

Proposed Phase 1 Frederick Gateway Floodplain Analysis

Overview

The I-70 Golf Range is located in the City of Frederick, MD on the right bank of the Monocacy River between I-70 and Old National Pike. The property is on Tax Map 78, Parcel 0699. This parcel is going to be redeveloped as part of a project designed by Harris, Smariga & Associates, Inc. The Monocacy River floodplain in the area of the project is mapped as both FEMA Zone AE and Zone X (shaded) on FIRM panel 0313E under Map Number 24021C0313E. There is no mapped floodway. The project consists of developing the parcel into an athletic stadium complex, including a grass field, a hotel, parking, and retail space. Fill is being added to the property atop which the athletic complex will be constructed. Phase 1 of the project consists of preliminary grading, shown on the attached topographic work map, with little to no addition of impervious cover. The floodplain study based on phase 1 grading showed no rise from the FEMA effective 100-year flood elevations to the proposed phase 1 100-year flood elevations, as shown in Table 2. All elevations mentioned in this narrative and used within the model are in NAVD88. The hydraulic model was completed using HEC-RAS version 4.1.0 using the model provided by FEMA. Figure 1 shows the general location of the ultimate proposed development and the effective floodplain boundaries. See page 3 for the Phase 1 grading which has a reduced limit of disturbance.

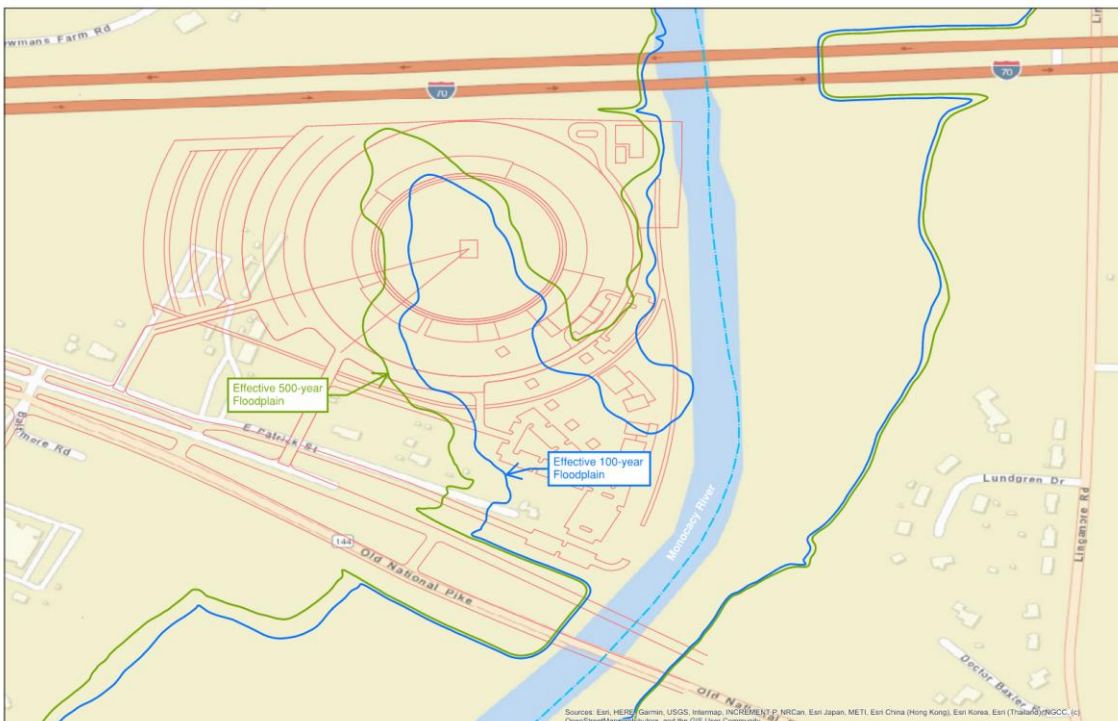


Figure 1. Frederick Gateway Property Location.

Duplicate Effective Model

A FEMA data request was completed in order to obtain the effective model from FEMA. The model received from FEMA is named "MonocacyRiver" and utilizes steady flow conditions. The

Plan “MonocacyRiver_Effective” in the HEC-RAS model provided by FEMA is the effective model. We created the duplicate effective model by copying the effective model. The results from running the duplicate effective model were different than the effective results pre-loaded into the model, but they were consistent with the information provided by the effective BFE lines and FIS report, so duplicate effective is being considered as effective.

Phase 1 Proposed Conditions Model

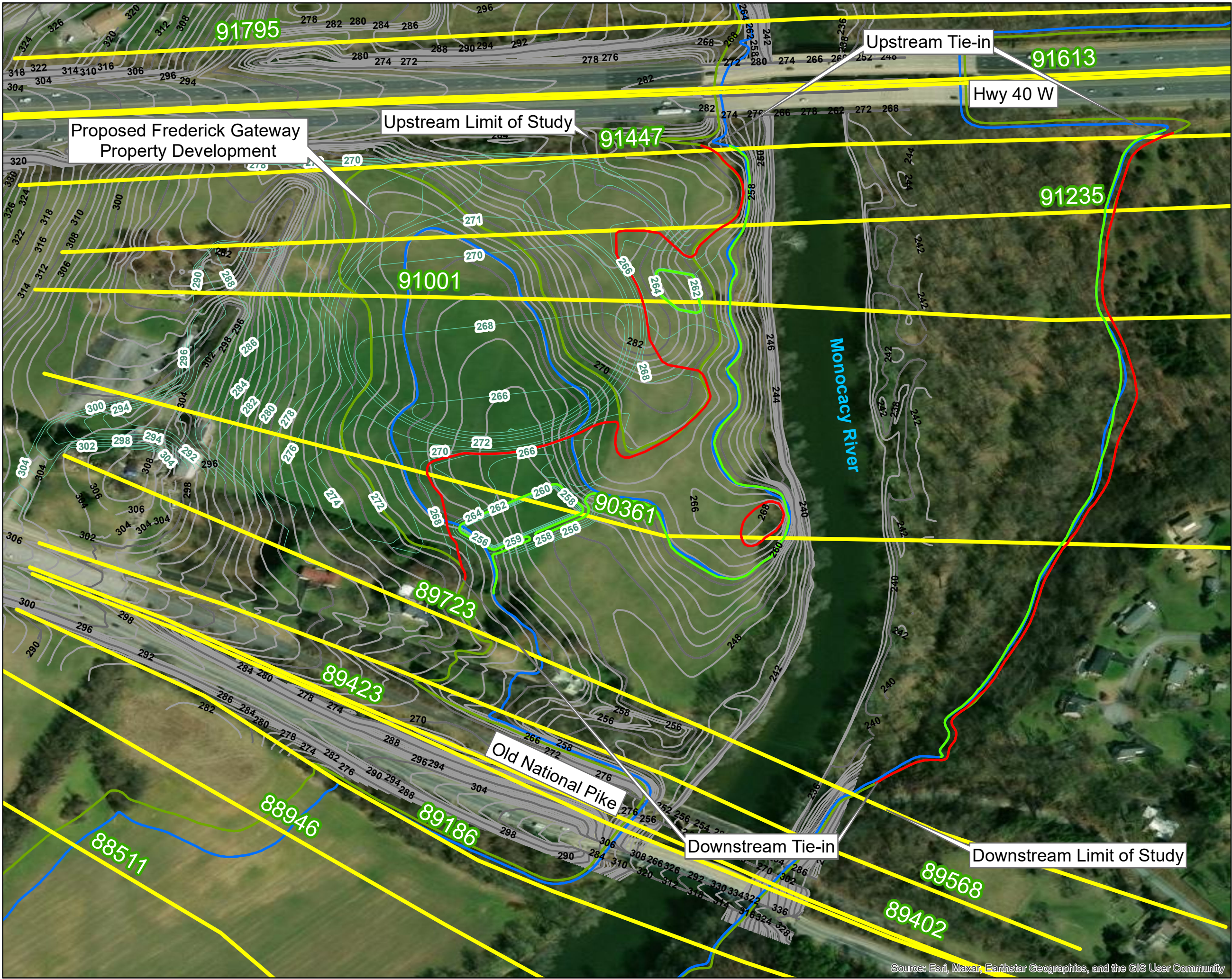
The proposed conditions HEC-RAS plan was developed by revising the duplicate effective model to include the proposed phase 1 grading of the athletic complex. The mapped top widths displayed on the topographic work map match the HEC-RAS generated top widths, except for where there are obstructions. In that case, the obstruction width is added to the HEC-RAS generated top width and that will match the mapped top width. Table 1 shows the Mannings n-values used in the model, the short grass added in proposed conditions and the rest of the n-values maintained from the effective model. Table 2 compares the phase 1 proposed condition results to the duplicate effective results. There is no rise between effective and phase 1 proposed conditions within the study area, cross section 91447 to 89568. See attached topographic work map showing cross section locations, the proposed development, and the floodplain.

Table 1. Mannings n-values used in Frederick Gateway model.

Mannings N Value	Description
0.065	Overbank brush and trees
0.035	Short grass
0.042	Channel
0.1	Floodplain

Table 2. Comparison of the Proposed and Duplicate Effective 100-year WSEs.

Reach	River Sta	Profile	Plan	W.S. Elev (ft)	Rise (ft)
Monocacy	91447	100YR	Pro_Ph 1	261.89	0
Monocacy	91447	100YR	DupEff	261.89	
Monocacy	91235 USGS01643000	100YR	Pro_Ph 1	261.91	0
Monocacy	91235 USGS01643000	100YR	DupEff	261.91	
Monocacy	91001	100YR	Pro_Ph 1	261.91	0
Monocacy	91001	100YR	DupEff	261.91	
Monocacy	90361	100YR	Pro_Ph 1	261.29	0
Monocacy	90361	100YR	DupEff	261.29	
Monocacy	89723 BA	100YR	Pro_Ph 1	260.92	0
Monocacy	89723 BA	100YR	DupEff	260.92	
Monocacy	89568	100YR	Pro_Ph 1	260.7	0
Monocacy	89568	100YR	DupEff	260.7	



Legend

- Proposed Phase 1 500-year Floodplain
- Proposed Phase 1 100-year Floodplain
- Cross Sections
- FEMA Effective 100-year Floodplain
- FEMA Effective 500-year Floodplain
- Proposed Phase 1 Contours
- Major Contours
- Minor Contours



250 125 0 250 Feet

Map Projection:
NAD_1983_StatePlane_Maryland_FIPS_1900_Feet
Western Hemisphere;
Vertical Datum: NAVD88