

FEDERAL/LOCAL BRIDGE REHABILITATION PROGRAM
STATE PROJECT NO. 158-216



FLOODWAY / REGULATORY REPORT

**REPLACEMENT OF
BAYBERRY LANE EXT. BRIDGE OVER
ASPETUCK RIVER
(BRIDGE NO. 04969)**

TOWN OF WESTPORT, CT

Submitted: November 2019, rev. August 2020

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08/24/2020

Date:



EXECUTIVE SUMMARY

1. LOCATION:

Structure No.:	04969	Project No.:	158-216
Towns:	Westport	Stations:	12+50 - 16+50
Highway:	Bayberry Lane Extension		
Stream:	Aspetuck River		

2. EXISTING STRUCTURE:

Superstructure Type:	Simple Span 19.4' Clear - Steel Beam Concrete Deck
Substructure Type:	Masonry Gravity Wall Abutments (Assumed Spread Footing)
NBIS Item 113:	3

3. PROPOSED STRUCTURE:

Superstructure Type:	45-foot Clear Span - Prestressed Concrete 27D NEXT Beams
Substructure Type:	Concrete Abutments & U-type Wing-walls
Foundation Type:	Integral Abutments on Micro Piles
NBIS Item 113:	5 - Foundation Designed to Resist Predicted Scour

4. ROADWAY:

Classification:	Rural Local Street	System:	Off
ADT:	636	Date:	2018
Detour Length:	2.0 miles		

5. CHANNEL RATING:

NBIS Item 61:	Current BRI:	Recommended Rating:
	6	7

6. HYDROLOGY: APPROVED Regulatory FEMA Discharges:

Method:	Rounded Up USGS StreamStats		
Watershed Area:	21.1 Sq. Mi.	<u>10-year</u>	<u>2,300 cfs</u>
Design Discharge:	100-Year	50-year	4,400 cfs
Structure Classification:	Large	<u>100-year</u>	<u>6,100 cfs</u>
Temporary Discharge	1-year = 225 cfs	500-year	11,200 cfs

7. HYDRAULICS:

Model Used:	HEC-RAS 5.0.7	NBIS Item 71	Rating
Hydraulic Control:	Subcritical	Current BRI:	7 (coded incorrectly)
Design Discharge:	100-year	Recommended	6

EXECUTIVE SUMMARY (Cont.)

CONCLUSIONS AND RECOMMENDATIONS:

The existing, simple span, 19.4 feet effective clear opening of Bridge No. 04969 is hydraulically inadequate. The crossing does not meet the bridge underclearance or the freeboard criteria at the low point in the roadway profile. The hydraulic analyses indicate that for the 100-year Design Discharge the existing structure causes approximately 0.6 feet of upstream backwater at the upstream street line. For the Design Discharge the existing crossing operates in pressure flow and weir flow with approximately 42% of flow overtopping the low point in the road with maximum flow depth of approximately 2.6 feet.

The proposed replacement bridge crossing will have a single span 45-foot clear opening perpendicular to the direction of flow. The width of the proposed structure will be increased, from the existing approximately 24.0 feet, to accommodate two 10-foot travel lanes and 3-foot, 4¹/₂-inch wide shoulders. The total width (out-to-out) of the proposed structure, with open rail parapets, will be approximately 30.5 feet. The profile of the roadway, affecting the overtopping flows experienced by the site, will remain unchanged.

The performed hydraulic analyses indicate that the proposed replacement structure will cause approximately 0.1 feet of upstream backwater at the upstream street line. This proposed structure will operate in pressure flow and weir flow with approximately 27% of flow overtopping the low point in the road with maximum flow depth of approximately 2.1 feet.

The area of the crossing will continue to be overtopped during the 100-year Design Discharge. The proposed bridge opening will modestly improve the roadway flooding conditions by making the low point of Bayberry Lane Extension passable during the 10-year (1,700 cfs) event, with approximately 0.3 feet of freeboard, versus the 5-year event (1,260 cfs) for the existing crossing configuration.

The Proposed 100-year Base Flood Elevations are up to approximately 2.1 feet lower than for the Amended Base (Existing) Conditions.

For the 10-year Floodway Model, the proposed water surface profiles are predicted to be up to approximately 0.2 feet lower than the Amended Base Model.

For the 100-year Floodway Model, the proposed water surface profiles are predicted to be up to approximately 2.0 feet lower than the Amended Base Model.

These conditions indicate compliance with the Connecticut Flood Management Statutes and the project is consistent with the National Flood Insurance Program Regulations.

HYDRAULIC DATA

1. LOCATION:

A. Town:	Westport	State Project No.(s):	158-216
B. Highway:	Bayberry Lane Extension	Station(s):	12+00 - 16+50
C. Location Relative to Highway Landmark:	670' North of Easton Road (SR 136)		
D. Stream:	Aspetuck River		
E. Location Relative to Stream Landmark:	700' Upstream of Confluence with Unnamed Tributary		

2. DESIGN FLOOD:

A. Hydrologic Procedure Used for Design		Rounded USGS StreamStats
B. Hydrologic Procedure Used by FEMA		Based on data from Gaged Streams in the area
C. Drainage Area		21.1 sq. mi.
D. CTDOT Drainage Manual Structure Classification		Large
E. Design Storm Frequency		100-year
F. Required Underclearance/Freeboard at Design Discharge		2 foot
G. Design Discharge		
i.	CTDOT Design	<u>3,000 cfs</u>
ii.	FEMA	6,100 cfs
iii.	SCEL	N/A

3. HYDRAULIC ANALYSIS PROCEDURE:

A. Model Used		HEC-RAS, Version 5.0.7
B. Flow Regime		Subcritical
C. Boundary Conditions		
i.	Downstream	Normal Depth based on FEMA Profiles
ii.	Upstream	Critical Depth
D. Other Methods		N/A

4. HYDRAULIC CONTROL:

A. Type of Control		Normal Depth
B. Location Relative to Proposed Construction		Downstream Reach

5. COEFFICIENTS OF ROUGHNESS:

A. Downstream	Channel	0.030	Overbank	0.05
B. At Crossing	Channel	0.030	Conduit	N/A
C. Upstream	Channel	0.030	Overbank	0.05

6. EXISTING STRUCTURE, EVALUATION FOR THE 100-year FEMA DISCHARGE:

A. Type:	Simple Span 19.4-foot Clear - Steel Beam, Concrete Deck, Masonry Gravity Wall Abutments		
B. Gross Waterway Opening	ft ²	150.7	
C. Effective Waterway Opening	ft ²	150.7	[Pressure/Weir Flow]
D. Effective Width of Waterway Opening	ft	19.4	
E. Depth of Waterway Opening	ft	8.6	
F. Low Chord Elevation	ft	83.8	[Low Low Chord]
G. Minimum Roadway Elevation	ft	85.7	Bridge Upstream Face
H. W.S.E. at Bridge Approach Section	ft	90.1	
I. Underclearance at Design Discharge	ft	-6.3	Bridge Approach Section
J. Freeboard at Design Discharge	ft	-4.4	Bridge Approach Section
K. Mean Velocity Through Structure	ft/s	9.0	

7. PROPOSED STRUCTURE, EVALUATION FOR THE 100-year FEMA DISCHARGE:

A. Type:	45-foot Clear Span - Prestressed Concrete 27D NEXT Beams founded on Integral Abutments on Micro Piles		
B. Gross Waterway Opening	ft ²	199.0	
C. Effective Waterway Opening	ft ²	199.0	[Pressure/Weir Flow]
D. Overall Width of Waterway Opening	ft	45.0	
E. Depth of Waterway Opening	ft	7.7	
F. Low Chord Elevation	ft	82.8	[Low Low Chord]
G. Minimum Roadway Elevation	ft	85.7	
H. W.S.E. at Approach Section	ft	90.0	
I. Maximum Regulatory Elevation	ft	90.5	+1.0 over Natural W.S.E.
J. Other Controlling W.S.E.	ft	85.7	Road Low Point Elev.
K. Difference in W.S.E.			
1. Proposed vs. Existing	ft	-0.1	
2. Proposed vs. Natural	ft	+0.5	
L. Underclearance at Design Discharge	ft	-7.2	Bridge Approach Section
M. Freeboard at Design Discharge	ft	-4.3	Bridge Approach Section
N. Mean Velocity Through Structure	ft/s	8.8	

8. REMARKS:

A. Navigational Requirements:	None
B. Tidal Conditions:	None
C. Record Floods:	1927, 1938, 1955, 1978, 1979, 2007 and 2011
D. Average Daily Flow	$[Q_{AD} = 1.87 (D.A.)^{0.98}]$ 35cfs
E. Average Spring Flow	$[Q_{AS} = 3.62 (D.A.)^{0.988}]$ 75 cfs
F. Flood Hazard Zone:	AE
G. Vertical Datum:	NAVD 1988

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FLOODWAY/REGULATORY ANALYSIS REPORT

I. PROJECT OVERVIEW

AI Engineers, Inc. has been retained by the Town of Westport to perform design services for the replacement of Bayberry Lane Extension (Bridge No. 04969) over the Aspetuck River under the Federal/Local Bridge Rehabilitation Program (State Project No. 158-216).

EcoDesign, LLC has been retained, as a sub-consultant, to provide hydrologic, hydraulic and scour evaluation and design services for the project.

The existing simple span structure, originally carrying two lanes of traffic and reportedly completed in July 1957, is in a serious condition (**superstructure and scour vulnerability rated 3**) and is scheduled for replacement. Due to poor structural condition, the passage over the bridge has been recently restricted to a stop-controlled, alternating, one-lane-of-traffic pattern.

The intent of the project is to address structural deficiencies of the crossing and reduce safety risks to the traveling public. The proposed crossing will adequately convey the design flow, address the stability of the channel and withstand the estimated scour while providing modest improvements to the site hydraulics and channel conditions.

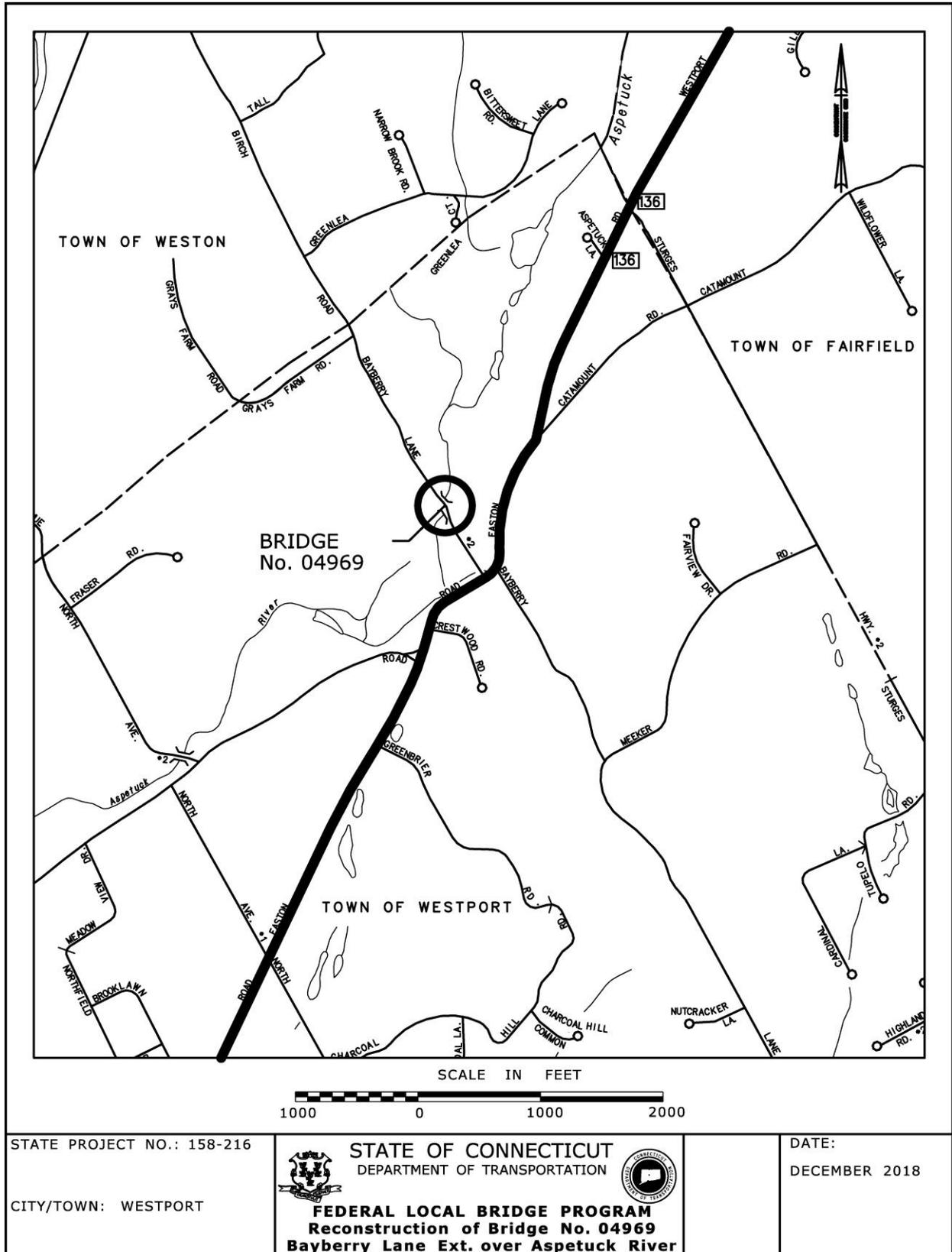


Figure No. 1A

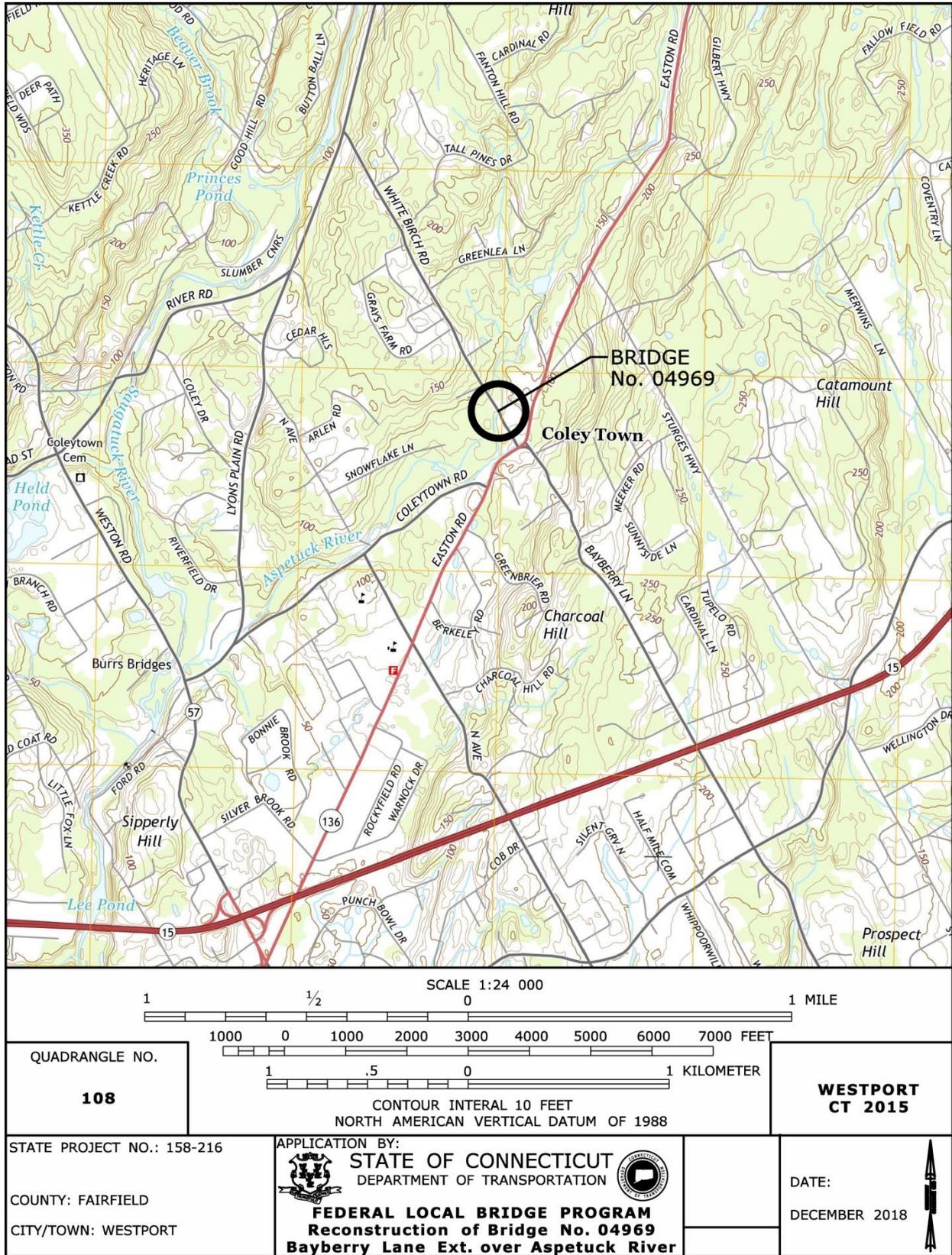


Figure No. 1B

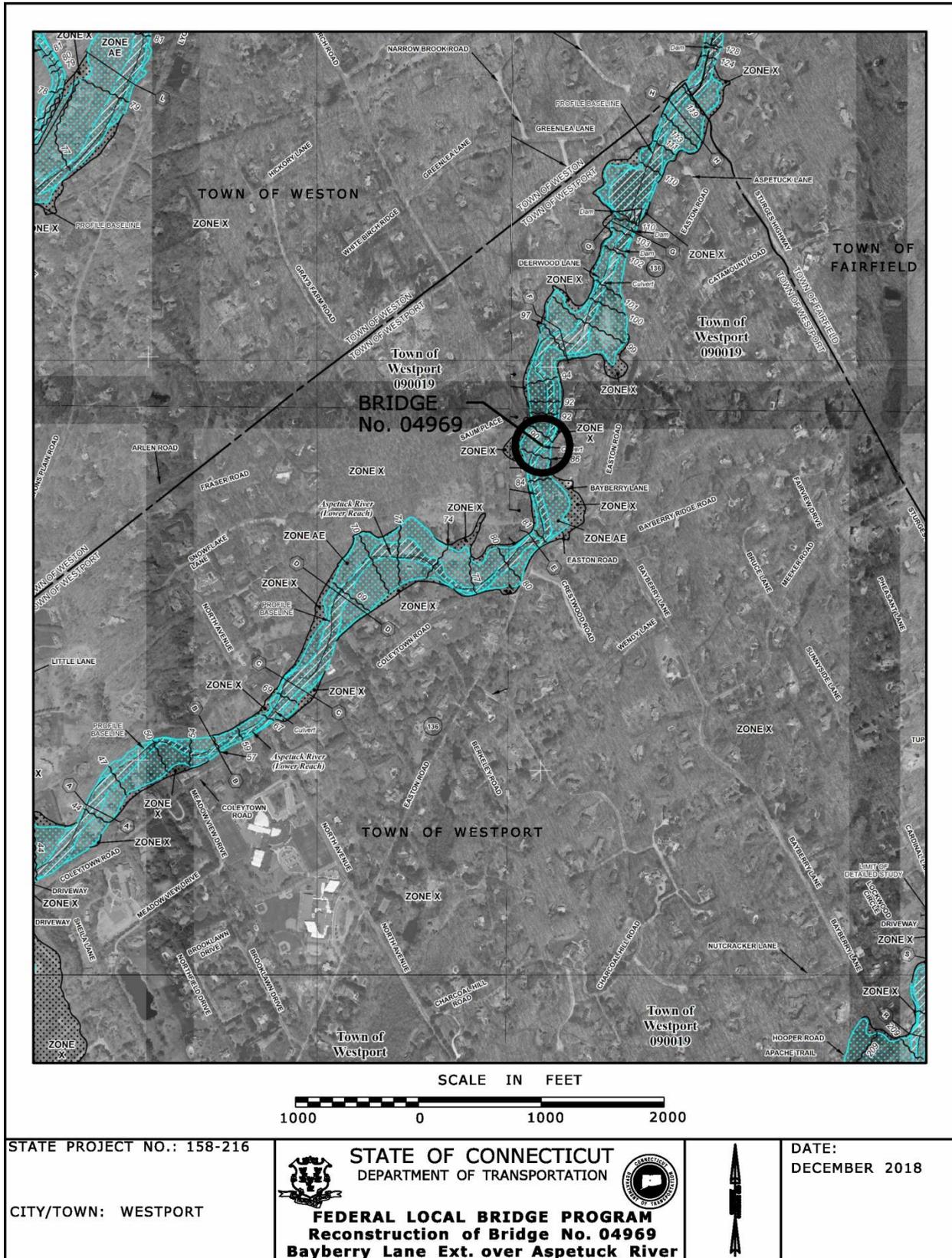


Figure No. 1C

II. STUDY BACKGROUND

A. LOCATION

Bridge No. 04969, which carries Bayberry lane Extension over the Aspetuck River, is located in the northeastern corner of the Town of Westport. The crossing is located approximately 670 feet north of the intersection with Easton Road (SR 136). The location is shown in Figure No. 1.

B. EXISTING BRIDGE

The Bayberry Lane Extension Bridge is a simple span crossing. The total span length of the bridge approximately 23 feet (Refer to Appendix B). The bridge superstructure consists of 7 steel beams topped with a reinforced concrete deck and a bituminous overlay.

The substructure consists of stone masonry abutments founded on spread footings. All wingwalls also appear to be constructed of stone masonry. The bottom of footing elevations of the existing abutments and wingwalls are unknown.

The structure was reportedly built in 1957. No records of the existing crossing construction details are available.

The bridge has an approximate 17° skew to the roadway centerline and an out-to-out width of approximately 24 feet. The effective clear span of the bridge is approximately 21.1 feet at the upstream face and 19.4 feet at the downstream face.

The existing bridge supports a 12-inch diameter water main along the east (upstream) face and projecting below the low chord. A 6-inch gas main is supported by wingwalls at the west (downstream) face and extends below the low chord at the north abutment.

The bridge is located within a reach of the Aspetuck River designated as a FEMA flood Zone AE with a 100-year base flood elevation upstream of approximately 90 feet, NAVD of 1988. The regulatory floodway has been established within the river reach at the project site.

C. ROADWAY

Bayberry Lane Extension, which carries an estimated 636 ADT (2018) within the project limits, is a two-lane road classified as Rural Local Street. The existing grade of Bayberry Lane Extension drops gently from south to north approaching Bridge 04969. The existing bridge deck is relatively flat and the road profile begins to increase rapidly just beyond the low point in the roadway north of the bridge. The road has a posted speed limit of 25 mph. A low point in the roadway profile is located approximately 120 feet north of the crossing. Outside of the bridge area the road carries approximately 10-foot travel lane with varying width shoulder in each direction.

D. CHANNEL

At crossing site, the Aspetuck River is a generally straight, gradually varying width stream, confined within the steeper southerly channel bank and a wider northerly floodplain.

Through the crossing site the channel is on a straight alignment flowing from northeast to southwest. Approximately 150 feet downstream of the bridge site the river channel turns gently to the left and continues southerly.

The channel banks and floodplains are vegetated. The overbank areas both upstream and downstream of the bridge are covered with sparse woods. The channel appears to be laterally and vertically stable. (Refer to Appendix B - Data Collection and Field Review Form)

III. PROPOSED CROSSING

A significant element of the project is the Town of Westport's desire to accommodate the existing water main and gas main utilities, presently supported outside of the fascias, within the proposed superstructure depth. The size of the existing utilities, especially the 12" diameter water main, eliminated from consideration the shallow superstructure depth as a viable option.

The preliminary hydraulic study evaluated several clear span configurations of the proposed bridge (38-foot through 48-foot). No spans longer than 48 feet were considered for this project because of the superstructure depth restrictions and constraints imposed by the topography of site.

A 45-foot clear span was selected as the shortest span that would satisfy the US ACOE General Permit criteria of 1.2 times the bank full flow width and with the aggressive superstructure depth allow accommodation of the utilities.

The proposed bridge replacement of the crossing is:

45-foot clear span - 27" Deep Prestressed Concrete Box Beams with 4" Concrete Deck structure supported on Integral Abutments and U-type wing-walls founded on Micro Piles.

No significant changes to the roadway profile are proposed as part of the project in order to avoid violating the regulatory requirements of no increase in base flood elevations.

The structure will be supported on Integral Abutments and U-type wing-walls founded on Micro Piles.

The width of the proposed structure will accommodate two 10-foot travel lanes and 3-foot 4¹/₂-inch wide shoulders. The total out-to-out width of the proposed crossing will be increased from the existing approximately 25.5 feet to approximately 30.5 feet including open rail parapets.

IV. HYDROLOGIC DATA

A. REGULATORY FLOW

The regulatory discharges for the Aspetuck River at Bridge No. 04969, based on the effective published FEMA data in the Fairfield County (Town of Westport) 2013 FIS, are significantly higher than the approved design peak discharges:

Table No. 1 – Recommended Design Discharges	
FREQUENCY	DISCHARGE
10 – year	2,300 [cfs]
50 – year	4,400 [cfs]
100 – year	6,100 [cfs]
500 – year	11,200 [cfs]

V. HYDRAULIC DESIGN MODELS

A. GENERAL

Based on the Connecticut Department of Transportation classification, the Bayberry Lane Extension crossing over the Aspetuck River (Bridge No. 04969) is a large structure, providing waterway for the drainage of areas larger than 10 square miles and smaller than 1,000 square miles.

Large structures are typically designed to pass a discharge equal to the 100-year flood with a low chord underclearance generally not less than 2 feet, an increase in water surface elevation at the upstream highway property line of not more than 1 foot above that which would have been obtained in the natural channel if the highway embankment were not constructed, and minimum of 1-foot freeboard. The effects of a discharge equal to the 500-year flood passing through the proposed construction are also investigated.

Water surface profiles were developed for the Aspetuck River in the vicinity of the Bayberry Lane Extension crossing using the US Army Corps of Engineers' HEC-RAS River Analysis System, Version 5.0.7.

The effective FEMA (regulatory) flows were analyzed to demonstrate the project's compliance with the National Flood Insurance Regulations and State Statutes.

The hydraulic analyses were also performed to obtain hydraulic parameters to evaluate the crossing sizing requirements, satisfy the regulatory requirements, and to evaluate potential bridge scour. The water surface profiles were developed for the design 2-year, 5-year, 10-year, 25-year, 50-year, 100-year, 200-year, and 500-year discharges. A detailed discussion of their results is presented in the separate *Hydraulic Design Report*.

B. PREVIOUS STUDIES

The Aspetuck River was studied in detail in the effective Fairfield County Flood Insurance Study (FIS), October 16, 2013. The results in this study are based on the 1984 study performed by USACE, New England District, for FEMA. That work was completed in November 1975.

C. GEOMETRIC DATA

The original hydraulic record data was obtained from the *June 2012 Floodway Analysis Report - Rehabilitation of North Avenue over Aspetuck River, Bridge No. 04968, State Project No. 158-187*, prepared by Diversified Technology Consultant for the Town of Westport.

The hydraulic cross sections used in the current study were initially adopted from the HEC-2 model and converted to the project datum (NAVD88). This original geometry model was compared to the current survey information and found to have the following discrepancies:

- An inspection of the effective FEMA Flood Insurance Rate Map and its previous version (January 7, 1998) revealed that the hydraulic cross section locations don't agree, in terms of their reach lengths, with the original HEC-2 data.
- As presented on the Hydraulic Cross Section Location Plans, by indicating the true and original river section designations, the locations of River Sections downstream of Bayberry Lane Extension show an approximately 100 feet shorter reach than reflected in the FEMA model.
- Additionally, an inspection of the river and bridge sections' geometrical configurations exposed the fact that the current sections have characteristic elevations (invert, low point in the road) up to 1.8 feet lower. Also, in many instances, the original channel areas are significantly smaller than the current survey indicates.

Because of the above discrepancies the existing model in the current study, serving as basis for all subsequent models, is based on the current survey data except of the bounding sections RS 8450, Lettered FEMA 'E' downstream, and RS 10510, Lettered FEMA 'F' upstream, which were adopted directly from FEMA without any modifications except for the HEC-RAS run requirements.

The existing base model includes a shallow masonry weir at RS 9440 located (approx. 105' upstream) apparently the remnants of an old breached dam. The original FEMA model did not identify this feature in its model.

All elevations in this study are referenced to NAVD88 datum. According to FEMA FIS, the conversion factor applied to the original Town of Westport FIS follows: from NGVD29 to NAVD88 is -1.00, and from NAVD88 to NGVD 29 is +1.00. All cross sections in the models presented herein were entered as if looking downstream.

D. ENERGY LOSS COEFFICIENTS AND BOUNDARY CONDITIONS

Manning's coefficients at the crossing site were assigned on the basis of field inspection. The assigned roughness coefficients range between 0.05 for the overbanks and 0.030 in the channel. Appropriate expansion and contraction coefficients, as recommended by HEC-RAS manuals, were used in the culvert and bridge models.

In the current study of the Bayberry Lane Extension crossing, the existing and proposed configurations, were analyzed using Pressure and Weir flow method for the high flows discharges.

For the regulatory models the downstream starting water surface elevations reported by FEMA were adopted directly as known at the first downstream river section.

The performed hydraulic analyses are documented in Appendix B.

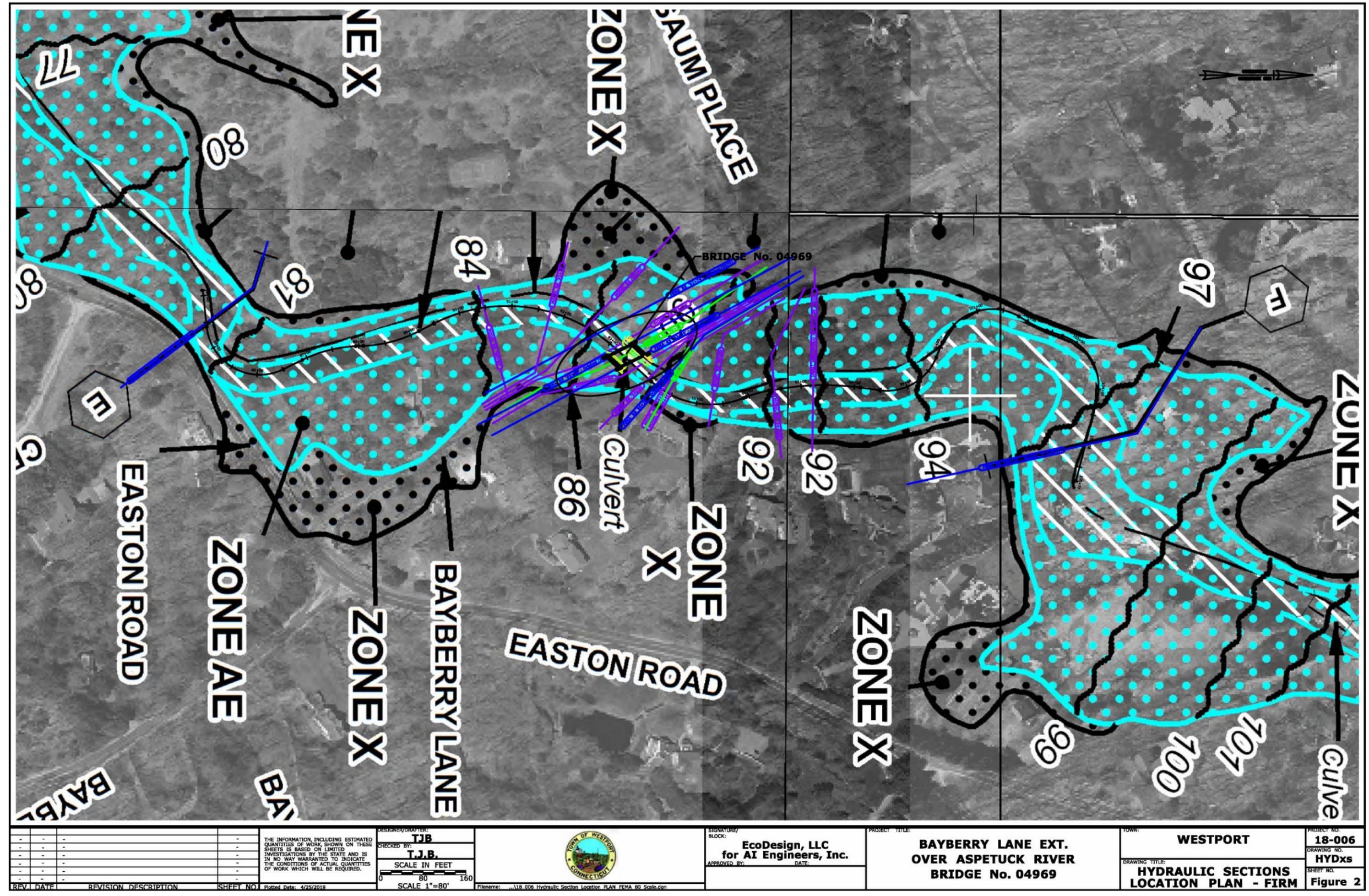
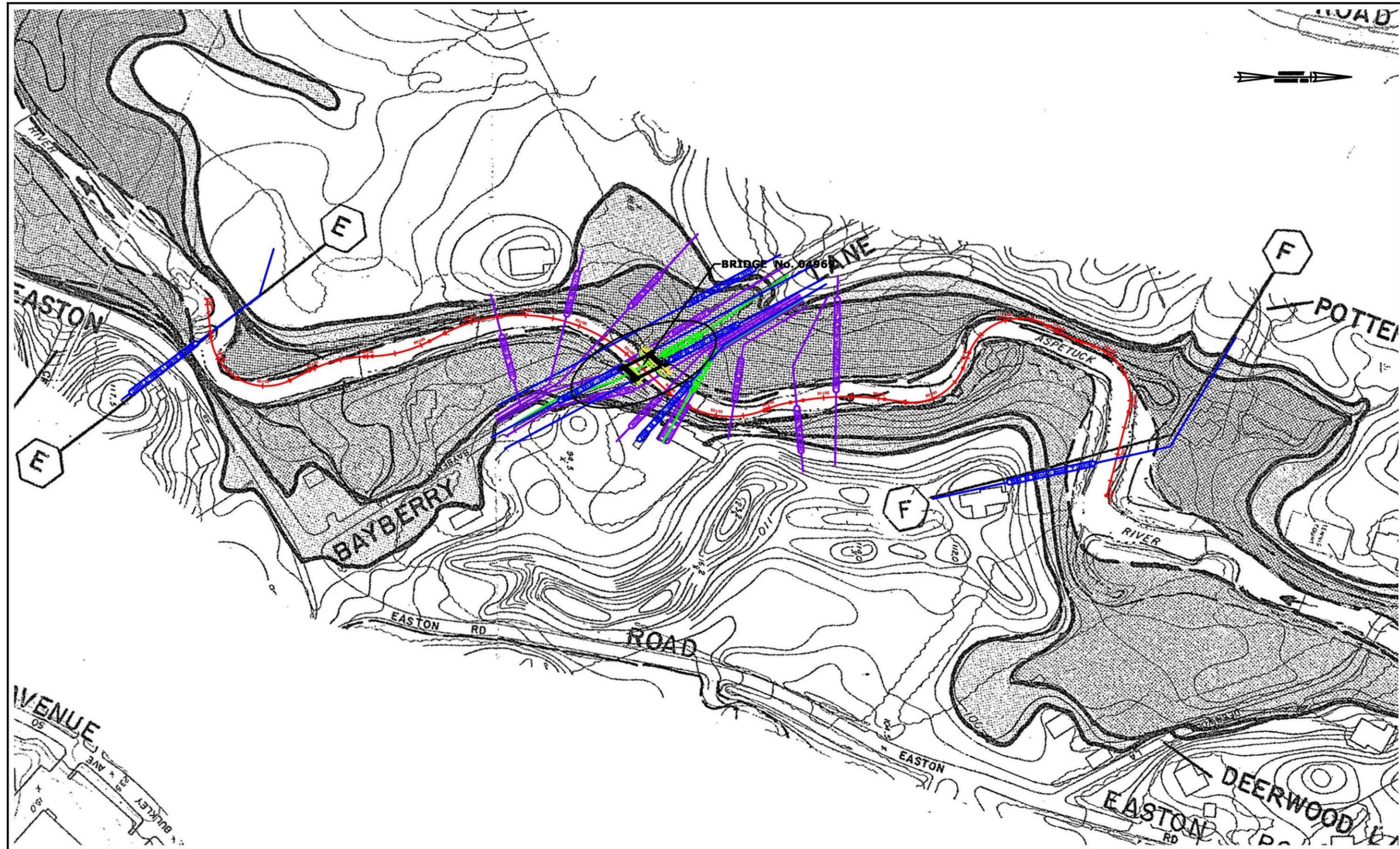


Figure No. 2A - CROSS-SECTION LOCATION PLAN 1"=80' - Effective FEMA FIRM (June 13, 2010)



THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.			DESIGNER/DRAWER: T.J.B. CHECKED BY: T.J.B. SCALE IN FEET 0 80 160 SCALE 1"=80'		SIGNATURE/BLOCK: EcoDesign, LLC for AI Engineers, Inc. APPROVED BY: DATE:		PROJECT TITLE: BAYBERRY LANE EXT. OVER ASPETUCK RIVER BRIDGE No. 04969		TOWN: WESTPORT		PROJECT NO.: 18-006	
FILED DATE: 4/25/2012			FILENAME: ...118-006 Hydraulic Section Location PLAN FEMA 80 Scale.dgn		DRAWING TITLE: HYDRAULIC SECTIONS LOCATION PLAN - FIRM		DRAWING NO.: HYDxs		SHEET NO.: Figure 2			

Figure No. 2B - CROSS-SECTION LOCATION PLAN 1" =80' - Original FEMA Study

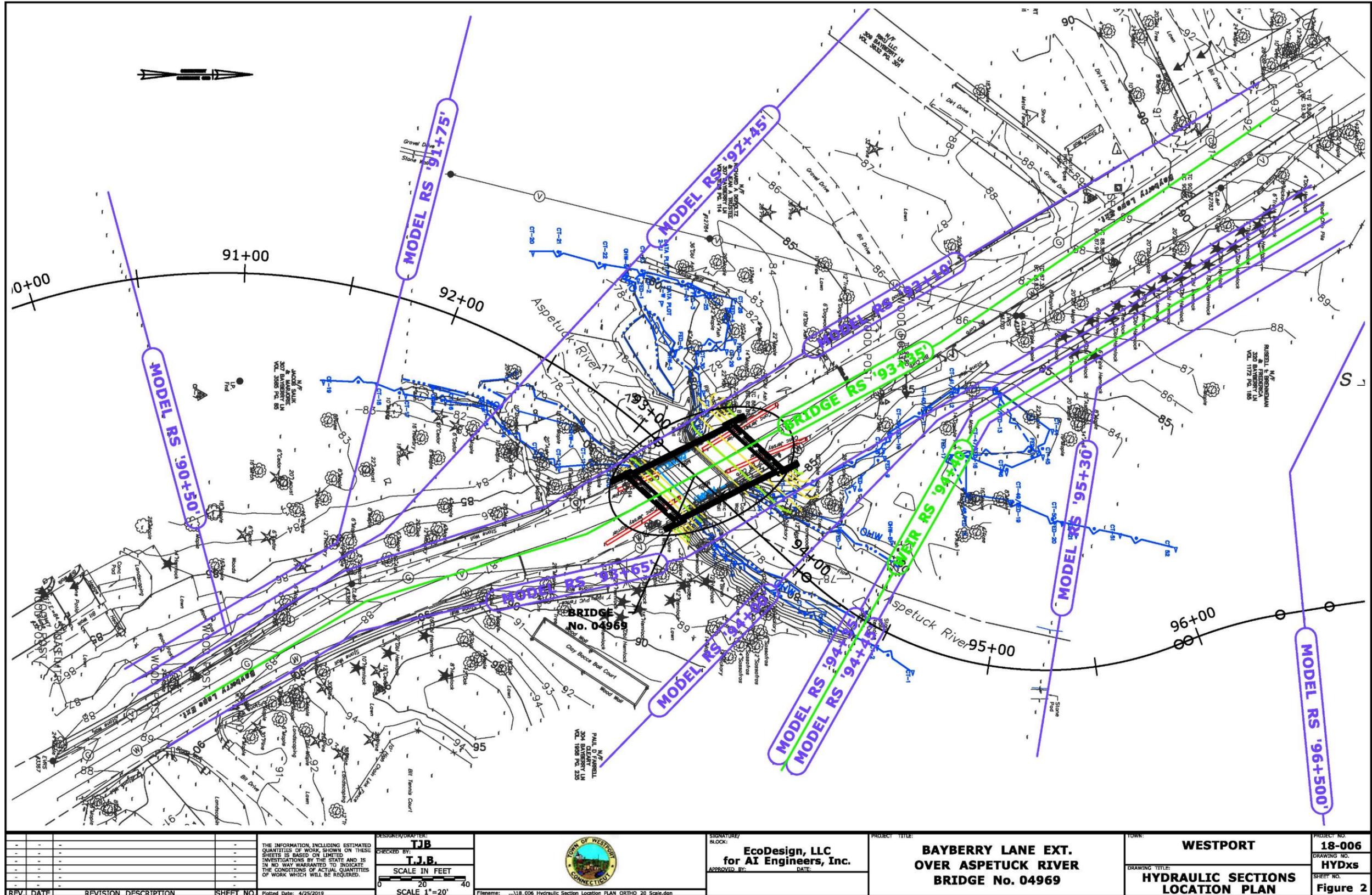


Figure No. 2D - CROSS-SECTION LOCATION PLAN 1"=20' - Project Survey

VI. HYDRAULIC DESIGN GUIDELINES

The following design criteria are applicable to the proposed Bayberry Lane Ext. crossing, Bridge No. 04969:

100 Year Analysis, Design Discharge - In the vicinity of the crossing, the proposed 100-year Design Discharge water surface elevations are approximately 0.8 feet lower than for the Existing Conditions at the approach section.

Structure Underclearance/Roadway Freeboard, Design Discharge - Section 9.3.6 of the *Drainage Manual* recommends a minimum underclearance of 2 feet and freeboard of 1-foot at the 100-year Design Discharge for large structures.

The proposed replacement structure will operate in pressure flow (-4.3 feet underclearance) and with no freeboard (-1.8 feet) with respect to the bridge approach section.

The proposed bridge configuration does not satisfy the Section 9.3.6 criteria with respect to the underclearance and freeboard and will require a waiver.

During the 10-year Design Discharge event (1,700 cfs) the proposed bridge will operate in pressure-only flow (0.0 foot underclearance) and will offer approximately 0.5 feet of freeboard to the low point in the road with respect to the approach section.

Natural Conditions, Design Discharge - Section 9.3.6 of the *Drainage Manual* recommends, for large structures, that the proposed 100-year water surface profile should be no more than 1-foot above the Natural Profile.

In the vicinity of the proposed Bayberry Lane Ext. crossing, the proposed 100-year design flood elevation is approximately 0.8 feet below the Natural Profile at the approach section.

The proposed bridge configuration satisfies the Section 9.3.6 backwater criteria.

VII. REGULATORY (FEMA) WATER SURFACE ANALYSIS

The effective FEMA (regulatory) flows were analyzed as part of the project to demonstrate its compliance with the National Flood Insurance Regulations and State Statutes. A detailed discussion of their results will be presented in the separate *Preliminary Floodway Report* in the next phase of the project.

The relevant tables demonstrating the compliance of the recommended alternate with the National Flood Insurance Regulations and State Statutes are included in the subsequent section. The compliance of other alternates presented in the *PE Report* can be reviewed by inspecting the HEC-RAS Data.

A. EFFECTIVE AND HISTORIC FEMA STUDIES

The Aspetuck River was studied in detail in the effective Fairfield County Flood Insurance Study (FIS), October 16, 2013. The results in this study are based on the 1984 study performed by USACE, New England District, for FEMA. That work was completed in November 1975.

An inspection of the effective FEMA Flood Insurance Rate Map and its previous version (January 7, 1998) revealed that the hydraulic cross section locations don't agree, in terms of their reach lengths, with the original HEC-2 data. As presented on the Hydraulic Cross Section Location Plan (Figure Nos. 2A through 2D), by indicating the true and original river section designations, the locations of River Sections downstream of Bayberry Lane Ext. show an approximately 100 feet shorter reach than reflected in the FEMA model. Additionally, an inspection of the river and bridge sections' geometrical configurations exposed the fact that the current sections have characteristic elevations (invert, low point in the road) up to 1.8 feet lower. Also, in many instances, the original channel areas are significantly smaller than the current survey indicates.

B. EFFECTIVE PUBLISHED RESULTS

A review of the FIS HEC-2 output indicates that the computed results closely match the published FIS Base Flood Elevations and Floodway Data Table in the area of the Bayberry Lane Ext. crossing, adjusted for the vertical datum difference.

Therefore, it was assumed that the HEC-2 floodplain model obtained from FEMA is the "final" run used to establish regulatory limits. However, the original floodway encroachment stations listed in the original HEC-2 output do not match the published floodway widths.

C. DUPLICATE EFFECTIVE MODEL

The original HEC-2 data, obtained from the FEMA Record Administrator, was used initially with only the modifications required by HEC-RAS to execute the plan, as the "Duplicate Effective" model.

At the direction of the reviewing Liaison Engineer the following additional modifications were incorporated into the duplicate Effective Model:

- a. The high flow bridge modeling approach was set to pressure and weir to be in agreement with the SB card of the HEC-2 analysis;
- b. Conveyance calculations were run in “HEC-2 mode”;
- c. Corrections to the bridge structure to reflect parameters presented on the SB card and the X2 card were implemented:
 - Set the roadway elevation of the structure constant to 88.5 (X2 field 5);
 - Changed the bridge width to 19 feet (SB field 5);
 - Included a 0.1 feet wide pier (SB field 7);
 - Set the bridge width to 29.8 feet to get closer to the 30 feet used in HEC-2 with 0.1 feet to the upstream and downstream bounding sections;
- d. The expansion and contraction coefficients were set to 0.5 and 0.3, respectively for the entire analyzed reach;
- e. At section 9270 (HEC-2 record RS 9370), the elevation at station 235 was adjusted to coincide with the record.

The resulting water surface elevations are in very close agreement with the effective published FEMA elevations or the original HEC-2 output data received from the Record Administrator and converted to the project datum.

Table No. 2: BASE FLOOD Water Surface Elevation COMPARISON					
HEC-RAS River Station	FEMA Station [Lettered Designation]	EFFECTIVE PUBLISHED	ORIGINAL HEC-2 1998 [NAVD88]	DUPLICATE EFFECTIVE	AMMENDED BASE [EXISTING]
		CWSEL (ft)	CWSEL (ft)	CWSEL (ft)	CWSEL (ft)
10510	10570 [F]	97.7	97.77	97.75	96.22
9725	9830	-	93.83	93.82	90.04
9530	-	-	-	-	90.15
9445	-	-	-	-	90.21
9440	Shallow Weir				
9435	9520	-	90.60	90.62	90.12
9400	-	-	-	-	90.12
9365	9450	-	89.82	90.51	89.86
9335	Bayberry Lane Ext.				
9310	9420	-	89.55	89.65	88.49
9245	9370	-	86.65	86.61	87.03
9175	-	-	-	-	85.15
9050	-	-	-	-	84.82
8450	8450 [E]	81.1	81.05	81.10	81.10

Note: The FEMA River Sections' designations are adjusted for the true channel reach length.

D. AMENDED BASE (EXISTING CONDITIONS)

Based on the findings of inconsistencies in the original HEC-2 input data, the amended base model generated in this study is based on the current survey data with the exception of the most downstream (FEMA Lettered E) and most upstream (FEMA Lettered F) sections being directly adopted from the original HEC-2 input data.

The calculated water surface elevations based on the current survey data are in general significantly lower than the published FEMA elevations or the original HEC-2 output data.

E. EXISTING STRUCTURE

The hydraulic analyses indicate that for the 100-year FEMA discharge (regulatory base flow of 6,100 cfs) the existing structure causes approximately 1.0 feet of backwater (above the Natural Conditions) at the upstream street line. For the FEMA Base flood, the existing crossing operates in pressure and weir flow with approximately 78% of flow overtopping the low point in the road with a maximum depth of approximately 4.7 feet.

For the 10-year FEMA Discharge, the existing bridge operates in pressure flow and weir flow over the roadway with approximately 28% of the discharge (2,300 cfs) as weir flow over the road.

F. PROPOSED STRUCTURE

The hydraulic analyses indicate that the proposed replacement crossing, with an increased 45-foot clear span structure, will reduce the upstream backwater by approximately 0.2 feet as compared to the existing crossing for the 100-year FEMA Discharge. The proposed structure will operate in pressure flow and weir flow with approximately 71% of flow overtopping the low point in the road with a maximum depth of approximately 4.6 feet.

For the 10-year FEMA Discharge the proposed bridge will operate in pressure flow and weir flow over the roadway with approximately 4% of the discharge as weir flow over the road.

G. FLOODWAY ANALYSIS

The above described "Amended Base" Existing/Proposed models represent the un-encroached analyses for the respective conditions. Following the development of the un-encroached analysis, encroachments representing floodway, were entered using the Encroachment Method 1 for the 10-year and 100-year discharges.

The encroachment stations for the original FEMA model river sections were obtained directly from the original HEC-2 records. For the updated or new river sections, based on the current field survey, the encroachments were estimated from the Flood Insurance Rate map and verified with the original HEC-2 records as appropriate.

Table No. 3: 10 - YEAR DISCHARGE (FEMA) PROPOSED VS. EXISTING						
River Station	Existing		Proposed		Proposed vs. Existing	
	CWSEL (ft)	Velocity (ft/s)	CWSEL (ft)	Velocity (ft/s)	CWSEL (ft)	Velocity (ft/s)
10510	92.56	10.37	92.56	10.37	0.00	0.00
9725	87.47	6.62	86.48	8.17	-0.99	+1.55
9530	87.46	5.03	86.37	6.36	-1.09	+1.33
9445	87.51	3.61	86.48	4.22	-1.03	+0.61
9440	Shallow Weir					
9435	87.48	3.63	86.42	4.27	-1.06	+0.64
9400	87.49	3.26	86.42	3.94	-1.07	+0.68
9365	87.18	6.13	85.84	7.75	-1.34	+1.62
9335	Bayberry Lane Ext.					
9310	83.41	14.07	83.51	13.25	+0.10 (*)	-0.82
9245	82.88	6.05	82.88	6.05	0.00	0.00
9175	82.05	9.23	82.05	9.23	0.00	0.00
9050	81.96	7.01	81.96	7.01	0.00	0.00
8450	78.90	8.71	78.90	8.71	0.00	0.00

(*) Increase contained within the Town Street Right-of-Way.

Table No. 4: 50 - YEAR DISCHARGE (FEMA) PROPOSED VS. EXISTING						
River Station	Existing		Proposed		Proposed vs. Existing	
	CWSEL (ft)	Velocity (ft/s)	CWSEL (ft)	Velocity (ft/s)	CWSEL (ft)	Velocity (ft/s)
10510	94.52	12.31	94.52	12.31	0.00	0.00
9725	89.22	9.09	89.01	9.44	-0.21	+0.35
9530	89.26	7.02	89.04	7.33	-0.22	+0.31
9445	89.33	5.17	89.12	5.34	-0.21	+0.17
9440	Shallow Weir					
9435	89.27	5.22	89.06	5.40	-0.21	+0.18
9400	89.27	4.99	89.07	5.12	-0.20	+0.13
9365	89.00	7.69	88.79	7.74	-0.21	+0.05
9335	Bayberry Lane Ext.					
9310	87.40	12.05	87.37	11.93	-0.03	-0.12
9245	85.32	7.40	85.32	7.39	0.00	-0.01
9175	83.07	14.26	83.07	14.26	0.00	0.00
9050	83.66	9.82	83.66	9.82	0.00	0.00
8450	80.30	10.50	80.30	10.50	0.00	0.00

Table No. 5: 100 - YEAR DISCHARGE (FEMA) PROPOSED VS. EXISTING						
River Station	Existing		Proposed		Proposed vs. Existing	
	CWSEL (ft)	Velocity (ft/s)	CWSEL (ft)	Velocity (ft/s)	CWSEL (ft)	Velocity (ft/s)
10510	96.22	12.01	96.22	12.01	0.00	0.00
9725	90.04	10.84	89.85	11.23	-0.19	+0.39
9530	90.15	8.19	89.96	8.50	-0.19	+0.31
9445	90.20	6.38	90.03	6.56	-0.17	+0.18
9440	Shallow Weir					
9435	90.12	6.46	89.96	6.58	-0.15	+0.11
9400	90.12	6.18	89.96	6.32	-0.15	+0.14
9365	89.86	8.93	89.70	8.93	-0.14	0.00
9335	Bayberry Lane Ext.					
9310	88.49	12.13	88.43	12.18	-0.06	+0.05
9245	87.03	7.59	87.03	7.59	0.00	0.00
9175	85.15	13.82	85.15	13.82	0.00	0.00
9050	84.82	11.20	84.83	11.20	0.00	0.00
8450	81.10	11.98	81.10	11.98	0.00	0.00

Table No. 6: 500 - YEAR DISCHARGE (FEMA) PROPOSED VS. EXISTING						
River Station	Existing		Proposed		Proposed vs. Existing	
	CWSEL (ft)	Velocity (ft/s)	CWSEL (ft)	Velocity (ft/s)	CWSEL (ft)	Velocity (ft/s)
10510	98.70	13.22	98.70	13.22	0.00	0.00
9725	91.73	14.48	91.67	14.61	-0.06	+0.13
9530	91.99	10.66	91.84	10.92	-0.15	+0.26
9445	91.98	8.95	91.84	9.13	-0.14	+0.18
9440	Shallow Weir					
9435	91.84	9.15	91.70	9.34	-0.14	+0.19
9400	91.84	8.76	91.71	8.94	-0.13	+0.18
9365	91.58	11.89	91.43	12.02	-0.15	+0.13
9335	Bayberry Lane Ext.					
9310	89.92	15.10	89.87	15.13	-0.05	+0.03
9245	90.01	8.88	90.01	8.88	0.00	0.00
9175	87.65	16.42	87.65	16.42	0.00	0.00
9050	87.47	13.98	87.47	13.98	0.00	0.00
8450	83.40	14.47	83.40	14.47	0.00	0.00

Table No. 7: 100-year FEMA DISCHARGE - FLOODWAY COMPARISON			
River Station	Existing FLOODWAY	Proposed FLOODWAY	Proposed vs. Existing
	CWSEL (ft)	CWSEL (ft)	CWSEL (ft)
10510	96.43	96.14	-0.29
9725	95.93	94.98	-0.95
9530	94.92	93.75	-1.17
9445	95.26	94.15	-1.11
9440	Shallow Weir		
9435	94.90	93.75	-1.15
9400	94.94	93.80	-1.14
9365	93.78	92.61	-1.17
9335	Bayberry Lane Ext.		
9310	88.18	87.98	-0.20
9245	89.70	89.70	0.00
9175	85.83	85.83	0.00
9050	84.38	84.38	0.00
8450	81.80	81.80	0.00

Table No. 8: 10-year FEMA DISCHARGE - FLOODWAY COMPARISON			
River Station	Existing FLOODWAY	Proposed FLOODWAY	Proposed vs. Existing
	CWSEL (ft)	CWSEL (ft)	CWSEL (ft)
10510	92.56	92.56	0.00
9725	89.11	87.13	-1.98
9530	88.74	86.26	-2.48
9445	88.84	86.45	-2.39
9440	Shallow Weir		
9435	88.68	86.16	-2.52
9400	88.69	86.18	-2.51
9365	88.33	85.57	-2.76
9335	Bayberry Lane Ext.		
9310	83.41	83.44	+0.03 (*)
9245	83.80	83.80	0.00
9175	81.73	81.73	0.00
9050	81.81	81.81	0.00
8450	79.20	79.20	0.00

(*) Increase contained within the Town Street Right-of-Way.

VIII. RIVERINE SHELVES ADJACENT TO ABUTMENTS

To improve, or at least to preserve, the hydraulic performance of the crossing with respect to the upstream water surface elevations (backwater), while maintaining the existing roadway profile and accommodating the deeper superstructure depths, it became necessary to provide a larger bridge opening.

This proposed increased bridge open flow area was accomplished by removing portions of the roadway embankment between the faces of the existing and the proposed abutments and grading the area at approximately 20% slope in front of the northerly abutment and at approximately 40% slope in front of the southerly abutment.

The incorporated proposed grading will result in an approximately 37% larger bridge opening area, without adversely affecting the channel below the ordinary high-water elevation, and will provide riparian shelves along the proposed abutments at the approximate elevation of the adjacent floodplain areas upstream and downstream of the crossing.

IX. CHANNEL VELOCITIES EVALUATION

The review of the flow velocities through the structure indicates a consistent reduction of their magnitude for the proposed crossing as compared to the existing crossing configuration for all except the 10-year event which is essentially the same.

Table No. 9: BRIDGE FLOW VELOCITY EXISTING VS. PROPOSED				
Frequency Event	10-year	50-year	100- year	500-year
<i>Existing Bridge Velocity (ft/s)</i>	11.0	9.2	9.0	10.3
<i>Existing Bridge Flow (cfs)</i>	1,651	1,396	1,353	1,548
Proposed Bridge Velocity (ft/s)	11.1	8.9	8.8	10.2
Proposed Bridge Flow (cfs)	2,213	1,772	1,750	2,019

For all the flows this reduction can be attributed to the fact that the proposed bridge, with the larger opening will be hydraulically more efficient allowing larger discharges to be conveyed through its opening rather than as weir flow over the roadway.

Based on the above observation and review of the field conditions, including the dominant stream bed material, and stability of the existing channel banks, no channel protection measures are proposed as part of the project.

X. FLOOD MANAGEMENT REGULATIONS & STATUTES

A. NATIONAL FLOOD INSURANCE PROGRAM REGULATIONS

No increases to the FEMA discharge, including the Base Flood, water surface elevations or floodway elevations (FEMA 10-year and 100-year discharges) result from the proposed project.

The proposed project will not adversely impact the hydraulic characteristics of the site nor increase the potential for downstream or upstream flooding. The project is consistent with the National Flood Insurance Program Regulations and the State Statutes.

B. CTDOT DRAINAGE MANUAL DESIGN CRITERIA WAIVER

Large structures are normally designed to pass a 100-year Design frequency discharge with a low chord underclearance generally not less than 2 feet and freeboard generally not less than 1 foot with respect to the approach river section.

The proposed bridge replacement does not meet the underclearance criteria stipulated in Section 9.3.6 of the *CTDOT Drainage Manual* by operating in pressure flow with approximately -4.3 feet of underclearance for the 100-year Design Discharge of 3,000 cfs.

The proposed crossing configuration does not meet the freeboard criteria stipulated in Section 9.3.6 of the *CTDOT Drainage Manual* for the 100-year Design Discharge.

In accordance with Section 9.2.3 of the Drainage Manual, the underclearance and freeboard may be waived when it can be demonstrated that satisfying these criteria would be impractical due to site conditions and other factors, which is the case of the Bridge No. 04969 replacement project.

This project satisfies the following general conditions for local roads:

- Bayberry Lane Ext. is a low traffic volume local facility;
- Alternate routes are available;
- Flood discharges may be allowed to cross over roads that are at or close to the floodplain grade.
- Water surface elevations are not increased by more than 1.0 foot and will not cause damage to upstream properties;
- Since the proposed crossing does not meet the required underclearance and freeboard criteria, the Town of Westport will barricade the road when overtopped;
- The road will be posted as being subject to flooding.

In order to satisfy the underclearance and the freeboard criteria, the roadway profile would have to be significantly elevated, which would adversely impact the upstream flooding limits. Because the low point of the roadway provides relief for the large, infrequent regulatory flows, this option was considered impractical as it would require Regulatory Floodplain and Floodway revisions and acquisition of flooding easements.

XI. AQUATIC RESOURCES

A. WATER HANDLING DURING CONSTRUCTION

A detailed water handling plan has been developed for the construction of the proposed crossing and is presented in the project plans.

It is assumed that Bayberry Lane Extension, given its current condition, will be closed to traffic during entire construction period.

The existing and proposed abutments will be surrounded by temporary cofferdams allowing for the removal of the existing abutments and grading of the riparian shelves in front of the proposed abutments. The restricted temporary hydraulic opening was modeled as a combination of blocked obstructions and sloping abutments with a maximum temporary clear span of approximately 15.4 feet.

The detailed water handling plan suggests a method of construction to accomplish the work, provide protection of the work during construction, and minimize impacts on natural resources.

All construction activities will be performed in accordance with CTDOT Form 818, supplemented as needed with project-specific special provisions. Proper erosion and sedimentation controls will be installed and maintained throughout the duration of the project so as not to increase turbidity levels. Best management practices will be adhered to throughout construction, including the typical restriction of unconfined in-stream activities to June 1 to September 30, inclusive.

B. FISH PASSAGE AND HABITAT ENHANCEMENTS

The initial review comments of the project approach by the ConnDEEP Inland Fisheries Division were provided in March 2018. The received comments/recommendations listed below have been addressed in the design development:

- 1. Existing onsite conditions provide for unrestricted fish passage and a streambed of natural materials. The final design of this project must maintain such conditions.*
- 2. To protect downstream fish habitat, it is critical that proper erosion and sedimentation controls be installed and maintained throughout the duration of this project. Care should be exercised so as not to increase turbidity levels and all disturbed area will need to be stabilized and restored with native vegetation after completion of the project.*
- 3. Due to the presence of diadromous fish, any “unconfined” instream work should be restricted to the period July 1 through September 30.*
- 4. If riprap is required for scour protection, all efforts should be made to minimize the amount of area covered by riprap and all riprap should be covered with natural streambed material or rounded stone.*

The intent of the proposed project is to maintain the existing natural geometry and material of the stream channel for the proposed replacement crossing. No riprap in the channel installation, as the abutment scour protection, is proposed as part of the project. The purpose of the 12-inch layer of Modified Riprap under the widened bridge span, extending from the toes of channel

banks to the abutment faces, is to provide stabilization of the newly created bare surfaces that will be subject to flow. Within the ordinary highwater elevation the Modified Riprap layer shall be covered with a 12-inch layer of natural streambed material.

The proposed 45-foot clear span structure spans more than 1.2 times the bank full flow channel width (approximately 37 feet), and provides new riparian shelves along the southerly and northerly abutments, and as such provides the most environmentally sensitive configuration.

The completed project should not have any additional impacts on fish passage or habitat, as compared to the existing crossing, beyond the temporary water handling during construction.

TECHNICAL APPENDICES

APPENDIX A – ORIGINAL FEMA DATA



FEMA's National Flood Hazard Layer (NFHL) Viewer

with Web App



Find address or place



09001 C0403F
eff. 6/18/2010

Bridge No. 04969

Town of Westpo
090019

09001 C0411F
eff. 6/18/2010

FLOODWAY
Zone AE

Zone AE

300ft

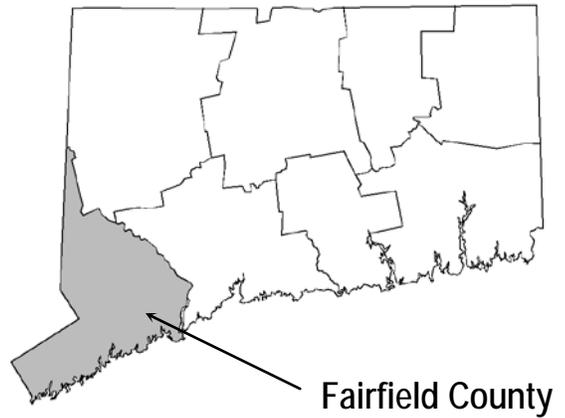
-73.341 41.187 Degrees

FLOOD INSURANCE STUDY



VOLUME 1 OF 6

FAIRFIELD COUNTY, CONNECTICUT (ALL JURISDICTIONS)



COMMUNITY NAME	COMMUNITY NUMBER
BETHEL, TOWN OF	090001
BRIDGEPORT, CITY OF	090002
BROOKFIELD, TOWN OF	090003
DANBURY, CITY OF	090004
DARIEN, TOWN OF	090005
EASTON, TOWN OF	090006
FAIRFIELD, TOWN OF	090007
GREENWICH, TOWN OF	090008
MONROE, TOWN OF	090009
NEW CANAAN, TOWN OF	090010
NEW FAIRFIELD, TOWN OF	090188
NEWTOWN, TOWN OF	090011
NORWALK, CITY OF	090012
REDDING, TOWN OF	090141
RIDGEFIELD, TOWN OF	090013
SHELTON, CITY OF	090014
SHERMAN, TOWN OF	090166
STAMFORD, CITY OF	090015
STRATFORD, TOWN OF	090016
TRUMBULL, TOWN OF	090017
WESTON, TOWN OF	090018
WESTPORT, TOWN OF	090019
WILTON, TOWN OF	090020

Revised:
October 16, 2013



Federal Emergency Management Agency

FLOOD INSURANCE STUDY NUMBER
09001CV001C
A-2

Weston, Town of: - continued

The hydrologic and hydraulic analyses for the West Branch Saugatuck River for the FIS report dated December 19, 1997 were prepared by Roald Haestad, Inc., for FEMA under Contract No. EMW-94-C-4405. That work was completed in December 1995.

Westport, Town of:

The hydrologic and hydraulic analyses for some portions of the original June 4, 1984, FIS report and December 4, 1984, FIRM, were performed by the USACE, New England District, for FEMA, under Inter-Agency Agreement No. IAA-H-19-74, Project Order No. 15. That work was completed in November 1975.

Also for the 1984 FIS, the hydrologic and hydraulic analyses for the portions of the study that include Stony Brook (now known as Stony Brook 2), the section of Dead Man's Brook from the Silent Grove North crossing to a point approximately 1,450 feet upstream of Highland Road, Poplar Plains Brook, and Willow Brook were conducted by CE Maguire, Inc., for FEMA, under Contract No. EMW-C-0278. That work was completed in September 1982. Subsequent revisions to the hydraulic analysis for Stony Brook 2, as requested by the Town of Westport, were completed by CE Maguire, Inc., for FEMA, under Contract No. EMW-C-0278. That work was completed in February 1984.

The hydrologic and hydraulic analyses for the West Branch Saugatuck River for the FIS report dated January 7, 1998 were prepared by Roald Haestad, Inc., for FEMA, under Contract No. EMW-94-C-4405, Amendment No. 1. That work was completed in December 1995.

Wilton, Town of:

The hydrologic and hydraulic analyses for the original May 17, 1982, FIS and November 17, 1982, Flood Boundary and Floodway Map (FBFM), were prepared by Philip W. Genovese and Associates for FEMA, under Contract No. H-4711. That work was completed in May 1980.

The hydrologic and hydraulic analyses for the FIS report dated June 4, 1990 were prepared by the USGS for FEMA, under Inter-Agency Agreement

the 50- to 1-percent-annual-chance data. The rainfall values used in the regression equations were obtained from "Aerial Rainfall Maps for Connecticut," which were included in a paper entitled "Flood Flow Formulas for Urbanized and Nonurbanized Areas of Connecticut," by the USGS (Reference 69). Data on stream length and channel slopes were obtained from USGS topographic maps (Reference 73). The percent stratified drift within the watershed was obtained from "Water Resources Inventory of Connecticut, Part 4, Southwestern Coastal River Basin," prepared by the USGS in cooperation with the Connecticut Water Resources Commission (Reference 79).

For the Town of Westport, in the 1984 FIS, The hydrologic analyses for the Saugatuck River (Lower Reach), the Aspetuck River (Lower Reach), Dead Man's Brook, Muddy Brook, and Sasco Creek were based on data from gaged streams in and near the study area, including the Norwalk River, the Silvermine River, the Saugatuck River (Lower Reach), the Still River, Sasco Creek, and CopperMill Brook. The data was subjected to the log-Pearson Type III statistical analysis of annual peaks with a required skew of 1.0 (Reference 62). From these data, frequency-discharge relationships were established for different sized drainage areas.

For the January 7, 1998, revision, For the West Branch Saugatuck River, peak discharges of the 10-, 2-, and 1-percent-annual-chance floods were calculated using regression equations established by the USGS (Reference 75). A regression equation was not available for the 0.2-percent-annual-chance flood; therefore, the peak discharge for the 0.2-percent-annual-chance flood was extrapolated from the lesser floods that were calculated. The rainfall values used in the regression equations also were obtained from the USGS (Reference 41). Data on the stream length and channel slopes were obtained from USGS topographic maps (Reference 73). The percent stratified drift within the watershed was obtained from "Water Resources Inventory of Connecticut, Part 4, Southwestern Coastal River Basin," prepared by the USGS in cooperation with the Connecticut Water Resources Commission (Reference 79).

In the Town of Wilton, for the 1982 FIS, peak discharges for the Norwalk River and Comstock Brook are a modification of the flows calculated by the NRCS (Reference 37). The discharges were modified because all of the planned NRCS flood-retarding structures were not completed by the time the June 18, 2010 countywide FIS was prepared. Therefore, the natural peak discharges calculated by the NRCS have been modified to include only the effects of the completed dams, the first on Ridgefield Brook, and the other on Spectacle Brook.

The NRCS method of calculating peak discharges is based on curves that predict runoff based primarily on soil type and land use. This method classifies areas according to these parameters and then applies a 24-hour duration storm to it to determine runoff units. This method then adjusts the resulting values based on watershed shape, channel slope, and the percentages of swampy and impervious areas to arrive at a peak discharge for the watershed (References 43 through 45). Discharges were then modified by the NRCS by routing the subject storms through the floodwater retarding structures using Wilson's routing method.

Also for the 1982 FIS, peak discharges for the East Branch Silvermine River were determined from formulas for ungaged streams in Connecticut developed by L.A. Weiss (Reference 41). The formulas were the result of a log-Pearson Type III regression

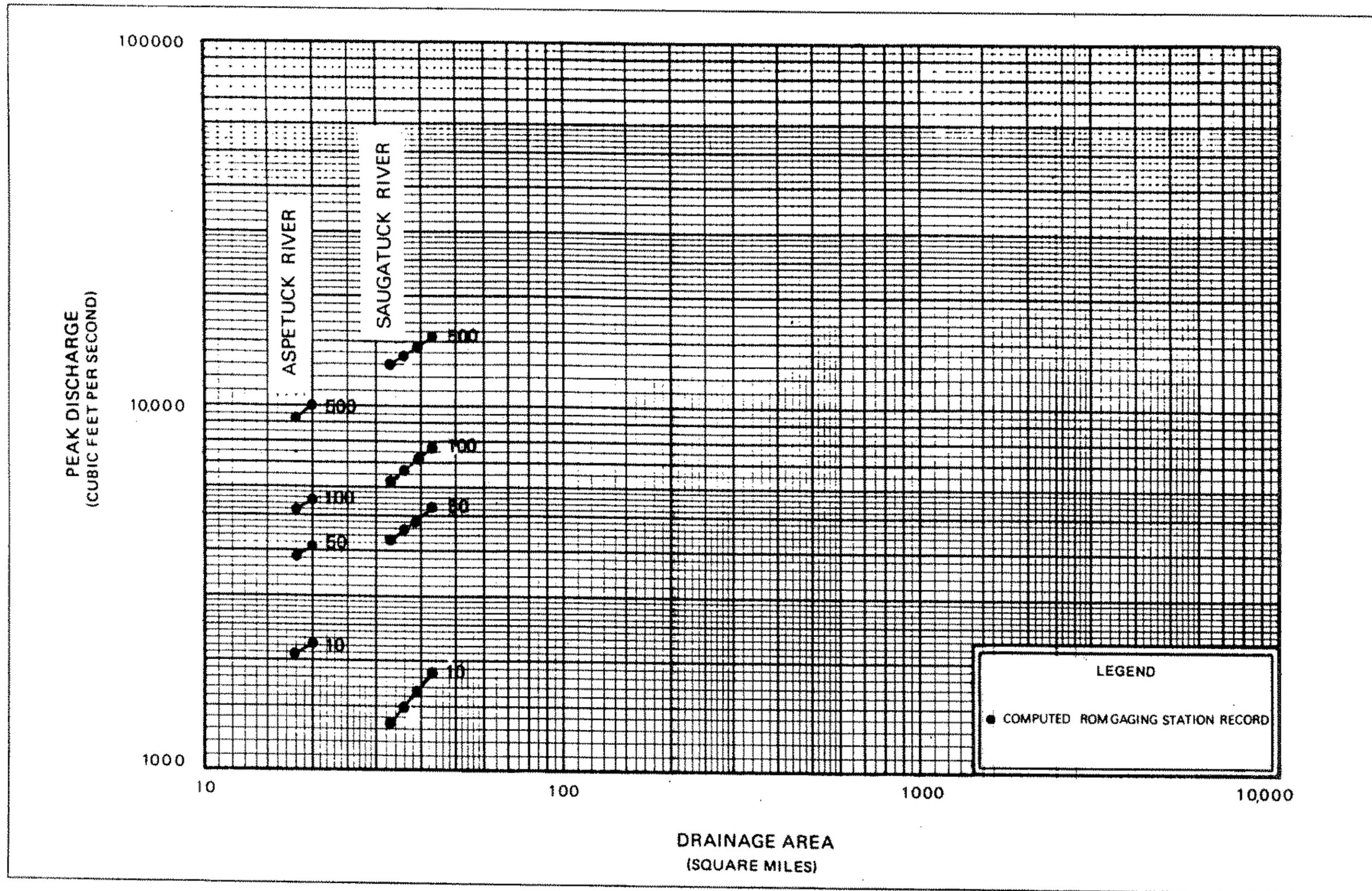


FIGURE 1 – FREQUENCY-DISCHARGE-DRAINAGE AREA CURVES – ASPETUCK RIVER (LOWER REACH) – SAUGATUCK RIVER (LOWER REACH) – SAUGATUCK RIVER (UPPER REACH)

A summary of the drainage area-peak discharge relationships for all the streams studied by detailed methods is shown in Table 5, "Summary of Discharges."

TABLE 5 - SUMMARY OF DISCHARGES

FLOODING SOURCE AND LOCATION	DRAINAGE AREA (sq. miles)	PEAK DISCHARGES (cfs)			
		10- PERCENT- ANNUAL- CHANCE	2- PERCENT- ANNUAL- CHANCE	1- PERCENT- ANNUAL- CHANCE	0.2- PERCENT- ANNUAL- CHANCE
ASPETUCK RIVER					
(LOWER REACH)					
At confluence with Saugatuck River (Lower Reach)	23.1	2,400	4,600	6,400	11,700
At unnamed pond near Weston (in Westport)	20.8	2,250	4,300	5,900	10,800
At the Easton-Weston- Fairfield corporate limits	20.1	2,210	4,100	5,700	10,000
At the Easton-Weston corporate limits	18.3	2,120	3,900	5,250	9,450
ASPETUCK RIVER					
(UPPER REACH)					
At Valley Road	7.7	865	1,235	2,090	3,010
At Stepney Road	6.9	815	1,170	1,975	2,845
At Valley Road	5.2	650	915	1,550	2,235
At Poverty Hollow Road	3.7	520	735	1,245	1,795
BALL POND BROOK					
At confluence with Lake Candlewood	7.49	1,930	3,280	3,940	5,760
At confluence of Bates Brook	6.42	1,900	3,250	3,900	5,700
At State Route 39	5.50	1,790	3,035	3,650	5,330
Downstream of State Route 37	2.85	1,000	2,550	3,000	4,300
BALLWALL BROOK					
At confluence with the Aspetuck River (Upper Reach)	1.82	234	311	388	660
Just upstream of confluence of tributary approximately 1,150 feet downstream of Staples Road	1.24	168	224	279	475

Town of Weston (Reference 108). The main channel and all bridges and culverts were field surveyed to obtain or verify elevation data and structural geometry.

Numerous footbridges along the restudied reach of the West Branch Saugatuck River were included in the HEC-2 model. The footbridges span the main channel and do not constrict the channel to a significant degree, if at all, and there are no embankments in the overbank areas. The footbridges were modeled using a simplified approach because of the large number of bridges within the study reach. The obstructions created by the footbridge decks and appurtenances were included in the model using BT cards for the normal bridge method. In a major flood event, the footbridges would likely be washed away by the floodwaters.

For the October 17, 1978, FIS, starting water-surface elevations were calculated using engineering judgment, except for the Aspetuck River (Lower Reach), for which starting water-surface elevations were taken from the FIS for the Town of Fairfield (Reference 47). For the December 19, 1997, revision, starting water-surface elevations for the West Branch Saugatuck River were taken from the HEC-2 results for the revised Towns of Westport and Wilton profiles.

For the Town of Westport, for the 1984 FIS, cross-section data were obtained by field measurements performed in June 1973, October 1980, and November 1981, and from available topographic maps (References 109 & 110). When available, bridge plans were utilized to obtain elevation data and structural geometry; all bridges and culverts for which plans were unavailable or out-of-date were surveyed.

For the January 7, 1998 revision, cross-section data for the West Branch Saugatuck River were compiled using contour information from topographic maps at a scale of 1:1,200, with a contour interval of 2 feet (Reference 110). The main channel and all bridges, culverts, and dams were field surveyed to obtain or verify elevation data and structural geometry. Numerous footbridges along the restudied reach of the West Branch Saugatuck River were included in the HEC-2 model. The footbridges span the main channel and do not constrict the channel to a significant degree, if at all, and there are no embankments in the overbank areas. The footbridges were modeled using a simplified approach because of the large number of bridges within the study reach. The obstructions created by the footbridge decks and appurtenances were included in the model using BT cards for the normal bridge method. In a major flood event, the footbridges would likely be washed away by the floodwaters.

No profiles are shown for the lower reaches of the Saugatuck River (Lower Reach), Stony Brook 2, Dead Man's Brook, Muddy Brook, and Sasco Creek, which are controlled by Long Island Sound.

In the 1984 FIS, starting water-surface elevations for the 1-percent-annual-chance flood for the Saugatuck River (Lower Reach), Muddy Brook, and Sasco Creek were obtained from the 10-percent-annual-chance tidal-surge elevation of Long Island Sound. The peaks on the streams and Long Island Sound were desynchronized. For the 10-percent-annual-chance starting water-surface elevation, the level of spring high tide on Long Island Sound was used. The 2-percent-annual-chance starting water-surface elevation

percent-annual-chance flood was approximated using a hydraulic analysis of the 1-percent-annual-chance flood at the structures; the 1-percent-annual-chance flood was calculated with the use of standard pipe flow charts for culvert flow and normal depth calculations for overland flow; and the 1-percent-annual-chance flood elevations were established from records kept by the community and from flood levels indicated in the field by local residents.

Locations of selected cross sections used in the hydraulic analyses are shown on the Flood Profiles (Exhibit 1). For stream segments for which a floodway was computed (Section 4.2), selected cross section locations are also shown on the FIRM (Exhibit 2).

Roughness factors (Manning's "n") used in the hydraulic computations were chosen by engineering judgment and were based on field observations of the streams and floodplain areas. Roughness factors for all streams studied by detailed methods are shown in Table 7, "Manning's "n" Values."

TABLE 7 – MANNING’S “n” VALUES

<u>Stream</u>	<u>Channel “n”</u>	<u>Overbank “n”</u>
Aspetuck River (Lower Reach)	0.030 – 0.060	0.040 – 0.120
Aspetuck River (Upper Reach)	0.025 – 0.050	0.030 – 0.100
Ball Pond Brook	*	*
Ballwall Brook	0.030 – 0.045	0.050 – 0.080
Beardsley Brook	0.030	0.070
Beaver Brook	0.030 – 0.060	0.040 – 0.120
Belden Brook	0.013 – 0.060	0.020 – 0.160
Betts Pond Brook	0.015 – 0.060	0.015 – 0.110
Booth Hill Brook	0.013 – 0.060	0.020 – 0.160
Brown’s Brook	0.030 – 0.040	0.020 – 0.060
Bruce Brook	0.020	0.100
Burying Ground Brook	*	*
Byram River	0.030 – 0.050	0.035 – 0.125
Cider Mill Brook	0.030 – 0.060	0.040 – 0.060
Comstock Brook	0.015 – 0.070	0.025 – 0.080
Converse Pond Brook	0.012 – 0.030	0.060 – 0.150
Copper Mill Brook	0.030	0.070
Cooper Pond Branch	0.035 – 0.040	0.025 – 0.075
Cricker Brook	0.030	0.050
Dead Man’s Brook	0.030	0.020 – 0.070
Deep Brook	0.030 – 0.050	0.060 – 0.100
Dibbles Brook	0.030 – 0.040	0.060 – 0.090
East Branch Byram River	0.020 – 0.030	0.060
East Branch Mianus River	0.024 – 0.068	0.030 – 0.138
East Branch Silvermine River	0.015 – 0.070	0.025 – 0.080
East Brook	0.020 – 0.065	0.060 – 0.120

* Data not available

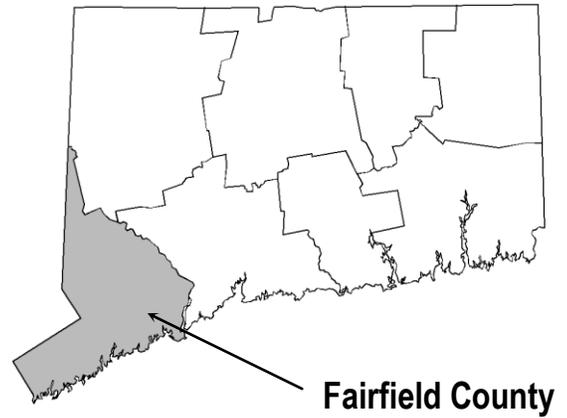
FLOOD INSURANCE STUDY

VOLUME 2 OF 6



FAIRFIELD COUNTY, CONNECTICUT (ALL JURISDICTIONS)

COMMUNITY NAME	COMMUNITY NUMBER
BETHEL, TOWN OF	090001
BRIDGEPORT, CITY OF	090002
BROOKFIELD, TOWN OF	090003
DANBURY, CITY OF	090004
DARIEN, TOWN OF	090005
EASTON, TOWN OF	090006
FAIRFIELD, TOWN OF	090007
GREENWICH, TOWN OF	090008
MONROE, TOWN OF	090009
NEW CANAAN, TOWN OF	090010
NEW FAIRFIELD, TOWN OF	090188
NEWTOWN, TOWN OF	090011
NORWALK, CITY OF	090012
REDDING, TOWN OF	090141
RIDGEFIELD, TOWN OF	090013
SHELTON, CITY OF	090014
SHERMAN, TOWN OF	090166
STAMFORD, CITY OF	090015
STRATFORD, TOWN OF	090016
TRUMBULL, TOWN OF	090017
WESTON, TOWN OF	090018
WESTPORT, TOWN OF	090019
WILTON, TOWN OF	090020



Revised:
October 16, 2013



Federal Emergency Management Agency

FLOOD INSURANCE STUDY NUMBER
09001CV002C
A-9

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD 88)			
CROSS SECTION	DISTANCE ¹	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Aspetuck River (Lower Reach)								
A	3,300	130	806	7.9	44.3	44.3	45.3	1.0
B	4,600	40	559	11.5	57.2	57.2	58.2	1.0
C	5,450	155	1,620	3.8	68.8	68.8	69.8	1.0
D	6,400	116	832	7.3	69.1	69.1	70.0	0.9
E	$Q=585*10.4=6,084\text{cfs}$ 8,450	115	585	10.4	81.1	81.1	81.8	0.7
F	$Q=997*6.1=6,082\text{cfs}$ 10,570	177	997	6.1	97.7	97.7	98.4	0.7
G	11,700	65	1,359	4.5	105.3	105.3	106.1	0.8
H	12,780	55	389	15.2	114.2	114.2	115.1	0.9
I	13,800	87	453	13.0	130.6	130.6	130.6	0.0
J	15,100	68	618	9.6	150.5	150.5	151.1	0.6
K	16,450	102	993	5.9	163.5	163.5	164.1	0.6
L	18,100	100	1,123	5.3	176.5	176.5	177.5	1.0
M	19,450	217	2,017	2.9	183.4	183.4	184.3	0.9
N	21,350	48	401	14.7	186.5	186.5	187.0	0.5
O	21,655	240	2,160	2.4	189.5	189.5	190.5	1.0
P	23,880	160	713	7.4	206.8	206.8	206.8	0.0
Q	23,970	210	1,191	4.4	210.2	210.2	210.4	0.2
R	24,645	137	564	9.3	214.7	214.7	214.9	0.2
S	24,880	185	1,412	3.7	221.0	221.0	221.1	0.1
T	26,430	337	846	6.2	222.3	222.3	222.4	0.1
U	27,980	250	1,447	3.6	225.4	225.4	226.4	1.0
V	28,600	640	4,328	1.2	225.4	225.4	226.4	1.0
W	28,765	578	3,770	1.4	225.5	225.5	226.5	1.0
X	29,600	336	2,457	2.1	225.6	225.6	226.6	1.0
Y	29,755	229	899	5.8	225.6	225.6	226.6	1.0
Z	29,940	203	1,743	3.0	227.6	227.6	227.9	0.3

¹Feet above confluence with Saugatuck River (Lower Reach)

TABLE 11

FEDERAL EMERGENCY MANAGEMENT AGENCY

FAIRFIELD COUNTY, CT
(ALL JURISDICTIONS)

FLOODWAY DATA

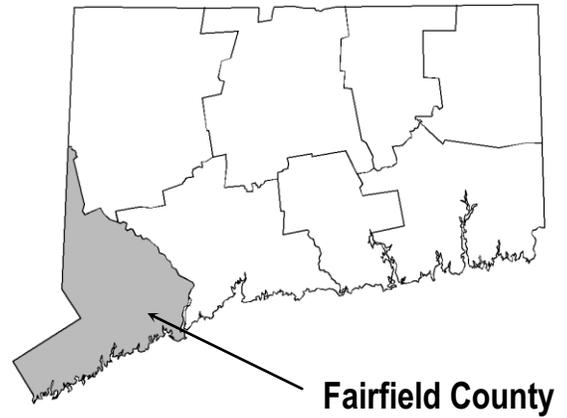
ASPETUCK RIVER (LOWER REACH)

FLOOD INSURANCE STUDY



VOLUME 3 OF 6

FAIRFIELD COUNTY, CONNECTICUT (ALL JURISDICTIONS)



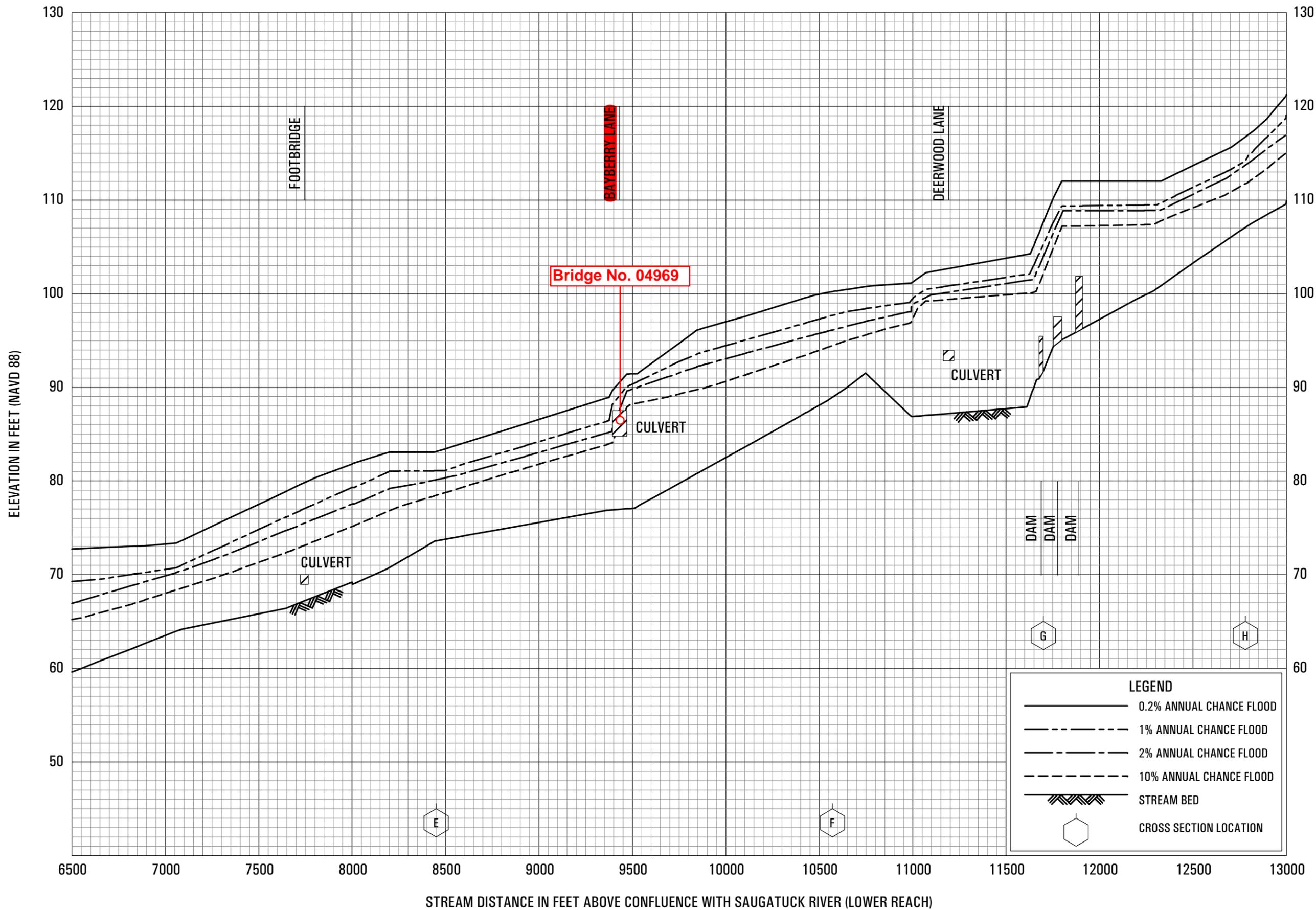
COMMUNITY NAME	COMMUNITY NUMBER
BETHEL, TOWN OF	090001
BRIDGEPORT, CITY OF	090002
BROOKFIELD, TOWN OF	090003
DANBURY, CITY OF	090004
DARIEN, TOWN OF	090005
EASTON, TOWN OF	090006
FAIRFIELD, TOWN OF	090007
GREENWICH, TOWN OF	090008
MONROE, TOWN OF	090009
NEW CANAAN, TOWN OF	090010
NEW FAIRFIELD, TOWN OF	090188
NEWTOWN, TOWN OF	090011
NORWALK, CITY OF	090012
REDDING, TOWN OF	090141
RIDGEFIELD, TOWN OF	090013
SHELTON, CITY OF	090014
SHERMAN, TOWN OF	090166
STAMFORD, CITY OF	090015
STRATFORD, TOWN OF	090016
TRUMBULL, TOWN OF	090017
WESTON, TOWN OF	090018
WESTPORT, TOWN OF	090019
WILTON, TOWN OF	090020

Revised:
October 16, 2013



Federal Emergency Management Agency

FLOOD INSURANCE STUDY NUMBER
09001CV003C
A-11



FLOOD PROFILES
 ASPETUCK RIVER (LOWER REACH)

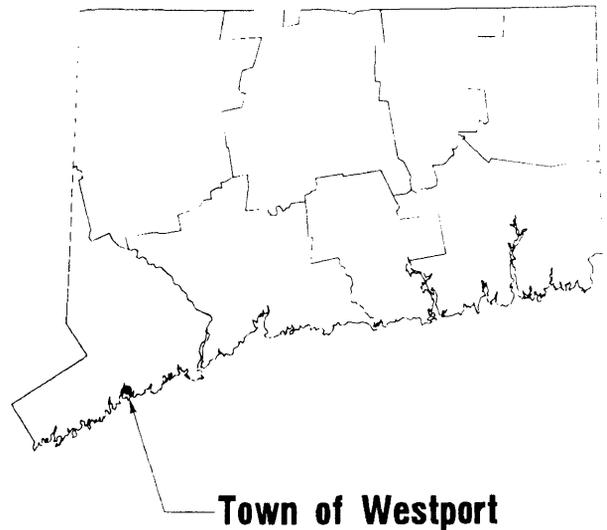
FEDERAL EMERGENCY MANAGEMENT AGENCY
 FAIRFIELD COUNTY, CT
 (ALL JURISDICTIONS)

02P

FLOOD INSURANCE STUDY



**TOWN OF
WESTPORT,
CONNECTICUT
FAIRFIELD COUNTY**



REVISED:
JANUARY 7, 1998



Federal Emergency Management Agency

COMMUNITY NUMBER - 090019

1.3 Coordination

The purpose of an initial Consultation Coordination Officer's (CCO) meeting is to discuss the scope of the FIS. A final CCO meeting is held to review the results of the study.

For the 1984 FIS, an initial CCO meeting was held on January 10, 1975, and was attended by representatives of the Town of Westport, the USACE, and FEMA. An intermediate CCO meeting was held in October 1979 and was attended by C.E. Maguire, Inc., the town, and FEMA. The U.S. Geological Survey (USGS); the USACE, New England District; the Westport Department of Public Works; the Westport Flood and Erosion Control Board; and the Connecticut Department of Transportation were all contacted for various types of information. A final CCO meeting was held on June 23, 1983, and was attended by representatives of the town, C.E. Maguire, Inc., and FEMA.

For this revision, an initial CCO meeting was held on August 2, 1993, and was attended by representatives of the Town of Weston, Roald Haestad, Inc., and FEMA. Coordination with Town officials and Federal and State agencies produced a variety of information pertaining to available community maps, flood history, and other hydraulic and hydrologic data. A final CCO meeting was held on December 20, 1996, and was attended by representatives of the town, Roald Haestad, Inc., and FEMA.

2.0 AREA STUDIED

2.1 Scope of Study

This FIS covers the incorporated area of the Town of Westport, Fairfield County, Connecticut. The area of study is shown on the Vicinity Map (Figure 1).

For the 1984 FIS, the flooding sources studied by detailed methods include the Saugatuck River, from Long Island Sound to the Westport-Weston corporate limits; the **Aspetuck River**, from its confluence with the Saugatuck River to the Westport-Weston-Fairfield corporate limits; Stony Brook, from its confluence with the Saugatuck River to the Westport-Norwalk corporate limits; Dead Man's Brook, from its confluence with the Saugatuck River to a point approximately 1,450 feet upstream of Highland Road; Muddy Brook, from Long Island Sound to a point approximately 6,900 feet upstream of High Point Road; Sasco Creek, from Long Island Sound to the Westport-Fairfield corporate limits; Poplar Plains Brook, from its confluence with the Saugatuck River to State Route 33; and Willow Brook, from its confluence with the Saugatuck River to State Route 57. Portions of the Saugatuck River, Stony Brook, Dead Man's Brook, Muddy Brook, and Sasco Creek are influenced by tides from Long Island Sound. This tidal effect was taken into consideration. The entire coastal area of Long Island Sound within the town was also studied in detail, and the effect of wave action was considered.

For this revision, the West Branch Saugatuck River was restudied by detailed methods for its entire reach within the town.

The areas studied by detailed methods were selected with priority given to all known flood hazard areas and areas of projected development or proposed construction.

Portions of Dead Man's Brook, Muddy Brook, Poplar Plains Brook, Willow Brook, Pussy Willow Brook, Silver Brook, the Indian River, and New Creek were studied by approximate methods.

Approximate analyses were used to study those areas having a low development potential or minimal flood hazards. The scope and methods of study were proposed to and agreed upon by FEMA and the Town of Westport.

2.2. Community Description

The Town of Westport is located in south-central Fairfield County, in southwestern Connecticut. The town is a predominantly residential community located along Long Island Sound, approximately 47 miles from New York City and approximately 29 miles from New Haven, Connecticut. It is bordered on the north by the Town of Weston, on the east by the Town of Fairfield, on the south by Long Island Sound, and on the west by the Towns of Norwalk and Wilton. The 1994 population was 25,001. Westport has a total land area of 19.9 square miles. Westport has a population density of approximately 1,256 persons per square mile. The topography of the town rises to the north from its shoreline on the Long Island Sound to an elevation of approximately 250 feet above sea level at its corporate limits.

Prior to World War I, light industry and farming were predominant in the town. Later, these activities yielded to urban pressures, and by 1950 Westport had become primarily a suburban community.

The Saugatuck River, which flows south to Long Island Sound, is the principal river in Westport. It is 18.8 miles in length, with a drainage area of 93.2 square miles. South of the Merritt Parkway, its floodplain encompasses heavy residential and commercial areas. North of the parkway to the corporate limits, the floodplain exhibits light residential development.

The West Branch Saugatuck River, a tributary flowing south into the Saugatuck River, is 8.9 miles in length, with a drainage area of 12.2 square miles. Its floodplain within the corporate limits has light residential development.

The **Aspetuck River**, a tributary flowing south to the Saugatuck River, is 16.0 miles in length, with a drainage area of 23.1 square miles. The floodplain of the Aspetuck River within the corporate limits consists of light residential and wooded areas.

floods of a specific magnitude, rare floods could occur at short intervals or even within the same year. The risk of experiencing a rare flood increases when periods greater than 1 year are considered. For example, the risk of having a flood which equals or exceeds the 100-year flood (1-percent chance of annual occurrence) in any 50-year period is approximately 40 percent, and, for any 90-year period, the risk increases to approximately 60 percent. The analyses reported herein reflect flooding potentials based on conditions existing in the community at the time of completion of this study. Maps and flood elevations will be amended periodically to reflect future changes.

3.1 Hydrologic Analyses

Hydrologic analyses were carried out to establish peak discharge-frequency and peak elevation-frequency relationships for floods of the selected recurrence intervals for each flooding source studied in detail in the community.

1984 FIS

The hydrologic analyses for the Saugatuck River, the **Aspetuck River**, Dead Man's Brook, Muddy Brook, and Sasco Creek were based on data from gaged streams in and near the study area, including the Norwalk River, the Silvermine River, the Saugatuck River, the Still River, Sasco Creek, and Copper-Mill Brook. The data was subjected to the log-Pearson Type III statistical analysis of annual peaks with a required skew of 1.0 (Reference 3). From these data, frequency-discharge relationships were established for different sized drainage areas.

Stony Brook discharges were found by transposing the flows from the Norwalk FIS downstream to various points in Westport using the relationship (Reference 4):

$$\frac{Q_1}{Q_2} = \frac{A_1^{.394}}{A_2^{.394}}$$

where Q_1 and A_1 are the discharge and drainage area, respectively from the Norwalk FIS, and Q_2 and A_2 are the discharge and drainage areas at a point upstream (Reference 5).

The Regional Frequency Method was used for computing peak discharges for Poplar Plains Brook and Willow Brook (Reference 6). This method is based on a regression analysis of stream flow records from 105 stream-gaging stations in Connecticut and 28 precipitation-gaging stations established by the National Weather Service in Connecticut, Massachusetts, Rhode Island, and New York. The regression analysis is based on the parameters of drainage area, rainfall, main channel length, main channel slope, and extent of storm sewers.

TABLE 2 - SUMMARY OF DISCHARGES

<u>FLOODING SOURCE AND LOCATION</u>	<u>DRAINAGE AREA (sq. miles)</u>	<u>PEAK DISCHARGES (cfs)</u>			
		<u>10-YEAR</u>	<u>50-YEAR</u>	<u>100-YEAR</u>	<u>500-YEAR</u>
SAUGATUCK RIVER					
At Lee Pond Dam	81.0	4,500	9,200	12,600	24,800
Upstream of confluence of West Branch Saugatuck River	67.7	4,000	8,180	11,200	22,060
WEST BRANCH					
SAUGATUCK RIVER					
At confluence with Saugatuck River	11.98	1,100	2,000	2,500	3,700
At downstream Weston/ Westport corporate limits	11.23	1,100	2,000	2,500	3,700
At Westport/Wilton corporate limits	10.90	1,100	2,000	2,500	3,700
ASPETUCK RIVER					
At confluence with Saugatuck River	23.1	2,400	4,600	6,400	11,700
At unnamed pond near Weston	20.8	2,250	4,300	5,900	10,800
STONY BROOK					
At confluence with Saugatuck River	3.29	495	1,150	1,700	3,665
At Blind Brook Road	2.59	410	950	1,405	3,020
DEAD MAN'S BROOK					
At confluence with Saugatuck River	2.29	650	840	940	1,400
MUDDY BROOK					
At mouth	2.85	740	1,000	1,100	1,700
Downstream of Hillandale Road	1.8	550	720	800	1,170
SASCO CREEK					
At mouth	10.2	1,560	2,500	3,170	5,360
Downstream of Sasco Pond Dam	8.6	1,430	2,300	2,900	4,920
POPLAR PLAINS BROOK					
At confluence with Saugatuck River	0.94	145	195	245	480
WILLOW BROOK					
At confluence with Saugatuck River	0.97	150	200	250	460

Poplar Plains Brook, and Willow Brook were calculated using the slope/area method.

For this revision, the starting water-surface elevation for the West Branch Saugatuck River was determined using the slope/area method. Roughness factors (Manning's "n" values) used in the hydraulic computations were chosen by engineering judgment and based on field observation of the streams and floodplain areas. The following tabulation shows the channel and overbank "n" values for the streams studied by detailed methods:

<u>Stream</u>	<u>Channel "n"</u>	<u>Overbank "n"</u>
Saugatuck River	0.03	0.05
West Branch Saugatuck River	0.03-0.06	0.06-0.10
Aspetuck River	0.03	0.05
Stony Brook	0.016-0.055	0.03-0.10
Dead Man's Brook	0.03	0.02-0.07
Muddy Brook	0.03	0.05
Sasco Creek	0.03	0.05
Poplar Plains Brook	0.016-0.045	0.05-0.075
Willow Brook	0.016-0.10	0.04-0.08

For streams studied by approximate methods, the boundary of the 100-year flood was determined by evaluation of the previously published Flood Hazard Boundary Map for the Town of Westport (Reference 14).

In all areas where analyses indicated that supercritical flow would occur, critical depth was assumed. This is a reasonable assumption given the inherent instability of supercritical flow. The hydraulic analyses for this study are based on unobstructed flow. The flood elevations shown on the profiles are considered valid only if hydraulic structures remain unobstructed, operate properly, and do not fail.

Hydraulic analyses of the shoreline characteristics of the flooding sources studied in detail were carried out to provide estimates of the elevations of floods of the selected recurrence intervals along each of the shorelines.

The methodology for analyzing the effects of wave heights associated with coastal storm surge flooding is described in the National Academy of Sciences (NAS) report (Reference 15). The NAS wave height methodology is based on three major physical concepts. First, depth limited waves in shallow water reach a maximum breaking height that is equal to 78 percent of the stillwater depth, and the wave crest elevation is equal to 70 percent of the wave height plus the stillwater elevation. Second, the wave height may be diminished by dissipation of energy due to the presence of obstructions such as sand dunes, dikes, seawalls, buildings, and vegetation. The physical characteristics of the obstruction dictate the amount of wave energy dissipation. The third major concept is that wave height can be regenerated in open fetch areas because of the

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION (FEET NGVD)				
CROSS SECTION	DISTANCE ¹	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE	
Aspetuck River									
A	3,300	130	806	7.9	45.3	45.3	46.3	1.0	
B	4,600	40	559	11.5	58.2	58.2	59.2	1.0	
C	5,450	155	1,620	3.8	69.8	69.8	70.8	1.0	
D	6,400	116	832	7.3	70.1	70.1	71.0	0.9	
E	$Q=585*10.4=6,084\text{cfs}$	8,450	115	585	10.4	82.1	82.1	82.8	0.7
F	$Q=997*6.1=6,082\text{cfs}$	10,570	177	997	6.1	98.7	98.7	99.4	0.7
G	11,700	65	1,359	4.5	106.3	106.3	107.1	0.8	
H	12,780	55	389	15.2	115.2	115.2	116.1	0.9	

¹Feet above confluence with Saugatuck River

TABLE 4

FEDERAL EMERGENCY MANAGEMENT AGENCY

TOWN OF WESTPORT, CT
(FAIRFIELD CO.)

FLOODWAY DATA

ASPETUCK RIVER

5.4 FIRM Description

The FIRM for the Town of Westport is, for insurance purposes, the principal result of the FIS. This map (published separately) contains the official delineation of flood insurance zones and base flood elevation lines. Base flood elevation lines show the locations of the expected whole-foot water-surface elevations of the base (100-year) flood. This map is developed in accordance with the latest flood insurance map preparation guidelines published by FEMA.

6.0 OTHER STUDIES

Published data available in the USACE Interim Memo No. USACE 2, the USACE Connecticut Coastline Study, and the Flood Insurance Studies for the City of Norwalk, and the Towns of Fairfield, Wilton, and Weston, Connecticut, were used, as appropriate, to complete the hydrologic and hydraulic analyses of all the watercourses studied (References 2, 20, 4, 21, 22, and 23). These studies agree with the results of this study. Discharges, cross sections, flood boundaries, and floodways for the Saugatuck River, the **Aspetuck River**, Stony Brook, and Sasco Creek have been coordinated between applicable contiguous studies.

In 1978, a private consulting firm prepared a comprehensive drainage improvement plan covering several of the detailed study streams in this report, including Stony, Dead Man's, Muddy, Poplar Plains, and Willow Brooks (Reference 19). The discharges in that report were derived from two sources. The first was the hydrologic analyses as performed by the USACE in the 1976 Westport FIS, modified for upstream storage, and the second was the rational formula.

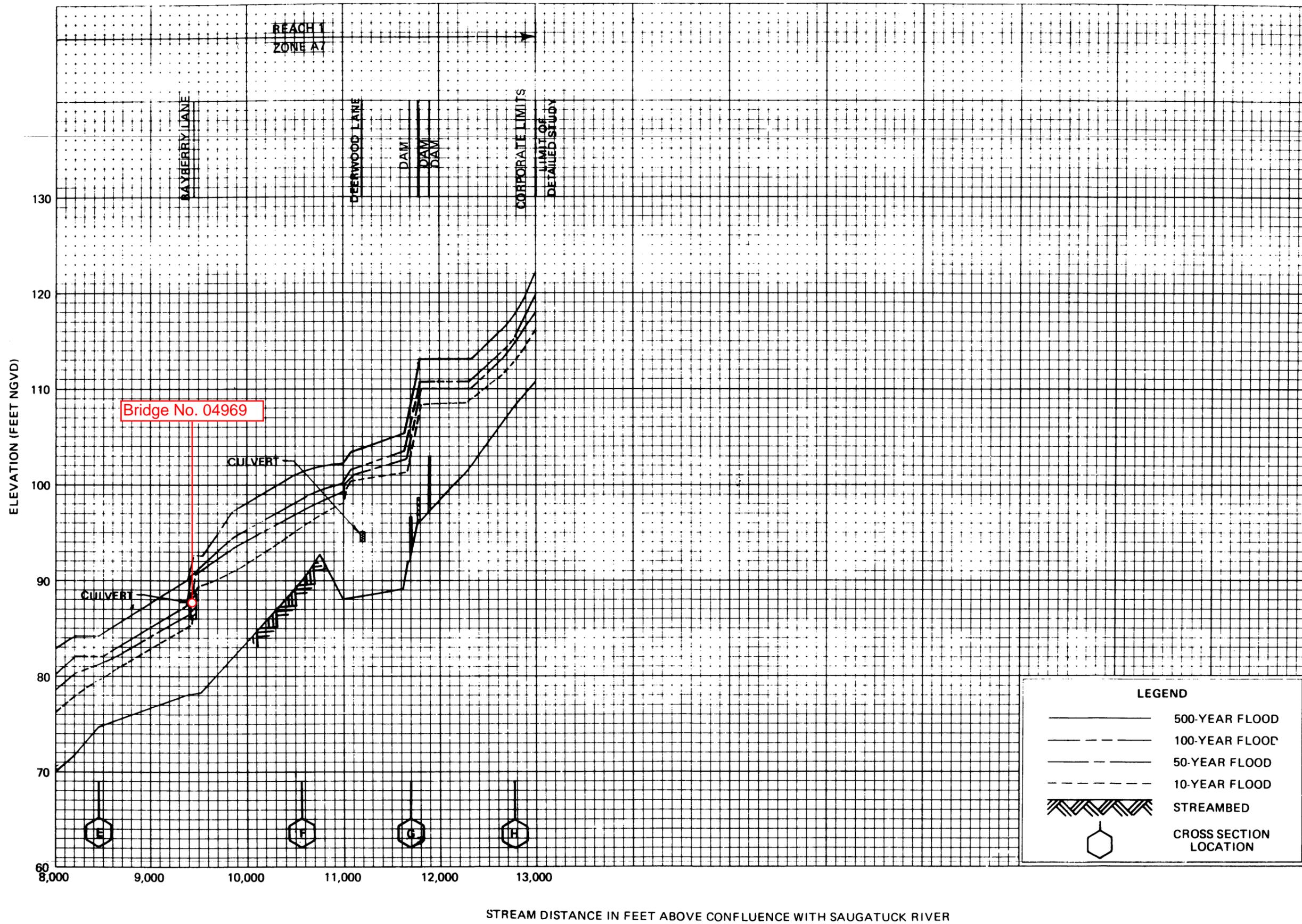
Because it is based on more up-to-date analyses, this FIS supersedes the previously printed FIS for the Town of Westport (Reference 24).

7.0 LOCATION OF DATA

Information concerning the pertinent data used in preparation of this study can be obtained by contacting FEMA, Mitigation Division, J. W. McCormack Post Office and Courthouse Building, Room 462, Boston, Massachusetts 02109.

8.0 BIBLIOGRAPHY AND REFERENCES

1. Joseph J. Brumbach, The Climate of Connecticut, Storrs, Connecticut, 1965.
2. U.S. Army Corps of Engineers, New England District, Long Island Sound Interim Memo No. USACE 2, "Tidal Hydrology," Waltham, Massachusetts, June 1973, revised June 1974.



FLOOD PROFILES
ASPETUCK RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY
TOWN OF WESTPORT, CT
(FAIRFIELD CO.)

08P

TOWN OF WESTPORT

FLOODWAY ANALYSIS REPORT

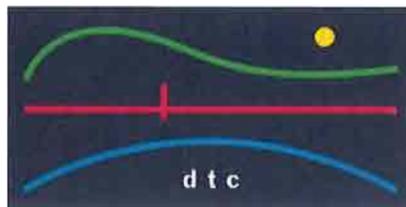
**REHABILITATION OF NORTH AVENUE OVER THE
ASPETUCK RIVER**

BRIDGE No.: 04968

**STATE PROJECT No.: 158-187
FEDERAL PROJECT No.: BHZ-6158 (2)**

**NOVEMBER 2005
REVISED: JUNE 2012**

SUBMITTED BY:



DIVERSIFIED TECHNOLOGY CONSULTANTS
ENGINEERS – PLANNERS – LANDSCAPE ARCHITECTS – SURVEYORS
NORTH HAVEN, CT

 HEC2 VERSION UPDATED JAN 1975
 ERROR CORRECTIONS 01,02,03,04,05,06,07,08
 MODIFICATIONS 52,53,54,55,56,57,58

T1 ASPETUCK 100 YR= 5.4 10.4 15.4 25.4 FLOODWAYS
 T2 ASPETUCK 100 YR
 T3 ASPETUCK 100 YR

J1	ICHECK	INW	NINW	IDIR	STRT	METRIC	HVINS	Q	WSEL	FO
	-1.	6.	-0.	-0.	-0.000000	-0.00	-0.0	-0.	44.277	-0.000
J2	NPROF	IPLUT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	1.000	-0.000	-1.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
J3	1.000	34.000	9.000	21.000	22.000	27.000	28.000	4.000	-0.000	-0.000
NC	.050	.050	.030	.300	.500	-0.000	-0.000	-0.000	-0.000	-0.000
UT	9.000	6400.000	6400.000	6400.000	6400.000	6400.000	6400.000	6400.000	6400.000	6400.000
ET	0.000	7.400	7.400	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	2380.000	16.000	840.000	884.000	0.000	0.000	0.000	1.000	0.000	0.000
GR	55.000	0.000	50.000	50.000	45.000	205.000	43.200	730.000	41.100	840.000
GR	36.100	850.000	35.100	860.000	35.000	872.000	36.100	880.000	39.100	884.000
GR	40.500	930.000	43.300	980.000	43.300	1650.000	45.000	1660.000	50.000	1720.000
GR	55.000	1760.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	2430.000	11.000	800.000	842.000	50.000	50.000	50.000	1.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	44.000	44.000	-0.000
GR	50.000	0.000	45.000	160.000	40.000	230.000	40.000	800.000	34.400	800.000
GR	34.400	842.000	40.000	842.000	42.300	942.000	40.000	1200.000	40.000	1620.000
GR	50.000	1730.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
SB	1.050	1.250	2.500	0.000	40.000	.100	340.000	0.000	0.000	0.000
X1	2460.000	0.000	0.000	0.000	30.000	30.000	30.000	1.000	0.000	0.000
X2	0.000	0.000	1.000	42.900	45.000	-0.000	-0.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	45.000	45.000	-0.000
BT	11.000	0.000	50.000	0.000	160.000	45.000	0.000	740.000	44.100	0.000
BT	800.000	45.000	0.000	800.000	42.900	0.000	840.000	42.900	0.000	840.000
BT	44.800	0.000	942.000	42.300	0.000	1200.000	40.000	0.000	1620.000	40.000
BT	0.000	1730.000	50.000	0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	2500.000	10.000	100.000	245.000	40.000	40.000	40.000	1.000	0.000	0.000
GR	50.000	0.000	45.000	25.000	40.000	50.000	35.000	100.000	35.000	245.000
GR	40.000	380.000	45.300	550.000	35.400	571.000	43.200	578.000	50.000	665.000
X1	2560.000	13.000	550.000	578.000	60.000	60.000	60.000	1.000	0.000	0.000
GR	50.000	0.000	45.000	25.000	40.000	50.000	35.000	100.000	35.000	245.000
GR	40.000	380.000	45.300	550.000	43.200	550.000	35.400	550.000	35.400	578.000
GR	43.200	578.000	45.300	578.000	50.000	655.000	-0.000	-0.000	-0.000	-0.000
X1	3300.000	11.000	80.000	180.000	740.000	740.000	740.000	-1.000	0.000	0.000
GR	65.000	0.000	65.000	80.000	50.000	100.000	40.000	110.000	35.000	150.000
GR	40.000	180.000	45.000	320.000	50.000	400.000	55.000	420.000	60.000	440.000
GR	65.000	450.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000

FIS Table No. 5
 100-year Discharge

GR	85.000	0.000	80.000	15.000	75.000	45.000	70.000	60.000	65.000	80.000
GR	60.000	95.000	55.000	105.000	50.000	130.000	45.000	150.000	39.000	180.000
GR	45.000	215.000	50.000	440.000	55.000	500.000	60.000	520.000	65.000	540.000
GR	70.000	590.000	75.000	620.000	80.000	740.000	-0.000	-0.000	-0.000	-0.000
X1	4140.000	13.000	220.000	350.000	440.000	440.000	440.000	1.000	0.000	0.000
GR	85.000	0.000	80.000	190.000	75.000	220.000	50.000	250.000	45.000	260.000
GR	43.000	280.000	45.000	310.000	50.000	350.000	55.000	600.000	60.000	650.000
GR	65.000	680.000	70.000	800.000	75.000	890.000	-0.000	-0.000	-0.000	-0.000
ET	0.000	8.400	8.400	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	4600.000	17.000	190.000	360.000	460.000	460.000	460.000	1.000	0.000	0.000
GR	85.000	0.000	80.000	70.000	75.000	100.000	70.000	140.000	65.000	170.000
GR	60.000	190.000	55.000	230.000	53.000	290.000	50.000	300.000	53.000	320.000
GR	55.000	330.000	60.000	360.000	65.000	380.000	70.000	400.000	75.000	420.000
GR	80.000	470.000	85.000	530.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
QT	9.000	6100.000	6100.000	6100.000	6100.000	6100.000	6100.000	6100.000	6100.000	6100.000
X1	5100.000	12.000	159.000	185.000	500.000	500.000	500.000	1.000	0.000	0.000
GR	70.000	0.000	71.100	40.000	65.600	102.000	58.500	157.000	56.500	159.000
GR	55.100	169.000	55.100	178.000	55.600	185.000	56.500	190.000	68.900	213.000
GR	68.300	240.000	70.000	300.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	5150.000	6.000	140.000	196.000	50.000	50.000	-0.000	1.000	0.000	0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	68.000	68.000	-0.000
GR	75.000	0.000	55.600	140.000	55.600	196.000	65.000	230.000	70.000	300.000
GR	70.000	600.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
SB	1.050	1.250	2.500	0.000	56.000	.100	694.400	0.000	0.000	0.000
X1	5200.000	0.000	0.000	0.000	50.000	50.000	50.000	1.000	0.000	0.000
X2	0.000	0.000	1.000	68.000	68.500	-0.000	-0.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	68.500	68.500	-0.000
BT	8.000	0.000	75.000	0.000	90.000	74.300	0.000	140.000	71.800	0.000
BT	140.000	68.000	0.000	198.000	68.000	0.000	198.000	70.400	0.000	225.000
BT	68.500	0.000	600.000	70.000	0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	5450.000	12.000	45.000	120.000	250.000	250.000	250.000	1.000	0.000	0.000
GR	80.000	0.000	75.000	25.000	70.000	45.000	65.000	50.000	60.000	60.000
GR	58.000	70.000	55.600	80.000	58.000	100.000	60.000	120.000	65.000	240.000
GR	70.000	270.000	75.000	400.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	6000.000	13.000	345.000	430.000	550.000	550.000	550.000	1.000	0.000	0.000
GR	85.000	0.000	80.000	130.000	75.000	160.000	70.000	190.000	65.000	230.000
GR	60.000	345.000	58.000	373.000	60.000	405.000	65.000	410.000	70.000	430.000
GR	75.000	450.000	80.000	500.000	85.000	670.000	-0.000	-0.000	-0.000	-0.000
X1	6400.000	11.000	240.000	310.000	400.000	400.000	400.000	1.000	0.000	0.000
GR	85.000	0.000	80.000	95.000	75.000	150.000	70.000	175.000	65.000	240.000
GR	60.000	275.000	65.000	310.000	70.000	440.000	75.000	550.000	80.000	590.000
GR	85.000	660.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
ET	0.000	6.400	6.400	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	7050.000	13.000	140.000	300.000	650.000	650.000	650.000	1.000	0.000	0.000
GR	85.000	0.000	80.000	30.000	75.000	70.000	70.000	110.000	65.000	140.000
GR	65.000	180.000	70.000	210.000	65.000	250.000	65.000	300.000	70.000	310.000
GR	75.000	330.000	80.000	560.000	85.000	640.000	-0.000	-0.000	-0.000	-0.000
X1	7800.000	12.000	417.000	464.000	750.000	750.000	750.000	1.000	0.000	0.000
GR	85.000	0.000	80.000	130.000	80.200	220.000	79.100	320.000	74.600	417.000
GR	71.600	424.000	69.800	433.000	69.500	443.000	69.900	459.000	71.600	464.000
GR	0.000	0.000	80.000	497.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000

X1	8200.000	10.000	390.000	470.000	400.000	400.000	400.000	1.000	0.000	0.000
GR	85.000	0.000	85.000	270.000	80.000	300.000	75.000	390.000	72.000	410.000
GR	75.000	470.000	80.000	550.000	85.000	570.000	90.000	650.000	100.000	680.000
"E" X1	8450.000	9.000	325.000	440.000	250.000	250.000	250.000	1.000	0.000	0.000
GR	90.000	0.000	85.000	325.000	80.000	330.000	75.000	360.000	80.000	440.000
GR	85.000	450.000	90.000	490.000	95.000	500.000	100.000	515.000	-0.000	-0.000
ET	0.000	25.400	25.400	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	9370.000	16.000	196.000	260.000	920.000	920.000	920.000	1.000	0.000	0.000
GR	100.000	0.000	95.000	50.000	87.200	140.000	83.700	196.000	81.600	198.000
GR	78.200	218.000	79.200	228.000	80.400	235.000	81.600	240.000	81.800	245.000
GR	82.700	260.000	87.800	380.000	85.000	700.000	90.000	1060.000	90.000	1110.000
GR	100.000	1150.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
ET	0.000	12.400	12.400	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	9420.000	10.000	810.000	830.000	50.000	50.000	50.000	1.000	0.000	0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	87.000	87.000	-0.000
GR	104.000	410.000	94.000	530.000	92.000	680.000	85.000	810.000	78.300	810.000
GR	78.300	830.000	85.000	830.000	89.500	930.000	92.000	1030.000	91.000	1600.000
SB	1.050	1.250	2.500	0.000	19.000	1.00	145.500	0.000	0.000	0.000
X1	9450.000	0.000	0.000	0.000	30.000	30.000	30.000	1.000	0.000	0.000
X2	0.000	0.000	1.000	86.000	88.500	-0.000	-0.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	88.000	88.000	-0.000
BT	11.000	0.000	125.000	0.000	160.000	119.000	0.000	295.000	114.000	0.000
BT	360.000	108.000	0.000	410.000	102.000	0.000	530.000	93.700	0.000	680.000
BT	91.100	0.000	810.000	88.500	0.000	830.000	88.500	0.000	1030.000	91.200
BT	0.000	1600.000	91.000	0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	9520.000	13.000	200.000	270.000	70.000	70.000	70.000	1.000	0.000	0.000
GR	100.000	0.000	95.000	60.000	90.000	200.000	85.000	205.000	80.000	210.000
GR	78.500	212.000	78.400	212.000	78.400	220.000	78.400	240.000	78.500	260.000
GR	90.000	270.000	95.000	275.000	100.000	620.000	-0.000	-0.000	-0.000	-0.000
ET	0.000	5.400	5.400	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	9830.000	10.000	215.000	280.000	310.000	310.000	310.000	1.000	0.000	0.000
GR	110.000	0.000	105.000	30.000	100.000	50.000	95.000	125.000	90.000	215.000
GR	82.000	231.000	90.000	255.000	95.000	280.000	100.000	340.000	110.000	400.000
"F" X1	10570.000	8.000	335.000	405.000	740.000	740.000	740.000	1.000	0.000	0.000
GR	105.000	0.000	100.000	70.000	95.000	335.000	90.000	340.000	90.000	398.000
GR	95.000	405.000	100.000	500.000	105.000	820.000	-0.000	-0.000	-0.000	-0.000
X1	10740.000	17.000	368.000	420.000	170.000	170.000	170.000	1.000	0.000	0.000
GR	110.000	0.000	105.000	70.000	105.000	220.000	105.000	260.000	103.600	320.000
GR	97.900	331.000	96.500	355.000	95.000	368.000	93.600	370.000	92.900	395.000
GR	93.500	415.000	93.600	420.000	95.600	422.000	95.800	620.000	105.000	750.000
GR	110.000	800.000	110.000	1460.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	11000.000	13.000	365.000	500.000	260.000	260.000	260.000	1.000	0.000	0.000
GR	120.000	0.000	115.000	140.000	110.000	240.000	105.000	360.000	100.000	365.000
GR	90.000	370.000	88.000	375.000	88.000	430.000	90.000	450.000	100.000	500.000
GR	105.000	510.000	110.000	550.000	120.000	600.000	-0.000	-0.000	-0.000	-0.000
ET	0.000	7.400	7.400	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	11040.000	11.000	225.000	235.000	40.000	40.000	40.000	1.000	0.000	0.000
GR	110.000	0.000	105.000	60.000	100.000	140.000	97.600	225.000	97.100	225.000
GR	88.400	225.000	88.400	235.000	97.100	235.000	97.600	235.000	97.800	305.000
GR	110.000	420.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
ET	0.000	5.400	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	11120.000	14.000	155.000	210.000	80.000	80.000	80.000	1.000	0.000	0.000
GR	115.000	0.000	110.000	20.000	103.300	50.000	98.500	90.000	98.000	110.000
GR	97.400	155.000	96.400	160.000	89.000	170.000	89.000	210.000	96.400	210.000
GR	98.500	214.000	100.000	260.000	103.300	310.000	125.000	390.000	-0.000	-0.000

Bayberry Lane Ext. Bridge

SUMMARY PRINTOUT FOR MULTIPLE PROFILES

ASPETUCK 5.4 FLOODWAY

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	TQ	WSELK	STGHL	SICHR	STENCL	STENCH	
2380.00	0.00	0.00	0.00	35.00	6400.00	44.35	1293.14	44.28	840.00	884.00	0.00	0.00	7- 44 -338
2380.00	0.00	0.00	0.00	35.00	6400.00	45.28	1407.06	44.35	840.00	884.00	833.58	1223.43	890
2430.00	50.00	0.00	0.00	34.40	6400.00	45.34	7129.20	0.00	800.00	842.00	0.00	0.00	463- 42 -662
2430.00	50.00	0.00	0.00	34.40	6400.00	46.37	7778.85	45.34	800.00	842.00	337.34	1504.28	116
2460.00	30.00	0.00	0.00	34.40	6400.00	45.45	7398.88	0.00	800.00	842.00	0.00	0.00	467- 42 -662
2460.00	30.00	0.00	0.00	34.40	6400.00	46.49	8061.00	45.45	800.00	842.00	333.19	1508.05	117
2500.00	40.00	0.00	0.00	35.00	6400.00	45.43	5759.22	0.00	100.00	245.00	0.00	0.00	17- 345 -1956
2500.00	40.00	0.00	0.00	35.00	6400.00	46.46	6292.03	45.43	100.00	245.00	83.84	440.98	
2560.00	60.00	0.00	0.00	35.00	6400.00	45.48	4697.46	0.00	550.00	578.00	0.00	0.00	444- 28 -00
2560.00	60.00	0.00	0.00	35.00	6400.00	46.51	4999.20	45.48	550.00	578.00	106.19	578.00	
(A) 3300.00	740.00	0.00	0.00	35.00	6400.00	45.27	1252.47	0.00	80.00	180.00	0.00	0.00	0-100-300
3300.00	740.00	0.00	0.00	35.00	6400.00	46.26	1414.20	45.27	80.00	180.00	80.00	210.30	
3700.00	400.00	0.00	0.00	39.00	6400.00	48.69	865.81	0.00	130.00	215.00	0.00	0.00	0-85-620
3700.00	400.00	0.00	0.00	39.00	6400.00	48.51	800.73	48.69	130.00	215.00	130.00	277.42	
4140.00	440.00	0.00	0.00	43.00	6400.00	51.10	800.76	0.00	220.00	350.00	0.00	0.00	0-130-00
4140.00	440.00	0.00	0.00	43.00	6400.00	51.27	835.66	51.10	220.00	350.00	220.00	350.00	
(B) 4600.00	460.00	0.00	0.00	50.00	6400.00	58.16	683.24	0.00	190.00	360.00	0.00	0.00	0-170-00
4600.00	460.00	0.00	0.00	50.00	6400.00	58.15	680.24	58.16	190.00	360.00	190.00	360.00	
5100.00	500.00	0.00	0.00	55.10	6100.00	65.58	879.47	0.00	159.00	185.00	0.00	0.00	34-86-70
5100.00	500.00	0.00	0.00	55.10	6100.00	65.55	814.71	65.58	159.00	185.00	125.76	189.33	
5150.00	-0.00	0.00	0.00	55.60	6100.00	69.01	3196.86	0.00	140.00	196.00	0.00	0.00	70-56-240
5150.00	-0.00	0.00	0.00	55.60	6100.00	70.02	3653.93	69.01	140.00	196.00	64.41	220.08	
5200.00	50.00	0.00	0.00	55.60	6100.00	69.76	3587.12	0.00	140.00	196.00	0.00	0.00	79-56-280
5200.00	50.00	0.00	0.00	55.60	6100.00	70.77	4072.31	69.76	140.00	196.00	61.00	224.52	
(C) 5450.00	250.00	0.00	0.00	55.00	6100.00	69.84	2921.37	0.00	45.00	120.00	0.00	0.00	0-75-80
5450.00	250.00	0.00	0.00	55.00	6100.00	70.81	3140.88	69.84	45.00	120.00	45.00	200.63	
6000.00	550.00	0.00	0.00	58.00	6100.00	70.13	2648.94	0.00	345.00	430.00	0.00	0.00	80-85-00
6000.00	550.00	0.00	0.00	58.00	6100.00	71.05	2837.48	70.13	345.00	430.00	265.38	430.00	
(D) 6400.00	400.00	0.00	0.00	60.00	6100.00	70.15	1315.65	0.00	240.00	310.00	0.00	0.00	0-70-40
6400.00	400.00	0.00	0.00	60.00	6100.00	70.99	1426.14	70.15	240.00	310.00	240.00	356.76	
7050.00	650.00	0.00	0.00	65.00	6100.00	71.86	1607.03	0.00	140.00	300.00	0.00	0.00	0-160-00
7050.00	650.00	0.00	0.00	65.00	6100.00	72.59	1788.73	71.86	140.00	300.00	140.00	300.00	
7800.00	750.00	0.00	0.00	69.50	6100.00	78.56	858.76	0.00	417.00	464.00	0.00	0.00	18-47-00
7800.00	750.00	0.00	0.00	69.50	6100.00	78.49	711.80	78.56	417.00	464.00	399.44	464.00	
8200.00	400.00	0.00	0.00	72.00	6100.00	82.13	2091.43	0.00	390.00	470.00	0.00	0.00	58-80-40
8200.00	400.00	0.00	0.00	72.00	6100.00	83.09	2416.18	82.13	390.00	470.00	332.78	516.62	

"E"

(E)

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL OF GROUND	DISCHARGE (CFS)	WSEL	TU	WSELK	STCHL	STCHR	STENCL	STENCR	
8450.00	250.00	0.00	0.00	75.00	6100.00	82.05	671.72	0.00	325.00	440.00	0.00	0.00	0-115-01
8450.00	250.00	0.00	0.00	75.00	6100.00	82.78	858.71	82.05	325.00	440.00	325.00	440.00	
9370.00	920.00	0.00	0.00	78.20	6100.00	87.65	1267.54	0.00	196.00	260.00	0.00	0.00	0-64-06
9370.00	920.00	0.00	0.00	78.20	6100.00	87.34	756.42	87.65	196.00	260.00	196.00	260.00	
9420.00	50.00	0.00	0.00	78.30	6100.00	90.55	847.12	0.00	810.00	830.00	0.00	0.00	39- 20 -61
9420.00	50.00	0.00	0.00	78.30	6100.00	90.27	742.96	90.55	810.00	830.00	771.63	891.87	
9450.00	30.00	0.00	0.00	78.30	6100.00	90.82	923.29	0.00	810.00	830.00	0.00	0.00	38- 20 -691
9450.00	30.00	0.00	0.00	78.30	6100.00	90.54	801.80	90.82	810.00	830.00	772.43	899.51	
9520.00	70.00	0.00	0.00	78.40	6100.00	91.60	1837.14	0.00	200.00	270.00	0.00	0.00	0-70-07
9520.00	70.00	0.00	0.00	78.40	6100.00	92.24	2004.03	91.60	200.00	270.00	200.00	270.00	
9830.00	310.00	0.00	0.00	82.00	6100.00	94.83	790.52	0.00	215.00	280.00	0.00	0.00	17- 65 -0
9830.00	310.00	0.00	0.00	82.00	6100.00	94.85	738.16	94.83	215.00	280.00	198.76	280.00	
10570.00	740.00	0.00	0.00	90.00	6100.00	98.74	1369.86	0.00	335.00	405.00	0.00	0.00	107- 70 -01
10570.00	740.00	0.00	0.00	90.00	6100.00	99.44	1506.53	98.74	335.00	405.00	228.65	405.00	
10740.00	170.00	0.00	0.00	92.90	6100.00	99.70	1291.48	0.00	368.00	420.00	0.00	0.00	0- 52 -178
10740.00	170.00	0.00	0.00	92.90	6100.00	99.96	1199.63	99.70	368.00	420.00	368.00	598.24	
11000.00	260.00	0.00	0.00	88.00	6100.00	100.16	2568.69	0.00	365.00	500.00	0.00	0.00	0-135-013
11000.00	260.00	0.00	0.00	88.00	6100.00	100.71	2831.20	100.16	365.00	500.00	365.00	500.00	
11040.00	40.00	0.00	0.00	88.40	6100.00	101.79	604.05	0.00	225.00	235.00	0.00	0.00	58- 10 -61
11040.00	40.00	0.00	0.00	88.40	6100.00	101.99	543.06	101.79	225.00	235.00	167.22	296.56	
11120.00	80.00	0.00	0.00	89.00	6100.00	103.09	2215.44	0.00	155.00	210.00	0.00	0.00	55- 10 -38
11120.00	80.00	0.00	0.00	89.00	6100.00	104.15	2433.08	103.09	155.00	210.00	100.38	240.45	
11125.00	5.00	0.00	0.00	96.40	6100.00	102.92	1103.67	0.00	155.00	210.00	0.00	0.00	57- 55 -32
11125.00	5.00	0.00	0.00	96.40	6100.00	103.97	1287.37	102.92	155.00	210.00	98.50	242.61	
11130.00	5.00	0.00	0.00	89.00	6100.00	103.48	2388.36	0.00	155.00	210.00	0.00	0.00	58- 55 -35
11130.00	5.00	0.00	0.00	89.00	6100.00	104.55	2623.55	103.48	155.00	210.00	97.65	245.32	
11300.00	170.00	0.00	0.00	92.00	6100.00	103.50	1928.54	0.00	384.00	460.00	0.00	0.00	0- 70 -136
11300.00	170.00	0.00	0.00	92.00	6100.00	104.55	2160.34	103.50	384.00	460.00	384.00	473.73	
11305.00	5.00	0.00	0.00	98.80	6100.00	103.97	685.14	0.00	384.00	459.00	0.00	0.00	15- 75 -196
11305.00	5.00	0.00	0.00	98.80	6100.00	104.20	668.20	103.97	384.00	459.00	369.00	478.63	
11310.00	5.00	0.00	0.00	92.00	6100.00	106.06	3046.90	0.00	384.00	460.00	0.00	0.00	38- 70 -24
11310.00	5.00	0.00	0.00	92.00	6100.00	106.88	3321.82	106.06	384.00	460.00	346.40	484.47	
11700.00	390.00	0.00	0.00	96.00	6100.00	106.25	2289.70	0.00	326.00	491.00	0.00	0.00	0-105-06
11700.00	390.00	0.00	0.00	96.00	6100.00	107.07	2710.57	106.25	326.00	491.00	326.00	491.00	
11710.00	10.00	0.00	0.00	105.60	6100.00	109.17	690.71	0.00	326.00	491.00	0.00	0.00	0-105-06
11710.00	10.00	0.00	0.00	105.60	6100.00	109.09	643.88	109.17	326.00	491.00	326.00	491.00	

Bayberry Lane Ext. Bridge

"F"

(F)

(G)

PORT

4140.000	6400.000	51.267	.163	2.754	.163	0.000	0.000	440.000
4600.000	6400.000	58.162	0.000	7.058	0.000	0.000	0.000	460.000
4600.000	6400.000	58.150	-.012	6.883	-.012	0.000	0.000	460.000
5100.000	6100.000	65.581	0.000	7.420	0.000	0.000	0.000	500.000
5100.000	6100.000	65.555	-.026	7.405	-.026	0.000	0.000	500.000
5150.000	6100.000	69.010	0.000	3.428	0.000	0.000	0.000	-0.000
5150.000	6100.000	70.020	1.010	4.465	1.010	0.000	0.000	-0.000
5200.000	6100.000	69.758	0.000	.749	0.000	0.000	0.000	50.000
5200.000	6100.000	70.768	1.010	.749	1.010	0.000	0.000	50.000
5450.000	6100.000	69.842	0.000	.084	0.000	0.000	0.000	250.000
5450.000	6100.000	70.814	.972	.084	.972	0.000	0.000	250.000
6000.000	6100.000	70.126	0.000	.284	0.000	0.000	0.000	550.000
6000.000	6100.000	71.047	.921	.233	.921	0.000	0.000	550.000
6400.000	6100.000	70.146	0.000	.020	0.000	0.000	0.000	400.000
6400.000	6100.000	70.988	.842	-.059	.842	0.000	0.000	400.000
7050.000	6100.000	71.857	0.000	1.711	0.000	0.000	0.000	650.000
7050.000	6100.000	72.593	.736	1.605	.736	0.000	0.000	650.000
7800.000	6100.000	78.561	0.000	6.704	0.000	0.000	0.000	750.000
7800.000	6100.000	78.492	-.069	5.899	-.069	0.000	0.000	750.000
8200.000	6100.000	82.130	0.000	3.570	0.000	0.000	0.000	400.000
8200.000	6100.000	83.088	.957	4.596	.957	0.000	0.000	400.000
"E" 8450.000	6100.000	82.046	0.000	-.084	0.000	0.000	0.000	250.000
8450.000	6100.000	82.779	.733	-.309	.733	0.000	0.000	250.000
9370.000	6100.000	87.647	0.000	5.601	0.000	0.000	0.000	920.000
9370.000	6100.000	87.335	-.312	4.556	-.312	0.000	0.000	920.000
9420.000	6100.000	90.549	0.000	2.902	0.000	0.000	0.000	50.000
9420.000	6100.000	90.269	-.280	2.934	-.280	0.000	0.000	50.000
9450.000	6100.000	90.820	0.000	.271	0.000	0.000	0.000	30.000
9450.000	6100.000	90.540	-.280	.271	-.280	0.000	0.000	30.000
9520.000	6100.000	91.599	0.000	.779	0.000	0.000	0.000	70.000
9520.000	6100.000	92.242	.643	1.702	.643	0.000	0.000	70.000
9830.000	6100.000	94.831	0.000	3.232	0.000	0.000	0.000	310.000
9830.000	6100.000	94.851	.020	2.609	.020	0.000	0.000	310.000
"F" 10570.000	6100.000	98.738	0.000	3.908	0.000	0.000	0.000	740.000
10570.000	6100.000	99.443	.704	4.592	.704	0.000	0.000	740.000
10740.000	6100.000	99.701	0.000	.962	0.000	0.000	0.000	170.000
10740.000	6100.000	99.957	.256	.515	.256	0.000	0.000	170.000
11000.000	6100.000	100.162	0.000	.462	0.000	0.000	0.000	260.000
11000.000	6100.000	100.711	.548	.754	.548	0.000	0.000	260.000
11040.000	6100.000	101.794	0.000	1.632	0.000	0.000	0.000	40.000
11040.000	6100.000	101.991	.197	1.281	.197	0.000	0.000	40.000
11120.000	6100.000	103.092	0.000	1.298	0.000	0.000	0.000	80.000
11120.000	6100.000	104.152	1.060	2.161	1.060	0.000	0.000	80.000
11125.000	6100.000	102.920	0.000	-.172	0.000	0.000	0.000	5.000
				-.183	1.049	0.000	0.000	5.000

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Bayberry Lane Ext. Bridge

11125.000	6100.000	103.969	1.049	-.103	1.049	0.000	0.000	5.000
11130.000	6100.000	103.477	0.000	.557	0.000	0.000	0.000	5.000
11130.000	6100.000	104.548	1.071	.579	1.071	0.000	0.000	5.000
11300.000	6100.000	103.504	0.000	.027	0.000	0.000	0.000	170.000
11300.000	6100.000	104.551	1.048	.004	1.048	0.000	0.000	170.000
11305.000	6100.000	103.973	0.000	.469	0.000	0.000	0.000	5.000
11305.000	6100.000	104.198	.225	-.353	.225	0.000	0.000	5.000
11310.000	6100.000	106.059	0.000	2.086	0.000	0.000	0.000	5.000
11310.000	6100.000	106.882	.823	2.683	.823	0.000	0.000	5.000
11700.000	6100.000	106.247	0.000	.188	0.000	0.000	0.000	390.000
11700.000	6100.000	107.072	.825	.191	.825	0.000	0.000	390.000
11710.000	6100.000	109.172	0.000	2.925	0.000	0.000	0.000	10.000
11710.000	6100.000	109.089	-.083	2.017	-.083	0.000	0.000	10.000
11720.000	6100.000	110.993	0.000	1.821	0.000	0.000	0.000	10.000
11720.000	6100.000	111.197	.204	2.108	.204	0.000	0.000	10.000
12250.000	6100.000	110.555	0.000	-.439	0.000	0.000	0.000	530.000
12250.000	6100.000	110.401	-.154	-.797	-.154	0.000	0.000	530.000
12780.000	5900.000	115.197	0.000	4.642	0.000	0.000	0.000	530.000
12780.000	5900.000	116.073	.876	5.672	.876	0.000	0.000	530.000
13250.000	5900.000	125.422	0.000	10.225	0.000	0.000	0.000	470.000
13250.000	5900.000	124.151	-1.271	8.078	-1.271	0.000	0.000	470.000
13260.000	5900.000	127.294	0.000	1.873	0.000	0.000	0.000	10.000
13260.000	5900.000	127.586	.292	3.435	.292	0.000	0.000	10.000
13270.000	5900.000	128.753	0.000	1.459	0.000	0.000	0.000	10.000
13270.000	5900.000	129.669	.916	2.083	.916	0.000	0.000	10.000
13350.000	5900.000	128.462	0.000	-.291	0.000	0.000	0.000	280.000
13350.000	5900.000	129.084	.622	-.585	.622	0.000	0.000	280.000
13800.000	5900.000	131.614	0.000	3.152	0.000	0.000	0.000	250.000
13800.000	5900.000	131.511	-.103	2.427	-.103	0.000	0.000	250.000
14020.000	5900.000	136.735	0.000	5.121	0.000	0.000	0.000	220.000
14020.000	5900.000	136.076	-.658	4.565	-.658	0.000	0.000	220.000
14030.000	5900.000	138.445	0.000	1.711	0.000	0.000	0.000	10.000
14030.000	5900.000	138.616	.171	2.540	.171	0.000	0.000	10.000
14040.000	5900.000	140.037	0.000	1.592	0.000	0.000	0.000	10.000
14040.000	5900.000	140.871	.834	2.255	.834	0.000	0.000	10.000
14300.000	5900.000	140.115	0.000	.078	0.000	0.000	0.000	260.000
14300.000	5900.000	140.905	.790	.034	.790	0.000	0.000	260.000
14540.000	5900.000	142.051	0.000	1.936	0.000	0.000	0.000	240.000
14540.000	5900.000	142.012	-.039	1.107	-.039	0.000	0.000	240.000
14550.000	5900.000	144.228	0.000	2.176	0.000	0.000	0.000	10.000
14550.000	5900.000	144.370	.142	2.358	.142	0.000	0.000	10.000
14460.000	5900.000	147.329	0.000	3.102	0.000	0.000	0.000	10.000
14460.000	5900.000	147.502	.173	3.132	.173	0.000	0.000	10.000
14650.000	5900.000	147.954	0.000	.625	0.000	0.000	0.000	90.000
14650.000	5900.000	148.205	.250	.703	.250	0.000	0.000	90.000

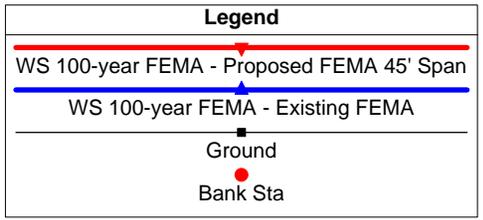
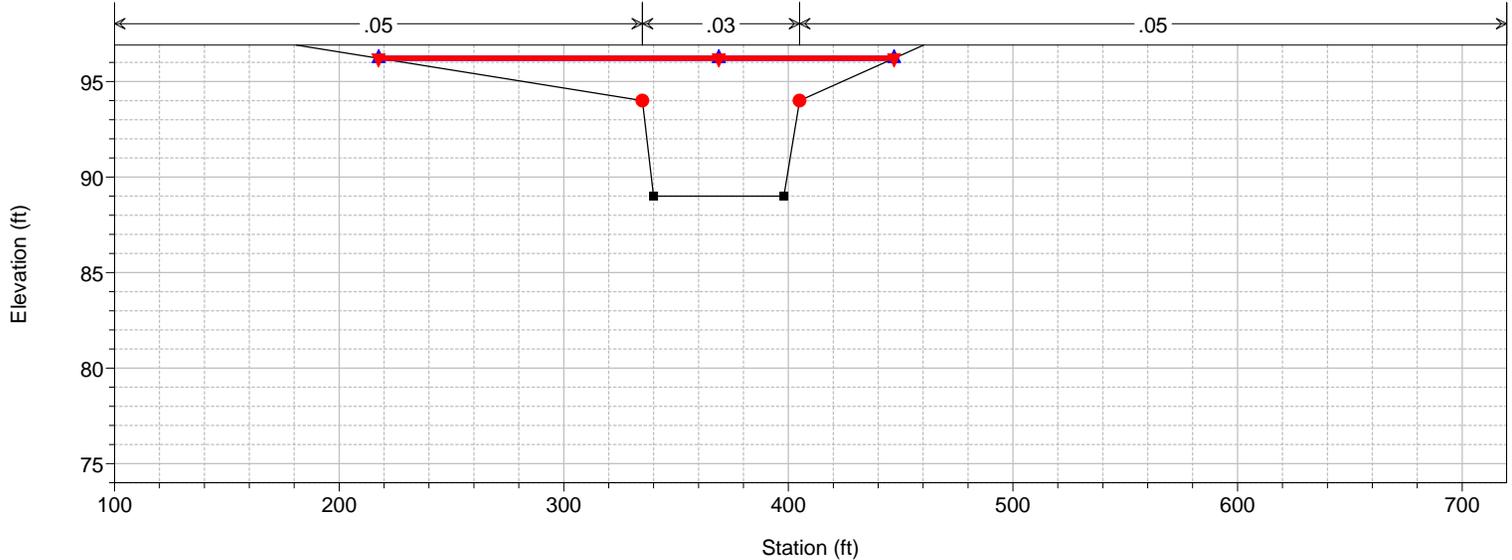
14650.000	5900.000	148.205	.250	.703	.250	0.000	0.000	9.000
14700.000	5900.000	148.788	0.000	.834	0.000	0.000	0.000	50.000
14700.000	5900.000	148.329	-.462	.121	-.462	0.000	0.000	50.000
14730.000	5900.000	149.070	0.000	.283	0.000	0.000	0.000	30.000
14730.000	5900.000	148.608	-.462	.283	-.462	0.000	0.000	30.000
14920.000	5900.000	150.855	0.000	1.785	0.000	0.000	0.000	190.000
14920.000	5900.000	151.750	.895	3.142	.895	0.000	0.000	190.000
14930.000	5900.000	150.382	0.000	-.473	0.000	0.000	0.000	10.000
14930.000	5900.000	151.340	.958	-.410	.958	0.000	0.000	10.000
14940.000	5900.000	151.565	0.000	1.183	0.000	0.000	0.000	10.000
14940.000	5900.000	152.302	.737	.962	.737	0.000	0.000	10.000
15100.000	5900.000	151.463	0.000	-.101	0.000	0.000	0.000	160.000
15100.000	5900.000	152.064	.601	-.238	.601	0.000	0.000	160.000
15350.000	5900.000	152.515	0.000	1.052	0.000	0.000	0.000	250.000
15350.000	5900.000	153.319	.804	1.255	.804	0.000	0.000	250.000
51610.000	5900.000	153.027	0.000	.511	0.000	0.000	0.000	260.000
51610.000	5900.000	153.995	.968	.676	.968	0.000	0.000	260.000
51620.000	5900.000	155.139	0.000	2.112	0.000	0.000	0.000	10.000
51620.000	5900.000	155.318	.179	1.323	.179	0.000	0.000	10.000
51630.000	5900.000	156.990	0.000	1.851	0.000	0.000	0.000	10.000
51630.000	5900.000	157.670	.681	2.352	.681	0.000	0.000	10.000
15800.000	5900.000	156.297	0.000	-.693	0.000	0.000	0.000	170.000
15800.000	5900.000	156.848	.552	-.822	.552	0.000	0.000	170.000
15960.000	5900.000	157.815	0.000	1.518	0.000	0.000	0.000	160.000
15960.000	5900.000	158.212	.397	1.363	.397	0.000	0.000	160.000
15970.000	5900.000	160.686	0.000	2.872	0.000	0.000	0.000	10.000
15970.000	5900.000	160.614	-.072	2.402	-.072	0.000	0.000	10.000
15980.000	5900.000	162.879	0.000	2.192	0.000	0.000	0.000	10.000
15980.000	5900.000	163.033	.154	2.419	.154	0.000	0.000	10.000
16620.000	5900.000	162.711	0.000	-.167	0.000	0.000	0.000	240.000
16620.000	5900.000	162.707	-.004	-.325	-.004	0.000	0.000	240.000
16450.000	5900.000	164.529	0.000	1.818	0.000	0.000	0.000	230.000
16450.000	5900.000	165.107	.578	2.400	.578	0.000	0.000	230.000
16700.000	5900.000	164.378	0.000	-.151	0.000	0.000	0.000	250.000
16700.000	5900.000	164.779	.400	-.329	.400	0.000	0.000	250.000
16910.000	5900.000	165.866	0.000	1.488	0.000	0.000	0.000	210.000
16910.000	5900.000	166.793	.927	2.015	.927	0.000	0.000	210.000
17100.000	5900.000	166.319	0.000	.453	0.000	0.000	0.000	190.000
17100.000	5900.000	166.440	.121	-.353	.121	0.000	0.000	190.000
17400.000	5900.000	167.539	0.000	1.220	0.000	0.000	0.000	300.000
17400.000	5900.000	168.261	.722	1.820	.722	0.000	0.000	300.000
17590.000	5900.000	169.149	0.000	1.610	0.000	0.000	0.000	190.000
17590.000	5900.000	170.160	1.012	1.900	1.012	0.000	0.000	190.000
17950.000	5900.000	172.491	0.000	3.343	0.000	0.000	0.000	360.000
17950.000	5900.000	172.419	-.072	2.259	-.072	0.000	0.000	360.000

APPENDIX B – HYDRAULIC MODELS

Bridge#04969 Plan: 1) Existing FEMA 2) Proposed FEMA 45' Span

Geom: Proposed GEOMETRY Model 45' Span

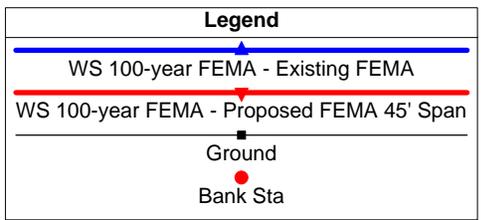
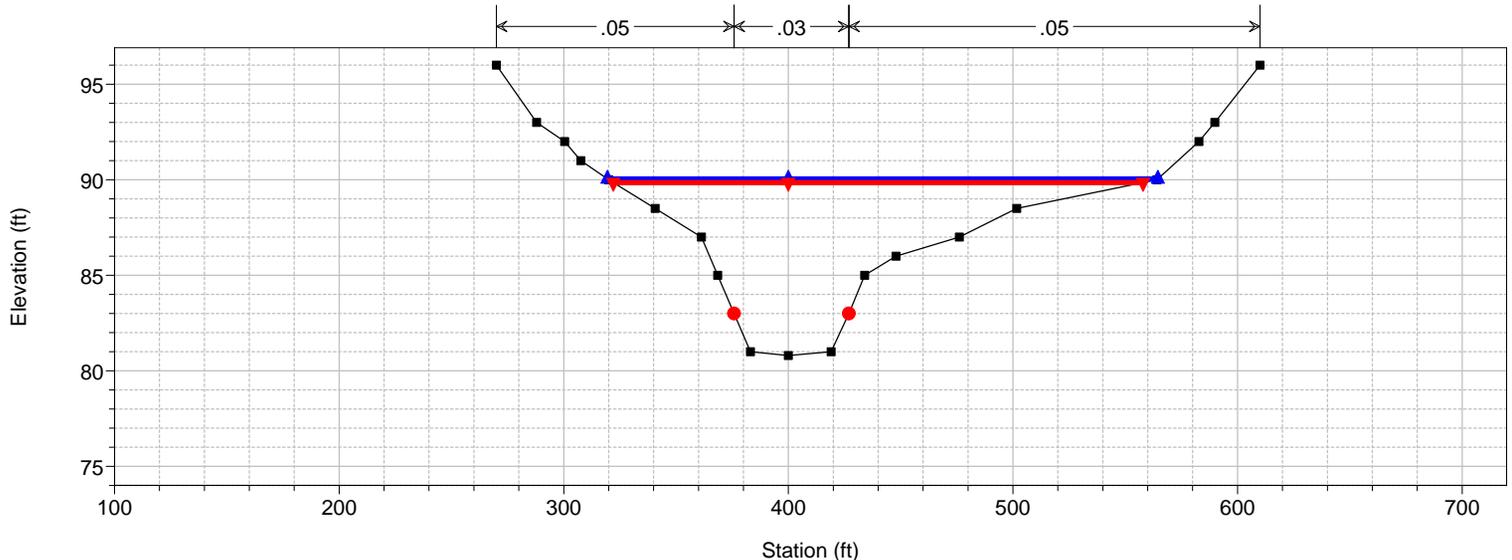
RS = 10510 Original FEMA Section 10570- Lettered Section 'F'



Bridge#04969 Plan: 1) Existing FEMA 2) Proposed FEMA 45' Span

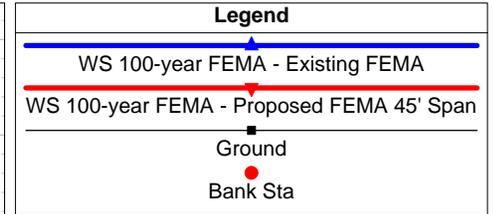
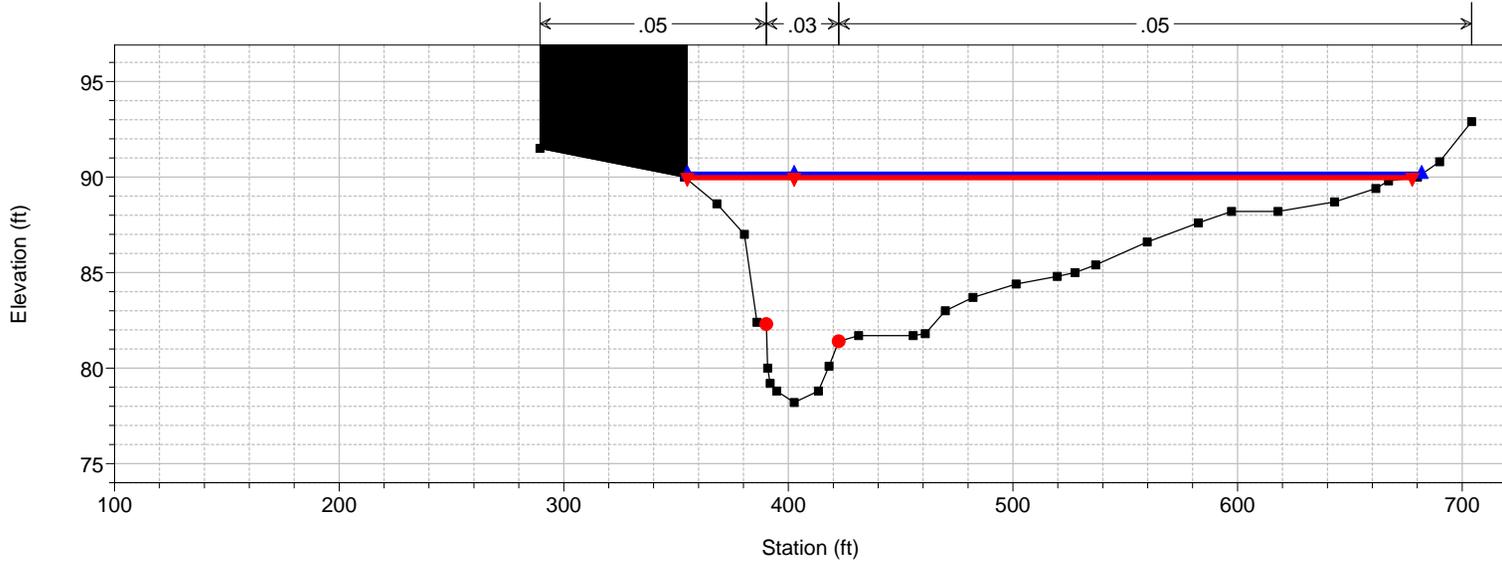
Geom: Proposed GEOMETRY Model 45' Span

RS = 9725 NEW RS

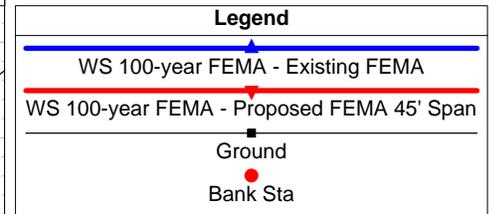
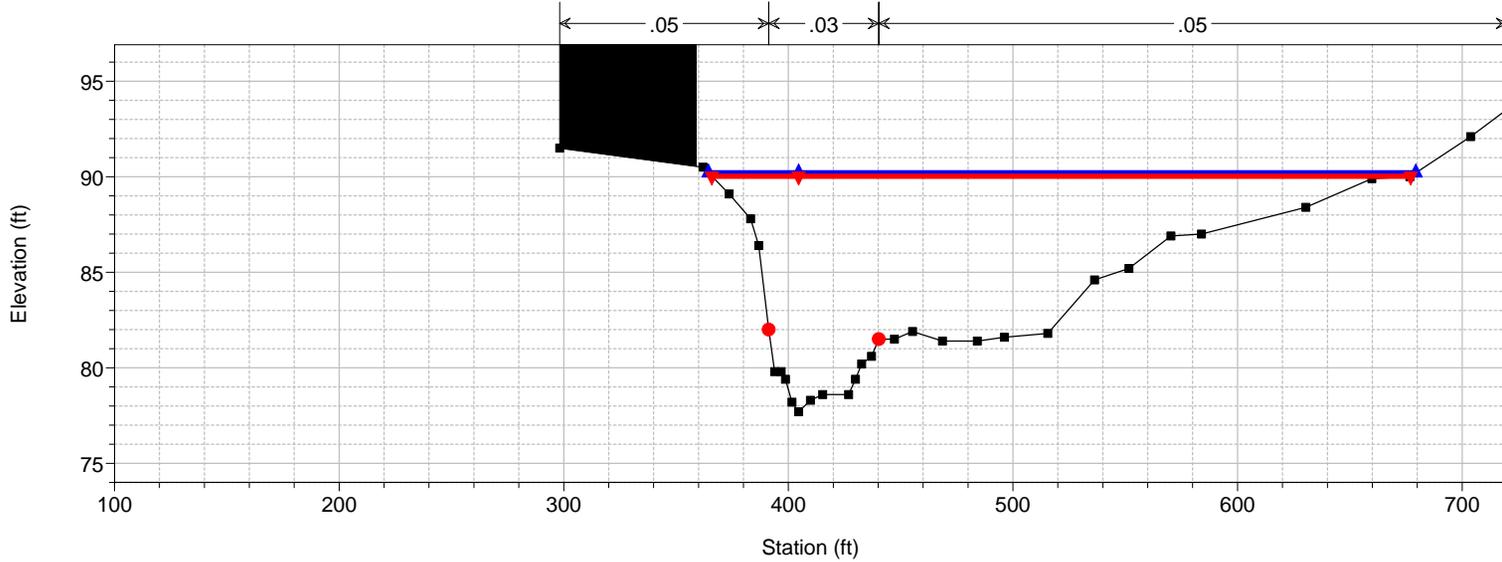


1 in Horiz. = 85 ft 1 in Vert. = 10 ft

Bridge#04969 Plan: 1) Existing FEMA 2) Proposed FEMA 45' Span
 Geom: Proposed GEOMETRY Model 45' Span
 RS = 9530 New RS

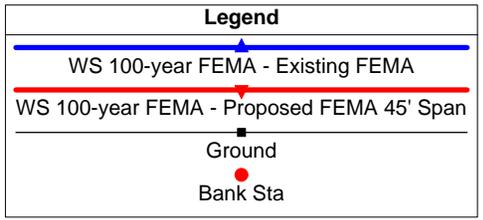
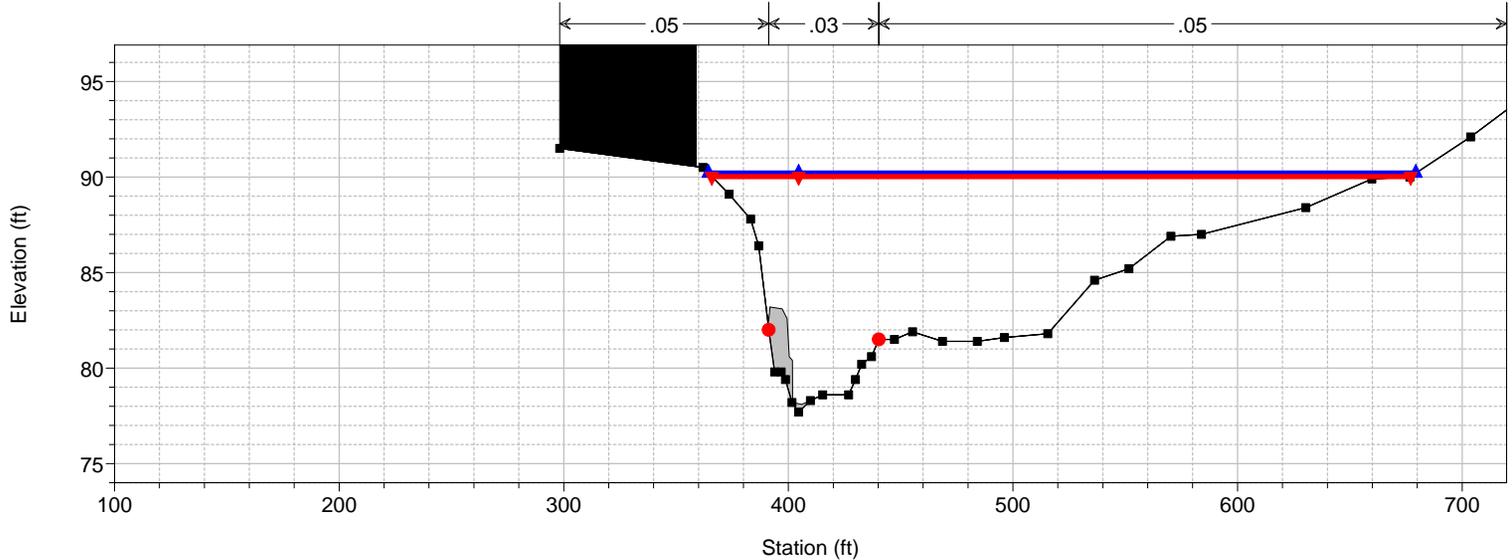


Bridge#04969 Plan: 1) Existing FEMA 2) Proposed FEMA 45' Span
 Geom: Proposed GEOMETRY Model 45' Span
 RS = 9445 Upstream of WEIR - New RS

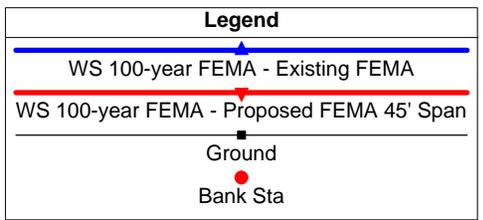
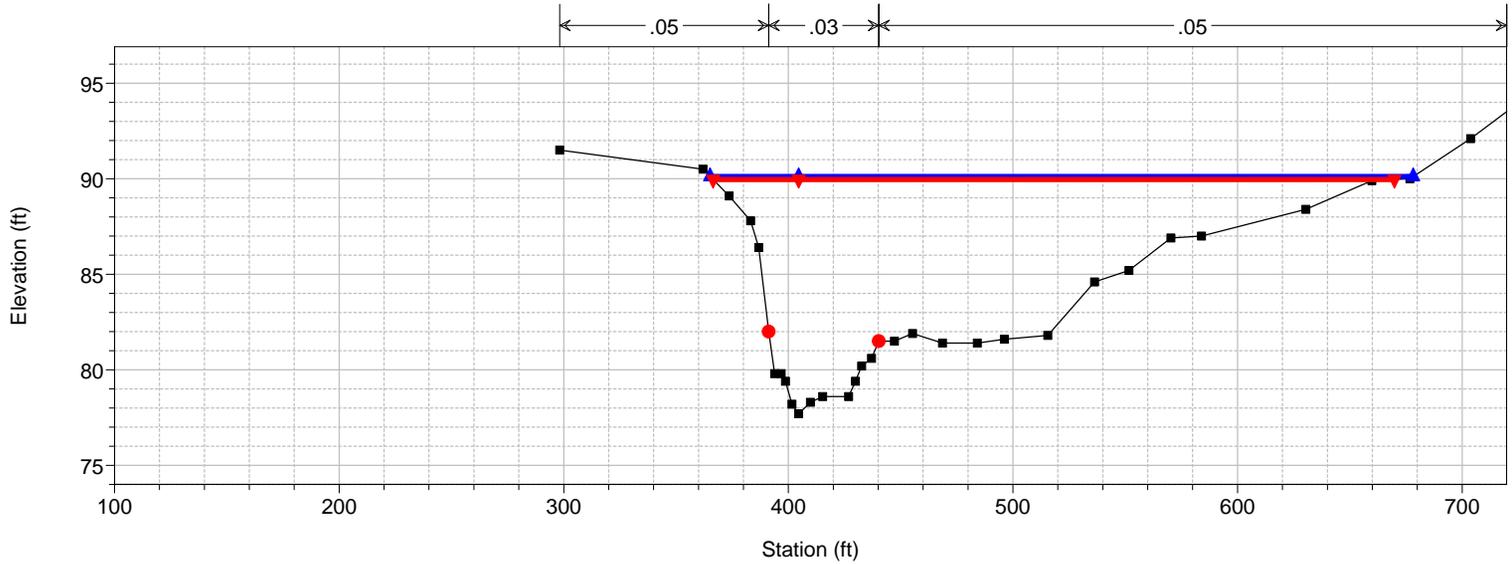


1 in Horiz. = 85 ft 1 in Vert. = 10 ft

Bridge#04969 Plan: 1) Existing FEMA 2) Proposed FEMA 45' Span
 Geom: Proposed GEOMETRY Model 45' Span
 RS = 9440 IS

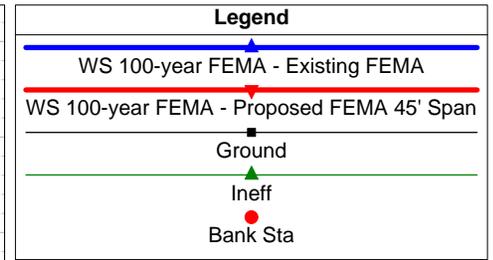
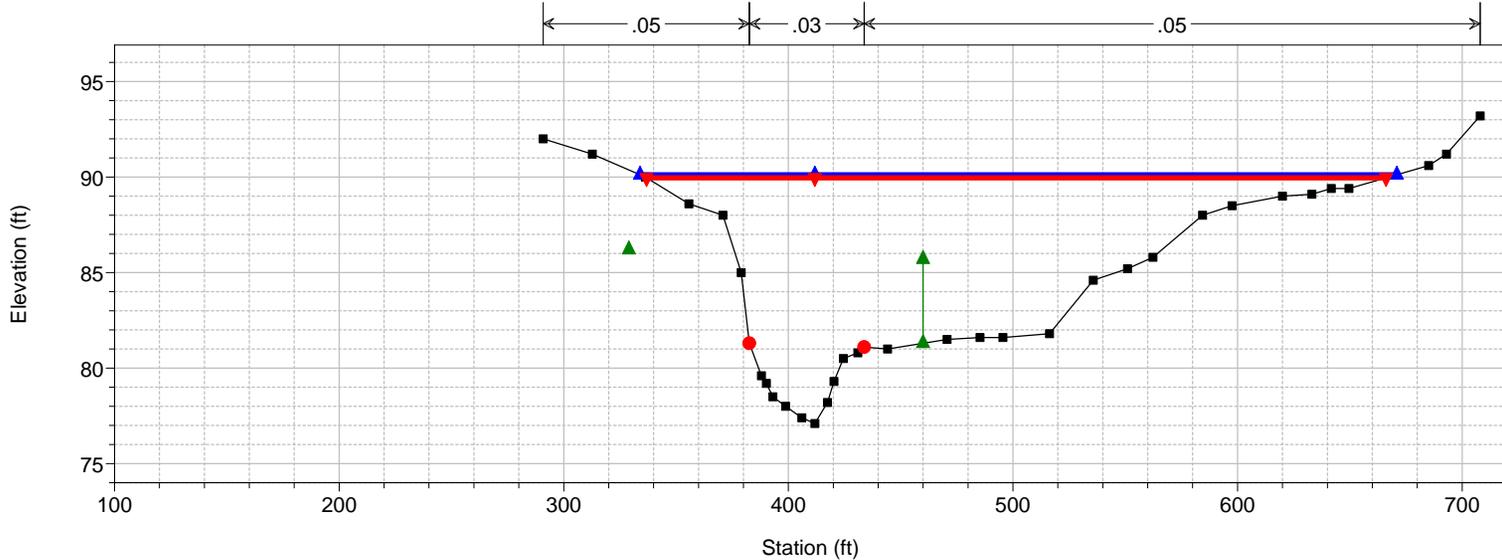


Bridge#04969 Plan: 1) Existing FEMA 2) Proposed FEMA 45' Span
 Geom: Proposed GEOMETRY Model 45' Span
 RS = 9435 Donstream of WEIR - New RS

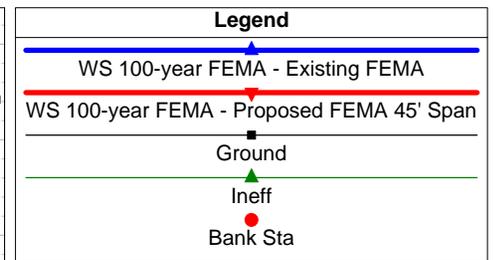
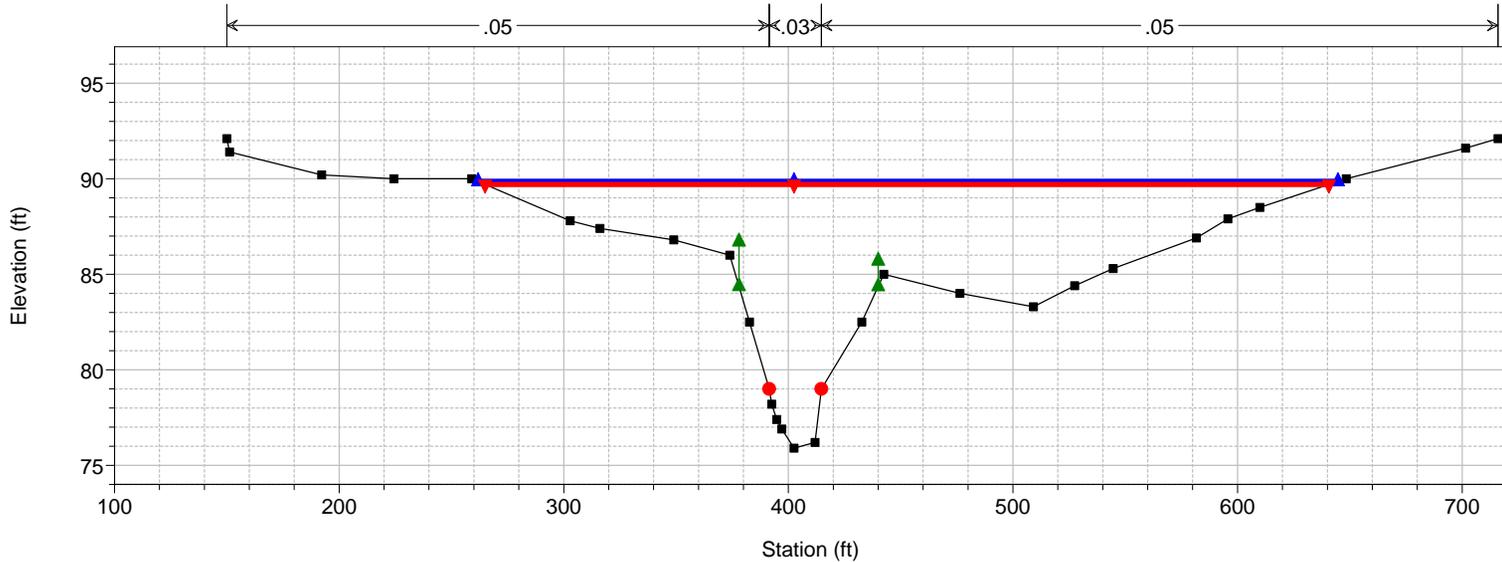


1 in Horiz. = 85 ft 1 in Vert. = 10 ft

Bridge#04969 Plan: 1) Existing FEMA 2) Proposed FEMA 45' Span
 Geom: Proposed GEOMETRY Model 45' Span
 RS = 9400 APPROACH Section - New RS



Bridge#04969 Plan: 1) Existing FEMA 2) Proposed FEMA 45' Span
 Geom: Proposed GEOMETRY Model 45' Span
 RS = 9365 UPSTREAM Toe of Embankment - New RS

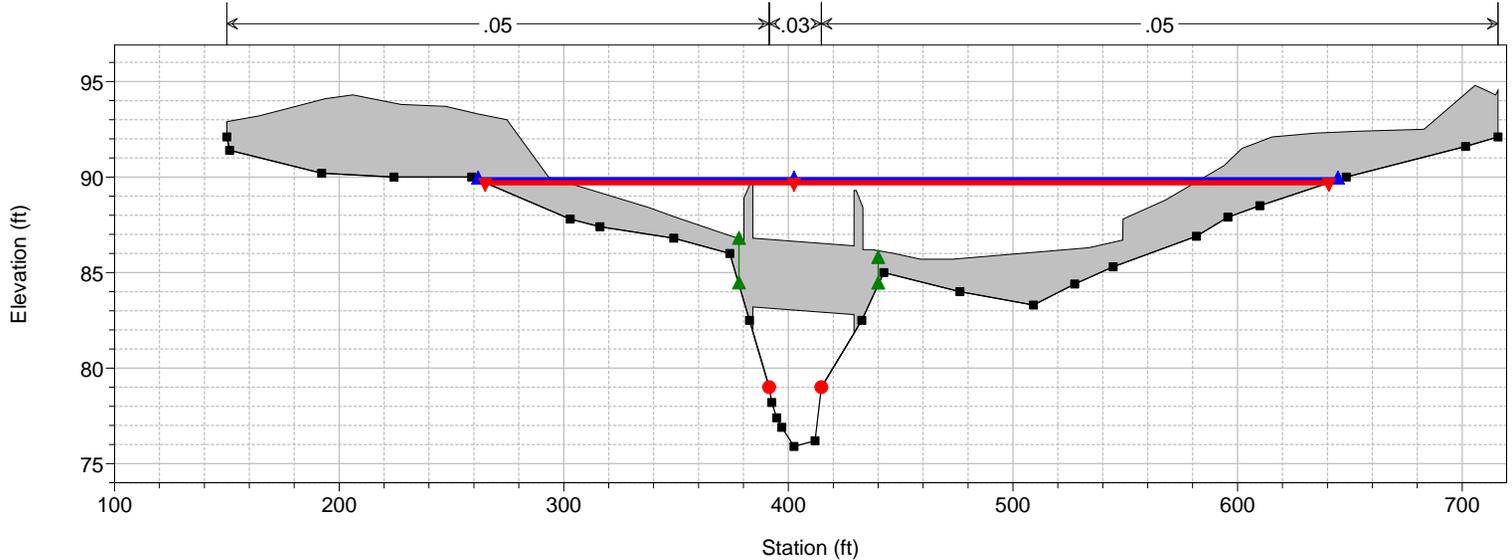


1 in Horiz. = 85 ft 1 in Vert. = 10 ft

Bridge#04969 Plan: 1) Existing FEMA 2) Proposed FEMA 45' Span

Geom: Proposed GEOMETRY Model 45' Span

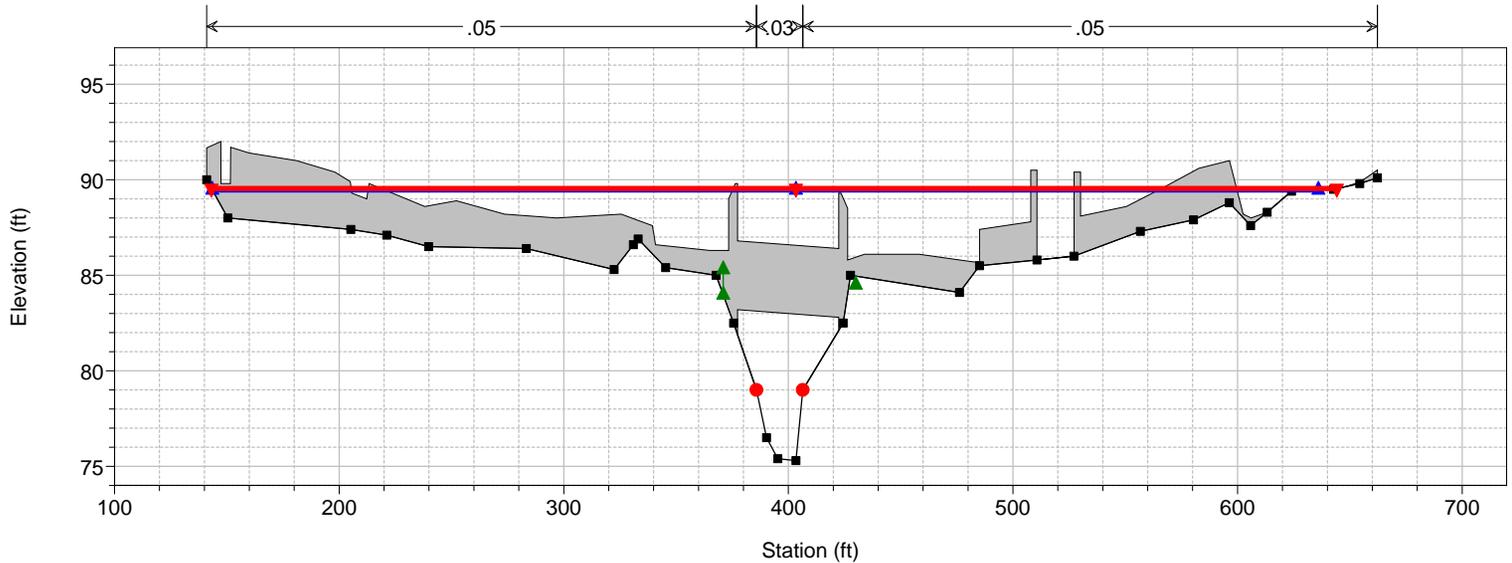
RS = 9335 BR Proposed Bridge No. 04969 - 45' Span Alt 'A'



Bridge#04969 Plan: 1) Existing FEMA 2) Proposed FEMA 45' Span

Geom: Proposed GEOMETRY Model 45' Span

RS = 9335 BR Proposed Bridge No. 04969 - 45' Span Alt 'A'

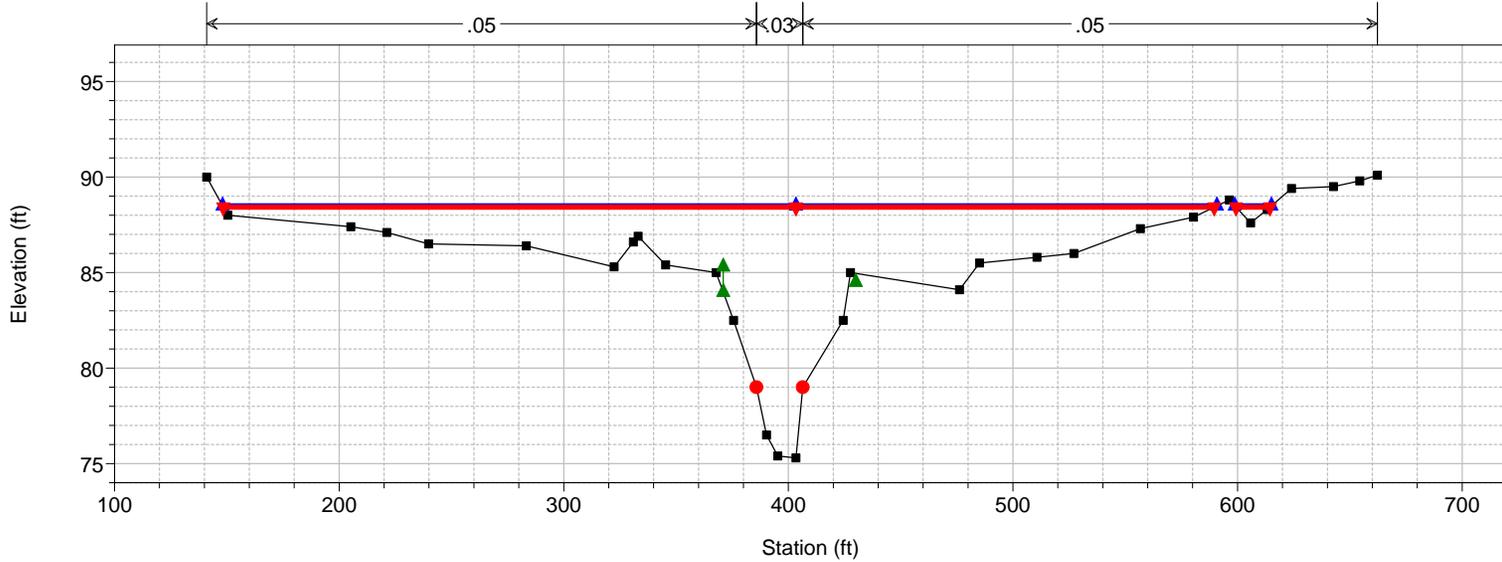


1 in Horiz. = 85 ft 1 in Vert. = 10 ft

Bridge#04969 Plan: 1) Existing FEMA 2) Proposed FEMA 45' Span

Geom: Proposed GEOMETRY Model 45' Span

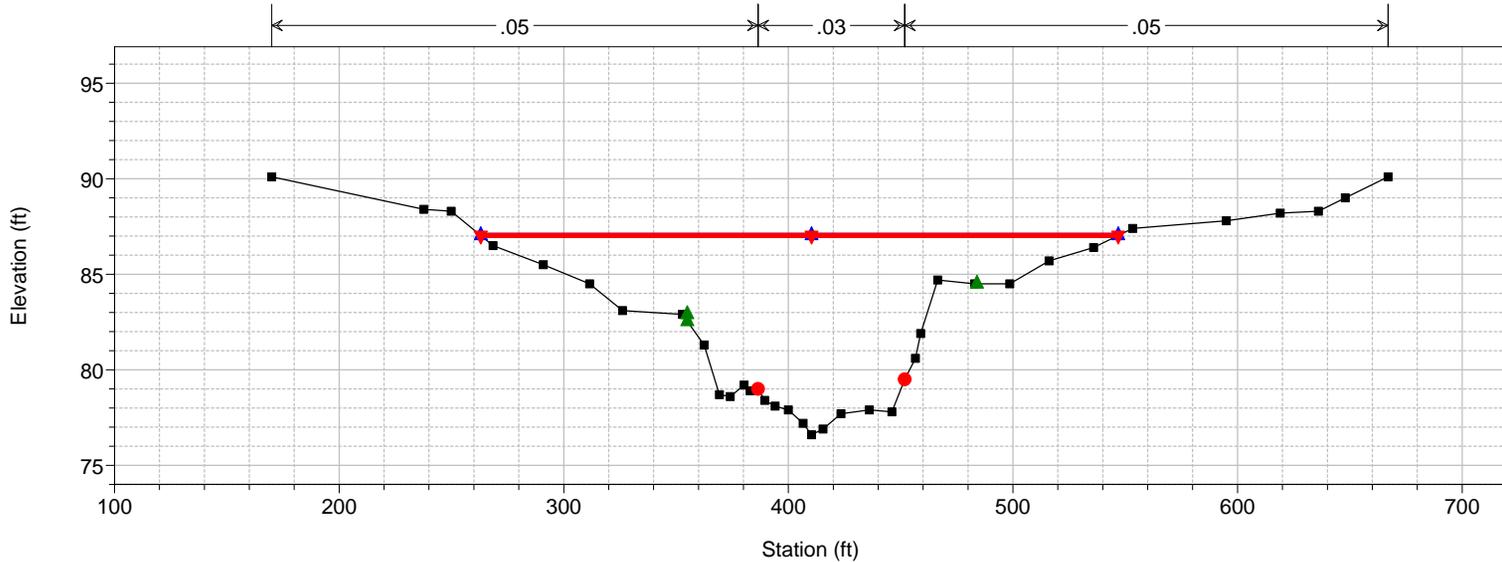
RS = 9310 DOWNSTREAM Toe of Embankment - New RS



Bridge#04969 Plan: 1) Existing FEMA 2) Proposed FEMA 45' Span

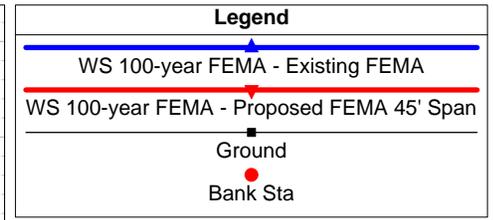
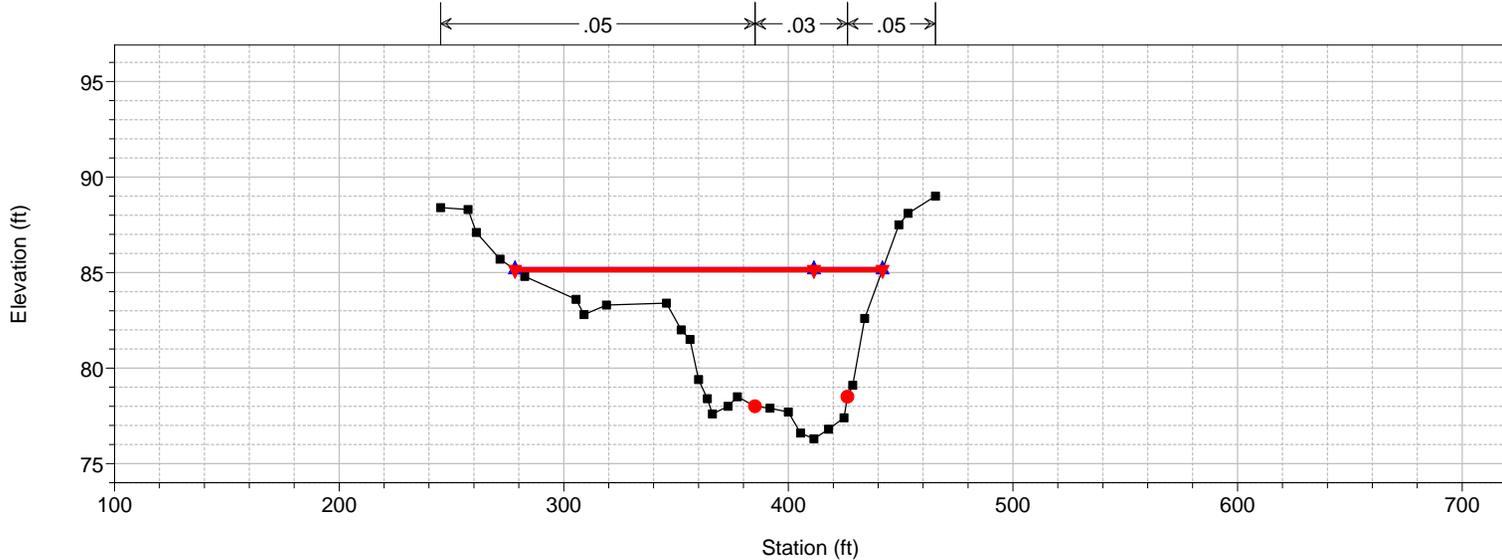
Geom: Proposed GEOMETRY Model 45' Span

RS = 9245 EXIT Section - New RS

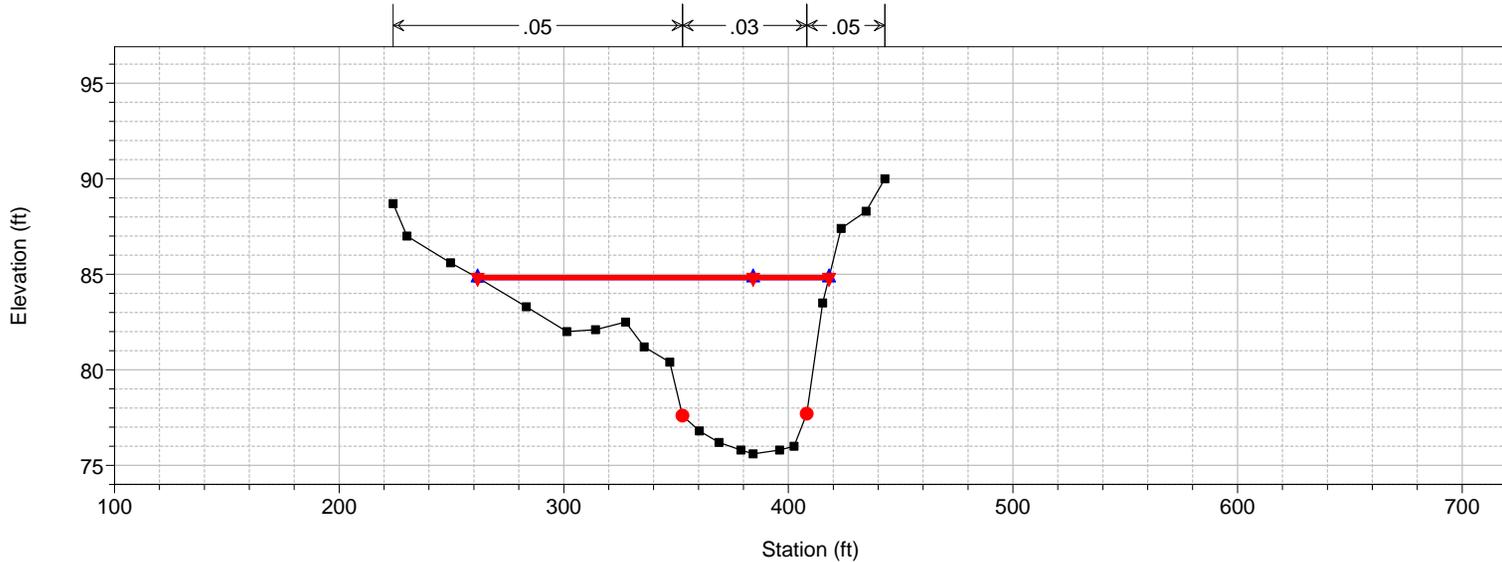


1 in Horiz. = 85 ft 1 in Vert. = 10 ft

Bridge#04969 Plan: 1) Existing FEMA 2) Proposed FEMA 45' Span
 Geom: Proposed GEOMETRY Model 45' Span
 RS = 9175 New RS



Bridge#04969 Plan: 1) Existing FEMA 2) Proposed FEMA 45' Span
 Geom: Proposed GEOMETRY Model 45' Span
 RS = 9050 New RS

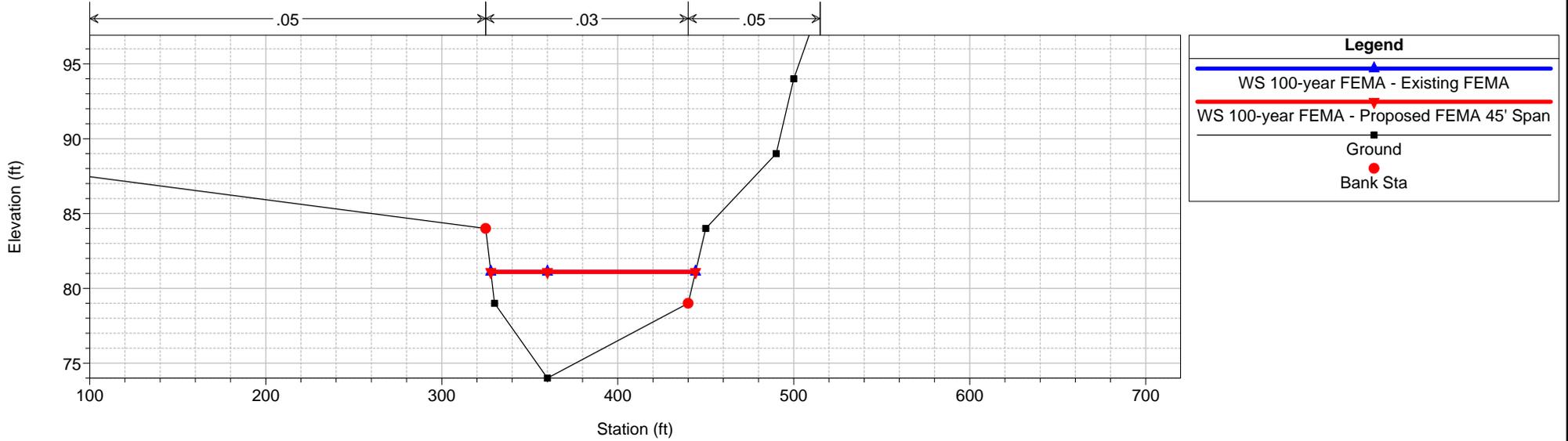


1 in Horiz. = 85 ft 1 in Vert. = 10 ft

Bridge#04969 Plan: 1) Existing FEMA 2) Proposed FEMA 45' Span

Geom: Proposed GEOMETRY Model 45' Span

RS = 8450 Original FEMA Section 8450 - Lettered Section 'E'



1 in Horiz. = 85 ft 1 in Vert. = 10 ft

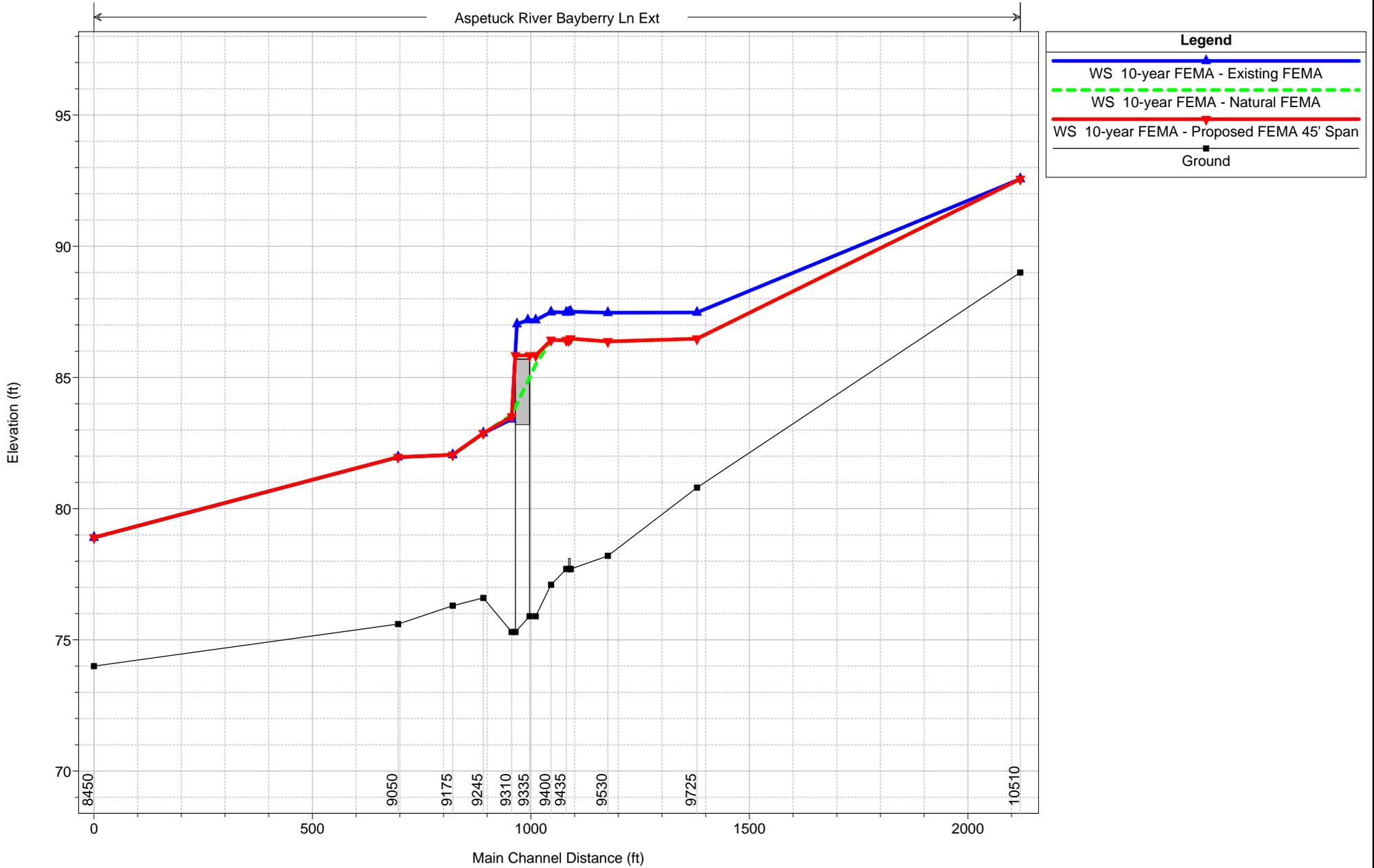
HEC-RAS River: Aspetuck River Reach: Bayberry Ln Ext Profile: 10-year FEMA

Reach	River Sta	Profile	Plan	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)	
Bayberry Ln Ext	10510	10-year FEMA	Existing FEMA	2300.00	89.00	92.56	92.56	94.23	0.009277	10.37	221.73	66.55	1.00
Bayberry Ln Ext	10510	10-year FEMA	Natural FEMA	2300.00	89.00	92.56	92.56	94.23	0.009277	10.37	221.73	66.55	1.00
Bayberry Ln Ext	10510	10-year FEMA	Proposed FEMA 45' Span	2300.00	89.00	92.56	92.56	94.23	0.009281	10.37	221.70	66.54	1.00
Bayberry Ln Ext	9725	10-year FEMA	Existing FEMA	2300.00	80.80	87.47		88.10	0.001573	6.62	438.43	129.40	0.47
Bayberry Ln Ext	9725	10-year FEMA	Natural FEMA	2300.00	80.80	86.47		87.47	0.003026	8.17	324.53	98.07	0.63
Bayberry Ln Ext	9725	10-year FEMA	Proposed FEMA 45' Span	2300.00	80.80	86.48		87.47	0.003022	8.17	324.76	98.14	0.63
Bayberry Ln Ext	9530	10-year FEMA	Existing FEMA	2300.00	78.20	87.46		87.71	0.000667	5.03	828.39	202.54	0.31
Bayberry Ln Ext	9530	10-year FEMA	Natural FEMA	2300.00	78.20	86.37		86.80	0.001287	6.36	623.45	174.20	0.42
Bayberry Ln Ext	9530	10-year FEMA	Proposed FEMA 45' Span	2300.00	78.20	86.37		86.80	0.001285	6.36	623.92	174.26	0.42
Bayberry Ln Ext	9445	10-year FEMA	Existing FEMA	2300.00	77.70	87.51	83.17	87.65	0.000326	3.61	1040.86	216.81	0.22
Bayberry Ln Ext	9445	10-year FEMA	Natural FEMA	2300.00	77.70	86.47	83.17	86.67	0.000531	4.22	838.91	179.02	0.27
Bayberry Ln Ext	9445	10-year FEMA	Proposed FEMA 45' Span	2300.00	77.70	86.48	83.17	86.67	0.000530	4.22	839.36	179.05	0.27
Bayberry Ln Ext	9440			Inl Struct									
Bayberry Ln Ext	9435	10-year FEMA	Existing FEMA	2300.00	77.70	87.48		87.62	0.000331	3.63	1034.25	215.71	0.22
Bayberry Ln Ext	9435	10-year FEMA	Natural FEMA	2300.00	77.70	86.42		86.62	0.000549	4.27	828.25	178.21	0.28
Bayberry Ln Ext	9435	10-year FEMA	Proposed FEMA 45' Span	2300.00	77.70	86.42		86.62	0.000548	4.27	828.70	178.24	0.28
Bayberry Ln Ext	9400	10-year FEMA	Existing FEMA	2300.00	77.10	87.49	82.87	87.60	0.000253	3.26	1121.67	206.99	0.20
Bayberry Ln Ext	9400	10-year FEMA	Natural FEMA	2300.00	77.10	86.42		86.59	0.000443	3.95	908.04	193.38	0.25
Bayberry Ln Ext	9400	10-year FEMA	Proposed FEMA 45' Span	2300.00	77.10	86.42	82.87	86.60	0.000443	3.94	908.53	193.42	0.25
Bayberry Ln Ext	9365	10-year FEMA	Existing FEMA	2300.00	75.90	87.18	83.55	87.56	0.000748	6.13	811.24	257.77	0.33
Bayberry Ln Ext	9365	10-year FEMA	Natural FEMA	2300.00	75.90	85.49	83.74	86.48	0.002050	9.03	458.47	173.77	0.53
Bayberry Ln Ext	9365	10-year FEMA	Proposed FEMA 45' Span	2300.00	75.90	85.84	83.38	86.52	0.001412	7.75	553.46	182.76	0.45
Bayberry Ln Ext	9335			Bridge									
Bayberry Ln Ext	9310	10-year FEMA	Existing FEMA	2300.00	75.30	83.41	83.41	86.22	0.006873	14.07	190.99	48.61	0.93
Bayberry Ln Ext	9310	10-year FEMA	Natural FEMA	2300.00	75.30	83.57	83.57	86.14	0.006224	13.60	216.14	49.67	0.89
Bayberry Ln Ext	9310	10-year FEMA	Proposed FEMA 45' Span	2300.00	75.30	83.51	83.51	85.89	0.005983	13.26	228.94	53.28	0.87
Bayberry Ln Ext	9245	10-year FEMA	Existing FEMA	2300.00	76.60	82.88	81.00	83.39	0.001705	6.05	448.79	108.60	0.47
Bayberry Ln Ext	9245	10-year FEMA	Natural FEMA	2300.00	76.60	82.87		83.39	0.001724	6.08	448.59	108.56	0.47
Bayberry Ln Ext	9245	10-year FEMA	Proposed FEMA 45' Span	2300.00	76.60	82.88	81.00	83.39	0.001705	6.05	448.80	108.60	0.47
Bayberry Ln Ext	9175	10-year FEMA	Existing FEMA	2300.00	76.30	82.05		83.15	0.004345	9.23	316.47	81.09	0.74
Bayberry Ln Ext	9175	10-year FEMA	Natural FEMA	2300.00	76.30	82.05		83.15	0.004345	9.23	316.47	81.09	0.74
Bayberry Ln Ext	9175	10-year FEMA	Proposed FEMA 45' Span	2300.00	76.30	82.05		83.15	0.004344	9.23	316.49	81.10	0.74

HEC-RAS River: Aspetuck River Reach: Bayberry Ln Ext Profile: 10-year FEMA (Continued)

Reach	River Sta	Profile	Plan	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)	
Bayberry Ln Ext	9050	10-year FEMA	Existing FEMA	2300.00	75.60	81.96		82.71	0.001967	7.01	360.53	82.49	0.52
Bayberry Ln Ext	9050	10-year FEMA	Natural FEMA	2300.00	75.60	81.96		82.71	0.001967	7.01	360.53	82.49	0.52
Bayberry Ln Ext	9050	10-year FEMA	Proposed FEMA 45' Span	2300.00	75.60	81.96		82.71	0.001967	7.01	360.54	82.49	0.52
Bayberry Ln Ext	8450	10-year FEMA	Existing FEMA	2300.00	74.00	78.90	78.86	80.08	0.009424	8.71	264.11	107.80	0.98
Bayberry Ln Ext	8450	10-year FEMA	Natural FEMA	2300.00	74.00	78.90	78.86	80.08	0.009424	8.71	264.11	107.80	0.98
Bayberry Ln Ext	8450	10-year FEMA	Proposed FEMA 45' Span	2300.00	74.00	78.90	78.86	80.08	0.009424	8.71	264.11	107.80	0.98

Bridge#04969 Plan: 1) Existing FEMA 2) Natural FEMA 3) Proposed FEMA 45' Span
 Geom: Proposed GEOMETRY Model 45' Span



1 in Horiz. = 300 ft 1 in Vert. = 5 ft

HEC-RAS River: Aspetuck River Reach: Bayberry Ln Ext Profile: 50-year FEMA

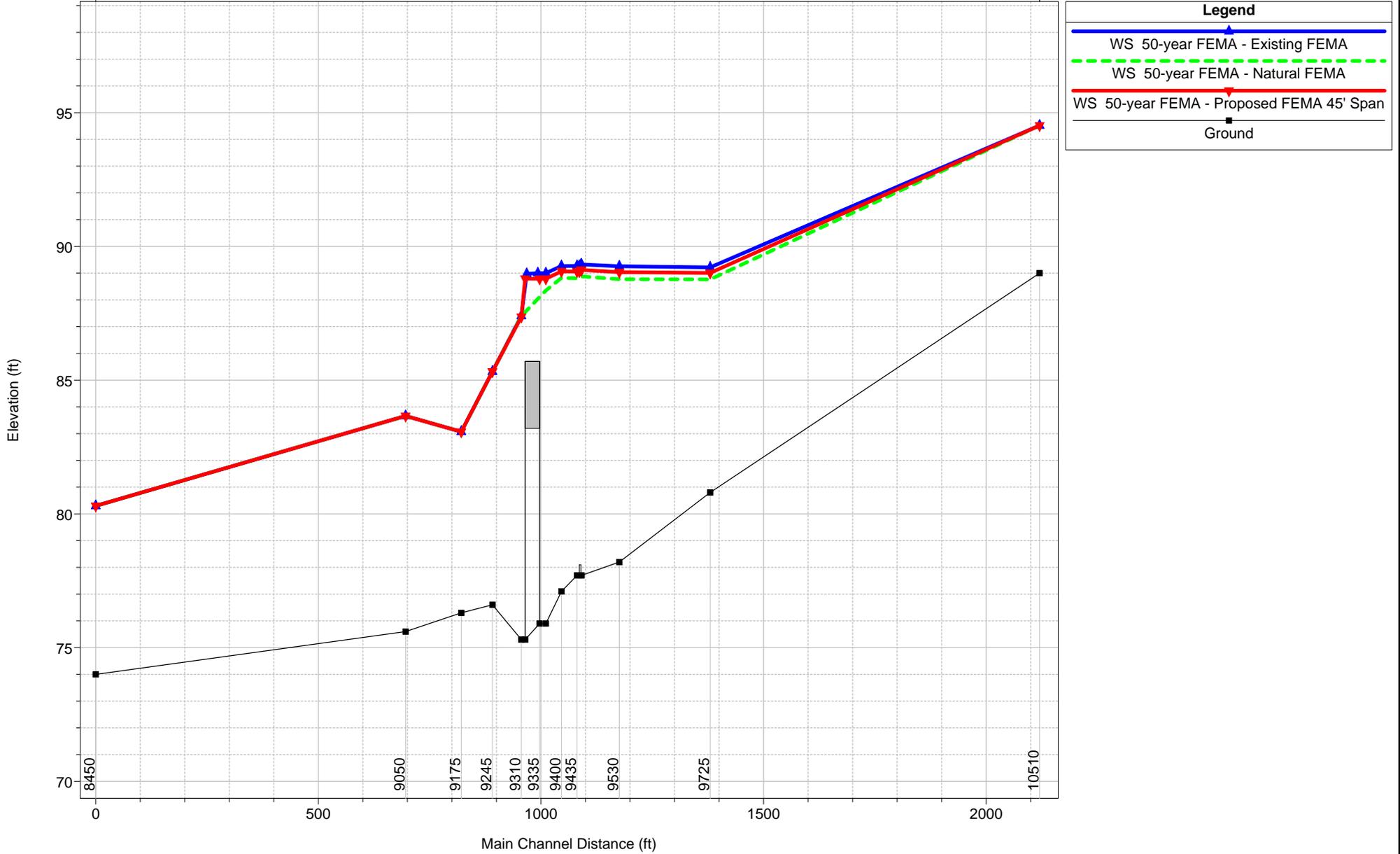
Reach	River Sta	Profile	Plan	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Bayberry Ln Ext	10510	50-year FEMA	Existing FEMA	4400.00	89.00	94.52	94.52	96.87	0.007547	12.31	366.37	107.60	0.96
Bayberry Ln Ext	10510	50-year FEMA	Natural FEMA	4400.00	89.00	94.52	94.52	96.87	0.007547	12.31	366.37	107.60	0.96
Bayberry Ln Ext	10510	50-year FEMA	Proposed FEMA 45' Span	4400.00	89.00	94.52	94.52	96.87	0.007547	12.31	366.37	107.60	0.96
Bayberry Ln Ext	9725	50-year FEMA	Existing FEMA	4400.00	80.80	89.22		90.31	0.002138	9.09	717.04	200.71	0.57
Bayberry Ln Ext	9725	50-year FEMA	Natural FEMA	4400.00	80.80	88.77		90.08	0.002713	9.85	632.27	175.77	0.63
Bayberry Ln Ext	9725	50-year FEMA	Proposed FEMA 45' Span	4400.00	80.80	89.01		90.20	0.002386	9.44	676.52	189.20	0.60
Bayberry Ln Ext	9530	50-year FEMA	Existing FEMA	4400.00	78.20	89.26		89.70	0.001003	7.02	1276.58	296.50	0.39
Bayberry Ln Ext	9530	50-year FEMA	Natural FEMA	4400.00	78.20	88.78		89.33	0.001302	7.74	1138.19	278.87	0.44
Bayberry Ln Ext	9530	50-year FEMA	Proposed FEMA 45' Span	4400.00	78.20	89.04		89.53	0.001128	7.33	1212.69	288.49	0.41
Bayberry Ln Ext	9445	50-year FEMA	Existing FEMA	4400.00	77.70	89.33	84.54	89.59	0.000515	5.17	1494.49	276.87	0.29
Bayberry Ln Ext	9445	50-year FEMA	Natural FEMA	4400.00	77.70	88.88	84.54	89.19	0.000631	5.56	1373.62	264.61	0.31
Bayberry Ln Ext	9445	50-year FEMA	Proposed FEMA 45' Span	4400.00	77.70	89.12	84.54	89.41	0.000564	5.34	1438.49	271.17	0.30
Bayberry Ln Ext	9440			Inl Struct									
Bayberry Ln Ext	9435	50-year FEMA	Existing FEMA	4400.00	77.70	89.27		89.54	0.000528	5.22	1478.59	275.26	0.29
Bayberry Ln Ext	9435	50-year FEMA	Natural FEMA	4400.00	77.70	88.81		89.13	0.000652	5.62	1354.89	262.69	0.32
Bayberry Ln Ext	9435	50-year FEMA	Proposed FEMA 45' Span	4400.00	77.70	89.06		89.36	0.000580	5.40	1422.61	269.56	0.30
Bayberry Ln Ext	9400	50-year FEMA	Existing FEMA	4400.00	77.10	89.27	84.72	89.52	0.000462	4.99	1546.33	291.53	0.27
Bayberry Ln Ext	9400	50-year FEMA	Natural FEMA	4400.00	77.10	88.82		89.10	0.000535	5.22	1423.14	259.46	0.29
Bayberry Ln Ext	9400	50-year FEMA	Proposed FEMA 45' Span	4400.00	77.10	89.07	84.64	89.33	0.000498	5.12	1488.33	279.60	0.28
Bayberry Ln Ext	9365	50-year FEMA	Existing FEMA	4400.00	75.90	89.00	86.79	89.48	0.000954	7.69	1361.66	343.81	0.39
Bayberry Ln Ext	9365	50-year FEMA	Natural FEMA	4400.00	75.90	88.35		89.04	0.001363	8.87	1148.25	314.52	0.46
Bayberry Ln Ext	9365	50-year FEMA	Proposed FEMA 45' Span	4400.00	75.90	88.79	86.44	89.29	0.000969	7.74	1327.33	334.37	0.39
Bayberry Ln Ext	9335			Bridge									
Bayberry Ln Ext	9310	50-year FEMA	Existing FEMA	4400.00	75.30	87.40	87.40	88.86	0.002780	12.05	886.46	355.90	0.64
Bayberry Ln Ext	9310	50-year FEMA	Natural FEMA	4400.00	75.30	87.40	87.40	88.86	0.002794	12.07	883.86	355.09	0.64
Bayberry Ln Ext	9310	50-year FEMA	Proposed FEMA 45' Span	4400.00	75.30	87.37	87.37	88.78	0.002739	11.93	892.32	352.33	0.63
Bayberry Ln Ext	9245	50-year FEMA	Existing FEMA	4400.00	76.60	85.32	82.69	86.04	0.001515	7.40	843.05	215.94	0.47
Bayberry Ln Ext	9245	50-year FEMA	Natural FEMA	4400.00	76.60	85.32	82.62	86.04	0.001515	7.40	843.05	215.94	0.47
Bayberry Ln Ext	9245	50-year FEMA	Proposed FEMA 45' Span	4400.00	76.60	85.32	82.69	86.04	0.001515	7.39	843.09	215.94	0.47
Bayberry Ln Ext	9175	50-year FEMA	Existing FEMA	4400.00	76.30	83.07	83.07	85.65	0.008014	14.26	403.69	94.81	1.04
Bayberry Ln Ext	9175	50-year FEMA	Natural FEMA	4400.00	76.30	83.07	83.07	85.65	0.008014	14.26	403.69	94.81	1.04
Bayberry Ln Ext	9175	50-year FEMA	Proposed FEMA 45' Span	4400.00	76.30	83.07	83.07	85.65	0.008018	14.26	403.63	94.79	1.04

HEC-RAS River: Aspetuck River Reach: Bayberry Ln Ext Profile: 50-year FEMA (Continued)

Reach	River Sta	Profile	Plan	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
Bayberry Ln Ext	9050	50-year FEMA	Existing FEMA	4400.00	75.60	83.66	82.17	85.05	0.002730	9.82	565.67	137.53	0.64
Bayberry Ln Ext	9050	50-year FEMA	Natural FEMA	4400.00	75.60	83.66		85.05	0.002730	9.82	565.67	137.53	0.64
Bayberry Ln Ext	9050	50-year FEMA	Proposed FEMA 45' Span	4400.00	75.60	83.66		85.05	0.002730	9.82	565.67	137.53	0.64
Bayberry Ln Ext	8450	50-year FEMA	Existing FEMA	4400.00	74.00	80.30	80.18	82.01	0.007776	10.50	420.54	113.90	0.95
Bayberry Ln Ext	8450	50-year FEMA	Natural FEMA	4400.00	74.00	80.30	80.18	82.01	0.007776	10.50	420.54	113.90	0.95
Bayberry Ln Ext	8450	50-year FEMA	Proposed FEMA 45' Span	4400.00	74.00	80.30	80.18	82.01	0.007776	10.50	420.54	113.90	0.95

Bridge#04969 Plan: 1) Existing FEMA 2) Natural FEMA 3) Proposed FEMA 45' Span
 Geom: Proposed GEOMETRY Model 45' Span

Aspetuck River Bayberry Ln Ext



1 in Horiz. = 300 ft 1 in Vert. = 5 ft

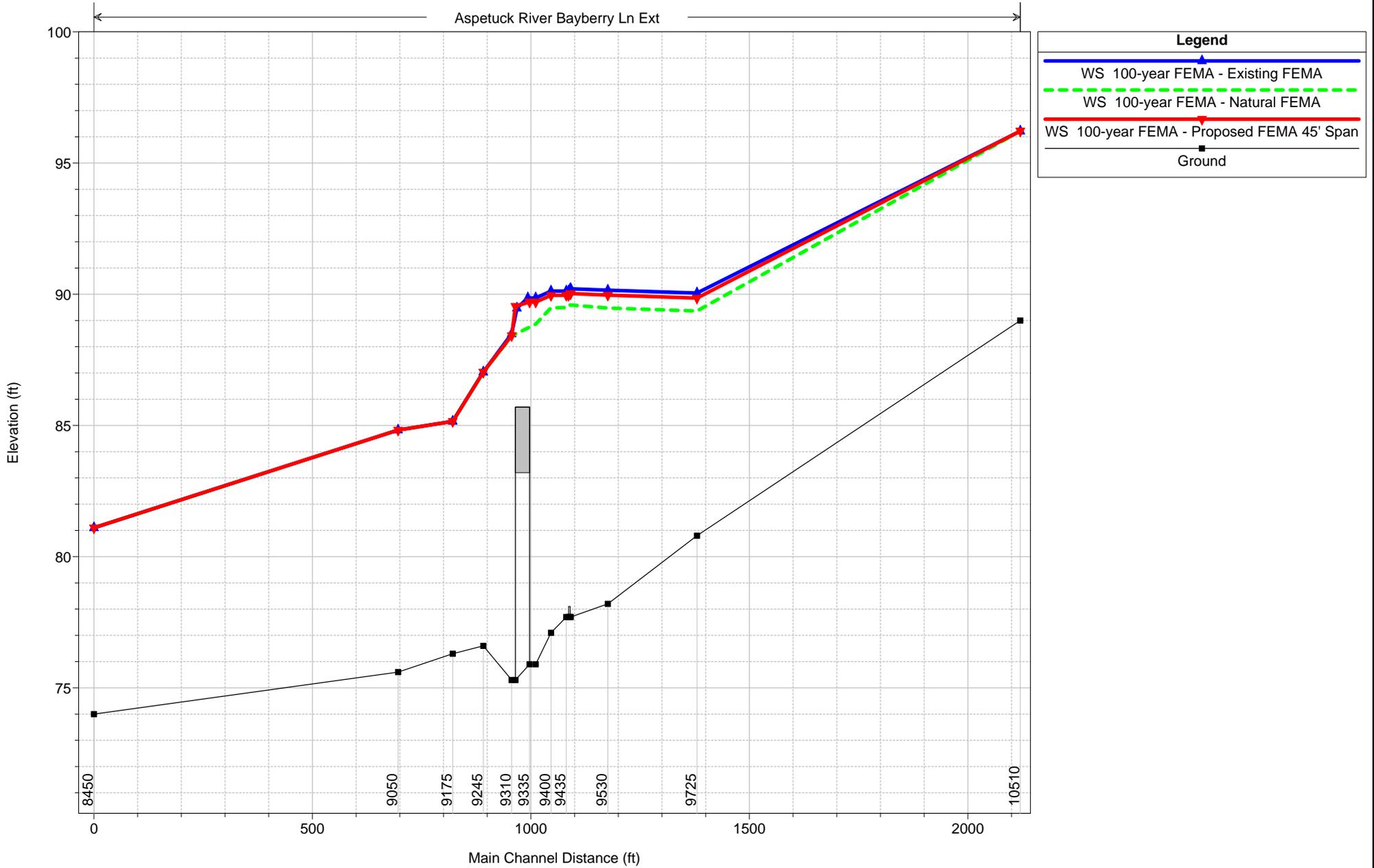
HEC-RAS River: Aspetuck River Reach: Bayberry Ln Ext Profile: 100-year FEMA

Reach	River Sta	Profile	Plan	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
Bayberry Ln Ext	10510	100-year FEMA	Existing FEMA	6100.00	89.00	96.22	96.22	98.32	0.004900	12.01	651.76	229.51	0.81
Bayberry Ln Ext	10510	100-year FEMA	Natural FEMA	6100.00	89.00	96.22	96.22	98.32	0.004900	12.01	651.76	229.51	0.81
Bayberry Ln Ext	10510	100-year FEMA	Proposed FEMA 45' Span	6100.00	89.00	96.22	96.22	98.32	0.004896	12.01	652.08	229.61	0.81
Bayberry Ln Ext	9725	100-year FEMA	Existing FEMA	6100.00	80.80	90.04	88.78	91.53	0.002666	10.84	901.72	245.03	0.64
Bayberry Ln Ext	9725	100-year FEMA	Natural FEMA	6100.00	80.80	89.36	88.78	91.35	0.003812	12.28	746.13	208.59	0.76
Bayberry Ln Ext	9725	100-year FEMA	Proposed FEMA 45' Span	6100.00	80.80	89.85	88.78	91.47	0.002947	11.23	855.80	235.93	0.67
Bayberry Ln Ext	9530	100-year FEMA	Existing FEMA	6100.00	78.20	90.15		90.71	0.001221	8.19	1555.20	327.00	0.43
Bayberry Ln Ext	9530	100-year FEMA	Natural FEMA	6100.00	78.20	89.47		90.23	0.001720	9.32	1340.72	303.44	0.51
Bayberry Ln Ext	9530	100-year FEMA	Proposed FEMA 45' Span	6100.00	78.20	89.96		90.57	0.001346	8.50	1493.79	322.82	0.45
Bayberry Ln Ext	9445	100-year FEMA	Existing FEMA	6100.00	77.70	90.21	85.59	90.60	0.000699	6.37	1751.93	314.91	0.34
Bayberry Ln Ext	9445	100-year FEMA	Natural FEMA	6100.00	77.70	89.59	85.59	90.06	0.000882	6.89	1568.04	284.18	0.38
Bayberry Ln Ext	9445	100-year FEMA	Proposed FEMA 45' Span	6100.00	77.70	90.03	85.60	90.45	0.000757	6.56	1696.44	311.15	0.35
Bayberry Ln Ext	9440			Inl Struct									
Bayberry Ln Ext	9435	100-year FEMA	Existing FEMA	6100.00	77.70	90.12		90.52	0.000726	6.46	1724.66	313.07	0.34
Bayberry Ln Ext	9435	100-year FEMA	Natural FEMA	6100.00	77.70	89.49		89.97	0.000920	6.99	1540.46	281.46	0.38
Bayberry Ln Ext	9435	100-year FEMA	Proposed FEMA 45' Span	6100.00	77.70	89.96		90.38	0.000769	6.58	1675.26	303.36	0.35
Bayberry Ln Ext	9400	100-year FEMA	Existing FEMA	6100.00	77.10	90.12	85.70	90.49	0.000636	6.18	1815.63	336.96	0.33
Bayberry Ln Ext	9400	100-year FEMA	Natural FEMA	6100.00	77.10	89.48		89.94	0.000828	6.78	1609.63	308.51	0.37
Bayberry Ln Ext	9400	100-year FEMA	Proposed FEMA 45' Span	6100.00	77.10	89.96	85.70	90.35	0.000679	6.32	1761.53	329.20	0.34
Bayberry Ln Ext	9365	100-year FEMA	Existing FEMA	6100.00	75.90	89.86	87.92	90.45	0.001176	8.93	1672.12	382.80	0.43
Bayberry Ln Ext	9365	100-year FEMA	Natural FEMA	6100.00	75.90	88.86		89.85	0.001976	10.99	1314.45	337.49	0.55
Bayberry Ln Ext	9365	100-year FEMA	Proposed FEMA 45' Span	6100.00	75.90	89.70	87.75	90.30	0.001171	8.93	1649.10	375.72	0.44
Bayberry Ln Ext	9335			Bridge									
Bayberry Ln Ext	9310	100-year FEMA	Existing FEMA	6100.00	75.30	88.49	88.49	89.70	0.002488	12.13	1343.92	459.07	0.61
Bayberry Ln Ext	9310	100-year FEMA	Natural FEMA	6100.00	75.30	88.40	88.40	89.70	0.002653	12.46	1304.47	455.61	0.63
Bayberry Ln Ext	9310	100-year FEMA	Proposed FEMA 45' Span	6100.00	75.30	88.42	88.42	89.64	0.002535	12.19	1331.71	456.34	0.62
Bayberry Ln Ext	9245	100-year FEMA	Existing FEMA	6100.00	76.60	87.03	82.90	87.73	0.001217	7.59	1274.12	283.83	0.44
Bayberry Ln Ext	9245	100-year FEMA	Natural FEMA	6100.00	76.60	87.03		87.73	0.001217	7.59	1274.12	283.83	0.44
Bayberry Ln Ext	9245	100-year FEMA	Proposed FEMA 45' Span	6100.00	76.60	87.03	82.90	87.73	0.001217	7.59	1274.18	283.84	0.44
Bayberry Ln Ext	9175	100-year FEMA	Existing FEMA	6100.00	76.30	85.15	85.15	87.42	0.005016	13.82	695.01	163.66	0.87
Bayberry Ln Ext	9175	100-year FEMA	Natural FEMA	6100.00	76.30	85.15	85.15	87.42	0.005016	13.82	695.01	163.66	0.87
Bayberry Ln Ext	9175	100-year FEMA	Proposed FEMA 45' Span	6100.00	76.30	85.15	85.15	87.42	0.005019	13.83	694.80	163.64	0.87

HEC-RAS River: Aspetuck River Reach: Bayberry Ln Ext Profile: 100-year FEMA (Continued)

Reach	River Sta	Profile	Plan	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
Bayberry Ln Ext	9050	100-year FEMA	Existing FEMA	6100.00	75.60	84.82	83.76	86.55	0.002927	11.20	736.18	156.47	0.67
Bayberry Ln Ext	9050	100-year FEMA	Natural FEMA	6100.00	75.60	84.82	83.76	86.55	0.002927	11.20	736.18	156.47	0.67
Bayberry Ln Ext	9050	100-year FEMA	Proposed FEMA 45' Span	6100.00	75.60	84.82	83.76	86.55	0.002927	11.20	736.18	156.47	0.67
Bayberry Ln Ext	8450	100-year FEMA	Existing FEMA	6100.00	74.00	81.10	81.08	83.33	0.007932	11.98	512.61	116.30	0.99
Bayberry Ln Ext	8450	100-year FEMA	Natural FEMA	6100.00	74.00	81.10	81.08	83.33	0.007932	11.98	512.61	116.30	0.99
Bayberry Ln Ext	8450	100-year FEMA	Proposed FEMA 45' Span	6100.00	74.00	81.10	81.08	83.33	0.007932	11.98	512.61	116.30	0.99

Bridge#04969 Plan: 1) Existing FEMA 2) Natural FEMA 3) Proposed FEMA 45' Span
 Geom: Proposed GEOMETRY Model 45' Span



Legend

- WS 100-year FEMA - Existing FEMA
- WS 100-year FEMA - Natural FEMA
- WS 100-year FEMA - Proposed FEMA 45' Span
- Ground

1 in Horiz. = 300 ft 1 in Vert. = 5 ft

HEC-RAS River: Aspetuck River Reach: Bayberry Ln Ext Profile: 500-year FEMA

Reach	River Sta	Profile	Plan	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
Bayberry Ln Ext	10510	500-year FEMA	Existing FEMA	11200.00	89.00	98.70	98.70	100.82	0.003913	13.22	1445.68	408.65	0.77
Bayberry Ln Ext	10510	500-year FEMA	Natural FEMA	11200.00	89.00	98.70	98.70	100.82	0.003913	13.22	1445.68	408.65	0.77
Bayberry Ln Ext	10510	500-year FEMA	Proposed FEMA 45' Span	11200.00	89.00	98.70	98.70	100.82	0.003914	13.22	1445.43	408.61	0.77
Bayberry Ln Ext	9725	500-year FEMA	Existing FEMA	11200.00	80.80	91.73	91.67	94.08	0.003766	14.48	1344.11	277.90	0.79
Bayberry Ln Ext	9725	500-year FEMA	Natural FEMA	11200.00	80.80	91.67	91.67	94.08	0.003863	14.61	1329.31	277.02	0.80
Bayberry Ln Ext	9725	500-year FEMA	Proposed FEMA 45' Span	11200.00	80.80	91.67	91.67	94.08	0.003866	14.62	1328.82	276.99	0.80
Bayberry Ln Ext	9530	500-year FEMA	Existing FEMA	11200.00	78.20	91.99		92.83	0.001687	10.66	2172.11	343.03	0.52
Bayberry Ln Ext	9530	500-year FEMA	Natural FEMA	11200.00	78.20	91.39		92.46	0.002209	11.82	1969.50	339.02	0.59
Bayberry Ln Ext	9530	500-year FEMA	Proposed FEMA 45' Span	11200.00	78.20	91.84		92.73	0.001798	10.92	2122.64	342.06	0.54
Bayberry Ln Ext	9445	500-year FEMA	Existing FEMA	11200.00	77.70	91.98	87.88	92.69	0.001132	8.95	2340.64	343.30	0.44
Bayberry Ln Ext	9445	500-year FEMA	Natural FEMA	11200.00	77.70	91.42	87.88	92.27	0.001409	9.70	2149.48	336.03	0.49
Bayberry Ln Ext	9445	500-year FEMA	Proposed FEMA 45' Span	11200.00	77.70	91.84	87.88	92.59	0.001194	9.13	2293.08	341.50	0.45
Bayberry Ln Ext	9440			Inl Struct									
Bayberry Ln Ext	9435	500-year FEMA	Existing FEMA	11200.00	77.70	91.84		92.58	0.001199	9.15	2339.95	402.21	0.45
Bayberry Ln Ext	9435	500-year FEMA	Natural FEMA	11200.00	77.70	91.24		92.15	0.001532	10.01	2102.45	377.54	0.51
Bayberry Ln Ext	9435	500-year FEMA	Proposed FEMA 45' Span	11200.00	77.70	91.70		92.48	0.001269	9.34	2284.20	400.41	0.46
Bayberry Ln Ext	9400	500-year FEMA	Existing FEMA	11200.00	77.10	91.84	86.21	92.53	0.001056	8.76	2457.75	402.78	0.43
Bayberry Ln Ext	9400	500-year FEMA	Natural FEMA	11200.00	77.10	91.24		92.09	0.001350	9.59	2221.38	381.77	0.48
Bayberry Ln Ext	9400	500-year FEMA	Proposed FEMA 45' Span	11200.00	77.10	91.71	86.21	92.43	0.001116	8.94	2402.47	397.97	0.44
Bayberry Ln Ext	9365	500-year FEMA	Existing FEMA	11200.00	75.90	91.58	89.85	92.48	0.001771	11.89	2520.44	550.04	0.54
Bayberry Ln Ext	9365	500-year FEMA	Natural FEMA	11200.00	75.90	89.54	89.52	91.88	0.004657	17.49	1553.54	368.40	0.86
Bayberry Ln Ext	9365	500-year FEMA	Proposed FEMA 45' Span	11200.00	75.90	91.43	89.70	92.37	0.001795	12.02	2471.57	544.63	0.55
Bayberry Ln Ext	9335			Bridge									
Bayberry Ln Ext	9310	500-year FEMA	Existing FEMA	11200.00	75.30	89.92	89.92	91.41	0.003331	15.10	2034.07	516.09	0.72
Bayberry Ln Ext	9310	500-year FEMA	Natural FEMA	11200.00	75.30	89.91	89.91	91.41	0.003343	15.12	2031.09	515.91	0.72
Bayberry Ln Ext	9310	500-year FEMA	Proposed FEMA 45' Span	11200.00	75.30	89.87	89.87	91.37	0.003357	15.13	2028.72	514.62	0.72
Bayberry Ln Ext	9245	500-year FEMA	Existing FEMA	11200.00	76.60	90.01	86.94	90.82	0.001147	8.88	2445.40	491.97	0.45
Bayberry Ln Ext	9245	500-year FEMA	Natural FEMA	11200.00	76.60	90.01		90.82	0.001147	8.88	2445.40	491.97	0.45
Bayberry Ln Ext	9245	500-year FEMA	Proposed FEMA 45' Span	11200.00	76.60	90.01	86.94	90.82	0.001147	8.87	2445.46	491.98	0.45
Bayberry Ln Ext	9175	500-year FEMA	Existing FEMA	11200.00	76.30	87.65	87.65	90.48	0.004907	16.42	1142.37	190.87	0.90
Bayberry Ln Ext	9175	500-year FEMA	Natural FEMA	11200.00	76.30	87.65	87.65	90.48	0.004907	16.42	1142.37	190.87	0.90
Bayberry Ln Ext	9175	500-year FEMA	Proposed FEMA 45' Span	11200.00	76.30	87.66	87.66	90.48	0.004906	16.41	1142.50	190.87	0.90

HEC-RAS River: Aspetuck River Reach: Bayberry Ln Ext Profile: 500-year FEMA (Continued)

Reach	River Sta	Profile	Plan	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
Bayberry Ln Ext	9050	500-year FEMA	Existing FEMA	11200.00	75.60	87.47	86.64	89.89	0.003187	13.98	1207.91	195.90	0.73
Bayberry Ln Ext	9050	500-year FEMA	Natural FEMA	11200.00	75.60	87.47	86.64	89.89	0.003187	13.98	1207.91	195.90	0.73
Bayberry Ln Ext	9050	500-year FEMA	Proposed FEMA 45' Span	11200.00	75.60	87.47	86.64	89.89	0.003187	13.98	1207.91	195.90	0.73
Bayberry Ln Ext	8450	500-year FEMA	Existing FEMA	11200.00	74.00	83.40	83.35	86.63	0.006922	14.47	788.04	123.20	0.98
Bayberry Ln Ext	8450	500-year FEMA	Natural FEMA	11200.00	74.00	83.40	83.35	86.63	0.006922	14.47	788.04	123.20	0.98
Bayberry Ln Ext	8450	500-year FEMA	Proposed FEMA 45' Span	11200.00	74.00	83.40	83.35	86.63	0.006922	14.47	788.04	123.20	0.98

HEC-RAS River: Aspetuck River Reach: Bayberry Ln Ext Profile: 500-year FEMA

Reach	River Sta	Profile	Plan	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
Bayberry Ln Ext	10510	500-year FEMA	Existing FEMA	11200.00	89.00	98.70	98.70	100.82	0.003913	13.22	1445.68	408.65	0.77
Bayberry Ln Ext	10510	500-year FEMA	Natural FEMA	11200.00	89.00	98.70	98.70	100.82	0.003913	13.22	1445.68	408.65	0.77
Bayberry Ln Ext	10510	500-year FEMA	Proposed FEMA 45' Span	11200.00	89.00	98.70	98.70	100.82	0.003914	13.22	1445.43	408.61	0.77
Bayberry Ln Ext	9725	500-year FEMA	Existing FEMA	11200.00	80.80	91.73	91.67	94.08	0.003766	14.48	1344.11	277.90	0.79
Bayberry Ln Ext	9725	500-year FEMA	Natural FEMA	11200.00	80.80	91.67	91.67	94.08	0.003863	14.61	1329.31	277.02	0.80
Bayberry Ln Ext	9725	500-year FEMA	Proposed FEMA 45' Span	11200.00	80.80	91.67	91.67	94.08	0.003866	14.62	1328.82	276.99	0.80
Bayberry Ln Ext	9530	500-year FEMA	Existing FEMA	11200.00	78.20	91.99		92.83	0.001687	10.66	2172.11	343.03	0.52
Bayberry Ln Ext	9530	500-year FEMA	Natural FEMA	11200.00	78.20	91.39		92.46	0.002209	11.82	1969.50	339.02	0.59
Bayberry Ln Ext	9530	500-year FEMA	Proposed FEMA 45' Span	11200.00	78.20	91.84		92.73	0.001798	10.92	2122.64	342.06	0.54
Bayberry Ln Ext	9445	500-year FEMA	Existing FEMA	11200.00	77.70	91.98	87.88	92.69	0.001132	8.95	2340.64	343.30	0.44
Bayberry Ln Ext	9445	500-year FEMA	Natural FEMA	11200.00	77.70	91.42	87.88	92.27	0.001409	9.70	2149.48	336.03	0.49
Bayberry Ln Ext	9445	500-year FEMA	Proposed FEMA 45' Span	11200.00	77.70	91.84	87.88	92.59	0.001194	9.13	2293.08	341.50	0.45
Bayberry Ln Ext	9440			Inl Struct									
Bayberry Ln Ext	9435	500-year FEMA	Existing FEMA	11200.00	77.70	91.84		92.58	0.001199	9.15	2339.95	402.21	0.45
Bayberry Ln Ext	9435	500-year FEMA	Natural FEMA	11200.00	77.70	91.24		92.15	0.001532	10.01	2102.45	377.54	0.51
Bayberry Ln Ext	9435	500-year FEMA	Proposed FEMA 45' Span	11200.00	77.70	91.70		92.48	0.001269	9.34	2284.20	400.41	0.46
Bayberry Ln Ext	9400	500-year FEMA	Existing FEMA	11200.00	77.10	91.84	86.21	92.53	0.001056	8.76	2457.75	402.78	0.43
Bayberry Ln Ext	9400	500-year FEMA	Natural FEMA	11200.00	77.10	91.24		92.09	0.001350	9.59	2221.38	381.77	0.48
Bayberry Ln Ext	9400	500-year FEMA	Proposed FEMA 45' Span	11200.00	77.10	91.71	86.21	92.43	0.001116	8.94	2402.47	397.97	0.44
Bayberry Ln Ext	9365	500-year FEMA	Existing FEMA	11200.00	75.90	91.58	89.85	92.48	0.001771	11.89	2520.44	550.04	0.54
Bayberry Ln Ext	9365	500-year FEMA	Natural FEMA	11200.00	75.90	89.54	89.52	91.88	0.004657	17.49	1553.54	368.40	0.86
Bayberry Ln Ext	9365	500-year FEMA	Proposed FEMA 45' Span	11200.00	75.90	91.43	89.70	92.37	0.001795	12.02	2471.57	544.63	0.55
Bayberry Ln Ext	9335			Bridge									
Bayberry Ln Ext	9310	500-year FEMA	Existing FEMA	11200.00	75.30	89.92	89.92	91.41	0.003331	15.10	2034.07	516.09	0.72
Bayberry Ln Ext	9310	500-year FEMA	Natural FEMA	11200.00	75.30	89.91	89.91	91.41	0.003343	15.12	2031.09	515.91	0.72
Bayberry Ln Ext	9310	500-year FEMA	Proposed FEMA 45' Span	11200.00	75.30	89.87	89.87	91.37	0.003357	15.13	2028.72	514.62	0.72
Bayberry Ln Ext	9245	500-year FEMA	Existing FEMA	11200.00	76.60	90.01	86.94	90.82	0.001147	8.88	2445.40	491.97	0.45
Bayberry Ln Ext	9245	500-year FEMA	Natural FEMA	11200.00	76.60	90.01		90.82	0.001147	8.88	2445.40	491.97	0.45
Bayberry Ln Ext	9245	500-year FEMA	Proposed FEMA 45' Span	11200.00	76.60	90.01	86.94	90.82	0.001147	8.87	2445.46	491.98	0.45
Bayberry Ln Ext	9175	500-year FEMA	Existing FEMA	11200.00	76.30	87.65	87.65	90.48	0.004907	16.42	1142.37	190.87	0.90
Bayberry Ln Ext	9175	500-year FEMA	Natural FEMA	11200.00	76.30	87.65	87.65	90.48	0.004907	16.42	1142.37	190.87	0.90
Bayberry Ln Ext	9175	500-year FEMA	Proposed FEMA 45' Span	11200.00	76.30	87.66	87.66	90.48	0.004906	16.41	1142.50	190.87	0.90

HEC-RAS River: Aspetuck River Reach: Bayberry Ln Ext Profile: 500-year FEMA (Continued)

Reach	River Sta	Profile	Plan	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
Bayberry Ln Ext	9050	500-year FEMA	Existing FEMA	11200.00	75.60	87.47	86.64	89.89	0.003187	13.98	1207.91	195.90	0.73
Bayberry Ln Ext	9050	500-year FEMA	Natural FEMA	11200.00	75.60	87.47	86.64	89.89	0.003187	13.98	1207.91	195.90	0.73
Bayberry Ln Ext	9050	500-year FEMA	Proposed FEMA 45' Span	11200.00	75.60	87.47	86.64	89.89	0.003187	13.98	1207.91	195.90	0.73
Bayberry Ln Ext	8450	500-year FEMA	Existing FEMA	11200.00	74.00	83.40	83.35	86.63	0.006922	14.47	788.04	123.20	0.98
Bayberry Ln Ext	8450	500-year FEMA	Natural FEMA	11200.00	74.00	83.40	83.35	86.63	0.006922	14.47	788.04	123.20	0.98
Bayberry Ln Ext	8450	500-year FEMA	Proposed FEMA 45' Span	11200.00	74.00	83.40	83.35	86.63	0.006922	14.47	788.04	123.20	0.98

Bridge No. 04969 - Proposed FEMA

HEC-RAS HEC-RAS 5.0.7 March 2019
 U. S. Army Corps of Engineers
 Hydrologic Engineering Center
 609 Second Street
 Davis, California

```

X      X  XXXXXX   XXXX       XXXX       XX       XXXX
X      X  X        X   X      X   X      X   X      X
X      X  X        X   X      X   X      X   X      X
XXXXXXXX XXXX      X        XXX XXXX      XXXXXX      XXXX
X      X  X        X   X      X   X      X   X      X
X      X  X        X   X      X   X      X   X      X
X      X  XXXXXX   XXXX       X   X      X   X      XXXXXX
    
```

PROJECT DATA

Project Title: Bridge#04969
 Project File : Bridge#04969.prj
 Run Date and Time: 11/17/2019 3:44:54 PM

Project in English units

Project Description:
 Replacement of Bridge No. 04969
 Bayberry Lane Ext. over Aspetuck River
 Westport, CT

State Project No. 158-216

EcoDesign, LLC
 860 677-4555

November 2019

PLAN DATA

Plan Title: Proposed FEMA Model 45' Span
 Plan File : e:\EcoDesign, LLC\2018\Projects\18-006\HEC-RAS\November
 2019\Bri dge#04969. p07

Geometry Title: Proposed GEOMETRY Model 45' Span
 Geometry File : e:\EcoDesign, LLC\2018\Projects\18-006\HEC-RAS\November
 2019\Bri dge#04969. g05

Flow Title : Original FEMA NAVD88
 Flow File : e:\EcoDesign, LLC\2018\Projects\18-006\HEC-RAS\November
 2019\Bri dge#04969. f02

Plan Description:
 Proposed FEMA Model - 45' Span
 Current Survey + Original HEC-2 Input for RS
 'E' & 'F'
 Adjusted to NAVD 88

Plan Summary Information:

Number of:	Cross Sections = 12	Multiple Openings = 0
	Culverts = 0	Inline Structures = 1
	Bridges = 1	Lateral Structures = 0

Computational Information

Bridge No. 04969 - Proposed FEMA

Water surface calculation tolerance = 0.001
 Critical depth calculation tolerance = 0.001
 Maximum number of iterations = 40
 Maximum difference tolerance = 0.1
 Flow tolerance factor = 0.0001

Computation Options

Critical depth computed only where necessary
 Conveyance Calculation Method: At breaks in n values only
 Friction Slope Method: Average Conveyance
 Computational Flow Regime: Subcritical Flow

FLOW DATA

Flow Title: Original FEMA NAVD88
 Flow File : e:\EcoDesign, LLC\2018\Projects\18-006\HEC-RAS\November 2019\Bri dge#04969. f02

Flow Data (cfs)

River	Reach	RS	10-year FEMA	50-year FEMA
100-year FEMA	500-year FEMA			
Aspetuck River	Bayberry Ln Ext	10510	2300	4400
6100	11200			

Boundary Conditions

River	Reach	Profile	Upstream
Downstream			
Aspetuck River	Bayberry Ln Ext	10-year FEMA	
Known WS = 78.9			
Aspetuck River	Bayberry Ln Ext	50-year FEMA	
Known WS = 80.3			
Aspetuck River	Bayberry Ln Ext	100-year FEMA	
Known WS = 81.1			
Aspetuck River	Bayberry Ln Ext	500-year FEMA	
Known WS = 83.4			

GEOMETRY DATA

Geometry Title: Proposed GEOMETRY Model 45' Span
 Geometry File : e:\EcoDesign, LLC\2018\Projects\18-006\HEC-RAS\November 2019\Bri dge#04969. g05

CROSS SECTION

RIVER: Aspetuck River
 REACH: Bayberry Ln Ext RS: 10510

INPUT

Description: Original FEMA Section 10570- Lettered Section 'F'
 Station Elevation Data num= 8

Sta	Elev								
0	104	70	99	335	94	340	89	398	89

405 94 500 Bridge No. 04969 - Proposed FEMA
 99 820 104
 Manni ng' s n Val ues num= 3
 Sta n Val Sta n Val Sta n Val
 0 .05 335 .03 405 .05
 Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 335 405 740 740 740 .3 .5

CROSS SECTION

RIVER: Aspetuck Ri ver
 REACH: Bayberry Ln Ext RS: 9725

INPUT

Descripti on: NEW RS
 Original FEMA Secti on 9830

Stati on Elevati on Data num= 21
 Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
 270 96 287.9 93 300.4 92 307.6 91 320 90
 340.7 88.5 361.3 87 368.5 85 375.8 83 383.1 81
 400 80.8 419 81 427 83 434 85 447.9 86
 476.1 87 501.7 88.5 564.1 90 582.8 92 589.9 93
 610 96

Manni ng' s n Val ues num= 3
 Sta n Val Sta n Val Sta n Val
 270 .05 375.8 .03 427 .05

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 375.8 427 204 204 204 .3 .5

CROSS SECTION

RIVER: Aspetuck Ri ver
 REACH: Bayberry Ln Ext RS: 9530

INPUT

Descripti on: New RS
 Project Survey

Stati on Elevati on Data num= 32
 Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
 289.4 91.5 353.7 90 368.2 88.6 380.4 87 386 82.4
 390.2 82.3 390.8 80 391.9 79.2 394.8 78.8 402.6 78.2
 413.4 78.8 418.1 80.1 422.4 81.4 431.3 81.7 455.6 81.7
 461 81.8 469.9 83 482.2 83.7 501.4 84.4 519.7 84.8
 527.6 85 536.8 85.4 559.8 86.6 582.5 87.6 597.3 88.2
 618 88.2 643.2 88.7 661.6 89.4 667.2 89.8 680.1 90
 690 90.8 704.2 92.9

Manni ng' s n Val ues num= 3
 Sta n Val Sta n Val Sta n Val
 289.4 .05 390.2 .03 422.4 .05

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 390.2 422.4 90 85 55 .1 .3

Bl ocked Obstructi ons num= 1
 Sta L Sta R Elev
 289.4 355 100

CROSS SECTION

RIVER: Aspetuck Ri ver
 REACH: Bayberry Ln Ext RS: 9445

Bridge No. 04969 - Proposed FEMA

INPUT

Description: Upstream of WEIR - New RS

Project Survey

Station Elevation Data

num= 33

Sta	Elev								
298.2	91.5	362	90.5	373.6	89.1	383.2	87.8	386.8	86.4
391.3	82	393.9	79.8	396.8	79.8	398.7	79.4	401.6	78.2
404.6	77.7	409.8	78.3	415.3	78.6	426.8	78.6	429.9	79.4
432.6	80.2	437	80.6	440.3	81.5	447.2	81.5	455.3	81.9
468.6	81.4	484.1	81.4	496.2	81.6	515.5	81.8	536.3	84.6
551.6	85.2	570.3	86.9	583.9	87	630.4	88.4	659.8	89.9
676.7	90	703.8	92.1	725.4	94				

Manning's n Values

num= 3

Sta	n Val	Sta	n Val	Sta	n Val
298.2	.05	391.3	.03	440.3	.05

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 391.3 440.3 10 10 10 .1 .3

Blocked Obstructions

num= 1

Sta L	Sta R	Elev
298.2	359	100

INLINE STRUCTURE

RIVER: Aspetuck River

REACH: Bayberry Ln Ext RS: 9440

INPUT

Description:

Distance from Upstream XS = 1

Deck/Roadway Width = 4

Weir Coefficient = 2.6

Weir Embankment Coordinates

num = 21

Sta	Elev								
298.2	91.5	362	90.5	373.6	89.1	383.2	87.8	386.8	86.4
390.1	83	391.3	82.5	391.8	83.2	397.2	83.1	399.4	82.6
400.4	80.6	401.8	80.4	401.9	78.2	406	78.1	415.3	78.6
426.8	78.6	429.9	79.4	432.6	80.2	437	80.6	440.3	81.5
447.2	81.5								

Upstream Embankment side slope = 0 horiz. to 1.0 vertical
 Downstream Embankment side slope = 0 horiz. to 1.0 vertical
 Maximum allowable submergence for weir flow = .98
 Elevation at which weir flow begins =
 Weir crest shape = Broad Crested

CROSS SECTION

RIVER: Aspetuck River

REACH: Bayberry Ln Ext RS: 9435

INPUT

Description: Downstream of WEIR - New RS

Project Survey

Station Elevation Data

num= 33

Sta	Elev								
298.2	91.5	362	90.5	373.6	89.1	383.2	87.8	386.8	86.4
391.3	82	393.9	79.8	396.8	79.8	398.7	79.4	401.6	78.2
404.6	77.7	409.8	78.3	415.3	78.6	426.8	78.6	429.9	79.4
432.6	80.2	437	80.6	440.3	81.5	447.2	81.5	455.3	81.9
468.6	81.4	484.1	81.4	496.2	81.6	515.5	81.8	536.3	84.6
551.6	85.2	570.3	86.9	583.9	87	630.4	88.4	659.8	89.9
676.7	90	703.8	92.1	725.4	94				

Bridge No. 04969 - Proposed FEMA
 Manni ng' s n Val ues num= 3
 Sta n Val Sta n Val Sta n Val
 298.2 .05 391.3 .03 440.3 .05

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 391.3 440.3 40 35 20 .1 .3

CROSS SECTION

RIVER: Aspetuck River
 REACH: Bayberry Ln Ext RS: 9400

INPUT

Description: APPROACH Section - New RS
 Project Survey

Station Elevation Data num= 35
 Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
 290.8 92 312.7 91.2 336.3 90 355.7 88.6 370.9 88
 379 85 382.6 81.3 388 79.6 390.2 79.2 393.1 78.5
 398.8 78 406 77.4 411.8 77.1 417.4 78.2 420.3 79.3
 424.5 80.5 430.9 80.8 433.8 81.1 444.2 81 470.7 81.5
 485.3 81.6 495.5 81.6 516.3 81.8 535.8 84.6 551 85.2
 562.3 85.8 584.4 88 597.5 88.5 620 89 633.1 89.1
 641.7 89.4 649.6 89.4 685.1 90.6 693 91.2 708 93.2

Manni ng' s n Val ues num= 3
 Sta n Val Sta n Val Sta n Val
 290.8 .05 382.6 .03 433.8 .05

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 382.6 433.8 40 35 20 .1 .3

Ineffecti ve Flow num= 2
 Sta L Sta R Elev Permanent
 290.8 329 86.2 F
 460 708 85.7 F

CROSS SECTION

RIVER: Aspetuck River
 REACH: Bayberry Ln Ext RS: 9365

INPUT

Description: UPSTREAM Toe of Embankment - New RS
 Project Survey

Station Elevation Data num= 29
 Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
 150 92.1 151.2 91.4 192.2 90.2 224.4 90 259 90
 302.9 87.8 316.1 87.4 349 86.8 373.9 86 382.7 82.5
 391.5 79 392.6 78.2 394.8 77.4 397.1 76.9 402.5 75.9
 411.9 76.2 414.7 79 432.7 82.5 442.5 85 476.4 84
 509.1 83.3 527.5 84.4 544.6 85.3 581.7 86.9 595.7 87.9
 609.9 88.5 648.4 90 701.5 91.6 716 92.1

Manni ng' s n Val ues num= 3
 Sta n Val Sta n Val Sta n Val
 150 .05 391.5 .03 414.7 .05

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 391.5 414.7 55 55 55 .3 .5

Ineffecti ve Flow num= 2
 Sta L Sta R Elev Permanent
 150 378 86.7 F
 440 716 85.7 F

BRIDGE

Bridge No. 04969 - Proposed FEMA

RIVER: Aspetuck River
 REACH: Bayberry Ln Ext RS: 9335

INPUT

Description: Proposed Bridge No. 04969 - 45' Span Alt 'A'
 Distance from Upstream XS = 14
 Deck/Roadway Width = 32.5
 Weir Coefficient = 2.6

Upstream Deck/Roadway Coordinates

num= 40											
Sta	Hi	Cord	Lo Cord	Sta	Hi	Cord	Lo Cord	Sta	Hi	Cord	Lo Cord
141.7		90.1		145.4		92.8		164.3		93.2	
193.8		94.1		206.1		94.3		227.6		93.8	
247.4		93.7		261.9		93.3		274.7		93	
293.2		90		338		88.4		347.3		88	
372.2		87		380.2		86.7		380.2		88.9	
383.2		89.7		384.2		89.7		384.2		86.8	83.2
429.2		86.4	82.8	429.2		89.3		430.2		89.3	
433.2		88.4		433.2		86.2		437.4		86.2	
447.1		86		458.8		85.7		473.1		85.7	
533.8		86.3		548.9		86.7		549		87.8	
568		88.8		594		90.6		602		91.5	
615.4		92.1		634.8		92.3		654.1		92.4	
683		92.5		705.8		94.8		714.9		94.3	
732.9		98.2									

Upstream Bridge Cross Section Data

Station		Elevation Data		num= 29							
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
150	92.1	151.2	91.4	192.2	90.2	224.4	90	259	90		
302.9	87.8	316.1	87.4	349	86.8	373.9	86	382.7	82.5		
391.5	79	392.6	78.2	394.8	77.4	397.1	76.9	402.5	75.9		
411.9	76.2	414.7	79	432.7	82.5	442.5	85	476.4	84		
509.1	83.3	527.5	84.4	544.6	85.3	581.7	86.9	595.7	87.9		
609.9	88.5	648.4	90	701.5	91.6	716	92.1				

Manning's n Values

Sta	n Val	Sta	n Val	Sta	n Val
150	.05	391.5	.03	414.7	.05

Bank Sta: Left Right Coeff Contr. Expan.

391.5	414.7	.3	.5
-------	-------	----	----

Ineffective Flow

Sta L	Sta R	Elev	Permanent
150	378	86.7	F
440	716	85.7	F

Downstream Deck/Roadway Coordinates

num= 57											
Sta	Hi	Cord	Lo Cord	Sta	Hi	Cord	Lo Cord	Sta	Hi	Cord	Lo Cord
85.9		87.7		91.2		89.8		123		90.7	
147.3		92		147.4		89.8		151.6		89.8	
151.7		91.7		159.9		91.4		181		91	
198.1		90.4		205		89.9		205.6		89.3	
212.3		89		213.3		89.8		238.1		88.6	
252.2		88.9		273.6		88.2		296.8		88	
325.5		88.2		339.4		87.6		340.2		87.1	
340.8		86.6		364.9		86.3		373.4		86.3	
373.4		89		376.4		89.8		377.4		89.8	
377.4		86.8	83.2	422.4		86.4	82.8	422.4		89.3	
423.4		89.3		426.4		88.5		426.4		85.8	
433.9		86.1		458.2		86.1		482.4		85.7	
485.1		85.7		485.1		87.4		507.9		87.8	
507.9		90.5		510.7		90.5		510.7		85.8	
527.2		86		527.2		90.4		530.1		90.4	
530.1		88.1		550.5		88.6		567.1		89.6	
582.8		90.6		596.4		91		602.5		88.2	

Bridge No. 04969 - Proposed FEMA

606	88	613.2	88.3	632.4	89
654.8	89.9	675.9	91.6	679.6	93.9

Downstream Bridge Cross Section Data

Station Elevation Data		num= 32							
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
141	90	150.4	88	205.2	87.4	221.2	87.1	239.8	86.5
283.3	86.4	322.4	85.3	331	86.6	333.1	86.9	345.4	85.4
367.8	85	375.6	82.5	385.8	79	390.3	76.5	395.3	75.4
403.4	75.3	406.4	79	424.4	82.5	427.7	85	476.2	84.1
485.1	85.5	510.7	85.8	527.1	86	556.7	87.3	580.4	87.9
596.3	88.8	605.8	87.6	613.2	88.3	624	89.4	642.7	89.5
654.4	89.8	662.3	90.1						

Manning's n Values		num= 3	
Sta	n Val	Sta	n Val
141	.05	385.8	.03
		406.4	.05

Bank Sta:	Left	Right	Coeff	Contr.	Expan.
	385.8	406.4		.3	.5
Ineffective Flow	num= 2				
Sta L	Sta R	Elev	Permanent		
141	371	85.3	F		
430	662.3	84.5	F		

Upstream Embankment side slope = 0 horiz. to 1.0 vertical
 Downstream Embankment side slope = 0 horiz. to 1.0 vertical
 Maximum allowable submergence for weir flow = .98
 Elevation at which weir flow begins =
 Energy head used in spillway design =
 Spillway height used in design =
 Weir crest shape = Broad Crested

Number of Bridge Coefficient Sets = 1

Low Flow Methods and Data
 Energy
 Selected Low Flow Methods = Energy

High Flow Method
 Pressure and Weir flow
 Submerged Inlet Cd =
 Submerged Inlet + Outlet Cd = .8
 Max Low Cord =

Additional Bridge Parameters
 Add Friction component to Momentum
 Do not add Weight component to Momentum
 Class B flow critical depth computations use critical depth
 inside the bridge at the upstream end
 Criteria to check for pressure flow = Upstream water surface

CROSS SECTION

RIVER: Aspetuck River
 REACH: Bayberry Ln Ext RS: 9310

INPUT
 Description: DOWNSTREAM Toe of Embankment - New RS
 Project Survey

Station Elevation Data		num= 32							
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
141	90	150.4	88	205.2	87.4	221.2	87.1	239.8	86.5
283.3	86.4	322.4	85.3	331	86.6	333.1	86.9	345.4	85.4
367.8	85	375.6	82.5	385.8	79	390.3	76.5	395.3	75.4
403.4	75.3	406.4	79	424.4	82.5	427.7	85	476.2	84.1
485.1	85.5	510.7	85.8	527.1	86	556.7	87.3	580.4	87.9

Bridge No. 04969 - Proposed FEMA
 596.3 88.8 605.8 87.6 613.2 88.3 624 89.4 642.7 89.5
 654.4 89.8 662.3 90.1

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val
 141 .05 385.8 .03 406.4 .05

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 385.8 406.4 50 65 85 .3 .5
 Ineffective Flow num= 2
 Sta L Sta R Elev Permanent
 141 371 85.3 F
 430 662.3 84.5 F

CROSS SECTION

RIVER: Aspetuck River
 REACH: Bayberry Ln Ext RS: 9245

INPUT
 Description: EXIT Section - New RS
 Project Survey

Station Elevation Data num= 37
 Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
 170 90.1 237.7 88.4 249.9 88.3 268.5 86.5 290.9 85.5
 311.5 84.5 326.2 83.1 352.8 82.9 362.5 81.3 369.3 78.7
 374.1 78.6 380.3 79.2 383 78.9 386.5 79 389.5 78.4
 394.1 78.1 400 77.9 406.6 77.2 410.3 76.6 415.4 76.9
 423.4 77.7 436 77.9 446.1 77.8 451.8 79.5 456.6 80.6
 458.9 81.9 466.5 84.7 482.9 84.5 498.6 84.5 516.1 85.7
 535.9 86.4 553.3 87.4 595 87.8 619 88.2 636 88.3
 648 89 667 90.1

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val
 170 .05 386.5 .03 451.8 .05

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 386.5 451.8 50 70 100 .1 .3
 Ineffective Flow num= 2
 Sta L Sta R Elev Permanent
 170 355 82.9 F
 484 667 84.5 F

CROSS SECTION

RIVER: Aspetuck River
 REACH: Bayberry Ln Ext RS: 9175

INPUT
 Description: New RS
 Project Survey

Station Elevation Data num= 29
 Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
 245.2 88.4 257.4 88.3 261.1 87.1 271.6 85.7 282.6 84.8
 305.5 83.6 309 82.8 319 83.3 345.7 83.4 352.3 82
 356.2 81.5 360 79.4 363.9 78.4 366.2 77.6 373.1 78
 377.3 78.5 385.2 78 391.8 77.9 400 77.7 405.4 76.6
 411.4 76.3 417.9 76.8 424.8 77.4 426.3 78.5 428.7 79.1
 434 82.6 449.2 87.5 453.3 88.1 465.5 89

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val
 245.2 .05 385.2 .03 426.3 .05

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.

385.2 426.3 Bridge No. 04969 - Proposed FEMA 80 125 155 .1 .3

CROSS SECTION

RIVER: Aspetuck River
REACH: Bayberry Ln Ext RS: 9050

INPUT

Description: New RS
Project Survey

Station		Elevation		Data		num= 22					
Sta	El ev	Sta	El ev	Sta	El ev	Sta	El ev	Sta	El ev	Sta	El ev
224	88.7	230.2	87	249.6	85.6	262	84.8	283.3	83.3		
301.4	82	314.1	82.1	327.5	82.5	335.8	81.2	347.2	80.4		
352.9	77.6	360.4	76.8	369.1	76.2	378.9	75.8	384.3	75.6		
396.1	75.8	402.5	76	408.2	77.7	415.3	83.5	423.5	87.4		
434.6	88.3	443	90								

Manning's n Values		num= 3			
Sta	n Val	Sta	n Val	Sta	n Val
224	.05	352.9	.03	408.2	.05

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
	352.9	408.2		761	696		.1	.3

CROSS SECTION

RIVER: Aspetuck River
REACH: Bayberry Ln Ext RS: 8450

INPUT

Description: Original FEMA Section 8450 - Lettered Section 'E'

Station		Elevation		Data		num= 9					
Sta	El ev	Sta	El ev	Sta	El ev	Sta	El ev	Sta	El ev	Sta	El ev
0	89	325	84	330	79	360	74	440	79		
450	84	490	89	500	94	515	99				

Manning's n Values		num= 3			
Sta	n Val	Sta	n Val	Sta	n Val
0	.05	325	.03	440	.05

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
	325	440		250	250		.3	.5

SUMMARY OF MANNING'S N VALUES

River: Aspetuck River

Reach	River Sta.	n1	n2	n3
Bayberry Ln Ext	10510	.05	.03	.05
Bayberry Ln Ext	9725	.05	.03	.05
Bayberry Ln Ext	9530	.05	.03	.05
Bayberry Ln Ext	9445	.05	.03	.05
Bayberry Ln Ext	9440	Inl Struct		
Bayberry Ln Ext	9435	.05	.03	.05
Bayberry Ln Ext	9400	.05	.03	.05
Bayberry Ln Ext	9365	.05	.03	.05
Bayberry Ln Ext	9335	Bridge		
Bayberry Ln Ext	9310	.05	.03	.05
Bayberry Ln Ext	9245	.05	.03	.05
Bayberry Ln Ext	9175	.05	.03	.05
Bayberry Ln Ext	9050	.05	.03	.05
Bayberry Ln Ext	8450	.05	.03	.05

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SUMMARY OF REACH LENGTHS

River: Aspetuck River

Reach	River Sta.	Left	Channel	Right
Bayberry Ln Ext	10510	740	740	740
Bayberry Ln Ext	9725	204	204	204
Bayberry Ln Ext	9530	90	85	55
Bayberry Ln Ext	9445	10	10	10
Bayberry Ln Ext	9440	Inl Struct		
Bayberry Ln Ext	9435	40	35	20
Bayberry Ln Ext	9400	40	35	20
Bayberry Ln Ext	9365	55	55	55
Bayberry Ln Ext	9335	Bridge		
Bayberry Ln Ext	9310	50	65	85
Bayberry Ln Ext	9245	50	70	100
Bayberry Ln Ext	9175	80	125	155
Bayberry Ln Ext	9050	761	696	676
Bayberry Ln Ext	8450	250	250	250

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS

River: Aspetuck River

Reach	River Sta.	Contr.	Expan.
Bayberry Ln Ext	10510	.3	.5
Bayberry Ln Ext	9725	.3	.5
Bayberry Ln Ext	9530	.1	.3
Bayberry Ln Ext	9445	.1	.3
Bayberry Ln Ext	9440	Inl Struct	
Bayberry Ln Ext	9435	.1	.3
Bayberry Ln Ext	9400	.1	.3
Bayberry Ln Ext	9365	.3	.5
Bayberry Ln Ext	9335	Bridge	
Bayberry Ln Ext	9310	.3	.5
Bayberry Ln Ext	9245	.1	.3
Bayberry Ln Ext	9175	.1	.3
Bayberry Ln Ext	9050	.1	.3
Bayberry Ln Ext	8450	.3	.5

Profile Output Table - Standard Table 1

Reach	River Sta	Profile	Plan	Slope	Vel	Flow
Total Area	Min Ch Top Width	W. S. Froude #	W. S. E. G.	E. G. Slope	Chnl	Q
(sq ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	
Bayberry Ln Ext	10510	10-year FEMA	Existing FEMA			
2300.00	89.00	92.56	92.56	94.23	0.009277	10.37
221.73	66.55	1.00				
Bayberry Ln Ext	10510	10-year FEMA	Natural FEMA			
2300.00	89.00	92.56	92.56	94.23	0.009277	10.37

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221.73	66.55		1.00				
Bayberry Ln Ext	10510			10-year FEMA	Proposed FEMA 45' Span		
2300.00	89.00	92.56	92.56	94.23	0.009281	10.37	
221.70	66.54		1.00				
Bayberry Ln Ext	10510			50-year FEMA	Existing FEMA		
4400.00	89.00	94.52	94.52	96.87	0.007547	12.31	
366.37	107.60		0.96				
Bayberry Ln Ext	10510			50-year FEMA	Natural FEMA		
4400.00	89.00	94.52	94.52	96.87	0.007547	12.31	
366.37	107.60		0.96				
Bayberry Ln Ext	10510			50-year FEMA	Proposed FEMA 45' Span		
4400.00	89.00	94.52	94.52	96.87	0.007547	12.31	
366.37	107.60		0.96				
Bayberry Ln Ext	10510			100-year FEMA	Existing FEMA		
6100.00	89.00	96.22	96.22	98.32	0.004900	12.01	
651.76	229.51		0.81				
Bayberry Ln Ext	10510			100-year FEMA	Natural FEMA		
6100.00	89.00	96.22	96.22	98.32	0.004900	12.01	
651.76	229.51		0.81				
Bayberry Ln Ext	10510			100-year FEMA	Proposed FEMA 45' Span		
6100.00	89.00	96.22	96.22	98.32	0.004896	12.01	
652.08	229.61		0.81				
Bayberry Ln Ext	10510			500-year FEMA	Existing FEMA		
11200.00	89.00	98.70	98.70	100.82	0.003913	13.22	
1445.68	408.65		0.77				
Bayberry Ln Ext	10510			500-year FEMA	Natural FEMA		
11200.00	89.00	98.70	98.70	100.82	0.003913	13.22	
1445.68	408.65		0.77				
Bayberry Ln Ext	10510			500-year FEMA	Proposed FEMA 45' Span		
11200.00	89.00	98.70	98.70	100.82	0.003914	13.22	
1445.43	408.61		0.77				

Bayberry Ln Ext	9725			10-year FEMA	Existing FEMA		
2300.00	80.80	87.47		88.10	0.001573	6.62	
438.43	129.40		0.47				
Bayberry Ln Ext	9725			10-year FEMA	Natural FEMA		
2300.00	80.80	86.47		87.47	0.003026	8.17	
324.53	98.07		0.63				
Bayberry Ln Ext	9725			10-year FEMA	Proposed FEMA 45' Span		
2300.00	80.80	86.48		87.47	0.003022	8.17	
324.76	98.14		0.63				
Bayberry Ln Ext	9725			50-year FEMA	Existing FEMA		
4400.00	80.80	89.22		90.31	0.002138	9.09	
717.04	200.71		0.57				
Bayberry Ln Ext	9725			50-year FEMA	Natural FEMA		
4400.00	80.80	88.77		90.08	0.002713	9.85	
632.27	175.77		0.63				
Bayberry Ln Ext	9725			50-year FEMA	Proposed FEMA 45' Span		
4400.00	80.80	89.01		90.20	0.002386	9.44	
676.52	189.20		0.60				
Bayberry Ln Ext	9725			100-year FEMA	Existing FEMA		
6100.00	80.80	90.04		88.78	0.002666	10.84	
901.72	245.03		0.64				
Bayberry Ln Ext	9725			100-year FEMA	Natural FEMA		
6100.00	80.80	89.36		88.78	0.003812	12.28	
746.13	208.59		0.76				
Bayberry Ln Ext	9725			100-year FEMA	Proposed FEMA 45' Span		
6100.00	80.80	89.85		88.78	0.002947	11.23	
855.80	235.93		0.67				
Bayberry Ln Ext	9725			500-year FEMA	Existing FEMA		
11200.00	80.80	91.73		91.67	0.003766	14.48	
1344.11	277.90		0.79				
Bayberry Ln Ext	9725			500-year FEMA	Natural FEMA		
11200.00	80.80	91.67		91.67	0.003863	14.61	
1329.31	277.02		0.80				
Bayberry Ln Ext	9725			500-year FEMA	Proposed FEMA 45' Span		

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11200.00	80.80	91.67	91.67	94.08	0.003866	14.62	
1328.82	276.99	0.80					
Bayberry Ln Ext	9530		10-year FEMA	Existing FEMA			
2300.00	78.20	87.46		87.71	0.000667	5.03	
828.39	202.54	0.31					
Bayberry Ln Ext	9530		10-year FEMA	Natural FEMA			
2300.00	78.20	86.37		86.80	0.001287	6.36	
623.45	174.20	0.42					
Bayberry Ln Ext	9530		10-year FEMA	Proposed FEMA 45' Span			
2300.00	78.20	86.37		86.80	0.001285	6.36	
623.92	174.26	0.42					
Bayberry Ln Ext	9530		50-year FEMA	Existing FEMA			
4400.00	78.20	89.26		89.70	0.001003	7.02	
1276.58	296.50	0.39					
Bayberry Ln Ext	9530		50-year FEMA	Natural FEMA			
4400.00	78.20	88.78		89.33	0.001302	7.74	
1138.19	278.87	0.44					
Bayberry Ln Ext	9530		50-year FEMA	Proposed FEMA 45' Span			
4400.00	78.20	89.04		89.53	0.001128	7.33	
1212.69	288.49	0.41					
Bayberry Ln Ext	9530		100-year FEMA	Existing FEMA			
6100.00	78.20	90.15		90.71	0.001221	8.19	
1555.20	327.00	0.43					
Bayberry Ln Ext	9530		100-year FEMA	Natural FEMA			
6100.00	78.20	89.47		90.23	0.001720	9.32	
1340.72	303.44	0.51					
Bayberry Ln Ext	9530		100-year FEMA	Proposed FEMA 45' Span			
6100.00	78.20	89.96		90.57	0.001346	8.50	
1493.79	322.82	0.45					
Bayberry Ln Ext	9530		500-year FEMA	Existing FEMA			
11200.00	78.20	91.99		92.83	0.001687	10.66	
2172.11	343.03	0.52					
Bayberry Ln Ext	9530		500-year FEMA	Natural FEMA			
11200.00	78.20	91.39		92.46	0.002209	11.82	
1969.50	339.02	0.59					
Bayberry Ln Ext	9530		500-year FEMA	Proposed FEMA 45' Span			
11200.00	78.20	91.84		92.73	0.001798	10.92	
2122.64	342.06	0.54					
Bayberry Ln Ext	9445		10-year FEMA	Existing FEMA			
2300.00	77.70	87.51		87.65	0.000326	3.61	
1040.86	216.81	0.22					
Bayberry Ln Ext	9445		10-year FEMA	Natural FEMA			
2300.00	77.70	86.47		86.67	0.000531	4.22	
838.91	179.02	0.27					
Bayberry Ln Ext	9445		10-year FEMA	Proposed FEMA 45' Span			
2300.00	77.70	86.48		86.67	0.000530	4.22	
839.36	179.05	0.27					
Bayberry Ln Ext	9445		50-year FEMA	Existing FEMA			
4400.00	77.70	89.33		89.59	0.000515	5.17	
1494.49	276.87	0.29					
Bayberry Ln Ext	9445		50-year FEMA	Natural FEMA			
4400.00	77.70	88.88		89.19	0.000631	5.56	
1373.62	264.61	0.31					
Bayberry Ln Ext	9445		50-year FEMA	Proposed FEMA 45' Span			
4400.00	77.70	89.12		89.41	0.000564	5.34	
1438.49	271.17	0.30					
Bayberry Ln Ext	9445		100-year FEMA	Existing FEMA			
6100.00	77.70	90.21		90.60	0.000699	6.37	
1751.93	314.91	0.34					
Bayberry Ln Ext	9445		100-year FEMA	Natural FEMA			
6100.00	77.70	89.59		90.06	0.000882	6.89	
1568.04	284.18	0.38					

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Bayberry Ln Ext	9445	100-year FEMA	Proposed FEMA 45' Span			
6100.00	77.70	90.03	85.60	90.45	0.000757	
1696.44	311.15	0.35				
Bayberry Ln Ext	9445	500-year FEMA	Existing FEMA			
11200.00	77.70	91.98	87.88	92.69	0.001132	
2340.64	343.30	0.44				
Bayberry Ln Ext	9445	500-year FEMA	Natural FEMA			
11200.00	77.70	91.42	87.88	92.27	0.001409	
2149.48	336.03	0.49				
Bayberry Ln Ext	9445	500-year FEMA	Proposed FEMA 45' Span			
11200.00	77.70	91.84	87.88	92.59	0.001194	
2293.08	341.50	0.45				

Bayberry Ln Ext 9440 Struct Inl

Bayberry Ln Ext	9435	10-year FEMA	Existing FEMA		
2300.00	77.70	87.48	87.62	87.62	0.000331
1034.25	215.71	0.22			
Bayberry Ln Ext	9435	10-year FEMA	Natural FEMA		
2300.00	77.70	86.42	86.62	86.62	0.000549
828.25	178.21	0.28			
Bayberry Ln Ext	9435	10-year FEMA	Proposed FEMA 45' Span		
2300.00	77.70	86.42	86.62	86.62	0.000548
828.70	178.24	0.28			
Bayberry Ln Ext	9435	50-year FEMA	Existing FEMA		
4400.00	77.70	89.27	89.54	89.54	0.000528
1478.59	275.26	0.29			
Bayberry Ln Ext	9435	50-year FEMA	Natural FEMA		
4400.00	77.70	88.81	89.13	89.13	0.000652
1354.89	262.69	0.32			
Bayberry Ln Ext	9435	50-year FEMA	Proposed FEMA 45' Span		
4400.00	77.70	89.06	89.36	89.36	0.000580
1422.61	269.56	0.30			
Bayberry Ln Ext	9435	100-year FEMA	Existing FEMA		
6100.00	77.70	90.12	90.52	90.52	0.000726
1724.66	313.07	0.34			
Bayberry Ln Ext	9435	100-year FEMA	Natural FEMA		
6100.00	77.70	89.49	89.97	89.97	0.000920
1540.46	281.46	0.38			
Bayberry Ln Ext	9435	100-year FEMA	Proposed FEMA 45' Span		
6100.00	77.70	89.96	90.38	90.38	0.000769
1675.26	303.36	0.35			
Bayberry Ln Ext	9435	500-year FEMA	Existing FEMA		
11200.00	77.70	91.84	92.58	92.58	0.001199
2339.95	402.21	0.45			
Bayberry Ln Ext	9435	500-year FEMA	Natural FEMA		
11200.00	77.70	91.24	92.15	92.15	0.001532
2102.45	377.54	0.51			
Bayberry Ln Ext	9435	500-year FEMA	Proposed FEMA 45' Span		
11200.00	77.70	91.70	92.48	92.48	0.001269
2284.20	400.41	0.46			

Bayberry Ln Ext	9400	10-year FEMA	Existing FEMA		
2300.00	77.10	87.49	87.60	87.60	0.000253
1121.67	206.99	0.20			
Bayberry Ln Ext	9400	10-year FEMA	Natural FEMA		
2300.00	77.10	86.42	86.59	86.59	0.000443
908.04	193.38	0.25			
Bayberry Ln Ext	9400	10-year FEMA	Proposed FEMA 45' Span		
2300.00	77.10	86.42	86.60	86.60	0.000443

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908.53	193.42		0.25				
Bayberry Ln Ext	9400	50-year FEMA	Existing FEMA				
4400.00	77.10	89.27	84.72	89.52	0.000462	4.99	
1546.33	291.53	0.27					
Bayberry Ln Ext	9400	50-year FEMA	Natural FEMA				
4400.00	77.10	88.82		89.10	0.000535	5.22	
1423.14	259.46	0.29					
Bayberry Ln Ext	9400	50-year FEMA	Proposed FEMA 45' Span				
4400.00	77.10	89.07	84.64	89.33	0.000498	5.12	
1488.33	279.60	0.28					
Bayberry Ln Ext	9400	100-year FEMA	Existing FEMA				
6100.00	77.10	90.12	85.70	90.49	0.000636	6.18	
1815.63	336.96	0.33					
Bayberry Ln Ext	9400	100-year FEMA	Natural FEMA				
6100.00	77.10	89.48		89.94	0.000828	6.78	
1609.63	308.51	0.37					
Bayberry Ln Ext	9400	100-year FEMA	Proposed FEMA 45' Span				
6100.00	77.10	89.96	85.70	90.35	0.000679	6.32	
1761.53	329.20	0.34					
Bayberry Ln Ext	9400	500-year FEMA	Existing FEMA				
11200.00	77.10	91.84	86.21	92.53	0.001056	8.76	
2457.75	402.78	0.43					
Bayberry Ln Ext	9400	500-year FEMA	Natural FEMA				
11200.00	77.10	91.24		92.09	0.001350	9.59	
2221.38	381.77	0.48					
Bayberry Ln Ext	9400	500-year FEMA	Proposed FEMA 45' Span				
11200.00	77.10	91.71	86.21	92.43	0.001116	8.94	
2402.47	397.97	0.44					
Bayberry Ln Ext	9365	10-year FEMA	Existing FEMA				
2300.00	75.90	87.18	83.55	87.56	0.000748	6.13	
811.24	257.77	0.33					
Bayberry Ln Ext	9365	10-year FEMA	Natural FEMA				
2300.00	75.90	85.49	83.74	86.48	0.002050	9.03	
458.47	173.77	0.53					
Bayberry Ln Ext	9365	10-year FEMA	Proposed FEMA 45' Span				
2300.00	75.90	85.84	83.38	86.52	0.001412	7.75	
553.46	182.76	0.45					
Bayberry Ln Ext	9365	50-year FEMA	Existing FEMA				
4400.00	75.90	89.00	86.79	89.48	0.000954	7.69	
1361.66	343.81	0.39					
Bayberry Ln Ext	9365	50-year FEMA	Natural FEMA				
4400.00	75.90	88.35		89.04	0.001363	8.87	
1148.25	314.52	0.46					
Bayberry Ln Ext	9365	50-year FEMA	Proposed FEMA 45' Span				
4400.00	75.90	88.79	86.44	89.29	0.000969	7.74	
1327.33	334.37	0.39					
Bayberry Ln Ext	9365	100-year FEMA	Existing FEMA				
6100.00	75.90	89.86	87.92	90.45	0.001176	8.93	
1672.12	382.80	0.43					
Bayberry Ln Ext	9365	100-year FEMA	Natural FEMA				
6100.00	75.90	88.86		89.85	0.001976	10.99	
1314.45	337.49	0.55					
Bayberry Ln Ext	9365	100-year FEMA	Proposed FEMA 45' Span				
6100.00	75.90	89.70	87.75	90.30	0.001171	8.93	
1649.10	375.72	0.44					
Bayberry Ln Ext	9365	500-year FEMA	Existing FEMA				
11200.00	75.90	91.58	89.85	92.48	0.001771	11.89	
2520.44	550.04	0.54					
Bayberry Ln Ext	9365	500-year FEMA	Natural FEMA				
11200.00	75.90	89.54	89.52	91.88	0.004657	17.49	
1553.54	368.40	0.86					
Bayberry Ln Ext	9365	500-year FEMA	Proposed FEMA 45' Span				
11200.00	75.90	91.43	89.70	92.37	0.001795	12.02	
2471.57	544.63	0.55					

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Bayberry Ln Ext 9335
Bridge

Bayberry Ln Ext	9310		10-year FEMA	Existing FEMA	
2300.00	75.30	83.41	83.41	86.22	0.006873 14.07
190.99	48.61	0.93			
Bayberry Ln Ext	9310		10-year FEMA	Natural FEMA	
2300.00	75.30	83.57	83.57	86.14	0.006224 13.60
216.14	49.67	0.89			
Bayberry Ln Ext	9310		10-year FEMA	Proposed FEMA 45' Span	
2300.00	75.30	83.51	83.51	85.89	0.005983 13.26
228.94	53.28	0.87			
Bayberry Ln Ext	9310		50-year FEMA	Existing FEMA	
4400.00	75.30	87.40	87.40	88.86	0.002780 12.05
886.46	355.90	0.64			
Bayberry Ln Ext	9310		50-year FEMA	Natural FEMA	
4400.00	75.30	87.40	87.40	88.86	0.002794 12.07
883.86	355.09	0.64			
Bayberry Ln Ext	9310		50-year FEMA	Proposed FEMA 45' Span	
4400.00	75.30	87.37	87.37	88.78	0.002739 11.93
892.32	352.33	0.63			
Bayberry Ln Ext	9310		100-year FEMA	Existing FEMA	
6100.00	75.30	88.49	88.49	89.70	0.002488 12.13
1343.92	459.07	0.61			
Bayberry Ln Ext	9310		100-year FEMA	Natural FEMA	
6100.00	75.30	88.40	88.40	89.70	0.002653 12.46
1304.47	455.61	0.63			
Bayberry Ln Ext	9310		100-year FEMA	Proposed FEMA 45' Span	
6100.00	75.30	88.42	88.42	89.64	0.002535 12.19
1331.71	456.34	0.62			
Bayberry Ln Ext	9310		500-year FEMA	Existing FEMA	
11200.00	75.30	89.92	89.92	91.41	0.003331 15.10
2034.07	516.09	0.72			
Bayberry Ln Ext	9310		500-year FEMA	Natural FEMA	
11200.00	75.30	89.91	89.91	91.41	0.003343 15.12
2031.09	515.91	0.72			
Bayberry Ln Ext	9310		500-year FEMA	Proposed FEMA 45' Span	
11200.00	75.30	89.87	89.87	91.37	0.003357 15.13
2028.72	514.62	0.72			
Bayberry Ln Ext	9245		10-year FEMA	Existing FEMA	
2300.00	76.60	82.88	81.00	83.39	0.001705 6.05
448.79	108.60	0.47			
Bayberry Ln Ext	9245		10-year FEMA	Natural FEMA	
2300.00	76.60	82.87		83.39	0.001724 6.08
448.59	108.56	0.47			
Bayberry Ln Ext	9245		10-year FEMA	Proposed FEMA 45' Span	
2300.00	76.60	82.88	81.00	83.39	0.001705 6.05
448.80	108.60	0.47			
Bayberry Ln Ext	9245		50-year FEMA	Existing FEMA	
4400.00	76.60	85.32	82.69	86.04	0.001515 7.40
843.05	215.94	0.47			
Bayberry Ln Ext	9245		50-year FEMA	Natural FEMA	
4400.00	76.60	85.32	82.62	86.04	0.001515 7.40
843.05	215.94	0.47			
Bayberry Ln Ext	9245		50-year FEMA	Proposed FEMA 45' Span	
4400.00	76.60	85.32	82.69	86.04	0.001515 7.39
843.09	215.94	0.47			
Bayberry Ln Ext	9245		100-year FEMA	Existing FEMA	
6100.00	76.60	87.03	82.90	87.73	0.001217 7.59
1274.12	283.83	0.44			

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Bayberry Ln Ext	9245	100-year FEMA	Natural FEMA	
6100.00	76.60	87.03	87.73	0.001217 7.59
1274.12	283.83	0.44		
Bayberry Ln Ext	9245	100-year FEMA	Proposed FEMA 45' Span	
6100.00	76.60	87.03	87.73	0.001217 7.59
1274.18	283.84	0.44		
Bayberry Ln Ext	9245	500-year FEMA	Existing FEMA	
11200.00	76.60	90.01	90.82	0.001147 8.88
2445.40	491.97	0.45		
Bayberry Ln Ext	9245	500-year FEMA	Natural FEMA	
11200.00	76.60	90.01	90.82	0.001147 8.88
2445.40	491.97	0.45		
Bayberry Ln Ext	9245	500-year FEMA	Proposed FEMA 45' Span	
11200.00	76.60	90.01	90.82	0.001147 8.87
2445.46	491.98	0.45		

Bayberry Ln Ext	9175	10-year FEMA	Existing FEMA	
2300.00	76.30	82.05	83.15	0.004345 9.23
316.47	81.09	0.74		
Bayberry Ln Ext	9175	10-year FEMA	Natural FEMA	
2300.00	76.30	82.05	83.15	0.004345 9.23
316.47	81.09	0.74		
Bayberry Ln Ext	9175	10-year FEMA	Proposed FEMA 45' Span	
2300.00	76.30	82.05	83.15	0.004344 9.23
316.49	81.10	0.74		
Bayberry Ln Ext	9175	50-year FEMA	Existing FEMA	
4400.00	76.30	83.07	85.65	0.008014 14.26
403.69	94.81	1.04		
Bayberry Ln Ext	9175	50-year FEMA	Natural FEMA	
4400.00	76.30	83.07	85.65	0.008014 14.26
403.69	94.81	1.04		
Bayberry Ln Ext	9175	50-year FEMA	Proposed FEMA 45' Span	
4400.00	76.30	83.07	85.65	0.008018 14.26
403.63	94.79	1.04		
Bayberry Ln Ext	9175	100-year FEMA	Existing FEMA	
6100.00	76.30	85.15	87.42	0.005016 13.82
695.01	163.66	0.87		
Bayberry Ln Ext	9175	100-year FEMA	Natural FEMA	
6100.00	76.30	85.15	87.42	0.005016 13.82
695.01	163.66	0.87		
Bayberry Ln Ext	9175	100-year FEMA	Proposed FEMA 45' Span	
6100.00	76.30	85.15	87.42	0.005019 13.83
694.80	163.64	0.87		
Bayberry Ln Ext	9175	500-year FEMA	Existing FEMA	
11200.00	76.30	87.65	90.48	0.004907 16.42
1142.37	190.87	0.90		
Bayberry Ln Ext	9175	500-year FEMA	Natural FEMA	
11200.00	76.30	87.65	90.48	0.004907 16.42
1142.37	190.87	0.90		
Bayberry Ln Ext	9175	500-year FEMA	Proposed FEMA 45' Span	
11200.00	76.30	87.66	90.48	0.004906 16.41
1142.50	190.87	0.90		

Bayberry Ln Ext	9050	10-year FEMA	Existing FEMA	
2300.00	75.60	81.96	82.71	0.001967 7.01
360.53	82.49	0.52		
Bayberry Ln Ext	9050	10-year FEMA	Natural FEMA	
2300.00	75.60	81.96	82.71	0.001967 7.01
360.53	82.49	0.52		
Bayberry Ln Ext	9050	10-year FEMA	Proposed FEMA 45' Span	
2300.00	75.60	81.96	82.71	0.001967 7.01
360.54	82.49	0.52		
Bayberry Ln Ext	9050	50-year FEMA	Existing FEMA	
4400.00	75.60	83.66	85.05	0.002730 9.82

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565.67	137.53		0.64				
Bayberry Ln Ext	9050	50-year FEMA		Natural FEMA			
4400.00	75.60	83.66		85.05	0.002730		9.82
565.67	137.53		0.64				
Bayberry Ln Ext	9050	50-year FEMA		Proposed FEMA 45' Span			
4400.00	75.60	83.66		85.05	0.002730		9.82
565.67	137.53		0.64				
Bayberry Ln Ext	9050	100-year FEMA		Existing FEMA			
6100.00	75.60	84.82		83.76	86.55	0.002927	11.20
736.18	156.47		0.67				
Bayberry Ln Ext	9050	100-year FEMA		Natural FEMA			
6100.00	75.60	84.82		83.76	86.55	0.002927	11.20
736.18	156.47		0.67				
Bayberry Ln Ext	9050	100-year FEMA		Proposed FEMA 45' Span			
6100.00	75.60	84.82		83.76	86.55	0.002927	11.20
736.18	156.47		0.67				
Bayberry Ln Ext	9050	500-year FEMA		Existing FEMA			
11200.00	75.60	87.47		86.64	89.89	0.003187	13.98
1207.91	195.90		0.73				
Bayberry Ln Ext	9050	500-year FEMA		Natural FEMA			
11200.00	75.60	87.47		86.64	89.89	0.003187	13.98
1207.91	195.90		0.73				
Bayberry Ln Ext	9050	500-year FEMA		Proposed FEMA 45' Span			
11200.00	75.60	87.47		86.64	89.89	0.003187	13.98
1207.91	195.90		0.73				
Bayberry Ln Ext	8450	10-year FEMA		Existing FEMA			
2300.00	74.00	78.90		78.86	80.08	0.009424	8.71
264.11	107.80		0.98				
Bayberry Ln Ext	8450	10-year FEMA		Natural FEMA			
2300.00	74.00	78.90		78.86	80.08	0.009424	8.71
264.11	107.80		0.98				
Bayberry Ln Ext	8450	10-year FEMA		Proposed FEMA 45' Span			
2300.00	74.00	78.90		78.86	80.08	0.009424	8.71
264.11	107.80		0.98				
Bayberry Ln Ext	8450	50-year FEMA		Existing FEMA			
4400.00	74.00	80.30		80.18	82.01	0.007776	10.50
420.54	113.90		0.95				
Bayberry Ln Ext	8450	50-year FEMA		Natural FEMA			
4400.00	74.00	80.30		80.18	82.01	0.007776	10.50
420.54	113.90		0.95				
Bayberry Ln Ext	8450	50-year FEMA		Proposed FEMA 45' Span			
4400.00	74.00	80.30		80.18	82.01	0.007776	10.50
420.54	113.90		0.95				
Bayberry Ln Ext	8450	100-year FEMA		Existing FEMA			
6100.00	74.00	81.10		81.08	83.33	0.007932	11.98
512.61	116.30		0.99				
Bayberry Ln Ext	8450	100-year FEMA		Natural FEMA			
6100.00	74.00	81.10		81.08	83.33	0.007932	11.98
512.61	116.30		0.99				
Bayberry Ln Ext	8450	100-year FEMA		Proposed FEMA 45' Span			
6100.00	74.00	81.10		81.08	83.33	0.007932	11.98
512.61	116.30		0.99				
Bayberry Ln Ext	8450	500-year FEMA		Existing FEMA			
11200.00	74.00	83.40		83.35	86.63	0.006922	14.47
788.04	123.20		0.98				
Bayberry Ln Ext	8450	500-year FEMA		Natural FEMA			
11200.00	74.00	83.40		83.35	86.63	0.006922	14.47
788.04	123.20		0.98				
Bayberry Ln Ext	8450	500-year FEMA		Proposed FEMA 45' Span			
11200.00	74.00	83.40		83.35	86.63	0.006922	14.47
788.04	123.20		0.98				

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Profile Output Table - Standard Table 2

Reach	W. S.	Elev	River Sta	Profile	Plan			E. G.
Elev	Top	Width	Vel	Frctn	C & E	Loss	Q Left	Q Channel
Right			Head	Loss				Q
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(cfs)	(cfs)	
(cfs)	(ft)							
Bayberry Ln Ext		10510		10-year FEMA	Existing FEMA			
94.23	92.56	1.67		2.34	0.52		2300.00	
	66.55							
Bayberry Ln Ext		10510		10-year FEMA	Natural FEMA			
94.23	92.56	1.67		3.63	0.34		2300.00	
	66.55							
Bayberry Ln Ext		10510		10-year FEMA	Proposed FEMA 45'			Span
94.23	92.56	1.67		3.63	0.34		2300.00	
	66.54							
Bayberry Ln Ext		10510		50-year FEMA	Existing FEMA			
96.87	94.52	2.35		2.70	0.63	7.62	4389.65	
2.73	107.60							
Bayberry Ln Ext		10510		50-year FEMA	Natural FEMA			
96.87	94.52	2.35		3.14	0.52	7.62	4389.65	
2.73	107.60							
Bayberry Ln Ext		10510		50-year FEMA	Proposed FEMA 45'			Span
96.87	94.52	2.35		2.89	0.58	7.62	4389.65	
2.73	107.60							
Bayberry Ln Ext		10510		100-year FEMA	Existing FEMA			
98.32	96.22	2.10		2.61	0.31	289.62	5706.64	
103.74	229.51							
Bayberry Ln Ext		10510		100-year FEMA	Natural FEMA			
98.32	96.22	2.10		3.19	0.06	289.62	5706.64	
103.74	229.51							
Bayberry Ln Ext		10510		100-year FEMA	Proposed FEMA 45'			Span
98.32	96.22	2.10		2.77	0.24	289.98	5706.14	
103.87	229.61							
Bayberry Ln Ext		10510		500-year FEMA	Existing FEMA			
100.82	98.70	2.12		2.84	0.07	1927.19	8582.49	
690.32	408.65							
Bayberry Ln Ext		10510		500-year FEMA	Natural FEMA			
100.82	98.70	2.12		2.88	0.08	1927.19	8582.49	
690.32	408.65							
Bayberry Ln Ext		10510		500-year FEMA	Proposed FEMA 45'			Span
100.82	98.70	2.12		2.88	0.08	1926.84	8582.96	
690.20	408.61							
Bayberry Ln Ext		9725		10-year FEMA	Existing FEMA			
88.10	87.47	0.63		0.20	0.19	63.95	2115.78	
120.27	129.40							
Bayberry Ln Ext		9725		10-year FEMA	Natural FEMA			
87.47	86.47	0.99		0.38	0.28	50.76	2194.24	
55.00	98.07							
Bayberry Ln Ext		9725		10-year FEMA	Proposed FEMA 45'			Span
87.47	86.48	0.99		0.38	0.28	50.81	2194.09	
55.10	98.14							
Bayberry Ln Ext		9725		50-year FEMA	Existing FEMA			
90.31	89.22	1.10		0.29	0.33	212.90	3717.69	
469.41	200.71							
Bayberry Ln Ext		9725		50-year FEMA	Natural FEMA			
90.08	88.77	1.32		0.37	0.38	182.94	3802.35	
414.72	175.77							
Bayberry Ln Ext		9725		50-year FEMA	Proposed FEMA 45'			Span

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90.20	89.01	1.19	0.32	0.35	198.80	3758.76
442.44	189.20					
Bayberry Ln Ext	9725		100-year FEMA	Existing FEMA		
91.53	90.04	1.49	0.35	0.46	376.70	4891.43
831.86	245.03					
Bayberry Ln Ext	9725		100-year FEMA	Natural FEMA		
91.35	89.36	1.99	0.50	0.62	308.84	5112.85
678.30	208.59					
Bayberry Ln Ext	9725		100-year FEMA	Proposed FEMA 45' Span		
91.47	89.85	1.62	0.39	0.50	357.63	4958.85
783.52	235.93					
Bayberry Ln Ext	9725		500-year FEMA	Existing FEMA		
94.08	91.73	2.35	0.49	0.75	1011.37	7781.72
2406.91	277.90					
Bayberry Ln Ext	9725		500-year FEMA	Natural FEMA		
94.08	91.67	2.40	0.58	0.67	1001.09	7814.99
2383.92	277.02					
Bayberry Ln Ext	9725		500-year FEMA	Proposed FEMA 45' Span		
94.08	91.67	2.40	0.52	0.76	1000.76	7816.08
2383.16	276.99					
Bayberry Ln Ext	9530		10-year FEMA	Existing FEMA		
87.71	87.46	0.25	0.03	0.03	53.64	1359.10
887.26	202.54					
Bayberry Ln Ext	9530		10-year FEMA	Natural FEMA		
86.80	86.37	0.43	0.06	0.07	52.43	1495.61
751.96	174.20					
Bayberry Ln Ext	9530		10-year FEMA	Proposed FEMA 45' Span		
86.80	86.37	0.43	0.06	0.07	52.45	1495.21
752.35	174.26					
Bayberry Ln Ext	9530		50-year FEMA	Existing FEMA		
89.70	89.26	0.44	0.05	0.05	127.13	2302.00
1970.87	296.50					
Bayberry Ln Ext	9530		50-year FEMA	Natural FEMA		
89.33	88.78	0.55	0.06	0.07	119.64	2419.58
1860.77	278.87					
Bayberry Ln Ext	9530		50-year FEMA	Proposed FEMA 45' Span		
89.53	89.04	0.49	0.06	0.06	123.25	2354.20
1922.55	288.49					
Bayberry Ln Ext	9530		100-year FEMA	Existing FEMA		
90.71	90.15	0.56	0.06	0.05	214.36	2922.23
2963.41	327.00					
Bayberry Ln Ext	9530		100-year FEMA	Natural FEMA		
90.23	89.47	0.76	0.09	0.09	182.17	3119.82
2798.02	303.44					
Bayberry Ln Ext	9530		100-year FEMA	Proposed FEMA 45' Span		
90.57	89.96	0.61	0.07	0.06	202.36	2981.92
2915.72	322.82					
Bayberry Ln Ext	9530		500-year FEMA	Existing FEMA		
92.83	91.99	0.84	0.10	0.04	545.49	4433.98
6220.53	343.03					
Bayberry Ln Ext	9530		500-year FEMA	Natural FEMA		
92.46	91.39	1.07	0.12	0.06	505.74	4690.49
6003.78	339.02					
Bayberry Ln Ext	9530		500-year FEMA	Proposed FEMA 45' Span		
92.73	91.84	0.89	0.10	0.04	536.47	4492.56
6170.97	342.06					
Bayberry Ln Ext	9445		10-year FEMA	Existing FEMA		
87.65	87.51	0.14			12.88	1480.83
806.29	216.81					
Bayberry Ln Ext	9445		10-year FEMA	Natural FEMA		
86.67	86.47	0.20			9.50	1516.62
773.88	179.02					

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Bayberry Ln Ext	9445	10-year FEMA	Proposed FEMA 45'	Span
86.67 86.48	0.20		9.50	1516.41
774.08 179.05				
Bayberry Ln Ext	9445	50-year FEMA	Existing FEMA	
89.59 89.33	0.27		40.05	2582.55
1777.40 276.87				
Bayberry Ln Ext	9445	50-year FEMA	Natural FEMA	
89.19 88.88	0.31		34.40	2652.49
1713.12 264.61				
Bayberry Ln Ext	9445	50-year FEMA	Proposed FEMA 45'	Span
89.41 89.12	0.29		37.39	2614.04
1748.57 271.17				
Bayberry Ln Ext	9445	100-year FEMA	Existing FEMA	
90.60 90.21	0.39		76.65	3452.81
2570.54 314.91				
Bayberry Ln Ext	9445	100-year FEMA	Natural FEMA	
90.06 89.59	0.47		60.84	3525.82
2513.34 284.18				
Bayberry Ln Ext	9445	100-year FEMA	Proposed FEMA 45'	Span
90.45 90.03	0.42		72.27	3497.92
2529.82 311.15				
Bayberry Ln Ext	9445	500-year FEMA	Existing FEMA	
92.69 91.98	0.71		254.04	5634.00
5311.96 343.30				
Bayberry Ln Ext	9445	500-year FEMA	Natural FEMA	
92.27 91.42	0.85		215.76	5834.13
5150.12 336.03				
Bayberry Ln Ext	9445	500-year FEMA	Proposed FEMA 45'	Span
92.59 91.84	0.74		244.93	5681.43
5273.64 341.50				

Bayberry Ln Ext 9440 Inl
Struct

Bayberry Ln Ext	9435	10-year FEMA	Existing FEMA	
87.62 87.48	0.14	0.01	0.01 12.76	1482.47
804.77 215.71				
Bayberry Ln Ext	9435	10-year FEMA	Natural FEMA	
86.62 86.42	0.20	0.01	0.01 9.39	1521.59
769.01 178.21				
Bayberry Ln Ext	9435	10-year FEMA	Proposed FEMA 45'	Span
86.62 86.42	0.20	0.01	0.01 9.40	1521.38
769.22 178.24				
Bayberry Ln Ext	9435	50-year FEMA	Existing FEMA	
89.54 89.27	0.27	0.01	0.01 39.27	2591.36
1769.38 275.26				
Bayberry Ln Ext	9435	50-year FEMA	Natural FEMA	
89.13 88.81	0.32	0.02	0.01 33.59	2663.98
1702.43 262.69				
Bayberry Ln Ext	9435	50-year FEMA	Proposed FEMA 45'	Span
89.36 89.06	0.29	0.02	0.01 36.65	2623.25
1740.10 269.56				
Bayberry Ln Ext	9435	100-year FEMA	Existing FEMA	
90.52 90.12	0.40	0.02	0.01 74.48	3474.71
2550.81 313.07				
Bayberry Ln Ext	9435	100-year FEMA	Natural FEMA	
89.97 89.49	0.48	0.03	0.01 58.79	3545.92
2495.30 281.46				
Bayberry Ln Ext	9435	100-year FEMA	Proposed FEMA 45'	Span
90.38 89.96	0.42	0.02	0.01 70.09	3489.22
2540.69 303.36				
Bayberry Ln Ext	9435	500-year FEMA	Existing FEMA	
92.58 91.84	0.75	0.03	0.02 234.32	5689.30

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5276.38	402.21						
Bayberry Ln Ext	9435	500-year FEMA	Natural FEMA				
92.15	91.24	0.92	0.04	0.02	153.51	5931.23	
5115.26	377.54						
Bayberry Ln Ext	9435	500-year FEMA	Proposed FEMA 45'	Span			
92.48	91.70	0.78	0.03	0.02	209.84	5746.01	
5244.16	400.41						
Bayberry Ln Ext	9400	10-year FEMA	Existing FEMA				
87.60	87.49	0.11	0.01	0.03	17.68	1429.48	
852.84	206.99						
Bayberry Ln Ext	9400	10-year FEMA	Natural FEMA				
86.59	86.42	0.17	0.03	0.08	12.25	1514.46	
773.29	193.38						
Bayberry Ln Ext	9400	10-year FEMA	Proposed FEMA 45'	Span			
86.60	86.42	0.17	0.02	0.05	12.26	1514.24	
773.51	193.42						
Bayberry Ln Ext	9400	50-year FEMA	Existing FEMA				
89.52	89.27	0.25	0.02	0.02	55.01	2643.28	
1701.72	291.53						
Bayberry Ln Ext	9400	50-year FEMA	Natural FEMA				
89.10	88.82	0.28	0.02	0.04	42.45	2643.55	
1714.01	259.46						
Bayberry Ln Ext	9400	50-year FEMA	Proposed FEMA 45'	Span			
89.33	89.07	0.27	0.02	0.02	49.23	2656.24	
1694.53	279.60						
Bayberry Ln Ext	9400	100-year FEMA	Existing FEMA				
90.49	90.12	0.37	0.02	0.02	114.02	3539.30	
2446.68	336.96						
Bayberry Ln Ext	9400	100-year FEMA	Natural FEMA				
89.94	89.48	0.46	0.04	0.05	85.71	3661.79	
2352.50	308.51						
Bayberry Ln Ext	9400	100-year FEMA	Proposed FEMA 45'	Span			
90.35	89.96	0.39	0.03	0.02	107.12	3570.09	
2422.79	329.20						
Bayberry Ln Ext	9400	500-year FEMA	Existing FEMA				
92.53	91.84	0.69	0.04	0.02	365.74	5792.03	
5042.23	402.78						
Bayberry Ln Ext	9400	500-year FEMA	Natural FEMA				
92.09	91.24	0.85	0.07	0.15	310.01	6047.80	
4842.19	381.77						
Bayberry Ln Ext	9400	500-year FEMA	Proposed FEMA 45'	Span			
92.43	91.71	0.72	0.04	0.02	351.78	5848.58	
4999.64	397.97						
Bayberry Ln Ext	9365	10-year FEMA	Existing FEMA				
87.56	87.18	0.38			127.24	1436.02	
736.75	257.77						
Bayberry Ln Ext	9365	10-year FEMA	Natural FEMA				
86.48	85.49	0.99	0.18	0.16	157.95	1775.84	
366.21	173.77						
Bayberry Ln Ext	9365	10-year FEMA	Proposed FEMA 45'	Span			
86.52	85.84	0.68			154.02	1640.10	
505.88	182.76						
Bayberry Ln Ext	9365	50-year FEMA	Existing FEMA				
89.48	89.00	0.48			468.49	2112.86	
1818.65	343.81						
Bayberry Ln Ext	9365	50-year FEMA	Natural FEMA				
89.04	88.35	0.68	0.10	0.08	377.88	2308.48	
1713.64	314.52						
Bayberry Ln Ext	9365	50-year FEMA	Proposed FEMA 45'	Span			
89.29	88.79	0.50			404.85	2169.59	
1825.57	334.37						
Bayberry Ln Ext	9365	100-year FEMA	Existing FEMA				

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90.45	89.86	0.59		802.56	2621.95
2675.50	382.80				
Bayberry Ln Ext		9365	100-year FEMA	Natural FEMA	
89.85	88.86	0.99	0.13	0.03	2984.05
2492.69	337.49				
Bayberry Ln Ext		9365	100-year FEMA	Proposed FEMA 45'	Span
90.30	89.70	0.60		723.45	2689.84
2686.71	375.72				
Bayberry Ln Ext		9365	500-year FEMA	Existing FEMA	
92.48	91.58	0.89		1989.96	3947.82
5262.22	550.04				
Bayberry Ln Ext		9365	500-year FEMA	Natural FEMA	
91.88	89.54	2.34	0.22	0.25	5011.55
4815.43	368.40				
Bayberry Ln Ext		9365	500-year FEMA	Proposed FEMA 45'	Span
92.37	91.43	0.94		1807.74	4101.62
5290.64	544.63				

Bayberry Ln Ext 9335
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Bayberry Ln Ext		9310	10-year FEMA	Existing FEMA	
86.22	83.41	2.81	0.20	1.15	2065.48
138.91	48.61				
Bayberry Ln Ext		9310	10-year FEMA	Natural FEMA	
86.14	83.57	2.58	0.19	0.62	2040.81
140.39	49.67				
Bayberry Ln Ext		9310	10-year FEMA	Proposed FEMA 45'	Span
85.89	83.51	2.38	0.19	0.93	1973.55
214.02	53.28				
Bayberry Ln Ext		9310	50-year FEMA	Existing FEMA	
88.86	87.40	1.45	0.13	0.37	2759.58
1017.54	355.90				
Bayberry Ln Ext		9310	50-year FEMA	Natural FEMA	
88.86	87.40	1.46	0.13	0.22	2763.15
1016.01	355.09				
Bayberry Ln Ext		9310	50-year FEMA	Proposed FEMA 45'	Span
88.78	87.37	1.41	0.13	0.34	2723.71
1076.85	352.33				
Bayberry Ln Ext		9310	100-year FEMA	Existing FEMA	
89.70	88.49	1.20	0.11	0.25	3049.60
1709.23	459.07				
Bayberry Ln Ext		9310	100-year FEMA	Natural FEMA	
89.70	88.40	1.29	0.11	0.18	3111.93
1689.58	455.61				
Bayberry Ln Ext		9310	100-year FEMA	Proposed FEMA 45'	Span
89.64	88.42	1.22	0.11	0.26	3049.87
1763.14	456.34				
Bayberry Ln Ext		9310	500-year FEMA	Existing FEMA	
91.41	89.92	1.49	0.12	0.34	4241.70
3460.16	516.09				
Bayberry Ln Ext		9310	500-year FEMA	Natural FEMA	
91.41	89.91	1.50	0.12	0.21	4246.38
3458.29	515.91				
Bayberry Ln Ext		9310	500-year FEMA	Proposed FEMA 45'	Span
91.37	89.87	1.50	0.12	0.34	4233.65
3529.30	514.62				

Bayberry Ln Ext		9245	10-year FEMA	Existing FEMA	
83.39	82.88	0.51	0.17	0.06	2023.13
33.63	108.60				

Bridge No. 04969 - Proposed FEMA

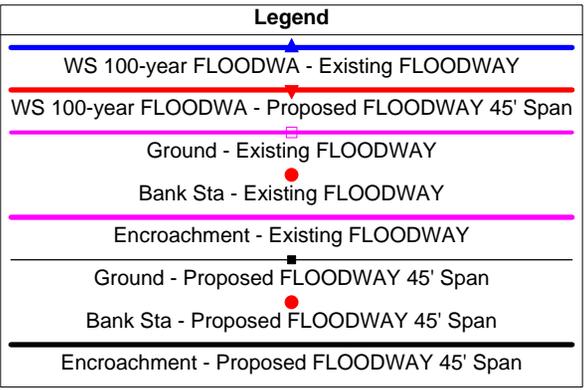
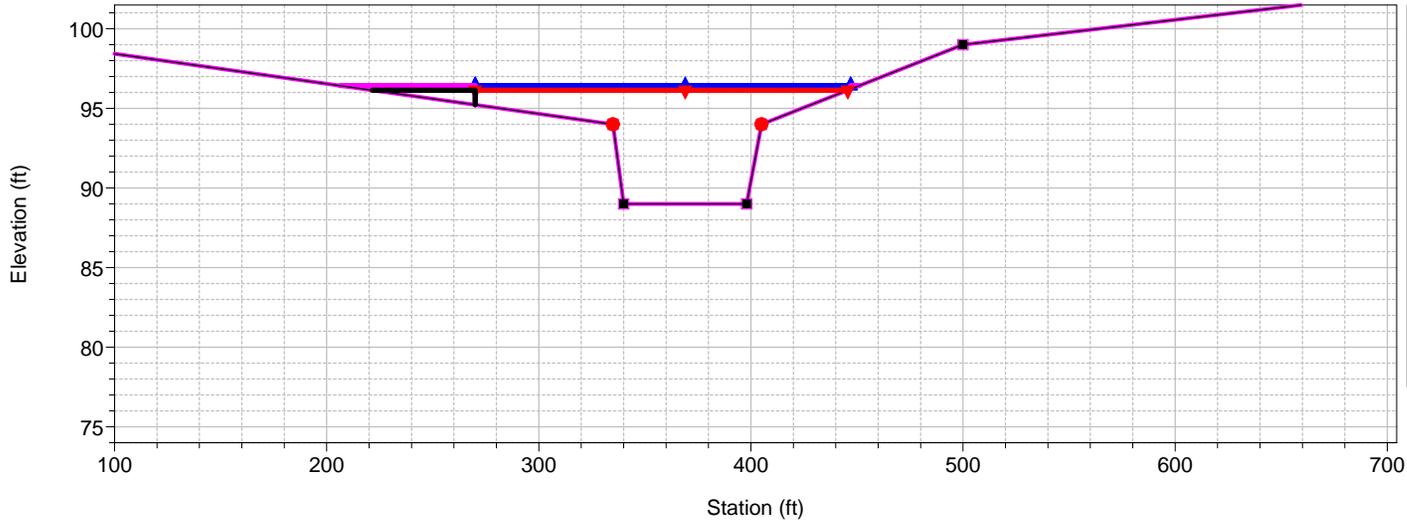
Bayberry Ln Ext	9245	10-year FEMA	Natural FEMA	
83.39 82.87	0.52	0.18	0.06	235.42 2030.88
33.70 108.56				
Bayberry Ln Ext	9245	10-year FEMA	Proposed FEMA 45'	Span
83.39 82.88	0.51	0.17	0.06	243.24 2023.13
33.63 108.60				
Bayberry Ln Ext	9245	50-year FEMA	Existing FEMA	
86.04 85.32	0.72	0.20	0.19	634.89 3653.69
111.41 215.94				
Bayberry Ln Ext	9245	50-year FEMA	Natural FEMA	
86.04 85.32	0.72	0.20	0.19	634.89 3653.69
111.41 215.94				
Bayberry Ln Ext	9245	50-year FEMA	Proposed FEMA 45'	Span
86.04 85.32	0.72	0.20	0.19	634.91 3653.66
111.43 215.94				
Bayberry Ln Ext	9245	100-year FEMA	Existing FEMA	
87.73 87.03	0.70	0.15	0.16	1129.26 4600.18
370.56 283.83				
Bayberry Ln Ext	9245	100-year FEMA	Natural FEMA	
87.73 87.03	0.70	0.15	0.16	1129.26 4600.18
370.56 283.83				
Bayberry Ln Ext	9245	100-year FEMA	Proposed FEMA 45'	Span
87.73 87.03	0.70	0.15	0.16	1129.30 4600.11
370.59 283.84				
Bayberry Ln Ext	9245	500-year FEMA	Existing FEMA	
90.82 90.01	0.81	0.14	0.20	2484.75 7104.32
1610.93 491.97				
Bayberry Ln Ext	9245	500-year FEMA	Natural FEMA	
90.82 90.01	0.81	0.14	0.20	2484.75 7104.32
1610.93 491.97				
Bayberry Ln Ext	9245	500-year FEMA	Proposed FEMA 45'	Span
90.82 90.01	0.81	0.14	0.20	2484.77 7104.25
1610.98 491.98				
Bayberry Ln Ext	9175	10-year FEMA	Existing FEMA	
83.15 82.05	1.10	0.34	0.11	429.87 1827.87
42.26 81.09				
Bayberry Ln Ext	9175	10-year FEMA	Natural FEMA	
83.15 82.05	1.10	0.34	0.11	429.87 1827.87
42.26 81.09				
Bayberry Ln Ext	9175	10-year FEMA	Proposed FEMA 45'	Span
83.15 82.05	1.10	0.34	0.11	429.88 1827.86
42.27 81.10				
Bayberry Ln Ext	9175	50-year FEMA	Existing FEMA	
85.65 83.07	2.58			879.22 3421.39
99.39 94.81				
Bayberry Ln Ext	9175	50-year FEMA	Natural FEMA	
85.65 83.07	2.58			879.22 3421.39
99.39 94.81				
Bayberry Ln Ext	9175	50-year FEMA	Proposed FEMA 45'	Span
85.65 83.07	2.58			879.18 3421.44
99.38 94.79				
Bayberry Ln Ext	9175	100-year FEMA	Existing FEMA	
87.42 85.15	2.27	0.44	0.16	1397.01 4501.05
201.94 163.66				
Bayberry Ln Ext	9175	100-year FEMA	Natural FEMA	
87.42 85.15	2.27	0.44	0.16	1397.01 4501.05
201.94 163.66				
Bayberry Ln Ext	9175	100-year FEMA	Proposed FEMA 45'	Span
87.42 85.15	2.27	0.44	0.16	1396.64 4501.45
201.90 163.64				
Bayberry Ln Ext	9175	500-year FEMA	Existing FEMA	
90.48 87.65	2.83	0.45	0.12	3680.79 7031.87
487.34 190.87				
Bayberry Ln Ext	9175	500-year FEMA	Natural FEMA	
90.48 87.65	2.83	0.45	0.12	3680.79 7031.87

Bridge No. 04969 - Proposed FEMA

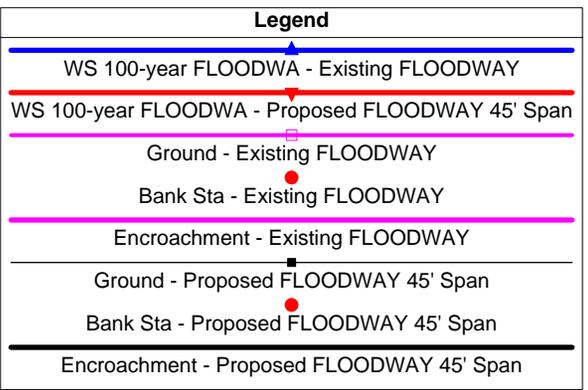
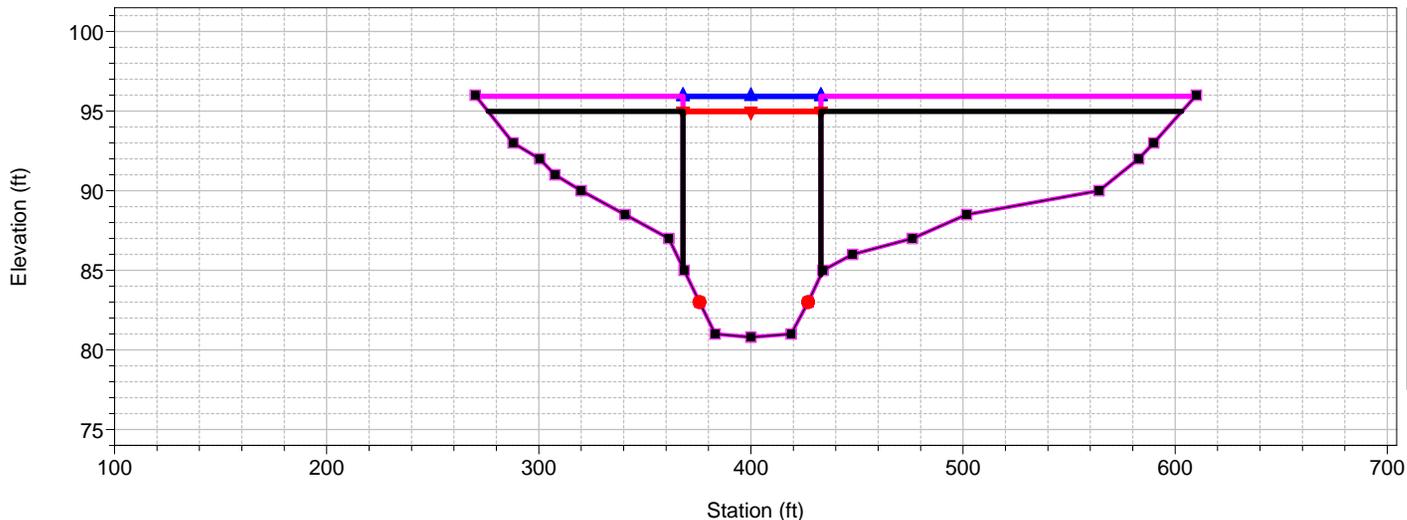
487.34	190.87						
Bayberry Ln Ext		9175	500-year FEMA	Proposed FEMA 45'	Span		
90.48	87.66	2.83	0.45	0.12	3681.05	7031.61	
487.35	190.87						
Bayberry Ln Ext		9050	10-year FEMA	Existing FEMA			
82.71	81.96	0.74	2.58	0.04	53.06	2226.46	
20.49	82.49						
Bayberry Ln Ext		9050	10-year FEMA	Natural FEMA			
82.71	81.96	0.74	2.58	0.04	53.06	2226.46	
20.49	82.49						
Bayberry Ln Ext		9050	10-year FEMA	Proposed FEMA 45'	Span		
82.71	81.96	0.74	2.58	0.04	53.06	2226.45	
20.49	82.49						
Bayberry Ln Ext		9050	50-year FEMA	Existing FEMA			
85.05	83.66	1.39	3.01	0.03	298.71	4042.66	
58.63	137.53						
Bayberry Ln Ext		9050	50-year FEMA	Natural FEMA			
85.05	83.66	1.39	3.01	0.03	298.71	4042.66	
58.63	137.53						
Bayberry Ln Ext		9050	50-year FEMA	Proposed FEMA 45'	Span		
85.05	83.66	1.39	3.01	0.03	298.71	4042.66	
58.63	137.53						
Bayberry Ln Ext		9050	100-year FEMA	Existing FEMA			
86.55	84.82	1.72	3.17	0.05	674.04	5329.18	
96.77	156.47						
Bayberry Ln Ext		9050	100-year FEMA	Natural FEMA			
86.55	84.82	1.72	3.17	0.05	674.05	5329.18	
96.77	156.47						
Bayberry Ln Ext		9050	100-year FEMA	Proposed FEMA 45'	Span		
86.55	84.82	1.72	3.17	0.05	674.05	5329.18	
96.77	156.47						
Bayberry Ln Ext		9050	500-year FEMA	Existing FEMA			
89.89	87.47	2.42	3.18	0.08	2255.28	8695.77	
248.95	195.90						
Bayberry Ln Ext		9050	500-year FEMA	Natural FEMA			
89.89	87.47	2.42	3.18	0.08	2255.28	8695.77	
248.95	195.90						
Bayberry Ln Ext		9050	500-year FEMA	Proposed FEMA 45'	Span		
89.89	87.47	2.42	3.18	0.08	2255.28	8695.77	
248.95	195.90						
Bayberry Ln Ext		8450	10-year FEMA	Existing FEMA			
80.08	78.90	1.18				2300.00	
	107.80						
Bayberry Ln Ext		8450	10-year FEMA	Natural FEMA			
80.08	78.90	1.18				2300.00	
	107.80						
Bayberry Ln Ext		8450	10-year FEMA	Proposed FEMA 45'	Span		
80.08	78.90	1.18				2300.00	
	107.80						
Bayberry Ln Ext		8450	50-year FEMA	Existing FEMA			
82.01	80.30	1.71				4396.92	
3.09	113.90						
Bayberry Ln Ext		8450	50-year FEMA	Natural FEMA			
82.01	80.30	1.71				4396.92	
3.09	113.90						
Bayberry Ln Ext		8450	50-year FEMA	Proposed FEMA 45'	Span		
82.01	80.30	1.71				4396.92	
3.09	113.90						
Bayberry Ln Ext		8450	100-year FEMA	Existing FEMA			
83.33	81.10	2.23				6088.81	
11.19	116.30						
Bayberry Ln Ext		8450	100-year FEMA	Natural FEMA			

		Bridge No. 04969 - Proposed FEMA			
83.33	81.10	2.23			6088.81
11.19	116.30				
Bayberry Ln Ext		8450	100-year FEMA	Proposed FEMA 45' Span	
83.33	81.10	2.23			6088.81
11.19	116.30				
Bayberry Ln Ext		8450	500-year FEMA	Existing FEMA	
86.63	83.40	3.23			11124.83
75.17	123.20				
Bayberry Ln Ext		8450	500-year FEMA	Natural FEMA	
86.63	83.40	3.23			11124.83
75.17	123.20				
Bayberry Ln Ext		8450	500-year FEMA	Proposed FEMA 45' Span	
86.63	83.40	3.23			11124.83
75.17	123.20				

Bridge#04969 Plan: 1) Proposed FLOODWAY 45' Span 2) Existing FLOODWAY
 Geom: Proposed GEOMETRY Model 45' Span
 RS = 10510 Original FEMA Section 10570- Lettered Section 'F'



Bridge#04969 Plan: 1) Proposed FLOODWAY 45' Span 2) Existing FLOODWAY
 Geom: Proposed GEOMETRY Model 45' Span
 RS = 9725 NEW RS

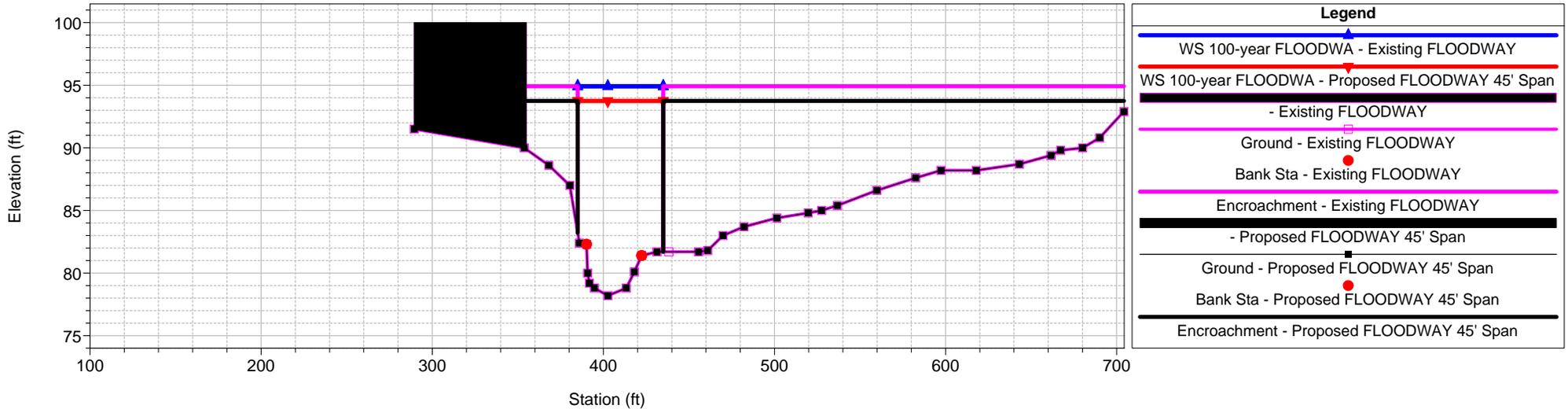


1 in Horiz. = 90 ft 1 in Vert. = 12 ft

Bridge#04969 Plan: 1) Proposed FLOODWAY 45' Span 2) Existing FLOODWAY

Geom: Proposed GEOMETRY Model 45' Span

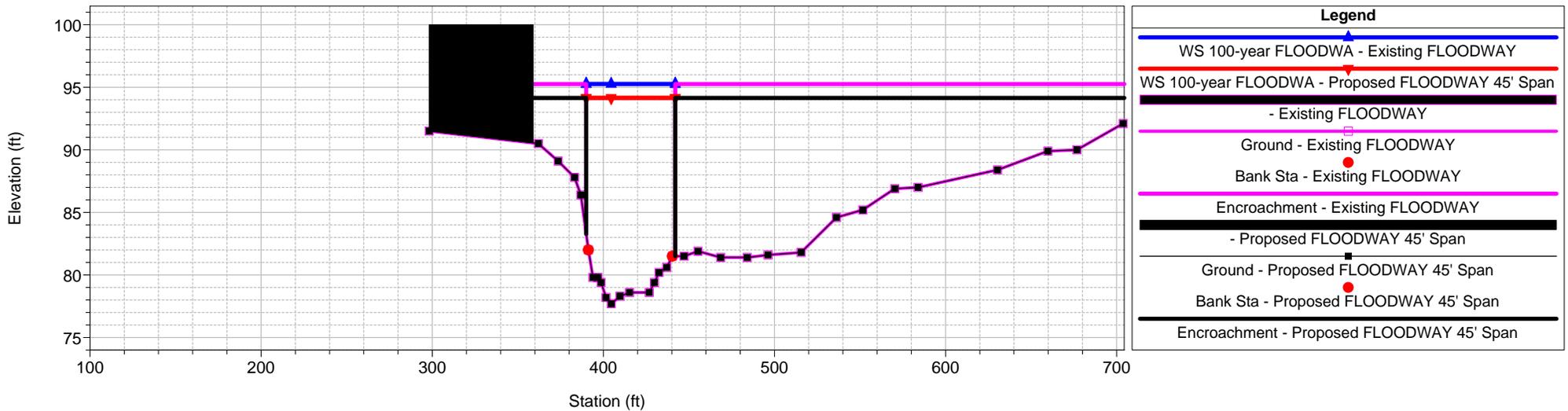
RS = 9530 New RS



Bridge#04969 Plan: 1) Proposed FLOODWAY 45' Span 2) Existing FLOODWAY

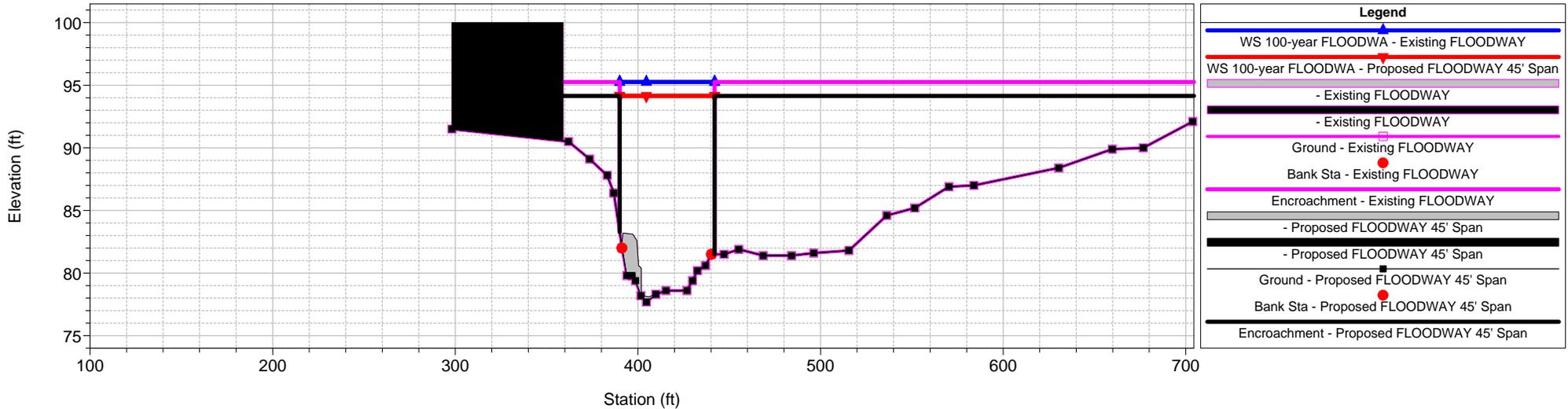
Geom: Proposed GEOMETRY Model 45' Span

RS = 9445 Upstream of WEIR - New RS

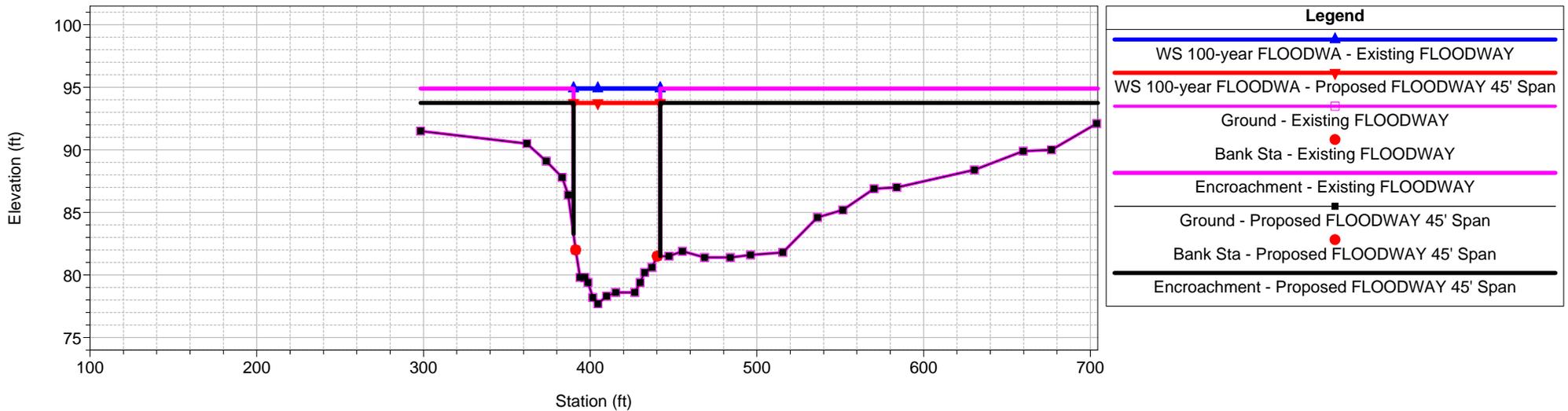


1 in Horiz. = 90 ft 1 in Vert. = 12 ft

Bridge#04969 Plan: 1) Proposed FLOODWAY 45' Span 2) Existing FLOODWAY
 Geom: Proposed GEOMETRY Model 45' Span
 RS = 9440 IS



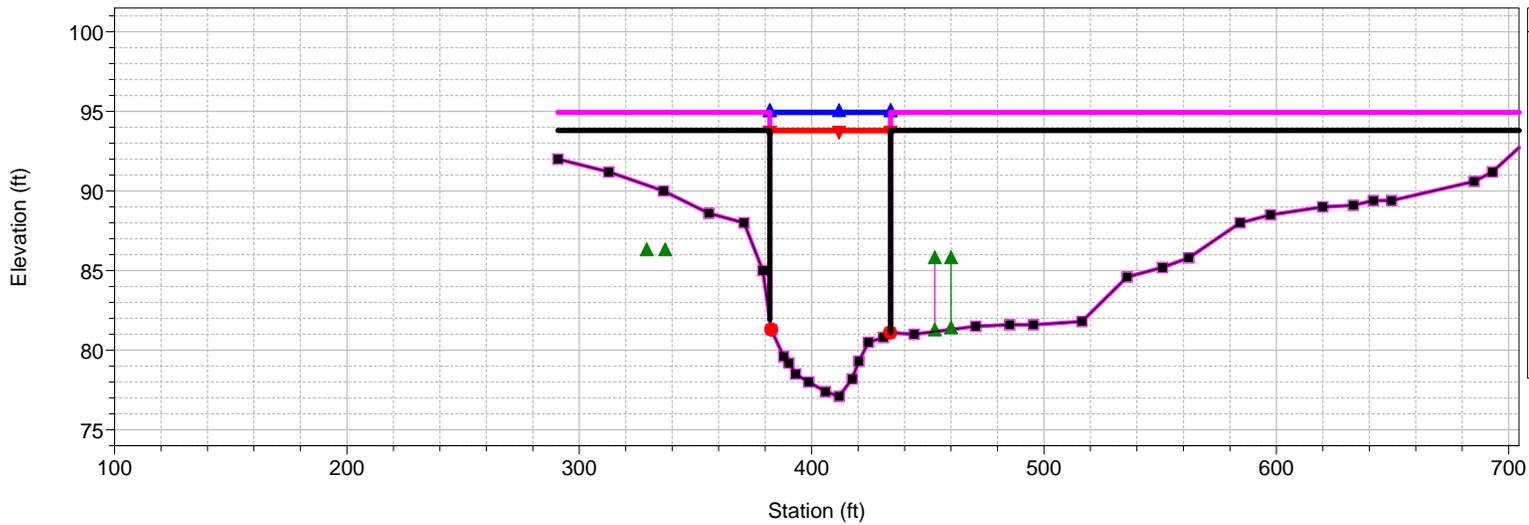
Bridge#04969 Plan: 1) Proposed FLOODWAY 45' Span 2) Existing FLOODWAY
 Geom: Proposed GEOMETRY Model 45' Span
 RS = 9435 Donstream of WEIR - New RS



1 in Horiz. = 90 ft 1 in Vert. = 12 ft

Bridge#04969 Plan: 1) Proposed FLOODWAY 45' Span 2) Existing FLOODWAY

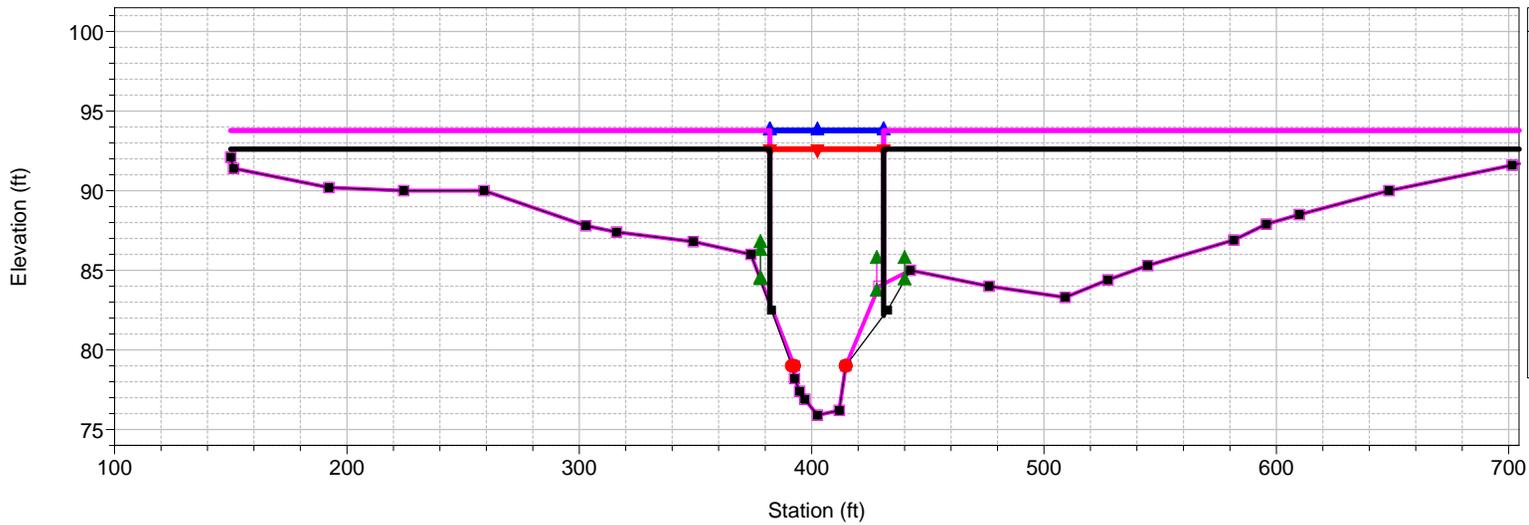
Geom: Proposed GEOMETRY Model 45' Span
RS = 9400 APPROACH Section - New RS



Legend	
WS 100-year FLOODWA - Existing FLOODWAY	▲
WS 100-year FLOODWA - Proposed FLOODWAY 45' Span	▼
Ground - Existing FLOODWAY	■
Ineff - Existing FLOODWAY	▲
Bank Sta - Existing FLOODWAY	●
Encroachment - Existing FLOODWAY	—
Ground - Proposed FLOODWAY 45' Span	■
Ineff - Proposed FLOODWAY 45' Span	▲
Bank Sta - Proposed FLOODWAY 45' Span	●
Encroachment - Proposed FLOODWAY 45' Span	—

Bridge#04969 Plan: 1) Proposed FLOODWAY 45' Span 2) Existing FLOODWAY

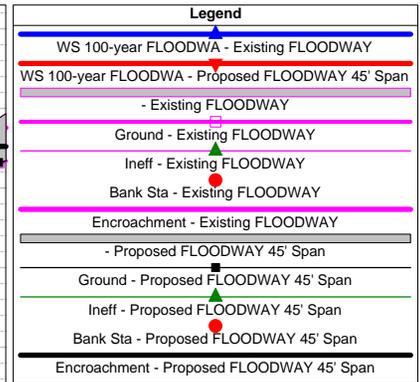
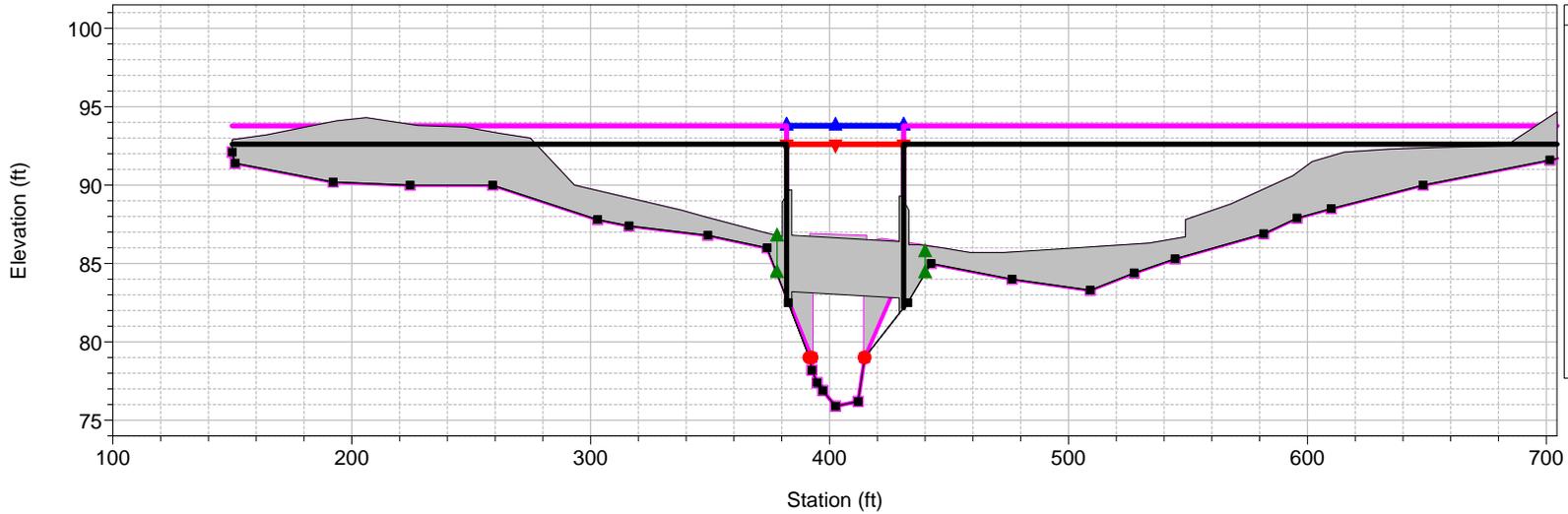
Geom: Proposed GEOMETRY Model 45' Span
RS = 9365 UPSTREAM Toe of Embankment - New RS



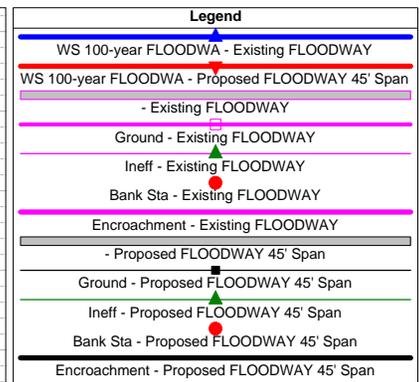
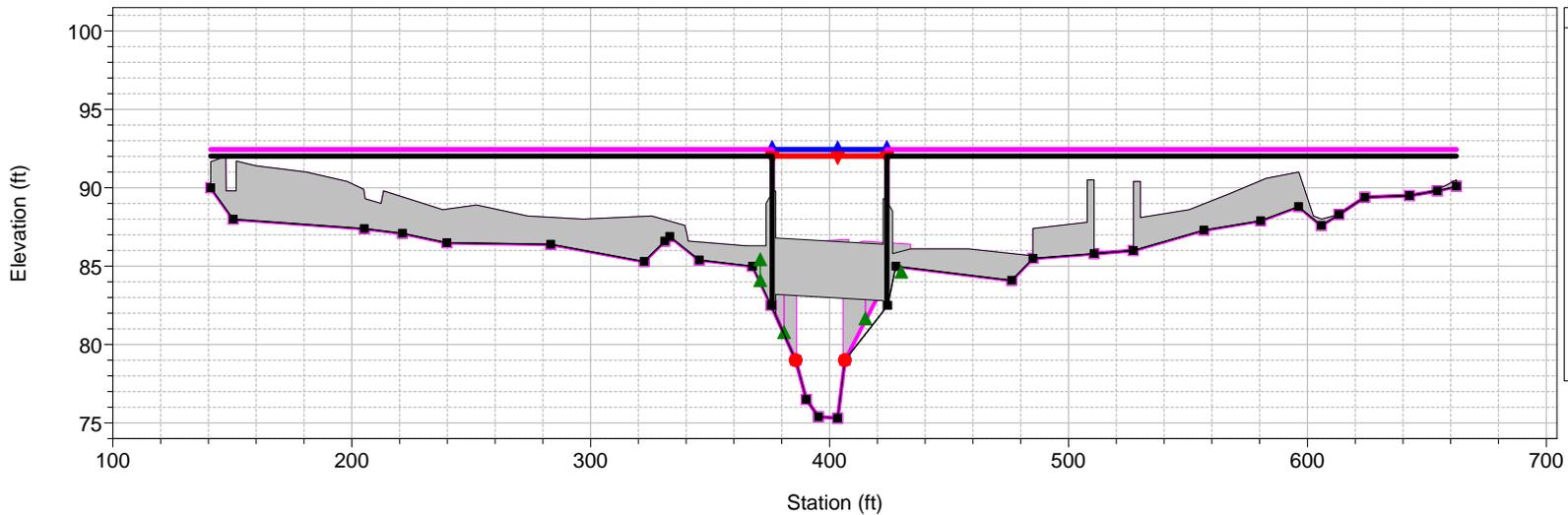
Legend	
WS 100-year FLOODWA - Existing FLOODWAY	▲
WS 100-year FLOODWA - Proposed FLOODWAY 45' Span	▼
Ground - Existing FLOODWAY	■
Ineff - Existing FLOODWAY	▲
Bank Sta - Existing FLOODWAY	●
Encroachment - Existing FLOODWAY	—
Ground - Proposed FLOODWAY 45' Span	■
Ineff - Proposed FLOODWAY 45' Span	▲
Bank Sta - Proposed FLOODWAY 45' Span	●
Encroachment - Proposed FLOODWAY 45' Span	—

1 in Horiz. = 90 ft 1 in Vert. = 12 ft

Bridge#04969 Plan: 1) Proposed FLOODWAY 45' Span 2) Existing FLOODWAY
 Geom: Proposed GEOMETRY Model 45' Span
 RS = 9335 BR Proposed Bridge No. 04969 - 45' Span Alt 'A'

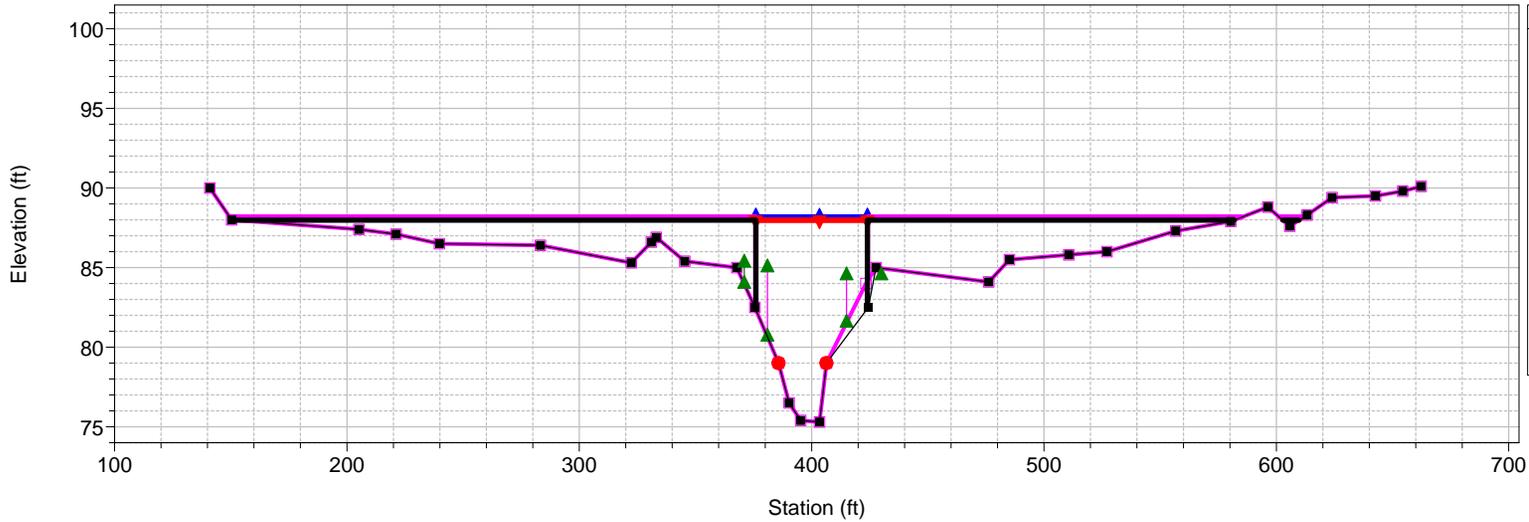


Bridge#04969 Plan: 1) Proposed FLOODWAY 45' Span 2) Existing FLOODWAY
 Geom: Proposed GEOMETRY Model 45' Span
 RS = 9335 BR Proposed Bridge No. 04969 - 45' Span Alt 'A'

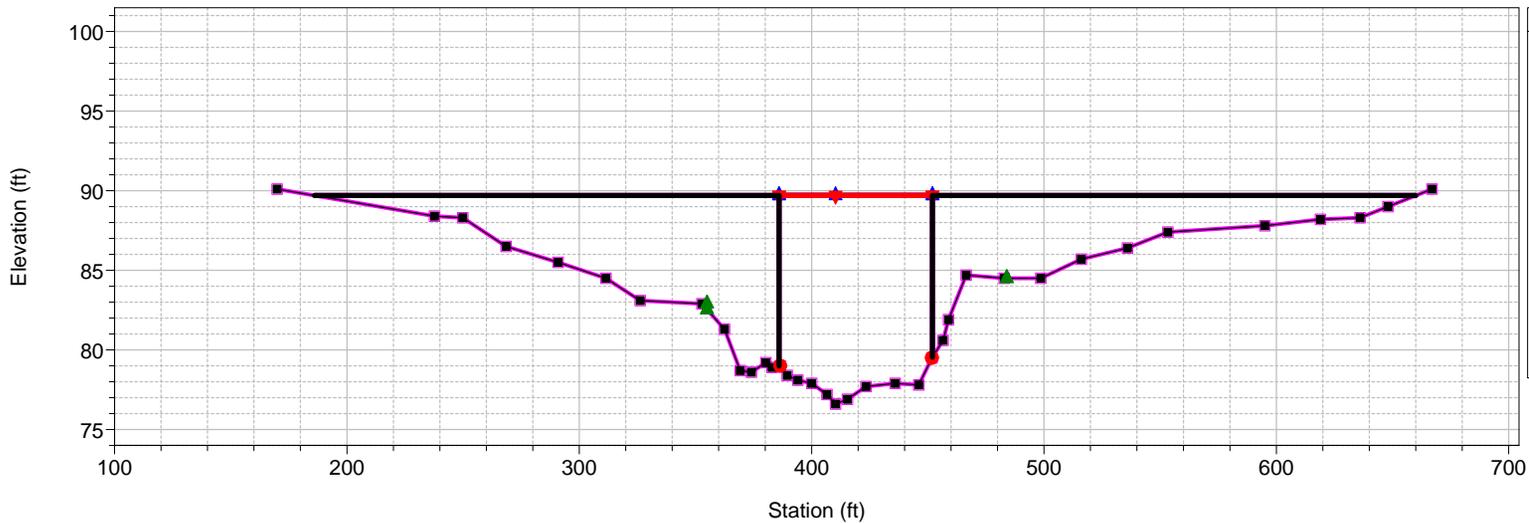


1 in Horiz. = 90 ft 1 in Vert. = 12 ft

Bridge#04969 Plan: 1) Proposed FLOODWAY 45' Span 2) Existing FLOODWAY
 Geom: Proposed GEOMETRY Model 45' Span
 RS = 9310 DOWNSTREAM Toe of Embankment - New RS

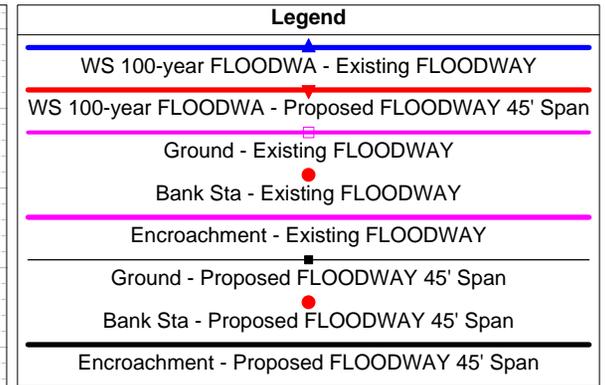
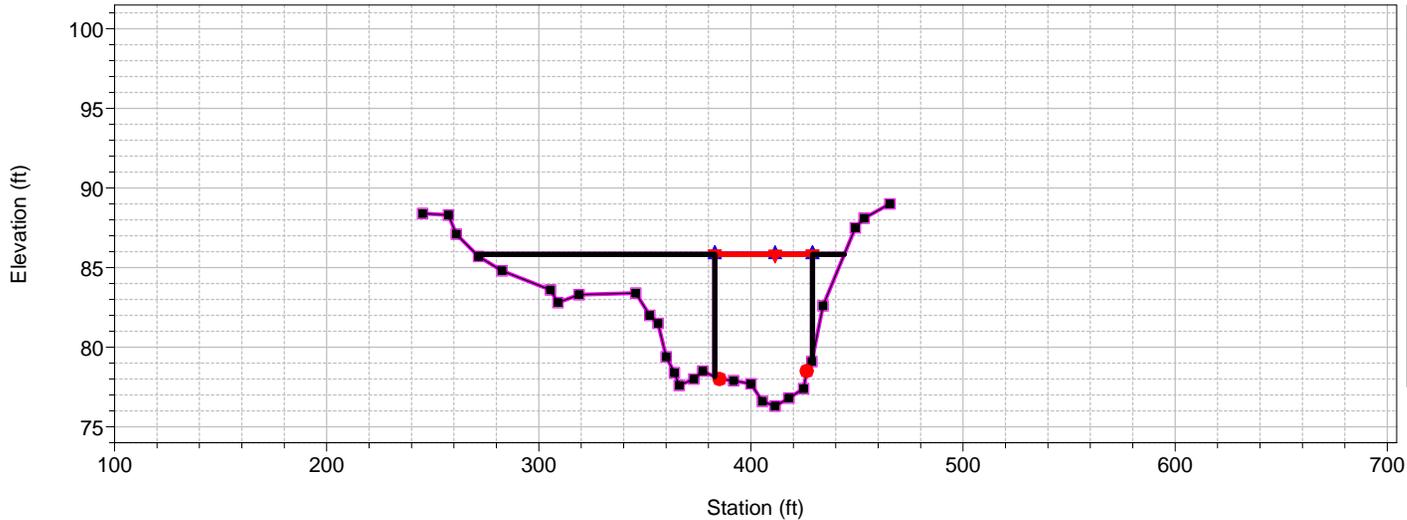


Bridge#04969 Plan: 1) Proposed FLOODWAY 45' Span 2) Existing FLOODWAY
 Geom: Proposed GEOMETRY Model 45' Span
 RS = 9245 EXIT Section - New RS

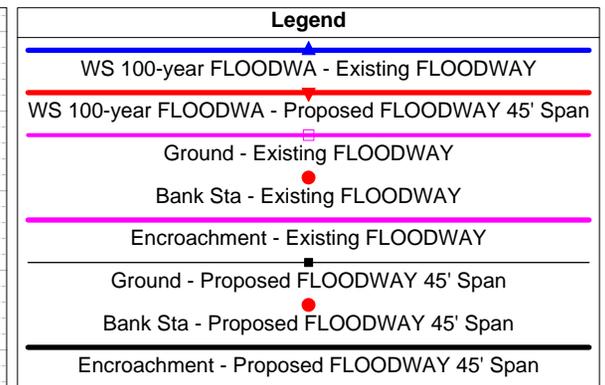
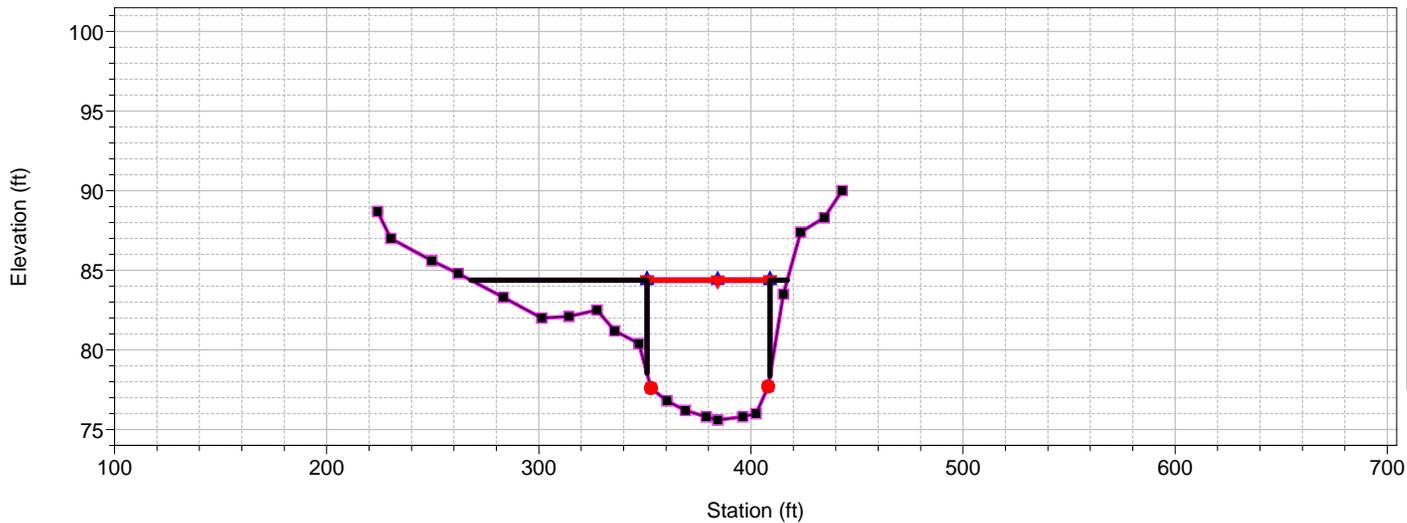


1 in Horiz. = 90 ft 1 in Vert. = 12 ft

Bridge#04969 Plan: 1) Proposed FLOODWAY 45' Span 2) Existing FLOODWAY
 Geom: Proposed GEOMETRY Model 45' Span
 RS = 9175 New RS

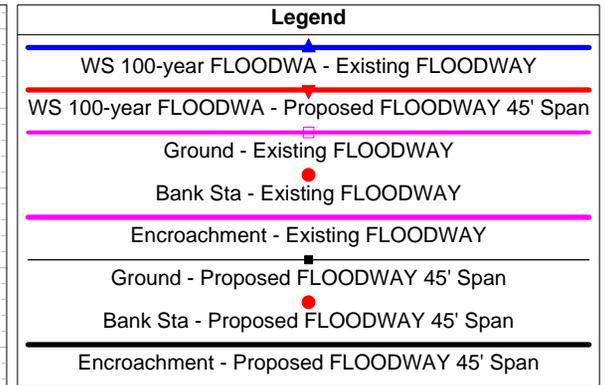
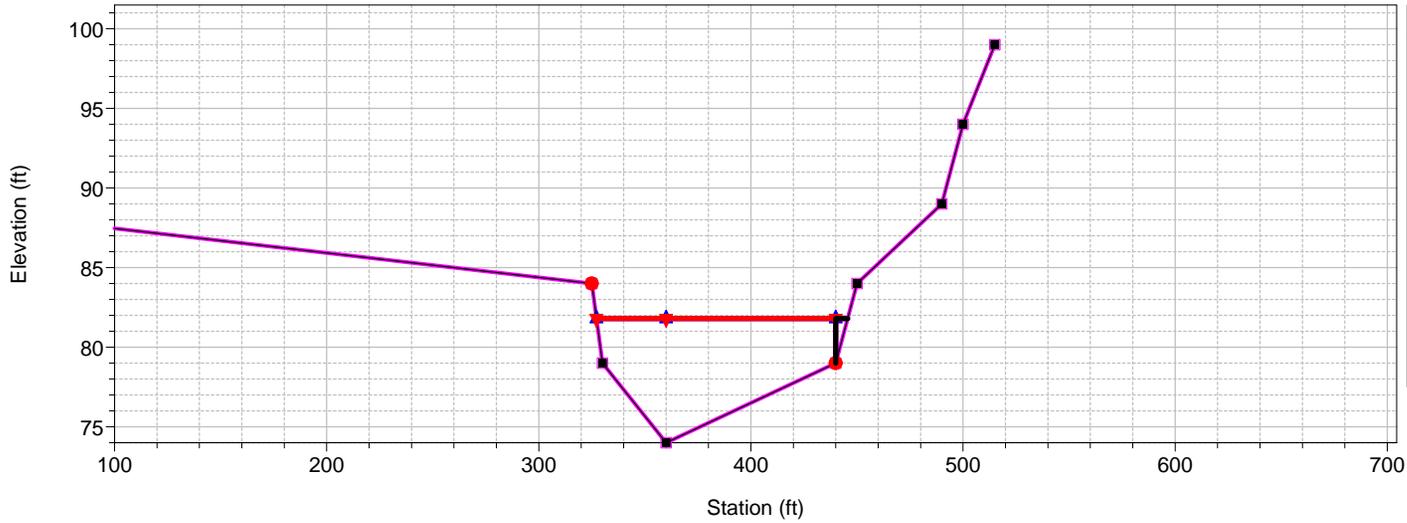


Bridge#04969 Plan: 1) Proposed FLOODWAY 45' Span 2) Existing FLOODWAY
 Geom: Proposed GEOMETRY Model 45' Span
 RS = 9050 New RS



1 in Horiz. = 90 ft 1 in Vert. = 12 ft

Bridge#04969 Plan: 1) Proposed FLOODWAY 45' Span 2) Existing FLOODWAY
 Geom: Proposed GEOMETRY Model 45' Span
 RS = 8450 Original FEMA Section 8450 - Lettered Section 'E'



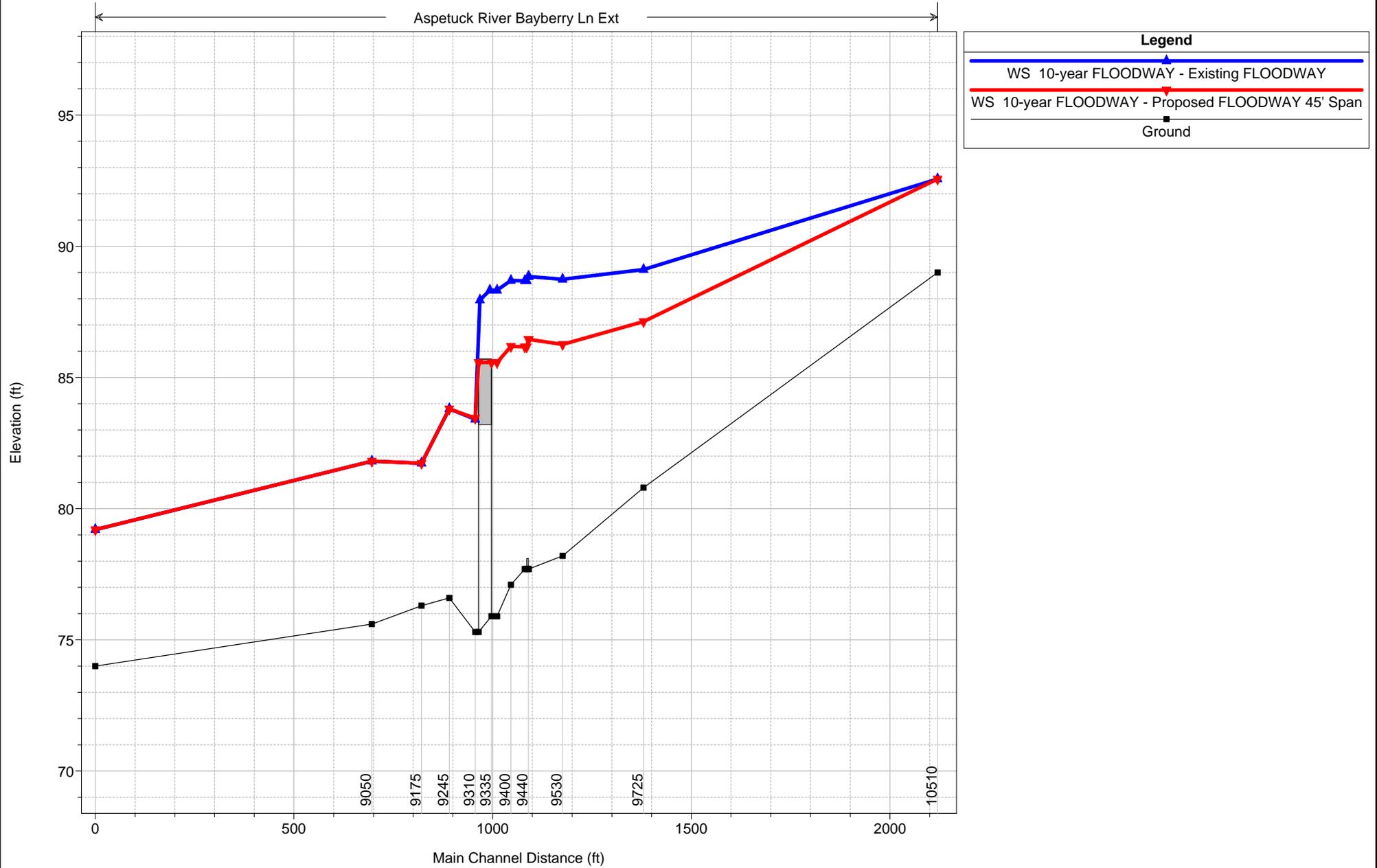
1 in Horiz. = 90 ft 1 in Vert. = 12 ft

HEC-RAS River: Aspetuck River Reach: Bayberry Ln Ext Profile: 10-year FLOODWAY

Reach	River Sta	Profile	Plan	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
Bayberry Ln Ext	10510	10-year FLOODWAY	Existing FLOODWAY	2300.00	89.00	92.56	92.56	94.23	0.009277	10.37	221.73	66.55	1.00
Bayberry Ln Ext	10510	10-year FLOODWAY	Proposed FLOODWAY 45' Span	2300.00	89.00	92.56	92.56	94.23	0.009277	10.37	221.73	66.55	1.00
Bayberry Ln Ext	9725	10-year FLOODWAY	Existing FLOODWAY	2300.00	80.80	89.11		89.54	0.000766	5.39	474.34	65.00	0.34
Bayberry Ln Ext	9725	10-year FLOODWAY	Proposed FLOODWAY 45' Span	2300.00	80.80	87.13		87.92	0.002051	7.27	345.56	65.00	0.53
Bayberry Ln Ext	9530	10-year FLOODWAY	Existing FLOODWAY	2300.00	78.20	88.74		89.32	0.000915	6.47	434.27	50.00	0.37
Bayberry Ln Ext	9530	10-year FLOODWAY	Proposed FLOODWAY 45' Span	2300.00	78.20	86.26		87.36	0.002539	8.85	310.10	50.00	0.58
Bayberry Ln Ext	9445	10-year FLOODWAY	Existing FLOODWAY	2300.00	77.70	88.85	83.22	89.20	0.000473	4.80	496.11	52.00	0.27
Bayberry Ln Ext	9445	10-year FLOODWAY	Proposed FLOODWAY 45' Span	2300.00	77.70	86.45	83.22	87.08	0.001220	6.38	371.35	52.00	0.42
Bayberry Ln Ext	9440			Inl Struct									
Bayberry Ln Ext	9435	10-year FLOODWAY	Existing FLOODWAY	2300.00	77.70	88.68		89.05	0.000501	4.89	487.47	52.00	0.28
Bayberry Ln Ext	9435	10-year FLOODWAY	Proposed FLOODWAY 45' Span	2300.00	77.70	86.16		86.84	0.001392	6.64	356.62	52.00	0.44
Bayberry Ln Ext	9400	10-year FLOODWAY	Existing FLOODWAY	2300.00	77.10	88.69	82.90	89.02	0.000422	4.60	505.85	52.00	0.26
Bayberry Ln Ext	9400	10-year FLOODWAY	Proposed FLOODWAY 45' Span	2300.00	77.10	86.18	82.90	86.77	0.001138	6.19	375.21	52.00	0.40
Bayberry Ln Ext	9365	10-year FLOODWAY	Existing FLOODWAY	2300.00	75.90	88.33	83.55	88.97	0.000872	7.09	442.92	49.00	0.37
Bayberry Ln Ext	9365	10-year FLOODWAY	Proposed FLOODWAY 45' Span	2300.00	75.90	85.57	83.33	86.68	0.002060	9.18	331.16	49.00	0.54
Bayberry Ln Ext	9335			Bridge									
Bayberry Ln Ext	9310	10-year FLOODWAY	Existing FLOODWAY	2300.00	75.30	83.41	83.41	86.22	0.006874	14.07	190.97	45.38	0.93
Bayberry Ln Ext	9310	10-year FLOODWAY	Proposed FLOODWAY 45' Span	2300.00	75.30	83.44	83.44	85.89	0.006198	13.41	222.67	48.00	0.88
Bayberry Ln Ext	9245	10-year FLOODWAY	Existing FLOODWAY	2300.00	76.60	83.80	81.13	84.33	0.001264	5.82	398.24	66.00	0.42
Bayberry Ln Ext	9245	10-year FLOODWAY	Proposed FLOODWAY 45' Span	2300.00	76.60	83.80	81.13	84.33	0.001264	5.82	398.24	66.00	0.42
Bayberry Ln Ext	9175	10-year FLOODWAY	Existing FLOODWAY	2300.00	76.30	81.73	81.73	83.97	0.008245	12.15	200.67	46.00	1.01
Bayberry Ln Ext	9175	10-year FLOODWAY	Proposed FLOODWAY 45' Span	2300.00	76.30	81.73	81.73	83.97	0.008245	12.15	200.67	46.00	1.01
Bayberry Ln Ext	9050	10-year FLOODWAY	Existing FLOODWAY	2300.00	75.60	81.81		82.65	0.002273	7.40	318.80	58.00	0.55
Bayberry Ln Ext	9050	10-year FLOODWAY	Proposed FLOODWAY 45' Span	2300.00	75.60	81.81		82.65	0.002273	7.40	318.80	58.00	0.55
Bayberry Ln Ext	8450	10-year FLOODWAY	Existing FLOODWAY	2300.00	74.00	79.20	78.86	80.13	0.006584	7.74	297.02	110.20	0.83
Bayberry Ln Ext	8450	10-year FLOODWAY	Proposed FLOODWAY 45' Span	2300.00	74.00	79.20	78.86	80.13	0.006584	7.74	297.02	110.20	0.83

Bridge#04969 Plan: 1) Existing FLOODWAY 2) Proposed FLOODWAY 45' Span

Geom: Proposed GEOMETRY Model 45' Span



1 in Horiz. = 330 ft 1 in Vert. = 5 ft

HEC-RAS River: Aspetuck River Reach: Bayberry Ln Ext Profile: 10-year FLOODWAY

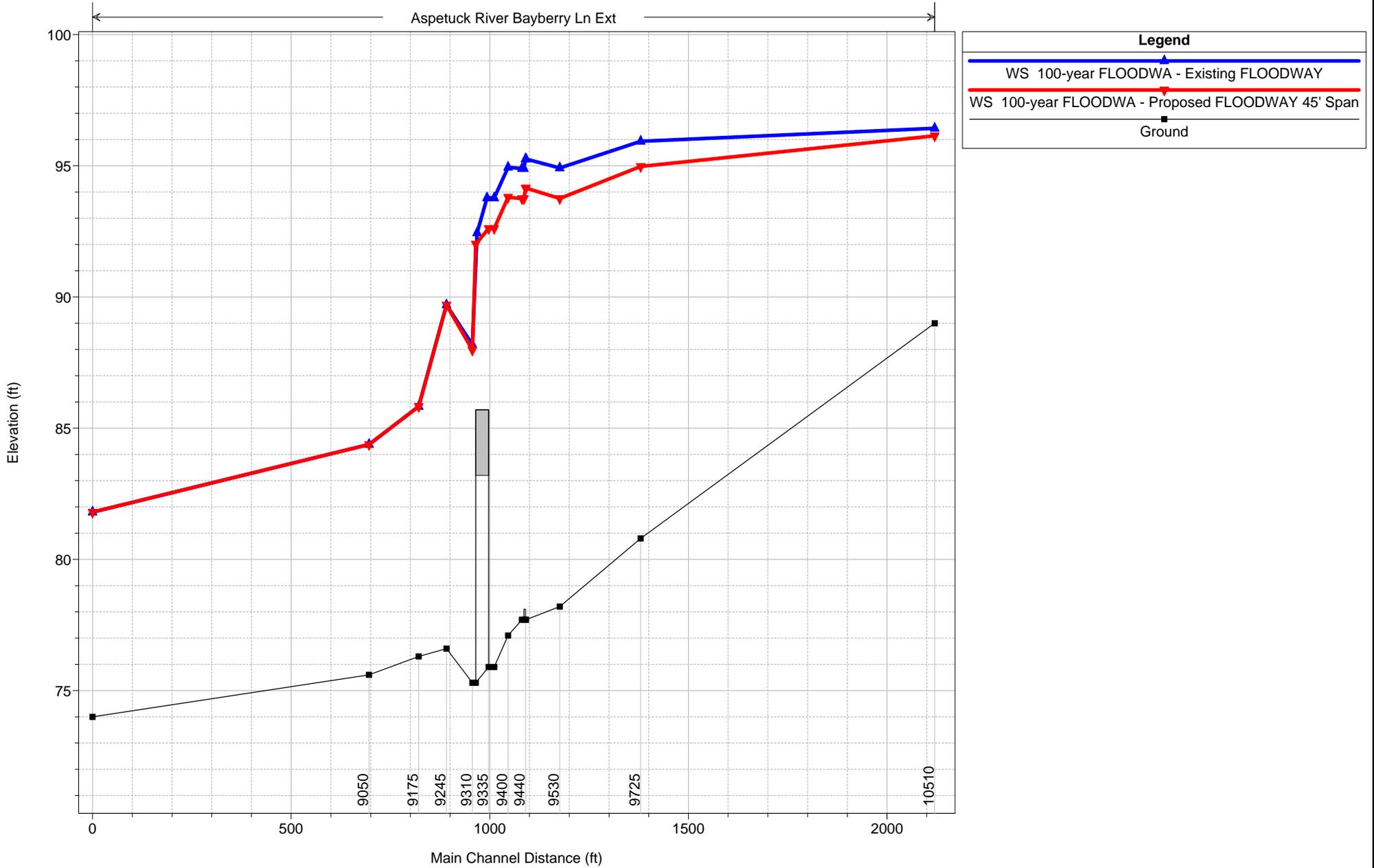
Reach	River Sta	Profile	Plan	W.S. Elev (ft)	Prof Delta WS (ft)	E.G. Elev (ft)	Top Width Act (ft)	Q Left (cfs)	Q Channel (cfs)	Q Right (cfs)	Enc Sta L (ft)	Ch Sta L (ft)	Ch Sta R (ft)	Enc Sta R (ft)
Bayberry Ln Ext	10510	10-year FLOODWAY	Existing FLOODWAY	92.56	0.00	94.23	66.55		2300.00		270.00	335.00	405.00	447.00
Bayberry Ln Ext	10510	10-year FLOODWAY	Proposed FLOODWAY 45' Span	92.56	0.00	94.23	66.55		2300.00		270.00	335.00	405.00	447.00
Bayberry Ln Ext	9725	10-year FLOODWAY	Existing FLOODWAY	89.11	1.64	89.54	65.00	71.10	2175.44	53.46	368.00	375.80	427.00	433.00
Bayberry Ln Ext	9725	10-year FLOODWAY	Proposed FLOODWAY 45' Span	87.13	0.65	87.92	65.00	57.07	2197.34	45.60	368.00	375.80	427.00	433.00
Bayberry Ln Ext	9530	10-year FLOODWAY	Existing FLOODWAY	88.74	1.28	89.32	50.00	60.95	2015.65	223.40	385.00	390.20	422.40	435.00
Bayberry Ln Ext	9530	10-year FLOODWAY	Proposed FLOODWAY 45' Span	86.26	-0.11	87.36	50.00	52.26	2047.78	199.97	385.00	390.20	422.40	435.00
Bayberry Ln Ext	9445	10-year FLOODWAY	Existing FLOODWAY	88.85	1.34	89.20	52.00	5.54	2284.45	10.01	390.00	391.30	440.30	442.00
Bayberry Ln Ext	9445	10-year FLOODWAY	Proposed FLOODWAY 45' Span	86.45	-0.03	87.08	52.00	5.12	2284.67	10.21	390.00	391.30	440.30	442.00
Bayberry Ln Ext	9440			Inl Struct										
Bayberry Ln Ext	9435	10-year FLOODWAY	Existing FLOODWAY	88.68	1.20	89.05	52.00	5.53	2284.43	10.04	390.00	391.30	440.30	442.00
Bayberry Ln Ext	9435	10-year FLOODWAY	Proposed FLOODWAY 45' Span	86.16	-0.25	86.84	52.00	5.00	2284.82	10.18	390.00	391.30	440.30	442.00
Bayberry Ln Ext	9400	10-year FLOODWAY	Existing FLOODWAY	88.69	1.20	89.02	52.00	1.76	2297.93	0.31	382.00	382.60	433.80	434.00
Bayberry Ln Ext	9400	10-year FLOODWAY	Proposed FLOODWAY 45' Span	86.18	-0.24	86.77	52.00	1.81	2297.85	0.34	382.00	382.60	433.80	434.00
Bayberry Ln Ext	9365	10-year FLOODWAY	Existing FLOODWAY	88.33	1.14	88.97	49.00	188.74	1839.88	271.39	382.00	392.50	414.70	431.00
Bayberry Ln Ext	9365	10-year FLOODWAY	Proposed FLOODWAY 45' Span	85.57	-0.27	86.68	49.00	136.03	1885.00	278.97	382.00	391.50	414.70	431.00
Bayberry Ln Ext	9335 BR U	10-year FLOODWAY	Existing FLOODWAY	88.33	1.14	88.97	49.00	116.23	2016.81	167.15	382.00	392.50	414.70	431.00
Bayberry Ln Ext	9335 BR U	10-year FLOODWAY	Proposed FLOODWAY 45' Span	85.57	-0.27	86.67		89.57	2048.06	162.28	382.00	391.50	414.70	431.00
Bayberry Ln Ext	9335 BR D	10-year FLOODWAY	Existing FLOODWAY	87.95	0.92	88.72	48.00	116.23	2016.81	167.15	376.00	385.80	406.40	424.00
Bayberry Ln Ext	9335 BR D	10-year FLOODWAY	Proposed FLOODWAY 45' Span	85.57	-0.27	86.65		106.11	2027.86	165.94	376.00	385.80	406.40	424.00
Bayberry Ln Ext	9310	10-year FLOODWAY	Existing FLOODWAY	83.41	0.00	86.22	34.00	95.60	2065.50	138.90	376.00	385.80	406.40	424.00
Bayberry Ln Ext	9310	10-year FLOODWAY	Proposed FLOODWAY 45' Span	83.44	-0.07	85.89	48.00	112.43	1978.28	209.29	376.00	385.80	406.40	424.00
Bayberry Ln Ext	9245	10-year FLOODWAY	Existing FLOODWAY	83.80	0.93	84.33	66.00	1.50	2298.20	0.30	386.00	386.50	451.80	452.00
Bayberry Ln Ext	9245	10-year FLOODWAY	Proposed FLOODWAY 45' Span	83.80	0.93	84.33	66.00	1.50	2298.20	0.30	386.00	386.50	451.80	452.00
Bayberry Ln Ext	9175	10-year FLOODWAY	Existing FLOODWAY	81.73	-0.32	83.97	46.00	27.05	2245.66	27.29	383.00	385.20	426.30	429.00
Bayberry Ln Ext	9175	10-year FLOODWAY	Proposed FLOODWAY 45' Span	81.73	-0.32	83.97	46.00	27.05	2245.66	27.29	383.00	385.20	426.30	429.00
Bayberry Ln Ext	9050	10-year FLOODWAY	Existing FLOODWAY	81.81	-0.16	82.65	58.00	12.10	2284.61	3.29	351.00	352.90	408.20	409.00
Bayberry Ln Ext	9050	10-year FLOODWAY	Proposed FLOODWAY 45' Span	81.81	-0.16	82.65	58.00	12.10	2284.61	3.29	351.00	352.90	408.20	409.00
Bayberry Ln Ext	8450	10-year FLOODWAY	Existing FLOODWAY	79.20	0.30	80.13	110.20		2300.00		325.00	325.00	440.00	440.00
Bayberry Ln Ext	8450	10-year FLOODWAY	Proposed FLOODWAY 45' Span	79.20	0.30	80.13	110.20		2300.00		325.00	325.00	440.00	440.00

HEC-RAS River: Aspetuck River Reach: Bayberry Ln Ext Profile: 100-year FLOODWA

Reach	River Sta	Profile	Plan	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
Bayberry Ln Ext	10510	100-year FLOODWA	Existing FLOODWAY	6100.00	89.00	96.43	96.14	98.33	0.004304	11.49	663.63	177.00	0.77
Bayberry Ln Ext	10510	100-year FLOODWA	Proposed FLOODWAY 45' Span	6100.00	89.00	96.14	96.14	98.31	0.005118	12.19	612.71	175.68	0.83
Bayberry Ln Ext	9725	100-year FLOODWA	Existing FLOODWAY	6100.00	80.80	95.93		96.79	0.000669	7.64	917.82	65.00	0.35
Bayberry Ln Ext	9725	100-year FLOODWA	Proposed FLOODWAY 45' Span	6100.00	80.80	94.98		95.96	0.000837	8.17	855.63	65.00	0.39
Bayberry Ln Ext	9530	100-year FLOODWA	Existing FLOODWAY	6100.00	78.20	94.92		96.42	0.001232	10.44	742.92	50.00	0.46
Bayberry Ln Ext	9530	100-year FLOODWA	Proposed FLOODWAY 45' Span	6100.00	78.20	93.75		95.50	0.001586	11.26	684.76	50.00	0.52
Bayberry Ln Ext	9445	100-year FLOODWA	Existing FLOODWAY	6100.00	77.70	95.26	86.93	96.17	0.000615	7.68	829.55	52.00	0.34
Bayberry Ln Ext	9445	100-year FLOODWA	Proposed FLOODWAY 45' Span	6100.00	77.70	94.15	86.93	95.20	0.000780	8.24	771.89	52.00	0.38
Bayberry Ln Ext	9440			Inl Struct									
Bayberry Ln Ext	9435	100-year FLOODWA	Existing FLOODWAY	6100.00	77.70	94.90		95.85	0.000663	7.85	810.76	52.00	0.35
Bayberry Ln Ext	9435	100-year FLOODWA	Proposed FLOODWAY 45' Span	6100.00	77.70	93.75		94.86	0.000853	8.47	751.07	52.00	0.39
Bayberry Ln Ext	9400	100-year FLOODWA	Existing FLOODWAY	6100.00	77.10	94.94	85.71	95.80	0.000571	7.43	830.82	52.00	0.33
Bayberry Ln Ext	9400	100-year FLOODWA	Proposed FLOODWAY 45' Span	6100.00	77.10	93.80	85.71	94.80	0.000731	8.00	771.48	52.00	0.37
Bayberry Ln Ext	9365	100-year FLOODWA	Existing FLOODWAY	6100.00	75.90	93.78	88.14	95.67	0.001591	12.35	709.98	49.00	0.53
Bayberry Ln Ext	9365	100-year FLOODWA	Proposed FLOODWAY 45' Span	6100.00	75.90	92.61	87.63	94.66	0.001837	12.80	676.22	49.00	0.57
Bayberry Ln Ext	9335			Bridge									
Bayberry Ln Ext	9310	100-year FLOODWA	Existing FLOODWAY	6100.00	75.30	88.18	88.18	92.95	0.006638	19.47	434.55	48.00	1.00
Bayberry Ln Ext	9310	100-year FLOODWA	Proposed FLOODWAY 45' Span	6100.00	75.30	87.98	87.83	92.62	0.006708	19.35	440.44	48.00	1.00
Bayberry Ln Ext	9245	100-year FLOODWA	Existing FLOODWAY	6100.00	76.60	89.70	82.91	90.65	0.000921	7.82	787.25	66.00	0.40
Bayberry Ln Ext	9245	100-year FLOODWA	Proposed FLOODWAY 45' Span	6100.00	76.60	89.70	82.91	90.65	0.000921	7.82	787.25	66.00	0.40
Bayberry Ln Ext	9175	100-year FLOODWA	Existing FLOODWAY	6100.00	76.30	85.83	85.83	90.17	0.006713	16.89	389.28	46.00	1.02
Bayberry Ln Ext	9175	100-year FLOODWA	Proposed FLOODWAY 45' Span	6100.00	76.30	85.83	85.83	90.17	0.006713	16.89	389.28	46.00	1.02
Bayberry Ln Ext	9050	100-year FLOODWA	Existing FLOODWAY	6100.00	75.60	84.38		87.17	0.004523	13.44	467.95	58.00	0.83
Bayberry Ln Ext	9050	100-year FLOODWA	Proposed FLOODWAY 45' Span	6100.00	75.60	84.38		87.17	0.004523	13.44	467.95	58.00	0.83
Bayberry Ln Ext	8450	100-year FLOODWA	Existing FLOODWAY	6100.00	74.00	81.80	81.08	83.48	0.005147	10.39	586.92	112.80	0.80
Bayberry Ln Ext	8450	100-year FLOODWA	Proposed FLOODWAY 45' Span	6100.00	74.00	81.80	81.08	83.48	0.005147	10.39	586.92	112.80	0.80

Bridge#04969 Plan: 1) Existing FLOODWAY 2) Proposed FLOODWAY 45' Span

Geom: Proposed GEOMETRY Model 45' Span



HEC-RAS River: Aspetuck River Reach: Bayberry Ln Ext Profile: 100-year FLOODWA

Reach	River Sta	Profile	Plan	W.S. Elev (ft)	Prof Delta WS (ft)	E.G. Elev (ft)	Top Width Act (ft)	Q Left (cfs)	Q Channel (cfs)	Q Right (cfs)	Enc Sta L (ft)	Ch Sta L (ft)	Ch Sta R (ft)	Enc Sta R (ft)
Bayberry Ln Ext	10510	100-year FLOODWA	Existing FLOODWAY	96.43	3.87	98.33	177.00	338.26	5631.65	130.09	270.00	335.00	405.00	447.00
Bayberry Ln Ext	10510	100-year FLOODWA	Proposed FLOODWAY 45' Span	96.14	3.58	98.31	175.68	277.41	5725.81	96.78	270.00	335.00	405.00	447.00
Bayberry Ln Ext	9725	100-year FLOODWA	Existing FLOODWAY	95.93	8.46	96.79	65.00	205.27	5750.88	143.85	368.00	375.80	427.00	433.00
Bayberry Ln Ext	9725	100-year FLOODWA	Proposed FLOODWAY 45' Span	94.98	8.50	95.96	65.00	206.54	5747.94	145.53	368.00	375.80	427.00	433.00
Bayberry Ln Ext	9530	100-year FLOODWA	Existing FLOODWAY	94.92	7.45	96.42	50.00	164.06	5326.08	609.86	385.00	390.20	422.40	435.00
Bayberry Ln Ext	9530	100-year FLOODWA	Proposed FLOODWAY 45' Span	93.75	7.38	95.50	50.00	165.69	5321.59	612.72	385.00	390.20	422.40	435.00
Bayberry Ln Ext	9445	100-year FLOODWA	Existing FLOODWAY	95.26	7.75	96.17	52.00	13.57	6063.71	22.72	390.00	391.30	440.30	442.00
Bayberry Ln Ext	9445	100-year FLOODWA	Proposed FLOODWAY 45' Span	94.15	7.67	95.20	52.00	13.86	6062.77	23.37	390.00	391.30	440.30	442.00
Bayberry Ln Ext	9440			Inl Struct										
Bayberry Ln Ext	9435	100-year FLOODWA	Existing FLOODWAY	94.90	7.42	95.85	52.00	13.66	6063.41	22.93	390.00	391.30	440.30	442.00
Bayberry Ln Ext	9435	100-year FLOODWA	Proposed FLOODWAY 45' Span	93.75	7.33	94.86	52.00	13.96	6062.43	23.61	390.00	391.30	440.30	442.00
Bayberry Ln Ext	9400	100-year FLOODWA	Existing FLOODWAY	94.94	7.45	95.80	52.00	3.94	6095.40	0.67	382.00	382.60	433.80	434.00
Bayberry Ln Ext	9400	100-year FLOODWA	Proposed FLOODWAY 45' Span	93.80	7.38	94.80	52.00	4.06	6095.25	0.69	382.00	382.60	433.80	434.00
Bayberry Ln Ext	9365	100-year FLOODWA	Existing FLOODWAY	93.78	6.59	95.67	49.00	531.68	4700.43	867.89	382.00	392.50	414.70	431.00
Bayberry Ln Ext	9365	100-year FLOODWA	Proposed FLOODWAY 45' Span	92.61	6.77	94.66	49.00	444.72	4720.21	935.07	382.00	391.50	414.70	431.00
Bayberry Ln Ext	9335 BR U	100-year FLOODWA	Existing FLOODWAY	93.78	6.59	95.67	49.00	808.81	4082.42	1207.68	382.00	392.50	414.70	431.00
Bayberry Ln Ext	9335 BR U	100-year FLOODWA	Proposed FLOODWAY 45' Span	92.61	6.77	94.65	49.00	193.47	5617.62	287.39	382.00	391.50	414.70	431.00
Bayberry Ln Ext	9335 BR D	100-year FLOODWA	Existing FLOODWAY	92.44	5.41	95.67	48.00	808.81	4082.42	1207.68	376.00	385.80	406.40	424.00
Bayberry Ln Ext	9335 BR D	100-year FLOODWA	Proposed FLOODWAY 45' Span	92.02	6.18	94.65	48.00	217.24	5588.59	292.65	376.00	385.80	406.40	424.00
Bayberry Ln Ext	9310	100-year FLOODWA	Existing FLOODWAY	88.18	4.77	92.95	48.00	487.91	4770.72	841.37	376.00	385.80	406.40	424.00
Bayberry Ln Ext	9310	100-year FLOODWA	Proposed FLOODWAY 45' Span	87.98	4.47	92.62	48.00	472.89	4663.11	964.00	376.00	385.80	406.40	424.00
Bayberry Ln Ext	9245	100-year FLOODWA	Existing FLOODWAY	89.70	6.82	90.65	66.00	2.95	6096.43	0.62	386.00	386.50	451.80	452.00
Bayberry Ln Ext	9245	100-year FLOODWA	Proposed FLOODWAY 45' Span	89.70	6.82	90.65	66.00	2.95	6096.43	0.62	386.00	386.50	451.80	452.00
Bayberry Ln Ext	9175	100-year FLOODWA	Existing FLOODWAY	85.83	3.78	90.17	46.00	59.79	5966.97	73.23	383.00	385.20	426.30	429.00
Bayberry Ln Ext	9175	100-year FLOODWA	Proposed FLOODWAY 45' Span	85.83	3.78	90.17	46.00	59.79	5966.97	73.23	383.00	385.20	426.30	429.00
Bayberry Ln Ext	9050	100-year FLOODWA	Existing FLOODWAY	84.38	2.41	87.17	58.00	31.49	6060.35	8.16	351.00	352.90	408.20	409.00
Bayberry Ln Ext	9050	100-year FLOODWA	Proposed FLOODWAY 45' Span	84.38	2.41	87.17	58.00	31.49	6060.35	8.16	351.00	352.90	408.20	409.00
Bayberry Ln Ext	8450	100-year FLOODWA	Existing FLOODWAY	81.80	2.90	83.48	112.80		6100.00		325.00	325.00	440.00	440.00
Bayberry Ln Ext	8450	100-year FLOODWA	Proposed FLOODWAY 45' Span	81.80	2.90	83.48	112.80		6100.00		325.00	325.00	440.00	440.00

Bridge No. 04969 - Proposed FLOODWAY

HEC-RAS HEC-RAS 5.0.7 March 2019
U. S. Army Corps of Engineers
Hydrologic Engineering Center
609 Second Street
Davis, California

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X      X  XXXXXX   XXXX      XXXX      XX      XXXX
X      X  X        X      X      X      X      X
X      X  X        X      X      X      X      X
XXXXXXXX XXXX      X      XXX XXXX XXXXXXX XXXX
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X      X  X        X      X      X      X      X
X      X  XXXXXX   XXXX      X      X      X      XXXXX

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PROJECT DATA

Project Title: Bridge#04969
Project File : Bridge#04969.prj
Run Date and Time: 11/17/2019 3:59:32 PM

Project in English units

Project Description:
Replacement of Bridge No. 04969
Bayberry Lane Ext. over Aspetuck River
Westport, CT

State Project No. 158-216

EcoDesign, LLC
860 677-4555

November 2019

PLAN DATA

Plan Title: Proposed FLOODWAY 45' Span
Plan File : e:\EcoDesign, LLC\2018\Projects\18-006\HEC-RAS\November
2019\Bridge#04969.p18

Geometry Title: Proposed GEOMETRY Model 45' Span
Geometry File : e:\EcoDesign, LLC\2018\Projects\18-006\HEC-RAS\November
2019\Bridge#04969.g05

Flow Title : FEMA Floodway NAVD88
Flow File : e:\EcoDesign, LLC\2018\Projects\18-006\HEC-RAS\November
2019\Bridge#04969.f04

Plan Description:
Proposed FEMA FLOODWAY Model Alt 'A' - Current Survey
Original HEC-2 Input for
RS 'E' & 'F'
Adjusted to NAVD 88

Plan Summary Information:

Number of:	Cross Sections	=	12	Multiple Openings	=	0
	Culverts	=	0	Inline Structures	=	1
	Bridges	=	1	Lateral Structures	=	0

Computational Information

Bridge No. 04969 - Proposed FLOODWAY

Water surface calculation tolerance = 0.0001
 Critical depth calculation tolerance = 0.0001
 Maximum number of iterations = 40
 Maximum difference tolerance = 0.1
 Flow tolerance factor = 0.0001

Computation Options

Critical depth computed only where necessary
 Conveyance Calculation Method: At breaks in n values only
 Friction Slope Method: Average Conveyance
 Computational Flow Regime: Subcritical Flow

Encroachment Data

Equal Conveyance = True
 Left Offset = 0
 Right Offset = 0

River	Profile	Reach	Method	Ln Val ue1	Ext Val ue2
10510	10-year FLOODWAY	Bayberry	1	270	447
9725	10-year FLOODWAY	Bayberry	1	368	433
9530	10-year FLOODWAY	Bayberry	1	385	435
9445	10-year FLOODWAY	Bayberry	1	390	442
9435	10-year FLOODWAY	Bayberry	1	390	442
9400	10-year FLOODWAY	Bayberry	1	382	434
9365	10-year FLOODWAY	Bayberry	1	382	431
9310	10-year FLOODWAY	Bayberry	1	376	424
9245	10-year FLOODWAY	Bayberry	1	386	452
9175	10-year FLOODWAY	Bayberry	1	383	429
9050	10-year FLOODWAY	Bayberry	1	351	409
8450	10-year FLOODWAY	Bayberry	1	325	440

River	Profile	Reach	Method	Ln Val ue1	Ext Val ue2
10510	100-year w/o Encroachment	Bayberry		0	
9725	100-year w/o Encroachment	Bayberry		0	
9530	100-year w/o Encroachment	Bayberry		0	
9445	100-year w/o Encroachment	Bayberry		0	
9435	100-year w/o Encroachment	Bayberry		0	
9400	100-year w/o Encroachment	Bayberry		0	
9365	100-year w/o Encroachment	Bayberry		0	
9310	100-year w/o Encroachment	Bayberry		0	
9245	100-year w/o Encroachment	Bayberry		0	
9175	100-year w/o Encroachment	Bayberry		0	
9050	100-year w/o Encroachment	Bayberry		0	
8450	100-year w/o Encroachment	Bayberry		0	

River	Profile	Reach	Method	Ln Val ue1	Ext Val ue2
10510	100-year FLOODWAY	Bayberry	1	270	447
9725	100-year FLOODWAY	Bayberry	1	368	433
9530	100-year FLOODWAY	Bayberry	1	385	435
9445	100-year FLOODWAY	Bayberry	1	390	442
9435	100-year FLOODWAY	Bayberry	1	390	442
9400	100-year FLOODWAY	Bayberry	1	382	434
9365	100-year FLOODWAY	Bayberry	1	382	431
9310	100-year FLOODWAY	Bayberry	1	376	424
9245	100-year FLOODWAY	Bayberry	1	386	452
9175	100-year FLOODWAY	Bayberry	1	383	429
9050	100-year FLOODWAY	Bayberry	1	351	409
8450	100-year FLOODWAY	Bayberry	1	325	440

FLOW DATA

Flow Title: FEMA Floodway NAVD88

Bridge No. 04969 - Proposed FLOODWAY

Flow File : e:\EcoDesign, LLC\2018\Projects\18-006\HEC-RAS\November 2019\Bri dge#04969. f04

Flow Data (cfs)

River	Reach	RS	10-year w/o Encroachment	10-year FLOODWAY
FLOODWAY100-year Aspetuck River 6100	w/o Encroachment Bayberry Ln Ext 6100	10510	2300	2300

Boundary Condi ti ons

River	Reach	Profile	Upstream
Downstream			
Aspetuck River	Bayberry Ln Ext	10-year w/o Encroachment	Known WS = 78.9
Aspetuck River	Bayberry Ln Ext	10-year FLOODWAY	Known WS = 79.2
Aspetuck River	Bayberry Ln Ext	100-year w/o Encroachment	Known WS = 81.1
Aspetuck River	Bayberry Ln Ext	100-year FLOODWAY	Known WS = 81.8

GEOMETRY DATA

Geometry Title: Proposed GEOMETRY Model 45' Span
 Geometry File : e:\EcoDesign, LLC\2018\Projects\18-006\HEC-RAS\November 2019\Bri dge#04969. g05

CROSS SECTION

RIVER: Aspetuck River
 REACH: Bayberry Ln Ext RS: 10510

INPUT

Description: Original FEMA Section 10570- Lettered Section 'F'

Station		Elevation Data		num= 8		Sta		Elev	
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	104	70	99	335	94	340	89	398	89
405	94	500	99	820	104				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.05	335	.03	405	.05

Bank Sta:	Left	Right	Lengths:	Left	Channel	Right	Coeff	Contr.	Expan.
	335	405		740	740	740		.3	.5

CROSS SECTION

RIVER: Aspetuck River
 REACH: Bayberry Ln Ext RS: 9725

INPUT

Description: NEW RS
 Original FEMA Section 9830

Bridge No. 04969 - Proposed FLOODWAY

Station		Elevation		Data		num= 21			
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
270	96	287.9	93	300.4	92	307.6	91	320	90
340.7	88.5	361.3	87	368.5	85	375.8	83	383.1	81
400	80.8	419	81	427	83	434	85	447.9	86
476.1	87	501.7	88.5	564.1	90	582.8	92	589.9	93
610	96								

Manning's n		Values		num= 3	
Sta	n Val	Sta	n Val	Sta	n Val
270	.05	375.8	.03	427	.05

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
	375.8	427		204	204		.3	.5

CROSS SECTION

RIVER: Aspetuck River
 REACH: Bayberry Ln Ext RS: 9530

INPUT
 Description: New RS
 Project Survey

Station		Elevation		Data num= 32					
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
289.4	91.5	353.7	90	368.2	88.6	380.4	87	386	82.4
390.2	82.3	390.8	80	391.9	79.2	394.8	78.8	402.6	78.2
413.4	78.8	418.1	80.1	422.4	81.4	431.3	81.7	455.6	81.7
461	81.8	469.9	83	482.2	83.7	501.4	84.4	519.7	84.8
527.6	85	536.8	85.4	559.8	86.6	582.5	87.6	597.3	88.2
618	88.2	643.2	88.7	661.6	89.4	667.2	89.8	680.1	90
690	90.8	704.2	92.9						

Manning's n		Values		num= 3	
Sta	n Val	Sta	n Val	Sta	n Val
289.4	.05	390.2	.03	422.4	.05

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
	390.2	422.4		90	85		.1	.3

Blocked Obstructions			num= 1	
Sta L	Sta R	Elev		
289.4	355	100		

CROSS SECTION

RIVER: Aspetuck River
 REACH: Bayberry Ln Ext RS: 9445

INPUT
 Description: Upstream of WEIR - New RS
 Project Survey

Station		Elevation		Data num= 33					
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
298.2	91.5	362	90.5	373.6	89.1	383.2	87.8	386.8	86.4
391.3	82	393.9	79.8	396.8	79.8	398.7	79.4	401.6	78.2
404.6	77.7	409.8	78.3	415.3	78.6	426.8	78.6	429.9	79.4
432.6	80.2	437	80.6	440.3	81.5	447.2	81.5	455.3	81.9
468.6	81.4	484.1	81.4	496.2	81.6	515.5	81.8	536.3	84.6
551.6	85.2	570.3	86.9	583.9	87	630.4	88.4	659.8	89.9
676.7	90	703.8	92.1	725.4	94				

Manning's n		Values		num= 3	
Sta	n Val	Sta	n Val	Sta	n Val
298.2	.05	391.3	.03	440.3	.05

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.

Bridge No. 04969 - Proposed FLOODWAY
 391.3 440.3 10 10 10 .1 .3
 Blocked Obstructions num= 1
 Sta L Sta R Elev
 298.2 359 100

IN LINE STRUCTURE

RIVER: Aspetuck River
 REACH: Bayberry Ln Ext RS: 9440

INPUT

Description:

Distance from Upstream XS = 1
 Deck/Roadway Width = 4
 Weir Coefficient = 2.6

Weir Embankment Coordinates num = 21

Sta	Elev								
298.2	91.5	362	90.5	373.6	89.1	383.2	87.8	386.8	86.4
390.1	83	391.3	82.5	391.8	83.2	397.2	83.1	399.4	82.6
400.4	80.6	401.8	80.4	401.9	78.2	406	78.1	415.3	78.6
426.8	78.6	429.9	79.4	432.6	80.2	437	80.6	440.3	81.5
447.2	81.5								

Upstream Embankment side slope = 0 hori z. to 1.0 verti cal
 Downstream Embankment side slope = 0 hori z. to 1.0 verti cal
 Maxi m allowabl e submergence for weir flow = .98
 Elevati on at whi ch weir flow begi ns =
 Weir crest shape = Broad Crested

CROSS SECTION

RIVER: Aspetuck River
 REACH: Bayberry Ln Ext RS: 9435

INPUT

Description: Donstream of WEIR - New RS
 Project Survey

Station Elevati on Data num= 33

Sta	Elev								
298.2	91.5	362	90.5	373.6	89.1	383.2	87.8	386.8	86.4
391.3	82	393.9	79.8	396.8	79.8	398.7	79.4	401.6	78.2
404.6	77.7	409.8	78.3	415.3	78.6	426.8	78.6	429.9	79.4
432.6	80.2	437	80.6	440.3	81.5	447.2	81.5	455.3	81.9
468.6	81.4	484.1	81.4	496.2	81.6	515.5	81.8	536.3	84.6
551.6	85.2	570.3	86.9	583.9	87	630.4	88.4	659.8	89.9
676.7	90	703.8	92.1	725.4	94				

Manni ng' s n Val ues num= 3

Sta	n Val	Sta	n Val	Sta	n Val
298.2	.05	391.3	.03	440.3	.05

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 391.3 440.3 40 35 20 .1 .3

CROSS SECTION

RIVER: Aspetuck River
 REACH: Bayberry Ln Ext RS: 9400

INPUT

Description: APPROACH Secti on - New RS
 Project Survey

Station Elevati on Data num= 35

Sta	Elev								
-----	------	-----	------	-----	------	-----	------	-----	------

Bridge No. 04969 - Proposed FLOODWAY

290.8	92	312.7	91.2	336.3	90	355.7	88.6	370.9	88
379	85	382.6	81.3	388	79.6	390.2	79.2	393.1	78.5
398.8	78	406	77.4	411.8	77.1	417.4	78.2	420.3	79.3
424.5	80.5	430.9	80.8	433.8	81.1	444.2	81	470.7	81.5
485.3	81.6	495.5	81.6	516.3	81.8	535.8	84.6	551	85.2
562.3	85.8	584.4	88	597.5	88.5	620	89	633.1	89.1
641.7	89.4	649.6	89.4	685.1	90.6	693	91.2	708	93.2

Manning's n Values

num=	3
Sta n Val	Sta n Val
290.8 .05	382.6 .03
433.8	.05

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.

382.6	433.8	40	35	20	.1	.3
-------	-------	----	----	----	----	----

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
290.8	329	86.2	F
460	708	85.7	F

CROSS SECTION

RIVER: Aspetuck River
 REACH: Bayberry Ln Ext RS: 9365

INPUT
 Description: UPSTREAM Toe of Embankment - New RS
 Project Survey

Station Elevation Data num= 29

Sta	Elev								
150	92.1	151.2	91.4	192.2	90.2	224.4	90	259	90
302.9	87.8	316.1	87.4	349	86.8	373.9	86	382.7	82.5
391.5	79	392.6	78.2	394.8	77.4	397.1	76.9	402.5	75.9
411.9	76.2	414.7	79	432.7	82.5	442.5	85	476.4	84
509.1	83.3	527.5	84.4	544.6	85.3	581.7	86.9	595.7	87.9
609.9	88.5	648.4	90	701.5	91.6	716	92.1		

Manning's n Values

num=	3
Sta n Val	Sta n Val
150 .05	391.5 .03
414.7	.05

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.

391.5	414.7	55	55	55	.3	.5
-------	-------	----	----	----	----	----

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
150	378	86.7	F
440	716	85.7	F

BRIDGE

RIVER: Aspetuck River
 REACH: Bayberry Ln Ext RS: 9335

INPUT
 Description: Proposed Bridge No. 04969 - 45' Span Alt 'A'
 Distance from Upstream XS = 14
 Deck/Roadway Width = 32.5
 Weir Coefficient = 2.6
 Upstream Deck/Roadway Coordinates

num= 40

Sta Hi	Cord	Lo Cord	Sta Hi	Cord	Lo Cord	Sta Hi	Cord	Lo Cord
141.7	90.1		145.4	92.8		164.3	93.2	
193.8	94.1		206.1	94.3		227.6	93.8	
247.4	93.7		261.9	93.3		274.7	93	
293.2	90		338	88.4		347.3	88	
372.2	87		380.2	86.7		380.2	88.9	
383.2	89.7		384.2	89.7		384.2	86.8	83.2

Bridge No. 04969 - Proposed FLOODWAY

429.2	86.4	82.8	429.2	89.3	430.2	89.3
433.2	88.4		433.2	86.2	437.4	86.2
447.1	86		458.8	85.7	473.1	85.7
533.8	86.3		548.9	86.7	549	87.8
568	88.8		594	90.6	602	91.5
615.4	92.1		634.8	92.3	654.1	92.4
683	92.5		705.8	94.8	714.9	94.3
732.9	98.2					

Upstream Bridge Cross Section Data

Station Elevation Data		num= 29									
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
150	92.1	151.2	91.4	192.2	90.2	224.4	90	259	90		
302.9	87.8	316.1	87.4	349	86.8	373.9	86	382.7	82.5		
391.5	79	392.6	78.2	394.8	77.4	397.1	76.9	402.5	75.9		
411.9	76.2	414.7	79	432.7	82.5	442.5	85	476.4	84		
509.1	83.3	527.5	84.4	544.6	85.3	581.7	86.9	595.7	87.9		
609.9	88.5	648.4	90	701.5	91.6	716	92.1				

Manning's n Values

num= 3					
Sta	n Val	Sta	n Val	Sta	n Val
150	.05	391.5	.03	414.7	.05

Bank Sta: Left Right Coeff Contr. Expan.

391.5	414.7	.3	.5
Ineffective Flow		num= 2	
Sta L	Sta R	Elev	Permanent
150	378	86.7	F
440	716	85.7	F

Downstream Deck/Roadway Coordinates

num= 57											
Sta	Hi	Cord	Lo Cord	Sta	Hi	Cord	Lo Cord	Sta	Hi	Cord	Lo Cord
85.9	87.7			91.2	89.8			123	90.7		
147.3	92			147.4	89.8			151.6	89.8		
151.7	91.7			159.9	91.4			181	91		
198.1	90.4			205	89.9			205.6	89.3		
212.3	89			213.3	89.8			238.1	88.6		
252.2	88.9			273.6	88.2			296.8	88		
325.5	88.2			339.4	87.6			340.2	87.1		
340.8	86.6			364.9	86.3			373.4	86.3		
373.4	89			376.4	89.8			377.4	89.8		
377.4	86.8	83.2		422.4	86.4	82.8		422.4	89.3		
423.4	89.3			426.4	88.5			426.4	85.8		
433.9	86.1			458.2	86.1			482.4	85.7		
485.1	85.7			485.1	87.4			507.9	87.8		
507.9	90.5			510.7	90.5			510.7	85.8		
527.2	86			527.2	90.4			530.1	90.4		
530.1	88.1			550.5	88.6			567.1	89.6		
582.8	90.6			596.4	91			602.5	88.2		
606	88			613.2	88.3			632.4	89		
654.8	89.9			675.9	91.6			679.6	93.9		

Downstream Bridge Cross Section Data

Station Elevation Data		num= 32									
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
141	90	150.4	88	205.2	87.4	221.2	87.1	239.8	86.5		
283.3	86.4	322.4	85.3	331	86.6	333.1	86.9	345.4	85.4		
367.8	85	375.6	82.5	385.8	79	390.3	76.5	395.3	75.4		
403.4	75.3	406.4	79	424.4	82.5	427.7	85	476.2	84.1		
485.1	85.5	510.7	85.8	527.1	86	556.7	87.3	580.4	87.9		
596.3	88.8	605.8	87.6	613.2	88.3	624	89.4	642.7	89.5		
654.4	89.8	662.3	90.1								

Manning's n Values

num= 3					
Sta	n Val	Sta	n Val	Sta	n Val
141	.05	385.8	.03	406.4	.05

Bridge No. 04969 - Proposed FLOODWAY
 Bank Sta: Left Right Coeff Contr. Expan.
 385.8 406.4 .3 .5
 Ineffective Flow num= 2
 Sta L Sta R Elev Permanent
 141 371 85.3 F
 430 662.3 84.5 F

Upstream Embankment side slope = 0 horiz. to 1.0 vertical
 Downstream Embankment side slope = 0 horiz. to 1.0 vertical
 Maximum allowable submergence for weir flow = .98
 Elevation at which weir flow begins =
 Energy head used in spillway design =
 Spillway height used in design =
 Weir crest shape = Broad Crested

Number of Bridge Coefficient Sets = 1

Low Flow Methods and Data

Energy
 Selected Low Flow Methods = Energy

High Flow Method

Pressure and Weir flow
 Submerged Inlet Cd =
 Submerged Inlet + Outlet Cd = .8
 Max Low Cord =

Additional Bridge Parameters

Add Friction component to Momentum
 Do not add Weight component to Momentum
 Class B flow critical depth computations use critical depth
 inside the bridge at the upstream end
 Criteria to check for pressure flow = Upstream water surface

CROSS SECTION

RIVER: Aspetuck River
 REACH: Bayberry Ln Ext RS: 9310

INPUT

Description: DOWNSTREAM Toe of Embankment - New RS
 Project Survey

Station		Elevation		Data		num= 32		Sta		Elev	
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
141	90	150.4	88	205.2	87.4	221.2	87.1	239.8	86.5		
283.3	86.4	322.4	85.3	331	86.6	333.1	86.9	345.4	85.4		
367.8	85	375.6	82.5	385.8	79	390.3	76.5	395.3	75.4		
403.4	75.3	406.4	79	424.4	82.5	427.7	85	476.2	84.1		
485.1	85.5	510.7	85.8	527.1	86	556.7	87.3	580.4	87.9		
596.3	88.8	605.8	87.6	613.2	88.3	624	89.4	642.7	89.5		
654.4	89.8	662.3	90.1								

Manning's n Values		num= 3		Sta		n Val	
Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
141	.05	385.8	.03	406.4	.05		

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff Contr.	Expan.
	385.8	406.4		50	65	.3	.5
Ineffective Flow	num= 2						
Sta L	Sta R	Elev	Permanent				
141	371	85.3	F				
430	662.3	84.5	F				

CROSS SECTION

RIVER: Aspetuck River

Bridge No. 04969 - Proposed FLOODWAY

REACH: Bayberry Ln Ext RS: 9245

INPUT

Description: EXIT Section - New RS
Project Survey

Station		Elevation		Data		num= 37					
Sta	El ev	Sta	El ev	Sta	El ev	Sta	El ev	Sta	El ev	Sta	El ev
170	90.1	237.7	88.4	249.9	88.3	268.5	86.5	290.9	85.5		
311.5	84.5	326.2	83.1	352.8	82.9	362.5	81.3	369.3	78.7		
374.1	78.6	380.3	79.2	383	78.9	386.5	79	389.5	78.4		
394.1	78.1	400	77.9	406.6	77.2	410.3	76.6	415.4	76.9		
423.4	77.7	436	77.9	446.1	77.8	451.8	79.5	456.6	80.6		
458.9	81.9	466.5	84.7	482.9	84.5	498.6	84.5	516.1	85.7		
535.9	86.4	553.3	87.4	595	87.8	619	88.2	636	88.3		
648	89	667	90.1								

Manning's n		Values		num= 3	
Sta	n Val	Sta	n Val	Sta	n Val
170	.05	386.5	.03	451.8	.05

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
	386.5	451.8		50	70		.1	.3
Ineffective Flow	num= 2							
Sta L	Sta R	El ev	Permanent					
170	355	82.9	F					
484	667	84.5	F					

CROSS SECTION

RIVER: Aspetuck River
REACH: Bayberry Ln Ext RS: 9175

INPUT

Description: New RS
Project Survey

Station		Elevation		Data		num= 29					
Sta	El ev	Sta	El ev	Sta	El ev	Sta	El ev	Sta	El ev	Sta	El ev
245.2	88.4	257.4	88.3	261.1	87.1	271.6	85.7	282.6	84.8		
305.5	83.6	309	82.8	319	83.3	345.7	83.4	352.3	82		
356.2	81.5	360	79.4	363.9	78.4	366.2	77.6	373.1	78		
377.3	78.5	385.2	78	391.8	77.9	400	77.7	405.4	76.6		
411.4	76.3	417.9	76.8	424.8	77.4	426.3	78.5	428.7	79.1		
434	82.6	449.2	87.5	453.3	88.1	465.5	89				

Manning's n		Values		num= 3	
Sta	n Val	Sta	n Val	Sta	n Val
245.2	.05	385.2	.03	426.3	.05

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
	385.2	426.3		80	125		.1	.3

CROSS SECTION

RIVER: Aspetuck River
REACH: Bayberry Ln Ext RS: 9050

INPUT

Description: New RS
Project Survey

Station		Elevation		Data		num= 22					
Sta	El ev	Sta	El ev	Sta	El ev	Sta	El ev	Sta	El ev	Sta	El ev
224	88.7	230.2	87	249.6	85.6	262	84.8	283.3	83.3		
301.4	82	314.1	82.1	327.5	82.5	335.8	81.2	347.2	80.4		
352.9	77.6	360.4	76.8	369.1	76.2	378.9	75.8	384.3	75.6		
396.1	75.8	402.5	76	408.2	77.7	415.3	83.5	423.5	87.4		
434.6	88.3	443	90								

Bridge No. 04969 - Proposed FLOODWAY

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val
 224 .05 352.9 .03 408.2 .05

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 352.9 408.2 761 696 676 .1 .3

CROSS SECTION

RIVER: Aspetuck River
 REACH: Bayberry Ln Ext RS: 8450

INPUT

Description: Original FEMA Section 8450 - Lettered Section 'E'

Station Elevation Data num= 9
 Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
 0 89 325 84 330 79 360 74 440 79
 450 84 490 89 500 94 515 99

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val
 0 .05 325 .03 440 .05

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 325 440 250 250 250 .3 .5

SUMMARY OF MANNING'S N VALUES

River: Aspetuck River

Reach	River Sta.	n1	n2	n3
Bayberry Ln Ext	10510	.05	.03	.05
Bayberry Ln Ext	9725	.05	.03	.05
Bayberry Ln Ext	9530	.05	.03	.05
Bayberry Ln Ext	9445	.05	.03	.05
Bayberry Ln Ext	9440	Inl Struct		
Bayberry Ln Ext	9435	.05	.03	.05
Bayberry Ln Ext	9400	.05	.03	.05
Bayberry Ln Ext	9365	.05	.03	.05
Bayberry Ln Ext	9335	Bridge		
Bayberry Ln Ext	9310	.05	.03	.05
Bayberry Ln Ext	9245	.05	.03	.05
Bayberry Ln Ext	9175	.05	.03	.05
Bayberry Ln Ext	9050	.05	.03	.05
Bayberry Ln Ext	8450	.05	.03	.05

SUMMARY OF REACH LENGTHS

River: Aspetuck River

Reach	River Sta.	Left	Channel	Right
Bayberry Ln Ext	10510	740	740	740
Bayberry Ln Ext	9725	204	204	204
Bayberry Ln Ext	9530	90	85	55
Bayberry Ln Ext	9445	10	10	10
Bayberry Ln Ext	9440	Inl Struct		
Bayberry Ln Ext	9435	40	35	20
Bayberry Ln Ext	9400	40	35	20
Bayberry Ln Ext	9365	55	55	55

		Bridge No. 04969 - Proposed FLOODWAY			
		Bridge			
Bayberry Ln Ext	9335				
Bayberry Ln Ext	9310	50	65	85	
Bayberry Ln Ext	9245	50	70	100	
Bayberry Ln Ext	9175	80	125	155	
Bayberry Ln Ext	9050	761	696	676	
Bayberry Ln Ext	8450	250	250	250	

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS
River: Aspetuck River

Reach	River Sta.	Contr.	Expan.
Bayberry Ln Ext	10510	.3	.5
Bayberry Ln Ext	9725	.3	.5
Bayberry Ln Ext	9530	.1	.3
Bayberry Ln Ext	9445	.1	.3
Bayberry Ln Ext	9440	Inl Struct	
Bayberry Ln Ext	9435	.1	.3
Bayberry Ln Ext	9400	.1	.3
Bayberry Ln Ext	9365	.3	.5
Bayberry Ln Ext	9335	Bridge	
Bayberry Ln Ext	9310	.3	.5
Bayberry Ln Ext	9245	.1	.3
Bayberry Ln Ext	9175	.1	.3
Bayberry Ln Ext	9050	.1	.3
Bayberry Ln Ext	8450	.3	.5

Profile Output Table - Standard Table 1

Reach	Q Total	Min Ch El	River Sta	Profile	Plan	Vel	Chnl
	Flow Area	Top Width	W. S. Froude #	Crit W. S. Chl	E. G. Elev	E. G. Slope	
	(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)
	(sq ft)	(ft)					
Bayberry Ln Ext	2300.00	89.00	10510	10-year w/o Enchr	Proposed FLOODWAY	45' Span	
	221.73	66.55	92.56	92.56	94.23	0.009277	10.37
			1.00				
Bayberry Ln Ext	2300.00	89.00	10510	10-year w/o Enchr	Existing FLOODWAY		
	221.73	66.55	92.56	92.56	94.23	0.009277	10.37
			1.00				
Bayberry Ln Ext	2300.00	89.00	10510	10-year FLOODWAY	Proposed FLOODWAY	45' Span	
	221.73	66.55	92.56	92.56	94.23	0.009277	10.37
			1.00				
Bayberry Ln Ext	2300.00	89.00	10510	10-year FLOODWAY	Existing FLOODWAY		
	221.73	66.55	92.56	92.56	94.23	0.009277	10.37
			1.00				
Bayberry Ln Ext	6100.00	89.00	10510	100-year w/o En	Proposed FLOODWAY	45' Span	
	651.76	229.51	96.22	96.22	98.32	0.004900	12.01
			0.81				
Bayberry Ln Ext	6100.00	89.00	10510	100-year w/o En	Existing FLOODWAY		
	651.76	229.51	96.22	96.22	98.32	0.004900	12.01
			0.81				
Bayberry Ln Ext	6100.00	89.00	10510	100-year FLOODWA	Proposed FLOODWAY	45' Span	
	612.71	175.68	96.14	96.14	98.31	0.005118	12.19
			0.83				
Bayberry Ln Ext	6100.00	89.00	10510	100-year FLOODWA	Existing FLOODWAY		
			96.43	96.14	98.33	0.004304	11.49

Bridge No. 04969 - Proposed FLOODWAY

663.63	177.00	0.77					
Bayberry Ln Ext	9725		10-year w/o Enchr	Proposed FLOODWAY	45'	Span	
2300.00	80.80	86.48		0.003021	8.17		
324.77	98.14	0.63					
Bayberry Ln Ext	9725		10-year w/o Enchr	Existing FLOODWAY			
2300.00	80.80	87.47		0.001573	6.62		
438.43	129.40	0.47					
Bayberry Ln Ext	9725		10-year FLOODWAY	Proposed FLOODWAY	45'	Span	
2300.00	80.80	87.13		0.002051	7.27		
345.56	65.00	0.53					
Bayberry Ln Ext	9725		10-year FLOODWAY	Existing FLOODWAY			
2300.00	80.80	89.11		0.000766	5.39		
474.34	65.00	0.34					
Bayberry Ln Ext	9725		100-year w/o Enchr	Proposed FLOODWAY	45'	Span	
6100.00	80.80	89.85		0.002946	11.23		
855.89	235.95	0.67					
Bayberry Ln Ext	9725		100-year w/o Enchr	Existing FLOODWAY			
6100.00	80.80	90.04		0.002666	10.84		
901.72	245.03	0.64					
Bayberry Ln Ext	9725		100-year FLOODWAY	Proposed FLOODWAY	45'	Span	
6100.00	80.80	94.98		0.000837	8.17		
855.63	65.00	0.39					
Bayberry Ln Ext	9725		100-year FLOODWAY	Existing FLOODWAY			
6100.00	80.80	95.93		0.000669	7.64		
917.82	65.00	0.35					
Bayberry Ln Ext	9530		10-year w/o Enchr	Proposed FLOODWAY	45'	Span	
2300.00	78.20	86.37		0.001285	6.36		
623.95	174.26	0.41					
Bayberry Ln Ext	9530		10-year w/o Enchr	Existing FLOODWAY			
2300.00	78.20	87.46		0.000667	5.03		
828.39	202.54	0.31					
Bayberry Ln Ext	9530		10-year FLOODWAY	Proposed FLOODWAY	45'	Span	
2300.00	78.20	86.26		0.002539	8.85		
310.10	50.00	0.58					
Bayberry Ln Ext	9530		10-year FLOODWAY	Existing FLOODWAY			
2300.00	78.20	88.74		0.000915	6.47		
434.27	50.00	0.37					
Bayberry Ln Ext	9530		100-year w/o Enchr	Proposed FLOODWAY	45'	Span	
6100.00	78.20	89.96		0.001346	8.50		
1493.91	322.84	0.45					
Bayberry Ln Ext	9530		100-year w/o Enchr	Existing FLOODWAY			
6100.00	78.20	90.15		0.001221	8.19		
1555.20	327.00	0.43					
Bayberry Ln Ext	9530		100-year FLOODWAY	Proposed FLOODWAY	45'	Span	
6100.00	78.20	93.75		0.001586	11.26		
684.76	50.00	0.52					
Bayberry Ln Ext	9530		100-year FLOODWAY	Existing FLOODWAY			
6100.00	78.20	94.92		0.001232	10.44		
742.92	50.00	0.46					
Bayberry Ln Ext	9445		10-year w/o Enchr	Proposed FLOODWAY	45'	Span	
2300.00	77.70	86.48		0.000530	4.22		
839.39	179.05	0.27					
Bayberry Ln Ext	9445		10-year w/o Enchr	Existing FLOODWAY			
2300.00	77.70	87.51		0.000326	3.61		
1040.86	216.81	0.22					
Bayberry Ln Ext	9445		10-year FLOODWAY	Proposed FLOODWAY	45'	Span	
2300.00	77.70	86.45		0.001220	6.38		
371.35	52.00	0.42					
Bayberry Ln Ext	9445		10-year FLOODWAY	Existing FLOODWAY			

		Bridge No. 04969 - Proposed FLOODWAY					
2300.00	77.70	88.85	83.22	89.20	0.000473	45'	4.80
496.11	52.00	0.27					
Bayberry Ln Ext	9445	100-year	w/o En	Proposed FLOODWAY		45'	Span
6100.00	77.70	90.03	85.59	90.45	0.000757		6.56
1696.54	311.16	0.35					
Bayberry Ln Ext	9445	100-year	w/o En	Existing FLOODWAY			
6100.00	77.70	90.21	85.59	90.60	0.000699		6.37
1751.93	314.91	0.34					
Bayberry Ln Ext	9445	100-year FLOODWA		Proposed FLOODWAY		45'	Span
6100.00	77.70	94.15	86.93	95.20	0.000780		8.24
771.89	52.00	0.38					
Bayberry Ln Ext	9445	100-year FLOODWA		Existing FLOODWAY			
6100.00	77.70	95.26	86.93	96.17	0.000615		7.68
829.55	52.00	0.34					
Bayberry Ln Ext	9440	Inl Struct					
Bayberry Ln Ext	9435	10-year	w/o Enchr	Proposed FLOODWAY		45'	Span
2300.00	77.70	86.42		86.62	0.000548		4.27
828.73	178.24	0.28					
Bayberry Ln Ext	9435	10-year	w/o Enchr	Existing FLOODWAY			
2300.00	77.70	87.48		87.62	0.000331		3.63
1034.25	215.71	0.22					
Bayberry Ln Ext	9435	10-year FLOODWAY		Proposed FLOODWAY		45'	Span
2300.00	77.70	86.16		86.84	0.001392		6.64
356.62	52.00	0.44					
Bayberry Ln Ext	9435	10-year FLOODWAY		Existing FLOODWAY			
2300.00	77.70	88.68		89.05	0.000501		4.89
487.47	52.00	0.28					
Bayberry Ln Ext	9435	100-year	w/o En	Proposed FLOODWAY		45'	Span
6100.00	77.70	89.96		90.38	0.000769		6.58
1675.36	303.42	0.35					
Bayberry Ln Ext	9435	100-year	w/o En	Existing FLOODWAY			
6100.00	77.70	90.12		90.52	0.000726		6.46
1724.66	313.07	0.34					
Bayberry Ln Ext	9435	100-year FLOODWA		Proposed FLOODWAY		45'	Span
6100.00	77.70	93.75		94.86	0.000853		8.47
751.07	52.00	0.39					
Bayberry Ln Ext	9435	100-year FLOODWA		Existing FLOODWAY			
6100.00	77.70	94.90		95.85	0.000663		7.85
810.76	52.00	0.35					
Bayberry Ln Ext	9400	10-year	w/o Enchr	Proposed FLOODWAY		45'	Span
2300.00	77.10	86.42	82.87	86.60	0.000443		3.94
908.55	193.42	0.25					
Bayberry Ln Ext	9400	10-year	w/o Enchr	Existing FLOODWAY			
2300.00	77.10	87.49	82.87	87.60	0.000253		3.26
1121.67	206.99	0.20					
Bayberry Ln Ext	9400	10-year FLOODWAY		Proposed FLOODWAY		45'	Span
2300.00	77.10	86.18	82.90	86.77	0.001138		6.19
375.21	52.00	0.40					
Bayberry Ln Ext	9400	10-year FLOODWAY		Existing FLOODWAY			
2300.00	77.10	88.69	82.90	89.02	0.000422		4.60
505.85	52.00	0.26					
Bayberry Ln Ext	9400	100-year	w/o En	Proposed FLOODWAY		45'	Span
6100.00	77.10	89.96	85.70	90.35	0.000679		6.32
1761.66	329.22	0.34					
Bayberry Ln Ext	9400	100-year	w/o En	Existing FLOODWAY			
6100.00	77.10	90.12	85.70	90.49	0.000636		6.18
1815.63	336.96	0.33					

		Bridge No.	04969 - Proposed FLOODWAY					
Bayberry Ln Ext	9400		100-year FLOODWA	Proposed FLOODWAY	45'	Span		
6100.00	77.10	93.80	85.71	94.80	0.000731	8.00		
771.48	52.00	0.37						
Bayberry Ln Ext	9400		100-year FLOODWA	Exi sti ng FLOODWAY		7.43		
6100.00	77.10	94.94	85.71	95.80	0.000571			
830.82	52.00	0.33						
Bayberry Ln Ext	9365		10-year w/o En cr	Proposed FLOODWAY	45'	Span		
2300.00	75.90	85.84	83.38	86.52	0.001411	7.75		
553.50	182.76	0.45						
Bayberry Ln Ext	9365		10-year w/o En cr	Exi sti ng FLOODWAY		6.13		
2300.00	75.90	87.18	83.55	87.56	0.000748			
811.24	257.77	0.33						
Bayberry Ln Ext	9365		10-year FLOODWAY	Proposed FLOODWAY	45'	Span		
2300.00	75.90	85.57	83.33	86.68	0.002060	9.18		
331.16	49.00	0.54						
Bayberry Ln Ext	9365		10-year FLOODWAY	Exi sti ng FLOODWAY		7.09		
2300.00	75.90	88.33	83.55	88.97	0.000872			
442.92	49.00	0.37						
Bayberry Ln Ext	9365		100-year w/o En	Proposed FLOODWAY	45'	Span		
6100.00	75.90	89.70	87.75	90.31	0.001170	8.93		
1649.30	375.74	0.44						
Bayberry Ln Ext	9365		100-year w/o En	Exi sti ng FLOODWAY		8.93		
6100.00	75.90	89.86	87.92	90.45	0.001176			
1672.12	382.80	0.43						
Bayberry Ln Ext	9365		100-year FLOODWA	Proposed FLOODWAY	45'	Span		
6100.00	75.90	92.61	87.63	94.66	0.001837	12.80		
676.22	49.00	0.57						
Bayberry Ln Ext	9365		100-year FLOODWA	Exi sti ng FLOODWAY		12.35		
6100.00	75.90	93.78	88.14	95.67	0.001591			
709.98	49.00	0.53						
Bayberry Ln Ext	9335							
Bri dge								
Bayberry Ln Ext	9310		10-year w/o En cr	Proposed FLOODWAY	45'	Span		
2300.00	75.30	83.51	83.51	85.89	0.005983	13.26		
228.94	53.28	0.87						
Bayberry Ln Ext	9310		10-year w/o En cr	Exi sti ng FLOODWAY		14.07		
2300.00	75.30	83.41	83.41	86.22	0.006873			
190.99	48.61	0.93						
Bayberry Ln Ext	9310		10-year FLOODWAY	Proposed FLOODWAY	45'	Span		
2300.00	75.30	83.44	83.44	85.89	0.006198	13.41		
222.67	48.00	0.88						
Bayberry Ln Ext	9310		10-year FLOODWAY	Exi sti ng FLOODWAY		14.07		
2300.00	75.30	83.41	83.41	86.22	0.006874			
190.97	45.38	0.93						
Bayberry Ln Ext	9310		100-year w/o En	Proposed FLOODWAY	45'	Span		
6100.00	75.30	88.43	88.43	89.64	0.002529	12.18		
1333.35	456.49	0.62						
Bayberry Ln Ext	9310		100-year w/o En	Exi sti ng FLOODWAY		12.13		
6100.00	75.30	88.49	88.49	89.70	0.002488			
1343.92	459.07	0.61						
Bayberry Ln Ext	9310		100-year FLOODWA	Proposed FLOODWAY	45'	Span		
6100.00	75.30	87.98	87.83	92.62	0.006708	19.35		
440.44	48.00	1.00						
Bayberry Ln Ext	9310		100-year FLOODWA	Exi sti ng FLOODWAY		19.47		
6100.00	75.30	88.18	88.18	92.95	0.006638			
434.55	48.00	1.00						

Bridge No. 04969 - Proposed FLOODWAY

Bayberry Ln Ext	9245		10-year w/o Enchr	Proposed FLOODWAY	45'	Span
2300.00	76.60	82.88	81.00	83.39	0.001705	6.05
448.79	108.60	0.47				
Bayberry Ln Ext	9245		10-year w/o Enchr	Existing FLOODWAY		6.05
2300.00	76.60	82.88	81.00	83.39	0.001705	
448.79	108.60	0.47				
Bayberry Ln Ext	9245		10-year FLOODWAY	Proposed FLOODWAY	45'	Span
2300.00	76.60	83.80	81.13	84.33	0.001264	5.82
398.24	66.00	0.42				
Bayberry Ln Ext	9245		10-year FLOODWAY	Existing FLOODWAY		5.82
2300.00	76.60	83.80	81.13	84.33	0.001264	
398.24	66.00	0.42				
Bayberry Ln Ext	9245		100-year w/o En	Proposed FLOODWAY	45'	Span
6100.00	76.60	87.03	82.90	87.73	0.001217	7.59
1274.12	283.83	0.44				
Bayberry Ln Ext	9245		100-year w/o En	Existing FLOODWAY		7.59
6100.00	76.60	87.03	82.90	87.73	0.001217	
1274.12	283.83	0.44				
Bayberry Ln Ext	9245		100-year FLOODWA	Proposed FLOODWAY	45'	Span
6100.00	76.60	89.70	82.91	90.65	0.000921	7.82
787.25	66.00	0.40				
Bayberry Ln Ext	9245		100-year FLOODWA	Existing FLOODWAY		7.82
6100.00	76.60	89.70	82.91	90.65	0.000921	
787.25	66.00	0.40				
Bayberry Ln Ext	9175		10-year w/o Enchr	Proposed FLOODWAY	45'	Span
2300.00	76.30	82.05		83.15	0.004345	9.23
316.47	81.09	0.74				
Bayberry Ln Ext	9175		10-year w/o Enchr	Existing FLOODWAY		9.23
2300.00	76.30	82.05		83.15	0.004345	
316.47	81.09	0.74				
Bayberry Ln Ext	9175		10-year FLOODWAY	Proposed FLOODWAY	45'	Span
2300.00	76.30	81.73	81.73	83.97	0.008245	12.15
200.67	46.00	1.01				
Bayberry Ln Ext	9175		10-year FLOODWAY	Existing FLOODWAY		12.15
2300.00	76.30	81.73	81.73	83.97	0.008245	
200.67	46.00	1.01				
Bayberry Ln Ext	9175		100-year w/o En	Proposed FLOODWAY	45'	Span
6100.00	76.30	85.15	85.15	87.42	0.005016	13.82
695.01	163.66	0.87				
Bayberry Ln Ext	9175		100-year w/o En	Existing FLOODWAY		13.82
6100.00	76.30	85.15	85.15	87.42	0.005016	
695.01	163.66	0.87				
Bayberry Ln Ext	9175		100-year FLOODWA	Proposed FLOODWAY	45'	Span
6100.00	76.30	85.83	85.83	90.17	0.006713	16.89
389.28	46.00	1.02				
Bayberry Ln Ext	9175		100-year FLOODWA	Existing FLOODWAY		16.89
6100.00	76.30	85.83	85.83	90.17	0.006713	
389.28	46.00	1.02				
Bayberry Ln Ext	9050		10-year w/o Enchr	Proposed FLOODWAY	45'	Span
2300.00	75.60	81.96		82.71	0.001967	7.01
360.53	82.49	0.52				
Bayberry Ln Ext	9050		10-year w/o Enchr	Existing FLOODWAY		7.01
2300.00	75.60	81.96		82.71	0.001967	
360.53	82.49	0.52				
Bayberry Ln Ext	9050		10-year FLOODWAY	Proposed FLOODWAY	45'	Span
2300.00	75.60	81.81		82.65	0.002273	7.40
318.80	58.00	0.55				
Bayberry Ln Ext	9050		10-year FLOODWAY	Existing FLOODWAY		7.40
2300.00	75.60	81.81		82.65	0.002273	
318.80	58.00	0.55				
Bayberry Ln Ext	9050		100-year w/o En	Proposed FLOODWAY	45'	Span

Bridge No. 04969 - Proposed FLOODWAY									
6100.00	75.60	84.82	83.76	86.55	0.002927	11.20			
736.18	156.47	0.67							
Bayberry Ln Ext 9050 100-year w/o En Existing FLOODWAY									
6100.00	75.60	84.82	83.76	86.55	0.002927	11.20			
736.18	156.47	0.67							
Bayberry Ln Ext 9050 100-year FLOODWAY Proposed FLOODWAY 45' Span									
6100.00	75.60	84.38		87.17	0.004523	13.44			
467.95	58.00	0.83							
Bayberry Ln Ext 9050 100-year FLOODWAY Existing FLOODWAY									
6100.00	75.60	84.38		87.17	0.004523	13.44			
467.95	58.00	0.83							
Bayberry Ln Ext 8450 10-year w/o Encl Proposed FLOODWAY 45' Span									
2300.00	74.00	78.90	78.86	80.08	0.009424	8.71			
264.11	107.80	0.98							
Bayberry Ln Ext 8450 10-year w/o Encl Existing FLOODWAY									
2300.00	74.00	78.90	78.86	80.08	0.009424	8.71			
264.11	107.80	0.98							
Bayberry Ln Ext 8450 10-year FLOODWAY Proposed FLOODWAY 45' Span									
2300.00	74.00	79.20	78.86	80.13	0.006584	7.74			
297.02	110.20	0.83							
Bayberry Ln Ext 8450 10-year FLOODWAY Existing FLOODWAY									
2300.00	74.00	79.20	78.86	80.13	0.006584	7.74			
297.02	110.20	0.83							
Bayberry Ln Ext 8450 100-year w/o Encl Proposed FLOODWAY 45' Span									
6100.00	74.00	81.10	81.08	83.33	0.007932	11.98			
512.61	116.30	0.99							
Bayberry Ln Ext 8450 100-year w/o Encl Existing FLOODWAY									
6100.00	74.00	81.10	81.08	83.33	0.007932	11.98			
512.61	116.30	0.99							
Bayberry Ln Ext 8450 100-year FLOODWAY Proposed FLOODWAY 45' Span									
6100.00	74.00	81.80	81.08	83.48	0.005147	10.39			
586.92	112.80	0.80							
Bayberry Ln Ext 8450 100-year FLOODWAY Existing FLOODWAY									
6100.00	74.00	81.80	81.08	83.48	0.005147	10.39			
586.92	112.80	0.80							

Profile Output Table - Standard Table 2

Reach	E. G. Elev	W. S. Elev	River Sta	Profile	Plan	Q Left	Q Channel	Q
Right	Top	Width	Vel	Frctn	C & E			
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(cfs)	(cfs)	
(cfs)	(ft)							
Bayberry Ln Ext	94.23	92.56	10510	10-year w/o Encl	Proposed FLOODWAY	45' Span	2300.00	
		66.55		3.63	0.34			
Bayberry Ln Ext	94.23	92.56	10510	10-year w/o Encl	Existing FLOODWAY	2300.00		
		66.55		2.34	0.52			
Bayberry Ln Ext	94.23	92.56	10510	10-year FLOODWAY	Proposed FLOODWAY	45' Span	2300.00	
		66.55		2.81	0.44			
Bayberry Ln Ext	94.23	92.56	10510	10-year FLOODWAY	Existing FLOODWAY	2300.00		
		66.55		1.37	0.62			
Bayberry Ln Ext			10510	100-year w/o Encl	Proposed FLOODWAY	45' Span		

		Bridge No.	04969 - Proposed FLOODWAY			
98.32	96.22		2.10	2.77	0.24	289.62 5706.64
103.74	229.51					
Bayberry Ln Ext	10510		100-year w/o En	Existing FLOODWAY		
98.32	96.22		2.10	2.61	0.31	289.62 5706.64
103.74	229.51					
Bayberry Ln Ext	10510		100-year FLOODWA	Proposed FLOODWAY	45' Span	
98.31	96.14		2.17	1.26	0.60	277.41 5725.81
96.78	175.68					
Bayberry Ln Ext	10510		100-year FLOODWA	Existing FLOODWAY		
98.33	96.43		1.90	1.02	0.52	338.26 5631.65
130.09	177.00					
Bayberry Ln Ext	9725		10-year w/o En	Proposed FLOODWAY	45' Span	
87.47	86.48		0.99	0.38	0.28	50.81 2194.08
55.11	98.14					
Bayberry Ln Ext	9725		10-year w/o En	Existing FLOODWAY		
88.10	87.47		0.63	0.20	0.19	63.95 2115.78
120.27	129.40					
Bayberry Ln Ext	9725		10-year FLOODWAY	Proposed FLOODWAY	45' Span	
87.92	87.13		0.79	0.46	0.09	57.07 2197.34
45.60	65.00					
Bayberry Ln Ext	9725		10-year FLOODWAY	Existing FLOODWAY		
89.54	89.11		0.43	0.17	0.05	71.10 2175.44
53.46	65.00					
Bayberry Ln Ext	9725		100-year w/o En	Proposed FLOODWAY	45' Span	
91.47	89.85		1.62	0.39	0.50	357.67 4958.72
783.61	235.95					
Bayberry Ln Ext	9725		100-year w/o En	Existing FLOODWAY		
91.53	90.04		1.49	0.35	0.46	376.70 4891.43
831.86	245.03					
Bayberry Ln Ext	9725		100-year FLOODWA	Proposed FLOODWAY	45' Span	
95.96	94.98		0.98	0.23	0.23	206.54 5747.94
145.53	65.00					
Bayberry Ln Ext	9725		100-year FLOODWA	Existing FLOODWAY		
96.79	95.93		0.86	0.18	0.19	205.27 5750.88
143.85	65.00					
Bayberry Ln Ext	9530		10-year w/o En	Proposed FLOODWAY	45' Span	
86.80	86.37		0.43	0.06	0.07	52.45 1495.18
752.37	174.26					
Bayberry Ln Ext	9530		10-year w/o En	Existing FLOODWAY		
87.71	87.46		0.25	0.03	0.03	53.64 1359.10
887.26	202.54					
Bayberry Ln Ext	9530		10-year FLOODWAY	Proposed FLOODWAY	45' Span	
87.36	86.26		1.10	0.14	0.14	52.26 2047.78
199.97	50.00					
Bayberry Ln Ext	9530		10-year FLOODWAY	Existing FLOODWAY		
89.32	88.74		0.58	0.05	0.07	60.95 2015.65
223.40	50.00					
Bayberry Ln Ext	9530		100-year w/o En	Proposed FLOODWAY	45' Span	
90.57	89.96		0.61	0.07	0.06	202.39 2981.86
2915.75	322.84					
Bayberry Ln Ext	9530		100-year w/o En	Existing FLOODWAY		
90.71	90.15		0.56	0.06	0.05	214.36 2922.23
2963.41	327.00					
Bayberry Ln Ext	9530		100-year FLOODWA	Proposed FLOODWAY	45' Span	
95.50	93.75		1.75	0.09	0.21	165.69 5321.59
612.72	50.00					
Bayberry Ln Ext	9530		100-year FLOODWA	Existing FLOODWAY		
96.42	94.92		1.50	0.07	0.18	164.06 5326.08
609.86	50.00					

		Bridge No.	04969 - Proposed FLOODWAY			
Bayberry Ln Ext	9445	10-year w/o Enchr	Proposed FLOODWAY	45' Span		
86.67	86.48	0.20	9.50	1516.40		
774.10	179.05					
Bayberry Ln Ext	9445	10-year w/o Enchr	Existing FLOODWAY			
87.65	87.51	0.14	12.88	1480.83		
806.29	216.81					
Bayberry Ln Ext	9445	10-year FLOODWAY	Proposed FLOODWAY	45' Span		
87.08	86.45	0.63	5.12	2284.67		
10.21	52.00					
Bayberry Ln Ext	9445	10-year FLOODWAY	Existing FLOODWAY			
89.20	88.85	0.36	5.54	2284.45		
10.01	52.00					
Bayberry Ln Ext	9445	100-year w/o En	Proposed FLOODWAY	45' Span		
90.45	90.03	0.42	72.28	3497.83		
2529.89	311.16					
Bayberry Ln Ext	9445	100-year w/o En	Existing FLOODWAY			
90.60	90.21	0.39	76.65	3452.81		
2570.54	314.91					
Bayberry Ln Ext	9445	100-year FLOODWA	Proposed FLOODWAY	45' Span		
95.20	94.15	1.05	13.86	6062.77		
23.37	52.00					
Bayberry Ln Ext	9445	100-year FLOODWA	Existing FLOODWAY			
96.17	95.26	0.91	13.57	6063.71		
22.72	52.00					

Bayberry Ln Ext 9440
Inl Struct

Bayberry Ln Ext	9435	10-year w/o Enchr	Proposed FLOODWAY	45' Span		
86.62	86.42	0.20	0.01	1521.37		
769.23	178.24					
Bayberry Ln Ext	9435	10-year w/o Enchr	Existing FLOODWAY			
87.62	87.48	0.14	0.01	1482.47		
804.77	215.71					
Bayberry Ln Ext	9435	10-year FLOODWAY	Proposed FLOODWAY	45' Span		
86.84	86.16	0.68	0.04	2284.82		
10.18	52.00					
Bayberry Ln Ext	9435	10-year FLOODWAY	Existing FLOODWAY			
89.05	88.68	0.37	0.02	2284.43		
10.04	52.00					
Bayberry Ln Ext	9435	100-year w/o En	Proposed FLOODWAY	45' Span		
90.38	89.96	0.42	0.02	3489.36		
2540.53	303.42					
Bayberry Ln Ext	9435	100-year w/o En	Existing FLOODWAY			
90.52	90.12	0.40	0.02	3474.71		
2550.81	313.07					
Bayberry Ln Ext	9435	100-year FLOODWA	Proposed FLOODWAY	45' Span		
94.86	93.75	1.11	0.03	6062.43		
23.61	52.00					
Bayberry Ln Ext	9435	100-year FLOODWA	Existing FLOODWAY			
95.85	94.90	0.95	0.02	6063.41		
22.93	52.00					

Bayberry Ln Ext	9400	10-year w/o Enchr	Proposed FLOODWAY	45' Span		
86.60	86.42	0.17	0.02	1514.22		
773.52	193.42					
Bayberry Ln Ext	9400	10-year w/o Enchr	Existing FLOODWAY			
87.60	87.49	0.11	0.01	1429.48		
852.84	206.99					
Bayberry Ln Ext	9400	10-year FLOODWAY	Proposed FLOODWAY	45' Span		
86.77	86.18	0.59	0.05	2297.85		

Bridge No. 04969 - Proposed FLOODWAY

0.34	52.00							
Bayberry Ln Ext	9400			10-year FLOODWAY	Existing FLOODWAY			
89.02	88.69	0.33		0.02	0.03	1.76	2297.93	
0.31	52.00							
Bayberry Ln Ext	9400			100-year w/o En	Proposed FLOODWAY	45' Span		
90.35	89.96	0.39		0.03	0.02	107.14	3570.01	
2422.85	329.22							
Bayberry Ln Ext	9400			100-year w/o En	Existing FLOODWAY			
90.49	90.12	0.37		0.02	0.02	114.02	3539.30	
2446.68	336.96							
Bayberry Ln Ext	9400			100-year FLOODWA	Proposed FLOODWAY	45' Span		
94.80	93.80	0.99		0.04	0.10	4.06	6095.25	
0.69	52.00							
Bayberry Ln Ext	9400			100-year FLOODWA	Existing FLOODWAY			
95.80	94.94	0.86		0.03	0.10	3.94	6095.40	
0.67	52.00							
Bayberry Ln Ext	9365			10-year w/o En	Proposed FLOODWAY	45' Span		
86.52	85.84	0.68			154.02	1640.05		
505.93	182.76							
Bayberry Ln Ext	9365			10-year w/o En	Existing FLOODWAY			
87.56	87.18	0.38			127.24	1436.02		
736.75	257.77							
Bayberry Ln Ext	9365			10-year FLOODWAY	Proposed FLOODWAY	45' Span		
86.68	85.57	1.10			136.03	1885.00		
278.97	49.00							
Bayberry Ln Ext	9365			10-year FLOODWAY	Existing FLOODWAY			
88.97	88.33	0.64			188.74	1839.88		
271.39	49.00							
Bayberry Ln Ext	9365			100-year w/o En	Proposed FLOODWAY	45' Span		
90.31	89.70	0.60			723.54	2689.68		
2686.78	375.74							
Bayberry Ln Ext	9365			100-year w/o En	Existing FLOODWAY			
90.45	89.86	0.59			802.56	2621.95		
2675.50	382.80							
Bayberry Ln Ext	9365			100-year FLOODWA	Proposed FLOODWAY	45' Span		
94.66	92.61	2.04			444.72	4720.21		
935.07	49.00							
Bayberry Ln Ext	9365			100-year FLOODWA	Existing FLOODWAY			
95.67	93.78	1.89			531.68	4700.43		
867.89	49.00							
Bayberry Ln Ext	9335							
Bridge								
Bayberry Ln Ext	9310			10-year w/o En	Proposed FLOODWAY	45' Span		
85.89	83.51	2.38		0.19	0.93	112.43	1973.55	
214.02	53.28							
Bayberry Ln Ext	9310			10-year w/o En	Existing FLOODWAY			
86.22	83.41	2.81		0.20	1.15	95.61	2065.48	
138.91	48.61							
Bayberry Ln Ext	9310			10-year FLOODWAY	Proposed FLOODWAY	45' Span		
85.89	83.44	2.44		0.16	0.96	112.43	1978.28	
209.29	48.00							
Bayberry Ln Ext	9310			10-year FLOODWAY	Existing FLOODWAY			
86.22	83.41	2.81		0.16	1.14	95.60	2065.50	
138.90	45.38							
Bayberry Ln Ext	9310			100-year w/o En	Proposed FLOODWAY	45' Span		
89.64	88.43	1.22		0.11	0.26	1288.77	3047.34	
1763.89	456.49							
Bayberry Ln Ext	9310			100-year w/o En	Existing FLOODWAY			

		Bridge No. 04969 - Proposed		FLOODWAY			
89.70	88.49		1.20	0.11	0.25	1341.17	3049.60
1709.23	459.07						
Bayberry Ln Ext	9310			100-year FLOODWA	Proposed FLOODWAY	45' Span	
92.62	87.98	4.64		0.13	1.85	472.89	4663.11
964.00	48.00						
Bayberry Ln Ext	9310			100-year FLOODWA	Existing FLOODWAY		
92.95	88.18	4.77		0.13	1.91	487.91	4770.72
841.37	48.00						
Bayberry Ln Ext	9245			10-year w/o Encl	Proposed FLOODWAY	45' Span	
83.39	82.88	0.51		0.17	0.06	243.23	2023.13
33.63	108.60						
Bayberry Ln Ext	9245			10-year w/o Encl	Existing FLOODWAY		
83.39	82.88	0.51		0.17	0.06	243.23	2023.13
33.63	108.60						
Bayberry Ln Ext	9245			10-year FLOODWAY	Proposed FLOODWAY	45' Span	
84.33	83.80	0.53		0.18	0.17	1.50	2298.20
0.30	66.00						
Bayberry Ln Ext	9245			10-year FLOODWAY	Existing FLOODWAY		
84.33	83.80	0.53		0.18	0.17	1.50	2298.20
0.30	66.00						
Bayberry Ln Ext	9245			100-year w/o En	Proposed FLOODWAY	45' Span	
87.73	87.03	0.70		0.15	0.16	1129.26	4600.18
370.56	283.83						
Bayberry Ln Ext	9245			100-year w/o En	Existing FLOODWAY		
87.73	87.03	0.70		0.15	0.16	1129.26	4600.18
370.56	283.83						
Bayberry Ln Ext	9245			100-year FLOODWA	Proposed FLOODWAY	45' Span	
90.65	89.70	0.95		0.14	0.34	2.95	6096.43
0.62	66.00						
Bayberry Ln Ext	9245			100-year FLOODWA	Existing FLOODWAY		
90.65	89.70	0.95		0.14	0.34	2.95	6096.43
0.62	66.00						
Bayberry Ln Ext	9175			10-year w/o Encl	Proposed FLOODWAY	45' Span	
83.15	82.05	1.10		0.34	0.11	429.87	1827.87
42.26	81.09						
Bayberry Ln Ext	9175			10-year w/o Encl	Existing FLOODWAY		
83.15	82.05	1.10		0.34	0.11	429.87	1827.87
42.26	81.09						
Bayberry Ln Ext	9175			10-year FLOODWAY	Proposed FLOODWAY	45' Span	
83.97	81.73	2.24		0.49	0.42	27.05	2245.66
27.29	46.00						
Bayberry Ln Ext	9175			10-year FLOODWAY	Existing FLOODWAY		
83.97	81.73	2.24		0.49	0.42	27.05	2245.66
27.29	46.00						
Bayberry Ln Ext	9175			100-year w/o En	Proposed FLOODWAY	45' Span	
87.42	85.15	2.27		0.44	0.16	1397.01	4501.05
201.94	163.66						
Bayberry Ln Ext	9175			100-year w/o En	Existing FLOODWAY		
87.42	85.15	2.27		0.44	0.16	1397.01	4501.05
201.94	163.66						
Bayberry Ln Ext	9175			100-year FLOODWA	Proposed FLOODWAY	45' Span	
90.17	85.83	4.34		0.68	0.46	59.79	5966.97
73.23	46.00						
Bayberry Ln Ext	9175			100-year FLOODWA	Existing FLOODWAY		
90.17	85.83	4.34		0.68	0.46	59.79	5966.97
73.23	46.00						
Bayberry Ln Ext	9050			10-year w/o Encl	Proposed FLOODWAY	45' Span	
82.71	81.96	0.74		2.58	0.04	53.06	2226.46
20.49	82.49						

Bridge No. 04969 - Proposed FLOODWAY									
Bayberry Ln Ext	9050	10-year w/o Enchr	Existing FLOODWAY						
82.71 81.96	0.74	2.58	0.04	53.06	2226.46				
20.49 82.49									
Bayberry Ln Ext	9050	10-year FLOODWAY	Proposed FLOODWAY	45' Span					
82.65 81.81	0.85	2.51	0.01	12.10	2284.61				
3.29 58.00									
Bayberry Ln Ext	9050	10-year FLOODWAY	Existing FLOODWAY						
82.65 81.81	0.85	2.51	0.01	12.10	2284.61				
3.29 58.00									
Bayberry Ln Ext	9050	100-year w/o En	Proposed FLOODWAY	45' Span					
86.55 84.82	1.72	3.17	0.05	674.05	5329.18				
96.77 156.47									
Bayberry Ln Ext	9050	100-year w/o En	Existing FLOODWAY						
86.55 84.82	1.72	3.17	0.05	674.05	5329.18				
96.77 156.47									
Bayberry Ln Ext	9050	100-year FLOODWA	Proposed FLOODWAY	45' Span					
87.17 84.38	2.79	3.36	0.33	31.49	6060.35				
8.16 58.00									
Bayberry Ln Ext	9050	100-year FLOODWA	Existing FLOODWAY						
87.17 84.38	2.79	3.36	0.33	31.49	6060.35				
8.16 58.00									
Bayberry Ln Ext	8450	10-year w/o Enchr	Proposed FLOODWAY	45' Span					
80.08 78.90	1.18			2300.00					
107.80									
Bayberry Ln Ext	8450	10-year w/o Enchr	Existing FLOODWAY						
80.08 78.90	1.18			2300.00					
107.80									
Bayberry Ln Ext	8450	10-year FLOODWAY	Proposed FLOODWAY	45' Span					
80.13 79.20	0.93			2300.00					
110.20									
Bayberry Ln Ext	8450	10-year FLOODWAY	Existing FLOODWAY						
80.13 79.20	0.93			2300.00					
110.20									
Bayberry Ln Ext	8450	100-year w/o En	Proposed FLOODWAY	45' Span					
83.33 81.10	2.23			6088.81					
11.19 116.30									
Bayberry Ln Ext	8450	100-year w/o En	Existing FLOODWAY						
83.33 81.10	2.23			6088.81					
11.19 116.30									
Bayberry Ln Ext	8450	100-year FLOODWA	Proposed FLOODWAY	45' Span					
83.48 81.80	1.68			6100.00					
112.80									
Bayberry Ln Ext	8450	100-year FLOODWA	Existing FLOODWAY						
83.48 81.80	1.68			6100.00					
112.80									

Profile Output Table - Encroachment 1

Reach	W. S. Elev	Prof Enc Sta L	River Delta WS Ch Sta L	Sta E. G. Ch Sta R	Profile Elev Enc Sta R	Top Width Act	Plan Q Left	Q Channel	Q Right
	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(cfs)	(cfs)	(cfs)
Bayberry Ln Ext	92.56		10510		94.23	66.55	Proposed FLOODWAY	45' Span	2300.00
		335.00		405.00					

		Bridge No. 04969 - Proposed		FLOODWAY			
Bayberry Ln Ext	10510			10-year w/o Encl	Existing FLOODWAY		
92.56		94.23	66.55		2300.00		
	335.00	405.00					
Bayberry Ln Ext	10510			10-year FLOODWAY	Proposed FLOODWAY 45'	Span	
92.56	0.00	94.23	66.55		2300.00		
270.00	335.00	405.00	447.00				
Bayberry Ln Ext	10510			10-year FLOODWAY	Existing FLOODWAY		
92.56	0.00	94.23	66.55		2300.00		
270.00	335.00	405.00	447.00				
Bayberry Ln Ext	10510			100-year w/o En	Proposed FLOODWAY 45'	Span	
96.22	3.65	98.32	229.51		289.62	5706.64	103.74
	335.00	405.00					
Bayberry Ln Ext	10510			100-year w/o En	Existing FLOODWAY		
96.22	3.65	98.32	229.51		289.62	5706.64	103.74
	335.00	405.00					
Bayberry Ln Ext	10510			100-year FLOODWA	Proposed FLOODWAY 45'	Span	
96.14	3.58	98.31	175.68		277.41	5725.81	96.78
270.00	335.00	405.00	447.00				
Bayberry Ln Ext	10510			100-year FLOODWA	Existing FLOODWAY		
96.43	3.87	98.33	177.00		338.26	5631.65	130.09
270.00	335.00	405.00	447.00				
Bayberry Ln Ext	9725			10-year w/o Encl	Proposed FLOODWAY 45'	Span	
86.48		87.47	98.14		50.81	2194.08	55.11
	375.80	427.00					
Bayberry Ln Ext	9725			10-year w/o Encl	Existing FLOODWAY		
87.47		88.10	129.40		63.95	2115.78	120.27
	375.80	427.00					
Bayberry Ln Ext	9725			10-year FLOODWAY	Proposed FLOODWAY 45'	Span	
87.13	0.65	87.92	65.00		57.07	2197.34	45.60
368.00	375.80	427.00	433.00				
Bayberry Ln Ext	9725			10-year FLOODWAY	Existing FLOODWAY		
89.11	1.64	89.54	65.00		71.10	2175.44	53.46
368.00	375.80	427.00	433.00				
Bayberry Ln Ext	9725			100-year w/o En	Proposed FLOODWAY 45'	Span	
89.85	3.38	91.47	235.95		357.67	4958.72	783.61
	375.80	427.00					
Bayberry Ln Ext	9725			100-year w/o En	Existing FLOODWAY		
90.04	2.57	91.53	245.03		376.70	4891.43	831.86
	375.80	427.00					
Bayberry Ln Ext	9725			100-year FLOODWA	Proposed FLOODWAY 45'	Span	
94.98	8.50	95.96	65.00		206.54	5747.94	145.53
368.00	375.80	427.00	433.00				
Bayberry Ln Ext	9725			100-year FLOODWA	Existing FLOODWAY		
95.93	8.46	96.79	65.00		205.27	5750.88	143.85
368.00	375.80	427.00	433.00				
Bayberry Ln Ext	9530			10-year w/o Encl	Proposed FLOODWAY 45'	Span	
86.37		86.80	174.26		52.45	1495.18	752.37
	390.20	422.40					
Bayberry Ln Ext	9530			10-year w/o Encl	Existing FLOODWAY		
87.46		87.71	202.54		53.64	1359.10	887.26
	390.20	422.40					
Bayberry Ln Ext	9530			10-year FLOODWAY	Proposed FLOODWAY 45'	Span	
86.26	-0.11	87.36	50.00		52.26	2047.78	199.97
385.00	390.20	422.40	435.00				
Bayberry Ln Ext	9530			10-year FLOODWAY	Existing FLOODWAY		
88.74	1.28	89.32	50.00		60.95	2015.65	223.40
385.00	390.20	422.40	435.00				
Bayberry Ln Ext	9530			100-year w/o En	Proposed FLOODWAY 45'	Span	
89.96	3.59	90.57	322.84		202.39	2981.86	2915.75
	390.20	422.40					
Bayberry Ln Ext	9530			100-year w/o En	Existing FLOODWAY		
90.15	2.69	90.71	327.00		214.36	2922.23	2963.41

Bridge No. 04969 - Proposed FLOODWAY

Bayberry Ln Ext	390.20	422.40	100-year FLOODWA	Proposed FLOODWAY 45'	Span
93.75	7.38	95.50	50.00	165.69	612.72
385.00	390.20	422.40	435.00	5321.59	
Bayberry Ln Ext	9530		100-year FLOODWA	Existing FLOODWAY	
94.92	7.45	96.42	50.00	164.06	609.86
385.00	390.20	422.40	435.00	5326.08	
Bayberry Ln Ext	9445		10-year w/o Encl	Proposed FLOODWAY 45'	Span
86.48		86.67	179.05	9.50	774.10
	391.30	440.30		1516.40	
Bayberry Ln Ext	9445		10-year w/o Encl	Existing FLOODWAY	
87.51		87.65	216.81	12.88	806.29
	391.30	440.30		1480.83	
Bayberry Ln Ext	9445		10-year FLOODWAY	Proposed FLOODWAY 45'	Span
86.45	-0.03	87.08	52.00	5.12	10.21
390.00	391.30	440.30	442.00	2284.67	
Bayberry Ln Ext	9445		10-year FLOODWAY	Existing FLOODWAY	
88.85	1.34	89.20	52.00	5.54	10.01
390.00	391.30	440.30	442.00	2284.45	
Bayberry Ln Ext	9445		100-year w/o En	Proposed FLOODWAY 45'	Span
90.03	3.55	90.45	311.16	72.28	2529.89
	391.30	440.30		3497.83	
Bayberry Ln Ext	9445		100-year w/o En	Existing FLOODWAY	
90.21	2.70	90.60	314.91	76.65	2570.54
	391.30	440.30		3452.81	
Bayberry Ln Ext	9445		100-year FLOODWA	Proposed FLOODWAY 45'	Span
94.15	7.67	95.20	52.00	13.86	23.37
390.00	391.30	440.30	442.00	6062.77	
Bayberry Ln Ext	9445		100-year FLOODWA	Existing FLOODWAY	
95.26	7.75	96.17	52.00	13.57	22.72
390.00	391.30	440.30	442.00	6063.71	
Bayberry Ln Ext	9440				
Inl Struct					
Bayberry Ln Ext	9435		10-year w/o Encl	Proposed FLOODWAY 45'	Span
86.42		86.62	178.24	9.40	769.23
	391.30	440.30		1521.37	
Bayberry Ln Ext	9435		10-year w/o Encl	Existing FLOODWAY	
87.48		87.62	215.71	12.76	804.77
	391.30	440.30		1482.47	
Bayberry Ln Ext	9435		10-year FLOODWAY	Proposed FLOODWAY 45'	Span
86.16	-0.25	86.84	52.00	5.00	10.18
390.00	391.30	440.30	442.00	2284.82	
Bayberry Ln Ext	9435		10-year FLOODWAY	Existing FLOODWAY	
88.68	1.20	89.05	52.00	5.53	10.04
390.00	391.30	440.30	442.00	2284.43	
Bayberry Ln Ext	9435		100-year w/o En	Proposed FLOODWAY 45'	Span
89.96	3.54	90.38	303.42	70.11	2540.53
	391.30	440.30		3489.36	
Bayberry Ln Ext	9435		100-year w/o En	Existing FLOODWAY	
90.12	2.64	90.52	313.07	74.48	2550.81
	391.30	440.30		3474.71	
Bayberry Ln Ext	9435		100-year FLOODWA	Proposed FLOODWAY 45'	Span
93.75	7.33	94.86	52.00	13.96	23.61
390.00	391.30	440.30	442.00	6062.43	
Bayberry Ln Ext	9435		100-year FLOODWA	Existing FLOODWAY	
94.90	7.42	95.85	52.00	13.66	22.93
390.00	391.30	440.30	442.00	6063.41	

Bridge No. 04969 - Proposed FLOODWAY

Bayberry Ln Ext	9400		10-year w/o Encl	Proposed FLOODWAY 45'	Span
86. 42		86. 60	193. 42	12. 26	773. 52
	382. 60	433. 80		1514. 22	
Bayberry Ln Ext	9400		10-year w/o Encl	Exi sti ng FLOODWAY	
87. 49		87. 60	206. 99	17. 68	852. 84
	382. 60	433. 80		1429. 48	
Bayberry Ln Ext	9400		10-year FLOODWAY	Proposed FLOODWAY 45'	Span
86. 18		86. 77	52. 00	1. 81	0. 34
	382. 60	433. 80	434. 00	2297. 85	
Bayberry Ln Ext	9400		10-year FLOODWAY	Exi sti ng FLOODWAY	
88. 69		89. 02	52. 00	1. 76	0. 31
	382. 60	433. 80	434. 00	2297. 93	
Bayberry Ln Ext	9400		100-year w/o En	Proposed FLOODWAY 45'	Span
89. 96		90. 35	329. 22	107. 14	2422. 85
	382. 60	433. 80		3570. 01	
Bayberry Ln Ext	9400		100-year w/o En	Exi sti ng FLOODWAY	
90. 12		90. 49	336. 96	114. 02	2446. 68
	382. 60	433. 80		3539. 30	
Bayberry Ln Ext	9400		100-year FLOODWA	Proposed FLOODWAY 45'	Span
93. 80		94. 80	52. 00	4. 06	0. 69
	382. 60	433. 80	434. 00	6095. 25	
Bayberry Ln Ext	9400		100-year FLOODWA	Exi sti ng FLOODWAY	
94. 94		95. 80	52. 00	3. 94	0. 67
	382. 60	433. 80	434. 00	6095. 40	
Bayberry Ln Ext	9365		10-year w/o Encl	Proposed FLOODWAY 45'	Span
85. 84		86. 52	179. 07	154. 02	505. 93
	391. 50	414. 70		1640. 05	
Bayberry Ln Ext	9365		10-year w/o Encl	Exi sti ng FLOODWAY	
87. 18		87. 56	257. 77	127. 24	736. 75
	392. 50	414. 70		1436. 02	
Bayberry Ln Ext	9365		10-year FLOODWAY	Proposed FLOODWAY 45'	Span
85. 57		86. 68	49. 00	136. 03	278. 97
	382. 00	414. 70	431. 00	1885. 00	
Bayberry Ln Ext	9365		10-year FLOODWAY	Exi sti ng FLOODWAY	
88. 33		88. 97	49. 00	188. 74	271. 39
	382. 00	414. 70	431. 00	1839. 88	
Bayberry Ln Ext	9365		100-year w/o En	Proposed FLOODWAY 45'	Span
89. 70		90. 31	375. 74	723. 54	2686. 78
	391. 50	414. 70		2689. 68	
Bayberry Ln Ext	9365		100-year w/o En	Exi sti ng FLOODWAY	
89. 86		90. 45	382. 80	802. 56	2675. 50
	392. 50	414. 70		2621. 95	
Bayberry Ln Ext	9365		100-year FLOODWA	Proposed FLOODWAY 45'	Span
92. 61		94. 66	49. 00	444. 72	935. 07
	382. 00	414. 70	431. 00	4720. 21	
Bayberry Ln Ext	9365		100-year FLOODWA	Exi sti ng FLOODWAY	
93. 78		95. 67	49. 00	531. 68	867. 89
	382. 00	414. 70	431. 00	4700. 43	
Bayberry Ln Ext	9335	BR U	10-year w/o Encl	Proposed FLOODWAY 45'	Span
85. 84		86. 52	33. 63	90. 40	235. 99
	391. 50	414. 70		1975. 29	
Bayberry Ln Ext	9335	BR U	10-year w/o Encl	Exi sti ng FLOODWAY	
87. 18		87. 56	181. 34	164. 32	436. 94
	392. 50	414. 70		1698. 87	
Bayberry Ln Ext	9335	BR U	10-year FLOODWAY	Proposed FLOODWAY 45'	Span
85. 57		86. 67		89. 57	162. 28
	382. 00	414. 70	431. 00	2048. 06	
Bayberry Ln Ext	9335	BR U	10-year FLOODWAY	Exi sti ng FLOODWAY	
88. 33		88. 97	49. 00	116. 23	167. 15
	382. 00	414. 70	431. 00	2016. 81	

Bridge No. 04969 - Proposed FLOODWAY									
Bayberry Ln Ext	9335	BR U	100-year	w/o En	Proposed	FLOODWAY 45'	Span		
89. 70	3. 86	90. 30		279. 43	724. 38	2395. 82	2977. 97		
	391. 50	414. 70							
Bayberry Ln Ext	9335	BR U	100-year	w/o En	Exi sti ng	FLOODWAY			
89. 86	2. 67	90. 45		285. 99	980. 61	1726. 54	3391. 65		
	392. 50	414. 70							
Bayberry Ln Ext	9335	BR U	100-year	FLOODWA	Proposed	FLOODWAY 45'	Span		
92. 61	6. 77	94. 65		49. 00	193. 47	5617. 62	287. 39		
	382. 00	414. 70		431. 00					
Bayberry Ln Ext	9335	BR U	100-year	FLOODWA	Exi sti ng	FLOODWAY			
93. 78	6. 59	95. 67		49. 00	808. 81	4082. 42	1207. 68		
	382. 00	414. 70		431. 00					
Bayberry Ln Ext	9335	BR D	10-year	w/o En cr	Proposed	FLOODWAY 45'	Span		
85. 84		86. 48		15. 10	106. 35	1955. 81	239. 51		
	385. 80	406. 40							
Bayberry Ln Ext	9335	BR D	10-year	w/o En cr	Exi sti ng	FLOODWAY			
87. 03		87. 51		161. 32	164. 32	1698. 87	436. 94		
	385. 80	406. 40							
Bayberry Ln Ext	9335	BR D	10-year	FLOODWAY	Proposed	FLOODWAY 45'	Span		
85. 57	-0. 27	86. 65			106. 11	2027. 86	165. 94		
	376. 00	406. 40		424. 00					
Bayberry Ln Ext	9335	BR D	10-year	FLOODWAY	Exi sti ng	FLOODWAY			
87. 95	0. 92	88. 72		48. 00	116. 23	2016. 81	167. 15		
	376. 00	406. 40		424. 00					
Bayberry Ln Ext	9335	BR D	100-year	w/o En	Proposed	FLOODWAY 45'	Span		
89. 54	3. 70	90. 30		391. 88	736. 99	2380. 42	2980. 76		
	385. 80	406. 40							
Bayberry Ln Ext	9335	BR D	100-year	w/o En	Exi sti ng	FLOODWAY			
89. 46	2. 43	90. 45		382. 61	980. 61	1726. 54	3391. 65		
	385. 80	406. 40							
Bayberry Ln Ext	9335	BR D	100-year	FLOODWA	Proposed	FLOODWAY 45'	Span		
92. 02	6. 18	94. 65		48. 00	217. 24	5588. 59	292. 65		
	376. 00	406. 40		424. 00					
Bayberry Ln Ext	9335	BR D	100-year	FLOODWA	Exi sti ng	FLOODWAY			
92. 44	5. 41	95. 67		48. 00	808. 81	4082. 42	1207. 68		
	376. 00	406. 40		424. 00					
Bayberry Ln Ext	9310		10-year	w/o En cr	Proposed	FLOODWAY 45'	Span		
83. 51		85. 89		53. 28	112. 43	1973. 55	214. 02		
	385. 80	406. 40							
Bayberry Ln Ext	9310		10-year	w/o En cr	Exi sti ng	FLOODWAY			
83. 41		86. 22		34. 00	95. 61	2065. 48	138. 91		
	385. 80	406. 40							
Bayberry Ln Ext	9310		10-year	FLOODWAY	Proposed	FLOODWAY 45'	Span		
83. 44	-0. 07	85. 89		48. 00	112. 43	1978. 28	209. 29		
	376. 00	406. 40		424. 00					
Bayberry Ln Ext	9310		10-year	FLOODWAY	Exi sti ng	FLOODWAY			
83. 41	0. 00	86. 22		34. 00	95. 60	2065. 50	138. 90		
	376. 00	406. 40		424. 00					
Bayberry Ln Ext	9310		100-year	w/o En	Proposed	FLOODWAY 45'	Span		
88. 43	4. 92	89. 64		456. 49	1288. 77	3047. 34	1763. 89		
	385. 80	406. 40							
Bayberry Ln Ext	9310		100-year	w/o En	Exi sti ng	FLOODWAY			
88. 49	5. 08	89. 70		459. 07	1341. 17	3049. 60	1709. 23		
	385. 80	406. 40							
Bayberry Ln Ext	9310		100-year	FLOODWA	Proposed	FLOODWAY 45'	Span		
87. 98	4. 47	92. 62		48. 00	472. 89	4663. 11	964. 00		
	376. 00	406. 40		424. 00					
Bayberry Ln Ext	9310		100-year	FLOODWA	Exi sti ng	FLOODWAY			
88. 18	4. 77	92. 95		48. 00	487. 91	4770. 72	841. 37		
	376. 00	406. 40		424. 00					

Bridge No. 04969 - Proposed FLOODWAY

Bayberry Ln Ext	9245		10-year w/o En cr	Proposed FLOODWAY 45'	Span
82. 88		83. 39	106. 55	243. 23	33. 63
	386. 50	451. 80			
Bayberry Ln Ext	9245		10-year w/o En cr	Exi sti ng FLOODWAY	
82. 88		83. 39	106. 55	243. 23	33. 63
	386. 50	451. 80			
Bayberry Ln Ext	9245		10-year FLOODWAY	Proposed FLOODWAY 45'	Span
83. 80	0. 93	84. 33	66. 00	1. 50	0. 30
	386. 00	451. 80	452. 00		
Bayberry Ln Ext	9245		10-year FLOODWAY	Exi sti ng FLOODWAY	
83. 80	0. 93	84. 33	66. 00	1. 50	0. 30
	386. 00	451. 80	452. 00		
Bayberry Ln Ext	9245		100-year w/o En	Proposed FLOODWAY 45'	Span
87. 03	4. 15	87. 73	283. 83	1129. 26	370. 56
	386. 50	451. 80			
Bayberry Ln Ext	9245		100-year w/o En	Exi sti ng FLOODWAY	
87. 03	4. 15	87. 73	283. 83	1129. 26	370. 56
	386. 50	451. 80			
Bayberry Ln Ext	9245		100-year FLOODWA	Proposed FLOODWAY 45'	Span
89. 70	6. 82	90. 65	66. 00	2. 95	0. 62
	386. 00	451. 80	452. 00		
Bayberry Ln Ext	9245		100-year FLOODWA	Exi sti ng FLOODWAY	
89. 70	6. 82	90. 65	66. 00	2. 95	0. 62
	386. 00	451. 80	452. 00		
Bayberry Ln Ext	9175		10-year w/o En cr	Proposed FLOODWAY 45'	Span
82. 05		83. 15	81. 09	429. 87	42. 26
	385. 20	426. 30			
Bayberry Ln Ext	9175		10-year w/o En cr	Exi sti ng FLOODWAY	
82. 05		83. 15	81. 09	429. 87	42. 26
	385. 20	426. 30			
Bayberry Ln Ext	9175		10-year FLOODWAY	Proposed FLOODWAY 45'	Span
81. 73	-0. 32	83. 97	46. 00	27. 05	27. 29
	383. 00	426. 30	429. 00		
Bayberry Ln Ext	9175		10-year FLOODWAY	Exi sti ng FLOODWAY	
81. 73	-0. 32	83. 97	46. 00	27. 05	27. 29
	383. 00	426. 30	429. 00		
Bayberry Ln Ext	9175		100-year w/o En	Proposed FLOODWAY 45'	Span
85. 15	3. 11	87. 42	163. 66	1397. 01	201. 94
	385. 20	426. 30			
Bayberry Ln Ext	9175		100-year w/o En	Exi sti ng FLOODWAY	
85. 15	3. 11	87. 42	163. 66	1397. 01	201. 94
	385. 20	426. 30			
Bayberry Ln Ext	9175		100-year FLOODWA	Proposed FLOODWAY 45'	Span
85. 83	3. 78	90. 17	46. 00	59. 79	73. 23
	383. 00	426. 30	429. 00		
Bayberry Ln Ext	9175		100-year FLOODWA	Exi sti ng FLOODWAY	
85. 83	3. 78	90. 17	46. 00	59. 79	73. 23
	383. 00	426. 30	429. 00		
Bayberry Ln Ext	9050		10-year w/o En cr	Proposed FLOODWAY 45'	Span
81. 96		82. 71	82. 49	53. 06	20. 49
	352. 90	408. 20			
Bayberry Ln Ext	9050		10-year w/o En cr	Exi sti ng FLOODWAY	
81. 96		82. 71	82. 49	53. 06	20. 49
	352. 90	408. 20			
Bayberry Ln Ext	9050		10-year FLOODWAY	Proposed FLOODWAY 45'	Span
81. 81	-0. 16	82. 65	58. 00	12. 10	3. 29
	351. 00	408. 20	409. 00		
Bayberry Ln Ext	9050		10-year FLOODWAY	Exi sti ng FLOODWAY	
81. 81	-0. 16	82. 65	58. 00	12. 10	3. 29
	351. 00	408. 20	409. 00		
Bayberry Ln Ext	9050		100-year w/o En	Proposed FLOODWAY 45'	Span

Bridge No. 04969 - Proposed FLOODWAY									
84.82		2.86	86.55	156.47	674.05	5329.18	96.77		
		352.90	408.20						
Bayberry Ln Ext	9050		100-year	w/o En	Existing FLOODWAY				
84.82		2.86	86.55	156.47	674.05	5329.18	96.77		
		352.90	408.20						
Bayberry Ln Ext	9050		100-year FLOODWA		Proposed FLOODWAY 45'		Span		
84.38		2.41	87.17	58.00	31.49	6060.35	8.16		
		351.00	408.20	409.00					
Bayberry Ln Ext	9050		100-year FLOODWA		Existing FLOODWAY				
84.38		2.41	87.17	58.00	31.49	6060.35	8.16		
		351.00	408.20	409.00					
Bayberry Ln Ext	8450		10-year w/o En		Proposed FLOODWAY 45'		Span		
78.90			80.08	107.80		2300.00			
		325.00	440.00						
Bayberry Ln Ext	8450		10-year w/o En		Existing FLOODWAY				
78.90			80.08	107.80		2300.00			
		325.00	440.00						
Bayberry Ln Ext	8450		10-year FLOODWAY		Proposed FLOODWAY 45'		Span		
79.20		0.30	80.13	110.20		2300.00			
		325.00	440.00	440.00					
Bayberry Ln Ext	8450		10-year FLOODWAY		Existing FLOODWAY				
79.20		0.30	80.13	110.20		2300.00			
		325.00	440.00	440.00					
Bayberry Ln Ext	8450		100-year w/o En		Proposed FLOODWAY 45'		Span		
81.10		2.20	83.33	116.30		6088.81	11.19		
		325.00	440.00						
Bayberry Ln Ext	8450		100-year w/o En		Existing FLOODWAY				
81.10		2.20	83.33	116.30		6088.81	11.19		
		325.00	440.00						
Bayberry Ln Ext	8450		100-year FLOODWA		Proposed FLOODWAY 45'		Span		
81.80		2.90	83.48	112.80		6100.00			
		325.00	440.00	440.00					
Bayberry Ln Ext	8450		100-year FLOODWA		Existing FLOODWAY				
81.80		2.90	83.48	112.80		6100.00			
		325.00	440.00	440.00					

APPENDIX C – CORRESPONDENCE

**STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION**

subject: Federal Local Bridge Program
Project No. 170-3426
Hydraulic Engineer Approval
Thomas J. Bulzak, P.E., L.S.
Bridge No. 04969
Bayberry Lane #2 over Aspetuck River
Westport

m e m o r a n d u m

date: February 21, 2018

to: Mr. Rabih M. Barakat
Trans. Principal Engineer (Structures)
Bureau of Engineering
and Construction

from: Michael E. Masayda
Trans. Principal Engineer
Hydraulics and Drainage
Bureau of Engineering
and Construction

Michael Masayda
Michael
Masayda, P.E.
2018.02.21
10:00:54-05'00'

The Hydraulics and Drainage Section has reviewed your request on behalf of AI Engineers to obtain hydraulic engineer approval of Thomas J. Bulzak, P.E., L.S., in accordance with Section 404.01 of the Department of Transportation (Department) Consultant Administration and Project Development Manual and Section 1.2.4 of the Drainage Manual.

Mr. Bulzak is approved to act as a "Department Approved Hydraulic Engineer" for the subject project. This approval, as with others granted by this office, is based on the following understanding:

The approved hydraulic engineer personally prepares all hydraulic design and permit related material for the project. When such material is not personally prepared but is signed by the approved hydraulic engineer, the person who prepared the material was under the direct supervision of the approved hydraulic engineer, who had an active role in its development. The approved hydraulic engineer, who signs the hydraulic related documents and is involved in the permit preparation, is responsible for the quality assurance/quality control of the product including the accuracy and content. This office reserves the right to revoke an approval should the engineer's performance be deemed unsatisfactory.

In regard to the preparation and signing of the hydraulic reports, the front cover of the reports shall include the name and signature of the engineer who prepared the work and of the engineer who checked the work. One of these individuals must be the ConnDOT approved hydraulic engineer for the project and must be identified as such by signing on an additional line. The cover shall also have affixed the seal of a Connecticut licensed Professional Engineer. A suggested format for the signature requirements is attached.

Questions regarding this matter may be directed to me at extension 3238.

Attachment

cc: Theodore Nezames - Michael Masayda
Priti Bhardwaj – Marc Byrnes

**STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION**

memorandum

subject: Project No. 0158-0216
Hydrologic Analysis
Replacement of Bridge No. 04969
Westport, CT

date: February 28, 2019

to: Ms. Priti Bhardwaj
Trans. Supervising Engineer
Bureau of Engineering
and Construction

from: Mr. Michael E. Masayda
Trans. Principal Engineer
Hydraulics and Drainage
Bureau of Engineering
and Construction

- | | |
|---|---|
| <input type="checkbox"/> Preliminary Studies | <input type="checkbox"/> Semifinal (60%-70%) |
| <input type="checkbox"/> Preliminary Design | <input type="checkbox"/> Structural Layout for Design |
| <input type="checkbox"/> Structure Type Study | <input type="checkbox"/> Final Plan for Review (85%-90%) |
| <input type="checkbox"/> Drainage | <input type="checkbox"/> Final Design (100%) |
| <input type="checkbox"/> Other Field Review | <input checked="" type="checkbox"/> Other (Revised Hydrologic Analysis) |

In response to your email request, dated February 28, 2019, requesting review comments on the following documents as listed:

Hydrologic Analysis Revised

We offer the following comments:

- No Comments Comment Below

1. The updated report includes the FEMA flows, which were interpolated from the FIS Summary of Discharges and the flows coincide with the HEC-2 data. The Hydrology Report is approved.

Should you have any questions, please contact Pichay Mar at extension 3234.

Pichay Mar:

cc: Theodore Nezames-Michael E. Masayda- Chong Lung Chow -Pichay Mar
Marc Byrnes
Andrew H. Davis
David Harms

TO: Alexander Finch, Office of Environmental Planning, DOT

FROM: Bruce Williams, DEEP - Fisheries Division

DATE: March 1, 2018

SUBJECT: Preliminary Fisheries Review – Replacement of Bayberry Lane #2 Bridge over the Aspetuck River

Type of Permit:

- 1. **DOT Culvert/Bridge Projects**
- 2. **Diversion**
- 3. **PGP/Inland Wetland**
- 4. **Water Quality Certification**

Project#: 158-TBD

Bridge#: 04969

Applicant: Connecticut Department of Transportation

State P.E. Project #:

Town: Westport

Waters: Aspetuck River

Sub Regional Basin #: 7202

Project Scope: The superstructure of the existing single span bridge structurally deficient and the abutments have been undermined by scour. The proposed scope of the project is to replace the entire bridge with a clear-span superstructure founded on new abutments. The project also includes approximately 100 feet of roadway reconstruction, new guiderail systems, and scour protection. Enclosed are my preliminary comments.

Fisheries Resources: The Fisheries Division has targeted the Aspetuck River for diadromous (migratory) fish restoration. All dams downstream of the project site are now passable to migratory fish. Alewives, Blueback Herring, American Eel, Sea Lamprey, and sea-run Brown Trout now have free passage upstream through the project area up to the first impassable dam approximately 400 feet upstream of Bayberry Lane. These fish use the river not only as a migratory corridor, but also as spawning and juvenile habitat.

The Fisheries Division annually stocks a combined total of approximately 455 adult Brown Trout and Brook Trout in the Aspetuck River between Lyons Plain Road and the Aspetuck Reservoir. The Bayberry Lane Bridge is one of ten designated stocking locations in this area. In addition to stocked trout, the Fisheries Division has also documented the presence of wild Brown Trout and wild Brook Trout in this section river. Other documented fish species include Blacknose Dace, Common Shiner, Creek Chub, Cutlips Minnow, Green Sunfish, Largemouth

Bass, Longnose Dace, Redbreast Sunfish, Rock Bass, Tessellated Darter, and White Sucker.

Comments/Recommendations:

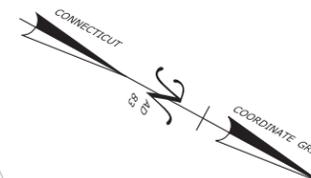
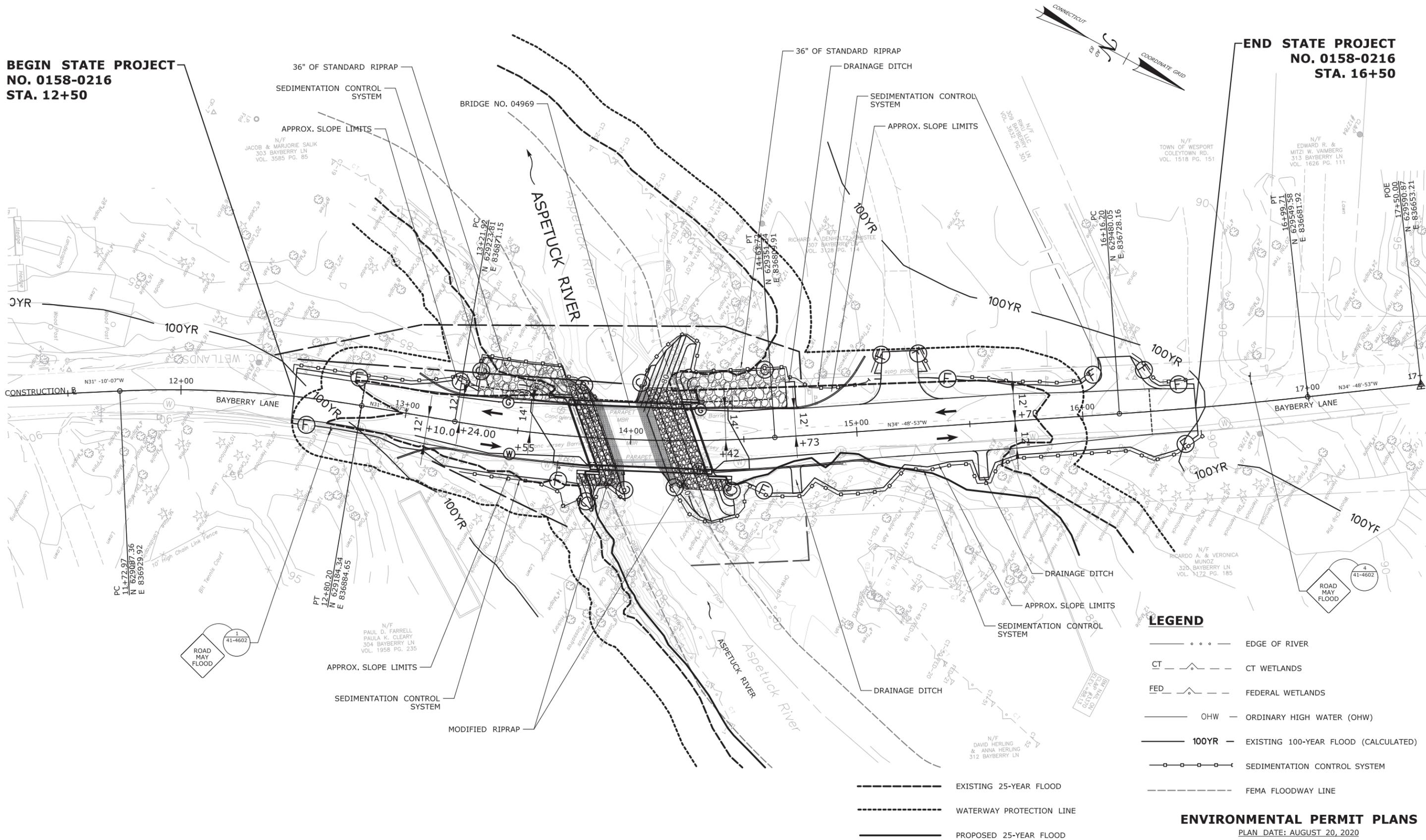
1. Existing onsite conditions provide for unrestricted fish passage and a streambed of natural materials. The final design of this project must maintain such conditions.
2. To protect downstream fish habitat, it is critical that proper erosion and sedimentation controls be installed and maintained throughout the duration of this project. Care should be exercised so as not to increase turbidity levels and all disturbed area will need to be stabilized and restored with native vegetation after completion of the project.
3. Due to the presence of diadromous fish, any “unconfined” instream work should be restricted to the period July 1 through September 30.
4. If riprap is required for scour protection, all efforts should be made to minimize the amount of area covered by riprap and all riprap should be covered with natural streambed material or rounded stone.

CC. S. Gephard

APPENDIX D – PROPOSED STRUCTURE PLANS

**BEGIN STATE PROJECT
NO. 0158-0216
STA. 12+50**

**END STATE PROJECT
NO. 0158-0216
STA. 16+50**



- LEGEND**
- • • • — EDGE OF RIVER
 - CT — / \ / \ CT WETLANDS
 - FED — / \ / \ FEDERAL WETLANDS
 - OHW — ORDINARY HIGH WATER (OHW)
 - 100YR — EXISTING 100-YEAR FLOOD (CALCULATED)
 - ◻ — SEDIMENTATION CONTROL SYSTEM
 - — — — FEMA FLOODWAY LINE
 - — — — EXISTING 25-YEAR FLOOD
 - — — — WATERWAY PROTECTION LINE
 - — — — PROPOSED 25-YEAR FLOOD

ENVIRONMENTAL PERMIT PLANS
PLAN DATE: AUGUST 20, 2020

REV.	DATE	REVISION DESCRIPTION	SHEET NO.	Plotted Date: 8/20/2020

DESIGNER/DRAFTER: **M. GREER**
 CHECKED BY: **S. GWARA**
TOWN OF WESTPORT
 SCALE IN FEET
 0 20 40
 SCALE 1"=20'

SIGNATURE/BLOCK:

 AI ENGINEERS, INC.
 919 MIDDLE STREET
 MIDDLETOWN, CT 06457
 PHONE: (860) 635-7740
 FAX: (860) 635-7312

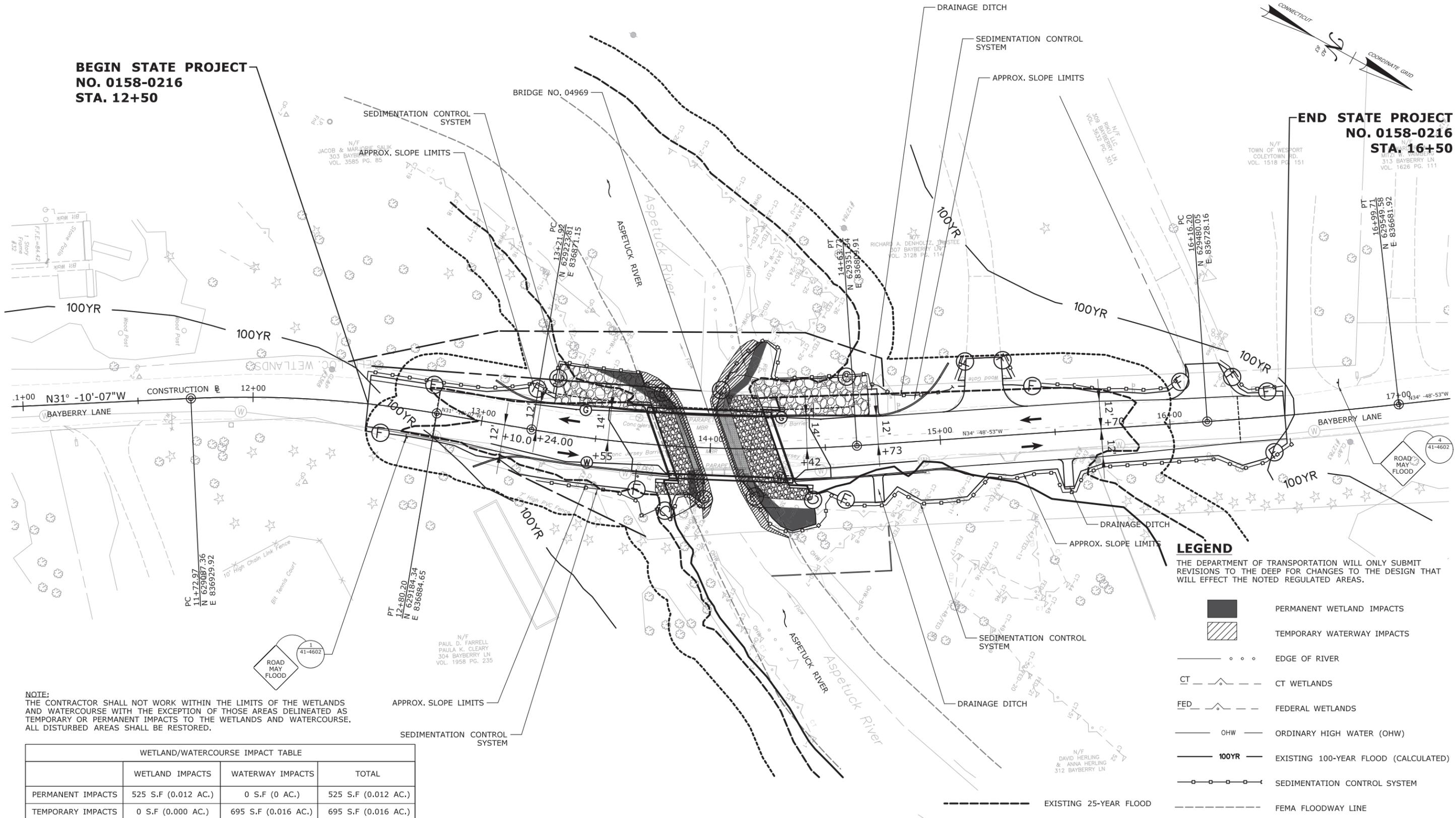
PROJECT TITLE:
**REPLACEMENT OF
BRIDGE NO. 04969 BAYBERRY
LANE #2 OVER ASPETUCK RIVER**

TOWN: **WESTPORT**
 DRAWING TITLE:
GENERAL SITE PLAN

PROJECT NO. **0158-0216**
 DRAWING NO. **PMT-02**
 SHEET NO.

**BEGIN STATE PROJECT
NO. 0158-0216
STA. 12+50**

**END STATE PROJECT
NO. 0158-0216
STA. 16+50**



LEGEND

THE DEPARTMENT OF TRANSPORTATION WILL ONLY SUBMIT REVISIONS TO THE DEEP FOR CHANGES TO THE DESIGN THAT WILL EFFECT THE NOTED REGULATED AREAS.

- PERMANENT WETLAND IMPACTS
- TEMPORARY WATERWAY IMPACTS
- EDGE OF RIVER
- CT WETLANDS
- FEDERAL WETLANDS
- OHW (ORDINARY HIGH WATER)
- EXISTING 100-YEAR FLOOD (CALCULATED)
- SEDIMENTATION CONTROL SYSTEM
- FEMA FLOODWAY LINE
- EXISTING 25-YEAR FLOOD
- WATERWAY PROTECTION LINE
- PROPOSED 25-YEAR FLOOD

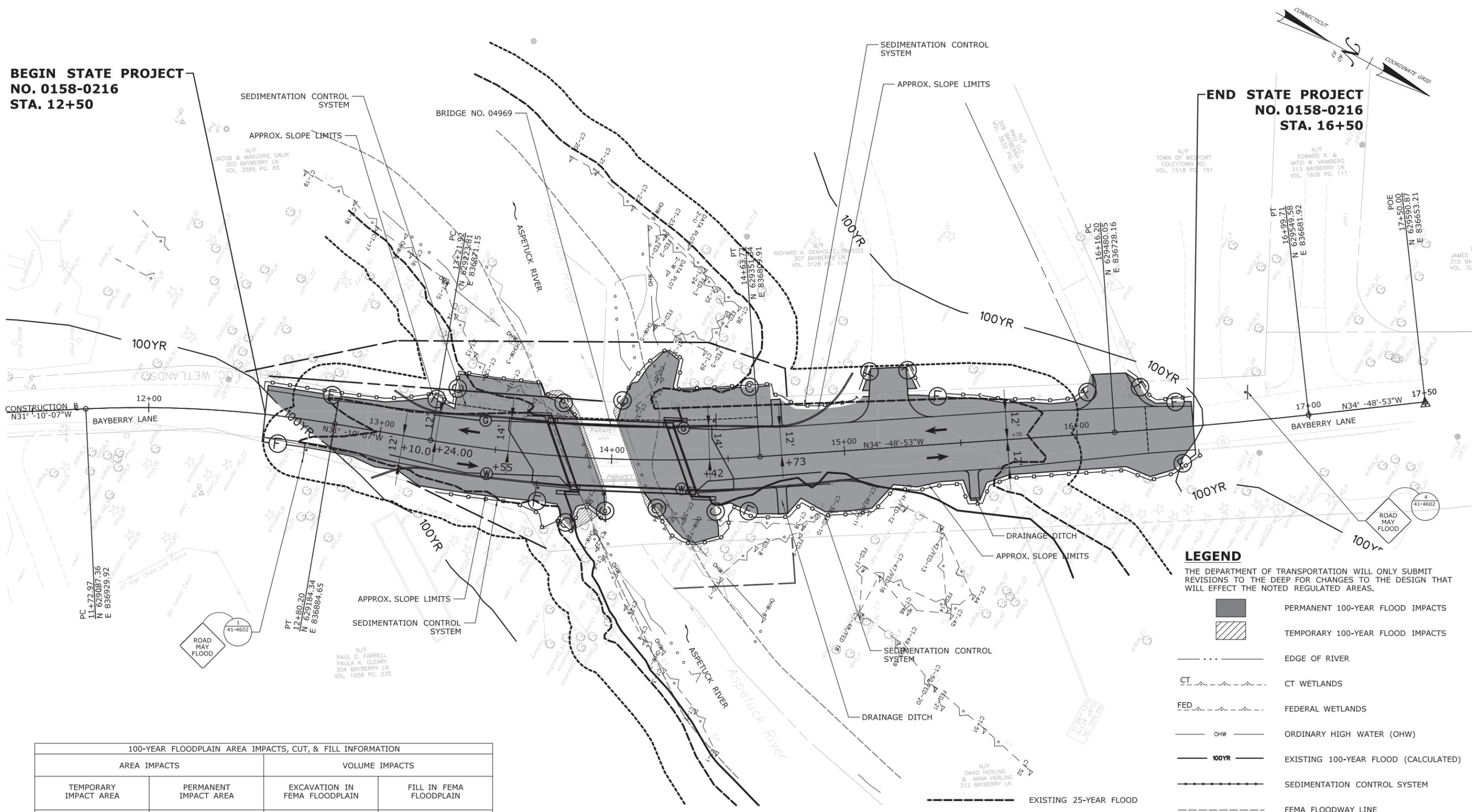
NOTE:
THE CONTRACTOR SHALL NOT WORK WITHIN THE LIMITS OF THE WETLANDS AND WATERCOURSE WITH THE EXCEPTION OF THOSE AREAS DELINEATED AS TEMPORARY OR PERMANENT IMPACTS TO THE WETLANDS AND WATERCOURSE. ALL DISTURBED AREAS SHALL BE RESTORED.

WETLAND/WATERCOURSE IMPACT TABLE			
	WETLAND IMPACTS	WATERWAY IMPACTS	TOTAL
PERMANENT IMPACTS	525 S.F. (0.012 AC.)	0 S.F. (0 AC.)	525 S.F. (0.012 AC.)
TEMPORARY IMPACTS	0 S.F. (0.000 AC.)	695 S.F. (0.016 AC.)	695 S.F. (0.016 AC.)
TOTAL IMPACTS	525 S.F. (0.012 AC.)	695 S.F. (0.016 AC.)	1,220 S.F. (0.028 AC.)

REV.	DATE	REVISION DESCRIPTION	SHEET NO.	Plotted Date: 8/20/2020	DESIGNER/DRAFTER: M. GREER	CHECKED BY: S. GWARA	SCALE IN FEET SCALE 1"=20'	FILENAME: ...VHW_MSH_0158_0216_PMT-03.dgn	SIGNATURE/BLOCK:	PROJECT TITLE: REPLACEMENT OF BRIDGE NO. 04969 BAYBERRY LANE #2 OVER ASPETUCK RIVER	TOWN: WESTPORT	PROJECT NO. 0158-0216
<p align="center">TOWN OF WESTPORT</p> <p align="center">AI Engineers AI ENGINEERS, INC. 919 MIDDLE STREET MIDDLETOWN, CT 06457 PHONE: (860) 635-7740 FAX: (860) 635-7312</p>											DRAWING TITLE: WETLAND/WATERCOURSE IMPACT PLAN	DRAWING NO. PMT-03

**BEGIN STATE PROJECT
NO. 0158-0216
STA. 12+50**

**END STATE PROJECT
NO. 0158-0216
STA. 16+50**



LEGEND
THE DEPARTMENT OF TRANSPORTATION WILL ONLY SUBMIT REVISIONS TO THE DEEP FOR CHANGES TO THE DESIGN THAT WILL EFFECT THE NOTED REGULATED AREAS.

- PERMANENT 100-YEAR FLOOD IMPACTS
- TEMPORARY 100-YEAR FLOOD IMPACTS
- EDGE OF RIVER
- CT WETLANDS
- FEDERAL WETLANDS
- ORDINARY HIGH WATER (OHW)
- EXISTING 100-YEAR FLOOD (CALCULATED)
- SEDIMENTATION CONTROL SYSTEM
- FEMA FLOODWAY LINE
- EXISTING 25-YEAR FLOOD
- WATERWAY PROTECTION LINE
- PROPOSED 25-YEAR FLOOD

100-YEAR FLOODPLAIN AREA IMPACTS, CUT, & FILL INFORMATION			
AREA IMPACTS		VOLUME IMPACTS	
TEMPORARY IMPACT AREA	PERMANENT IMPACT AREA	EXCAVATION IN FEMA FLOODPLAIN	FILL IN FEMA FLOODPLAIN
267 S.F.	15,375 S.F.	243 C.Y.	135 C.Y.

REV.	DATE	REVISION DESCRIPTION	SHEET NO.

Plotted Date: 8/20/2020

DESIGNER/DRAFTER: **M. GREER**
CHECKED BY: **S. GWARA**
SCALE IN FEET
0 20 40
SCALE 1"=20'

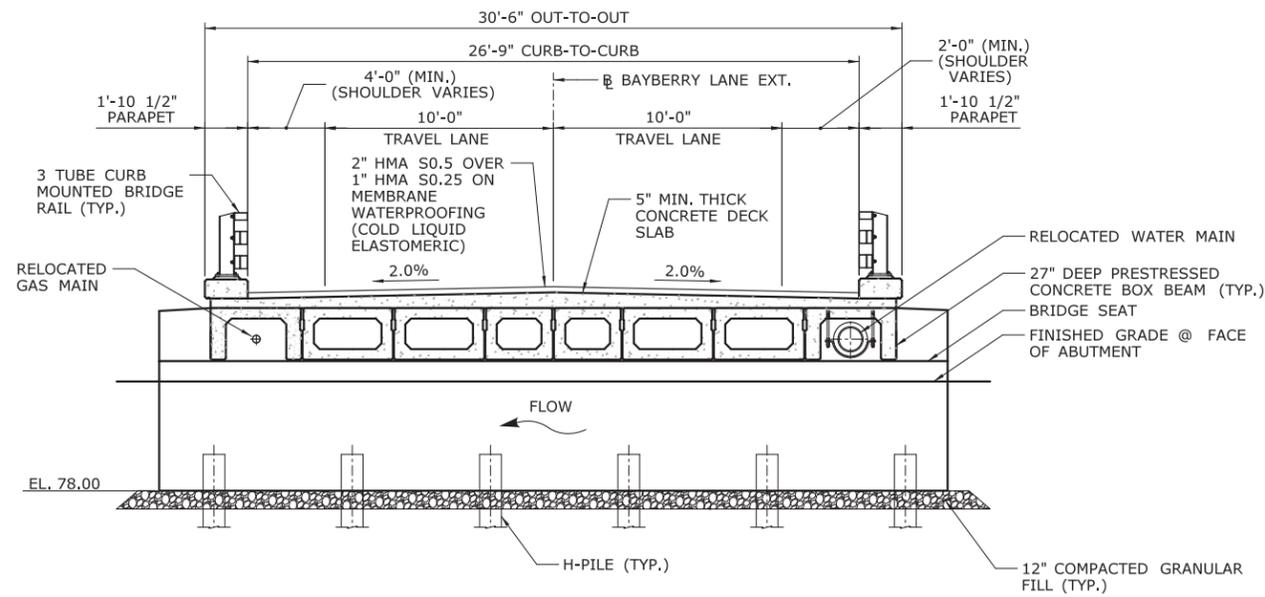
TOWN OF WESTPORT

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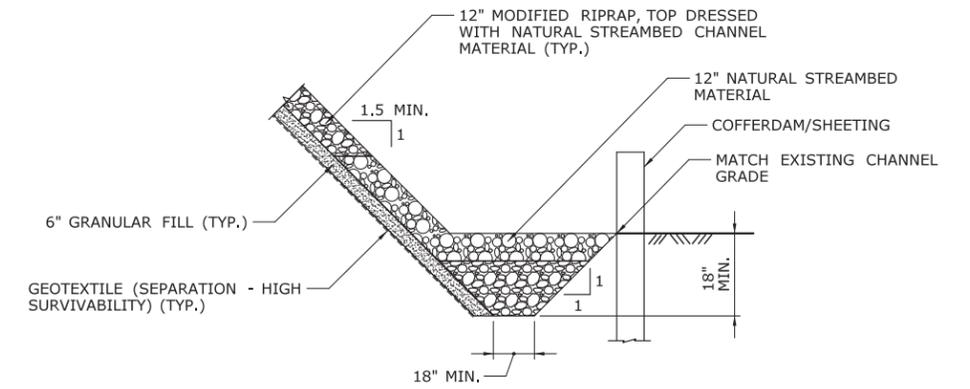
SIGNATURE/BLOCK: **AI Engineers**
AI ENGINEERS, INC.
919 MIDDLE STREET
MIDDLETOWN, CT 06457
PHONE: (860) 635-7740
FAX: (860) 635-7312

PROJECT TITLE:
**REPLACEMENT OF
BRIDGE NO. 04969 BAYBERRY
LANE #2 OVER ASPETUCK RIVER**

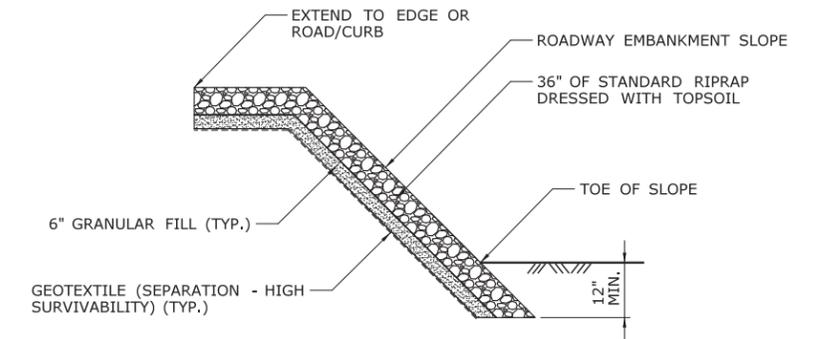
TOWN: **WESTPORT**
PROJECT NO. **0158-0216**
DRAWING NO. **PMT-04**
DRAWING TITLE: **100-YEAR FLOOD
IMPACT PLAN**
SHEET NO.



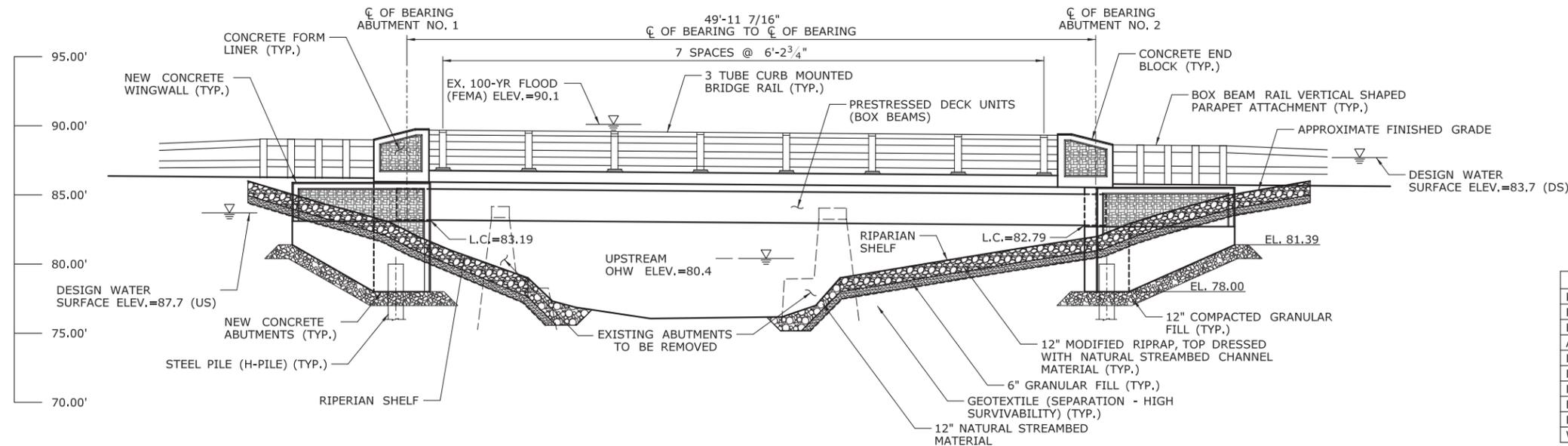
TYPICAL BRIDGE SECTION
SCALE: 1/4" = 1'-0"



MODIFIED RIPRAP KEY-IN DETAIL
NOT TO SCALE



STANDARD RIPRAP OVERTOPPING PROTECTION DETAIL
NOT TO SCALE



UPSTREAM ELEVATION VIEW (DOWNSTREAM SIMILAR)
SCALE: 1" = 5'

OPENNESS RATIO (OR):

OR = OPEN AREA / LENGTH
OR = 199.00 SF / 30.0 FT = 6.63
6.63 FT > 0.82 FT (RECOMMENDED MINIMUM)

BANKFULL WIDTH (BFW):

BFW = 37.0 FT
1.2 FT X 37.0 = 44.4 FT
45.0 FT > 44.4 FT (PROPOSED BRIDGE MINIMUM)

HYDRAULIC DATA SUMMARY	
DRAINAGE AREA (SQUARE MILES)	21.1
DESIGN FREQUENCY (YEAR)	100
DESIGN DISCHARGE (CFS)	3,000
AVERAGE DAILY FLOW ELEVATION (FEET)	78.5 ESTIMATED
DESIGN WATER SURFACE ELEVATION - U.S. (FT)	87.7
DESIGN WATER SURFACE ELEVATION - D.S. (FT)	83.7
MAXIMUM SCOUR DEPTH (FT)	68.7
FREQUENCY (YEAR)	50
DISCHARGE (CFS)	2,540
WORST CASE SCOUR SUBSTRUCTURE UNIT	NORTH ABUTMENT

ENVIRONMENTAL PERMIT PLANS

PLAN DATE: AUGUST 20, 2020

REV.	DATE	REVISION DESCRIPTION	SHEET NO.	Plotted Date: 8/20/2020

DESIGNER/DRAFTER: M. GREER
CHECKED BY: S. GWARA
SCALE AS NOTED

TOWN OF WESTPORT

File name: ...VHW_MSH_0158_0216_PMT-05.dgn

SIGNATURE/BLOCK:

AI Engineers
AI ENGINEERS, INC.
919 MIDDLE STREET
MIDDLETOWN, CT 06457
PHONE: (860) 635-7740
FAX: (860) 635-7312

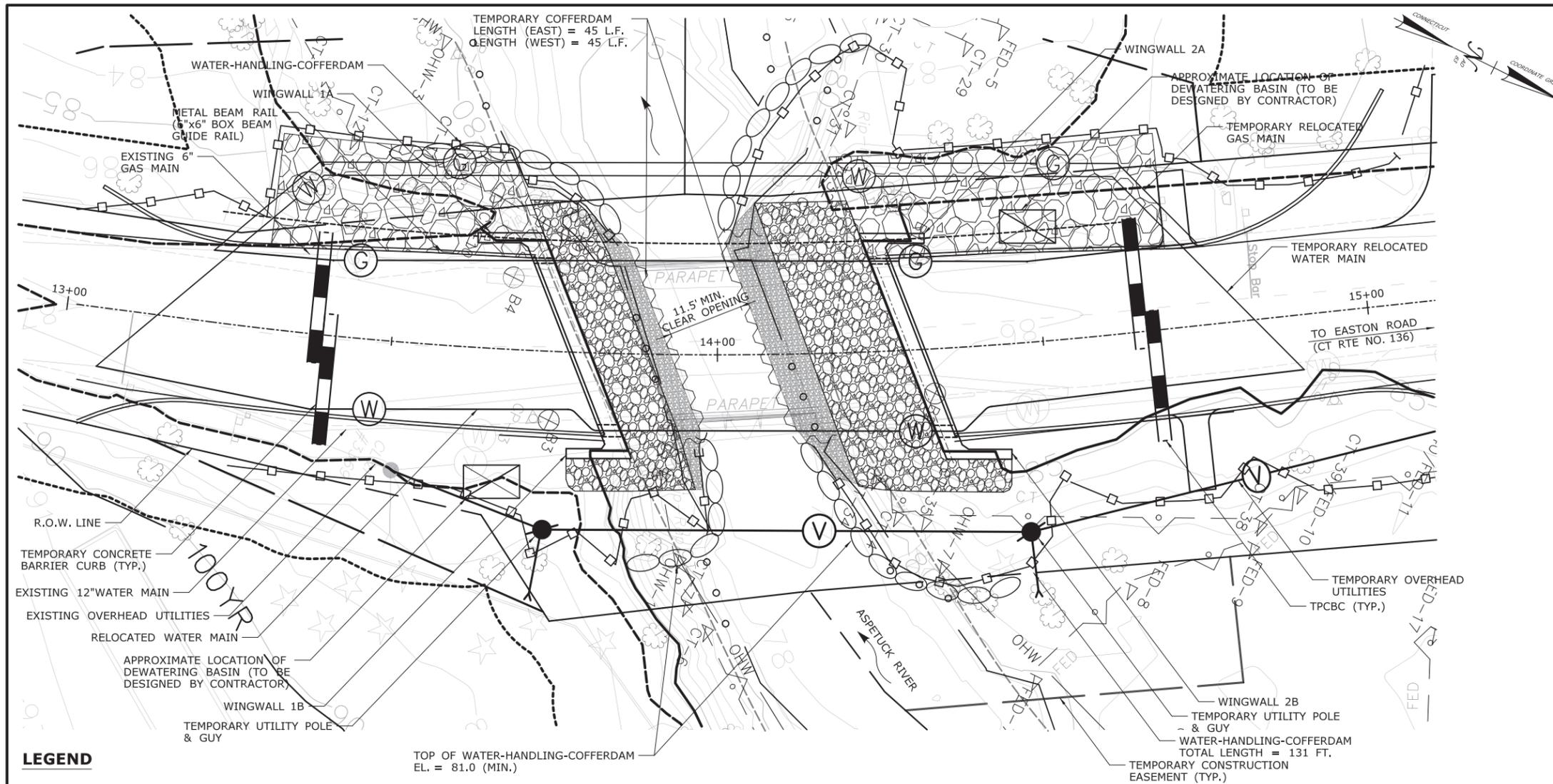
PROJECT TITLE:

REPLACEMENT OF BRIDGE NO. 04969 BAYBERRY LANE #2 OVER ASPETUCK RIVER

TOWN: **WESTPORT**

DRAWING TITLE: **ELEVATION AND SECTION PLAN**

PROJECT NO. **0158-0216**
DRAWING NO. **PMT-05**
SHEET NO.



SUGGESTED CONSTRUCTION SEQUENCE:

1. MOBILIZE AND INSTALL CONSTRUCTION SIGNS.
2. INSTALL SEDIMENTATION AND EROSION CONTROL MEASURES.
3. PERFORM NECESSARY CLEARING AND GRUBBING.
4. PLACE TPCBC AND IMPLEMENT DETOUR.
5. TEMPORARILY SUPPORT AND RELOCATE UTILITIES.
6. INSTALL DEBRIS SHIELD (MIN. ELEV.=83.5) UNDER THE BRIDGE AND REMOVE THE EXISTING SUPERSTRUCTURE.
7. INSTALL TEMPORARY COFFERDAM AND DEWATER.
8. REMOVE BOTH EXISTING ABUTMENTS.
9. INSTALL TEST PILES AS SHOWN ON THE PLANS.
10. INSTALL H-PILE FOUNDATION.
11. CONSTRUCT PROPOSED ABUTMENTS AND WINGWALLS.
12. CONSTRUCT EMBANKMENT GRADING AND INSTALL MODIFIED RIPRAP TOP DRESSED WITH NATURAL STREAMBED MATERIAL.
13. REMOVE TEMPORARY COFFERDAM.
14. INSTALL PRESTRESSED CONCRETE DECK UNITS AND CONSTRUCT DECK SLAB & BRIDGE PARAPET.
15. CONSTRUCT BACKWALL WITH APPROACH SLABS SEATS.
16. CONSTRUCT APPROACH SLABS.
17. INSTALL HMA ON MEMBRANE WATERPROOFING (COLD LIQUID ELASTOMERIC) ON DECK SLAB.
18. INSTALL BRIDGE RAIL.
19. RECONSTRUCT ROADWAY, TACK COAT, PAVE, INSTALL GUIDE RAIL, END DETOUR AND OPEN THE BRIDGE TO TRAFFIC.
20. FINALIZE GRADING AND TOP SOIL/TURF ESTABLISHMENT.
21. THE SEDIMENTATION AND EROSION CONTROL MEASURES SHALL BE REMOVED AFTER IMPACTED AREAS ARE STABILIZED AND VEGETATION HAS BEEN ESTABLISHED.

TEMPORARY HYDRAULICS DATA SUMMARY	
AVERAGE DAILY FLOW (CFS)	35
AVERAGE SPRING FLOW (CFS)	75
2-YEAR FREQUENCY DISCHARGE (CFS)	840
TEMPORARY DESIGN DISCHARGE (CFS)	225
TEMPORARY DESIGN FREQUENCY (YEARS)	1
TEMPORARY WATER SURFACE ELEVATION - UPSTREAM (FT)	80.0
TEMPORARY WATER SURFACE ELEVATION - DOWNSTREAM (FT)	79.0

WATER HANDLING NOTES:

1. ANY UNCONFINED IN-STREAM WORK SHOULD BE RESTRICTED TO THE PERIOD JULY 1ST THROUGH SEPTEMBER 30TH.
2. THE CONTRACTOR SHALL MAINTAIN FLOW BETWEEN THE TEMPORARY WATER-HANDLING-COFFERDAMS AS SHOWN DURING CONSTRUCTION OF THE NEW STRUCTURE.
3. EQUIPMENT SHALL NOT BE PERMITTED IN THE STREAMBED WITHOUT APPROVAL FROM THE ENGINEER.
4. A DEWATERING BASIN SHALL BE ESTABLISHED OUTSIDE OF THE WETLAND LIMITS. THE LOCATION OF THE DEWATERING BASIN IS APPROXIMATE. THE EXACT POSITION MAY VARY BASED ON THE PUMPING DESIGN SUBMISSION AND APPROVED BY THE ENGINEER. THIS WORK SHALL BE PAID FOR UNDER THE ITEM "HANDLING WATER".
5. TEMPORARY WATER HANDLING COFFERDAMS SHALL BE DESIGNED BY THE CONTRACTOR TO SAFELY CONVEY WATER THROUGH THE CONSTRUCTION AREA AND BE ABLE TO SUPPORT THE CONSTRUCTION ACTIVITY AND SHALL CONFORM TO PERMITS. THIS WORK WILL BE PAID FOR UNDER THE ITEM "WATER HANDLING".
6. TEMPORARY COFFERDAMS SHALL BE DESIGNED BY THE CONTRACTOR TO SUPPORT THE CONSTRUCTION ACTIVITY AND EXCAVATION TO REMOVE THE EXISTING ABUTMENTS AND WINGWALLS AND SHALL CONFORM TO PERMITS. THIS WORK WILL BE PAID FOR UNDER THE ITEM "COFFERDAM AND DEWATERING".

NATIVE STREAMBED MATERIAL NOTES:

1. NATIVE STREAMBED MATERIAL EXCAVATED DURING THE BRIDGE REPLACEMENT SHALL BE STOCKPILED AND THEN REPLACED WITHIN THE BRIDGE TO THE DEPTH SHOWN ON THE PLANS, AS DIRECTED BY THE ENGINEER, AND IN ACCORDANCE WITH THE PERMIT DOCUMENTS.
2. THE STOCKPILE SHALL BE LOCATED OUTSIDE THE WETLAND LIMITS AND WITHIN THE R.O.W./CONSTRUCTION EASEMENTS AND PROTECTED WITH SEDIMENTATION CONTROL SYSTEM.

ENVIRONMENTAL PERMIT PLANS

PLAN DATE: AUGUST 20, 2020

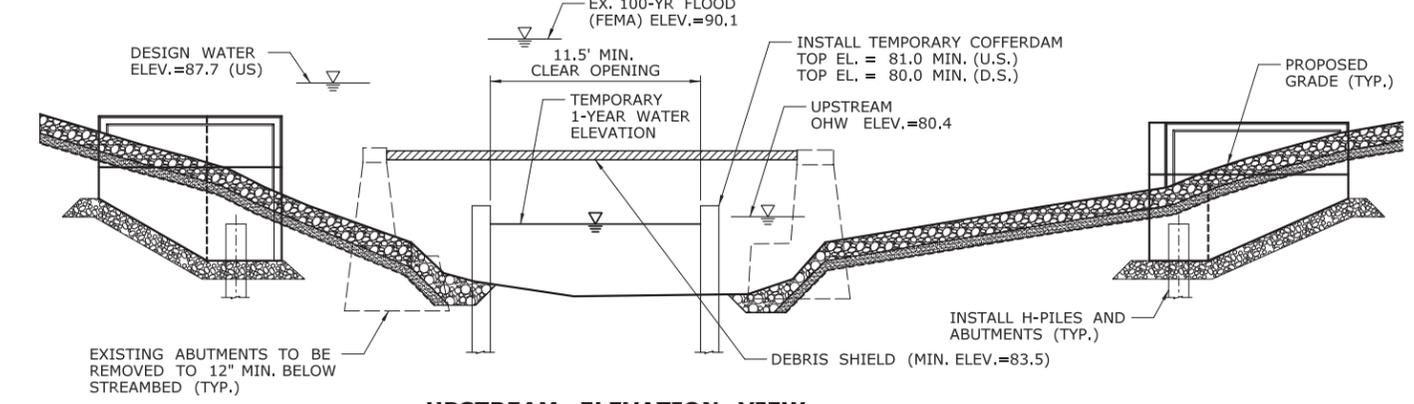
LEGEND

- EDGE OF RIVER
- SEDIMENTATION CONTROL SYSTEM
- OHW --- ORDINARY HIGH WATER (OHW)
- CT --- CT WETLANDS
- FED --- FEDERAL WETLANDS
- 100YR --- EXISTING 100-YEAR FLOOD CALCULATED
- WATER-HANDLING-COFFERDAM
- TEMPORARY COFFERDAM

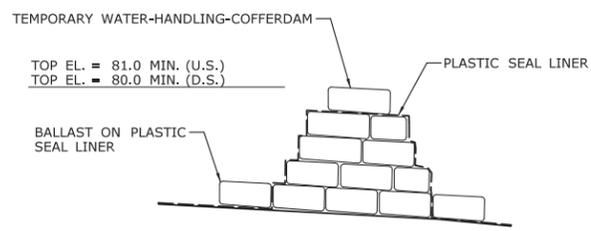
WATER HANDLING PLAN
SCALE: 1" = 10'

- EXISTING 25-YEAR FLOOD
- WATERWAY PROTECTION LINE
- PROPOSED 25-YEAR FLOOD

TEMPORARY RELOCATED WATER MAIN -
THE TOWN'S CONTRACTOR IN COORDINATION WITH THE AQUARIUM WATER COMPANY (AWC) WILL INSTALL THE TEMPORARY BYPASS WATER LINE WITH THE EXCEPTION OF INSERTION VALVES AND TAPPING SLEEVES AND VALVES, WHICH WILL BE PERFORMED BY AN AWC'S SPECIALTY CONTRACTOR.



UPSTREAM ELEVATION VIEW
SCALE: 1" = 5'



TEMPORARY WATER-HANDLING-COFFERDAM
N.T.S.

	DESIGNER/DRAFTER: M. GREER		TOWN OF WESTPORT	SIGNATURE/ BLOCK:	PROJECT TITLE: REPLACEMENT OF BRIDGE NO. 04969 BAYBERRY LANE #2 OVER ASPETUCK RIVER	TOWN: WESTPORT	PROJECT NO. 0158-0216
	CHECKED BY: A. GOKHALE					DRAWING TITLE: WATER HANDLING PLAN	DRAWING NO. PMT-06
REV.	DATE	REVISION DESCRIPTION	SHEET NO.	Plotted Date: 8/20/2020	SCALE AS NOTED		SHEET NO.

THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.

File name: ...VHW_MSH_0158_0216_PMT-06.dgn

AI Engineers
AI ENGINEERS, INC.
919 MIDDLE STREET
MIDDLETOWN, CT 06457
PHONE: (860) 635-7740
FAX: (860) 635-7312

APPENDIX E – *HEC-RAS Data Files, Floodway Report (PDF)*