

Draft Environmental Assessment

# Motter Avenue Area Community Flood Mitigation Project

EMP-2020-FM-038-0001/LPDM-PJ-03-MD-2022-004

City of Frederick, Maryland

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# FEMA

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### Acronyms and Abbreviations

APE	Area of Potential Effects
BGEPA	Bald & Golden Eagle Protection Act
BMP	best management practice
CAA	Clean Air Act
CEQ	Council on Environmental Quality
C.F.R.	Code of Federal Regulations
CWA	Clean Water Act
dBA	A-weighted Decibels
DOT	Department of Transportation
EA	Environmental Assessment
EIS	Environmental Impact Statement
EJScreen	Environmental Justice Screening and Mapping Tool
EO	Executive Order
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
FMA	Flood Mitigation Assistance
FONSI	Finding of No Significant Impact
HDPE	High-density polyethylene
IPaC	Information for Planning and Consultation
MBTA	Migratory Bird Treaty Act
MDE	Maryland Department of the Environment
MDNR	Maryland Department of Natural Resources
MDOT	Maryland Department of Transportation
MEDUSA	Maryland Historical Trust Interactive Geographic Information System Map

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MHT	Maryland Historic Trust
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NFIP	National Flood Insurance Program
NHPA	National Historic Preservation Act
NLEB	Northern long-eared bat
NMFS	National Marine Fisheries Service
NOI	Notice of Intent
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NWI	National Wetlands Inventory
OSHA	Occupational Safety and Health Administration
park	Monocacy Village Park
PDM	Pre-Disaster Mitigation
RMP	Risk Management Plan
SHPO	State Historic Preservation Officer
TMDL	Total Maximum Daily Load
U.S.C.	United States Code
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey

# SECTION 1. Background

## 1.1. Project Authority

The City of Frederick, Maryland has applied through the Maryland Department of Emergency Management to the Federal Emergency Management Agency's (FEMA) Flood Mitigation Assistance (FMA) and Pre-Disaster Mitigation (PDM) grant programs for a flood resiliency and stormwater improvement project in the YMCA Flooding Area within the City of Frederick in Frederick County, Maryland. The FMA funds were authorized by Section 1366 of the National Flood Insurance Act of 1968, as amended (42 United States Code [U.S.C.] § 4001 et seq.).

In accordance with the National Environmental Policy Act (NEPA) of 1969, the Council on Environmental Quality regulations implementing NEPA (40 Code of Federal Regulations [C.F.R.] Parts 1500 through 1508), and FEMA regulations for NEPA compliance (44 C.F.R. Part 9, FEMA Directive 108-1, and FEMA Instruction 108-1-1), FEMA must fully understand and consider the environmental consequences of actions proposed for federal funding.

The proposed project would occur in two phases, which are considered "connected actions" pursuant to 40 C.F.R. §1508.25. Connected actions are proposed Federal actions that are "closely related" and that must be discussed within the same NEPA document. This Environmental Assessment (EA) evaluates both phases of this project comprehensively as one proposed project. The purpose of this EA is to meet FEMA's responsibilities under NEPA and to determine whether to prepare a Finding of No Significant Impact (FONSI) or a Notice of Intent (NOI) to prepare an Environmental Impact Statement (EIS).

## 1.2. Project Area

The project is located within the City of Frederick in central Maryland. The proposed project would occur within the YMCA Flooding Area in the suburban community of Monocacy Village Park, which has a population of approximately 2,900. The project limits extend along Mews Lane from E. 9th Street to just east of N. East Street and includes improvements to outflows in the adjacent Abraham Faw Run. A map showing the general location of the proposed project is included in Appendix A (Figure 1).

## 1.3. Purpose and Need

The objectives of FEMA's FMA Grant Program are to reduce or eliminate the risk of repetitive flood damage to buildings and structures insured by the National Flood Insurance Program (NFIP). In addition, FEMA's PDM Grant Program provides technical and financial assistance to states and local governments to assist in the implementation of pre-disaster hazard mitigation measures that are cost-effective and designed to reduce injuries, loss of life, and damage and destruction of property, including damage to critical services and facilities resulting from natural disasters. The purpose of the proposed project is to reduce hazards associated with the potential for flooding from a

catastrophic failure of the stormwater system in an area prone to flood hazards and that has experienced significant storm events and damage in recent years.

Improvements to the stormwater management system are needed to reduce flooding risks and hazards in the project area. Stormwater infrastructure improvements are needed to decrease the amount of surface runoff reaching the project area, increase subsurface stormwater system outflow capacity, and improve surface drainage. Recent major flooding events in 2015 and 2018 have also underscored the need for a more comprehensive approach to addressing inadequate stormwater management infrastructure.

In 2020, the U.S. Army Corps of Engineers (USACE) conducted a City of Frederick Flood Resiliency Study which identified five project areas for further study of stormwater management improvements to reduce flooding hazards throughout the City. This Motter Avenue project area was identified as the first of these five geographic areas for the City's comprehensive Flood Resiliency Plan (USACE 2020). The USACE study identified the following issues within the project area's stormwater system that contribute to high flood risks:

1. **Inadequate "trunk line" stormwater pipe near the YMCA.** The existing trunk line pipe (i.e., largest pipe in the system) is a 78-inch diameter concrete pipe at the outfall, decreasing in size to a 54-inch concrete pipe at the W. 9th Street-Fairview Avenue intersection.
2. **Inadequate secondary stormwater pipe sizes.** Stormwater modeling conducted for this study indicate that most secondary lines are undersized, causing runoff to exit inlets, run down streets, and pond in the lowest area of the watershed, near the YMCA.
3. **Stormwater ponds located in the watershed have an emergency spillway that dumps back into a system that is full to capacity.** This water cannot enter the underground system and runs down the streets and ponds in the lowest area of the watershed (YMCA).
4. **Stormwater quantity management is insufficient.** There is insufficient stormwater quantity management for impervious areas in the watershed that were constructed prior to modern stormwater management regulations being enacted.

The project is also needed to reduce potential injuries, loss of life, and damage and destruction of property, including damage to critical services and facilities resulting from future natural disasters. Because of climate change, the state of Maryland is experiencing more intense rainfall and severe storms, which increase the risk of inland flooding and associated soil erosion (University of Maryland Extension 2023). Additionally, the City of Frederick's Climate Action Plan has identified flooding as the main hazard concern in the City (City of Frederick 2021). Without additional capacity and stream stabilization improvements, climate change could contribute to additional water system failures, flooding, additional soil erosion, and the potential exists for stream migration over time, further increasing the potential for impacting adjacent properties and park infrastructure.

The recent extreme flooding events in 2015 and 2018 resulted in extensive damage to property and infrastructure in the project area. During the 2015 flooding event, water rushing down an exterior staircase caused \$1.6 million in damage to the YMCA facility at 1000 N. Market Street. Following the 2015 flooding event, the YMCA purchased exterior doors and built stone walls to prevent repeat

damage following that event. However, during the 2018 flood, water rushed up through the sewer system, inundating the basement with an estimated 10 feet of water and causing over \$1.3 million in damage to the building. Since 2018, the YMCA added flood gates and other protections, significantly reducing the flood risk to the YMCA building. Yet, the YMCA improvements do not change the hazard to the surrounding residential properties, which remain at risk for repeat damages in future flood events. Houses along Motter Avenue flooded twice in the 2018 flooding event, once when water poured in from outside, and again the next morning when the City's overburdened stormwater system backed up. According to data from FEMA's NFIP Redacted Claims, sixteen separate loss claims were filed within the project area following the 2018 flooding event. In addition, during the 2018 flooding event, several primary roadways were inaccessible due to flooding, which caused significant issues for first responders trying to assist those in need.

### 1.4. Existing Facility

The existing project area is the primary area at risk of flooding (YMCA Flooding Area) within an approximately 352-acre drainage basin in the headwaters of the Park Branch watershed in Frederick, Maryland. This 352-acre drainage basin is generally bound by East Street up to 14th Street on the north, 7th Street Shopping Center and portions of College Estates Subdivision on the west, and 7th Street on the south. Within the project area, the existing trunk line comprises large 72-inch and 78-inch diameter concrete pipes. Existing pipe diameters within the YMCA south parking lot are smaller and range from approximately 4 inches to 12 inches in diameter. The area is a developed suburban area with a mix of residential and commercial uses.

The stormwater system outfalls to Monocacy Village Park into Abraham Faw Run (at 39.428232, -77.402724), a stream that is tributary to the Monocacy River. The stream is currently severely eroded with undercut banks in many areas. Surrounding land uses adjacent to the stream include park infrastructure and private residential property. A map of the existing structures, inlets, and pipes and photos of this outfall location are included in Appendix A (Figures 2 and 3).

## SECTION 2. Alternatives Analysis

In accordance with federal laws and FEMA regulations, the EA process for a proposed federal action must include an evaluation of alternatives. This section describes the No Action alternative, the Proposed Action, and alternatives that were considered but dismissed from further evaluation in this EA. Alternatives were evaluated for their ability to address the purpose and need, engineering constraints, and environmental impacts, as well as hazard mitigation, resilience, and restoration goals outlined in Frederick County's Hazard Mitigation and Climate Adaptation Plan (Frederick County 2022a).

### 2.1. Alternative 1 – No Action

Under the No Action alternative, the existing stormwater system would be maintained and repaired regularly to maintain the system, and the City would conduct routine erosion control to maintain the Abraham Faw Run. Additional parallel pipe capacity would not be built and enhancing pipe diameters would not be feasible given the existing conditions and outflow capacity at Abraham Faw Run. Under this alternative, the risk to people and property from flooding events and associated inundation would remain and could increase due to climate change effects, including higher intensity storm and flood events (University of Maryland Extension 2023).

### 2.2. Alternative 2 – Motter Avenue Flood Mitigation (Proposed Action)

The Proposed Action would increase trunk line capacity, improve surface drainage, and stabilize and restore stream conditions. Development would occur in two phases, as outlined below. A map of proposed improvements and limits of disturbance are included in Appendix A (Figures 4 and 5, respectively). Design plans for the Phase 1 improvements are included in Appendix A.

Phase 1 (FEMA Grant ID: EMP-2020-FM-038-001) would increase trunk line capacity and improve surface drainage along Mews Lane from E. 9th Street to just east of N. East Street. Information for Phase 1 is based on the 65 Percent Design Drawings and the Concept Report for Phase 1; key design plans are included in Appendix A (see Figures 7-9). Improvements would include:

- Creating a parallel system (60-inch diameter high-density polyethylene [HDPE] piping system) along the trunk line starting from Mews Lane north of E. 9th Street (Pipe ID 45-41) all the way to the system outfall at the Abraham Faw Run, resulting in an additional approximately 1,680 feet of pipe.
- Increasing sizes of the pipes in the south parking lot of the YMCA to 36-inch diameter (Pipe ID 40-39 to Pipe ID 37-36). The existing pipe diameter at Pipe ID 40-39 is approximately 4 inches, and the existing pipe diameters at Pipe IDs 39-37, 38-37, and 37-36 are 12 inches.
- Adding a new drainage line with three new 4-foot by 2-foot inlets at the low points in the YMCA south parking lot. The new inlets (Pipe IDs 515-517) would be connected to the existing system

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using approximately 68 feet of 36-inch diameter pipes to connect with the increased pipe sizes in the south parking lot.

- Constructing a new 45.5-foot-long by 27-foot-wide plunge pool outfall within the park to facilitate storm flows into the existing channel and provide energy dissipation for stormwater flows. The plunge pool would be constructed out of riprap and would provide 91 cubic yards of volume for energy dissipation. The area immediately surrounding the pool would be graded to tie into the existing channel and stream slopes.

Trenching would be used to install pipes. Construction equipment would include excavators, backhoes, rollers, loaders, pavers, vehicles, and other standard construction equipment. Temporary construction staging and stockpiling would occur within existing surface lots and on previously disturbed vacant county-owned land. The maximum excavation for stormwater improvements would be approximately 20 feet deep. The width of excavation for trenching activities for the 60-inch piping system and the pipes in the YMCA parking lot would generally range from 17 to 25 feet. The limits of disturbance would be wider in certain areas to accommodate storm drain junction boxes, maintenance holes, and areas where the storm sewer pipes change direction. The maximum excavation for grading the plunge pool would be approximately 11 to 12 feet deep. The limits of disturbance would include grading around the plunge pool and would be a maximum of approximately 120 feet wide. The total area of disturbance for Phase 1 activities would be approximately 1.4 acres and the amount of excavation and fill would be approximately 11,576 cubic yards of cut/fill.

Phase 2 (FEMA Grant ID: LPDM-PJ-03-MD-2022-004) would stabilize and restore eroding streambanks in Abraham Faw Run, improve stormwater treatment, and be designed to address flows and forces associated with the Phase 1 capacity improvements. The Phase 2 project area extends from the outfall of the culverts and the plunge pool constructed as part of Phase 1, which are just northeast of the intersection of N. East Street and Delaware Road, to approximately 500 feet downstream (see Appendix A, Figure 4). Information for Phase 2 is based on the 30 Percent Design Drawings for Phase 2; key design plans are included in Appendix A (see Figures 10–11).

Existing riprap would be excavated and removed. Approximately 500 feet of stream would be graded. Grading would occur within 15 feet of either side of the stream, resulting in approximately 15,000 square feet of total disturbance. Approximately 2.7 acres would be disturbed from construction access. The following erosion and sediment control measures would be implemented within the Phase 2 project area to prevent runoff into the stream: rock sill, riffle with log rollers and reinforced substrate, toewood, and coir matting and live stakes. These measures are discussed in more detail below:

- Three rock sill structures would be installed in Abraham Faw Run (one upstream and two downstream). Each rock sill structure would consist of a rock wall perpendicular to the streambanks. The upstream rock sill structure would be installed directly downstream of the plunge pool and a riprap pad, approximately 40-feet by 30-feet, would be installed directly on the downstream end of this rock sill wall to provide extra erosion protection.

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- Riffle structures with log rollers and reinforced substrate would be installed periodically within the stream improvement area. Riffle structures and reinforced substrate would consist of stones or erosion-resistant materials that are elevated above the rest of the stream. Log rollers would be installed across the stream in these areas. The stream would be graded such that sections of riffle structures and reinforced substrate would be followed by shallow pools approximately 1 foot lower than the riffle structures.
- Coir matting and live stakes would be installed in areas of shallow pools. Coir matting consists of woven, fibrous mats that control erosion and allow for seedlings to grow; live stakes are dormant cuttings that are planted to control erosion.
- Toewood structures would be installed perpendicular to bends in the stream.

To reduce future erosion, the proposed streambank slopes would be graded to a maximum ratio of 2 horizontal units to 1 vertical unit for pools and 3 horizontal units to 1 vertical unit for riffle structures. The maximum depth of ground disturbance would be approximately 4 feet for the installation of rock sills and 2 feet for other erosion control measures.

Following grading and installation of erosion control measures, seed and mulch would be applied on the banks to provide additional erosion control. Seeding and mulching would be conducted in accordance with "Maryland Standards and Specifications for Soil Erosion and Sediment Control" and other state and local requirements. Seed mixes consisting of native plant materials would be used in conjunction with erosion control blankets and/or matting to stabilize the stream banks and remaining disturbed areas. Trees that have roots along the stream bank would be preserved to the maximum extent practical to assist with stabilization. Mulching would be minimized to tree areas where seed mixes are unlikely to germinate. Various trees and shrubs would be planted along 500 feet of streambanks. Native plants would be prioritized for restoration, though it is possible that some non-native plants may be used (Department of Legislative Services 2017; Frederick County 2022b). A final landscape plan would be developed during subsequent design in accordance with Maryland Waterways Construction Guidelines, the Maryland Forest Conservation Act, the State Forest Conservation Technical Manual, and the City of Frederick's tree and shrub planting standards.

Equipment for Phase 2 would likely include excavators, backhoes, loaders, dump trucks, vehicles, and other standard construction equipment. Construction would start at the upper end of Abraham Faw Run just downstream of the plunge pool completed as part of Phase 1. A pump would be installed to pump water from the work area to a section downstream so that construction would occur in the dry. The contractor would then regrade the banks and install the instream structures in accordance with the design plans. This process would be repeated until the entire stream has been restored. Stockpiling of materials would be located on the site and within the construction access area. Phase 2 improvements would be designed in accordance with the "2011 Maryland Standards and Specifications for Soil Erosion and Sediment Control" and the "Maryland Waterways Construction Guidelines" updated in 2000 and would meet requirements to obtain Natural Resources Conservation Service (NRCS) and Maryland Department of the Environment (MDE)



approval for construction permits. Any in-water work would be performed in accordance with environmental permitting requirements as part of final design.

The construction timeline would be approximately 36 months. The City would be responsible for conducting long-term inspections and maintenance of the project area.

### **2.3. Alternatives Considered and Eliminated from Further Consideration**

The 2020 USACE Study considered four alternatives to the Proposed Action, which were eliminated from further discussion and analysis in this EA.

#### **2.3.1. STORMWATER DETENTION PONDS**

One alternative considered providing stormwater detention ponds as a potential alternative to improving capacity of the pipe system. Three potential upstream areas were identified where stormwater could be detained within the project area: the Frederick Shopping Center, Staley Park, and the Frederick Medical Center. Stormwater modeling was conducted to measure the effectiveness of this alternative. The results indicated that none of these three measures would result in a significant decrease in flooding in the project area. Providing stormwater detention at Staley Park resulted in the maximum decrease in flooding (1.1 feet) but the maximum flooding depth still exceeded 4 feet. Analysis of the model results indicated that even if no stormwater discharges into the main system from the sub-systems that were modeled, severe backwater would occur in pipes immediately downstream of the proposed detention facilities. This indicates that there are undersized pipes downstream of the conceptual detention areas which cause water to back up in the system. Even if all stormwater detention in all three areas were constructed, the resultant maximum flood depths at the YMCA during a 10-year, 24-hour storm would be of 3.2 feet (a 2.4-foot decrease). As a result, this alternative would not meet the purpose and need for the project and was eliminated.

#### **2.3.2. DETENTION FACILITY**

A second alternative considered the feasibility of constructing a detention facility adjacent to the YMCA. Part of the source of flooding within the YMCA Flooding Area is due to the surface runoff from portions of the network which have had their capacity exceeded. This measure would require eminent domain or purchase of 15 residential properties south of the YMCA to build a detention pond. A minimum pond volume of 30.2 acre-feet and a minimum pond depth of 17.8 feet would be required to fully detain surface runoff based on the 10-year, 24-hour stormwater modeling. This location also cannot accommodate these minimum volumes and depths. For these reasons, this alternative would not meet the purpose and need for the project and was eliminated.

#### **2.3.3. INCREASED PIPE SIZE (78 INCHES TO 102 INCHES)**

A third alternative considered increasing the trunk line size and adding additional inlets near the YMCA. Like the Proposed Action, this alternative would include increasing the capacity of pipes along the main trunk line from Mews Lane north of E. 9th Street to the system outfall, increasing the

diameter of pipes in the YMCA south parking lot, and adding a new drainage line with three new inlets at the low points in the YMCA south parking lot. More substantial increases in pipe diameter improvements were considered for this alternative and would replace existing pipes with increased pipe diameters ranging from 78 inches to 102 inches. The 10-year, 24-hour stormwater modeling indicated that this alternative would result in the same level of flood depths within the YMCA flooding area (1.7 feet) as the Proposed Action. As such, it would meet the purpose and need for the project. However, it would not improve conditions over the Proposed Action, was determined to cost almost five times the cost estimated for the Proposed Action and would result in additional construction footprint and impacts. Substantial increases to costs would be due to the fact that pipes over 60 inches in diameter would need to use reinforced concrete, instead of lower-cost HDPE. There would also be substantial additional costs associated with the need for building temporary shoring. This temporary shoring would need to be built under this alternative because trench boxes can only accommodate pipe sizes up to 72 inches in diameter. In addition, installation of temporary shoring required under this alternative would result in larger construction footprints and impacts. For these reasons, this alternative was eliminated from further consideration.

### **2.3.4. PARALLEL PIPE SYSTEM**

A fourth alternative considered installing a parallel pipe system along E. 9th Street and N. East Street. Besides the measures to reduce surface runoff and to increase trunk line pipe capacity, this alternative considered the potential to divert and redirect stormwater from reaching the trunk line within the YMCA Flooding Area into a parallel pipe along E. 9th and N. East Streets. This alternative would include severing pipes west of N. Market Street between W. 9th and W. 10th Streets and along Mews Lane north of 9th Street, adding new pipes along W. 10th Street and N. Market Street, and adding new pipes along E. 9th Street and N. East Street. By severing the existing pipes and adding new pipes, the trunk line in the YMCA Flooding Area would be used to convey only the stormwater generated from areas north of Staley Park. Stormwater generated from all other upstream areas would be redirected through the new line along E. 9th Street.

Based on stormwater modeling, during a 10-year, 24-hour storm maximum flood depths at the YMCA Flooding Area would be 1.1 feet under the fourth alternative. This would reduce flood depths an additional 0.6 feet over the Proposed Action; however, this alternative would result in significantly higher costs than the Proposed Action and would result in larger construction footprints and impacts. Installing a new line along E. 9th Street and N. East Street would cost over seven times the cost of the Proposed Action. Construction impacts would be more substantial due to (1) the larger footprint of installing this new line at these locations, (2) the proposed pipes would need to be 84 inches in diameter, requiring use of reinforced concrete instead of lower-cost HPDE, and (3) pipe sizes exceed the maximum pipe size that can be installed with trench boxes and would require building temporary shoring. In addition, sections of the pipe would need to be buried 20-feet below-ground at the deepest section and would also result in more costs and construction impacts. For these reasons, this alternative was eliminated from further consideration.

## SECTION 3. Affected Environment and Consequences

This section describes the environment potentially affected by the alternatives, evaluates potential consequences under the No Action and Proposed Action alternatives, and recommends measures to avoid or reduce those impacts. Consequences were evaluated based on impact intensity and duration (as defined in Table 3-1).

**Table 3-1. Impact Intensity Thresholds and Impact Duration Definitions**

Impact Threshold	Definition
<b>Intensity</b>	
<b>Negligible</b>	Changes or benefits would be either nondetectable or have effects that would be slight and local. Impacts would be well below regulatory standards, as applicable.
<b>Minor</b>	Changes to the resource would be measurable, although the changes would be small and localized. Impacts or benefits would be within or below regulatory standards, as applicable. Mitigation measures would reduce any potential adverse effects.
<b>Moderate</b>	Changes to the resource would be measurable and have either localized or regional-scale impacts/benefits. Impacts would be within or below regulatory standards, but historical conditions would be altered on a short-term basis. Mitigation measures would be necessary, and the measures would reduce any potential adverse effects.
<b>Major</b>	Changes would be readily measurable and would have substantial consequences on a local or regional level. Impacts would exceed regulatory standards. Mitigation measures to offset the adverse effects would be required to reduce impacts, though long-term changes to the resource would be expected.
<b>Duration</b>	
<b>Short-term impact</b>	Recovers in less than three years and does not contribute to a beneficial effect.
<b>Long-term impact</b>	Takes three or more years to recover and does not contribute to the long-term beneficial effect.
<b>Long-term benefit</b>	Takes three or more years to recover and contributes to the long-term beneficial effect.

### Preliminary Screening of Assessment Categories

Preliminary screening narrowed the list of categories for which detailed assessments must be performed. The categories were screened based on available information on the general project area

and the No Action and Proposed Action alternatives. The categories that were eliminated from further assessment were seismic hazards, sole source aquifers, coastal resources, essential fish habitat, and land use and zoning.

According to the U.S. Geological Survey (USGS), seismic hazards are very low in Frederick County (USGS 2018) and are unlikely to contribute to the failure of stormwater infrastructure under the No Action or Proposed Action alternatives. Thus, there will be no further discussion of seismicity.

The U.S. Census Bureau (2010) designated Frederick, Maryland as an urban area. Therefore, the Farmland Protection Policy Act is not applicable to the No Action or Proposed Action alternatives and no further compliance work is necessary (7 C.F.R. 658.2[a]).

The project area is not over a sole source aquifer (U.S. Environmental Protection Agency [EPA] 2022a). Therefore, the No Action and Proposed Action alternatives would not affect sole source aquifers and review under Section 1424(e) of the Safe Drinking Water Act governing sole source aquifers is not required.

According to the MDE, Frederick County is not within the coastal zone (MDE 2020). Furthermore, this project is not within or near a Coastal Barrier Resource Unit based on the U.S. Fish and Wildlife Service (USFWS) Coastal Barrier Resources System mapper (USFWS 2019). Therefore, the No Action and Proposed Action alternatives would not affect coastal resources in accordance with the Coastal Zone Management Act and the Coastal Barrier Resources Act. There will be no further discussion of coastal zone management or coastal barrier resources.

A search of National Marine Fisheries Service (NMFS) Essential Fish Habitat mapping tool did not reveal any designated essential fish habitat in or around the project area (NMFS 2022). The No Action and Proposed Action alternatives would not have any impact on essential fish habitat in accordance with the Magnuson-Stevens Fishery Conservation and Management Act.

The Proposed Action would occur along parking lots and residential streets, classified by the City of Frederick as residential, institutional, light industrial, and general commercial zones, and within the Monocacy Village Park, an area that is classified as parkland (City of Frederick 2013). The No Action and Proposed Action alternatives would not change existing land use and would be consistent with the current zoning; therefore, no further discussion of land use and zoning is required.

### **3.1. Physical Environment**

#### **3.1.1. GEOLOGY, TOPOGRAPHY, AND SOILS**

The project area is in the western part of the Piedmont Plateau physiographic province. Bedrock underlying central Frederick County consists of Cambrian and Ordovician limestone and dolomite (Maryland Geological Survey 2022). The overall project area is relatively level with a gentle slope down to the northeast toward Monocacy Village Park (park). The elevation ranges from approximately 300 feet above mean sea level near the YMCA building in the southwestern part of the project area

to approximately 275 feet above mean sea level in the park (USGS 2022). Slopes in the project area generally range from 0 to 8 percent (NRCS 2022).

According to the NRCS Web Soil Survey, the predominant soil types in the Phase 1 project area are Adamstown-Funkstown complex and Duffield-Hagerstown Urban land complex; the predominant soil types in the Phase 2 project area are Adamstown-Funkstown complex, Buckeystown loam, and Duffield-Ryder silt loams (NRCS 2022). These soils are moderately susceptible to erosion by water. Depth to bedrock throughout the project area is greater than 6.5 feet (NRCS 2022).

### **Alternative 1 – No Action**

Under the No Action alternative, there would be no construction-related short-term impacts on geology, topography, or soils within the project area. However, the risk of flooding would not be reduced and the Abraham Faw Run streambanks would not be stabilized. Flooding would not be expected to affect geology or alter topography because of the gentle slopes in the area. However, floodwaters would continue to cause soil erosion, particularly along the stream where conditions are already degraded. Streambank erosion would result in soil loss, undercut banks, or possible bank failure and could damage or kill vegetation along the stream. Loss of vegetation would further contribute to erosion in the flooded area, particularly along the streambanks in the park. The No Action alternative would have long-term minor impacts on soils in the project area and vicinity, depending on the extent and duration of flood events.

### **Alternative 2 – Motter Avenue Flood Mitigation (Proposed Action)**

The Proposed Action would have minor short-term impacts on geology, topography, and soils from earth-disturbing activities, such as excavation and grading. Under Phase 1, the depth of the new 60-inch-diameter stormwater pipe would be a maximum of approximately 20 feet below the ground surface. Grading for the riprap plunge pool where stormwater would outfall into the park would be approximately 12 feet deep. Staging areas would be within previously disturbed surface lots and county-owned property. During Phase 2, the maximum depth of ground disturbance would be 4 feet for installation of rock sills. Existing rock would be excavated, and measures such as reinforced substrate and riffle structures would be placed to provide stream protection. The staging area for Phase 2 activities would occur in a grassy area in the park near existing road infrastructure. Construction would be short-term, and the City would install and maintain erosion and sediment control measures in compliance with the latest version of the "Maryland Standards and Specifications for Soil Erosion and Sediment Control" and appropriate permits, such as the MDE Permit for Stormwater Discharge Associated with Construction Activity (discussed in Section 3.1.2). The Maryland standards provide details about common control practices that are used in erosion and sediment control plans. These standards include grading and stabilization practices (e.g., temporary and permanent stabilization matting), water conveyance (e.g., diversion pipes), erosion control (e.g., plunge pool, outlet protection), filtering (e.g., inlet protection, silt fence), dewatering, and sediment trapping practices (MDE 2011). Additionally, the City would manage construction activities to prevent pollutants and debris from entering stormwater runoff and develop a sediment and erosion control plan in compliance with the MDE General Construction permit, as discussed in more detail in Section 3.1.2.

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The following best management practices (BMPs) would be implemented according to project design plans.

- The contractor shall maintain, repair, and/or replace any existing sediment control devices encountered and disturbed during construction. At the end of each day, all measures and devices shall be repaired and replaced before leaving the work site.
- All disturbed areas not stabilized with structures, paving, and/or plantings shall be stabilized with four inches of topsoil, seed, and mulch, and watered to establish adequate growth of grass.
- Excavated fill material would be used for backfill. Any fill unsuitable for backfill shall be disposed of at an approved location.

The Proposed Action would have no long-term impacts on geology or topography. The Proposed Action would reduce the risk of flooding and the associated risk of erosion in the project area. Additionally, the streambanks of Abraham Faw Run would be stabilized with sediment and erosion control measures, such as riffle and log roller structures, coir matting, seeding, and protecting/replanting of trees and shrubs, as described in Section 2.2. Trees that have roots along the stream bank would be preserved to the maximum extent practicable to assist with stabilization. Plants reduce soil erosion by holding soil in place during floods with their roots and breaking up the flow of water (EPA n.d.). Thus, the Proposed Action would have minor long-term benefits on soils in the project area.

### 3.1.2. WATER RESOURCES AND WATER QUALITY

The Clean Water Act (CWA) of 1972, as amended, regulates discharge of pollutants into water, with sections falling under the jurisdiction of the USACE and EPA. Section 404 of the CWA establishes USACE permit requirements for discharging dredged or fill materials into waters of the United States and traditional navigable waterways. Under the National Pollutant Discharge Elimination System, EPA regulates both point and nonpoint pollutant sources, including stormwater and stormwater runoff. A National Pollutant Discharge Elimination System Permit is required to implement activities that involve 1 acre or more of ground disturbance. For the Proposed Action, the applicable permit would be the MDE General Permit for Stormwater Discharge Associated with Construction Activity (Permit Number 20-CP).

CWA Section 303(d) requires states to identify waters that do not or are not expected to meet applicable water quality standards with current pollution control technologies alone. Under Section 303(d), states must develop total maximum daily loads (TMDL) for impaired waterbodies. A TMDL establishes the maximum amount of a pollutant or contaminant allowed in a water body and serves as a planning tool for restoring water quality. In Maryland, MDE is responsible for compliance with Section 303(d) of the CWA.

The project area is in the Carroll Creek-Monocacy River watershed, in hydrologic unit code 02070009. The project area is along the Abraham Faw Run, which is an approximately 1.5-mile-long tributary to the Lower Monocacy River. Regionally, the Abraham Faw Run flows northeast through the

City of Frederick, then east through the park into the Lower Monocacy River. As discussed in Section 1.4, the stream is severely eroded with undercut banks and may migrate as a result of additional erosion. Approximately 0.25 acres of Abraham Faw Run, considered a water of the U.S., was recorded within the project area during a 2023 survey.

To comply with CWA Section 303(d), MDE maintains a database of waters requiring a TMDL, also known as the 303(d) list or Category 5 waters. The Lower Monocacy River, including its tributaries, has TMDLs in place for the following impairments: phosphorus, total suspended solids and sediment, and fecal coliform. Because TMDLs are in place to address these sources of impairments, the Lower Monocacy River is not included on the 303(d) list of impaired waters requiring a TMDL to be established (EPA 2022b).

Figure 6, Appendix A shows the surface waterbodies in and near the project area.

### **Alternative 1 – No Action**

Under the No Action alternative, the risk of flooding in the YMCA Flooding Area would not be reduced. Flood waters would erode soils and transport sediments and debris into Abraham Faw Run. Erosion and sedimentation into the stream would exacerbate already degraded conditions of the stream. The stream would transfer sediments into the Lower Monocacy River, potentially affecting the TMDL for total suspended solids and sediment. In recent flood events, flood waters have inundated properties, such as the YMCA, before receding to the stream. While crossing pavement, flood waters could pick up pollutants such as oil and grease and transfer them into the river. If flooding causes sewer backups, as was the case in the 2018 flood of the project area vicinity, there is the potential for the release of pathogens into floodwaters and the stream, which could affect the TMDL for fecal coliform in the Lower Monocacy River. Thus, the No Action alternative would have a minor long-term impact on water quality in the project area.

### **Alternative 2 – Motter Avenue Flood Mitigation (Proposed Action)**

The Proposed Action would have minor short-term impacts on water quality from construction-related activities, which could result in the discharge of pollutants and sediments into waterbodies. The most common pollutant to surface waters from construction sites is sediment and turbidity; however, other contaminants, such as metals, trash and debris, and petroleum hydrocarbons can also enter nearby waterbodies from construction sites (EPA 2009). Construction activities would be temporary, and the City would implement erosion and sediment control BMPs and BMPs related to the use of fill, as discussed in Section 3.1.1. The City would manage construction activities to prevent pollutants and debris from entering stormwater runoff and thus from entering surface waters in compliance with the MDE General Permit for Stormwater Discharge Associated with Construction Activity (Permit Number 20-CP). The City would implement an erosion and sediment control and stormwater management plan before construction, in accordance with the general permit for construction activity. During construction of Phase 2, water in Abraham Faw Run would be diverted around the construction area and pumped to a section downstream of the work area so that construction work would occur in the dry.



Because of the nature of project activities (stormwater improvements and streambank stabilization and restoration), a USACE CWA Section 404 Permit would likely be required. The 404 permit provides requirements for the discharge of dredged and placement of fill material, streambank construction, and restoration of the site. The City would be required to coordinate with USACE to determine the required permit authorization needed.

In the long term, the City would reduce the risk of flooding in the project area by implementing stormwater improvements and stabilizing approximately 500 feet of streambank. The stormwater improvements would increase capacity of the system to handle flows from storm events and would improve surface drainage into Abraham Faw Run. As discussed in Section 3.1.3, Phase 1 of the Proposed Action would reduce the extent and the depth of flooding within and near the project area (as shown in the hydrologic and hydraulic analysis in Appendix B). Additionally, the streambank improvements under Phase 2 of the Proposed Action would stabilize Abraham Faw Run to better handle the flow and force of the stormwater conveyed to the stream. Therefore, the Proposed Action would have minor long-term benefits on water quality by reducing the risk of flooding and associated impacts, such as the transfer of sediments and contaminants into the stream.

### **3.1.3. FLOODPLAIN MANAGEMENT (EXECUTIVE ORDER 11988)**

Executive Order (EO) 11988, Floodplain Management, requires federal agencies to avoid, to the extent possible, the short- and long-term impacts associated with the occupancy and modification of floodplains and avoid direct or indirect support of development within the floodplain whenever there is a practicable alternative. Each federal agency must take action to reduce the risk of flood loss; minimize the impact of floods on human safety, health, and welfare; and restore and preserve the natural and beneficial values served by floodplains in carrying out its responsibilities. FEMA uses an eight-step decision-making process to evaluate potential impacts on floodplains and mitigate those impacts in compliance with EO 11988 and 44 C.F.R. Part 9.

The City of Frederick Code of Ordinances, Article IV, Section 31-30 provides requirements for development that affects floodways and special flood hazard areas. For work within floodways, applicants must obtain appropriate permits and develop hydrologic and hydraulic engineering analyses that demonstrate the activity will not result in any increase in the base flood elevation.

FEMA maintains a list of communities that participate in the NFIP called the Community Status Book. According to the Community Status Book, the City of Frederick participates in the NFIP (FEMA 2022). According to FEMA Flood Insurance Rate Map Panel 24021C0292E, effective August 1, 2023, the eastern part of the project area (i.e., where stream stabilization activities are proposed under Phase 2 and a small portion of the new parallel pipeline and outfall are proposed under Phase 1) is within Flood Zone AE regulatory floodway and Zone AE, which are subject to inundation by the 1 percent annual chance flood, and Zone X (shaded), an area subject to a 0.2-percent annual chance flood. According to FEMA Flood Insurance Rate Map Panel 24021C0291E, effective August 1, 2023, the western part of the project area (i.e., where enclosed storm drainage improvements are proposed) is within Zone X (unshaded), an area of minimal flood hazard.



However, the hydrologic and hydraulic analysis for the Proposed Action, conducted in 2022 and included in Appendix B, models the extent of flooding along Mews Lane and the YMCA in Phase 1 of the project area. The modeling shows that the maximum existing flood depth along Mews Lane is approximately 2.9 feet, 5.1 feet, and 7 feet for the 2-, 10-, and 100-year storm events, respectively. These findings are consistent with the stormwater quantity modeling in the 2020 USACE study, which was performed in an event-based environment to identify and confirm stormwater flooding risks without further improvements. Based on that analysis, the primary area that is at risk of continued flooding is the YMCA Flooding Area. Secondary areas of flood risk include the commercial building at 1195-1209 N. East Street, Frederick National Little League Ballfield, residential properties along E. 9th Street and W. 9th Street, N. Market Street, and W. 10th Street, with additional flood risk at isolated properties in upland portions of the watershed. These secondary areas are at risk of “nuisance flooding,” with depths affecting the properties or roadways less than one foot for a 10-year, 24-hour storm event (USACE 2020). Flood depths within the primary and secondary areas of flood risk are sufficient to endanger people and property.

### **Alternative 1 – No Action**

Under the No Action alternative, the risk to people and property from flooding events and associated inundation would remain and would likely increase as a result of the increased intensity and frequency of storm and flood events expected due to climate change. Flood events could threaten lives and damage properties near the project area, such as has occurred with the historical flood events described in Section 1.3. Impacts from historical flood events have included direct flooding of and damage to numerous homes and businesses including the YMCA, sewer backups, road closures, and erosion and migration of the stream channel.

Therefore, the No Action alternative would have moderate long-term impacts on people and property within the floodplain as well as on natural floodplain functions.

### **Alternative 2 – Motter Avenue Flood Mitigation (Proposed Action)**

The Proposed Action would have minor short-term impacts on the 100-year floodplain because of construction, including excavation and fill activities, which would occur within the floodplain. Construction activities could cause an accidental release of hazardous waste during the construction period because of minor leaks from construction equipment, and ground-disturbing activities could cause sediment to enter the Abraham Faw Run. However, construction activities would be temporary, and the County would implement erosion and sediment control BMPs and BMPs related to the use of fill, as discussed in Section 3.1.1. As discussed in Section 3.2.1, construction of the Proposed Action would require removal of approximately 0.3 acres of vegetation, including trees, in the upstream end of the Phase 2 restoration area. This would also result in temporary impacts on natural and beneficial values of floodplains.

The Proposed Action would be conducted in compliance with the MDE General Permit for Construction Activity, which would require the City to implement measures to control discharge of pollutants, erosion, and sedimentation from the construction site to protect water quality, as discussed in Section 3.1.2. Fill, material, and debris would not be stored in the 100-year floodplain. As mentioned in Section 3.1.2, the Proposed Action would likely require a CWA Section 404 Permit

that would provide requirements for the discharge of dredged and fill material into waterbodies. The City must coordinate with the local Floodplain Administrator and obtain any required permits prior to initiating work. Per the City of Frederick Code of Ordinances, Article IV, Section 31-30, the Proposed Action must not result in an increase in the base flood elevation of the floodway. As discussed in Section 3.2.1, vegetation removal would be limited to that which is necessary to construct the Proposed Action as well as to remove dead trees and invasive species, and the final landscaping plan would be developed in accordance with state and local planting guidelines. All disturbed areas would be restored to pre-construction conditions through paving, plantings, seed, or mulch. Compliance with these required permits and implementation of BMPs would minimize potential construction impacts on the floodplain.

The Proposed Action would have a minor long-term beneficial effect on the floodplain. According to the hydrologic and hydraulic analysis for the Proposed Action, included in Appendix B, Phase 1 of the Proposed Action would reduce the extent and the depth of flooding along Mews Lane and the YMCA, for the 2-, 10-, and 100-year storm events as compared to current conditions modeled in the hydrologic and hydraulic analysis. Reduced flood depths may also result in a shorter duration of flooding in areas that still flood. The hydraulic analysis also shows that, under the Proposed Action, the risk of flood loss or flood hazard potential for properties downstream would not be increased in the 10- or 100-year return frequency storm events. Thus, the Proposed Action would reduce the severity, magnitude, and duration of flooding in and near the project area, as well as associated impacts, such as downstream erosion and risks to human health and safety.

Phase 2 of the Proposed Action, including the installation of stream stabilization and restoration features, would reduce bank erosion, resulting in reduced sedimentation and water quality impacts downstream. Therefore, the Proposed Action could have minor long-term benefits on floodplains by supporting the natural and beneficial values served by floodplains and wetlands.

Appendix B includes the eight-step decision-making process for floodplains.

### **3.1.4. AIR QUALITY**

The Clean Air Act (CAA) of 1970 (42 U.S.C. 7401–7661 [2009]) is a comprehensive federal law that regulates air emissions from area, stationary, and mobile sources. The CAA authorized EPA to establish National Ambient Air Quality Standards (NAAQS) to protect public health and the environment. The NAAQS include standards for six criteria air pollutants: lead, nitrogen dioxide, ozone, carbon monoxide, sulfur dioxide, and particulate matter. Particulate matter includes both particulates less than 10 micrometers in diameter and fine particulates less than 2.5 micrometers in diameter. Areas where the monitored concentration of a criteria pollutant exceeds the applicable NAAQS are designated as being in nonattainment of the standards, while areas where the monitored concentration of a criteria pollutant is below the standards are classified as being in attainment. Maintenance areas are those where air quality has exceeded the standards in the past but that are currently in compliance with NAAQS.

Federally funded actions in nonattainment and maintenance areas are subject to EPA conformity regulations (40 C.F.R. Parts 51 and 93), which ensure that emissions of air pollutants from planned

federally funded activities would not affect the state's ability to meet the NAAQS. Section 176(c) of the CAA requires that federally funded projects conform to the purpose of the state implementation plan, meaning that federally funded activities would not cause any violations of the NAAQS, increase the frequency or severity of NAAQS violations, or delay timely attainment of the NAAQS or any interim milestone.

Under the general conformity regulations, a general conformity determination for federal actions is required for each criteria pollutant or precursor in nonattainment or maintenance areas. Specifically, areas where the Proposed Action's direct and indirect emissions have the potential to emit one or more of the six criteria pollutants at rates equal to or exceeding the prescribed de minimis rates for that pollutant would require a conformity determination.

EPA maintains detailed information about area NAAQS designations, classifications, and nonattainment status, called the Green Book. According to EPA's Green Book, Frederick County, Maryland is in nonattainment for 8-hour ozone (EPA 2022c).

### **Alternative 1 – No Action**

Under the No Action alternative, there would be no construction-related short-term impacts on air quality within the project area. However, the risk of flooding would not be reduced and would likely increase because of climate change. Therefore, there would be a negligible intermittent temporary impact on air quality from vehicle and equipment emissions resulting from equipment used for flood-related repairs and additional vehicle emissions generated by road detours. There would be no long-term impact on air quality because there would be no new permanent air emissions source.

### **Alternative 2 – Motter Avenue Flood Mitigation (Proposed Action)**

The Proposed Action would have minor short-term impacts on air quality from equipment and vehicle use. Emissions from on-site construction equipment, on-road construction-related vehicles, and dust-generating construction activities have the potential to affect air quality. Use of heavy equipment and earth-moving machinery could temporarily increase the levels of some pollutants, including carbon monoxide, volatile organic compounds, nitrogen dioxide, ozone, and particulate matter. Dust generated by construction activities is a source of particulate matter. Vehicle and equipment use in the project area would be temporary and localized. To reduce the temporary impacts on air quality, vehicles and equipment would be kept running as little as possible and areas of exposed soils would be covered or wetted to reduce fugitive dust. Thus, air emissions would not increase to the extent that a general conformity analysis would be required for the Proposed Action.

The Proposed Action would have no long-term impacts on air quality because it would not include a source of long-term permanent emissions.

### 3.2. Biological Environment

#### 3.2.1. TERRESTRIAL AND AQUATIC ENVIRONMENT

##### *Vegetation*

The Maryland Forest Conservation Act (Natural Resources Article Section 5-1601 through 5-1613) was enacted in 1991 to minimize the loss of Maryland's forest resources during land development. This law requires the identification and protection of forests, primarily near streams or wetlands, steep or erodible soils, or within or near large contiguous blocks of forest or wildlife corridors and other sensitive areas, to be part of the site planning process. Any activity requiring an application for a subdivision, grading permit or sediment control permit on an area approximately 1 acre or greater is generally subject to the Forest Conservation Act and requires a Forest Conservation Plan prepared by a licensed forester, licensed landscape architect, or other qualified professional. For these activities, a licensed landscape architect or other qualified professional must submit a Forest Stand Delineation, which identifies the existing forest cover and environmental features of the project area and a Forest Conservation Plan, which describes the limits of disturbance for the proposed project and how the existing forested and sensitive areas would be protected during and after development. The applicant would provide information about the amount of forest that would be disturbed and retained and whether replanting trees would be required (Maryland Department of Natural Resources [MDNR] 2022a). Public projects that require a Forest Conservation Act review are reviewed by the Maryland Forest Service and applications would be submitted to the appropriate regional office (MDNR 2022b).

The City of Frederick requires that any tree or shrub planted within parks or rights-of-way shall be from the approved tree and shrub species list, as provided in Table 12-01 (City of Frederick Plant List) and Table 12-02 (City of Frederick Street Tree List) of Article 12, Section 1202 of the city code. Table 12-01 provides a list of approved tree and shrub species and indicates which uses each species is best suited for, such as planting in disturbed areas, stabilizing streams, and providing erosion control. Tree and shrub species listed in the table with primary uses for stream stabilization and/or erosion control include, but are not limited to the following: American beech (*Fagus grandifolia*), American hornbeam (*Carpinus caroliniana*), blackgum (*Nyssa sylvatica*), eastern cottonwood (*Populus deltoides*), European black alder (*Alnus glutinosa*), red maple (*Acer rubrum*), river birch (*Betula nigra*), swamp chestnut oak (*Quercus michauxii*), weeping willow (*Salix babylonica*), redosier dogwood (*Cornus sericea*), scotch broom (*Cytisus scoparius*), shrub lespedeza (*Lespedeza thunbergii*), and winterberry (*Ilex verticillata*). Some of these species, such as American hornbeam, blackgum, and winterberry, are native to Maryland (University of Maryland Extension 2023). Other species, such as European black alder and weeping willow, are nonnative but desirable species. Approved street tree species are included in Table 12-02 of Article 12, Section 1202 of the city code. Examples of approved street tree species include paperbark maple (*Acer griseum*), American hornbeam, white oak (*Quercus alba*), and Regent Japanese lilac (*Syringa reticulata*).

The project area includes residential and commercial areas as well as a stream and riparian areas within Monocacy Village Park. The residential and commercial areas are characterized by minimal trees and vegetation such as maintained grass. Phase 1 of the Proposed Action would occur within

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an urbanized area along existing rights-of-way and across parking lots, small areas of lawns, and a small portion of the park. Phase 2 of the Proposed Action would occur within the park. In the park, the upstream portion (approximately 200 feet) of Abraham Faw Run is surrounded by a small area of deciduous trees and riparian vegetation, while the remaining downstream portion of the stream (approximately 300 feet) within the project area is bordered by maintained grass. There are larger wooded riparian areas slightly further downstream from the project area.

### ***Invasive Species***

EO 13112, Invasive Species, requires federal agencies, to the extent practicable, to (1) prevent the introduction of invasive species and provide for their control and (2) minimize the economic, ecological, and human health impacts that invasive species cause. Invasive species generally prefer disturbed habitats and usually possess high dispersal abilities, enabling them to out-compete native species.

Invasive plants are capable of altering an area's diversity for both plant and animal life by dominating areas where they have become established and crowding out native vegetation. Common invasive plant species in Maryland include autumn olive (*Elaeagnus umbellata*), Canada thistle (*Cirsium arvense*), English ivy (*Hedera helix*), garlic mustard (*Alliaria petiolata*), Japanese barberry (*Berberis thunbergii*), Japanese honeysuckle (*Lonicera japonica*), Japanese stiltgrass (*Microstegium vimineum*), Johnson grass (*Sorghum halepense*), mile-a-minute vine (*Persicaria perfoliata*), multiflora rose (*Rosa multiflora*), tree of heaven (*Ailanthus altissima*), and wintercreeper (*Euonymus fortunei*) (Frederick County Office of Sustainability and Environmental Resources 2019). These species may occur in the project area.

Invasive animal species can also be detrimental to vegetation. Ash trees are at risk of infestation from the emerald ash borer (*Agilus planipennis*). Adult emerald ash borers lay eggs on the bark of ash trees. When the eggs hatch, the larvae bore into the bark and feed on the tissues of the tree that transports water and nutrients, effectively girdling the tree and causing the tree to die (North Carolina Forest Service 2017).

### ***Wildlife and Fish***

The Maryland Natural Heritage Program is responsible for the conservation and protection of hundreds of species of wildlife and fish that are not hunted, fished, trapped, or commercially harvested in the state, as well as the protection of the natural communities that make up their habitats.

Because the project area is within the City of Frederick in a highly modified urban and suburban area, the available habitats are sparse and of poor quality. Wildlife communities within the project area likely consist of urban-adapted generalist species that can live in disturbed, altered habitat. Examples of these species include opossum (*Didelphis marsupialis*), raccoon (*Procyon lotor*), striped skunk (*Mephitis mephitis*), Eastern chipmunk (*Tamias striatus*), squirrel (*Sciuridae* sp.), whitetail deer (*Odocoileus virginianus*), Eastern cottontail rabbit (*Sylvilagus floridanus*), and passerine birds such as Northern cardinal (*Cardinalis cardinalis*) and Carolina chickadee (*Poecile carolinensis*) (Maryland Manual On-Line 2022). Representative reptile and amphibian species known to occur in the region include species such as Eastern newt (*Notophthalmus viridescens*), yellow spotted

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salamander (*Ambystoma maculatum*), American toad (*Anaxyrus americanus*), green frog (*Lithobates clamitans*), and spring peeper (*Pseudacris crucifer*) (MDNR 2022c).

Abraham Faw Run has the potential to support aquatic species. It is unknown whether fish species occur within Abraham Faw Run within the project area. Some fish species, such as smallmouth bass (*Micropterus dolomieu*), largemouth bass (*Micropterus salmoides*), and common carp (*Cyprinus carpio*) may occur in the Abraham Faw Run downstream of the project area and within the Lower Monocacy River (FishBrain 2022). Thus, there is potential for these species to occur in the part of the stream within the project area.

### Alternative 1 – No Action

No construction would occur under the No Action alternative; therefore, no short-term impacts on the terrestrial or aquatic environment would occur. However, under this alternative, the risk of flooding would remain, and the stream would not be stabilized. Flood waters would cause soil erosion, particularly along the streambank where conditions are already degraded. Erosion along the streambank would result in soil loss or possible streambank failure, which could kill or damage vegetation along the stream. Loss of vegetation could lead to the introduction and expansion of invasive species that thrive in newly disturbed areas (Lozon and MacIsaac 1997). Proliferation of invasive species could decrease available forage and habitat for wildlife. Flood and erosion damage to herbaceous species could temporarily negatively affect species that depend on these plants. As discussed in Section 3.1.2, flooding would cause sediment, debris, and pollutants to enter the stream. Increased sedimentation could reduce water depths and increase turbidity, affecting water quality and available aquatic habitat for aquatic species. Amphibious species may be adversely affected by the displacement of woody debris and changing water levels during egg-laying and metamorphosis phases (Walls et al. 2013). These impacts would affect fish and aquatic species present during a flood. Therefore, under the No Action alternative, flooding and erosion could have minor long-term impacts on the terrestrial and aquatic environments and, thus, on wildlife and fish species.

### Alternative 2 – Motter Avenue Flood Mitigation (Proposed Action)

Construction and excavation activities associated with the Proposed Action would temporarily disturb soils and vegetation, which could create suitable conditions for the growth and spread of invasive plant species. Construction of the Proposed Action would require removal of approximately 0.3 acres of vegetation, including trees, in the upstream end of the Phase 2 restoration area. However, vegetation removal would be limited to that which is necessary to construct the Proposed Action and would include the removal of dead trees and invasive species. Trees that have roots along the stream bank would be preserved to the maximum extent practical to assist with stabilization. Consequently, the Proposed Action would have negligible short-term impacts on the terrestrial environment and on wildlife species, which are expected to be limited in numbers and diversity in the project area.

The project area would be restored following construction. Seed mixes consisting of native plant materials would be used in conjunction with erosion control blankets and/or matting to stabilize the stream banks and remaining disturbed areas. The City would install various plantings along 500 feet

of stream during Phase 2 of the Proposed Action. Native plants would be prioritized for use in restoration, though it is possible that some non-native plants may be used (Department of Legislative Services 2017; Frederick County 2022b). The final landscaping plan would be developed in accordance with the Maryland Forest Conservation Act, Maryland Waterways Construction Guidelines (MDE 2000), which provides guidelines for stream stabilization and restoration, and with the City of Frederick tree and shrub planting standards described above. While it may take many years for trees to grow to the same maturity as those removed, replacement shrubs and herbaceous vegetation would be restored to their former size and coverage more quickly. The City would be responsible for maintenance of the project area, including plantings. Implementation of the Proposed Action would reduce the risk of flooding and stabilize the stream in the project area. Thus, the Proposed Action would protect vegetation from flood-related impacts, such as erosion, and reduce the opportunity for invasive plant species to become established. The Proposed Action would have minor long-term benefits on the terrestrial environment.

As mentioned in Section 3.1.2, in-water work may be required, particularly for Phase 2 of the Proposed Action, which involves streambank stabilization and restoration along the banks of Abraham Faw Run. Work in or near water could increase sedimentation or turbidity and impact water quality. Pumps would be used to isolate the work area from water, which could temporarily impact the aquatic environment and the movement of fish and wildlife species. However, construction work would be temporary and localized and conducted in compliance with all water quality permits and erosion and sedimentation control BMPs, as discussed in Sections 3.1.1 and 3.1.2. Therefore, the Proposed Action would have minor short-term impacts on the aquatic environment from construction-related activities.

In the long term, implementation of the Proposed Action would stabilize the stream in the project area. The restored stream would reduce the risk of erosion and sedimentation caused by flooding and streambank failure, resulting in the water quality benefits as discussed in Section 3.1.2 that would benefit fish and wildlife that may use the project area. Therefore, the Proposed Action would have a minor long-term benefit on the aquatic environment and the species it supports.

### **3.2.2. WETLANDS (EXECUTIVE ORDER 11990)**

EO 11990, Protection of Wetlands, requires federal agencies to avoid, to the extent possible, the long- and short-term adverse impacts associated with the destruction or modification of wetlands and to avoid direct or indirect support of new construction in wetlands wherever there is a practicable alternative. The NEPA compliance process requires federal agencies to consider direct and indirect impacts on wetlands, which may result from federally funded actions. Each federal agency shall take action to minimize the destruction, loss, or degradation of wetlands and to preserve and enhance the natural and beneficial values of wetlands in carrying out the agency's responsibilities. FEMA uses the eight-step decision-making process to evaluate potential impacts on and mitigate impacts on wetlands, in compliance with EO 11990 and 44 C.F.R. Part 9. USACE and MDE regulate activities within wetlands in the state of Maryland. Section 404 of the CWA regulates the discharge of fill into waters of the United States, including wetlands. Environmental Article 5, subtitle 5 of Maryland Statutes regulates activities in freshwater wetlands.

A wetland delineation conducted in 2023 identified a stream in the project area (Abraham Faw Run); however, no wetlands were identified in the project area. Additionally, a review of the U.S. Fish and Wildlife Services' National Wetlands Inventory (NWI), accessed October 21, 2022, indicates that the project area includes approximately 580 feet of Abraham Faw Run. This stream is mapped as a perennial riverine system with an unconsolidated bottom that is permanently flooded; therefore, it is considered a surface water feature rather than a wetland. As such, according to the wetland delineation and NWI, no wetlands occur within the project area. There is one freshwater emergent wetland located downstream of the Proposed Action in Monocacy Village Park (USFWS 2022).

### **Alternative 1 – No Action**

In the absence of flooding, the No Action alternative would have no impact on wetlands because there are no wetlands in the project area. However, this alternative would not reduce flood hazards, and future flood events could result in continued erosion and sedimentation into Abraham Faw Run and the freshwater wetland downstream. This would result in minor long-term impacts on downstream wetlands from erosion and sedimentation.

### **Alternative 2 – Motter Avenue Flood Mitigation (Proposed Action)**

Because there are no wetlands present in the project area, there would be no direct short-term impacts on wetlands from activities associated with construction of the Proposed Action. There is one wetland downstream of the project area. Because the Proposed Action would be conducted in compliance with permits, such as the MDE Construction General Permit and CWA 404 permit, which would protect water quality (as discussed in Section 3.1.2), there would be no indirect short-term impacts on this downstream wetland. However, the Proposed Action would reduce flood hazards and associated impacts, such as increased erosion and sedimentation, on wetlands downstream of the project area. Therefore, the Proposed Action would have minor long-term benefits on wetlands downstream of the project area.

### **3.2.3. THREATENED AND ENDANGERED SPECIES**

The Endangered Species Act (ESA) provides for the conservation of threatened and endangered plants and animals and the habitats in which they are found. USFWS and NMFS are the lead federal agencies for implementing the ESA. The law requires federal agencies to ensure that actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of any listed species or result in the destruction or adverse modification of designated critical habitat of such species. The law also prohibits any action that causes a taking of any listed species of endangered fish or wildlife. "Take" under the ESA is defined as "to pursue, hunt, shoot, wound, kill, trap, capture, or collect, or any attempt to carry out these activities" (50 C.F.R. 10.12). Because the ESA defines an action area as "all areas to be affected directly or indirectly by the federal action and not merely the immediate area involved in the action" (50 C.F.R. 402.02), the action area where impacts on listed species must be evaluated may be larger than the project area where project activities would occur.

Critical habitat, as defined in the ESA, is a specific geographic area(s) that contains features essential for the conservation of a threatened or endangered species and that may require special management and protection.



In January 2023, FEMA conducted a database search through the USFWS Information for Planning and Consultation (IPaC) online tool for all federally designated threatened, endangered, and proposed species. The IPaC report listed one species, the northern long-eared bat (NLEB, *Myotis septentrionalis*), endangered, with the potential to occur in or around the project area (USFWS 2023). No critical habitat occurs within the project area. NLEBs spend the winter hibernating in caves and mines. During the summer, NLEBs roost singly or in small colonies underneath bark, in cavities, or in crevices of both live and dead trees. According to information provided by the IPaC tool, NLEB may occur statewide; however, no known hibernacula or maternity roost trees occur within the project area or within the City of Frederick.

### **Alternative 1 – No Action**

No construction would occur under the No Action alternative; therefore, no short-term or long-term impacts on the NLEB would occur.

### **Alternative 2 – Motter Avenue Flood Mitigation (Proposed Action)**

Vegetation within the project area is described in Section 3.2.1. As discussed in Section 3.2.1, the Proposed Action would require vegetation removal, including removal of approximately 0.3 acres of trees that have the potential to provide suitable seasonal roosting and foraging habitat for NLEB. However, given the small amount of tree removal and the availability of similar small, wooded areas within the City of Frederick in addition to larger wooded riparian areas slightly further downstream of the project area, the proposed tree removals are unlikely to substantially decrease or degrade the amount of suitable roost habitat available for the NLEB locally or regionally. Furthermore, NLEB is not expected to occur within or near the project area because of the lack of known hibernacula or maternity roost trees and the level of human activity in the project area.

FEMA submitted a Section 7 consultation letter to the USFWS Chesapeake Bay Field Office on March 1, 2023 for a review of the Proposed Action. In this consultation letter, FEMA determined the Proposed Action may affect, but is not likely to adversely affect, the NLEB. On March 8, 2023, USFWS responded with a determination of no effect on the NLEB and the other federally listed species on the IPaC species list because, while the project is within the range of the species, it is unlikely that the species would occur within the project area that was submitted. As a follow-up, FEMA completed the Northern Long-eared Bat Range-wide Determination Key in the IPaC tool in October 2023, which resulted in a subsequent no effect determination. USFWS concurred with this determination, which is documented in an IPaC-generated concurrence letter dated October 18, 2023. Correspondence with USFWS is included in Appendix C.

### **3.2.4. MIGRATORY BIRDS AND BALD AND GOLDEN EAGLES**

The Migratory Bird Treaty Act (MBTA) of 1918, as amended, provides protection for migratory birds and their nests, eggs, and body parts from harm, sale, or other injurious actions except under the terms of a valid permit issued pursuant to federal regulations. MBTA protects all native birds. In total, MBTA protects 1,094 bird species (USFWS 2020). A migratory bird is any species or family of birds that live, reproduce, or migrate within or across international borders at some point during their annual life cycle. The Bald and Golden Eagle Protection Act (BGEPA) of 1940 prohibits the take,

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possession, sale, or other harmful action of any golden or bald eagle, alive or dead, including any part, nest, or egg (16 U.S.C. § 668[a]).

The project area is within the Atlantic Flyway, and migratory bird species could occur in the vegetative areas within the project area between April 1 and September 15. Bald eagles are known to occur regionally along the Chesapeake Bay and its tributaries; they nest in trees near large bodies of water, such as lakes, rivers, and coasts (MDNR 2022b). No bald eagle nests are reported within or near the project area (Maryland Bird Conservation Partnership 2022). Because the project area is primarily developed and located a distance from the Lower Monocacy River, bald eagles are not expected to nest in the project area; although, they could occasionally pass through. Golden eagles are not likely to occur regionally or in the project area because they prefer mountainous habitats and nesting in rocky cliffs and do not occur commonly in the eastern United States (Audubon n.d.).

### **Alternative 1 – No Action**

Under the No Action alternative, there would be no construction and no removal of vegetation during the breeding season. Therefore, there would be no short-term construction-related impacts on migratory birds. The No Action alternative would not eliminate the risk of flooding, which could result in impacts on breeding birds if construction and associated vegetation removal were required to repair damaged property and infrastructure. Because bald eagles would be unlikely to roost or forage within the project area, there would be no impact on eagles. Thus, under the No Action alternative, there would be negligible long-term impacts on migratory bird species.

### **Alternative 2 – Motter Avenue Flood Mitigation (Proposed Action)**

If vegetation removal associated with the Proposed Action were to occur during the migratory bird nesting season, between April 1 and September 15, the City would coordinate with USFWS to obtain any required authorization and provide documentation of coordination with USFWS to FEMA. Therefore, there would be a minor short-term impact on migratory birds if vegetation removal occurs during the breeding season. Bald eagles nest in large trees close to waterbodies and are sensitive to disturbances within 660 feet of a nest during the breeding season. However, because bald eagles would be unlikely to roost or forage within the project area, there would be no impact on eagles.

Phase 2 of the Proposed Action would restore vegetation and stabilize the stream channel within a part of the park, potentially providing more suitable habitat for native bird species in the long term. By reducing the risk of flooding and streambank erosion and failure, the Proposed Action would protect vegetation growing along the stream. Thus, the Proposed Action would have minor long-term benefits on migratory birds.

## **3.3. Hazardous Materials**

Several federal laws regulate hazardous materials and wastes, including 40 C.F.R. 260; the Resource Conservation and Recovery Act of 1976; the Solid Waste Act; the Toxic Substances Control Act; the Comprehensive Environmental Response, Compensation, and Liability Act as amended by the Superfund Amendments and Reauthorization Act; and the CAA of 1970. Occupational Safety and Health Administration (OSHA) standards under the Occupational Safety and Health Act seek to

minimize adverse impacts on worker health and safety (29 C.F.R. 1926). Evaluating hazardous substances and wastes includes consideration of whether any hazardous material would be generated by the proposed activity and/or already exists at or in the general vicinity of the site (40 C.F.R. 312.10).

A search for hazardous waste generators, water dischargers, toxin releases, Superfund sites, Brownfields, and Toxic Substances Control Act sites was conducted using EPA's NEPAAssist website (EPA 2022d). According to this database, within a half mile of the project area there are more than 10 facilities that generate hazardous waste and one water discharger facility. No Superfund sites are located within a half mile of the project area (EPA 2022d). There are no known contaminated soils or hazardous materials within the project footprint where ground disturbance and excavation would occur.

### **Alternative 1 – No Action**

No construction would occur under the No Action alternative; therefore, no short-term impacts related to hazardous materials would occur as a result of construction equipment use or the exposure of contaminated materials through ground-disturbing activities. However, this alternative would not reduce the risk of flooding within the project area. Floodwaters from past storm events have inundated streets and properties before receding to the Abraham Faw Run, a tributary of the Monocacy River. As mentioned in Section 3.1.2, these floodwaters could pick up pollutants such as oil and grease from roadways and transfer them into nearby waterways. Flooding could affect facilities that generate hazardous waste and discharge water within the project vicinity and pose a risk to human health and safety by causing accidental releases of hazardous materials. Therefore, there would be minor long-term impacts from flooding that could lead to the dispersal of hazardous materials.

### **Alternative 2 – Motter Avenue Flood Mitigation (Proposed Action)**

The Proposed Action would include the temporary use of mechanical equipment, such as excavators and trucks, which could release fuels, oils, and lubricants through inadvertent leaks and spills. However, the use of equipment in good condition and compliance with BMPs and conditions specified in the MDE General Permit for Construction Activity (Permit Number 20-CP) would reduce the potential impact of leaks and spills. Although no known subsurface hazardous materials are present within the project area, excavation activities could expose or otherwise affect previously undetected subsurface hazardous wastes or materials. Any hazardous materials discovered, generated, or used during implementation of the Proposed Action would be disposed of and handled in accordance with applicable local, state, and federal regulations. Therefore, there would be a negligible short-term impact from the use of vehicles and equipment or from the potential for inadvertent exposure of previously unknown hazardous materials.

In the long term, the Proposed Action would reduce the risk of flooding in the project area, which would reduce the risk of pollutants being transported via receding floodwaters and the risk of flood-associated damage to facilities that generate hazardous waste and discharge water near the project area. Thus, the Proposed Action would result in a minor long-term benefit related to hazardous materials.

### 3.4. Socioeconomics

#### 3.4.1. VISUAL RESOURCES

The analysis of visual resource quality is qualitative and considers the visual context of the project area and the potential for changes in character and contrast. The assessment evaluates whether the project area includes any places or features designated for scenic protection, the number of people who can view the site and their activities, and the extent to which those activities are related to aesthetic qualities of the area.

The project area is located in the center of the City of Frederick in areas zoned for general commercial and parkland uses. There are approximately 15 residences that abut the project area. The visual character of the project area comprises residential and commercial buildings, streets and parking lots, and recreational areas including a baseball field, pickleball courts, and open green space. The streambanks of the Abraham Faw Run have been eroded, resulting in undercut banks and the unsightly exposure of bare soil and damaged vegetation. Typical viewers of the project area include residents of nearby properties, park visitors, YMCA visitors, and employees and customers of neighboring commercial establishments.

#### **Alternative 1 – No Action**

No construction would occur under the No Action alternative; therefore, there would be no short-term impact on visual resources within the project area. Without any construction work, the existing flood risks in the YMCA Flooding Area would remain. In the event of a flood, ponding and inundation would create conditions that would likely be perceived as unsightly and unsafe by visitors to the park, the YMCA, and other commercial establishments in the vicinity and to the residents whose properties are adjacent to the area. Additionally, without stream stabilization work, the unsightly condition of the eroded Abraham Faw Run streambanks would remain and there would be potential for the stream to migrate over time and infringe on other areas of the park or neighboring residential properties in a potentially unsightly manner. Therefore, this alternative would have minor long-term impacts on the visual resources in the project area.

#### **Alternative 2 – Motter Avenue Flood Mitigation (Proposed Action)**

Under the Proposed Action, the construction of both phases of the Proposed Action would require equipment such as excavators and trucks to be used and staged within the project area, subjecting viewers and residents of nearby properties to visual elements that would disrupt the existing visual character of the project area. However, these visual elements would be present for a short period of time. Therefore, the Proposed Action would have minor short-term impacts on the visual resources within the project area.

The Proposed Action would reduce the risk of flooding throughout the project area and would stabilize the Abraham Faw Run to prevent future erosion and migration. Approximately 0.3 acres of vegetation, including trees, would be impacted during Phase 2 of construction. Vegetation removal would be limited to that which is necessary to construct the Proposed Action as well as the removal of dead trees and invasive species. The final landscaping plan would be developed in accordance

with state and local planting guidelines and standards, as discussed in Section 3.2.1. While it may take many years for trees to grow to the same maturity of those removed, replacement shrubs and herbaceous vegetation would be restored to their former size and appearance more quickly. By reducing the risk of flooding and stabilizing the stream in the project area, the Proposed Action would create an environment that could be perceived as cleaner and safer to viewers. Thus, the Proposed Action would have minor long-term benefits on the visual quality of the project area.

### 3.4.2. NOISE

The Noise Control Act of 1972 required EPA to create a set of noise criteria. In response, EPA published *Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety* in 1974, which explains the impact of noise on humans. The EPA report found that keeping the maximum 24-hour day-night average sound level below 70 A-weighted decibels (dBA) would protect most people from hearing loss. EPA recommends an outdoor average sound level of 55 dBA to prevent interference with daily human activities such as sleeping, working, and recreation. The Federal Highway Administration has identified noise levels and ranges for construction equipment that typically would not need noise attenuation measures (Federal Highway Administration 2006), and OSHA has adopted a standard of 140 dBA for maximum impulse noise exposure for workers in noisy environments. Section 15-21.2 – General Regulations – Noise Prohibitions of the City of Frederick Code of Ordinances prohibits noise related to construction or demolition activities that exceed 90 dBA during daytime hours (City of Frederick 2022). However, Section 15-21.3 – Exemptions of the City of Frederick Code of Ordinances exempts construction and repair work on public property from the noise regulations presented Section 15-21.2 – General Regulations – Noise Prohibitions (City of Frederick 2022).

Assessment of noise impacts considers the proximity of the Proposed Action to sensitive receptors, which are areas of frequent human use that would benefit from a lowered noise level. Typical sensitive receptors include residences, schools, churches, hospitals, nursing homes, libraries, and parks. Land surrounding the project area is zoned as residential, institutional, light industrial, commercial, and parkland (City of Frederick 2013). The project area is directly adjacent to multiple residences and the Monocacy Village Park and is within a half mile of a hospital, schools, and churches. The ambient noise level near the project site is typical for suburban/urban areas (ranging from approximately 55 to 70 dBA); typical noises in the project area are associated with vehicular traffic, recreational activities, and natural sounds in the park.

#### Alternative 1 – No Action

No construction work would occur under the No Action alternative. Therefore, this alternative would have no short-term noise impacts. In the event of future flood events, vehicles and equipment used to repair flood damage would temporarily increase noise levels in the immediate vicinity of the work. However, these repair activities would be in compliance with applicable noise regulations, such as the city noise ordinance that applies to construction on private lands. Therefore, there would be negligible temporary noise impacts as a result of repair activities associated with future flooding.

### **Alternative 2 – Motter Avenue Flood Mitigation (Proposed Action)**

Under the Proposed Action, construction activities would temporarily increase noise levels in the project vicinity. Residences adjacent to the project area would likely experience a temporary increase in noise levels as a result from construction, as would visitors of the Monocacy Village Park. Other sensitive receptors, including the hospital, schools, and churches, are located several hundred feet or more from the project area and would likely not perceive any difference in noise levels during construction. Heavy machinery and equipment that would be used for the Proposed Action would be well maintained, have sound-control devices no less effective than those provided on the original equipment, and have muffled exhaust. With the implementation of these BMPs, the Proposed Action would have minor short-term noise impacts in the project area, and any noise created by construction would be exempt from the city's noise ordinance (City of Frederick 2022).

The Proposed Action would have no long-term noise impacts because it would not include a permanent source of noise.

### **3.4.3. PUBLIC SERVICES AND UTILITIES**

The City of Frederick's Public Works Department provides water and sewer services, trash collection, and stormwater management services to the project area (City of Frederick n.d.a). Potomac Edison and Thurmont Municipal Light Company provide electricity to the project area, and Frederick Gas Company, a division of Washington Gas, provides natural gas (Frederick County 2022a).

Existing stormwater infrastructure in the project area includes trunk lines that are 72- and 78-inch concrete pipes; the pipe diameters within the YMCA south parking lot range from approximately 4 to 12 inches in diameter. The stormwater system outfalls to the park into Abraham Faw Run, which is severely eroded and has the potential to migrate over time as a result of additional erosion. Section 3.1.3 details current flood conditions in the project area.

The project area is situated adjacent to the YMCA of Frederick County, which provides a number of recreational services to residents of the surrounding areas. The park offers a baseball field, recreational pickleball courts, picnicking areas, walking and biking paths, and open green space for public use (City of Frederick n.d.b).

### **Alternative 1 – No Action**

No construction activities would occur under the No Action alternative; therefore, this alternative would not disrupt or increase demand on public services or utilities in the project area in the short term. Under this alternative, the risk of flooding and flood-related impacts would remain. Flooding could disrupt electric services, cause backups of stormwater and sewer water, and damage drainage outflows in and around the project area. Additionally, flooding of the roads and parking lots in the project area would temporarily prevent use of the recreational services at the YMCA and the park. Continued flooding could require repairs that may disrupt provision of public services and utilities. Potential migration of the Abraham Faw Run as a result of future erosion may disrupt use of portions of the park. Therefore, there would be intermittent minor long-term impacts on public services and utilities from flood-related damage and disruptions.



### **Alternative 2 – Motter Avenue Flood Mitigation (Proposed Action)**

Construction of Phase 1 of the Proposed Action would include stormwater improvements in the project area, as described in Section 2.2. During excavation and installation of the proposed 60-inch trunk line, the contractor would take the necessary precautions to not damage the existing storm drainpipe and clay sanitary sewer. Existing utility poles that are impacted by construction would be relocated or braced as needed. Construction would temporarily impact use of Mews Lane to access the YMCA, but the facility would remain open, and the parking lot would still be accessible from N. Market Street. Construction of Phase 2 of the Proposed Action would impact approximately 2.7 acres of the southwest part of the park. However, these impacts would be localized, and other areas of the park would still be available for public use during construction. No other utilities or public services would be disrupted or relocated during construction. Therefore, the Proposed Action would have negligible short-term impacts on public services and utilities in the project area.

In the long term, the Proposed Action would not require ongoing use of public services or utilities. Implementation of the Proposed Action would reduce the risk of flooding within the project area and stabilize the stream, reducing the likelihood that recreational services and nearby utility infrastructure would be impacted, and services disrupted. Therefore, the Proposed Action would have minor long-term benefits on public services and utilities.

#### **3.4.4. TRANSPORTATION**

U.S. Route 15 provides regional access to the project area. The segment of U.S. Route 15 near the project area has an average annual daily traffic count of between 70,162 and 85,152 vehicles per day (Maryland Department of Transportation [MDOT] 2021). Other main roadways in the project vicinity include N. Market Street and N. East Street. Local roads used for immediate access to the project area include E. 9th Street, Mews Lane, Delaware Road, and Dockside Court.

The #60 Frederick Community College Connector bus line operates Monday through Saturday and travels through the project area via N. Market Street. The #61 Frederick Community College Connector bus line operates weekdays and travels through the project area via Motter Avenue and W. 9th Street. Motter Avenue is also used by the Emmitsburg Thurmont Shuttle, which operates on weekdays. The Walkersville Meet-the-Maryland Area Rail Commuter Shuttle operates on weekdays and travels through the project area via N. East Street and E. 9th Street (Frederick County n.d.).

Past storm events have caused flooding that has inundated the YMCA parking lot, Mews Lane, and portions of W. 10th Street, W. and E. 9th Street, N. Market Street, and Motter Avenue, causing road closures and requiring traffic to be redirected.

### **Alternative 1 – No Action**

Under the No Action alternative, there would be no construction equipment or personnel accessing the project area. Therefore, there would be no short-term impact on traffic on surrounding roads. However, the risk of flooding in the project area would remain under this alternative. Flooding from storm events would continue to inundate parking lots and roads, resulting in roadway and sidewalk closures. Construction for flood-related repairs may result in increases in traffic, road closures, or

disrupted transit services. Therefore, continued flooding and flood damage that requires repair would result in intermittent minor long-term impacts from road closures, transit service cancellation, and rerouting of both motorized and nonmotorized transportation modes.

### **Alternative 2 – Motter Avenue Flood Mitigation (Proposed Action)**

Under the Proposed Action, construction personnel would access the project area and its staging sites via existing roadways. While there would be some additional construction traffic on the roadways surrounding the project area, these impacts would be temporary and localized, affecting only a small number of roadways. Because none of the surrounding roadways are at capacity, the construction traffic would not create congestion or delays for other users of the roadways. Road closures may be required for portions of Phase 1 of the project work, such as the trenching that would be required to install the new pipeline. If it is determined that a temporary traffic control plan would be required during construction, the City would obtain any permits necessary. All existing pavement, sidewalks, and curbs impacted by construction would be returned to preconstruction conditions. Therefore, the Proposed Action is expected to have minor short-term impacts on transportation.

Implementation of the Proposed Action would reduce the risk of flooding in the project area, which would reduce the likelihood of road closures caused by flooding and/or repairing flood damage. The Proposed Action would have minor long-term benefits on transportation.

### **3.4.5. ENVIRONMENTAL JUSTICE (EXECUTIVE ORDER 12898)**

EO 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations requires agencies to identify and address disproportionately high and adverse human health or environmental impacts its activities may have on minority and low-income communities to promote the fair treatment of all people with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. The Council on Environmental Quality (CEQ) defines the term “minority” as persons from any of the following groups: Black, Asian, or Pacific Islander, American Indian or Alaskan Native, or Hispanic (CEQ 1997). EPA’s Environmental Justice Screening and Mapping Tool (EJScreen), which was used to complete this environmental justice analysis, uses U.S. Census Bureau data to identify low-income households as those in which the household income is less than or equal to twice the federal poverty level (EPA 2019).

The affected environment included in this analysis is where project-related impacts would occur, including noise, transportation, and water/air quality impacts, potentially causing an adverse and disproportionately high impact on neighboring minority and low-income populations. Although the Maryland EJScreen Mapper tool was consulted during this evaluation (University of Maryland n.d.), it was determined that the EPA’s EJScreen tool provided the best available data, because it enabled a more localized and accurate analysis to be performed using census block group data as opposed to census tract data.



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EPA’s EJScreen tool was used to evaluate the demographic characteristics of the project area and surrounding community. The EJScreen analysis is based on the U.S. Census Bureau 2016 to 2020 American Community Survey 5-year census block group summary data (EPA 2022e). EJScreen also includes multiple “EJ Indexes,” which identify minority and/or low-income populations that are exposed to human health or environmental risks. There are EJ Indexes (Table 3-2) that analyze factors related to air quality, traffic, hazardous waste and pollutants, proximity to environmental risks, underground storage tanks, and wastewater (EPA 2022e).

Minority or low-income populations are defined as meeting any of the following criteria:

- The minority and/or low-income population of the affected environment equals or exceeds the 50th percentile in the state in which the affected environment is located.
- One or more of the EJ Indexes in the affected environment equals or exceeds the 80th percentile in the state in which the affected environment is located.

Environmental justice populations may also be identified based on more qualitative criteria, such as the prices and quality of homes in the project area compared to those in the surrounding areas.

The affected environment encapsulates the areas where project-related construction and its effects would occur, where equipment would be staged, and routes that would be used for site access and equipment transportation. Table 3-2 presents the environmental justice demographics of the affected environment and EJ Index values within the affected environment.

**Table 3-2. Demographic Indicators and EJ Indexes within the Affected Area**

	<b>Percentile in State</b>
<b>Demographic Indicators</b>	
Minority	34
Low-Income	52
<b>EJ Indexes</b>	
Particulate Matter 2.5	42
Ozone	24
Diesel Particulate Matter	39
Air Toxics Cancer Risk	38
Air Toxics Respiratory Hazard Index	46
Traffic Proximity	37
Lead Paint	48
Superfund Proximity	61

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	Percentile in State
RMP Facility Proximity	65
Hazardous Waste Proximity	53
Underground Storage Tanks	47
Wastewater Discharge	28

Source: EPA 2022e.

Key: RMP = Risk Management Plan

As presented in Table 3-2, the low-income population of the affected environment is within the 52nd percentile in the state; thus, a low-income environmental justice population is considered to be present. A review of the homes adjacent to the project area and their associated values support this determination. None of the EJ Indexes exceed the 80th percentile in the state for the affected environment (EPA 2022e).

The full EJ Screen report can be found in Appendix F.

### Alternative 1 – No Action

Under the No Action alternative, no construction of flood mitigation measures would occur; thus, no construction-related impacts such as increased noise or temporary reductions in air quality would occur. Therefore, the No Action alternative would have no short-term impacts on environmental justice populations. However, implementation of the No Action alternative would not reduce flood risks within the project area, and environmental justice populations within the existing areas of inundation would continue to be at risk to flooding. Flooding could result in the disruption of utilities, reduced water quality, interruption of community services offered at the YMCA, and more. Continued flooding could result in the damage or loss of homes and property or necessitate evacuations, both of which would place disproportionate burden on environmental justice populations that are unlikely to have the same financial capacity to protect themselves or recover from flood events, as compared to other populations. Therefore, the No Action alternative could inflict disproportionately high and adverse effects on environmental justice populations.

### Alternative 2 – Motter Avenue Flood Mitigation (Proposed Action)

Under the Proposed Action, construction activities would result in short-term adverse effects, including noise and reduced air quality, which would impact those proximate to work areas. However, these effects would not disproportionately impact environmental justice populations, as these short-term effects would impact all residents near the project areas equally. Therefore, the Proposed Action would have minor short-term adverse effects on environmental justice populations, but no disproportionately high and adverse impacts on these populations.

Implementation of the Proposed Action would not result in any residential or business displacements, or long-term impacts from noise or air quality. Implementation of the Proposed Action would reduce the risk of flooding at the YMCA and the rest of the project area, which would benefit

the entire surrounding community, including environmental justice populations. Therefore, the Proposed Action would have a minor long-term benefit on environmental justice populations.

### **3.4.6. PUBLIC HEALTH AND SAFETY**

EO 13045, Protection of Children from Environmental Health Risks and Safety Risks, mandates that federal agencies identify and assess health risks and safety risks that may disproportionately affect children. Public health and safety are also related to accessibility to police, fire, medical services, and the response times for those providers to reach people in need.

The Frederick Police Department provides police services in and near the project area (City of Frederick n.d.c). The Frederick County Division of Fire and Rescue Services comprises multiple fire companies that are staffed by career and/or volunteer firefighters throughout the county, including in the City of Frederick (Frederick County Division of Fire and Rescue Services 2018). The nearest hospital is Frederick Memorial Hospital, approximately half a mile southwest of the project area.

As discussed in Sections 1.3 and 1.4, the project site in its current state poses safety and security threats because undersized stormwater infrastructure contributes to the risk of flooding in the YMCA area and surrounding streets and residential properties. Past flood events have backed up sewer lines and resulted in sewer waters inundating commercial and residential structures, creating health risks. Additionally, the Abraham Faw Run in the park is severely eroded.

#### **Alternative 1 – No Action**

Under the No Action alternative, there would be no short-term construction-related impacts on the health and safety of those in and near the project area. However, no actions would be taken to reduce the risk of flooding in the project area or stabilize the stream. As discussed in Section 3.4.4, future flood events could result in road closures and detours that could reduce emergency response times. Flooding could cause structures to be inundated with sewer water as a result of backed up sewer lines, cause power outages, and/or introduce contaminants into surface waters, exposing people to health hazards. The severely eroded banks of the stream could fail in the event of a flood, also posing a risk to health and safety. Therefore, the No Action alternative would have intermittent minor long-term impacts on public health and safety.

#### **Alternative 2 – Motter Avenue Flood Mitigation (Proposed Action)**

Under the Proposed Action, Phase 1 of construction would likely require the short-term closure of Mews Lane and some parking areas in the project area. However, because no main roads are expected to be closed, emergency response times are unlikely to be affected by these minor closures. Although construction activities would require the use of vehicles and equipment that produce emissions that reduce air quality, these impacts would be temporary, localized, and below de minimis standards, as discussed in Section 3.1.4. Additionally, all construction activities would be completed by qualified personnel trained in the proper use of equipment, including all safety precautions. There would be negligible, short-term impacts on public health and safety as a result of the Proposed Action.

Implementation of the Proposed Action would reduce the risk of flooding and associated public health and safety concerns over the long term. Emergency response services, such as fire and police, would experience improved accessibility and emergency response times during storm events because fewer roadways would be flooded, or they would be flooded to a lesser depth and/or duration. The potential for flood-related damage to utilities would be reduced, as discussed in Section 3.4.3. Improved stormwater conveyance would reduce the risk of floodwaters backing up sewage lines or picking up other contaminants that could reduce water quality or introduce sewage directly into homes. Stream stabilization measures would reduce the risk of streambank failure and associated impacts on public health and safety. Therefore, the Proposed Action would have minor long-term benefits on public health and safety in and near the project area.

### 3.5. Historic and Cultural Resources

This section provides an overview of potential environmental effects on cultural resources. Section 106 of the National Historic Preservation Act of 1966, as amended (16 U.S.C. 470f), requires that activities using federal funds undergo a review process to consider potential effects on historic properties that are listed in or may be eligible for listing in the National Register of Historic Places (NRHP). A historic property (or historic resource) is defined in the National Historic Preservation Act (NHPA) (54 U.S.C. § 300308) as any “prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register of Historic Places, including artifacts, records, and material remains related to such a property or resource,” collectively referred to as cultural resources. Under NHPA (54 U.S.C. § 302706), properties of traditional religious or cultural importance to a Tribal Nation may be determined to be eligible for inclusion on the NRHP and federal agencies will consult with any Indian tribe that attaches religious and cultural significance to a property.

Pursuant to 36 C.F.R. § 800.16(d), the Area of Potential Effects (APE) is defined as the geographic area(s) within which the undertaking may directly or indirectly affect cultural resources. Pursuant to 36 C.F.R. § 800.4(a)(1), within the APE, impacts on cultural resources are evaluated for both historic structures (above-ground cultural resources) and archaeology (below-ground cultural resources).

The APE for Motter Avenue includes the proposed footprint of the construction activities and the adjacent land parcels. The APE includes 26 above-ground properties that are more than 50 years old. These properties were evaluated for historic significance using the NRHP criteria for eligibility in accordance with 36 C.F.R. part 60.4. The proposed ground disturbances include excavation or deep grading, construction staging areas, or borrow areas opened expressly for the project. The limit of disturbance consists of approximately 3.96-acres.

#### *Historic Structures*

FEMA conducted an archives search of the project area utilizing the Maryland Historical Trust’s (MHT) Interactive Geographic Information System Map (MEDUSA). MHT operates as Maryland’s State Historic Preservation Office (SHPO). Background research was conducted to establish cultural contexts for the APE and to determine the existence of any previously recorded historic properties, as well as any previous surveys that were completed within and/or adjacent to the APE. Results

indicated that a portion of the APE is located within the NRHP-listed Frederick Historic District and several archaeological sites were recorded within one mile of the APE. As a result, a historic architectural survey and Phase I archaeological survey were carried out to identify the presence of historic properties within the APE and assess any potential effects the project may have on historic properties.

Richard, Grubb, & Associates (RGA) conducted a historic architectural survey between October 12, 2022, and October 13, 2022. The historic architecture survey identified 26 properties more than 50 years of age within the APE. These 26 properties include 5 properties previously determined contributing to the Frederick Historic District, the Pennsylvania Railroad Frederick Secondary Line, the Frederick National Little League Ballpark, the Frederick YMCA, the Monocacy Village Park, 13 residential dwellings, and 4 commercial buildings. The properties within the boundaries of the Frederick Historic District were the only previously surveyed resources within the APE and are considered contributing resources to the NRHP-listed Frederick Historic District. The remaining 21 properties surveyed by RGA were recommended not eligible for listing in the NRHP.

The Frederick Historic District was listed in the NRHP under Criteria A and C in 1973 due to its architecture and its association with the politics, commerce, and industry of the region with a period of significance from 1745 to 1941. The District was then expanded in 1988 to ultimately encompass approximately 825 acres in the core of the city of Frederick. The district includes 2,435 contributing buildings, sites, structures, and objects. Of these resources, 308 have been individually listed in the NRHP. The project's APE contains five multi-family dwellings along the southern portion of the project on the east side of North Market Street. The properties have detached garages along Mews Lane. These properties were added to the district when the boundaries were expanded in 1988. Each dwelling is a multi-family, two-story frame building with a brick veneer façade and is considered a contributing resource to the district.

### ***Archaeological Resources***

An examination of archaeological site files at the MHT in October 2022 indicated that there are no registered archaeological sites located within the APE. However, 30 recorded archaeological sites are located within a 1.6-kilometer (one-mile) radius of the APE. These sites include a combination of Native American and historic period sites. As a result, a Phase I archaeological survey was conducted to determine the presence of archaeological sites within the APE. RGA conducted the field work for the Proposed Action between October 7 and 10, 2022, including the excavation of 17 shovel test pits (STPs) within the APE. No Native American or historic-period archaeological resources or sites were identified during archaeological testing. As no cultural resources were identified, no further archaeological work was recommended within the APE.

FEMA initiated consultation with the MHT beginning on October 6, 2022 by notifying them of the project and identifying the need for cultural resources surveys to be conducted. MHT acknowledged receipt of the notification in an email on October 7, 2022. FEMA submitted a continuing consultation on January 30, 2023, at the completion of the cultural resource surveys. In the consultation, FEMA determined there would be No Adverse Effect to the NRHP-listed Frederick Historic District or any other above-ground historic properties. FEMA also determined that the Undertaking would result in

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No Historic Properties Affected for potential below-ground resources. MHT concurred with these findings in a response dated April 7, 2023.

On February 7, 2023, FEMA also initiated Section 106 consultation with the Delaware Nation, Seneca-Cayuga Nation, and the Tuscarora Nation. The Tribal Nations were given 30 days to respond. No responses were received within the 30-day timeframe.

### **Alternative 1 – No Action**

Under the No Action alternative, there would be no short-term construction-related impacts on historic properties, including historic structures and archaeological sites, in and near the project area. However, no action would be taken to reduce the risk of flooding in the project area or to stabilize the stream, and the risk of flooding would remain. Under this alternative, future flood events could result in the inundation of and damage to structures within the Frederick Historic District. Such impacts could result in subterranean disturbances in areas outside of the project APE where archaeological sensitivity, particularly historic-period archaeological resources associated with the Frederick Historic District, could be impacted. The severely eroded banks of the stream could fail in the event of a flood, also posing impacts on historic properties, including unknown archaeological resources, in and adjacent to the project area. Therefore, the No Action alternative could have minor long-term impacts on historic structures and unknown archaeological resources.

### **Alternative 2 – Motter Avenue Flood Mitigation (Proposed Action)**

The Proposed Action would reduce the risk of flooding throughout the project area and provide mitigative protective measures to historic properties within the Frederick Historic District and to the surrounding area. The construction of an additional underground stormwater pipeline outside the Frederick Historic District NRHP boundary will not introduce visual, atmospheric, or audible elements to the district, nor is it anticipated to catalyze new development at or near the historic resource. Therefore, the proposed project would have no adverse impact to the Frederick Historic District. Based on the 2022 historic architectural survey and consultation with MHT, the Proposed Action will not adversely affect above-ground historic properties.

The Proposed Action would have no impact on any archaeological resources because no properties listed in- or eligible for listing in the NRHP were identified in the APE. Since no archaeological resources were identified during the Phase I survey, FEMA determined that the Proposed Action would result in No Historic Properties Affected for potential below-ground resources. FEMA therefore determined the Proposed Action would result in No Adverse Effect to Historic Properties. In a response letter dated April 7, 2023, MHT concurred with FEMA's findings and determination of effects. Consultation with MHT is included in Appendix C.

The Proposed Action would decrease the risk of flooding, which would provide protection for any unknown archaeological resources, particularly associated with the Frederick Historic District. Such types of archaeological resources could include historic-period structures, privies, and refuse pits associated with dwellings and historical development of the town residents. Therefore, the Proposed Action would have moderate long-term benefits to unknown archaeological resources. Moreover, by

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reducing the risk of future flooding and inundation to the project area and Frederick Historic District, the Proposed Action will result in moderate long-term benefits to historic structures.

### 3.6. Comparison of Alternatives

Table 3-3 summarizes the potential impacts and BMPs analyzed for the No Action and Proposed Action alternatives.

**Table 3-3. Summary of Environmental Impacts and Mitigation**

Resource	No Action Impacts	Proposed Action Impacts	BMPs
<b>Geology, Topography, and Soils</b>	<ul style="list-style-type: none"> <li>• No short-term impacts on geology, topography, or soils.</li> <li>• Minor long-term impacts on soil.</li> </ul>	<ul style="list-style-type: none"> <li>• Minor short-term impacts on geology, topography, and soils.</li> <li>• No long-term impact on geology or topography.</li> <li>• Minor long-term benefits on soils.</li> </ul>	<ul style="list-style-type: none"> <li>• Implement erosion and sediment control BMPs and BMPs related to use of fill, as listed in Section 3.1.1.</li> </ul>
<b>Water Resources and Water Quality</b>	<ul style="list-style-type: none"> <li>• Minor long-term impact on water quality from flooding.</li> </ul>	<ul style="list-style-type: none"> <li>• Minor short-term impacts on water quality.</li> <li>• Minor long-term benefit on water quality.</li> </ul>	<ul style="list-style-type: none"> <li>• Implement erosion and sediment control BMPs and BMPs related to use of fill, as listed in Section 3.1.1.</li> <li>• Comply with conditions in the MDE Construction General Permit and the CWA Section 404 Permit.</li> </ul>
<b>Floodplain Management</b>	<ul style="list-style-type: none"> <li>• Moderate long-term impacts on people and property within the floodplain and natural floodplain functions.</li> </ul>	<ul style="list-style-type: none"> <li>• Minor short-term impacts on the floodplain from use of construction equipment and vegetation disturbance.</li> <li>• Minor long-term benefit on the floodplain from reduced risk of flooding and associated impacts.</li> <li>• Minor long-term benefit on the floodplain from stream stabilization and restoration.</li> </ul>	<ul style="list-style-type: none"> <li>• Implement erosion and sediment control BMPs and BMPs related to use of fill, as listed in Section 3.1.1.</li> <li>• Comply with conditions in the MDE Construction General Permit and the CWA Section 404 Permit.</li> <li>• The City must coordinate with the local Floodplain Administrator and obtain any required permits prior to initiating work.</li> </ul>



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Resource	No Action Impacts	Proposed Action Impacts	BMPs
			<ul style="list-style-type: none"> <li>• Restore temporarily impacted areas following construction with paving, plantings, seed, or mulch.</li> <li>• Limit vegetation removal to that which is necessary to construct the Proposed Action and remove dead trees and invasive species. Develop the final landscaping plan in accordance with state and local planting guidelines.</li> </ul>
<b>Air Quality</b>	<ul style="list-style-type: none"> <li>• No short-term impacts on air quality.</li> <li>• Negligible, temporary impact on air quality from flood-related repairs.</li> <li>• No long-term impact as there would be no new permanent emissions source.</li> </ul>	<ul style="list-style-type: none"> <li>• Minor short-term impacts from construction.</li> <li>• No long-term impacts.</li> </ul>	<ul style="list-style-type: none"> <li>• Keep vehicles and equipment running as little as possible.</li> <li>• Wet or cover areas of exposed soils to reduce fugitive dust.</li> </ul>
<b>Terrestrial and Aquatic Environment</b>	<ul style="list-style-type: none"> <li>• No short-term impacts on terrestrial or aquatic environment.</li> <li>• Minor long-term impact on the terrestrial and aquatic environment from flooding and erosion.</li> </ul>	<ul style="list-style-type: none"> <li>• Negligible short-term impacts on the terrestrial environment from vegetation removal and the creation of conditions suitable for invasive species growth.</li> <li>• Minor long-term benefit on the terrestrial environment from the reduced risk of flooding and erosion.</li> <li>• Minor short-term impact on the aquatic environment and species from work near or potentially in water.</li> <li>• Minor long-term benefit on the aquatic environment from the reduced risk of erosion and sedimentation.</li> </ul>	<ul style="list-style-type: none"> <li>• Comply with conditions in the MDE Construction General Permit and the CWA Section 404 Permit.</li> <li>• Restore project area after construction. Develop the final landscaping plan in accordance with state and local planting guidelines.</li> </ul>

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Resource	No Action Impacts	Proposed Action Impacts	BMPs
<b>Wetlands</b>	<ul style="list-style-type: none"> <li>• No impacts because there are no wetlands in the project area.</li> <li>• Potential minor long-term impacts on wetlands downstream of the project area.</li> </ul>	<ul style="list-style-type: none"> <li>• No impacts because there are no wetlands in the project area.</li> <li>• Minor long-term benefits on wetlands downstream of the project area from reduced risk of flooding.</li> </ul>	<ul style="list-style-type: none"> <li>• No BMPs necessary.</li> </ul>
<b>Threatened and Endangered Species</b>	<ul style="list-style-type: none"> <li>• No short- or long-term impacts on threatened and endangered species</li> </ul>	<ul style="list-style-type: none"> <li>• No short- or long-term impacts on threatened and endangered species</li> </ul>	<ul style="list-style-type: none"> <li>• No BMPs necessary.</li> </ul>
<b>Migratory Birds</b>	<ul style="list-style-type: none"> <li>• No short-term impacts on migratory birds or eagles.</li> <li>• Negligible long-term impact on migratory birds from flooding.</li> <li>• No impact on eagles.</li> </ul>	<ul style="list-style-type: none"> <li>• Minor short-term impact on migratory birds if vegetation removal were to occur during breeding/nesting season.</li> <li>• Minor long-term benefits on migratory birds from reduced risk of flooding and streambank erosion and failure.</li> <li>• No impact on eagles.</li> </ul>	<ul style="list-style-type: none"> <li>• If vegetation removal occurs during the migratory bird nesting season, between April 1 and September 15, FEMA shall be notified to allow for coordination with USFWS.</li> </ul>
<b>Hazardous Materials</b>	<ul style="list-style-type: none"> <li>• No short-term impacts.</li> <li>• Minor long-term impacts from flooding that could lead to the dispersal of hazardous materials.</li> </ul>	<ul style="list-style-type: none"> <li>• Negligible short-term impact from construction.</li> <li>• Minor long-term benefit from reduced risk of flooding.</li> </ul>	<ul style="list-style-type: none"> <li>• Comply with conditions in the MDE Construction General Permit and the CWA Section 404 Permit.</li> </ul>
<b>Visual Resources</b>	<ul style="list-style-type: none"> <li>• No short-term impacts.</li> <li>• Minor long-term impacts from future flood events.</li> </ul>	<ul style="list-style-type: none"> <li>• Minor short-term impacts from construction activities.</li> <li>• Minor long-term benefits from improved visual character.</li> </ul>	<ul style="list-style-type: none"> <li>• No BMPs necessary.</li> </ul>
<b>Noise</b>	<ul style="list-style-type: none"> <li>• No short-term impacts.</li> <li>• Negligible temporary impacts from repair activities.</li> </ul>	<ul style="list-style-type: none"> <li>• Minor short-term impacts from construction.</li> <li>• No long-term impacts.</li> </ul>	<ul style="list-style-type: none"> <li>• Keep heavy machinery and equipment well maintained. Use sound-control devices and mufflers.</li> </ul>
<b>Public Service and Utilities</b>	<ul style="list-style-type: none"> <li>• No short-term impacts.</li> <li>• Minor long-term impacts from flood-related damage and service disruptions.</li> </ul>	<ul style="list-style-type: none"> <li>• Negligible short-term impacts from construction.</li> <li>• Minor long-term benefits from reducing the risk of flooding.</li> </ul>	<ul style="list-style-type: none"> <li>• No BMPs necessary.</li> </ul>

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Resource	No Action Impacts	Proposed Action Impacts	BMPs
<b>Transportation</b>	<ul style="list-style-type: none"> <li>• No short-term impacts.</li> <li>• Minor intermittent long-term impacts from flood-related road closures.</li> </ul>	<ul style="list-style-type: none"> <li>• Short-term minor impacts from construction traffic.</li> <li>• Minor long-term benefits from a reduction of flood-related road closures.</li> </ul>	<ul style="list-style-type: none"> <li>• No BMPs necessary.</li> </ul>
<b>Environmental Justice</b>	<ul style="list-style-type: none"> <li>• No short- or long-term disproportionately high or adverse impacts on environmental justice populations.</li> </ul>	<ul style="list-style-type: none"> <li>• No short- or long-term disproportionately high or adverse impacts on environmental justice populations.</li> </ul>	<ul style="list-style-type: none"> <li>• No BMPs necessary.</li> </ul>
<b>Public Health and Safety</b>	<ul style="list-style-type: none"> <li>• No short-term impacts.</li> <li>• Minor long-term impacts from future flood events.</li> </ul>	<ul style="list-style-type: none"> <li>• Negligible short-term impacts from construction.</li> <li>• Minor long-term benefits from reducing the risk of flooding that would threaten life and property.</li> </ul>	<ul style="list-style-type: none"> <li>• Complete all construction activities using qualified personnel trained in the proper use of equipment, including all safety precautions.</li> <li>• Conduct all activities in accordance with the standards specified in OSHA regulations.</li> </ul>
<b>Historic and Cultural Resources</b>	<ul style="list-style-type: none"> <li>• Minor long-term impacts from future flood events.</li> </ul>	<ul style="list-style-type: none"> <li>• No short-term impacts. Moderate long-term benefits from reducing the risk of flooding.</li> </ul>	<ul style="list-style-type: none"> <li>• No BMPs necessary</li> </ul>

## SECTION 4. Cumulative Effects

Cumulative effects, as defined by CEQ regulation, are impacts on the environment resulting from the incremental impacts of the evaluated actions when added to other past, present, and reasonably foreseeable future actions, regardless of the source, federal or nonfederal. According to 40 C.F.R. Section 1508.7, cumulative impacts can result from individually minor but collectively significant actions taken over time.

The City of Frederick implemented a flood control and stream restoration project on a 1.3-mile stretch of Carroll Creek in downtown Frederick. This project, known as the Carroll Creek flood control project, included development of Carroll Creek Park, removed 134 land acres and more than 400 buildings from the floodplain, and supported mixed use redevelopment in the area. Additionally, EAs were conducted at several properties adjacent to the stream between the mid-1990s and 2000s. Several properties enrolled in remediation and site cleanup programs offered by MDE (Maryland Department of Planning n.d.). The final phase of construction of the Carroll Creek flood control project was completed in May 2016 (City of Frederick n.d.d). This project is approximately 0.75 mile south of the project area for the Proposed Action. Carroll Creek is also a tributary of the Lower Monocacy River.

There are currently no major construction projects planned at the Monocacy Village Park or near the project area. In June 2022, construction to convert an existing tennis court in the Monocacy Village Park into pickleball courts began. Construction is expected to take approximately 2 months (Marshall 2022).

This EA concludes that the Proposed Action would result in short-term negligible to minor construction-related impacts on geology, topography, soils, water resources and water quality, floodplains, air quality, terrestrial and aquatic environments, migratory birds, hazardous materials, visual resources, noise, public services and utilities, transportation, environmental justice populations, and public health and safety. The Proposed Action would result in minor long-term benefits on soils, water quality, floodplains, terrestrial and aquatic environments, wetlands, migratory birds, hazardous materials, visual resources, public services and utilities, transportation, environmental justice populations, and public health and safety.

The pickleball court construction in the park and the Carroll Creek Flood Control Project, when combined with the Proposed Action, would not have short-term cumulative impacts because of the different timing of construction between the three projects. However, as with the Proposed Action, the Carroll Creek Flood Control Project reduced flood risk within the City of Frederick and included the remediation of contaminated sites near the stream. Thus, the Carroll Creek Flood Control Project would result in cumulative benefits on soils, water quality, floodplains, terrestrial and aquatic environments, wetlands, migratory birds, hazardous materials, visual resources, public services and utilities, transportation, environmental justice populations, and public health and safety when combined with the Proposed Action.

## SECTION 5. Agency Coordination and Public Participation

### 5.1. Agency Consultations

#### 5.1.1. NATIONAL HISTORIC PRESERVATION ACT

FEMA initiated consultation with SHPO on October 6, 2022, notifying them of the project and identified the need for cultural resources surveys to be conducted, MHT acknowledged receipt of the notification in an email on October 7, 2022. FEMA submitted a continuing consultation on January 30, 2023, at the completion of the cultural resource surveys with a determination of No Adverse Effect to Historic Properties and No Historic Properties Affected for potential below-ground resources. MHT concurred with these findings in a response dated April 7, 2023. FEMA consulted with the Delaware Nation, Seneca-Cayuga Nation, and the Tuscarora Nation to seek comment on the project on February 7, 2023. No responses were received.

#### 5.1.2. ENDANGERED SPECIES ACT

FEMA submitted a Section 7 consultation letter to the USFWS on March 1, 2023 and determined the Proposed Action may affect, but is not likely to adversely affect, the NLEB. A response was received from USFWS on March 8, 2023 with a determination of no effect on the endangered, threatened, or candidate species. As a follow-up, FEMA completed the Northern Long-eared Bat Rangewide Determination Key in the IPaC tool in October 2023 resulting in a no effect determination. U.S. Fish and Wildlife Service concurred with this determination, which is documented in an IPaC-generated concurrence letter dated October 18, 2023.

### 5.2. Public Participation

The public was previously engaged through the development of the 2020 City of Frederick Flood Resiliency study, developed with the assistance of the USACE Baltimore District. The 2020 flood study provided the City with a plan for reducing the risk of flooding to property owners and critical roadways and led to the development of the Proposed Action.

This EA will be made available for agency and public review and comment for a period of 30 days. The public information process will include a public notice with information about the Proposed Action posted on the FEMA website noted below. The Draft EA will be available to download on the City's website at <https://www.cityoffrederickmd.gov/> under the News and Information Section, and on FEMA's website at <https://www.fema.gov/emergency-managers/practitioners/environmental-historic/nepa-repository>. Additionally, a hardcopy of the draft EA is available for review at 140 West Patrick Street, Frederick, MD, 21701.

This EA reflects the evaluation and assessment of the federal government, the decision-maker for the federal action; however, FEMA will consider any substantive comments received during the public review period to inform the final decision regarding grant approval and project

## **Agency Coordination and Public Involvement**

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implementation. The public is invited to submit written comments via email to FEMA-R3-EHP-PublicComment@fema.dhs.gov or mail to FEMA Region 3, 615 Chestnut Street, Sixth Floor, Philadelphia, PA 19106, ATTENTION: Motter Avenue NEPA Comments.

If no substantive comments are received from the public and/or agency reviewers, the EA will be adopted as final and a FONSI will be issued. Any substantive comments received will be evaluated and addressed before determining whether to issue a FONSI or to revise the EA for additional public comment.

## SECTION 6. Best Management Practices, Mitigation Measures, and Permits

The following are standard BMPs, mitigation measures, and conditions applicable to the Proposed Action:

- The applicant is responsible for obtaining and complying with all required local, state, and federal permits and approvals.
- The applicant will monitor ground disturbance during the construction phase; should human skeletal remains, or historical or archaeological materials be discovered during construction, all ground-disturbing activities on the project site shall cease and the applicant shall notify the coroner's office (in the case of human remains), FEMA, and the State Historic Preservation Office.
- If deviations from the proposed scope of work result in substantial design changes, the need for additional ground disturbance, additional removal of vegetation, or any other unanticipated changes to the physical environment, the City must contact FEMA so that the revised project scope can be evaluated for compliance with NEPA and other applicable environmental laws.

The following specific conditions are also applicable to the Proposed Action:

- The following permits would be required for the Proposed Action. All work authorized under these permits must be performed in compliance with the conditions of the permits.
  - Obtain an MDE General Permit for Stormwater Discharge Associated with Construction Activity (Permit Number 20-CP).
  - USACE CWA Section 404 Permit.
  - Comply with the Maryland Forest Conservation Act regarding vegetation removal and restoration/planting.
  - If road closures are required, coordinate with MDOT and the City to obtain necessary permits.
- Work must be conducted in the fashion it is proposed in any permit applications. Changes to project design that would alter determinations presented in the EA would require reopening consultations with regulatory agencies.
- Applicant must coordinate with the local Floodplain Administrator and obtain any required permits prior to initiating work. A copy of the approval/permit, or documentation (email, documented phone call, letter, etc.) from the permitting official that an approval/permit is not required, must be forwarded to the state and FEMA for inclusion in the administrative record. Restore temporarily impacted areas following construction with native trees, wetland and riparian vegetation, turfgrass, and upland meadow species, depending on the planting zone.



## **Best Management Practices, Mitigation Measures, and Permits**

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- Implement erosion and sediment control BMPs and BMPs related to use of fill, as listed in Section 3.1.1.
- Dewater construction area using pumps.
- Restore temporarily impacted areas following construction with paving, plantings, seed, or mulch.
- Limit vegetation removal to that which is necessary to construct the Proposed Action and remove dead trees and invasive species. Develop the final landscaping plan in accordance with state and local planting guidelines.
- If vegetation removal occurs during the migratory bird nesting season, between April 1 and September 15, FEMA shall be notified to allow for coordination with USFWS.
- Keep vehicles and equipment running as little as possible.
- Wet or cover areas of exposed soils to reduce fugitive dust.
- Keep heavy machinery and equipment well maintained. Use sound-control devices and mufflers.
- Complete construction work during daytime hours in compliance with the City of Frederick noise regulations for residential areas.
- Ensure equipment complies with pertinent EPA equipment noise standards.
- Return all existing pavement, sidewalks, and curbs impacted by construction to preconstruction conditions.
- Handle and dispose of any hazardous materials discovered, generated, or used during implementation of the Proposed Action in accordance with applicable local, state, and federal regulations.
- Complete all construction activities using qualified personnel trained in the proper use of equipment, including all safety precautions.
- Conduct all activities in accordance with the standards specified in OSHA regulations.

## SECTION 7. References

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## SECTION 8. List of Preparers

The following is a list of preparers who contributed to the development of the Motter Avenue Area Community Flood Mitigation Project EA for FEMA. The individuals listed below had principal roles in the preparation of this document. Many others contributed, including senior managers, administrative support personnel, and technical staff, and their efforts in developing this EA are appreciated.

### CDM Smith

Preparers	Experience and Expertise	Role in Preparation
Giordano, Brock	Cultural Resources	NEPA Documentation
Argiroff, Emma	Environmental Planner	NEPA Documentation
Palmer, Jenifer	Environmental Planner	NEPA Documentation
Quan, Jenna	Environmental Planner	NEPA Documentation
Jadhav, Ajay	GIS Specialist	Figure Development
Stenberg, Kate PhD	Senior Environmental Planner	Senior Technical Review

### Federal Emergency Management Agency

Reviewers	Role in Preparation
Hagan, Erin	Environmental Protection Specialist, FEMA Review
Mielke, Megann	Project Officer, FEMA Review
Nolan, Tessa	Regional Environmental Officer, FEMA Review
Hathaway, Justin	Environmental Protection Specialist, NEPA Documentation



# Appendix A. Maps and Figures

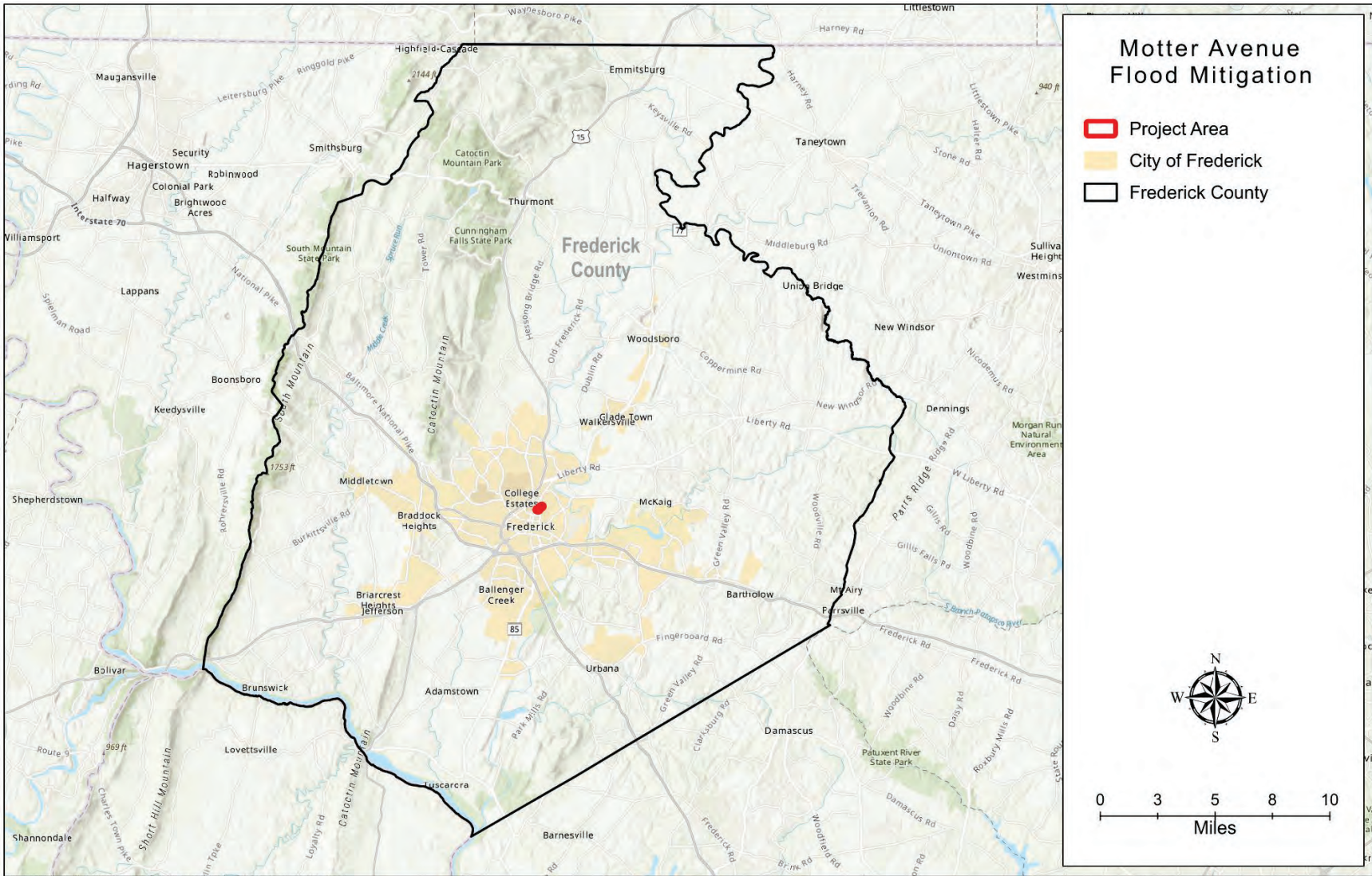


Figure 1. General Project Location Map



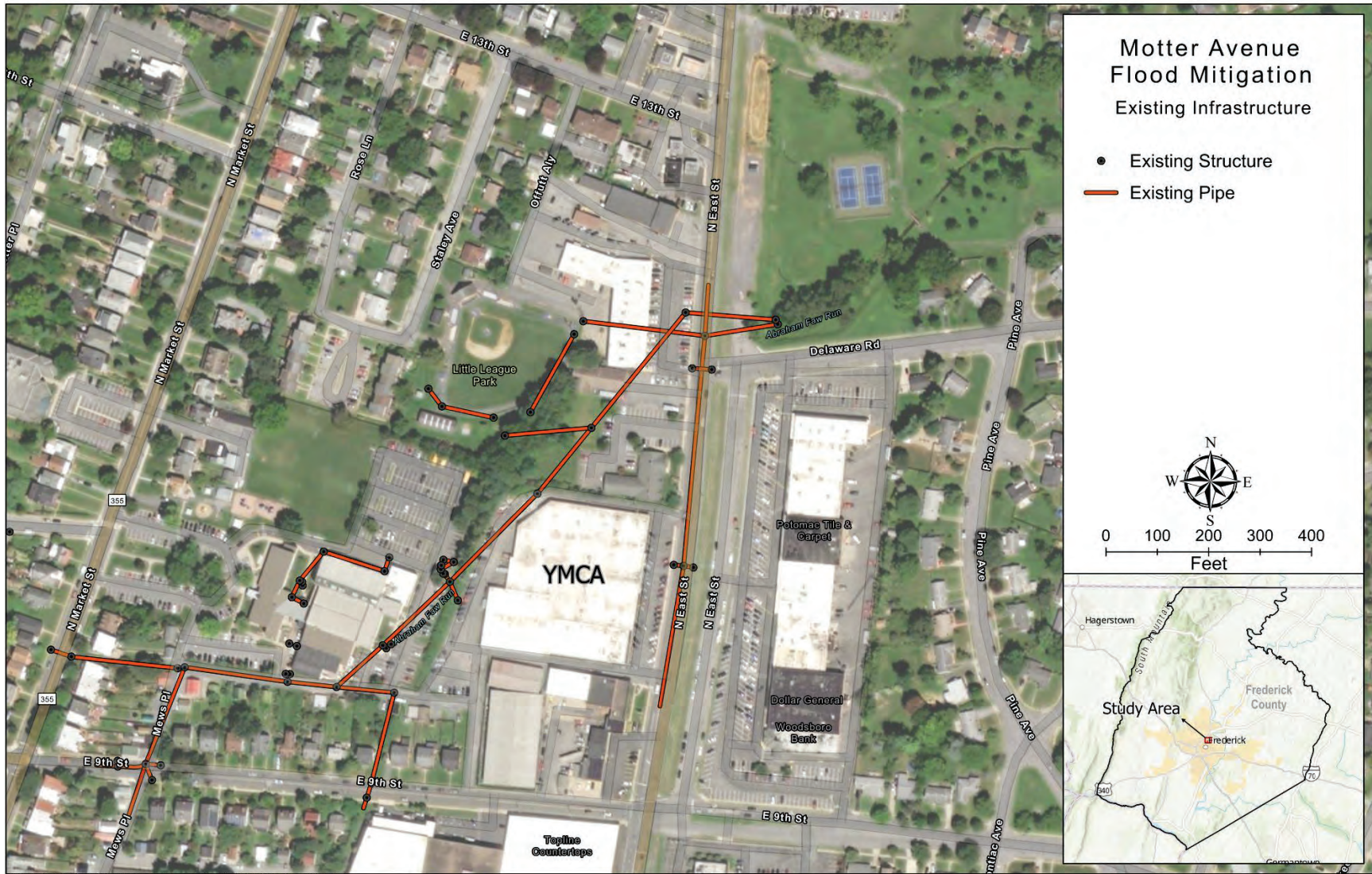


Figure 2. Existing Infrastructure





**Figure 3. Photos of Abraham Faw Run Outfall and Existing Headwall Plunge Pool**





Figure 4. Proposed Action Improvements







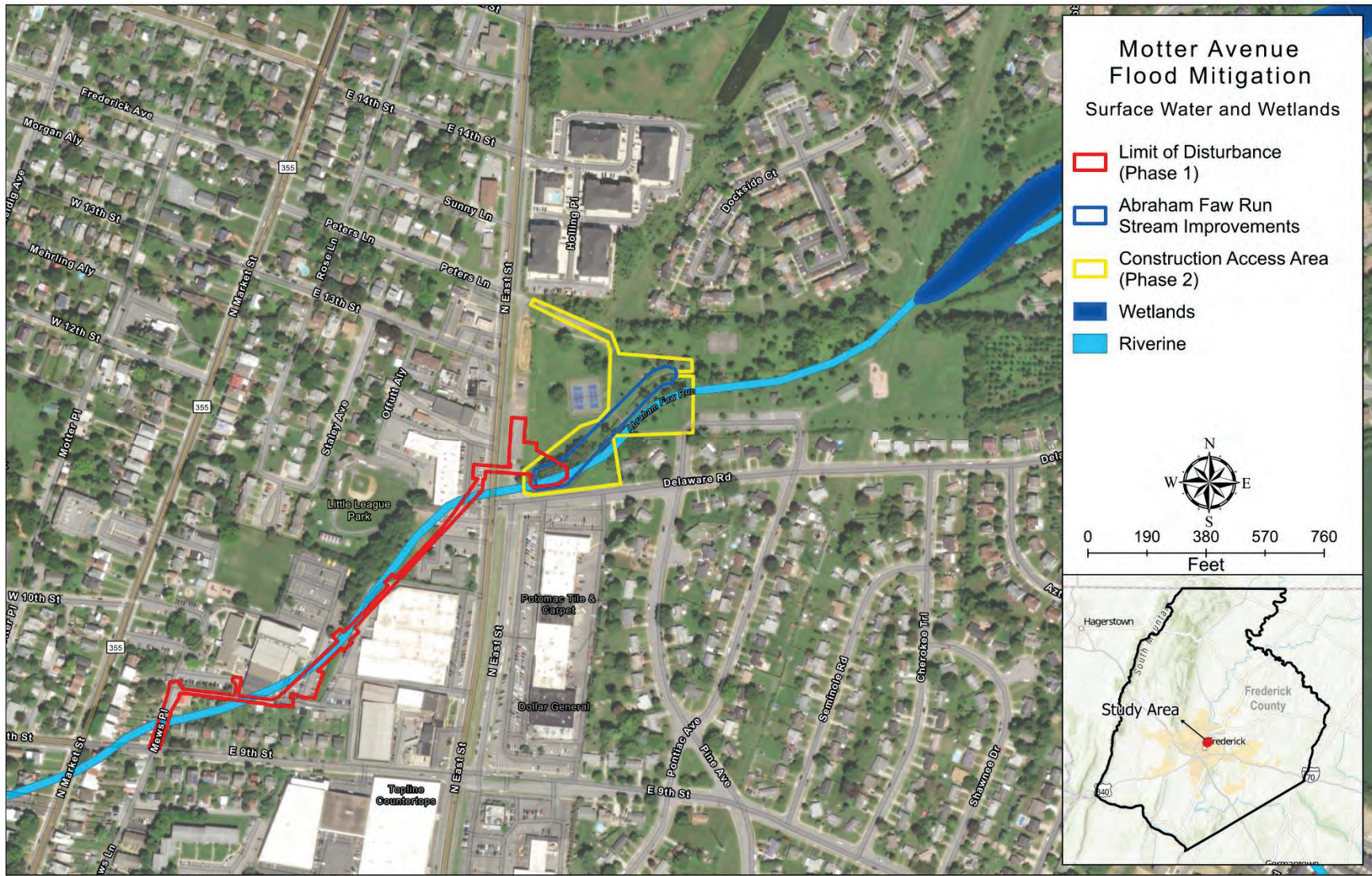


Figure 6. Surface Waters and Wetlands in and Near the Project Area



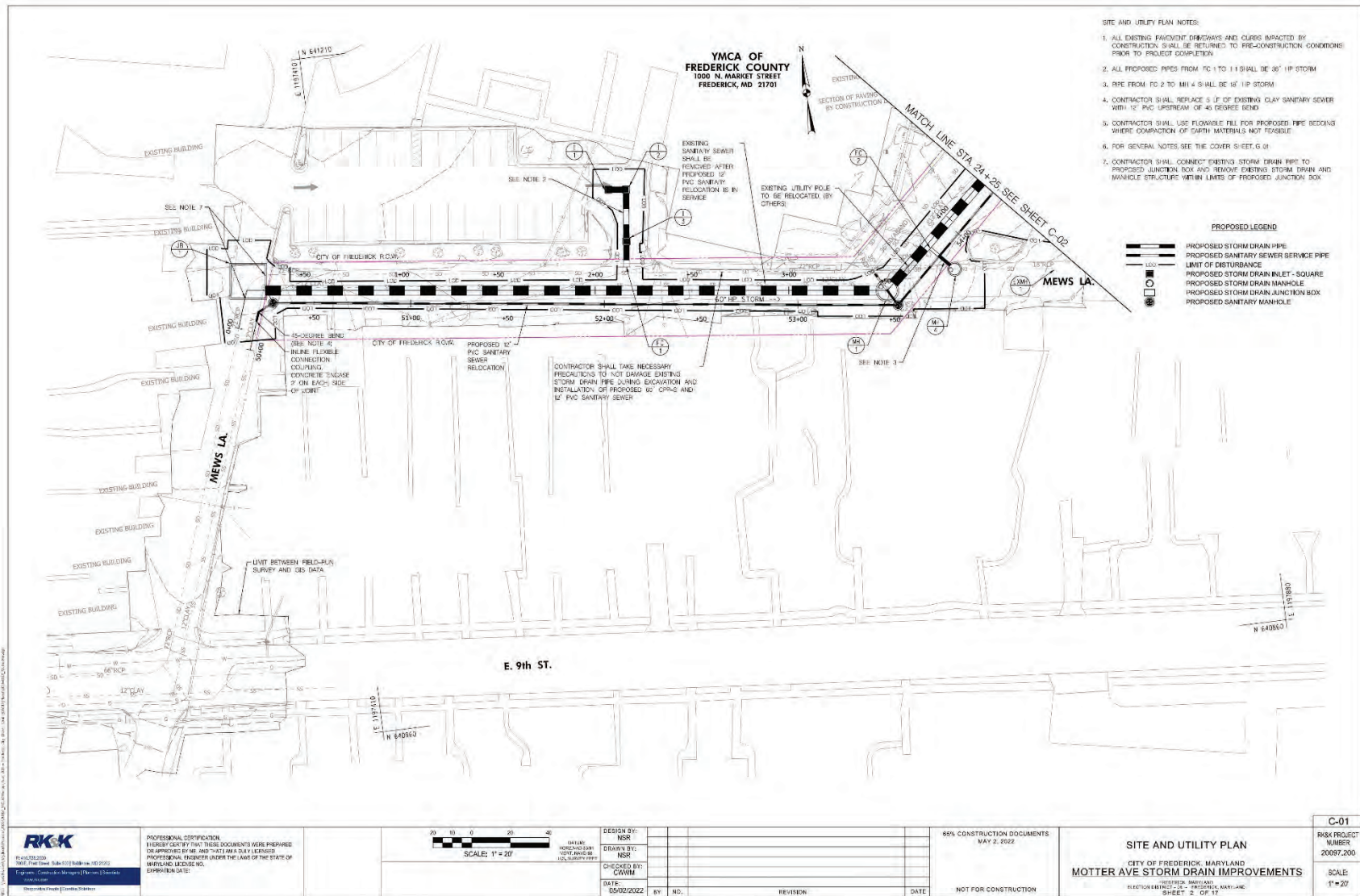


Figure 7. Mottter Avenue Phase 1 Site and Utility Plan Page 1











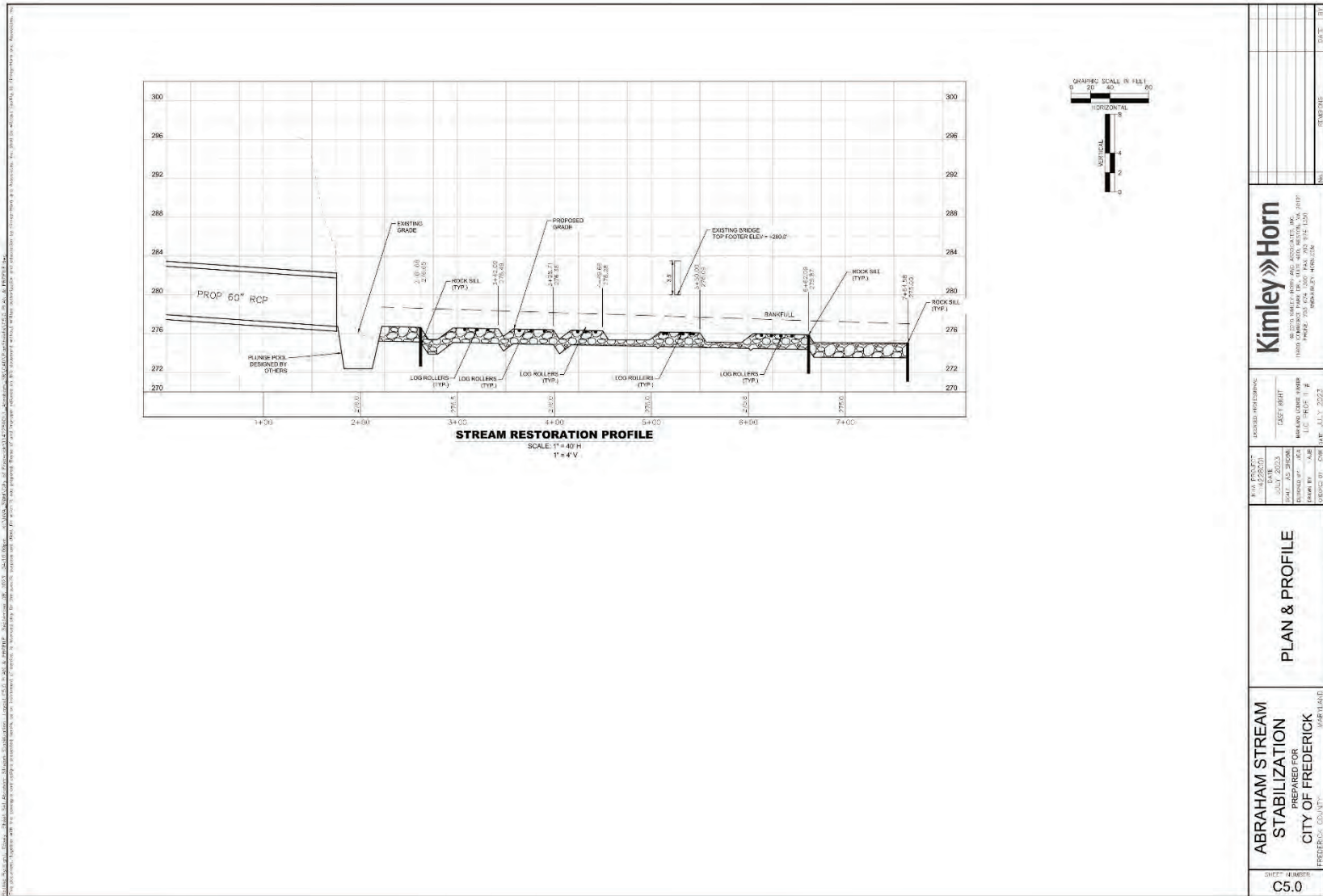


Figure 11. Motter Avenue Phase 2 Plan and Profile

# **Appendix B. Floodplain Management Eight-Step Documentation and Hydrologic and Hydraulic Analysis**

Step	Project Analysis
<p><b>Step 1:</b> Determine whether the Proposed Action is located in a wetland and/or the 100-year floodplain, or whether it has the potential to affect or be affected by a floodplain or wetland.</p>	<p><b>Project Analysis:</b> According to FEMA Flood Insurance Rate Map Panel 24021C0292E, effective August 1, 2023, the eastern part of the project area (i.e., where stream stabilization activities are proposed under Phase 2 and a small portion of the new parallel pipeline and outfall are proposed under Phase 1) is within Flood Zone AE regulatory floodway and Zone AE, which are subject to inundation by the 1 percent annual chance flood, and Zone X (shaded), an area subject to a 0.2-percent annual chance flood. According to FEMA Flood Insurance Rate Map, Panel 24021C0291E, effective August 1, 2023, the western part of the project area (i.e., where enclosed storm drainage improvements are proposed) is within Zone X (unshaded), an area of minimal flood hazard.</p> <p>However, the hydrologic and hydraulic analysis for the Proposed Action, conducted in 2022 and included in Appendix B, models the extent of flooding along Mews Lane and the YMCA in Phase 1 of the project area. The modeling shows that the maximum existing flood depth along Mews Lane is approximately 2.9 feet, 5.1 feet, and 7 feet for the 2-, 10-, and 100-year storm events, respectively. These findings are consistent with the stormwater quantity modeling in the 2020 USACE study, which was performed in an event-based environment to identify and confirm stormwater flooding risks without further improvements. Based on that analysis, the primary area that is at risk of continued flooding is the YMCA Flooding Area. Secondary areas of flood risk include the commercial building at 1195-1209 N. East Street, Frederick National Little League Ballfield, residential properties along E. 9th Street and W. 9th Street, N. Market Street, and W. 10th Street, with additional flood risk at isolated properties in upland portions of the watershed. These secondary areas are at risk of “nuisance flooding,” with depths affecting the properties or roadways less than one foot for a 10-year, 24-hour storm event (USACE 2020). Flood depths within the primary and secondary areas of flood risk are sufficient to endanger people and property.</p> <p>A wetland delineation conducted in 2023 identified a stream in the project area (Abraham Faw Run); however, no wetlands were identified in the project area. Additionally, a review of the U.S. Fish and Wildlife Services' National Wetlands Inventory (NWI), accessed October 21, 2022, indicates that the project area includes approximately 580 feet of Abraham Faw Run. This stream is mapped by the NWI as a perennial riverine system with an unconsolidated bottom that is permanently flooded, and therefore is considered a surface water feature rather than a wetland. As such, according to the NWI, no wetlands occur within the project area.</p>

Step	Project Analysis
<p><b>Step 2:</b> Notify public at earliest possible time of the intent to carry out an action in a floodplain or wetland and involve the affected and interested public in the decision-making process.</p>	<p><b>Project Analysis:</b> A public notice for the Proposed Action will be issued on FEMA's website at <a href="https://www.fema.gov/emergency-managers/practitioners/environmental-historic/nepa-repository">https://www.fema.gov/emergency-managers/practitioners/environmental-historic/nepa-repository</a>.</p>
<p><b>Step 3:</b> Identify and evaluate practicable alternatives to locating the Proposed Action in a floodplain or wetland.</p>	<p><b>Project Analysis:</b> The following alternatives were considered in selecting the proposed alternative.</p> <p><b>No Action Alternative:</b> Under the No Action alternative, the existing stormwater system would be regularly maintained and repaired, and the City of Frederick (City) would conduct routine erosion control to maintain the Abraham Faw Run channel. Additional parallel pipe capacity would not be created and replacing existing pipes with larger diameter pipes would not be feasible given the existing conditions and outflow capacity at Abraham Faw Run. Under this alternative, the risk to people and property from flooding events and associated inundation would remain. According to the University of Maryland Extension in the “Effects of Climate Change on Maryland” (2023), flood events could increase as a result of higher intensity storm and flood events expected due to climate change.</p> <p><b>Proposed Action:</b> The Proposed Action would be implemented in two phases to: (1) increase trunk line capacity, (2) improve surface drainage, and (3) stabilize and restore stream conditions in the YMCA Flooding Area within the City of Frederick, Frederick County, Maryland.</p> <p>Phase 1 (FEMA Grant ID: EMP-2020-FM-038-001) would increase trunk line capacity and improve surface drainage along Mews Lane from E. 9th Street to just east of N. East Street. Improvements would include:</p> <p>Creating a parallel system consisting of 60-inch high-density-polyethylene (HDPE) piping along the trunk line starting from Mews Lane north of E. 9th Street (Pipe ID 45-41) all the way to the system outfall at Abraham Faw Run, resulting in an additional approximately 1,680 feet of pipe.</p> <p>Increasing the size of the pipes in the south parking lot of the YMCA to 36 inches in diameter.</p> <p>Adding a new drainage line with three new 4-foot by 2-foot inlets at the low points in the YMCA south parking lot. The new inlets would be connected to the existing system using approximately 68</p>



Step	Project Analysis
	<p>feet of 36 inch-diameter pipes to connect with the increased pipe sizes in the south parking lot.</p> <p>Trenching would be used to install and replace pipes and construction equipment would include excavators, vehicles, and other standard construction equipment. Temporary construction staging and stockpiling would occur within existing surface lots and on vacant county-owned land.</p> <p>Phase 2 (FEMA Grant ID: LPDM-PJ-03-MD-2022-004) would stabilize and restore eroding conditions in the adjacent Abraham Faw Run, improve stormwater treatment, and would be designed to address flows and forces associated with the Phase 1 capacity improvements. The Phase 2 project area extends from the outfall of the culverts and the plunge pool constructed in Phase 1, which are just northeast of the intersection N. East Street and Delaware Road, to approximately 500 feet downstream.</p> <p>Existing riprap would be excavated and approximately 500 feet of stream would be graded. Grading would be a width of 30 feet along the stream, resulting in approximately 15,000 square feet of total disturbance. Approximately 2.7 acres would be disturbed from construction access. The following erosion control measures would be implemented:</p> <p>Three rock sill structures would be installed in Abraham Faw Run (one upstream and two downstream). Each rock sill structure would consist of a rock wall perpendicular to the streambanks. The upstream rock sill structure would be installed directly downstream of the plunge pool and a riprap pad, approximately 40-feet by 30-feet, would be installed directly on the downstream end of this rock sill wall to provide extra erosion protection.</p> <p>Riffle structures with log rollers and reinforced substrate would be installed periodically within the stream improvements area. Riffle structures and reinforced substrate would consist of stones or erosion-resistant materials that are elevated above the rest of the stream. Log rollers would be installed across the stream in these areas. The stream would be graded such that sections of riffle structures and reinforced substrate would be followed by shallow pools approximately 1 foot lower than the riffle structures.</p> <p>Coir matting and live stakes would be installed in areas of shallow pools. Coir matting consists of woven, fibrous mats that control erosion and allow for seedlings to grow; live stakes are dormant cuttings that are planted to control erosion.</p> <p>Toewood structures would be installed perpendicular to bends in the stream.</p>



Step	Project Analysis
	<p>To reduce future erosion, the proposed streambank slopes would be graded to a maximum ratio of 2 horizontal units to 1 vertical unit for pools and 3 horizontal units to 1 vertical unit for riffle structures. The maximum depth of ground disturbance would be approximately 4 feet for the installation of rock sills (described below) and 2 feet for other erosion control measures. The maximum depth of 4 feet would be localized where rock sills are installed.</p> <p>Following grading and installation of erosion control measures, seed and mulch would be applied on the banks to provide additional erosion control. Seeding and mulching would be conducted in accordance with Maryland Standards and Specifications for Soil Erosion and Sediment Control and other state and local requirements. Seed mixes consisting of native plant materials would be used in conjunction with erosion control blankets and/or matting to stabilize the stream banks and remaining disturbed areas. Trees that have roots along the stream bank would be preserved to the maximum extent practical to assist with stabilization. Mulching would be minimized to tree areas where seed mixes are unlikely to germinate. Various trees and shrubs would be planted along 500 feet of streambanks. Native plants would be prioritized for restoration, though it is possible that some non-native plants may be used. A final landscape plan would be developed during subsequent design in accordance with Maryland Waterways Construction Guidelines, the Maryland Forest Conservation Act, the State Forest Conservation Technical Manual, and the City of Frederick's tree and shrub planting standards.</p> <p>Equipment for Phase 2 would likely include excavators, backhoes, loaders, dump trucks, vehicles, and other standard construction equipment. During construction of Phase 2, water in Abraham Faw Run would be diverted around the construction area and pumped out of the existing stream so that construction work would occur in the dry. Restoration would start at the upper end of the reach just downstream of the plunge pool completed as part of Phase 1. A pump would be installed to pump water from the work area to a section downstream of the work area so that construction would occur in the dry. The contractor would then regrade the banks and install the instream structures in accordance with the design plans. This process would be repeated until the entire stream has been restored. Stockpiling of materials would be located on the site and within the construction access area. Phase 2 improvements would be designed in accordance with the "2011 Maryland Standards and Specifications for Soil Erosion and Sediment Control" and the "Maryland Waterways Construction Guidelines" updated in 2000 and would meet requirements to obtain Natural Resources Conservation Service (NRCS) and Maryland Department of the Environment (MDE) approval for</p>

Step	Project Analysis
	<p>construction permits. Any in-water work would be performed in accordance with environmental permitting requirements as part of final design.</p> <p>The Proposed Action would occur within City-owned rights-of-way and the Monocacy Village Park and the City would be responsible for conducting long-term inspections and maintenance of the project area. The construction timeline would be approximately 32 months.</p> <p><b>Other alternatives considered:</b></p> <p>The 2020 U.S. Army Corps of Engineers (USACE) Study considered four alternatives that were eliminated for various reasons.</p> <p>One alternative considered providing stormwater detention ponds as a potential alternative to improving the capacity of the pipe system. Three potential upstream areas were identified where stormwater could be detained within the project area: the Frederick Shopping Center, Staley Park, and the Frederick Medical Center. Stormwater modeling was conducted to measure the effectiveness of this alternative. The results indicated that none of these three measures would result in a significant decrease in flooding in the project area. Providing stormwater detention at Staley Park resulted in the maximum decrease in flooding (1.1 feet) but the maximum flooding depth still exceeded 4 feet. Analysis of the model results indicated that even if no stormwater discharges into the main system from the sub-systems that were modeled, severe backwater would occur in pipes immediately downstream of the proposed detention facilities. This indicates that there are undersized pipes downstream of the conceptual detention areas that cause water to back up in the system. Even if stormwater detention basins were constructed in all three areas, the resultant maximum flood depths at the YMCA during a 10-year, 24-hour storm would be of 3.2 feet (a 2.4-foot decrease). As a result, this alternative would not meet the purpose and need for the project and was eliminated.</p> <p>A second alternative considered the feasibility of constructing a detention facility adjacent to the YMCA. Part of the source of flooding within the YMCA Flooding Area is due to the surface runoff from portions of the network that have had their capacity exceeded. This measure would require eminent domain or purchase of 15 residential properties south of the YMCA to build a detention pond. A minimum pond volume of 30.2 acre-feet and a minimum pond depth of 17.8 feet would be required to fully detain surface runoff based on the 10-year, 24-hour stormwater modeling. This location also cannot accommodate these minimum</p>

Step	Project Analysis
	<p>volumes and depths. For these reasons, this alternative would not meet the purpose and need for the project and was eliminated.</p> <p>A third alternative considered increasing the trunk line size and adding inlets near the YMCA. Like the Proposed Action, this alternative would include increasing the capacity of pipes along the main trunk line from Mews Lane north of E. 9th Street to the system outfall, increasing the diameter of pipes in the YMCA south parking lot, and adding a new drainage line with three new inlets at the low points in the YMCA south parking lot. More substantial increases in pipe diameter improvements were considered for this alternative and would replace existing pipes with increased pipe diameters ranging from 78 inches to 102 inches in diameter. The 10-year, 24-hour stormwater modeling indicated that this alternative would result in the same level of flood depths within the YMCA flooding area as the Proposed Action (1.7 feet). As such, it would meet the purpose and need for the project. However, it would not improve conditions over the Proposed Action, was determined to cost almost five times the cost estimated for the Proposed Action, and would result in additional construction footprint and impacts. Substantial increases to costs would be due to the fact that pipes over 60 inches in diameter would need to use reinforced concrete, instead of lower-cost HDPE. There would also be substantial additional costs associated with the need for building temporary shoring. This temporary shoring would need to be built under this alternative because trench boxes can only accommodate pipe sizes up to 72 inches in diameter. In addition, installation of temporary shoring required under this alternative would result in larger construction footprints and impacts. For these reasons, this alternative was eliminated.</p> <p>A fourth alternative considered installing a parallel pipe system along E. 9th Street and N. East Street. Besides the measures to reduce surface runoff and to increase trunk line pipe capacity, this alternative considered the potential to divert and redirect stormwater from reaching the trunk line within the YMCA Flooding Area into a parallel pipe along E. 9th and N. East Streets. This alternative would include severing pipes west of N. Market Street between West 9th and West 10th Streets and along Mews Lane north of 9th Street, adding new pipes along West 10th Street and North Market Street, and adding new pipes along E. 9th Street and N. East Street. By severing the existing pipes and adding new pipes, the trunk line in the YMCA Flooding Area would be used to convey only the stormwater generated from areas north of Staley Park. Stormwater generated from all other upstream areas would be redirected through the new line along E. 9th Street.</p> <p>Based on stormwater modeling, during a 10-year, 24-hour storm maximum flood depths at the YMCA Flooding Area would be 1.1 feet under the fourth alternative. This would reduce flood depths</p>

Step	Project Analysis
	<p>an additional 0.6 feet over the Proposed Action; however, this alternative would result in significantly higher costs than the Proposed Action and would result in larger construction footprints and impacts. Installing a new line along E. 9th Street and N. East Street would cost over seven times the cost of the Proposed Action. Construction impacts would be more substantial because: (1) installing this new line at these locations would result in a larger construction footprint, (2) the proposed pipes would need to be 84 inches in diameter, requiring use of reinforced concrete instead of lower-cost HPDE, and (3) pipe sizes would exceed the maximum pipe size that can be installed with trench boxes and would require building temporary shoring. In addition, sections of the pipe would need to be buried 20 feet below-ground at the deepest section and would also result in more costs and construction impacts. For these reasons, this alternative was eliminated.</p>
<p><b>Step 4:</b> Identify the full range of potential direct or indirect impacts associated with the occupancy or modification of floodplains and wetlands, and the potential direct and indirect support of floodplain and wetland development that could result from the Proposed Action.</p>	<p><b>Project Analysis:</b> The Proposed Action would result in a minor short-term adverse effect on the 100-year floodplain because of construction, including excavation and fill activities, that would occur within the floodplain. Construction activities could cause an accidental release of hazardous waste during the construction period from minor leaks from construction equipment. Land disturbance and grading work could result in sediment entering the adjacent stream. Additionally, approximately 0.3 acres of vegetation, including trees, in the upstream portion of the restoration work within Monocacy Village Park would be removed or disturbed during construction of the Proposed Action. This would result in a temporary impacts on natural and beneficial values of floodplains.</p> <p>The Proposed Action would have a long-term beneficial effect on the floodplain. According to the hydrologic and hydraulic analysis developed by RK&amp;K for the City of Frederick in 2022, Phase 1 of the Proposed Action would reduce the extent and depth of flooding along Mews Lane and the YMCA for the 2-year, 10-year, and 100-year storm events as compared to current conditions modeled in the hydrologic and hydraulic analysis. Reduced flood depths may also result in a shorter duration of flooding in areas that still flood.</p> <p>The hydraulic analysis also shows that, under the Proposed Action, the risk of flood loss or flood hazard potential for properties downstream would not be increased in the 10-year or 100-year return frequency storm events. Thus, the Proposed Action would reduce the severity, magnitude, and duration of flooding in the vicinity of the project area, as well as associated impacts, such as downstream erosion and risks to human health and safety.</p> <p>Phase 2 of the Proposed Action, which includes the installation of stream stabilization and restoration measures as discussed in</p>

Step	Project Analysis
	<p>Step 3 of this checklist, would have long-term benefits on the floodplain. Stream stabilization and restoration features would reduce bank erosion, resulting in reduced sedimentation and water quality impacts downstream. Therefore, the Proposed Action could have long-term benefits on floodplains and wetlands by supporting the natural and beneficial values served by floodplains and wetlands.</p> <p>The Proposed Action, in addition to reducing the severity, frequency, and magnitude of flooding from storms and stabilizing the stream, would provide habitat improvements for wildlife and plants in a public park from revegetation and stream restoration activities.</p>
<p><b>Step 5:</b> Minimize the potential adverse impacts from work within floodplains and wetlands (identified under Step 4), restore and preserve the natural and beneficial values served by wetlands.</p>	<p><b>Project Analysis:</b> The Proposed Action would comply with the Maryland Department of the Environment General Permit for Stormwater Discharge Associated with Construction Activity (for construction activities that would disturb 1 acre or more of land) The permit would require the City to implement measures to control discharges of pollutants, erosion, and sedimentation from the construction site to protect water quality. Because of the nature of project activities, a USACE Clean Water Act Section 404 Permit would likely be required. The 404 permit regulates the discharge of dredged and fill material into waterbodies. The City would be required to coordinate with USACE to determine the required permit authorization needed.</p> <p>The contractor would maintain, repair, and/or replace any existing sediment control devices encountered and disturbed during the course of construction. All disturbed areas would be stabilized with paving, plantings, seed, or mulch. Excavated fill material would be used for backfill. Any fill unsuitable for backfill would be disposed of at an approved location.</p> <p>Compliance with required permits and implementation of the best management practices listed above would minimize construction impacts on the floodplain by reducing the risk of contamination of nearby waterbodies and regulating the fill and discharge into waterbodies. The City must coordinate with the local Floodplain Administrator and obtain any required permits prior to initiating work. Accordingly, the Proposed Action would not result in an increase in the base flood elevation of the floodway. Fill, material, and debris would not be stored in the 100-year floodplain.</p> <p>Vegetation removal would be limited to that which is necessary to construct the project. The final landscaping plan would be developed during design and would be in accordance with the <i>Maryland Waterways Construction Guidelines</i> updated in 2000 and the Maryland Forest Conservation Act and <i>State Forest Conservation Technical Manual</i> as well as the City of Frederick</p>

Step	Project Analysis
	<p>tree and vegetation planting standards. All disturbed areas would be restored to pre-construction conditions through paving, plantings, seed, or mulch.</p> <p>As mentioned in Steps 3 and 4 of this checklist, Phase 2 of the Proposed Action would include the installation of sediment and erosion control features, landscaping, and other restoration measures along the Abraham Faw Run streambanks in the project area. These stabilization features would also help address ongoing erosion concerns in the project area, which would otherwise have the potential to adversely impact the floodplain and water quality. Thus, the Proposed Action would have long-term benefits on floodplains.</p>
<p><b>Step 6:</b> Re-evaluate the Proposed Action to determine: 1) if it is still practicable considering its exposure to flood hazards; 2) the extent to which it will aggravate the hazards to others; 3) its potential to disrupt floodplain and wetland values.</p>	<p><b>Project Analysis:</b> The Proposed Action remains the most practicable action because it meets the purpose and need of the project to reduce flood risk and protect life and property and the measures in Step 5 would minimize adverse impacts on the floodplain.</p>
<p><b>Step 7:</b> If the agency decides to take an action in a floodplain or wetland, prepare and provide the public with a finding and explanation of any final decision that the floodplain or wetland is the only practicable alternative. The explanation should include any relevant factors considered in the decision-making process</p>	<p><b>Project Analysis:</b> Public notice of the Proposed Action alternative will be provided as a function of the environmental assessment, informing the public of a potential FEMA funded action, which would occur within the 100-year floodplain.</p>
<p><b>Step 8:</b> Review the Proposed Action to ensure that the requirements of the EOs are fully implemented. Oversight responsibility shall be integrated into existing processes.</p>	<p><b>Project Analysis:</b> This step is integrated into the NEPA process, as well as FEMA project management and oversight functions.</p>



# CONCEPT DESIGN REPORT



## MOTTER AVENUE STORM DRAIN IMPROVEMENTS

May 2022

Prepared by:



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## **1. INTRODUCTION**

Based on an alternative analysis completed by the United States Army Corps of Engineers (USACE), the City of Frederick, Maryland is proposing to construct a 60-inch High Performance Polypropylene Pipe, (HP-Storm) parallel to an existing undersized 72-inch/78-inch reinforced concrete pipe (RCP) trunk line to provide additional drainage capacity in the sump area south of and adjacent to the YMCA facility where localized flooding has yield water depths greater than 5-feet. The existing 72-inch/78-inch RCP has an alignment from the intersection of 9<sup>th</sup> Street and Mews Lane (through Mews Lane south of the YMCA facility) to the commercial parking lot (west of East Street) and ultimately discharging to an unnamed tributary of Monocacy River, located in Monocacy Village Park, See Figure 1: Location Map. The proposed 60-inch pipe will begin approximately 190-feet from the intersection of 9<sup>th</sup> Street and Mews Lane, along Mews Lane, where the road turns approximately 90 degrees just south of the YMCA. The alignment of the proposed pipes is 1,522 feet in length. In addition to the proposed 60-inch HP-Storm line, three inlets, connected by 36-inch HP-Storm pipes, will be constructed within the YMCA parking lot adjacent to Mews Lane to provide additional drainage within a topographic low spot. The inlets will discharge to the existing 72-inch RCP.

The objective of the project is to provide a design based on the selected recommended option from the USACE alternative analysis that is constructable based on constraints including existing buildings, infrastructure, and utilities and to provide a design with minimal impacts to the unnamed tributary to the Monocacy River at the storm drain outfall.



**Photo 1: Looking North Along Mews Lane  
(Project Beginning)**



**Photo 2: YMCA Lot Adjacent to Mews Lane**



Figure 1: Location Map

## 2. XPSWMM HYDROLOGIC AND HYDRAULIC ANALYSIS

The USACE developed detailed existing and proposed conditions XPSWMM models, Version 2019.1.2 developed by Innovye, to conduct their alternative analyses, which were subsequently provided to Rummel, Klepper & Kahl, LLP (RK&K) to support the design task. XPSWMM is capable of simultaneously performing hydrologic and hydraulic calculations based on given inputs. Hydrologic discharges are developed to specific nodes within the model using SWMM's Non-Linear Reservoir Method which requires rainfall data (SCS Type II hyetographs), infiltration losses (Horton methodology) as well as basin's drainage area, percent impervious, width, and slope. Hydrologic discharges were developed for the 2-, 10-, and 100-yr recurrence intervals. All hydrologic inputs developed in the USACE's models were not altered during the design phase; therefore, no additional supporting documentation of hydrologic inputs are provided as part of this report.

Hydrologic discharges are then hydraulically routed through the model using one-dimensional (1D) conduits and two-dimensional (2D) overland flow. 1D conduit hydraulics are computed using the dynamic wave option based on the Environmental Protection Agency's (EPA) SWMM engine which is simultaneously linked to 2D surface computations computed by the TUFLOW engine solving the shallow water equations (SWE). The use of 1D dynamic wave computations coupled with 2D SWE solutions allows XPSWMM to accurately assess complex urban environments that experience tailwater conditions, diversion flows, surface ponding, and reverse flow such as those found within the project limits.



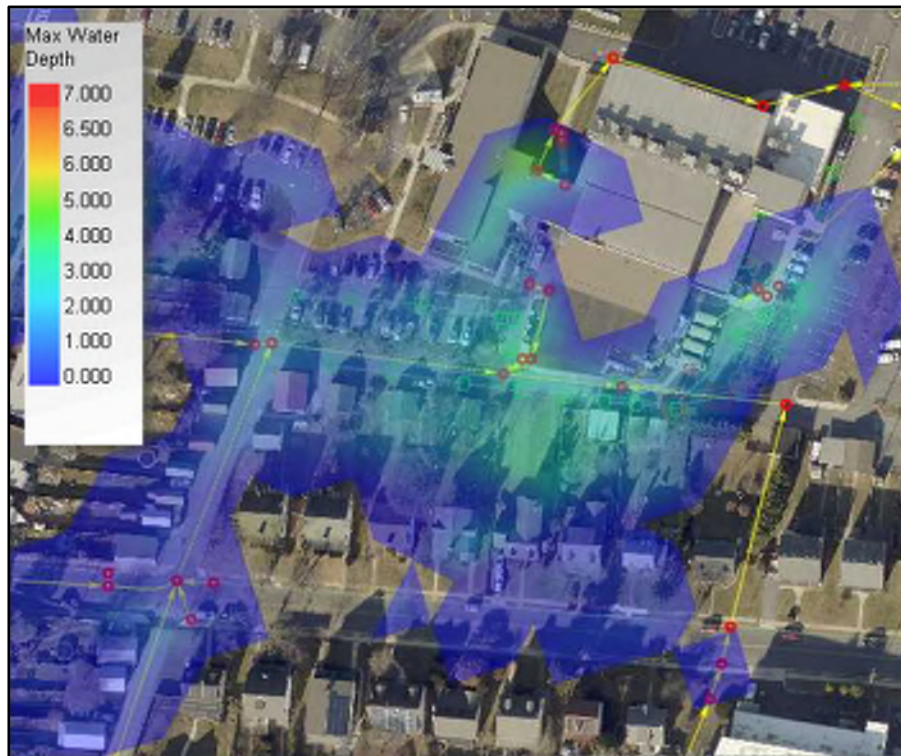


Figure 2: Existing 2-yr Storm Max Water Depths

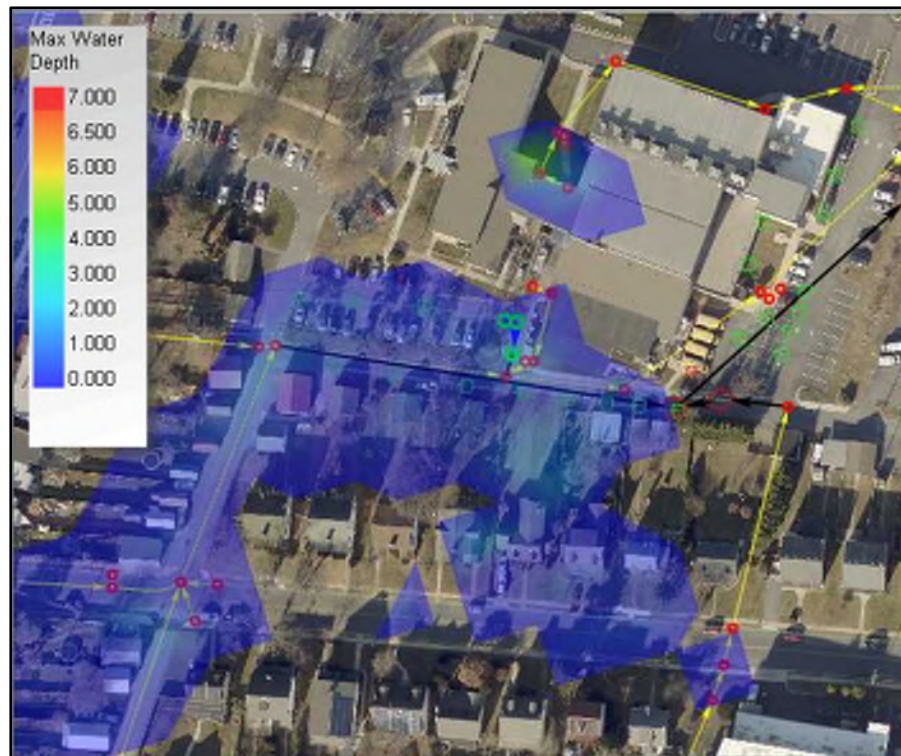


Figure 3: Proposed 2-yr Storm Max Water Depths

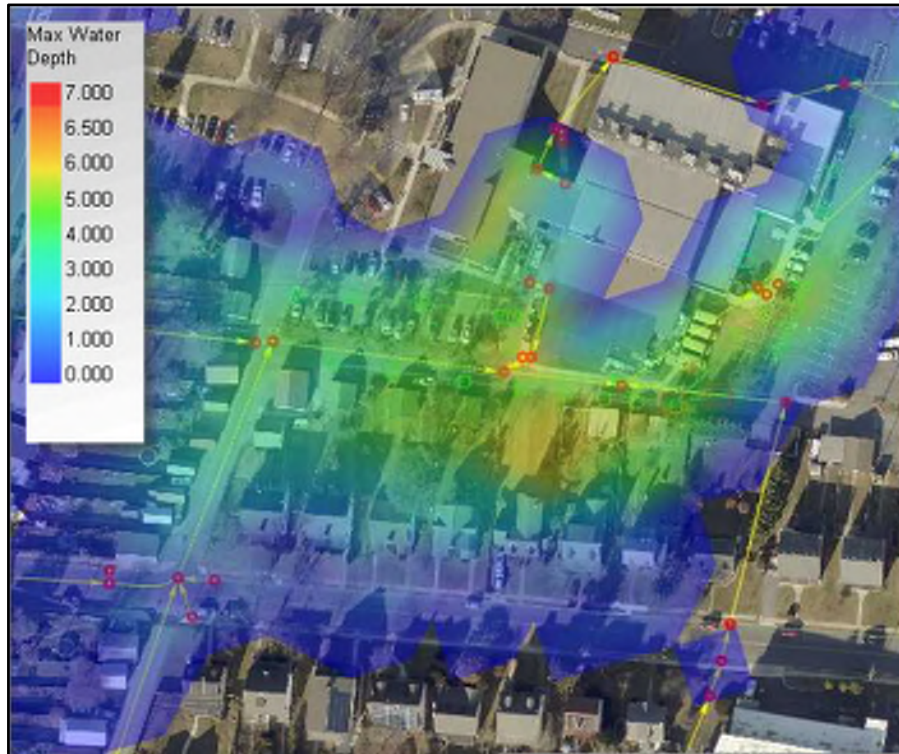


Figure 4: Existing 10-yr Storm Max Water Depths

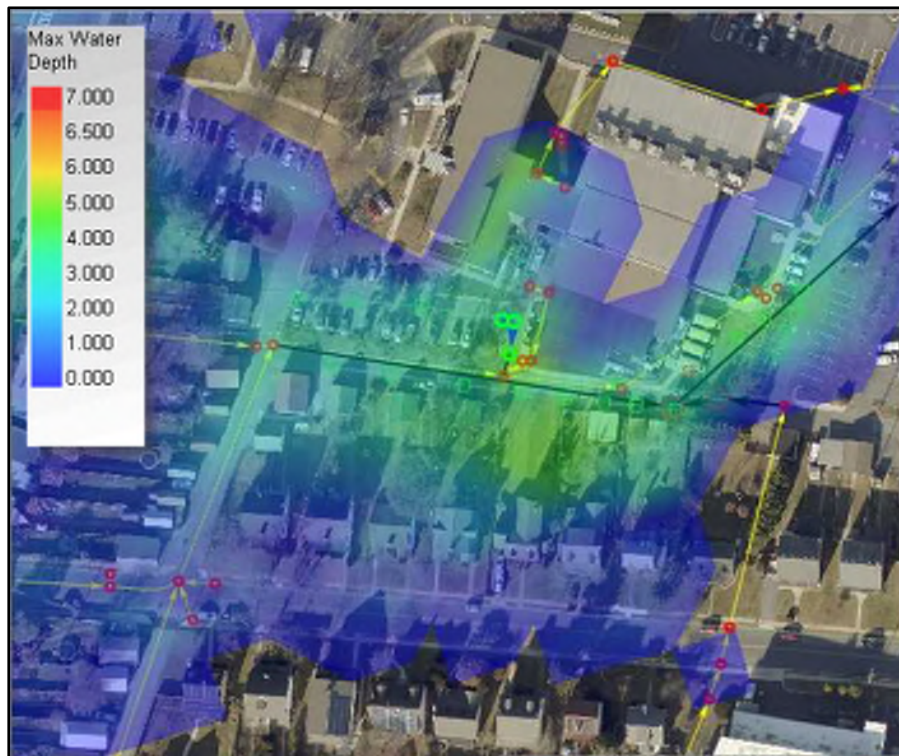


Figure 5: Proposed 10-yr Storm Max Water Depths



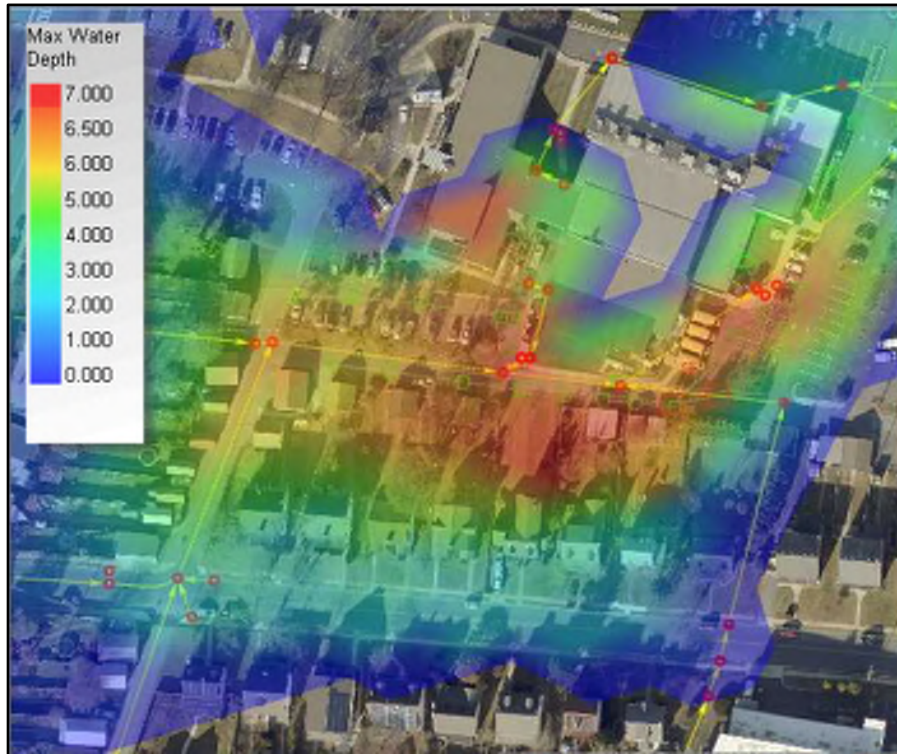


Figure 6: Existing 100-yr Storm Max Water Depths

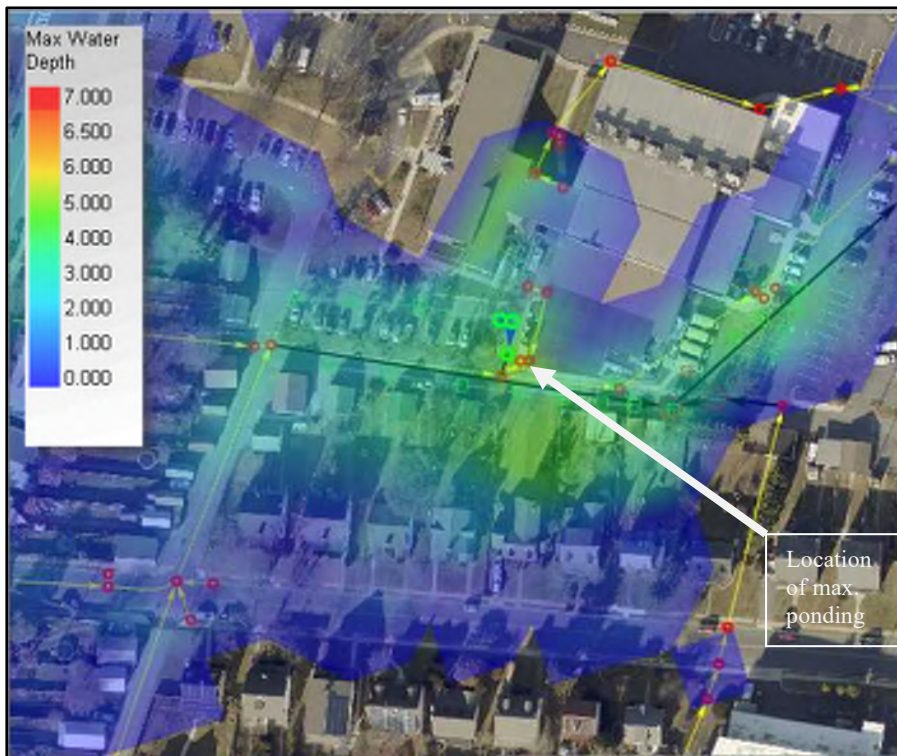


Figure 7: Proposed 100-yr Storm Max Water Depths

As shown in Figures 2-7 above, the proposed improvements decrease the limits and depth of flooding for the 2-, 10-, and 100-yr storms analyzed. Results do vary spatially due to the nature of the dynamic 1D and 2D modeling; however, Table 1 below summarizes existing and proposed water depths for the location of maximum ponding, as shown in Figure 7, in project area of interest.

**Table 1:** Summary of XPSWMM Maximum Water Depth Along Mews Lane

Recurrence Interval	Max. Ex. Water Depth (ft)	Max. Pr. Water Depth (ft)	Difference (ft)
2-yr	2.9	1.2	-1.7
10-yr	5.1	2.4	-2.7
100-yr	7.0	4.0	-3.0

The XPSWMM models were used to evaluate flood reduction levels in the vicinity of the YMCA for the proposed 60-inch trunkline and additional proposed inlets, since it has the capability to accurately model subsurface and overland hydraulics. The XPSWMM 1D system discharges to the unnamed tributary in Monocacy Village Park and the 2D model domain terminates approximately 100-feet upstream of the storm drain outfall near the intersection of North East Street and Delaware Road. Since flow downstream of the storm drain outfall is governed by open channel flow, results for the 2-, 10-, and 100-yr discharges at the storm drain outfall were then input into HEC-RAS for further analysis. See Section 3 for continued hydraulic discussion.

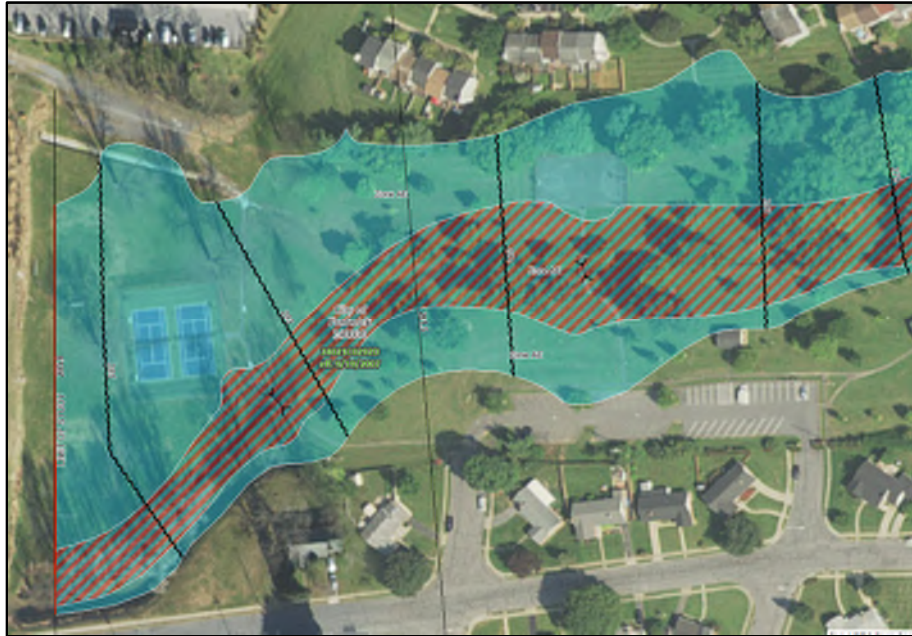
See Appendix A for supporting XPSWMM data.

### 3. HEC-RAS HYDRAULIC ANALYSIS

The hydraulic analysis of the unnamed tributary downstream of the storm drain outfall was conducted to evaluate long-term stability of the tributary due to increased conveyance through the upstream closed system as well to determine impacts to the 100-yr floodplain with the Monocacy Village Park. The storm drain discharges to a FEMA mapped floodplain and floodway, panel 24021C0292D effective September 19<sup>th</sup>, 2007. See Figure 8 below and Appendix C for FEMA mapping. Channel shear stresses, channel velocities, and water surface elevations (WSELs) were derived using the USACE HEC-RAS software (version 6.2).

Existing and proposed conditions HEC-RAS models were developed based upon FEMA's draft model for Monocacy River Tributary 8/99. Revisions to FEMA's draft model include the incorporation of site-specific discharges discussed above, detailed survey completed within the vicinity of the project, revision to channel geometry based upon the proposed grading at the outfall and incorporation of one additional cross section at the storm drain outfall to account for removal of an existing 20-ft concrete

apron at the existing headwall and removal of cross section to appropriately evaluate hydraulics at the first pedestrian footbridge encountered downstream of the outfall within the Monocacy Village Park.



**Figure 8: FEMA Floodplain Mapping**

In addition to the existing 78-inch RCP and proposed 60-inch HP-Storm that discharge to the unnamed tributary, an existing 24" RCP collecting additional upstream runoff also discharges through the existing outfall's wingwall. Therefore, peak discharges from the existing and proposed conditions XPSWMM models for all pipes discharging to the unnamed tributary were summed and input into the respective HEC-RAS models as the upstream boundary conditions. See Table 2 below for summary of peak discharge inputs from the storm drain outfall.

**Table 2:** Summary of XPSWMM Peak Discharges for HEC-RAS Upstream Boundary Condition

Recurrence Interval	Ex. Peak Discharges (cfs)	Pr. Peak Discharges (cfs)
2-yr	430.6	555.2
10-yr	491.2	632.2
100-yr	606.5	761.6

The preliminary FEMA HEC-RAS model provided discharges for the 10- through 500-yr recurrence interval storms. The FEMA HEC-RAS model did not provide discharges for the 2-yr storm which was part was the USACE XPSWMM model. Additionally, FEMA discharges in the HEC-RAS model were delineated to 10 HEC-RAS river stations (RS) from the storm drain outfall to just west of Monocacy Boulevard. For the basis of this report, the preliminary FEMA HEC-RAS model was truncated to RS



7509, just upstream of the second existing footbridge encountered downstream of the outfall. The next immediate downstream cross section, RS 7444, represents the second point of hydrologic input from FEMA. Since the project will not alter hydrologic patterns between the storm drain outfall and RS 7444, it is assumed that discharges downstream of RS 7509 will remain very similar or constant. Therefore, hydraulics downstream of RS 7509 will be unaffected and are not included in this evaluation. Truncation to RS 7509 will also allow a direct comparison between existing and proposed conditions for the 2- through 100-yr storms within the tailwater receiving channel.

### 3.1 Tailwater Channel 100-yr Recurrence Interval WSELs

As indicated in the introduction of Section 3, one of the objectives of the hydraulic analysis was to determine the impact of additional conveyance through the upstream closed system due to addition of a parallel 60-inch pipe on tailwater channel 100-yr WSELs. See Table 3 for comparison between existing and proposed conditions.

**Table 3:** Comparison of HEC-RAS 100-year Recurrence Interval WSELs

River Station	Recurrence Interval	Existing WSEL	Proposed WSEL	Difference
8139	100-yr	281.57	282.41	0.84
8119 O	100-yr	281.89	282.41	0.52
7972	100-yr	281.54	281.85	0.31
7841	100-yr	281.30	281.50	0.20
7806 N	100-yr	281.22	281.42	0.20
7791 Footbridge	100-yr	--	--	--
7779 M	100-yr	280.26	280.40	0.14
7667	100-yr	280.07	280.22	0.15
7586	100-yr	279.87	280.03	0.16
7509	100-yr	279.51	279.72	0.21

**Notes:**

Increased 100-yr WSEL

Table 3 shows increased 100-yr water surface elevations through River Station (RS) 7509; however, all increases are contained within the Monocacy Village Park owned by the City of Frederick. Therefore, additional property owner notification and concurrence is not required.

### 3.2 Shear Stress Evaluation

Shear stresses for the 2- and 10-yr recurrence interval were calculated at each of the HEC-RAS cross sections and compared between existing and proposed conditions. Shear stresses were evaluated

individually at each cross section to evaluate long-term stability. Table 4 below summarizes the results from the shear stress calculations.

**Table 4: Shear Stress Comparison**

River Station	2-Year Channel Shear Stress (psf)		Difference %	10-Year Channel Shear Stress (psf)		Difference %
	Existing	Proposed		Existing	Proposed	
8139	0.14	0.13	-7%	0.12	0.16	33%
8119 O	0.18	0.11	-39%	0.18	0.13	-28%
7972	0.41	0.44	7%	0.37	0.53	43%
7841	0.42	0.44	5%	0.36	0.55	53%
7806 N	0.41	0.45	10%	0.37	0.55	49%
7791 Footbridge	--	--	--	--	--	--
7779 M	0.70	1.04	49%	0.84	1.28	52%
7667	0.38	0.59	55%	0.46	0.70	52%
7586	0.95	0.86	-9%	1.12	0.93	-17%
7509	0.73	0.77	5%	0.75	0.79	5%

**Notes:**

Greater than 10% increase and proposed shear stresses less than 1.5 lb/sq. ft.

Table 4 shows most shear stresses are very low in existing and proposed conditions. Several locations show increases more than 10%; however, proposed conditions shear stresses are below 1.5 pound per square foot (psf) and therefore are anticipated to remain stable in the long term.

**3.3 Outfall Protection and Tailwater Channel Evaluation**

A natural plunge pool downstream of the existing 20-ft concrete apron has formed in the tailwater channel. Below the concrete apron, within the natural plunge, and along the exposed banks above the existing water level, minor erosion is occurring. Since the proposed headwall will be increased to accommodate the proposed 60-inch HP-Storm, the outfall channel will be widened immediately downstream as well. To ensure that long-term stability is achieved at the outfall and within the receiving tailwater channel, a 45.5-ft long by 27.0-ft wide class II plunge pool is proposed. Per Maryland Department of the Environment Standard D-4-2, plunge pool dimensions of 39-ft long by 33-ft were calculated that also required class I riprap. However, to minimize lateral grading extents, impacts to existing park land, and to facilitate storm flows into the existing channel, the plunge pool was extended and made narrower. The proposed plunge provides 91 cubic yards of volume for energy dissipation, which exceeds the 82 cubic yards that would have been provide per the MDE standard; therefore, the proposed plunge pool of 45.5-ft long by 27.0-ft wide will provide adequate energy

dissipation. Additionally, the riprap was increased to class II to mitigate for anticipated for storm drain exit velocities per Figure 2.1: Riprap Diameter as a Function of Stream Velocity per the Maryland Waterway Construction Guidelines (see Appendix D for computations). A concrete apron, as in existing conditions, is not proposed as a concrete apron does not provide energy dissipation like a plunge pool. Since the proposed plunge pool will start at the tow of the proposed headwall, instead of long concrete apron, grading will be provided to ensure that proposed plunge ties smoothly into the existing channel and side slopes.



**Photo 4: Existing outfall within Monocacy Village Park**



**Photo 3: Existing headwall and Plunge Pool**

In addition to the shear stress evaluation, a comparison of tailwater channel velocities and storm drain exit velocities were evaluated to further ensure that long-term stability will be maintained. Velocity increases shown in Table 5 generally correlate to shear increases shown in Table 4 due to the increased conveyance. The plunge pool does provide energy dissipation directly at the outfall to reduce exit velocities; however, due to the proposed 60-inch HP-Storm and the plunge pool tying back into the existing channel, conveyance is increased within the tailwater receiving channel. RS 7779 M has the highest velocities in proposed conditions; however, existing vegetation within the channel below the footbridge will provide additional channel protection to promote stability in this location. Based on existing conditions channel velocities below the footbridge, the existing channel already experiences velocities in the 5-7 feet per second (fps) range; therefore, it is anticipated that these locations will remain stable in proposed conditions.

**Table 5: Tailwater Channel Velocity Comparison**

River Station	2-Year Channel Velocity (fps)		Difference %	10-Year Channel Velocity (fps)		Difference %
	Existing	Proposed		Existing	Proposed	
8139	5.94	2.34	-61%	5.72	2.56	-55%
8119 O	2.99	2.19	-27%	3.00	2.39	-20%
7972	4.26	4.54	7%	4.12	5.01	22%
7841	4.33	4.58	6%	4.12	5.13	25%
7806 N	4.39	4.70	7%	4.24	5.23	23%
7791 Footbridge	--	--	--	--	--	--
7779 M	5.56	6.85	23%	6.12	7.61	24%
7667	4.27	5.31	24%	4.71	5.80	23%
7586	6.36	6.15	-3%	6.91	6.39	-8%
7509	5.51	5.70	3%	5.61	5.80	3%

**Notes:**

Greater than 10% increase

**Table 6: Storm Drain Exit Velocities Comparison**

Storm Drain Pipe	2-Year Exit Velocity (fps)		Difference %	10-Year Exit Velocity (psf)		Difference %
	Existing	Proposed		Existing	Proposed	
78" RCP	11.23	10.55	-6%	14.46	11.68	-19%
60" HP-Storm	--	11.79		--	11.88	

### **3.4 Aquatic Organism Passage**

The existing storm drain configuration does not provide baseflow through the system due to the existing concrete apron and existing plunge pool. The proposed 60-inch HP-Storm will match the invert out of the existing 78-inch RCP, so baseflow through the system will not be achievable in proposed conditions. Additionally, there is not suitable habitat upstream of the lengthy closed storm drain system; therefore, aquatic organism passage is not the goal of this project.

## **4. CONCLUSIONS**

The XPSWMM and HEC-RAS hydraulic analyses indicates that the proposed 60-inch HP-Storm trunkline and additional inlets within the YMCA parking lot will provide improved drainage conditions for the YMCA and adjacent property owners while the proposed outfall protection will adequately dissipate energy at the end of the closed system to maintain a stable tailwater receiving channel. Lastly, since the increases to the 100-yr WSELs are contained within City of Frederick property, no adverse flooding is anticipated for properties adjacent to the tailwater receiving channel.

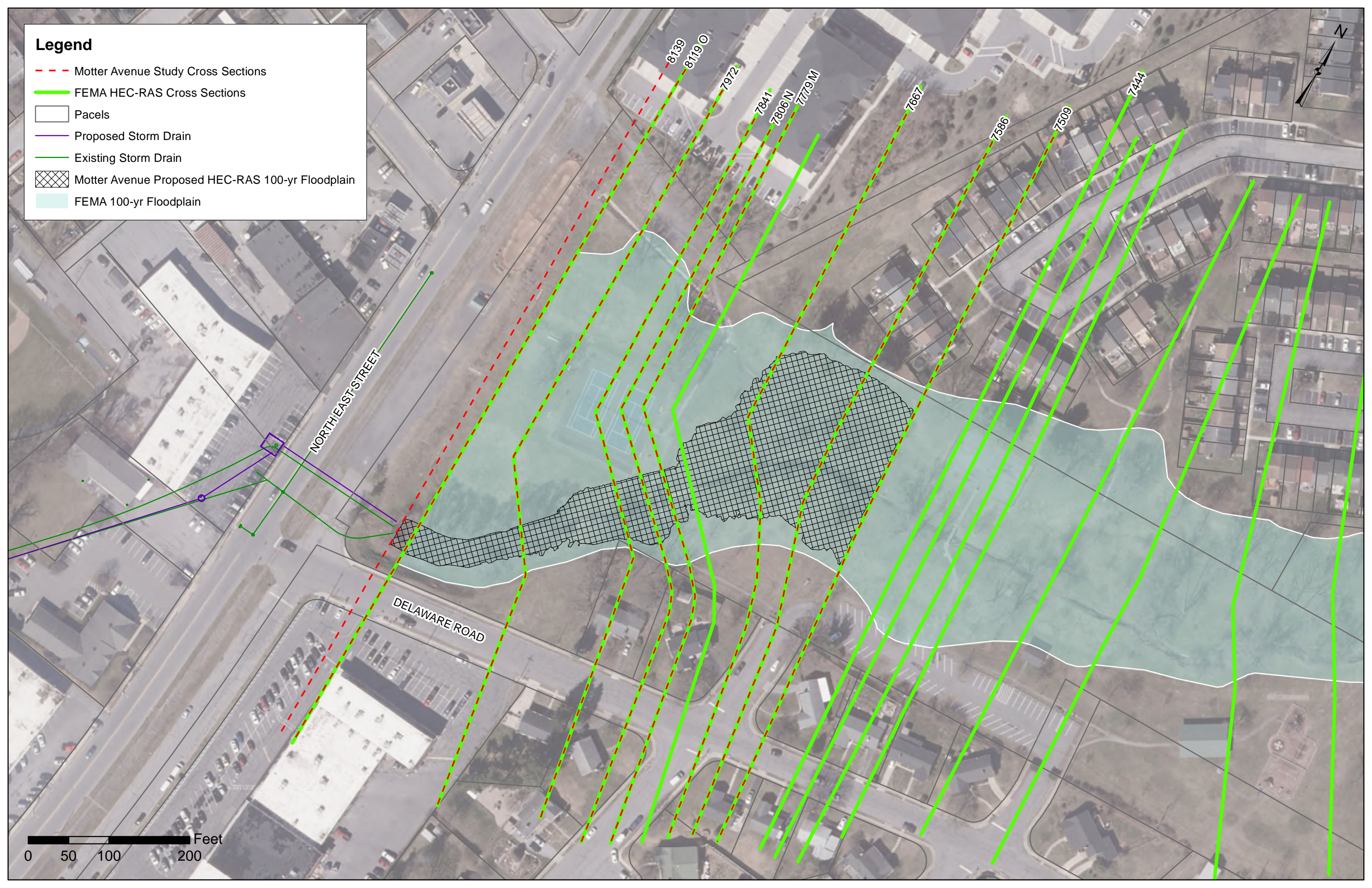
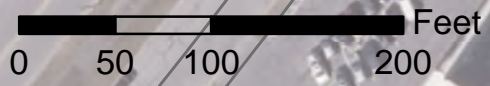
## 5. REFERENCES

1. Innovyze, *XPSWMM, Version 19.1.2*.
2. USACE, *Hydrologic Engineering Center-River Analysis System, Version 6.2*.
3. MDE, *2011 Maryland Standards and Specifications for Soil Erosion and Sediment Control*, December 2011.
4. MDE, *2000 Maryland's Waterway Construction Guidelines* , November 2011.



**Legend**

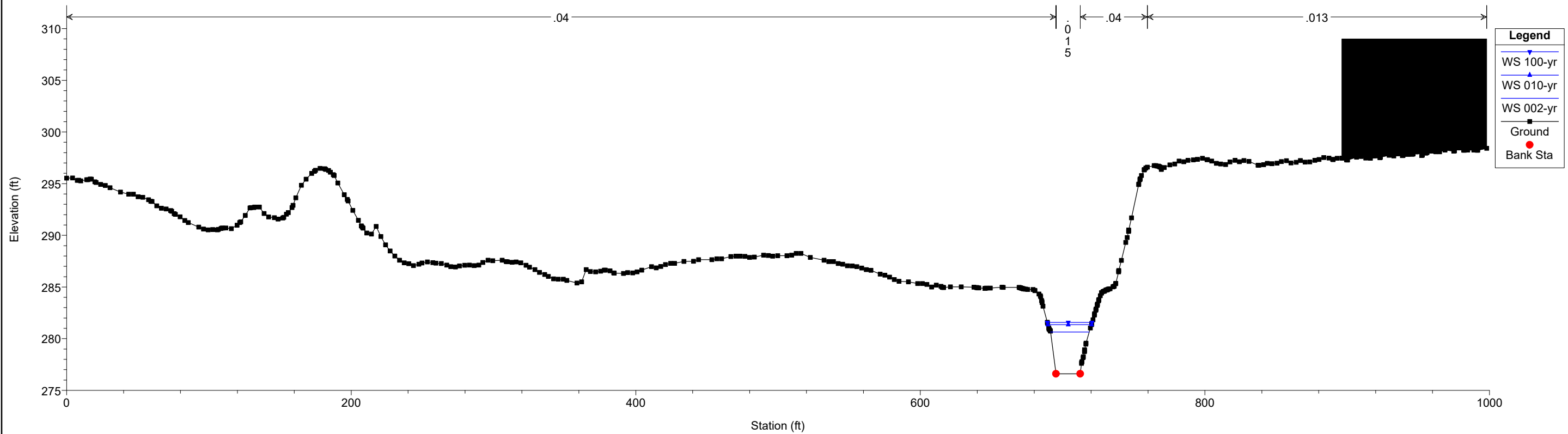
- - - Motter Avenue Study Cross Sections
- FEMA HEC-RAS Cross Sections
- Pacels
- Proposed Storm Drain
- Existing Storm Drain
- ▣ Motter Avenue Proposed HEC-RAS 100-yr Floodplain
- FEMA 100-yr Floodplain



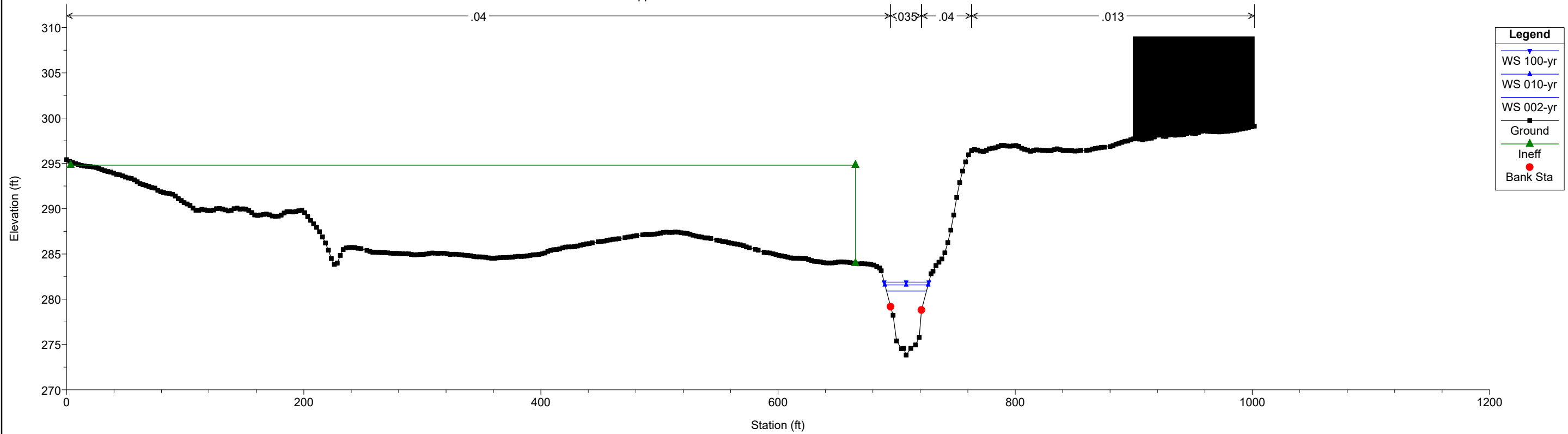


*HEC-RAS Results (Existing Conditions)*

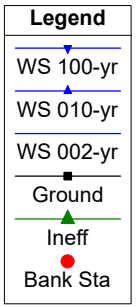
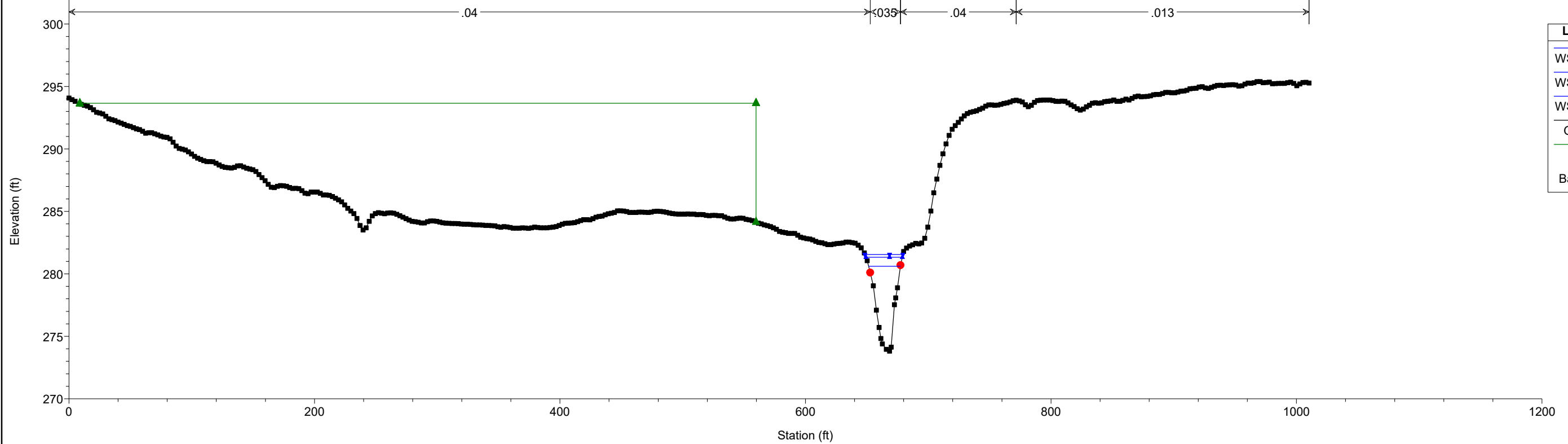
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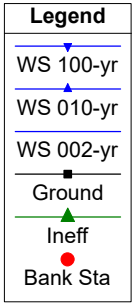
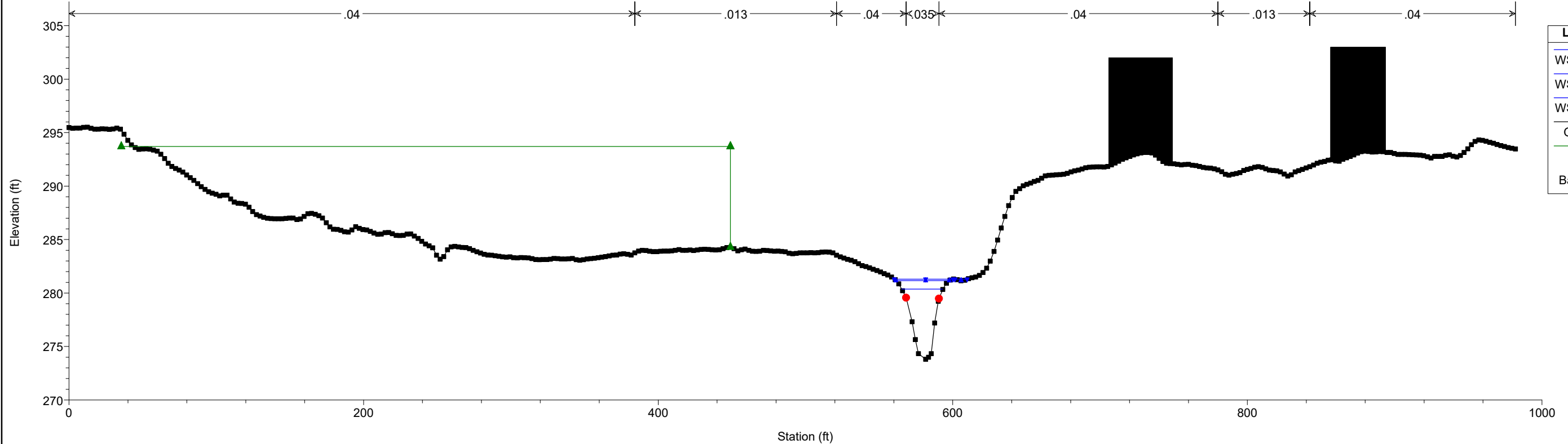
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Approximate location of XS 8.1 in 9/19/07 FIS for Frederick Coun

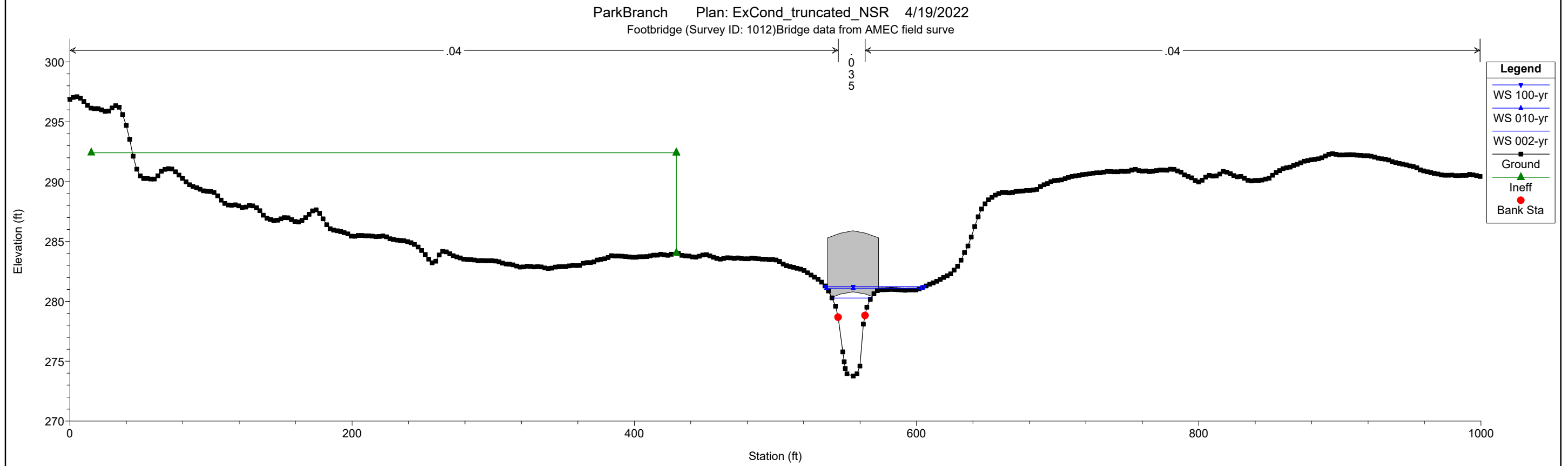
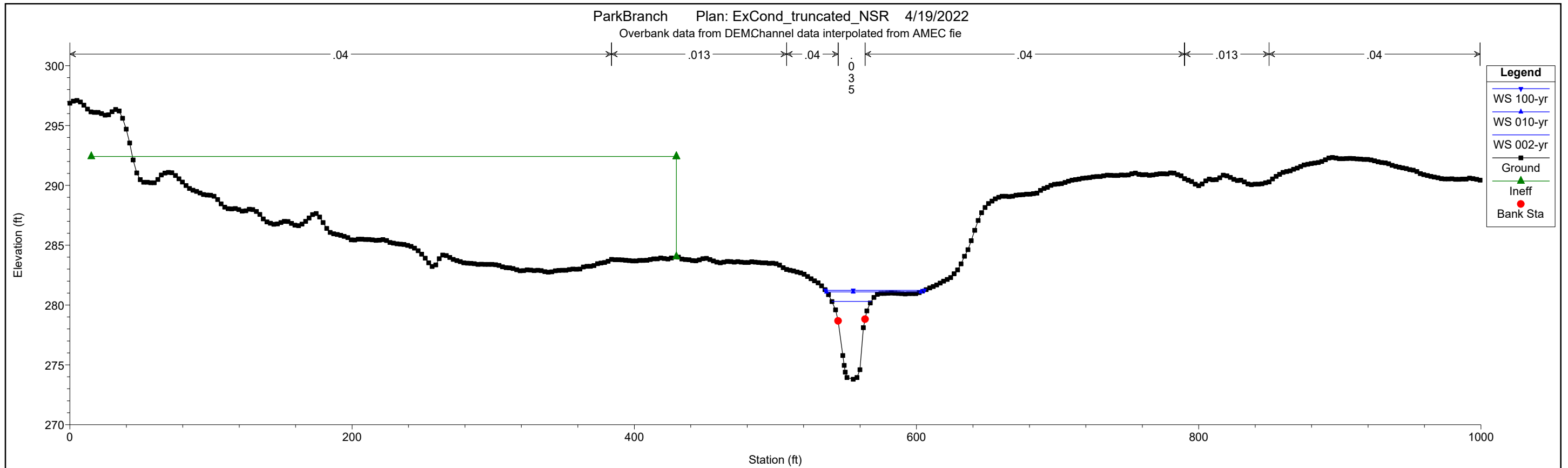


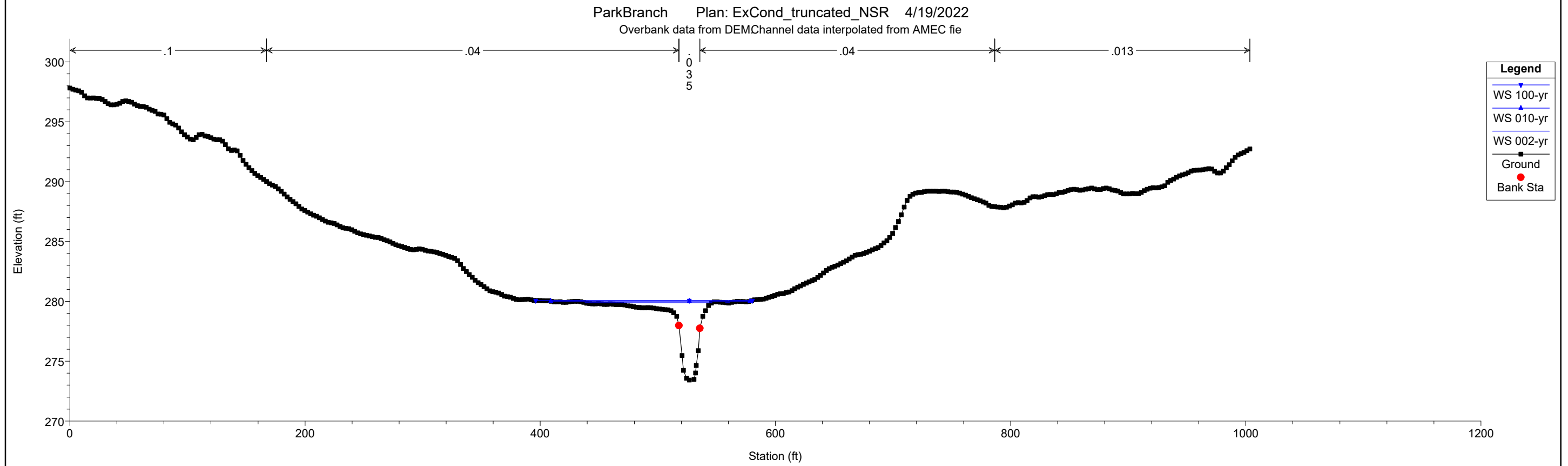
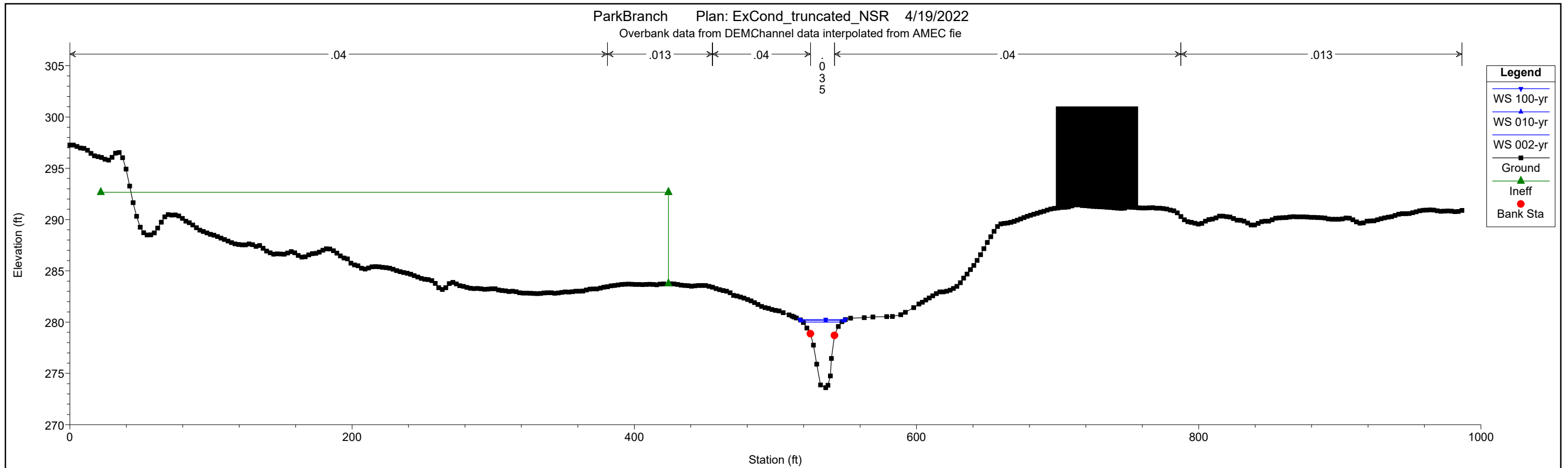
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Overbank data from DEMChannel data interpolated from AMEC file



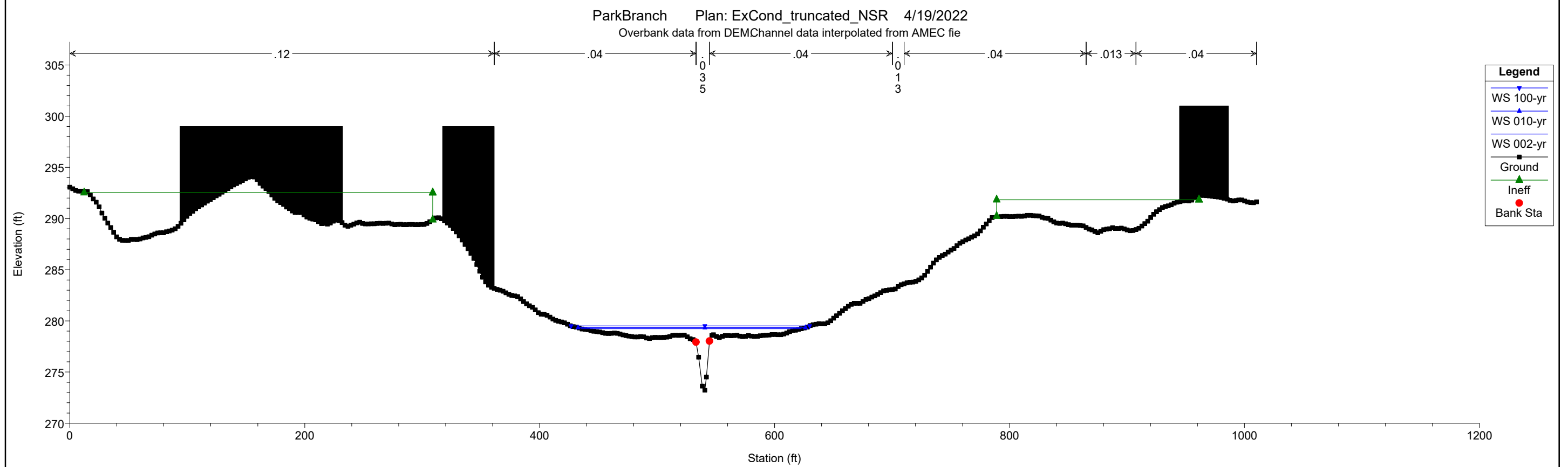
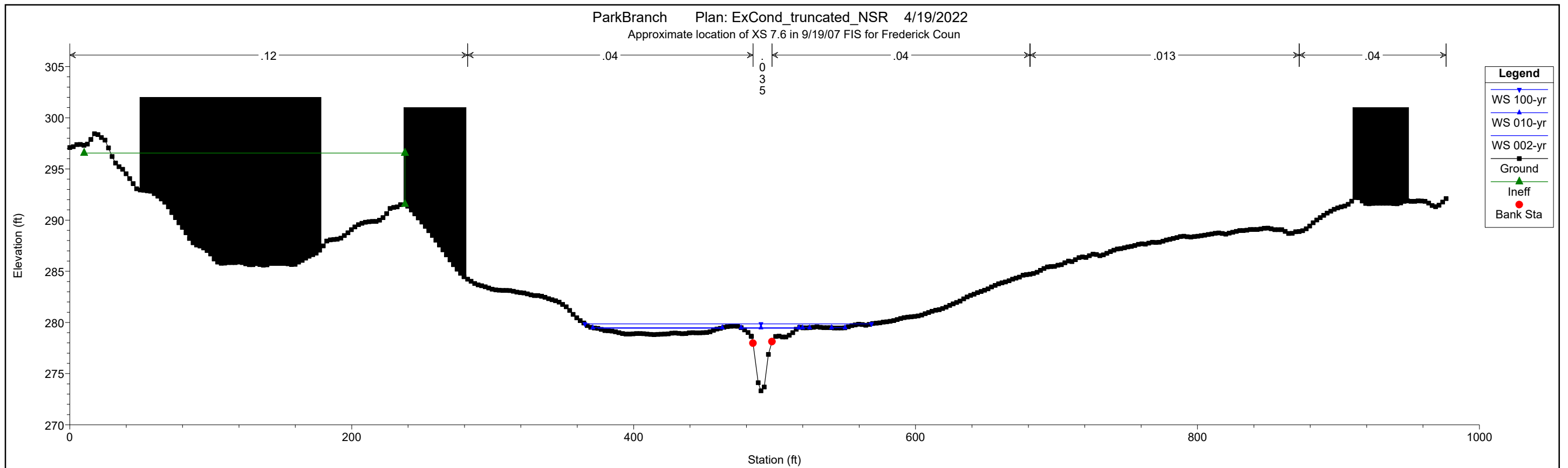
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Overbank data from DEMChannel data interpolated from AMEC file



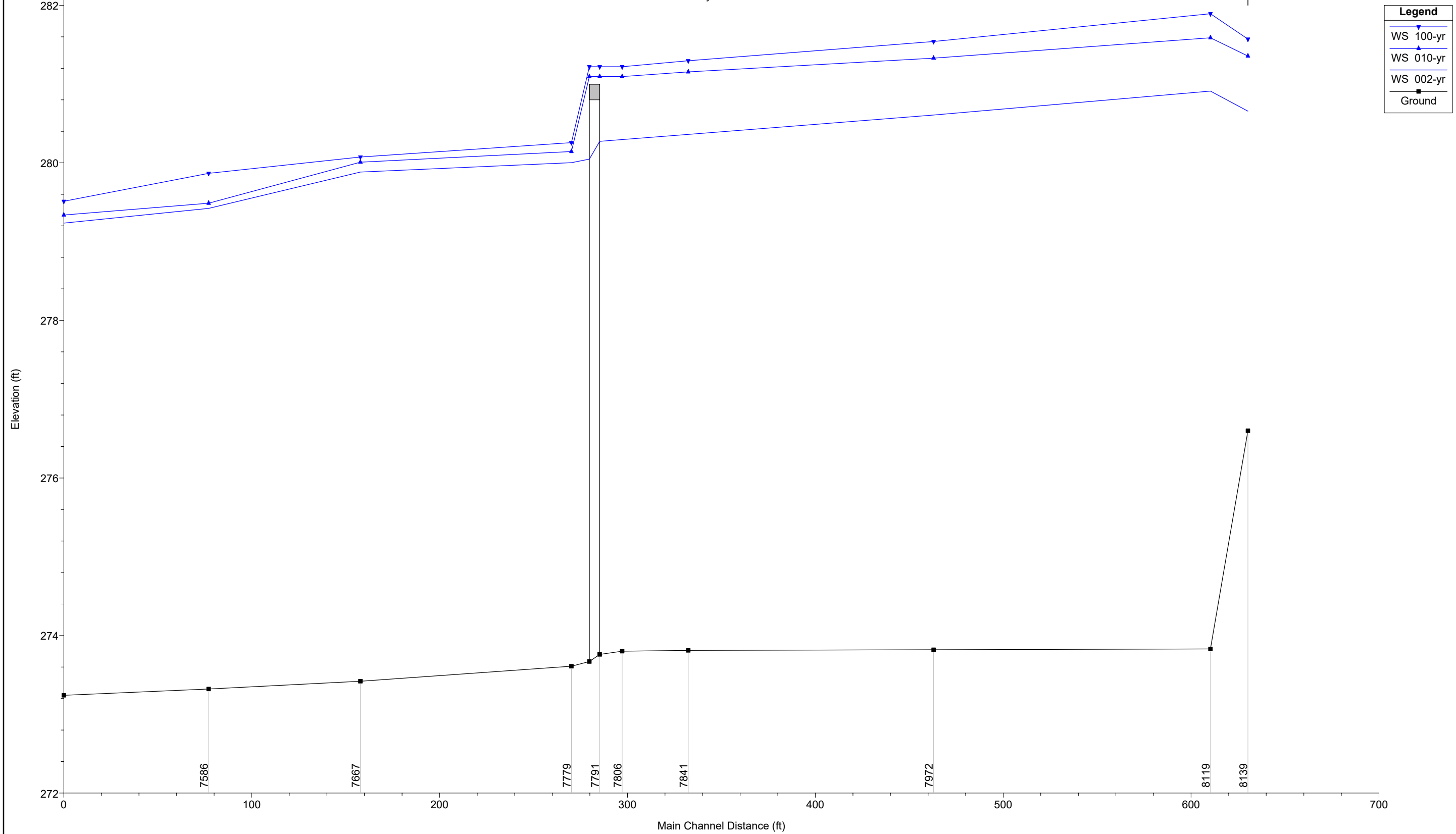








Park Branch Monocacy



**Legend**

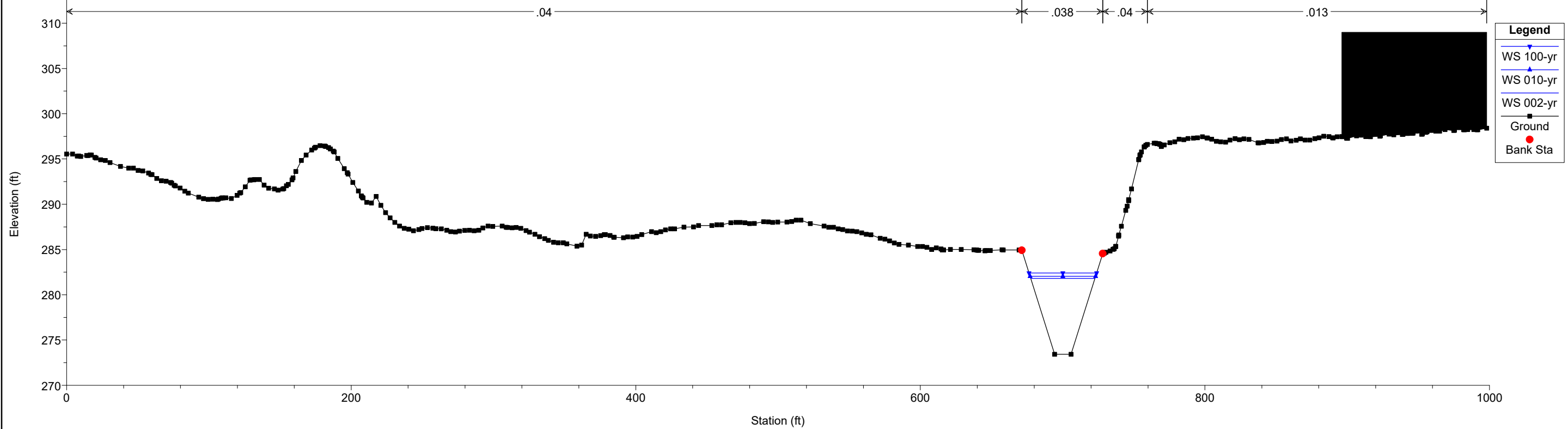
- WS 100-yr
- WS 010-yr
- WS 002-yr
- Ground

HEC-RAS Plan: ExCond\_truncated\_NSR River: Park Branch Reach: Monocacy

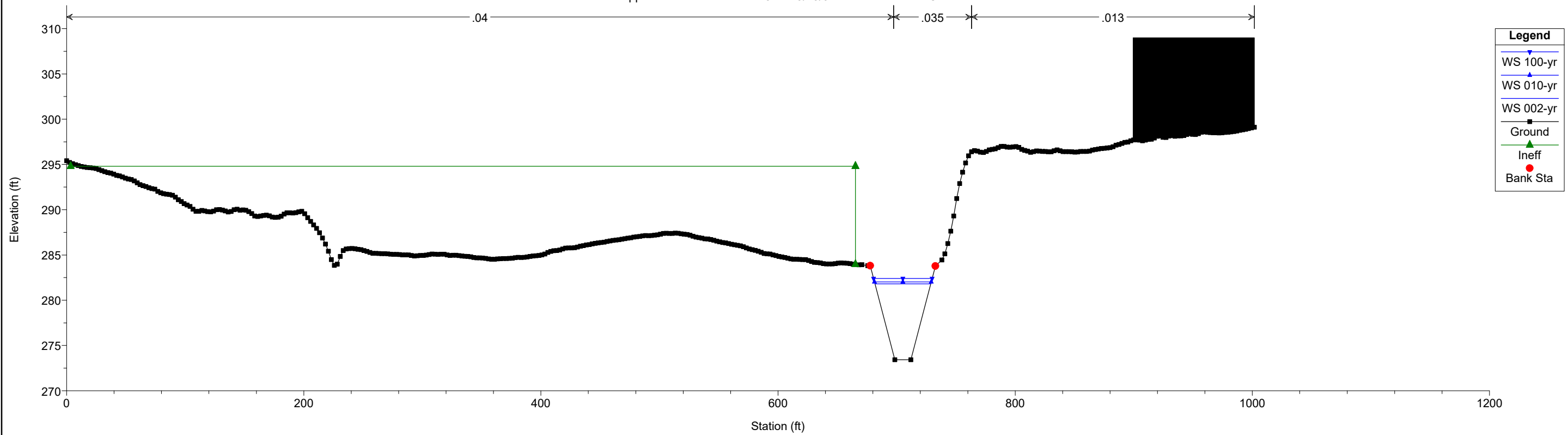
Reach	River Sta	Profile	Q Total	W.S. Elev	E.G. Slope	Vel Chnl	Shear LOB	Shear Chan	Shear ROB
			(cfs)	(ft)	(ft/ft)	(ft/s)	(lb/sq ft)	(lb/sq ft)	(lb/sq ft)
Monocacy	8139	002-yr	430.60	280.66	0.000555	5.94	0.05	0.14	0.05
Monocacy	8139	010-yr	491.20	281.36	0.000417	5.72	0.04	0.12	0.04
Monocacy	8139	100-yr	606.50	281.57	0.000544	6.73	0.05	0.17	0.06
Monocacy	8119 O	002-yr	430.60	280.91	0.000606	2.99	0.03	0.18	0.04
Monocacy	8119 O	010-yr	491.20	281.59	0.000523	3.00	0.04	0.18	0.04
Monocacy	8119 O	100-yr	606.50	281.89	0.000669	3.50	0.05	0.24	0.06
Monocacy	7972	002-yr	430.60	280.61	0.001886	4.26	0.03	0.41	
Monocacy	7972	010-yr	491.20	281.33	0.001428	4.12	0.05	0.37	0.03
Monocacy	7972	100-yr	606.50	281.54	0.001877	4.86	0.07	0.50	0.05
Monocacy	7841	002-yr	430.60	280.36	0.001759	4.33	0.04	0.42	0.05
Monocacy	7841	010-yr	491.20	281.15	0.001280	4.12	0.06	0.36	0.05
Monocacy	7841	100-yr	606.50	281.30	0.001771	4.94	0.08	0.51	0.04
Monocacy	7806 N	002-yr	430.60	280.30	0.001567	4.39	0.06	0.41	0.05
Monocacy	7806 N	010-yr	491.20	281.10	0.001199	4.24	0.07	0.37	0.02
Monocacy	7806 N	100-yr	606.50	281.22	0.001664	5.06	0.10	0.52	0.04
Monocacy	7791 Footbridge		Bridge						
Monocacy	7779 M	002-yr	430.60	280.00	0.003085	5.56	0.10	0.70	0.10
Monocacy	7779 M	010-yr	491.20	280.14	0.003587	6.12	0.13	0.84	0.12
Monocacy	7779 M	100-yr	606.50	280.26	0.005007	7.35	0.18	1.20	0.17
Monocacy	7667	002-yr	430.60	279.88	0.001377	4.27	0.03	0.38	0.05
Monocacy	7667	010-yr	491.20	280.01	0.001621	4.71	0.04	0.46	0.03
Monocacy	7667	100-yr	606.50	280.07	0.002294	5.65	0.05	0.66	0.04
Monocacy	7586	002-yr	430.60	279.42	0.004739	6.36	0.13	0.95	0.20
Monocacy	7586	010-yr	491.20	279.49	0.005482	6.91	0.16	1.12	0.14
Monocacy	7586	100-yr	606.50	279.87	0.004004	6.26	0.19	0.89	0.13
Monocacy	7509	002-yr	430.60	279.23	0.004002	5.51	0.16	0.73	0.15
Monocacy	7509	010-yr	491.20	279.34	0.004001	5.61	0.18	0.75	0.17
Monocacy	7509	100-yr	606.50	279.51	0.004001	5.77	0.21	0.79	0.20

*HEC-RAS Results (Proposed Conditions)*

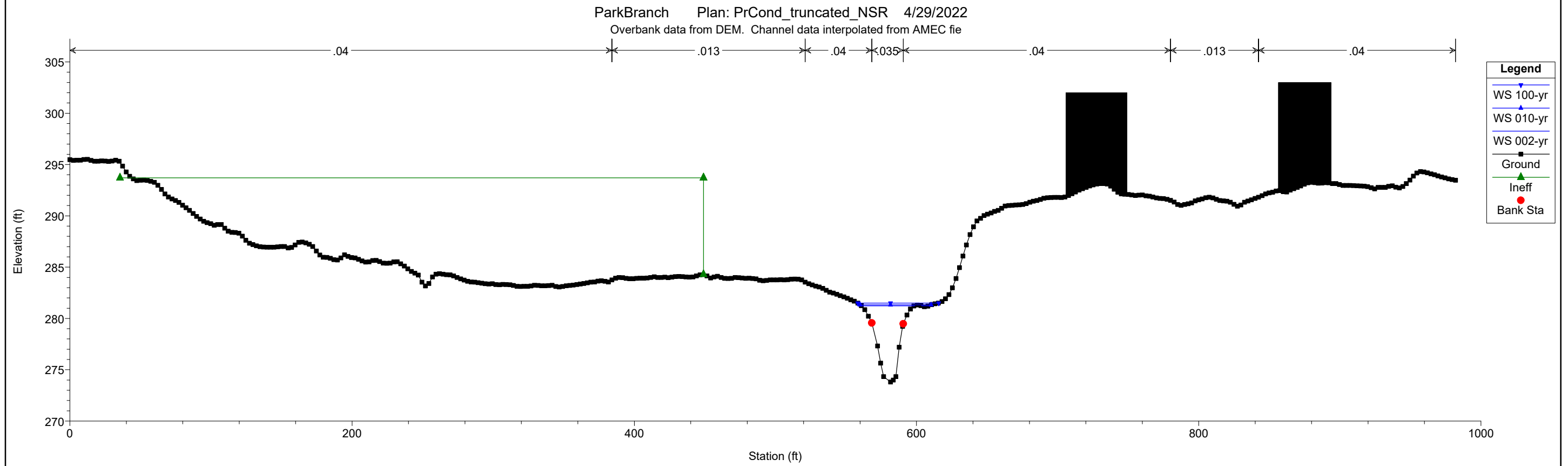
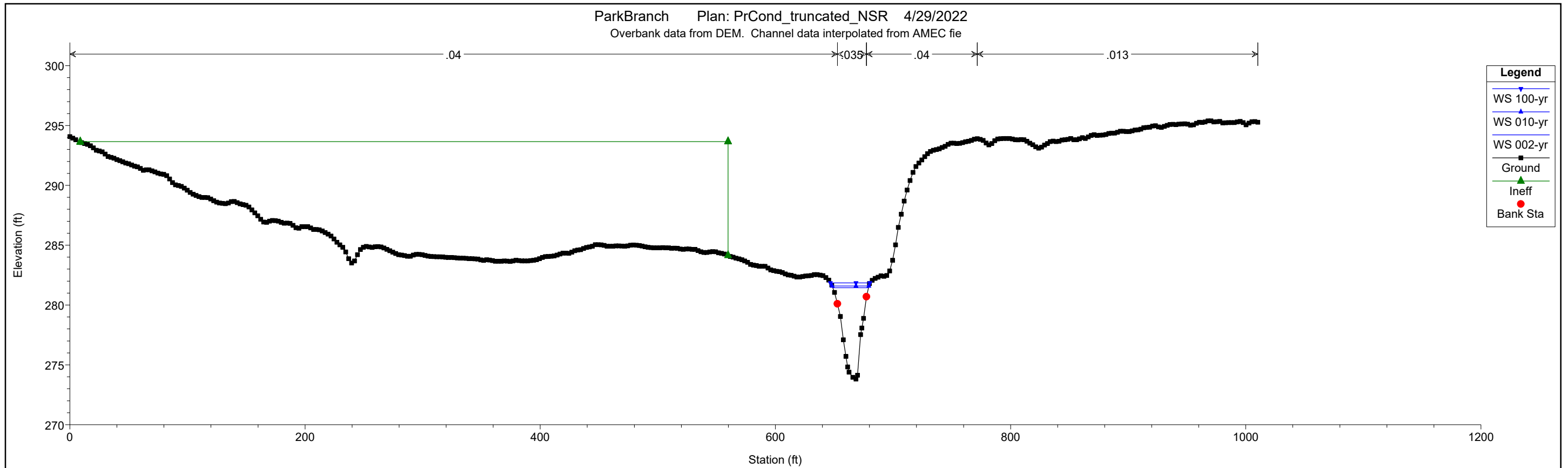
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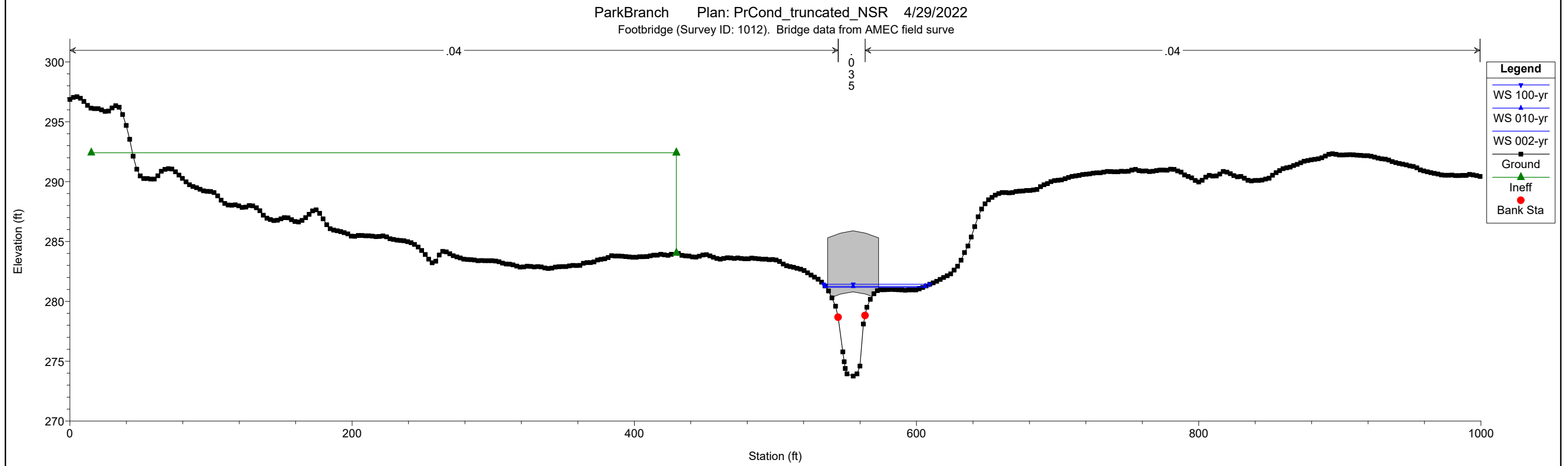
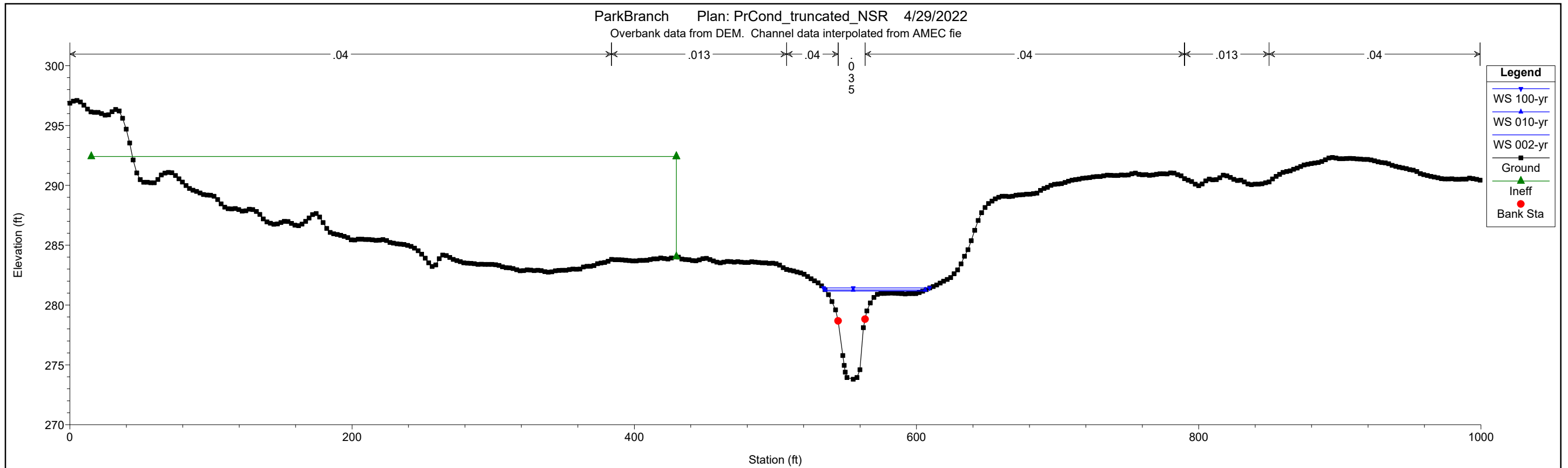


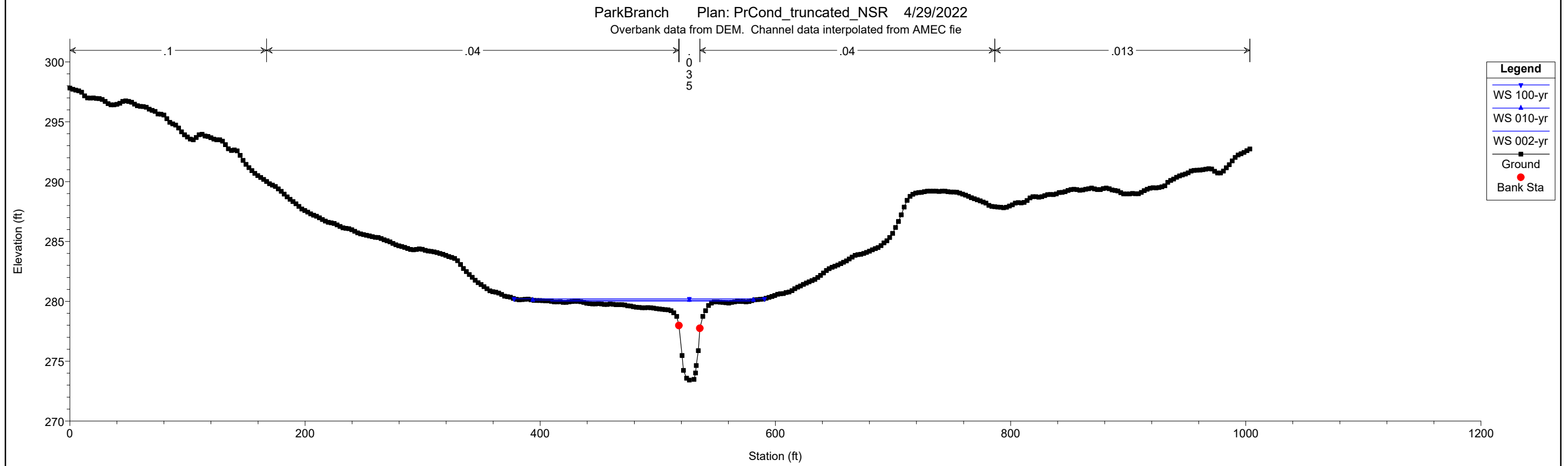
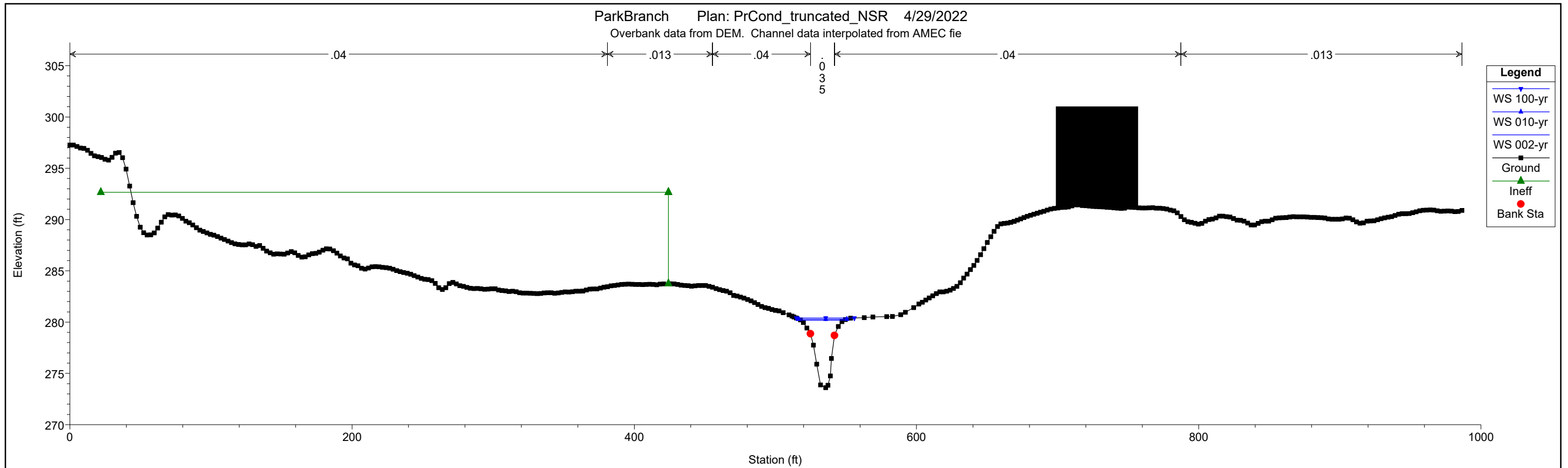
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Approximate location of XS 8.1 in 9/19/07 FIS for Frederick Coun

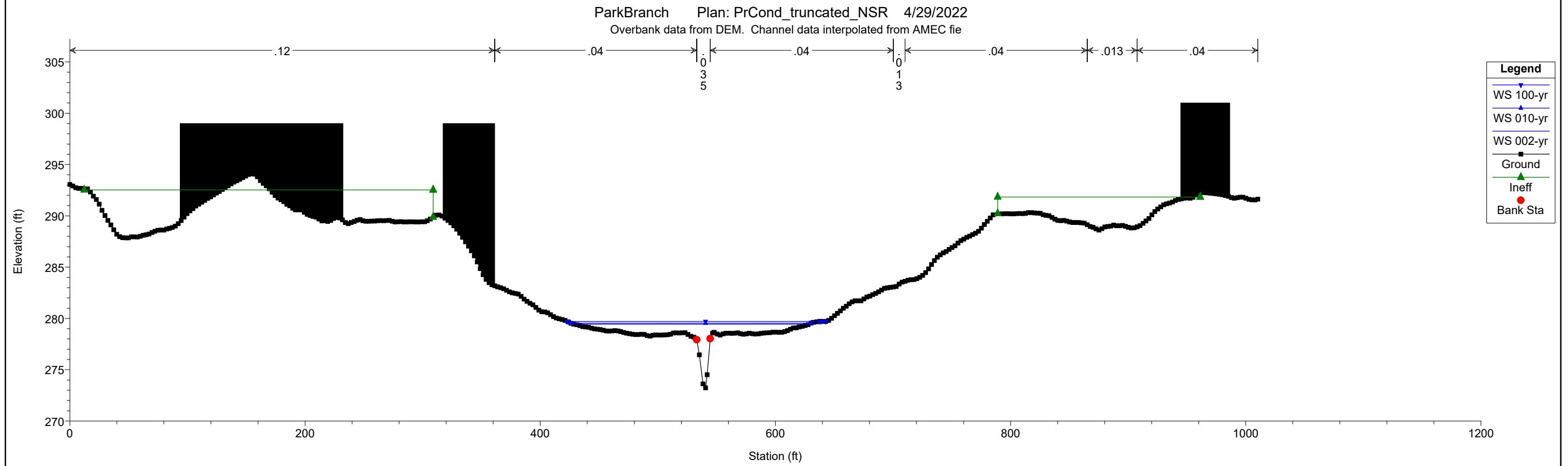
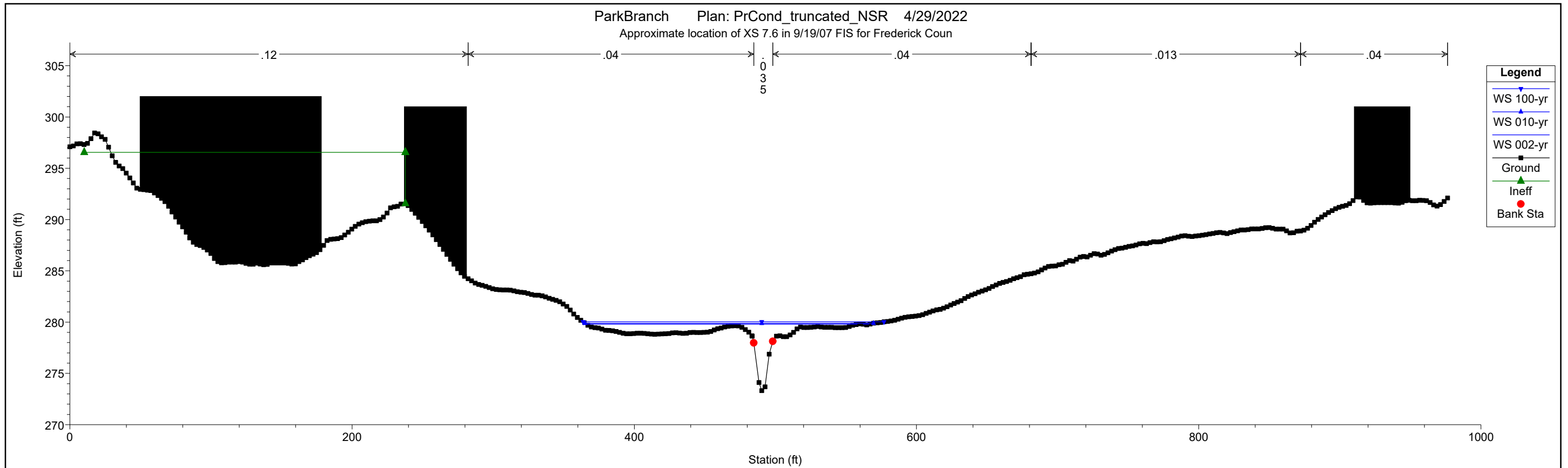








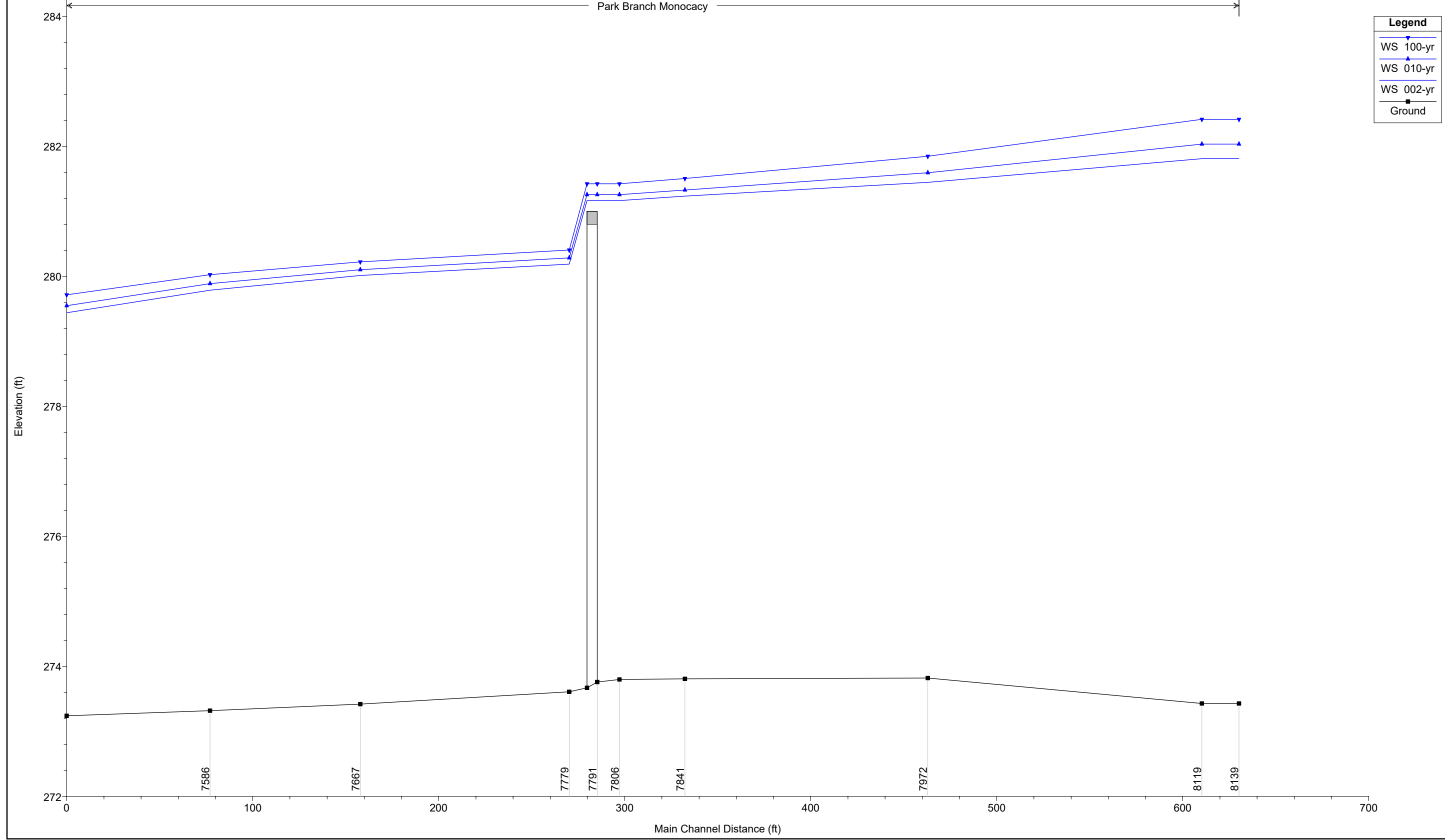




Park Branch Monocacy

**Legend**

- WS 100-yr
- WS 010-yr
- WS 002-yr
- Ground

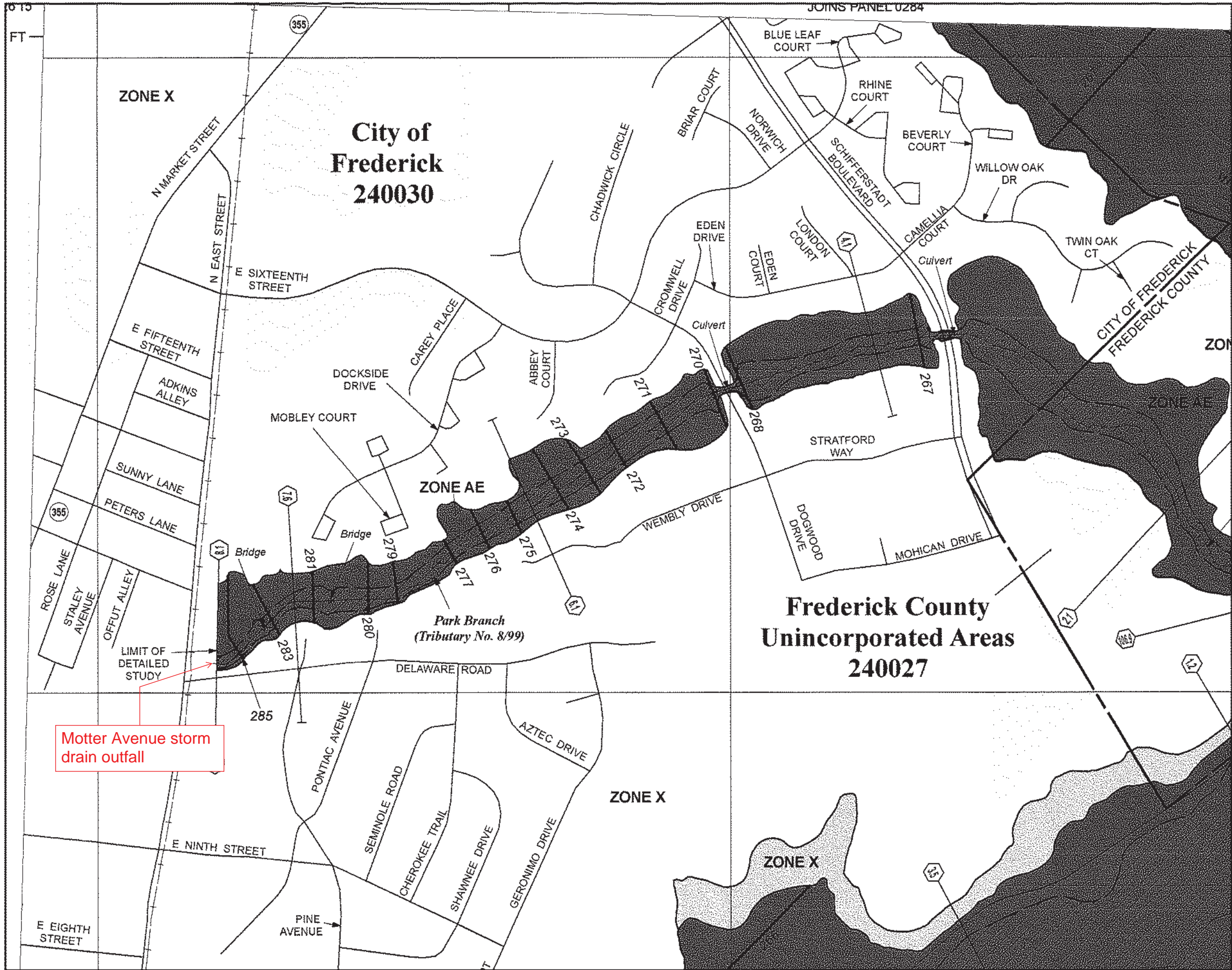




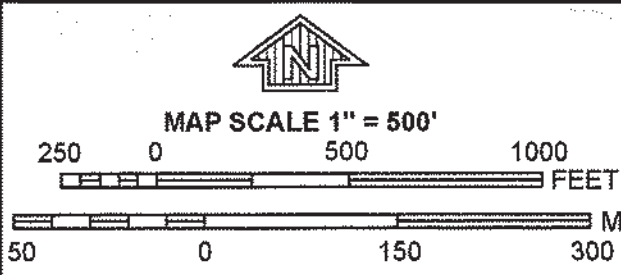
HEC-RAS Plan: PrCond\_truncated\_NSR River: Park Branch Reach: Monocacy

Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Monocacy	8139	002-yr	555.20	273.43	281.81		281.90	0.000438	2.34	237.16	45.06	0.18
Monocacy	8139	010-yr	632.20	273.43	282.03		282.13	0.000507	2.56	247.30	45.95	0.19
Monocacy	8139	100-yr	761.60	273.43	282.41		282.54	0.000610	2.87	265.14	47.48	0.21
Monocacy	8119 O	002-yr	555.20	273.43	281.81	276.61	281.88	0.000346	2.19	253.40	47.00	0.17
Monocacy	8119 O	010-yr	632.20	273.43	282.03	276.86	282.12	0.000402	2.39	263.98	47.89	0.18
Monocacy	8119 O	100-yr	761.60	273.43	282.41	277.24	282.53	0.000486	2.70	282.55	49.42	0.20
Monocacy	7972	002-yr	555.20	273.82	281.45	278.55	281.76	0.001681	4.54	124.73	30.38	0.36
Monocacy	7972	010-yr	632.20	273.82	281.59	278.88	281.98	0.001969	5.01	129.27	31.30	0.39
Monocacy	7972	100-yr	761.60	273.82	281.85	279.38	282.35	0.002411	5.73	137.49	33.62	0.44
Monocacy	7841	002-yr	555.20	273.81	281.23	278.35	281.55	0.001549	4.58	129.52	42.93	0.35
Monocacy	7841	010-yr	632.20	273.81	281.33	278.67	281.73	0.001895	5.13	133.88	50.30	0.39
Monocacy	7841	100-yr	761.60	273.81	281.50	279.16	282.03	0.002425	5.92	143.37	57.42	0.44
Monocacy	7806 N	002-yr	555.20	273.80	281.16	278.07	281.50	0.001455	4.70	136.55	68.60	0.34
Monocacy	7806 N	010-yr	632.20	273.80	281.26	278.40	281.66	0.001760	5.23	142.94	70.88	0.38
Monocacy	7806 N	100-yr	761.60	273.80	281.42	278.91	281.95	0.002245	6.01	155.18	75.12	0.43
Monocacy	7791 Footbridge		Bridge									
Monocacy	7779 M	002-yr	555.20	273.61	280.19	278.73	280.90	0.004428	6.85	87.05	30.83	0.56
Monocacy	7779 M	010-yr	632.20	273.61	280.29	279.07	281.16	0.005325	7.61	90.17	33.82	0.62
Monocacy	7779 M	100-yr	761.60	273.61	280.40	279.63	281.61	0.007076	8.92	94.51	41.18	0.71
Monocacy	7667	002-yr	555.20	273.42	280.01	277.65	280.42	0.002062	5.31	147.73	169.75	0.40
Monocacy	7667	010-yr	632.20	273.42	280.10	277.97	280.57	0.002407	5.80	163.31	187.78	0.44
Monocacy	7667	100-yr	761.60	273.42	280.22	278.47	280.80	0.002986	6.56	187.68	213.04	0.49
Monocacy	7586	002-yr	555.20	273.32	279.79	279.79	280.19	0.003956	6.15	170.00	195.69	0.52
Monocacy	7586	010-yr	632.20	273.32	279.89	279.89	280.30	0.004148	6.39	190.24	204.40	0.53
Monocacy	7586	100-yr	761.60	273.32	280.03	280.03	280.46	0.004481	6.78	219.07	213.20	0.55
Monocacy	7509	002-yr	555.20	273.24	279.44	279.34	279.71	0.004001	5.70	192.26	199.85	0.49
Monocacy	7509	010-yr	632.20	273.24	279.55	279.41	279.82	0.004000	5.80	214.16	204.59	0.50
Monocacy	7509	100-yr	761.60	273.24	279.72	279.54	279.98	0.004004	5.95	249.45	218.59	0.50

**Appendix C: FEMA FIRM**



Motter Avenue storm drain outfall



**NFIP** PANEL 0292D

**FIRM**  
 FLOOD INSURANCE RATE MAP  
 FREDERICK COUNTY,  
 MARYLAND  
 AND INCORPORATED AREAS

PANEL 292 OF 510  
 (SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
FREDERICK, CITY OF	240030	0292	D
FREDERICK COUNTY	240027	0292	D

Notice to User: The Map Number shown below should be used when placing map orders; the Community Number shown above should be used on insurance applications for the subject community.

**MAP NUMBER**  
 24021C0292D

**EFFECTIVE DATE**  
 SEPTEMBER 19, 2007

Federal Emergency Management Agency

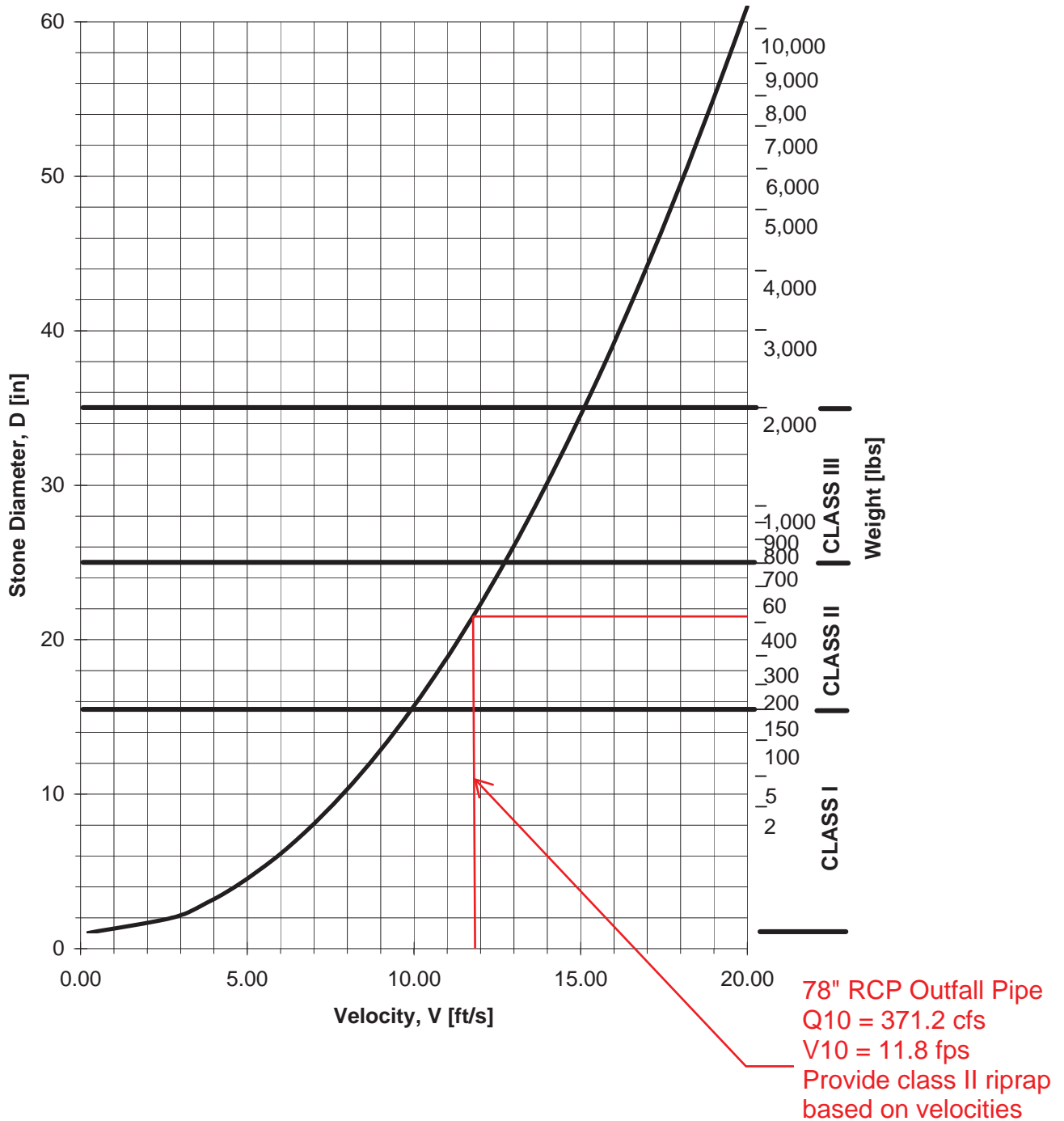
This is an official FIRMette showing a portion of the above-referenced flood map created from the MSC FIRMette Web tool. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For additional information about how to make sure the map is current, please see the Flood Hazard Mapping Updates Overview Fact Sheet available on the FEMA Flood Map Service Center home page at <https://msc.fema.gov>.

**Appendix D: Outfall Protection Computations**





**FIGURE 2.1: RIPRAP DIAMETER AS A FUNCTION OF STREAM VELOCITY**  
**(BASED ON ISHBASH EQUATION)**



## Appendix C. Agency Correspondence

One Independence Mall  
615 Chestnut Street, 6<sup>th</sup> floor  
Philadelphia, PA 19106-4404



**FEMA**

March 1, 2023

Genevieve LaRouche, Project Leader  
U.S. Fish & Wildlife Service  
Chesapeake Bay Ecological Services Field Office  
177 Admiral Cochrane Drive  
Annapolis, Maryland 21401-7307

Re: Endangered Species Act Section 7 Consultation  
City of Frederick, Frederick County, Maryland  
Mottter Avenue Area Community Flood Mitigation Project  
FEMA Project Number: EMP-2020-FM-038-0001/LPDM-PJ-03-MD-2022-004  
IPaC Project Code: 2023-0039680

Dear Genevieve LaRouche:

Please consider this a request for consultation pursuant to Section 7 of the Endangered Species Act (ESA) to determine the above project's effects on federally listed, threatened and endangered species. The Federal Emergency Management Agency (FEMA) intends to provide Flood Mitigation Assistance (FMA) and Pre-Disaster Mitigation (PDM) funding for a flood resiliency and stormwater improvement project within the City of Frederick in Frederick County, Maryland.

### **Project Information**

#### *Project Need*

The City of Frederick has applied for FEMA FMA and PDM grant funding to reduce flooding risks and hazards and damage to property in the project area and to mitigate stream migration and soil erosion. Extreme flooding events in 2015 and 2018 resulted in extensive damage to property and infrastructure in the project area and underscored the need for improvements to address inadequate stormwater management infrastructure. The stormwater system outfalls into Abraham Faw Run, which is severely eroded with undercut banks. In addition to the current volume of stormwater, the stream will also have to withstand increased runoff due to more intense rainfall and severe storms associated with climate change.

#### *Proposed Project*

The applicant proposes to improve stormwater infrastructure and surface drainage within the YMCA Flooding Area in the City of Fredrick (Phase 1) and stabilize and restore a 500-foot portion of Abraham Faw Run (39.428232, -77.402724) (Phase 2). The YMCA Flooding Area is bounded by Mottter Avenue to the west, 8th Street to the south, East Street to the east, and 12th Street to the

north. Within this area, a 60-inch diameter parallel pipe will be installed along the existing trunk line from Mews Lane north of E. 9th Street to the system outfall at Abraham Faw Run, resulting in an additional 1,680 feet of pipe. In the south parking lot of the YMCA, pipe sizes will be increased to 36-inch diameter and a new drainage line with three new 4-foot by 2-foot inlets will be added at the low points. The new inlets will be connected to the existing system using approximately 68 feet of 36-inch diameter pipes. The stormwater infrastructure work will require disturbance to rights-of-way within existing roadways and parking lots as well as a small portion of previously disturbed land adjacent to the roads and lots. A new 45.5-foot long by 27-foot-wide plunge pool will be constructed using riprap at the system outfall into Abraham Faw Run to facilitate storm flows into the existing channel and provide energy dissipation for stormwater flows. The area immediately surrounding the pool will be graded to tie into the existing channel and stream slopes. The design plans for Phase 2 have not yet been completed. However, the intent of Phase 2 will be to restore Abraham Faw Run through various methods including installation of in-water stabilization structures such as log or rock vanes as well as bank grading, matting, rock pack around trees, pruning tree roots, seeding, and planting trees and shrubs. The upstream portion of Abraham Faw Run is surrounded by a small area of deciduous trees and riparian vegetation, while the remaining downstream portion of the stream within the project area is bordered by maintained grass. At this time, it is anticipated that construction activities for Phases 1 and 2 will require approximately 3.25 acres of ground disturbance; however, most of the disturbance will be within impervious areas and maintained grass areas with the removal or disturbance of trees limited to approximately 0.25 acres. Maps and photographs of the sites are enclosed for your review.

### **Potential Impact**

A request for an Official Species List through the U.S. Fish and Wildlife Service's (USFWS) Information for Planning and Consultation (IPaC) tool was completed for the site on January 30, 2023. This revealed that the project is located within a potential area of occurrence for one listed species.

#### Northern Long-Eared Bat (*Myotis septentrionalis*)

Northern long-eared bats (NLEB) spend winter hibernating in caves and mines. During the summer, NLEB roost singly or in colonies underneath bark, in cavities or in crevices of both live and dead trees. NLEB may occur statewide in Maryland, although no known hibernacula or maternity roost trees occur within the project area or within the City of Frederick (Maryland Department of Natural Resources 2021; USFWS 2022). The nearest known NLEB hibernaculum is located over 80 miles southwest in Virginia (Virginia Department of Wildlife Resources 2023). At this time, the project would include the removal of approximately 0.25 acre of trees, which provide potential roosting habitat. Therefore, NLEB may be affected by the proposed construction of this project. However, the proposed project is of a small scale and new trees would be planted following completion of construction activities. Given the small amount of tree removal and the availability of similar small, wooded areas within the City of Frederick as well as larger wooded riparian areas slightly further downstream from the project area, the proposed tree removals are unlikely to substantially decrease or degrade the amount of roost habitat available for NLEB locally or regionally. Therefore, FEMA has determined that the proposed project may affect, but is not likely to adversely affect NLEB (*Myotis septentrionalis*).

We respectfully request your concurrence with the above determination as well as your input regarding the need for specific avoidance or conservation measures since Phase 2 design plans have


Genevieve LaRouche

February 27, 2023

Page 3

not been completed yet. If you have any questions or require any additional information, please do not hesitate to contact Erin Hagan, Environmental Protection Specialist, at [erin.hagan@fema.dhs.gov](mailto:erin.hagan@fema.dhs.gov) or at 215-760-9374.

Sincerely,

**TESSA W  
NOLAN**  Digitally signed by  
TESSA W NOLAN  
Date: 2023.03.01  
08:04:07 -05'00'

Tessa Nolan  
Regional Environmental Officer

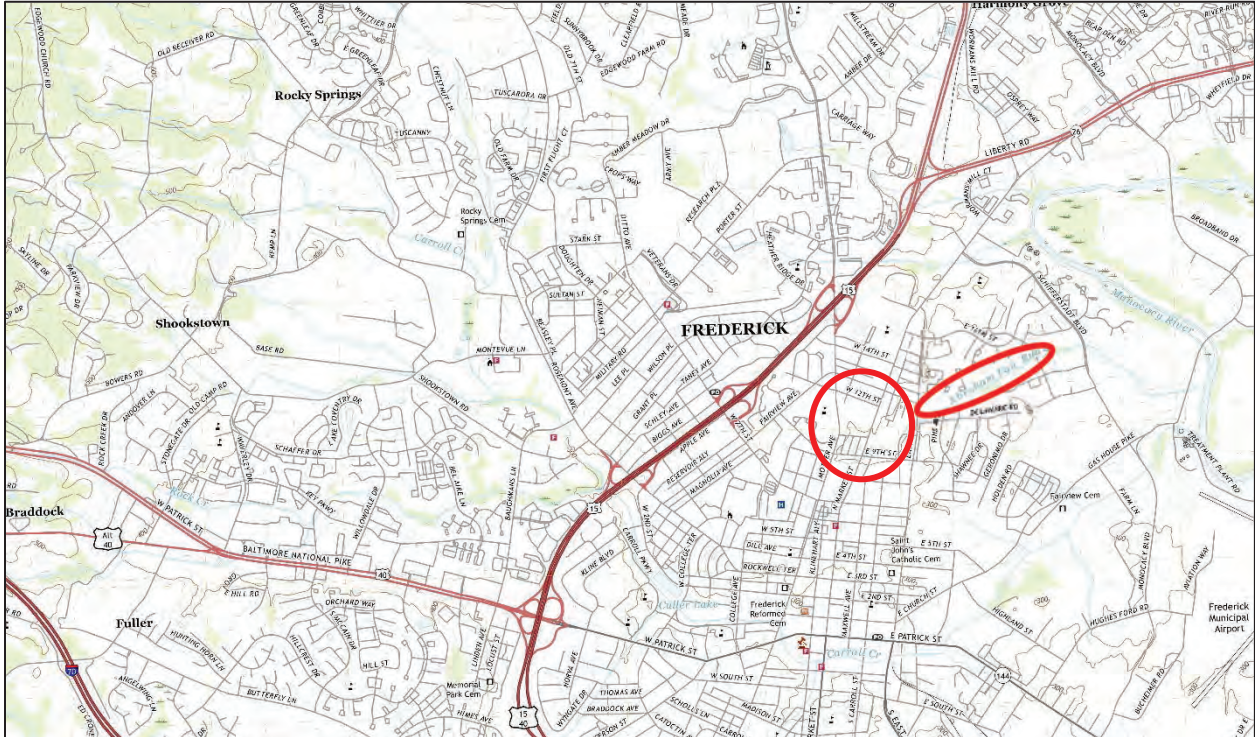
Enclosures



**Motter Avenue Area Community Flood Mitigation Project: Phase 1 Stormwater Infrastructure (39.427086, -77.404680) and Phase 2 Stream Restoration (39.428232, -77.402724)**

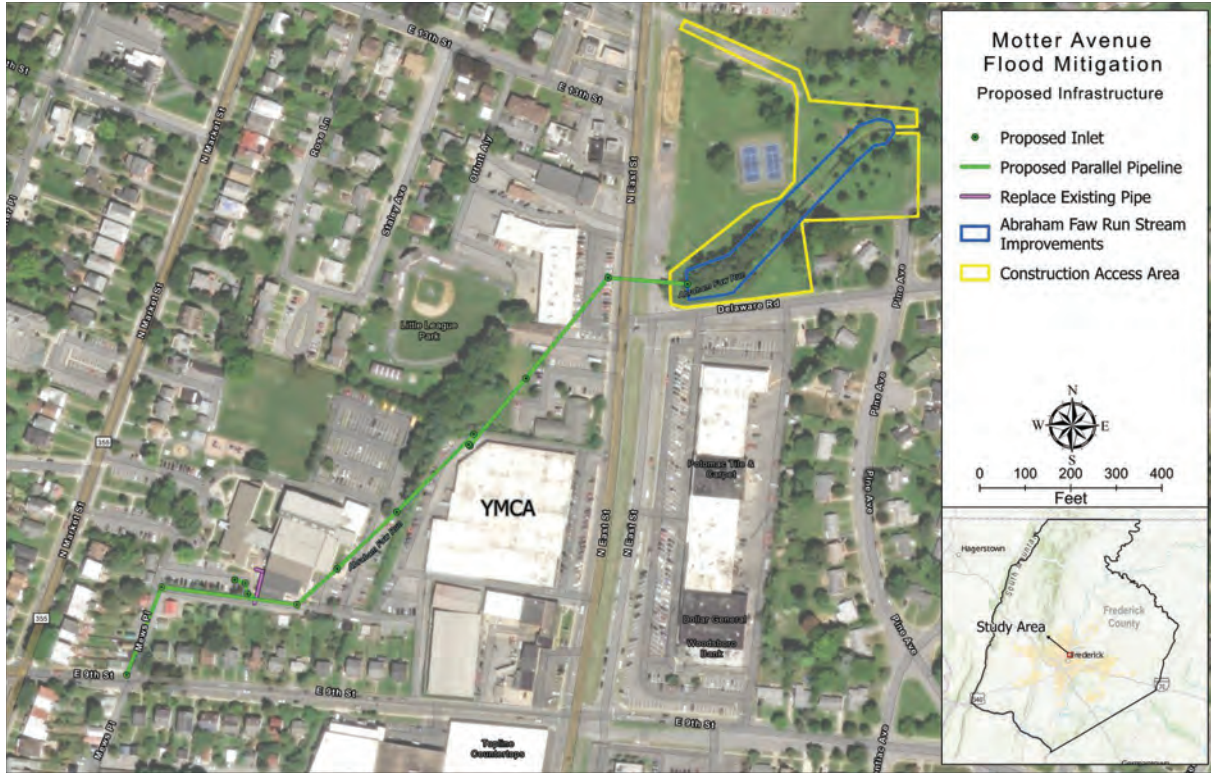


Map 1: Aerial View of the Area of Concern

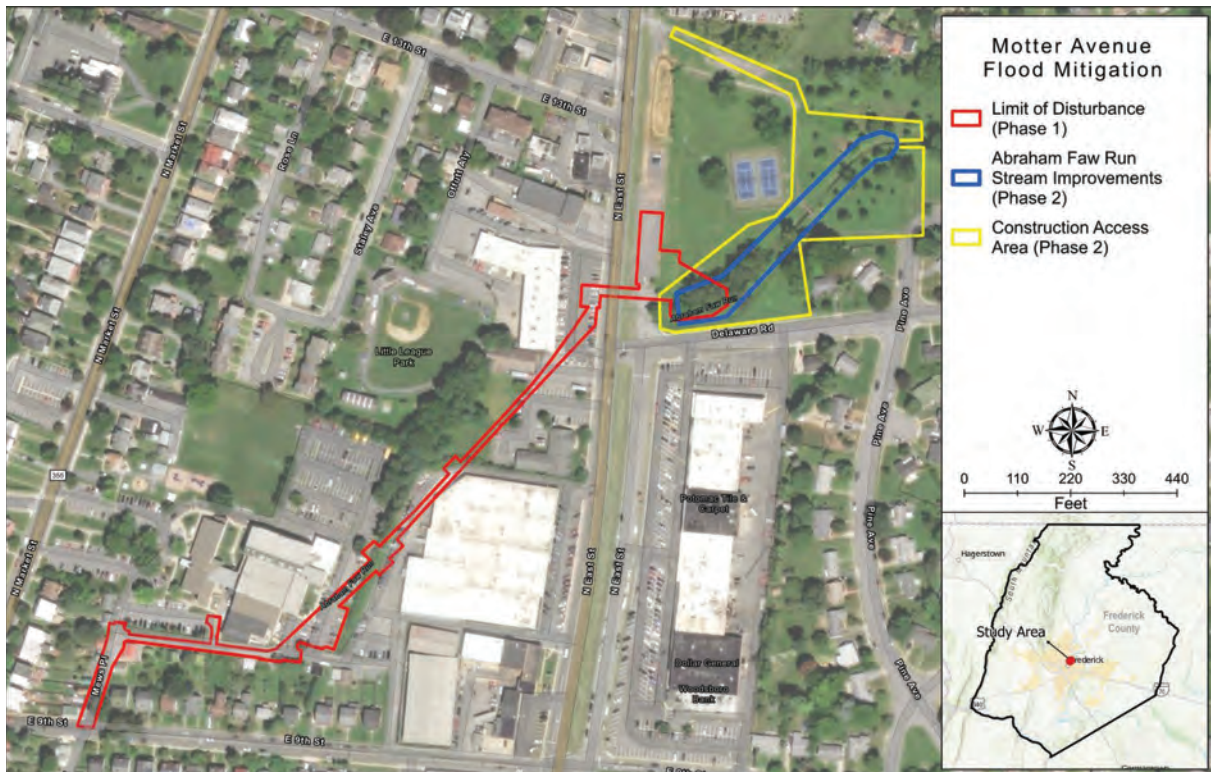


Map 2: USGS Topographic Map of the Area of Concern





Map 3: Aerial View of the Area of Concern with Proposed Action Improvements



Map 4: Aerial View of the Area of Concern with Proposed Action Limits of Disturbance





Photo 1: View of the Area of Concern (Phase 1), Abraham Faw Run Outfall, facing southeast



Photo 2: View of the Area of Concern (Phase 1), Abraham Faw Run Outfall and Existing Headwall Plunge Pool, facing southwest



Photo 3: View of the Area of Concern (Phase 2), Abraham Faw Run, facing southwest



Photo 4: View of the Area of Concern (Phase 2), Abraham Faw Run (downstream portion), facing northeast





# United States Department of the Interior



FISH AND WILDLIFE SERVICE  
Chesapeake Bay Ecological Services Field Office  
177 Admiral Cochrane Drive  
Annapolis, MD 21401-7307  
Phone: (410) 573-4599 Fax: (410) 266-9127

In Reply Refer To:

January 30, 2023

Project Code: 2023-0039680

Project Name: Motter Avenue Area Community Flood Mitigation Project

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological



evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>

**Migratory Birds:** In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts see <https://www.fws.gov/birds/policies-and-regulations.php>.

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures see <https://www.fws.gov/birds/bird-enthusiasts/threats-to-birds.php>.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit <https://www.fws.gov/birds/policies-and-regulations/executive-orders/e0-13186.php>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

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Attachment(s):

- Official Species List

## **Official Species List**

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

**Chesapeake Bay Ecological Services Field Office**

177 Admiral Cochrane Drive

Annapolis, MD 21401-7307

(410) 573-4599

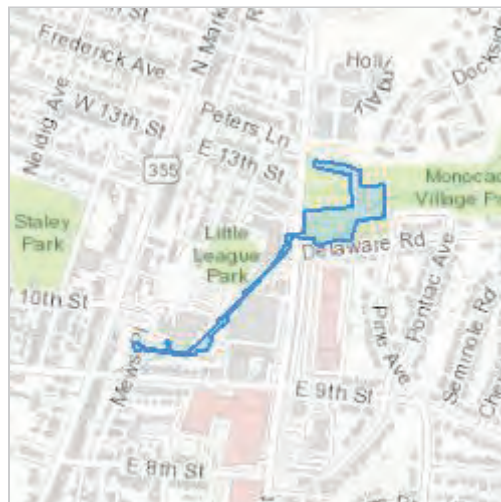
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## Project Summary

**Project Code:** 2023-0039680  
**Project Name:** Motter Avenue Area Community Flood Mitigation Project  
**Project Type:** Utility Infrastructure Maintenance  
**Project Description:** The project will improve stormwater infrastructure and surface drainage within the YMCA Flooding Area in the City of Fredrick (Phase 1) and stabilize and restore a 500-foot portion of Abraham Faw Run (39.428232, -77.402724) (Phase 2). A 60-inch diameter parallel pipe will be installed along the existing trunk line from Mews Lane north of E. 9th Street to the system outfall at Abraham Faw Run, resulting in an additional 1,680 feet of pipe. In the south parking lot of the YMCA, pipe sizes will be increased to 36-inch diameter and a new drainage line with three new 4-foot by 2-foot inlets will be added at the low points. The new inlets will be connected to the existing system using approximately 68 feet of 36-inch diameter pipes. The stormwater infrastructure work will require disturbance to rights-of-way within existing roadways and parking lots as well as a small portion of previously disturbed land adjacent to the roads and lots. A new 45.5-foot long by 27-foot wide plunge pool will be constructed using riprap at the system outfall into Abraham Faw Run. The area immediately surrounding the pool will be graded to tie into the existing channel and stream slopes. For Phase 2, Abraham Faw Run will be restored through various methods including installation of in-water stabilization structures such as log or rock vanes, bank grading, matting, and rock pack around trees as well as pruning tree roots, seeding, and planting trees and shrubs. The stream restoration activities will require removal or disturbance of approximately 0.25 acre of vegetation, including trees.

### Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@39.42783215,-77.40375643855847,14z>



Counties: Frederick County, Maryland





## Endangered Species Act Species

There is a total of 2 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Note that 1 of these species should be considered only under certain conditions.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries<sup>1</sup>, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

- 
1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

### Mammals

NAME	STATUS
Northern Long-eared Bat <i>Myotis septentrionalis</i> No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/9045">https://ecos.fws.gov/ecp/species/9045</a>	Endangered

### Insects

NAME	STATUS
Monarch Butterfly <i>Danaus plexippus</i> No critical habitat has been designated for this species. This species only needs to be considered under the following conditions: <ul style="list-style-type: none"> <li>▪ The monarch is a candidate species and not yet listed or proposed for listing. There are generally no section 7 requirements for candidate species (FAQ found here: <a href="https://www.fws.gov/savethemonarch/FAQ-Section7.html">https://www.fws.gov/savethemonarch/FAQ-Section7.html</a>).</li> </ul> Species profile: <a href="https://ecos.fws.gov/ecp/species/9743">https://ecos.fws.gov/ecp/species/9743</a>	Candidate

### Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

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## **IPaC User Contact Information**

Agency: Federal Emergency Management Agency  
Name: Erin Hagan  
Address: 615 Chestnut Street  
Address Line 2: 6th Floor  
City: Philadelphia  
State: PA  
Zip: 19106  
Email: [erin.hagan@fema.dhs.gov](mailto:erin.hagan@fema.dhs.gov)  
Phone: 2157609374

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# United States Department of the Interior



## FISH AND WILDLIFE SERVICE

Chesapeake Bay Field Office  
177 Admiral Cochrane Drive  
Annapolis, Maryland 21401  
<http://www.fws.gov/chesapeakebay>

March 8, 2023

Erin Hagan  
Federal Emergency Management Agency  
651 Chestnut Street  
6<sup>th</sup> Floor  
Philadelphia, PA 19106

*RE:* Motter Avenue Area Community Flood Mitigation Project

Dear Erin Hagan:

This responds to your letter, received, March 1, 2023, requesting information on the presence of species which are federally listed or proposed for listing as endangered or threatened within the vicinity of the above referenced project area. We have reviewed the information you enclosed and are providing comments in accordance with section 7 of the Endangered Species Act (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*).

This project as proposed will have “no effect” on the endangered, threatened, or candidate species listed on your IPaC species list because while the project is within the range of the species, it is unlikely that the species would occur within the project area that was submitted. Therefore, no Biological Assessment or further section 7 Consultation with the U.S. Fish and Wildlife Service is required. Should project plans change, or if additional information on the distribution of listed or proposed species becomes available, this determination may be reconsidered.

This response relates only to federally protected threatened or endangered species under our jurisdiction. For information on the presence of other rare species, you should contact Lori Byrne of the Maryland Wildlife and Heritage Division at (410) 260-8573.

An additional concern of the Service is wetlands protection. Federal and state partners of the Chesapeake Bay Program have adopted an interim goal of no overall net loss of the Chesapeake Bay’s remaining wetlands, and the long term goal of increasing the quality and quantity of the Chesapeake Bay’s wetlands resource base. Because of this policy and the functions and values wetlands perform, the Service recommends avoiding wetland impacts. All wetlands within the project area should be identified, and if construction in wetlands is proposed, the U.S. Army Corps of Engineers, Baltimore District, should be contacted for permit requirements. They can



be reached at (410) 962-3670.

We appreciate the opportunity to provide information relative to fish and wildlife issues, and thank you for your interests in these resources.

If you have any questions or need further assistance, please contact Dimitri Rucker at 410-573-4532.

Sincerely,

A handwritten signature in blue ink that reads "G. LaRouche". The signature is written in a cursive style with a large initial "G" and "L".

Genevieve LaRouche  
Supervisor



# United States Department of the Interior



FISH AND WILDLIFE SERVICE  
Chesapeake Bay Ecological Services Field Office  
177 Admiral Cochrane Drive  
Annapolis, MD 21401-7307  
Phone: (410) 573-4599 Fax: (410) 266-9127

In Reply Refer To:

October 18, 2023

Project Code: 2023-0039680

Project Name: Motter Avenue Area Community Flood Mitigation Project

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed, and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2) (c)). For projects other than major construction activities, the Service suggests that a biological



evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<https://www.fws.gov/sites/default/files/documents/endangered-species-consultation-handbook.pdf>

**Migratory Birds:** In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts, see <https://www.fws.gov/program/migratory-bird-permit/what-we-do>.

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures, see <https://www.fws.gov/library/collections/threats-birds>.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit <https://www.fws.gov/partner/council-conservation-migratory-birds>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

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Attachment(s):

- Official Species List
- USFWS National Wildlife Refuges and Fish Hatcheries
- Wetlands

## **OFFICIAL SPECIES LIST**

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

**Chesapeake Bay Ecological Services Field Office**  
177 Admiral Cochrane Drive  
Annapolis, MD 21401-7307  
(410) 573-4599

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## PROJECT SUMMARY

**Project Code:** 2023-0039680

**Project Name:** Motter Avenue Area Community Flood Mitigation Project

**Project Type:** Utility Infrastructure Maintenance

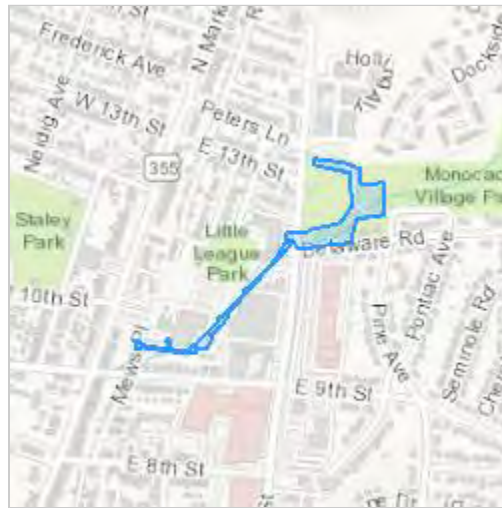
**Project Description:** The project will improve stormwater infrastructure and surface drainage within the YMCA Flooding Area in the City of Fredrick (Phase 1) and stabilize and restore a 500-foot portion of Abraham Faw Run (39.428232, -77.402724) (Phase 2). A 60-inch diameter parallel pipe will be installed along the existing trunk line from Mews Lane north of E. 9th Street to the system outfall at Abraham Faw Run, resulting in an additional 1,680 feet of pipe. In the south parking lot of the YMCA, pipe sizes will be increased to 36-inch diameter and a new drainage line with three new 4-foot by 2-foot inlets will be added at the low points. The new inlets will be connected to the existing system using approximately 68 feet of 36-inch diameter pipes. The stormwater infrastructure work will require disturbance to rights-of-way within existing roadways and parking lots as well as a small portion of previously disturbed land adjacent to the roads and lots. A new 45.5-foot long by 27-foot wide plunge pool will be constructed using riprap at the system outfall into Abraham Faw Run. The area immediately surrounding the pool will be graded to tie into the existing channel and stream slopes. Phase 2 would stabilize and restore eroding streambanks in Abraham Faw Run, improve stormwater treatment, and address flows and forces associated with the Phase 1 capacity improvements. The Phase 2 project area extends from the outfall of the culverts and the plunge pool constructed in Phase 1 (39.428232, -77.402724), which are just northeast of the intersection N. East Street and Delaware Road, to approximately 500 feet downstream. Stream restoration and stabilization improvements would include constructed riffles with log rollers and reinforced substrate, toewood, coir matting and live stakes, and rock sills. Stream restoration will start at the upper end of the reach just downstream of the plunge pool that was completed in Phase 1. Work in Abraham Faw Run work would occur in the dry. A pump around will be installed to pump water from the work area to a section downstream of the work area. The contractor will then regrade the banks and install the instream structures in accordance with the design plans. The proposed stream bank slopes will be a maximum of 2:1 for pools and a maximum of 3:1 for riffles. Seed and mulch would be applied to streambanks after grading. The seeding and mulching will be in accordance with standard and specification B-4-3 of the MD Standards and Specifications for Soil Erosion and Sediment Control. Seed mixes consisting of native plant materials will be utilized in conjunction with erosion control blanket/matting to stabilize the stream banks. Trees that have roots along the stream bank will be preserved to the maximum extent practical to also assist with stabilization. General stabilization seed

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mixes also consisting of native plant materials will be applied to the remaining areas within the LOD. The stream restoration activities will require removal or disturbance of approximately 0.30 acre of vegetation, including trees.

**Project Location:**

The approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@39.4278977,-77.40368711809379,14z>



Counties: Frederick County, Maryland

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## ENDANGERED SPECIES ACT SPECIES

There is a total of 2 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries<sup>1</sup>, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

- 
1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

## MAMMALS

NAME	STATUS
Northern Long-eared Bat <i>Myotis septentrionalis</i> No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/9045">https://ecos.fws.gov/ecp/species/9045</a>	Endangered

## INSECTS

NAME	STATUS
Monarch Butterfly <i>Danaus plexippus</i> No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/9743">https://ecos.fws.gov/ecp/species/9743</a>	Candidate

## CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

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## USFWS NATIONAL WILDLIFE REFUGE LANDS AND FISH HATCHERIES

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

## WETLANDS

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

RIVERINE

- [R5UBH](#)
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## **IPAC USER CONTACT INFORMATION**

Agency: Federal Emergency Management Agency  
Name: Erin Hagan  
Address: 615 Chestnut Street  
Address Line 2: 6th Floor  
City: Philadelphia  
State: PA  
Zip: 19106  
Email: erin.hagan@fema.dhs.gov  
Phone: 2157609374

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# United States Department of the Interior



FISH AND WILDLIFE SERVICE  
Chesapeake Bay Ecological Services Field Office  
177 Admiral Cochrane Drive  
Annapolis, MD 21401-7307  
Phone: (410) 573-4599 Fax: (410) 266-9127

In Reply Refer To:  
Project code: 2023-0039680  
Project Name: Motter Avenue Area Community Flood Mitigation Project

October 18, 2023

Federal Action Agency (if applicable): Federal Emergency Management Agency

**Subject:** Record of project representative's no effect determination for 'Motter Avenue Area Community Flood Mitigation Project'

Dear Erin Hagan:

This letter records your determination using the Information for Planning and Consultation (IPaC) system provided to the U.S. Fish and Wildlife Service (Service) on October 18, 2023, for 'Motter Avenue Area Community Flood Mitigation Project' (here forward, Project). This project has been assigned Project Code 2023-0039680 and all future correspondence should clearly reference this number. **Please carefully review this letter.**

## **Ensuring Accurate Determinations When Using IPaC**

The Service developed the IPaC system and associated species' determination keys in accordance with the Endangered Species Act of 1973 (ESA; 87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.) and based on a standing analysis. All information submitted by the Project proponent into IPaC must accurately represent the full scope and details of the Project.

Failure to accurately represent or implement the Project as detailed in IPaC or the Northern Long-eared Bat Rangewide Determination Key (Dkey), invalidates this letter. ***Answers to certain questions in the DKey commit the project proponent to implementation of conservation measures that must be followed for the ESA determination to remain valid.***

## **Determination for the Northern Long-Eared Bat**

Based upon your IPaC submission and a standing analysis, your project has reached the determination of "No Effect" on the northern long-eared bat. To make a no effect determination, the full scope of the proposed project implementation (action) should not have any effects (either positive or negative), to a federally listed species or designated critical habitat. Effects of the action are all consequences to listed species or critical habitat that are caused by the proposed

action, including the consequences of other activities that are caused by the proposed action. A consequence is caused by the proposed action if it would not occur but for the proposed action and it is reasonably certain to occur. Effects of the action may occur later in time and may include consequences occurring outside the immediate area involved in the action. (See § 402.17).

Under Section 7 of the ESA, if a federal action agency makes a no effect determination, no consultation with the Service is required (ESA §7). If a proposed Federal action may affect a listed species or designated critical habitat, formal consultation is required except when the Service concurs, in writing, that a proposed action "is not likely to adversely affect" listed species or designated critical habitat [50 CFR §402.02, 50 CFR§402.13].

### **Other Species and Critical Habitat that May be Present in the Action Area**

The IPaC-assisted determination for the northern long-eared bat does not apply to the following ESA-protected species and/or critical habitat that also may occur in your Action area:

- Monarch Butterfly *Danaus plexippus* Candidate

You may coordinate with our Office to determine whether the Action may affect the animal species listed above and, if so, how they may be affected.

### **Next Steps**

Based upon your IPaC submission, your project has reached the determination of "No Effect" on the northern long-eared bat. If there are no updates on listed species, no further consultation/coordination for this project is required with respect to the northern long-eared bat. However, the Service recommends that project proponents re-evaluate the Project in IPaC if: 1) the scope, timing, duration, or location of the Project changes (includes any project changes or amendments); 2) new information reveals the Project may impact (positively or negatively) federally listed species or designated critical habitat; or 3) a new species is listed, or critical habitat designated. If any of the above conditions occurs, additional coordination with the Service should take place to ensure compliance with the Act.

If you have any questions regarding this letter or need further assistance, please contact the Chesapeake Bay Ecological Services Field Office and reference Project Code 2023-0039680 associated with this Project.

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**Action Description**

You provided to IPaC the following name and description for the subject Action.

**1. Name**

Motter Avenue Area Community Flood Mitigation Project

**2. Description**

The following description was provided for the project 'Motter Avenue Area Community Flood Mitigation Project':

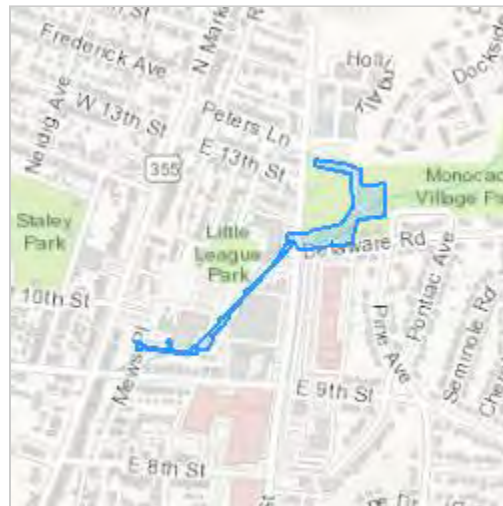
The project will improve stormwater infrastructure and surface drainage within the YMCA Flooding Area in the City of Fredrick (Phase 1) and stabilize and restore a 500-foot portion of Abraham Faw Run (39.428232, -77.402724) (Phase 2). A 60-inch diameter parallel pipe will be installed along the existing trunk line from Mews Lane north of E. 9th Street to the system outfall at Abraham Faw Run, resulting in an additional 1,680 feet of pipe. In the south parking lot of the YMCA, pipe sizes will be increased to 36-inch diameter and a new drainage line with three new 4-foot by 2-foot inlets will be added at the low points. The new inlets will be connected to the existing system using approximately 68 feet of 36-inch diameter pipes. The stormwater infrastructure work will require disturbance to rights-of-way within existing roadways and parking lots as well as a small portion of previously disturbed land adjacent to the roads and lots. A new 45.5-foot long by 27-foot wide plunge pool will be constructed using riprap at the system outfall into Abraham Faw Run. The area immediately surrounding the pool will be graded to tie into the existing channel and stream slopes. Phase 2 would stabilize and restore eroding streambanks in Abraham Faw Run, improve stormwater treatment, and address flows and forces associated with the Phase 1 capacity improvements. The Phase 2 project area extends from the outfall of the culverts and the plunge pool constructed in Phase 1 (39.428232, -77.402724), which are just northeast of the intersection N. East Street and Delaware Road, to approximately 500 feet downstream. Stream restoration and stabilization improvements would include constructed riffles with log rollers and reinforced substrate, toewood, coir matting and live stakes, and rock sills. Stream restoration will start at the upper end of the reach just downstream of the plunge pool that was completed in Phase 1. Work in Abraham Faw Run work would occur in the dry. A pump around will be installed to pump water from the work area to a section downstream of the work area. The contractor will then regrade the banks and install the instream structures in accordance with the design plans. The proposed stream bank slopes will be a maximum of 2:1 for pools and a maximum of 3:1 for riffles. Seed and mulch would be applied to streambanks after grading. The seeding and mulching will be in accordance with standard and specification B-4-3 of the MD Standards and Specifications for Soil Erosion and Sediment Control. Seed mixes consisting of native plant materials will be utilized in conjunction with erosion control blanket/matting to stabilize the stream banks. Trees that have roots along the stream bank will be preserved to the maximum

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extent practical to also assist with stabilization. General stabilization seed mixes also consisting of native plant materials will be applied to the remaining areas within the LOD. The stream restoration activities will require removal or disturbance of approximately 0.30 acre of vegetation, including trees.

The approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@39.4278977,-77.40368711809379,14z>



## DETERMINATION KEY RESULT

Based on the information you provided, you have determined that the Proposed Action will have no effect on the Endangered northern long-eared bat (*Myotis septentrionalis*). Therefore, no consultation with the U.S. Fish and Wildlife Service pursuant to Section 7(a)(2) of the Endangered Species Act of 1973 (87 Stat. 884, as amended 16 U.S.C. 1531 *et seq.*) is required for those species.

## QUALIFICATION INTERVIEW

1. Does the proposed project include, or is it reasonably certain to cause, intentional take of the northern long-eared bat or any other listed species?

**Note:** Intentional take is defined as take that is the intended result of a project. Intentional take could refer to research, direct species management, surveys, and/or studies that include intentional handling/encountering, harassment, collection, or capturing of any individual of a federally listed threatened, endangered or proposed species?

*No*

2. The proposed action does not intersect an area where the northern long-eared bat is likely to occur, based on the information available to U.S. Fish and Wildlife Service as of the most recent update of this key. If you have data that indicates that northern long-eared bats are likely to be present in the action area, answer "NO" and continue through the key.

Do you want to make a no effect determination?

*Yes*

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# PROJECT QUESTIONNAIRE

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**IPAC USER CONTACT INFORMATION**

Agency: Federal Emergency Management Agency  
Name: Erin Hagan  
Address: 615 Chestnut Street  
Address Line 2: 6th Floor  
City: Philadelphia  
State: PA  
Zip: 19106  
Email: erin.hagan@fema.dhs.gov  
Phone: 2157609374

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One Independence Mall  
615 Chestnut Street, 6<sup>th</sup> floor  
Philadelphia, PA 19106-4404



**FEMA**

January 30, 2023

Beth Cole, Administrator  
Maryland Historical Trust  
100 Community Place  
Crownsville, MD 21032

**Re: Motter Avenue Area Community Flood Mitigation Project  
Frederick County, Maryland  
EMP-2020-FM-038-001 and LPDM-PJ-03-MD-2022-004  
MHT Log #202204473**

**Determination: No Adverse Effect to Historic Properties**

Dear Administrator Cole:

This letter serves as continuing consultation pursuant to Section 106 of the National Historic Preservation Act (NHPA) for the undertaking identified above. The Federal Emergency Management Agency (FEMA) provides funding through the Legislative Pre-Disaster Mitigation (LPDM) grant program for implementing cost-effective hazard mitigation planning and projects before disasters occur. LPDM projects are Congressional directives authorized to reduce the overall risk to people and property from future disasters, while also reducing reliance on funding from disaster declarations. Phase 1 of this project was provided with funding under the Flood Mitigation Assistance (FMA) program under Project # EMP-2020-FM-038-001. The goal of FMA is to reduce and/or eliminate claims under the National Flood Insurance Program (NFIP). FEMA provides FMA funds to assist states and communities in implementing measures that reduce or eliminate the long-term risk of flood damage to buildings, manufactured homes, and other structures insured under NFIP.

**Project Information**

Initial project notification was submitted to the Maryland Historical Trust (MHT) in a letter on October 6, 2022; MHT acknowledged receipt of the notification in an email on October 7, 2022. Since the initial notification, contractor CDM Smith sub-contracted the architectural review and archaeological survey to Richard Grub & Associates, both reports are located within the appendices of this letter.



The proposed project is located within the City of Frederick in central Maryland in the suburban community of Monocacy Village Park (39.428232, -77.40272). This location is within the YMCA Flooding Area. The purpose of the proposed project is the reduction of the flood risks and related damage to property by improving stormwater capacity, surface drainage, and further stabilizing and restoring stream conditions within Monocacy Village Park. The project limits extend along Mews Lane from E. 9th Street to just east of N. East Street and includes improvements to outflows in the adjacent Abraham Faw Run. See the Historic Architecture Survey Report (Appendix A) and Phase I Archaeological Survey (Appendix B) for project maps and site photos.

The project is proposed to occur in two phases, which meets the criterion for a “connected action,” as defined by 40 CFR 1508.25(a)(1). This means they are closely related and therefore should be discussed in the same impact statement. As a result, this consultation considers both phases of the project as one undertaking. Phase 1 will increase the trunk line capacity, improve surface drainage, and stabilize and restore the stream conditions in the YMCA Flooding Area. The project details of Phase 1 include the addition of a 60-inch HDPE parallel to the existing trunk line from Mews Lane to the north of East 9th Street which extends to the system outfall; the replacement of existing pipes with larger 36-inch diameter pipes in the south parking lot of the YMCA; and the addition of approximately 68 feet of a 36-inch-diameter drainage line that includes three 4 by 2-foot inlets located at the low points in the YMCA south parking lot.

Phase 2 will include the stabilization of the existing stream; vegetation removal and/or plantings; and a potential staging and stockpiling area in the western portion of the project boundary. This phase of the project is proposed to increase the Abraham Faw Run stormwater flow. These improvements include the following: sediment and erosion control such as matting, riprap, stabilization, seed and mulch, rock excavation, and score stone along 500 feet of stream; landscaping that includes paving, lights, coir cover mat and staples, tree root pruning, and various plantings along 500 feet of the stream; and other improvements like rock pack around trees, stream diversion pump, and grading. All elements of the stormwater capacity improvement project will take place underground, except for stream improvements at the Abraham Faw Run.

### **Determination of Eligibility**

Pursuant to 36 CFR 800.16(d), the Area of Potential Effects (APE) is the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist. Based on the proposed scope of work, FEMA has determined that the APE for this undertaking includes the proposed footprint of the construction activities and the adjacent land parcels. The APE includes 22 resources that are more than 45 years old and therefore meet the criterion for consideration of eligibility as outlined in 36 CFR part 63. The proposed land disturbances include areas subject to excavation or deep grading, wetlands mitigation sites, construction staging areas or borrow areas opened expressly for the project. The limits of disturbance (LOD) for the proposed project consists of an approximately 16,020-square-meter (3.96-acre) area where ground disturbance is proposed.

### Above Ground Resources

Background research was conducted to establish local cultural contexts and to determine the existence of any previously recorded archaeological sites or historic properties, and any past surveys

that were completed within and/or adjacent to the APE. Utilizing the MHT's Cultural Resource Information System (MEDUSA), available files were reviewed for the presence of historic properties within or near the APE. Additional background research consisted of a review of pertinent primary and secondary sources, including land records, historic maps and atlases, and local and county histories available online and at the Maryland State Archives in Annapolis. Previous historic sites survey reports and regulatory survey reports on file at the MHT Library were also reviewed.

Richard Grubb, & Associates (RGA) conducted an historic architectural survey between October 12, 2022, and October 13, 2022 (see Appendix A). The historic architectural survey identified 22 resources more than 45 years of age within the APE. These 22 resources include the Frederick Historic District, the Pennsylvania Railroad Frederick Secondary Line, the Frederick National Little League Ballpark, the Frederick YMCA, the Monocacy Village Park, 13 residential dwellings, and four commercial buildings. In 1973, the Frederick Historic District was listed in the National Register of Historic Places (NRHP) and the boundaries were expanded in 1988. The APE contains five contributing properties within the Frederick Historic District along the southern portion of the project. The remaining 21 resources within the APE of this project have not been surveyed by the MHT. RGA's SOI qualified Historians conducted a NRHP Determination of Eligibility for the said resources and identified any potential effects to these resources in response to the proposed project. Based on the field survey and research, RGA recommends that the remaining 21 surveyed resources are **not eligible** for listing in the NRHP due to diminished integrity, not being associated with a person who made significant contributions to History and being common examples of their architectural type. See Appendix A for the full historic architectural survey report.

The function of the Frederick Historic District (F-3-39) as a commercial, government, and residential district would not be impacted by the proposed installation of the piping nor would the physical features of the identified eligible resources within the NRHP-listed boundary be adversely affected. Upon completion of the proposed project, the Frederick Historic District would retain its association with architecture, politics, commerce, and industry of the region from the period of significance from 1745 to 1941. The construction of an additional underground stormwater pipeline outside the Frederick Historic District NRHP boundary will not introduce visual, atmospheric, or audible elements to the district, nor is it anticipated to catalyze new development at or near the historic resource. Therefore, the proposed project would have **no adverse effect** to the Frederick Historic District.

#### Archaeological Resources

RGA completed a Phase I archaeological survey in advance of the proposed undertaking (see Appendix B). The Phase I survey was conducted to determine the presence of archaeological sites within the APE in compliance with Section 106 of the NHPA, as amended, and the Maryland Historical Trust Act, Sections 5A-325 and 5A-326 of the Annotated Code of Maryland.

An examination of archaeological site files at the MHT in October 2022 indicated that there are no registered archaeological sites located within the APE. However, 30 archaeological sites registered with the MHT are located within a 1.6-kilometer (one-mile) radius of the APE. These sites include 5 pre-Contact sites, 17 historic period sites, 6 sites containing both pre-Contact and historic period components, and 2 sites of unspecified period (see Appendix B).

RGA conducted a Phase I archaeological survey for the proposed project between October 7 and 10, 2022, including the excavation of 17 shovel test pits (STPs) within the APE in areas that could be excavated by hand and not clearly disturbed. In summary, no pre-Contact or historic-period cultural material or features were recovered during archaeological testing. Of the 17 STPs excavated, 11 were terminated early due to rock or hard impasse. Redeposited soils were encountered in STP 10 and STP 17. Soils contained variable amounts of rock, ranging from 0 percent to 90 percent gravel, rock, or pebble content. STP 2 contained plastic in the first in the upper 30 centimeters of the test. As no archaeological resources were identified, no further archaeological work is recommended within the APE and no archaeological resources will be affected by the project. See Appendix B for the full archaeological report.

### **Determination of Effect**

Based upon the information stated above, FEMA has determined that there will be **No Adverse Effect** to the NRHP-listed Frederick Historic District (F-3-39) as well as any other above ground resources. Due to the fact that no archaeological resources were identified during the Phase I survey, FEMA has determined that the Undertaking will result in **No Historic Properties Affected** for potential below ground resources. We respectfully request your concurrence with this determination. If you have any questions or require any additional information, please contact Justin Hathaway, Historic Preservation Specialist, at 202-674-9205 or [justin.hathaway@fema.dhs.gov](mailto:justin.hathaway@fema.dhs.gov).

Sincerely,

**OSCAR D**

**BEISERT JR**

Oscar Beisert

Unified Federal Review Coordinator

FEMA Region 3

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Enclosures



**Maryland**  
**DEPARTMENT OF PLANNING**  
**MARYLAND HISTORICAL TRUST**

April 7, 2023

Oscar Beisert  
Unified Federal Review Coordinator  
FEMA Region 3  
One Independence Mall  
615 Chestnut Street, 6<sup>th</sup> Floor  
Philadelphia, PA 19106-4404  
Sent via email to: [Oscar.beisert@fema.dhs.gov](mailto:Oscar.beisert@fema.dhs.gov)

Re: Motter Avenue Community Flood Mitigation Project  
Frederick County, Maryland  
EMP-2020FM-038-001 and LPDM-PJ-03-MD-2022-004  
Section 106 Review – FEMA

Dear Mr. Beisert:

Thank you for your recent letter, dated January 30, 2023 and received by the Maryland Historical Trust (Trust) on February 27, 2023, regarding the above-referenced undertaking. The letter provided the Trust with the results of FEMA's efforts to identify historic and archeological resources that may be affected by the proposed flood mitigation project, for review and comment. The Trust, Maryland's State Historic Preservation Office, reviewed the submitted materials pursuant to Section 106 of the National Historic Preservation Act. We offer the following comments and concurrence with FEMA's findings.

**Identification of Archeological Resources:** Trust staff reviewed the following draft report included in FEMA's recent submittal: *Phase I Archeological Survey for the Motter Avenue Area Community Flood Mitigation Project, Frederick, Frederick County, Maryland* (Richard Grubb & Assoc., Inc. 2022). The survey presents documentation on the goals, methods, results, and recommendation of Phase I archeological investigations within the project's area of potential effect (APE). The draft meets the reporting specifications of the Trust's *Standards and Guidelines for Archeological Investigations in Maryland*. The survey did not identify any archeological resources within the APE and we agree with FEMA that further archeological investigations are not warranted for this undertaking.

**Identification of Historic Properties:** Trust staff reviewed the following draft report included in FEMA's recent submittal: *Historic Architecture Survey Report for the Motter Avenue Area Community Flood Mitigation Project (Phase I/II)* (Richard Grubb & Assoc., Inc. 2022). The report provides a project methodology and historic context, as well as documentation on architectural historic properties within the area of potential effects (APE) and an assessment of effects. We appreciate the time and effort expended to produce the documentation included in the report. Within the area of potential effect, a total of 22 resources that were more than 45 years of age were identified. This includes the Frederick Historic District, which was listed on the National Register of Historic Places (NRHP) in 1973, and the Pennsylvania Railroad Frederick Secondary Line, which was determined ineligible for listing on the NRHP in 2008. The remaining 20 resources have not been previously surveyed. The Trust's comments regarding the eligibility of 22 resources for listing in the NRHP are provided below.

The Trust concurs with the report's finding that the five individual NRHP listed properties within the APE continue to be contributing properties to the Frederick Historic District.

The Trust concurs with the report's finding that the following 21 resources are not eligible for listing on the National Register of Historic Places:

- Pennsylvania Railroad Frederick Secondary Line, (F-3-237)
- Frederick National Little League Ballpark, 1202 Staley Ave, (F-3-292)
- Frederick YMCA, 1000 North Market St (F-3-293)
- Bowlus House, 315 Delaware Rd (F-3-294)
- Ignasiak House, 317 Delaware Rd (F-3-295)
- Monocacy Village Park, 409 Delaware Rd (F-3-296)
- Shopping Center, 911-919 North East St (F-3-297)
- Horizon Farm Credit Union, 925 North East St (F-3-298)
- Regal Paint Centers, 1111 North East St (F-3-299)
- Shopping Center, 1125-1209 North East St (F-3-300)
- Duplex, 1-3 East 9<sup>th</sup> St (F-3-301)
- Duplex, 5-7 East 9<sup>th</sup> St (F-3-302)
- Duplex, 9-11 East 9<sup>th</sup> St (F-3-303)
- Duplex, 13-15 East 9<sup>th</sup> St (F-3-304)
- Kreimer-Eyler House, 17 East 9<sup>th</sup> St (F-3-305)
- Russell and Blanche Oden House, 19 East 9<sup>th</sup> St (F-3-306)
- Warren and Nellie Smith House, 21 East 9<sup>th</sup> St (F-3-307)
- Jason and Ella Fraser House, 23 Est 9<sup>th</sup> St (F-3-308)
- Duplex, 25-27 East 9<sup>th</sup> St (F-3-309)
- Duplex, 29-31 East 9<sup>th</sup> St (F-3-310)
- Duplex, 33-35 East 9<sup>th</sup> St (F-3-311)

**Assessment of Effects:** Based on the results of FEMA's survey efforts for archeological and architectural resources, we concur with FEMA's findings that the undertaking will have **no adverse effect on historic properties**.

We appreciate FEMA's proactive efforts to identify and evaluate historic and archeological resources within the undertaking's APE. The completed survey materials make a welcome addition to our Maryland Inventory of Historic Properties and Library records. If you have questions or need further assistance, please contact Liz Casso (for historic buildings) at [liz.casso@maryland.gov](mailto:liz.casso@maryland.gov) or me (for archeology) at [beth.cole@maryland.gov](mailto:beth.cole@maryland.gov).

Thank you for providing us this opportunity to comment.

Sincerely,

*Beth Cole* signed electronically

Beth Cole  
Administrator, Project Review and Compliance

BC/ALC/202300833

cc: Justin Hathaway (FEMA / [justin.hathaway@fema.dhs.gov](mailto:justin.hathaway@fema.dhs.gov))



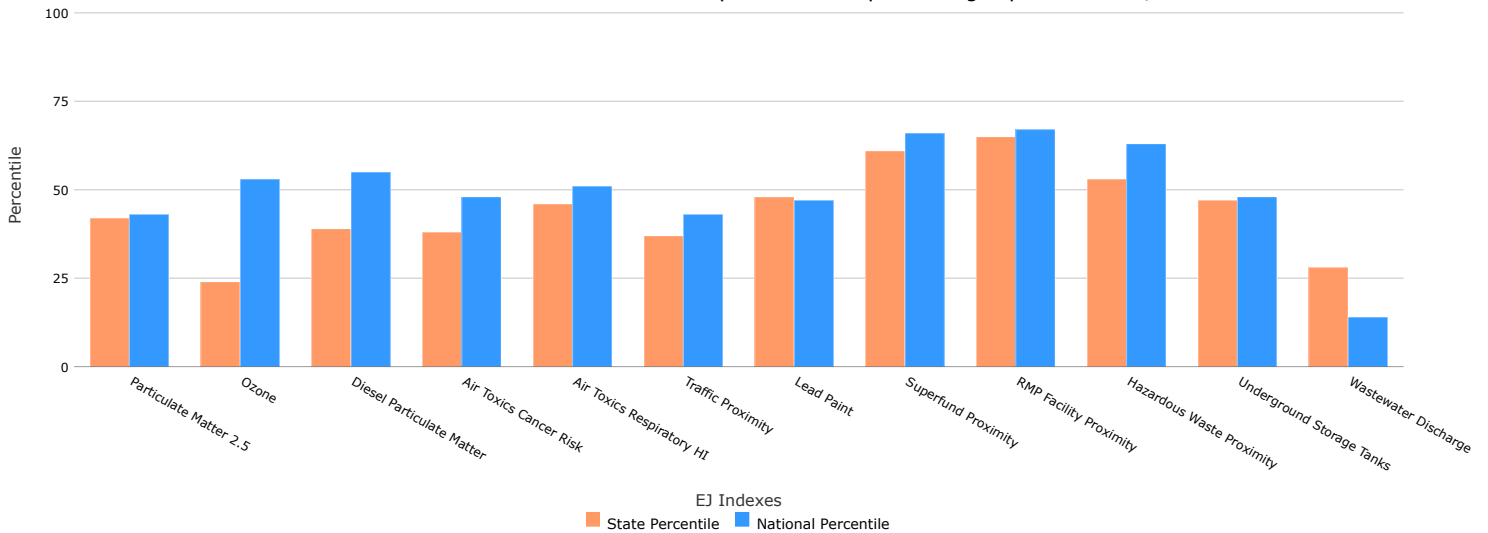
# Appendix D. EPA Environmental Justice Screen Report



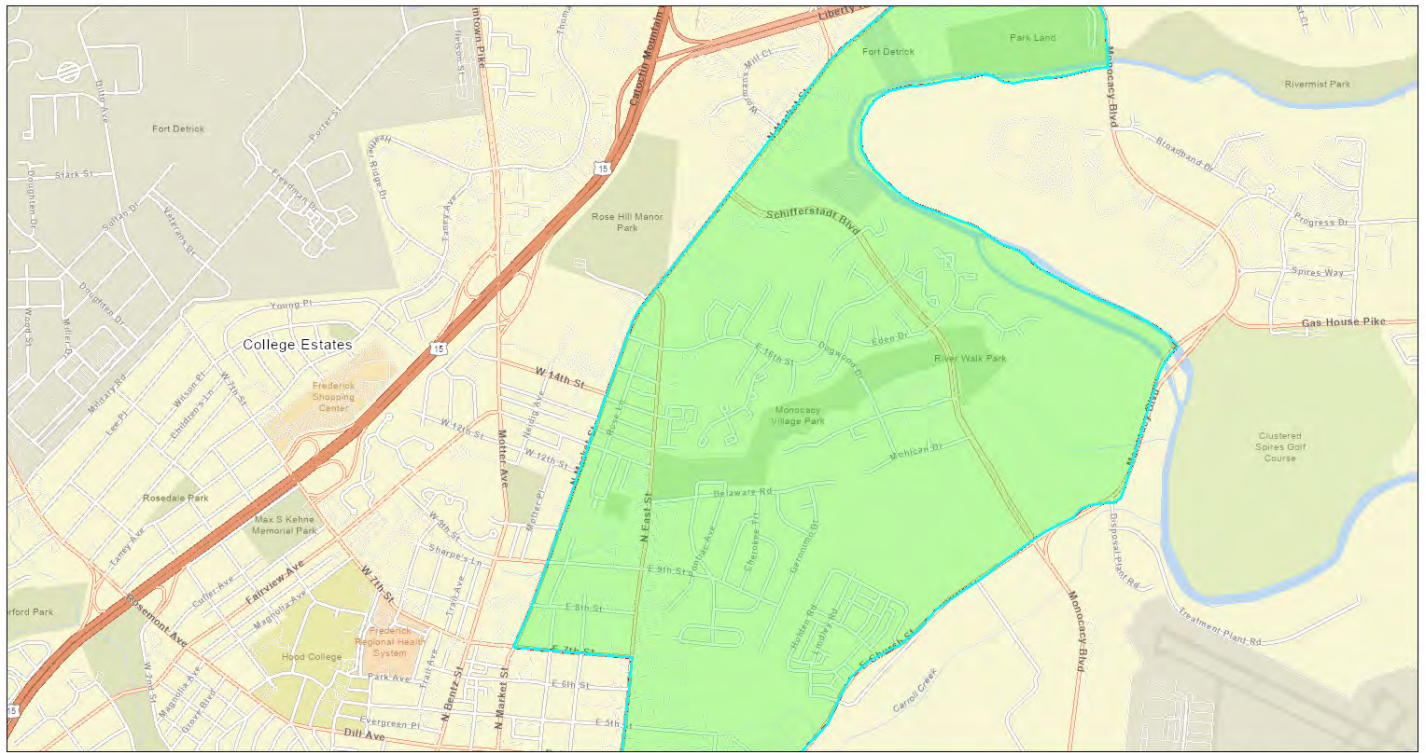
**EJScreen Report (Version 2.1)**  
**Blockgroup: 240217508013,240217508051,240217508041**  
**MARYLAND, EPA Region 3**  
**Approximate Population: 4,454**  
**Input Area (sq. miles): 1.67**

Selected Variables	Percentile in State	Percentile in USA
<b>Environmental Justice Indexes</b>		
EJ Index for Particulate Matter 2.5	42	43
EJ Index for Ozone	24	53
EJ Index for Diesel Particulate Matter*	39	55
EJ Index for Air Toxics Cancer Risk*	38	48
EJ Index for Air Toxics Respiratory HI*	46	51
EJ Index for Traffic Proximity	37	43
EJ Index for Lead Paint	48	47
EJ Index for Superfund Proximity	61	66
EJ Index for RMP Facility Proximity	65	67
EJ Index for Hazardous Waste Proximity	53	63
EJ Index for Underground Storage Tanks	47	48
EJ Index for Wastewater Discharge	28	14

EJ Index for the Selected Area Compared to All People's Blockgroups in the State/US



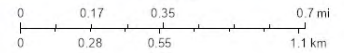
This report shows the values for environmental and demographic indicators and EJScreen indexes. It shows environmental and demographic raw data (e.g., the estimated concentration of ozone in the air), and also shows what percentile each raw data value represents. These percentiles provide perspective on how the selected block group or buffer area compares to the entire state or nation. For example, if a given location is at the 95th percentile nationwide, this means that only 5 percent of the US population has a higher block group value than the average person in the location being analyzed. The years for which the data are available, and the methods used, vary across these indicators. Important caveats and uncertainties apply to this screening-level information, so it is essential to understand the limitations on appropriate interpretations and applications of these indicators. Please see EJScreen documentation for discussion of these issues before using reports.



October 28, 2022

Project 1

1:18,056



Esri Community Maps Contributors, VGIN, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, MET/NASA, USGS, EPA, NPS, US Census Bureau, USDA

**Sites reporting to EPA**

Superfund NPL	0
Hazardous Waste Treatment, Storage, and Disposal Facilities (TSDF)	0

Selected Variables	Value	State		USA	
		Avg.	%tile	Avg.	%tile
<b>Pollution and Sources</b>					
Particulate Matter 2.5 (µg/m³)	8.36	8.19	46	8.67	43
Ozone (ppb)	42.8	44.2	22	42.5	56
Diesel Particulate Matter* (µg/m³)	0.304	0.324	41	0.294	60-70th
Air Toxics Cancer Risk* (lifetime risk per million)	30	30	88	28	80-90th
Air Toxics Respiratory HI*	0.4	0.37	98	0.36	80-90th
Traffic Proximity (daily traffic count/distance to road)	180	810	36	760	44
Lead Paint (% Pre-1960 Housing)	0.16	0.28	42	0.27	43
Superfund Proximity (site count/km distance)	0.23	0.13	88	0.13	88
RMP Facility Proximity (facility count/km distance)	5.2	0.79	99	0.77	98
Hazardous Waste Proximity (facility count/km distance)	5	3.8	72	2.2	87
Underground Storage Tanks (count/km²)	0.97	1.9	49	3.9	47
Wastewater Discharge (toxicity-weighted concentration/m distance)	5.3E-06	0.48	37	12	15
<b>Socioeconomic Indicators</b>					
Demographic Index	22%	35%	35	35%	37
People of Color	26%	50%	34	40%	46
Low Income	19%	21%	52	30%	34
Unemployment Rate	2%	5%	35	5%	38
Limited English Speaking	1%	3%	58	5%	57
Less Than High School Education	6%	9%	45	12%	40
Under Age 5	6%	6%	57	6%	58
Over Age 64	16%	15%	55	16%	52

\*Diesel particulate matter, air toxics cancer risk, and air toxics respiratory hazard index are from the EPA's Air Toxics Data Update, which is the Agency's ongoing, comprehensive evaluation of air toxics in the United States. This effort aims to prioritize air toxics, emission sources, and locations of interest for further study. It is important to remember that the air toxics data presented here provide broad estimates of health risks over geographic areas of the country, not definitive risks to specific individuals or locations. Cancer risks and hazard indices from the Air Toxics Data Update are reported to one significant figure and any additional significant figures here are due to rounding. More information on the Air Toxics Data Update can be found at: <https://www.epa.gov/haps/air-toxics-data-update>, (<https://www.epa.gov/haps/air-toxics-data-update>)

For additional information, see: [www.epa.gov/environmentaljustice](https://www.epa.gov/environmentaljustice) (<https://www.epa.gov/environmentaljustice>)

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EJScreen is a screening tool for pre-decisional use only. It can help identify areas that may warrant additional consideration, analysis, or outreach. It does not provide a basis for decision-making, but it may help identify potential areas of EJ concern. Users should keep in mind that screening tools are subject to substantial uncertainty in their demographic and environmental data, particularly when looking at small geographic areas. Important caveats and uncertainties apply to this screening-level information, so it is essential to understand the limitations on appropriate interpretations and applications of these indicators. Please see EJScreen documentation for discussion of these issues before using reports. This screening tool does not provide data on every environmental impact and demographic factor that may be relevant to a particular location. EJScreen outputs should be supplemented with additional information and local knowledge before taking any action to address potential EJ concerns.