7	0.2001	0.1748
9.8	0.2045	0.1794
9.9	0.2091	0.1842
10.0	0.2138	0.1890
10.1	0.2187	0.1940
10.2	0.2237	0.1993
10.3	0.2288	0.2048
10.4	0.2340	0.2105
10.5	0.2394	0.2165
10.6	0.2462	0.2227
10.7	0.2533	0.2292
10.8	0.2608	0.2359
10.9	0.2686	0.2428
11.0	0.2769	0.2500
11.1	0.2861	0.2578
11.2	0.2959	0.2664
11.3	0.3061	0.2760
11.4	0.3169	0.2866
11.5	0.3282	0.2980
11.6	0.3443	0.3143
11.7	0.3612	0.3394
11.8	0.3849	0.3733
11.9	0.4186	0.4166
12.0	0.4792	0.5000
12.1	0.5814	0.5840
12.2	0.6151	0.6267
12.3	0.6388	0.6606
12.4	0.6557	0.6857
12.5	0.6718	0.7020
12.6	0.6831	0.7134
12.7	0.6939	0.7240
12.8	0.7041	0.7336
12.9	0.7139	0.7422
13.0	0.7231	0.7500
13.1	0.7314	0.7572
13.2	0.7392	0.7641
13.3	0.7467	0.7708
13.4	0.7538	0.7773
13.5	0.7606	0.7835
13.6	0.7660	0.7895
13.7	0.7712	0.7952
13.8	0.7763	0.8007
13.9	0.7813	0.8060
14.0	0.7862	0.8110
14.1	0.7909	0.8158
14.2	0.7955	0.8206
14.3	0.7999	0.8252
14.4	0.8043	0.8297
14.5	0.8084	0.8341
14.6	0.8125	0.8383
14.7	0.8164	0.8425
14.8	0.8202	0.8465

Precipitation Distribution Curve

14.9	0.8238	0.8504
15.0	0.8274	0.8543
15.1	0.8304	0.8579
15.2	0.8335	0.8615
15.3	0.8365	0.8650
15.4	0.8395	0.8683
15.5	0.8424	0.8716
15.6	0.8453	0.8747
15.7	0.8482	0.8777
15.8	0.8511	0.8806
15.9	0.8539	0.8833
16.0	0.8567	0.8860
16.1	0.8595	0.8886
16.2	0.8622	0.8911
16.3	0.8649	0.8936
16.4	0.8675	0.8960
16.5	0.8702	0.8984
16.6	0.8728	0.9007
16.7	0.8754	0.9030
16.8	0.8780	0.9052
16.9	0.8805	0.9074
17.0	0.8830	0.9095
17.1	0.8855	0.9116
17.2	0.8879	0.9136
17.3	0.8904	0.9156
17.4	0.8927	0.9175
17.5	0.8951	0.9194
17.6	0.8974	0.9212
17.7	0.8997	0.9230
17.8	0.9019	0.9247
17.9	0.9042	0.9264
18.0	0.9064	0.9280
18.1	0.9082	0.9296
18.2	0.9100	0.9312
18.3	0.9118	0.9327
18.4	0.9136	0.9343
18.5	0.9154	0.9358
18.6	0.9172	0.9373
18.7	0.9190	0.9388
18.8	0.9207	0.9403
18.9	0.9225	0.9418
19.0	0.9243	0.9433
19.1	0.9260	0.9447
19.2	0.9277	0.9461
19.3	0.9294	0.9475
19.4	0.9312	0.9489
19.5	0.9329	0.9503
19.6	0.9345	0.9517
19.7	0.9362	0.9530
19.8	0.9379	0.9544
19.9	0.9396	0.9557
20.0	0.9412	0.9570
20.1	0.9429	0.9583
20.2	0.9445	0.9596
20.3	0.9461	0.9609
20.4	0.9477	0.9621
20.5	0.9494	0.9634
20.6	0.9509	0.9646
20.7	0.9525	0.9658
20.8	0.9541	0.9670
20.9	0.9557	0.9682
21.0	0.9572	0.9694
21.1	0.9588	0.9706
21.2	0.9604	0.9718
21.3	0.9619	0.9729

21.4	0.9634	0.9741
21.5	0.9650	0.9752
21.6	0.9665	0.9764
21.7	0.9680	0.9775
21.8	0.9695	0.9786
21.9	0.9710	0.9797
22.0	0.9724	0.9808
22.1	0.9739	0.9818
22.2	0.9754	0.9829
22.3	0.9768	0.9839
22.4	0.9782	0.9850
22.5	0.9797	0.9860
22.6	0.9811	0.9870
22.7	0.9825	0.9880
22.8	0.9839	0.9890
22.9	0.9853	0.9900
23.0	0.9867	0.9909
23.1	0.9881	0.9919
23.2	0.9894	0.9928
23.3	0.9908	0.9938
23.4	0.9921	0.9947
23.5	0.9935	0.9956
23.6	0.9948	0.9965
23.7	0.9961	0.9974
23.8	0.9974	0.9983
23.9	0.9987	0.9991
24.0	1.0000	1.0000

**Precipitation Distribution
(41.779N, -72.737W) – 50yr/Type3 – Smoothed**



Time (hours)	50yr Accumulation (dimensionless)	Type III Curve (dimensionless)
0.0	0.0000	0.0000
0.1	0.0013	0.0010
0.2	0.0026	0.0020
0.3	0.0039	0.0030
0.4	0.0052	0.0040
0.5	0.0065	0.0050
0.6	0.0078	0.0060
0.7	0.0092	0.0070
0.8	0.0105	0.0080
0.9	0.0119	0.0090
1.0	0.0132	0.0100
1.1	0.0146	0.0110
1.2	0.0160	0.0120
1.3	0.0174	0.0130
1.4	0.0188	0.0140
1.5	0.0202	0.0150
1.6	0.0216	0.0160
1.7	0.0231	0.0170
1.8	0.0245	0.0180

Precipitation Distribution Curve

1.9	0.0260	0.0190
2.0	0.0274	0.0200
2.1	0.0289	0.0210
2.2	0.0304	0.0220
2.3	0.0319	0.0231
2.4	0.0333	0.0241
2.5	0.0349	0.0252
2.6	0.0364	0.0263
2.7	0.0379	0.0274
2.8	0.0394	0.0285
2.9	0.0410	0.0296
3.0	0.0425	0.0308
3.1	0.0441	0.0319
3.2	0.0456	0.0331
3.3	0.0472	0.0343
3.4	0.0488	0.0355
3.5	0.0504	0.0367
3.6	0.0520	0.0379
3.7	0.0536	0.0392
3.8	0.0552	0.0404
3.9	0.0568	0.0417
4.0	0.0585	0.0430
4.1	0.0601	0.0443
4.2	0.0618	0.0456
4.3	0.0634	0.0470
4.4	0.0651	0.0483
4.5	0.0668	0.0497
4.6	0.0685	0.0511
4.7	0.0702	0.0525
4.8	0.0719	0.0539
4.9	0.0736	0.0553
5.0	0.0753	0.0567
5.1	0.0771	0.0582
5.2	0.0788	0.0597
5.3	0.0806	0.0612
5.4	0.0824	0.0627
5.5	0.0841	0.0642
5.6	0.0859	0.0657
5.7	0.0877	0.0673
5.8	0.0895	0.0688
5.9	0.0913	0.0704
6.0	0.0932	0.0720
6.1	0.0953	0.0736
6.2	0.0976	0.0753
6.3	0.0998	0.0770
6.4	0.1021	0.0788
6.5	0.1044	0.0806
6.6	0.1067	0.0825
6.7	0.1091	0.0844
6.8	0.1115	0.0864
6.9	0.1139	0.0884
7.0	0.1164	0.0905
7.1	0.1189	0.0926
7.2	0.1214	0.0948
7.3	0.1240	0.0970
7.4	0.1266	0.0993
7.5	0.1292	0.1016
7.6	0.1319	0.1040
7.7	0.1345	0.1064
7.8	0.1372	0.1089
7.9	0.1399	0.1114
8.0	0.1427	0.1140
8.1	0.1455	0.1167
8.2	0.1483	0.1194
8.3	0.1511	0.1223

Precipitation Distribution Curve

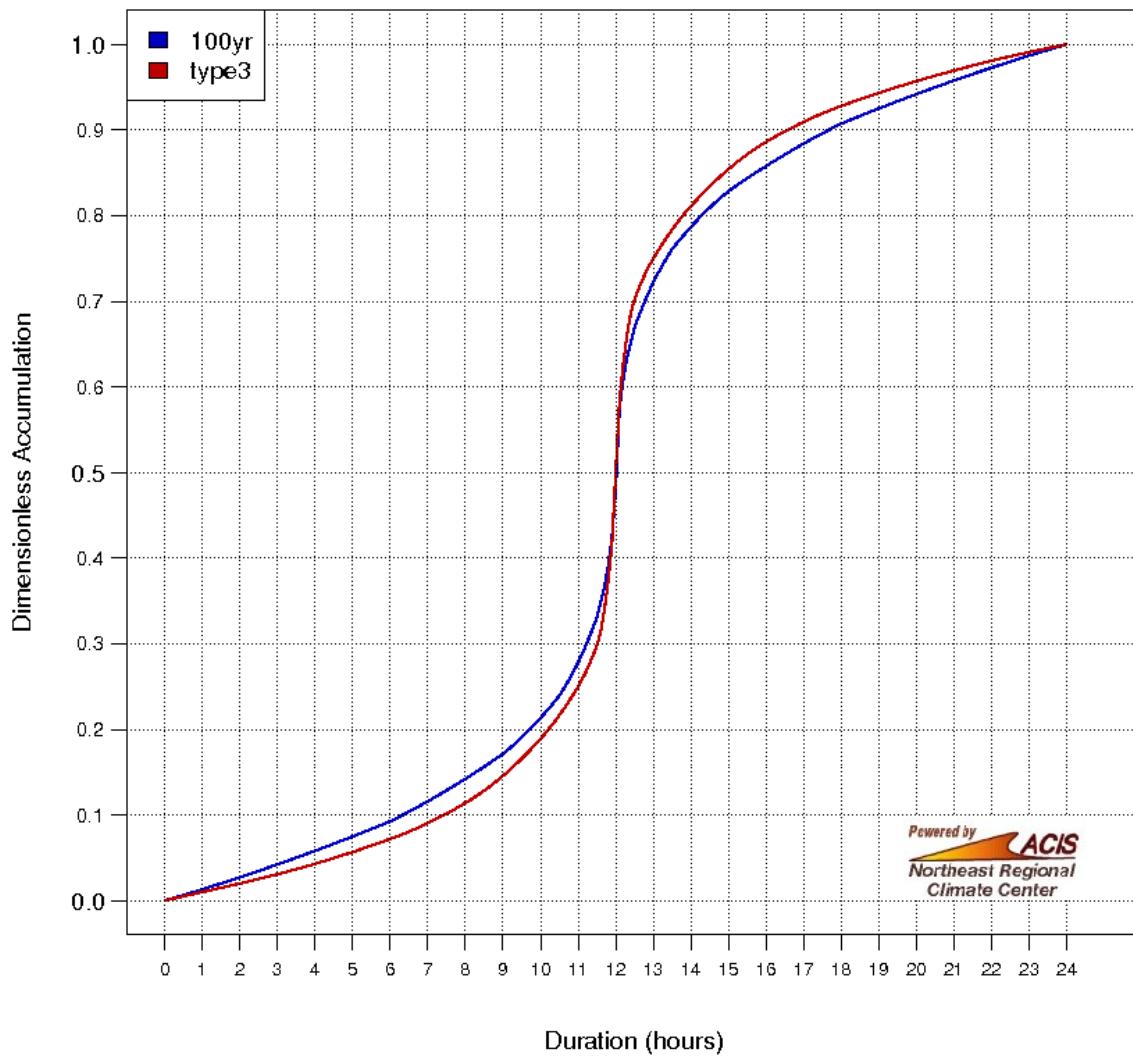
8.4	0.1540	0.1253
8.5	0.1569	0.1284
8.6	0.1598	0.1317
8.7	0.1628	0.1350
8.8	0.1658	0.1385
8.9	0.1689	0.1421
9.0	0.1719	0.1458
9.1	0.1755	0.1496
9.2	0.1791	0.1535
9.3	0.1829	0.1575
9.4	0.1869	0.1617
9.5	0.1909	0.1659
9.6	0.1951	0.1703
9.7	0.1995	0.1748
9.8	0.2040	0.1794
9.9	0.2086	0.1842
10.0	0.2133	0.1890
10.1	0.2182	0.1940
10.2	0.2232	0.1993
10.3	0.2283	0.2048
10.4	0.2336	0.2105
10.5	0.2390	0.2165
10.6	0.2459	0.2227
10.7	0.2532	0.2292
10.8	0.2609	0.2359
10.9	0.2690	0.2428
11.0	0.2774	0.2500
11.1	0.2868	0.2578
11.2	0.2967	0.2664
11.3	0.3071	0.2760
11.4	0.3180	0.2866
11.5	0.3295	0.2980
11.6	0.3461	0.3143
11.7	0.3636	0.3394
11.8	0.3878	0.3733
11.9	0.4215	0.4166
12.0	0.4801	0.5000
12.1	0.5785	0.5840
12.2	0.6122	0.6267
12.3	0.6364	0.6606
12.4	0.6539	0.6857
12.5	0.6705	0.7020
12.6	0.6820	0.7134
12.7	0.6929	0.7240
12.8	0.7033	0.7336
12.9	0.7132	0.7422
13.0	0.7226	0.7500
13.1	0.7310	0.7572
13.2	0.7391	0.7641
13.3	0.7468	0.7708
13.4	0.7541	0.7773
13.5	0.7610	0.7835
13.6	0.7664	0.7895
13.7	0.7717	0.7952
13.8	0.7768	0.8007
13.9	0.7818	0.8060
14.0	0.7867	0.8110
14.1	0.7914	0.8158
14.2	0.7960	0.8206
14.3	0.8005	0.8252
14.4	0.8049	0.8297
14.5	0.8091	0.8341
14.6	0.8131	0.8383
14.7	0.8171	0.8425
14.8	0.8209	0.8465

Precipitation Distribution Curve

14.9	0.8245	0.8504
15.0	0.8281	0.8543
15.1	0.8311	0.8579
15.2	0.8342	0.8615
15.3	0.8372	0.8650
15.4	0.8402	0.8683
15.5	0.8431	0.8716
15.6	0.8460	0.8747
15.7	0.8489	0.8777
15.8	0.8517	0.8806
15.9	0.8545	0.8833
16.0	0.8573	0.8860
16.1	0.8601	0.8886
16.2	0.8628	0.8911
16.3	0.8655	0.8936
16.4	0.8681	0.8960
16.5	0.8708	0.8984
16.6	0.8734	0.9007
16.7	0.8760	0.9030
16.8	0.8786	0.9052
16.9	0.8811	0.9074
17.0	0.8836	0.9095
17.1	0.8861	0.9116
17.2	0.8885	0.9136
17.3	0.8909	0.9156
17.4	0.8933	0.9175
17.5	0.8956	0.9194
17.6	0.8979	0.9212
17.7	0.9002	0.9230
17.8	0.9024	0.9247
17.9	0.9047	0.9264
18.0	0.9068	0.9280
18.1	0.9087	0.9296
18.2	0.9105	0.9312
18.3	0.9123	0.9327
18.4	0.9141	0.9343
18.5	0.9159	0.9358
18.6	0.9176	0.9373
18.7	0.9194	0.9388
18.8	0.9212	0.9403
18.9	0.9229	0.9418
19.0	0.9247	0.9433
19.1	0.9264	0.9447
19.2	0.9281	0.9461
19.3	0.9298	0.9475
19.4	0.9315	0.9489
19.5	0.9332	0.9503
19.6	0.9349	0.9517
19.7	0.9366	0.9530
19.8	0.9382	0.9544
19.9	0.9399	0.9557
20.0	0.9415	0.9570
20.1	0.9432	0.9583
20.2	0.9448	0.9596
20.3	0.9464	0.9609
20.4	0.9480	0.9621
20.5	0.9496	0.9634
20.6	0.9512	0.9646
20.7	0.9528	0.9658
20.8	0.9544	0.9670
20.9	0.9559	0.9682
21.0	0.9575	0.9694
21.1	0.9590	0.9706
21.2	0.9606	0.9718
21.3	0.9621	0.9729

21.4	0.9636	0.9741
21.5	0.9651	0.9752
21.6	0.9667	0.9764
21.7	0.9681	0.9775
21.8	0.9696	0.9786
21.9	0.9711	0.9797
22.0	0.9726	0.9808
22.1	0.9740	0.9818
22.2	0.9755	0.9829
22.3	0.9769	0.9839
22.4	0.9784	0.9850
22.5	0.9798	0.9860
22.6	0.9812	0.9870
22.7	0.9826	0.9880
22.8	0.9840	0.9890
22.9	0.9854	0.9900
23.0	0.9868	0.9909
23.1	0.9881	0.9919
23.2	0.9895	0.9928
23.3	0.9908	0.9938
23.4	0.9922	0.9947
23.5	0.9935	0.9956
23.6	0.9948	0.9965
23.7	0.9961	0.9974
23.8	0.9974	0.9983
23.9	0.9987	0.9991
24.0	1.0000	1.0000

**Precipitation Distribution
(41.779N, -72.737W) – 100yr/Type3 – Smoothed**



Time (hours)	100yr Accumulation (dimensionless)	Type III Curve (dimensionless)
0.0	0.0000	0.0000
0.1	0.0013	0.0010
0.2	0.0026	0.0020
0.3	0.0039	0.0030
0.4	0.0052	0.0040
0.5	0.0065	0.0050
0.6	0.0078	0.0060
0.7	0.0091	0.0070
0.8	0.0105	0.0080
0.9	0.0118	0.0090
1.0	0.0132	0.0100
1.1	0.0145	0.0110
1.2	0.0159	0.0120
1.3	0.0173	0.0130
1.4	0.0187	0.0140
1.5	0.0201	0.0150
1.6	0.0215	0.0160
1.7	0.0229	0.0170
1.8	0.0244	0.0180

Precipitation Distribution Curve

1.9	0.0258	0.0190
2.0	0.0273	0.0200
2.1	0.0287	0.0210
2.2	0.0302	0.0220
2.3	0.0317	0.0231
2.4	0.0332	0.0241
2.5	0.0347	0.0252
2.6	0.0362	0.0263
2.7	0.0377	0.0274
2.8	0.0392	0.0285
2.9	0.0407	0.0296
3.0	0.0423	0.0308
3.1	0.0438	0.0319
3.2	0.0454	0.0331
3.3	0.0469	0.0343
3.4	0.0485	0.0355
3.5	0.0501	0.0367
3.6	0.0517	0.0379
3.7	0.0533	0.0392
3.8	0.0549	0.0404
3.9	0.0565	0.0417
4.0	0.0581	0.0430
4.1	0.0598	0.0443
4.2	0.0614	0.0456
4.3	0.0631	0.0470
4.4	0.0647	0.0483
4.5	0.0664	0.0497
4.6	0.0681	0.0511
4.7	0.0698	0.0525
4.8	0.0715	0.0539
4.9	0.0732	0.0553
5.0	0.0749	0.0567
5.1	0.0767	0.0582
5.2	0.0784	0.0597
5.3	0.0801	0.0612
5.4	0.0819	0.0627
5.5	0.0837	0.0642
5.6	0.0854	0.0657
5.7	0.0872	0.0673
5.8	0.0890	0.0688
5.9	0.0908	0.0704
6.0	0.0926	0.0720
6.1	0.0948	0.0736
6.2	0.0970	0.0753
6.3	0.0993	0.0770
6.4	0.1016	0.0788
6.5	0.1039	0.0806
6.6	0.1062	0.0825
6.7	0.1086	0.0844
6.8	0.1110	0.0864
6.9	0.1134	0.0884
7.0	0.1159	0.0905
7.1	0.1184	0.0926
7.2	0.1209	0.0948
7.3	0.1235	0.0970
7.4	0.1261	0.0993
7.5	0.1287	0.1016
7.6	0.1314	0.1040
7.7	0.1340	0.1064
7.8	0.1367	0.1089
7.9	0.1394	0.1114
8.0	0.1422	0.1140
8.1	0.1450	0.1167
8.2	0.1478	0.1194
8.3	0.1506	0.1223

Precipitation Distribution Curve

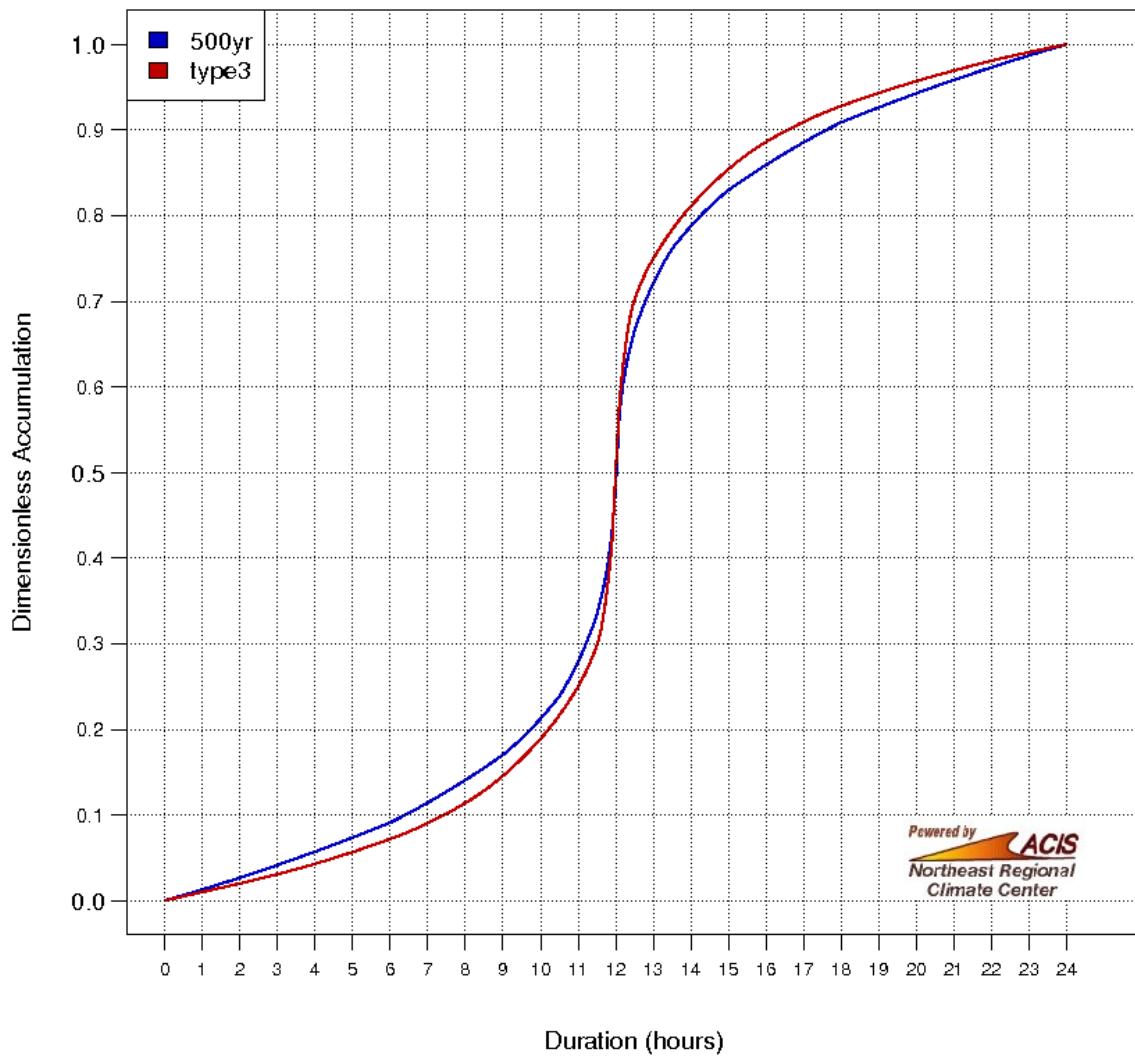
8.4	0.1535	0.1253
8.5	0.1564	0.1284
8.6	0.1594	0.1317
8.7	0.1623	0.1350
8.8	0.1654	0.1385
8.9	0.1684	0.1421
9.0	0.1715	0.1458
9.1	0.1750	0.1496
9.2	0.1787	0.1535
9.3	0.1826	0.1575
9.4	0.1866	0.1617
9.5	0.1907	0.1659
9.6	0.1950	0.1703
9.7	0.1993	0.1748
9.8	0.2039	0.1794
9.9	0.2085	0.1842
10.0	0.2133	0.1890
10.1	0.2183	0.1940
10.2	0.2233	0.1993
10.3	0.2285	0.2048
10.4	0.2339	0.2105
10.5	0.2394	0.2165
10.6	0.2463	0.2227
10.7	0.2536	0.2292
10.8	0.2613	0.2359
10.9	0.2694	0.2428
11.0	0.2779	0.2500
11.1	0.2874	0.2578
11.2	0.2975	0.2664
11.3	0.3081	0.2760
11.4	0.3192	0.2866
11.5	0.3308	0.2980
11.6	0.3481	0.3143
11.7	0.3663	0.3394
11.8	0.3908	0.3733
11.9	0.4243	0.4166
12.0	0.4814	0.5000
12.1	0.5757	0.5840
12.2	0.6092	0.6267
12.3	0.6337	0.6606
12.4	0.6519	0.6857
12.5	0.6692	0.7020
12.6	0.6808	0.7134
12.7	0.6919	0.7240
12.8	0.7025	0.7336
12.9	0.7126	0.7422
13.0	0.7221	0.7500
13.1	0.7306	0.7572
13.2	0.7387	0.7641
13.3	0.7464	0.7708
13.4	0.7537	0.7773
13.5	0.7606	0.7835
13.6	0.7661	0.7895
13.7	0.7715	0.7952
13.8	0.7767	0.8007
13.9	0.7817	0.8060
14.0	0.7867	0.8110
14.1	0.7915	0.8158
14.2	0.7961	0.8206
14.3	0.8007	0.8252
14.4	0.8050	0.8297
14.5	0.8093	0.8341
14.6	0.8134	0.8383
14.7	0.8174	0.8425
14.8	0.8213	0.8465

Precipitation Distribution Curve

14.9	0.8250	0.8504
15.0	0.8285	0.8543
15.1	0.8316	0.8579
15.2	0.8346	0.8615
15.3	0.8377	0.8650
15.4	0.8406	0.8683
15.5	0.8436	0.8716
15.6	0.8465	0.8747
15.7	0.8494	0.8777
15.8	0.8522	0.8806
15.9	0.8550	0.8833
16.0	0.8578	0.8860
16.1	0.8606	0.8886
16.2	0.8633	0.8911
16.3	0.8660	0.8936
16.4	0.8686	0.8960
16.5	0.8713	0.8984
16.6	0.8739	0.9007
16.7	0.8765	0.9030
16.8	0.8791	0.9052
16.9	0.8816	0.9074
17.0	0.8841	0.9095
17.1	0.8866	0.9116
17.2	0.8890	0.9136
17.3	0.8914	0.9156
17.4	0.8938	0.9175
17.5	0.8961	0.9194
17.6	0.8984	0.9212
17.7	0.9007	0.9230
17.8	0.9030	0.9247
17.9	0.9052	0.9264
18.0	0.9074	0.9280
18.1	0.9092	0.9296
18.2	0.9110	0.9312
18.3	0.9128	0.9327
18.4	0.9146	0.9343
18.5	0.9163	0.9358
18.6	0.9181	0.9373
18.7	0.9199	0.9388
18.8	0.9216	0.9403
18.9	0.9233	0.9418
19.0	0.9251	0.9433
19.1	0.9268	0.9447
19.2	0.9285	0.9461
19.3	0.9302	0.9475
19.4	0.9319	0.9489
19.5	0.9336	0.9503
19.6	0.9353	0.9517
19.7	0.9369	0.9530
19.8	0.9386	0.9544
19.9	0.9402	0.9557
20.0	0.9419	0.9570
20.1	0.9435	0.9583
20.2	0.9451	0.9596
20.3	0.9467	0.9609
20.4	0.9483	0.9621
20.5	0.9499	0.9634
20.6	0.9515	0.9646
20.7	0.9531	0.9658
20.8	0.9546	0.9670
20.9	0.9562	0.9682
21.0	0.9577	0.9694
21.1	0.9593	0.9706
21.2	0.9608	0.9718
21.3	0.9623	0.9729

21.4	0.9638	0.9741
21.5	0.9653	0.9752
21.6	0.9668	0.9764
21.7	0.9683	0.9775
21.8	0.9698	0.9786
21.9	0.9713	0.9797
22.0	0.9727	0.9808
22.1	0.9742	0.9818
22.2	0.9756	0.9829
22.3	0.9771	0.9839
22.4	0.9785	0.9850
22.5	0.9799	0.9860
22.6	0.9813	0.9870
22.7	0.9827	0.9880
22.8	0.9841	0.9890
22.9	0.9855	0.9900
23.0	0.9868	0.9909
23.1	0.9882	0.9919
23.2	0.9895	0.9928
23.3	0.9909	0.9938
23.4	0.9922	0.9947
23.5	0.9935	0.9956
23.6	0.9948	0.9965
23.7	0.9961	0.9974
23.8	0.9974	0.9983
23.9	0.9987	0.9991
24.0	1.0000	1.0000

**Precipitation Distribution
(41.779N, -72.737W) – 500yr/Type3 – Smoothed**



Time (hours)	500yr Accumulation (dimensionless)	Type III Curve (dimensionless)
0.0	0.0000	0.0000
0.1	0.0013	0.0010
0.2	0.0025	0.0020
0.3	0.0038	0.0030
0.4	0.0051	0.0040
0.5	0.0064	0.0050
0.6	0.0077	0.0060
0.7	0.0090	0.0070
0.8	0.0103	0.0080
0.9	0.0116	0.0090
1.0	0.0129	0.0100
1.1	0.0143	0.0110
1.2	0.0156	0.0120
1.3	0.0170	0.0130
1.4	0.0184	0.0140
1.5	0.0198	0.0150
1.6	0.0212	0.0160
1.7	0.0226	0.0170
1.8	0.0240	0.0180

Precipitation Distribution Curve

1.9	0.0254	0.0190
2.0	0.0268	0.0200
2.1	0.0282	0.0210
2.2	0.0297	0.0220
2.3	0.0311	0.0231
2.4	0.0326	0.0241
2.5	0.0341	0.0252
2.6	0.0356	0.0263
2.7	0.0371	0.0274
2.8	0.0386	0.0285
2.9	0.0401	0.0296
3.0	0.0416	0.0308
3.1	0.0431	0.0319
3.2	0.0446	0.0331
3.3	0.0462	0.0343
3.4	0.0477	0.0355
3.5	0.0493	0.0367
3.6	0.0508	0.0379
3.7	0.0524	0.0392
3.8	0.0540	0.0404
3.9	0.0556	0.0417
4.0	0.0572	0.0430
4.1	0.0588	0.0443
4.2	0.0604	0.0456
4.3	0.0620	0.0470
4.4	0.0637	0.0483
4.5	0.0653	0.0497
4.6	0.0670	0.0511
4.7	0.0686	0.0525
4.8	0.0703	0.0539
4.9	0.0720	0.0553
5.0	0.0737	0.0567
5.1	0.0754	0.0582
5.2	0.0771	0.0597
5.3	0.0788	0.0612
5.4	0.0805	0.0627
5.5	0.0823	0.0642
5.6	0.0840	0.0657
5.7	0.0858	0.0673
5.8	0.0875	0.0688
5.9	0.0893	0.0704
6.0	0.0911	0.0720
6.1	0.0933	0.0736
6.2	0.0955	0.0753
6.3	0.0978	0.0770
6.4	0.1001	0.0788
6.5	0.1024	0.0806
6.6	0.1047	0.0825
6.7	0.1071	0.0844
6.8	0.1095	0.0864
6.9	0.1120	0.0884
7.0	0.1145	0.0905
7.1	0.1170	0.0926
7.2	0.1195	0.0948
7.3	0.1221	0.0970
7.4	0.1247	0.0993
7.5	0.1273	0.1016
7.6	0.1300	0.1040
7.7	0.1327	0.1064
7.8	0.1354	0.1089
7.9	0.1381	0.1114
8.0	0.1409	0.1140
8.1	0.1437	0.1167
8.2	0.1465	0.1194
8.3	0.1493	0.1223

Precipitation Distribution Curve

8.4	0.1522	0.1253
8.5	0.1552	0.1284
8.6	0.1581	0.1317
8.7	0.1611	0.1350
8.8	0.1641	0.1385
8.9	0.1672	0.1421
9.0	0.1703	0.1458
9.1	0.1739	0.1496
9.2	0.1776	0.1535
9.3	0.1815	0.1575
9.4	0.1855	0.1617
9.5	0.1896	0.1659
9.6	0.1939	0.1703
9.7	0.1983	0.1748
9.8	0.2029	0.1794
9.9	0.2076	0.1842
10.0	0.2124	0.1890
10.1	0.2174	0.1940
10.2	0.2225	0.1993
10.3	0.2278	0.2048
10.4	0.2331	0.2105
10.5	0.2387	0.2165
10.6	0.2459	0.2227
10.7	0.2535	0.2292
10.8	0.2614	0.2359
10.9	0.2698	0.2428
11.0	0.2786	0.2500
11.1	0.2885	0.2578
11.2	0.2990	0.2664
11.3	0.3100	0.2760
11.4	0.3215	0.2866
11.5	0.3336	0.2980
11.6	0.3516	0.3143
11.7	0.3705	0.3394
11.8	0.3956	0.3733
11.9	0.4293	0.4166
12.0	0.4840	0.5000
12.1	0.5707	0.5840
12.2	0.6044	0.6267
12.3	0.6295	0.6606
12.4	0.6484	0.6857
12.5	0.6664	0.7020
12.6	0.6785	0.7134
12.7	0.6900	0.7240
12.8	0.7010	0.7336
12.9	0.7115	0.7422
13.0	0.7214	0.7500
13.1	0.7302	0.7572
13.2	0.7386	0.7641
13.3	0.7465	0.7708
13.4	0.7541	0.7773
13.5	0.7613	0.7835
13.6	0.7669	0.7895
13.7	0.7722	0.7952
13.8	0.7775	0.8007
13.9	0.7826	0.8060
14.0	0.7876	0.8110
14.1	0.7924	0.8158
14.2	0.7971	0.8206
14.3	0.8017	0.8252
14.4	0.8061	0.8297
14.5	0.8104	0.8341
14.6	0.8145	0.8383
14.7	0.8185	0.8425
14.8	0.8224	0.8465

Precipitation Distribution Curve

14.9	0.8261	0.8504
15.0	0.8297	0.8543
15.1	0.8328	0.8579
15.2	0.8359	0.8615
15.3	0.8389	0.8650
15.4	0.8419	0.8683
15.5	0.8448	0.8716
15.6	0.8478	0.8747
15.7	0.8507	0.8777
15.8	0.8535	0.8806
15.9	0.8563	0.8833
16.0	0.8591	0.8860
16.1	0.8619	0.8886
16.2	0.8646	0.8911
16.3	0.8673	0.8936
16.4	0.8700	0.8960
16.5	0.8727	0.8984
16.6	0.8753	0.9007
16.7	0.8779	0.9030
16.8	0.8805	0.9052
16.9	0.8830	0.9074
17.0	0.8855	0.9095
17.1	0.8880	0.9116
17.2	0.8905	0.9136
17.3	0.8929	0.9156
17.4	0.8953	0.9175
17.5	0.8976	0.9194
17.6	0.8999	0.9212
17.7	0.9022	0.9230
17.8	0.9045	0.9247
17.9	0.9067	0.9264
18.0	0.9089	0.9280
18.1	0.9107	0.9296
18.2	0.9125	0.9312
18.3	0.9142	0.9327
18.4	0.9160	0.9343
18.5	0.9177	0.9358
18.6	0.9195	0.9373
18.7	0.9212	0.9388
18.8	0.9229	0.9403
18.9	0.9246	0.9418
19.0	0.9263	0.9433
19.1	0.9280	0.9447
19.2	0.9297	0.9461
19.3	0.9314	0.9475
19.4	0.9330	0.9489
19.5	0.9347	0.9503
19.6	0.9363	0.9517
19.7	0.9380	0.9530
19.8	0.9396	0.9544
19.9	0.9412	0.9557
20.0	0.9428	0.9570
20.1	0.9444	0.9583
20.2	0.9460	0.9596
20.3	0.9476	0.9609
20.4	0.9492	0.9621
20.5	0.9507	0.9634
20.6	0.9523	0.9646
20.7	0.9538	0.9658
20.8	0.9554	0.9670
20.9	0.9569	0.9682
21.0	0.9584	0.9694
21.1	0.9599	0.9706
21.2	0.9614	0.9718
21.3	0.9629	0.9729

21.4	0.9644	0.9741
21.5	0.9659	0.9752
21.6	0.9674	0.9764
21.7	0.9689	0.9775
21.8	0.9703	0.9786
21.9	0.9718	0.9797
22.0	0.9732	0.9808
22.1	0.9746	0.9818
22.2	0.9760	0.9829
22.3	0.9774	0.9839
22.4	0.9788	0.9850
22.5	0.9802	0.9860
22.6	0.9816	0.9870
22.7	0.9830	0.9880
22.8	0.9844	0.9890
22.9	0.9857	0.9900
23.0	0.9871	0.9909
23.1	0.9884	0.9919
23.2	0.9897	0.9928
23.3	0.9910	0.9938
23.4	0.9923	0.9947
23.5	0.9936	0.9956
23.6	0.9949	0.9965
23.7	0.9962	0.9974
23.8	0.9975	0.9983
23.9	0.9987	0.9991
24.0	1.0000	1.0000

Extreme Precipitation Tables

Northeast Regional Climate Center

Data represents point estimates calculated from partial duration series. All precipitation amounts are displayed in inches.

Smoothing	Yes
State	Connecticut
Location	
Longitude	72.737 degrees West
Latitude	41.779 degrees North
Elevation	0 feet
Date/Time	Mon, 25 Jun 2018 15:13:02 -0400

Extreme Precipitation Estimates

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.31	0.47	0.59	0.77	0.96	1.20	1yr	0.83	1.10	1.38	1.72	2.14	2.66	3.01	1yr	2.35	2.89	3.36	4.04	4.66	1yr
2yr	0.37	0.57	0.71	0.93	1.17	1.47	2yr	1.01	1.36	1.70	2.12	2.64	3.28	3.65	2yr	2.90	3.51	4.03	4.80	5.46	2yr
5yr	0.43	0.68	0.85	1.14	1.45	1.85	5yr	1.26	1.66	2.14	2.67	3.32	4.12	4.61	5yr	3.64	4.44	5.14	6.05	6.87	5yr
10yr	0.49	0.76	0.97	1.31	1.71	2.19	10yr	1.47	1.93	2.54	3.18	3.96	4.89	5.52	10yr	4.33	5.31	6.18	7.20	8.18	10yr
25yr	0.56	0.90	1.15	1.59	2.11	2.74	25yr	1.82	2.36	3.20	4.02	4.99	6.14	6.99	25yr	5.44	6.72	7.89	9.08	10.30	25yr
50yr	0.64	1.03	1.32	1.85	2.49	3.25	50yr	2.15	2.75	3.81	4.79	5.94	7.30	8.37	50yr	6.46	8.05	9.51	10.82	12.26	50yr
100yr	0.73	1.18	1.52	2.15	2.94	3.86	100yr	2.54	3.21	4.53	5.71	7.08	8.69	10.02	100yr	7.69	9.64	11.45	12.90	14.61	100yr
200yr	0.83	1.36	1.76	2.52	3.47	4.58	200yr	3.00	3.75	5.39	6.80	8.43	10.33	12.01	200yr	9.15	11.55	13.80	15.39	17.42	200yr
500yr	1.00	1.64	2.14	3.10	4.33	5.76	500yr	3.74	4.61	6.80	8.58	10.64	13.01	15.26	500yr	11.52	14.68	17.69	19.44	22.00	500yr

Lower Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.25	0.38	0.46	0.63	0.77	0.94	1yr	0.66	0.92	1.08	1.44	1.89	2.33	2.55	1yr	2.06	2.45	2.99	3.79	3.99	1yr
2yr	0.35	0.55	0.67	0.91	1.13	1.36	2yr	0.97	1.33	1.53	2.00	2.53	3.16	3.51	2yr	2.79	3.38	3.89	4.61	5.26	2yr
5yr	0.40	0.62	0.77	1.06	1.35	1.59	5yr	1.17	1.56	1.81	2.36	2.99	3.85	4.17	5yr	3.41	4.01	4.70	5.61	6.35	5yr
10yr	0.45	0.69	0.85	1.19	1.54	1.80	10yr	1.33	1.76	2.05	2.65	3.38	4.44	4.74	10yr	3.93	4.56	5.44	6.46	7.24	10yr
25yr	0.52	0.78	0.98	1.39	1.83	2.12	25yr	1.58	2.07	2.42	3.09	3.98	5.33	5.60	25yr	4.72	5.38	6.61	7.78	8.62	25yr
50yr	0.57	0.86	1.08	1.55	2.08	2.41	50yr	1.80	2.35	2.74	3.47	4.51	6.14	6.32	50yr	5.44	6.07	7.70	8.95	9.83	50yr
100yr	0.63	0.96	1.20	1.73	2.38	2.75	100yr	2.05	2.69	3.11	4.08	5.02	7.07	7.15	100yr	6.26	6.87	8.97	10.28	11.21	100yr
200yr	0.71	1.06	1.34	1.95	2.72	3.13	200yr	2.34	3.06	3.53	4.68	5.67	8.17	8.09	200yr	7.23	7.78	10.49	11.81	12.75	200yr
500yr	0.82	1.23	1.58	2.29	3.26	3.74	500yr	2.81	3.66	4.19	5.59	6.65	9.86	9.45	500yr	8.73	9.09	12.95	14.20	15.09	500yr

Upper Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.34	0.53	0.64	0.86	1.06	1.24	1yr	0.92	1.21	1.42	1.80	2.35	2.87	3.23	1yr	2.54	3.11	3.62	4.28	5.06	1yr
2yr	0.39	0.60	0.73	0.99	1.22	1.43	2yr	1.06	1.40	1.63	2.13	2.69	3.44	3.85	2yr	3.05	3.70	4.21	5.04	5.75	2yr
5yr	0.47	0.72	0.89	1.22	1.55	1.80	5yr	1.34	1.76	2.08	2.72	3.46	4.40	5.06	5yr	3.89	4.87	5.66	6.55	7.39	5yr
10yr	0.55	0.84	1.04	1.46	1.88	2.16	10yr	1.62	2.11	2.51	3.30	4.20	5.38	6.30	10yr	4.76	6.06	7.06	8.07	9.07	10yr
25yr	0.69	1.05	1.31	1.87	2.46	2.73	25yr	2.12	2.67	3.22	4.24	5.41	7.00	8.40	25yr	6.20	8.08	9.45	10.65	11.88	25yr
50yr	0.82	1.25	1.55	2.23	3.00	3.27	50yr	2.59	3.20	3.89	5.13	6.55	8.56	10.47	50yr	7.57	10.06	11.79	13.16	14.59	50yr
100yr	0.98	1.48	1.85	2.67	3.66	3.91	100yr	3.16	3.82	4.71	6.12	8.15	10.46	13.05	100yr	9.25	12.55	14.68	16.26	17.94	100yr
200yr	1.16	1.75	2.22	3.21	4.47	4.67	200yr	3.86	4.56	5.68	7.39	9.92	12.79	16.27	200yr	11.32	15.64	18.29	20.10	22.07	200yr
500yr	1.47	2.19	2.82	4.10	5.83	5.91	500yr	5.03	5.78	7.30	9.47	12.88	16.70	21.78	500yr	14.78	20.94	24.42	26.63	29.07	500yr

Worksheet 1: Runoff curve number and runoff

Project: 1197-21 East Branch Trout Brook
Location: West Hartford, CT
Circle one: **Present** Developed

By: FRM
Checked: JCM
Watershed: WS-10

Date: 08/09/18
Date: 08/20/18

1.) Runoff curve number (CN)

1. Use only one CN value source per line.

$$\text{Totals} = \begin{array}{|c|c|} \hline & 34.35 & 2519.60 \\ \hline \end{array} \\ (-0.05367 \text{ sq mi})$$

$$\text{CN (weighted)} = \frac{\text{total product}}{\text{total area}}$$

$$= \frac{2519.60}{34.35}$$

Use CN =

73

Worksheet 2: Runoff curve number and runoff

Project: 1197-21 East Branch Trout Brook
Location: West Hartford, CT
Circle one: **Present** Developed

By: FRM
Checked: JCM
Watershed: WS-21

Date: 08/09/18
Date: 08/20/18

1.) Runoff curve number (CN)

1. Use only one CN value source per line.

$$\text{Totals} = \begin{array}{|c|c|}\hline & 6.48 & 447.13 \\ \hline\end{array}$$

(0.01013 sq mi)

$$CN \text{ (weighted)} = \frac{\text{total product}}{\text{total area}} = \frac{447.13}{6.48} \quad \text{Use CN} = 69$$

Worksheet 3: Runoff curve number and runoff

Project: 1197-21 East Branch Trout Brook
Location: West Hartford, CT
Circle one: **Present** Developed

By: FRM
Checked: JCM
Watershed: WS-22

Date: 08/09/18
Date: 08/20/18

1.) Runoff curve number (CN)

1. Use only one CN value source per line.

$$\text{Totals} = \begin{array}{|c|c|} \hline & 62.62 & 5035.31 \\ \hline \end{array} \\ (0.09784 \text{ sq mi})$$

$$CN \text{ (weighted)} = \frac{\text{total product}}{\text{total area}} = \frac{5035.31}{62.62} \quad \text{Use CN} = 80$$

Worksheet 4: Runoff curve number and runoff

Project: 1197-21 East Branch Trout Brook
Location: West Hartford, CT
Circle one: **Present** Developed

By: FRM
Checked: JCM
Watershed: WS-31

Date: 08/09/18
Date: 08/20/18

1.) Runoff curve number (CN)

1. Use only one CN value source per line.

$$\text{Totals} = \begin{array}{|c|c|} \hline & 27.98 & 2069.80 \\ \hline \left(\begin{array}{c} 0.04372 \\ \text{sq mi} \end{array} \right) & & \end{array}$$

$$\text{CN (weighted)} = \frac{\text{total product}}{\text{total area}}$$

$$= \frac{2069.80}{27.98}$$

Use CN =

74

Worksheet 5: Runoff curve number and runoff

Project: 1197-21 East Branch Trout Brook
Location: West Hartford, CT
Circle one: **Present** Developed

By: FRM
Checked: JCM
Watershed: WS-32

Date: 08/09/18
Date: 08/20/18

1.) Runoff curve number (CN)

1. Use only one CN value source per line.

Totals =

199.87	16212.50
0.31230	sq mi)

$$CN(\text{weighted}) = \frac{\text{total product}}{\text{total area}} = \frac{16212.50}{199.87} \quad \text{Use CN} =$$

81

Worksheet 6: Runoff curve number and runoff

Project: 1197-21 East Branch Trout Brook
Location: West Hartford, CT
Circle one: **Present** Developed

By: FRM
Checked: JCM
Watershed: WS-40

Date: 08/09/18
Date: 08/20/18

1.) Runoff curve number (CN)

1. Use only one CN value source per line.

$$\text{Totals} = \begin{array}{|c|c|} \hline & 109.67 & 7414.87 \\ \hline \end{array} \\ (0.17137 \text{ sq mi})$$

$$\text{CN (weighted)} = \frac{\text{total product}}{\text{total area}}$$

$$= \frac{7414.87}{109.67}$$

Use CN =

68

Time of Concentration (T_c) or Travel Time (T_t) Worksheet
(Derived from Worksheet 3, USDA 210-VI-TR55, Second Ed, June 1986)

Watershed ID: WS 10
 Subwatershed ID:

Existing Conditions X
 Proposed Conditions _____

Travel Time (T_t)
 Time of Conc. (T_c) X

Sheet Flow (Applicable to T_c Only)

1. Surface Description (Table 3-1)
2. Manning's Roughness Coeff. for Sheet Flow, n (Table 3-1)
3. Flow Length, L (Max. = 300 ft, CTDOT Recommends < 150 ft)
4. Two-Year 24-hr rainfall, P_2 (in)
- 5a. Change in Elevation, h (ft)
- 5b. Land Slope, s (ft/ft)
6. Travel Time, T_t (hr)
$$T_t = \frac{0.007(nL)^{0.8}}{P_2^{0.5}(s^{0.4})}$$

Segment ID	A-B
GRASS	
0.150	
200	
3.2	
9.0	
0.045	
0.206	= 12.3 min.

Shallow Concentrated Flow (Assume Hyd. Radius = Depth of Flow)

- 7a. Surface Description
- 7b. Paved or Unpaved
- 7c. Manning's Roughness Coeff., n
- 7d. Depth of Flow, d (ft) (d = 0.4 Unpaved, d = 0.2 Paved)
8. Flow Length, L
- 9a. Change in Elevation, h (ft)
- 9b. Watercourse slope, s (ft/ft)
10. Flow Velocity, V (ft/sec)
$$V = \frac{1.49}{n} (d^{\frac{2}{3}})(s^{\frac{1}{2}})$$
11. Travel Time, T_t (hr)
$$T_t = \frac{L}{3600 * V}$$

Segment ID	B-C	C-D			
GRASS	PAVED				
UNPV	PAVE				
0.050	0.025				
0.4	0.2				
295	192				
23.0	4.0				
0.078	0.021				
4.517	2.942				
0.018	+ 0.018	+ 0.018	+ 0.018	= 0.04	hr. = 2.2 min.

Channel Flow

- 12a. Channel/Conduit Description
- 12b. Cross sectional flow area, A (ft.²)
13. Wetted perimeter, P_w (ft)
14. Hydraulic Radius, R (ft)
$$R = \frac{A}{P_w}$$
- 15a. Change in Elevation, H (ft)
- 15b. Channel Slope, S (ft/ft)
16. Manning's Roughness Coeff., n
17. Flow Velocity, V (ft/sec)
$$V = \frac{1.49}{n} (R^{\frac{2}{3}})(S^{\frac{1}{2}})$$
18. Flow length, L (ft)
19. Travel Time, T (hr)
$$T_t = \frac{L}{3600 * V}$$

Segment ID	D-E	F-G	G-H	H-E
PIPE	PIPE	CHANNEL	PIPE	
1.23	3.14	18.25	18.85	
3.93	6.28	32.59	16.00	
0.31	0.50	0.56	1.18	
10.0	0.5	4.0	0.5	
0.019	0.005	0.006	0.004	
0.013	0.013	0.035	0.013	
7.306	5.294	2.238	7.668	
523	93	668	139	
0.020	+ 0.005	+ 0.083	+ 0.005	= 0.11 hr. = 6.8 min.

Lake or Reservoir Flow

20. Mean Depth of Lake or Reservoir, D (ft)
21. Wave Velocity Ac, V_w (ft/sec)
$$V_w = (gD)^{0.5}$$
22. Flow Length, L (ft)
25. Travel Time, T (hr)
$$T_t = \frac{L}{3600 * V}$$

Segment ID	E-F			
6.0				
14				
98				
0.002	+ 0.002	+ 0.002	+ 0.002	= 0.00 hr. = 0.1 min.

Total T_c (Sum T_t From Previous Steps) = 21 min.

Time of Concentration (T_c) or Travel Time (T_t) Worksheet
(Derived from Worksheet 3, USDA 210-VI-TR55, Second Ed, June 1986)

Watershed ID: WS 21
 Subwatershed ID:

Existing Conditions X
 Proposed Conditions

Travel Time (T_t)
 Time of Conc. (T_c)

Sheet Flow (Applicable to T_c Only)

1. Surface Description (Table 3-1)
2. Manning's Roughness Coeff. for Sheet Flow, n (Table 3-1)
3. Flow Length, L (Max. = 300 ft, CTDOT Recommends < 150 ft)
4. Two-Year 24-hr rainfall, P_2 (in)
- 5a. Change in Elevation, h (ft)
- 5b. Land Slope, s (ft/ft)
6. Travel Time, T_t (hr)
$$T_t = \frac{0.007(nL)^{0.8}}{P_2^{0.5}(s^{0.4})}$$

Segment ID	A-B
GRASS	0.150
299	3.2
12.0	0.040
0.297	= 17.8 min.

Shallow Concentrated Flow (Assume Hyd. Radius = Depth of Flow)

- 7a. Surface Description
- 7b. Paved or Unpaved
- 7c. Manning's Roughness Coeff., n
- 7d. Depth of Flow, d (ft) (d = 0.4 Unpaved, d = 0.2 Paved)
8. Flow Length, L
- 9a. Change in Elevation, h (ft)
- 9b. Watercourse slope, s (ft/ft)
10. Flow Velocity, V (ft/sec)
$$V = \frac{1.49}{n} (d^{\frac{2}{3}})(s^{\frac{1}{2}})$$
11. Travel Time, T_t (hr)
$$T_t = \frac{L}{3600 * V}$$

Segment ID	B-C			
GRASS	0.050			
UNPV	0.4			
215	5.0			
0.023	2.469			
0.024	+ 0.02 hr.	+ 1.4 min.		

Channel Flow

- 12a. Channel/Conduit Description
- 12b. Cross sectional flow area, A (ft.²)
13. Wetted perimeter, P_w (ft)
14. Hydraulic Radius, R (ft)
$$R = \frac{A}{P_w}$$
- 15a. Change in Elevation, H (ft)
- 15b. Channel Slope, S (ft/ft)
16. Manning's Roughness Coeff., n
17. Flow Velocity, V (ft/sec)
$$V = \frac{1.49}{n} (R^{\frac{2}{3}})(S^{\frac{1}{2}})$$
18. Flow length, L (ft)
19. Travel Time, T (hr)
$$T_t = \frac{L}{3600 * V}$$

Segment ID	C-D			
PIPE	28.27			
18.85	1.50			
4.0	0.015			
0.013	18.244			
271	0.004	+ 0.00 hr.	+ 0.2 min.	

Lake or Reservoir Flow

20. Mean Depth of Lake or Reservoir, D (ft)
21. Wave Velocity Ac, V_w (ft/sec)
$$V_w = (gD)^{0.5}$$
22. Flow Length, L (ft)
25. Travel Time, T (hr)
$$T_t = \frac{L}{3600 * V}$$

Segment ID				
	+ 	+ 	+ 	= hr.
				= min.

Total T_c (Sum T_t From Previous Steps) = 19 min.

Time of Concentration (T_c) or Travel Time (T_t) Worksheet
(Derived from Worksheet 3, USDA 210-VI-TR55, Second Ed, June 1986)

Watershed ID: WS 22
 Subwatershed ID: _____

Existing Conditions X
 Proposed Conditions _____

Travel Time (T_t) _____
 Time of Conc. (T_c) X

Sheet Flow (Applicable to T_c Only)

1. Surface Description (Table 3-1)
2. Manning's Roughness Coeff. for Sheet Flow, n (Table 3-1)
3. Flow Length, L (Max. = 300 ft, CTDOT Recommends < 150 ft)
4. Two-Year 24-hr rainfall, P_2 (in)
- 5a. Change in Elevation, h (ft)
- 5b. Land Slope, s (ft/ft)
6. Travel Time, T_t (hr)
$$T_t = \frac{0.007(nL)^{0.8}}{P_2^{0.5}(s^{0.4})}$$

Segment ID	A-B
FOREST	0.400
256	3.2
16.0	0.063
0.481	= 28.9 min.

Shallow Concentrated Flow (Assume Hyd. Radius = Depth of Flow)

- 7a. Surface Description
- 7b. Paved or Unpaved
- 7c. Manning's Roughness Coeff., n
- 7d. Depth of Flow, d (ft) (d = 0.4 Unpaved, d = 0.2 Paved)
8. Flow Length, L
- 9a. Change in Elevation, h (ft)
- 9b. Watercourse slope, s (ft/ft)
10. Flow Velocity, V (ft/sec)
$$V = \frac{1.49}{n} (d^{\frac{2}{3}})(s^{\frac{1}{2}})$$
11. Travel Time, T_t (hr)
$$T_t = \frac{L}{3600 * V}$$

Segment ID	B-C			
FOREST	0.050			
UNPV	0.4			
496	24.0			
0.048	3.559			
0.039	+ 0.04 hr. = 2.3 min.			

Channel Flow

- 12a. Channel/Conduit Description
- 12b. Cross sectional flow area, A (ft.²)
13. Wetted perimeter, P_w (ft)
14. Hydraulic Radius, R (ft)
$$R = \frac{A}{P_w}$$
- 15a. Change in Elevation, H (ft)
- 15b. Channel Slope, S (ft/ft)
16. Manning's Roughness Coeff., n
17. Flow Velocity, V (ft/sec)
$$V = \frac{1.49}{n} (R^{\frac{2}{3}})(S^{\frac{1}{2}})$$
18. Flow length, L (ft)
19. Travel Time, T (hr)
$$T_t = \frac{L}{3600 * V}$$

Segment ID	C-D			
PIPE	12.56			
3.14	12.56			
6.28	1.00			
0.50	7.0			
7.0	0.025			
0.007	0.013			
0.013	18.220			
5.929	1038			
1038	277			
0.049	+ 0.004 + 0.05 hr. = 3.2 min.			

Lake or Reservoir Flow

20. Mean Depth of Lake or Reservoir, D (ft)
21. Wave Velocity Ac, V_w (ft/sec)
$$V_w = (gD)^{0.5}$$
22. Flow Length, L (ft)
25. Travel Time, T (hr)
$$T_t = \frac{L}{3600 * V}$$

Segment ID				
	+ 0.05 hr. = 3.2 min.			

Total T_c (Sum T_t From Previous Steps) = 34 min.

Time of Concentration (T_c) or Travel Time (T_t) Worksheet
(Derived from Worksheet 3, USDA 210-VI-TR55, Second Ed, June 1986)

Watershed ID: WS 31
 Subwatershed ID: _____

Existing Conditions X
 Proposed Conditions _____

Travel Time (T_t) _____
 Time of Conc. (T_c) X

Sheet Flow (Applicable to T_c Only)

1. Surface Description (Table 3-1)
2. Manning's Roughness Coeff. for Sheet Flow, n (Table 3-1)
3. Flow Length, L (Max. = 300 ft, CTDOT Recommends < 150 ft)
4. Two-Year 24-hr rainfall, P_2 (in)
- 5a. Change in Elevation, h (ft)
- 5b. Land Slope, s (ft/ft)
6. Travel Time, T_t (hr)
$$T_t = \frac{0.007(nL)^{0.8}}{P_2^{0.5}(s^{0.4})}$$

Segment ID	A-B
SCRUB	0.240
228	3.2
5.0	0.022
0.443	= 26.6 min.

Shallow Concentrated Flow (Assume Hyd. Radius = Depth of Flow)

- 7a. Surface Description
- 7b. Paved or Unpaved
- 7c. Manning's Roughness Coeff., n
- 7d. Depth of Flow, d (ft) (d = 0.4 Unpaved, d = 0.2 Paved)
8. Flow Length, L
- 9a. Change in Elevation, h (ft)
- 9b. Watercourse slope, s (ft/ft)
10. Flow Velocity, V (ft/sec)
$$V = \frac{1.49}{n} (d^{\frac{2}{3}})(s^{\frac{1}{2}})$$
11. Travel Time, T_t (hr)
$$T_t = \frac{L}{3600 * V}$$

Segment ID	B-C	C-D		
GRASS	PAVED			
UNPV	PAVE			
0.050	0.025			
0.4	0.2			
408	175			
6.0	2.0			
0.015	0.011			
1.962	2.179			
0.058	+ 0.022	+	+	= 0.08 hr. = 4.8 min.

Channel Flow

- 12a. Channel/Conduit Description
- 12b. Cross sectional flow area, A (ft.²)
13. Wetted perimeter, P_w (ft)
14. Hydraulic Radius, R (ft)
$$R = \frac{A}{P_w}$$
- 15a. Change in Elevation, H (ft)
- 15b. Channel Slope, S (ft/ft)
16. Manning's Roughness Coeff., n
17. Flow Velocity, V (ft/sec)
$$V = \frac{1.49}{n} (R^{\frac{2}{3}})(S^{\frac{1}{2}})$$
18. Flow length, L (ft)
19. Travel Time, T (hr)
$$T_t = \frac{L}{3600 * V}$$

Segment ID	D-E			
PIPE				
3.14				
6.28				
0.50				
1.0				
0.002				
0.013				
2.940				
603				
0.057	+	+	+	= 0.06 hr. = 3.4 min.

Lake or Reservoir Flow

20. Mean Depth of Lake or Reservoir, D (ft)
21. Wave Velocity Ac, V_w (ft/sec)
$$V_w = (gD)^{0.5}$$
22. Flow Length, L (ft)
25. Travel Time, T (hr)
$$T_t = \frac{L}{3600 * V}$$

Segment ID				
	+	+	+	= hr. = min.

Total T_c (Sum T_t From Previous Steps) = 35 min.



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East Branch Trout Brook

West Hartford, CT

Calculated By: FRM 8/9/2018

Checked By: JCM 8/20/2018

MMI# 1197-21

Time of Concentration (T_c) or Travel Time (T_t) Worksheet

(Derived from Worksheet 3, USDA 210-VI-TR55, Second Ed, June 1986)

Watershed ID: WS 32
Subwatershed ID:

Existing Conditions _____ X
Proposed Conditions

Travel Time (Tt) _____
Time of Conc. (Tc) **X**

Sheet Flow (Applicable to T_c Only)

1. Surface Description (Table 3-1)
 2. Manning's Roughness Coeff. for Sheet Flow, n (Table 3-1)
 3. Flow Length, L (Max. = 300 ft, CTDOT Recommends < 150 ft)
 4. Two-Year 24-hr rainfall, P_2 (in)
 - 5a. Change in Elevation, h (ft)
 - 5b. Land Slope, s (ft/ft)
 6. Travel Time, T_t (hr)
$$T_t = \frac{0.007(nL)^{0.8}}{P_2^{0.5}(s^{0.4})}$$

Segment ID ft)	A-B
	FOREST
	0.400
	291
	3.2
	23.0
	0.079
	0.484
	= 29.1 min.

Shallow Concentrated Flow (Assume Hyd. Radius = Depth of Flow)

- 7a. Surface Description
 7b. Paved or Unpaved
 7c. Manning's Roughness Coeff., n
 7d. Depth of Flow, d (ft) ($d = 0.4$ Unpaved, $d = 0.2$ Paved)
 8. Flow Length, L
 9a. Change in Elevation, h (ft)
 9b. Watercourse slope, s (ft/ft)
 10. Flow Velocity, V (ft/sec)
 11. Travel Time, T_t (hr)

$$V = \frac{1.49}{n} (d^{\frac{2}{3}})(s^{\frac{1}{2}})$$

$$T_t = \frac{L}{3600 * V}$$

Channel Flow

- 12a. Channel/Conduit Description

12b. Cross sectional flow area, A (ft.²)

13. Wetted perimeter, P_w (ft)

14. Hydraulic Radius, R (ft) $R = \frac{A}{P_w}$

15a. Change in Elevation, H (ft)

15b. Channel Slope, S (ft/ft)

16. Manning's Roughness Coeff., n

17. Flow Velocity, V (ft/sec) $V = \frac{1.49}{n} (R^{\frac{2}{3}})(s^{\frac{1}{2}})$

18. Flow length, L (ft)

19. Travel Time, T (hr) $T_t = \frac{L}{3600 * V}$

Segment ID	D-E			
PIPE				
3.14				
6.28				
0.50				
30.0				
0.008				
0.022				
3.755				
3873				
0.286	+	+	+	=
				0.29
				=
				17.2
				hr.
				min.

Lake or Reservoir Flow

20. Mean Depth of Lake or Reservoir, D (ft)
 21. Wave Velocity Ac, V_w (ft/sec) $V_w = (gD)^{0.5}$
 22. Flow Length, L (ft)
 25. Travel Time, T (hr) $T_t = \frac{L}{3600 * V}$

The diagram consists of four rectangular boxes arranged horizontally. Each box has a vertical line on its left side. Between the first and second boxes is a plus sign (+). Between the third and fourth boxes is another plus sign (+). To the right of the fourth box is an equals sign (=) above a second equals sign (=). To the right of the second equals sign is a rectangular box containing the letters "hr." Below the first equals sign is a rectangular box containing the letters "min.".

Total T_c (Sum T_t From Previous Steps) = 51 min.



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Cheshire, Connecticut 06410
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East Branch Trout Brook

West Hartford, CT

Calculated By: FRM 8/9/2018

Checked By: JCM 8/20/2018

MMI# 1197-21

Time of Concentration (T_c) or Travel Time (T_t) Worksheet

(Derived from Worksheet 3, USDA 210-VI-TR55, Second Ed, June 1986)

Watershed ID: WS 40
Subwatershed ID:

Existing Conditions _____ X
Proposed Conditions

Travel Time (Tt) _____
Time of Conc. (Tc) **X**

Sheet Flow (Applicable to T_c Only)

1. Surface Description (Table 3-1)
 2. Manning's Roughness Coeff. for Sheet Flow, n (Table 3-1)
 3. Flow Length, L (Max. = 300 ft, CTDOT Recommends < 150 ft)
 4. Two-Year 24-hr rainfall, P_2 (in)
 - 5a. Change in Elevation, h (ft)
 - 5b. Land Slope, s (ft/ft)
 6. Travel Time, T_t (hr)
$$T_t = \frac{0.007(nL)^{0.8}}{P_2^{0.5}(s^{0.4})}$$

Segment ID	A-B
	GRASS
	0.200
ft)	300
	3.2
	13.0
	0.043
	0.363
	= 21.8 min.

Shallow Concentrated Flow (Assume Hyd. Radius = Depth of Flow)

- 7a. Surface Description
 7b. Paved or Unpaved
 7c. Manning's Roughness Coeff., n
 7d. Depth of Flow, d (ft) ($d = 0.4$ Unpaved, $d = 0.2$ Paved)
 8. Flow Length, L
 9a. Change in Elevation, h (ft)
 9b. Watercourse slope, s (ft/ft)
 10. Flow Velocity, V (ft/sec) $V = \frac{1.49}{n} (d^{\frac{2}{3}})(s^{\frac{1}{2}})$
 11. Travel Time, T_t (hr) $T_t = \frac{L}{3600 * V}$

Channel Flow

- 12a. Channel/Conduit Description

12b. Cross sectional flow area, A (ft.²)

13. Wetted perimeter, P_w (ft)

14. Hydraulic Radius, R (ft) $R = \frac{A}{P_w}$

15a. Change in Elevation, H (ft)

15b. Channel Slope, S (ft/ft)

16. Manning's Roughness Coeff., n

17. Flow Velocity, V (ft/sec) $V = \frac{1.49}{n} (R^{\frac{2}{3}})(s^{\frac{1}{2}})$

18. Flow length, L (ft)

19. Travel Time, T (hr) $T_t = \frac{L}{3600 * V}$

Lake or Reservoir Flow

20. Mean Depth of Lake or Reservoir, D (ft)
 21. Wave Velocity Ac, V_w (ft/sec) $V_w = (gD)^{0.5}$
 22. Flow Length, L (ft)
 25. Travel Time, T (hr) $T_t = \frac{L}{3600 * V}$

The diagram consists of four rectangular boxes arranged horizontally. Each box has a vertical stack of five horizontal lines inside it, representing a segment. Below the first three boxes is a plus sign (+). To the right of the fourth box is an equals sign (=). To the right of the equals sign is a box containing two lines of text: "hr." on top and "min." on the bottom, indicating the units for the total duration.

Total T_c (Sum T_t From Previous Steps) = 37 min.

In-Channel Storage Upstream Each Culvert - Stage/Storage and Rating Curve Data

Worksheet 1: Existing Storage

Project: 1197-21 East Branch Trout Brook

Location: West Hartford, CT

calculated from CAD contour lines # interpolated numbers based on data available
 # average from data obtained from CAD discharge data obtained from HEC-RAS

In-Channel Detention Above Structure 1 - Trout Brook Drive STA. 450 Culv U

	Elevation (ft)	Surface Area (ft ²)	Volume (ft ³)	Volume (ac-ft)	Cumulative Volume (ac-ft)	Discharge (cfs)
	83.4	500	0.0	0.000	0.000	0.000
	84.0	2,327	833.8	0.019	0.019	10.710
	85.0	7,390	4,858.2	0.112	0.131	58.490
	86.0	12,453	9,921.5	0.228	0.358	145.390
	87.0	20,516	16,484.3	0.378	0.737	227.260
	88.0	28,578	24,546.8	0.564	1.300	290.538
	89.0	57,314	42,946.0	0.986	2.286	353.880
	90.0	86,050	71,682.0	1.646	3.932	416.610
* Overtops	90.1	110,374	9,821.2	0.225	4.157	423.260
	92.0	475,233	556,326.6	12.772	16.929	1028.980
	93.0	721,924	598,578.6	13.741	30.670	2389.510
	94.0	968,615	845,269.8	19.405	50.075	3733.900

In-Channel Detention Above Structure 2 - Pedestrian Walkway STA. 1200

	Elevation (ft)	Surface Area (ft ²)	Volume (ft ³)	Volume (ac-ft)	Cumulative Volume (ac-ft)	Discharge (cfs)
	85.0	200	0.0	0.000	0.000	0.000
	86.0	500	350.0	0.008	0.008	10.200
	87.0	2,000	1,250.0	0.029	0.037	35.510
	88.0	5,657	3,828.5	0.088	0.125	82.790
	89.0	8,229	6,943.0	0.159	0.284	149.500
	90.0	10,801	9,515.0	0.218	0.502	261.990
	91.0	13,484	12,142.5	0.279	0.781	472.500
	92.0	16,167	14,825.5	0.340	1.122	525.760
	93.0	19,575	17,871.0	0.410	1.532	552.400
	94.0	22,983	21,279.0	0.488	2.020	579.860
	95.0	31,888	27,435.5	0.630	2.650	607.020
* Overtops	95.70	65,130	33,956.3	0.780	3.430	626.170
	96.0	87,178	22,846.2	0.524	3.954	713.800
	98.0	1,106,949	1,194,127.2	27.413	31.368	4421.140
	100.0	2,036,499	3,143,448.5	72.164	103.531	8597.090

In-Channel Storage Upstream Each Culvert - Stage/Storage and Rating Curve Data

Worksheet 2: Existing Storage

Project: 1197-21 East Branch Trout Brook

Location: West Hartford, CT

calculated from CAD contour lines # interpolated numbers based on data available
average from data obtained from CAD **discharge** data obtained from HEC-RAS

In-Channel Detention Above Structure 3 - Lindy Ln/Haynes Rd/Lawler Ave STA. 2135

Elevation (ft)	Surface Area (ft ²)	Volume (ft ³)	Volume (ac-ft)	Cumulative Volume (ac-ft)	Discharge (cfs)
91.60	350	0.0	0.000	0.000	0.000
92.0	591	188.3	0.004	0.004	2.540
93.0	2,887	1,739.3	0.040	0.044	19.640
94.0	5,183	4,035.1	0.093	0.137	51.100
95.0	7,825	6,504.0	0.149	0.286	86.540
96.0	10,467	9,146.0	0.210	0.496	116.630
97.0	25,278	17,872.4	0.410	0.906	140.840
98.0	40,089	32,683.3	0.750	1.657	166.060
98.10	52,079	4,608.4	0.106	1.763	168.580
99.0	92,048	64,857.2	1.489	3.251	191.280
99.35	111,533	35,626.8	0.818	4.069	200.400
* Overtops	100.35	228,611	170,072.0	7.974	320.000
	100.4	232,000	11,515.3	8.238	1305.000
	101.0	369,615	165,444.0	12.036	2709.500
	102.0	595,221	506,538.6	23.665	5050.180
	106.20	3,335,290	8,254,071.9	213.152	14881.140

In-Channel Detention Above Structure 4 - Albany Avenue STA. 3250

Elevation (ft)	Surface Area (ft ²)	Volume (ft ³)	Volume (ac-ft)	Cumulative Volume (ac-ft)	Discharge (cfs)
95.60	1,200	0.0	0.000	201.116	0.000
96.0	2,084	656.9	0.015	201.131	5.470
97.0	6,421	4,252.7	0.098	201.229	30.900
98.0	10,758	8,589.4	0.197	201.426	71.270
99.0	31,010	20,883.7	0.479	201.905	108.540
100.0	51,262	41,135.8	0.944	202.850	131.870
101.0	112,314	81,788.1	1.878	204.727	155.190
102.0	173,367	142,840.7	3.279	208.006	178.560
* Overtops	102.60	260,200	130,070.1	210.992	192.500
	103.0	310,609	114,161.7	213.613	226.100
	103.5	379,229	172,459.5	217.572	437.000
	104.0	447,850	206,770.0	222.319	938.140
	106.0	673,467	1,121,317.3	248.061	9064.700
	107.44	895,921	1,129,959.5	274.001	15000.000

In-Channel Storage Upstream Each Culvert - Stage/Storage and Rating Curve Data

Worksheet 3: Phase 1 Storage

Project: 1197-21 East Branch Trout Brook
 Location: West Hartford, CT

calculated from CAD contour lines # interpolated numbers based on data available
 # average from data obtained from CAD discharge data obtained from HEC-RAS

In-Channel Detention Above Structure 1 - Trout Brook Drive STA. 450 Culv U

Elevation (ft)	Surface Area (ft ²)	Volume (ft ³)	Volume (ac-ft)	Cumulative Volume (ac-ft)	Discharge (cfs)
83.4	500	0.0	0.000	0.000	0.000
84.0	2,327	833.8	0.019	0.019	28.980
85.0	7,390	4,858.2	0.112	0.131	118.680
86.0	12,453	9,921.5	0.228	0.358	260.730
87.0	20,516	16,484.3	0.378	0.737	445.010
88.0	28,578	24,546.8	0.564	1.300	630.000
89.0	57,314	42,946.0	0.986	2.286	967.740
90.0	86,050	71,682.0	1.646	3.932	1952.480
* Overtops	90.1	110,374	9,821.2	4.157	2058.580
	92.0	475,233	556,326.6	16.929	4074.520
	93.0	721,924	598,578.6	30.670	5135.540
	94.0	968,615	845,269.8	50.075	6196.560

In-Channel Detention Above Structure 2 - Pedestrian Walkway

Elevation (ft)	Surface Area (ft ²)	Volume (ft ³)	Volume (ac-ft)	Cumulative Volume (ac-ft)	Discharge (cfs)
85.0	200	0.0	0.000	0.000	0.000
86.0	500	350.0	0.008	0.008	8.790
87.0	2,000	1,250.0	0.029	0.037	36.230
88.0	5,657	3,828.5	0.088	0.125	82.950
89.0	8,229	6,943.0	0.159	0.284	146.440
90.0	10,801	9,515.0	0.218	0.502	261.410
91.0	13,484	12,142.5	0.279	0.781	477.390
92.0	16,167	14,825.5	0.340	1.122	526.200
93.0	19,575	17,871.0	0.410	1.532	552.400
94.0	22,983	21,279.0	0.488	2.020	579.860
95.0	31,888	27,435.5	0.630	2.650	606.250
* Overtops	95.70	65,130	33,956.3	3.430	626.170
	96.0	87,178	22,846.2	3.954	724.160
98.0	1,106,949	1,194,127.2	27.413	31.368	4425.920
100.0	2,036,499	3,143,448.5	72.164	103.531	8635.490

In-Channel Storage Upstream Each Culvert - Stage/Storage and Rating Curve Data

Worksheet 4: Phase 1 Storage

Project: 1197-21 East Branch Trout Brook

Location: West Hartford, CT

calculated from CAD contour lines # interpolated numbers based on data available
average from data obtained from CAD discharge data obtained from HEC-RAS

In-Channel Detention Above Structure 3 - Lindy Ln/Haynes Rd/Lawler Ave

Elevation (ft)	Surface Area (ft ²)	Volume (ft ³)	Volume (ac-ft)	Cumulative Volume (ac-ft)	Discharge (cfs)
91.60	350	0.0	0.000	0.000	0.000
92.0	591	188.3	0.004	0.004	2.250
93.0	2,887	1,739.3	0.040	0.044	19.500
94.0	5,183	4,035.1	0.093	0.137	51.100
95.0	7,825	6,504.0	0.149	0.286	88.550
96.0	10,467	9,146.0	0.210	0.496	115.200
97.0	25,278	17,872.4	0.410	0.906	137.080
98.0	40,089	32,683.3	0.750	1.657	159.700
98.10	52,079	4,608.4	0.106	1.763	162.130
99.0	92,048	64,857.2	1.489	3.251	187.000
99.35	111,533	35,626.8	0.818	4.069	200.000
* Overtops	100.35	228,611	170,072.0	7.974	320.000
	100.4	232,000	11,515.3	8.238	1200.000
	101.0	369,615	165,444.0	12.036	3150.000
	102.0	595,221	506,538.6	23.665	5000.000
	106.20	3,335,290	8,254,071.9	213.152	15000.000

In-Channel Detention Above Structure 4 - Albany Avenue

Elevation (ft)	Surface Area (ft ²)	Volume (ft ³)	Volume (ac-ft)	Cumulative Volume (ac-ft)	Discharge (cfs)
95.60	1,200	0.0	0.000	0.000	0.000
96.0	2,084	656.9	0.015	0.015	4.900
97.0	6,421	4,252.7	0.098	0.113	29.450
98.0	10,758	8,589.4	0.197	0.310	76.200
99.0	31,010	20,883.7	0.479	0.789	109.000
100.0	51,262	41,135.8	0.944	1.734	129.460
101.0	112,314	81,788.1	1.878	3.611	149.250
102.0	173,367	142,840.7	3.279	6.890	171.270
* Overtops	102.60	260,200	130,070.1	9.876	187.900
	103.0	310,609	114,161.7	12.497	211.450
	103.5	379,229	172,459.5	16.456	437.000
	104.0	447,850	206,770.0	21.203	986.780
	106.0	673,467	1,121,317.3	46.945	9078.400
	107.44	895,921	1,129,959.5	72.885	15000.000

In-Channel Storage Upstream Each Culvert - Stage/Storage and Rating Curve Data

Worksheet 5: Phase 2 Storage

Project: 1197-21 East Branch Trout Brook
 Location: West Hartford, CT

calculated from CAD contour lines # interpolated numbers based on data available
 # average from data obtained from CAD discharge data obtained from HEC-RAS

In-Channel Detention Above Structure 1 - Trout Brook Drive STA. 450 Culv U

	Elevation (ft)	Surface Area (ft ²)	Volume (ft ³)	Volume (ac-ft)	Cumulative Volume (ac-ft)	Discharge (cfs)
* Overtops	83.4	500	0.0	0.000	0.000	0.000
	84.0	2,327	833.8	0.019	0.019	28.980
	85.0	7,390	4,858.2	0.112	0.131	118.680
	86.0	12,453	9,921.5	0.228	0.358	260.730
	87.0	20,516	16,484.3	0.378	0.737	445.010
	88.0	28,578	24,546.8	0.564	1.300	630.000
	89.0	57,314	42,946.0	0.986	2.286	967.740
	90.0	86,050	71,682.0	1.646	3.932	1952.480
	90.1	110,374	9,821.2	0.225	4.157	2058.580
	92.0	475,233	556,326.6	12.772	16.929	4074.520
	93.0	721,924	598,578.6	13.741	30.670	5135.540
	94.0	968,615	845,269.8	19.405	50.075	6196.560

In-Channel Detention Above Structure 2 - Pedestrian Walkway STA. 1200

	Elevation (ft)	Surface Area (ft ²)	Volume (ft ³)	Volume (ac-ft)	Cumulative Volume (ac-ft)	Discharge (cfs)
* Overtops	85.0	200	0.0	0.000	0.000	0.000
	86.0	500	350.0	0.008	0.008	19.020
	87.0	2,000	1,250.0	0.029	0.037	58.570
	88.0	5,657	3,828.5	0.088	0.125	123.680
	89.0	8,229	6,943.0	0.159	0.284	231.780
	90.0	10,801	9,515.0	0.218	0.502	752.550
	91.0	13,484	12,142.5	0.279	0.781	795.000
	92.0	16,167	14,825.5	0.340	1.122	837.440
	93.0	19,575	17,871.0	0.410	1.532	879.890
	94.0	22,983	21,279.0	0.488	2.020	922.340
	95.0	31,888	27,435.5	0.630	2.650	964.790
	95.70	65,130	33,956.3	0.780	3.430	994.880
	96.0	87,178	22,846.2	0.524	3.954	1340.130
	98.0	1,106,949	1,194,127.2	27.413	31.368	5329.300
	100.0	2,036,499	3,143,448.5	72.164	103.531	9318.460

In-Channel Storage Upstream Each Culvert - Stage/Storage and Rating Curve Data

Worksheet 6: Phase 2 Storage

Project: 1197-21 East Branch Trout Brook

Location: West Hartford, CT

calculated from CAD contour lines # interpolated numbers based on data available
average from data obtained from CAD discharge data obtained from HEC-RAS

In-Channel Detention Above Structure 3 - Lindy Ln/Haynes Rd/Lawler Ave

	Elevation (ft)	Surface Area (ft ²)	Volume (ft ³)	Volume (ac-ft)	Cumulative Volume (ac-ft)	Discharge (cfs)
	91.60	350	0.0	0.000	0.000	0.000
	92.0	591	188.3	0.004	0.004	2.250
	93.0	2,887	1,739.3	0.040	0.044	19.500
	94.0	5,183	4,035.1	0.093	0.137	51.100
	95.0	7,825	6,504.0	0.149	0.286	88.550
	96.0	10,467	9,146.0	0.210	0.496	115.200
	97.0	25,278	17,872.4	0.410	0.906	137.080
	98.0	40,089	32,683.3	0.750	1.657	159.700
	98.10	52,079	4,608.4	0.106	1.763	162.130
	99.0	92,048	64,857.2	1.489	3.251	187.000
	99.35	111,533	35,626.8	0.818	4.069	200.000
* Overtops	100.35	228,611	170,072.0	3.904	7.974	320.000
	100.4	232,000	11,515.3	0.264	8.238	1200.000
	101.0	369,615	165,444.0	3.798	12.036	3150.000
	102.0	595,221	506,538.6	11.629	23.665	5000.000
	106.20	3,335,290	8,254,071.9	189.487	213.152	15000.000

In-Channel Detention Above Structure 4 - Albany Avenue

	Elevation (ft)	Surface Area (ft ²)	Volume (ft ³)	Volume (ac-ft)	Cumulative Volume (ac-ft)	Discharge (cfs)
	95.60	1,200	0.0	0.000	0.000	0.000
	96.0	2,084	656.9	0.015	0.015	4.900
	97.0	6,421	4,252.7	0.098	0.113	29.450
	98.0	10,758	8,589.4	0.197	0.310	76.200
	99.0	31,010	20,883.7	0.479	0.789	109.000
	100.0	51,262	41,135.8	0.944	1.734	129.460
	101.0	112,314	81,788.1	1.878	3.611	149.250
	102.0	173,367	142,840.7	3.279	6.890	171.270
* Overtops	102.60	260,200	130,070.1	2.986	9.876	187.900
	103.0	310,609	114,161.7	2.621	12.497	211.450
	103.5	379,229	172,459.5	3.959	16.456	437.000
	104.0	447,850	206,770.0	4.747	21.203	986.780
	106.0	673,467	1,121,317.3	25.742	46.945	9078.400
	107.44	895,921	1,129,959.5	25.940	72.885	15000.000

In-Channel Storage Upstream Each Culvert - Stage/Storage and Rating Curve Data

Worksheet 7: Phase 3 Storage

Project: 1197-21 East Branch Trout Brook
 Location: West Hartford, CT

calculated from CAD contour lines
 # average from data obtained from CAD # interpolated numbers based on data available
 data obtained from HEC-RAS

In-Channel Detention Above Structure 1 - Trout Brook Drive STA. 450 Culv U

Elevation (ft)	Surface Area (ft ²)	Volume (ft ³)	Volume (ac-ft)	Cumulative Volume (ac-ft)	Discharge (cfs)
83.4	500	0.0	0.000	0.000	0.000
84.0	2,327	833.8	0.019	0.019	28.980
85.0	7,390	4,858.2	0.112	0.131	118.680
86.0	12,453	9,921.5	0.228	0.358	260.730
87.0	20,516	16,484.3	0.378	0.737	445.010
88.0	28,578	24,546.8	0.564	1.300	630.000
89.0	57,314	42,946.0	0.986	2.286	967.740
90.0	86,050	71,682.0	1.646	3.932	1952.480
* Overtops	90.1	110,374	9,821.2	4.157	2058.580
	92.0	475,233	556,326.6	16.929	4074.520
	93.0	721,924	598,578.6	30.670	5135.540
	94.0	968,615	845,269.8	50.075	6196.560

In-Channel Detention Above Structure 2 - Pedestrian Walkway STA. 1200

Elevation (ft)	Surface Area (ft ²)	Volume (ft ³)	Volume (ac-ft)	Cumulative Volume (ac-ft)	Discharge (cfs)
85.0	200	0.0	0.000	0.000	0.000
86.0	500	350.0	0.008	0.008	19.020
87.0	2,000	1,250.0	0.029	0.037	58.570
88.0	5,657	3,828.5	0.088	0.125	123.680
89.0	8,229	6,943.0	0.159	0.284	231.780
90.0	10,801	9,515.0	0.218	0.502	752.550
91.0	13,484	12,142.5	0.279	0.781	795.000
92.0	16,167	14,825.5	0.340	1.122	837.440
93.0	19,575	17,871.0	0.410	1.532	879.890
94.0	22,983	21,279.0	0.488	2.020	922.340
95.0	31,888	27,435.5	0.630	2.650	964.790
* Overtops	95.70	65,130	33,956.3	3.430	994.880
	96.0	87,178	22,846.2	3.954	1340.130
	98.0	1,106,949	1,194,127.2	31.368	5329.300
	100.0	2,036,499	3,143,448.5	103.531	9318.460

In-Channel Storage Upstream Each Culvert - Stage/Storage and Rating Curve Data

Worksheet 8: Phase 3 Storage

Project: 1197-21 East Branch Trout Brook
 Location: West Hartford, CT

calculated from CAD contour lines # interpolated numbers based on data available
 # average from data obtained from CAD discharge data obtained from HEC-RAS

In-Channel Detention Above Structure 3 - Lindy Ln/Haynes Rd/Lawler Ave STA. 213

Elevation (ft)	Surface Area (ft ²)	Volume (ft ³)	Volume (ac-ft)	Cumulative Volume (ac-ft)	Discharge (cfs)
91.60	350	0.0	0.000	0.000	0.000
92.0	591	188.3	0.004	0.004	15.560
93.0	2,887	1,739.3	0.040	0.044	95.030
94.0	5,183	4,035.1	0.093	0.137	201.000
95.0	7,825	6,504.0	0.149	0.286	219.750
96.0	10,467	9,146.0	0.210	0.496	238.490
97.0	25,278	17,872.4	0.410	0.906	462.010
98.0	40,089	32,683.3	0.750	1.657	587.840
98.10	52,079	4,608.4	0.106	1.763	592.480
99.0	92,048	64,857.2	1.489	3.251	652.150
99.35	111,533	35,626.8	0.818	4.069	738.300
* Overtops	100.35	228,611	170,072.0	7.974	2163.450
	100.4	232,000	11,515.3	8.238	2272.350
	101.0	369,615	165,444.0	12.036	3579.210
	102.0	595,221	506,538.6	23.665	5757.300
	106.20	3,335,290	8,254,071.9	189.487	213.152
					14905.300

In-Channel Detention Above Structure 4 - Albany Avenue

Elevation (ft)	Surface Area (ft ²)	Volume (ft ³)	Volume (ac-ft)	Cumulative Volume (ac-ft)	Discharge (cfs)
95.60	1,200	0.0	0.000	0.000	0.000
96.0	2,084	656.9	0.015	0.015	4.900
97.0	6,421	4,252.7	0.098	0.113	29.450
98.0	10,758	8,589.4	0.197	0.310	76.200
99.0	31,010	20,883.7	0.479	0.789	109.000
100.0	51,262	41,135.8	0.944	1.734	129.460
101.0	112,314	81,788.1	1.878	3.611	149.250
102.0	173,367	142,840.7	3.279	6.890	171.270
* Overtops	102.60	260,200	130,070.1	2.986	9.876
	103.0	310,609	114,161.7	2.621	12.497
	103.5	379,229	172,459.5	3.959	16.456
	104.0	447,850	206,770.0	4.747	21.203
	106.0	673,467	1,121,317.3	25.742	46.945
	107.44	895,921	1,129,959.5	25.940	72.885
					15000.000

In-Channel Storage Upstream Each Culvert - Stage/Storage and Rating Curve Data

Worksheet 9: Phase 4 Storage

Project: 1197-21 East Branch Trout Brook
 Location: West Hartford, CT

calculated from CAD contour lines # interpolated numbers based on data available
 # average from data obtained from CAD discharge data obtained from HEC-RAS

In-Channel Detention Above Structure 1 - Trout Brook Drive STA. 450 Culv U

	Elevation (ft)	Surface Area (ft ²)	Volume (ft ³)	Volume (ac-ft)	Cumulative Volume (ac-ft)	Discharge (cfs)
	83.4	500	0.0	0.000	0.000	0.000
	84.0	2,327	833.8	0.019	0.019	28.980
	85.0	7,390	4,858.2	0.112	0.131	118.680
	86.0	12,453	9,921.5	0.228	0.358	260.730
	87.0	20,516	16,484.3	0.378	0.737	445.010
	88.0	28,578	24,546.8	0.564	1.300	630.000
	89.0	57,314	42,946.0	0.986	2.286	967.740
	90.0	86,050	71,682.0	1.646	3.932	1952.480
* Overtops	90.1	110,374	9,821.2	0.225	4.157	2058.580
	92.0	475,233	556,326.6	12.772	16.929	4074.520
	93.0	721,924	598,578.6	13.741	30.670	5135.540
	94.0	968,615	845,269.8	19.405	50.075	6196.560

In-Channel Detention Above Structure 2 - Pedestrian Walkway STA. 1200

	Elevation (ft)	Surface Area (ft ²)	Volume (ft ³)	Volume (ac-ft)	Cumulative Volume (ac-ft)	Discharge (cfs)
	85.0	200	0.0	0.000	0.000	0.000
	86.0	500	350.0	0.008	0.008	19.020
	87.0	2,000	1,250.0	0.029	0.037	58.570
	88.0	5,657	3,828.5	0.088	0.125	123.680
	89.0	8,229	6,943.0	0.159	0.284	231.780
	90.0	10,801	9,515.0	0.218	0.502	752.550
	91.0	13,484	12,142.5	0.279	0.781	795.000
	92.0	16,167	14,825.5	0.340	1.122	837.440
	93.0	19,575	17,871.0	0.410	1.532	879.890
	94.0	22,983	21,279.0	0.488	2.020	922.340
	95.0	31,888	27,435.5	0.630	2.650	964.790
* Overtops	95.70	65,130	33,956.3	0.780	3.430	994.880
	96.0	87,178	22,846.2	0.524	3.954	1340.130
	98.0	1,106,949	1,194,127.2	27.413	31.368	5329.300
	100.0	2,036,499	3,143,448.5	72.164	103.531	9318.460

In-Channel Storage Upstream Each Culvert - Stage/Storage and Rating Curve Data

Worksheet 10: Phase 4 Storage

Project: 1197-21 East Branch Trout Brook
 Location: West Hartford, CT

calculated from CAD contour lines # interpolated numbers based on data available
 # average from data obtained from CAD discharge data obtained from HEC-RAS

In-Channel Detention Above Structure 3 - Lindy Ln/Haynes Rd/Lawler Ave STA. 2135

Elevation (ft)	Surface Area (ft ²)	Volume (ft ³)	Volume (ac-ft)	Cumulative Volume (ac-ft)	Discharge (cfs)
91.60	350	0.0	0.000	0.000	0.000
92.0	591	188.3	0.004	0.004	15.560
93.0	2,887	1,739.3	0.040	0.044	95.030
94.0	5,183	4,035.1	0.093	0.137	201.000
95.0	7,825	6,504.0	0.149	0.286	219.750
96.0	10,467	9,146.0	0.210	0.496	238.490
97.0	25,278	17,872.4	0.410	0.906	462.010
98.0	40,089	32,683.3	0.750	1.657	587.840
98.10	52,079	4,608.4	0.106	1.763	592.480
99.0	92,048	64,857.2	1.489	3.251	652.150
99.35	111,533	35,626.8	0.818	4.069	738.300
* Overtops	100.35	228,611	170,072.0	3.904	7.974
	100.4	232,000	11,515.3	0.264	8.238
	101.0	369,615	165,444.0	3.798	12.036
	102.0	595,221	506,538.6	11.629	23.665
	106.20	3,335,290	8,254,071.9	189.487	213.152
					14905.300

In-Channel Detention Above Structure 4 - Albany Avenue STA. 3250

Elevation (ft)	Surface Area (ft ²)	Volume (ft ³)	Volume (ac-ft)	Cumulative Volume (ac-ft)	Discharge (cfs)
95.60	1,200	0.0	0.000	0.000	0.000
96.0	2,084	656.9	0.015	0.015	8.490
97.0	6,421	4,252.7	0.098	0.113	48.230
98.0	10,758	8,589.4	0.197	0.310	106.500
99.0	31,010	20,883.7	0.479	0.789	187.440
100.0	51,262	41,135.8	0.944	1.734	253.330
101.0	112,314	81,788.1	1.878	3.611	316.500
102.0	173,367	142,840.7	3.279	6.890	415.750
* Overtops	102.60	260,200	130,070.1	2.986	9.876
	103.0	310,609	114,161.7	2.621	12.497
	103.5	379,229	172,459.5	3.959	16.456
	104.0	447,850	206,770.0	4.747	21.203
	106.0	673,467	1,121,317.3	25.742	46.945
	107.44	895,921	1,129,959.5	25.940	72.885
					15000.000

Worksheet 1: Existing Conditions HEC-HMS Results

Project: 1197-21 East Branch Trout Brook

Location: West Hartford, CT

2YR-Ex Cond

Project: EBrTroutBrk Simulation Run: 2YR-Existing-Conditions

Start of Run: 01Jun2018, 00:00 Basin Model: ExCond-EBrTrtBrk
 End of Run: 02Jun2018, 00:01 Meteorologic Model: NRCC-2YR-24HR
 Compute Time: 15Aug2018, 14:23:14 Control Specifications: Control 1

10YR-Ex Cond

Project: EBrTroutBrk Simulation Run: 10YR-Existing-Conditions

Start of Run: 01Jun2018, 00:00 Basin Model: ExCond-EBrTrtBrk
 End of Run: 02Jun2018, 00:01 Meteorologic Model: NRCC-10YR-24HR
 Compute Time: 15Aug2018, 14:22:51 Control Specifications: Control 1

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
WS-32	0.3123	167.6	01Jun2018, 12:30	1.82
WS-40	0.17136	44.8	01Jun2018, 12:28	0.87
STR-4 INFLOW	0.17136	44.8	01Jun2018, 12:28	0.87
STR-4	0.17136	43.7	01Jun2018, 12:31	0.87
STR-4 OUTFLOW	0.48366	211.1	01Jun2018, 12:31	1.49
Reach-30	0.48366	208.8	01Jun2018, 12:34	1.48
WS-31	0.04372	19.2	01Jun2018, 12:25	1.91
STR-3 INFLOW	0.52738	225.9	01Jun2018, 12:33	1.51
STR-3	0.52738	176.4	01Jun2018, 12:47	1.51
WS-22	0.09784	23.2	01Jun2018, 12:26	0.98
STR-3 OUTFLOW	0.62522	191.1	01Jun2018, 12:43	1.43
Reach-20	0.62522	191	01Jun2018, 12:44	1.43
WS-21	0.010125	4.2	01Jun2018, 12:15	1.16
STR-2 INFLOW	0.635345	192.2	01Jun2018, 12:44	1.42
STR-2	0.635345	192.1	01Jun2018, 12:45	1.42
Reach-10	0.635345	191.7	01Jun2018, 12:47	1.42
WS-10	0.0536719	28.2	01Jun2018, 12:16	1.47
STR-1 INFLOW	0.6890169	199.4	01Jun2018, 12:44	1.42
STR-1	0.6890169	198.6	01Jun2018, 12:49	1.42
Reach-0	0.6890169	198.6	01Jun2018, 12:49	1.42
Sink-0	0.6890169	198.6	01Jun2018, 12:49	1.42

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
WS-32	0.3123	277.9	01Jun2018, 12:34	3.32
WS-40	0.17136	110.3	01Jun2018, 12:26	2.11
STR-4 INFLOW	0.17136	110.3	01Jun2018, 12:26	2.11
STR-4	0.17136	100	01Jun2018, 12:34	2.11
STR-4 OUTFLOW	0.48366	378	01Jun2018, 12:34	2.89
Reach-30	0.48366	370.9	01Jun2018, 12:39	2.88
WS-31	0.04372	38.7	01Jun2018, 12:24	3.34
STR-3 INFLOW	0.52738	399.2	01Jun2018, 12:38	2.92
STR-3	0.52738	305	01Jun2018, 12:57	2.91
WS-22	0.09784	60.4	01Jun2018, 12:25	2.15
STR-3 OUTFLOW	0.62522	331.4	01Jun2018, 12:54	2.79
Reach-20	0.62522	331.3	01Jun2018, 12:55	2.79
WS-21	0.010125	9.7	01Jun2018, 12:15	2.7
STR-2 INFLOW	0.635345	333.4	01Jun2018, 12:55	2.79
STR-2	0.635345	333.3	01Jun2018, 12:56	2.78
Reach-10	0.635345	332.2	01Jun2018, 12:58	2.78
WS-10	0.0536719	58.3	01Jun2018, 12:16	3.13
STR-1 INFLOW	0.6890169	344.7	01Jun2018, 12:58	2.8
STR-1	0.6890169	333.1	01Jun2018, 13:06	2.8
Reach-0	0.6890169	333	01Jun2018, 13:06	2.8
Sink-0	0.6890169	333	01Jun2018, 13:06	2.8

Worksheet 2: Existing Conditions HEC-HMS Results

Project: 1197-21 East Branch Trout Brook

Location: West Hartford, CT

25YR-Ex Cond

Project: EBrTroutBrk Simulation Run: 25YR-Existing-Conditions

Start of Run: 01Jun2018, 00:00 Basin Model: ExCond-EBrTrtBrk
 End of Run: 02Jun2018, 00:01 Meteorologic Model: NRCC-25YR-24HR
 Compute Time: 15Aug2018, 14:23:18 Control Specifications: Control 1

50YR-Ex Cond

Project: EBrTroutBrk Simulation Run: 50YR-Existing-Conditions

Start of Run: 01Jun2018, 00:00 Basin Model: ExCond-EBrTrtBrk
 End of Run: 02Jun2018, 00:01 Meteorologic Model: NRCC-50YR-24HR
 Compute Time: 15Aug2018, 14:23:21 Control Specifications: Control 1

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
WS-32	0.3123	375	01Jun2018, 12:34	4.63
WS-40	0.17136	165.8	01Jun2018, 12:26	3.25
STR-4 INFLOW	0.17136	165.8	01Jun2018, 12:26	3.25
STR-4	0.17136	129.9	01Jun2018, 12:39	3.25
STR-4 OUTFLOW	0.48366	503.3	01Jun2018, 12:35	4.14
Reach-30	0.48366	497.8	01Jun2018, 12:39	4.13
WS-31	0.04372	54.3	01Jun2018, 12:24	4.62
STR-3 INFLOW	0.52738	537.7	01Jun2018, 12:37	4.17
STR-3	0.52738	566.8	01Jun2018, 12:37	4.16
WS-22	0.09784	92.4	01Jun2018, 12:24	3.25
STR-3 OUTFLOW	0.62522	637.2	01Jun2018, 12:37	4.02
Reach-20	0.62522	604.1	01Jun2018, 12:39	4.01
WS-21	0.010125	14.1	01Jun2018, 12:14	4.03
STR-2 INFLOW	0.635345	608.8	01Jun2018, 12:39	4.01
STR-2	0.635345	555.3	01Jun2018, 12:48	4.01
Reach-10	0.635345	551.2	01Jun2018, 12:50	4
WS-10	0.0536719	81.8	01Jun2018, 12:15	4.53
STR-1 INFLOW	0.6890169	572.1	01Jun2018, 12:50	4.04
STR-1	0.6890169	506	01Jun2018, 13:02	4.04
Reach-0	0.6890169	505.9	01Jun2018, 13:02	4.04
Sink-0	0.6890169	505.9	01Jun2018, 13:02	4.04

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
WS-32	0.3123	465.2	01Jun2018, 12:34	5.86
WS-40	0.17136	165.8	01Jun2018, 12:26	3.25
STR-4 INFLOW	0.17136	165.8	01Jun2018, 12:26	3.25
STR-4	0.17136	129.9	01Jun2018, 12:39	3.25
STR-4 OUTFLOW	0.48366	593.4	01Jun2018, 12:34	4.94
Reach-30	0.48366	582.4	01Jun2018, 12:41	4.92
WS-31	0.04372	69	01Jun2018, 12:24	5.86
STR-3 INFLOW	0.52738	629.6	01Jun2018, 12:39	5
STR-3	0.52738	643.3	01Jun2018, 12:31	4.99
WS-22	0.09784	123.5	01Jun2018, 12:24	4.35
STR-3 OUTFLOW	0.62522	756.1	01Jun2018, 12:31	4.89
Reach-20	0.62522	720.5	01Jun2018, 12:37	4.89
WS-21	0.010125	18.3	01Jun2018, 12:14	5.33
STR-2 INFLOW	0.635345	727.5	01Jun2018, 12:36	4.89
STR-2	0.635345	660	01Jun2018, 12:50	4.89
Reach-10	0.635345	652.8	01Jun2018, 12:51	4.88
WS-10	0.0536719	103.8	01Jun2018, 12:15	5.87
STR-1 INFLOW	0.6890169	679.2	01Jun2018, 12:51	4.95
STR-1	0.6890169	615.1	01Jun2018, 13:06	4.95
Reach-0	0.6890169	615.1	01Jun2018, 13:06	4.95
Sink-0	0.6890169	615.1	01Jun2018, 13:06	4.95

Worksheet 3: Existing Conditions HEC-HMS Results

Project: 1197-21 East Branch Trout Brook

Location: West Hartford, CT

100YR-Ex Cond

Project: EBrTroutBrk Simulation Run: 100YR-Existing-Conditions

Start of Run: 01Jun2018, 00:00 Basin Model: ExCond-EBrTrtBrk
 End of Run: 02Jun2018, 00:01 Meteorologic Model: NRCC-100YR-24HR
 Compute Time: 15Aug2018, 14:23:00 Control Specifications: Control 1

500YR-Ex Cond

Project: EBrTroutBrk Simulation Run: 500YR-Existing-Conditions

Start of Run: 01Jun2018, 00:00 Basin Model: ExCond-EBrTrtBrk
 End of Run: 02Jun2018, 00:01 Meteorologic Model: NRCC-500YR-24HR
 Compute Time: 15Aug2018, 14:23:26 Control Specifications: Control 1

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
WS-32	0.3123	571.2	01Jun2018, 12:34	7.35
WS-40	0.17136	283.7	01Jun2018, 12:26	5.79
STR-4 INFLOW	0.17136	283.7	01Jun2018, 12:26	5.79
STR-4	0.17136	167.9	01Jun2018, 12:48	5.77
STR-4 OUTFLOW	0.48366	733	01Jun2018, 12:35	6.79
Reach-30	0.48366	722.7	01Jun2018, 12:41	6.78
WS-31	0.04372	86.2	01Jun2018, 12:24	7.37
STR-3 INFLOW	0.52738	783.7	01Jun2018, 12:39	6.83
STR-3	0.52738	783.7	01Jun2018, 12:39	6.81
WS-22	0.09784	161	01Jun2018, 12:24	5.73
STR-3 OUTFLOW	0.62522	904.7	01Jun2018, 12:36	6.64
Reach-20	0.62522	904.3	01Jun2018, 12:37	6.64
WS-21	0.010125	23.3	01Jun2018, 12:14	6.95
STR-2 INFLOW	0.635345	913.4	01Jun2018, 12:37	6.64
STR-2	0.635345	880.8	01Jun2018, 12:44	6.64
Reach-10	0.635345	863.8	01Jun2018, 12:48	6.62
WS-10	0.0536719	129.7	01Jun2018, 12:15	7.51
STR-1 INFLOW	0.6890169	901.1	01Jun2018, 12:47	6.69
STR-1	0.6890169	806.9	01Jun2018, 13:01	6.68
Reach-0	0.6890169	806.8	01Jun2018, 13:01	6.68
Sink-0	0.6890169	806.8	01Jun2018, 13:01	6.68

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
WS-32	0.3123	921.6	01Jun2018, 12:33	12.19
WS-40	0.17136	507.9	01Jun2018, 12:25	10.59
STR-4 INFLOW	0.17136	507.9	01Jun2018, 12:25	10.59
STR-4	0.17136	292.2	01Jun2018, 12:48	10.57
STR-4 OUTFLOW	0.48366	1147.8	01Jun2018, 12:39	11.61
Reach-30	0.48366	1137.6	01Jun2018, 12:43	11.59
WS-31	0.04372	145.8	01Jun2018, 12:24	12.42
STR-3 INFLOW	0.52738	1231.7	01Jun2018, 12:41	11.66
STR-3	0.52738	1231.7	01Jun2018, 12:41	11.61
WS-22	0.09784	293.3	01Jun2018, 12:23	10.4
STR-3 OUTFLOW	0.62522	1446.7	01Jun2018, 12:35	11.42
Reach-20	0.62522	1446	01Jun2018, 12:36	11.41
WS-21	0.010125	41.4	01Jun2018, 12:14	12.58
STR-2 INFLOW	0.635345	1462.2	01Jun2018, 12:35	11.43
STR-2	0.635345	1432.8	01Jun2018, 12:42	11.42
Reach-10	0.635345	1414.7	01Jun2018, 12:45	11.39
WS-10	0.0536719	222.3	01Jun2018, 12:15	13.16
STR-1 INFLOW	0.6890169	1482.7	01Jun2018, 12:44	11.53
STR-1	0.6890169	1427.1	01Jun2018, 12:53	11.51
Reach-0	0.6890169	1427	01Jun2018, 12:53	11.51
Sink-0	0.6890169	1427	01Jun2018, 12:53	11.51

Worksheet 4: Phase 1 Conditions HEC-HMS Results

Project: 1197-21 East Branch Trout Brook
 Location: West Hartford, CT

2YR-Prop Cond Alt-1

Project: EBrTroutBrk Simulation Run: 2YR-Prop. Cond Alt-1			
Start of Run: 01Jun2018, 00:00	Basin Model:	Alternative 1	
End of Run: 02Jun2018, 00:01	Meteorologic Model:	NRCC-2YR-24HR	
Compute Time: 15Aug2018, 17:05:06	Control Specifications:	Control 1	
.....			

10YR-Prop Cond Alt-1

Project: EBrTroutBrk Simulation Run: 10YR-Prop. Cond Alt-1			
Start of Run: 01Jun2018, 00:00	Basin Model:	Alternative 1	
End of Run: 02Jun2018, 00:01	Meteorologic Model:	NRCC-10YR-24HR	
Compute Time: 15Aug2018, 17:04:56	Control Specifications:	Control 1	

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
WS-32	0.3123	152.9	01Jun2018, 12:35	1.75
WS-40	0.17136	44.8	01Jun2018, 12:28	0.87
STR-4 INFLOW	0.17136	44.8	01Jun2018, 12:28	0.87
STR-4	0.17136	43.7	01Jun2018, 12:31	0.87
STR-4 OUTFLOW	0.48366	195.9	01Jun2018, 12:34	1.44
Reach-30	0.48366	194.3	01Jun2018, 12:37	1.43
WS-31	0.04372	19.2	01Jun2018, 12:25	1.91
STR-3 INFLOW	0.52738	209.7	01Jun2018, 12:36	1.47
STR-3	0.52738	172	01Jun2018, 12:50	1.47
WS-22	0.09784	23.2	01Jun2018, 12:26	0.98
STR-3 OUTFLOW	0.62522	185.5	01Jun2018, 12:45	1.39
Reach-20	0.62522	185.5	01Jun2018, 12:46	1.39
WS-21	0.010125	4.2	01Jun2018, 12:15	1.16
STR-2 INFLOW	0.635345	186.6	01Jun2018, 12:46	1.39
STR-2	0.635345	186.5	01Jun2018, 12:47	1.39
Reach-10	0.635345	186.1	01Jun2018, 12:50	1.38
WS-10	0.053672	28.2	01Jun2018, 12:16	1.47
STR-1 INFLOW	0.689017	192.9	01Jun2018, 12:48	1.39
STR-1	0.689017	192.9	01Jun2018, 12:49	1.39
Reach-0	0.689017	192.8	01Jun2018, 12:49	1.39
Sink-0	0.689017	192.8	01Jun2018, 12:49	1.39

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
WS-32	0.3123	277.9	01Jun2018, 12:34	3.32
WS-40	0.17136	110.3	01Jun2018, 12:26	2.11
STR-4 INFLOW	0.17136	110.3	01Jun2018, 12:26	2.11
STR-4	0.17136	100	01Jun2018, 12:34	2.11
STR-4 OUTFLOW	0.48366	378	01Jun2018, 12:34	2.89
Reach-30	0.48366	370.9	01Jun2018, 12:39	2.88
WS-31	0.04372	38.7	01Jun2018, 12:24	3.34
STR-3 INFLOW	0.52738	399.2	01Jun2018, 12:38	2.92
STR-3	0.52738	305	01Jun2018, 12:57	2.91
WS-22	0.09784	60.4	01Jun2018, 12:25	2.15
STR-3 OUTFLOW	0.62522	331.4	01Jun2018, 12:54	2.79
Reach-20	0.62522	331.3	01Jun2018, 12:55	2.79
WS-21	0.010125	9.7	01Jun2018, 12:15	2.7
STR-2 INFLOW	0.635345	333.4	01Jun2018, 12:55	2.79
STR-2	0.635345	333.3	01Jun2018, 12:56	2.78
Reach-10	0.635345	332.2	01Jun2018, 12:58	2.78
WS-10	0.053672	58.3	01Jun2018, 12:16	3.13
STR-1 INFLOW	0.689017	344.7	01Jun2018, 12:58	2.8
STR-1	0.689017	344.4	01Jun2018, 12:59	2.8
Reach-0	0.689017	344.3	01Jun2018, 12:59	2.8
Sink-0	0.689017	344.3	01Jun2018, 12:59	2.8

Worksheet 5: Phase 1 Conditions HEC-HMS Results

Project: 1197-21 East Branch Trout Brook
 Location: West Hartford, CT

25YR-Prop Cond Alt-1

Project: EBrTroutBrk Simulation Run: 25YR-Prop. Cond Alt-1

Start of Run: 01Jun2018, 00:00 Basin Model: Alternative 1
 End of Run: 02Jun2018, 00:01 Meteorologic Model: NRCC-25YR-24HR
 Compute Time: 15Aug2018, 17:05:09 Control Specifications: Control 1

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
WS-32	0.3123	375	01Jun2018, 12:34	4.63
WS-40	0.17136	165.8	01Jun2018, 12:26	3.25
STR-4 INFLOW	0.17136	165.8	01Jun2018, 12:26	3.25
STR-4	0.17136	129.9	01Jun2018, 12:39	3.25
STR-4 OUTFLOW	0.48366	503.3	01Jun2018, 12:35	4.14
Reach-30	0.48366	497.8	01Jun2018, 12:39	4.13
WS-31	0.04372	54.3	01Jun2018, 12:24	4.62
STR-3 INFLOW	0.52738	537.7	01Jun2018, 12:37	4.17
STR-3	0.52738	566.8	01Jun2018, 12:37	4.16
WS-22	0.09784	92.4	01Jun2018, 12:24	3.25
STR-3 OUTFLOW	0.62522	637.2	01Jun2018, 12:37	4.02
Reach-20	0.62522	604.1	01Jun2018, 12:39	4.01
WS-21	0.010125	14.1	01Jun2018, 12:14	4.03
STR-2 INFLOW	0.635345	608.8	01Jun2018, 12:39	4.01
STR-2	0.635345	555.3	01Jun2018, 12:48	4.01
Reach-10	0.635345	551.2	01Jun2018, 12:50	4
WS-10	0.053672	81.8	01Jun2018, 12:15	4.53
STR-1 INFLOW	0.689017	572.1	01Jun2018, 12:50	4.04
STR-1	0.689017	569.9	01Jun2018, 12:52	4.04
Reach-0	0.689017	569.8	01Jun2018, 12:52	4.04
Sink-0	0.689017	569.8	01Jun2018, 12:52	4.04

50YR-Prop Cond Alt-1

Project: EBrTroutBrk Simulation Run: 50YR-Prop. Cond Alt-1

Start of Run: 01Jun2018, 00:00 Basin Model: Alternative 1
 End of Run: 02Jun2018, 00:01 Meteorologic Model: NRCC-50YR-24HR
 Compute Time: 15Aug2018, 17:05:11 Control Specifications: Control 1

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
WS-32	0.3123	465.2	01Jun2018, 12:34	5.86
WS-40	0.17136	165.8	01Jun2018, 12:26	3.25
STR-4 INFLOW	0.17136	165.8	01Jun2018, 12:26	3.25
STR-4	0.17136	129.9	01Jun2018, 12:39	3.25
STR-4 OUTFLOW	0.48366	593.4	01Jun2018, 12:34	4.94
Reach-30	0.48366	582.4	01Jun2018, 12:41	4.92
WS-31	0.04372	69	01Jun2018, 12:24	5.86
STR-3 INFLOW	0.52738	629.6	01Jun2018, 12:39	5
STR-3	0.52738	643.3	01Jun2018, 12:31	4.99
WS-22	0.09784	123.5	01Jun2018, 12:24	4.35
STR-3 OUTFLOW	0.62522	756.1	01Jun2018, 12:31	4.89
Reach-20	0.62522	720.5	01Jun2018, 12:37	4.89
WS-21	0.010125	18.3	01Jun2018, 12:14	5.33
STR-2 INFLOW	0.635345	727.5	01Jun2018, 12:36	4.89
STR-2	0.635345	660	01Jun2018, 12:50	4.89
Reach-10	0.635345	652.8	01Jun2018, 12:51	4.88
WS-10	0.053672	103.8	01Jun2018, 12:15	5.87
STR-1 INFLOW	0.689017	679.2	01Jun2018, 12:51	4.95
STR-1	0.689017	675.6	01Jun2018, 12:53	4.95
Reach-0	0.689017	675.5	01Jun2018, 12:53	4.95
Sink-0	0.689017	675.5	01Jun2018, 12:53	4.95

Worksheet 6: Phase 1 Conditions HEC-HMS Results

Project: 1197-21 East Branch Trout Brook
 Location: West Hartford, CT

100YR-Prop Cond Alt-1

Project: EBrTroutBrk Simulation Run: 100YR-Prop. Cond Alt-1				
Start of Run: 01Jun2018, 00:00	Basin Model:	Alternative 1		
End of Run: 02Jun2018, 00:01	Meteorologic Model:	NRCC-100YR-24HR		
Compute Time: 15Aug2018, 17:05:02	Control Specifications:	Control 1		

Hydrologic Element	Drainage	Peak	Time of Peak	Volume (IN)
	Area (MI2)	Discharge (CFS)		
WS-32	0.3123	571.2	01Jun2018, 12:34	7.35
WS-40	0.17136	283.7	01Jun2018, 12:26	5.79
STR-4 INFLOW	0.17136	283.7	01Jun2018, 12:26	5.79
STR-4	0.17136	167.9	01Jun2018, 12:48	5.77
STR-4 OUTFLOW	0.48366	733	01Jun2018, 12:35	6.79
Reach-30	0.48366	722.7	01Jun2018, 12:41	6.78
WS-31	0.04372	86.2	01Jun2018, 12:24	7.37
STR-3 INFLOW	0.52738	783.7	01Jun2018, 12:39	6.83
STR-3	0.52738	783.7	01Jun2018, 12:39	6.81
WS-22	0.09784	161	01Jun2018, 12:24	5.73
STR-3 OUTFLOW	0.62522	904.7	01Jun2018, 12:36	6.64
Reach-20	0.62522	904.3	01Jun2018, 12:37	6.64
WS-21	0.010125	23.3	01Jun2018, 12:14	6.95
STR-2 INFLOW	0.635345	913.4	01Jun2018, 12:37	6.64
STR-2	0.635345	880.8	01Jun2018, 12:44	6.64
Reach-10	0.635345	863.8	01Jun2018, 12:48	6.62
WS-10	0.053672	129.7	01Jun2018, 12:15	7.51
STR-1 INFLOW	0.689017	901.1	01Jun2018, 12:47	6.69
STR-1	0.689017	898.1	01Jun2018, 12:49	6.68
Reach-0	0.689017	898	01Jun2018, 12:49	6.68
Sink-0	0.689017	898	01Jun2018, 12:49	6.68

500YR-Prop Cond Alt-1

Project: EBrTroutBrk Simulation Run: 500YR-Prop. Cond Alt-1				
Start of Run: 01Jun2018, 00:00	Basin Model:	Alternative 1		
End of Run: 02Jun2018, 00:01	Meteorologic Model:	NRCC-500YR-24HR		
Compute Time: 15Aug2018, 17:05:15	Control Specifications:	Control 1		

Hydrologic Element	Drainage	Peak	Time of Peak	Volume (IN)
	Area (MI2)	Discharge (CFS)		
WS-32	0.3123	921.6	01Jun2018, 12:33	12.19
WS-40	0.17136	507.9	01Jun2018, 12:25	10.59
STR-4 INFLOW	0.17136	507.9	01Jun2018, 12:25	10.59
STR-4	0.17136	292.2	01Jun2018, 12:48	10.57
STR-4 OUTFLOW	0.48366	1147.8	01Jun2018, 12:39	11.61
Reach-30	0.48366	1137.6	01Jun2018, 12:43	11.59
WS-31	0.04372	145.8	01Jun2018, 12:24	12.42
STR-3 INFLOW	0.52738	1231.7	01Jun2018, 12:41	11.66
STR-3	0.52738	1231.7	01Jun2018, 12:41	11.61
WS-22	0.09784	293.3	01Jun2018, 12:23	10.4
STR-3 OUTFLOW	0.62522	1446.7	01Jun2018, 12:35	11.42
Reach-20	0.62522	1446	01Jun2018, 12:36	11.41
WS-21	0.010125	41.4	01Jun2018, 12:14	12.58
STR-2 INFLOW	0.635345	1462.2	01Jun2018, 12:35	11.43
STR-2	0.635345	1432.8	01Jun2018, 12:42	11.42
Reach-10	0.635345	1414.7	01Jun2018, 12:45	11.39
WS-10	0.053672	222.3	01Jun2018, 12:15	13.16
STR-1 INFLOW	0.689017	1482.7	01Jun2018, 12:44	11.53
STR-1	0.689017	1481.7	01Jun2018, 12:45	11.52
Reach-0	0.689017	1481.6	01Jun2018, 12:45	11.52
Sink-0	0.689017	1481.6	01Jun2018, 12:45	11.52

Worksheet 7: Phase 2 Conditions HEC-HMS Results

Project: 1197-21 East Branch Trout Brook
 Location: West Hartford, CT

2YR-Prop Cond Alt-2

Project: EBrTroutBrk Simulation Run: 2YR-Prop. Cond Alt-2				
Start of Run: 01Jun2018, 00:00	Basin Model:	Alternative 2		
End of Run: 02Jun2018, 00:01	Meteorologic Model:	NRCC-2YR-24HR		
Compute Time: 15Aug2018, 17:16:57	Control Specifications:	Control 1		

10YR-Prop Cond Alt-2

Project: EBrTroutBrk Simulation Run: 10YR-Prop. Cond Alt-2				
Start of Run: 01Jun2018, 00:00	Basin Model:	Alternative 2		
End of Run: 02Jun2018, 00:01	Meteorologic Model:	NRCC-10YR-24HR		
Compute Time: 16Aug2018, 09:00:38	Control Specifications:	Control 1		

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
WS-32	0.3123	152.9	01Jun2018, 12:35	1.75
WS-40	0.17136	44.8	01Jun2018, 12:28	0.87
STR-4 INFLOW	0.17136	44.8	01Jun2018, 12:28	0.87
STR-4	0.17136	43.7	01Jun2018, 12:31	0.87
STR-4 OUTFLOW	0.48366	195.9	01Jun2018, 12:34	1.44
Reach-30	0.48366	194.3	01Jun2018, 12:37	1.43
WS-31	0.04372	19.2	01Jun2018, 12:25	1.91
STR-3 INFLOW	0.52738	209.7	01Jun2018, 12:36	1.47
STR-3	0.52738	172	01Jun2018, 12:50	1.47
WS-22	0.09784	23.2	01Jun2018, 12:26	0.98
STR-3 OUTFLOW	0.62522	185.5	01Jun2018, 12:45	1.39
Reach-20	0.62522	185.5	01Jun2018, 12:46	1.39
WS-21	0.010125	4.2	01Jun2018, 12:15	1.16
STR-2 INFLOW	0.635345	186.6	01Jun2018, 12:46	1.39
STR-2	0.635345	186.5	01Jun2018, 12:47	1.39
Reach-10	0.635345	186.1	01Jun2018, 12:50	1.38
WS-10	0.053672	28.2	01Jun2018, 12:16	1.47
STR-1 INFLOW	0.689017	193.1	01Jun2018, 12:47	1.39
STR-1	0.689017	193	01Jun2018, 12:49	1.39
Reach-0	0.689017	193	01Jun2018, 12:49	1.39
Sink-0	0.689017	193	01Jun2018, 12:49	1.39

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
WS-32	0.3123	277.9	01Jun2018, 12:34	3.32
WS-40	0.17136	110.3	01Jun2018, 12:26	2.11
STR-4 INFLOW	0.17136	110.3	01Jun2018, 12:26	2.11
STR-4	0.17136	100	01Jun2018, 12:34	2.11
STR-4 OUTFLOW	0.48366	378	01Jun2018, 12:34	2.89
Reach-30	0.48366	370.9	01Jun2018, 12:39	2.88
WS-31	0.04372	38.7	01Jun2018, 12:24	3.34
STR-3 INFLOW	0.52738	399.2	01Jun2018, 12:38	2.92
STR-3	0.52738	305	01Jun2018, 12:57	2.91
WS-22	0.09784	60.4	01Jun2018, 12:25	2.15
STR-3 OUTFLOW	0.62522	331.4	01Jun2018, 12:54	2.79
Reach-20	0.62522	331.3	01Jun2018, 12:55	2.79
WS-21	0.010125	9.7	01Jun2018, 12:15	2.7
STR-2 INFLOW	0.635345	333.4	01Jun2018, 12:55	2.79
STR-2	0.635345	333.4	01Jun2018, 12:56	2.79
Reach-10	0.635345	332.3	01Jun2018, 12:58	2.78
WS-10	0.053672	58.3	01Jun2018, 12:16	3.13
STR-1 INFLOW	0.689017	344.9	01Jun2018, 12:57	2.81
STR-1	0.689017	344.6	01Jun2018, 12:59	2.8
Reach-0	0.689017	344.6	01Jun2018, 12:59	2.8
Sink-0	0.689017	344.6	01Jun2018, 12:59	2.8

Worksheet 8: Phase 2 Conditions HEC-HMS Results

Project: 1197-21 East Branch Trout Brook
 Location: West Hartford, CT

Project: EBrTroutBrk Simulation Run: 25YR-Prop. Cond Alt-2				
Start of Run: 01Jun2018, 00:00	Basin Model:	Alternative 2		
End of Run: 02Jun2018, 00:01	Meteorologic Model:	NRCC-25YR-24HR		
Compute Time: 15Aug2018, 17:17:12	Control Specifications:	Control 1		

Hydrologic Element	Drainage Area (MI2)	Peak			Volume (IN)
		Discharge (CFS)	Time of Peak		
WS-32	0.3123	375	01Jun2018, 12:34	4.63	
WS-40	0.17136	165.8	01Jun2018, 12:26	3.25	
STR-4 INFLOW	0.17136	165.8	01Jun2018, 12:26	3.25	
STR-4	0.17136	129.9	01Jun2018, 12:39	3.25	
STR-4 OUTFLOW	0.48366	503.3	01Jun2018, 12:35	4.14	
Reach-30	0.48366	497.8	01Jun2018, 12:39	4.13	
WS-31	0.04372	54.3	01Jun2018, 12:24	4.62	
STR-3 INFLOW	0.52738	537.7	01Jun2018, 12:37	4.17	
STR-3	0.52738	566.8	01Jun2018, 12:37	4.16	
WS-22	0.09784	92.4	01Jun2018, 12:24	3.25	
STR-3 OUTFLOW	0.62522	637.2	01Jun2018, 12:37	4.02	
Reach-20	0.62522	604.1	01Jun2018, 12:39	4.01	
WS-21	0.010125	14.1	01Jun2018, 12:14	4.03	
STR-2 INFLOW	0.635345	608.8	01Jun2018, 12:39	4.01	
STR-2	0.635345	611.8	01Jun2018, 12:39	4.01	
Reach-10	0.635345	579	01Jun2018, 12:44	4	
WS-10	0.053672	81.8	01Jun2018, 12:15	4.53	
STR-1 INFLOW	0.689017	603.8	01Jun2018, 12:44	4.04	
STR-1	0.689017	596.2	01Jun2018, 12:46	4.04	
Reach-0	0.689017	596.1	01Jun2018, 12:47	4.04	
Sink-0	0.689017	596.1	01Jun2018, 12:47	4.04	

Project: EBrTroutBrk Simulation Run: 50YR-Prop. Cond Alt-2				
Start of Run: 01Jun2018, 00:00	Basin Model:	Alternative 2		
End of Run: 02Jun2018, 00:01	Meteorologic Model:	NRCC-50YR-24HR		
Compute Time: 15Aug2018, 17:17:27	Control Specifications:	Control 1		

Hydrologic Element	Drainage Area (MI2)	Peak			Volume (IN)
		Discharge (CFS)	Time of Peak		
WS-32	0.3123	465.2	01Jun2018, 12:34	5.86	
WS-40	0.17136	165.8	01Jun2018, 12:26	3.25	
STR-4 INFLOW	0.17136	165.8	01Jun2018, 12:26	3.25	
STR-4	0.17136	129.9	01Jun2018, 12:39	3.25	
STR-4 OUTFLOW	0.48366	593.4	01Jun2018, 12:34	4.94	
Reach-30	0.48366	582.4	01Jun2018, 12:41	4.92	
WS-31	0.04372	69	01Jun2018, 12:24	5.86	
STR-3 INFLOW	0.52738	629.6	01Jun2018, 12:39	5	
STR-3	0.52738	643.3	01Jun2018, 12:31	4.99	
WS-22	0.09784	123.5	01Jun2018, 12:24	4.35	
STR-3 OUTFLOW	0.62522	756.1	01Jun2018, 12:31	4.89	
Reach-20	0.62522	720.5	01Jun2018, 12:37	4.89	
WS-21	0.010125	18.3	01Jun2018, 12:14	5.33	
STR-2 INFLOW	0.635345	727.5	01Jun2018, 12:36	4.89	
STR-2	0.635345	727.6	01Jun2018, 12:37	4.89	
Reach-10	0.635345	706.5	01Jun2018, 12:43	4.87	
WS-10	0.053672	103.8	01Jun2018, 12:15	5.87	
STR-1 INFLOW	0.689017	741.7	01Jun2018, 12:42	4.95	
STR-1	0.689017	738.2	01Jun2018, 12:44	4.95	
Reach-0	0.689017	738.1	01Jun2018, 12:44	4.95	
Sink-0	0.689017	738.1	01Jun2018, 12:44	4.95	

Worksheet 9: Phase 2 Conditions HEC-HMS Results

Project: 1197-21 East Branch Trout Brook
 Location: West Hartford, CT

100YR-Prop Cond Alt-2

Project: EBrTroutBrk Simulation Run: 100YR-Prop. Cond Alt-2

Start of Run: 01Jun2018, 00:00 Basin Model: Alternative 2
 End of Run: 02Jun2018, 00:01 Meteorologic Model: NRCC-100YR-24HR
 Compute Time: 15Aug2018, 17:16:44 Control Specifications: Control 1

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
WS-32	0.3123	571.2	01Jun2018, 12:34	7.35
WS-40	0.17136	283.7	01Jun2018, 12:26	5.79
STR-4 INFLOW	0.17136	283.7	01Jun2018, 12:26	5.79
STR-4	0.17136	167.9	01Jun2018, 12:48	5.77
STR-4 OUTFLOW	0.48366	733	01Jun2018, 12:35	6.79
Reach-30	0.48366	722.7	01Jun2018, 12:41	6.78
WS-31	0.04372	86.2	01Jun2018, 12:24	7.37
STR-3 INFLOW	0.52738	783.7	01Jun2018, 12:39	6.83
STR-3	0.52738	783.7	01Jun2018, 12:39	6.81
WS-22	0.09784	161	01Jun2018, 12:24	5.73
STR-3 OUTFLOW	0.62522	904.7	01Jun2018, 12:36	6.64
Reach-20	0.62522	904.3	01Jun2018, 12:37	6.64
WS-21	0.010125	23.3	01Jun2018, 12:14	6.95
STR-2 INFLOW	0.635345	913.4	01Jun2018, 12:37	6.64
STR-2	0.635345	889.7	01Jun2018, 12:43	6.64
Reach-10	0.635345	880.4	01Jun2018, 12:46	6.62
WS-10	0.053672	129.7	01Jun2018, 12:15	7.51
STR-1 INFLOW	0.689017	920.5	01Jun2018, 12:44	6.69
STR-1	0.689017	918.7	01Jun2018, 12:46	6.68
Reach-0	0.689017	918.6	01Jun2018, 12:46	6.68
Sink-0	0.689017	918.6	01Jun2018, 12:46	6.68

500YR-Prop Cond Alt-2

Project: EBrTroutBrk Simulation Run: 500YR-Prop. Cond Alt-2

Start of Run: 01Jun2018, 00:00 Basin Model: Alternative 2
 End of Run: 02Jun2018, 00:01 Meteorologic Model: NRCC-500YR-24HR
 Compute Time: 15Aug2018, 17:17:44 Control Specifications: Control 1

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
WS-32	0.3123	921.6	01Jun2018, 12:33	12.19
WS-40	0.17136	507.9	01Jun2018, 12:25	10.59
STR-4 INFLOW	0.17136	507.9	01Jun2018, 12:25	10.59
STR-4	0.17136	292.2	01Jun2018, 12:48	10.57
STR-4 OUTFLOW	0.48366	1147.8	01Jun2018, 12:39	11.61
Reach-30	0.48366	1137.6	01Jun2018, 12:43	11.59
WS-31	0.04372	145.8	01Jun2018, 12:24	12.42
STR-3 INFLOW	0.52738	1231.7	01Jun2018, 12:41	11.66
STR-3	0.52738	1231.7	01Jun2018, 12:41	11.61
WS-22	0.09784	293.3	01Jun2018, 12:23	10.4
STR-3 OUTFLOW	0.62522	1446.7	01Jun2018, 12:35	11.42
Reach-20	0.62522	1446	01Jun2018, 12:36	11.41
WS-21	0.010125	41.4	01Jun2018, 12:14	12.58
STR-2 INFLOW	0.635345	1462.2	01Jun2018, 12:35	11.43
STR-2	0.635345	1443.6	01Jun2018, 12:41	11.42
Reach-10	0.635345	1428.1	01Jun2018, 12:44	11.39
WS-10	0.053672	222.3	01Jun2018, 12:15	13.16
STR-1 INFLOW	0.689017	1501.2	01Jun2018, 12:41	11.53
STR-1	0.689017	1500.3	01Jun2018, 12:43	11.52
Reach-0	0.689017	1500.3	01Jun2018, 12:43	11.52
Sink-0	0.689017	1500.3	01Jun2018, 12:43	11.52

Worksheet 10: Phase 3 Conditions HEC-HMS Results

Project: 1197-21 East Branch Trout Brook
 Location: West Hartford, CT

2YR-Prop Cond Alt-3

Project: EBrTroutBrk Simulation Run: 2YR-Prop. Cond Alt-3

Start of Run: 01Jun2018, 00:00 Basin Model: Alternative 3
 End of Run: 02Jun2018, 00:01 Meteorologic Model: NRCC-2YR-24HR
 Compute Time: 15Aug2018, 17:17:00 Control Specifications: Control 1

10YR-Prop Cond Alt-3

Project: EBrTroutBrk Simulation Run: 10YR-Prop. Cond Alt-3

Start of Run: 01Jun2018, 00:00 Basin Model: Alternative 3
 End of Run: 02Jun2018, 00:01 Meteorologic Model: NRCC-10YR-24HR
 Compute Time: 15Aug2018, 17:16:35 Control Specifications: Control 1

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)	Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
WS-32	0.3123	152.9	01Jun2018, 12:35	1.75	WS-32	0.3123	277.9	01Jun2018, 12:34	3.32
WS-40	0.17136	44.8	01Jun2018, 12:28	0.87	WS-40	0.17136	110.3	01Jun2018, 12:26	2.11
STR-4 INFLOW	0.17136	44.8	01Jun2018, 12:28	0.87	STR-4 INFLOW	0.17136	110.3	01Jun2018, 12:26	2.11
STR-4	0.17136	43.7	01Jun2018, 12:31	0.87	STR-4	0.17136	100	01Jun2018, 12:34	2.11
STR-4 OUTFLOW	0.48366	195.9	01Jun2018, 12:34	1.44	STR-4 OUTFLOW	0.48366	378	01Jun2018, 12:34	2.89
Reach-30	0.48366	194.3	01Jun2018, 12:37	1.43	Reach-30	0.48366	370.9	01Jun2018, 12:39	2.88
WS-31	0.04372	19.2	01Jun2018, 12:25	1.91	WS-31	0.04372	38.7	01Jun2018, 12:24	3.34
STR-3 INFLOW	0.52738	209.7	01Jun2018, 12:36	1.47	STR-3 INFLOW	0.52738	399.2	01Jun2018, 12:38	2.92
STR-3	0.52738	206.5	01Jun2018, 12:39	1.47	STR-3	0.52738	398.3	01Jun2018, 12:39	2.91
WS-22	0.09784	23.2	01Jun2018, 12:26	0.98	WS-22	0.09784	60.4	01Jun2018, 12:25	2.15
STR-3 OUTFLOW	0.62522	224.5	01Jun2018, 12:37	1.4	STR-3 OUTFLOW	0.62522	442.6	01Jun2018, 12:37	2.79
Reach-20	0.62522	224.5	01Jun2018, 12:38	1.39	Reach-20	0.62522	442.3	01Jun2018, 12:39	2.79
WS-21	0.010125	4.2	01Jun2018, 12:15	1.16	WS-21	0.010125	9.7	01Jun2018, 12:15	2.7
STR-2 INFLOW	0.635345	226	01Jun2018, 12:38	1.39	STR-2 INFLOW	0.635345	445.7	01Jun2018, 12:38	2.79
STR-2	0.635345	225.9	01Jun2018, 12:39	1.39	STR-2	0.635345	445.7	01Jun2018, 12:39	2.79
Reach-10	0.635345	224.8	01Jun2018, 12:41	1.38	Reach-10	0.635345	442	01Jun2018, 12:41	2.78
WS-10	0.053672	28.2	01Jun2018, 12:16	1.47	WS-10	0.0536719	58.3	01Jun2018, 12:16	3.13
STR-1 INFLOW	0.689017	234.3	01Jun2018, 12:40	1.39	STR-1 INFLOW	0.6890169	462.4	01Jun2018, 12:40	2.81
STR-1	0.689017	234.1	01Jun2018, 12:41	1.39	STR-1	0.6890169	460.5	01Jun2018, 12:42	2.81
Reach-0	0.689017	234.1	01Jun2018, 12:41	1.39	Reach-0	0.6890169	460.5	01Jun2018, 12:42	2.81
Sink-0	0.689017	234.1	01Jun2018, 12:41	1.39	Sink-0	0.6890169	460.5	01Jun2018, 12:42	2.81

Worksheet 11: Phase 3 Conditions HEC-HMS Results

Project: 1197-21 East Branch Trout Brook
 Location: West Hartford, CT

25YR-Prop Cond Alt-3

Project: EBrTroutBrk Simulation Run: 25YR-Prop. Cond Alt-3				
Start of Run: 01Jun2018, 00:00	Basin Model:	Alternative 3		
End of Run: 02Jun2018, 00:01	Meteorologic Model:	NRCC-25YR-24HR		
Compute Time: 15Aug2018, 17:17:15	Control Specifications:	Control 1		

50YR-Prop Cond Alt-3

Project: EBrTroutBrk Simulation Run: 50YR-Prop. Cond Alt-3				
Start of Run: 01Jun2018, 00:00	Basin Model:	Alternative 3		
End of Run: 02Jun2018, 00:01	Meteorologic Model:	NRCC-50YR-24HR		
Compute Time: 15Aug2018, 17:17:34	Control Specifications:	Control 1		

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
WS-32	0.3123	375	01Jun2018, 12:34	4.63
WS-40	0.17136	165.8	01Jun2018, 12:26	3.25
STR-4 INFLOW	0.17136	165.8	01Jun2018, 12:26	3.25
STR-4	0.17136	129.9	01Jun2018, 12:39	3.25
STR-4 OUTFLOW	0.48366	503.3	01Jun2018, 12:35	4.14
Reach-30	0.48366	497.8	01Jun2018, 12:39	4.13
WS-31	0.04372	54.3	01Jun2018, 12:24	4.62
STR-3 INFLOW	0.52738	537.7	01Jun2018, 12:37	4.17
STR-3	0.52738	529.8	01Jun2018, 12:42	4.17
WS-22	0.09784	92.4	01Jun2018, 12:24	3.25
STR-3 OUTFLOW	0.62522	592.4	01Jun2018, 12:39	4.02
Reach-20	0.62522	592.2	01Jun2018, 12:40	4.02
WS-21	0.010125	14.1	01Jun2018, 12:14	4.03
STR-2 INFLOW	0.635345	596.8	01Jun2018, 12:40	4.02
STR-2	0.635345	596.7	01Jun2018, 12:40	4.02
Reach-10	0.635345	593.8	01Jun2018, 12:42	4.01
WS-10	0.053672	81.8	01Jun2018, 12:15	4.53
STR-1 INFLOW	0.689017	621.8	01Jun2018, 12:40	4.05
STR-1	0.689017	620.2	01Jun2018, 12:42	4.04
Reach-0	0.689017	620.2	01Jun2018, 12:42	4.04
Sink-0	0.689017	620.2	01Jun2018, 12:42	4.04

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
WS-32	0.3123	465.2	01Jun2018, 12:34	5.86
WS-40	0.17136	165.8	01Jun2018, 12:26	3.25
STR-4 INFLOW	0.17136	165.8	01Jun2018, 12:26	3.25
STR-4	0.17136	129.9	01Jun2018, 12:39	3.25
STR-4 OUTFLOW	0.48366	593.4	01Jun2018, 12:34	4.94
Reach-30	0.48366	582.4	01Jun2018, 12:41	4.92
WS-31	0.04372	69	01Jun2018, 12:24	5.86
STR-3 INFLOW	0.52738	629.6	01Jun2018, 12:39	5
STR-3	0.52738	605.4	01Jun2018, 12:47	5
WS-22	0.09784	123.5	01Jun2018, 12:24	4.35
STR-3 OUTFLOW	0.62522	689.9	01Jun2018, 12:34	4.9
Reach-20	0.62522	689.3	01Jun2018, 12:36	4.89
WS-21	0.010125	18.3	01Jun2018, 12:14	5.33
STR-2 INFLOW	0.635345	696.4	01Jun2018, 12:36	4.9
STR-2	0.635345	696.5	01Jun2018, 12:36	4.9
Reach-10	0.635345	686.2	01Jun2018, 12:41	4.88
WS-10	0.0536719	103.8	01Jun2018, 12:15	5.87
STR-1 INFLOW	0.6890169	726.3	01Jun2018, 12:37	4.96
STR-1	0.6890169	724.5	01Jun2018, 12:40	4.96
Reach-0	0.6890169	724.5	01Jun2018, 12:40	4.96
Sink-0	0.6890169	724.5	01Jun2018, 12:40	4.96

Worksheet 12: Phase 3 Conditions HEC-HMS Results

Project: 1197-21 East Branch Trout Brook
 Location: West Hartford, CT

100YR-Prop Cond Alt-3

Project: EBrTroutBrk Simulation Run: 100YR-Prop. Cond Alt-3

Start of Run: 01Jun2018, 00:00 Basin Model: Alternative 3
 End of Run: 02Jun2018, 00:01 Meteorologic Model: NRCC-100YR-24HR
 Compute Time: 15Aug2018, 17:16:48 Control Specifications: Control 1

500YR-Prop Cond Alt-3

Project: EBrTroutBrk Simulation Run: 500YR-Prop. Cond Alt-3

Start of Run: 01Jun2018, 00:00 Basin Model: Alternative 4
 End of Run: 02Jun2018, 00:01 Meteorologic Model: NRCC-500YR-24HR
 Compute Time: 15Aug2018, 17:17:47 Control Specifications: Control 1

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)	Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
WS-32	0.3123	571.2	01Jun2018, 12:34	7.35	WS-32	0.3123	921.6	01Jun2018, 12:33	12.19
WS-40	0.17136	283.7	01Jun2018, 12:26	5.79	WS-40	0.17136	507.9	01Jun2018, 12:25	10.59
STR-4 INFLOW	0.17136	283.7	01Jun2018, 12:26	5.79	STR-4 INFLOW	0.17136	507.9	01Jun2018, 12:25	10.59
STR-4	0.17136	167.9	01Jun2018, 12:48	5.77	STR-4	0.17136	391.7	01Jun2018, 12:39	10.58
STR-4 OUTFLOW	0.48366	733	01Jun2018, 12:35	6.79	STR-4 OUTFLOW	0.48366	1306.9	01Jun2018, 12:35	11.62
Reach-30	0.48366	722.7	01Jun2018, 12:41	6.78	Reach-30	0.48366	1291.2	01Jun2018, 12:40	11.59
WS-31	0.04372	86.2	01Jun2018, 12:24	7.37	WS-31	0.04372	145.8	01Jun2018, 12:24	12.42
STR-3 INFLOW	0.52738	783.7	01Jun2018, 12:39	6.83	STR-3 INFLOW	0.52738	1395.4	01Jun2018, 12:38	11.66
STR-3	0.52738	757.9	01Jun2018, 12:46	6.82	STR-3	0.52738	1390.6	01Jun2018, 12:40	11.66
WS-22	0.09784	161	01Jun2018, 12:24	5.73	WS-22	0.09784	293.3	01Jun2018, 12:23	10.4
STR-3 OUTFLOW	0.62522	851.4	01Jun2018, 12:45	6.65	STR-3 OUTFLOW	0.62522	1597.3	01Jun2018, 12:37	11.46
Reach-20	0.62522	850.2	01Jun2018, 12:46	6.65	Reach-20	0.62522	1596.7	01Jun2018, 12:38	11.45
WS-21	0.010125	23.3	01Jun2018, 12:14	6.95	WS-21	0.010125	41.4	01Jun2018, 12:14	12.58
STR-2 INFLOW	0.635345	856.5	01Jun2018, 12:46	6.65	STR-2 INFLOW	0.635345	1611.6	01Jun2018, 12:38	11.47
STR-2	0.635345	837.8	01Jun2018, 12:50	6.65	STR-2	0.635345	1583.8	01Jun2018, 12:43	11.46
Reach-10	0.635345	829.7	01Jun2018, 12:52	6.63	Reach-10	0.635345	1561.4	01Jun2018, 12:46	11.44
WS-10	0.053672	129.7	01Jun2018, 12:15	7.51	WS-10	0.0536719	222.3	01Jun2018, 12:15	13.16
STR-1 INFLOW	0.689017	862.4	01Jun2018, 12:51	6.7	STR-1 INFLOW	0.6890169	1628.7	01Jun2018, 12:44	11.57
STR-1	0.689017	860.8	01Jun2018, 12:53	6.69	STR-1	0.6890169	1627	01Jun2018, 12:46	11.56
Reach-0	0.689017	860.8	01Jun2018, 12:53	6.69	Reach-0	0.6890169	1627	01Jun2018, 12:46	11.56
Sink-0	0.689017	860.8	01Jun2018, 12:53	6.69	Sink-0	0.6890169	1627	01Jun2018, 12:46	11.56

Worksheet 13: Phase 4 Conditions HEC-HMS Results

Project: 1197-21 East Branch Trout Brook
 Location: West Hartford, CT

2YR-Prop Cond Alt-4

Project: EBrTroutBrk Simulation Run: 2YR-Prop. Cond Alt-4

Start of Run: 01Jun2018, 00:00 Basin Model: Alternative 4
 End of Run: 02Jun2018, 00:01 Meteorologic Model: NRCC-2YR-24HR
 Compute Time: 15Aug2018, 17:17:05 Control Specifications: Control 1

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
WS-32	0.3123	152.86	01Jun2018, 12:35	1.75
WS-40	0.17136	44.84	01Jun2018, 12:28	0.87
STR-4 INFLOW	0.17136	44.84	01Jun2018, 12:28	0.87
STR-4	0.17136	44.52	01Jun2018, 12:30	0.87
STR-4 OUTFLOW	0.48366	195.89	01Jun2018, 12:33	1.44
Reach-30	0.48366	194.18	01Jun2018, 12:36	1.43
WS-31	0.04372	19.21	01Jun2018, 12:25	1.91
STR-3 INFLOW	0.52738	209.9	01Jun2018, 12:35	1.47
STR-3	0.52738	206.67	01Jun2018, 12:39	1.47
WS-22	0.09784	23.17	01Jun2018, 12:26	0.98
STR-3 OUTFLOW	0.62522	224.97	01Jun2018, 12:37	1.4
Reach-20	0.62522	224.91	01Jun2018, 12:38	1.39
WS-21	0.010125	4.22	01Jun2018, 12:15	1.16
STR-2 INFLOW	0.635345	226.42	01Jun2018, 12:37	1.39
STR-2	0.635345	226.32	01Jun2018, 12:38	1.39
Reach-10	0.635345	225.26	01Jun2018, 12:41	1.38
WS-10	0.053672	28.19	01Jun2018, 12:16	1.47
STR-1 INFLOW	0.689017	234.91	01Jun2018, 12:39	1.39
STR-1	0.689017	234.7	01Jun2018, 12:41	1.39
Reach-0	0.689017	234.7	01Jun2018, 12:41	1.39
Sink-0	0.689017	234.7	01Jun2018, 12:41	1.39

10YR-Prop Cond Alt-4

Project: EBrTroutBrk Simulation Run: 10YR-Prop. Cond Alt-4

Start of Run: 01Jun2018, 00:00 Basin Model: Alternative 4
 End of Run: 02Jun2018, 00:01 Meteorologic Model: NRCC-10YR-24HR
 Compute Time: 15Aug2018, 17:16:39 Control Specifications: Control 1

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
WS-32	0.3123	277.95	01Jun2018, 12:34	3.32
WS-40	0.17136	110.3	01Jun2018, 12:26	2.11
STR-4 INFLOW	0.17136	110.3	01Jun2018, 12:26	2.11
STR-4	0.17136	108.33	01Jun2018, 12:29	2.11
STR-4 OUTFLOW	0.48366	384.12	01Jun2018, 12:33	2.89
Reach-30	0.48366	375.57	01Jun2018, 12:37	2.88
WS-31	0.04372	38.65	01Jun2018, 12:24	3.34
STR-3 INFLOW	0.52738	405.57	01Jun2018, 12:36	2.92
STR-3	0.52738	404.58	01Jun2018, 12:38	2.92
WS-22	0.09784	60.37	01Jun2018, 12:25	2.15
STR-3 OUTFLOW	0.62522	451.29	01Jun2018, 12:36	2.8
Reach-20	0.62522	450.93	01Jun2018, 12:37	2.79
WS-21	0.010125	9.72	01Jun2018, 12:15	2.7
STR-2 INFLOW	0.635345	454.46	01Jun2018, 12:37	2.79
STR-2	0.635345	454.33	01Jun2018, 12:37	2.79
Reach-10	0.635345	449.75	01Jun2018, 12:39	2.78
WS-10	0.053672	58.32	01Jun2018, 12:16	3.13
STR-1 INFLOW	0.689017	471.16	01Jun2018, 12:38	2.81
STR-1	0.689017	468.79	01Jun2018, 12:41	2.81
Reach-0	0.689017	468.78	01Jun2018, 12:41	2.81
Sink-0	0.689017	468.78	01Jun2018, 12:41	2.81

Worksheet 14: Phase 4 Conditions HEC-HMS Results

Project: 1197-21 East Branch Trout Brook
 Location: West Hartford, CT

25YR-Prop Cond Alt-4

Project: EBrTroutBrk Simulation Run: 25YR-Prop. Cond Alt-4

Start of Run: 01Jun2018, 00:00 Basin Model: Alternative 4
 End of Run: 02Jun2018, 00:01 Meteorologic Model: NRCC-25YR-24HR
 Compute Time: 15Aug2018, 17:17:20 Control Specifications: Control 1

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
WS-32	0.3123	375.01	01Jun2018, 12:34	4.63
WS-40	0.17136	165.8	01Jun2018, 12:26	3.25
STR-4 INFLOW	0.17136	165.8	01Jun2018, 12:26	3.25
STR-4	0.17136	160.4	01Jun2018, 12:30	3.25
STR-4 OUTFLOW	0.48366	533.33	01Jun2018, 12:32	4.14
Reach-30	0.48366	524.64	01Jun2018, 12:37	4.13
WS-31	0.04372	54.26	01Jun2018, 12:24	4.62
STR-3 INFLOW	0.52738	567.08	01Jun2018, 12:36	4.17
STR-3	0.52738	556.4	01Jun2018, 12:40	4.17
WS-22	0.09784	92.35	01Jun2018, 12:24	3.25
STR-3 OUTFLOW	0.62522	621.98	01Jun2018, 12:38	4.02
Reach-20	0.62522	621.65	01Jun2018, 12:39	4.02
WS-21	0.010125	14.14	01Jun2018, 12:14	4.03
STR-2 INFLOW	0.635345	626.38	01Jun2018, 12:39	4.02
STR-2	0.635345	626.36	01Jun2018, 12:39	4.02
Reach-10	0.635345	622.1	01Jun2018, 12:41	4.01
WS-10	0.053672	81.77	01Jun2018, 12:15	4.53
STR-1 INFLOW	0.689017	650.9	01Jun2018, 12:39	4.05
STR-1	0.689017	648.78	01Jun2018, 12:42	4.04
Reach-0	0.689017	648.77	01Jun2018, 12:42	4.04
Sink-0	0.689017	648.77	01Jun2018, 12:42	4.04

50YR-Prop Cond Alt-4

Project: EBrTroutBrk Simulation Run: 50YR-Prop. Cond Alt-4

Start of Run: 01Jun2018, 00:00 Basin Model: Alternative 4
 End of Run: 02Jun2018, 00:01 Meteorologic Model: NRCC-50YR-24HR
 Compute Time: 15Aug2018, 17:17:38 Control Specifications: Control 1

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
WS-32	0.3123	465.17	01Jun2018, 12:34	5.86
WS-40	0.17136	165.8	01Jun2018, 12:26	3.25
STR-4 INFLOW	0.17136	165.8	01Jun2018, 12:26	3.25
STR-4	0.17136	160.4	01Jun2018, 12:30	3.25
STR-4 OUTFLOW	0.48366	623.44	01Jun2018, 12:33	4.94
Reach-30	0.48366	609.19	01Jun2018, 12:39	4.92
WS-31	0.04372	68.96	01Jun2018, 12:24	5.86
STR-3 INFLOW	0.52738	659.38	01Jun2018, 12:38	5
STR-3	0.52738	620.54	01Jun2018, 12:46	5
WS-22	0.09784	123.48	01Jun2018, 12:24	4.35
STR-3 OUTFLOW	0.62522	699.1	01Jun2018, 12:32	4.9
Reach-20	0.62522	698.83	01Jun2018, 12:34	4.89
WS-21	0.010125	18.34	01Jun2018, 12:14	5.33
STR-2 INFLOW	0.635345	706.53	01Jun2018, 12:34	4.9
STR-2	0.635345	706.53	01Jun2018, 12:34	4.9
Reach-10	0.635345	700.56	01Jun2018, 12:43	4.88
WS-10	0.053672	103.8	01Jun2018, 12:15	5.87
STR-1 INFLOW	0.689017	738.57	01Jun2018, 12:37	4.96
STR-1	0.689017	737.45	01Jun2018, 12:40	4.96
Reach-0	0.689017	737.42	01Jun2018, 12:40	4.96
Sink-0	0.689017	737.42	01Jun2018, 12:40	4.96

Worksheet 15: Phase 4 Conditions HEC-HMS Results

Project: 1197-21 East Branch Trout Brook
 Location: West Hartford, CT

100YR-Prop Cond Alt-4

Project: EBrTroutBrk Simulation Run: 100YR-Prop. Cond Alt-4

Start of Run: 01Jun2018, 00:00 Basin Model: Alternative 4
 End of Run: 02Jun2018, 00:01 Meteorologic Model: NRCC-100YR-24HR
 Compute Time: 15Aug2018, 17:16:52 Control Specifications: Control 1

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
WS-32	0.3123	571.22	01Jun2018, 12:34	7.35
WS-40	0.17136	283.71	01Jun2018, 12:26	5.79
STR-4 INFLOW	0.17136	283.71	01Jun2018, 12:26	5.79
STR-4	0.17136	255.03	01Jun2018, 12:34	5.78
STR-4 OUTFLOW	0.48366	826.26	01Jun2018, 12:34	6.8
Reach-30	0.48366	814.06	01Jun2018, 12:40	6.78
WS-31	0.04372	86.23	01Jun2018, 12:24	7.37
STR-3 INFLOW	0.52738	876.66	01Jun2018, 12:38	6.83
STR-3	0.52738	868.78	01Jun2018, 12:42	6.83
WS-22	0.09784	160.99	01Jun2018, 12:24	5.73
STR-3 OUTFLOW	0.62522	977.61	01Jun2018, 12:40	6.66
Reach-20	0.62522	976.67	01Jun2018, 12:41	6.65
WS-21	0.010125	23.33	01Jun2018, 12:14	6.95
STR-2 INFLOW	0.635345	984.4	01Jun2018, 12:41	6.65
STR-2	0.635345	931.08	01Jun2018, 12:48	6.65
Reach-10	0.635345	919.31	01Jun2018, 12:51	6.63
WS-10	0.053672	129.66	01Jun2018, 12:15	7.51
STR-1 INFLOW	0.689017	952.44	01Jun2018, 12:50	6.7
STR-1	0.689017	950.21	01Jun2018, 12:52	6.7
Reach-0	0.689017	950.1	01Jun2018, 12:52	6.7
Sink-0	0.689017	950.1	01Jun2018, 12:52	6.7

500YR-Prop Cond Alt-4

Project: EBrTroutBrk Simulation Run: 500YR-Prop. Cond Alt-4

Start of Run: 01Jun2018, 00:00 Basin Model: Alternative 4
 End of Run: 02Jun2018, 00:01 Meteorologic Model: NRCC-500YR-24HR
 Compute Time: 15Aug2018, 17:17:59 Control Specifications: Control 1

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
WS-32	0.3123	921.63	01Jun2018, 12:33	12.19
WS-40	0.17136	507.88	01Jun2018, 12:25	10.59
Str-4 INFLOW	0.17136	507.88	01Jun2018, 12:25	10.59
Str-4	0.17136	391.69	01Jun2018, 12:39	10.58
Str-4 OUTFLOW	0.48366	1306.87	01Jun2018, 12:35	11.62
Reach-30	0.48366	1291.18	01Jun2018, 12:40	11.59
WS-31	0.04372	145.82	01Jun2018, 12:24	12.42
Str-3 INFLOW	0.52738	1395.4	01Jun2018, 12:38	11.66
Str-3	0.52738	1390.61	01Jun2018, 12:40	11.66
WS-22	0.09784	293.27	01Jun2018, 12:23	10.4
Str-3 OUTFLOW	0.62522	1597.34	01Jun2018, 12:37	11.46
Reach-20	0.62522	1596.71	01Jun2018, 12:38	11.45
WS-21	0.010125	41.38	01Jun2018, 12:14	12.58
Str-2 INFLOW	0.635345	1611.57	01Jun2018, 12:38	11.47
Str-2	0.635345	1583.76	01Jun2018, 12:43	11.46
Reach-10	0.635345	1561.45	01Jun2018, 12:46	11.44
WS-10	0.053672	222.28	01Jun2018, 12:15	13.16
Str-1 INFLOW	0.689017	1628.69	01Jun2018, 12:44	11.57
Str-1	0.689017	1627.01	01Jun2018, 12:46	11.56
Reach-0	0.689017	1627.01	01Jun2018, 12:46	11.56
Sink-0	0.689017	1627.01	01Jun2018, 12:46	11.56

Worksheet 16: HEC-HMS Summary Results

Project: 1197-21 East Branch Trout Brook
 Location: West Hartford, CT

Existing Conditions	Location	STA	2-Yr	10-Yr	25-Yr	50-Yr	100-Yr	500-Yr
Model Start – U/S	(WS-4)	4150	44.8	110.3	165.8	165.8	283.7	507.9
Albany Ave – U/S	(Str-4 INFLOW)	3308	44.8	110.3	165.8	165.8	283.7	507.9
Albany Ave – D/S	(Str-4)	3050	43.7	100	129.9	129.9	167.9	292.2
Lindy La – U/S	(Str-3 INFLOW)	2450	225.9	399.2	537.7	629.6	783.7	1231.7
Lindy La – D/S	(Str-3)	1770	176.4	305	566.8	643.3	783.7	1231.7
UConn Ped Bridge – U/S	(Str-2 INFLOW)	1305	192.2	333.4	608.8	727.5	913.4	1462.2
UConn Ped Bridge – D/S	(Str-2)	1018	192.1	333.3	555.3	660	880.8	1432.8
Trout Brook Dr – U/S	(Str-1 INFLOW)	532	199.4	344.7	572.1	679.2	901.1	1482.7
Trout Brook Dr – D/S	(Str-1)	300	198.6	333.1	506	615.1	806.9	1427.1

Culvert Replacement Phase 1	Location	STA	2-Yr	10-Yr	25-Yr	50-Yr	100-Yr	500-Yr
Model Start – U/S	(WS-4)	4150	44.8	110.3	165.8	165.8	283.7	507.9
Albany Ave – U/S	(Str-4 INFLOW)	3308	44.8	110.3	165.8	165.8	283.7	507.9
Albany Ave – D/S	(Str-4)	3050	43.7	100	129.9	129.9	167.9	292.2
Lindy La – U/S	(Str-3 INFLOW)	2450	209.7	399.2	537.7	629.6	783.7	1231.7
Lindy La – D/S	(Str-3)	1770	172	305	566.8	643.3	783.7	1231.7
UConn Ped Bridge – U/S	(Str-2 INFLOW)	1305	186.6	333.4	608.8	727.5	913.4	1462.2
UConn Ped Bridge – D/S	(Str-2)	1018	186.5	333.3	555.3	660	880.8	1432.8
Trout Brook Dr – U/S	(Str-1 INFLOW)	532	192.9	344.7	572.1	679.2	901.1	1482.7
Trout Brook Dr – D/S	(Str-1)	300	192.9	344.4	569.9	675.6	898.1	1481.7

Culvert Replacement Phase 2	Location	STA	2-Yr	10-Yr	25-Yr	50-Yr	100-Yr	500-Yr
Model Start – U/S	(WS-4)	4150	44.8	110.3	165.8	165.8	283.7	507.9
Albany Ave – U/S	(Str-4 INFLOW)	3308	44.8	110.3	165.8	165.8	283.7	507.9
Albany Ave – D/S	(Str-4)	3050	43.7	100	129.9	129.9	167.9	292.2
Lindy La – U/S	(Str-3 INFLOW)	2450	209.7	399.2	537.7	629.6	783.7	1231.7
Lindy La – D/S	(Str-3)	1770	172	305	566.8	643.3	783.7	1231.7
UConn Ped Bridge – U/S	(Str-2 INFLOW)	1305	186.6	333.4	608.8	727.5	913.4	1462.2
UConn Ped Bridge – D/S	(Str-2)	1018	186.5	333.3	611.8	727.6	889.7	1443.6
Trout Brook Dr – U/S	(Str-1 INFLOW)	532	193.1	344.9	603.8	741.7	920.5	1501.2
Trout Brook Dr – D/S	(Str-1)	300	193	344.6	596.2	738.2	918.7	1500.3

Culvert Replacement Phase 3	Location	STA	2-Yr	10-Yr	25-Yr	50-Yr	100-Yr	500-Yr
Model Start – U/S	(WS-4)	4150	44.8	110.3	165.8	165.8	283.7	507.9
Albany Ave – U/S	(Str-4 INFLOW)	3308	44.8	110.3	165.8	165.8	283.7	507.9
Albany Ave – D/S	(Str-4)	3050	43.7	100	129.9	129.9	167.9	391.7
Lindy La – U/S	(Str-3 INFLOW)	2450	209.7	399.2	537.7	629.6	783.7	1395.4
Lindy La – D/S	(Str-3)	1770	206.5	398.3	529.8	605.4	757.9	1390.6
UConn Ped Bridge – U/S	(Str-2 INFLOW)	1305	226	445.7	596.8	696.4	856.5	1611.6
UConn Ped Bridge – D/S	(Str-2)	1018	225.9	445.7	596.7	696.5	837.8	1583.8
Trout Brook Dr – U/S	(Str-1 INFLOW)	532	234.3	462.4	621.8	726.3	862.4	1628.7
Trout Brook Dr – D/S	(Str-1)	300	234.1	460.5	620.2	724.5	860.8	1627

Culvert Replacement Phase 4	Location	STA	2-Yr	10-Yr	25-Yr	50-Yr	100-Yr	500-Yr
Model Start – U/S	(WS-4)	4150	44.84	110.3	165.8	165.8	283.71	507.88
Albany Ave – U/S	(Str-4 INFLOW)	3308	44.84	110.3	165.8	165.8	283.71	507.88
Albany Ave – D/S	(Str-4)	3050	44.52	108.3	160.4	160.4	255.03	391.69
Lindy La – U/S	(Str-3 INFLOW)	2450	209.9	405.6	567.1	659.4	876.66	1395.4
Lindy La – D/S	(Str-3)	1770	206.7	404.6	556.4	620.5	868.78	1390.6
UConn Ped Bridge – U/S	(Str-2 INFLOW)	1305	226.4	454.5	626.4	706.5	984.4	1611.6
UConn Ped Bridge – D/S	(Str-2)	1018	226.3	454.3	626.4	706.5	931.08	1583.8
Trout Brook Dr – U/S	(Str-1 INFLOW)	532	234.9	471.2	650.9	738.6	952.44	1628.7
Trout Brook Dr – D/S	(Str-1)	300	234.7	468.8	648.8	737.5	950.21	1627

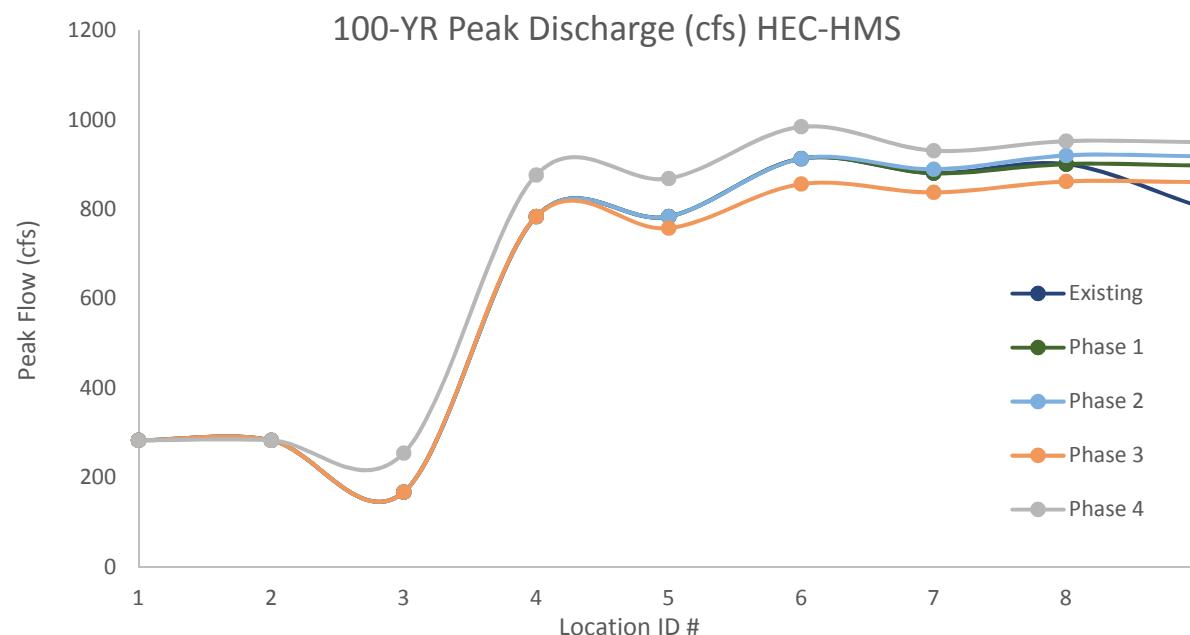
Worksheet 17: HEC-HMS 100YR Summary Results

Project: 1197-21 East Branch Trout Brook

Location: West Hartford, CT

100-Year Peak Flood Flow

Location ID	Hydrologic Element	Existing	Phase 1	Phase 2	Phase 3	Phase 4
1	Model Start – U/S	283.7	283.7	283.7	283.7	283.71
2	Albany Ave – U/S	283.7	283.7	283.7	283.7	283.71
3	Albany Ave – D/S	167.9	167.9	167.9	167.9	255.03
4	Lindy La – U/S	783.7	783.7	783.7	783.7	876.66
5	Lindy La – D/S	783.7	783.7	783.7	757.9	868.78
6	UConn Ped Bridge – U/S	913.4	913.4	913.4	856.5	984.4
7	UConn Ped Bridge – D/S	880.8	880.8	889.7	837.8	931.08
8	Trout Brook Dr – U/S	901.1	901.1	920.5	862.4	952.44
9	Trout Brook Dr – D/S	806.9	898.1	918.7	860.8	950.21



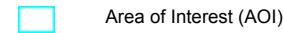
Hydrologic Soil Group—State of Connecticut



Natural Resources
Conservation Service

Web Soil Survey
National Cooperative Soil Survey

9/7/2016
Page 1 of 5

MAP LEGEND**Area of Interest (AOI)****Soils****Soil Rating Polygons**

	A
	A/D
	B
	B/D
	C
	C/D
	D
	Not rated or not available

Soil Rating Lines

	A
	A/D
	B
	B/D
	C
	C/D
	D
	Not rated or not available

Soil Rating Points

	A
	A/D
	B
	B/D

	C
	C/D
	D
	Not rated or not available

Water Features

Streams and Canals

Transportation

Rails



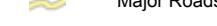
Interstate Highways



US Routes



Major Roads



Local Roads

Background

Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service

Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>

Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: State of Connecticut

Survey Area Data: Version 14, Sep 22, 2015

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Mar 28, 2011—Apr 18, 2011

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.



Hydrologic Soil Group

Hydrologic Soil Group— Summary by Map Unit — State of Connecticut (CT600)				
Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
5	Wilbraham silt loam	D	7.3	0.5%
9	Scitico, Shaker, and Maybid soils	C/D	50.7	3.8%
12	Raypol silt loam	C/D	8.0	0.6%
15	Scarboro muck, 0 to 3 percent slopes	A/D	1.5	0.1%
21A	Ninigret and Tisbury soils, 0 to 5 percent slopes	C	15.0	1.1%
25A	Brancroft silt loam, 0 to 3 percent slopes	C	14.7	1.1%
25B	Brancroft silt loam, 3 to 8 percent slopes	C	4.2	0.3%
25C	Brancroft silt loam, 8 to 15 percent slopes	C	2.6	0.2%
28A	Elmridge fine sandy loam, 0 to 3 percent slopes	C	10.0	0.7%
28B	Elmridge fine sandy loam, 3 to 8 percent slopes	C	4.8	0.4%
32A	Haven and Enfield soils, 0 to 3 percent slopes	B	1.8	0.1%
32B	Haven and Enfield soils, 3 to 8 percent slopes	B	4.1	0.3%
40A	Ludlow silt loam, 0 to 3 percent slopes	C	2.5	0.2%
40B	Ludlow silt loam, 3 to 8 percent slopes	C	7.3	0.5%
43A	Rainbow silt loam, 0 to 3 percent slopes	C	8.8	0.7%
43B	Rainbow silt loam, 3 to 8 percent slopes	C	2.5	0.2%
82B	Broadbrook silt loam, 3 to 8 percent slopes	C	140.0	10.4%
82C	Broadbrook silt loam, 8 to 15 percent slopes	C	17.4	1.3%
221A	Ninigret-Urban land complex, 0 to 5 percent slopes	B	16.7	1.2%
225B	Brancroft-Urban land complex, 0 to 8 percent slopes	C	147.2	11.0%

Hydrologic Soil Group— Summary by Map Unit — State of Connecticut (CT600)				
Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
228B	Elmridge-Urban land complex, 0 to 8 percent slopes	C	23.1	1.7%
232B	Haven-Urban land complex, 0 to 8 percent slopes	B	15.1	1.1%
243B	Rainbow-Urban land complex, 0 to 8 percent slopes	C	72.3	5.4%
282B	Broadbrook-Urban land complex, 3 to 8 percent slopes	C	246.4	18.4%
306	Udorthents-Urban land complex	B	427.6	31.9%
307	Urban land	D	48.4	3.6%
308	Udorthents, smoothed	C	40.6	3.0%
W	Water		0.9	0.1%
Totals for Area of Interest			1,341.3	100.0%

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

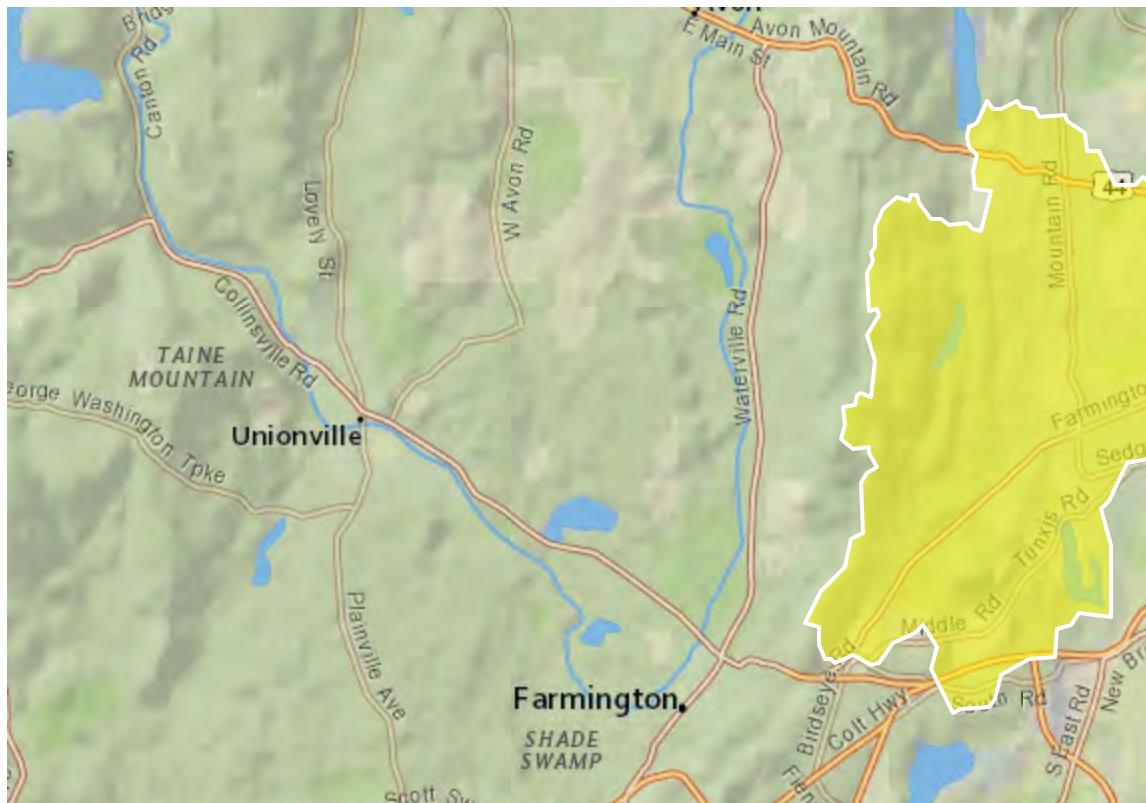
StreamStats Report

Region ID: CT

Workspace ID: CT20180829172949645000

Clicked Point (Latitude, Longitude): 41.75462, -72.73578

Time: 2018-08-29 13:30:05 -0400



Basin Characteristics

Parameter

Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	14.4	square miles
I24H2Y	Maximum 24-hour precipitation that occurs on average once in 2 years - Equivalent to precipitation intensity index	3.621	inches

Parameter		Value	Unit
Code	Parameter Description		
ELEV	Mean Basin Elevation	284	feet
I24H10Y	Maximum 24-hour precipitation that occurs on average once in 10 years	5.352	inches
I24H25Y	Maximum 24-hour precipitation that occurs on average once in 25 years	6.694	inches
I24H50Y	Maximum 24-hour precipitation that occurs on average once in 50 years	7.923	inches
I24H100Y	Maximum 24-hour precipitation that occurs on average once in 100 years	9.389	inches

Peak-Flow Statistics Parameters [Statewide Multiparameter]

Parameter		Value	Units	Min Limit	Max Limit
Code	Parameter Name				
DRNAREA	Drainage Area	14.4	square miles	1.69	715
I24H2Y	24 Hour 2 Year Precipitation	3.621	inches	2.95	3.82
ELEV	Mean Basin Elevation	284	feet	169	1310
I24H10Y	24 Hour 10 Year Precipitation	5.352	inches	4.15	5.53
I24H25Y	24 Hour 25 Year Precipitation	6.694	inches	4.93	7
I24H50Y	24 Hour 50 Year Precipitation	7.923	inches	5.62	8.36
I24H100Y	24 Hour 100 Year Precipitation	9.389	inches	6.41	9.99

Peak-Flow Statistics Flow Report [Statewide Multiparameter]

PII: Prediction Interval-Lower, Plu: Prediction Interval-Upper, SEp: Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	SE	SEp	Equiv. Yrs.
2 Year Peak Flood	498	ft ³ /s	31.8	31.8	3.5
10 Year Peak Flood	1130	ft ³ /s	32.7	32.7	8.1
25 Year Peak Flood	1530	ft ³ /s	34.4	34.4	10.9
50 Year Peak Flood	1860	ft ³ /s	35.9	35.9	12.7
100 Year Peak Flood	2210	ft ³ /s	37.6	37.6	14.3
500 Year Peak Flood	2790	ft ³ /s	45	45	14.9

Peak-Flow Statistics Citations

Ahearn, E.A., 2004, Regression Equations for Estimating Flood Flows for the 2-, 10-, 25-, 50-, 100-, and 500-Year Recurrence Intervals in Connecticut: U.S. Geological Survey SRI 2004-5160, 62 p.
(<http://water.usgs.gov/pubs/sir/2004/5160/>)

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Application Version: 4.2.1

FEDERAL EMERGENCY MANAGEMENT AGENCY FLOOD INSURANCE STUDY,
1991 TOWN OF WEST HARTFORD

TABLE 1 - SUMMARY OF DISCHARGES - continued

FLOODING SOURCE AND LOCATION	DRAINAGE AREA (sq. miles)	PEAK DISCHARGES (cfs)			
		10-YEAR	50-YEAR	100-YEAR	500-YEAR
TROUT BROOK					
Upstream of confluence of Piper Brook	19.9	2,600	4,750	6,180	9,360
Upstream of confluence of Rockledge Brook	16.2	1,720	3,210	4,240	6,700
Upstream of confluence of East Branch Trout Brook	12.7	650	1,350	1,850	3,230
Upstream of confluence of Hart Meadow Brook	9.3	450	960	1,430	2,740
Upstream of confluence of Water Supply Brook	2.2	110	240	330	580
Upstream of Woodridge Lake	0.7	110	240	340	590
NORTH BRANCH PARK RIVER					
At corporate limits	23.6	2,890	4,700	5,650	8,000
PIPER BROOK					
At confluence with Trout Brook	18.5	1,540	2,960	3,890	6,090
EAST BRANCH TROUT BROOK					
At confluence with Trout Brook	1.4	510	900	1,170	1,750
Upstream of confluence of St. Joseph's Brook	0.8	280	490	630	1,000
ST. JOSEPH'S BROOK					
At confluence with East Branch Trout Brook	0.6	240	420	550	860
TUMBLEDOWN BROOK					
At downstream corporate limits	4.4	530	900	1,100	1,640
HART MEADOW BROOK					
At confluence with Trout Brook	3.4	290	560	730	1,130
Upstream of Bugbee Reservoir	2.2	500	1,010	1,370	2,270
Upstream of confluence of Apple Hill Brook	1.6	260	540	730	1,170



APPENDIX D

HYDRAULIC COMPUTATIONS



East Branch Trout Brook Floodplain Assessment

LINDY LANE HYDRAULIC GRADE LINE COMPUTATIONS

Lindy Lane Culvert Assessment
East Branch Trout Brook Flood Mitigation Assessment

MMI No. 1197-21
01/10/2017 JCM/BAM
Page 1 of 8

The Lindy Lane Conduit is a ±658 foot long composite structure that conveys the East Branch Trout Brook watercourse in a southerly direction through a primarily residential area and discharges at the north end of the UConn campus.

FEMA Flows at Upstream Face of Conduit (used in unpublished hydraulic model):

1% (100-yr)
320.0

Conduit Data:

Segment	Type	Length (ft)	100-yr Q - Discharge (FEMA)
1	7.5'wx4.7'H RCP & 4.7' dia. RCP	79	320 cfs
2	Junction Chamber (27x14)	27	320 cfs
3	54-inch RCP	156	320 cfs
4	54-inch RCP	396	320 cfs
	TOTAL	658	

Other Data

Length	658 ft			
Inv. U/S	91.59 ft NAVD	Ground U/S	99.22 ft.	(approx.)
Inv. D/S	90.11 ft NAVD	Ground D/S	96.0 ft.	(Approx.)
Slope	0.0022 ft/ft	WSEL D/S	98.45 ft.	(100-year)

Hydraulic Data

Compiled data and computed hydraulic properties of different sections of culverts. Assume each section is connected with a vault structure of assumed dimensions and loss coefficient.

No invert or elevation data was obtained for junctions; therefore the overall average slope of the entire conduit as surveyed by MMI at the inlet and outlet was estimated to be approximately the slope of each segment.

Segment	Shape	Barrels	Size (ft)	Area (sf)	Perim. (ft)	Length (ft)	Material	n	R (A/P)	Slope (ft/ft)
1	Ellipse & Circle	2	7.5 x 4.7 and 4.7' dia.	72.72	19.40	79	RCP	0.014	3.75	0.0022
1/2	Junction Chamber	1	27 x 14							
2	Circular	1	4.5 dia.	15.90	14.13	156	RCP	0.014	1.13	0.0022
2/3	Vault - DMH	1	10 x 10							
3	Circular	1	4.5 dia.	15.90	14.13	396	RCP	0.014	1.13	0.0036

Notes:

- 1) All vault locations and dimensions are estimated
- 2) Manning's n for concrete increased from 0.013 to 0.015 to account for age of pipes

Equations and Approach

Determine discharge capacity of conduit based upon pressure flow with starting WSEL at upstream face. Determine height and allowable surcharge at upstream face above which overtopping begins based upon topography. Then compute head losses due to friction in pipes and junctions, and determine if the resulting tailwater is impacted by the tailwater modeled by HEC-RAS.

Test Inlet Capacity of Segment 1 (Two Culverts at U/S Inlet of Lindy Lane)

Determine limiting flow at upstream of conduit based on inlet capacity based on overtopping elevation of 98.22

Orifice Flow Equation

(eqn. 1)	$Q_{inlet} = CA\sqrt{2gh}$		<u>Value</u>
		C = coefficient of discharge	0.6
		g = acceleration of gravity	32.2
		h = headwater depth at overtopping (from culvert CL)	1.97 (98.22-96.25)
		A = cross sectional area	72.72

$Q_{inlet(segment1)} =$	491.5	cfs
-------------------------	-------	-----

$Q_{MMI} =$	783.7	cfs
-------------	-------	-----

Therefore, the existing inlet is not controlling culvert capacity

Determine Inlet Capacity of Segment 3

Determine limiting flow at upstream of 54" conduit based on inlet capacity based on overtopping elevation of 6" above yard drain =

100.78

Orifice Flow Equation

Trial computation using assumed surcharge of 6" at the yard drain over the junction chamber (HGL U/S=98.01)

(eqn. 1)	$Q_{inlet} = CA\sqrt{2gh}$		<u>Value</u>
		T.G. = Top of Grate	97.51
		C = coefficient of discharge	0.6
		g = acceleration of gravity	32.2
		h = headwater depth at overtopping (from culvert CL)	6.52
		A = cross sectional area	15.90
		Invert at junction chamber	91.51

$Q_{inlet(segment3)} =$	195.5	cfs
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The existing 54" RCP is undersized for the 100-year design storm.

Calculate excess flow that will overtop the culvert during the 100-year event (MMI HEC-RAS flows, full diversion)

$Q_{MMI} =$	783.7	cfs			
$Q_{bypass} =$	$Q_{inlet} - Q_{MMI} =$	588.2	cfs	Iterate until starting HGL and computed HGL match. Flooding over yard drain =	3.27

Compute surcharge at the upstream inlet at Lindy Lane

Use headloss equations to compute headloss due to friction (hf) and headlosses at each junction chamber (hL). Starting at the downstream computed water surface elevation, determine if incremental headlosses will push water into overtopping at the upstream end of the conduit (above elevation 98.22 ft NAVD88)

Segment	Q	U/S HGL	V_{in} (ft/sec)	hf (ft)	hL (ft)	V_{out} (ft/sec)	D/S HGL
Entrance		100.78	12.04		0.45		100.33
1	195.5	100.33	0.00	0.001		12.04	100.33
1/2	195.5	100.33	12.04		1.13	3.53	99.20
2	195.5	99.20	3.53	0.295		5.40	98.91
2/3	195.5	98.91	5.40		0.23	1.58	98.68
3	195.5	98.68	1.58	0.749		6.91	97.93
3/4	195.5	97.93	6.91		0.37	2.02	97.56
4	195.5	97.56	2.02	0.749		6.91	96.81
Exit		96.81	6.73		0.14		96.67
TOTALS			1.80		2.31		

$H_{tot} = \text{Total Head Losses } (hf + hL) 4.11 \text{ ft}$

Conc. Junction chamber, YD

Hydraulic Grade Line (HGL) at Lindy Lane Culvert Inlet

HGL D/S = 96.67 ft
HGL U/S = WSEL (D/S) + H_{tot} = 100.78 ft

(from HEC-RAS)

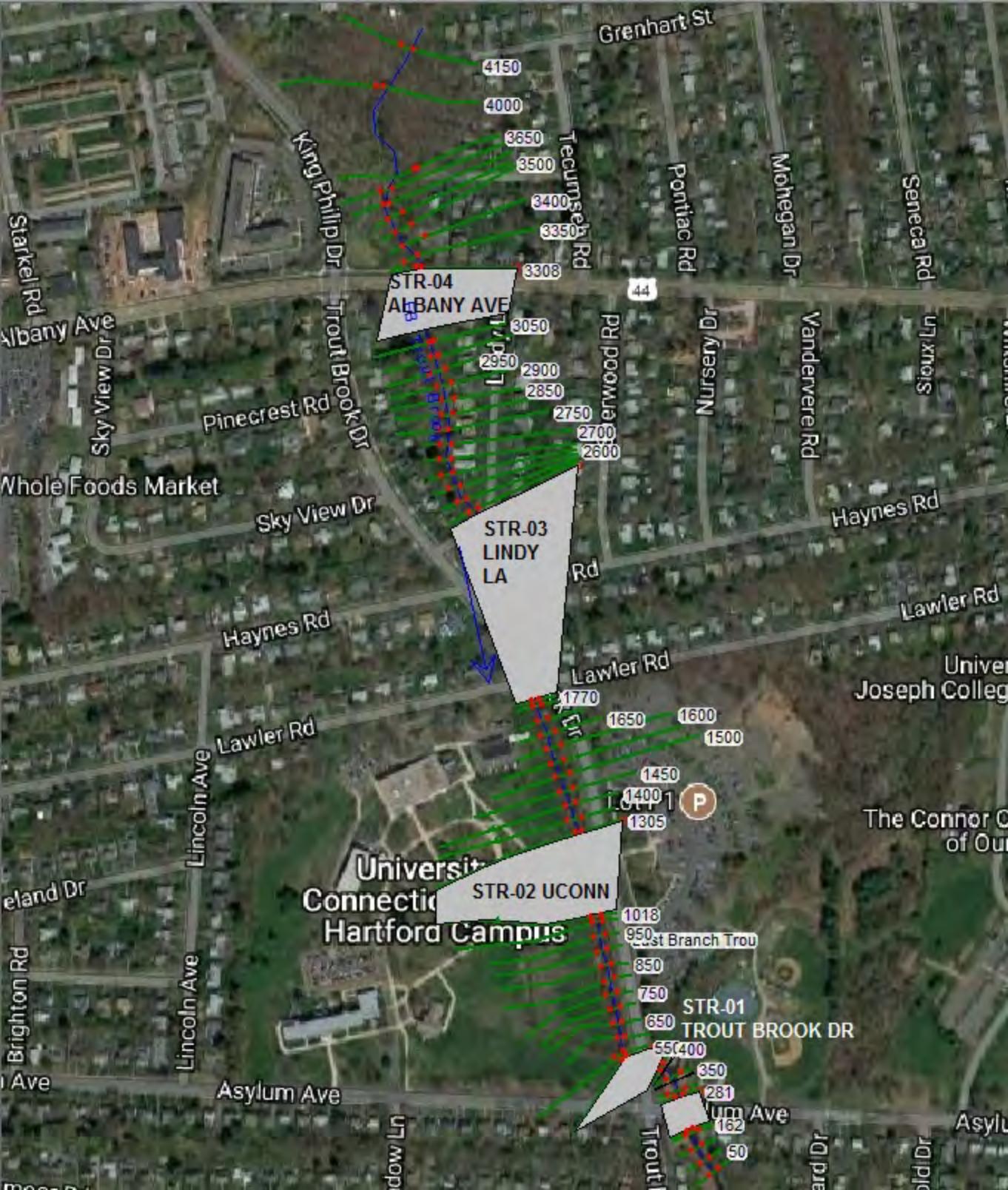
This elevation was added to the HEC-RAS model at the u/s face of Lindy Lane.

Because upstream HGL is higher than the upstream what+A1 under Outlet Control, controlled by Segment 3 and 4.



East Branch Trout Brook Floodplain Assessment

HEC-RAS HYDRAULIC MODEL OUTPUT



HEC-RAS Plan: 00-ExCond River: EB Trout Brook Reach: East Branch Trou

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
East Branch Trou	4150	2-Yr	44.80	100.00	101.25		101.26	0.000667	0.82	67.78	91.08	0.14
East Branch Trou	4150	10-Yr	110.30	100.00	101.98		101.99	0.000621	1.11	150.87	138.06	0.14
East Branch Trou	4150	25-Yr	165.80	100.00	102.97		102.98	0.000253	0.94	320.22	203.83	0.10
East Branch Trou	4150	50-Yr	165.80	100.00	102.97		102.98	0.000251	0.94	321.42	204.18	0.10
East Branch Trou	4150	100-Yr	283.70	100.00	103.45		103.47	0.000385	1.29	427.66	237.14	0.13
East Branch Trou	4150	500-Yr	507.90	100.00	103.94		103.97	0.000699	1.91	550.25	272.01	0.17
East Branch Trou	4000	2-Yr	44.80	99.54	101.16		101.17	0.000634	0.88	83.63	115.89	0.14
East Branch Trou	4000	10-Yr	110.30	99.54	101.89		101.90	0.000605	1.17	188.65	171.10	0.14
East Branch Trou	4000	25-Yr	165.80	99.54	102.94		102.95	0.000154	0.78	613.31	462.65	0.08
East Branch Trou	4000	50-Yr	165.80	99.54	102.95		102.95	0.000153	0.78	616.16	462.98	0.08
East Branch Trou	4000	100-Yr	283.70	99.54	103.42		103.43	0.000199	0.98	844.73	497.13	0.09
East Branch Trou	4000	500-Yr	507.90	99.54	103.88		103.90	0.000331	1.36	1082.14	530.62	0.12
East Branch Trou	3650	2-Yr	44.80	98.64	99.99	99.99	100.35	0.172910	4.81	9.31	13.21	1.01
East Branch Trou	3650	10-Yr	110.30	98.64	101.11		101.25	0.025294	3.40	46.88	69.63	0.45
East Branch Trou	3650	25-Yr	165.80	98.64	102.84		102.84	0.000728	0.91	359.70	320.03	0.09
East Branch Trou	3650	50-Yr	165.80	98.64	102.85		102.85	0.000715	0.90	362.15	321.49	0.08
East Branch Trou	3650	100-Yr	283.70	98.64	103.30		103.31	0.000726	0.99	516.63	353.97	0.09
East Branch Trou	3650	500-Yr	507.90	98.64	103.69		103.70	0.001104	1.29	660.32	384.85	0.11
East Branch Trou	3600	2-Yr	44.80	98.00	99.70		99.72	0.000580	0.88	50.73	36.62	0.13
East Branch Trou	3600	10-Yr	110.30	98.00	101.16		101.17	0.000233	0.88	199.18	148.96	0.09
East Branch Trou	3600	25-Yr	165.80	98.00	102.83		102.84	0.000058	0.60	550.65	296.80	0.05
East Branch Trou	3600	50-Yr	165.80	98.00	102.84		102.84	0.000058	0.60	552.93	297.06	0.05
East Branch Trou	3600	100-Yr	283.70	98.00	103.29		103.30	0.000098	0.84	693.52	324.68	0.07
East Branch Trou	3600	500-Yr	507.90	98.00	103.67		103.68	0.000205	1.27	819.69	347.00	0.10
East Branch Trou	3550	2-Yr	44.80	97.77	99.67		99.69	0.000619	1.06	65.02	70.69	0.14
East Branch Trou	3550	10-Yr	110.30	97.77	101.15		101.16	0.000231	0.98	254.73	155.15	0.10
East Branch Trou	3550	25-Yr	165.80	97.77	102.83		102.83	0.000060	0.66	621.99	302.10	0.05
East Branch Trou	3550	50-Yr	165.80	97.77	102.84		102.84	0.000059	0.66	624.32	302.84	0.05
East Branch Trou	3550	100-Yr	283.70	97.77	103.29		103.29	0.000101	0.91	768.08	335.34	0.07
East Branch Trou	3550	500-Yr	507.90	97.77	103.66		103.67	0.000213	1.38	897.65	362.34	0.10
East Branch Trou	3500	2-Yr	44.80	97.02	99.67		99.68	0.000048	0.35	158.56	109.92	0.04
East Branch Trou	3500	10-Yr	110.30	97.02	101.15		101.16	0.000042	0.46	352.17	145.24	0.04
East Branch Trou	3500	25-Yr	165.80	97.02	102.83		102.83	0.000020	0.40	720.74	316.77	0.03
East Branch Trou	3500	50-Yr	165.80	97.02	102.84		102.84	0.000019	0.40	723.19	317.50	0.03
East Branch Trou	3500	100-Yr	283.70	97.02	103.29		103.29	0.000037	0.59	873.11	349.66	0.04
East Branch Trou	3500	500-Yr	507.90	97.02	103.65		103.66	0.000085	0.92	1007.00	375.82	0.07
East Branch Trou	3450	2-Yr	44.80	96.75	99.67		99.67	0.000024	0.28	194.94	106.49	0.03
East Branch Trou	3450	10-Yr	110.30	96.75	101.15		101.16	0.000028	0.40	374.43	135.41	0.04
East Branch Trou	3450	25-Yr	165.80	96.75	102.83		102.83	0.000015	0.37	731.67	305.41	0.03
East Branch Trou	3450	50-Yr	165.80	96.75	102.84		102.84	0.000015	0.37	734.03	305.70	0.03
East Branch Trou	3450	100-Yr	283.70	96.75	103.28		103.29	0.000030	0.55	876.26	330.03	0.04
East Branch Trou	3450	500-Yr	507.90	96.75	103.65		103.66	0.000071	0.88	1002.06	355.73	0.06
East Branch Trou	3400	2-Yr	44.80	96.33	99.67		99.67	0.000009	0.18	273.10	132.82	0.02
East Branch Trou	3400	10-Yr	110.30	96.33	101.15		101.15	0.000012	0.27	515.71	196.51	0.02
East Branch Trou	3400	25-Yr	165.80	96.33	102.83		102.83	0.000008	0.27	928.29	300.65	0.02
East Branch Trou	3400	50-Yr	165.80	96.33	102.84		102.84	0.000008	0.27	930.61	300.99	0.02
East Branch Trou	3400	100-Yr	283.70	96.33	103.28		103.29	0.000016	0.41	1070.66	323.63	0.03
East Branch Trou	3400	500-Yr	507.90	96.33	103.65		103.66	0.000040	0.68	1192.25	340.71	0.05
East Branch Trou	3350	2-Yr	44.80	96.02	99.67		99.67	0.000016	0.26	242.65	147.72	0.03
East Branch Trou	3350	10-Yr	110.30	96.02	101.15		101.15	0.000019	0.36	515.64	217.77	0.03
East Branch Trou	3350	25-Yr	165.80	96.02	102.83		102.83	0.000010	0.32	947.27	303.29	0.02
East Branch Trou	3350	50-Yr	165.80	96.02	102.83		102.84	0.000010	0.32	949.62	303.83	0.02
East Branch Trou	3350	100-Yr	283.70	96.02	103.28		103.29	0.000021	0.48	1091.77	331.59	0.03
East Branch Trou	3350	500-Yr	507.90	96.02	103.65		103.65	0.000051	0.78	1217.31	357.11	0.05
East Branch Trou	3308	2-Yr	44.80	95.59	99.65	97.30	99.67	0.000485	1.01	44.23	18.67	0.12
East Branch Trou	3308	10-Yr	110.30	95.59	101.11	98.04	101.15	0.000570	1.49	92.59	80.77	0.14
East Branch Trou	3308	25-Yr	165.80	95.59	102.81	98.45	102.83	0.000203	1.14	346.18	234.54	0.09
East Branch Trou	3308	50-Yr	165.80	95.59	102.82	98.45	102.83	0.000202	1.14	348.00	238.46	0.09
East Branch Trou	3308	100-Yr	283.70	95.59	103.25	99.16	103.28	0.000368	1.61	461.22	281.06	0.12
East Branch Trou	3308	500-Yr	507.90	95.59	103.58	100.17	103.64	0.000828	2.51	558.09	308.24	0.18
East Branch Trou	3250		Culvert									
East Branch Trou	3050	2-Yr	43.70	94.25	99.46		99.46	0.000008	0.23	460.72	218.94	0.02
East Branch Trou	3050	10-Yr	100.00	94.25	99.86		99.86	0.000027	0.43	552.15	234.30	0.03
East Branch Trou	3050	25-Yr	129.90	94.25	100.11		100.11	0.000034	0.50	615.26	267.91	0.04
East Branch Trou	3050	50-Yr	129.90	94.25	100.16		100.16	0.000033	0.49	627.14	269.45	0.04
East Branch Trou	3050	100-Yr	167.90	94.25	100.81		100.81	0.000028	0.49	810.18	290.81	0.03
East Branch Trou	3050	500-Yr	292.20	94.25	100.73		100.74	0.000090	0.87	787.93	288.48	0.06

HEC-RAS Plan: 00-ExCond River: EB Trout Brook Reach: East Branch Trou (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
East Branch Trou	3000	2-Yr	43.70	94.14	99.46		99.46	0.000018	0.32	286.72	183.70	0.03
East Branch Trou	3000	10-Yr	100.00	94.14	99.86		99.86	0.000054	0.60	363.68	200.92	0.05
East Branch Trou	3000	25-Yr	129.90	94.14	100.11		100.11	0.000067	0.69	415.33	211.91	0.05
East Branch Trou	3000	50-Yr	129.90	94.14	100.15		100.16	0.000063	0.68	424.80	213.40	0.05
East Branch Trou	3000	100-Yr	167.90	94.14	100.81		100.81	0.000050	0.65	571.65	235.70	0.05
East Branch Trou	3000	500-Yr	292.20	94.14	100.72		100.73	0.000166	1.18	551.24	232.74	0.09
East Branch Trou	2950	2-Yr	43.70	93.97	99.46		99.46	0.000008	0.19	312.25	172.49	0.02
East Branch Trou	2950	10-Yr	100.00	93.97	99.86		99.86	0.000027	0.36	385.15	192.22	0.03
East Branch Trou	2950	25-Yr	129.90	93.97	100.11		100.11	0.000033	0.43	434.52	201.24	0.04
East Branch Trou	2950	50-Yr	129.90	93.97	100.15		100.15	0.000032	0.42	443.51	202.11	0.04
East Branch Trou	2950	100-Yr	167.90	93.97	100.80		100.81	0.000027	0.42	579.70	214.57	0.03
East Branch Trou	2950	500-Yr	292.20	93.97	100.72		100.72	0.000088	0.76	560.66	212.68	0.06
East Branch Trou	2900	2-Yr	43.70	93.81	99.46		99.46	0.000009	0.21	278.41	157.29	0.02
East Branch Trou	2900	10-Yr	100.00	93.81	99.85		99.86	0.000029	0.41	345.32	178.54	0.04
East Branch Trou	2900	25-Yr	129.90	93.81	100.10		100.11	0.000038	0.48	399.05	290.63	0.04
East Branch Trou	2900	50-Yr	129.90	93.81	100.15		100.15	0.000036	0.47	412.48	307.17	0.04
East Branch Trou	2900	100-Yr	167.90	93.81	100.80		100.81	0.000026	0.44	636.25	355.73	0.03
East Branch Trou	2900	500-Yr	292.20	93.81	100.71		100.72	0.000089	0.80	603.50	351.40	0.06
East Branch Trou	2850	2-Yr	43.70	93.65	99.45		99.46	0.000014	0.26	215.48	123.85	0.02
East Branch Trou	2850	10-Yr	100.00	93.65	99.85		99.85	0.000046	0.51	269.48	149.00	0.05
East Branch Trou	2850	25-Yr	129.90	93.65	100.10		100.10	0.000059	0.61	319.20	299.14	0.05
East Branch Trou	2850	50-Yr	129.90	93.65	100.14		100.15	0.000056	0.60	332.69	300.94	0.05
East Branch Trou	2850	100-Yr	167.90	93.65	100.80		100.80	0.000043	0.58	539.38	329.00	0.05
East Branch Trou	2850	500-Yr	292.20	93.65	100.70		100.71	0.000147	1.05	506.32	324.91	0.08
East Branch Trou	2800	2-Yr	43.70	93.48	99.45		99.45	0.000018	0.30	181.26	97.41	0.03
East Branch Trou	2800	10-Yr	100.00	93.48	99.85		99.85	0.000062	0.59	222.59	113.61	0.05
East Branch Trou	2800	25-Yr	129.90	93.48	100.09		100.10	0.000081	0.70	264.73	278.78	0.06
East Branch Trou	2800	50-Yr	129.90	93.48	100.14		100.14	0.000077	0.69	277.41	281.55	0.06
East Branch Trou	2800	100-Yr	167.90	93.48	100.80		100.80	0.000051	0.62	475.11	319.31	0.05
East Branch Trou	2800	500-Yr	292.20	93.48	100.69		100.70	0.000180	1.14	440.73	313.10	0.09
East Branch Trou	2750	2-Yr	43.70	93.32	99.45		99.45	0.000035	0.40	134.95	72.61	0.04
East Branch Trou	2750	10-Yr	100.00	93.32	99.84		99.85	0.000122	0.80	165.70	86.34	0.07
East Branch Trou	2750	25-Yr	129.90	93.32	100.08		100.09	0.000158	0.94	201.14	260.64	0.08
East Branch Trou	2750	50-Yr	129.90	93.32	100.13		100.14	0.000148	0.92	213.29	267.30	0.08
East Branch Trou	2750	100-Yr	167.90	93.32	100.79		100.80	0.000086	0.78	414.36	340.77	0.06
East Branch Trou	2750	500-Yr	292.20	93.32	100.67		100.69	0.000321	1.47	372.78	326.06	0.12
East Branch Trou	2700	2-Yr	43.70	93.15	99.45		99.45	0.000038	0.37	121.01	50.02	0.04
East Branch Trou	2700	10-Yr	100.00	93.15	99.83		99.84	0.000131	0.75	141.40	56.65	0.07
East Branch Trou	2700	25-Yr	129.90	93.15	100.07		100.09	0.000169	0.89	173.41	320.87	0.08
East Branch Trou	2700	50-Yr	129.90	93.15	100.12		100.13	0.000158	0.87	188.49	326.95	0.08
East Branch Trou	2700	100-Yr	167.90	93.15	100.79		100.79	0.000076	0.67	437.39	414.15	0.06
East Branch Trou	2700	500-Yr	292.20	93.15	100.65		100.67	0.000299	1.31	382.79	398.25	0.11
East Branch Trou	2650	2-Yr	43.70	92.99	99.45		99.45	0.000020	0.31	147.65	50.50	0.03
East Branch Trou	2650	10-Yr	100.00	92.99	99.83		99.83	0.000073	0.63	167.80	58.74	0.06
East Branch Trou	2650	25-Yr	129.90	92.99	100.07		100.08	0.000099	0.76	203.53	367.63	0.07
East Branch Trou	2650	50-Yr	129.90	92.99	100.12		100.12	0.000093	0.75	220.88	375.06	0.06
East Branch Trou	2650	100-Yr	167.90	92.99	100.79		100.79	0.000051	0.61	498.53	438.98	0.05
East Branch Trou	2650	500-Yr	292.20	92.99	100.64		100.66	0.000197	1.17	436.97	431.59	0.09
East Branch Trou	2600	2-Yr	43.70	92.83	99.45		99.45	0.000028	0.33	132.80	47.26	0.03
East Branch Trou	2600	10-Yr	100.00	92.83	99.82		99.83	0.000101	0.68	151.32	51.18	0.06
East Branch Trou	2600	25-Yr	129.90	92.83	100.06		100.07	0.000134	0.82	183.98	388.05	0.07
East Branch Trou	2600	50-Yr	129.90	92.83	100.11		100.12	0.000125	0.80	202.36	389.80	0.07
East Branch Trou	2600	100-Yr	167.90	92.83	100.78		100.79	0.000061	0.62	473.37	415.28	0.05
East Branch Trou	2600	500-Yr	292.20	92.83	100.63		100.65	0.000244	1.21	411.30	409.61	0.10
East Branch Trou	2550	2-Yr	43.70	92.66	99.45		99.45	0.000021	0.31	154.85	73.55	0.03
East Branch Trou	2550	10-Yr	100.00	92.66	99.82		99.83	0.000077	0.63	184.89	98.54	0.06
East Branch Trou	2550	25-Yr	129.90	92.66	100.06		100.07	0.000101	0.75	231.47	385.08	0.07
East Branch Trou	2550	50-Yr	129.90	92.66	100.11		100.11	0.000095	0.73	249.83	386.83	0.06
East Branch Trou	2550	100-Yr	167.90	92.66	100.78		100.78	0.000050	0.59	519.33	412.64	0.05
East Branch Trou	2550	500-Yr	292.20	92.66	100.62		100.64	0.000199	1.14	454.84	406.02	0.09
East Branch Trou	2500	2-Yr	43.70	92.50	99.45		99.45	0.000008	0.23	259.23	181.36	0.02
East Branch Trou	2500	10-Yr	100.00	92.50	99.82		99.82	0.000027	0.45	330.73	201.56	0.04
East Branch Trou	2500	25-Yr	129.90	92.50	100.06		100.06	0.000034	0.52	390.32	384.60	0.04
East Branch Trou	2500	50-Yr	129.90	92.50	100.11		100.11	0.000032	0.51	408.65	386.96	0.04
East Branch Trou	2500	100-Yr	167.90	92.50	100.29		100.29	0.000042	0.59	479.16	394.85	0.04
East Branch Trou	2500	500-Yr	292.20	92.50	100.62		100.63	0.000078	0.84	614.16	409.37	0.06

HEC-RAS Plan: 00-ExCond River: EB Trout Brook Reach: East Branch Trou (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
East Branch Trou	2450	2-Yr	225.90	92.04	99.42	94.11	99.44	0.000164	1.14	328.92	181.89	0.08
East Branch Trou	2450	10-Yr	399.20	92.04	99.77	95.01	99.81	0.000373	1.79	395.02	200.67	0.13
East Branch Trou	2450	25-Yr	537.70	92.04	99.98	95.61	100.04	0.000564	2.26	439.26	246.11	0.16
East Branch Trou	2450	50-Yr	629.60	92.04	100.00	95.96	100.09	0.000770	2.64	444.07	355.84	0.19
East Branch Trou	2450	100-Yr	783.70	92.04	100.15	96.47	100.26	0.001019	3.09	502.33	398.56	0.21
East Branch Trou	2450	500-Yr	1231.70	92.04	100.37	97.53	100.58	0.001956	4.38	590.17	410.68	0.30
East Branch Trou	2135		Culvert									
East Branch Trou	1770	2-Yr	176.40	90.11	92.92		93.14	0.011456	3.78	46.64	22.50	0.46
East Branch Trou	1770	10-Yr	305.00	90.11	94.17		94.41	0.009145	3.89	78.52	28.14	0.40
East Branch Trou	1770	25-Yr	566.80	90.11	96.29		96.54	0.004733	4.04	151.06	65.55	0.32
East Branch Trou	1770	50-Yr	643.30	90.11	96.53		96.80	0.004952	4.27	169.95	92.94	0.33
East Branch Trou	1770	100-Yr	783.70	90.11	96.85		97.15	0.005257	4.58	206.09	130.78	0.34
East Branch Trou	1770	500-Yr	1231.70	90.11	97.47		97.80	0.005794	5.15	291.50	140.00	0.37
East Branch Trou	1750	2-Yr	176.40	89.89	92.76		92.91	0.008168	3.12	56.51	25.10	0.37
East Branch Trou	1750	10-Yr	305.00	89.89	94.04		94.21	0.007404	3.29	92.79	31.36	0.34
East Branch Trou	1750	25-Yr	566.80	89.89	96.24		96.42	0.003875	3.44	174.99	65.39	0.27
East Branch Trou	1750	50-Yr	643.30	89.89	96.47		96.67	0.004130	3.65	193.35	90.93	0.28
East Branch Trou	1750	100-Yr	783.70	89.89	96.79		97.02	0.004537	3.98	228.52	128.88	0.29
East Branch Trou	1750	500-Yr	1231.70	89.89	97.38		97.66	0.005516	4.68	309.39	140.00	0.33
East Branch Trou	1700	2-Yr	176.40	89.33	92.30		92.45	0.010363	3.17	55.62	25.65	0.38
East Branch Trou	1700	10-Yr	305.00	89.33	93.66		93.82	0.008103	3.19	95.49	32.69	0.33
East Branch Trou	1700	25-Yr	566.80	89.33	96.08		96.22	0.003610	3.07	198.00	76.63	0.24
East Branch Trou	1700	50-Yr	643.30	89.33	96.30		96.46	0.003866	3.27	218.53	106.39	0.25
East Branch Trou	1700	100-Yr	783.70	89.33	96.60		96.78	0.004299	3.57	257.13	156.33	0.26
East Branch Trou	1700	500-Yr	1231.70	89.33	97.16		97.37	0.005137	4.16	363.01	209.10	0.29
East Branch Trou	1650	2-Yr	176.40	88.70	91.68		91.87	0.013018	3.53	49.96	26.43	0.45
East Branch Trou	1650	10-Yr	305.00	88.70	93.31		93.45	0.006754	3.00	101.80	37.29	0.32
East Branch Trou	1650	25-Yr	566.80	88.70	95.95		96.05	0.002789	2.55	228.33	60.88	0.21
East Branch Trou	1650	50-Yr	643.30	88.70	96.17		96.28	0.002975	2.72	255.64	169.09	0.22
East Branch Trou	1650	100-Yr	783.70	88.70	96.46		96.58	0.003131	2.90	310.94	210.15	0.23
East Branch Trou	1650	500-Yr	1231.70	88.70	97.00		97.14	0.003575	3.31	442.90	271.24	0.25
East Branch Trou	1600	2-Yr	176.40	88.00	91.20		91.34	0.008339	2.92	60.43	27.30	0.35
East Branch Trou	1600	10-Yr	305.00	88.00	93.05		93.15	0.004753	2.53	120.71	38.87	0.25
East Branch Trou	1600	25-Yr	566.80	88.00	95.84		95.92	0.002198	2.22	260.45	62.57	0.18
East Branch Trou	1600	50-Yr	643.30	88.00	96.05		96.14	0.002428	2.39	283.75	217.46	0.19
East Branch Trou	1600	100-Yr	783.70	88.00	96.34		96.43	0.002538	2.54	359.28	295.87	0.19
East Branch Trou	1600	500-Yr	1231.70	88.00	96.88		96.97	0.002539	2.71	570.61	464.61	0.20
East Branch Trou	1550	2-Yr	176.40	87.66	90.89		91.00	0.005319	2.75	64.17	28.43	0.32
East Branch Trou	1550	10-Yr	305.00	87.66	92.91		92.99	0.002264	2.30	132.44	40.80	0.23
East Branch Trou	1550	25-Yr	566.80	87.66	95.81		95.86	0.000654	1.76	374.25	173.98	0.13
East Branch Trou	1550	50-Yr	643.30	87.66	96.02		96.07	0.000676	1.84	419.07	366.70	0.14
East Branch Trou	1550	100-Yr	783.70	87.66	96.32		96.36	0.000645	1.85	573.76	546.45	0.13
East Branch Trou	1550	500-Yr	1231.70	87.66	96.86		96.90	0.000618	1.92	882.82	585.10	0.13
East Branch Trou	1500	2-Yr	176.40	87.11	90.57		90.68	0.007755	2.63	66.99	29.64	0.31
East Branch Trou	1500	10-Yr	305.00	87.11	92.78		92.85	0.003215	2.10	145.14	44.48	0.20
East Branch Trou	1500	25-Yr	566.80	87.11	95.81		95.83	0.000246	0.81	651.15	288.08	0.06
East Branch Trou	1500	50-Yr	643.30	87.11	96.02		96.04	0.000261	0.85	715.27	392.96	0.06
East Branch Trou	1500	100-Yr	783.70	87.11	96.32		96.33	0.000286	0.92	886.06	613.81	0.06
East Branch Trou	1500	500-Yr	1231.70	87.11	96.86		96.87	0.000310	1.01	1240.44	701.51	0.07
East Branch Trou	1450	2-Yr	176.40	86.55	90.30		90.38	0.004601	2.33	75.56	30.69	0.26
East Branch Trou	1450	10-Yr	305.00	86.55	92.71		92.74	0.001424	1.53	208.87	112.84	0.14
East Branch Trou	1450	25-Yr	566.80	86.55	95.81		95.82	0.000122	0.66	791.61	307.33	0.05
East Branch Trou	1450	50-Yr	643.30	86.55	96.02		96.03	0.000131	0.70	864.59	399.42	0.05
East Branch Trou	1450	100-Yr	783.70	86.55	96.31		96.32	0.000143	0.75	984.79	423.79	0.05
East Branch Trou	1450	500-Yr	1231.70	86.55	96.84		96.86	0.000207	0.95	1236.78	520.82	0.06
East Branch Trou	1400	2-Yr	176.40	86.00	90.13		90.20	0.002900	2.15	85.79	71.62	0.23
East Branch Trou	1400	10-Yr	305.00	86.00	92.70		92.71	0.000183	0.72	384.39	155.89	0.06
East Branch Trou	1400	25-Yr	566.80	86.00	95.81		95.81	0.000037	0.46	1038.83	357.66	0.03
East Branch Trou	1400	50-Yr	643.30	86.00	96.02		96.02	0.000042	0.49	1095.27	451.22	0.03
East Branch Trou	1400	100-Yr	783.70	86.00	96.31		96.31	0.000092	0.74	1227.37	559.00	0.05
East Branch Trou	1400	500-Yr	1231.70	86.00	96.84		96.85	0.000119	0.88	1532.63	586.52	0.05
East Branch Trou	1350	2-Yr	176.40	85.44	90.02		90.07	0.001984	1.81	98.43	130.92	0.18
East Branch Trou	1350	10-Yr	305.00	85.44	92.69		92.70	0.000182	0.61	399.08	244.66	0.05
East Branch Trou	1350	25-Yr	566.80	85.44	95.81		95.81	0.000043	0.43	1009.45	395.03	0.03
East Branch Trou	1350	50-Yr	643.30	85.44	96.01		96.02	0.000049	0.47	1065.51	504.98	0.03
East Branch Trou	1350	100-Yr	783.70	85.44	96.30		96.31	0.000105	0.70	1224.91	566.79	0.04
East Branch Trou	1350	500-Yr	1231.70	85.44	96.84		96.85	0.000131	0.81	1532.42	583.88	0.05

HEC-RAS Plan: 00-ExCond River: EB Trout Brook Reach: East Branch Trou (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
East Branch Trou	1305	2-Yr	192.20	84.94	89.89	86.62	89.98	0.001908	2.41	79.65	117.43	0.19
East Branch Trou	1305	10-Yr	333.40	84.94	92.64	87.34	92.68	0.000847	1.92	211.58	254.16	0.12
East Branch Trou	1305	25-Yr	608.80	84.94	95.80	88.50	95.81	0.000113	0.89	727.19	370.76	0.05
East Branch Trou	1305	50-Yr	727.50	84.94	96.00	88.94	96.02	0.000215	1.24	769.50	489.76	0.07
East Branch Trou	1305	100-Yr	913.40	84.94	96.28	89.59	96.30	0.000342	1.58	912.57	530.65	0.08
East Branch Trou	1305	500-Yr	1462.20	84.94	96.81	92.69	96.83	0.000388	1.74	1219.53	600.52	0.09
East Branch Trou	1200		Culvert									
East Branch Trou	1018	2-Yr	192.10	84.77	88.74		88.83	0.004024	2.37	91.72	176.78	0.26
East Branch Trou	1018	10-Yr	333.30	84.77	90.42		90.47	0.001686	1.97	228.15	236.50	0.18
East Branch Trou	1018	25-Yr	555.30	84.77	91.78		91.83	0.001194	2.05	415.88	302.43	0.16
East Branch Trou	1018	50-Yr	660.00	84.77	92.00		92.06	0.001381	2.27	453.88	313.33	0.17
East Branch Trou	1018	100-Yr	880.80	84.77	92.39		92.47	0.001761	2.68	524.01	331.66	0.20
East Branch Trou	1018	500-Yr	1432.80	84.77	93.09		93.21	0.002640	3.55	664.72	361.62	0.25
East Branch Trou	1000	2-Yr	192.10	84.73	88.67		88.75	0.004492	2.31	96.96	63.93	0.26
East Branch Trou	1000	10-Yr	333.30	84.73	90.39		90.43	0.001683	1.86	245.36	123.84	0.17
East Branch Trou	1000	25-Yr	555.30	84.73	91.77		91.80	0.001104	1.87	467.79	197.12	0.15
East Branch Trou	1000	50-Yr	660.00	84.73	91.99		92.03	0.001253	2.05	512.30	204.79	0.16
East Branch Trou	1000	100-Yr	880.80	84.73	92.37		92.43	0.001592	2.42	594.02	225.43	0.18
East Branch Trou	1000	500-Yr	1432.80	84.73	93.05		93.15	0.002379	3.20	762.24	264.44	0.23
East Branch Trou	950	2-Yr	192.10	84.60	88.52		88.60	0.002024	2.32	96.55	65.09	0.25
East Branch Trou	950	10-Yr	333.30	84.60	90.33		90.37	0.000967	1.83	273.16	141.03	0.17
East Branch Trou	950	25-Yr	555.30	84.60	91.72		91.76	0.000643	1.85	518.29	205.84	0.14
East Branch Trou	950	50-Yr	660.00	84.60	91.94		91.98	0.000749	2.05	563.42	214.40	0.16
East Branch Trou	950	100-Yr	880.80	84.60	92.30		92.37	0.000973	2.44	648.25	246.95	0.18
East Branch Trou	950	500-Yr	1432.80	84.60	92.97		93.06	0.001398	3.15	828.77	298.26	0.22
East Branch Trou	900	2-Yr	192.10	84.48	88.40		88.48	0.003019	2.36	94.33	68.67	0.26
East Branch Trou	900	10-Yr	333.30	84.48	90.28		90.32	0.001150	1.77	269.67	124.53	0.16
East Branch Trou	900	25-Yr	555.30	84.48	91.69		91.73	0.000825	1.83	500.70	200.20	0.14
East Branch Trou	900	50-Yr	660.00	84.48	91.90		91.94	0.000962	2.03	543.73	219.87	0.15
East Branch Trou	900	100-Yr	880.80	84.48	92.26		92.31	0.001197	2.36	629.84	259.37	0.17
East Branch Trou	900	500-Yr	1432.80	84.48	92.90		92.98	0.001655	2.98	816.43	313.71	0.21
East Branch Trou	850	2-Yr	192.10	84.36	88.11		88.23	0.009913	2.70	74.63	49.82	0.31
East Branch Trou	850	10-Yr	333.30	84.36	90.19		90.24	0.002367	1.87	220.74	96.13	0.17
East Branch Trou	850	25-Yr	555.30	84.36	91.63		91.67	0.001592	1.90	415.32	174.53	0.15
East Branch Trou	850	50-Yr	660.00	84.36	91.83		91.88	0.001847	2.09	451.15	185.47	0.16
East Branch Trou	850	100-Yr	880.80	84.36	92.16		92.23	0.002402	2.48	524.18	264.30	0.18
East Branch Trou	850	500-Yr	1432.80	84.36	92.78		92.87	0.003007	2.98	701.23	303.35	0.21
East Branch Trou	800	2-Yr	192.10	84.23	87.82		87.91	0.004218	2.38	81.11	39.60	0.26
East Branch Trou	800	10-Yr	333.30	84.23	90.14		90.17	0.000690	1.30	244.84	94.73	0.11
East Branch Trou	800	25-Yr	555.30	84.23	91.60		91.62	0.000509	1.36	437.37	172.56	0.10
East Branch Trou	800	50-Yr	660.00	84.23	91.79		91.82	0.000599	1.51	471.71	182.33	0.11
East Branch Trou	800	100-Yr	880.80	84.23	92.10		92.15	0.001036	2.06	534.68	264.81	0.15
East Branch Trou	800	500-Yr	1432.80	84.23	92.70		92.77	0.001336	2.49	710.32	313.23	0.17
East Branch Trou	750	2-Yr	192.10	84.12	87.71		87.79	0.001445	2.21	87.01	36.24	0.24
East Branch Trou	750	10-Yr	333.30	84.12	90.10		90.14	0.000613	1.68	270.81	114.49	0.14
East Branch Trou	750	25-Yr	555.30	84.12	91.55		91.60	0.000523	1.86	489.12	193.78	0.14
East Branch Trou	750	50-Yr	660.00	84.12	91.74		91.79	0.000638	2.10	525.96	209.34	0.15
East Branch Trou	750	100-Yr	880.80	84.12	92.02		92.10	0.000889	2.55	589.90	243.56	0.18
East Branch Trou	750	500-Yr	1432.80	84.12	92.57		92.70	0.001413	3.40	766.07	367.93	0.23
East Branch Trou	700	2-Yr	192.10	84.00	87.62		87.71	0.001993	2.50	91.97	47.42	0.27
East Branch Trou	700	10-Yr	333.30	84.00	90.07		90.11	0.000631	1.71	301.77	132.38	0.14
East Branch Trou	700	25-Yr	555.30	84.00	91.53		91.57	0.000494	1.83	558.90	220.42	0.13
East Branch Trou	700	50-Yr	660.00	84.00	91.71		91.76	0.000595	2.05	599.25	229.90	0.15
East Branch Trou	700	100-Yr	880.80	84.00	91.99		92.05	0.000828	2.50	664.09	241.76	0.18
East Branch Trou	700	500-Yr	1432.80	84.00	92.52		92.62	0.001332	3.34	841.38	358.53	0.23
East Branch Trou	650	2-Yr	192.10	84.00	87.49		87.57	0.003888	2.33	93.78	45.47	0.25
East Branch Trou	650	10-Yr	333.30	84.00	90.04		90.07	0.000846	1.64	304.72	131.28	0.13
East Branch Trou	650	25-Yr	555.30	84.00	91.51		91.54	0.000669	1.73	552.87	207.84	0.12
East Branch Trou	650	50-Yr	660.00	84.00	91.68		91.72	0.000815	1.94	589.86	217.19	0.13
East Branch Trou	650	100-Yr	880.80	84.00	91.94		92.00	0.001149	2.36	648.78	242.33	0.16
East Branch Trou	650	500-Yr	1432.80	84.00	92.45		92.54	0.001835	3.13	815.95	337.30	0.20
East Branch Trou	600	2-Yr	192.10	84.00	87.37		87.46	0.001410	2.38	95.88	47.64	0.25
East Branch Trou	600	10-Yr	333.30	84.00	90.00		90.04	0.000344	1.83	302.98	128.75	0.14
East Branch Trou	600	25-Yr	555.30	84.00	91.49		91.52	0.000213	1.69	649.36	282.52	0.11
East Branch Trou	600	50-Yr	660.00	84.00	91.66		91.70	0.000253	1.87	698.73	291.62	0.12
East Branch Trou	600	100-Yr	880.80	84.00	91.92		91.97	0.000348	2.25	775.59	304.77	0.15

HEC-RAS Plan: 00-ExCond River: EB Trout Brook Reach: East Branch Trou (Continued)

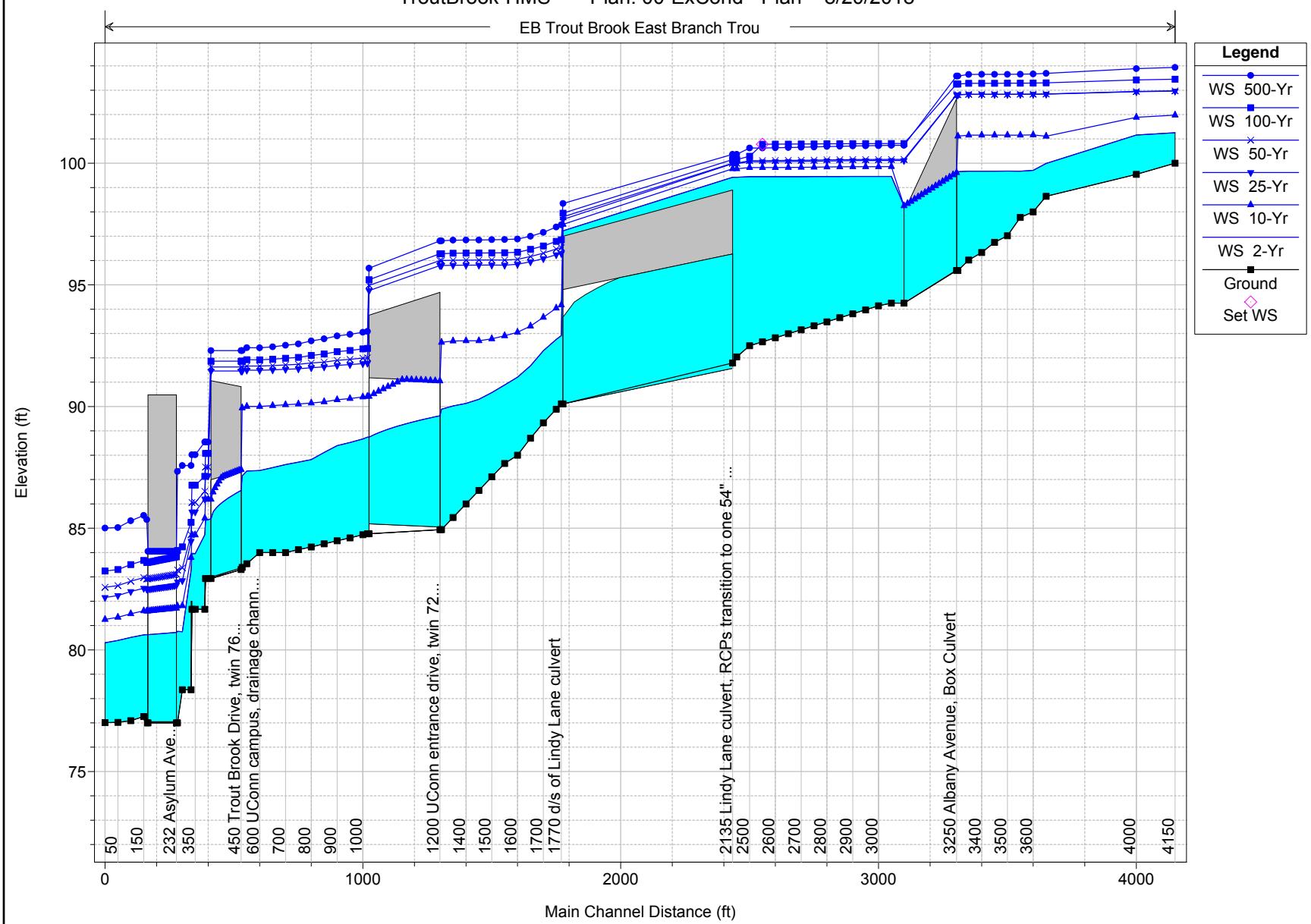
Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
East Branch Trou	600	500-Yr	1432.80	84.00	92.41		92.49	0.000571	3.01	931.24	318.04	0.19
East Branch Trou	550	2-Yr	192.10	83.54	87.35		87.40	0.000696	1.77	116.56	49.57	0.18
East Branch Trou	550	10-Yr	333.30	83.54	90.00		90.03	0.000170	1.34	365.31	254.01	0.10
East Branch Trou	550	25-Yr	555.30	83.54	91.49		91.51	0.000107	1.24	818.87	368.49	0.08
East Branch Trou	550	50-Yr	660.00	83.54	91.67		91.68	0.000128	1.39	884.10	389.04	0.09
East Branch Trou	550	100-Yr	880.80	83.54	91.92		91.95	0.000178	1.67	988.32	431.73	0.11
East Branch Trou	550	500-Yr	1432.80	83.54	92.42		92.46	0.000290	2.22	1206.87	446.62	0.14
East Branch Trou	532	2-Yr	199.40	83.39	87.15	85.89	87.36	0.003510	3.64	54.77	23.52	0.42
East Branch Trou	532	10-Yr	344.70	83.39	89.94	86.63	90.02	0.000521	2.37	256.76	155.54	0.18
East Branch Trou	532	25-Yr	572.10	83.39	91.46	87.47	91.50	0.000296	2.12	647.13	287.53	0.15
East Branch Trou	532	50-Yr	679.20	83.39	91.63	87.79	91.68	0.000357	2.37	696.34	308.90	0.16
East Branch Trou	532	100-Yr	901.10	83.39	91.87	88.77	91.94	0.000506	2.88	774.74	335.65	0.19
East Branch Trou	532	500-Yr	1482.70	83.39	92.30	90.45	92.44	0.000974	4.17	938.78	392.67	0.27
East Branch Trou	450		Culvert									
East Branch Trou	400	2-Yr	199.40	82.93	85.35	84.70	85.68	0.007081	4.63	43.04	22.69	0.59
East Branch Trou	400	10-Yr	344.70	82.93	86.19	85.38	86.65	0.006777	5.44	63.43	25.90	0.61
East Branch Trou	400	25-Yr	572.10	82.93	87.16	86.18	87.81	0.006235	6.49	90.20	29.51	0.61
East Branch Trou	400	50-Yr	679.20	82.93	87.52	86.49	88.27	0.006295	6.96	101.11	31.19	0.63
East Branch Trou	400	100-Yr	901.10	82.93	88.07	87.11	89.06	0.006989	8.02	119.15	34.50	0.67
East Branch Trou	400	500-Yr	1482.70	82.93	88.54	88.54	90.69	0.013338	11.86	137.11	42.00	0.95
East Branch Trou	387		Inl Struct									
East Branch Trou	350	2-Yr	199.40	81.67	83.95	82.86	84.05	0.002023	2.48	80.51	43.93	0.32
East Branch Trou	350	10-Yr	344.70	81.67	84.72	83.29	84.86	0.002043	2.97	115.89	48.19	0.34
East Branch Trou	350	25-Yr	572.10	81.67	85.67	83.84	85.86	0.002047	3.48	164.46	53.95	0.35
East Branch Trou	350	50-Yr	679.20	81.67	86.06	84.07	86.26	0.002024	3.66	185.68	56.40	0.35
East Branch Trou	350	100-Yr	901.10	81.67	86.77	84.50	87.02	0.001860	3.99	228.04	62.81	0.35
East Branch Trou	350	500-Yr	1482.70	81.67	88.02	85.45	88.40	0.002011	4.97	313.96	75.07	0.38
East Branch Trou	335.5		Inl Struct									
East Branch Trou	300	2-Yr	198.60	78.36	80.74		80.89	0.003055	3.01	65.90	36.26	0.39
East Branch Trou	300	10-Yr	333.10	78.36	81.81		81.96	0.002059	3.09	107.88	42.35	0.34
East Branch Trou	300	25-Yr	506.00	78.36	82.85		83.02	0.001665	3.28	154.09	46.67	0.32
East Branch Trou	300	50-Yr	615.10	78.36	83.38		83.56	0.001580	3.43	179.23	48.67	0.32
East Branch Trou	300	100-Yr	806.90	78.36	84.23		84.44	0.001465	3.63	222.24	52.14	0.31
East Branch Trou	300	500-Yr	1427.10	78.36	87.57		87.75	0.000686	3.41	427.79	74.66	0.23
East Branch Trou	281	2-Yr	198.60	77.00	80.76	78.25	80.83	0.001034	2.11	94.08	25.00	0.19
East Branch Trou	281	10-Yr	333.10	77.00	81.80	78.76	81.92	0.001474	2.78	120.00	25.00	0.22
East Branch Trou	281	25-Yr	506.00	77.00	82.79	79.33	82.98	0.001917	3.47	146.73	28.32	0.26
East Branch Trou	281	50-Yr	615.10	77.00	83.29	79.65	83.52	0.002146	3.88	161.27	30.79	0.28
East Branch Trou	281	100-Yr	806.90	77.00	84.08	80.18	84.39	0.002430	4.47	187.18	34.44	0.30
East Branch Trou	281	500-Yr	1427.10	77.00	87.34	81.65	87.71	0.001875	5.08	330.04	55.10	0.28
East Branch Trou	232		Culvert									
East Branch Trou	162	2-Yr	198.60	77.00	80.63		80.71	0.001221	2.28	86.92	23.99	0.21
East Branch Trou	162	10-Yr	333.10	77.00	81.60		81.74	0.001666	3.02	110.22	23.99	0.25
East Branch Trou	162	25-Yr	506.00	77.00	82.50		82.72	0.002249	3.84	132.18	25.51	0.29
East Branch Trou	162	50-Yr	615.10	77.00	82.92		83.21	0.002662	4.33	143.26	26.69	0.31
East Branch Trou	162	100-Yr	806.90	77.00	83.59		83.99	0.003262	5.06	164.52	35.57	0.35
East Branch Trou	162	500-Yr	1427.10	77.00	85.36		86.04	0.004195	6.77	242.28	51.54	0.42
East Branch Trou	150	2-Yr	198.60	77.26	80.62		80.69	0.001024	2.08	95.31	38.83	0.23
East Branch Trou	150	10-Yr	333.10	77.26	81.61		81.70	0.001036	2.45	136.07	43.80	0.24
East Branch Trou	150	25-Yr	506.00	77.26	82.53		82.66	0.001036	2.84	178.59	47.93	0.25
East Branch Trou	150	50-Yr	615.10	77.26	82.97		83.12	0.001067	3.10	200.18	49.73	0.26
East Branch Trou	150	100-Yr	806.90	77.26	83.67		83.86	0.001108	3.49	236.09	52.67	0.27
East Branch Trou	150	500-Yr	1427.10	77.26	85.52		85.83	0.001191	4.46	340.77	60.48	0.30
East Branch Trou	100	2-Yr	198.60	77.09	80.51		80.62	0.001609	2.60	76.27	31.71	0.30
East Branch Trou	100	10-Yr	333.10	77.09	81.48		81.63	0.001664	3.04	109.64	36.96	0.31
East Branch Trou	100	25-Yr	506.00	77.09	82.40		82.58	0.001656	3.49	145.44	41.74	0.32
East Branch Trou	100	50-Yr	615.10	77.09	82.82		83.05	0.001690	3.79	163.82	44.11	0.33
East Branch Trou	100	100-Yr	806.90	77.09	83.50		83.78	0.001730	4.25	195.17	47.95	0.34
East Branch Trou	100	500-Yr	1427.10	77.09	85.30		85.74	0.001799	5.37	290.10	57.32	0.37
East Branch Trou	50	2-Yr	198.60	77.02	80.39		80.52	0.002135	2.97	66.80	27.92	0.34
East Branch Trou	50	10-Yr	333.10	77.02	81.34		81.53	0.002235	3.49	95.49	32.33	0.36
East Branch Trou	50	25-Yr	506.00	77.02	82.23		82.48	0.002286	4.02	126.18	36.54	0.37
East Branch Trou	50	50-Yr	615.10	77.02	82.64		82.94	0.002349	4.38	141.67	38.58	0.39
East Branch Trou	50	100-Yr	806.90	77.02	83.30		83.67	0.002426	4.92	168.00	41.82	0.40

HEC-RAS Plan: 00-ExCond River: EB Trout Brook Reach: East Branch Trou (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
East Branch Trou	50	500-Yr	1427.10	77.02	85.02		85.62	0.002573	6.25	248.07	51.35	0.44
East Branch Trou	0	2-Yr	198.60	77.01	80.29	78.77	80.42	0.002002	2.81	70.70	31.10	0.33
East Branch Trou	0	10-Yr	333.10	77.01	81.25	79.37	81.41	0.002001	3.23	103.24	36.75	0.34
East Branch Trou	0	25-Yr	506.00	77.01	82.15	79.98	82.36	0.002000	3.65	138.65	41.75	0.35
East Branch Trou	0	50-Yr	615.10	77.01	82.57	80.31	82.82	0.002002	3.95	156.65	44.14	0.36
East Branch Trou	0	100-Yr	806.90	77.01	83.24	80.82	83.54	0.002001	4.40	187.40	47.96	0.37
East Branch Trou	0	500-Yr	1427.10	77.01	85.01	82.12	85.47	0.002001	5.49	282.04	60.15	0.39

TroutBrook-HMS Plan: 00-ExCond - Plan 8/20/2018

EB Trout Brook East Branch Trou



HEC-RAS Plan: 01-PC-TBDrive River: EB Trout Brook Reach: East Branch Trou

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
East Branch Trou	4150	2-Yr	44.80	100.00	101.25		101.26	0.000667	0.82	67.78	91.08	0.14
East Branch Trou	4150	10-Yr	110.30	100.00	101.98		102.00	0.000618	1.11	151.19	138.16	0.14
East Branch Trou	4150	25-Yr	165.80	100.00	102.96		102.97	0.000254	0.94	319.92	203.75	0.10
East Branch Trou	4150	50-Yr	165.80	100.00	102.97		102.98	0.000252	0.94	321.11	204.09	0.10
East Branch Trou	4150	100-Yr	283.70	100.00	103.44		103.45	0.000394	1.30	423.04	235.34	0.13
East Branch Trou	4150	500-Yr	507.90	100.00	103.96		104.00	0.000680	1.89	556.75	273.37	0.17
East Branch Trou	4000	2-Yr	44.80	99.54	101.16		101.17	0.000634	0.88	83.63	115.89	0.14
East Branch Trou	4000	10-Yr	110.30	99.54	101.89		101.90	0.000602	1.16	189.13	171.29	0.14
East Branch Trou	4000	25-Yr	165.80	99.54	102.94		102.94	0.000155	0.78	612.61	462.56	0.08
East Branch Trou	4000	50-Yr	165.80	99.54	102.95		102.95	0.000153	0.78	615.43	462.89	0.08
East Branch Trou	4000	100-Yr	283.70	99.54	103.40		103.41	0.000205	0.99	834.48	495.94	0.09
East Branch Trou	4000	500-Yr	507.90	99.54	103.91		103.92	0.000319	1.35	1095.77	531.83	0.12
East Branch Trou	3650	2-Yr	44.80	98.64	99.99	99.99	100.35	0.172910	4.81	9.31	13.21	1.01
East Branch Trou	3650	10-Yr	110.30	98.64	101.12		101.26	0.024277	3.35	47.86	70.45	0.44
East Branch Trou	3650	25-Yr	165.80	98.64	102.84		102.84	0.000732	0.91	359.09	319.94	0.09
East Branch Trou	3650	50-Yr	165.80	98.64	102.84		102.85	0.000717	0.90	361.53	320.31	0.09
East Branch Trou	3650	100-Yr	283.70	98.64	103.28		103.28	0.000767	1.01	507.55	352.84	0.09
East Branch Trou	3650	500-Yr	507.90	98.64	103.73		103.74	0.001037	1.26	673.53	386.52	0.11
East Branch Trou	3600	2-Yr	44.80	98.00	99.65		99.67	0.000651	0.92	48.82	36.26	0.14
East Branch Trou	3600	10-Yr	110.30	98.00	101.18		101.19	0.000229	0.87	200.87	149.43	0.09
East Branch Trou	3600	25-Yr	165.80	98.00	102.83		102.83	0.000058	0.60	550.09	296.74	0.05
East Branch Trou	3600	50-Yr	165.80	98.00	102.84		102.84	0.000058	0.60	552.36	296.99	0.05
East Branch Trou	3600	100-Yr	283.70	98.00	103.27		103.27	0.000101	0.84	685.11	322.43	0.07
East Branch Trou	3600	500-Yr	507.90	98.00	103.70		103.72	0.000197	1.25	831.92	348.52	0.10
East Branch Trou	3550	2-Yr	44.80	97.77	99.61		99.63	0.000704	1.11	61.12	67.32	0.15
East Branch Trou	3550	10-Yr	110.30	97.77	101.17		101.17	0.000227	0.97	256.51	155.40	0.10
East Branch Trou	3550	25-Yr	165.80	97.77	102.83		102.83	0.000060	0.66	621.41	301.92	0.05
East Branch Trou	3550	50-Yr	165.80	97.77	102.83		102.84	0.000059	0.66	623.73	302.65	0.05
East Branch Trou	3550	100-Yr	283.70	97.77	103.26		103.27	0.000104	0.92	759.34	333.85	0.07
East Branch Trou	3550	500-Yr	507.90	97.77	103.69		103.71	0.000205	1.36	910.54	364.59	0.10
East Branch Trou	3500	2-Yr	44.80	97.02	99.62		99.62	0.000052	0.36	152.41	107.62	0.04
East Branch Trou	3500	10-Yr	110.30	97.02	101.17		101.17	0.000042	0.46	353.84	145.44	0.04
East Branch Trou	3500	25-Yr	165.80	97.02	102.83		102.83	0.000020	0.40	720.14	316.59	0.03
East Branch Trou	3500	50-Yr	165.80	97.02	102.83		102.84	0.000020	0.40	722.57	317.31	0.03
East Branch Trou	3500	100-Yr	283.70	97.02	103.26		103.26	0.000038	0.59	863.98	348.62	0.04
East Branch Trou	3500	500-Yr	507.90	97.02	103.69		103.70	0.000083	0.91	1020.44	379.49	0.06
East Branch Trou	3450	2-Yr	44.80	96.75	99.62		99.62	0.000027	0.28	188.95	105.07	0.03
East Branch Trou	3450	10-Yr	110.30	96.75	101.16		101.17	0.000028	0.40	375.99	135.67	0.04
East Branch Trou	3450	25-Yr	165.80	96.75	102.83		102.83	0.000015	0.37	731.09	305.33	0.03
East Branch Trou	3450	50-Yr	165.80	96.75	102.83		102.84	0.000015	0.37	733.44	305.63	0.03
East Branch Trou	3450	100-Yr	283.70	96.75	103.26		103.26	0.000031	0.55	867.66	327.87	0.04
East Branch Trou	3450	500-Yr	507.90	96.75	103.69		103.69	0.000069	0.87	1014.82	358.23	0.06
East Branch Trou	3400	2-Yr	44.80	96.33	99.62		99.62	0.000010	0.18	265.65	130.79	0.02
East Branch Trou	3400	10-Yr	110.30	96.33	101.16		101.17	0.000012	0.27	517.97	196.95	0.02
East Branch Trou	3400	25-Yr	165.80	96.33	102.83		102.83	0.000008	0.27	927.72	300.57	0.02
East Branch Trou	3400	50-Yr	165.80	96.33	102.83		102.83	0.000008	0.27	930.03	300.90	0.02
East Branch Trou	3400	100-Yr	283.70	96.33	103.26		103.26	0.000016	0.42	1062.20	322.58	0.03
East Branch Trou	3400	500-Yr	507.90	96.33	103.69		103.69	0.000039	0.67	1204.43	342.18	0.05
East Branch Trou	3350	2-Yr	44.80	96.02	99.62		99.62	0.000018	0.26	234.39	144.26	0.03
East Branch Trou	3350	10-Yr	110.30	96.02	101.16		101.16	0.000019	0.36	518.15	218.51	0.03
East Branch Trou	3350	25-Yr	165.80	96.02	102.83		102.83	0.000010	0.32	946.70	303.16	0.02
East Branch Trou	3350	50-Yr	165.80	96.02	102.83		102.83	0.000010	0.32	949.03	303.70	0.02
East Branch Trou	3350	100-Yr	283.70	96.02	103.26		103.26	0.000021	0.48	1083.12	329.60	0.03
East Branch Trou	3350	500-Yr	507.90	96.02	103.68		103.69	0.000050	0.77	1230.13	359.67	0.05
East Branch Trou	3308	2-Yr	44.80	95.59	99.60	97.30	99.61	0.000521	1.04	43.15	18.55	0.12
East Branch Trou	3308	10-Yr	110.30	95.59	101.13	98.04	101.16	0.000562	1.48	93.55	81.16	0.13
East Branch Trou	3308	25-Yr	165.80	95.59	102.81	98.45	102.82	0.000203	1.14	345.73	233.98	0.09
East Branch Trou	3308	50-Yr	165.80	95.59	102.82	98.45	102.83	0.000202	1.14	347.54	237.47	0.09
East Branch Trou	3308	100-Yr	283.70	95.59	103.23	99.16	103.25	0.000378	1.63	453.67	278.12	0.12
East Branch Trou	3308	500-Yr	507.90	95.59	103.62	100.15	103.68	0.000796	2.47	569.99	312.22	0.17
East Branch Trou	3250		Culvert									
East Branch Trou	3050	2-Yr	43.70	94.25	99.40		99.40	0.000009	0.23	448.33	216.36	0.02
East Branch Trou	3050	10-Yr	100.00	94.25	99.87		99.87	0.000026	0.43	554.85	234.80	0.03
East Branch Trou	3050	25-Yr	129.90	94.25	100.11		100.11	0.000034	0.50	615.00	267.89	0.04
East Branch Trou	3050	50-Yr	129.90	94.25	100.16		100.16	0.000032	0.49	628.10	269.59	0.04
East Branch Trou	3050	100-Yr	167.90	94.25	100.35		100.35	0.000044	0.59	680.02	275.89	0.04
East Branch Trou	3050	500-Yr	292.20	94.25	100.76		100.76	0.000087	0.86	795.95	289.32	0.06

HEC-RAS Plan: 01-PC-TBDrive River: EB Trout Brook Reach: East Branch Trou (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
East Branch Trou	3000	2-Yr	43.70	94.14	99.40		99.40	0.000019	0.33	276.31	181.29	0.03
East Branch Trou	3000	10-Yr	100.00	94.14	99.87		99.87	0.000054	0.60	366.01	201.44	0.05
East Branch Trou	3000	25-Yr	129.90	94.14	100.11		100.11	0.000067	0.69	415.12	211.89	0.06
East Branch Trou	3000	50-Yr	129.90	94.14	100.15		100.16	0.000063	0.67	425.57	213.53	0.05
East Branch Trou	3000	100-Yr	167.90	94.14	100.34		100.35	0.000084	0.80	466.43	220.15	0.06
East Branch Trou	3000	500-Yr	292.20	94.14	100.75		100.76	0.000161	1.16	557.82	233.63	0.09
East Branch Trou	2950	2-Yr	43.70	93.97	99.40		99.40	0.000009	0.19	302.50	169.45	0.02
East Branch Trou	2950	10-Yr	100.00	93.97	99.87		99.87	0.000026	0.36	387.38	192.87	0.03
East Branch Trou	2950	25-Yr	129.90	93.97	100.10		100.11	0.000034	0.43	434.32	201.22	0.04
East Branch Trou	2950	50-Yr	129.90	93.97	100.15		100.16	0.000032	0.42	444.23	202.18	0.04
East Branch Trou	2950	100-Yr	167.90	93.97	100.34		100.34	0.000043	0.50	482.60	205.68	0.04
East Branch Trou	2950	500-Yr	292.20	93.97	100.74		100.75	0.000086	0.76	566.67	213.28	0.06
East Branch Trou	2900	2-Yr	43.70	93.81	99.40		99.40	0.000010	0.21	269.54	154.04	0.02
East Branch Trou	2900	10-Yr	100.00	93.81	99.87		99.87	0.000029	0.41	347.40	179.09	0.04
East Branch Trou	2900	25-Yr	129.90	93.81	100.10		100.11	0.000038	0.48	398.77	290.46	0.04
East Branch Trou	2900	50-Yr	129.90	93.81	100.15		100.15	0.000036	0.47	413.59	307.59	0.04
East Branch Trou	2900	100-Yr	167.90	93.81	100.34		100.34	0.000047	0.56	475.69	337.42	0.05
East Branch Trou	2900	500-Yr	292.20	93.81	100.74		100.75	0.000086	0.79	613.53	352.61	0.06
East Branch Trou	2850	2-Yr	43.70	93.65	99.40		99.40	0.000014	0.27	208.51	120.33	0.02
East Branch Trou	2850	10-Yr	100.00	93.65	99.86		99.87	0.000045	0.51	271.22	149.55	0.04
East Branch Trou	2850	25-Yr	129.90	93.65	100.10		100.10	0.000059	0.61	318.91	299.10	0.05
East Branch Trou	2850	50-Yr	129.90	93.65	100.15		100.15	0.000056	0.60	333.77	301.09	0.05
East Branch Trou	2850	100-Yr	167.90	93.65	100.33		100.34	0.000075	0.71	390.55	309.47	0.06
East Branch Trou	2850	500-Yr	292.20	93.65	100.73		100.74	0.000142	1.03	515.71	325.93	0.08
East Branch Trou	2800	2-Yr	43.70	93.48	99.40		99.40	0.000019	0.31	175.76	95.04	0.03
East Branch Trou	2800	10-Yr	100.00	93.48	99.86		99.86	0.000062	0.59	223.92	114.10	0.05
East Branch Trou	2800	25-Yr	129.90	93.48	100.09		100.10	0.000081	0.70	264.46	278.72	0.06
East Branch Trou	2800	50-Yr	129.90	93.48	100.14		100.15	0.000076	0.69	278.44	281.77	0.06
East Branch Trou	2800	100-Yr	167.90	93.48	100.33		100.33	0.000099	0.81	331.42	292.57	0.07
East Branch Trou	2800	500-Yr	292.20	93.48	100.72		100.73	0.000172	1.12	449.96	314.64	0.09
East Branch Trou	2750	2-Yr	43.70	93.32	99.39		99.40	0.000037	0.41	130.84	70.77	0.04
East Branch Trou	2750	10-Yr	100.00	93.32	99.85		99.86	0.000121	0.79	166.72	86.72	0.07
East Branch Trou	2750	25-Yr	129.90	93.32	100.08		100.09	0.000158	0.95	200.88	260.48	0.08
East Branch Trou	2750	50-Yr	129.90	93.32	100.13		100.14	0.000148	0.92	214.28	267.59	0.08
East Branch Trou	2750	100-Yr	167.90	93.32	100.31		100.33	0.000188	1.07	264.59	286.22	0.09
East Branch Trou	2750	500-Yr	292.20	93.32	100.70		100.72	0.000305	1.44	382.80	329.84	0.12
East Branch Trou	2700	2-Yr	43.70	93.15	99.39		99.39	0.000040	0.38	118.16	49.15	0.04
East Branch Trou	2700	10-Yr	100.00	93.15	99.84		99.85	0.000129	0.74	142.07	56.90	0.07
East Branch Trou	2700	25-Yr	129.90	93.15	100.07		100.08	0.000170	0.89	173.09	320.76	0.08
East Branch Trou	2700	50-Yr	129.90	93.15	100.12		100.13	0.000157	0.87	189.71	328.29	0.08
East Branch Trou	2700	100-Yr	167.90	93.15	100.30		100.32	0.000193	0.99	251.35	353.58	0.09
East Branch Trou	2700	500-Yr	292.20	93.15	100.68		100.70	0.000281	1.27	395.36	400.79	0.11
East Branch Trou	2650	2-Yr	43.70	92.99	99.39		99.39	0.000021	0.31	144.77	49.79	0.03
East Branch Trou	2650	10-Yr	100.00	92.99	99.84		99.85	0.000072	0.63	168.50	59.19	0.06
East Branch Trou	2650	25-Yr	129.90	92.99	100.07		100.08	0.000099	0.76	203.15	367.49	0.07
East Branch Trou	2650	50-Yr	129.90	92.99	100.12		100.13	0.000093	0.74	222.28	375.67	0.06
East Branch Trou	2650	100-Yr	167.90	92.99	100.30		100.31	0.000118	0.86	291.74	401.61	0.07
East Branch Trou	2650	500-Yr	292.20	92.99	100.68		100.69	0.000186	1.14	450.79	433.26	0.09
East Branch Trou	2600	2-Yr	43.70	92.83	99.39		99.39	0.000030	0.34	130.10	46.66	0.03
East Branch Trou	2600	10-Yr	100.00	92.83	99.83		99.84	0.000100	0.68	151.93	51.32	0.06
East Branch Trou	2600	25-Yr	129.90	92.83	100.06		100.07	0.000134	0.82	183.59	388.01	0.07
East Branch Trou	2600	50-Yr	129.90	92.83	100.11		100.12	0.000125	0.80	203.84	389.96	0.07
East Branch Trou	2600	100-Yr	167.90	92.83	100.29		100.30	0.000154	0.91	273.82	396.81	0.08
East Branch Trou	2600	500-Yr	292.20	92.83	100.66		100.68	0.000229	1.18	424.73	410.95	0.10
East Branch Trou	2550	2-Yr	43.70	92.66	99.39		99.39	0.000023	0.31	150.65	72.28	0.03
East Branch Trou	2550	10-Yr	100.00	92.66	99.83		99.84	0.000076	0.62	186.08	99.99	0.06
East Branch Trou	2550	25-Yr	129.90	92.66	100.06		100.06	0.000101	0.75	231.08	385.03	0.07
East Branch Trou	2550	50-Yr	129.90	92.66	100.11		100.12	0.000094	0.73	251.30	386.97	0.06
East Branch Trou	2550	100-Yr	167.90	92.66	100.29		100.30	0.000118	0.84	320.26	393.43	0.07
East Branch Trou	2550	500-Yr	292.20	92.66	100.66		100.67	0.000188	1.12	468.35	407.27	0.09
East Branch Trou	2500	2-Yr	43.70	92.50	99.39		99.39	0.000009	0.24	248.87	177.98	0.02
East Branch Trou	2500	10-Yr	100.00	92.50	99.83		99.83	0.000027	0.44	333.15	202.12	0.04
East Branch Trou	2500	25-Yr	129.90	92.50	100.06		100.06	0.000034	0.52	389.93	384.57	0.04
East Branch Trou	2500	50-Yr	129.90	92.50	100.11		100.11	0.000032	0.50	410.12	387.14	0.04
East Branch Trou	2500	100-Yr	167.90	92.50	100.29		100.29	0.000042	0.59	479.21	394.86	0.04
East Branch Trou	2500	500-Yr	292.20	92.50	100.66		100.66	0.000074	0.82	627.73	410.86	0.06

HEC-RAS Plan: 01-PC-TBDrive River: EB Trout Brook Reach: East Branch Trou (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
East Branch Trou	2450	2-Yr	209.70	92.04	99.37	94.01	99.38	0.000148	1.08	318.90	178.99	0.08
East Branch Trou	2450	10-Yr	399.20	92.04	99.78	95.01	99.82	0.000369	1.79	397.54	201.20	0.13
East Branch Trou	2450	25-Yr	537.70	92.04	99.98	95.61	100.04	0.000564	2.26	438.99	245.96	0.16
East Branch Trou	2450	50-Yr	629.60	92.04	100.01	95.96	100.09	0.000768	2.64	445.56	386.14	0.19
East Branch Trou	2450	100-Yr	783.70	92.04	100.15	96.47	100.26	0.001019	3.09	502.38	398.56	0.21
East Branch Trou	2450	500-Yr	1231.70	92.04	100.41	97.53	100.61	0.001845	4.27	610.25	412.82	0.29
East Branch Trou	2135		Culvert									
East Branch Trou	1770	2-Yr	172.00	90.11	92.87		93.09	0.011472	3.77	45.65	22.30	0.46
East Branch Trou	1770	10-Yr	305.00	90.11	94.06		94.31	0.010486	4.05	75.30	27.64	0.43
East Branch Trou	1770	25-Yr	566.80	90.11	96.19		96.45	0.005117	4.15	145.12	52.41	0.33
East Branch Trou	1770	50-Yr	643.30	90.11	96.48		96.76	0.005194	4.34	165.31	86.98	0.34
East Branch Trou	1770	100-Yr	783.70	90.11	96.83		97.13	0.005378	4.62	203.46	128.34	0.35
East Branch Trou	1770	500-Yr	1231.70	90.11	97.45		97.79	0.005939	5.21	288.86	140.00	0.37
East Branch Trou	1750	2-Yr	172.00	89.89	92.72		92.87	0.008131	3.10	55.41	24.88	0.37
East Branch Trou	1750	10-Yr	305.00	89.89	93.91		94.09	0.008400	3.44	88.56	30.72	0.36
East Branch Trou	1750	25-Yr	566.80	89.89	96.14		96.33	0.004185	3.52	168.79	54.10	0.28
East Branch Trou	1750	50-Yr	643.30	89.89	96.42		96.63	0.004324	3.71	188.59	85.05	0.28
East Branch Trou	1750	100-Yr	783.70	89.89	96.77		97.00	0.004648	4.02	225.69	127.79	0.30
East Branch Trou	1750	500-Yr	1231.70	89.89	97.35		97.65	0.005664	4.73	306.38	140.00	0.33
East Branch Trou	1700	2-Yr	172.00	89.33	92.25		92.41	0.010372	3.15	54.52	25.46	0.38
East Branch Trou	1700	10-Yr	305.00	89.33	93.46		93.64	0.009687	3.43	88.90	31.63	0.36
East Branch Trou	1700	25-Yr	566.80	89.33	95.96		96.11	0.003943	3.16	190.52	51.19	0.25
East Branch Trou	1700	50-Yr	643.30	89.33	96.24		96.40	0.004087	3.34	211.96	97.16	0.26
East Branch Trou	1700	100-Yr	783.70	89.33	96.57		96.76	0.004429	3.62	252.82	150.89	0.27
East Branch Trou	1700	500-Yr	1231.70	89.33	97.12		97.35	0.005393	4.25	355.88	207.44	0.30
East Branch Trou	1650	2-Yr	172.00	88.70	91.63		91.82	0.013206	3.53	48.69	26.15	0.46
East Branch Trou	1650	10-Yr	305.00	88.70	93.00		93.18	0.008891	3.37	90.62	35.19	0.37
East Branch Trou	1650	25-Yr	566.80	88.70	95.82		95.92	0.003088	2.63	220.32	59.30	0.22
East Branch Trou	1650	50-Yr	643.30	88.70	96.09		96.21	0.003200	2.79	243.57	144.74	0.23
East Branch Trou	1650	100-Yr	783.70	88.70	96.43		96.55	0.003272	2.95	303.68	204.24	0.23
East Branch Trou	1650	500-Yr	1231.70	88.70	96.95		97.10	0.003864	3.43	429.78	270.54	0.26
East Branch Trou	1600	2-Yr	172.00	88.00	91.15		91.28	0.008487	2.92	58.89	27.01	0.35
East Branch Trou	1600	10-Yr	305.00	88.00	92.66		92.79	0.006442	2.88	105.79	35.98	0.30
East Branch Trou	1600	25-Yr	566.80	88.00	95.70		95.78	0.002438	2.29	251.43	61.22	0.19
East Branch Trou	1600	50-Yr	643.30	88.00	95.97		96.06	0.002596	2.45	269.55	97.60	0.19
East Branch Trou	1600	100-Yr	783.70	88.00	96.30		96.39	0.002697	2.60	346.71	286.76	0.20
East Branch Trou	1600	500-Yr	1231.70	88.00	96.82		96.92	0.002904	2.88	539.60	459.75	0.21
East Branch Trou	1550	2-Yr	172.00	87.66	90.82		90.94	0.005497	2.76	62.30	28.12	0.33
East Branch Trou	1550	10-Yr	305.00	87.66	92.45		92.56	0.003287	2.67	114.42	37.14	0.27
East Branch Trou	1550	25-Yr	566.80	87.66	95.66		95.71	0.000762	1.86	348.39	159.99	0.14
East Branch Trou	1550	50-Yr	643.30	87.66	95.93		95.98	0.000742	1.90	396.28	196.62	0.14
East Branch Trou	1550	100-Yr	783.70	87.66	96.27		96.32	0.000698	1.92	548.79	543.13	0.14
East Branch Trou	1550	500-Yr	1231.70	87.66	96.79		96.84	0.000694	2.02	842.79	580.82	0.14
East Branch Trou	1500	2-Yr	172.00	87.11	90.50		90.61	0.008099	2.66	64.66	29.25	0.32
East Branch Trou	1500	10-Yr	305.00	87.11	92.26		92.36	0.004697	2.46	124.10	38.57	0.24
East Branch Trou	1500	25-Yr	566.80	87.11	95.66		95.67	0.000297	0.87	607.62	274.73	0.06
East Branch Trou	1500	50-Yr	643.30	87.11	95.94		95.95	0.000273	0.86	686.98	297.46	0.06
East Branch Trou	1500	100-Yr	783.70	87.11	96.27		96.29	0.000308	0.95	858.22	606.90	0.07
East Branch Trou	1500	500-Yr	1231.70	87.11	96.79		96.81	0.000343	1.06	1192.55	687.74	0.07
East Branch Trou	1450	2-Yr	172.00	86.55	90.21		90.29	0.004798	2.36	72.76	30.19	0.27
East Branch Trou	1450	10-Yr	305.00	86.55	92.09		92.17	0.002940	2.16	146.63	89.83	0.20
East Branch Trou	1450	25-Yr	566.80	86.55	95.65		95.66	0.000144	0.71	745.48	283.59	0.05
East Branch Trou	1450	50-Yr	643.30	86.55	95.93		95.94	0.000140	0.72	831.76	352.93	0.05
East Branch Trou	1450	100-Yr	783.70	86.55	96.26		96.27	0.000149	0.76	965.49	420.16	0.05
East Branch Trou	1450	500-Yr	1231.70	86.55	96.77		96.79	0.000223	0.98	1200.64	517.56	0.06
East Branch Trou	1400	2-Yr	172.00	86.00	90.02		90.10	0.003108	2.21	78.52	67.19	0.24
East Branch Trou	1400	10-Yr	305.00	86.00	92.09		92.11	0.000389	0.95	296.18	135.11	0.08
East Branch Trou	1400	25-Yr	566.80	86.00	95.65		95.66	0.000042	0.48	999.42	350.07	0.03
East Branch Trou	1400	50-Yr	643.30	86.00	95.93		95.94	0.000044	0.50	1069.89	364.02	0.03
East Branch Trou	1400	100-Yr	783.70	86.00	96.26		96.27	0.000097	0.76	1201.71	557.66	0.05
East Branch Trou	1400	500-Yr	1231.70	86.00	96.77		96.78	0.000128	0.91	1491.89	581.15	0.05
East Branch Trou	1350	2-Yr	172.00	85.44	89.91		89.97	0.002051	1.83	94.20	74.63	0.18
East Branch Trou	1350	10-Yr	305.00	85.44	92.07		92.09	0.000352	0.83	315.52	215.70	0.07
East Branch Trou	1350	25-Yr	566.80	85.44	95.65		95.66	0.000049	0.45	972.10	389.32	0.03
East Branch Trou	1350	50-Yr	643.30	85.44	95.93		95.93	0.000051	0.47	1038.69	399.58	0.03
East Branch Trou	1350	100-Yr	783.70	85.44	96.25		96.26	0.000112	0.72	1198.72	565.15	0.04
East Branch Trou	1350	500-Yr	1231.70	85.44	96.77		96.78	0.000142	0.84	1491.42	581.52	0.05

HEC-RAS Plan: 01-PC-TBDrive River: EB Trout Brook Reach: East Branch Trou (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
East Branch Trou	1305	2-Yr	186.60	84.94	89.78	86.59	89.87	0.001910	2.39	77.92	116.69	0.19
East Branch Trou	1305	10-Yr	333.40	84.94	91.94	87.34	92.05	0.001887	2.70	137.55	197.90	0.18
East Branch Trou	1305	25-Yr	608.80	84.94	95.64	88.50	95.65	0.000128	0.93	697.54	365.25	0.05
East Branch Trou	1305	50-Yr	727.50	84.94	95.91	88.96	95.93	0.000148	1.02	749.67	383.26	0.05
East Branch Trou	1305	100-Yr	913.40	84.94	96.23	89.59	96.25	0.000370	1.64	887.09	526.08	0.09
East Branch Trou	1305	500-Yr	1462.20	84.94	96.74	92.73	96.76	0.000431	1.83	1175.70	596.57	0.09
East Branch Trou	1200											
East Branch Trou	1018	Culvert										
East Branch Trou	1018	2-Yr	186.50	84.77	88.62		88.71	0.004439	2.44	84.94	173.08	0.27
East Branch Trou	1018	10-Yr	333.30	84.77	89.61		89.72	0.004156	2.73	152.36	204.23	0.28
East Branch Trou	1018	25-Yr	555.30	84.77	90.59		90.71	0.003868	3.08	248.02	245.25	0.28
East Branch Trou	1018	50-Yr	660.00	84.77	90.97		91.09	0.003685	3.20	294.51	262.45	0.27
East Branch Trou	1018	100-Yr	880.80	84.77	91.69		91.82	0.003278	3.35	400.72	298.72	0.27
East Branch Trou	1018	500-Yr	1432.80	84.77	92.90		93.04	0.003072	3.75	624.77	354.25	0.27
East Branch Trou	1000	2-Yr	186.50	84.73	88.54		88.62	0.005107	2.41	88.75	61.25	0.27
East Branch Trou	1000	10-Yr	333.30	84.73	89.54		89.63	0.004240	2.58	161.85	82.81	0.26
East Branch Trou	1000	25-Yr	555.30	84.73	90.53		90.64	0.004016	2.95	263.00	132.41	0.27
East Branch Trou	1000	50-Yr	660.00	84.73	90.91		91.02	0.003756	3.04	317.41	154.58	0.26
East Branch Trou	1000	100-Yr	880.80	84.73	91.64		91.75	0.003123	3.10	444.02	190.51	0.25
East Branch Trou	1000	500-Yr	1432.80	84.73	92.86		92.97	0.002789	3.39	711.52	253.52	0.24
East Branch Trou	950	2-Yr	186.50	84.60	88.37		88.46	0.002204	2.41	87.37	60.55	0.26
East Branch Trou	950	10-Yr	333.30	84.60	89.37		89.47	0.002592	2.72	163.43	93.86	0.27
East Branch Trou	950	25-Yr	555.30	84.60	90.36		90.48	0.002579	3.00	278.07	142.60	0.28
East Branch Trou	950	50-Yr	660.00	84.60	90.76		90.87	0.002385	3.09	338.51	165.07	0.27
East Branch Trou	950	100-Yr	880.80	84.60	91.52		91.63	0.001963	3.14	476.28	196.89	0.25
East Branch Trou	950	500-Yr	1432.80	84.60	92.75		92.86	0.001703	3.40	765.81	281.63	0.24
East Branch Trou	900	2-Yr	186.50	84.48	88.23		88.32	0.003507	2.49	83.38	64.20	0.28
East Branch Trou	900	10-Yr	333.30	84.48	89.22		89.32	0.003414	2.74	159.50	89.29	0.27
East Branch Trou	900	25-Yr	555.30	84.48	90.22		90.33	0.003383	3.00	262.17	121.17	0.27
East Branch Trou	900	50-Yr	660.00	84.48	90.62		90.73	0.003250	3.13	314.92	144.93	0.27
East Branch Trou	900	100-Yr	880.80	84.48	91.40		91.51	0.002707	3.20	444.54	185.60	0.25
East Branch Trou	900	500-Yr	1432.80	84.48	92.66		92.76	0.002104	3.28	743.78	299.56	0.23
East Branch Trou	850	2-Yr	186.50	84.36	87.89		88.02	0.012418	2.92	64.38	37.95	0.34
East Branch Trou	850	10-Yr	333.30	84.36	88.89		89.04	0.010556	3.19	119.44	64.87	0.33
East Branch Trou	850	25-Yr	555.30	84.36	89.92		90.07	0.008670	3.41	195.99	84.74	0.32
East Branch Trou	850	50-Yr	660.00	84.36	90.32		90.48	0.008204	3.55	233.50	103.26	0.32
East Branch Trou	850	100-Yr	880.80	84.36	91.15		91.31	0.006440	3.58	338.68	148.79	0.29
East Branch Trou	850	500-Yr	1432.80	84.36	92.50		92.62	0.004248	3.43	617.09	285.68	0.25
East Branch Trou	800	2-Yr	186.50	84.23	87.50		87.61	0.005682	2.62	71.18	28.55	0.29
East Branch Trou	800	10-Yr	333.30	84.23	88.57		88.68	0.004866	2.82	122.80	64.05	0.28
East Branch Trou	800	25-Yr	555.30	84.23	89.70		89.82	0.003024	2.57	206.35	82.86	0.23
East Branch Trou	800	50-Yr	660.00	84.23	90.13		90.25	0.002743	2.59	243.61	94.26	0.22
East Branch Trou	800	100-Yr	880.80	84.23	91.02		91.12	0.002193	2.63	346.65	139.99	0.21
East Branch Trou	800	500-Yr	1432.80	84.23	92.37		92.47	0.001959	2.91	611.77	291.14	0.20
East Branch Trou	750	2-Yr	186.50	84.12	87.36		87.46	0.001844	2.46	75.93	30.06	0.27
East Branch Trou	750	10-Yr	333.30	84.12	88.37		88.51	0.002521	3.03	120.44	61.86	0.30
East Branch Trou	750	25-Yr	555.30	84.12	89.50		89.67	0.002800	3.39	209.04	94.45	0.30
East Branch Trou	750	50-Yr	660.00	84.12	89.94		90.10	0.002747	3.50	252.49	106.70	0.30
East Branch Trou	750	100-Yr	880.80	84.12	90.83		91.00	0.002340	3.60	365.84	148.97	0.28
East Branch Trou	750	500-Yr	1432.80	84.12	92.19		92.36	0.002039	3.93	634.38	285.67	0.27
East Branch Trou	700	2-Yr	186.50	84.00	87.21		87.34	0.002908	2.92	73.92	42.22	0.34
East Branch Trou	700	10-Yr	333.30	84.00	88.20		88.36	0.003565	3.41	122.23	60.06	0.35
East Branch Trou	700	25-Yr	555.30	84.00	89.33		89.51	0.003645	3.68	214.41	103.29	0.34
East Branch Trou	700	50-Yr	660.00	84.00	89.78		89.95	0.003297	3.73	264.60	120.19	0.33
East Branch Trou	700	100-Yr	880.80	84.00	90.71		90.87	0.002513	3.74	397.33	169.91	0.29
East Branch Trou	700	500-Yr	1432.80	84.00	92.10		92.26	0.001998	3.93	694.56	300.43	0.27
East Branch Trou	650	2-Yr	186.50	84.00	87.00		87.12	0.006858	2.84	72.98	40.54	0.33
East Branch Trou	650	10-Yr	333.30	84.00	87.96		88.12	0.006786	3.33	116.53	50.64	0.33
East Branch Trou	650	25-Yr	555.30	84.00	89.09		89.28	0.005958	3.79	197.63	94.43	0.33
East Branch Trou	650	50-Yr	660.00	84.00	89.57		89.75	0.005202	3.81	247.36	112.89	0.31
East Branch Trou	650	100-Yr	880.80	84.00	90.57		90.72	0.003691	3.66	381.14	157.56	0.27
East Branch Trou	650	500-Yr	1432.80	84.00	92.00		92.13	0.002903	3.77	662.38	283.55	0.25
East Branch Trou	600	2-Yr	186.50	84.00	86.75		86.89	0.003233	3.06	68.29	41.45	0.36
East Branch Trou	600	10-Yr	333.30	84.00	87.72		87.91	0.002796	3.63	112.85	51.00	0.36
East Branch Trou	600	25-Yr	555.30	84.00	88.82		89.08	0.002619	4.29	182.84	80.25	0.37
East Branch Trou	600	50-Yr	660.00	84.00	89.30		89.57	0.002439	4.45	224.97	96.17	0.36
East Branch Trou	600	100-Yr	880.80	84.00	90.37		90.59	0.001744	4.30	365.05	221.18	0.32

HEC-RAS Plan: 01-PC-TBDrive River: EB Trout Brook Reach: East Branch Trou (Continued)

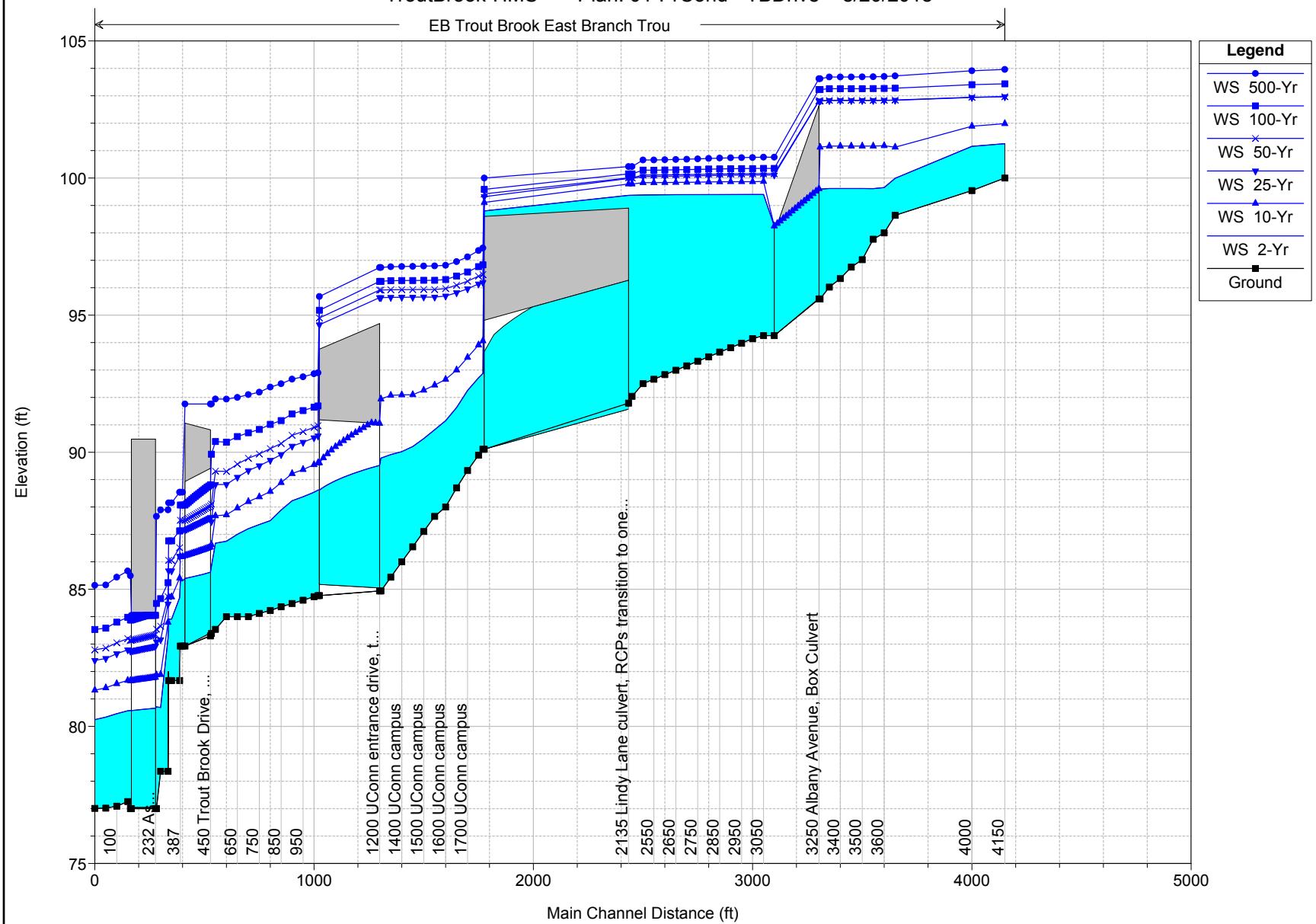
Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
East Branch Trou	600	500-Yr	1432.80	84.00	91.93		92.05	0.000908	3.64	779.51	305.35	0.24
East Branch Trou	550	2-Yr	186.50	83.54	86.68		86.76	0.001666	2.31	84.85	45.39	0.27
East Branch Trou	550	10-Yr	333.30	83.54	87.68		87.78	0.001428	2.72	133.09	51.60	0.26
East Branch Trou	550	25-Yr	555.30	83.54	88.82		88.95	0.001295	3.16	212.57	97.25	0.27
East Branch Trou	550	50-Yr	660.00	83.54	89.31		89.45	0.001184	3.24	266.33	121.28	0.26
East Branch Trou	550	100-Yr	880.80	83.54	90.39		90.50	0.000820	3.08	466.86	275.35	0.22
East Branch Trou	550	500-Yr	1432.80	83.54	91.94		92.00	0.000464	2.70	995.52	435.34	0.17
East Branch Trou	532	2-Yr	192.90	83.39	85.85	85.85	86.62	0.023025	7.04	27.39	18.04	1.01
East Branch Trou	532	10-Yr	344.70	83.39	86.63	86.63	87.63	0.021169	8.03	42.93	21.78	1.01
East Branch Trou	532	25-Yr	572.10	83.39	87.47	87.47	88.78	0.019047	9.18	62.43	24.80	1.00
East Branch Trou	532	50-Yr	679.20	83.39	88.11	87.79	89.29	0.012899	8.74	79.17	27.59	0.85
East Branch Trou	532	100-Yr	901.10	83.39	89.93	88.77	90.43	0.003619	6.22	253.95	153.50	0.49
East Branch Trou	532	500-Yr	1482.70	83.39	91.76	90.45	91.97	0.001517	4.94	738.38	329.39	0.33
East Branch Trou	450		Culvert									
East Branch Trou	400	2-Yr	192.90	82.93	85.31	84.67	85.64	0.007046	4.58	42.13	22.54	0.59
East Branch Trou	400	10-Yr	344.70	82.93	86.19	85.38	86.65	0.006777	5.44	63.43	25.90	0.61
East Branch Trou	400	25-Yr	572.10	82.93	87.16	86.18	87.81	0.006206	6.48	90.35	29.53	0.61
East Branch Trou	400	50-Yr	679.20	82.93	87.52	86.49	88.27	0.006295	6.96	101.11	31.19	0.63
East Branch Trou	400	100-Yr	901.10	82.93	88.07	87.11	89.06	0.006989	8.02	119.15	34.50	0.67
East Branch Trou	400	500-Yr	1482.70	82.93	88.54	88.54	90.69	0.013338	11.86	137.11	42.00	0.95
East Branch Trou	387		Inl Struct									
East Branch Trou	350	2-Yr	192.90	81.67	83.91	82.84	84.01	0.002021	2.45	78.79	43.71	0.32
East Branch Trou	350	10-Yr	344.70	81.67	84.72	83.29	84.86	0.002043	2.97	115.89	48.19	0.34
East Branch Trou	350	25-Yr	572.10	81.67	85.67	83.84	85.86	0.002047	3.48	164.46	53.95	0.35
East Branch Trou	350	50-Yr	679.20	81.67	86.06	84.07	86.26	0.002025	3.66	185.68	56.39	0.35
East Branch Trou	350	100-Yr	901.10	81.67	86.77	84.50	87.02	0.001860	3.99	228.04	62.82	0.35
East Branch Trou	350	500-Yr	1482.70	81.67	88.15	85.45	88.51	0.001846	4.84	324.20	77.89	0.37
East Branch Trou	335.5		Inl Struct									
East Branch Trou	300	2-Yr	192.90	78.36	80.69		80.83	0.003144	3.01	63.98	35.97	0.40
East Branch Trou	300	10-Yr	344.40	78.36	81.89		82.04	0.002020	3.10	111.17	42.79	0.34
East Branch Trou	300	25-Yr	569.90	78.36	83.16		83.34	0.001613	3.37	168.93	47.89	0.32
East Branch Trou	300	50-Yr	675.60	78.36	83.65		83.84	0.001536	3.50	192.94	49.69	0.31
East Branch Trou	300	100-Yr	898.10	78.36	84.66		84.87	0.001387	3.66	245.07	54.35	0.30
East Branch Trou	300	500-Yr	1481.70	78.36	87.90		88.07	0.000633	3.38	452.42	77.93	0.22
East Branch Trou	281	2-Yr	192.90	77.00	80.71	78.22	80.78	0.001014	2.08	92.80	25.00	0.19
East Branch Trou	281	10-Yr	344.40	77.00	81.87	78.80	82.00	0.001510	2.83	121.87	25.00	0.23
East Branch Trou	281	25-Yr	569.90	77.00	83.09	79.52	83.30	0.002061	3.72	155.23	29.89	0.27
East Branch Trou	281	50-Yr	675.60	77.00	83.55	79.82	83.80	0.002247	4.08	169.43	31.96	0.28
East Branch Trou	281	100-Yr	898.10	77.00	84.48	80.41	84.82	0.002472	4.69	201.49	36.65	0.31
East Branch Trou	281	500-Yr	1481.70	77.00	87.66	81.77	88.03	0.001788	5.07	348.34	57.33	0.28
East Branch Trou	232		Culvert									
East Branch Trou	162	2-Yr	192.90	77.00	80.58		80.66	0.001201	2.25	85.75	23.98	0.21
East Branch Trou	162	10-Yr	344.40	77.00	81.67		81.81	0.001703	3.08	111.88	23.99	0.25
East Branch Trou	162	25-Yr	569.90	77.00	82.75		83.02	0.002493	4.13	138.75	26.23	0.30
East Branch Trou	162	50-Yr	675.60	77.00	83.14		83.47	0.002937	4.58	149.65	30.71	0.33
East Branch Trou	162	100-Yr	898.10	77.00	83.88		84.33	0.003456	5.37	175.34	38.71	0.37
East Branch Trou	162	500-Yr	1481.70	77.00	85.49		86.20	0.004243	6.88	249.41	52.65	0.42
East Branch Trou	150	2-Yr	192.90	77.26	80.57		80.64	0.001025	2.07	93.41	38.58	0.23
East Branch Trou	150	10-Yr	344.40	77.26	81.68		81.77	0.001038	2.47	139.18	44.16	0.25
East Branch Trou	150	25-Yr	569.90	77.26	82.79		82.93	0.001054	3.00	191.40	49.01	0.26
East Branch Trou	150	50-Yr	675.60	77.26	83.20		83.37	0.001081	3.23	211.79	50.69	0.27
East Branch Trou	150	100-Yr	898.10	77.26	83.98		84.19	0.001124	3.66	252.38	53.96	0.28
East Branch Trou	150	500-Yr	1481.70	77.26	85.67		85.98	0.001196	4.53	349.42	61.08	0.30
East Branch Trou	100	2-Yr	192.90	77.09	80.47		80.57	0.001606	2.58	74.74	31.45	0.30
East Branch Trou	100	10-Yr	344.40	77.09	81.55		81.70	0.001668	3.07	112.22	37.32	0.31
East Branch Trou	100	25-Yr	569.90	77.09	82.65		82.86	0.001676	3.67	156.29	43.13	0.33
East Branch Trou	100	50-Yr	675.60	77.09	83.05		83.29	0.001704	3.95	173.87	45.37	0.33
East Branch Trou	100	100-Yr	898.10	77.09	83.80		84.11	0.001745	4.45	209.68	49.63	0.35
East Branch Trou	100	500-Yr	1481.70	77.09	85.44		85.89	0.001803	5.45	298.10	58.11	0.37
East Branch Trou	50	2-Yr	192.90	77.02	80.34		80.47	0.002130	2.95	65.48	27.70	0.34
East Branch Trou	50	10-Yr	344.40	77.02	81.41		81.60	0.002243	3.53	97.70	32.64	0.36
East Branch Trou	50	25-Yr	569.90	77.02	82.48		82.76	0.002323	4.23	135.34	37.76	0.38
East Branch Trou	50	50-Yr	675.60	77.02	82.86		83.18	0.002375	4.56	150.13	39.65	0.39
East Branch Trou	50	100-Yr	898.10	77.02	83.58		83.99	0.002456	5.15	180.15	43.24	0.41

HEC-RAS Plan: 01-PC-TBDrive River: EB Trout Brook Reach: East Branch Trou (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
East Branch Trou	50	500-Yr	1481.70	77.02	85.16		85.77	0.002580	6.35	254.95	52.13	0.44
East Branch Trou	0	2-Yr	192.90	77.01	80.25	78.74	80.37	0.002002	2.79	69.22	30.82	0.33
East Branch Trou	0	10-Yr	344.40	77.01	81.32	79.42	81.49	0.002001	3.26	105.77	37.13	0.34
East Branch Trou	0	25-Yr	569.90	77.01	82.41	80.18	82.63	0.002000	3.83	149.28	43.18	0.35
East Branch Trou	0	50-Yr	675.60	77.01	82.79	80.48	83.05	0.002000	4.10	166.51	45.40	0.36
East Branch Trou	0	100-Yr	898.10	77.01	83.53	81.06	83.86	0.002001	4.58	201.63	49.63	0.37
East Branch Trou	0	500-Yr	1481.70	77.01	85.14	82.21	85.61	0.002001	5.57	290.29	61.22	0.39

TroutBrook-HMS Plan: 01-PrCond - TBDrive 8/20/2018

EB Trout Brook East Branch Trou



HEC-RAS Plan: 02-PC Uconn River: EB Trout Brook Reach: East Branch Trou

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
East Branch Trou	4150	2-Yr	44.80	100.00	101.25		101.26	0.000667	0.82	67.78	91.08	0.14
East Branch Trou	4150	10-Yr	110.30	100.00	101.98		102.00	0.000616	1.10	151.40	138.22	0.14
East Branch Trou	4150	25-Yr	165.80	100.00	102.96		102.97	0.000254	0.94	319.54	203.64	0.10
East Branch Trou	4150	50-Yr	165.80	100.00	102.98		102.99	0.000250	0.94	322.20	204.41	0.10
East Branch Trou	4150	100-Yr	283.70	100.00	103.44		103.46	0.000392	1.30	423.93	235.62	0.13
East Branch Trou	4150	500-Yr	507.90	100.00	103.96		104.00	0.000682	1.89	556.27	273.27	0.17
East Branch Trou	4000	2-Yr	44.80	99.54	101.16		101.17	0.000634	0.88	83.63	115.89	0.14
East Branch Trou	4000	10-Yr	110.30	99.54	101.89		101.91	0.000600	1.16	189.44	171.41	0.14
East Branch Trou	4000	25-Yr	165.80	99.54	102.94		102.94	0.000155	0.78	611.71	461.43	0.08
East Branch Trou	4000	50-Yr	165.80	99.54	102.95		102.96	0.000151	0.77	618.02	463.20	0.08
East Branch Trou	4000	100-Yr	283.70	99.54	103.41		103.41	0.000204	0.99	836.48	496.17	0.09
East Branch Trou	4000	500-Yr	507.90	99.54	103.91		103.92	0.000320	1.35	1094.78	531.73	0.12
East Branch Trou	3650	2-Yr	44.80	98.64	99.99	99.99	100.35	0.172910	4.81	9.31	13.21	1.01
East Branch Trou	3650	10-Yr	110.30	98.64	101.13		101.27	0.023567	3.32	48.58	71.06	0.44
East Branch Trou	3650	25-Yr	165.80	98.64	102.83		102.84	0.000736	0.91	358.31	319.82	0.09
East Branch Trou	3650	50-Yr	165.80	98.64	102.85		102.86	0.000706	0.90	363.72	321.68	0.08
East Branch Trou	3650	100-Yr	283.70	98.64	103.28		103.29	0.000759	1.00	509.33	353.06	0.09
East Branch Trou	3650	500-Yr	507.90	98.64	103.72		103.73	0.001041	1.26	672.58	386.33	0.11
East Branch Trou	3600	2-Yr	44.80	98.00	99.65		99.67	0.000651	0.92	48.82	36.26	0.14
East Branch Trou	3600	10-Yr	110.30	98.00	101.18		101.19	0.000226	0.87	202.11	149.79	0.09
East Branch Trou	3600	25-Yr	165.80	98.00	102.83		102.83	0.000059	0.60	549.35	296.65	0.05
East Branch Trou	3600	50-Yr	165.80	98.00	102.84		102.85	0.000057	0.60	554.39	297.29	0.05
East Branch Trou	3600	100-Yr	283.70	98.00	103.27		103.28	0.000100	0.84	686.76	322.68	0.07
East Branch Trou	3600	500-Yr	507.90	98.00	103.70		103.71	0.000198	1.25	831.04	348.41	0.10
East Branch Trou	3550	2-Yr	44.80	97.77	99.61		99.63	0.000704	1.11	61.12	67.32	0.15
East Branch Trou	3550	10-Yr	110.30	97.77	101.17		101.18	0.000224	0.97	257.82	155.58	0.10
East Branch Trou	3550	25-Yr	165.80	97.77	102.82		102.83	0.000060	0.66	620.66	301.68	0.05
East Branch Trou	3550	50-Yr	165.80	97.77	102.84		102.84	0.000059	0.66	625.81	303.30	0.05
East Branch Trou	3550	100-Yr	283.70	97.77	103.27		103.27	0.000104	0.92	761.06	334.07	0.07
East Branch Trou	3550	500-Yr	507.90	97.77	103.69		103.70	0.000205	1.36	909.61	364.49	0.10
East Branch Trou	3500	2-Yr	44.80	97.02	99.62		99.62	0.000052	0.36	152.41	107.62	0.04
East Branch Trou	3500	10-Yr	110.30	97.02	101.17		101.18	0.000041	0.46	355.06	145.59	0.04
East Branch Trou	3500	25-Yr	165.80	97.02	102.82		102.83	0.000020	0.40	719.35	316.35	0.03
East Branch Trou	3500	50-Yr	165.80	97.02	102.84		102.84	0.000019	0.40	724.75	317.96	0.03
East Branch Trou	3500	100-Yr	283.70	97.02	103.26		103.27	0.000038	0.59	865.78	348.83	0.04
East Branch Trou	3500	500-Yr	507.90	97.02	103.69		103.70	0.000083	0.91	1019.47	378.25	0.06
East Branch Trou	3450	2-Yr	44.80	96.75	99.62		99.62	0.000027	0.28	188.95	105.07	0.03
East Branch Trou	3450	10-Yr	110.30	96.75	101.17		101.17	0.000028	0.40	377.13	135.82	0.03
East Branch Trou	3450	25-Yr	165.80	96.75	102.82		102.82	0.000015	0.37	730.33	305.23	0.03
East Branch Trou	3450	50-Yr	165.80	96.75	102.84		102.84	0.000015	0.37	735.53	305.89	0.03
East Branch Trou	3450	100-Yr	283.70	96.75	103.26		103.27	0.000031	0.55	869.36	328.07	0.04
East Branch Trou	3450	500-Yr	507.90	96.75	103.68		103.69	0.000069	0.87	1013.90	358.14	0.06
East Branch Trou	3400	2-Yr	44.80	96.33	99.62		99.62	0.000010	0.18	265.65	130.79	0.02
East Branch Trou	3400	10-Yr	110.30	96.33	101.17		101.17	0.000012	0.27	519.63	197.28	0.02
East Branch Trou	3400	25-Yr	165.80	96.33	102.82		102.82	0.000008	0.27	926.97	300.46	0.02
East Branch Trou	3400	50-Yr	165.80	96.33	102.84		102.84	0.000008	0.27	932.09	301.20	0.02
East Branch Trou	3400	100-Yr	283.70	96.33	103.26		103.26	0.000016	0.42	1063.86	322.79	0.03
East Branch Trou	3400	500-Yr	507.90	96.33	103.68		103.69	0.000040	0.67	1203.56	342.07	0.05
East Branch Trou	3350	2-Yr	44.80	96.02	99.62		99.62	0.000018	0.26	234.39	144.26	0.03
East Branch Trou	3350	10-Yr	110.30	96.02	101.17		101.17	0.000019	0.36	520.00	219.05	0.03
East Branch Trou	3350	25-Yr	165.80	96.02	102.82		102.82	0.000010	0.32	945.94	302.99	0.02
East Branch Trou	3350	50-Yr	165.80	96.02	102.84		102.84	0.000010	0.32	951.11	304.17	0.02
East Branch Trou	3350	100-Yr	283.70	96.02	103.26		103.26	0.000021	0.48	1084.82	329.84	0.03
East Branch Trou	3350	500-Yr	507.90	96.02	103.68		103.69	0.000050	0.77	1229.20	359.49	0.05
East Branch Trou	3308	2-Yr	44.80	95.59	99.60	97.30	99.61	0.000521	1.04	43.15	18.55	0.12
East Branch Trou	3308	10-Yr	110.30	95.59	101.13	98.04	101.17	0.000557	1.47	94.26	81.45	0.13
East Branch Trou	3308	25-Yr	165.80	95.59	102.81	98.45	102.82	0.000203	1.14	345.13	233.85	0.09
East Branch Trou	3308	50-Yr	165.80	95.59	102.82	98.45	102.84	0.000201	1.13	349.19	239.31	0.09
East Branch Trou	3308	100-Yr	283.70	95.59	103.23	99.16	103.26	0.000376	1.63	455.15	278.50	0.12
East Branch Trou	3308	500-Yr	507.90	95.59	103.62	100.15	103.68	0.000798	2.47	569.13	311.94	0.17
East Branch Trou	3250		Culvert									
East Branch Trou	3050	2-Yr	43.70	94.25	99.40		99.40	0.000009	0.23	448.33	216.36	0.02
East Branch Trou	3050	10-Yr	100.00	94.25	99.88		99.88	0.000026	0.43	556.85	235.17	0.03
East Branch Trou	3050	25-Yr	129.90	94.25	100.10		100.10	0.000035	0.51	611.27	267.52	0.04
East Branch Trou	3050	50-Yr	129.90	94.25	100.19		100.19	0.000031	0.49	635.96	270.37	0.04
East Branch Trou	3050	100-Yr	167.90	94.25	100.35		100.36	0.000044	0.59	680.83	275.97	0.04
East Branch Trou	3050	500-Yr	292.20	94.25	100.74		100.74	0.000090	0.87	789.14	288.59	0.06

HEC-RAS Plan: 02-PC Uconn River: EB Trout Brook Reach: East Branch Trou (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
East Branch Trou	3000	2-Yr	43.70	94.14	99.40		99.40	0.000019	0.33	276.31	181.29	0.03
East Branch Trou	3000	10-Yr	100.00	94.14	99.88		99.88	0.000053	0.60	367.73	201.83	0.05
East Branch Trou	3000	25-Yr	129.90	94.14	100.09		100.10	0.000068	0.70	412.15	211.50	0.06
East Branch Trou	3000	50-Yr	129.90	94.14	100.18		100.19	0.000061	0.67	431.84	214.47	0.05
East Branch Trou	3000	100-Yr	167.90	94.14	100.35		100.35	0.000084	0.80	467.08	220.24	0.06
East Branch Trou	3000	500-Yr	292.20	94.14	100.72		100.73	0.000166	1.18	552.24	232.90	0.09
East Branch Trou	2950	2-Yr	43.70	93.97	99.40		99.40	0.000009	0.19	302.50	169.45	0.02
East Branch Trou	2950	10-Yr	100.00	93.97	99.88		99.88	0.000026	0.36	389.03	193.34	0.03
East Branch Trou	2950	25-Yr	129.90	93.97	100.09		100.09	0.000034	0.43	431.50	200.91	0.04
East Branch Trou	2950	50-Yr	129.90	93.97	100.18		100.19	0.000031	0.41	450.17	202.72	0.04
East Branch Trou	2950	100-Yr	167.90	93.97	100.34		100.35	0.000043	0.50	483.21	205.74	0.04
East Branch Trou	2950	500-Yr	292.20	93.97	100.72		100.73	0.000088	0.76	561.57	212.77	0.06
East Branch Trou	2900	2-Yr	43.70	93.81	99.40		99.40	0.000010	0.21	269.54	154.04	0.02
East Branch Trou	2900	10-Yr	100.00	93.81	99.87		99.88	0.000029	0.40	348.94	179.50	0.04
East Branch Trou	2900	25-Yr	129.90	93.81	100.09		100.09	0.000038	0.48	394.71	277.83	0.04
East Branch Trou	2900	50-Yr	129.90	93.81	100.18		100.18	0.000034	0.46	422.94	323.23	0.04
East Branch Trou	2900	100-Yr	167.90	93.81	100.34		100.35	0.000047	0.55	476.70	337.54	0.05
East Branch Trou	2900	500-Yr	292.20	93.81	100.71		100.72	0.000088	0.80	605.02	351.58	0.06
East Branch Trou	2850	2-Yr	43.70	93.65	99.40		99.40	0.000014	0.27	208.51	120.33	0.02
East Branch Trou	2850	10-Yr	100.00	93.65	99.87		99.87	0.000045	0.51	272.50	149.99	0.04
East Branch Trou	2850	25-Yr	129.90	93.65	100.08		100.09	0.000060	0.61	314.67	298.53	0.05
East Branch Trou	2850	50-Yr	129.90	93.65	100.18		100.18	0.000054	0.59	342.69	302.40	0.05
East Branch Trou	2850	100-Yr	167.90	93.65	100.34		100.34	0.000075	0.71	391.48	309.56	0.06
East Branch Trou	2850	500-Yr	292.20	93.65	100.70		100.72	0.000146	1.05	507.74	325.06	0.08
East Branch Trou	2800	2-Yr	43.70	93.48	99.40		99.40	0.000019	0.31	175.76	95.04	0.03
East Branch Trou	2800	10-Yr	100.00	93.48	99.87		99.87	0.000061	0.59	224.91	114.45	0.05
East Branch Trou	2800	25-Yr	129.90	93.48	100.08		100.08	0.000083	0.71	260.48	278.17	0.06
East Branch Trou	2800	50-Yr	129.90	93.48	100.17		100.18	0.000073	0.68	286.85	283.45	0.06
East Branch Trou	2800	100-Yr	167.90	93.48	100.33		100.34	0.000099	0.81	332.30	292.72	0.07
East Branch Trou	2800	500-Yr	292.20	93.48	100.69		100.71	0.000179	1.14	442.12	313.33	0.09
East Branch Trou	2750	2-Yr	43.70	93.32	99.39		99.40	0.000037	0.41	130.84	70.77	0.04
East Branch Trou	2750	10-Yr	100.00	93.32	99.86		99.87	0.000119	0.79	167.48	87.01	0.07
East Branch Trou	2750	25-Yr	129.90	93.32	100.07		100.08	0.000161	0.95	197.11	259.37	0.08
East Branch Trou	2750	50-Yr	129.90	93.32	100.16		100.17	0.000141	0.91	222.41	269.62	0.08
East Branch Trou	2750	100-Yr	167.90	93.32	100.32		100.33	0.000187	1.07	265.47	286.70	0.09
East Branch Trou	2750	500-Yr	292.20	93.32	100.67		100.69	0.000318	1.46	374.29	326.33	0.12
East Branch Trou	2700	2-Yr	43.70	93.15	99.39		99.39	0.000040	0.38	118.16	49.15	0.04
East Branch Trou	2700	10-Yr	100.00	93.15	99.85		99.86	0.000128	0.74	142.57	57.08	0.07
East Branch Trou	2700	25-Yr	129.90	93.15	100.06		100.07	0.000173	0.90	168.39	319.17	0.08
East Branch Trou	2700	50-Yr	129.90	93.15	100.15		100.17	0.000150	0.85	199.86	333.07	0.08
East Branch Trou	2700	100-Yr	167.90	93.15	100.31		100.32	0.000192	0.99	252.47	353.90	0.09
East Branch Trou	2700	500-Yr	292.20	93.15	100.66		100.68	0.000297	1.30	384.69	398.63	0.11
East Branch Trou	2650	2-Yr	43.70	92.99	99.39		99.39	0.000021	0.31	144.77	49.79	0.03
East Branch Trou	2650	10-Yr	100.00	92.99	99.85		99.86	0.000072	0.63	169.02	59.47	0.06
East Branch Trou	2650	25-Yr	129.90	92.99	100.05		100.06	0.000101	0.77	197.76	365.50	0.07
East Branch Trou	2650	50-Yr	129.90	92.99	100.15		100.16	0.000089	0.73	233.92	380.65	0.06
East Branch Trou	2650	100-Yr	167.90	92.99	100.30		100.31	0.000118	0.86	293.02	402.27	0.07
East Branch Trou	2650	500-Yr	292.20	92.99	100.65		100.67	0.000195	1.17	439.06	431.85	0.09
East Branch Trou	2600	2-Yr	43.70	92.83	99.39		99.39	0.000030	0.34	130.10	46.66	0.03
East Branch Trou	2600	10-Yr	100.00	92.83	99.84		99.85	0.000099	0.68	152.38	51.42	0.06
East Branch Trou	2600	25-Yr	129.90	92.83	100.05		100.06	0.000137	0.83	177.82	387.54	0.07
East Branch Trou	2600	50-Yr	129.90	92.83	100.14		100.15	0.000119	0.78	216.00	391.29	0.07
East Branch Trou	2600	100-Yr	167.90	92.83	100.29		100.31	0.000153	0.91	275.11	396.95	0.08
East Branch Trou	2600	500-Yr	292.20	92.83	100.64		100.65	0.000241	1.21	413.34	409.82	0.10
East Branch Trou	2550	2-Yr	43.70	92.66	99.39		99.39	0.000023	0.31	150.65	72.28	0.03
East Branch Trou	2550	10-Yr	100.00	92.66	99.84		99.85	0.000076	0.62	186.97	101.34	0.06
East Branch Trou	2550	25-Yr	129.90	92.66	100.04		100.05	0.000103	0.75	225.31	384.35	0.07
East Branch Trou	2550	50-Yr	129.90	92.66	100.14		100.15	0.000090	0.71	263.44	388.11	0.06
East Branch Trou	2550	100-Yr	167.90	92.66	100.29		100.30	0.000118	0.83	321.54	393.55	0.07
East Branch Trou	2550	500-Yr	292.20	92.66	100.63		100.64	0.000198	1.14	456.89	406.21	0.09
East Branch Trou	2500	2-Yr	43.70	92.50	99.39		99.39	0.000009	0.24	248.87	177.98	0.02
East Branch Trou	2500	10-Yr	100.00	92.50	99.84		99.84	0.000026	0.44	334.95	202.53	0.03
East Branch Trou	2500	25-Yr	129.90	92.50	100.04		100.05	0.000035	0.52	384.17	384.03	0.04
East Branch Trou	2500	50-Yr	129.90	92.50	100.14		100.14	0.000031	0.50	422.25	388.64	0.04
East Branch Trou	2500	100-Yr	167.90	92.50	100.29		100.29	0.000041	0.59	480.50	394.98	0.04
East Branch Trou	2500	500-Yr	292.20	92.50	100.63		100.63	0.000077	0.84	616.22	409.59	0.06

HEC-RAS Plan: 02-PC Uconn River: EB Trout Brook Reach: East Branch Trou (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
East Branch Trou	2450	2-Yr	209.70	92.04	99.37	94.01	99.38	0.000148	1.08	318.90	178.99	0.08
East Branch Trou	2450	10-Yr	399.20	92.04	99.79	95.01	99.83	0.000366	1.78	399.41	201.59	0.13
East Branch Trou	2450	25-Yr	537.70	92.04	99.97	95.60	100.03	0.000567	2.26	435.39	211.84	0.16
East Branch Trou	2450	50-Yr	629.60	92.04	100.04	95.96	100.12	0.000740	2.60	459.34	392.70	0.18
East Branch Trou	2450	100-Yr	783.70	92.04	100.15	96.47	100.27	0.001015	3.08	503.94	398.74	0.21
East Branch Trou	2450	500-Yr	1231.70	92.04	100.37	97.53	100.58	0.001939	4.36	593.25	411.01	0.30
East Branch Trou	2135		Culvert									
East Branch Trou	1770	2-Yr	172.00	90.11	92.87		93.09	0.011554	3.78	45.51	22.27	0.47
East Branch Trou	1770	10-Yr	305.00	90.11	93.96		94.23	0.011682	4.20	72.60	27.19	0.45
East Branch Trou	1770	25-Yr	566.80	90.11	95.35		95.75	0.009854	5.08	114.73	33.19	0.45
East Branch Trou	1770	50-Yr	643.30	90.11	95.82		96.23	0.008719	5.14	130.64	35.11	0.43
East Branch Trou	1770	100-Yr	783.70	90.11	97.04		97.27	0.004149	4.16	231.99	140.00	0.31
East Branch Trou	1770	500-Yr	1231.70	90.11	97.37		97.74	0.006552	5.42	278.47	140.00	0.39
East Branch Trou	1750	2-Yr	172.00	89.89	92.71		92.86	0.008193	3.11	55.23	24.84	0.37
East Branch Trou	1750	10-Yr	305.00	89.89	93.79		93.99	0.009275	3.59	84.99	30.14	0.38
East Branch Trou	1750	25-Yr	566.80	89.89	95.23		95.52	0.008293	4.35	132.92	36.50	0.38
East Branch Trou	1750	50-Yr	643.30	89.89	95.72		96.01	0.007300	4.39	151.26	38.63	0.36
East Branch Trou	1750	100-Yr	783.70	89.89	96.99		97.17	0.003614	3.63	255.17	138.54	0.26
East Branch Trou	1750	500-Yr	1231.70	89.89	97.27		97.59	0.006299	4.95	294.41	140.00	0.35
East Branch Trou	1700	2-Yr	172.00	89.33	92.24		92.40	0.010549	3.18	54.17	25.40	0.38
East Branch Trou	1700	10-Yr	305.00	89.33	93.26		93.47	0.011564	3.68	82.80	30.62	0.39
East Branch Trou	1700	25-Yr	566.80	89.33	94.78		95.06	0.009991	4.21	136.44	41.12	0.38
East Branch Trou	1700	50-Yr	643.30	89.33	95.36		95.62	0.007980	4.13	161.39	45.96	0.35
East Branch Trou	1700	100-Yr	783.70	89.33	96.85		96.99	0.003199	3.17	301.28	195.67	0.23
East Branch Trou	1700	500-Yr	1231.70	89.33	96.97		97.25	0.006649	4.64	325.65	200.06	0.33
East Branch Trou	1650	2-Yr	172.00	88.70	91.58		91.78	0.014176	3.63	47.35	25.84	0.47
East Branch Trou	1650	10-Yr	305.00	88.70	92.61		92.85	0.013108	3.93	77.58	32.63	0.45
East Branch Trou	1650	25-Yr	566.80	88.70	94.28		94.53	0.010758	4.01	141.21	44.10	0.40
East Branch Trou	1650	50-Yr	643.30	88.70	95.00		95.21	0.007925	3.69	175.07	51.12	0.34
East Branch Trou	1650	100-Yr	783.70	88.70	96.76		96.84	0.002061	2.45	380.93	249.71	0.19
East Branch Trou	1650	500-Yr	1231.70	88.70	96.73		96.94	0.005361	3.93	372.28	246.98	0.30
East Branch Trou	1600	2-Yr	172.00	88.00	91.03		91.18	0.009795	3.08	55.79	26.43	0.37
East Branch Trou	1600	10-Yr	305.00	88.00	92.07		92.26	0.010336	3.56	85.79	31.79	0.38
East Branch Trou	1600	25-Yr	566.80	88.00	93.80		94.02	0.009532	3.73	151.77	44.21	0.36
East Branch Trou	1600	50-Yr	643.30	88.00	94.64		94.82	0.007200	3.35	191.99	51.58	0.31
East Branch Trou	1600	100-Yr	783.70	88.00	96.70		96.75	0.001434	1.99	486.56	412.56	0.15
East Branch Trou	1600	500-Yr	1231.70	88.00	96.48		96.67	0.005075	3.66	405.34	344.17	0.27
East Branch Trou	1550	2-Yr	172.00	87.66	90.62		90.76	0.007172	3.03	56.72	27.18	0.37
East Branch Trou	1550	10-Yr	305.00	87.66	91.66		91.85	0.006628	3.48	87.61	31.96	0.37
East Branch Trou	1550	25-Yr	566.80	87.66	93.47		93.67	0.005093	3.61	156.81	45.56	0.34
East Branch Trou	1550	50-Yr	643.30	87.66	94.43		94.59	0.003106	3.16	205.36	73.98	0.28
East Branch Trou	1550	100-Yr	783.70	87.66	96.69		96.71	0.000337	1.40	781.05	572.97	0.10
East Branch Trou	1550	500-Yr	1231.70	87.66	96.44		96.52	0.001287	2.66	641.13	555.05	0.19
East Branch Trou	1500	2-Yr	172.00	87.11	90.14		90.29	0.012777	3.16	54.47	27.50	0.40
East Branch Trou	1500	10-Yr	305.00	87.11	91.24		91.42	0.011400	3.48	87.65	32.85	0.38
East Branch Trou	1500	25-Yr	566.80	87.11	93.18		93.35	0.007943	3.39	173.54	88.35	0.31
East Branch Trou	1500	50-Yr	643.30	87.11	94.37		94.43	0.002190	1.99	322.32	166.59	0.17
East Branch Trou	1500	100-Yr	783.70	87.11	96.69		96.69	0.000162	0.72	1122.66	668.58	0.05
East Branch Trou	1500	500-Yr	1231.70	87.11	96.43		96.46	0.000588	1.34	959.42	630.41	0.09
East Branch Trou	1450	2-Yr	172.00	86.55	89.61		89.75	0.009113	3.09	55.69	26.83	0.38
East Branch Trou	1450	10-Yr	305.00	86.55	90.74		90.92	0.009037	3.41	89.52	32.98	0.36
East Branch Trou	1450	25-Yr	566.80	86.55	93.00		93.08	0.003031	2.38	243.11	122.61	0.21
East Branch Trou	1450	50-Yr	643.30	86.55	94.33		94.36	0.000769	1.40	441.66	183.33	0.11
East Branch Trou	1450	100-Yr	783.70	86.55	96.68		96.69	0.000099	0.65	1151.88	495.99	0.04
East Branch Trou	1450	500-Yr	1231.70	86.55	96.42		96.44	0.000315	1.13	1031.13	431.99	0.07
East Branch Trou	1400	2-Yr	172.00	86.00	89.19		89.34	0.007582	3.15	54.65	25.44	0.38
East Branch Trou	1400	10-Yr	305.00	86.00	90.41		90.55	0.005816	3.09	107.61	85.03	0.32
East Branch Trou	1400	25-Yr	566.80	86.00	92.99		93.02	0.000461	1.18	430.53	167.22	0.09
East Branch Trou	1400	50-Yr	643.30	86.00	94.32		94.34	0.000166	0.83	686.66	281.03	0.06
East Branch Trou	1400	100-Yr	783.70	86.00	96.68		96.68	0.000058	0.61	1437.55	574.29	0.04
East Branch Trou	1400	500-Yr	1231.70	86.00	96.41		96.43	0.000198	1.10	1286.45	562.20	0.07
East Branch Trou	1350	2-Yr	172.00	85.44	88.92		89.02	0.004893	2.59	66.39	33.40	0.28
East Branch Trou	1350	10-Yr	305.00	85.44	90.13		90.27	0.005305	2.97	107.90	136.62	0.29
East Branch Trou	1350	25-Yr	566.80	85.44	92.96		92.99	0.000472	1.02	438.97	257.25	0.08
East Branch Trou	1350	50-Yr	643.30	85.44	94.31		94.33	0.000183	0.76	672.78	334.09	0.05
East Branch Trou	1350	100-Yr	783.70	85.44	96.67		96.68	0.000064	0.56	1438.92	578.61	0.03
East Branch Trou	1350	500-Yr	1231.70	85.44	96.40		96.42	0.000226	1.03	1281.66	569.88	0.06

HEC-RAS Plan: 02-PC Uconn River: EB Trout Brook Reach: East Branch Trou (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
East Branch Trou	1305	2-Yr	186.60	84.94	88.83	86.26	88.90	0.001659	2.12	88.13	116.90	0.19
East Branch Trou	1305	10-Yr	333.40	84.94	89.98	86.86	90.11	0.002463	2.91	114.64	124.86	0.23
East Branch Trou	1305	25-Yr	608.80	84.94	92.87	87.78	92.95	0.001162	2.48	291.79	265.39	0.16
East Branch Trou	1305	50-Yr	727.50	84.94	94.28	88.13	94.32	0.000442	1.71	501.04	321.75	0.10
East Branch Trou	1305	100-Yr	913.40	84.94	96.66	88.64	96.67	0.000143	1.13	1181.32	592.49	0.06
East Branch Trou	1305	500-Yr	1462.20	84.94	96.35	89.99	96.40	0.000562	2.20	1002.02	544.08	0.12
East Branch Trou	1200		Culvert									
East Branch Trou	1018	2-Yr	186.50	84.77	88.61		88.66	0.000811	1.90	107.56	172.64	0.18
East Branch Trou	1018	10-Yr	333.40	84.77	89.58		89.67	0.001128	2.43	173.37	203.27	0.22
East Branch Trou	1018	25-Yr	611.80	84.77	90.75		90.88	0.001364	3.11	289.60	251.88	0.26
East Branch Trou	1018	50-Yr	727.60	84.77	91.16		91.30	0.001362	3.29	343.88	271.74	0.26
East Branch Trou	1018	100-Yr	889.70	84.77	91.70		91.85	0.001331	3.48	425.66	299.05	0.26
East Branch Trou	1018	500-Yr	1443.60	84.77	92.87		93.07	0.001501	4.20	642.18	353.19	0.28
East Branch Trou	1000	2-Yr	186.50	84.73	88.54		88.62	0.005106	2.41	88.75	61.26	0.27
East Branch Trou	1000	10-Yr	333.40	84.73	89.54		89.63	0.004240	2.58	161.90	82.82	0.26
East Branch Trou	1000	25-Yr	611.80	84.73	90.72		90.83	0.003970	3.03	288.81	143.37	0.27
East Branch Trou	1000	50-Yr	727.60	84.73	91.14		91.25	0.003560	3.07	354.26	165.72	0.26
East Branch Trou	1000	100-Yr	889.70	84.73	91.69		91.79	0.003059	3.08	452.77	193.95	0.25
East Branch Trou	1000	500-Yr	1443.60	84.73	92.88		92.99	0.002791	3.40	715.88	254.41	0.24
East Branch Trou	950	2-Yr	186.50	84.60	88.37		88.46	0.002204	2.41	87.38	60.56	0.26
East Branch Trou	950	10-Yr	333.40	84.60	89.37		89.47	0.002592	2.72	163.49	93.88	0.27
East Branch Trou	950	25-Yr	611.80	84.60	90.55		90.67	0.002554	3.09	306.00	154.53	0.28
East Branch Trou	950	50-Yr	727.60	84.60	90.99		91.11	0.002246	3.11	379.19	174.96	0.26
East Branch Trou	950	100-Yr	889.70	84.60	91.56		91.67	0.001914	3.12	485.92	199.24	0.25
East Branch Trou	950	500-Yr	1443.60	84.60	92.77		92.88	0.001701	3.41	770.73	282.89	0.24
East Branch Trou	900	2-Yr	186.50	84.48	88.23		88.33	0.003506	2.49	83.39	64.20	0.28
East Branch Trou	900	10-Yr	333.40	84.48	89.22		89.32	0.003413	2.74	159.56	89.31	0.27
East Branch Trou	900	25-Yr	611.80	84.48	90.40		90.52	0.003443	3.11	285.77	132.45	0.27
East Branch Trou	900	50-Yr	727.60	84.48	90.86		90.98	0.003093	3.17	351.94	157.76	0.26
East Branch Trou	900	100-Yr	889.70	84.48	91.45		91.56	0.002634	3.18	454.26	188.37	0.25
East Branch Trou	900	500-Yr	1443.60	84.48	92.68		92.78	0.002098	3.28	749.12	300.81	0.23
East Branch Trou	850	2-Yr	186.50	84.36	87.89		88.02	0.012414	2.92	64.40	37.97	0.34
East Branch Trou	850	10-Yr	333.40	84.36	88.89		89.04	0.010553	3.19	119.48	64.88	0.33
East Branch Trou	850	25-Yr	611.80	84.36	90.09		90.26	0.008764	3.53	211.61	91.16	0.32
East Branch Trou	850	50-Yr	727.60	84.36	90.58		90.74	0.007737	3.60	261.79	116.91	0.31
East Branch Trou	850	100-Yr	889.70	84.36	91.21		91.36	0.006193	3.54	347.80	151.95	0.28
East Branch Trou	850	500-Yr	1443.60	84.36	92.52		92.64	0.004212	3.42	622.61	286.66	0.24
East Branch Trou	800	2-Yr	186.50	84.23	87.50		87.61	0.005679	2.62	71.19	28.55	0.29
East Branch Trou	800	10-Yr	333.40	84.23	88.57		88.69	0.004863	2.82	122.85	64.07	0.28
East Branch Trou	800	25-Yr	611.80	84.23	89.89		90.01	0.002967	2.61	221.77	85.65	0.23
East Branch Trou	800	50-Yr	727.60	84.23	90.40		90.51	0.002622	2.64	270.85	107.48	0.22
East Branch Trou	800	100-Yr	889.70	84.23	91.08		91.18	0.002099	2.60	356.15	143.40	0.20
East Branch Trou	800	500-Yr	1443.60	84.23	92.39		92.49	0.001947	2.91	617.63	293.78	0.20
East Branch Trou	750	2-Yr	186.50	84.12	87.36		87.46	0.001843	2.46	75.95	30.06	0.27
East Branch Trou	750	10-Yr	333.40	84.12	88.37		88.51	0.002520	3.03	120.49	61.89	0.30
East Branch Trou	750	25-Yr	611.80	84.12	89.68		89.85	0.002946	3.52	226.08	99.13	0.31
East Branch Trou	750	50-Yr	727.60	84.12	90.20		90.38	0.002685	3.55	282.79	118.53	0.30
East Branch Trou	750	100-Yr	889.70	84.12	90.90		91.07	0.002251	3.56	376.79	153.22	0.28
East Branch Trou	750	500-Yr	1443.60	84.12	92.21		92.38	0.002033	3.94	640.23	291.74	0.27
East Branch Trou	700	2-Yr	186.50	84.00	87.21		87.34	0.002905	2.92	73.95	42.23	0.34
East Branch Trou	700	10-Yr	333.40	84.00	88.20		88.36	0.003564	3.41	122.28	60.09	0.35
East Branch Trou	700	25-Yr	611.80	84.00	89.50		89.69	0.003745	3.81	232.53	109.57	0.35
East Branch Trou	700	50-Yr	727.60	84.00	90.06		90.23	0.003044	3.75	300.11	131.91	0.32
East Branch Trou	700	100-Yr	889.70	84.00	90.79		90.95	0.002405	3.69	410.79	175.83	0.29
East Branch Trou	700	500-Yr	1443.60	84.00	92.12		92.28	0.001990	3.93	700.80	303.20	0.27
East Branch Trou	650	2-Yr	186.50	84.00	87.01		87.12	0.006850	2.84	73.01	40.55	0.33
East Branch Trou	650	10-Yr	333.40	84.00	87.96		88.12	0.006783	3.33	116.58	50.65	0.33
East Branch Trou	650	25-Yr	611.80	84.00	89.25		89.45	0.006150	3.95	213.24	100.87	0.34
East Branch Trou	650	50-Yr	727.60	84.00	89.87		90.05	0.004705	3.78	283.60	124.29	0.30
East Branch Trou	650	100-Yr	889.70	84.00	90.66		90.80	0.003510	3.60	394.77	162.97	0.27
East Branch Trou	650	500-Yr	1443.60	84.00	92.02		92.15	0.002898	3.78	669.04	325.56	0.25
East Branch Trou	600	2-Yr	186.50	84.00	86.75		86.89	0.003226	3.05	68.35	41.47	0.36
East Branch Trou	600	10-Yr	333.40	84.00	87.72		87.91	0.002794	3.63	112.91	51.01	0.36
East Branch Trou	600	25-Yr	611.80	84.00	88.95		89.24	0.002833	4.55	193.52	84.56	0.38
East Branch Trou	600	50-Yr	727.60	84.00	89.61		89.88	0.002270	4.48	256.95	109.41	0.35
East Branch Trou	600	100-Yr	889.70	84.00	90.47		90.68	0.001593	4.16	389.35	227.55	0.30

HEC-RAS Plan: 02-PC Uconn River: EB Trout Brook Reach: East Branch Trou (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
East Branch Trou	600	500-Yr	1443.60	84.00	91.96		92.07	0.000903	3.64	786.15	306.39	0.24
East Branch Trou	550	2-Yr	186.50	83.54	86.68		86.76	0.001662	2.31	84.93	45.40	0.27
East Branch Trou	550	10-Yr	333.40	83.54	87.68		87.79	0.001427	2.72	133.15	51.61	0.26
East Branch Trou	550	25-Yr	611.80	83.54	88.95		89.10	0.001393	3.35	225.93	103.33	0.28
East Branch Trou	550	50-Yr	727.60	83.54	89.63		89.76	0.001100	3.26	307.71	138.67	0.25
East Branch Trou	550	100-Yr	889.70	83.54	90.49		90.59	0.000751	2.98	496.52	281.75	0.21
East Branch Trou	550	500-Yr	1443.60	83.54	91.96		92.02	0.000461	2.70	1004.96	436.51	0.17
East Branch Trou	532	2-Yr	193.10	83.39	85.85	85.85	86.62	0.023022	7.05	27.41	18.05	1.01
East Branch Trou	532	10-Yr	344.90	83.39	86.63	86.63	87.63	0.021168	8.03	42.95	21.78	1.01
East Branch Trou	532	25-Yr	603.80	83.39	87.57	87.57	88.92	0.018725	9.33	64.93	25.22	1.00
East Branch Trou	532	50-Yr	741.70	83.39	88.59	87.96	89.63	0.009482	8.22	101.82	69.19	0.75
East Branch Trou	532	100-Yr	920.50	83.39	90.03	88.86	90.53	0.003513	6.21	271.37	210.37	0.48
East Branch Trou	532	500-Yr	1501.20	83.39	91.78	90.46	92.00	0.001528	4.97	744.81	330.80	0.33
East Branch Trou	450		Culvert									
East Branch Trou	400	2-Yr	193.10	82.93	85.31	84.67	85.64	0.007046	4.58	42.16	22.54	0.59
East Branch Trou	400	10-Yr	344.90	82.93	86.19	85.38	86.65	0.006776	5.44	63.46	25.90	0.61
East Branch Trou	400	25-Yr	603.80	82.93	87.27	86.28	87.95	0.006240	6.63	93.53	30.03	0.62
East Branch Trou	400	50-Yr	741.70	82.93	87.70	86.67	88.51	0.006406	7.24	106.89	32.05	0.64
East Branch Trou	400	100-Yr	920.50	82.93	88.11	87.16	89.12	0.007070	8.12	120.56	35.09	0.68
East Branch Trou	400	500-Yr	1501.20	82.93	88.58	88.58	90.74	0.013316	11.91	138.66	42.58	0.95
East Branch Trou	387		Inl Struct									
East Branch Trou	350	2-Yr	193.10	81.67	83.91	82.84	84.01	0.002021	2.45	78.84	43.72	0.32
East Branch Trou	350	10-Yr	344.90	81.67	84.72	83.29	84.86	0.002043	2.97	115.94	48.19	0.34
East Branch Trou	350	25-Yr	603.80	81.67	85.79	83.91	85.98	0.002046	3.53	170.82	54.66	0.35
East Branch Trou	350	50-Yr	741.70	81.67	86.27	84.19	86.49	0.001962	3.75	197.86	58.08	0.35
East Branch Trou	350	100-Yr	920.50	81.67	86.82	84.53	87.07	0.001857	4.02	231.37	63.30	0.35
East Branch Trou	350	500-Yr	1501.20	81.67	88.22	85.48	88.58	0.001813	4.84	329.55	79.30	0.36
East Branch Trou	335.5		Inl Struct									
East Branch Trou	300	2-Yr	193.00	78.36	80.69		80.83	0.003143	3.01	64.01	35.97	0.40
East Branch Trou	300	10-Yr	344.60	78.36	81.89		82.04	0.002020	3.10	111.22	42.80	0.34
East Branch Trou	300	25-Yr	596.20	78.36	83.29		83.47	0.001594	3.41	174.91	48.34	0.32
East Branch Trou	300	50-Yr	738.20	78.36	83.93		84.13	0.001497	3.57	206.89	50.70	0.31
East Branch Trou	300	100-Yr	918.70	78.36	84.76		84.97	0.001363	3.66	250.72	54.88	0.30
East Branch Trou	300	500-Yr	1500.30	78.36	88.01		88.18	0.000616	3.36	461.14	80.02	0.22
East Branch Trou	281	2-Yr	193.00	77.00	80.71	78.22	80.78	0.001015	2.08	92.82	25.00	0.19
East Branch Trou	281	10-Yr	344.60	77.00	81.88	78.80	82.00	0.001511	2.83	121.90	25.00	0.23
East Branch Trou	281	25-Yr	596.20	77.00	83.20	79.60	83.43	0.002112	3.81	158.73	30.41	0.27
East Branch Trou	281	50-Yr	738.20	77.00	83.80	79.99	84.09	0.002341	4.27	177.84	33.12	0.29
East Branch Trou	281	100-Yr	918.70	77.00	84.58	80.46	84.92	0.002469	4.72	205.11	37.19	0.31
East Branch Trou	281	500-Yr	1500.30	77.00	87.77	81.81	88.14	0.001759	5.06	354.81	58.09	0.27
East Branch Trou	232		Culvert									
East Branch Trou	162	2-Yr	193.00	77.00	80.58		80.66	0.001201	2.25	85.77	23.98	0.21
East Branch Trou	162	10-Yr	344.60	77.00	81.67		81.81	0.001703	3.08	111.91	23.99	0.25
East Branch Trou	162	25-Yr	596.20	77.00	82.85		83.13	0.002593	4.25	141.37	26.50	0.31
East Branch Trou	162	50-Yr	738.20	77.00	83.36		83.72	0.003101	4.82	156.59	33.06	0.34
East Branch Trou	162	100-Yr	918.70	77.00	83.95		84.40	0.003497	5.44	177.84	39.40	0.37
East Branch Trou	162	500-Yr	1500.30	77.00	85.54		86.25	0.004259	6.92	251.84	53.02	0.42
East Branch Trou	150	2-Yr	193.00	77.26	80.57		80.64	0.001025	2.07	93.44	38.59	0.23
East Branch Trou	150	10-Yr	344.60	77.26	81.68		81.77	0.001038	2.48	139.23	44.16	0.25
East Branch Trou	150	25-Yr	596.20	77.26	82.90		83.04	0.001063	3.06	196.50	49.43	0.26
East Branch Trou	150	50-Yr	738.20	77.26	83.43		83.61	0.001095	3.36	223.44	51.65	0.27
East Branch Trou	150	100-Yr	918.70	77.26	84.05		84.26	0.001127	3.69	256.01	54.24	0.28
East Branch Trou	150	500-Yr	1500.30	77.26	85.71		86.03	0.001198	4.55	352.35	61.28	0.30
East Branch Trou	100	2-Yr	193.00	77.09	80.47		80.57	0.001606	2.58	74.77	31.45	0.30
East Branch Trou	100	10-Yr	344.60	77.09	81.56		81.70	0.001668	3.07	112.26	37.33	0.31
East Branch Trou	100	25-Yr	596.20	77.09	82.75		82.97	0.001686	3.74	160.65	43.70	0.33
East Branch Trou	100	50-Yr	738.20	77.09	83.27		83.53	0.001719	4.10	184.01	46.62	0.34
East Branch Trou	100	100-Yr	918.70	77.09	83.87		84.18	0.001748	4.49	212.93	50.00	0.35
East Branch Trou	100	500-Yr	1500.30	77.09	85.49		85.94	0.001805	5.48	300.81	58.43	0.37
East Branch Trou	50	2-Yr	193.00	77.02	80.34		80.47	0.002130	2.95	65.50	27.70	0.34
East Branch Trou	50	10-Yr	344.60	77.02	81.41		81.60	0.002243	3.53	97.74	32.65	0.36
East Branch Trou	50	25-Yr	596.20	77.02	82.57		82.86	0.002340	4.32	139.00	38.24	0.38
East Branch Trou	50	50-Yr	738.20	77.02	83.07		83.42	0.002404	4.74	158.64	40.70	0.40
East Branch Trou	50	100-Yr	918.70	77.02	83.65		84.06	0.002462	5.20	182.87	43.55	0.41

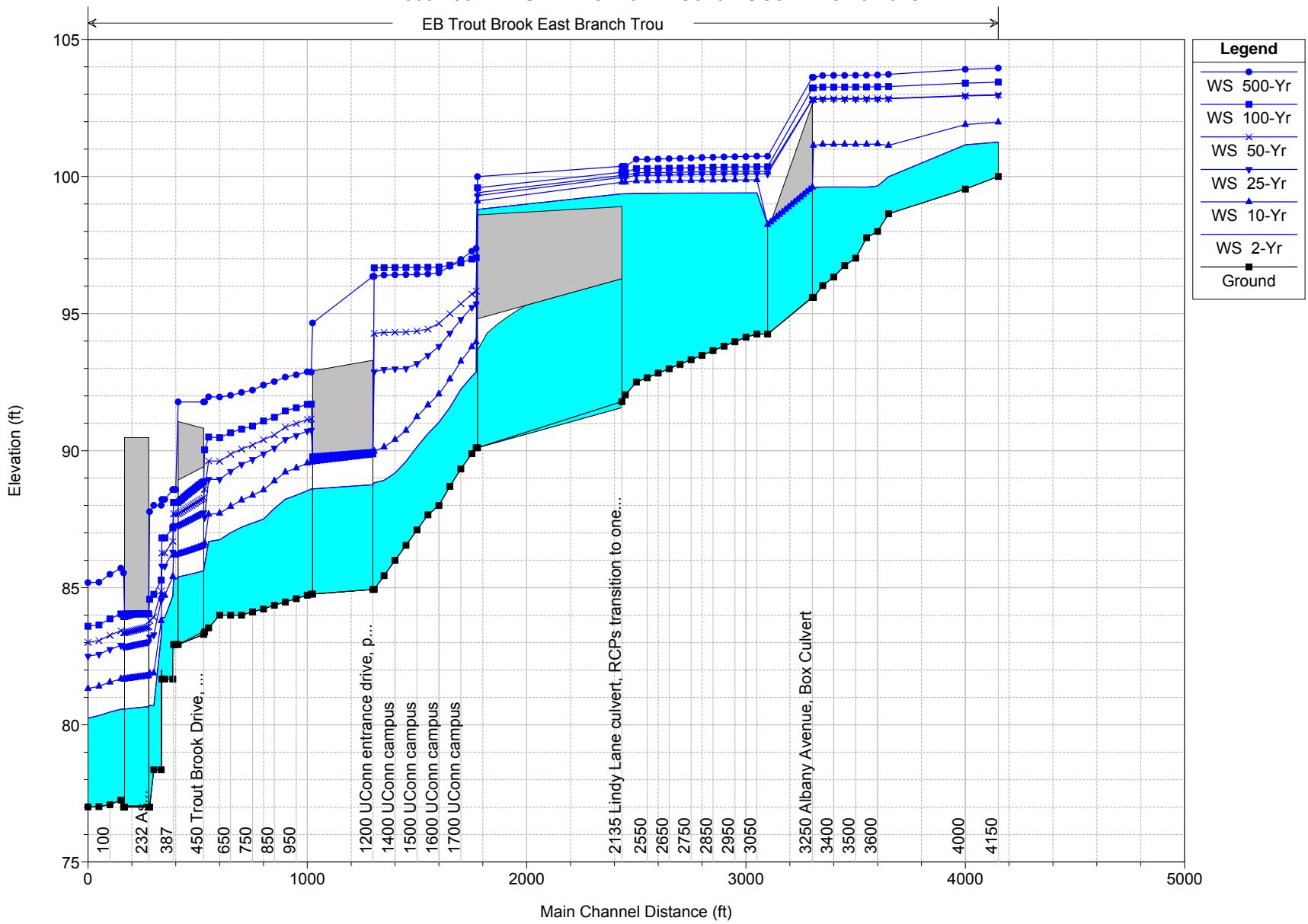
HEC-RAS Plan: 02-PC Uconn River: EB Trout Brook Reach: East Branch Trou (Continued)

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
East Branch Trou	50	500-Yr	1500.30	77.02	85.20		85.82	0.002583	6.38	257.29	52.40	0.44
East Branch Trou	0	2-Yr	193.00	77.01	80.25	78.74	80.37	0.002002	2.79	69.25	30.82	0.33
East Branch Trou	0	10-Yr	344.60	77.01	81.32	79.42	81.49	0.002001	3.26	105.81	37.14	0.34
East Branch Trou	0	25-Yr	596.20	77.01	82.50	80.26	82.74	0.002003	3.90	153.54	43.74	0.36
East Branch Trou	0	50-Yr	738.20	77.01	83.01	80.65	83.29	0.002004	4.25	176.44	46.64	0.36
East Branch Trou	0	100-Yr	918.70	77.01	83.60	81.11	83.93	0.002001	4.63	204.81	50.00	0.37
East Branch Trou	0	500-Yr	1500.30	77.01	85.19	82.24	85.66	0.002001	5.59	293.09	61.58	0.39

TroutBrook-HMS

Plan: 02-PrCond - UConn 8/20/2018

EB Trout Brook East Branch Trou



HEC-RAS Plan: 03-PC Lindy River: EB Trout Brook Reach: East Branch Trou

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
East Branch Trou	4150	2-Yr	44.80	100.00	101.26		101.27	0.000664	0.82	67.88	91.14	0.14
East Branch Trou	4150	10-Yr	110.30	100.00	101.96		101.98	0.000643	1.12	148.61	137.33	0.15
East Branch Trou	4150	25-Yr	165.80	100.00	102.36		102.38	0.000674	1.31	208.29	163.90	0.16
East Branch Trou	4150	50-Yr	165.80	100.00	102.36		102.38	0.000674	1.31	208.29	163.90	0.16
East Branch Trou	4150	100-Yr	283.70	100.00	103.37		103.39	0.000425	1.34	408.97	231.44	0.13
East Branch Trou	4150	500-Yr	507.90	100.00	103.93		103.97	0.000703	1.91	548.92	271.74	0.17
East Branch Trou	4000	2-Yr	44.80	99.54	101.16		101.17	0.000631	0.88	83.81	115.98	0.14
East Branch Trou	4000	10-Yr	110.30	99.54	101.87		101.88	0.000632	1.18	185.22	169.79	0.15
East Branch Trou	4000	25-Yr	165.80	99.54	102.26		102.28	0.000698	1.40	314.33	410.92	0.16
East Branch Trou	4000	50-Yr	165.80	99.54	102.26		102.28	0.000698	1.40	314.33	410.92	0.16
East Branch Trou	4000	100-Yr	283.70	99.54	103.34		103.35	0.000227	1.03	803.00	490.57	0.10
East Branch Trou	4000	500-Yr	507.90	99.54	103.88		103.89	0.000333	1.37	1079.34	530.38	0.12
East Branch Trou	3650	2-Yr	44.80	98.64	99.99	99.99	100.35	0.177134	4.81	9.31	13.21	1.01
East Branch Trou	3650	10-Yr	110.30	98.64	100.62	100.62	101.08	0.105240	5.61	22.96	31.89	0.87
East Branch Trou	3650	25-Yr	165.80	98.64	101.02	101.02	101.43	0.073343	5.61	41.14	62.85	0.76
East Branch Trou	3650	50-Yr	165.80	98.64	101.02	101.02	101.43	0.073343	5.61	41.14	62.85	0.76
East Branch Trou	3650	100-Yr	283.70	98.64	103.20		103.20	0.000914	1.09	479.17	347.60	0.10
East Branch Trou	3650	500-Yr	507.90	98.64	103.68		103.70	0.001118	1.30	657.67	384.56	0.11
East Branch Trou	3600	2-Yr	44.80	98.00	99.08		99.12	0.002975	1.53	29.33	31.83	0.28
East Branch Trou	3600	10-Yr	110.30	98.00	99.80		99.86	0.002900	2.04	54.13	37.24	0.30
East Branch Trou	3600	25-Yr	165.80	98.00	100.95		100.98	0.000738	1.48	168.02	133.58	0.16
East Branch Trou	3600	50-Yr	165.80	98.00	101.05		101.08	0.000625	1.40	183.12	143.67	0.15
East Branch Trou	3600	100-Yr	283.70	98.00	103.18		103.19	0.000111	0.88	658.83	318.46	0.07
East Branch Trou	3600	500-Yr	507.90	98.00	103.66		103.67	0.000207	1.28	817.23	346.69	0.10
East Branch Trou	3550	2-Yr	44.80	97.77	98.47	98.47	98.72	0.043762	4.02	11.60	26.29	0.98
East Branch Trou	3550	10-Yr	110.30	97.77	99.56		99.67	0.004813	2.83	57.69	64.33	0.39
East Branch Trou	3550	25-Yr	165.80	97.77	100.91		100.94	0.000759	1.68	217.57	148.64	0.17
East Branch Trou	3550	50-Yr	165.80	97.77	101.02		101.05	0.000635	1.58	234.87	152.43	0.16
East Branch Trou	3550	100-Yr	283.70	97.77	103.18		103.18	0.000115	0.96	732.08	327.35	0.07
East Branch Trou	3550	500-Yr	507.90	97.77	103.65		103.66	0.000214	1.39	895.06	360.99	0.10
East Branch Trou	3500	2-Yr	44.80	97.02	97.93		97.96	0.003294	1.48	30.35	37.49	0.29
East Branch Trou	3500	10-Yr	110.30	97.02	99.59		99.60	0.000334	0.89	149.30	106.44	0.11
East Branch Trou	3500	25-Yr	165.80	97.02	100.91		100.92	0.000123	0.75	317.49	140.96	0.07
East Branch Trou	3500	50-Yr	165.80	97.02	101.03		101.03	0.000109	0.72	333.74	142.99	0.07
East Branch Trou	3500	100-Yr	283.70	97.02	103.18		103.18	0.000041	0.61	835.49	341.91	0.04
East Branch Trou	3500	500-Yr	507.90	97.02	103.65		103.66	0.000086	0.92	1004.30	375.53	0.07
East Branch Trou	3450	2-Yr	44.80	96.75	97.84		97.86	0.001298	0.99	45.46	51.23	0.18
East Branch Trou	3450	10-Yr	110.30	96.75	99.58		99.59	0.000169	0.71	185.17	104.19	0.08
East Branch Trou	3450	25-Yr	165.80	96.75	100.91		100.91	0.000081	0.65	341.87	130.82	0.06
East Branch Trou	3450	50-Yr	165.80	96.75	101.02		101.03	0.000072	0.63	357.02	132.85	0.06
East Branch Trou	3450	100-Yr	283.70	96.75	103.18		103.18	0.000033	0.57	840.81	322.35	0.04
East Branch Trou	3450	500-Yr	507.90	96.75	103.64		103.65	0.000072	0.88	999.50	355.44	0.06
East Branch Trou	3400	2-Yr	44.80	96.33	97.83		97.84	0.000169	0.47	94.93	70.06	0.07
East Branch Trou	3400	10-Yr	110.30	96.33	99.58		99.58	0.000061	0.46	260.76	128.60	0.05
East Branch Trou	3400	25-Yr	165.80	96.33	100.91		100.91	0.000034	0.44	468.67	186.24	0.04
East Branch Trou	3400	50-Yr	165.80	96.33	101.02		101.03	0.000031	0.43	490.41	191.93	0.04
East Branch Trou	3400	100-Yr	283.70	96.33	103.17		103.18	0.000017	0.42	1035.74	318.15	0.03
East Branch Trou	3400	500-Yr	507.90	96.33	103.64		103.65	0.000041	0.68	1189.79	340.42	0.05
East Branch Trou	3350	2-Yr	44.80	96.02	97.82		97.83	0.000258	0.65	68.78	42.45	0.09
East Branch Trou	3350	10-Yr	110.30	96.02	99.57		99.58	0.000112	0.66	228.09	142.48	0.07
East Branch Trou	3350	25-Yr	165.80	96.02	100.90		100.91	0.000056	0.59	463.05	207.47	0.05
East Branch Trou	3350	50-Yr	165.80	96.02	101.02		101.02	0.000049	0.56	487.24	212.17	0.05
East Branch Trou	3350	100-Yr	283.70	96.02	103.17		103.18	0.000022	0.49	1056.09	323.43	0.03
East Branch Trou	3350	500-Yr	507.90	96.02	103.64		103.65	0.000051	0.78	1214.74	356.59	0.05
East Branch Trou	3308	2-Yr	44.80	95.59	97.78	96.26	97.80	0.001070	1.37	32.62	15.10	0.16
East Branch Trou	3308	10-Yr	110.30	95.59	99.51	96.79	99.56	0.001125	1.81	60.92	18.37	0.18
East Branch Trou	3308	25-Yr	165.80	95.59	100.84	97.17	100.90	0.000836	1.90	95.00	48.94	0.16
East Branch Trou	3308	50-Yr	165.80	95.59	100.96	97.16	101.01	0.000759	1.85	101.15	53.98	0.15
East Branch Trou	3308	100-Yr	283.70	95.59	103.15	97.83	103.17	0.000313	1.54	450.66	271.66	0.10
East Branch Trou	3308	500-Yr	507.90	95.59	103.58	98.99	103.64	0.000659	2.32	577.00	308.03	0.15
East Branch Trou	3250		Culvert									
East Branch Trou	3050	2-Yr	43.70	94.25	96.27		96.32	0.001731	1.67	29.47	32.69	0.22
East Branch Trou	3050	10-Yr	100.00	94.25	97.51		97.55	0.000892	1.69	110.90	130.03	0.17
East Branch Trou	3050	25-Yr	129.90	94.25	97.99		98.02	0.000692	1.64	180.52	162.86	0.16
East Branch Trou	3050	50-Yr	129.90	94.25	98.15		98.17	0.000516	1.46	206.98	168.60	0.14
East Branch Trou	3050	100-Yr	167.90	94.25	99.05		99.05	0.000208	1.08	373.94	202.95	0.09
East Branch Trou	3050	500-Yr	391.70	94.25	100.54		100.54	0.000198	1.27	731.60	282.06	0.09

HEC-RAS Plan: 03-PC Lindy River: EB Trout Brook Reach: East Branch Trou (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
East Branch Trou	3000	2-Yr	43.70	94.14	96.13		96.19	0.003301	2.04	21.45	16.37	0.31
East Branch Trou	3000	10-Yr	100.00	94.14	97.40		97.47	0.001934	2.17	47.02	26.97	0.26
East Branch Trou	3000	25-Yr	129.90	94.14	97.87		97.95	0.001664	2.29	61.60	35.21	0.25
East Branch Trou	3000	50-Yr	129.90	94.14	98.04		98.11	0.001344	2.15	72.50	114.83	0.22
East Branch Trou	3000	100-Yr	167.90	94.14	99.00		99.03	0.000509	1.61	207.61	164.18	0.15
East Branch Trou	3000	500-Yr	391.70	94.14	100.50		100.53	0.000381	1.73	501.64	225.11	0.13
East Branch Trou	2950	2-Yr	43.70	93.97	96.06		96.09	0.001254	1.39	31.49	19.48	0.19
East Branch Trou	2950	10-Yr	100.00	93.97	97.36		97.38	0.001151	1.32	75.94	49.43	0.19
East Branch Trou	2950	25-Yr	129.90	93.97	97.85		97.87	0.000875	1.26	102.99	60.56	0.17
East Branch Trou	2950	50-Yr	129.90	93.97	98.03		98.05	0.000624	1.14	117.34	101.34	0.14
East Branch Trou	2950	100-Yr	167.90	93.97	99.00		99.01	0.000226	0.90	238.61	149.78	0.09
East Branch Trou	2950	500-Yr	391.70	93.97	100.50		100.51	0.000199	1.11	514.34	208.54	0.09
East Branch Trou	2900	2-Yr	43.70	93.81	96.01		96.03	0.000793	1.18	37.17	22.19	0.16
East Branch Trou	2900	10-Yr	100.00	93.81	97.31		97.34	0.000778	1.26	79.06	41.60	0.16
East Branch Trou	2900	25-Yr	129.90	93.81	97.81		97.84	0.000700	1.28	101.47	48.45	0.16
East Branch Trou	2900	50-Yr	129.90	93.81	98.00		98.03	0.000546	1.17	111.26	67.98	0.14
East Branch Trou	2900	100-Yr	167.90	93.81	98.98		99.00	0.000236	0.98	210.41	131.25	0.10
East Branch Trou	2900	500-Yr	391.70	93.81	100.48		100.50	0.000213	1.21	524.40	342.59	0.10
East Branch Trou	2850	2-Yr	43.70	93.65	95.94		95.98	0.001669	1.60	27.31	18.87	0.23
East Branch Trou	2850	10-Yr	100.00	93.65	97.25		97.29	0.001255	1.57	63.69	35.60	0.21
East Branch Trou	2850	25-Yr	129.90	93.65	97.75		97.79	0.001074	1.56	83.16	41.49	0.19
East Branch Trou	2850	50-Yr	129.90	93.65	97.96		97.99	0.000796	1.41	92.04	44.22	0.17
East Branch Trou	2850	100-Yr	167.90	93.65	98.96		98.98	0.000354	1.21	161.17	96.21	0.12
East Branch Trou	2850	500-Yr	391.70	93.65	100.45		100.48	0.000353	1.57	428.16	314.53	0.13
East Branch Trou	2800	2-Yr	43.70	93.48	95.83		95.89	0.001969	1.83	23.93	15.34	0.26
East Branch Trou	2800	10-Yr	100.00	93.48	97.16		97.21	0.001776	1.88	53.25	29.43	0.25
East Branch Trou	2800	25-Yr	129.90	93.48	97.67		97.73	0.001543	1.86	69.95	35.20	0.23
East Branch Trou	2800	50-Yr	129.90	93.48	97.90		97.94	0.001164	1.66	78.26	37.66	0.20
East Branch Trou	2800	100-Yr	167.90	93.48	98.93		98.96	0.000488	1.39	135.94	76.44	0.14
East Branch Trou	2800	500-Yr	391.70	93.48	100.42		100.46	0.000471	1.78	359.92	297.10	0.15
East Branch Trou	2750	2-Yr	43.70	93.32	95.66		95.75	0.003466	2.44	17.89	10.28	0.33
East Branch Trou	2750	10-Yr	100.00	93.32	96.96		97.08	0.003975	2.73	36.60	19.80	0.35
East Branch Trou	2750	25-Yr	129.90	93.32	97.50		97.61	0.003461	2.68	48.41	24.33	0.34
East Branch Trou	2750	50-Yr	129.90	93.32	97.77		97.86	0.002482	2.34	55.40	26.60	0.29
East Branch Trou	2750	100-Yr	167.90	93.32	98.87		98.93	0.000998	1.89	98.03	54.84	0.19
East Branch Trou	2750	500-Yr	391.70	93.32	100.35		100.43	0.000961	2.43	275.91	291.01	0.20
East Branch Trou	2700	2-Yr	43.70	93.15	95.50		95.58	0.003257	2.36	18.52	10.78	0.32
East Branch Trou	2700	10-Yr	100.00	93.15	96.76		96.88	0.003792	2.76	36.21	18.57	0.35
East Branch Trou	2700	25-Yr	129.90	93.15	97.32		97.44	0.003037	2.72	47.77	22.68	0.33
East Branch Trou	2700	50-Yr	129.90	93.15	97.65		97.74	0.002275	2.34	55.61	25.08	0.28
East Branch Trou	2700	100-Yr	167.90	93.15	98.82		98.87	0.001245	1.82	92.46	40.45	0.21
East Branch Trou	2700	500-Yr	391.70	93.15	100.30		100.38	0.001053	2.31	250.72	353.39	0.21
East Branch Trou	2650	2-Yr	43.70	92.99	95.40		95.45	0.001893	1.77	24.68	15.47	0.25
East Branch Trou	2650	10-Yr	100.00	92.99	96.67		96.74	0.001837	2.06	48.60	23.32	0.25
East Branch Trou	2650	25-Yr	129.90	92.99	97.25		97.31	0.001643	2.05	63.23	27.82	0.24
East Branch Trou	2650	50-Yr	129.90	92.99	97.60		97.65	0.001135	1.76	73.62	30.77	0.20
East Branch Trou	2650	100-Yr	167.90	92.99	98.79		98.82	0.000570	1.44	116.97	42.82	0.15
East Branch Trou	2650	500-Yr	391.70	92.99	100.27		100.33	0.000674	2.05	280.50	395.99	0.17
East Branch Trou	2600	2-Yr	43.70	92.83	95.26		95.34	0.002649	2.18	20.00	11.44	0.29
East Branch Trou	2600	10-Yr	100.00	92.83	96.50		96.61	0.003387	2.70	37.06	18.30	0.33
East Branch Trou	2600	25-Yr	129.90	92.83	97.09		97.20	0.003093	2.63	49.48	23.82	0.32
East Branch Trou	2600	50-Yr	129.90	92.83	97.50		97.57	0.001989	2.16	60.06	27.80	0.26
East Branch Trou	2600	100-Yr	167.90	92.83	98.74		98.79	0.000920	1.64	102.13	40.08	0.18
East Branch Trou	2600	500-Yr	391.70	92.83	100.22		100.29	0.000956	2.25	244.37	394.01	0.20
East Branch Trou	2550	2-Yr	43.70	92.66	95.15		95.21	0.002155	1.96	22.27	12.86	0.26
East Branch Trou	2550	10-Yr	100.00	92.66	96.37		96.46	0.002591	2.47	40.50	18.71	0.30
East Branch Trou	2550	25-Yr	129.90	92.66	96.96		97.06	0.002445	2.43	53.35	24.15	0.29
East Branch Trou	2550	50-Yr	129.90	92.66	97.42		97.48	0.001530	1.99	65.33	28.21	0.23
East Branch Trou	2550	100-Yr	167.90	92.66	98.71		98.74	0.000722	1.52	110.65	44.89	0.16
East Branch Trou	2550	500-Yr	391.70	92.66	100.18		100.24	0.000764	2.09	279.54	389.61	0.18
East Branch Trou	2500	2-Yr	43.70	92.33	95.11		95.14	0.000881	1.32	33.06	17.44	0.17
East Branch Trou	2500	10-Yr	100.00	92.33	96.31		96.36	0.001244	1.73	57.72	26.09	0.21
East Branch Trou	2500	25-Yr	129.90	92.33	96.91		96.96	0.001176	1.72	75.69	33.47	0.20
East Branch Trou	2500	50-Yr	129.90	92.33	97.40		97.43	0.000634	1.40	93.27	39.64	0.15
East Branch Trou	2500	100-Yr	167.90	92.33	98.70		98.72	0.000264	1.18	159.93	82.04	0.10
East Branch Trou	2500	500-Yr	391.70	92.33	100.19		100.21	0.000255	1.44	443.94	390.41	0.11

HEC-RAS Plan: 03-PC Lindy River: EB Trout Brook Reach: East Branch Trou (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
East Branch Trou	2450	2-Yr	209.70	91.73	93.68	93.68	94.57	0.035568	7.56	27.74	15.81	1.01
East Branch Trou	2450	10-Yr	399.20	91.73	94.87	94.87	95.84	0.023771	8.05	54.81	33.81	0.87
East Branch Trou	2450	25-Yr	537.70	91.73	96.03	95.38	96.61	0.011921	6.51	98.01	40.73	0.64
East Branch Trou	2450	50-Yr	629.60	91.73	96.72	95.67	97.18	0.008470	5.87	128.10	46.10	0.55
East Branch Trou	2450	100-Yr	783.70	91.73	98.29	96.08	98.60	0.003723	4.98	225.50	115.81	0.39
East Branch Trou	2450	500-Yr	1395.40	91.73	99.79	97.21	100.12	0.003230	5.52	467.00	201.64	0.38
East Branch Trou	2135		Culvert									
East Branch Trou	1770	2-Yr	206.50	90.11	93.19		93.42	0.011585	3.90	52.89	23.71	0.46
East Branch Trou	1770	10-Yr	398.30	90.11	94.53		94.85	0.010557	4.51	88.75	29.68	0.44
East Branch Trou	1770	25-Yr	529.80	90.11	95.21		95.58	0.009789	4.94	109.83	32.57	0.44
East Branch Trou	1770	50-Yr	605.40	90.11	95.64		96.03	0.008881	5.05	124.43	34.37	0.43
East Branch Trou	1770	100-Yr	757.90	90.11	96.65		96.99	0.006104	4.81	182.11	107.04	0.37
East Branch Trou	1770	500-Yr	1390.60	90.11	97.53		97.92	0.006793	5.62	300.47	140.00	0.40
East Branch Trou	1750	2-Yr	206.50	89.89	93.02		93.19	0.008566	3.26	63.33	26.39	0.37
East Branch Trou	1750	10-Yr	398.30	89.89	94.38		94.61	0.008847	3.86	103.52	32.79	0.37
East Branch Trou	1750	25-Yr	529.80	89.89	95.08		95.35	0.008211	4.22	127.49	35.84	0.37
East Branch Trou	1750	50-Yr	605.40	89.89	95.53		95.82	0.007426	4.31	144.25	37.83	0.36
East Branch Trou	1750	100-Yr	757.90	89.89	96.58		96.83	0.005224	4.16	203.44	102.29	0.31
East Branch Trou	1750	500-Yr	1390.60	89.89	97.42		97.76	0.006680	5.17	315.20	140.00	0.36
East Branch Trou	1700	2-Yr	206.50	89.33	92.53		92.71	0.010907	3.34	61.89	26.86	0.39
East Branch Trou	1700	10-Yr	398.30	89.33	93.87		94.10	0.011651	3.89	102.32	33.80	0.39
East Branch Trou	1700	25-Yr	529.80	89.33	94.64		94.90	0.009980	4.10	130.40	39.85	0.38
East Branch Trou	1700	50-Yr	605.40	89.33	95.16		95.42	0.008279	4.08	152.51	44.31	0.35
East Branch Trou	1700	100-Yr	757.90	89.33	96.35		96.56	0.005148	3.80	223.68	114.33	0.29
East Branch Trou	1700	500-Yr	1390.60	89.33	97.11		97.41	0.006970	4.82	353.88	206.99	0.34
East Branch Trou	1650	2-Yr	206.50	88.70	91.87		92.09	0.013792	3.73	55.31	27.60	0.46
East Branch Trou	1650	10-Yr	398.30	88.70	93.27		93.51	0.011906	3.97	100.42	37.06	0.42
East Branch Trou	1650	25-Yr	529.80	88.70	94.14		94.38	0.010303	3.92	135.14	42.79	0.39
East Branch Trou	1650	50-Yr	605.40	88.70	94.77		94.98	0.008552	3.70	163.85	48.84	0.35
East Branch Trou	1650	100-Yr	757.90	88.70	96.16		96.31	0.004169	3.21	254.09	168.51	0.26
East Branch Trou	1650	500-Yr	1390.60	88.70	96.85		97.07	0.005761	4.13	402.13	261.67	0.31
East Branch Trou	1600	2-Yr	206.50	88.00	91.34		91.50	0.009762	3.22	64.09	27.94	0.38
East Branch Trou	1600	10-Yr	398.30	88.00	92.74		92.95	0.010260	3.65	109.01	36.62	0.37
East Branch Trou	1600	25-Yr	529.80	88.00	93.69		93.89	0.009034	3.61	146.79	43.43	0.35
East Branch Trou	1600	50-Yr	605.40	88.00	94.40		94.58	0.007396	3.37	179.65	49.25	0.31
East Branch Trou	1600	100-Yr	757.90	88.00	95.99		96.11	0.003551	2.87	271.87	120.75	0.23
East Branch Trou	1600	500-Yr	1390.60	88.00	96.58		96.78	0.005555	3.87	440.62	380.14	0.29
East Branch Trou	1550	2-Yr	206.50	87.66	90.94		91.09	0.006837	3.15	65.64	28.67	0.37
East Branch Trou	1550	10-Yr	398.30	87.66	92.37		92.56	0.005984	3.57	111.50	36.50	0.36
East Branch Trou	1550	25-Yr	529.80	87.66	93.38		93.57	0.004770	3.47	152.62	44.81	0.33
East Branch Trou	1550	50-Yr	605.40	87.66	94.17		94.33	0.003439	3.18	190.64	51.48	0.29
East Branch Trou	1550	100-Yr	757.90	87.66	95.94		96.01	0.001022	2.23	397.84	213.73	0.17
East Branch Trou	1550	500-Yr	1390.60	87.66	96.53		96.62	0.001390	2.79	693.49	561.67	0.20
East Branch Trou	1500	2-Yr	206.50	87.11	90.49		90.65	0.011710	3.20	64.59	29.24	0.38
East Branch Trou	1500	10-Yr	398.30	87.11	91.99		92.18	0.009844	3.49	114.01	36.81	0.35
East Branch Trou	1500	25-Yr	529.80	87.11	93.10		93.26	0.007472	3.27	166.96	82.37	0.30
East Branch Trou	1500	50-Yr	605.40	87.11	94.07		94.14	0.003023	2.24	277.02	139.16	0.20
East Branch Trou	1500	100-Yr	757.90	87.11	95.95		95.97	0.000376	1.02	689.62	299.26	0.07
East Branch Trou	1500	500-Yr	1390.60	87.11	96.53		96.56	0.000650	1.42	1017.62	643.30	0.10
East Branch Trou	1450	2-Yr	206.50	86.55	90.00		90.15	0.008519	3.09	66.79	29.09	0.36
East Branch Trou	1450	10-Yr	398.30	86.55	91.58		91.75	0.007566	3.34	119.07	37.37	0.33
East Branch Trou	1450	25-Yr	529.80	86.55	92.93		93.00	0.003207	2.32	234.48	120.14	0.21
East Branch Trou	1450	50-Yr	605.40	86.55	94.01		94.05	0.000965	1.51	386.77	162.75	0.12
East Branch Trou	1450	100-Yr	757.90	86.55	95.94		95.95	0.000193	0.84	834.07	353.78	0.06
East Branch Trou	1450	500-Yr	1390.60	86.55	96.50		96.53	0.000369	1.23	1069.46	448.98	0.08
East Branch Trou	1400	2-Yr	206.50	86.00	89.63		89.78	0.006649	3.11	66.37	27.69	0.35
East Branch Trou	1400	10-Yr	398.30	86.00	91.51		91.56	0.001614	1.75	222.08	120.70	0.17
East Branch Trou	1400	25-Yr	529.80	86.00	92.92		92.94	0.000436	1.14	418.79	164.73	0.09
East Branch Trou	1400	50-Yr	605.40	86.00	94.01		94.03	0.000188	0.86	619.07	250.61	0.06
East Branch Trou	1400	100-Yr	757.90	86.00	95.94		95.94	0.000061	0.59	1071.48	364.44	0.04
East Branch Trou	1400	500-Yr	1390.60	86.00	96.50		96.52	0.000227	1.19	1335.52	564.96	0.07
East Branch Trou	1350	2-Yr	206.50	85.44	89.38		89.49	0.004603	2.62	78.69	57.07	0.27
East Branch Trou	1350	10-Yr	398.30	85.44	91.44		91.49	0.001345	1.58	239.96	191.14	0.14
East Branch Trou	1350	25-Yr	529.80	85.44	92.89		92.92	0.000443	0.98	428.53	254.06	0.08
East Branch Trou	1350	50-Yr	605.40	85.44	94.00		94.02	0.000202	0.77	611.89	304.23	0.06
East Branch Trou	1350	100-Yr	757.90	85.44	95.93		95.94	0.000071	0.55	1039.92	399.77	0.04
East Branch Trou	1350	500-Yr	1390.60	85.44	96.49		96.50	0.000258	1.11	1330.58	572.66	0.07

HEC-RAS Plan: 03-PC Lindy River: EB Trout Brook Reach: East Branch Trou (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
East Branch Trou	1305	2-Yr	226.00	84.94	89.11	86.81	89.28	0.004273	3.38	66.89	112.07	0.29
East Branch Trou	1305	10-Yr	445.70	84.94	91.03	87.84	91.34	0.005742	4.51	100.31	133.87	0.32
East Branch Trou	1305	25-Yr	596.80	84.94	92.74	88.45	92.87	0.002388	3.26	224.48	260.35	0.21
East Branch Trou	1305	50-Yr	696.40	84.94	93.94	88.83	94.00	0.000783	2.05	397.09	295.09	0.12
East Branch Trou	1305	100-Yr	856.50	84.94	95.91	89.40	95.93	0.000205	1.20	749.64	383.23	0.06
East Branch Trou	1305	500-Yr	1611.60	84.94	96.43	92.81	96.48	0.000836	2.50	995.94	573.72	0.13
East Branch Trou	1200		Culvert									
East Branch Trou	1018	2-Yr	225.90	84.77	88.94		89.04	0.004308	2.53	103.83	183.15	0.27
East Branch Trou	1018	10-Yr	445.70	84.77	90.16		90.27	0.003996	2.90	201.21	223.63	0.28
East Branch Trou	1018	25-Yr	596.70	84.77	90.75		90.87	0.003772	3.12	266.79	252.12	0.28
East Branch Trou	1018	50-Yr	696.50	84.77	91.11		91.23	0.003570	3.22	313.03	268.95	0.27
East Branch Trou	1018	100-Yr	837.80	84.77	91.56		91.69	0.003346	3.33	379.93	292.31	0.27
East Branch Trou	1018	500-Yr	1583.80	84.77	93.09		93.24	0.003211	3.92	665.97	361.85	0.27
East Branch Trou	1000	2-Yr	225.90	84.73	88.87		88.95	0.004723	2.45	109.99	68.39	0.27
East Branch Trou	1000	10-Yr	445.70	84.73	90.09		90.19	0.004228	2.79	210.66	107.06	0.27
East Branch Trou	1000	25-Yr	596.70	84.73	90.69		90.80	0.003898	2.99	284.76	141.90	0.27
East Branch Trou	1000	50-Yr	696.50	84.73	91.05		91.16	0.003583	3.04	339.72	161.03	0.26
East Branch Trou	1000	100-Yr	837.80	84.73	91.51		91.62	0.003213	3.08	419.37	183.43	0.25
East Branch Trou	1000	500-Yr	1583.80	84.73	93.05		93.17	0.002909	3.54	761.98	264.39	0.25
East Branch Trou	950	2-Yr	225.90	84.60	88.70		88.79	0.002349	2.51	108.46	70.83	0.27
East Branch Trou	950	10-Yr	445.70	84.60	89.92		90.03	0.002628	2.84	220.88	112.83	0.27
East Branch Trou	950	25-Yr	596.70	84.60	90.53		90.64	0.002492	3.04	302.28	152.90	0.27
East Branch Trou	950	50-Yr	696.50	84.60	90.90		91.02	0.002263	3.08	363.56	171.42	0.26
East Branch Trou	950	100-Yr	837.80	84.60	91.38		91.49	0.002023	3.13	449.98	191.49	0.25
East Branch Trou	950	500-Yr	1583.80	84.60	92.94		93.06	0.001745	3.52	821.85	296.71	0.25
East Branch Trou	900	2-Yr	225.90	84.48	88.55		88.65	0.003434	2.57	105.35	73.07	0.28
East Branch Trou	900	10-Yr	445.70	84.48	89.77		89.88	0.003443	2.85	212.92	103.20	0.27
East Branch Trou	900	25-Yr	596.70	84.48	90.38		90.50	0.003340	3.05	283.15	131.25	0.27
East Branch Trou	900	50-Yr	696.50	84.48	90.77		90.88	0.003092	3.12	338.06	152.60	0.26
East Branch Trou	900	100-Yr	837.80	84.48	91.26		91.37	0.002796	3.19	419.12	179.05	0.26
East Branch Trou	900	500-Yr	1583.80	84.48	92.86		92.96	0.002110	3.35	803.21	311.06	0.23
East Branch Trou	850	2-Yr	225.90	84.36	88.21		88.35	0.012033	3.03	79.66	52.00	0.34
East Branch Trou	850	10-Yr	445.70	84.36	89.45		89.60	0.009508	3.31	158.87	75.89	0.32
East Branch Trou	850	25-Yr	596.70	84.36	90.09		90.24	0.008396	3.45	210.93	90.77	0.32
East Branch Trou	850	50-Yr	696.50	84.36	90.49		90.65	0.007767	3.55	251.55	112.88	0.31
East Branch Trou	850	100-Yr	837.80	84.36	91.01		91.16	0.006730	3.58	317.18	140.51	0.29
East Branch Trou	850	500-Yr	1583.80	84.36	92.70		92.82	0.004063	3.43	676.07	298.14	0.24
East Branch Trou	800	2-Yr	225.90	84.23	87.82		87.94	0.005856	2.81	80.98	39.36	0.30
East Branch Trou	800	10-Yr	445.70	84.23	89.20		89.31	0.003622	2.64	166.96	74.77	0.25
East Branch Trou	800	25-Yr	596.70	84.23	89.89		90.00	0.002812	2.54	222.05	85.70	0.22
East Branch Trou	800	50-Yr	696.50	84.23	90.31		90.42	0.002606	2.60	261.42	103.25	0.22
East Branch Trou	800	100-Yr	837.80	84.23	90.86		90.96	0.002285	2.63	325.46	131.25	0.21
East Branch Trou	800	500-Yr	1583.80	84.23	92.58		92.68	0.001874	2.91	673.74	306.19	0.20
East Branch Trou	750	2-Yr	225.90	84.12	87.66		87.77	0.002086	2.65	85.22	33.67	0.28
East Branch Trou	750	10-Yr	445.70	84.12	89.00		89.15	0.002691	3.24	165.06	79.86	0.30
East Branch Trou	750	25-Yr	596.70	84.12	89.70		89.86	0.002763	3.42	227.73	99.62	0.30
East Branch Trou	750	50-Yr	696.50	84.12	90.12		90.29	0.002635	3.49	272.97	115.23	0.29
East Branch Trou	750	100-Yr	837.80	84.12	90.67		90.84	0.002405	3.57	343.29	139.79	0.28
East Branch Trou	750	500-Yr	1583.80	84.12	92.39		92.57	0.002093	4.07	699.01	356.63	0.28
East Branch Trou	700	2-Yr	225.90	84.00	87.51		87.64	0.003065	3.08	86.87	46.01	0.34
East Branch Trou	700	10-Yr	445.70	84.00	88.82		89.00	0.003727	3.58	166.95	83.15	0.35
East Branch Trou	700	25-Yr	596.70	84.00	89.53		89.71	0.003457	3.67	235.99	110.77	0.33
East Branch Trou	700	50-Yr	696.50	84.00	89.98		90.15	0.003017	3.68	289.39	128.29	0.31
East Branch Trou	700	100-Yr	837.80	84.00	90.55		90.71	0.002611	3.73	370.66	159.38	0.30
East Branch Trou	700	500-Yr	1583.80	84.00	92.30		92.46	0.002019	4.03	764.20	358.53	0.28
East Branch Trou	650	2-Yr	225.90	84.00	87.29		87.42	0.006885	3.00	85.03	43.49	0.33
East Branch Trou	650	10-Yr	445.70	84.00	88.57		88.75	0.006592	3.64	153.94	73.88	0.34
East Branch Trou	650	25-Yr	596.70	84.00	89.31		89.49	0.005523	3.77	219.10	103.21	0.32
East Branch Trou	650	50-Yr	696.50	84.00	89.79		89.96	0.004666	3.72	273.58	121.47	0.30
East Branch Trou	650	100-Yr	837.80	84.00	90.40		90.55	0.003874	3.67	355.08	148.83	0.28
East Branch Trou	650	500-Yr	1583.80	84.00	92.20		92.33	0.002924	3.86	729.60	337.30	0.25
East Branch Trou	600	2-Yr	225.90	84.00	87.05		87.20	0.003040	3.22	80.83	44.39	0.36
East Branch Trou	600	10-Yr	445.70	84.00	88.32		88.55	0.002685	3.99	146.59	63.97	0.36
East Branch Trou	600	25-Yr	596.70	84.00	89.05		89.30	0.002483	4.32	201.53	87.67	0.36
East Branch Trou	600	50-Yr	696.50	84.00	89.54		89.80	0.002211	4.38	249.26	105.85	0.35
East Branch Trou	600	100-Yr	837.80	84.00	90.18		90.41	0.001867	4.36	327.73	161.65	0.32

HEC-RAS Plan: 03-PC Lindy River: EB Trout Brook Reach: East Branch Trou (Continued)

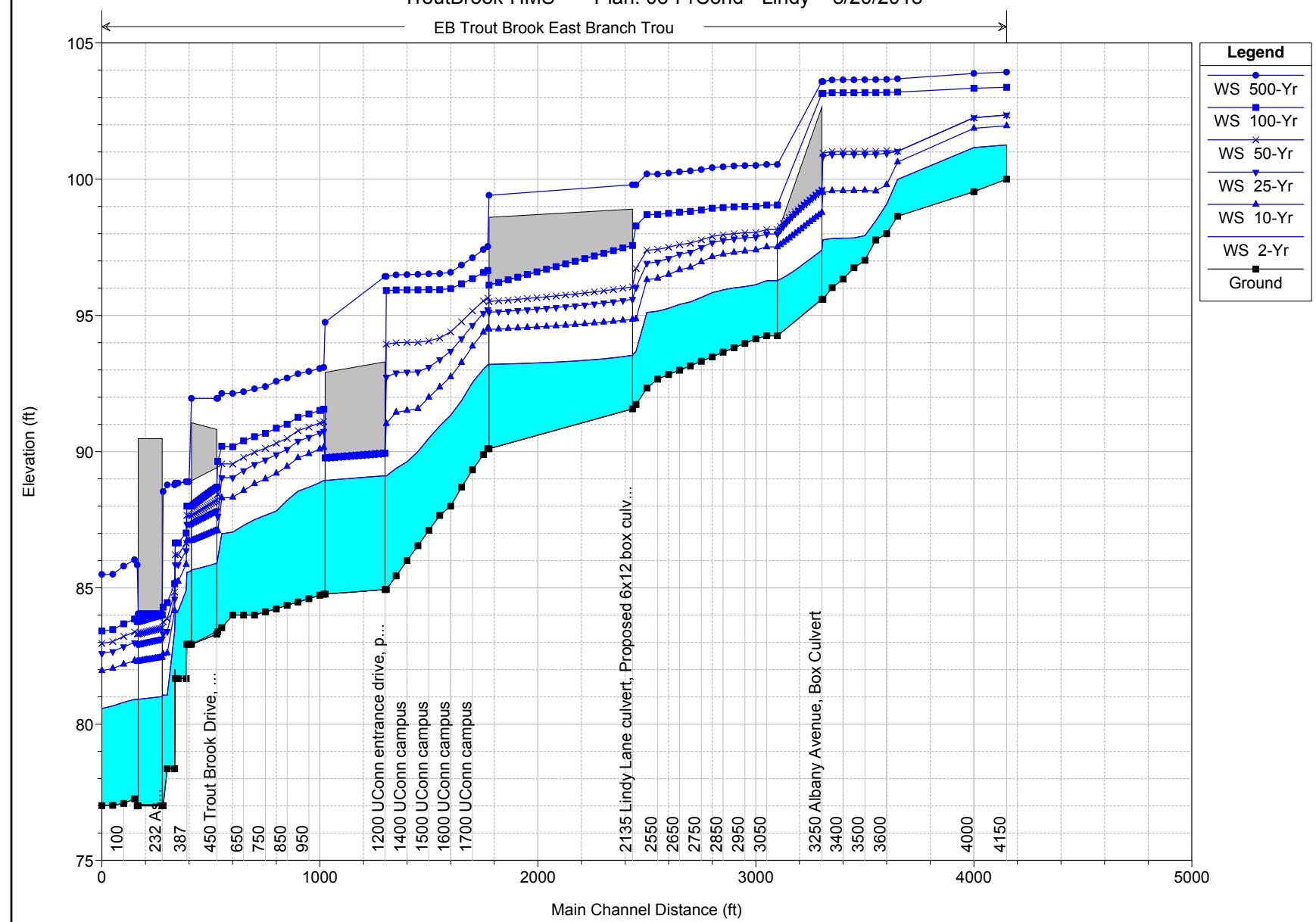
Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
East Branch Trou	600	500-Yr	1583.80	84.00	92.13		92.25	0.000917	3.73	842.11	318.04	0.24
East Branch Trou	550	2-Yr	225.90	83.54	86.99		87.07	0.001554	2.43	98.93	47.27	0.27
East Branch Trou	550	10-Yr	445.70	83.54	88.30		88.42	0.001362	2.98	168.86	70.94	0.27
East Branch Trou	550	25-Yr	596.70	83.54	89.05		89.18	0.001217	3.17	236.13	108.54	0.26
East Branch Trou	550	50-Yr	696.50	83.54	89.56		89.69	0.001070	3.19	297.80	134.25	0.25
East Branch Trou	550	100-Yr	837.80	83.54	90.20		90.32	0.000896	3.15	415.64	265.53	0.23
East Branch Trou	550	500-Yr	1583.80	83.54	92.14		92.20	0.000465	2.75	1083.48	441.63	0.17
East Branch Trou	532	2-Yr	234.30	83.39	86.09	86.09	86.93	0.022399	7.36	31.86	19.25	1.01
East Branch Trou	532	10-Yr	462.40	83.39	87.09	87.09	88.26	0.020205	8.65	53.47	23.32	1.01
East Branch Trou	532	25-Yr	621.80	83.39	87.62	87.62	89.00	0.018537	9.42	66.36	25.45	1.00
East Branch Trou	532	50-Yr	726.30	83.39	88.44	87.92	89.54	0.010605	8.45	92.11	56.14	0.79
East Branch Trou	532	100-Yr	862.40	83.39	89.64	88.58	90.24	0.004417	6.61	212.41	138.48	0.53
East Branch Trou	532	500-Yr	1628.70	83.39	91.95	90.58	92.17	0.001528	5.06	805.80	356.16	0.33
East Branch Trou	450		Culvert									
East Branch Trou	400	2-Yr	234.30	82.93	85.58	84.88	85.94	0.007003	4.84	48.37	23.60	0.60
East Branch Trou	400	10-Yr	462.40	82.93	86.73	85.84	87.29	0.006339	5.99	77.97	27.76	0.60
East Branch Trou	400	25-Yr	621.80	82.93	87.34	86.33	88.03	0.006221	6.70	95.53	30.34	0.62
East Branch Trou	400	50-Yr	726.30	82.93	87.66	86.63	88.45	0.006369	7.17	105.53	31.85	0.63
East Branch Trou	400	100-Yr	862.40	82.93	88.00	86.99	88.94	0.006759	7.81	116.76	33.47	0.66
East Branch Trou	400	500-Yr	1628.70	82.93	88.90	88.90	91.10	0.012523	12.04	153.04	47.56	0.93
East Branch Trou	387		Inl Struct									
East Branch Trou	350	2-Yr	234.30	81.67	84.15	82.97	84.26	0.002032	2.62	89.50	45.03	0.33
East Branch Trou	350	10-Yr	462.40	81.67	85.24	83.59	85.40	0.002052	3.26	141.68	51.32	0.35
East Branch Trou	350	25-Yr	621.80	81.67	85.85	83.95	86.05	0.002045	3.57	174.39	55.06	0.35
East Branch Trou	350	50-Yr	726.30	81.67	86.22	84.16	86.43	0.001974	3.73	194.95	57.68	0.35
East Branch Trou	350	100-Yr	862.40	81.67	86.65	84.43	86.89	0.001881	3.94	220.73	61.73	0.35
East Branch Trou	350	500-Yr	1628.70	81.67	88.85	85.66	89.18	0.001463	4.67	383.19	92.16	0.33
East Branch Trou	335.5		Inl Struct									
East Branch Trou	300	2-Yr	234.10	78.36	81.06		81.20	0.002637	3.02	77.52	38.02	0.37
East Branch Trou	300	10-Yr	460.50	78.36	82.61		82.77	0.001712	3.22	143.14	45.75	0.32
East Branch Trou	300	25-Yr	620.20	78.36	83.40		83.58	0.001576	3.44	180.39	48.75	0.32
East Branch Trou	300	50-Yr	724.50	78.36	83.87		84.07	0.001504	3.55	203.92	50.49	0.31
East Branch Trou	300	100-Yr	860.80	78.36	84.46		84.67	0.001444	3.68	234.17	53.31	0.31
East Branch Trou	300	500-Yr	1627.00	78.36	88.78		88.95	0.000511	3.28	538.08	109.82	0.20
East Branch Trou	281	2-Yr	234.10	77.00	81.07	78.39	81.15	0.001154	2.30	101.68	25.00	0.20
East Branch Trou	281	10-Yr	460.50	77.00	82.57	79.19	82.74	0.001807	3.29	140.47	27.81	0.25
East Branch Trou	281	25-Yr	620.20	77.00	83.31	79.66	83.54	0.002155	3.89	161.96	30.89	0.28
East Branch Trou	281	50-Yr	724.50	77.00	83.75	79.96	84.03	0.002320	4.23	176.05	32.88	0.29
East Branch Trou	281	100-Yr	860.80	77.00	84.29	80.32	84.62	0.002493	4.62	194.52	35.59	0.31
East Branch Trou	281	500-Yr	1627.00	77.00	88.53	82.13	88.91	0.001629	5.10	409.51	95.69	0.27
East Branch Trou	232		Culvert									
East Branch Trou	162	2-Yr	234.10	77.00	80.91		81.01	0.001344	2.50	93.79	23.99	0.22
East Branch Trou	162	10-Yr	460.50	77.00	82.30		82.50	0.002075	3.62	127.25	24.92	0.28
East Branch Trou	162	25-Yr	620.20	77.00	82.94		83.23	0.002680	4.35	143.77	26.78	0.31
East Branch Trou	162	50-Yr	724.50	77.00	83.31		83.67	0.003063	4.76	155.11	32.58	0.34
East Branch Trou	162	100-Yr	860.80	77.00	83.76		84.19	0.003381	5.25	170.85	37.44	0.36
East Branch Trou	162	500-Yr	1627.00	77.00	85.85		86.61	0.004354	7.17	268.47	55.38	0.43
East Branch Trou	150	2-Yr	234.10	77.26	80.91		80.98	0.001025	2.19	106.79	40.29	0.24
East Branch Trou	150	10-Yr	460.50	77.26	82.33		82.44	0.001025	2.73	168.98	47.11	0.25
East Branch Trou	150	25-Yr	620.20	77.26	82.99		83.14	0.001068	3.11	201.18	49.81	0.26
East Branch Trou	150	50-Yr	724.50	77.26	83.38		83.56	0.001091	3.33	221.01	51.45	0.27
East Branch Trou	150	100-Yr	860.80	77.26	83.86		84.05	0.001118	3.59	245.74	53.43	0.28
East Branch Trou	150	500-Yr	1627.00	77.26	86.03		86.37	0.001210	4.71	372.07	62.72	0.31
East Branch Trou	100	2-Yr	234.10	77.09	80.80		80.92	0.001628	2.74	85.54	33.26	0.30
East Branch Trou	100	10-Yr	460.50	77.09	82.20		82.37	0.001649	3.36	137.32	40.68	0.32
East Branch Trou	100	25-Yr	620.20	77.09	82.84		83.07	0.001691	3.81	164.68	44.22	0.33
East Branch Trou	100	50-Yr	724.50	77.09	83.22		83.48	0.001714	4.07	181.89	46.36	0.34
East Branch Trou	100	100-Yr	860.80	77.09	83.68		83.98	0.001740	4.37	203.75	48.95	0.35
East Branch Trou	100	500-Yr	1627.00	77.09	85.80		86.28	0.001816	5.66	319.22	60.60	0.38
East Branch Trou	50	2-Yr	234.10	77.02	80.67		80.82	0.002166	3.13	74.81	29.22	0.34
East Branch Trou	50	10-Yr	460.50	77.02	82.04		82.27	0.002271	3.86	119.29	35.59	0.37
East Branch Trou	50	25-Yr	620.20	77.02	82.66		82.96	0.002351	4.39	142.39	38.67	0.39
East Branch Trou	50	50-Yr	724.50	77.02	83.03		83.37	0.002394	4.70	156.87	40.48	0.40
East Branch Trou	50	100-Yr	860.80	77.02	83.47		83.86	0.002445	5.06	175.18	42.66	0.41

HEC-RAS Plan: 03-PC Lindy River: EB Trout Brook Reach: East Branch Trou (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
East Branch Trou	50	500-Yr	1627.00	77.02	85.50		86.16	0.002600	6.59	273.13	54.15	0.44
East Branch Trou	0	2-Yr	234.10	77.01	80.58	78.95	80.71	0.002003	2.94	79.70	32.76	0.33
East Branch Trou	0	10-Yr	460.50	77.01	81.96	79.83	82.15	0.002002	3.52	130.65	40.66	0.35
East Branch Trou	0	25-Yr	620.20	77.01	82.59	80.33	82.84	0.002002	3.96	157.49	44.25	0.36
East Branch Trou	0	50-Yr	724.50	77.01	82.97	80.61	83.24	0.001998	4.21	174.42	46.39	0.36
East Branch Trou	0	100-Yr	860.80	77.01	83.42	80.96	83.73	0.002001	4.51	195.83	48.96	0.37
East Branch Trou	0	500-Yr	1627.00	77.01	85.49	82.44	86.00	0.002000	5.77	312.18	64.00	0.39

TroutBrook-HMS Plan: 03-PrCond - Lindy 8/20/2018

EB Trout Brook East Branch Trou



HEC-RAS Plan: 04-PC Albany River: EB Trout Brook Reach: East Branch Trou

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
East Branch Trou	4150	2-Yr	44.84	100.00	101.26		101.27	0.000664	0.82	67.93	91.16	0.14
East Branch Trou	4150	10-Yr	110.30	100.00	101.96		101.98	0.000645	1.12	148.40	137.25	0.15
East Branch Trou	4150	25-Yr	165.80	100.00	102.36		102.38	0.000673	1.31	208.45	163.96	0.16
East Branch Trou	4150	50-Yr	165.80	100.00	102.36		102.38	0.000673	1.31	208.32	163.91	0.16
East Branch Trou	4150	100-Yr	283.71	100.00	102.82		102.85	0.000926	1.74	290.45	193.89	0.19
East Branch Trou	4150	500-Yr	507.88	100.00	103.63		103.68	0.001000	2.16	469.64	250.03	0.20
East Branch Trou	4000	2-Yr	44.84	99.54	101.16		101.17	0.000631	0.88	83.87	116.01	0.14
East Branch Trou	4000	10-Yr	110.30	99.54	101.86		101.88	0.000634	1.19	184.90	169.66	0.15
East Branch Trou	4000	25-Yr	165.80	99.54	102.26		102.28	0.000695	1.40	314.86	410.99	0.16
East Branch Trou	4000	50-Yr	165.80	99.54	102.26		102.28	0.000697	1.40	314.43	410.94	0.16
East Branch Trou	4000	100-Yr	283.71	99.54	102.70		102.73	0.000720	1.60	506.46	444.17	0.17
East Branch Trou	4000	500-Yr	507.88	99.54	103.54		103.56	0.000532	1.63	905.43	506.39	0.15
East Branch Trou	3650	2-Yr	44.84	98.64	99.99	99.99	100.35	0.173121	4.81	9.31	13.21	1.01
East Branch Trou	3650	10-Yr	110.30	98.64	100.64	100.64	101.08	0.100406	5.52	23.44	32.26	0.85
East Branch Trou	3650	25-Yr	165.80	98.64	101.02	101.02	101.43	0.073343	5.61	41.14	62.85	0.76
East Branch Trou	3650	50-Yr	165.80	98.64	101.02	101.02	101.43	0.073343	5.61	41.14	62.85	0.76
East Branch Trou	3650	100-Yr	283.71	98.64	101.43	101.43	101.86	0.069041	6.28	72.35	89.49	0.77
East Branch Trou	3650	500-Yr	507.88	98.64	103.16		103.18	0.003182	2.01	466.17	345.02	0.18
East Branch Trou	3600	2-Yr	44.84	98.00	99.08		99.12	0.002984	1.53	29.32	31.83	0.28
East Branch Trou	3600	10-Yr	110.30	98.00	99.68		99.76	0.003704	2.21	49.86	36.46	0.33
East Branch Trou	3600	25-Yr	165.80	98.00	100.02		100.13	0.004309	2.64	63.64	72.71	0.37
East Branch Trou	3600	50-Yr	165.80	98.00	100.03		100.13	0.004289	2.63	63.82	72.83	0.37
East Branch Trou	3600	100-Yr	283.71	98.00	101.19		101.26	0.001474	2.23	203.64	150.13	0.24
East Branch Trou	3600	500-Yr	507.88	98.00	103.12		103.14	0.000385	1.62	637.34	313.61	0.13
East Branch Trou	3550	2-Yr	44.84	97.77	98.47	98.47	98.72	0.043746	4.02	11.60	26.30	0.98
East Branch Trou	3550	10-Yr	110.30	97.77	98.89	98.89	99.30	0.034052	5.26	24.85	37.26	0.96
East Branch Trou	3550	25-Yr	165.80	97.77	99.44		99.75	0.014770	4.70	50.00	58.30	0.68
East Branch Trou	3550	50-Yr	165.80	97.77	99.48		99.77	0.013146	4.53	52.79	60.63	0.64
East Branch Trou	3550	100-Yr	283.71	97.77	101.12		101.18	0.001609	2.57	249.29	154.41	0.25
East Branch Trou	3550	500-Yr	507.88	97.77	103.10		103.12	0.000405	1.78	706.00	322.07	0.14
East Branch Trou	3500	2-Yr	44.84	97.02	97.75		97.80	0.007026	1.89	23.76	35.87	0.41
East Branch Trou	3500	10-Yr	110.30	97.02	98.69		98.73	0.002291	1.62	69.86	68.77	0.26
East Branch Trou	3500	25-Yr	165.80	97.02	99.52		99.55	0.000848	1.39	142.15	103.68	0.17
East Branch Trou	3500	50-Yr	165.80	97.02	99.56		99.59	0.000792	1.36	146.25	105.28	0.17
East Branch Trou	3500	100-Yr	283.71	97.02	101.12		101.14	0.000288	1.19	347.49	144.67	0.11
East Branch Trou	3500	500-Yr	507.88	97.02	103.09		103.11	0.000143	1.12	806.88	335.10	0.08
East Branch Trou	3450	2-Yr	44.84	96.75	97.36		97.42	0.008434	1.88	23.91	41.84	0.44
East Branch Trou	3450	10-Yr	110.30	96.75	98.64		98.66	0.000908	1.19	97.67	79.05	0.17
East Branch Trou	3450	25-Yr	165.80	96.75	99.50		99.52	0.000431	1.10	176.75	102.56	0.13
East Branch Trou	3450	50-Yr	165.80	96.75	99.54		99.56	0.000406	1.08	180.94	103.37	0.12
East Branch Trou	3450	100-Yr	283.71	96.75	101.11		101.13	0.000195	1.04	369.04	134.44	0.09
East Branch Trou	3450	500-Yr	507.88	96.75	103.09		103.10	0.000114	1.04	812.47	317.77	0.08
East Branch Trou	3400	2-Yr	44.84	96.33	97.31		97.32	0.000738	0.76	59.30	65.21	0.14
East Branch Trou	3400	10-Yr	110.30	96.33	98.62		98.63	0.000255	0.70	156.82	91.19	0.09
East Branch Trou	3400	25-Yr	165.80	96.33	99.49		99.50	0.000153	0.71	250.04	125.13	0.08
East Branch Trou	3400	50-Yr	165.80	96.33	99.54		99.54	0.000146	0.70	255.21	127.08	0.07
East Branch Trou	3400	100-Yr	283.71	96.33	101.11		101.12	0.000083	0.71	507.75	195.43	0.06
East Branch Trou	3400	500-Yr	507.88	96.33	103.09		103.09	0.000059	0.78	1007.71	313.42	0.05
East Branch Trou	3350	2-Yr	44.84	96.02	97.26		97.27	0.000921	0.98	45.71	39.81	0.16
East Branch Trou	3350	10-Yr	110.30	96.02	98.60		98.61	0.000469	1.04	112.41	94.87	0.13
East Branch Trou	3350	25-Yr	165.80	96.02	99.48		99.49	0.000287	1.03	214.65	137.89	0.11
East Branch Trou	3350	50-Yr	165.80	96.02	99.52		99.53	0.000272	1.01	220.49	140.30	0.10
East Branch Trou	3350	100-Yr	283.71	96.02	101.10		101.11	0.000133	0.94	505.22	215.85	0.08
East Branch Trou	3350	500-Yr	507.88	96.02	103.08		103.09	0.000077	0.90	1026.73	318.92	0.06
East Branch Trou	3308	2-Yr	44.84	95.59	97.15	96.26	97.20	0.003086	1.94	23.12	15.10	0.28
East Branch Trou	3308	10-Yr	110.30	95.59	98.46	96.79	98.57	0.002840	2.56	43.05	15.38	0.27
East Branch Trou	3308	25-Yr	165.80	95.59	99.32	97.16	99.45	0.002995	2.88	57.48	17.98	0.28
East Branch Trou	3308	50-Yr	165.80	95.59	99.37	97.16	99.49	0.002874	2.84	58.33	18.08	0.28
East Branch Trou	3308	100-Yr	283.71	95.59	100.93	97.83	101.09	0.002280	3.18	99.46	52.90	0.26
East Branch Trou	3308	500-Yr	507.88	95.59	102.97	98.99	103.07	0.001180	2.93	405.64	253.99	0.20
East Branch Trou	3250		Culvert									
East Branch Trou	3050	2-Yr	44.52	94.25	96.30		96.34	0.001722	1.67	30.21	33.33	0.22
East Branch Trou	3050	10-Yr	108.33	94.25	97.62		97.66	0.000949	1.79	125.93	141.30	0.18
East Branch Trou	3050	25-Yr	160.40	94.25	98.30		98.32	0.000602	1.62	232.72	174.25	0.15
East Branch Trou	3050	50-Yr	160.40	94.25	98.42		98.44	0.000490	1.49	254.10	179.05	0.13
East Branch Trou	3050	100-Yr	255.03	94.25	99.63		99.64	0.000228	1.22	499.38	225.48	0.09
East Branch Trou	3050	500-Yr	391.69	94.25	100.55		100.56	0.000195	1.26	735.14	282.41	0.09

HEC-RAS Plan: 04-PC Albany River: EB Trout Brook Reach: East Branch Trou (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
East Branch Trou	3000	2-Yr	44.52	94.14	96.15		96.22	0.003272	2.04	21.84	16.52	0.31
East Branch Trou	3000	10-Yr	108.33	94.14	97.50		97.58	0.001932	2.24	49.97	28.67	0.26
East Branch Trou	3000	25-Yr	160.40	94.14	98.16		98.25	0.001715	2.49	86.48	122.82	0.26
East Branch Trou	3000	50-Yr	160.40	94.14	98.31		98.38	0.001361	2.30	104.96	130.08	0.23
East Branch Trou	3000	100-Yr	255.03	94.14	99.59		99.62	0.000506	1.76	311.10	189.66	0.15
East Branch Trou	3000	500-Yr	391.69	94.14	100.51		100.54	0.000375	1.72	504.59	225.69	0.13
East Branch Trou	2950	2-Yr	44.52	93.97	96.08		96.11	0.001287	1.39	31.93	20.02	0.19
East Branch Trou	2950	10-Yr	108.33	93.97	97.47		97.49	0.001135	1.33	81.48	51.79	0.19
East Branch Trou	2950	25-Yr	160.40	93.97	98.15		98.18	0.000773	1.32	129.58	107.57	0.16
East Branch Trou	2950	50-Yr	160.40	93.97	98.30		98.32	0.000598	1.21	146.24	114.89	0.14
East Branch Trou	2950	100-Yr	255.03	93.97	99.58		99.60	0.000241	1.04	334.36	178.71	0.10
East Branch Trou	2950	500-Yr	391.69	93.97	100.51		100.52	0.000196	1.10	517.08	208.78	0.09
East Branch Trou	2900	2-Yr	44.52	93.81	96.03		96.06	0.000829	1.18	37.63	23.00	0.16
East Branch Trou	2900	10-Yr	108.33	93.81	97.42		97.45	0.000794	1.29	83.67	43.18	0.16
East Branch Trou	2900	25-Yr	160.40	93.81	98.11		98.14	0.000708	1.37	118.96	75.17	0.16
East Branch Trou	2900	50-Yr	160.40	93.81	98.27		98.29	0.000563	1.28	131.65	86.38	0.14
East Branch Trou	2900	100-Yr	255.03	93.81	99.56		99.58	0.000268	1.17	295.89	163.19	0.11
East Branch Trou	2900	500-Yr	391.69	93.81	100.50		100.51	0.000209	1.20	529.00	343.05	0.10
East Branch Trou	2850	2-Yr	44.52	93.65	95.96		96.00	0.001674	1.61	27.66	18.98	0.24
East Branch Trou	2850	10-Yr	108.33	93.65	97.36		97.40	0.001270	1.60	67.58	36.91	0.21
East Branch Trou	2850	25-Yr	160.40	93.65	98.05		98.10	0.001055	1.67	96.25	47.75	0.20
East Branch Trou	2850	50-Yr	160.40	93.65	98.22		98.26	0.000828	1.55	104.96	56.45	0.18
East Branch Trou	2850	100-Yr	255.03	93.65	99.53		99.57	0.000421	1.48	225.49	128.25	0.14
East Branch Trou	2850	500-Yr	391.69	93.65	100.47		100.50	0.000347	1.56	432.52	315.17	0.13
East Branch Trou	2800	2-Yr	44.52	93.48	95.85		95.90	0.001981	1.84	24.21	15.41	0.26
East Branch Trou	2800	10-Yr	108.33	93.48	97.26		97.32	0.001816	1.92	56.41	30.62	0.25
East Branch Trou	2800	25-Yr	160.40	93.48	97.97		98.03	0.001629	1.98	80.89	38.43	0.24
East Branch Trou	2800	50-Yr	160.40	93.48	98.16		98.21	0.001226	1.82	88.67	44.77	0.21
East Branch Trou	2800	100-Yr	255.03	93.48	99.50		99.54	0.000593	1.72	185.48	99.24	0.16
East Branch Trou	2800	500-Yr	391.69	93.48	100.44		100.48	0.000461	1.77	364.26	298.78	0.15
East Branch Trou	2750	2-Yr	44.52	93.32	95.68		95.77	0.003512	2.47	18.05	10.32	0.33
East Branch Trou	2750	10-Yr	108.33	93.32	97.06		97.18	0.004123	2.81	38.56	20.57	0.36
East Branch Trou	2750	25-Yr	160.40	93.32	97.77		97.90	0.003769	2.89	55.49	26.63	0.35
East Branch Trou	2750	50-Yr	160.40	93.32	98.01		98.11	0.002920	2.59	61.99	29.06	0.31
East Branch Trou	2750	100-Yr	255.03	93.32	99.41		99.49	0.001244	2.36	132.10	71.34	0.22
East Branch Trou	2750	500-Yr	391.69	93.32	100.37		100.44	0.000935	2.40	280.79	291.93	0.20
East Branch Trou	2700	2-Yr	44.52	93.15	95.51		95.60	0.003314	2.39	18.66	10.81	0.32
East Branch Trou	2700	10-Yr	108.33	93.15	96.85		96.98	0.004026	2.87	37.80	19.20	0.36
East Branch Trou	2700	25-Yr	160.40	93.15	97.58		97.72	0.003776	2.99	53.72	24.51	0.36
East Branch Trou	2700	50-Yr	160.40	93.15	97.86		97.97	0.002757	2.63	61.04	26.68	0.31
East Branch Trou	2700	100-Yr	255.03	93.15	99.35		99.43	0.001453	2.25	115.99	48.47	0.23
East Branch Trou	2700	500-Yr	391.69	93.15	100.32		100.39	0.001018	2.28	257.33	356.86	0.20
East Branch Trou	2650	2-Yr	44.52	92.99	95.41		95.46	0.001929	1.79	24.85	15.51	0.25
East Branch Trou	2650	10-Yr	108.33	92.99	96.75		96.82	0.001973	2.15	50.44	23.93	0.26
East Branch Trou	2650	25-Yr	160.40	92.99	97.49		97.57	0.001949	2.29	70.12	29.80	0.26
East Branch Trou	2650	50-Yr	160.40	92.99	97.80		97.86	0.001416	2.01	79.87	32.44	0.23
East Branch Trou	2650	100-Yr	255.03	92.99	99.31		99.37	0.000761	1.86	140.95	48.84	0.18
East Branch Trou	2650	500-Yr	391.69	92.99	100.29		100.35	0.000653	2.03	288.26	399.82	0.17
East Branch Trou	2600	2-Yr	44.52	92.83	95.27		95.35	0.002718	2.22	20.08	11.46	0.30
East Branch Trou	2600	10-Yr	108.33	92.83	96.56		96.69	0.003750	2.84	38.18	18.88	0.35
East Branch Trou	2600	25-Yr	160.40	92.83	97.29		97.43	0.003787	2.94	54.55	25.80	0.36
East Branch Trou	2600	50-Yr	160.40	92.83	97.67		97.77	0.002524	2.47	64.93	29.44	0.29
East Branch Trou	2600	100-Yr	255.03	92.83	99.25		99.32	0.001182	2.07	123.78	45.21	0.21
East Branch Trou	2600	500-Yr	391.69	92.83	100.24		100.31	0.000919	2.21	253.02	394.65	0.20
East Branch Trou	2550	2-Yr	44.52	92.66	95.16		95.22	0.002223	1.99	22.33	12.88	0.27
East Branch Trou	2550	10-Yr	108.33	92.66	96.41		96.51	0.002927	2.62	41.31	19.11	0.31
East Branch Trou	2550	25-Yr	160.40	92.66	97.13		97.25	0.003135	2.79	57.55	25.63	0.33
East Branch Trou	2550	50-Yr	160.40	92.66	97.57		97.65	0.002016	2.31	69.51	29.54	0.27
East Branch Trou	2550	100-Yr	255.03	92.66	99.21		99.26	0.000940	1.94	137.87	67.58	0.19
East Branch Trou	2550	500-Yr	391.69	92.66	100.20		100.26	0.000736	2.06	288.56	390.46	0.18
East Branch Trou	2500	2-Yr	44.52	92.33	95.11		95.14	0.000911	1.34	33.11	17.45	0.17
East Branch Trou	2500	10-Yr	108.33	92.33	96.35		96.40	0.001415	1.85	58.64	26.53	0.22
East Branch Trou	2500	25-Yr	160.40	92.33	97.07		97.13	0.001500	1.98	81.02	35.31	0.23
East Branch Trou	2500	50-Yr	160.40	92.33	97.53		97.58	0.000814	1.65	98.86	41.38	0.17
East Branch Trou	2500	100-Yr	255.03	92.33	99.20		99.23	0.000370	1.51	219.12	162.49	0.13
East Branch Trou	2500	500-Yr	391.69	92.33	100.21		100.23	0.000247	1.42	452.81	391.28	0.11

HEC-RAS Plan: 04-PC Albany River: EB Trout Brook Reach: East Branch Trou (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
East Branch Trou	2450	2-Yr	209.90	91.73	93.68	93.68	94.57	0.035550	7.56	27.76	15.81	1.01
East Branch Trou	2450	10-Yr	405.57	91.73	94.90	94.90	95.87	0.023710	8.06	55.78	34.01	0.87
East Branch Trou	2450	25-Yr	567.08	91.73	96.27	95.49	96.80	0.010666	6.26	107.85	42.56	0.61
East Branch Trou	2450	50-Yr	659.38	91.73	96.88	95.75	97.34	0.007875	5.84	135.65	47.42	0.54
East Branch Trou	2450	100-Yr	876.66	91.73	98.87	96.32	99.13	0.002851	4.68	303.61	151.31	0.35
East Branch Trou	2450	500-Yr	1395.40	91.73	99.83	97.21	100.14	0.003143	5.46	473.60	203.83	0.37
East Branch Trou	2135		Culvert									
East Branch Trou	1770	2-Yr	206.67	90.11	93.19		93.42	0.011585	3.90	52.93	23.72	0.46
East Branch Trou	1770	10-Yr	404.58	90.11	94.56		94.88	0.010495	4.53	89.82	29.83	0.44
East Branch Trou	1770	25-Yr	556.40	90.11	95.34		95.73	0.009593	5.00	114.33	33.14	0.44
East Branch Trou	1770	50-Yr	620.54	90.11	95.71		96.11	0.008820	5.08	126.88	34.67	0.43
East Branch Trou	1770	100-Yr	868.78	90.11	96.77		97.16	0.007080	5.26	195.66	120.84	0.40
East Branch Trou	1770	500-Yr	1390.61	90.11	97.53		97.92	0.006806	5.62	300.27	140.00	0.40
East Branch Trou	1750	2-Yr	206.67	89.89	93.03		93.19	0.008567	3.26	63.37	26.40	0.37
East Branch Trou	1750	10-Yr	404.58	89.89	94.42		94.65	0.008792	3.87	104.75	32.96	0.37
East Branch Trou	1750	25-Yr	556.40	89.89	95.22		95.50	0.008045	4.28	132.62	36.46	0.37
East Branch Trou	1750	50-Yr	620.54	89.89	95.60		95.90	0.007379	4.35	147.03	38.15	0.36
East Branch Trou	1750	100-Yr	868.78	89.89	96.68		96.99	0.006273	4.62	214.56	121.47	0.34
East Branch Trou	1750	500-Yr	1390.61	89.89	97.42		97.76	0.006693	5.18	314.98	140.00	0.36
East Branch Trou	1700	2-Yr	206.67	89.33	92.54		92.71	0.010908	3.34	61.93	26.87	0.39
East Branch Trou	1700	10-Yr	404.58	89.33	93.91		94.15	0.011633	3.90	103.68	34.01	0.39
East Branch Trou	1700	25-Yr	556.40	89.33	94.79		95.06	0.009543	4.13	136.84	41.20	0.37
East Branch Trou	1700	50-Yr	620.54	89.33	95.24		95.50	0.008163	4.10	156.00	44.97	0.35
East Branch Trou	1700	100-Yr	868.78	89.33	96.39		96.66	0.006542	4.30	227.87	119.55	0.32
East Branch Trou	1700	500-Yr	1390.61	89.33	97.11		97.41	0.007003	4.83	353.20	206.85	0.34
East Branch Trou	1650	2-Yr	206.67	88.70	91.88		92.09	0.013789	3.73	55.35	27.61	0.46
East Branch Trou	1650	10-Yr	404.58	88.70	93.31		93.56	0.011809	3.96	102.06	37.34	0.42
East Branch Trou	1650	25-Yr	556.40	88.70	94.32		94.56	0.010100	3.89	142.97	44.48	0.38
East Branch Trou	1650	50-Yr	620.54	88.70	94.86		95.07	0.008333	3.69	168.20	49.73	0.35
East Branch Trou	1650	100-Yr	868.78	88.70	96.12		96.34	0.005664	3.73	248.42	154.69	0.30
East Branch Trou	1650	500-Yr	1390.61	88.70	96.84		97.07	0.005765	4.13	401.30	257.80	0.31
East Branch Trou	1600	2-Yr	206.67	88.00	91.34		91.50	0.009759	3.22	64.13	27.94	0.38
East Branch Trou	1600	10-Yr	404.58	88.00	92.79		93.00	0.010205	3.65	110.76	36.97	0.37
East Branch Trou	1600	25-Yr	556.40	88.00	93.88		94.08	0.008680	3.58	155.32	44.75	0.34
East Branch Trou	1600	50-Yr	620.54	88.00	94.49		94.67	0.007338	3.37	184.38	50.16	0.31
East Branch Trou	1600	100-Yr	868.78	88.00	95.88		96.06	0.005026	3.37	262.92	68.76	0.27
East Branch Trou	1600	500-Yr	1390.61	88.00	96.57		96.78	0.005619	3.89	438.13	379.19	0.29
East Branch Trou	1550	2-Yr	206.67	87.66	90.94		91.09	0.006834	3.15	65.69	28.67	0.37
East Branch Trou	1550	10-Yr	404.58	87.66	92.42		92.62	0.005919	3.57	113.38	36.91	0.36
East Branch Trou	1550	25-Yr	556.40	87.66	93.59		93.77	0.004497	3.43	162.22	46.51	0.32
East Branch Trou	1550	50-Yr	620.54	87.66	94.27		94.43	0.003310	3.17	195.91	52.49	0.28
East Branch Trou	1550	100-Yr	868.78	87.66	95.81		95.91	0.001545	2.70	373.32	173.40	0.20
East Branch Trou	1550	500-Yr	1390.61	87.66	96.53		96.62	0.001408	2.80	689.45	561.22	0.20
East Branch Trou	1500	2-Yr	206.67	87.11	90.50		90.65	0.011699	3.20	64.65	29.25	0.38
East Branch Trou	1500	10-Yr	404.58	87.11	92.05		92.24	0.009703	3.49	116.09	37.13	0.35
East Branch Trou	1500	25-Yr	556.40	87.11	93.35		93.49	0.006370	3.07	190.06	100.70	0.28
East Branch Trou	1500	50-Yr	620.54	87.11	94.18		94.25	0.002663	2.14	293.60	145.15	0.18
East Branch Trou	1500	100-Yr	868.78	87.11	95.81		95.84	0.000580	1.24	650.40	287.89	0.09
East Branch Trou	1500	500-Yr	1390.61	87.11	96.52		96.55	0.000657	1.43	1012.98	642.01	0.10
East Branch Trou	1450	2-Yr	206.67	86.55	90.01		90.16	0.008508	3.09	66.87	29.11	0.36
East Branch Trou	1450	10-Yr	404.58	86.55	91.64		91.81	0.007426	3.33	121.46	37.70	0.33
East Branch Trou	1450	25-Yr	556.40	86.55	93.23		93.29	0.002263	2.05	272.55	131.02	0.18
East Branch Trou	1450	50-Yr	620.54	86.55	94.14		94.17	0.000898	1.48	407.61	173.98	0.12
East Branch Trou	1450	100-Yr	868.78	86.55	95.80		95.82	0.000289	1.02	788.54	306.43	0.07
East Branch Trou	1450	500-Yr	1390.61	86.55	96.50		96.53	0.000372	1.23	1066.22	444.34	0.08
East Branch Trou	1400	2-Yr	206.67	86.00	89.63		89.78	0.006635	3.11	66.47	27.71	0.35
East Branch Trou	1400	10-Yr	404.58	86.00	91.59		91.63	0.001478	1.69	231.09	122.78	0.16
East Branch Trou	1400	25-Yr	556.40	86.00	93.22		93.24	0.000344	1.05	470.78	175.06	0.08
East Branch Trou	1400	50-Yr	620.54	86.00	94.13		94.15	0.000187	0.86	644.87	269.60	0.06
East Branch Trou	1400	100-Yr	868.78	86.00	95.80		95.81	0.000089	0.70	1036.07	357.10	0.04
East Branch Trou	1400	500-Yr	1390.61	86.00	96.49		96.51	0.000229	1.19	1331.37	564.73	0.07
East Branch Trou	1350	2-Yr	206.67	85.44	89.39		89.49	0.004594	2.62	78.80	57.21	0.27
East Branch Trou	1350	10-Yr	404.58	85.44	91.52		91.56	0.001245	1.52	249.05	194.22	0.14
East Branch Trou	1350	25-Yr	556.40	85.44	93.20		93.23	0.000356	0.92	476.42	268.50	0.07
East Branch Trou	1350	50-Yr	620.54	85.44	94.12		94.14	0.000194	0.76	634.56	314.78	0.06
East Branch Trou	1350	100-Yr	868.78	85.44	95.79		95.80	0.000103	0.66	1006.03	394.55	0.04
East Branch Trou	1350	500-Yr	1390.61	85.44	96.48		96.50	0.000260	1.11	1326.30	572.47	0.07

HEC-RAS Plan: 04-PC Albany River: EB Trout Brook Reach: East Branch Trou (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
East Branch Trou	1305	2-Yr	226.42	84.94	89.11	86.81	89.29	0.004279	3.38	66.95	112.10	0.29
East Branch Trou	1305	10-Yr	454.46	84.94	91.11	87.88	91.43	0.005732	4.52	102.15	135.19	0.32
East Branch Trou	1305	25-Yr	626.38	84.94	93.09	88.57	93.19	0.001673	2.81	273.05	271.39	0.17
East Branch Trou	1305	50-Yr	706.53	84.94	94.07	88.87	94.12	0.000726	2.00	416.70	305.09	0.12
East Branch Trou	1305	100-Yr	984.40	84.94	95.76	89.84	95.80	0.000303	1.45	721.21	369.62	0.08
East Branch Trou	1305	500-Yr	1611.57	84.94	96.42	92.81	96.47	0.000847	2.51	991.26	569.80	0.13
East Branch Trou	1200		Culvert									
East Branch Trou	1018	2-Yr	226.32	84.77	88.95		89.04	0.004307	2.53	104.04	183.25	0.27
East Branch Trou	1018	10-Yr	454.33	84.77	90.20		90.31	0.003997	2.92	204.78	225.38	0.28
East Branch Trou	1018	25-Yr	626.36	84.77	90.85		90.98	0.003736	3.16	279.61	257.08	0.28
East Branch Trou	1018	50-Yr	706.53	84.77	91.14		91.27	0.003541	3.22	318.22	270.90	0.27
East Branch Trou	1018	100-Yr	931.08	84.77	91.85		91.97	0.003170	3.37	426.58	305.67	0.26
East Branch Trou	1018	500-Yr	1583.76	84.77	93.09		93.24	0.003211	3.92	665.94	361.85	0.27
East Branch Trou	1000	2-Yr	226.32	84.73	88.87		88.95	0.004720	2.45	110.22	68.50	0.27
East Branch Trou	1000	10-Yr	454.33	84.73	90.13		90.23	0.004231	2.81	214.55	109.39	0.27
East Branch Trou	1000	25-Yr	626.36	84.73	90.79		90.90	0.003830	3.02	299.80	147.47	0.27
East Branch Trou	1000	50-Yr	706.53	84.73	91.09		91.20	0.003540	3.04	345.95	163.07	0.26
East Branch Trou	1000	100-Yr	931.08	84.73	91.80		91.90	0.002990	3.09	475.06	198.38	0.24
East Branch Trou	1000	500-Yr	1583.76	84.73	93.05		93.17	0.002909	3.54	761.95	264.38	0.25
East Branch Trou	950	2-Yr	226.32	84.60	88.70		88.79	0.002350	2.51	108.69	70.98	0.27
East Branch Trou	950	10-Yr	454.33	84.60	89.96		90.06	0.002615	2.85	225.06	114.04	0.27
East Branch Trou	950	25-Yr	626.36	84.60	90.63		90.75	0.002452	3.07	318.87	159.54	0.27
East Branch Trou	950	50-Yr	706.53	84.60	90.94		91.06	0.002233	3.08	370.53	173.28	0.26
East Branch Trou	950	100-Yr	931.08	84.60	91.68		91.79	0.001883	3.14	509.07	203.81	0.25
East Branch Trou	950	500-Yr	1583.76	84.60	92.94		93.06	0.001745	3.52	821.81	296.70	0.25
East Branch Trou	900	2-Yr	226.32	84.48	88.55		88.65	0.003433	2.57	105.59	73.16	0.28
East Branch Trou	900	10-Yr	454.33	84.48	89.81		89.91	0.003428	2.86	216.83	104.09	0.27
East Branch Trou	900	25-Yr	626.36	84.48	90.49		90.61	0.003304	3.09	297.60	137.47	0.27
East Branch Trou	900	50-Yr	706.53	84.48	90.81		90.93	0.003056	3.13	344.47	155.20	0.26
East Branch Trou	900	100-Yr	931.08	84.48	91.57		91.68	0.002588	3.20	476.61	193.82	0.25
East Branch Trou	900	500-Yr	1583.76	84.48	92.86		92.96	0.002110	3.35	803.18	311.05	0.23
East Branch Trou	850	2-Yr	226.32	84.36	88.22		88.36	0.012023	3.03	79.84	52.06	0.34
East Branch Trou	850	10-Yr	454.33	84.36	89.49		89.64	0.009439	3.32	161.87	76.65	0.32
East Branch Trou	850	25-Yr	626.36	84.36	90.19		90.35	0.008336	3.50	221.01	96.29	0.32
East Branch Trou	850	50-Yr	706.53	84.36	90.53		90.69	0.007623	3.55	256.81	114.94	0.31
East Branch Trou	850	100-Yr	931.08	84.36	91.34		91.48	0.006025	3.55	366.80	158.85	0.28
East Branch Trou	850	500-Yr	1583.76	84.36	92.70		92.82	0.004063	3.43	676.03	298.14	0.24
East Branch Trou	800	2-Yr	226.32	84.23	87.82		87.94	0.005854	2.81	81.12	39.62	0.30
East Branch Trou	800	10-Yr	454.33	84.23	89.25		89.36	0.003559	2.63	170.19	75.43	0.25
East Branch Trou	800	25-Yr	626.36	84.23	90.00		90.12	0.002749	2.55	231.89	88.18	0.22
East Branch Trou	800	50-Yr	706.53	84.23	90.36		90.47	0.002571	2.60	266.57	105.83	0.22
East Branch Trou	800	100-Yr	931.08	84.23	91.21		91.31	0.002052	2.61	374.64	150.71	0.20
East Branch Trou	800	500-Yr	1583.76	84.23	92.58		92.68	0.001875	2.91	673.70	306.18	0.20
East Branch Trou	750	2-Yr	226.32	84.12	87.67		87.78	0.002087	2.65	85.34	33.85	0.28
East Branch Trou	750	10-Yr	454.33	84.12	89.04		89.20	0.002701	3.26	168.54	81.13	0.30
East Branch Trou	750	25-Yr	626.36	84.12	89.81		89.98	0.002758	3.46	239.26	102.94	0.30
East Branch Trou	750	50-Yr	706.53	84.12	90.17		90.34	0.002601	3.49	278.87	117.22	0.29
East Branch Trou	750	100-Yr	931.08	84.12	91.03		91.19	0.002228	3.60	396.38	160.48	0.28
East Branch Trou	750	500-Yr	1583.76	84.12	92.39		92.57	0.002093	4.07	698.96	356.61	0.28
East Branch Trou	700	2-Yr	226.32	84.00	87.51		87.65	0.003066	3.08	87.04	46.05	0.34
East Branch Trou	700	10-Yr	454.33	84.00	88.86		89.04	0.003728	3.59	170.61	84.67	0.35
East Branch Trou	700	25-Yr	626.36	84.00	89.65		89.82	0.003955	3.70	249.20	115.40	0.33
East Branch Trou	700	50-Yr	706.53	84.00	90.03		90.20	0.002951	3.67	296.36	130.84	0.31
East Branch Trou	700	100-Yr	931.08	84.00	90.92		91.08	0.002365	3.72	433.71	184.43	0.29
East Branch Trou	700	500-Yr	1583.76	84.00	92.30		92.46	0.002019	4.03	764.15	358.53	0.28
East Branch Trou	650	2-Yr	226.32	84.00	87.30		87.43	0.006878	3.00	85.19	43.53	0.33
East Branch Trou	650	10-Yr	454.33	84.00	88.61		88.80	0.006555	3.66	157.15	75.92	0.34
East Branch Trou	650	25-Yr	626.36	84.00	89.43		89.61	0.005373	3.79	232.06	107.59	0.32
East Branch Trou	650	50-Yr	706.53	84.00	89.85		90.02	0.004532	3.70	280.88	123.52	0.30
East Branch Trou	650	100-Yr	931.08	84.00	90.79		90.93	0.003450	3.63	416.51	171.13	0.27
East Branch Trou	650	500-Yr	1583.76	84.00	92.20		92.33	0.002925	3.86	729.55	337.30	0.25
East Branch Trou	600	2-Yr	226.32	84.00	87.05		87.20	0.003033	3.22	81.01	44.43	0.36
East Branch Trou	600	10-Yr	454.33	84.00	88.36		88.59	0.002682	4.02	149.30	65.31	0.36
East Branch Trou	600	25-Yr	626.36	84.00	89.17		89.43	0.002467	4.39	212.22	91.64	0.36
East Branch Trou	600	50-Yr	706.53	84.00	89.61		89.86	0.002154	4.36	256.18	109.09	0.34
East Branch Trou	600	100-Yr	931.08	84.00	90.62		90.82	0.001494	4.10	423.84	236.10	0.29

HEC-RAS Plan: 04-PC Albany River: EB Trout Brook Reach: East Branch Trou (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
East Branch Trou	600	500-Yr	1583.76	84.00	92.13		92.25	0.000917	3.73	842.06	318.04	0.24
East Branch Trou	550	2-Yr	226.32	83.54	86.99		87.08	0.001550	2.42	99.14	47.30	0.27
East Branch Trou	550	10-Yr	454.33	83.54	88.34		88.47	0.001358	3.00	171.98	73.01	0.27
East Branch Trou	550	25-Yr	626.36	83.54	89.17		89.31	0.001204	3.21	249.84	115.13	0.26
East Branch Trou	550	50-Yr	706.53	83.54	89.62		89.75	0.001043	3.17	306.62	137.06	0.24
East Branch Trou	550	100-Yr	931.08	83.54	90.64		90.74	0.000707	2.94	538.54	289.03	0.21
East Branch Trou	550	500-Yr	1583.76	83.54	92.14		92.20	0.000465	2.75	1083.41	441.63	0.17
East Branch Trou	532	2-Yr	234.91	83.39	86.09	86.09	86.93	0.022395	7.36	31.92	19.27	1.01
East Branch Trou	532	10-Yr	471.16	83.39	87.13	87.13	88.30	0.020204	8.70	54.18	23.43	1.01
East Branch Trou	532	25-Yr	650.90	83.39	87.83	87.71	89.14	0.015901	9.16	71.82	26.34	0.93
East Branch Trou	532	50-Yr	738.57	83.39	88.56	87.96	89.61	0.009674	8.26	99.90	67.77	0.75
East Branch Trou	532	100-Yr	952.44	83.39	90.19	88.98	90.67	0.003290	6.13	310.79	242.98	0.47
East Branch Trou	532	500-Yr	1628.69	83.39	91.95	90.58	92.17	0.001528	5.06	805.73	356.14	0.33
East Branch Trou	450		Culvert									
East Branch Trou	400	2-Yr	234.91	82.93	85.58	84.88	85.95	0.007002	4.85	48.46	23.61	0.60
East Branch Trou	400	10-Yr	471.16	82.93	86.77	85.87	87.33	0.006321	6.03	79.00	27.89	0.61
East Branch Trou	400	25-Yr	650.90	82.93	87.43	86.41	88.15	0.006237	6.83	98.49	30.80	0.62
East Branch Trou	400	50-Yr	738.57	82.93	87.69	86.66	88.50	0.006398	7.23	106.61	32.01	0.64
East Branch Trou	400	100-Yr	952.44	82.93	88.16	87.25	89.22	0.007314	8.31	122.15	35.84	0.69
East Branch Trou	400	500-Yr	1628.69	82.93	88.90	88.90	91.10	0.012523	12.04	153.04	47.56	0.93
East Branch Trou	387		Inl Struct									
East Branch Trou	350	2-Yr	234.91	81.67	84.16	82.97	84.26	0.002032	2.62	89.66	45.05	0.33
East Branch Trou	350	10-Yr	471.16	81.67	85.27	83.61	85.44	0.002052	3.28	143.55	51.54	0.35
East Branch Trou	350	25-Yr	650.90	81.67	85.96	84.01	86.16	0.002043	3.61	180.14	55.69	0.35
East Branch Trou	350	50-Yr	738.57	81.67	86.26	84.19	86.48	0.001964	3.75	197.27	58.00	0.35
East Branch Trou	350	100-Yr	952.44	81.67	86.90	84.59	87.16	0.001860	4.08	236.59	64.06	0.35
East Branch Trou	350	500-Yr	1628.69	81.67	88.85	85.66	89.18	0.001464	4.67	383.09	92.13	0.33
East Branch Trou	335.5		Inl Struct									
East Branch Trou	300	2-Yr	234.70	78.36	81.06		81.20	0.002632	3.02	77.71	38.05	0.37
East Branch Trou	300	10-Yr	468.79	78.36	82.66		82.82	0.001697	3.23	145.33	45.93	0.32
East Branch Trou	300	25-Yr	648.78	78.36	83.53		83.72	0.001555	3.47	186.89	49.24	0.31
East Branch Trou	300	50-Yr	737.45	78.36	83.93		84.13	0.001497	3.57	206.73	50.69	0.31
East Branch Trou	300	100-Yr	950.21	78.36	84.93		85.14	0.001318	3.65	259.98	55.66	0.30
East Branch Trou	300	500-Yr	1627.01	78.36	88.78		88.94	0.000511	3.28	537.97	109.81	0.20
East Branch Trou	281	2-Yr	234.70	77.00	81.07	78.39	81.15	0.001156	2.31	101.80	25.00	0.20
East Branch Trou	281	10-Yr	468.79	77.00	82.61	79.21	82.79	0.001824	3.33	141.72	27.91	0.25
East Branch Trou	281	25-Yr	648.78	77.00	83.43	79.75	83.68	0.002203	3.99	165.82	31.44	0.28
East Branch Trou	281	50-Yr	737.45	77.00	83.80	79.99	84.08	0.002340	4.27	177.75	33.11	0.29
East Branch Trou	281	100-Yr	950.21	77.00	84.74	80.54	85.09	0.002450	4.77	211.14	38.07	0.31
East Branch Trou	281	500-Yr	1627.01	77.00	88.53	82.13	88.91	0.001630	5.10	409.41	95.62	0.27
East Branch Trou	232		Culvert									
East Branch Trou	162	2-Yr	234.70	77.00	80.92		81.01	0.001346	2.50	93.90	23.99	0.22
East Branch Trou	162	10-Yr	468.79	77.00	82.34		82.55	0.002102	3.66	128.27	25.04	0.28
East Branch Trou	162	25-Yr	648.78	77.00	83.05		83.36	0.002864	4.47	146.73	29.67	0.33
East Branch Trou	162	50-Yr	737.45	77.00	83.36		83.72	0.003099	4.81	156.51	33.04	0.34
East Branch Trou	162	100-Yr	950.21	77.00	84.04		84.51	0.003557	5.54	181.69	40.38	0.37
East Branch Trou	162	500-Yr	1627.01	77.00	85.85		86.61	0.004356	7.17	268.41	55.37	0.43
East Branch Trou	150	2-Yr	234.70	77.26	80.91		80.99	0.001025	2.19	106.98	40.32	0.24
East Branch Trou	150	10-Yr	468.79	77.26	82.37		82.49	0.001023	2.75	170.95	47.28	0.25
East Branch Trou	150	25-Yr	648.78	77.26	83.10		83.26	0.001075	3.17	206.68	50.26	0.26
East Branch Trou	150	50-Yr	737.45	77.26	83.43		83.60	0.001095	3.36	223.31	51.64	0.27
East Branch Trou	150	100-Yr	950.21	77.26	84.15		84.36	0.001132	3.75	261.53	54.67	0.28
East Branch Trou	150	500-Yr	1627.01	77.26	86.03		86.37	0.001211	4.71	372.01	62.71	0.31
East Branch Trou	100	2-Yr	234.70	77.09	80.80		80.92	0.001628	2.74	85.70	33.29	0.30
East Branch Trou	100	10-Yr	468.79	77.09	82.24		82.42	0.001643	3.38	139.01	40.91	0.32
East Branch Trou	100	25-Yr	648.78	77.09	82.95		83.18	0.001698	3.88	169.43	44.82	0.33
East Branch Trou	100	50-Yr	737.45	77.09	83.27		83.53	0.001719	4.10	183.90	46.61	0.34
East Branch Trou	100	100-Yr	950.21	77.09	83.97		84.28	0.001753	4.55	217.87	50.56	0.35
East Branch Trou	100	500-Yr	1627.01	77.09	85.80		86.28	0.001817	5.66	319.16	60.60	0.38
East Branch Trou	50	2-Yr	234.70	77.02	80.67		80.82	0.002166	3.13	74.94	29.24	0.34
East Branch Trou	50	10-Yr	468.79	77.02	82.08		82.32	0.002261	3.88	120.76	35.80	0.37
East Branch Trou	50	25-Yr	648.78	77.02	82.76		83.08	0.002364	4.48	146.40	39.18	0.39
East Branch Trou	50	50-Yr	737.45	77.02	83.07		83.42	0.002403	4.74	158.54	40.69	0.40
East Branch Trou	50	100-Yr	950.21	77.02	83.74		84.17	0.002472	5.28	187.00	44.01	0.41

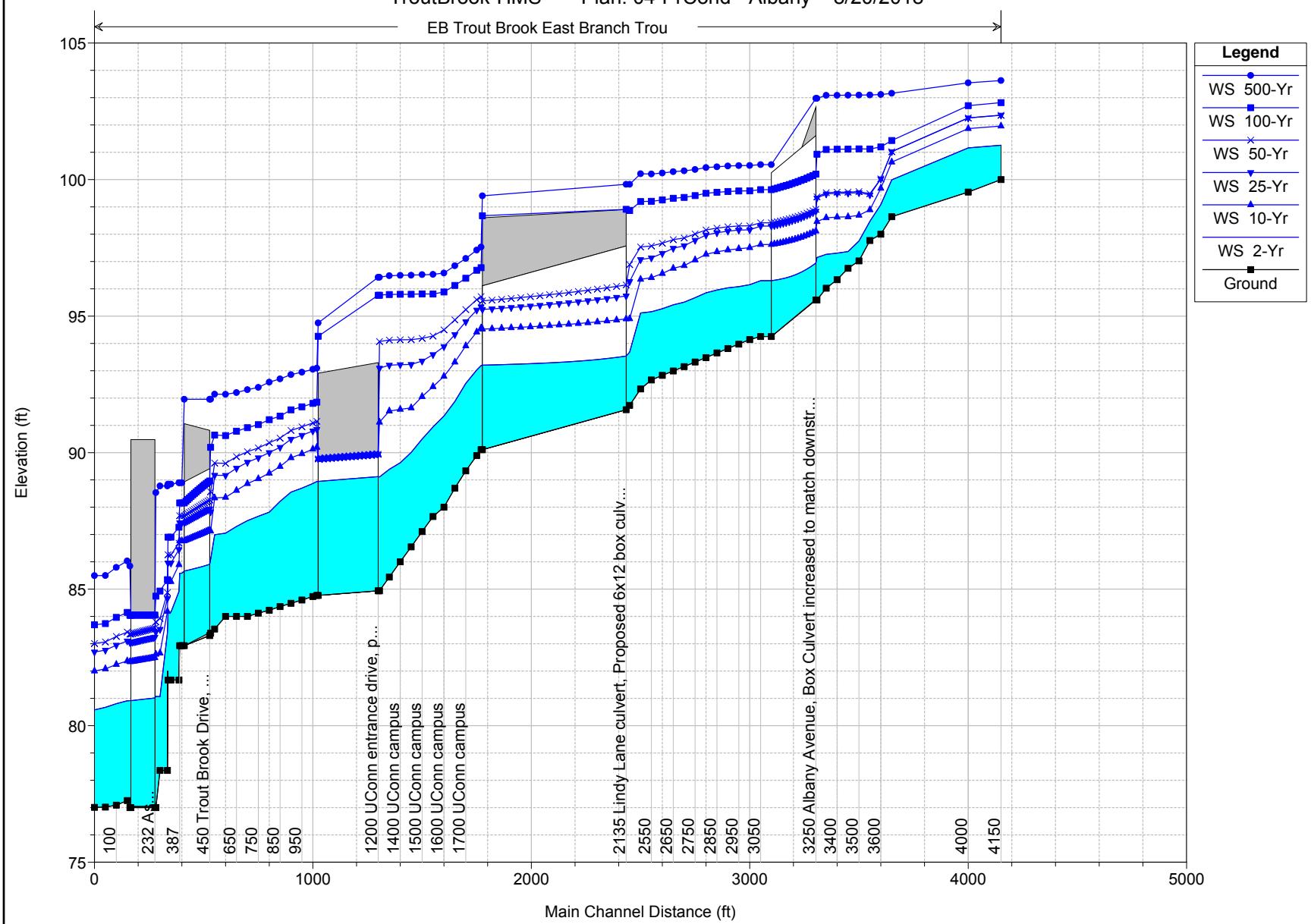
HEC-RAS Plan: 04-PC Albany River: EB Trout Brook Reach: East Branch Trou (Continued)

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)	
East Branch Trou	50	500-Yr	1627.01	77.02	85.50		86.16	0.002602	6.59	273.06	54.14	0.44
East Branch Trou	0	2-Yr	234.70	77.01	80.58	78.95	80.71	0.002003	2.94	79.85	32.79	0.33
East Branch Trou	0	10-Yr	468.79	77.01	82.00	79.86	82.20	0.002002	3.54	132.35	40.89	0.35
East Branch Trou	0	25-Yr	648.78	77.01	82.70	80.41	82.95	0.002001	4.03	162.16	44.85	0.36
East Branch Trou	0	50-Yr	737.45	77.01	83.01	80.66	83.29	0.002002	4.24	176.37	46.63	0.36
East Branch Trou	0	100-Yr	950.21	77.01	83.69	81.17	84.03	0.002001	4.69	209.67	50.55	0.37
East Branch Trou	0	500-Yr	1627.01	77.01	85.49	82.43	86.00	0.002000	5.77	312.18	64.00	0.39

TroutBrook-HMS

Plan: 04-PrCond - Albany 8/20/2018

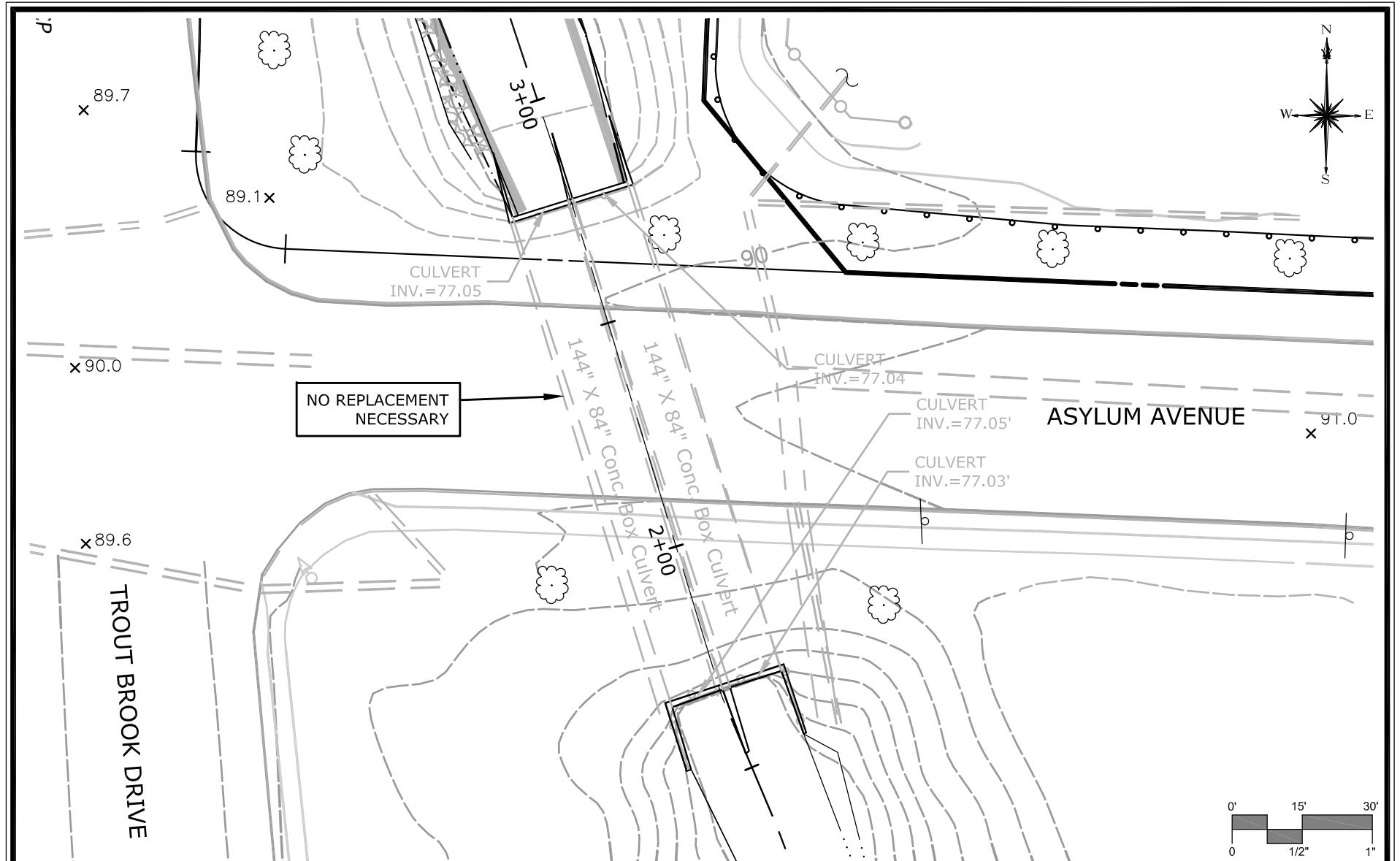
EB Trout Brook East Branch Trou





APPENDIX E

CONCEPT SKETCHES

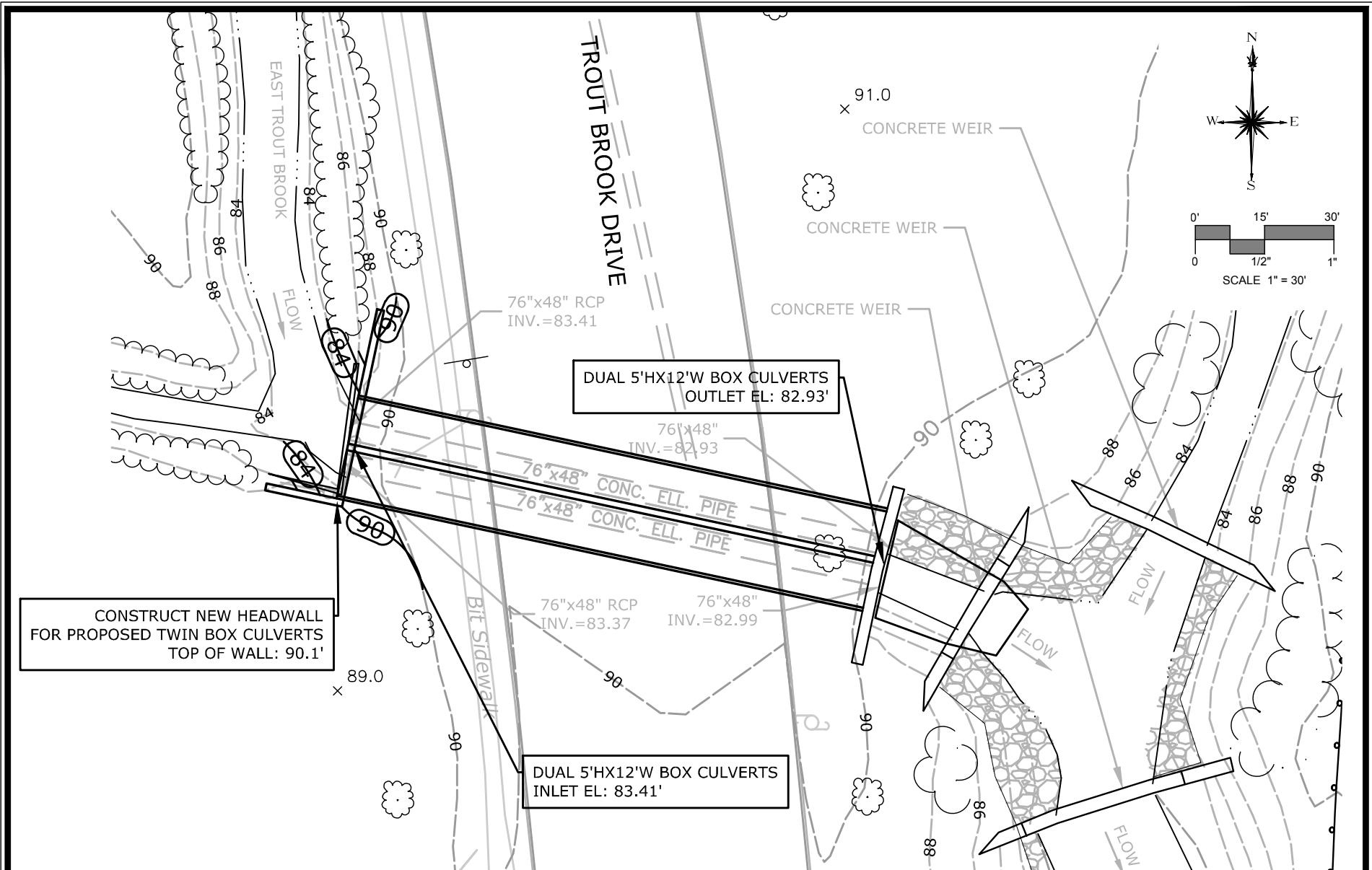


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DATE	AUG 31, 2018
SCALE	1"=30'
PROJ. NO.	1197-21
DESIGNED	JCM
DRAWN	JCM
CHECKED	JGM

CONCEPT CULVERT 1 - ASYLUM AVE
EAST BRANCH TROUT BROOK
FLOOD MITIGATION ASSESSMENT
WEST HARTFORD
CONNECTICUT

DRAWING NAME:
FIG. CD-01



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DESIGNED	JCM
DRAWN	JCM
CHECKED	JGM

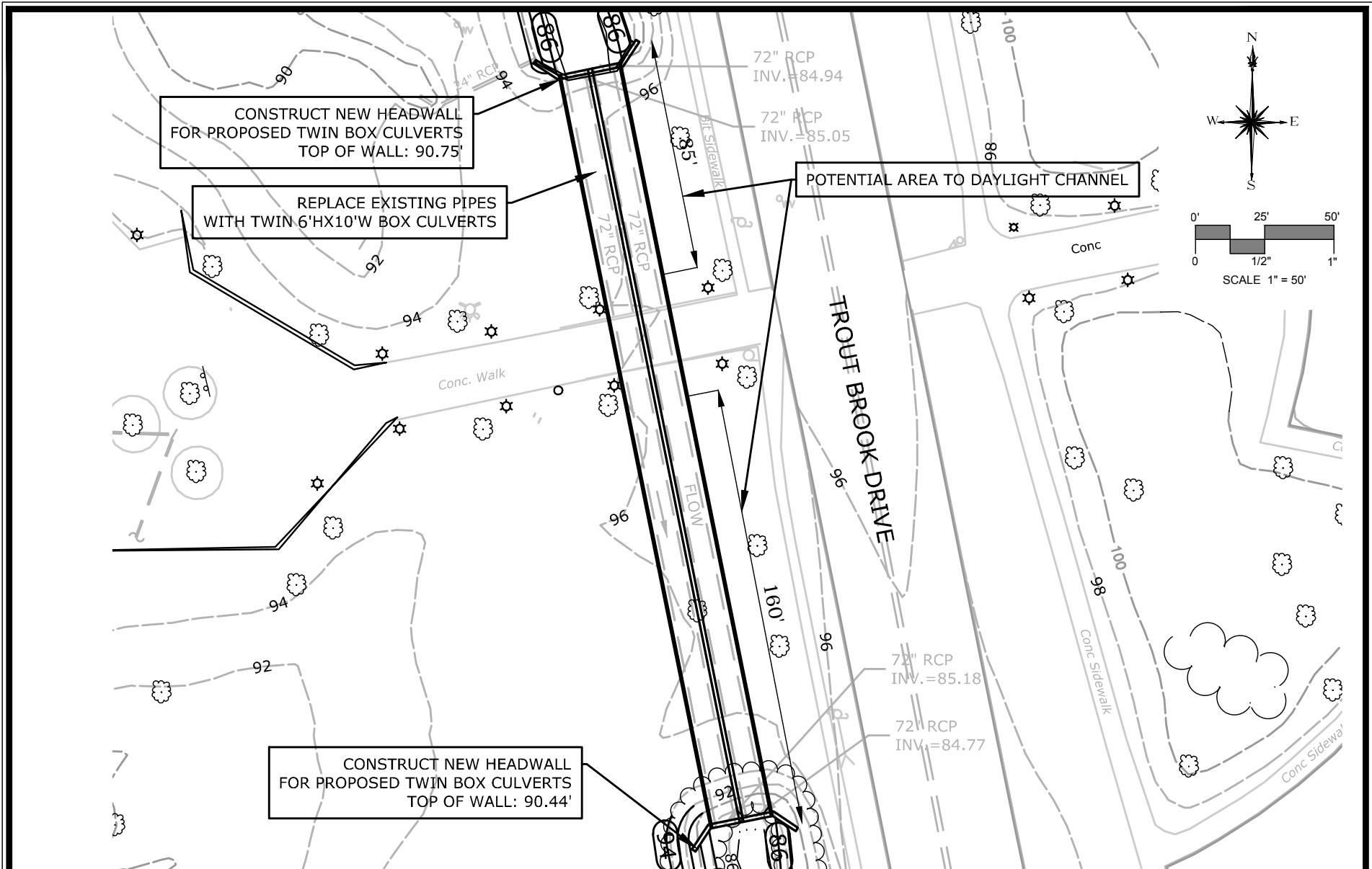
CONCEPT CULVERT 2 - TROUT BROOK DRIVE

EAST BRANCH TROUT BROOK
FLOOD MITIGATION ASSESSMENT

WEST HARTFORD
CONNECTICUT

DRAWING NAME:

FIG. CD-02

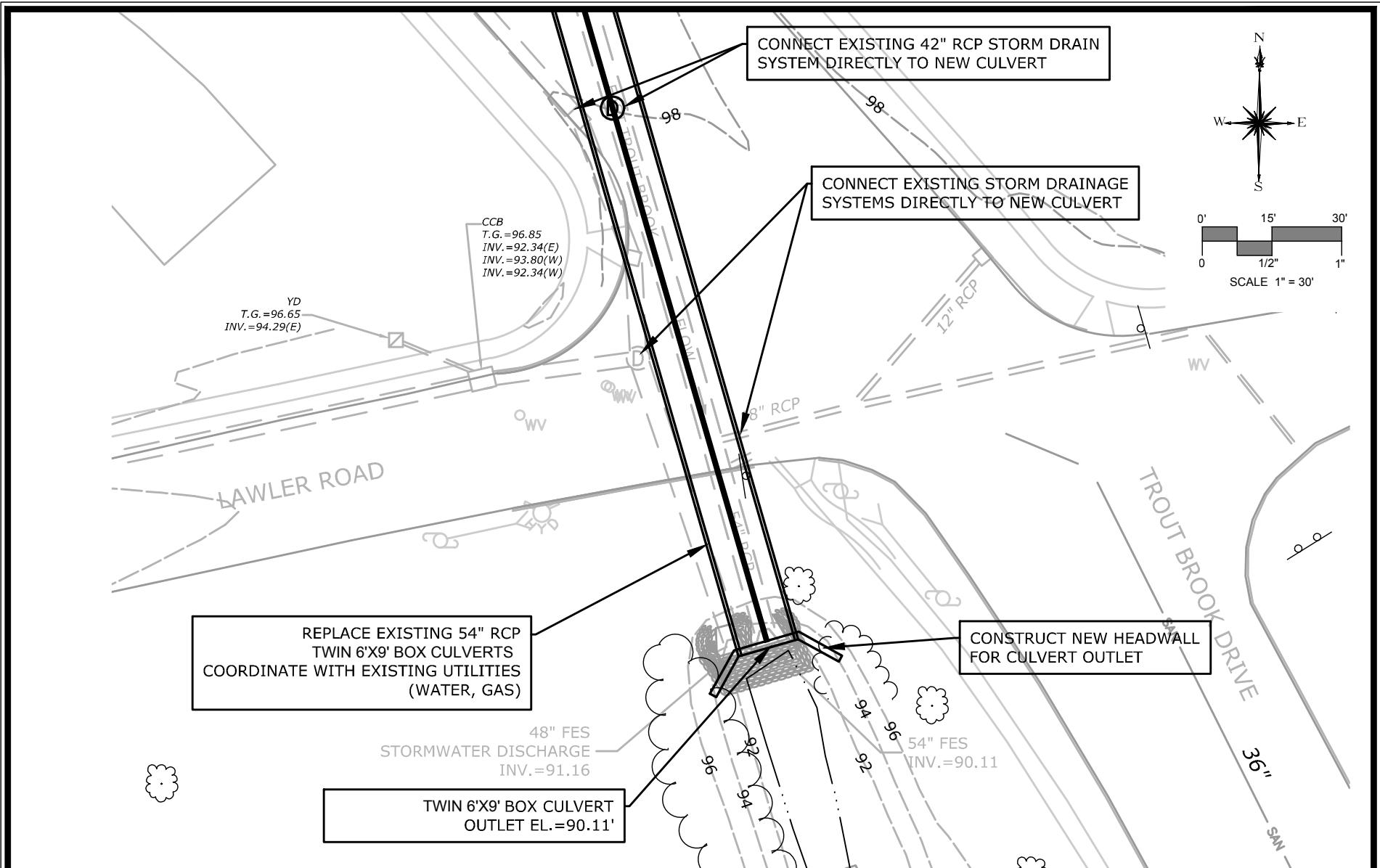


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SCALE	1"=50'
PROJ. NO.	1197-21
DESIGNED	JCM
DRAWN	JCM
CHECKED	JGM

CONCEPT CULVERT 3 - UCONN PED. WALKWAY
EAST BRANCH TROUT BROOK
FLOOD MITIGATION ASSESSMENT
WEST HARTFORD
CONNECTICUT

DRAWING NAME:
FIG. CD-03

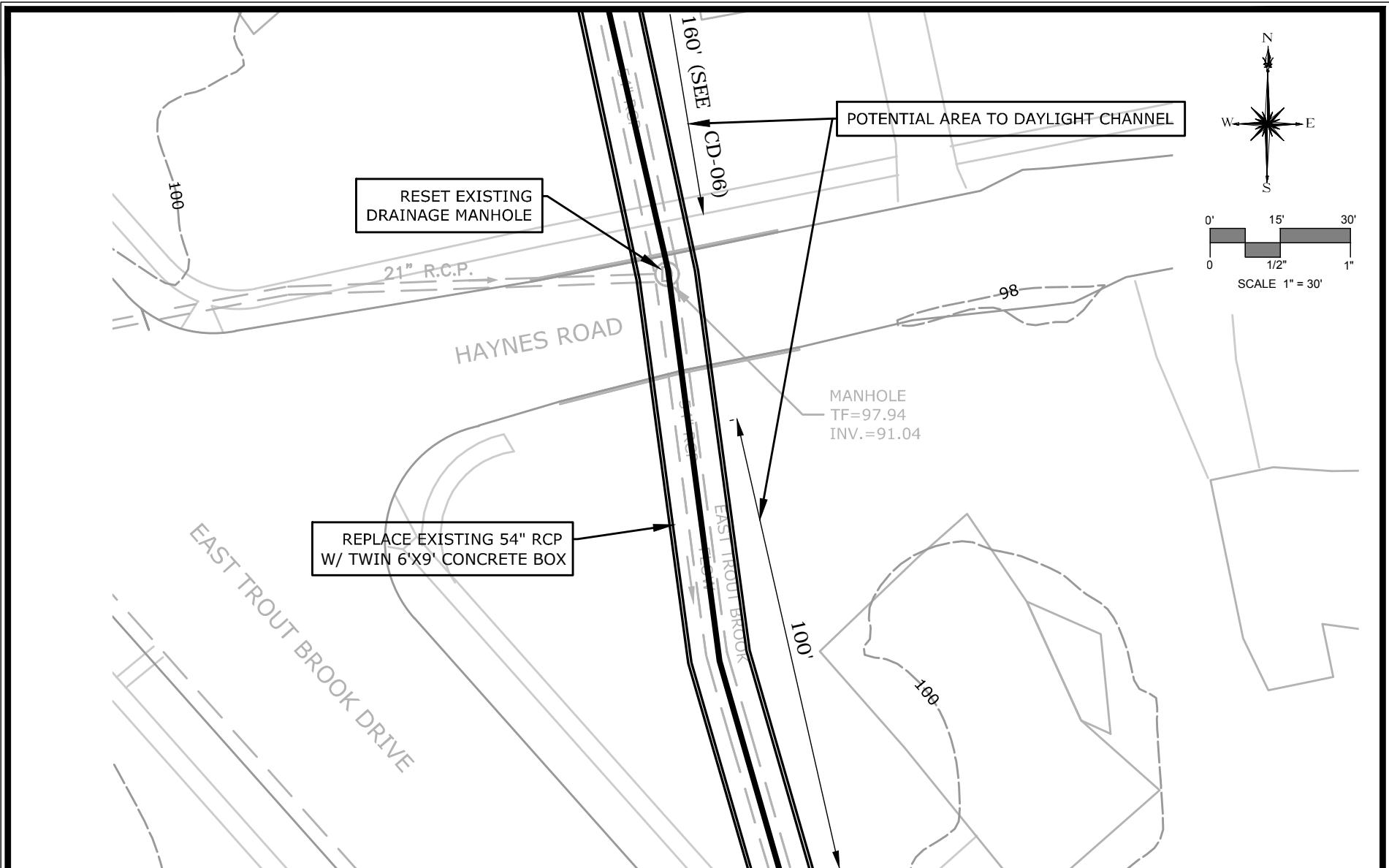


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PROJ. NO.	1197-21
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DRAWN	JCM
CHECKED	JGM

CONCEPT CULVERT 4 - LAWLER AND TROUT BROOK
EAST BRANCH TROUT BROOK
FLOOD MITIGATION ASSESSMENT
WEST HARTFORD
CONNECTICUT

DRAWING NAME:
FIG. CD-04



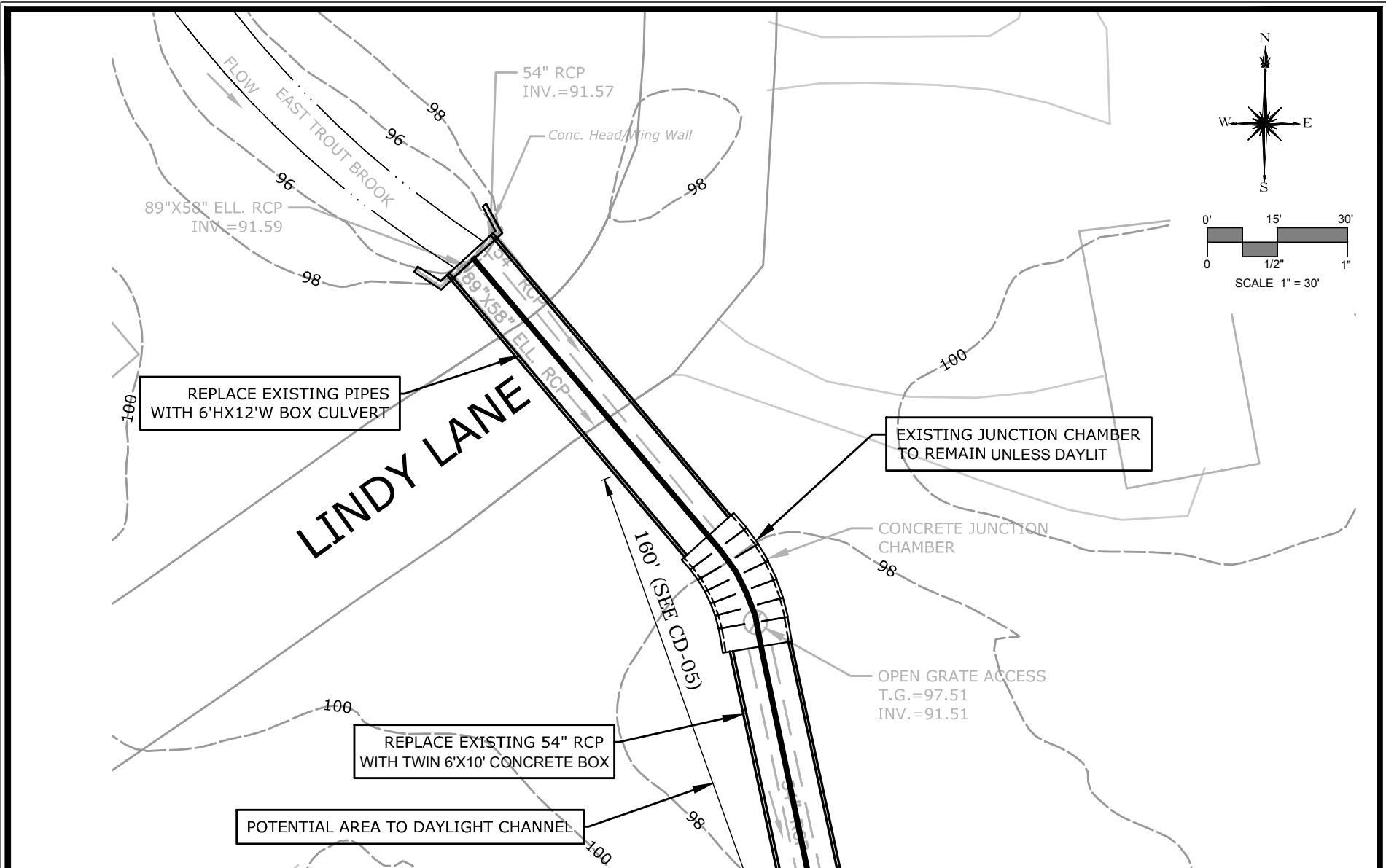
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SCALE	1"=30'
PROJ. NO.	1197-21
DESIGNED	JCM
DRAWN	JCM
CHECKED	JGM

CONCEPT CULVERT 5 - HAYNES RD
EAST BRANCH TROUT BROOK
FLOOD MITIGATION ASSESSMENT
WEST HARTFORD
CONNECTICUT

DRAWING NAME:

FIG. CD-05



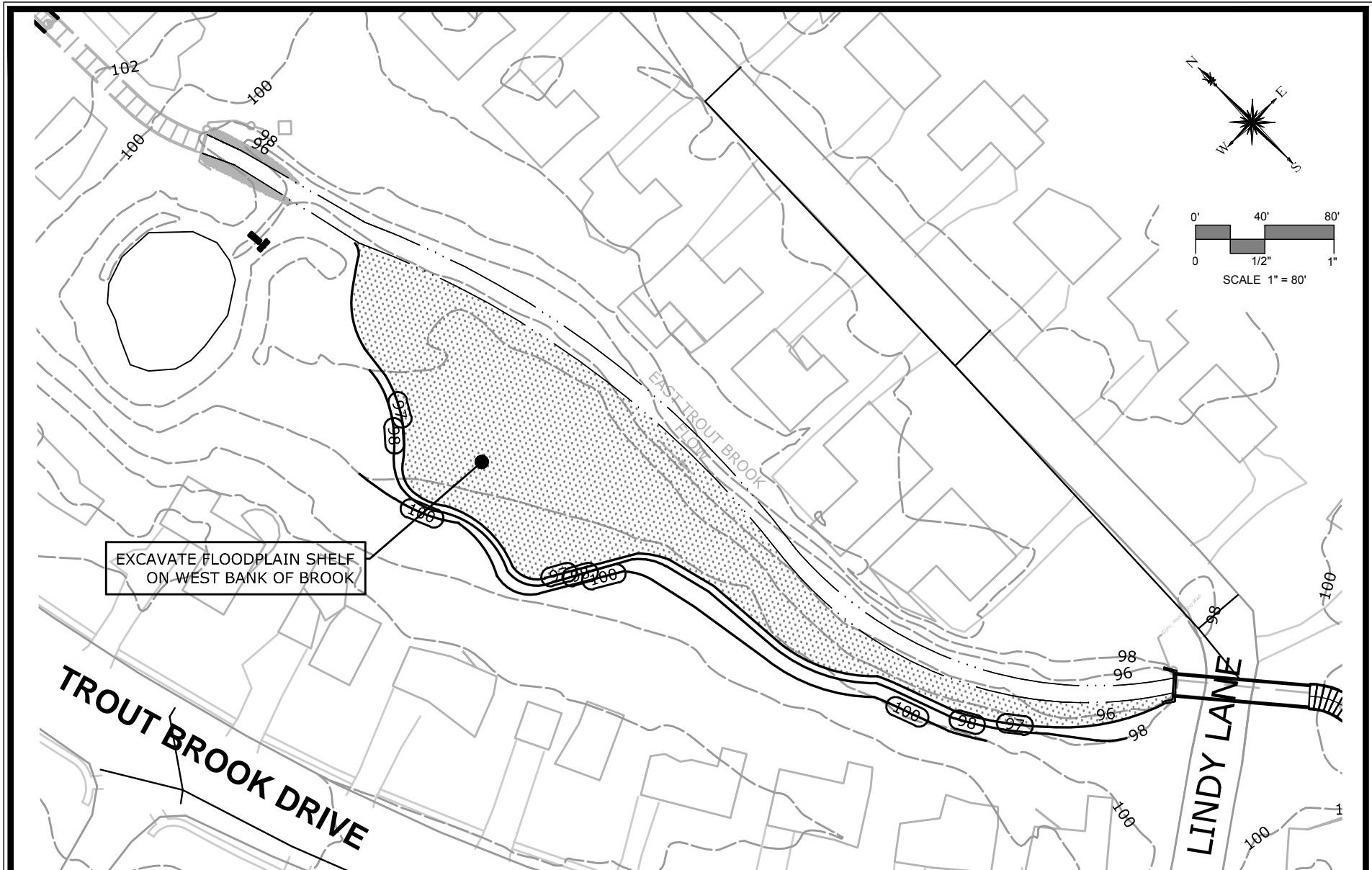
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SCALE	1"=30'
PROJ. NO.	1197-21
DESIGNED	JCM
DRAWN	JCM
CHECKED	JGM

CONCEPT CULVERT 6 - LINDY LANE
EAST BRANCH TROUT BROOK
FLOOD MITIGATION ASSESSMENT
WEST HARTFORD
CONNECTICUT

DRAWING NAME:

FIG. CD-06

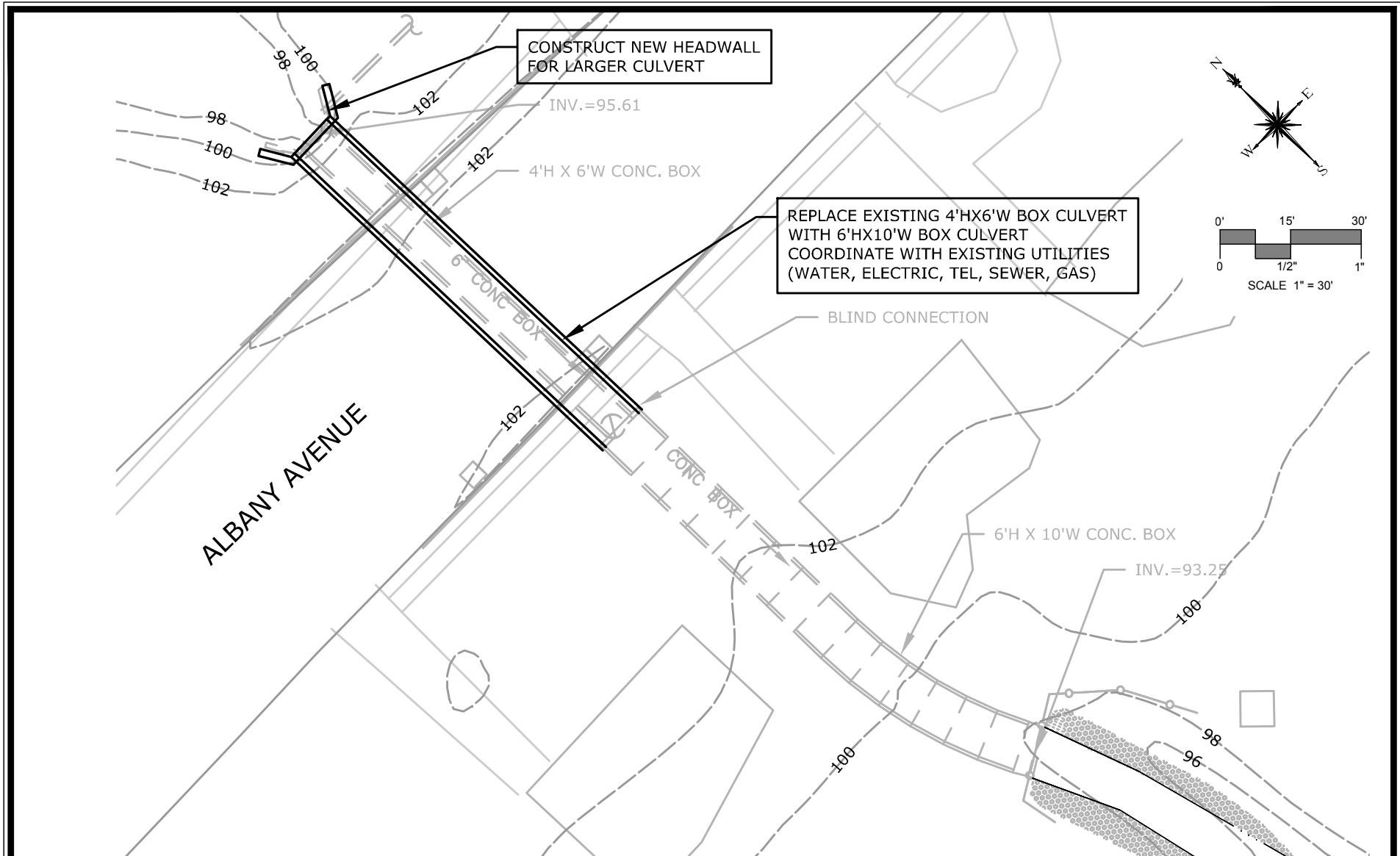


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PROJ. NO.	1197-21
DESIGNED	JCM
DRAWN	BAM
CHECKED	JGM

CONCEPT GRADING - LINDY LANE FP SHELF
EAST BRANCH TROUT BROOK
FLOOD MITIGATION ASSESSMENT
WEST HARTFORD
CONNECTICUT

DRAWING NAME:
FIG. CD-07



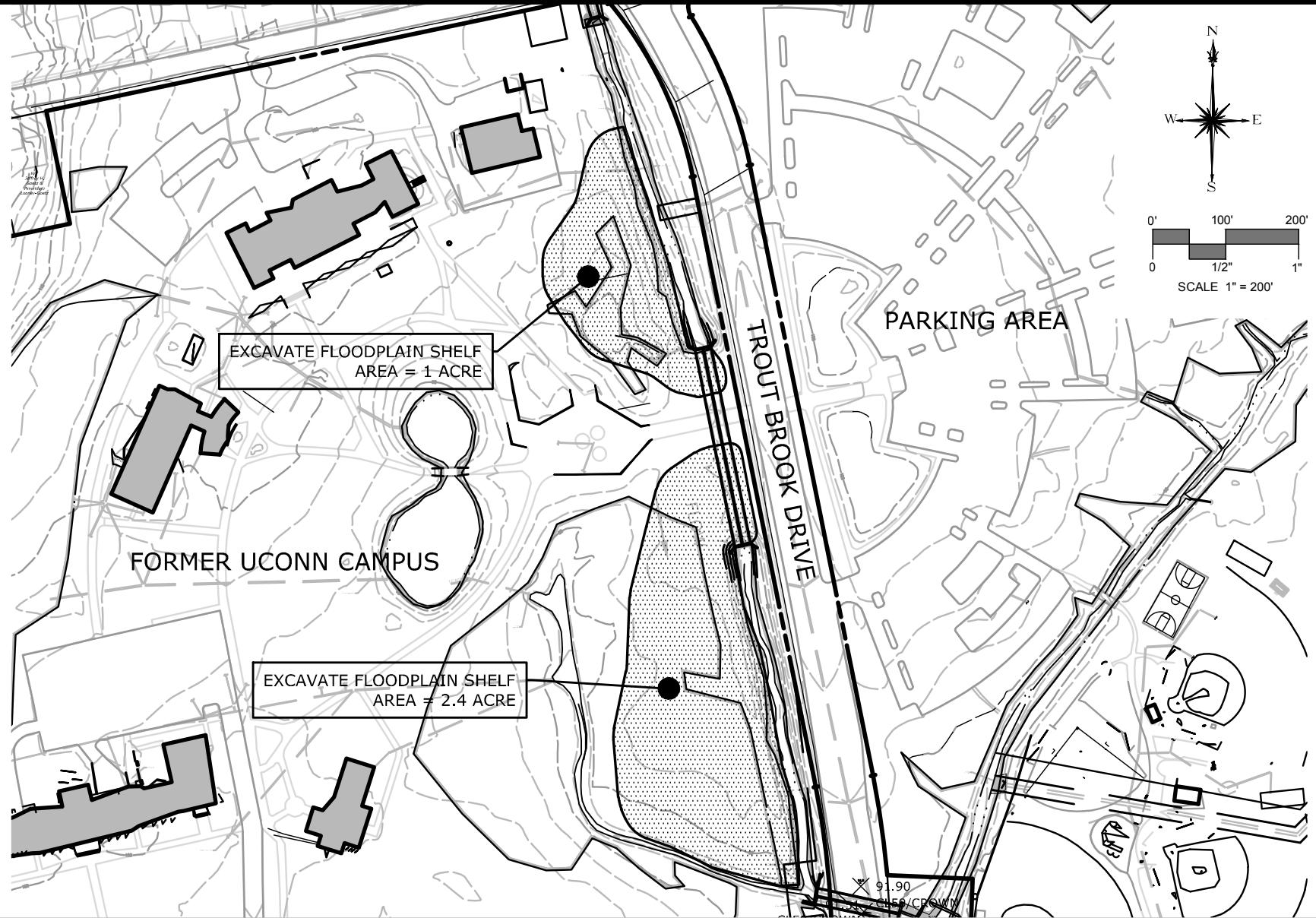
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SCALE	1"=30'
PROJ. NO.	1197-21
DESIGNED	JCM
DRAWN	JCM
CHECKED	JGM

CONCEPT CULVERT 7 - ALBANY AVE
EAST BRANCH TROUT BROOK
FLOOD MITIGATION ASSESSMENT
WEST HARTFORD
CONNECTICUT

DRAWING NAME:

FIG. CD-08



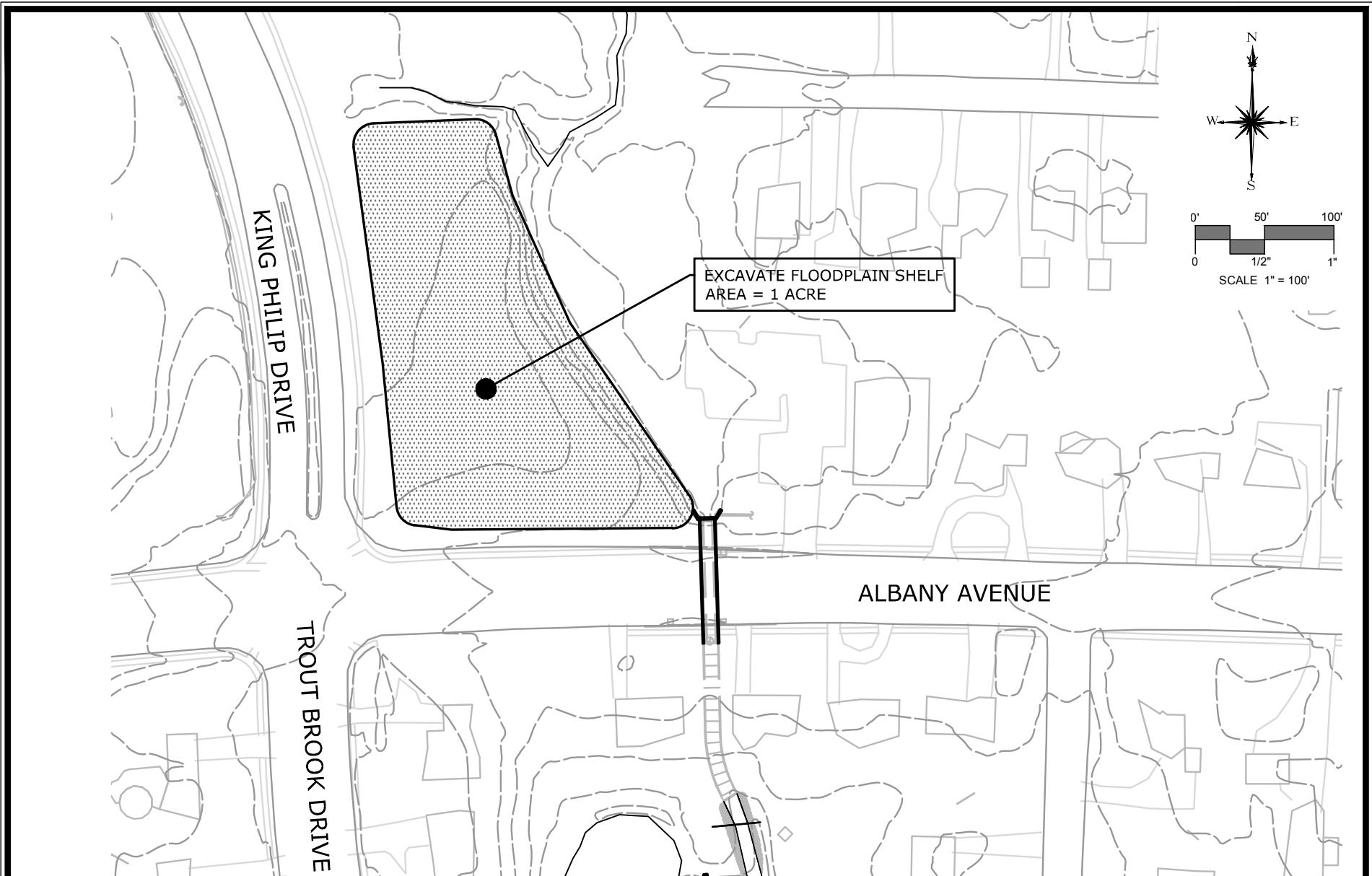
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DATE	AUG 31 2018
SCALE	1"=200'
PROJ. NO.	1197-21
DESIGNED	JCM
DRAWN	JCM
CHECKED	JGM

POTENTIAL LOCATION(S) FOR FLOODPLAIN RECLAMATION
EAST BRANCH TROUT BROOK
FLOOD MITIGATION ASSESSMENT
WEST HARTFORD
CONNECTICUT

DRAWING NAME:

FIG. CD-09



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SCALE	1"=100'
PROJ. NO.	1197-21
DESIGNED	JCM
DRAWN	JCM
CHECKED	JGM

POTENTIAL LOCATION(S) FOR FLOODPLAIN RECLAMATION
EAST BRANCH TROUT BROOK
FLOOD MITIGATION ASSESSMENT
WEST HARTFORD
CONNECTICUT

DRAWING NAME:

FIG. CD-10