Greenbag Road Improvement Project

Environmental Assessment

Monongalia County, West Virginia

State Project: U331-857-0.67
Federal Project: STP-0857(019)D

U.S. Department of Transportation

Federal Highway Administration

West Virginia Department of Transportation

Division of Highways

August 2020

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ENVIRONMENTAL ASSESSMENT

Submitted Pursuant to 42 USC 4332(2)c by the U.S. Department of Transportation, Federal Highway Administration and the West Virginia Department of Transportation – Division of Highways

08-14-2020	Jimmy Wriston, P.E.
DATE OF APPROVAL	FOR WEST VIRGINIA DIVISION OF HIGHWAYS
08-28-2020	
DATE OF APPROVAL	FOR FEDERAL HIGHWAY ADMINISTRATION

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Executive Summary

The West Virginia Division of Highways (WVDOH), in conjunction with the Federal Highway Administration (FHWA), proposes to provide operational improvements along 1.65 miles of Greenbag Road (CR 857), located southeast of the City of Morgantown in Monongalia County. This Project is being undertaken to reduce traffic congestion and address the lack of safe non-motorized connections through the corridor.

This Environmental Assessment (EA) is being prepared by the WVDOH in cooperation with FHWA to fulfill the requirements of the National Environmental Policy Act (NEPA).

Purpose and Need

The purpose of the Project is to provide operational improvements along Greenbag Road (CR 857) to reduce congestion and address the lack of safe non-motorized connections along the corridor.

Two traffic studies of the corridor have determined that the flow of traffic through the Greenbag Road (CR 857) corridor is controlled by the level of service (LOS) at the major intersections. These major intersections include the Mississippi Street (CR 857/1) intersection and the Dorsey Avenue/Kingwood Pike (CR 81) intersection. With the exception of southbound traffic on Mississippi Street (CR857/1), the current traffic conditions operate at LOS D, which is considered acceptable; however, expected growth in the region will negatively impact the flow of traffic and degrade the LOS at both intersections to LOS F. A summary of the LOS from the traffic study is presented in Table E-1.

Community involvement in the development of the Morgantown Monongalia Planning Association (MMMPO) *Greenbag Road Corridor Study* (2015) identified pedestrian facilities to connect the neighborhood schools with the commercial and residential areas as a key issue for community safety and access.

Public Involvement

The WVDOH hosted an initial public meeting informational workshop to inform the public and receive comments for the proposed Greenbag Road (CR 857) Improvement Project on April 16, 2019. Public comments received at the meeting and during the comment period focused primarily on the following topics:

- The use of turn lanes instead of a roundabout at the Greenbag Road (CR 857) and Dorsey Ave/Kingwood Pike (CR 81) intersection

- *Response: The intersection options that were evaluated and analyzed during the EA process include turning lanes with traffic signals, and roundabouts. The evaluation and analysis of these intersection options indicate that the roundabout would provide the most improvement to traffic congestion, has the lowest estimated construction cost, and does not displace any residences. The analysis also evaluates the improvement to the level of service (LOS) provided by the turn lane options and the roundabout option for both current conditions and design year 2048 predicted conditions. The turn lane options do not improve the LOS as much as the roundabout and the turn lanes at Dorsey Avenue/Kingwood Pike involve complete takes of two or three residences (depending on the turn lane option selected) while the roundabout design does not take any residences or businesses.*

❖ Impacts to the community garden

- *Response: The community garden is located on private property and the property owner will be compensated for the sale of the land to the WVDOH during the right-of-way acquisition process. Impacts to the community garden have been minimized to the extent practicable.*

❖ Prioritizing road repair, both locally and within the county, over improvements to the Greenbag Road (CR 857) corridor

- *Response: Road repair beyond the scope of this project is being addressed through the Governor's Roads to Prosperity program and progress can be tracked via the WVDOH website.*

❖ The use of traffic signals at the intersections instead of roundabouts

- *Response: The alternatives and intersection options determined to be evaluated were based on the outcome of the MMMPO's preliminary studies and findings. Changes to the existing traffic signal, without other improvements, were not considered. The use of traffic signals at the intersections instead of roundabouts was evaluated as part of the turn lane options. See Option A at Mississippi Street (CR 857/1) and Options D and E at Dorsey Avenue/Kingwood Pike (CR 81) for the assessment of impacts to these options.*

❖ Concerns related to the detour route, including length and conditions of the roadways to be used

- *Response: The detour presented in the April 2019 meeting was preliminary and the final detour route will be examined and defined during the final design process. Existing road conditions will be considered as a factor when determining the detour routes.*

❖ Requests for an Environmental Impact Statement (EIS) or Environmental Assessment instead of a Categorical Exclusion (CE)

- *Response: The environmental document for the project has been elevated from a CE to an EA by the FHWA. Based on the comments received during the first public comment period, FHWA has evaluated the project and determined that an EA is the appropriate level of documentation given the scope and details of the project. Per FHWA guidelines, the EA is a concise document that provides evidence and analysis for determining whether to prepare an EIS or a finding of no significant impact. The EA provides opportunity to describe and evaluate the impacts to social, cultural, natural, economic, and environmental resource factors. A second public meeting will be held to present the EA and allow additional time for review and comment by the public and agencies.*

❖ A desire to see additional alternatives presented

- *Response: The WVDOH has examined the no build alternative, two build alternatives, and three options for each of the major intersections. When considering all of the possible combinations of the two alternatives with the intersection options, there were 18 possible combinations examined.*

❖ Returning the Greenbag Road (CR 857) and Dorsey Ave/Kingwood Pike (CR 81) intersection to a 4-way stop

- *Response: A 4-way stop was not considered at any study intersection within the Greenbag Road corridor. The MMMPO had completed several previous studies evaluating various transportation plans for the Greenbag Road corridor, with the ultimate vision of transforming Greenbag Road into a safe, efficient, and attractive multimodal transportation facility. The scenarios determined to be evaluated in the traffic study evolved from the outcome of the MMMPO's preliminary studies and findings. Existing two-way stop controlled operations with potential roadway improvements were evaluated as part of the traffic, as well as traffic signal and roundabout options.*

Alternatives

Two Project alternatives (Alternative 1 and Alternative 2) were developed along the proposed corridor, in addition to the No Build Alternative. Additionally, there are three possible intersection options at each of the two major intersections within the Project. The preferred alternative identified during the course of this environmental assessment utilizes Alternative 2 and intersection options C and F.

Several design features are consistent in both Build Alternatives and they are as follows:

- Mississippi Street (CR 857/1) will incorporate two 11-foot travel lanes with 2-foot shoulders on both sides.
- Dorsey Avenue (CR 81) will incorporate two 11-foot travel lanes with curb and gutter on both sides and a 5-foot concrete sidewalk.
- Kingwood Pike (CR 81) will incorporate two 11-foot travel lanes with 2-foot shoulders on both sides.
- The east end of Luckey Lane (CR 81/6) will incorporate two 8-foot travel lanes with curb and gutter on both sides. The west end of Luckey Lane (CR 81/6) will include a 10-foot travel lane and a 12-foot travel lane with curb and gutter on both sides. A 5-foot concrete sidewalk will extend from Dorsey Avenue (CR 81) along Luckey Lane (CR 81/6) to connect with the sidewalk at Mountainview Elementary School.
- From the west end of the Project to the intersection at Mississippi Street (CR 857/1), the Greenbag Road (CR 857) roadway will be improved to incorporate two 11-foot-wide travel lanes, a 12-foot-wide center turn lane, and curb and gutter.
- The Greenbag Road (CR 857) roadway between the Mississippi Street (CR 857/1) and Dorsey Avenue/Kingwood Pike (CR 81) intersections will be improved to have a 4-foot paved shoulder on the south side, and 3-foot paved shoulder with a 2-foot curb and gutter and a 5-foot concrete sidewalk will be located on the north side. The shoulder widths are sufficient to be shared with bikes.
- The area east of Jonathan Lane on Greenbag Road (CR 857) will be re-paved and undersized stormwater drainage ditches will be expanded to accommodate increased run-off. These improvements will be made for the section of Greenbag Road (CR 857) between Jonathan Lane and the crossing of Aaron Creek.

Under Alternative 1, the Greenbag Road (CR 857) roadway will be improved to incorporate two 11-foot-wide travel lanes and a 12-foot-wide continuous shared center turn lane between the Mississippi Street (CR 857/1) and Dorsey Avenue/Kingwood Pike (CR 81) intersections.

Under Alternative 2, the Greenbag Road (CR 857) roadway between the Mississippi Street (CR 857/1) and Dorsey Avenue/Kingwood Pike (CR 81) intersections, Greenbag Road (CR 857) will be improved to two 12-foot-wide travel lanes. Eastbound access will be provided to Bluegrass Village via a 12-foot-wide center left turn lane.

Mississippi Street Intersection Options Considered:

Option A includes the installation of a traffic signal.

Option B includes the construction of a roundabout.

Option C includes the construction of a roundabout with a continuous right turn lane from Greenbag Road (CR 857) to Mississippi Street (CR 857/1).

Dorsey Ave / Kingwood Pike Intersection Options Considered:

Option D includes the installation of a traffic signal

Option E includes the installation of a traffic signal with dedicated left turn lanes.

Option F includes the construction of a roundabout.

Table E-1: Summary of LOS Results from 2018 Traffic Study

	2018 Conditions		**Design Year 2048**							
	Mississippi Street	**Dorsey Ave / Kingwood Pike**	**Mississippi Street Intersection Options**			**Dorsey Ave Intersection Options**			**No Build**	
			A	B	C	D	E	F	**Mississippi Street**	**Dorsey Ave / Kingwood Pike**
Level of Service - morning	*C*	*C*	A	B	A	C	C	B	F	C
Level of Service - afternoon	*A*	*C*	B	A	A	E	C	C	D	F

Environmental Impacts

The design of the Project was compared against the existing environmental features observed in the Study Area through background research and field investigations. Impacts to the Study Area environmental features were determined utilizing the proposed right-of-way requirements associated with the two different build alternatives and the intersection options under consideration for the Project. Table E-2 summarizes the environmental impacts from the preferred alternative.

Table E-2: Summary of Impacts From the Preferred Alternative (2 / C / F)

Resource or Elements	Preferred Alternative 2 / C / F
Environmental Justice	All block groups immediately adjacent to the Project meet thresholds indicating a presence of EJ populations. While adverse impacts are anticipated under this alternative, all are expected to be minor and/or temporary and all impacts affect non-EJ and EJ populations equivalently. Impacts include right-of-way takes, parking impacts to facilities, expanded access at Bluegrass Village, tree removal, access during construction, and improved bicycle/pedestrian access.
Displacements	There would be no relocations for residential or commercial properties under the preferred alternative.
Community Facilities and Services	The expanded roadway widths and turning lane will improve traffic capacity and provide for increased mobility. Vehicle travel through the corridor will be more efficient. Non-motorized access to community services will be enhanced through the presence of the sidewalks and increased roadway shoulders for bicycle use.
Community Cohesion	The improved multimodal connectivity between residential areas along Greenbag Road with schools, recreational resources, commercial resources, and transit services will result in a permanent positive access impact to all populations within the Project area.
Farmlands	This alternative will impact 5.7 acres of Farmland of Statewide Importance soil and 1.1 acres of Prime Farmland soil. Of these acres, 3.7 acres of Farmland of Statewide Importance soil and 1 acre of Prime Farmland soil have been previously developed.
	This alternative will result in an impact of 0.07 acres to the Thomas E. Richards Trust Farm. This sliver take of the property will not result in a change to the existing operations and is assumed to be considered insignificant.
Land Cover	The Project will impact the following land cover types: ❖ Developed land (low intensity: 1.1 acres; medium intensity: 2.6 acres; high intensity: 2.0 acres) ❖ Pasture – 0.2 acres ❖ Deciduous forest – 0.5 acres ❖ Developed open space – 0.2 acres
RTE Species	No Impact

Table E-2: Summary of Impacts From the Preferred Alternative (2 / C / F) (continued)

Resource or Elements	Preferred Alternative 2 / C / F
Streams	The impacts to the streams located within this alternative are as follows: ❖ Perennial – 2,953 linear feet ❖ Intermittent – 753 linear feet The total stream impacts for this alternative are 3,706 linear feet.
Wetlands	Three wetlands will be impacted by this alternative. The impacts to the wetlands located within the Project area are as follows: ❖ Palustrine Emergent – 0.06 acres ❖ Palustrine Forested – 0.04 acres The total wetland impacts for this alternative are 0.1 acres.
Floodplains	The Project will impact a total of 1.3 acres defined as regulated floodplain at the Cobun Creek crossing.
Groundwater	No Impact
Air Quality	No Impact
Noise	The noise analysis report indicates the Greenbag Road and intersection improvements for this alternative do not meet the requirements for either a Type I or Type II project. The Project is classified as a Type III project and no noise analysis for highway traffic noise impacts is required.
Potentially Hazardous Waste	The Morgantown City Garage has been identified as an area of concern. The WVDOH has committed to completing a Phase I Environmental Site Assessment for the Project area once right-of-way impacts to the property are defined. The results of that assessment will be documented in the FONSI.
Historic Resources	No Adverse Effect
Archaeological Resources	No Impact
Utilities	Several utility lines and associated components will be relocated.

Table E-2: Summary of Impacts From the Preferred Alternative (2 / C / F) (continued)

Resource or Elements	Preferred Alternative 2 / C / F
Section 4(f) Resources	Two NRHP-eligible resources were identified within the Project vicinity. The Campbell Farmhouse will not have direct impacts to the property. There will be no right-of-way acquired from the FCI Morgantown facility, thereby resulting in No Use of the Section 4(f) resource.
Temporary Construction Impacts	Access will be maintained to all properties during construction. The flow of traffic will be maintained through the use of traffic controls, detours or temporary signals or flaggers to minimize disruptions. Construction will comply with all federal, state, and local laws regarding safety, health, and sanitation. Contractors will follow Occupational Safety and Health Administration guidelines to protect employees, the public, and property. An erosion and sediment pollution control plan will be prepared and implemented for the Project to eliminate or minimize sedimentation.

Costs

Estimated construction costs were developed for both alternatives and each of the options. **Tables E-3 and E-4** below show the estimated costs for each of the alternatives with all possible combinations of the intersection options. The cost for the preferred alternative is highlighted in **Table E-4**.

Table E-3: Estimated Construction Costs for Alternative 1

		Dorsey Avenue/Kingwood Pike Intersection Options		
		D	E	F
Mississippi Street Intersection Options	A	$12,689,979.44	$13,249,895.68	$10,755,399.35
	B	$13,125,555.10	$13,685,471.34	$11,190,975.01
	C	$13,074,839.27	$13,634,755.51	$11,140,259.18

Table E-4: Estimated Construction Costs for Alternative 2

		Dorsey Avenue/Kingwood Pike Intersection Options		
		D	E	F
Mississippi Street Intersection Options	A	$11,238,152.91	$11,792,156.83	$9,842,019.50
	B	$11,642,971.91	$12,196,975.83	$10,246,838.49
	C	$11,825,328.90	$12,379,332.83	$10,429,195.49

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INTRODUCTION

The West Virginia Division of Highways (WVDOH), in conjunction with the Federal Highway Administration (FHWA), proposes to provide operational improvements along 1.65 miles of Greenbag Road (CR 857), located southeast of the City of Morgantown in Monongalia County (hereinafter referred to as, Project) (**Figure 1**). This Project is being undertaken to reduce traffic congestion and address the lack of safe *non-motorized connections* through the corridor. The project is based on a study by the Morgantown Monongalia MPO (MMMPO) Unified Working Program (FY2014-2015). The overall goal of the study was to identify ways to improve Greenbag Road (CR 857) as an alternative truck route to reduce and/or eliminate trucks from traveling through downtown Morgantown by providing a safer, continuous route from WV 7 to US 119.

The western limit of the Project occurs near the existing limits of the divided roadway near the Mountaineer Mall access. The eastern limit of the Project occurs at the existing bridge over Aaron Creek (see **Figure 1**).

The overall roadway improvements along Greenbag Road include wider lanes and shoulders along with *curb and gutter* installations to help address drainage issues and to provide a sidewalk along the entire route. In addition, the north side shoulder will be utilized as a bike lane for the corridor between the commercial area to the west and the residential areas along the corridor.

Both the Mississippi Street (CR 857/1) and Dorsey Avenue/Kingwood Pike (CR 81) intersections with Greenbag Road (CR 857) are proposed to be upgraded to provide improved traffic flow along the route and to increase the safety of the traveling public at each intersection. The intersections will include lighting and will be developed to allow the safe movement of pedestrians along the sidewalk on the north side of Greenbag Road (CR 857).

Additional work will occur on Luckey Lane (CR 81/6). This work will improve the width of the travel lanes within the existing right-of-way and re-pave the length of Luckey Lane (CR 81/6) between its intersections with Greenbag Road (CR 857) and Dorsey Avenue (CR 81). From the intersection of Greenbag Road (CR 857) and Jonathan Lane to the crossing of Aaron Creek, the Project will include roadside drainage improvements as needed to address stormwater runoff.

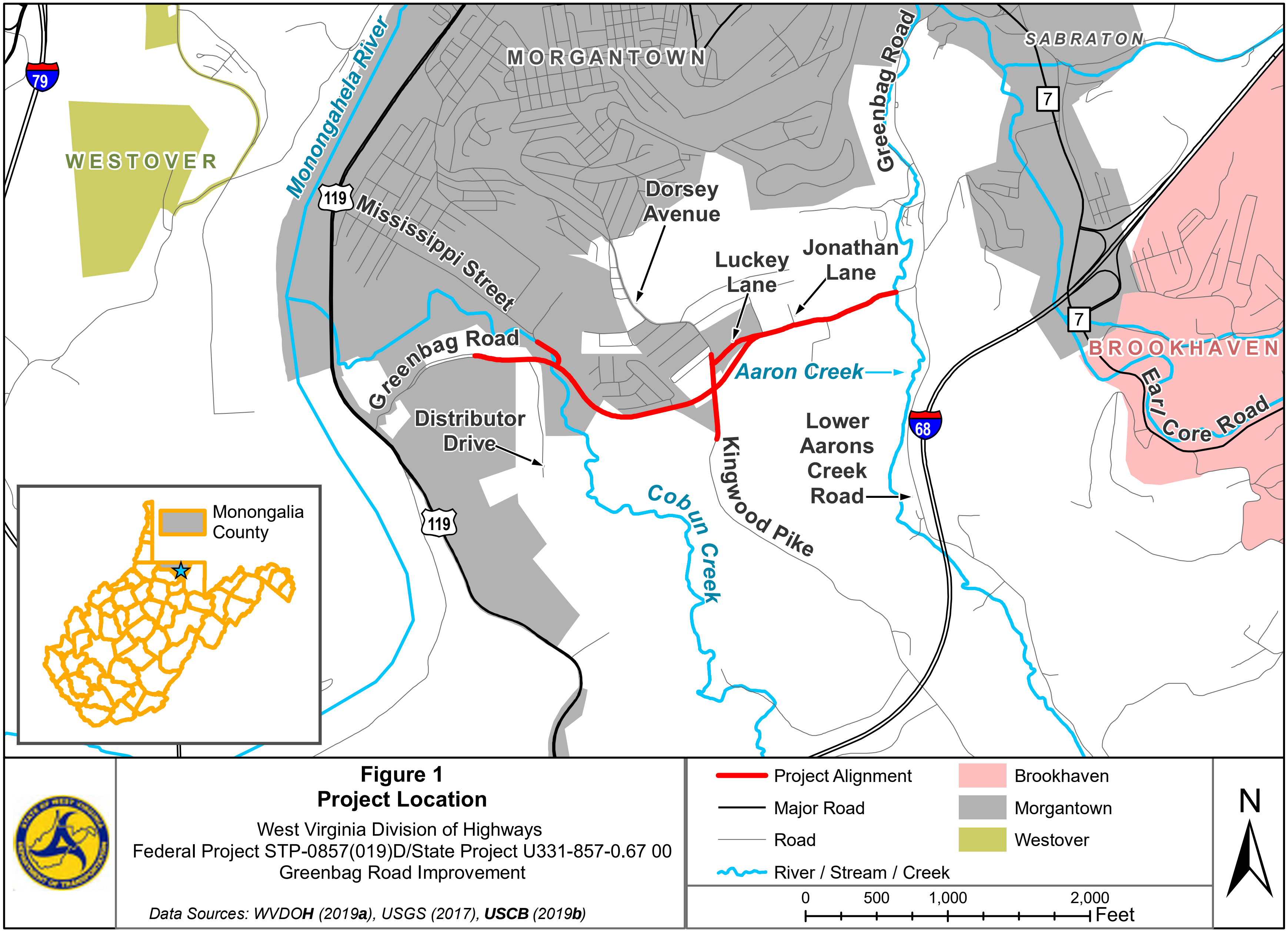


Figure 1
Project Location

West Virginia Division of Highways
Federal Project STP-0857(019)D/State Project U331-857-0.67 00
Greenbag Road Improvement

Data Sources: WVDOH (2019a), USGS (2017), USCB (2019b)

This Environmental Assessment (EA) is being prepared by the WVDOH in cooperation with FHWA to fulfill the requirements of the National Environmental Policy Act (NEPA). NEPA requires that the potential for environmental impacts be assessed prior to development projects for federal actions that could significantly affect the quality of the human environment. Due to significant local interest in the Project, the preparation of an EA document is appropriate to assess the significance of impacts.

A **glossary** of some industry and project specific terminology used throughout this document is available for reference on page 80. Words included in the glossary are in italics throughout the document. A list of **acronyms** used throughout this document is included on page 83.

HOW HAS THE PUBLIC BEEN INVOLVED IN THE PROJECT?

The WVDOH hosted a public meeting informational workshop to inform the public and receive comments for the proposed Greenbag Road (CR 857) Improvement Project. The meeting was held at the South Middle School at 500 East Parkway Drive in Morgantown, West Virginia on April 16, 2019 (**Image 1**). The public was informed of the meeting date and location through advertisements in the *Dominion Post* (2019) and through hand-delivered flyers to the surrounding community residents and businesses. The MMMPO and the City of Morgantown posted notices of the meeting online on their respective websites and social media pages.

Image 1: South Middle School

At the meeting, handouts with information on the proposed Project were provided at the registration table. All information presented in the meeting was also available online at the WVDOH website at http://go.wv.gov/dotcomment.

A 30-day comment period followed the public meeting, with comments due to the WVDOH by May 16, 2019. Comment forms were attached to the handouts at the meeting and were available online, before the meeting and during the comment period, on the WVDOH website. Given the volume of public response the comment period was extended to May 21, 2019 in order to capture all of the submitted responses.

Fifty-two (52) individuals signed the attendance sheet at the public meeting. However, two hundred sixty-three (263) comments were received by the WVDOH. Of these, eight (8) were submitted during the public meeting, two hundred fifteen (215) were submitted via the WVDOH online system, and thirty-one (31) were mailed to WVDOH. The remainder (9) were a combination of emails, voicemails, letters to the editor and newspaper advertisements in the *Dominion Post* (2019).

Of the total comments received, nineteen (19) demonstrated support for the Project as currently designed. The remainder expressed concerns related to the design, detour, and necessity of the Project. The most frequently mentioned concerns were:

- ❖ The use of turn lanes instead of a roundabout at the Greenbag Road (CR 857) and Dorsey Ave/Kingwood Pike (CR 81) intersection
  - o *Response: The intersection options that were evaluated and analyzed during the EA process include turning lanes with traffic signals, and roundabouts. The evaluation and analysis of these intersection options indicate that the roundabout would provide the most improvement to traffic congestion, has the lowest estimated construction cost, and does not displace any residences. The analysis also evaluates the improvement to the level of service (LOS) provided by the turn lane options and the roundabout option for both current conditions and design year 2048 predicted conditions. The turn lane options do not improve the LOS as much as the roundabout and the turn lanes at Dorsey Avenue/Kingwood Pike involve complete takes of two or three residences (depending on the turn lane option selected) while the roundabout design does not take any residences or businesses.*
- ❖ Impacts to the community garden
  - o *Response: The community garden is located on private property and the property owner will be compensated for the sale of the land to the WVDOH during the right-of-way acquisition process. Impacts to the community garden have been minimized to the extent practicable.*

- Prioritizing road repair, both locally and within the county, over improvements to the Greenbag Road (CR 857) corridor
  - *Response: Road repair beyond the scope of this project is being addressed through the Governor's Roads to Prosperity program and progress can be tracked via the WVDOH website.*
- The use of traffic signals at the intersections instead of roundabouts
  - *Response: The alternatives and intersection options determined to be evaluated were based on the outcome of the MMMPO's preliminary studies and findings. Changes to the existing traffic signal, without other improvements, were not considered. The use of traffic signals at the intersections instead of roundabouts was evaluated as part of the turn lane options. See Option A at Mississippi Street (CR 857/1) and Options D and E at Dorsey Avenue/Kingwood Pike (CR 81) for the assessment of impacts to these options.*
- Concerns related to the detour route, including length and conditions of the roadways to be used
  - *Response: The detour presented in the April 2019 meeting was preliminary and the final detour route will be examined and defined during the final design process. Existing road conditions will be considered as a factor when determining the detour routes.*
- Requests for an Environmental Impact Statement (EIS) or EA instead of a Categorical Exclusion (CE)
  - *Response: The environmental document for the project has been elevated from a CE to an EA by the FHWA. Based on the comments received during the first public comment period, FHWA has evaluated the project and determined that an EA is the appropriate level of documentation given the scope and details of the project. Per FHWA guidelines, the EA is a concise document that provides evidence and analysis for determining whether to prepare an EIS or a finding of no significant impact. The EA provides opportunity to describe and evaluate the impacts to social, cultural, natural, economic, and environmental resource factors. A second public meeting will be held to present the EA and allow additional time for review and comment by the public and agencies.*
- A desire to see additional alternatives presented

- *Response: The WVDOH has examined the no build alternative, two build alternatives, and three options for each of the major intersections. When considering all of the possible combinations of the two alternatives with the intersection options, there were 18 possible combinations examined.*

- Returning the Greenbag Road (CR 857) and Dorsey Ave/Kingwood Pike (CR 81) intersection to a 4-way stop
  - *Response: A 4-way stop was not considered at any study intersection within the Greenbag Road corridor. The MMMPO had completed several previous studies evaluating various transportation plans for the Greenbag Road corridor, with the ultimate vision of transforming Greenbag Road into a safe, efficient, and attractive multimodal transportation facility. The scenarios determined to be evaluated in the traffic study evolved from the outcome of the MMMPO's preliminary studies and findings. Existing two-way stop controlled operations with potential roadway improvements were evaluated as part of the traffic, as well as traffic signal and roundabout options.*

Moreover, community members familiar with the community garden indicated that an eagle had been spotted in the area and inquired about an eagle nest survey.

Following the meeting, a public meeting summary report was compiled which included the materials presented to the public, a summary of the comments expressed, and a table of all comments submitted. A copy of the public involvement summary report is included as **Appendix A**.

Due to the comments received during the first public comment period, the NEPA documentation level has been elevated from a CE to an EA.

A second public meeting is planned for 2020 to update the public with the proposed design, to answer any questions, and listen to and consider all comments. The second public meeting is a NEPA requirement to present the EA to the public for comment.

WHAT IS THE PURPOSE AND NEED FOR THIS PROJECT?

The purpose of the Project is to provide operational improvements along Greenbag Road (CR 857) to reduce congestion and address the lack of safe *non-motorized connections* along the corridor.

Greenbag Road (CR 857) is classified as a minor arterial road that provides a convenient route to connect the eastern and southern neighborhoods of the Morgantown area. The Project is needed to ensure safe and efficient transportation access for motorized and non-motorized use of the corridor.

Traffic Congestion

Traffic congestion in the Greenbag Road (CR 857) corridor has been investigated and documented in two different reports. The preliminary study was completed by the MMMPO and documented in the *Greenbag Road Corridor Study* (2015). The WVDOH developed a project based on recommendations from this study as part of the Roads to Prosperity program. The WVDOH directed Stahl Sheaffer Engineering to develop designs for the Project which included a traffic study titled *Greenbag Road (CR857) Preliminary Investigation and Engineering Traffic Study* (2019a). Both the MMMPO corridor study and the traffic study determined that traffic flow through the Greenbag Road (CR 857) corridor is controlled by the *level of service (LOS)* at the major intersections in the corridor. These major intersections include the Mississippi Street (CR 857/1) intersection (**Image 2**) and the Dorsey Avenue/Kingwood Pike (CR 81) intersection (**Image 3**).

Image 2: Intersection of Greenbag Road with Mississippi Street

Image 3: Intersection of Greenbag Road with Dorsey Ave / Kingwood Pike

With one exception, the current traffic conditions operate at *LOS* D, which is considered acceptable; however, expected growth in the region will negatively impact the flow of traffic and degrade the *LOS* at both intersections to *LOS* F. The traffic congestion at the major intersections will continue to extend farther back until impacting the surrounding intersections at M Tec Drive, Bluegrass Village Driveway, and Luckey Lane (CR 81/6). The exception to the current *LOS* is for the southbound traffic on

Mississippi Street (CR 857/1) as it approaches Greenbag Road (CR 857), which is already at an *LOS* F during weekday morning hours.

Non-Motorized Connections

Numerous neighborhoods and facilities, including the Mountaineer Mall, Giant Eagle, the Mon Tech Education Center, White Park, Dorsey's Knob Park, Bluegrass Village, South Middle School, and Mountainview Elementary School, are located close to the Greenbag Road (CR 857) corridor and do not currently have safe connections for non-motorized travel (**Image 4**). Community involvement in the development of the MMMPO Corridor study report identified pedestrian facilities to connect the neighborhood schools with the commercial and residential areas as a key issue for community safety and access.

Image 4: Greenbag Road Showing Lack of Safe Pedestrian Facilities

IS THE PROJECT CONSISTENT WITH AREAWIDE PLANS?

The Project falls within the jurisdiction of several area wide plans. These plans consider long-term transportation system planning needs, environmental and community resources, revenue, and expenditures. These include:

- West Virginia Multi-Modal Statewide Transportation Plan (WVDOH 2010);
- Statewide Transportation Improvement Program (STIP) 2020-2025 (WVDOH 2019b);
- 2017-2045 Metropolitan Transportation Plan Update (MMMPO 2017); and
- City of Morgantown Comprehensive Plan (City of Morgantown 2013).

The Project is consistent with the *West Virginia Multi-Modal Statewide Transportation Plan* (WVDOH 2010). This Plan is the principal long term planning document for West Virginia that evaluated the need for a safe, efficient, and effective transportation system across multiple forms of transportation. The Plan uses a number of planning tools, including *SAFETEA-LU* that considers, among other factors, the increased safety of the transportation system for non-motorized users, as well as the promotion of efficient system connectivity across and between modes of transportation. Moreover, capacity improvements targeting congestion are one of three improvement categories identified in the Plan by the Highway Economic Requirements System – State Version (HERS-ST) model (WVDOH 2010:4-2).

The Project is included in the *Statewide Transportation Improvement Program* (STIP) 2020-2025. The STIP is a federally required document that provides the FHWA and Federal Transit Administration (FTA) a listing of all projects that are candidates for federal-aid or regionally significant projects that are not using federal aid. This capital improvement plan covers a six-year period that incorporates a wide variety of project types including roadway, bridge, bicycle, pedestrian, safety and transit (WVDOH 2019).

Regional studies provided by the MMMPO for the County include the *2017-2045 Metropolitan Transportation Plan Update* (2017). This long range plan establishes strategies for transportation infrastructure investment in the Morgantown area and is compiled by the MMMPO with input from local officials and community involvement. The goals and objectives of the Plan include, among others, creating a transportation system that efficiently and safely moves people and goods by eliminating and/or reducing congestion (MMMPO 2017:7). In addition, the community concerns identified the improvement of traffic flow as the highest priority with sidewalks/crosswalks and bicycle facilities were also identified as a priority.

At the local level, the Project is consistent with the *City of Morgantown Comprehensive Plan* (City of Morgantown 2013). The comprehensive plan was initiated by the City when it reached out to surrounding jurisdictions and government entities to pursue a combined planning effort. The City developed a unified regional vision in collaboration with the MMMPO and Town of Star City to coordinate land use and transportation planning. Included within the Plan's outline was addressing strategies to alleviate traffic congestion, and promote walking, biking, and other transportation alternatives (City of Morgantown 2013:5).

WHAT ALTERNATIVES WERE CONSIDERED?

Two Project *alternatives* (**Alternative 1** and **Alternative 2**) were developed along the proposed corridor, in addition to the **No Build Alternative**. Additionally, there are three possible intersection *options* at each of the two major intersections within the Project. The preferred alternative identified during the course of this environmental assessment utilizes Alternative 2 and intersection options C and F. The basis for this recommendation can be found in the remainder of this document and attached appendices.

In coordination with the WVDOH, a study area was developed to evaluate and compare Alternatives 1 and 2, as well as their potential impacts to any environmental, cultural, community, and *Section 4(f)* resources within the delineated area.

The study area encompassed the potential limits of disturbance for all of the *alternatives* considered (see Environmental Features map on **Figure 12** in the “What are the Potential Impacts of the Project” section).

The *Greenbag Road Corridor Study* (MMMPO 2015) and the *Greenbag Road (CR857) Preliminary Investigation and Engineering Traffic Study* (Stahl Sheaffer Engineering 2019a) both demonstrated that the traffic flow through the corridor is controlled by the *LOS* at the major intersections located at Mississippi Street (CR 857/1) and Dorsey Avenue/Kingwood Pike (CR 81) (**Table 1**). Therefore, the study area also evaluated the potential impacts of the Intersection *Options* at each of the two major intersections. **Intersection Option A**, **Option B**, and **Option C** were considered at the Mississippi Street (CR 857/1) intersection. **Intersection Option D**, **Option E**, and **Option F** were considered at the Dorsey Avenue/Kingwood Pike (CR 81) intersection. Again, the study area evaluated the potential Project impacts of each *option* to any environmental, cultural, community, and *Section 4(f)* resources.

Before comparing the *alternatives* and their potential impacts, several design features are consistent in both *Build Alternatives* and *Options*. These design features do not change between *Alternatives* or *Options*, and they are as follows:

- Mississippi Street (CR 857/1) will incorporate two 11-foot travel lanes with 2-foot shoulders on both sides.
- Dorsey Avenue (CR 81) will incorporate two 11-foot travel lanes with *curb and gutter* on both sides and a 5-foot concrete sidewalk.
- Kingwood Pike (CR 81) will incorporate two 11-foot travel lanes with 2-foot shoulders on both sides.
- The east end of Luckey Lane (CR 81/6) will incorporate two 8-foot travel lanes with *curb and gutter* on both sides. The west end of Luckey Lane (CR 81/6) will include a 10-foot travel lane and a 12-foot travel lane with *curb and gutter* on both sides. A 5-foot concrete sidewalk will extend from Dorsey Avenue (CR 81) along Luckey Lane (CR 81/6) to connect with the sidewalk at Mountainview Elementary School.
- From the west end of the Project to the intersection at Mississippi Street (CR 857/1), the Greenbag Road (CR 857) roadway will be improved to incorporate two 11-foot-wide travel lanes, a 12-foot-wide center turn lane, and *curb and gutter*.
- The Greenbag Road (CR 857) roadway between the Mississippi Street (CR 857/1) and Dorsey Avenue/Kingwood Pike (CR 81) intersections will be improved to have a 4-foot paved shoulder on the south side, and 3-foot paved shoulder with a 2-foot *curb and gutter* and a 5-foot concrete sidewalk will be located on the north side. The shoulder widths are sufficient to be shared with bikes.

- The area east of Jonathan Lane on Greenbag Road (CR 857) will be re-paved and undersized stormwater drainage ditches will be expanded to accommodate increased run-off. These improvements will be made for the section of Greenbag Road (CR 857) between Jonathan Lane and the crossing of Aaron Creek.

No-Build Alternative

No work will occur on the roadway. The No-Build Alternative is included in the analysis to provide a baseline for the comparison of impacts during the NEPA process.

Alternative 1

Under Alternative 1 (**Figure 2**), the Greenbag Road (CR 857) roadway will be improved to incorporate two 11-foot-wide travel lanes and a 12-foot-wide continuous shared center turn lane between the Mississippi Street (CR 857/1) and Dorsey Avenue/Kingwood Pike (CR 81) intersections. Some small sections of right-of-way will be needed along the corridor in order to construct and maintain the widened roadway.

Alternative 2

Under Alternative 2 (**Figure 3**), the Greenbag Road (CR 857) roadway between the Mississippi Street (CR 857/1) and Dorsey Avenue/Kingwood Pike (CR 81) intersections, Greenbag Road (CR 857) will be improved to two 12-foot-wide travel lanes. Eastbound access will be provided to Bluegrass Village via a 12-foot-wide center left turn lane. Some small sections of right-of-way will be needed along the corridor in order to construct and maintain the widened roadway.

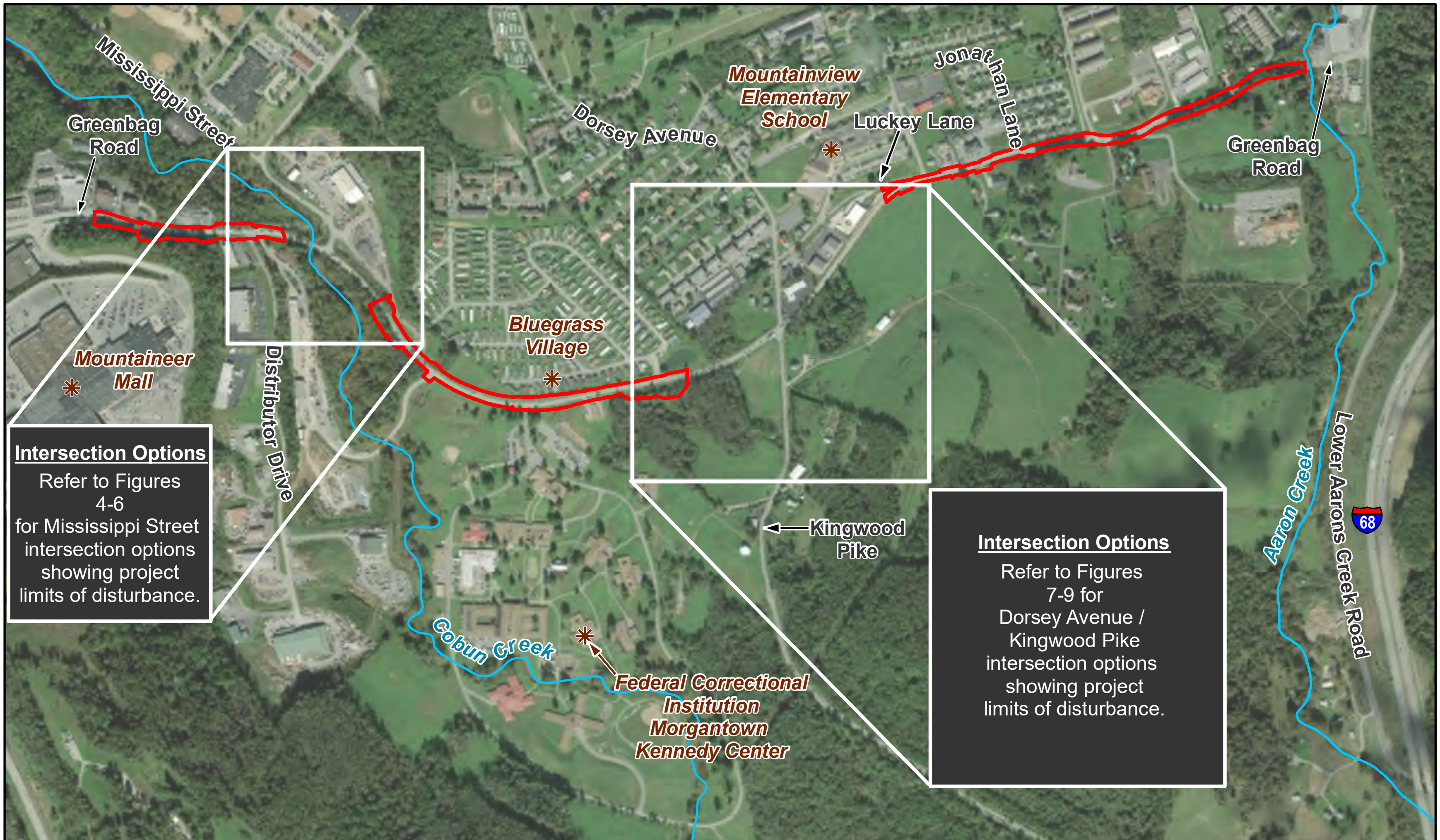


Figure 2
Alternative 1 Limits of Disturbance

West Virginia Division of Highways
Federal Project STP-0857(019)D/State Project U331-857-0.67 00
Greenbag Road Improvement

Data Sources: ESRI (2018), USGS (2017)

Limits of Disturbance
Point of Interest
Stream

0 500 1,000 2,000 Feet

N

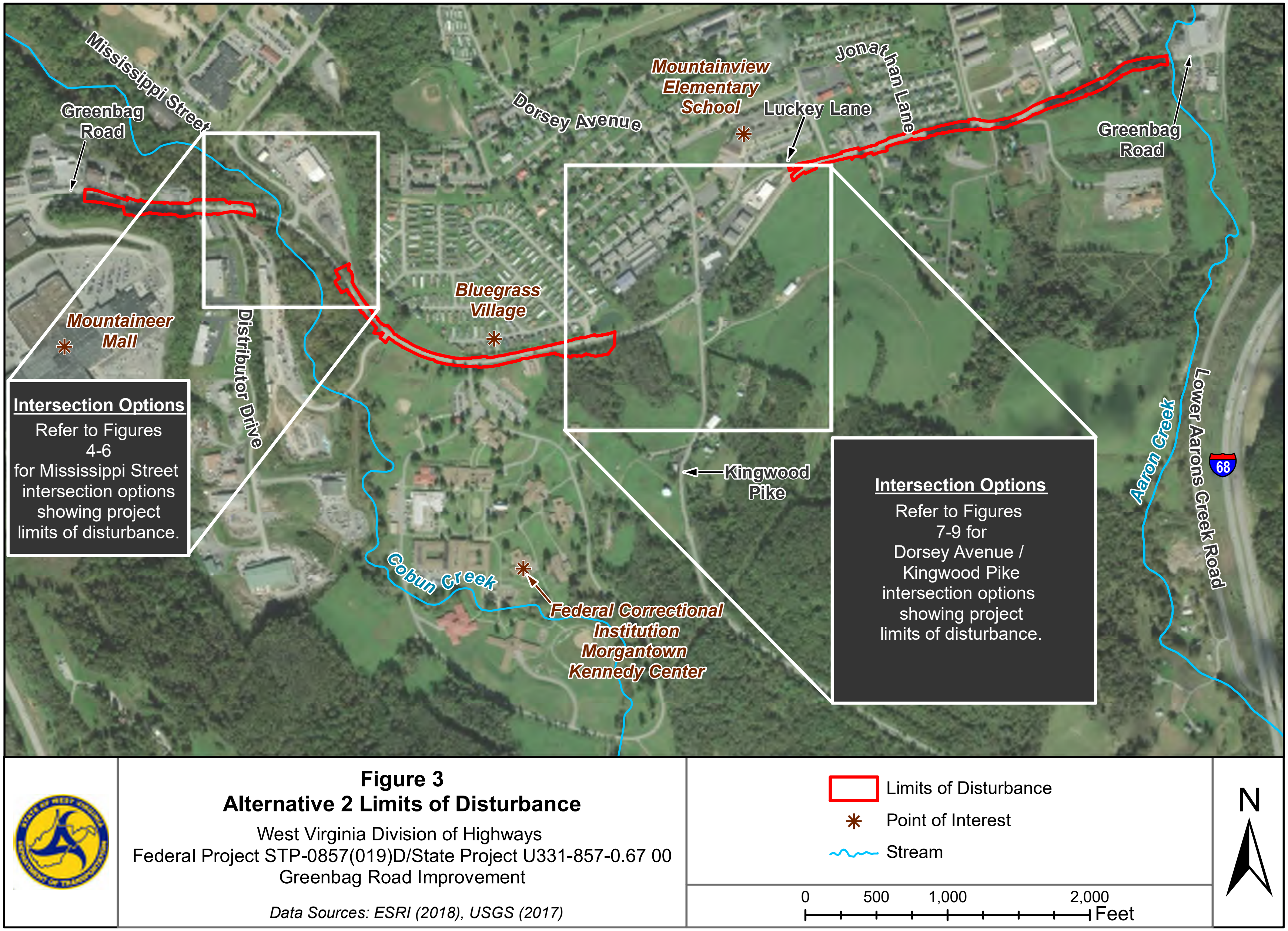


Figure 3
Alternative 2 Limits of Disturbance

West Virginia Division of Highways
Federal Project STP-0857(019)D/State Project U331-857-0.67 00
Greenbag Road Improvement

Data Sources: ESRI (2018), USGS (2017)

Intersection Option A – Mississippi Street (CR 857/1)

Option A, located at the Mississippi Street (CR 857/1) intersection, includes the installation of a 3-phased traffic signal, with a *protected* left turn phase for eastbound traffic, a *permissive* eastbound/westbound phase, and a *protected* southbound phase (**Figure 4**). *LOS* for this option is B in the morning and A in the afternoon.

- The eastbound Greenbag Road (CR 857) approach provides 2 lanes: an exclusive left turn lane, and an exclusive through lane.
- The westbound Greenbag Road (CR 857) approach provides 2 lanes: an exclusive right turn lane and an exclusive through lane.
- The southbound Mississippi Street (CR 857/1) approach provides 2 lanes: an exclusive left turn lane and an exclusive right turn lane.

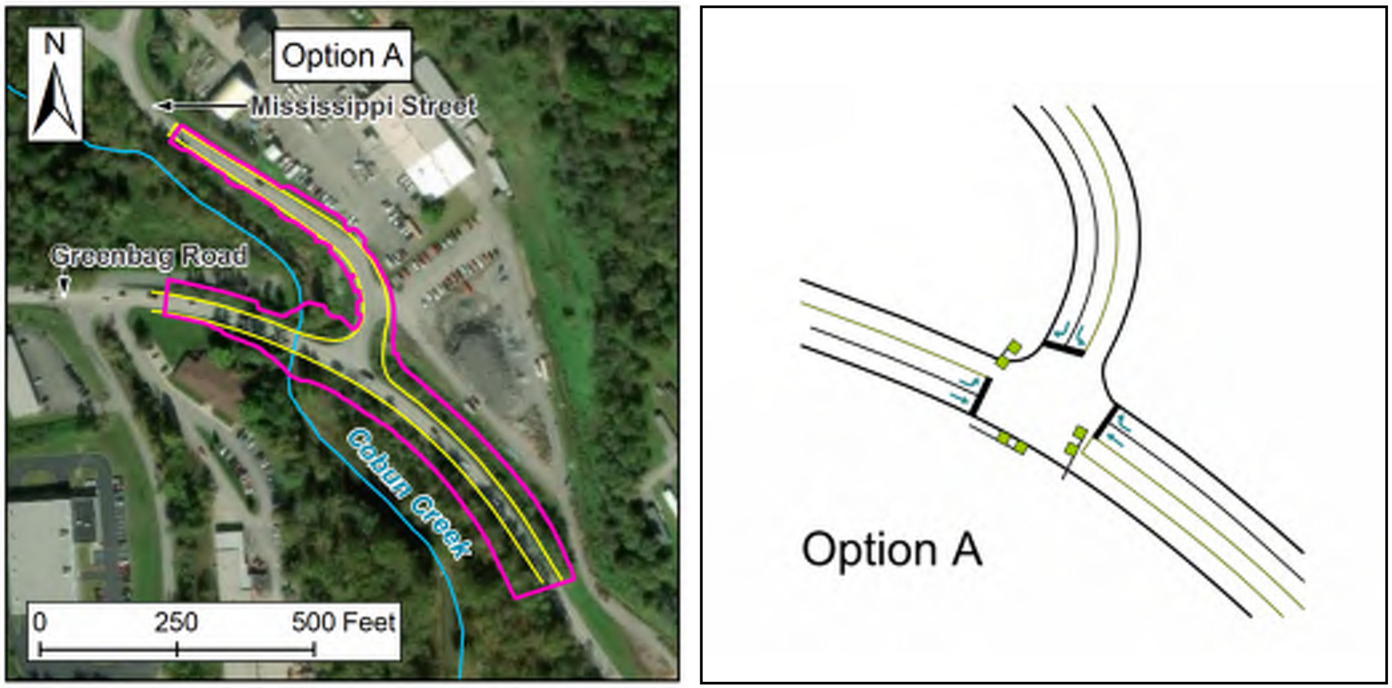
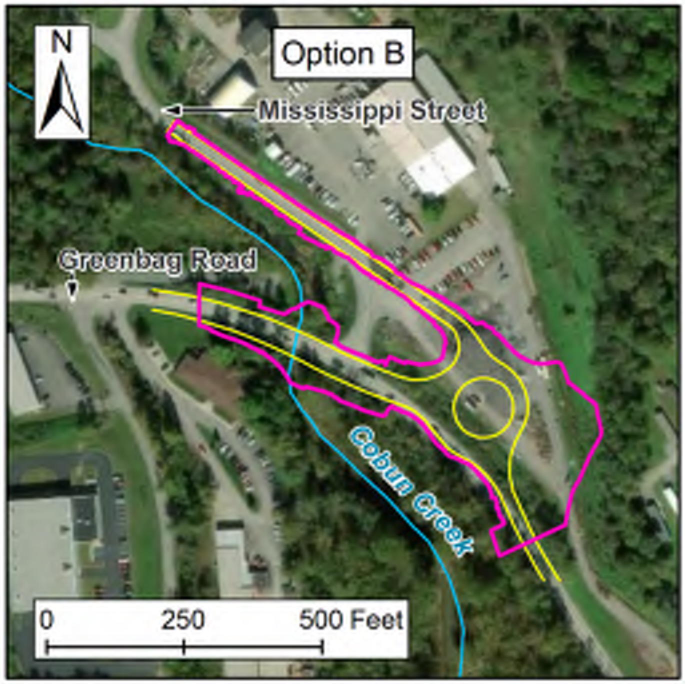


Figure 4: Mississippi Street Intersection Option A Showing Project Limits of Disturbance and Schematic of Traffic Movements

Intersection Option B – Mississippi Street (CR 857/1)

Option B, located at the Mississippi Street (CR 857/1) intersection, includes the construction of a roundabout that provides one circulating lane on the northern portion and two circulating lanes on the southern portion (**Figure 5**). *LOS* for this option is B in the morning and A in the afternoon.

- The eastbound Greenbag Road (CR 857) approach provides an exclusive left turn lane and an exclusive through lane.
- The westbound Greenbag Road (CR 857) approach and southbound Mississippi Street (CR 857/1) approach each provide a single lane for all movements.



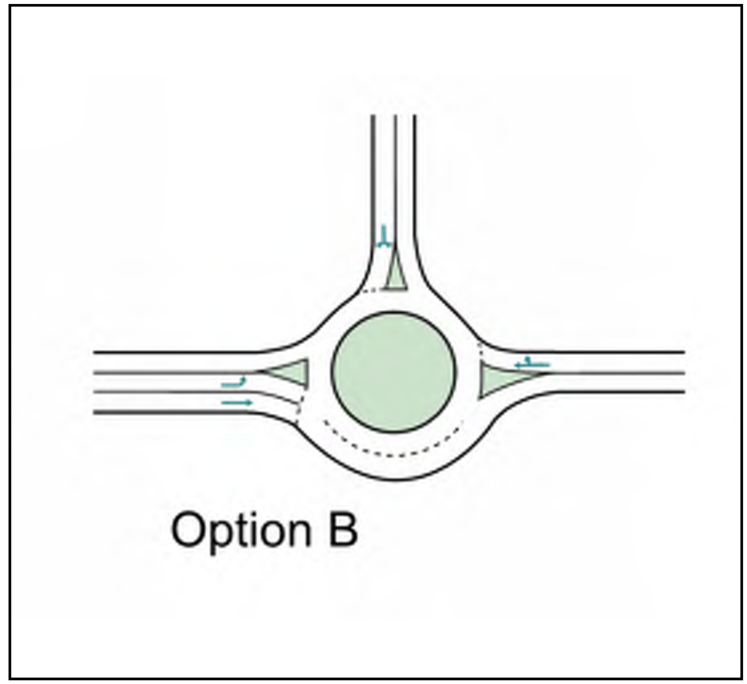
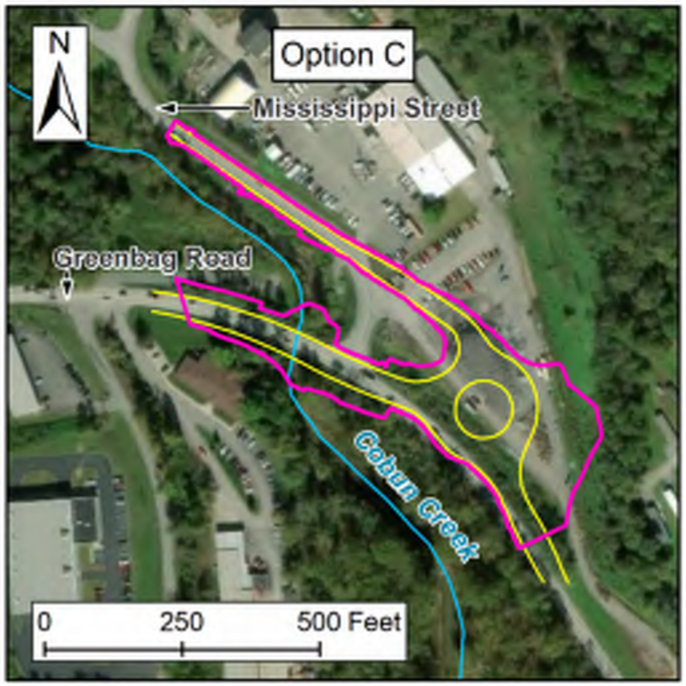


Figure 5: Mississippi Street Intersection Option B Showing Project Limits of Disturbance and Schematic of Traffic Movements

Intersection Option C – Mississippi Street (CR 857/1)

Option C, located at the Mississippi Street (CR 857/1) intersection, includes the construction of a roundabout that provides one circulating lane on the northern portion and two circulating lanes on the southern portion. The roundabout is designed to provide a *truck apron* (**Figure 6**). *LOS* for this option is A in both the morning and the afternoon.

- The eastbound Greenbag Road (CR 857) approach provides exclusive left turn and through lanes.
- The westbound Greenbag Road (CR 857) approach provides two lanes: an exclusive through lane and an exclusive right turn by-pass lane. The exclusive right turn by-pass lane does not enter the roundabout and has a yield controlled right turn lane at its intersection with Mississippi Street (CR 857/1).
- The southbound Mississippi Street (CR 857/1) approach provides one lane for the shared left turn/through movement.



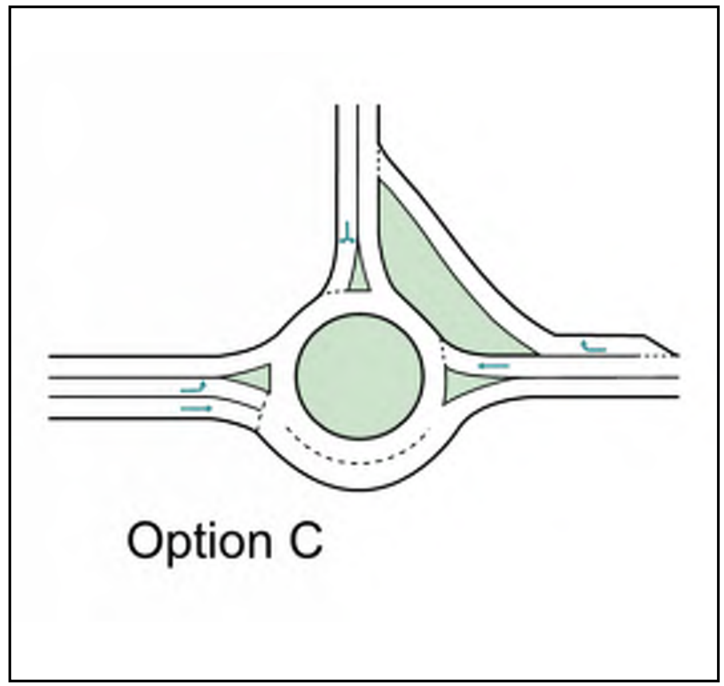


Figure 6: Mississippi Street Intersection Option C Showing Project Limits of Disturbance and Schematic of Traffic Movements

Intersection Option D – Dorsey Avenue / Kingwood Pike (CR 81)

Option D, located at the Dorsey Avenue/Kingwood Pike (CR 81) intersection, includes the installation of a 4-*phased traffic signal*, with an exclusive left turn lane and a shared through/right turn lane on all approaches (**Figure 7**). *LOS* for this option is C in the morning and E in the afternoon.

- Eastbound/westbound *protected* left turn phase
- Eastbound/westbound *permissive* turn phase with corresponding through traffic
- Northbound/southbound *protected* left turn phase
- Northbound/southbound *permissive* turn phase with corresponding through traffic

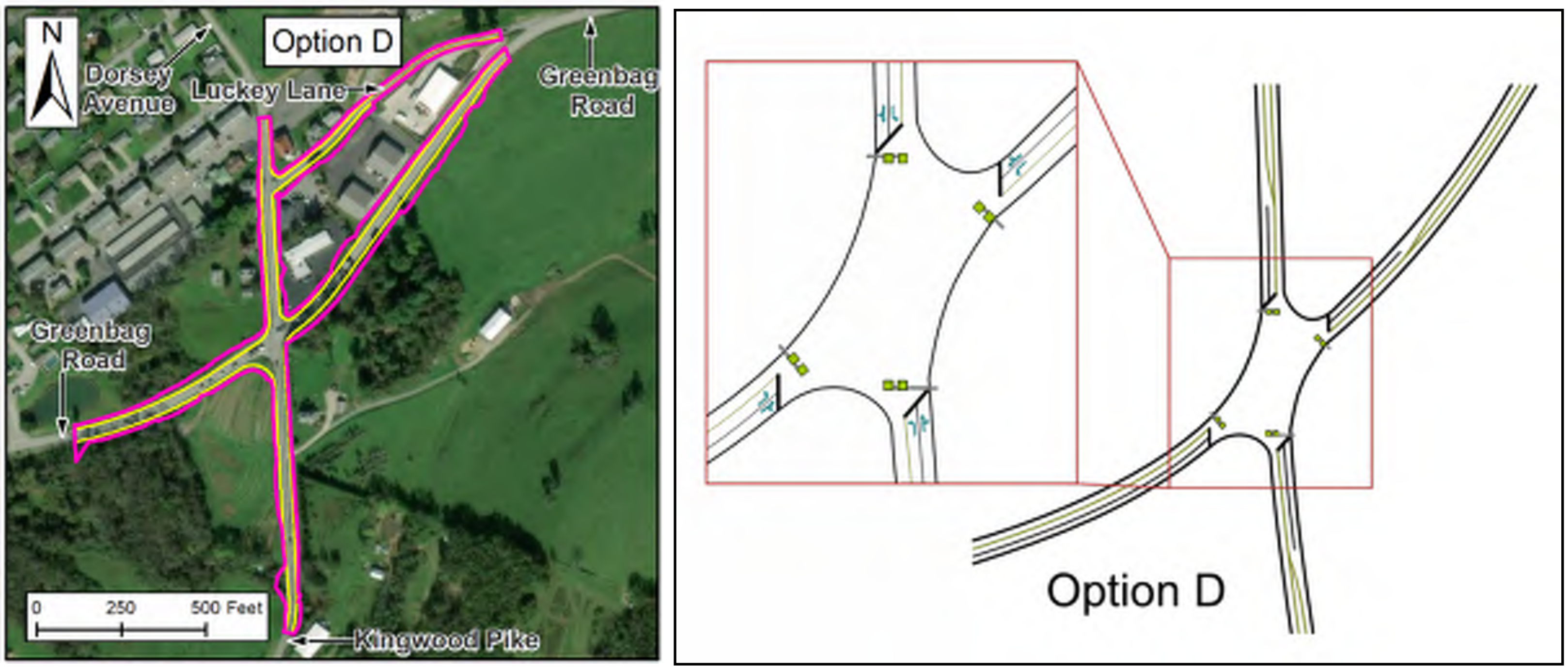


Figure 7: Dorsey Avenue / Kingwood Pike Intersection Option D Showing Project Limits of Disturbance and Schematic of Traffic Movement

Intersection Option E – Dorsey Avenue / Kingwood Pike (CR 81)

Option E, located at the Dorsey Avenue/Kingwood Pike (CR 81) intersection, includes the installation of a 4-*phased traffic signal*, with an exclusive left turn lane, an exclusive through lane, and an exclusive right turn lane on all approaches (**Figure 8**). *LOS* for this option is C in both the morning and the afternoon.

- Eastbound/westbound *protected* left turn phase
- Eastbound/westbound *permissive* turn phase with corresponding through traffic
- Northbound/southbound *protected* left turn phase
- Northbound/southbound *permissive* turn phase with corresponding through traffic

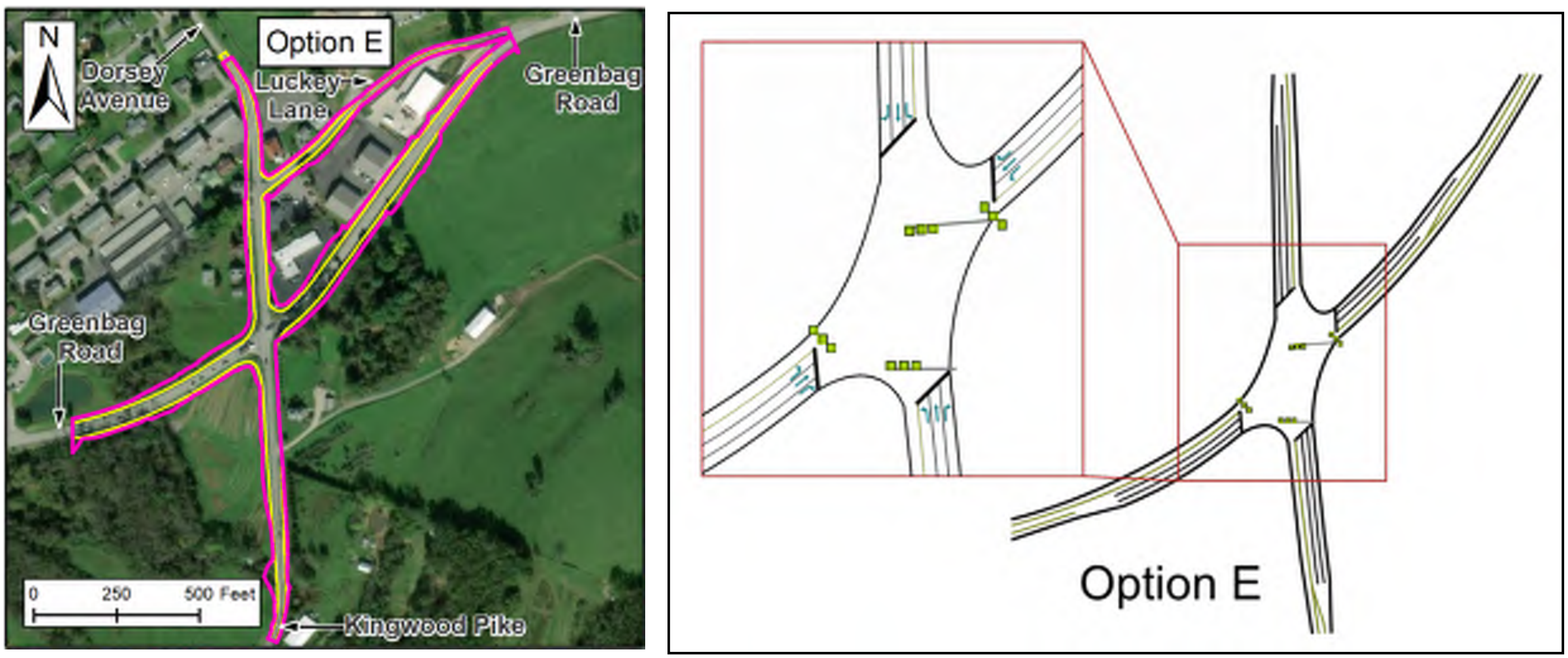
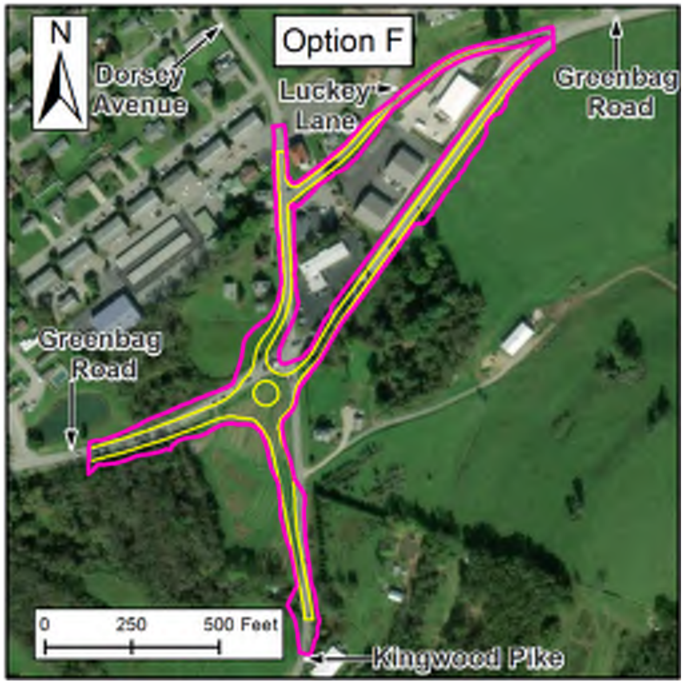


Figure 8: Dorsey Avenue / Kingwood Pike Intersection Option E Showing Project Limits of Disturbance and Schematic of Traffic Movement

Intersection Option F – Dorsey Avenue / Kingwood Pike (CR 81)

Option F, located at the Dorsey Avenue/Kingwood Pike (CR 81) intersection, includes the construction of a roundabout that provides one circulating lane on the northern portion and two circulating lanes on the southern portion. The roundabout is designed to provide a *truck apron* (**Figure 9**). *LOS* for this option is B in the morning and C in the afternoon.

- ❖ The northbound Kingwood Pike (CR 81) provides a single lane approach for all movements.
- ❖ The southbound Dorsey Avenue (CR 81) provides a single lane approach for all movements.
- ❖ The westbound Greenbag Road (CR 857) provides a single lane approach for all movements.
- ❖ The eastbound Greenbag Road (CR 857) approach provides two lanes, an exclusive left turn lane and a shared through/right turn lane.



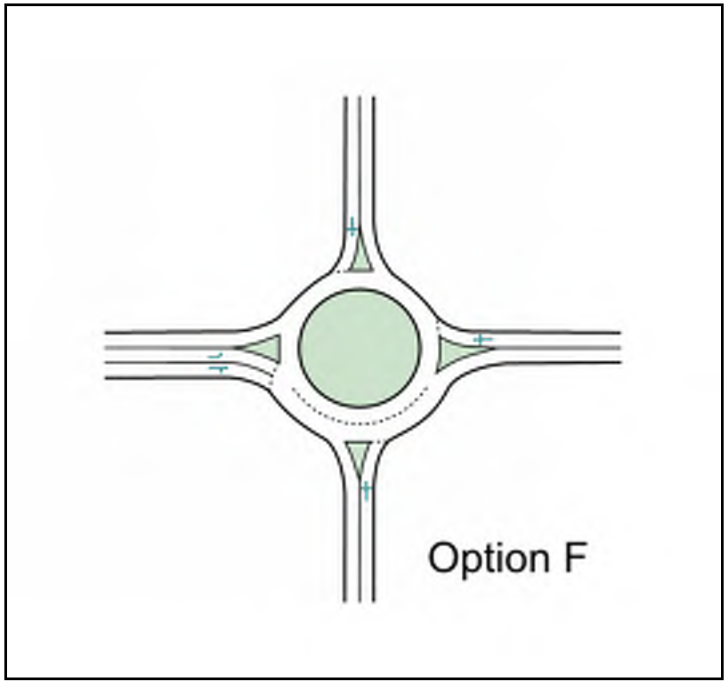


Figure 9: Dorsey Avenue / Kingwood Pike Intersection Option F Showing Project Limits of Disturbance and Schematic of Traffic Movement

*Table 1: Comparison of LOS Results from 2018 Traffic Study**

	2018 Conditions		Design Year 2048							
	Mississippi Street	Dorsey Ave / Kingwood Pike	Mississippi Street Intersection Options			Dorsey Ave Intersection Options			No Build	
			A	B	C	D	E	F	Mississippi Street	Dorsey Ave / Kingwood Pike
Level of Service - morning	*C*	*C*	A	B	A	C	C	B	F	C
Level of Service - afternoon	*A*	*C*	B	A	A	E	C	C	D	F

**Stahl Sheaffer Engineering 2019a*

Typical sections showing the design for the Project are included below in **Figure 10**.

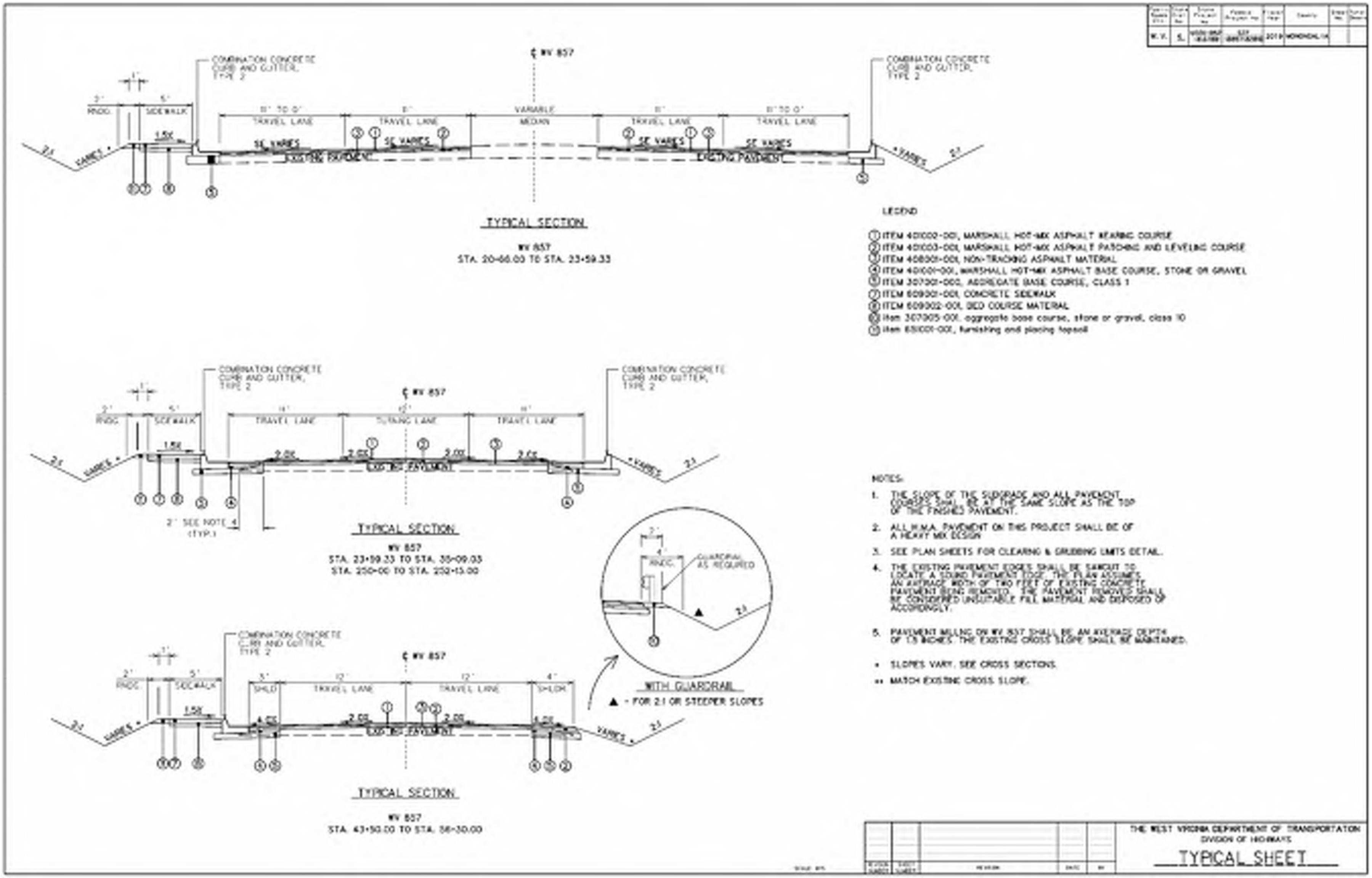


Figure 10: Typical Sections

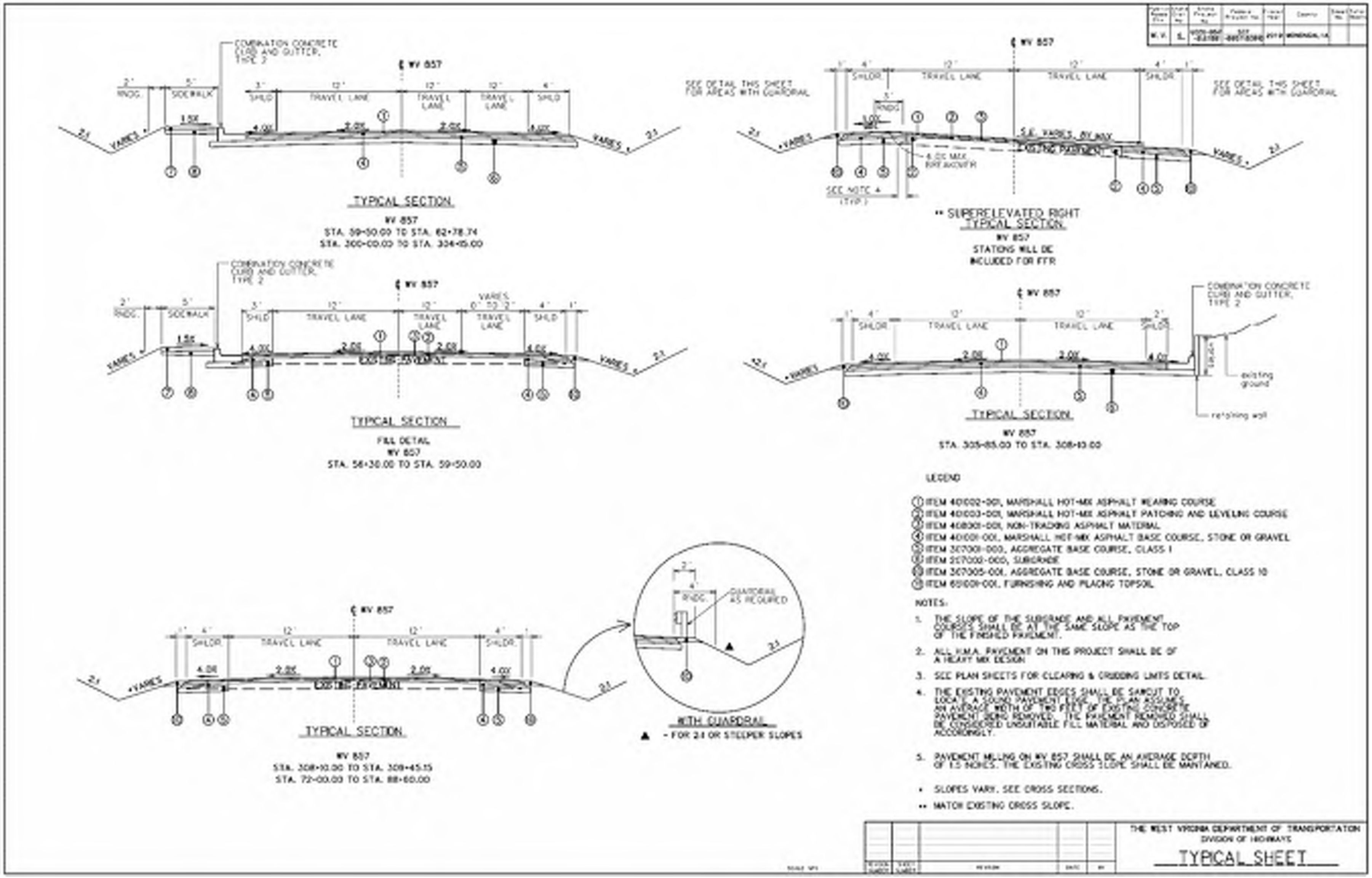


Figure 10: Typical Sections (continued)

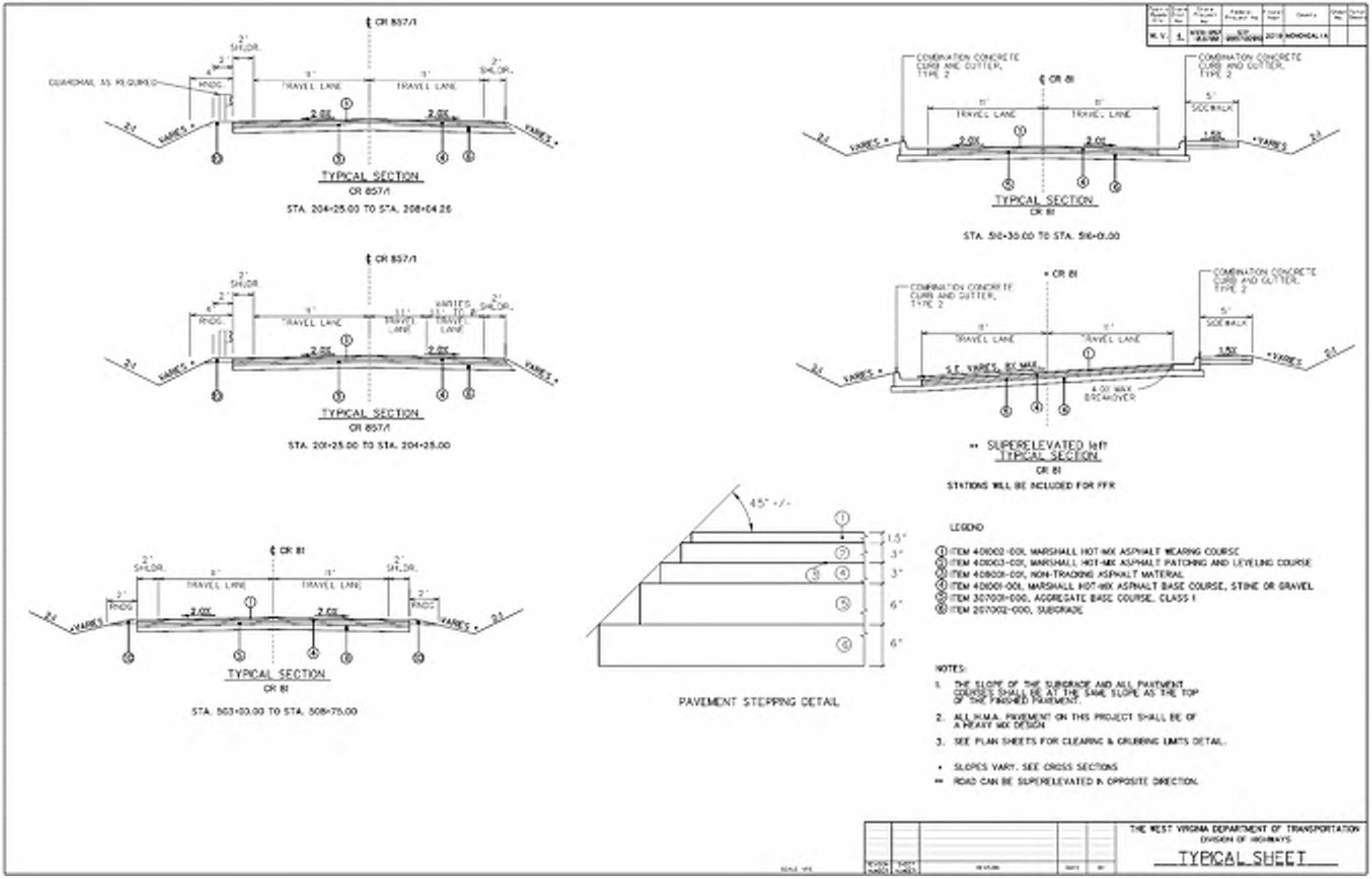


Figure 10: Typical Sections (continued)

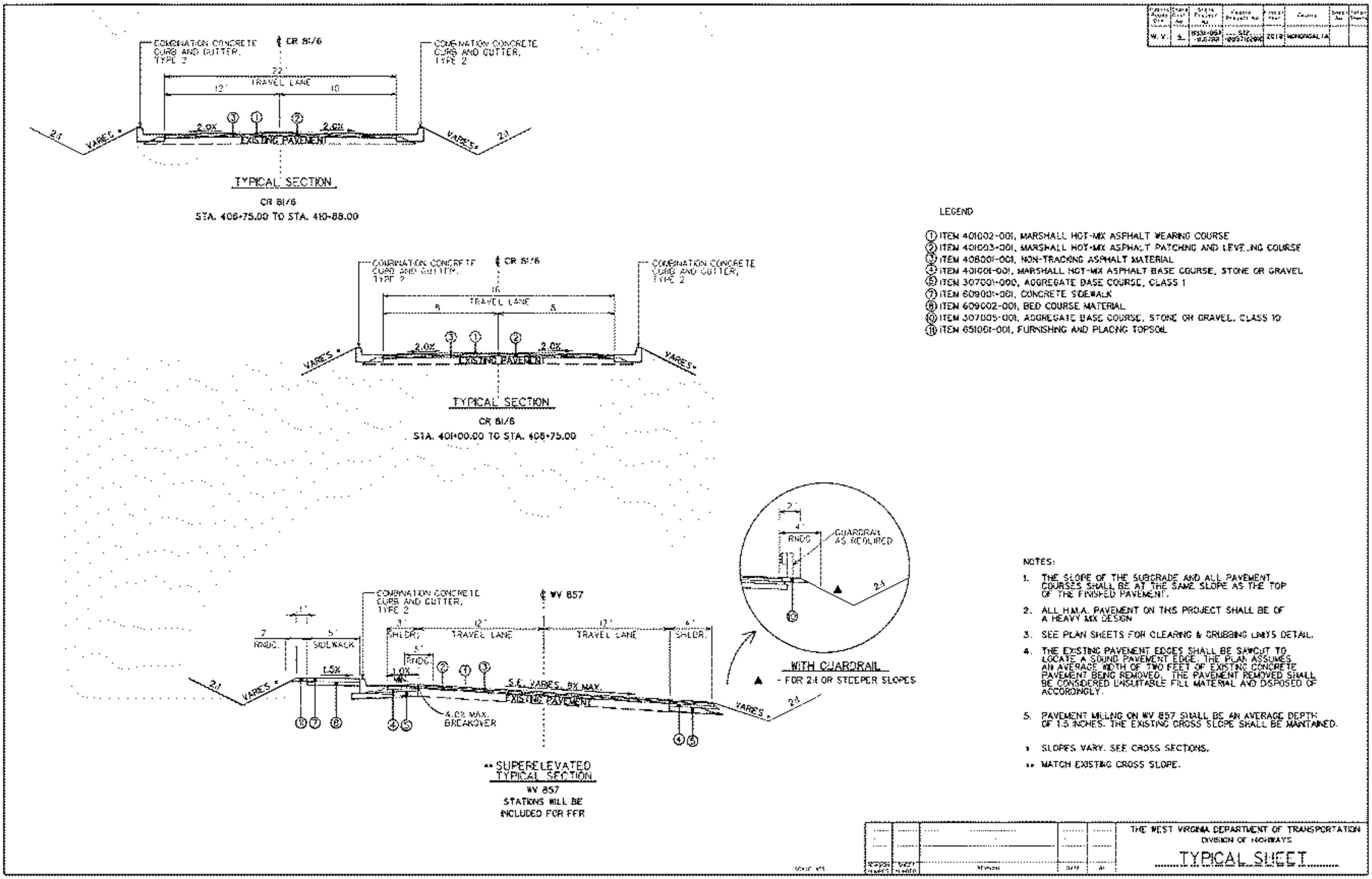


Figure 10: Typical Sections (continued)

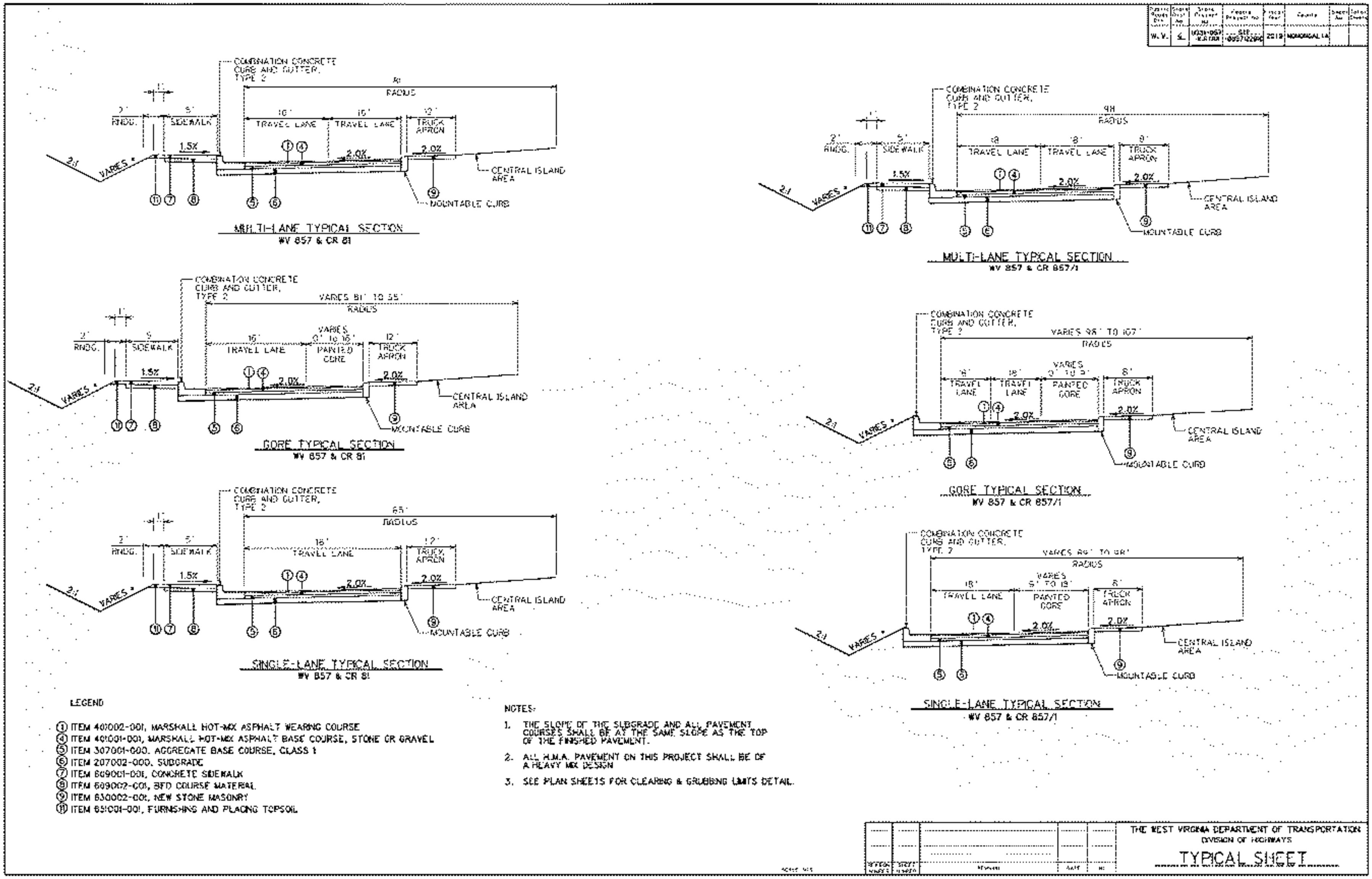


Figure 10: Typical Sections (continued)

WHAT ARE THE POTENTIAL IMPACTS OF THE PROJECT?

Environmental Justice

Executive Order 12898 (Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations) was signed on February 11, 1994. This Executive Order was established to protect minority and low-income populations (also referred to as *EJ populations*) from experiencing disproportionately high and adverse impacts resulting from federally funded projects. It requires agencies to identify and address high and adverse impacts of projects that would disproportionately affect minority or low-income populations.

While Executive Order 12898 prohibits discriminatory actions against minority and low-income populations, additional consideration must be given for the elderly, children, disabled, and other populations protected under *Title VI* of the Civil Rights Act of 1964 and related statutes when evaluating the potential for discriminatory impacts of a proposed action.

If disproportionately high and adverse impacts are expected, the proposed Project cannot be completed unless it can be proven that there is a substantial need for the Project; that avoidance and mitigation of the impacts is not practicable, or will have increased high and adverse social, economic, environmental, or human health impacts that are more severe; or there are increased costs of extraordinary magnitude.

The United States Census Bureau (USCB) is the federal agency responsible for collecting national demographic and socioeconomic data, which can be summarized at different geographic scales to reveal information about an area's people and economy. The USCB defines a *census tract* (CT) as a small, relatively permanent statistical subdivision of a county delineated by a local committee of census data users for the purpose of presenting data. *Census tracts* nest within counties, and their boundaries normally follow visible features, but may follow legal geography boundaries and other non-visible features in some instances. *Census tracts* ideally contain about 4,000 people and 1,600 housing units (USCB 2019a). A *block group* (BG) is a statistical subdivision of a census tract and is the smallest geographic unit for which the USCB tabulates sample data. *Block groups* are generally defined to contain between 600 and 3,000 people and 240 and 1,200 housing units (USCB 2019a). Since census tracts are comprised of numerous block groups, block groups are typically identified by both their census tract and block group identifiers.

Block groups that fall within 0.5 miles of the Project were used to define an environmental justice (EJ) study area to evaluate the presence of, and potential impacts to, *EJ populations* in the vicinity of the Project (**Figure 11**). The EJ study area comprises CT 109.02, BGs 2, 3, and 4, CT 110, BG 1, 2, and 3, and CT 118.03, BG3.

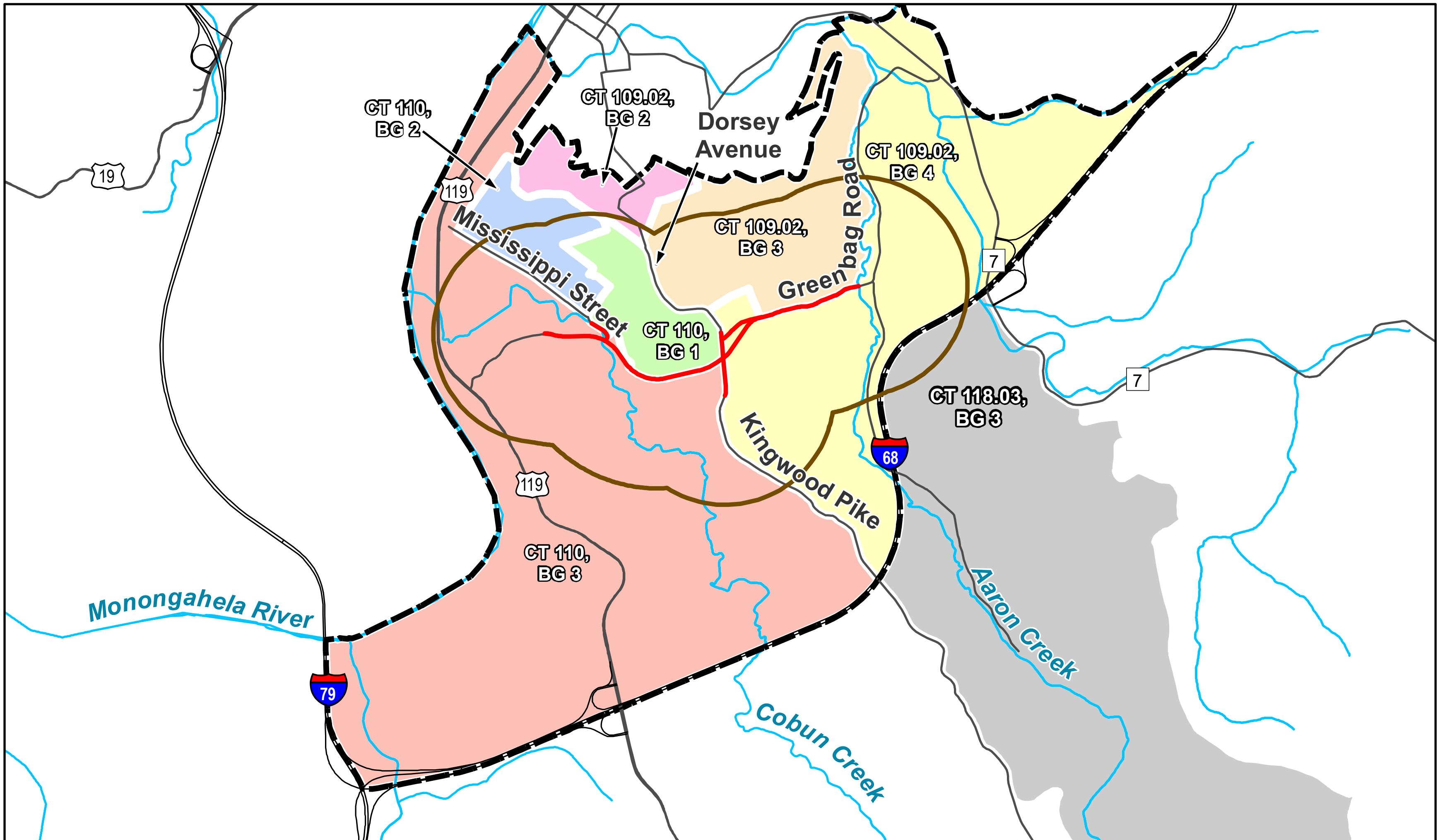


Figure 11
Environmental Justice Study Area
West Virginia Division of Highways
Federal Project STP-0857(019)D/State Project U331-857-0.67 00
Greenbag Road Improvement

Data Sources: WVDOH (2019a), USGS (2017), USCB (2019b)

Project Alignment
Road
River / Stream / Creek
0.5-mile Buffer
Environmental Justice Study Area

Block Groups within 0.5 miles:
CT 109.02, BG 2
CT 110, BG 2
CT 109.02, BG 3
CT 110, BG 3
CT 109.02, BG 4
CT 118.03, BG 3
CT 110, BG 1

0 500 1,000 2,000 Feet

N

While CT 118, BG 3 overlaps with the EJ study area for the Project, only four individual parcels within this *block group*, all located east of I-68, are applicable. Based on a qualitative review of these parcels, two serve residential uses, while the other two are held by the same landowner and are agricultural in nature. No residences are apparent on these parcels within the EJ study area, though one potential residence may be located just outside of it on one of the agricultural use parcels. There is no indication that any are owned by, or serve as resources for, *EJ populations* or other populations protected under *Title VI* of the Civil Rights Act of 1964 and related statues. CT 118, BG 3 is also far removed from the Project, and the applicable residences are unlikely to experience any direct impacts as a result of the Project; therefore, this *block group* was excluded from the quantitative component of the EJ analysis.

As seen in **Figure 11**, only CT 110, BG 1 is entirely encompassed by the EJ study area, while the others only partially overlap with the 0.5-mile boundary.

The following section summarizes the demographic makeup of each *block group* within the EJ study area demonstrating notable minority populations when compared to the reference geographies of West Virginia, Monongalia County, and Morgantown. The specific population groups for which data was compiled and assessed are listed in **Table 2** (USCB 2017).

<u>Minority and Hispanic/Latino Populations</u>

Table 2 presents the minority and Hispanic/Latino populations within the *block groups* in the EJ study area.

Shaded values in **Table 2** identify categories with population percentages exceeding those demonstrated in the reference geographies (state, county, and city). **Figure 11** depicts the location of *block groups* with *EJ populations* in the vicinity of the Project. The EJ study area is predominantly Caucasian (81.8%) (USCB 2017).

As shown in **Table 2**, the proportions of Total Minority Populations and Non-Hispanic or Latino Minority Populations in the overall EJ study area, as well as in the following *block groups* (listed in descending order of percentage of total minority population), exceed those of the West Virginia, Monongalia County, and Morgantown reference geographies (those denoted with an asterisk indicate a share of Total Minority Populations in the *block group* also exceeding that of the overall EJ study area):

- CT 110, BG 3 (35.2% Total Minority, 28.3% Non-Hispanic or Latino Minority) *
- CT 110, BG 1 (22.5% Total Minority, 14.3% Non-Hispanic or Latino Minority) *
- CT 109.02, BG 4 (18.9% Total Minority, 17.0% Non-Hispanic or Latino Minority)

The overall EJ study area and four of the six *block groups* included in this EJ analysis demonstrated Total Hispanic or Latino populations exceeding those of the reference geographies. These include two of those listed above that also meet Total Minority thresholds, CT 110, BGs 1 and 3, as well as CT 110, BG 2 and CT 109.02, BG 3.

Findings from the census data analysis for each *block group* meeting thresholds for minority populations are detailed below. A *block group* was considered to include a notable population for a given category if the population percentage exceeded those demonstrated in West Virginia, Monongalia County, and Morgantown.

CT 110, BG3

CT 110, BG3 occupies the south side of Greenbag Road (CR 857), and is also bordered by the Monongahela River to the west, Kingwood Pike (CR 81) to the east, and I-68 to the south. Residents of this *block group* that reside within 0.5 miles of the Project are primarily located at the Federal Correctional Institution (FCI), though other residential areas exist within this *block group* and outside of the EJ study area as well. This *block group* demonstrates the highest percentage of total minorities compared to all the geographies included in this analysis, more than double that of Morgantown, approximately three times greater than that of Monongalia County, and four times greater than that of West Virginia. Similarly, the Non-Hispanic or Latino Minority population in this *block group* represents the greatest proportion compared to the other geographies, greater than those in any of the three reference geographies (West Virginia, Monongalia County, and Morgantown) and more than twice that of the overall EJ study area (USCB 2017). This *block group* demonstrates the most diverse population compared to the other *block groups*. It is comprised of greater percentages of all minority races illustrated in **Table 2**, with the exception of Asian Alone and Native Hawaiian and Other Pacific Islander Alone, compared to the three reference geographies. All of these races except for Native Hawaiian and Other Pacific Islander Alone are more represented in this *block group* than in the overall EJ study area (see **Table 2**).

CT 110, BG 1

CT 110, BG 1 is located just north of the Project, between Mississippi Street (CR 857/1) and Dorsey Avenue (CR 81). As previously noted, this is the only *block group* included in this analysis that is entirely encompassed by the EJ study area, and total minority, Hispanic or Latino, and non-Hispanic or Latino minority populations are all well represented in this *block group*. The highest representation of Two or More Races (12.7%) compared to all other geographies that were included in this analysis occurs in this *block group*.

CT 109.02, BG 4

CT 109.02, BG 4 is on both sides of Greenbag Road (CR 857), east of Dorsey Avenue/Kingwood Pike (CR 81). Land use includes residential, agricultural, and forested tracts, with other important resources in this *block group* including Mountainview Elementary School, Monongalia County Schools Office of Federal Programs, and two churches. As shown in **Table 2**, the percentage of minority population in this *block group* is approximately twice that of West Virginia, and well-exceeds those of Monongalia County and Morgantown as well. This *block group* also contains higher percentages of Black or African American Alone and Two or More Races compared to West Virginia, Monongalia County, and Morgantown.

Table 2: Greenbag Road Improvement Project Minority, Hispanic, or Latino Populations within the EJ Study Area

	West Virginia	Monongalia County	Morgantown	Study Area						
				Overall[1]	CT 109.02, BG 2	CT 109.02, BG 3	CT 109.02, BG 4	CT 110, BG 1	CT 110, BG 2	CT 110, BG 3
Total Population[2]	1,836,843	103,715	75,028	7,813	823	1,328	896	1,561	1,142	2,063
Total Non-Minority	1,687,570 91.9%	91,130 87.9%	63,700 84.9%	6,320 80.9%	766 93.1%	1,225 92.2%	727 81.1%	1,209 77.5%	1,056 92.5%	1,337 64.8%
Total Minority[3,4]	149,273 8.1%	12,585 12.1%	11,328 15.1%	1,493 19.1%	57 6.9%	103 7.8	169 18.9%	352 22.5%	86 7.5%	726 35.2%
Total Hispanic or Latino	27,021 1.5%	2,161 2.1%	1,908 2.5%	327 4.2%	0 0.0%	77 5.8%	17 1.9%	90 5.8%	36 3.2%	107 5.2%
Non-Hispanic or Latino Minority[5]	114,935 6.3%	9,947 9.6%	8,975 12.0%	1,092 14.0%	57 6.9%	26 2.0%	152 17.0%	224 14.3%	50 4.4%	583 28.3%
Black or African American Alone	65,300 3.6%	3,850 3.7%	3,355 4.5%	553 7.1%	0 0.0%	12 0.9%	62 6.9%	63 4.0%	12 1.1%	404 19.6%
American Indian and Alaskan Native Alone	3,322 0.2%	127 0.1%	75 0.1%	15 0.2%	7 0.9%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	8 0.4%
Asian Alone	14,096 0.8%	3,433 3.3%	3,386 4.5%	52 0.7%	10 1.2%	0 0.0%	0 0.0%	0 0.0%	25 2.2%	17 0.8%
Native Hawaiian and Other Pacific Islander Alone	541 0.0%	0 0.0%	0 0.0%	0 0%	0 0%	0 0%	0 0%	0 0%	0 0%	0 0%
Some Other Race	7,193 0.4%	604 0.6%	604 0.8%	18 0.2%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	18 0.9%
Two or More Races	31,800 1.7%	2,410 2.3%	2,000 2.7%	528 6.8%	40 4.9%	14 1.1%	90 10.0%	199 12.7%	13 1.1%	172 8.3%

Source: USCB 2017

[1] Combined values for Block Groups within the EJ Study Area.

[2] Total population comprises Total Non-Minority and Total Minority Populations.

[3] Minority is defined as all races/ethnicity groups except Non-Hispanic or Latino White alone.

[4] Total Minority is the Total Hispanic or Latino and Non-Hispanic or Latino Minority combined.

[5] Non-Hispanic or Latino Minority is defined as all Non-Hispanic or Latino races except for non-Hispanic or Latino White alone.

Low-income Populations

Table 3 lists low-income populations in *block groups* overlapping with the EJ study area. The proportion of the total population with incomes in the past 12 months below poverty level in the combined *block groups* within the study area boundary was 21%, which exceeds that of West Virginia but not those of the other two reference geographies (i.e., Monongalia County and Morgantown).

Transit resources, which low-income communities and populations with limited access to transportation likely rely on, are present within the EJ study area. Mountain Line Transit Authority operates four fixed bus routes, Route 4 (the Orange Line), 14 (the Brown Line - Mountain Heights), Route 15 (Grafton Road), and Route 50 (Don Knotts). Route 4 originates west of Westover and utilizes Greenbag Road (CR 857), Mississippi Street (CR 857/1), and Dorsey Avenue (CR 81). It includes a stop at the Monongalia County School complex along Mississippi Street (CR 857/1), three stops within Mountaineer Mall, and one stop on Dorsey Avenue (CR 81). Route 14 utilizes Greenbag Road (CR 857) and Kingwood Pike (CR 81) and includes one stop within Mountaineer Mall. Routes 15 and 50 follow US 119 and both include a stop at the Greenbag Road (CR 857) intersection with US 119.

In addition to the fixed bus routes operated by the Mountain Line Transit Authority, the Buckwheat Express shuttle, sponsored by Preston County Senior Citizens, Inc., includes a route that utilizes the Greenbag Road (CR 857) corridor to connect Kingwood, WV with Morgantown. The Buckwheat Express shuttle includes one stop at Mountaineer Mall. Other resources used by low-income populations including affordable housing, resources with programs targeted toward low-income populations, and commercial resources that adjacent neighborhoods may rely on, are detailed at the *block group* level, below.

CT 110, BG 1

CT 110, BG 1 was the only *block group* in the EJ study area demonstrating a higher percentage of low-income population compared to all three reference geographies (West Virginia, Monongalia County, and Morgantown), as shown in the shaded cell in Table 3. An estimated 40.6% of people in this *block group*, which represents the only geography entirely encompassed by the EJ study area, have incomes below the poverty level (**Table 3**; see **Figure 11**). This is roughly twice the poverty rates observed in the overall EJ study area, Monongalia County, and West Virginia (USCB 2013–2017).

Land use within CT 110, BG 1 primarily consists of single family and multifamily residential, with a forested tract that includes a greenway connecting residential areas with public school facilities and parks within and outside of the *block group*. Marjorie Gardens, located along Dorsey Lane, is a Section 8 subsidized affordable housing apartment complex that participates in the Low-Income Housing Tax Credit program. Also within this *block group* and just south of Marjorie

Gardens is Bluegrass Village, a manufactured housing development comprised of approximately 132 units. This development extends south from Marjorie Gardens to the Greenbag Road (CR 857) corridor. Though removed from the Greenbag Road (CR 857) corridor, another manufactured housing development comprised of 42 units is present within this *block group*, approximately 0.5 miles north of the Project along Dorsey Avenue (CR 81).

Table 3: Greenbag Road Improvement Project Low Income Populations

	Population for Whom Poverty Status is Determined	Income in Past 12 Months Below Poverty Level
West Virginia	1,784,004	317,089 17.8%
Monongalia County	97,382	20,763 21.3%
Morgantown	68,855	17,951 26.1%
Study Area[1]	6,970	1,464 21.0%
CT 109.02, BG 2	823	108 13.1%
CT 109.02, BG 3	1,328	55 4.1%
CT 109.02, BG 4	896	219 24.4%
CT 110, BG 1	1,545	627 40.6%
CT 110, BG 2	1,142	160 14.0%
CT 110, BG 3	1,236	295 23.9%

Source: USCB 2017
[1] Combined values for Block Groups within the study area boundary.

CT 109.02, BG 4 and CT 110, BG 3

The share of residents within CT 109.02, BG 4 and CT 110, BG 3 with incomes below the poverty level (23.9% and 24.4%, respectively) exceeded those of the overall EJ study area, as well as those of Monongalia County and West Virginia, but not Morgantown (see **Table 3**).

CT 110, BG 3 borders the Project and is relatively large, with most residents living well outside of the EJ study area. Most of the area within this *block group* in the vicinity of the Project serves commercial (e.g., Mountaineer Mall and a grocery store), business, and institutional (at the FCI) uses. Forested land, agricultural use, and a water supply reservoir are also present within the EJ study area. Several resources serving low-income communities are available within this *block group* and within the EJ study area:

- ❖ A gas station/convenience store is located just west of the US 119/Greenbag Road (CR 857) intersection. Gas stations/convenience stores can serve as important community resources for households with limited mobility.
- ❖ A Giant Eagle grocery store and pharmacy is located adjacent to the Mountaineer Mall complex.
- ❖ Mon Valley Habitat for Humanity, which serves Monongalia, Marion, and Preston counties, is located just north of the Greenbag Road (CR 857) corridor and near the western terminus of the Project.
- ❖ The FCI is located south of Greenbag Road (CR 857), adjacent to the Project. This facility offers re-employment services to former inmates.

Title VI Resources

In addition to the resources serving EJ populations discussed in the preceding sections, other resources for the elderly, children, women, and disabled populations protected under Title VI of the Civil Rights Act of 1964 and related statutes are present within the EJ study area:

- ❖ Two organizations within the Mountaineer Mall complex cater to elderly populations. Osher Lifelong Learning Institute is an educational organization affiliated with the West Virginia University School of Public Health. Senior Monongalians is a non-profit organization established to improve the quality of life for senior citizens.

- ❖ South Middle School, Pierpont Community & Technical College, and Monongalia County Technical Education Center are co-located together off Mississippi Street (CR 857/1).

- ❖ Dorsey Center, the Monongalia County Schools Office of Federal Programs, is located in the northeast quadrant of Greenbag Road/Dorsey Avenue/Kingwood Pike. Monongalia County Early Head Start is a federally-funded program, free to pregnant mothers and children ages three and under.

- Mountainview Elementary School, a Monongalia County school, occupies the northwest quadrant of Greenbag Road/Richard Avenue.
- Covenant Evangelical Methodist and Faith Baptist Church, both, located along Greenbag Road (CR 857) 0.5 miles east of the Project, include schools.
- Intensive Trauma Therapy, which serves mentally disabled populations, occupies the northeast quadrant of Greenbag Road/Richard Avenue.
- The previously mentioned Buckwheat Express shuttle service between Kingwood and Morgantown includes free ridership for the elderly.

Summary of Potential Impacts
Executive Order 12898 of February 11, 1994, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, requires that the Project be assessed to determine whether or not it will have a disproportionately high impact on minority or low-income populations within the area. The WVDOH will work to assure that minority populations and low-income individuals have full access to information on the Project and understand the potential impacts from construction and operation of improved access.

The demographic analysis component of the EJ Analysis identified a notable presence of *EJ populations* within the following *block groups* in **Table 4**.

Table 4: Demographic Analysis

Block Group	Minority	Hispanic or Latino	Low Income
CT 109.02, BG 2			
CT 109.02, BG 3		X	
CT 109.02, BG 4	X		
CT 110, BG 1	X	X	X
CT 110, BG 2		X	
CT 110, BG 3	X	X	
Overall	X		

Based on these results, all *block groups* immediately adjacent to the Project meet thresholds indicating a presence of *EJ populations*. Therefore, any positive or negative impact resulting from this Project or from the *No-Build Alternative* qualifies as a potential impact to these populations.

No-Build Impacts

The *No-Build Alternative* would not result in enhanced safety or mobility along Greenbag Road (CR 857) and intersecting cross-streets for vehicular and multimodal traffic. The corridor's *LOS* would continue to be insufficient for current and future capacity needs (Stahl Sheaffer Engineering 2019b) and safe bicycle and pedestrian facilities connecting residential areas with community resources within and beyond the EJ study area would remain nonexistent. These would affect EJ and non-EJ populations alike; therefore, potential impacts to minority and low-income populations resulting from the *No-Build Alternative* are not expected to be disproportionately high and adverse, and all positive and negative impacts would be distributed equitably throughout the community.

Build Impacts

As noted above, any impact resulting from the construction of this Project may qualify as a potential EJ impact due to the presence of minority and/or low-income populations within *block groups* adjacent to the entire corridor. While adverse impacts are anticipated under the *Build Alternative* for this Project, all are expected to be minor and/or temporary. Potential impacts resulting from the *Build Alternatives* are discussed below in the context of EJ to determine if a disproportionately high and adverse impact to these populations may occur, either to a specific population or cumulatively:

- **Permanent right-of-way impacts**: The roadway and multimodal improvements along Greenbag Road (CR 857) are expected to require a small amount of right-of-way along the entire corridor, with the largest areas located at the intersections with Mississippi Street (CR 857/1) and Dorsey Avenue/Kingwood Pike (CR 81) and in areas where drainage basins will be constructed. These impacts apply to the both EJ/*Title VI resources* and non-EJ populations as well, and impacts do not appear to be disproportionately high and adverse.
- **Permanent parking impacts**: In a few cases where right-of-way will be required, parking may be affected at several facilities along the Project. There is no reason to believe that any of these facilities serve as resources for, or are owned by, EJ or Title VI populations, and reductions in parking are not anticipated to affect general operations at the affected facilities or make them noncompliant with minimum parking requirements under the City Ordinance. Therefore, all parking impacts are expected to be minor, equitably distributed, and are not expected to cause disproportionately high and adverse impacts to *EJ populations*.

- **Permanent access changes**: Minor permanent access changes will result from the Project. An auxiliary turn lane will be constructed at the driveway to Bluegrass Village, an EJ resource along Greenbag Road (CR 857). While some may view this as a negative impact, this affect may be offset to some degree by the improved mobility and reduced congestion that will result along the corridor. Auxiliary turn lanes are also proposed in other areas across the corridor; therefore, this minor, permanent access change is expected to affect all populations equivalently.

- **Other minor permanent impacts:** Other Project impacts may include, but are not limited to, reduced distance between resources and the roadway, removal of trees, reduced privacy, and impacts to landscaping. Tree removal is likely to occur along Greenbag Road (CR 857) at the Bluegrass Village property, and as previously discussed, residents of this community expressed concern about this potential impact during the April 16, 2019 public involvement workshop. While this impact will likely affect Bluegrass Village, it is an impact that is expected to be distributed equivalently across all EJ and non-EJ populations along the corridor.

- **Temporary construction easements:** Temporary construction easements may be required along Greenbag Road (CR 857) during Project construction. There is no reason to believe that the properties affected by these easements will impact EJ or Title VI populations or resources.

- **Temporary access/accessibility impacts:** The Project will require a detour during construction activities, which will cause a minor temporary inconvenience for users of the roadway and affected cross-streets. This may cause a minor, temporary delay for Routes 4, 14, 15, and 50 of the Mountain Line Transit Authority, an EJ resource, and for the Buckwheat Express shuttle service, a Title VI resource. Access to and the accessibility of all other EJ/*Title VI resources* within the EJ study area will also be affected. However this impact will affect all users of the corridor and access to all resources proportionally.

- **Permanent bicycle/pedestrian facility improvements:** The Project will construct continuous sidewalks along the corridor from Mountaineer Mall to the Dorsey Avenue/Kingwood Pike (CR 81) intersection, and along Dorsey Avenue (CR 81) and Luckey Lane (CR 81/6) in the vicinity of Mountainview Elementary. Local planning documents recommend facility enhancements for bicyclists and pedestrians in these areas. The improved multimodal connectivity between residential areas along Greenbag Road (CR 857) with schools, recreational resources, commercial resources, and transit services will result in a permanent positive access impact to both EJ and non-EJ populations within the EJ study area. If any of the low-income populations within CT 110, BG 1 lack access to a motorized vehicle, they may be significantly affected by improved access to these resources. Any minor or temporary adverse impacts associated with the Project will likely be offset to some degree by the construction of bicycle/pedestrian accommodations along the corridor.

As detailed above, all impacts resulting from the *Build Alternative* are expected to be minor and/or temporary. Because notable high and adverse impacts are not expected and all impacts affect non-EJ and *EJ populations* equivalently, there is no reason to believe that any of these individually minor effects would result in a cumulative significant impact to *EJ populations*. Benefits and burdens of the Project will be equitably shared among all populations across the EJ study area.

While minority and low-income populations are present in the Project, no notably adverse community impacts are anticipated with this Project; thus, impacts to minority and low-income populations do not appear to be disproportionately high and adverse. Benefits and burdens resulting from the Project are anticipated to be equitably distributed throughout the community. No disparate impacts are anticipated under Title VI and related statutes.

Environmental Resources within the Project Study Area

Identification of the Study Area's environmental resources was completed by reviewing secondary resources and conducting field reconnaissance. Secondary resources utilized for this Project included United States Geographic Survey (USGS) 7.5 minute topographic quadrangle of Morgantown South, WV (USGS 2016a; United States Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) on-line database (USFWS 2019); Federal Emergency Management Agency (FEMA) website (FEMA 2019); West Virginia State Historic Preservation Office (SHPO) Interactive GIS Map (SHPO 2019); USGS National Land Cover Database (NLCD) (USGS 2016b); United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Web Soil Survey (USDA NRCS 2019a); and Google on-line aerial mapping resources.

Environmental resources identified in the Project study area include the following:

- Eight palustrine wetlands;
- Thirteen surface water streams;
- *100-year floodplains* associated with Aaron Creek and Cobun Creek;
- Prime Farmland Soils and Farmland Soils of Statewide Importance;
- Productive Agricultural Land (Hay Production and Livestock);
- Cultural Resources (Campbell Farmhouse & FCI Morgantown Kennedy Center / Robert F. Kennedy Youth Center);
- *Section 4(f)* resources FCI Morgantown Kennedy Center / Robert F. Kennedy Youth Center);

- Environmental Justice Areas;
- Community Facilities and Services (Emergency Service Providers, Educational Facilities, Churches, and Morgantown City Garage); and
- Land Cover Types (Residential and Commercial developed land, small pockets of deciduous forest, evergreen forest and pasture).

The design of the Project was compared against the existing *environmental features* observed in the Study Area through background research and field investigations. Impacts to the Study Area *environmental features* were determined utilizing the proposed right-of-way requirements associated with the two different build *alternatives* and the intersection *options* under consideration for the Project. A general view of the *environmental features* located within the Study Area are depicted on **Figure 12**. Community facilities and services are shown on **Figure 13**. Additional information and supporting documentation are included in **Appendices B** through **D**.

The tables below summarize the results of this impact assessment.

Table 5 (pages 41 to 52) provides a summary of the potential impacts for ***Alternative* 1**, ***Alternative* 2** and the ***No-Build Alternative***. The impacts listed in Table 5 do not include the impacts for the intersection *options*.

Table 6 (pages 53 to 54) provides a summary of the impacts at the **Mississippi Street Intersection Options A, B, and C**.

Table 7 (pages 55 to 56) provides a summary of the impacts at the **Dorsey Avenue/Kingwood Pike Intersection Options D, E and F**.

Note, only resources that have impacts for the intersection *options* are being presented in Tables 6 and 7.

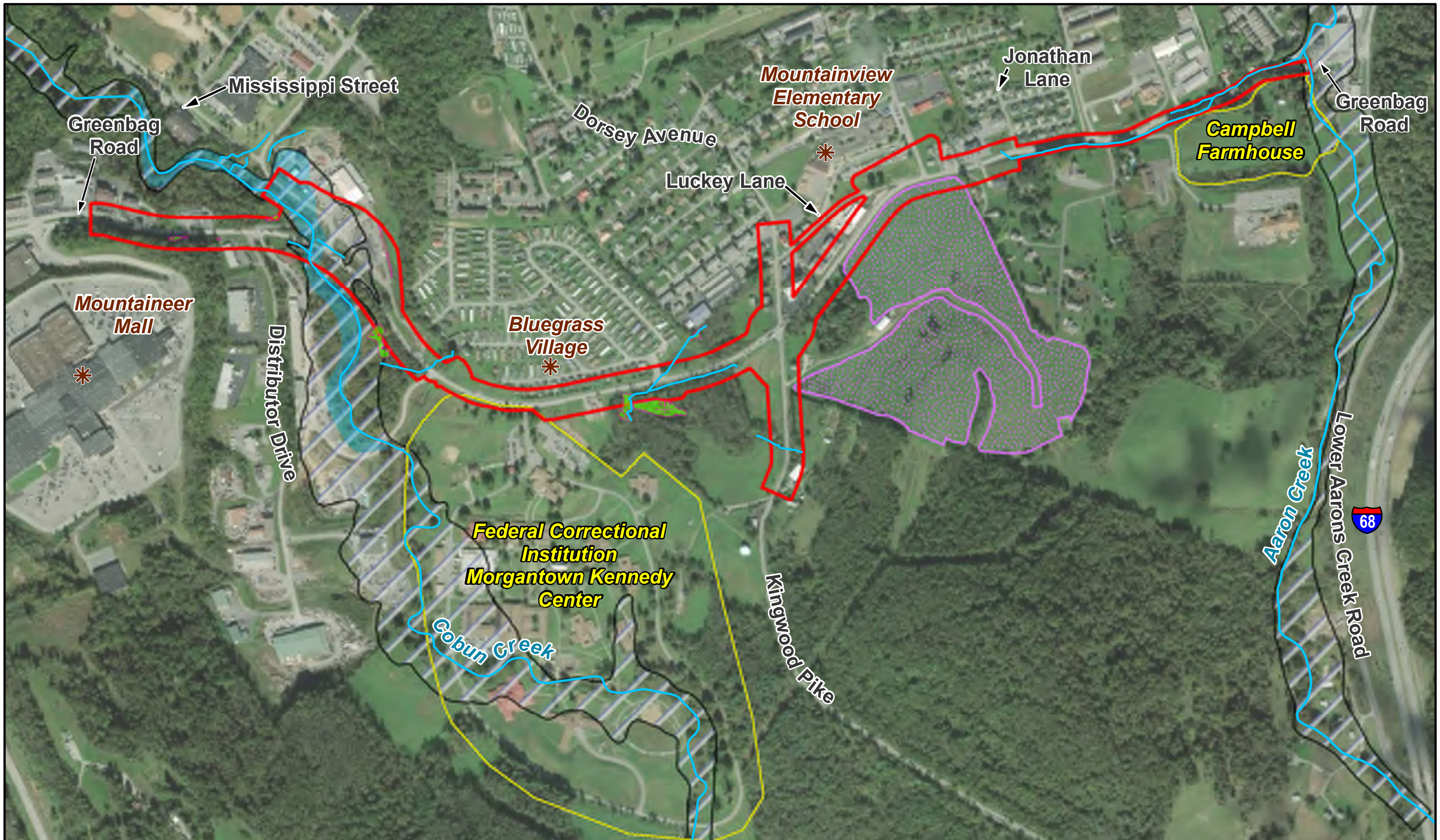


Figure 12
Environmental Features Map

West Virginia Division of Highways
Federal Project STP-0857(019)D/State Project U331-857-0.67 00
Greenbag Road Improvement

Data Sources: ESRI (2018), USGS (2017), USDHS (2017)

Environmental Study Area
NRHP Eligible Resource
Point of Interest
Stream
Wetland
Productive Agricultural Land
Floodway
100-year Floodplain

0 500 1,000 2,000 Feet

N

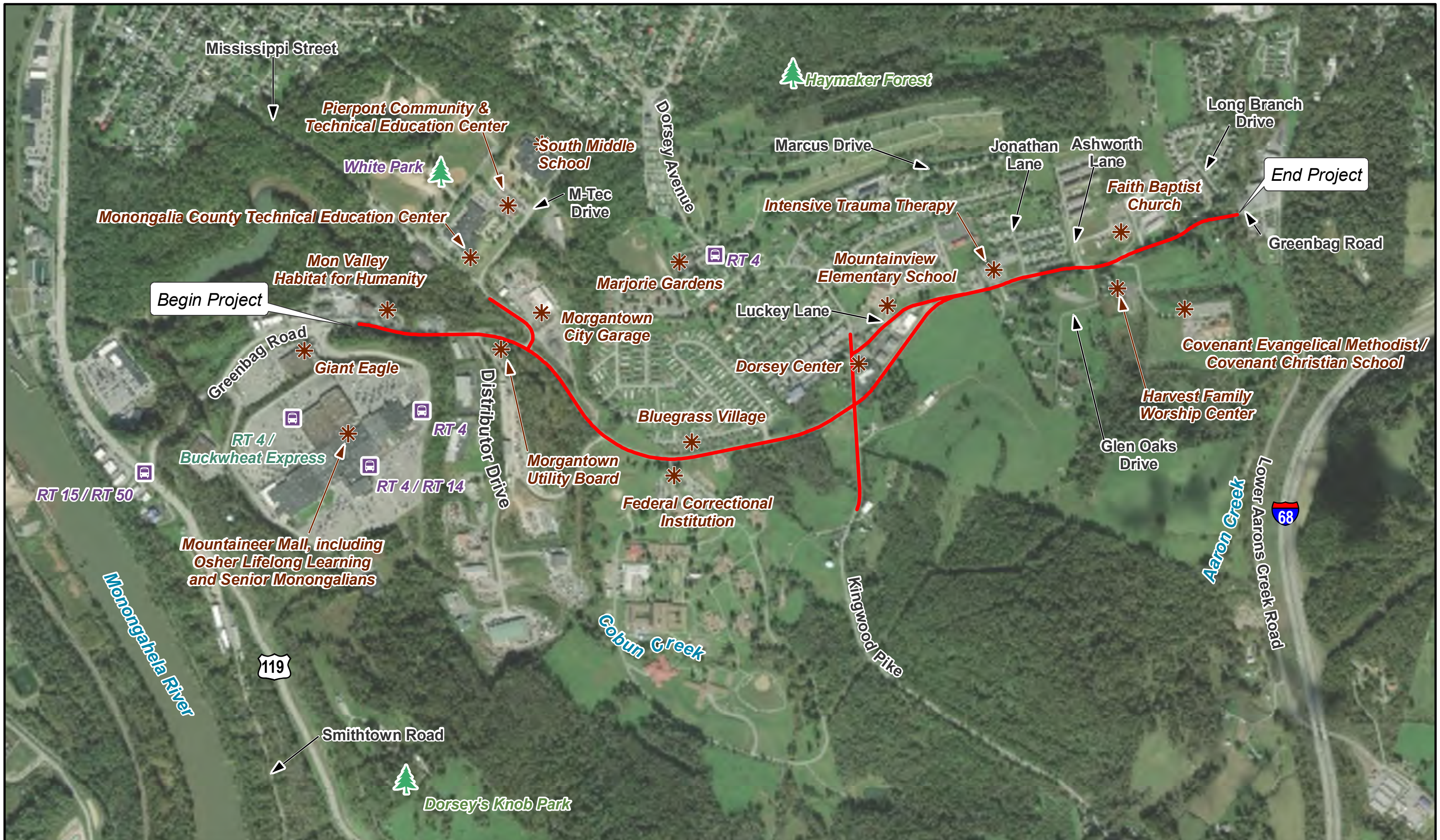


Figure 13
Community Facilities and Services

West Virginia Division of Highways
Federal Project STP-0857(019)D/State Project U331-857-0.67 00
Greenbag Road Improvement

Data Sources: ESRI (2018)

Project Limits · Point of Interest · Bus Stop · Park / Open Space

0 · 500 · 1,000 · 2,000 Feet

N

Table 5: Impacts Analysis Table – Alternatives

Resource or Elements	Context	Alternative 1	Alternative 2	No Build
Environmental Justice	Federal agencies are required to assess whether proposed projects will have a disproportionately high impact on minority or low-income populations. While minority and low-income populations are present in the Project area, no notably adverse community impacts are anticipated with this Project; thus, impacts to minority and low-income populations do not appear to be disproportionately high and adverse. Benefits and burdens resulting from the Project are anticipated to be equitably distributed throughout the community. No disparate impacts are anticipated under Title VI and related statutes.	All *block groups* immediately adjacent to the Project meet thresholds indicating a presence of EJ populations. While adverse impacts are anticipated under this *alternative*, all are expected to be minor and/or temporary and all impacts affect non-EJ and EJ populations equivalently. Impacts include right-of-way takes, parking impacts to facilities, expanded access at Bluegrass Village, tree removal, access during construction, and improved bicycle/pedestrian access.	All *block groups* immediately adjacent to the Project meet thresholds indicating a presence of EJ populations. While adverse impacts are anticipated under this *alternative*, all are expected to be minor and/or temporary and all impacts affect non-EJ and EJ populations equivalently. Impacts include right-of-way takes, parking impacts to facilities, expanded access at Bluegrass Village, tree removal, access during construction, and improved bicycle/pedestrian access.	The *No-Build Alternative* would not result in enhanced safety or mobility along Greenbag Road and intersecting cross-streets for vehicular and multimodal traffic. The corridor's *LOS* would continue to be insufficient for current and future capacity needs and its intersection with Dorsey Avenue/Kingwood Pike would remain skewed and unsafe for all users. These continued conditions would affect EJ and non-EJ populations alike; therefore, potential impacts to minority and low-income populations resulting from the *No-Build Alternative* are not expected to be disproportionately high and adverse, and all positive and negative impacts would be distributed equitably throughout the community.
Displacements	Land use along the Project corridor represents a mixture of residential, commercial, and Federal properties.	One residential property would require relocation under this *alternative*.	There would be no relocations for residential or commercial properties under this *alternative*.	No Impact

Table 5: Impacts Analysis Table – Alternatives (continued)

Resource or Elements	Context	Alternative 1	Alternative 2	No Build
Community Cohesion	Changes to community cohesion resulting from the proposed Project may be adverse or beneficial by splitting or isolating neighborhoods, generating new development, or connecting residents with facilities or services.	The improved multimodal connectivity between residential areas along Greenbag Road with schools, recreational resources, commercial resources, and transit services will result in a permanent positive access impact to all populations within the Project area.	The improved multimodal connectivity between residential areas along Greenbag Road with schools, recreational resources, commercial resources, and transit services will result in a permanent positive access impact to all populations within the Project area.	Safe bicycle and pedestrian facilities connecting residential areas with community resources within and beyond the Project area would remain nonexistent.
Land Cover	Review of the U.S. Geologic Survey 2016 Land Cover dataset indicates that the Project area has been classified primarily as Developed, ranging from high to low intensity with small pockets of deciduous forest, evergreen forest and pasture (USGS 2016b).	This alternative will impact the following land cover types: ❖ Developed land (low intensity: 1.2 acres; medium intensity: 0.4 acres) ❖ Pasture - 0.2 acres Developed open space - 0.3 acres.	This alternative will impact the following land cover types: ❖ Developed land (low intensity: 1.1 acres; medium intensity: 0.3 acres) ❖ Pasture - 0.2 acres Developed open space - 0.2 acres.	No Impact

Table 5: Impacts Analysis Table – Alternatives (continued)

Resource or Elements	Context	Alternative 1	Alternative 2	No Build
Farmlands	*Farmland Protection Policy Act* soils are present in the area. The form *NRCS-CPA-106 Farmland Conversion Impact Rating for Corridor Type Project* rating was less than the 60-point threshold.	This *alternative* will impact 2.9 acres of *Farmland of Statewide Importance* soils and 0.3 acres of Prime Farmland soils. Of these acres, 2.1 acres of *Farmland of Statewide Importance* soils and 0.2 acres of Prime Farmland soils are presently developed. As a result of the *alternative*, 0.8 acres of *Farmland of Statewide Importance* soils will be converted to transportation land use and 0.1 acres of Prime Farmland soils will be converted to transportation land use.	This *alternative* will impact 2.5 acres of *Farmland of Statewide Importance* soils and 0.3 acres of Prime Farmland soils. Of these acres, 1.9 acres of *Farmland of Statewide Importance* soils and 0.2 acres of Prime Farmland soils are presently developed. As a result of the *alternative*, 0.6 acres of *Farmland of Statewide Importance* soils will be converted to transportation land use and 0.1 acres of Prime Farmland soils will be converted to transportation land use.	No Impact
	Productive agricultural land is present in the Project area. The Thomas E. Richards Trust Farm is located south of the Greenbag Road intersection with Luckey Lane and appears to be used for livestock and hay production.	This *alternative* will result in an impact of 0.07 acres to the Thomas E. Richards Trust Farm. This sliver take of the property will not result in a change to the existing operations and is assumed to be considered insignificant.	This *alternative* will result in an impact of 0.07 acres to the Thomas E. Richards Trust Farm. This sliver take of the property will not result in a change to the existing operations and is assumed to be considered insignificant.	No Impact

Table 5: Impacts Analysis Table – Alternatives (continued)

Resource or Elements	Context	Alternative 1	Alternative 2	No Build
Rare, Threatened, and Endangered Species (RTE)	The West Virginia Division of Natural Resources (WVDNR) reviewed the Project area and requested a mussel survey if in-stream work is anticipated in Cobun Creek and a spawning waiver if work will occur between April 1 and June 30. WVDOH environmental staff completed mussel and eagle nest surveys on July 22, 2019. No mussels or eagle nests were observed within the Project area. The US Fish and Wildlife Service (USFWS) reviewed the Project and determined “this project is not likely to adversely affect the Indiana bat.” The USFWS also states that “the proposed project … will not affect any known Northern Long Eared Bat (NLEB) hibernacula … and no conservation measures are required.” The USFWS letter and WVDNR responses are attached within **Appendix D**.	No Impact	No Impact	No Impact

Table 5: Impacts Analysis Table – Alternatives (continued)

Resource or Elements	Context	Alternative 1	Alternative 2	No Build
Streams	An aquatic resource investigation was completed in 2019. The Project study area surface waters were classified as either intermittent or perennial according to the definitions set forth in *Title 46 and the West Virginia Surface Mining Rules.* The Project area is located within the Monongahela watershed and the streams impacted include Cobun Creek and Unnamed Tributaries to Cobun Creek and Aaron Creek. Impacts will be the result of roadway widening and the replacement or extension of drainage ditches, drainage pipes, and culverts. The complete aquatic resources report is included as **Appendix B**.	The impacts to the streams located within this *alternative* are as follows: ❖ Perennial – 2,447 linear feet ❖ Intermittent – 255 linear feet The Total stream impacts for this *alternative* are 2,703 linear feet.	The impacts to the streams located within this *alternative* are as follows: ❖ Perennial – 2,477 linear feet ❖ Intermittent – 255 linear feet The Total stream impacts for this *alternative* are 2,732 linear feet.	No Impact

Table 5: Impacts Analysis Table – Alternatives (continued)

Resource or Elements	Context	Alternative 1	Alternative 2	No Build
Wetlands	An aquatic resource investigation was completed in 2019. The wetland identification and delineation investigation was conducted in accordance with the methodology described in the USACE Corp of Engineers Wetland Delineation Manual and the USACE Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region. The complete aquatic resources report is included as **Appendix B** and the wetlands are shown on the environmental features maps within this report.	Three wetlands will be impacted by this *alternative*. The impacts to the wetlands are as follows: ❖ Palustrine Emergent – 0.01 acres ❖ Palustrine Forested – 0.05 acres The Total wetland impacts for this *alternative* are 0.06 acres.	Two wetlands will be impacted by this *alternative*. The impacts to the wetlands are as follows: ❖ Palustrine Emergent – 0.01 acres ❖ Palustrine Forested – 0.04 acres The Total wetland impacts for this *alternative* are 0.05 acres.	No Impact

Table 5: Impacts Analysis Table – Alternatives (continued)

Resource or Elements	Context	Alternative 1	Alternative 2	No Build
Floodplains	Federal guidelines require the use of the National Flood Insurance Program maps to evaluate the effect of the Project on *100-year floodplains*. FEMA has identified floodplains on both Cobun Creek and Aaron Creek. The WVDOH will apply for a Monongalia County Floodplain permit prior to any construction.	Floodplain impacts are localized at the Cobun Creek crossing which is included in the impacts for the Mississippi Street intersection options A, B, & C. Refer to Table 2 for impacts to the floodplain.	Floodplain impacts are localized at the Cobun Creek crossing which is included in the impacts for the Mississippi Street intersection options A, B, & C. Refer to Table 2 for impacts to the floodplain.	No Impact
Groundwater	Aquifers are at a sufficient depth to be protected from Project construction. The full Project area is supplied by public water service.	No Impact	No Impact	No Impact
Air Quality	Monongalia County is in attainment with National Ambient Air Quality Standards for all criteria pollutants and is not listed in the transportation conformity plan for West Virginia. The Project is exempt under the CAA conformity rule under *40CFR 93.126* and from project-level and Regional Conformity analysis.	No Impact	No Impact	No Impact

Table 5: Impacts Analysis Table – Alternatives (continued)

Resource or Elements	Context	Alternative 1	Alternative 2	No Build
Noise	The Project includes improvements at two intersections, roadway lane widening, re-paving, and drainage improvements. A noise analysis report was prepared in accordance with the WVDOH Highway Traffic Noise Policy and 23CFR 772. The noise report is included in **Appendix C**.	The noise analysis report indicates the Greenbag Road and intersection improvements for this *alternative* do not meet the requirements for either a Type I or Type II project. The Project is classified as a Type III project and no noise analysis for highway traffic noise impacts is required.	The noise analysis report indicates the Greenbag Road and intersection improvements for this *alternative* do not meet the requirements for either a Type I or Type II project. The Project is classified as a Type III project and no noise analysis for highway traffic noise impacts is required.	No Impact
Potentially Hazardous Waste	The Morgantown City Garage has been identified as an area of concern. The WVDOH has committed to completing a *Phase I Environmental Site Assessment* for the Project area once right-of-way impacts to the property are defined. The results of that assessment will be documented in the FONSI.	*To be provided by the WVDOH.*	*To be provided by the WVDOH.*	*To be provided by the WVDOH.*

Table 5: Impacts Analysis Table – Alternatives (continued)

Resource or Elements	Context	Alternative 1	Alternative 2	No Build
Historic Resources	A survey of the historic structures within the Project area of potential effect was completed in 2019. The survey identified two resources as potentially eligible for listing on the National Register of Historic Places (NRHP). In a letter dated January 2, 2020, the SHPO concurred with the eligibility recommendations for all surveyed resources and concurred with the recommendation that the project will have No Adverse Effect on either of the historic properties. The concurrence letter is included in **Appendix D**. The report is included as **Appendix E**.	No Adverse Effect	No Adverse Effect	No Impact

Table 5: Impacts Analysis Table – Alternatives (continued)

Resource or Elements	Context	Alternative 1	Alternative 2	No Build
Archaeological Resources	A Phase I archaeological survey was completed in 2019 and did not identify any archaeological resources within the study area for the corridor. In a letter dated November 19, 2019, the SHPO determined no further archaeological investigations are necessary. The concurrence letter is included in **Appendix D**. The report is included in **Appendix F**.	No Impact	No Impact	No Impact
Utilities	Electric, gas, sewer, and water lines have been identified within the Project corridor.	Several utility lines and associated components will be relocated.	Several utility lines and associated components will be relocated.	No Impact

Table 5: Impacts Analysis Table – Alternatives (continued)

Resource or Elements	Context	Alternative 1	Alternative 2	No Build
Section 4(f) Resources	Federal laws stipulate that FHWA cannot approve the use of land from publicly owned parks, recreational areas, wildlife and waterfowl refuges, or public and private historical sites unless there is no feasible and prudent avoidance *alternative* to the use of land and the action includes all possible planning to minimize harm to the property resulting from such use or FHWA determines that the use of the property will have a *de minimis* impact.	Two NRHP-eligible resources were identified within the Project vicinity: the Campbell Farmhouse and the FCI Morgantown facility. The Campbell Farmhouse will not have direct impacts to the property. There will be no right-of-way acquired from the FCI Morgantown facility, thereby resulting in No Use of the Section 4(f) resource.	Two NRHP-eligible resources were identified within the Project vicinity: the Campbell Farmhouse and the FCI Morgantown facility. The Campbell Farmhouse will not have direct impacts to the property. There will be no right-of-way acquired from the FCI Morgantown facility, thereby resulting in No Use of the Section 4(f) resource.	No Impact

Table 5: Impacts Analysis Table – Alternatives (continued)

Resource or Elements	Context	Alternative 1	Alternative 2	No Build
Temporary Construction Impacts	Construction will create short-term impacts related to increased noise and air pollution, erosion, and traffic delays or detours.	Access will be maintained to all properties during construction. The flow of traffic will be maintained through the use of traffic controls, detours or temporary signals or flaggers to minimize disruptions. Construction will comply with all federal, state, and local laws regarding safety, health, and sanitation. Contractors will follow Occupational Safety and Health Administration guidelines to protect employees, the public, and property. An erosion and sediment pollution control plan will be prepared and implemented for the Project to eliminate or minimize sedimentation.	Access will be maintained to all properties during construction. The flow of traffic will be maintained through the use of traffic controls, detours or temporary signals or flaggers to minimize disruptions. Construction will comply with all federal, state, and local laws regarding safety, health, and sanitation. Contractors will follow Occupational Safety and Health Administration guidelines to protect employees, the public, and property. An erosion and sediment pollution control plan will be prepared and implemented for the Project to eliminate or minimize sedimentation.	No Impact

Table 6: Impacts Analysis Table – Mississippi Street Intersection Options

Resource or Elements	Context	A (Traffic Signal)	B (Roundabout)	C (Roundabout with dedicated right turn lane)
Farmlands	*Farmland Protection Policy Act* soils are present in the area. The form *NRCS-CPA-106 Farmland Conversion Impact Rating for Corridor Type Project* rating was less than the 60-point threshold.	This option will impact 0.01 acres of *Farmland of Statewide Importance* and 2.7 acres of Prime Farmland. Of these acres, 0.01 acres of *Farmland of Statewide Importance* and 2.6 acres of Prime Farmland are developed.	This option will impact 0.1 acres of *Farmland of Statewide Importance* and 0.8 acres of Prime Farmland. Of these acres, 0.1 acres of *Farmland of Statewide Importance* and 0.8 acres of Prime Farmland are developed.	This option will impact 0.1 acres of *Farmland of Statewide Importance* and 0.8 acres of Prime Farmland. Of these acres, 0.1 acres of *Farmland of Statewide Importance* and 0.8 acres of Prime Farmland are developed.
	Productive agricultural land is present in the Project area. The Thomas E. Richards Trust Farm is located south of the Greenbag Road intersection with Luckey Lane and appears to be used for livestock and hay production.	No Impact	No Impact	No Impact
Land Cover	Review of the U.S. Geologic Survey 2016 Land Cover dataset indicates that the Project area has been classified primarily as Developed, ranging from high to low intensity with small pockets of deciduous forest, evergreen forest and pasture (USGS 2016b).	This option will impact developed land (low intensity: 0.5 acres; medium intensity: 1.2 acres; high intensity: 0.9).	This option will impact developed land (low intensity: 0.6 acres; medium intensity: 1.3 acres; high intensity: 0.9).	This option will impact developed land (low intensity: 0.6 acres; medium intensity: 1.3 acres; high intensity: 0.9).

Table 6: Impacts Analysis Table – Mississippi Street Intersection Options (continued)

Resource or Elements	Context	A (Traffic Signal)	B (Roundabout)	C (Roundabout with dedicated right turn lane)
Streams	An aquatic resource investigation was completed in 2019. The complete aquatic resources report is included as **Appendix B** and streams are shown on the environmental features maps within this report.	The impacts to the streams located within this option are as follows: ❖ Perennial – 338 linear feet ❖ Intermittent – 162 linear feet The Total stream impacts for this option are 500 linear feet.	The impacts to the streams located within this option are as follows: ❖ Perennial – 356 linear feet ❖ Intermittent – 165 linear feet The Total stream impacts for this option are 521 linear feet.	The impacts to the streams located within this option are as follows: ❖ Perennial – 356 linear feet ❖ Intermittent – 165 linear feet The Total stream impacts for this option are 521 linear feet.
Wetlands	An aquatic resource investigation was completed in 2019. The complete aquatic resources report is included as **Appendix B** and the wetlands are shown on the environmental features maps within this report.	One PEM wetland will be impacted by this intersection option for a total of 0.05 acres.	One PEM wetland will be impacted by this intersection option for a total of 0.05 acres.	One PEM wetland will be impacted by this intersection option for a total of 0.05 acres.
Floodplains	Federal guidelines require the use of the National Flood Insurance Program maps to evaluate the effect of the Project on *100-year floodplain*s. FEMA has identified floodplains on both Cobun Creek and Aaron Creek.	This option will impact a total of 1.3 acres defined as regulated floodplain at the Cobun Creek crossing.	This option will impact a total of 1.3 acres defined as regulated floodplain at the Cobun Creek crossing.	This option will impact a total of 1.3 acres defined as regulated floodplain at the Cobun Creek crossing.

Table 7: Impacts Analysis Table – Dorsey Avenue / Kingwood Pike Intersection Options

Resource or Elements	Context	D (Traffic signal with exclusive left and shared through/right turn lane)	E (Traffic signal with exclusive left turn lane, exclusive through lane, exclusive right turn lane)	F (Roundabout)
Displacements	Land use along the Project corridor represents a mixture of residential, commercial, and Federal properties.	Two residences would require relocation with this intersection option.	Three residences would require relocation with this intersection option.	There would be no relocations for residential or commercial properties under this intersection option.
Farmlands	*Farmland Protection Policy Act* soils are present in the area. The form *NRCS-CPA-106 Farmland Conversion Impact Rating for Corridor Type Project* rating was less than the 60-point threshold.	This option will impact 2.2 acres of *Farmland of Statewide Importance*. Of these acres, 1.4 acres of *Farmland of Statewide Importance* are developed. However, no areas of productive farmlands will be impacted therefore this impact is expected to be negligible.	This option will impact 2.8 acres of *Farmland of Statewide Importance*. Of these acres, 1.7 acres of *Farmland of Statewide Importance* are developed. However, no areas of productive farmlands will be impacted therefore this impact is expected to be negligible.	This option will impact 3.1 acres of *Farmland of Statewide Importance*. Of these acres, 1.7 acres of *Farmland of Statewide Importance* are developed. However, no areas of productive farmlands will be impacted therefore this impact is expected to be negligible.
	Productive agricultural land is present in the Project area. The Thomas E. Richards Trust Farm is located south of the Greenbag Road intersection with Luckey Lane and appears to be used for livestock and hay production.	This option will result in an impact of 0.31 acres to the Thomas E. Richards Trust Farm. This sliver take of the property will not result in a change to the existing operations and is assumed to be considered insignificant.	This option will result in an impact of 0.31 acres to the Thomas E. Richards Trust Farm. This sliver take of the property will not result in a change to the existing operations and is assumed to be considered insignificant.	This option will result in an impact of 0.29 acres to the Thomas E. Richards Trust Farm. This sliver take of the property will not result in a change to the existing operations and is assumed to be considered insignificant.
Land Cover	Review of the USGS 2016 Land Cover dataset indicates that the Project area has been classified primarily as Developed, ranging from high to low intensity with small pockets of deciduous forest, evergreen forest and pasture (USGS 2016b).	This option will impact: ❖ developed land (low intensity: 1.2 acres; medium intensity: 0.8 acres; high intensity: 0.1); ❖ deciduous forest - 0.3 acres; and ❖ developed open space - 0.8 acres.	This option will impact: ❖ developed land (low intensity: 1.3 acres; medium intensity: 0.9 acres; high intensity: 0.2); ❖ deciduous forest - 0.3 acres; and ❖ developed open space - 1.0 acres.	This option will impact: ❖ developed land (low intensity: 1.7 acres; medium intensity: 0.7 acres; high intensity: 0.1); ❖ deciduous forest - 0.5 acres; and ❖ developed open space - 1.1 acres.

Table 7: Impacts Analysis Table – Dorsey Avenue / Kingwood Pike Intersection Options (continued)

Resource or Elements	Context	D (Traffic signal with exclusive left and shared through/right turn lane)	E (Traffic signal with exclusive left turn lane, exclusive through lane, exclusive right turn lane)	F (Roundabout)
Streams	An aquatic resource investigation was completed in 2019. The complete aquatic resources report is included as **Appendix B** and streams are shown on the environmental features maps within this report.	The impacts to the streams located within this option are as follows: ❖ Perennial – 95 linear feet ❖ Intermittent – 333 linear feet The Total stream impacts for this option are 428 linear feet.	The impacts to the streams located within this option are as follows: ❖ Perennial – 100 linear feet ❖ Intermittent – 333 linear feet The Total stream impacts for this option are 433 linear feet.	The impacts to the streams located within this option are as follows: ❖ Perennial – 120 linear feet ❖ Intermittent – 333 linear feet The Total stream impacts for this option are 453 linear feet.

WILL THERE BE ANY SECONDARY OR CUMULATIVE EFFECTS FROM THE PROJECT?

Cumulative impacts are decided by the Council on Environmental Quality (CEQ) as "*the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-federal) or person undertakes such other actions.*" (CEQ 2005). Cumulative Effects can occur from repeated impacts resulting from a single project, added effects from multiple sources, or impacts resulting from the interactions of numerous sources. Secondary impacts are effects "*caused by an action and are later in time or farther removed in distance but are still reasonably foreseeable*." (CEQ 2005). These are generally induced by the action and examples include growth and development and/or land use change.

A complete secondary and cumulative effects analysis is included in this EA as **Appendix G**. This Cumulative Effects Analysis incorporated information gathered from site visits and reviews of US Census data and local planning documents. A Secondary and Cumulative Effects study area and was delineated for the purpose of evaluating potential secondary and/or cumulative effects. The Secondary and Cumulative Effects study area was generally based on a 0.5-mile buffer of the Project and encompasses other planned or proposed projects including or in the vicinity of Greenbag Road (CR 857) (see **Figure 13** for the study area). The analysis evaluated potential Cumulative Effects that may occur through a horizon year of 2045, which is consistent with the current Metropolitan Transportation Plan (MMMPO 2017) planning horizon.

Potential for Secondary Impacts

Availability of land and transportation infrastructure in the Project area indicates that new development is most likely to occur along Greenbag Road (CR 857) at US 119, at Mountaineer Mall, east of Dorsey Avenue (CR 81) in neighborhoods surrounding Haymaker Forest, in the southeast quadrant of Greenbag Road (CR 857) and Dorsey Avenue/Kingwood Pike (CR 81), on the west side of Greenbag Road (CR 857) north of Lower Aarons Creek Road, and at Sabraton at the Greenbag Road (CR 857) intersection with WV-7 (Earl Core Road). Summaries of these locations are provided below:

- US 119 – This location provides convenient access to/from downtown Morgantown. There are several small parcels available for development along the segment of US 119 in the vicinity of the Greenbag Road (CR 857) intersection, and all utilities are available. This area is identified as a "Corridor Enhancement Area" in the City of Morgantown's *Comprehensive Plan* (2013) (i.e., where development may be improved with a mix of uses, increased intensity at major intersections, and roadway improvements to improve mobility for motorists and multimodal users).
- Mountaineer Mall – While this property was not identified as developable land, it is targeted for future infill, redevelopment, and encouraged growth according to the City of Morgantown's *Comprehensive Plan* (2013). Water

and sewer services are available at this location, it is accessible by public transit services, and it is convenient for motorists traveling into and out of Morgantown via US 119.

- East of Dorsey Avenue (CR 81), near Haymaker Forest – This location is primarily under Monongalia County's jurisdiction, and while water and sewer services are more limited than other areas of the Project area, utility lines surround the area. This region is also proposed for annexation under the City of Morgantown's Annexation Report (2019), and if the boundary expansion is approved, utility services would be provided in all newly-acquired areas as part of the agreement. A group of small parcels adjacent to each other were identified in this area as developable land. Local officials with the City of Morgantown desire to purchase the Haymaker Forest property and manage it as a reserve/greenspace; however, there are development plans to expand the neighborhoods to the north by constructing approximately 81 townhomes in this area. The development may encroach on the Haymaker Forest before the property obtains local government ownership and protection (WV Metro News 2019).

- In the southeast quadrant of Greenbag Road (CR 857) and Kingwood Pike (CR 81) – This area is under Monongalia County's jurisdiction and was identified in the City of Morgantown's *Comprehensive Plan* (2013) as an area of Controlled Growth (i.e., "developing areas, or currently undeveloped land where more growth is likely due to proximity to existing thoroughfares, infrastructure and adjacency to recent development"). Though development is not encouraged in this area and utility services are limited, three of the largest parcels within the Secondary and Cumulative Effects study area identified to be available for development are in this region, and they are adjacent to each other. More than 130 acres across six parcels in this area and on the west side of Kingwood Pike (CR 81) are held by one landowner. All six parcels were flagged as developable land.

- North of Lower Aarons Creek Road – Parcels on both sides of Greenbag Road (CR 857) north of Lower Aarons Creek Road, all within Monongalia County's jurisdiction, are available for development. Topographic constraints and limited water and sewer availability would restrict development to the west side of the corridor, which is already partially developed. The City of Morgantown identifies this as a Corridor Enhancement Area in their *Comprehensive Plan* (2013), and infill and/or redevelopment will likely occur in this area, especially if controlled growth in the Sabraton area to the north (see discussion below) occurs. As with the area east of Dorsey Avenue (CR 81), this region is proposed to be incorporated with Morgantown.

- Sabraton infill and redevelopment - Though outside of the Secondary and Cumulative Effects study area, the area along WV-7 (Earl Core Road) north and south of its intersection with Greenbag Road (CR 857) is also identified as a Corridor Enhancement Area. This area is targeted for encouraged growth according to the Conceptual Growth

Framework map (City of Morgantown 2013). Sabraton, located at the Greenbag Road (CR 857) intersection, is a designated “area of opportunity” in *The Comprehensive Plan*. The City of Morgantown envisions continued infill and redevelopment in this region as a mixed-use employment, retail, accommodation, and residential district.

Most areas within the portion of the Secondary and Cumulative Effects study area overlapping with the jurisdictional limits of Morgantown are targeted for infill or redevelopment of existing properties (City of Morgantown 2013). Exceptions include Mountaineer Mall and Sabraton, where growth is encouraged; the area south of Greenbag Road (CR 857) and east of Kingwood Pike (CR 81), where there is a local desire to control future growth; and areas targeted as preserves/open space, all areas within the portion of the Secondary and Cumulative Effects study area overlapping with the jurisdictional limits of Morgantown are targeted for infill or redevelopment of existing properties (City of Morgantown 2013).

The Project proposes improvements that will increase the capacity of the roadway, thereby improving access to the commercial node at the western terminus of the Project, to the commercial corridor along WV-7 east of the Project, to Sabraton, and to US 119, WV-7, and other major thoroughfares of Morgantown. By doing so, it will improve traffic mobility under existing conditions, allow the roadway to operate at an acceptable *LOS* for anticipated future growth (MMMPO 2017), and enhance users’ experiences. The benefits associated with the Project may stimulate the local or regional economy, but any change is not expected to be significantly different from current conditions.

As described above, developable land is present within 0.5 miles of the Project area. The area has experienced population and employment growth over the past decade (USCB 2018), a trend that is expected to continue (Lego and Deskins 2015), and local jurisdictions have plans and ordinances in place to effectively manage growth and development and protect natural resources within the Secondary and Cumulative Effects study area. Considering the overall scope and nature of the Project, it is not anticipated that the proposed Greenbag Road (CR 857) improvements would influence land use decisions or encourage land use changes.

While development is occurring within the Secondary and Cumulative Effects study area, there is no reason to believe a demand exists that would cause future growth to outpace intensities that have occurred in the recent past. Similarly, there is no indication that the construction of the Project would alter the patterns of future growth within the Secondary and Cumulative Effects study area. The presence of water and sewer services, available land for development that is unconstrained by topography, and convenient access to US 119 and other major thoroughfares through Morgantown are all factors that may encourage land use change in the vicinity of the Greenbag Road (CR 857) Corridor. While growth may occur, any development in the area is likely to occur regardless of if the Project is constructed or not. The Project study area contains notable cultural and *environmental features*, including Cobun Creek, Aaron Creek, other intermittent and perennial streams, *100-year floodplains* associated with Cobun Creek and Aaron Creek, numerous wetlands, and impaired waters. These features are provided numerous protections under State, Federal, and local regulations, but risk being impacted by cumulative effects of the proposed Project and past and/or future actions.

While the Project improvements on their own may only result in minor impacts to the notable cultural, community, water quality, natural features, and habitat within the study area, they may contribute to other effects that have resulted from past actions, and/or to impacts that will occur from future planned actions. In order to evaluate the potential for, magnitude of, and interactions between these cumulative effects, past projects since 1989 and planned actions through the year 2045 were identified and evaluated qualitatively. Information was primarily sourced from local planning documents, study area field views, and a review of aerial imagery. Actions that may have contributed to cumulative effects in the area include, but are not limited to:

- Development or expansion of small commercial properties along US 119, and north of Greenbag Road (CR 857) near Mountaineer Mall
- Individual facility expansion at numerous locations along the corridor (e.g., South Middle School and Monongalia County Technical Education Center, municipal facilities, and the FCI)
- Extension of Distributor Drive and development at the end and on either side of the roadway
- Paving of the Morgantown Utility Board driveway off of Greenbag Road (CR 857)
- Construction of the Bluegrass Village development
- Development in the northwest quadrant of Greenbag Road (CR 857) and Dorsey Avenue/Kingwood Pike (CR 81)
- Construction of Mountainview Elementary
- Development of numerous single family and multifamily residences along Marcus Drive
- Construction of facilities and their respective access streets on the north side of Greenbag Road (CR 857), east of Luckey Lane (CR 81/6), serving residential (e.g., Ashworth Lane, Jonathan Lane, Long Branch Drive) and commercial uses.
- Construction of Glen Oaks Drive, south of the corridor, and residences accessed by that road.
- Construction of Harvest Family Worship Center, Covenant Christian School, and their paved access roads.

- Construction of numerous commercial facilities surrounding Greenbag Road (CR 857) north of Lower Aarons Creek Road.

In addition to past actions, potential cumulative effects of a proposed action were aggregated with other ongoing and reasonably foreseeable future actions (RFFAs). The identification of RFFAs is complicated by the fact that future actions are not always foreseeable, that planned actions are contingent upon funding security and/or preliminary planning actions, by the economic and political climates of the area, and by many other factors that can be impossible to predict.

Actions that may occur in the future and hold the potential to contribute to cumulative effects on terrestrial habitat, land use, water quality, wetlands, streams, air quality, traffic, and cultural resources within the Secondary and Cumulative Effects study area include:

- The White Park Caperton Trail Connection in the northern region of the Secondary and Cumulative Effects study area.
- Upgrades to:
  - WV-7 (Earl Core Road), including intersection with Greenbag Road (CR 857).
  - US 119 (Grafton Road).
  - Dorsey Avenue (CR 81) sidewalks.
  - Smithtown Road.
- Utility expansion and repaving along Mississippi Street (CR 857/1).
- Utility expansion across other areas proposed to be incorporated in the City of Morgantown.
- General water service line expansions with completion of the new Cobun Creek reservoir currently under construction, south of the Secondary and Cumulative Effects study area.
- Conversion of agricultural or forested land to be developed.

Any proposed development, whether it is transportation or utility-oriented, multimodal facility improvements, residential, or commercial in nature, can result in negative impacts to water quality, wetlands, habitat, wildlife, and/or cultural resources. There is risk of physical adverse impacts associated with any temporary or permanent ground disturbance, and any increase in impervious surface can result in impaired water quality which could translate to adverse impacts to aquatic habitat and wildlife. Construction activities in the short-term can also create negative impacts to air quality. At the same time, construction and development activity generally occurs with an intent to avoid, minimize, and/or mitigate any adverse impacts to natural or cultural resources. This can result in new water or habitat features that could offset negative impacts, as well as potential for improved understanding of the status of threatened, rare, and endangered species. These projects may also provide opportunities for enhanced coordination between resource agencies and other stakeholders that may not have otherwise occurred, potentially resulting in improved management of the function and values of these natural and cultural resources at a broader level.

The physical ground disturbance that can be associated with multimodal facility improvements can result in mixed impacts to natural and cultural resources as described above. However, the overall impacts of such improvements would likely be positive. Recreational resources would improve, especially since planned actions described in the *Comprehensive Plan* (City of Morgantown 2013) and the *Metropolitan Transportation Plan* (MMMPO 2017) identify multimodal facilities improvements that would create direct connections between parks, schools, and residential areas. Air quality would improve if the availability of multimodal facilities cause motorists to opt for active forms of transportation instead of vehicles. Any reduced congestion that might result from that shift would improve air quality. Socioeconomics may improve if the multimodal facility improvements enhance access between residential areas and employment or commercial opportunities.

Besides the previously-described mixed impacts to natural and cultural resources, water and sewer enhancements would result in a positive impact to water quality, recreational resources, and socioeconomics. Sewer systems that are designed to an appropriate capacity are less likely to fail. This impact would therefore offset any negative impact the disturbance would cause to water quality. The presence of adequate utilities is also essential for the health, well-being, and attractiveness of a community. The availability of adequate services increases the likelihood for development and creates a desirable area to live and work in, which would in turn result in a positive effect on the socioeconomics of an area.

Transportation system improvements that are described in the local planning documents generally propose widening and/or new access facilities, construction of which would likely result in mixed impacts to natural and cultural resources as described previously. If these improvements result in overall travel time savings and/or reduced congestion, they could also contribute to air quality improvements over time due to reduced emissions sourced from motorized vehicles. There is potential for mixed access impacts to recreational, socioeconomic, and/or cultural resources, since even at the individual project level different areas can experience positive or negative access impacts.

The mixed impacts associated with the construction of new commercial and/or residential areas could be offset by any positive socioeconomic impacts that occur as a result of these developments. These actions may also result in negative impacts to notable resources if population increases result, causing a rise in demand for transportation facilities and recreational, cultural, and community resources.

The regulatory environment is expected to result in a positive impact to water quality, wetlands, streams, terrestrial habitat, wildlife, air quality, recreational resources, socioeconomics, and cultural resources. Federal, state, and local regulations are in place to protect natural, cultural, and socioeconomic resources. Although cumulative effects associated with the Project are possible as described above, the City of Morgantown has demonstrated planning and policy initiatives over the past decade to preserve and protect important resources under its jurisdiction from pressures associated with growth and development. A concerted effort by government and the private sector has also occurred over the past decade to plan for growth and redevelopment and protect human and natural environmental resources. Local jurisdictions have plans and ordinances in place to effectively manage development and protect natural resources within the Secondary and Cumulative Effects study area. Considering the overall scope and nature of the Project, it is not expected to influence land use decisions or induce land use change.

The combined effects of this Project when considered in the context of other past, present, and future actions, and the resulting impacts on the human and natural features within the Secondary and Cumulative Effects study area, will likely minimally contribute to cumulative impacts to environmental resources in the Secondary and Cumulative Effects study area. Direct impacts by WVDOH projects will be addressed by avoidance, minimization, or mitigation consistent with programmatic agreements with the respective resource agencies during the permitting process. All developments will be required to follow local, state, and federal guidelines and permitting regulations.

WHAT ARE THE COSTS ESTIMATED FOR THE ALTERNATIVES?

Estimated construction costs were developed for both alternatives and each of the options. **Tables 8 and 9** below show the estimated costs for each of the alternatives with all possible combinations of the intersection options. The cost for the preferred alternative is highlighted in **Table 9**.

Table 8: Estimated Construction Costs for Alternative 1

		Dorsey Avenue/Kingwood Pike Intersection Options		
		D	E	F
Mississippi Street Intersection Options	A	$12,689,979.44	$13,249,895.68	$10,755,399.35
	B	$13,125,555.10	$13,685,471.34	$11,190,975.01
	C	$13,074,839.27	$13,634,755.51	$11,140,259.18

Table 9: Estimated Construction Costs for Alternative 2

		Dorsey Avenue/Kingwood Pike Intersection Options		
		D	E	F
Mississippi Street Intersection Options	A	$11,238,152.91	$11,792,156.83	$9,842,019.50
	B	$11,642,971.91	$12,196,975.83	$10,246,838.49
	C	$11,825,328.90	$12,379,332.83	$10,429,195.49

IDENTIFICATION OF A PREFERRED ALTERNATIVE

All *alternatives* and intersection *options* were screened to determine level of impacts to businesses and residences within the Project area. Consideration was also given to the improvement predicted for the *LOS* from current year to design year 2048 (**Table 10**).

Table 10: Alternatives Screening

	Alternatives			**Mississippi Street Intersection Options**			**Dorsey Avenue Intersection Options**		
	1	2	No Build	A	B	C	D	E	F
Businesses Taken	0	0	No impact	0	0	0	0	0	0
Residences Taken	1	0	No impact	0	0	0	2	3	0
LOS (AM/PM)	*Controlled by LOS at major intersections*	*Controlled by LOS at major intersections*	D/F	A/B	B/A	A/A	C/E	C/C	B/C

From the range of *alternatives* and intersection *options* considered, Alternative 2 with intersection options C and F is identified as the preferred *alternative*. The *alternative* impacts fewer residences and provides for more improvement to the flow of traffic through the corridor.

Summary Of Impacts From The Preferred Alternative

Figure 14 provides detailed figures showing the preferred *alternative* along with information related to environmental features and the built environmental. **Table 11** provides a summary of all of the impacts for the preferred *alternative*, combining the *alternative* (2) with both of the intersection *options* selected (C and F).

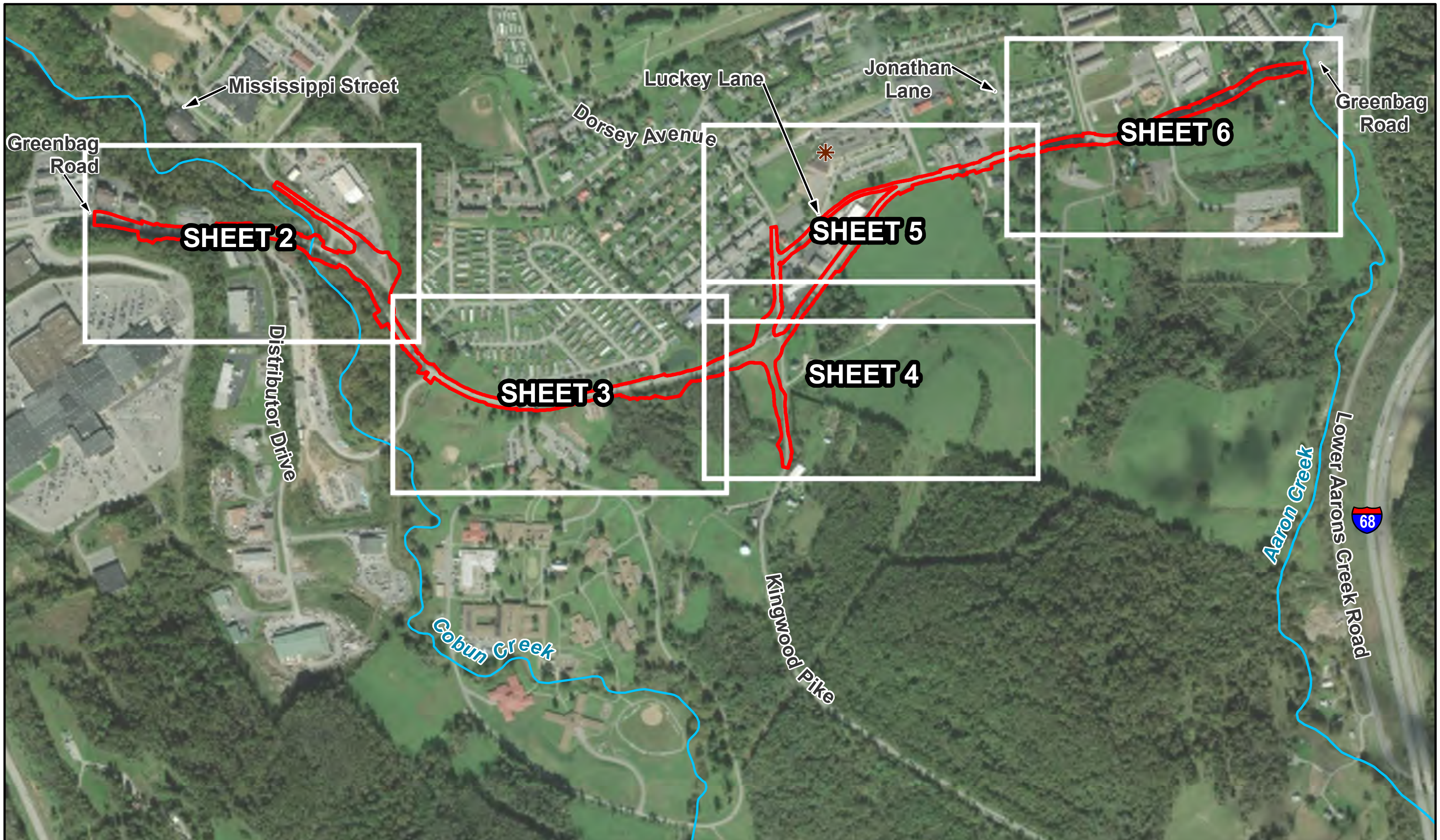


Figure 14 (Sheet 1 of 6)
Detailed Environmental Features Map
Preferred Alternative 2, Options C / F
West Virginia Division of Highways
Federal Project STP-0857(019)D/State Project U331-857-0.67 00
Greenbag Road Improvement
Data Sources: ESRI (2018), USGS (2017)

Limits of Disturbance
Stream

0 500 1,000 2,000 Feet

N

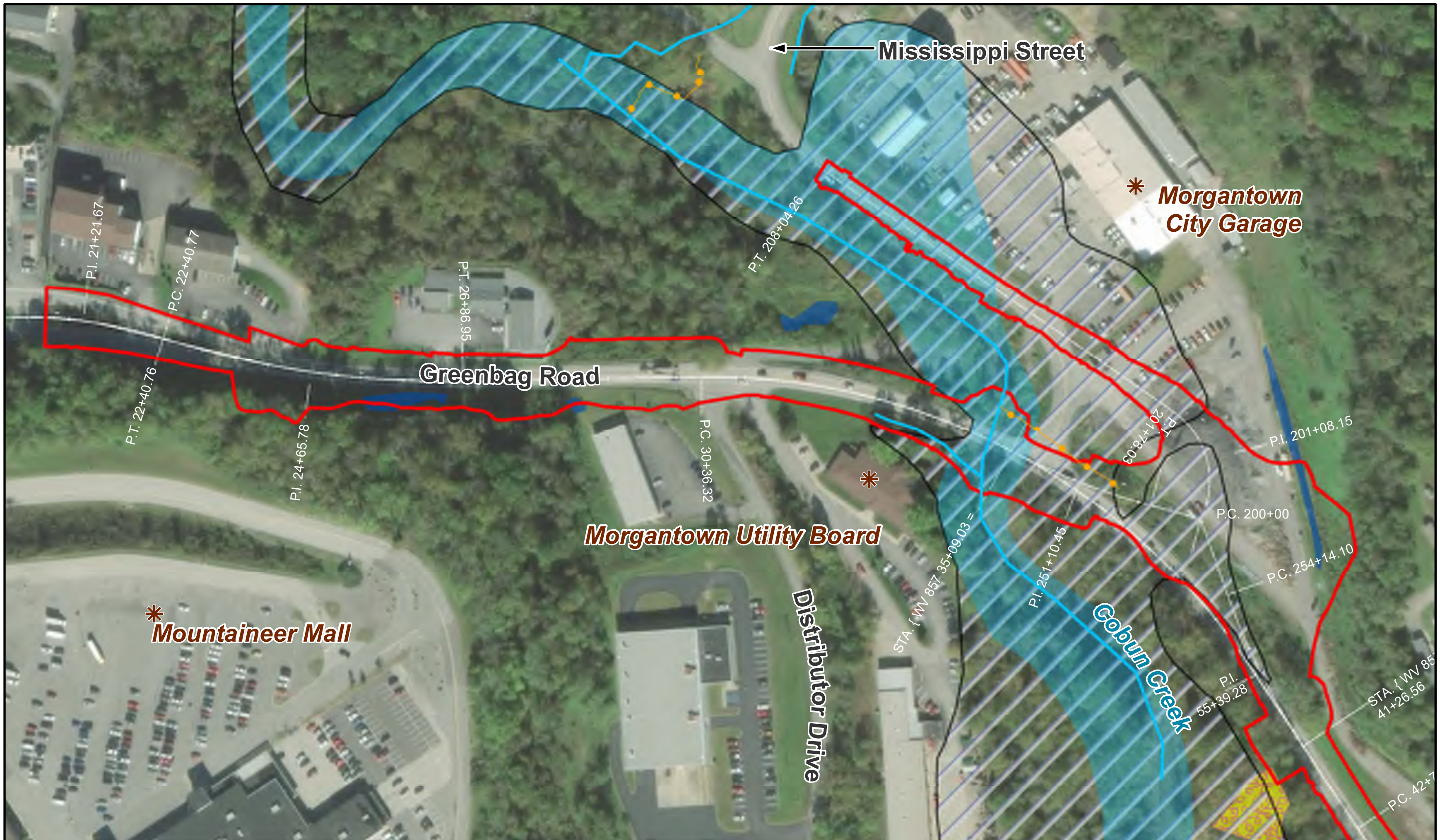


Figure 14 (Sheet 2 of 6)
Detailed Environmental Features Map
Preferred Alternative 2, Options C / F
West Virginia Division of Highways
Federal Project STP-0857(019)D/State Project U331-857-0.67 00
Greenbag Road Improvement
Data Sources: ESRI (2018), USDHS (2015)

Limits of Disturbance
NRHP Eligible Resource
Productive Agriculture
Point of Interest
Intermittent Stream
Perennial Stream
Floodway
100-year Floodplain
Palustrine Emergent Wetland
Palustrine Forested Wetland
Palustrine Scrub/Shrub Wetland

0 500 1,000 2,000 Feet

N

Figure 14 (Sheet 3 of 6)
Detailed Environmental Features Map
Preferred Alternative 2, Options C / F
West Virginia Division of Highways
Federal Project STP-0857(019)D/State Project U331-857-0.67 00
Greenbag Road Improvement

Data Sources: ESRI (2018), USDHS (2015)

Limits of Disturbance
NRHP Eligible Resource
Productive Agriculture
Point of Interest
Intermittent Stream
Perennial Stream
Floodway
100-year Floodplain
Palustrine Emergent Wetland
Palustrine Forested Wetland
Palustrine Scrub/Shrub Wetland

0 500 1,000 2,000 Feet

N

Figure 14 (Sheet 4 of 6)
Detailed Environmental Features Map
Preferred Alternative 2, Options C / F
West Virginia Division of Highways
Federal Project STP-0857(019)D/State Project U331-857-0.67 00
Greenbag Road Improvement
Data Sources: ESRI (2018), USDHS (2015)

Limits of Disturbance
NRHP Eligible Resource
Productive Agriculture
Point of Interest
Intermittent Stream
Perennial Stream
Floodway
100-year Floodplain
Palustrine Emergent Wetland
Palustrine Forested Wetland
Palustrine Scrub/Shrub Wetland

0 500 1,000 2,000 Feet

N

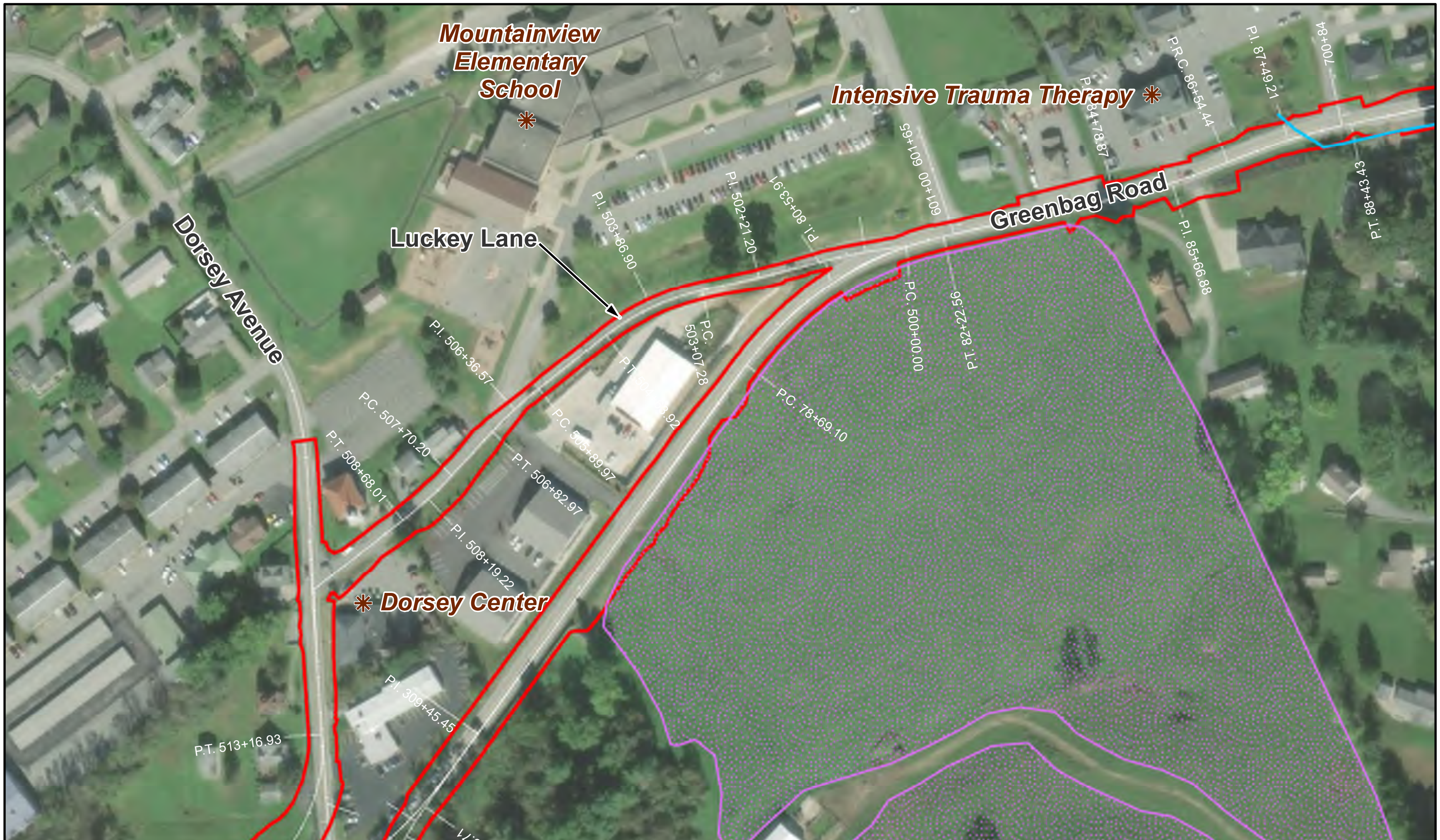


Figure 14 (Sheet 5 of 6)
Detailed Environmental Features Map
Preferred Alternative 2, Options C / F
West Virginia Division of Highways
Federal Project STP-0857(019)D/State Project U331-857-0.67 00
Greenbag Road Improvement

Data Sources: ESRI (2018), USDHS (2015)

Limits of Disturbance
NRHP Eligible Resource
Productive Agriculture
Point of Interest
Intermittent Stream
Perennial Stream
Floodway
100-year Floodplain
Palustrine Emergent Wetland
Palustrine Forested Wetland
Palustrine Scrub/Shrub Wetland

0 500 1,000 2,000 Feet

N

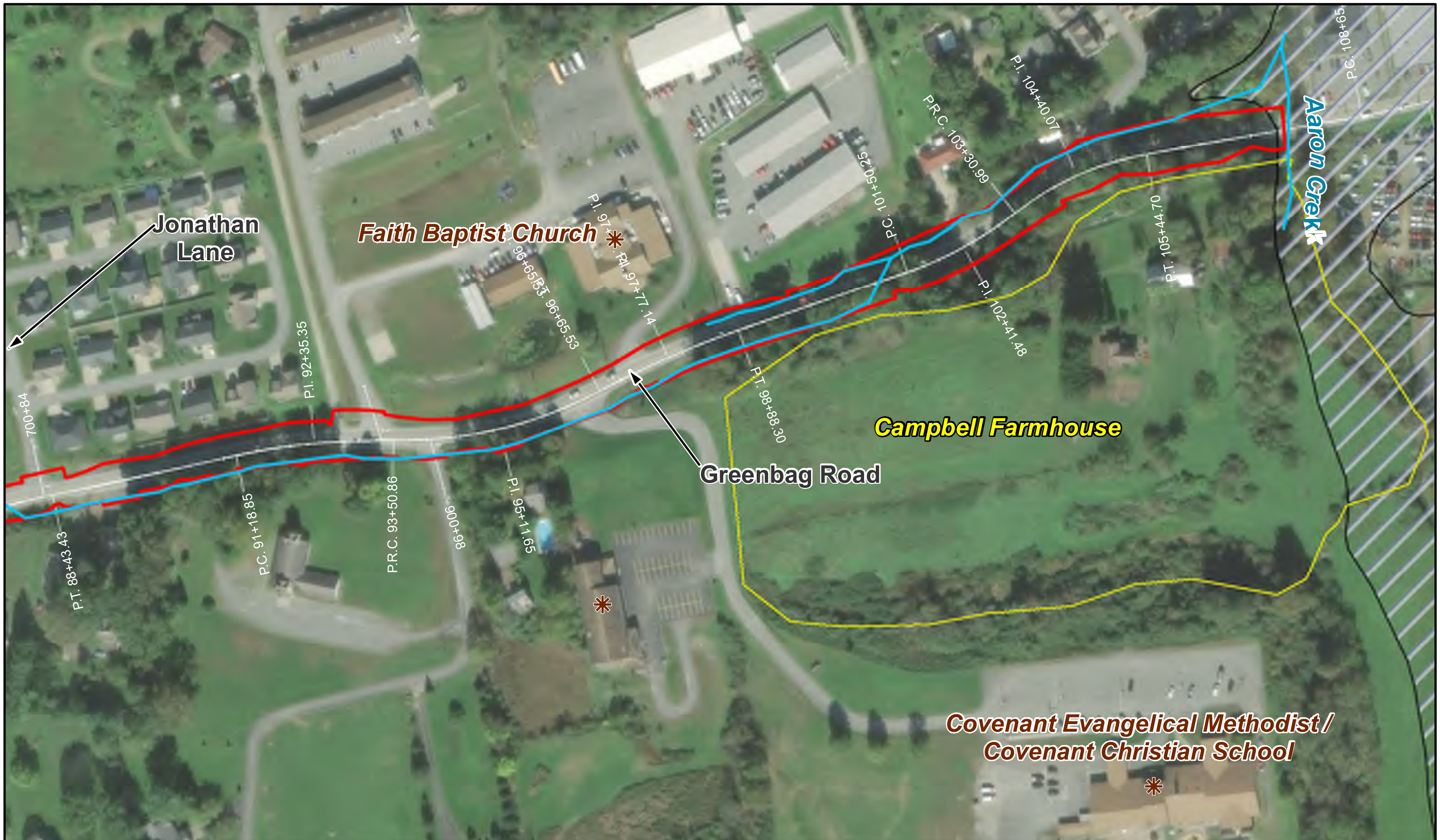


Figure 14 (Sheet 6 of 6)
Detailed Environmental Features Map
Preferred Alternative 2, Options C / F
West Virginia Division of Highways
Federal Project STP-0857(019)D/State Project U331-857-0.67 00
Greenbag Road Improvement

Data Sources: ESRI (2018), USDHS (2015)

Limits of Disturbance
NRHP Eligible Resource
Productive Agriculture
Point of Interest
Intermittent Stream
Perennial Stream
Floodway
100-year Floodplain
Palustrine Emergent Wetland
Palustrine Forested Wetland
Palustrine Scrub/Shrub Wetland

0 500 1,000 2,000 Feet

N

Table 11: Summary of Impacts From the Preferred Alternative (2 / C / F)

Resource or Elements	Preferred Alternative 2 / C / F
Environmental Justice	All *block groups* immediately adjacent to the Project meet thresholds indicating a presence of EJ populations. While adverse impacts are anticipated under this *alternative*, all are expected to be minor and/or temporary and all impacts affect non-EJ and EJ populations equivalently. Impacts include right-of-way takes, parking impacts to facilities, expanded access at Bluegrass Village, tree removal, access during construction, and improved bicycle/pedestrian access.
Displacements	There would be no relocations for residential or commercial properties under the preferred *alternative*.
Community Facilities and Services	The expanded roadway widths and turning lane will improve traffic capacity and provide for increased mobility. Vehicle travel through the corridor will be more efficient. Non-motorized access to community services will be enhanced through the presence of the sidewalks and increased roadway shoulders for bicycle use.
Community Cohesion	The improved multimodal connectivity between residential areas along Greenbag Road with schools, recreational resources, commercial resources, and transit services will result in a permanent positive access impact to all populations within the Project area.
Farmlands	This *alternative* will impact 5.7 acres of *Farmland of Statewide Importance* soil and 1.1 acres of Prime Farmland soil. Of these acres, 3.7 acres of *Farmland of Statewide Importance* soil and 1 acre of Prime Farmland soil have been previously developed.
	This *alternative* will result in an impact of 0.07 acres to the Thomas E. Richards Trust Farm. This sliver take of the property will not result in a change to the existing operations and is assumed to be considered insignificant.
Land Cover	The Project will impact the following land cover types: ❖ Developed land (low intensity: 1.1 acres; medium intensity: 2.6 acres; high intensity: 2.0 acres) ❖ Pasture – 0.2 acres ❖ Deciduous forest – 0.5 acres ❖ Developed open space – 0.2 acres
RTE Species	No Impact

Table 11: Summary of Impacts From the Preferred Alternative (2 / C / F) (continued)

Resource or Elements	Preferred Alternative 2 / C / F
Streams	The impacts to the streams located within this *alternative* are as follows: ❖ Perennial – 2,953 linear feet ❖ Intermittent – 753 linear feet The total stream impacts for this *alternative* are 3,706 linear feet.
Wetlands	Three wetlands will be impacted by this *alternative*. The impacts to the wetlands located within the Project area are as follows: ❖ Palustrine Emergent – 0.06 acres ❖ Palustrine Forested – 0.04 acres The total wetland impacts for this *alternative* are 0.1 acres.
Floodplains	The Project will impact a total of 1.3 acres defined as regulated floodplain at the Cobun Creek crossing.
Groundwater	No Impact
Air Quality	No Impact
Noise	The noise analysis report indicates the Greenbag Road and intersection improvements for this *alternative* do not meet the requirements for either a Type I or Type II project. The Project is classified as a Type III project and no noise analysis for highway traffic noise impacts is required.
Potentially Hazardous Waste	The Morgantown City Garage has been identified as an area of concern. The WVDOH has committed to completing a *Phase I Environmental Site Assessment* for the Project area once right-of-way impacts to the property are defined. The results of that assessment will be documented in the FONSI.
Historic Resources	No Adverse Effect
Archaeological Resources	No Impact
Utilities	Several utility lines and associated components will be relocated.

Table 11: Summary of Impacts From the Preferred Alternative (2 / C / F) (continued)

Resource or Elements	Preferred Alternative 2 / C / F
Section 4(f) Resources	Two NRHP-eligible resources were identified within the Project vicinity. The Campbell Farmhouse will not have direct impacts to the property. There will be no right-of-way acquired from the FCI Morgantown facility, thereby resulting in No Use of the Section 4(f) resource.
Temporary Construction Impacts	Access will be maintained to all properties during construction. The flow of traffic will be maintained through the use of traffic controls, detours or temporary signals or flaggers to minimize disruptions. Construction will comply with all federal, state, and local laws regarding safety, health, and sanitation. Contractors will follow Occupational Safety and Health Administration guidelines to protect employees, the public, and property. An erosion and sediment pollution control plan will be prepared and implemented for the Project to eliminate or minimize sedimentation.

HOW WELL DOES THE PREFERRED ALTERNATIVE MEET PURPOSE AND NEED?

In considering the purpose and need for the Project, Alternative 2 C / F was compared to the *No Build Alternative* to determine whether the benefits of the Project warrant the expenditure of public funds. The results of the comparison are displayed in **Table 12**.

Table 12: Comparison of Preferred and No-Build Alternatives to Purpose and Need

Purpose and Need Element	Preferred Alternative (2 C / F)	No Build
Traffic Congestion	Highway operations will be improved with this alternate. The *LOS* will be improved to an overall B for AM and C for PM.	Expected growth in the region will negatively impact the flow of traffic increasing point-to-point travel times accessing all destinations along the Project corridor. The *LOS* is expected to degrade to D/F.
Non-motorized connections	The addition of sidewalks and shoulders for bicycle use between the residential areas along Greenbag Road with schools, recreational resources, commercial resources, and transit services will result in a permanent positive access impact to all populations within the Project area.	Safe bicycle and pedestrian facilities connecting residential areas with community resources within and beyond the Project area would remain nonexistent.

MITIGATION OF IMPACTS FROM THE PREFERRED ALTERNATIVE

Mitigation commitments proposed by the WVDOH to lessen permanent and temporary impacts are shown in **Table 13**. Additional measures may be proposed during final design to avoid or minimize permanent and temporary impacts.

Table 13: Mitigation Commitments

Resource or Elements	Impact	Mitigation Commitment
Environmental Justice	Impacts include right-of-way takes, parking impacts to facilities, tree removal, and access during construction.	The WVDOH will stipulate in the final design specifications the replacement of trees in kind between Bluegrass Village and the roadway after construction has been completed. Representatives of WVDOH will coordinate with the City of Morgantown and Monongalia County to ensure full and fair participation of all potentially-affected communities in the transportation decision-making process.
Land Cover	The preferred *alternative* will convert approximately 0.7 acres of non-built up land to highway use.	Prior to earth disturbing activities, an approved Erosion and Sediment Pollution Control Plan and appropriate best management practices (BMPs) will be implemented/installed to avoid unintentional impacts to resources beyond the proposed limits of construction. This will also minimize potential impacts to water quality and stream habitat throughout the Project area. Disturbed areas will be revegetated with a native seed mixture after construction. Furthermore, the limits of construction for the Project have been reduced to the greatest extent possible while still meeting the Project Purpose and Need.
Streams	The preferred *alternative* will impact a total of 3,706 linear feet of streams. Impacts will be the result of roadway widening and the replacement or extension of drainage ditches, drainage pipes, and culverts.	During final design, further avoidance and/or minimization measures will be considered and/or implemented as appropriate to reduce the total impacts to streams. Specific BMPs will be developed prior to construction to reduce the amount of disturbed aquatic habitat and riparian vegetation; minimize opportunities for increased sedimentation during construction; revegetate all disturbed areas to prevent accelerated erosion; designate equipment fueling and service areas away from aquatic habitats; and designate and construct all stormwater management facilities to prevent runoff. Coordination with resource agencies will continue throughout construction activities as necessary.
RTE Species	In channel work in Cobun Creek	If in channel work is set to occur in Cobun Creek between April 1 and June 30, the WVDOH will request a spawning waiver from the WVDNR.

Table 13: Mitigation Commitments (continued)

Resource or Elements	Impact	Mitigation Commitment
Wetlands	The preferred *alternative* will impact three wetlands resulting in an impact of 0.1 acres. Most of the impact wetlands are identified as PEM.	During final design, further avoidance and/or minimization measures will be considered and/or implemented as appropriate to reduce the total impacts to jurisdictional wetlands. If necessary, unavoidable impacts will be mitigated through the purchase of appropriate wetland banking credits or payments to the state's in-lieu fee program.
Floodplains	The preferred *alternative* will impact a total of 1.3 acres defined as regulated floodplain at the Cobun Creek crossing.	During final design, measures will be identified to minimize and avoid impacts to floodplains. The WVDOH will apply for a Monongalia County Floodplain permit prior to any construction.
Noise	Sound levels may be temporarily increased during construction.	Noise generating construction activities such as pile driving or jack hammering should be minimized and completed during daytime activities. Mufflers will be installed on equipment to minimize temporary noise impacts during construction. The permanent condition of the existing noise environment is not anticipated to change following construction.
Utilities	Utility relocations will be required as a result of the Project.	Coordination with utility operators will be required. The WVDOH has detailed procedures for coordinating with impacted utilities and the relocations will be completed prior to construction with limited inconvenience to the public.
Potentially Hazardous Waste	The Morgantown City Garage is an area of concern. Exact impacts will be defined upon completion of the *Phase I Environmental Site Assessment.*	To be determined upon completion of the *Phase I Environmental Site Assessment*
Temporary Construction Impacts	Construction will create short-term impacts related to increased noise and air pollution, erosion, and traffic delays or detours.	Access will be maintained to all properties during construction. The flow of traffic will be maintained through the use of detours or temporary signals or flaggers to minimize disruptions. Construction will comply with all federal, state, and local laws regarding safety, health, and sanitation. Contractors will follow Occupational Safety and Health Administration guidelines to protect employees, the public, and property.

RESOURCE AGENCY COORDINATION

The WVDOH has coordinated with environmental resource agencies throughout the development of the Project. Agencies involved in the Project to date include the FHWA, the WVDEP, the West Virginia Division of Culture and History (WVDCH), and the WVDNR. Correspondence with these agencies and public officials related to the Project are attached in **Appendix D**. Coordination with these agencies, officials, and others will continue during the development of the Project.

REQUIRED PERMITS

The following permits will be required prior to construction:

- Clean Water Act Section 404 Permit from the US Army Corps of Engineers
- Clean Water Act Section 401 Certification from the West Virginia Department of Environmental Protection
- Monongalia County Floodplain Development permit
- National Pollutant Discharge Elimination System permit from the WVDEP

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GLOSSARY OF TERMS

- *100-year floodplain* – land that is predicted to flood during a 100-year storm, which is a flood that statistically has a 1-percent chance of occurring in any given year (USGS 2019).
- *Alternative* – indicates the differing design plans that are considered to address the purpose and need statement for the Project. In this EA, the alternatives do not include any design changes at the two major intersections.
  - *Build alternative* – designs that involve construction. For this Project, Alternatives 1 and 2 are the Build Alternatives.
- *Block Group* – A statistical subdivision of a census tract, generally defined to contain between 600 and 3,000 people and 240 and 1,200 housing units, and the smallest geographic unit for which the Census Bureau tabulates sample data (USCB 2019a).
- *Census Tract* – A small, relatively permanent statistical subdivision of a county delineated by a local committee of census data users for the purpose of presenting data. Census tracts nest within counties, and their boundaries normally follow visible features, but may follow legal geography boundaries and other non-visible features in some instances. Census tracts ideally contain about 4,000 people and 1,600 housing units (USCB 2019a).
- *Curb and gutter* – the area between the roadway and sidewalk designed for water runoff and providing a barrier for safety of pedestrian and vehicular traffic (Law Insider 2019).
- *Environmental features* – the environmental, cultural, community, and Section 4(f) resources within the delineated area that are evaluated for impacts.
- *Environmental Justice (EJ) populations* – minority and low income populations.

- *Farmland Protection Policy Act* – The FPPA is intended to minimize the impact Federal programs have on the unnecessary and irreversible conversion of farmland to nonagricultural uses (USDA NRCS 2019b).
- *Farmland of Statewide Importance* – include those that are nearly prime farmland and that economically produce high yields of crops when treated and managed according to acceptable farming methods (USDA NRCS 2019c).
- *Level of service (LOS)* – is a performance metric which started when the US began building freeways in the 1950s. LOS uses a scale of A to F based on an objective formula that tries to answer the question, “How much congestion are we willing to tolerate?” (Dunn 2019).
    - A: free flowing traffic
    - B: reasonably free flowing traffic
    - C: stable flow, at or near free flowing traffic
    - D: approaching unstable flow of traffic
    - E: unstable flow, operating at capacity
    - F: forced or breakdown flow of traffic
- *Non-motorized connections* – modes of transportation that do not rely on motorized vehicles.
- *NRCS-CPA-106 Farmland Conversion Impact Rating for Corridor Type Project* – form used for assessing farmland conversion impacts for corridor projects.
- *Option* – for this EA, options indicate the range of considered possibilities for improvements to the intersections. Each option can be selected independently of the alternative selected or the option selected for the other intersection.
- *Permissive turn/phase* – Permissive only operation requires left-turning drivers to yield to oncoming vehicles and pedestrian traffic streams before completing the turn (USDOT FHWA 2017). This phase is indicated with a green traffic signal.
- *Phased traffic signal* – Each phase at an intersection has a set of timing, possibly containing vehicle and pedestrian timing. A phase may control both a through movement and a right turn movement on an approach (USDOT FHWA 2017).

- *Phase I Environmental Site Assessment* – The ESA process establishes reasonable assurance that no hazardous wastes, other wastes, or unacceptable hazards exist; or that existing hazardous wastes are manageable (USDOT FAA 2019).

- *Protected turn/phase* – Protected only operation assigns the right-of-way to drivers turning left at the intersection and allows turns to be made only on a green arrow display (USDOT FHWA 2017). This phase is indicated with a green arrow on the traffic signal.

- *SAFETEA-LU* – 2007 Federal transportation appropriation bill, replaced by FAST ACT in 2015.

- *Section 4(f)* – Federal laws stipulate that FHWA cannot approve the use of land from publicly owned parks, recreational areas, wildlife and waterfowl refuges, or public and private historical sites unless there is no feasible and prudent avoidance alternative to the use of land and the action includes all possible planning to minimize harm to the property resulting from such use or FHWA determines that the use of the property will have a *de minimis* impact.

- *Title VI Resources* – Title VI of the Civil Rights Act of 1964, prohibits discrimination based upon race, color, and national origin. Specifically, 42 USC 2000d states that *"No person in the United States shall, on the ground of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance."* The use of the word "*person*" is important as the protections afforded under Title VI apply to anyone, regardless of whether the individual is lawfully present in the United States or a citizen of a State within the United States.

- *Title 46 and the West Virginia Surface Mining Rules* – provides the definitions for surface water as perennial streams, intermittent streams, or ephemeral streams.

- *Truck apron* – A truck apron is the mountable portion of the central island used to accommodate the turning path of a design vehicle larger than a passenger vehicle or BUS, and helps to minimize the overall footprint of the roundabout. Generally, the truck tractor can traverse the roundabout in the circulating lane while the trailer is allowed to off track onto the apron. The apron is raised above the circulating path to provide guidance for drivers in the circulating lane (WSDOT 2019).

LIST OF ACRONYMS

BG	Block group	NLCD	National Land Cover Database
BMP	Best management practices	NRCS	Natural Resources Conservation Service
CAA	Clean Air Act	NRHP	National Register of Historic Places
CEQ	Council on Environmental Quality	NWI	National Wetland Inventory
CE	Categorical Exclusion	PEM	Palustrine Emergent
CT	Census tract	RFFA	Reasonably foreseeable future actions
EA	Environmental Assessment	RTE	Rare, Threatened, and Endangered
EJ	Environmental Justice	SAFETEA-LU	Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users
ESRI	Environmental Systems Research Institute	SHPO	State Historic Preservation Office
FCI	Federal Correctional Institution	STIP	State Transportation Improvement Plan
FEMA	Federal Emergency Management Agency	USACE	United States Army Corps of Engineers
FHWA	Federal Highway Administration	USCB	United States Census Bureau
FONSI	Finding of No Significant Impact	USDA	United States Department of Agriculture
FTA	Federal Transit Administration	USFWS	United States Fish and Wildlife Service
HERS-ST	Highway Economic Requirements System	USGS	United States Geologic Survey
LOS	Level of service	WVDCH	West Virginia Division of Culture and History
MMMPO	Monongalia Morgantown Metropolitan Planning Organization	WVDEP	West Virginia Division of Environmental Protection
MTP	Metropolitan Transportation Plan	WVDNR	West Virginia Division of Natural Resources
NEPA	National Environmental Policy Act	WVDOH	West Virginia Division of Highways

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DISTRIBUTION LIST

Federal, state, and local agencies with jurisdiction over transportation projects and relevant environmental regulations have received or will receive a copy of this EA to review. The WV State Senators and Delegates representing the Project area will also receive a copy for review. All entities receiving a copy are presented below.

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Greenbag Road Improvement Project

Appendix A

Public Involvement Summary Report

INFORMATIONAL WORKSHOP

PUBLIC MEETING REPORT

Greenbag Road Improvement Project
Monongalia County, WV

West Virginia Department of Transportation

Division of Highways

State Project U331-857-0.67

Federal Project NFA-2317(022)D

May 2019

Revised August 2020

MARKOSKY

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LIST OF TABLES

GREENBAG ROAD IMPROVEMENT PROJECT, MONONGALIA COUNTY, WEST VIRGINIA

STATE PROJECT: U331-857-0.67, FEDERAL PROJECT: NFA 2317(022)D

Summary of April 16, 2019 Public Meeting Informational Workshop and Comments

Summary of Meeting

The West Virginia Department of Transportation, Division of Highways (WVDOH) hosted a public meeting informational workshop to inform the public and receive comments for the proposed Greenbag Road Improvement Project. The project proposes improvements and upgrades to the Greenbag Road (CR 857) corridor between Jonathan Lane and ¼ mile west of the intersection with Mississippi Street.

The meeting was held at the South Middle School at 500 East Parkway Drive in Morgantown, West Virginia on April 16, 2019 from 4:00 to 7:00 PM. The meeting location was approximately ¼ mile north of the Mississippi Street intersection of the proposed project area.

WVDOH advertised the meeting in local papers and hand delivered flyers to the surrounding community residents and businesses. The Morgantown Metropolitan Planning Organization and the City of Morgantown posted notices of the meeting online. At the meeting, handouts with information on the proposed project were provided at the registration table. In the school lunchroom there were two sets of seven (7) project boards as well as two sets of roll plots available for public review, provided by Stahl Sheaffer Engineering and The Markosky Engineering Group. WVDOH representatives were in attendance to answer questions. Representatives from the District Right-of-Way were not able to attend but WVDOH provided a Right-of-Way informational booklet and contact information for the District Right-of-Way agent when specific inquiries arose regarding right-of-way.

A 30-day comment period followed the public meeting, with comments due to WVDOH by May 16, 2019. Comment forms were attached to the handouts at the meeting and were available online, before the meeting and during the comment period, on the WVDOH website. Given the volume of public response the comment period was extended to May 21, 2019 in order to capture all of the submitted responses.

Attendance

Fifty-two individuals signed the attendance sheet at the meeting.

Public Discussion during the Meeting

The top concerns expressed by the local public attendees during the meeting were the amount and location of the right-of-way to be acquired for the roundabouts, the truck and car detour routes during construction, and the removal of a community garden.

Community users familiar with the community garden indicated that an eagle had been spotted in the area and inquired about an eagle nest survey. Another specific concern raised was related to the tree line currently separating Bluegrass Village from Greenbag Road regarding if the trees would be replaced if damaged or removed during construction.

Total Comments

Two hundred sixty-three (263) comments were received by WVDOH. Of these, eight (8) were submitted during the public meeting, two hundred fifteen (215) were submitted via the online system, and thirty-one (31) were mailed to WVDOH. The remainder were a combination of emails, voicemails, letters to the editor, and newspaper advertisements. Details for each comment are provided in Table 1. Comments and concerns are provided in Table 2. Where possible the comments are provided verbatim. Any comments that have been summarized are marked as such.

Comments Summary

Of the total comments received, nineteen (19) demonstrated support for the project as currently designed. The remainder expressed concerns related to the design, detour, and necessity of the project. The most frequently mentioned concerns were:

- The use of turn lanes instead of a roundabout at the Greenbag Road and Dorsey Ave/Kingwood Pike intersection
- Impacts to the community garden
- Prioritizing road repair both locally and within the county over improvements to the Greenbag Road corridor
- The use of traffic signals at the intersections instead of roundabouts
- Concerns related to the detour route including length and conditions of the roadways to be used
- Requests for an Environmental Impact Statement or Environmental Assessment instead of a Categorical Exclusion
- A desire to see additional alternatives presented
- Returning the Greenbag Road and Dorsey Ave/Kingwood Pike intersection to a 4-way stop

Table 1: Comment Details

Last Name	First Name	Organization	City	State	Comment Type	Date received	Comment Number
Cain	Roger		Morgantown	WV	Comment Form	4/16/2019	1
Downey	Ken				Comment Form	4/16/2019	2
Geass	Marc				Comment Form	4/16/2019	3
No Name	No Name				Comment Form	4/16/2019	4
Radman	Scott				Comment Form	4/16/2019	5
Selin	Jenny	City of Morgantown	Morgantown	WV	Comment Form	4/16/2019	6
Talerico	Tom		Morgantown	WV	Comment Form	4/16/2019	7
Whitmore	Josh	City of Morgantown			Comment Form	4/16/2019	8
Pardey	Sara		Morgantown	WV	Mailed Form	4/22/2019	9
Holipsky	Edward		Morgantown	WV	Online Form/Mailed Form/Email	4/29/2019	10
Talerico	Tom		Morgantown	WV	Letter to the editor	4/29/2019	11
Hall	Hazel		Morgantown	WV	Mailed Letter	5/2/2019	12
Lee	Richard		Morgantown	WV	Mailed Form	5/2/2019	13
Joseph	Janet		Morgantown	WV	Mailed Letter	5/6/2019	14
Brockett	Kevin		Morgantown	WV	Mailed Letter	5/8/2019	15
Hastings	Dewey		Morgantown	WV	Mailed Form	5/10/2019	16
Everly	Ann		Morgantown	WV	Mailed Form	5/12/2019	17
Hastings	Dewey		Morgantown	WV	Mailed Letter	5/13/2019	18
Hastings	Dewey		Morgantown	WV	Mailed Email	5/13/2019	19
Hastings	Dewey		Morgantown	WV	Mailed Form	5/13/2019	20
Hastings	Mary		Morgantown	WV	Mailed Letter	5/13/2019	21

Last Name	First Name	Organization	City	State	Comment Type	Date received	Comment Number
Korf	Mary		Fairmont	WV	Mailed Form	5/13/2019	22
Moore	Ryan		Morgantown	WV	Mailed Form	5/13/2019	23
Morgan	Alice		Morgantown	WV	Mailed Letter	5/13/2019	24
Richards	Garrett		Morgantown	WV	Mailed Form	5/13/2019	25
Gallagher	Glenn		Westover	WV	Mailed Form	5/15/2019	26
Post	Dominion				Newspaper Advertisement	5/15/2019	27
Post	Dominion				Newspaper Advertisement	5/15/2019	28
Post	Dominion				Newspaper Advertisement	5/15/2019	29
Ware	Henry				Email	5/15/2019	30
Chivers	Adam		Morgantown	WV	Email	5/16/2019	31
Hastings	Dewey		Morgantown	WV	Mailed Form	5/17/2019	32
Talerico	Tom		Morgantown	WV	Mailed Letter	5/17/2019	33
Dias	James		Morgantown	WV	Mailed Form	5/20/2019	34
G.	Alan		Morgantown	WV	Mailed Form	5/20/2019	35
Hastings	Grant		Morgantown	WV	Mailed Form	5/20/2019	36
I.	Brittney		Morgantown	WV	Mailed Form	5/20/2019	37
K.	Shawn		Morgantown	WV	Mailed Form	5/20/2019	38
Lassiter	Cassidy		Morgantown	WV	Mailed Form	5/20/2019	39
Leann	Lehing		Morgantown	WV	Mailed Form	5/20/2019	40
Mason	Belle		Morgantown	WV	Mailed Form	5/20/2019	41
Mason	Rebecca		Morgantown	WV	Mailed Form	5/20/2019	42
No Name	No Name				Copy of letter to the editor	5/20/2019	43
Popp	Felicia		Morgantown	WV	Mailed Form	5/20/2019	44

Last Name	First Name	Organization	City	State	Comment Type	Date received	Comment Number
S.	Jordan		Morgantown	WV	Mailed Form	5/20/2019	45
	Bryon		Morgantown	WV	Mailed Form	5/20/2019	46
Hastings	Mary		Morgantown	WV	unknown	unknown	47
Abarca	Fatima		Broadlands	VA	Online Form		48
Adkins	Leah		Morgantown	WV	Online Form		49
Alshallah	Hasan			WV	Online Form		50
Ardnt	Camille			WV	Online Form		51
Ardnt	Camille			WV	Online Form		52
Ault	Jenny		Morgantown	WV	Online Form		53
Austin	Katherine		Morgantown	WV	Online Form		54
Bacorn	Amy		Morgantown	WV	Online Form		55
Bakhurin	Konstantin		Durham	NC	Online Form		56
Ballard	Donna			WV	Online Form		57
Beach	Robert	Senator			Mailed Form	5/20/2019	58
Beavers	Matt	Morgantown police Dept	Morgantown	WV	Online Form		59
Beavers	Kelli		Reedsville	WV	Online Form		60
Blaney	Mark		Morgantown	WV	Online Form		61
Bolyard	Gerald		Reedsville	WV	Online Form		62
Bolyard	Roseann		Reedsville	WV	Online Form		63
Bolyard	Sheila		Morgantown	WV	Online Form		64
Bowers	Rosella		Morgantown	WV	Online Form		65
Bowers	Timothy		Morgantown	WV	Online Form		66
Bowman	Alice			WV	Online Form		67
Boyers	Erin		Morgantown	WV	Online Form		68
Bradley	Holly	Gesundheit Institute	Hillsboro	WV	Online Form		69
Bradley	Michael		Morgantown	WV	Online Form		70

Last Name	First Name	Organization	City	State	Comment Type	Date received	Comment Number
Bramer	Karl			WV	Online Form		71
Brockett	Rhonda		Morgantown	WV	Online Form		72
Burghy	William		Morgantown	WV	Online Form		73
Call	Ashlin		Morgantown	WV	Online Form		74
Callegari	Joe			WV	Online Form		75
Candella	Erica		Morgantown	WV	Online Form		76
Chapman	Chelsey		Louisville	KY	Online Form		77
Chapman	Chelsey		Louisville	KY	Online Form		78
Childs	Silas		Morgantown	WV	Online Form		79
Chivers	Adam		Morgantown	WV	Online Form		80
Christensen	Gigi			WV	Online Form		81
Christie	Matt			WV	Online Form		82
Clark	Carol		Morgantown	WV	Online Form		83
Clark	Carol		Morgantown	WV	Online Form		84
Clawsun	Grace			CO	Online Form		85
Cole	Stacey		Morgantown	WV	Online Form		86
Collier	Paulina		Morgantown	WV	Online Form		87
Cope	Taylor	Conscious Harvest Cooperative LLC Community Garden	Morgantown	WV	Online Form		88
Corbin	Cassi			WV	Online Form		89
Cox	Madison		Morgantown	WV	Online Form		90
Cross	Hannah			WV	Online Form		91
Cummings	Ann			WV	Online Form		92
Cummings	Stephen		Morgantown	WV	Online Form		93
Dailey	Penny		Morgantown	WV	Online Form		94

Last Name	First Name	Organization	City	State	Comment Type	Date received	Comment Number
Dakan	Laurel		Morgantown	WV	Online Form		95
Dalton	Judith		Morgantown	WV	Online Form		96
Dalton	Mary			WV	Online Form		97
Dalton	Amy		Morgantown	WV	Online Form		98
Davis	Erica		Morgantown	WV	Online Form		99
Davis	Tara		Morgantown	WV	Online Form		100
Davis	Tara		Morgantown	WV	Online Form		101
Dennison	Damian		Morgantown	WV	Online Form		102
Deshield	Quentine	MPS	Morgantown	WV	Online Form		103
Dohn	Kevin		Louisville	KY	Online Form		104
Don	D			WV	Online Form		105
Downey	Jan		Morgantown	WV	Online Form		106
Fabry	David		Morgantown	WV	Online Form		107
Fidler	Donald	self	Morgantown	WV	Online Form		108
Flores	Hope			WV	Online Form		109
Fraley	Stephanie		Louisville	KY	Online Form		110
Freeman	Brenda			WV	Online Form		111
Glover	Arlene		Masontown	WV	Online Form		112
Goodwin	Tricia	3c's Hair Salon	Reedsville	WV	Online Form		113
Govindan	Megan	West Virginia University	Morgantown	WV	Online Form		114
Greene	Ashley		Morgantown	WV	Online Form		115
Gribble	Bryan		Morgantown	WV	Online Form		116
Griffith	Patrick	Hemp farmer	Morgantown	WV	Online Form		117
Gyorko	Brenda		Morgantown	WV	Online Form		118
Hall	Jackie		Morgantown	WV	Online Form		119
Hall	Jodye			WV	Online Form		120

Last Name	First Name	Organization	City	State	Comment Type	Date received	Comment Number
Harrison	Kait			OR	Online Form		121
Harshbarger	Dave	City resident	Morgantown	WV	Online Form		122
Hart	Mary		Morgantown	WV	Online Form		123
Hart	Mary Lee		Morgantown	WV	Online Form		124
Hart	Sherry		Morgantown	WV	Online Form		125
Hastings	Jen			WV	Online Form		126
Hastings	Jennifer	Joy and Hemp Universal; Conscious Harvest Cooperative		WV	Online Form		127
Hastings	Marilyn	Guided SVC LLC	Morgantown	WV	Online Form		128
Hastings	Mary		Morgantown	WV	Online Form		129
Hastings	Mary	Joy and Happiness Universal	Morgantown	WV	Online Form		130
Hastings	Ted	Conscious Harvest Cooperative	Morgantown	WV	Online Form		131
Hastings	Ted	Concerned citizen	Morgantown	WV	Online Form		132
Hepkins	Ruthanne			WV	Online Form		133
Herget	Deborah		Morgantown	WV	Online Form		134
Herget	Deborah		Morgantown	WV	Online Form		135
Herman	Carissa	Conscious Harvest	Morgantown	WV	Online Form		136
Hetzel	Erica		Morgantown	WV	Online Form		137
Hilling	Lisa		Morgantown	WV	Online Form		138
Hoch	Allyson		Morgantown	WV	Online Form		139
Hoover	Gretchen		Arthurdale	WV	Online Form		140
Houck	Samuel	None	Morgantown	WV	Online Form		141

Last Name	First Name	Organization	City	State	Comment Type	Date received	Comment Number
Howell	Verna		Morgantown	WV	Online Form		142
Hughes	Marcia			WV	Online Form		143
Jackson	Sharon			WV	Online Form		144
Jefferys	Becky		Morgantown	WV	Online Form		145
Jenkins	Connie	State worker	Morgantown	WV	Online Form		146
Johnson	Tammi		Kingwood	WV	Online Form		147
Jones	Ceranda		Morgantown	WV	Online Form		148
Judy	Krystal			WV	Online Form		149
Kalwar	Tarik	Community member	Morgantown	WV	Online Form		150
Kelley	Melissa		Kingwood	WV	Online Form		151
Kessel	Gene		Morgantown	WV	Online Form		152
Kessler	Bert			WV	Online Form		153
Korf	Mary		Fairmont	WV	Online Form		154
Kulathumani	Gayathri			WV	Online Form		155
Kummer	Sarah			WV	Online Form		156
Kyle	Jonathan			WV	Online Form		157
Kyle	Josh			WV	Online Form		158
Kyle	Mark			WV	Online Form		159
Kyle	Patrick			WV	Online Form		160
Kyle	Patrick			WV	Online Form		161
Kyle	Patrick			WV	Online Form		162
Kyle	Tipper			WV	Online Form		163
Kyle	Hannah		Morgantown	WV	Online Form		164
Lambert	Chris		Morgantown	WV	Online Form		165
Lambert	Madison		Morgantown	WV	Online Form		166
Lambert	Sarah			WV	Online Form		167

Last Name	First Name	Organization	City	State	Comment Type	Date received	Comment Number
Lancaster	Brandy		Moundsville	WV	Online Form		168
Lantz	Gavin		Morgantown	WV	Online Form		169
Linton	Sara		Morgantown	WV	Online Form		170
Linton	Sara			WV	Online Form		171
Lipscomb	Tracy		Morgantown	WV	Online Form		172
Lohnes	Joshua	West Virginia University - Food Justice Lab	Morgantown	WV	Online Form		173
Manypenny	Mike	Public	Grafton	WV	Online Form		174
Marie	Ivy			WV	Online Form		175
Marple	Amanda	Conscious Harvest Cooperative	Morgantown	WV	Online Form		176
Marsh	Brandon		Morgantown	WV	Online Form		177
Masters	Kelsey		Jeffersonvilld	IN	Online Form		178
Maupin	Maya		Louisville	KY	Online Form		179
Mcalpine	Christina		Morgantown	WV	Online Form		180
Mccolloch	Gayle	Private Citizen	Morgantown	WV	Online Form		181
Mcdaniel	Lew		Morgantown	WV	Online Form		182
Mckinney	Gary		Morgantown	WV	Online Form		183
Mcnemar	Andrea		Morgantown	WV	Online Form		184
Mcnemar	Chris		Morgantown	WV	Online Form		185
Melgar	Silvano			WV	Online Form		186
Michael	David		Reedsville	WV	Online Form		187
Molisee	Eleanor		Morgantown	WV	Online Form		188
Mollohan	Mellissa			WV	Online Form		189
Morton	Dennis			WV	Online Form		190
Morton	Susan			WV	Online Form		191

Last Name	First Name	Organization	City	State	Comment Type	Date received	Comment Number
Mucino	Veronique		Morgantown	WV	Online Form		192
Mullens	Amanda		Morgantown	WV	Online Form		193
Mullens	Amanda		Morgantown	WV	Online Form		194
Murray	Cheryl		Morgantown	WV	Online Form		195
Nestor	Amanda		Morgantown	WV	Online Form		196
Oztan	Mehmet	Conscious Harvest Cooperative		WV	Online Form		197
Patrick	Jonathan			WV	Online Form		198
Pavlovic	Anastasia	Yara North America	Morgantown	WV	Online Form		199
Perkins	Brittany			WV	Online Form		200
Perkins	Kelly			WV	Online Form		201
Pratt-Lilly	Linda		Independence	WV	Online Form		202
Queen	Randy		Morgantown	WV	Online Form		203
Queen	Randy		Morgantown	WV	Online Form		204
Ramsey	Cindy		Belington	WV	Online Form		205
Reed	Ceda		Morgantown	WV	Online Form		206
Rhodes	Andrew		Morgantown	WV	Online Form		207
Riley	Patrick		Morgantown	WV	Online Form		208
Riley	Venus			WV	Online Form		209
Ryan	Seth			WV	Online Form		210
Savage	Kelli			WV	Online Form		211
Scites	RJ				Phone messages		212
Sedlock	Steve	Local resident	Morgantown	WV	Online Form		213
Shaver	Chelsea			WV	Online Form		214
Shriver	Jackie		Morgantown	WV	Online Form		215
Sickles	Brandon		Morgantown	WV	Online Form		216

Last Name	First Name	Organization	City	State	Comment Type	Date received	Comment Number
Simons	Christopher		Morgantown	WV	Online Form		217
Snider	Melissa		Morgantown	WV	Online Form		218
Snyder	Jonathan		Morgantown	WV	Online Form		219
Snyder	Kaitlyn			WV	Online Form		220
Spenler	Herbert M.	Resident Lower Aarons Creek Road	Morgantown	WV	Online Form		221
Stanley	Phil			WV	Online Form		222
Stemple	Amanda			WV	Online Form		223
Stephens	Kory		Morgantown	WV	Online Form		224
Stickler	Heather		Morgantown	WV	Online Form		225
Stockdale	Alexandra	City of Morgantown	Morgantown	WV	Online Form		226
Stotch	Leopold			WV	Online Form		227
Strough	Jonell			WV	Online Form		228
Summers	Deborah		Morgantown	WV	Online Form		229
Summers	Karen		Morgantown	WV	Online Form		230
Summers	Morgan		Morgantown	WV	Online Form		231
Sussman	Caitlin	Mulan Puskar Health Right	Morgantown	WV	Online Form		232
Swiger	Joshua		Morgantown	WV	Online Form		233
Sylvester	Andrew	Conscious Harvest Cooperative	Morgantown	WV	Online Form		234
Talerico	Thomas		Morgantown	WV	Online Form		235
Tate	Christy		Morgantown	WV	Online Form		236
Thoma	Ehren			WV	Online Form		237
Thompson	Lucas			WV	Online Form		238
Tidwell	Jessica			WV	Online Form		239

Last Name	First Name	Organization	City	State	Comment Type	Date received	Comment Number
Todesko	Joe		Kingwood	WV	Online Form		240
Todesko	Lauren		Kingwood	WV	Online Form		241
Tsai	Ben		Fairfax	VA	Online Form		242
Tucker	James			WV	Online Form		243
Turner	Jennifer		Morgantown	WV	Online Form		244
Uzstop	Will			WV	Online Form		245
Vasquez	Victoria		Morgantown	WV	Online Form		246
Vidulich	Richard		Morgantown	WV	Online Form		247
Waldo	Brad		Morgantown	WV	Online Form		248
Walls	Ashlee		Morgantown	WV	Online Form		249
Weidman	Nancy		Morgantown	WV	Online Form		250
Westfall	Christine		Morgantown	WV	Online Form		251
White	Brandy			WV	Online Form		252
Wiles	Della			WV	Online Form		253
Wilson	Chelsey			WV	Online Form		254
Winkels	Steven			WV	Online Form		255
Wolfe	Candy		Reedsville	WV	Online Form		256
Woods	Allison		Morgantown	WV	Online Form		257
Woody	Christina			WV	Online Form		258
Yeager	Wanda	Residents	Morgantown	WV	Online Form		259
Zepp	Fran		Morgantown	WV	Online Form		260
Zou	Xiao	Great Wall Chinese Restaurant	Morgantown	WV	Online Form		261
Zuchowski	Stephanie		Morgantown	WV	Online Form		262
Zwiener	Heidi		Morgantown	WV	Online Form		263
Gerasimovich	Kelli		Morgantown	WV	Email	10/10/2019	264

Table 2: Comments and Concerns Submitted

Comment Number	Comments
1	We support the round about project. We hope you take into consideration the amount of traffic that will run on the roads and make the round about large enough.
2	While closures on Kingwood Pike procede work needs to be done on Aaron's Creek and Lower Aaron's Creek road to allow for increased traffic. Also, Luckey Lane needs inprovement to allow for the increased detour traffic. Shoulders need to be widen, surface needs paved so two cars can travel in both directions.
3	There appears to be no specific consideration given for bicycle traffic other than to coexist with automobile and truck traffic. While this may be possible for the most avid of cyclists, I feel it fails to provide service to a critical component of the future transportation mixture - cycling. I'd like to see a targeted focus on making meaningful investment in cycling infrastructure to encourage safe and effective travel for all levels of cyclist to get the places they need and want to go. If we don't start now and every time we make significant [unclear] in transportation it will never happen. We need to build things so people can use them.
4	Who is in charge of the new sidewalk, city cannot maintain what it has now? Luckey Lane needs widened to be used as a detour. Do we really need a roundabout at the pike, why not a left turn lane? Please make the study available to the public. Please leave the community garden along
5	As the owner of the Atomic Grill restaurant and the owner of the building at 595 Greenbag Road, I believe the newly proposed roundabout will enhance and improve traffic flow and commerce for the Greenbag road and surrounding communities.
6	Sidewalk continuation on Dorsey after the Atomic Grill to Luckey Lane, sidewalk on Luckey Lane as a safe route to school. Minimize land take at the Conscious Harvest garden (diagonal from Atomic Grill)
7	Is going to be a major problem (to go N to Morgantown I'll have to drive S). I feel it is a waste of $10 mil. Will be tricky for 18 wheel trucks and all the school buses. Would prefer a plan B. Give us the better road, the wider lanes, the turning lanes, wider berms and leave the roundabout out of the picture. Any widening of Luckey Lane will make houses useless and maybe the church also.
8	Luckey Lane and Dollar General intersections do not appear to show large truck traffic impacts. 857 near Mountainview Elem is not currently a 15 mph school zone, should this be examined? Large truck traffic in the morning hours plus school traffic may cause congestion at traffic circles
9	A leading green arrow would be a cheaper and still functional alternative to allow turning traffic in each direction to move more quickly. Also a turning lane in each direction. I don't agree with a roundabout at this location. If this is the plan though the planned route for Kingwood Pike travelers must be repaired/repaved (Aaron's Creek is an absolute nightmare - pot holes, narrow at points). This must be corrected before detouring traffic this way.

Comment Number	Comments
10	I have recently attended the public informational workshop for this project, which includes widening Greenbag Road, Lucky Avenue and Dorsey Avenue. I have great concerns that were not clearly answered at the meeting that was held. It is possible that this project will affect me greatly, and that is in addition to the huge inconvenience that will occur as a result of this project. My property is located directly across from Lucky Lane. This is the intersection of the planned detour once Dorsey Ave is closed. Also, as the widening of Dorsey Avenue takes place between the existing roadway and my property it could cause my home to be uninhabitable. This project could cause my property value to plummet should my property be encroached upon even in the most minimal way. As I see it, damages could include the removal of my natural barrier of shrubbery that exists between the roadway and my house. It could also create havoc in the short-term with the detour while entering and exiting my driveway. However, in the long term it could very well make it impossible. As you will notice in the picture, to use and safely exit my garage and enter the roadway, I need to have access to the full length of my driveway as it is necessary to stop, shut the garage door, and carefully enter onto Dorsey Avenue. I was unable to receive information the evening of the meeting stating exactly the plan and intention for the Lucky Lane, Dorsey Avenue and my property. I would like to have this information as I am directly and prominently effected by this road construction project. This note isn't only to express my comments, but to ask and receive additional information that is pertinent and necessary before this project proceeds and devalues my property and home. I will include in a mailed copy pictures to help you see the significance of this project on my property, as well as see my home in conjunction to Lucky Lane (directly across from it) and Dorsey Avenue (running parallel). Or, please send me an email address and I will send pictures directly.
11	Published letter to the editor, Dominion Post, *summarized* - waste of money, problematic during construction, not fix problems. Roundabouts are unpopular. Need alternatives. New berms will permit 18 wheelers to navigate through roundabouts. Propose widening Greenbag at 90-degree turns and snake turn, berm both sides for entire length, turn lanes at intersection with Dorsey/Kingwood, dedicated traffic lights for schools, sidewalk from Mississippi Street to the west. Repair roads with remaining money.

Comment Number	Comments
12	My first reaction when I read the headlines in our local paper "Roundabout for Greenbag Road" I said "how dumb can you get" and after reading the article I have not changed my mind - anyone that would even consider putting in a roundabout, a sidewalk - a bike lane or any other things for that area has surely never even come to see the conditions we travel in - I am sure they have never been up the Kingwood Pike where we practically have to come to a stop before falling into a pot hole or try to get over a dip in the road that would cause your muffler to come off your car - if you don't believe me - come and see for yourself - I have lived here 89 ears and this is one of the dumbest ideas I have ever heard of - I'll be in heaven and I won't have to put up with such stupidity - but I feel for others who will lose their property and for my children - my grandchildren - my great grandchildren - at the least they could do would be to think about the churches on the Greenbag Road that have finally been able to have Christian schools for children to come to and this in no way would help them but probably destroy them - for that matter it will not help anyone - May God help us all and give us wisdom to make right decisions - not just look at a map and decide.
13	Our roads need improvement. Roundabouts are dangerous. We don't need roundabouts. Waste of money, pave our roads, too close to schools
14	I am writing this letter because my husband and I whole heartedly agree with the gentleman that wrote the attached article in the Dominion Post. It is totally crazy to put roundabouts in and not a turn lane. Truthfully at the Kingwood Pike it worked better when there was a 4-way stop. We are against the roundabouts and hope you will rethink your decision.
15	The construction of a large roundabout at the intersection of Greenbag Road and Kingwood Pike would require the destruction of an important productive greenspace on land belonging to the Hastings family. Among its other ongoing contributions to the local community, this site hosts the Conscious Harvest Cooperative community garden, which offers a place for landless citizens to produce their own food. For this reason along, the State's environmental assessment erred severely with its "Categorical Exclusion" determination. The Hasting family has been very generous to offer this land for use by members of the Morgantown community and it would be reprehensible for the State to seize it for the purposes of unnecessary road expansions. Based on the information included in the document that was presented in conjunction with the public informational workshop of April 16, 2019, WVDOT does not have a reasonable justification for this project. The primary goal is obviously to redirect heavy truck traffic through the proposed project area, and this would hardly serve the interests of the local residents who would be most directly affected on a daily basis. More broadly, I submit my opinion that in view of WVDOTs continual widespread neglect of its existing infrastructure in the Morgantown area, the State should not engage in any new road construction projects in the region until it has devised and implemented an effective maintenance program for the existing road system. I urge you either to completely cancel the proposed Greenbag Road Improvement Project, or at a bare minimum, to substantially revise its entire scope so as to mitigate its otherwise devastating impact on the surrounding community.

Comment Number	Comments
16	I'm landowner of what is currently known as Dorsey Plantation Farms and Homes, which your project 80% of our lands. DOH was sold a right of way thru our farm to join up route 857 - Greenbag Road in 1963. As well as Route 81 Old Kingwood Pike. I "texted" a Stahl Sheaffer employee 11 Feb 2019 about some concerns I had shared with him and another engineer of Stahl 3 weeks earlier when they came to my home for signature for archaeological excavation. 1. spring 2. drainage 3. right of way 4. slip. 11 Mar 2019 yet another Stahl engineer came to my home for another signature. I gave him a copy of my text to Andrew at Stahl and ask him to respond, which there has been none. After decades of no help, I placed a box on Rt 81 and piped your run off, that cost me several harvests out of my pocket to the tune of $7000. Director this is a recent example of lack of communication from several levels of government and agencies or contractors. I've attempted to reach our over the years. Which by your title "Director of". Once again your comment period does not allow for open communications. I just left DEP in Pleasant Valley. Arron said there understaffed. He did acknowledge it's not smart to build a highway on a spring! It being Friday I was told they be in touch. Sound familiar?
17	Apolla Drive off Dorsey - very near your work area - Luckey Lane - Mt. View School/access - Apollo Drive (3rd right off Dorsey). Apollo is a private road. Access to it about 80 feet - informed by city is DOH responsibility. It is impassible with 15 (some very deep) potholes. While all the equiment to resurface it are so close - please do so. Stage 4 temporary traffic signal just past Richard - in order to avoid light toward Don Knotts Blvd/Luckey Lane detour, lots of traffic will turn right onto Richard past Mt. View Elem onto Apolla Drive, a private road. The traffic will turn left onto Apolla and continue out to Dorsey. Apolla/Richard can't be blocked off. Brookhaven Fire Dept needs access to 200 block of Apolla Drive at this point. Suggestion - large sign at intersection of Richard and Greenbag Road "No Thru Traffic". Large sign at intersection of Richard and Apolla "Private Road - No Thru Traffic"
18	I strongly oppose your plan for the Greenbag - Old Kingwood Pike. The 4-way stop worked fine and I'm sure the present light could be programmed to allow the Greenbag Road traffic to flow thru. A turn lane would work, I'm sure all the Lumber Co on the Old Kingwood Pike would not favor this change. Very few accident here compared to Greenbag and University Ave. The need is greater at 705 and Stewart Street on 705 and Van Voohees. The enclosed letter to the editor states it better than I.
19	Mailed copy of email from Mary Smith (WVDOH D2 Realty agent) to Doug Mooney on 11/9/2016 regarding the right of way along Kingwood Pike (CR 81). Highlighted sections state CR 81 has a 60 foot r/w and 857 was part of old 64. Written notes indicate 857 was not part of old 64 but sold to state in 1963 and CR81 r/w was not 60 feet wide in 1967
20	Safety is #1. This plan proposes 2 roundabouts in less than 0.04 of a mile. There are no sidewalks near either roundabout. How are pedestrians going to be safe crossing the road? As mortician for over 30 years I want you to know its easy to die. I was told national stats say are safer. I challenge you to examine # accidents on Mileground roundabout (3 years). 10 fold the previous decade.

Comment Number	Comments
21	Letter from Bowles Rice Attorneys at law *summarized* - project will have a significant impact to the land use and natural resources of the Hastings Property. Does not support current project. Believe Categorical Exclusion is improper due to significant effect on human environment. Hastings Property is family owned and operated farm of 117 years. Community green space. Home to Conscious Harvest Cooperative. Has established garlic bed, home to wild mint and wild mushrooms, allow foraging by public, utilized by WV based industrial hemp research program. Request EIS or EA.
22	I've lived in this area for 20 years. And think that a roundabout at the intersection of the Kingwood Pike and Greenbag Road is a safety issue. There is a natural slip being held up by a wall that would be used. Which doesn't make sense. And how are people to get across this roundabout to use the proposed sidewalk! A turning lane or return to a 4 way stop sign is a safer option.
23	I feel threatened by our government. To destory a farm for a roundabout when a simple turning lane and light would do. I feel my property is not safe. It can be taken at anytime and what's just as scary? The peoples tax dollars have to be granted to us to use for unnecessary projects like these. I'm just a simple guy. if I don't see the big picture can you please send a detailed explanation in writing on what I'm not seeing. I'll break out the law dictionary.
24	I am a resident of Morgantown WV and a WV taxpayer, and I am writing to express my strong opposition to the proposed Greenbag Road Improvement Project. The new project plan by the WVDOT proposes a largge roundabout at the Kingwood Pike and Greenbag Road intersection. Currenly the State's plan claims there will be no significant Human or Environmental Impact to the project. I believe that these claims have been made in error. The project places an area of land which is currently home to the Conscious Harvest Cooperative, a community garden space wihchis much beloved by the Morgantown Community. This organization works to reduce food insecurity in WV and has been providing other charitable services to improve the lives of locals. Additionally, as a current PhD candidate at WVU, I have been fortunate enough to rent one of the Cooperative's plots of land in this area. I have greatly enjoyed my time in the growing vegetables and flowers and speding time in the wooded area next to the garden. I have always been happy that I could help support the Coop's mission, and would be deeply saddened to have my time at the garden and work with this wonderful community come to an end. I feel that the roundabout would severely impact this beautiful agricultural and natural area and stunt the good work being done by the Conscious Harvest Cooperative. I urge you to cancel the proposed Greenbag Road Improvement or at least seek other options that will mitigate its devastating impact on our community.

Comment Number	Comments
25	First and foremost, I am in disagreement that these roundabouts are necessary or the best design for Greenbag. I believe center turn lanes would be a more cost effective solution. The design does not provide a center lane near Mt. View Elem. Which is a dangerous and somewhat hidden turn at the entrance. Mississippi, Dorsey, and the Pike don't add so much burden to warrant a roundabout. Secondly I am concerned about any disturbance of earth on or adjacent to the wall on Greenbag. When Greenbag was constructed they ruined our family farms structures and livelihood. Apparently this was not a lesson learned as the design calls for more disturbance. The family home was spared with is where I and my family now live. I am greatly concerned that disturbance could claim our historic 100 yr home. I do not feel that the time DOH provided was sufficient to contemplate and address all concerns. I would kindly ask for answers/remedies to the following points. Will a pre-construction survey be done, including testing of my well, sound and light levels (currently)? I am concerned about the increased traffic count so close to my home, and any light apparatus. I try to keep my property attractive, good curb appeal. I also have tried to create a tree buffer from the intersection. Will the state do its part to maintain mature trees nearby and replace what they take? Can a wall that is not green steel and smooth face concrete be achieved so to not diminish the appeal and value of my property? I am against having a sidewalk on the southeast and southwest corners of the roundabout. There is zero pedestrian traffic on the Kingwood Pike, with no businesses and only a handful of residences all the way to I-68 overpass. I believe that the improved pedestrian access adjacent to my property will encourage trespassing or other degenerative activity. Who's responsible for maintaining the sidewalk and snow removal? Will the state replace my billboard and compensate for lost revenue? Will my driveway extension be concrete as the rest of my existing driveway? I do not want the added maintenance of sealing asphalt. My driveway is also the main access for our farm, and needs better radius than what’s proposed. We bring tractor trailers and large farm equipment through regularly. To have a roundabout less than 100 feet from my house is upsetting. To bring so much more traffic so close to my home will be disturbing. Though the actual right of way will only take a small portion of my property, I consider the roundabout to be an undesirable, unattractive, and devaluing object. I consider this design damages the resale value of my home and property. I would like to know if the state would qualify my remaining property as damaged to the residue. Overall I feel this is a poor design, and other alternatives should have been provided to the public, and for comment. I voted in favor of the road bonds, and I am for improvement on the Greenbag corridor but not this. I would appreciate a prompt response or dialogue to my questions and concerns, so I may know what to anticipate regarding my home and property in the coming months.
26	I am writing about the proposed rouandabout on the Greenbag Road. The property that the roundabout will be built on belongs to Dewey Samuel Hastings. He's against it and so am I.
27	Advertisement - Do you think 2 roundabouts within 4/10 of a mile is smart or safe? Say No to the Roundabouts
28	Advertisement - We need your help! If you have a memorable experience of Dorsey Farm, Bluegrass Dairy, Hastings Stables, High Moon Stables and see value in local farm land, call today, only 2 days left, say no to the Kingwood Pike Roundabout
29	Advertisement - If your family has enjoyed local produce from a community garden and you see value in farm land, say no to the Kingwood Pike roundabout

Comment Number	Comments
30	I am a Morgantown resident and I wanted to say I am strongly in favor of all the roundabouts possibilities I have heard mentioned. Where space permits and pedestrian traffic is moderate, they are effective for both traffic throughput and latency. I also think they would help at Campus Drive and Beechurst/US 19 and at the Southbound exit of I-79 to Chaplin Rd.
31	I have heard that Morgantown is considering putting in large round about at the Kingwood Pike Greenbag intersection There is a community garden there, that many people use and would miss if you put in the roundabout. There are other solutions that could be used such as building a turning lane, a turn signal, expanding the road, or adding turning signs. It would be very upsetting to destroy something that brings us together as a community when other options are available. I personally have heard people in the South Park neighborhood that are upset about the plans, and know local farmers will be upset by it.
32	You have the historical incorrect information on right of ways. 1961-857-sold to you. I have the documents. Rt 81 Kingwood Pike is not 60 feet. I wrote Stahl 11 Feb 2019 about this, no answer
33	Extensive letter *summarized* here - request alternatives, current project will waste money, tie up traffic during construction and not alleviate traffic congestion. Dislike roundabouts. Additional travel time during construction will cost money. Lower Aaron's Creek road unsuitable for detour. Construction to change the 2 90-degree turns and S turn will be costly and cumbersome. Roundabouts will not be well received. Businesses on Kingwood Pike will be impacted during construction. Logging businesses on Pike may not survive the closure during construction. Problems associated with berms and sidewalks. What studies were done to assess the need, how many, by whom? Proposed alternative plan: turning lanes on Greenbag; re-pave, widen, and berm the length of Greenbag Road; sidewalk from Miss. Street to Mountaineer Mall; school stop lights for South Middle and Mountaineer Elem (time controlled); use remaining funds for roadway improvements. Alternative plan gets bypass, less construction disruption, good PR for State. Current proposal creates hardships on citizens, nightmares for business, waste of road money with little gained and fails to correct major road issue.
34	Put a turning lane in. 705 does not work. No roundabout.
35	Roundabout is not necessary. What is necessary is a left hand turn lane and a left turn green arrow signal. A right turn lane with signal would also be good there. This would be placed at intersection right before the Atomic Grill as you drive away from the Mountaineer Mall.
36	Please do not kill the Pike four-way! Traffic is bad everywhere, this is not the worst. My family, friends, neighbors, and loved ones have stemmed from the Kingwood Pike for generations. Every local loyal person I know is against it! My personal advice is to do away with the light. It worked beautifully when it was simply a four way stop. I've lived here all my life. Not to mention the rape of people's personal land, history, and heritage...the environment, ecosystem and natural beauty of our little left green areas. I beg you as a permanent local citizen to reconsider your mistake!
37	My children love this place! Please don’t take this farm away from us! We don't want a roundabout at this farm! Put a roundabout in front of the Coliseum instead, or at Harman Run Road in front of the airport. That is where it is really congested and needed. The community doesn't want a roundabout at Kingwood Pike, the community wants a shared space, a place for the children to learn.

Comment Number	Comments
38	The Hasting's Farm serves as an educational tool to all those who venture and participate. You should see how much the children love to visit and learn. You should see how volunteers from our community come together for a common goal. You should see how the Hasting's share with the neighbors in this community. We don't need a roundabout at Kingwood Pike and Greenbag Road. Why not invest all that Federal money into clean water technology, clean food technology, why not build a new treatment center for people in our community to get treatment for addiction? Why not fix the roads we already have? I'm saying no to the roundabout!
39	The land you're considering using as a roundabout is land that is essential to improving lives in our community. The Conscious Harvest Cooperative provides low income families with access to local produce and sustains food security for these families who may not have means to fee their children healthy foods. West Virginia has a serious problem concerning food security and it is well known that we are one of the unhealthiest states in our nation. What kind of message are you sending if you choose to deprive our community of means to a healthier way of living?
40	I grow vegetables over there. I don't want that farm turn to roundabout. The roundabout is no help for the traffic's problem
41	Proposed plans for a roundabout at this intersection will have significant lasting impacts on land use for the community. As a resident and student in Physical Therapy, West Virginia's health status is desperate for community-based initiatives and partnerships with agricultural resources. The family owned farm of 117 years helps to support the community with access to farmland for research, education, and local produce. Promote health and wellness opportunities and consider alternatives for construction and city planning
42	Constructing a large roundabout at this intersection is unnecessary and will cause harm to the community. I urge you to reconsider the effects this proposed plan will have on the farmland, home to Conscious Harvest Cooperative, a community green space and WVU student garden, all that provide local access to produce. I firmly support a solution to the truck traffic through Morgantown via other alternatives - a turning signal or lane, signs or a road expansion. Protect farms in WV! Commuting through this intersection at the peak traffic times is not that congested - choose health for WV!
43	sent copy of Tom Talerico April 29 Letter to the Editor, Dominion post
44	I do not support a roundabout at the location. This would take away from land and not really fix the problem. We are a small town structure with a city population - there will be traffic. There has been no sign (ex. - Mileground) that a roundabout is affective enough to help with traffic. This will only take away and add more problems. That is my opinion
45	I personally am fond of Morgantown destroying all our greenspace! They cut down all our mountains already! Stop the roundabout project! Stop destroying our children's grass and trees! Leave something for the children! The mall is dead! Walmart is gone too! Leave this land alone!
46	Please consider the effects that a roundabout will cause for the farmland in this area. As a Veteran, I can also say that as roundabout work in places such as England, most Americas do not know how to use them properly and cause more traffic and collisions. Please look at alternate solutions.

Comment Number	Comments
47	This is about a new project plan by the West Virginia Dept of Transportation to put a large roundabout at the Kingwood Pike and Greenbag Road intersection. These plans would significantly impact our community due to the total acreage they wish to acquire/annex via eminent domain. The State's Environmental Assessment of the project rendered it a Categorical Exclusion (CE) for expedited approvals without traditional public comment because the project claims "no significant human or environmental impact." This exclusion is unacceptable. We request a full environmental impact assessment and reassessment of the Categorical Exclusion. The project WILL affect land use for the area, have a significant impact on natural, historic, economic, environmental, and agricultural resources, and significantly impact air, noise, and water quality. This land is a: 1. community green space. 2. family owned and operated farm of 117 years. 3. home to Conscious Harvest Cooperative, an established non-profit organization, 501(c)3, working on alternative food sourcing strategies to combat food insecurity and increase food access in Morgantown, WV. 4. recreation space, including a wild mint and wild mushroom foraging area. 5. participating WV-permitted industrial help research program. 6. established garlic bed that supplying to local families and restaurants. 7. WVU agronomy student research and project growing area. 8. educational site for K-12 students, undergraduate and graduate students for food systems, horticulture, human nutrition and foods. 9. pollinator gardens that provide food and habitat. 10. gardening space for individuals to grow their own food. The further impact on agriculture, education, food access, and the environment can not be under-stated. We are open to alternatives that include turning lanes as apposed to leveling our farm and dreams to the insert roundabout at this intersection.
48	This new project puts at risk and jeopardizes the unique ecosystem created here for both wildlife and human life. The construction of this roundabout is unethical and immoral as it robs from the community in more ways than one.
49	We do NOT need a roundabout.....we NEED TURNING LANES!!
50	It would be more beneficial to make a turning lane instead of a roundabout
51	The public is against this roundabout. There are so many other options - pick one that doesn't destroy everyone's lives, time, money, homesteads, mother nature, and our hard earned tax money. Ridiculous
52	We are against this roundabout! If traffic is so bad, add a turning lane! This is way too big of a project, too much money, too much construction- why would you propose such a massive project first? why not add a turning lane to that light we put in so maybe it will actually work. This is ridiculous! Huge impact on the environment and on the people: Categorical Exclusion should be revoked! How dare you steal peoples' land right underneath them! And ruin the Pike while you're at it! shame on you
53	I think the roundabout is a waste of time. What money you all spend on it you can fix the roads and drainage problems here on the pike
54	Can we please stop with the roundabouts? They do not help. They are causing other areas to become congested with people attempting to avoid them. These aren't even decent ones. Visit Carmel, Indiana or Hilton Head Island, SC. Ten times easier to navigate and a better layout. An absolute NO from me for more roundabouts.

Comment Number	Comments
55	Why waste all that time and money for these projects. When all that is needed are turning lanes and arrow lights. Use the money to fix roads that are unbearable instead of creating new ones.
56	I am writing as a former resident of Morgantown. I am concerned about the impact that the roundabout will have on the heritage farm and community garden in that area. This is an important cultural and social resource in Morgantown. Please consider its future in your plans.
57	No more round abouts! They reward aggressive driving.
58	It has been brought to my attention that there are plans for a roundabout to be constructed at the intersections of Greenbag Road and Kingwood Pike in Monongalia County. Please know that I am opposed to any such plans that would include a roundabout in this location. The roundabout will not adequately address the truck traffic which descends the Kingwood Pike on a daily basis. Additionally, the roundabout severely limits the use of the community garden located at this same intersection. I might add, this is the only community garden meeting the needs of our growing region.
59	Roundabout is not needed, money would be better spent repairing existing roadways. Example Kingwood Pike lane slippage.
60	I have serious about money being wasted to inter-grate a traffic circle into the Kingwood Pike/Dorsey Ave intersection. What a total waste of revenue in WV. My husband and I drove those roads daily and there is ONE HOUR daily, from 5:00-6:00 that this road is even remotely congested. That is the time that Mylan Pharmaceuticals Office in the Mountaineer Mall closes. That isn't even a permanent office. Mylan could dissolve in Morgantown one day. I feel that this project is unnecessary and will cause more traffic problems than currently exists. Please hear out the many who travel these routes and reconsider.
61	A roundabout at the Kingwood Pike/Dorsey ave. intersection isn't necessary. A simple turn light on all sides would solve any traffic flow issues. The time and resources used to make a roundabout would be better spent on fixing the severely deteriorating roads.
62	Widen the road and put in turn lanes and turn lights. A round about will not help. Do the same thing in Sabraton at the green bag road. Use the money effectively.
63	We do not need a round about just will cause more congestion and wrecks!! What we need is turning lanes and signals!! I am absolutely against roundabouts they don't work!!! Look at the one coming off 705 it's is congested at the rush hour times and takes just as long to get through!!! Not going to help the traffic at the pike but turning lights and turning signal lights would!
64	I respectfully ask that round abouts not be the solution to the Greenbag Road project. Adding additional lanes, turn lanes, should solve and traffic issues in this area. I live on the Kingwood Pike and have my whole life. We are fortunate to have this beautiful area so close to the city. I know we can do better than ugly round abouts and what is up with sidewalks there?? I travel that road everyday, all times of day. There is VERY little pedestrian traffic on Greenbag. Let's reserve the beauty and save some money and just add turn lanes. We don't need to make a big showing, just fix the problem. Thank you for your consideration

Comment Number	Comments
65	I don't think the double roundabouts will work. The one on the Mileground doesn't work during rush hour especially if you are coming from town going toward the hospital. No one will let you out and if you find a break in the traffic, you are almost taking your life in your hands. Trucks also have trouble driving in them too. They almost need both lanes in the circle. I think it would be better to widen the road in the area of Kingwood Pike and add turning lanes. In the area of Mississippi Street put a traffic light that is only triggered by those coming out of the school area. I hope this construction doesn't kill the few businesses that are on the Greenbag Road.
66	I hate roundabouts
67	We do NOT need a Round about at the intersection of Kingwood Pike and Dorsey Avenue
68	I think the roundabouts and side walks are a great idea. My church and kids school are on Greenbag road. It will be so nice if the traffic flows better. Round abouts are really the best. Also, my high schooler sometimes gets off the bus and walks Greenbag road to his dad's place of employment. It worries me with the traffic. I'm so happy about the sidewalks going in.
69	This is an atrocity. I have spent a lot of time at this beautiful Morgantown oasis. This is one of the last remaining farms so close to downtown. The family that occupies this farm are also some of the most genuine, open and welcoming people I've ever met and are always willing to share their space and abundance with others. I believe this is also the location of the ONLY community farm in Morgantown. This round a bout will not only affect the community but also the environmental implications are astound. This will negatively affect the people of Morgantown as well as plants and animals who occupy this land currently. This farm has big plans for the future, are planning to grow medicine as well as nourish folks with community and food the community garden grows. DONT ALLOW THIS ROUNDABOUT TO DESTROY THIS BEAUTIFUL FARM AND COMMUNITY GARDEN.
70	I use the Greenbag Rd on an almost daily basis and I think the plans for Dorsey Ave and Mississippi St are unnecessarily extravagant. All you need to do is widen the 2 intersections, providing a turning lane heading northeast on GBR onto Mississippi St and widening the Dorsey Ave intersection by adding turning lanes. I am also concerned about how The Mississippi St work will affect Cobun Creek nearby, and the active business at Dorsey Ave. And while I assume the DOH (such an unfortunate abbreviation) can handle more than one project at the same time, I fervently believe that it should focus on the Route 7/Greenbag Road intersection first. The situation there needs urgent attention. (Apologies for any typos..this tiny window for writing doesn't allow any maneuverability)
71	This is beyond unnecessary, a simple solution is widening and putting a turn signal at the kingwood pike traffic light. Whomever is making this decision does not live anywhere near this intersection and has no understanding of the area.
72	We do not need another round a bout on greenbag road.
73	This is spending money which isn't necessary. Travel this every day. Just put some green arrow turn signals in traffic light. Lain brain idea for a roundabout much less for two.

Comment Number	Comments
74	1. This is a community green space 2. It's a family owned and operated farm of 117 years. 3. Home to Conscious Harvest Cooperative, an established nonprofit working on alternative food sourcing strategies to combat food insecurity and increase food access in Morgantown, WV. 4. It's a recreation space, including a wild mint and wild mushroom foraging area 5.Participating WV-permitted industrial hemp research program. 6. It's an established garlic bed that supplies local families and restaurants. 7. It's WVU's Agronomy student growing garden.
75	Has the state looked at all options? There are so many other roads that need fixed badly that the area doesn’t seem like a top priority and that’s good land to use.
76	There is no need for the round about at the intersection at the bottom of the kingwood pike. It is only gonna make it worse down there. The lights are bad enough. There is absolutely no need for it.
77	I oppose the roundabout, gardens are much more important for a community
78	I oppose the roundabout, gardens are much more important for a community
79	I would like to express my concerns regarding the proposed roundabout at the intersection of Greenbag Rd and Kingwood Pike/Dorsey Ave. I understand that this construction would absorb a significant portion of the agricultural land owned by the Hastings family. This land is flat and suitable for vegetable production or similar uses. Monongalia County has very little flat land suitable for agriculture that has not already been commercialized. Taking this agricultural land for a roundabout is very concerning. I have a BS in Horticulture from WVU and a MS in Plant Breeding from the University of Georgia. I currently work at Micro Genesis (a local greenhouse), and am also developing my own business model for an agricultural production company in Morgantown. The Hastings family has been kind enough to allow me to pursue agricultural endeavors on their farm. I planted tomatoes and herbs in 2018 on land that would be part of the proposed roundabout project. I sold produce I grew onsite directly to the public, on adjacent land owned by the Hastings family. This enabled me to test the market and refine my growing system. I hope to develop a local market on site in future years. I also performed plant breeding research in 2018 on this site. This research is part of a venture to develop a seed production business in the state. Having this incubation area is essential to obtain a business development loan in the future. I would support alternative plans that would involve a turning lane. However, a roundabout would take up too much of this valuable land that is supporting my efforts to develop an agricultural business in Morgantown. Please consider my request to stop this roundabout construction.

Comment Number	Comments
80	I am local to the South Park area, and do not support building a round about by the Dorsey Avenue/Kingwood Pike intersection. I have heard concerns from neighbors that it will take land from a local community garden, that means a lot to our residents. There are other options that can be used instead, like a turning lane. It clearly means a lot to our local farmers. This garden helps bring our community together, and to take the garden away from us to build a round about when other options are available would be very disappointing.
81	Please do not pave over the Conscious Harvest Cooperative. There must be another place for the roundabout!!
82	The community garden is a sacred place. It does wonders for the community and brings personal meaning and resources to the individuals and the community involved. The loss of sacred spaces like this and the impact they can have on peoples lives will never be offset by the potential value of traffic improvements. Please consider those who are emotionally invested and the loss to the community. Thanks!
83	A roundabout at this intersection would be an absolute nightmare. How about turning lanes and arrows.
84	The roundabout is a horrible idea. The Kingwood Pike is falling in and potholes everywhere. When it rains or snow the water runs on the road and makes it dangerous to drive on. It's in desperate need of repair. Please fix this Kingwood Pike and maybe put some tuning lanes instead of a roundabout.
85	Please don't have a roundabout built! This is a wonderful place which helps the community much more than a traffic circle could ever contribute to a community!
86	I think the round about is an amazing idea! Can't wait for it
87	This is a family farm, that has been operational for decades. This family has been a huge asset to the Morgantown community for decades. Morgantown does NOT need this "improvement", the need to focus on simple road maintenance before anything else.
88	PLEASE DO NOT FOLLOW THROUGH WITH THE ROUNDABOUT! Before following through with this project please be sure to take an assessment of all of the factors that will be impacted! Please consider the impact on food resources (that help feed my family), animal resources, economical resources, and community sharing resources. Instead of a round about, which only creates more traffic because no other expansions of the roads take place to accommodate the new feature (MILEGROUND) consider making turning lanes, turning signals at the light, or simply expanding the road to allow more thru traffic. All I ask is to please not take away our garden. People have been collaborating and sharing in this garden for years, to some like me this is the only space to garden, by taking this away you will be destroying our nutrition, community, and all of our hard work. Please consider all of the other factors before following through with you plan. Kind wishes!
89	Do not do this project! The traffic is bad because you put a stop light in with no turning lane. Add a turning lane!!! Common sense. No need to make a HUGE project out of this.. taking peoples land and spending tax payer money on a monstrosity. Wow. Don't do this.
90	DON'T touch this land
91	Please try a turning lane before there's no turning back. Roundabout here is a bad idea.

Comment Number	Comments
92	Please, please, please! Not every traffic woe in this town needs to have a roundabout! The average citizen hates them because they are confusing, so they tend to avoid those areas and find alternate routes that lots of times go through neighborhoods. Next, they take up a lot of space and are ugly and very expensive. How can this state justify the expense of these roundabouts when they can't even manage to take care of the roads we already have? There are other solutions to the light at this location. Even though traffic backs up after South Middle lets out, it moves through fast. You could just put in a turning lane, or even just prohibit left turns during peak times.
93	I think that putting is a waste of time and in some ways it is stealing. The ways that it is stealing is that the state would be taking land from people and businesses that the state does not own. Plus, not to mention that harm that It will do to the environment. The amount of money that it will take to make the changes to Greenbag road does not compare to just leaving thing alone. Changing the intersection at the Greenbag road and the Kingwood Pike road is both waste of time, money and energy. Most of the time it only take a few minute to wait to get through the intersection. Where as putting a round about at that intersection will take more time and cause more problems.
94	We don't need or want an expensive turnabout put at the end of Kingwood pike. They do nothing but back up traffic worse. The entire Kingwood Pike needs fixed, we have potholes that destroy vehicles and slides that needs fixed. NO TO THE H TURNABOUT. The one on the mileground was a total waste of money, traffic backs up worse than ever
95	Please do not build a round about on Greenbag Road. That would take up too much land for an unnecessary solution. There is a beautiful field that would be disturbed. A simple step would be to add arrow signals to make the left hand turn going towards Dorsey, that is all that is needed to solve the problem, not a huge project that would destroy businesses and farmland
96	Would you please consider putting an on and off ramp off 68 to access the Kingwood Pike. The lower end of the Kingwood Pike is a mess where the road has been slowly falling in. Seems like you get one area fixed and another area is starting to do it. This had been dis used as an option years ago. Thank you
97	I do not see any benefit in the proposed roundabout at the intersection of Kingwood Pike and Greenbag Road and would strongly oppose it.
98	I do not think a round about is the ideal choice. I think a turning lane and turning signal would work better!
99	I feel that the round about is not beneficial to our community or the traffic flow in the are. I think adding turning lanes on the Greenbag Road would help the flow of traffic tremendously. A lot of elderly people live on the Kingwood Pike that won't travel the mileground because of the round about. So adding one in a rural area would not be a good choice.
100	Please do not put in another roundabout. I vote for a turning lane only. The farm is a great asset to this town. If it is taken away, you take away from the locals. Please don't destroy a good thing.

Comment Number	Comments
101	I would also like to add one more comment. Instead of building more new roads, can we please just have all the roads in Morgantown fixed so they are smooth and not patched up? That would be better than wasting money on another headache. The drivers in Morgantown are not smart enough to figure out the roundabouts anyways, they still haven't figured it out on the Mileground Rd. It is always jammed up there.
102	This land is a valuable asset to the community and does not need to be turned into another road.
103	We opposed the round about and will like and alternative plan. The community deserve solution.
104	Roundabouts are extremely expensive and expansive. Surely there's a less costly traffic solution with lesser land impact. What other alternatives have been explored?
105	How about you use my tax dollars to fix the end of Kingwood Pike so I don't damage my car that I pay taxes on that I park in the driveway of my house that I am heavily taxed for owning.
106	Roundabouts are completely unnecessary on Greenbag Road. We are against this project because: the purpose of the project is to get the 'truck traffic out of downtown' as stated in the RFP. However, there is no law to make the truck drivers use the Greenbag Road nor any data to support that they ever will. Because: We do not want additional dump truck traffic in this area. They increase the risk to residents and school children. They have passed me on the 705 bypass going over 60 MPH! Because: the Kingwood Pike is A MESS and desperately needs quality road repair that the roundabout money could be used for. It is not property ditched; water runs across the road constantly which is especially hazardous when the temps drop; the lower end is caving in AGAIN and will probably collapse soon. Because: there is NO safe effective way to divert traffic off the Kingwood Pike to avoid the intersection during construction of a roundabout. A MAP may look good on paper but, go drive the road. It is not feasible to use the proposed routes without considerable outlays of time and money, which would be so much better spent on fixing the Kingwood Pike problems. Because: Kingwood Pike residents and surrounding areas will be physically cut off from our routine to work, to school, to gasoline, to the grocery store. It makes no sense to spend this much money, time and effort to address dump truck traffic when there are so many other road issues in our county. Please reconsider.
107	1. I believe the traffic circle at the Kingswood Pike intersection is a bad idea. I believe traffic lights will be a much better way to manage the bus traffic, the large dump truck traffic, the commuter traffic that occurs from the correction center and Mylan. 2. I live just off Lower Aaron's Creek road and it is in absolutely deplorable condition. It is riddled with huge potholes and washed out sections of roadway. The section of Aaron's Creek road that will be used is not much better. Many sections of these roads are way too narrow to handle two way traffic. Are there plans to improve these roads before you send all this additional traffic on these inadequate roadways? If not, I believe you are seeing yourselves up for huge problems and criticism! Thank you for allowing input from the public!

Comment Number	Comments
108	Please build a turn lane rather than a roundabout at the Kingwood Pike and Greenbag Road intersection. That is a beautiful area and there is a restaurant and a farm at that intersection along with trees and meadows that would be negatively impacted by building a roundabout. I drive thought that intersection several times a week and would hate to see the beauty and livelihood of the farm and restaurant harmed.
109	Save the community garden!!!!!
110	I oppose the roundabout bc gardens are more important for a community.
111	Would like to know where priorities are roundabout at the four way stop on Greenbag is a waste! There not that much traffic only at evening coming from the Morgantown and down Grafton rd (119) need one there! The Kingwood Pike is following in again and bad holes that have to take chances on dodging or Tear up your car or cause a bad wreck will not have way out to Greenbag road if not addressed soon!!!
112	A roundabout on Greenbag Road is definitely not needed. It would be a total waste of taxpayers money. All that is needed is a left turn arrow!
113	I think this is a complete waste of our state money when honestly the roads are HORRIBLE. And being diverted down to lower Aarons Creek to a more deplorable road is completely ridiculous. If traffic is the issue, put stop signs back up. a one-way one lane round about is the same thing. And no one walks on GreenBag road so a sidewalk is uncalled for...i have not spoke to one person that thinks THIS is a good idea for any of this whatsoever.
114	I oppose the current greenbag road improvement project. This did not have an environmental impact analysis study to assess the human, environmental, and health impacts of this project. This project destroys the Conscious Harvest Cooperative community garden, which supports 15 families to increase healthy food access. This issue should have a full impact analysis to assess impacts.
115	This project is taking away land from a nonprofit aimed at making our state a healthier place. The property at green bag is farm owned by a Morgantown family with deep ties in the community. They deserve better.
116	This project is a bad idea on more ways than one. Heavy truck traffic will continue downtown. The traffic circles around town create enough confusion. Please use these funds to repair existing state roads. The current state of our roads is absolutely disgusting. Have a look at all of the bridges alone in our district! Not to mention the road surfaces. If we want to ruin the little farm land that's left why don't we add ramps to access i68 from Kingwood pike.
117	This roundabout will have a negative impact on the local farmers and growers in north central West Virginia. You shouldn't annex this property and take it away from all the local people taking advantage free farm land. We also have big plans for that acre of property down the road. We are going to establish a opportunity for morgantown which will bring jobs and money to this county. Dont make this mistake!! The light at this 4 way is doing a fine job. How about using the money to fix roads instead of building new ones.
118	They should make a turning lane onto Dorsey and one onto The Pike. They won't need to spend as much money as a roundabout. Then they can fix some other roads that need worked on.

Comment Number	Comments
119	I am totally against the roundabout that you are wanting to put at the Kingwood Pike Greenbag Road Intersection. There are too many people with logging trucks and tractor trailers who make the turn up the Kingwood Pike who would not be able to go thru a roundabout. This is a totally stupid idea. The one on the Mileground does not work what makes you think one would work at this intersection. What you need is to go back to the original 4 way stop sign. That way people do not pass people waiting to turn in either direction. You can tell by the black marks on the road of the wrecks and near wrecks that have been there. Also if you listen to scanner traffic you hear the wrecks at the Mileground roundabout but that never shows up in the paper or the news. Plus you want to close the Kingwood Pike while the construction is going on. How are the people suppose to get to work or any where else they need to go. That is totally uncalled for also. What you need to do is use the money to fix the Kingwood Pike. It is an obstacle course with all of the potholes and slippages that are on it. There are people who live on the Kingwood Pike now that will only drive on this side of town. They will not go on a roundabout or the four lane roads and they ask others to drive them when they need to go there. I won't even go on the roundabout on the Mileground because of how it is marked. Especially when the arrows go in two different ways at the same time. You all need to come up with another solution to this intersection without a roundabout
120	Please DO NOT put a round-a-bout in on the greenbag road next to the atomic grill restaurant and the community farm.
121	I am opposed to a traffic circle being built over the historic, family owned farmland and 501(c)3 nonprofit organization Conscious Harvest Cooperative. Although I am not in the area as a local, I am from a background in community agriculture and family farming. I've both grown up on farms and worked in agriculture recreationally as an adult. The connection that a community has to its farming families is wonderful and rich. The impact that community farming has on an area is both far-reaching and greatly influential. Healing food insecurity locally can only be a good thing. Making connections between neighbors and fellow community members is a good thing. Creating a resource for lost agricultural knowledge is a good thing. The capacity, culture and resources that this land has as a functioning garden offers a real wealth to everyone in stark contrast to what a roundabout may provide to a select few. There is no continued growth, no family fed, no community aesthetic to be found in furthering the stretch of concrete here. Please reconsider what is best for the community beyond menial traffic concerns.
122	We need to provide a better left turn option traveling west on route 7 for trucks to be encouraged or required to use the Greenbag road to avoid the heavy truck traffic through tight turns into town. Conversely we need to do the same to get back to the Greenbag road to get back to route 7 eastbound.
123	Please, we do not want or need a roundabout at the 4 way intersection at the bottom of Kingwood pike! Please turn this 4 way intersection back into a 4 way stop and take away the traffic lights. My whole family feels this way also! Jenny Hart, James Hart, Rodney Hart and Martha Hart including myself are against the roundabout.

Comment Number	Comments
124	We do not need a roundabout at the intersection of Kingwood Pike and Greenbag Road! The lights need removed and turn this area back into a four way stop again! Building a roundabout is just useless and not needed in this area! The other roundabout's in our little town were unnecessary and from what I understand were placed to help with game day traffic congestion but please do not put this at the end of the Kingwood Pike there a lot of log trucks that travel up and down this area since a lot of the residents of the pike own their own trucking/log trucks and this roundabout would make it difficult for the trucks traveling up and down from the Kingwood Pike. Please consider making this a four way stop again or add a turning arrow to help motorists that are trying to turn right onto Kingwood pike from Greenbag. A roundabout in this area is just ridiculous and a waste of money. Thank you for listening.
125	We seriously don't need a roundabout on the greenbag road!!! Attention needs to be fixing the delapidated roads we already have that are falling in and destroying everyone's vehicles!!! We have to pay money to keep our vehicles safe for the roads but the roads aren't safe for us!!! The only thing Greenbag road needs is turning lanes with arrows....Pay people a decent wage and hire some help to get these roads fixed and I don't mean patched....Thank you!!!
126	Finish the first project, a stop light, by adding the turning Lane it desperately needs. Why start another project when you didn't finish the first one? Of course traffic is bad no one can turn left add s turning lane not a roundabout
127	As a Monongalia County resident, I strongly disapprove of this project. This is an extremely invasive, unnecessarly large project that is quite frankly over-thought when a simple TURNING LANE and SIDEWALK could be a perfect solution for the state's "F" rating for the traffic report. A project of this size is ludicrous- taking land, spending lots of money, and claiming no human impact? There are way easier, more cost-effective, less environmentally and humanely harmful solutions. I hope our State and our Governor listens to the peoples' pleas, for once.
128	Hello, My family owns the Hastings Farm and I also work full time on the Greenbag Road at BlissBlissBliss in About Town Place. My children went to South Middle School off the Greenbag Road as well. I am familiar daily with its traffic flow and patterns. The build up of traffic only occurs at 4:30-5:30 due to Mylan office workers ending at 4:40-5:00. It is my sincere request, that you consider putting in a traffic light with and arrow and a turning lane instead of a roundabout. I am also concerned about the traffic back up, due to a roundabout, in front of my place of employment at About Town Place, 3101 Greenbag Road. Feeding into Roundabouts from 2 lane highways can result in congestion. I have seen this on Rt. 705 and the Mileground, a road i take daily to work. In addition, my family owns the Hastings Farm and will greatly be affected. My children have worked hard to secure community and farm status in order to continue using this green space as a farm, which has been in our family for 120 years. I am also concerned about the accountant who bought a house on the corner of Greenbag road and Dorsey Ave, in order to do business there recently. I am also concerned about the back up of traffic on Dorsey Ave at 5:00, a road I will daily be taking to work beginning June 1. Please, Please Please, reconsider the large roundabout to solve traffic flow, and consider a turning lane instead....this would be so welcomed!

Comment Number	Comments
129	Strongly disagree with the roundabout at kingwood pike x greenbag rd. I am very concerned the State's plan claims No Human Impact, therefore have an Categorical Exclusion. There is clear human and environmental impact to agriculture land where the proposed round-around would be located. This is unacceptable. We request a full environment impact assessment and reassessment of the CE. {Categorical Exclusion are actions which: do not induce significant impacts to planned growth or land use for the area, do not require the relocation of significant numbers of people; do not have a significant impact on any natural, cultural, recreational, historic or other resource; do not involve significant air, noise, or water quality impacts; do not have significant impacts on travel patterns; or do not otherwise, either individually or cumulatively, have any significant environmental impacts.}
130	We are writing to you today to strongly oppose the roundabout plan for the greenbag rd improvement project. The need to move truck traffic out of downtown should not come at the expense of destroying vital farmland that provides real food resources to low income community members throughout the greater Morgantown area. It is not economically responsible to spend over 10M on a minor turning traffic issue at the intersection of Greenbag rd and Kingwood Pike. We respectfully request an alternative plan with less environmental and sociology-economic impact.

Comment Number	Comments
131	This is about a new project plan by the West Virginia Dept of Transportation to put a large roundabout at the Kingwood Pike and Greenbag Road intersection. These plans would significantly impact our community due to the total acreage they wish to acquire/annex via eminent domain. The State's Environmental Assessment of the project rendered it a Categorical Exclusion (CE) for expedited approvals without traditional public comment because the project claims "no significant human or environmental impact." This exclusion is unacceptable. We request a full environment impact assessment and reassessment of the Categorical Exclusion. The project WILL affect land use for the area, have a significant impact on natural, historic and agricultural resources, and significantly impact air, noise, and water quality. We are open to alternative solutions including a turning lane, turning signal, expanding of the road, building sidewalks, or adding signs. ________________ This land is a: 1. Community green space. 2. Family-owned and operated farm of 117 years. 3. Home to Conscious Harvest Cooperative, an established Non-Profit organization, 501(c)3, working on alternative food sourcing strategies to combat food insecurity and increase food access in Morgantown, West Virginia. 4. Recreation space, including a wild mint and wild mushroom foraging area. 5. Participating WV-permitted industrial hemp research program. 6. Established Garlic Bed that supplying to local families and restaurants. 7. WVU Agronomy student research and project growing area
132	I strongly oppose a roundabout / traffic circle at the corner of Kingwood Pike and greenbag road. I support a turning lane alternative solution at the corner of Kingwood Pike and greenbag Rd.

Comment Number	Comments
133	I am distraught to hear that a traffic circle is being planned to be built over the historic and family owned farmland and 501(c)3 non profit organization Conscious Harvest Cooperative. Our land throughout the states is gradually being cut down and destroyed in time, and those familiar with environmental studies understand the impact of tearing down areas that are naturally in symbiosis with human chemistry and well being, including impact on our neurotransmitters and electron exchange with the earth. Oases such as these are already becoming fewer and farther between in time, and we the people on the land only want it to stay. I live three hours away, yet I personally frequent this particular farm as often as I can. The last time I was there was in July, and I still have garlic that was gifted to me from their bountiful crop. Conscious Harvest Cooperative combats food insecurity - a major deficiency in this great land of the United States. As stated, I am still cooking with the crops I was given closing in on almost a year ago now. This farm massively produces for the community. From what I understand, the garlic is also given to local families and restaurants. This impacts our community greatly. In addition to this, WVU students come to this location specifically to enrich their knowledge in a real community setting. This area is priceless and a growing niche in Morgantown. It is a community green space. It is a haven to the family who has owned and operated it for over 100 years. Please consider the voices of those who maintain, learn from, and are enriched by this land.
134	*Update to a previous comment* I do not support a major change to this intersection. I previously commented about a lack of traffic to justify this project. I left work early one evening when the students were still here and even at 5:30 pm there were 3 cars TOTAL at the intersection. The only times I have seen a back up it is one way. The other lane is totally clear. A turn signal is the answer. I also checked the MMPO's website and a roundabout goes against what they have suggested for a Greenbag Road plan. It clearly states a signalized intersection here. I don't know anyone who supports a plan that requires a detour. In fact I support NO BUILD if there is a detour. People are complaining about this issue online. It is clear no one from Charleston is familiar with this area. Aarons Creek Rd (listed as a detour for the VERY busy Kingwood Pike) is so bad that the residents who live there are posting about it. Residents who live on Aarons Creek and are familiar with the road and have 4 wheel drive vehicles have ended up IN the creek recently. Residents have also taken bags of cold patch in attempt to repair the road themselves as Dist 4 is nonexistent for help. IT'S THAT BAD. I don't own a 4 wheel drive nor can I afford one. The Kingwood Pike is falling apart currently and is bad enough on my car. Do you realize residents will be unfairly "trapped" because of this plan and could lose their jobs. I have no back up truck as transportation and will have no way out. Even the people who can stay home will have trouble getting packages from UPS as those trucks will have to take Summers School Rd. This is an 18 month to 2 year project! The mileground project isn't even close to being finished and it was started years ago. This isn't a "minor" inconvenience to anyone. I hope you listen to the people. Thank you for your time.

Comment Number	Comments
135	I am against this project as proposed. It was initially presented to the public as a simple widening of the road and adding a turn lane. Now this has changed. I am against a roundabout here. Every truck driver I have spoken to feels the same way. This project will make this area very unsafe. I travel this road daily and there is only traffic at peak hours. At noon there are approximately 6 cars max sitting at each lane of the intersection. At 7:30-8 pm there are 2 or 3 cars. Sometimes none. I am the only car. For that reason alone I feel this is a HUGE waste of money considering the other pressing needs currently in our county. (Pavement replacement that is 20+ years past due should be at the top of the list) Please set up cameras so you can see that I am giving an accurate account of midday and evening traffic during the week. Lastly, a detour for Kingwood Pike residents is not feasible. This is a busy rural road and there are no roads to detour to that would be acceptable. Thank you for your time and considering actual resident's objections that drive this area daily.
136	The proposed roundabout runs through an existing community garden of which I am a multi-year member. This green space has helped my family and I grow food to feed ourselves and is a valuable community resource. This garden is also the only one like it that existing in Morgantown. I would like to see it remain intact. Thank you for your consideration.
137	I support installing 2 roundabouts on Greenbag Road. However, part of this project that does not seem to have been brought up in the documents available for this project, is the closure of access from Sabraton Avenue to Route 7. I would encourage the DOH to explore options that will avoid shutting down access to the Norwood and Jerome Park neighborhoods by prohibiting access from WV 7 to Sabraton Avenue. Thank you.
138	Please stop round about.
139	The proposed changes to Greenbag Road will cause too much damage to existing agriculture, social, and educational space. The family farm and local nonprofit which will be displaced has created an unparalleled program in Morgantown. I believe there are better plans which would allow existing farms and buildings to remain in place. I disapprove of the current plan
140	I live in Preston county and I work in Morgantown. I also own a second home in the city of Morgantown in South Park. I drive through the Kingwood Pike and Greenbag Road intersection at least twice a day, sometimes more. I am in full support of a round about in the intersection and any other improvements to aid traffic moving.
141	This project is a not a good idea. I support farmers but that aside, put the money to what matters. Work on traffic where the real issues are and fix potholes. Do not put a round about here.

Comment Number	Comments
142	I do not agree with the proposed Greenbag Road Upgrades. I heard this is being done because of traffic. I live on the Kingwood Pike and travel the Greenbag Road everyday, in some cases SEVERAL TIMES a day. The ONLY time there is traffic is when it backs up from the light to the Kennedy Center. Which is between 4:45pm and 5:14pm, Monday through Friday ONLY. THAT'S IT!!! Any other time you travel this road except for the half an hour you could go without seeing ANYONE! At the 4-way light more often then not I am the only one sitting at the light. This makes No sense to me. Money MUST BE SPENT on REPAIRING our roads and ditches. Travel the Kingwood Pike and tell me that this is acceptable. This winter the pike was treacherous from the Greenbag Road intersection to and through the slippage due to ice from the lack of ditches. Several years ago there was a concrete berm installed on the Pike from the intersection to just before the bridge. This has done nothing but make the water drain INTO THE ROAD. We need help before someone is killed. Stop the Greenbag Road project and put money into the existing roads.
143	I think the roundabouts are a great idea. They work really well when drivers know how to use them
144	This is another stupid idea someone has. During rush hour traffic only one way gets to go. You risk your life every time you drive through a round about. Make turning lanes with a light. Now this makes more since.
145	No to the round-a-bout. Is not needed, going to make a heavily traveled area more congested. Look at how worse the mileground is. That did not help the flow of traffic. Stop waiting tax oayers money, fix the existing roads that are covered in pot holes.
146	A roundabout on Green bag would not be good at all and even worst on kingwood pike intersection. can you see the accidents in winter when roads are slick and there are 2 inclines at the intersection on Kingwood pike area
147	A round a bout on greenbag road would be terrible the lights work perfectly fine. The real issue is the state of disrepair of our roads the roads we pay taxes for not a unwanted unnecessary round about.
148	Taking away a source of sustainable food and food security in our town is GROSSLY IRRESPONSIBLE
149	I fully support the roundabout project to improve traffic flow
150	Putting a round about on Greenbag road is a waste of resources. The intersection is congested due to a out dated traffic light. With sensors and a properly timed traffic light these issues could be remedied. Clearly these decisions are being made by people that do not frequent this area. Put our money to use in repairing our existing roads and infrastructure.
151	I live in Preston County and work in Morgantown. I travel the Pike everyday. I would much rather see this money put towards fixing the potholes that are destroying my car than putting in a roundabout. The roundabout at the Mileground is a disaster. It wasn't properly done, and there is still a huge backup of traffic there. I envision a similar situation here. There is farm land right at Greenbag Rd that will be affected. As a landowner myself, I would be furious if the state came in and took over my land. Please fix the existing roads before wasting the taxpayers money on upgrades that aren't a necessity at this time.

Comment Number	Comments
152	I believe that Aarons Creek and Lower Aarons creek roads are unsuitable for a detour route. There are numerous pot holes and almost unpassable areas on both roads. Many areas are one lane and cannot accommodate traffic. An area just downstream from the bridge cannot accommodate large vehicles. The road is narrow and there is a ten foot drop off into the creek. Several vehicles including a DOH truck have ended up in the creek. I lived there at the time and witnessed the whole thing as well as others. There is already so much traffic that it is dangerous crossing the road to get the mail or news or newspaper. I would hope that a different solution could be found.
153	A roundabout at the intersection of greenbag road, Dorsey ave, and kingwood pike is unnecessary. To fix the traffic flow there should be added turning lanes on greenbag road and arrows on the traffic lights for vehicles turning on Dorsey and kingwood pike. The construction is going to be terrible for the school buses traveling to and from south middle and mountainview.
154	Who owns this land?? Have you secured the land? Isn't that where the community garden is? Where do you get the right to take land like this?? What about the retaining wall for water drainage??
155	We have enough round abouts in this town. This farm brings the community together and that's what the community wants. We elected u guys to give us what we want, we dont want any round abouts
156	Community gardens are more important than a Roundabout
157	A roundabout is way more excessive than what is needed; a turning lane and a sidewalk
158	Against this destruction project. Turning lane is the improvement. Roundabout is absolutely devastating and frankly, a stupid idea.
159	Turning lane! Roundabout is the worst idea in the world
160	I'm horrified at the idea of taking land from people to build this roundabout. We need a four way stop, or turning lane and a sidewalk, which can be done without impacting a community garden.
161	A roundabout is a gross misuse of funds and can be avoided by simply adding a turning lane and potentially a sidewalk. There is no need to take a bunch of land from the surrounding areas, this would also affect the non-profit garden that is in the area which would have a lot of human impact.
162	No roundabout please! A turning lane is a much cheaper option and has WAY less impact on the local environment.
163	As a west Virginia native I am appalled at this plan. I heard it through the grapevine. And there's no more meetings? Excuse.my french but WT... ?! Why would yall but that enormous.circle at the bottom of that hills gonna kill someone in the winter! Y'all are being stupid and all shady. We been on the pike for decades, and we are AGAINST this plan. Put in a side walk and a turning lane to go with your fancy signal light and leave the land alone. Grrrrrrrr there ain't gonna be any more grass in the world if people like you keep taking it all, without permission. Any one of those engineers think?
164	Fix the roads and put in turning lanes with turning signals. Roundabouts are more dangerous than the current set up.
165	We need the slide on River Road fixed before the state squanders millions on a project that nobody wants. I think you are only allowed one comment unless you use different name. I have a kingwood pike friend who will lose her job with an detour (project is going to take 18 mos to 2 years) Otherwise she will have to buy an OFF ROAD vehicle to make it down Aarons Creek Rd. Nobody on the pike except Raese wants it.

Comment Number	Comments
166	District 4 DOH can't maintain our road worth a shit and they wanna put in another roundabout that nobody wants? No!
167	I live on Marcus Drive off Dorsey Avenue and use the Dorsey/Kingwood Pike intersection daily. I DO NOT believe a roundabout is the solution to the traffic issue. All that intersection really needs is a left turn lane with left turn signal to turn from Greenbag Rd to Dorsey Ave. With the amount of tractor trailers and school buses that use Greenbag Road, I do not think they would be able to navigate the roundabout, I do not believe there would be enough room. And I also think it's unfair to just take away the nice green space used for farming and agriculture. I believe the co-op uses that space as well as WVU students. Please consider adding a turning lane before paving and forever destroying the nice shared green space at that intersection. Thank you!
168	I am from the Morgantown area and would love to see the plans include turning lanes... I think taking away from the community to do another round about is not the answer
169	A turning lane and a arrow is all this needed too many large log trucks etc to be a roundabout, we are CDL drivers and roundabouts would make turning there a lot worse and we live on the pike we have to come through there
170	No roundabout. Would love to see the pike roads be fixed and paved before a roundabout is thought about. A on off ramp at the pike bridge onto the interstate would be wonderful. I also believe turning arrows or bring the 4 way stop sign back would work out way better then a roundabout! The roads definitely need fixed, paved, ditches cleaned before a roundabout!!
171	Adding to my previous comment- with all the big trucks that travel up and down the pike a small roundabout would never work out!!
172	I have lived on and traveled the Kingwood Pike for 48 years. I do not think that the proposed roundabout is a good idea. Going back to a 4 way intersection and and or adding turning lanes would work better and not destroy family farm land. I would rather see the money spent on improving the existing road ways and I would much rather see entrance and exit ramps be built giving access to the interstate which would reduce the amount of traffic traveling thru the intersection and on to the Kingwood Pike which would also help with the constant caving and collapsing road between the interstate overpass and greenbag rd intersection. I know it was proposed several years to make access to the interstate from the Kingwood Pike along with making the road wider but was declined due to the multiple petitions and objects from the community which I agree with because of so many homes and properties being lost due tim the widening of the entire Kingwood Pike which is not needed.

Comment Number	Comments
173	I am writing to express my strong concern for the proposed Greenbag Road / Kingwood Pike roundabout project in Morgantown, WV. The plans have not gone through a process of democratic consensus, nor have they fully taken into account important social and ecological impacts of losing nearly an acre of viable agricultural land and greenspace at the edge of a rapidly urbanizing city. The road expansion would eliminate a community garden that has played a key role in fostering community food security projects in Morgantown for the past 5 years. Garden spaces there currently provide opportunities for city residents without access to land to grow food. Garden programs offer healthy food access to low income families at risk of food insecurity. For example, in partnership with the Friendship Room, residents recovering from substance abuse have engaged with garden activities over the past three years and residents from Marjorie Gardens, the nearby public housing complex participate as well. I am surprised that the state would prioritize the construction of a roundabout in a place where traffic patterns do not currently warrant such an investment, particularly at a time when so many other urgent road repairs are needed across Monongalia county. I urge you to consider alternative solutions that do not place this important community site at risk of further unnecessary urban encroachment.
174	I travel this road on a daily basis for work and believe you are misguided in your thinking to install a roundabout. The area it would affect would negatively impact local businesses and is unnecessary. The current stop sign works but at the very least if you feel any change then a light w turn light signals might be sufficient if any changes were to take place
175	Please find a new place away from the farm to use for roadways and roundabouts! This farm means so much to my family and it has a legacy here in morgantown. Please please respect the earth
176	I oppose the proposed round about on Greenbag and Kingwood Pike in Morgantown, WV. As a member of Conscious Harvest Cooperative, small business owner in Morgantown, and long-term resident concerned about the loss of access to communal gardening, food production and food justice educational space in my community. The proposed project would be consuming a large portion of the community stewarded food production land. I am whole heatedly opposed to this project, due to my own participation in Conscious Harvest, but also a community member concerned with safety and necessity of this particular round about.
177	I'm glad you guys are embracing roundabouts it would be nice if they were everywhere. The only place in Ireland I ran into traffic was where they had red lights instead of roundabouts.
178	Gardens are more important than round-abouts
179	Removing this collective garden space and community haven would cause consequential impact for historical folk life of mon county. Please focus on areas of traffic with greater congestion.

Comment Number	Comments
180	Please stop putting roundabouts in our town. There are far too many people which causes congestion, and a high number of young drivers, many who are not from our area and do not drive well enough for roundabouts. Our roads need widened to handle the over populated area, and paved to keep our vehicles free from so much damage. Please address the more important, functional issues before planning something like this.
181	Although I am sure there are many negative comments about this project I am much in favor, particularly of the use of rotaries to speed traffic flow. Before the first modern rotary was installed in the Mileground section of Morgantown I had my doubts, but after using it for a while I realize that it is very different than the rotaries I have experienced in New England, along the eastern Seaboard, and the Western Reserve of Ohio as, unlike these colonial relics, they are designed to facilitate modern traffic flow. The major problems I see at this point is that more public education as to how to properly navigate modern rotaries (for some reason many can't just learn to follow the signs and arrows) and that combinations of rotaries and traffic lights can slow traffic as is currently the case on the Mileground that needs one at the other end to make it work. Count this as a vote in favor of current DOH highway modernization in the Morgantown area.
182	Where are images for the proposed roundabouts??
183	While the decision to construct roundabouts at Kingwood Pike and Mississippi St causes concern, my chief concern is with the detour routes during closure of Kingwood Pike. The Aarons's Creek detour is NOT suitable for two-way traffic of the volume that is usual on CR 81 Kingwood Pike). To be suitable as a detour this road would need substantial widening and paving. There are portions of the upper segment that are too narrow for cars to pass safely. Of concern also is the truck detour utilizing Summers School Road. This road is not suitable for large truck traffic in that there are sharp curves that cannot be navigated by large trucks without using both lanes. There is also one curve closer to Rt 7 that semis cannot negotiate, evidenced by the number of trucks that have failed to negotiate this turn and had to be towed out. Lastly, with an increase in traffic, some sort of traffic control would be required at the junction of Summers School Road and Rt 7. Even at the present time, traffic backs up significantly at this location causing both delays as well as dangerous behavior with motorists trying to turn onto Rt 7 into a continuous stream or traffic.
184	I have three concerns about the proposed approach: 1) There are several areas of Kingwood Pike near Greenbag Road where the road is in the process of slipping and sections of the road appear to be in the process of falling off the side of the hill. It seems that preventing a current road from collapsing should have higher priority over traffic pattern adjustments. 2) During Stage 2, the plan is to divert traffic to Aaron's Creek Road. Has the condition of Aaron's Creek Road been assessed to confirm that it can accommodate continuous 2 way traffic? 3) If the goal is to increase large vehicle traffic on Greenbag Road, are roundabouts conducive to large vehicle maneuverability?

Comment Number	Comments
185	I have several concerns with the proposed round-about at the intersection of Greenbag Rd and Dorsey Ave. 1) I often see trucks jumping the curb at the round-about on the Mileground. How will this be designed differently so this does not occur? 2) The connecting Kingwood Pike is in poor condition with several slips and potholes. These have been repaired several times recently, but the job was not done properly since it keeps occuring. One reason is the large amount of water that erodes the road and eventually runs down Kingwood Pike towards the Greenbag Rd. intersection. In the winter this typically freezes resulting in cars sliding down the hill unable to stop. 3) The proposed detour through Aaron's Creek Rd is in extremely poor condition and one lane in spots. It cannot handle the amount of traffic you propose to put on it.
186	This land is a: 1. community green space. 2. family owned and operated farm of 117 years. 3. Home to conscious.harvest.cooperative an established nonprofit working on alternative food sourcing strategies to combat food insecurity and increase food access in morgantown westvirginia 4. recreation space, including a wild mint and wild mushroom foraging area. 5. Participating WV-permitted industrial hemp research program. 6. Established garlic bed that supplying to local families and restaurants. 7. wvu agronomy Student growing garden Please do not destroy these beautiful farm lands. It would be a tragedy.
187	Green bag road does not have a traffic problem, however the lower section of Kingwood Pike has a serious paving problem. Please use the resources to repair the Kingwood Pike. Thank you.
188	Leave it alone. Leave people's land alone. That area you’re taking is a great co-op area and heritage land. Leave well enough alone. Try fixing the 10,000 potholes and stick what is working. You can't fix the roads, you say no money. Well take the money from this stupid pathetic idea and put towards roads. We pay for road usage from our paychecks but apparently it's lining wallets not road repairs. LEAVE WELL ENOUGH ALONE!!!!###
189	I am against the roundabout at Kingwood Pike!
190	The proposed Kingwood Pike roundabout is unnecessary and unwelcome to neighborhood. This is taking valuable green space away. I say NO. Even roundabout down the road is not helpful
191	The 2 round abouts is a waste of time and money. Put a light in that can account for turning and move on to maintenance on other roads
192	Please don’t construct the roundabout! I don’t agree with the construction plans, I think constructing a roundabout is unnecessary! It will cost a lot of money and take away land from the lovely farms that are around the area.
193	My family adamantly abject to the round a bout proposal at the Intersection of Greenbag Rd. and the Kingwood Pike. No one wants it. The residents who live in this area need to be heard. The pike is crumbling and falling down and has been for years and yet you overlook that and propose wasting money on a round about? No. It would be a nightmare. Put in turning lanes and the problem is solved.

Comment Number	Comments
194	As a resident of the Kingwood Pike I am adamantly against this project. Did you even bother to contact residents in this area for feedback? Of course you didn't. It's full steam ahead and who cares of the hurt in the process. This is not necessary and a complete waste of funds! Did you consider bus traffic? The value of the home that is undergoing extensive renovations at the start of Dorsey Ave? The impact on the farmer whose land will be snatched from them? The round about at the mile ground is a complete nightmare! We do not want that same disaster over here. Make turning lanes and the problem is solved. I've lived on the Pike for nearly 15 years and I assure you NONE of us wants this! How about you fix the collapsing Pike and address the poor road conditions??? Just another way to bully and make a bigger mess!
195	We differently do not need a roundabout at the intersection of Kingwood Pike. They do not work. I drive the roundabout on Mileground every day. Sometimes I sit in that traffic for 10 or 15 minutes. People blocked the exits and entrances and traffic can't move. Please fix the road on Kingwood Pike and Cobun Creek Rd. A roundabout is a waste of taxpayers money.
196	I think a turning light would be better.

Comment Number	Comments
197	I am writing to you as a seed farmer and one of the board members of the Conscious Harvest Cooperative (CHC) that offers the only community garden space available in town to the residents of Morgantown in a region that typically has steep terrain. We recently found out that the WV Department of Transportation proposes the construction of a roundabout at the intersection of Kingwood Pike and Greenbag Road, acquiring a significant portion of the community garden. The garden has critical importance to teach kids and families about the sustainable use of natural resources, resource management, environmental protection, as well as about growing food, food justice, and positive impacts of local, clean and fair food on human health and local economy. The garden is also an experimental space utilized by WVU undergraduate and graduate students as part of their internship and/or project assignments. I strongly oppose the roundabout proposal that takes our garden space away, and I also strongly believe that we can work together to come up with alternative solutions. I am writing to you as a seed farmer and one of the board members of the Conscious Harvest Cooperative (CHC) that offers the only community garden space available in town to the residents of Morgantown in a region that typically has steep terrain. We recently found out that the WV Department of Transportation proposes the construction of a roundabout at the intersection of Kingwood Pike and Greenbag Road, acquiring a significant portion of the community garden. The garden has critical importance to teach kids and families about the sustainable use of natural resources, resource management, environmental protection, as well as about growing food, food justice, and positive impacts of local, clean and fair food on human health and local economy. The garden is also an experimental space utilized by WVU undergraduate and graduate students as part of their internship and/or project assignments. I strongly oppose the roundabout proposal that takes our garden space away, and I also strongly believe that we can work together to come up with alternative solutions. I am writing to you as a seed farmer and one of the board members of the Conscious Harvest Cooperative (CHC) that offers the only community garden space available in town to the residents of Morgantown in a region that typically has steep terrain. We recently found out that the WV Department of Transportation proposes the construction of a roundabout at the intersection of Kingwood Pike and Greenbag Road, acquiring a significant portion of the community garden. The garden has critical importance to teach kids and families about the sustainable use of natural resources, resource management, environmental protection, as well as about growing food, food justice, and positive impacts of local, clean and fair food on human health and local economy. The garden is also an experimental space utilized by WVU undergraduate and graduate students as part of their internship and/or project assignments. I strongly oppose the roundabout proposal that takes our garden space away, and I also strongly believe that we can work together to come up with alternative solutions. I am writing to you as a seed farmer and one of the board members of the Conscious Harvest Cooperative (CHC) that offers the only community garden space available in town to the residents of Morgantown in a region that

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Comment Number	Comments
198	WOW. Do I even gotta comment on why this shouldn't happen? I don't wanna get carpel tunnel writing it all.... We better get a community meeting on this... Where is the communication?!? Governor Jim justice better make his way to Mon county and HELP.... Give us some reason to get his approval rating up.. we r fed up here. Wow.
199	As a contributor and supporter of the community farming and farm co-op programs being generated from the work at the Hastings family farms, I strongly oppose the project plan as currently proposed. i would prefer a plan that minimizes land usage of the Hastings property as it is a beautiful, lasting and shared community spot which is rare close to town and should be preserved. I believe some turning lanes and sidewalks may be a better approach and diminish the amount of land needed for a more efficient traffic crossing. Thank you for your time and attention.
200	It's not an improvement by any means. We are against it ! 1.there is no good detour route. 2. They need to fix the pike and roads that exist instead of building new ones.3. Nothing wrong with the way it works now if they would just simply put a turning lane and arrow light up for all sides. 4. We have an inside voice that told us the people who come up with the round about ideas don't even live here they didn't even know the one on the mileground doesn't work they are just using what works in the big city we are not a big city they are trying to cram a big city in a little hick town.5. All the big trucks that travel this road they would cause accidents because they don't make them big enough and they are so heavy it will just break it up within a year or Two!! We don't want this
201	The two round abouts being discussed for the greenbag road is the most irrational decision this town can make there is not enough traffic to justify it for one thing also all the big trucks that travel greenbag will not be able to make a turn on a round about thirdly if u think it will help the school traffic it won't just look how bad the one on 705 is it's a nightmare besides all these reasons don't waste money on this project when all the roads in this town are in desperate need of repair the pike is ready to cave in use the funds for its repair before somebody gets seriously hurt or killed don't let people who don't live in this town tell you what needs done they have no idea listen to the people who travel these roads every day if you want to do anything at all just add a turning lane it makes more since
202	I use the Greenbag Road in Morgantown on a weekly basis - Greenbag DOES NOT need a roundabout! A left turn lane with a left turn signal on the light on just Greenbag, (not Dorsey & Kingwood Pike) would solve the majority of the congestion and at far less cost! A simple problem with a simple solution! NO ROUND ABOUT!!
203	Why couldn't the DOH purchase Hardees restaurant and tear it down and create a four way interchange controlled by a stoplight. A turn lane from rt 7 to green bag road could be created. Hardee's restaurant could then purchase land where the sabraton avenue did intercept rt 7 and adjoining the barbecue diner across from cvs. Rt 7 could then be widen to 4 lanes with a turning lane where appropriate from long john silvers to Burger King restaurants on rt 7. This should move traffic smoothly. Create a four way intersection where Hardee's is today. Give a new place for Hardee's to relocate and also keep sabraton avenue open for local traffic. Thankyou

Comment Number	Comments
204	Please do not use any round abouts on the GREENBAG ROAD PROJECT. For Please reconsider using roundabouts on the Greenbag road project. I do not think it would be a good fit because of the heavy trucks and the heavy vehicle use trying to maneuvering it. Why make the road harder to navigate. Look at the roundabout on the mile ground traffic does not allow people exiting Eastwood grade school merge into traffic. The green bag road would be the same for people trying to exit Dorsey avenue and street leading to south middle school. Roundabouts might move traffic but the high traffic and you mix senior citizens and college kids in the mixture is an accident waiting to happen. I'm a senior citizen and I can confirm that. Why can't you use stoplight. Thank you
205	Please stop putting in round about. They only work if installed properly and people use them correctly which they don't because either they don't know how to use them or they are just think of themselves being in a rush and ignoring other's turn to go. Why not install sensors on the lights and adjust times according to high traffic times. People are too selfish anymore to consider other people.
206	This is a poor error in judgement and costs. I travel this road every day. A green area turn signal for both turning onto Dorsey and to the Kingwood Pike would a lot cost effective. This round-a-bout idea is totally unnecessary. If any planning this would travel 705 every day from 4:00-6:00 would see the back-up of traffic. The traffic from down town can be backed up to Darst Street also. Why would the DOH spend that amount of money on a project that isn't going to solve anything. Please, please reconsider this decision. Thank you!!!

Comment Number	Comments
207	I am a Morgantown resident that travels along CR 857, CR 81, and CR 1 by vehicle and/or bicycle. The current status of these intersections makes it dangerous for travel by any mode because of lack of visibility and continual congestion due to high traffic load. I am also a member of the Conscious Harvest Cooperative that uses land at the corner of CR 857 / 81 for farming and supporting local food accessibility for low-income households. This project proposes using this land to construct the new intersection. I fully support this project in constructing roundabouts at the intersections of CR 857/81 and CR 857/1. I also support the inclusion of dedicated bicycle lanes, but highly suggest that they be placed on the road side corresponding to their direction of travel, instead of only the west-bound side. Sidewalks are also of utmost importance and I support the sidewalks in this project, with some extension. As a safe route to school, I suggest that the sidewalks be continued past the Atomic Grill and up Dorsey Avenue to Luckey Lane and continue the full length of Luckey Lane to the Mountainview Elementary sidewalks and parking lot. This extended sidewalk is of extreme importance to the safety and well-being of school-children and the community. I regret that portions of the community gardening space for the Conscious Harvest Cooperative and the Joy and Hemp Universal permit grow-site will be claimed for the proposed intersection and road construction. However, improved traffic flow, and pedestrian and bicycler safety is required along this corridor. I believe that the proposed project will satisfy these scenarios. I fully support widening of the road on CR 857 as well as roundabout construction at the intersections of CR 857 / 1 and CR 857 / 81. I would not support this project if the proposal was traffic lights at the said intersections.
208	I say no to the roundabout should be able to claim peoples land just for progress plus I don't believe it will be a good idea there I think if the light timer was longer on the greenbag road that would help more than anything
209	Please do not go forward with building this, it will take away vital farmland which grow crops. This is unethical and unnecessary I hope you do the right thing and do not go forward in destroying the planet for these "upgrades".
210	Please consider a tuning lane instead of a roundabout
211	People against the roundabout. How is this a categorical exclusion? You're going to destroy a farm and peoples' livelihood - how does is that warrant exclusion?! There are so many options: turning lane, 4 way stop. Add a sidewalk- go ahead. But this rounabaout thing has gotten out of hand it makes no sense here and the people who have created this plan act like it's the ONLY and LAST option? Yeah right, what's the motive here? Because it's not the traffic issue, we all know that stop light only works with a turning lane. This isn't rocket science. NO ROUNDABOUT

Comment Number	Comments
212	In order to document the “grass roots” effort that occurred on the Greenbag Road Improvement Project, I would like to *summarize* the comments that were received by phone. A summation of the exact number of voicemails and messages did not occur due to various factors; · I was not aware of the action being taken by the public until some time into the comment period and no “tallies” were documented. · Many of the voicemails were incomplete; messages such as “No roundabout”, no name given, address etc. were received. In my opinion a vast number of the calls were overwhelmingly opposed to the roundabout. As an example between the end of business 5/16/19 and the morning of 5/17/19 fourteen voicemails were recorded of which one was for the roundabout and 13 were opposed. I have also included the newspaper advertisement that was used to alert the public to the project.
213	I’m against the Roundabout. I live right off Greenbag and I volunteer at the community garden there. A simple turning lane on each side will suffice. Thank you and God bless
214	Anyways I live on Dorsey Lane and I use that intersection everyday of my life with NO PROBLEM there is NO NEED to make a roundabout there all it is going to do is cause accidents because people don’t know how to drive here already. I don’t know why we are so concerned on making a roundabout somewhere where we don’t need one instead of fixing all the craters in these roads the road right beside the school on Dorsey Lane is the worst road I’ve ever seen and been like that for years yet NOTHING DONE ABOUT THAT cause guess we care more about less traffic which there barely is any than fixing the potholes so we don’t have our cars damaged or cause an accident. This just don’t make any sense.
215	No,no no! A round about let alone are not needed on the Greenbag road. It will cause more issues Including traffic jams, wrecks etc. the one on the mileground has been a complete failure except in the eyes of the politicans
216	I am a 37 year resident of the area where State Project: U331-857-0.67 00 is wanting to be completed at the intersection of the Kingwood Pike and Dorsey. I believe by simply putting in turning lanes would be a more practical approach, and less invasive then the proposed round about.
217	I oppose the greenbag road improvement project roundabout. A turning lane should be used instead. This impacts the surrounding businesses, food security programs, and living arrangements of low socioeconomic status residents. Please conduct an impact analysis.
218	As a resident of the Kingwood Pike area.....I think putting a roundabout in at the intersection of Greenbag Rd would be a bad idea. The reason I think this.....is because we have a problem in the winter time stopping at the intersection the way it is when the roads are very slick & icey. I think putting in turning lanes with lights & green arrows would be ideal. Thank you for letting me voice my opinion.

Comment Number	Comments
219	I live on Luckey Ln the road in which you said you plan on widening. I have had many concerns on this road since we moved here a couple years ago and no one wants to help me, so with this project hopefully you guys will help, especially now if you widen this road it will make matters worse! People drive this road A LOT due to them bypassing the 4 way intersection of Dorsey and Greenbag. The problem we have is people FLY on this road! I have fought for Speed limit signs and speed bumps so far only one speed limit sign was posted and of course no one obeys it. They said they wouldn't put speed bumps in city limits or something of that nature which is ridiculous. Currently the road is to skinny which works to our advantage as SOME people slow down because of being tight passing oncoming traffic. We have almost been hit putting our kids and baby in our car because our driveway is right against the road, school buses have problems pulling out and people have run into the ditch all the time often being pulled out by a tow truck, and they also smack mirrors from going too fast and not having room on the road. It’s very unsafe for us, the church, neighbors and the school. Widening the road will most DEFINITELY make it worse as people won’t have to slow down to pass each other and I know they will still travel it probably even more with the widening regardless of the new round a bout being put in at the intersection. I don't understand why this road is even being widened its not meant to be a traveled road like that, however i'm not against it as long as we get a sufficient amount of speed bumps installed, even if at least they start from the stop sign intersection of the school to the end of Luckey Ln that connects to Dorsey. It’s very unsafe how fast people go for me and my family, the school, and the Church and neighbors. Ive tried to get police to patrol and they don't which they can’t sit there all the time anyway and again they don't obey speed limit signs. PLEASE PLEASE install speed bumps I beg you to install a sufficient amount of speed bumps. This will solve the problem of people flying on this road! It will make the school children and all of us safer.
220	It is my opinion that the roundabouts in town need to be larger as well as sloped inward. I can think of several roundabouts in Flemington New Jersey that are so large you cannot see the other side of it. Perhaps Morgantown should model its roundabouts after those?
221	Although the temporary car detour using Lower Aarons Creek Road is the shortest route, it presents significant public safety concerns. Several separate areas along the route are narrow; restricted by trees, brush, culverts, Aarons Creek itself, blind spots, short visibility, and ditches. Cars must find a driveway or wide spot to safely pass. Signs at two locations indicate "Narrow Road Speed Limit 20 mph" which is not followed by most vehicles using this as a "short cut". It is suggested someone drive Lower Aarons Creek Road and confirm it will provide a safe car detour route.

Comment Number	Comments
222	I wish to express my concerns regarding the roundabout proposed for the intersection of Greenbag Rd and Dorsey Ave/ Kingwood Pike. I believe that this development would have a disastrous and irreversible impact on land that I have become very familiar with. As a Horticultural consultant and educator, I recognise the exceptional significance and potential of the land currently being used by a community gardening group and the adjacent farmland. Although I live in Western Australia, I have had the good fortune to visit Wonderful West Virginia on five occasions, staying with family in Morgantown on each occasion. On every one of those visits from 2002 to 2018, I have spent several days on the properties I referred to and have been able to contribute to the development of a valuable community resource. Even though your climate is vastly different to my "semi-desert" country with a 10-inch annual average rainfall, there are many fundamental biological processes that are common globally and which need to be understood and appreciated in order to sustainably manage farming land. Over the years, I have been contributed in a two-way flow of information on horticulture and land conservation principals and practices on these properties by sharing information on water harvesting, permaculture, plant propagation, soil science, composting and many other related topics. It is gratifying to see some of that information now deployed in the establishment of a community garden that can be used to educate people, particularly the young, on the intricacies of successfully growing vegetables or fruit trees for example, without harming the environment. It would be the envy of nearly every city in the world to have a tract of well-watered, arable land, close to town that can be used to not only grow conventional vegetable crops for local consumption, but to also trial alternative plant species useful for other purposes. Opportunities exist. Here in Australia for example we are only just learning about the chemicals in the plants that Aboriginal people had been using for thousands of years as traditional bush medicine, with analyses revealing antibacterial properties capable of combatting resistant infections. In the face of a changing climate, experiments and trials and record keeping and research, all conducted by volunteers, should be valued for the contribution it makes to the community, the state, ultimately the planet, for providing the all important data that we increasingly rely on. If an alternative to the destruction of this land is available, no effort should be spared in searching for it. It is irreplaceable.

Comment Number	Comments
223	My husband and I live in Reedsville but travel to Morgantown everyday for work. I have traveled the Kingwood Pike everyday for 5+ years and it is by far the quickest and easiest route to take. I work in downtown Morgantown so the pike leads me directly in to town. I have never had any issues with the greenbag rd. intersection and feel that the only improvements necessary might be to fix the road where it is falling in or bumpy. Closing the pike to put in a roundabout would cause a huge issue for a lot of people who depend on that route everyday for work. I really have never seen an issue with traffic in this area. And I really believe it would be more of a burden than any help. The roundabout we have in Morgantown already does not work well. Thank you for your time.
224	I would like a turning lane instead of a round-about. No need to destroy a beautiful field that helps supply low income families with fresh local produce.
225	Leave the garden alone. Spend my tax dollars on repairing the roads we have! Shame in WVDOT for considering taking a public use garden to make a roundabout when there are so many other ways to spend our tax dollars! Fix the potholes!
226	Great project! Keep it up! Please make sure to incorporate bicycle and Pedestrian facilities.
227	Turning lane! Turning lane!
228	Please preserve the community garden as you work to update the intersection on Greenbag Rd and the Kingwood Pike.
229	Roundabout is stuip.Before thing of that .Need to be making the safe to drive .what's important rounfasbout or family with kids out for ride.I hope and pray to god it is not that crazy roundabout to have more accident and injury or killing more driver .Sorry POTHOLES POTHOLES !!! Fix Fix
230	I feel that this is a very big mistake to spend millions or billions of dollars on a Roundabout when all if our roads are just horrible and caving in Even the roads that Dot has repaired, patched are right back to the same potholes again. I think they should try a turning signal at this intersection by Atomic Grill to turn up Kingwood pike before spending all that money. Even the streets in town and Mon Boulevard are horrible. Ditches aren't cleaned and brush I'd not been taken care of. Mountain view School Rd was grated and for about 2 weeks it was nice. No gravel or just sparsely spread and is just as bad as it was before money was spent to fix it. It just is a temporary thing. Not really fixing the situation. All roads deserved to be fixed before a Roundabout
231	The round about is an awful idea. I think there should be a turning light so people can turn onto Dorsey. That would solve the problem. I live on the Kingswood pike and all the money wasted on this could go to fix our road. Wherw the road fell in there is a huge jump and if you don’t stop to go over it then it could break your kids necks. its very unsafe and should have already been fixed

Comment Number	Comments
232	No to this project! This project will threaten the conscious harvest community garden. I am the program director of the Friendship House, which is an addiction and mental health drop-in recovery day center. Please view this video/article by abc news about how the garden helps people get into recovery. https://abcnews.go.com/amp/US/west-virginia-community-garden-helps-people-drug-addiction/story?id=61152664 space is so special to us and our clients. We are able to teach people how to grow food and benefit from garden Therapy. I personally support WV road development, but doing so on land that is accessible to our community and a community garden space is not ok. Many people benefit from this garden. Including WVU students, mental health clients, people experiencing homelessness, and other community groups. Please don't take our garden away from us.
233	I support this project 100%. Please continue with the work as planned. Roundabouts are smart and effective.
234	I am writing today to protest. The new project plan by the WV Dept of Transportation proposes a large roundabout at the Kingwood Pike and Greenbag Road intersection. We are reaching out today because the total acreage this projects wishes to acquire/annex/imminent domain has significant public health, environmental, agricultural, individual & community impacts. These impacts have not been assessed. We understand the State environment assessment made a Categorical Exclusion (CE). We are very concerned the State's plan claims no significant Human or Environmental Impact, therefore the project has been granted a Categorical Exclusion, which allows for expedited approvals without traditional public comment. This is alarming. There is clear human and environmental impact where the proposed roundabout would be located. This is unacceptable. We request a full environment impact assessment and reassessment of the CE. {Categorical Exclusion are actions which: do not induce significant impacts to planned growth or land use for the area, do not require the relocation of significant numbers of people; do not have a significant impact on any natural, cultural, recreational, historic or other resource; do not involve significant air, noise, or water quality impacts; do not have significant impacts on travel patterns; or do not otherwise, either individually or cumulatively, have any significant environmental impacts.} We feel the proposed roundabout is too abrasive and would severely impact our agriculture growth and development activities of the community and Conscious Harvest Cooperative. The land is also widely used by area University graduate and undergraduate students. The Hastings Family has always been happy to offer this land to the community for gardening, food justice events, signage, and advertising for other community events. Community also enjoy harvesting wild mint, foraging for wild mushrooms, and metal detecting actual archeological projects due to old relics and artifacts at this site. We wish to continue to offer this green space for us all to enjoy. We are open to alternative solutions including a turning lane, turning signal, expanding of the road, and building sidewalks.

Comment Number	Comments
235	I honestly feel that this is a misguided project that will do little to nothing of any value as far as improving traffic flow in the Morgantown area. I'm not sure whose brain child idea this is, probably the city of Morgantown who thinks that they can get all the trucks off city streets but two roundabouts in 4 tenths of a mile is a receipt for failure. Tell Mr. Cites that I mailed a letter to him outlining my objections and even suggesting an alternative plan. The letter was mailed Tuesday and may arrive late but since it was mailed before the deadline, I hope he reads in and gives it due consideration, I VOTE NO ON THE GREENBAG ROAD IMPROVEMENT PLAN.
236	I am against the traffic circle planned at Greenbag Road/ kingwood Pike. Winter time people will slide. I grew up in Preston county and drove the pike. We have 2 circles that work in Morgantown- 1 at university Towne center(which is being ripped out and moved and made larger for the football stadium) and WVU Medicine's. The one at the mileground is not a true traffic circle it's on an angle. It's so called fix for traffic is actually worse- it jammed like spokes on a wheel. People continue drive backwards in it. Winter months water flows across and freezes and cars slide into the other lane. We need infrastructure in this town. Turn ins and outs. Was there a feasibility study done on an a entrance/ exit ramp for 68 from the over pass? We need roads fixed, drainage fixed before you start building roads that will not be maintained. Rt7 and Brookhaven rd needs a stoplight for safety of school buses and children; summer school and rt7 needs a light traffic backs up past my housing development. Semis and Coal trucks fly on rt7. People of died at these intersections yet we are worried about traffic circles. Fix what is broken first.
237	To whom it may concern: I am wringing to express my desire to save the Hastings Farm from being taken to build a round about on the intersection of Kingwood Pike and Greenbag Road. Over the years that I have lived here the Hastings have offered use of their land and resources to all who needed. I personally have harvested ramps and garlic and have friends who did them same. I wholeheartedly believe that other traffic solutions could offer relief from congestion at the light, such as a turning lane. Please reconsider the destruction of this cherished farm and consider alternatives to the roundabout. Thank you!
238	Stop destroying natural spaces that make our home among the hills so special.
239	I would like a turning lane and not a roundabout
240	I am against the roundabout on Greenbag road. I would much rather see the money used to improve the Kingwood Pike or any other road in Preston County. The roads are in desperate need of attention. All the pot holes are destroying my vehicles and it is NOT safe for me to ride my motorcycle on. To me it is ignorant to use money to build something new if what is there now is working for now. After the roads are ALL fixed then worry about traffic and a roundabout on Greenbag road. The roads should be the 1st priority not a roundabout. A roundabout isn't destroying my car. These deplorable road conditions are unacceptable and should have been fixed a long time ago. I cannot figure out who or why they were allowed to get this bad. Where is all my tax and the lottery money going? Why does my vehicle have to have an annual state inspection if the roads are not fit to drive an off road vehicle on? I'm 35 years old and was born and had lived in Preston County my entire life and have never seen roads like this anywhere but this state. Please fix the roads then worry about other projects.

Comment Number	Comments
241	No roundabouts. I'm from New Jersey originally but have been here for 13 years and no one out here knows how to use them correctly. They just cause more problems. And NJ is doing away with them because they are not safe.
242	Nay!! Keep the integrity of the community and its people!
243	What a waste of money and you continue doing it these roundabouts are stupid and do not work nearly as well as you think they do stop being stupid and wasting my tax dollars
244	I do not support round about at intersection of greenbag road and Kingwood pike. There only needs to be turning lane additions on greenbag road. I have traveled this road for the last 15+ years and coming down the pike or off Dorsey does not cause any problems only crossing traffic on greenbag road. The additional round about would be helpful.
245	This project. Stop.
246	The objective for this plan is okay, but may I suggest a turning lane/turning signal and maybe sidewalks in place of the round about! This plan will take up much valuable space from the farm across the street of Atomic Grill which is needed. As a person who works on the Hastings Farm, I see a lot of potential with the crops we cultivate. Therefore no precious farm land should be taken away for this project. I hope this comment impacts the planning committee for this project. Thank you for you time.
247	I am writing in support of the proposed changes for Greenbag road as currently designed. I live approximately two miles south of the Kingwood Pike/Greenbag road intersection and travel through this intersection a lot. Over the years, I have seen a significant increase in vehicular traffic dating back to when their was a four-way stop signs, then the addition of the current traffic light, which was an improvement. I very much support and look forward having the roundabout installed. Many thanks for helping our communty.
248	Studies have shown that roundabouts are safer than traditional stop sign or signal-controlled intersections. Roundabouts reduced injury crashes by 75 percent at intersections where stop signs or signals were previously used for traffic control, according to a study by the Insurance Institute for Highway Safety (IIHS). Please build as many as you can in Morgantown

Comment Number	Comments
249	I have multiple concerns regarding this project. The impact of the actual construction for those of us who actually live on Greenbag Road will be significant. I understand that the detour will be through Lower Aaron's Creek Road; have any of the engineers or project managers traveled this road? It is in significant disrepair from it's current use and in some areas is unsafe. I am also aware that the plans of the Kingwood Pike roundabout are targeting a farmers field. These plans have a significant impact on natural, historic and agricultural resources. From my understanding, the owners are open to alternative solutions including a turning lane, turning signal, expanding of the road, building sidewalks, or adding signs yet these do not appear to be entertained by the state. This land is: 1. Home to Conscious Harvest Cooperative, a non-profit working to help support low income families with access to local produce. 2. Family-owned and operated farm of 117 years. 3. Community Green Space, including a wild mint and wild mushroom foraging area. 4. Participating WV-permitted industrial hemp research program. 5. Established garlic bed, supplying local families and restaurants. 6. WVU Agronomy/Horticulture Student growing garden. Surely there are many other alternatives to solve the traffic/safety issues at these two intersections. Please explore other alternatives while considering those of us who live, work and play here.
250	Please reconsider placing 2 round abouts on the Greenbag rd. I've lived on the Pike for 16 years and feel the placement of the roundabouts won't improve traffic flow as well as I feel they will be unsafe because of the ability or lack of ability of many drivers in this area.
251	Please don't put a roundabout at the end of the Kingwood Pike. It would be a waste of money. Roundabouts don't work well in Morgantown. If you don't believe it try using the roundabout on the Mileground at 4pm weekdays. Traffic coming off the 705 DOESN'T yield, therefor no one from any other direction can enter. If anything is needed, maybe widen Greenbag Road and put in a turn lane. This will help with the traffic congestion at the end of the day. It would be GREAT if you could repair the Kingwood Pike road itself. The road is in poor condition. Many people are blowing tires from the potholes. Also there are many places that people will cross the center line in order to miss the holes. This is so dangerous. Also the thought of closing the Kingwood Pike and detouring traffic down Aaron's Creek Road or Summer School Road is an awful idea. Aaron's Creek Road really isn't wide enough to accommodate the extra traffic. It is in desperate need of repair too. Also the field that is going to be used for the roundabout provides food to food banks for people in need. There are just so many reason's this isn't a good idea. Please just fix the road we have and don't waste the states money or time putting in something that will just make it worse. Thank you!
252	Kingwood pike needs a green arrow when turning left
253	Stop roundabout!! Traffic is only a problem when school is opening or closing and in evening about 5. Turn lanes would be a better solution. Fixing the Kingwood Pike road would be a start. Obviously the engineer who has worked on it the last 3 or 4 times needs replaced. Arron’s Creek road will never accommodate the traffic as a detour.

Comment Number	Comments
254	I am opposed to the proposed round about on Greenbag road. Taking property from an individual to make this round about is absurd. I think a simple turning lane would be a better alternative and cheaper. We have so many other road issues in WV and you want to spend money on a round about. Absolutely ridiculous.
255	Please consider all environmental impacts on such a project. Please also consider what the current and proposed private land use plans are that this expansion will negatively impact indefinitely for the future ahead. Why change a good thing that already currently exists? A more comprehensive considerate approach for private land owners and tax payers is needed at this time before moving forward. In ranked order of road/traffic improvements that are deemed necessary and important, this project needs to rank towards the bottom of the list. We can do better city wide and start elsewhere with improvements in much higher trafficked areas. Thank you for listening.
256	In favor of roundabout
257	The Intersection at Green Bay Rd. and Kingwood Pike is horrible as it is currently. Around about would be a fabulous idea! I left turn lane would be wonderful as well. Greenbag is becoming a hazard with busses, Mylan traffic and people driving into Morgantown from Preston county.
258	I don't think a roundabout is a good idea but just add turning lanes and light to go from greenbag road to Dorsey ave or kingwood pike
259	I don't think the round about is going to help any at the four way stop on the Kingwood Pike. It's hard for those big trucks to make the turn as it is. A turn lane would make better since. An on and off ramp onto Interstate 68 up by the bridge would allow the truck traffic to go that way and a lot of car traffic needs to get on 68 or 79 to get to work. Some in that office must have some common sense somewhere. No one seems to have any.
260	No round about Kingwood Pike or Collinsferry and University Ave
261	Build a turning lane, not a round-about
262	A roundabout is not needed at the intersection of the Kingwood Pike and Greenbag Rd. Turning lanes to allow left turns to keep traffic flowing would be a much better idea in this particular place. The majority of traffic in the area seems to be from people wanting to travel straight through on Greenbag being forced to wait on those wanting to turn left to go up the Pike or down Dorsey who have to wait for the road to be clear to turn. Turning lanes would allow those traveling straight through to do so, while a signal with a left turn arrow would allow others to turn without as much of a wait
263	Please do not include a roundabout in the Greenbag Road Project. A turning lane will be sufficient. The construction of the roundabout could cause potential damage to the local ecosystem.
264	I am writing to comment on the proposed roundabout on Greenbag Road in Monongalia County. I have lived off this road for close to thirty years and travel the route to be effected multiple times daily. I do agree that some changes need to be made at this intersection but I strongly disagree with the roundabout. A less costly and more efficient plan should be considered. Do we the citizens of this state, this county, this town, this neighborhood have no chance for input before this costly decision is made? Please realize that there is a lot of opposition about this proposed project. Please consider additional options.

Table 3: Response to Comments

Comment number	Response to comment
1	The roundabouts have been designed to meet the projected level of service requirements for the design year (2048) and with larger vehicles in mind incorporating truck aprons designed to support the weight and turning radius of larger vehicles, including school buses.
2	The detour presented in the April 2019 meeting was preliminary and the final detour route will be examined and defined during the final design process. Existing road conditions will be considered as a factor when determining the detour routes. Both build alternatives include widening of Luckey Lane. The east end of Luckey Lane will incorporate two 8-foot travel lanes with curb and gutter on both sides. The west end of Luckey Lane will include a 10-foot travel lane and a 12-foot travel lane with curb and gutter on both sides.
3	The shoulder along the north side of Greenbag Road is being designed to accommodate bicycle use by being wider (3 feet) than the standard shoulder (2 feet). During data collection of existing traffic volumes by doing turning movement counts, typical vehicles (passenger cars), heavy vehicles (trucks), buses, bicycles and pedestrian at crosswalk locations were counted and included in the proposed traffic models and analysis..
4	The City of Morgantown will be responsible for the maintenance of the sidewalks that are proposed to be constructed within the city limits; the WVDOH will be responsible for the maintenance of the sidewalks that are proposed outside the city limits. Both build alternatives include widening of Luckey Lane. The east end of Luckey Lane will incorporate two 8-foot travel lanes with curb and gutter on both sides. The west end of Luckey Lane will include a 10-foot travel lane and a 12-foot travel lane with curb and gutter on both sides. As part of the EA development, the WVDOH has examined two build alternatives and three options for each of the major intersections. The intersection options that were evaluated and analyzed include turning lanes, traffic signals, and roundabouts. The evaluation and analysis of these intersection options indicate that the roundabout would provide the most improvement to traffic congestion, has the lowest estimated construction cost, and does not displace any residences. The analysis also factors the improvement to the level of service provided by the turn lane options and the roundabout option for both current conditions and design year 2048 predicted conditions. The turn lane options do not improve the level of service as much as the roundabout and the turn lanes at Dorsey Avenue/Kingwood Pike involve complete takes of 2 or 3 residences (depending on the turn lane option selected). Impacts to the community garden have been minimized to the extent practicable. The EA will be available on the WVDOH website at go.wv.gov/dotcomment.
5	We appreciate your input and support regarding the project.
6	The roadway alternatives were designed to provide safe pedestrian access from the western end of the project area along Greenbag Road to the Dorsey Avenue/Kingwood Pike intersection. At the intersection the sidewalk follows Dorsey Avenue north to Luckey Lane and east on Luckey Lane to the connection with the existing sidewalk at Mountainview Elementary School. All roadway crossings will be marked and signed as crosswalks. The designs for the roadway and intersection improvements have factored the topography, safety issues, constructability, and current land use to develop feasible alternatives. Minimizing impacts to the environment, community, and right-of-way were also considered when evaluating the project alternatives. Impacts to the community garden have been minimized to the extent practicable.

Comment number	Response to comment
7	Both the MMMPO corridor study and the 2018 traffic study determined that traffic flow through the corridor is controlled by the congestion at the major intersections in the corridor. Projected growth in the Morgantown area will continue to increase traffic and congestion at the intersections if improvements do not occur. To address the current issues of congestion and lack of safe pedestrian use of the area, the WVDOH has examined two build alternatives and three options for each of the major intersections. The intersection options that were evaluated and analyzed include turning lanes, traffic signals, and roundabouts. The evaluation and analysis of these intersection options indicate that the roundabout would provide the most improvement to traffic congestion, has the lowest estimated construction cost, and does not displace any residences. The analysis also factors the improvement to the level of service provided by the turn lane options and the roundabout option for both current conditions and design year 2048 predicted conditions. The turn lane options do not improve the level of service as much as the roundabout and the turn lanes at Dorsey Avenue/Kingwood Pike involve complete takes of 2 or 3 residences (depending on the turn lane option selected). The roundabouts have been designed with larger vehicles in mind and incorporate truck aprons designed to support the weight and turning radius of larger vehicles, including school buses. The detour presented in the April 2019 meeting was preliminary and the final detour route will be examined and defined during the final design process. Existing road conditions will be considered as a factor when determining the detour routes. The design for Luckey Lane does not take any of the residences or the church and access will be maintained to each during construction through the use of flagging.
8	The WVDOH performed a traffic study for the project corridor and have analyzed and evaluated the traffic at the Luckey Lane intersection near Dollar General, including the option of terminating Luckey Lane prior to the intersection with Greenbag Road. Changes to the Luckey Lane intersection with Greenbag Road are outside the scope of the current project but will be considered during additional phases of work on Greenbag Road. Greenbag Road is currently designated as 40 mph and school zone designation was not included within the traffic study for this project. Roundabouts are designed to maintain a constant flow of traffic through the intersection which results in reduced congestion on roadways and a reduction in delays for drivers. Studies have shown that changing signalized intersections to roundabouts can have up to an 89% average reduction in vehicle delays. The improved traffic flow also results in reduced vehicle emissions including carbon monoxide, nitrous oxide, and carbon dioxide at the intersection.

Comment number	Response to comment
9	Both the MMMPO corridor study and the 2018 traffic study determined that traffic flow through the corridor is controlled by the congestion at the major intersections in the corridor. The projected growth in the Morgantown area will continue to increase traffic and congestion at the intersections if improvements do not occur. To address these issues of congestion and lack of safe pedestrian use of the area, the WVDOH has examined two build alternatives and three options for each of the major intersections. The intersection options that were evaluated and analyzed include turning lanes, traffic signals, and roundabouts. The evaluation and analysis of these intersection options indicate that the roundabout would provide the most improvement to traffic congestion, has the lowest estimated construction cost, and does not displace any residences. The analysis also evaluates the improvement to the level of service provided by the turn lane options and the roundabout option for both current conditions and design year 2048 predicted conditions. The turn lane options do not improve the level of service as much as the roundabout and the turn lanes at Dorsey Avenue/Kingwood Pike involve complete takes of 2 or 3 residences (depending on the turn lane option selected). The roundabouts have been designed with larger vehicles in mind and incorporate truck aprons designed to support the weight and turning radius of larger vehicles, including school buses. The detour presented in the April 2019 meeting was preliminary and the final detour route will be examined and defined during the final design process. Existing road conditions will be considered as a factor when determining the detour routes.
10	Right-of-way acquisition cannot begin until all approvals for the project have been secured and final design has been completed. WVDOH right-of-way staff and design engineers will work with the property owners regarding the acquisition of property. The purchase of private property will follow all relevant federal and state property acquisition laws, policies, and procedures.
11	The WVDOH has examined two build alternatives and three options for each of the major intersections. The intersection options that were evaluated and analyzed include turning lanes, traffic signals, and roundabouts. The evaluation and analysis of these intersection options indicate that the roundabout would provide the most improvement to traffic congestion, has the lowest estimated construction cost, and does not displace any residences. The analysis also factors the improvement to the level of service provided by the turn lane options and the roundabout option for both current conditions and design year 2048 predicted conditions. The turn lane options do not improve the level of service as much as the roundabout and the turn lanes at Dorsey Avenue/Kingwood Pike involve complete takes of 2 or 3 residences (depending on the turn lane option selected). The roundabouts have been designed with larger vehicles in mind and incorporate truck aprons designed to support the weight and turning radius of larger vehicles. The sidewalk design has been extended from the western end of the project area along Greenbag Road to the Dorsey Avenue/Kingwood Pike intersection. At the intersection the sidewalk follows Dorsey Avenue north to Luckey Lane and east on Luckey Lane to the connection with the existing sidewalk at Mountainview Elementary School. Road repair beyond the scope of this project is being addressed through the Governor's Roads to Prosperity program and progress can be tracked via the WVDOH website.

Comment number	Response to comment
12	Community involvement in the development of the MMMPO Corridor study report identified the lack of pedestrian facilities connecting the neighborhood schools with the commercial and residential areas as a key issue for community safety and access. Both the MMMPO corridor study and the 2018 traffic study determined that traffic flow through the corridor is controlled by the congestion at the major intersections in the corridor. The projected growth in the Morgantown area will continue to increase traffic and congestion at the intersections if improvements do not occur. To address the current issues of congestion and lack of safe pedestrian use of the area, the WVDOH has examined two build alternatives and three options for each of the major intersections. The intersection options that were evaluated and analyzed include turning lanes, traffic signals, and roundabouts. The evaluation and analysis of these intersection options indicate that the roundabout would provide the most improvement to traffic congestion, has the lowest estimated construction cost, and does not displace any residences. The analysis also factors the improvement to the level of service provided by the turn lane options and the roundabout option for both current conditions and design year 2048 predicted conditions. The turn lane options do not improve the level of service as much as the roundabout and the turn lanes at Dorsey Avenue/Kingwood Pike involve complete takes of 2 or 3 residences (depending on the turn lane option selected).
13	Road repair beyond the scope of this project is being addressed through the Governor's Roads to Prosperity program and progress can be tracked via the WVDOH website. Roundabouts are designed to slow speeds in the approach and through the roundabout allowing drivers more response time and limiting the number of potential directions where traffic could approach. Both of these factors improve safety for all drivers, including older drivers as well as pedestrians, and cyclists. Signage meeting WVDOH and the Federal Manual on Uniform Traffic Control Devices will be placed to assist drivers with navigating the roundabouts.
14	A 4-way stop was not considered at any study intersection within the Greenbag Road corridor. The MMMPO had completed several previous studies evaluating various transportation plans for the Greenbag Road corridor, with the ultimate vision of transforming Greenbag Road into a safe, efficient, and attractive multimodal transportation facility. The scenarios determined to be evaluated in the traffic study evolved from the outcome of the MMMPO's preliminary studies and findings. Existing two-way stop controlled operations with potential roadway improvements were evaluated as part of the traffic, as well as traffic signal and roundabout options. The evaluation and analysis of these intersection options indicate that the roundabout would provide the most improvement to traffic congestion, has the lowest estimated construction cost, and does not displace any residences. The analysis also factors the improvement to the level of service provided by the turn lane options and the roundabout option for both current conditions and design year 2048 predicted conditions. The turn lane options do not improve the level of service as much as the roundabout and the turn lanes at Dorsey Avenue/Kingwood Pike involve complete takes of 2 or 3 residences (depending on the turn lane option selected).

Comment number	Response to comment
15	The community garden is located on private property and the property owner will be compensated for the sale of the land to the WVDOH during the right-of-way acquisition process. Impacts to the community garden have been minimized to the extent practicable. The environmental document for the project has been elevated from a CE to an EA. Per FHWA guidelines, the EA is a concise document that provides evidence and analysis for determining whether to prepare an EIS or a finding of no significant impact. FHWA determined that based on the comments received during the first public comment period, an EA should be prepared. The EA will be available on the WVDOH website at go.wv.gov/dotcomment. Road repair beyond the scope of this project is being addressed through the Governor's Roads to Prosperity program and progress can be tracked via the WVDOH website.
16	Comment noted.
17	Apollo Drive is, as you noted, a private road and it is outside of the scope of the current project. The detour presented in the April 2019 meeting was preliminary and the final detour route will be examined and defined during the final design process. Existing road conditions will be considered as a factor when determining the detour routes. Emergency vehicle access will be maintained during all phases of construction and coordination will occur with the fire department for each phase.
18	A 4-way stop was not considered at any study intersection within the Greenbag Road corridor. The MMMPO had completed several previous studies evaluating various transportation plans for the Greenbag Road corridor, with the ultimate vision of transforming Greenbag Road into a safe, efficient, and attractive multimodal transportation facility. The scenarios determined to be evaluated in the traffic study evolved from the outcome of the MMMPO's preliminary studies and findings. Existing two-way stop controlled operations with potential roadway improvements were evaluated as part of the traffic, as well as traffic signal and roundabout options. The evaluation and analysis of these intersection options indicate that the roundabout would provide the most improvement to traffic congestion, has the lowest estimated construction cost, and does not displace any residences. The analysis also factors the improvement to the level of service provided by the turn lane options and the roundabout option for both current conditions and design year 2048 predicted conditions. The turn lane options do not improve the level of service as much as the roundabout and the turn lanes at Dorsey Avenue/Kingwood Pike involve complete takes of 2 or 3 residences (depending on the turn lane option selected). Roundabouts are designed to maintain a constant flow of traffic through the intersection which results in reduced congestion on roadways and a reduction in delays for drivers by not requiring all vehicles to come to a complete stop.
19	Right-of-way acquisition cannot begin until all approvals for the project have been secured and final design has been completed. WVDOH right-of-way staff and design engineers will work with the property owners regarding the acquisition of property. The purchase of private property will follow all relevant federal and state property acquisition laws, policies, and procedures. Right-of-way agents will work to obtain correct records once the acquisition process begins.

Comment number	Response to comment
20	The sidewalk design has been extended from the western end of the project area along Greenbag Road to the Dorsey Avenue/Kingwood Pike intersection. At the intersection the sidewalk follows Dorsey Avenue north to Luckey Lane and east on Luckey Lane to the connection with the existing sidewalk at Mountainview Elementary School. All roadway crossings will be marked and signed as crosswalks. Roundabouts are designed to slow speeds in the approach and through the roundabout allowing drivers more response time and limiting the number of potential directions where traffic could approach. Both of these factors improve safety for all drivers, including older drivers as well as pedestrians, and cyclists.
21	FHWA has evaluated the project and determined that an EA is the appropriate level of documentation given the scope and details of the project. The WVDOH has prepared an EA to consider the potential environmental consequences of the project, document the analysis, and make this information available to the public for comment prior to implementation. The EA will be available on the WVDOH website at go.wv.gov/dotcomment. As part of the EA, the WVDOH has examined two build alternatives and three options for each of the major intersections. The intersection options that were evaluated and analyzed include turning lanes, traffic signals, and roundabouts. These alternatives and options are assessed in the EA for impacts to social, cultural, natural, economic, and environmental resource factors. Each of the alternatives and options has been designed to meet the purpose and need for the project to reduce congestion and address the lack of safe non-motorized connections along the CR 857 corridor. The community garden is located on private property and the property owner will be compensated for the sale of the land to the WVDOH during the right-of-way acquisition process. Impacts to the community garden have been minimized to the extent practicable.
22	A 4-way stop was not considered at any study intersection within the Greenbag Road corridor. The MMMPO had completed several previous studies evaluating various transportation plans for the Greenbag Road corridor, with the ultimate vision of transforming Greenbag Road into a safe, efficient, and attractive multimodal transportation facility. The scenarios determined to be evaluated in the traffic study evolved from the outcome of the MMMPO's preliminary studies and findings. Existing two-way stop controlled operations with potential roadway improvements were evaluated as part of the traffic, as well as traffic signal and roundabout options. The evaluation and analysis of these intersection options indicate that the roundabout would provide the most improvement to traffic congestion, has the lowest estimated construction cost, and does not displace any residences. The turn lanes at Dorsey Avenue/Kingwood Pike involve complete takes of 2 or 3 residences (depending on the turn lane option selected). Based on studies by the FHWA, changing a signalized intersection to a roundabout showed a 48% reduction in all crashes and a 78% reduction in fatal/injury crashes. Roundabouts are designed to maintain a constant flow of traffic through the intersection which results in reduced congestion on roadways and a reduction in delays for drivers by not requiring all vehicles to come to a complete stop. Pedestrians and bicyclists have less risk with roundabouts than traditional signalized intersections due to the lower vehicle speeds through the roundabout and shorter travel distances for the pedestrians crossing the roadway. The preferred alternative includes the construction of another retaining wall at the intersection of Kingwood Pike and Greenbag Road.

Comment number	Response to comment
23	The community garden is located on private property and the property owner will be compensated for the sale of the land to the WVDOH during the right-of-way acquisition process. Impacts to the community garden have been minimized to the extent practicable. The designs for the roadway and intersection improvements have factored the topography, safety issues, constructability, and current land use to develop feasible alternatives. Minimizing impacts to the environment, community, and right-of-way were also considered when evaluating the project alternatives. The WVDOH has examined two build alternatives and three options for each of the major intersections. The intersection options that were evaluated and analyzed include turning lanes, traffic signals, and roundabouts. The evaluation and analysis of these intersection options indicate that the roundabout would provide the most improvement to traffic congestion, has the lowest estimated construction cost, and does not displace any residences. The analysis also factors the improvement to the level of service provided by the turn lane options and the roundabout option for both current conditions and design year 2048 predicted conditions. The turn lane options do not improve the level of service as much as the roundabout and the turn lanes at Dorsey Avenue/Kingwood Pike involve complete takes of 2 or 3 residences (depending on the turn lane option selected).
24	The environmental document for the project has been elevated from a CE to an EA to consider the potential environmental consequences of the project, document the analysis, and make this information available to the public for comment prior to implementation. The EA will be available on the WVDOH website at go.wv.gov/dotcomment. The community garden is located on private property and the property owner will be compensated for the sale of the land to the WVDOH during the right-of-way acquisition process. Impacts to the community garden have been minimized to the extent practicable. When construction is completed and all disturbed areas have been re-vegetated, Greenbag Road will still be a rural area with a transportation corridor. The designs for the roadway and intersection improvements have factored the topography, safety issues, constructability, and current land use to develop feasible alternatives. Minimizing impacts to the environment, community, and right-of-way were also considered when evaluating the project alternatives.
25	Both the MMMPO corridor study and the 2018 traffic study determined that traffic flow through the corridor is controlled by the congestion at the major intersections in the corridor. The projected growth in the Morgantown area will continue to increase traffic and congestion at the intersections if improvements do not occur. To address the current issues of congestion and lack of safe pedestrian use of the area, the WVDOH has examined two build alternatives and three options for each of the major intersections. The intersection options that were evaluated and analyzed include turning lanes, traffic signals, and roundabouts. The evaluation and analysis of these intersection options indicate that the roundabout would provide the most improvement to traffic congestion, has the lowest estimated construction cost, and does not displace any residences. The analysis also factors the improvement to the level of service provided by the turn lane options and the roundabout option for both current conditions and design year 2048 predicted conditions. The turn lane options do not improve the level of service as much as the roundabout and the turn lanes at Dorsey Avenue/Kingwood Pike involve complete takes of 2 or 3 residences (depending on the turn lane option selected). During the right-of-way acquisition process and negotiation, concerns related to the driveway access, billboards, and maintenance of access will be addressed with the right-of-way agent. The sidewalk is along the north side of Greenbag Road and will not be extended along Kingwood Pike.

Comment number	Response to comment
26	The community garden is located on private property and the property owner will be compensated for the sale of the land to the WVDOH during the ROW acquisition process. Impacts to the community garden have been minimized to the extent practicable.
27	Based on studies by the FHWA, changing a signalized intersection to a roundabout showed a 48% reduction in all crashes and a 78% reduction in fatal/injury crashes. Pedestrians and bicyclists have less risk with roundabouts than traditional signalized intersections due to the lower vehicle speeds through the roundabout and shorter travel distances for the pedestrians crossing the roadway. Roundabouts are designed to maintain a constant flow of traffic through the intersection which results in reduced congestion on roadways and a reduction in delays for drivers. Studies have shown that changing signalized intersections to roundabouts can have up to an 89% average reduction in vehicle delays. The improved traffic flow also results in reduced vehicle emissions including carbon monoxide, nitrous oxide, and carbon dioxide at the intersection. Education on the use of roundabouts is an important issue in order to have full functionality of the roundabout that results in fewer severe crashes, fewer crashes overall, shorter travel times, and less congestion.
28	Comment noted.
29	Comment noted.
30	We appreciate your input regarding the project.
31	The WVDOH has prepared an EA to consider the potential environmental consequences of the project, document the analysis, and make this information available to the public for comment prior to implementation. The EA will be available on the WVDOH website at go.wv.gov/dotcomment. As part of the EA, the WVDOH examined two build alternatives and three options for each of the major intersections. The intersection options will include turning lanes, traffic signals, and roundabouts. These alternatives and options will be assessed in the EA for impacts to social, cultural, natural, economic, and environmental resource factors. The community garden is located on private property and the property owner will be compensated for the sale of the land to the WVDOH during the right-of-way acquisition process. Impacts to the community garden have been minimized to the extent practicable.
32	Right-of-way acquisition cannot begin until all approvals for the project have been secured and final design has been completed. WVDOH right-of-way staff and design engineers will work with the property owners regarding the acquisition of property. The purchase of private property will follow all relevant federal and state property acquisition laws, policies, and procedures. Right-of-way agents will work to obtain correct records once the acquisition process begins.

Comment number	Response to comment
33	Both the MMMPO corridor study and the 2018 traffic study determined that traffic flow through the corridor is controlled by the congestion at the major intersections in the corridor. The projected growth in the Morgantown area will continue to increase traffic and congestion at the intersections if improvements do not occur. To address the current issues of congestion and lack of safe pedestrian use of the area, the WVDOH has examined two build alternatives and three options for each of the major intersections. The intersection options that were evaluated and analyzed include turning lanes, traffic signals, and roundabouts. The evaluation and analysis of these intersection options indicate that the roundabout would provide the most improvement to traffic congestion, has the lowest estimated construction cost, and does not displace any residences. The analysis also factors the improvement to the level of service provided by the turn lane options and the roundabout option for both current conditions and design year 2048 predicted conditions. The turn lane options do not improve the level of service as much as the roundabout and the turn lanes at Dorsey Avenue/Kingwood Pike involve complete takes of 2 or 3 residences (depending on the turn lane option selected). The detour presented in the April 2019 meeting was preliminary and the final detour route will be examined and defined during the final design process. Existing road conditions will be considered as a factor when determining the detour routes.
34	A turn lane option has been considered in the EA and evaluated for impacts to social, cultural, natural, economic, and environmental resource factors. The analysis also factors the improvement to the level of service provided by the turn lane options and the roundabout option for both current conditions and design year 2048 predicted conditions. The turn lane options do not improve the level of service as much as the roundabout and the turn lanes at Dorsey Avenue/Kingwood Pike involve complete takes of 2 or 3 residences (depending on the turn lane option selected). The EA will be available on the WVDOH website at go.wv.gov/dotcomment.
35	Both the MMMPO corridor study and the 2018 traffic study determined that traffic flow through the corridor is controlled by the congestion at the major intersections in the corridor. The projected growth in the Morgantown area will continue to increase traffic and congestion at the intersections if improvements do not occur. To address these issues of congestion and lack of safe pedestrian use of the area, the WVDOH has examined two build alternatives and three options for each of the major intersections. The intersection options that were evaluated and analyzed include turning lanes, traffic signals, and roundabouts. The evaluation and analysis of these intersection options indicate that the roundabout would provide the most improvement to traffic congestion, has the lowest estimated construction cost, and does not displace any residences. The analysis also evaluates the improvement to the level of service provided by the turn lane options and the roundabout option for both current conditions and design year 2048 predicted conditions. The turn lane options do not improve the level of service as much as the roundabout and the turn lanes at Dorsey Avenue/Kingwood Pike involve complete takes of 2 or 3 residences (depending on the turn lane option selected).

Comment number	Response to comment
36	Both the MMMPO corridor study and the 2018 traffic study determined that traffic flow through the corridor is controlled by the congestion at the major intersections in the corridor. The projected growth in the Morgantown area will continue to increase traffic and congestion at the intersections if improvements do not occur. To address these issues of congestion and lack of safe pedestrian use of the area, the WVDOH has examined two build alternatives and three options for each of the major intersections. The intersection options that were evaluated and analyzed include turning lanes, traffic signals, and roundabouts. The evaluation and analysis of these intersection options indicate that the roundabout would provide the most improvement to traffic congestion, has the lowest estimated construction cost, and does not displace any residences. The analysis also evaluates the improvement to the level of service provided by the turn lane options and the roundabout option for both current conditions and design year 2048 predicted conditions. The turn lane options do not improve the level of service as much as the roundabout and the turn lanes at Dorsey Avenue/Kingwood Pike involve complete takes of 2 or 3 residences (depending on the turn lane option selected). Roundabouts are designed to maintain a constant flow of traffic through the intersection which results in reduced congestion on roadways and a reduction in delays for drivers by not requiring all vehicles to come to a complete stop as is required by a 4-way stop.
37	The community garden is located on private property and the property owner will be compensated for the sale of the land to the WVDOH during the right-of-way acquisition process. Impacts to the community garden have been minimized to the extent practicable.
38	The community garden is located on private property and the property owner will be compensated for the sale of the land to the WVDOH during the right-of-way acquisition process. Impacts to the community garden have been minimized to the extent practicable. Road repair beyond the scope of this project is being addressed through the Governor's Roads to Prosperity program and progress can be tracked via the WVDOH website.
39	The community garden is located on private property and the property owner will be compensated for the sale of the land to the WVDOH during the right-of-way acquisition process. Impacts to the community garden have been minimized to the extent practicable.
40	The community garden is located on private property and the property owner will be compensated for the sale of the land to the WVDOH during the right-of-way acquisition process. Impacts to the community garden have been minimized to the extent practicable. Roundabouts are designed to maintain a constant flow of traffic through the intersection which results in reduced congestion on roadways and a reduction in delays for drivers. Studies have shown that changing signalized intersections to roundabouts can have up to an 89% average reduction in vehicle delays. The improved traffic flow also results in reduced vehicle emissions including carbon monoxide, nitrous oxide, and carbon dioxide at the intersection.
41	The community garden is located on private property and the property owner will be compensated for the sale of the land to the WVDOH during the right-of-way acquisition process. Impacts to the community garden have been minimized to the extent practicable.

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42	Both the MMMPO corridor study and the 2018 traffic study determined that traffic flow through the corridor is controlled by the congestion at the major intersections in the corridor. The projected growth in the Morgantown area will continue to increase traffic and congestion at the intersections if improvements do not occur. To address the current issues of congestion and lack of safe pedestrian use of the area, the WVDOH has examined two build alternatives and three options for each of the major intersections. The intersection options that were evaluated and analyzed include turning lanes, traffic signals, and roundabouts. The evaluation and analysis of these intersection options indicate that the roundabout would provide the most improvement to traffic congestion, has the lowest estimated construction cost, and does not displace any residences. The analysis also factors the improvement to the level of service provided by the turn lane options and the roundabout option for both current conditions and design year 2048 predicted conditions. The turn lane options do not improve the level of service as much as the roundabout and the turn lanes at Dorsey Avenue/Kingwood Pike involve complete takes of 2 or 3 residences (depending on the turn lane option selected). The roundabouts have been designed with larger vehicles in mind and incorporate truck aprons designed to support the weight and turning radius of larger vehicles, including school buses. The community garden is located on private property and the property owner will be compensated for the sale of the land to the WVDOH during the right-of-way acquisition process. Impacts to the community garden have been minimized to the extent practicable.
43	The WVDOH has prepared an EA to consider the potential environmental consequences of the project, document the analysis, and make this information available to the public for comment prior to implementation. The EA will be available on the WVDOH website at go.wv.gov/dotcomment. As part of the EA, the WVDOH examined two build alternatives and three options for each of the major intersections. These alternatives and options will be assessed for impacts to social, cultural, natural, economic, and environmental resource factors. Each of the alternatives and options has been designed to meet the purpose and need for the project to reduce congestion and address the lack of safe non-motorized connections along the CR 857 corridor.
44	A traffic study was completed in 2018 to determine the current conditions and provide data for estimates of future conditions. The study showed that the current level of service for the Dorsey Avenue/Kingwood Pike intersection to be C in both morning and evening and for Mississippi Street a C in the morning and an A in the evening. The study used a forecasted growth rate of 1.16% per year provided by the MMMPO to create projections for the design year (2048) levels of service. Forecasted 2048 level of service for the Dorsey Avenue/Kingwood Pike intersection is C in morning and F in evening and for Mississippi Street an F in the morning and a D in the evening indicating that as the Morgantown area continues to grow the traffic congestion at these intersections will increase as well. Increased congestion leads to longer travel times and more opportunities for safety incidents and serious injuries.
45	Minimizing impacts to the environment, community, and right-of-way were considered when evaluating the project alternatives. The EA analysis included evaluation of impacts to social, cultural, natural, economic, and environmental resource factors, land use, indirect, and cumulative effects.

Comment number	Response to comment
46	The EA analysis examined the potential effects to farmland and agricultural soils within the project area. The WVDOH has examined two build alternatives and three options for each of the major intersections. The intersection options that were evaluated and analyzed include turning lanes, traffic signals, and roundabouts. The evaluation and analysis of these intersection options indicate that the roundabout would provide the most improvement to traffic congestion, has the lowest estimated construction cost, and does not displace any residences. The analysis also factors the improvement to the level of service provided by the turn lane options and the roundabout option for both current conditions and design year 2048 predicted conditions. The turn lane options do not improve the level of service as much as the roundabout and the turn lanes at Dorsey Avenue/Kingwood Pike involve complete takes of 2 or 3 residences (depending on the turn lane option selected). Education on the use of roundabouts is an important issue in order to have full functionality of the roundabout that results in fewer severe crashes, fewer crashes overall, shorter travel times, and less congestion.
47	The environmental document for the project has been elevated from a CE to an EA. Per FHWA guidelines, the EA is a concise document that provides evidence and analysis for determining whether to prepare an EIS or a finding of no significant impact. FHWA determined that based on the comments received during the first public comment period, an EA should be prepared. The EA will be available on the WVDOH website at go.wv.gov/dotcomment. The EA analysis examined the potential effects to farmland and agricultural soils within the project area, as well as social, cultural, natural, economic, and environmental resource factors, land use, indirect and cumulative effects. The community garden is located on private property and the property owner will be compensated for the sale of the land to the WVDOH during the right-of-way acquisition process. Impacts to the community garden have been minimized to the extent practicable.
48	The EA analysis included evaluation of potential impacts to numerous categories including natural resources, cultural resources, land use, indirect, and cumulative effects.
49	A turn lane option has been considered in the EA and evaluated for impacts to social, cultural, natural, economic, and environmental resource factors. The analysis also factors the improvement to the level of service provided by the turn lane options and the roundabout option for both current conditions and design year 2048 predicated conditions. The turn lane options do not improve the level of service as much as the roundabout and the turn lanes involve complete takes of 2 or 3 residences (depending on the turn lane option selected).
50	A turn lane option has been considered in the EA and evaluated for impacts to social, cultural, natural, economic, and environmental resource factors. The analysis also factors the improvement to the level of service provided by the turn lane options and the roundabout option for both current conditions and design year 2048 predicated conditions. The turn lane options do not improve the level of service as much as the roundabout and the turn lanes involve complete takes of 2 or 3 residences (depending on the turn lane option selected).

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51	Both the MMMPO corridor study and the 2018 traffic study determined that traffic flow through the corridor is controlled by the congestion at the major intersections in the corridor. The projected growth in the Morgantown area will continue to increase traffic and congestion at the intersections if improvements do not occur. To address these issues of congestion and lack of safe pedestrian use of the area, the WVDOH has examined two build alternatives and three options for each of the major intersections. The intersection options that were evaluated and analyzed include turning lanes, traffic signals, and roundabouts. The evaluation and analysis of these intersection options indicate that the roundabout would provide the most improvement to traffic congestion, has the lowest estimated construction cost, and does not displace any residences. The analysis also evaluates the improvement to the level of service provided by the turn lane options and the roundabout option for both current conditions and design year 2048 predicted conditions. The turn lane options do not improve the level of service as much as the roundabout and the turn lanes at Dorsey Avenue/Kingwood Pike involve complete takes of 2 or 3 residences (depending on the turn lane option selected). The EA analysis included evaluation of potential impacts to numerous categories including natural resources, cultural resources, land use, indirect, and cumulative effects.
52	The environmental document for the project has been elevated from a CE to an EA. There will be another public meeting to present the EA and allow additional time for comment. The EA will be available on the WVDOH website at go.wv.gov/dotcomment. The WVDOH has examined two build alternatives and three options for each of the major intersections. The intersection options that were evaluated and analyzed include turning lanes, traffic signals, and roundabouts. The evaluation and analysis of these intersection options indicate that the roundabout would provide the most improvement to traffic congestion, has the lowest estimated construction cost, and does not displace any residences. The analysis also factors the improvement to the level of service provided by the turn lane options and the roundabout option for both current conditions and design year 2048 predicted conditions. The turn lane options do not improve the level of service as much as the roundabout and the turn lanes at Dorsey Avenue/Kingwood Pike involve complete takes of 2 or 3 residences (depending on the turn lane option selected). Any right-of-way required for the project construction will be purchased from the landowner during the right-of-way acquisition process.
53	Road repair beyond the scope of this project is being addressed through the Governor's Roads to Prosperity program and progress can be tracked via the WVDOH website. Drainage issues will be addressed within the project area. Roundabouts are designed to maintain a constant flow of traffic through the intersection which results in reduced congestion on roadways and a reduction in delays for drivers. Studies have shown that changing signalized intersections to roundabouts can have up to an 89% average reduction in vehicle delays. The improved traffic flow also results in reduced vehicle emissions including carbon monoxide, nitrous oxide, and carbon dioxide at the intersection. Additionally, roundabouts are designed to slow speeds in the approach and through the roundabout allowing drivers more response time and limiting the number of potential directions where traffic could approach. Both of these factors improve safety for all drivers, including older drivers as well as pedestrians, and cyclists.

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54	Roundabouts are designed to maintain a constant flow of traffic through the intersection which results in reduced congestion on roadways and a reduction in delays for drivers. Studies have shown that changing signalized intersections to roundabouts can have up to an 89% average reduction in vehicle delays. The improved traffic flow also results in reduced vehicle emissions including carbon monoxide, nitrous oxide, and carbon dioxide at the intersection. Additionally, roundabouts are designed to slow speeds in the approach and through the roundabout allowing drivers more response time and limiting the number of potential directions where traffic could approach. Both of these factors improve safety for all drivers, including older drivers as well as pedestrians, and cyclists. Signage meeting WVDOH and the Federal Manual on Uniform Traffic Control Devices will be placed to assist drivers with navigating the roundabouts.
55	A turn lane option has been considered in the EA and evaluated for impacts to social, cultural, natural, economic, and environmental resource factors. The analysis also factors the improvement to the level of service provided by the turn lane options and the roundabout option for both current conditions and design year 2048 predicated conditions. The turn lane options do not improve the level of service as much as the roundabout and the turn lanes involve complete takes of 2 or 3 residences (depending on the turn lane option selected). Road repair beyond the scope of this project is being addressed through the Governor's Roads to Prosperity program and progress can be tracked via the WVDOH website.
56	The community garden is located on private property and the property owner will be compensated for the sale of the land to the WVDOH during the right-of-way acquisition process. Impacts to the community garden have been minimized to the extent practicable.
57	Roundabouts are designed to slow speeds in the approach and through the roundabout allowing drivers more response time and limiting the number of potential directions where traffic could approach. Both of these factors improve safety for all drivers, including older drivers as well as pedestrians, and cyclists.
58	The roundabouts have been designed with larger vehicles in mind and incorporate truck aprons designed to support the weight and turning radius of larger vehicles, including school buses. The community garden is located on private property and the property owner will be compensated for the sale of the land to the WVDOH during the right-of-way acquisition process. Impacts to the community garden have been minimized to the extent practicable.
59	Both the Morgantown Monongalia MPO corridor study and the 2018 traffic study determined that traffic flow through the corridor is controlled by the congestion at the major intersections in the corridor. The projected growth in the Morgantown area will continue to increase traffic and congestion at the intersections if improvements do not occur. Roundabouts are designed to maintain a constant flow of traffic through the intersection which results in reduced congestion on roadways, a reduction in delays for drivers, and improved safety conditions for drivers, pedestrians, and cyclists. Road repair beyond the scope of this project is being addressed through the Governor's Roads to Prosperity program and progress can be tracked via the WVDOH website.

Comment number	Response to comment
60	A traffic study was completed in 2018 to determine the current conditions and provide data for estimates of future conditions. The study showed that the current level of service for the Dorsey Avenue/Kingwood Pike intersection to be C in both morning and evening and for Mississippi Street a C in the morning and an A in the evening. The study used a forecasted growth rate of 1.16% per year provided by the MMMPO to create projections for the design year (2048) levels of service. Forecasted 2048 level of service for the Dorsey Avenue/Kingwood Pike intersection is C in morning and F in evening and for Mississippi Street an F in the morning and a D in the evening indicating that as the Morgantown area continues to grow the traffic congestion at these intersections will increase as well. Increased congestion leads to longer travel times and more opportunities for safety incidents and serious injuries.
61	Both the Morgantown Monongalia MPO corridor study and the 2018 traffic study determined that traffic flow through the corridor is controlled by the congestion at the major intersections in the corridor. The projected growth in the Morgantown area will continue to increase traffic and congestion at the intersections if improvements do not occur. Roundabouts are designed to maintain a constant flow of traffic through the intersection which results in reduced congestion on roadways, a reduction in delays for drivers, and improved safety conditions for drivers, pedestrians, and cyclists. The alternatives and intersection options determined to be evaluated were based on the outcome of the MMMPO's preliminary studies and findings. Changes to the existing traffic signal, without other improvements, were not considered. The WVDOH has examined two build alternatives and three options for each of the major intersections. The intersection options that were evaluated and analyzed in the EA include turning lanes, traffic signals, and roundabouts. The evaluation and analysis of these intersection options indicate that the roundabout would provide the most improvement to traffic congestion, has the lowest estimated construction cost, and does not displace any residences. The analysis also evaluates the improvement to the level of service provided by the turn lane options and the roundabout option for both current conditions and design year 2048 predicted conditions. The turn lane options do not improve the level of service as much as the roundabout and the turn lanes at Dorsey Avenue/Kingwood Pike involve complete takes of 2 or 3 residences (depending on the turn lane option selected). Road repair beyond the scope of this project is being addressed through the Governor's Roads to Prosperity program and progress can be tracked via the WVDOH website.
62	A turn lane option has been considered in the EA and evaluated for impacts to social, cultural, natural, economic, and environmental resource factors. The analysis also factors the improvement to the level of service provided by the turn lane options and the roundabout option for both current conditions and design year 2048 predicated conditions. The turn lane options do not improve the level of service as much as the roundabout and the turn lanes involve complete takes of 2 or 3 residences (depending on the turn lane option selected). The Sabraton area is outside the scope of the current project.

Comment number	Response to comment
63	Both the MMMPO corridor study and the 2018 traffic study determined that traffic flow through the corridor is controlled by the congestion at the major intersections in the corridor. The projected growth in the Morgantown area will continue to increase traffic and congestion at the intersections if improvements do not occur. To address the current issues of congestion and lack of safe pedestrian use of the area, the WVDOH has examined two build alternatives and three options for each of the major intersections. The intersection options that were evaluated and analyzed include turning lanes, traffic signals, and roundabouts. The evaluation and analysis of these intersection options indicate that the roundabout would provide the most improvement to traffic congestion, has the lowest estimated construction cost, and does not displace any residences. Roundabouts are designed to maintain a constant flow of traffic through the intersection which results in reduced congestion on roadways and a reduction in delays for drivers. Studies have shown that changing signalized intersections to roundabouts can have up to an 89% average reduction in vehicle delays. The improved traffic flow also results in reduced vehicle emissions including carbon monoxide, nitrous oxide, and carbon dioxide at the intersection. Additionally, roundabouts are designed to slow speeds in the approach and through the roundabout allowing drivers more response time and limiting the number of potential directions where traffic could approach. Both of these factors improve safety for all drivers, including older drivers as well as pedestrians, and cyclists.
64	A turn lane option has been considered in the EA and evaluated for impacts to social, cultural, natural, economic, and environmental resource factors. The analysis also factors the improvement to the level of service provided by the turn lane options and the roundabout option for both current conditions and design year 2048 predicated conditions. The turn lane options do not improve the level of service as much as the roundabout and the turn lanes involve complete takes of 2 or 3 residences (depending on the turn lane option selected). The need for a sidewalk was identified by the public in the comments for the MMMPO corridor study as one of the factors to improve safety in the Greenbag Road corridor. When construction is completed and all disturbed areas have been re-vegetated, Greenbag Road will still be a rural area with a transportation corridor. The designs for the roadway and intersection improvements have factored the topography, safety issues, constructability, and current land use to develop feasible alternatives. Minimizing impacts to the environment, community, and right-of-way were also considered when evaluating the project alternatives.
65	Both the MMMPO corridor study and the 2018 traffic study determined that traffic flow through the corridor is controlled by the congestion at the major intersections in the corridor. The projected growth in the Morgantown area will continue to increase traffic and congestion at the intersections if improvements do not occur. To address the current issues of congestion and lack of safe pedestrian use of the area, the WVDOH has examined two build alternatives and three options for each of the major intersections. The intersection options that were evaluated and analyzed include turning lanes, traffic signals, and roundabouts. The evaluation and analysis of these intersection options indicate that the roundabout would provide the most improvement to traffic congestion, has the lowest estimated construction cost, and does not displace any residences. The turn lane options do not improve the level of service as much as the roundabout and the turn lanes at Dorsey Avenue/Kingwood Pike involve complete takes of 2 or 3 residences (depending on the turn lane option selected). The roundabouts have been designed with larger vehicles in mind and incorporate truck aprons designed to support the weight and turning radius of larger vehicles, including school buses.

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66	Roundabouts are designed to maintain a constant flow of traffic through the intersection which results in reduced congestion on roadways and a reduction in delays for drivers. Studies have shown that changing signalized intersections to roundabouts can have up to an 89% average reduction in vehicle delays. The improved traffic flow also results in reduced vehicle emissions including carbon monoxide, nitrous oxide, and carbon dioxide at the intersection. Additionally, roundabouts are designed to slow speeds in the approach and through the roundabout allowing drivers more response time and limiting the number of potential directions where traffic could approach. Both of these factors improve safety for all drivers, including older drivers as well as pedestrians, and cyclists. Signage meeting WVDOH and the Federal Manual on Uniform Traffic Control Devices will be placed to assist drivers with navigating the roundabouts.
67	Both the MMMPO corridor study and the 2018 traffic study determined that traffic flow through the corridor is controlled by the congestion at the major intersections in the corridor. The projected growth in the Morgantown area will continue to increase traffic and congestion at the intersections if improvements do not occur. Roundabouts are designed to maintain a constant flow of traffic through the intersection which results in reduced congestion on roadways and a reduction in delays for drivers. Studies have shown that changing signalized intersections to roundabouts can have up to an 89% average reduction in vehicle delays. The improved traffic flow also results in reduced vehicle emissions including carbon monoxide, nitrous oxide, and carbon dioxide at the intersection. Additionally, roundabouts are designed to slow speeds in the approach and through the roundabout allowing drivers more response time and limiting the number of potential directions where traffic could approach. Both of these factors improve safety for all drivers, including older drivers as well as pedestrians, and cyclists.
68	We appreciate your input and support regarding the project.
69	The community garden is located on private property and the property owner will be compensated for the sale of the land to the WVDOH during the right-of-way acquisition process. Impacts to the community garden have been minimized to the extent practicable.
70	A turn lane option has been considered in the EA and evaluated for impacts to social, cultural, natural, economic, and environmental resource factors. The analysis also factors the improvement to the level of service provided by the turn lane options and the roundabout option for both current conditions and design year 2048 predicated conditions. The turn lane options do not improve the level of service as much as the roundabout and the turn lanes at Dorsey Avenue involve complete takes of 2 or 3 residences (depending on the turn lane option selected). Impacts to Cobun Creek have been documented in the EA and mitigation measures will be implemented. The business at Dorsey Avenue will temporarily be impacted during construction sequencing but access will be maintained throughout construction.

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71	Both the MMMPO corridor study and the 2018 traffic study determined that traffic flow through the corridor is controlled by the congestion at the major intersections in the corridor. The projected growth in the Morgantown area will continue to increase traffic and congestion at the intersections if improvements do not occur. Designs for the intersection improvements have factored the topography, safety issues, constructability, and current land use to develop feasible alternatives. To address the issues of congestion and lack of safe pedestrian use of the area, the WVDOH has examined two build alternatives and three options for each of the major intersections. The intersection options that were evaluated and analyzed include turning lanes, traffic signals, and roundabouts. The evaluation and analysis of these intersection options indicate that the roundabout would provide the most improvement to traffic congestion, has the lowest estimated construction cost, and does not displace any residences. The analysis also evaluates the improvement to the level of service provided by the turn lane options and the roundabout option for both current conditions and design year 2048 predicted conditions. The turn lane options do not improve the level of service as much as the roundabout and the turn lanes at Dorsey Avenue/Kingwood Pike involve complete takes of 2 or 3 residences (depending on the turn lane option selected).
72	Both the MMMPO corridor study and the 2018 traffic study determined that traffic flow through the corridor is controlled by the congestion at the major intersections in the corridor. The projected growth in the Morgantown area will continue to increase traffic and congestion at the intersections if improvements do not occur. To address the current issues of congestion and lack of safe pedestrian use of the area, the WVDOH has examined two build alternatives and three options for each of the major intersections. The intersection options that were evaluated and analyzed include turning lanes, traffic signals, and roundabouts. The evaluation and analysis of these intersection options indicate that the roundabout would provide the most improvement to traffic congestion, has the lowest estimated construction cost, and does not displace any residences. The analysis also evaluates the improvement to the level of service provided by the turn lane options and the roundabout option for both current conditions and design year 2048 predicted conditions. The turn lane options do not improve the level of service as much as the roundabout and the turn lanes at Dorsey Avenue/Kingwood Pike involve complete takes of 2 or 3 residences (depending on the turn lane option selected). Roundabouts are designed to maintain a constant flow of traffic through the intersection which results in reduced congestion on roadways and a reduction in delays for drivers. Studies have shown that changing signalized intersections to roundabouts can have up to an 89% average reduction in vehicle delays. The improved traffic flow also results in reduced vehicle emissions including carbon monoxide, nitrous oxide, and carbon dioxide at the intersection. Additionally, roundabouts are designed to slow speeds in the approach and through the roundabout allowing drivers more response time and limiting the number of potential directions where traffic could approach. Both of these factors improve safety for all drivers, including older drivers as well as pedestrians, and cyclists.
73	Both the MMMPO corridor study and the 2018 traffic study determined that traffic flow through the corridor is controlled by the congestion at the major intersections in the corridor. The projected growth in the Morgantown area will continue to increase traffic and congestion at the intersections if improvements do not occur. The alternatives and intersection options determined to be evaluated were based on the outcome of the MMMPO's preliminary studies and findings. Changes to the existing traffic signal, without other improvements, were not considered.

Comment number	Response to comment
74	The community garden is located on private property and the property owner will be compensated for the sale of the land to the WVDOH during the right-of-way acquisition process. Impacts to the community garden have been minimized to the extent practicable.
75	As part of the EA, the WVDOH examined two build alternatives and three options for each of the major intersections. The intersection options will include turning lanes, traffic signals, and roundabouts. Road repair beyond the scope of this project is being addressed through the Governor's Roads to Prosperity program and progress can be tracked via the WVDOH website.
76	Both the MMMPO corridor study and the 2018 traffic study determined that traffic flow through the corridor is controlled by the congestion at the major intersections in the corridor. The projected growth in the Morgantown area will continue to increase traffic and congestion at the intersections if improvements do not occur. To address the current issues of congestion and lack of safe pedestrian use of the area, the WVDOH has examined two build alternatives and three options for each of the major intersections. The intersection options that were evaluated and analyzed include turning lanes, traffic signals, and roundabouts. The evaluation and analysis of these intersection options indicate that the roundabout would provide the most improvement to traffic congestion, has the lowest estimated construction cost, and does not displace any residences. Signage meeting WVDOH and the Federal Manual on Uniform Traffic Control Devices will be placed to assist drivers with navigating the roundabouts.
77	The community garden is located on private property and the property owner will be compensated for the sale of the land to the WVDOH during the right-of-way acquisition process. Impacts to the community garden have been minimized to the extent practicable.
78	The community garden is located on private property and the property owner will be compensated for the sale of the land to the WVDOH during the right-of-way acquisition process. Impacts to the community garden have been minimized to the extent practicable.
79	A turn lane option has been considered in the EA and evaluated for impacts to social, cultural, natural, economic, and environmental resource factors. The analysis also factors the improvement to the level of service provided by the turn lane options and the roundabout option for both current conditions and design year 2048 predicated conditions. The turn lane options do not improve the level of service as much as the roundabout and the turn lanes involve complete takes of 2 or 3 residences (depending on the turn lane option selected). The community garden is located on private property and the property owner will be compensated for the sale of the land to the WVDOH during the right-of-way acquisition process. Impacts to the community garden have been minimized to the extent practicable.

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80	The WVDOH has examined two build alternatives and three options for each of the major intersections. The intersection options that were evaluated and analyzed include turning lanes, traffic signals, and roundabouts. The evaluation and analysis of these intersection options indicate that the roundabout would provide the most improvement to traffic congestion, has the lowest estimated construction cost, and does not displace any residences. The analysis also factors the improvement to the level of service provided by the turn lane options and the roundabout option for both current conditions and design year 2048 predicted conditions. The turn lane options do not improve the level of service as much as the roundabout and the turn lanes at Dorsey Avenue/Kingwood Pike involve complete takes of 2 or 3 residences (depending on the turn lane option selected). The community garden is located on private property and the property owner will be compensated for the sale of the land to the WVDOH during the right-of-way acquisition process. Impacts to the community garden have been minimized to the extent practicable.
81	The community garden is located on private property and the property owner will be compensated for the sale of the land to the WVDOH during the right-of-way acquisition process. Impacts to the community garden have been minimized to the extent practicable.
82	The community garden is located on private property and the property owner will be compensated for the sale of the land to the WVDOH during the right-of-way acquisition process. Impacts to the community garden have been minimized to the extent practicable.
83	A turn lane option has been considered in the EA and evaluated for impacts to social, cultural, natural, economic, and environmental resource factors. The analysis also factors the improvement to the level of service provided by the turn lane options and the roundabout option for both current conditions and design year 2048 predicated conditions. The turn lane options do not improve the level of service as much as the roundabout and the turn lanes involve complete takes of 2 or 3 residences (depending on the turn lane option selected). Roundabouts are designed to maintain a constant flow of traffic through the intersection which results in reduced congestion on roadways and a reduction in delays for drivers. Studies have shown that changing signalized intersections to roundabouts can have up to an 89% average reduction in vehicle delays. The improved traffic flow also results in reduced vehicle emissions including carbon monoxide, nitrous oxide, and carbon dioxide at the intersection. Additionally, roundabouts are designed to slow speeds in the approach and through the roundabout allowing drivers more response time and limiting the number of potential directions where traffic could approach. Both of these factors improve safety for all drivers, including older drivers as well as pedestrians, and cyclists.
84	Road repair beyond the scope of this project is being addressed through the Governor's Roads to Prosperity program and progress can be tracked via the WVDOH website. A turn lane option has been considered in the EA and evaluated for impacts to social, cultural, natural, economic, and environmental resource factors. The analysis also factors the improvement to the level of service provided by the turn lane options and the roundabout option for both current conditions and design year 2048 predicted conditions. The turn lane options do not improve the level of service as much as the roundabout and the turn lanes at Dorsey Avenue/Kingwood Pike involve complete takes of 2 or 3 residences (depending on the turn lane option selected).

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85	The community garden is located on private property and the property owner will be compensated for the sale of the land to the WVDOH during the right-of-way acquisition process. Impacts to the community garden have been minimized to the extent practicable.
86	We appreciate your input and support regarding the project.
87	The community garden is located on private property and the property owner will be compensated for the sale of the land to the WVDOH during the right-of-way acquisition process. Impacts to the community garden have been minimized to the extent practicable. Road repair beyond the scope of this project is being addressed through the Governor's Roads to Prosperity program and progress can be tracked via the WVDOH website.
88	The WVDOH has prepared an EA to consider the potential environmental consequences of the project, document the analysis, and make this information available to the public for comment prior to implementation. As part of the EA, the WVDOH examined two build alternatives and three options for each of the major intersections. The intersection options will include turning lanes, traffic signals, and roundabouts. These alternatives and options will be assessed in the EA for impacts to social, cultural, natural, economic, and environmental resource factors. Each of the alternatives and options has been designed to meet the purpose and need for the project to reduce congestion and address the lack of safe non-motorized connections along the CR 857 corridor. The EA will be available on the WVDOH website at go.wv.gov/dotcomment.
89	A turn lane option has been considered in the EA and evaluated for impacts to social, cultural, natural, economic, and environmental resource factors. The analysis also factors the improvement to the level of service provided by the turn lane options and the roundabout option for both current conditions and design year 2048 predicated conditions. The turn lane options do not improve the level of service as much as the roundabout and the turn lanes involve complete takes of 2 or 3 residences (depending on the turn lane option selected).
90	Right-of-way impacts as well as impacts to the community garden have been minimized to the extent practicable.
91	A turn lane option has been considered in the EA and evaluated for impacts to social, cultural, natural, economic, and environmental resource factors. The analysis also factors the improvement to the level of service provided by the turn lane options and the roundabout option for both current conditions and design year 2048 predicated conditions. The turn lane options do not improve the level of service as much as the roundabout and the turn lanes involve complete takes of 2 or 3 residences (depending on the turn lane option selected).

Comment number	Response to comment
92	Both the Morgantown Monongalia MPO corridor study and the 2018 traffic study determined that traffic flow through the corridor is controlled by the congestion at the major intersections in the corridor. The projected growth in the Morgantown area will continue to increase traffic and congestion at the intersections if improvements do not occur. To address these issues of congestion and lack of safe pedestrian use of the area, the WVDOH has examined two build alternatives and three options for each of the major intersections. The intersection options that were evaluated and analyzed include turning lanes, traffic signals, and roundabouts. The evaluation and analysis of these intersection options indicate that the roundabout would provide the most improvement to traffic congestion, has the lowest estimated construction cost, and does not displace any residences. The analysis also evaluates the improvement to the level of service provided by the turn lane options and the roundabout option for both current conditions and design year 2048 predicted conditions. The turn lane options do not improve the level of service as much as the roundabout and the turn lanes at Dorsey Avenue/Kingwood Pike involve complete takes of 2 or 3 residences (depending on the turn lane option selected).. Roundabouts are designed to maintain a constant flow of traffic through the intersection which results in reduced congestion on roadways and a reduction in delays for drivers. Studies have shown that changing signalized intersections to roundabouts can have up to an 89% average reduction in vehicle delays. The improved traffic flow also results in reduced vehicle emissions including carbon monoxide, nitrous oxide, and carbon dioxide at the intersection. Additionally, roundabouts are designed to slow speeds in the approach and through the roundabout allowing drivers more response time and limiting the number of potential directions where traffic could approach. Both of these factors improve safety for all drivers, including older drivers as well as pedestrians, and cyclists. Signage meeting WVDOH and the Federal Manual on Uniform Traffic Control Devices will be placed to assist drivers with navigating the roundabouts.

Comment number	Response to comment
93	Property owners will be compensated for the sale of the land to the WVDOH during the right-of-way acquisition process. Both the Morgantown Monongalia MPO corridor study and the 2018 traffic study determined that traffic flow through the corridor is controlled by the congestion at the major intersections in the corridor. The projected growth in the Morgantown area will continue to increase traffic and congestion at the intersections if improvements do not occur. Roundabouts are designed to maintain a constant flow of traffic through the intersection which results in reduced congestion on roadways and a reduction in delays for drivers. Studies have shown that changing signalized intersections to roundabouts can have up to an 89% average reduction in vehicle delays. The improved traffic flow also results in reduced vehicle emissions including carbon monoxide, nitrous oxide, and carbon dioxide at the intersection. Additionally, roundabouts are designed to slow speeds in the approach and through the roundabout allowing drivers more response time and limiting the number of potential directions where traffic could approach. Both of these factors improve safety for all drivers, including older drivers as well as pedestrians, and cyclists. To address these issues of congestion and lack of safe pedestrian use of the area, the WVDOH has examined two build alternatives and three options for each of the major intersections. The intersection options that were evaluated and analyzed include turning lanes, traffic signals, and roundabouts. The evaluation and analysis of these intersection options indicate that the roundabout would provide the most improvement to traffic congestion, has the lowest estimated construction cost, and does not displace any residences. The analysis also evaluates the improvement to the level of service provided by the turn lane options and the roundabout option for both current conditions and design year 2048 predicted conditions. The turn lane options do not improve the level of service as much as the roundabout and the turn lanes at Dorsey Avenue/Kingwood Pike involve complete takes of 2 or 3 residences (depending on the turn lane option selected).
94	Roundabouts are designed to maintain a constant flow of traffic through the intersection which results in reduced congestion on roadways and a reduction in delays for drivers. Studies have shown that changing signalized intersections to roundabouts can have up to an 89% average reduction in vehicle delays. The improved traffic flow also results in reduced vehicle emissions including carbon monoxide, nitrous oxide, and carbon dioxide at the intersection. Road repair beyond the scope of this project is being addressed through the Governor's Roads to Prosperity program and progress can be tracked via the WVDOH website.
95	As part of the EA, the WVDOH has examined two build alternatives and three options for each of the major intersections. The intersection options that were evaluated and analyzed include turning lanes, traffic signals, and roundabouts. The evaluation and analysis of these intersection options indicate that the roundabout would provide the most improvement to traffic congestion, has the lowest estimated construction cost, and does not displace any residences. The turn lane options do not improve the level of service as much as the roundabout and the turn lanes at Dorsey Avenue/Kingwood Pike involve complete takes of 2 or 3 residences (depending on the turn lane option selected). The alternatives and intersection options determined to be evaluated were based on the outcome of the MMMPO's preliminary studies and findings. Changes to the existing traffic signal, without other improvements, were not considered. Impacts to the surrounding properties, both residential and commercial, have been minimized to the extent practicable.
96	This comment is beyond the scope of the current project.

Comment number	Response to comment
97	Roundabouts are designed to maintain a constant flow of traffic through the intersection which results in reduced congestion on roadways and a reduction in delays for drivers. Studies have shown that changing signalized intersections to roundabouts can have up to an 89% average reduction in vehicle delays. The improved traffic flow also results in reduced vehicle emissions including carbon monoxide, nitrous oxide, and carbon dioxide at the intersection. Additionally, roundabouts are designed to slow speeds in the approach and through the roundabout allowing drivers more response time and limiting the number of potential directions where traffic could approach. Both of these factors improve safety for all drivers, including older drivers as well as pedestrians, and cyclists.
98	A turn lane option has been considered in the EA and evaluated for impacts to social, cultural, natural, economic, and environmental resource factors. The analysis also factors the improvement to the level of service provided by the turn lane options and the roundabout option for both current conditions and design year 2048 predicated conditions. The turn lane options do not improve the level of service as much as the roundabout and the turn lanes involve complete takes of 2 or 3 residences (depending on the turn lane option selected).
99	A turn lane option has been considered in the EA and evaluated for impacts to social, cultural, natural, economic, and environmental resource factors. The analysis also factors the improvement to the level of service provided by the turn lane options and the roundabout option for both current conditions and design year 2048 predicted conditions. The turn lane options do not improve the level of service as much as the roundabout and the turn lanes at Dorsey Avenue/Kingwood Pike involve complete takes of 2 or 3 residences (depending on the turn lane option selected). Roundabouts are designed to slow speeds in the approach and through the roundabout allowing drivers more response time and limiting the number of potential directions where traffic could approach. Both of these factors improve safety for all drivers, including older drivers as well as pedestrians, and cyclists. Signage meeting WVDOH and the Federal Manual on Uniform Traffic Control Devices will be placed to assist drivers with navigating the roundabouts.
100	A turn lane option has been considered in the EA and evaluated for impacts to social, cultural, natural, economic, and environmental resource factors. The analysis also factors the improvement to the level of service provided by the turn lane options and the roundabout option for both current conditions and design year 2048 predicated conditions. The turn lane options do not improve the level of service as much as the roundabout and the turn lanes involve complete takes of 2 or 3 residences (depending on the turn lane option selected). The community garden is located on private property and the property owner will be compensated for the sale of the land to the WVDOH during the right-of-way acquisition process. Impacts to the community garden have been minimized to the extent practicable.
101	Road repair beyond the scope of this project is being addressed through the Governor's Roads to Prosperity program and progress can be tracked via the WVDOH website. Signage meeting WVDOH and the Federal Manual on Uniform Traffic Control Devices will be placed to assist drivers with navigating the roundabouts.
102	The community garden is located on private property and the property owner will be compensated for the sale of the land to the WVDOH during the right-of-way acquisition process. Impacts to the community garden have been minimized to the extent practicable.

Comment number	Response to comment
103	The WVDOH has examined two build alternatives and three options for each of the major intersections. The intersection options that were evaluated and analyzed include turning lanes, traffic signals, and roundabouts. The evaluation and analysis of these intersection options indicate that the roundabout would provide the most improvement to traffic congestion, has the lowest estimated construction cost, and does not displace any residences. The analysis also factors the improvement to the level of service provided by the turn lane options and the roundabout option for both current conditions and design year 2048 predicted conditions. The turn lane options do not improve the level of service as much as the roundabout and the turn lanes at Dorsey Avenue/Kingwood Pike involve complete takes of 2 or 3 residences (depending on the turn lane option selected).
104	The WVDOH has examined two build alternatives and three options for each of the major intersections. The intersection options that were evaluated and analyzed include turning lanes, traffic signals, and roundabouts. The evaluation and analysis of these intersection options indicate that the roundabout would provide the most improvement to traffic congestion, has the lowest estimated construction cost, and does not displace any residences. Estimated construction costs have been reviewed for each of the alternatives and options. The roundabout option at Dorsey Avenue (F) represents the least expensive of the estimates.
105	Road repair beyond the scope of this project is being addressed through the Governor's Roads to Prosperity program and progress can be tracked via the WVDOH website.
106	Both the MMMPO corridor study and the 2018 traffic study determined that traffic flow through the corridor is controlled by the congestion at the major intersections in the corridor. The projected growth in the Morgantown area will continue to increase traffic and congestion at the intersections if improvements do not occur. To address the current issues of congestion and lack of safe pedestrian use of the area, the WVDOH has examined two build alternatives and three options for each of the major intersections. The intersection options that were evaluated and analyzed include turning lanes, traffic signals, and roundabouts. Designs for the intersection improvements have factored the topography, safety issues, constructability, and current land use to develop feasible alternatives. The evaluation and analysis of these intersection options indicate that the roundabout would provide the most improvement to traffic congestion, has the lowest estimated construction cost, and does not displace any residences. The analysis also factors the improvement to the level of service provided by the turn lane options and the roundabout option for both current conditions and design year 2048 predicted conditions. The turn lane options do not improve the level of service as much as the roundabout and the turn lanes at Dorsey Avenue/Kingwood Pike involve complete takes of 2 or 3 residences (depending on the turn lane option selected). Drainage issues within the project footprint will be considered by the project design. The detour presented in the April 2019 meeting was preliminary and the final detour route will be examined and defined during the final design process. Existing road conditions will be considered as a factor when determining the detour routes. Access to residences and businesses will be maintained during and after construction.

Comment number	Response to comment
107	A turn lane option has been considered in the EA and evaluated for impacts to social, cultural, natural, economic, and environmental resource factors. The analysis also factors the improvement to the level of service provided by the turn lane options and the roundabout option for both current conditions and design year 2048 predicated conditions. The turn lane options do not improve the level of service as much as the roundabout and the turn lanes at Dorsey Avenue/Kingwood Pike involve complete takes of 2 or 3 residences (depending on the turn lane option selected). The detour presented in the April 2019 meeting was preliminary and the final detour route will be examined and defined during the final design process. Existing road conditions will be considered as a factor when determining the detour routes.
108	A turn lane option has been considered in the EA and evaluated for impacts to social, cultural, natural, economic, and environmental resource factors. The analysis also factors the improvement to the level of service provided by the turn lane options and the roundabout option for both current conditions and design year 2048 predicated conditions. The turn lane options do not improve the level of service as much as the roundabout and the turn lanes involve complete takes of 2 or 3 residences (depending on the turn lane option selected).
109	The community garden is located on private property and the property owner will be compensated for the sale of the land to the WVDOH during the right-of-way acquisition process. Impacts to the community garden have been minimized to the extent practicable.
110	The community garden is located on private property and the property owner will be compensated for the sale of the land to the WVDOH during the right-of-way acquisition process. Impacts to the community garden have been minimized to the extent practicable.
111	Road repair beyond the scope of this project is being addressed through the Governor's Roads to Prosperity program and progress can be tracked via the WVDOH website.
112	The alternatives and intersection options determined to be evaluated were based on the outcome of the MMMPO’s preliminary studies and findings. Changes to the existing traffic signal, without other improvements, were not considered.

Comment number	Response to comment
113	Both the MMMPO corridor study and the 2018 traffic study determined that traffic flow through the corridor is controlled by the congestion at the major intersections in the corridor. The projected growth in the Morgantown area will continue to increase traffic and congestion at the intersections if improvements do not occur. To address the current issues of congestion and lack of safe pedestrian use of the area, the WVDOH has examined two build alternatives and three options for each of the major intersections. The intersection options that were evaluated and analyzed include turning lanes, traffic signals, and roundabouts. The evaluation and analysis of these intersection options indicate that the roundabout would provide the most improvement to traffic congestion, has the lowest estimated construction cost, and does not displace any residences. The analysis also factors the improvement to the level of service provided by the turn lane options and the roundabout option for both current conditions and design year 2048 predicted conditions. The turn lane options do not improve the level of service as much as the roundabout and the turn lanes at Dorsey Avenue/Kingwood Pike involve complete takes of 2 or 3 residences (depending on the turn lane option selected). A 4-way stop was not considered at any study intersection within the Greenbag Road corridor. The MMMPO had completed several previous studies evaluating various transportation plans for the Greenbag Road corridor, with the ultimate vision of transforming Greenbag Road into a safe, efficient, and attractive multimodal transportation facility. The scenarios determined to be evaluated in the traffic study evolved from the outcome of the MMMPO's preliminary studies and findings. Existing two-way stop controlled operations with potential roadway improvements were evaluated as part of the traffic, as well as traffic signal and roundabout options. The detour presented in the April 2019 meeting was preliminary and the final detour route will be examined and defined during the final design process. Existing road conditions will be considered as a factor when determining the detour routes. The need for a sidewalk was identified by the public in the comments for the MMMPO corridor study as one of the factors to improve safety in the Greenbag Road corridor.
114	The environmental document for the project has been elevated from a CE to an EA. The EA will be available on the WVDOH website at go.wv.gov/dotcomment. The WVDOH has examined two build alternatives and three options for each of the major intersections. The intersection options that were evaluated and analyzed include turning lanes, traffic signals, and roundabouts. The evaluation and analysis of these intersection options indicate that the roundabout would provide the most improvement to traffic congestion, has the lowest estimated construction cost, and does not displace any residences. The analysis also factors the improvement to the level of service provided by the turn lane options and the roundabout option for both current conditions and design year 2048 predicted conditions. The turn lane options do not improve the level of service as much as the roundabout and the turn lanes at Dorsey Avenue/Kingwood Pike involve complete takes of 2 or 3 residences (depending on the turn lane option selected). The community garden is located on private property and the property owner will be compensated for the sale of the land to the WVDOH during the right-of-way acquisition process. Impacts to the community garden have been minimized to the extent practicable.
115	The community garden is located on private property and the property owner will be compensated for the sale of the land to the WVDOH during the right-of-way acquisition process. Impacts to the community garden have been minimized to the extent practicable.

Comment number	Response to comment
116	Education on the use of roundabouts is an important issue in order to have full functionality of the roundabout that results in fewer severe crashes, fewer crashes overall, shorter travel times, and less congestion. Signage meeting WVDOH and the Federal Manual on Uniform Traffic Control Devices will be placed to assist drivers with navigating the roundabouts. Road repair beyond the scope of this project is being addressed through the Governor's Roads to Prosperity program and progress can be tracked via the WVDOH website.
117	Both the MMMPO corridor study and the 2018 traffic study determined that traffic flow through the corridor is controlled by the congestion at the major intersections in the corridor. The projected growth in the Morgantown area will continue to increase traffic and congestion at the intersections if improvements do not occur. To address the current issues of congestion and lack of safe pedestrian use of the area, the WVDOH has examined two build alternatives and three options for each of the major intersections. The intersection options that were evaluated and analyzed include turning lanes, traffic signals, and roundabouts. The evaluation and analysis of these intersection options indicate that the roundabout would provide the most improvement to traffic congestion, has the lowest estimated construction cost, and does not displace any residences. The community garden is located on private property and the property owner will be compensated for the sale of the land to the WVDOH during the right-of-way acquisition process. Impacts to the community garden have been minimized to the extent practicable.
118	A turn lane option has been considered in the EA and evaluated for impacts to social, cultural, natural, economic, and environmental resource factors. The analysis also factors the improvement to the level of service provided by the turn lane options and the roundabout option for both current conditions and design year 2048 predicated conditions. The turn lane options do not improve the level of service as much as the roundabout and the turn lanes at Dorsey Avenue/Kingwood Pike involve complete takes of 2 or 3 residences (depending on the turn lane option selected). The evaluation and analysis of the intersection options indicate that the roundabout would provide the most improvement to traffic congestion, has the lowest estimated construction cost, and does not displace any residences. Road repair beyond the scope of this project is being addressed through the Governor's Roads to Prosperity program and progress can be tracked via the WVDOH website.

Comment number	Response to comment
119	Both the MMMPO corridor study and the 2018 traffic study determined that traffic flow through the corridor is controlled by the congestion at the major intersections in the corridor. The projected growth in the Morgantown area will continue to increase traffic and congestion at the intersections if improvements do not occur. To address the current issues of congestion and lack of safe pedestrian use of the area, the WVDOH has examined two build alternatives and three options for each of the major intersections. The intersection options that were evaluated and analyzed include turning lanes, traffic signals, and roundabouts. The evaluation and analysis of these intersection options indicate that the roundabout would provide the most improvement to traffic congestion, has the lowest estimated construction cost, and does not displace any residences. A 4-way stop was not considered at any study intersection within the Greenbag Road corridor. The MMMPO had completed several previous studies evaluating various transportation plans for the Greenbag Road corridor, with the ultimate vision of transforming Greenbag Road into a safe, efficient, and attractive multimodal transportation facility. The scenarios determined to be evaluated in the traffic study evolved from the outcome of the MMMPO's preliminary studies and findings. Existing two-way stop controlled operations with potential roadway improvements were evaluated as part of the traffic, as well as traffic signal and roundabout options. Roundabouts are designed to slow speeds in the approach and through the roundabout allowing drivers more response time and limiting the number of potential directions where traffic could approach. Both of these factors improve safety for all drivers, including older drivers as well as pedestrians, and cyclists. The detour presented in the April 2019 meeting was preliminary and the final detour route will be examined and defined during the final design process. Existing road conditions will be considered as a factor when determining the detour routes. Road repair beyond the scope of this project is being addressed through the Governor's Roads to Prosperity program and progress can be tracked via the WVDOH website.
120	Both the MMMPO corridor study and the 2018 traffic study determined that traffic flow through the corridor is controlled by the congestion at the major intersections in the corridor. The projected growth in the Morgantown area will continue to increase traffic and congestion at the intersections if improvements do not occur. To address the current issues of congestion and lack of safe pedestrian use of the area, the WVDOH has examined two build alternatives and three options for each of the major intersections. The intersection options that were evaluated and analyzed include turning lanes, traffic signals, and roundabouts. The evaluation and analysis of these intersection options indicate that the roundabout would provide the most improvement to traffic congestion, has the lowest estimated construction cost, and does not displace any residences. Roundabouts are designed to slow speeds in the approach and through the roundabout allowing drivers more response time and limiting the number of potential directions where traffic could approach. Both of these factors improve safety for all drivers, including older drivers as well as pedestrians, and cyclists.
121	The community garden is located on private property and the property owner will be compensated for the sale of the land to the WVDOH during the right-of-way acquisition process. Impacts to the community garden have been minimized to the extent practicable.
122	The intersection of Greenbag Road and Route 7 is outside the current phase of work for the Greenbag Road corridor.

Comment number	Response to comment
123	Both the MMMPO corridor study and the 2018 traffic study determined that traffic flow through the corridor is controlled by the congestion at the major intersections in the corridor. The projected growth in the Morgantown area will continue to increase traffic and congestion at the intersections if improvements do not occur. To address the current issues of congestion and lack of safe pedestrian use of the area, the WVDOH has examined two build alternatives and three options for each of the major intersections. The intersection options that were evaluated and analyzed include turning lanes, traffic signals, and roundabouts. The evaluation and analysis of these intersection options indicate that the roundabout would provide the most improvement to traffic congestion, has the lowest estimated construction cost, and does not displace any residences.
124	Both the MMMPO corridor study and the 2018 traffic study determined that traffic flow through the corridor is controlled by the congestion at the major intersections in the corridor. The projected growth in the Morgantown area will continue to increase traffic and congestion at the intersections if improvements do not occur. To address the current issues of congestion and lack of safe pedestrian use of the area, the WVDOH has examined two build alternatives and three options for each of the major intersections. The intersection options that were evaluated and analyzed include turning lanes, traffic signals, and roundabouts. The evaluation and analysis of these intersection options indicate that the roundabout would provide the most improvement to traffic congestion, has the lowest estimated construction cost, and does not displace any residences. The roundabouts have been designed with larger vehicles in mind and incorporate truck aprons designed to support the weight and turning radius of larger vehicles, including school buses.
125	Both the MMMPO corridor study and the 2018 traffic study determined that traffic flow through the corridor is controlled by the congestion at the major intersections in the corridor. The projected growth in the Morgantown area will continue to increase traffic and congestion at the intersections if improvements do not occur. To address the current issues of congestion and lack of safe pedestrian use of the area, the WVDOH has examined two build alternatives and three options for each of the major intersections. The intersection options that were evaluated and analyzed include turning lanes, traffic signals, and roundabouts. The evaluation and analysis of these intersection options indicate that the roundabout would provide the most improvement to traffic congestion, has the lowest estimated construction cost, and does not displace any residences. Road repair beyond the scope of this project is being addressed through the Governor's Roads to Prosperity program and progress can be tracked via the WVDOH website.
126	A turn lane option has been considered in the EA and evaluated for impacts to social, cultural, natural, economic, and environmental resource factors. The analysis also factors the improvement to the level of service provided by the turn lane options and the roundabout option for both current conditions and design year 2048 predicated conditions. The turn lane options do not improve the level of service as much as the roundabout and the turn lanes involve complete takes of 2 or 3 residences (depending on the turn lane option selected).

Comment number	Response to comment
127	A turn lane option has been considered in the EA and evaluated for impacts to social, cultural, natural, economic, and environmental resource factors. The analysis also factors the improvement to the level of service provided by the turn lane options and the roundabout option for both current conditions and design year 2048 predicated conditions. The turn lane options do not improve the level of service as much as the roundabout and the turn lanes at Dorsey Avenue/Kingwood Pike involve complete takes of 2 or 3 residences (depending on the turn lane option selected). The evaluation and analysis of these intersection options indicate that the roundabout would provide the most improvement to traffic congestion, has the lowest estimated construction cost, and does not displace any residences. The roadway alternatives were designed to provide safe pedestrian access from the western end of the project area along Greenbag Road to the Dorsey Avenue/Kingwood Pike intersection. At the intersection the sidewalk follows Dorsey Avenue north to Luckey Lane and east on Luckey Lane to the connection with the existing sidewalk at Mountainview Elementary School. All roadway crossings will be marked and signed as crosswalks.
128	Both the MMMPO corridor study and the 2018 traffic study determined that traffic flow through the corridor is controlled by the congestion at the major intersections in the corridor. The projected growth in the Morgantown area will continue to increase traffic and congestion at the intersections if improvements do not occur. To address the current issues of congestion and lack of safe pedestrian use of the area, the WVDOH has examined two build alternatives and three options for each of the major intersections. The intersection options that were evaluated and analyzed include turning lanes, traffic signals, and roundabouts. The evaluation and analysis of these intersection options indicate that the roundabout would provide the most improvement to traffic congestion, has the lowest estimated construction cost, and does not displace any residences. The analysis also factors the improvement to the level of service provided by the turn lane options and the roundabout option for both current conditions and design year 2048 predicted conditions. The turn lane options do not improve the level of service as much as the roundabout and the turn lanes at Dorsey Avenue/Kingwood Pike involve complete takes of 2 or 3 residences (depending on the turn lane option selected). All property owners will be compensated for the sale of the land to the WVDOH during the right-of-way acquisition process. Impacts to the community garden have been minimized to the extent practicable.
129	The WVDOH has prepared an EA to consider the potential environmental consequences of the project, document the analysis, and make this information available to the public for comment prior to implementation. As part of the EA, the WVDOH has examined two build alternatives and three options for each of the major intersections. These alternatives and options were assessed for impacts to social, cultural, natural, economic, environmental, indirect, and cumulative resource factors. Each of the alternatives and options has been designed to meet the purpose and need for the project to reduce congestion and address the lack of safe non-motorized connections along the CR 857 corridor. The preferred alternative was selected, in part, because it does not result in the take of any residential homes. The EA details the impacts to each of the studied categories and will be available on the WVDOH website at go.wv.gov/dotcomment.

Comment number	Response to comment
130	As part of the EA, the WVDOH examined two build alternatives and three options for each of the major intersections. The intersection options will include turning lanes, traffic signals, and roundabouts. These alternatives and options will be assessed in the EA for impacts to social, cultural, natural, economic, and environmental resource factors. The evaluation and analysis of the intersection options indicate that the roundabout would provide the most improvement to traffic congestion, has the lowest estimated construction cost, and does not displace any residences. The analysis also factors the improvement to the level of service provided by the turn lane options and the roundabout option for both current conditions and design year 2048 predicted conditions. The turn lane options do not improve the level of service as much as the roundabout and the turn lanes at Dorsey Avenue/Kingwood Pike involve complete takes of 2 or 3 residences (depending on the turn lane option selected). Minimizing impacts to the environment, community, and right-of-way were also considered when evaluating the project alternatives.
131	The environmental document for the project has been elevated from a CE to an EA. Per FHWA guidelines, the EA is a concise document that provides evidence and analysis for determining whether to prepare an EIS or a finding of no significant impact. FHWA determined that based on the comments received during the first public comment period, an EA should be prepared. The EA will be available on the WVDOH website at go.wv.gov/dotcomment. The EA analysis examined the potential effects to farmland and agricultural soils within the project area, as well as social, cultural, natural, economic, and environmental resource factors, land use, indirect and cumulative effects. The community garden is located on private property and the property owner will be compensated for the sale of the land to the WVDOH during the right-of-way acquisition process. Impacts to the community garden have been minimized to the extent practicable.
132	A turn lane option has been considered in the EA and evaluated for impacts to social, cultural, natural, economic, and environmental resource factors. The analysis also factors the improvement to the level of service provided by the turn lane options and the roundabout option for both current conditions and design year 2048 predicted conditions. The turn lane options do not improve the level of service as much as the roundabout and the turn lanes at Dorsey Avenue/Kingwood Pike involve complete takes of 2 or 3 residences (depending on the turn lane option selected).
133	The community garden is located on private property and the property owner will be compensated for the sale of the land to the WVDOH during the right-of-way acquisition process. Impacts to the community garden have been minimized to the extent practicable.
134	Both the MMMPO corridor study and the 2018 traffic study determined that traffic flow through the corridor is controlled by the congestion at the major intersections in the corridor. The projected growth in the Morgantown area will continue to increase traffic and congestion at the intersections if improvements do not occur. The MMMPO corridor study in 2015 was a preliminary study and the recommendations are included as options considered in the EA. The alternatives and intersection options determined to be evaluated were based on the outcome of the MMMPO's preliminary studies and findings. Changes to the existing traffic signal, without other improvements, were not considered. The detour presented in the April 2019 meeting was preliminary and the final detour route will be examined and defined during the final design process. Existing road conditions will be considered as a factor when determining the detour routes. Road repair beyond the scope of this project is being addressed through the Governor's Roads to Prosperity program and progress can be tracked via the WVDOH website.

Comment number	Response to comment
135	A traffic study including manual turning movement counts and automatic traffic recorder counts was completed in 2018 showing that the current level of service for the Dorsey Avenue/Kingwood Pike intersection to be C in both morning and evening and for Mississippi Street a C in the morning and an A in the evening. The study used a forecasted growth rate of 1.16% per year provided by the MMMPO to create projections for the design year (2048) levels of service. Forecasted 2048 level of service for the Dorsey Avenue/Kingwood Pike intersection is C in morning and F in evening and for Mississippi Street an F in the morning and a D in the evening. The detour presented in the April 2019 meeting was preliminary and the final detour route will be examined and defined during the final design process. Existing road conditions will be considered as a factor when determining the detour routes.
136	The community garden is located on private property and the property owner will be compensated for the sale of the land to the WVDOH during the right-of-way acquisition process. Impacts to the community garden have been minimized to the extent practicable.
137	The detour presented in the April 2019 meeting was preliminary and the final detour route will be examined and defined during the final design process. Existing road conditions will be considered as a factor when determining the detour routes.
138	Both the MMMPO corridor study and the 2018 traffic study determined that traffic flow through the corridor is controlled by the congestion at the major intersections in the corridor. The projected growth in the Morgantown area will continue to increase traffic and congestion at the intersections if improvements do not occur. Roundabouts are designed to maintain a constant flow of traffic through the intersection which results in reduced congestion on roadways and a reduction in delays for drivers. Studies have shown that changing signalized intersections to roundabouts can have up to an 89% average reduction in vehicle delays. The improved traffic flow also results in reduced vehicle emissions including carbon monoxide, nitrous oxide, and carbon dioxide at the intersection. Additionally, roundabouts are designed to slow speeds in the approach and through the roundabout allowing drivers more response time and limiting the number of potential directions where traffic could approach. Both of these factors improve safety for all drivers, including older drivers as well as pedestrians, and cyclists.
139	The WVDOH has examined two build alternatives and three options for each of the major intersections. The intersection options that were evaluated and analyzed include turning lanes, traffic signals, and roundabouts. These options are assessed in the EA for impacts to social, cultural, natural, economic, and environmental resource factors. The evaluation and analysis of these intersection options indicate that the roundabout would provide the most improvement to traffic congestion, has the lowest estimated construction cost, and does not displace any residences. The analysis also factors the improvement to the level of service provided by the turn lane options and the roundabout option for both current conditions and design year 2048 predicted conditions. The turn lane options do not improve the level of service as much as the roundabout and the turn lanes at Dorsey Avenue/Kingwood Pike involve complete takes of 2 or 3 residences (depending on the turn lane option selected). The community garden is located on private property and the property owner will be compensated for the sale of the land to the WVDOH during the right-of-way acquisition process. Impacts to the community garden have been minimized to the extent practicable.
140	We appreciate your input and support regarding the project.

Comment number	Response to comment
141	Road repair beyond the scope of this project is being addressed through the Governor's Roads to Prosperity program and progress can be tracked via the WVDOH website. Impacts to the surrounding land have been minimized to the extent practicable.
142	Both the MMMPO corridor study and the 2018 traffic study determined that traffic flow through the corridor is controlled by the congestion at the major intersections in the corridor. The projected growth in the Morgantown area will continue to increase traffic and congestion at the intersections if improvements do not occur. To address the current issues of congestion and lack of safe pedestrian use of the area, the WVDOH has examined two build alternatives and three options for each of the major intersections. The intersection options that were evaluated and analyzed include turning lanes, traffic signals, and roundabouts. The evaluation and analysis of these intersection options indicate that the roundabout would provide the most improvement to traffic congestion, has the lowest estimated construction cost, and does not displace any residences. The analysis also factors the improvement to the level of service provided by the turn lane options and the roundabout option for both current conditions and design year 2048 predicted conditions. The turn lane options do not improve the level of service as much as the roundabout and the turn lanes at Dorsey Avenue/Kingwood Pike involve complete takes of 2 or 3 residences (depending on the turn lane option selected). The existing grade on Kingwood Pike requires stopping on a -6.5% grade at the traffic signal. The grade approaching the roundabout includes a flat grade of less than 2% at the roundabout. In most cases, the roundabout will not require approaching traffic to come to a full or immediate stop, and does not queue traffic on the steep grade as the existing traffic signal does. Road repair beyond the scope of this project is being addressed through the Governor's Roads to Prosperity program and progress can be tracked via the WVDOH website.
143	We appreciate your input and support regarding the project.
144	Education on the use of roundabouts is an important issue in order to have full functionality of the roundabout that results in fewer severe crashes, fewer crashes overall, shorter travel times, and less congestion. Roundabouts are designed to slow speeds in the approach and through the roundabout allowing drivers more response time and limiting the number of potential directions where traffic could approach. Both of these factors improve safety for all drivers, including older drivers as well as pedestrians, and cyclists. Signage meeting WVDOH and the Federal Manual on Uniform Traffic Control Devices will be placed to assist drivers with navigating the roundabouts. The WVDOH has examined two build alternatives and three options for each of the major intersections. The intersection options that were evaluated and analyzed include turning lanes, traffic signals, and roundabouts. The evaluation and analysis of these intersection options indicate that the roundabout would provide the most improvement to traffic congestion, has the lowest estimated construction cost, and does not displace any residences. The analysis also factors the improvement to the level of service provided by the turn lane options and the roundabout option for both current conditions and design year 2048 predicted conditions. The turn lane options do not improve the level of service as much as the roundabout and the turn lanes at Dorsey Avenue/Kingwood Pike involve complete takes of 2 or 3 residences (depending on the turn lane option selected).

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145	Roundabouts are designed to maintain a constant flow of traffic through the intersection which results in reduced congestion on roadways and a reduction in delays for drivers. Studies have shown that changing signalized intersections to roundabouts can have up to an 89% average reduction in vehicle delays. The improved traffic flow also results in reduced vehicle emissions including carbon monoxide, nitrous oxide, and carbon dioxide at the intersection. Road repair beyond the scope of this project is being addressed through the Governor's Roads to Prosperity program and progress can be tracked via the WVDOH website.
146	Designs for the intersection improvements have factored the topography, safety issues, constructability, and current land use to develop feasible alternatives. The existing grade on Kingwood Pike requires stopping on a -6.5% grade at the traffic signal. The grade approaching the roundabout includes a flat grade of less than 2% at the roundabout. In most cases, the roundabout will not require approaching traffic to come to a full or immediate stop, and does not queue traffic on the steep grade as the existing traffic signal does.
147	Both the MMMPO corridor study and the 2018 traffic study determined that traffic flow through the corridor is controlled by the congestion at the major intersections in the corridor. The projected growth in the Morgantown area will continue to increase traffic and congestion at the intersections if improvements do not occur. Road repair beyond the scope of this project is being addressed through the Governor's Roads to Prosperity program and progress can be tracked via the WVDOH website.
148	The community garden is located on private property and the property owner will be compensated for the sale of the land to the WVDOH during the right-of-way acquisition process. Impacts to the community garden have been minimized to the extent practicable.
149	We appreciate your input and support regarding the project.
150	Both the MMMPO corridor study and the 2018 traffic study determined that traffic flow through the corridor is controlled by the congestion at the major intersections in the corridor. The projected growth in the Morgantown area will continue to increase traffic and congestion at the intersections if improvements do not occur. The WVDOH has examined two build alternatives and three options for each of the major intersections. The intersection options that were evaluated and analyzed include turning lanes, traffic signals, and roundabouts. The evaluation and analysis of these intersection options indicate that the roundabout would provide the most improvement to traffic congestion, has the lowest estimated construction cost, and does not displace any residences. The analysis also factors the improvement to the level of service provided by the turn lane options and the roundabout option for both current conditions and design year 2048 predicted conditions. The turn lane options do not improve the level of service as much as the roundabout and the turn lanes at Dorsey Avenue/Kingwood Pike involve complete takes of 2 or 3 residences (depending on the turn lane option selected). The alternatives and intersection options determined to be evaluated were based on the outcome of the MMMPO's preliminary studies and findings. Changes to the existing traffic signal, without other improvements, were not considered. Road repair beyond the scope of this project is being addressed through the Governor's Roads to Prosperity program and progress can be tracked via the WVDOH website.
151	Road repair beyond the scope of this project is being addressed through the Governor's Roads to Prosperity program and progress can be tracked via the WVDOH website.

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152	The detour presented in the April 2019 meeting was preliminary and the final detour route will be examined and defined during the final design process. Existing road conditions will be considered as a factor when determining the detour routes.
153	A turn lane option has been considered in the EA and evaluated for impacts to social, cultural, natural, economic, and environmental resource factors. The analysis also factors the improvement to the level of service provided by the turn lane options and the roundabout option for both current conditions and design year 2048 predicated conditions. The turn lane options do not improve the level of service as much as the roundabout and the turn lanes involve complete takes of 2 or 3 residences (depending on the turn lane option selected). School bus traffic will be considered during the final design stage when the detour and maintenance of traffic plan are finalized.
154	The land proposed to be used for this project belongs to a mixture of private landowners, commercial businesses, and the WVDOH (for the existing right-of-way). The land will be acquired for the project during the right-of-way acquisition process after the EA is finalized. The land will not be taken from landowners but purchased through a negotiation process. The preferred alternative includes the construction of another retaining wall at the intersection of Kingwood Pike and Greenbag Road.
155	Roundabouts are designed to maintain a constant flow of traffic through the intersection which results in reduced congestion on roadways and a reduction in delays for drivers. Studies have shown that changing signalized intersections to roundabouts can have up to an 89% average reduction in vehicle delays. The improved traffic flow also results in reduced vehicle emissions including carbon monoxide, nitrous oxide, and carbon dioxide at the intersection. Additionally, roundabouts are designed to slow speeds in the approach and through the roundabout allowing drivers more response time and limiting the number of potential directions where traffic could approach. Both of these factors improve safety for all drivers, including older drivers as well as pedestrians, and cyclists. Impacts to the community garden have been minimized to the extent practicable.
156	Roundabouts are designed to maintain a constant flow of traffic through the intersection which results in reduced congestion on roadways and a reduction in delays for drivers. Studies have shown that changing signalized intersections to roundabouts can have up to an 89% average reduction in vehicle delays. The improved traffic flow also results in reduced vehicle emissions including carbon monoxide, nitrous oxide, and carbon dioxide at the intersection. Additionally, roundabouts are designed to slow speeds in the approach and through the roundabout allowing drivers more response time and limiting the number of potential directions where traffic could approach. Both of these factors improve safety for all drivers, including older drivers as well as pedestrians, and cyclists. Impacts to the community garden have been minimized to the extent practicable.

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157	The WVDOH has examined two build alternatives and three options for each of the major intersections. The intersection options that were evaluated and analyzed include turning lanes, traffic signals, and roundabouts. The evaluation and analysis of these intersection options indicate that the roundabout would provide the most improvement to traffic congestion, has the lowest estimated construction cost, and does not displace any residences. The analysis also factors the improvement to the level of service provided by the turn lane options and the roundabout option for both current conditions and design year 2048 predicted conditions. The turn lane options do not improve the level of service as much as the roundabout and the turn lanes at Dorsey Avenue/Kingwood Pike involve complete takes of 2 or 3 residences (depending on the turn lane option selected). The roadway alternatives were designed to provide safe pedestrian access from the western end of the project area along Greenbag Road to the Dorsey Avenue/Kingwood Pike intersection. At the intersection the sidewalk follows Dorsey Avenue north to Luckey Lane and east on Luckey Lane to the connection with the existing sidewalk at Mountainview Elementary School. All roadway crossings will be marked and signed as crosswalks.
158	The WVDOH has examined two build alternatives and three options for each of the major intersections. The intersection options that were evaluated and analyzed include turning lanes, traffic signals, and roundabouts. The evaluation and analysis of these intersection options indicate that the roundabout would provide the most improvement to traffic congestion, has the lowest estimated construction cost, and does not displace any residences. The analysis also factors the improvement to the level of service provided by the turn lane options and the roundabout option for both current conditions and design year 2048 predicted conditions. The turn lane options do not improve the level of service as much as the roundabout and the turn lanes at Dorsey Avenue/Kingwood Pike involve complete takes of 2 or 3 residences (depending on the turn lane option selected). Roundabouts are designed to maintain a constant flow of traffic through the intersection which results in reduced congestion on roadways and a reduction in delays for drivers. Studies have shown that changing signalized intersections to roundabouts can have up to an 89% average reduction in vehicle delays. The improved traffic flow also results in reduced vehicle emissions including carbon monoxide, nitrous oxide, and carbon dioxide at the intersection. Additionally, roundabouts are designed to slow speeds in the approach and through the roundabout allowing drivers more response time and limiting the number of potential directions where traffic could approach. Both of these factors improve safety for all drivers, including older drivers as well as pedestrians, and cyclists.

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160	Both the MMMPO corridor study and the 2018 traffic study determined that traffic flow through the corridor is controlled by the congestion at the major intersections in the corridor. The projected growth in the Morgantown area will continue to increase traffic and congestion at the intersections if improvements do not occur. To address the current issues of congestion and lack of safe pedestrian use of the area, the WVDOH has examined two build alternatives and three options for each of the major intersections. The intersection options that were evaluated and analyzed include turning lanes, traffic signals, and roundabouts. The evaluation and analysis of these intersection options indicate that the roundabout would provide the most improvement to traffic congestion, has the lowest estimated construction cost, and does not displace any residences. The analysis also factors the improvement to the level of service provided by the turn lane options and the roundabout option for both current conditions and design year 2048 predicted conditions. The turn lane options do not improve the level of service as much as the roundabout and the turn lanes at Dorsey Avenue/Kingwood Pike involve complete takes of 2 or 3 residences (depending on the turn lane option selected).

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161	The WVDOH has examined two build alternatives and three options for each of the major intersections. The intersection options that were evaluated and analyzed include turning lanes, traffic signals, and roundabouts. The evaluation and analysis of these intersection options indicate that the roundabout would provide the most improvement to traffic congestion, has the lowest estimated construction cost, and does not displace any residences. The analysis also factors the improvement to the level of service provided by the turn lane options and the roundabout option for both current conditions and design year 2048 predicted conditions. The turn lane options do not improve the level of service as much as the roundabout and the turn lanes at Dorsey Avenue/Kingwood Pike involve complete takes of 2 or 3 residences (depending on the turn lane option selected). The community garden is located on private property and the property owner will be compensated for the sale of the land to the WVDOH during the right-of-way acquisition process. Impacts to the community garden have been minimized to the extent practicable. The roadway alternatives were designed to provide safe pedestrian access from the western end of the project area along Greenbag Road to the Dorsey Avenue/Kingwood Pike intersection. At the intersection the sidewalk follows Dorsey Avenue north to Luckey Lane and east on Luckey Lane to the connection with the existing sidewalk at Mountainview Elementary School. All roadway crossings will be marked and signed as crosswalks.
162	A turn lane option has been considered in the EA and evaluated for impacts to social, cultural, natural, economic, and environmental resource factors. The analysis also factors the improvement to the level of service provided by the turn lane options and the roundabout option for both current conditions and design year 2048 predicated conditions. The turn lane options do not improve the level of service as much as the roundabout and the turn lanes involve complete takes of 2 or 3 residences (depending on the turn lane option selected). Estimated construction costs have been reviewed for each of the alternatives and options. The roundabout option at Dorsey Avenue (F) represents the least expensive of the estimates. Details of the impacts analysis for each of the categories can be found in the EA which will be available on the WVDOH website at go.wv.gov/dotcomment.
163	The environmental document for the project has been elevated from a CE to an EA. There will be another public meeting to present the EA and allow additional time for comment. The EA will be available on the WVDOH website at go.wv.gov/dotcomment. Designs for the intersection improvements have factored the topography, safety issues, constructability, and current land use to develop feasible alternatives. The WVDOH has examined two build alternatives and three options for each of the major intersections. The intersection options that were evaluated and analyzed include turning lanes, traffic signals, and roundabouts. The evaluation and analysis of these intersection options indicate that the roundabout would provide the most improvement to traffic congestion, has the lowest estimated construction cost, and does not displace any residences. The analysis also factors the improvement to the level of service provided by the turn lane options and the roundabout option for both current conditions and design year 2048 predicted conditions. The turn lane options do not improve the level of service as much as the roundabout and the turn lanes at Dorsey Avenue/Kingwood Pike involve complete takes of 2 or 3 residences (depending on the turn lane option selected). The existing grade on Kingwood Pike requires stopping on a -6.5% grade at the traffic signal. The grade approaching the roundabout includes a flat grade of less than 2% at the roundabout. In most cases, the roundabout will not require approaching traffic to come to a full or immediate stop, and does not queue traffic on the steep grade as the existing traffic signal does.

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164	The WVDOH has examined two build alternatives and three options for each of the major intersections. The intersection options that were evaluated and analyzed include turning lanes, traffic signals, and roundabouts. The evaluation and analysis of these intersection options indicate that the roundabout would provide the most improvement to traffic congestion, has the lowest estimated construction cost, and does not displace any residences. The analysis also factors the improvement to the level of service provided by the turn lane options and the roundabout option for both current conditions and design year 2048 predicted conditions. The turn lane options do not improve the level of service as much as the roundabout and the turn lanes at Dorsey Avenue/Kingwood Pike involve complete takes of 2 or 3 residences (depending on the turn lane option selected). Roundabouts are designed to slow speeds in the approach and through the roundabout allowing drivers more response time and limiting the number of potential directions where traffic could approach. Both of these factors improve safety for all drivers, including older drivers as well as pedestrians, and cyclists. Road repair beyond the scope of this project is being addressed through the Governor's Roads to Prosperity program and progress can be tracked via the WVDOH website.
165	Road repair beyond the scope of this project is being addressed through the Governor's Roads to Prosperity program and progress can be tracked via the WVDOH website. The detour presented in the April 2019 meeting was preliminary and the final detour route will be examined and defined during the final design process. Existing road conditions will be considered as a factor when determining the detour routes.
166	We appreciate your input regarding the project.
167	The WVDOH has examined two build alternatives and three options for each of the major intersections. The intersection options that were evaluated and analyzed include turning lanes, traffic signals, and roundabouts. The evaluation and analysis of these intersection options indicate that the roundabout would provide the most improvement to traffic congestion, has the lowest estimated construction cost, and does not displace any residences. The analysis also factors the improvement to the level of service provided by the turn lane options and the roundabout option for both current conditions and design year 2048 predicted conditions. The turn lane options do not improve the level of service as much as the roundabout and the turn lanes at Dorsey Avenue/Kingwood Pike involve complete takes of 2 or 3 residences (depending on the turn lane option selected). The roundabouts have been designed with larger vehicles in mind and incorporate truck aprons designed to support the weight and turning radius of larger vehicles, including school buses. Signage meeting WVDOH and the Federal Manual on Uniform Traffic Control Devices will be placed to assist drivers with navigating the roundabouts. The community garden is located on private property and the property owner will be compensated for the sale of the land to the WVDOH during the right-of-way acquisition process. Impacts to the community garden have been minimized to the extent practicable.
168	A turn lane option has been considered in the EA and evaluated for impacts to social, cultural, natural, economic, and environmental resource factors. The analysis also factors the improvement to the level of service provided by the turn lane options and the roundabout option for both current conditions and design year 2048 predicated conditions. The turn lane options do not improve the level of service as much as the roundabout and the turn lanes involve complete takes of 2 or 3 residences (depending on the turn lane option selected).

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169	A turn lane option has been considered in the EA and evaluated for impacts to social, cultural, natural, economic, and environmental resource factors. The analysis also factors the improvement to the level of service provided by the turn lane options and the roundabout option for both current conditions and design year 2048 predicated conditions. The turn lane options do not improve the level of service as much as the roundabout and the turn lanes involve complete takes of 2 or 3 residences (depending on the turn lane option selected). The roundabouts have been designed with larger vehicles in mind and incorporate truck aprons designed to support the weight and turning radius of larger vehicles, including school buses.
170	A 4-way stop was not considered at any study intersection within the Greenbag Road corridor. The MMMPO had completed several previous studies evaluating various transportation plans for the Greenbag Road corridor, with the ultimate vision of transforming Greenbag Road into a safe, efficient, and attractive multimodal transportation facility. The scenarios determined to be evaluated in the traffic study evolved from the outcome of the MMMPO's preliminary studies and findings. Existing two-way stop controlled operations with potential roadway improvements were evaluated as part of the traffic, as well as traffic signal and roundabout options. The evaluation and analysis of these intersection options indicate that the roundabout would provide the most improvement to traffic congestion, has the lowest estimated construction cost, and does not displace any residences. The analysis also factors the improvement to the level of service provided by the turn lane options and the roundabout option for both current conditions and design year 2048 predicted conditions. The turn lane options do not improve the level of service as much as the roundabout and the turn lanes at Dorsey Avenue/Kingwood Pike involve complete takes of 2 or 3 residences (depending on the turn lane option selected). Road repair beyond the scope of this project is being addressed through the Governor's Roads to Prosperity program and progress can be tracked via the WVDOH website.
171	The roundabouts have been designed with larger vehicles in mind and incorporate truck aprons designed to support the weight and turning radius of larger vehicles, including school buses and trucks.
172	The WVDOH has examined two build alternatives and three options for each of the major intersections. The intersection options that were evaluated and analyzed include turning lanes, traffic signals, and roundabouts. The evaluation and analysis of these intersection options indicate that the roundabout would provide the most improvement to traffic congestion, has the lowest estimated construction cost, and does not displace any residences. The analysis also factors the improvement to the level of service provided by the turn lane options and the roundabout option for both current conditions and design year 2048 predicted conditions. The turn lane options do not improve the level of service as much as the roundabout and the turn lanes at Dorsey Avenue/Kingwood Pike involve complete takes of 2 or 3 residences (depending on the turn lane option selected). The entrance/exit ramps for I-68 are beyond the scope of the current project.

Comment number	Response to comment
173	Both the MMMPO corridor study and the 2018 traffic study determined that traffic flow through the corridor is controlled by the congestion at the major intersections in the corridor. The projected growth in the Morgantown area will continue to increase traffic and congestion at the intersections if improvements do not occur. The WVDOH has prepared an EA to consider the potential environmental consequences of the project, document the analysis, and make this information available to the public for comment prior to implementation. As part of the EA, the WVDOH has examined two build alternatives and three options for each of the major intersections. The intersection options that were evaluated and analyzed include turning lanes, traffic signals, and roundabouts. These alternatives and options are assessed in the EA for impacts to social, cultural, natural, economic, and environmental resource factors. Each of the alternatives and options has been designed to meet the purpose and need for the project to reduce congestion and address the lack of safe non-motorized connections along the CR 857 corridor. Minimizing impacts to the environment, community, and right-of-way were also considered when evaluating the project alternatives.
174	Both the MMMPO corridor study and the 2018 traffic study determined that traffic flow through the corridor is controlled by the congestion at the major intersections in the corridor. The projected growth in the Morgantown area will continue to increase traffic and congestion at the intersections if improvements do not occur. The alternatives and intersection options determined to be evaluated were based on the outcome of the MMMPO's preliminary studies and findings. Changes to the existing traffic signal, without other improvements, were not considered.
175	The community garden is located on private property and the property owner will be compensated for the sale of the land to the WVDOH during the right-of-way acquisition process. Impacts to the community garden have been minimized to the extent practicable.
176	The community garden is located on private property and the property owner will be compensated for the sale of the land to the WVDOH during the right-of-way acquisition process. Impacts to the community garden have been minimized to the extent practicable. Both the MMMPO corridor study and the 2018 traffic study determined that traffic flow through the corridor is controlled by the congestion at the major intersections in the corridor. The projected growth in the Morgantown area will continue to increase traffic and congestion at the intersections if improvements do not occur.
177	We appreciate your input and support regarding the project.
178	Impacts to the community garden have been minimized to the extent practicable.
179	Both the MMMPO corridor study and the 2018 traffic study determined that traffic flow through the corridor is controlled by the congestion at the major intersections in the corridor. The projected growth in the Morgantown area will continue to increase traffic and congestion at the intersections if improvements do not occur. Impacts to the community garden have been minimized to the extent practicable.
180	Roundabouts are designed to maintain a constant flow of traffic through the intersection which results in reduced congestion on roadways and a reduction in delays for drivers. Studies have shown that changing signalized intersections to roundabouts can have up to an 89% average reduction in vehicle delays. The improved traffic flow also results in reduced vehicle emissions including carbon monoxide, nitrous oxide, and carbon dioxide at the intersection. The current project includes the widening of both travel lanes on Greenbag Road along with the inclusion of shoulders at the edge of the roadway. Road repair beyond the scope of this project is being addressed through the Governor's Roads to Prosperity program and progress can be tracked via the WVDOH website.

Comment number	Response to comment
181	We appreciate your input and support regarding the project.
182	Renderings for the roundabouts will be provided in the second public meeting and available online at the WVDOH website at go.wv.gov/dotcomment.
183	The detour presented in the April 2019 meeting was preliminary and the final detour route will be examined and defined during the final design process. Existing road conditions will be considered as a factor when determining the detour routes.
184	Road repair beyond the scope of this project is being addressed through the Governor's Roads to Prosperity program and progress can be tracked via the WVDOH website. The detour presented in the April 2019 meeting was preliminary and the final detour route will be examined and defined during the final design process. Existing road conditions will be considered as a factor when determining the detour routes. The roundabouts have been designed with larger vehicles in mind and incorporate truck aprons designed to support the weight and turning radius of larger vehicles, including school buses.
185	The roundabouts have been designed with larger vehicles in mind and incorporate truck aprons designed to support the weight and turning radius of larger vehicles, including school buses and trucks. The existing grade on Kingwood Pike requires stopping on a -6.5% grade at the traffic signal. The grade approaching the roundabout includes a flat grade of less than 2% at the roundabout. In most cases, the roundabout will not require approaching traffic to come to a full or immediate stop, and does not queue traffic on the steep grade as the existing traffic signal does. Road repair beyond the scope of this project is being addressed through the Governor's Roads to Prosperity program and progress can be tracked via the WVDOH website. The detour presented in the April 2019 meeting was preliminary and the final detour route will be examined and defined during the final design process. Existing road conditions will be considered as a factor when determining the detour routes.
186	The community garden is located on private property and the property owner will be compensated for the sale of the land to the WVDOH during the right-of-way acquisition process. Impacts to the community garden have been minimized to the extent practicable.
187	Road repair beyond the scope of this project is being addressed through the Governor's Roads to Prosperity program and progress can be tracked via the WVDOH website.
188	The community garden is located on private property and the property owner will be compensated for the sale of the land to the WVDOH during the right-of-way acquisition process. Impacts to the community garden have been minimized to the extent practicable. Road repair beyond the scope of this project is being addressed through the Governor's Roads to Prosperity program and progress can be tracked via the WVDOH website. Both the MMMPO corridor study and the 2018 traffic study determined that traffic flow through the corridor is controlled by the congestion at the major intersections in the corridor. The projected growth in the Morgantown area will continue to increase traffic and congestion at the intersections if improvements do not occur.

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189	Both the MMMPO corridor study and the 2018 traffic study determined that traffic flow through the corridor is controlled by the congestion at the major intersections in the corridor. The projected growth in the Morgantown area will continue to increase traffic and congestion at the intersections if improvements do not occur. Roundabouts are designed to maintain a constant flow of traffic through the intersection which results in reduced congestion on roadways and a reduction in delays for drivers. Studies have shown that changing signalized intersections to roundabouts can have up to an 89% average reduction in vehicle delays. The improved traffic flow also results in reduced vehicle emissions including carbon monoxide, nitrous oxide, and carbon dioxide at the intersection. Additionally, roundabouts are designed to slow speeds in the approach and through the roundabout allowing drivers more response time and limiting the number of potential directions where traffic could approach. Both of these factors improve safety for all drivers, including older drivers as well as pedestrians, and cyclists.
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191	A turn lane option has been considered in the EA and evaluated for impacts to social, cultural, natural, economic, and environmental resource factors. The analysis also factors the improvement to the level of service provided by the turn lane options and the roundabout option for both current conditions and design year 2048 predicated conditions. The turn lane options do not improve the level of service as much as the roundabout and the turn lanes at Dorsey Avenue/Kingwood Pike involve complete takes of 2 or 3 residences (depending on the turn lane option selected).
192	The evaluation and analysis of the intersection options indicate that the roundabout would provide the most improvement to traffic congestion, has the lowest estimated construction cost, and does not displace any residences. The turn lane options at Dorsey Avenue/Kingwood Pike involve complete takes of 2 or 3 residences (depending on the turn lane option selected). Impacts to the surrounding land have been minimized to the extent possible.
193	A turn lane option has been considered in the EA and evaluated for impacts to social, cultural, natural, economic, and environmental resource factors. The analysis also factors the improvement to the level of service provided by the turn lane options and the roundabout option for both current conditions and design year 2048 predicated conditions. The turn lane options do not improve the level of service as much as the roundabout and the turn lanes at Dorsey Avenue/Kingwood Pike involve complete takes of 2 or 3 residences (depending on the turn lane option selected). Road repair beyond the scope of this project is being addressed through the Governor's Roads to Prosperity program and progress can be tracked via the WVDOH website.

Comment number	Response to comment
194	Feedback has been solicited during the project development process at the April 2019 public meeting and further feedback will be solicited during the 2020 virtual public meeting. Both the MMMPO corridor study (which included additional opportunities for public comment) and the 2018 traffic study determined that traffic flow through the corridor is controlled by the congestion at the major intersections in the corridor. The projected growth in the Morgantown area will continue to increase traffic and congestion at the intersections if improvements do not occur. To address these issues of congestion and lack of safe pedestrian use of the area, the WVDOH has examined two build alternatives and three options for each of the major intersections. The intersection options that were evaluated and analyzed include turning lanes, traffic signals, and roundabouts. The evaluation and analysis of these intersection options indicate that the roundabout would provide the most improvement to traffic congestion, has the lowest estimated construction cost, and does not displace any residences. The analysis also evaluates the improvement to the level of service provided by the turn lane options and the roundabout option for both current conditions and design year 2048 predicted conditions. The turn lane options do not improve the level of service as much as the roundabout and the turn lanes at Dorsey Avenue/Kingwood Pike involve complete takes of 2 or 3 residences (depending on the turn lane option selected). The roundabouts have been designed with larger vehicles in mind and incorporate truck aprons designed to support the weight and turning radius of larger vehicles, including school buses. Road repair beyond the scope of this project is being addressed through the Governor's Roads to Prosperity program and progress can be tracked via the WVDOH website.
195	Both the MMMPO corridor study and the 2018 traffic study determined that traffic flow through the corridor is controlled by the congestion at the major intersections in the corridor. The projected growth in the Morgantown area will continue to increase traffic and congestion at the intersections if improvements do not occur. Roundabouts are designed to maintain a constant flow of traffic through the intersection which results in reduced congestion on roadways and a reduction in delays for drivers. Studies have shown that changing signalized intersections to roundabouts can have up to an 89% average reduction in vehicle delays. The improved traffic flow also results in reduced vehicle emissions including carbon monoxide, nitrous oxide, and carbon dioxide at the intersection. Road repair beyond the scope of this project is being addressed through the Governor's Roads to Prosperity program and progress can be tracked via the WVDOH website. Estimated construction costs have been reviewed for each of the alternatives and options. The roundabout option at Dorsey Avenue (F) represents the least expensive of the estimates.
196	A turn lane option has been considered in the EA and evaluated for impacts to social, cultural, natural, economic, and environmental resource factors. The analysis also factors the improvement to the level of service provided by the turn lane options and the roundabout option for both current conditions and design year 2048 predicated conditions. The turn lane options do not improve the level of service as much as the roundabout and the turn lanes involve complete takes of 2 or 3 residences (depending on the turn lane option selected).
197	The community garden is located on private property and the property owner will be compensated for the sale of the land to the WVDOH during the right-of-way acquisition process. Impacts to the community garden have been minimized to the extent practicable.

Comment number	Response to comment
198	A public meeting was held on April 16, 2019. Based on the comments received the project environmental documentation has been elevated from a CE to an EA. There will be another public meeting to present the EA and allow additional time for comment. The EA will be available on the WVDOH website at go.wv.gov/dotcomment.
199	The WVDOH has examined two build alternatives and three options for each of the major intersections. The intersection options that were evaluated and analyzed include turning lanes, traffic signals, and roundabouts. The evaluation and analysis of these intersection options indicate that the roundabout would provide the most improvement to traffic congestion, has the lowest estimated construction cost, and does not displace any residences. The analysis also factors the improvement to the level of service provided by the turn lane options and the roundabout option for both current conditions and design year 2048 predicted conditions. The turn lane options do not improve the level of service as much as the roundabout and the turn lanes at Dorsey Avenue/Kingwood Pike involve complete takes of 2 or 3 residences (depending on the turn lane option selected). Impacts to the community garden have been minimized to the extent practicable.
200	The detour presented in the April 2019 meeting was preliminary and the final detour route will be examined and defined during the final design process. Existing road conditions will be considered as a factor when determining the detour routes. Road repair beyond the scope of this project is being addressed through the Governor's Roads to Prosperity program and progress can be tracked via the WVDOH website. A turn lane option has been considered in the EA and evaluated for impacts to social, cultural, natural, economic, and environmental resource factors. The analysis also factors the improvement to the level of service provided by the turn lane options and the roundabout option for both current conditions and design year 2048 predicated conditions. The turn lane options do not improve the level of service as much as the roundabout and the turn lanes at Dorsey Avenue/Kingwood Pike involve complete takes of 2 or 3 residences (depending on the turn lane option selected). The roundabouts have been designed with larger vehicles in mind and incorporate truck aprons designed to support the weight and turning radius of larger vehicles, including school buses.
201	The roundabouts have been designed with larger vehicles in mind and incorporate truck aprons designed to support the weight of larger vehicles, including trucks and school buses. Signage meeting WVDOH and the Federal Manual on Uniform Traffic Control Devices will be placed to assist drivers with navigating the roundabouts. Both the MMMPO corridor study and the 2018 traffic study determined that traffic flow through the corridor is controlled by the congestion at the major intersections in the corridor. The projected growth in the Morgantown area will continue to increase traffic and congestion at the intersections if improvements do not occur. Estimated construction costs have been reviewed for each of the alternatives and options. The roundabout option provides the most improvement to traffic congestion, has the lowest estimated construction cost, and does not displace any residences. Road repair beyond the scope of this project is being addressed through the Governor's Roads to Prosperity program and progress can be tracked via the WVDOH website. A turn lane option has been considered in the EA and evaluated for impacts to social, cultural, natural, economic, and environmental resource factors. The analysis also factors the improvement to the level of service provided by the turn lane options and the roundabout option for both current conditions and design year 2048 predicted conditions. The turn lane options do not improve the level of service as much as the roundabout and the turn lanes at Dorsey Avenue/Kingwood Pike involve complete takes of 2 or 3 residences (depending on the turn lane option selected).

Comment number	Response to comment
202	A turn lane option has been considered in the EA and evaluated for impacts to social, cultural, natural, economic, and environmental resource factors. The analysis also factors the improvement to the level of service provided by the turn lane options and the roundabout option for both current conditions and design year 2048 predicated conditions. The turn lane options do not improve the level of service as much as the roundabout and the turn lanes involve complete takes of 2 or 3 residences (depending on the turn lane option selected). Estimated construction costs have been reviewed for each of the alternatives and options. The roundabout option at Dorsey Avenue (F) represents the least expensive of the estimates.
203	This comment is beyond the scope of the current project.
204	The roundabouts have been designed with larger vehicles in mind and incorporate truck aprons designed to support the weight of larger vehicles, including trucks and school buses. Based on studies by the FHWA, changing a signalized intersection to a roundabout showed a 48% reduction in all crashes and a 78% reduction in fatal/injury crashes. Roundabouts are designed to slow speeds in the approach and through the roundabout allowing drivers more response time and limiting the number of potential directions where traffic could approach. Both of these factors improve safety for all drivers, including older drivers as well as pedestrians, and cyclists. The traffic study completed in 2018 considered the effect that school traffic has on the corridor.
205	The alternatives and intersection options determined to be evaluated were based on the outcome of the MMMPO's preliminary studies and findings. Changes to the existing traffic signal, without other improvements, were not considered. The roundabouts will be designed and installed to meet both Federal and State guidelines and signage will be placed to assist drivers with navigating the roundabout.
206	Both the MMMPO corridor study and the 2018 traffic study determined that traffic flow through the corridor is controlled by the congestion at the major intersections in the corridor. The projected growth in the Morgantown area will continue to increase traffic and congestion at the intersections if improvements do not occur. The alternatives and intersection options determined to be evaluated were based on the outcome of the MMMPO's preliminary studies and findings. Changes to the existing traffic signal, without other improvements, were not considered.
207	The sidewalk design has been extended from the western end of the project area along Greenbag Road to the Dorsey Avenue/Kingwood Pike intersection. At the intersection the sidewalk follows Dorsey Avenue north to Luckey Lane and east on Luckey Lane to the connection with the existing sidewalk at Mountainview Elementary School. The dedicated bike lane remains on the westbound direction of traffic. A 2-foot shoulder will accompany the eastbound travel lanes. Impacts to the community garden have been minimized to the extent practicable.
208	The alternatives and intersection options determined to be evaluated were based on the outcome of the MMMPO's preliminary studies and findings. Changes to the existing traffic signal, without other improvements, were not considered.
209	The designs for the roadway and intersection improvements have factored the topography, safety issues, constructability, and current land use to develop feasible alternatives. Minimizing impacts to the environment, community, and right-of-way were also considered when evaluating the project alternatives.

Comment number	Response to comment
210	A turn lane option has been considered in the EA and evaluated for impacts to social, cultural, natural, economic, and environmental resource factors. The analysis also factors the improvement to the level of service provided by the turn lane options and the roundabout option for both current conditions and design year 2048 predicated conditions. The turn lane options do not improve the level of service as much as the roundabout and the turn lanes involve complete takes of 2 or 3 residences (depending on the turn lane option selected).
211	The environmental document for the project has been elevated from a CE to an EA. The EA will be available on the WVDOH website at go.wv.gov/dotcomment. As part of the EA, the WVDOH has examined two build alternatives and three options for each of the major intersections. The intersection options that were evaluated and analyzed include turning lanes, traffic signals, and roundabouts. The evaluation and analysis of these intersection options indicate that the roundabout would provide the most improvement to traffic congestion, has the lowest estimated construction cost, and does not displace any residences. The analysis also evaluates the improvement to the level of service provided by the turn lane options and the roundabout option for both current conditions and design year 2048 predicted conditions. The turn lane options do not improve the level of service as much as the roundabout and the turn lanes at Dorsey Avenue/Kingwood Pike involve complete takes of 2 or 3 residences (depending on the turn lane option selected).
212	All public involvement and comments have been noted by the WVDOH, and all documentation is part of the public record for the project, and become part of the final environmental document.
213	A turn lane option has been considered in the EA and evaluated for impacts to social, cultural, natural, economic, and environmental resource factors. The analysis also factors the improvement to the level of service provided by the turn lane options and the roundabout option for both current conditions and design year 2048 predicated conditions. The turn lane options do not improve the level of service as much as the roundabout and the turn lanes at Dorsey Avenue/Kingwood Pike involve complete takes of 2 or 3 residences (depending on the turn lane option selected). Impacts to the community garden have been minimized to the extent practicable.
214	Both the MMMPO corridor study and the 2018 traffic study determined that traffic flow through the corridor is controlled by the congestion at the major intersections in the corridor. The projected growth in the Morgantown area will continue to increase traffic and congestion at the intersections if improvements do not occur. Roundabouts are designed to maintain a constant flow of traffic through the intersection which results in reduced congestion on roadways and a reduction in delays for drivers. Studies have shown that changing signalized intersections to roundabouts can have up to an 89% average reduction in vehicle delays. The improved traffic flow also results in reduced vehicle emissions including carbon monoxide, nitrous oxide, and carbon dioxide at the intersection. Additionally, roundabouts are designed to slow speeds in the approach and through the roundabout allowing drivers more response time and limiting the number of potential directions where traffic could approach. Both of these factors improve safety for all drivers, including older drivers as well as pedestrians, and cyclists. Signage meeting WVDOH and the Federal Manual on Uniform Traffic Control Devices will be placed to assist drivers with navigating the roundabouts. Road repair beyond the scope of this project is being addressed through the Governor's Roads to Prosperity program and progress can be tracked via the WVDOH website.

Comment number	Response to comment
215	Roundabouts are designed to slow speeds in the approach and through the roundabout allowing drivers more response time and limiting the number of potential directions where traffic could approach. Based on studies by the FHWA, changing a signalized intersection to a roundabout showed a 48% reduction in all crashes and a 78% reduction in fatal/injury crashes. Pedestrians and bicyclists have less risk with roundabouts than traditional signalized intersections due to the lower vehicle speeds through the roundabout and shorter travel distances for the pedestrians crossing the roadway. Signage meeting WVDOH and the Federal Manual on Uniform Traffic Control Devices will be placed to assist drivers with navigating the roundabouts.
216	A turn lane option has been considered in the EA and evaluated for impacts to social, cultural, natural, economic, and environmental resource factors. The analysis also factors the improvement to the level of service provided by the turn lane options and the roundabout option for both current conditions and design year 2048 predicated conditions. The turn lane options do not improve the level of service as much as the roundabout and the turn lanes involve complete takes of 2 or 3 residences (depending on the turn lane option selected).
217	The environmental document for the project has been elevated from a CE to an EA. The EA will be available on the WVDOH website at go.wv.gov/dotcomment. As part of the EA, the WVDOH has examined two build alternatives and three options for each of the major intersections. The intersection options that were evaluated and analyzed include turning lanes, traffic signals, and roundabouts. These alternatives and options are assessed in the EA for impacts to social, cultural, natural, economic, and environmental resource factors. A detailed study of the socioeconomic impacts is included in the EA as part of the Environmental Justice section. There will be temporary impacts to businesses during construction but there will not be any businesses displaced by the project.
218	Roundabouts are designed to maintain a constant flow of traffic through the intersection, resulting in fewer complete stops. A turn lane option has been considered in the EA. The analysis factors the improvement to the level of service provided by the turn lane options and the roundabout option for both current conditions and design year 2048 predicted conditions. The turn lane options do not improve the level of service as much as the roundabout and the turn lanes at Dorsey Avenue/Kingwood Pike involve complete takes of 2 or 3 residences (depending on the turn lane option selected). The existing grade on Kingwood Pike requires stopping on a -6.5% grade at the traffic signal. The grade approaching the roundabout includes a flat grade of less than 2% at the roundabout. In most cases, the roundabout will not require approaching traffic to come to a full or immediate stop, and does not queue traffic on the steep grade as the existing traffic signal does.
219	Thank you for enumerating these safety concerns. The WVDOH will examine all safety concerns as part of the final design.
220	Designs for the intersection improvements have factored the topography, safety issues, constructability, and current land use to develop feasible alternatives. The roundabouts designs meet the DOH and FHWA safety standards.
221	The detour presented in the April 2019 meeting was preliminary and the final detour route will be examined and defined during the final design process. Existing road conditions will be considered as a factor when determining the detour routes.
222	The community garden is located on private property and the property owner will be compensated for the sale of the land to the WVDOH during the right-of-way acquisition process. Impacts to the community garden have been minimized to the extent practicable.

Comment number	Response to comment
223	A traffic study was completed in 2018 to determine the current conditions and provide data for estimates of future conditions. The study showed that the current level of service for the Dorsey Avenue/Kingwood Pike intersection to be C in both morning and evening and for Mississippi Street a C in the morning and an A in the evening. The study used a forecasted growth rate of 1.16% per year provided by the MMMPO to create projections for the design year (2048) levels of service. Forecasted 2048 level of service for the Dorsey Avenue/Kingwood Pike intersection is C in morning and F in evening and for Mississippi Street an F in the morning and a D in the evening indicating that as the Morgantown area continues to grow the traffic congestion at these intersections will increase as well. The detour presented in the April 2019 meeting was preliminary and the final detour route will be examined and defined during the final design process. Existing road conditions will be considered as a factor when determining the detour routes. Road repair beyond the scope of this project is being addressed through the Governor's Roads to Prosperity program and progress can be tracked via the WVDOH website.
224	A turn lane option has been considered in the EA and evaluated for impacts to social, cultural, natural, economic, and environmental resource factors. The analysis also factors the improvement to the level of service provided by the turn lane options and the roundabout option for both current conditions and design year 2048 predicated conditions. The turn lane options do not improve the level of service as much as the roundabout and the turn lanes involve complete takes of 2 or 3 residences (depending on the turn lane option selected). The community garden is located on private property and the property owner will be compensated for the sale of the land to the WVDOH during the right-of-way acquisition process. Impacts to the community garden have been minimized to the extent practicable.
225	The community garden is located on private property and the property owner will be compensated for the sale of the land to the WVDOH during the right-of-way acquisition process. Impacts to the community garden have been minimized to the extent practicable. Road repair beyond the scope of this project is being addressed through the Governor's Roads to Prosperity program and progress can be tracked via the WVDOH website.
226	The sidewalk design has been extended from the western end of the project area along Greenbag Road to the Dorsey Avenue/Kingwood Pike intersection. At the intersection the sidewalk follows Dorsey Avenue north to Luckey Lane and east on Luckey Lane to the connection with the existing sidewalk at Mountainview Elementary School. The shoulder along the north side of Greenbag Road is being designed to accommodate bicycle use by being wider (3 feet) than the standard shoulder (2 feet).
227	A turn lane option has been considered in the EA and evaluated for impacts to social, cultural, natural, economic, and environmental resource factors. The analysis also factors the improvement to the level of service provided by the turn lane options and the roundabout option for both current conditions and design year 2048 predicated conditions. The turn lane options do not improve the level of service as much as the roundabout and the turn lanes involve complete takes of 2 or 3 residences (depending on the turn lane option selected).
228	Impacts to the community garden have been minimized to the extent practicable.

Comment number	Response to comment
229	Roundabouts are designed to slow speeds in the approach and through the roundabout allowing drivers more response time and limiting the number of potential directions where traffic could approach. Both of these factors improve safety for all drivers, including older drivers as well as pedestrians, and cyclists. Roundabouts are also designed to maintain a constant flow of traffic through the intersection which results in reduced congestion on roadways and a reduction in delays for drivers. Studies have shown that changing signalized intersections to roundabouts can have up to an 89% average reduction in vehicle delays. The improved traffic flow also results in reduced vehicle emissions including carbon monoxide, nitrous oxide, and carbon dioxide at the intersection. Road repair beyond the scope of this project is being addressed through the Governor's Roads to Prosperity program and progress can be tracked via the WVDOH website.
230	The WVDOH is examining two build alternatives and three options for each of the major intersections. The intersection options will include turning lanes, traffic signals, and roundabouts. Road repair beyond the scope of this project is being addressed through the Governor's Roads to Prosperity program and progress can be tracked via the WVDOH website.
231	A turn lane option has been considered in the EA and evaluated for impacts to social, cultural, natural, economic, and environmental resource factors. The analysis also factors the improvement to the level of service provided by the turn lane options and the roundabout option for both current conditions and design year 2048 predicated conditions. The turn lane options do not improve the level of service as much as the roundabout and the turn lanes at Dorsey Avenue/Kingwood Pike involve complete takes of 2 or 3 residences (depending on the turn lane option selected). Road repair beyond the scope of this project is being addressed through the Governor's Roads to Prosperity program and progress can be tracked via the WVDOH website.
232	The community garden is located on private property and the property owner will be compensated for the sale of the land to the WVDOH during the right-of-way acquisition process. Impacts to the community garden have been minimized to the extent practicable.
233	We appreciate your input and support regarding the project.
234	The environmental document for the project has been elevated from a CE to an EA. Each of the alternatives and options considered in the EA has been designed to meet the purpose and need for the project to reduce congestion and address the lack of safe non-motorized connections along the CR 857 corridor. The community garden is located on private property and the property owner will be compensated for the sale of the land to the WVDOH during the right-of-way acquisition process. Impacts to the community garden have been minimized to the extent practicable.
235	Both the MMMPO corridor study and the 2018 traffic study determined that traffic flow through the corridor is controlled by the congestion at the major intersections in the corridor. The projected growth in the Morgantown area will continue to increase traffic and congestion at the intersections if improvements do not occur. The WVDOH has examined two build alternatives and three options for each of the major intersections. The intersection options that were evaluated and analyzed include turning lanes, traffic signals, and roundabouts. All comments and letters received by the WVDOH have been included in this response table and considered.

Comment number	Response to comment
236	The existing grade on Kingwood Pike requires stopping on a -6.5% grade at the traffic signal. The grade approaching the roundabout includes a flat grade of less than 2% at the roundabout. In most cases, the roundabout will not require approaching traffic to come to a full or immediate stop, and does not queue traffic on the steep grade as the existing traffic signal does. Road repair beyond the scope of this project is being addressed through the Governor's Roads to Prosperity program and progress can be tracked via the WVDOH website. The entrance/exit ramp for I-68 and the issues on Route 7 are beyond the scope of this project.
237	The WVDOH has examined two build alternatives and three options for each of the major intersections. The intersection options that were evaluated and analyzed include turning lanes, traffic signals, and roundabouts. The community garden is located on private property and the property owner will be compensated for the sale of the land to the WVDOH during the right-of-way acquisition process. Impacts to the community garden have been minimized to the extent practicable.
238	Impacts to the community garden have been minimized to the extent practicable.
239	A turn lane option has been considered in the EA and evaluated for impacts to social, cultural, natural, economic, and environmental resource factors. The analysis also factors the improvement to the level of service provided by the turn lane options and the roundabout option for both current conditions and design year 2048 predicated conditions. The turn lane options do not improve the level of service as much as the roundabout and the turn lanes involve complete takes of 2 or 3 residences (depending on the turn lane option selected).
240	Road repair beyond the scope of this project is being addressed through the Governor's Roads to Prosperity program and progress can be tracked via the WVDOH website.
241	Education on the use of roundabouts is an important issue in order to have full functionality of the roundabout that results in fewer severe crashes, fewer crashes overall, shorter travel times, and less congestion.
242	We appreciate your input regarding the project.
243	As part of the EA, the WVDOH has examined two build alternatives and three options for each of the major intersections. The intersection options that were evaluated and analyzed include turning lanes, traffic signals, and roundabouts. Estimated construction costs have been reviewed for each of the alternatives and options. The roundabout option at Dorsey Avenue (F) represents the least expensive of the estimates. Education on the use of roundabouts is an important issue in order to have full functionality of the roundabout that results in fewer severe crashes, fewer crashes overall, shorter travel times, and less congestion.
244	A turn lane option has been considered in the EA and evaluated for impacts to social, cultural, natural, economic, and environmental resource factors. The analysis also factors the improvement to the level of service provided by the turn lane options and the roundabout option for both current conditions and design year 2048 predicated conditions. The turn lane options do not improve the level of service as much as the roundabout and the turn lanes involve complete takes of 2 or 3 residences (depending on the turn lane option selected).
245	We appreciate your input regarding the project.

Comment number	Response to comment
246	A turn lane option has been considered in the EA and evaluated for impacts to social, cultural, natural, economic, and environmental resource factors. The analysis also factors the improvement to the level of service provided by the turn lane options and the roundabout option for both current conditions and design year 2048 predicated conditions. The turn lane options do not improve the level of service as much as the roundabout and the turn lanes involve complete takes of 2 or 3 residences (depending on the turn lane option selected). The community garden is located on private property and the property owner will be compensated for the sale of the land to the WVDOH during the right-of-way acquisition process. Impacts to the community garden have been minimized to the extent practicable.
247	We appreciate your input and support regarding the project.
248	We appreciate your input and support regarding the project.
249	The detour presented in the April 2019 meeting was preliminary and the final detour route will be examined and defined during the final design process taking into account the state of the roads proposed and impacts to the traveling public. Construction sequencing has not yet been defined to determine the length of temporary construction impacts. The roundabout design does not target the field. Each of the designs for the intersection improvements has factored the topography, safety issues, constructability, and current land use to develop feasible options. In the development of the EA, the WVDOH examined two build alternatives for the project and three options for intersection improvements at each of the intersections. These options include turning lanes and traffic signals, and roundabouts. The community garden is located on private property and the property owner will be compensated for the sale of the land to the WVDOH during the right-of-way acquisition process. Impacts to the community garden have been minimized to the extent practicable.
250	The traffic study and analysis of the 3 options designed for each of the intersections shows that the use of roundabouts at the Dorsey Avenue/Kingwood Pike and Mississippi Street intersections will improve the flow of traffic along Greenbag Road. Education on the use of roundabouts is an important issue in order to have full functionality of the roundabout that results in fewer severe crashes, fewer crashes overall, shorter travel times, and less congestion.
251	The WVDOH has examined two build alternatives and three options for each of the major intersections. The intersection options that were evaluated and analyzed include turning lanes, traffic signals, and roundabouts. The turn lane options do not improve the level of service as much as the roundabout and the turn lanes at Dorsey Avenue/Kingwood Pike involve complete takes of 2 or 3 residences (depending on the turn lane option selected). Road repair beyond the scope of this project is being addressed through the Governor's Roads to Prosperity program and progress can be tracked via the WVDOH website. The detour presented in the April 2019 meeting was preliminary and the final detour route will be examined and defined during the final design process. Existing road conditions will be considered as a factor when determining the detour routes.
252	The alternatives and intersection options determined to be evaluated were based on the outcome of the MMMPO's preliminary studies and findings. Changes to the existing traffic signal, without other improvements, were not considered.

Comment number	Response to comment
253	Both the MMMPO corridor study and the 2018 traffic study determined that traffic flow through the corridor is controlled by the congestion at the major intersections in the corridor. The projected growth in the Morgantown area will continue to increase traffic and congestion at the intersections if improvements do not occur. To address the current issues of congestion and lack of safe pedestrian use of the area, the WVDOH has examined two build alternatives and three options for each of the major intersections. The intersection options that were evaluated and analyzed include turning lanes, traffic signals, and roundabouts. The evaluation and analysis of these intersection options indicate that the roundabout would provide the most improvement to traffic congestion, has the lowest estimated construction cost, and does not displace any residences. The analysis also factors the improvement to the level of service provided by the turn lane options and the roundabout option for both current conditions and design year 2048 predicted conditions. The turn lane options do not improve the level of service as much as the roundabout and the turn lanes at Dorsey Avenue/Kingwood Pike involve complete takes of 2 or 3 residences (depending on the turn lane option selected). Road repair beyond the scope of this project is being addressed through the Governor's Roads to Prosperity program and progress can be tracked via the WVDOH website.
254	A turn lane option has been considered in the EA and evaluated for impacts to social, cultural, natural, economic, and environmental resource factors. The analysis also factors the improvement to the level of service provided by the turn lane options and the roundabout option for both current conditions and design year 2048 predicated conditions. The turn lane options do not improve the level of service as much as the roundabout and the turn lanes involve complete takes of 2 or 3 residences (depending on the turn lane option selected).
255	The WVDOH has prepared an EA to consider the potential environmental consequences of the project, document the analysis, and make this information available to the public for comment prior to implementation. Road repair beyond the scope of this project is being addressed through the Governor's Roads to Prosperity program and progress can be tracked via the WVDOH website.
256	We appreciate your input and support regarding the project.
257	We appreciate your input and support regarding the project.
258	A turn lane option has been considered in the EA and evaluated for impacts to social, cultural, natural, economic, and environmental resource factors. The analysis also factors the improvement to the level of service provided by the turn lane options and the roundabout option for both current conditions and design year 2048 predicated conditions. The turn lane options do not improve the level of service as much as the roundabout and the turn lanes involve complete takes of 2 or 3 residences (depending on the turn lane option selected).
259	The roundabouts have been designed with larger vehicles in mind and incorporate truck aprons designed to support the weight and turning radius of larger vehicles, including school buses. A turn lane option has been considered in the EA and evaluated for impacts to social, cultural, natural, economic, and environmental resource factors. The analysis also factors the improvement to the level of service provided by the turn lane options and the roundabout option for both current conditions and design year 2048 predicted conditions. The turn lane options do not improve the level of service as much as the roundabout and the turn lanes at Dorsey Avenue/Kingwood Pike involve complete takes of 2 or 3 residences (depending on the turn lane option selected). The proposed interchange at I-68 is beyond the scope of this project.

Comment number	Response to comment
260	Both the MMMPO corridor study and the 2018 traffic study determined that traffic flow through the corridor is controlled by the congestion at the major intersections in the corridor. The projected growth in the Morgantown area will continue to increase traffic and congestion at the intersections if improvements do not occur. To address these issues of congestion and lack of safe pedestrian use of the area, the WVDOH has examined two build alternatives and three options for each of the major intersections. The intersection options that were evaluated and analyzed include turning lanes, traffic signals, and roundabouts. The evaluation and analysis of these intersection options indicate that the roundabout would provide the most improvement to traffic congestion, has the lowest estimated construction cost, and does not displace any residences. The analysis also evaluates the improvement to the level of service provided by the turn lane options and the roundabout option for both current conditions and design year 2048 predicted conditions. The turn lane options do not improve the level of service as much as the roundabout and the turn lanes at Dorsey Avenue/Kingwood Pike involve complete takes of 2 or 3 residences (depending on the turn lane option selected). Roundabouts are designed to maintain a constant flow of traffic through the intersection which results in reduced congestion on roadways and a reduction in delays for drivers. Studies have shown that changing signalized intersections to roundabouts can have up to an 89% average reduction in vehicle delays. The improved traffic flow also results in reduced vehicle emissions including carbon monoxide, nitrous oxide, and carbon dioxide at the intersection. Additionally, roundabouts are designed to slow speeds in the approach and through the roundabout allowing drivers more response time and limiting the number of potential directions where traffic could approach. Both of these factors improve safety for all drivers, including older drivers as well as pedestrians, and cyclists.
261	A turn lane option has been considered in the EA and evaluated for impacts to social, cultural, natural, economic, and environmental resource factors. The analysis also factors the improvement to the level of service provided by the turn lane options and the roundabout option for both current conditions and design year 2048 predicated conditions. The turn lane options do not improve the level of service as much as the roundabout and the turn lanes involve complete takes of 2 or 3 residences (depending on the turn lane option selected).
262	A turn lane option has been considered in the EA and evaluated for impacts to social, cultural, natural, economic, and environmental resource factors. The analysis also factors the improvement to the level of service provided by the turn lane options and the roundabout option for both current conditions and design year 2048 predicated conditions. The turn lane options do not improve the level of service as much as the roundabout and the turn lanes involve complete takes of 2 or 3 residences (depending on the turn lane option selected).
263	A turn lane option has been considered in the EA and evaluated for impacts to social, cultural, natural, economic, and environmental resource factors. The analysis also factors the improvement to the level of service provided by the turn lane options and the roundabout option for both current conditions and design year 2048 predicated conditions. The turn lane options do not improve the level of service as much as the roundabout and the turn lanes involve complete takes of 2 or 3 residences (depending on the turn lane option selected).

Comment number	Response to comment
264	The environmental document for the project has been elevated from a CE to an EA. There will be another public meeting to present the EA and allow additional time for comment. The EA will be available on the WVDOH website at go.wv.gov/dotcomment. As part of the EA, the WVDOH has examined two build alternatives and three options for each of the major intersections. The intersection options that were evaluated and analyzed include turning lanes, traffic signals, and roundabouts. Estimated construction costs have been reviewed for each of the alternatives and options. The roundabout option at Dorsey Avenue (F) represents the least expensive of the estimates.

UPCOMING PUBLIC MEETING
TUESDAY, APRIL 16, 2019
4:00 PM TO 7:00 PM
SOUTH MIDDLE SCHOOL
500 EAST PARKWAY DRIVE, MORGANTOWN, WV

GREENBAG ROAD IMPROVEMENT PROJECT

State Project U331-857-0.67, Federal Project NFA-2317(022)D
Monongalia County, WV

Join us on Tuesday, April 16, from 4:00 to 7:00 PM at the South Middle School in Morgantown, WV at an Informational Workshop Public Meeting to learn more about the Greenbag Road Improvement Project. Representatives from the West Virginia Division of Highways (WVDOH) and Federal Highway Administration will be available to discuss the proposed project and answer questions. No formal presentation is planned; however, project information will be provided for review. This meeting complies with the public involvement requirements of the National Environmental Policy Act and Section 106 of the National Historic Preservation Act.

Project Summary:

This project proposes to make improvements to Greenbag Road including shoulder and lane widening, the addition of a sidewalk along the west side of the road, and intersection improvements. Both the Mississippi Street and Dorsey Avenue/Kingwood Pike intersections with Greenbag Road are planned to become roundabouts. The box culvert carrying Greenbag Road over Cobun Creek will be widened to accommodate the wider roadway. On Luckey Lane, the project will improve the width of the travel lane and re-pave the length of the roadway between Greenbag Road and Dorsey Avenue. During construction, traffic will be maintained via detour on existing roads and/or temporary traffic signals or flaggers. WVDOH welcomes your input on potential environmental concerns, including, among other issues, impacts to natural and cultural resources as well as social and economic impacts.

Comments are due by Thursday, May 16, 2019
and can be submitted at the meeting or sent to:
Mr. RJ Scites, P.E.
Director, Engineering Division
WVDOH
1334 Smith Street
Charleston, WV 25301
Comments can also be submitted via our website at:
http://go.wv.gov/dotcomment

The West Virginia Department of Transportation will, upon request, provide reasonable accommodations including auxiliary aids and services necessary to afford an individual with a disability an equal opportunity to participate in our services, programs and activities. Please contact us at (304) 558-3931. Persons with hearing or speech impairments can reach all state agencies by calling (800) 982-8722 (voice to TTD), or (800) 982-8771 (TDD to voice), toll free.

DATE:

Mr. RJ Scites, P.E.
Director, Engineering Division
West Virginia Division of Highways
1334 Smith Street
Charleston, West Virginia 25301

DATE: **Tuesday, April 16, 2019**
LOCATION: **South Middle School**
SUBJECT: **Public Meeting**
PROJECT: **Greenbag Road Improvement Project**
State Project: U331-857-0.67
Monongalia County

COMMENTS DUE BY: **Thursday, May 16, 2019**

Please consider the following comments:

(Please print the following information)

NAME:

ADDRESS:

ORGANIZATION (IF ANY):

How did you hear about today's meeting?

Project Information and Comment Sheets can also be found at http://go.wv.gov/dotcomment under Engineering Projects, open and click Greenbag Road Improvement Project.

PLEASE PRINT

NAME	ADDRESS or EMAIL
Kathy Dalton	Clinton Water - 703 Greenbag Rd. Mgtn.
Tom Talerico	388 Kingwood Pike, Mgtn
Mariah Martin	25 Dorsey Ln. Motown 26501
David Jorms	DOM INH2 ROAD
Kevin Summers	800 Green Bag Rd
Lou Scotchel	1384 Greenbag Rd Mgtown WV
Ann Everly	107 Apolla Dr., Mgtn.
Barbara Parsons	233 Park St Morgantown, WV 26501
Shawn Myer	205 Prager Pl Mgnt WV 26508
Alyssa Liston	issamarie2@hotmail.com
Delegate Danielle Walker	26 Addison Circle Morgantown, WV 26505
LARRY ZINN	
Marc Glass	911 Greenbag Road, Morgantown WV 26508
David Weaver	619 West Virginia Ave, Morgantown, WV 26501
John Whitmore	Jwhitmore@morgantownwv.gov
Rachel Fetty	rfetty@morgantownwv.gov

PLEASE PRINT

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Richard Wood	MCPC
Raymond & Francis	693 GREENBAG ROAD
Gary Hebden	5 Bluegrass Village
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Ken Downey	1214 Greenbag Rd. Ken@FdKitchenBath.com
Mitch ~~R~~ Spengler	686 Lower Aarons Creek Rd, Morg, WV 26508
Karen Spengler	"
Greg Spicer	809 Greenbag Rd
Paul A Herbst	746 Gr
Vinnie Roman	Atomic Grill
BILL & CAROL SUMMERS	1015 Glen Oaks Dr.
Shirley Hess	504 Parkway Dr.

PLEASE PRINT

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Tom + Paula Fuhrman	523 Santa Fe Ct Mtown 26508
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MARY HASTINGS	87 Kingwood Pike + maryhastings@hotmail.com
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DREW GATLIN	JGATLIN@MORGANTOWNWV.GOV
Dawn McElhaney	1303 MountainView Manor Mgtn
Agnes Wojciechowski	1029 Johnathan Ln Morgantown

GREENBAG ROAD PROJECT | PUBLIC MEETING | APRIL 16, 2019 | 4:00PM TO 7:00PM

PLEASE PRINT

NAME	ADDRESS or EMAIL
Todd Bofen	918 Green Bag Road Morgantown WV 26508
[illegible] [illegible]	308 S. HIGH ST / GREEN BAG RD
Garrett Richards	27 Kingwood Pike Morgantown WV 26508
[illegible] [illegible]	253 COBUN VALLEY LANE, MORGANTOWN, WV 26508
[illegible] [illegible]	819-820-821-822-825 Greenbag Rd Mgtn W. 26508
dewey hastings / email See MARY	81 Rte 81 old Kingwood Pike Mgtn WV 26505 /
Jenny Selin /	1224 Fairlawns Morgantown, WV 26505 /
STACIA DAVIS	529 Madison Ave

GREENBAG ROAD IMPROVEMENT PROJECT
State Project U331-857-0.67
Federal Project NFA-2317 (022) D
Monongalia County, West Virginia

PUBLIC MEETING

Tuesday, April 16, 2019

WELCOME!

Thank you for participating in the public informational workshop for the Greenbag Road Improvement Project in Morgantown, WV. This meeting is being hosted by the West Virginia Division of Highways (WVDOH) to present the preliminary designs for the project and to collect public opinion and comments on the plans. We invite you to browse the displays and encourage discussions with the project team. There will be **no formal presentation** during the meeting. There is a comment sheet available on the final page of this handout. Please submit your comments at the meeting, by mail, or via the WVDOH website at http://go.wv.gov/dotcomment.

This meeting complies with the public involvement requirements of the National Environmental Policy Act and Section 106 of the National Historic Preservation Act.

PROJECT BACKGROUND AND PURPOSE

The project is based on a study by the Morgantown Monongalia MPO (MMMPO) Unified Working Program (FY2014-2015). The overall goal of the study was to identify ways to improve Greenbag Road (CR 857) as an alternative truck route to reduce and/or eliminate trucks from traveling through downtown Morgantown by providing a safer, continuous route from WV 7 to US 119. The study reviewed the roadway from the intersection with WV 7 to the intersection with US 119. Recommendations from the study included roadway improvements, intersection improvements, multi-modal improvements, and on-going monitory of safety and development. Specific proposed projects were to widen and resurface Greenbag Road and provide shoulders along both sides; adding turn lanes and optimizing signals at the Dorsey Ave/Greenbag Road intersection and the US119/Greenbag Road intersection; and provide a sidewalk along the north side of Greenbag Road to increase pedestrian safety.

The current project will improve and upgrade the Dorsey Ave/Greenbag Road intersection, widen and resurface Greenbag Road from just west of Mississippi Street to Jonathan Lane, and provide a sidewalk and shoulders along Greenbag Road, as identified in the MMMPO study. These improvements will address several of the major issues identified in the study including: inadequate turning radius and intersection delays at Dorsey Ave/Greenbag Road; limited sight distance at Mississippi Street/Greenbag Road; and the lack of safe non-motorized facilities connecting the neighborhoods along the corridor.

PROJECT DESCRIPTION

The current project extends from ¼ mile west of the Mississippi Street intersection along Greenbag Road (CR 857) to the intersection with Jonathan Lane, approximately $^{1}/_{10}$ mile east of Luckey Lane and includes intersection improvements at Mississippi Street (CR 857/1) and at Dorsey Avenue/Kingwood Pike (CR 81). These intersection improvements will increase the overall traffic capacity of Greenbag Road (CR 857) between WV 7 and US 119.

The overall roadway improvements include wider lanes and shoulders along with a dedicated center turn lane prior to the Mississippi Avenue intersection. A curb and gutter will be installed along the west side of Greenbag Road to help address drainage issues and to provide a sidewalk along the entire route to the Dorsey Avenue/Kingwood Pike intersection. In addition, the west side shoulder will be utilized as a shared bike lane for the corridor between the commercial district and the residential areas. The sidewalks and crosswalks will provide a safer route for pedestrian traffic from the current commercial area to the numerous residential areas located along Greenbag Road.

The two major intersections will be reconstructed as a single lane roundabouts to provide for continuous traffic flow and to increase the safety of the traveling public as they enter each intersection. The roundabouts have been selected instead of signalized intersections based on traffic analysis and level of service. The roundabouts will also be developed to allow the safe movement of pedestrians along the sidewalk on the west side of Greenbag Road and will include lighting on each approach to the roundabout.

The roadway improvements incorporate two 11-foot travel lanes with a 12-foot center turn lane with curb and gutter on each side up to Mississippi Street. Between Mississippi Street and Dorsey Avenue/Kingwood Pike, the roadway will be improved to two 12-foot travel lanes and a 4-foot paved east shoulder. A 3-foot paved shoulder with a curb and gutter will be on the west side. The 5-foot concrete sidewalk will be located along the entire corridor on the west side of Greenbag Road (CR 857).

Maintenance of Traffic during Construction

Traffic patterns will be temporarily impacted. A maintenance of traffic (MOT) plan will be in place to minimize delays, maintain access to residences and businesses, and maintain safety for travelers and construction workers. The proposed MOT plan will include either the use of a detour on existing roads or temporary signals or flaggers.

The Mississippi Street roundabout will be constructed adjacent to Greenbag Road. When the northern portion of the roundabout is complete, traffic will shift to the newly created approaches and through the constructed portion of the roundabout while the southern portion is constructed. Mississippi Street will remain open to traffic throughout the construction of the roundabout.

For the roundabout at Greenbag Road and Dorsey Ave/Kingwood Pike, construction will be completed in multiple stages to allow for continued access. The **proposed stages** are:

Stage 1 will widen the existing Greenbag Road between the entrance to Bluegrass Village and the intersection at CR 81 (Dorsey Ave/Kingwood Pike). The widening will take place on the north side of Greenbag Road. When complete, westbound traffic will shift onto the newly constructed roadway and eastbound traffic will utilize the existing westbound lanes.

Stage 2 will close Kingwood Pike and construct the southern approach and half of the east/west approaches to the roundabout. This will include the construction of the proposed retaining wall on the eastern approach.

Stage 3 will shift traffic to the newly created east/west approaches and through the constructed portion of the roundabout, then re-open Kingwood Pike. Dorsey Avenue will be closed and traffic will utilize Luckey Lane using temporary lights at both the Luckey Lane/Greenbag Road intersection and at Kingwood Pike and the re-aligned Greenbag Road.

Stage 4 will construct the north approach and the remaining east/west approach legs.

Stage 5 will open to traffic and install the islands while under traffic.

During Stage 2 when Kingwood Pike is closed, two detours will be posted. The **car detour** is 3.2 miles in length and requires approximately 10 minutes. When traveling north on Kingwood Pike (CR 81), turn right onto Aarons Creek Road (CR 70). Make a left turn onto Lower Aarons Creek Road (CR 64/1). Turn left onto Greenbag Road (CR 857) and continue until the Dorsey Ave/Kingwood Pike intersection. The same detour will exist for southbound traffic with directions reversed.

The **truck detour** is 10.6 miles and requires approximately 25 minutes. When traveling north on Kingwood Pike (CR 81), turn right onto Summers School Road (CR 72). Continue on Summers School Road (CR 72) when it becomes CR 70/1. Continue right on Summers School Road where it joins with CR 70 (Aarons Creek Road) and bear left onto 70/3 when CR 70 splits to the right. Turn left onto Earl Core Road (WV 7) and continue into Sabraton. Make a left turn onto Greenbag Road (CR 857) and continue until the Dorsey Ave/Kingwood Pike intersection. The same detour will exist for southbound traffic with directions reversed.

PROJECT IMPACTS AND SCHEDULE

Acquisition of new right-of-way for the project includes a total of 8.9 acres from 24 properties. Utilities will be relocated to eliminate conflicts with the proposed roadway upgrade and close coordination with the utility companies will be necessary to ensure service will not be disrupted.

PROJECT SCHEDULE

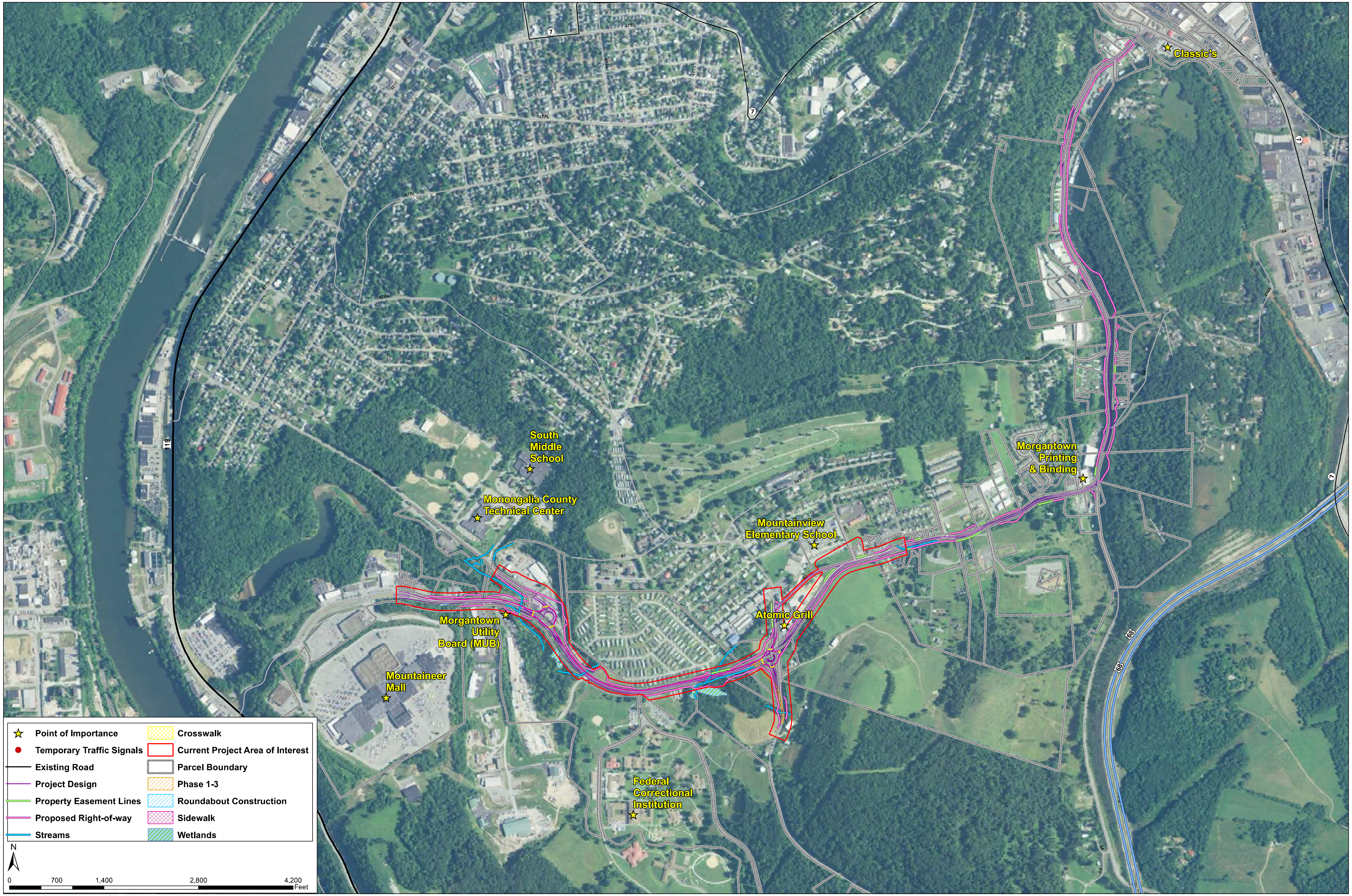
April 16, 2019	Public Meeting
May 16, 2019	Public comments due to the WVDOH
July 1, 2019	Environmental Clearance
Fall 2019	Project Letting
Spring 2020	Right-of-Way Acquired
Summer 2020	Construction Begins

Comments are due May 16, 2019 and should be sent to the following:
Mr. RJ Scites, P.E., Director Engineering Division
West Virginia Division of Highways
1334 Smith Street
Charleston, West Virginia 25301
Or electronically at http://go.wv.gov/dotcomment

GREENBAG PUBLIC MEETING - 04/16/2019

MORGANTOWN/MONONGALIA PLANNING STUDY AREA

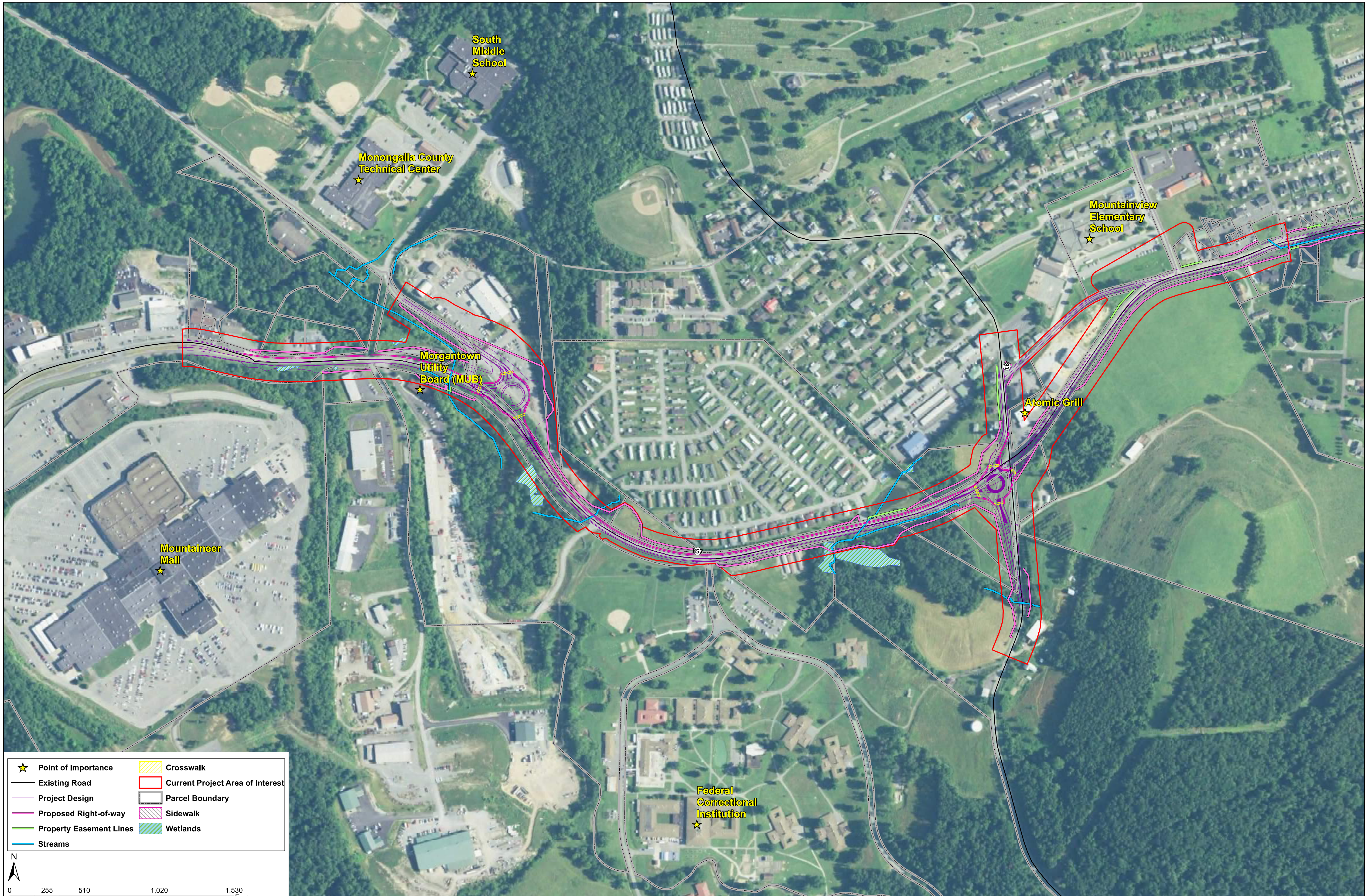
GREENBAG ROAD (COUNTY ROAD 857)



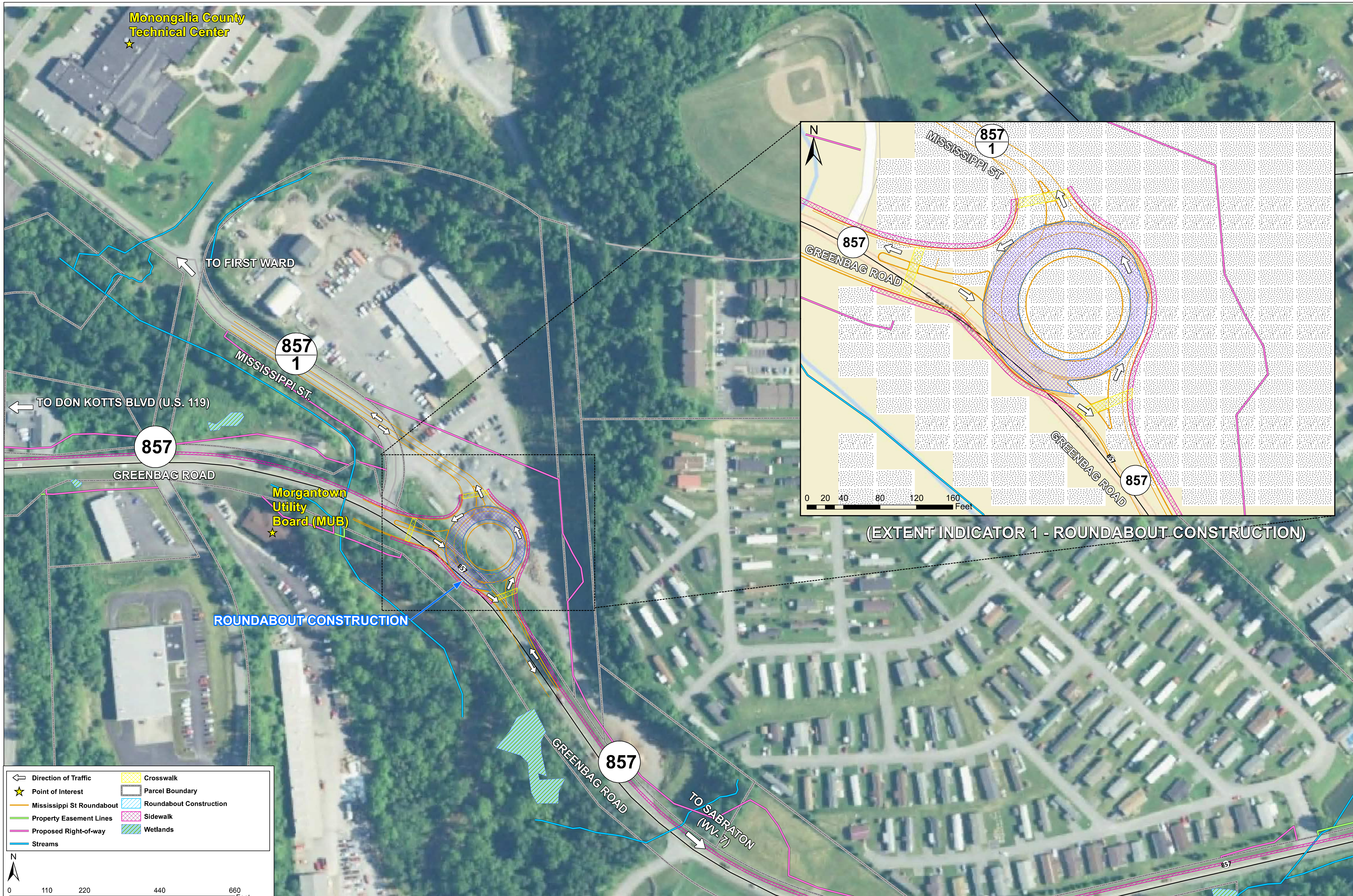
GREEN BAG ROAD PROJECT OVERVIEW

GREENBAG ROAD IMPROVEMENT PROJECT

GREENBAG PUBLIC MEETING - 04/16/2019



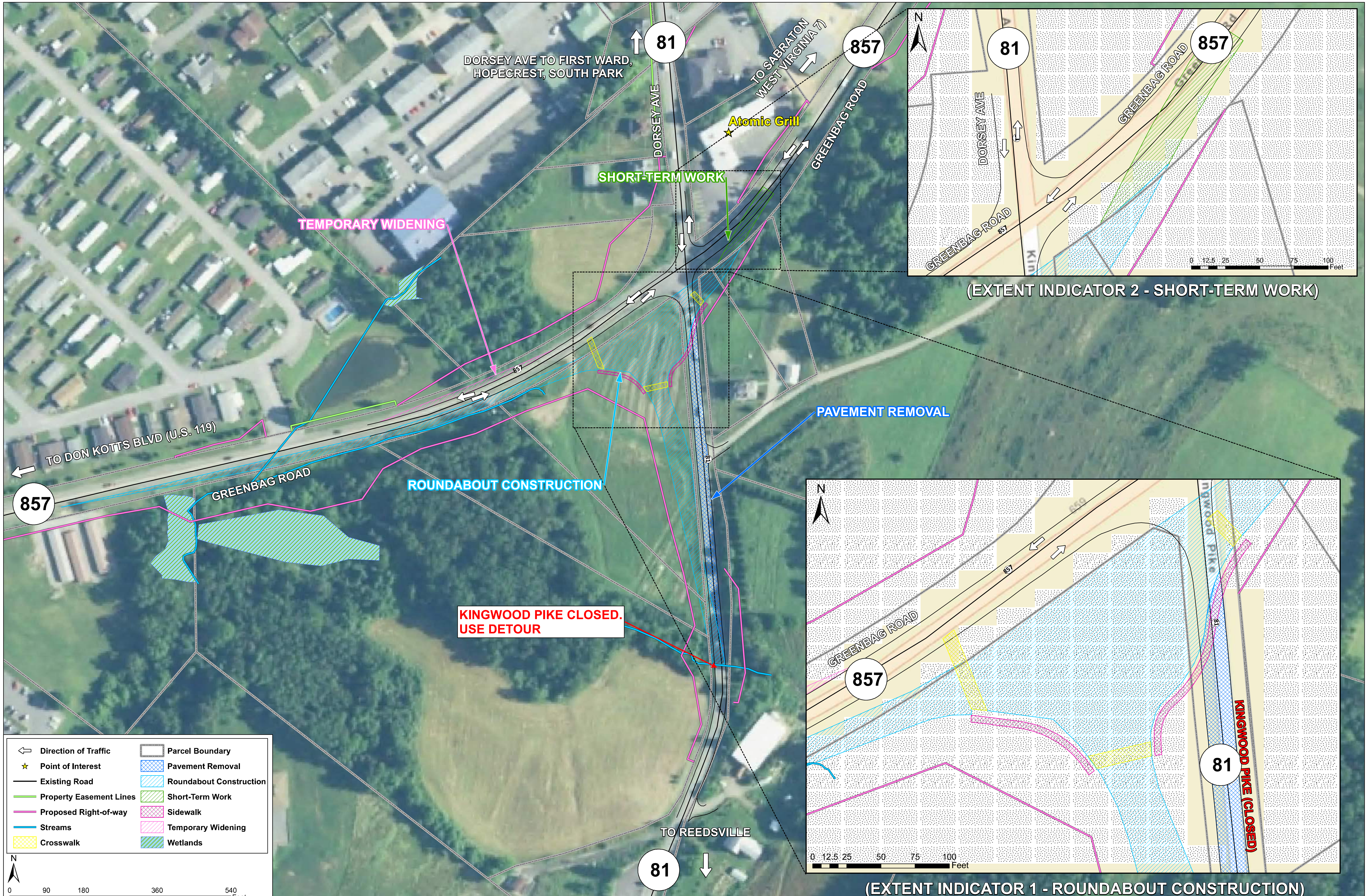
INTERSECTION OF GREENBAG ROAD (COUNTY ROAD 857) AND MISSISSIPPI ST



GREENBAG PUBLIC MEETING - 04/16/2019

STAGES 1-3

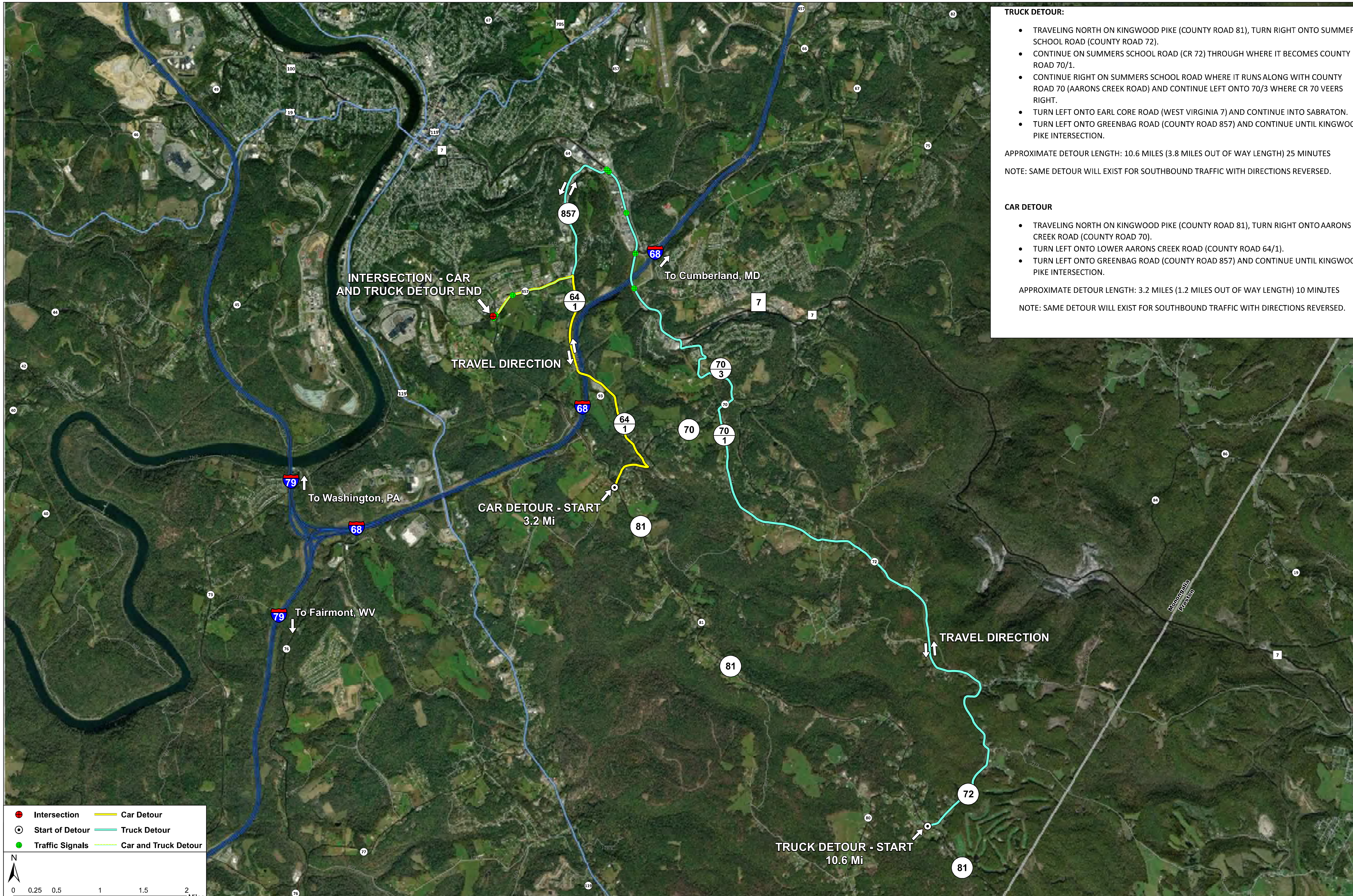
INTERSECTION OF GREENBAG ROAD (COUNTY ROAD 857) AND KINGWOOD PIKE (COUNTY ROAD 81)



TRAFFIC DETOUR

GREENBAG PUBLIC MEETING - 04/16/2019

FROM KINGWOOD PIKE (COUNTY ROAD 81) TO GREENBAG ROAD (COUNTY ROAD 857)



TRUCK DETOUR:

- TRAVELING NORTH ON KINGWOOD PIKE (COUNTY ROAD 81), TURN RIGHT ONTO SUMMERS SCHOOL ROAD (COUNTY ROAD 72).
- CONTINUE ON SUMMERS SCHOOL ROAD (CR 72) THROUGH WHERE IT BECOMES COUNTY ROAD 70/1.
- CONTINUE RIGHT ON SUMMERS SCHOOL ROAD WHERE IT RUNS ALONG WITH COUNTY ROAD 70 (AARONS CREEK ROAD) AND CONTINUE LEFT ONTO 70/3 WHERE CR 70 VEERS RIGHT.
- TURN LEFT ONTO EARL CORE ROAD (WEST VIRGINIA 7) AND CONTINUE INTO SABRATON.
- TURN LEFT ONTO GREENBAG ROAD (COUNTY ROAD 857) AND CONTINUE UNTIL KINGWOOD PIKE INTERSECTION.

APPROXIMATE DETOUR LENGTH: 10.6 MILES (3.8 MILES OUT OF WAY LENGTH) 25 MINUTES

NOTE: SAME DETOUR WILL EXIST FOR SOUTHBOUND TRAFFIC WITH DIRECTIONS REVERSED.

CAR DETOUR

- TRAVELING NORTH ON KINGWOOD PIKE (COUNTY ROAD 81), TURN RIGHT ONTO AARONS CREEK ROAD (COUNTY ROAD 70).
- TURN LEFT ONTO LOWER AARONS CREEK ROAD (COUNTY ROAD 64/1).
- TURN LEFT ONTO GREENBAG ROAD (COUNTY ROAD 857) AND CONTINUE UNTIL KINGWOOD PIKE INTERSECTION.

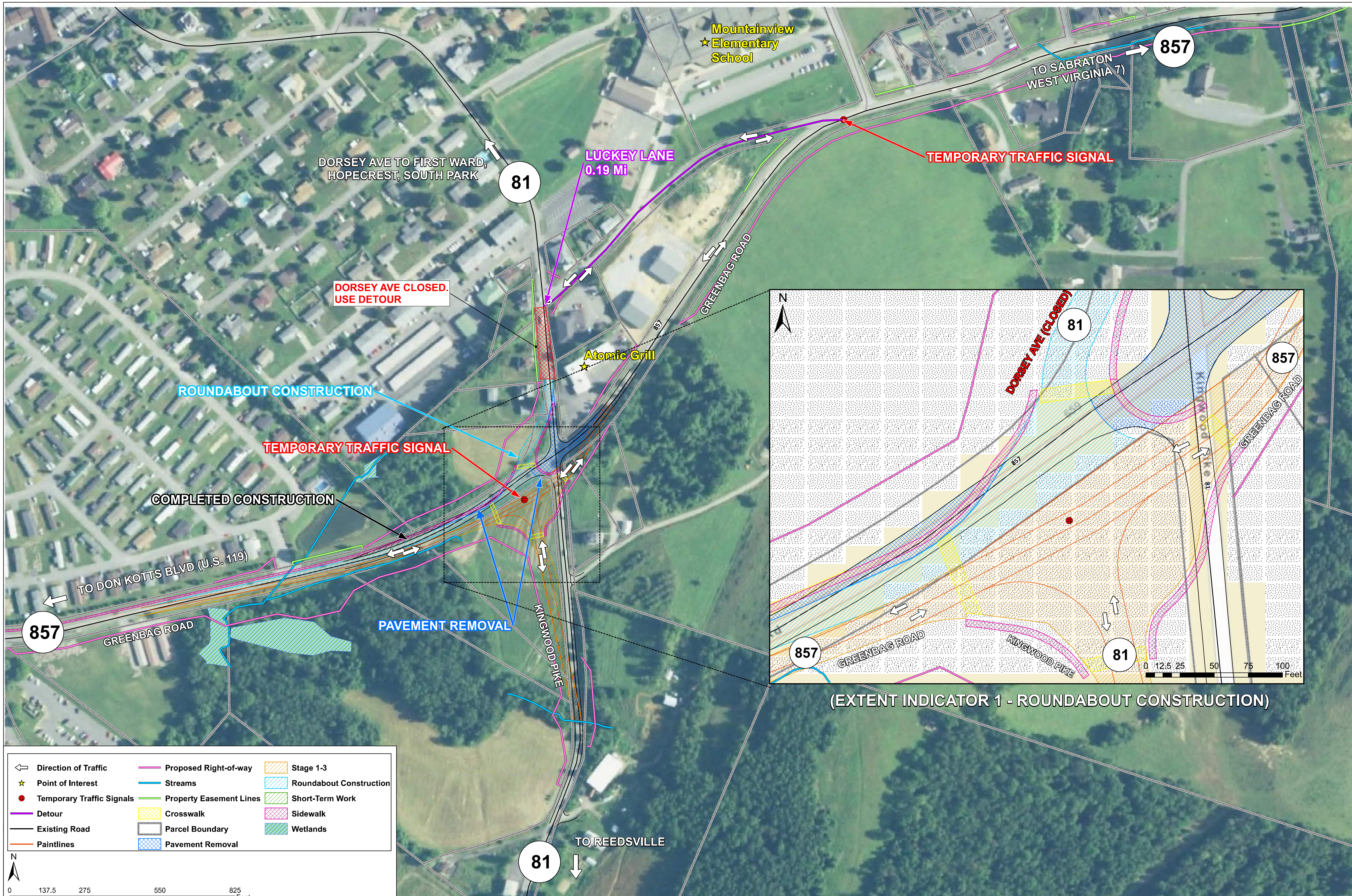
APPROXIMATE DETOUR LENGTH: 3.2 MILES (1.2 MILES OUT OF WAY LENGTH) 10 MINUTES

NOTE: SAME DETOUR WILL EXIST FOR SOUTHBOUND TRAFFIC WITH DIRECTIONS REVERSED.

GREENBAG PUBLIC MEETING - 04/16/2019

STAGE 4

INTERSECTION OF GREENBAG ROAD (COUNTY ROAD 857) AND KINGWOOD PIKE (COUNTY ROAD 81)



GREENBAG PUBLIC MEETING - 04/16/2019

INTERSECTION OF GREENBAG ROAD (COUNTY ROAD 857) AND KINGWOOD PIKE (COUNTY ROAD 81)

Greenbag Road Improvement Project

Appendix B

Aquatic Resources Report

Wetland and Surface Water Delineation Report

Prepared for the:

Greenbag Road Improvements Project
Federal - STP-0857(019)D
State – U331-857-0.67 00

City of Morgantown
Monongalia County, West Virginia

Prepared for:

The West Virginia Department of Transportation
Division of Highways
1334 Smith Street
Charleston, WV 25305-0430

Prepared by:

MARKOSKY
3689 Route 711
Ligonier, PA 15658

TABLE OF CONTENTS

INTRODUCTION

Representatives from The Markosky Engineering Group, Inc. conducted an aquatic resource investigation for the Greenbag Road Improvements Project on February 4, 2019, March 13, 2019, March 26, 2019, April 16, 2019, and October 8, 2019. The project area is located in The City of Morgantown, Monongalia County, West Virginia. The project involved improvements to Greenbag Road including shoulder and lane widening, the addition of a sidewalk in areas, intersection improvements with the addition of roundabout intersections where appropriate. The box culvert carrying Greenbag Road over Cobun Creek will be replaced with a wider box culvert to accommodate the widened roadway. Project mapping in Appendix A of this report includes a Project Location Map and an Aquatic Resources Map. The Aquatic Resources Map includes National Wetland Inventory (NWI) wetlands, delineated aquatic resources, mapped soil units, sample points, and photograph locations.

The project area is located within the Upper Monongahela watershed (HUC8: 05020003) and more specifically, the Cobun Creek-Monongahela watershed (HUC 12: 050200030307) and the Outlet Deckers Creek watershed (HUC12: 050200030202), which includes Aaron Creek. Neither Cobun Creek nor Aaron Creek are listed as Tier 3 streams by the West Virginia Department of Environmental Protection (WVDEP). Cobun Creek is listed as a Group 1-High Quality and State Mussel Stream by the West Virginia Department of Natural Resources (WVDNR); Aaron Creek is not. According to the *305(b) designated use and overall category designation*, both Cobun Creek and Aaron Creek are listed as Category 4a streams (waters that are impaired for one or more uses and have TMDL). According to West Virginia's 2016 *Integrated Water Quality Monitoring and Assessment Report* Section 303(d) list, Cobun Creek has a TMDL for fecal coliform and Aaron Creek has TMDLs for fecal coliform, iron, and CNA-Biological; therefore, both are characterized as Tier 1 Streams.

BACKGROUND INFORMATION FINDINGS

NATIONAL WETLAND INVENTORY (NWI)

A review of the United States Fish and Wildlife Service's Wetlands Mapper, NWI-V2 mapping determined that two (2) NWI wetland systems are present within the project study area and are depicted on the Aquatic Resources Map in Appendix A. These NWI wetland systems are identified as riverine, unknown perennial, unconsolidated bottom, permanently flooded (R5UBH) type wetland. During field investigations, Cobun Creek and Aaron Creek were present within these NWI wetlands.

WEB SOIL SURVEY

Review of the USDA Web Soil Survey database for Marion and Monongalia Counties, West Virginia identified ten (10) soil map units within the study area. Six (6) of these soil map units are identified as hydric soils. Table 1 identifies the soil map units within the project study area and their associated hydric ratings. Project study area soil map unit boundaries can be found on the Aquatic Resources Map in Appendix A.

TABLE 1
Project Area Soil Map Units

Soil Map Unit Abbreviation	Soil Map Unit Name	Hydric Soil	Hydric Rating
CkC	Clarksburg silt loam, 8 to 15 percent slopes	Yes	2
CkD	Clarksburg silt loam, 15 to 25 percent slopes	Yes	2
GuC	Gilpin-Culleoka-Upshur silt loams, 8 to 15 percent slopes	No	0
GuD	Gilpin-Culleoka-Upshur silt loams, 15 to 25 percent slopes	No	0
Lb	Lobdell silt loam, 0 to3 percent slopes, occasionally flooded	Yes	10
Lh	Lobdell-Holly silt loams	Yes	30
MgC	Monongahela silt loam, 8 to 15 percent slopes	Yes	5
U1	Udorthents, cut and fill	No	0
ZoB	Zoar silt loam, 3 to 8 percent slopes	Yes	5
ZoC	Zoar silt loam, 8 to 15 percent slopes	No	0

WETLAND IDENTIFICATION AND DELINEATION METHODOLOGY

The wetland identification and delineation investigation was conducted in accordance with the methodology described in the US Army Corps of Engineers (USACE) *Corps of Engineers Wetland Delineation Manual* (Technical Report Y-87-1) and the USACE *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region* (Version 2.0). The wetlands were classified utilizing the USFWS *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin et al., 1979).

Wetland functions were assessed in the field following procedures and protocols described in the United States Army Corps of Engineers (USACE), New England District's, *The Highway Methodology Workbook Supplement – Wetland Functions and Values, A Descriptive Approach* (NAEEP-360-1-30a) (1999). Wetland functional parameters evaluated include:

- Groundwater Recharge/Discharge (GRD)
- Floodflow Alteration (FA)
- Fish and Shellfish Habitat (FSH)
- Sediment/ Toxicant Retention (STR)
- Nutrient Removal (NR)
- Production Export (PE)
- Sediment/Shoreline Stabilization (SSS)
- Wildlife Habitat (Breeding, Wintering, Migration) (WH)
- Recreation (REC)
- Educational/Scientific Value (ESV)

- Uniqueness/Heritage (UH)
- Visual Quality/Aesthetics (VQA)
- Endangered Species Habitat (ESH)

WETLAND IDENTIFICATION FINDINGS

Utilizing the methodology described above, eight (8) palustrine wetlands were identified and delineated within the study area. Please see Table 2 below for a summary of wetland characteristics. The location of the wetlands within the project area can be found on the Aquatic Resource Map included in Appendix A of this report. Refer to Appendix B for dataforms containing detailed information about each wetland and upland area and refer to Appendix D to review photos of each resource. Additionally, an upland sample point (Roadside Drainage UPL) was recorded to demonstrate upland conditions present in a roadside drainage feature north of Greenbag Road and east of Mississippi Street. The location of this upland sample point within the project study area can be found on the Aquatic Resource Map included in Appendix A of this report. Refer to Appendix B for the dataform containing detailed information.

WL1 was classified as a 75% PEM / 25% PFO wetland located within the study area. Primary wetland hydrology indicators observed within this wetland include surface water, high water table, saturation, and oxidized rhizospheres on living roots. Wetland hydrology is present within WL1.

Dominant vegetation observed within this wetland includes boxelder (*Acer negundo*), arrowleaf tearthumb (*Polygonum sagittatum*), and wingstem (*Verbesina alternifolia*). The vegetation observed within this wetland meets the Dominance Test. Hydrophytic vegetation is dominant within this wetland.

The soil test pit identified two soil horizons from 0 to 18 inches. The first soil horizon (from 0 to 2 inches) displayed a soil matrix color of 10YR 3/2 (100%) and a silt loam texture. The second soil horizon (from 2 to 18 inches) displayed a soil matrix color of 10YR 4/2 (97%) with redox features the color of 7.5YR 5/8 (3%) and a silt loam texture. Hydric soil indicators observed within this wetland meet the description of Indicator F3: Depleted Matrix. The soil matrix colors and features indicate this is a hydric soil.

WL2 was classified as a 70% PEM / 30% PSS wetland located within in the study area. Primary wetland hydrology indicators observed within this wetland include surface water, high water table, saturation, and oxidized rhizospheres on living roots with geomorphic position as a secondary indicator. Wetland hydrology is present within WL2.

Dominant vegetation observed within this wetland includes silky dogwood (*Cornus amomum*) and rice cutgrass (*Leersia oryzoides*). The vegetation observed within this wetland meets the Rapid Test for Hydrophytic vegetation. Hydrophytic vegetation is dominant within this wetland.

The soil test pit identified one soil horizon from 0 to 18 inches. The soil horizon (from 0 to 18 inches) displayed a soil matrix color of 10YR 3/3 (80%) with redox features the color of 7.5YR 5/8 (20%) and a silt loam texture. Hydric soil indicators observed within this wetland meet the description of Indicator F8: Redox Depressions. The soil matrix colors and features indicate this is a hydric soil.

WL3 was classified as a 100% PEM wetland located within in the study area. Primary wetland hydrology indicators observed within this wetland include surface water, high water table, saturation, and water-stained leaves. Wetland hydrology is present within WL3.

Dominant vegetation observed within this wetland includes black willow (*Salix nigra*) and soft rush (*Juncus effusus*). The vegetation observed within this wetland meets the Rapid Test for Hydrophytic vegetation. Hydrophytic vegetation is dominant within this wetland.

The soil test pit identified one soil horizon from 0 to 18 inches. The soil horizon (from 0 to 18 inches) displayed a soil matrix color of 10YR 3/1 (70%) with redox features the color of 7.5YR 5/8 (30%) and a silt loam texture. Hydric soil indicators observed within this wetland meet the description of Indicator F6: Redox Dark Surface. The soil matrix colors and features indicate this is a hydric soil.

WL4 was classified as a 100% PEM wetland located within in the study area. Primary wetland hydrology indicators observed within this wetland include surface water, high water table, saturation, and water-stained leaves with drainage patterns as a secondary indicator. Wetland hydrology is present within WL4.

Dominant vegetation observed within this wetland includes multiflora rose (*Rosa multiflora*), broadleaf cattail (*Typha latifolia*), and soft rush. The vegetation observed within this wetland meets the Dominance Test. Hydrophytic vegetation is dominant within this wetland.

The soil test pit identified one soil horizon from 0 to 18 inches. The soil horizon (from 0 to 18 inches) displayed a soil matrix color of 2.5Y 3/2 (70%) with redox features the color of 10YR 5/8 (30%) and a silt loam texture. Hydric soil indicators observed within this wetland meet the description of Indicator F6: Redox Dark Surface. The soil matrix colors and features indicate this is a hydric soil.

WL5 was classified as a 100% PEM wetland located within in the study area. Primary wetland hydrology indicators observed within this wetland include surface water, high water table, saturation, and water-stained leaves with drainage patterns as a secondary indicator. Wetland hydrology is present within WL5.

The only dominant vegetation observed within this wetland was broadleaf cattail. The vegetation observed within this wetland meets the Rapid Test for Hydrophytic vegetation. Hydrophytic vegetation is dominant within this wetland.

The soil test pit identified one soil horizon from 0 to 18 inches. The soil horizon (from 0 to 18 inches) displayed a soil matrix color of 2.5Y 3/2 (70%) with redox features the color of 10YR 5/8 (30%) and a silt loam texture. Hydric soil indicators observed within this wetland meet the description of Indicator F6: Redox Dark Surface. The soil matrix colors and features indicate this is a hydric soil.

WL6 was classified as an 80% PFO / 20% PEM wetland located within in the study area. Primary wetland hydrology indicators observed within this wetland include surface water, high water table, and saturation with drainage patterns and geomorphic position as secondary indicators. Wetland hydrology is present within WL6.

Dominant vegetation observed within this wetland includes boxelder, American sycamore (*Platanus occidentalis*), multiflora rose, moneywort (*Lysimachia nummularia*) and rice cutgrass. The vegetation observed within this wetland meets the Dominance Test. Hydrophytic vegetation is dominant within this wetland.

The soil test pit identified one soil horizon from 0 to 18 inches. The soil horizon (from 0 to 18 inches) displayed a soil matrix color of 2.5Y 5/2 (60%) with redox features the color of 10YR 5/6 (40%) and a silt loam texture. Hydric soil indicators observed within this wetland meet the description of Indicator F3: Depleted Matrix. The soil matrix colors and features indicate this is a hydric soil.

WL7 was classified as a 75% PEM / 25% PFO wetland located within the study area. Primary wetland hydrology indicators observed within this wetland include surface water, high water table, and saturation with drainage patterns and geomorphic position as secondary indicators. Wetland hydrology is present within WL7.

Dominant vegetation observed within this wetland includes flowering dogwood (*Cornus florida*), black cherry (*Prunus serotina*), multiflora rose, sassafras (*Sassafras albidum*), European privet (*Ligustrum vulgare*), rice cutgrass, soft rush, and woolgrass (*Scirpus cyperinus*). The vegetation observed within this wetland meets the Prevalence Index Test. Hydrophytic vegetation is dominant within this wetland.

The soil test pit identified two soil horizons from 0 to 18 inches. The first soil horizon (from 0 to 9 inches) displayed a soil matrix color of 10YR 3/2 (70%) with redox features the color of 7.5YR 5/8 (30%) and a clay loam texture. The second soil horizon (from 9 to 18 inches) displayed a soil matrix color of 2.5Y 3/1 (50%) with redox features the color of 10YR 5/8 (50%) and a clay loam texture. Hydric soil indicators observed within this wetland meet the description of Indicator F6: Redox Dark Surface. The soil matrix colors and features indicate this is a hydric soil.

WL8 was classified as a 100% PEM wetland located within the study area. Primary wetland hydrology indicators observed within this wetland include surface water and saturation. Wetland hydrology is present within WL8.

The only dominant vegetation observed within this wetland was broadleaf cattail. The vegetation observed within this wetland meets the Rapid Test for Hydrophytic vegetation. Hydrophytic vegetation is dominant within this wetland.

The soil test pit identified two soil horizons from 0 to 18 inches. The first soil horizon (from 0 to 4 inches) displayed a soil matrix color of 10YR 3/2 (100%) and a silt loam texture. The second soil horizon (from 4 to 18 inches) displayed a soil matrix color of 10YR 4/1 (80%) with redox features the color of 7.5YR 5/8 (20%) and a clay loam texture. Hydric soil indicators observed within this wetland meet the description of Indicator F3: Depleted Matrix. The soil matrix colors and features indicate this is a hydric soil.

Project area wetlands were assessed using New England District's Functional Evaluation Forms. Please refer to Appendix C and Table 2 below for more detailed information on the functions provided by each wetland.

TABLE 2
Wetland Summary Table

Wetland ID	Classification	Size (acres)	Wetland Functions
Wetland WL1	75% PEM / 25% PFO	0.52	• Groundwater Recharge/Discharge • Floodflow Alteration • Sediment/Toxicant Retention • Nutrient Removal • Production Export • Wildlife Habitat (B,W,M)
Wetland WL2	70% PEM / 30% PSS	0.05	• Groundwater Recharge/Discharge • Floodflow Alteration • Sediment/Toxicant Retention • Nutrient Removal • Production Export • Sediment/Shoreline Stabilization • Wildlife Habitat (B,W,M)
Wetland WL3	100% PEM	0.04	• Floodflow Alteration • Sediment/Toxicant Retention • Nutrient Removal • Production Export • Wildlife Habitat (B,W,M)
Wetland WL4	100% PEM	0.04	• Groundwater Recharge/Discharge • Sediment/Toxicant Retention • Nutrient Removal • Production Export • Wildlife Habitat (B,W,M)
Wetland WL5	100% PEM	0.007	• Groundwater Recharge/Discharge • Sediment/Toxicant Retention • Nutrient Removal • Production Export • Wildlife Habitat (B,W,M)

Wetland ID	Classification	Size (acres)	Wetland Functions
Wetland WL6	80% PFO / 20% PEM	0.29	• Groundwater Recharge/Discharge • Floodflow Alteration • Sediment/Toxicant Retention • Nutrient Removal • Production Export • Sediment/Shoreline Stabilization • Wildlife Habitat (B,W,M)
Wetland WL7	75% PEM / 25% PFO	0.19	• Groundwater Recharge/Discharge • Floodflow Alteration • Sediment/Toxicant Retention • Nutrient Removal • Production Export • Sediment/Shoreline Stabilization • Wildlife Habitat (B,W,M)
Wetland WL8	100 % PEM	0.06	• Groundwater Recharge/Discharge • Floodflow Alteration • Sediment/Toxicant Retention • Nutrient Removal • Production Export • Wildlife Habitat (B,W,M)

SURFACE WATER IDENTIFICATION AND DELINEATION METHODOLOGY

The project study area surface waters were classified as either ephemeral, intermittent, or perennial according to the definitions set forth in *Title 46 and the West Virginia Surface Mining Rules*. Field investigations were undertaken to document the physical characteristics of the evaluated surface waters and the presence or absence of fish species. A cursory characterization of the existing macroinvertebrate community was conducted by physically turning suitable in-stream substrates and identifying the benthic macroinvertebrates observed to the level of order. All macroinvertebrates were identified in the field using *Freshwater Macroinvertebrates of North America* (Peckarsky, et al, 1990). A detailed macroinvertebrate survey was not conducted for the project.

The surface water investigation consisted of reviewing existing information and field investigations. Existing information utilized for this study included: United States Geological Survey (USGS), Monongalia County mosaic, W.VA., 7.5 minute topographical quadrangle; West Virginia *Title 46 Legislative Rule, Environmental Quality Board, Series 1, Requirements Governing Water Quality Standards (46 Code of State Regulations [CSR] 1)*; and the West Virginia Division of Natural Resources (WVDNR) *West Virginia Trout Stocking Schedule*.

The following are the definitions for the types of streams, as defined in *Title 46 and the West Virginia Surface Mining Rules*:

- *Perennial Streams* – Streams or a portion of a stream that flow(s) continuously.
- *Intermittent Streams* – Streams which have no flow during sustained periods of no precipitation, and which do not support aquatic life whose life history requires residence in flowing waters for a continuous period of at least six months.
- *Ephemeral (or Wet Weather) Streams* – Streams that flow only in direct response to precipitation or whose channels are at all times above the water table.

SURFACE WATER IDENTIFICATION FINDINGS

Utilizing the methodology described above, thirteen (13) jurisdictional watercourses were identified and investigated within the project study area. Please see Table 3 below for a summary of stream characteristics. Two sample points were collected on STR10 in order to adequately characterize the differences observed between the upstream (US Point) and downstream (DS Point) reaches. The location of the streams within the project area can be found on the Aquatic Resource Map included in Appendix A of this report. Refer to Appendix B for dataforms containing detailed information about each resource and refer to Appendix D to review photos of each resource.

STR 1 (Cobun Creek) is a perennial stream located within the project area. Cobun Creek flows in a northwestern direction through the project area. The NWI wetland system, R5UBH, is associated with this stream. Bank width for Cobun Creek is approximately 25-feet and the channel depth is 4-feet. Cobun Creek had a water depth of 1-foot and a water width of 15-feet at the time of the investigation. The substrate in the stream consists of a mixture of boulders, cobble, gravel, and sand. The true fly (*Diptera)* and leech *(Hirudinea)* macroinvertebrate orders were observed during the field view. Unidentified fin fish species were observed within Cobun Creek.

STR 2 is a perennial stream located within the project area. STR 2 flows in a southwestern direction through the project area to its confluence with Cobun Creek. The bank width for STR 2 is approximately 10-feet and the channel depth is 4-feet. STR 2 had a water depth of 1-foot and a water width of 6-feet at the time of the investigation. The substrate in the stream consists of a mixture of boulders, clay, cobble, detritus, gravel, muck, and silt. The true fly and leech macroinvertebrate orders were observed during the field view. No fin fish species were observed at the time of investigation.

STR 3 is a perennial stream located within the project area. STR 3 flows in a southwestern direction through the project area to its confluence with Cobun Creek. The bank width for STR 3 is approximately 3-feet and the channel depth is 1-foot. STR 3 had a water depth of 4-inches and a water width of 1.5-feet at the time of the investigation. The substrate in the stream consists of a mixture of cobble, detritus, gravel, sand, and silt. The true fly and caddisfly (*Trichoptera*) macroinvertebrate orders were observed during the field view. No fin fish species were observed at the time of investigation.

STR 4 is an intermittent stream located within the project area. STR 4 flows in a southwestern direction through the project area to its confluence with Cobun Creek. The bank width for STR 4 is approximately 3-feet and the channel depth is 8-inches. STR 4 had a water depth of 4-inches and a water width of 2-feet at the time of the investigation. The substrate in the stream consists of a mixture of detritus, gravel, muck, sand, and silt. The caddisfly and snail (*Gastropoda*) macroinvertebrate orders were observed during the field view. No fin fish species were observed at the time of investigation.

STR 5 is a perennial stream located within the project area. STR 5 flows in a southeastern direction through the project area to its confluence with Cobun Creek. The bank width for STR 5 is approximately 5-feet and the channel depth is 1-foot. STR 5 had a water depth of 3-inches and a water width of 2.5-feet at the time of the investigation. The substrate in the stream consists of a mixture of boulders, cobble, detritus, gravel, muck, sand, and silt. The true fly and snail macroinvertebrate orders were observed during the field view. No fin fish species were observed at the time of investigation.

STR 6 is a perennial stream located within the project area. STR 6 flows in a southwestern direction through the project area to its confluence with Cobun Creek. The bank width for STR 6 is approximately 4-feet and the channel depth is 3-feet. STR 6 had a water depth of 3-inches and a water width of 2.5-feet at the time of the investigation. The substrate in the stream consists of a mixture of clay, cobble, detritus, gravel, muck, sand, and silt. The leech macroinvertebrate order was observed during the field view. No fin fish species were observed at the time of investigation.

STR 7 is a perennial stream located within the project area. STR 7 flows in a south-southwestern direction through the project area to its confluence with Cobun Creek (outside of the natural resources area of investigation). The bank width for STR 7 is approximately 2-feet and the channel depth is 1-foot. STR 7 had a water depth of 1-inch and a water width of 1.5-feet at the time of the investigation. The substrate in the stream consists of a mixture of detritus, muck, sand, and silt. The flatworm (*Planariidae*) was the only macroinvertebrate family observed during the field view. No fin fish species were observed at the time of investigation.

STR 8 is an intermittent stream located within the project area. STR 8 flows in a southwestern direction through the project area to its confluence with STR 7. The bank width for STR 8 is approximately 5-feet and the channel depth is 1-foot. STR 8 had a water depth of 2-inches and a water width of 1-foot at the time of the investigation. The substrate in the stream consists of a mixture of cobble, detritus, gravel, muck, sand, and silt. The caddisfly macroinvertebrate order was observed during the field view. No fin fish species were observed at the time of investigation.

STR 9 is a perennial stream located within the project area. STR 9 flows in a northwestern direction through the project area to its confluence with STR 7. The bank width for STR 9 is approximately 1-foot and the channel depth is 1.5-feet. STR 9 had a water depth of 1-inch and a water width of 6-inches at the time of the investigation. The substrate in the stream consists of a mixture of cobble, gravel, and silt. The caddisfly and sowbug (*Isopoda*) macroinvertebrate orders were observed during the field view. No fin fish species were observed at the time of investigation.

STR 10 (US Point) is a perennial stream located within the project area. STR 10 (US Point) flows in an eastern direction through the project area to its confluence with Aaron Creek. The bank width for STR 10 (US Point) is approximately 6-feet and the channel depth is 1-foot. STR 10 (US Point) had a water depth of 2-inches and a water width of 3-feet at the time of the investigation. The substrate in the stream consists of a mixture of boulders, cobble, gravel, and sand. The caddisfly and snail macroinvertebrate orders were observed during the field view. No fin fish species were observed at the time of investigation.

STR 10 (DS Point) is a perennial stream located within the project area. STR 10 (DS Point) flows in a northeastern direction through the project area to its confluence with Aaron Creek. The bank width for STR 10 (DS Point) is approximately 8-feet and the channel depth is 1-foot on the left descending bank and 2-feet on the right descending bank. STR 10 (DS Point) had a water depth of 2-inches and a water width of 5-feet at the time of the investigation. The substrate in the stream consists of a mixture of cobble, gravel, sand, and silt. The caddisfly was the only macroinvertebrate order observed during the field view. No fin fish species were observed at the time of investigation.

STR 11 is a perennial stream located within the project area. STR 11 flows in a northeastern direction through the project area to its confluence with STR 10. The bank width for STR 11 is approximately 3-feet and the channel depth is 3-feet. STR 11 had a water depth of 1.5-inches and a water width of 2-feet at the time of the investigation. The substrate in the stream consists of a mixture of boulders, cobble, gravel, sand, and silt. The caddisfly and snail macroinvertebrate orders were observed during the field view. No fin fish species were observed at the time of investigation.

STR 12 (Aaron Creek) is a perennial stream located within the project area. Aaron Creek flows in a northern direction through the project area to its confluence with Deckers Creek. The bank width for Aaron Creek is approximately 30-feet and the channel depth is 15-inches. Aaron Creek had a water depth of 8-inches and a water width of 25-feet at the time of the investigation. The substrate in the stream consists of a mixture of boulders, cobble, gravel, and sand. The caddisfly and stonefly (*Plecoptera*) macroinvertebrate orders were observed during the field view. No fin fish species were observed at the time of investigation.

STR 13 is an intermittent stream located within the project area. STR 13 flows in a northwestern direction through the project area to its confluence with Cobun Creek. The bank width for STR 13 is approximately 4-feet and the channel depth is 1.5-feet. STR 13 had a water depth of 0.5-inches and a water width of 4-inches at the time of the investigation. The substrate in the stream consists of a mixture of boulders, clay, cobble, detritus, gravel, and sand. The caddisfly macroinvertebrate order and the flatworm macroinvertebrate family were observed during the field view. No fin fish species were observed at the time of investigation.

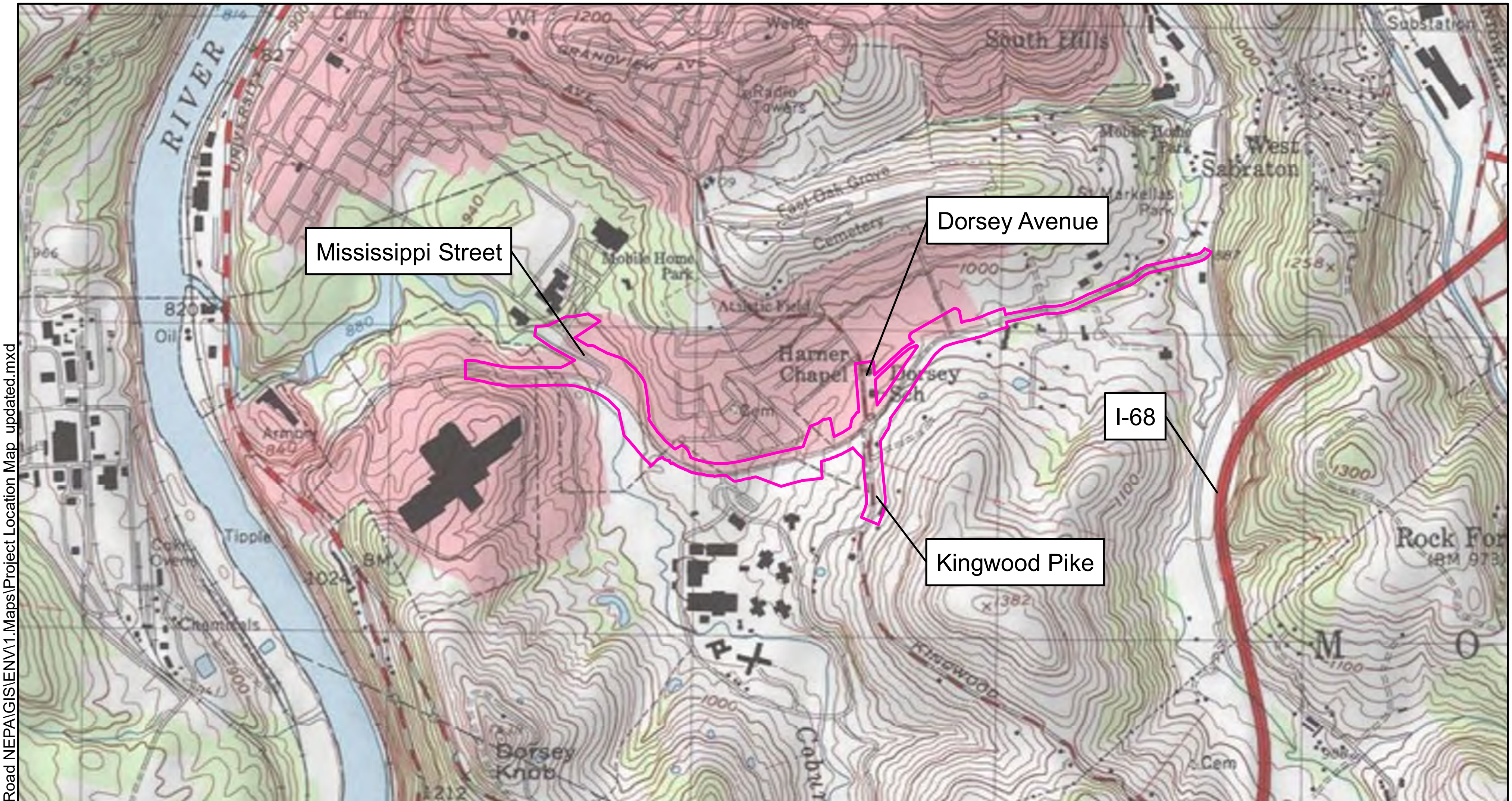
Project area streams were assessed in accordance with the methodology outlined in the U.S. Army Corps of Engineers *Operational Draft Regional Guidebook for the Functional Assessment of High-Gradient Headwater Streams and Low-Gradient Perennial Streams in Appalachia* (ERDC/EL TR-17-1) (Summers et. al, 2017). While the flow regime of each project area stream was determined using definitions set forth in *Title 46 and the West Virginia Surface Mining Rules,* as indicated above, the High-Gradient Headwater Stream in Appalachia Field Datasheet was used to evaluate streams with greater than 4% channel slope, and the Low-Gradient Perennial Streams in Appalachia Field Data Sheet was used to evaluate streams with less than 4% channel slope. Please refer to Appendix C for more detailed information regarding these assessments.

TABLE 3:
Stream Summary Table

Stream ID	Stream Name	Stream Type	Total Stream Length (feet)	Culverted Stream Length (feet)
STR 1	Cobun Creek	Perennial	1,518	75
STR 2	UNT to Cobun Creek	Perennial	413	-
STR 3	UNT to Cobun Creek	Perennial	332	-

Stream ID	Stream Name	Stream Type	Total Stream Length (feet)	Culverted Stream Length (feet)
STR 4	UNT to Cobun Creek	Intermittent	193	-
STR 5	UNT to Cobun Creek	Perennial	182	-
STR 6	UNT to Cobun Creek	Perennial	530	73
STR 7	UNT to Cobun Creek	Perennial	868	391 (122ft culverted; 269ft subsurface)
STR 8	UNT to Cobun Creek	Intermittent	588	27
STR 9	UNT to Cobun Creek	Perennial	322	50
STR 10 (US)	UNT to Aaron Creek	Perennial	2121	482
STR 10 (DS)	UNT to Aaron Creek	Perennial		
STR 11	UNT to Aaron Creek	Perennial	290	319
STR 12	Aaron Creek	Perennial	289	44
STR 13	UNT to Cobun Creek	Intermittent	214	114

APPENDIX A
Project Mapping



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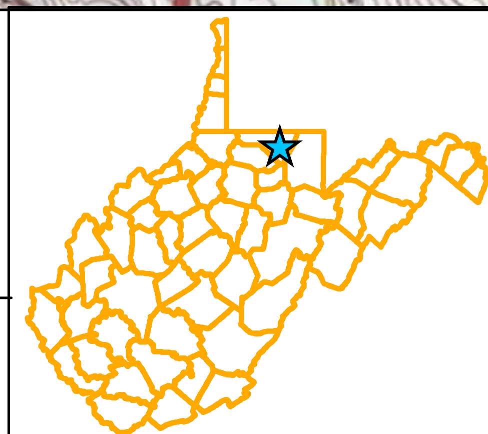
S

West Virginia Division of Highways
Federal Project STP-0857(019)D
State Project U331-857-0.67 00
Greenbag Road Improvement
Project Location Map

Topography Source: National Geographic Society (NGS)

Natural Resources Area of Investigation



0 1,000 2,000 4,000 Feet

0 350 700 1,400 Meters

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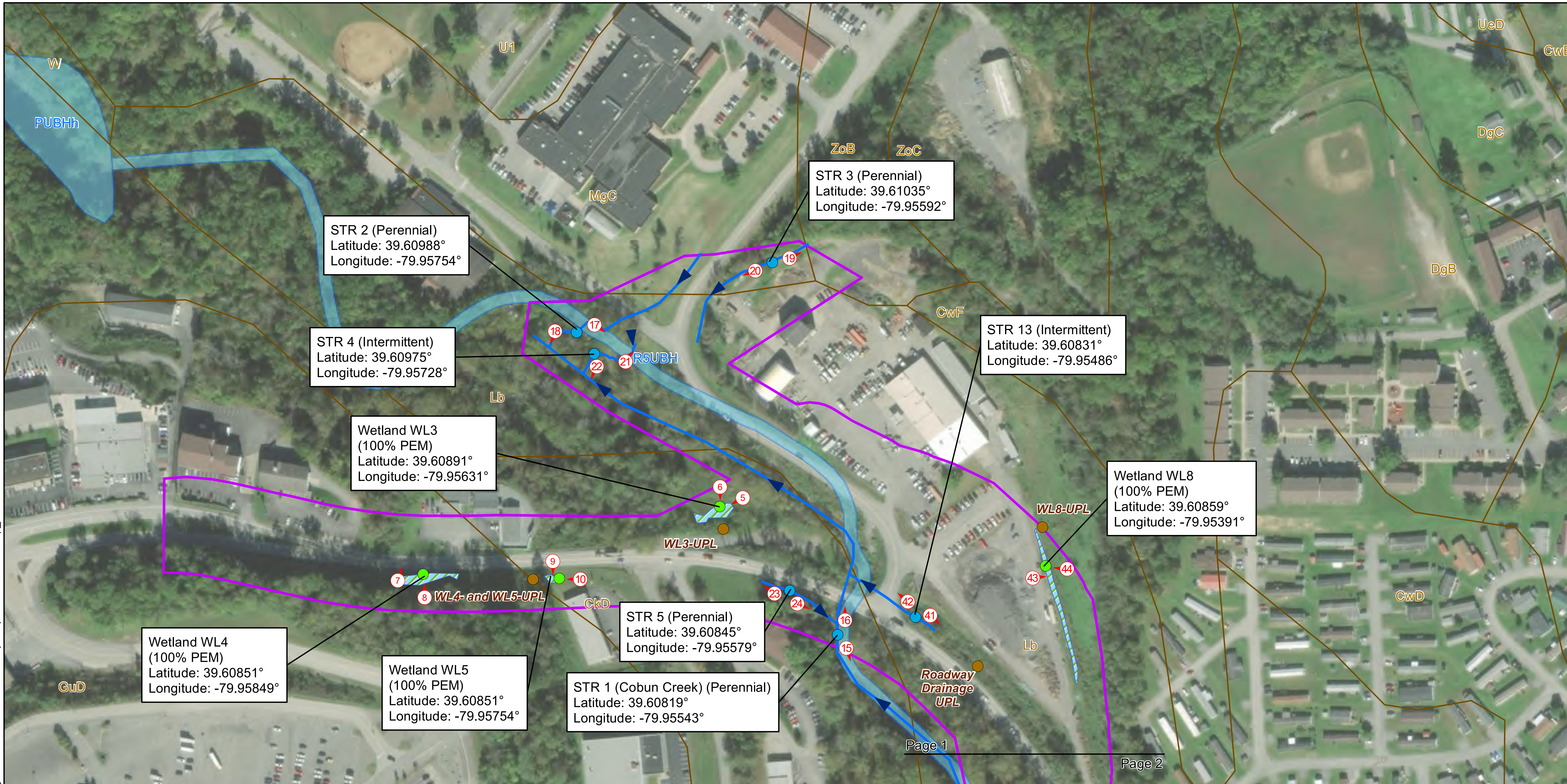
Date: 11/1/2019



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Greenbag Road Improvement Project
West Virginia Division of Highways
Monongalia County, West Virginia
USGS Quadrangle - Morgantown South
Aquatic Resource Map
Page 1 of 4

Federal Project STP-0857(019)D
State Project U331-857-0.67 00

Aerial Photography Source:
World Imagery (ESRI)

0 100 200 400 Feet

0 25 50 100 Meters

Stream	Photo Locations
Wetland	Natural Resources Area of Investigation
Wetland Sample Point	National Wetland Inventory
Stream Sample Point	Soils
Upland Sample Point	

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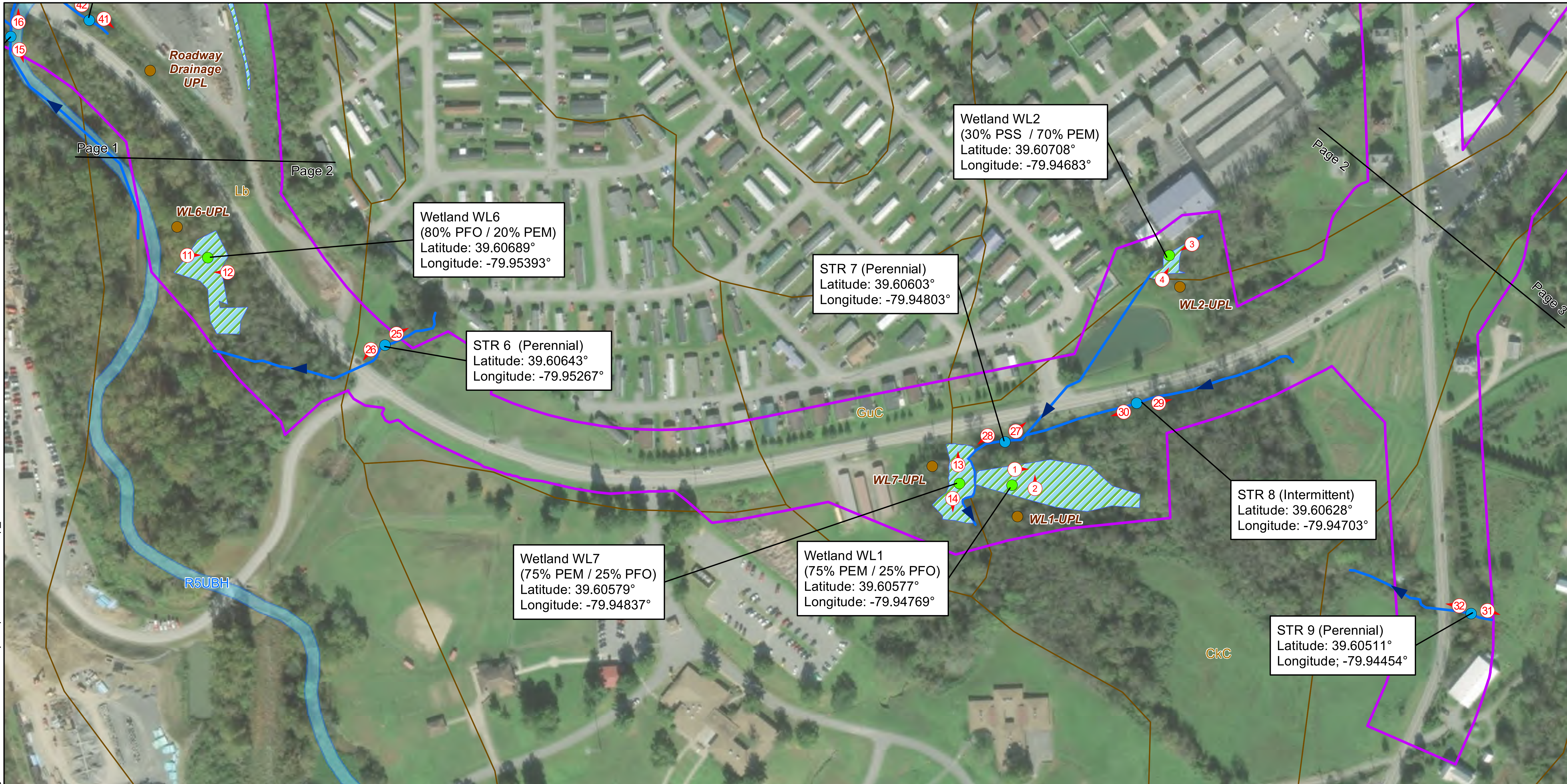
Date: 4/16/2020



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Greenbag Road Improvement Project
West Virginia Division of Highways
Monongalia County, West Virginia
USGS Quadrangle - Morgantown South
Aquatic Resource Map
Page 2 of 4

Federal Project STP-0857(019)D
State Project U331-857-0.67 00

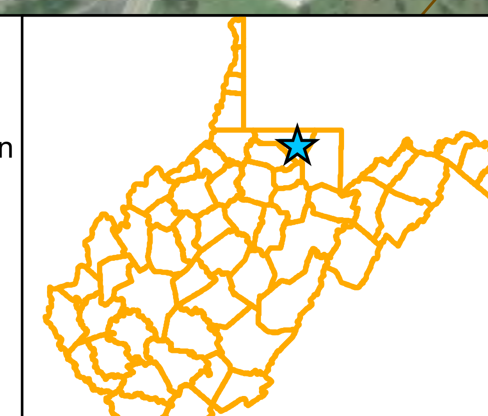
Aerial Photography Source:
World Imagery (ESRI)

N W E S

0 100 200 400 Feet

0 25 50 100 Meters

Stream
Wetland
Wetland Sample Point
Stream Sample Point
Upland Sample Point
Photo Locations
Natural Resources Area of Investigation
National Wetland Inventory
Soils



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Date: 4/16/2020

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Greenbag Road Improvement Project
West Virginia Division of Highways
Monongalia County, West Virginia
USGS Quadrangle - Morgantown South
Aquatic Resource Map
Page 3 of 4

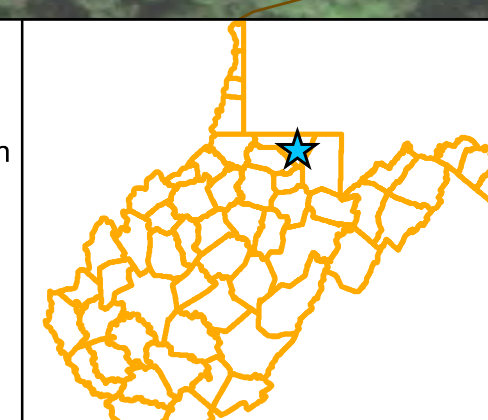
Federal Project STP-0857(019)D
State Project U331-857-0.67 00

Aerial Photography Source:
World Imagery (ESRI)

0 100 200 400 Feet

0 25 50 100 Meters

- Stream
- Wetland
- Wetland Sample Point
- Stream Sample Point
- Upland Sample Point
- Photo Locations
- Natural Resources Area of Investigation
- National Wetland Inventory
- Soils



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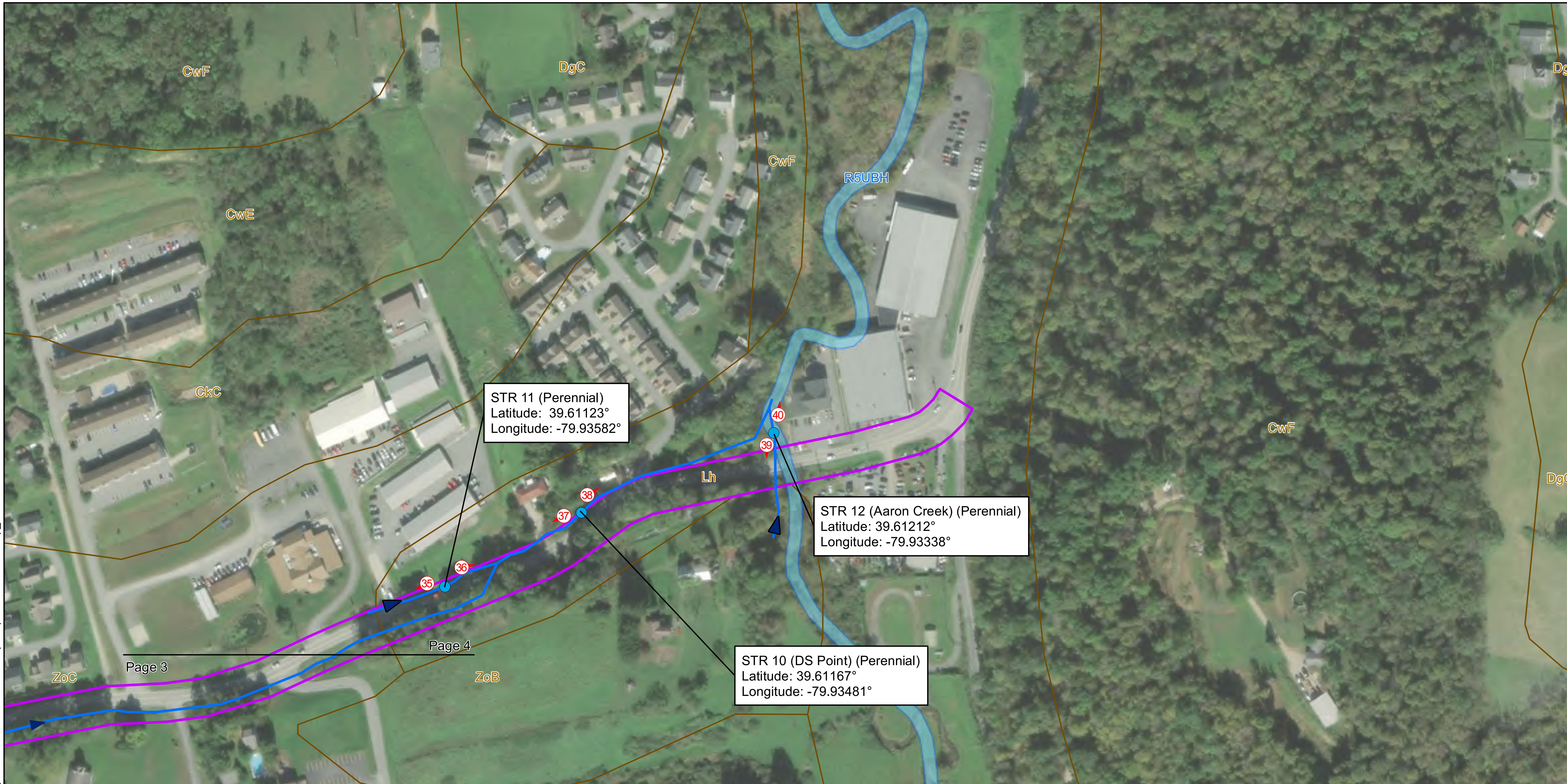

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Greenbag Road Improvement Project
West Virginia Division of Highways
Monongalia County, West Virginia
USGS Quadrangle - Morgantown South
Aquatic Resource Map
Page 4 of 4

Federal Project STP-0857(019)D
State Project U331-857-0.67 00

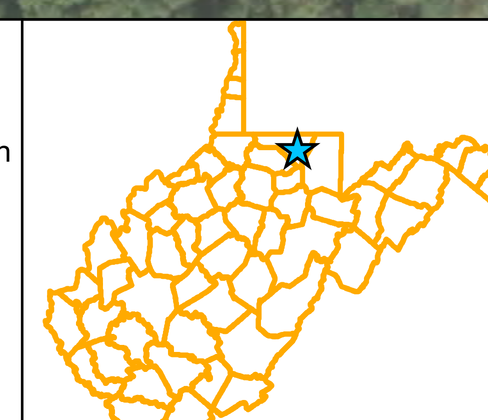
Aerial Photography Source:
World Imagery (ESRI)

0 100 200 400 Feet

0 25 50 100 Meters

N W E S

- Stream
- Wetland
- Wetland Sample Point
- Stream Sample Point
- Upland Sample Point
- Photo Locations
- Natural Resources Area of Investigation
- National Wetland Inventory
- Soils



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Date: 11/1/2019

APPENDIX B
Wetland and Stream Data Forms

WETLAND DETERMINATION DATA FORM – Eastern Mountain and Piedmont

Project/Site: Greenbag Road | City/County: City of Morgantown/ Monongalia | Sampling Date: 2.4.19

Applicant/Owner: West Virginia Department Of Highways | State: West Virginia | Sampling Point: WL1

Investigator(s): JMG, JAR | Section, Township, Range: Morgan

Landform (hillslope, terrace, etc. hillslope | Local relief (concave, convex, none): convex

Slope (%): 5% | Lat 39.60577° | Long: -79.94769°

Subregion (LRR or MLRA): LRR Central and Eastern Mountains | Datum: North American Datum 1983 (NAD83)

Soil Map Unit Name: CkC | NWI classification: 75% PEM/25% PFO

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ___ (If no, explain in Remarks.)

Are Vegetation N Soil N Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No ___

Are Vegetation N Soil N Hydrology N naturally problematic? (if needed explain any answers in Remarks)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc

Hydrophytic Vegetation Present?	Yes X	No ___	**Is the Sampled Area within a Wetland?** **Yes** X **No** ___
Hydric Soil Present?	Yes X	No ___	
Wetland Hydrology Present?	Yes X	No ___	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- X Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations

Surface Water Present?	Yes X	No ___	Depth (inches) 0.5"
Water Table Present?	Yes X	No ___	Depth (inches) 1"
Saturation Present? (Including capillary fringe)	Yes X	No ___	Depth (inches) Surface

Wetland Hydrology Present **Yes** X **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point WL1

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer saccharinum* - silver maple	3	No	FACW
2. *Acer negundo* - boxelder	50	Yes	FAC
3.			
4.			
5.			
6.			
7.			
	53	= Total Cover	
50% of Total Cover:	26.5	20% of Total Cover:	10.6
Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0	= Total Cover	
50% of Total Cover:	0	20% of Total Cover:	0
Herb Stratum (Plot size: 5')			
1. *Polygonum sagittatum* - arrowleaf tearthumb	40	Yes	OBL
2. *Leersia oryzoides* - ricecut grass	15	No	OBL
3. *Verbesina alternifolia* - wingstem	30	Yes	FAC
4. *carex species* - sedge species*	10*	-	-
5. *graminae species* - grass species*	45*	-	-
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	85	= Total Cover	
50% of Total Cover:	42.5	20% of Total Cover:	17
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
6			
	0	= Total Cover	
50% of Total Cover:	0	20% of Total Cover:	0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals	(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)

*Since the *Gramineae* and *Carex* species could not be positively identified due to lack of distinguishing vegetative characteristics, they were not included in the hydrophytic tests

SOIL

Sampling Point WL1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators).

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 3/2	100	-	-	-	-	Silt Loam	
2-18	10YR 4/2	97	7.5YR 5/8	3	C	M	Silt Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators

____ Histosol (A1)
____ Histic Epipedon (A2)
____ Black Histic (A3)
____ Hydrogen Sulfide (A4)
____ Stratified Layers (A5)
____ 2 cm Muck (A10) **(LRR N)**
____ Depleted Below Dark Surface (A11)
____ Thick Dark Surface (A12)
____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____ Sandy Gleyed Matrix (S4)
____ Sandy Redox (S5)
____ Stripped Matrix (S6)

____ Dark Surface (S7)
____ Polyvalue Below Surface (S8) (**MLRA 147, 148)**
____ Thin Dark Surface (S9) (**MLRA 147, 148)**
____ Loamy Gleyed Matrix (F2)
_X_ Depleted Matrix (F3)
____ Redox Dark Surface (F6)
____ Depleted Dark Surface (F7)
____ Redox Depressions (F8)
____ Iron-Manganese Masses (F12) (**LRR N, MLRA 136)**
____ Umbric Surface (F13) (**MLRA 136, 122)**
____ Piedmont Floodplain Soils (F19) (**MLRA 148**)
____ Red Parent Material (F21)(**MLRA127,147**)

Indicators for Problematic Hydric Soils[3]:

____ 2 cm Muck (A10) (**MLRA 147**)
____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____ Very Shallow Dark Surface (TF12)
____ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed)
Type:__________
Depth (inches):__________

Hydric Soil Present? Yes _X_ No ____

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountain and Piedmont

Project/Site: Greenbag Road | City/County: City of Morgantown/ Monongalia | Sampling Date: 2.4.19

Applicant/Owner: West Virginia Department Of Highways | State: West Virgnia | Sampling Point: WL2

Investigator(s): JAA, LEM | Section, Township, Range: Morgan

Landform (hillslope, terrace, etc. floodplain | Local relief (concave, convex, none): concave

Slope (%): 0-2% | Lat 39.60708° | Long: -79.94683°

Subregion (LRR or MLRA): LRR Central and Eastern Mountains | Datum: North American Datum 1983 (NAD83)

Soil Map Unit Name: ZoB | NWI classification: 70% PEM / 30% PSS

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ___ (If no, explain in Remarks.)

Are Vegetation N Soil N Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No ___

Are Vegetation N Soil N Hydrology N naturally problematic? (if needed explain any answers in Remarks)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc

Hydrophytic Vegetation Present?	Yes X	No ___	**Is the Sampled Area within a Wetland?** **Yes X No ___**
Hydric Soil Present?	Yes X	No ___	
Wetland Hydrology Present?	Yes X	No ___	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- X Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations

Surface Water Present?	Yes X	No ___	Depth (inches) 0.5"
Water Table Present?	Yes X	No ___	Depth (inches) 10"
Saturation Present? (Including capillary fringe)	Yes X	No ___	Depth (inches) Surface

Wetland Hydrology Present **Yes X No ___**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point WL2

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0	= Total Cover	
50% of Total Cover:	0	20% of Total Cover:	0
Sapling/Shrub Stratum (Plot size: 15')			
1. *Cornus amomum* - silky dogwood	25	Yes	FACW
2. *Acer negundo* - boxelder	5	No	FAC
3. *Rosa multiflora*- multiflora rose	5	No	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	35	= Total Cover	
50% of Total Cover:	17.5	20% of Total Cover:	7
Herb Stratum (Plot size: 5')			
1. *Leersia oryzoides* - rice cutgrass	70	Yes	OBL
2. *Carex species* - sedge species	10*	-	-
3.			
4. .			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	70	= Total Cover	
50% of Total Cover:	35	20% of Total Cover:	14
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
6			
	0	= Total Cover	
50% of Total Cover:	0	20% of Total Cover:	0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: ______ (A)

Total Number of Dominant Species Across All Strata: ______ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: ______ (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals	(A)	(B)

Prevalence Index = B/A = ______

Hydrophytic Vegetation Indicators:

X 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)

*Since the *Carex* species could not be positively identified due to lack of distinguishing vegetative characteristics, it was not included in the hydrophytic tests

SOIL

Sampling Point WL2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators).

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-18	10YR 3/3	80	7.5YR 5/8	20	C	M	Silt Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators

____ Histosol (A1)
____ Histic Epipedon (A2)
____ Black Histic (A3)
____ Hydrogen Sulfide (A4)
____ Stratified Layers (A5)
____ 2 cm Muck (A10) **(LRR N)**
____ Depleted Below Dark Surface (A11)
____ Thick Dark Surface (A12)
____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____ Sandy Gleyed Matrix (S4)
____ Sandy Redox (S5)
____ Stripped Matrix (S6)
____ Dark Surface (S7)
____ Polyvalue Below Surface (S8) (**MLRA 147, 148)**
____ Thin Dark Surface (S9) (**MLRA 147, 148)**
____ Loamy Gleyed Matrix (F2)
____ Depleted Matrix (F3)
____ Redox Dark Surface (F6)
____ Depleted Dark Surface (F7)
__X__ Redox Depressions (F8)
____ Iron-Manganese Masses (F12) (**LRR N, MLRA 136)**
____ Umbric Surface (F13) (**MLRA 136, 122)**
____ Piedmont Floodplain Soils (F19) (**MLRA 148**)
____ Red Parent Material (F21)(**MLRA127,147**)

Indicators for Problematic Hydric Soils[3]:

____ 2 cm Muck (A10) (**MLRA 147**)
____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____ Very Shallow Dark Surface (TF12)
____ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed)
Type:________
Depth (inches):________

Hydric Soil Present? Yes __X__ No ______

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountain and Piedmont

Project/Site: Greenbag Road City/County: City of Morgantown/ Monongalia Sampling Date: 2.4.19

Applicant/Owner: West Virginia Department Of Highways State: West Virginia Sampling Point: WL3

Investigator(s): JAA, LEM Section, Township, Range: Morgan

Landform (hillslope, terrace, etc. hillslope Local relief (concave, convex, none): concave

Slope (%): 10% Lat 39.60891° Long: -79.95631°

Subregion (LRR or MLRA): LRR Central and Eastern Mountains Datum: North American Datum 1983 (NAD83)

Soil Map Unit Name: CkD NWI classification: 100% PEM

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ___ (If no, explain in Remarks.)

Are Vegetation N Soil N Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No ___

Are Vegetation N Soil N Hydrology N naturally problematic? (if needed explain any answers in Remarks)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc

Hydrophytic Vegetation Present?	Yes X	No ___	**Is the Sampled Area within a Wetland?** **Yes** X **No** ___
Hydric Soil Present?	Yes X	No ___	
Wetland Hydrology Present?	Yes X	No ___	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- X Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- X Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations

Surface Water Present?	Yes X	No ___	Depth (inches) 1"
Water Table Present?	Yes X	No ___	Depth (inches) 4"
Saturation Present? (Including capillary fringe)	Yes X	No ___	Depth (inches) Surface

Wetland Hydrology Present **Yes** X **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point WL3

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0	= Total Cover	
50% of Total Cover:	0	20% of Total Cover:	0
Sapling/Shrub Stratum (Plot size: 15')			
1. *Salix nigra* - black willow	5	Yes	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	5	= Total Cover	
50% of Total Cover:	2.5	20% of Total Cover:	1
Herb Stratum (Plot size: 5')			
1. *Dipsacus fullonum* - Fuller's teasel	5	No	FACU
2. *Phalaris arundinacea* - reed canarygrass	10	No	FACW
3. *Juncus effusus* - soft rush	60	Yes	FACW
4. *Apocynum cannabinum* - dogbane	10	No	FACU
5. *Eupatorium perfoliatum* - boneset	5	No	FACW
6. *Scirpus cyperinus* - woolgrass	5	No	FACW
7. *Typha latifolia* - broadleaf cattail	20	No	OBL
8.			
9.			
10.			
11.			
12.			
	115	= Total Cover	
50% of Total Cover:	57.5	20% of Total Cover:	23
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
6			
	0	= Total Cover	
50% of Total Cover:	0	20% of Total Cover:	0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: ______ (A)

Total Number of Dominant Species Across All Strata: ______ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: ______ (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals	(A)	(B)

Prevalence Index = B/A = ______

Hydrophytic Vegetation Indicators:

X 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point WL3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators).

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-18	10YR 3/1	70	7.5YR 5/8	30	C	M	Silt Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators

____ Histosol (A1)
____ Histic Epipedon (A2)
____ Black Histic (A3)
____ Hydrogen Sulfide (A4)
____ Stratified Layers (A5)
____ 2 cm Muck (A10) **(LRR N)**
____ Depleted Below Dark Surface (A11)
____ Thick Dark Surface (A12)
____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____ Sandy Gleyed Matrix (S4)
____ Sandy Redox (S5)
____ Stripped Matrix (S6)
____ Dark Surface (S7)
____ Polyvalue Below Surface (S8) (**MLRA 147, 148)**
____ Thin Dark Surface (S9) (**MLRA 147, 148)**
____ Loamy Gleyed Matrix (F2)
____ Depleted Matrix (F3)
__X__ Redox Dark Surface (F6)
____ Depleted Dark Surface (F7)
____ Redox Depressions (F8)
____ Iron-Manganese Masses (F12) (**LRR N, MLRA 136)**
____ Umbric Surface (F13) (**MLRA 136, 122)**
____ Piedmont Floodplain Soils (F19) (**MLRA 148**)
____ Red Parent Material (F21)(**MLRA127,147**)

Indicators for Problematic Hydric Soils[3]:

____ 2 cm Muck (A10) (**MLRA 147**)
____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____ Very Shallow Dark Surface (TF12)
____ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed)
Type:________
Depth (inches):________

Hydric Soil Present? **Yes __X__ No ______**

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountain and Piedmont

Project/Site: Greenbag Road | City/County: City of Morgantown/ Monongalia | Sampling Date: 2.4.19

Applicant/Owner: West Virginia Department Of Highways | State: West Virginia | Sampling Point: WL4

Investigator(s): JAA, LEM | Section, Township, Range: Morgan

Landform (hillslope, terrace, etc. hillslope | Local relief (concave, convex, none): convex

Slope (%): 10% | Lat 39.60851° | Long: -79.95849°

Subregion (LRR or MLRA): LRR Central and Eastern Mountains | Datum: North American Datum 1983 (NAD83)

Soil Map Unit Name: GuD | NWI classification: 100% PEM

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ___ (If no, explain in Remarks.)

Are Vegetation N Soil N Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No ___

Are Vegetation N Soil N Hydrology N naturally problematic? (if needed explain any answers in Remarks)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc

Hydrophytic Vegetation Present?	Yes X	No ___	**Is the Sampled Area within a Wetland?** **Yes X No ___**
Hydric Soil Present?	Yes X	No ___	
Wetland Hydrology Present?	Yes X	No ___	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- X Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- X Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- X Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations

Surface Water Present?	Yes X	No ___	Depth (inches) 0.5"	**Wetland Hydrology Present** **Yes X No ___**
Water Table Present?	Yes X	No ___	Depth (inches) 4"	
Saturation Present? (Including capillary fringe)	Yes X	No ___	Depth (inches) Surface	

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point WL4

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0	= Total Cover	
50% of Total Cover:	0	20% of Total Cover:	0
Sapling/Shrub Stratum (Plot size: 15')			
1. *Rosa multiflora* - multiflora rose	5	Yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	5	= Total Cover	
50% of Total Cover:	2.5	20% of Total Cover:	1
Herb Stratum (Plot size: 5')			
1. *Typha latifolia* - broadleaf cattail	55	Yes	OBL
2. *Juncus effusus* - soft rush	20	Yes	FACW
3. *Eutrochium maculatum - joe pye weed*	10	No	FACW
4. *Asclepias syriaca* – common milkweed	5	No	FACU
5. *Asteraceae species* - aster species*	5*	-	-
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	90	= Total Cover	
50% of Total Cover:	45	20% of Total Cover:	18
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
6			
	0	= Total Cover	
50% of Total Cover:	0	20% of Total Cover:	0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 67% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals	(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0[1]
___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No ___

Remarks: (Include photo numbers here or on a separate sheet.)

*Since the Asteraceae species could not be positively identified due to lack of distinguishing vegetative characteristics, it was not included in the hydrophytic tests

SOIL Sampling Point WL4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators).

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-18	2.5Y 3/2	70	10YR 5/8	30	C	M	Silt Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators

____ Histosol (A1)
____ Histic Epipedon (A2)
____ Black Histic (A3)
____ Hydrogen Sulfide (A4)
____ Stratified Layers (A5)
____ 2 cm Muck (A10) **(LRR N)**
____ Depleted Below Dark Surface (A11)
____ Thick Dark Surface (A12)
____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____ Sandy Gleyed Matrix (S4)
____ Sandy Redox (S5)
____ Stripped Matrix (S6)
____ Dark Surface (S7)
____ Polyvalue Below Surface (S8) (**MLRA 147, 148)**
____ Thin Dark Surface (S9) (**MLRA 147, 148)**
____ Loamy Gleyed Matrix (F2)
____ Depleted Matrix (F3)
__X__ Redox Dark Surface (F6)
____ Depleted Dark Surface (F7)
____ Redox Depressions (F8)
____ Iron-Manganese Masses (F12) (**LRR N, MLRA 136)**
____ Umbric Surface (F13) (**MLRA 136, 122)**
____ Piedmont Floodplain Soils (F19) (**MLRA 148**)
____ Red Parent Material (F21)(**MLRA127,147**)

Indicators for Problematic Hydric Soils[3]:

____ 2 cm Muck (A10) (**MLRA 147**)
____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____ Very Shallow Dark Surface (TF12)
____ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed)
Type: ____
Depth (inches): ____

Hydric Soil Present? Yes __X__ No ______

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountain and Piedmont

Project/Site: Greenbag Road
City/County: City of Morgantown/ Monongalia
Sampling Date: 2.4.19
Applicant/Owner: West Virginia Department Of Highways
State: West Virgnia
Sampling Point: WL5
Investigator(s): JAA, LEM
Section, Township, Range: Morgan
Landform (hillslope, terrace, etc. hillslope
Local relief (concave, convex, none): convex
Slope (%): 5-7%
Lat 39.60851°
Long: -79.95754°
Subregion (LRR or MLRA): LRR Central and Eastern Mountains
Datum: North American Datum 1983 (NAD83)
Soil Map Unit Name: CkD
NWI classification: 100% PEM

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ___ (If no, explain in Remarks.)

Are Vegetation N Soil N Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No ___

Are Vegetation N Soil N Hydrology N naturally problematic? (if needed explain any answers in Remarks)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc

	Yes	No
Hydrophytic Vegetation Present?	X	
Hydric Soil Present?	X	
Wetland Hydrology Present?	X	

Is the Sampled Area within a Wetland? **Yes** X **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- X Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- X Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- X Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations

	Yes	No	Depth (inches)
Surface Water Present?	X		2"
Water Table Present?	X		4"
Saturation Present? (Including capillary fringe)	X		Surface

Wetland Hydrology Present **Yes** X **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point WL5

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0	= Total Cover	
50% of Total Cover:	0	20% of Total Cover:	0

Sapling/Shrub Stratum (Plot size: 15')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0	= Total Cover	
50% of Total Cover:	0	20% of Total Cover:	0

Herb Stratum (Plot size: 5')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Daucus carota* - Queen Anne's lace	15	No	OBL
2. *Eutrochium maculatum* - joe pye weed	5	No	FACW
3. *Juncus effusus* - soft rush	15	No	FACW
4. *Eupatorium perfoliatum* - boneset	5	No	FACW
5. *Typha latifolia* - broadleaf cattail	65	Yes	OBL
6. *Carex species* - sedge species*	20*	-	-
7.			
8.			
9.			
10.			
11.			
12.			
	105	= Total Cover	
50% of Total Cover:	52.5	20% of Total Cover:	21

Woody Vine Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6			
	0	= Total Cover	
50% of Total Cover:	0	20% of Total Cover:	0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: ______ (A)

Total Number of Dominant Species Across All Strata: ______ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: ______ (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals	(A)	(B)

Prevalence Index = B/A = ______

Hydrophytic Vegetation Indicators:

X 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No** ______

Remarks: (Include photo numbers here or on a separate sheet.)

*Since the *Carex* species could not be positively identified due to lack of distinguishing vegetative characteristics, it was not included in the hydrophytic tests

SOIL

Sampling Point WL5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators).

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-18	2.5Y 3/2	70	10YR 5/8	30	C	M	Silt Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators

____ Histosol (A1)
____ Histic Epipedon (A2)
____ Black Histic (A3)
____ Hydrogen Sulfide (A4)
____ Stratified Layers (A5)
____ 2 cm Muck (A10) **(LRR N)**
____ Depleted Below Dark Surface (A11)
____ Thick Dark Surface (A12)
____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____ Sandy Gleyed Matrix (S4)
____ Sandy Redox (S5)
____ Stripped Matrix (S6)
____ Dark Surface (S7)
____ Polyvalue Below Surface (S8) (**MLRA 147, 148)**
____ Thin Dark Surface (S9) (**MLRA 147, 148)**
____ Loamy Gleyed Matrix (F2)
____ Depleted Matrix (F3)
__X__ Redox Dark Surface (F6)
____ Depleted Dark Surface (F7)
____ Redox Depressions (F8)
____ Iron-Manganese Masses (F12) (**LRR N, MLRA 136)**
____ Umbric Surface (F13) (**MLRA 136, 122)**
____ Piedmont Floodplain Soils (F19) (**MLRA 148**)
____ Red Parent Material (F21)(**MLRA127,147**)

Indicators for Problematic Hydric Soils[3]:

____ 2 cm Muck (A10) (**MLRA 147**)
____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____ Very Shallow Dark Surface (TF12)
____ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed)
Type:
Depth (inches):

Hydric Soil Present? Yes __X__ No ______

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountain and Piedmont

Project/Site: Greenbag Road | City/County: City of Morgantown/ Monongalia | Sampling Date: 2.4.19

Applicant/Owner: West Virginia Department Of Highways | State: West Virginia | Sampling Point: WL6

Investigator(s): JAA, LEM | Section, Township, Range: Morgan

Landform (hillslope, terrace, etc. floodplain | Local relief (concave, convex, none): concave

Slope (%): 0-2% | Lat 39.60689° | Long: -79.95393°

Subregion (LRR or MLRA): LRR Central and Eastern Mountains | Datum: North American Datum 1983 (NAD83)

Soil Map Unit Name: Lb | NWI classification: 80% PFO/20% PEM

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ___ (If no, explain in Remarks.)

Are Vegetation N Soil N Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No ___

Are Vegetation N Soil N Hydrology N naturally problematic? (if needed explain any answers in Remarks)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc

Hydrophytic Vegetation Present?	Yes X	No ___	**Is the Sampled Area within a Wetland?** **Yes X No ___**
Hydric Soil Present?	Yes X	No ___	
Wetland Hydrology Present?	Yes X	No ___	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- X Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- X Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations

Surface Water Present?	Yes X	No ___	Depth (inches) 2"	**Wetland Hydrology Present** **Yes X No ___**
Water Table Present?	Yes X	No ___	Depth (inches) 5"	
Saturation Present? (Including capillary fringe)	Yes X	No ___	Depth (inches) Surface	

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point WL6

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer negundo* - boxelder	50	Yes	FAC
2. *Platanus occidentalis* - American sycamore	50	Yes	FACW
3.			
4.			
5.			
6.			
7.			
	100 = Total Cover		
50% of Total Cover:	50	20% of Total Cover:	20
Sapling/Shrub Stratum (Plot size: 15')			
1. *Rosa multiflora* - multiflora rose	20	Yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	20 = Total Cover		
50% of Total Cover:	10	20% of Total Cover:	4
Herb Stratum (Plot size: 5')			
1. *Lysimachia nummularia* - money wort	30	Yes	FACW
2. *Leersia oryzoides* - rice cutgrass	50	Yes	OBL
3. *Juncus effusus* - soft rush	5	No	FACW
4. *Onoclea sensibilis* - sensitive fern	5	No	FACW
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	90 = Total Cover		
50% of Total Cover:	45	20% of Total Cover:	18
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
6			
	0 = Total Cover		
50% of Total Cover:	0	20% of Total Cover:	0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 80% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals	(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point WL6

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators).

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-18	2.5Y 5/2	60	10YR 5/6	40	C	M	Silt Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators

____ Histosol (A1)
____ Histic Epipedon (A2)
____ Black Histic (A3)
____ Hydrogen Sulfide (A4)
____ Stratified Layers (A5)
____ 2 cm Muck (A10) **(LRR N)**
____ Depleted Below Dark Surface (A11)
____ Thick Dark Surface (A12)
____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____ Sandy Gleyed Matrix (S4)
____ Sandy Redox (S5)
____ Stripped Matrix (S6)

____ Dark Surface (S7)
____ Polyvalue Below Surface (S8) (**MLRA 147, 148)**
____ Thin Dark Surface (S9) (**MLRA 147, 148)**
____ Loamy Gleyed Matrix (F2)
__X__ Depleted Matrix (F3)
____ Redox Dark Surface (F6)
____ Depleted Dark Surface (F7)
____ Redox Depressions (F8)
____ Iron-Manganese Masses (F12) (**LRR N, MLRA 136)**
____ Umbric Surface (F13) (**MLRA 136, 122)**
____ Piedmont Floodplain Soils (F19) (**MLRA 148**)
____ Red Parent Material (F21)(**MLRA127,147**)

Indicators for Problematic Hydric Soils[3]:

____ 2 cm Muck (A10) (**MLRA 147**)
____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____ Very Shallow Dark Surface (TF12)
____ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed)

Type:

Depth (inches):

Hydric Soil Present? Yes __X__ No ______

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountain and Piedmont

Project/Site: Greenbag Road
City/County: City of Morgantown/ Monongalia
Sampling Date: 3.26.19
Applicant/Owner: West Virginia Department Of Highways
State: West Virginia
Sampling Point: WL7
Investigator(s): KMW, LEM
Section, Township, Range: Morgan
Landform (hillslope, terrace, etc. hillslope/ floodplain
Local relief (concave, convex, none): convex
Slope (%): 5-10%
Lat 39.60579°
Long: -79.94837°
Subregion (LRR or MLRA): LRR Central and Eastern Mountains
Datum: North American Datum 1983 (NAD83)
Soil Map Unit Name: GuC, CkC
NWI classification: 75% PEM/ 25% PFO

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ___ (If no, explain in Remarks.)

Are Vegetation N Soil N Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No ___

Are Vegetation N Soil N Hydrology N naturally problematic? (if needed explain any answers in Remarks)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc

Hydrophytic Vegetation Present?	Yes X	No ___
Hydric Soil Present?	Yes X	No ___
Wetland Hydrology Present?	Yes X	No ___

Is the Sampled Area within a Wetland? **Yes X** **No ___**

Remarks:

Fed by numerous hillside seeps ; Iron staining observed at some of the seeps

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- X Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- X Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations

Surface Water Present?	Yes X	No ___	Depth (inches) 1"
Water Table Present?	Yes X	No ___	Depth (inches) Surface
Saturation Present? (Including capillary fringe)	Yes X	No ___	Depth (inches) Surface

Wetland Hydrology Present **Yes X** **No ___**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point WL7

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Cornus florida* - flowering dogwood	10	Yes	FACU
2. *Prunus serotina* - black cherry	25	Yes	FACU
3.			
4.			
5.			
6.			
7.			
	35	= Total Cover	
50% of Total Cover:	17.5	20% of Total Cover:	7

Sapling/Shrub Stratum (Plot size: 15')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Rosa multiflora* - multiflora rose	25	Yes	FACU
2. *Sassafras albidum* - sassafras	10	Yes	FACU
3. *Ligustrum vulgare* - European privet	10	Yes	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	45	= Total Cover	
50% of Total Cover:	22.5	20% of Total Cover:	9

Herb Stratum (Plot size: 5')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Typha latifolia* - broadleaf cattail	10	No	OBL
2. *Leersia oryzoides* - rice cutgrass	40	Yes	OBL
3. *Juncus effusus* - soft rush	30	Yes	FACW
4. *Scirpus cyperinus* - woolgrass	30	Yes	FACW
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	110	= Total Cover	
50% of Total Cover:	55	20% of Total Cover:	22

Woody Vine Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6			
	0	= Total Cover	
50% of Total Cover:	0	20% of Total Cover:	0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 8 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 43% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	50	x 1 =	50
FACW species	60	x 2 =	120
FAC species	0	x 3 =	0
FACU species	80	x 4 =	320
UPL species	0	x 5 =	0
Column Totals	190	(A)	490 (B)

Prevalence Index = B/A = 2.59

Hydrophytic Vegetation Indicators:

____ 1 - Rapid Test for Hydrophytic Vegetation

____ 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No** ____

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point WL7

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators).

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-9	10YR 3/2	70	7.5YR 5/8	30	C	M	Clay Loam	
9-18	2.5Y 3/1	50	10YR 5/8	50	C	M	Clay Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators

____ Histosol (A1)
____ Histic Epipedon (A2)
____ Black Histic (A3)
____ Hydrogen Sulfide (A4)
____ Stratified Layers (A5)
____ 2 cm Muck (A10) **(LRR N)**
____ Depleted Below Dark Surface (A11)
____ Thick Dark Surface (A12)
____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____ Sandy Gleyed Matrix (S4)
____ Sandy Redox (S5)
____ Stripped Matrix (S6)
____ Dark Surface (S7)
____ Polyvalue Below Surface (S8) (**MLRA 147, 148)**
____ Thin Dark Surface (S9) (**MLRA 147, 148)**
____ Loamy Gleyed Matrix (F2)
____ Depleted Matrix (F3)
_X_ Redox Dark Surface (F6)
____ Depleted Dark Surface (F7)
____ Redox Depressions (F8)
____ Iron-Manganese Masses (F12) (**LRR N, MLRA 136)**
____ Umbric Surface (F13) (**MLRA 136, 122)**
____ Piedmont Floodplain Soils (F19) (**MLRA 148**)
____ Red Parent Material (F21)(**MLRA127,147**)

Indicators for Problematic Hydric Soils[3]:

____ 2 cm Muck (A10) (**MLRA 147**)
____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____ Very Shallow Dark Surface (TF12)
____ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed)

Type:

Depth (inches):

Hydric Soil Present? Yes _X_ No ____

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountain and Piedmont

Project/Site: Greenbag Road
City/County: City of Morgantown/ Monongalia
Sampling Date: 10.8.19
Applicant/Owner: West Virginia Department Of Highways
State: West Virginia
Sampling Point: WL8
Investigator(s): ASB, KMW
Section, Township, Range: Morgan
Landform (hillslope, terrace, etc. Toe of Slope
Local relief (concave, convex, none): concave
Slope (%): 6%
Lat 39.60859°
Long: -79.95391°
Subregion (LRR or MLRA): LRR Central and Eastern Mountains
Datum: North American Datum 1983 (NAD83)
Soil Map Unit Name: Lb
NWI classification: 100% PEM

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ___ (If no, explain in Remarks.)

Are Vegetation N Soil N Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No ___

Are Vegetation N Soil N Hydrology N naturally problematic? (if needed explain any answers in Remarks)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc

Hydrophytic Vegetation Present?	Yes X	No ___	**Is the Sampled Area within a Wetland?**	**Yes X No ___**
Hydric Soil Present?	Yes X	No ___		
Wetland Hydrology Present?	Yes X	No ___		

Remarks:

Wetland formed in drainage ditch along parking lot

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- X Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations

Surface Water Present?	Yes X	No ___	Depth (inches) 2"	**Wetland Hydrology Present** **Yes X No ___**
Water Table Present?	Yes ___	No X	Depth (inches) -	
Saturation Present? (Including capillary fringe)	Yes X	No ___	Depth (inches) Surface	

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Numerous hillside seeps

VEGETATION – Use scientific names of plants.

Sampling Point WL8

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0	= Total Cover	
50% of Total Cover:	0	20% of Total Cover:	0

Sapling/Shrub Stratum (Plot size: 15')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0	= Total Cover	
50% of Total Cover:	0	20% of Total Cover:	0

Herb Stratum (Plot size: 5')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Typha latifolia* - broadleaf cattail	80	Yes	OBL
2. *Juncus effusus* - soft rush	10	No	FACW
3. *Solidago gigantea* – late goldenrod	5	No	FACW
4. *Erigeron philadelphicus* - Philadelphia fleabane	5	No	FACU
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	100	= Total Cover	
50% of Total Cover:	50	20% of Total Cover:	20

Woody Vine Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6			
	0	= Total Cover	
50% of Total Cover:	0	20% of Total Cover:	0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: ______ (A)

Total Number of Dominant Species Across All Strata: ______ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: ______ (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals	(A)	(B)

Prevalence Index = B/A = ______

Hydrophytic Vegetation Indicators:

X 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point WL8

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators).

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 3/2	100	-	-	-	-	Silt Loam	
4-18	10YR 4/1	80	7.5YR 5/8	20	C	M	Clay Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators

____ Histosol (A1)
____ Histic Epipedon (A2)
____ Black Histic (A3)
____ Hydrogen Sulfide (A4)
____ Stratified Layers (A5)
____ 2 cm Muck (A10) **(LRR N)**
____ Depleted Below Dark Surface (A11)
____ Thick Dark Surface (A12)
____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____ Sandy Gleyed Matrix (S4)
____ Sandy Redox (S5)
____ Stripped Matrix (S6)
____ Dark Surface (S7)
____ Polyvalue Below Surface (S8) (**MLRA 147, 148)**
____ Thin Dark Surface (S9) (**MLRA 147, 148)**
____ Loamy Gleyed Matrix (F2)
__X__ Depleted Matrix (F3)
____ Redox Dark Surface (F6)
____ Depleted Dark Surface (F7)
____ Redox Depressions (F8)
____ Iron-Manganese Masses (F12) (**LRR N, MLRA 136)**
____ Umbric Surface (F13) (**MLRA 136, 122)**
____ Piedmont Floodplain Soils (F19) (**MLRA 148**)
____ Red Parent Material (F21)(**MLRA127,147**)

Indicators for Problematic Hydric Soils[3]:

____ 2 cm Muck (A10) (**MLRA 147**)
____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____ Very Shallow Dark Surface (TF12)
____ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed)
Type:______
Depth (inches):______

Hydric Soil Present? Yes __X__ No ______

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountain and Piedmont

Project/Site: Greenbag Road — City/County: City of Morgantown/ Monongalia — Sampling Date: 2.4.19

Applicant/Owner: West Virginia Department of Highways — State: West Virginia — Sampling Point: WL1-UPL

Investigator(s): JMG/JAR — Section, Township, Range: Morgan

Landform (hillslope, terrace, etc. hillslope — Local relief (concave, convex, none): convex

Slope (%): 10% — Lat 39.60561° — Long: -79.94791°

Subregion (LRR or MLRA): LRR Central and Eastern Mountains — Datum: North American Datum 1983 (NAD83)

Soil Map Unit Name: CkC — NWI classification: Upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ___ (If no, explain in Remarks.)

Are Vegetation No Soil No Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No ___

Are Vegetation No Soil No Hydrology No naturally problematic? (if needed explain any answers in Remarks)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc

	Yes	No
Hydrophytic Vegetation Present?		X
Hydric Soil Present?		X
Wetland Hydrology Present?		X
Is the Sampled Area within a Wetland?		X

Remarks:
Upland for WL1.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ____ Surface Water (A1)
- ____ High Water Table (A2)
- ____ Saturation (A3)
- ____ Water Marks (B1)
- ____ Sediment Deposits (B2)
- ____ Drift Deposits (B3)
- ____ Algal Mat or Crust (B4)
- ____ Iron Deposits (B5)
- ____ Inundation Visible on Aerial Imagery (B7)
- ____ Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ Hydrogen Sulfide Odor (C1)
- ____ Oxidized Rhizospheres on Living Roots (C3)
- ____ Presence of Reduced Iron (C4)
- ____ Recent Iron Reduction in Tilled Soils (C6)
- ____ Thin Muck Surface (C7)
- ____ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ____ Surface Soil Cracks (B6)
- ____ Sparsely Vegetated Concave Surface (B8)
- ____ Drainage Patterns (B10)
- ____ Moss Trim Lines (B16)
- ____ Dry-Season Water Table (C2)
- ____ Crayfish Burrows (C8)
- ____ Saturation Visible on Aerial Imagery (C9)
- ____ Stunted or Stressed Plants (D1)
- ____ Geomorphic Position (D2)
- ____ Shallow Aquitard (D3)
- ____ Microtopographic Relief (D4)
- ____ FAC-Neutral Test (D5)

Field Observations

	Yes	No	Depth (inches)
Surface Water Present?		X	-
Water Table Present?		X	-
Saturation Present? (Including capillary fringe)		X	-

Wetland Hydrology Present Yes ___ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point WL1-UPL

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer negundo* - boxelder	50	Yes	FAC
2. *Prunus serotina* - black cherry	10	No	FACU
3.			
4.			
5.			
6.			
7.			
	60	= Total Cover	
50% of Total Cover:	30	20% of Total Cover:	12

Sapling/Shrub Stratum (Plot size: 15')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Rosa multiflora* - multiflora rose	15	Yes	FACU
2. *Rubus allegheniensis* - blackberry	5	Yes	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	20	= Total Cover	
50% of Total Cover:	10	20% of Total Cover:	4

Herb Stratum (Plot size: 5')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Verbesina alternifolia* - wingstem	20	Yes	FAC
2. *Galium aparine* - clevers	2	No	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	22	= Total Cover	
50% of Total Cover:	11	20% of Total Cover:	4.4

Woody Vine Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6			
	0	= Total Cover	
50% of Total Cover:	0	20% of Total Cover:	0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	70	x 3 =	210
FACU species	32	x 4 =	128
UPL species	0	x 5 =	0
Column Totals	102 (A)		338 (B)

Prevalence Index = B/A = 3.313725

Hydrophytic Vegetation Indicators:

____ 1 - Rapid Test for Hydrophytic Vegetation

____ 2 - Dominance Test is >50%

____ 3 - Prevalence Index is ≤3.0[1]

____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ____ **No** X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point WL1-UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators).

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 3/2	100	-	-	-	-	Silt Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators

____ Histosol (A1)
____ Histic Epipedon (A2)
____ Black Histic (A3)
____ Hydrogen Sulfide (A4)
____ Stratified Layers (A5)
____ 2 cm Muck (A10) **(LRR N)**
____ Depleted Below Dark Surface (A11)
____ Thick Dark Surface (A12)
____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____ Sandy Gleyed Matrix (S4)
____ Sandy Redox (S5)
____ Stripped Matrix (S6)
____ Dark Surface (S7)
____ Polyvalue Below Surface (S8) (**MLRA 147, 148)**
____ Thin Dark Surface (S9) (**MLRA 147, 148)**
____ Loamy Gleyed Matrix (F2)
____ Depleted Matrix (F3)
____ Redox Dark Surface (F6)
____ Depleted Dark Surface (F7)
____ Redox Depressions (F8)
____ Iron-Manganese Masses (F12) (**LRR N, MLRA 136)**
____ Umbric Surface (F13) (**MLRA 136, 122)**
____ Piedmont Floodplain Soils (F19) (**MLRA 148**)
____ Red Parent Material (F21)(**MLRA127,147**)

Indicators for Problematic Hydric Soils[3]:

____ 2 cm Muck (A10) (**MLRA 147**)
____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____ Very Shallow Dark Surface (TF12)
____ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed)

Type: Rock Layer

Depth (inches): 16 inches

Hydric Soil Present? Yes ______ No X

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountain and Piedmont

Project/Site: Greenbag Road
City/County: City of Morgantown/ Monongalia
Sampling Date: 2/4/2019
Applicant/Owner: West Virginia Department of Highways
State: West Virginia
Sampling Point: WL2-UPL
Investigator(s): JAA, LEM
Section, Township, Range: Morgan
Landform (hillslope, terrace, etc. hillslope
Local relief (concave, convex, none): convex
Slope (%): 5-10%
Lat 39.60693°
Long: -79.94675°
Subregion (LRR or MLRA): LRR Central and Eastern Mountains
Datum: North American Datum 1983 (NAD83)
Soil Map Unit Name: CkC
NWI classification: Upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ___ (If no, explain in Remarks.)

Are Vegetation No Soil No Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No ___

Are Vegetation No Soil No Hydrology No naturally problematic? (if needed explain any answers in Remarks)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc

	Yes	No
Hydrophytic Vegetation Present?		X
Hydric Soil Present?		X
Wetland Hydrology Present?		X

Is the Sampled Area within a Wetland? **Yes** ___ **No** X

Remarks:
Upland for WL2.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ____ Surface Water (A1)
- ____ High Water Table (A2)
- ____ Saturation (A3)
- ____ Water Marks (B1)
- ____ Sediment Deposits (B2)
- ____ Drift Deposits (B3)
- ____ Algal Mat or Crust (B4)
- ____ Iron Deposits (B5)
- ____ Inundation Visible on Aerial Imagery (B7)
- ____ Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ Hydrogen Sulfide Odor (C1)
- ____ Oxidized Rhizospheres on Living Roots (C3)
- ____ Presence of Reduced Iron (C4)
- ____ Recent Iron Reduction in Tilled Soils (C6)
- ____ Thin Muck Surface (C7)
- ____ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ____ Surface Soil Cracks (B6)
- ____ Sparsely Vegetated Concave Surface (B8)
- ____ Drainage Patterns (B10)
- ____ Moss Trim Lines (B16)
- ____ Dry-Season Water Table (C2)
- ____ Crayfish Burrows (C8)
- ____ Saturation Visible on Aerial Imagery (C9)
- ____ Stunted or Stressed Plants (D1)
- ____ Geomorphic Position (D2)
- ____ Shallow Aquitard (D3)
- ____ Microtopographic Relief (D4)
- ____ FAC-Neutral Test (D5)

Field Observations

	Yes	No	Depth (inches)
Surface Water Present?		X	-
Water Table Present?		X	-
Saturation Present? (Including capillary fringe)		X	-

Wetland Hydrology Present **Yes** ___ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point WL2-UPL

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Prunus serotina* - black cherry	30	Yes	FACU
2. *Juglans nigra* - black walnut	15	Yes	FACU
3.			
4.			
5.			
6.			
7.			
	45	= Total Cover	
50% of Total Cover:	22.5	20% of Total Cover:	9
Sapling/Shrub Stratum (Plot size: 15')			
1. *Ligustrum vulgare* - common privet	15	Yes	FACU
2. *Rosa multiflora* - multiflora rose	5	Yes	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	20	= Total Cover	
50% of Total Cover:	10	20% of Total Cover:	4
Herb Stratum (Plot size: 5')			
1. *Solidago canadensis* - Canada goldenrod	15	Yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	15	= Total Cover	
50% of Total Cover:	7.5	20% of Total Cover:	3
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
6			
	0	= Total Cover	
50% of Total Cover:	0	20% of Total Cover:	0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	80	x 4 =	320
UPL species	0	x 5 =	0
Column Totals	80 (A)		320 (B)

Prevalence Index = B/A = 4

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation
___ 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0[1]
___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ___ No X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point WL2-UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators).

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-18	10YR 3/4	100	-	-	-	-	Silt Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators

____ Histosol (A1)
____ Histic Epipedon (A2)
____ Black Histic (A3)
____ Hydrogen Sulfide (A4)
____ Stratified Layers (A5)
____ 2 cm Muck (A10) **(LRR N)**
____ Depleted Below Dark Surface (A11)
____ Thick Dark Surface (A12)
____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____ Sandy Gleyed Matrix (S4)
____ Sandy Redox (S5)
____ Stripped Matrix (S6)

____ Dark Surface (S7)
____ Polyvalue Below Surface (S8) (**MLRA 147, 148)**
____ Thin Dark Surface (S9) (**MLRA 147, 148)**
____ Loamy Gleyed Matrix (F2)
____ Depleted Matrix (F3)
____ Redox Dark Surface (F6)
____ Depleted Dark Surface (F7)
____ Redox Depressions (F8)
____ Iron-Manganese Masses (F12) (**LRR N, MLRA 136)**
____ Umbric Surface (F13) (**MLRA 136, 122)**
____ Piedmont Floodplain Soils (F19) (**MLRA 148**)
____ Red Parent Material (F21)(**MLRA127,147**)

Indicators for Problematic Hydric Soils[3]:

____ 2 cm Muck (A10) (**MLRA 147**)
____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____ Very Shallow Dark Surface (TF12)
____ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed)

Type:______

Depth (inches):______

Hydric Soil Present? Yes ______ No __X__

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountain and Piedmont

Project/Site: Greenbag Road
City/County: City of Morgantown/ Monongalia
Sampling Date: 2/4/2019
Applicant/Owner: West Virgnia Department of Highways
State: West Virginia
Sampling Point: WL3-UPL
Investigator(s): JAA/LEM
Section, Township, Range: Morgan
Landform (hillslope, terrace, etc. hillslope
Local relief (concave, convex, none): convex
Slope (%): 10%
Lat 39.60879°
Long: -79.95627°
Subregion (LRR or MLRA): LRR Central and Eastern Mountains
Datum: North American Datum 1983 (NAD83)
Soil Map Unit Name: CkD
NWI classification: Upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ___ (If no, explain in Remarks.)

Are Vegetation No Soil No Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No ___

Are Vegetation No Soil No Hydrology No naturally problematic? (if needed explain any answers in Remarks)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc

	Yes	No
Hydrophytic Vegetation Present?		X
Hydric Soil Present?		X
Wetland Hydrology Present?		X

Is the Sampled Area within a Wetland? **Yes** ___ **No** X

Remarks:
Upland for WL3

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations

	Yes	No	Depth (inches)
Surface Water Present?		X	-
Water Table Present?		X	-
Saturation Present? (Including capillary fringe)		X	-

Wetland Hydrology Present **Yes** ___ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point WL3-UPL

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0	= Total Cover	
50% of Total Cover:	0	20% of Total Cover:	0
Sapling/Shrub Stratum (Plot size: 15')			
1. *Rubus occidentilas* - black raspberry	15	Yes	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	15	= Total Cover	
50% of Total Cover:	7.5	20% of Total Cover:	3
Herb Stratum (Plot size: 5')			
1. *Solidago canadensis* - Canada goldenrod	50	Yes	FACU
2. *Graminae species* - grass species*	20*	-	-
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	50	= Total Cover	
50% of Total Cover:	25	20% of Total Cover:	10
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
6			
	0	= Total Cover	
50% of Total Cover:	0	20% of Total Cover:	0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	50	x 4 =	200
UPL species	15	x 5 =	75
Column Totals	65 (A)		275 (B)

Prevalence Index = B/A = 4.230769

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤ 3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ___ **No** X

Remarks: (Include photo numbers here or on a separate sheet.)

*Since the *Graminae* species could not be positively identified due to lack of distinguishing vegetative characteristics, it was not included in the hydrophytic tests

SOIL Sampling Point WL3-UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators).

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 2/2	100	-	-	-	-	Silt Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators

____ Histosol (A1)
____ Histic Epipedon (A2)
____ Black Histic (A3)
____ Hydrogen Sulfide (A4)
____ Stratified Layers (A5)
____ 2 cm Muck (A10) **(LRR N)**
____ Depleted Below Dark Surface (A11)
____ Thick Dark Surface (A12)
____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____ Sandy Gleyed Matrix (S4)
____ Sandy Redox (S5)
____ Stripped Matrix (S6)
____ Dark Surface (S7)
____ Polyvalue Below Surface (S8) (**MLRA 147, 148)**
____ Thin Dark Surface (S9) (**MLRA 147, 148)**
____ Loamy Gleyed Matrix (F2)
____ Depleted Matrix (F3)
____ Redox Dark Surface (F6)
____ Depleted Dark Surface (F7)
____ Redox Depressions (F8)
____ Iron-Manganese Masses (F12) (**LRR N, MLRA 136)**
____ Umbric Surface (F13) (**MLRA 136, 122)**
____ Piedmont Floodplain Soils (F19) (**MLRA 148**)
____ Red Parent Material (F21)(**MLRA127,147**)

Indicators for Problematic Hydric Soils[3]:

____ 2 cm Muck (A10) (**MLRA 147**)
____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____ Very Shallow Dark Surface (TF12)
____ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed)
Type: Rock Layer
Depth (inches): 12 inches

Hydric Soil Present? **Yes** ______ **No** __X__

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountain and Piedmont

Project/Site: Greenbag Road   City/County: City of Morgantown/ Monongalia   Sampling Date: 2/4/2019

Applicant/Owner: West Virginia Department of Highways   State: West Virginia   Sampling Point: WL4/5 - UPL

Investigator(s): JAA/LEM   Section, Township, Range: Morgan

Landform (hillslope, terrace, etc. hillslope   Local relief (concave, convex, none): Convex

Slope (%): 5%   Lat 39.60851°   Long: -79.95739°

Subregion (LRR or MLRA): LRR Central and Eastern Mountains   Datum: North American Datum 1983 (NAD83)

Soil Map Unit Name: CkD   NWI classification: Upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ___ (If no, explain in Remarks.)

Are Vegetation No Soil No Hydrology No significantly disturbed?   Are "Normal Circumstances" present? Yes X No ___

Are Vegetation No Soil No Hydrology No naturally problematic?   (if needed explain any answers in Remarks)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc

	Yes	No	
Hydrophytic Vegetation Present?		X	**Is the Sampled Area within a Wetland?** **Yes** ___ **No** X
Hydric Soil Present?		X	
Wetland Hydrology Present?		X	

Remarks:
Upland for WL4 and WL5.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations

	Yes	No	Depth (inches)
Surface Water Present?		X	-
Water Table Present?		X	-
Saturation Present? (Including capillary fringe)		X	-

Wetland Hydrology Present **Yes** ___ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point WL4/5 - UPL

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer saccharum* - sugar maple	40	Yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
	40	= Total Cover	
50% of Total Cover:	20	20% of Total Cover:	8

Sapling/Shrub Stratum (Plot size: 15')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Ligustrum vulgare* - common privet	50	Yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	50	= Total Cover	
50% of Total Cover:	25	20% of Total Cover:	10

Herb Stratum (Plot size: 5')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Eutrochium maculatum - joe pye weed*	15	Yes	FACW
2. *Graminae species* - grass species*	20*	-	-
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	15	= Total Cover	
50% of Total Cover:	7.5	20% of Total Cover:	3

Woody Vine Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6			
	0	= Total Cover	
50% of Total Cover:	0	20% of Total Cover:	0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	3	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	33%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	15	x 2 =	30
FAC species	0	x 3 =	0
FACU species	90	x 4 =	360
UPL species	0	x 5 =	0
Column Totals	105	(A)	390 (B)

Prevalence Index = B/A = 3.714286

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation
___ 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0[1]
___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ___ **No** X

Remarks: (Include photo numbers here or on a separate sheet.)

*Since the *Graminae* species could not be positively identified due to lack of distinguishing vegetative characteristics, it was not included in the hydrophytic tests

SOIL

Sampling Point WL4/5 - UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators).

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR3/2	100	-	-	-	-	Silt Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators

____ Histosol (A1)
____ Histic Epipedon (A2)
____ Black Histic (A3)
____ Hydrogen Sulfide (A4)
____ Stratified Layers (A5)
____ 2 cm Muck (A10) **(LRR N)**
____ Depleted Below Dark Surface (A11)
____ Thick Dark Surface (A12)
____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____ Sandy Gleyed Matrix (S4)
____ Sandy Redox (S5)
____ Stripped Matrix (S6)
____ Dark Surface (S7)
____ Polyvalue Below Surface (S8) (**MLRA 147, 148)**
____ Thin Dark Surface (S9) (**MLRA 147, 148)**
____ Loamy Gleyed Matrix (F2)
____ Depleted Matrix (F3)
____ Redox Dark Surface (F6)
____ Depleted Dark Surface (F7)
____ Redox Depressions (F8)
____ Iron-Manganese Masses (F12) (**LRR N, MLRA 136)**
____ Umbric Surface (F13) (**MLRA 136, 122)**
____ Piedmont Floodplain Soils (F19) (**MLRA 148**)
____ Red Parent Material (F21)(**MLRA127,147**)

Indicators for Problematic Hydric Soils[3]:

____ 2 cm Muck (A10) (**MLRA 147**)
____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____ Very Shallow Dark Surface (TF12)
____ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed)
Type: Rock Layer
Depth (inches): 16 inches

Hydric Soil Present? **Yes** ______ **No** __X__

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountain and Piedmont

Project/Site: Greenbag Road
City/County: City of Morgantown/ Monongalia
Sampling Date: 2/4/2019
Applicant/Owner: West Virgnia Department of Highways
State: West Virginia
Sampling Point: WL6-UPL
Investigator(s): JAA/LEM
Section, Township, Range: Morgan
Landform (hillslope, terrace, etc. hillslope
Local relief (concave, convex, none): convex
Slope (%): 15-20%
Lat 39.60714°
Long: -79.95418°
Subregion (LRR or MLRA): LRR Central and Eastern Mountains
Datum: North American Datum 1983 (NAD83)
Soil Map Unit Name: Lb
NWI classification: Upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ___ (If no, explain in Remarks.)

Are Vegetation No Soil No Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No ___

Are Vegetation No Soil No Hydrology No naturally problematic? (if needed explain any answers in Remarks)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc

	Yes	No
Hydrophytic Vegetation Present?		X
Hydric Soil Present?		X
Wetland Hydrology Present?		X

Is the Sampled Area within a Wetland? **Yes** ___ **No** **X**

Remarks:
Upland for WL6.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations

	Yes	No	Depth (inches)
Surface Water Present?		X	-
Water Table Present?		X	-
Saturation Present? (Including capillary fringe)		X	-

Wetland Hydrology Present **Yes** ___ **No** **X**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point WL6-UPL

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Prunus serotina* - black cherry	20	Yes	FACU
2. *Platanus occidentalis* – American sycamore	20	Yes	FACW
3.			
4.			
5.			
6.			
7.			
	40	= Total Cover	
50% of Total Cover:	20	20% of Total Cover:	8
Sapling/Shrub Stratum (Plot size: 15')			
1. *Rosa multiflora* - multiflora rose	20	Yes	FACU
2. *Berberis thunbergii* - Japanese barberry	15	Yes	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	35	= Total Cover	
50% of Total Cover:	17.5	20% of Total Cover:	7
Herb Stratum (Plot size: 5')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	0	= Total Cover	
50% of Total Cover:	0	20% of Total Cover:	0
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
6			
	0	= Total Cover	
50% of Total Cover:	0	20% of Total Cover:	0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 25% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	20	x 2 =	40
FAC species	0	x 3 =	0
FACU species	55	x 4 =	220
UPL species	0	x 5 =	0
Column Totals	75 (A)		260 (B)

Prevalence Index = B/A = 3.466667

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ___ No X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point WL6-UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators).

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-18	10YR3/2	100	-	-	-	-	Silt Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators

____ Histosol (A1)
____ Histic Epipedon (A2)
____ Black Histic (A3)
____ Hydrogen Sulfide (A4)
____ Stratified Layers (A5)
____ 2 cm Muck (A10) **(LRR N)**
____ Depleted Below Dark Surface (A11)
____ Thick Dark Surface (A12)
____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____ Sandy Gleyed Matrix (S4)
____ Sandy Redox (S5)
____ Stripped Matrix (S6)
____ Dark Surface (S7)
____ Polyvalue Below Surface (S8) (**MLRA 147, 148)**
____ Thin Dark Surface (S9) (**MLRA 147, 148)**
____ Loamy Gleyed Matrix (F2)
____ Depleted Matrix (F3)
____ Redox Dark Surface (F6)
____ Depleted Dark Surface (F7)
____ Redox Depressions (F8)
____ Iron-Manganese Masses (F12) (**LRR N, MLRA 136)**
____ Umbric Surface (F13) (**MLRA 136, 122)**
____ Piedmont Floodplain Soils (F19) (**MLRA 148**)
____ Red Parent Material (F21)(**MLRA127,147**)

Indicators for Problematic Hydric Soils[3]:

____ 2 cm Muck (A10) (**MLRA 147**)
____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____ Very Shallow Dark Surface (TF12)
____ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed)
Type:____
Depth (inches):____

Hydric Soil Present? Yes ______ No __X__

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountain and Piedmont

Project/Site: Greenbag Road
City/County: City of Morgantown/ Monongalia
Sampling Date: 2/4/2019
Applicant/Owner: West Virgnia Department of Highways
State: West Virginia
Sampling Point: WL7-UPL
Investigator(s): KMW, LEM
Section, Township, Range: Morgan
Landform (hillslope, terrace, etc. hillslope
Local relief (concave, convex, none): convex
Slope (%): 15-20%
Lat 39.60583°
Long: -79.94855°
Subregion (LRR or MLRA): LRR Central and Eastern Mountains
Datum: North American Datum 1983 (NAD83)
Soil Map Unit Name: GuC
NWI classification: Upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ___ (If no, explain in Remarks.)

Are Vegetation No Soil No Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No ___

Are Vegetation No Soil No Hydrology No naturally problematic? (if needed explain any answers in Remarks)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc

	Yes	No
Hydrophytic Vegetation Present?		X
Hydric Soil Present?		X
Wetland Hydrology Present?		X

Is the Sampled Area within a Wetland? **Yes** ___ **No** **X**

Remarks:
Upland for WL7.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ____ Surface Water (A1)
- ____ High Water Table (A2)
- ____ Saturation (A3)
- ____ Water Marks (B1)
- ____ Sediment Deposits (B2)
- ____ Drift Deposits (B3)
- ____ Algal Mat or Crust (B4)
- ____ Iron Deposits (B5)
- ____ Inundation Visible on Aerial Imagery (B7)
- ____ Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ Hydrogen Sulfide Odor (C1)
- ____ Oxidized Rhizospheres on Living Roots (C3)
- ____ Presence of Reduced Iron (C4)
- ____ Recent Iron Reduction in Tilled Soils (C6)
- ____ Thin Muck Surface (C7)
- ____ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ____ Surface Soil Cracks (B6)
- ____ Sparsely Vegetated Concave Surface (B8)
- ____ Drainage Patterns (B10)
- ____ Moss Trim Lines (B16)
- ____ Dry-Season Water Table (C2)
- ____ Crayfish Burrows (C8)
- ____ Saturation Visible on Aerial Imagery (C9)
- ____ Stunted or Stressed Plants (D1)
- ____ Geomorphic Position (D2)
- ____ Shallow Aquitard (D3)
- ____ Microtopographic Relief (D4)
- ____ FAC-Neutral Test (D5)

Field Observations

	Yes	No	Depth (inches)
Surface Water Present?		X	-
Water Table Present?		X	-
Saturation Present? (Including capillary fringe)		X	-

Wetland Hydrology Present **Yes** ___ **No** **X**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants. Sampling Point WL7-UPL

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Prunus serotina* - black cherry	50	Yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
	50	= Total Cover	
50% of Total Cover:	25	20% of Total Cover:	10
Sapling/Shrub Stratum (Plot size: 15')			
1. *Rosa multiflora* - multiflora rose	60	Yes	FACU
2. *Ligustrum vulgare* - European privet	30	Yes	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	90	= Total Cover	
50% of Total Cover:	45	20% of Total Cover:	18
Herb Stratum (Plot size: 5')			
1. *Bryophyta species* - moss species*	40*	-	-
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	0	= Total Cover	
50% of Total Cover:	0	20% of Total Cover:	0
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
6			
	0	= Total Cover	
50% of Total Cover:	0	20% of Total Cover:	0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	140	x 4 =	560
UPL species	0	x 5 =	0
Column Totals	140	(A)	560 (B)

Prevalence Index = B/A = 4

Hydrophytic Vegetation Indicators:

____ 1 - Rapid Test for Hydrophytic Vegetation
____ 2 - Dominance Test is >50%
____ 3 - Prevalence Index is ≤3.0[1]
____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ____ **No** X

Remarks: (Include photo numbers here or on a separate sheet.)

*Since the *Bryophyta* species could not be positively identified due to lack of distinguishing vegetative characteristics, it was not included in the hydrophytic tests

SOIL Sampling Point WL7-UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators).

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-18	10YR3/2	100	-	-	-	-	Sandy Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators

____ Histosol (A1)
____ Histic Epipedon (A2)
____ Black Histic (A3)
____ Hydrogen Sulfide (A4)
____ Stratified Layers (A5)
____ 2 cm Muck (A10) **(LRR N)**
____ Depleted Below Dark Surface (A11)
____ Thick Dark Surface (A12)
____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____ Sandy Gleyed Matrix (S4)
____ Sandy Redox (S5)
____ Stripped Matrix (S6)
____ Dark Surface (S7)
____ Polyvalue Below Surface (S8) (**MLRA 147, 148)**
____ Thin Dark Surface (S9) (**MLRA 147, 148)**
____ Loamy Gleyed Matrix (F2)
____ Depleted Matrix (F3)
____ Redox Dark Surface (F6)
____ Depleted Dark Surface (F7)
____ Redox Depressions (F8)
____ Iron-Manganese Masses (F12) (**LRR N, MLRA 136)**
____ Umbric Surface (F13) (**MLRA 136, 122)**
____ Piedmont Floodplain Soils (F19) (**MLRA 148**)
____ Red Parent Material (F21)(**MLRA127,147**)

Indicators for Problematic Hydric Soils[3]:

____ 2 cm Muck (A10) (**MLRA 147**)
____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____ Very Shallow Dark Surface (TF12)
____ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed)
Type: ____
Depth (inches): ____

Hydric Soil Present? Yes ______ No X

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountain and Piedmont

Project/Site: Greenbag Road
City/County: City of Morgantown/ Monongalia
Sampling Date: 10/8/2019
Applicant/Owner: West Virgnia Department of Highways
State: West Virginia
Sampling Point: WL8-UPL
Investigator(s): ASB, KMW
Section, Township, Range: Morgan
Landform (hillslope, terrace, etc. hillslope
Local relief (concave, convex, none): convex
Slope (%): 6%
Lat 39.60881°
Long: -79.95393°
Subregion (LRR or MLRA): LRR Central and Eastern Mountains
Datum: North American Datum 1983 (NAD83)
Soil Map Unit Name: Lb
NWI classification: Upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation No Soil No Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation No Soil No Hydrology No naturally problematic? (if needed explain any answers in Remarks)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc

	Yes	No
Hydrophytic Vegetation Present?		X
Hydric Soil Present?		X
Wetland Hydrology Present?		X

Is the Sampled Area within a Wetland? **Yes** ____ **No** **X**

Remarks:
Upland for WL8.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

____ Surface Water (A1)
____ High Water Table (A2)
____ Saturation (A3)
____ Water Marks (B1)
____ Sediment Deposits (B2)
____ Drift Deposits (B3)
____ Algal Mat or Crust (B4)
____ Iron Deposits (B5)
____ Inundation Visible on Aerial Imagery (B7)
____ Water-Stained Leaves (B9)
____ Aquatic Fauna (B13)
____ True Aquatic Plants (B14)
____ Hydrogen Sulfide Odor (C1)
____ Oxidized Rhizospheres on Living Roots (C3)
____ Presence of Reduced Iron (C4)
____ Recent Iron Reduction in Tilled Soils (C6)
____ Thin Muck Surface (C7)
____ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

____ Surface Soil Cracks (B6)
____ Sparsely Vegetated Concave Surface (B8)
____ Drainage Patterns (B10)
____ Moss Trim Lines (B16)
____ Dry-Season Water Table (C2)
____ Crayfish Burrows (C8)
____ Saturation Visible on Aerial Imagery (C9)
____ Stunted or Stressed Plants (D1)
____ Geomorphic Position (D2)
____ Shallow Aquitard (D3)
____ Microtopographic Relief (D4)
____ FAC-Neutral Test (D5)

Field Observations

	Yes	No	Depth (inches)
Surface Water Present?		X	-
Water Table Present?		X	-
Saturation Present? (Including capillary fringe)		X	-

Wetland Hydrology Present **Yes** ____ **No** **X**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point WL8-UPL

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Robinia pseudoacacia* – black locust	10	Yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
	10	= Total Cover	
50% of Total Cover:	5	20% of Total Cover:	2

Sapling/Shrub Stratum (Plot size: 15')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Rosa multiflora* - multiflora rose	2	Yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	2	= Total Cover	
50% of Total Cover:	1	20% of Total Cover:	0.4

Herb Stratum (Plot size: 5')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Gramineae species* - grass species*	50*	-	-
2. *Solidago canadensis* - Canada goldenrod	10	Yes	FACU
3. *Erigeron philadelphicus* - Philadelphia fleabane	5	Yes	FACU
4. *Cirsium arvense* – Canadian thistle	2	No	FACU
5. *Trifolium pratense* – red clover	2	No	FACU
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	19	= Total Cover	
50% of Total Cover:	9.5	20% of Total Cover:	3.8

Woody Vine Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6			
	0	= Total Cover	
50% of Total Cover:	0	20% of Total Cover:	0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	0	(A)
Total Number of Dominant Species Across All Strata:	4	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	31	x 4 =	124
UPL species	0	x 5 =	0
Column Totals	31	(A)	124 (B)

Prevalence Index = B/A = 4

Hydrophytic Vegetation Indicators:

____ 1 - Rapid Test for Hydrophytic Vegetation

____ 2 - Dominance Test is >50%

____ 3 - Prevalence Index is ≤3.0[1]

____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ____ **No** X

Remarks: (Include photo numbers here or on a separate sheet.)

*Since the *Graminae* species could not be positively identified due to lack of distinguishing vegetative characteristics, it was not included in the hydrophytic tests

SOIL Sampling Point WL8-UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators).

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 3/3	100	-	-	-	-	Silt Loam	
6-14	10YR 3/3	100	-	-	-	-	Silt Loam	0.5-2" of rocks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators

____ Histosol (A1)
____ Histic Epipedon (A2)
____ Black Histic (A3)
____ Hydrogen Sulfide (A4)
____ Stratified Layers (A5)
____ 2 cm Muck (A10) **(LRR N)**
____ Depleted Below Dark Surface (A11)
____ Thick Dark Surface (A12)
____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____ Sandy Gleyed Matrix (S4)
____ Sandy Redox (S5)
____ Stripped Matrix (S6)
_____ Dark Surface (S7)
_____ Polyvalue Below Surface (S8) (**MLRA 147, 148)**
_____ Thin Dark Surface (S9) (**MLRA 147, 148)**
_____ Loamy Gleyed Matrix (F2)
_____ Depleted Matrix (F3)
_____ Redox Dark Surface (F6)
_____ Depleted Dark Surface (F7)
_____ Redox Depressions (F8)
_____ Iron-Manganese Masses (F12) (**LRR N, MLRA 136)**
_____ Umbric Surface (F13) (**MLRA 136, 122)**
_____ Piedmont Floodplain Soils (F19) (**MLRA 148**)
_____ Red Parent Material (F21)(**MLRA127,147**)

Indicators for Problematic Hydric Soils[3]:

____ 2 cm Muck (A10) (**MLRA 147**)
____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____ Very Shallow Dark Surface (TF12)
____ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed)
Type:________________
Depth (inches):________________

Hydric Soil Present? Yes ______ No __X__

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountain and Piedmont

Project/Site: Greenbag Road
City/County: City of Morgantown/ Monongalia
Sampling Date: 10/8/2019
Applicant/Owner: West Virgnia Department of Highways
State: West Virginia
Sampling Point: Roadway Drainage-UPL
Investigator(s): ASB, KMW
Section, Township, Range: Morgan
Landform (hillslope, terrace, etc. roadside drainage
Local relief (concave, convex, none): concave
Slope (%): 0-2%
Lat 39.60802°
Long: -79.95441°
Subregion (LRR or MLRA): LRR Central and Eastern Mountains
Datum: North American Datum 1983 (NAD83)
Soil Map Unit Name: Lb
NWI classification: Upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ___ (If no, explain in Remarks.)

Are Vegetation No Soil No Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No ___

Are Vegetation No Soil No Hydrology No naturally problematic? (if needed explain any answers in Remarks)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc

Hydrophytic Vegetation Present?	Yes ___	No X
Hydric Soil Present?	Yes ___	No X
Wetland Hydrology Present?	Yes X	No ___

Is the Sampled Area within a Wetland? **Yes** ___ **No** X

Remarks:

Upland datapoint in drainage feature North of Greenbag Road and East of Mississippi Street

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- X Surface Soil Cracks (B6)
- X Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations

Surface Water Present?	Yes ___	No X	Depth (inches) -
Water Table Present?	Yes ___	No X	Depth (inches) -
Saturation Present? (Including capillary fringe)	Yes ___	No X	Depth (inches) -

Wetland Hydrology Present **Yes** X **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: Roadway Drainage-UPL

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Salix nigra* – black willow	2	Yes	OBL
2.			
3.			
4.			
5.			
6.			
7.			
	2	= Total Cover	
50% of Total Cover:	1	20% of Total Cover:	0.4

Sapling/Shrub Stratum (Plot size: 15')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Rosa multiflora* - multiflora rose	10	Yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	10	= Total Cover	
50% of Total Cover:	5	20% of Total Cover:	2

Herb Stratum (Plot size: 5')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Gramineae species* - grass species	20*	-	-
2. *Solidago canadensis* - Canada goldenrod	10	Yes	FACU
3. *Verbesina alternifolia* – wingstem	10	Yes	FAC
4. *Polygonum cuspidatum* – Japanaese knotweed	5	Yes	FACU
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	25	= Total Cover	
50% of Total Cover:	12.5	20% of Total Cover:	5

Woody Vine Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Vitis species* - grape species	10*	-	-
2.			
3.			
4.			
5.			
6			
	0	= Total Cover	
50% of Total Cover:	0	20% of Total Cover:	0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 40% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	2	x 1 =	2
FACW species	0	x 2 =	0
FAC species	10	x 3 =	30
FACU species	25	x 4 =	100
UPL species	0	x 5 =	0
Column Totals	37 (A)		132 (B)

Prevalence Index = B/A = 3.567568

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ___ **No** X

Remarks: (Include photo numbers here or on a separate sheet.)

*Since the *Graminae and Vitis* species could not be positively identified due to lack of distinguishing vegetative characteristics, they were not included in the hydrophytic tests

SOIL

Sampling Point Roadway Drainage-UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators).

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 2/2	100	-	-	-	-	Clay Loam	
6-18	10YR 4/4	70	-	-	-	-	Clay	Mixed matrix
	10YR 4/6	30	-	-	-	-	Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators

____ Histosol (A1)
____ Histic Epipedon (A2)
____ Black Histic (A3)
____ Hydrogen Sulfide (A4)
____ Stratified Layers (A5)
____ 2 cm Muck (A10) **(LRR N)**
____ Depleted Below Dark Surface (A11)
____ Thick Dark Surface (A12)
____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____ Sandy Gleyed Matrix (S4)
____ Sandy Redox (S5)
____ Stripped Matrix (S6)
____ Dark Surface (S7)
____ Polyvalue Below Surface (S8) (**MLRA 147, 148)**
____ Thin Dark Surface (S9) (**MLRA 147, 148)**
____ Loamy Gleyed Matrix (F2)
____ Depleted Matrix (F3)
____ Redox Dark Surface (F6)
____ Depleted Dark Surface (F7)
____ Redox Depressions (F8)
____ Iron-Manganese Masses (F12) (**LRR N, MLRA 136)**
____ Umbric Surface (F13) (**MLRA 136, 122)**
____ Piedmont Floodplain Soils (F19) (**MLRA 148**)
____ Red Parent Material (F21)(**MLRA127,147**)

Indicators for Problematic Hydric Soils[3]:

____ 2 cm Muck (A10) (**MLRA 147**)
____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____ Very Shallow Dark Surface (TF12)
____ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed)
Type:____
Depth (inches):____

Hydric Soil Present? Yes ______ No __X__

Remarks:

SURFACE WATER SURVEY

STREAM NAME: **STR 1 (Cobun Creek)** PROJECT: Greenbag Road

DRAINAGE BASIN: **Cobun Creek** INVESTIGATORS: JAA/LEM

DATE: 2.4.19

PHYSICAL PARAMETERS:

SUBSTRATE TYPES:

	BEDROCK		CLAY
X	BOULDERS 10 IN	**X**	SAND
X	COBBLE (2.5-10 IN)		SILT
X	GRAVEL (<2.5 IN)		MUCK
	DETRITUS		OTHER

PERENNIAL STREAM: **X** **INTERMITTENT STREAM:** ____ **EPHEMERAL:** ____

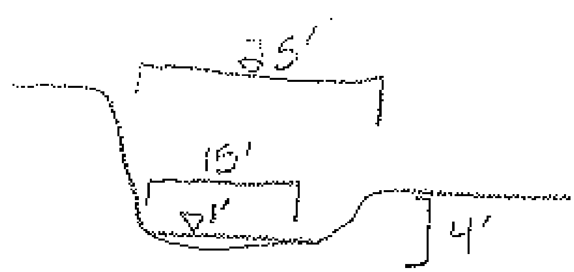
MACROINVERTEBRATES:

	EPHEMEROPTERA (Mayfly)		LEPIDOPTERA (Moth)
	NEUROPTERA (lacewings)		AMPHIPODA (Scud)
	TRICHOPTERA (Caddisfly)		COLEOPTERA (Water Penny)
	PLECOPTERA (Stonefly)		MEGALOPTERA (Hellgrammite)
	HEMIPTERA (Leafhoppers)		GASTROPODA (Snail)
X	DIPTERA (True Fly)		PLANARIIDAE (Flatworm)
	ODONATA (Dragonfly, Damselfly)	**X**	HIRUDINEA (Leech)
	ISOPODA (Sowbug)		BIVALVIA (Molluscs)
	DECAPODA (Crayfish)		HYDRACHNIDIA (Mites)
	NO MACRONIVERTEBRATES	**X**	FIN FISH

CROSS SECTIONAL DIAGRAM

(NOT TO SCALE)

LEFT DESCENDING BANK (FT) (include primary and secondary banks in the drawing)



RIGHT DESCENDING BANK (FT) (include primary and secondary banks in the drawing)

WIDTH (FT)
(TOP OF BANK TO TOP OF BANK)

BANK WIDTH	**25'**	WATER WIDTH	**15'**	NO WATER	
CHANNEL DEPTH	**4'**	WATER DEPTH	**1'**		

SURFACE WATER SURVEY

STREAM NAME: **STR 2** PROJECT: Greenbag Road

DRAINAGE BASIN: **Cobun Creek** INVESTIGATORS: JAA, LEM

DATE: 2.4.19

PHYSICAL PARAMETERS:

SUBSTRATE TYPES:

	BEDROCK	X	CLAY
X	BOULDERS 10 IN		SAND
X	COBBLE (2.5-10 IN)	X	SILT
X	GRAVEL (<2.5 IN)	X	MUCK
X	DETRITUS		OTHER

ERENNIAL STREAM: X **INTERMITTENT STREAM:** ____ **EPHEMERAL:** ____

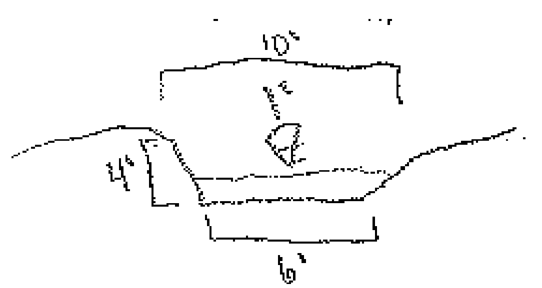
MACROINVERTEBRATES:

	EPHEMEROPTERA (Mayfly)		LEPIDOPTERA (Moth)
	NEUROPTERA (lacewings)		AMPHIPODA (Scud)
	TRICHOPTERA (Caddisfly)		COLEOPTERA (Water Penny)
	PLECOPTERA (Stonefly)		MEGALOPTERA (Hellgrammite)
	HEMIPTERA (Leafhoppers)		GASTROPODA (Snail)
X	DIPTERA (True Fly)		PLANARIIDAE (Flatworm)
	ODONATA (Dragonfly, Damselfly)	X	HIRUDINEA (Leech)
	ISOPODA (Sowbug)		BIVALVIA (Molluscs)
	DECAPODA (Crayfish)		HYDRACHNIDIA (Mites)
	NO MACRONIVERTEBRATES		FIN FISH

CROSS SECTIONAL DIAGRAM

(NOT TO SCALE)

LEFT DESCENDING BANK (FT) (include primary and secondary banks in the drawing)



RIGHT DESCENDING BANK (FT) (include primary and secondary banks in the drawing)

WIDTH (FT)
(TOP OF BANK TO TOP OF BANK)

BANK WIDTH **10'** WATER WIDTH **6'** NO WATER ____

CHANNEL DEPTH **4'** WATER DEPTH **1'**

SURFACE WATER SURVEY

STREAM NAME: **STR 3** PROJECT: Greenbag Road

DRAINAGE BASIN: **Cobun Creek** INVESTIGATORS: JAA, LEM

DATE: 2.4.19

PHYSICAL PARAMETERS:

SUBSTRATE TYPES:

	BEDROCK		CLAY
	BOULDERS 10 IN	X	SAND
X	COBBLE (2.5-10 IN)	X	SILT
X	GRAVEL (<2.5 IN)		MUCK
X	DETRITUS		OTHER

PERENNIAL STREAM: X **INTERMITTENT STREAM:** ______ **EPHEMERAL:** ______

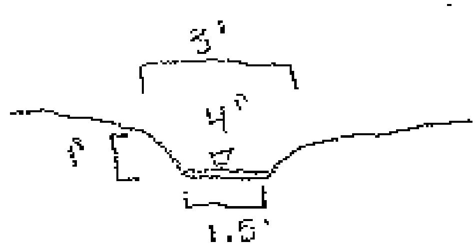
MACROINVERTEBRATES:

	EPHEMEROPTERA (Mayfly)		LEPIDOPTERA (Moth)
	NEUROPTERA (lacewings)		AMPHIPODA (Scud)
X	TRICHOPTERA (Caddisfly)		COLEOPTERA (Water Penny)
	PLECOPTERA (Stonefly)		MEGALOPTERA (Hellgrammite)
	HEMIPTERA (Leafhoppers)		GASTROPODA (Snail)
X	DIPTERA (True Fly)		PLANARIIDAE (Flatworm)
	ODONATA (Dragonfly, Damselfly)		HIRUDINEA (Leech)
	ISOPODA (Sowbug)		BIVALVIA (Molluscs)
	DECAPODA (Crayfish)		HYDRACHNIDIA (Mites)
	NO MACRONIVERTEBRATES		FIN FISH

CROSS SECTIONAL DIAGRAM

(NOT TO SCALE)

LEFT DESCENDING BANK (FT) (include primary and secondary banks in the drawing)



RIGHT DESCENDING BANK (FT) (include primary and secondary banks in the drawing)

WIDTH (FT)
(TOP OF BANK TO TOP OF BANK)

BANK WIDTH **3'** WATER WIDTH **1.5'** NO WATER ______

CHANNEL DEPTH **1'** WATER DEPTH **4"**

SURFACE WATER SURVEY

STREAM NAME: **STR 4** PROJECT: Greenbag Road

DRAINAGE BASIN: **Cobun Creek** INVESTIGATORS: JAA, LEM

DATE: 2.4.19

PHYSICAL PARAMETERS:

SUBSTRATE TYPES:

	BEDROCK		CLAY
	BOULDERS 10 IN	**X**	SAND
	COBBLE (2.5-10 IN)	**X**	SILT
X	GRAVEL (<2.5 IN)	**X**	MUCK
X	DETRITUS		OTHER

PERENNIAL STREAM: ______ **INTERMITTENT STREAM:** X **EPHEMERAL:** ______

MACROINVERTEBRATES:

	EPHEMEROPTERA (Mayfly)		LEPIDOPTERA (Moth)
	NEUROPTERA (lacewings)		AMPHIPODA (Scud)
X	TRICHOPTERA (Caddisfly)		COLEOPTERA (Water Penny)
	PLECOPTERA (Stonefly)		MEGALOPTERA (Hellgrammite)
	HEMIPTERA (Leafhoppers)	X	GASTROPODA (Snail)
	DIPTERA (True Fly)		PLANARIIDAE (Flatworm)
	ODONATA (Dragonfly, Damselfly)		HIRUDINEA (Leech)
	ISOPODA (Sowbug)		BIVALVIA (Molluscs)
	DECAPODA (Crayfish)		HYDRACHNIDIA (Mites)
	NO MACRONIVERTEBRATES		FIN FISH

CROSS SECTIONAL DIAGRAM

(NOT TO SCALE)

LEFT DESCENDING BANK (FT) (include primary and secondary banks in the drawing)

RIGHT DESCENDING BANK (FT) (include primary and secondary banks in the drawing)

WIDTH (FT)
(TOP OF BANK TO TOP OF BANK)

BANK WIDTH	**3'**	WATER WIDTH	**2'**	NO WATER	
CHANNEL DEPTH	**8"**	WATER DEPTH	**4"**		

SURFACE WATER SURVEY

STREAM NAME: **STR 5** PROJECT: Greenbag Road

DRAINAGE BASIN: **Cobun Creek** INVESTIGATORS: JAA. LEM

DATE: 2.4.19

PHYSICAL PARAMETERS:

SUBSTRATE TYPES:

	BEDROCK		CLAY
X	BOULDERS 10 IN	**X**	SAND
X	COBBLE (2.5-10 IN)	**X**	SILT
X	GRAVEL (<2.5 IN)	**X**	MUCK
X	DETRITUS		OTHER

PERENNIAL STREAM: X **INTERMITTENT STREAM:** ______ **EPHEMERAL:** ______

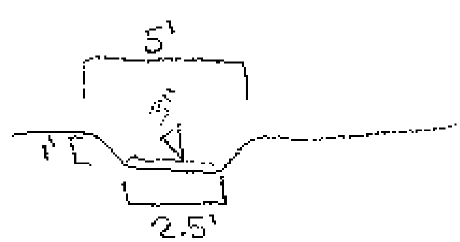
MACROINVERTEBRATES:

	EPHEMEROPTERA (Mayfly)		LEPIDOPTERA (Moth)
	NEUROPTERA (lacewings)		AMPHIPODA (Scud)
	TRICHOPTERA (Caddisfly)		COLEOPTERA (Water Penny)
	PLECOPTERA (Stonefly)		MEGALOPTERA (Hellgrammite)
	HEMIPTERA (Leafhoppers)	X	GASTROPODA (Snail)
X	DIPTERA (True Fly)		PLANARIIDAE (Flatworm)
	ODONATA (Dragonfly, Damselfly)		HIRUDINEA (Leech)
	ISOPODA (Sowbug)		BIVALVIA (Molluscs)
	DECAPODA (Crayfish)		HYDRACHNIDIA (Mites)
	NO MACRONIVERTEBRATES		FIN FISH

CROSS SECTIONAL DIAGRAM

(NOT TO SCALE)

LEFT DESCENDING BANK (FT) (include primary and secondary banks in the drawing)



RIGHT DESCENDING BANK (FT) (include primary and secondary banks in the drawing)

WIDTH (FT)
(TOP OF BANK TO TOP OF BANK)

BANK WIDTH	**5'**	WATER WIDTH	**2.5'**	NO WATER	
CHANNEL DEPTH	**1'**	WATER DEPTH	**3"**		

SURFACE WATER SURVEY

STREAM NAME: **STR 6** PROJECT: Greenbag Road

DRAINAGE BASIN: **Cobun Creek** INVESTIGATORS: JAA / LEM

DATE: 2.4.19

PHYSICAL PARAMETERS:

SUBSTRATE TYPES:

	BEDROCK	**X**	CLAY
	BOULDERS 10 IN	**X**	SAND
X	COBBLE (2.5-10 IN)	**X**	SILT
X	GRAVEL (<2.5 IN)	**X**	MUCK
X	DETRITUS		OTHER

PERENNIAL STREAM: **X** **INTERMITTENT STREAM:** ____ **EPHEMERAL:** ____

MACROINVERTEBRATES:

	EPHEMEROPTERA (Mayfly)		LEPIDOPTERA (Moth)
	NEUROPTERA (lacewings)		AMPHIPODA (Scud)
	TRICHOPTERA (Caddisfly)		COLEOPTERA (Water Penny)
	PLECOPTERA (Stonefly)		MEGALOPTERA (Hellgrammite)
	HEMIPTERA (Leafhoppers)		GASTROPODA (Snail)
	DIPTERA (True Fly)		PLANARIIDAE (Flatworm)
	ODONATA (Dragonfly, Damselfly)	**X**	HIRUDINEA (Leech)
	ISOPODA (Sowbug)		BIVALVIA (Molluscs)
	DECAPODA (Crayfish)		HYDRACHNIDIA (Mites)
	NO MACRONIVERTEBRATES		FIN FISH

CROSS SECTIONAL DIAGRAM

(NOT TO SCALE)

LEFT DESCENDING BANK (FT) (include primary and secondary banks in the drawing)

RIGHT DESCENDING BANK (FT) (include primary and secondary banks in the drawing)

WIDTH (FT)
(TOP OF BANK TO TOP OF BANK)

BANK WIDTH	**4'**	WATER WIDTH	**2.5'**	NO WATER	
CHANNEL DEPTH	**3'**	WATER DEPTH	**3"**		

SURFACE WATER SURVEY

STREAM NAME: **STR 7** PROJECT: Greenbag Road

DRAINAGE BASIN: **Cobun Creek** INVESTIGATORS: JAA / LEM

DATE: 2.4.19

PHYSICAL PARAMETERS:

SUBSTRATE TYPES:

	BEDROCK		CLAY
	BOULDERS 10 IN	**X**	SAND
	COBBLE (2.5-10 IN)	**X**	SILT
	GRAVEL (<2.5 IN)	**X**	MUCK
X	DETRITUS		OTHER

PERENNIAL STREAM: X **INTERMITTENT STREAM:** ______ **EPHEMERAL:** ______

MACROINVERTEBRATES:

	EPHEMEROPTERA (Mayfly)		LEPIDOPTERA (Moth)
	NEUROPTERA (lacewings)		AMPHIPODA (Scud)
	TRICHOPTERA (Caddisfly)		COLEOPTERA (Water Penny)
	PLECOPTERA (Stonefly)		MEGALOPTERA (Hellgrammite)
	HEMIPTERA (Leafhoppers)		GASTROPODA (Snail)
	DIPTERA (True Fly)	**X**	PLANARIIDAE (Flatworm)
	ODONATA (Dragonfly, Damselfly)		HIRUDINEA (Leech)
	ISOPODA (Sowbug)		BIVALVIA (Molluscs)
	DECAPODA (Crayfish)		HYDRACHNIDIA (Mites)
	NO MACRONIVERTEBRATES		FIN FISH

CROSS SECTIONAL DIAGRAM
(NOT TO SCALE)

LEFT DESCENDING BANK (FT) (include primary and secondary banks in the drawing)

RIGHT DESCENDING BANK (FT) (include primary and secondary banks in the drawing)

WIDTH (FT)
(TOP OF BANK TO TOP OF BANK)

BANK WIDTH **2'** WATER WIDTH **1.5'** NO WATER ______

CHANNEL DEPTH **1'** WATER DEPTH **1"**

SURFACE WATER SURVEY

STREAM NAME: **STR 8** PROJECT: Greenbag Road
DRAINAGE BASIN: **Cobun Creek** INVESTIGATORS: JAA / LEM
DATE: 2.4.19

PHYSICAL PARAMETERS:

SUBSTRATE TYPES:

	BEDROCK		CLAY
	BOULDERS 10 IN	X	SAND
X	COBBLE (2.5-10 IN)	X	SILT
X	GRAVEL (<2.5 IN)	X	MUCK
X	DETRITUS		OTHER

PERENNIAL STREAM: _____ **INTERMITTENT STREAM:** X **EPHEMERAL:** _____

MACROINVERTEBRATES:

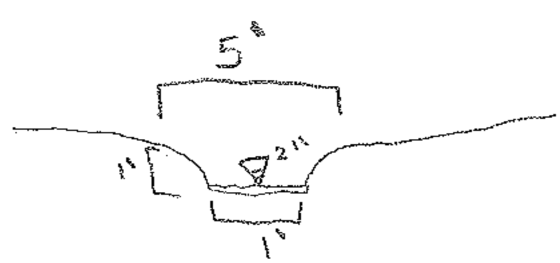
	EPHEMEROPTERA (Mayfly)		LEPIDOPTERA (Moth)
	NEUROPTERA (lacewings)		AMPHIPODA (Scud)
X	TRICHOPTERA (Caddisfly)		COLEOPTERA (Water Penny)
	PLECOPTERA (Stonefly)		MEGALOPTERA (Hellgrammite)
	HEMIPTERA (Leafhoppers)		GASTROPODA (Snail)
	DIPTERA (True Fly)		PLANARIIDAE (Flatworm)
	ODONATA (Dragonfly, Damselfly)		HIRUDINEA (Leech)
	ISOPODA (Sowbug)		BIVALVIA (Molluscs)
	DECAPODA (Crayfish)		HYDRACHNIDIA (Mites)
	NO MACRONIVERTEBRATES		FIN FISH

*AMD Discharge

CROSS SECTIONAL DIAGRAM

(NOT TO SCALE)

LEFT DESCENDING BANK (FT) (include primary and secondary banks in the drawing)



RIGHT DESCENDING BANK (FT) (include primary and secondary banks in the drawing)

WIDTH (FT)
(TOP OF BANK TO TOP OF BANK)

BANK WIDTH **5'** WATER WIDTH **1'** NO WATER _____
CHANNEL DEPTH **1'** WATER DEPTH **2"**

SURFACE WATER SURVEY

STREAM NAME: **STR 9** PROJECT: Greenbag Road

DRAINAGE BASIN: **Coburn Creek** INVESTIGATORS: JMG / JAR

DATE: 2.4.19

PHYSICAL PARAMETERS:

SUBSTRATE TYPES:

	BEDROCK		CLAY
	BOULDERS 10 IN		SAND
X	COBBLE (2.5-10 IN)	X	SILT
X	GRAVEL (<2.5 IN)		MUCK
	DETRITUS		OTHER

PERENNIAL STREAM: X **INTERMITTENT STREAM:** ____ **EPHEMERAL:** ____

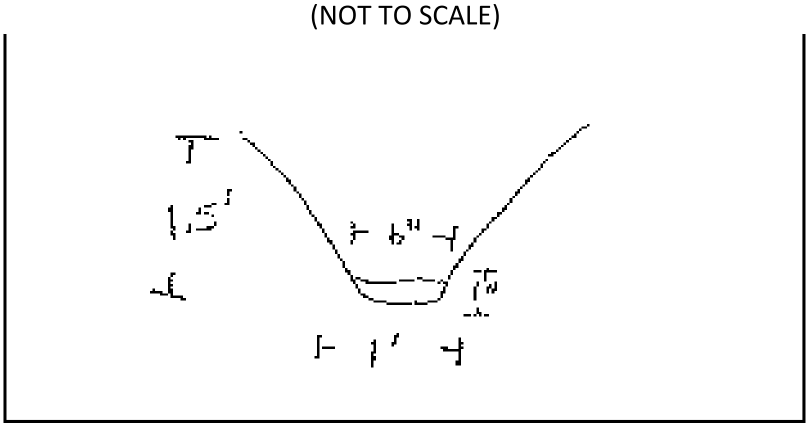
MACROINVERTEBRATES:

	EPHEMEROPTERA (Mayfly)		LEPIDOPTERA (Moth)
	NEUROPTERA (lacewings)		AMPHIPODA (Scud)
X	TRICHOPTERA (Caddisfly)		COLEOPTERA (Water Penny)
	PLECOPTERA (Stonefly)		MEGALOPTERA (Hellgrammite)
	HEMIPTERA (Leafhoppers)		GASTROPODA (Snail)
	DIPTERA (True Fly)		PLANARIIDAE (Flatworm)
	ODONATA (Dragonfly, Damselfly)		HIRUDINEA (Leech)
X	ISOPODA (Sowbug)		BIVALVIA (Molluscs)
	DECAPODA (Crayfish)		HYDRACHNIDIA (Mites)
	NO MACRONIVERTEBRATES		FIN FISH

CROSS SECTIONAL DIAGRAM

(NOT TO SCALE)

LEFT DESCENDING BANK (FT) (include primary and secondary banks in the drawing)



RIGHT DESCENDING BANK (FT) (include primary and secondary banks in the drawing)

WIDTH (FT)
(TOP OF BANK TO TOP OF BANK)

BANK WIDTH **1'** WATER WIDTH **6"** NO WATER ____

CHANNEL DEPTH **1.5'** WATER DEPTH **1"**

SURFACE WATER SURVEY

STREAM NAME: **STR 10 (US Point)** PROJECT: Greenbag Road

DRAINAGE BASIN: **Aaron Creek** INVESTIGATORS: JMG/JAR

DATE: 2.4.19

PHYSICAL PARAMETERS:

SUBSTRATE TYPES:

	BEDROCK		CLAY
X	BOULDERS 10 IN	X	SAND
X	COBBLE (2.5-10 IN)		SILT
X	GRAVEL (<2.5 IN)		MUCK
	DETRITUS		OTHER

PERENNIAL STREAM: X **INTERMITTENT STREAM:** ______ **EPHEMERAL:** ______

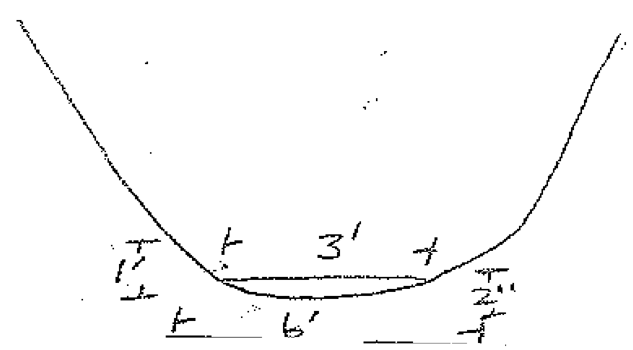
MACROINVERTEBRATES:

	EPHEMEROPTERA (Mayfly)		LEPIDOPTERA (Moth)
	NEUROPTERA (lacewings)		AMPHIPODA (Scud)
X	TRICHOPTERA (Caddisfly)		COLEOPTERA (Water Penny)
	PLECOPTERA (Stonefly)		MEGALOPTERA (Hellgrammite)
	HEMIPTERA (Leafhoppers)	X	GASTROPODA (Snail)
	DIPTERA (True Fly)		PLANARIIDAE (Flatworm)
	ODONATA (Dragonfly, Damselfly)		HIRUDINEA (Leech)
	ISOPODA (Sowbug)		BIVALVIA (Molluscs)
	DECAPODA (Crayfish)		HYDRACHNIDIA (Mites)
	NO MACRONIVERTEBRATES		FIN FISH

CROSS SECTIONAL DIAGRAM

(NOT TO SCALE)

LEFT DESCENDING BANK (FT) (include primary and secondary banks in the drawing)



RIGHT DESCENDING BANK (FT) (include primary and secondary banks in the drawing)

WIDTH (FT)
(TOP OF BANK TO TOP OF BANK)

BANK WIDTH **6'** WATER WIDTH **3'** NO WATER ______

CHANNEL DEPTH **1'** WATER DEPTH **2"**

SURFACE WATER SURVEY

STREAM NAME: **STR 10 (DS Point)** PROJECT: Greenbag Road

DRAINAGE BASIN: **Aaron Creek** INVESTIGATORS: JMG/JAR

DATE: 2.4.19

PHYSICAL PARAMETERS:

SUBSTRATE TYPES:

	BEDROCK		CLAY
	BOULDERS 10 IN	**X**	SAND
X	COBBLE (2.5-10 IN)	**X**	SILT
X	GRAVEL (<2.5 IN)		MUCK
	DETRITUS		OTHER

PERENNIAL STREAM: X **INTERMITTENT STREAM:** ______ **EPHEMERAL:** ______

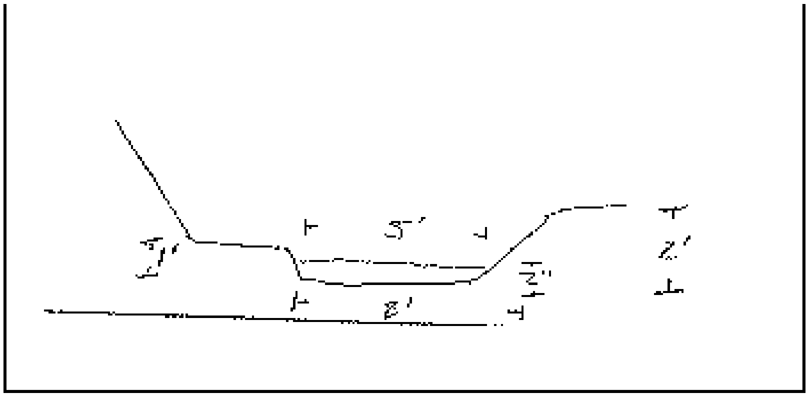
MACROINVERTEBRATES:

	EPHEMEROPTERA (Mayfly)		LEPIDOPTERA (Moth)
	NEUROPTERA (lacewings)		AMPHIPODA (Scud)
X	TRICHOPTERA (Caddisfly)		COLEOPTERA (Water Penny)
	PLECOPTERA (Stonefly)		MEGALOPTERA (Hellgrammite)
	HEMIPTERA (Leafhoppers)		GASTROPODA (Snail)
	DIPTERA (True Fly)		PLANARIIDAE (Flatworm)
	ODONATA (Dragonfly, Damselfly)		HIRUDINEA (Leech)
	ISOPODA (Sowbug)		BIVALVIA (Molluscs)
	DECAPODA (Crayfish)		HYDRACHNIDIA (Mites)
	NO MACRONIVERTEBRATES		FIN FISH

CROSS SECTIONAL DIAGRAM

(NOT TO SCALE)

LEFT DESCENDING BANK (FT) (include primary and secondary banks in the drawing)



RIGHT DESCENDING BANK (FT) (include primary and secondary banks in the drawing)

WIDTH (FT)
(TOP OF BANK TO TOP OF BANK)

BANK WIDTH	**8'**	WATER WIDTH	**5'**	NO WATER	
CHANNEL DEPTH	**LB=1'** **RB=2'**	WATER DEPTH	**2"**		

SURFACE WATER SURVEY

STREAM NAME: **STR 11** PROJECT: Greenbag Road

DRAINAGE BASIN: **Aaron Creek** INVESTIGATORS: JMG/JAR

DATE: 2.4.19

PHYSICAL PARAMETERS:

SUBSTRATE TYPES:

	BEDROCK		CLAY
X	BOULDERS 10 IN	X	SAND
X	COBBLE (2.5-10 IN)	X	SILT
X	GRAVEL (<2.5 IN)		MUCK
	DETRITUS		OTHER

PERENNIAL STREAM: X **INTERMITTENT STREAM:** ____ **EPHEMERAL:** ____

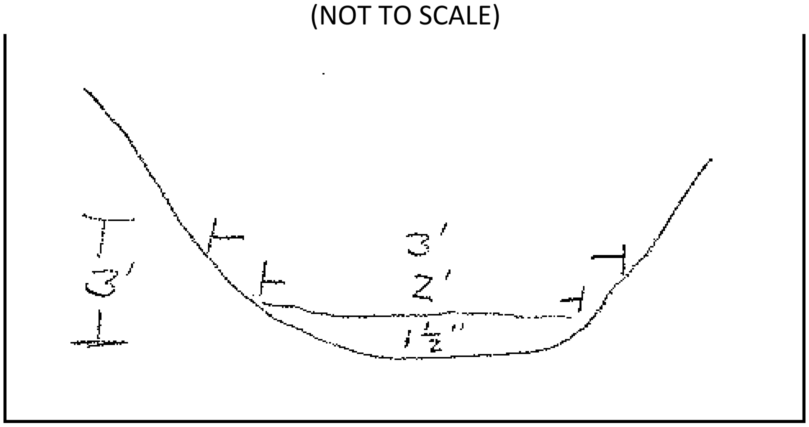
MACROINVERTEBRATES:

	EPHEMEROPTERA (Mayfly)		LEPIDOPTERA (Moth)
	NEUROPTERA (lacewings)		AMPHIPODA (Scud)
X	TRICHOPTERA (Caddisfly)		COLEOPTERA (Water Penny)
	PLECOPTERA (Stonefly)		MEGALOPTERA (Hellgrammite)
	HEMIPTERA (Leafhoppers)	X	GASTROPODA (Snail)
	DIPTERA (True Fly)		PLANARIIDAE (Flatworm)
	ODONATA (Dragonfly, Damselfly)		HIRUDINEA (Leech)
	ISOPODA (Sowbug)		BIVALVIA (Molluscs)
	DECAPODA (Crayfish)		HYDRACHNIDIA (Mites)
	NO MACRONIVERTEBRATES		FIN FISH

CROSS SECTIONAL DIAGRAM

(NOT TO SCALE)

LEFT DESCENDING BANK (FT) (include primary and secondary banks in the drawing)



RIGHT DESCENDING BANK (FT) (include primary and secondary banks in the drawing)

WIDTH (FT)
(TOP OF BANK TO TOP OF BANK)

BANK WIDTH	3'	WATER WIDTH	2'	NO WATER	
CHANNEL DEPTH	3'	WATER DEPTH	1.5"		

SURFACE WATER SURVEY

STREAM NAME: **STR 12 (Aaron Creek)** PROJECT: Greenbag Road

DRAINAGE BASIN: **Aaron Creek** INVESTIGATORS: JMG/JAR

DATE: 2.4.19

PHYSICAL PARAMETERS:

SUBSTRATE TYPES:

	BEDROCK		CLAY
X	BOULDERS 10 IN	X	SAND
X	COBBLE (2.5-10 IN)		SILT
X	GRAVEL (<2.5 IN)		MUCK
	DETRITUS		OTHER

PERENNIAL STREAM: X **INTERMITTENT STREAM:** ______ **EPHEMERAL:** ______

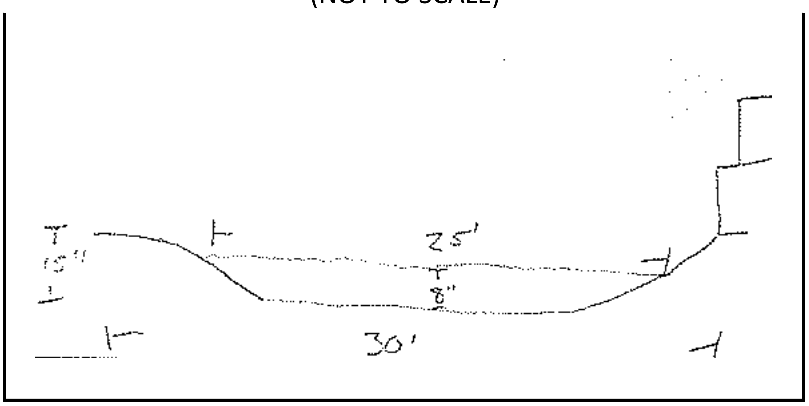
MACROINVERTEBRATES:

	EPHEMEROPTERA (Mayfly)		LEPIDOPTERA (Moth)
	NEUROPTERA (lacewings)		AMPHIPODA (Scud)
X	TRICHOPTERA (Caddisfly)		COLEOPTERA (Water Penny)
X	PLECOPTERA (Stonefly)		MEGALOPTERA (Hellgrammite)
	HEMIPTERA (Leafhoppers)		GASTROPODA (Snail)
	DIPTERA (True Fly)		PLANARIIDAE (Flatworm)
	ODONATA (Dragonfly, Damselfly)		HIRUDINEA (Leech)
	ISOPODA (Sowbug)		BIVALVIA (Molluscs)
	DECAPODA (Crayfish)		HYDRACHNIDIA (Mites)
	NO MACRONIVERTEBRATES		FIN FISH

CROSS SECTIONAL DIAGRAM

(NOT TO SCALE)

LEFT DESCENDING BANK (FT) (include primary and secondary banks in the drawing)



RIGHT DESCENDING BANK (FT) (include primary and secondary banks in the drawing)

WIDTH (FT)
(TOP OF BANK TO TOP OF BANK)

BANK WIDTH **30'** WATER WIDTH **25'** NO WATER ______

CHANNEL DEPTH **15"** WATER DEPTH **8"**

SURFACE WATER SURVEY

STREAM NAME: **STR 13** PROJECT: Greenbag Road

DRAINAGE BASIN: **Cobun Creek** INVESTIGATORS: ASB/KMW

DATE: 10.8.19

PHYSICAL PARAMETERS:

SUBSTRATE TYPES:

	BEDROCK	X	CLAY
X	BOULDERS 10 IN	X	SAND
X	COBBLE (2.5-10 IN)		SILT
X	GRAVEL (<2.5 IN)		MUCK
X	DETRITUS		OTHER

PERENNIAL STREAM: ____ **INTERMITTENT STREAM:** X **EPHEMERAL:** ____

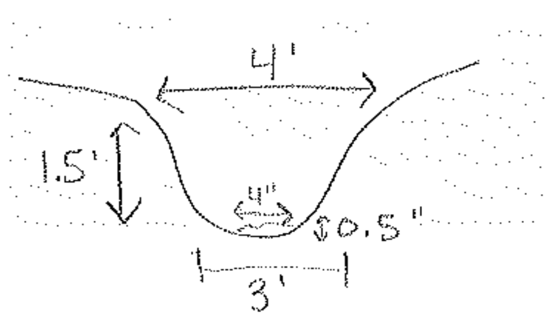
MACROINVERTEBRATES:

	EPHEMEROPTERA (Mayfly)		LEPIDOPTERA (Moth)
	NEUROPTERA (lacewings)		AMPHIPODA (Scud)
X	TRICHOPTERA (Caddisfly)		COLEOPTERA (Water Penny)
	PLECOPTERA (Stonefly)		MEGALOPTERA (Hellgrammite)
	HEMIPTERA (Leafhoppers)		GASTROPODA (Snail)
	DIPTERA (True Fly)	X	PLANARIIDAE (Flatworm)
	ODONATA (Dragonfly, Damselfly)		HIRUDINEA (Leech)
	ISOPODA (Sowbug)		BIVALVIA (Molluscs)
	DECAPODA (Crayfish)		HYDRACHNIDIA (Mites)
	NO MACRONIVERTEBRATES		FIN FISH

CROSS SECTIONAL DIAGRAM

(NOT TO SCALE)

LEFT DESCENDING BANK (FT) (include primary and secondary banks in the drawing)



RIGHT DESCENDING BANK (FT) (include primary and secondary banks in the drawing)

WIDTH (FT)
(TOP OF BANK TO TOP OF BANK)

BANK WIDTH	**4'**	WATER WIDTH	**4"**	NO WATER	
CHANNEL DEPTH	**1.5'**	WATER DEPTH	**0.5"**		

APPENDIX C
Wetland and Stream Function Evaluation Forms

Wetland Function Evaluation Form

WETLAND I.D. WL1 Prepared by: JMG / JAR Date: 2/04/2019

Latitude: 39.60577° Longitude: -79.94769°

Total area of wetland: 0.52 acres Watershed Size: - Name of Watershed/drainage basin: Cobun Creek

Human made? No Is wetland part of a wildlife corridor? Yes Or a "habitat island"? No

Distance to nearest roadway or other development 90 feet Contiguous undeveloped buffer zone present N/A

Is wetland disturbed? No Type of Disturbance: N/A

Is wetland hydrologically Isolated? No If not, where does the wetland lie in the drainage basin? Lower Portions

Geomorphic Setting: Hill Slope Water Source: Groundwater, Stream Overflow Hydrodynamics: Seasonal Saturation, Intermittently Flooded

Adjacent Land Use: Transportation Wetland Impact: N/A Area: N/A

Is wetland designated as EV? No Dominant Cowardin Classification: 75% PEM / 25% PFO

How many tributaries contribute to the wetland? 1

Evaluation based on:

Office____ Field X Corps manual wetland delineation completed? Yes X No____

Function	Occurrence N	Occurrence Y	Rationale (Reference #)	Principal Function(s)	Comments
Groundwater Recharge/Discharge		X	7,13		Hillside seep, some opportunity for groundwater discharge
Floodflow Alteration		X	5,9,10,14		Floodplain provides some opportunity for flood flow alteration
Fish and Shellfish Habitat	X				No permanent open water
Sediment/Toxicant Retention		X	9,10,13,14		Wetland receives hillside runoff
Nutrient Removal		X	12		Wetland receives hillside runoff which may carry excess nutrients

Production Export		X	1,4		Heavy wildlife usage.
Sediment/Shoreline Stabilization	X				
Wildlife Habitat (B, W, M)		X	1,3,4,5,8,16,17,19		Deer scat and tracks observed within wetland.
Recreation	X				
Educational/Scientific Value	X				
Uniqueness/Heritage	X				
Visual Quality/Aesthetics	X				
Endangered Species Habitat	X				

Notes:

Hillside seep type wetland

75% PEM / 25% PFO

Wetland Function Evaluation Form

WETLAND I.D. WL2 Prepared by: JAA, LEM Date: 2/4/2019

Latitude: 39.60708° Longitude: -79.94683°

Total area of wetland: 0.048 acres Watershed Size: N/A Name of Watershed/drainage basin: Cobun Creek

Human made? No Is wetland part of a wildlife corridor? Yes Or a "habitat island"? No

Distance to nearest roadway or other development 35 feet Contiguous undeveloped buffer zone present: No

Is wetland disturbed? No Type of Disturbance: N/A

Is wetland hydrologically Isolated? No If not, where does the wetland lie in the drainage basin? Lower Portions

Geomorphic Setting: Valley Water Source: Hillside runoff, Stream Overflow Hydrodynamics: Seasonal Saturation

Adjacent Land Use: Commercial/ Residential Wetland Impact: N/A Area: N/A

Is wetland designated as EV? No Dominant Cowardin Classification: 70% PEM / 30% PSS

How many tributaries contribute to the wetland?: 1

Evaluation based on:

Office____ Field X Corps manual wetland delineation completed? Yes X No____

Function	Occurrence N	Occurrence Y	Rationale (Reference #)	Principal Function(s)	Comments
Groundwater Recharge/Discharge		X	7		Floodplain wetland provides some opportunity for groundwater discharge
Floodflow Alteration		X	5,6,18		Floodplain and scrub-shrub vegetation provide opportunity for floodflow alteration.
Fish and Shellfish Habitat	X				No permanent open water
Sediment/Toxicant Retention		X	1,2,4		Wetland receives roadway runoff stream flood flow provides opportunity for sediment / toxicant retention
Nutrient Removal		X	3		Stream flood flow provides opportunity for nutrient removal

Production Export		X	2		Heavy wildlife usage
Sediment/Shoreline Stabilization		X	15		Dense Vegetation
Wildlife Habitat (B, W, M)		X	16		Deer scat observed within wetland
Recreation	X				
Educational/Scientific Value	X				
Uniqueness/Heritage	X				
Visual Quality/Aesthetics	X				
Endangered Species Habitat	X				

Notes:

Floodplain type wetland

70% PEM / 30% PSS

Wetland Function Evaluation Form

WETLAND I.D. WL3 Prepared by: JAA, LEM Date: 2/4/2019

Latitude: 39.60891° Longitude: -79.95631°

Total area of wetland: 0.039 acres Watershed Size: N/A Name of Watershed/drainage basin: Cobun Creek

Human made? No Is wetland part of a wildlife corridor? Yes Or a "habitat island"?: No

Distance to nearest roadway or other development 50 feet Contiguous undeveloped buffer zone present: No

Is wetland disturbed? No Type of Disturbance: -

Is wetland hydrologically Isolated? No If not, where does the wetland lie in the drainage basin? Lower Portions

Geomorphic Setting: Hillslope Water Source: Hillside runoff, Groundwater Hydrodynamics: Seasonal Saturation and Flooding

Adjacent Land Use: Transportation Wetland Impact: N/A Area: N/A

Is wetland designated as EV? No Dominant Cowardin Classification: 100% PEM

How many tributaries contribute to the wetland? 1 (during high flow events—in floodplain associated with Cobun Creek)

Evaluation based on:

Office ____ Field X Corps manual wetland delineation completed? Yes X No ____

Function	Occurrence N	Occurrence Y	Rationale (Reference #)	Principal Function(s)	Comments
Groundwater Recharge/Discharge	X				
Floodflow Alteration		X	5,9		Wetland contains hydric soils and provides opportunity to receive and detain overland flow from surrounding uplands,
Fish and Shellfish Habitat	X				No permanent open water
Sediment/Toxicant Retention		X	1,2,5,10		Wetland receives roadway runoff and provides opportunity for sediment / toxicant retention
Nutrient Removal		X	3,4		Wetland receives roadway runoff which may provide an opportunity for the wetland to receive excess nutrients.

Production Export		X	1,2,4		Deer scat was observed within the wetland
Sediment/Shoreline Stabilization	X				
Wildlife Habitat (B, W, M)		X	8,17		Deer scat and tracks were observed within wetland
Recreation	X				
Educational/Scientific Value	X				
Uniqueness/Heritage	X				
Visual Quality/Aesthetics	X				
Endangered Species Habitat	X				

Notes:

Hillslope type wetland

100% PEM

Wetland Function Evaluation Form

WETLAND I.D. WL4 Prepared by: JAA, LEM Date: 2/4/2019

Latitude: 39.60851° Longitude: -79.95849°

Total area of wetland: 0.041 acres Watershed Size: N/A Name of Watershed/drainage basin: Cobun Creek

Human made? No Is wetland part of a wildlife corridor? Yes Or a "habitat island"? No

Distance to nearest roadway or other development 10 feet Contiguous undeveloped buffer zone present No

Is wetland disturbed? Yes Type of Disturbance Roadside ditch

Is wetland hydrologically Isolated? No If not, where does the wetland lie in the drainage basin? N/A

Geomorphic Setting: Hillslope Water Source: Roadway Runoff / Groundwater Hydrodynamics: Seasonal Saturation

Adjacent Land Use: Transportation Wetland Impact: N/A Area: N/A

Is wetland designated as EV? No Dominant Cowardin Classification: PEM

How many tributaries contribute to the wetland? 0

Evaluation based on:

Office_____ Field X Corps manual wetland delineation completed? Yes X No_____

Function	Occurrence N	Occurrence Y	Rationale (Reference #)	Principal Function(s)	Comments
Groundwater Recharge/Discharge		X	15		Wetland shows signs of variable water levels.
Floodflow Alteration	X				
Fish and Shellfish Habitat	X				No permanent open water
Sediment/Toxicant Retention		X	1,15,16		Wetland receives and detains roadway runoff, which potentially carries sediments and/or toxicants; Wetland has a high degree of water and vegetation interspersion; Dense vegetation provides opportunity for sediment trapping.

Nutrient Removal		X	3		Wetland receives roadway runoff which may provide an opportunity for the wetland to receive excess nutrients.
Production Export		X	1,2,4		Rabbit scat observed in wetland
Sediment/Shoreline Stabilization	X				
Wildlife Habitat (B, W, M)		X	17,23		Rabbit scat observed in wetland
Recreation	X				
Educational/Scientific Value	X				
Uniqueness/Heritage	X				
Visual Quality/Aesthetics	X				
Endangered Species Habitat	X				

Notes:

Hillslope/Roadway drainage ditch type wetland

100% PEM

Wetland Function Evaluation Form

WETLAND I.D. WL5 Prepared by: JAA, LEM Date: 2/4/2019

Latitude: 39.60851° Longitude: -79.95754°

Total area of wetland: 0.0072 acres Watershed Size: N/A Name of Watershed/drainage basin: Cobun Creek

Human made? No Is wetland part of a wildlife corridor? Yes Or a "habitat island"? No

Distance to nearest roadway or other development 15 feet Contiguous undeveloped buffer zone present No

Is wetland disturbed? Yes Type of Disturbance Roadside ditch

Is wetland hydrologically Isolated? No If not, where does the wetland lie in the drainage basin? Lower Portions

Geomorphic Setting: Hillslope Water Source: Roadway Runoff / Groundwater Hydrodynamics: Seasonal Saturation

Adjacent Land Use: Transportation Wetland Impact: N/A Area: N/A

Is wetland designated as EV? No Dominant Cowardin Classification: PEM

How many tributaries contribute to the wetland? 0

Evaluation based on:

Office____ Field X Corps manual wetland delineation completed? Yes X No____

Function	Occurrence N	Occurrence Y	Rationale (Reference #)	Principal Function(s)	Comments
Groundwater Recharge/Discharge		X	15		Wetland shows signs of variable water levels.
Floodflow Alteration	X				
Fish and Shellfish Habitat	X				No permanent open water
Sediment/Toxicant Retention		X	1,15,16		Wetland receives and detains roadway runoff, which potentially carries sediments and/or toxicants; Wetland has a high degree of water and vegetation interspersion; Dense vegetation provides opportunity for sediment trapping.

Nutrient Removal		X	3		Near roadway, may trap sediment laden runoff. Wetland receives roadway runoff which may provide an opportunity for the wetland to receive excess nutrients.
Production Export		X	1,2,4		Rabbit scat observed
Sediment/Shoreline Stabilization	X				
Wildlife Habitat (B, W, M)		X	17,23		Rabbit habitat and scat observed
Recreation	X				
Educational/Scientific Value	X				
Uniqueness/Heritage	X				
Visual Quality/Aesthetics	X				
Endangered Species Habitat	X				

Notes:

Hillslope type wetland

100% PEM

Wetland Function Evaluation Form

WETLAND I.D. WL6 Prepared by: JAA, LEM Date: 2/4/2019

Latitude: 39.60689° Longitude: -79.95393°

Total area of wetland: 0.299 Watershed Size: N/A Name of Watershed/drainage basin: Cobun Creek

Human made? No Is wetland part of a wildlife corridor? Yes Or a "habitat island"? No

Distance to nearest roadway or other development 40 feet Contiguous undeveloped buffer zone present No

Is wetland disturbed? No Type of Disturbance N/A

Is wetland hydrologically Isolated? No If not, where does the wetland lie in the drainage basin? Lower Portions

Geomorphic Setting: Floodplain Water Source: Stream Overflow / Groundwater Hydrodynamics: Seasonal Saturation, Intermittently Flooded

Adjacent Land Use: Transportation Wetland Impact: N/A Area: N/A

Is wetland designated as EV? No Dominant Cowardin Classification: 80% PFO / 20% PEM

How many tributaries contribute to the wetland? 1

Evaluation based on:

Office_____ Field X Corps manual wetland delineation completed? Yes X No_____

Function	Occurrence N	Occurrence Y	Rationale (Reference #)	Principal Function(s)	Comments
Groundwater Recharge/Discharge		X	4,7		Gravel or sandy soils present in or adjacent to the wetland. Wetland is associated with a perennial watercourse (Cobun Creek).
Floodflow Alteration		X	5,8,9		Forested floodplain wetland provides opportunity for flood flow alteration
Fish and Shellfish Habitat	X				No permanent open water
Sediment/Toxicant Retention		X	1,16		Wetland receives roadway runoff and stream overflow which provides opportunity for sediment / toxicant retention
Nutrient Removal		X	3,9		Wetland receives roadway runoff and stream overflow which provides opportunity for nutrient removal

Production Export		X	1,2,4		Heavy wildlife usage, animal tracks observed within wetland
Sediment/Shoreline Stabilization		X	3,4,15		Vegetation provides shoreline stabilization for Cobun Creek
Wildlife Habitat (B, W, M)		X	17,19		Deer scat, wetland provides opportunity for travel corridor and wildlife habitat
Recreation	X				
Educational/Scientific Value	X				
Uniqueness/Heritage	X				
Visual Quality/Aesthetics	X				
Endangered Species Habitat	X				

Notes:

Floodplain type wetland

80% PFO / 20% PEM

Wetland Function Evaluation Form

WETLAND I.D. WL7 Prepared by: KMW, LEM Date: 3/26/19

Latitude: 39.60579° Longitude: -79.94837°

Total area of wetland: 0.228 acres Watershed Size: N/A Name of Watershed/drainage basin: Cobun Creek

Human made? No Is wetland part of a wildlife corridor? Yes Or a "habitat island"? No

Distance to nearest roadway or other development 10 feet Contiguous undeveloped buffer zone present No

Is wetland disturbed? No Type of Disturbance -

Is wetland hydrologically Isolated? No If not, where does the wetland lie in the drainage basin? Lower Portions

Geomorphic Setting: Hillslope Water Source: Groundwater, Roadway Runoff Hydrodynamics: Seasonal Saturation

Adjacent Land Use: Transportation Wetland Impact: N/A Area: N/A

Is wetland designated as EV? No Dominant Cowardin Classification: 75% PEM / 25% PFO

How many tributaries contribute to the wetland? -

Evaluation based on:

Office_____ Field X Corps manual wetland delineation completed? Yes X No_____

Function	Occurrence N	Occurrence Y	Rationale (Reference #)	Principal Function(s)	Comments
Groundwater Recharge/Discharge		X	4,8,13,15		Multiple hillside springs of groundwater seeps observed within this wetland
Floodflow Alteration		X	5,8,9,10		Hillslope wetland fed by seep/transitions to floodplain wetland
Fish and Shellfish Habitat	X				No permanent open water
Sediment/Toxicant Retention		X	1,2,10		Opportunity for wetland to receive and detain roadway runoff and stream overflow which may carry sediments or toxicants.
Nutrient Removal		X	3,4,5,10		Wetland receives roadway runoff and stream overflow which may carry excess nutrients.

Production Export		X	1,2,4		Heavy wildlife usage, animal scat observed within wetland
Sediment/Shoreline Stabilization		X	1,2,3,4		Dense vegetation provides shoreline stabilization
Wildlife Habitat (B, W, M)		X	8,13,16,17		Deer tracks observed within wetland indicates wildlife travel corridor.
Recreation	X				
Educational/Scientific Value	X				
Uniqueness/Heritage	X				
Visual Quality/Aesthetics	X				
Endangered Species Habitat	X				

Notes:

Flood terrace type wetland

75% PEM / 25% PFO

Wetland Function Evaluation Form

WETLAND I.D. WL8 Prepared by: KMW, ASB Date: 10/8/19

Latitude: 39.60859° Longitude: -79.95391°

Total area of wetland: 0.07 acres Watershed Size: N/A Name of Watershed/drainage basin: Cobun Creek

Human made? Yes Is wetland part of a wildlife corridor? No Or a "habitat island"? No

Distance to nearest roadway or other development 9 feet Contiguous undeveloped buffer zone present No

Is wetland disturbed? Yes Type of Disturbance Parking lot ditch

Is wetland hydrologically Isolated? No If not, where does the wetland lie in the drainage basin? Lower Portions

Geomorphic Setting Toe of slope Water Source: Hillside seep, parking lot runoff Hydrodynamics: Seasonal Saturation

Adjacent Land Use: Transportation Wetland Impact: N/A Area: N/A

Is wetland designated as EV? No Dominant Cowardin Classification: PEM

How many tributaries contribute to the wetland? -

Evaluation based on:

Office____ Field X Corps manual wetland delineation completed? Yes X No____

Function	Occurrence N	Occurrence Y	Rationale (Reference #)	Principal Function(s)	Comments
Groundwater Recharge/Discharge		X	10,13		Stormwater outlet; groundwater/hillside seeps observed.
Floodflow Alteration		X	3,4,5,7,18		Wetland provides opportunity for floodflow alteration as it is bounded by a parking lot and is downgradient of residential development
Fish and Shellfish Habitat	X				No permanent open water
Sediment/Toxicant Retention		X	1,2		Opportunity for wetland to receive and detain parking lot runoff which may carry sediments or toxicants.
Nutrient Removal		X	3,4,5,8,9		Wetland detains parking lot runoff, and runoff from up-gradient housing development, which potentially carries excess nutrients

Production Export		X	4,7		Deer trails and scat observed within wetland
Sediment/Shoreline Stabilization	X				
Wildlife Habitat (B, W, M)		X	13,17		Deer trails and scat observed within wetland
Recreation	X				
Educational/Scientific Value	X				
Uniqueness/Heritage	X				
Visual Quality/Aesthetics	X				
Endangered Species Habitat	X				

Notes:

Stormwater drainage feature wetland

100% PEM

Ver. 9-21-17

FCI Calculator for the Low-Gradient Perennial Streams in Appalachia

Go to the SAR Data Entry tab and enter site characteristics and data in the yellow cells or drop down menus. For information on determining how to split a project into SARs, see Chapter 5 of the Operational Draft Regional Guidebook for the Functional Assessment of High-Gradient Headwater Streams and Low-Gradient Perennial Streams in Appalachia (Environmental Laboratory U.S. Army Corps of Engineers 2015).

Project Name: Greenbag Road Improvement Project
Location: STR 1 (Cobun Creek)
Sampling Date: 3/13/19

Project Site — Before Project

SAR number: 1

Enter Results in Section A of the Mitigation Sufficiency Calculator

Functional Results Summary:

Function	Functional Capacity Index
Hydrology	0.42
Biogeochemical Cycling	0.35
Habitat	0.55

Variable Measure and Subindex Summary:

Variable	Name	Average Measure	Subindex
$V_{CCANOPY}$	Percent canopy over channel.	3.00	0.00
V_{EMBED}	Average embeddedness of channel.	2.98	0.71
$V_{SUBSTRATE}$	Median stream channel substrate particle size.	3.00	0.86
$V_{BANKSTAB}$	Weighted lengths of erosion by class	87.68	0.14
V_{LWD}	Number of down woody stems per 100 feet of stream.	35.33	0.71
V_{TDBH}	Average dbh of trees.	10.20	1.00
V_{TDEN}	Average Density of Trees	328.13	0.68
V_{CVALUE}	Average Coefficient of Conservatism of riparian species.	4.00	0.91
V_{FOREST}	Percent forest cover for Catchment.	80.00	0.90

Low-Gradient Perennial Streams in Appalachia
Field Data Sheet and Calculator

Assessment Team:	Markosky	Latitude/UTM Northing:	39.60819°
Project Name:	Greenbag Road Improvement Project	Longitude/UTM Easting:	-79.95543°
Location:	STR 1 (Cobun Creek)	Sampling Date:	3/13/19

SAR Number: 1 Thalweg Length (ft): 300 (300 ft suggested minimum)

Site and Timing: Project Site Before Project

Sample Variables 1-4 in stream channel

1 $V_{CCANOPY}$ Average percent cover over channel by tree and sapling canopy. Measure at no fewer than 10 roughly equidistant points along the stream. Measure for all streams, even if cover is less than 20%. **3.0 %**

List the percent cover measurements at each point below (between 0 and 100):

10	0	0	5	0	15	0	0	0	0

2 V_{EMBED} Average embeddedness of the stream channel. Measure at no fewer than 60 roughly equidistant points along the stream. Select a particle from the bed. Before moving it, determine the percentage of the surface and area surrounding the particle that is covered by fine sediment, and enter the rating according to the following table. If the bed is an artificial surface, or composed of fine sediments, use a rating score of 1. If the bed is composed of bedrock, use a rating score of 5. **2.98**

Embeddedness rating for gravel, cobble and boulder particles (rescaled from Platts, Megahan, and Minshall 1983)

Rating	Rating Description
5	<5 percent of surface covered, surrounded, or buried by fine sediment **(or bedrock)**
4	5 to 25 percent of surface covered, surrounded, or buried by fine sediment
3	26 to 50 percent of surface covered, surrounded, or buried by fine sediment
2	51 to 75 percent of surface covered, surrounded, or buried by fine sediment
1	>75 percent of surface covered, surrounded, or buried by fine sediment **(or artificial surface)**

List the ratings at each point below:

3	2	1	1	1	5	2	4		
1	1	1	3	4	5	4	3		
1	1	2	5	4	3	5	5		
1	1	5	5	4	5	3	2		
1	3	5	4	3	4	5	4		
1	1	5	2	5	4	1	3		
3	1	4	4	5	5	1	2		
2	4	1	4	3	3	2			

3 $V_{SUBSTRATE}$ Median stream channel substrate particle size. Measure at no fewer than 60 roughly equidistant points along the stream; use the same points and particles as used in V_{EMBED}. **3.00 in**

Enter particle size in inches to the nearest 0.1 inch at each point below (bedrock should be counted as 99 in, asphalt or concrete as 0.0 in, sand or finer particles as 0.08 in):

2.75	1.25	4.00	0.08	0.08	5.50	5.00	5.50		
1.00	0.50	4.50	2.50	0.75	5.00	3.50	3.00		
4.25	0.25	3.50	3.50	3.00	5.00	0.08	4.00		
4.00	1.50	1.00	6.00	2.00	2.50	6.00	5.00		
1.50	1.25	1.50	2.00	2.00	3.50	6.00	4.00		
1.50	1.60	1.75	2.25	3.00	4.00	4.00	2.00		
3.25	3.00	1.00	1.75	5.00	3.50	3.00	1.50		
0.75	3.00	0.08	0.50	5.00	4.00	3.00			

4	$V_{BANKSTAB}$	This variable is an index incorporating three elements of bank stability: 1) bank erosion length, 2) height category of eroded bank (0.1–2 ft, 2.1–4 ft, >4 ft, or artificial stabilization), and 3) length of artificial stream bank stabilization. Measure the length of the SAR along the thalweg, and enter at the top of the page. Record the length of each eroded area, using the drop down menus to select erosion class. Measure erosion on both sides of the stream. Index ranges from 0 to 200.	87.7

☐ Check here if there is no erosion on either bank.

Length of SAR at thalweg (ft): 300

Total Weighted Erosion length (ft): 263.05

Left Stream Bank				Right Stream Bank			
Height of Erosion Category	Height Index	Length	Contri-bution	Height of Erosion Category	Height Index	Length	Contri-bution
1) 0.1 - 2 ft.	0.5	28 ft	14.0 ft	2) 2.1 - 4 ft.	0.7	82 ft	57.4 ft
4) Artificial Bank	0.5	20 ft	10.0 ft	4) Artificial Bank	0.5	25 ft	12.3 ft
1) 0.1 - 2 ft.	0.5	50 ft	25.0 ft	1) 0.1 - 2 ft.	0.5	34 ft	17.0 ft
4) Artificial Bank	0.5	18 ft	9.0 ft	4) Artificial Bank	0.5	13 ft	6.5 ft
2) 2.1 - 4 ft.	0.7	34 ft	23.8 ft				
4) Artificial Bank	0.5	25 ft	12.5 ft				
3) >4 ft.	1.0	63 ft	63.0 ft				
2) 2.1 - 4 ft.	0.7	18 ft	12.6 ft				
Left Bank Erosion length:		256 ft		Right Bank Erosion length:		154 ft	

Sample Variable 5 within the entire riparian/buffer zone adjacent to the stream channel (50 feet from each bank).

5	V_{LWD}	Number of down woody stems (at least 4 inches in diameter and 36 inches in length) per 100 feet of stream reach. Enter the number from the entire buffer: 50' from each bank and within the channel. The amount per 100 feet of stream will be calculated based on the stream reach length entered at the top of the page.	35.3

Number of downed woody stems: 106

Sample Variable 6-8 within at least four 0.032-acre (21' radius) plots within the riparian/buffer zone adjacent to the stream channel (50 feet from each bank).

6	V_{TDBH}	Average dbh of trees. Trees are at least 4 inches (10 cm) in diameter. Enter tree DBHs in inches.	10.20 in

List the dbh measurements of individual trees (at least 4 in) within 4-6 plots placed in the buffer on each side of the stream:

Plot 1		Plot 2		Plot 3		Plot 4		Plot 5		Plot 6	
☑ Plot Used		☑ Plot Used		☑ Plot Used		☑ Plot Used		☐ Plot Used		☐ Plot Used	
☐ No Trees		☐ No Trees		☐ No Trees		☐ No Trees		☐ No Trees		☐ No Trees	
13	12	15		8	16	9.5					
6	4.5	16		26	7.5	9					
8	13	4.5		11.5	15	10					
14	8.5	6		6.5	4.5	6					
11.5	4.5	26		9	6.5						
6				14	4.5						
7				11	9						
8					5						
8					10						
5											
8.5											
6											
Plot Average		Plot Average		Plot Average		Plot Average		Plot Average		Plot Average	
8.44 in.		13.50 in.		10.25 in.		8.63 in.					

7	V_{TDEN}	Tree density, based on trees recorded for V_{TDBH} in four to six 0.032-acre plots. At least four plots must be used.	328.1
8	V_{CVALUE}	Coefficient of conservatism. The average published Coefficients of Conservatism for all native trees and all non-natives in any strata. Coefficients of Conservatism range from 0 (non-natives) to 10 (natives with high fidelity to a specific habitat). Use Drop down menus to select species, once per species. Non-natives are recorded if they occur anywhere in the riparian/buffer zone	4.00

Native Trees				**Non-Natives in Any Strata**			
Species	C-Value	Species	C-Value	Species	C-Value	Species	C-Value
Acer rubrum	3			*Rosa multiflora*	0		
Prunus serotina	3						
Quercus rubra	6						
Liquidambar styraciflu	5						
Fraxinus americana	5						
Carya ovata	6						

Sample Variable 9 within the entire catchment of the SAR.

9	V_{FOREST}	Percent cover of forested area within the entire watershed that provides water to the perennial stream. Using GIS or aerial photos, enter the estimated percent cover of forest directly, or the acreage of the entire watershed and then the acreage of forested area, below (direct measure will take precedence if both are entered) .	80.0 %

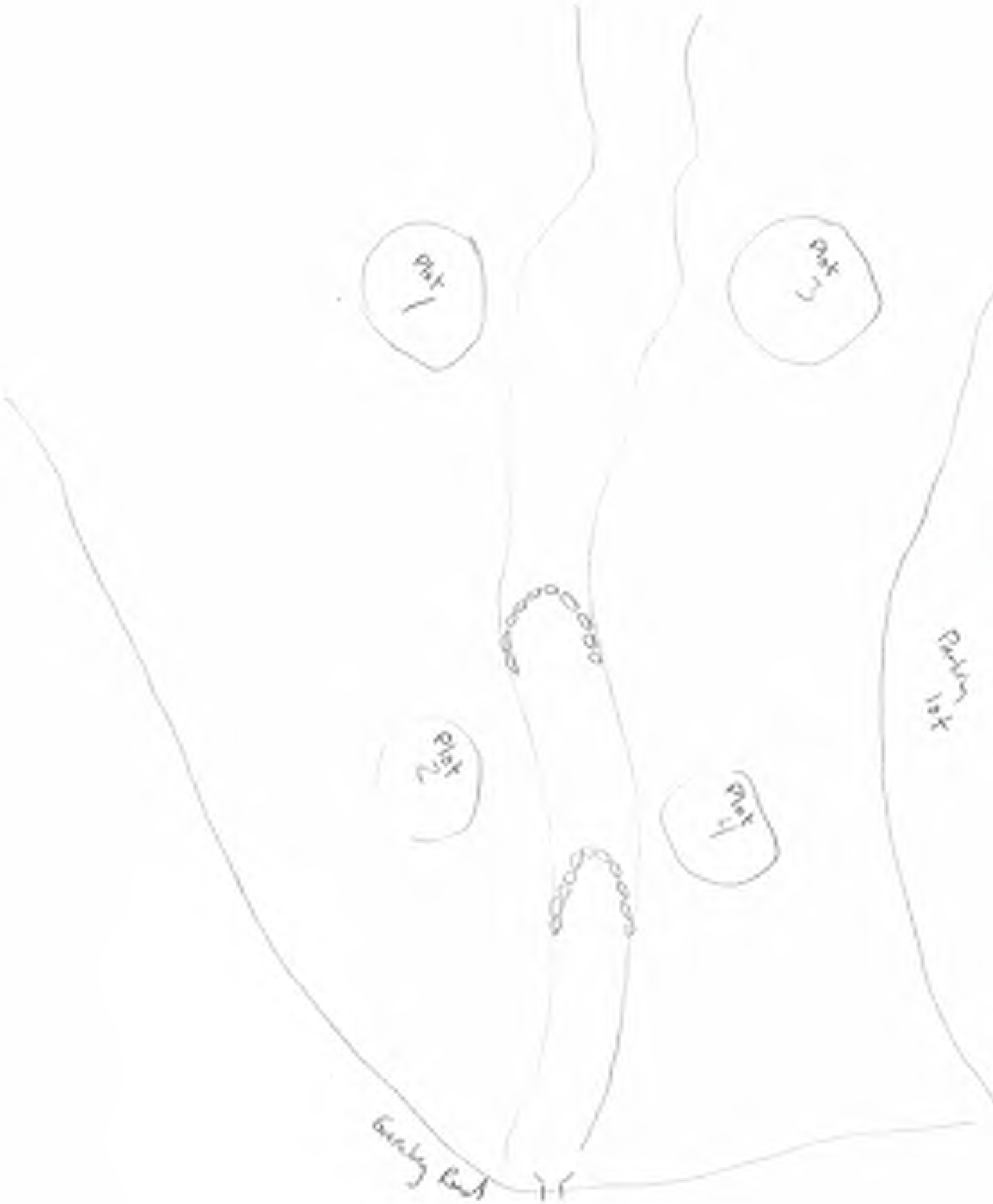
Estimated percent cover of forest in the catchment of the SAR:	80.0 %
OR	
Estimated acreage for the catchment of the SAR:	
Estimated acreage of forest in the catchment of the SAR:	

Summary: SAR Number 1

Variable	Value	VSI
$V_{CCANOPY}$	3 %	0.00
V_{EMBED}	3.0	0.71
$V_{SUBSTRATE}$	3.00 in	0.86
$V_{BANKSTAB}$	88 %	0.14
V_{LWD}	35.3	0.71
V_{TDBH}	10.2 in	1.00
V_{TDEN}	328.1 /ac	0.68
V_{CVALUE}	4.00	0.91
V_{FOREST}	80.0 %	0.90

Notes:

Add Notes and a Site Sketch in this space:



Ver. 10-20-17

FCI Calculator for the High-Gradient Headwater Streams in Appalachia

To ensure accurate calculations, the UPPERMOST STRATUM of the plant community is determined based on the calculated value for $V_{CCANOPY}$ (≥20% cover is required for tree/sapling strata). Go to the SAR Data Entry tab and enter site characteristics and data in the yellow cells. For information on determining how to split a project into SARs, see Chapter 5 of the Operational Draft Regional Guidebook for the Functional Assessment of High-Gradient Headwater Streams and Low-Gradient Perennial Streams in Appalachia (Environmental Laboratory U.S. Army Corps of Engineers 2017).

Project Name: Greenbag Road Improvement Project
Location: STR 2
Sampling Date: 3/13/19

Project Site   Before Project

Subclass for this SAR:
Perennial Stream

Uppermost stratum present at this SAR:
Tree/Sapling Strata

SAR number: 1

Functional Results Summary:

Enter Results in Section A of the Mitigation Sufficiency Calculator

Function	Functional Capacity Index
Hydrology	0.62
Biogeochemical Cycling	0.76
Habitat	0.82

Variable Measure and Subindex Summary:

Variable	Name	Average Measure	Subindex
$V_{CCANOPY}$	Percent canpoy over channel.	93.50	1.00
V_{EMBED}	Average embeddedness of channel.	3.13	0.87
$V_{SUBSTRATE}$	Median stream channel substrate particle size.	3.38	1.00
V_{BERO}	Total percent of eroded stream channel bank.	1.75	1.00
V_{LWD}	Number of down woody stems per 100 feet of stream.	18.00	1.00
V_{TDBH}	Average dbh of trees.	9.15	1.00
V_{SNAG}	Number of snags per 100 feet of stream.	6.00	0.70
V_{SSD}	Number of saplings and shrubs per 100 feet of stream.	Not Used	Not Used
V_{SRICH}	Riparian vegetation species richness.	0.00	0.00
$V_{DETRITUS}$	Average percent cover of leaves, sticks, etc.	91.25	1.00
V_{HERB}	Average percent cover of herbaceous vegetation.	Not Used	Not Used
V_{WLUSE}	Weighted Average of Runoff Score for Catchment.	0.30	0.32

High-Gradient Headwater Streams in Appalachia
Field Data Sheet and Calculator

Team: Markosky
Project Name: Greenbag Road Improvement Project
Location: STR 2
Latitude/UTM Northing: 39.60988°
Longitude/UTM Easting: -79.95754°
Sampling Date: 3/13/19

SAR Number: 1 Reach Length (ft): 100 Stream Type: Perennial Stream

Top Strata: Tree/Sapling Strata (determined from percent calculated in $V_{CCANOPY}$)

Site and Timing: Project Site Before Project

Sample Variables 1-4 in stream channel

1 $V_{CCANOPY}$ Average percent cover over channel by tree and sapling canopy. Measure at no fewer than 10 roughly equidistant points along the stream. Measure only if tree/sapling cover is at least 20%. (If less than 20%, enter at least one value between 0 and 19 to trigger Top Strata choice.)

93.5 %

List the percent cover measurements at each point below:

100	90	80	70	100	100	95	100	100	100

2 V_{EMBED} Average embeddedness of the stream channel. Measure at no fewer than 30 roughly equidistant points along the stream. Select a particle from the bed. Before moving it, determine the percentage of the surface and area surrounding the particle that is covered by fine sediment, and enter the rating according to the following table. If the bed is an artificial surface, or composed of fine sediments, use a rating score of 1. If the bed is composed of bedrock, use a rating score of 5.

3.1

Embeddedness rating for gravel, cobble and boulder particles (rescaled from Platts, Megahan, and Minshall 1983)

Rating	Rating Description
5	<5 percent of surface covered, surrounded, or buried by fine sediment (or bedrock)
4	5 to 25 percent of surface covered, surrounded, or buried by fine sediment
3	26 to 50 percent of surface covered, surrounded, or buried by fine sediment
2	51 to 75 percent of surface covered, surrounded, or buried by fine sediment
1	>75 percent of surface covered, surrounded, or buried by fine sediment (or artificial surface)

List the ratings at each point below:

3	2	5	1	4	4				
5	5	4	1	5	4				
3	1	3	1	4	3				
4	5	2	1	2	3				
2	4	3	3	3	4				

3 $V_{SUBSTRATE}$ Median stream channel substrate particle size. Measure at no fewer than 30 roughly equidistant points along the stream; use the same points and particles as used in V_{EMBED}.

3.38 in

Enter particle size in inches to the nearest 0.1 inch at each point below (bedrock should be counted as 99 in, asphalt or concrete as 0.0 in, sand or finer particles as 0.08 in):

2.50	5.50	5.25	5.00	1.75	1.75				
3.50	2.25	6.00	4.50	0.75	3.00				
5.50	0.08	10.00	0.08	5.75	2.50				
3.25	2.50	3.75	0.08	5.00	3.00				
6.00	4.50	3.25	4.00	3.75	1.00				

4 V_{BERO} Total percent of eroded stream channel bank. Enter the total number of feet of eroded bank on each side and the total percentage will be calculated If both banks are eroded, total erosion for the stream may be up to 200%.

2 %

Left Bank: 2 ft Right Bank:

Sample Variables 5-9 within the entire riparian/buffer zone adjacent to the stream channel (25 feet from each bank).

5 V_{LWD} Number of down woody stems (at least 4 inches in diameter and 36 inches in length) per 100 feet of stream reach. Enter the number from the entire 50'-wide buffer and within the channel, and the amount per 100 feet of stream will be calculated. **18.0**

Number of downed woody stems: 18

6 V_{TDBH} Average dbh of trees (measure only if $V_{CCANOPY}$ tree/sapling cover is at least 20%). Trees are at least 4 inches (10 cm) in diameter. Enter tree DBHs in inches. **9.2**

List the dbh measurements of individual trees (at least 4 in) within the buffer on each side of the stream below:

Left Side					Right Side				
8	6				18	7			
14					17	11			
14					6	7			
9					11	10.5			
5					11				
12					5				
8					7.5				
5					4.5				
6					8				

7 V_{SNAG} Number of snags (at least 4" dbh and 36" tall) per 100 feet of stream. Enter number of snags on each side of the stream, and the amount per 100 feet will be calculated. **6.0**

Left Side: 4 Right Side: 2

8 V_{SSD} Number of saplings and shrubs (woody stems up to 4 inches dbh) per 100 feet of stream (measure only if tree cover is <20%). Enter number of saplings and shrubs on each side of the stream, and the amount per 100 ft of stream will be calculated. **Not Used**

Left Side: Right Side:

9 V_{SRICH} Riparian vegetation species richness per 100 feet of stream reach. Check all species present from Group 1 in the tallest stratum. Check all exotic and invasive species present in all strata. Species richness per 100 feet and the subindex will be calculated from these data. **0.00**

Group 1 = 1.0		Group 2 (-1.0)	
☐ *Acer rubrum*	☐ *Magnolia tripetala*	☐ *Ailanthus altissima*	☐ *Lonicera japonica*
☐ *Acer saccharum*	☐ *Nyssa sylvatica*	☐ *Albizia julibrissin*	☐ *Lonicera tatarica*
☐ *Aesculus flava*	☐ *Oxydendrum arboreum*	☐ *Alliaria petiolata*	☐ *Lotus corniculatus*
☐ *Asimina triloba*	☑ *Prunus serotina*	☐ *Alternanthera philoxeroides*	☐ *Lythrum salicaria*
☐ *Betula alleghaniensis*	☐ *Quercus alba*		☐ *Microstegium vimineum*
☐ *Betula lenta*	☐ *Quercus coccinea*	☐ *Aster tataricus*	☐ *Paulownia tomentosa*
☐ *Carya alba*	☐ *Quercus imbricaria*	☐ *Cerastium fontanum*	☐ *Polygonum cuspidatum*
☐ *Carya glabra*	☐ *Quercus prinus*	☐ *Coronilla varia*	☐ *Pueraria montana*
☐ *Carya ovalis*	☐ *Quercus rubra*	☐ *Elaeagnus umbellata*	☑ *Rosa multiflora*
☐ *Carya ovata*	☐ *Quercus velutina*	☐ *Lespedeza bicolor*	☐ *Sorghum halepense*
☐ *Cornus florida*	☐ *Sassafras albidum*	☐ *Lespedeza cuneata*	☐ *Verbena brasiliensis*
☐ *Fagus grandifolia*	☐ *Tilia americana*	☑ *Ligustrum obtusifolium*	
☐ *Fraxinus americana*	☐ *Tsuga canadensis*	☐ *Ligustrum sinense*	
☐ *Liriodendron tulipifera*	☐ *Ulmus americana*		
☐ *Magnolia acuminata*			
1 Species in Group 1		2 Species in Group 2	

Sample Variables 10-11 within at least 8 subplots (40" x 40", or 1m x 1m) in the riparian/buffer zone within 25 feet from each bank. The four subplots should be placed roughly equidistantly along each side of the stream.

10 $V_{DETRITUS}$ Average percent cover of leaves, sticks, or other organic material. Woody debris <4" diameter and <36" long are include. Enter the percent cover of the detrital layer at each subplot. **91.25 %**

Left Side				Right Side			
90	90	100	80	100	100	90	80

11 V_{HERB} Average percentage cover of herbaceous vegetation (measure only if tree cover is <20%). Do *not* include woody stems at least 4" dbh and 36" tall. Because there may be several layers of ground cover vegetation percentages up through 200% are accepted. Enter the percent cover of ground vegetation at each subplot. **Not Used**

Left Side				Right Side			

Sample Variable 12 within the entire catchment of the stream.

12 V_{WLUSE} Weighted Average of Runoff Score for watershed: **0.30**

Land Use (Choose From Drop List)	Runoff Score	% in Catch-ment	Running Percent (not >100)
Forest and native range (50% to 75% ground cover)	0.7	32	32
Impervious areas (parking lots, roofs, driveways, etc)	0	31	63
Open space (pasture, lawns, parks, etc.), grass cover 50% - 75%	0.2	37	100

Summary: SAA Number 1

Variable	Value	VSI
$V_{CCANOPY}$	94 %	1.00
V_{EMBED}	3.1	0.87
$V_{SUBSTRATE}$	3.38 in	1.00
V_{BERO}	2 %	1.00
V_{LWD}	18.0	1.00
V_{TDBH}	9.2	1.00
V_{SNAG}	6.0	0.70
V_{SSD}	Not Used	Not Used
V_{SRICH}	0.00	0.00
$V_{DETRITUS}$	91.3 %	1.00
V_{HERB}	Not Used	Not Used
V_{WLUSE}	0.3	0.32

Notes:

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FCI Calculator for the High-Gradient Headwater Streams in Appalachia

To ensure accurate calculations, the UPPERMOST STRATUM of the plant community is determined based on the calculated value for $V_{CCANOPY}$ (≥20% cover is required for tree/sapling strata). Go to the SAR Data Entry tab and enter site characteristics and data in the yellow cells. For information on determining how to split a project into SARs, see Chapter 5 of the Operational Draft Regional Guidebook for the Functional Assessment of High-Gradient Headwater Streams and Low-Gradient Perennial Streams in Appalachia (Environmental Laboratory U.S. Army Corps of Engineers 2017).

Project Name: Greenbag Road Improvement Project
Location: STR 3
Sampling Date: 3/13/19

Project Site　　Before Project

Subclass for this SAR:
Perennial Stream

Uppermost stratum present at this SAR:
Tree/Sapling Strata

SAR number: 1

Functional Results Summary:

Enter Results in Section A of the Mitigation Sufficiency Calculator

Function	Functional Capacity Index
Hydrology	0.36
Biogeochemical Cycling	0.43
Habitat	0.33

Variable Measure and Subindex Summary:

Variable	Name	Average Measure	Subindex
$V_{CCANOPY}$	Percent canpoy over channel.	29.00	0.22
V_{EMBED}	Average embeddedness of channel.	2.73	0.72
$V_{SUBSTRATE}$	Median stream channel substrate particle size.	1.63	0.81
V_{BERO}	Total percent of eroded stream channel bank.	0.00	1.00
V_{LWD}	Number of down woody stems per 100 feet of stream.	0.00	0.00
V_{TDBH}	Average dbh of trees.	5.25	0.34
V_{SNAG}	Number of snags per 100 feet of stream.	0.00	0.10
V_{SSD}	Number of saplings and shrubs per 100 feet of stream.	Not Used	Not Used
V_{SRICH}	Riparian vegetation species richness.	2.00	0.95
$V_{DETRITUS}$	Average percent cover of leaves, sticks, etc.	8.75	0.11
V_{HERB}	Average percent cover of herbaceous vegetation.	Not Used	Not Used
V_{WLUSE}	Weighted Average of Runoff Score for Catchment.	0.34	0.36

High-Gradient Headwater Streams in Appalachia
Field Data Sheet and Calculator

Team: Markosky
Latitude/UTM Northing: 39.61035°
Project Name: Greenbag Road Improvement Project
Longitude/UTM Easting: -79.95592°
Location: STR 3
Sampling Date: 3/13/19

SAR Number: 1 Reach Length (ft): 100 Stream Type: Perennial Stream

Top Strata: Tree/Sapling Strata (determined from percent calculated in $V_{CCANOPY}$)

Site and Timing: Project Site Before Project

Sample Variables 1-4 in stream channel

1 $V_{CCANOPY}$ Average percent cover over channel by tree and sapling canopy. Measure at no fewer than 10 roughly equidistant points along the stream. Measure only if tree/sapling cover is at least 20%. (If less than 20%, enter at least one value between 0 and 19 to trigger Top Strata choice.)

29.0 %

List the percent cover measurements at each point below:

0	0	0	0	0	0	0	100	90	100

2 V_{EMBED} Average embeddedness of the stream channel. Measure at no fewer than 30 roughly equidistant points along the stream. Select a particle from the bed. Before moving it, determine the percentage of the surface and area surrounding the particle that is covered by fine sediment, and enter the rating according to the following table. If the bed is an artificial surface, or composed of fine sediments, use a rating score of 1. If the bed is composed of bedrock, use a rating score of 5.

2.7

Embeddedness rating for gravel, cobble and boulder particles (rescaled from Platts, Megahan, and Minshall 1983)

Rating	Rating Description
5	<5 percent of surface covered, surrounded, or buried by fine sediment (or bedrock)
4	5 to 25 percent of surface covered, surrounded, or buried by fine sediment
3	26 to 50 percent of surface covered, surrounded, or buried by fine sediment
2	51 to 75 percent of surface covered, surrounded, or buried by fine sediment
1	>75 percent of surface covered, surrounded, or buried by fine sediment (or artificial surface)

List the ratings at each point below:

4	3	1	1	2	5				
1	5	1	3	2	4				
4	1	1	3	2	5				
1	1	1	4	4	5				
3	1	5	5	2	2				

3 $V_{SUBSTRATE}$ Median stream channel substrate particle size. Measure at no fewer than 30 roughly equidistant points along the stream; use the same points and particles as used in V_{EMBED}.

1.63 in

Enter particle size in inches to the nearest 0.1 inch at each point below (bedrock should be counted as 99 in, asphalt or concrete as 0.0 in, sand or finer particles as 0.08 in):

0.75	3.00	0.75	0.08	2.50	2.25				
0.08	1.75	2.50	1.00	3.75	2.75				
6.00	8.00	1.00	0.75	0.50	1.25				
2.50	7.50	0.80	1.50	1.50	2.00				
3.75	1.25	0.75	1.25	3.00	3.50				

4 V_{BERO} Total percent of eroded stream channel bank. Enter the total number of feet of eroded bank on each side and the total percentage will be calculated If both banks are eroded, total erosion for the stream may be up to 200%.

0 %

Left Bank: 0 ft Right Bank: 0 ft

Sample Variables 5-9 within the entire riparian/buffer zone adjacent to the stream channel (25 feet from each bank).			
5	V_{LWD}	Number of down woody stems (at least 4 inches in diameter and 36 inches in length) per 100 feet of stream reach. Enter the number from the entire 50'-wide buffer and within the channel, and the amount per 100 feet of stream will be calculated. Number of downed woody stems: 0	0.0
6	V_{TDBH}	Average dbh of trees (measure only if $V_{CCANOPY}$ tree/sapling cover is at least 20%). Trees are at least 4 inches (10 cm) in diameter. Enter tree DBHs in inches. List the dbh measurements of individual trees (at least 4 in) within the buffer on each side of the stream below:	5.3

Left Side					Right Side				
					5				
					5.5				

7	V_{SNAG}	Number of snags (at least 4" dbh and 36" tall) per 100 feet of stream. Enter number of snags on each side of the stream, and the amount per 100 feet will be calculated. Left Side: 0 Right Side: 0	0.0
8	V_{SSD}	Number of saplings and shrubs (woody stems up to 4 inches dbh) per 100 feet of stream (measure only if tree cover is <20%). Enter number of saplings and shrubs on each side of the stream, and the amount per 100 ft of stream will be calculated. Left Side: Right Side:	Not Used
9	V_{SRICH}	Riparian vegetation species richness per 100 feet of stream reach. Check all species present from Group 1 in the tallest stratum. Check all exotic and invasive species present in all strata. Species richness per 100 feet and the subindex will be calculated from these data.	2.00

Group 1 = 1.0		Group 2 (-1.0)	
☑ *Acer rubrum*	☐ *Magnolia tripetala*	☐ *Ailanthus altissima*	☐ *Lonicera japonica*
☐ *Acer saccharum*	☐ *Nyssa sylvatica*	☐ *Albizia julibrissin*	☐ *Lonicera tatarica*
☐ *Aesculus flava*	☐ *Oxydendrum arboreum*	☐ *Alliaria petiolata*	☐ *Lotus corniculatus*
☐ *Asimina triloba*	☑ *Prunus serotina*	☐ *Alternanthera philoxeroides*	☐ *Lythrum salicaria*
☐ *Betula alleghaniensis*	☐ *Quercus alba*		☐ *Microstegium vimineum*
☐ *Betula lenta*	☐ *Quercus coccinea*	☐ *Aster tataricus*	☐ *Paulownia tomentosa*
☐ *Carya alba*	☐ *Quercus imbricaria*	☐ *Cerastium fontanum*	☐ *Polygonum cuspidatum*
☐ *Carya glabra*	☐ *Quercus prinus*	☐ *Coronilla varia*	☐ *Pueraria montana*
☐ *Carya ovalis*	☐ *Quercus rubra*	☐ *Elaeagnus umbellata*	☐ *Rosa multiflora*
☐ *Carya ovata*	☐ *Quercus velutina*	☐ *Lespedeza bicolor*	☐ *Sorghum halepense*
☐ *Cornus florida*	☐ *Sassafras albidum*	☐ *Lespedeza cuneata*	☐ *Verbena brasiliensis*
☐ *Fagus grandifolia*	☐ *Tilia americana*	☐ *Ligustrum obtusifolium*	
☐ *Fraxinus americana*	☐ *Tsuga canadensis*	☐ *Ligustrum sinense*	
☐ *Liriodendron tulipifera*	☐ *Ulmus americana*		
☐ *Magnolia acuminata*			
2 Species in Group 1		0 Species in Group 2	

Sample Variables 10-11 within at least 8 subplots (40" x 40", or 1m x 1m) in the riparian/buffer zone within 25 feet from each bank. The four subplots should be placed roughly equidistantly along each side of the stream.

10 $V_{DETRITUS}$ Average percent cover of leaves, sticks, or other organic material. Woody debris <4" diameter and <36" long are include. Enter the percent cover of the detrital layer at each subplot. — **8.75 %**

Left Side				Right Side			
0	0	0	50	0	0	0	20

11 V_{HERB} Average percentage cover of herbaceous vegetation (measure only if tree cover is <20%). Do *not* include woody stems at least 4" dbh and 36" tall. Because there may be several layers of ground cover vegetation percentages up through 200% are accepted. Enter the percent cover of ground vegetation at each subplot. — **Not Used**

Left Side				Right Side			

Sample Variable 12 within the entire catchment of the stream.

12 V_{WLUSE} Weighted Average of Runoff Score for watershed: — **0.34**

Land Use (Choose From Drop List)	Runoff Score	% in Catch-ment	Running Percent (not >100)
Forest and native range (50% to 75% ground cover)	0.7	39	39
Impervious areas (parking lots, roofs, driveways, etc)	0	28	67
Open space (pasture, lawns, parks, etc.), grass cover 50% - 75%	0.2	33	100

Summary: SAA Number 1

Variable	Value	VSI
$V_{CCANOPY}$	29 %	0.22
V_{EMBED}	2.7	0.72
$V_{SUBSTRATE}$	1.63 in	0.81
V_{BERO}	0 %	1.00
V_{LWD}	0.0	0.00
V_{TDBH}	5.3	0.34
V_{SNAG}	0.0	0.10
V_{SSD}	Not Used	Not Used
V_{SRICH}	2.00	0.95
$V_{DETRITUS}$	8.8 %	0.11
V_{HERB}	Not Used	Not Used
V_{WLUSE}	0.34	0.36

Notes:

Ver. 10-20-17

FCI Calculator for the High-Gradient Headwater Streams in Appalachia

To ensure accurate calculations, the <u>UPPERMOST STRATUM</u> of the plant community is determined based on the calculated value for $V_{CCANOPY}$ (≥20% cover is required for tree/sapling strata). Go to the SAR Data Entry tab and enter site characteristics and data in the yellow cells. For information on determining how to split a project into SARs, see Chapter 5 of the Operational Draft Regional Guidebook for the Functional Assessment of High-Gradient Headwater Streams and Low-Gradient Perennial Streams in Appalachia (Environmental Laboratory U.S. Army Corps of Engineers 2017).

Project Name: Greenbag Road Improvement Project
Location: STR 4
Sampling Date: 3/13/19

Project Site Before Project

Subclass for this SAR:
Intermittent Stream

Uppermost stratum present at this SAR:
Tree/Sapling Strata

SAR number: 1

Functional Results Summary:

Enter Results in Section A of the Mitigation Sufficiency Calculator

Function	Functional Capacity Index
Hydrology	0.40
Biogeochemical Cycling	0.57
Habitat	0.68

Variable Measure and Subindex Summary:

Variable	Name	Average Measure	Subindex
$V_{CCANOPY}$	Percent canpoy over channel.	92.50	1.00
V_{EMBED}	Average embeddedness of channel.	2.33	0.58
$V_{SUBSTRATE}$	Median stream channel substrate particle size.	1.88	0.94
V_{BERO}	Total percent of eroded stream channel bank.	80.00	0.65
V_{LWD}	Number of down woody stems per 100 feet of stream.	3.00	0.38
V_{TDBH}	Average dbh of trees.	8.71	1.00
V_{SNAG}	Number of snags per 100 feet of stream.	1.00	1.00
V_{SSD}	Number of saplings and shrubs per 100 feet of stream.	Not Used	Not Used
V_{SRICH}	Riparian vegetation species richness.	0.00	0.00
$V_{DETRITUS}$	Average percent cover of leaves, sticks, etc.	83.13	1.00
V_{HERB}	Average percent cover of herbaceous vegetation.	Not Used	Not Used
V_{WLUSE}	Weighted Average of Runoff Score for Catchment.	0.30	0.32

Version 10-20-17

High-Gradient Headwater Streams in Appalachia
Field Data Sheet and Calculator

Team: Markosky
Latitude/UTM Northing: 39.60975°
Project Name: Greenbag Road Improvement Project
Longitude/UTM Easting: -79.95728°
Location: STR 4
Sampling Date: 3/13/19

SAR Number: 1 Reach Length (ft): 100 Stream Type: Intermittent Stream

Top Strata: Tree/Sapling Strata (determined from percent calculated in $V_{CCANOPY}$)

Site and Timing: Project Site Before Project

Sample Variables 1-4 in stream channel

1 $V_{CCANOPY}$ Average percent cover over channel by tree and sapling canopy. Measure at no fewer than 10 roughly equidistant points along the stream. Measure only if tree/sapling cover is at least 20%. (If less than 20%, enter at least one value between 0 and 19 to trigger Top Strata choice.)

92.5 %

List the percent cover measurements at each point below:

100	80	100	70	90	100	100	95	100	90

2 V_{EMBED} Average embeddedness of the stream channel. Measure at no fewer than 30 roughly equidistant points along the stream. Select a particle from the bed. Before moving it, determine the percentage of the surface and area surrounding the particle that is covered by fine sediment, and enter the rating according to the following table. If the bed is an artificial surface, or composed of fine sediments, use a rating score of 1. If the bed is composed of bedrock, use a rating score of 5.

2.3

Embeddedness rating for gravel, cobble and boulder particles (rescaled from Platts, Megahan, and Minshall 1983)

Rating	Rating Description
5	<5 percent of surface covered, surrounded, or buried by fine sediment (or bedrock)
4	5 to 25 percent of surface covered, surrounded, or buried by fine sediment
3	26 to 50 percent of surface covered, surrounded, or buried by fine sediment
2	51 to 75 percent of surface covered, surrounded, or buried by fine sediment
1	>75 percent of surface covered, surrounded, or buried by fine sediment (or artificial surface)

List the ratings at each point below:

1	3	3	1	1	1				
1	5	5	1	1	1				
3	5	4	1	1	1				
4	5	5	1	1	1				
3	5	3	1	1	1				

3 $V_{SUBSTRATE}$ Median stream channel substrate particle size. Measure at no fewer than 30 roughly equidistant points along the stream; use the same points and particles as used in V_{EMBED}.

1.88 in

Enter particle size in inches to the nearest 0.1 inch at each point below (bedrock should be counted as 99 in, asphalt or concrete as 0.0 in, sand or finer particles as 0.08 in):

0.80	4.00	3.00	3.25	0.80	0.80				
0.80	6.50	4.00	2.25	0.80	0.80				
6.00	3.00	2.25	1.50	0.80	0.80				
3.00	4.00	2.50	0.80	0.80	0.80				
3.00	6.50	3.25	0.80	0.80	0.80				

4 V_{BERO} Total percent of eroded stream channel bank. Enter the total number of feet of eroded bank on each side and the total percentage will be calculated If both banks are eroded, total erosion for the stream may be up to 200%.

80 %

Left Bank: 30 ft Right Bank: 50 ft

Sample Variables 5-9 within the entire riparian/buffer zone adjacent to the stream channel (25 feet from each bank).

5 V_{LWD} Number of down woody stems (at least 4 inches in diameter and 36 inches in length) per 100 feet of stream reach. Enter the number from the entire 50'-wide buffer and within the channel, and the amount per 100 feet of stream will be calculated. — 3.0

Number of downed woody stems: 3

6 V_{TDBH} Average dbh of trees (measure only if $V_{CCANOPY}$ tree/sapling cover is at least 20%). Trees are at least 4 inches (10 cm) in diameter. Enter tree DBHs in inches. — 8.7

List the dbh measurements of individual trees (at least 4 in) within the buffer on each side of the stream below:

Left Side					Right Side				
11.5					5				
12					12				
13					6				
10					6				
8.5					7				
8					5				
					8				
					10				

7 V_{SNAG} Number of snags (at least 4" dbh and 36" tall) per 100 feet of stream. Enter number of snags on each side of the stream, and the amount per 100 feet will be calculated. — 1.0

Left Side: 0 Right Side: 1

8 V_{SSD} Number of saplings and shrubs (woody stems up to 4 inches dbh) per 100 feet of stream (measure only if tree cover is <20%). Enter number of saplings and shrubs on each side of the stream, and the amount per 100 ft of stream will be calculated. — Not Used

Left Side: Right Side:

9 V_{SRICH} Riparian vegetation species richness per 100 feet of stream reach. Check all species present from Group 1 in the tallest stratum. Check all exotic and invasive species present in all strata. Species richness per 100 feet and the subindex will be calculated from these data. — 0.00

Group 1 = 1.0		Group 2 (-1.0)	
☐ *Acer rubrum*	☐ *Magnolia tripetala*	☐ *Ailanthus altissima*	☐ *Lonicera japonica*
☐ *Acer saccharum*	☐ *Nyssa sylvatica*	☐ *Albizia julibrissin*	☐ *Lonicera tatarica*
☐ *Aesculus flava*	☐ *Oxydendrum arboreum*	☐ *Alliaria petiolata*	☐ *Lotus corniculatus*
☐ *Asimina triloba*	☑ *Prunus serotina*	☐ *Alternanthera philoxeroides*	☐ *Lythrum salicaria*
☐ *Betula alleghaniensis*	☐ *Quercus alba*		☐ *Microstegium vimineum*
☐ *Betula lenta*	☐ *Quercus coccinea*	☐ *Aster tataricus*	☐ *Paulownia tomentosa*
☐ *Carya alba*	☐ *Quercus imbricaria*	☐ *Cerastium fontanum*	☐ *Polygonum cuspidatum*
☐ *Carya glabra*	☐ *Quercus prinus*	☐ *Coronilla varia*	☐ *Pueraria montana*
☐ *Carya ovalis*	☐ *Quercus rubra*	☐ *Elaeagnus umbellata*	☑ *Rosa multiflora*
☐ *Carya ovata*	☐ *Quercus velutina*	☐ *Lespedeza bicolor*	☐ *Sorghum halepense*
☐ *Cornus florida*	☐ *Sassafras albidum*	☐ *Lespedeza cuneata*	☐ *Verbena brasiliensis*
☐ *Fagus grandifolia*	☐ *Tilia americana*	☐ *Ligustrum obtusifolium*	
☐ *Fraxinus americana*	☐ *Tsuga canadensis*	☐ *Ligustrum sinense*	
☐ *Liriodendron tulipifera*	☐ *Ulmus americana*		
☐ *Magnolia acuminata*			
1 Species in Group 1		1 Species in Group 2	

Sample Variables 10-11 within at least 8 subplots (40" x 40", or 1m x 1m) in the riparian/buffer zone within 25 feet from each bank. The four subplots should be placed roughly equidistantly along each side of the stream.

10 $V_{DETRITUS}$ Average percent cover of leaves, sticks, or other organic material. Woody debris <4" diameter and <36" long are include. Enter the percent cover of the detrital layer at each subplot. **83.13 %**

Left Side				Right Side			
100	20	80	75	100	100	100	90

11 V_{HERB} Average percentage cover of herbaceous vegetation (measure only if tree cover is <20%). Do *not* include woody stems at least 4" dbh and 36" tall. Because there may be several layers of ground cover vegetation percentages up through 200% are accepted. Enter the percent cover of ground vegetation at each subplot. **Not Used**

Left Side				Right Side			

Sample Variable 12 within the entire catchment of the stream.

12 V_{WLUSE} Weighted Average of Runoff Score for watershed: **0.30**

Land Use (Choose From Drop List)	Runoff Score	% in Catch-ment	Running Percent (not >100)
Forest and native range (50% to 75% ground cover)	0.7	32	32
Impervious areas (parking lots, roofs, driveways, etc)	0	31	63
Open space (pasture, lawns, parks, etc.), grass cover 50% - 75%	0.2	37	100

Summary: SAA Number 1

Variable	Value	VSI
$V_{CCANOPY}$	93 %	1.00
V_{EMBED}	2.3	0.58
$V_{SUBSTRATE}$	1.88 in	0.94
V_{BERO}	80 %	0.65
V_{LWD}	3.0	0.38
V_{TDBH}	8.7	1.00
V_{SNAG}	1.0	1.00
V_{SSD}	Not Used	Not Used
V_{SRICH}	0.00	0.00
$V_{DETRITUS}$	83.1 %	1.00
V_{HERB}	Not Used	Not Used
V_{WLUSE}	0.3	0.32

Notes:

Ver. 10-20-17

FCI Calculator for the High-Gradient Headwater Streams in Appalachia

To ensure accurate calculations, the UPPERMOST STRATUM of the plant community is determined based on the calculated value for $V_{CCANOPY}$ (≥20% cover is required for tree/sapling strata). Go to the SAR Data Entry tab and enter site characteristics and data in the yellow cells. For information on determining how to split a project into SARs, see Chapter 5 of the Operational Draft Regional Guidebook for the Functional Assessment of High-Gradient Headwater Streams and Low-Gradient Perennial Streams in Appalachia (Environmental Laboratory U.S. Army Corps of Engineers 2017).

Project Name: Greenbag Road Improvement Project
Location: STR 5
Sampling Date: 3/13/19

Project Site Before Project

Subclass for this SAR:
Perennial Stream

Uppermost stratum present at this SAR:
Tree/Sapling Strata

SAR number: 1

Functional Results Summary:

Enter Results in Section A of the Mitigation Sufficiency Calculator

Function	Functional Capacity Index
Hydrology	0.60
Biogeochemical Cycling	0.73
Habitat	0.56

Variable Measure and Subindex Summary:

Variable	Name	Average Measure	Subindex
$V_{CCANOPY}$	Percent canpoy over channel.	30.00	0.23
V_{EMBED}	Average embeddedness of channel.	2.87	0.77
$V_{SUBSTRATE}$	Median stream channel substrate particle size.	1.13	0.56
V_{BERO}	Total percent of eroded stream channel bank.	111.00	0.48
V_{LWD}	Number of down woody stems per 100 feet of stream.	17.00	1.00
V_{TDBH}	Average dbh of trees.	9.44	1.00
V_{SNAG}	Number of snags per 100 feet of stream.	3.00	1.00
V_{SSD}	Number of saplings and shrubs per 100 feet of stream.	Not Used	Not Used
V_{SRICH}	Riparian vegetation species richness.	1.80	0.86
$V_{DETRITUS}$	Average percent cover of leaves, sticks, etc.	61.25	0.75
V_{HERB}	Average percent cover of herbaceous vegetation.	Not Used	Not Used
V_{WLUSE}	Weighted Average of Runoff Score for Catchment.	0.43	0.45

High-Gradient Headwater Streams in Appalachia
Field Data Sheet and Calculator

Team: Markosky
Project Name: Greenbag Road Improvement Project
Location: STR 5
Latitude/UTM Northing: 39.60845°
Longitude/UTM Easting: -79.95579°
Sampling Date: 3/13/19

SAR Number: 1 Reach Length (ft): 100 Stream Type: Perennial Stream

Top Strata: Tree/Sapling Strata (determined from percent calculated in $V_{CCANOPY}$)

Site and Timing: Project Site Before Project

Sample Variables 1-4 in stream channel

1 $V_{CCANOPY}$ Average percent cover over channel by tree and sapling canopy. Measure at no fewer than 10 roughly equidistant points along the stream. Measure only if tree/sapling cover is at least 20%. (If less than 20%, enter at least one value between 0 and 19 to trigger Top Strata choice.) **30.0 %**

List the percent cover measurements at each point below:

0	10	30	50	20	60	40	40	30	20

2 V_{EMBED} Average embeddedness of the stream channel. Measure at no fewer than 30 roughly equidistant points along the stream. Select a particle from the bed. Before moving it, determine the percentage of the surface and area surrounding the particle that is covered by fine sediment, and enter the rating according to the following table. If the bed is an artificial surface, or composed of fine sediments, use a rating score of 1. If the bed is composed of bedrock, use a rating score of 5. **2.9**

Embeddedness rating for gravel, cobble and boulder particles (rescaled from Platts, Megahan, and Minshall 1983)

Rating	Rating Description
5	<5 percent of surface covered, surrounded, or buried by fine sediment (or bedrock)
4	5 to 25 percent of surface covered, surrounded, or buried by fine sediment
3	26 to 50 percent of surface covered, surrounded, or buried by fine sediment
2	51 to 75 percent of surface covered, surrounded, or buried by fine sediment
1	>75 percent of surface covered, surrounded, or buried by fine sediment (or artificial surface)

List the ratings at each point below:

3	5	4	2	3	3				
5	5	1	1	2	2				
5	5	1	2	1	1				
4	1	1	3	3	4				
5	4	3	5	1	1				

3 $V_{SUBSTRATE}$ Median stream channel substrate particle size. Measure at no fewer than 30 roughly equidistant points along the stream; use the same points and particles as used in V_{EMBED}. **1.13 in**

Enter particle size in inches to the nearest 0.1 inch at each point below (bedrock should be counted as 99 in, asphalt or concrete as 0.0 in, sand or finer particles as 0.08 in):

2.50	2.00	1.75	1.00	2.50	2.00				
3.50	4.25	0.80	0.80	0.80	0.80				
2.00	5.00	0.80	0.25	0.25	0.75				
1.25	0.80	0.80	1.25	0.80	2.00				
1.75	2.50	0.25	1.75	1.00	0.80				

4 V_{BERO} Total percent of eroded stream channel bank. Enter the total number of feet of eroded bank on each side and the total percentage will be calculated If both banks are eroded, total erosion for the stream may be up to 200%. **111 %**

Left Bank: 52 ft Right Bank: 59 ft

Sample Variables 5-9 within the entire riparian/buffer zone adjacent to the stream channel (25 feet from each bank).			
5	V_{LWD}	Number of down woody stems (at least 4 inches in diameter and 36 inches in length) per 100 feet of stream reach. Enter the number from the entire 50'-wide buffer and within the channel, and the amount per 100 feet of stream will be calculated. Number of downed woody stems: 17	17.0
6	V_{TDBH}	Average dbh of trees (measure only if $V_{CCANOPY}$ tree/sapling cover is at least 20%). Trees are at least 4 inches (10 cm) in diameter. Enter tree DBHs in inches. List the dbh measurements of individual trees (at least 4 in) within the buffer on each side of the stream below:	9.4

Left Side					Right Side				
					8	9	11		
					6	7	11.5		
					10.5	11	7		
					5	13	7		
					15	15	23		
					12	5	5		
					8	4.5	6		
					10	14	7		
					6	9			

7	V_{SNAG}	Number of snags (at least 4" dbh and 36" tall) per 100 feet of stream. Enter number of snags on each side of the stream, and the amount per 100 feet will be calculated. Left Side: 0 Right Side: 3	3.0
8	V_{SSD}	Number of saplings and shrubs (woody stems up to 4 inches dbh) per 100 feet of stream (measure only if tree cover is <20%). Enter number of saplings and shrubs on each side of the stream, and the amount per 100 ft of stream will be calculated. Left Side: Right Side:	Not Used
9	V_{SRICH}	Riparian vegetation species richness per 100 feet of stream reach. Check all species present from Group 1 in the tallest stratum. Check all exotic and invasive species present in all strata. Species richness per 100 feet and the subindex will be calculated from these data.	1.80

Group 1 = 1.0				Group 2 (-1.0)			
☑	*Acer rubrum*	☐	*Magnolia tripetala*	☐	*Ailanthus altissima*	☐	*Lonicera japonica*
☐	*Acer saccharum*	☐	*Nyssa sylvatica*	☐	*Albizia julibrissin*	☐	*Lonicera tatarica*
☐	*Aesculus flava*	☐	*Oxydendrum arboreum*	☐	*Alliaria petiolata*	☐	*Lotus corniculatus*
☐	*Asimina triloba*	☑	*Prunus serotina*	☐	*Alternanthera philoxeroides*	☐	*Lythrum salicaria*
☐	*Betula alleghaniensis*	☐	*Quercus alba*			☐	*Microstegium vimineum*
☐	*Betula lenta*	☐	*Quercus coccinea*	☐	*Aster tataricus*	☐	*Paulownia tomentosa*
☐	*Carya alba*	☐	*Quercus imbricaria*	☐	*Cerastium fontanum*	☐	*Polygonum cuspidatum*
☐	*Carya glabra*	☐	*Quercus prinus*	☐	*Coronilla varia*	☐	*Pueraria montana*
☐	*Carya ovalis*	☑	*Quercus rubra*	☐	*Elaeagnus umbellata*	☑	*Rosa multiflora*
☐	*Carya ovata*	☐	*Quercus velutina*	☐	*Lespedeza bicolor*	☐	*Sorghum halepense*
☐	*Cornus florida*	☐	*Sassafras albidum*	☐	*Lespedeza cuneata*	☐	*Verbena brasiliensis*
☐	*Fagus grandifolia*	☐	*Tilia americana*	☐	*Ligustrum obtusifolium*		
☐	*Fraxinus americana*	☐	*Tsuga canadensis*	☐	*Ligustrum sinense*		
☐	*Liriodendron tulipifera*	☐	*Ulmus americana*				
☐	*Magnolia acuminata*						
3	Species in Group 1			1	Species in Group 2		

Sample Variables 10-11 within at least 8 subplots (40" x 40", or 1m x 1m) in the riparian/buffer zone within 25 feet from each bank. The four subplots should be placed roughly equidistantly along each side of the stream.

10 $V_{DETRITUS}$ Average percent cover of leaves, sticks, or other organic material. Woody debris <4" diameter and <36" long are include. Enter the percent cover of the detrital layer at each subplot. **61.25 %**

Left Side				Right Side			
10	70	40	20	100	100	100	50

11 V_{HERB} Average percentage cover of herbaceous vegetation (measure only if tree cover is <20%). Do *not* include woody stems at least 4" dbh and 36" tall. Because there may be several layers of ground cover vegetation percentages up through 200% are accepted. Enter the percent cover of ground vegetation at each subplot. **Not Used**

Left Side				Right Side			

Sample Variable 12 within the entire catchment of the stream.

12 V_{WLUSE} Weighted Average of Runoff Score for watershed: **0.43**

Land Use (Choose From Drop List)	Runoff Score	% in Catch-ment	Running Percent (not >100)
Forest and native range (50% to 75% ground cover)	0.7	59	59
Impervious areas (parking lots, roofs, driveways, etc)	0	31	90
Open space (pasture, lawns, parks, etc.), grass cover 50% - 75%	0.2	10	100

Summary: SAA Number 1

Variable	Value	VSI
$V_{CCANOPY}$	30 %	0.23
V_{EMBED}	2.9	0.77
$V_{SUBSTRATE}$	1.13 in	0.56
V_{BERO}	111 %	0.48
V_{LWD}	17.0	1.00
V_{TDBH}	9.4	1.00
V_{SNAG}	3.0	1.00
V_{SSD}	Not Used	Not Used
V_{SRICH}	1.80	0.86
$V_{DETRITUS}$	61.3 %	0.75
V_{HERB}	Not Used	Not Used
V_{WLUSE}	0.43	0.45

Notes:

Ver. 10-20-17

FCI Calculator for the High-Gradient Headwater Streams in Appalachia

To ensure accurate calculations, the <u>UPPERMOST STRATUM</u> of the plant community is determined based on the calculated value for $V_{CCANOPY}$ (≥20% cover is required for tree/sapling strata). Go to the SAR Data Entry tab and enter site characteristics and data in the yellow cells. For information on determining how to split a project into SARs, see Chapter 5 of the Operational Draft Regional Guidebook for the Functional Assessment of High-Gradient Headwater Streams and Low-Gradient Perennial Streams in Appalachia (Environmental Laboratory U.S. Army Corps of Engineers 2017).

Project Name: Greenbag Road Improvement Project
Location: STR 6
Sampling Date: 3/13/19

Project Site   Before Project

Subclass for this SAR:
Perennial Stream

Uppermost stratum present at this SAR:
Tree/Sapling Strata

SAR number: 1

Functional Results Summary:

Enter Results in Section A of the Mitigation Sufficiency Calculator

Function	Functional Capacity Index
Hydrology	0.38
Biogeochemical Cycling	0.47
Habitat	0.45

Variable Measure and Subindex Summary:

Variable	Name	Average Measure	Subindex
$V_{CCANOPY}$	Percent canpoy over channel.	48.00	0.47
V_{EMBED}	Average embeddedness of channel.	2.13	0.51
$V_{SUBSTRATE}$	Median stream channel substrate particle size.	0.63	0.31
V_{BERO}	Total percent of eroded stream channel bank.	107.00	0.50
V_{LWD}	Number of down woody stems per 100 feet of stream.	16.00	1.00
V_{TDBH}	Average dbh of trees.	13.83	1.00
V_{SNAG}	Number of snags per 100 feet of stream.	2.00	1.00
V_{SSD}	Number of saplings and shrubs per 100 feet of stream.	Not Used	Not Used
V_{SRICH}	Riparian vegetation species richness.	0.00	0.00
$V_{DETRITUS}$	Average percent cover of leaves, sticks, etc.	28.13	0.34
V_{HERB}	Average percent cover of herbaceous vegetation.	Not Used	Not Used
V_{WLUSE}	Weighted Average of Runoff Score for Catchment.	0.09	0.09

High-Gradient Headwater Streams in Appalachia
Field Data Sheet and Calculator

Team: Markosky
Project Name: Greenbag Road Improvement Project
Location: STR 6
Latitude/UTM Northing: 39.60643°
Longitude/UTM Easting: -79.95267°
Sampling Date: 3/13/19

SAR Number: 1 Reach Length (ft): 100 Stream Type: Perennial Stream

Top Strata: Tree/Sapling Strata (determined from percent calculated in $V_{CCANOPY}$)

Site and Timing: Project Site Before Project

Sample Variables 1-4 in stream channel

1 $V_{CCANOPY}$ Average percent cover over channel by tree and sapling canopy. Measure at no fewer than 10 roughly equidistant points along the stream. Measure only if tree/sapling cover is at least 20%. (If less than 20%, enter at least one value between 0 and 19 to trigger Top Strata choice.)

48.0 %

List the percent cover measurements at each point below:

0	0	0	0	0	100	90	100	90	100

2 V_{EMBED} Average embeddedness of the stream channel. Measure at no fewer than 30 roughly equidistant points along the stream. Select a particle from the bed. Before moving it, determine the percentage of the surface and area surrounding the particle that is covered by fine sediment, and enter the rating according to the following table. If the bed is an artificial surface, or composed of fine sediments, use a rating score of 1. If the bed is composed of bedrock, use a rating score of 5.

2.1

Embeddedness rating for gravel, cobble and boulder particles (rescaled from Platts, Megahan, and Minshall 1983)

Rating	Rating Description
5	<5 percent of surface covered, surrounded, or buried by fine sediment (or bedrock)
4	5 to 25 percent of surface covered, surrounded, or buried by fine sediment
3	26 to 50 percent of surface covered, surrounded, or buried by fine sediment
2	51 to 75 percent of surface covered, surrounded, or buried by fine sediment
1	>75 percent of surface covered, surrounded, or buried by fine sediment (or artificial surface)

List the ratings at each point below:

3	5	3	1	3	3				
2	1	4	2	2	2				
1	1	1	1	2	5				
1	1	1	4	3	1				
4	1	1	2	2	1				

3 $V_{SUBSTRATE}$ Median stream channel substrate particle size. Measure at no fewer than 30 roughly equidistant points along the stream; use the same points and particles as used in V_{EMBED}.

0.63 in

Enter particle size in inches to the nearest 0.1 inch at each point below (bedrock should be counted as 99 in, asphalt or concrete as 0.0 in, sand or finer particles as 0.08 in):

2.00	3.25	0.25	0.08	2.00	1.75				
0.50	0.08	0.50	0.75	3.00	3.50				
0.08	0.08	0.08	0.08	0.75	5.50				
0.08	0.08	0.08	1.00	7.50	2.50				
0.25	0.08	0.08	1.00	11.50	6.00				

4 V_{BERO} Total percent of eroded stream channel bank. Enter the total number of feet of eroded bank on each side and the total percentage will be calculated If both banks are eroded, total erosion for the stream may be up to 200%.

107 %

Left Bank: 57 ft Right Bank: 50 ft

Sample Variables 5-9 within the entire riparian/buffer zone adjacent to the stream channel (25 feet from each bank).

5 V_{LWD} Number of down woody stems (at least 4 inches in diameter and 36 inches in length) per 100 feet of stream reach. Enter the number from the entire 50'-wide buffer and within the channel, and the amount per 100 feet of stream will be calculated. **16.0**

Number of downed woody stems: 16

6 V_{TDBH} Average dbh of trees (measure only if $V_{CCANOPY}$ tree/sapling cover is at least 20%). Trees are at least 4 inches (10 cm) in diameter. Enter tree DBHs in inches. **13.8**

List the dbh measurements of individual trees (at least 4 in) within the buffer on each side of the stream below:

Left Side					Right Side				
					24				
					8				
					9.5				

7 V_{SNAG} Number of snags (at least 4" dbh and 36" tall) per 100 feet of stream. Enter number of snags on each side of the stream, and the amount per 100 feet will be calculated. **2.0**

Left Side: 1 Right Side: 1

8 V_{SSD} Number of saplings and shrubs (woody stems up to 4 inches dbh) per 100 feet of stream (measure only if tree cover is <20%). Enter number of saplings and shrubs on each side of the stream, and the amount per 100 ft of stream will be calculated. **Not Used**

Left Side: Right Side:

9 V_{SRICH} Riparian vegetation species richness per 100 feet of stream reach. Check all species present from Group 1 in the tallest stratum. Check all exotic and invasive species present in all strata. Species richness per 100 feet and the subindex will be calculated from these data. **0.00**

Group 1 = 1.0		Group 2 (-1.0)	
☐ *Acer rubrum*	☐ *Magnolia tripetala*	☐ *Ailanthus altissima*	☐ *Lonicera japonica*
☐ *Acer saccharum*	☐ *Nyssa sylvatica*	☐ *Albizia julibrissin*	☐ *Lonicera tatarica*
☐ *Aesculus flava*	☐ *Oxydendrum arboreum*	☐ *Alliaria petiolata*	☐ *Lotus corniculatus*
☐ *Asimina triloba*	☑ *Prunus serotina*	☐ *Alternanthera philoxeroides*	☐ *Lythrum salicaria*
☐ *Betula alleghaniensis*	☐ *Quercus alba*		☐ *Microstegium vimineum*
☐ *Betula lenta*	☐ *Quercus coccinea*	☐ *Aster tataricus*	☐ *Paulownia tomentosa*
☐ *Carya alba*	☐ *Quercus imbricaria*	☐ *Cerastium fontanum*	☐ *Polygonum cuspidatum*
☐ *Carya glabra*	☐ *Quercus prinus*	☐ *Coronilla varia*	☐ *Pueraria montana*
☐ *Carya ovalis*	☐ *Quercus rubra*	☐ *Elaeagnus umbellata*	☑ *Rosa multiflora*
☐ *Carya ovata*	☐ *Quercus velutina*	☐ *Lespedeza bicolor*	☐ *Sorghum halepense*
☐ *Cornus florida*	☐ *Sassafras albidum*	☐ *Lespedeza cuneata*	☐ *Verbena brasiliensis*
☐ *Fagus grandifolia*	☐ *Tilia americana*	☐ *Ligustrum obtusifolium*	
☐ *Fraxinus americana*	☐ *Tsuga canadensis*	☐ *Ligustrum sinense*	
☐ *Liriodendron tulipifera*	☐ *Ulmus americana*		
☐ *Magnolia acuminata*			
1 Species in Group 1		1 Species in Group 2	

Sample Variables 10-11 within at least 8 subplots (40" x 40", or 1m x 1m) in the riparian/buffer zone within 25 feet from each bank. The four subplots should be placed roughly equidistantly along each side of the stream.

10 $V_{DETRITUS}$ Average percent cover of leaves, sticks, or other organic material. Woody debris <4" diameter and <36" long are include. Enter the percent cover of the detrital layer at each subplot.

28.13 %

Left Side				Right Side			
10	30	35	0	30	10	50	60

11 V_{HERB} Average percentage cover of herbaceous vegetation (measure only if tree cover is <20%). Do *not* include woody stems at least 4" dbh and 36" tall. Because there may be several layers of ground cover vegetation percentages up through 200% are accepted. Enter the percent cover of ground vegetation at each subplot.

Not Used

Left Side				Right Side			

Sample Variable 12 within the entire catchment of the stream.

12 V_{WLUSE} Weighted Average of Runoff Score for watershed:

0.09

Land Use (Choose From Drop List)	Runoff Score	% in Catch-ment	Running Percent (not >100)
Forest and native range (<50% ground cover)	0.5	6	6
Impervious areas (parking lots, roofs, driveways, etc)	0	39	45
Residential districts, 1/4 - 1/3 ac (38% to 30% cover)	0.1	35	80
Open space (pasture, lawns, parks, etc.), grass cover <50%	0.1	20	100

Summary: SAA Number 1

Variable	Value	VSI
$V_{CCANOPY}$	48 %	0.47
V_{EMBED}	2.1	0.51
$V_{SUBSTRATE}$	0.63 in	0.31
V_{BERO}	107 %	0.50
V_{LWD}	16.0	1.00
V_{TDBH}	13.8	1.00
V_{SNAG}	2.0	1.00
V_{SSD}	Not Used	Not Used
V_{SRICH}	0.00	0.00
$V_{DETRITUS}$	28.1 %	0.34
V_{HERB}	Not Used	Not Used
V_{WLUSE}	0.09	0.09

Notes:

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FCI Calculator for the High-Gradient Headwater Streams in Appalachia

To ensure accurate calculations, the UPPERMOST STRATUM of the plant community is determined based on the calculated value for $V_{CCANOPY}$ (≥20% cover is required for tree/sapling strata). Go to the SAR Data Entry tab and enter site characteristics and data in the yellow cells. For information on determining how to split a project into SARs, see Chapter 5 of the Operational Draft Regional Guidebook for the Functional Assessment of High-Gradient Headwater Streams and Low-Gradient Perennial Streams in Appalachia (Environmental Laboratory U.S. Army Corps of Engineers 2017).

Project Name: Greenbag Road Improvement Project
Location: STR 7
Sampling Date: 3/13/19

Project Site   Before Project

Subclass for this SAR:
Perennial Stream

Uppermost stratum present at this SAR:
Shrub/Herb Strata

SAR number: 1

Functional Results Summary:

Enter Results in Section A of the Mitigation Sufficiency Calculator

Function	Functional Capacity Index
Hydrology	0.50
Biogeochemical Cycling	0.41
Habitat	0.52

Variable Measure and Subindex Summary:

Variable	Name	Average Measure	Subindex
$V_{CCANOPY}$	Percent canpoy over channel.	Not Used, <20%	Not Used
V_{EMBED}	Average embeddedness of channel.	2.57	0.66
$V_{SUBSTRATE}$	Median stream channel substrate particle size.	2.00	1.00
V_{BERO}	Total percent of eroded stream channel bank.	82.00	0.63
V_{LWD}	Number of down woody stems per 100 feet of stream.	17.00	1.00
V_{TDBH}	Average dbh of trees.	Not Used	Not Used
V_{SNAG}	Number of snags per 100 feet of stream.	0.00	0.10
V_{SSD}	Number of saplings and shrubs per 100 feet of stream.	88.00	1.00
V_{SRICH}	Riparian vegetation species richness.	0.00	0.00
$V_{DETRITUS}$	Average percent cover of leaves, sticks, etc.	29.38	0.36
V_{HERB}	Average percent cover of herbaceous vegetation.	66.88	0.89
V_{WLUSE}	Weighted Average of Runoff Score for Catchment.	0.17	0.18

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High-Gradient Headwater Streams in Appalachia
Field Data Sheet and Calculator

Team: Markosky
Project Name: Greenbag Road Improvement Project
Location: STR 7
Latitude/UTM Northing: 39.60603°
Longitude/UTM Easting: -79.94803°
Sampling Date: 3/13/19

SAR Number: 1 Reach Length (ft): 100 Stream Type: Perennial Stream

Top Strata: Shrub/Herb Strata (determined from percent calculated in $V_{CCANOPY}$)

Site and Timing: Project Site Before Project

Sample Variables 1-4 in stream channel

1 $V_{CCANOPY}$ Average percent cover over channel by tree and sapling canopy. Measure at no fewer than 10 roughly equidistant points along the stream. Measure only if tree/sapling cover is at least 20%. (If less than 20%, enter at least one value between 0 and 19 to trigger Top Strata choice.)

Not Used, <20%

List the percent cover measurements at each point below:

10	30	0	0	40	5	10	5	0	0

2 V_{EMBED} Average embeddedness of the stream channel. Measure at no fewer than 30 roughly equidistant points along the stream. Select a particle from the bed. Before moving it, determine the percentage of the surface and area surrounding the particle that is covered by fine sediment, and enter the rating according to the following table. If the bed is an artificial surface, or composed of fine sediments, use a rating score of 1. If the bed is composed of bedrock, use a rating score of 5.

2.6

Embeddedness rating for gravel, cobble and boulder particles (rescaled from Platts, Megahan, and Minshall 1983)

Rating	Rating Description
5	<5 percent of surface covered, surrounded, or buried by fine sediment (or bedrock)
4	5 to 25 percent of surface covered, surrounded, or buried by fine sediment
3	26 to 50 percent of surface covered, surrounded, or buried by fine sediment
2	51 to 75 percent of surface covered, surrounded, or buried by fine sediment
1	>75 percent of surface covered, surrounded, or buried by fine sediment (or artificial surface)

List the ratings at each point below:

3	4	4	1	4	2				
3	4	3	3	2	3				
3	4	3	1	5	1				
3	4	1	1	2	1				
2	4	3	1	1	1				

3 $V_{SUBSTRATE}$ Median stream channel substrate particle size. Measure at no fewer than 30 roughly equidistant points along the stream; use the same points and particles as used in V_{EMBED}.

2.00 in

Enter particle size in inches to the nearest 0.1 inch at each point below (bedrock should be counted as 99 in, asphalt or concrete as 0.0 in, sand or finer particles as 0.08 in):

2.00	4.75	5.75	0.08	0.75	2.50				
2.00	3.25	1.50	1.00	2.00	0.75				
3.25	2.00	4.75	0.08	0.75	1.25				
4.50	2.50	2.50	0.08	2.00	3.50				
3.00	3.00	6.00	0.08	0.75	1.25				

4 V_{BERO} Total percent of eroded stream channel bank. Enter the total number of feet of eroded bank on each side and the total percentage will be calculated If both banks are eroded, total erosion for the stream may be up to 200%.

82 %

Left Bank: 57 ft Right Bank: 25 ft

Sample Variables 5-9 within the entire riparian/buffer zone adjacent to the stream channel (25 feet from each bank).

5	V_{LWD}	Number of down woody stems (at least 4 inches in diameter and 36 inches in length) per 100 feet of stream reach. Enter the number from the entire 50'-wide buffer and within the channel, and the amount per 100 feet of stream will be calculated. Number of downed woody stems: 17	17.0
6	V_{TDBH}	Average dbh of trees (measure only if $V_{CCANOPY}$ tree/sapling cover is at least 20%). Trees are at least 4 inches (10 cm) in diameter. Enter tree DBHs in inches. List the dbh measurements of individual trees (at least 4 in) within the buffer on each side of the stream below:	Not Used

Left Side					Right Side				

7	V_{SNAG}	Number of snags (at least 4" dbh and 36" tall) per 100 feet of stream. Enter number of snags on each side of the stream, and the amount per 100 feet will be calculated. Left Side: 0 Right Side: 0	0.0
8	V_{SSD}	Number of saplings and shrubs (woody stems up to 4 inches dbh) per 100 feet of stream (measure only if tree cover is <20%). Enter number of saplings and shrubs on each side of the stream, and the amount per 100 ft of stream will be calculated. Left Side: 54 Right Side: 34	88.0
9	V_{SRICH}	Riparian vegetation species richness per 100 feet of stream reach. Check all species present from Group 1 in the tallest stratum. Check all exotic and invasive species present in all strata. Species richness per 100 feet and the subindex will be calculated from these data.	0.00

Group 1 = 1.0		Group 2 (-1.0)	
☐ *Acer rubrum*	☐ *Magnolia tripetala*	☐ *Ailanthus altissima*	☐ *Lonicera japonica*
☐ *Acer saccharum*	☐ *Nyssa sylvatica*	☐ *Albizia julibrissin*	☐ *Lonicera tatarica*
☐ *Aesculus flava*	☐ *Oxydendrum arboreum*	☐ *Alliaria petiolata*	☐ *Lotus corniculatus*
☐ *Asimina triloba*	☐ *Prunus serotina*	☐ *Alternanthera philoxeroides*	☐ *Lythrum salicaria*
☐ *Betula alleghaniensis*	☐ *Quercus alba*		☐ *Microstegium vimineum*
☐ *Betula lenta*	☐ *Quercus coccinea*	☐ *Aster tataricus*	☐ *Paulownia tomentosa*
☐ *Carya alba*	☐ *Quercus imbricaria*	☐ *Cerastium fontanum*	☐ *Polygonum cuspidatum*
☐ *Carya glabra*	☐ *Quercus prinus*	☐ *Coronilla varia*	☐ *Pueraria montana*
☐ *Carya ovalis*	☐ *Quercus rubra*	☐ *Elaeagnus umbellata*	☑ *Rosa multiflora*
☑ *Carya ovata*	☐ *Quercus velutina*	☐ *Lespedeza bicolor*	☐ *Sorghum halepense*
☐ *Cornus florida*	☐ *Sassafras albidum*	☐ *Lespedeza cuneata*	☐ *Verbena brasiliensis*
☐ *Fagus grandifolia*	☐ *Tilia americana*	☐ *Ligustrum obtusifolium*	
☐ *Fraxinus americana*	☐ *Tsuga canadensis*	☐ *Ligustrum sinense*	
☐ *Liriodendron tulipifera*	☐ *Ulmus americana*		
☐ *Magnolia acuminata*			
1 Species in Group 1		1 Species in Group 2	

Sample Variables 10-11 within at least 8 subplots (40" x 40", or 1m x 1m) in the riparian/buffer zone within 25 feet from each bank. The four subplots should be placed roughly equidistantly along each side of the stream.

10 $V_{DETRITUS}$ Average percent cover of leaves, sticks, or other organic material. Woody debris <4" diameter and <36" long are include. Enter the percent cover of the detrital layer at each subplot.

29.38 %

Left Side				Right Side			
60	20	10	90	5	15	0	35

11 V_{HERB} Average percentage cover of herbaceous vegetation (measure only if tree cover is <20%). Do *not* include woody stems at least 4" dbh and 36" tall. Because there may be several layers of ground cover vegetation percentages up through 200% are accepted. Enter the percent cover of ground vegetation at each subplot.

67 %

Left Side				Right Side			
90	100	80	90	30	70	50	25

Sample Variable 12 within the entire catchment of the stream.

12 V_{WLUSE} Weighted Average of Runoff Score for watershed:

0.17

Land Use (Choose From Drop List)	Runoff Score	% in Catch-ment	Running Percent (not >100)
Forest and native range (<50% ground cover)	0.5	23	23
Impervious areas (parking lots, roofs, driveways, etc)	0	25	48
Residential districts, 1/4 - 1/3 ac (38% to 30% cover)	0.1	28	76
Open space (pasture, lawns, parks, etc.), grass cover <50%	0.1	24	100

Summary: SAA Number 1

Variable	Value	VSI
$V_{CCANOPY}$	Not Used, <20%	Not Used
V_{EMBED}	2.6	0.66
$V_{SUBSTRATE}$	2.00 in	1.00
V_{BERO}	82 %	0.63
V_{LWD}	17.0	1.00
V_{TDBH}	Not Used	Not Used
V_{SNAG}	0.0	0.10
V_{SSD}	88.0	1.00
V_{SRICH}	0.00	0.00
$V_{DETRITUS}$	29.4 %	0.36
V_{HERB}	67 %	0.89
V_{WLUSE}	0.17	0.18

Notes:

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FCI Calculator for the High-Gradient Headwater Streams in Appalachia

To ensure accurate calculations, the UPPERMOST STRATUM of the plant community is determined based on the calculated value for $V_{CCANOPY}$ (≥20% cover is required for tree/sapling strata). Go to the SAR Data Entry tab and enter site characteristics and data in the yellow cells. For information on determining how to split a project into SARs, see Chapter 5 of the Operational Draft Regional Guidebook for the Functional Assessment of High-Gradient Headwater Streams and Low-Gradient Perennial Streams in Appalachia (Environmental Laboratory U.S. Army Corps of Engineers 2017).

Project Name: Greenbag Road Improvement Project
Location: STR 8
Sampling Date: 3/13/19

Project Site Before Project

Subclass for this SAR:
Intermittent Stream

Uppermost stratum present at this SAR:
Shrub/Herb Strata

SAR number: 1

Functional Results Summary:

Enter Results in Section A of the Mitigation Sufficiency Calculator

Function	Functional Capacity Index
Hydrology	0.53
Biogeochemical Cycling	0.42
Habitat	0.57

Variable Measure and Subindex Summary:

Variable	Name	Average Measure	Subindex
$V_{CCANOPY}$	Percent canpoy over channel.	Not Used, <20%	Not Used
V_{EMBED}	Average embeddedness of channel.	2.91	0.79
$V_{SUBSTRATE}$	Median stream channel substrate particle size.	3.25	1.00
V_{BERO}	Total percent of eroded stream channel bank.	0.00	1.00
V_{LWD}	Number of down woody stems per 100 feet of stream.	16.00	1.00
V_{TDBH}	Average dbh of trees.	Not Used	Not Used
V_{SNAG}	Number of snags per 100 feet of stream.	0.00	0.10
V_{SSD}	Number of saplings and shrubs per 100 feet of stream.	100.00	1.00
V_{SRICH}	Riparian vegetation species richness.	0.00	0.00
$V_{DETRITUS}$	Average percent cover of leaves, sticks, etc.	34.38	0.42
V_{HERB}	Average percent cover of herbaceous vegetation.	40.00	0.53
V_{WLUSE}	Weighted Average of Runoff Score for Catchment.	0.16	0.17

Version 10-20-17

High-Gradient Headwater Streams in Appalachia
Field Data Sheet and Calculator

Team: Markosky
Project Name: Greenbag Road Improvement Project
Location: STR 8
Latitude/UTM Northing: 39.60628°
Longitude/UTM Easting: -79.94703°
Sampling Date: 3/13/19

SAR Number: 1 Reach Length (ft): 100 Stream Type: Intermittent Stream

Top Strata: Shrub/Herb Strata (determined from percent calculated in $V_{CCANOPY}$)

Site and Timing: Project Site Before Project

Sample Variables 1-4 in stream channel

1 $V_{CCANOPY}$ Average percent cover over channel by tree and sapling canopy. Measure at no fewer than 10 roughly equidistant points along the stream. Measure only if tree/sapling cover is at least 20%. (If less than 20%, enter at least one value between 0 and 19 to trigger Top Strata choice.)

Not Used, <20%

List the percent cover measurements at each point below:

30	10	50	0	0	5	10	10	10	10

2 V_{EMBED} Average embeddedness of the stream channel. Measure at no fewer than 30 roughly equidistant points along the stream. Select a particle from the bed. Before moving it, determine the percentage of the surface and area surrounding the particle that is covered by fine sediment, and enter the rating according to the following table. If the bed is an artificial surface, or composed of fine sediments, use a rating score of 1. If the bed is composed of bedrock, use a rating score of 5.

2.9

Embeddedness rating for gravel, cobble and boulder particles (rescaled from Platts, Megahan, and Minshall 1983)

Rating	Rating Description
5	<5 percent of surface covered, surrounded, or buried by fine sediment (or bedrock)
4	5 to 25 percent of surface covered, surrounded, or buried by fine sediment
3	26 to 50 percent of surface covered, surrounded, or buried by fine sediment
2	51 to 75 percent of surface covered, surrounded, or buried by fine sediment
1	>75 percent of surface covered, surrounded, or buried by fine sediment (or artificial surface)

List the ratings at each point below:

3	5	5	3	1	4	3			
3	5	5	2	5	1	2			
4	2	2	3	2	1	1			
4	5	3	4	1	1	1			
3	5	3	3	5	1	1			

3 $V_{SUBSTRATE}$ Median stream channel substrate particle size. Measure at no fewer than 30 roughly equidistant points along the stream; use the same points and particles as used in V_{EMBED}.

3.25 in

Enter particle size in inches to the nearest 0.1 inch at each point below (bedrock should be counted as 99 in, asphalt or concrete as 0.0 in, sand or finer particles as 0.08 in):

2.25	5.50	6.00	6.00	2.75	0.08	3.25			
3.50	2.00	2.00	2.00	2.50	4.00	6.50			
3.50	3.00	3.50	3.50	2.25	5.25	0.08			
3.75	3.75	3.75	3.75	2.50	0.08	0.08			
3.25	2.75	2.75	3.50	4.25	3.25	0.08			

4 V_{BERO} Total percent of eroded stream channel bank. Enter the total number of feet of eroded bank on each side and the total percentage will be calculated If both banks are eroded, total erosion for the stream may be up to 200%.

0 %

Left Bank: 0 ft Right Bank: 0 ft

Sample Variables 5-9 within the entire riparian/buffer zone adjacent to the stream channel (25 feet from each bank).

5	V_{LWD}	Number of down woody stems (at least 4 inches in diameter and 36 inches in length) per 100 feet of stream reach. Enter the number from the entire 50'-wide buffer and within the channel, and the amount per 100 feet of stream will be calculated. Number of downed woody stems: 16	16.0
6	V_{TDBH}	Average dbh of trees (measure only if $V_{CCANOPY}$ tree/sapling cover is at least 20%). Trees are at least 4 inches (10 cm) in diameter. Enter tree DBHs in inches. List the dbh measurements of individual trees (at least 4 in) within the buffer on each side of the stream below:	Not Used

Left Side					Right Side				

7	V_{SNAG}	Number of snags (at least 4" dbh and 36" tall) per 100 feet of stream. Enter number of snags on each side of the stream, and the amount per 100 feet will be calculated. Left Side: 0 Right Side: 0	0.0
8	V_{SSD}	Number of saplings and shrubs (woody stems up to 4 inches dbh) per 100 feet of stream (measure only if tree cover is <20%). Enter number of saplings and shrubs on each side of the stream, and the amount per 100 ft of stream will be calculated. Left Side: 61 Right Side: 39	100.0
9	V_{SRICH}	Riparian vegetation species richness per 100 feet of stream reach. Check all species present from Group 1 in the tallest stratum. Check all exotic and invasive species present in all strata. Species richness per 100 feet and the subindex will be calculated from these data.	0.00

Group 1 = 1.0		Group 2 (-1.0)	
☐ *Acer rubrum*	☐ *Magnolia tripetala*	☐ *Ailanthus altissima*	☐ *Lonicera japonica*
☐ *Acer saccharum*	☐ *Nyssa sylvatica*	☐ *Albizia julibrissin*	☐ *Lonicera tatarica*
☐ *Aesculus flava*	☐ *Oxydendrum arboreum*	☑ *Alliaria petiolata*	☐ *Lotus corniculatus*
☐ *Asimina triloba*	☐ *Prunus serotina*	☐ *Alternanthera philoxeroides*	☐ *Lythrum salicaria*
☐ *Betula alleghaniensis*	☐ *Quercus alba*		☐ *Microstegium vimineum*
☐ *Betula lenta*	☐ *Quercus coccinea*	☐ *Aster tataricus*	☐ *Paulownia tomentosa*
☐ *Carya alba*	☐ *Quercus imbricaria*	☐ *Cerastium fontanum*	☐ *Polygonum cuspidatum*
☐ *Carya glabra*	☐ *Quercus prinus*	☐ *Coronilla varia*	☐ *Pueraria montana*
☐ *Carya ovalis*	☐ *Quercus rubra*	☐ *Elaeagnus umbellata*	☐ *Rosa multiflora*
☐ *Carya ovata*	☐ *Quercus velutina*	☐ *Lespedeza bicolor*	☐ *Sorghum halepense*
☐ *Cornus florida*	☐ *Sassafras albidum*	☐ *Lespedeza cuneata*	☐ *Verbena brasiliensis*
☐ *Fagus grandifolia*	☐ *Tilia americana*	☐ *Ligustrum obtusifolium*	
☐ *Fraxinus americana*	☐ *Tsuga canadensis*	☐ *Ligustrum sinense*	
☐ *Liriodendron tulipifera*	☐ *Ulmus americana*		
☐ *Magnolia acuminata*			
0 Species in Group 1		1 Species in Group 2	

Sample Variables 10-11 within at least 8 subplots (40" x 40", or 1m x 1m) in the riparian/buffer zone within 25 feet from each bank. The four subplots should be placed roughly equidistantly along each side of the stream.

10 $V_{DETRITUS}$ Average percent cover of leaves, sticks, or other organic material. Woody debris <4" diameter and <36" long are include. Enter the percent cover of the detrital layer at each subplot. **34.38 %**

Left Side				Right Side			
0	40	85	20	90	10	30	0

11 V_{HERB} Average percentage cover of herbaceous vegetation (measure only if tree cover is <20%). Do *not* include woody stems at least 4" dbh and 36" tall. Because there may be several layers of ground cover vegetation percentages up through 200% are accepted. Enter the percent cover of ground vegetation at each subplot. **40 %**

Left Side				Right Side			
30	70	60	60	20	30	40	10

Sample Variable 12 within the entire catchment of the stream.

12 V_{WLUSE} Weighted Average of Runoff Score for watershed: **0.16**

Land Use (Choose From Drop List)	Runoff Score	% in Catch-ment	Running Percent (not >100)
Forest and native range (<50% ground cover)	0.5	20	20
Impervious areas (parking lots, roofs, driveways, etc)	0	22	42
Residential districts, 1/4 - 1/3 ac (38% to 30% cover)	0.1	35	77
Open space (pasture, lawns, parks, etc.), grass cover <50%	0.1	23	100

Summary: SAA Number 1		
Variable	Value	VSI
$V_{CCANOPY}$	Not Used, <20%	Not Used
V_{EMBED}	2.9	0.79
$V_{SUBSTRATE}$	3.25 in	1.00
V_{BERO}	0 %	1.00
V_{LWD}	16.0	1.00
V_{TDBH}	Not Used	Not Used
V_{SNAG}	0.0	0.10
V_{SSD}	100.0	1.00
V_{SRICH}	0.00	0.00
$V_{DETRITUS}$	34.4 %	0.42
V_{HERB}	40 %	0.53
V_{WLUSE}	0.16	0.17

Notes:

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FCI Calculator for the High-Gradient Headwater Streams in Appalachia

To ensure accurate calculations, the UPPERMOST STRATUM of the plant community is determined based on the calculated value for $V_{CCANOPY}$ (≥20% cover is required for tree/sapling strata). Go to the SAR Data Entry tab and enter site characteristics and data in the yellow cells. For information on determining how to split a project into SARs, see Chapter 5 of the Operational Draft Regional Guidebook for the Functional Assessment of High-Gradient Headwater Streams and Low-Gradient Perennial Streams in Appalachia (Environmental Laboratory U.S. Army Corps of Engineers 2017).

Project Name: Greenbag Road Improvement Project
Location: STR 9
Sampling Date: 3/13/19

Project Site   Before Project

Subclass for this SAR:
Perennial Stream

Uppermost stratum present at this SAR:
Tree/Sapling Strata

SAR number: 1

Functional Results Summary:

Enter Results in Section A of the Mitigation Sufficiency Calculator

Function	Functional Capacity Index
Hydrology	0.54
Biogeochemical Cycling	0.74
Habitat	0.72

Variable Measure and Subindex Summary:

Variable	Name	Average Measure	Subindex
$V_{CCANOPY}$	Percent canpoy over channel.	71.00	0.77
V_{EMBED}	Average embeddedness of channel.	3.87	1.00
$V_{SUBSTRATE}$	Median stream channel substrate particle size.	2.63	1.00
V_{BERO}	Total percent of eroded stream channel bank.	139.00	0.33
V_{LWD}	Number of down woody stems per 100 feet of stream.	18.00	1.00
V_{TDBH}	Average dbh of trees.	6.81	0.64
V_{SNAG}	Number of snags per 100 feet of stream.	1.00	1.00
V_{SSD}	Number of saplings and shrubs per 100 feet of stream.	Not Used	Not Used
V_{SRICH}	Riparian vegetation species richness.	0.00	0.00
$V_{DETRITUS}$	Average percent cover of leaves, sticks, etc.	28.75	0.35
V_{HERB}	Average percent cover of herbaceous vegetation.	Not Used	Not Used
V_{WLUSE}	Weighted Average of Runoff Score for Catchment.	0.40	0.42

High-Gradient Headwater Streams in Appalachia
Field Data Sheet and Calculator

Team: Markosky
Project Name: Greenbag Road Improvement Project
Location: STR 9
Latitude/UTM Northing: 39.60511°
Longitude/UTM Easting: -79.94454°
Sampling Date: 3/13/19

SAR Number: 1 Reach Length (ft): 100 Stream Type: Perennial Stream

Top Strata: Tree/Sapling Strata (determined from percent calculated in $V_{CCANOPY}$)

Site and Timing: Project Site Before Project

Sample Variables 1-4 in stream channel

1 $V_{CCANOPY}$ Average percent cover over channel by tree and sapling canopy. Measure at no fewer than 10 roughly equidistant points along the stream. Measure only if tree/sapling cover is at least 20%. (If less than 20%, enter at least one value between 0 and 19 to trigger Top Strata choice.)

71.0 %

List the percent cover measurements at each point below:

0	100	100	90	70	90	100	60	100	0

2 V_{EMBED} Average embeddedness of the stream channel. Measure at no fewer than 30 roughly equidistant points along the stream. Select a particle from the bed. Before moving it, determine the percentage of the surface and area surrounding the particle that is covered by fine sediment, and enter the rating according to the following table. If the bed is an artificial surface, or composed of fine sediments, use a rating score of 1. If the bed is composed of bedrock, use a rating score of 5.

3.9

Embeddedness rating for gravel, cobble and boulder particles (rescaled from Platts, Megahan, and Minshall 1983)

Rating	Rating Description
5	<5 percent of surface covered, surrounded, or buried by fine sediment (or bedrock)
4	5 to 25 percent of surface covered, surrounded, or buried by fine sediment
3	26 to 50 percent of surface covered, surrounded, or buried by fine sediment
2	51 to 75 percent of surface covered, surrounded, or buried by fine sediment
1	>75 percent of surface covered, surrounded, or buried by fine sediment (or artificial surface)

List the ratings at each point below:

5	3	3	4	4	4				
5	5	3	5	3	4				
5	4	4	5	2	4				
4	4	5	4	3	4				
3	2	3	4	5	3				

3 $V_{SUBSTRATE}$ Median stream channel substrate particle size. Measure at no fewer than 30 roughly equidistant points along the stream; use the same points and particles as used in V_{EMBED}.

2.63 in

Enter particle size in inches to the nearest 0.1 inch at each point below (bedrock should be counted as 99 in, asphalt or concrete as 0.0 in, sand or finer particles as 0.08 in):

2.75	3.50	2.75	4.25	2.50	4.50				
2.00	1.50	5.25	2.00	1.50	2.25				
2.25	2.50	1.25	2.25	1.50	5.00				
0.75	2.50	4.00	2.75	3.00	5.75				
4.50	3.75	5.25	2.00	3.00	1.25				

4 V_{BERO} Total percent of eroded stream channel bank. Enter the total number of feet of eroded bank on each side and the total percentage will be calculated If both banks are eroded, total erosion for the stream may be up to 200%.

139 %

Left Bank: 61 ft Right Bank: 78 ft

Sample Variables 5-9 within the entire riparian/buffer zone adjacent to the stream channel (25 feet from each bank).

5 V_{LWD} Number of down woody stems (at least 4 inches in diameter and 36 inches in length) per 100 feet of stream reach. Enter the number from the entire 50'-wide buffer and within the channel, and the amount per 100 feet of stream will be calculated. **18.0**

Number of downed woody stems: 18

6 V_{TDBH} Average dbh of trees (measure only if $V_{CCANOPY}$ tree/sapling cover is at least 20%). Trees are at least 4 inches (10 cm) in diameter. Enter tree DBHs in inches. **6.8**

List the dbh measurements of individual trees (at least 4 in) within the buffer on each side of the stream below:

Left Side					Right Side				
9	5.5	7			8.5				
6	4.5				7				
5.5	6								
5	5								
6	10								
4.5	9								
5.5	7.5								
8	10.5								
4.5	8.5								

7 V_{SNAG} Number of snags (at least 4" dbh and 36" tall) per 100 feet of stream. Enter number of snags on each side of the stream, and the amount per 100 feet will be calculated. **1.0**

Left Side: 1 Right Side:

8 V_{SSD} Number of saplings and shrubs (woody stems up to 4 inches dbh) per 100 feet of stream (measure only if tree cover is <20%). Enter number of saplings and shrubs on each side of the stream, and the amount per 100 ft of stream will be calculated. **Not Used**

Left Side: Right Side:

9 V_{SRICH} Riparian vegetation species richness per 100 feet of stream reach. Check all species present from Group 1 in the tallest stratum. Check all exotic and invasive species present in all strata. Species richness per 100 feet and the subindex will be calculated from these data. **0.00**

Group 1 = 1.0

- [ ] *Acer rubrum*
- [ ] *Acer saccharum*
- [ ] *Aesculus flava*
- [ ] *Asimina triloba*
- [ ] *Betula alleghaniensis*
- [ ] *Betula lenta*
- [ ] *Carya alba*
- [ ] *Carya glabra*
- [ ] *Carya ovalis*
- [ ] *Carya ovata*
- [ ] *Cornus florida*
- [ ] *Fagus grandifolia*
- [ ] *Fraxinus americana*
- [ ] *Liriodendron tulipifera*
- [ ] *Magnolia acuminata*
- [ ] *Magnolia tripetala*
- [ ] *Nyssa sylvatica*
- [ ] *Oxydendrum arboreum*
- [x] *Prunus serotina*
- [ ] *Quercus alba*
- [ ] *Quercus coccinea*
- [ ] *Quercus imbricaria*
- [ ] *Quercus prinus*
- [ ] *Quercus rubra*
- [ ] *Quercus velutina*
- [ ] *Sassafras albidum*
- [ ] *Tilia americana*
- [ ] *Tsuga canadensis*
- [ ] *Ulmus americana*

1 Species in Group 1

Group 2 (-1.0)

- [ ] *Ailanthus altissima*
- [ ] *Albizia julibrissin*
- [x] *Alliaria petiolata*
- [ ] *Alternanthera philoxeroides*
- [ ] *Aster tataricus*
- [ ] *Cerastium fontanum*
- [ ] *Coronilla varia*
- [ ] *Elaeagnus umbellata*
- [ ] *Lespedeza bicolor*
- [ ] *Lespedeza cuneata*
- [ ] *Ligustrum obtusifolium*
- [ ] *Ligustrum sinense*
- [ ] *Lonicera japonica*
- [ ] *Lonicera tatarica*
- [ ] *Lotus corniculatus*
- [ ] *Lythrum salicaria*
- [ ] *Microstegium vimineum*
- [ ] *Paulownia tomentosa*
- [ ] *Polygonum cuspidatum*
- [ ] *Pueraria montana*
- [ ] *Rosa multiflora*
- [ ] *Sorghum halepense*
- [ ] *Verbena brasiliensis*

1 Species in Group 2

Sample Variables 10-11 within at least 8 subplots (40" x 40", or 1m x 1m) in the riparian/buffer zone within 25 feet from each bank. The four subplots should be placed roughly equidistantly along each side of the stream.

10 $V_{DETRITUS}$ Average percent cover of leaves, sticks, or other organic material. Woody debris <4" diameter and <36" long are include. Enter the percent cover of the detrital layer at each subplot. **28.75 %**

Left Side				Right Side			
50	20	40	40	10	30	20	20

11 V_{HERB} Average percentage cover of herbaceous vegetation (measure only if tree cover is <20%). Do *not* include woody stems at least 4" dbh and 36" tall. Because there may be several layers of ground cover vegetation percentages up through 200% are accepted. Enter the percent cover of ground vegetation at each subplot. **Not Used**

Left Side				Right Side			

Sample Variable 12 within the entire catchment of the stream.

12 V_{WLUSE} Weighted Average of Runoff Score for watershed: **0.40**

Land Use (Choose From Drop List)	Runoff Score	% in Catch-ment	Running Percent (not >100)
Forest and native range (<50% ground cover)	0.5	70	70
Impervious areas (parking lots, roofs, driveways, etc)	0	4	74
Residential districts, 1/4 - 1/3 ac (38% to 30% cover)	0.1	4	78
Open space (pasture, lawns, parks, etc.), grass cover 50% - 75%	0.2	22	100

Summary: SAA Number 1		
Variable	Value	VSI
$V_{CCANOPY}$	71 %	0.77
V_{EMBED}	3.9	1.00
$V_{SUBSTRATE}$	2.63 in	1.00
V_{BERO}	139 %	0.33
V_{LWD}	18.0	1.00
V_{TDBH}	6.8	0.64
V_{SNAG}	1.0	1.00
V_{SSD}	Not Used	Not Used
V_{SRICH}	0.00	0.00
$V_{DETRITUS}$	28.8 %	0.35
V_{HERB}	Not Used	Not Used
V_{WLUSE}	0.4	0.42

Notes:

Ver. 10-20-17

FCI Calculator for the High-Gradient Headwater Streams in Appalachia

To ensure accurate calculations, the UPPERMOST STRATUM of the plant community is determined based on the calculated value for $V_{CCANOPY}$ (≥20% cover is required for tree/sapling strata). Go to the SAR Data Entry tab and enter site characteristics and data in the yellow cells. For information on determining how to split a project into SARs, see Chapter 5 of the Operational Draft Regional Guidebook for the Functional Assessment of High-Gradient Headwater Streams and Low-Gradient Perennial Streams in Appalachia (Environmental Laboratory U.S. Army Corps of Engineers 2017).

Project Name: Greenbag Road Improvement Project
Location: STR 10 (DS Point)
Sampling Date: 10/8/19

Project Site Before Project

Subclass for this SAR:
Perennial Stream

Uppermost stratum present at this SAR:
Tree/Sapling Strata

SAR number: 1

Functional Results Summary:

Enter Results in Section A of the Mitigation Sufficiency Calculator

Function	Functional Capacity Index
Hydrology	0.60
Biogeochemical Cycling	0.67
Habitat	0.64

Variable Measure and Subindex Summary:

Variable	Name	Average Measure	Subindex
$V_{CCANOPY}$	Percent canpoy over channel.	42.50	0.40
V_{EMBED}	Average embeddedness of channel.	3.80	1.00
$V_{SUBSTRATE}$	Median stream channel substrate particle size.	4.25	1.00
V_{BERO}	Total percent of eroded stream channel bank.	25.00	0.94
V_{LWD}	Number of down woody stems per 100 feet of stream.	10.00	1.00
V_{TDBH}	Average dbh of trees.	6.81	0.64
V_{SNAG}	Number of snags per 100 feet of stream.	1.00	1.00
V_{SSD}	Number of saplings and shrubs per 100 feet of stream.	Not Used	Not Used
V_{SRICH}	Riparian vegetation species richness.	1.00	0.48
$V_{DETRITUS}$	Average percent cover of leaves, sticks, etc.	34.38	0.42
V_{HERB}	Average percent cover of herbaceous vegetation.	Not Used	Not Used
V_{WLUSE}	Weighted Average of Runoff Score for Catchment.	0.21	0.22

High-Gradient Headwater Streams in Appalachia
Field Data Sheet and Calculator

Team: Markosky | Latitude/UTM Northing: 39.61167°
Project Name: Greenbag Road Improvement Project | Longitude/UTM Easting: -79.93481°
Location: STR 10 (DS Point) | Sampling Date: 10/8/19

SAR Number: 1 | Reach Length (ft): 100 | Stream Type: Perennial Stream

Top Strata: Tree/Sapling Strata (determined from percent calculated in $V_{CCANOPY}$)

Site and Timing: Project Site | Before Project

Sample Variables 1-4 in stream channel

1 $V_{CCANOPY}$ Average percent cover over channel by tree and sapling canopy. Measure at no fewer than 10 roughly equidistant points along the stream. Measure only if tree/sapling cover is at least 20%. (If less than 20%, enter at least one value between 0 and 19 to trigger Top Strata choice.) **42.5 %**

List the percent cover measurements at each point below:

10	10	15	20	30	40	60	70	90	80

2 V_{EMBED} Average embeddedness of the stream channel. Measure at no fewer than 30 roughly equidistant points along the stream. Select a particle from the bed. Before moving it, determine the percentage of the surface and area surrounding the particle that is covered by fine sediment, and enter the rating according to the following table. If the bed is an artificial surface, or composed of fine sediments, use a rating score of 1. If the bed is composed of bedrock, use a rating score of 5. **3.8**

Embeddedness rating for gravel, cobble and boulder particles (rescaled from Platts, Megahan, and Minshall 1983)

Rating	Rating Description
5	<5 percent of surface covered, surrounded, or buried by fine sediment (or bedrock)
4	5 to 25 percent of surface covered, surrounded, or buried by fine sediment
3	26 to 50 percent of surface covered, surrounded, or buried by fine sediment
2	51 to 75 percent of surface covered, surrounded, or buried by fine sediment
1	>75 percent of surface covered, surrounded, or buried by fine sediment (or artificial surface)

List the ratings at each point below:

5	4	5	3	3	4	5	3	5	4
5	4	5	3	4	5	3	3	5	4
2	4	4	3	3	3	3	3	3	4

3 $V_{SUBSTRATE}$ Median stream channel substrate particle size. Measure at no fewer than 30 roughly equidistant points along the stream; use the same points and particles as used in V_{EMBED}. **4.25 in**

Enter particle size in inches to the nearest 0.1 inch at each point below (bedrock should be counted as 99 in, asphalt or concrete as 0.0 in, sand or finer particles as 0.08 in):

5.00	4.00	7.00	13.00	2.00	2.00	1.00	7.00	8.00	3.00
4.00	2.50	3.50	8.00	12.00	2.50	2.00	3.00	8.50	4.50
7.50	8.00	8.00	3.00	3.00	4.50	2.50	3.50	6.00	6.00

4 V_{BERO} Total percent of eroded stream channel bank. Enter the total number of feet of eroded bank on each side and the total percentage will be calculated If both banks are eroded, total erosion for the stream may be up to 200%. **25 %**

Left Bank: 20 ft | Right Bank: 5 ft

Sample Variables 5-9 within the entire riparian/buffer zone adjacent to the stream channel (25 feet from each bank).

5 V_{LWD} Number of down woody stems (at least 4 inches in diameter and 36 inches in length) per 100 feet of stream reach. Enter the number from the entire 50'-wide buffer and within the channel, and the amount per 100 feet of stream will be calculated. **10.0**

Number of downed woody stems: 10

6 V_{TDBH} Average dbh of trees (measure only if $V_{CCANOPY}$ tree/sapling cover is at least 20%). Trees are at least 4 inches (10 cm) in diameter. Enter tree DBHs in inches. **6.8**

List the dbh measurements of individual trees (at least 4 in) within the buffer on each side of the stream below:

Left Side					Right Side				
11	4	10	4	7	4	5			
8	13	7	6	4					
5	4	12	5						

7 V_{SNAG} Number of snags (at least 4" dbh and 36" tall) per 100 feet of stream. Enter number of snags on each side of the stream, and the amount per 100 feet will be calculated. **1.0**

Left Side: 1 Right Side: 0

8 V_{SSD} Number of saplings and shrubs (woody stems up to 4 inches dbh) per 100 feet of stream (measure only if tree cover is <20%). Enter number of saplings and shrubs on each side of the stream, and the amount per 100 ft of stream will be calculated. **Not Used**

Left Side: 0 Right Side: 0

9 V_{SRICH} Riparian vegetation species richness per 100 feet of stream reach. Check all species present from Group 1 in the tallest stratum. Check all exotic and invasive species present in all strata. Species richness per 100 feet and the subindex will be calculated from these data. **1.00**

Group 1 = 1.0		Group 2 (-1.0)	
☑ *Acer rubrum*	☐ *Magnolia tripetala*	☐ *Ailanthus altissima*	☐ *Lonicera japonica*
☐ *Acer saccharum*	☐ *Nyssa sylvatica*	☐ *Albizia julibrissin*	☐ *Lonicera tatarica*
☐ *Aesculus flava*	☐ *Oxydendrum arboreum*	☐ *Alliaria petiolata*	☐ *Lotus corniculatus*
☐ *Asimina triloba*	☐ *Prunus serotina*	☐ *Alternanthera philoxeroides*	☐ *Lythrum salicaria*
☐ *Betula alleghaniensis*	☐ *Quercus alba*		☐ *Microstegium vimineum*
☐ *Betula lenta*	☐ *Quercus coccinea*	☐ *Aster tataricus*	☐ *Paulownia tomentosa*
☐ *Carya alba*	☐ *Quercus imbricaria*	☐ *Cerastium fontanum*	☐ *Polygonum cuspidatum*
☐ *Carya glabra*	☐ *Quercus prinus*	☐ *Coronilla varia*	☐ *Pueraria montana*
☐ *Carya ovalis*	☐ *Quercus rubra*	☐ *Elaeagnus umbellata*	☐ *Rosa multiflora*
☐ *Carya ovata*	☐ *Quercus velutina*	☐ *Lespedeza bicolor*	☐ *Sorghum halepense*
☐ *Cornus florida*	☐ *Sassafras albidum*	☐ *Lespedeza cuneata*	☐ *Verbena brasiliensis*
☐ *Fagus grandifolia*	☐ *Tilia americana*	☐ *Ligustrum obtusifolium*	
☐ *Fraxinus americana*	☐ *Tsuga canadensis*	☐ *Ligustrum sinense*	
☐ *Liriodendron tulipifera*	☐ *Ulmus americana*		
☐ *Magnolia acuminata*			
1 Species in Group 1		0 Species in Group 2	

Sample Variables 10-11 within at least 8 subplots (40" x 40", or 1m x 1m) in the riparian/buffer zone within 25 feet from each bank. The four subplots should be placed roughly equidistantly along each side of the stream.

10 $V_{DETRITUS}$ Average percent cover of leaves, sticks, or other organic material. Woody debris <4" diameter and <36" long are include. Enter the percent cover of the detrital layer at each subplot. **34.38 %**

Left Side				Right Side			
50	60	40	70	10	15	20	10

11 V_{HERB} Average percentage cover of herbaceous vegetation (measure only if tree cover is <20%). Do *not* include woody stems at least 4" dbh and 36" tall. Because there may be several layers of ground cover vegetation percentages up through 200% are accepted. Enter the percent cover of ground vegetation at each subplot. **Not Used**

Left Side				Right Side			
10	10	20	20	15	25	25	15

Sample Variable 12 within the entire catchment of the stream.

12 V_{WLUSE} Weighted Average of Runoff Score for watershed: **0.21**

Land Use (Choose From Drop List)	Runoff Score	% in Catch-ment	Running Percent (not >100)
Forest and native range (50% to 75% ground cover)	0.7	24	24
Impervious areas (parking lots, roofs, driveways, etc)	0	15	39
Urban districts, Commercial and business (>70% cover)	0	20	59
Residential districts, 1/4 - 1/3 ac (38% to 30% cover)	0.1	21	80
Open space (pasture, lawns, parks, etc.), grass cover <50%	0.1	20	100

Summary: SAA Number 1

Variable	Value	VSI
$V_{CCANOPY}$	43 %	0.40
V_{EMBED}	3.8	1.00
$V_{SUBSTRATE}$	4.25 in	1.00
V_{BERO}	25 %	0.94
V_{LWD}	10.0	1.00
V_{TDBH}	6.8	0.64
V_{SNAG}	1.0	1.00
V_{SSD}	Not Used	Not Used
V_{SRICH}	1.00	0.48
$V_{DETRITUS}$	34.4 %	0.42
V_{HERB}	Not Used	Not Used
V_{WLUSE}	0.21	0.22

Notes:

Ver. 10-20-17

FCI Calculator for the High-Gradient Headwater Streams in Appalachia

To ensure accurate calculations, the UPPERMOST STRATUM of the plant community is determined based on the calculated value for $V_{CCANOPY}$ (≥20% cover is required for tree/sapling strata). Go to the SAR Data Entry tab and enter site characteristics and data in the yellow cells. For information on determining how to split a project into SARs, see Chapter 5 of the Operational Draft Regional Guidebook for the Functional Assessment of High-Gradient Headwater Streams and Low-Gradient Perennial Streams in Appalachia (Environmental Laboratory U.S. Army Corps of Engineers 2017).

Project Name: Greenbag Road Improvement Project
Location: STR 10 (US Point)
Sampling Date: 3/13/19

Project Site Before Project

Subclass for this SAR:
Perennial Stream

Uppermost stratum present at this SAR:
Shrub/Herb Strata

SAR number: 1

Functional Results Summary:

Enter Results in Section A of the Mitigation Sufficiency Calculator

Function	Functional Capacity Index
Hydrology	0.33
Biogeochemical Cycling	0.34
Habitat	0.36

Variable Measure and Subindex Summary:

Variable	Name	Average Measure	Subindex
$V_{CCANOPY}$	Percent canpoy over channel.	Not Used, <20%	Not Used
V_{EMBED}	Average embeddedness of channel.	2.97	0.81
$V_{SUBSTRATE}$	Median stream channel substrate particle size.	3.00	1.00
V_{BERO}	Total percent of eroded stream channel bank.	0.00	1.00
V_{LWD}	Number of down woody stems per 100 feet of stream.	0.00	0.00
V_{TDBH}	Average dbh of trees.	Not Used	Not Used
V_{SNAG}	Number of snags per 100 feet of stream.	0.00	0.10
V_{SSD}	Number of saplings and shrubs per 100 feet of stream.	37.00	0.57
V_{SRICH}	Riparian vegetation species richness.	0.00	0.00
$V_{DETRITUS}$	Average percent cover of leaves, sticks, etc.	35.00	0.43
V_{HERB}	Average percent cover of herbaceous vegetation.	17.50	0.23
V_{WLUSE}	Weighted Average of Runoff Score for Catchment.	0.24	0.25

High-Gradient Headwater Streams in Appalachia
Field Data Sheet and Calculator

Team:	Markosky	Latitude/UTM Northing:	39.61025°
Project Name:	Greenbag Road Improvement Project	Longitude/UTM Easting:	-79.93978°
Location:	STR 10 (US Point)	Sampling Date:	3/13/19

SAR Number: 1 Reach Length (ft): 100 Stream Type: Perennial Stream

Top Strata: Shrub/Herb Strata (determined from percent calculated in $V_{CCANOPY}$)

Site and Timing: Project Site Before Project

Sample Variables 1-4 in stream channel

1 $V_{CCANOPY}$ Average percent cover over channel by tree and sapling canopy. Measure at no fewer than 10 roughly equidistant points along the stream. Measure only if tree/sapling cover is at least 20%. (If less than 20%, enter at least one value between 0 and 19 to trigger Top Strata choice.)

Not Used, <20%

List the percent cover measurements at each point below:

5	15	0	10	10	20	10	10	15	5

2 V_{EMBED} Average embeddedness of the stream channel. Measure at no fewer than 30 roughly equidistant points along the stream. Select a particle from the bed. Before moving it, determine the percentage of the surface and area surrounding the particle that is covered by fine sediment, and enter the rating according to the following table. If the bed is an artificial surface, or composed of fine sediments, use a rating score of 1. If the bed is composed of bedrock, use a rating score of 5.

3.0

Embeddedness rating for gravel, cobble and boulder particles (rescaled from Platts, Megahan, and Minshall 1983)

Rating	Rating Description
5	<5 percent of surface covered, surrounded, or buried by fine sediment (or bedrock)
4	5 to 25 percent of surface covered, surrounded, or buried by fine sediment
3	26 to 50 percent of surface covered, surrounded, or buried by fine sediment
2	51 to 75 percent of surface covered, surrounded, or buried by fine sediment
1	>75 percent of surface covered, surrounded, or buried by fine sediment (or artificial surface)

List the ratings at each point below:

2	4	5	5	3	1				
4	1	3	3	2	2				
2	4	4	1	2	2				
3	5	5	3	1	5				
3	4	4	1	4	1				

3 $V_{SUBSTRATE}$ Median stream channel substrate particle size. Measure at no fewer than 30 roughly equidistant points along the stream; use the same points and particles as used in V_{EMBED}.

3.00 in

Enter particle size in inches to the nearest 0.1 inch at each point below (bedrock should be counted as 99 in, asphalt or concrete as 0.0 in, sand or finer particles as 0.08 in):

5.50	3.50	3.00	2.50	4.50	0.08				
2.25	2.25	3.50	4.00	5.00	2.00				
7.50	0.75	4.00	0.08	1.50	1.25				
4.75	5.50	6.25	3.50	0.08	2.00				
3.50	3.00	2.50	0.08	8.50	0.08				

4 V_{BERO} Total percent of eroded stream channel bank. Enter the total number of feet of eroded bank on each side and the total percentage will be calculated If both banks are eroded, total erosion for the stream may be up to 200%.

0 %

Left Bank: 0 ft Right Bank: 0 ft

Sample Variables 5-9 within the entire riparian/buffer zone adjacent to the stream channel (25 feet from each bank).

5	V_{LWD}	Number of down woody stems (at least 4 inches in diameter and 36 inches in length) per 100 feet of stream reach. Enter the number from the entire 50'-wide buffer and within the channel, and the amount per 100 feet of stream will be calculated. Number of downed woody stems: 0	0.0
6	V_{TDBH}	Average dbh of trees (measure only if $V_{CCANOPY}$ tree/sapling cover is at least 20%). Trees are at least 4 inches (10 cm) in diameter. Enter tree DBHs in inches. List the dbh measurements of individual trees (at least 4 in) within the buffer on each side of the stream below:	Not Used

Left Side					Right Side				

7	V_{SNAG}	Number of snags (at least 4" dbh and 36" tall) per 100 feet of stream. Enter number of snags on each side of the stream, and the amount per 100 feet will be calculated. Left Side: 0 Right Side: 0	0.0
8	V_{SSD}	Number of saplings and shrubs (woody stems up to 4 inches dbh) per 100 feet of stream (measure only if tree cover is <20%). Enter number of saplings and shrubs on each side of the stream, and the amount per 100 ft of stream will be calculated. Left Side: 2 Right Side: 35	37.0
9	V_{SRICH}	Riparian vegetation species richness per 100 feet of stream reach. Check all species present from Group 1 in the tallest stratum. Check all exotic and invasive species present in all strata. Species richness per 100 feet and the subindex will be calculated from these data.	0.00

Group 1 = 1.0		Group 2 (-1.0)	
☐ *Acer rubrum*	☐ *Magnolia tripetala*	☐ *Ailanthus altissima*	☐ *Lonicera japonica*
☐ *Acer saccharum*	☐ *Nyssa sylvatica*	☐ *Albizia julibrissin*	☐ *Lonicera tatarica*
☐ *Aesculus flava*	☐ *Oxydendrum arboreum*	☐ *Alliaria petiolata*	☐ *Lotus corniculatus*
☐ *Asimina triloba*	☐ *Prunus serotina*	☐ *Alternanthera philoxeroides*	☐ *Lythrum salicaria*
☐ *Betula alleghaniensis*	☐ *Quercus alba*		☐ *Microstegium vimineum*
☐ *Betula lenta*	☐ *Quercus coccinea*	☐ *Aster tataricus*	☐ *Paulownia tomentosa*
☐ *Carya alba*	☐ *Quercus imbricaria*	☐ *Cerastium fontanum*	☐ *Polygonum cuspidatum*
☐ *Carya glabra*	☐ *Quercus prinus*	☐ *Coronilla varia*	☐ *Pueraria montana*
☐ *Carya ovalis*	☐ *Quercus rubra*	☐ *Elaeagnus umbellata*	☑ *Rosa multiflora*
☐ *Carya ovata*	☐ *Quercus velutina*	☐ *Lespedeza bicolor*	☐ *Sorghum halepense*
☐ *Cornus florida*	☐ *Sassafras albidum*	☐ *Lespedeza cuneata*	☐ *Verbena brasiliensis*
☐ *Fagus grandifolia*	☐ *Tilia americana*	☐ *Ligustrum obtusifolium*	
☐ *Fraxinus americana*	☐ *Tsuga canadensis*	☐ *Ligustrum sinense*	
☐ *Liriodendron tulipifera*	☐ *Ulmus americana*		
☐ *Magnolia acuminata*			
0 Species in Group 1		1 Species in Group 2	

Sample Variables 10-11 within at least 8 subplots (40" x 40", or 1m x 1m) in the riparian/buffer zone within 25 feet from each bank. The four subplots should be placed roughly equidistantly along each side of the stream.			
10	$V_{DETRITUS}$	Average percent cover of leaves, sticks, or other organic material. Woody debris <4" diameter and <36" long are include. Enter the percent cover of the detrital layer at each subplot.	35.00 %

Left Side				Right Side			
10	30	10	30	45	55	50	50

11	V_{HERB}	Average percentage cover of herbaceous vegetation (measure only if tree cover is <20%). Do *not* include woody stems at least 4" dbh and 36" tall. Because there may be several layers of ground cover vegetation percentages up through 200% are accepted. Enter the percent cover of ground vegetation at each subplot.	18 %

Left Side				Right Side			
10	10	20	20	15	25	25	15

Sample Variable 12 within the entire catchment of the stream.

12	V_{WLUSE}	Weighted Average of Runoff Score for watershed:	0.24

Land Use (Choose From Drop List)	Runoff Score	% in Catch-ment	Running Percent (not >100)
Forest and native range (50% to 75% ground cover)	0.7	23	23
Impervious areas (parking lots, roofs, driveways, etc)	0	25	48
Open space (pasture, lawns, parks, etc.), grass cover 50% - 75%	0.2	25	73
Residential districts, 1/4 - 1/3 ac (38% to 30% cover)	0.1	27	100

Summary: SAA Number 1		
Variable	Value	VSI
$V_{CCANOPY}$	Not Used, <20%	Not Used
V_{EMBED}	3.0	0.81
$V_{SUBSTRATE}$	3.00 in	1.00
V_{BERO}	0 %	1.00
V_{LWD}	0.0	0.00
V_{TDBH}	Not Used	Not Used
V_{SNAG}	0.0	0.10
V_{SSD}	37.0	0.57
V_{SRICH}	0.00	0.00
$V_{DETRITUS}$	35.0 %	0.43
V_{HERB}	18 %	0.23
V_{WLUSE}	0.24	0.25

Notes:

Ver. 10-20-17

FCI Calculator for the High-Gradient Headwater Streams in Appalachia

To ensure accurate calculations, the UPPERMOST STRATUM of the plant community is determined based on the calculated value for $V_{CCANOPY}$ (≥20% cover is required for tree/sapling strata). Go to the SAR Data Entry tab and enter site characteristics and data in the yellow cells. For information on determining how to split a project into SARs, see Chapter 5 of the Operational Draft Regional Guidebook for the Functional Assessment of High-Gradient Headwater Streams and Low-Gradient Perennial Streams in Appalachia (Environmental Laboratory U.S. Army Corps of Engineers 2017).

Project Name: Greenbag Road Improvement Project
Location: STR 11
Sampling Date: 10/8/19

Project Site — Before Project

Subclass for this SAR:
Perennial Stream

Uppermost stratum present at this SAR:
Shrub/Herb Strata

SAR number: 1

Functional Results Summary:

Enter Results in Section A of the Mitigation Sufficiency Calculator

Function	Functional Capacity Index
Hydrology	0.25
Biogeochemical Cycling	0.25
Habitat	0.19

Variable Measure and Subindex Summary:

Variable	Name	Average Measure	Subindex
$V_{CCANOPY}$	Percent canpoy over channel.	Not Used, <20%	Not Used
V_{EMBED}	Average embeddedness of channel.	2.40	0.60
$V_{SUBSTRATE}$	Median stream channel substrate particle size.	4.50	1.00
V_{BERO}	Total percent of eroded stream channel bank.	15.00	0.99
V_{LWD}	Number of down woody stems per 100 feet of stream.	0.00	0.00
V_{TDBH}	Average dbh of trees.	Not Used	Not Used
V_{SNAG}	Number of snags per 100 feet of stream.	0.00	0.10
V_{SSD}	Number of saplings and shrubs per 100 feet of stream.	0.00	0.00
V_{SRICH}	Riparian vegetation species richness.	0.00	0.00
$V_{DETRITUS}$	Average percent cover of leaves, sticks, etc.	5.63	0.07
V_{HERB}	Average percent cover of herbaceous vegetation.	61.88	0.82
V_{WLUSE}	Weighted Average of Runoff Score for Catchment.	0.18	0.19

High-Gradient Headwater Streams in Appalachia
Field Data Sheet and Calculator

Team: Markosky
Latitude/UTM Northing: 39.61123°
Project Name: Greenbag Road Improvement Project
Longitude/UTM Easting: -79.93582°
Location: STR 11
Sampling Date: 10/8/19

SAR Number: 1 Reach Length (ft): 100 Stream Type: Perennial Stream

Top Strata: Shrub/Herb Strata (determined from percent calculated in $V_{CCANOPY}$)

Site and Timing: Project Site Before Project

Sample Variables 1-4 in stream channel

1 $V_{CCANOPY}$ Average percent cover over channel by tree and sapling canopy. Measure at no fewer than 10 roughly equidistant points along the stream. Measure only if tree/sapling cover is at least 20%. (If less than 20%, enter at least one value between 0 and 19 to trigger Top Strata choice.)

Not Used, <20%

List the percent cover measurements at each point below:

0									

2 V_{EMBED} Average embeddedness of the stream channel. Measure at no fewer than 30 roughly equidistant points along the stream. Select a particle from the bed. Before moving it, determine the percentage of the surface and area surrounding the particle that is covered by fine sediment, and enter the rating according to the following table. If the bed is an artificial surface, or composed of fine sediments, use a rating score of 1. If the bed is composed of bedrock, use a rating score of 5.

2.4

Embeddedness rating for gravel, cobble and boulder particles (rescaled from Platts, Megahan, and Minshall 1983)

Rating	Rating Description
5	<5 percent of surface covered, surrounded, or buried by fine sediment (or bedrock)
4	5 to 25 percent of surface covered, surrounded, or buried by fine sediment
3	26 to 50 percent of surface covered, surrounded, or buried by fine sediment
2	51 to 75 percent of surface covered, surrounded, or buried by fine sediment
1	>75 percent of surface covered, surrounded, or buried by fine sediment (or artificial surface)

List the ratings at each point below:

3	2	4	3	4	2	1	1	1	4
3	2	4	1	1	3	2	4	2	3
2	3	3	4	1	1	2	2	2	2

3 $V_{SUBSTRATE}$ Median stream channel substrate particle size. Measure at no fewer than 30 roughly equidistant points along the stream; use the same points and particles as used in V_{EMBED}.

4.50 in

Enter particle size in inches to the nearest 0.1 inch at each point below (bedrock should be counted as 99 in, asphalt or concrete as 0.0 in, sand or finer particles as 0.08 in):

12.00	8.00	5.00	13.00	1.50	5.00	4.00	7.00	0.50	5.00
11.00	9.00	7.50	8.50	2.00	2.00	3.50	6.50	9.00	8.50
11.00	3.00	2.00	2.00	4.00	1.50	1.50	1.00	2.00	1.00

4 V_{BERO} Total percent of eroded stream channel bank. Enter the total number of feet of eroded bank on each side and the total percentage will be calculated If both banks are eroded, total erosion for the stream may be up to 200%.

15 %

Left Bank: 5 ft Right Bank: 10 ft

Sample Variables 5-9 within the entire riparian/buffer zone adjacent to the stream channel (25 feet from each bank).

5	V_{LWD}	Number of down woody stems (at least 4 inches in diameter and 36 inches in length) per 100 feet of stream reach. Enter the number from the entire 50'-wide buffer and within the channel, and the amount per 100 feet of stream will be calculated. Number of downed woody stems: 0	0.0
6	V_{TDBH}	Average dbh of trees (measure only if $V_{CCANOPY}$ tree/sapling cover is at least 20%). Trees are at least 4 inches (10 cm) in diameter. Enter tree DBHs in inches. List the dbh measurements of individual trees (at least 4 in) within the buffer on each side of the stream below:	Not Used

Left Side					Right Side				
0					0				

7	V_{SNAG}	Number of snags (at least 4" dbh and 36" tall) per 100 feet of stream. Enter number of snags on each side of the stream, and the amount per 100 feet will be calculated. Left Side: 0 Right Side: 0	0.0
8	V_{SSD}	Number of saplings and shrubs (woody stems up to 4 inches dbh) per 100 feet of stream (measure only if tree cover is <20%). Enter number of saplings and shrubs on each side of the stream, and the amount per 100 ft of stream will be calculated. Left Side: 0 Right Side: 0	0.0
9	V_{SRICH}	Riparian vegetation species richness per 100 feet of stream reach. Check all species present from Group 1 in the tallest stratum. Check all exotic and invasive species present in all strata. Species richness per 100 feet and the subindex will be calculated from these data.	0.00

Group 1 = 1.0		Group 2 (-1.0)	
☐ *Acer rubrum*	☐ *Magnolia tripetala*	☐ *Ailanthus altissima*	☐ *Lonicera japonica*
☐ *Acer saccharum*	☐ *Nyssa sylvatica*	☐ *Albizia julibrissin*	☐ *Lonicera tatarica*
☐ *Aesculus flava*	☐ *Oxydendrum arboreum*	☐ *Alliaria petiolata*	☐ *Lotus corniculatus*
☐ *Asimina triloba*	☐ *Prunus serotina*	☐ *Alternanthera philoxeroides*	☐ *Lythrum salicaria*
☐ *Betula alleghaniensis*	☐ *Quercus alba*		☐ *Microstegium vimineum*
☐ *Betula lenta*	☐ *Quercus coccinea*	☐ *Aster tataricus*	☐ *Paulownia tomentosa*
☐ *Carya alba*	☐ *Quercus imbricaria*	☐ *Cerastium fontanum*	☐ *Polygonum cuspidatum*
☐ *Carya glabra*	☐ *Quercus prinus*	☐ *Coronilla varia*	☐ *Pueraria montana*
☐ *Carya ovalis*	☐ *Quercus rubra*	☐ *Elaeagnus umbellata*	☐ *Rosa multiflora*
☐ *Carya ovata*	☐ *Quercus velutina*	☐ *Lespedeza bicolor*	☐ *Sorghum halepense*
☐ *Cornus florida*	☐ *Sassafras albidum*	☐ *Lespedeza cuneata*	☐ *Verbena brasiliensis*
☐ *Fagus grandifolia*	☐ *Tilia americana*	☐ *Ligustrum obtusifolium*	
☐ *Fraxinus americana*	☐ *Tsuga canadensis*	☐ *Ligustrum sinense*	
☐ *Liriodendron tulipifera*	☐ *Ulmus americana*		
☐ *Magnolia acuminata*			
0 Species in Group 1		0 Species in Group 2	

Sample Variables 10-11 within at least 8 subplots (40" x 40", or 1m x 1m) in the riparian/buffer zone within 25 feet from each bank. The four subplots should be placed roughly equidistantly along each side of the stream.

10 $V_{DETRITUS}$ Average percent cover of leaves, sticks, or other organic material. Woody debris <4" diameter and <36" long are include. Enter the percent cover of the detrital layer at each subplot.

5.63 %

Left Side				Right Side			
5	5	5	5	5	10	5	5

11 V_{HERB} Average percentage cover of herbaceous vegetation (measure only if tree cover is <20%). Do *not* include woody stems at least 4" dbh and 36" tall. Because there may be several layers of ground cover vegetation percentages up through 200% are accepted. Enter the percent cover of ground vegetation at each subplot.

62 %

Left Side				Right Side			
95	95	95	95	95	10	5	5

Sample Variable 12 within the entire catchment of the stream.

12 V_{WLUSE} Weighted Average of Runoff Score for watershed:

0.18

Land Use (Choose From Drop List)	Runoff Score	% in Catch-ment	Running Percent (not >100)
Forest and native range (50% to 75% ground cover)	0.7	24	24
Impervious areas (parking lots, roofs, driveways, etc)	0	43	67
Urban districts, Commercial and business (>70% cover)	0	23	90
Open space (pasture, lawns, parks, etc.), grass cover <50%	0.1	10	100

Summary: SAA Number 1

Variable	Value	VSI
$V_{CCANOPY}$	Not Used, <20%	Not Used
V_{EMBED}	2.4	0.60
$V_{SUBSTRATE}$	4.50 in	1.00
V_{BERO}	15 %	0.99
V_{LWD}	0.0	0.00
V_{TDBH}	Not Used	Not Used
V_{SNAG}	0.0	0.10
V_{SSD}	0.0	0.00
V_{SRICH}	0.00	0.00
$V_{DETRITUS}$	5.6 %	0.07
V_{HERB}	62 %	0.82
V_{WLUSE}	0.18	0.19

Notes:

Ver. 9-21-17

FCI Calculator for the Low-Gradient Perennial Streams in Appalachia

Go to the SAR Data Entry tab and enter site characteristics and data in the yellow cells or drop down menus. For information on determining how to split a project into SARs, see Chapter 5 of the Operational Draft Regional Guidebook for the Functional Assessment of High-Gradient Headwater Streams and Low-Gradient Perennial Streams in Appalachia (Environmental Laboratory U.S. Army Corps of Engineers 2015).

Project Name: Greenbag Road Improvement Project
Location: STR 12 - Aaron Creek
Sampling Date: 3/13/19

Project Site: Before Project

SAR number: 1

Enter Results in Section A of the Mitigation Sufficiency Calculator

Functional Results Summary:

Function	Functional Capacity Index
Hydrology	0.74
Biogeochemical Cycling	0.54
Habitat	0.61

Variable Measure and Subindex Summary:

Variable	Name	Average Measure	Subindex
$V_{CCANOPY}$	Percent canopy over channel.	34.50	0.21
V_{EMBED}	Average embeddedness of channel.	3.40	0.86
$V_{SUBSTRATE}$	Median stream channel substrate particle size.	6.00	1.00
$V_{BANKSTAB}$	Weighted lengths of erosion by class	45.00	0.62
V_{LWD}	Number of down woody stems per 100 feet of stream.	6.67	0.48
V_{TDBH}	Average dbh of trees.	7.67	0.82
V_{TDEN}	Average Density of Trees	195.31	1.00
V_{CVALUE}	Average Coefficient of Conservatism of riparian species.	2.50	0.57
V_{FOREST}	Percent forest cover for Catchment.	83.00	0.94

Version 9-21-17

Low-Gradient Perennial Streams in Appalachia
Field Data Sheet and Calculator

Assessment Team:	Markosky	Latitude/UTM Northing:	39.61212°
Project Name:	Greenbag Road Improvement Project	Longitude/UTM Easting:	-79.93338°
Location:	STR 12 - Aaron Creek	Sampling Date:	3/13/19

SAR Number: 1 Thalweg Length (ft): 300 (300 ft suggested minimum)

Site and Timing: Project Site Before Project

Sample Variables 1-4 in stream channel

1 $V_{CCANOPY}$ Average percent cover over channel by tree and sapling canopy. Measure at no fewer than 10 roughly equidistant points along the stream. Measure for all streams, even if cover is less than 20%.

34.5 %

List the percent cover measurements at each point below (between 0 and 100):

0	10	20	15	40	30	60	65	70	35

2 V_{EMBED} Average embeddedness of the stream channel. Measure at no fewer than 60 roughly equidistant points along the stream. Select a particle from the bed. Before moving it, determine the percentage of the surface and area surrounding the particle that is covered by fine sediment, and enter the rating according to the following table. If the bed is an artificial surface, or composed of fine sediments, use a rating score of 1. If the bed is composed of bedrock, use a rating score of 5.

3.40

Embeddedness rating for gravel, cobble and boulder particles (rescaled from Platts, Megahan, and Minshall 1983)

Rating	Rating Description
5	<5 percent of surface covered, surrounded, or buried by fine sediment **(or bedrock)**
4	5 to 25 percent of surface covered, surrounded, or buried by fine sediment
3	26 to 50 percent of surface covered, surrounded, or buried by fine sediment
2	51 to 75 percent of surface covered, surrounded, or buried by fine sediment
1	>75 percent of surface covered, surrounded, or buried by fine sediment **(or artificial surface)**

List the ratings at each point below:

4	4	3	3	4	3	2	4	4	4
3	3	3	3	4	4	4	4	2	4
3	4	3	3	4	4	2	3	4	4
3	4	3	2	4	3	4	2	4	4
2	3	4	4	3	2	2	2	4	4
5	4	4	4	3	4	2	4	4	4

3 $V_{SUBSTRATE}$ Median stream channel substrate particle size. Measure at no fewer than 60 roughly equidistant points along the stream; use the same points and particles as used in V_{EMBED}.

6.00 in

Enter particle size in inches to the nearest 0.1 inch at each point below (bedrock should be counted as 99 in, asphalt or concrete as 0.0 in, sand or finer particles as 0.08 in):

3.00	4.00	7.00	10.00	7.00	4.00	2.00	3.00	3.00	1.00
10.00	8.00	7.00	4.00	2.00	6.00	9.00	2.00	6.00	5.00
13.00	8.00	10.00	3.00	5.00	3.00	4.00	4.00	2.00	5.00
10.00	4.00	2.00	11.00	40.00	9.50	4.00	2.00	2.50	6.00
9.50	6.50	8.00	11.00	5.50	8.00	9.00	1.50	4.00	8.00
8.00	7.00	10.50	10.00	6.00	6.00	8.50	3.00	4.00	10.00

4	$V_{BANKSTAB}$	This variable is an index incorporating three elements of bank stability: 1) bank erosion length, 2) height category of eroded bank (0.1–2 ft, 2.1–4 ft, >4 ft, or artificial stabilization), and 3) length of artificial stream bank stabilization. Measure the length of the SAR along the thalweg, and enter at the top of the page. Record the length of each eroded area, using the drop down menus to select erosion class. Measure erosion on both sides of the stream. Index ranges from 0 to 200.	45.0

☐ Check here if there is no erosion on either bank.

Length of SAR at thalweg (ft): 300

Total Weighted Erosion length (ft): 135

Left Stream Bank				**Right Stream Bank**			
Height of Erosion Category	Height Index	Length	Contri-bution	Height of Erosion Category	Height Index	Length	Contri-bution
1) 0.1 - 2 ft.	0.5	30 ft	15.0 ft	4) Artificial Bank	0.5	200 ft	100.0 ft
3) >4 ft.	1.0	20 ft	20.0 ft				
Left Bank Erosion length:		50 ft		Right Bank Erosion length:		200 ft	

Sample Variable 5 within the entire riparian/buffer zone adjacent to the stream channel (50 feet from each bank).

5	V_{LWD}	Number of down woody stems (at least 4 inches in diameter and 36 inches in length) per 100 feet of stream reach. Enter the number from the entire buffer: 50' from each bank and within the channel. The amount per 100 feet of stream will be calculated based on the stream reach length entered at the top of the page.	6.7

Number of downed woody stems: 20

Sample Variable 6-8 within at least four 0.032-acre (21' radius) plots within the riparian/buffer zone adjacent to the stream channel (50 feet from each bank).

6	V_{TDBH}	Average dbh of trees. Trees are at least 4 inches (10 cm) in diameter. Enter tree DBHs in inches.	7.67 in

List the dbh measurements of individual trees (at least 4 in) within 4-6 plots placed in the buffer on each side of the stream:

Plot 1	**Plot 2**	**Plot 3**	**Plot 4**	**Plot 5**	**Plot 6**
☑ Plot Used ☐ No Trees	☑ Plot Used ☐ No Trees	☑ Plot Used ☐ No Trees	☑ Plot Used ☐ No Trees	☐ Plot Used ☐ No Trees	☐ Plot Used ☐ No Trees
7	7	4	4		
5	14	4	9		
5	22	4	6		
4		7	4		
6			4		
5			7		
9			8		
			8		
			4		
			4		
			5		
Plot Average	Plot Average	Plot Average	Plot Average	Plot Average	Plot Average
5.86 in.	14.33 in.	4.75 in.	5.73 in.		

7	V_{TDEN}	Tree density, based on trees recorded for V_{TDBH} in four to six 0.032-acre plots. At least four plots must be used.	195.3
8	V_{CVALUE}	Coefficient of conservatism. The average published Coefficients of Conservatism for all native trees and all non-natives in any strata. Coefficients of Conservatism range from 0 (non-natives) to 10 (natives with high fidelity to a specific habitat). Use Drop down menus to select species, once per species. Non-natives are recorded if they occur anywhere in the riparian/buffer zone	2.50

Native Trees				**Non-Natives in Any Strata**			
Species	C-Value	Species	C-Value	Species	C-Value	Species	C-Value
Platanus occidentalis	5			*Rosa multiflora*	0		
Juglans nigra	5			*Berberis thunbergii*	0		

Sample Variable 9 within the entire catchment of the SAR.

9	V_{FOREST}	Percent cover of forested area within the entire watershed that provides water to the perennial stream. Using GIS or aerial photos, enter the estimated percent cover of forest directly, or the acreage of the entire watershed and then the acreage of forested area, below (direct measure will take precedence if both are entered) .	83.0 %

Estimated percent cover of forest in the catchment of the SAR: 83.0 %

OR

Estimated acreage for the catchment of the SAR:

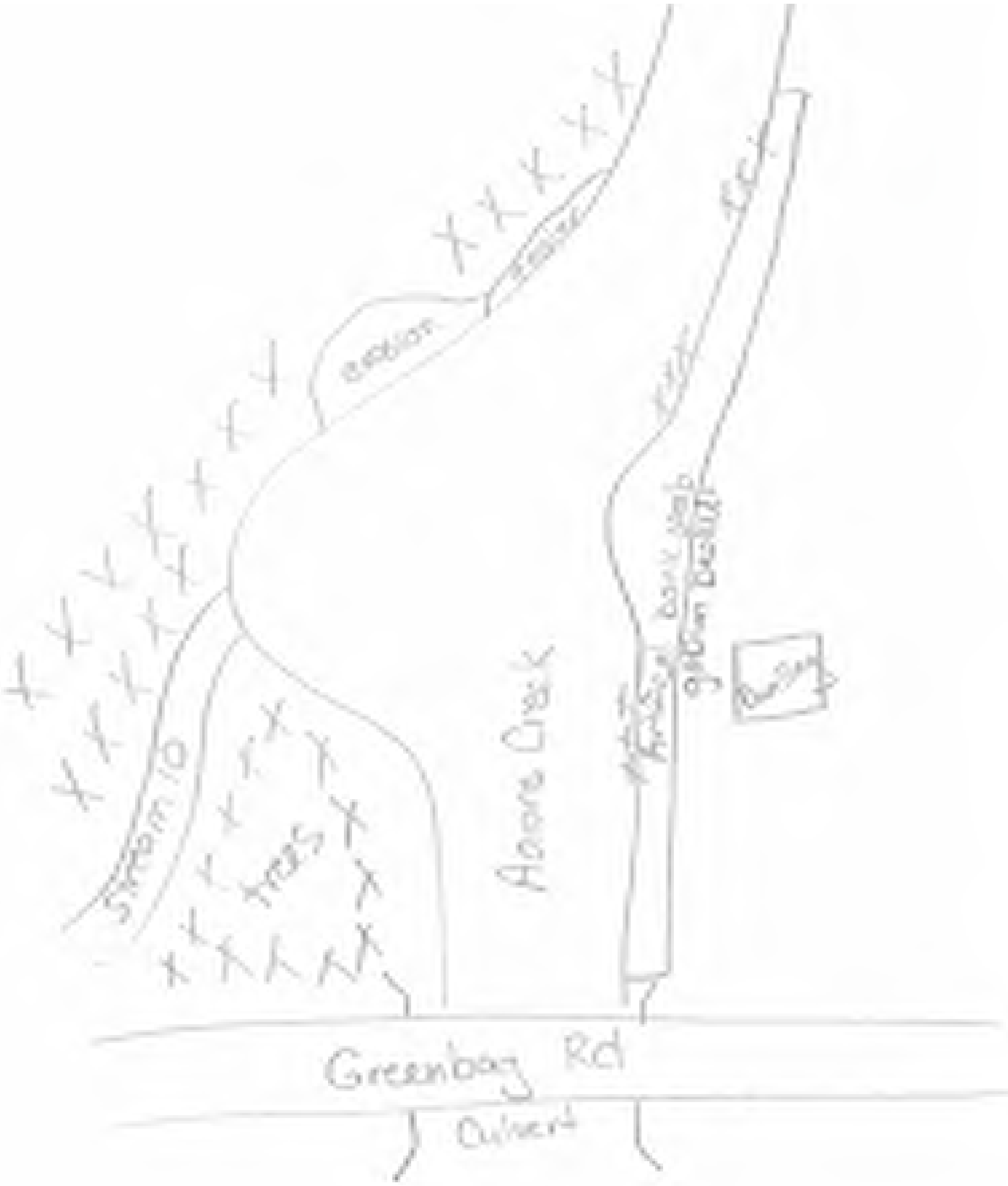
Estimated acreage of forest in the catchment of the SAR:

Summary: SAR Number 1

Variable	Value	VSI
$V_{CCANOPY}$	35 %	0.21
V_{EMBED}	3.4	0.86
$V_{SUBSTRATE}$	6.00 in	1.00
$V_{BANKSTAB}$	45 %	0.62
V_{LWD}	6.7	0.48
V_{TDBH}	7.7 in	0.82
V_{TDEN}	195.3 /ac	1.00
V_{CVALUE}	2.50	0.57
V_{FOREST}	83.0 %	0.94

Notes:

Add Notes and a Site Sketch in this space:



Ver. 10-20-17

FCI Calculator for the High-Gradient Headwater Streams in Appalachia

To ensure accurate calculations, the UPPERMOST STRATUM of the plant community is determined based on the calculated value for $V_{CCANOPY}$ (≥20% cover is required for tree/sapling strata). Go to the SAR Data Entry tab and enter site characteristics and data in the yellow cells. For information on determining how to split a project into SARs, see Chapter 5 of the Operational Draft Regional Guidebook for the Functional Assessment of High-Gradient Headwater Streams and Low-Gradient Perennial Streams in Appalachia (Environmental Laboratory U.S. Army Corps of Engineers 2017).

Project Name: Greenbag Road Improvement Project
Location: STR 13
Sampling Date: 10/8/19

Project Site   Before Project

Subclass for this SAR:
Intermittent Stream

Uppermost stratum present at this SAR:
Shrub/Herb Strata

SAR number: 1

Functional Results Summary:

Enter Results in Section A of the Mitigation Sufficiency Calculator

Function	Functional Capacity Index
Hydrology	0.64
Biogeochemical Cycling	0.48
Habitat	0.69

Variable Measure and Subindex Summary:

Variable	Name	Average Measure	Subindex
$V_{CCANOPY}$	Percent canpoy over channel.	Not Used, <20%	Not Used
V_{EMBED}	Average embeddedness of channel.	4.30	0.85
$V_{SUBSTRATE}$	Median stream channel substrate particle size.	1.75	0.88
V_{BERO}	Total percent of eroded stream channel bank.	2.00	1.00
V_{LWD}	Number of down woody stems per 100 feet of stream.	20.00	1.00
V_{TDBH}	Average dbh of trees.	Not Used	Not Used
V_{SNAG}	Number of snags per 100 feet of stream.	0.00	0.10
V_{SSD}	Number of saplings and shrubs per 100 feet of stream.	55.00	0.85
V_{SRICH}	Riparian vegetation species richness.	0.00	0.00
$V_{DETRITUS}$	Average percent cover of leaves, sticks, etc.	80.00	0.98
V_{HERB}	Average percent cover of herbaceous vegetation.	13.75	0.18
V_{WLUSE}	Weighted Average of Runoff Score for Catchment.	0.33	0.35

Version 10-20-17

High-Gradient Headwater Streams in Appalachia
Field Data Sheet and Calculator

Team: Markosky
Project Name: Greenbag Road Improvement Project
Location: STR 13
Latitude/UTM Northing: 39.60831°
Longitude/UTM Easting: -79.95486°
Sampling Date: 10/8/19

SAR Number: 1 Reach Length (ft): 100 Stream Type: Intermittent Stream

Top Strata: Shrub/Herb Strata (determined from percent calculated in $V_{CCANOPY}$)

Site and Timing: Project Site Before Project

Sample Variables 1-4 in stream channel

1 $V_{CCANOPY}$ Average percent cover over channel by tree and sapling canopy. Measure at no fewer than 10 roughly equidistant points along the stream. Measure only if tree/sapling cover is at least 20%. (If less than 20%, enter at least one value between 0 and 19 to trigger Top Strata choice.)

Not Used, <20%

List the percent cover measurements at each point below:

5									

2 V_{EMBED} Average embeddedness of the stream channel. Measure at no fewer than 30 roughly equidistant points along the stream. Select a particle from the bed. Before moving it, determine the percentage of the surface and area surrounding the particle that is covered by fine sediment, and enter the rating according to the following table. If the bed is an artificial surface, or composed of fine sediments, use a rating score of 1. If the bed is composed of bedrock, use a rating score of 5.

4.3

Embeddedness rating for gravel, cobble and boulder particles (rescaled from Platts, Megahan, and Minshall 1983)

Rating	Rating Description
5	<5 percent of surface covered, surrounded, or buried by fine sediment (or bedrock)
4	5 to 25 percent of surface covered, surrounded, or buried by fine sediment
3	26 to 50 percent of surface covered, surrounded, or buried by fine sediment
2	51 to 75 percent of surface covered, surrounded, or buried by fine sediment
1	>75 percent of surface covered, surrounded, or buried by fine sediment (or artificial surface)

List the ratings at each point below:

5	5	5	4	5	4	5	5	4	4
4	4	4	3	5	5	4	4	5	4
3	4	4	5	5	3	5	4	4	4

3 $V_{SUBSTRATE}$ Median stream channel substrate particle size. Measure at no fewer than 30 roughly equidistant points along the stream; use the same points and particles as used in V_{EMBED}.

1.75 in

Enter particle size in inches to the nearest 0.1 inch at each point below (bedrock should be counted as 99 in, asphalt or concrete as 0.0 in, sand or finer particles as 0.08 in):

3.00	3.50	1.50	1.50	1.50	0.50	2.00	1.00	0.50	0.50
2.00	2.50	3.00	1.50	2.00	2.00	2.00	1.00	4.00	2.50
1.50	1.50	2.00	1.50	0.50	1.00	3.00	2.50	1.50	3.00

4 V_{BERO} Total percent of eroded stream channel bank. Enter the total number of feet of eroded bank on each side and the total percentage will be calculated If both banks are eroded, total erosion for the stream may be up to 200%.

2 %

Left Bank: 2 ft Right Bank: 0 ft

Sample Variables 5-9 within the entire riparian/buffer zone adjacent to the stream channel (25 feet from each bank).			
5	V_{LWD}	Number of down woody stems (at least 4 inches in diameter and 36 inches in length) per 100 feet of stream reach. Enter the number from the entire 50'-wide buffer and within the channel, and the amount per 100 feet of stream will be calculated. Number of downed woody stems: 20	20.0
6	V_{TDBH}	Average dbh of trees (measure only if $V_{CCANOPY}$ tree/sapling cover is at least 20%). Trees are at least 4 inches (10 cm) in diameter. Enter tree DBHs in inches. List the dbh measurements of individual trees (at least 4 in) within the buffer on each side of the stream below:	Not Used

Left Side					Right Side				

7	V_{SNAG}	Number of snags (at least 4" dbh and 36" tall) per 100 feet of stream. Enter number of snags on each side of the stream, and the amount per 100 feet will be calculated. Left Side: 0 Right Side: 0	0.0
8	V_{SSD}	Number of saplings and shrubs (woody stems up to 4 inches dbh) per 100 feet of stream (measure only if tree cover is <20%). Enter number of saplings and shrubs on each side of the stream, and the amount per 100 ft of stream will be calculated. Left Side: 20 Right Side: 35	55.0
9	V_{SRICH}	Riparian vegetation species richness per 100 feet of stream reach. Check all species present from Group 1 in the tallest stratum. Check all exotic and invasive species present in all strata. Species richness per 100 feet and the subindex will be calculated from these data.	0.00

Group 1 = 1.0		Group 2 (-1.0)	
[ ] *Acer rubrum*	[ ] *Magnolia tripetala*	[ ] *Ailanthus altissima*	[ ] *Lonicera japonica*
[ ] *Acer saccharum*	[ ] *Nyssa sylvatica*	[ ] *Albizia julibrissin*	[ ] *Lonicera tatarica*
[ ] *Aesculus flava*	[ ] *Oxydendrum arboreum*	[ ] *Alliaria petiolata*	[ ] *Lotus corniculatus*
[ ] *Asimina triloba*	[ ] *Prunus serotina*	[ ] *Alternanthera philoxeroides*	[ ] *Lythrum salicaria*
[ ] *Betula alleghaniensis*	[ ] *Quercus alba*		[ ] *Microstegium vimineum*
[ ] *Betula lenta*	[ ] *Quercus coccinea*	[ ] *Aster tataricus*	[ ] *Paulownia tomentosa*
[ ] *Carya alba*	[ ] *Quercus imbricaria*	[ ] *Cerastium fontanum*	[ ] *Polygonum cuspidatum*
[ ] *Carya glabra*	[ ] *Quercus prinus*	[ ] *Coronilla varia*	[ ] *Pueraria montana*
[ ] *Carya ovalis*	[ ] *Quercus rubra*	[ ] *Elaeagnus umbellata*	[x] *Rosa multiflora*
[ ] *Carya ovata*	[ ] *Quercus velutina*	[ ] *Lespedeza bicolor*	[ ] *Sorghum halepense*
[ ] *Cornus florida*	[ ] *Sassafras albidum*	[ ] *Lespedeza cuneata*	[ ] *Verbena brasiliensis*
[ ] *Fagus grandifolia*	[ ] *Tilia americana*	[ ] *Ligustrum obtusifolium*	
[ ] *Fraxinus americana*	[ ] *Tsuga canadensis*	[ ] *Ligustrum sinense*	
[ ] *Liriodendron tulipifera*	[ ] *Ulmus americana*		
[ ] *Magnolia acuminata*			
0 Species in Group 1		1 Species in Group 2	

Sample Variables 10-11 within at least 8 subplots (40" x 40", or 1m x 1m) in the riparian/buffer zone within 25 feet from each bank. The four subplots should be placed roughly equidistantly along each side of the stream.		
10	$V_{DETRITUS}$	Average percent cover of leaves, sticks, or other organic material. Woody debris <4" diameter and <36" long are include. Enter the percent cover of the detrital layer at each subplot.	80.00 %

Left Side				Right Side			
70	90	100	75	70	75	90	70

11	V_{HERB}	Average percentage cover of herbaceous vegetation (measure only if tree cover is <20%). Do *not* include woody stems at least 4" dbh and 36" tall. Because there may be several layers of ground cover vegetation percentages up through 200% are accepted. Enter the percent cover of ground vegetation at each subplot.	14 %

Left Side				Right Side			
5	10	15	20	15	20	10	15

Sample Variable 12 within the entire catchment of the stream.

12	V_{WLUSE}	Weighted Average of Runoff Score for watershed:	0.33

Land Use (Choose From Drop List)	Runoff Score	% in Catch-ment	Running Percent (not >100)
Forest and native range (50% to 75% ground cover)	0.7	44	44
Impervious areas (parking lots, roofs, driveways, etc)	0	31	75
Open space (pasture, lawns, parks, etc.), grass cover 50% - 75%	0.2	10	85
Residential districts, 1/8 ac or less (apartments, etc.) (65% cover)	0	15	100

Summary: SAA Number 1		
Variable	Value	VSI
$V_{CCANOPY}$	Not Used, <20%	Not Used
V_{EMBED}	4.3	0.85
$V_{SUBSTRATE}$	1.75 in	0.88
V_{BERO}	2 %	1.00
V_{LWD}	20.0	1.00
V_{TDBH}	Not Used	Not Used
V_{SNAG}	0.0	0.10
V_{SSD}	55.0	0.85
V_{SRICH}	0.00	0.00
$V_{DETRITUS}$	80.0 %	0.98
V_{HERB}	14 %	0.18
V_{WLUSE}	0.33	0.35

Notes:

APPENDIX D
Resource Photographs

Photo 1: Wetland WL1 – Facing East (2.4.19)

Photo 2: Wetland WL1 – Facing North (2.4.19)

Photo 3: Wetland WL2 - Facing Southwest (2.4.19)

Photo 4: Wetland WL2- Facing Northeast (2.4.19)

Photo 5: Wetland WL3 - Facing Southwest (2.4.19)

Photo 6: Wetland WL3 - Facing South (2.4.19)

Photo 7: Wetland WL4 – Facing Northeast (2.4.19)

Photo 8: Wetland WL4 - Facing North (2.4.19)

Photo 9: Wetland WL5 – Facing South (2.4.19)

Photo 10: Wetland WL5 - Facing West (2.4.19)

Photo 11: Wetland WL6 – Facing East (2.4.19)

Photo 12: Wetland WL6 - Facing West (2.4.19)

Photo 13: Wetland WL7 – Facing North (2.4.19)

Photo 14: Wetland WL7 - Facing South (2.4.19)

Photo 15: STR 1 (Cobun Creek) – Facing Upstream (3.13.19)

Photo 16: STR 1 (Cobun Creek) - Facing Downstream (3.13.19)

Photo 17: STR 2 – Facing Upstream (3.13.19)

Photo 18: STR 2 - Facing Downstream (3.13.19)

Photo 19: STR 3 – Facing Upstream (3.13.19)

Photo 20: STR 3 - Facing Downstream (3.13.19)

Photo 21: STR 4 – Facing Upstream (3.13.19)

Photo 22: STR 4 - Facing Downstream (3.13.19)

Photo 23: STR 5 – Facing Upstream (3.13.19)

Photo 24: STR 5 - Facing Downstream (3.13.19)

Photo 25: STR 6 – Facing Upstream (3.13.19)

Photo 26: STR 6 - Facing Downstream (3.13.19)

Photo 27: STR 7 – Facing Upstream (3.13.19)

Photo 28: STR 7 - Facing Downstream (3.13.19)

Photo 29: STR 8 – Facing Upstream (3.13.19)

Photo 30: STR 8 - Facing Downstream (3.13.19)

Photo 31: STR 9 – Facing Upstream (2.4.19)

Photo 32: STR 9 - Facing Downstream (2.4.19)

Photo 33: STR 10(US Point) – Facing Upstream (2.4.19)

Photo 34: STR 10(US Point) - Facing Downstream (2.4.19)

Photo 35: STR 11 – Facing Upstream (2.4.19)

Photo 36: STR 11- Facing Downstream (2.4.19)

Photo 37: STR 10 (DS Point) – Facing Upstream (10.8.19)

Photo 38: STR 10 (DS Point) - Facing Downstream (10.8.19)

Photo 39: STR 12 (Aaron Creek) – Facing Upstream (10.8.19)

Photo 40: STR 12 (Aaron Creek) - Facing Downstream (10.8.19)

Photo 41: STR 13 – Facing Upstream (10.8.19)

Photo 42: STR 13- Facing Downstream (10.8.19)

Photo 43: Wetland WL8 – Facing East (10.8.19)

Photo 44: Wetland WL8 - Facing West (10.8.19)

Greenbag Road Improvement Project

Appendix C

Noise Report

Highway Traffic Noise Analysis Review

Prepared for the:

Greenbag Road Improvement Project

City of Morgantown
Monongalia County, West Virginia

Prepared for:

The West Virginia Department of Transportation
Division of Highways
1334 Smith Street
Charleston, WV 25305-0430

Prepared by:

MARKOSKY
3689 Route 711
Ligonier, PA 15658

November 2019

TABLE OF CONTENTS

Introduction

The project area involves the Greenbag Road (CR 857) corridor in a suburban and semi-commercially developed portion of the City of Morgantown, Monongalia County (Appendix A). The current project extends approximately 1.65 miles along Greenbag Road from 0.25 mile west of the Mississippi Street (CR 857/1) intersection to the crossing of Aaron Creek, approximately 0.10 mile west of Lower Aarons Creek Road and includes improvements at the Greenbag Road intersections at Mississippi Street and Dorsey Avenue/Kingwood Pike (CR 81).

The overall roadway improvements along Greenbag Road include wider lanes and shoulders along with a dedicated center turn lane west of the Mississippi Street intersection. A curb and gutter will be installed along the north side of Greenbag Road to help address drainage issues and to provide a sidewalk along the entire route to the Dorsey Avenue/Kingwood Pike (CR 81) intersection. In addition, the north side shoulder will be utilized as a bike lane for the corridor between the commercial district and the residential areas.

The roadway will be improved to incorporate two 11-foot travel lanes, a 12-foot center turn lane, and curb and gutter on each side up to Mississippi Street. Between Mississippi Street and Dorsey Avenue/Kingwood Pike, the roadway will be improved to two 12-foot travel lanes with a 4-foot paved shoulder on the south side. A 3-foot paved shoulder with a 2-foot curb and gutter will be on the north side. A 5-foot concrete sidewalk will be located on the north side of Greenbag Road and connect with the sidewalk at Mountainview Elementary School.

Both the Mississippi Street and Dorsey Ave/Kingwood Pike intersections with Greenbag Road are proposed to be reconstructed as single-lane roundabouts to provide for continuous traffic flow along the route and to increase the safety of the traveling public as they enter each intersection. The roundabouts will also be developed to allow the safe movement of pedestrians along the sidewalk on the north side of Greenbag Road and will include lighting on each approach to the roundabout.

Additional work on Luckey Lane will improve the width of the travel lanes within the existing right-of-way and re-pave the length of the roadway between Greenbag Road and Dorsey Avenue. From the intersection of Greenbag Road and Jonathan Lane to the crossing of Aaron Creek the project will include roadside drainage improvements as needed to address stormwater run-off.

Existing land use in the vicinity of the Greenbag Road project is a mixture of residential, commercial, transportation, deciduous forests, active agricultural fields, and scrub/shrub rangeland.

This report identifies the potential noise receptor locations in the vicinity of the Greenbag Road project corridor, the project work to be performed adjacent to these receptors, and justifies a Type 3 Project determination which does not require a detailed noise analysis.

<u>Project Type Determination Methodology</u>

The project type determination was conducted in accordance with the methodology described in the *West Virginia Department of Transportation, Division of Highways, Noise Analysis and Abatement Guidelines (DD-253)*. The criteria for defining the specific project types as presented in *DD-253* is as follows:

<u>Type 1 Project</u>

A Type I Project is any project that meets one of the following criteria.

1. The construction of a highway on a new location
2. The physical alteration of an existing highway where there is either:
    i. Substantial Horizontal Alteration. A project that halves the distance between the traffic noise source and the closest receptor between the existing condition and the future build condition
    ii. Substantial Vertical Alteration. A project that removes shielding therefore exposing the line-of-sight between the receptor and the traffic noise source. This is done by either altering the vertical alignment of the highway or by altering the topography between the highway traffic noise source and the receptor
3. The addition of a through-traffic lane(s). This includes the addition of a through-traffic lane that functions as a HOV lane, High-Occupancy Toll (HOT) lane, bus lane, or truck climbing lane.
4. The addition of an auxiliary lane, except for when the auxiliary lane is a turn lane.
5. The addition or relocation of interchange lanes or ramps added to a quadrant to complete an existing partial interchange.
6. Restriping existing pavement for the purpose of adding a through-traffic lane or an auxiliary lane.
7. The addition of a new or substantial alteration of a weigh station, rest stop, ride-share lot, or toll plaza.
8. If a project is determined to be a Type 1 project, then the entire project area as defined in the environmental document is a Type 1 project.

A Type 1 project requires a detailed noise analysis.

Type 2 Project

A Type 2 Project is a Federal or Federal-aid highway project for noise abatement on an existing highway. For a Type 2 project to be eligible for Federal-aid funding, the highway agency must develop and implement a Type 2 program in accordance with section 772.7€. The WVDOT does not develop or implement Type 2 projects.

Type 3 Project

A Type 3 Project is a Federal or Federal-aid highway project that does not meet the classifications of a Type 1 or Type 2 project. Type 3 projects do not require a noise analysis.

Noise Receptor Analysis Findings

A total of twelve (12) noise study areas (NSA) were identified along the project corridor (Appendix B). Each NSA contains multiple sensitive receptors existing in a similar noise environment. Associated receptors for each NSA are as follows:

NSA 1 includes 3 retail businesses, a veterinary clinic and an animal boarding facility.
NSA 2 includes a vocational education facility and a sports facility.
NSA 3 includes a restaurant and an office building.
NSA 4 includes 110 single family homes, 2 apartment buildings, and a sports facility.
NSA 5 includes 2 single family homes.
NSA 6 includes 16 single family homes, 5 apartment buildings with lower level office space, and 3 office buildings.
NSA 7 includes 2 single family homes, an apartment building with lower level office space, an office building, a school, and a church.
NSA 8 includes 32 single family homes, an apartment building, 5 office buildings, and a school.
NSA 9 includes 9 single family homes, an apartment building with lower level office space, and 2 churches.
NSA 10 includes a church, 5 retail businesses, an office building, and a sports facility.
NSA 11 includes 4 single family homes, 12 town home buildings, a veterinary clinic, and an office building.
NSA 12 includes 3 single family homes.

The roadway improvements, including widening, intersection improvements, drainage improvements, and additional pedestrian facilities were reviewed for each NSA to determine if the project was either a Type 1 or a Type 3 project. If any noise receptor site meets the criteria for a Type 1 project, then noise analysis must be performed for the entire project.

This project is not a Federal or Federal-aid highway project for noise abatement on an existing highway. Therefore this project is not a Type 2 project.

Type 1 Project Analysis

The 12 NSAs were assessed based on the criteria outlined in the Type 1 project requirements. Assessments for each criterion are described as follows:

Criteria 1 – This project is not the construction of a highway on a new location. Therefore, the Greenbag Road project does not meet the requirements of criteria 1.

Criteria 2 – There are several horizontal and vertical adjustments required for this project. The 12 NSA locations were analyzed further to determine if any of the associated receptors meet the requirements of criteria 2. The analysis of these sites is as follows:

> NSA 1 – The work at this location will involve the widening of Greenbag Road, installation of a center turn lane, installation of a sidewalk, and drainage improvements. The widening and turn lane installation on Greenbag Road will not halve the distance between the traffic noise source and any sensitive receptors. The excavation required to widen Greenbag Road, install the turn lane, and install the sidewalk/drainage improvements does not remove shielding that exposes the line of sight between the traffic noise source and any sensitive receptors. The roadway profile of Greenbag Road will not be altered at this location. The Greenbag Road project does not meet the requirements for criteria 2 at this location.
>
> NSA 2 – The work at this location will involve re-paving and drainage improvements only. No horizontal or vertical alteration of the traffic noise source will occur in the vicinity of NSA 2. The Greenbag Road project does not meet the requirements for criteria 2 at this location.
>
> NSA 3 – The work at this location will involve the widening of Greenbag Road, installation of a center turn lane, drainage improvements, and construction of a roundabout intersection just east of NSA 3. The widening and turn lane installation on Greenbag Road will not halve the distance between the traffic noise source and any sensitive receptors. The excavation required to widen Greenbag Road, install the turn lane and drainage improvements, and construct the roundabout to the east does not remove shielding that exposes the line of sight between the traffic noise source and any sensitive receptors. The roadway profile of Greenbag Road will not be altered at this location. The Greenbag Road project does not meet the requirements for criteria 2 at this location.
>
> NSA 4 – The work at this location will involve the widening of Greenbag Road, installation of a center turn lane, installation of a sidewalk, drainage

improvements, and construction of a roundabout intersection just west of NSA 4. The widening, turn lane installation, and roundabout construction on Greenbag Road will not halve the distance between the traffic noise source and any sensitive receptors. The excavation required to widen Greenbag Road, install the turn lane, sidewalk, and drainage improvements, and construct the roundabout does not remove shielding that exposes the line of sight between the traffic noise source and any sensitive receptors. The roadway profile of Greenbag Road will not be altered at this location. The roadway profile of Mississippi Street west of NSA 4 will be raised by roughly 2 feet. However, this small height adjustment will not expose the line of sight for any receptors to the traffic noise source. The Greenbag Road project does not meet the requirements for criteria 2 at this location.

NSA 5 – The work at this location involves the realignment of Kingwood Pike to accommodate the proposed roundabout at its intersection with Greenbag Road. The proposed alignment will move the traffic noise source further away from the sensitive receptors. The excavation required to realign Kingwood Pike and construct the roundabout intersction does not remove shielding that exposes the line of sight between the traffic noise source and any sensitive receptors. The roadway profile of Greenbag Road will not be altered at this location. The roadway profile of Kingwood Pike will be raised by roughly 2 feet over existing ground. However, this small height adjustment will not alter exposure to the line of sight for any receptors to the traffic noise source. The Greenbag Road project does not meet the requirements for criteria 2 at this location.

NSA 6 – The work at this location involves the repaving of Dorsey Avenue, installation of a 5-foot sidewalk, and the realignment of Dorsey Avenue to accommodate the proposed roundabout at its intersection with Greenbag Road. The realignment of Dorsey Avenue will not halve the distance between the traffic noise source and any sensitive receptors. The excavation required to realign Dorsey Avenue and install the 5-foot sidewalk does not remove shielding that exposes the line of sight between the traffic noise source and any sensitive receptors. The roadway profile of Greenbag Road will not be altered at this location. The roadway profile of Dorsey Avenue will be raised less than 1 foot over existing ground. However, this small height adjustment will not alter exposure to the line of sight for any receptors to the traffic noise source. The Greenbag Road project does not meet the requirements for criteria 2 at this location.

NSA 7 – The work at this location involves the repaving of Dorsey Avenue, installation of a 5-foot sidewalk, and the widening of Luckey Lane. The widening of Luckey Lane will not halve the distance between the traffic noise source and any sensitive receptors. The excavation required to widen Luckey Lane and install the 5-foot sidewalk does not remove shielding that exposes the line of sight between the traffic noise source and any sensitive receptors. The roadway profiles of Dorsey Avenue and Luckey Lane will not be altered at this location. The

Greenbag Road project does not meet the requirements for criteria 2 at this location.

NSA 8 – The work at this location will involve re-paving and drainage improvements only. No horizontal or vertical alteration of the traffic noise source will occur in the vicinity of NSA 8. The Greenbag Road project does not meet the requirements for criteria 2 at this location.

NSA 9 – The work at this location will involve re-paving and drainage improvements only. No horizontal or vertical alteration of the traffic noise source will occur in the vicinity of NSA 9. The Greenbag Road project does not meet the requirements for criteria 2 at this location.

NSA 10 – The work at this location will involve re-paving and drainage improvements only. No horizontal or vertical alteration of the traffic noise source will occur in the vicinity of NSA 10. The Greenbag Road project does not meet the requirements for criteria 2 at this location.

NSA 11 – The work at this location will involve re-paving and drainage improvements only. No horizontal or vertical alteration of the traffic noise source will occur in the vicinity of NSA 11. The Greenbag Road project does not meet the requirements for criteria 2 at this location.

NSA 12 – The work at this location will involve re-paving and drainage improvements only. No horizontal or vertical alteration of the traffic noise source will occur in the vicinity of NSA 12. The Greenbag Road project does not meet the requirements for criteria 2 at this location.

The project work does not substantially alter the horizontal or vertical alignment of the roadway corridor at any noise receptors distributed across the 12 NSAs. Therefore, the Greenbag Road project does not meet the requirements of criteria 2.

Criteria 3 – This project does not include the addition of any through-traffic lanes that function as a HOV lane, High-Occupancy Toll (HOT) lane, bus lane, or truck climbing lane. Therefore, the Greenbag Road project does not meet the requirements of criteria 3.

Criteria 4 – There will be the addition of auxiliary lanes at the Bluegrass Village driveway intersection (NSA 4) and west of Mississippi Street (NSA 1, 2, 3) for this project. Both auxiliary lanes will function as turn lanes. Therefore, the Greenbag Road project does not meet the requirements of criteria 4.

Criteria 5 – There are no interchange lanes or ramps being added or relocated to complete an existing partial interchange. Therefore, the Greenbag Road project does not meet the requirements of criteria 5.

Criteria 6 – No restriping of existing pavement to add a through-traffic lane or an auxiliary lane will occur as a part of this project. Therefore, the Greenbag Road project does not meet the requirements of criteria 6.

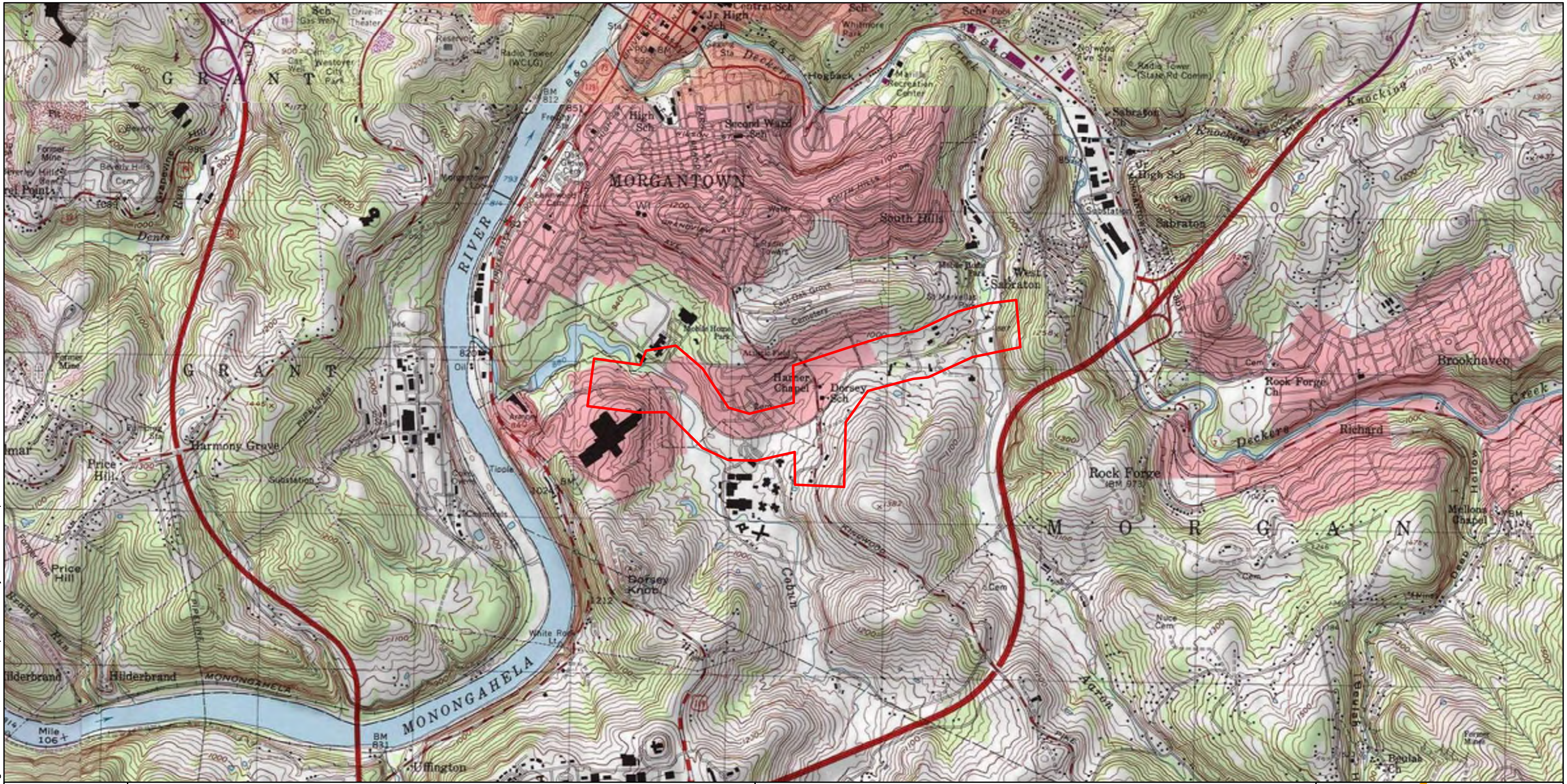
Criteria 7 – There are no existing weigh stations, rest stops, ride-share lots, or toll plazas to be modified and none are proposedas a part of this project. Therefore, the Greenbag Road project does not meet the requirements of criteria 7.

Criteria 8 – No receptors are affected by any of the previously mentioned criteria. Therefore, the Greenbag Road project does not meet the requirements of criteria 8.

Narrative Analysis Conclusion

All potential noise receptor sites within the project study corridor have been assessed according to the methodology described above. Based on this assessment, it has been determined the Greenbag Road project is a Type 3 Project and no further noise analysis is required. None of the receptors within the study corridor meet the criteria to qualify as a Type 1 project. The project scope does not include the construction of noise abatement for existing conditions therefore, the project does not qualify as a Type 2 project. The Greenbag Road project qualifies as a Type 3 project. As stated in the project description, the work associated with the project includes roadway corridor improvements that enhance corridor safety and usability for bicyclists, pedestrians, and motorists. Due to the lack of any Type 1 or 2 criteria which would affect a receptor in the vicinity of the project corridor, it has been determined that project will not require any further noise analysis.

APPENDIX A
Project Location Map



Greenbag Road Improvement Project
West Virginia Division of Highways
Monongalia County, West Virginia
USGS Quadrangle - Morgantown South
Project Location Map

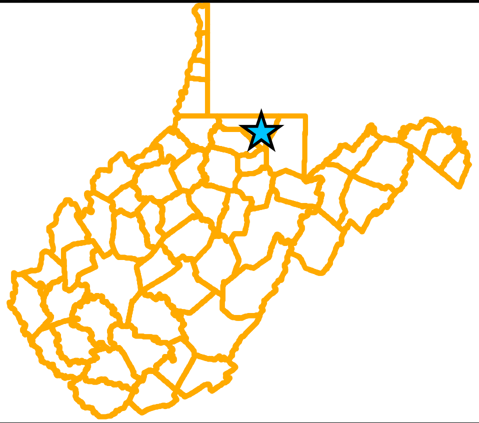
Federal Project STP-0857(019)D
State Project U331-857-0.67 00

Topography Source:
National Geographic Society (NGS)

0 1,000 2,000 4,000 Feet

0 250 500 1,000 Meters

Noise Study Boundary



MARKOSKY

Date: 11/14/2019

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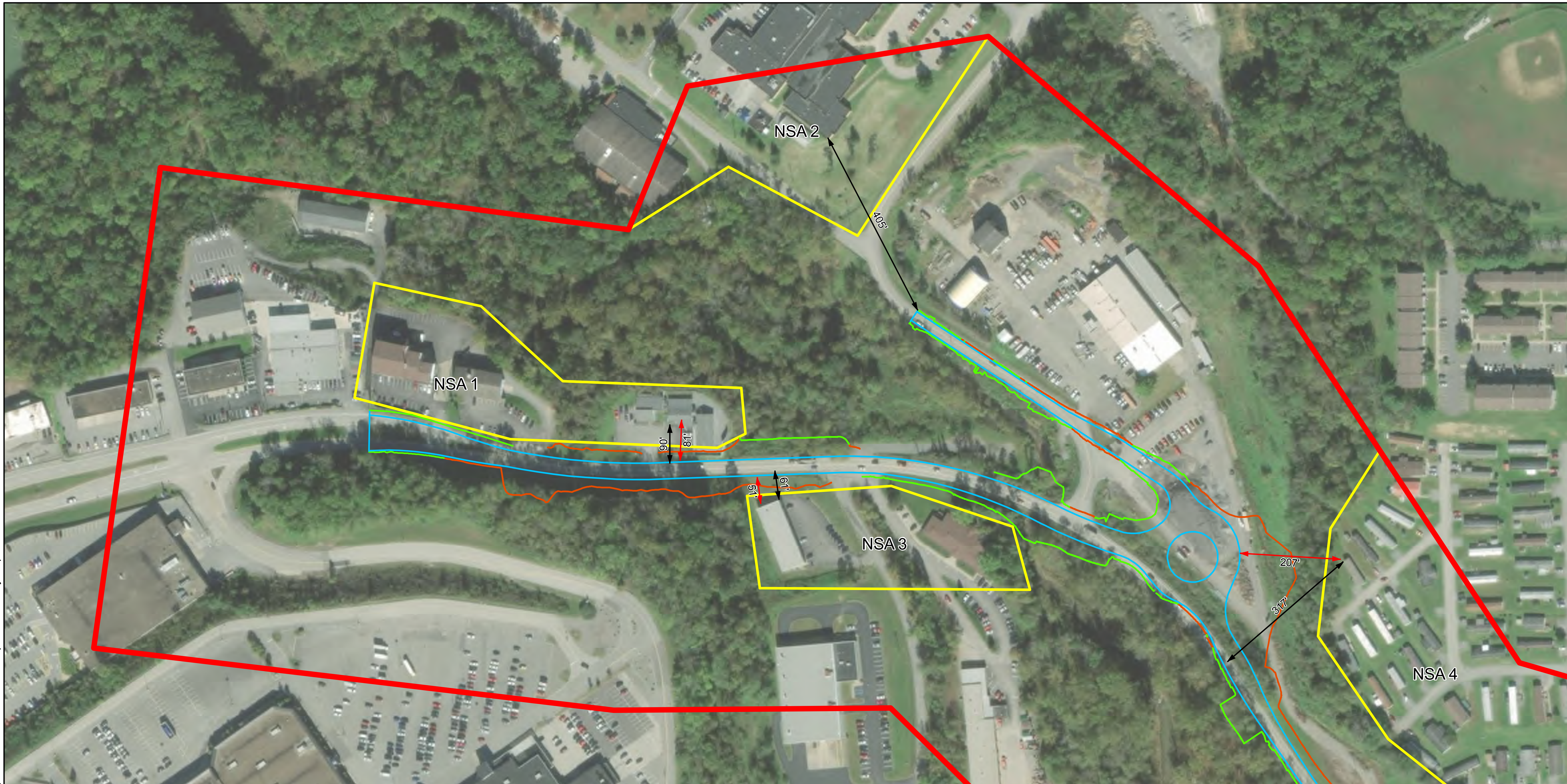
APPENDIX B
Noise Impact Study Map



Greenbag Road Improvement Project
West Virginia Division of Highways
Monongalia County, West Virginia
USGS Quadrangle - Morgantown South
Noise Impact Study Map
NSA 1, NSA 2, NSA 3

Federal Project STP-0857(019)D
State Project U331-857-0.67 00

Aerial Photography Source:
World Imagery (ESRI)

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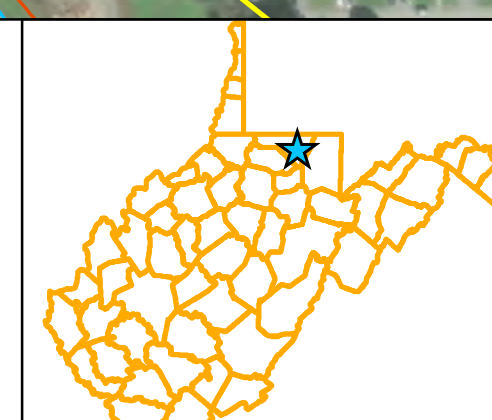
0 25 50 100 Meters

Proposed Distance
Existing Distance
Proposed Edge of Pavement
Proposed Fill Limit
Proposed Cut Limit
Noise Study Area
Noise Study Boundary



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Date: 11/26/2019

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Greenbag Road Improvement Project
West Virginia Division of Highways
Monongalia County, West Virginia
USGS Quadrangle - Morgantown South
Noise Impact Study Map
NSA 4

Federal Project STP-0857(019)D
State Project U331-857-0.67 00

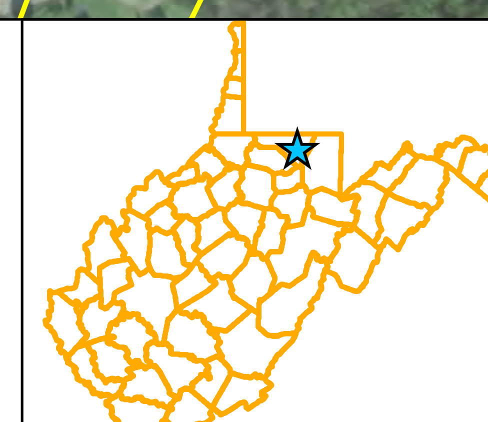
Aerial Photography Source:
World Imagery (ESRI)

0 100 200 400 Feet

0 25 50 100 Meters

N W E S

Proposed Distance
Existing Distance
Proposed Edge of Pavement
Proposed Fill Limit
Proposed Cut Limit
Noise Study Area
Noise Study Boundary



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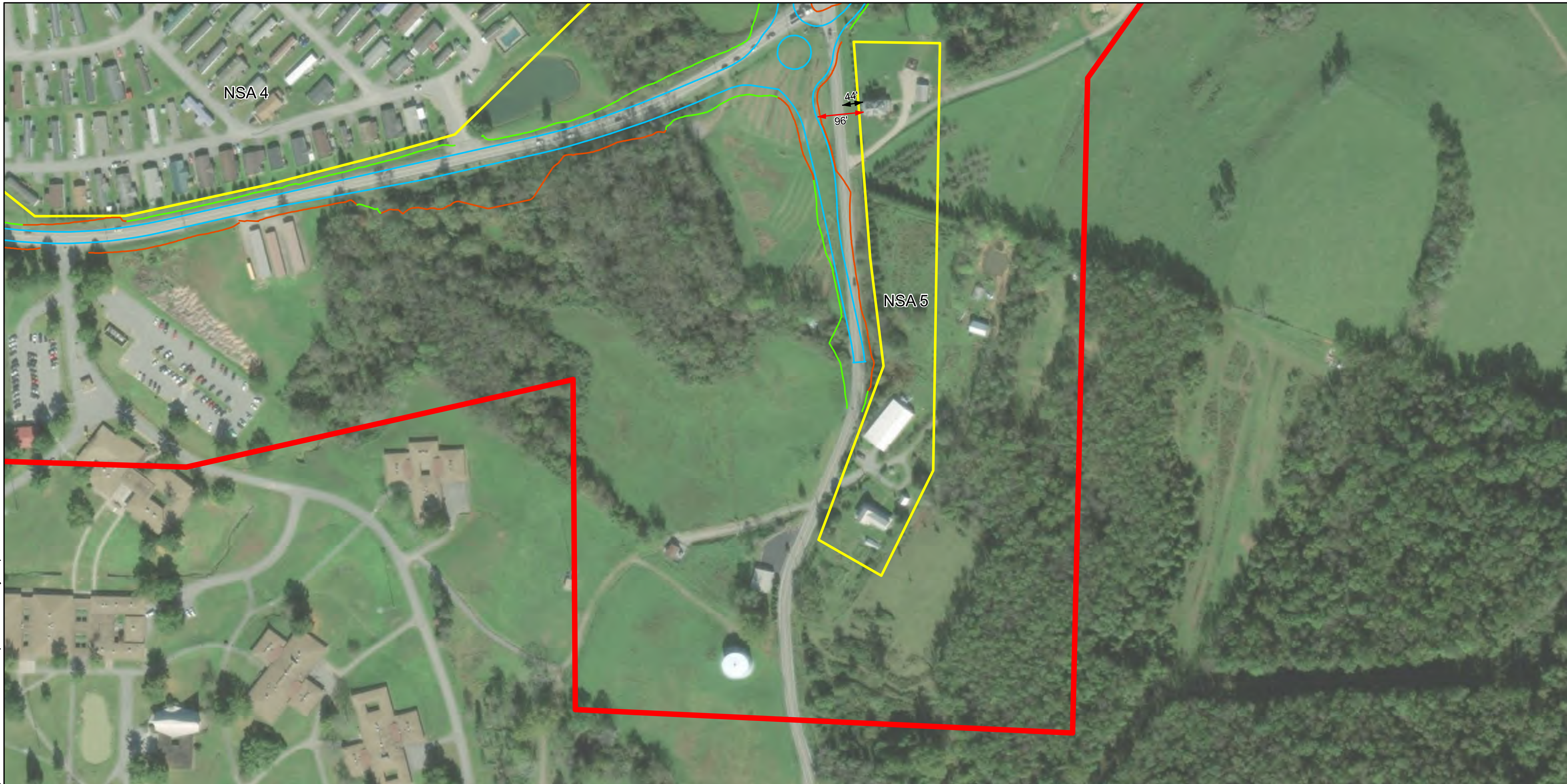


Greenbag Road Improvement Project
West Virginia Division of Highways
Monongalia County, West Virginia
USGS Quadrangle - Morgantown South
Noise Impact Study Map
NSA 5

Federal Project STP-0857(019)D
State Project U331-857-0.67 00

Aerial Photography Source:
World Imagery (ESRI)

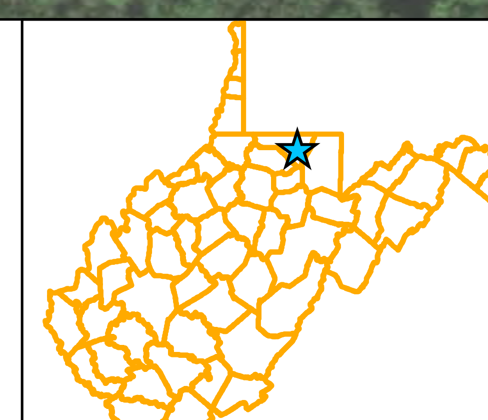
MARKOSKY

N
W E
S

0 100 200 400 Feet

0 25 50 100 Meters

Proposed Distance
Existing Distance
Proposed Edge of Pavement
Proposed Fill Limit
Proposed Cut Limit
Noise Study Area
Noise Study Boundary



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Date: 11/26/2019

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Greenbag Road Improvement Project
West Virginia Division of Highways
Monongalia County, West Virginia
USGS Quadrangle - Morgantown South
Noise Impact Study Map
NSA 6, NSA 7

Federal Project STP-0857(019)D
State Project U331-857-0.67 00

Aerial Photography Source:
World Imagery (ESRI)

0 100 200 400 Feet

0 25 50 100 Meters

Proposed Distance

Existing Distance

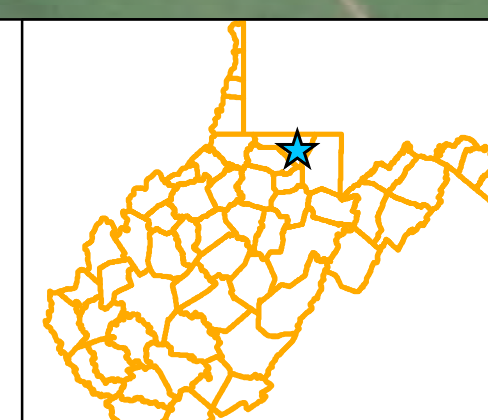
Proposed Edge of Pavement

Proposed Fill Limit

Proposed Cut Limit

Noise Study Area

Noise Study Boundary



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Date: 11/26/2019

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Greenbag Road Improvement Project
West Virginia Division of Highways
Monongalia County, West Virginia
USGS Quadrangle - Morgantown South
Noise Impact Study Map
NSA 8, NSA 9, NSA 10

Federal Project STP-0857(019)D
State Project U331-857-0.67 00

Aerial Photography Source:
World Imagery (ESRI)

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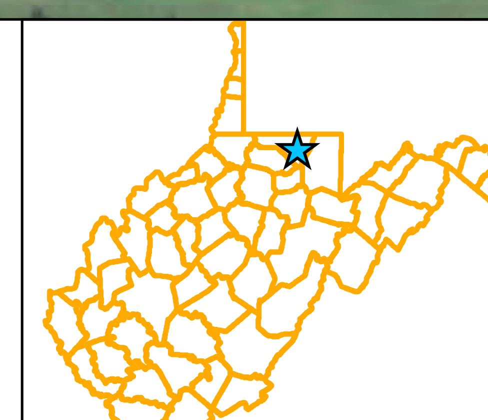
0 25 50 100 Meters

Proposed Distance
Existing Distance
Proposed Edge of Pavement
Proposed Fill Limit
Proposed Cut Limit
Noise Study Area
Noise Study Boundary



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Date: 11/26/2019

Greenbag Road Improvement Project
West Virginia Division of Highways
Monongalia County, West Virginia
USGS Quadrangle - Morgantown South
Noise Impact Study Map
NSA 11, NSA 12

Federal Project STP-0857(019)D
State Project U331-857-0.67 00

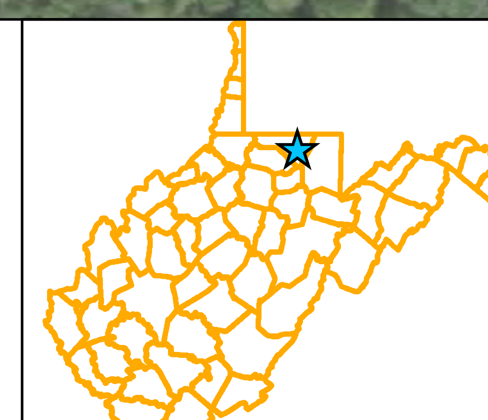
Aerial Photography Source:
World Imagery (ESRI)

MARKOSKY

0 100 200 400 Feet

0 25 50 100 Meters

Proposed Distance
Existing Distance
Proposed Edge of Pavement
Proposed Fill Limit
Proposed Cut Limit
Noise Study Area
Noise Study Boundary



Document Path: G:\18-062 WVDOH Greenbag Road NEPA\GIS\ENV\1.Maps\Noise Study Map.mxd

Date: 11/26/2019

Greenbag Road Improvement Project

Appendix D

Agency Coordination

RECEIVED
ENGINEERING DIVISION

DIVISION OF NATURAL RESOURCES
Wildlife Resources Section
Elkins Operations Center
738 Ward Rd., PO Box 67
Elkins, WV 26241
Telephone 304-637-0245
Fax 304-637-0250

Stephen S. McDaniel
Director

March 7, 2019

Mr. Ben Hark
Division of Highways
Engineering Division
1334 Smith Street
Charleston, WV 25301

Dear Mr. Hark:

We have reviewed Natural Heritage Program files for information on rare, threatened and endangered (RTE) species and natural trout streams for the areas of the proposed highway projects:

TW	State Project S311-22-0.00 Revere Deck Girder Gilmer County	There are no known occurrences of any RTE species or natural trout streams within the project area.
RE, SM TC, SB	State Project S310-13-0.0200 Federal Project BR-0013-(039)E Kanawha Falls Bridge Project Fayette County	There are no known occurrences of any RTE species or natural trout streams within the project area. A mussel survey is required.
TBM	State Project T224-ECL/PS-0.00 Eclipse Bottom Bridge McDowell County	There are no known occurrences of any RTE species or natural trout streams within the project area. Surveys for mussels and the Big Sandy crayfish are required.
RE	State Project 40-38/1-0.03 McClanahan Bridge Replacement Putnam County	There are no known occurrences of any RTE species or natural trout streams within the project area. It has been noted that the mussel survey has been completed, and has received WVDNR clearance.
SB	State Project U331-857-0.67 00 Federal Project NFA 2317(022)D Greenbag Road Improvement Monongalia County	There are no known occurrences of any RTE species or natural trout streams within the project area. A mussel survey will be required if any in-stream work is anticipated in Cobun Creek.

From: Burke, Sydney T <Sydney.T.Burke@wv.gov>
Sent: Friday, December 13, 2019 12:31 PM
To: Karen Reed
Cc: Cummings, Traci L
Subject: FW: U331-857-0.67 Greenbag Rd. Improvement Project, Morgantown Monongalia County

FYI

From: Wakeford, Anne M <Anne.M.Wakeford@wv.gov>
Sent: Monday, December 9, 2019 1:19 PM
To: Burke, Sydney T <Sydney.T.Burke@wv.gov>
Cc: Bennett, Danny A <Danny.A.Bennett@wv.gov>
Subject: U331-857-0.67 Greenbag Rd. Improvement Project, Morgantown Monongalia County

Following are my original comments regarding this project.

Anne

From: Wakeford, Anne M
Sent: Wednesday, April 10, 2019 4:11 PM
To: Lowther, Chad S; Cummings, Traci L
Cc: Bennett, Danny A; Wellman, David I; Elliott, Danielle A; Clayton, Janet L
Subject: Greenbag Rd. PIE Study Preliminary fields reivew

Dear Chad Lowther,

Thank you for the opportunity to review the Greenbag road project, Morgantown, Monongalia County.

The coordinates you provided: Start 39 36 31N 79 57 35 W and End 39 36 35 N 79 56 31 W

show that the road will cross Corbin Creek, a high quality warmwater stream.
If you wish to perform in channel work from to April 1 to June 30 a request for a spawning waiver must be made to the WV Coordination Unit (304)637-0245 Danielle.A.Elliott@wv.gov

According to Traci Cummings, “The location of the crossing of the road at Corbin Creek is approximately at 39.608339, -79.955212.
WVDOH is planning on doing a mussel survey there summer. The habitat looks marginal and has been dry when we’ve been there before.”

I will not be attending the preliminary field review on Tuesday April 16.

Please contact me if you have any questions.

Regards,

Anne

Anne M. Wakeford

Anne M. Wakeford
Coordination Biologist
WV DNR Elkins Operation Center
PO Box 67 Ward Rd
Elkins WV 26241
Email: Anne.M.Wakeford@wv.gov
Phone 304-637-0245 ex 2035
Fax 304-637-0250

WEST VIRGINIA
Division of Culture and History

The Culture Center
1900 Kanawha Blvd., E.
Charleston, WV 25305-0300

Randall Reid-Smith, Commissioner

Phone 304.558.0220 • www.wvculture.org
Fax 304.558.2779 • TDD 304.558.3562
EEO/AA Employer

November 19, 2019

Mr. Ben L. Hark
Environmental Section Head
Engineering Division
West Virginia Division of Highways
1334 Smith Street
Charleston, West Virginia 25305

RE: Greenbag Road Improvement Project – Phase I Archaeological Survey Report
State Project No. U331-857-0.067; Federal Project No. STP-0857(019)D
FR: 20-203-MG

Dear Mr. Hark:

We have reviewed the Phase I archaeological survey report that was submitted for the above-referenced project to determine any effects it may have on cultural resources. As required by Section 106 of the National Historic Preservation Act of 1966, as amended, its implementing regulations, 36 CFR 800: "Protection of Historic Properties," we submit our comments.

According to the report, the West Virginia Department of Transportation, Division of Highways is proposing improvements to Greenbag Road in Monongalia County. The proposed improvements include widening lanes and shoulders and constructing a dedicated center turn lane along a section of road beginning at the intersection of Greenbag Road (CR 857) and US 119 and continuing to where Greenbag Road crosses Aaron Creek. A curb and gutter will also be installed along the west side of the road. Because project plans have not been finalized, a study area was delineated that attempted to encompass all areas proposed for ground disturbance.

Archaeological survey of the study area included pedestrian reconnaissance and the excavation of shovel test pits and one test unit. Approximately 40.39 acres of the APE exhibited steeply sloped terrain and/or extensive prior disturbance. The remaining 8.94 acres underwent shovel test pit excavation. A total of 213 shovel test pits and one test unit were excavated across 12 test areas. The test pits variably encountered fill deposits and intact soils. No archaeological sites were identified. As a result, we concur that no further archaeological investigations are warranted. We also concur that no archaeological historic properties are present within the study area as currently defined.

We appreciate the opportunity to be of service. *If you have questions regarding our comments or the Section 106 process, please contact Lora A. Lamarre-DeMott, Senior Archaeologist, at (304) 558-0240.*

Sincerely,

Susan M. Pierce

Susan M. Pierce
Deputy State Historic Preservation Officer

SMP/LLD

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
Division of Highways
1900 Kanawha Boulevard East • Building Five • Room 110
Charleston, West Virginia 25305-0430 • (304) 558-3505

Thomas J. Smith, P. E.
Secretary of Transportation/
Commissioner of Highways

February 21, 2019

Mr. Brian Bridgewater
Water Resources Section
Department of Environmental Protection
601 57th Street East
Charleston, West Virginia 25304

Dear Mr. Bridgewater:

State Project U331-857-0.67 00
Federal Project NFA 2317(022)D
Greenbag Road Improvement
Monongalia County

The Division of Highways is developing the subject project at the location shown on the attached vicinity maps. The project begins 0.40 miles east of the intersection of Greenbag Road (CR 857) and US 119 and ends 0.36 miles east of the intersection of Greenbag Road (CR 857) and Kingwood Pike/Dorsey Avenue at Jonathan Lane. The improvements to Greenbag Road include shoulder and lane widening, the addition of a sidewalk along the right side of the road, and improving both the Mississippi Street and the Dorsey Avenue/Kingwood Pike intersections. The box culvert carrying Greenbag Road over Cobun Creek will be replaced with a wider box culvert to accommodate the widened roadway.

The project will include work on four other intersecting roadways: Mississippi Street, Dorsey Avenue, Kingwood Pike, and Luckey Lane. On Mississippi Street, the project will widen the travel lane and improve the intersection with Greenbag Road. On Dorsey Avenue and Kingwood Pike the project will add a sidewalk and improve the intersection with Greenbag Road. On Luckey Lane, the project will improve the width of the travel lane within the existing right-of-way and re-pave the length of the roadway between Greenbag Road and Dorsey Avenue. The project falls on the USGS Morgantown South quadrangle (39.607165, -79.944962 DD).

The work will require takes for right-of-way, temporary construction easements, and permanent drainage easements along the route.

Traffic will be maintained during construction using single lane closures as needed.

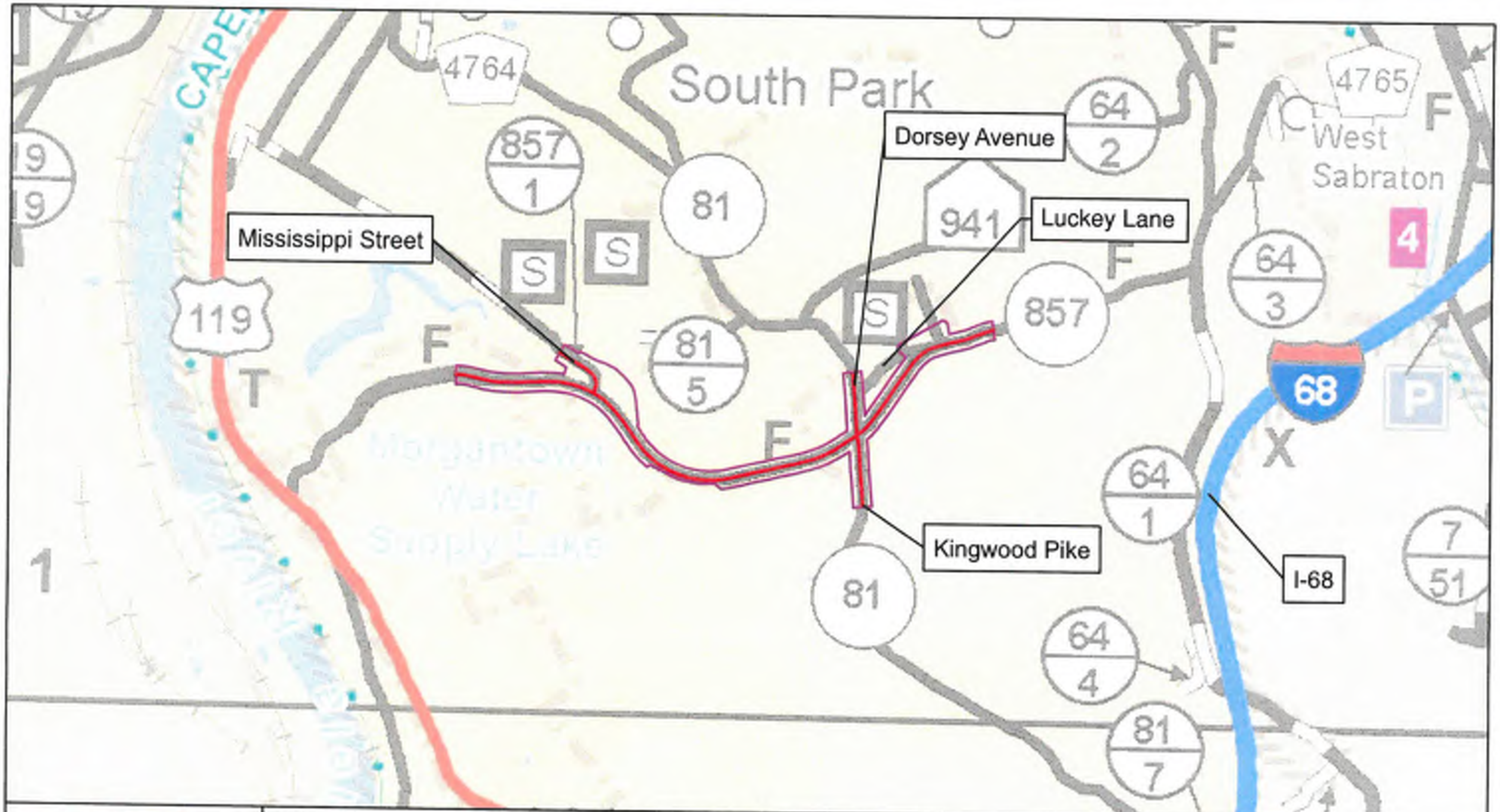
Your comments on possible water quality impacts are requested so that they may be included in our environmental studies. Should you require additional information, please contact Sydney Burke of our Environmental Section at (304) 558-9666.

Yours very truly,

Ben L Hark

Ben L. Hark
Environmental Section Head
Engineering Division

H:b
Attachments
Bcc: DDE(SB)



MARKOSKY

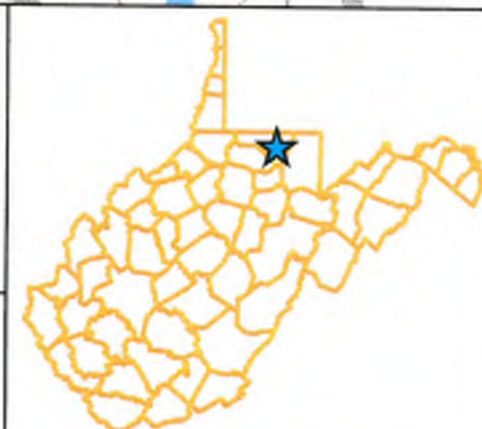
West Virginia Division of Highways
Federal Project NFA 2317(022)D
State Project U331-857-0.67 00
Greenbag Road Improvement
Project Location Map

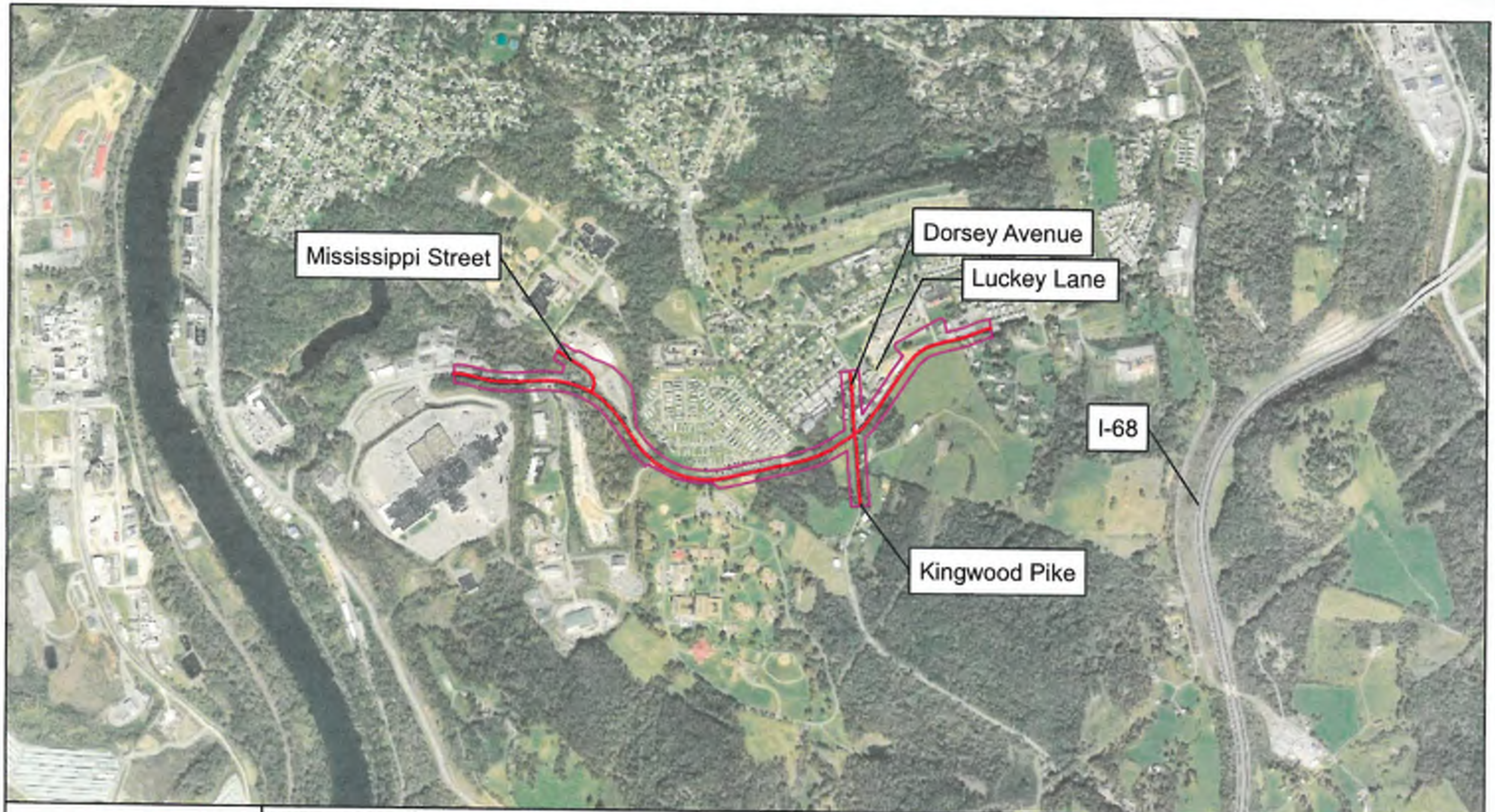
Base Map Source: WV DOH GIS County Maps

Project Alignment
Environmental Footprint

0 1,000 2,000 4,000 Feet

0 350 700 1,400 Meters





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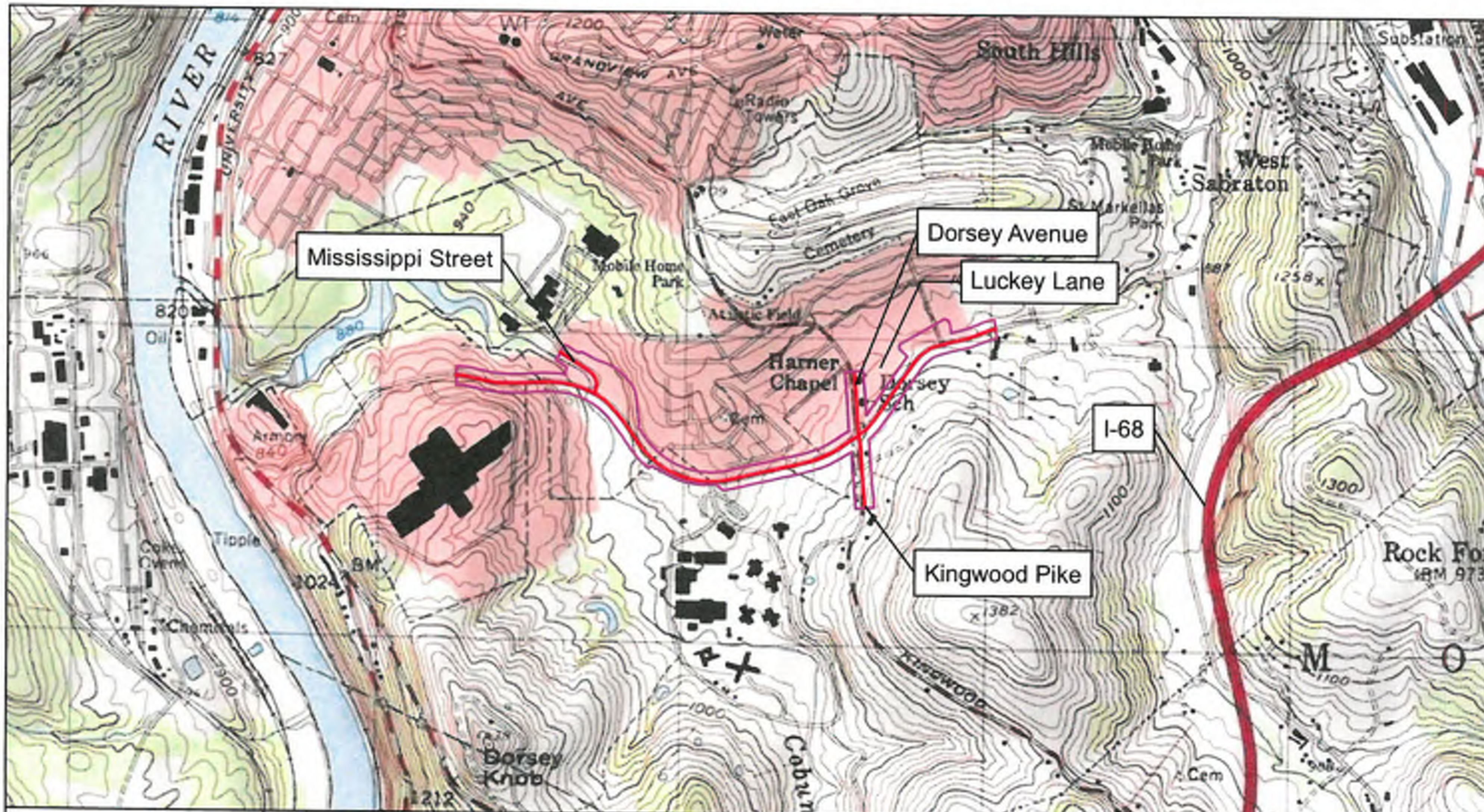
West Virginia Division of Highways
Federal Project NFA 2317(022)D
State Project U331-857-0.67 00
Greenbag Road Improvement
Project Location Map

Aerial Photography Source: World Imagery (ESRI)

Project Alignment
Environmental Footprint

0 1,000 2,000 4,000 Feet

0 350 700 1,400 Meters



MARKOSKY

West Virginia Division of Highways
Federal Project NFA 2317(022)D
State Project U331-857-0.67 00
Greenbag Road Improvement
Project Location Map

Topography Source: National Geographic Society (NGS)

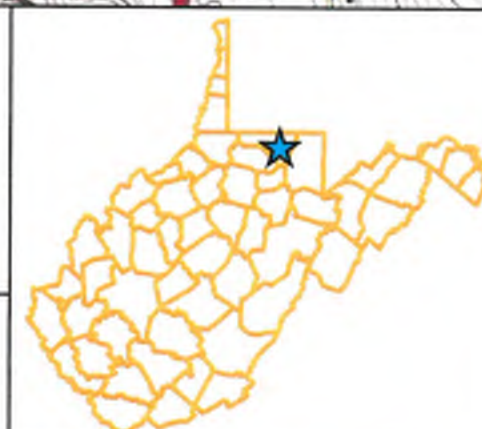
Project Alignment

Environmental Footprint

N E S W

0 1,000 2,000 4,000 Feet

0 350 700 1,400 Meters



WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
Division of Highways
1900 Kanawha Boulevard East • Building Five • Room 110
Charleston, West Virginia 25305-0430 • (304) 558-3505

Thomas J. Smith, P. E.
Secretary of Transportation/
Commissioner of Highways

February 21, 2019

Ms. Barbara Sargent
West Virginia Division of
Natural Resources
Post Office Box 67
Elkins, West Virginia 26241

Dear Ms. Sargent:

State Project U331-857-0.67 00
Federal Project NFA 2317(022)D
Greenbag Road Improvement
Monongalia County

The Division of Highways is developing the subject project at the location shown on the attached vicinity maps. The project begins 0.40 miles east of the intersection of Greenbag Road (CR 857) and US 119 and ends 0.36 miles east of the intersection of Greenbag Road (CR 857) and Kingwood Pike/Dorsey Avenue at Jonathan Lane. The improvements to Greenbag Road include shoulder and lane widening, the addition of a sidewalk along the right side of the road, and improving both the Mississippi Street and the Dorsey Avenue/Kingwood Pike intersections. The box culvert carrying Greenbag Road over Cobun Creek will be replaced with a wider box culvert to accommodate the widened roadway.

The project will include work on four other intersecting roadways: Mississippi Street, Dorsey Avenue, Kingwood Pike, and Luckey Lane. On Mississippi Street, the project will widen the travel lane and improve the intersection with Greenbag Road. On Dorsey Avenue and Kingwood Pike the project will add a sidewalk and improve the intersection with Greenbag Road. On Luckey Lane, the project will improve the width of the travel lane within the existing right-of-way and re-pave the length of the roadway between Greenbag Road and Dorsey Avenue. The project falls on the USGS Morgantown South quadrangle (39.607165, -79.944962 DD).

The work will require takes for right-of-way, temporary construction easements, and permanent drainage easements along the route.

Traffic will be maintained during construction using single lane closures as needed.

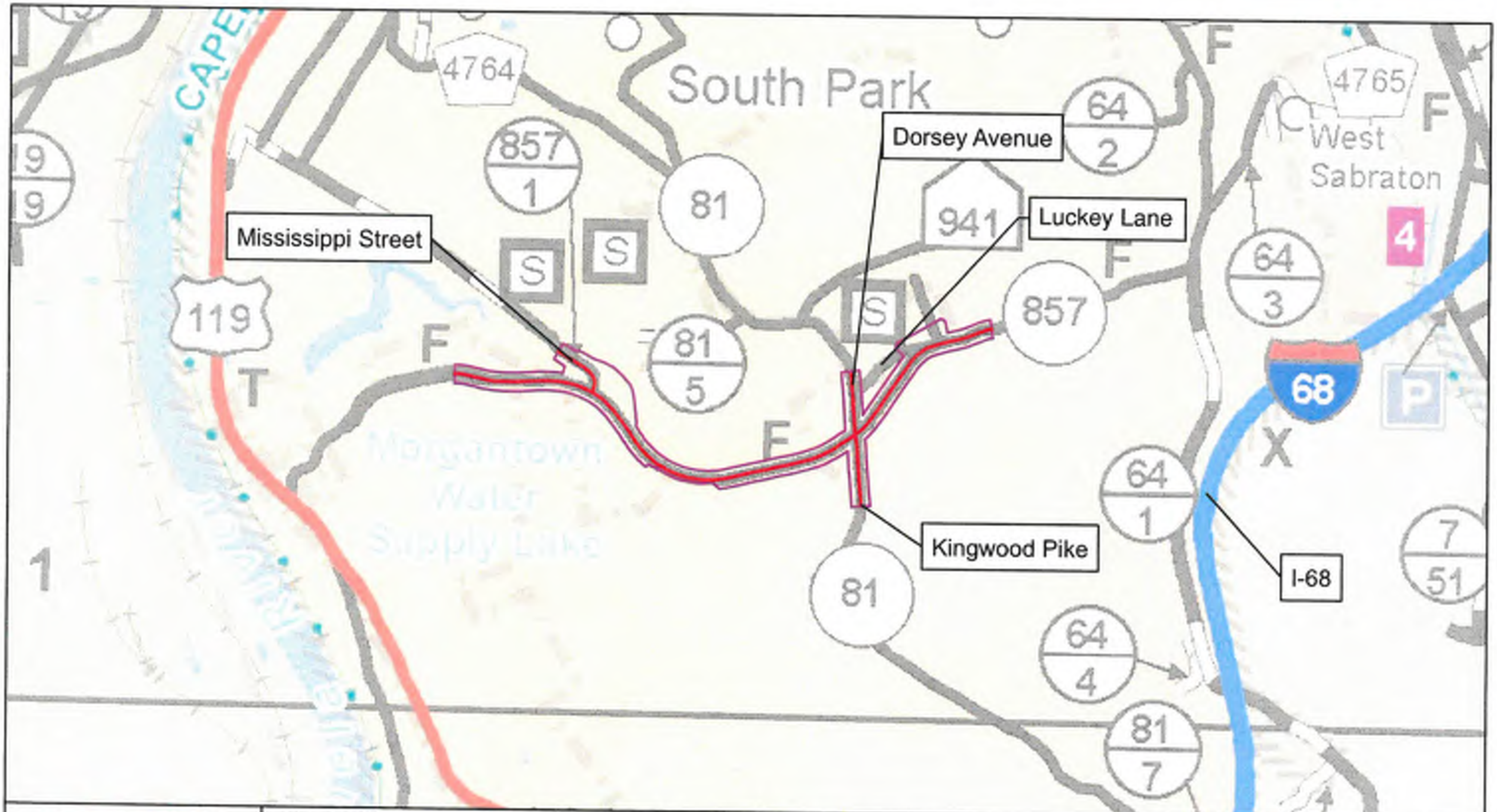
Your comments on rare or endangered species and natural trout streams are requested so that they may be included in our environmental studies. Should you require additional information, please contact Sydney Burke of our Environmental Section at (304) 558-9666.

Yours very truly,

Ben L Hark

Ben L. Hark
Environmental Section Head
Engineering Division

H:b
Attachments
Bcc: DDE(SB)



West Virginia Division of Highways
Federal Project NFA 2317(022)D
State Project U331-857-0.67 00
Greenbag Road Improvement
Project Location Map

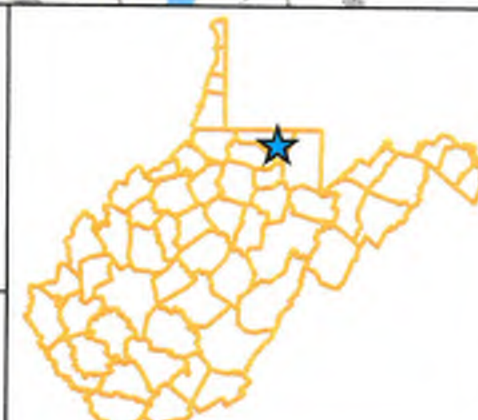
Base Map Source: WV DOH GIS County Maps

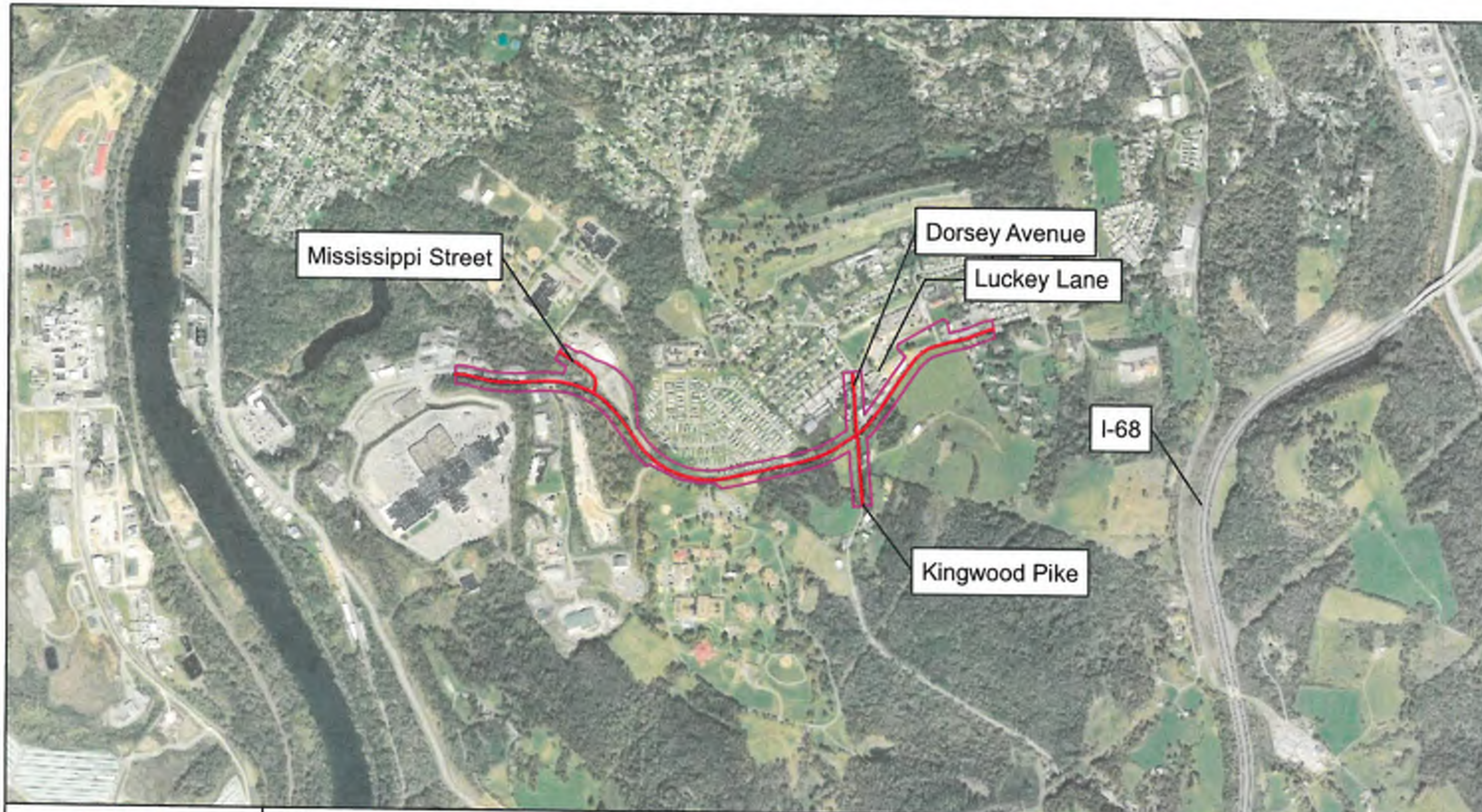
0 1,000 2,000 4,000 Feet

0 350 700 1,400 Meters

Project Alignment

Environmental Footprint





West Virginia Division of Highways
Federal Project NFA 2317(022)D
State Project U331-857-0.67 00
Greenbag Road Improvement
Project Location Map

Aerial Photography Source: World Imagery (ESRI)

MARKOSKY

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W E
S

Project Alignment
Environmental Footprint

0 1,000 2,000 4,000 Feet

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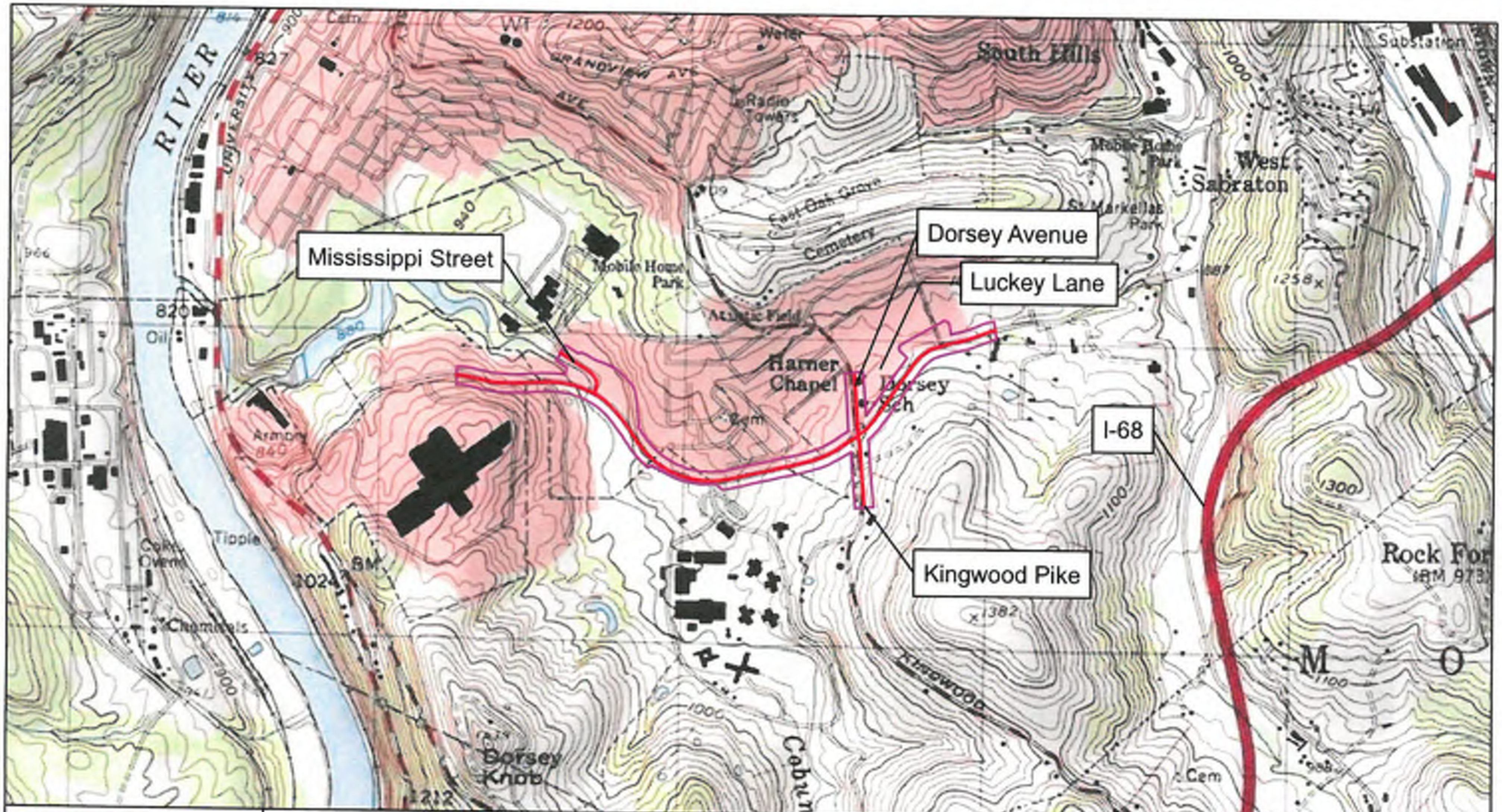

MARKOSKY

West Virginia Division of Highways
Federal Project NFA 2317(022)D
State Project U331-857-0.67 00
Greenbag Road Improvement
Project Location Map

Topography Source: National Geographic Society (NGS)

Project Alignment
Environmental Footprint

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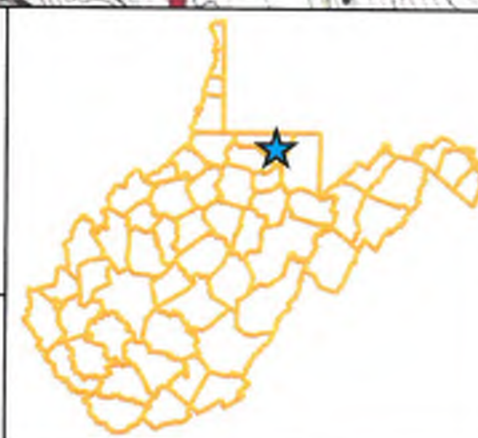

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
Division of Highways
1900 Kanawha Boulevard East • Building Five • Room 110
Charleston, West Virginia 25305-0430 • (304) 558-3505

Byrd E. White, III
Secretary of Transportation/
Commissioner of Highways

Jimmy Wriston, P. E.
Deputy Secretary/
Deputy Commissioner

November 26, 2019

Darby Clayton
D-4 District Manager/Engineer
WV Division of Highways
I-79 & Meadowbrook Road
Clarksburg, WV 26302-2570

Dear Mr. Clayton:

State Project U331-857-0.67
Federal Project STP 0857(019)D
Greenbag Road Improvement Project
Morgantown, Monongalia County

Please be advised the West Virginia Division of Highways has initiated NEPA studies for the above referenced project. The project was initially identified to be documented as a Programmatic Categorical Exclusion. Following a public meeting in April 2019 the project has been changed to an Environmental Assessment due to public comment and FHWA recommendation. We request your input as to any concerns your office may have regarding this project.

The proposed project consists of the widening Greenbag Road lanes and providing intersection improvements at the Mississippi Street (CR 857/1) and Dorsey Avenue/ Kingwood Pike (CR81) intersections. The entire project length is approximately 1.65 miles in length and involves the replacement of one culvert structure over Cobun Creek. Attached are a project location map and the handout materials from the initial public meeting.

Should you require additional information, please contact Sydney Burke of our Environmental Section at (304) 414-6420 or Sydney.T.Burke@wv.gov.

Very truly yours,

Ben L Hark

Ben L. Hark
Section Head
Environmental Section
Engineering Division

H:s
Attachments
bcc: DDE(SB)

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
Division of Highways
1900 Kanawha Boulevard East • Building Five • Room 110
Charleston, West Virginia 25305-0430 • (304) 558-3505

Byrd E. White, III
Secretary of Transportation/
Commissioner of Highways

Jimmy Wriston, P. E.
Deputy Secretary/
Deputy Commissioner

November 26, 2019

Barbara Evans Fleischauer
Member of the WV House of Delegates
Room 151R, Building 1
State Capitol Complex
Charleston, WV 25305

Dear Delegate Fleischauer:

State Project U331-857-0.67
Federal Project STP 0857(019)D
Greenbag Road Improvement Project
Morgantown, Monongalia County

Please be advised the West Virginia Division of Highways has initiated NEPA studies for the above referenced project. The project was initially identified to be documented as a Programmatic Categorical Exclusion. Following a public meeting in April 2019 the project has been changed to an Environmental Assessment due to public comment and FHWA recommendation. We request your input as to any concerns your office may have regarding this project.

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Should you require additional information, please contact Sydney Burke of our Environmental Section at (304) 414-6420 or Sydney.T.Burke@wv.gov.

Very truly yours,

Ben L Hark

Ben L. Hark
Section Head
Environmental Section
Engineering Division

H:s
Attachments
bcc: DDE(SB)

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

Division of Highways

1900 Kanawha Boulevard East • Building Five • Room 110
Charleston, West Virginia 25305-0430 • (304) 558-3505

Byrd E. White, III
Secretary of Transportation/
Commissioner of Highways

November 26, 2019

Jimmy Wriston, P. E.
Deputy Secretary/
Deputy Commissioner

Evan Hansen
Member of the WV House of Delegates
Room 150R, Building 1
State Capitol Complex
Charleston, WV 25305

Dear Delegate Hansen:

State Project U331-857-0.67
Federal Project STP 0857(019)D
Greenbag Road Improvement Project
Morgantown, Monongalia County

Please be advised the West Virginia Division of Highways has initiated NEPA studies for the above referenced project. The project was initially identified to be documented as a Programmatic Categorical Exclusion. Following a public meeting in April 2019 the project has been changed to an Environmental Assessment due to public comment and FHWA recommendation. We request your input as to any concerns your office may have regarding this project.

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Should you require additional information, please contact Sydney Burke of our Environmental Section at (304) 414-6420 or Sydney.T.Burke@wv.gov.

Very truly yours,

Ben L Hark

Ben L. Hark
Section Head
Environmental Section
Engineering Division

H:s
Attachments
bcc: DDE(SB)

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
Division of Highways
1900 Kanawha Boulevard East • Building Five • Room 110
Charleston, West Virginia 25305-0430 • (304) 558-3505

Byrd E. White, III
Secretary of Transportation/
Commissioner of Highways

Jimmy Wriston, P. E.
Deputy Secretary/
Deputy Commissioner

November 26, 2019

William F. Durham
Director, Office of Air Quality
West Virginia Department of Environmental Protection
601 57th Street, SE
Charleston, WV 25304-2345

Dear Mr. Durham:

State Project U331-857-0.67
Federal Project STP 0857(019)D
Greenbag Road Improvement Project
Morgantown, Monongalia County

Please be advised the West Virginia Division of Highways has initiated NEPA studies for the above referenced project. The project was initially identified to be documented as a Programmatic Categorical Exclusion. Following a public meeting in April 2019 the project has been changed to an Environmental Assessment due to public comment and FHWA recommendation. We request your input as to any concerns your office may have regarding this project.

The proposed project consists of the widening Greenbag Road lanes and providing intersection improvements at the Mississippi Street (CR 857/1) and Dorsey Avenue/ Kingwood Pike (CR81) intersections. The entire project length is approximately 1.65 miles in length and involves the replacement of one culvert structure over Cobun Creek. Attached are a project location map and the handout materials from the initial public meeting.

Should you require additional information, please contact Sydney Burke of our Environmental Section at (304) 414-6420 or Sydney.T.Burke@wv.gov.

Very truly yours,

Ben L. Hark

Ben L. Hark
Section Head
Environmental Section
Engineering Division

H:s
Attachments
bcc: DDE(SB)

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

Division of Highways

1900 Kanawha Boulevard East • Building Five • Room 110
Charleston, West Virginia 25305-0430 • (304) 558-3505

Byrd E. White, III
Secretary of Transportation/
Commissioner of Highways

Jimmy Wriston, P. E.
Deputy Secretary/
Deputy Commissioner

November 26, 2019

Austin Caperton, Cabinet Secretary
West Virginia Department of Environmental Protection
601 57th Street, SE
Charleston, WV 25304

Dear Secretary Caperton:

State Project U331-857-0.67
Federal Project STP 0857(019)D
Greenbag Road Improvement Project
Morgantown, Monongalia County

Please be advised the West Virginia Division of Highways has initiated NEPA studies for the above referenced project. The project was initially identified to be documented as a Programmatic Categorical Exclusion. Following a public meeting in April 2019 the project has been changed to an Environmental Assessment due to public comment and FHWA recommendation. We request your input as to any concerns your office may have regarding this project.

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Should you require additional information, please contact Sydney Burke of our Environmental Section at (304) 414-6420 or Sydney.T.Burke@wv.gov.

Very truly yours,

Ben L Hark

Ben L. Hark
Section Head
Environmental Section
Engineering Division

H:s
Attachments
bcc: DDE(SB)

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

Division of Highways

1900 Kanawha Boulevard East • Building Five • Room 110
Charleston, West Virginia 25305-0430 • (304) 558-3505

Byrd E. White, III
Secretary of Transportation/
Commissioner of Highways

Jimmy Wriston, P. E.
Deputy Secretary/
Deputy Commissioner

November 26, 2019

Brian Bridgewater
Water Resources Section
WV Department of Environmental Protection
601 57th Street
Charleston, WV 25304-2345

Dear Mr. Bridgewater:

State Project U331-857-0.67
Federal Project STP 0857(019)D
Greenbag Road Improvement Project
Morgantown, Monongalia County

Please be advised the West Virginia Division of Highways has initiated NEPA studies for the above referenced project. The project was initially identified to be documented as a Programmatic Categorical Exclusion. Following a public meeting in April 2019 the project has been changed to an Environmental Assessment due to public comment and FHWA recommendation. We request your input as to any concerns your office may have regarding this project.

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Should you require additional information, please contact Sydney Burke of our Environmental Section at (304) 414-6420 or Sydney.T.Burke@wv.gov.

Very truly yours,

Ben 2 Hark

Ben L. Hark
Section Head
Environmental Section
Engineering Division

H:s
Attachments
bcc: DDE(SB)

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

Division of Highways

1900 Kanawha Boulevard East • Building Five • Room 110
Charleston, West Virginia 25305-0430 • (304) 558-3505

Byrd E. White, III
Secretary of Transportation/
Commissioner of Highways

Jimmy Wriston, P. E.
Deputy Secretary/
Deputy Commissioner

November 26, 2019

Scott G. Mandirola
Director, Division of Water and Waste Management
Permitting and Engineering Branch
West Virginia Department of Environmental Protection
601 57th Street, SE
Charleston, WV 25304-2345

Dear Mr. Mandirola:

State Project U331-857-0.67
Federal Project STP 0857(019)D
Greenbag Road Improvement Project
Morgantown, Monongalia County

Please be advised the West Virginia Division of Highways has initiated NEPA studies for the above referenced project. The project was initially identified to be documented as a Programmatic Categorical Exclusion. Following a public meeting in April 2019 the project has been changed to an Environmental Assessment due to public comment and FHWA recommendation. We request your input as to any concerns your office may have regarding this project.

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Should you require additional information, please contact Sydney Burke of our Environmental Section at (304) 414-6420 or Sydney.T.Burke@wv.gov.

Very truly yours,

Ben L Hark

Ben L. Hark
Section Head
Environmental Section
Engineering Division

H:s
Attachments
bcc: DDE(SB)

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
Division of Highways
1900 Kanawha Boulevard East • Building Five • Room 110
Charleston, West Virginia 25305-0430 • (304) 558-3505

Byrd E. White, III
Secretary of Transportation/
Commissioner of Highways

Jimmy Wriston, P. E.
Deputy Secretary/
Deputy Commissioner

November 26, 2019

Stephen S. McDaniel, Director
West Virginia Division of Natural Resources
324 Fourth Avenue
South Charleston, WV 25303

Dear Mr. McDaniel:

State Project U331-857-0.67
Federal Project STP 0857(019)D
Greenbag Road Improvement Project
Morgantown, Monongalia County

Please be advised the West Virginia Division of Highways has initiated NEPA studies for the above referenced project. The project was initially identified to be documented as a Programmatic Categorical Exclusion. Following a public meeting in April 2019 the project has been changed to an Environmental Assessment due to public comment and FHWA recommendation. We request your input as to any concerns your office may have regarding this project.

The proposed project consists of the widening Greenbag Road lanes and providing intersection improvements at the Mississippi Street (CR 857/1) and Dorsey Avenue/ Kingwood Pike (CR81) intersections. The entire project length is approximately 1.65 miles in length and involves the replacement of one culvert structure over Cobun Creek. Attached are a project location map and the handout materials from the initial public meeting.

Should you require additional information, please contact Sydney Burke of our Environmental Section at (304) 414-6420 or Sydney.T.Burke@wv.gov.

Very truly yours,

Ben L Hark

Ben L. Hark
Section Head
Environmental Section
Engineering Division

H:s
Attachments
bcc: DDE(SB)

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

Division of Highways

1900 Kanawha Boulevard East • Building Five • Room 110
Charleston, West Virginia 25305-0430 • (304) 558-3505

Byrd E. White, III
Secretary of Transportation/
Commissioner of Highways

Jimmy Wriston, P. E.
Deputy Secretary/
Deputy Commissioner

November 26, 2019

Danny Bennett
West Virginia Division of Natural Resources
P.O. Box 67
Elkins, WV 26241

Dear Mr. Bennett:

State Project U331-857-0.67
Federal Project STP 0857(019)D
Greenbag Road Improvement Project
Morgantown, Monongalia County

Please be advised the West Virginia Division of Highways has initiated NEPA studies for the above referenced project. The project was initially identified to be documented as a Programmatic Categorical Exclusion. Following a public meeting in April 2019 the project has been changed to an Environmental Assessment due to public comment and FHWA recommendation. We request your input as to any concerns your office may have regarding this project.

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Very truly yours,

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Division of Highways

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Byrd E. White, III
Secretary of Transportation/
Commissioner of Highways

Jimmy Wriston, P. E.
Deputy Secretary/
Deputy Commissioner

November 26, 2019

Mary Ann Tierney
Regional Administrator
Federal Emergency Management Agency
Region III
615 Chestnut Street
Philadelphia, PA 19106

Dear Ms. Tierney:

State Project U331-857-0.67
Federal Project STP 0857(019)D
Greenbag Road Improvement Project
Morgantown, Monongalia County

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Byrd E. White, III
Secretary of Transportation/
Commissioner of Highways

Jimmy Wriston, P. E.
Deputy Secretary/
Deputy Commissioner

November 26, 2019

William A. Kawecki, Mayor
City of Morgantown
389 Spruce Street
Morgantown, WV 26505

Dear Mayor Kawecki:

State Project U331-857-0.67
Federal Project STP 0857(019)D
Greenbag Road Improvement Project
Morgantown, Monongalia County

Please be advised the West Virginia Division of Highways has initiated NEPA studies for the above referenced project. The project was initially identified to be documented as a Programmatic Categorical Exclusion. Following a public meeting in April 2019 the project has been changed to an Environmental Assessment due to public comment and FHWA recommendation. We request your input as to any concerns your office may have regarding this project.

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Very truly yours,

Ben L. Hark

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Environmental Section
Engineering Division

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WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
Division of Highways
1900 Kanawha Boulevard East • Building Five • Room 110
Charleston, West Virginia 25305-0430 • (304) 558-3505

Byrd E. White, III
Secretary of Transportation/
Commissioner of Highways

Jimmy Wriston, P. E.
Deputy Secretary/
Deputy Commissioner

November 26, 2019

Rennetta McClure
County Administrator
Monongalia County Commission
243 High Street Room 202
Courthouse
Morgantown, WV 26505

Dear Ms. McClure:

State Project U331-857-0.67
Federal Project STP 0857(019)D
Greenbag Road Improvement Project
Morgantown, Monongalia County

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Very truly yours,

Ben L. Hark

Ben L. Hark
Section Head
Environmental Section
Engineering Division

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bcc: DDE(SB)

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

Division of Highways

1900 Kanawha Boulevard East • Building Five • Room 110
Charleston, West Virginia 25305-0430 • (304) 558-3505

Byrd E. White, III
Secretary of Transportation/
Commissioner of Highways

Jimmy Wriston, P. E.
Deputy Secretary/
Deputy Commissioner

November 26, 2019

Paul Brake
Morgantown City Manager
389 Spruce Street
Morgantown, WV 26505

Dear Mr. Brake:

State Project U331-857-0.67
Federal Project STP 0857(019)D
Greenbag Road Improvement Project
Morgantown, Monongalia County

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Very truly yours,

Ben L. Hark

Ben L. Hark
Section Head
Environmental Section
Engineering Division

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WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
Division of Highways
1900 Kanawha Boulevard East • Building Five • Room 110
Charleston, West Virginia 25305-0430 • (304) 558-3505

Byrd E. White, III
Secretary of Transportation/
Commissioner of Highways

Jimmy Wriston, P. E.
Deputy Secretary/
Deputy Commissioner

November 26, 2019

Bill Austin
Morgantown/Monongalia MPO
243 High Street Room 110
Morgantown, WV 26505

Dear Mr. Austin:

State Project U331-857-0.67
Federal Project STP 0857(019)D
Greenbag Road Improvement Project
Morgantown, Monongalia County

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Very truly yours,

Ben L. Hark

Ben L. Hark
Section Head
Environmental Section
Engineering Division

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WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
Division of Highways
1900 Kanawha Boulevard East • Building Five • Room 110
Charleston, West Virginia 25305-0430 • (304) 558-3505

Byrd E. White, III
Secretary of Transportation/
Commissioner of Highways

Jimmy Wriston, P. E.
Deputy Secretary/
Deputy Commissioner

November 26, 2019

Robert Beach
Member of the WV Senate
Room 204W, Building 1
State Capitol Complex
Charleston, WV 25305

Dear Senator Beach:

State Project U331-857-0.67
Federal Project STP 0857(019)D
Greenbag Road Improvement Project
Morgantown, Monongalia County

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Very truly yours,

Ben L. Hark

Ben L. Hark
Section Head
Environmental Section
Engineering Division

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Attachments
bcc: DDE(SB)

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
Division of Highways
1900 Kanawha Boulevard East • Building Five • Room 110
Charleston, West Virginia 25305-0430 • (304) 558-3505

Byrd E. White, III
Secretary of Transportation/
Commissioner of Highways

Jimmy Wriston, P. E.
Deputy Secretary/
Deputy Commissioner

November 26, 2019

Roman Prezioso
Member of the WV Senate
Room 245M, Building 1
State Capitol Complex
Charleston, WV 25305

Dear Senator Prezioso:

State Project U331-857-0.67
Federal Project STP 0857(019)D
Greenbag Road Improvement Project
Morgantown, Monongalia County

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Very truly yours,

Ben L Hark

Ben L. Hark
Section Head
Environmental Section
Engineering Division

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WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

Division of Highways

1900 Kanawha Boulevard East • Building Five • Room 110
Charleston, West Virginia 25305-0430 • (304) 558-3505

Byrd E. White, III
Secretary of Transportation/
Commissioner of Highways

Jimmy Wriston, P. E.
Deputy Secretary/
Deputy Commissioner

November 26, 2019

Susan Pierce
Deputy State Historic Preservation Officer
Division of Culture and History
1900 Kanawha Blvd East
Charleston, WV 25305

Dear Ms. Pierce:

State Project U331-857-0.67
Federal Project STP 0857(019)D
Greenbag Road Improvement Project
Morgantown, Monongalia County

Please be advised the West Virginia Division of Highways has initiated NEPA studies for the above referenced project. The project was initially identified to be documented as a Programmatic Categorical Exclusion. Following a public meeting in April 2019 the project has been changed to an Environmental Assessment due to public comment and FHWA recommendation. We request your input as to any concerns your office may have regarding this project.

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Very truly yours,

Ben L Hark

Ben L. Hark
Section Head
Environmental Section
Engineering Division

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Division of Highways
1900 Kanawha Boulevard East • Building Five • Room 110
Charleston, West Virginia 25305-0430 • (304) 558-3505

Byrd E. White, III
Secretary of Transportation/
Commissioner of Highways

Jimmy Wriston, P. E.
Deputy Secretary/
Deputy Commissioner

November 26, 2019

Michael E. Hatten
Chief Regulatory Division
U.S. Army Corps of Engineers - Huntington District
CELRH-RD
502 Eighth Street
Huntington, WV 25701-2070

Dear Mr. Hatten:

State Project U331-857-0.67
Federal Project STP 0857(019)D
Greenbag Road Improvement Project
Morgantown, Monongalia County

Please be advised the West Virginia Division of Highways has initiated NEPA studies for the above referenced project. The project was initially identified to be documented as a Programmatic Categorical Exclusion. Following a public meeting in April 2019 the project has been changed to an Environmental Assessment due to public comment and FHWA recommendation. We request your input as to any concerns your office may have regarding this project.

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Very truly yours,

Ben L. Hark

Ben L. Hark
Section Head
Environmental Section
Engineering Division

H:s
Attachments
bcc: DDE(SB)

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

Division of Highways

1900 Kanawha Boulevard East • Building Five • Room 110
Charleston, West Virginia 25305-0430 • (304) 558-3505

Byrd E. White, III
Secretary of Transportation/
Commissioner of Highways

November 26, 2019

Jimmy Wriston, P. E.
Deputy Secretary/
Deputy Commissioner

Environmental Coordinator
United States Department of Agriculture
Natural Resources Conservation Service
1150 Earl L. Core Road, Suite 200
Morgantown, WV 26505

Dear Coordinator:

State Project U331-857-0.67
Federal Project STP 0857(019)D
Greenbag Road Improvement Project
Morgantown, Monongalia County

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Division of Highways
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Charleston, West Virginia 25305-0430 • (304) 558-3505

Byrd E. White, III
Secretary of Transportation/
Commissioner of Highways

Jimmy Wriston, P. E.
Deputy Secretary/
Deputy Commissioner

November 26, 2019

Willie R. Taylor
Director, Office of Environmental Policy and Compliance
U.S. Department of Interior
1849 C. Street, NW (MS2462)
Washington, D.C. 20240

Dear Mr. Taylor:

State Project U331-857-0.67
Federal Project STP 0857(019)D
Greenbag Road Improvement Project
Morgantown, Monongalia County

Please be advised the West Virginia Division of Highways has initiated NEPA studies for the above referenced project. The project was initially identified to be documented as a Programmatic Categorical Exclusion. Following a public meeting in April 2019 the project has been changed to an Environmental Assessment due to public comment and FHWA recommendation. We request your input as to any concerns your office may have regarding this project.

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Ben L. Hark

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Section Head
Environmental Section
Engineering Division

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WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

Division of Highways

1900 Kanawha Boulevard East • Building Five • Room 110
Charleston, West Virginia 25305-0430 • (304) 558-3505

Byrd E. White, III
Secretary of Transportation/
Commissioner of Highways

November 26, 2019

Jimmy Wriston, P. E.
Deputy Secretary/
Deputy Commissioner

Samantha Beers, Director
Office of Community, Tribes, & Environmental Assessment
U.S. Environmental Protection Agency
Region III (3RA10)
1650 Arch St.
Philadelphia, PA 19103

Dear Ms. Beers:

State Project U331-857-0.67
Federal Project STP 0857(019)D
Greenbag Road Improvement Project
Morgantown, Monongalia County

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Very truly yours,

Ben L. Hark

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Section Head
Environmental Section
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Division of Highways
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Charleston, West Virginia 25305-0430 • (304) 558-3505

Byrd E. White, III
Secretary of Transportation/
Commissioner of Highways

Jimmy Wriston, P. E.
Deputy Secretary/
Deputy Commissioner

November 26, 2019

Ms. Elizabeth Stout
U.S. Fish and Wildlife Service
West Virginia Field Office
90 Vance Drive
Elkins, West Virginia 26241

Dear Ms. Stout:

State Project U331-857-0.67
Federal Project STP 0857(019)D
Greenbag Road Improvement Project
Morgantown, Monongalia County

Please be advised the West Virginia Division of Highways has initiated NEPA studies for the above referenced project. At this time it is anticipated that the level of documentation will be an Environmental Assessment, whereas in early 2019 the project was initially identified to be documented as a Programmatic Categorical Exclusion. Following a public meeting in April 2019, due to public comment, the project NEPA document was changed to an Environmental Assessment. We request your input as to any concerns your agency may have regarding this project.

The proposed project consists of the widening Greenbag Road lanes and providing intersection improvements at the Mississippi Street (CR 857/1) and Dorsey Avenue/Kingwood Pike (CR81) intersections. The entire project length is approximately 1.65 miles in length and involves the replacement of one culvert structure over Cobun Creek.

Attached please find an ArcView map and TOPO map showing the project location. After screening the project through our GIS Species Layers Running Buffalo Clover and state listed mussels are shown to possibly occur within the project location. On July 22, 2019, WVDOH Environmental Section staff reviewed the area for Running Buffalo Clover; no Running Buffalo Clover habitat was observed within the project area. If you have any comments or additional species that need to be considered please let us know.

The project will impact up to 7 acres of forested land depending on the alternative that will be selected. Due to the project alternatives all remaining below the 17 acres of forested land impacts and that the project is not located within a known bat zone, the WVDOH requests confirmation that no commitments to winter clearing are required for the project.

At this time we are asking you to concur with our plan of action and that our species list is correct. Should you require additional information, please contact Sydney Burke of our Environmental Section at (304) 414-6420 or Sydney.T.Burke@wv.gov.

Very truly yours,

Ben L Hark

Ben L. Hark
Section Head
Environmental Section
Engineering Division

H:s
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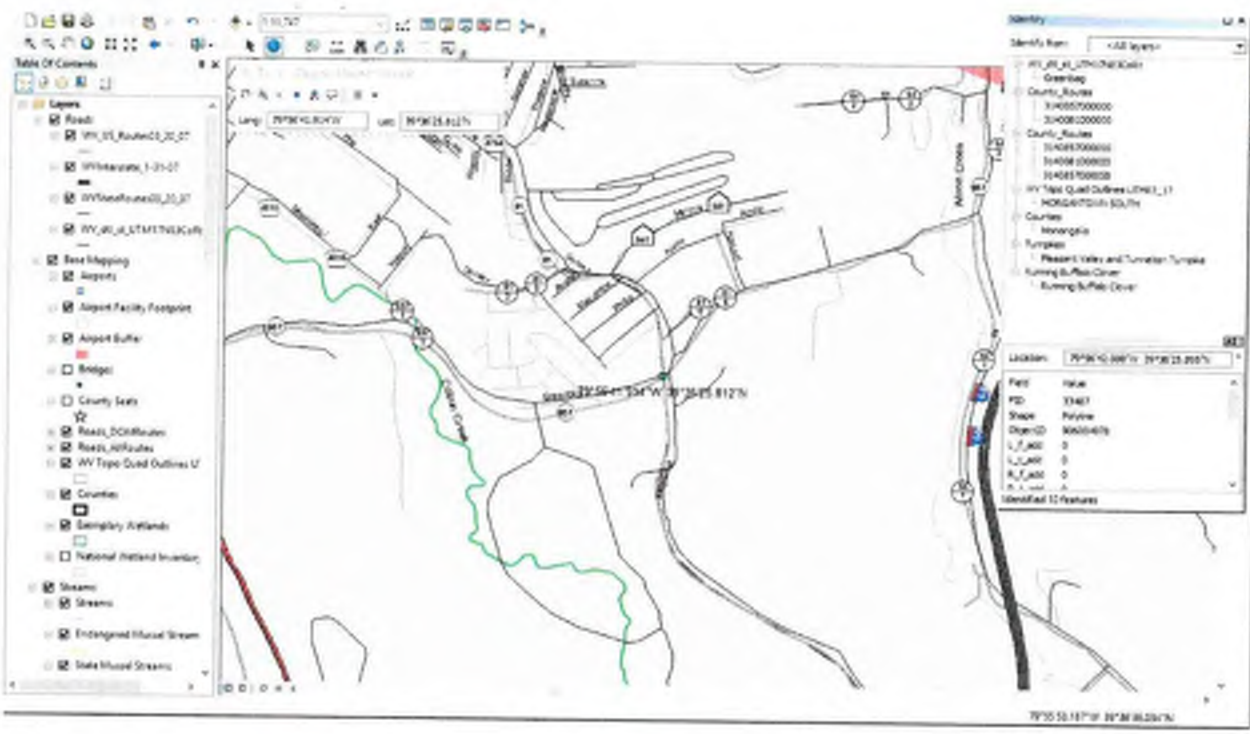


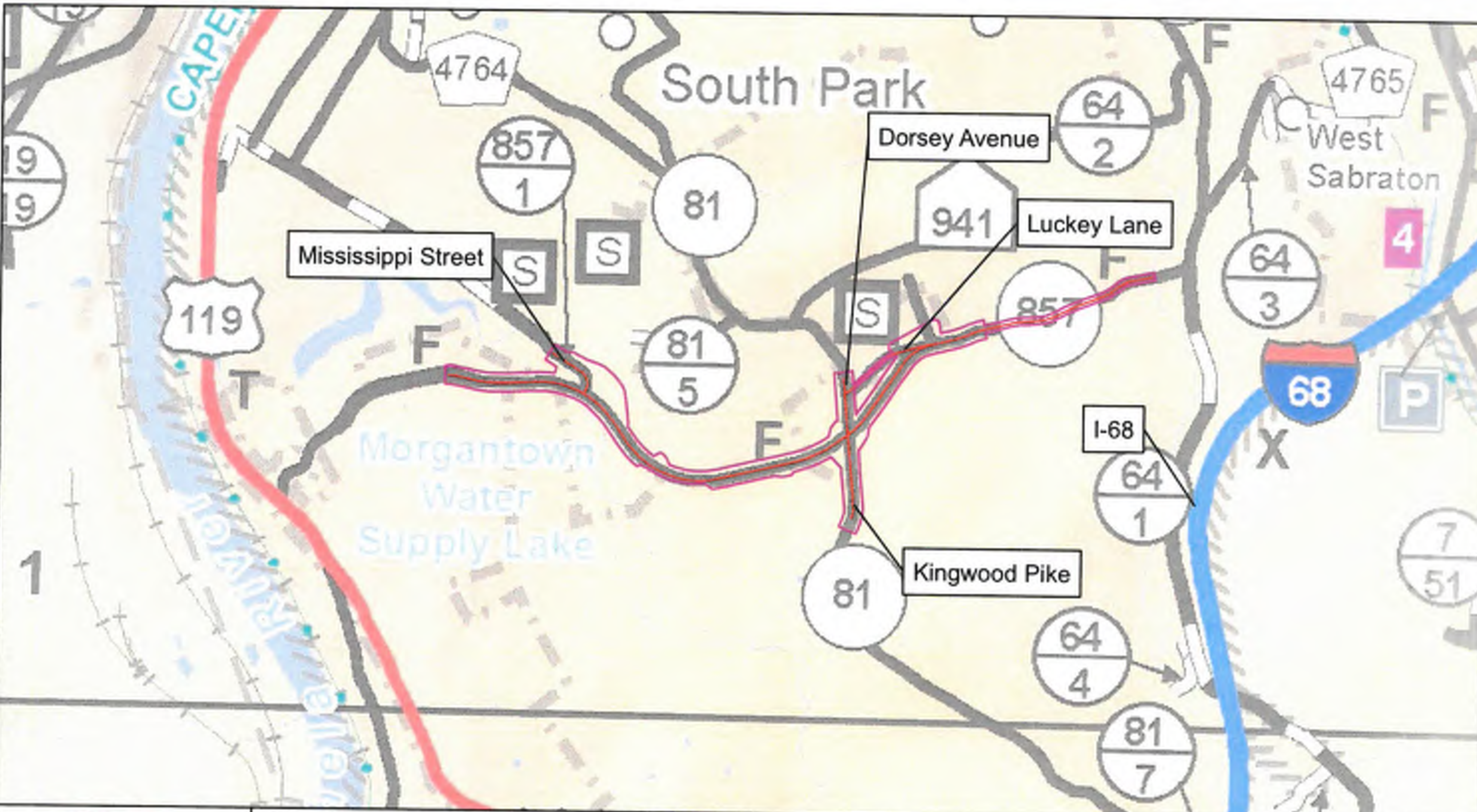
10/10/2019

Greenbag Road
U331-857-0.67 00
NFA-2317(022)D
Monongalia County
39.607170, -79.944976 DD

Zone 7 – Running Buffalo Clover, no suitable habitat

Within ¼ and ½ mile buffers of state listed mussel stream – mussel survey 7/22/2019, no mussels

Morgantown South Quad



MARKOSKY

West Virginia Division of Highways
Federal Project STP 0857(019)D
State Project U331-857-0.67 00
Greenbag Road Improvement
Project Location Map

Topography Source: National Geographic Society (NGS)

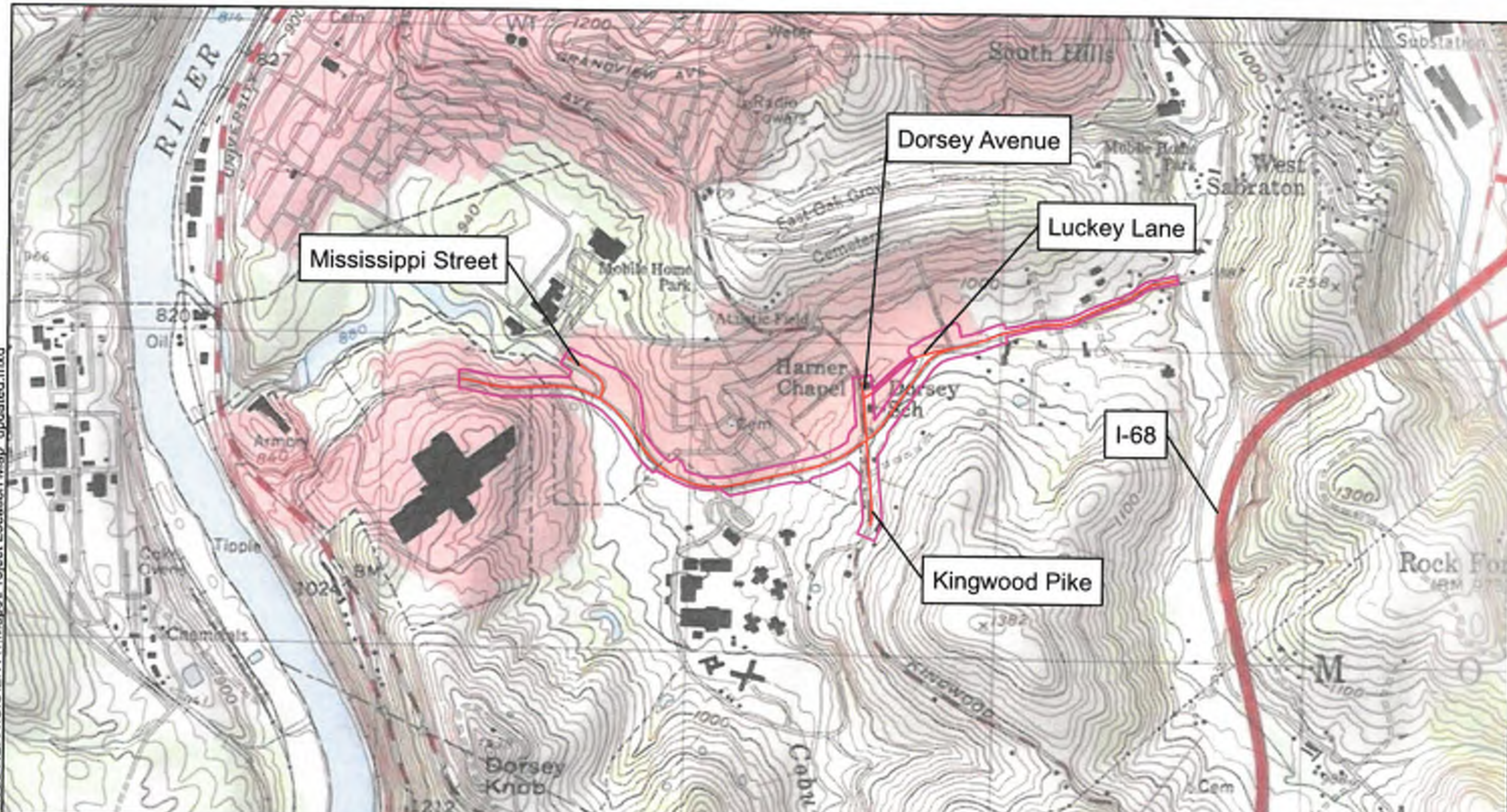
Project Alignment
Environmental Footprint

0 1,000 2,000 4,000 Feet

0 350 700 1,400 Meters

Date: 11/21/2019

Document Path: G:\18-062 WVDOH Greenbag Road NEPA\GIS\ENV\1.Maps\Project Location Map_updated.mxd



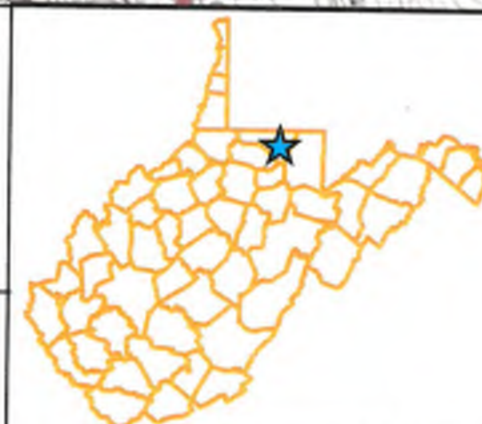
West Virginia Division of Highways
Federal Project STP 0857(019)D
State Project U331-857-0.67 00
Greenbag Road Improvement
Project Location Map

Topography Source: National Geographic Society (NGS)

Project Alignment
Environmental Footprint

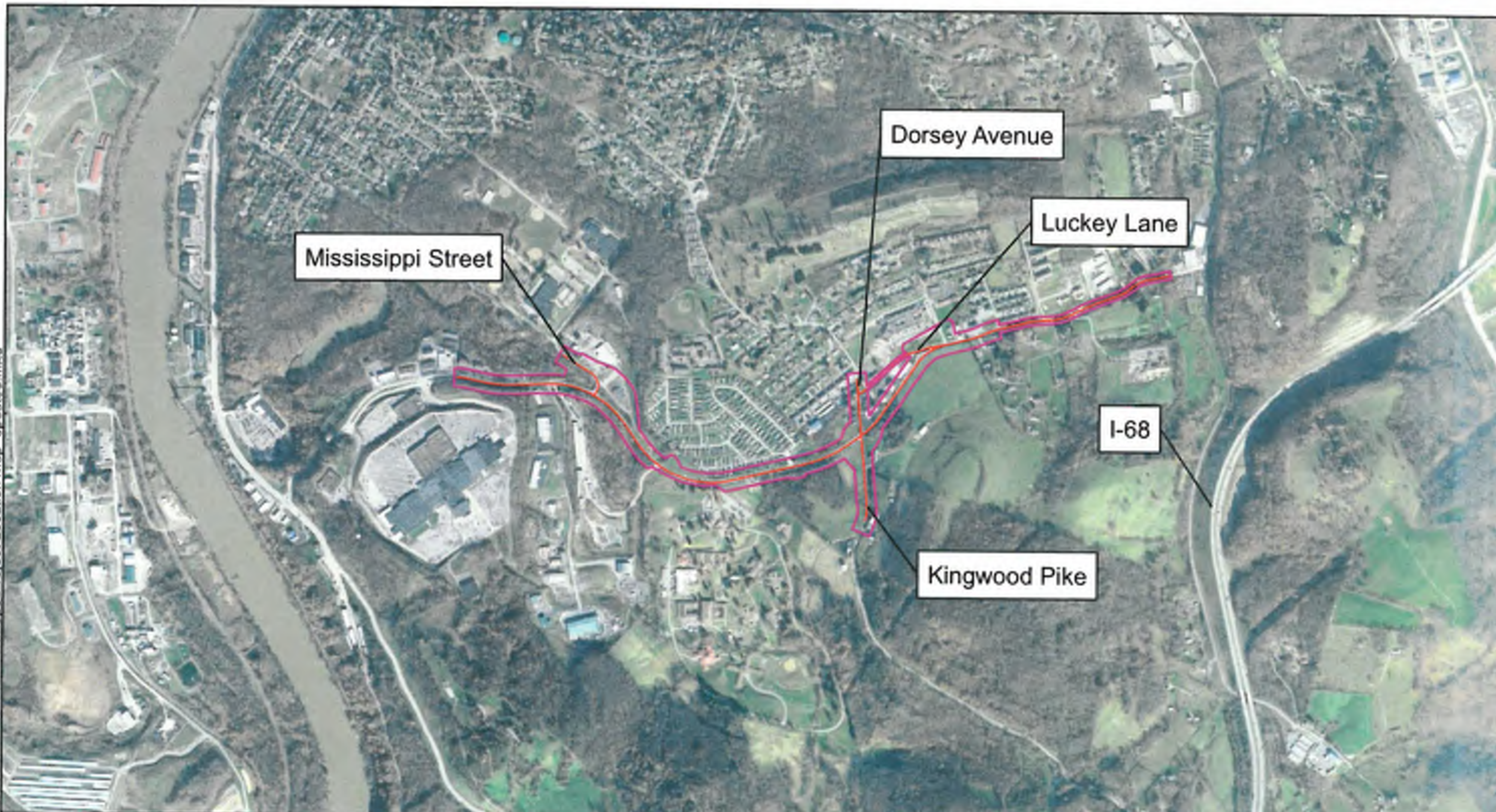
0 1,000 2,000 4,000 Feet

0 350 700 1,400 Meters



Document Path: G:\18-062 WVDOH Greenbag Road NEPA\GIS\ENV\1.Maps\Project Location Map_updated.mxd

Date: 11/21/2019



MARKOSKY

West Virginia Division of Highways
Federal Project STP 0857(019)D
State Project U331-857-0.67 00
Greenbag Road Improvement
Project Location Map

Topography Source: National Geographic Society (NGS)

Project Alignment
Environmental Footprint

N W E S

0 1,000 2,000 4,000 Feet

0 350 700 1,400 Meters

Date: 11/21/2019

Document Path: G:\18-062 WVDOH Greenbag Road NEPA\GIS\ENV\1.Maps\Project Location Map_updated.mxd

GREENBAG ROAD IMPROVEMENT PROJECT
State Project U331-857-0.67
Federal Project NFA-2317 (022) D
Monongalia County, West Virginia

PUBLIC MEETING

Tuesday, April 16, 2019

WELCOME!

Thank you for participating in the public informational workshop for the Greenbag Road Improvement Project in Morgantown, WV. This meeting is being hosted by the West Virginia Division of Highways (WVDOH) to present the preliminary designs for the project and to collect public opinion and comments on the plans. We invite you to browse the displays and encourage discussions with the project team. There will be **no formal presentation** during the meeting. There is a comment sheet available on the final page of this handout. Please submit your comments at the meeting, by mail, or via the WVDOH website at http://go.wv.gov/dotcomment.

This meeting complies with the public involvement requirements of the National Environmental Policy Act and Section 106 of the National Historic Preservation Act.

PROJECT BACKGROUND AND PURPOSE

The project is based on a study by the Morgantown Monongalia MPO (MMMPO) Unified Working Program (FY2014-2015). The overall goal of the study was to identify ways to improve Greenbag Road (CR 857) as an alternative truck route to reduce and/or eliminate trucks from traveling through downtown Morgantown by providing a safer, continuous route from WV 7 to US 119. The study reviewed the roadway from the intersection with WV 7 to the intersection with US 119. Recommendations from the study included roadway improvements, intersection improvements, multi-modal improvements, and on-going monitory of safety and development. Specific proposed projects were to widen and resurface Greenbag Road and provide shoulders along both sides; adding turn lanes and optimizing signals at the Dorsey Ave/Greenbag Road intersection and the US119/Greenbag Road intersection; and provide a sidewalk along the north side of Greenbag Road to increase pedestrian safety.

The current project will improve and upgrade the Dorsey Ave/Greenbag Road intersection, widen and resurface Greenbag Road from just west of Mississippi Street to Jonathan Lane, and provide a sidewalk and shoulders along Greenbag Road, as identified in the MMMPO study. These improvements will address several of the major issues identified in the study including: inadequate turning radius and intersection delays at Dorsey Ave/Greenbag Road; limited sight distance at Mississippi Street/Greenbag Road; and the lack of safe non-motorized facilities connecting the neighborhoods along the corridor.

PROJECT DESCRIPTION

The current project extends from ¼ mile west of the Mississippi Street intersection along Greenbag Road (CR 857) to the intersection with Jonathan Lane, approximately 1/10 mile east of Luckey Lane and includes intersection improvements at Mississippi Street (CR 857/1) and at Dorsey Avenue/Kingwood Pike (CR 81). These intersection improvements will increase the overall traffic capacity of Greenbag Road (CR 857) between WV 7 and US 119.

The overall roadway improvements include wider lanes and shoulders along with a dedicated center turn lane prior to the Mississippi Avenue intersection. A curb and gutter will be installed along the west side of Greenbag Road to help address drainage issues and to provide a sidewalk along the entire route to the Dorsey Avenue/Kingwood Pike intersection. In addition, the west side shoulder will be utilized as a shared bike lane for the corridor between the commercial district and the residential areas. The sidewalks and crosswalks will provide a safer route for pedestrian traffic from the current commercial area to the numerous residential areas located along Greenbag Road.

The two major intersections will be reconstructed as a single lane roundabouts to provide for continuous traffic flow and to increase the safety of the traveling public as they enter each intersection. The roundabouts have been selected instead of signalized intersections based on traffic analysis and level of service. The roundabouts will also be developed to allow the safe movement of pedestrians along the sidewalk on the west side of Greenbag Road and will include lighting on each approach to the roundabout.

The roadway improvements incorporate two 11-foot travel lanes with a 12-foot center turn lane with curb and gutter on each side up to Mississippi Street. Between Mississippi Street and Dorsey Avenue/Kingwood Pike, the roadway will be improved to two 12-foot travel lanes and a 4-foot paved east shoulder. A 3-foot paved shoulder with a curb and gutter will be on the west side. The 5-foot concrete sidewalk will be located along the entire corridor on the west side of Greenbag Road (CR 857).

Maintenance of Traffic during Construction

Traffic patterns will be temporarily impacted. A maintenance of traffic (MOT) plan will be in place to minimize delays, maintain access to residences and businesses, and maintain safety for travelers and construction workers. The proposed MOT plan will include either the use of a detour on existing roads or temporary signals or flaggers.

The Mississippi Street roundabout will be constructed adjacent to Greenbag Road. When the northern portion of the roundabout is complete, traffic will shift to the newly created approaches and through the constructed portion of the roundabout while the southern portion is constructed. Mississippi Street will remain open to traffic throughout the construction of the roundabout.

For the roundabout at Greenbag Road and Dorsey Ave/Kingwood Pike, construction will be completed in multiple stages to allow for continued access. The **proposed stages** are:

Stage 1 will widen the existing Greenbag Road between the entrance to Bluegrass Village and the intersection at CR 81 (Dorsey Ave/Kingwood Pike). The widening will take place on the north side of Greenbag Road. When complete, westbound traffic will shift onto the newly constructed roadway and eastbound traffic will utilize the existing westbound lanes.

Stage 2 will close Kingwood Pike and construct the southern approach and half of the east/west approaches to the roundabout. This will include the construction of the proposed retaining wall on the eastern approach.

Stage 3 will shift traffic to the newly created east/west approaches and through the constructed portion of the roundabout, then re-open Kingwood Pike. Dorsey Avenue will be closed and traffic will utilize Luckey Lane using temporary lights at both the Luckey Lane/Greenbag Road intersection and at Kingwood Pike and the re-aligned Greenbag Road.

Stage 4 will construct the north approach and the remaining east/west approach legs.

Stage 5 will open to traffic and install the islands while under traffic.

During Stage 2 when Kingwood Pike is closed, two detours will be posted. The **car detour** is 3.2 miles in length and requires approximately 10 minutes. When traveling north on Kingwood Pike (CR 81), turn right onto Aarons Creek Road (CR 70). Make a left turn onto Lower Aarons Creek Road (CR 64/1). Turn left onto Greenbag Road (CR 857) and continue until the Dorsey Ave/Kingwood Pike intersection. The same detour will exist for southbound traffic with directions reversed.

The **truck detour** is 10.6 miles and requires approximately 25 minutes. When traveling north on Kingwood Pike (CR 81), turn right onto Summers School Road (CR 72). Continue on Summers School Road (CR 72) when it becomes CR 70/1. Continue right on Summers School Road where it joins with CR 70 (Aarons Creek Road) and bear left onto 70/3 when CR 70 splits to the right. Turn left onto Earl Core Road (WV 7) and continue into Sabraton. Make a left turn onto Greenbag Road (CR 857) and continue until the Dorsey Ave/Kingwood Pike intersection. The same detour will exist for southbound traffic with directions reversed.

PROJECT IMPACTS AND SCHEDULE

Acquisition of new right-of-way for the project includes a total of 8.9 acres from 24 properties. Utilities will be relocated to eliminate conflicts with the proposed roadway upgrade and close coordination with the utility companies will be necessary to ensure service will not be disrupted.

PROJECT SCHEDULE

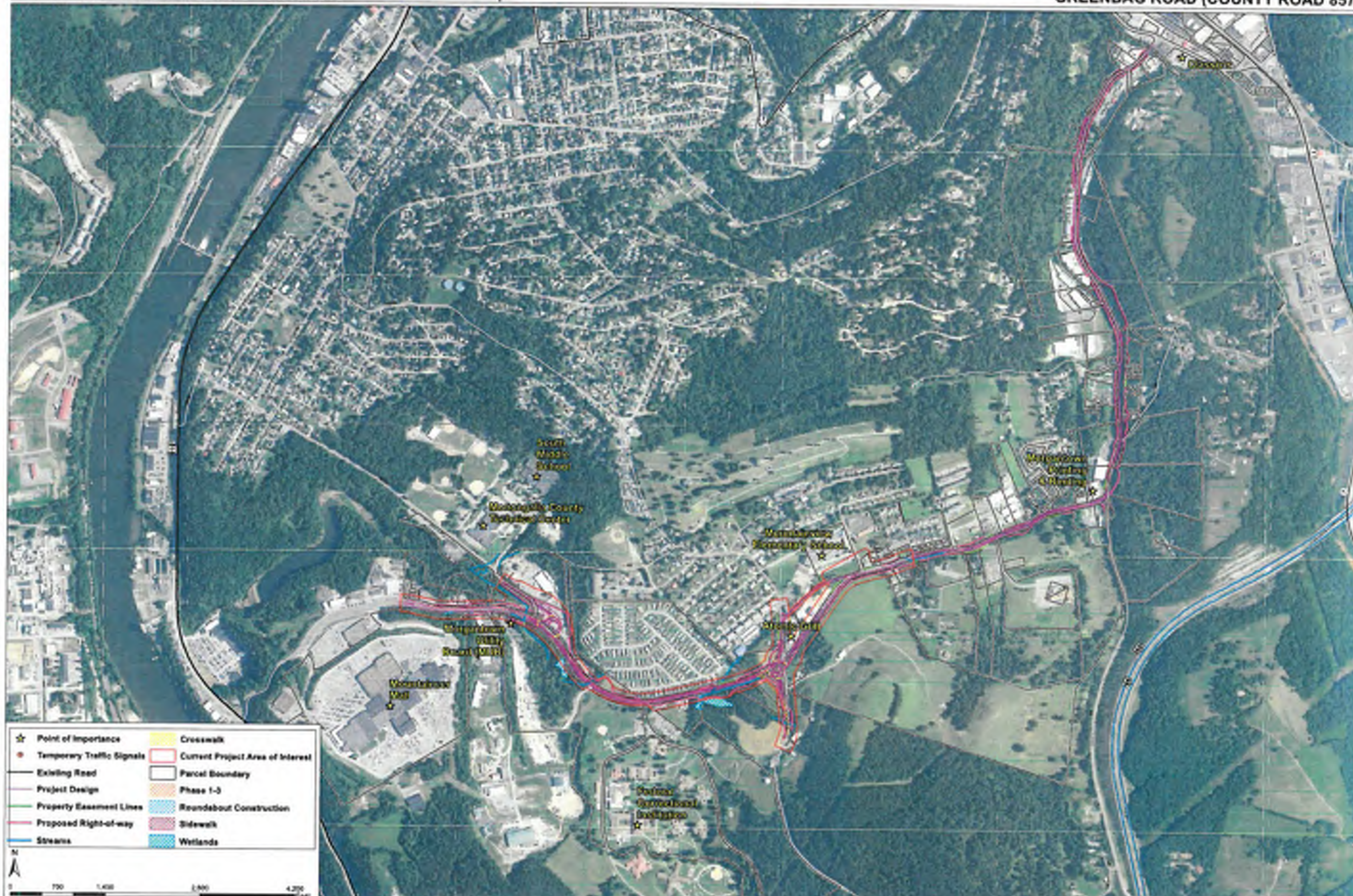
April 16, 2019	Public Meeting
May 16, 2019	Public comments due to the WVDOH
July 1, 2019	Environmental Clearance
Fall 2019	Project Letting
Spring 2020	Right-of-Way Acquired
Summer 2020	Construction Begins

Comments are due May 16, 2019 and should be sent to the following:
Mr. RJ Scites, P.E., Director Engineering Division
West Virginia Division of Highways
1334 Smith Street
Charleston, West Virginia 25301
Or electronically at http://go.wv.gov/dotcomment

GREENBAG PUBLIC MEETING - 04/16/2019

MORGANTOWN/MONONGALIA PLANNING STUDY AREA

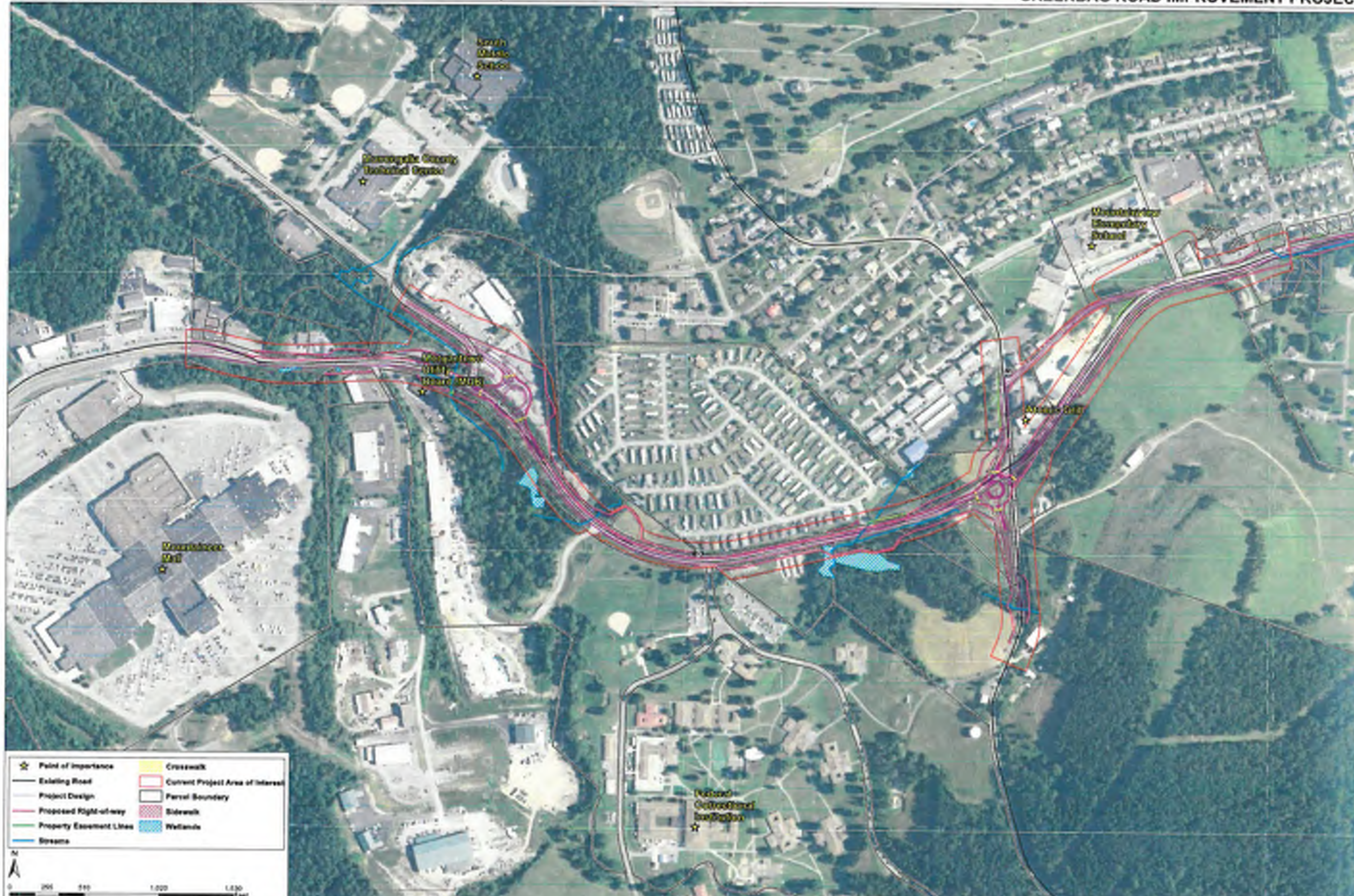
GREENBAG ROAD (COUNTY ROAD 857)



GREENBAG PUBLIC MEETING - 04/16/2019

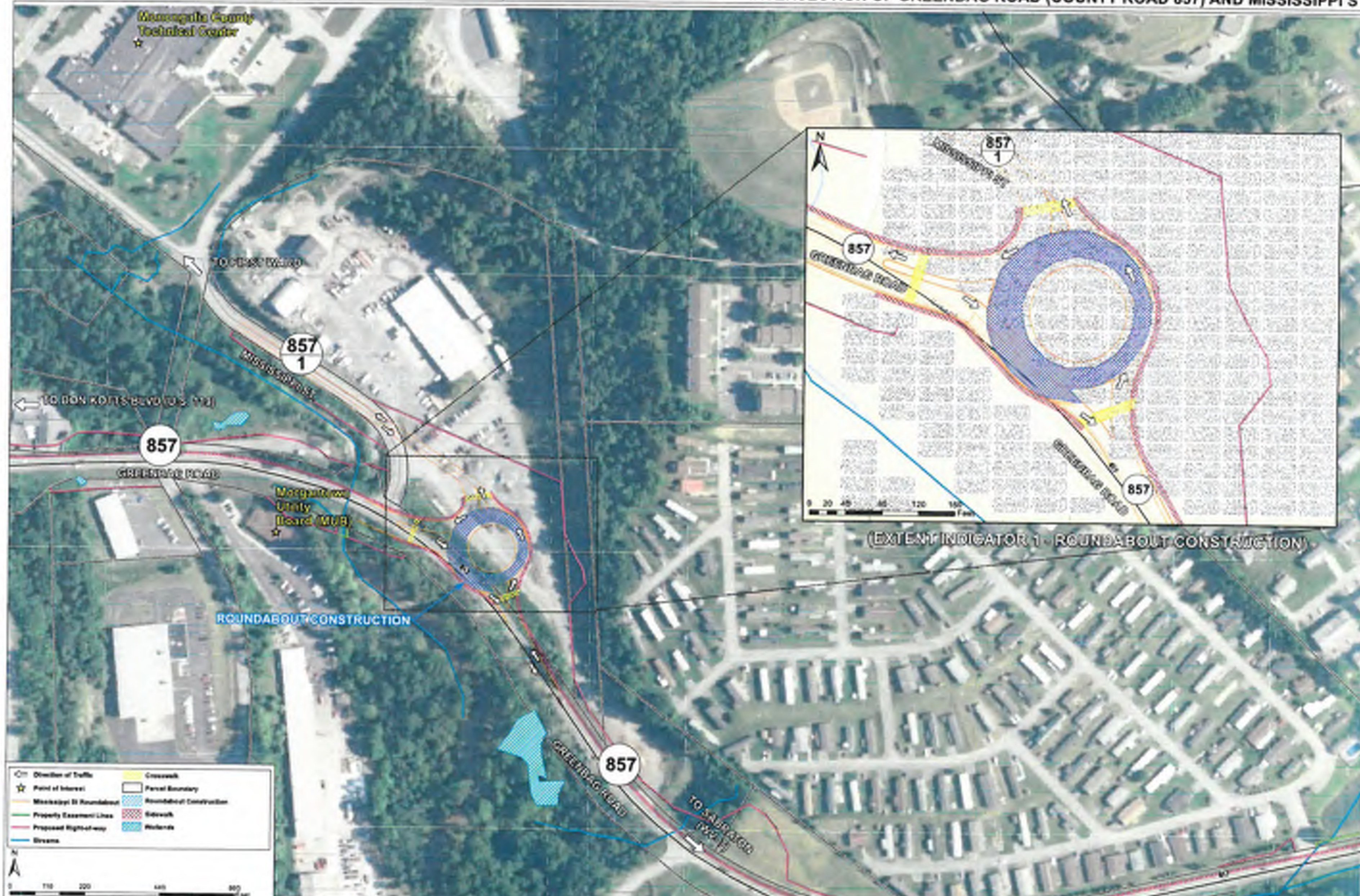
GREEN BAG ROAD PROJECT OVERVIEW

GREENBAG ROAD IMPROVEMENT PROJECT



GREENBAG PUBLIC MEETING - 04/16/2019

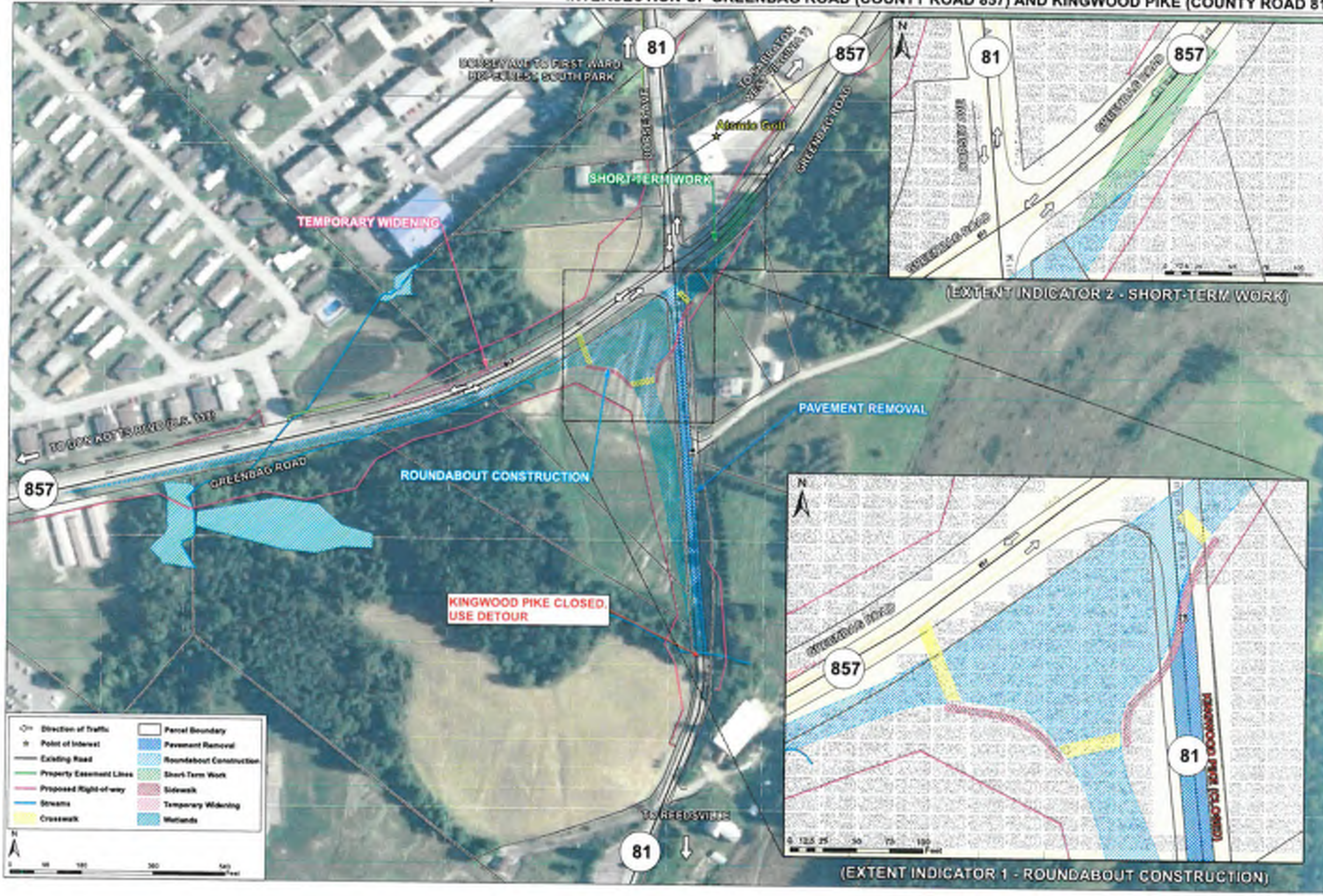
INTERSECTION OF GREENBAG ROAD (COUNTY ROAD 857) AND MISSISSIPPI ST



GREENBAG PUBLIC MEETING - 04/16/2019

STAGES 1-3

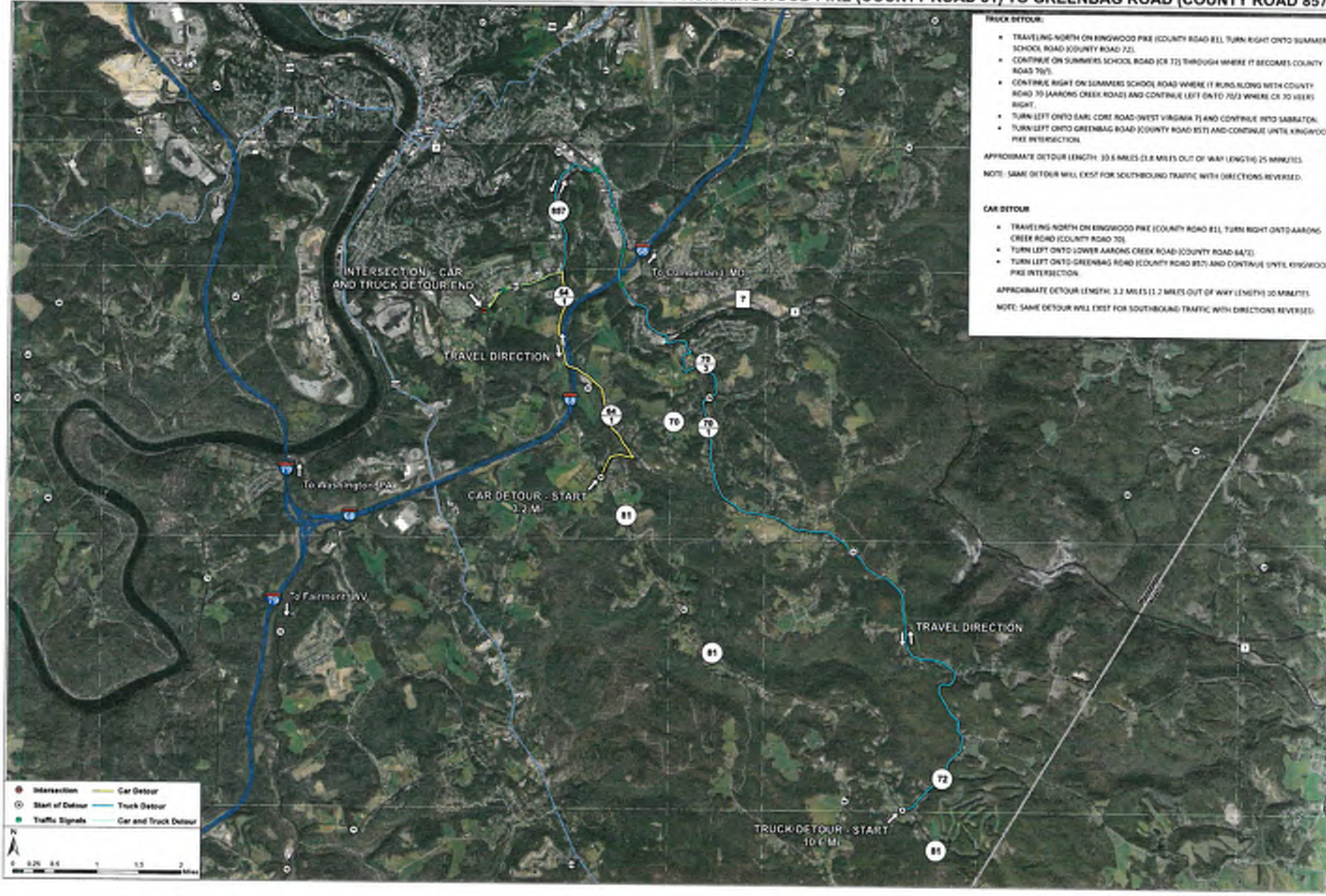
INTERSECTION OF GREENBAG ROAD (COUNTY ROAD 857) AND KINGWOOD PIKE (COUNTY ROAD 81)



GREENBAG PUBLIC MEETING - 04/16/2019

TRAFFIC DETOUR

FROM KINGWOOD PIKE (COUNTY ROAD 81) TO GREENBAG ROAD (COUNTY ROAD 857)



TRUCK DETOUR:

- TRAVELING NORTH ON KINGWOOD PIKE (COUNTY ROAD 81), TURN RIGHT ONTO SUMMERS SCHOOL ROAD (COUNTY ROAD 72).
- CONTINUE ON SUMMERS SCHOOL ROAD (CR 72) THROUGH WHERE IT BECOMES COUNTY ROAD 70/1.
- CONTINUE RIGHT ON SUMMERS SCHOOL ROAD WHERE IT RUNS ALONG WITH COUNTY ROAD 70 (AARONS CREEK ROAD) AND CONTINUE LEFT ONTO 70/3 WHERE CR 70 VEERS RIGHT.
- TURN LEFT ONTO EARL CORE ROAD (WEST VIRGINIA 7) AND CONTINUE INTO SABRATON.
- TURN LEFT ONTO GREENBAG ROAD (COUNTY ROAD 857) AND CONTINUE UNTIL KINGWOOD PIKE INTERSECTION.

APPROXIMATE DETOUR LENGTH: 10.6 MILES (3.8 MILES OUT OF WAY LENGTH) 25 MINUTES.

NOTE: SAME DETOUR WILL EXIST FOR SOUTHBOUND TRAFFIC WITH DIRECTIONS REVERSED.

CAR DETOUR

- TRAVELING NORTH ON KINGWOOD PIKE (COUNTY ROAD 81), TURN RIGHT ONTO AARONS CREEK ROAD (COUNTY ROAD 70).
- TURN LEFT ONTO LOWER AARONS CREEK ROAD (COUNTY ROAD 64/1).
- TURN LEFT ONTO GREENBAG ROAD (COUNTY ROAD 857) AND CONTINUE UNTIL KINGWOOD PIKE INTERSECTION.

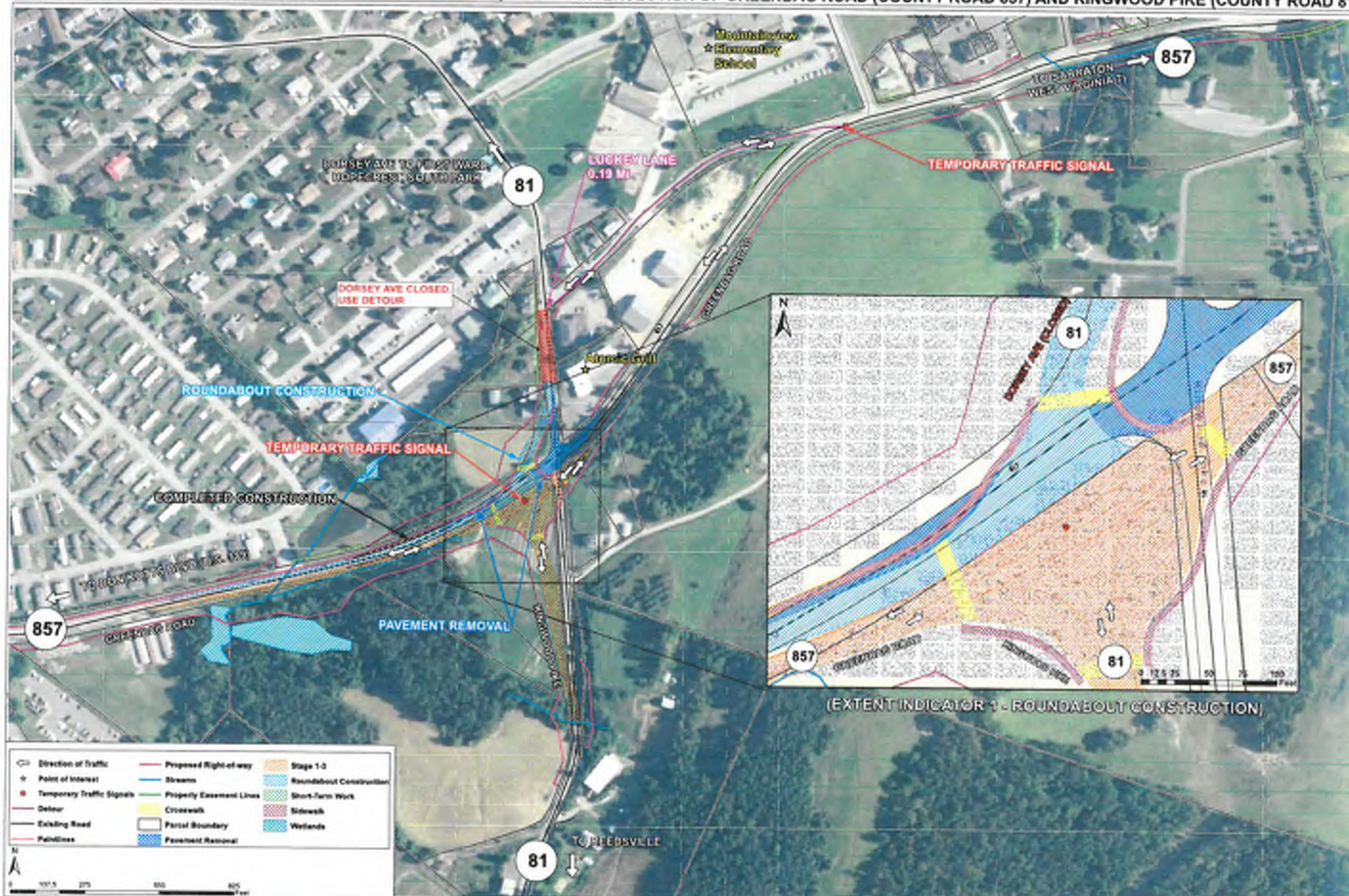
APPROXIMATE DETOUR LENGTH: 3.2 MILES (1.2 MILES OUT OF WAY LENGTH) 10 MINUTES.

NOTE: SAME DETOUR WILL EXIST FOR SOUTHBOUND TRAFFIC WITH DIRECTIONS REVERSED.

GREENBAG PUBLIC MEETING - 04/16/2019

STAGE 4

INTERSECTION OF GREENBAG ROAD (COUNTY ROAD 857) AND KINGWOOD PIKE (COUNTY ROAD 81)



GREENBAG PUBLIC MEETING - 04/16/2019

INTERSECTION OF GREENBAG ROAD (COUNTY ROAD 857) AND KINGWOOD PIKE (COUNTY ROAD 81)

DATE:

Mr. RJ Scites, P.E.
Director, Engineering Division
West Virginia Division of Highways
1334 Smith Street
Charleston, West Virginia 25301

DATE: **Tuesday, April 16, 2019**
LOCATION: **South Middle School**
SUBJECT: **Public Meeting**
PROJECT: **Greenbag Road Improvement Project**
State Project: U331-857-0.67
Monongalia County

COMMENTS DUE BY: **Thursday, May 16, 2019**

Please consider the following comments:

____

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(Please print the following information)

NAME:

ADDRESS:

ORGANIZATION (IF ANY):

<u>How did you hear about today's meeting?</u>

Project Information and Comment Sheets can also be found at <u>http://go.wv.gov/dotcomment</u> under Engineering Projects, open and click Greenbag Road Improvement Project.

HM	State Project U206-60-12.57 00 Merritt's Creek to West Mall Road Widening Cabell County	There are no known occurrences of any RTE species or natural trout streams within the project area. A mussel survey will be required if any in-stream work is anticipated in the Mud River.
HM	State Project 38-28-16.13 Moore Run Plate Arch Pocahontas County	There are no known occurrences of any RTE species or natural trout streams at the project site; however, the project is within a habitat buffer for the Indiana bat. Additionally, Moore Run is a permanent tributary of Sitlington Creek, which is critical habitat for the endangered Candy darter. This project may require US Fish and Wildlife Service consultation.
RE	State Project S328-104-1.93 Federal Project STP-0104(011)D Brick Street Bridge Mercer County	There are no known occurrences of any RTE species or natural trout streams within the project area.
RC	State Project 42-5/9-0.90 Isner Creek No. 4 Culvert Replacement Randolph County	There are no known occurrences of any RTE species or natural trout streams at the project site; however, the project is within a habitat buffer for the Virginia big-eard bat.
NM	State Project 38-17-3.72 Hatchery Pipe Replacement Pocahontas County	There are no known occurrences of any RTE species or natural trout streams at the project site; however, the project is within a habitat buffer for the Indiana bat.

The Wildlife Resources Section knows of no surveys that have been conducted in these areas for rare species or rare species habitat. Consequently, this response is based on information currently available and should not be considered a comprehensive survey of the areas under review.

Thank you for your inquiry, and should you have any questions please feel free to contact me at the above number, extension 2048.

Sincerely,

MAR 0 7 2019

Barbara Sargent
Environmental Resources Specialist
Environmental Coordination
Operations Unit

WEST VIRGINIA
Division of Culture and History

The Culture Center
1900 Kanawha Blvd., E.
Charleston, WV 25305-0300
Randall Reid-Smith, Commissioner
Phone 304.558.0220 • www.wvculture.org
Fax 304.558.2779 • TDD 304.558.3562
EEO/AA Employer

January 2, 2020

Mr. Ben L. Hark
Environmental Section Head
Engineering Division
West Virginia Division of Highways
1334 Smith Street
Charleston, West Virginia 25305

RE: Greenbag Road Improvement Project
Federal Project No. STP-0857(019)D
State Project No. U331-857-0.067
FR: 20-203-MG-2

Dear Mr. Hark:

We received your submission dated December 17, 2019, which included documentation intended to facilitate our review of the undertaking. As required by Section 106 of the National Historic Preservation Act, as amended, and its implementing regulations, 36 CFR 800: "Protection of Historic Properties," we submit our comments.

According to the report, the West Virginia Department of Transportation, Division of Highways proposes to make improvements to Greenbag Road in Monongalia County, West Virginia. Improvements will include widening lanes and shoulders and constructing a dedicated center turn lane along a section of road beginning at the intersection of Greenbag Road (CR 857) and US 119 and continuing to where Greenbag Road crosses Aaron Creek. A curb and gutter will also be installed along the west side of the road. Because project plans have not been finalized, a study area was delineated that attempted to encompass all areas proposed for ground disturbance.

Architectural Resources:
We have reviewed the submitted documentation, including the report titled "Greenbag Road Improvement Project, Monongalia County, West Viginia," which Markosky Engineering Group prepared for the undertaking. We concur with Markosky's definition of the area of potential effects (APE) and note that within that APE the consultant identified 25 historic aboveground resources that are 45 years or older.

Of the 25 identified resources, Markosky recommended 23 be considered not eligible for inclusion in the National Register of Historic Places. Those properties are identified with the following SHPO site ID numbers:

MG-1332	MG-2646	MG-2651	MG-2656	MG-2661
MG-2640	MG-2647	MG-2652	MG-2657	MG-2665
MG-2642	MG-2648	MG-2653	MG-2658	MG-2666
MG-2643	MG-2649	MG-2654	MG-2659	
MG-2644	MG-2650	MG-2655	MG-2660	

Those properties are considered not eligible for inclusion in the National Register because they do not share any direct association with individuals or events that have influenced the broad patterns of our nation's history, either at a local, state, or national level. Nor do those properties embody the distinctive characteristics of any particular type, period, or method of construction. Several have lost a high degree of historic integrity of materials, workmanship, and design. Conversely, Markosky argued two resources are eligible for inclusion in the National Register.

The Campbell Farmhouse (MG-2641) was recommended eligible under Criterion C as a vernacular example of late Italianate architecture. Unfortunately, the surrounding agricultural property has lost much integrity. Accordingly, the property is not recommended eligible under Criteria A or B.

The Robert F. Kennedy Youth Center (aka FCI Morgantown Kennedy Center / MG-2645) was recommended eligible under Criterion A for reflecting developments in American penal history. The property was one of the earliest sites designed specifically to implement the "unit management" philosophy in the 1960s. As the survey team was unable to access the property, it was not evaluated under Criterion C, though it remains possible the property is eligible under that criterion.

We concur with Markosky's recommendations described above.

As the undertaking will remain largely shielded by existing tree buffers and will require limited visual intrusions, if any, we also concur with Markosky's assessment that the undertaking will impose *no adverse effect* on the two historic properties. No further consultation is necessary regarding architectural resources; however, we ask that you contact our office if your project should change.

<u>Consulting Parties/Public Comments</u>:
We note that your office sent letters about the proposed project to the Monongalia County Historic Landmarks Commission, the Morgantown Historic Landmarks Commission, Preservation Alliance of West Virginia, and the Monongalia Historical Society on January 30, 2019, with various follow-up communications occuring thereafter. We understand that any further correspondence or comments will be sent to our office.

We appreciate the opportunity to be of service. *If you have questions regarding our comments or the Section 106 process, please contact Mitchell K. Schaefer, Structural Historian, at (304) 558-0240.*

Sincerely,

Susan M. Pierce

Susan M. Pierce
Deputy State Historic Preservation Officer

SMP/MKS

United States Department of the Interior

FISH AND WILDLIFE SERVICE

West Virginia Field Office
90 Vance Drive
Elkins, West Virginia 26241

Contact Name: Sydney Burke

Email Address or Fax Number: sydney.t.burke@wv.gov

FWS File # 2020-I-0282 **All future correspondence should clearly reference this FWS File #.**

Project: Greenbag Road Improvement Project, Monongalia County

Date of Letter Request: November 26, 2019

This is in response to your letter requesting threatened and endangered species information in regard to the proposed project listed above. These comments are provided pursuant to the Endangered Species Act (ESA) (87 Stat. 884, as amended; 16 U. S. C. 1531 *et seq*.).

Two federally listed species could occur in the project area: the endangered Indiana bat (*Myotis sodalis*) and the threatened northern long-eared bat (*Myotis septentrionalis*) (NLEB).

The Indiana bat and NLEB may use the project area for foraging and roosting between April 1 and November 15. Indiana bat summer foraging habitats are generally defined as riparian, bottomland, upland forest, and old fields or pastures with scattered trees. Roosting/maternity habitat consists primarily of live or dead hardwood tree species which have exfoliating bark that provides space for bats to roost between the bark and the bole of the tree. Tree cavities, crevices, splits, or hollow portions of tree boles and limbs also provide roost sites. In West Virginia, the U.S. Fish and Wildlife Service (Service) considers all forested habitat containing trees greater than or equal to 5 inches in diameter at breast height to be potentially suitable as summer roosting and foraging habitat for the Indiana bat.

Indiana bats feed on emerged aquatic and terrestrial flying insects. Moths, caddisflies, flies, mosquitoes, and midges are major prey items. Aquatic insects that have concentrated emergences or that form large mating aggregations above or near water appear to be preferred prey items. As a result, streams, wetlands, and associated riparian forests are often preferred foraging habitats for pregnant and lactating Indiana bats. Indiana bats also forage within the canopy of upland forests, over clearings with early successional vegetation (e.g., old fields), along the borders of croplands, along wooded fencerows, and over farm ponds in pastures. Increased erosion and sedimentation of streams reduces diversity and biomass of benthic invertebrates, i.e. insects. Some projects propose impacts to aquatic features such as streams or wetlands, which could result in a decrease in insects available to both bat species for foraging.

Similar to the Indiana bat, NLEB foraging habitat includes forested hillsides and ridges, and small ponds or streams. NLEB are typically associated with large tracts of mature, upland forests with more canopy cover than is preferred by Indiana bats. NLEB seem to be flexible in selecting roosts. They choose roost trees based on suitability to retain bark or provide cavities or crevices, and this species is known to use a wider variety of roost types than the Indiana bat. Males and non-reproductive females may also roost in cooler places like caves and mines. Although rare, this bat has also been found roosting in structures like barns and sheds.

Indiana bats and NLEB use caves or mine portals for winter hibernation between November 15 and March 31. These species also use the hibernacula and the areas around them for fall-swarming and spring-staging activity (August 15 to November 14 and April 1 to May 14, respectively). Some males have been known to stay close to the hibernacula during the summer and may use the hibernacula as summer roosts. There may be other landscape features being used as hibernacula by NLEB during the winter that have yet to be documented.

The Service has reviewed the number of acres of potentially suitable foraging and roosting habitat on the West Virginia landscape available to each Indiana bat, versus the total acreage of forest. On that basis, we have determined that small projects, more than 10 miles from a known priority 1 or 2 Indiana bat hibernaculum, more than 5 miles from a known priority 3 or 4 Indiana bat hibernaculum, or more than 2.5 miles from any known maternity roost, or more than 5 miles from summer detection sites where no roosts were identified, that affect less than 17 acres of forested habitat, and will not affect any potential hibernacula, will have a very small chance of resulting in direct or indirect effects to the Indiana bat, and therefore these effects are considered discountable. **Please note that the Service may review and update this assessment at any time as new information becomes available.**

The Service has determined that this project is not likely to adversely affect the Indiana bat because your project: 1) will affect less than 17 acres of potential Indiana bat foraging or roosting habitat; 2) is not within any of the Indiana bat hibernacula or summer use buffers described above; 3) will not affect any potential caves or mines that could be used as hibernacula for this species; and 4) effects to aquatic features used for foraging habitat will be insignificant.

The NLEB may occur within the range of the proposed project, and may be affected by the proposed construction and operation of this project. Any take of NLEB occurring in conjunction with these activities that complies with the conservation measures (as outlined in the 4(d) rule), as necessary, is exempted from section 9 prohibitions by the 4(d) rule and does not require site specific incidental take authorization. Note that the 4(d) rule does not exempt take that may occur as a result of adverse effects to hibernacula and that no conservation measures are required as part of the 4(d) rule unless the proposed project: 1) involves tree removal within 0.25 miles of known NLEB hibernacula; or 2) cuts or destroys known, occupied maternity roost trees or any other trees within a 150-foot radius around known, occupied maternity tree during the pup season (June 1 to July 31). This proposed project is not located within any of these radii around known hibernacula or roost trees and will not affect any known NLEB hibernacula, therefore any take of NLEB associated with this project is exempted under the 4(d) rule and no conservation measures are required.

Should project plans change or amendments be proposed that we have not considered in your proposed action, or if additional information on listed and proposed species becomes available, or if new species become listed or critical habitat is designated, this assessment may be reconsidered.

If you have any questions regarding these comments, please contact the biologist listed below at (304) 636-6586 or at the letterhead address.

Liz Stout Date: January 6, 2020
Biologist

Barbara Douglas Acting Date: 01/10/2020
Field Supervisor

Greenbag Road Improvement Project

Appendix E

Historic Structures Report

GREENBAG ROAD IMPROVEMENT PROJECT
MONONGALIA COUNTY, WEST VIRGINIA

State Project # U331-857-0.67 00
Federal Project # STP-0857(019)D

HISTORIC STRUCTURES SURVEY AND DETERMINATION OF ELIGIBILITY REPORT

Prepared for:

West Virginia Department of Transportation
Division of Highways

Prepared by:

Elizabeth H. Williams
Architectural Historian

And

Laura C. Ricketts
Senior Architectural Historian

December 10, 2019

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ABSTRACT

The Markosky Engineering Group, Inc. (Markosky) performed a historic structures survey for the Greenbag Road Improvement Project (Project) in Monongalia County, West Virginia for the West Virginia Department of Transportation’s Division of Highways (WVDOH). The Project stretches approximately 1.65 miles beginning 0.40 miles east of the intersection of Greenbag Road (CR 857) and US 119 and ending where Greenbag Road (CR 857) crosses Aaron Creek.

The survey resulted in the identification of 25 structures that are 45+ years old within the Project’s Area of Potential Effect (APE), one of which was previously identified by the West Virginia State Historic Preservation Office (WV SHPO): MG-1332 / Harner Chapel. Markosky completed West Virginia Historic Property Inventory (WV HPI) forms for all 25 properties. Of the 25 identified 45+ year old structures, two resources were recommended as eligible for listing in the National Register of Historic Places (NRHP). The MG-2641 / Campbell Farmhouse is a two-story brick dwelling from ca. 1886 that is significant under Criterion C for Architecture as a strong local example of an Italianate farmhouse, and the MG-2645 / Federal Correctional Institution (FCI) Morgantown Kennedy Center / Robert F. Kennedy Youth Center is a prison complex from 1968 that is significant under Criterion A for the embodiment in its design of an experimental new approach to youth rehabilitation and penal system practices.

The Project has been designed to avoid and/or minimize any potential impacts to the Campbell Farmhouse. The recommended NRHP boundary of the MG-2641 / Campbell Farmhouse encompasses 10.9 acres of surviving farmland, the Italianate dwelling, and several mid-20th century outbuildings that are situated on a flattened hilltop above a steep embankment at the edge of Greenbag Road. Project activities in this area are currently being refined, but, at most, they may include limited cuts into the sloping embankment and the possible acquisition of limited required right-of-way (ROW) on the south side of Greenbag Road in the vicinity of the resource. It is assumed that these activities will occur either outside the property’s recommended NRHP boundary or at its edge where they will not have an effect on the Italianate farmhouse or its viewshed because they are screened by an existing buffer of trees and the elevational difference between the property within the boundary and the roadway below, which ranges between approximately ten to seventeen feet in height.

The Project has also been designed to avoid and/or minimize any potential impacts to the FCI Morgantown Kennedy Center. The MG-2645 / FCI Morgantown Kennedy Center prison complex is set back from Greenbag Road with the closest building located approximately 400 feet south of the road. All Project construction work will take place within WVDOH ROW without impacting the buildings or the design of the complex. At the Greenbag Road entrance to the prison complex, the only planned alteration will be the removal and replacement or upgrade of the triangular island that splits traffic at the entrance. The island is a standard road element/device, and this example is of typical construction and is not of significance to the original prison complex design. There are no planned impacts to the existing wood rail fencing and signage that are associated with the prison property. Project related construction is not anticipated to impact any structures associated with the prison, and it will not compromise any of the character defining features of the complex.

The remaining structures surveyed within the Project APE lack either the integrity and/or the significance to be considered eligible for listing in the NRHP, and, thus, Section 106 effects do not apply to those structures.

Markosky recommends that the Project work will not adversely affect any NRHP-eligible historic resources or structures and that no further historic structures investigations are needed. However, if any changes to the scope or design of the Project are introduced, additional historic structures investigations may be necessary.

Historic Structures Survey and Determination of Eligibility Report

Greenbag Road Improvement
Morgan District and City of Morgantown
Monongalia County, West Virginia

State Project Number U331-857-0.67 00

Federal Project Number STP-0857(019)D

Prepared by:

Elizabeth H. Williams
Architectural Historian

And

Laura C. Ricketts
Senior Architectural Historian

The Markosky Engineering Group, Inc.
232 Capitol Street
Charleston, WV 25301

Submitted to:

The West Virginia Department of Transportation
Division of Highways

1334 Smith Street
Charleston, West Virginia 25305-0430

December 10, 2019

TABLE OF CONTENTS

1.0 PROJECT DESCRIPTION AND DEFINITION OF APE

1.1 Project Description

The West Virginia Division of Highways (WVDOH) is proposing the Greenbag Road Improvement Project (Project) located southeast of the city of Morgantown in Monongalia County (Appendix A: Figures 1-3; Appendix B). The 1.65-mile long Project begins 0.40 miles east of the intersection of Greenbag Road (CR 857) and US 119 and ends where Greenbag Road crosses Aaron Creek (Insets 1-4). The overall roadway improvements include wider lanes and shoulders along with a dedicated center turn lane prior to the Mississippi Street (CR 857/1) intersection. A curb and gutter will be installed along the north side of Greenbag Road to help address drainage issues and to provide a sidewalk along the route from the western terminus of the Project to the Dorsey Avenue / Kingwood Pike (CR 81) intersection. In addition, the north side shoulder will be utilized as a shared bike lane for the corridor between the commercial district and the residential areas.

Inset 1. Project area overview from Dorsey Knob, facing northeast (Markosky 2019-02-05)

Inset 2. Project overview of Greenbag Road near Mississippi Street (right), facing northwest (Google Earth 2018)

The roadway will be improved to incorporate two 11-foot travel lanes with a 12-foot center turn lane with curb and gutter on each side up from the western terminus of the Project to Mississippi Street. Between Mississippi Street and Dorsey Avenue / Kingwood Pike, the roadway will be improved to two 12-foot travel lanes and a 4-foot paved shoulder on the south side. A 3-foot paved shoulder with a 2-foot curb and gutter will be added on the north side. The 5-foot concrete sidewalk will be located on the north side of Greenbag Road and will connect with the sidewalk at Mountainview Elementary School. Both the Mississippi Street and Dorsey Avenue / Kingwood Pike intersections with Greenbag Road are proposed to be reconstructed as single-lane roundabouts to provide for continuous traffic flow along the route and to increase the safety of the traveling public as they enter each intersection. The roundabouts will also be developed to allow the safe movement of pedestrians along the sidewalk on the north side of Greenbag Road and will include lighting on each approach to the roundabout. Additional work on Luckey Lane will improve the width of the travel lanes within the existing right-of-way (ROW) and re-pave the length of the roadway between Greenbag Road and Dorsey Avenue. From the intersection of Greenbag Road and Jonathan Lane to the crossing of Aaron Creek at the eastern terminus of the Project, the design will include drainage improvements as necessary to address stormwater run-off.

Inset 3. Project overview of the intersection of Greenbag Road (left to right) with Dorsey Avenue / Kingwood Pike, facing north (Google Earth 2018)

The work will require the acquisition of ROW, temporary construction easements (TCEs), and permanent drainage easements along the route. Traffic will be maintained during construction through the use of a maintenance of traffic (MOT) plan to minimize delays, maintain access to businesses, and maintain safety for travelers and for construction workers. The proposed MOT plan will include either the use of a detour on existing roads or temporary signals or flaggers. Construction will be completed in multiple stages to allow for continued

Inset 4. Project overview of Greenbag Road at Luckey Lane (left), facing northeast (Google Earth 2018)

access through the intersection at Greenbag Road and Dorsey Avenue / Kingwood Pike.

1.2 Definition of the Area of Potential Effect (APE)

The APE for historic structures was developed using the limits of the Project with an additional buffer to account for potential effects to properties adjacent to Greenbag Road or to properties that share a significant viewshed with the Project (Appendix A: Figures 2 and 3). The Project is set within low, rolling hills comprised primarily of open fields with small areas of tree cover (Insets 5 and 6). Much of the area surrounding the Project was historically farm land that has seen areas of non-historic development and infill. Non-historic infill is prevalent on the north and south sides of Greenbag Road near the Mountaineer Mall; to the north of the Federal Correctional Institution (FCI) Morgantown Kennedy Center; on the north side of Greenbag Road to the east of Luckey Lane; and on the north side of Greenbag Road east of Jonathan Lane (Insets 7 and 8) (Appendix A: Figure 3).

Inset 5. Overview of Project APE near the Mountaineer Veterinary Clinic (left), facing east (Google Earth 2018)

The historic structures APE extends along Greenbag Road and includes portions of Mississippi Street, Dorsey Avenue / Kingwood Pike, and Luckey Lane. The APE extends to include the Mountaineer Mall, which is located to the south of Greenbag Road at the western limit of the Project. Due to the position of the shopping mall atop a small bluff, the Project is located within its viewshed. Greenbag Road can be seen from the eastern section of the mall parking lot, and the mall can be seen from the intersection of Greenbag Road and Dorsey Avenue / Kingwood Pike.

Inset 6. Overview of Project APE showing MG-2647 / Anderson House with farmland (right) and intersection of Greenbag Road and Dorsey Avenue / Kingwood Pike (left), facing northeast (Google Earth 2018)

Inset 7. Overview of Project APE showing non-historic Bluegrass Village mobile home park (left) and the grounds of MG-2645 / FCI Morgantown Kennedy Center (right), facing northeast (Google Earth 2018)

Inset 8. Overview of Project APE showing non-historic Mountainview Elementary School (left) and Dollar General (right) along Luckey Lane, facing northeast (Google Earth 2018)

2.0 PRE-FIELD RESEARCH AND SURVEY METHODOLOGY

In advance of fieldwork, Markosky compiled background research and developed an APE for historic structures investigations with guidance from WVDOH. Markosky performed desktop background research, including a review of the West Virginia State Historic Preservation Office's (WV SHPO) Interactive Map Viewer to determine the potential for previously recorded resources in the Project APE. One (1) previously recorded historic structure, MG-1332 / Harner Chapel, is located within the APE. The Harner Chapel, built ca. 1914, was surveyed in 1982 but was not evaluated for listing in the National Register of Historic Places (NRHP) by WV SHPO at that time.

The *West Virginia Statewide Historic Bridge Survey* was consulted in relation to the MG-2661 / Cobun Creek Box Culvert and the MG-2666 / Aaron Creek Box Culvert, which are both located within the APE (KCI et al. 2015). The small ca. 1965 Cobun Creek culvert was not included in the survey because it was built at or near the 1965 cut off for the study and because its span length is shorter than the requisite 20 feet for evaluation (KCI et al. 2015). The ca. 1966 Aaron Creek Box Culvert was also excluded from the survey because of its construction date.

Additional online resources were consulted to assemble historic-era maps and atlases of the greater Project area and Monongalia County and to inform the historic context. Survey and reporting were completed following the guidance in WV SHPO's *National Register and Architecture/History Survey Manual* (WV SHPO 2016). The WVDOH Historical Pre-Screening Checklist is included in Appendix D.

Markosky architectural historian Elizabeth Williams performed a field survey of the Project's historic structures APE on December 4, 2018 and February 5, 2019 with additional field survey performed by architectural historian Laura Ricketts on October 25, 2019. Using a high definition digital camera, they photographed historic structures within the APE from the public ROW. At the direction of WVDOH, Markosky surveyed any resources within the APE that were 45 years old or older. While in the field, detailed notes were taken concerning the style, type, approximate construction year, primary building material, and additional notes on the property including outbuildings and any landscapes features. Following confirmation of the final Project APE, Markosky requested 24 new inventory numbers from the WV SHPO and incorporated them into the report and the West Virginia Historic Property Inventory (WV HPI) forms.

On-site archival background research was conducted to collect information regarding the history of Monongalia County and to provide a context for the evaluation of the historic structures identified during the field survey. The repositories visited include the Office of the Monongalia County Clerk at the Monongalia County Courthouse and the West Virginia and Regional History Center at West Virginia University's library in Morgantown, West Virginia.

3.0 PUBLIC INVOLVEMENT

WVDOH initiated consultation with local organizations concerning the Project beginning on January 30, 2019 (Appendix E). Initial correspondence was sent to the Monongalia County Historic Landmarks Commission (MCHLC); the Morgantown Historic Landmarks Commission (MHLC); the Preservation Alliance of West Virginia (PAWV); and the Monongalia Historical Society (MHS). Follow-up emails were sent to the MCHLC, MHLC, and MHS on February 11, 2019. MCHLC responded via email on February 11, 2019 and indicated that the WVDOH correspondence had been shared with all MCHLC members and would be discussed at the next meeting on February 21, 2019. On February 25, 2019 MCHLC sent an email indicating that there were no comments related to the Project at the February 21 meeting. MHLC responded via email on February 13, 2019 and indicated that it had no comments as the Project is located outside of the city of Morgantown and therefore outside of the jurisdiction of the organization. As of the submission date for this report, no additional responses have been received.

Due to the expansion of the Project area in the latter half of 2019, WVDOH emailed updated project information to MCHLC and MHS on November 4, 2019. MCHLC responded that there were no historic property concerns. MHS has not responded to WVDOH's November 4, 2019 email at the time of the submission of this report.

In advance of fieldwork, Markosky attempted to coordinate access to MG-2645 / FCI Morgantown Kennedy Center / Robert F. Kennedy Youth Center, a prison complex from 1968 located within the APE, in order to field survey and photograph its structures. Though coordination has been ongoing, Markosky has not been granted access to the facility as of the submission date of this report.

4.0 HISTORIC CONTEXT

The Project is located along Greenbag Road approximately 1.65 miles southeast of the city of Morgantown in Monongalia County (Google Earth 2018). This area of Monongalia County historically comprised rural farm land owned by a handful of families who settled in the area in the early to mid-19th century. Greenbag Road was constructed in the early 1960s by the Green Bag Cement Company as a bypass road south of Morgantown. Today, the area is characterized by a few surviving late 19th and early 20th century farms and residences; mid-century residences and later non-historic residential development; the FCI Morgantown Kennedy Center complex, a minimum security prison built in 1968 as a juvenile detention center; and large scale commercial and industrial development including the Mountaineer Mall which was constructed in 1974.

The first Euro-American settlers arrived in the vicinity of the Project and modern day Morgantown in 1758 when Tobias Decker, along with 50 other pioneers, built a rudimentary settlement near Morgantown at the confluence of Deckers Creek and the Monongahela River (approximately 1.65 miles northwest of the Project). This area of what was historically northwest Virginia and southwestern Pennsylvania was still highly contested between pioneer settlers and Native Americans. When Decker's settlement was raided in 1766, its residents were dispersed to other nearby settlements. That same year, Zackquill Morgan and his brother David registered a land claim and attempted to establish a settlement in the vicinity of what would become Morgantown. Virginia and Pennsylvania also had a longstanding dispute concerning the exact location of Pennsylvania's southern and western borders (Carvell 2018).

During the late 18th century, small stockades and forts were established throughout southwestern Pennsylvania and northwestern Virginia as reinforcement for pioneer settlers. Among these strongholds was Coburn's Fort located approximately one mile southwest of the Project and to the east of the Monongahela River. The fort was established by Jonathan Coburn, who arrived in the area around 1770 (Muttillo and Blosser 2018). It is said that the meeting for the organization of Monongalia County was held at Coburn's house in 1776 (Core 1976:379-380). Monongalia County was formed from what was historically known as the Western Augusta district on the western frontier of Virginia. The district had been formed in 1775 and the following year was divided into three counties: Monongalia, Yohogania, and Ohio. Monongalia County, at that time, included land that now constitutes counties in modern day northern West Virginia and southwest Pennsylvania (Carvell 2018). Monongalia County would later become known as the "mother county" of northern West Virginia as so many counties were formed from it (Monongalia County Commission 2018).

Around the time of the formation of Monongalia County, the path of modern day Kingwood Pike was cut through the local wilderness. The road, later referred to as the Morgantown, Kingwood, and Evansville Pike, intersects modern day Greenbag Road within the APE and is noted as the oldest road in Monongalia County in Wiley's *History of Monongalia County, West Virginia* (Wiley 1883:653). The road was established as a pack horse road between 1772 and 1776. Settlers used the road to transport salt and iron from Winchester, Virginia into Monongalia County. The road later provided access to land further west in Ohio (Wiley 1883:536). No discernable structural remains of the turnpike appear to exist in the Project APE. Around 1783, Zackquill Morgan received a land grant of 400 acres and hired a land surveyor to divide 50 acres along the Monongahela River into lots and lay out streets. Morgan's Town (or Morgantown, as it later became known) was established by an act of legislation in 1785. A stipulation of the purchase of a lot in Morgan's Town was that a structure was to be constructed within five years. This encouraged development and deterred absentee landowners, a problem which often plagued early pioneer settlements (Monongalia County Commission 2018; Carvell 2018; WVGenWeb 2010).

In 1793, the *Pittsburgh Post-Gazette* began newspaper delivery to Morgantown which prompted the construction of an early north-south route between the communities. This, in addition to the discovery of iron ore in the nearby ridges, helped to jumpstart growth in Morgan's Town (WVGenWeb 2010). A 1795 map of Virginia illustrates Morgan's Town on the east bank of the Monongahela River, as well as the general vicinity of the Project APE (Appendix A: Figure 4 [Lewis 1795]). Two established roads are illustrated leading to Morgantown from Maryland; the road traveling southeast of Morgan's Town is likely modern day Kingwood Pike. No other settlements are indicated in the area, and the closest identified towns were Pittsburgh, Pennsylvania to the north and Fort Cumberland, Maryland to the east (Lewis 1795).

In 1803, Jonathan Coburn sold his property southwest of the APE to George Dorsey who moved to the area from Elk Ridge, Maryland, a suburb of Baltimore. The natural rock formation on the property became known as Dorsey's Knob and functioned as a tourist attraction beginning in the late 19th century. An 1827 map of Virginia shows the early development around the APE and Morgan's Town, labeled at this time as Morgantown (Appendix A: Figure 5 [Boye 1827]). A larger network of early roads is illustrated around Morgantown, while grist mills and iron furnaces were situated along the rivers and smaller streams. Two grist mills and two iron furnaces are illustrated along Deckers Creek (Boye 1827).

Agriculture and iron industries sustained the economy of Monongalia County into the middle of the 19th century. Morgantown was formally incorporated in 1858. Monongalia County supported the Union during the Civil War, and Morgantown was briefly raided in 1863, the same year West Virginia acquired its statehood (Carvell 2018). After West Virginia was formed, the Morrill Act of 1863 awarded Morgantown a land grant for a college. Morgantown was considered a favorable location due to the existing academic buildings of the Monongalia Academy (established in 1814) and the Morgantown Female Collegiate Institute (established in 1831). The West Virginia Agricultural College was organized in 1867 and the following year the name of the college was changed to West Virginia University, as it is known today (Carvell 2018).

White's *Topographical County and District Atlas of West Virginia* of 1873 shows a general overview of the Project APE and nearby Morgantown (Appendix A: Figure 6 [White 1873]). The road network around Morgantown continued to develop and numerous small communities with established post offices surrounded the city. Kingwood Pike is illustrated traveling southeast from Morgantown along the border of the Morgan and Clinton Districts (White 1873).

In 1886, the Fairmont, Morgantown, and Pittsburgh Branch of the Baltimore and Ohio (B&O) Railroad was constructed to Morgantown. The line was eventually constructed to Connellsville, Pennsylvania, providing service from Morgantown to Pittsburgh and Cumberland (Carvell 2018; Frey 2018). An 1886 map of Monongalia County, including the Morgan District, illustrates the Project APE and Morgantown (Appendix A: Figure 7 [Lathrop 1886]). The orderly grid of Morgantown is illustrated on the east bank of the Monongahela River. The Fairmont, Morgantown, and Pittsburgh Branch of the B&O Railroad is illustrated traveling along the east bank of the river to its terminus in the southwestern area of the city. The alignment of Kingwood Pike is illustrated traveling through the APE. The Dorsey School House No. 1, the original school building on the site which has since been replaced by a ca. 1920 building, was at this time located at the intersection of Kingwood Pike (labeled on the map as the Kingwood, Morgantown, and West Union Turnpike) and modern day Luckey Lane. No roadway following the modern path of Greenbag Road existed at this time. Members of the Dorsey family were still living in the vicinity of Dorsey's Knob southwest of the APE. Other surnames in the immediate vicinity of the APE include Anderson, Morris, Patton, Wood, and Campbell (Lathrop 1886).

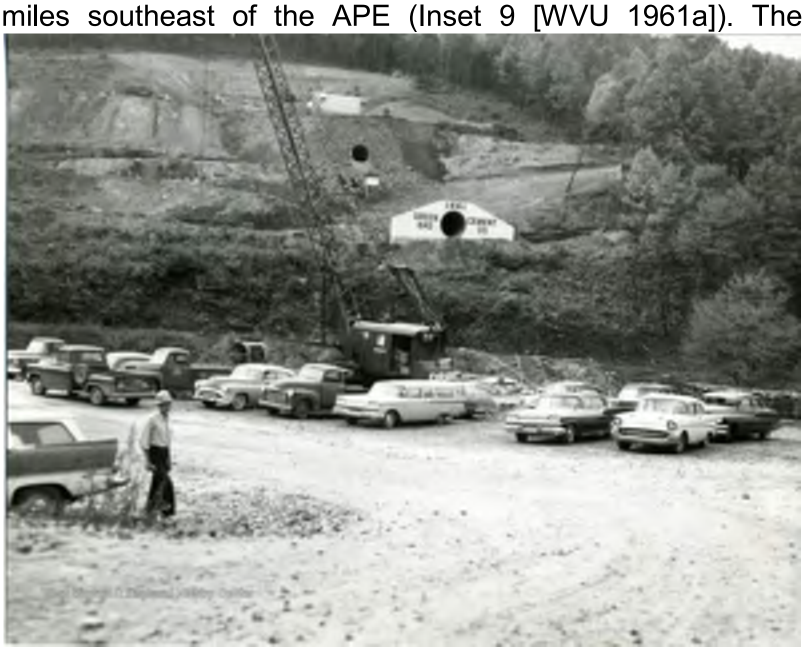
Oil was discovered in central Monongalia County (northwest of the APE) in 1889 which prompted an oil boom throughout the county. The Eureka Pipeline Company, a subsidiary of Standard Oil of Ohio which was founded by John D. Rockefeller, was organized in 1890 to transport oil extracted in West Virginia via pipelines. The company acquired a large amount of land along Coburn Creek (referred to presently as Cobun Creek) northwest of the APE and south of Morgantown for a pumping station and storage tanks to hold oil waiting for transport. Eight tanks were constructed by the end of 1890 and seven more were proposed for the following year. Each tank held approximately 25,000 to 30,000 barrels of oil (Core 1982:143-144). Two photographs from 1895 show a collection of oil tanks south of Morgantown dotting the rolling landscape of rural Monongalia County (Appendix A: Figures 8 and 9 [WVU 1895a and 1895b]). The close of the 19th century also saw the first coal mines opened in Monongalia County. With an established railroad network and the discovery of the lucrative Pittsburgh Coal Seam in central and eastern Monongalia County, mining companies and workers were drawn to the area (Carvell 2018).

The storage tanks of the Eureka Pipeline Company are illustrated as dots northwest of the APE on a 1902 topographic map (Appendix A: Figure 10 [USGS 1902]). The oil tanks were located to the southwest of modern day Dorsey Avenue and mostly north of Cobun Creek. In the vicinity of the APE, a few dwellings were scattered along the existing road network although the area was rural and largely undeveloped. Dorsey Knob is illustrated south of the APE; it was by this time a local tourist attraction and popular picnic spot (USGS 1902). In 1909, the organization of a chapel was proposed after several successful Methodist revival meetings were held at the Dorsey School House. As a result the Harner Chapel was constructed opposite the school on the north side of Luckey Lane, east of Dorsey Avenue. The chapel was formally dedicated in 1914. The land for the chapel was donated by Fairchild Harner, who owned land in the vicinity of the APE, as well as elsewhere in Monongalia County (The Monongalia Historical Society 1954).

A 1925 topographic map shows additional oil storage tanks constructed within and surrounding the western limits of the APE (Appendix A: Figure 11 [USGS 1925]). Morgantown continued to expand to the southwest nearer to the APE, and Kingwood Pike was signed as a highway by this time. A church (MG-1332 / Harner Chapel) and school (MG-2651 / Dorsey School) are labeled at the intersection of Dorsey Avenue and Luckey Lane, although they are not named as were other churches and schools in the vicinity. The school illustrated on the map is likely the existing ca. 1920 Dorsey School standing at the intersection today. An early road alignment in the vicinity of what would become Greenbag Road is illustrated west of the APE traveling through the oil tank field (USGS 1925).

As Morgantown advanced into the middle of the 20th century, its economy was sustained by the established coal industry which saw a boom during both World Wars. Agriculture supplemented the economy of the county. West Virginia University doubled its enrollment after World War II, and the campus expanded rapidly in response (Carvell 2018). While development within Morgantown was steady, little change had taken place in the vicinity of the APE by the middle of the 20th century. A 1957 topographic map shows that some additional residential development had occurred at the intersection of Kingwood Pike and Luckey Lane (Appendix A: Figure 12 [USGS 1957]). Both Harner Chapel and the Dorsey School are labeled at the intersection. A cemetery is labeled outside of the APE to the west of the church and school. The vast field of oil tanks illustrated in the previous topographic maps was at this time reduced to just three as the oil industry waned within the county by the late 1930s (Allen and Matchen 2017). No extant remnants of the oil tanks or associated infrastructure were noted within the APE.

In the early 1960s, the Green Bag Cement Company of Pittsburgh established a limestone plant on Deckers Creek near the unincorporated community of Greer, located approximately 5.75 miles southeast of the APE (Inset 9 [WVU 1961a]). The company bought land south of Morgantown and west of the APE along the Monongahela River and constructed a loading dock to ship their products to Pittsburgh on barges (Inset 10 [Rote 2015:52; WVU 1961b]). The company also paid for the construction of a four and a half mile bypass road leading from their docks south of Morgantown to Sabraton located roughly 1.46 miles to the east of Morgantown and 1.80 miles northeast of the APE. Greenbag Road, which was named for the company, was constructed to provide a throughway from Route 119 south of Morgantown to Route 7



Inset 9. Greenbag Cement Company plant near Greer, Monongalia County, ca. 1961 (WVU 1961a).

Inset 10. Greenbag Cement Company loading dock along the Monongahela River west of Project, ca. 1961 (WVU 1961b).

near Sabraton (Rote 2015:52). The construction of Greenbag Road encouraged the residential, commercial, and industrial development of the rural area surrounding the APE.

The relatively undeveloped and rural setting along Greenbag Road also made it an ideal location for the creation of an experimental juvenile detention facility that was constructed just south of the APE in 1968. The MG-2645 / Robert F. Kennedy Youth Center (now known as the FCI Morgantown Kennedy Center) was designed as a prototype for the experimental penal system model known as "unit management", a management model in which juvenile offenders were treated more as students and put into groups of 5-200 managed by multidisciplinary teams. (Kasey 2015:51; Balchen 1971:15). The sprawling campus-style complex covers approximately 103 acres and was built on former farm land likely owned at one time by heirs of George Dorsey.

Development around the APE progressed during the 1960s and into the 1970s. MG-2655 / Mountain View Manor, a multi-unit housing complex, was constructed around 1970 north of the APE and west of Dorsey Avenue. A small housing development was constructed behind Mountain View Manor north of the APE on the west side of Dorsey Avenue. The postwar development is composed predominantly of Ranch and Split Level homes (see MG-2656 and MG-2657) typical for the time period and was laid out along three straight dead end roads extending southwest from Dorsey Avenue (Google Earth 2018). In the western limit of the APE, the construction of the MG-2643 / Mountaineer Mall in 1974 brought the first large-scale, air conditioned multi-store shopping center to northern West Virginia (Latrobe Bulletin 1975). The construction of the mall prompted more commercial construction in its vicinity on the north side of Greenbag Road. It was also during this time that the MG-2644 / Morgantown City Garage was constructed by the Mellon-Stuart Company of Pittsburgh, Pennsylvania. The company was well known in the Pittsburgh region for its railroad related construction and construction of grand office buildings in Pittsburgh. During the 1970s the company began to pursue more construction projects outside of Pittsburgh during the decline of the steel industry. The Morgantown City Garage is a very modest and utilitarian example of the firm's work (Funding Universe 2019).

A 1976 aerial photograph shows the APE and vicinity (Appendix A: Figure 13 [USGS 1976]). The area that was once made up of rural farm land now appears as a developed suburb of Morgantown. The complex of the detention facility, which by this time had been converted to an adult correctional institution, is visible on the south side of Greenbag Road. The housing development north of the APE on the west side of Dorsey Avenue is also visible. Two farms (MG-2646 and MG-2647) are shown on Kingwood Pike south of its intersection with Greenbag Road, and both the Dorsey School and Harner Chapel are visible at the intersection. The Mountaineer Mall dominates the western limit of the APE (USGS 1976).

Commercial and residential development north and south of the APE has continued into the 21st century, as evidenced in a modern aerial photograph (Appendix A: Figures 2 and 3 [Google Earth 2018]). Non-historic commercial and industrial development surrounds the Mountaineer Mall, while a large non-historic mobile home park is located on the north side of Greenbag Road west of its intersection with Kingwood Pike and Dorsey Avenue. Commercial and residential development has continued along Greenbag Road, particularly east of the intersection of Dorsey Avenue / Kingwood Pike and east of Jonathan Lane. Today, the heavily trafficked road is one of the main arteries in southeastern Morgantown.

5.0 FIELD RECONNAISSANCE AND EVALUATIONS

Markosky identified 25 structures that are 45+ years old within the Project APE, one of which was the previously recorded MG-1332 / Harner Chapel. Two of the structures surveyed within the APE were recommended as NRHP eligible: the MG-2641 / Campbell Farmhouse and the MG-2645 / FCI Morgantown Kennedy Center / Robert F. Kennedy Youth Center. A summary of the 45+ year old structures in the APE is provided below (Table 1) and a detailed description of each structure including setting, physical description, and discussion of significance follows. All of the identified 45+ year old structures in the APE are mapped on Figure 2 in Appendix A and photographs of each are included in Appendix C. The locations of the photographs are mapped on Figure 14 in Appendix A. WV HPI forms for all 25 structures are included in Appendix F.

Table 1. Summary of Identified Historic Structures in APE

WV SHPO Inventory ID	Address	Common / Historic Name	Year Built	Style or Type	Recommended NRHP Eligibility
MG-1332	100 Luckey Lane	Harner Chapel	Ca. 1914	Gothic – Carpenter	Not Eligible
MG-2640	796 Greenbag Road	House at 796 Greenbag Road	Ca. 1940	Craftsman Style Bungalow	Not Eligible
MG-2641	834 Greenbag Road	Campbell Farmhouse	Ca. 1886	Italianate	Eligible, Criterion C
MG-2642	851 Greenbag Road	House at 851 Greenbag Road	Ca. 1970	Modern; Ranch	Not Eligible
MG-2643	5000 Greenbag Road	Mountaineer Mall	1974	Late 20th Century Commercial	Not Eligible
MG-2644	2020 Mississippi Street	Morgantown City Garage	1975-1976	Modern Garage/Storage	Not Eligible
MG-2645	446 Greenbag Road	FCI Morgantown Kennedy Center / Robert F. Kennedy Youth Center	1968	Modern; Ranch	Eligible, Criterion A
MG-2646	87 Kingwood Pike	Patton Farm	Ca. 1880	National Folk	Not Eligible
MG-2647	27 Kingwood Pike	Anderson House	Ca. 1922	American Four-Square	Not Eligible
MG-2648	1440 Dorsey Avenue	House at 1440 Dorsey Avenue	Ca. 1915	Bungalow	Not Eligible

WV SHPO Inventory ID	Address	Common / Historic Name	Year Built	Style or Type	Recommended NRHP Eligibility
MG-2649	1436 Dorsey Avenue	Smith House	Ca. 1915	American Four-Square	Not Eligible
MG-2650	1451 Dorsey Avenue	Atomic Grill	1974	Late 20th Century Commercial	Not Eligible
MG-2651	1433 Dorsey Avenue	Monongalia County Head Start / Dorsey School	Ca. 1920	Classical Revival	Not Eligible
MG-2652	1432 Dorsey Avenue	House at 1432 Dorsey Avenue	Ca. 1915	Bungalow	Not Eligible
MG-2653	102 Luckey Lane	House at 102 Luckey Lane	Ca. 1940	Minimal Traditional	Not Eligible
MG-2654	104 Luckey Lane	House at 104 Luckey Lane	Ca. 1940	Minimal Traditional	Not Eligible
MG-2655	1201 – 7304 Mountain View Manor	Mountain View Manor	Ca. 1970	Modern	Not Eligible
MG-2656	500 Parkway Drive	House at 500 Parkway Drive	Ca. 1970	Modern Ranch	Not Eligible
MG-2657	502 Parkway Drive	House at 500 Parkway Drive	Ca. 1970	Modern Split-Level	Not Eligible
MG-2658	693 Greenbag Road	House at 693 Greenbag Road	Ca. 1955	Modern Ranch	Not Eligible
MG-2659	703 Greenbag Road	Clinton Water Association	Ca. 1900	American Four-Square	Not Eligible
MG-2660	710 Greenbag Road	House at 710 Greenbag Road	Ca. 1930	American Four-Square	Not Eligible
MG-2661	Mississippi Street at Greenbag Road	Cobun Creek Culvert	Ca. 1965	20th Century Box Culvert	Not Eligible
MG-2665	918 Greenbag Road	The Sube Shop	Ca. 1970	Commercial	Not Eligible
MG-2666	Greenbag Road at Aaron Creek	Aaron Creek Box Culvert	Ca. 1966	Continuous Concrete Culvert	Not Eligible

5.1 MG-1332 / Harner Chapel
100 Luckey Lane

MG-1332 / Harner Chapel is located on the northeast quadrant of the intersection of Luckey Lane and Dorsey Avenue. The chapel is located approximately 1.55 miles southeast of the city of Morgantown and is set within an area of mixed single family and multi-unit residences and commercial development. Harner Chapel was previously surveyed in 1982, but it was not evaluated for NRHP eligibility (Toth 1982). Harner Chapel is a ca. 1914 Carpenter Gothic frame building covered in vinyl siding and capped by a hipped roof covered in asphalt shingle (Appendix C: Photograph 1). The chapel rests on a rock faced concrete block foundation, and its façade features a narthex with a full height bell tower capped by a simple ca. 1990 spire with fixed Gothic arch windows. The fenestration of the chapel consists of Gothic arch windows and paired vinyl sash, one-over-one windows in the ca. 1955 two-story rear addition. A ca. 1990 partial width, shed roof addition has been appended to the northeast elevation. The reconfiguration of the bell tower with a non-historic spire, the large rear addition, and the use of replacement roofing and cladding materials has compromised the historic integrity of the chapel.

Harner Chapel was organized in 1909. The impetus for its organization and eventual construction was the success of Methodist revival meetings that were held at the Dorsey Schoolhouse (which was replaced by the Dorsey School ca. 1920). The land for the chapel was donated by local resident Fairchild Harner and the chapel was dedicated in 1914 (The Monongalia Historical Society 1954:82). In 1939 the chapel became known as the United Methodist Church, and the rear addition was added ca. 1955 (Toth 1982:4). The chapel continues to hold services.

No information was recovered linking the Harner Chapel to events significant on the local, state, or national level. The chapel stands as a common example of an early 20th century rural religious structure which can be found throughout Monongalia County. Therefore, Harner Chapel is not eligible for NRHP listing under Criterion A. The land on which the chapel was built was donated by Fairchild Harner, a local resident. No information was recovered to suggest that Harner was significant on the local, state, or national level. Therefore, Harner Chapel is not eligible under Criterion B.

Harner Chapel stands as a common, unexceptional, and altered example of a rural religious structure. Harner Chapel does not possess high artistic value, represent the work of a master, or embody the distinctive characteristics of a type, period, or method of construction. Therefore, it is not eligible for listing under Criterion C. The church has not been evaluated for significance under Criterion D for its potential to yield information important to the understanding of history or prehistory. The church is not eligible for NRHP listing under Criteria Consideration A: Religious Properties as it is not significant on architectural, artistic, or historic grounds.

5.2 MG-2640 / House at 796 Greenbag Road
796 Greenbag Road

MG-2640 / House at 796 Greenbag Road sits at the top of a steep drive in a heavily wooded lot on former farmland on the south side of Greenbag Road. It is surrounded to the west, south, southeast, and northeast by non-historic churches that have been built to serve the increasingly suburban area.

The altered house appears to be a late (ca. 1940) example of a Craftsman Style bungalow with front and rear shed roof dormers protruding from the steep side gable roof (Appendix C: Photograph 2). It retains knee braces under the gables, but otherwise features replacement siding, roofing, and windows. The formerly open integral front porch has been partially enclosed. An outbuilding--presumed to be a detached garage--was obscured by tree cover.

The House at 796 Greenbag Road represents an altered and unremarkable example of a common house type from the early 20th century. It does not appear to be associated with any significant events; it is not associated with any people of demonstrated significance; and it is not distinguished for its architectural design. It is not eligible for NRHP listing under Criteria A, B, or C. It has not been evaluated under Criterion D.

5.3 MG-2641 / Campbell Farmhouse
834 Greenbag Road

MG-2641 / Campbell Farmhouse located at 834 Greenbag Road is a two-story Italianate farmhouse, which was constructed ca. 1886. It sits on a flattened hilltop above Greenbag Road on a property comprised of gently rolling farmland with a meandering creek, several tree lines, and a number of outbuildings dating to the mid-20th century. The 19th century farm formerly occupied at least 126 acres in the vicinity of Aaron Creek, but its tax parcel currently measures closer to 23.9 acres since much of the former farmland has been subdivided and sold off to support nearby suburban development. It is surrounded by mid- and late 20th century residences and housing developments, commercial buildings, and several non-historic churches.

A long gravel driveway leads up a steep embankment from Greenbag Road at the north edge of the farm to the two-story brick Campbell Farmhouse at the heart of the farmstead (Appendix C: Photograph 3). The Italianate farmhouse, which was built ca. 1886, has a T-shaped plan formed by the five bay front section of the farmhouse and a perpendicular two-story rear ell. The farmhouse has a three gable roof with prominent gable returns and replacement asphalt shingle roofing. Two interior end brick chimneys flank the main section of the house and a third brick chimney is located at the center of the rear ell. The brick walls are laid in an American common bond pattern with seventh row headers and feature tall segmental arch window openings on all elevations, although at least one window on the south (side) elevation has been bricked in and one window on the east (rear) elevation has been resized. The current windows are one-over-one metal sash replacements. The farmhouse has a full width front porch with a shallow half hipped roof, turned posts, and scroll sawn brackets. Similar scrolled brackets line the cornice under the eaves. A secondary porch is located on the north elevation of the rear ell. The farmhouse has the characteristic massing, design, and ornamentation of a classic Italianate Style dwelling.

The other buildings on the property are part of the setting of the Campbell Farmhouse, but they do not contribute to its significance. They represent changes made to the property in the 1940s and 1950s that replaced the earlier outbuildings and farm structures that would have been associated with the farmhouse historically. A two-tone concrete block dairy barn from ca. 1948 is located behind the farmhouse to the east (Appendix C: Photograph 4). The upper story of the main section of the barn has a frame structure clad with faux brick asphalt sheeting over vertical wood boards. A contemporary one-story milkhouse section is appended to the south elevation of the barn, and two concrete stave silos from ca. 1954 are located behind the barn to the east. A small frame barn that appears to date to ca. 1948 is located to the east of the barn but was not visible for survey with limited access to the property. A secondary dwelling, built ca. 1940, is located to the north of the dairy barn closer to Greenbag Road (Appendix C: Photograph 4). The one-story front gable dwelling is vacant and is in a partially dilapidated state with a partially removed front porch and collapsing roof. It is clad with a mixture of particle board, plywood, and weatherboard. There is also a small outbuilding from ca. 1940 located at the end of a row of pine trees to the southwest of the farmhouse. The one-story, rectangular plan outbuilding appears to have a structure composed of both concrete block and frame. It has a front gable roof that is covered in tar paper and an exterior brick chimney on the west (side) elevation.

The Campbell Farmhouse retains its integrity. Despite a few alterations to its historic form (replacement windows and roofing as well as minor changes to the fenestration pattern), the farmhouse retains its integrity of design, materials, and workmanship. Its location remains intact, and its immediate setting remains rural and agricultural though the surviving outbuildings date from a later period. Its larger setting has been impacted by the loss of more than 100 acres of farmland and relatively dense highway-oriented suburban development. The Campbell

Farmhouse retains the feeling of a late 19th century Italianate farmhouse, but it lacks the association with former outbuildings and farmland.

The deed history for the property refers to the bulk of the farm (about 100 acres) as the Bunner Home Farm, but also associates the property with a 26-acre holding that formerly belonged to the Campbell Family that was consolidated in the late 19th century (Monongalia County Deeds). A detailed map of the Morgan District from 1886 identifies the home of Dr. F. Campbell at the approximate location of the farmstead, and the deed history suggests that it was around this era that the farm was established, which is corroborated stylistically by the architecture of the Italianate farmhouse. L.F. Campbell was listed in the 1880 federal population census as a 59 year old physician suffering from rheumatism, who was living in the Morgan District of Monongalia County with his wife Eliza and his 14 year old son William (US Census 1880).

By 1911, the farm with the Campbell Farmhouse was fully under the control of the Bunner family and being referred to as the Bunner Home Farm. In that year, the property was transferred by the last will and testament of Emma J. Bunner to her husband Francis M. Bunner and their son Thompson Orth Bunner (Monongalia County Wills 1911). The 1910 population census records 60 year old Emma J. Bunner living on the farm with her husband, who was a steamboat engineer, their son Arthur, who was a farm laborer, a servant, and three boarders (US Census 1910). Ten years later in 1920, the census describes Orth T. Bunner as a 34 year old farmer living on a dairy farm with his wife Bessie and their 13 year old nephew (US Census 1920).

In 1920, the deed recording the sale of the farm from Thompson Orth Bunner to a single woman named Mabel Student provided additional information about the personal property situated on the Bunner Home Farm:

> Seventeen (17) head of milch cows; three (3) heifers coming two years old; one (1) registered Holstein Bull; five (5) head of calves six months old; all dairy equipment including Empire Mechanical Milker and gasoline engine; two (2) road wagons; one (1) milk wagon, plow, harrows, and all other machinery now on said farm, three (3) head of work horses, one thousand dollars ($1,000.00) worth of stock in a Percheron Stallion named “Impotent” and two (2) sets of work harness (Monongalia County Deeds 1920).

The deed also referenced a silo on the property, which predated the two ca. 1954 silos located there currently. The following year, Mabel Student sold the 126-acre property to George Yuhost and Howard Jenkins and made reference to additional farm equipment—two mowing machines, one hay fork, plows, cultivators, one grain drill, and one corn drill—in the deed (Monongalia County Deeds 1921).

Howard Jenkins and his wife Goldie Pearl Jenkins lived on the dairy farm with their children through the 1930s and 1940s (US Census 1930 and 1940). Beginning ca. 1940, the concrete block outbuilding and the frame secondary dwelling were added to the property. Ca. 1948, a concrete block dairy barn with milkhouse and a smaller frame barn were constructed; it is assumed that they replaced earlier barns and outbuildings. Ca. 1954, two concrete stave silos were erected between the two barns.

The former Bunner Home Farm continued to operate as a dairy farm under Jenkins, though by the early 1940s, sections of the farm began to be parceled off for sale. After the construction of Greenbag Road in the mid-1960s, which replaced a narrow rural road by excavating a slightly revised path at the current north edge of the farm parcel, the trend to make more of the former farmland available for development continued. The farm is currently surrounded by suburban development with non-historic church properties located to the south, west, and northwest; individual residences located to the west and north; a residential development located to the north; and commercial development located to the northwest, northeast, and east.

The Campbell Farmhouse is recommended as eligible for listing in the National Register of Historic Places (NRHP) under Criterion C for Architecture as an intact and evocative example of an Italianate farmhouse. The larger farm property was evaluated under Criterion A for Agriculture, but it failed to convey a sense of its historic appearance and production as a late 19th/early 20th century dairy farm. None of the Campbells, Bunners, and the Jenkinses appear to meet the requirements for significance under Criterion B. The property was not evaluated under Criterion D for its potential to provide information important to the understanding of history or prehistory.

The recommended National Register boundary for the Campbell Farmhouse relies on natural and manmade features to provide an appropriate context for the Italianate dwelling that includes substantial farmland within its 10.9-acre area as well as the numerous mid-20th century outbuildings that are part of the farmhouse's setting even though they do not contribute to its significance. The boundary begins on the north side following the top of the embankment above Greenbag Road that was created during the excavation and construction of the road in the mid-1960s; this embankment varies in height from roughly ten to seventeen feet. The top of the embankment is lined with trees, and its elevation obscures views of the roadway below. To the east and south, the recommended boundary follows the meandering path of Aaron Creek and its unnamed tributary, and to the west the boundary follows the driveway leading from Greenbag Road to the Covenant Evangelical Methodist Church.

The recommended period of significance for the property is ca. 1886 to represent the period when the Italianate farmhouse was built.

5.4 MG-2642 / House at 851 Greenbag Road 851 Greenbag Road

MG-2642 / House at 851 Greenbag Road is located in a suburban area to the southeast of the Morgantown city limits. The recent nearby development (post-2000) of a commercial warehouse complex (to the west) and a townhome residential plan (to the east) occupy former farmland.

The one-story hipped roof ranch residence has a partially-exposed basement level featuring an integral two-car garage (Appendix C: Photograph 5). A one-bay front porch was added to the house ca. 2010 and a three-season rear enclosed porch was added ca. 2010. A lower level side porch was also added ca. 2010.

MG-2642 / House at 851 Greenbag Road represents an unremarkable example of a common house type from the postwar era (ca. 1970). It does not appear to be associated with any significant events; it is not associated with any people of demonstrated significance; and it is not distinguished for its architectural design. It is not eligible for NRHP listing under Criteria A, B, or C. It has not been evaluated under Criterion D.

5.5 MG-2643 / Mountaineer Mall
5000 Greenbag Road

MG-2643 / Mountaineer Mall is located on the south side of Greenbag Road and east of Route 119 on a bluff above the Monongahela River. The shopping mall is surrounded by wooded areas as well as commercial and industrial buildings, the majority of which were built after construction of the mall was completed. The mall is located approximately 1.66 miles southwest of Morgantown.

The Mountaineer Mall, an approximately 500,000 square foot steel frame enclosed shopping center, was constructed in 1974 by Dill Construction Company of Latrobe, Pennsylvania (Appendix C: Photographs 6-8 [Morgantown Dominion-Post 1974]). The original architect of the mall is presently unknown. Its original footprint was a long, roughly rectangular shape with small asymmetrical projections on each elevation. The shopping mall is covered in stretcher bond brick, aluminum panels and tiles, and smooth and rock faced concrete block in portions of the rear (southeast) elevation. The mall features multiple entrances, each with a variation of a Post Modern projecting semi-circular arched entryway that likely dates from the ca. 1987 additions and updates to building. The ca. 1987 addition projects from the northwest elevation of the mall.

The present main entrance to the mall is located on the northwest corner of the ca. 1987 addition. The angled entrance leads to a wide walkway that travels diagonally through the double height addition. Interior materials include terrazzo floors, glazed brick and tile pilasters decorating the walls, and brick veneer applied to some walls. The interior is decorated with simple free standing wood planters along with L-shaped and triangular planters covered in white tile. Decorative domed recessed lighting with simulated leading is located in the center of the addition. The addition is connected to the original portion of the mall by a terraced walkway flanked by steps featuring a wood handrail with brass railings. Clerestory windows are located above the central cross axis of the original 1974 section of the mall. The 1974 section is organized along a wide double loaded corridor with a secondary perpendicular walkway providing access to some of the shopping mall's original anchor tenants at the center of the complex. The northeast and southwest sections of the mall which originally housed anchor stores now function as office space.

The Mountaineer Mall brought the first large-scale, air conditioned multi-store shopping center to northern West Virginia (Latrobe Bulletin 1975). Laurel of Morgantown, a subsidiary of the Laurel Development Company of Latrobe, Pennsylvania, was responsible for the development of the 75 store mall whose anchor stores included Montgomery Ward, J.C. Penney, G.C. Murphy, and a Giant Eagle grocery store. The mall was constructed by Dill Construction Company of Latrobe, Pennsylvania and was financed by Equibank N.A. of Pittsburgh, which had also financed two large scale hotels near Morgantown and an extended care nursing facility near the West Virginia University Hospital (Morgantown Dominion-Post 1974; Latrobe Bulletin 1975). The Mountaineer Mall saw its peak in the late 1970s and into the early 1980s. In 1990, however, the Morgantown Mall was opened nearby on the west side of the Monongahela River with direct access to Interstate 79 roughly two and half miles northwest of the Mountaineer Mall. Mountaineer Mall immediately lost one of its anchor stores when J.C. Penney relocated to the Morgantown Mall shortly after it opened. As more retailers left the mall in the late 1990s and into the first decade of the 2000s, the mall began to lease space for offices. Current tenants include Fresenius Kidney Care, Mylan, TeleTech, Focus Mon Learning Center, and Mountaineer Home Medical, as well as other retail and non-retail tenants (Way 2010).

No information was recovered linking the Mountaineer Mall to events significant on the local, state, or national level. Therefore, it is not eligible for listing in the NRHP under Criterion A. No information was recovered to suggest the mall was historically associated with individuals significant on the local, state, or national level. Therefore, it is not eligible for listing under Criterion B. Mountaineer Mall stands as a common and unexceptional example of late mid-century commercial architecture and construction technique. The mall was constructed by Dill Construction Company of Latrobe, Pennsylvania. However, the company was a small firm operating primarily in southwestern Pennsylvania and the mall is not a noteworthy example of the company's work. The mall has also undergone a loss of integrity due to a major addition, the removal of original interior decorative material, and alterations to original entrances in 1987. It does not possess the architectural merit or high artistic value to be considered eligible for listing under Criterion C. The building has not been evaluated for significance under Criterion D for its potential to yield information important to the understanding of history or prehistory.

5.6 MG-2644 / Morgantown City Garage
2020 Mississippi Street

MG-2644 / Morgantown City Garage is located on the northeast side of Mississippi Street approximately 384 feet north of its intersection with Greenbag Road. The garage complex is set within an area of commercial and residential development approximately 1.39 miles south of the city of Morgantown.

The Morgantown City Garage was constructed between 1975 and 1976 by the Mellon-Stuart Company of Pittsburgh, Pennsylvania (Appendix C: Photographs 9-11 [Morgantown Dominion-Post 1975b, 1975c, and 1976]). The steel frame pole barn is covered in ridged metal cladding. The structure is capped by a low-pitched side gable roof covered in standing seam metal roofing. The front (southwest) elevation of the garage features four oversized vehicle-bay openings.

A ca. 1975 barrel vaulted, prefabricated storage outbuilding set atop concrete blocks is located west of the garage. A ca. 2000 storage barn resting on a poured concrete foundation is located northwest of the garage. The barn is covered in vertical siding and capped by a front gable roof covered in asphalt shingle. Four additional outbuildings dating to ca. 1995 are located northwest of the garage; however, they were not visible from the public ROW.

No information was recovered linking the Morgantown City Garage to events significant on the local, state, or national level. Therefore, it is not eligible for listing in the NRHP under Criterion A. No information was recovered to suggest the building was historically associated with individuals significant on the local, state, or national level. Therefore, it is not eligible for listing under Criterion B. The Morgantown City Garage was constructed by the Mellon-Stuart Company of Pittsburgh, Pennsylvania (Morgantown Dominion-Post 1975b, 1975c, and 1976). The company was incorporated in 1917 and represented the merging of two Pittsburgh construction companies, one of which was owned by local financier Thomas Mellon. While the company specialized in railroad related construction, it was responsible for the construction of many notable office buildings in downtown Pittsburgh. The company is considered one of the oldest continually operating construction companies in the United States (Funding Universe 2019). However, the Morgantown City Garage does not represent a noteworthy example of the company's work. The Morgantown City Garage stands as a common and unexceptional example of a late mid-century utilitarian building. It does not possess the architectural merit or high artistic value to be considered eligible for listing under Criterion C. The building has not been evaluated for significance under Criterion D for its potential to yield information important to the understanding of history or prehistory.

5.7 MG-2645 / FCI Morgantown Kennedy Center / Robert F. Kennedy Youth Center 446 Greenbag Road

MG-2645 / Robert F. Kennedy Youth Center is an approximately 103-acre federal correctional institution complex located on the south side of Greenbag Road west of Kingwood Pike. The complex is located approximately 1.68 miles southeast of the city of Morgantown and is surrounded by dense woods to the south and east, while a collection of large commercial and industrial buildings are located to the west. As the complex is a functioning correctional institution, the buildings were not accessible during field survey.

The complex was constructed in 1968 and includes approximately 18 buildings. It currently functions as a minimum security Federal Correctional Institution (Appendix C: Photographs 12-15). The entrance of the complex features a sign made of brick piers; the area fronting Greenbag Road is delineated by a simple wood post fence. The buildings visible from the public ROW are one-story Ranch style buildings clad in polychrome brick with a frame structural system. The roof profiles include low pitched hipped roofs covered in asphalt shingle with overhanging eaves. The majority of the buildings in the complex are rectangular in plan with projecting wings. A 1968 article in the Morgantown Dominion News shows a photograph of a mid-century Modern building although its use was not disclosed. The building, which appears to be a focal point within the complex, is clad in stone veneer and features a stylized hyperbolic-type roof (see Appendix C: Photograph 11 [Morgantown Dominion News 1968]). The Robert F. Kennedy Youth Center was built in a campus style. The complex is surrounded by a driveway and has paved walking paths that connect the various buildings. Cobun Creek passes through the southern portion of the complex, and three footbridges carry the walking paths over the creek. The complex includes tennis courts and a baseball field. A review of modern aerial photographs indicates that two additional buildings were constructed in the southern section of the complex ca. 1997.

The Robert F. Kennedy Youth Center was constructed in 1968 using designs by C.E. Silling and Associates (known today as Silling Architects) from Charleston, West Virginia (Balchen 1971:13). The firm is the oldest continually operating architectural firm in West Virginia (Silling Architects 2018). Construction and planning was overseen by Gary Mote, who at the time was the principal architect with the Office of Facilities Development Division of the Federal Bureau of Prisons (Balchen 1971:15). According to a 1968 article in the Morgantown Dominion News, at the time the facility was dedicated the grounds included a large educational facility which housed classrooms, an auditorium, and an indoor swimming pool (Morgantown Dominion News 1968).

The facility was designed as a prototype for the experimental penal system model known as "unit management" and was considered a model for other correctional systems projects (Kasey 2015:51; Balchen 1971:15). In the unit management model, the juvenile offenders were put into groups of 50-200 and were managed by a multidisciplinary team. At the Robert F. Kennedy Youth Center, the juvenile offenders were referred to as students. The eventual goal was to "graduate" each student from the facility. The staff was to be available and approachable, and open communication between students and staff was encouraged. The housing units were referred to as cottages, and there were no fences or bars within the facility (Kasey 2015:51; Balchen 1971:15).

This experimental model resulted in reduced violence among inmates, reduced program costs, increased morale among inmates and staff, and lower recidivism rates, and it generally produced inmates who were better prepared to reenter society. Within a decade of its opening, the facility was transitioned to house adult male inmates and the unit management model was eventually adopted in prisons throughout the country (Kasey 2015:51; Balchen 1971:15). Today, the facility is known as the Morgantown Kennedy Center Federal Correctional Institution, and it houses non-violent offenders, the majority of which have committed crimes related to financial fraud.

The Robert F. Kennedy Youth Center is significant for its association with the penal history of the United States. The center was constructed as an experimental juvenile detention center employing the "unit management" penal system model. The model was considered a success and was eventually applied to adult correctional institutions across the United States. The website of the Federal Bureau of Prisons includes a historical timeline outlining significant events related to United States prisons beginning in 1891 when the Federal Prison System was established. The opening of the Robert F. Kennedy Youth Center in 1969 is included on this timeline; the center is recognized for the innovative concepts and programs it implemented. The establishment of the center represents a significant moment in the institutional history of the Federal Bureau of Prisons (Federal Bureau of Prisons 2018). For this reason, the Robert F. Kenney Youth Center is eligible for NRHP listing under Criterion A. No information was recovered linking the prison to individuals significant on the local, state, or national level. Therefore, the complex is not eligible for NRHP listing under Criterion B.

The Robert F. Kennedy Youth Center was designed by C.E. Silling and Associates. The firm is known today as Silling Architects and is the oldest continually operating architectural firm in West Virginia. The firm designed numerous buildings in West Virginia which included academic buildings, health care facilities, prisons, airports, courthouses, and banks (Gioulis 2011:3). However, because the complex was not accessible during field survey there is not enough information to confirm the significance or integrity of the architectural design. Eligibility under Criterion C is not able to be determined. The complex has not been evaluated for significance under Criterion D for its potential to yield information important to the understanding of history or prehistory.

5.8 MG-2646 / Patton Farm
87 Kingwood Pike

MG-2646 / Patton Farm is located within an approximately 9.9 acre parcel on the east side of Kingwood Pike, approximately 0.21 miles south of its intersection with Greenbag Road. The surrounding area consists of dense woods to the east and south and an area of residential and commercial buildings to the north in the vicinity of Kingwood Pike and Greenbag Road.

The primary resource of the Patton Farm is a ca. 1880, two-story frame farmhouse (Appendix C: Photograph 16). The house is clad in vinyl siding and rests on a roughly coursed stone foundation. The three-gable roof is covered in standing seam metal and a two-story ell projects from the rear (southeast) elevation. Fenestration consists of replacement, metal sash one-over-one windows. Pairs of historic-era quarter round windows are extant in the gable ends. A hipped roof porch supported by square wood posts wraps around the façade (northwest elevation) and side (northeast elevation) of the farmhouse. The porch floor appears to be undergoing repairs.

Outbuildings on the property include a ca. 1880 root cellar located south of the farmhouse (Appendix C: Photograph 17). The root cellar is constructed of coursed stone and is capped by a front gable roof covered in corrugated metal with vertical board in the gable ends. A historic-era frame shed (Shed #1) is located to the northeast of the farmhouse (Appendix C: Photograph 18). The shed is clad in clapboard and capped by a front gable roof covered in standing seam metal. Another historic-era frame shed (Shed #2) is located to the northeast of Shed #1 (Appendix C: Photograph 18). The shed is clad in board and batten siding and is capped by a shed roof covered in corrugated metal with exposed rafter tails. A ca. 1980 pole barn clad in standing seam metal is located north of the farmhouse (Appendix C: Photograph 19). Another outbuilding that dates to ca. 1990 is located northeast of the pole barn but was not visible from the public ROW.

The Patton Farm is located within a parcel of land historically associated with George Dorsey, one of the earliest settlers in this area of Monongalia County. Dorsey came to the area in 1807 and acquired over 1,000 acres from Jonathan Coburn who had settled in the area in the late 18th century (Core 1976:379-381; Monongalia County Deeds 1803). The Patton Farm first appears on an 1886 map of Monongalia County (Appendix A: Figure 7 [Lathrop, et. al 1886]). The house is identified as belonging to Dr. F. (Frederick) Patton, the husband of Eliza Patton, who was the daughter of George Dorsey Jr. (Butcher 1912:873).

In 1893, Frederick and Eliza Patton deeded 205 acres of land to Philip Fairchild Harner. The deed indicates the land was formerly from the estate of George Dorsey Sr. and a cemetery was located on the property; the cemetery contained the graves of members of the Dorsey family and their servants (Monongalia County Deeds 1893). It is unclear if Philip Harner resided on the Patton Farm, as the 1900 population census indicates that he and his wife lived in the Greenmont area of Morgantown, which was to the north of the Patton Farm (US Census 1900). In 1902, Philip Harner conveyed the 205 acres to Jefferson and Virginia Smith (Monongalia County Deeds 1902). The 1910 population census lists Jefferson Smith as a 33 year old farmer living with his wife Virginia and their three young children (Jeanette, Ralph, and Mary). The 1920 population census more specifically indicates that Smith was a dairy farmer (US Census 1910 and 1920). A 1925 topographic map reveals that a mine was located southeast of the Patton Farm on the east side of Kingwood Pike (Appendix A: Figure 11 [USGS 1925]). Jefferson Smith died in 1933 and left his property to his wife Virginia (Monongalia County Wills 1933).

In 1947, Virginia Smith deeded approximately 9.9 acres of land, which is the present day acreage of the Patton Farm to her daughter Mary Virginia Smith (Monongalia County Deeds 1947). A 1957 topographic map reveals the Patton Farm also included a barn (not extant) which was likely built in the late 19th or early 20th century and used by Jefferson Smith on his dairy farm (Appendix A: Figure 12 [USGS 1957]). The mine referenced in the 1925 map was no longer extant. The area to the southeast and southwest of the Patton Farm was largely undeveloped (USGS 1957). Mary Smith died in 1991 and left the property to the Robert M. Hastings Trust. The land was conveyed to Dewey Samuel Hastings, Mary's nephew, in 1998 (Monongalia County Deeds 1998).

A modern aerial photograph reveals that the barn referenced in the 1957 topographic map has been demolished and replaced with a ca. 1980 pole barn (Google Earth 2018). Areas of residential development dating to the 1960s and 1970s are located northwest of the house on the north side of Greenbag Road. The area southeast of the Patton Farm comprises dense woods. The sprawling complex of the Morgantown Kennedy Center Federal Correctional Institution is located west of the Patton Farm on the west side of Kingwood Pike.

The Patton Farm is not eligible for NRHP listing under Criterion A. Although the property was associated with dairy farming in Monongalia Township, the historic-era barn is no longer extant and the property no longer conveys its association with agricultural history. The Patton Farm is associated with Dr. Frederick Patton and his wife Eliza Patton as well as the Smith family. However, no information was recovered to suggest the Patton or Smith families were significant on the local, state, or national level. Therefore, the Patton Farm is not eligible for NRHP listing under Criterion B.

The Patton Farm has undergone a loss of integrity due to alterations to the farmhouse (including replacement windows, replacement siding and roof materials, the alteration of the large porch, and the removal of characteristic architectural elements) and the property (loss of the historic barn and historically associated farmland). For these reasons, the Patton Farm is not eligible for NRHP listing under Criterion C. The farm has not been evaluated for significance under Criterion D for its potential to yield information important to the understanding of history or prehistory.

5.9 MG-2647 / Anderson House
27 Kingwood Pike

MG-2647 / Anderson House at 27 Kingwood Pike is located within a 0.55 acre parcel on the east side of Kingwood Pike, approximately 254 feet south of its intersection with Greenbag Road. The house is located on a slope overlooking Greenbag Road. The surrounding area consists of open fields formerly used as farm land to the east and west and an area of residential and commercial buildings to the north.

The Anderson House is a ca. 1922, two-and-a-half-story American Four-Square house standing two bays wide and four bays deep (Appendix C: Photographs 20 and 21). The house rests on an ashlar stone foundation and is covered in stretcher bond brick. The hipped roof features overhanging eaves and is covered in asphalt shingle. The roof is pierced by two interior brick chimneys and includes three hipped roof dormer windows clad in vinyl siding. Fenestration consists of replacement one-over-one and vinyl sash windows with simple stone sills. The porch on the façade (west elevation) has been enclosed with vinyl sash hopper windows. The original entrance is located within the porch and an alternate entrance is now located on the south elevation. A one-story, partial width addition has been appended to the rear (east) elevation. A ca. 1980, two-bay detached garage clad in standing seam metal is located east of the house and a ca. 2010 pole barn located farther to the northeast was not visible from the public ROW.

The Anderson House was built ca. 1922 on land once owned by George Dorsey, an early settler who came to this area of Monongalia County in 1807 (Core 1976:381). Eliza (Dorsey) Patton and her husband Dr. Frederick Patton sold 73 acres of this land to George W. Morris in 1882 (Monongalia County Deeds 1882). An 1886 map of Monongalia County indicates there was no dwelling in the vicinity of the Anderson House at that time, although the land was occupied by J.E. Morris (Appendix C: Figure 7 [Lathrop, et. al 1886]). The residence of Dr. F. (Frederick) Patton is illustrated on the east side of the Kingwood, Morgantown, and West Union Turnpike (modern day Kingwood Pike) south of where the Anderson House is now located. The map also reveals that at this time, John Anderson (a future owner of the property) lived to the southwest of Frederick Patton along a no longer extant road. The greater vicinity at this time was dotted with dwellings along the established roadways. The Dorsey School House No. 1 was located north of John Anderson's land at the intersection of the Kingwood Pike and modern day Luckey Lane (Lathrop, et. al 1886).

In 1900, George Morris deeded his 73 acres to John Anderson and his wife Tillie (Monongalia County Deeds 1900). According to the 1900 population census, John Anderson was a 53 year old farmer residing in a house with his wife Matilda (Tillie) and their three young sons (David J., Ray, and Roy) (US Census 1900). There is no dwelling indicated in the vicinity of the Anderson House on a 1902 topographic map. John Anderson died in 1913, and his will stipulated that his land was to be divided among his three sons. In 1922, Tillie, Ray, and Roy Anderson conveyed their shares of the 73-acre property to David Anderson (referred to in the property deeds as John D. Anderson) (Monongalia County Deeds 1922). David and his wife Opal had also acquired 62 acres of adjoining land in 1919 (Monongalia County Deeds 1919). A 1925 topographic map indicates that the Anderson House was constructed by this time on the east side of Kingwood Pike (Appendix C: Figure 11 [USGS 1925]). The Dorsey School House and a church (Harner Chapel) were located to the north of the house at the intersection of the Kingwood Pike and Luckey Lane. Dwellings were located along the established roads to the east and south.

David and Opal Anderson acquired an additional 31 acres of land from John and Ella Frum in 1926 for a farm covering approximately 166 acres (Monongalia County Deeds 1926). The 1930 population census indicates that David Anderson was a 37 year old farmer working on his own dairy farm (US Census 1930). He lived in a household with his wife Opal (also age 37), their three young children (John D., Richard, and Eleanor), and two boarders who worked on the farm. A 1957 topographic map indicates the property also contained a barn (no longer extant), which was located northeast of the Anderson House and was likely built around the same time (Appendix C: Figure 12 [USGS 1957]). Dwellings were scattered intermittently along the Kingwood Pike to the south and more concentrated development was beginning to occur to the north. The area to the southwest of the Anderson House was largely undeveloped.

David Anderson died in 1975, and in 1979, his son Richard, along with his wife Rachelle Anderson, deeded the three tracts of land to his siblings Elinor Richards and John D. Richards (Monongalia County Deeds 1979). In 2011, the approximately one-half acre subdivided parcel containing the Anderson House was conveyed to Garrett Richards, a grandson of Elinor Richards (Monongalia County Deeds 2011c). The large field located to the east of the Anderson House remains in the Richards family as part of a separate tax parcel (Monongalia County Deeds 2011b). The garage located northeast of the house was constructed ca. 1980 (Google Earth 2018). Greenbag Road, which was constructed in the early 1960s, extends east-west to the north of the Anderson House. Areas of residential development dating to the 1960s and 1970s are located northwest of the house on the north side of Greenbag Road. The sprawling complex of the Morgantown Kennedy Center Federal Correctional Institution is located southwest of the Anderson House on the west side of Kingwood Pike. The complex was built in 1968 as the Robert F. Kennedy Youth Center before it was converted into a federal prison in the 1970s (Kasey 2015:51).

The Anderson House is not eligible for listing in the National Register of Historical Places (NRHP) under Criterion A. Although the house was associated with dairy farming in Monongalia County, the historic-era dairy barn and associated farm acreage are no longer extant, and the property no longer conveys its association with agricultural history. The house is associated with the Anderson Family, namely John Anderson and his son David; however, no information was recovered to suggest that the Anderson family was significant on the local, state, or national level. Therefore, the Anderson House is not eligible for NRHP listing under Criterion B. The Anderson House has undergone a loss of integrity due to replacement windows, replacement roof materials, the enclosure of the front porch, and alterations to original door openings. The house does not possess the architectural merit necessary for listing in the NRHP. For these reasons, the Anderson House is not eligible for NRHP listing under Criterion C. The house has not been evaluated for significance under Criterion D for its potential to yield information important to the understanding of history or prehistory.

5.10 MG-2648 / House at 1440 Dorsey Avenue

MG-2648 / House at 1440 Dorsey Avenue is located on the west side of Dorsey Avenue approximately 170 feet north of its intersection with Greenbag Road. The house is located within an area of mixed single family and multi-unit housing and commercial development north of Greenbag Road approximately 1.61 miles southwest of the city of Morgantown.

The house at 1440 Dorsey Avenue is a one-and-a-half-story ca. 1915 Bungalow style dwelling partially clad in vinyl siding and wood shingle (Appendix C: Photograph 22). The house rests on a rock faced concrete block foundation and is capped by a side gable roof covered in asphalt shingle. Decorative brackets adorn the overhanging eaves. The roof is pierced by an interior brick chimney and features a front gable dormer on the façade (east elevation). Fenestration consists of replacement one-over-one vinyl sash windows and fixed glass block windows in the basement level. The integral front porch has been partially enclosed with vinyl siding. A ca. 1990 two-bay detached garage covered in vinyl siding and capped by an asphalt shingle front gable roof is located immediately south of the house (Appendix C: Photograph 18). A ca. 2000 combination garage and shed clad in vinyl siding and capped by an asphalt shingle gable roof is located west of the house (Appendix C: Photograph 18).

No information was recovered linking the house at 1440 Dorsey Avenue to events significant on the local, state, or national level. Therefore, the house is not eligible for listing in the NRHP under Criterion A. No information was recovered to suggest the house was historically associated with individuals significant on the local, state, or national level. Therefore, the house is not eligible for listing under Criterion B.

The house at 1440 Dorsey Avenue lacks integrity because it has undergone alterations including the replacement of siding, windows, and roof materials and the partial enclosure of the front porch. While the house maintains some characteristic architectural elements of the Bungalow house type and Craftsman style, such as the brackets in the eaves, it stands as a common and unexceptional example of its kind and does not possess the architectural merit necessary for listing in the NRHP. Higher style examples of the Bungalow and Craftsman styles can be found in the NRHP listed Chancery Hill and South Park Historic Districts located approximately one mile to the northwest. Therefore, it is not recommended eligible under Criterion C. The house has not been evaluated for significance under Criterion D for its potential to yield information important to the understanding of history or prehistory.

5.11 MG-2649 / Smith House
1436 Dorsey Avenue

MG-2649 / Smith House at 1436 Dorsey Avenue is located on the west side of Dorsey Avenue approximately 250 feet north of its intersection with Greenbag Road. The house is located within an area of mixed single family and multi-unit housing and commercial development north of Greenbag Road approximately 1.58 miles southwest of the city of Morgantown.

The Smith House is a ca. 1915 two-story modified American Four-Square dwelling clad in vinyl siding and resting on a foundation covered in stucco (Appendix C: Photograph 23). The steeply pitched hipped roof is covered in asphalt shingle and features three cross gable wall dormer windows with gable returns that appear to be variants on the Free-Classic Queen Anne Style. The roof is pierced by one interior brick chimney. Fenestration consists of replacement one-over-one vinyl sash windows, one fixed diamond shaped vinyl sash window, and an altered fixed vinyl sash picture window. The full width hipped roof porch on the façade (east elevation) is supported by simple square columns and features a cross gable pediment.

No information was recovered linking the Smith House to events significant on the local, state, or national level. Therefore, it is not eligible for listing in the NRHP under Criterion A. During the first decades of the 19th century the house was owned by Jefferson Smith who owned the property at 87 Kingwood Pike (approximately 0.26 miles to the southeast on the east side of Kingwood Pike). However, no information was recovered to suggest that Jefferson Smith was significant on the local, state, or national level. Therefore, the Smith House is not eligible for listing under Criterion B.

The Smith House has undergone a loss of integrity due to replacement siding and roof materials, alterations to some original window openings, and the removal of other historic materials. It stands as a common and unexceptional example of its style. Higher style examples of the Four-square type can be found in the NRHP listed Chancery Hill Historic District and South Park Historic District located approximately one mile to the northwest. The Smith House is therefore not eligible for listing under Criterion C. The house has not been evaluated for significance under Criterion D for its potential to yield information important to the understanding of history or prehistory.

5.12 MG-2650 / Atomic Grill
1451 Dorsey Avenue

MG-2650 / Atomic Grill is located on the east side of Dorsey Avenue immediately northeast of its intersection with Greenbag Road. The commercial building, which currently functions as a restaurant and commercial garage, is located in an area of mixed single family and multi-unit residences and commercial development approximately 1.60 miles southeast of the city of Morgantown.

The Atomic Grill, built in 1974, is a steel-frame commercial building clad with standing seam metal panels and resting on a concrete block foundation (Appendix C: Photographs 24 and 25). The main portion of the L-shaped building is a steel frame structure capped by a side gable roof with an eight bay garage for commercial trucks. A storefront entrance projects from the southeast elevation with plate glass walls and a flat roof with covered in standing seam metal. The building is surrounded by a parking lot.

The Atomic Grill was constructed in 1974 as the Wonder Hostess Outlet (Morgantown Dominion-Post 1975a). In the early 2010s, the building was re-purposed as the Atomic Grill. No information was recovered linking the Atomic Grill or the Wonder Hostess Bakery Outlet to events significant on the local, state, or national level. Therefore, the building is not eligible for listing in the NRHP under Criterion A. No information was recovered to suggest the building was historically associated with individuals significant on the local, state, or national level. Therefore, it is not eligible for listing under Criterion B. The Atomic Grill stands as a common and unexceptional example of late mid-century roadside commercial architecture. It does not possess the architectural merit or high artistic value to be considered eligible for listing under Criterion C. The building has not been evaluated for significance under Criterion D for its potential to yield information important to the understanding of history or prehistory.

5.13 MG-2651 / Monongalia County Head Start / Dorsey School 1433 Dorsey Avenue

MG-2651 / Dorsey School is located on the east side of Dorsey Avenue approximately 320 feet north of its intersection with Greenbag Road. The school is located in an area of mixed single family and multi-unit residences and commercial development approximately 1.58 miles southeast of the city of Morgantown.

The Dorsey School is a one-story ca. 1920 Classical Revival school house clad with American common bond brick walls (Appendix C: Photographs 26 and 27). The hipped roof is covered in asphalt shingle. Fenestration consists of replacement one-over-one vinyl sash windows, fixed vinyl sash windows, and louvered metal windows. The windows feature simple brick sills. A non-historic one-story concrete block rear addition with a flat roof is appended to the east elevation. A deeply recessed entrance on the façade (west elevation) features a segmental arch entry accented with decorative brickwork. The modern replacement door is surrounded by a modern simple transom and what are likely original sidelights.

The Dorsey School was named for the Dorsey family who were among the first settlers in this area of Monongalia County (Core 1976:381). The land on which the school stands was likely once owned by members of the Dorsey family. A school house first appears in the vicinity of the present Dorsey School in an 1886 map of Monongalia County (Appendix A: Figure 7 [Lathrop, et. al 1886]). The Dorsey School House No. 1 was located on the east side of the Kingwood, Morgantown, and West Union Turnpike (modern day Kingwood Pike) at its intersection with modern day Luckey Lane. This was likely a frame, one-room schoolhouse. A 1902 topographic map shows a structure in the vicinity of the Dorsey School House No. 1 although it is not labeled as a school (Appendix A: Figure 10 [USGS 1902]). A later topographic map from 1925 illustrates a school on the east side of Kingwood Pike south of Luckey Lane that is presumed to be the subject building (Appendix A: Figure 11 [USGS 1925]). Today, the school houses the Monongalia County Head Start program.

The Dorsey School is associated with the education history of Monongalia County. However, scant information was recovered concerning the school and its role in a rural area of Monongalia County on the outskirts of Morgantown. Therefore, the school is not eligible for listing under Criteria A.

While the school was likely built on land owned and possibly given by the Dorsey family, the school itself is not associated with any members of the Dorsey family. Further, no information was recovered suggesting the school was associated with other individuals significant on the local, state, or national level. Therefore, the school is not eligible for listing under Criteria B. The Dorsey School stands as a common and unexceptional example of educational architecture in Monongalia County. It has undergone alterations and additions including a large rear addition and the removal of original character defining elements. The Dorsey School does not possess high artistic value, represent the work of a master, or embody the distinctive characteristics of a type, period, or method of construction. Therefore, it is not eligible for listing under Criterion C. The house has not been evaluated for significance under Criterion D for its potential to yield information important to the understanding of history or prehistory.

5.14 MG-2652 / House at 1432 Dorsey Avenue

MG-2652 / House at 1432 Dorsey Avenue is located on the west side of Dorsey Avenue immediately west of its intersection with Luckey Lane. The house is located within an area of mixed single family and multi-unit housing and commercial development north of Greenbag Road, approximately 1.58 miles southwest of the city of Morgantown.

The house at 1432 Dorsey Avenue is a ca. 1915 one-and-a-half-story Bungalow style dwelling covered in vinyl siding and synthetic wood shingle (Appendix C: Photograph 28). The house rests on a rock faced concrete block foundation and is capped by a side gable roof covered in asphalt shingle. The roof is pierced by an interior central chimney and a front gable dormer window is located on the façade (east elevation). The façade features a partially enclosed integral shed roof porch resting on a concrete block foundation. Fenestration consists of simulated three-over-one vinyl sash windows and sliding vinyl sash windows in the basement level. A one-bay garage capped by a front gable asphalt shingle roof and covered in vinyl siding is located immediately south of the house (Appendix C: Photograph 28). A shed roof connects the garage and house.

No information was recovered linking the house at 1432 Dorsey Avenue to events significant on the local, state, or national level. Therefore, it is not eligible for listing in the NRHP under Criterion A. No information was recovered to suggest the house was historically associated with individuals significant on the local, state, or national level. Therefore, it is not eligible for listing under Criterion B. The house at 1432 Dorsey Avenue lacks integrity because it has undergone alterations with replacement siding, windows, and roofing as well as a partially enclosed front porch. For these reasons it is not eligible for listing under Criterion C. The house has not been evaluated for significance under Criterion D for its potential to yield information important to the understanding of history or prehistory.

5.15 MG-2653 / House at 102 Luckey Lane

MG-2653 / House at 102 Luckey Lane is located on the northwest side of Luckey Lane approximately 237 feet northeast of its intersection with Dorsey Avenue. The house is located within an area of single family and multi-unit residences and commercial development northwest of Greenbag Road.

The house at 102 Luckey Lane is a ca. 1940 one-and-a-half story Minimal Traditional style dwelling covered in aluminum siding and capped by a side gable roof covered in asphalt shingle (Appendix C: Photograph 29). The roof is pierced by one exterior brick chimney. The house rests on a concrete block foundation and fenestration consists of fixed and sliding vinyl sash windows. A partial width, second story addition supported by brick piers has been appended to the façade (southeast elevation). The addition is capped by a front gable roof covered in asphalt shingle. A two-story, full width addition has been appended to the rear (northwest) elevation. Two shed roof porch additions resting on concrete block foundations are appended to the northeast and southwest elevations.

No information was recovered linking the house at 102 Luckey Lane to events significant on the local, state, or national level. Therefore, it is not eligible for listing in the NRHP under Criterion A. No information was recovered to suggest the house was historically associated with individuals significant on the local, state, or national level. Therefore, it is not eligible for listing under Criterion B. The house at 102 Luckey Lane lacks integrity because it has undergone alterations (including replacement siding, roofing, and windows) and multiple additions (including a second story addition on the façade). For these reasons it is not eligible for listing under Criterion C. The house has not been evaluated for significance under Criterion D for its potential to yield information important to the understanding of history or prehistory.

5.16 MG-2654 / House at 104 Luckey Lane

MG-2654 / House at 104 Luckey Lane is located on the northwest side of Luckey Lane approximately 266 feet northeast of its intersection with Dorsey Avenue. The house is located within an area of single family and multi-unit residences and commercial development northwest of Greenbag Road.

The house at 104 Luckey Lane is a ca. 1940 one-story Minimal Traditional style dwelling clad in vinyl siding and resting on a concrete block foundation (Appendix C: Photograph 30). The house is capped by a side gable roof covered in asphalt shingle and pierced by an exterior brick chimney. Fenestration consists of replacement one-over-one and fixed vinyl sash windows. A shed roof porch supported by metal posts has been appended to the façade (southeast elevation), while a one-bay garage capped by a side gable roof has been appended to the northeast elevation.

No information was recovered linking the house at 104 Luckey Lane to events significant on the local, state, or national level. Therefore, it is not eligible for listing in the NRHP under Criterion A. No information was recovered to suggest the house was historically associated with individuals significant on the local, state, or national level. Therefore, it is not eligible for listing under Criterion B. The house at 104 Luckey Lane lacks integrity because it has undergone alterations and additions including replacement siding and roof materials, alterations or original window openings, and a one-bay garage addition. For these reasons it is not eligible for listing under Criterion C. The house has not been evaluated for significance under Criterion D for its potential to yield information important to the understanding of history or prehistory.

5.17 MG-2655 / Mountain View Manor
1201 – 7304 Mountain View Manor

MG-2655 / Mountain View Manor is located on the southwest side of Dorsey Avenue approximately 0.13 miles north of the intersection of Dorsey Avenue and Greenbag Road. The multi-unit housing complex is located in an area of mid-century residential development with non-historic residential and commercial development to the west. A handful of early 20th century dwellings are located south of Mountain View Manor. The complex is located approximately 1.55 miles southeast of Morgantown.

Mountain View Manor is a three-story, multi-unit housing complex constructed ca. 1970 comprising seven rectangular buildings, each with 10 units. In each building, four units face the northwest elevation, four units face the southeast elevation, and two additional units are included on the ground level of the southeast elevation (Appendix C: Photograph 31). Each building features a one-bay, central entrance with segmented plate glass panels from the floor to ceiling on their northwest elevations. Entrances on the southeast elevations are simple doors with one plain side light. The three-story buildings with exposed basements are covered in applied stretcher bond brick and capped by side gable roofs covered in asphalt shingle. The roofs feature a slight overhang in the gable ends and eaves. Fenestration consists of tripartite metal sash sliding glass windows. Each unit features an integrated porch, either on the northwest or southeast elevation, with a simple metal balustrade, floor to ceiling plate glass windows, and a door for access. Unit 1, located at the northeast end of the complex, contains offices on the ground floor while the remaining units are residential.

No information was recovered linking Mountain View Manor to events significant on the local, state, or national level. Therefore, it is not eligible for listing in the NRHP under Criterion A. No information was recovered to suggest the housing units were historically associated with individuals significant on the local, state, or national level. Therefore, it is not recommended eligible for listing under Criterion B. Mountain View Manor stands as a common and unexceptional example of late mid-century multi-unit residential architecture. It does not possess the architectural merit necessary to be considered eligible under Criterion C. The housing development has not been evaluated for significance under Criterion D for its potential to yield information important to the understanding of history or prehistory.

5.18 MG-2656 / House at 500 Parkway Drive

MG-2656 / House at 500 Parkway Drive is located on the northwest side of Parkway Drive immediately west of its intersection with Dorsey Avenue. The house is located in a ca. 1970 residential development; the greater area consists of single family and multi-unit housing and commercial development approximately 1.50 miles southeast of the city of Morgantown.

The house at 500 Parkway Drive is a ca. 1970, one-story Ranch style dwelling covered in applied stretcher bond brick and vinyl siding and capped by a side gable roof covered in asphalt shingle (Appendix C: Photograph 32). The one-story dwelling rests on a concrete block foundation. Fenestration consists of one-over-one vinyl sash windows and a tripartite picture window on the façade (southeast elevation). The façade features a pedimented porch supported by simple columns. A partial width porch projects from the rear (northwest) elevation.

No information was recovered linking the house at 500 Parkway Drive to events significant on the local, state, or national level. Therefore, it is not eligible for listing in the NRHP under Criterion A. No information was recovered to suggest the house was historically associated with individuals significant on the local, state, or national level. Therefore, it is not recommended eligible for listing under Criterion B. The house stands as a common and unexceptional example of postwar residential architecture. It is not a part of a significant postwar residential subdivision and does not possess the architectural merit necessary to be considered eligible under Criterion C. The house has not been evaluated for significance under Criterion D for its potential to yield information important to the understanding of history or prehistory.

5.19 MG-2657 / House at 502 Parkway Drive

MG-2657 / House at 502 Parkway Drive is located on the northwest side of Parkway Drive immediately west of its intersection with Dorsey Avenue. The house is located in a ca. 1970 residential development; the greater area consists of single family and multi-unit housing and commercial development approximately 1.50 miles southeast of the city of Morgantown.

The house at 502 Parkway Drive is a ca. 1970, one-and-a-half story Modern Split-Level dwelling covered in applied stretcher bond brick and aluminum siding (Appendix C: Photograph 33). The house rests on a concrete block foundation and is capped by a gable roof covered in asphalt shingle. The L-shaped house features a two-story, projecting front gable with a garage on the ground level. A one-story ell projects from the northeast elevation of the front gable section of the house. An integral porch supported by simple square posts is located within the ell. The entry door within the porch is flanked by simple sidelights. Fenestration consists of double hung aluminum sash, simulated six-over-six windows and tripartite sliding windows.

No information was recovered linking the house at 502 Parkway Drive to events significant on the local, state, or national level. Therefore, it is not eligible for listing in the NRHP under Criterion A. No information was recovered to suggest the house was historically associated with individuals significant on the local, state, or national level. Therefore, it is not recommended eligible for listing under Criterion B. The house stands as a common and unexceptional example of postwar residential architecture. It is not a part of a significant postwar residential subdivision and does not possess the architectural merit necessary to be considered eligible under Criterion C. The house has not been evaluated for significance under Criterion D for its potential to yield information important to the understanding of history or prehistory.

5.20 MG-2658 / House at 693 Greenbag Road

MG-2658 / House at 693 Greenbag Road is located on the north side of Greenbag Road immediately east of its intersection with Richard Avenue. The house is located in an area of mixed residential and commercial development approximately 1.53 miles southeast of the city of Morgantown.

The house at 693 Greenbag Road is a ca. 1955 frame Ranch style building clad in applied stretcher bond brick and vinyl siding (Appendix C: Photograph 34). The side gable roof is covered in asphalt shingle and features overhanging eaves in the gable ends. Fenestration consists of sliding, fixed, and one-over-one metal sash windows. A partial width shed roof porch is appended to the façade (southeast elevation). An integral garage is located on the side (northeast elevation). A ca. 1980 two-bay detached garage clad in vinyl siding and capped by a side gable roof covered in asphalt shingle is located north of the house (Appendix C: Photograph 35).

No information was recovered linking the house at 693 Greenbag Road to events significant on the local, state, or national level. Therefore, it is not eligible for listing in the NRHP under Criterion A. No information was recovered to suggest the house was historically associated with individuals significant on the local, state, or national level. Therefore, it is not recommended eligible for listing under Criterion B. The house stands as a common and unexceptional example of postwar residential architecture. It is not a part of a significant postwar residential subdivision and does not possess the architectural merit necessary to be considered eligible under Criterion C. The house has not been evaluated for significance under Criterion D for its potential to yield information important to the understanding of history or prehistory.

5.21 MG-2659 / House at 703 Greenbag Road

MG-2659 / House at 703 Greenbag Road is located on the north side of Greenbag Road approximately 180 feet east of Richard Avenue. The house is located in an area of mixed residential and commercial development approximately 1.54 miles southeast of the city of Morgantown.

The house at 703 Greenbag Road is a heavily altered two-story American Four-Square dwelling from ca. 1900 that has been converted to offices for commercial use (Appendix C: Photograph 36). The house is clad in vinyl siding and capped by a steeply pitched hipped roof covered in asphalt shingle. The historic foundation material has been covered with applied brick. Fenestration consists of replacement one-over-one vinyl sash windows. A non-historic one-story addition clad in applied brick has been appended to the façade (southeast elevation) while a non-historic one-story addition covered in vinyl siding has been appended to the rear (northwest) elevation. A ca. 1990 three-bay detached commercial-scale garage covered in standing seam metal is located immediately northwest of the house (Appendix C: Photograph 37).

No information was recovered linking the house at 703 Greenbag Road to events significant on the local, state, or national level. Therefore, it is not eligible for listing in the NRHP under Criterion A. No information was recovered to suggest the house was historically associated with individuals significant on the local, state, or national level. Therefore, it is not eligible for listing under Criterion B. The house at 703 Greenbag Road lacks integrity and has undergone extensive alterations and additions including front and rear additions, replacement siding and roof materials, and alterations to the original fenestration pattern and window openings. For these reasons it is not eligible for listing under Criterion C. The house has not been evaluated for significance under Criterion D for its potential to yield information important to the understanding of history or prehistory.

5.22 MG-2660 / House at 710 Greenbag Road

MG-2660 / House at 710 Greenbag Road is located on the south side of Greenbag Road approximately 1.58 miles southeast of the city of Morgantown. The house is located adjacent to an open field while the area immediately to the north comprises a dense area of mixed residential and commercial development.

The house at 710 Greenbag Road is a ca. 1930 two-and-a-half-story American Four-Square type dwelling resting on a coursed rubble stone foundation (Appendix C: Photograph 38). The house is clad in vinyl siding and is capped by a steeply pitched hipped roof covered in asphalt shingle. The roof is pierced by an interior chimney and includes hipped roof dormer windows on the façade (northwest) and rear (southeast) elevations. An altered hipped roof porch supported by simple Doric columns with a balustrade decorates to the façade. Three non-historic additions have been added to the rear of the house to quadruple the area of the building's footprint. A two-story non-historic living space addition, a patio partially covered by a shed roof, and a ca. 2000 one-story, three-bay garage have been appended to the rear of the house. Fenestration consists of replacement one-over-one vinyl sash windows with simulated eight-over-eight vinyl sash windows in the garage addition.

No information was recovered linking the house at 710 Greenbag Road to events significant on the local, state, or national level. Therefore, it is not eligible for listing in the NRHP under Criterion A. No information was recovered to suggest the house was historically associated with individuals significant on the local, state, or national level. Therefore, it is not eligible for listing under Criterion B. The house at 710 Greenbag Road lacks integrity because it has undergone alterations and additions including large rear additions, replacement siding and roof materials, alterations to original openings, and disruption of the original fenestration pattern. For these reasons it is not eligible for listing under Criterion C. The house has not been evaluated for significance under Criterion D for its potential to yield information important to the understanding of history or prehistory.

5.23 MG-2661 / Cobun Creek Culvert
Mississippi Street at Greenbag Road

MG-2661 / Cobun Creek Culvert carries Greenbag Road over Cobun Creek immediately to the northwest of Greenbag Road’s intersection with Mississippi Street. The culvert is set within an area of commercial development and intermittent wooded areas approximately 1.45 miles south of the city of Morgantown.

The ca. 1965 culvert is a single span, reinforced concrete box culvert that carries Greenbag Road and fill over Cobun Creek (Appendix C: Photograph 39). The culvert is 71 feet in overall length with a span that measures 14 feet wide. The culvert includes tapered reinforced concrete wingwalls on its north and south elevations.

No information was recovered linking the Cobun Creek culvert to events significant on the local, state, or national level. Therefore, it is not eligible for listing in the NRHP under Criterion A. No information was recovered to suggest the culvert was historically associated with individuals significant on the local, state, or national level. Therefore, it is not eligible for listing under Criterion B. The Cobun Creek culvert stands as a common and unexceptional example of a concrete box culvert. It does not possess the architectural merit or technological significance to be considered eligible for listing under Criterion C. The culvert has not been evaluated for significance under Criterion D for its potential to yield information important to the understanding of history or prehistory.

5.24 MG-2665 / The Sube Shop
918 Greenbag Road

MG-2665 / The Sube Shop is located to the southwest of the intersection of Greenbag Road and Lower Aarons Creek Road with a broad partially-paved parking lot to the north and west. It occupies former farmland to the east of Aaron Creek in a semi-suburban area to the southeast of the Morgantown city limits.

The tall, one-story, rectangular plan service building, built ca. 1970, is prefabricated with a standing seam metal roof and wall cladding (Appendix C: Photograph 40). A one-story shed-roof office area clad with brick veneer is attached to the north (front) elevation. Five oversize vehicle bays line the west (side) elevation. Parking lots frame the building to the north and west.

The Sube Shop consists of an unremarkable and utilitarian prefabricated service building with a small office area. It does not appear to have significance as a commercial/service industry building; it is not associated with any people of demonstrated significance; and it is not distinguished for its architectural design. It is not eligible for NRHP listing under Criteria A, B, or C. It has not been evaluated under Criterion D.

5.25 MG-2666 / Aaron Creek Box Culvert
Greenbag Road at Aaron Creek

The MG-2666 / Aaron Creek Box Culvert (Structure No. 31A203) is a two-span continuous concrete culvert that was built ca. 1966 by the Greer Limestone Co. (WVDOH 1990) (Appendix C: Photograph 41). It is a cast in place structure consisting of two sidewalls, a center wall, a floor slab, and a roof slab, with two ten-foot span openings and a total length of 20.8 feet. A 2018 inspection of the culvert found that the structure was in fair condition (WVDOH 2018). The culvert retains integrity despite regular repairs to the structure and the addition of safety guardrails ca. 1996 (WVDOH 1990).

The Aaron Creek Box Culvert was constructed when Greenbag Road was laid out in the mid-1960s. The Greer Limestone Company, who was responsible for its construction, was founded in 1914 and is still active today as part of Greer Industries, Inc (Greer Industries, Inc. 2006). In the late 1960s, when the construction of this culvert was included among the company's minor endeavors, Greer Limestone Company advertised itself as a local construction company with a location ten miles southeast of Morgantown in Greer, West Virginia (The Dominion News 1968). When the West Virginia Statewide Historic Bridge Survey was completed in 2015, the Aaron

Creek Box Culvert was not among the structures that were evaluated, which could have been due to its late build date or small size (KCI Technologies, Inc. et al. 2015).

The Aaron Creek Box Culvert is not eligible for listing on the National Register of Historic Places (NRHP). It is an unremarkable example of a common structure type that does not demonstrate technological or historical significance. It is not significant under NRHP Criteria A, B, or C. It has not been evaluated under Criterion D for its potential to provide information important to our understanding of history or prehistory.

6.0 RECOMMENDATIONS

Markosky surveyed 25 structures within the Project APE dating to 1975 or before. Of the 25 structures surveyed within the APE, two properties were recommended eligible for listing in the NRHP: MG-2641 / Campbell Farmhouse and MG-2645 / FCI Morgantown Kennedy Center / Robert F. Kennedy Youth Center. The Project has been designed to avoid and/or minimize any potential impacts to the farmhouse and the prison complex.

The recommended NRHP boundary of the MG-2641 / Campbell Farmhouse encompasses 10.9 acres of surviving farmland, the Italianate dwelling, and several mid-20th century outbuildings that are situated on a flattened hilltop above a steep embankment at the edge of Greenbag Road. Project activities in this area are currently being refined, but, at most, they may include limited cuts into the sloping embankment and the possible acquisition of required right-of-way (ROW) on the south side of Greenbag Road in the vicinity of the resource. It is assumed that these activities will occur either outside the property's recommended NRHP boundary or at its edge, where they will not have an effect on the Italianate farmhouse or its viewshed because they are screened by an existing buffer of trees and the elevational difference between the property within the boundary and the roadway below, which ranges between approximately ten to seventeen feet in height.

The MG-2645 / FCI Morgantown Kennedy Center prison complex is set back from Greenbag Road with the closest building located approximately 400 feet south of the road, which is well outside the project construction area. All Project construction work will take place within WVDOH ROW without impacting the buildings or the design of the complex. At the Greenbag Road entrance to the prison complex, the only planned alteration will be the removal and replacement or upgrade of the triangular island that splits traffic at the entrance. The island is a standard road element/device, and this example is of typical construction and is not of significance to the original prison complex design. There are no planned impacts to the existing wood rail fencing and signage that are associated with the prison property. Project related construction is not anticipated to impact any structures associated with the prison, and it will not compromise any of the character defining features of the complex.

The remaining structures surveyed within the Project APE lack either the integrity and/or the significance to be considered eligible for listing in the NRHP, and, thus, Section 106 effects do not apply to those structures.

Markosky recommends that the Greenbag Road Improvement Project work will not adversely affect any NRHP-eligible historic resources or structures and that no further historic structures investigations are needed. However, if any changes to the scope or design of the Project are introduced, additional historic structures investigations may be necessary.

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Anderson House (Parcel 31-08-0010-004) - Tract 1 (continued)

2011c Thomas E. Richards to Garrett Richards. Deed Book 1449, Page 758. On file, Monongalia County Clerk, Morgantown, West Virginia.

Anderson House (Parcel 31-08-0010-004) - Tract 2

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2011b Thomas E. Richards, trustee of the Thomas E. Richards Trust to Thomas E. Richards. Deed Book 1444, Page 862. On file, Monongalia County Clerk, Morgantown, West Virginia.

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Anderson House (Parcel 31-08-0010-004) - Tract 3 (continued)

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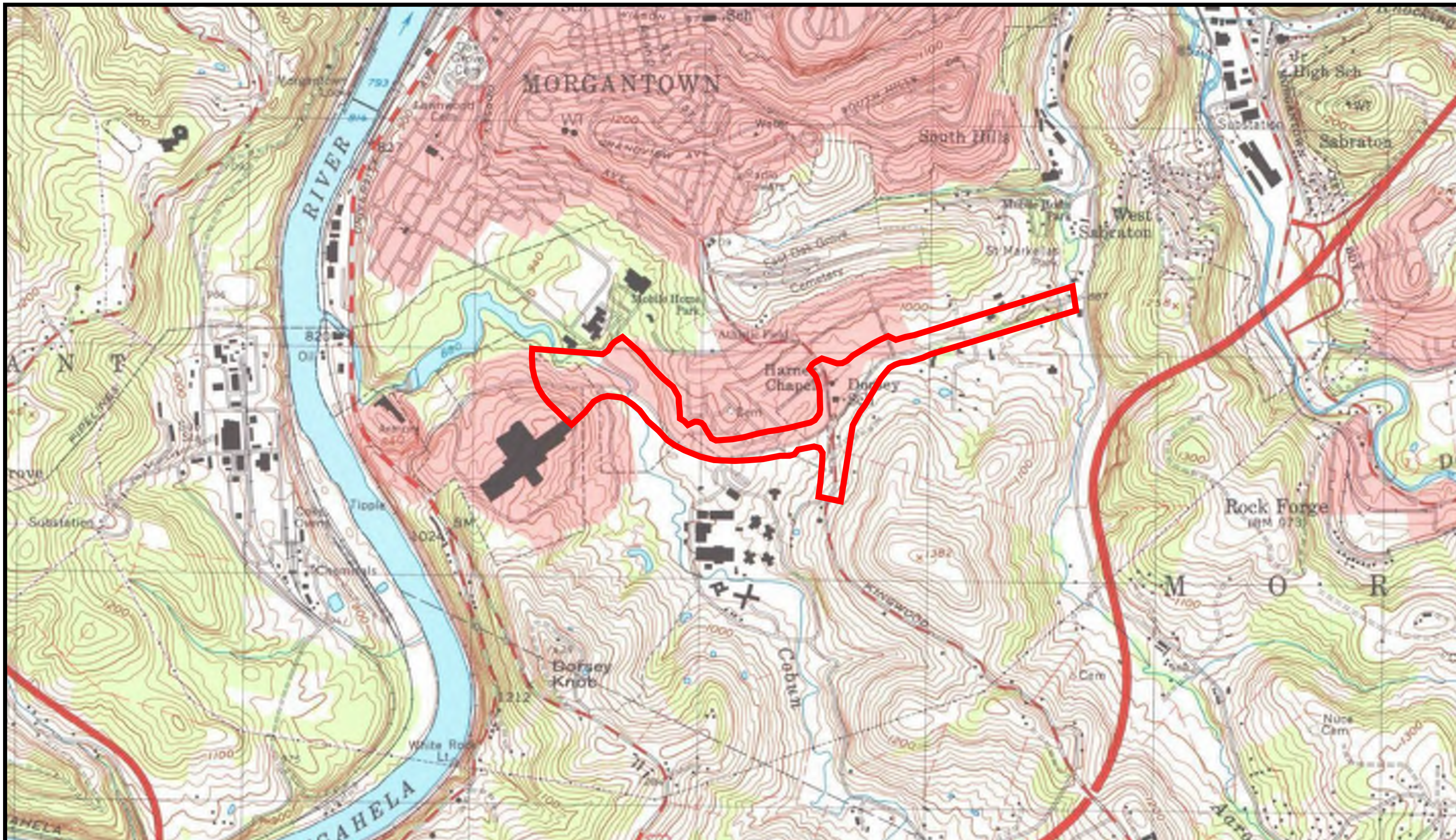
APPENDIX A

FIGURES



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Legend

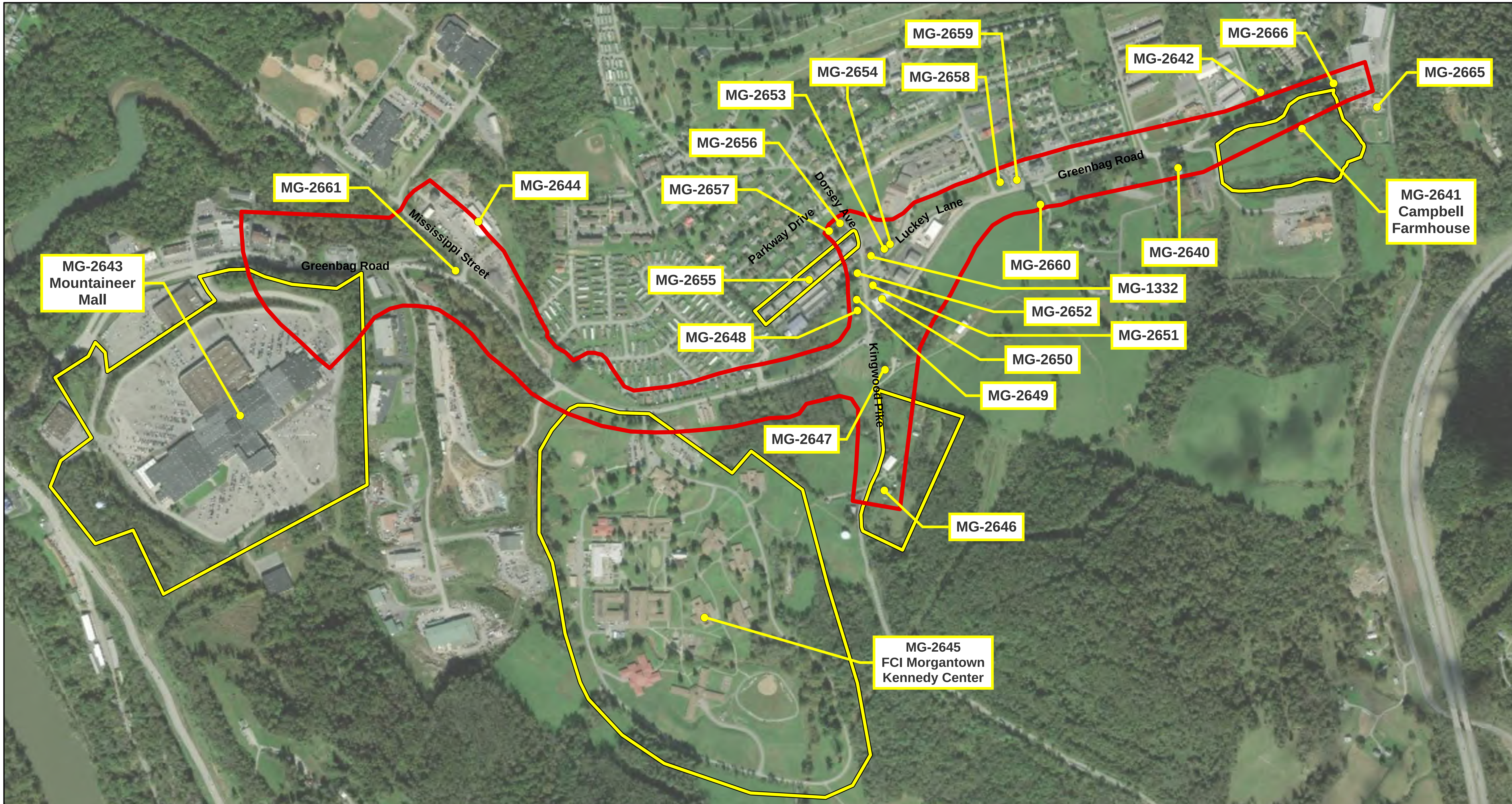
Historic Structures APE

Figure 1
Project Location

MARKOSKY

Greenbag Road Improvement
Historic Structures Survey and
Determination of Eligibility Report

Morgan District and City of Morgantown
Monongalia County
Source: 7.5' USGS Topographic Quadrangle Morgantown South, WV 1997



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MARKOSKY

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Meters
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Historic Structures APE

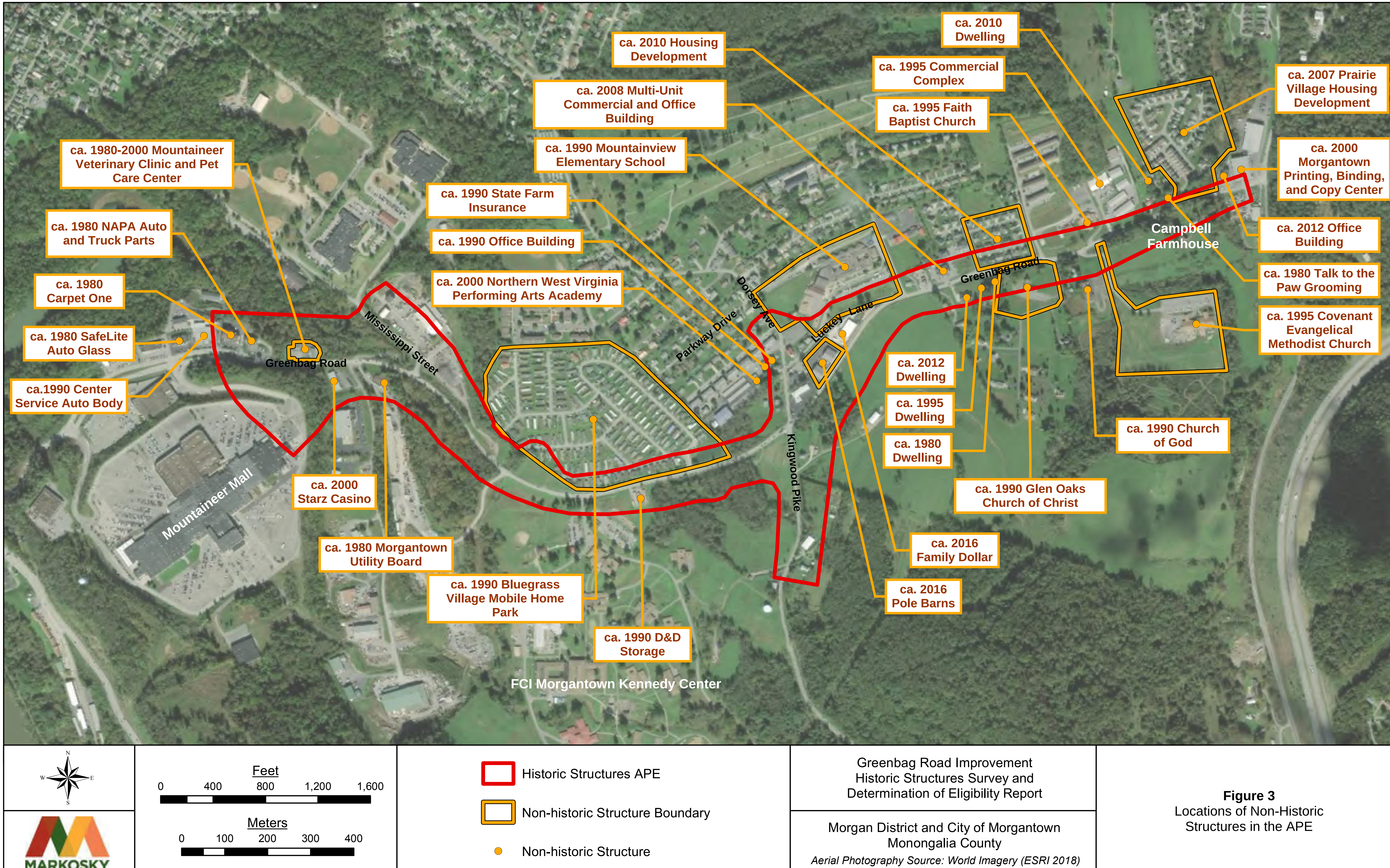
Historic Structure Boundary

Historic Structure

Greenbag Road Improvement
Historic Structures Survey and
Determination of Eligibility Report

Morgan District and City of Morgantown
Monongalia County
Aerial Photography Source: World Imagery (ESRI 2018)

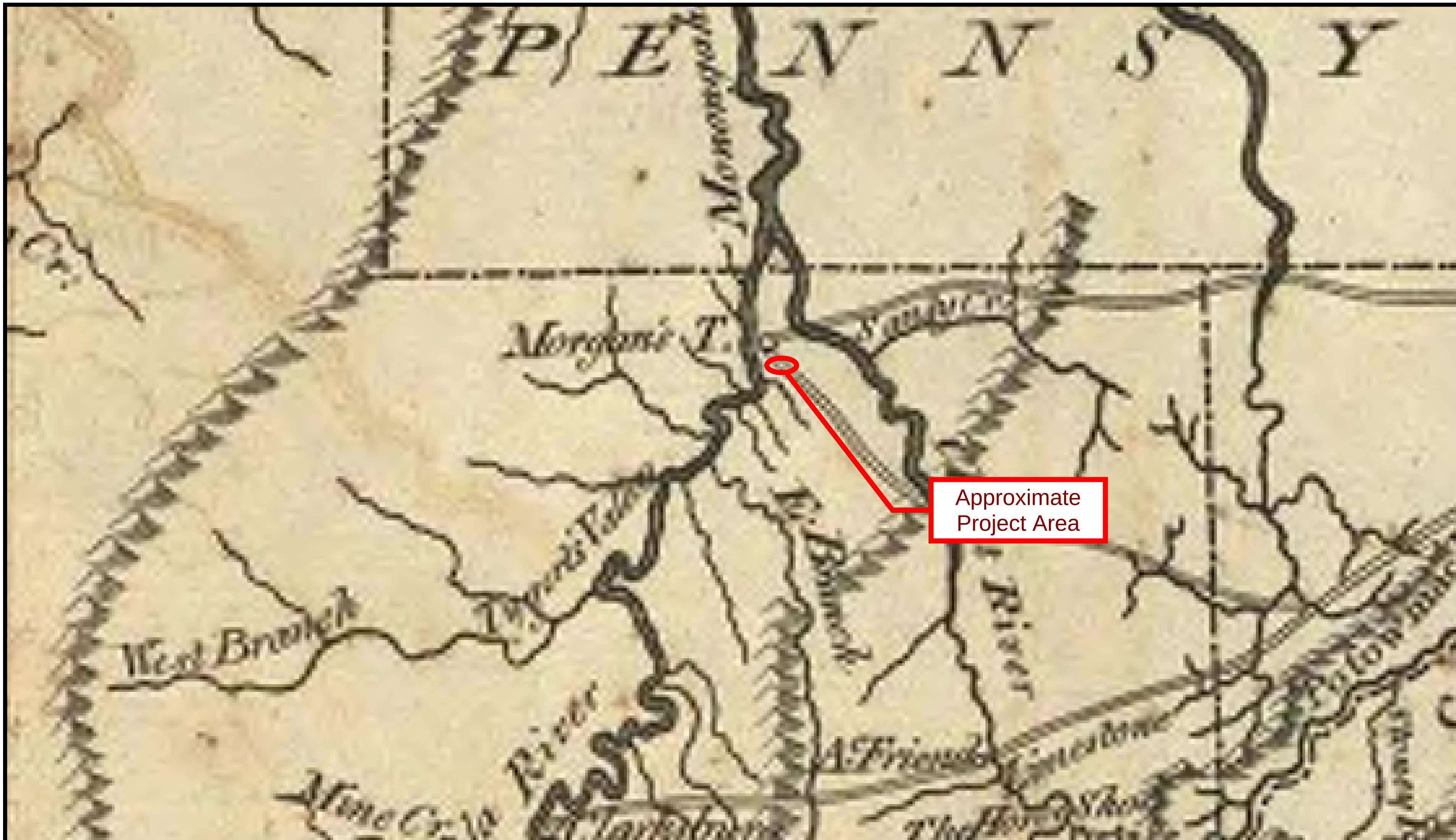
Figure 2
Historic Structures APE and Locations of
Historic Structures in the APE



Greenbag Road Improvement
Historic Structures Survey and
Determination of Eligibility Report

Morgan District and City of Morgantown
Monongalia County
Aerial Photography Source: World Imagery (ESRI 2018)

Figure 3
Locations of Non-Historic
Structures in the APE



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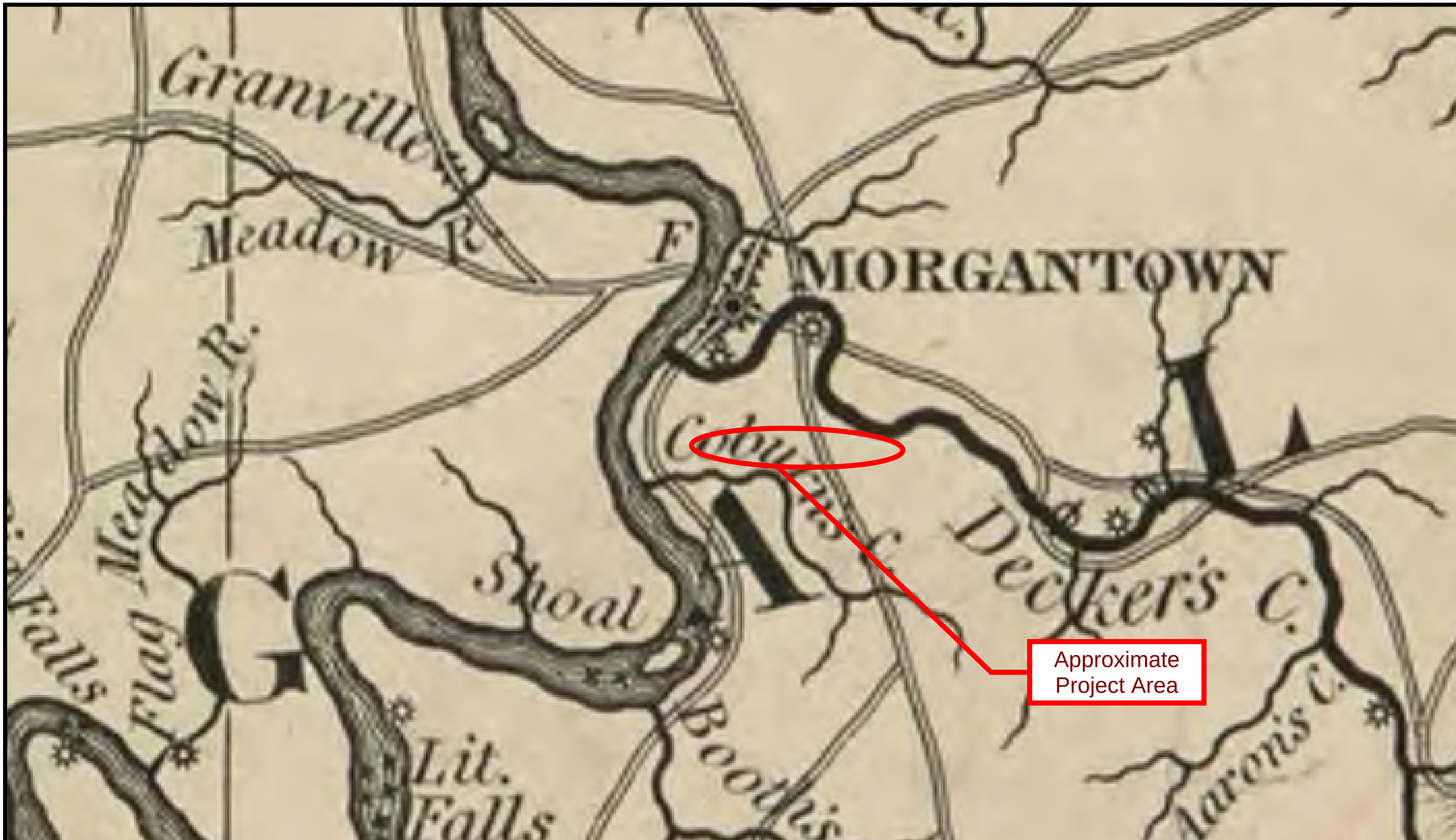
MARKOSKY

*Not to Scale.

Greenbag Road Improvement
Historic Structures Survey and
Determination of Eligibility Report

Figure 4
Approximate Project Area in 1795

Morgan District and City of Morgantown
Monongalia County
Source: Lewis 1795



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MARKOSKY

*Not to Scale.

Greenbag Road Improvement
Historic Structures Survey and
Determination of Eligibility Report

Figure 5
Approximate Project Area in 1827

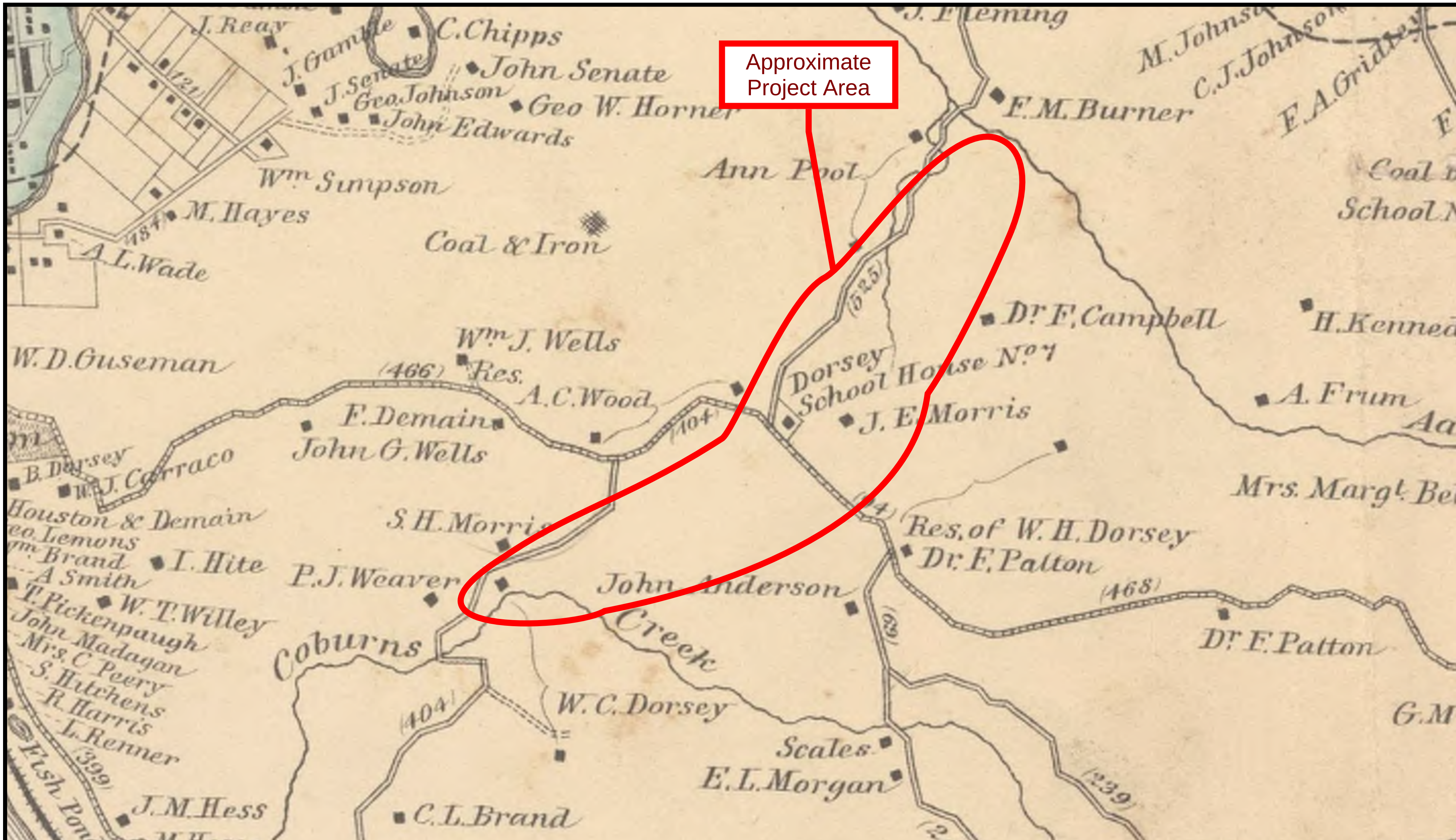
Morgan District and City of Morgantown
Monongalia County
Source: Boye 1827

*Not to Scale.

Greenbag Road Improvement
Historic Structures Survey and
Determination of Eligibility Report

Figure 6
Approximate Project Area in 1873

Morgan District and City of Morgantown
Monongalia County
Source: White 1873



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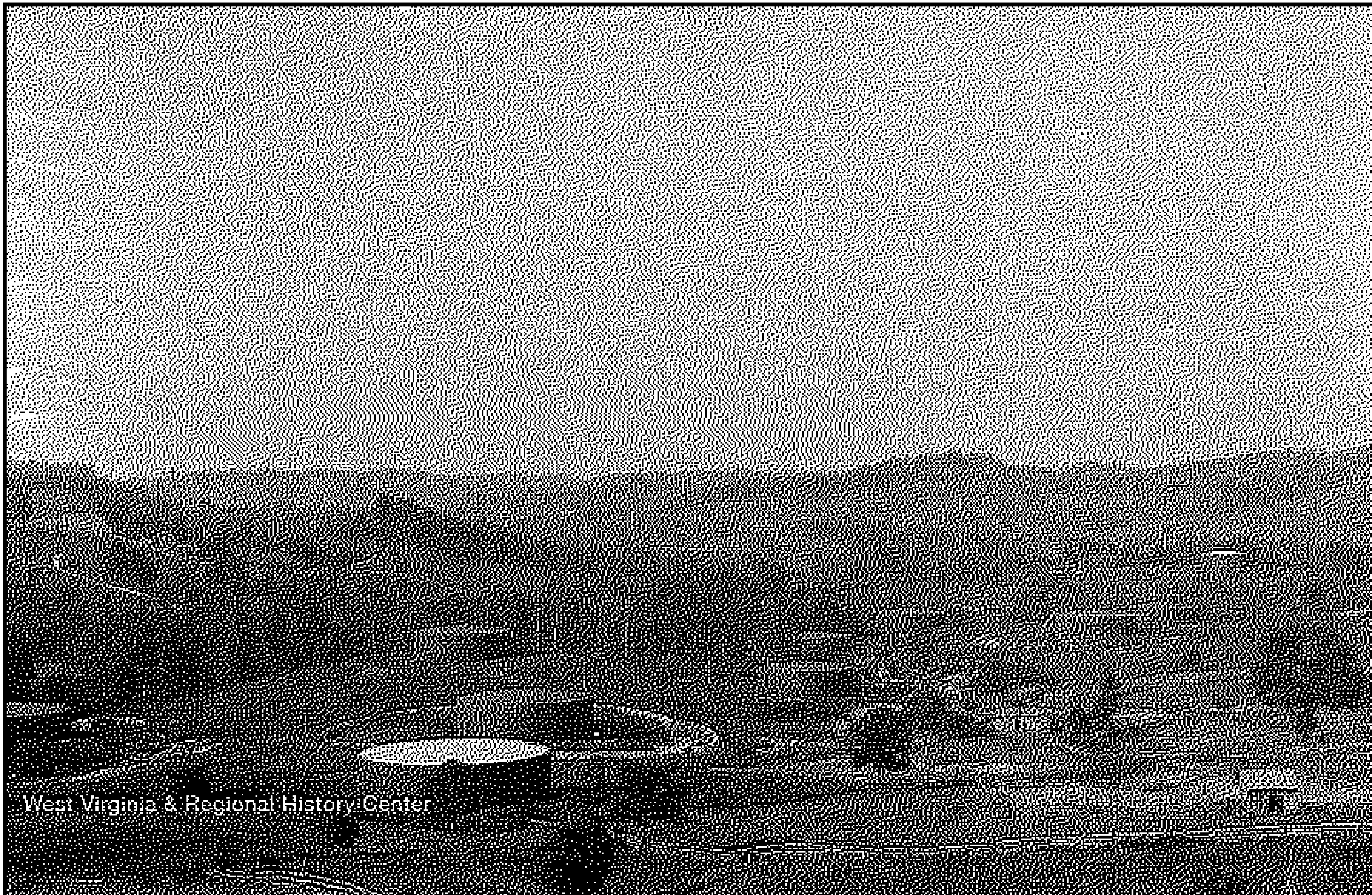
*Not to Scale.

Greenbag Road Improvement
Historic Structures Survey and
Determination of Eligibility Report

Figure 7
Approximate Project Area in 1886

Morgan District and City of Morgantown
Monongalia County
Source: Lathrop 1886



MARKOSKY

Greenbag Road Improvement
Historic Structures Survey and
Determination of Eligibility Report

Figure 8
Oil Tanks in Morgantown ca. 1895

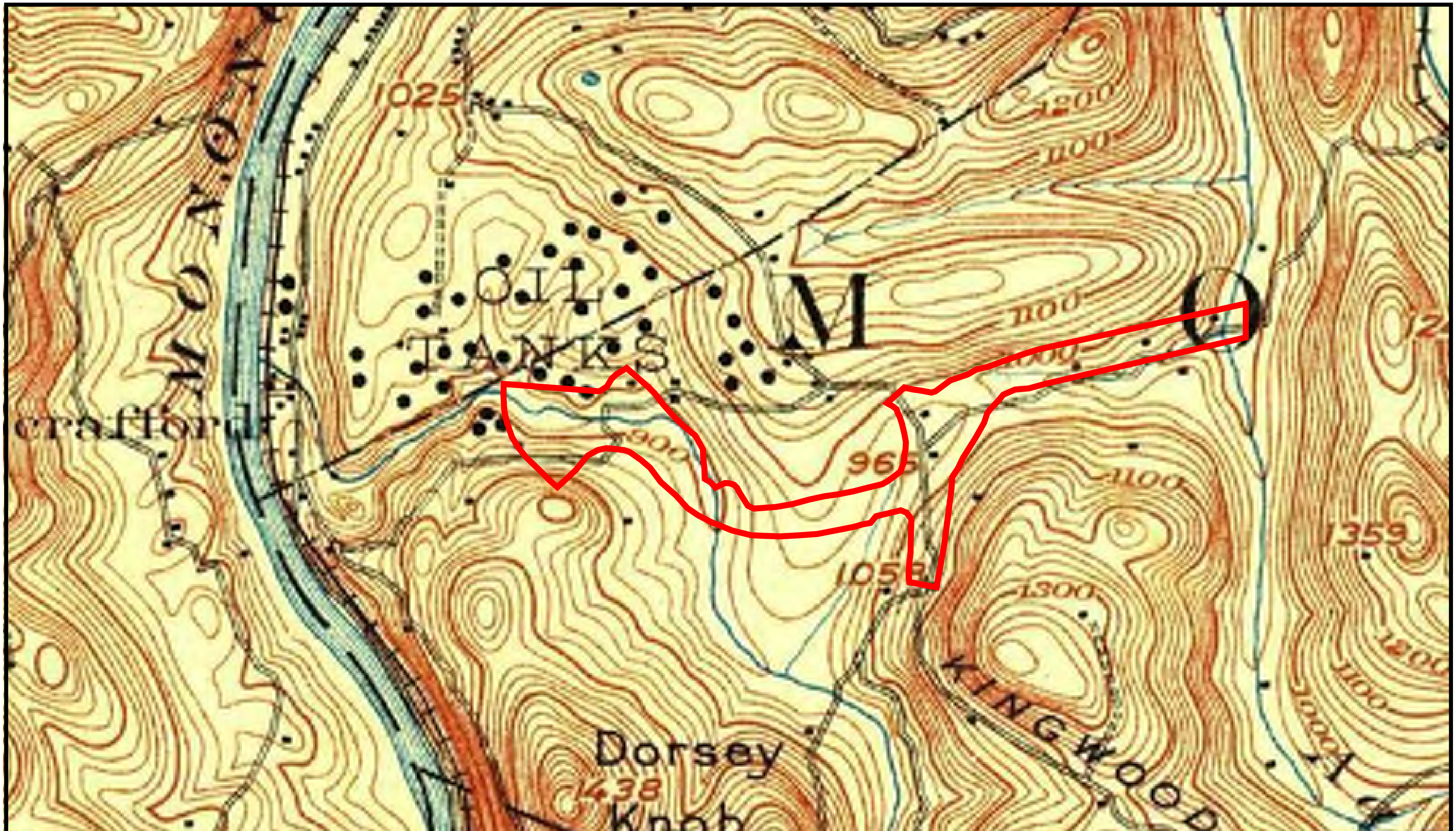
Morgan District and
City of Morgantown
Monongalia County
Source: WVU 1895a

MARKOSKY

Greenbag Road Improvement
Historic Structures Survey and
Determination of Eligibility Report

Figure 9
Oil Tanks South
of Morgantown ca. 1895

Morgan District and
City of Morgantown
Monongalia County
Source: WVU 1895b



N
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Feet

0 1500 3000

Meters

0 450 900

Legend

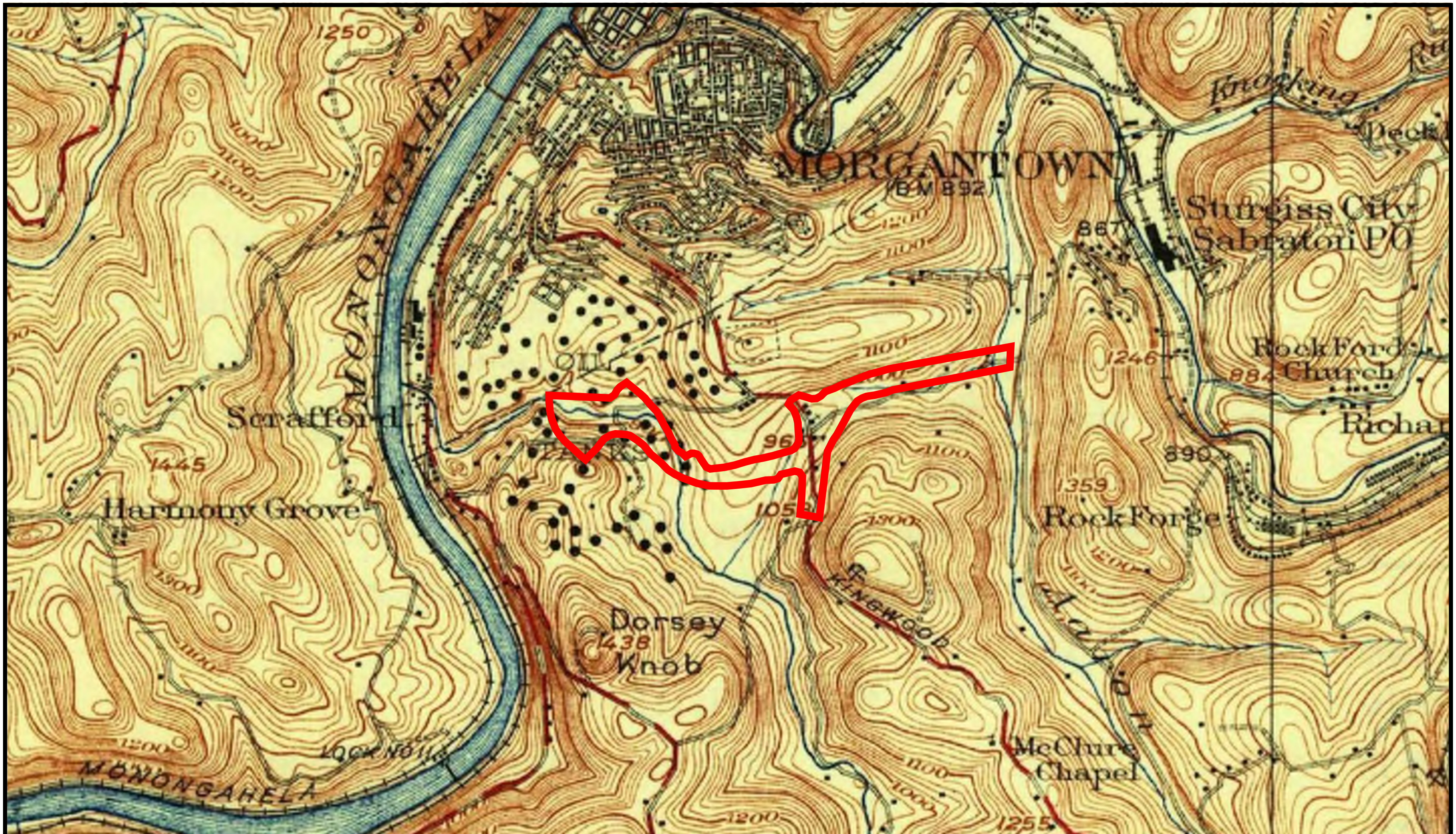
Historic Structures APE

Figure 10
Historic Structures APE in 1902

MARKOSKY

Greenbag Road Improvement
Historic Structures Survey and
Determination of Eligibility Report

Morgan District and City of Morgantown
Monongalia County
Source: 15' USGS Topographic Quadrangle Morgantown, WV 1902



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Feet

0 2500 5000

Meters

0 750 1500

Legend

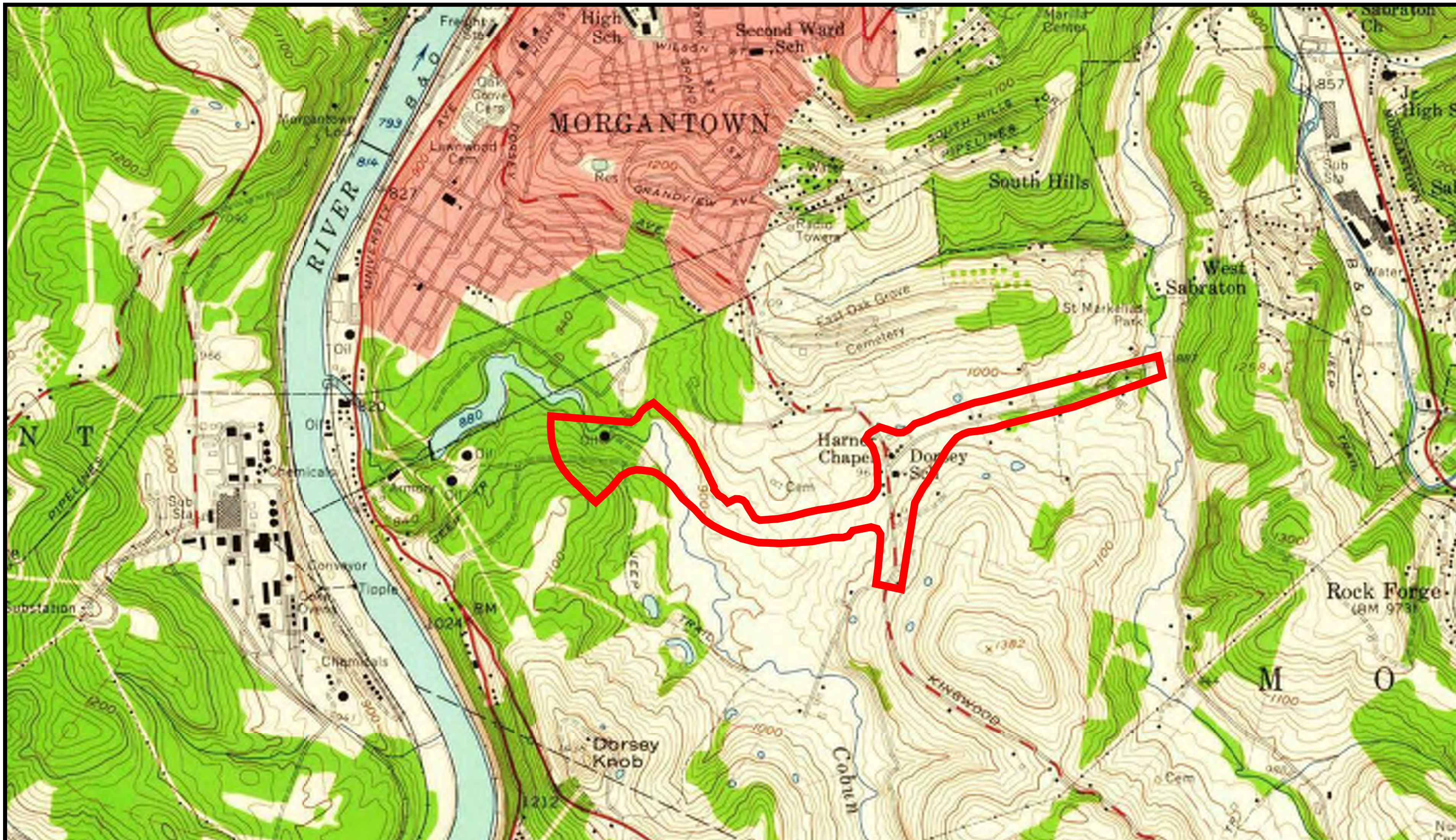
Historic Structures APE

Figure 11
Historic Structures APE in 1925

MARKOSKY

Greenbag Road Improvement
Historic Structures Survey and
Determination of Eligibility Report

Morgan District and City of Morgantown
Monongalia County
Source: 15' USGS Topographic Quadrangle
Morgantown, WV 1925



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Feet
0 2000 4000

Meters
0 600 1200

Legend

Historic Structures APE

Figure 12
Historic Structures APE in 1957

MARKOSKY

Greenbag Road Improvement
Historic Structures Survey and
Determination of Eligibility Report

Morgan District and City of Morgantown
Monongalia County
Source: 7.5' USGS Topographic Quadrangle
Morgantown South, WV 1957

N
W E
S

Feet
0 1600 3200

Meters
0 600 1200

Legend

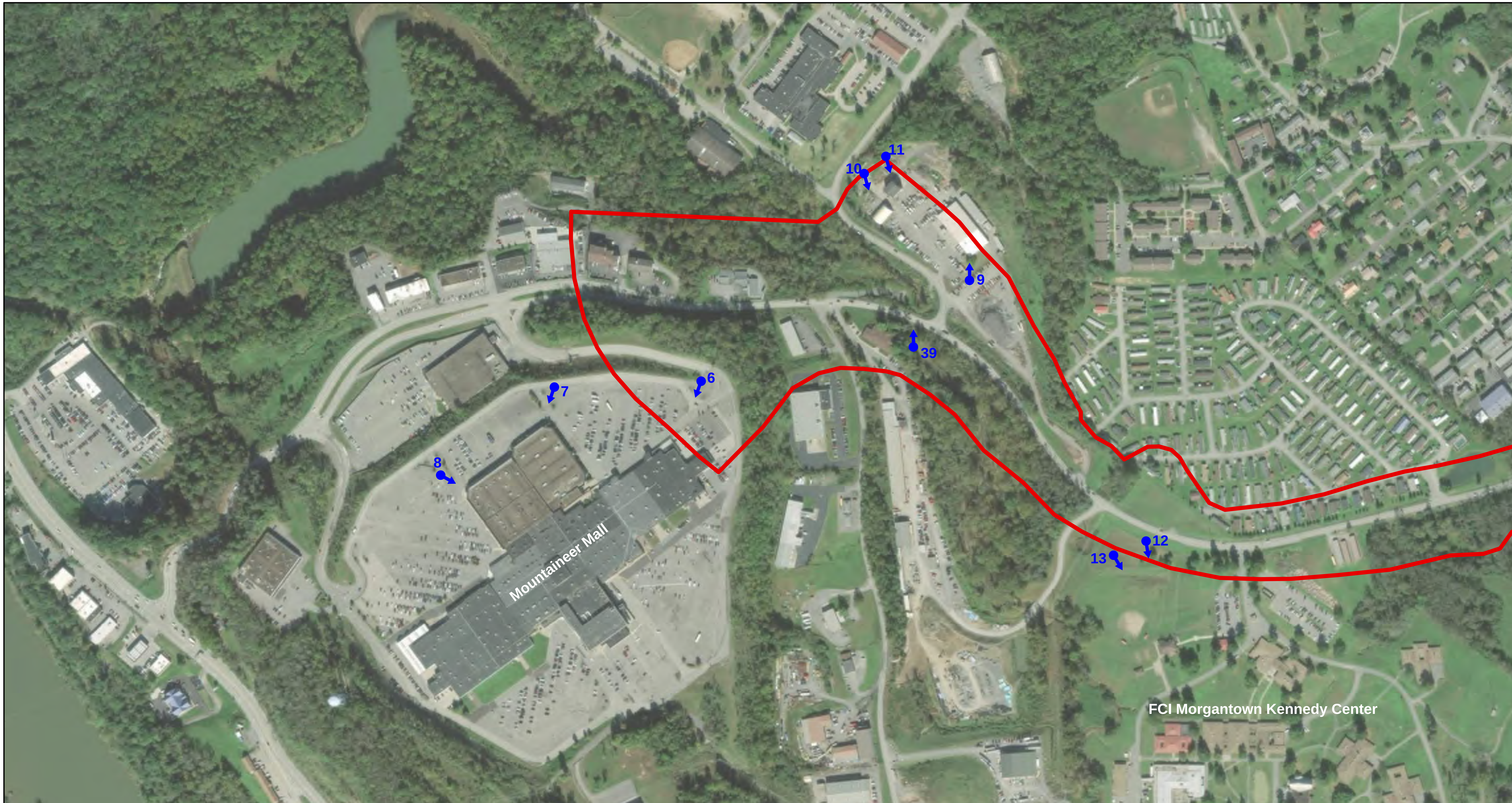
Historic Structures APE

MARKOSKY

Figure 13
Historic Structures APE in 1976

Greenbag Road Improvement
Historic Structures Survey and
Determination of Eligibility Report

Morgan District and City of Morgantown
Monongalia County
Source: 7.5' USGS Orthophoto Quadrangle Morgantown South, WV 1976



Feet
0 200 400 600 800

Meters
0 50 100 150 200

Historic Structures APE

Photograph Location

Greenbag Road Improvement
Historic Structures Survey and
Determination of Eligibility Report

Morgan District and City of Morgantown
Monongalia County

Aerial Photography Source: World Imagery (ESRI 2018)

Figure 14 - Sheet 1 of 2
Photograph Location Map

MARKOSKY

Feet: 0, 200, 400, 600, 800

Meters: 0, 50, 100, 150, 200

Historic Structures APE

Photograph Location

MARKOSKY

Greenbag Road Improvement
Historic Structures Survey and
Determination of Eligibility Report

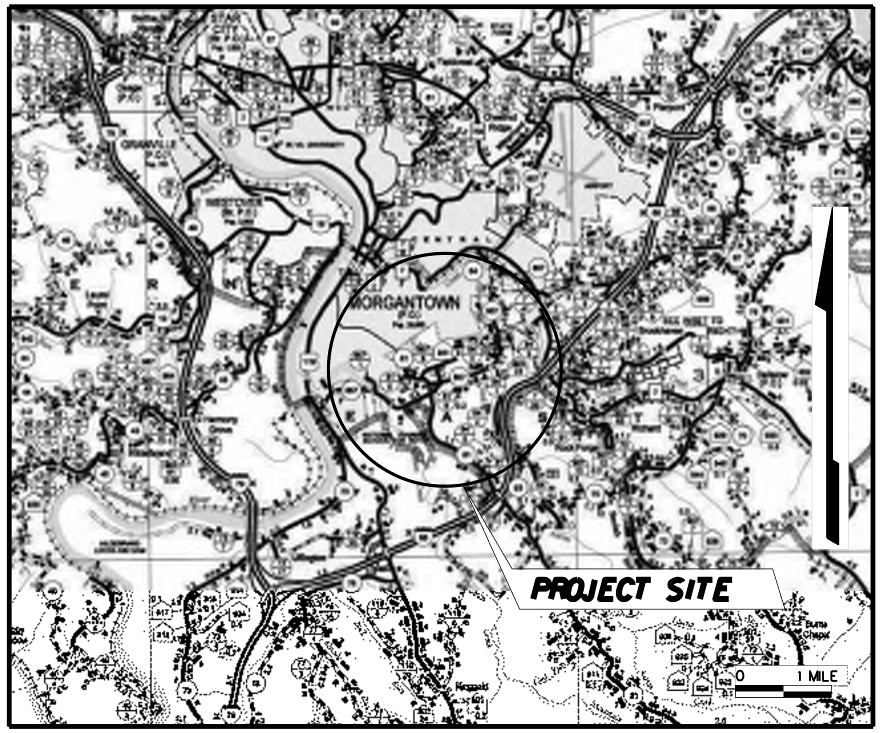
Morgan District and City of Morgantown
Monongalia County

Aerial Photography Source: World Imagery (ESRI 2018)

Figure 14 - Sheet 2 of 2
Photograph Location Map

APPENDIX B

PRELIMINARY PROJECT PLANS AND DESIGN INFORMATION



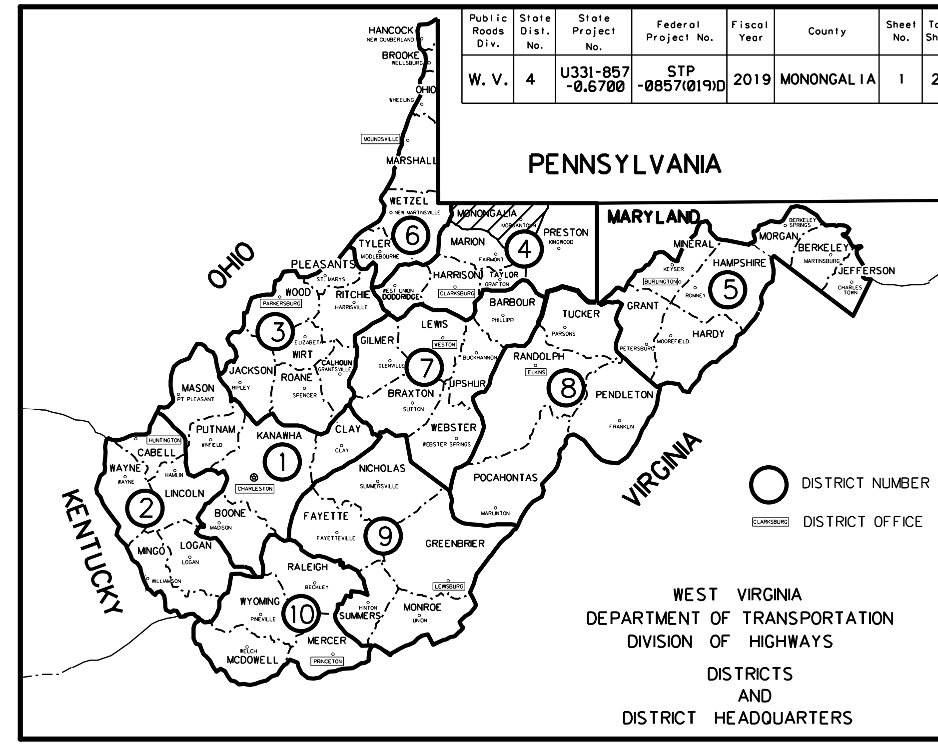
WEST VIRGINIA
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
PLANS FOR CONSTRUCTION
OF
STATE HIGHWAY

FEDERAL PROJECT NO. STP-0857(019)D
STATE PROJECT NO. U331-857-067 00
STATE ROUTE NO. 857
MORGAN DISTRICT
MONONGALIA COUNTY

GREENBAG ROAD

	Station		Station		f.t.		mile(s)
(BEGIN TO MISS. AVE.)	24+00	to	252+95.79	-	1,405	-	0.266
(MISS. AVE. TO CR 81)	252+95.79	to	304+93.28	-	3,013	-	0.571
(CR 81 TO LUCKEY LANE)	304+93.28	to	82+22.99	-	1,475	-	0.279
(LUCKEY LANE TO AARONS CREEK RD.)	82+22.99	to	110+94.89	-	2,872	-	0.544
(AARONS CREEK RD. TO END)	110+94.89	to	166+00	-	5,505	-	1.043
			Total Project Length		14,270		2.703

Public Roads Div.	State Dist. No.	State Project No.	Federal Project No.	Fiscal Year	County	Sheet No.	Total Sheets
W. V.	4	U331-857 -0.6700	STP -0857(019)D	2019	MONONGALIA	1	272

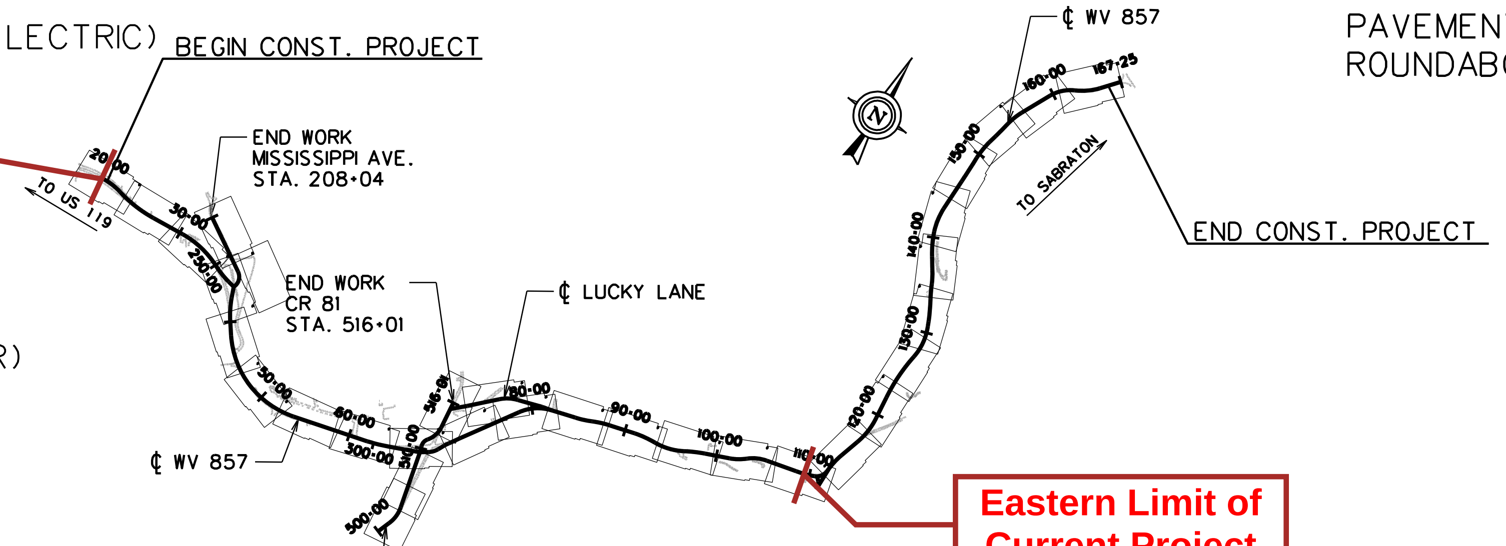


UTILITIES ENCOUNTERED

FRONTIER WEST VIRGINIA INC. (TELEPHONE)
TRANS-ALLEGHENY INTERSTATE LINE COMPANY (ELECTRIC)
A.V. COMPANY INC. (GAS)
CARDINAL NATURAL GAS
NORTHERN DIVISION (GAS)
HOPE GAS INC. (GAS)
MONONGAHELA POWER COMPANY (ELECTRIC)
MOUNTAINEER GAS COMPANY (GAS)
DECKERS CREEK PUBLIC SERVICE DISTRICT (SEWER)
CLINTON WATER ASSOCIATION, INC. - (WATER ASSOCIATIONS/AUTHORITIES)
MORGANTOWN UTILITY BOARD (MUB)
COMCAST COMMUNICATIONS LLC (CABLE)

TYPE OF CONSTRUCTION

ROADWAY WIDENING, GRADE, DRAINAGE, PAVEMENT, PAVEMENT MARKING, SIGNING & ROUNDABOUTS.



PFR SUBMITTAL
MARCH 29, 2019

NOTES: STANDARD DETAIL BOOK VOL. I DATED MAY 2016 & VOLUME II DATED JANUARY 2019, SHALL APPLY TO THIS PROJECT.

SCALES

PLAN HOR. 0 20 ft.

PROFILE VERT. 5 ft. HOR. 0 20 ft.

LAYOUT SCALE 0 1000 ft.

DESIGN DESIGNATION

A.D.T (2018) 11,127
A.D.T (2048) 14,999
D.H.V. 783
D 54/46
T 4.4%
V 40 MPH

CONVENTIONAL SIGNS

STATE LINE
COUNTY LINE
CORPORATION LINE
PROPOSED R/W & EASEMENT LINE
EXISTING R/W LINE
PROPERTY LINE
EXISTING FENCE
PROPOSED FENCE
EDGE OF STREAM
PROPOSED GUARD RAIL
EXISTING GUARD RAIL
RAILROAD
GAS LINE
WATER LINE
TELEPHONE LINE
ELECTRIC LINE
TELEPHONE POLE
POWER POLE
COMBINED POWER AND TELEPHONE POLE
TREE
SHRUB
RIGHT OF WAY MARKER

INDEX TO SHEETS

REVISION NUMBER	SHEET NUMBER	REVISIONS	DATE	BY

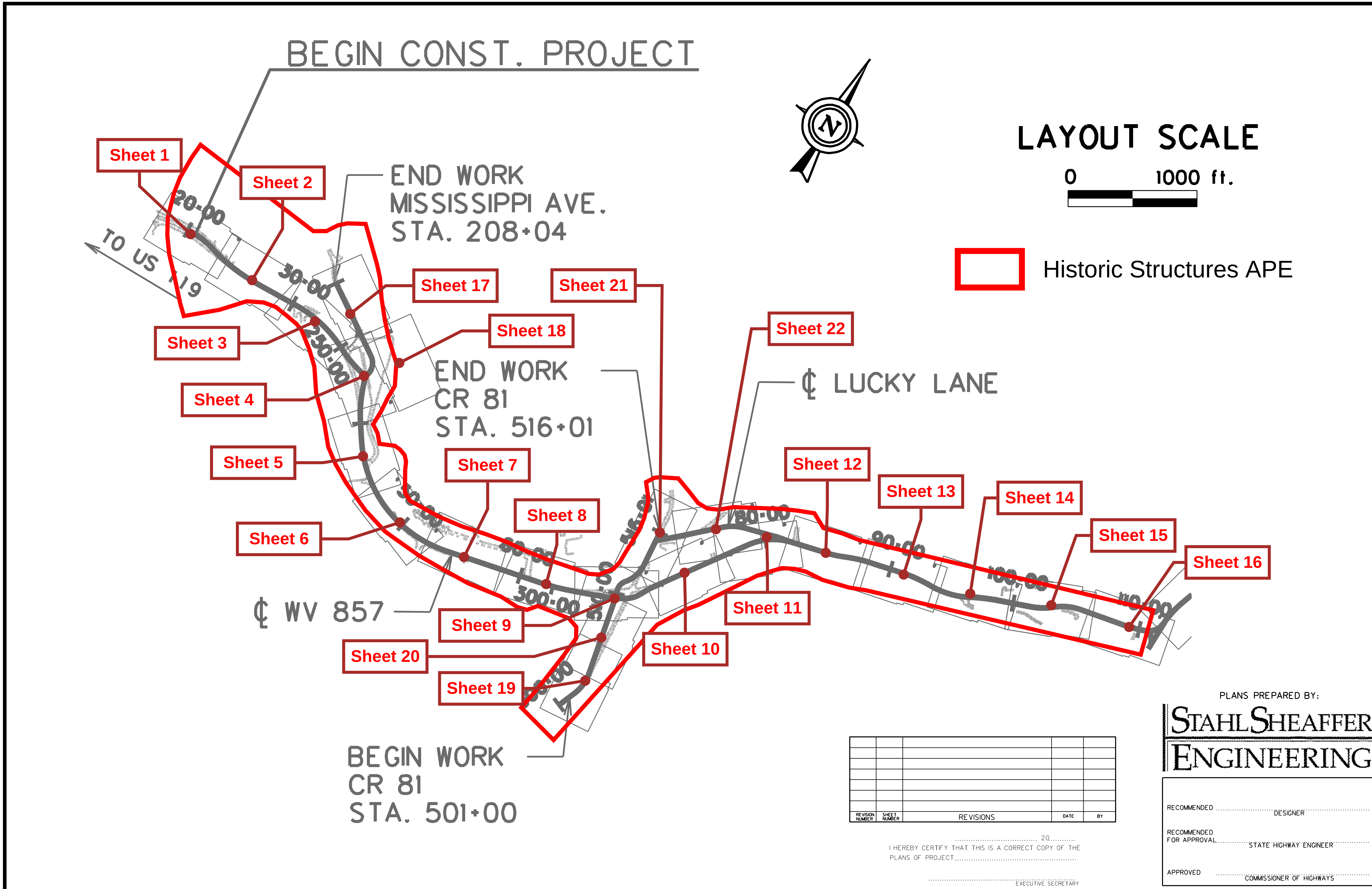
.... 20..........
I HEREBY CERTIFY THAT THIS IS A CORRECT COPY OF THE PLANS OF PROJECT..
.... EXECUTIVE SECRETARY

PLANS PREPARED BY:

STAHL SHEAFFER ENGINEERING

RECOMMENDED .... DESIGNER
RECOMMENDED FOR APPROVAL .... STATE HIGHWAY ENGINEER
APPROVED .... COMMISSIONER OF HIGHWAYS

PROJECT NO. U331-857-0.67 00 / STP-0857 (019)D


BEGIN CONST. PROJECT
END WORK
MISSISSIPPI AVE.
STA. 208+04
LAYOUT SCALE
0
1000 ft.
Historic Structures APE
TO US 119
END WORK
CR 81
STA. 516+01
℄ LUCKY LANE
℄ WV 857
BEGIN WORK
CR 81
STA. 501+00
Sheet 1
Sheet 2
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Sheet 11
Sheet 12
Sheet 13
Sheet 14
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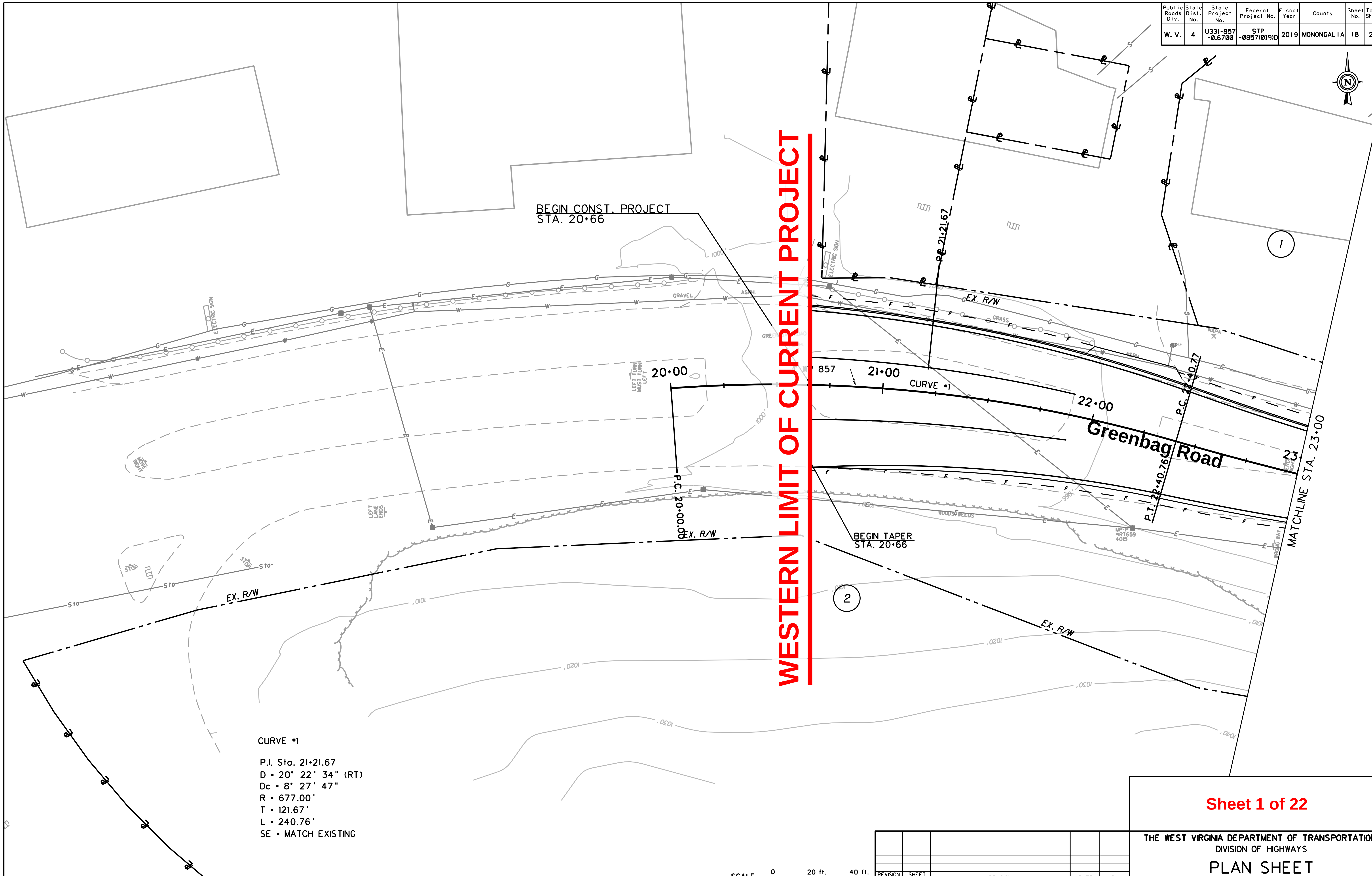
Sheet 20
Sheet 21
Sheet 22
20+00
30+00
250+00
300+00
80+00
90+00
100+00
110+00
REVISIONS
PLANS PREPARED BY:
STAHL SHEAFFER ENGINEERING
RECOMMENDED
DESIGNER
RECOMMENDED FOR APPROVAL
STATE HIGHWAY ENGINEER
APPROVED
COMMISSIONER OF HIGHWAYS
I HEREBY CERTIFY THAT THIS IS A CORRECT COPY OF THE PLANS OF PROJECT
EXECUTIVE SECRETARY

Public Roads Div.	State Dist. No.	State Project No.	Federal Project No.	Fiscal Year	County	Sheet No.	Total Sheets
W. V.	4	U331-857 -0.6700	STP -0857(019)D	2019	MONONGALIA	18	272



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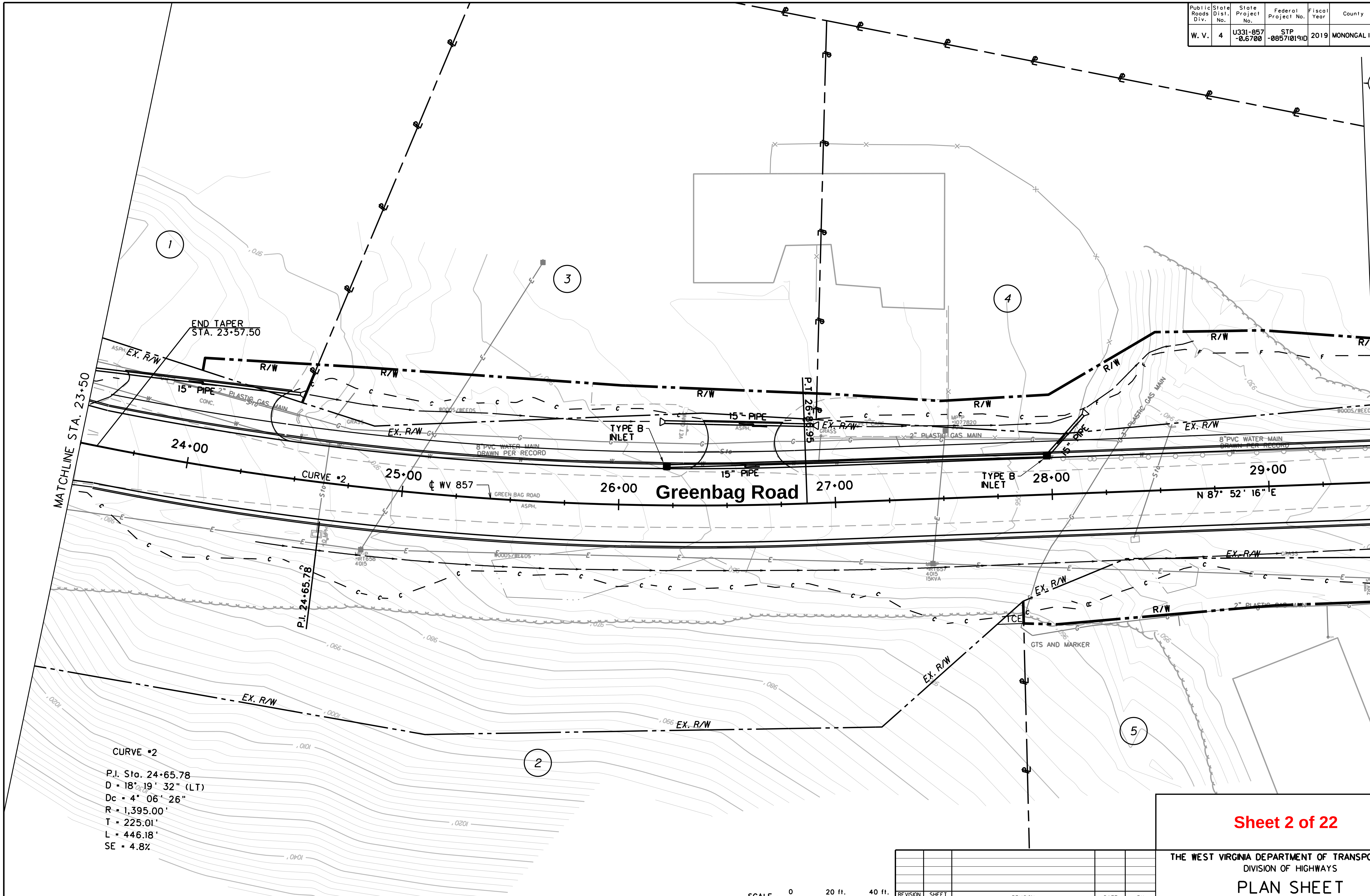
REVISION NUMBER	SHEET NUMBER	REVISION	DATE	BY

THE WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
PLAN SHEET

4/1/2019
9:23:12 AM

Public Roads Div.	State Dist. No.	State Project No.	Federal Project No.	Fiscal Year	County	Sheet No.	Total Sheets
W. V.	4	U331-857 -0.6700	STP -0857(019)D	2019	MONONGALIA	19	272



CURVE #2

P.I. Sta. 24+65.78
D = 18° 19' 32" (LT)
Dc = 4° 06' 26"
R = 1,395.00'
T = 225.01'
L = 446.18'
SE = 4.8%

SCALE : 0 20 ft. 40 ft.

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REVISION NUMBER	SHEET NUMBER	REVISION	DATE	BY

THE WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PLAN SHEET

4/1/2019
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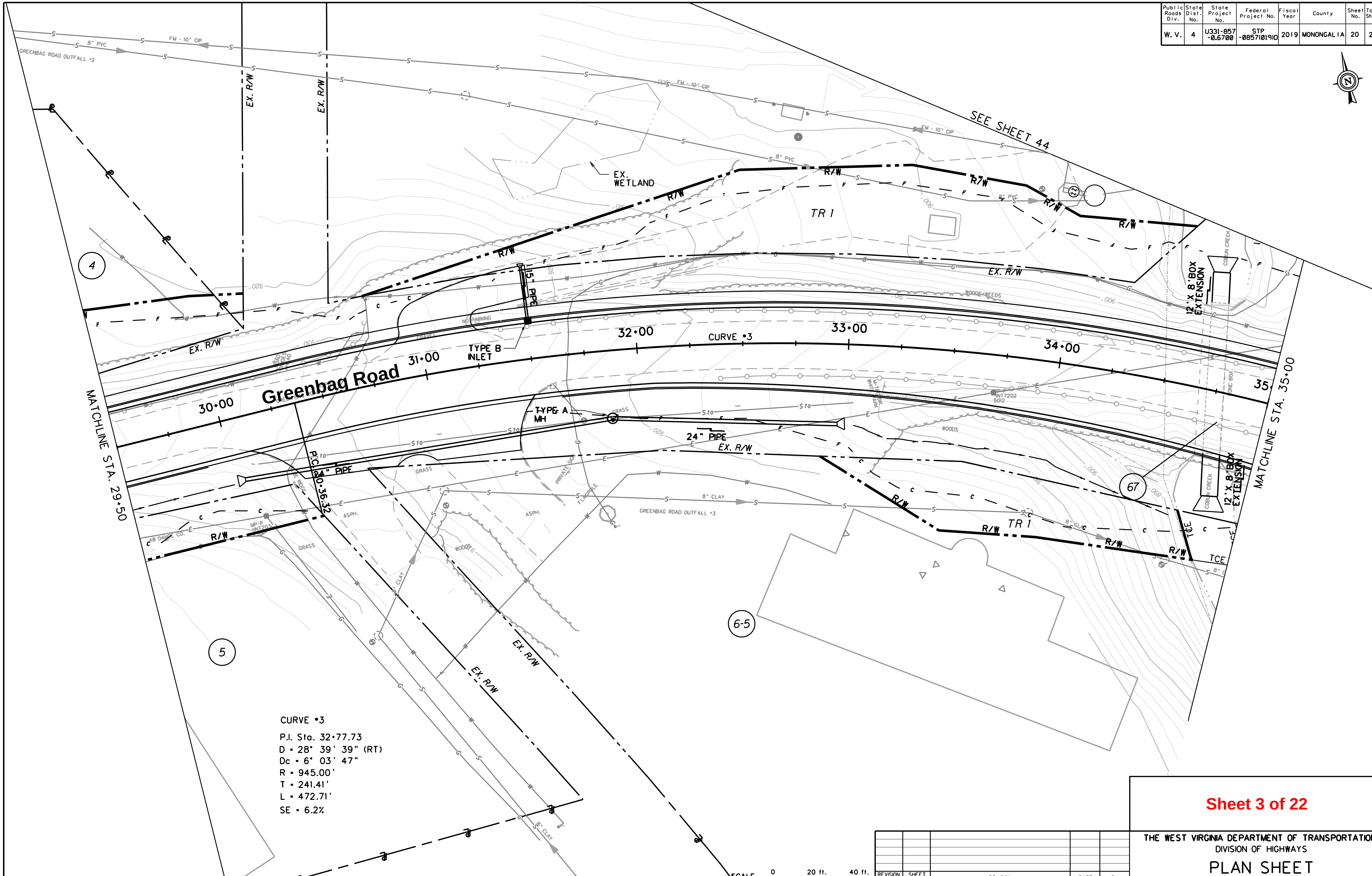
Public Roads Div.	State Dist. No.	State Project No.	Federal Project No.	Fiscal Year	County	Sheet No.	Total Sheets
W. V.	4	U331-857 -0.6700	STP -0857(019)D	2019	MONONGALIA	20	272



CURVE #3

P.I. Sta. 32+77.73
D = 28° 39' 39" (RT)
Dc = 6° 03' 47"
R = 945.00'
T = 241.41'
L = 472.71'
SE = 6.2%

SCALE : 0 20 ft. 40 ft.

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REVISION NUMBER	SHEET NUMBER	REVISION	DATE	BY

THE WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PLAN SHEET

4/1/2019
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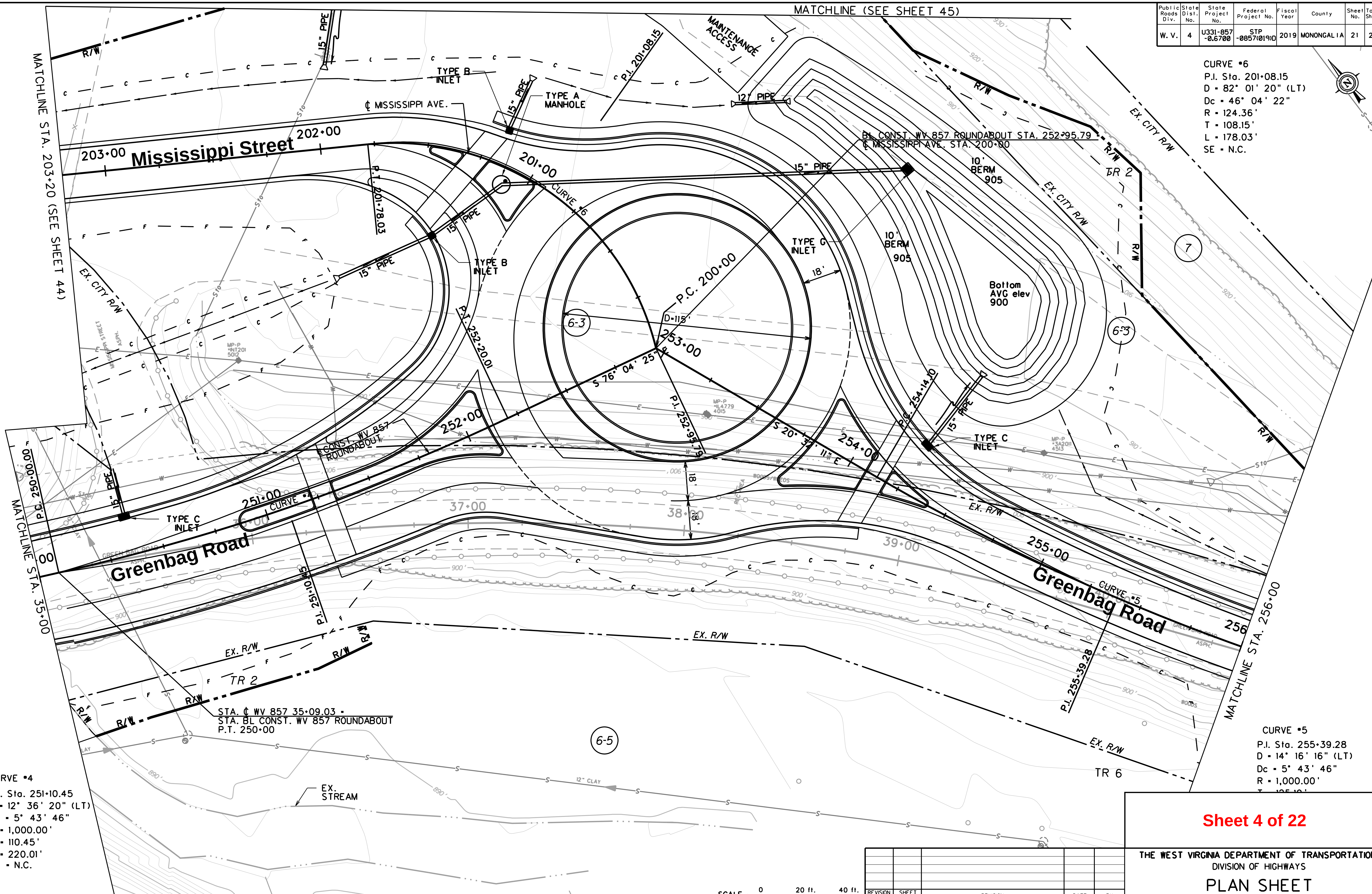
Public Roads Div.	State Dist. No.	State Project No.	Federal Project No.	Fiscal Year	County	Sheet No.	Total Sheets
W. V.	4	U331-857 -0.6700	STP -0857(019)D	2019	MONONGALIA	21	272



CURVE #6
P.I. Sta. 201+08.15
D = 82° 01' 20" (LT)
Dc = 46° 04' 22"
R = 124.36'
T = 108.15'
L = 178.03'
SE = N.C.

CURVE #5
P.I. Sta. 255+39.28
D = 14° 16' 16" (LT)
Dc = 5° 43' 46"
R = 1,000.00'
T = 125.10'

CURVE #4
P.I. Sta. 251+10.45
D = 12° 36' 20" (LT)
Dc = 5° 43' 46"
R = 1,000.00'
T = 110.45'
L = 220.01'
SE = N.C.

SCALE : 0 20 ft. 40 ft.

REVISION NUMBER	SHEET NUMBER	REVISION	DATE	BY

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THE WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PLAN SHEET

4/1/2019
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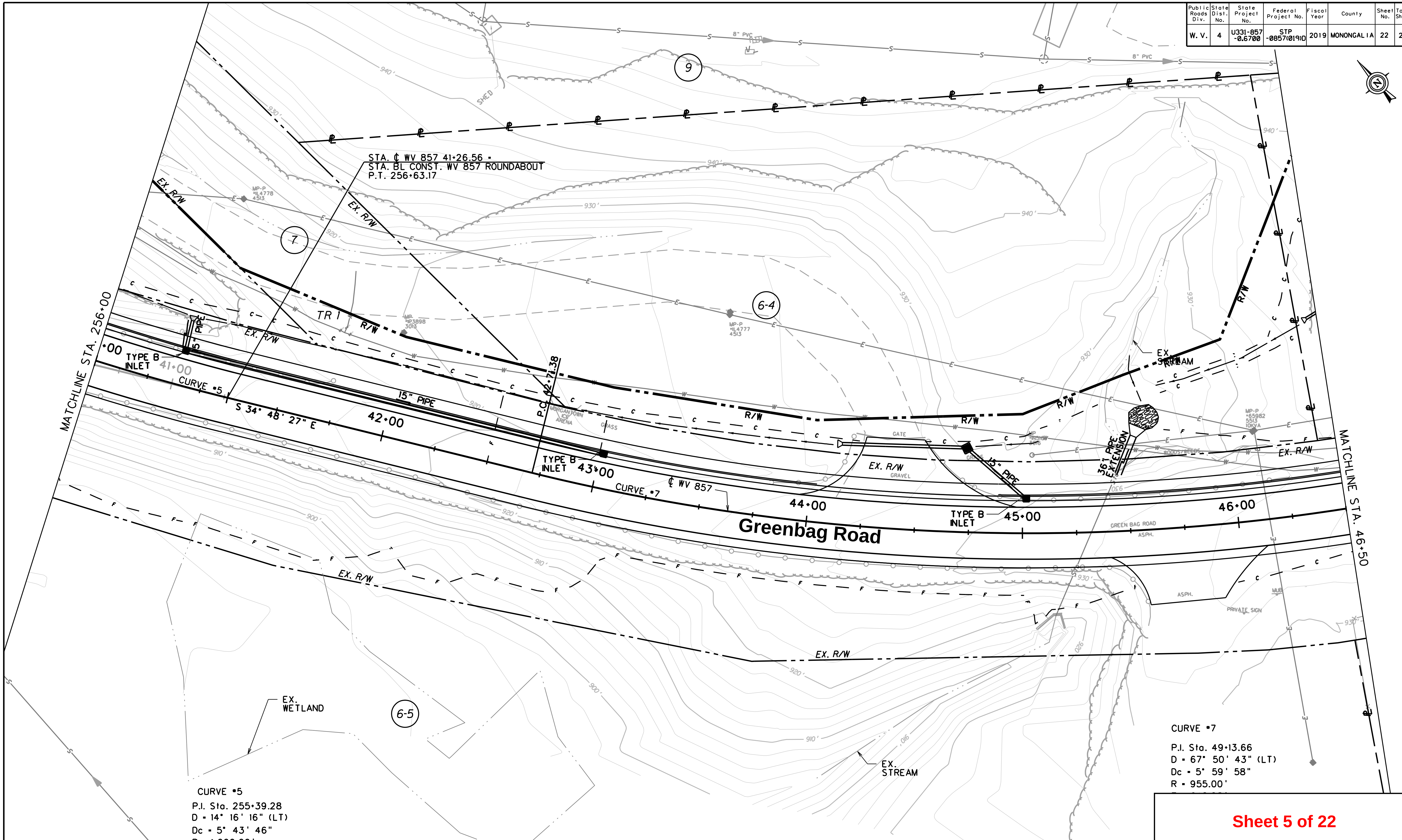
Public Roads Div.	State Dist. No.	State Project No.	Federal Project No.	Fiscal Year	County	Sheet No.	Total Sheets
W. V.	4	U331-857 -0.6700	STP -0857(019)D	2019	MONONGALIA	22	272



CURVE #5

P.I. Sta. 255+39.28
D = 14° 16' 16" (LT)
Dc = 5° 43' 46"
R = 1,000.00'
T = 125.19'
L = 249.08'
SE = 6.0%

CURVE #7

P.I. Sta. 49+13.66
D = 67° 50' 43" (LT)
Dc = 5° 59' 58"
R = 955.00'

SCALE : 0 20 ft. 40 ft.

REVISION NUMBER	SHEET NUMBER	REVISION	DATE	BY

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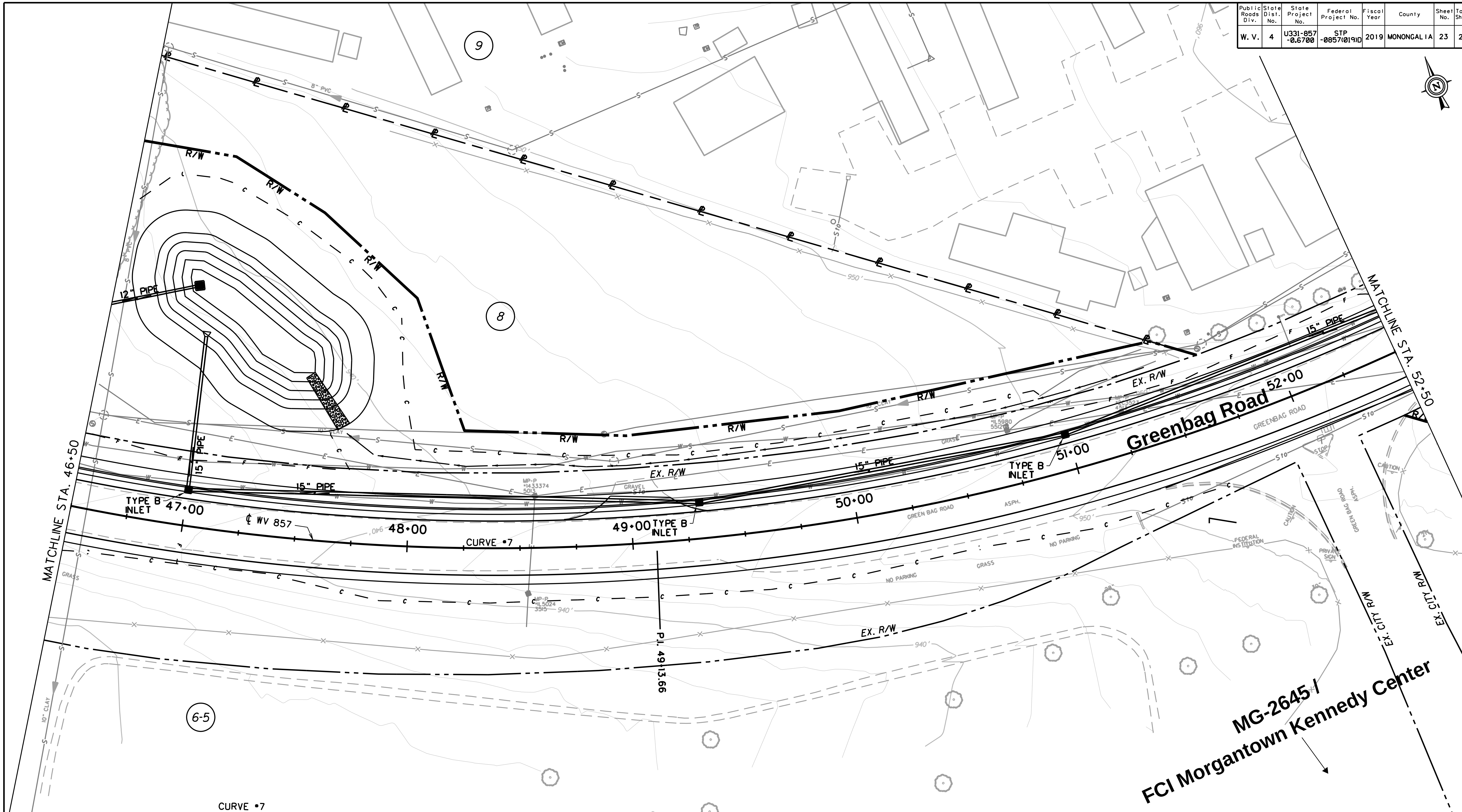
THE WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
PLAN SHEET

4/1/2019
9:23:17 AM

Public Roads Div.	State Dist. No.	State Project No.	Federal Project No.	Fiscal Year	County	Sheet No.	Total Sheets
W. V.	4	U331-857 -0.6700	STP -0857(019)D	2019	MONONGALIA	23	272



CURVE #7

P.I. Sta. 49+13.66
D = 67° 50' 43" (LT)
Dc = 5° 59' 58"
R = 955.00'
T = 642.28'
L = 1,130.84'
SE = 6.2%

SCALE : 0 20 ft. 40 ft.

REVISION NUMBER	SHEET NUMBER	REVISION	DATE	BY

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THE WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PLAN SHEET

4/1/2019
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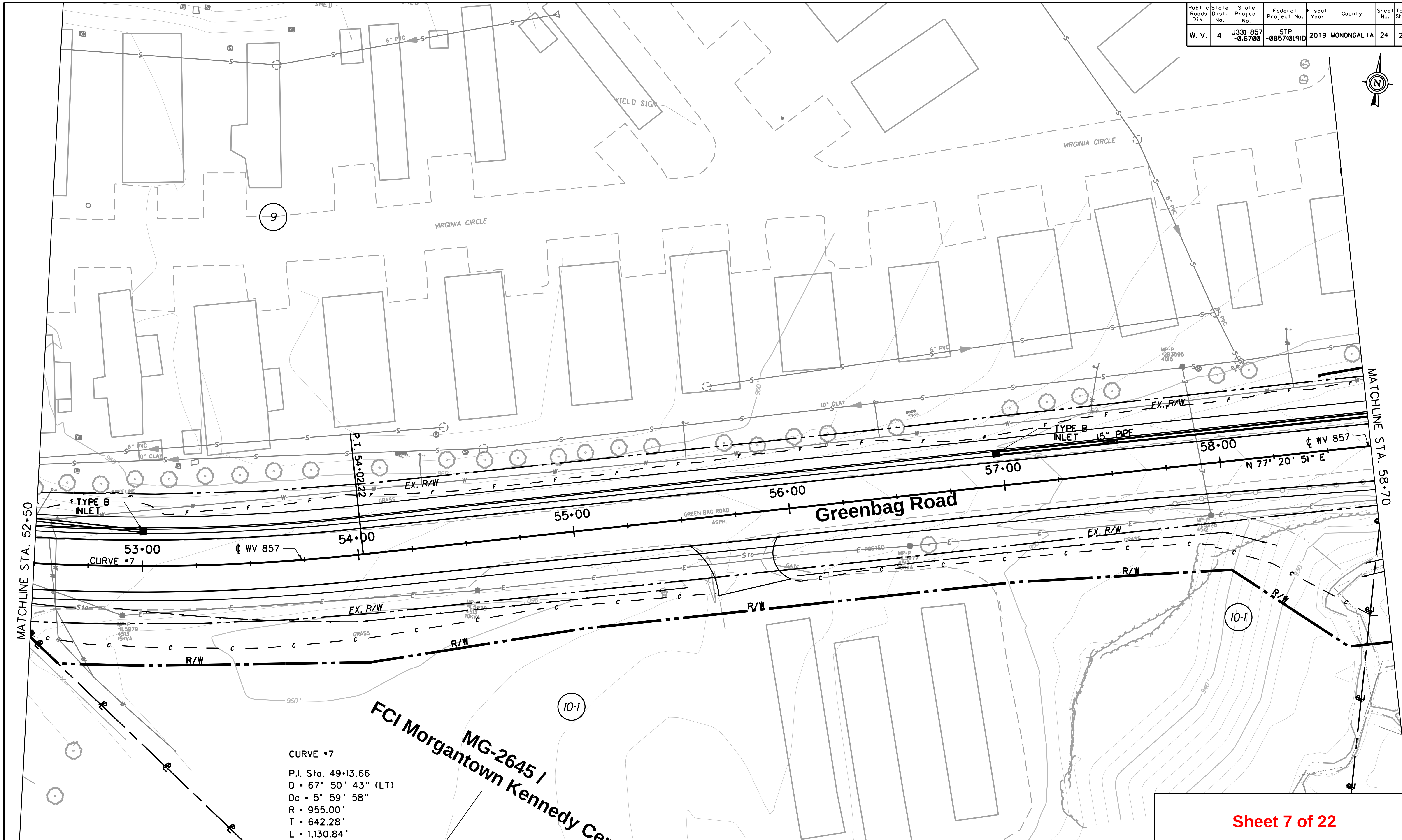
Public Roads Div.	State Dist. No.	State Project No.	Federal Project No.	Fiscal Year	County	Sheet No.	Total Sheets
W. V.	4	U331-857 -0.6700	STP -0857(019)D	2019	MONONGALIA	24	272



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REVISION NUMBER	SHEET NUMBER	REVISION	DATE	BY

THE WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
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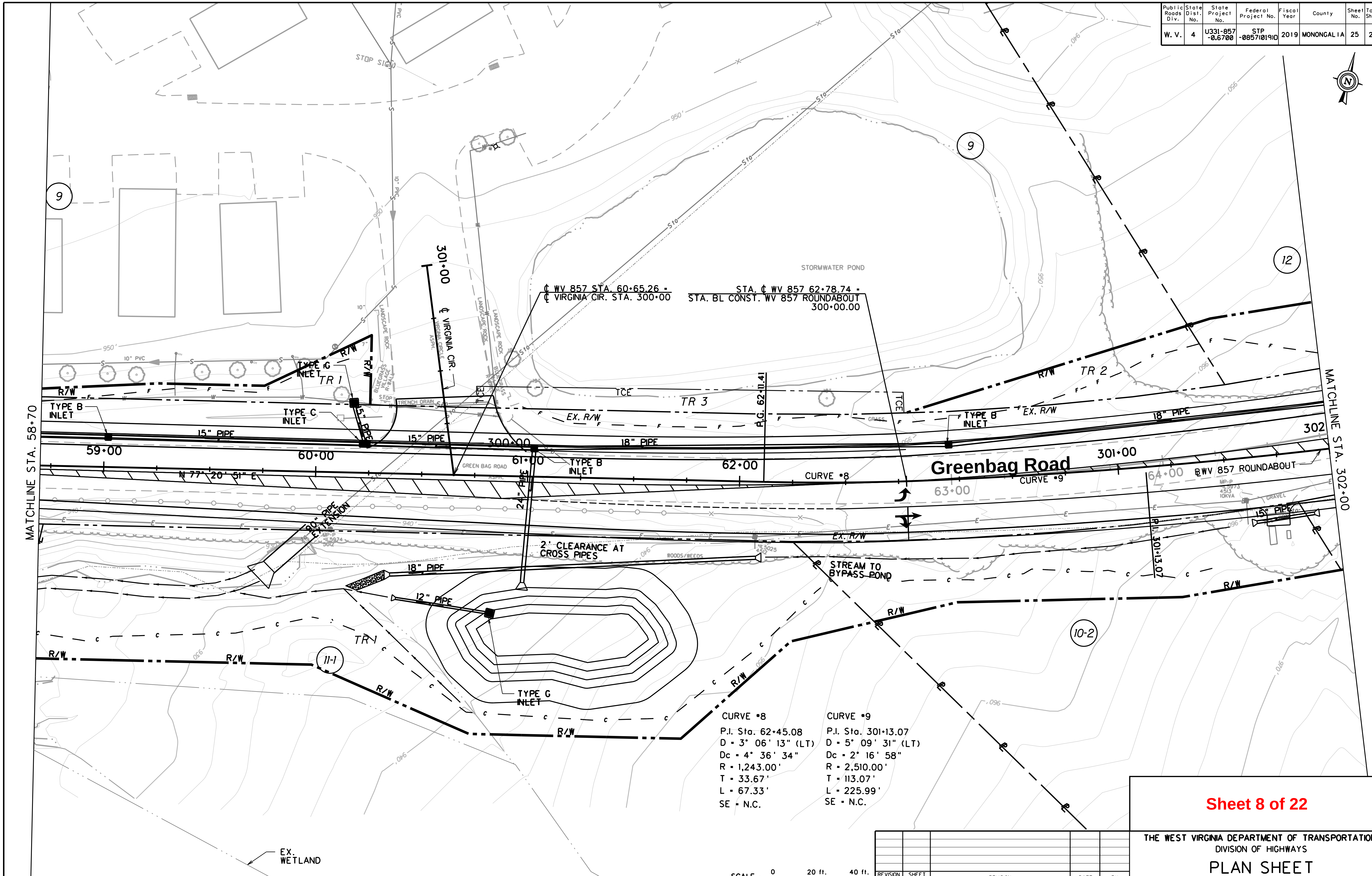
Public Roads Div.	State Dist. No.	State Project No.	Federal Project No.	Fiscal Year	County	Sheet No.	Total Sheets
W. V.	4	U331-857 -0.6700	STP -0857(019)D	2019	MONONGALIA	25	272



CURVE #8
P.I. Sta. 62+45.08
D = 3° 06' 13" (LT)
Dc = 4° 36' 34"
R = 1,243.00'
T = 33.67'
L = 67.33'
SE = N.C.

CURVE #9
P.I. Sta. 301+13.07
D = 5° 09' 31" (LT)
Dc = 2° 16' 58"
R = 2,510.00'
T = 113.07'
L = 225.99'
SE = N.C.

SCALE : 0 20 ft. 40 ft.

REVISION NUMBER	SHEET NUMBER	REVISION	DATE	BY

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THE WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
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4/1/2019
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Public Roads Div.	State Dist. No.	State Project No.	Federal Project No.	Fiscal Year	County	Sheet No.	Total Sheets
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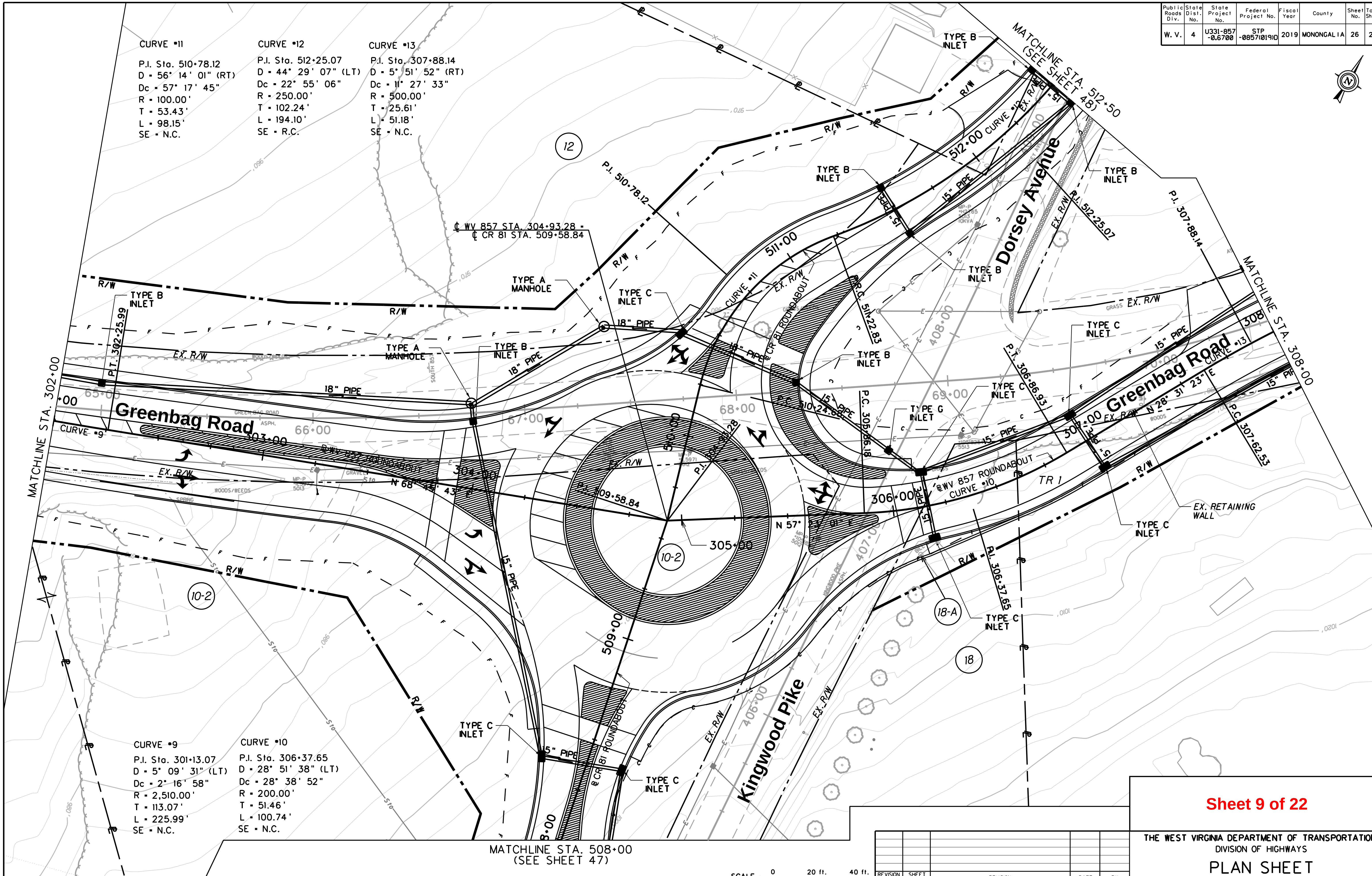

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REVISION NUMBER	SHEET NUMBER	REVISION	DATE	BY

THE WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
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4/1/2019
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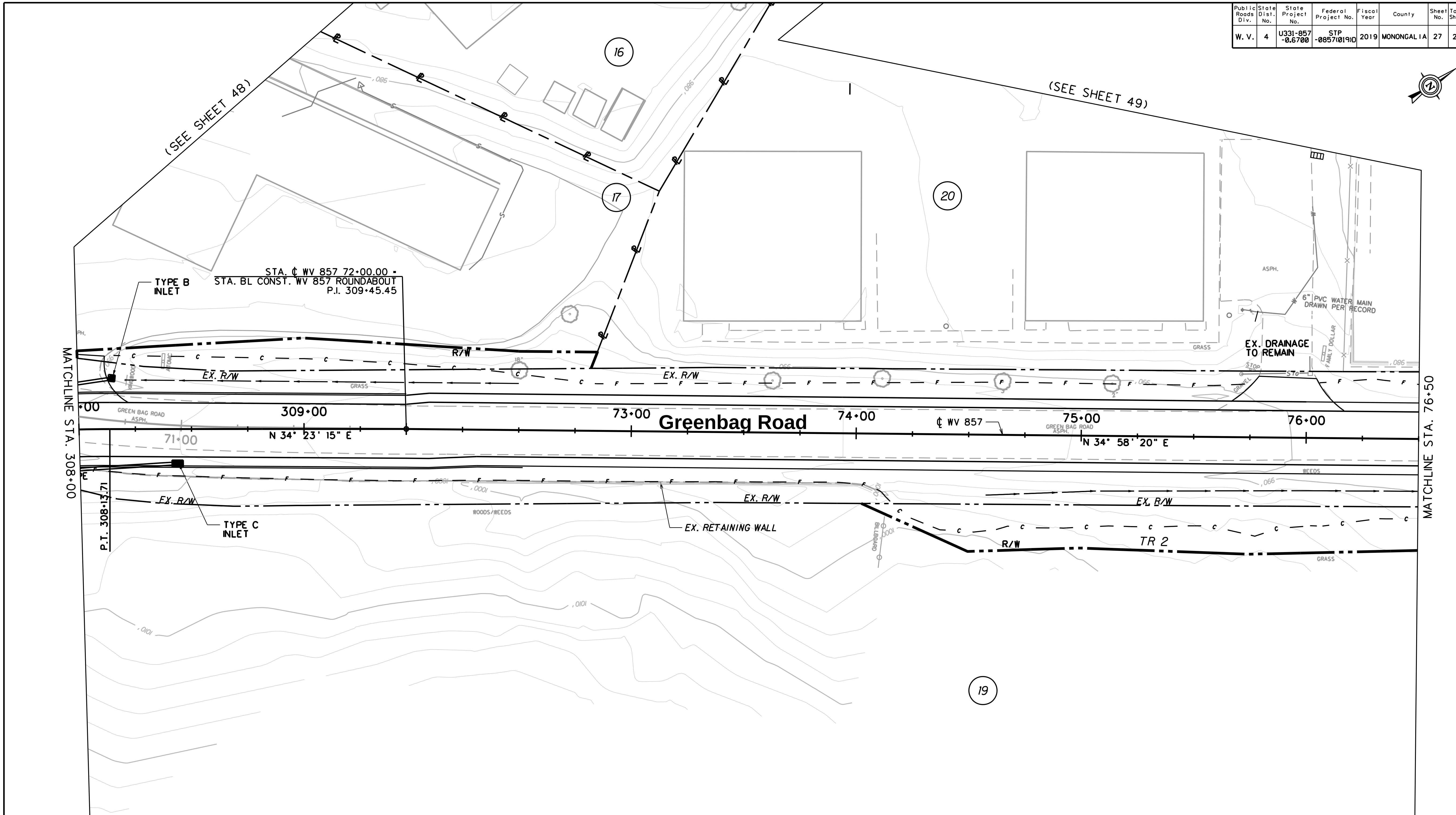
Public Roads Div.	State Dist. No.	State Project No.	Federal Project No.	Fiscal Year	County	Sheet No.	Total Sheets
W. V.	4	U331-857 -0.6700	STP -0857(019)D	2019	MONONGALIA	27	272



SCALE : 0 20 ft. 40 ft.

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REVISION NUMBER	SHEET NUMBER	REVISION	DATE	BY

THE WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
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4/1/2019
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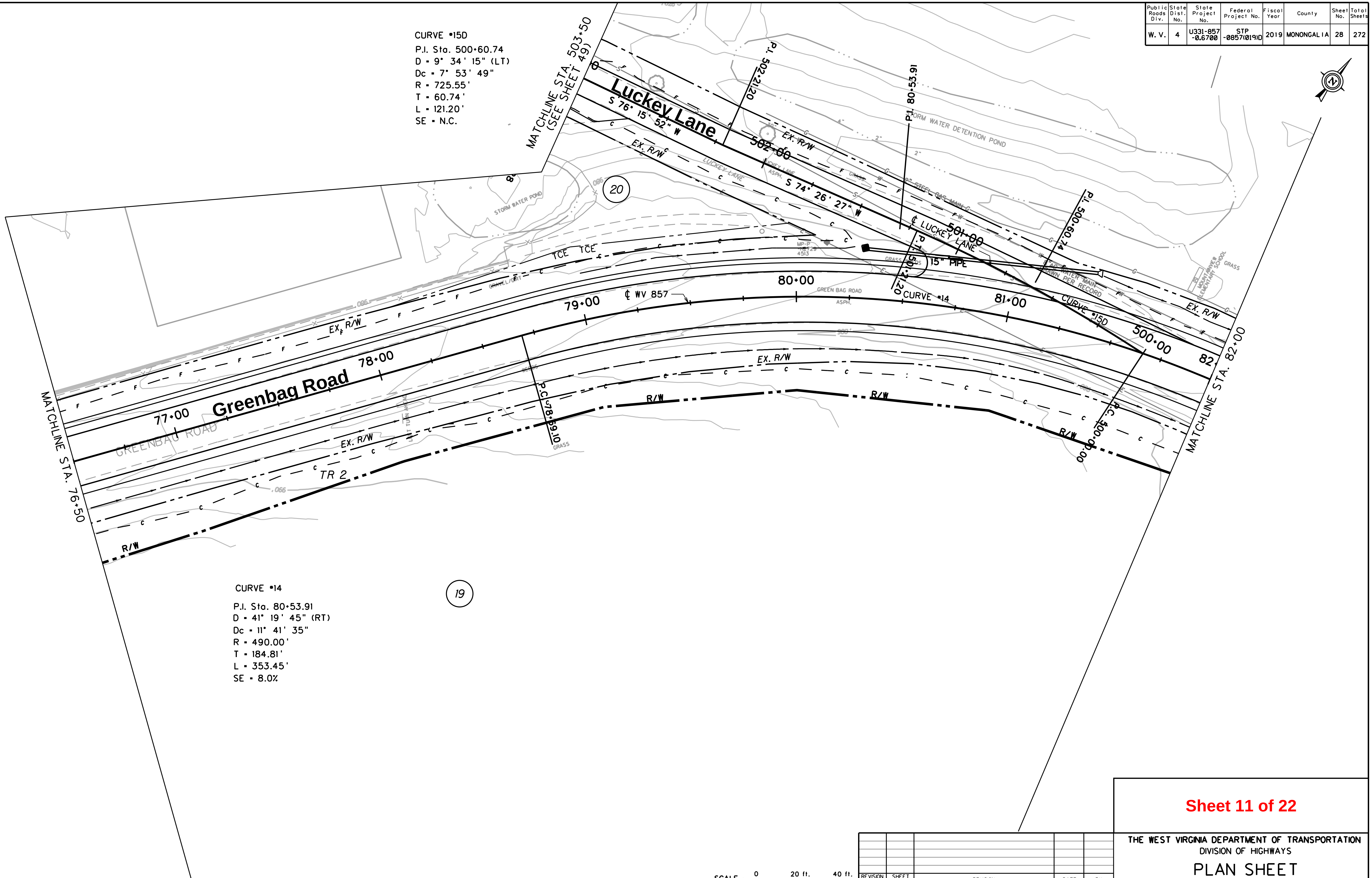
Public Roads Div.	State Dist. No.	State Project No.	Federal Project No.	Fiscal Year	County	Sheet No.	Total Sheets
W. V.	4	U331-857 -0.6700	STP -0857(019)D	2019	MONONGALIA	28	272

CURVE #15D
P.I. Sta. 500+60.74
D = 9° 34' 15" (LT)
Dc = 7° 53' 49"
R = 725.55'
T = 60.74'
L = 121.20'
SE = N.C.



CURVE #14
P.I. Sta. 80+53.91
D = 41° 19' 45" (RT)
Dc = 11° 41' 35"
R = 490.00'
T = 184.81'
L = 353.45'
SE = 8.0%

SCALE : 0 20 ft. 40 ft.

REVISION NUMBER	SHEET NUMBER	REVISION	DATE	BY

THE WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
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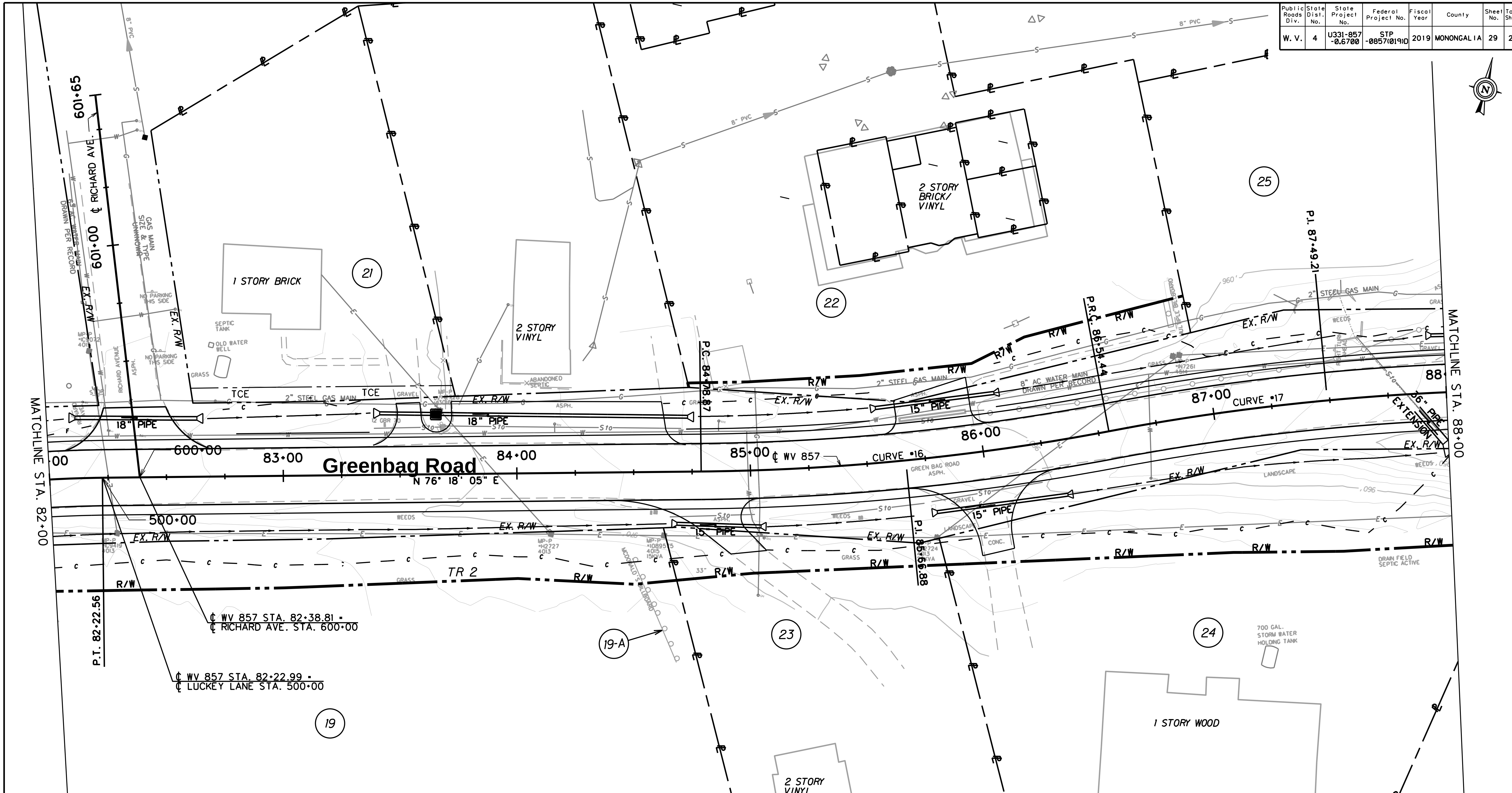
Public Roads Div.	State Dist. No.	State Project No.	Federal Project No.	Fiscal Year	County	Sheet No.	Total Sheets
W. V.	4	U331-857-0.6700	STP-0857(019)D	2019	MONONGALIA	29	272



CURVE #16
P.I. Sta. 85+66.88
D = 10° 06' 36" (LT)
Dc = 5° 45' 30"
R = 995.00'
T = 88.01'
L = 175.57'
SE = 6.0%

CURVE #17
P.I. Sta. 87+49.21
D = 10° 38' 51" (RT)
Dc = 5° 38' 02"
R = 1,017.00'
T = 94.77'
L = 188.99'
SE = 6.0%

SCALE : 0 20 ft. 40 ft.

REVISION NUMBER	SHEET NUMBER	REVISION	DATE	BY

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THE WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
PLAN SHEET

4/1/2019
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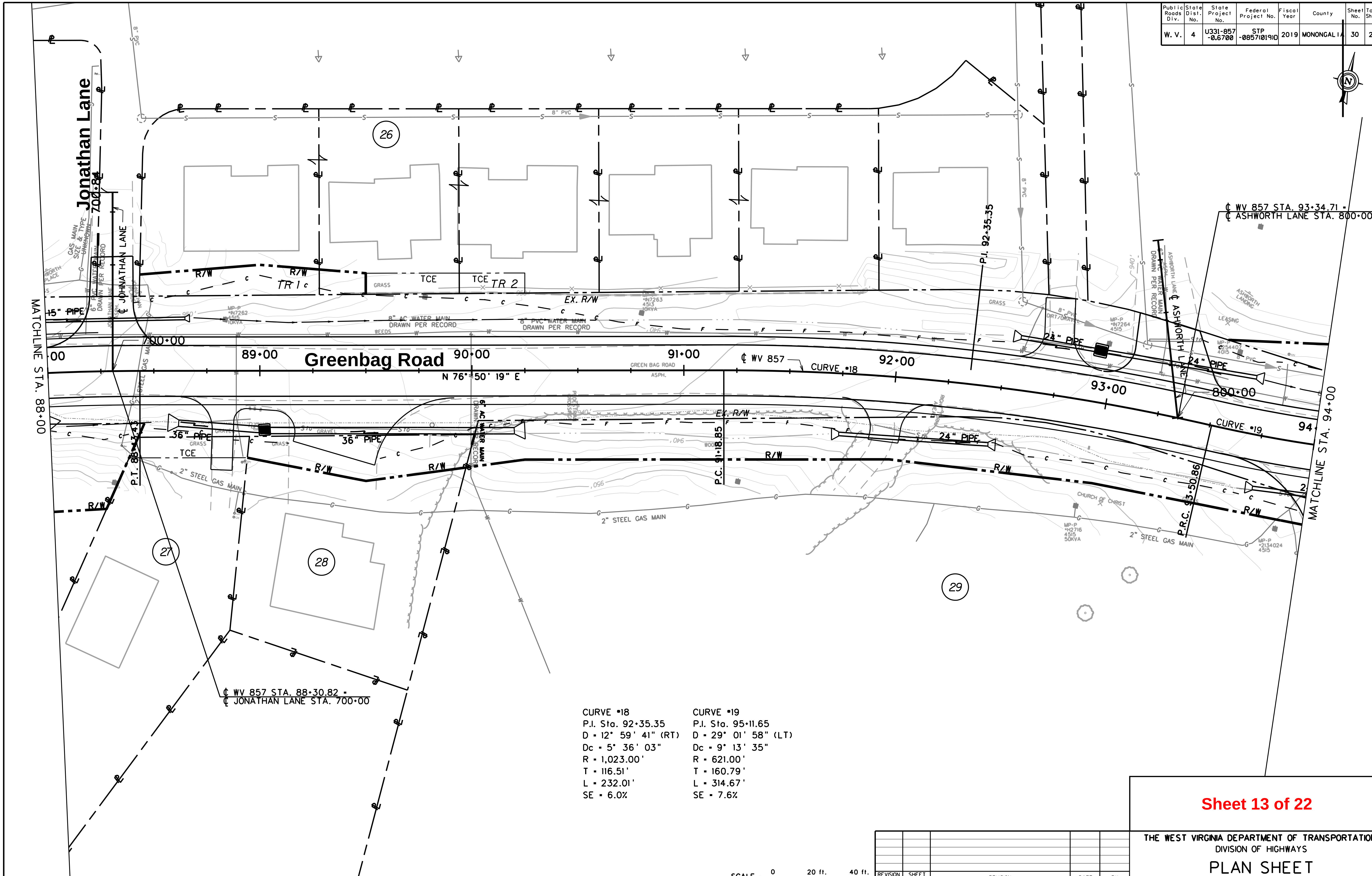
Public Roads Div.	State Dist. No.	State Project No.	Federal Project No.	Fiscal Year	County	Sheet No.	Total Sheets
W. V.	4	U331-857 -0.6700	STP -0857(019)D	2019	MONONGALIA	30	272



CURVE #18
P.I. Sta. 92+35.35
D = 12° 59' 41" (RT)
Dc = 5° 36' 03"
R = 1,023.00'
T = 116.51'
L = 232.01'
SE = 6.0%

CURVE #19
P.I. Sta. 95+11.65
D = 29° 01' 58" (LT)
Dc = 9° 13' 35"
R = 621.00'
T = 160.79'
L = 314.67'
SE = 7.6%

SCALE : 0 20 ft. 40 ft.

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REVISION NUMBER	SHEET NUMBER	REVISION	DATE	BY

THE WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
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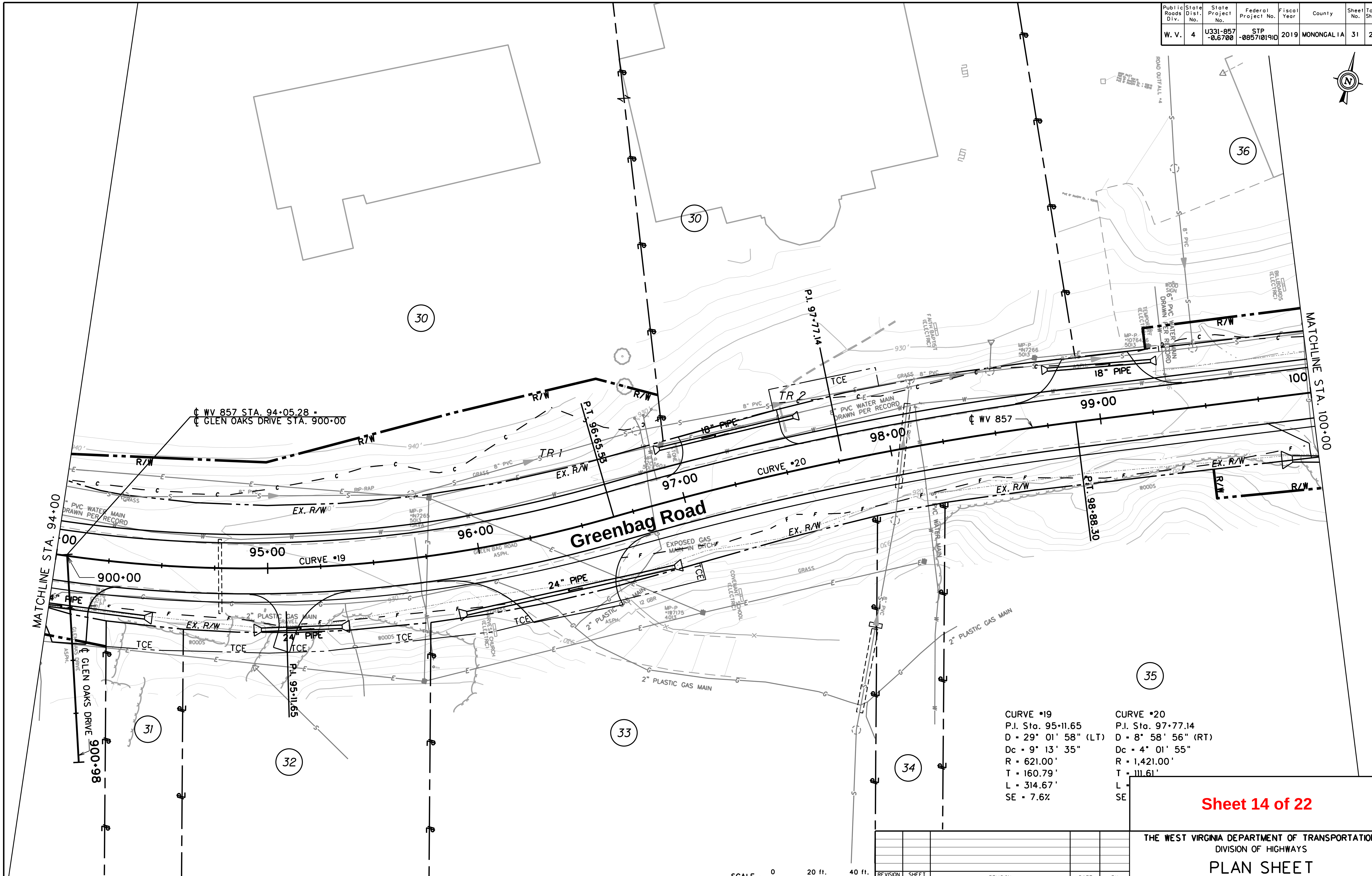
W. V.	4	U331-857 -0.6700	STP -0857(019)D	2019	MONONGALIA	31	272



CURVE #19
P.I. Sta. 95+11.65
D = 29° 01' 58" (LT)
Dc = 9° 13' 35"
R = 621.00'
T = 160.79'
L = 314.67'
SE = 7.6%

CURVE #20
P.I. Sta. 97+77.14
D = 8° 58' 56" (RT)
Dc = 4° 01' 55"
R = 1,421.00'
T = 111.61'
L =
SE

SCALE : 0 20 ft. 40 ft.

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REVISION NUMBER	SHEET NUMBER	REVISION	DATE	BY

THE WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
PLAN SHEET

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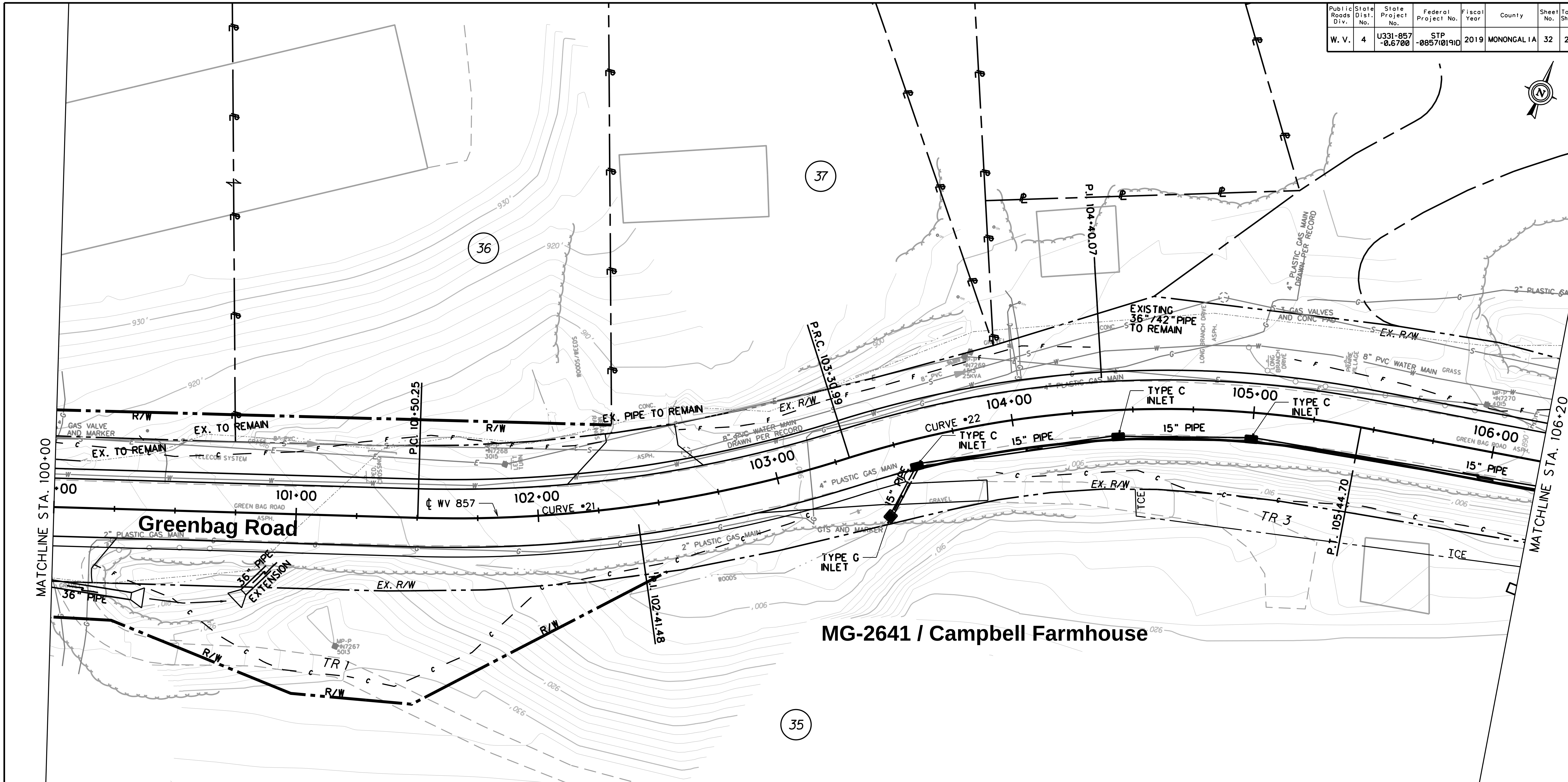
Public Roads Div.	State Dist. No.	State Project No.	Federal Project No.	Fiscal Year	County	Sheet No.	Total Sheets
W. V.	4	U331-857 -0.6700	STP -0857(019)D	2019	MONONGALIA	32	272



CURVE #21
P.I. Sta. 102+41.48
D = 19° 12' 46" (LT)
Dc = 10° 37' 48"
R = 539.00'
T = 91.23'
L = 180.74'
SE = 4.6%

CURVE #22
P.I. Sta. 104+40.07
D = 28° 16' 44" (RT)
Dc = 13° 13' 56"
R = 433.00'
T = 109.08'
L = 213.71'
SE = 5.0%

SCALE : 0 20 ft. 40 ft.

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REVISION NUMBER	SHEET NUMBER	REVISION	DATE	BY

THE WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
PLAN SHEET

4/1/2019
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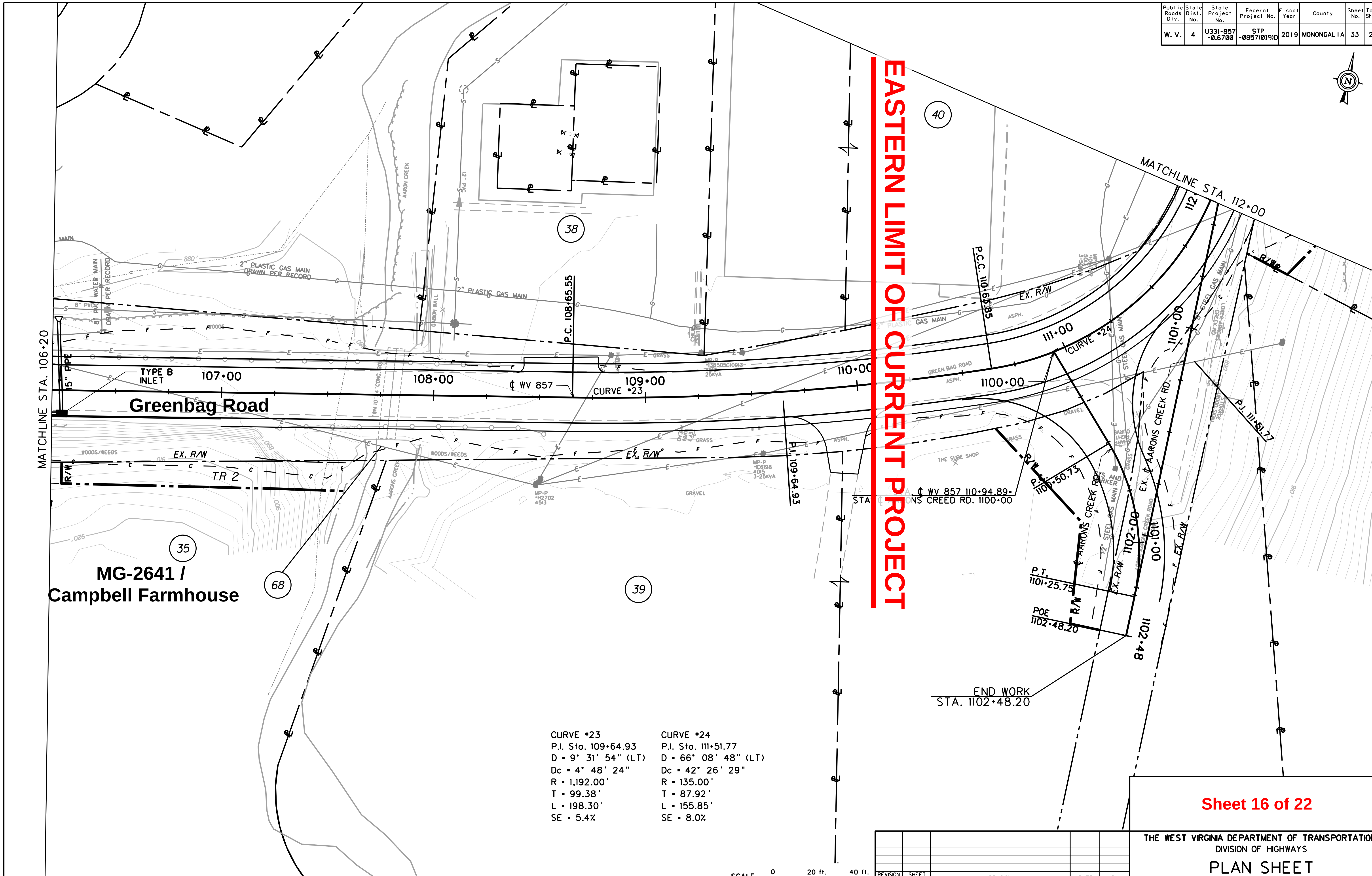
Public Roads Div.	State Dist. No.	State Project No.	Federal Project No.	Fiscal Year	County	Sheet No.	Total Sheets
W. V.	4	U331-857 -0.6700	STP -0857(019)D	2019	MONONGALIA	33	272



CURVE #23
P.I. Sta. 109+64.93
D = 9° 31' 54" (LT)
Dc = 4° 48' 24"
R = 1,192.00'
T = 99.38'
L = 198.30'
SE = 5.4%

CURVE #24
P.I. Sta. 111+51.77
D = 66° 08' 48" (LT)
Dc = 42° 26' 29"
R = 135.00'
T = 87.92'
L = 155.85'
SE = 8.0%

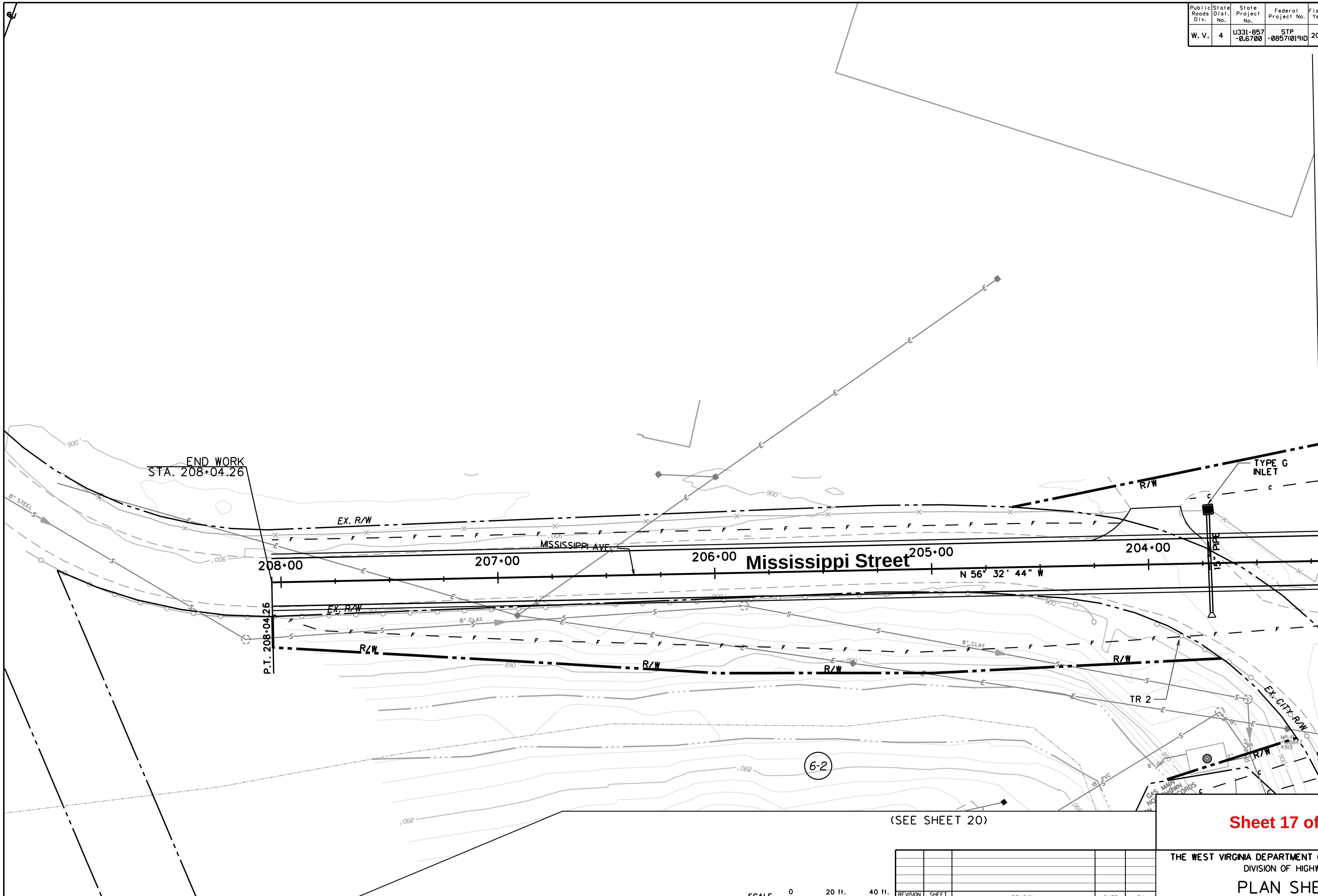
SCALE : 0 20 ft. 40 ft.

REVISION NUMBER	SHEET NUMBER	REVISION	DATE	BY

THE WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
PLAN SHEET

4/1/2019
9:23:41 AM

Public Roads Div.	State Dist. No.	State Project No.	Federal Project No.	Fiscal Year	County	Sheet No.	Total Sheets
W. V.	4	U331-857 -0.6700	STP -0857(019)D	2019	MONONGALIA	44	272



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REVISION NUMBER	SHEET NUMBER	REVISION	DATE	BY

THE WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
PLAN SHEET

4/1/2019
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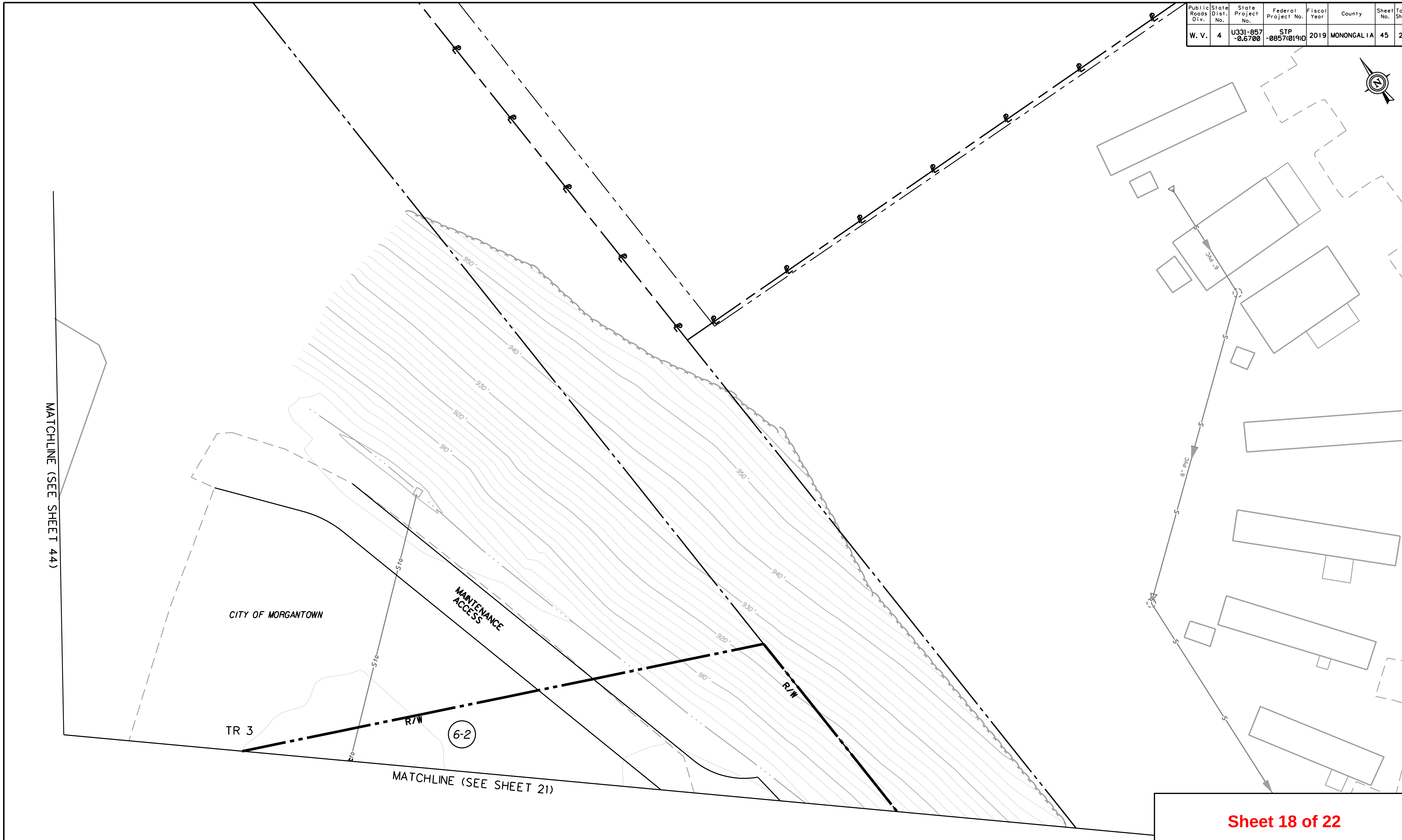
Public Roads Div.	State Dist. No.	State Project No.	Federal Project No.	Fiscal Year	County	Sheet No.	Total Sheets
W. V.	4	U331-857 -0.6700	STP -0857(019)D	2019	MONONGALIA	45	272



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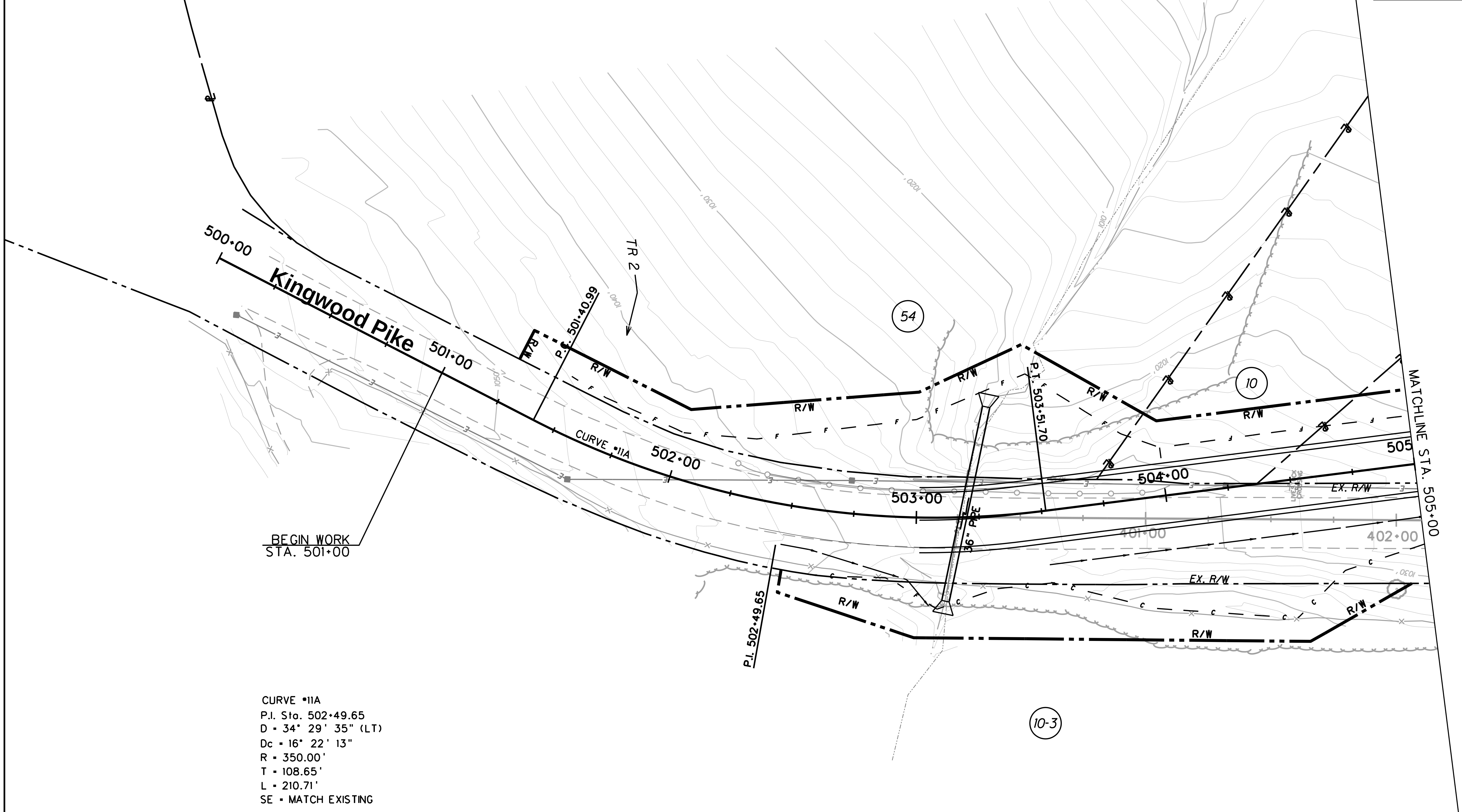
SCALE : 0 20 ft. 40 ft.

REVISION NUMBER	SHEET NUMBER	REVISION	DATE	BY

THE WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
PLAN SHEET

4/1/2019
9:23:51 AM

Public Roads Div.	State Dist. No.	State Project No.	Federal Project No.	Fiscal Year	County	Sheet No.	Total Sheets
W. V.	4	U331-857 -0.6700	STP -0857(019)D	2019	MONONGALIA	46	272



CURVE #11A
P.I. Sta. 502+49.65
D = 34° 29' 35" (LT)
Dc = 16° 22' 13"
R = 350.00'
T = 108.65'
L = 210.71'
SE = MATCH EXISTING

SCALE : 0 20 ft. 40 ft.

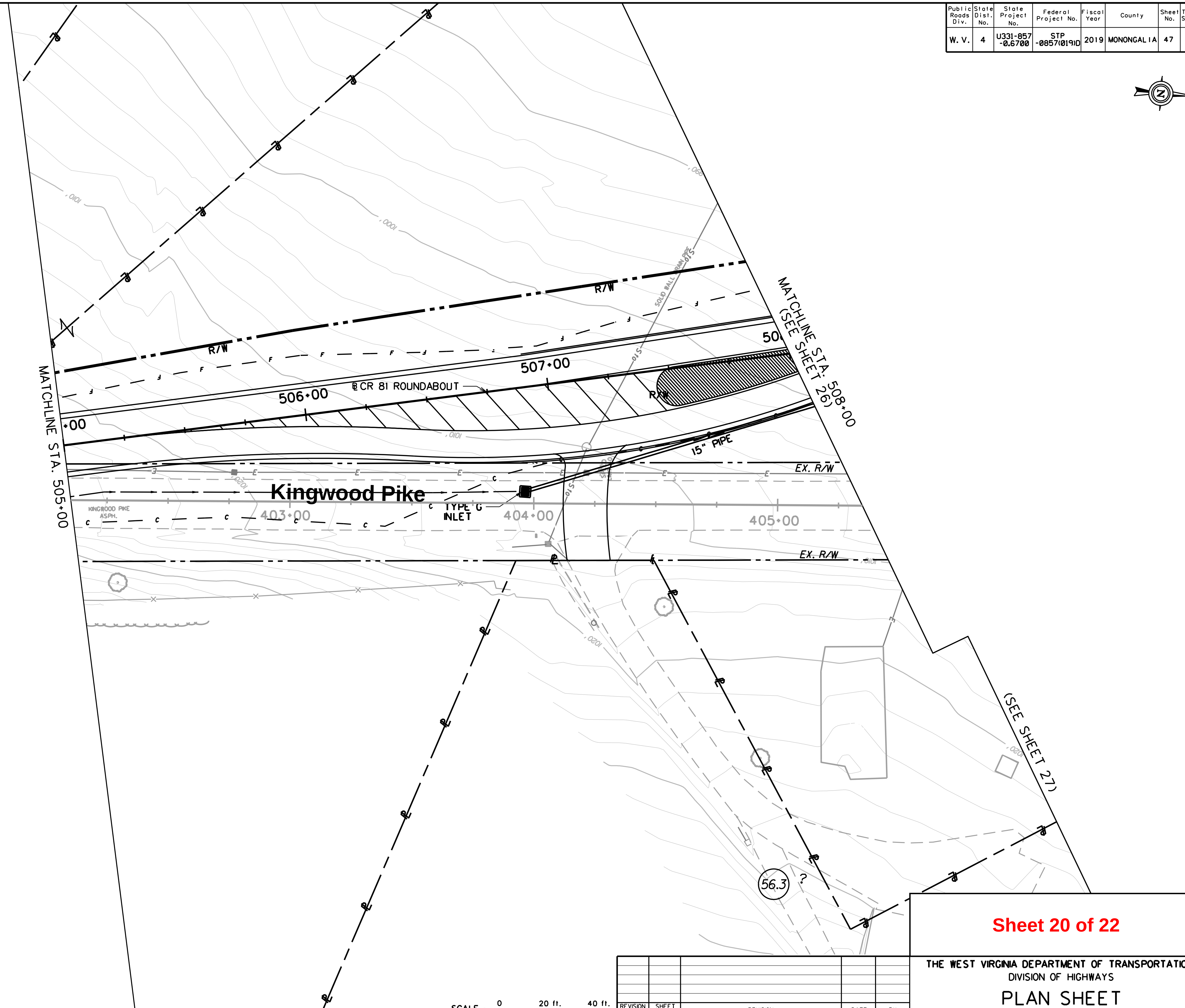
REVISION NUMBER	SHEET NUMBER	REVISION	DATE	BY

Sheet 19 of 22

THE WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
PLAN SHEET

4/1/2019
9:23:52 AM

Public Roads Div.	State Dist. No.	State Project No.	Federal Project No.	Fiscal Year	County	Sheet No.	Total Sheets
W. V.	4	U331-857 -0.6700	STP -0857(019)D	2019	MONONGALIA	47	272



Sheet 20 of 22

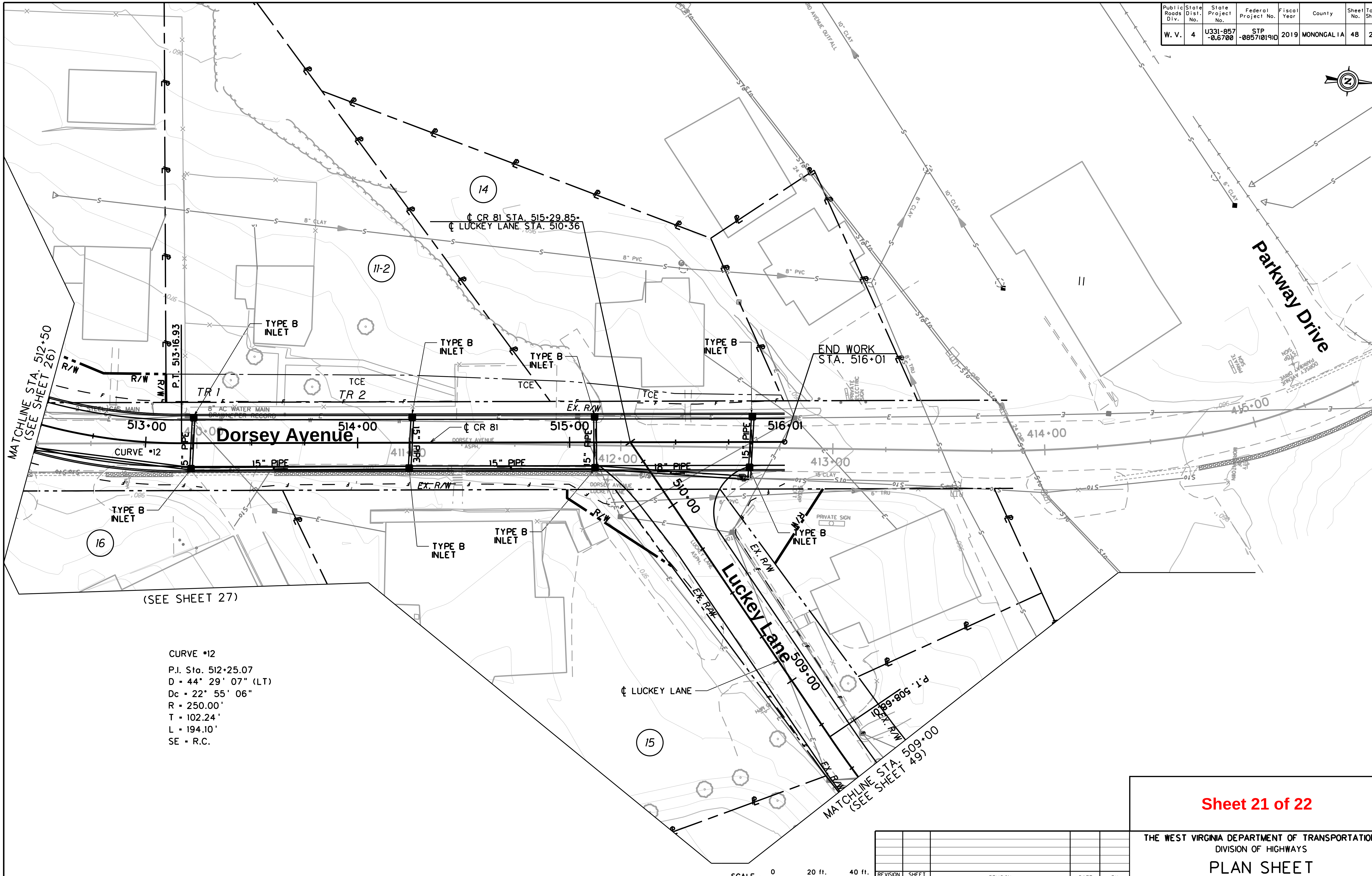
REVISION NUMBER	SHEET NUMBER	REVISION	DATE	BY

THE WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PLAN SHEET

4/1/2019
9:23:53 AM

Public Roads Div.	State Dist. No.	State Project No.	Federal Project No.	Fiscal Year	County	Sheet No.	Total Sheets
W. V.	4	U331-857 -0.6700	STP -0857(019)D	2019	MONONGALIA	48	272



CURVE #12

P.I. Sta. 512+25.07
D = 44° 29' 07" (LT)
Dc = 22° 55' 06"
R = 250.00'
T = 102.24'
L = 194.10'
SE = R.C.

SCALE : 0 20 ft. 40 ft.

REVISION NUMBER	SHEET NUMBER	REVISION	DATE	BY

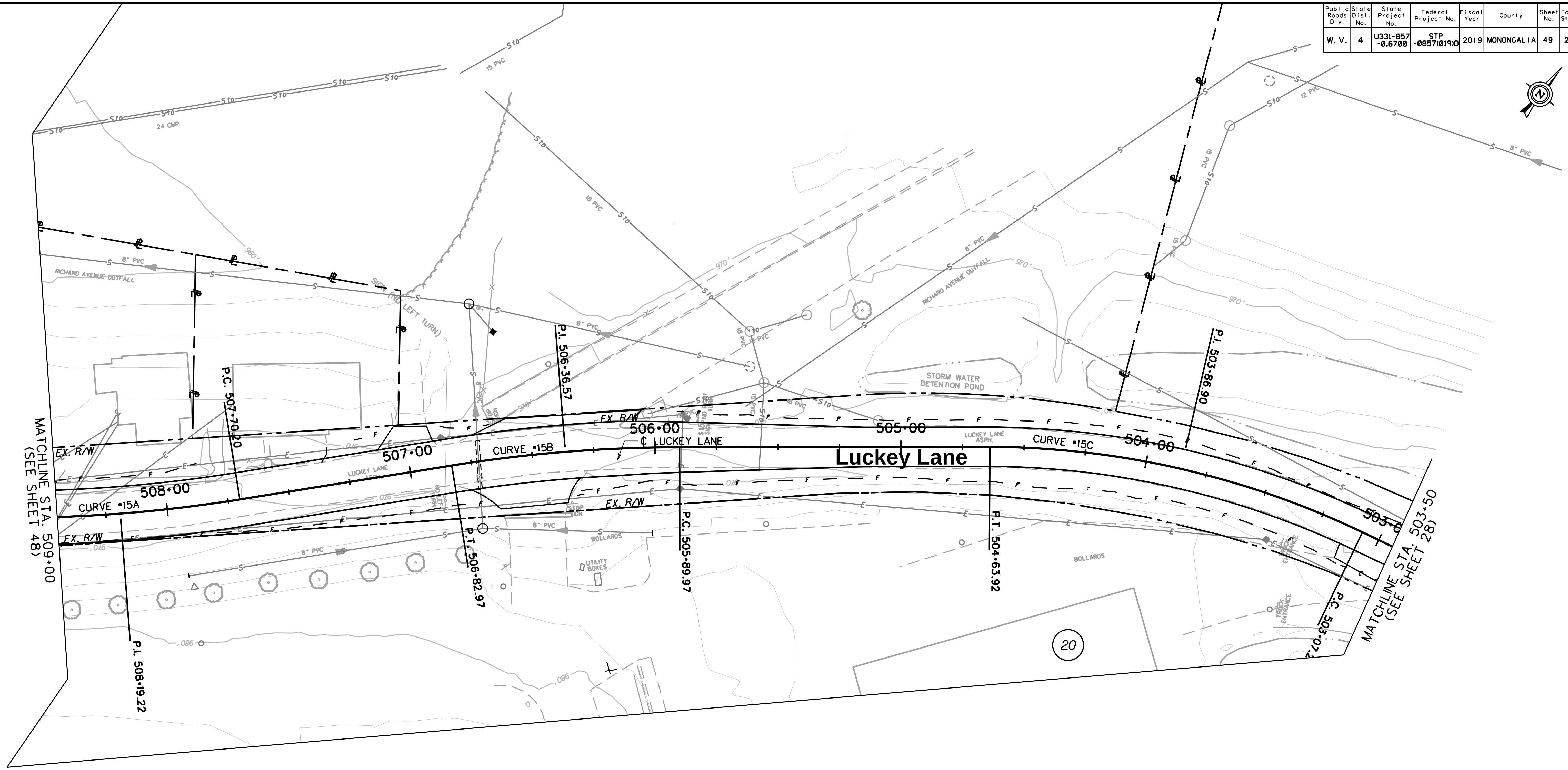
Sheet 21 of 22

THE WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PLAN SHEET

4/1/2019
9:23:54 AM

Public Roads Div.	State Dist. No.	State Project No.	Federal Project No.	Fiscal Year	County	Sheet No.	Total Sheets
W. V.	4	U331-857 -0.6700	STP -0857(019)D	2019	MONONGALIA	49	272



CURVE #15A
P.I. Sta. 508+19.22
D = 9° 26' 50" (RT)
Dc = 9° 39' 33"
R = 593.17'
T = 49.01'
L = 97.81'
SE = 4.6%

CURVE #15B
P.I. Sta. 506+36.57
D = 9° 01' 47" (LT)
Dc = 9° 42' 34"
R = 590.11'
T = 46.60'
L = 93.00'
SE = 4.6%

CURVE #15C
P.I. Sta. 503+86.90
D = 25° 18' 45" (LT)
Dc = 16° 09' 36"
R = 354.55'
T = 79.62'
L = 156.64'
SE = 6.0%

SCALE : 0 20 ft. 40 ft.

REVISION NUMBER	SHEET NUMBER	REVISION	DATE	BY

Sheet 22 of 22

THE WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
PLAN SHEET

4/1/2019
9:23:55 AM

APPENDIX C

PHOTOGRAPHS

Photograph 1. MG-1332 / Harner Chapel, Morgantown, Monongalia County
Northeast elevation, facing northwest

Photograph 2. MG-2640 / House at 796 Greenbag Road, Morgantown, Monongalia County
East (side) elevation, facing west


Photograph 3. MG-2641 / Campbell Farmhouse, Morgantown, Monongalia County
North and west (front) elevations, facing southeast


Photograph 4. MG-2641 / Campbell Farmhouse, Morgantown, Monongalia County
Secondary dwelling (left) and dairy barn with silos behind, facing northeast

Photograph 5. MG-2642 / House at 851 Greenbag Road, Morgantown, Monongalia County
West and south (front) elevations, facing northeast

Photograph 6. MG-2643 / Mountaineer Mall, Morgantown, Monongalia County
Overview, facing southwest

Photograph 7. MG-2643 / Mountaineer Mall, Morgantown, Monongalia County
Representative entrance, facing southwest

Photograph 8. MG-2643 / Mountaineer Mall, Morgantown, Monongalia County
Mall entrance in ca. 1987 addition, facing southeast

Photograph 9. MG-2644 / Morgantown City Garage, Morgantown, Monongalia County
Southwest and southeast elevations, facing north

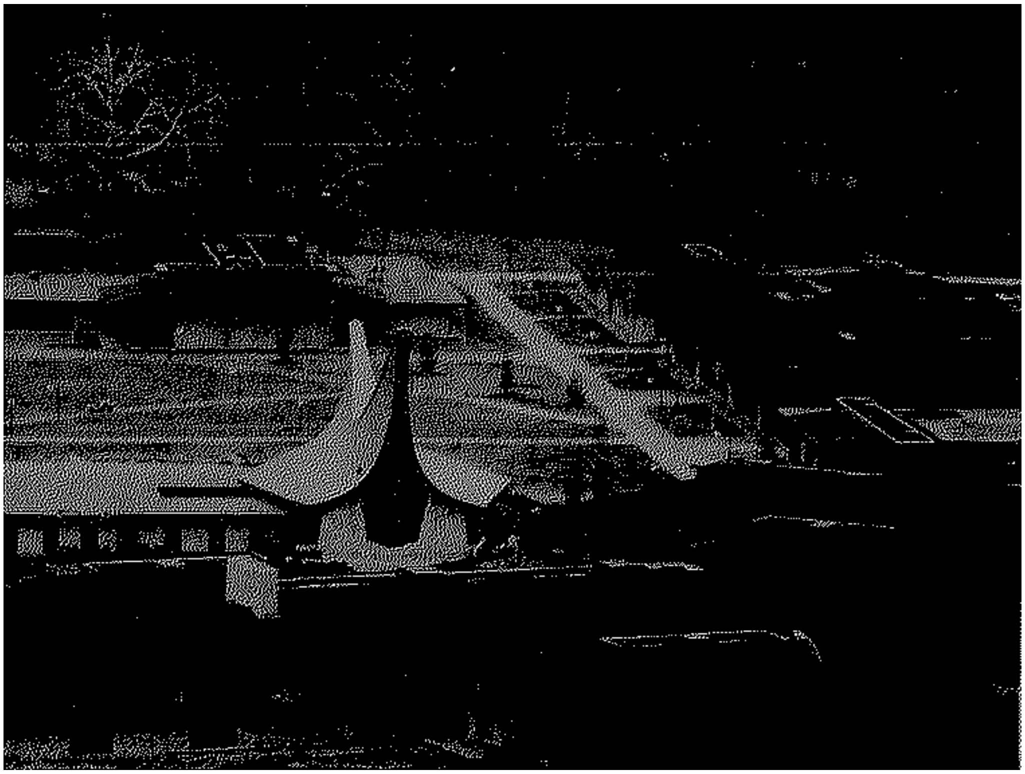
Photograph 10. MG-2644 / Morgantown City Garage, Morgantown, Monongalia County
Prefabricated outbuilding, facing southeast

Photograph 11. MG-2644 / Morgantown City Garage, Morgantown, Monongalia County
Non-historic storage barn, facing southeast

Photograph 12. MG-2645/FCI Morgantown Kennedy Center/R.F.K. Youth Center, Morgantown, Monongalia County
Entrance sign and wood post fencing south of Greenbag Road, facing southeast

Photograph 13. MG-2645/FCI Morgantown Kennedy Center/R.F.K. Youth Center, Morgantown, Monongalia County
Overview from Greenbag Road, facing southeast

Photograph 14. MG-2645 / FCI Morgantown Kennedy Center/R.F.K. Youth Center, Morgantown, Monongalia County
Representative building, facing west



Photograph 15. MG-2645 / FCI Morgantown Kennedy Center/R.F.K. Youth Center, Morgantown, Monongalia County
Photograph of representative building with hyperbolic-type roof (Morgantown Dominion News 1968)

Photograph 16. MG-2646 / Patton Farm, Morgantown, Monongalia County
Farmhouse, facing northeast

Photograph 17. MG-2646 / Patton Farm, Morgantown, Monongalia County
Root cellar, facing east

Photograph 18. MG-2646 / Patton Farm, Morgantown, Monongalia County
Shed #1 (foreground) and Shed #2 (background), facing east

Photograph 19. MG-2646 / Patton Farm, Morgantown, Monongalia County
Non-historic pole barn, facing northeast

Photograph 20. MG-2647 / Anderson House, Morgantown, Monongalia County
Overview showing house and non-historic garage, facing northeast

Photograph 21. MG-2647 / Anderson House, Morgantown, Monongalia County
House showing enclosed front porch, facing southeast

Photograph 22. MG-2648 / House at 1440 Dorsey Avenue, Morgantown, Monongalia County
House, non-historic garage, and larger non-historic garage in background, facing west

Photograph 23. MG-2649 / Smith House, Morgantown, Monongalia County
East and south elevations, facing northwest

Photograph 24. MG-2650 / Atomic Grill, Morgantown, Monongalia County
Main entrance, facing northeast

Photograph 25. MG-2650 / Atomic Grill, Morgantown, Monongalia County
Garage bays, facing north

Photograph 26. MG-2651 / Dorsey School, Morgantown, Monongalia County
Façade and south elevation, facing northeast

Photograph 27. MG-2651 / Dorsey School, Morgantown, Monongalia County
Rear addition, facing southwest

Photograph 28. MG-2652 / House at 1432 Dorsey Avenue, Morgantown, Monongalia County
House and garage, facing northwest

Photograph 29. MG-2653 / House at 102 Luckey Lane, Morgantown, Monongalia County
House with second story enclosed addition, facing northeast

Photograph 30. MG-2654 / House at 104 Luckey Lane, Morgantown, Monongalia County
Façade and southwest elevation, facing northeast

Photograph 31. MG-2655 / Mountain View Manor, Morgantown, Monongalia County
Overview of buildings, facing west

Photograph 32. MG-2656 / House at 500 Parkway Drive, Morgantown, Monongalia County
House and garage, facing north


Photograph 33. MG-2657 / House at 502 Parkway Drive, Morgantown, Monongalia County
Garage and ell, facing northwest


Photograph 34. MG-2658 / House at 693 Greenbag Road, Morgantown, Monongalia County
House with integral garage, facing northwest

Photograph 35. MG-2658 / House at 693 Greenbag Road, Morgantown, Monongalia County
Garage north of house, facing north

Photograph 36. MG-2659 / House at 703 Greenbag Road, Morgantown, Monongalia County
House with front and rear addition, facing northwest

Photograph 37. MG-2659 / House at 703 Greenbag Road, Morgantown, Monongalia County
Garage north of house, facing north

Photograph 38. MG-2660 / House at 710 Greenbag Road, Morgantown, Monongalia County
House showing rear addition and attached garage, facing southeast

Photograph 39. MG-2661 / Cobun Creek Culvert, Morgantown, Monongalia County
From flood plain south of Greenbag Road, facing north

Photograph 40. MG-2665 / The Sube Shop, Morgantown, Monongalia County
North (front) and west elevations, facing southeast

Photograph 41. MG-2666 / Aaron Creek Box Culvert, Morgantown, Monongalia County
South elevation of structure, facing northeast (WVDOH 2018)

APPENDIX D

HISTORICAL PRE-SCREENING CHECKLIST

West Virginia Division of Highways
Historical Pre-Screening Checklist

Project Name: Greenbag Road Improvement

[State Project: U331-857-0.67 00] [Federal Project: STP-0857(019)D]

County/Rt/Milepost: Monongalia / CR 857 / 0.50 to 1.75

Unit Leader: Sondra L. Mullins

Historian Name: Laura C. Ricketts and Elizabeth H. Williams / The Markosky Engineering Group, Inc.

Date: October 31, 2019

Project Information:

☐ Bridge Replacement

Was the bridge evaluated in the Historic Bridge Survey? Yes or No
Summarize response:

☐ Bank Stabilization/Slide Repair

☒ Intersection Improvement

☒ Road Widening/Realignment

☐ Other

☒ Culvert Replacement

The box culvert carrying Greenbag Road over Cobun Creek will be replaced by a wider box culvert.

☐ Grant Project Scope of Work:

Sources:

☐ Historic Maps

☒ County Histories

☒ Turnpike Maps

☒ SHPO Survey

☒ Newspapers

☒ National Register Listings

☒ Historic Bridge Survey Historic Context

☒ Historic Bridge Survey - Do Not Survey List

☒ Other (list): Deed research at the Monongalia County Clerk's Office

9-16-15

Project Area Information:

Where is the bridge project located?

The 1.65-mile long roadway improvement project is located along Greenbag Road (CR 857) beginning 0.40 miles east of the intersection of Greenbag Road and US 119 and ending where Greenbag Road crosses Aaron Creek.

What are the nearest towns or county seats? (Distance to them?)

The city of Morgantown is approximately 1.63 miles northwest of the Project.

What body of water does the bridge cross?

Greenbag Road crosses Cobun Creek with the MG-2661 Cobun Creek Culvert, and MG-2666 Bridge over Aaron Creek (Structure No. 31A203) carries Greenbag Road over Aaron Creek.

What transportation link does this bridge or location serve?

The Project provides access from Route 119 southwest of Morgantown to Sabraton which is located east of Morgantown.

Was this area used for?

- ☒ Agriculture
- ☒ Oil and Gas Industry
- ☐ Timber Industry
- ☐ Other

Are there previously surveyed resources in the area of potential effect? **Yes** or No
If yes, list the resources.

MG-1332 Harner Chapel

Are there resources greater than 50 years old with the APE? **Yes** or No
If yes, attach the Historic Property Inventory Forms.

The attached Historic Structures Survey and Determination of Eligibility Report includes HPI forms for the 24 historic structures newly surveyed within the APE. An updated form for the previously surveyed MG-1332 Harner Chapel at 100 Luckey Lane is also included.

MG-2640	House at 796 Greenbag Road
MG-2641	Bunner Home Farm **revised to Campbell Farmhouse 11-26-2019**
MG-2642	House at 851 Greenbag Road
MG-2643	Mountaineer Mall, 5000 Greenbag Road
MG-2644	Morgantown City Garage, 2020 Mississippi Street
MG-2645	FCI Morgantown Kennedy Center, 446 Greenbag Road

MG-2646	Farm, 87 Kingwood Pike
MG-2647	House, 27 Kingwood Pike
MG-2648	House, 1440 Dorsey Avenue
MG-2649	House, 1436 Dorsey Avenue
MG-2650	Atomic Grill Restaurant, 1451 Dorsey Avenue
MG-2651	Dorsey School, 1433 Dorsey Avenue
MG-2652	House, 1432 Dorsey Avenue
MG-2653	House, 102 Luckey Lane
MG-2654	House, 104 Luckey Lane
MG-2655	Mountain View Manor Apartments, 1201 – 7304 Mountain View Manor
MG-2656	House, 500 Parkway Drive
MG-2657	House, 502 Parkway Drive
MG-2658	House, 693 Greenbag Road
MG-2659	House, 703 Greenbag Road
MG-2660	House, 710 Greenbag Road
MG-2661	Cobun Creek Culvert
MG-2665	The Sube Shop
MG-2666	Bridge over Aaron Creek **revised to Aaron Creek Box Culvert 11-26-2019**

Historic District: N/A

Name of city/town/community:

Number of other structures in the viewshed: None 1-5 5-20 20-50 50+

General era of construction of surrounding structures: 1880 - 1975

Potential Historic District? Yes No
If yes, please summarize your evaluation.

☐ Criteria A

☐ Criteria B

☐ Criteria C

☐ Criteria D

Does the project propose to take a contributing resource? Yes No
If yes, proceed with report to the SHPO.

Historical Groups: (List contact and attach correspondence)

☒ Historic Landmarks Commission: Monongalia Co HLC; Morgantown HLC

☒ Preservation Alliance of West Virginia

☒ Historical Society: Monongalia Historical Society

☐ Local Genealogy Group

☐ Other Groups

Notes: WVDOH initiated consultation with local organizations concerning the Project beginning on January 30, 2019. Initial correspondence was sent to the Monongalia County Historic Landmarks Commission (MCHLC); the Morgantown Historic Landmarks Commission (MHLC); the Preservation Alliance of West Virginia (PAWV); and the Monongalia Historical Society (MHS). Follow-up emails were sent to the MCHLC, MHLC, and MHS on February 11, 2019. MCHLC responded via email on February 11, 2019 and indicated that the WVDOH correspondence had been shared with all MCHLC members and would be discussed at the next meeting on February 21, 2019. On February 25, 2019 MCHLC sent an email indicating that there were no comments related to the Project at the February 21 meeting. MHLC responded via email on February 13, 2019 and indicated that it had no comments as the Project is located outside of the city of Morgantown and therefore outside of the jurisdiction of the organization.

Review Exempt under Programmatic Agreement Appendix A

☐ Yes ☒ No

Provide Justification as to yes or no:

The Project area includes 25 properties that are over 45 yrs old and require evaluation for NRHP eligibility. See the Greenbag Road Improvement Project Historic Structures Survey and Determination of Eligibility Report (October 31, 2019) for further information.

Attach SHPO Survey website printout, photographs of project area and Historic Property Inventory Forms.

Signature: Sondra Mullins (Sondra L. Mullins, Unit Leader)

Signature: Lana C Ricketts (Historian Name)

APPENDIX E

CORRESPONDENCE

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

Division of Highways

1900 Kanawha Boulevard East • Building Five • Room 110
Charleston, West Virginia 25305-0430 • (304) 558-3505

Thomas J. Smith, P. E.
Secretary of Transportation/
Commissioner of Highways

January 30, 2019

Ms. Danielle Parker, Executive Director
Preservation Alliance of West Virginia
421 Davis Ave, #4
Elkins, WV 26241

Dear Ms. Parker:

State Project U331-857-0.67
Federal Project STP-0857(019)D
Greenbag Road Improvements
Monongalia County

The West Virginia Division of Highways (WVDOH) is developing the subject project at the location shown on the attached maps. The work will take place mainly on Greenbag Road – aka County Route 857 (CO 857) - in the Morgantown area in Monongalia County. The west terminus of the project is about 0.40 miles east of the Greenbag Rd-US 119 intersection and the east terminus is at Jonathan Lane about 0.36 miles east of the Greenbag Rd-Kingwood Pike/Dorsey Ave intersection. Associated project work is proposed on Mississippi Ave, Dorsey Ave, Luckey Lane, and Kingwood Pike. Proposed work includes: lane & shoulder widening; intersection improvements, including turn lanes; sidewalk installation along the north side of Greenbag Rd; installation of a roundabout at the Mississippi Ave intersection; and drainage improvements. During construction traffic will be maintained using single-lane closures as needed.

We are asking your organization for any comments you may have related to the proposed project and/or historical information you may have associated with the development of roads and surrounding properties dating to 1975 and earlier. Properties of interest include: older residences/farms, later housing and commercial development: and the federal correctional facility.

Should you have comments or require additional information, please contact Tracy Bakic of our Environmental Section at (304) 558-9676 or tracy.d.bakic@wv.gov.

Very truly yours,

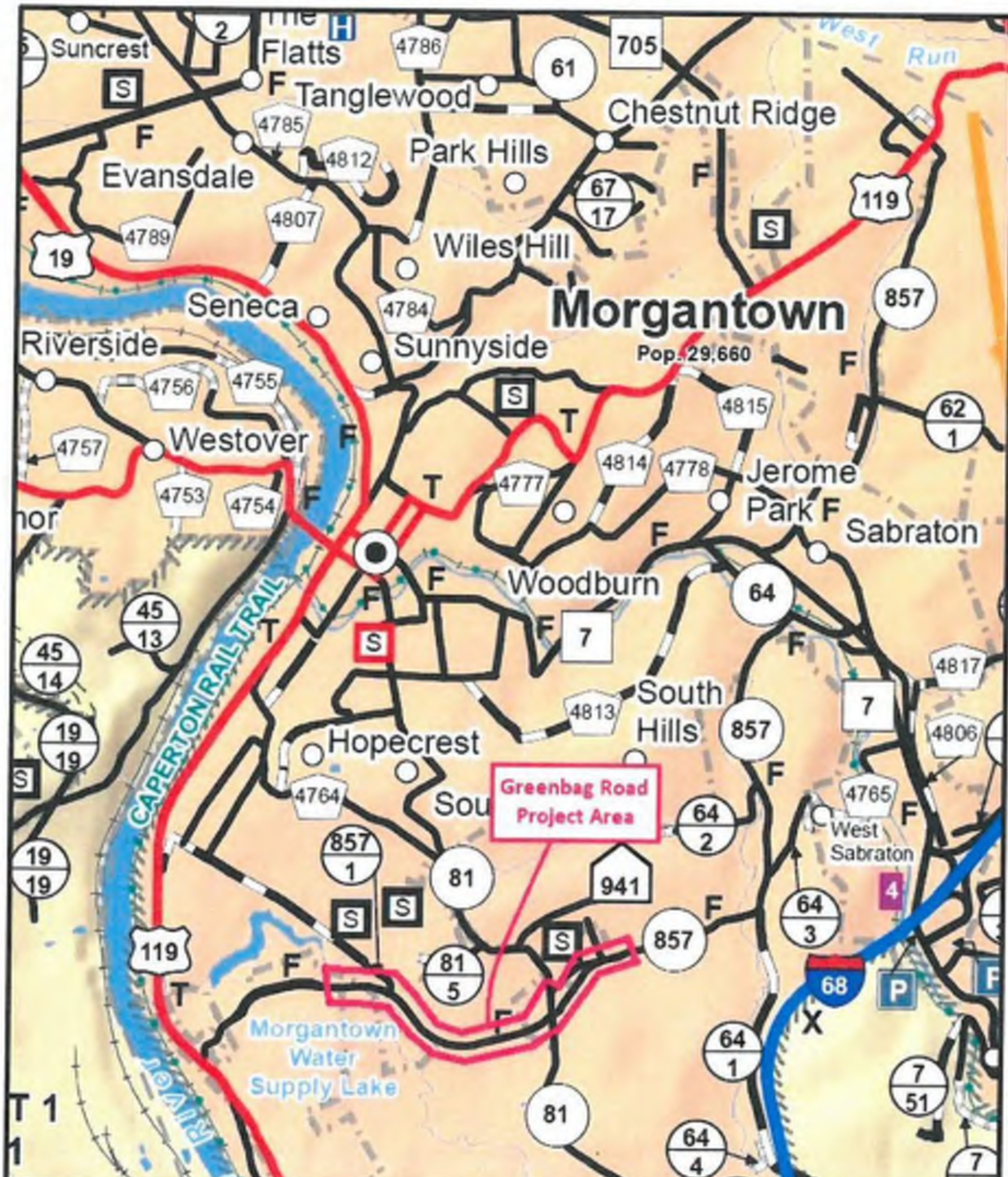
Ben L Hark

Ben L. Hark
Environmental Section Head
Engineering Division

BH:s
Attachments
bcc: DDE(TDB)

LOCATION MAP

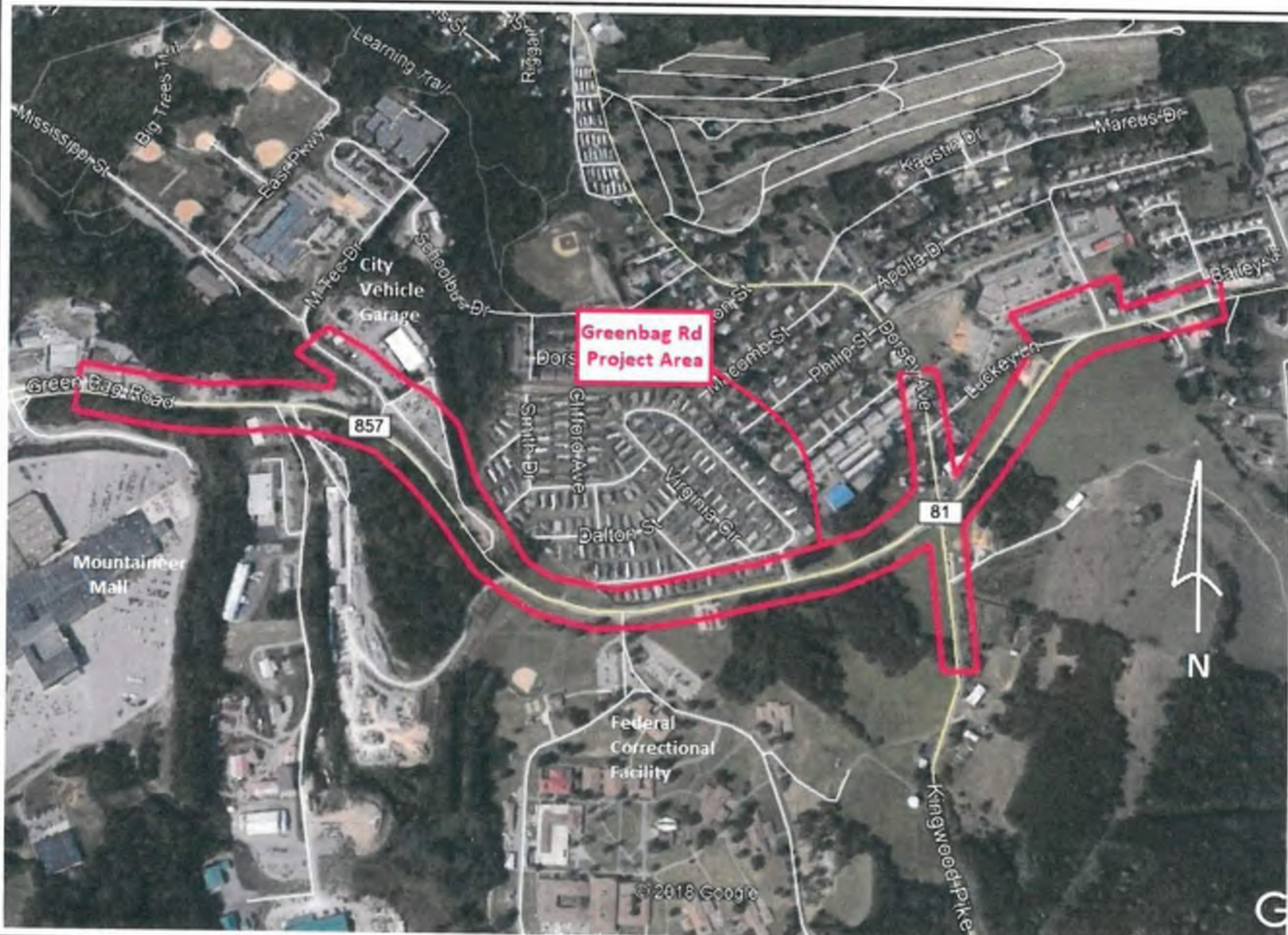
GREENBAG ROAD IMPROVEMENTS
State Project U331-857-0.67
MONONGALIA COUNTY



WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

GREENBAG ROAD IMPROVEMENTS
State Project U331-857-0.67
MONONGALIA COUNTY



Bakic, Tracy D

From: Bakic, Tracy D
Sent: Thursday, January 31, 2019 2:03 PM
To: Danielle Parker
Subject: Greenbag Road Improvements (MONONGALIA)
Attachments: Greenbag Road Improvements-PAWV.pdf

Danielle,

Please see the attached letter. The original is being sent USPS.

Sincerely,

Tracy

Tracy D. Bakic
Structural Historian
WV Division of Highways
Engineering Division-Environmental Section
1334 Smith Street
Charleston, WV 25301
Email: Tracy.D.Bakic.@wv.gov
Office: 304-558-9676
Fax: 304-558-7296

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
Division of Highways
1900 Kanawha Boulevard East • Building Five • Room 110
Charleston, West Virginia 25305-0430 • (304) 558-3505

Thomas J. Smith, P. E.
Secretary of Transportation/
Commissioner of Highways

January 30, 2019

Ms. Hannah Dye, Vice Chair
Monongalia County Historic Landmarks Commission
Monongalia County Courthouse
243 High Street, Room 202
Morgantown, WV 26505

Dear Ms. Dye:

State Project U331-857-0.67
Federal Project STP-0857(019)D
Greenbag Road Improvements
Monongalia County

The West Virginia Division of Highways (WVDOH) is developing the subject project at the location shown on the attached maps. The work will take place mainly on Greenbag Road – aka County Route 857 (CO 857) - in the Morgantown area in Monongalia County. The west terminus of the project is about 0.40 miles east of the Greenbag Rd-US 119 intersection and the east terminus is at Jonathan Lane about 0.36 miles east of the Greenbag Rd-Kingwood Pike/Dorsey Ave intersection. Associated project work is proposed on Mississippi Ave, Dorsey Ave, Luckey Lane, and Kingwood Pike. Proposed work includes: lane & shoulder widening; intersection improvements, including turn lanes; sidewalk installation along the north side of Greenbag Rd; installation of a roundabout at the Mississippi Ave intersection; and drainage improvements. During construction traffic will be maintained using single-lane closures as needed.

We are asking your organization for any comments you may have related to the proposed project and/or historical information you may have associated with the development of roads and surrounding properties dating to 1975 and earlier. Properties of interest include: older residences/farms, later housing and commercial development: and the federal correctional facility.

Should you have comments or require additional information, please contact Tracy Bakic of our Environmental Section at (304) 558-9676 or tracy.d.bakic@wv.gov.

Very truly yours,

Ben L Hark

Ben L. Hark
Environmental Section Head
Engineering Division

BH:s
Attachments
bcc: DDE(TDB)

Bakic, Tracy D

From:	Paula McClain <pmcclain@millsgrouponline.com>
Sent:	Thursday, November 14, 2019 5:37 PM
To:	Bakic, Tracy D
Cc:	Hannah Dye
Subject:	RE: FW: Greenbag Road Improvements, Morgantown (MONONGALIA)

Hi Tracy,

The Monongalia County HLC held our November meeting today, reviewed the updated APE for the Greenbag Road Improvement project, and are recommending that no historic resources will be impacted. Please let me know if you need any other sort of documentation from us regarding this.

Thanks,

Paula

From: Bakic, Tracy D [mailto:Tracy.D.Bakic@wv.gov]
Sent: Monday, November 04, 2019 3:07 PM
To: Paula McClain <pmcclain@millsgrouponline.com>
Cc: Hannah Dye <hld52910@gmail.com>
Subject: RE: FW: Greenbag Road Improvements, Morgantown (MONONGALIA)

Ms. McClain -

It has been about 8 months since WVDOH's last correspondence with MCHLC regarding comments or historical information may have about the Greenbag Road Improvements Project. Previous correspondence has been with Hannah Dye and I have cc'd her for this update as well.

Recently the Greenbag Road Improvement project area was expanded to east to include Greenbag Road to its intersection Aaron Creek, just prior to the intersection with County Rt 64/1 (Lower Aaron Creek Rd). I am sharing this with you to see if the additional area sparks any project comment or historical information. The previous correspondence and an addition map showing the expanded area should be attaches.

We are still working on a rigorous schedule to complete environmental work for this project. Therefore an asap response – let's say by Friday, November 15, 2019 – would be most appreciated.

Thank you so much again for your time and interest.

Sincerely,

Tracy Bakic

Tracy D. Bakic
Structural Historian
WV Division of Highways
Engineering Division-Environmental Section
1334 Smith Street
Charleston, WV 25301
Email: Tracy.D.Bakic.@wv.gov

Office: 304-414-6407
Fax: 304-558-7296

From: Bakic, Tracy D
Sent: Monday, February 25, 2019 9:21 AM
To: 'Hannah Dye' <hld52910@gmail.com>
Subject: RE: FW: Greenbag Road Improvements, Morgantown (MONONGALIA)

Ok. Thank you, Hannah.

In appreciation,

Tracy

From: Hannah Dye <hld52910@gmail.com>
Sent: Monday, February 25, 2019 9:18 AM
To: Bakic, Tracy D <Tracy.D.Bakic@wv.gov>
Subject: Re: FW: Greenbag Road Improvements, Morgantown (MONONGALIA)

Hi Tracy,

One of our members was going to respond in writing but if you haven't received that yet...there was no concern.

On Mon, Feb 25, 2019, 8:28 AM Bakic, Tracy D <Tracy.D.Bakic@wv.gov> wrote:

> Hello Hannah –
>
> I just want to catch up and see if there were any project comments or shared history information related to the Greenbag Road project at you last HLC MCHLC meeting (Feb. 21).
>
> Thanks again for your interest.
>
> Sincerely,
>
> Tracy
>
> Tracy D. Bakic
>
> Structural Historian

WV Division of Highways

Engineering Division-Environmental Section

1334 Smith Street

Charleston, WV 25301

Email: Tracy.D.Bakic.@wv.gov

Office: 304-558-9676

Fax: 304-558-7296

From: Bakic, Tracy D
Sent: Monday, February 11, 2019 10:24 AM
To: 'Hannah Dye' <hld52910@gmail.com>
Subject: RE: FW: Greenbag Road Improvements, Morgantown (MONONGALIA)

Hannah –

Yes, that is fine. Even if the historic resources reporting for this project get submitted before that date, any correspondence afterward will be reviewed and we (WVDOH) can submit it to our reviewer (WV State Historic Preservation Officer).

Thanks so much –

Tracy

From: Hannah Dye <hld52910@gmail.com>
Sent: Monday, February 11, 2019 10:06 AM
To: Bakic, Tracy D <Tracy.D.Bakic@wv.gov>
Subject: Re: FW: Greenbag Road Improvements, Morgantown (MONONGALIA)

Hi Tracy,

I did receive your letter and emailed it to all of our members to discuss at our February meeting on the 21st. Can I get back with you as soon as we meet?

Thanks,

Hannah

On Mon, Feb 11, 2019, 8:40 AM Bakic, Tracy D <Tracy.D.Bakic@wv.gov wrote:

Ms. Dye.

I am sending this as a follow-up to my previous request (below) for project comments or historical information related to the Greenbag Road Improvement Project. It has been a very short time since I sent the original correspondence. This is due to the timeline of the project being a faster pace than typical.

If you may have any historic information about the area or comments about the project, please do contact me as soon as possible.

In appreciation,

Tracy Bakic

WVDOH Structural Historian

From: Bakic, Tracy D
Sent: Thursday, January 31, 2019 2:08 PM
To: 'Hannah Dye' <hld52910@gmail.com>
Subject: Greenbag Road Improvements, Morgantown (MONONGALIA)

Ms. Dye,

Attached please find a letter related to the proposed Greenbag Road Improvement Project in Morgantown area. The originals are being sent USPS to the county office and to the personal address you provided. I sent to both address and will use the version with the county address in the correspondence attachments for my reporting.

If you have any comments about the project or historical information to share about the road and/or surrounding properties, please contact me using the information below.

Thank you so much.

Sincerely,

Tracy Bakic

Tracy D. Bakic

Structural Historian

WV Division of Highways

Engineering Division-Environmental Section

1334 Smith Street

Charleston, WV 25301

Email: Tracy.D.Bakic.@wv.gov

Office: 304-558-9676

Fax: 304-558-7296

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
Division of Highways
1900 Kanawha Boulevard East • Building Five • Room 110
Charleston, West Virginia 25305-0430 • (304) 558-3505

Thomas J. Smith, P. E.
Secretary of Transportation/
Commissioner of Highways

January 30, 2019

Mr. Ed Hawkins, President
Monongalia Historical Society
PO Box 127
Morgantown, WV 26507-0127

Dear Mr. Hawkins:

State Project U331-857-0.67
Federal Project STP-0857(019)D
Greenbag Road Improvements
Monongalia County

The West Virginia Division of Highways (WVDOH) is developing the subject project at the location shown on the attached maps. The work will take place mainly on Greenbag Road – aka County Route 857 (CO 857) - in the Morgantown area in Monongalia County. The west terminus of the project is about 0.40 miles east of the Greenbag Rd-US 119 intersection and the east terminus is at Jonathan Lane about 0.36 miles east of the Greenbag Rd-Kingwood Pike/Dorsey Ave intersection. Associated project work is proposed on Mississippi Ave, Dorsey Ave, Luckey Lane, and Kingwood Pike. Proposed work includes: lane & shoulder widening; intersection improvements, including turn lanes; sidewalk installation along the north side of Greenbag Rd; installation of a roundabout at the Mississippi Ave intersection; and drainage improvements. During construction traffic will be maintained using single-lane closures as needed.

We are asking your organization for any comments you may have related to the proposed project and/or historical information you may have associated with the development of roads and surrounding properties dating to 1975 and earlier. Properties of interest include: older residences/farms, later housing and commercial development: and the federal correctional facility.

Should you have comments or require additional information, please contact Tracy Bakic of our Environmental Section at (304) 558-9676 or tracy.d.bakic@wv.gov.

Very truly yours,

Ben L. Hark

Ben L. Hark
Environmental Section Head
Engineering Division

BH:s
Attachments
bcc: DDE(TDB)

Bakic, Tracy D

From:	Bakic, Tracy D
Sent:	Monday, November 4, 2019 3:10 PM
To:	Dr.hawk@comcast.net
Cc:	clutterina@hotmail.com
Subject:	FW: Greenbag Road Improvements, Morgantown (MONONGALIA)
Attachments:	Greenbag Road Improvements-MHS.pdf; Updated Project Area 11-2019.pdf

Mr. Hawkins -

It has been about 8 months since WVDOH's last correspondence with MCHLC regarding comments or historical information may have about the Greenbag Road Improvements Project. Previous correspondence has been with Hannah Dye and I have cc'd her for this update as well.

Recently the Greenbag Road Improvement project area was expanded to east to include Greenbag Road to its intersection Aaron Creek, just prior to the intersection with County Rt 64/1 (Lower Aaron Creek Rd). I am sharing this with you to see if the additional area sparks any project comment or historical information. The previous correspondence and an addition map showing the expanded area should be attaches.

We are still working on a rigorous schedule to complete environmental work for this project. Therefore an asap response – let's say by Friday, November 15, 2019 – would be most appreciated.

Thank you so much again for your time and interest.

Sincerely,

Tracy Bakic

From: Bakic, Tracy D
Sent: Monday, February 11, 2019 8:39 AM
To: 'Dr.hawk@comcast.net' <Dr.hawk@comcast.net>
Cc: 'clutterina@hotmail.com' <clutterina@hotmail.com>
Subject: FW: Greenbag Road Improvements, Morgantown (MONONGALIA)

Dr. Hawkins et al.

I am sending this as a follow-up to my previous request (below) for project comments or historical information related to the Greenbag Road Improvement Project. It has been a very short time since I sent the original correspondence. This is due to the timeline of the project being a faster pace than typical.

If you may have any historic information about the area or comments about the project, please do contact me as soon as possible.

In appreciation,

Tracy Bakic
WVDOH Structural Historian

From: Bakic, Tracy D
Sent: Thursday, January 31, 2019 2:08 PM
To: 'Dr.hawk@comcast.net' <Dr.hawk@comcast.net>
Cc: 'clutterina@hotmail.com' <clutterina@hotmail.com>
Subject: Greenbag Road Improvements, Morgantown (MONONGALIA)

Dr. Hawkins et al.

Attached please find a letter related to the proposed Greenbag Road Improvement Project in Morgantown area. The original is being sent USPS. If you have any comments about the project or historical information to share about the road and/or surrounding properties, please contact me using the information below.

If any contact information for your organization has changed (ie, lead contact, address, phone/email) please do update us.

Thank you so much.

Sincerely,

Tracy Bakic

Tracy D. Bakic
Structural Historian
WV Division of Highways
Engineering Division-Environmental Section
1334 Smith Street
Charleston, WV 25301
Email: Tracy.D.Bakic.@wv.gov
Office: 304-558-9676
Fax: 304-558-7296

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

Division of Highways

1900 Kanawha Boulevard East • Building Five • Room 110
Charleston, West Virginia 25305-0430 • (304) 558-3505

Thomas J. Smith, P. E.
Secretary of Transportation/
Commissioner of Highways

January 30, 2019

Morgantown Historic Landmarks Commission
City of Morgantown
389 Spruce Street
Morgantown, WV 26505

To Whom It Concerns:

State Project U331-857-0.67
Federal Project STP-0857(019)D
Greenbag Road Improvements
Monongalia County

The West Virginia Division of Highways (WVDOH) is developing the subject project at the location shown on the attached maps. The work will take place mainly on Greenbag Road – aka County Route 857 (CO 857) - in the Morgantown area in Monongalia County. The west terminus of the project is about 0.40 miles east of the Greenbag Rd-US 119 intersection and the east terminus is at Jonathan Lane about 0.36 miles east of the Greenbag Rd-Kingwood Pike/Dorsey Ave intersection. Associated project work is proposed on Mississippi Ave, Dorsey Ave, Luckey Lane, and Kingwood Pike. Proposed work includes: lane & shoulder widening; intersection improvements, including turn lanes; sidewalk installation along the north side of Greenbag Rd; installation of a roundabout at the Mississippi Ave intersection; and drainage improvements. During construction traffic will be maintained using single-lane closures as needed.

We are asking your organization for any comments you may have related to the proposed project and/or historical information you may have associated with the development of roads and surrounding properties dating to 1975 and earlier. Properties of interest include: older residences/farms, later housing and commercial development: and the federal correctional facility.

Should you have comments or require additional information, please contact Tracy Bakic of our Environmental Section at (304) 558-9676 or tracy.d.bakic@wv.gov.

Very truly yours,

Ben L Hark

Ben L. Hark
Environmental Section Head
Engineering Division

BH:s
Attachments
bcc: DDE(TDB)

E.E.O./AFFIRMATIVE ACTION EMPLOYER

Bakic, Tracy D

From: Shannon Tinnell <shannontinnell@earthlink.net>
Sent: Wednesday, February 13, 2019 11:24 AM
To: Bakic, Tracy D
Subject: Re: FW: Greenbag Road Improvements, Morgantown (MONONGALIA)

Ms. Bakic,
Hello, I hope you are well. Sorry for the delay in my response, I was awaiting comments from the committee. The boundaries of the Greenbag Road improvements seem to be outside city limits(and our jurisdiction) and considering there are no historic structures to consider, we don't have any comments. You might reach out to the Monongalia County Historic Commission. I can type of a letter for your records if needed. I just wanted to let you know sooner than later.
Best,
Shannon

-----Original Message-----
From: "Bakic, Tracy D"
Sent: Feb 11, 2019 8:38 AM
To: Shannon Tinnell
Cc: Christine Wade , "hcarl@morgantownwv.gov"
Subject: FW: Greenbag Road Improvements, Morgantown (MONONGALIA)

Ms. Tinnell et al.

I am sending this as a follow-up to my previous request (below) for project comments or historical information related to the Greenbag Road Improvement Project. It has been a very short time since I sent the original correspondence. This is due to the timeline of the project being a faster pace than typical.

If you may have any historic information about the area or comments about the project, please do contact me as soon as possible.

In appreciation,

Tracy Bakic
WVDOH Structural Historian

From: Bakic, Tracy D
Sent: Thursday, January 31, 2019 2:05 PM
To: 'shannontinnell@earthlink.net' <shannontinnell@earthlink.net>
Cc: 'cwade@morgantownwv.gov' <cwade@morgantownwv.gov>; 'hcarl@morgantownwv.gov' <hcarl@morgantownwv.gov>
Subject: Greenbag Road Improvements, Morgantown (MONONGALIA)

To Whom It Concerns:

Attached please find a letter related to the proposed Greenbag Road Improvement Project in Morgantown area. The original is being sent USPS. If you have any comments about the project or historical information to share about the road and/or surrounding properties, please contact me using the information below.

If any contact information for your organization has changed (ie, lead contact, address, phone/email) please do update us. I previously had Shannon Tinnell listed as the lead contact, but since some time had passed what uncertain of directing the main to a particular lead (ie, Chair or President). If there is a particular lead member at this time, please let me know for our records.

Thank you so much.

Sincerely,

Tracy Bakic

Tracy D. Bakic
Structural Historian
WV Division of Highways
Engineering Division-Environmental Section
1334 Smith Street
Charleston, WV 25301
Email: Tracy.D.Bakic.@wv.gov
Office: 304-558-9676
Fax: 304-558-7296

APPENDIX F

WV HPI FORMS

Internal Rating: ___________

WEST VIRGINIA HISTORIC PROPERTY INVENTORY FORM

Street Address 100 Luckey Lane	**Common/Historic Name/Both** ○ ○ ⦿ Harner Chapel	**Field Survey #**	**Site # *(SHPO Only)*** MG-1332
Town or Community Morgantown	**County** Monongalia	**Negative No.**	**NR Listed Date**
Architect/Builder	**Date of Construction** Ca. 1914	**Style** Gothic - Carpenter	
Exterior Siding/Materials Synthetics - Vinyl	**Roofing Material** Asphalt	**Foundation** Concrete - Block	
Property Use or Function **Residence** ○ **Commercial** ○ **Other** ⦿	**UTM#** 17 S 590575 E / 590575 N	 Photograph 1. MG-1332 / Harner Chapel, facade and rear addition, facing northeast	
Survey Organization & Date The Markosky Engineering Group, December 4, 2018	**Quadrangle Name** Morgantown South **Part of What Survey/FR#** Greenbag Road Improvements/NFA-2317(022)D		

Sketch Map of Property
Or Attach Copy of USGS Map

Site No.
MG-1332

N

Present Owners
Harner Chapel

Phone #

Owners Mailing Address
100 Luckey Lane
Morgantown, WV 26505

Describe Setting
See continuation sheet.

<1 **Acres**

☐ **Archaeological Artifacts Present**

Description of Building or Site (Original and Present)

2 **Stories** 3 **Front Bays**

See continuation sheet.

(Use Continuation Sheets)

Alterations

◉ Yes ○ No

If yes, describe
Alterations include replacement siding and roof materials and alterations to the original spire on the facade.

Additions

◉ Yes ○ No

If yes, describe
A ca. 1955 addition has been appended to the rear of the church.

Describe All Outbuildings
None.

(Use Continuation Sheets)

Statement of Significance
See continuation sheet.

(Use Continuation Sheets)

Bibliographical References
See continuation sheet.

(Use Continuation Sheets)

Form Prepared By: Elizabeth Williams

Date: November 18, 2019

Name/Organization: The Markosky Engineering Group

Address: 232 Capitol Street
Charleston, WV 25301

Phone #: 304-223-5205

West Virginia Division of Culture and History
State Historic Preservation Office

MG-1332 / Harner Chapel is located on the northeast quadrant of the intersection of Luckey Lane and Dorsey Avenue. The chapel is located approximately 1.55 miles southeast of the city of Morgantown and is set within an area of mixed single family and multi-unit residences and commercial development. Harner Chapel was previously surveyed in 1982, but it was not evaluated for NRHP eligibility (Toth 1982).

Harner Chapel is a ca. 1914 Carpenter Gothic frame building covered in vinyl siding and capped by a hipped roof covered in asphalt shingle (Photographs 1-2). The chapel rests on a rock faced concrete block foundation, and its façade features a narthex with a full height bell tower capped by a simple ca. 1990 spire with fixed Gothic arch windows. The fenestration of the chapel consists of Gothic arch windows and paired vinyl sash, one-over-one windows in the ca. 1955 two-story rear addition. A ca. 1990 partial width, shed roof addition has been appended to the northeast elevation. The reconfiguration of the bell tower with a non-historic spire, the large rear addition, and the use of replacement roofing and cladding materials has compromised the historic integrity of the chapel.

Harner Chapel was organized in 1909. The impetus for its organization and eventual construction was the success of Methodist revival meetings that were held at the Dorsey Schoolhouse (which was replaced by the Dorsey School ca. 1920). The land for the chapel was donated by local resident Fairchild Harner and the chapel was dedicated in 1914 (The Monongalia Historical Society 1954:82). In 1939 the chapel became known as the United Methodist Church, and the rear addition was added ca. 1955 (Toth 1982:4). The chapel continues to hold services.

No information was recovered linking the Harner Chapel to events significant on the local, state, or national level. The chapel stands as a common example of an early 20th century rural religious structure which can be found throughout Monongalia County. Therefore, Harner Chapel is not eligible for NRHP listing under Criterion A. The land on which the chapel was built was donated by Fairchild Harner, a local resident. No information was recovered to suggest that Harner was significant on the local, state, or national level. Therefore, Harner Chapel is not eligible under Criterion B.

Harner Chapel stands as a common, unexceptional, and altered example of a rural religious structure. Harner Chapel does not possess high artistic value, represent the work of a master, or embody the distinctive characteristics of a type, period, or method of construction. Therefore, it is not eligible for listing under Criterion C. The church has not been evaluated for significance under Criterion D for its potential to yield information important to the understanding of history or prehistory. The church is not eligible for NRHP listing under Criteria Consideration A: Religious Properties as it is not significant on architectural, artistic, or historic grounds.

References

The Monongalia Historical Society
1954 *The 175th Anniversary of the Formation of Monongalia County, West Virginia and other Relative Historical Data.* The Monongalia Historical Society, Morgantown, West Virginia.

Toth, Gary J.
1982 *Historic Properties Inventory Form – Harner Chapel*. On file, West Virginia Department of Culture and History, Charleston, West Virginia.

United States Geological Survey (USGS)
1902 Morgantown, West Virginia topographic map, 15 minute quadrangle. United States Geological Survey, Washington, D.C.

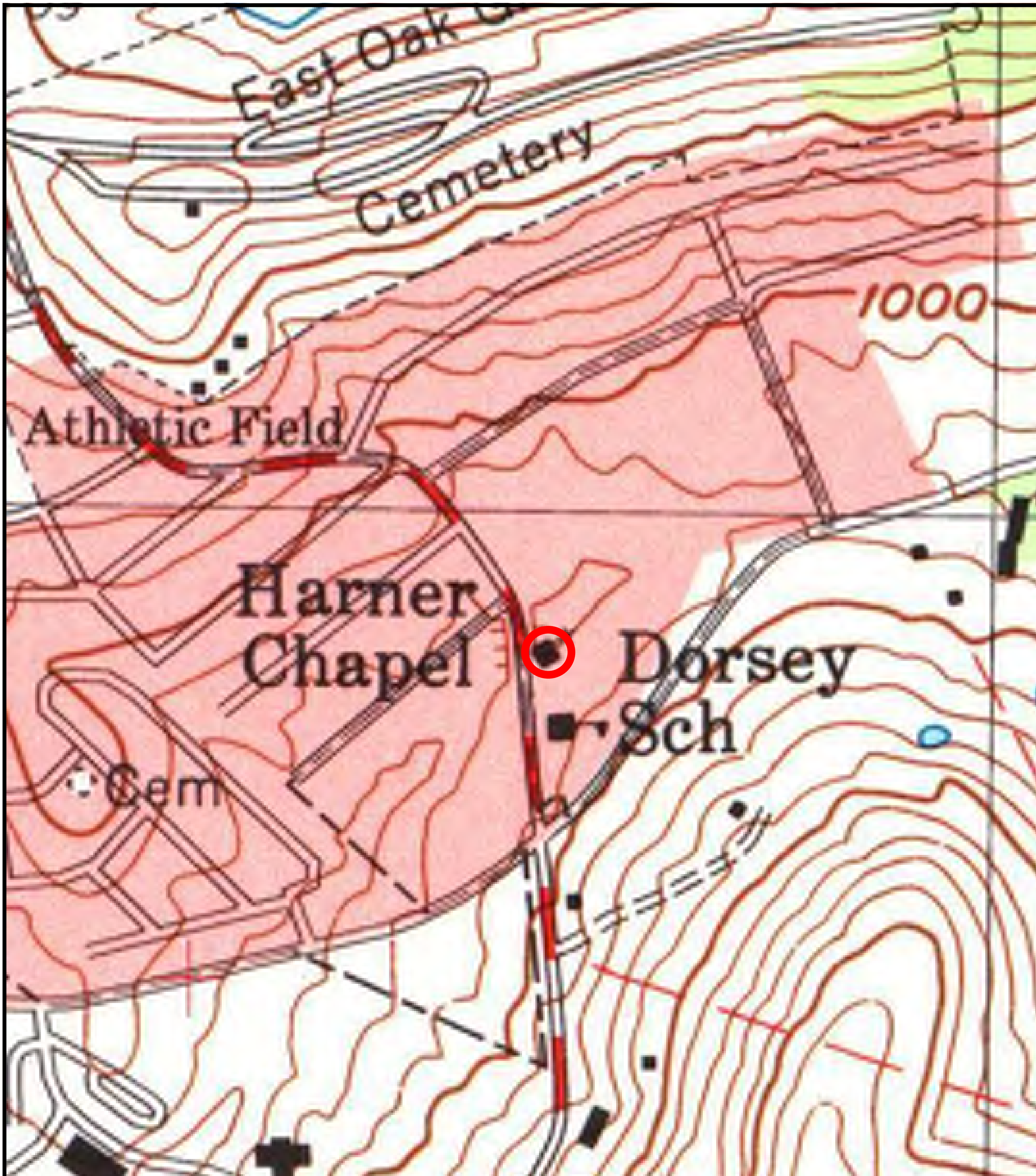
1925 Morgantown, West Virginia topographic map, 15 minute quadrangle. United States Geological Survey, Washington, D.C.

WEST VIRGINIA HISTORIC PROPERTY INVENTORY FORM
CONTINUATION SHEET

NAME **Harner Chapel** **SITE#** **MG-1332**

Photograph 1. Façade and rear addition (left), facing northeast (2018-12-04)


Photograph 2. Northeast elevation, facing northwest (2018-12-04)



Feet 0 375 750	**Legend** Location of Historic Structure	N W E S	**USGS Map** MG-1332 Harner Chapel (100 Luckey Lane)
MARKOSKY	Greenbag Road Improvement Project		Morgan District and City of Morgantown Monongalia County ***Source: USGS 1997***

*Not to scale

Legend

Approximate Parcel Boundary

N
W E
S

Site Map
MG-1332
Harner Chapel (100 Luckey Lane)

MARKOSKY

Greenbag Road Improvement Project

Morgan District and
City of Morgantown
Monongalia County
Source: Google Earth 2018

*Not to scale	**Legend** Location of Historic Structure	N W E S	**Figure 1. 1925 USGS Map** MG-1332 Harner Chapel (100 Luckey Lane)
MARKOSKY	Greenbag Road Improvement Project		Morgan District and City of Morgantown Monongalia County ***Source: USGS 1925***

MG33I

MG-1332

HISTORIC PROPERTIES INVENTORY FORM

(Staff Use Only)

17-590440-4384050

HISTORIC PRESERVATION UNIT
DEPARTMENT OF CULTURE & HISTORY
SCIENCE & CULTURE CENTER
CHARLESTON, WEST VIRGINIA 25305

1. NAME(S), historic/common: Harner Chapel

2. LOCATION, street/road: Old Kingwood Pike

city/town: Morgantown, W.Va. 26505
(incorporated/~~unincorporated~~)

3. USE/FUNCTION, present: United Methodist Church. (public/~~private~~, ~~restricted~~)

original: Methodist Protestant Church.

4. OWNER/ADDRESS, present: United Methodist Conference (public/~~private~~)
900 Washington St. E.
Charleston, W.Va.

original: Methodist Protestant Conference

5. PHOTO/SKETCH OF:

7. PLAN (include approx. dimensions):


40'x60'

6. LOCALE/ENVIRONMENT (map):

8. ACREAGE (approx.):
138 x 94.15 IRR.
Kingwood Pike Lot
Morgan District

DESCRIPTION (clarify as appropriate):

9. a. Exterior Fabric

stone
brick
concrete
stucco
weatherboard
clapboard
board & batten
shingle
other X
Aluminum siding

b. Structural System

masonry
frame X
log
metal
other

foundation four foot stone walls

c. Roofing Material

wood
metal
slate
tile
asphalt Shingles
composition
other

d. Associated Structures (use/type):

outbuildings None

dependencies Educational wing to the back of the building.

other None

e. Integrity (include dates):

original site/~~relocated~~

alterations 1967-8, New front and porch were added.
1981, New stained glass windows from Rainbow Glass of Clarksburgh.

additions 1954, the educational facilities to the building, and aluminum siding was added to the exterior.

f. Condition:

excellent
good X
fair
deteriorated
abandoned

g. Threats:
None

10. SIGNIFICANCE (use additional sheet if necessary):

a. Architect/Builder/Engineer:
Builders: The men of the community.

b. Style/Period: —

c. Date(s): 1914

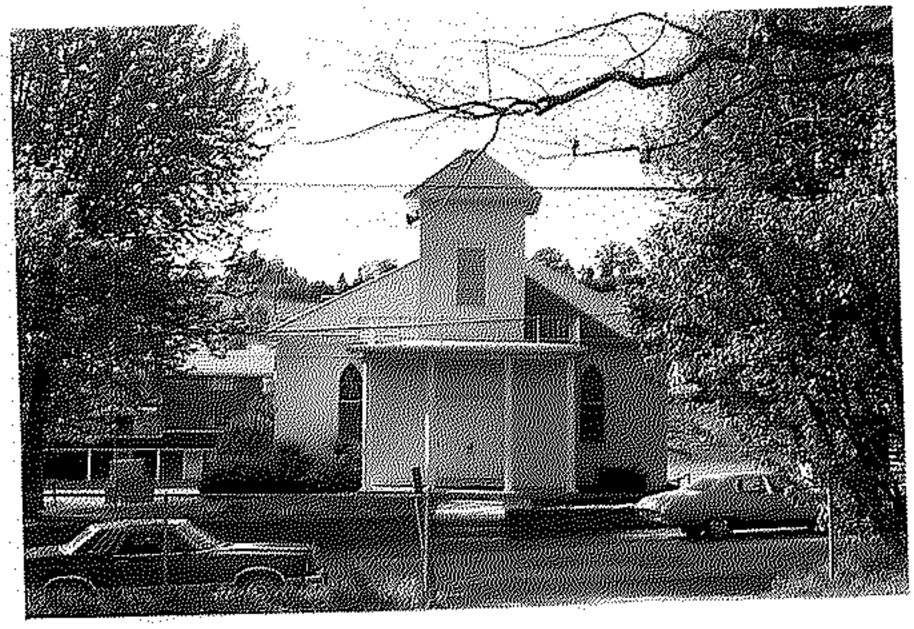
11. BIBLIOGRAPHY:

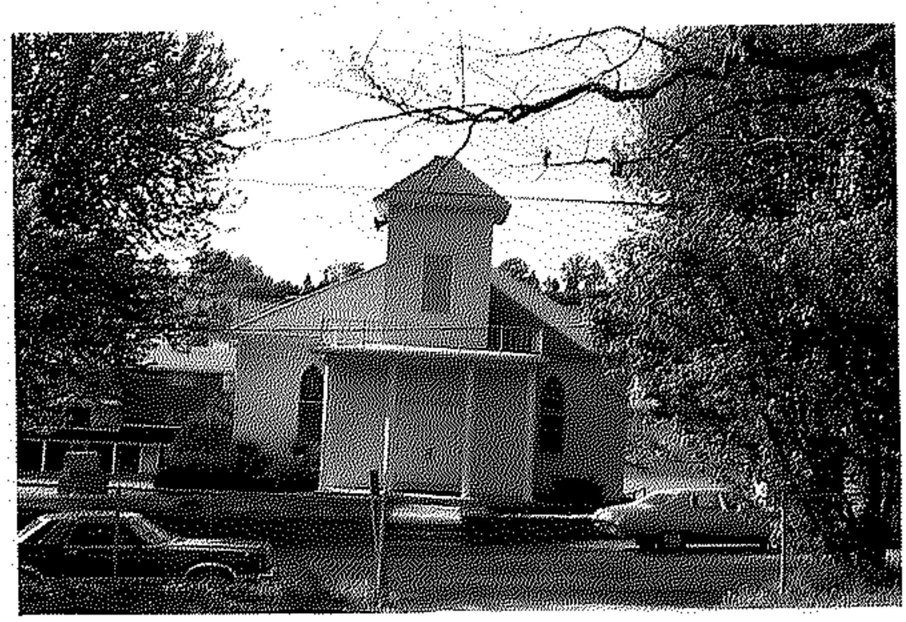
County Records; Deed Bk.
County Tax Assessor's Maps.
Dodds, Mrs. Gideon. The 175th Anniversary of Monongalia County. Morgantown; The Historical Society; 1954.
The Harner-Jones' Telephone Directory, St. Louis, Missouri; Pictorial Church Directories of America; 1981
Interview with Rev. Swecker by Gary J. Toth (April 1982).

12. FORM PREPARED BY: Gary J. Toth DATE:

a. Address 280 N. Main St., Star City, W.Va. 26505

b. Organization W.V.U.





Harner Chapel

"Sabbath School" was organized at Dorsey's School House on April 19, 1908. This was the earliest activity which was to culminate in the establishment of the church called Harner Chapel. The Rev. M.H. Steele noted in July of 1908 that he had preached three times at Dorsey School House and received $4.50. The congregation grew rapidly and the group at Dorsey School House was soon to be recognized as a congregation on the South Morgantown Cicuit of the Methodist Protestant Church. Thus, with a membership of 45, Harner Chapel was organized. It proved to be a vital addition to the circuit, adding the strength of new members and improved financial support throughout the years. In 1939, it became known as the United Methodist Church.

In the 1950's, the church continued to grow. In July, 1954, the church secured a loan to begin major improvements on the church building. Throughout the years this church lent its facilities to outside groups and raising money.

The following is the property transaction of the church:

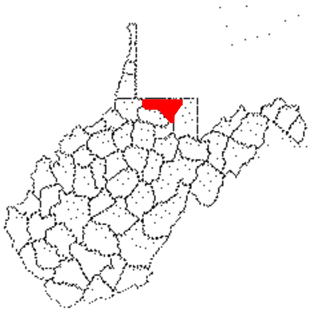
Grantor: Fairchild Harner

Grantee: Methodist Protestant Church trustees

Amt. of Land: 138 X 94.15 irr., Kingwood Pike Lot

Date: 11/10/09

Deed Ref: 107/102



Internal Rating: ___________

WEST VIRGINIA HISTORIC PROPERTY INVENTORY FORM

Street Address 796 Greenbag Road	**Common/Historic Name/Both** ◉ ○ ○ House at 796 Greenbag Road	**Field Survey #**	**Site # *(SHPO Only)*** MG-2640
Town or Community Morgantown vicinity	**County** Monongalia	**Negative No.**	**NR Listed Date**
Architect/Builder	**Date of Construction** ca. 1940	**Style** Craftsman Style Bungalow	
Exterior Siding/Materials Synthetic - Vinyl	**Roofing Material** Asphalt - Shingle	**Foundation** Stucco Covered	
Property Use or Function Residence ◉ Commercial ○ Other ○	**UTM#** 17 S 591233 E / 4385053 N		
Survey Organization & Date The Markosky Engineering Group, October 31, 2019	**Quadrangle Name** Morgantown South, WV **Part of What Survey/FR#** Greenbag Road Improvement/NFA-2317(022)D		

Photograph 1. MG-2640 / House at 796 Greenbag Road, east (side) elevation, facing west

Sketch Map of Property
Or Attach Copy of USGS Map

Site No.
MG-2640

N

Present Owners
Emily Jane Chilko

Phone #

Owners Mailing Address
796 Greenbag Road
Morgantown, WV 26508

Describe Setting
See continuation sheets

0.5 **Acres**

☐ **Archaeological Artifacts Present**

Description of Building or Site (Original and Present) 1.5 **Stories** 3 **Front Bays**

See continuation sheets

(Use Continuation Sheets)

Alterations ◉ Yes ○ No

If yes, describe
See continuation sheets

Additions ◉ Yes ○ No

If yes, describe
See continuation sheets

Describe All Outbuildings
See continuation sheets

(Use Continuation Sheets)

Statement of Significance
See continuation sheets

(Use Continuation Sheets)

Bibliographical References
See continuation sheets

(Use Continuation Sheets)

Form Prepared By: Laura C. Ricketts **Date:** November 18, 2019

Name/Organization: The Markosky Engineering Group
Address: 232 Capitol Street
Charleston, WV 25301

Phone #: 304-223-5205

West Virginia Division of Culture and History
State Historic Preservation Office

WEST VIRGINIA HISTORIC PROPERTY INVENTORY FORM
CONTINUATION SHEET

NAME **House at 796 Greenbag Road** **SITE# MG-2640**

The MG-640 / House at 796 Greenbag Road is an altered bungalow that sits at the top of a steep drive on a heavily wooded lot on former farmland on the south side of Greenbag Road. The façade (north elevation) is completely obscured by trees and vegetation. It is surrounded to the west, south, southeast, and northeast by non-historic churches that have been built to serve the increasingly suburban area.

The altered house appears to be a late example of a Craftsman Style bungalow with front and rear shed roof dormers protruding from the steep side gable roof. It retains knee braces under the gables, but otherwise features replacement siding, roofing, and windows. The formerly open integral front porch has been partially enclosed, and the house has a non-historic rear porch addition.

An outbuilding, which is located to the southwest of the house at the top of the driveway and presumed to be a detached garage, was obscured by tree cover.

The House at 796 Greenbag Road represents an altered and unremarkable example of a common house type from the early 20th century (ca. 1940). It does not appear to be associated with any significant events; it is not associated with any people of demonstrated significance; and it is not distinguished for its architectural design. It is not eligible for NRHP listing under Criteria A, B, or C. It has not been evaluated under Criterion D.

Bibliographical References

Google Earth

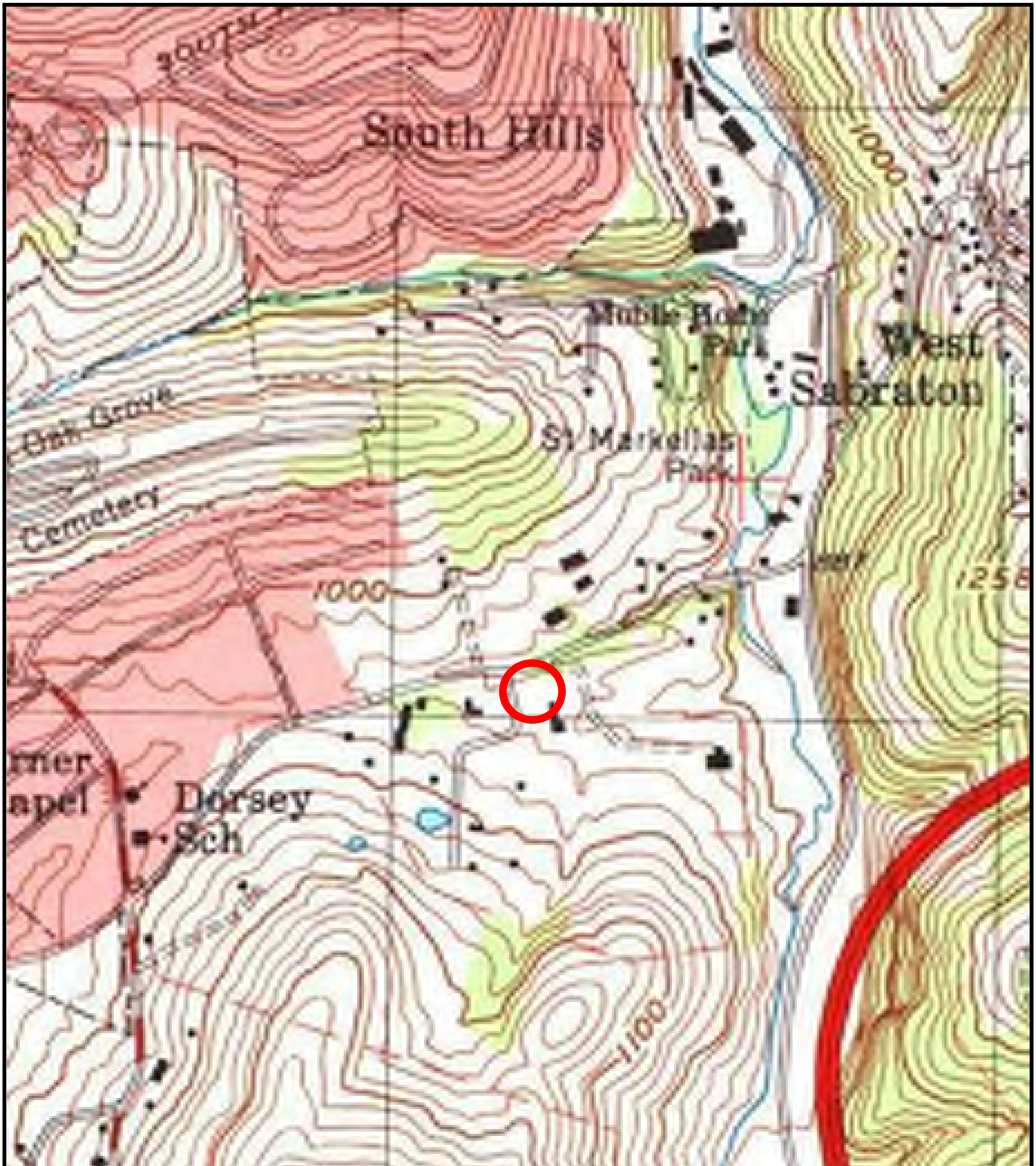
2018 Aerial images of Monongalia County, West Virginia. Website at https://earth.google.com/web/. Accessed December 11, 2018.

United States Geological Survey (USGS)

1997 Morgantown South, West Virginia topographic map, 7.5 minute quadrangle. United States Geological Survey, Washington, D.C.

Photograph 1. East (side) elevation, facing west

Photograph 2. East and north (front) elevations, facing southwest



Feet

0 625 1,250

Legend

Location of Historic Structure

N
W E
S

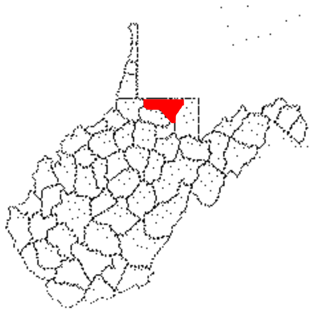
USGS Map
MG-2640
House at 796 Greenbag Road

MARKOSKY

Greenbag Road Improvement Project

Morgan District and
City of Morgantown
Monongalia County
Source: USGS 1997

*Not to scale	**Legend** Approximate Parcel Boundary	N W E S	**Site Map** MG-2640 House at 796 Greenbag Road
MARKOSKY	Greenbag Road Improvement Project		Morgan District and City of Morgantown Monongalia County ***Source: Google Earth 2019***



Internal Rating: ___________

WEST VIRGINIA HISTORIC PROPERTY INVENTORY FORM

Street Address
834 Greenbag Road

Common/Historic Name/Both
○ ◉ ○ (Historic selected)
Campbell Farmhouse

Field Survey #

Site # *(SHPO Only)*
MG-2641

Town or Community
Morgantown

County
Monongalia

Negative No.

NR Listed Date

Architect/Builder

Date of Construction
ca. 1886

Style
Italianate

Exterior Siding/Materials
Brick

Roofing Material
Asphalt - Shingle

Foundation
Not visible

Property Use or Function
- Residence ◉
- Commercial ○
- Other ○

UTM#
17 S 591483 E / 4385129 N

Photograph 1. MG-2641 / Campbell Farmhouse, north and west (front) elevations, facing southeast

Survey Organization & Date
The Markosky Engineering Group, October 2019

Quadrangle Name
Morgantown South, WV

Part of What Survey/FR#
Greenbag Road Improvement/NFA-2317(022)D

Sketch Map of Property
Or Attach Copy of USGS Map

Site No.
MG-2641

N

Present Owners
Phyllis Jenkins Irrevocable Trust

Phone #

Owners Mailing Address
834 Greenbag Road
Morgantown, WV 26508

Describe Setting
See continuation sheets

10.9 **Acres**

☐ **Archaeological Artifacts Present**

Description of Building or Site (Original and Present)
See continuation sheets

______ **Stories** ______ **Front Bays**

(Use Continuation Sheets)

Alterations ○ Yes ○ No
If yes, describe
See continuation sheets

Additions ○ Yes ○ No
If yes, describe
See continuation sheets

Describe All Outbuildings
See continuation sheets

(Use Continuation Sheets)

Statement of Significance
See continuation sheets

(Use Continuation Sheets)

Bibliographical References
See continuation sheets

(Use Continuation Sheets)

Form Prepared By: Laura C. Ricketts
Date: November 18, 2019

Name/Organization: The Markosky Engineering Group
Address: 232 Capitol Street
Charleston, WV 25301

Phone #: 304-223-5205

West Virginia Division of Culture and History
State Historic Preservation Office

The late 19th century Campbell Farmhouse located at 834 Greenbag Road is a two-story Italianate farmhouse, which was constructed ca. 1886. It sits on a flattened hilltop above Greenbag Road on a property comprised of gently rolling farmland with a meandering creek, several tree lines, and a number of outbuildings dating to the mid-20th century. The 19th century farm formerly occupied at least 126 acres in the vicinity of Aaron Creek, but its tax parcel currently measures closer to 23.9 acres since much of the former farmland has been subdivided and sold off to support nearby suburban development. It is surrounded by mid- and late 20th century residences and housing developments, commercial buildings, and several non-historic churches.

A long gravel driveway leads up a steep embankment from Greenbag Road at the north edge of the farm to the two-story brick Campbell Farmhouse at the heart of the farmstead (Photographs 1-3). The Italianate farmhouse, which was built ca. 1886, has a T-shaped plan formed by the five bay front section of the farmhouse and a perpendicular two-story rear ell. The farmhouse has a three gable roof with prominent gable returns and replacement asphalt shingle roofing. Two interior end brick chimneys flank the main section of the house and a third brick chimney is located at the center of the rear ell. The brick walls are laid in an American common bond pattern with seventh row headers and feature tall segmental arch window openings on all elevations, although at least one window on the south (side) elevation has been bricked in and one window on the east (rear) elevation has been resized. The current windows are one-over-one metal sash replacements. The farmhouse has a full width front porch with a shallow half hipped roof, turned posts, and scroll sawn brackets. Similar scrolled brackets line the cornice under the eaves. A secondary porch is located on the north elevation of the rear ell. The farmhouse has the characteristic massing, design, and ornamentation of a classic Italianate Style dwelling.

The other buildings on the property are part of the setting of the Campbell Farmhouse, but they do not contribute to its significance. They represent changes made to the property in the 1940s and 1950s that replaced the earlier outbuildings and farm structures that would have been associated with the farmhouse historically. A two-tone concrete block dairy barn from ca. 1948 is located behind the farmhouse to the east (Photograph 4). The upper story of the main section of the barn has a frame structure clad with faux brick asphalt sheeting over vertical wood boards. A contemporary one-story milkhouse section is appended to the south elevation of the barn, and two concrete stave silos from ca. 1954 are located behind the barn to the east. A small frame barn that appears to date to ca. 1948 is located to the east of the barn but was not visible for survey with limited access to the property. A secondary dwelling, built ca. 1940, is located to the north of the dairy barn closer to Greenbag Road (Photograph 4). The one-story front gable dwelling is vacant and is in a partially dilapidated state with a partially removed front porch and collapsing roof. It is clad with a mixture of particle board, plywood, and weatherboard. There is also a small outbuilding from ca. 1940 located at the end of a row of pine trees to the southwest of the farmhouse (Photograph 5). The one-story, rectangular plan outbuilding appears to have a structure composed of both concrete block and frame. It has a front gable roof that is covered in tar paper and an exterior brick chimney on the west (side) elevation.

The Campbell Farmhouse retains its integrity. Despite a few alterations to its historic form (replacement windows and roofing as well as minor changes to the fenestration pattern), the farmhouse retains its integrity of design, materials, and workmanship. Its location remains intact, and its immediate setting remains rural and agricultural though the surviving outbuildings date from a later period. Its larger setting has been impacted by the loss of more than 100 acres of farmland and relatively dense highway-oriented suburban development. The Campbell Farmhouse retains the feeling of a late 19th century Italianate farmhouse, but it lacks the association with former outbuildings and farmland.

The deed history for the property refers to the bulk of the farm (about 100 acres) as the Bunner Home Farm, but also associates the property with a 26-acre holding that formerly belonged to the Campbell Family that was consolidated in the late 19th century (Monongalia County Deeds). A detailed map of the Morgan District from 1886 identifies the home of Dr. F. Campbell at the approximate location of the farmstead, and the deed history suggests that it was around this era that the farm was established, which is corroborated stylistically by the architecture of the Italianate farmhouse. L.F. Campbell was listed in the 1880 federal population census as a 59 year old physician suffering from rheumatism, who was living in the Morgan District of Monongalia County with his wife Eliza and his 14 year old son William (US Census 1880).

By 1911, the farm with the Campbell Farmhouse was fully under the control of the Bunner family and being referred to as the Bunner Home Farm. In that year, the property was transferred by the last will and testament of Emma J. Bunner to her husband Francis M. Bunner and their son Thompson Orth Bunner (Monongalia County Wills 1911). The 1910 population census records 60 year old Emma J. Bunner living on the farm with her husband, who was a steamboat engineer, their son Arthur, who was a farm laborer, a servant, and three boarders (US Census 1910). Ten years later in 1920, the census describes Orth T. Bunner as a 34 year old farmer living on a dairy farm with his wife Bessie and their 13 year old nephew (US Census 1920).

In 1920, the deed recording the sale of the farm from Thompson Orth Bunner to a single woman named Mabel Student provided additional information about the personal property situated on the Bunner Home Farm:

> Seventeen (17) head of milch cows; three (3) heifers coming two years old; one (1) registered Holstein Bull; five (5) head of calves six months old; all dairy equipment including Empire Mechanical Milker and gasoline engine; two (2) road wagons; one (1) milk wagon, plow, harrows, and all other machinery now on said farm, three (3) head of work horses, one thousand dollars ($1,000.00) worth of stock in a Percheron Stallion named “Impotent” and two (2) sets of work harness (Monongalia County Deeds 1920).

The deed also referenced a silo on the property, which predated the two ca. 1954 silos located there currently. The following year, Mabel Student sold the 126-acre property to George Yuhost and Howard Jenkins and made reference to additional farm equipment—two mowing machines, one hay fork, plows, cultivators, one grain drill, and one corn drill—in the deed (Monongalia County Deeds 1921).

Howard Jenkins and his wife Goldie Pearl Jenkins lived on the dairy farm with their children through the 1930s and 1940s (US Census 1930 and 1940). Beginning ca. 1940, the concrete block outbuilding and the frame secondary dwelling were added to the property. Ca. 1948, a concrete block dairy barn with milkhouse and a smaller frame barn were constructed; it is assumed that they replaced earlier barns and outbuildings. Ca. 1954, two concrete stave silos were erected between the two barns.

The former Bunner Home Farm continued to operate as a dairy farm under Jenkins, though by the early 1940s, sections of the farm began to be parceled off for sale. After the construction of Greenbag Road in the mid-1960s, which replaced a narrow rural road by excavating a slightly revised path at the current north edge of the farm parcel, the trend to make more of the former farmland available for development continued. The farm is currently surrounded by suburban development with non-historic church properties located to the south, west, and northwest; individual residences located to the west and north; a residential development located to the north; and commercial development located to the northwest, northeast, and east.

The Campbell Farmhouse is recommended as eligible for listing in the National Register of Historic Places (NRHP) under Criterion C for Architecture as an intact and evocative example of an Italianate farmhouse. The larger farm property was evaluated under Criterion A for Agriculture, but it failed to convey a sense of its historic appearance and production as a late 19^{th}/early 20^{th} century dairy farm. None of the Campbells, Bunners, and the Jenkinses appear to meet the requirements for significance under Criterion B. The property was not evaluated under Criterion D for its potential to provide information important to the understanding of history or prehistory.

The recommended National Register boundary for the Campbell Farmhouse relies on natural and manmade features to provide an appropriate context for the Italianate dwelling that includes substantial farmland within its 10.9-acre area as well as the numerous mid-20^{th} century outbuildings that are part of the farmhouse's setting even though they do not contribute to its significance. The boundary begins on the north side following the top of the embankment above Greenbag Road that was created during the excavation and construction of the road in the mid-1960s; this embankment varies in height from roughly ten to seventeen feet. The top of the embankment is lined with trees, and its elevation obscures views of the roadway below. To the east and south, the recommended boundary follows the meandering path of Aaron Creek and its unnamed tributary, and to the west the boundary follows the driveway leading from Greenbag Road to the Covenant Evangelical Methodist Church.

The recommended period of significance for the property is ca. 1886 to represent the period when the Italianate farmhouse was built.

Bibliographical reference

Google Earth
2019 Aerial images of Monongalia County, West Virginia. Website at https://earth.google.com/web/. Accessed October 24, 2019.

Lathrop, J.M and H.C. Penny, W.R. Proctor
1886 *Morgan Magisterial District, Monongalia County, West Virginia, Blacksville, Wise, Lowsville, etc*. D.J. Lake and Company, Philadelphia, Pennsylvania.

Monongalia County Deeds
1978 Goldie Pearl Jenkins to Ray C. and Phyllis E. Jenkins. Deed Book 804, Page 135. On file, Monongalia County Clerk of Courts, Morgantown, West Virginia.

1922 George Yuhost to Howard Jenkins. Deed Book 181, Page 128. On file, Monongalia County Clerk of Courts, Morgantown, West Virginia.

1921 Mable Student to Howard Jenkins and George Yuhost. Deed Book 177, Page 86. On file, Monongalia County Clerk of Courts, Morgantown, West Virginia.

1920 Thompson Orth Bunner to Mable Student. Deed Book 169, Page 274. On file, Monongalia County Clerk of Courts, Morgantown, West Virginia.

Monongalia County Wills
2017 Last Will and Testament of Phyliis E. Jenkins. Will Book 171, Page 53. On file, Monongalia County Clerk of Courts, Morgantown, West Virginia.

1911 Last Will and Testament of Emma J. Bunner. Will Book 8, Page 229. On file, Monongalia County Clerk of Courts, Morgantown, West Virginia.

United States Bureau of the Census (US Census)
1880 Tenth Census of the United States, 1880. Morgan, Monongalia County, West Virginia. Records of the Bureau of the Census, Record Group 29. National Archives, Washington, D.C.

1910 Thirteenth Census of the United States, 1910. Morgan, Monongalia County, West Virginia. Records of the Bureau of the Census, Record Group 29. National Archives, Washington, D.C.

United States Bureau of the Census (US Census) (continued)

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1930 Fifteenth Census of the United States, 1930. Sturgis, Monongalia County, West Virginia. Records of the Bureau of the Census, Record Group 29. National Archives, Washington, D.C.

1940 Sixteenth Census of the United States, 1940. Sturgis, Monongalia County, West Virginia. Records of the Bureau of the Census, Record Group 29. National Archives, Washington, D.C.

United States Geological Survey (USGS)

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West Virginia Property Viewer

2019 "West Virginia Property Viewer." Website at https://www.mapwv.gov/parcel/. Accessed November 12, 2019.

Wiley, Samuel T.

1883 *History of Monongalia County, West Virginia*. Preston Publishing Company, Kingwood, West Virginia.

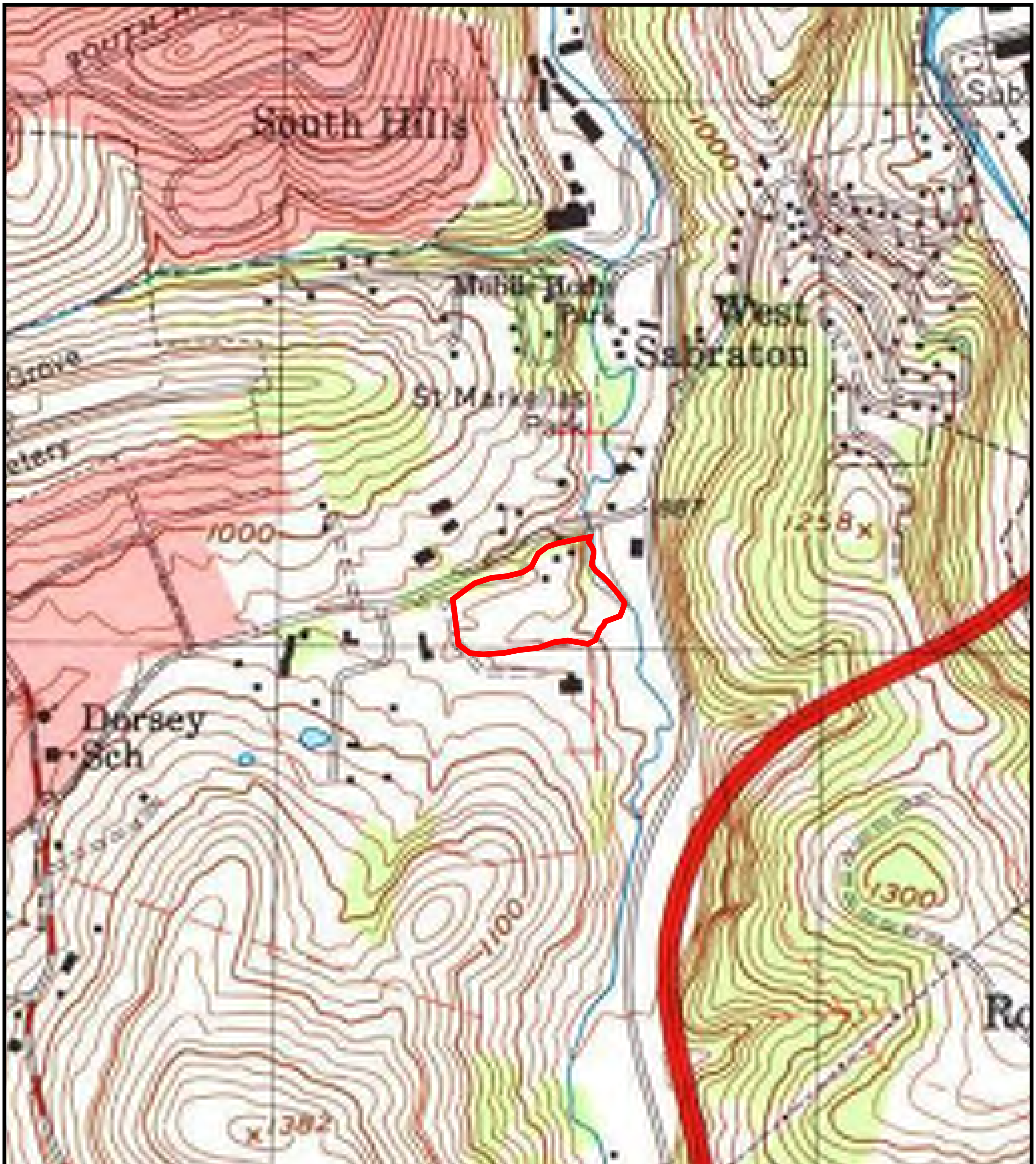
Photograph 1. North and west (front) elevations of the Campbell Farmhouse, facing southeast.

Photograph 2. South (side) elevation of the farmhouse, facing north.

Photograph 3. View of Campbell Farmhouse rear elevation in the distance, facing northwest.

Photograph 4. Ca. 1940 secondary dwelling at left, ca. 1948 dairy barn at center with two ca. 1954 silos behind, and ca. 1948 barn screened from view, facing northeast.

Photograph 5. West (side) elevation of ca. 1940 outbuilding, facing east.



Feet

0 750 1,500

Legend

Recommended National Register Boundary

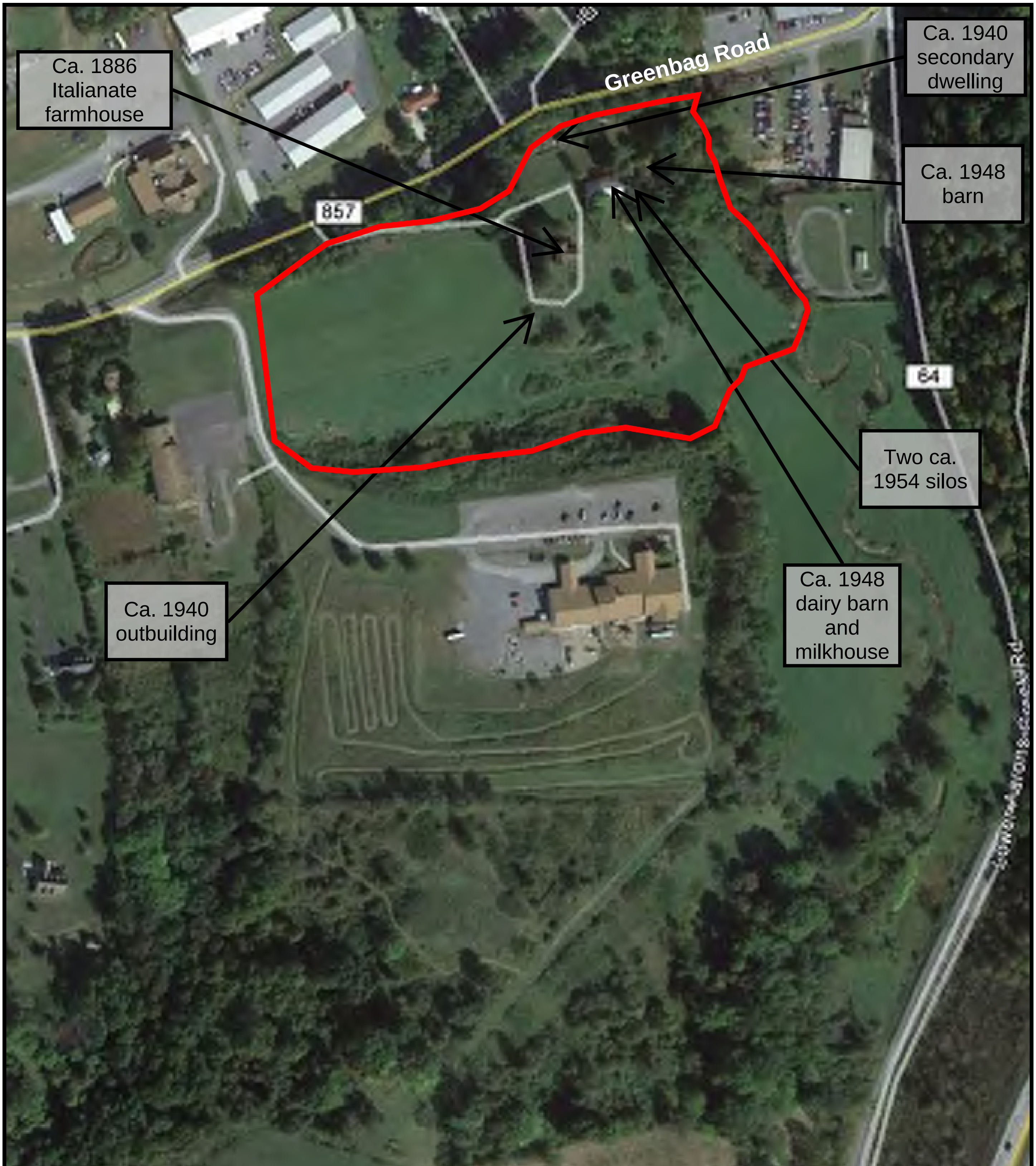
N
W E
S

USGS Map
MG-2641
Campbell Farmhouse

MARKOSKY

Greenbag Road Improvement Project

Morgan District and
City of Morgantown
Monongalia County
Source: USGS 1997



*Not to scale

Legend

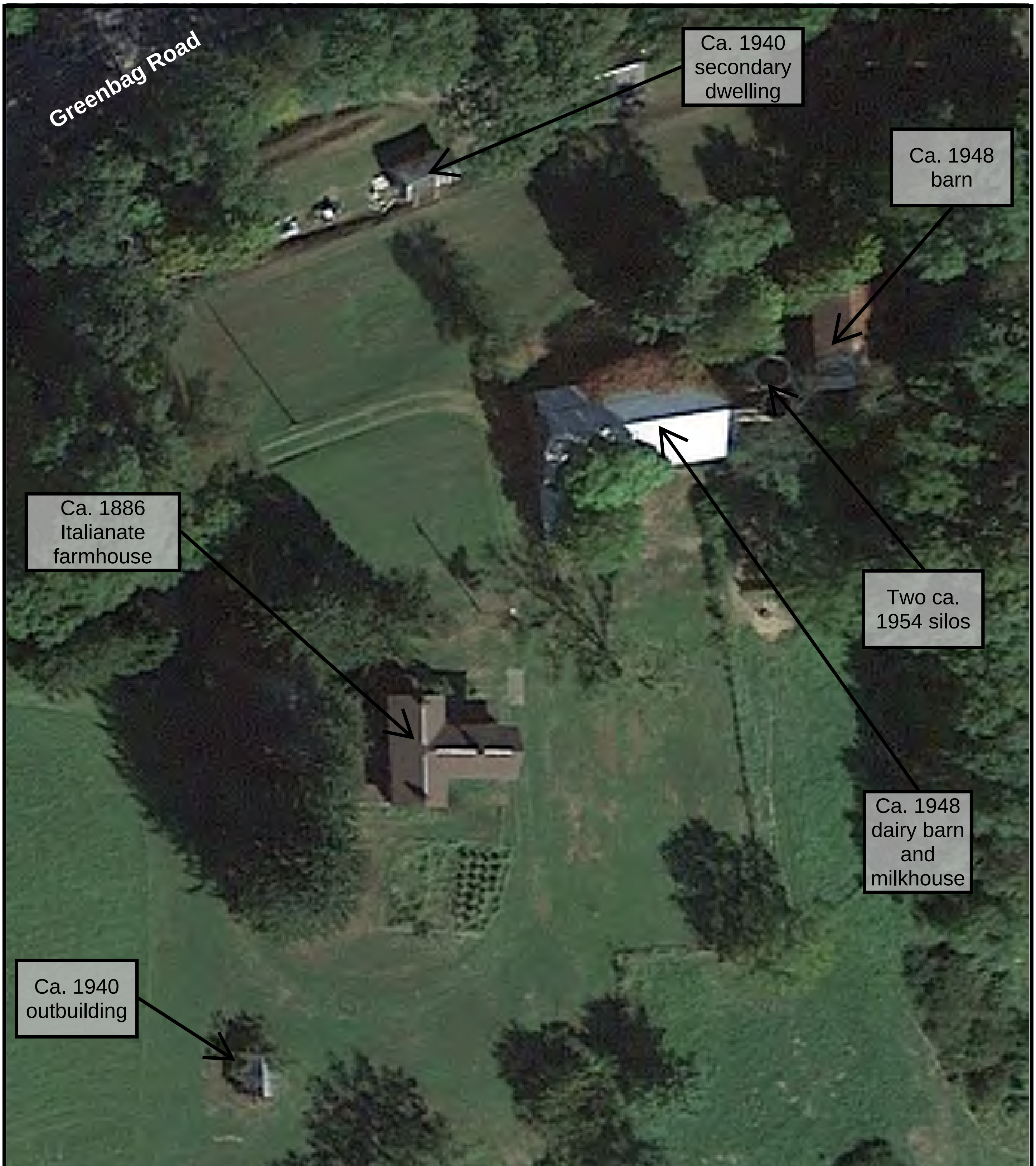
Recommended National Register Boundary

Site Map
MG-2641
Campbell Farmhouse

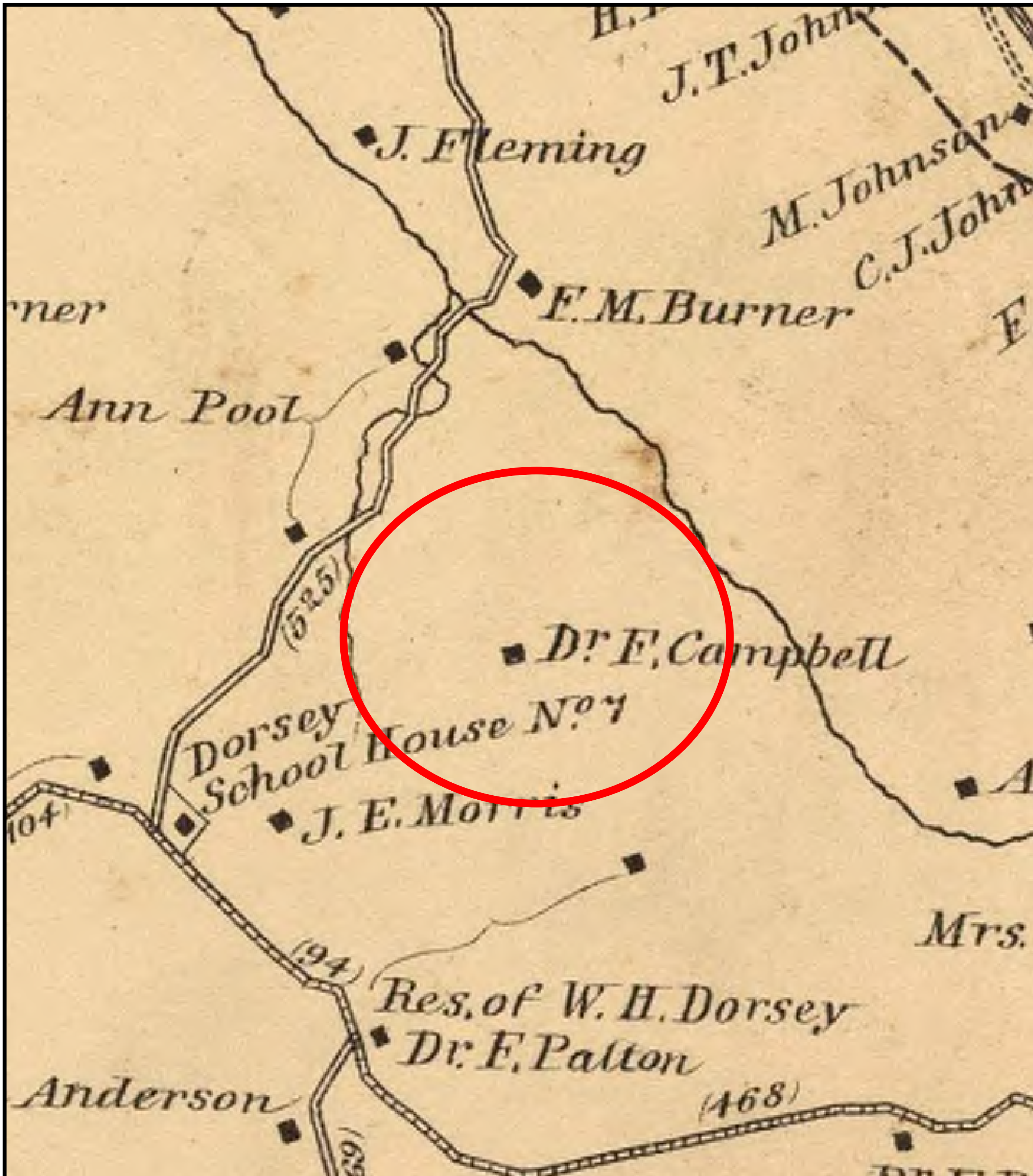
MARKOSKY

Greenbag Road Improvement Project

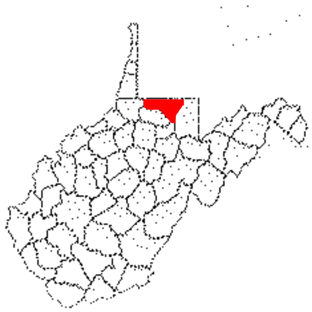
Morgan District and
City of Morgantown
Monongalia County
Source: Google Earth 2019



*Not to scale	**Legend**	N W E S	**Site Map** MG-2641 Detail of the Campbell Farmhouse
MARKOSKY	Greenbag Road Improvement Project		Morgan District and City of Morgantown Monongalia County ***Source: Google Earth 2019***



*Not to scale	**Legend** Approximate Resource Location		**1886 Map Detail** MG-2641 Campbell Farmhouse
MARKOSKY	Greenbag Road Improvement Project	N E S W	Morgan District and City of Morgantown Monongalia County ***Source: Lathrop et al. 1886***



Internal Rating: ___________

WEST VIRGINIA HISTORIC PROPERTY INVENTORY FORM

Street Address 851 Greenbag Road	**Common/Historic Name/Both** ◉ ○ ○ House at 851 Greenbag Road	**Field Survey #**	**Site # *(SHPO Only)*** MG-2642
Town or Community Morgantown vicinity	**County** Monongalia	**Negative No.**	**NR Listed Date**
Architect/Builder	**Date of Construction** c. 1970	**Style** Ranch	
Exterior Siding/Materials Brick	**Roofing Material** Tile - Ceramic	**Foundation** Concrete - Block (assumed)	
Property Use or Function **Residence** ◉ **Commercial** ○ **Other** ○	**UTM#** 17 S 591409 E / 4385210 N	 Photograph 1. MG-2642 / House at 851 Greenbag Road, west and south (front) elevations, facing northeast	
Survey Organization & Date The Markosky Engineering Group, October 31, 2019	**Quadrangle Name** Morgantown South, WV **Part of What Survey/FR#** Greenbag Road Improvement/NFA-2317(022)D		

Sketch Map of Property
Or Attach Copy of USGS Map

Site No.
MG-2642

N

Present Owners
Fred W. Westerman

Phone #

Owners Mailing Address
851 Greenbag Road
Morgantown, WV 26505

Describe Setting
The house is located in a suburban area to the southeast of the Morgantown city limits. The recent (post-2000) nearby development of a commercial warehouse complex (to the west) and a townhome residential plan (to the east) occupy former farmland.

3.25 **Acres**

☐ **Archaeological Artifacts Present**

Description of Building or Site (Original and Present) 1 **Stories** 5 **Front Bays**

One-story hipped roof ranch residence with partially-exposed basement level featuring an integral two-car garage. Porches added to the front, side, and rear elevations ca. 2010.

(Use Continuation Sheets)

Alterations ○ **Yes** ◉ **No** **If yes, describe**

Additions ◉ **Yes** ○ **No** **If yes, describe**
One-bay front porch added ca. 2010; three-season rear enclosed porch added ca. 2010; and lower level side porch added ca. 2010

Describe All Outbuildings
Detached garage/workshop from ca. 1970 located to the northeast of the house

(Use Continuation Sheets)

Statement of Significance
The House at 851 Greenbag Road represents an unremarkable example of a common house type from the postwar era (ca. 1970). It does not appear to be associated with any significant events; it is not associated with any people of demonstrated significance; and it is not distinguished for its architectural design. It is not eligible for NRHP listing under Criteria A, B, or C. It has not been evaluated under Criterion D.

(Use Continuation Sheets)

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Google Earth 2019 Aerial images of Monongalia County, West Virginia. Website at https://earth.google.com/web/. Accessed October 24, 2019.
USGS 1997 Morgantown South, West Virginia topographic map, 7.5 minute quadrangle. USGS Washington, D.C.

(Use Continuation Sheets)

Form Prepared By: Laura C. Ricketts **Date:** November 18, 2019

Name/Organization: The Markosky Engineering Group

Address: 232 Capitol Street
Charleston, WV 25301

Phone #: 304-223-5205

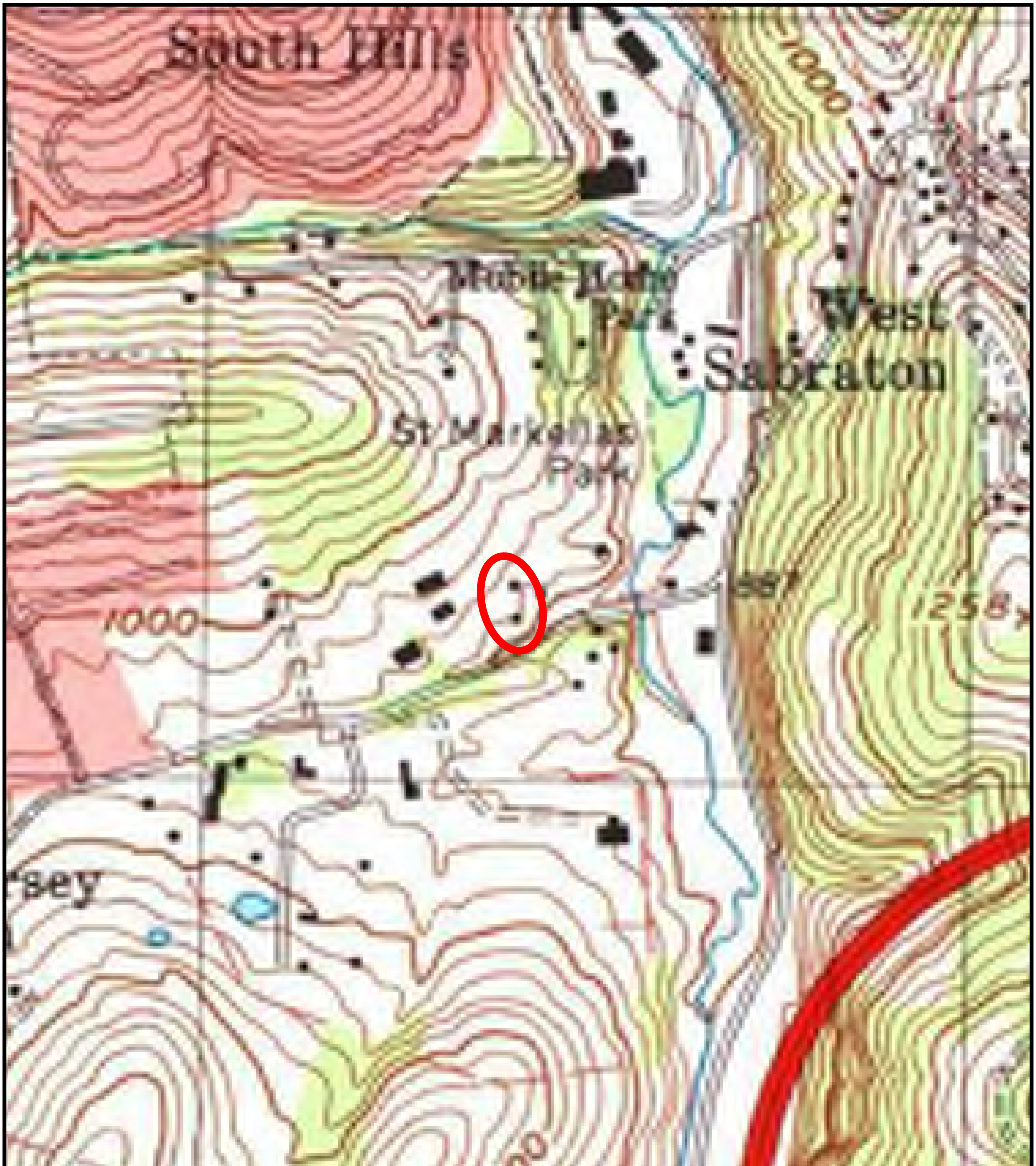
WEST VIRGINIA HISTORIC PROPERTY FORM
CONTINUATION SHEET

NAME House at 851 Greenbag Road **SITE#** MG-2642

Photograph 1. MG-2642 / Ranch at 851 Greenbag Road, west and south (front) elevations, facing northeast

Photograph 2. MG-2642 / Ranch at 851 Greenbag Road, east and north (rear) elevations, facing southwest

Photograph 3. View of detached garage at left, facing northwest. The non-historic buildings to the right belong to an unrelated property.



Feet	Legend		USGS Map
0 500 1,000	Location of Historic Structure	N W E S	MG-2642 House at 851 Greenbag Road
MARKOSKY	Greenbag Road Improvement Project		Morgan District and City of Morgantown Monongalia County ***Source: USGS 1997***

*Not to scale

Legend

Approximate Parcel Boundary

N
W
E
S

Site Map
MG-2642
House at 851 Greenbag Road

MARKOSKY

Greenbag Road Improvement Project

Morgan District and
City of Morgantown
Monongalia County
Source: Google Earth 2019

Internal Rating: ___________

WEST VIRGINIA HISTORIC PROPERTY INVENTORY FORM

Street Address 5000 Greenbag Road	**Common/Historic Name/Both** ○ ○ ◉ Mountaineer Mall	**Field Survey #**	**Site # *(SHPO Only)*** MG-2643
Town or Community Morgantown	**County** Monongalia	**Negative No.**	**NR Listed Date**
Architect/Builder Dill Construction Company (Latrobe, PA)	**Date of Construction** 1974	**Style** Late 20th Century Commercial	
Exterior Siding/Materials Brick, Metal - Aluminum, Concrete - Block	**Roofing Material** Unknown	**Foundation** Unknown	
Property Use or Function Residence ○ Commercial ◉ Other ○	**UTM#** 17 S 589228 E / 4384521 N	 Photograph 1. MG-2643 / Mountaineer Mall, overview, facing southwest	
Survey Organization & Date The Markosky Engineering Group, February 2019	**Quadrangle Name** Morgantown South **Part of What Survey/FR#** Greenbag Road Improvements/NFA-2317(022)D		

Sketch Map of Property
Or Attach Copy of USGS Map

MG-2643

Site No.

N

Present Owners	**Owners Mailing Address**
GP-Mountaineer LLC **Phone #**	610 Old York Road Jenkintown, PA 19046

Describe Setting

See continuation sheet.

78 **Acres**

☐ **Archaeological Artifacts Present**

Description of Building or Site (Original and Present)

1 **Stories** ____ **Front Bays**

See continuation sheet.

(Use Continuation Sheets)

Alterations

◉ Yes ○ No

If yes, describe

See continuation sheet.

Additions

◉ Yes ○ No

If yes, describe

See continuation sheet.

Describe All Outbuildings

None.

(Use Continuation Sheets)

Statement of Significance

See continuation sheet.

(Use Continuation Sheets)

Bibliographical References

See continuation sheet.

(Use Continuation Sheets)

Form Prepared By: Elizabeth Williams **Date:** November 18, 2019

Name/Organization: The Markosky Engineering Group

Address: 232 Capitol Street

Charleston, WV 25301

Phone #: 304-223-5205

West Virginia Division of Culture and History
State Historic Preservation Office

MG-2643 / Mountaineer Mall is located on the south side of Greenbag Road and east of Route 119 on a bluff above the Monongahela River. The shopping mall is surrounded by wooded areas as well as commercial and industrial buildings, the majority of which were built after construction of the mall was completed. The mall is located approximately 1.66 miles southwest of Morgantown.

The Mountaineer Mall, an approximately 500,000 square foot steel frame enclosed shopping center, was constructed in 1974 by Dill Construction Company of Latrobe, Pennsylvania (Morgantown Dominion-Post 1974) (Photographs 1-9). The original architect of the mall is presently unknown. Its original footprint was a long, roughly rectangular shape with small asymmetrical projections on each elevation. The shopping mall is covered in stretcher bond brick, aluminum panels and tiles, and smooth and rock faced concrete block in portions of the rear (southeast) elevation. The mall features multiple entrances, each with a variation of a Post Modern projecting semi-circular arched entryway that likely dates from the ca. 1987 additions and updates to building. The ca. 1987 addition projects from the northwest elevation of the mall.

The present main entrance to the mall is located on the northwest corner of the ca. 1987 addition. The angled entrance leads to a wide walkway that travels diagonally through the double height addition. Interior materials include terrazzo floors, glazed brick and tile pilasters decorating the walls, and brick veneer applied to some walls. The interior is decorated with simple free standing wood planters along with L-shaped and triangular planters covered in white tile. Decorative domed recessed lighting with simulated leading is located in the center of the addition. The addition is connected to the original portion of the mall by a terraced walkway flanked by steps featuring a wood handrail with brass railings. Clerestory windows are located above the central cross axis of the original 1974 section of the mall. The 1974 section is organized along a wide double loaded corridor with a secondary perpendicular walkway providing access to some of the shopping mall's original anchor tenants at the center of the complex. The northeast and southwest sections of the mall which originally housed anchor stores now function as office space.

The Mountaineer Mall brought the first large-scale, air conditioned multi-store shopping center to northern West Virginia (Latrobe Bulletin 1974). Laurel of Morgantown, a subsidiary of the Laurel Development Company of Latrobe, Pennsylvania, was responsible for the development of the 75 store mall whose anchor stores included Montgomery Ward, J.C. Penney, G.C. Murphy, and a Giant Eagle grocery store. The mall was constructed by Dill Construction Company of Latrobe, Pennsylvania and was financed by Equibank N.A. of Pittsburgh, which had also financed two large scale hotels near Morgantown and an extended care nursing facility near the West Virginia University Hospital (Morgantown Dominion-Post 1974; Latrobe Bulletin 1974). The Mountaineer Mall saw its peak in the late 1970s and into the early 1980s. In 1990, however, the Morgantown Mall was opened nearby on the west side of the Monongahela River with direct access to Interstate 79 roughly two and half miles northwest of the Mountaineer Mall. Mountaineer Mall immediately lost one of its anchor stores when J.C. Penney relocated to the

Morgantown Mall shortly after it opened. As more retailers left the mall in the late 1990s and into the first decade of the 2000s, the mall began to lease space for offices. Current tenants include Fresenius Kidney Care, Mylan, TeleTech, Focus Mon Learning Center, and Mountaineer Home Medical, as well as other retail and non-retail tenants (Way 2010).

No information was recovered linking the Mountaineer Mall to events significant on the local, state, or national level. Therefore, it is not eligible for listing on the NRHP under Criterion A. No information was recovered to suggest the mall was historically associated with individuals significant on the local, state, or national level. Therefore, it is not eligible for listing under Criterion B. Mountaineer Mall stands as a common and unexceptional example of late mid-century commercial architecture and construction technique. The mall was constructed by Dill Construction Company of Latrobe, Pennsylvania. However, the company was a small firm operating primarily in southwestern Pennsylvania and the mall is not a noteworthy example of the company's work. The mall has also undergone a loss of integrity due to a major addition, the removal of original interior decorative material, and alterations to original entrances in 1987. It does not possess the architectural merit or high artistic value to be considered eligible for listing under Criterion C. The building has not been evaluated for significance under Criterion D for its potential to yield information important to the understanding of history or prehistory.

Bibliographical References

Beckley Post-Herald

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Way, Prange

2010 "Mountaineer Mall: Morgantown, West Virginia." Website at http://www.labelscar.com/west-virginia/mountaineer-mall. Accessed February 4, 2019.

Photograph 1. Overview, facing southwest (Markosky 2019-01-29)

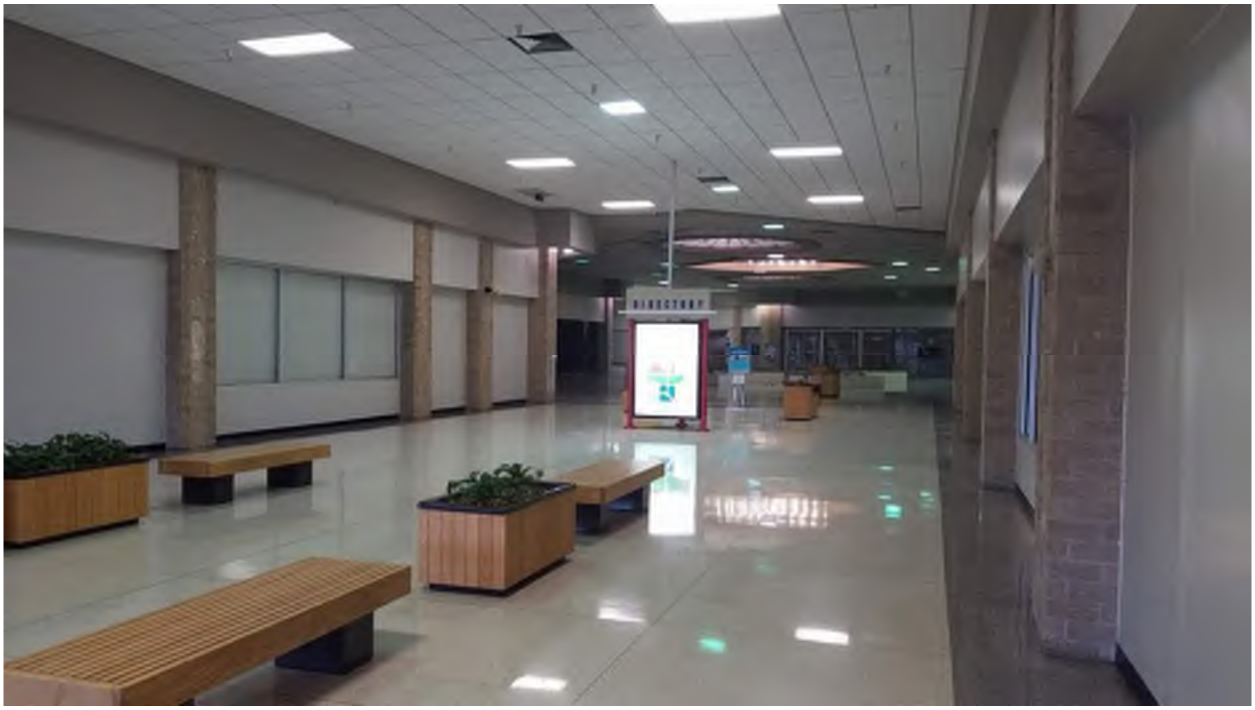
Photograph 2. Overview, facing south (Markosky 2019-01-29)

Photograph 3. Rear of mall, facing northeast (Markosky 2019-01-29)

Photograph 4. Rear of mall, facing east (Markosky 2019-01-29)

Photograph 5. Representative entrance, facing southwest (Markosky 2019-01-29)

Photograph 6. Mall half domed entrance in ca. 1987 addition, facing east (Markosky 2019-03-20)



Photograph 7. Terrazzo floor, glazed brick pilasters, and planters (Markosky 2019-03-20)

Photograph 8. Terraced walkway leading to original 1974 portion of mall (Markosky 2019-03-20)

Photograph 9. Central open area in 1974 portion showing planters, brick veneer on walls, and clerestory windows (Markosky 2019-03-20)

Feet

0 500 1,500

Legend

Location of Historic Structure

USGS Map
MG-2643
Mountaineer Mall
5000 Greenbag Road

MARKOSKY

Greenbag Road Improvement Project

Morgan District and
City of Morgantown
Monongalia County
Source: USGS 1997

*Not to scale	**Legend** Approximate Parcel Boundary	N W E S	**Site Map** MG-2643 Mountaineer Mall 5000 Greenbag Road
MARKOSKY	Greenbag Road Improvement Project		Morgan District and City of Morgantown Monongalia County *Source: Google Earth 2018*

*Not to scale	**Legend** Approximate Parcel Boundary	N W E S	**Aerial View in 1976** MG-2643 Mountaineer Mall 5000 Greenbag Road
MARKOSKY	Greenbag Road Improvement Project		Morgan District and City of Morgantown Monongalia County ***Source: USGS 1976***

Internal Rating: ___________

WEST VIRGINIA HISTORIC PROPERTY INVENTORY FORM

Street Address 2020 Mississippi Street	**Common/Historic Name/Both** ○ ○ ⦿ Morgantown City Garage	**Field Survey #**	**Site # *(SHPO Only)*** MG-2644
Town or Community Morgantown	**County** Monongalia	**Negative No.**	**NR Listed Date**
Architect/Builder Mellon-Stuart Company of Pittsburgh, PA	**Date of Construction** 1975-1976	**Style** Modern Garage/Shed	
Exterior Siding/Materials Metal - Aluminum	**Roofing Material** Metal - Aluminum	**Foundation** Concrete - Block	
Property Use or Function **Residence** ○ **Commercial** ○ **Other** ⦿	**UTM#** 17 S 589737 / 4384935	 Photograph 1. MG-2644 / Morgantown City Garage, southwest and southeast elevations, facing north	
Survey Organization & Date The Markosky Engineering Group, February 5, 2019	**Quadrangle Name** Morgantown South **Part of What Survey/FR#** Greenbag Road Improvement/NFA-2317(022)D		

Sketch Map of Property
Or Attach Copy of USGS Map

Site No.
MG-2644

N

Present Owners	**Owners Mailing Address**
City of Morgantown **Phone #**	389 Spruce Street Morganton, WV 26505

Describe Setting

See continuation sheet.

41 **Acres**

☐ **Archaeological Artifacts Present**

Description of Building or Site (Original and Present) 1 **Stories** 6 **Front Bays**

See continuation sheet.

(Use Continuation Sheets)

Alterations **If yes, describe**

○ **Yes** ◉ **No**

Additions **If yes, describe**

○ **Yes** ◉ **No**

Describe All Outbuildings

See continuation sheet.

(Use Continuation Sheets)

Statement of Significance

See continuation sheet.

(Use Continuation Sheets)

Bibliographical References

See continuation sheet.

(Use Continuation Sheets)

Form Prepared By: Elizabeth Williams **Date:** November 18, 2019

Name/Organization: The Markosky Engineering Group

Address: 232 Capitol Street

Charleston, WV 25301

Phone #: 304-223-5205

West Virginia Division of Culture and History
State Historic Preservation Office

The Morgantown City Garage complex is located on the northeast side of Mississippi Street approximately 384 feet north of its intersection with Greenbag Road. The building, which was constructed between 1975 and 1976, is set within an area of commercial and residential development approximately 1.39 miles south of the city of Morgantown.

The Morgantown City Garage was constructed between 1975 and 1976 by the Mellon-Stuart Company of Pittsburgh, Pennsylvania (Photographs 1-3 [Morgantown Dominion Post 1975a, 1975b, and 1976]). The steel frame pole barn is covered in ridged metal cladding. The structure is capped by a low-pitched side gable roof covered in standing seam metal roofing. The front (southwest) elevation of the garage features four oversized vehicle-bay openings. Fenestration consists of fixed windows.

A ca. 1975 barrel vaulted, prefabricated storage outbuilding set atop concrete blocks is located west of the garage. A ca. 2000 storage barn resting on a poured concrete foundation is located northwest of the garage. The storage barn is covered in vertical siding and capped by a front gable roof covered in asphalt shingle. Four additional outbuildings dating to ca. 1995 are located northwest of the garage; however, they were not visible from the public right-of-way (ROW).

No information was recovered linking the Morgantown City Garage to events significant on the local, state, or national level. Therefore, it is not eligible for listing in the NRHP under Criterion A. No information was recovered to suggest the building was historically associated with individuals significant on the local, state, or national level. Therefore, it is not eligible for listing under Criterion B. The Morgantown City Garage was constructed by the Mellon-Stuart Company of Pittsburgh, Pennsylvania (Morgantown Dominion Post 1975a, 1975b, and 1976). The company was incorporated in 1917 and represented the merging of two Pittsburgh construction companies, one of which was owned by local financier Thomas Mellon. While the company specialized in railroad related construction, it was responsible for the construction of many notable office buildings in downtown Pittsburgh. The company is considered one of the oldest continually operating construction companies in the United States (Funding Universe 2019). However, the Morgantown City Garage does not represent a noteworthy example of the company's work. The Morgantown City Garage stands as a common and unexceptional example of a late mid-century outbuilding. It does not possess the architectural merit or high artistic value to be considered eligible for listing under Criterion C. The building has not been evaluated for significance under Criterion D for its potential to yield information important to the understanding of history or prehistory.

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1975b "Garage 38% Complete." *Morgantown Dominion-Post*. December 18, 1975, page 2B.

1976 "The New City Garage." *Morgantown Dominion-Post*. August 5, 1976, page 6B.

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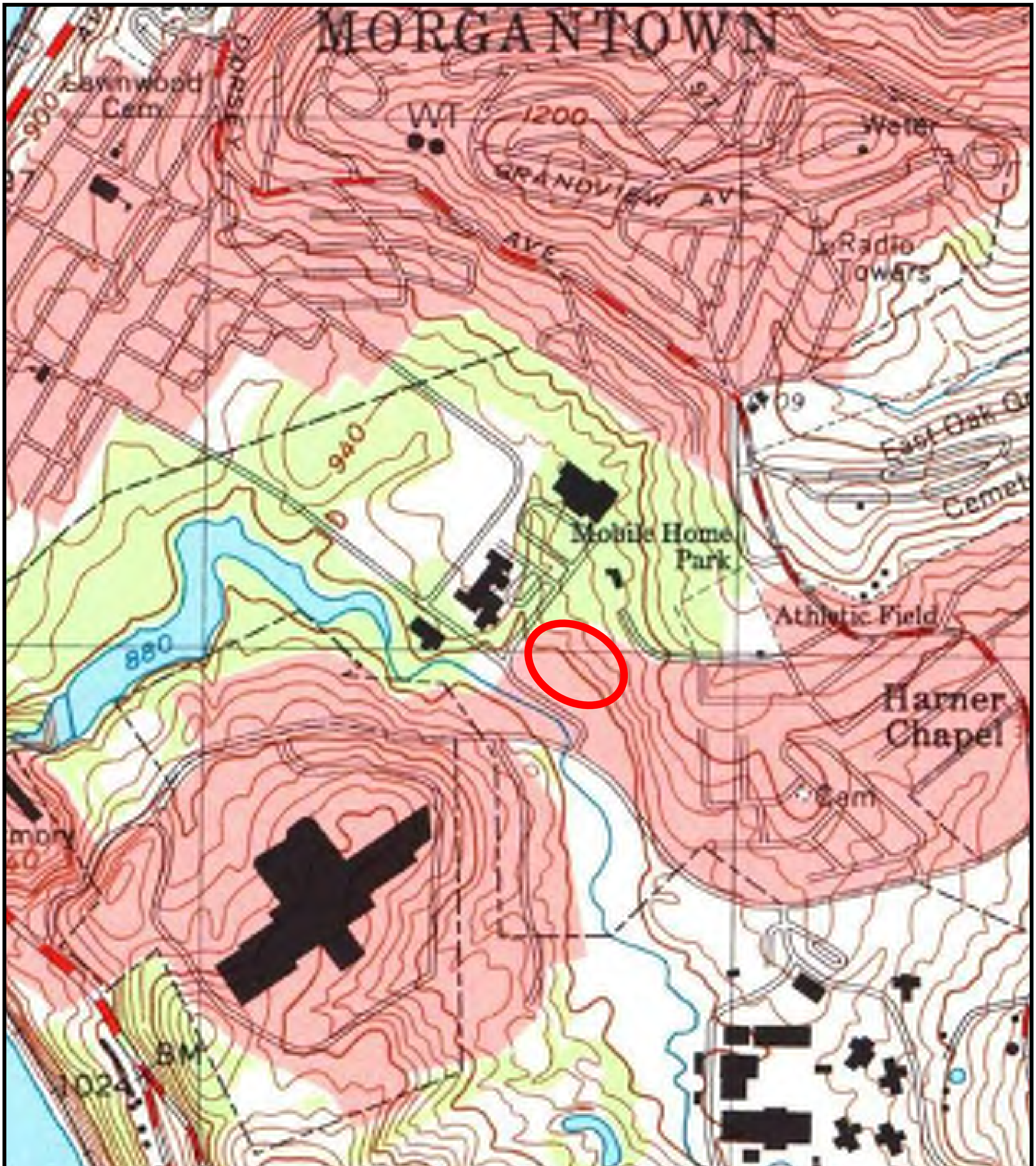
1997 Morgantown South, West Virginia topographic map, 7.5 minute quadrangle. United States Geological Survey, Washington, D.C.

Photograph 1. Southwest and southeast elevations, facing north (Markosky 2019-02-05)

Photograph 2. Prefabricated outbuilding, facing southeast (Markosky 2019-02-05)

Photograph 3. Non-historic storage barn, facing southeast (Markosky 2019-02-05)



Feet

0 500 1,500

Legend

Location of Historic Structure

N
W E
S

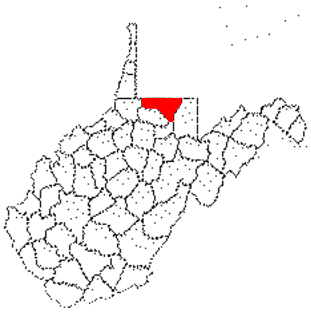
USGS Map
MG-2644
Morgantown City Garage
2020 Mississippi Street

MARKOSKY

Greenbag Road Improvement Project

Morgan District and
City of Morgantown
Monongalia County
Source: USGS 1997

*Not to scale	**Legend** Approximate Parcel Boundary	N W E S	**Site Map** MG-2644 Morgantown City Garage 2020 Mississippi Street
MARKOSKY	Greenbag Road Improvement Project		Morgan District and City of Morgantown Monongalia County ***Source: Google Earth 2018***



Internal Rating: ___________

WEST VIRGINIA HISTORIC PROPERTY INVENTORY FORM

Street Address 446 Greenbag Road	**Common/Historic Name/Both** ○ ○ ◉ FCI Morgantown Kennedy Center / Robert F. Kennedy Youth Center	**Field Survey #**	**Site # *(SHPO Only)*** MG-2645
Town or Community Morgantown	**County** Monongalia	**Negative No.**	**NR Listed Date**
Architect/Builder C.E. Silling & Associates; Schmidt, Garden & Erickson	**Date of Construction** 1968	**Style** Modern; Ranch	
Exterior Siding/Materials Brick	**Roofing Material** Asphalt - shingles	**Foundation** Not visible	
Property Use or Function **Residence** ○ **Commercial** ○ **Other** ◉	**UTM#** 17 S 590139 / 4384373	 Photograph 1. MG-2645 / Robert F. Kennedy Youth Center, overview, facing southeast	
Survey Organization & Date The Markosky Engineering Group, December 4th, 2018	**Quadrangle Name** Morgantown South **Part of What Survey/FR#** Greenbag Road Improvements/NFA-2317(022)D		

Sketch Map of Property
Or Attach Copy of USGS Map

Site No. MG-2645

N

Present Owners
United States Federal Bureau of Prisons

Phone #

Owners Mailing Address

Describe Setting
See continuation sheet.

103 **Acres**

☐ **Archaeological Artifacts Present**

Description of Building or Site (Original and Present) ____ **Stories** ____ **Front Bays**

See continuation sheet.

(Use Continuation Sheets)

Alterations ○ Yes ○ No **If yes, describe**
The buildings within the complex were not accessible during field survey.

Additions ○ Yes ○ No **If yes, describe**
The buildings within the complex were not accessible during field survey.

Describe All Outbuildings
Not visible during field survey.

(Use Continuation Sheets)

Statement of Significance
See continuation sheet.

(Use Continuation Sheets)

Bibliographical References
See continuation sheet.

(Use Continuation Sheets)

Form Prepared By: Elizabeth Williams **Date:** November 18, 2019

Name/Organization: The Markosky Engineering Group
Address: 232 Capitol Street
Charleston, WV 25301

Phone #: 304-223-5205

West Virginia Division of Culture and History
State Historic Preservation Office

MG-2645 / Robert F. Kennedy Youth Center is an approximately 103-acre federal correctional institution complex located on the south side of Greenbag Road west of Kingwood Pike. The complex is located approximately 1.68 miles southeast of the city of Morgantown and is surrounded by dense woods to the south and east, while a collection of large commercial and industrial buildings are located to the west. As the complex is a functioning correctional institution, the buildings were not accessible during field survey.

The complex was constructed in 1968 and includes approximately 18 buildings. It currently functions as a minimum security Federal Correctional Institution (Photographs 1-7). The entrance of the complex features a sign made of brick piers; the area fronting Greenbag Road is delineated by a simple wood post fence. The buildings visible from the public right-of-way are one-story Ranch style buildings clad in polychrome brick with a frame structural system. The roof profiles include low pitched hipped roofs covered in asphalt shingle with overhanging eaves. The majority of the buildings in the complex are rectangular in plan with projecting wings. A 1968 article in the Morgantown Dominion News shows a photograph of a mid-century Modern building although its use was not disclosed. The building, which appears to be a focal point within the complex, is clad in stone veneer and features a stylized hyperbolic-type roof (Morgantown Dominion News 1968). The Robert F. Kennedy Youth Center was built in a campus style. The complex is surrounded by a driveway and has paved walking paths that connect the various buildings. Cobun Creek passes through the southern portion of the complex, and three footbridges carry the walking paths over the creek. The complex includes tennis courts and a baseball field. A review of modern aerial photographs indicates that two additional buildings were constructed in the southern section of the complex ca. 1997.

The Robert F. Kennedy Youth Center was constructed in 1968 using designs by C.E. Silling and Associates (known today as Silling Architects) from Charleston, West Virginia (Balchen 1971:13). The firm is the oldest continually operating architectural firm in West Virginia (Silling Architects 2018). Construction and planning was overseen by Gary Mote, who at the time was the principal architect with the Office of Facilities Development Division of the Federal Bureau of Prisons (Balchen 1971:15). According to a 1968 article in the Morgantown Dominion News, at the time the facility was dedicated the grounds included a large educational facility which housed classrooms, an auditorium, and an indoor swimming pool (Morgantown Dominion News 1968).

The facility was designed as a prototype for the experimental penal system model known as “unit management” and was considered a model for other correctional systems projects (Kasey 2015:51; Balchen 1971:15). In the unit management model, the juvenile offenders were put into groups of 50-200 and were managed by a multidisciplinary team. At the Robert F. Kennedy Youth Center, the juvenile offenders were referred to as students. The eventual goal was to “graduate” each student from the facility. The staff was to be available and approachable, and open communication between students and staff was encouraged. The housing units were referred to as cottages, and there were no fences or bars within the facility (Kasey 2015:51; Balchen 1971:15).

This experimental model resulted in reduced violence among inmates, reduced program costs, increased morale among inmates and staff, and lower recidivism rates, and it generally produced inmates who were better prepared to reenter society. Within a decade of its opening, the facility was transitioned to house adult male inmates and the unit management model was eventually adopted in prisons throughout the country (Kasey 2015:51; Balchen 1971:15). Today, the facility is known as the Morgantown Kennedy Center Federal Correctional Institution, and it houses non-violent offenders, the majority of which have committed crimes related to financial fraud.

The Robert F. Kennedy Youth Center is significant for its association with the penal history of the United States. The center was constructed as an experimental juvenile detention center employing the "unit management" penal system model. The model was considered a success and was eventually applied to adult correctional institutions across the United States. The website of the Federal Bureau of Prisons includes a historical timeline outlining significant events related to United States prisons beginning in 1891 when the Federal Prison System was established. The opening of the Robert F. Kennedy Youth Center in 1969 is included on this timeline; the center is recognized for the innovative concepts and programs it implemented. The establishment of the center represents a significant moment in the institutional history of the Federal Bureau of Prisons (Federal Bureau of Prisons 2018). For these reasons, the Robert F. Kenney Youth Center is eligible for NRHP listing under Criterion A. No information was recovered linking the prison to individuals significant on the local, state, or national level. Therefore, the complex is not eligible for NRHP listing under Criterion B.

The Robert F. Kennedy Youth Center was designed by C.E. Silling and Associates. The firm is known today as Silling Architects and is the oldest continually operating architectural firm in West Virginia. The firm designed numerous buildings in West Virginia including the Huntingdon County Federal Building; the Boone County Courthouse; Charleston City Hall; Nicholas County High School; the State Masonic Home in Parkersburg; the West Virginia Cultural Center in Charleston; the Medium Security Prison in Huttonsville; and the Mountainlair Student Union and Coliseum Arena at West Virginia University in Morgantown. Residential examples of the firms work are located in the Edgewood, South Hills, and Kanawha City neighborhoods of Charleston. The firm also designed public housing projects in Charleston as well as the Stadium Terrace development in Mt. Hope. The firm was well known in West Virginia for their projects which included academic buildings, health care facilities, prisons, airports, courthouses, and banks (Gioulis 2011:3). However, because the complex was not accessible during field survey there is not enough information to inform the significance or integrity of the architectural design. Eligibility under Criterion C is not able to be determined. The complex has not been evaluated for significance under Criterion D for its potential to yield information important to the understanding of history or prehistory.

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2018b "FCI Morgantown." Website at https://www.bop.gov/locations/institutions/mrg/. Accessed April 3, 2019.

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1968 "Youth Center Will Be Named in Robert Kennedy's Honor." *Morgantown Dominion News.* November 12, 1968, page 1B, column 1-3.

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2018 "Our Company." Website at http://silling.com/our-company/. Accessed December 14, 2018.

Photograph 1. Entrance sign and wood post fencing south of Greenbag Road, facing southeast (Markosky 2018-12-04)

Photograph 2. Overview from Greenbag Road, facing southeast (Markosky 2018-12-04)

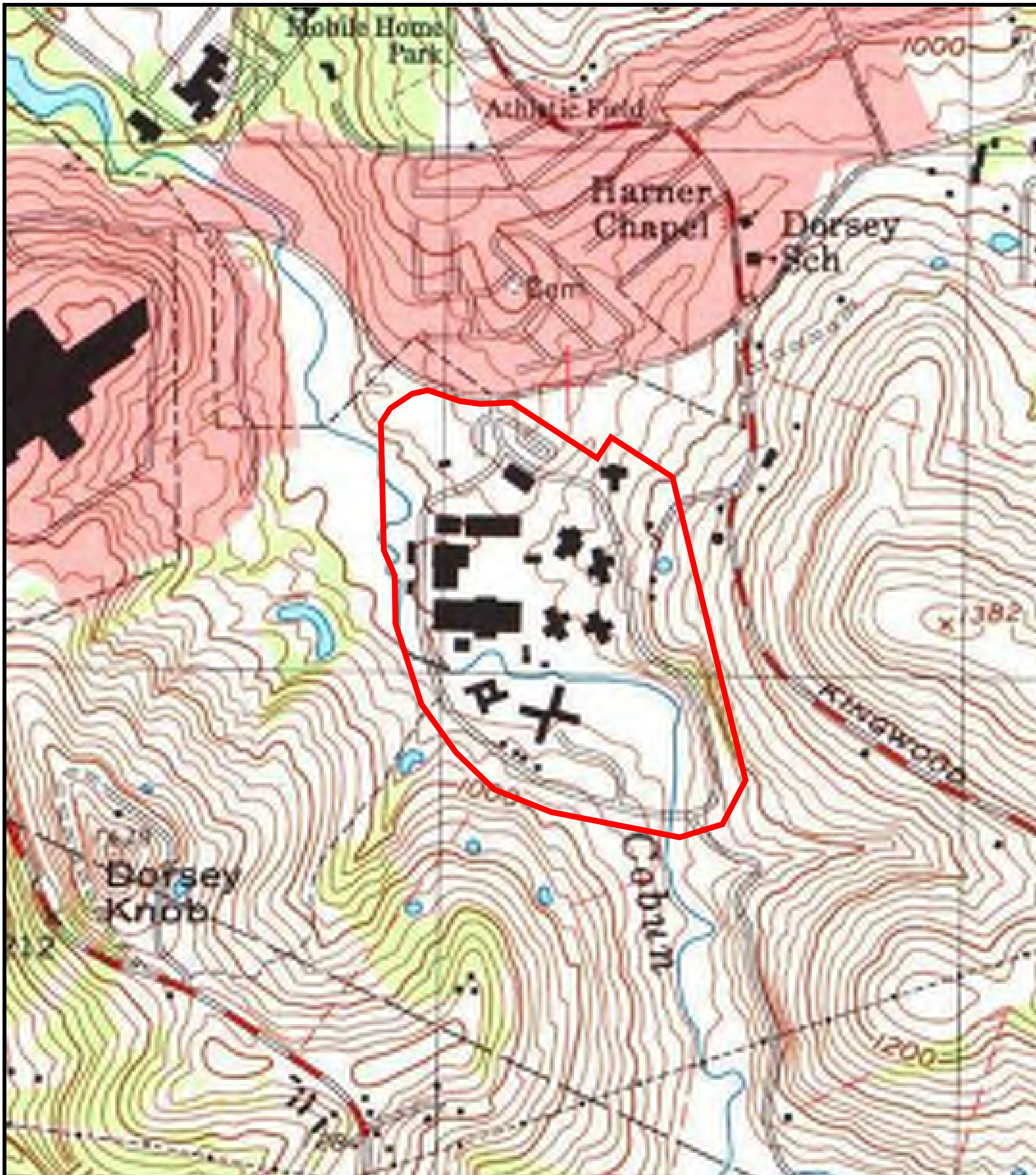
Photograph 3. Overview from Kingwood Pike, facing west (Markosky 2019-02-05)

Photograph 4. Representative building, facing west (Markosky 2019-02-05)

Photograph 5. Representative building south of Greenbag Road, facing south (Markosky 2018-12-04)

Photograph 6. Representative building from FCI Morgantown website (Federal Bureau of Prisons 2018b)

Photograph 7. Photograph of representative building with hyperbolic-type roof (Morgantown Dominion News 1968)



Feet	Legend
0 — 750 — 1,500	Recommended National Register Boundary

N
W E
S

USGS Map
MG-2645
Robert F. Kennedy Youth Center

MARKOSKY

Greenbag Road Improvement Project

Morgan District and
City of Morgantown
Monongalia County
Source: USGS 1997

*Not to scale

Legend

Recommended National Register Boundary

Site Map
MG-2645
Robert F. Kennedy Youth Center

MARKOSKY

Greenbag Road Improvement Project

Morgan District and
City of Morgantown
Monongalia County
Source: Google Earth 2018

*Not to scale

Legend

Recommended National Register Boundary

N
W
E
S

Aerial View in 1976
MG-2645
Robert F. Kennedy Youth Center

MARKOSKY

Greenbag Road Improvement Project

Morgan District and
City of Morgantown
Monongalia County
Source: USGS 1976

Internal Rating: ___________

WEST VIRGINIA HISTORIC PROPERTY INVENTORY FORM

Street Address 87 Kingwood Pike	**Common/Historic Name/Both** ○ ◉ ○ Patton Farm	**Field Survey #**	**Site # *(SHPO Only)*** MG-2646
Town or Community Morgantown	**County** Monongalia	**Negative No.**	**NR Listed Date**
Architect/Builder	**Date of Construction** C. 1880	**Style** Other	
Exterior Siding/Materials Synthetics - Vinyl	**Roofing Material** Metal - Standing Seam	**Foundation** Stone - Coursed Rubble	
Property Use or Function **Residence** ◉ **Commercial** ○ **Other** ○	**UTM#** 17 S 590604 / 4384361	 Photograph 1. MG-2646 / Patton Farm, farmhouse, facing northeast	
Survey Organization & Date The Markosky Engineering Group, December 4th, 2018	**Quadrangle Name** Morgantown South **Part of What Survey/FR#** Greenbag Road Improvement/NFA-2317(022)D		

Sketch Map of Property
Or Attach Copy of USGS Map

MG-2646

Site No.

N

Present Owners	Owners Mailing Address
Samuel Dewey Hastings Phone #	P.O. Box 172, Morgantown, WV 26507

Describe Setting

See continuation sheet.

9.855 **Acres**

☐ **Archaeological Artifacts Present**

Description of Building or Site (Original and Present) 2 **Stories** 3 **Front Bays**

See continuation sheet.

(Use Continuation Sheets)

Alterations ◉ Yes ○ No **If yes, describe**

See continuation sheet.

Additions ◉ Yes ○ No **If yes, describe**

See continuation sheet.

Describe All Outbuildings

See continuation sheet.

(Use Continuation Sheets)

Statement of Significance

See continuation sheet.

(Use Continuation Sheets)

Bibliographical References

See continuation sheet.

(Use Continuation Sheets)

Form Prepared By: Elizabeth Williams **Date:** November 18, 2019

Name/Organization: The Markosky Engineering Group

Address: 232 Capitol Street
Charleston, WV 25301

Phone #: 304-223-5205

West Virginia Division of Culture and History
State Historic Preservation Office

MG-2646 / Patton Farm is located within an approximately 9.9 acre parcel on the east side of Kingwood Pike, approximately 0.21 miles south of its intersection with Greenbag Road. The surrounding area consists of dense woods to the east and south and an area of residential and commercial buildings to the north in the vicinity of Kingwood Pike and Greenbag Road.

The primary resource of the Patton Farm is a ca. 1880, two-story frame farmhouse (Photograph 1). The house is clad in vinyl siding and rests on a roughly coursed stone foundation. The three-gable roof is covered in standing seam metal and a two-story ell projects from the rear (southeast) elevation. Fenestration consists of replacement, metal sash one-over-one windows. Pairs of historic-era quarter round windows are extant in the gable ends. A hipped roof porch supported by square wood posts wraps around the façade (northwest elevation) and side (northeast elevation) of the farmhouse. The porch floor appears to be undergoing repairs.

Outbuildings on the property include a ca. 1880 root cellar located south of the farmhouse (Photograph 2). The root cellar is constructed of coursed stone and is capped by a front gable roof covered in corrugated metal with vertical board in the gable ends. A historic-era frame shed (Shed #1) is located to the northeast of the farmhouse (Photograph 3). The shed is clad in clapboard and capped by a front gable roof covered in standing seam metal. Another historic-era frame shed (Shed #2) is located to the northeast of Shed #1 (Photograph 3). The shed is clad in board and batten siding and is capped by a shed roof covered in corrugated metal with exposed rafter tails. A ca. 1980 pole barn clad in standing seam metal is located north of the farmhouse (Photograph 4). Another outbuilding that dates to ca. 1990 is located northeast of the pole barn but was not visible from the public right-of-way.

The Patton Farm is located within a parcel of land historically associated with George Dorsey, one of the earliest settlers in this area of Monongalia County. Dorsey came to the area in 1807 and acquired over 1,000 acres from Jonathan Coburn who had settled in the area in the late 18th century (Core 1976:379-381; Monongalia County Deeds 1803). Dorsey's Knob, a rock formation and tourist attraction since the late 19th century located approximately 0.87 miles to the southwest, was named for George Dorsey (Muttillo and Blosser 2018). George Dorsey died in 1824 and his land was deeded to his children, including his son George Dorsey, Jr. (Butcher 1912:873). The Patton Farm first appears on an 1886 map of Monongalia County (Figure 1) (Lothrop, et. al 1886). The house is identified as belonging to Dr. F. (Frederick) Patton, the husband of Eliza Patton, who was the daughter of George Dorsey Jr. (Butcher 1912:873).

The 1886 map shows dwellings scattered along the established roadways. The Dorsey School House No. 1 was located north of Dr. Patton's home at the intersection of the Kingwood, Morgantown, and West Union Turnpike (modern day Kingwood Pike) and modern day Luckey Lane. Morgantown was illustrated to the northwest. Dorsey's Knob is illustrated southwest of the Patton Farm and other members of the Dorsey family were living in the vicinity (Lothrop, et. al 1886).

In 1893, Frederick and Eliza Patton deeded 205 acres of land to Philip Fairchild Harner. The deed indicates the land was formerly from the estate of George Dorsey Sr. and a cemetery was located on the property; the cemetery contained the graves of members of the Dorsey family and their servants (Monongalia County Deeds 1893). It is unclear if Philip Harner resided on the Patton Farm, as the 1900 population census indicates that he and his wife lived in the Greenmont area of Morgantown, which was to the north of the Patton Farm (US Census 1900). In 1902, Philip Harner conveyed the 205 acres to Jefferson and Virginia Smith (Monongalia County Deeds 1902). A 1902 topographic map shows the Patton Farm and the surrounding area (Figure 2) (USGS 1902). The Kingwood Pike was the major route throughout this area of Monongalia County. The few dwellings in the area were concentrated along this road as well as Luckey Lane. Dorsey Knob is again illustrated southwest of the Patton Farm. A large assemblage of oil storage tanks was located to the west of the Kingwood Pike and east of the Monongahela River. The tanks were constructed by the Eureka Pipeline Company, a subsidiary of the Standard Oil Company, in 1890. The tanks were used to store oil extracted throughout Monongalia County that was awaiting transport via pipelines (USGS 1902; Core 1982:144).

The 1910 population census lists Jefferson Smith as a 33 year old farmer living with his wife Virginia and their three young children (Jeanette, Ralph, and Mary). The 1920 population census more specifically indicates that Smith was a dairy farmer (US Census 1910 and 1920). A 1925 topographic map reveals that a mine was located southeast of the Patton Farm on the east side of Kingwood Pike (Figure 3) (USGS 1925). The oil tanks referenced in the 1902 map were extant at this time. A church (Harner Chapel) and school house (Dorsey Schoolhouse) are illustrated north of the Patton Farm at the intersection of Kingwood Pike and Luckey Lane. The Harner Chapel was constructed in 1909 and built on land donated by Philip Fairchild Harner (Monongalia County Historical Society 1954). Jefferson Smith died in 1933 and left his property to his wife Virginia (Monongalia County Deeds 1933).

In 1947, Virginia Smith deeded approximately 9.9 acres of land, which is the present day acreage of the Patton Farm to her daughter Mary Virginia Smith (Monongalia County Deeds 1947). A 1957 topographic map reveals the Patton Farm also included a barn (not extant) which was likely built in the late 19th or early 20th century and used by Jefferson Smith on his dairy farm (Figure 3) (USGS 1957). The mine referenced in the 1925 map was no longer extant. A cemetery was located northwest of the Patton Farm; it is possible this is the Dorsey family burial plot referenced in the 1893 deed (Monongalia County Deeds 1893). Harner Chapel and the Dorsey School were extant to the north and some development was beginning to occur in the vicinity of these two buildings. Only three of the oil storage tanks illustrated in the 1925 topographic map were extant and the area to the southeast and southwest of the Patton Farm was largely undeveloped (USGS 1957). Mary Smith died in 1991 and left the property to the Robert M. Hastings Trust. The land was conveyed to Dewey Samuel Hastings, Mary's nephew, in 1998 (Monongalia County Deeds 1998).

A modern aerial photograph reveals that the barn referenced in the 1957 topographic map has been demolished and replaced with a ca. 1980 pole barn (see Site Maps) (Google Earth 2018). Areas of residential development dating to the 1960s and 1970s are located northwest of the house on the north side of Greenbag Road. The area southeast of the Patton Farm comprises dense woods. The sprawling complex of the Morgantown Kennedy Center Federal Correctional Institution is located southwest of the Anderson House on the west side of Kingwood Pike. The complex was built ca. 1968 as the Robert F. Kennedy Youth Center before it was converted into a federal prison in the 1970s (Kasey 2015:51).

The Patton Farm is not eligible for NRHP listing under Criterion A. Although the property was associated with dairy farming in Monongalia Township, the historic-era barn is no longer extant and the property no longer conveys its association with agricultural history. The Patton Farm is associated with Dr. Frederick Patton and his wife Eliza Patton as well as the Smith family. However, no information was recovered to suggest the Patton or Smith families were significant on the local, state, or national level. Therefore, the Patton Farm is not eligible for NRHP listing under Criterion B.

The Patton Farm has undergone a loss of integrity due to alterations to the farmhouse (including replacement windows, replacement siding and roof materials, the alteration of the large porch, and the removal of characteristic architectural elements) and the property (loss of the historic barn and historically associated farmland). For these reasons, the Patton Farm is not eligible for NRHP listing under Criterion C. The farm has not been evaluated for significance under Criterion D for its potential to yield information important to the understanding of history or prehistory.

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1893 Frederick Patton and Eliza Patton to Philip F. Harner. Deed Book 35, Page 439. On file, Monongalia County Clerk, Morgantown, West Virginia.

1902 P. Fairchild Harner and Margaret O. Harner to Jefferson Smith and Virginia Smith. Deed Book 62, Page 380. On file, Monongalia County Clerk, Morgantown, West Virginia.

1933 Will of Jefferson Smith. Will Book 12, Page 421. On file, Monongalia County Clerk, Morgantown, West Virginia.

1947 Virginia Smith, George Dewey Hastings, and Jeanette Smith Hastings to Mary Virginia Smith. Deed Book 395, Page 374. On file, Monongalia County Clerk, Morgantown, West Virginia.

1998 Robert M. Hastings Trust, Margaret Pickering and Richard Pickering to Dewey Samuel Hastings. Deed Book 1161, Page 341. On file, Monongalia County Clerk, Morgantown, West Virginia.

Muttillo, Nico and Tonya Blosser

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1880 Tenth Census of the United States: 1880, West Newton, Westmoreland County, Pennsylvania. Records of the Bureau of the Census, Record Group 29. National Archives, Washington, D.C.

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1910 Thirteenth Census of the United States. 1910, Morgan, Monongalia West Virginia, Enumeration District 0078. Records of the Bureau of the Census, FHL Microfilm T625_1964. National Archives, Washington, D.C.

1920 Fourteenth Census of the United States. 1920, Strugis, Monongalia West Virginia, Enumeration District 102. Records of the Bureau of the Census, FHL Microfilm 1241767. National Archives, Washington, D.C.

1930 Fifteenth Census of the United States. 1930, Morgan, Monongalia West Virginia, Enumeration District 0026. Records of the Bureau of the Census, FHL Microfilm 2342282. National Archives, Washington, D.C.

United States Geological Survey (USGS)

1902 Morgantown, West Virginia topographic map, 15 minute quadrangle. United States Geological Survey, Washington, D.C.

1925 Morgantown, West Virginia topographic map, 15 minute quadrangle. United States Geological Survey, Washington, D.C.

1957 Morgantown South, West Virginia topographic map, 7.5 minute quadrangle. United States Geological Survey, Washington, D.C.

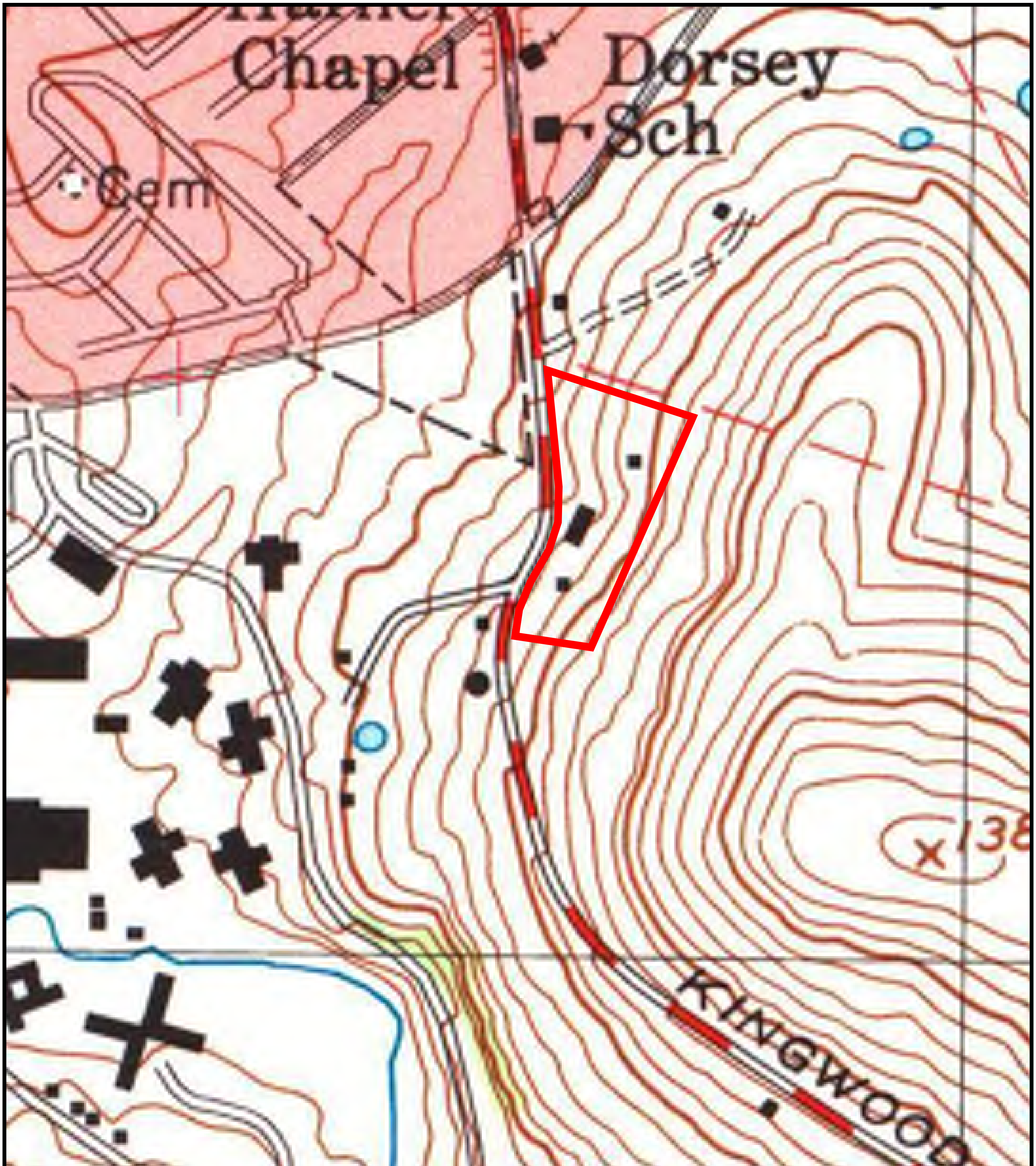
1997 Morgantown South, West Virginia topographic map, 7.5 minute quadrangle. United States Geological Survey, Washington, D.C.

Photograph 1. Farmhouse, facing northeast (Markosky 2018-12-04)

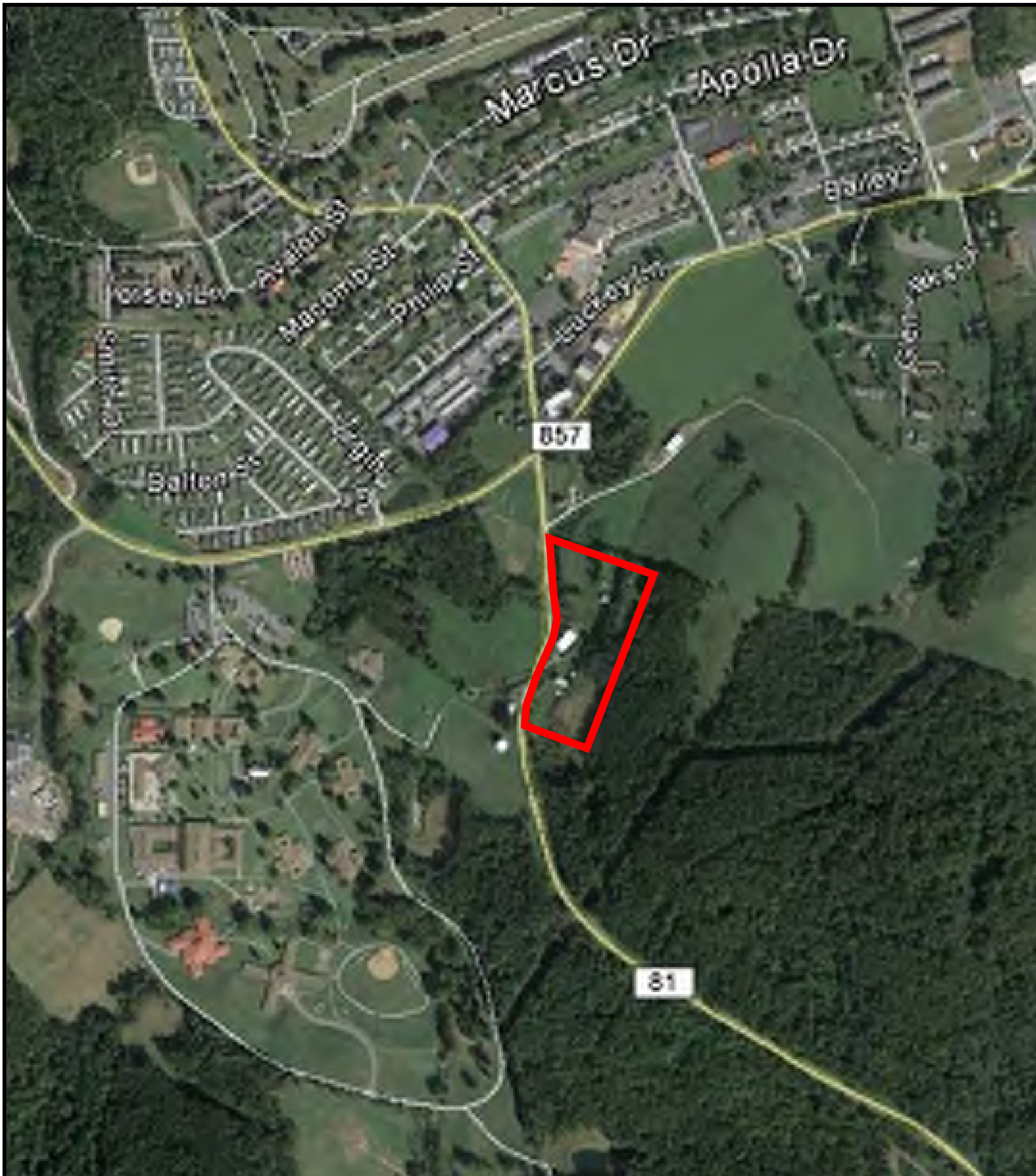
Photograph 2. Root cellar, facing east (Markosky 2018-12-04)

Photograph 3. Shed #1 (foreground) and Shed #2 (background), facing east (Markosky 2018-12-04)

Photograph 4. Non-historic pole barn, facing northeast (Markosky 2018-12-04)



Feet 0 375 750	**Legend** Location of Historic Structure	N W E S	**USGS Map** MG-2646 Patton Farm (87 Kingwood Pike)
MARKOSKY	Greenbag Road Improvement Project		Morgan District and City of Morgantown Monongalia County ***Source: USGS 1997***



*Not to scale

Legend

Approximate Parcel Boundary

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Site Map
MG-2646
Patton Farm (87 Kingwood Pike)

MARKOSKY

Greenbag Road Improvement Project

Morgan District and
City of Morgantown
Monongalia County
Source: Google Earth 2018

*Not to scale

Legend

Approximate Parcel Boundary

N W E S

Site Map Detail
MG-2646
Patton Farm (87 Kingwood Pike)

MARKOSKY

Greenbag Road Improvement Project

Morgan District and
City of Morgantown
Monongalia County
Source: Google Earth 2018

*Not to Scale.

Figure 1. Location of MG-2646 / Patton Farm in 1886

MARKOSKY

Greenbag Road Improvement Project

Morgan District and City of Morgantown Monongalia County
Source: Lothrop, et. al 1886

*Not to Scale.

Figure 2. Location of MG-2646 / Patton Farm in 1902

MARKOSKY

Greenbag Road Improvement Project

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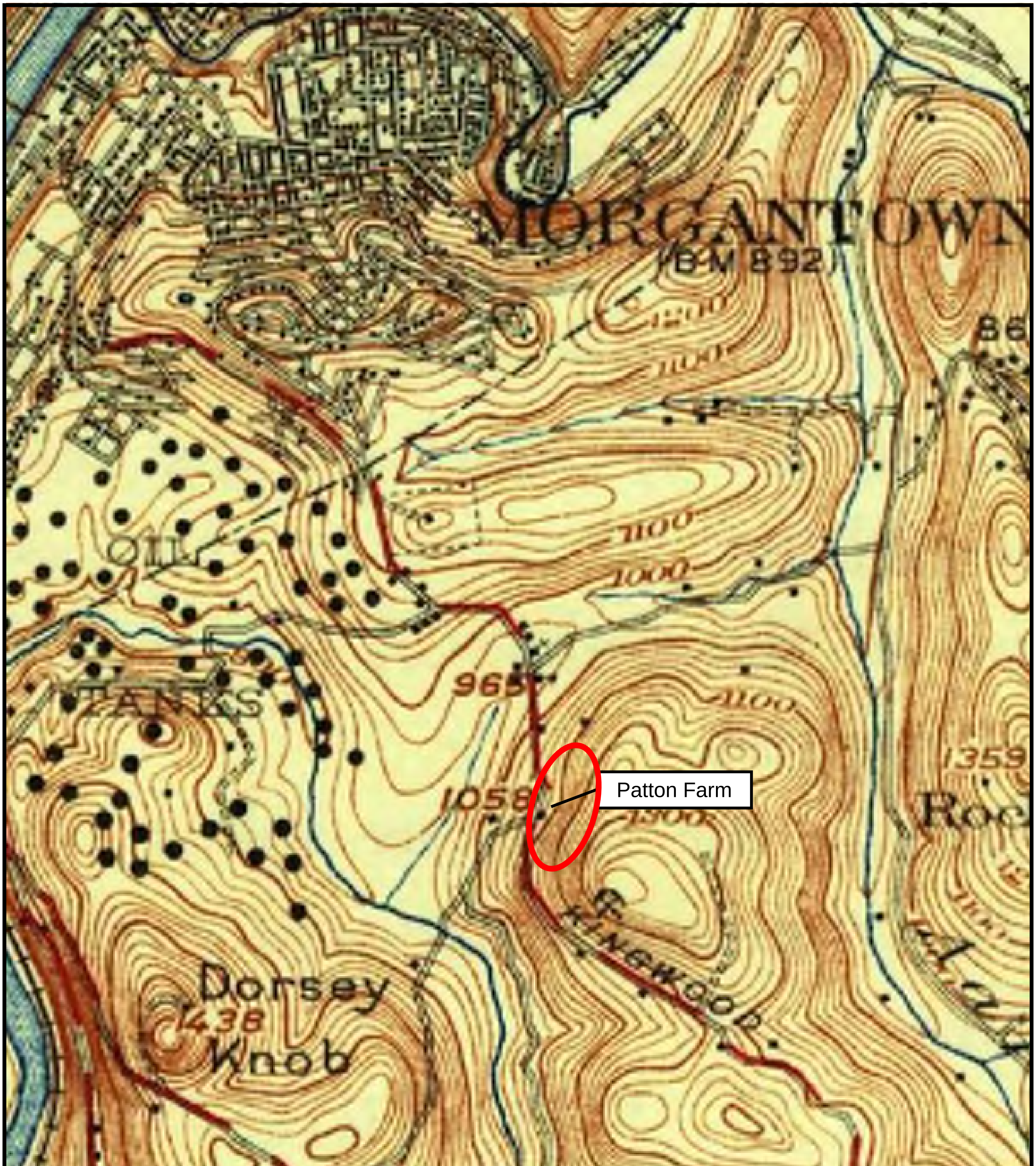
Morgan District and
City of Morgantown
Monongalia County
Source: USGS 1902



*Not to Scale.

Figure 3. Location of MG - 2646 / Patton Farm in 1925

MARKOSKY

Greenbag Road Improvement Project

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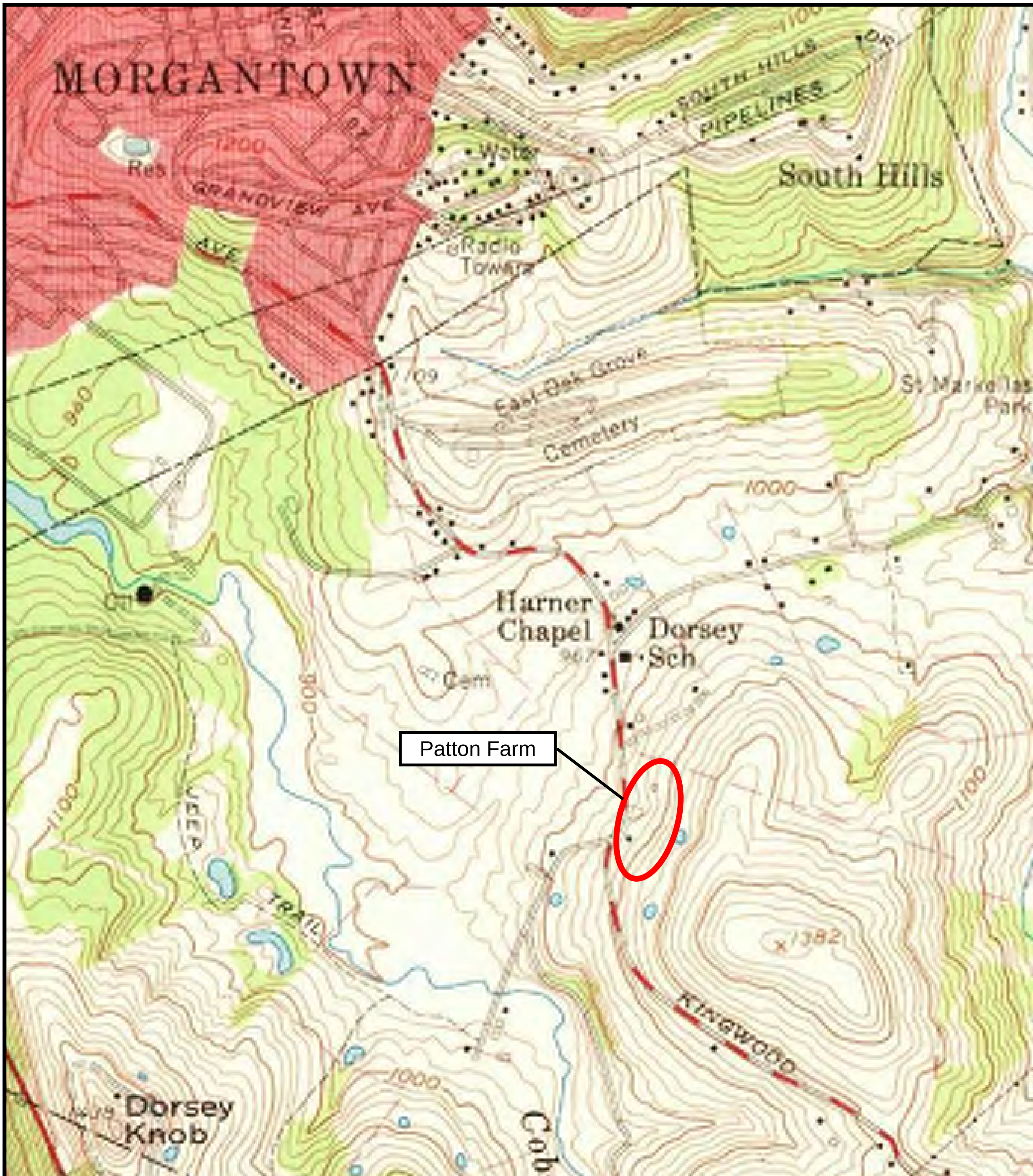
Morgan District and
City of Morgantown
Monongalia County
Source: USGS 1925



*Not to Scale.

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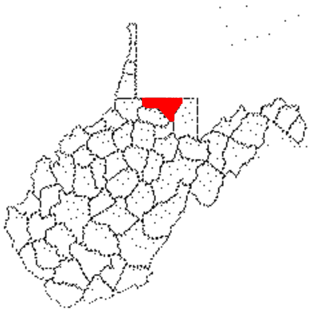
Figure 4. Location of MG-2646 / Patton Farm in 1957

MARKOSKY

Greenbag Road Improvement Project

Morgan District and
City of Morgantown
Monongalia County
Source: USGS 1957



Internal Rating: ___________

WEST VIRGINIA HISTORIC PROPERTY INVENTORY FORM

Street Address 27 Kingwood Pike	**Common/Historic Name/Both** ○ ◉ ○ Anderson House	**Field Survey #**	**Site # *(SHPO Only)*** MG-2647
Town or Community Morgantown	**County** Monongalia	**Negative No.**	**NR Listed Date**
Architect/Builder	**Date of Construction** Ca. 1922	**Style** American Four-Square	
Exterior Siding/Materials Brick	**Roofing Material** Asphalt - shingles	**Foundation** Stone - Ashlar	
Property Use or Function **Residence** ◉ **Commercial** ○ **Other** ○	**UTM#** 17 S 590605 / 4384619	 Photograph 1. MG-2647 / Anderson House, facing southeast	
Survey Organization & Date The Markosky Engineering Group, December 4th, 2018	**Quadrangle Name** Morgantown South **Part of What Survey/FR#** Greenbag Road Improvement/NFA-2317(022)D		

Sketch Map of Property
Or Attach Copy of USGS Map

MG-2647

Site No.

N

Present Owners Garrett Richards **Phone #**	**Owners Mailing Address** 27 Kingwood Pike, Morgantown, WV 26508

Describe Setting

See continuation sheet.

0.55 **Acres**

☐ **Archaeological Artifacts Present**

Description of Building or Site (Original and Present) 2 **Stories** 2 **Front Bays**

See continuation sheet.

(Use Continuation Sheets)

Alterations ◉ **Yes** ○ **No** **If yes, describe**

See continuation sheet.

Additions ◉ **Yes** ○ **No** **If yes, describe**

See continuation sheet.

Describe All Outbuildings

See continuation sheet.

(Use Continuation Sheets)

Statement of Significance

See continuation sheet.

(Use Continuation Sheets)

Bibliographical References

See continuation sheet.

(Use Continuation Sheets)

Form Prepared By: Elizabeth Williams **Date:** November 18, 2019

Name/Organization: The Markosky Engineering Group

Address: 232 Capitol Street

Charleston, WV 25301

Phone #: 304-223-5205

West Virginia Division of Culture and History
State Historic Preservation Office

MG-2647 / Anderson House at 27 Kingwood Pike is located within a 0.55 acre parcel on the east side of Kingwood Pike, approximately 254 feet south of its intersection with Greenbag Road. The house is located on a slope overlooking Greenbag Road. The surrounding area consists of open fields formerly used as farm land to the east and west and an area of residential and commercial buildings to the north.

The Anderson House is a ca. 1922, two-and-a-half-story American Four-Square house standing two bays wide and four bays deep (Photographs 1 and 2). The house rests on an ashlar stone foundation and is covered in stretcher bond brick. The hipped roof features overhanging eaves and is covered in asphalt shingle. The roof is pierced by two interior brick chimneys and includes three hipped roof dormer windows clad in vinyl siding. Fenestration consists of replacement one-over-one and vinyl sash windows with simple stone sills. The porch on the façade (west elevation) has been enclosed with vinyl sash hopper windows. The original entrance is located within the porch and an alternate entrance is now located on the south elevation. A one-story, partial width addition has been appended to the rear (east) elevation. A one-story, partial width addition has been appended to the rear (east) elevation. A ca. 1980, two-bay detached garage clad in standing seam metal is located east of the house and a ca. 2010 pole barn located farther to the northeast was not visible from the public ROW.

The Anderson House was built ca. 1922 on land once owned by George Dorsey, an early settler who came to this area of Monongalia County in 1807 (Core 1976:381). Dorsey owned over 1,000 acres along Coburn's Creek. Dorsey's Knob, a rock formation and tourist attraction since the late 19th century, was named for George Dorsey (Muttillo and Blosser 2018). George Dorsey died in 1824 and his land was deeded to his children, including his son George Dorsey, Jr. (Butcher 1912:873). George Dorsey, Jr's daughter Eliza (Dorsey) Patton and her husband Dr. Frederick Patton sold 73 acres of this land to George W. Morris in 1882 (Monongalia County Deeds 1882). An 1886 map of Monongalia County indicates there was no dwelling in the vicinity of the Anderson House at that time, although the land was occupied by J.E. Morris (Figure 1) (Lothrop, et. al 1886). The residence of Dr. F. (Frederick) Patton is illustrated on the east side of the Kingwood, Morgantown, and West Union Turnpike (modern day Kingwood Pike) south of where the Anderson House is now located. The map also reveals that at this time, John Anderson (a future owner of the property) lived to the southwest of Frederick Patton along a no longer extant road. The greater vicinity at this time was dotted with dwellings along the established roadways. The Dorsey School House No. 1 was located north of John Anderson's land at the intersection of the Kingwood Pike and modern day Luckey Lane (Lothrop, et. al 1886).

In 1900, George Morris deeded his 73 acres to John Anderson and his wife Tillie (Monongalia County Deeds 1900). According to the 1900 population census, John Anderson was a 53 year old farmer residing in a house with his wife Matilda (Tillie) and their three young sons (David J., Ray, and Roy) (US Census 1900). There is no dwelling indicated in the vicinity of the Anderson House on a 1902 topographic map. John Anderson died in 1913, and his will stipulated that his land was to be divided among his three sons. In 1922, Tillie, Ray, and Roy Anderson conveyed their shares of the 73-acre property to David Anderson (referred to in the property deeds as John D. Anderson) (Monongalia County Deeds 1922). David and his wife Opal had also acquired 62 acres of adjoining land in 1919 (Monongalia County Deeds 1919).

A 1925 topographic map indicates that the Anderson House was constructed by this time on the east side of Kingwood Pike (Figure 2) (USGS 1925). The Dorsey School House and a church (Harner Chapel) were located to the north of the house at the intersection of the Kingwood Pike and Luckey Lane. Dwellings were located along the established roads to the east and south. Morgantown is again illustrated to the northwest. A large assemblage of oil storage tanks was located to the west of the Kingwood Pike and east of the Monongahela River. The tanks were constructed by the Eureka Pipeline Company, a subsidiary of the Standard Oil Company, in 1890. The tanks were used to store oil extracted throughout Monongalia County that was awaiting transport via pipelines (USGS 1925; Core 1982:144).

David and Opal Anderson acquired an additional 31 acres of land from John and Ella Frum in 1926 for a farm covering approximately 166 acres (Monongalia County Deeds 1926). The 1930 population census indicates that David Anderson was a 37 year old farmer working on his own dairy farm (US Census 1930). He lived in a household with his wife Opal (also age 37), their three young children (John D., Richard, and Eleanor), and two boarders who worked on the farm. A 1957 topographic map indicates the property also contained a barn (no longer extant), which was located northeast of the Anderson House and was likely built around the same time (Figure 3) (USGS 1957). The map reveals that the Dorsey School and Harner Chapel were extant and few dwellings were constructed in the area immediately to the west. Dwellings were scattered intermittently along the Kingwood Pike to the south and more concentrated development was beginning to occur to the north. Only three of the oil storage tanks illustrated in the 1925 topographic map were extant and the area to the southwest of the Anderson House was largely undeveloped.

David Anderson died in 1975, and in 1979, his son Richard, along with his wife Rachelle Anderson, deeded the three tracts of land to his siblings Elinor Richards and John D. Richards (Monongalia County Deeds 1979). In 2011, the approximately one-half acre subdivided parcel containing the Anderson House was conveyed to Garrett Richards, a grandson of Elinor Richards (Monongalia County Deeds 2011c). The large field located to the east of the Anderson House remains in the Richards family as part of a separate tax parcel (Monongalia County Deeds 2011b). The garage located northeast of the house was constructed ca. 1980 (see Site Maps) (Google Earth 2018). Greenbag Road, which was constructed in the early 1960s, extends east-west to the north of the Anderson House. Areas of residential development dating to the 1960s and 1970s are located northwest of the house on the north side of Greenbag Road. The sprawling complex of the Morgantown Kennedy Center Federal Correctional Institution is located southwest of the Anderson House on the west side of Kingwood Pike. The complex was built in 1968 as the Robert F. Kennedy Youth Center before it was converted into a federal prison in the 1970s (Kasey 2015:51).

The Anderson House is not eligible for listing in the National Register of Historical Places (NRHP) under Criterion A. Although the house was associated with dairy farming in Monongalia County, the historic-era dairy barn and associated farm acreage are no longer extant, and the property no longer conveys its association with agricultural history. The house is associated with the Anderson Family, namely John Anderson and his son David; however, no information was recovered to suggest that the Anderson family was significant on the local, state, or national level. Therefore, the Anderson House is not eligible for NRHP listing under Criterion B. The Anderson House has undergone a loss of integrity due to replacement windows, replacement roof materials, the enclosure of the front porch, and alterations to original door openings. The house does not possess the architectural merit necessary for listing in the NRHP. For these reasons, the Anderson House is not eligible for NRHP listing under Criterion C. The house has not been evaluated for significance under Criterion D for its potential to yield information important to the understanding of history or prehistory.

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Core, Earl L.

1976 *The Monongalia Story: A Bicentennial History. Volume II: Pioneers.* McClain Printing Company, Parsons, West Virginia.

1982 *The Monongalia Story: A Bicentennial History. Volume IV: Industrialization.* McClain Printing Company, Parsons, West Virginia.

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Lathrop, J.M, H.C. Penny, and W.R. Proctor

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Tract 1

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1979 Richard and Rachelle Anderson to Elinor Richards and John D. Anderson. Deed Book 826, Page 472. On file, Monongalia County Clerk, Morgantown, West Virginia.

2009 Elinor A. Richards to the Elinor A. Richards, trustee of the Elinor A. Richards Trust. Deed Book 1390, Page 229. On file, Monongalia County Clerk, Morgantown, West Virginia.

2011a Thomas E. Richards, trustee of the Elinor A. Richards Trust to Thomas E. Richards, trustee of the Thomas E. Richards Trust. Deed Book 1444, Page 638. On file, Monongalia County Clerk, Morgantown, West Virginia.

2011b Thomas E. Richards, trustee of the Thomas E. Richards Trust to Thomas E. Richards. Deed Book 1444, Page 862. On file, Monongalia County Clerk, Morgantown, West Virginia.

2011c Thomas E. Richards to Garrett Richards. Deed Book 1449, Page 758. On file, Monongalia County Clerk, Morgantown, West Virginia.

Tract 2

1882 Frederick H. Patton and Eliza Patton to George W. Morris. Dees Book 17, Page 66. On file, Monongalia County Clerk, Morgantown, West Virginia.

1900 George W. Morris to John D. Anderson and Tillie Anderson. Deed Book 53, Page 160. On file, Monongalia County Clerk, Morgantown, West Virginia.

1922 Tillie Anderson, Roy Anderson, and Ray Anderson to John Anderson. Deed Book 181, Page 13. On file, Monongalia County Clerk, Morgantown, West Virginia.

1979 Richard and Rachelle Anderson to Elinor Richards and John D. Anderson. Deed Book 826, Page 472. On file, Monongalia County Clerk, Morgantown, West Virginia.

References (continued)

2009 Elinor A. Richards to the Elinor A. Richards, trustee of the Elinor A. Richards Trust. Deed Book 1390, Page 229. On file, Monongalia County Clerk, Morgantown, West Virginia.

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2011c Thomas E. Richards to Garrett Richards. Deed Book 1449, Page 758. On file, Monongalia County Clerk, Morgantown, West Virginia.

Tract 3

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1979 Richard and Rachelle Anderson to Elinor Richards and John D. Anderson. Deed Book 826, Page 472. On file, Monongalia County Clerk, Morgantown, West Virginia.

2009 Elinor A. Richards to the Elinor A. Richards, trustee of the Elinor A. Richards Trust. Deed Book 1390, Page 229. On file, Monongalia County Clerk, Morgantown, West Virginia.

2011a Thomas E. Richards, trustee of the Elinor A. Richards Trust to Thomas E. Richards, trustee of the Thomas E. Richards Trust. Deed Book 1444, Page 638. On file, Monongalia County Clerk, Morgantown, West Virginia.

2011b Thomas E. Richards, trustee of the Thomas E. Richards Trust to Thomas E. Richards. Deed Book 1444, Page 862. On file, Monongalia County Clerk, Morgantown, West Virginia.

References (continued)

2011c Thomas E. Richards to Garrett Richards. Deed Book 1449, Page 758. On file, Monongalia County Clerk, Morgantown, West Virginia.

Tract 4

1954 Harry Guthrie and Virginia Guthrie to John Anderson and Opal Anderson. Deed Book 509, Page 41. On file, Monongalia County Clerk, Morgantown, West Virginia.

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2011a Thomas E. Richards, trustee of the Elinor A. Richards Trust to Thomas E. Richards, trustee of the Thomas E. Richards Trust. Deed Book 1444, Page 638. On file, Monongalia County Clerk, Morgantown, West Virginia.

2011b Thomas E. Richards, trustee of the Thomas E. Richards Trust to Thomas E. Richards. Deed Book 1444, Page 862. On file, Monongalia County Clerk, Morgantown, West Virginia.

2011c Thomas E. Richards to Garrett Richards. Deed Book 1449, Page 758. On file, Monongalia County Clerk, Morgantown, West Virginia.

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2018 "Dorsey's Knob Park." Website at https://www.theclio.com/web/entry?id=45896. Accessed November 30, 2018.

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1900 Twelfth Census of the United States. 1900, Morgan, Monongalia West Virginia, Enumeration District 0084. Records of the Bureau of the Census, FHL Microfilm 1241767. National Archives, Washington, D.C.

1930 Fifteenth Census of the United States. 1930, Morgan, Monongalia West Virginia, Enumeration District 0026. Records of the Bureau of the Census, FHL Microfilm 2342282. National Archives, Washington, D.C.

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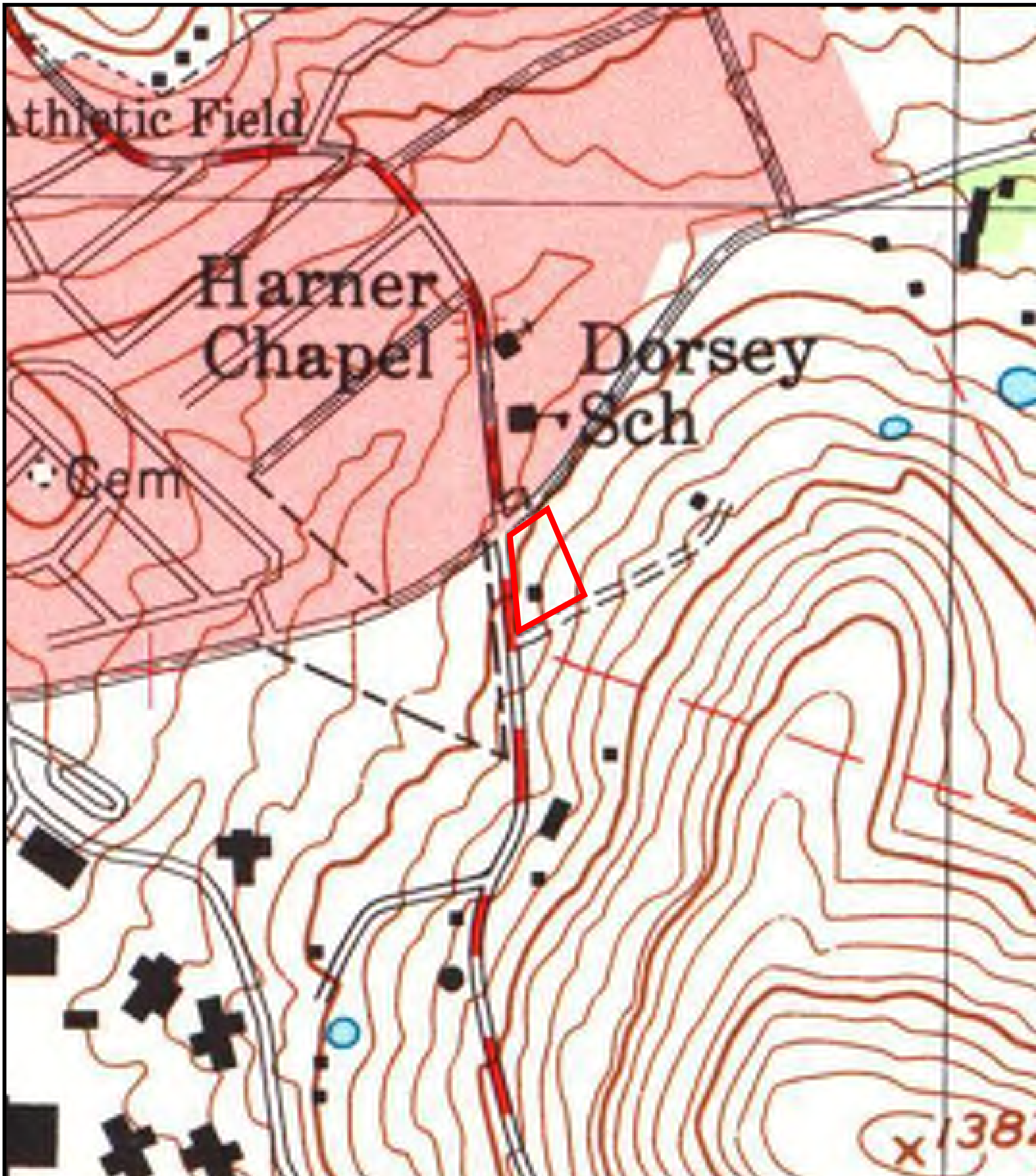
1925 Morgantown, West Virginia topographic map, 15 minute quadrangle. United States Geological Survey, Washington, D.C.

1957 Morgantown South, West Virginia topographic map, 7.5 minute quadrangle. United States Geological Survey, Washington, D.C.

1997 Morgantown South, West Virginia topographic map, 7.5 minute quadrangle. United States Geological Survey, Washington, D.C.

Photograph 1. Overview showing house and non-historic garage, facing northeast (Markosky 2018-12-04)

Photograph 2. House showing enclosed front porch, facing southeast (Markosky 2018-12-04)



Feet

0 375 750

Legend

Location of Historic Structure

N
W E
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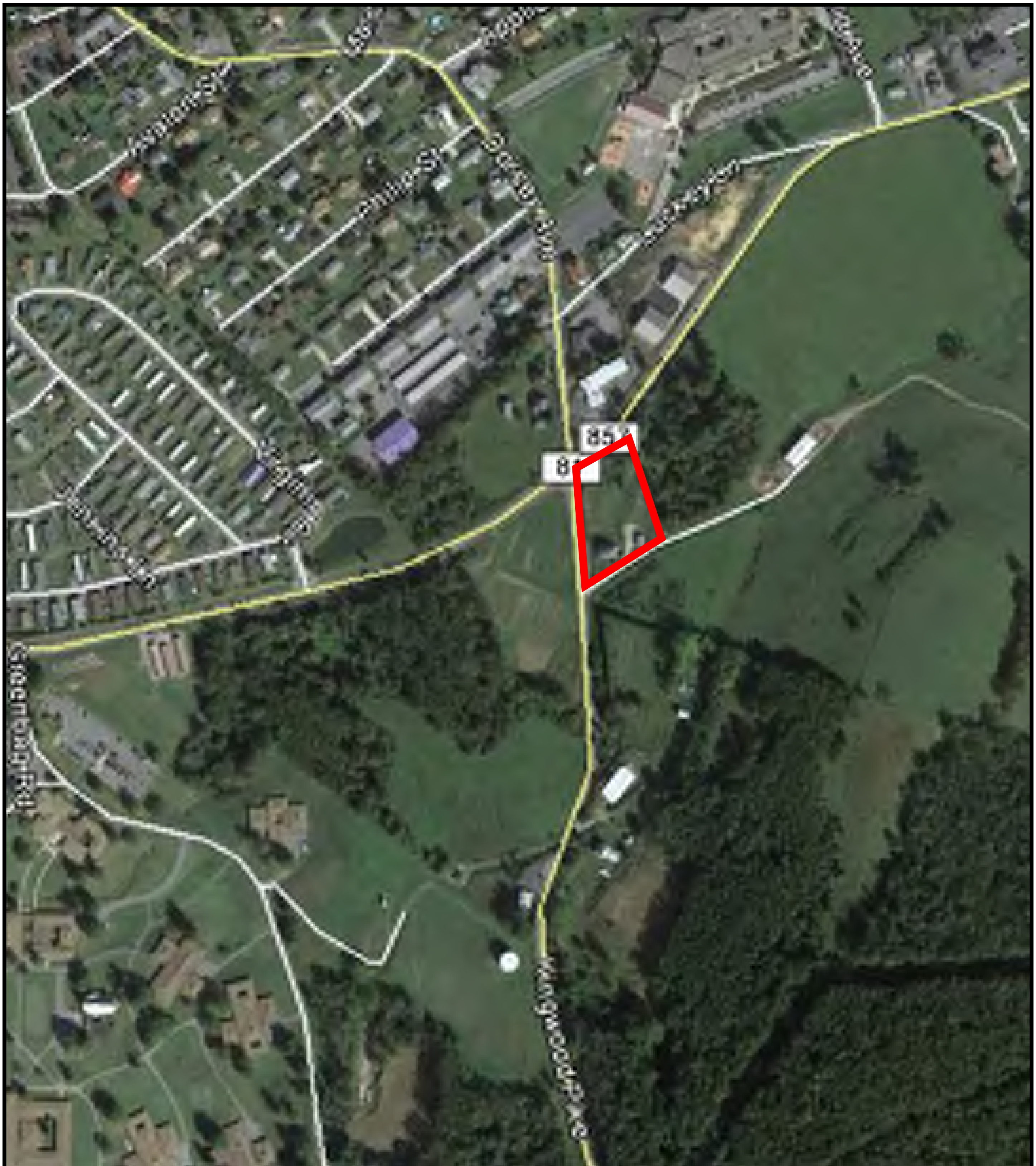
USGS Map
MG-2647
Anderson House (27 Kingwood Pike)

MARKOSKY

Greenbag Road Improvement Project

Morgan District and
City of Morgantown
Monongalia County
Source: USGS 1997



*Not to scale	**Legend** Approximate Parcel Boundary	N W E S	**Site Map** MG-2647 Anderson House (27 Kingwood Pike)
MARKOSKY	Greenbag Road Improvement Project		Morgan District and City of Morgantown Monongalia County ***Source: Google Earth 2018***

*Not to scale	**Legend** Approximate Parcel Boundary	N W E S	**Site Map Detail** MG-2647 Anderson House (27 Kingwood Pike)
MARKOSKY	Greenbag Road Improvement Project		Morgan District and City of Morgantown Monongalia County ***Source: Google Earth 2018***

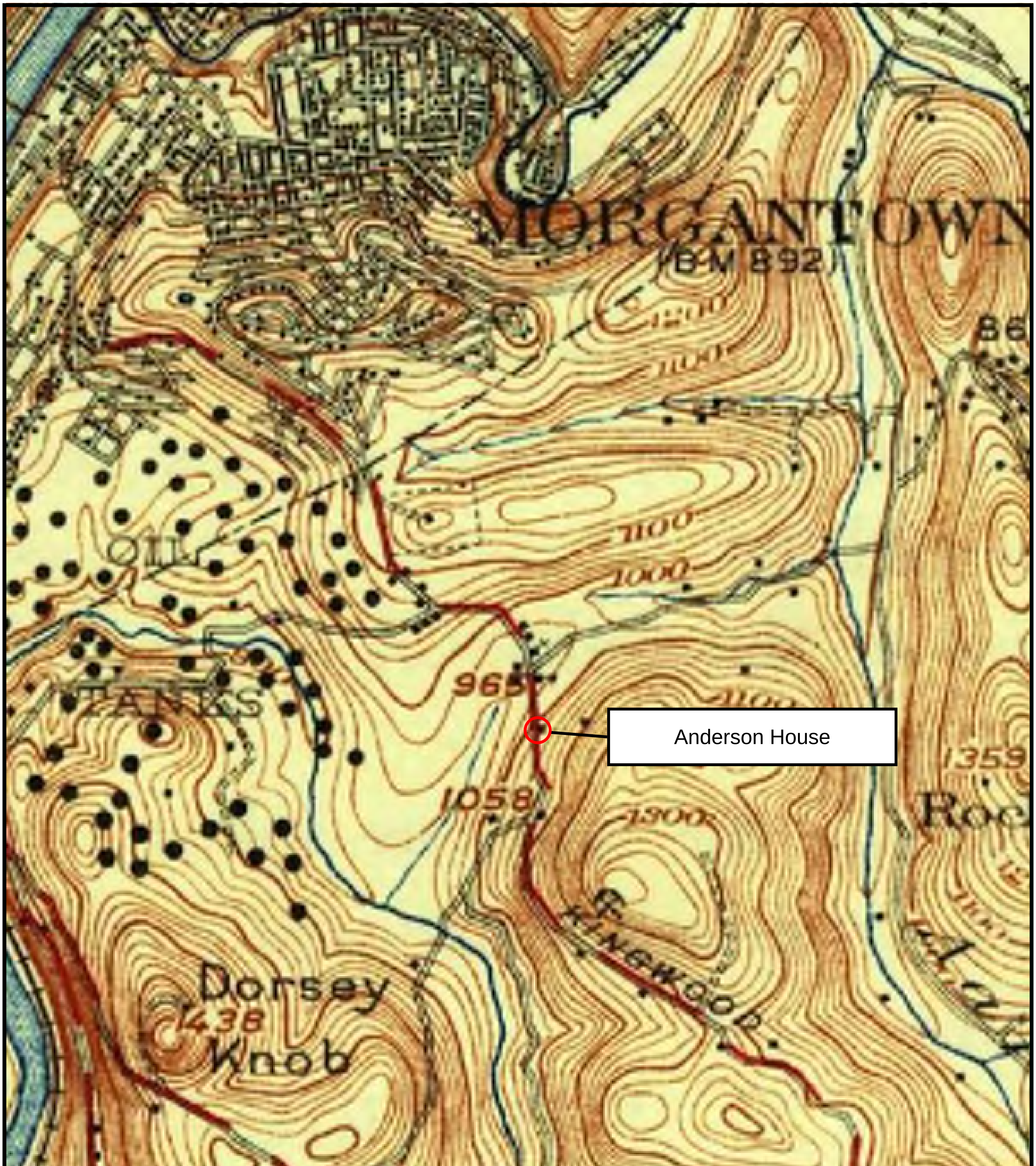
*Not to Scale.

Figure 1. Home and Land of John Anderson in 1886

MARKOSKY

Greenbag Road Improvement Project

Morgan District and
City of Morgantown
Monongalia County
Source: Lothrop, et. al 1886

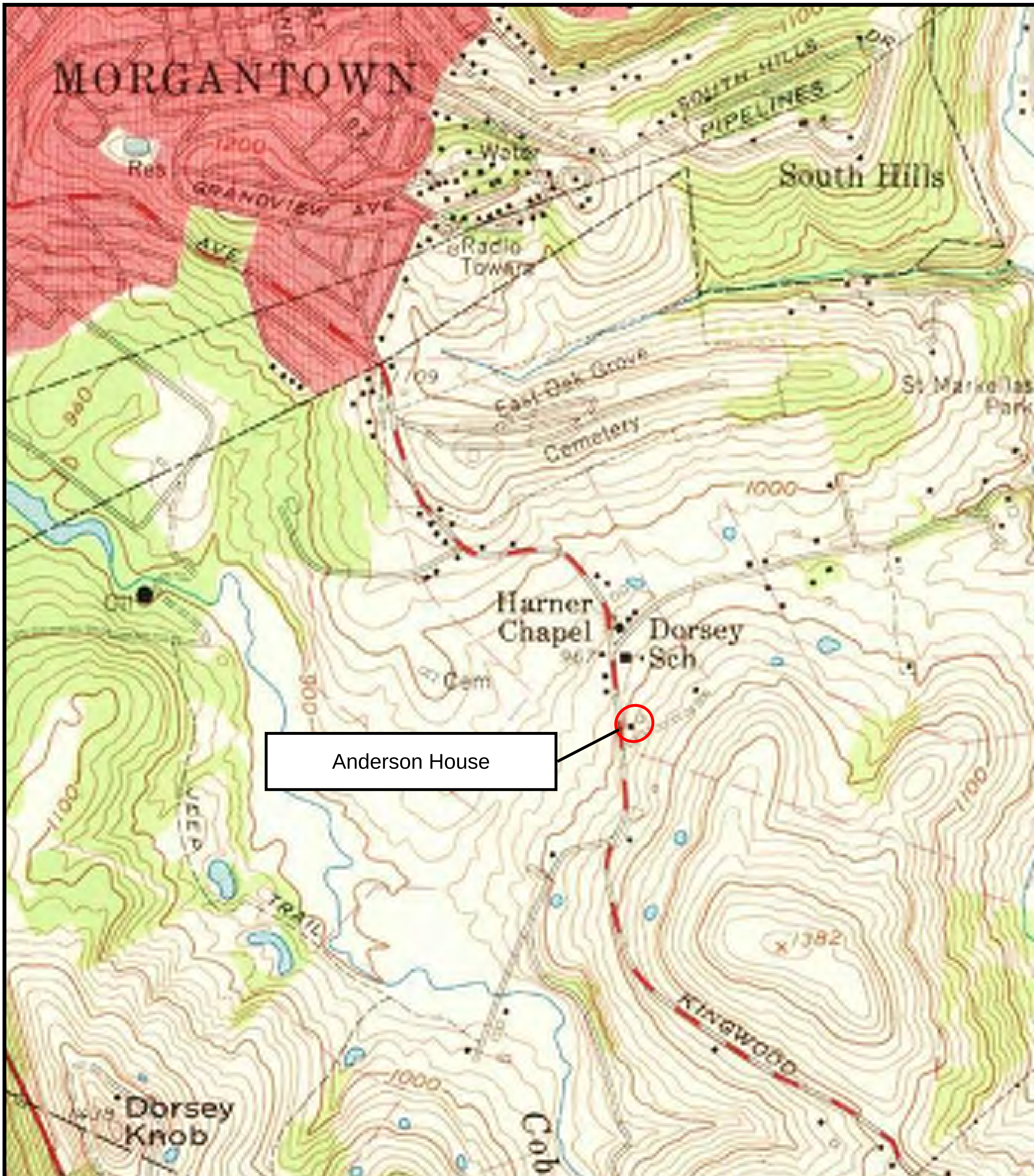


*Not to Scale.

Figure 2. Location of MG-2647 / Anderson House in 1925

Greenbag Road Improvement Project

Morgan District and
City of Morgantown
Monongalia County
Source: USGS 1925



*Not to Scale.

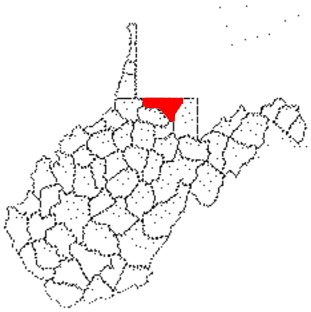
Figure 3. Location of MG-2647 / Anderson House in 1957

MARKOSKY

Greenbag Road Improvement Project

Morgan District and City of Morgantown Monongalia County

Source: USGS 1957



Internal Rating: ___________

WEST VIRGINIA HISTORIC PROPERTY INVENTORY FORM

Street Address 1440 Dorsey Avenue	**Common/Historic Name/Both** ⦿ ○ ○ House at 1440 Dorsey Avenue	**Field Survey #**	**Site # *(SHPO Only)*** MG-2648
Town or Community Eastern District	**County** Monongalia	**Negative No.**	**NR Listed Date**
Architect/Builder	**Date of Construction** C. 1915	**Style** Bungalow - gable front	
Exterior Siding/Materials Synthetics - Vinyl	**Roofing Material** Asphalt - Shingles	**Foundation** Concrete - Block	
Property Use or Function **Residence** ⦿ **Commercial** ○ **Other** ○	**UTM#** 17 S 590546 / 4384745	 Photograph 1. MG-2648 / House at 1440 Dorsey Avenue, facing northwest	
Survey Organization & Date The Markosky Engineering Group, December 4th, 2018	**Quadrangle Name** Morgantown South **Part of What Survey/FR#** Greenbag Road Improvement/NFA-2317(022)D		

Sketch Map of Property
Or Attach Copy of USGS Map

Site No.
MG-2648

N

Present Owners
Robert and Carol Hastings

Phone #

Owners Mailing Address
P.O. Box 301, Morgantown, WV 26507

Describe Setting
See continuation sheet.

.80 **Acres**

☐ **Archaeological Artifacts Present**

Description of Building or Site (Original and Present) 1.5 **Stories** 2 **Front Bays**

See continuation sheet.

(Use Continuation Sheets)

Alterations ◉ **Yes** ○ **No** **If yes, describe**
See continuation sheet.

Additions ○ **Yes** ◉ **No** **If yes, describe**

Describe All Outbuildings
See continuation sheet.

(Use Continuation Sheets)

Statement of Significance
See continuation sheet.

(Use Continuation Sheets)

Bibliographical References
See continuation sheet.

(Use Continuation Sheets)

Form Prepared By: Elizabeth Williams **Date:** November 18, 2019

Name/Organization: The Markosky Engineering Group
Address: 232 Capitol Street
Charleston, WV 25301

Phone #: 304-223-5205

West Virginia Division of Culture and History
State Historic Preservation Office

The House at 1440 Dorsey Avenue is located on the west side of Dorsey Avenue approximately 170 feet north of its intersection with Greenbag Road. The house is located within an area of mixed single family and multi-unit housing and commercial development north of Greenbag Road approximately 1.61 miles southwest of the city of Morgantown.

The house at 1440 Dorsey Avenue is a one-and-a-half-story ca. 1915 Bungalow style dwelling partially clad in vinyl siding and wood shingle (Photograph 1). The house rests on a rock faced concrete block foundation and is capped by a side gable roof covered in asphalt shingle. Decorative brackets adorn the overhanging eaves. The roof is pierced by an interior brick chimney and features a front gable dormer on the façade (east elevation). Fenestration consists of replacement one-over-one vinyl sash windows and fixed glass block windows in the basement level. The integral front porch has been partially enclosed with vinyl siding. A ca. 1990 two-bay detached garage covered in vinyl siding and capped by an asphalt shingle front gable roof is located immediately south of the house (Photograph 2). A ca. 2000 combination garage and shed clad in vinyl siding and capped by an asphalt shingle gable roof is located west of the house (Photographs 1 and 2).

No information was recovered linking the house at 1440 Dorsey Avenue to events significant on the local, state, or national level. Therefore, the house is not eligible for listing on the NRHP under Criterion A. No information was recovered to suggest the house was historically associated with individuals significant on the local, state, or national level. Therefore, the house is not eligible for listing under Criterion B.

The house at 1440 Dorsey Avenue lacks integrity because it has undergone alterations including the replacement of siding, windows, and roof materials and the partial enclosure of the front porch. While the house maintains some characteristic architectural elements of the Bungalow house type and Craftsman style, such as the brackets in the eaves, it stands as a common and unexceptional example of its kind and does not possess the architectural merit necessary for listing in the NRHP. Higher style examples of the Bungalow and Craftsman styles can be found in the NRHP listed Chancery Hill and South Park Historic Districts located approximately one mile to the northwest. Therefore, it is not recommended eligible under Criterion C. The house has not been evaluated for significance under Criterion D for its potential to yield information important to the understanding of history or prehistory.

Bibliographical References

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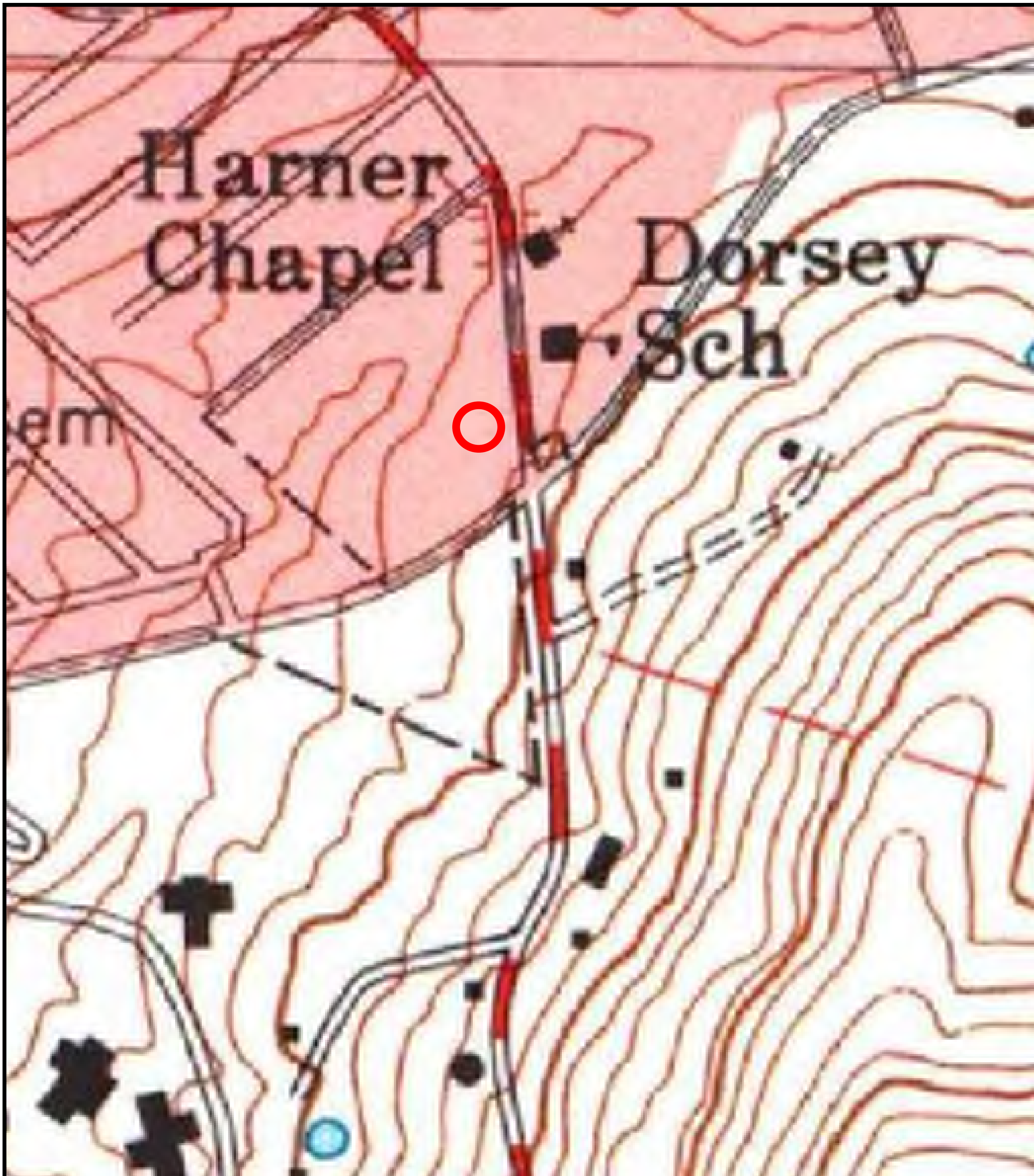
2018 Aerial images of Monongalia County, West Virginia. Website at https://earth.google.com/web/. Accessed December 11, 2018.

United States Geological Survey (USGS)
1997 Morgantown South, West Virginia topographic map, 7.5 minute quadrangle. United States Geological Survey, Washington, D.C.

Photograph 1. House, non-historic garage, and larger non-historic garage in background, facing west (Markosky 2018-12-04)

Photograph 2. House and non-historic garage (left), facing southwest (Markosky 2018-12-04)



Feet

0 300 600

Legend

Approximate Location of Historic Structure

N
W E
S

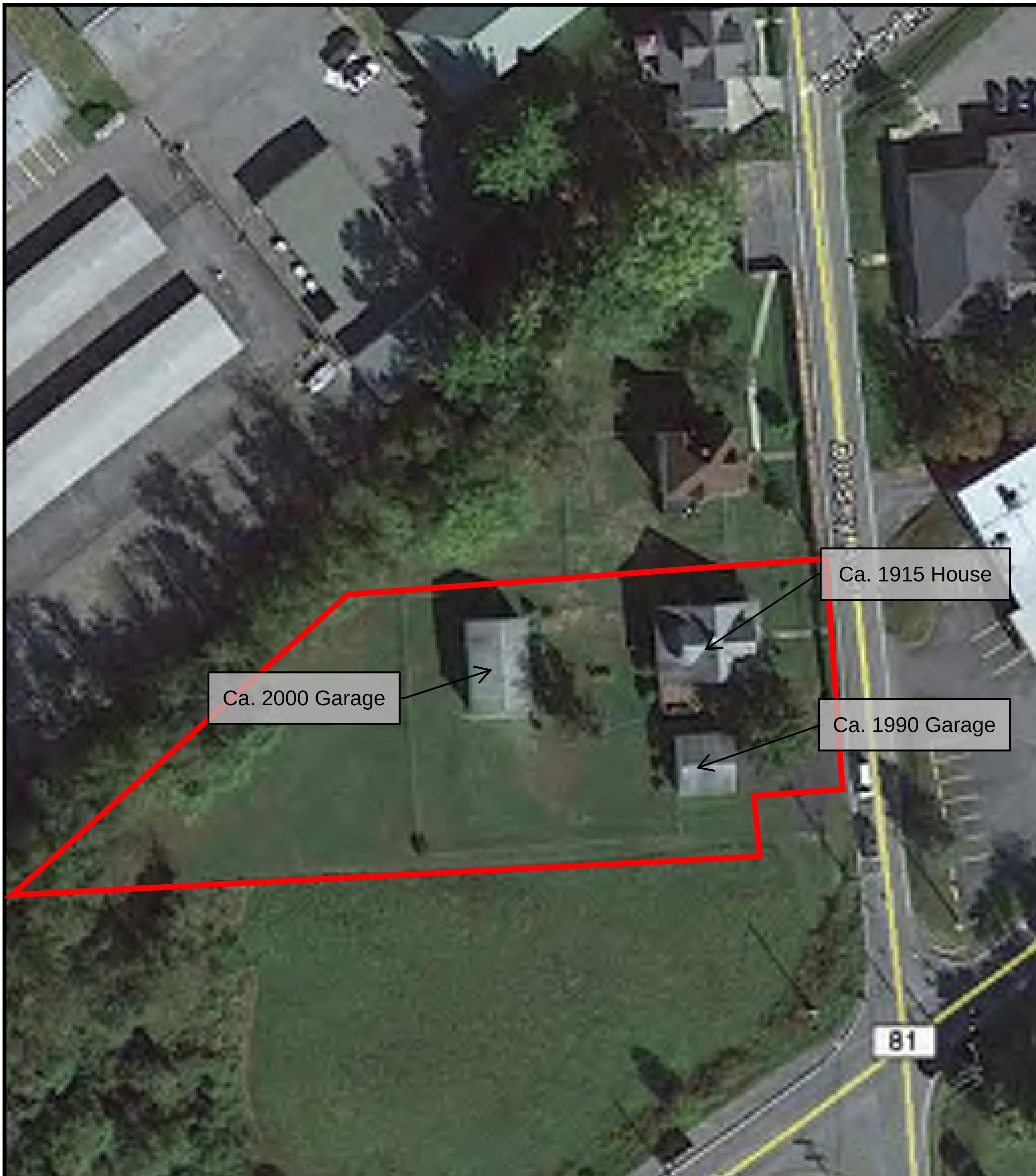
USGS Map
MG-2648
House at 1440 Dorsey Avenue

MARKOSKY

Greenbag Road Improvement Project

Morgan District and City of Morgantown Monongalia County

Source: USGS 1997



*Not to scale

Legend

Approximate Parcel Boundary

N
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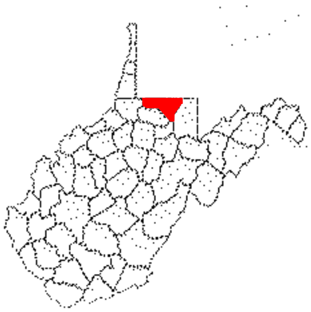
Site Map
MG-2648
House at 1440 Dorsey Avenue

MARKOSKY

Greenbag Road Improvement Project

Morgan District and
City of Morgantown
Monongalia County
Source: Google Earth 2018



Internal Rating: ___________

WEST VIRGINIA HISTORIC PROPERTY INVENTORY FORM

Street Address 1436 Dorsey Avenue	**Common/Historic Name/Both** ○ ◉ ○ Smith House	**Field Survey #**	**Site # *(SHPO Only)*** MG-2649
Town or Community Eastern District	**County** Monongalia	**Negative No.**	**NR Listed Date**
Architect/Builder	**Date of Construction** C. 1915	**Style** Four-Square	
Exterior Siding/Materials Synthetics - VInyl	**Roofing Material** Asphalt - Shingles	**Foundation** Stucco covered	
Property Use or Function **Residence** ◉ **Commercial** ○ **Other** ○	**UTM#** 17 S 590545 / 4384769	 Photograph 1. MG-2649 / Smith House, facing northwest	
Survey Organization & Date The Markosky Engineering Group, December 4th, 2018	**Quadrangle Name** Morgantown South **Part of What Survey/FR#** Greenbag Road Improvement/NFA-2317(022)D		

Sketch Map of Property
Or Attach Copy of USGS Map

MG-2649

Site No.

N

Present Owners
Edward Hastings

Phone #

Owners Mailing Address
7 Bates Road, Morgantown, WV 26505

Describe Setting
See continuation sheet.

.71 **Acres**

☐ **Archaeological Artifacts Present**

Description of Building or Site (Original and Present)

2 **Stories** 2 **Front Bays**

See continuation sheet.

(Use Continuation Sheets)

Alterations ◉ Yes ○ No

If yes, describe
See continuation sheet.

Additions ○ Yes ◉ No

If yes, describe

Describe All Outbuildings
None.

(Use Continuation Sheets)

Statement of Significance
See continuation sheet.

(Use Continuation Sheets)

Bibliographical References
See continuation sheet.

(Use Continuation Sheets)

Form Prepared By: Elizabeth Williams

Date: November 18, 2019

Name/Organization: The Markosky Engineering Group

Address: 232 Capitol Street
Charleston, WV 25301

Phone #: 304-223-5205

West Virginia Division of Culture and History
State Historic Preservation Office

WEST VIRGINIA HISTORIC PROPERTY INVENTORY FORM
CONTINUATION SHEET

NAME **Smith House** **SITE#** **MG-2649**

MG-2649 / Smith House at 1436 Dorsey Avenue is located on the west side of Dorsey Avenue approximately 250 feet north of its intersection with Greenbag Road. The house is located within an area of mixed single family and multi-unit housing and commercial development north of Greenbag Road approximately 1.58 miles southwest of the city of Morgantown.

The Smith House is a ca. 1915 two-story modified Four-Square dwelling clad in vinyl siding and resting on a foundation covered in stucco (Photographs 1 and 2). The steeply pitched hipped roof is covered in asphalt shingle and features three cross gable wall dormer windows with gable returns that appear to be variants on the Free-Classic Queen Anne Style. The roof is pierced by one interior brick chimney. Fenestration consists of replacement one-over-one vinyl sash windows, one fixed diamond shaped vinyl sash window, and an altered fixed vinyl sash picture window. The full width hipped roof porch on the façade (east elevation) is supported by simple square columns and features a cross gable pediment.

No information was recovered linking the Smith House to events significant on the local, state, or national level. Therefore, it is not eligible for listing on the NRHP under Criterion A. During the first decades of the 19th century the house was owned by Jefferson Smith who owned the property at 87 Kingwood Pike (approximately 0.26 miles to the southeast on the east side of Kingwood Pike). However, no information was recovered to suggest that Jefferson Smith was significant on the local, state, or national level. Therefore, the Smith House is not eligible for listing under Criterion B.

The Smith House has undergone a loss of integrity due to replacement siding and roof materials, alterations to some original window openings, and the removal of other historic materials. It stands as a common and unexceptional example of its style. Higher style examples of the Four-square type can be found in the NRHP listed Chancery Hill Historic District and South Park Historic District located approximately one mile to the northwest. The Smith House is therefore not eligible for listing under Criterion C. The house has not been evaluated for significance under Criterion D for its potential to yield information important to the understanding of history or prehistory.

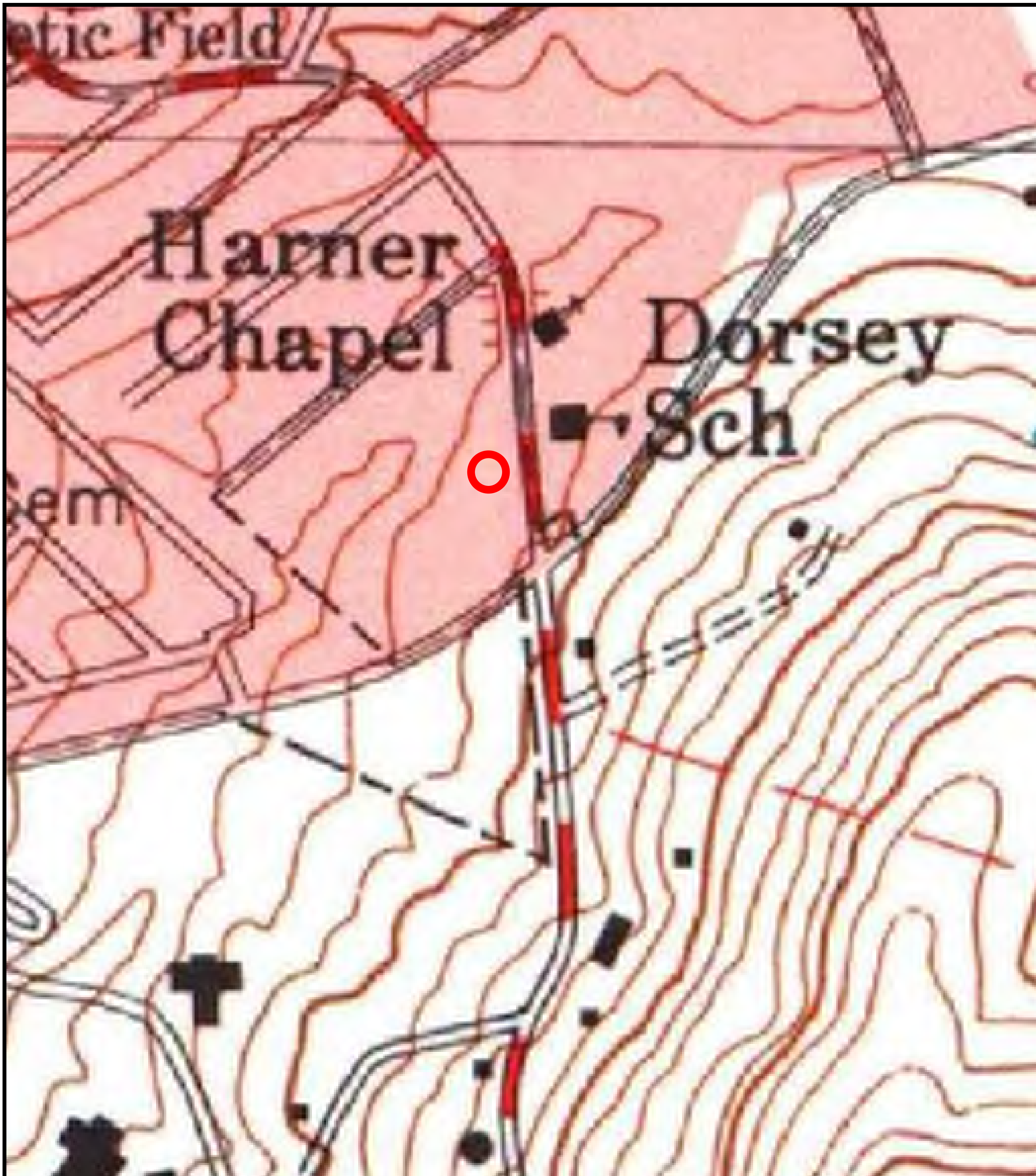
Bibliographical References

Google Earth
2018 Aerial images of Monongalia County, West Virginia. Website at https://earth.google.com/web/. Accessed December 11, 2018.

United States Geological Survey (USGS)
1997 Morgantown South, West Virginia topographic map, 7.5 minute quadrangle. United States Geological Survey, Washington, D.C.

Photograph 1. East and south elevations, facing northwest (Markosky 2018-12-04)

Photograph 2. East and north elevations, facing southwest (Markosky 2018-12-04)



Feet

0 300 600

Legend

Approximate Location of Historic Structure

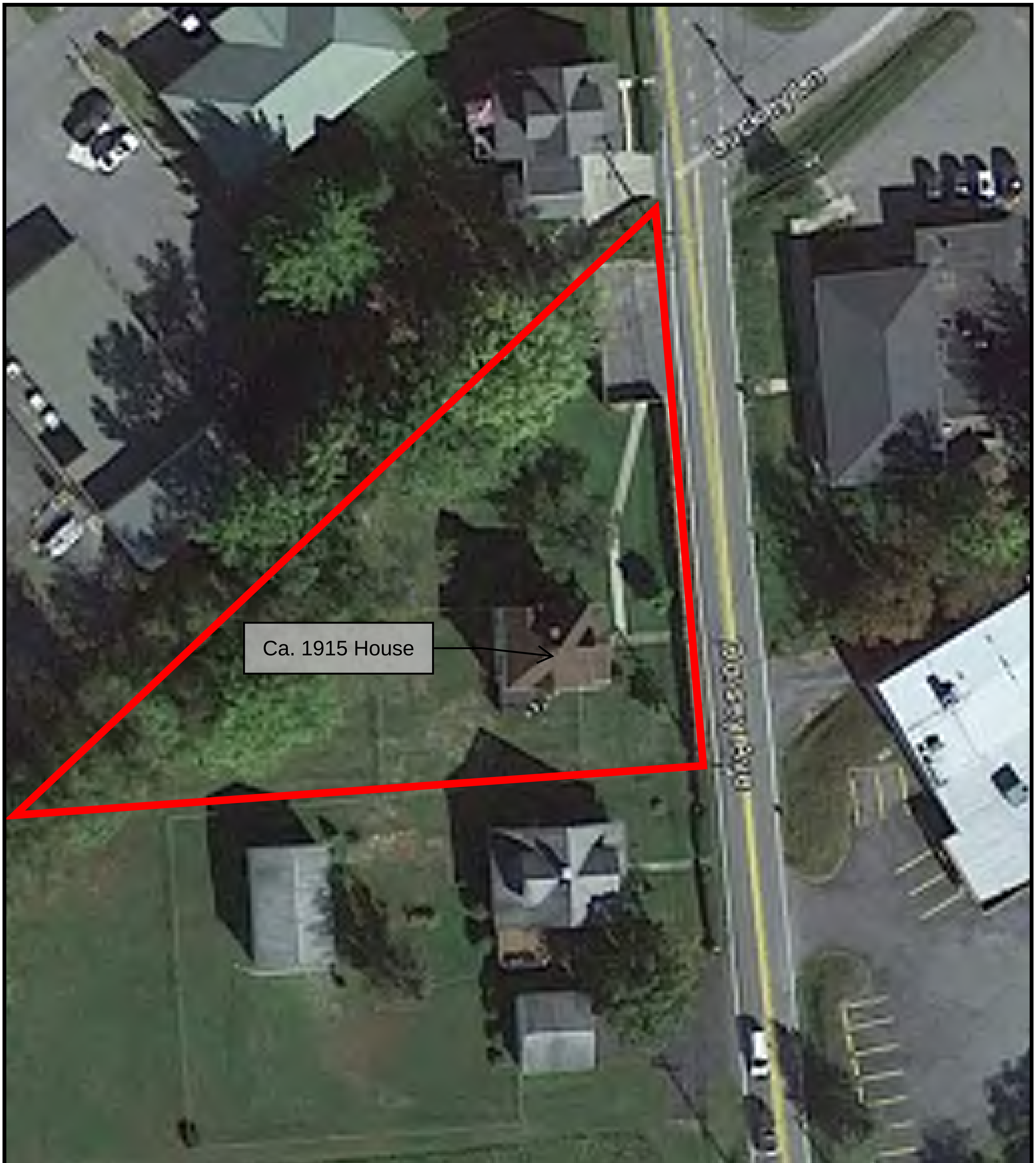
N
W
E
S

USGS Map
MG-2649
Smith House (1436 Dorsey Avenue)

MARKOSKY

Greenbag Road Improvement Project

Morgan District and
City of Morgantown
Monongalia County
Source: USGS 1997



*Not to scale	**Legend** Approximate Parcel Boundary	N W E S	**Site Map** MG-2649 Smith House (1436 Dorsey Avenue)
MARKOSKY	Greenbag Road Improvement Project		Morgan District and City of Morgantown Monongalia County ***Source: Google Earth 2018***

Internal Rating: ___________

WEST VIRGINIA HISTORIC PROPERTY INVENTORY FORM

Street Address	**Common/Historic Name/Both**	**Field Survey #**	**Site # *(SHPO Only)***
1451 Dorsey Avenue	○ ○ ◉ Wonder Bread Outlet (historic) / Atomic Grill (present)		MG-2650
Town or Community	**County**	**Negative No.**	**NR Listed Date**
Morgantown	Monongalia		
Architect/Builder	**Date of Construction**	**Style**	
	1974	Commercial	
Exterior Siding/Materials	**Roofing Material**	**Foundation**	
Metal - Aluminum	Metal - Aluminum	Concrete - Block	
Property Use or Function **Residence** ○ **Commercial** ◉ **Other** ○	**UTM#** 17 S 590599 E / 4384770 N	 Photograph 1. MG-2650 / Atomic Grill, main entrance, facing northeast	
Survey Organization & Date The Markosky Engineering Group, February 5, 2019	**Quadrangle Name** Morgantown South **Part of What Survey/FR#** Greenbag Road Improvement/NFA-2317(022)D		

Sketch Map of Property
Or Attach Copy of USGS Map

Site No. MG-2650

N

Present Owners
MDRWV LLC

Phone #

Owners Mailing Address
P.O. Box 543
Morgantown, WV 26507

Describe Setting
See continuation sheet.

0.82 **Acres**

☐ **Archaeological Artifacts Present**

Description of Building or Site (Original and Present)
1 **Stories** 8 **Front Bays**

See continuation sheet.

(Use Continuation Sheets)

Alterations ○ Yes ◉ No **If yes, describe**

Additions ○ Yes ◉ No **If yes, describe**

Describe All Outbuildings
None.

(Use Continuation Sheets)

Statement of Significance
See continuation sheet.

(Use Continuation Sheets)

Bibliographical References
See continuation sheet.

(Use Continuation Sheets)

Form Prepared By: Elizabeth Williams **Date:** November 18, 2019

Name/Organization: The Markosky Engineering Group
Address: 232 Capitol Street
Charleston, WV 25301

Phone #: 304-223-5205

West Virginia Division of Culture and History
State Historic Preservation Office

MG-2650 / Atomic Grill is located on the east side of Dorsey Avenue immediately northeast of its intersection with Greenbag Road. The commercial building, which recently functioned as a restaurant and commercial garage, is located in an area of mixed single family and multi-unit residences and commercial development approximately 1.60 miles southeast of the city of Morgantown.

The Atomic Grill is a 1974 steel-frame commercial building clad with standing seam metal panels and resting on a concrete block foundation (Photographs 1 and 2). The main portion of the L-shaped building is a steel frame structure capped by a side gable roof with an eight bay garage for commercial trucks. A storefront entrance projects from the southeast elevation with plate glass walls and a flat roof with covered in standing seam metal. The building is surrounded by a parking lot.

The Atomic Grill was constructed in 1974 as the Wonder Bread Outlet (Morgantown Dominion-Post 1975). In the early 2010s, the building was re-purposed as the Atomic Grill restaurant. No information was recovered linking the Atomic Grill or the Wonder Hostess Bakery Outlet to events significant on the local, state, or national level. Therefore, the building is not eligible for listing on the NRHP under Criterion A. No information was recovered to suggest the building was historically associated with individuals significant on the local, state, or national level. Therefore, it is not eligible for listing under Criterion B. The Atomic Grill stands as a common and unexceptional example of late mid-century roadside commercial architecture. It does not possess the architectural merit or high artistic value to be considered eligible for listing under Criterion C. The building has not been evaluated for significance under Criterion D for its potential to yield information important to the understanding of history or prehistory.

Bibliographical References

Google Earth
2018 Aerial images of Monongalia County, West Virginia. Website at https://earth.google.com/web/. Accessed December 11, 2018.

Morgantown Dominion-Post
1975 "Was Our Foresight as Good as Hindsight." *Morgantown Dominion-Post*. January 30, 1975, Progress Edition, page 3.

United States Geological Survey (USGS)
1997 Morgantown South, West Virginia topographic map, 7.5 minute quadrangle. United States Geological Survey, Washington, D.C.

Photograph 1. Main entrance, facing northeast (Markosky 2019-02-05)

Photograph 2. Dining area, facing west (Markosky 2019-02-05)

Photograph 3. Garage bays, facing north (Markosky 2019-02-05)

Feet	Legend	USGS Map
0 500 1,000	Location of Historic Structure	MG-2560 Atomic Grill (1451 Dorsey Avenue)
MARKOSKY	Greenbag Road Improvement Project	Morgan District and City of Morgantown Monongalia County ***Source: USGS 1997***

N
W E
S

*Not to scale

Legend

Approximate Parcel Boundary

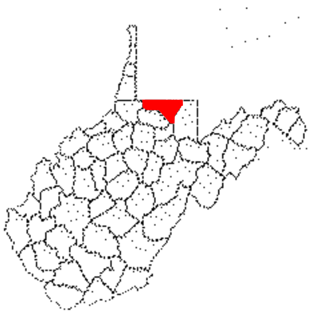
N
W
E
S

Site Map
MG-2560
Atomic Grill (1451 Dorsey Avenue)

MARKOSKY

Greenbag Road Improvement Project

Morgan District and
City of Morgantown
Monongalia County
Source: Google Earth 2018



Internal Rating: ___________

WEST VIRGINIA HISTORIC PROPERTY INVENTORY FORM

Street Address 1433 Dorsey Avenue	**Common/Historic Name/Both** Dorsey School	**Field Survey #**	**Site #** ***(SHPO Only)*** MG-2651
Town or Community Morgantown	**County** Monongalia	**Negative No.**	**NR Listed Date**
Architect/Builder	**Date of Construction** Ca. 1920	**Style** Classical Revival	
Exterior Siding/Materials Brick	**Roofing Material** Asphalt - Shingles	**Foundation** Limestone	
Property Use or Function **Residence** ○ **Commercial** ○ **Other** ◉	**UTM#** 17 S 59050579 / 4384799	 Photograph 1. MG-2651 / Dorsey School, facing northeast	
Survey Organization & Date The Markosky Engineering Group, December 4th, 2018	**Quadrangle Name** Morgantown South **Part of What Survey/FR#** Greenbag Road Improvement/NFA-2317(022)D		

Sketch Map of Property
Or Attach Copy of USGS Map

MG-2651

Site No.

N

Present Owners
Dorsey School

Phone #

Owners Mailing Address
13 South High Street, Morgantown, WV 26505

Describe Setting
See continuation sheet.

1 **Acres**

☐ **Archaeological Artifacts Present**

Description of Building or Site (Original and Present)

1 **Stories** 9 **Front Bays**

See continuation sheet.

(Use Continuation Sheets)

Alterations ◉ Yes ○ No

If yes, describe
Alterations include the removal of original character defining elements.

Additions ◉ Yes ○ No

If yes, describe
A non-historic addition has been appended to the rear (east) elevation.

Describe All Outbuildings
None.

(Use Continuation Sheets)

Statement of Significance
See continuation sheet.

(Use Continuation Sheets)

Bibliographical References
See continuation sheet.

(Use Continuation Sheets)

Form Prepared By: Elizabeth Williams

Date: November 18, 2019

Name/Organization: The Markosky Engineering Group

Address: 232 Capitol Street
Charleston, WV 25301

Phone #: 304-223-5205

West Virginia Division of Culture and History
State Historic Preservation Office

MG-2651 (Dorsey School) is located on the east side of Dorsey Avenue approximately 320 feet north of its intersection with Route 857 (Greenbag Road). The school is located in an area of mixed single family and multi-unit residences and commercial development approximately 1.58 miles southeast of the city of Morgantown.

The Dorsey School is a one-story ca. 1920 Classical Revival school house clad with American common bond brick walls (Photographs 1-3). The hipped roof is covered in asphalt shingle. Fenestration consists of replacement one-over-one vinyl sash windows, fixed vinyl sash windows, and louvered metal windows. The windows feature simple brick sills. A non-historic one-story concrete block rear addition with a flat roof is appended to the east elevation. A deeply recessed entrance on the façade (west elevation) features a segmental arch entry accented with decorative brickwork. The modern replacement door is surrounded by a modern simple transom and what are likely original sidelights.

The Dorsey School was named for the Dorsey family who were some of the first settlers within this area of Monongalia County south of Morgantown along Coburns Creek (Core 1976:381). The land on which the school stands was likely once owned by members of the Dorsey family. A school house first appears in the vicinity of the present Dorsey School in an 1886 map of the Morgan District of Monongalia County (Figure 1) (Lothrop, et. al 1886). The Dorsey School House No. 1 was located on the east side of the Kingwood, Morgantown, and West Union Turnpike (modern day Kingwood Pike) at its intersection with modern day Luckey Lane. This was likely a frame, one-room schoolhouse. A 1902 topographic map shows a structure in the vicinity of the Dorsey School House No. 1 although it is not labeled as a school (USGS 1902) (Figure 2). A later topographic map from 1925 illustrates a school on the east side of Kingwood Pike south of Luckey Lane (Figure 3) (USGS 1925). A ca. 1926 photograph shows students posed in front of the school (Photograph 4) (WVU 1926). Today, the school houses the Monongalia County Head Start.

The Dorsey School is associated with the education history of Monongalia County. However, scant information was recovered concerning the school and its role in what was a particularly rural area of Monongalia County on the outskirts of Morgantown. No definitive date of construction was recovered. A small anecdote in the *175th Anniversary of the Formation of Monongalia County, West Virginia* published by the Monongalia County Historical Society in 1954 indicates that at the turn of the 20th century the school house was used for Methodist revival meetings. The success of these meetings prompted the construction of Harner Chapel (MG-1332) located immediately to the north on the north side of Luckey Lane ca. 1914 (The Monongalia Historical Society 1954:82). It is possible the school house referenced in the 1886 map was a more rudimentary frame one room school house and the more substantial brick Dorsey School was built at a later date. However, without more corroborating information the Dorsey School cannot be placed in the greater context of the educational history of Monongalia County.

The Dorsey School is associated with the education history of Monongalia County. However, scant information was recovered concerning the school and its role in a rural area of Monongalia County on the outskirts of Morgantown. Therefore, the school is not eligible for listing under Criteria A.

While the school was likely built on land owned and possibly given by the Dorsey family, the school itself is not associated with any members of the Dorsey family. Further, no information was recovered suggesting the school was associated with other individuals significant on the local, state, or national level. Therefore, the school is not eligible for listing under Criteria B. The Dorsey School stands as a common and unexceptional example of educational architecture in Monongalia County. It has undergone alterations and additions including a large rear addition and the removal of original character defining elements. The Dorsey School does not possess high artistic value, represent the work of a master, or embody the distinctive characteristics of a type, period, or method of construction. Therefore, it is not eligible for listing under Criterion C. The house has not been evaluated for significance under Criterion D for its potential to yield information important to the understanding of history or prehistory.

References

Core, Earl L.
1976 *The Monongalia Story: A Bicentennial History. Volume II: Pioneers.* McClain Printing Company, Parsons, West Virginia.

Google Earth
2018 Aerial images of Monongalia County, West Virginia. Website at https://earth.google.com/web/. Accessed December 11, 2018.

Lathrop, J.M and H.C. Penny, W.R. Proctor
1886 *Morgan Magisterial District, Monongalia County, West Virginia, Blacksville, Wise, Lowsville, etc.* D.J. Lake and Company, Philadelphia, Pennsylvania.

The Monongalia Historical Society
1954 *The 175th Anniversary of the Formation of Monongalia County, West Virginia and other Relative Historical Data.* The Monongalia Historical Society, Morgantown, West Virginia.

United States Geological Survey (USGS)
1902 Morgantown, West Virginia topographic map, 15 minute quadrangle. United States Geological Survey, Washington, D.C.

1925 Morgantown, West Virginia topographic map, 15 minute quadrangle. United States Geological Survey, Washington, D.C.

References (continued)

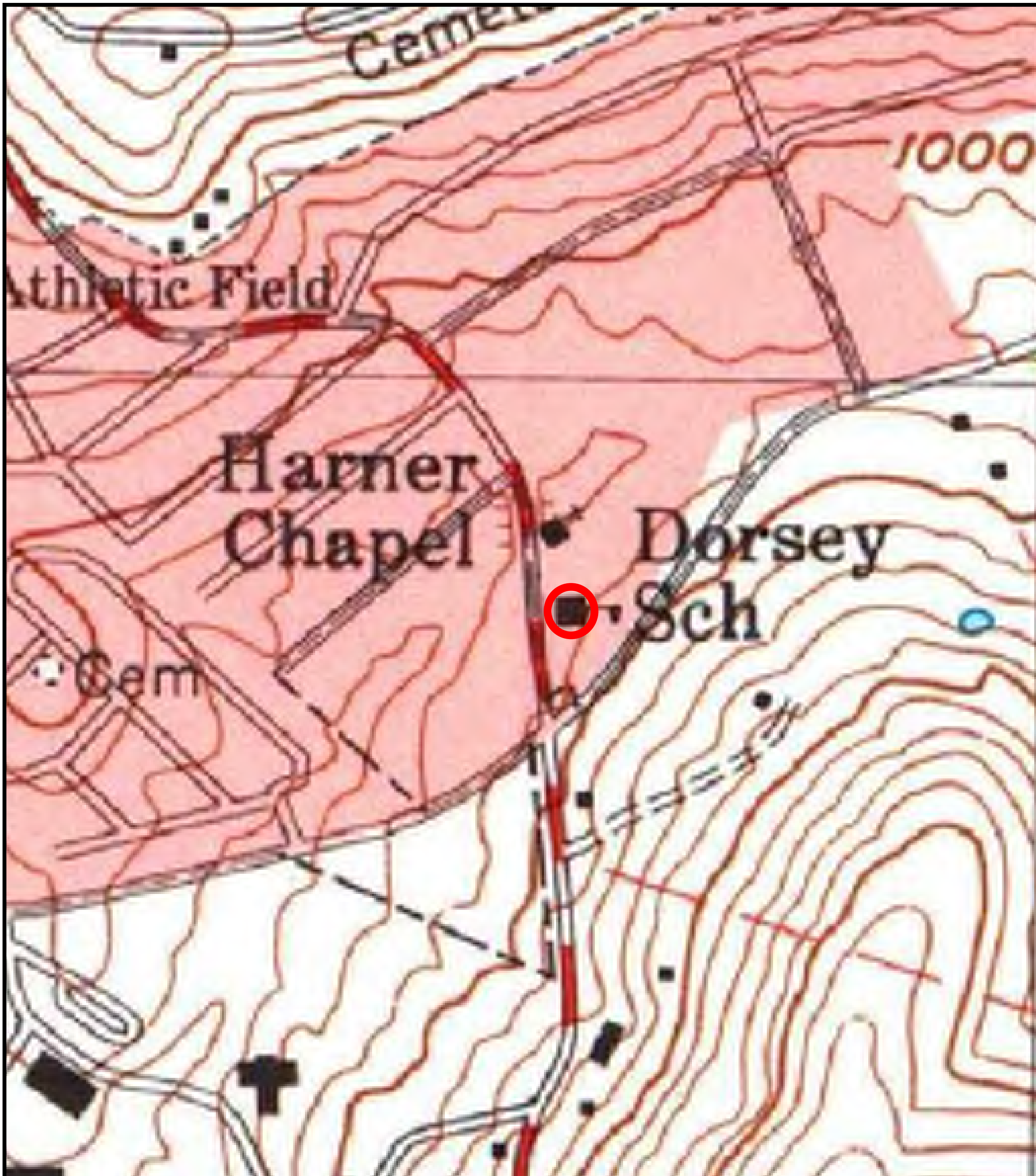
West Virginia University (WVU)
1926 "Dorsey School, Morgan District, Monongalia County." West Virginia History OnView. Website at https://wvhistoryonview.org/catalog/038226. Accessed December 13, 2018.

Photograph 1. Façade and south elevation, facing northeast (2018-12-05)

Photograph 2. Rear addition, facing southwest (2018-12-05)

Photograph 3. Recessed entrance fronting Dorsey Avenue, facing east (Google Earth 2018)

Photograph 4. School children at entrance of the Dorsey School, ca. 1926 (WVU 1926)



Feet

0 375 750

Legend

Location of Historic Structure

N
W
E
S

USGS Map
MG-2651
Dorsey School

MARKOSKY

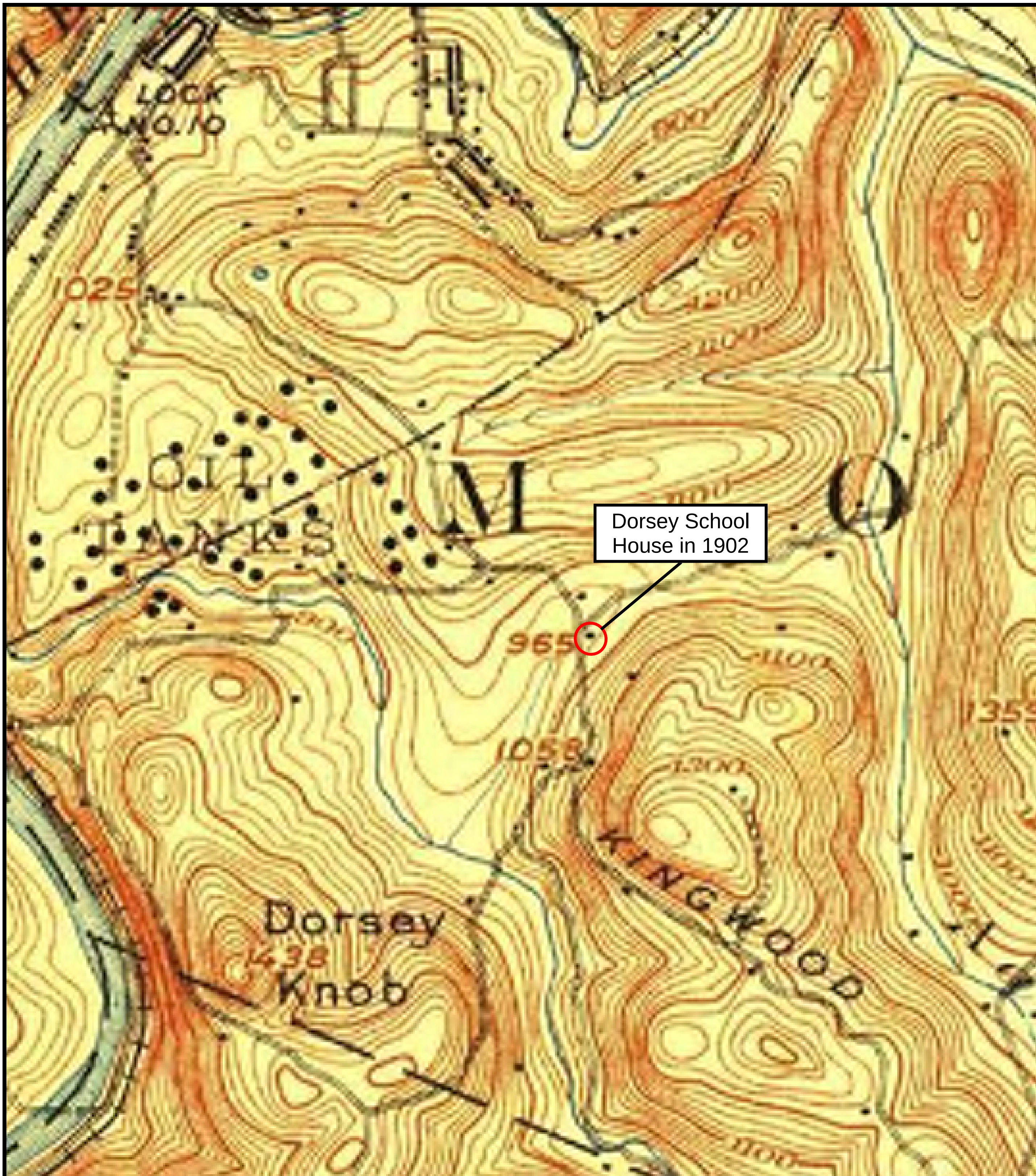
Greenbag Road Improvement Project

Morgan District and City of Morgantown Monongalia County

Source: USGS 1997

*Not to scale	**Legend** Approximate Parcel Boundary	N W E S	**Site Map** Dorsey School
MARKOSKY	Greenbag Road Improvement Project		Morgan District and City of Morgantown Monongalia County ***Source: Google Earth 2018***

*Not to Scale.		**Figure 1.** Location of Former Dorsey School House No. 1
MARKOSKY	Greenbag Road Improvement Project	Morgan District and City of Morgantown Monongalia County ***Source: Lothrop, et. al 1886***



*Not to Scale.

N
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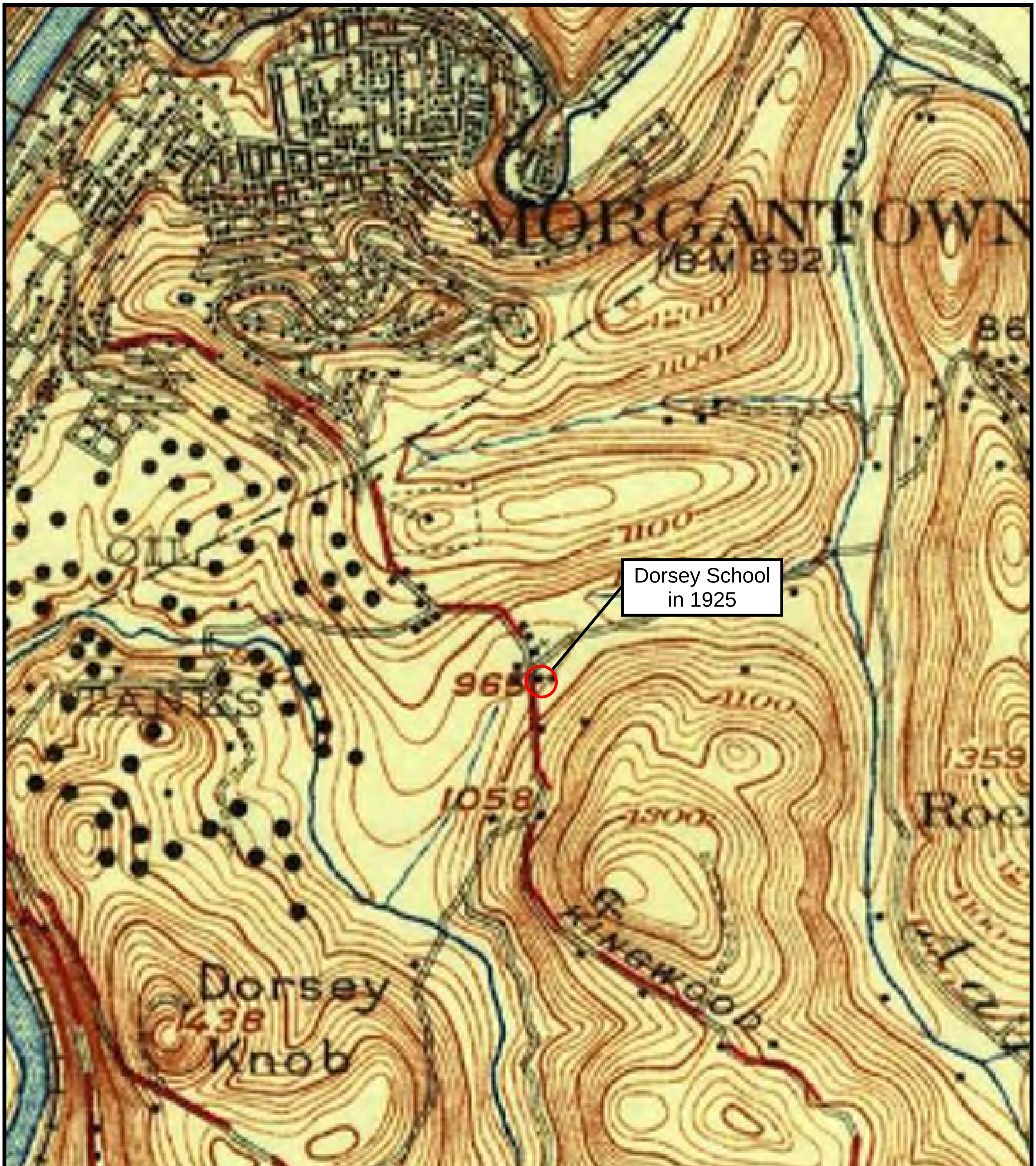
Figure 2. Location of Former Dorsey School House in 1902

MARKOSKY

Greenbag Road Improvement Project

Morgan District and
City of Morgantown
Monongalia County
Source: USGS 1902



*Not to Scale.

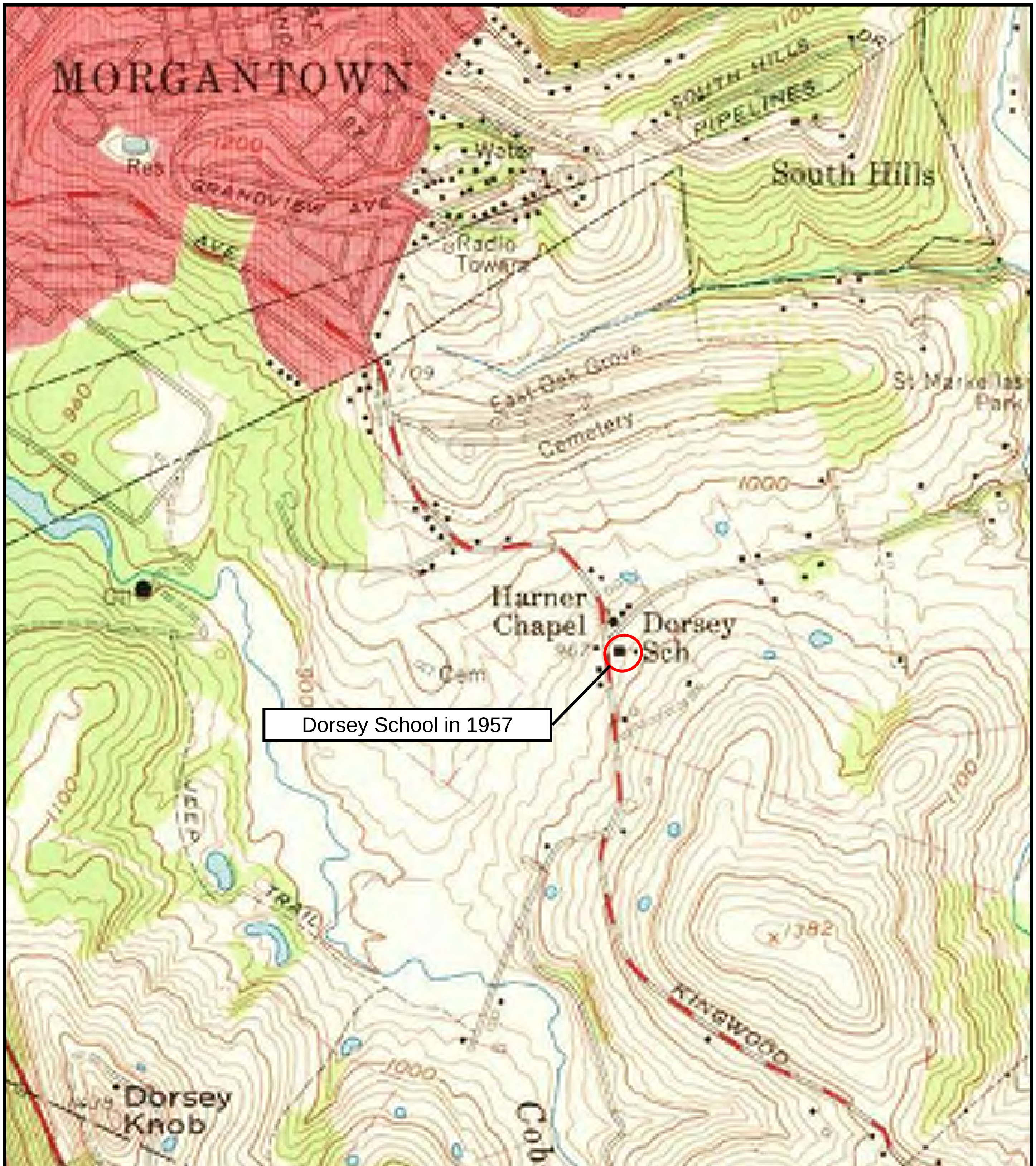
N
W E
S

Figure 3. Location of MG-2651 / Dorsey School in 1925

MARKOSKY

Greenbag Road Improvement Project

Morgan District and
City of Morgantown
Monongalia County
Source: USGS 1925



*Not to Scale.

N
W
E
S

Figure 3. Location of MG-2651 / Dorsey School in 1957

MARKOSKY

Greenbag Road Improvement Project

Morgan District and City of Morgantown Monongalia County

Source: USGS 1957

Internal Rating: ___________

WEST VIRGINIA HISTORIC PROPERTY INVENTORY FORM

Street Address 1432 Dorsey Avenue	**Common/Historic Name/Both** ◉ ○ ○ House at 1432 Dorsey Avenue	**Field Survey #**	**Site # *(SHPO Only)*** MG-2652
Town or Community Morgantown	**County** Monongalia	**Negative No.**	**NR Listed Date**
Architect/Builder	**Date of Construction** C. 1915	**Style** Bungalow - dormer front	
Exterior Siding/Materials Synthetics - Vinyl	**Roofing Material** Asphalt - Shingles	**Foundation** Stone - Rock Faced	
Property Use or Function **Residence** ◉ **Commercial** ○ **Other** ○	**UTM#** 17 S 590546 / 4384825	 Photograph 1. MG-2652 / House at 1432 Dorsey Avenue, facing southwest	
Survey Organization & Date The Markosky Engineering Group, December 4th, 2018	**Quadrangle Name** Morgantown South **Part of What Survey/FR#** Greenbag Road Improvement/NFA-2317(022)D		

Sketch Map of Property
Or Attach Copy of USGS Map

N

Site No.
MG-2652

Present Owners
Edward Holipsky

Phone #

Owners Mailing Address
1432 Dorsey Avenue, Morgantown, WV 26501

Describe Setting
See continuation sheet.

.38 **Acres**

☐ **Archaeological Artifacts Present**

Description of Building or Site (Original and Present)

1.5 **Stories** 2 **Front Bays**

See continuation sheet.

(Use Continuation Sheets)

Alterations ◉ **Yes** ○ **No**

If yes, describe
See continuation sheet.

Additions ○ **Yes** ◉ **No**

If yes, describe

Describe All Outbuildings
See continuation sheet.

(Use Continuation Sheets)

Statement of Significance
See continuation sheet.

(Use Continuation Sheets)

Bibliographical References

(Use Continuation Sheets)

Form Prepared By: Elizabeth Williams

Date: November 18, 2019

Name/Organization: The Markosky Engineering Group

Address: 232 Capitol Street

Charleston, WV 25301

Phone #: 304-223-5205

West Virginia Division of Culture and History
State Historic Preservation Office

MG-2652 / House at 1432 Dorsey Avenue is located on the west side of Dorsey Avenue immediately west of its intersection with Luckey Lane. The house is located within an area of mixed single family and multi-unit housing and commercial development north of Greenbag Road, approximately 1.58 miles southwest of the city of Morgantown.

The house at 1432 Dorsey Avenue is a ca. 1915 one-and-a-half-story Bungalow style dwelling covered in vinyl siding and synthetic wood shingle (Photograph 1). The house rests on a rock faced concrete block foundation and is capped by a side gable roof covered in asphalt shingle. The roof is pierced by an interior central chimney and a front gable dormer window is located on the façade (east elevation). The façade features a partially enclosed integral shed roof porch resting on a concrete block foundation. Fenestration consists of simulated three-over-one vinyl sash windows and sliding vinyl sash windows in the basement level.

A one-bay garage capped by a front gable asphalt shingle roof and covered in vinyl siding is located immediately south of the house (Photograph 2). A shed roof connects the garage and house.

No information was recovered linking the house at 1432 Dorsey Avenue to events significant on the local, state, or national level. Therefore, it is not eligible for listing on the NRHP under Criterion A. No information was recovered to suggest the house was historically associated with individuals significant on the local, state, or national level. Therefore, it is not eligible for listing under Criterion B. The house at 1432 Dorsey Avenue lacks integrity because it has undergone alterations with replacement siding, windows, and roofing as well as a partially enclosed front porch. For these reasons it is not eligible for listing under Criterion C. The house has not been evaluated for significance under Criterion D for its potential to yield information important to the understanding of history or prehistory.

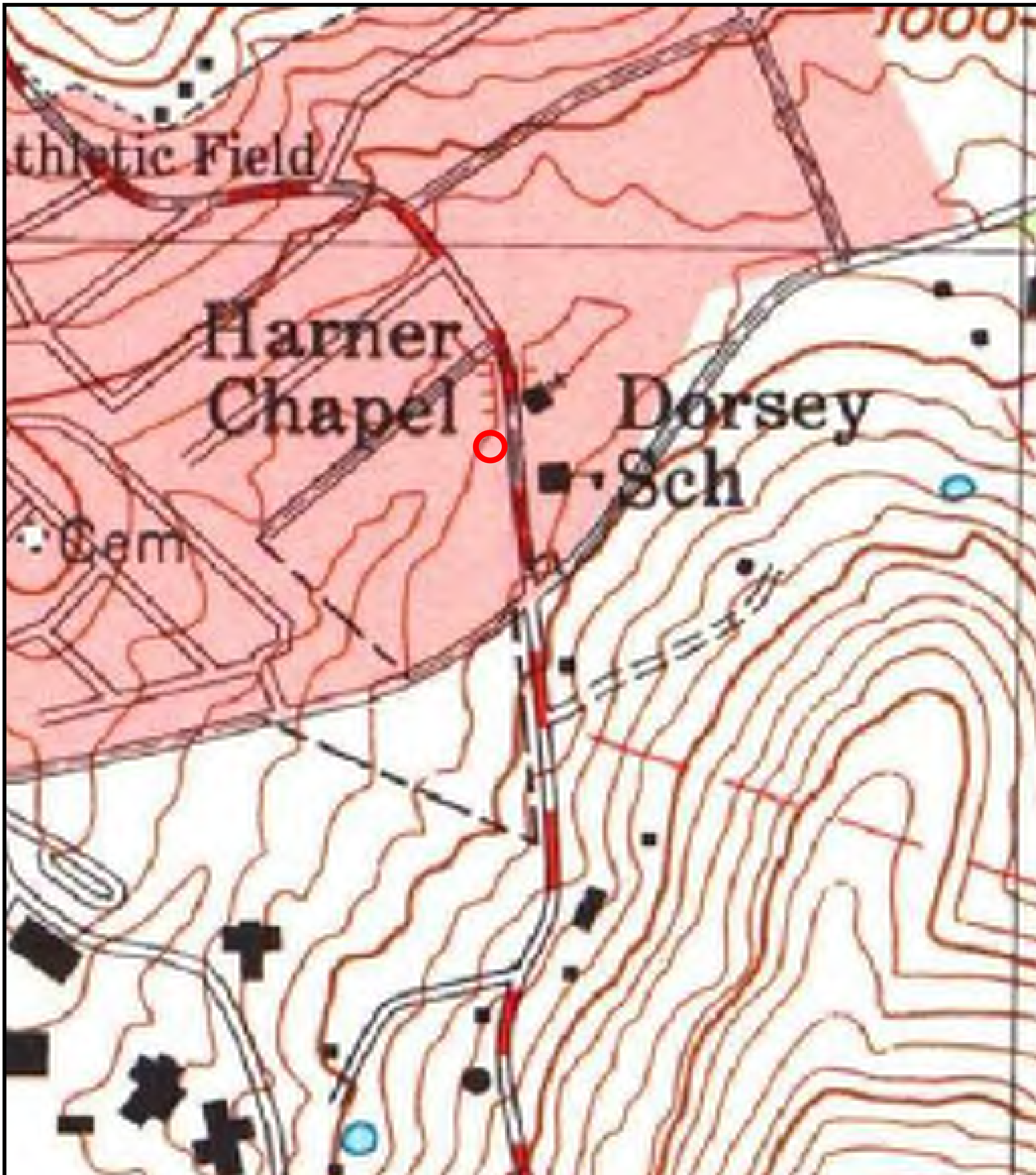
Bibliographical References

Google Earth
2018 Aerial images of Monongalia County, West Virginia. Website at https://earth.google.com/web/. Accessed December 11, 2018.

United States Geological Survey (USGS)
1997 Morgantown South, West Virginia topographic map, 7.5 minute quadrangle. United States Geological Survey, Washington, D.C.

Photograph 1. House showing enclosed porch, facing southwest (Markosky 2018-12-05)

Photograph 2. House and garage, facing northwest (Markosky 2018-12-05)



Feet	Legend		USGS Map
0 375 750	Approximate Location of Historic Structure	N W E S	**USGS Map** MG-2652 House at 1432 Dorsey Avenue
MARKOSKY	Greenbag Road Improvement Project		Morgan District and City of Morgantown Monongalia County ***Source: USGS 1997***

*Not to scale	**Legend** Approximate Parcel Boundary	N W E S	**Site Map** MG-2652 House at 1432 Dorsey Avenue
MARKOSKY	Greenbag Road Improvement Project		Morgan District and City of Morgantown Monongalia County ***Source: Google Earth 2018***

Internal Rating: ___________

WEST VIRGINIA HISTORIC PROPERTY INVENTORY FORM

Street Address 102 Luckey Lane	**Common/Historic Name/Both** ◉ ○ ○ House at 102 Luckey Lane	**Field Survey #**	**Site # *(SHPO Only)*** MG-2653
Town or Community Morgantown	**County** Monongalia	**Negative No.**	**NR Listed Date**
Architect/Builder	**Date of Construction** Ca. 1940	**Style** Other - Minimal Traditional	
Exterior Siding/Materials Metal - Aluminum	**Roofing Material** Asphalt	**Foundation** Concrete - Block	
Property Use or Function **Residence** ◉ **Commercial** ○ **Other** ○	**UTM#** 17 S 590604 E / 4384877 N	 Photograph 1. MG-2653 / House at 102 Luckey Lane, facing north	
Survey Organization & Date The Markosky Engineering Group, December 5, 2018	**Quadrangle Name** Morgantown South **Part of What Survey/FR#** Greenbag Road Improvement/NFA-2317(022)D		

Sketch Map of Property
Or Attach Copy of USGS Map

Site No.
MG-2653

N

Present Owners	**Owners Mailing Address**
Harner Chapel United Methodist Church **Phone #**	102 Luckey Lane Morgantown, WV 26505

Describe Setting

See continuation sheet.

<1 **Acres**

☐ **Archaeological Artifacts Present**

Description of Building or Site (Original and Present) 2 **Stories** 3 **Front Bays**

See continuation sheet.

(Use Continuation Sheets)

Alterations ◉ Yes ○ No **If yes, describe** See continuation sheet.

Additions ◉ Yes ○ No **If yes, describe** See continuation sheet.

Describe All Outbuildings

None.

(Use Continuation Sheets)

Statement of Significance

See continuation sheet.

(Use Continuation Sheets)

Bibliographical References

See continuation sheet.

(Use Continuation Sheets)

Form Prepared By: Elizabeth Williams **Date:** November 18, 2019

Name/Organization: The Markosky Engineering Group

Address: 232 Capitol Street

Charleston, WV 25301

Phone #: 304-223-5205

MG-2653 / House a 102 Luckey Lane is located on the northwest side of Luckey Lane approximately 237 feet northeast of its intersection with Dorsey Avenue. The house is located within an area of single family and multi-unit residences and commercial development northwest of Greenbag Road.

The house at 102 Luckey Lane is a ca. 1940 one-and-a-half story Minimal Traditional style dwelling covered in aluminum siding and capped by a side gable roof covered in asphalt shingle. The roof is pierced by one exterior brick chimney. The house rests on a concrete block foundation and fenestration consists of fixed and sliding vinyl sash windows. A partial width, second story addition supported by brick piers has been appended to the façade (southeast elevation). The addition is capped by a front gable roof covered in asphalt shingle. A two-story, full width addition has been appended to the rear (northwest) elevation. Two shed roof porch additions resting on concrete block foundations are appended to the northeast and southwest elevations.

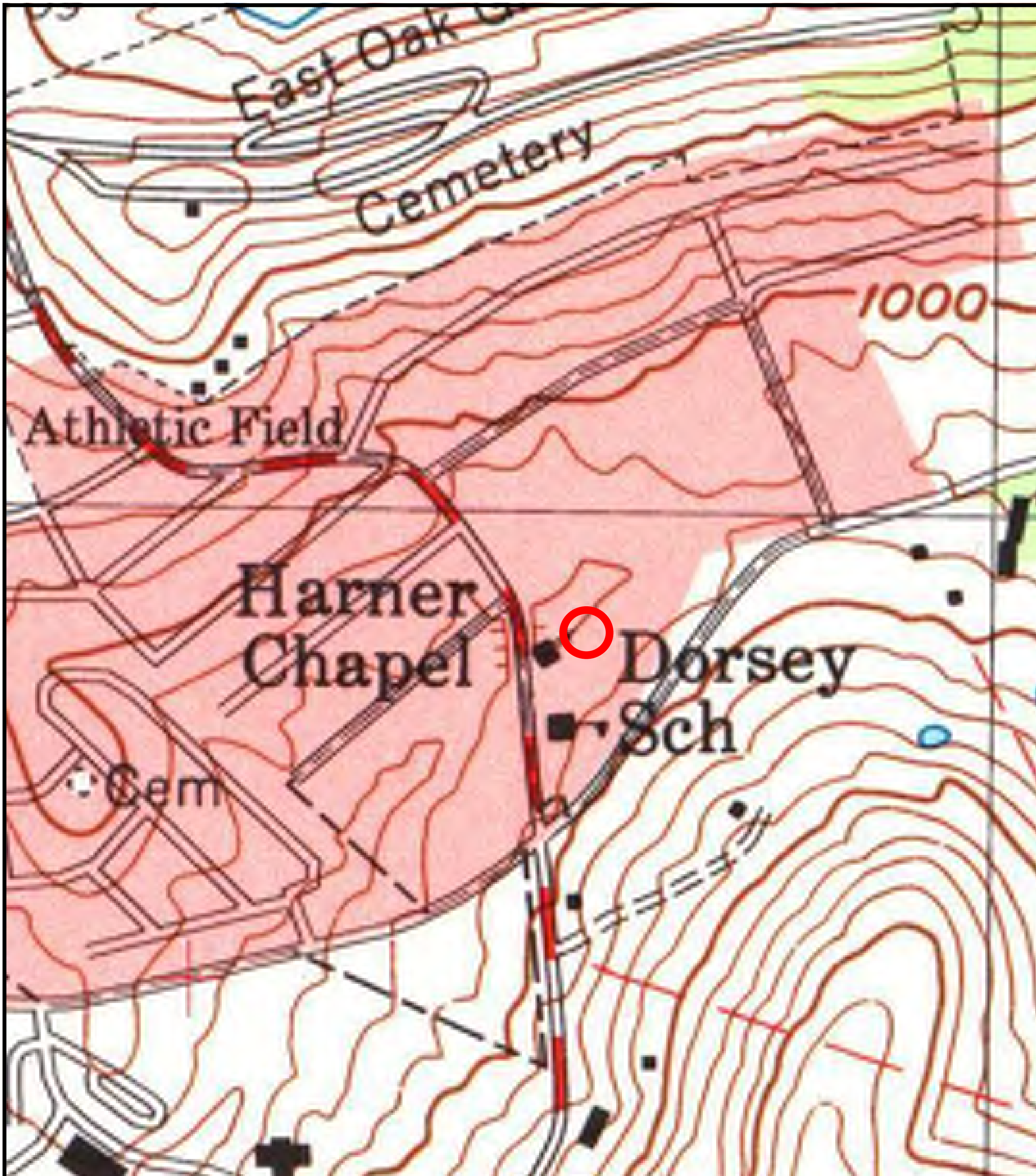
No information was recovered linking the house at 102 Luckey Lane to events significant on the local, state, or national level. Therefore, it is not eligible for listing on the NRHP under Criterion A. No information was recovered to suggest the house was historically associated with individuals significant on the local, state, or national level. Therefore, it is not eligible for listing under Criterion B. The house at 102 Luckey Lane lacks integrity because it has undergone alterations (including replacement siding, roofing, and windows) and multiple additions (including a second story addition on the façade). For these reasons it is not eligible for listing under Criterion C. The house has not been evaluated for significance under Criterion D for its potential to yield information important to the understanding of history or prehistory.

Bibliographical References

Google Earth
2018 Aerial images of Monongalia County, West Virginia. Website at https://earth.google.com/web/. Accessed December 11, 2018.

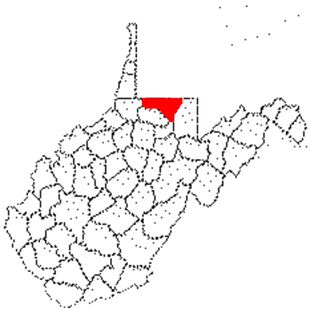
United States Geological Survey (USGS)
1997 Morgantown South, West Virginia topographic map, 7.5 minute quadrangle. United States Geological Survey, Washington, D.C.

Photograph 1. House with second story enclosed addition, facing northeast (Markosky 2018-12-05)



Feet 0 375 750	**Legend** Location of Historic Structure	N W E S	**USGS Map** MG-2653 House at 102 Luckey Lane
MARKOSKY	Greenbag Road Improvement Project		Morgan District and City of Morgantown Monongalia County ***Source: USGS 1997***

*Not to scale	**Legend** Approximate Parcel Boundary	N W E S	**Site Map** MG-2653 House at 102 Luckey Lane
MARKOSKY	Greenbag Road Improvement Project		Morgan District and City of Morgantown Monongalia County ***Source: Google Earth 2018***



Internal Rating: ___________

WEST VIRGINIA HISTORIC PROPERTY INVENTORY FORM

Street Address 104 Luckey Lane	**Common/Historic Name/Both** ◉ ○ ○ House at 104 Luckey Lane	**Field Survey #**	**Site # *(SHPO Only)*** MG-2654
Town or Community Morgantown	**County** Monongalia	**Negative No.**	**NR Listed Date**
Architect/Builder	**Date of Construction** Ca. 1940	**Style** Minimal Traditional	
Exterior Siding/Materials Synthetics - Vinyl	**Roofing Material** Asphalt	**Foundation** Concrete - Block	
Property Use or Function **Residence** ◉ **Commercial** ○ **Other** ○	**UTM#** 17 S 590616 E / 4384887 N	 Photograph 1. MG-2654 / House at 104 Luckey Lane, facing north	
Survey Organization & Date The Markosky Engineering Group, December 5, 2018	**Quadrangle Name** Morgantown South **Part of What Survey/FR#** Greenbag Road Improvement/NFA-2317(022)D		

Sketch Map of Property
Or Attach Copy of USGS Map

Site No.
MG-2654
MG-2459

N

Present Owners	Owners Mailing Address
Smith Rentals LLC Phone #	426 Drummond Street Morgantown, WV 26505

Describe Setting

See continuation sheet.

<1 **Acres**

☐ **Archaeological Artifacts Present**

Description of Building or Site (Original and Present) 1 **Stories** 4 **Front Bays**

See continuation sheet.

(Use Continuation Sheets)

Alterations ◉ **Yes** ○ **No** **If yes, describe**

See continuation sheet.

Additions ◉ **Yes** ○ **No** **If yes, describe**

See continuation sheet.

Describe All Outbuildings

None.

(Use Continuation Sheets)

Statement of Significance

See continuation sheet.

(Use Continuation Sheets)

Bibliographical References

See continuation sheet.

(Use Continuation Sheets)

Form Prepared By: Elizabeth Williams **Date:** November 18, 2019

Name/Organization: The Markosky Engineering Group

Address: 232 Capitol Street

Charleston, WV 25301

Phone #: 304-223-5205

West Virginia Division of Culture and History
State Historic Preservation Office

MG-2654 / House at 104 Luckey Lane is located on the northwest side of Luckey Lane approximately 266 feet northeast of its intersection with Dorsey Avenue. The house is located within an area of single family and multi-unit residences and commercial development northwest of Greenbag Road.

The house at 104 Luckey Lane is a ca. 1940 one-story Minimal Traditional style dwelling clad in vinyl siding and resting on a concrete block foundation. The house is capped by a side gable roof covered in asphalt shingle and pierced by an exterior brick chimney. Fenestration consists of replacement one-over-one and fixed vinyl sash windows. A shed roof porch supported by metal posts has been appended to the façade (southeast elevation), while a one-bay garage capped by a side gable roof has been appended to the northeast elevation.

No information was recovered linking the house at 104 Luckey Lane to events significant on the local, state, or national level. Therefore, it is not eligible for listing on the NRHP under Criterion A. No information was recovered to suggest the house was historically associated with individuals significant on the local, state, or national level. Therefore, it is not eligible for listing under Criterion B. The house at 104 Luckey Lane lacks integrity because it has undergone alterations and additions including replacement siding and roof materials, alterations or original window openings, and a one-bay garage addition. For these reasons it is not eligible for listing under Criterion C. The house has not been evaluated for significance under Criterion D for its potential to yield information important to the understanding of history or prehistory.

Bibliographical References

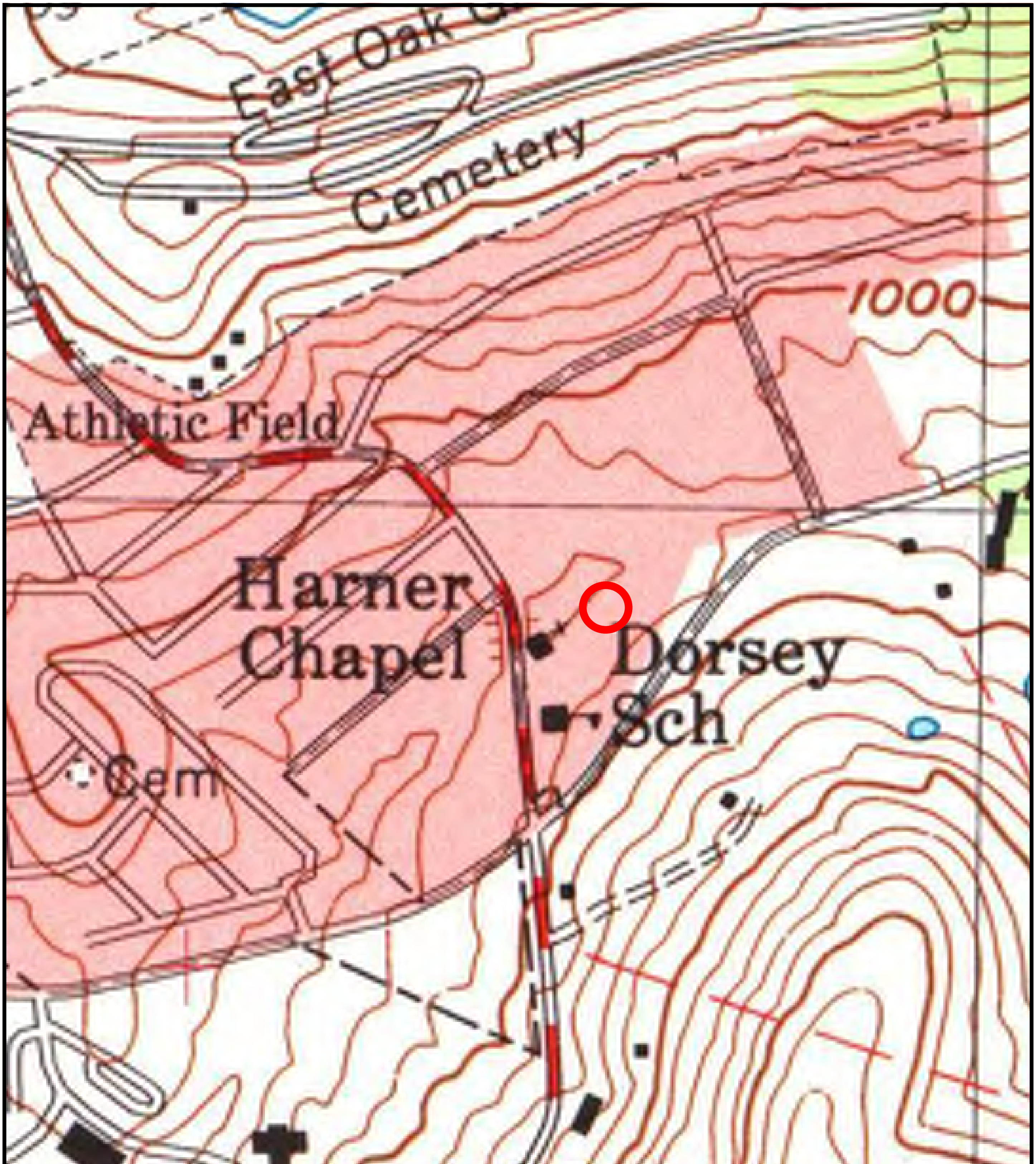
Google Earth
2018 Aerial images of Monongalia County, West Virginia. Website at https://earth.google.com/web/. Accessed December 11, 2018.

United States Geological Survey (USGS)
1997 Morgantown South, West Virginia topographic map, 7.5 minute quadrangle. United States Geological Survey, Washington, D.C.

WEST VIRGINIA HISTORIC PROPERTY FORM
CONTINUATION SHEET

NAME **House at 104 Luckey Lane** **SITE#** **MG-2654**

Photograph 1. Façade and southwest elevation, facing northeast (Markosky 2018-12-05)



Feet	Legend		USGS Map
0 375 750	Location of Historic Structure	N W E S	MG-2654 House at 104 Luckey Lane
MARKOSKY	Greenbag Road Improvement Project		Morgan District and City of Morgantown Monongalia County ***Source: USGS 1997***

*Not to scale

Legend

Approximate Parcel Boundary

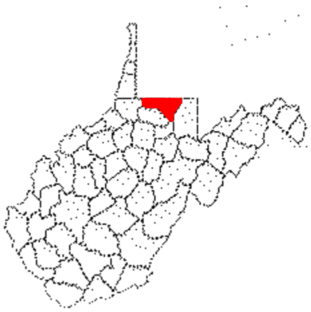
N
W
E
S

Site Map
MG-2654
House at 104 Luckey Lane

MARKOSKY

Greenbag Road Improvement Project

Morgan District and
City of Morgantown
Monongalia County
Source: Google Earth 2018



Internal Rating: ___________

WEST VIRGINIA HISTORIC PROPERTY INVENTORY FORM

Street Address 1201 – 7304 Mountain View Manor	**Common/Historic Name/Both** ○ ○ ⊙ Mountain View Manor	**Field Survey #**	**Site # *(SHPO Only)*** MG-2655
Town or Community Morgantown	**County** Monongalia	**Negative No.**	**NR Listed Date**
Architect/Builder	**Date of Construction** Ca. 1970	**Style** Modern	
Exterior Siding/Materials Brick	**Roofing Material** Asphalt	**Foundation** Concrete - Block	
Property Use or Function **Residence** ⊙ **Commercial** ○ **Other** ○	**UTM#** 17 S 590443 / 4384811	 Photograph 1. MG-2655 / Mountain View Manor, representative building, northwest elevation with glass entrance, facing southwest	
Survey Organization & Date The Markosky Engineering Group, February 5, 2019	**Quadrangle Name** Morgantown South **Part of What Survey/FR#** Greenbag Road Improvement/NFA-2317(022)D		

Sketch Map of Property
Or Attach Copy of USGS Map

Site No. MG-2655

N

Present Owners
Multiple Owners

Phone #

Owners Mailing Address

Describe Setting
See continuation sheet.

2.4 **Acres**

☐ **Archaeological Artifacts Present**

Description of Building or Site (Original and Present)

3 **Stories** 5 **Front Bays**

See continuation sheet.

(Use Continuation Sheets)

Alterations ○ Yes ◉ No **If yes, describe**

Additions ○ Yes ◉ No **If yes, describe**

Describe All Outbuildings
None.

(Use Continuation Sheets)

Statement of Significance
See continuation sheet.

(Use Continuation Sheets)

Bibliographical References
See continuation sheet.

(Use Continuation Sheets)

Form Prepared By: Elizabeth Williams **Date:** November 18, 2019

Name/Organization: The Markosky Engineering Group
Address: 232 Capitol Street
Charleston, WV 25301

Phone #: 304-223-5205

West Virginia Division of Culture and History
State Historic Preservation Office

MG-2655 / Mountain View Manor is located on the southwest side of Dorsey Avenue approximately 0.13 miles north of the intersection of Dorsey Avenue and Greenbag Road. The multi-unit housing complex is located in an area of mid-century residential development with non-historic residential and commercial development to the west. A handful of early 20th century dwellings are located south of Mountain View Manor. The complex is located approximately 1.55 miles southeast of Morgantown.

Mountain View Manor is a three-story, multi-unit housing complex constructed ca. 1970 comprising seven rectangular buildings, each with 10 units. In each building, four units face the northwest elevation, four units face the southeast elevation, and two additional units are included on the ground level of the southeast elevation (Photographs 1-3). Each building features a one-bay, central entrance with segmented plate glass panels from the floor to ceiling on their northwest elevations. Entrances on the southeast elevations are simple doors with one plain side light. The three-story buildings with exposed basements are covered in applied stretcher bond brick and capped by side gable roofs covered in asphalt shingle. The roofs feature a slight overhang in the gable ends and eaves. Fenestration consists of tripartite metal sash sliding glass windows. Each unit features an integrated porch, either on the northwest or southeast elevation, with a simple metal balustrade, floor to ceiling plate glass windows, and a door for access. Unit 1, located at the northeast end of the complex, contains offices on the ground floor while the remaining units are residential.

No information was recovered linking Mountain View Manor to events significant on the local, state, or national level. Therefore, it is not eligible for listing in the NRHP under Criterion A. No information was recovered to suggest the housing units were historically associated with individuals significant on the local, state, or national level. Therefore, it is not recommended eligible for listing under Criterion B. Mountain View Manor stands as a common and unexceptional example of late mid-century multi-unit residential architecture. It does not possess the architectural merit necessary to be considered eligible under Criterion C. The housing development has not been evaluated for significance under Criterion D for its potential to yield information important to the understanding of history or prehistory.

Bibliographical References

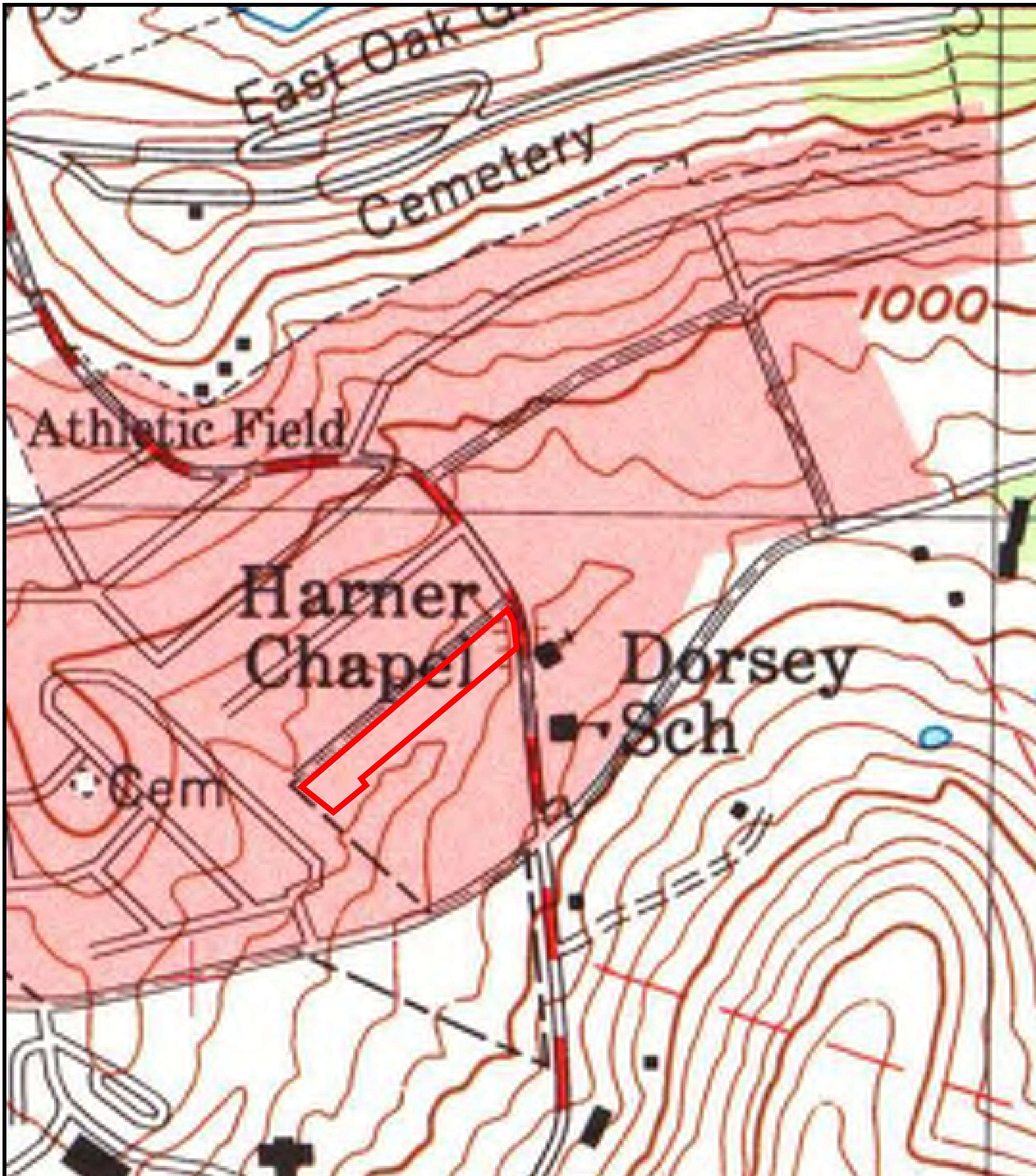
Google Earth
2018 Aerial images of Monongalia County, West Virginia. Website at https://earth.google.com/web/. Accessed December 11, 2018.

United States Geological Survey (USGS)
1997 Morgantown South, West Virginia topographic map, 7.5 minute quadrangle. United States Geological Survey, Washington, D.C.

Photograph 1. Representative building, northwest elevation, facing southwest (Markosky 2019-02-05)

Photograph 2. Representative building, southeast elevation, facing north (Markosky 2019-02-05)

Photograph 3. Overview of buildings, facing west (Markosky 2019-02-05)



Feet

0 375 750

Legend

Location of Historic Structure

N S E W

USGS Map
MG-2655
Mountain View Manor
1201 – 7304 Mountain View Manor

MARKOSKY

Greenbag Road Improvement Project

Morgan District and
City of Morgantown
Monongalia County
Source: USGS 1997

*Not to scale

Legend

Approximate Parcel Boundary

N
W E
S

Site Map
MG-2655
Mountain View Manor
1201 – 7304 Mountain View Manor

MARKOSKY

Greenbag Road Improvement Project

Morgan District and
City of Morgantown
Monongalia County
Source: Google Earth 2018

Internal Rating: ___________

WEST VIRGINIA HISTORIC PROPERTY INVENTORY FORM

Street Address 500 Parkway Drive	**Common/Historic Name/Both** ⦿ ○ ○ House at 500 Parkway Drive	**Field Survey #**	**Site # *(SHPO Only)*** MG-2656
Town or Community Morgantown	**County** Monongalia	**Negative No.**	**NR Listed Date**
Architect/Builder	**Date of Construction** Ca. 1970	**Style** Modern Ranch	
Exterior Siding/Materials Brick, Synthetics - VInyl	**Roofing Material** Asphalt	**Foundation** Concrete - Block	
Property Use or Function **Residence** ⦿ **Commercial** ○ **Other** ○	**UTM#** 17 S 590509 E / 4384931 N	 Photograph 1. MG-2656 / House at 500 Parkway Drive, facing north	
Survey Organization & Date The Markosky Engineering Group, February 5, 2019	**Quadrangle Name** Morgantown South **Part of What Survey/FR#** Greenbag Road Improvement/NFA-2317(022)D		

Sketch Map of Property
Or Attach Copy of USGS Map

Site No. MG-2656

N

Present Owners Jack and Barbara Johns **Phone #**	**Owners Mailing Address** 500 Parkway Drive Morgantown, WV 26501

Describe Setting

See continuation sheet.

<1 **Acres**

☐ **Archaeological Artifacts Present**

Description of Building or Site (Original and Present) 1 **Stories** 4 **Front Bays**

See continuation sheet.

(Use Continuation Sheets)

Alterations ◉ Yes ○ No

If yes, describe

Alterations include replacement siding material and replacement windows.

Additions ◉ Yes ○ No

If yes, describe

A small porch addition has been appended to the rear elevation.

Describe All Outbuildings

None.

(Use Continuation Sheets)

Statement of Significance

See continuation sheet.

(Use Continuation Sheets)

Bibliographical References

See continuation sheet.

(Use Continuation Sheets)

Form Prepared By: Elizabeth Williams **Date:** November 18, 2019

Name/Organization: The Markosky Engineering Group

Address: 232 Capitol Street

Charleston, WV 25301

Phone #: 304-223-5205

West Virginia Division of Culture and History
State Historic Preservation Office

WEST VIRGINIA HISTORIC PROPERTY INVENTORY FORM
CONTINUATION SHEET

NAME **House at 500 Parkway Drive** **SITE# MG-2656**

MG-2656 / House at 500 Parkway Drive is located on the northwest side of Parkway Drive immediately west of its intersection with Dorsey Avenue. The house is located in a ca. 1970 residential development; the greater area consists of single family and multi-unit housing and commercial development approximately 1.50 miles southeast of the city of Morgantown.

The house at 500 Parkway Drive is a ca. 1970, one-story Ranch style dwelling covered in applied stretcher bond brick and vinyl siding and capped by a side gable roof covered in asphalt shingle (Photographs 1 and 2). The one-story dwelling rests on a concrete block foundation. Fenestration consists of one-over-one vinyl sash windows and a tripartite picture window on the façade (southeast elevation). The façade features a pedimented porch supported by simple columns. A partial width porch projects from the rear (northwest) elevation.

No information was recovered linking the house at 500 Parkway Drive to events significant on the local, state, or national level. Therefore, it is not eligible for listing in the NRHP under Criterion A. No information was recovered to suggest the house was historically associated with individuals significant on the local, state, or national level. Therefore, it is not recommended eligible for listing under Criterion B. The house stands as a common and unexceptional example of postwar residential architecture. It is not a part of a significant postwar residential subdivision and does not possess the architectural merit necessary to be considered eligible under Criterion C. The house has not been evaluated for significance under Criterion D for its potential to yield information important to the understanding of history or prehistory.

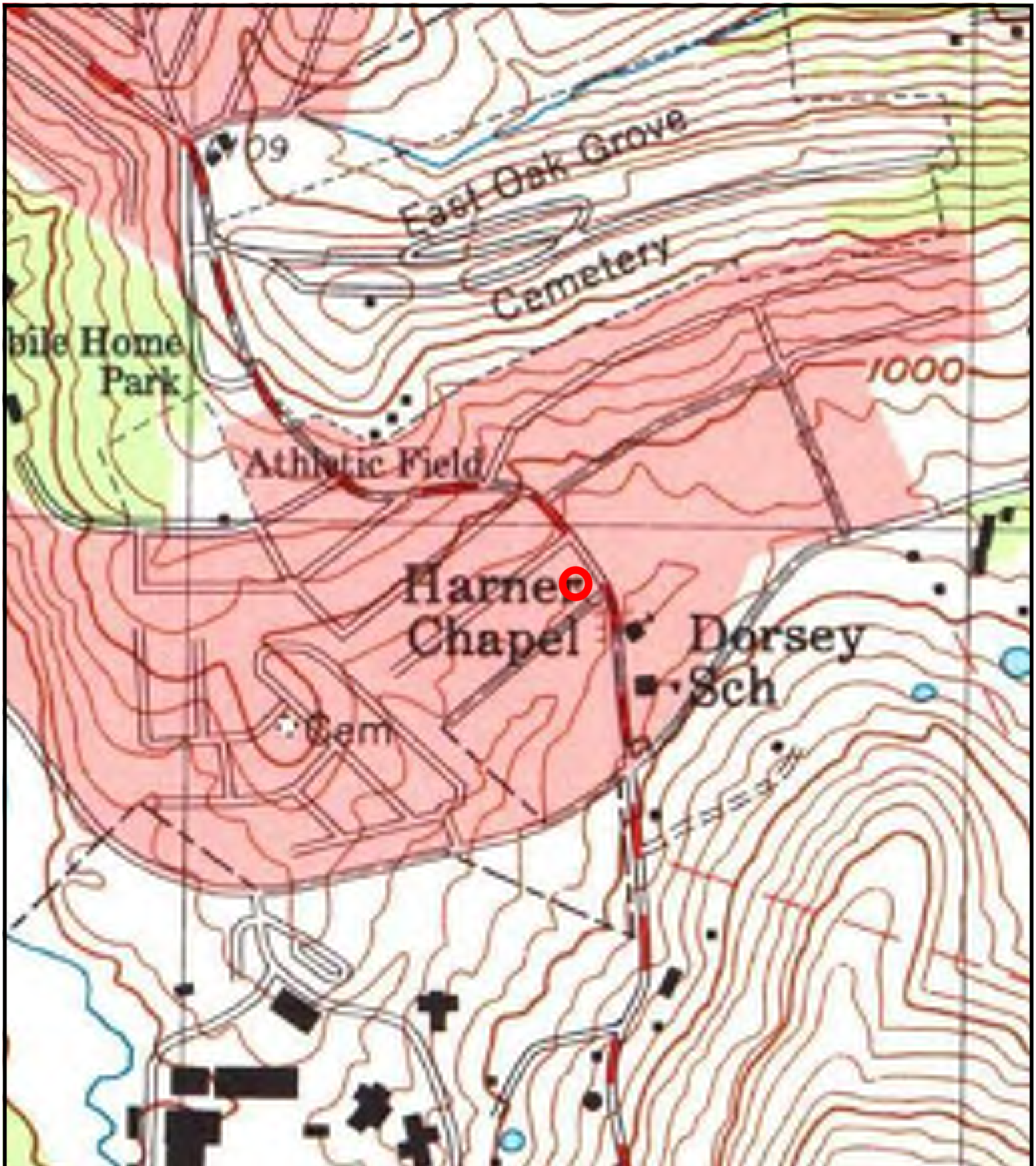
Bibliographical References

Google Earth
2018 Aerial images of Monongalia County, West Virginia. Website at https://earth.google.com/web/. Accessed December 11, 2018.

United States Geological Survey (USGS)
1997 Morgantown South, West Virginia topographic map, 7.5 minute quadrangle. United States Geological Survey, Washington, D.C.

Photograph 1. House and garage, facing north (Markosky 2019-02-05)

Photograph 2. Façade and northeast elevation, facing northwest (Markosky 2019-02-05)



Feet

0 500 1,000

Legend

Location of Historic Structure

N
W E
S

USGS Map
MG-2656
House at 500 Parkway Drive

MARKOSKY

Greenbag Road Improvement Project

Morgan District and
City of Morgantown
Monongalia County
Source: USGS 1997

*Not to scale

Legend

Approximate Parcel Boundary

Site Map
MG-2656
House at 500 Parkway Drive

MARKOSKY

Greenbag Road Improvement Project

Morgan District and
City of Morgantown
Monongalia County
Source: Google Earth 2018

Internal Rating: ___________

WEST VIRGINIA HISTORIC PROPERTY INVENTORY FORM

Street Address 502 Parkway Drive	**Common/Historic Name/Both** ◉ ○ ○ House at 502 Parkway Drive	**Field Survey #**	**Site # *(SHPO Only)*** MG-2657
Town or Community Morgantown	**County** Monongalia	**Negative No.**	**NR Listed Date**
Architect/Builder	**Date of Construction** Ca. 1970	**Style** Modern Split Level	
Exterior Siding/Materials Metal - Aluminum, Brick	**Roofing Material** Asphalt	**Foundation** Concrete - Block	
Property Use or Function **Residence** ◉ **Commercial** ○ **Other** ○	**UTM#** 17 S 590486 E / 4384915 N	 Photograph 1. MG-2657 / House at 502 Parkway Drive, facing northwest	
Survey Organization & Date The Markosky Engineering Group, February 5, 2019	**Quadrangle Name** Morgantown South **Part of What Survey/FR#** Greenbag Road Improvement/NFA-2317(022)D		

Sketch Map of Property
Or Attach Copy of USGS Map

MG-2657

Site No.

N

Present Owners	**Owners Mailing Address**
Karen Saffron **Phone #**	502 Parkway Drive Morgantown, WV 26501

Describe Setting

See continuation sheet.

<1 **Acres**

☐ **Archaeological Artifacts Present**

Description of Building or Site (Original and Present) 1.5 **Stories** 4 **Front Bays**

See continuation sheet.

(Use Continuation Sheets)

Alterations ○ Yes ◉ No **If yes, describe**

Additions ○ Yes ◉ No **If yes, describe**

Describe All Outbuildings

None.

(Use Continuation Sheets)

Statement of Significance

See continuation sheet.

(Use Continuation Sheets)

Bibliographical References

See continuation sheet.

(Use Continuation Sheets)

Form Prepared By: Elizabeth Williams **Date:** November 18, 2019

Name/Organization: The Markosky Engineering Group

Address: 232 Capitol Street

Charleston, WV 25301

Phone #: 304-223-5205

West Virginia Division of Culture and History
State Historic Preservation Office

WEST VIRGINIA HISTORIC PROPERTY INVENTORY FORM
CONTINUATION SHEET

NAME **House at 502 Parkway Drive** **SITE# MG-2657**

MG-2657 the House at 500 Parkway Drive is located on the northwest side of Parkway Drive immediately west of its intersection with Dorsey Avenue. The house is located in a ca. 1970 residential development; the greater area consists of single family and multi-unit housing and commercial development approximately 1.50 miles southeast of the city of Morgantown.

The house at 502 Parkway Drive is a ca. 1970, one-and-a-half story Modern Split-Level dwelling covered in applied stretcher bond brick and aluminum siding. The house rests on a concrete block foundation and is capped by a gable roof covered in asphalt shingle. The L-shaped house features a two-story, projecting front gable with a garage on the ground level. A one-story ell projects from the northeast elevation of the front gable section of the house. An integral porch supported by simple square posts is located within the ell. The entry door within the porch is flanked by simple sidelights. Fenestration consists of double hung aluminum sash, simulated six-over-six windows, and tripartite sliding windows.

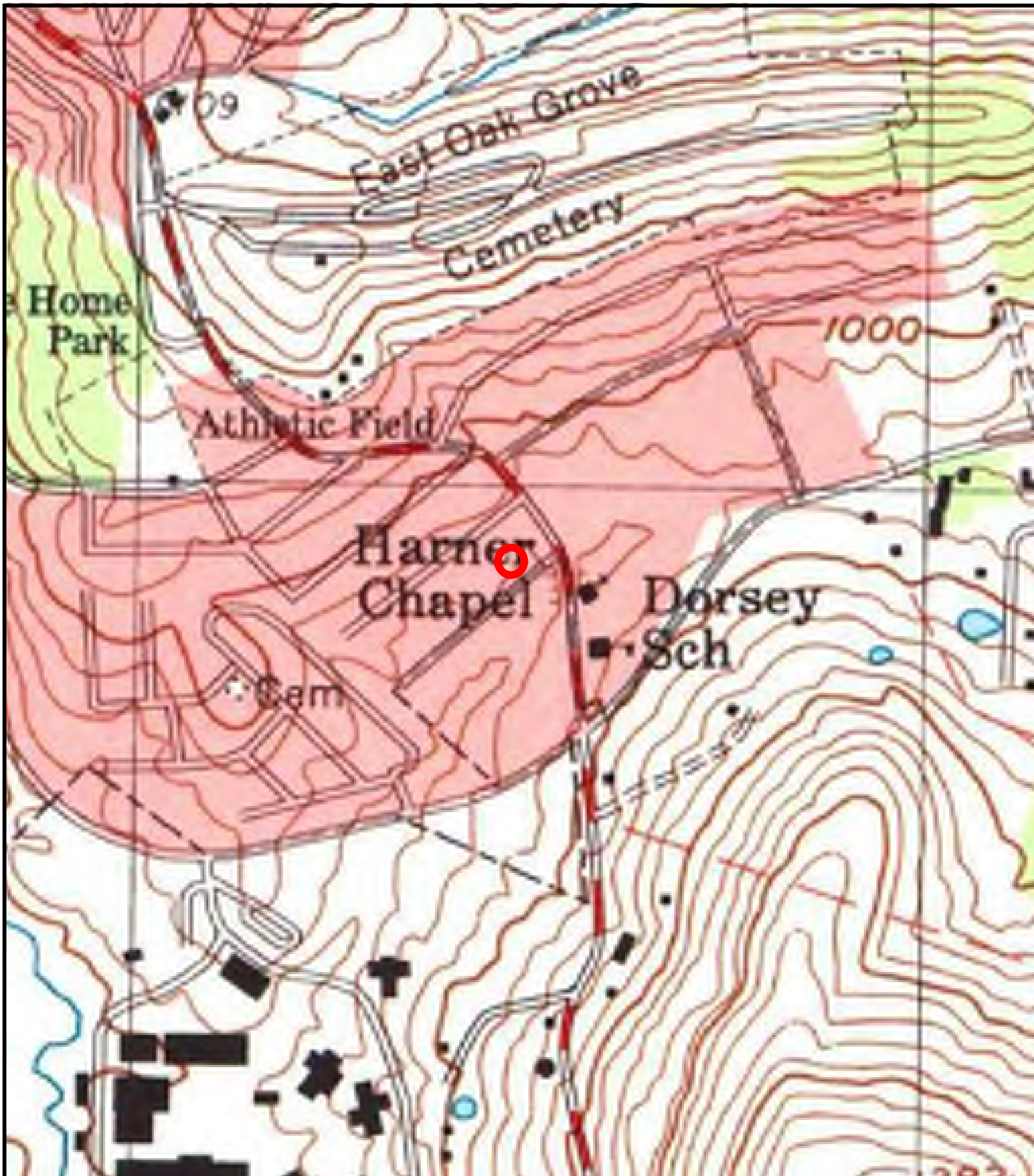
No information was recovered linking the house at 502 Parkway Drive to events significant on the local, state, or national level. Therefore, it is not eligible for listing in the NRHP under Criterion A. No information was recovered to suggest the house was historically associated with individuals significant on the local, state, or national level. Therefore, it is not recommended eligible for listing under Criterion B. The house stands as a common and unexceptional example of postwar residential architecture. It is not a part of a significant postwar residential subdivision and does not possess the architectural merit necessary to be considered eligible under Criterion C. The house has not been evaluated for significance under Criterion D for its potential to yield information important to the understanding of history or prehistory.

Bibliographical References

Google Earth
2018 Aerial images of Monongalia County, West Virginia. Website at https://earth.google.com/web/. Accessed December 11, 2018.

United States Geological Survey (USGS)
1997 Morgantown South, West Virginia topographic map, 7.5 minute quadrangle. United States Geological Survey, Washington, D.C.

Photograph 1. Garage and ell, facing northwest (Markosky 2019-02-05)



Feet

0 500 1,000

Legend

Location of Historic Structure

N
W E
S

USGS Map
MG-2657
House at 502 Parkway Drive

MARKOSKY

Greenbag Road Improvement Project

Morgan District and
City of Morgantown
Monongalia County
Source: USGS 1997

*Not to scale

Legend

Approximate Parcel Boundary

N
W
E
S

Site Map
MG-2657
House at 502 Parkway Drive

MARKOSKY

Greenbag Road Improvement Project

Morgan District and
City of Morgantown
Monongalia County
Source: Google Earth 2018

Internal Rating: ___________

WEST VIRGINIA HISTORIC PROPERTY INVENTORY FORM

Street Address 693 Greenbag Road	**Common/Historic Name/Both** ◉ ○ ○ House at 693 Greenbag Road	**Field Survey #**	**Site # *(SHPO Only)*** MG-2658
Town or Community Morgantown Vicinity	**County** Monongalia	**Negative No.**	**NR Listed Date**
Architect/Builder	**Date of Construction** C. 1955	**Style** Modern Ranch	
Exterior Siding/Materials Brick, Synthetics - VInyl	**Roofing Material** Asphalt - Shingles	**Foundation** Concrete - Block	
Property Use or Function **Residence** ◉ **Commercial** ○ **Other** ○	**UTM#** 17 S 590851 / 4385019	 Photograph 1. MG-2658 / House at 693 Greenbag Road, facing northwest	
Survey Organization & Date The Markosky Engineering Group, December 4th, 2018	**Quadrangle Name** Morgantown South **Part of What Survey/FR#** Greenbag Road Improvement/NFA-2317(022)D		

Sketch Map of Property
Or Attach Copy of USGS Map

MG-2658

Site No.

N

Present Owners
Raymond Travis

Phone #

Owners Mailing Address
693 Greenbag Road, Morgantown, WV 26508

Describe Setting
See continuation sheet.

.34 **Acres**

☐ **Archaeological Artifacts Present**

Description of Building or Site (Original and Present)

1 **Stories** 4 **Front Bays**

See continuation sheet.

(Use Continuation Sheets)

Alterations **If yes, describe**

○ Yes ◉ No

Additions **If yes, describe**

○ Yes ◉ No

Describe All Outbuildings
See continuation sheet.

(Use Continuation Sheets)

Statement of Significance
See continuation sheet.

(Use Continuation Sheets)

Bibliographical References
See continuation sheet.

(Use Continuation Sheets)

Form Prepared By: Elizabeth Williams **Date:** November 18, 2019

Name/Organization: The Markosky Engineering Group
Address: 232 Capitol Street
Charleston, WV 25301

Phone #: 304-223-5205

West Virginia Division of Culture and History
State Historic Preservation Office

MG-2658 / House at 693 Greenbag Road is located on the north side of Greenbag Road immediately east of its intersection with Richard Avenue. The house is located in an area of mixed residential and commercial development approximately 1.53 miles southeast of the city of Morgantown.

The house at 693 Greenbag Road is a ca. 1955 frame Ranch style dwelling clad in applied stretcher bond brick and vinyl siding (Photograph 1). The side gable roof is covered in asphalt shingle and features overhanging eaves in the gable ends. Fenestration consists of sliding, fixed, and one-over-one metal sash windows. A partial width shed roof porch is appended to the façade (southeast elevation). An integral garage is located on the side (northeast elevation).

A ca. 1980 two-bay detached garage clad in vinyl siding and capped by a side gable roof covered in asphalt shingle is located north of the house (Photograph 2).

No information was recovered linking the house at 693 Greenbag Road to events significant on the local, state, or national level. Therefore, it is not eligible for listing in the NRHP under Criterion A. No information was recovered to suggest the house was historically associated with individuals significant on the local, state, or national level. Therefore, it is not recommended eligible for listing under Criterion B. The house stands as a common and unexceptional example of postwar residential architecture. It is not a part of a significant postwar residential subdivision and does not possess the architectural merit necessary to be considered eligible under Criterion C. The house has not been evaluated for significance under Criterion D for its potential to yield information important to the understanding of history or prehistory.

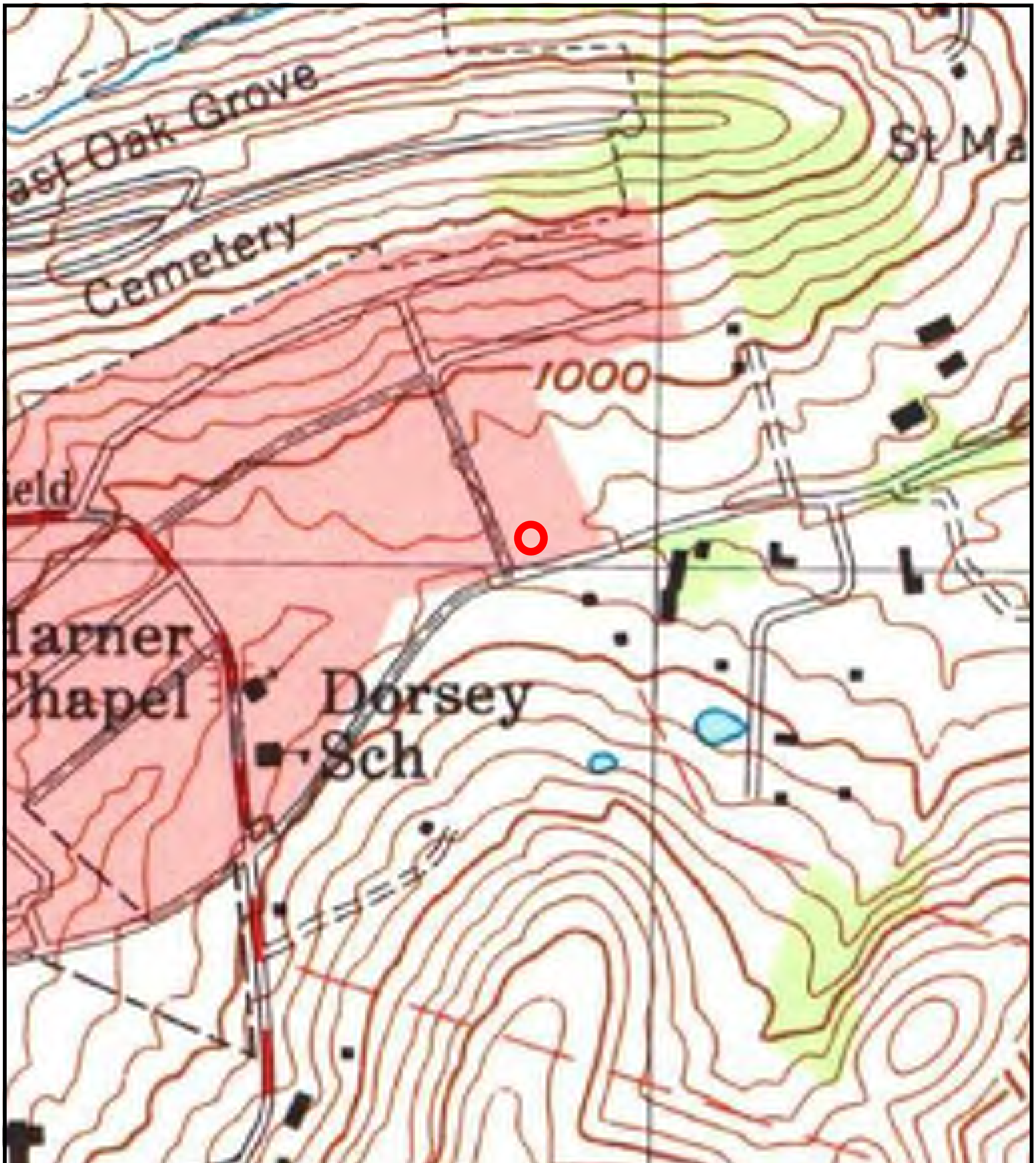
Bibliographical References

Google Earth
2018 Aerial images of Monongalia County, West Virginia. Website at https://earth.google.com/web/. Accessed December 11, 2018.

United States Geological Survey (USGS)
1997 Morgantown South, West Virginia topographic map, 7.5 minute quadrangle. United States Geological Survey, Washington, D.C.

Photograph 1. House with integral garage, facing northwest (Markosky 2018-12-04)

Photograph 2. Garage north of house, facing northwest (Markosky 2018-12-04)



Feet

0 500 1,000

Legend

Location of Historic Structure

N
W E
S

USGS Map
MG-2658
House at 693 Greenbag Road

MARKOSKY

Greenbag Road Improvement Project

Morgan District and
City of Morgantown
Monongalia County
Source: USGS 1997

*Not to scale	**Legend** Approximate Parcel Boundary	N W E S	**Site Map** MG-2658 House at 693 Greenbag Road
MARKOSKY	Greenbag Road Improvement Project		Morgan District and City of Morgantown Monongalia County ***Source: Google Earth 2018***

Internal Rating: ___________

WEST VIRGINIA HISTORIC PROPERTY INVENTORY FORM

Street Address 703 Greenbag Road	**Common/Historic Name/Both** ◉ ○ ○ House at 703 Greenbag Road	**Field Survey #**	**Site # *(SHPO Only)*** MG-2659
Town or Community Morgantown vicinity	**County** Monongalia	**Negative No.**	**NR Listed Date**
Architect/Builder	**Date of Construction** C. 1900	**Style** American Four-Square	
Exterior Siding/Materials Synthetics - Vinyl	**Roofing Material** Asphalt - Shingle	**Foundation** Not visible	
Property Use or Function **Residence** ○ **Commercial** ◉ **Other** ○	**UTM#** 17 S 590887 / 4385024	 Photograph 1. MG-2659 / House at 703 Greenbag Road, house and garage, facing northwest	
Survey Organization & Date The Markosky Engineering Group, December 4th, 2018	**Quadrangle Name** Morgantown South **Part of What Survey/FR#** Greenbag Road Improvement/NFA-2317(022)D		

Sketch Map of Property
Or Attach Copy of USGS Map

Site No. MG-2659

N

Present Owners Clinton Water Association, Inc. **Phone #**	**Owners Mailing Address** 3282 Greenbag Road, Morgantown, WV 26505

Describe Setting

See continuation sheet.

.42 **Acres**

☐ **Archaeological Artifacts Present**

Description of Building or Site (Original and Present) 2 **Stories** 3 **Front Bays**

See continuation sheet.

(Use Continuation Sheets)

Alterations ◉ **Yes** ○ **No** **If yes, describe**

See continuation sheet.

Additions ◉ **Yes** ○ **No** **If yes, describe**

See continuation sheet.

Describe All Outbuildings

See continuation sheet.

(Use Continuation Sheets)

Statement of Significance

See continuation sheet.

(Use Continuation Sheets)

Bibliographical References

See continuation sheet.

(Use Continuation Sheets)

Form Prepared By: Elizabeth Williams **Date:** November 18, 2019

Name/Organization: The Markosky Engineering Group

Address: 232 Capitol Street

Charleston, WV 25301

Phone #: 304-223-5205

West Virginia Division of Culture and History
State Historic Preservation Office

MG-2659 / House at 703 Greenbag Road is located on the north side of Greenbag Road approximately 180 feet east of Richard Avenue. The house is located in an area of mixed residential and commercial development approximately 1.54 miles southeast of the city of Morgantown.

The house at 703 Greenbag Road is a heavily altered two-story Four-Square dwelling from ca. 1900 that has been converted to offices for commercial use (Photograph 1). The house is clad in vinyl siding and capped by a steeply pitched hipped roof covered in asphalt shingle. The historic foundation material has been covered with applied brick. Fenestration consists of replacement one-over-one vinyl sash windows. A non-historic one-story addition clad in applied brick has been appended to the façade (southeast elevation) while a non-historic one-story addition covered in vinyl siding has been appended to the rear (northwest) elevation.

A ca. 1990 three-bay detached commercial-scale garage covered in standing seam metal is located immediately northwest of the house (Photograph 2).

No information was recovered linking the house at 703 Greenbag Road to events significant on the local, state, or national level. Therefore, it is not eligible for listing in the NRHP under Criterion A. No information was recovered to suggest the house was historically associated with individuals significant on the local, state, or national level. Therefore, it is not eligible for listing under Criterion B. The house at 703 Greenbag Road lacks integrity and has undergone extensive alterations and additions including front and rear additions, replacement siding and roof materials, and alterations to the original fenestration pattern and window openings. For these reasons it is not eligible for listing under Criterion C. The house has not been evaluated for significance under Criterion D for its potential to yield information important to the understanding of history or prehistory.

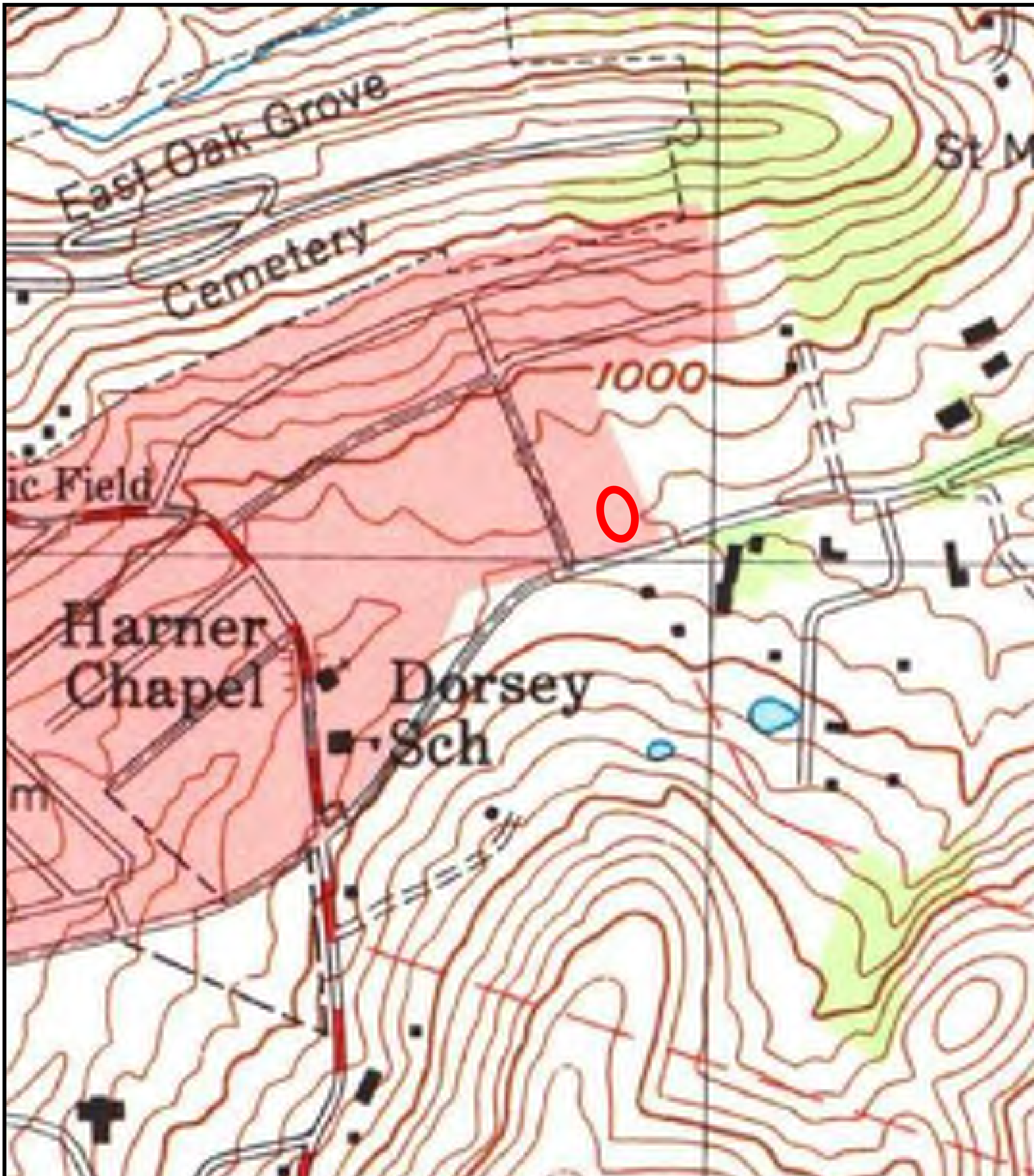
Bibliographical References

Google Earth
2018 Aerial images of Monongalia County, West Virginia. Website at https://earth.google.com/web/. Accessed December 11, 2018.

United States Geological Survey (USGS)
1997 Morgantown South, West Virginia topographic map, 7.5 minute quadrangle. United States Geological Survey, Washington, D.C.

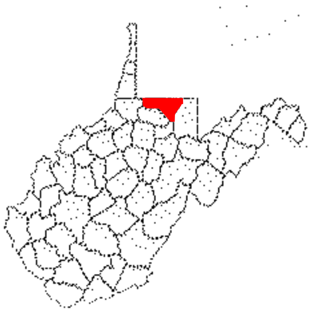
Photograph 1. House with front and rear addition, facing northwest (Markosky 2018-12-04)

Photograph 2. Garage north of house, facing north (Markosky 2018-12-04)



Feet	Legend		USGS Map
0 500 1,000	Location of Historic Structure	N W E S	MG-2659 House at 703 Greenbag Road
MARKOSKY	Greenbag Road Improvement Project		Morgan District and City of Morgantown Monongalia County *Source: USGS 1997*

*Not to scale	**Legend** Approximate Parcel Boundary	N W E S	**Site Map** MG-2659 House at 703 Greenbag Road
MARKOSKY	Greenbag Road Improvement Project		Morgan District and City of Morgantown Monongalia County ***Source: Google Earth 2018***



Internal Rating: ___________

WEST VIRGINIA HISTORIC PROPERTY INVENTORY FORM

Street Address 710 Greenbag Road	**Common/Historic Name/Both** ◉ ○ ○ House at 710 Greenbag Road	**Field Survey #**	**Site # *(SHPO Only)*** MG-2660
Town or Community Morgantown vicinity	**County** Monongalia	**Negative No.**	**NR Listed Date**
Architect/Builder	**Date of Construction** C. 1930	**Style** American Four-Square	
Exterior Siding/Materials Synthetics - Vinyl	**Roofing Material** Asphalt - Shingles	**Foundation** Stone - Coursed Rubble	
Property Use or Function **Residence** ◉ **Commercial** ○ **Other** ○	**UTM#** 17 S 590937 / 4384972	 Photograph 1. MG-2660 / House at 710 Greenbag Road, facing southwest	
Survey Organization & Date The Markosky Engineering Group, December 4th, 2018	**Quadrangle Name** Morgantown South **Part of What Survey/FR#** Greenbag Road Improvement/NFA-2317(022)D		

Sketch Map of Property
Or Attach Copy of USGS Map

MG-2660

Site No.

N

Present Owners
Derrick and Annette Moore

Phone #

Owners Mailing Address
710 Greenbag Road, Morgantown, WV 26505

Describe Setting
See continuation sheet.

.501 **Acres**

☐ **Archaeological Artifacts Present**

Description of Building or Site (Original and Present)

2.5 **Stories** 2 **Front Bays**

See continuation sheet.

(Use Continuation Sheets)

Alterations ◉ **Yes** ○ **No**

If yes, describe
See continuation sheet.

Additions ◉ **Yes** ○ **No**

If yes, describe
See continuation sheet.

Describe All Outbuildings
None.

(Use Continuation Sheets)

Statement of Significance
See continuation sheet.

(Use Continuation Sheets)

Bibliographical References
See continuation sheet.

(Use Continuation Sheets)

Form Prepared By: Elizabeth Williams

Date: November 18, 2019

Name/Organization: The Markosky Engineering Group

Address: 232 Capitol Street
Charleston, WV 25301

Phone #: 304-223-5205

West Virginia Division of Culture and History
State Historic Preservation Office

MG-2660 / House at 710 Greenbag Road is located on the south side of Greenbag Road approximately 1.58 miles southeast of the city of Morgantown. The house is located adjacent to an open field while the area immediately to the north comprises a dense area of mixed residential and commercial development.

The house at 710 Greenbag Road is a ca. 1930 two-and-a-half-story American Four-Square dwelling resting on a coursed rubble stone foundation (Photographs 1 and 2). The house is clad in vinyl siding and is capped by a steeply pitched hipped roof covered in asphalt shingle. The roof is pierced by an interior chimney and includes hipped roof dormer windows on the façade (northwest) and rear (southeast) elevations. An altered hipped roof porch supported by simple Doric columns with a balustrade decorates to the façade. Three non-historic additions have been added to the rear of the house that quadruple the area of the building's footprint. A two-story non-historic living space addition, a patio partially covered by a shed roof, and a ca. 2000 one-story, three-bay garage have been appended to the rear of the house. Fenestration consists of replacement one-over-one vinyl sash windows with simulated eight-over-eight vinyl sash windows in the garage addition.

No information was recovered linking the house at 710 Greenbag Road to events significant on the local, state, or national level. Therefore, it is not eligible for listing in the NRHP under Criterion A. No information was recovered to suggest the house was historically associated with individuals significant on the local, state, or national level. Therefore, it is not eligible for listing under Criterion B. The house at 710 Greenbag Road lacks integrity because it has undergone alterations and additions including large rear additions, replacement siding and roof materials, alterations to original openings, and disruption of the original fenestration pattern. For these reasons it is not eligible for listing under Criterion C. The house has not been evaluated for significance under Criterion D for its potential to yield information important to the understanding of history or prehistory.

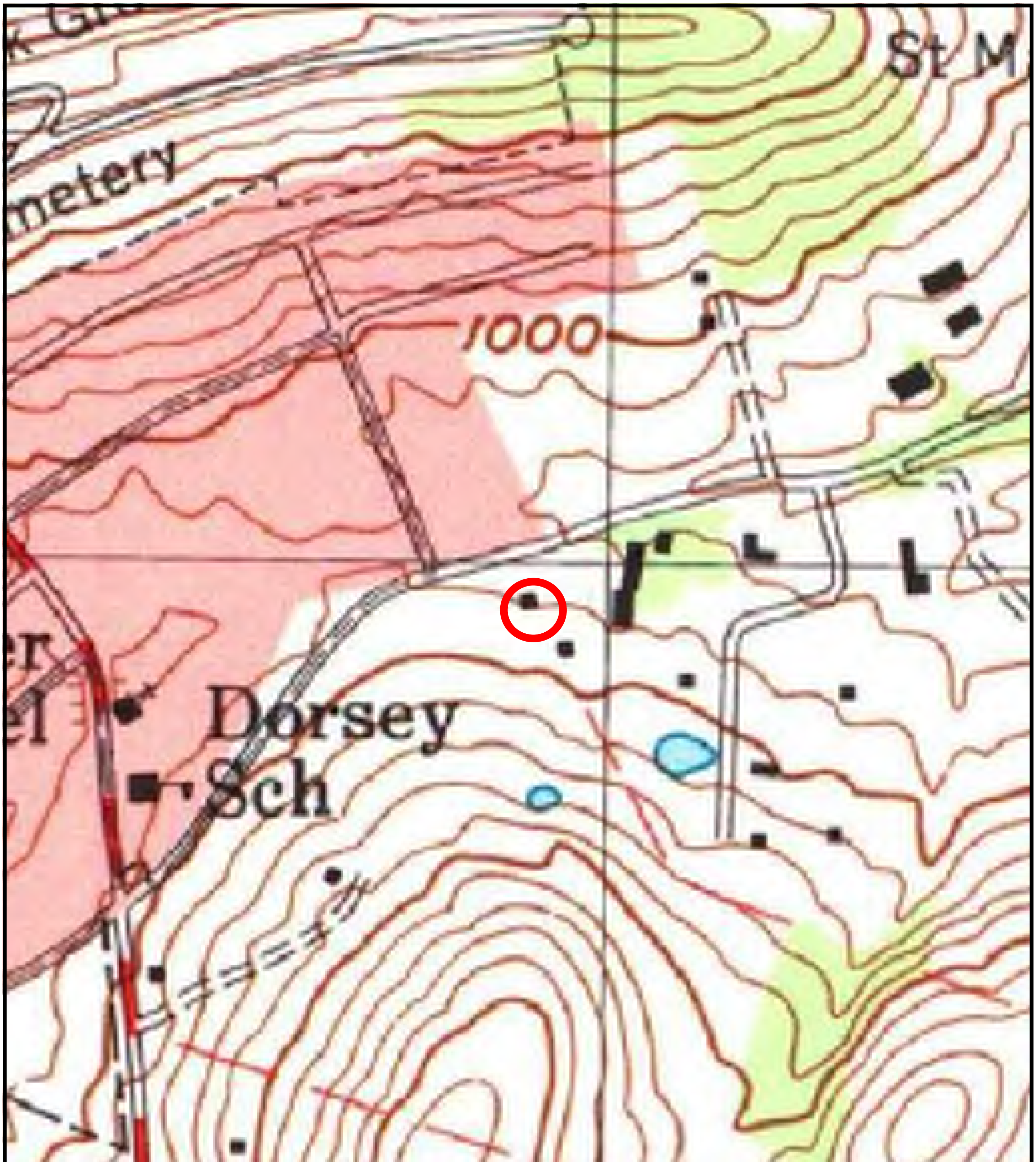
Bibliographical References

Google Earth
2018 Aerial images of Monongalia County, West Virginia. Website at https://earth.google.com/web/. Accessed December 11, 2018.

United States Geological Survey (USGS)
1997 Morgantown South, West Virginia topographic map, 7.5 minute quadrangle. United States Geological Survey, Washington, D.C.

Photograph 1. House showing rear addition and partial view of attached garage, facing south (Markosky 2018-12-04)

Photograph 2. House showing rear addition and attached garage, facing southeast (Markosky 2018-12-04)



Feet	Legend		USGS Map
0 375 750	Location of Historic Structure	N W E S	MG-2660 House at 710 Greenbag Road
MARKOSKY	Greenbag Road Improvement Project		Morgan District and City of Morgantown Monongalia County *Source: USGS 1997*

*Not to scale

Legend

Approximate Parcel Boundary

N
W E
S

Site Map
MG-2660
House at 710 Greenbag Road

MARKOSKY

Greenbag Road Improvement Project

Morgan District and
City of Morgantown
Monongalia County
Source: Google Earth 2018

Internal Rating: ___________

WEST VIRGINIA HISTORIC PROPERTY INVENTORY FORM

Street Address Greenbag Road over Cobun Creek	**Common/Historic Name/Both** ◉ ○ ○ Cobun Creek Culvert	**Field Survey #**	**Site # *(SHPO Only)*** MG-2661
Town or Community Morgantown	**County** Monongalia	**Negative No.**	**NR Listed Date**
Architect/Builder	**Date of Construction** Ca. 1965	**Style** 20th Century Box Culvert	
Exterior Siding/Materials Concrete	**Roofing Material** N/A	**Foundation** Concrete - Poured	
Property Use or Function **Residence** ○ **Commercial** ○ **Other** ◉ Transportation	**UTM#** 17 S 589688 E / 4384830 N	 Photograph 1. MG-2661 / Cobun Creek Culvert, from flood plain south of Greenbag Road, facing north	
Survey Organization & Date The Markosky Engineering Group, February 12, 2019	**Quadrangle Name** Morgantown South **Part of What Survey/FR#** Greenbag Road Improvement/NFA-2317(022)D		

Sketch Map of Property
Or Attach Copy of USGS Map

MG-2661

Site No.

N

Present Owners City of Morgantown **Phone #**	**Owners Mailing Address** 389 Spruce Street Morgantown, WV 26505

Describe Setting

See continuation sheet.

<1 **Acres**

☐ **Archaeological Artifacts Present**

Description of Building or Site (Original and Present) ______Stories ______Front Bays

See continuation sheet.

(Use Continuation Sheets)

Alterations ○ Yes ◉ No **If yes, describe**

Additions ○ Yes ◉ No **If yes, describe**

Describe All Outbuildings

None.

(Use Continuation Sheets)

Statement of Significance

See continuation sheet.

(Use Continuation Sheets)

Bibliographical References

See continuation sheet.

(Use Continuation Sheets)

Form Prepared By: Elizabeth Williams **Date:** November 18, 2019

Name/Organization: The Markosky Engineering Group

Address: 232 Capitol Street

Charleston, WV 25301

Phone #: 304-223-5205

West Virginia Division of Culture and History
State Historic Preservation Office

MG-2661 / Cobun Creek Culvert carries Greenbag Road over Cobun Creek immediately to the northwest of Greenbag Road's intersection with Mississippi Street. The culvert is set within an area of commercial development and intermittent wooded areas approximately 1.45 miles south of the city of Morgantown.

The ca. 1965 culvert is a single span, reinforced concrete box culvert that carries Greenbag Road and fill over Cobun Creek (Photographs 1 and 2). The culvert is 71 feet in overall length with a span that measures 14 feet wide. The culvert includes tapered reinforced concrete wingwalls on its north and south elevations.

The small ca. 1965 Cobun Creek culvert was not included in the *West Virginia Statewide Historic Bridge Survey* because it was built at or near the 1965 cut off for the study and because its span length is shorter than the requisite 20 feet for evaluation (KCI et al. 2015).

No information was recovered linking the Cobun Creek culvert to events significant on the local, state, or national level. Therefore, it is not eligible for listing on the NRHP under Criterion A. No information was recovered to suggest the culvert was historically associated with individuals significant on the local, state, or national level. Therefore, it is not eligible for listing under Criterion B. The Cobun Creek culvert stands as a common and unexceptional example of a concrete box culvert. It does not possess the architectural merit or technological significance to be considered eligible for listing under Criterion C. The culvert has not been evaluated for significance under Criterion D for its potential to yield information important to the understanding of history or prehistory.

Bibliographical References

Google Earth
2018 Aerial images of Monongalia County, West Virginia. Website at https://earth.google.com/web/. Accessed December 11, 2018.

KCI Technologies, Inc. and Mead & Hunt, Inc. (KCI et al.)
2015 *West Virginia Statewide Historic Bridge Survey: Final Survey Report, State Project # S699-HIS/BR-1.0000, Federal Project #BR-2004(029)E.* Prepared for West Virginia Department of Transportation, Division of Highways, April 2015.

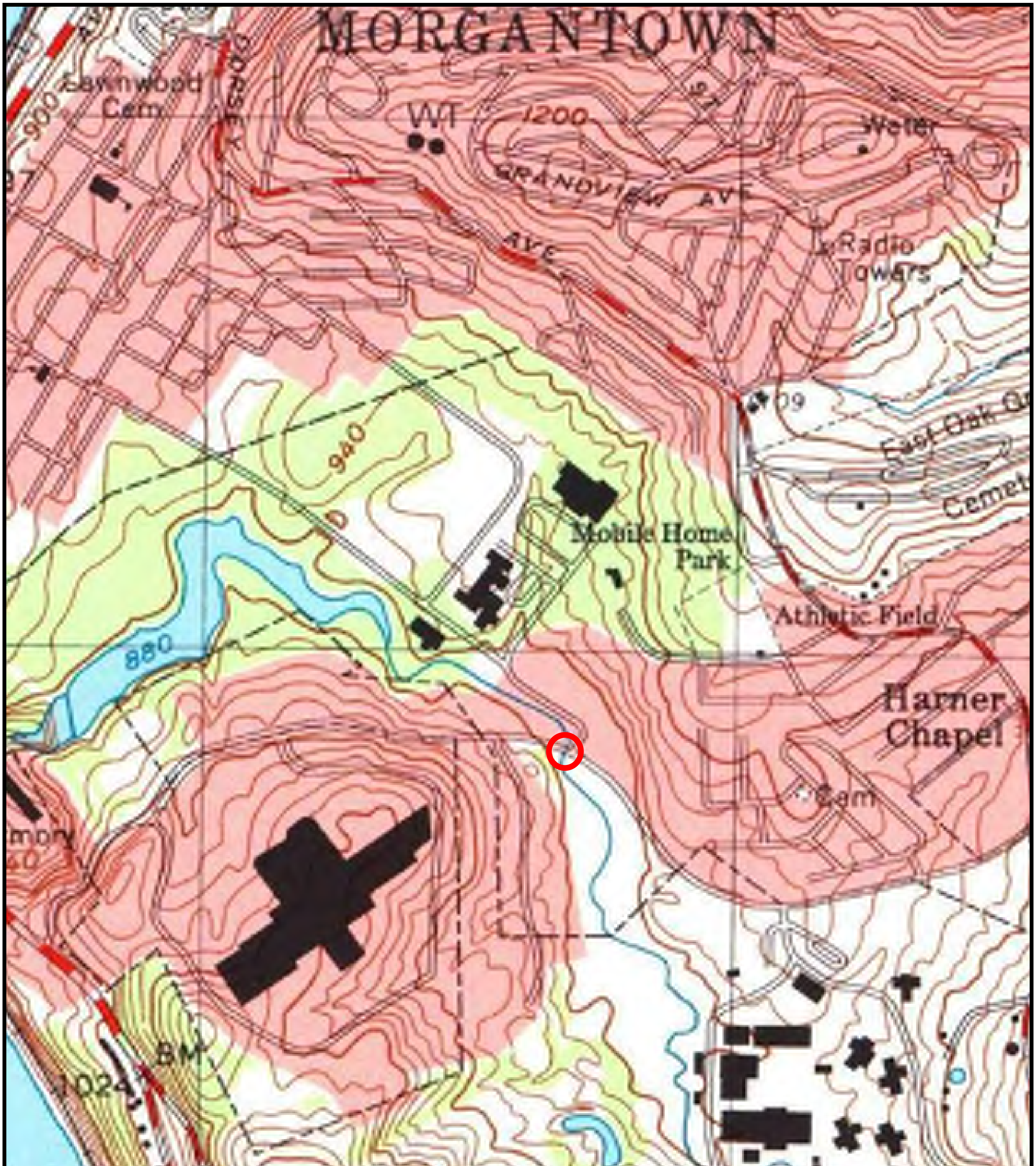
United States Geological Survey (USGS)
1997 Morgantown South, West Virginia topographic map, 7.5 minute quadrangle. United States Geological Survey, Washington, D.C.

WEST VIRGINIA HISTORIC PROPERTY INVENTORY FORM
CONTINUATION SHEET

NAME **Cobun Creek Culvert** **SITE# MG-2661**


Photograph 1. From flood plain south of Greenbag Road, facing north (Markosky 2019-02-12)


Photograph 2. View from north of Greenbag Road, facing south (Markosky 2019-02-12)



Feet

0 500 1,500

Legend

Location of Historic Structure

N
W E
S

USGS Map
MG-2661
Cobun Creek Box Culvert

MARKOSKY

Greenbag Road Improvement Project

Morgan District and
City of Morgantown
Monongalia County
Source: USGS 1997

*Not to scale	**Legend** Location of Culvert	N W E S	**Site Map** MG-2661 Cobun Creek Box Culvert
MARKOSKY	Greenbag Road Improvement Project		Morgan District and City of Morgantown Monongalia County ***Source: Google Earth 2018***

Internal Rating: ___________

WEST VIRGINIA HISTORIC PROPERTY INVENTORY FORM

Street Address	Common/Historic Name/Both	Field Survey #	Site # *(SHPO Only)*
918 Greenbag Road	◉ Common ○ Historic ○ Both The Sube Shop (auto repair)		MG-2665
Town or Community	**County**	**Negative No.**	**NR Listed Date**
Morgantown	Monongalia		
Architect/Builder	**Date of Construction**	**Style**	
	c. 1970	Commercial	
Exterior Siding/Materials	**Roofing Material**	**Foundation**	
Metal - Steel; Brick (veneer)	Metal - standing seam; Asphalt - shingles	Concrete - Block	
Property Use or Function Residence ○ Commercial ◉ Other ○	**UTM#** 17 S 591658 E / 4385183 N	 Photograph 1. MG-2665 / The Sube Shop, north (front) and west elevations, facing southeast	
Survey Organization & Date The Markosky Engineering Group, October 31, 2019	**Quadrangle Name** Morgantown South, WV **Part of What Survey/FR#** Greenbag Road Improvement/NFA-2317(022)D		

Sketch Map of Property
Or Attach Copy of USGS Map

Site No. MG-2665

N

Present Owners
BAT Properties LLC

Phone #

Owners Mailing Address
139 Lamplighter Drive
Morgantown, WV 26508

Describe Setting
See continuation sheets

1.0 **Acres**

☐ **Archaeological Artifacts Present**

Description of Building or Site (Original and Present)

1 **Stories** 2 **Front Bays**

See continuation sheets

(Use Continuation Sheets)

Alterations

○ Yes ◉ No

If yes, describe

Additions

○ Yes ◉ No

If yes, describe

Describe All Outbuildings
No outbuildings

(Use Continuation Sheets)

Statement of Significance
See continuation sheets

(Use Continuation Sheets)

Bibliographical References
See continuation sheets

(Use Continuation Sheets)

Form Prepared By: Laura C. Ricketts

Date: November 18, 2019

Name/Organization: The Markosky Engineering Group

Address: 232 Capitol Street
Charleston, WV 25301

Phone #: 304-223-5205

West Virginia Division of Culture and History
State Historic Preservation Office

NAME **The Sube Shop** **SITE# MG-2665**

The commercial building housing a Subaru-specific auto repair shop is located to the southwest of the intersection of Greenbag Road and Lower Aarons Creek Road with a broad partially-paved parking lot located to the north and west. It occupies former farmland to the east of Aaron Creek in a semi-suburban area to the southeast of the Morgantown city limits.

The tall, one-story, rectangular plan service building is prefabricated with standing seam metal roof (very shallow front gable) and wall cladding. A one-story shed-roof office area clad with brick veneer is attached to the north (front) elevation. Five oversize vehicle bays line the west (side) elevation. Parking lots frame the building to the north and west.

The Sube Shop consists of an unremarkable and utilitarian prefabricated service building with a small office area. It does not appear to have significance as a commercial/service industry building; it is not associated with any people of demonstrated significance; and it is not distinguished for its architectural design. It is not eligible for NRHP listing under Criteria A, B, or C. It has not been evaluated under Criterion D.

Bibliographical References

Google Earth
2018 Aerial images of Monongalia County, West Virginia. Website at https://earth.google.com/web/. Accessed December 11, 2018.

United States Geological Survey (USGS)
1997 Morgantown South, West Virginia topographic map, 7.5 minute quadrangle. United States Geological Survey, Washington, D.C.

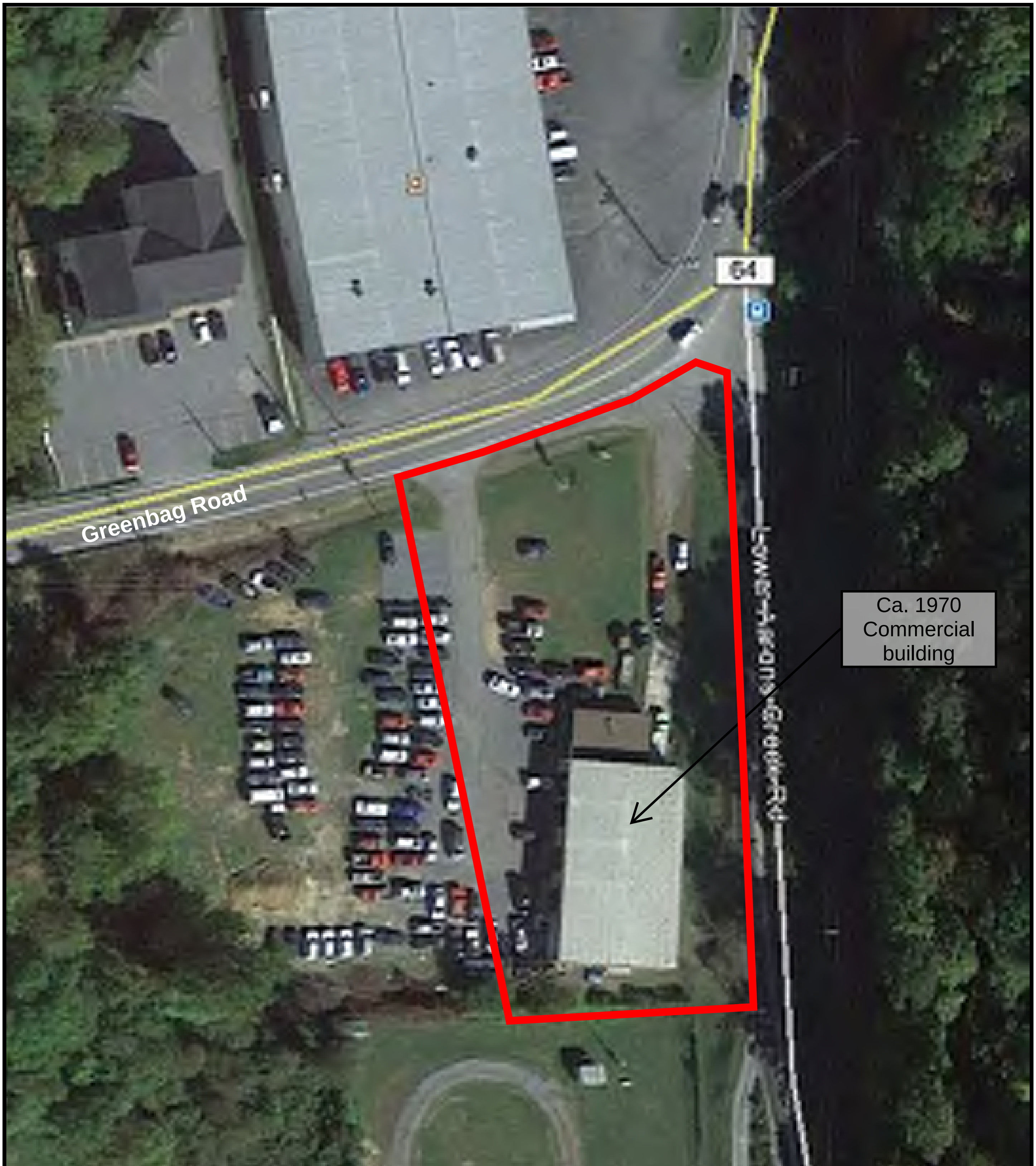
WEST VIRGINIA HISTORIC PROPERTY INVENTORY FORM
CONTINUATION SHEET

NAME **The Sube Shop** **SITE# MG-2665**

Photograph 1. North (front) and west elevations, facing southeast

Photograph 2. East and north (front) elevations, facing southwest

Feet	Legend		USGS Map
0 750 1,500	Location of Historic Structure	N W E S	MG-2665 The Sube Shop (auto repair)
MARKOSKY	Greenbag Road Improvement Project		Morgan District and City of Morgantown Monongalia County *Source: USGS 1997*



*Not to scale

Legend

Approximate Parcel Boundary

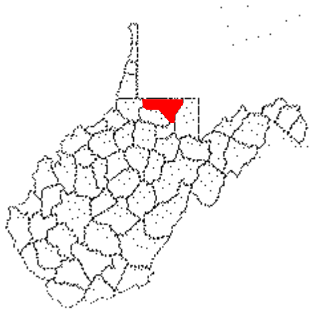
N
W E
S

Site Map
MG-2665
The Sube Shop (auto repair)

MARKOSKY

Greenbag Road Improvement Project

Morgan District and
City of Morgantown
Monongalia County
Source: Google Earth 2019



Internal Rating: ___________

WEST VIRGINIA HISTORIC PROPERTY INVENTORY FORM

Street Address Greenbag Road over Aaron Creek	**Common/Historic Name/Both** ⦿ ○ ○ Aaron Creek Box Culvert	**Field Survey #**	**Site # *(SHPO Only)*** MG-2666
Town or Community Morgantown vicinity	**County** Monongalia	**Negative No.**	**NR Listed Date**
Architect/Builder Greer Limestone Co. (contractor)	**Date of Construction** ca. 1966	**Style** Other - Continuous Concrete Culvert	
Exterior Siding/Materials Concrete	**Roofing Material**	**Foundation** Concrete	
Property Use or Function **Residence** ○ **Commercial** ○ **Other** ⦿ Transportation	**UTM#** 17 S 591568 E / 4385233 N	 Photograph 1. MG-2666 / Aaron Creek Box Culvert through view, facing southwest (Google Earth 2019)	
Survey Organization & Date The Markosky Engineering Group, October 31, 2019	**Quadrangle Name** Morgantown South, WV **Part of What Survey/FR#** Greenbag Road Improvement/NFA-2317(022)D		

Sketch Map of Property
Or Attach Copy of USGS Map

MG-2666

Site No.

N

Present Owners

West Virginia Division of Highways

Phone #

Owners Mailing Address

Describe Setting

The highway structure carries two lanes of busy Greenbag Road through a suburban area, which formerly was characterized by farmland and wooded areas but which has become increasingly developed in the late 20th and early 21st centuries

______________ **Acres**

☐ **Archaeological Artifacts Present**

Description of Building or Site (Original and Present) __________**Stories** _________**Front Bays**

See continuation sheets

(Use Continuation Sheets)

Alterations ○ **Yes** ◉ **No** **If yes, describe**

Additions ○ **Yes** ◉ **No** **If yes, describe**

Describe All Outbuildings

None

(Use Continuation Sheets)

Statement of Significance

See continuation sheets

(Use Continuation Sheets)

Bibliographical References

See continuation sheets

(Use Continuation Sheets)

Form Prepared By: Laura C. Ricketts **Date:** November 18, 2019

Name/Organization: The Markosky Engineering Group, Inc.

Address: 232 Capitol Street

Charleston, WV 25301

Phone #: 304-223-5205

West Virginia Division of Culture and History
State Historic Preservation Office

The MG-2666 / Aaron Creek Box Culvert (Structure No. 31A203) is a two-span continuous concrete culvert constructed ca. 1966 that was built by the Greer Limestone Co. (WVDOH 1990). It is a cast in place structure consisting of two sidewalls, a center wall, a floor slab, and a roof slab, with two ten-foot span openings and a total length of 20.8 feet. A 2018 inspection of the culvert found that the structure was in fair condition (WVDOH 2018).

The culvert retains integrity despite regular repairs to the structure and the addition of safety guardrails ca. 1996 (WVDOH 1990).

The Aaron Creek Box Culvert was constructed when Greenbag Road was laid out in the mid-1960s. The Greer Limestone Company, who was responsible for its construction, was founded in 1914 and is still active today as part of Greer Industries, Inc (Greer Industries, Inc. 2006). In the late 1960s, when the construction of this culvert was included among its minor endeavors, Greer Limestone Company advertised itself as a local construction company with a location ten miles southeast of Morgantown in Greer, West Virginia (The Dominion News 1968).

When the *West Virginia Statewide Historic Bridge Survey* was completed in 2015, the Aaron Creek Box Culvert was not among the structures that were evaluated, which could have been due to its late build date or small size (KCI Technologies, Inc. et al. 2015).

The Aaron Creek Box Culvert is not eligible for listing on the National Register of Historic Places (NRHP). It is an unremarkable example of a common structure type that does not demonstrate technological or historical significance. It is not significant under NRHP Criteria A, B, or C. It has not been evaluated under Criterion D for its potential to provide information important to our understanding of history or prehistory.

Bibliographical References

Google Earth
2019 Aerial images of Monongalia County, West Virginia. Website at https://earth.google.com/web/. Accessed October 24, 2019.

Greer Industries, Inc.
2006 "Greer History." Website at http://greerindustries.com/index.html. Accessed October 30, 2019.

KCI Technologies, Inc. and Mead and Hunt, Inc.
2015 *West Virginia Statewide Historic Bridge Survey: Final Survey Report, State Project # S699-HIS/BR-1.0000, Federal Project #BR-2004(029)E*. Prepared for the West Virginia Department of Transportation, Division of Highways, April 2015.

The Dominion News
1968 "Greer Limestone Co.," *The Dominion News*. June 16, 1968, page 4.

United States Geological Survey (USGS)

1997 Morgantown South, West Virginia topographic map, 7.5 minute quadrangle. United States Geological Survey, Washington, D.C.

West Virginia Division of Highways (WVDOH)

1990 *Bridge Inspection Report: Bridge 31A203 Aaron Creek Box Culvert*. On file at the West Virginia Division of Highways, Charleston, West Virginia.

2018 *Bridge Inspection Report: 31A203 Monongalia CR 857 over Aaron Creek*. On file at the West Virginia Division of Highways, Charleston, West Virginia.

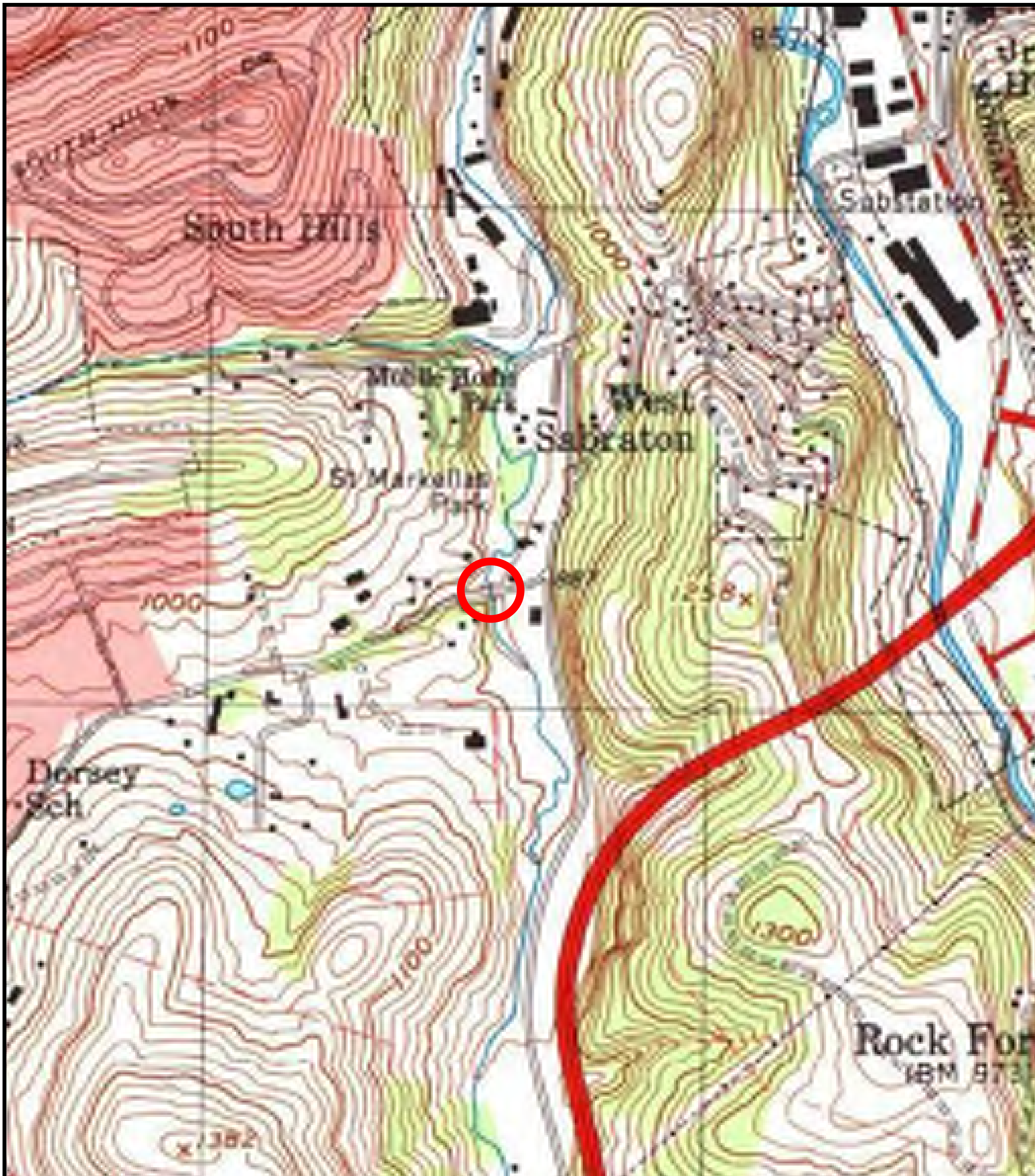
WEST VIRGINIA HISTORIC PROPERTY INVENTORY FORM
CONTINUATION SHEET

NAME **Aaron Creek Box Culvert** **SITE#** **MG-2666**

Photograph 1. Through view of culvert, facing southwest (Google Earth 2019)

Photograph 2. Through view of culvert, facing northeast (Google Earth 2019)

Photograph 3. South elevation of culvert, facing northeast (WVDOH 2018)



Feet

0 750 1,500

Legend

Location of Historic Structure

N W E S

USGS Map
MG-2666
Aaron Creek Box Culvert

MARKOSKY

Greenbag Road Improvement Project

Morgan District and
City of Morgantown
Monongalia County
Source: USGS 1997

*Not to scale	**Legend** Approximate Parcel Boundary	N W E S	**Site Map** MG-2666 Aaron Creek Box Culvert
MARKOSKY	Greenbag Road Improvement Project		Morgan District and City of Morgantown Monongalia County ***Source: Google Earth 2019***

Greenbag Road Improvement Project

Appendix F

Phase I Archaeology Report

FR #: ____________

REDACTED

GREENBAG ROAD IMPROVEMENT PROJECT
MONONGALIA COUNTY, WEST VIRGINIA

State Project # U331-857-0.67 00
Federal Project # STP-0857(019)D

PHASE I ARCHAEOLOGICAL SURVEY REPORT

ABBREVIATED TECHNICAL REPORT

Prepared for:

West Virginia Department of Transportation
Division of Highways

Prepared by:

Jessica L.S. Schumer, M.A., R.P.A.
Principal Investigator

And

Elizabeth Williams
Architectural Historian

October 31, 2019

ABSTRACT

The West Virginia Department of Transportation, Division of Highways (WVDOH) has proposed improvements to Greenbag Road in Monongalia County, West Virginia. The Markosky Engineering Group, Inc. (Markosky) conducted a Phase I archaeological survey for the project in order to ensure compliance with federal and state cultural resource regulations, including Section 106 of the National Historic Preservation Act (NHPA), as amended; the Advisory Council on Historic Preservation guidelines (36CFR§800); the National Environmental Policy Act of 1969; The Archaeological and Historic Preservation Act of 1974; and West Virginia State Code 29-1-8, and its implementing regulations, Title 82, Series 2: “Standards and Procedures for Administering State Historic Preservation Programs”. The survey was conducted in accordance with the West Virginia State Historic Preservation Office’s (WV SHPO) *Guidelines for Phase I, II, and III Archaeological Investigations and Technical Report Preparation* (Trader 2018). The project is within the Appalachian Plateau physiographic province. It is in the Monongahela River subbasin; it crosses Cobun Creek and abuts Aaron Creek. The project is mapped on the United States Geological Survey (USGS) Morgantown South, West Virginia 7.5 minute topographic quadrangle.

Because project design and frequent revisions to design was in progress during the Phase I archaeology fieldwork, an archaeological Area of Potential Effects (APE) was not yet able to be established for the project; therefore, a study area was delineated, that attempted to capture all permanent impacts and temporary work spaces needed during construction. The study area totals 19.96 ha (49.33 ac), of which 13.23 ha (32.70 ac) are previously disturbed, 2.40 ha (5.93 ac) are steep, 0.71 ha (1.76 ac) are saturated or are in stream beds, and 3.62 ha (8.94 ac) contained intact soils. Prior to the completion of this report, a preliminary APE for the project was established based on Preliminary Field Review Design from 3/29/2019. This report shows the results of the Phase I survey within the larger study area, as well as the preliminary APE.

The Phase I archaeological survey consisted of background research, field investigations, and the preparation of this report. There are no previously identified pre-contact or historic period cultural resources mapped within or immediately adjacent to the study area.

Phase I fieldwork was conducted between January 28 and March 21, 2019 and on October 8, 2019. In total, two hundred thirteen (213) shovel test pits and one (1) test unit was excavated within the study area. The Phase I survey did not identify any pre-contact or historic period archaeological resources within the study area or APE. The project as currently designed will not impact any archaeological resources eligible for or listed on the National Register of Historic Places (NRHP) and no further archaeological investigations are recommended.

FR# ____________

GREENBAG ROAD IMPROVEMENTS
MONONGALIA COUNTY, WEST VIRGINIA

State Project #: U331-857-0.67 00

Federal Project #: STP-0857(019)D

PHASE I ARCHAEOLOGICAL SURVEY

ABBREVIATED TECHNICAL REPORT

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October 31, 2019

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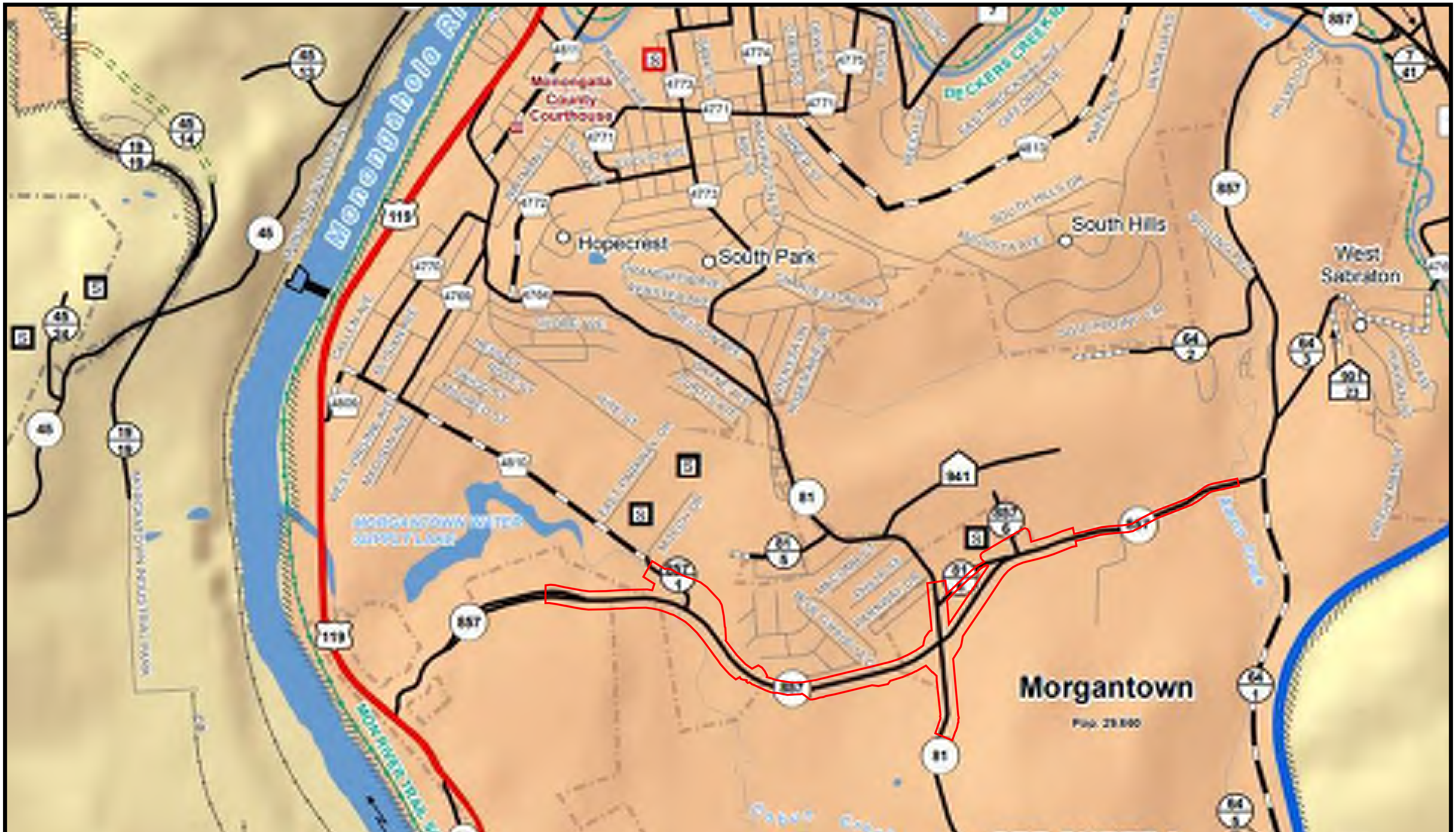
1.0 INTRODUCTION

1.1 Project Purpose

The Markosky Engineering Group, Inc. (Markosky) conducted a Phase I archaeological survey for the Greenbag Road Improvement Project (hereinafter, referred to as the Project) located southeast of the city of Morgantown in Monongalia County, West Virginia (**Figures 1 and 2**). The Phase I archaeological survey was designed and conducted to facilitate project compliance with state and federal legislation regarding cultural resources, including Section 106 of the National Historic Preservation Act (NHPA), as amended; the Advisory Council on Historic Preservation guidelines (36CFR§800); the National Environmental Policy Act of 1969; The Archaeological and Historic Preservation Act of 1974; and West Virginia State Code 29-1-8, and its implementing regulations, Title 82, Series 2: "Standards and Procedures for Administering State Historic Preservation Programs". The survey was conducted in accordance with the West Virginia State Historic Preservation Office's (WV SHPO) *Guidelines for Phase I, II, and III Archaeological Investigations and Technical Report Preparation* (Trader 2018).

1.2 Project Description

The Project begins 0.64 km (0.40 mi) east of the intersection of Greenbag Road (CR 857) and US 119 and ends where Greenbag Road crosses Aaron Creek. The overall roadway improvements include wider lanes and shoulders along with a dedicated center turn lane prior to the Mississippi Street (CR 857/1) intersection. A curb and gutter will be installed along the west side of Greenbag Road to help address drainage issues and to provide a sidewalk along the entire route to the Dorsey Avenue/Kingwood Pike (CR 81) intersection. In addition, the west side shoulder will be utilized as a bike lane for the corridor between the commercial district and the residential areas. The roadway will be improved to incorporate two 11-foot travel lanes, a 12-foot center turn lane, and curb and gutter on each side up to Mississippi Street. Between Mississippi Street and Dorsey Avenue/Kingwood Pike, the roadway will be improved to two 12-foot travel lanes and a 4-foot paved shoulder on the east side. A 3-foot paved shoulder with a 2-foot curb and gutter will be on the west side. A 5-foot concrete sidewalk will be located on the west side of Greenbag Road and connect with the sidewalk at Mountainview Elementary School. Both the Mississippi Street and Dorsey Ave/Kingwood Pike intersections with Greenbag Road are proposed to be reconstructed as single-lane roundabouts to provide for continuous traffic flow along the route and to increase the safety of the traveling public as they enter each intersection. The roundabouts will also be developed to allow the safe movement of pedestrians along the sidewalk on the west side of Greenbag Road and will include lighting on each approach to the roundabout. Additional work on Luckey Lane will improve the width of the travel lanes within the existing right-of-way and re-pave the length of the roadway between Greenbag Road and Dorsey Avenue. From the intersection of Greenbag Road and Jonathan Lane to the crossing of Aaron Creek the project will include roadside drainage improvements as needed to address stormwater run-off.



Feet
0 4000 8000
Meters
0 1200 2400

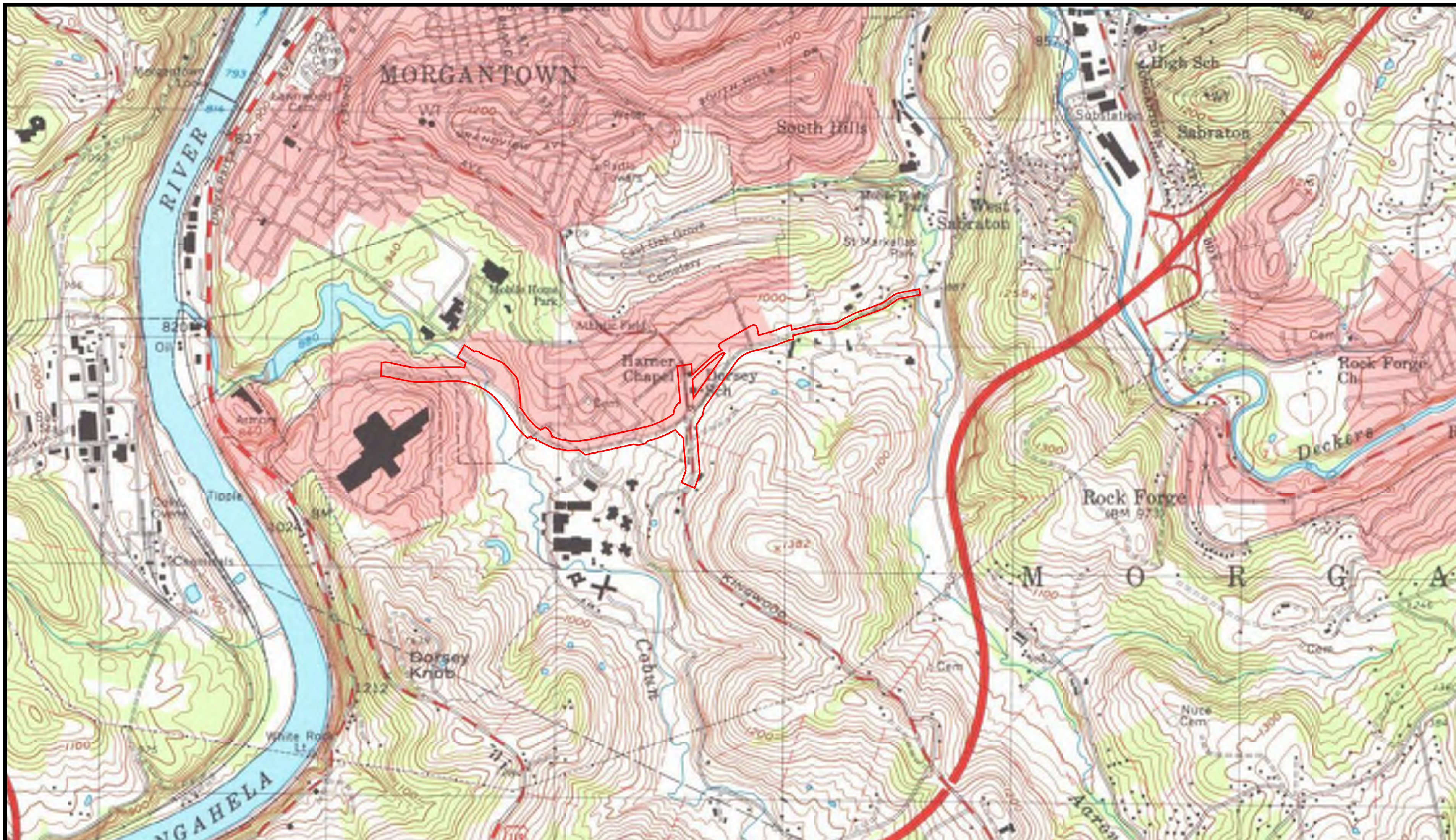
Archaeological Study Area

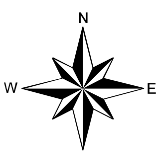
Figure 1
Project Location on a General Highway Map

MARKOSKY

Greenbag Road Improvement
Phase I Archaeological Survey
Abbreviated Technical Report

Monongalia County
Source: WV DOT 2018





Feet

0 2000 4000

Meters

0 600 1200

Archaeological Study Area

Figure 2
Project Location on a Topographic Map

Greenbag Road Improvement
Phase I Archaeological Survey
Abbreviated Technical Report

Monongalia County
Source: 7.5' USGS Topographic Quadrangle Morgantown South, WV 1997a

The work will require takes for right-of-way, temporary construction easements, and permanent drainage easements along the route. Traffic will be maintained during construction through the use of a maintenance of traffic (MOT) plan to minimize delays, maintain access to businesses and residences, and maintain safety for travelers and construction workers. The proposed MOT plan will include either the use of a detour on existing roads, temporary signals, or flaggers. Construction will be completed in multiple stages to allow for continued access through the intersection at Greenbag Road and Dorsey Ave/Kingwood Pike.

The project has state (State Project # U331-857-0.67 00) and federal (Federal Project # STP-0857(019)D) funding.

1.3 Study Area Description

Because design for the project was in progress at the time of the Phase I survey, a study area was created for the survey boundary. The study area is based on the limits of construction as of March 22nd, 2019 from the western extent of the project near Mountaineer Mall to Jonathan Lane, which was initially the eastern extent of the project. From the western extent to Jonathan Lane, the study area generally includes a 7.6 m (25.0 ft) buffer of the limits of construction, with a 15.2 m (50.0 ft) buffer at the Dorsey Avenue roundabout, and with no buffer in front of the Federal Correctional Institution, Morgantown Kennedy Center. Due to the continuous design changes and in coordination with the DOH, the study area boundary is meant to be larger than the final design in an attempt to capture all potential permanent and temporary impacts that would be part of an archaeological APE. Prior to the completion of this report, preliminary field review design became available and was submitted to the WV DOH on 3/29/2019. As per 36CFR§800.16(d), the APE is defined as, "the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties…". The APE that was created based on the 3/29/2019 preliminary field review design includes all areas of right-of-way, temporary construction easements, and permanent drainage easements. The intention of this report is to both provide the results of the full Phase I survey within the broader study area, as well as to provide the results of the survey within the APE based on the 3/29/2019 design. The body of this report will focus on the results of the survey within the broader study area; however, pertinent sections discuss the results specific to the 3/29/2019 APE. Prior to the completion of this report, the eastern extent of the project was extended to Aaron Creek on July 31, 2019. The study area was extended to include this area. From Jonathan Lane to Aaron Creek, the study area is defined by a 40-foot buffer from the existing centerline of Greenbag Road.

The project study area is located on the south side of the city of Morgantown, approximately 2.67 km (1.66 mi) from the city center. The eastern extent of the study area is 2.99 km (1.86 mi) west of the Census Designated Place (CDP) of Brookhaven. The western extent of the study area is 2.55 km (1.58 mi) east of the unincorporated community of Harmony Grove. It is mapped on the 7.5 minute United States Geological Survey (USGS) Morgantown South (USGS 1997a) West Virginia topographic quadrangle (see **Figure 2**).

The study area encompasses a total area of 19.96 ha (49.33 ac). Areas of excessively steep slopes, soils that show modern disturbance, and certain wet areas such as stream beds and small drainages have low or no potential for in situ archaeological deposits and therefore are not testable.

1.4 Current Investigations

Phase I archaeological survey fieldwork was conducted by Markosky between January 28 and March 21, 2019 and on October 8, 2019. The Phase I efforts were designed and conducted to determine if any potentially significant (i.e., eligible for listing on the National Register of Historic Places [NRHP]) archaeological resources are present within the established study area. Jessica L.S. Schumer, M.A., R.P.A. served as Principal Investigator. Ryan Rowles acted as QA/QC manager, assisted with cultural resources considerations of design changes, and provided technical guidance on the project. Scott Gajewski served as Field Director. Justin McKeel served as Field Director for additional survey efforts following design changes. Mr. McKeel also oversaw GIS work for the project. Sarah Baughman also conducted GIS work and created report figures. All project personnel meet or exceed the professional qualifications as specified for their positions in 36CFR§61. Resumes of key personnel are included in **Appendix A**.

At the time of the survey, the study area was characterized by areas of residential and commercial development, particularly on the north side of the study area and in the western half of the Project. Some undeveloped areas with small stands of trees and grassy fields are present in the eastern half of the study area, south of Greenbag Road. The survey identified that the majority of the study area was previously disturbed, sloped in excess of twenty percent, or within saturated areas or streams. **Table 1** summarizes the previously disturbed, sloped, wet, and intact portions of the study area. **Table 2** summarizes these areas within the APE (based on Preliminary Field Review Design as of 3/29/2019).

Table 1. Disturbed, Sloped, Wet, and Intact Portions of the Study Area

Soil /Surface Condition	Hectares	Acres	%
Previously Disturbed	13.23	32.70	66
Steep	2.40	5.93	12
Wet/Streambed/Drainage	0.71	1.76	4
Intact/Test Areas	3.62	8.94	18
Total	**19.96**	**49.33**	**100**

Table 2. Disturbed, Sloped, Wet, and Intact Portions of the APE*

Soil /Surface Condition	Hectares	Acres	%
Previously Disturbed	7.76	19.17	69
Steep	1.57	3.88	14
Wet/Streambed/Drainage	0.27	0.68	2
Intact/Test Areas	1.44	3.56	13
Not included as part of design as of 10/31/2019	0.16	0.40	2
Total	**11.20**	**27.69**	**100**

**Based on Preliminary Field Review Design (3/29/2019)*

Sloped areas were walked over to confirm that no archaeological resources were present at the modern ground surface, but because these areas have low potential for buried archaeological resources, no subsurface survey methods were employed on steep slopes. Wetland areas with gleyed or saturated soils were generally tested, since these areas may contain archaeological deposits despite being saturated at the time of the survey. Natural wetland areas may have been important resource areas during drier seasons in the pre-contact era, and some areas have more recently become wetlands, which might have been habitable in earlier times. Numerous split spoon auger borings and 4-in bucket auger probes were completed to verify the locations and delineations of previous disturbances. Areas that appeared to be undisturbed and relatively level (less than 20 percent slope) were surveyed via the excavation of two hundred thirteen (213) STPs and one (1) TU. No pre-contact or historic period archaeological resources of any kind were identified during the Phase I survey.

2.0 Environmental Background

2.1 Physiography

The study area is located in the Appalachian Plateau physiographic province (West Virginia Geological and Economic Survey [WVGES] 2017). The Appalachian Plateau province covers most of the western part of West Virginia on its southwestern orientation which extends from New York State to central Alabama. Within Monongalia County, the Appalachian Plateau is characterized by steep hillslopes and narrow valleys, with relatively flat, low floodplains and terraces along the Monongahela River (Wright *et al.* 1982:1). Elevations within the county range between 770.0 m (2,526.0 ft) and 241.7 m (793.0 ft), with the highest point near Sand Springs and the lowest on the Monongahela River in the northern part of the county (Wright et al. 1982:1).

The Appalachian Plateau province consists mostly of relatively flat rock formations, except on the eastern side where a sequence of folds and faults are present. The eastern portion contains the oldest rock formations dating from the late Ordovician through the Mississippian. The rest of the plateau consists of Pennsylvanian and Permian aged bedrock and is known for its mineable deposits of coal (WVGES 2017).

2.2 Bedrock Geology and Lithic Raw Materials

The study area lies in the greater Monongahela River valley in central Monongalia County. The underlying bedrock of Monongalia County is predominantly Pennsylvanian and Transitional Pennsylvanian/Permian, consisting almost exclusively of sedimentary rock. During the Carboniferous period, Late Mississippian sea regression resulted in low-lying, swampy terrain that persisted through the Pennsylvanian sub-period in West Virginia. This Pennsylvanian sub-period produced thick sedimentary deposits of non-marine sandstone, shale, and coal (McDowell and Blake 2011). The Pennsylvanian Conemaugh group is mapped at the extreme eastern end of the study area, consisting of cyclic sequences of mostly non-marine shale, siltstone, and sandstone, with thin limestone and coal deposits (WVGES 2011).

The majority of the study area is mapped as being underlain by the Quaternary Alluvium geologic unit (WVGES 2011). Millions of years after the Carboniferous period, the Pleistocene-age proglacial Lake Monongahela formed in the ancestral Monongahela River valley, potentially between 780 and 1,700 Ka BP (Marine and Donahue 2000:36). The fluctuating height of Lake Monongahela through time left behind alluvial and lacustrine deposits that have been mapped at nearly 30 m (100 ft) thick (Marine and Donahue 2000:32). The Quaternary Alluvium geologic unit consists of deposits of sand, gravel, silt, and highly clastic clay that, in the vicinity of the study area, were deposited as Lake Monongahela and extended up Cobun Creek and its tributaries.

In the vicinity of Morgantown, a variety of lithic raw materials would have been available for use as toolstone in lithic stone tool production, including Brush Creek Chert, Uniontown chert, and Ten Mile chert. Other non-local raw materials have been documented at archaeological sites in the Monongahela River drainage, including Kanawha chert, Brush Creek Hughes River chert, Shriver (Helderberg) chert, Huntersville chert, Upper Mercer chert, and Vanport (or “Flint Ridge”) chert, among others. These cherts occur variably as nodules, discontinuous lenses, and beds within marine and non-marine limestones in Pennsylvania, West Virginia, and Ohio.

Brush Creek chert originates from the Brush Creek limestone in the Conemaugh Group as part of the Casselman Formation (Vento and Donahue 1982:118; Holland 2003). The Pennsylvanian Conemaugh Group is the primary bedrock unit mapped in the Monongahela River drainage, from northern West Virginia into southwestern Pennsylvania and parts of southeastern Ohio. Given the widespread distribution of this chert, it is also quite variable. Brush Creek can be highly fossiliferous, though there are highly vitreous and glossy varieties of Brush Creek that do not contain fossils (Vento and Donahue 1982:118). In general, Brush Creek ranges from olive brown to light green, with light gray also common (Vento and Donahue 1982:118; Holland 2003:136). Brush Creek Chert should not be confused with the Brush Creek Hughes River Variety, a buff and porous variety, that is often light olive gray to honey colored (Boldurian 1985; Herbstritt 1981).

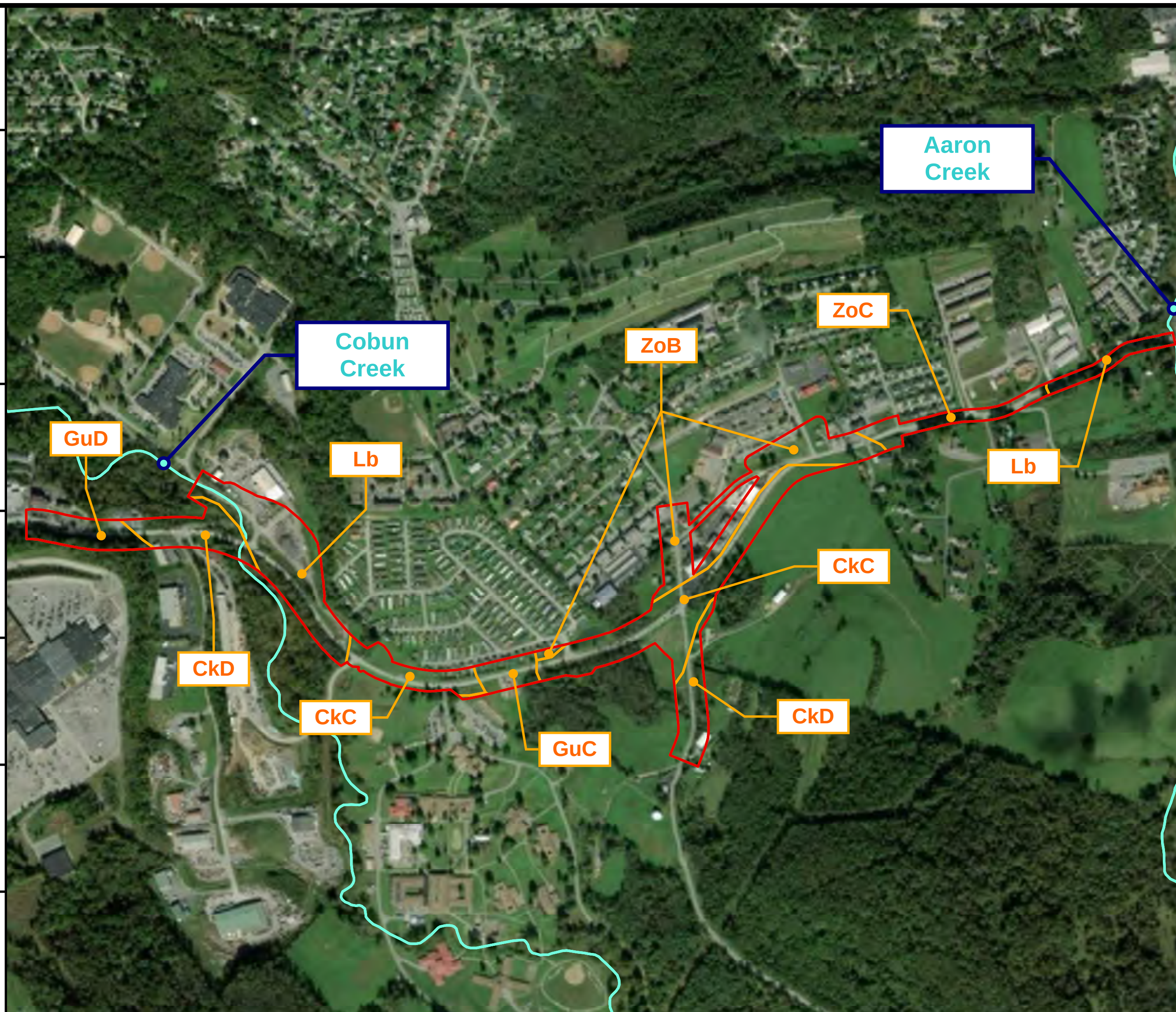
Uniontown chert occurs in marine limestones in the Uniontown Formation of the Monongahela Group. Uniontown is a tuberous nodular chert. Colors range from light/medium gray to dark yellowish brown, with yellow-streaked, dark red, and pale orange varieties (Eisert 1974, Holland 2003:136). When weathered, Uniontown is a yellowish-brown to gray. Fossils are abundant and a hallmark characteristic of Uniontown chert are the non-marine ostracods arranged *en echelon* (Vento and Donahue 1982:119). If not locally available in the nearby outcrops of the Monongahela Group, known sources have been documented in nearby Greene and Fayette Counties, Pennsylvania.

Ten Mile chert outcrops between the lowest member of the Permian Greene Formation and the upper member of the Washington Formation, both of the Dunkard Group, in northwestern West Virginia and southwestern Pennsylvania (Vento and Donahue 1982:118; Holland 2003). Ten Mile occurs as thin, discontinuous lenses and beds with a very restricted surface distribution. The color of this chert ranges from dark grayish brown to grayish blue, with a distinctive pale greenish-gray to grayish-white patina developing when weathered (Vento and Donahue 1982:118; Herbstritt 1981). Ten Mile Chert does not contain silicified fossils and it exhibits few inclusions, checks, vugs (crystal pockets), or incipient fractures (Vento and Donahue 1982:118).

2.3 Soils Mapped in the Study Area

Four principal soil units are mapped in the testable portions of the Greenbag Road study area with various slope ranges: Lobdell silt loam, Gilpin-Culleoka-Upshur silt loams, Clarksburg silt loam, and Zoar silt loam (**Figure 3**) (USDA, NRCS 2019). A general discussion of these soil units is included in this section. The soils mapped within each Test Area for the Phase I archaeological survey, are included in the Phase I Archaeological Results Section, below.

Symbol	Description
CkC	Clarksburg Silt Loam 8-15% Slopes
CkD	Clarksburg Silt Loam 15-25% Slopes
GuC	Gilpin-Culleoka-Upshur Silt Loams, 8-15% Slopes
GuD	Gilpin-Culleoka-Upshur Silt Loams, 15-25% Slopes
Lb	Lobdell Silt Loam 0-3% Slopes Occasionally Flooded
ZoB	Zoar Silt Loam 3-8% Slopes
ZoC	Zoar Silt Loam 8-15% Slopes



Feet
0 1200 2400

Meters
0 300 600

Archaeological Study Area
Soil Type Boundary
Stream

Figure 3
Soils in the Study Area

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Greenbag Road Improvement
Phase I Archaeological Survey
Abbreviated Technical Report

Monongalia County
Source: USDA NRCS 2019

On the floodplain of Cobun Creek, soils are mapped to the Lobdell silt loam (Lb) soil series. Lobdell silt loam is moderately well drained, fine loamy alluvium derived from sedimentary rock (USDA, NRCS 2019). Lobdell silt loam exhibits a typical profile of A-Bw-BC-Cg1-Cg2.

The other prominent mapped soils include Gilpin-Culleoka-Upshur silt loams (GuC and GuD), Clarksburg silt loam (CkC and CkD), or Zoar silt loam (ZoB). Gilpin-Culleoka-Upshur silt loams occur on ridge shoulders, backslopes, and summits, are well drained, and consist of fine-loamy to clayey residuum weathered from sedimentary rock (USDA, NRCS 2019). Gilpin-Culleoka-Upshur soils exhibit variable profiles that can be collectively generalized as Ap-Bt-C. Clarksburg silt loam occurs on hillslopes and hills, is moderately well drained, and consists of fine-loamy colluvium derived from sedimentary rock (USDA, NRCS 2019). Clarksburg silt loam exhibits a typical profile of Ap-BE-Bt1-Bt2-Btx-BC-C. Zoar silt loam occurs on terraces, is moderately well drained, and consists of old silty and clayey lacustrine deposits (USDA, NRCS 2019). Zoar silt loam exhibits a typical profile of Ap-BA-Bt1-Bt2-Bt3-Cg. Throughout the study area, these soil profiles are intermittently capped by various fill episodes.

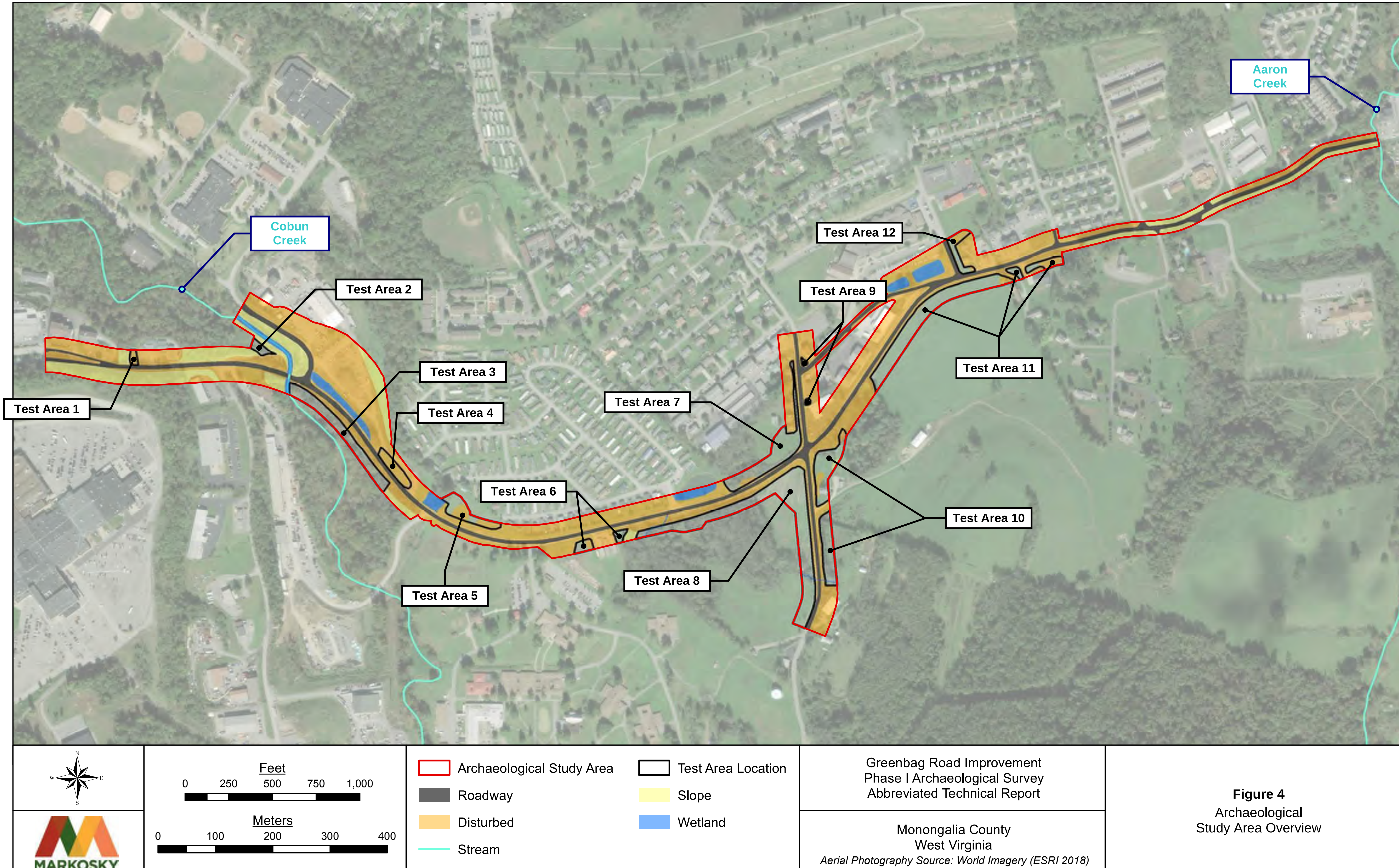
2.4 Drainage and Hydrology

The study area lies within the Monongahela River drainage basin, drained principally by Cobun Creek and its tributaries, as well as by Aaron Creek. Cobun Creek is a third-order perennial stream that meets the Monongahela River ca. 1.3 km (0.8 mi) northwest of the study area. Cobun Creek has been substantially altered by development within and around the study area. Most notably, approximately 300.0 m (984.3 ft) northwest of the study area, Cobun Creek is dammed to form the Cobun Creek Reservoir, a 40-million-gallon backup supply reservoir for the City of Morgantown, managed by the Morgantown Utility Board (Beard 2018). Aaron Creek is a second-order perennial stream that meets Deckers Creek ca. 1.70 km (1.10 mi) north of the study area. Aaron Creek has also been altered by development in the vicinity of the study area.

Within the study area, the unnamed, perennial, first-order tributaries of Cobun Creek also exhibit extensive alteration from development. A ca. 1990s man-made pond is located north of Greenbag Road, immediately west of Test Area 7 (**Figure 4**). This pond appears to have been constructed on a natural spring that now fills the pond. This spring and pond remain the source of an unnamed tributary that travels south from the pond beneath Greenbag Road via a culvert. Two other unnamed tributaries join this spring-sourced tributary in the vicinity of Test Area 8 of the study area (see **Figure 4**). These unnamed tributaries have been substantially re-routed by culverts and drainage ditches for improved agricultural field drainage and for improved drainage along Greenbag Road. From the vicinity of Test Area 8, these tributaries merge to form a single tributary that meets Cobun Creek ca. 460.0 m (1,509.2 ft) southwest of the study area.

2.5 Contemporary Flora and Fauna

West Virginia is the third most forested state, with 79 percent of the state covered by forest (USDA 2017), however, Monongalia County remains only 56 percent forested (Oswalt et al. 2017). The original forest cover of the study area in particular has seen extensive alteration from



Greenbag Road Improvement
Phase I Archaeological Survey
Abbreviated Technical Report

Monongalia County
West Virginia
Aerial Photography Source: World Imagery (ESRI 2018)

Figure 4
Archaeological
Study Area Overview

historic and modern clearance of the land for timber, agriculture, and subsequent commercial development. In regions where forest cover persists, the predominant forest type is oak/hickory, covering 74 percent of the forested land of the state (USDA 2016). Only very limited stands of forest are present in the study area, including stands of mixed hardwoods along Cobun Creek and its tributaries.

West Virginia hosts at least 70 different wild mammals, including predominantly the white-tailed deer, beaver, woodchuck, raccoon, porcupine, cottontail rabbit, river otter, gray squirrel, and opossum (WVDNR 2019a). Beavers, fisher otters, and river otters were once eradicated from the state, but were reintroduced in the early to mid-20th century. Elk, bison, and gray wolves were prominent and important mammals throughout the Holocene, but are no longer present in the state (WVDNR 2109a). Presently, West Virginia has more than 178 species of fish, 300 species of birds, and 57 species of reptiles (WVDNR 2019b), many of which were important resources in the pre-contact and historic eras.

2.6 Contemporary Climate

The study area is characterized by a fully humid, warm temperate climate with warm summers and cold winters (Köppen-Geiger climate classification Cfa) (Kottek et al. 2006). The average winter temperature is 32 degrees F. In summer, the average daily maximum temperature is 72 degrees F. Humidity is higher at night, with the average humidity at dawn being 80 percent. Heavy rain may occur at any time of year, but the severe summer thunderstorms sometimes cause flash flooding of narrow valleys. Rainfall is relatively evenly distributed throughout the year (Wright et al. 1982:2).

2.7 Contemporary Land Use

At the time of the survey, the study area was characterized largely by commercial and residential development and infrastructure (see **Figure 4**). Commercial businesses line large sections of Greenbag Road mostly on the northern side and in the eastern and western portions of the study area. A large trailer park is on the north side of Greenbag Road in the central portion of the study area and residences line the western side of Dorsey Avenue. Stands of trees cover areas of steep slope. Residences and unpaved areas between businesses are often characterized by grassy lawns. On the south side of Greenbag Road toward the eastern side of the study area, there are some areas of grassy meadows and agricultural fields.

3.0 CULTURAL BACKGROUND

3.1 Introduction

Background research was undertaken and included a review of the West Virginia Site Survey files located on the West Virginia State Historic Preservation Office's Interactive Geographic Information System map (WV SHPO GIS). In addition, a literature review including online resources, archaeological reports, publications, and historic-era maps of the study area and of Monongalia County were consulted to inform the pre-contact and historic context.

3.2 Previously Identified Archaeological Sites

A review of the West Virginia Division of Culture and History (WVDCH) site files accessed through the WV SHPO Interactive GIS Map indicated that no previously identified archaeological sites are located within the study area [redacted]

[redacted]

[redacted]

3.3 Pre-Contact Period

3.3.1 Paleoindian Period (16,000-10,000 Years B.P.)

The Paleoindian Period is identified as the earliest form of human habitation in the Mid-Atlantic and the broader Americas. Inclusive of both Pre-Clovis and Clovis cultures and technologies, the number of Paleoindian sites regionally are thin (Weed 2004), but are characterized by such sites as Meadowcroft Rockshelter (e.g., Adovasio et al. 1978; Adovasio 1993; Carr and Adovasio 2002), Shawnee-Minisink along the Delaware River (e.g., Gardner 1974), and Cactus Hill (McAvoy and McAvoy 1997), to name some of the most prominent. The Paleoindian period in West Virginia is significantly understudied. No radiocarbon dates for the period yet exist in the state. A comprehensive report of known Paleoindian artifacts from West Virginia was undertaken in 1967 (Broyles 1967). Another report was published recently (Rosencrance 2018).

Highly mobile, Paleoindian populations lived during the late glacial maximum (22,000-14,000 B.P.) and into the first major deglaciation of the ice sheet when rapid and extreme climatic change occurred at approximately 14,000-9,000 B.P., the most dramatic of which occurred at about 13,000 B.P. (Vento et al. 2008:14). This was followed by the Younger Dryas (approximately 11,000-10,000 B.P.) that illustrated a significant climate reversal from the previously warmer deglaciation phase. During this time, the “circumpolar vortex expanded equatorward while strengthening significantly and extending boreal conditions equatorward" (Fitting 1968; Ritchie 1979; Vento et al. 2008:15).

During the Late Pleistocene, West Virginia was characterized by boreal forests dominated by pine, spruce, and fir. At Cranberry Glades in West Virginia, Watts (1979) documented the transition of the environment from the boreal forest to one rich in more mesic or hardwood species shortly after 14,000 cal years B.P. After 11,600 cal years B.P., the environment shifted to a more xeric deciduous forest with oak, chestnut, and hickory (Watts 1979). The wooded settings allowed for a wide hunter-gatherer diet (MacDonald et al. 2003; Steegman 1983) of wild game fauna and botanical remains of wild plants and nuts, supported by even various early studies of Paleoindian sites (e.g., Carlisle and Adovasio 1982; Dent and Kauffman 1985).

Paleoindian populations made specific choices regarding "short-term" settlement. In western New York, evidence of Paleoindian activity is prominent on elevated locations, such as hills or knolls along major drainages (Ritchie 1980; Weed 2004:3-81), and specifically on the edges of marshes and the margins of paleo-period lakes. In Pennsylvania, Lantz (1985) noted a preference for first or second order streams, particularly "on small headwater runs" (Lantz 1985:177), similarly identified by MacDonald et al. (2003:31) as locations of short term encampments. Moreover, Weed (2004:3-82) notes in adjacent watersheds that lowland and upland settings are equally preferred. Most of the Paleoindian artifacts recovered in West Virginia have been found on terraces along the Ohio and Kanawha rivers systems. In part, the recovery of artifacts along these rivers may be related to greater modern development, but may also indicate the use of the river system as a travel route into the higher elevations to the east (Anderson and Gillam 2000; Rosencrance 2018:72). Late Paleoindian artifacts in West Virginia are reportedly recovered from the higher elevations of the eastern part of the state. This may indicate that the warmer climate in the early Holocene, created a biological setting in these upland areas that was more rewarding for foraging groups in this period (Rosencrance 2018:74).

The Younger Dryas was a time of more effective precipitation favoring active lateral channel migration and greater stream discharges. The basal sands and gravels that consistently underlie early Holocene age vertical accretion deposits date to the Younger Dryas (Vento et al. 2008:16). Vento et al. (2008) also suggests the renewed aggression of the rivers and streams during this time may in part be responsible for the scarcity of recorded Pre-Clovis and Clovis Period sites along low terraces, in reference to the discussion of settlement patterns above. In addition, many of these sites were prone to erosion during early Holocene flood events and subsequent smaller channel migration due to the height of the early Holocene terraces above the active river channels (Vento et al. 2008).

Paleoindian populations exhibit specialized craftsmanship in their lithic reduction, diagnostically producing large fluted points, unifaces and bifaces, and diminutive blades from cores via indirect percussion (Adovasio et al. 1998). The most recognized point of this period is the Clovis point, which has been found in West Virginia, most recently in Tyler and Randolph Counties (Rosencrance 2018:73). Paleoindian projectile points were often manufactured from high-quality, non-local materials (Carr and Adovasio 2002); however, local lithic resources of the period in West Virginia include Hillsdale chert and Kanawha chert (Brashler and Lesser 1990; Rosencrance 2018:74). Their toolkits also contained materials made from wood, bone, and included basketry (Adovasio et al. 1998).

3.3.2 Early Archaic Period (10,000-8,000 Years B.P.)

The transition of the Paleoindian into the Early Archaic was smooth, and specifically within the Appalachian Plateau, was a continuation of mobility patterns involving the selective use of habitat (Raber et al. 1998:126). Weed (2004:3-87) suggests the differences between the two periods likely only represents adjustments to the tool kit to accommodate an increasing variety of floral and faunal resources. Johnson and Siemon (1991) and Adovasio et al. (1998) would generally reflect this idea, but suggest a more gradual change “without significant discontinuities” (Adovasio et al. 1998:22), and the adjustments in the tool kit are more likely associated with the hunting of white-tailed deer. More broadly, this was also a time when the Younger Dryas was displaced by another abrupt warming phase beginning at about 10,000 B.P. (Vento et al. 2008:14), dominated by the modern-like Mixed Mesophytic forest (Carr 1998b). The resulting new forests were likely composed of more fir, white pine, oak, hemlock, alder, birch, and others (Vento et al. 2008:18). The coniferous forests that were in retreat contained few food resources, as compared to the nuts, berries, and herbs of the expanding deciduous forests (Stoltman and Baerreis 1983).

The Boreal Period (9,000-8,000 B.P.) marked a transition from the Pre-Boreal to the wetter Atlantic period, and illustrated warmer and drier conditions. At this time, the rivers in the region established a clear meandering channel habit (Vento et al. 2008:19). The basal sands and gravels of the Younger Dryas were overlain by variable finer grained overbank deposits. However, by the end of the Early Archaic, streams began to stabilize their courses, making some floodplain settings more habitable (Coppock et al. 2010).

In response to the environmental changes, as indirectly noted by Weed (2004:3-87) above, the transition into the Early Archaic period carried with it new point forms and styles including corner-notching and stems (Adovasio et al. 1998), some with deep lateral edge serrations (MacDonald et al. 2003:35). Groups began to become more dependent on more local lithic sources, such as Ten Mile, Uniontown, Monongahela, and Kanawha (MacDonald et al. 2003). Parallel to these shifts, some (Carr 1998b; Stewart and Kratzer 1989) suggest the region likely sustained a slight population increase during this period. However, this difference may also, in part, be due to a biased sample size due to certain landforms that were prone to increased erosion during the Younger Dryas in the Paleoindian Period.

Settlement patterns across the Plateau consisted of macro and microband base camps, hunting and gathering stations, and certain specialized site types (e.g., Adovasio et al. 1998). Base camps occurred along major and minor tributary drainages, while hunting and gathering stations were more widely distributed and not as closely linked to permanent water sources (Weed 2004:3-90).

3.3.3 Middle Archaic Period (8,000-5,000 Years B.P.)

Archaeologically, few differences distinctly characterize the Middle Archaic, and it was largely reflective of a continuation of the Early Archaic, including site frequency (Adovasio et al. 1998; MacDonald et al. 2003:41) and technological continuity (e.g., Stewart and Cavallo 1991). However, the greatest distinction of the Middle Archaic is often associated with the emergence of the bifurcate point bases (Carr 1998a; MacDonald et al. 2003; Weed 2004), which was a stylistic change that began emerging during the end of the Early Archaic. Marble (2011:49) notes the greater variety of grinding tools such as mortars and pestles indicate an increased reliance on plants in their diet and an expanded resource base.

This time is also marked by the wetter Atlantic Climatic Episode that emerged at approximately 8,000 B.P. and extended to 4,500 B.P. During this time, the pollen record for the Upper Ohio, upper and central Delaware, and Susquehanna River Drainage basins shows a rapid decrease in pine, but an increase in both oak and hemlock (Vento et al. 2008:19). Vento et al. (2008) also notes that if basal dates of 8,000 B.P. are present at a site location, then the paleosol is typically overlain by a thick package of fine grained overbank deposits of continuous (8,000-4,500 B.P.) low magnitude flood deposition. Regardless, long term stability of floodplains is evident through the Atlantic Period.

Base camps during the Middle Archaic are typically well positioned on Holocene-age river terraces, while smaller resource procurement stations for seasonal flora and fauna exploitation are located in upland settings (Cowin 1991; Weed 2004:3-107). Not surprisingly, then, lithic reduction stations are near bedrock outcrops (Funk 1991; Weed 2004). All of which is a settlement system that seems to parallel the stabilization of stream courses at the end of the Early Archaic (Coppock et al. 2010).

3.3.4 Late Archaic Period (5,000-3,000 Years B.P.)

Cyclonic storms increased in frequency after the Atlantic, and as early as 6,000 B.P. in the Middle Archaic, resulted in high alluvial deposition (Vento et al. 2008:22), which then continued into the Late Archaic. Stratigraphic evidence of coarse-grained vertical and lateral accretionary deposits is evident along first, second, and third order tributaries indicating the occurrence of large storms after 6,000 B.P. (Knox et al. 1981).

The decline of hemlock, then, during the Sub-Boreal (approximately 4,500-3,000 B.P.) indicates warm and dry conditions during this time (Turnbaugh 1977; Vento et al. 2008), which may also lend to the general absence of well-developed cumulic A-horizons and associated floodplain instability (Vento et al. 2008), which may also be recorded at Meadowcroft Rockshelter (Campbell et al. 2008).

Population increases are noted across the Middle Atlantic (Custer 1988). An increased availability of resources stimulated population growth, increased the use of subsistence and settlement patterns, and began to lead the way to widespread regional exchange networks (MacDonald et al. 2003:49). Resource exploitation became well defined (e.g., Cowin 1991;

Raber 1995) and riverine resources are well used (e.g., Lothrop 2001) and perhaps preferred (Weed 2004). Smaller hunting and extractive camps utilized a wider range of landforms and focused on the more seasonally diffuse or restricted resources in the hinterlands on small streams, adjacent to marshes, and near large springs in the uplands (MacDonald et al. 2003; Ritchie 1980; Weed 2004).

Certainly a major hallmark of the Late Archaic is the appearance of the Brewerton projectile point in combination with the onset of the Laurentian Tradition (Cowin 1991; Dragoo 1959; Justice 1987:115; Weed 2004:3-117), among others, such as Steubenvilles and Lanceolates (MacDonald et al. 2003:49-50).

The ending dates for the Late Archaic are highly variable due to the varying opinions on how to define and separate the continuum of human behavior that in some ways better parallels earlier Archaic periods in addition to what is typically associated with increasingly Woodland sedentism. The transition of activities is very complex during this time, and some have attempted to define a Transitional Archaic. For simplicity purposes, and in the face of variable opinions based on yet lacking firm evidence with a larger dataset to counter otherwise, the Late Archaic is defined here as ending at about 3,000 B.P., or the end of the Sub-Boreal. However, for example, MacDonald (2000) would argue the Late Archaic ends at 3,800 B.P. and Raber (1985:31) at one point noted a Terminal or Transitional Period ranging from 3,800-3,000 B.P.

3.3.5 Early Woodland Period (3,000-1,900 Years B.P.)

The Early Woodland Period represents an increased sedentary lifestyle and is illustrated by longer periods of site use (Marble 2011; Mouer 1990). However, communities are not yet fully sedentary, but remain semi-sedentary (Stewart 2003:7) and should be more accurately identified as being a dominant hunter-gatherer society (Clay 1991). The foods that were hunted and gathered are little different from those that were sought during the Archaic; however, some plant experimentation and limited cultivation occurred (McConaughy 2015), but at no greater extent than some early horticultural practices and it is unclear if subsistence crops were yet grown in any quantity to supplement the wild food diet.

Some widespread trade and exchange networks have been proposed between regions (Stewart 1989; Stewart 2003), the data of some extending from burials (Klein 2003:124). Adovasio et al. (2003) suggest the squash seeds and maize that appear at Meadowcroft Rockshelter are non-native cultigens, which is suggestive of regional interaction. Regardless, experimentation on the domestication of various plant species occurred through conscious and unconscious selection of attributes that were favorable (King 1985), gradually gaining greater importance through the Early Woodland (Clay 1991). During this time, the mean climate abruptly shifted at the beginning of the Early Woodland (approximately 3,000 B.P.) to a warm and moist climatic condition, beginning the Sub-Atlantic (3,000-1,750 B.P.) (Vento et al. 2008).

Another hallmark of the Early Woodland is the appearance of elaborate burial mounds for higher status individuals, which appeared during the Cresap phase (2450-1950 B.P.) (McConaughy 2015), and are associated with the Adena culture (Weed 2004). Although not greatly widespread nor as prominent in portions of Pennsylvania and West Virginia (Dragoo 1963), the mounds represent a shift in mortuary practices and likely belief systems, most frequently occurring on alluvial terraces of major streams and rivers, while resource extraction camps were typically located in the uplands and along smaller streams (MacDonald et al. 2003:69; Schweikart 1998). New point typologies also appeared (Adovasio et al. 1998), and both Flint Ridge and Upper Mercer cherts were commonly used by the Adena for ceremonial tool production (MacDonald et al. 2003).

3.3.6 Middle Woodland Period (1,900-1,100 Years B.P.)

The warm and moist Sub-Atlantic ended around 1750 B.P. and transitioned to a cooler and moister Scandic (1750-1200 B.P.), which effectively halted A horizon development due to large frequent floods. Instead, rapid vertical accretion, illustrated through poorly developed B horizons and coarse grained C horizons, occurred on low terraces in the region (Vento et al. 2008:23). Archaeologically, little is known of the Middle Woodland Period in West Virginia due to the paucity of excavated sites that provide chronological anchoring. Much of what is known is pulled regionally from intensive excavations of sites specifically identified as Hopewell, and although lean on their own, research in the Susquehanna River Valley and in the Piedmont. Although far greater in socioeconomic and cultural complexity than currently known, the most accurate characterization of the Middle Woodland in the project area is to describe it is a continuation of trends that were initiated during the Early Woodland. Adovasio et al. (2003) view the identification of the transition of Early to Middle Woodland in degree rather than kind. These trends consist of increased sedentism, burial ceremonialism, the increased importance of cultigens, and interregional exchange (MacDonald et al. 2003:87); however, the degree to which any single group participated in networking and trading is extremely variable (Stewart 2003:12).

In the lower and middle Ohio River Valley, the Hopewell cultural influence was dominant and clearly influenced portions of the Upper Ohio Valley, as well (MacDonald et al. 2003). Ceramic styles and forms became increasingly variable, were constructed better, and became more decorative (McConaughy 2000 in MacDonald et al. 2003; Marble 2011). Chipped stone technologies included the appearance of Raccoon-notched and Snyders points, and in addition, increases in ground stone tools indicated an increasingly diverse diet (Mayer-Oakes 1955). However, a majority of sites are indicative of small base camps (e.g., Marble 2011; Stewart 2003), and may indicate smaller kin groups were traveling together. Stewart (2003:24) suggests farming practices are more efficient and less expensive when combined with hunting and gathering in small family groups.

3.3.7 Late Woodland Period (1,100-400 Years B.P./Late Prehistoric A.D. 1600-ca. 1750)

The Period begins with the return to the warm and moist conditions of the Neo-Atlantic (1100-750 B.P.), and ends with the Pacific (700-400 B.P.) that reversed the climate back to cooler and moister conditions similar to those in the Middle Woodland (Vento et al. 2008).

Settlement patterns are increasingly evident on lowland settings due to the increasing dependence on diverse agricultural production with accompanying needs for reliable water supply and fertile soil (Weed 2004). Permanent villages are more frequently established that are more focused on domesticated and grown foodstuffs (Marble 2011:85). Interestingly, pollen studies from alluvial contexts indicate high percentages of grass, vetch, and Chenopodium sp. occur in alluvial deposits less than 2,000 years old, which are plants often associated with disturbance events. These events may be the result of cultural alteration of the natural floodplain or natural deforestation associated with burning, clearing, and cultivating forest space prior to European cultivation (Gooding 1981; Scully and Arnold 1981), often appearing as charcoal flecking in late Holocene deposits (Vento et al. 2008).

The Monongahela culture was dominant in northern West Virginia, and adjacent areas of Ohio, Pennsylvania, and Maryland (MacDonald et al. 2003:95). Ceramic diversity continued and food sources became increasingly diverse. Diagnostic ceramic types are often thin, cord-marked and grit-tempered (Marble 2011; Mayer-Oakes 1955). Projectile point styles and forms continued to evolve dramatically, and triangular points such as Levanna and Madison are a common indicator of Late Woodland Period occupation.

Stockaded fortifications are recorded at a high number of village sites, indicating defensive measures used to protect themselves from attacks. Some of these villages, such as the Johnston site along the Conemaugh River (e.g., Chiarulli and Neusius 2010; Dragoo 1956), indicate multiple episodes of reconstructed walls. Smaller camps and procurement sites served as specialized function with multiple periods of reuse (Custer 1996).

3.4 Historic Overview of the Study Area

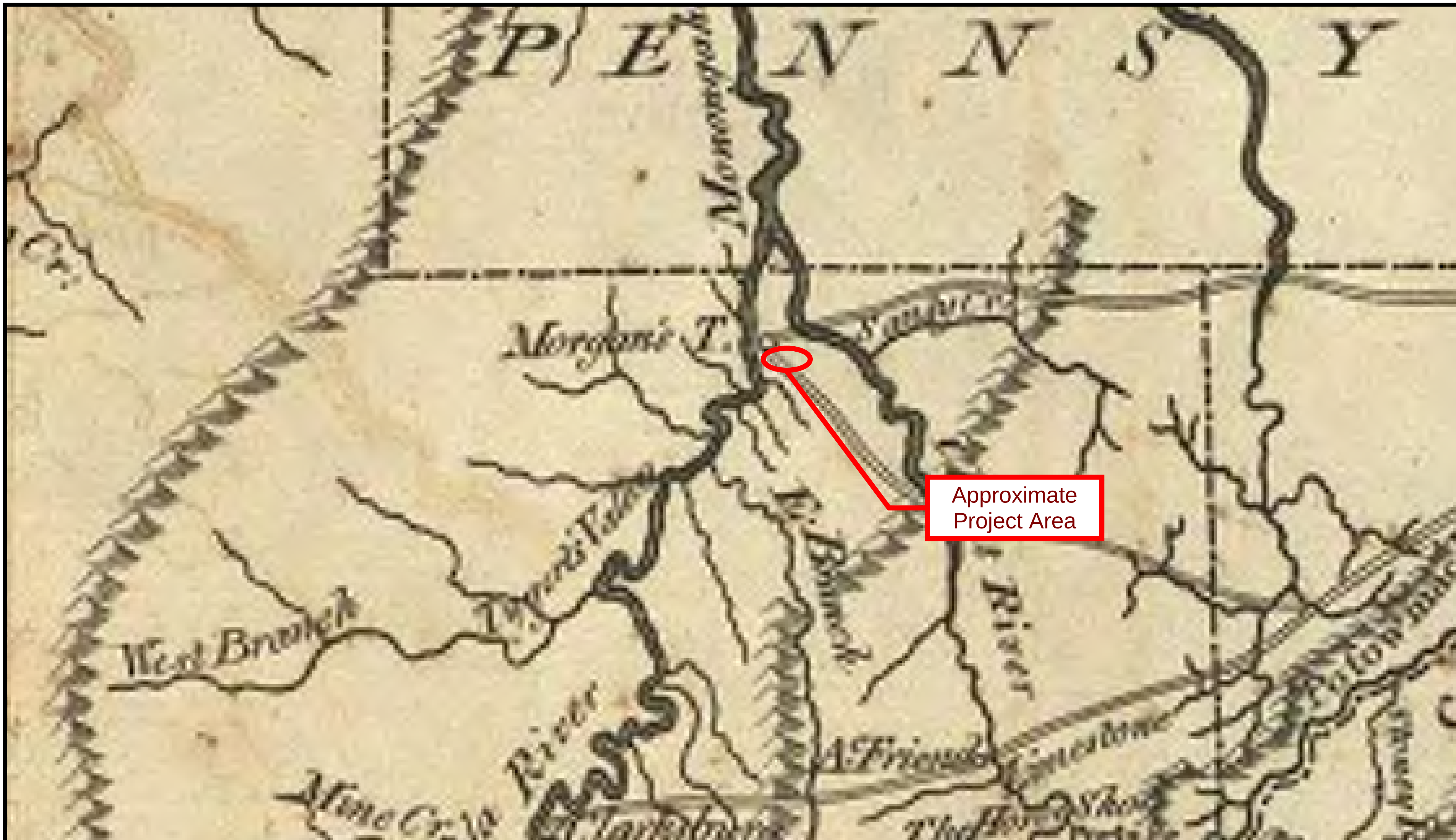
The study area vicinity historically comprised rural farm land owned by a handful of families who settled in the area in the early to mid-19th century. Greenbag Road was constructed in the early 1960s by the Green Bag Cement Company as a bypass road south of Morgantown. Today, the area is characterized by early twentieth century farms and residences; mid-century and non-historic residential development; the FCI Morgantown Kennedy Center complex, a minimum security prison built in 1968 as a juvenile detention center; and large scale commercial and industrial development including the Mountaineer Mall constructed in 1974.

The first Euro-American settlers arrived in the vicinity of the study area and modern day Morgantown in 1758 when Tobias Decker, along with 50 other pioneers, built a rudimentary settlement near Morgantown at the confluence of Deckers Creek and the Monongahela River approximately 2.66 km (1.65 mi) northwest of the study area. This area of what was historically northwestern Virginia and southwestern Pennsylvania was still highly contested between pioneer settlers and Native Americans. When Decker's settlement was raided in 1766, its residents were dispersed to other nearby settlements. That same year, Zackquill Morgan and his brother David registered a land claim and attempted to establish a settlement in the vicinity of what would become Morgantown. Virginia and Pennsylvania also had a longstanding dispute concerning the exact location of Pennsylvania's southern and western boundaries (Carvell 2018).

During the late 18th century, small stockades and forts were established throughout southwestern Pennsylvania and northwestern Virginia as reinforcement for pioneer settlers. Among these strongholds was Coburn's Fort located approximately one mile southwest of the study area, east of the Monongahela River. The fort was established by Jonathan Coburn who arrived in the area around 1770 (Muttillo and Blosser 2018). It is said that the meeting for the organization of Monongalia County was held at Coburn's house in 1776 (Core 1976:379-380). Monongalia County was formed from what was historically known as the Western Augusta district on the western frontier of Virginia. The district had been formed in 1775 and the following year was divided into three counties: Monongalia, Yohogania, and Ohio. Monongalia County, at that time, included land that now constitutes counties in modern day northern West Virginia and southwest Pennsylvania (Carvell 2018). Monongalia County would later become known as the "mother county" of northern West Virginia as so many counties were formed from it (Monongalia County Commission 2018).

Around the time of the formation of Monongalia County, the path of modern day Kingwood Pike was cut through the local wilderness. The road, later referred to as the Morgantown, Kingwood, and Evansville Pike, intersects modern day Greenbag Road within the study area and is noted as the oldest road in Monongalia County in Wiley's *History of Monongalia County, West Virginia* (Wiley 1883:653). The road was established as a pack horse road between 1772 and 1776. Settlers used the road to transport salt and iron from Winchester, Virginia into Monongalia County. The road later provided access to land further west in Ohio (Wiley 1883:536). No discernable structural remains of the turnpike appear to exist in the study area. Around 1783, Zackquill Morgan received a land grant of 400 acres and hired a land surveyor to divide 50 acres along the Monongahela River into lots and lay out streets. Morgan's Town (or Morgantown, as it later became known) was established by an act of legislation in 1785. A stipulation of the purchase of a lot in Morgan's Town was that a structure was to be constructed within five years. This encouraged development and deterred absentee landowners, a problem which often plagued early pioneer settlements (Monongalia County Commission 2018; Carvell 2018; WVGenWeb 2010).

In 1793, the *Pittsburgh Post-Gazette* began newspaper delivery to Morgantown which prompted the construction of an early north-south route between the communities. This, in addition to the discovery of iron ore in the nearby ridges, helped to jumpstart growth in Morgan's Town (WVGenWeb 2010). A 1795 map of Virginia illustrates Morgan's Town on the east bank of the Monongahela River, as well as the general vicinity of the study area (**Figure 6**). Two established roads are illustrated leading to Morgantown from Maryland; the road traveling southeast of Morgan's Town is likely modern day Kingwood Pike. No other settlements are indicated in the



*Not to Scale.

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Figure 6
Approximate Project Area in 1795

Monongalia County
West Virginia
Source: Lewis 1795

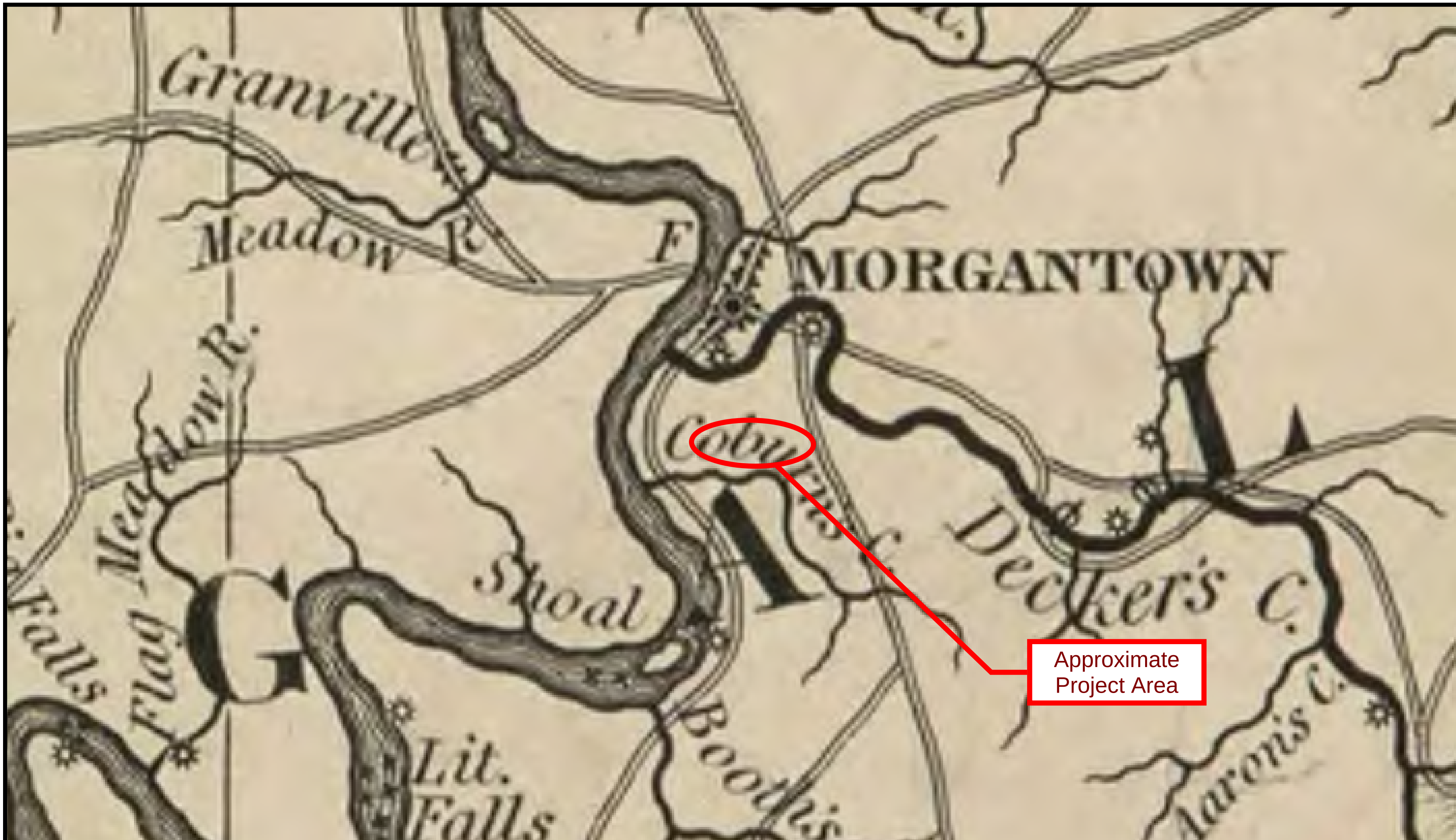
area, and the closest identified towns were Pittsburgh, Pennsylvania to the north and Fort Cumberland, Maryland to the east (Lewis 1795).

In 1803, Jonathan Coburn sold his property southwest of the study area to George Dorsey who moved to the area from Elk Ridge, Maryland, a suburb of Baltimore. The natural rock formation on the property became known as Dorsey's Knob and functioned as a tourist attraction beginning in the late 19th century. An 1827 map of Virginia shows the early development around the study area and Morgan's Town, labeled at this time as Morgantown (**Figure 7**). A larger network of early roads is illustrated around Morgantown, while grist mills and iron furnaces were situated along the rivers and smaller streams. Two grist mills and two iron furnaces are illustrated along Deckers Creek (Boye 1827).

Agriculture and iron industries sustained the economy of Monongalia County into the middle of the 19th century. Morgantown was formally incorporated in 1858. Monongalia County supported the Union during the Civil War and Morgantown was briefly raided in 1863, the same year West Virginia acquired its statehood (Carvell 2018). After West Virginia was formed, the Morrill Act of 1863 awarded Morgantown a land grant for a college. Morgantown was considered a favorable location due to the existing academic buildings of the Monongalia Academy (established in 1814) and the Morgantown Female Collegiate Institute (established in 1831). The West Virginia Agricultural College was organized in 1867 and the following year the name of the college was changed to West Virginia University, as it is known today (Carvell 2018).

White's *Topographical County and District Atlas of West Virginia* of 1873 shows a general overview of the study area and nearby Morgantown (**Figure 8**). The road network around Morgantown continued to develop and numerous small communities with established post offices surrounded the city. The county was divided into districts by this time and the study area was illustrated within the Clinton District, although subsequent maps and historical narratives indicate the area encompassing the study area was located within the Morgan District to the northeast. Kingwood Pike is illustrated traveling southeast from Morgantown along the border of the Morgan and Clinton Districts (White 1873).

In 1886, the Fairmont, Morgantown, and Pittsburgh Branch of the Baltimore and Ohio (B&O) Railroad was constructed to Morgantown. The line was eventually constructed to Connellsville, Pennsylvania, providing service from Morgantown to Pittsburgh and Cumberland (Carvell 2018; Frey 2018). An 1886 map of Monongalia County including the Morgan District illustrates the study area and Morgantown (**Figure 9**). The orderly grid of Morgantown is illustrated on the east bank of the Monongahela River. The Fairmont, Morgantown, and Pittsburgh Branch of the B&O Railroad is illustrated traveling along the east bank of the river to its terminus in the southwestern area of the city. The alignment of Kingwood Pike is illustrated traveling through the study area. The Dorsey School House No. 1, the original school building on the site which has since been replaced by a ca. 1920 building, was at this time located at the intersection of Kingwood Pike (labeled on the map as the Kingwood, Morgantown, and West Union Turnpike) and modern day Luckey Lane. No existing road following the modern path of Greenbag Road existed at this time. Members of the Dorsey family were still living in the vicinity of Dorsey's



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*Not to Scale.

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Figure 7
Approximate Project Area in 1827

Monongalia County
West Virginia
Source: Boye 1827

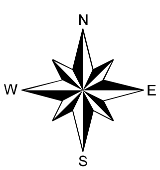

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Figure 8
Approximate Project Area in 1873

Monongalia County
West Virginia
Source: White 1873

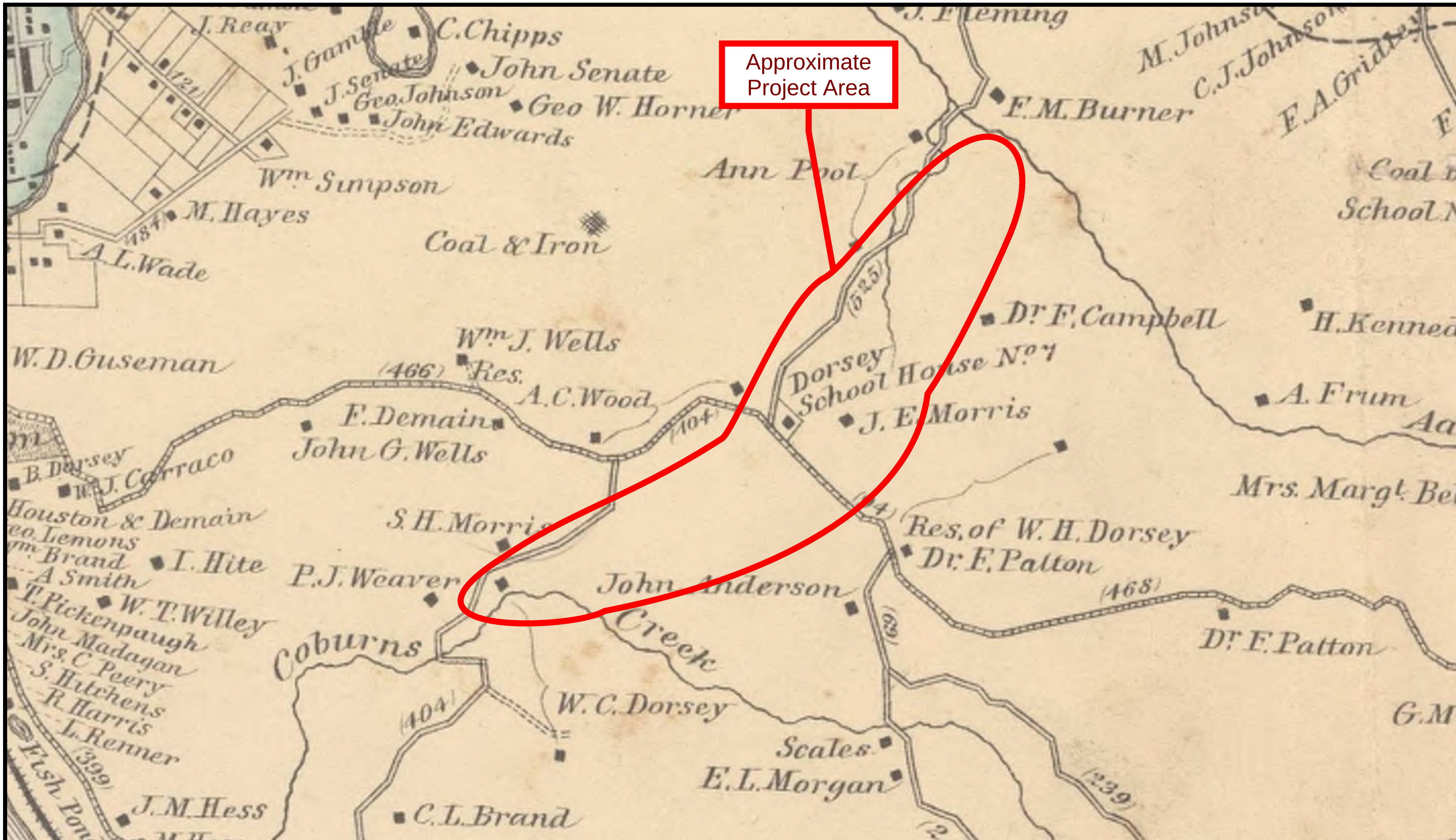

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Figure 9
Approximate Project Area in 1886

Monongalia County
West Virginia
Source: Lathrop 1886

Knob southwest of the study area. Other surnames in the immediate vicinity of the study area include Anderson, Morris, Patton, and Wood (Lathrop 1886).

Oil was discovered in central Monongalia County (northwest of the study area) in 1889 which prompted an oil boom throughout the county. The Eureka Pipeline Company, a subsidiary of Standard Oil of Ohio which was founded by John D. Rockefeller, was organized in 1890 to transport oil extracted in West Virginia via pipelines. The company acquired a large amount of land along Coburn Creek (referred to presently as Cobun Creek) northwest of the study area and south of Morgantown for a pumping station and storage tanks to hold oil waiting for transport. Eight tanks were constructed by the end of 1890 and seven more were proposed for the following year. Each tank held approximately 25,000 to 30,000 barrels of oil (Core 1982:143-144). Two photographs from 1895 show a collection of oil tanks south of Morgantown dotting the rolling landscape of rural Monongalia County (**Figures 10 and 11**). The close of the 19th century also saw the first coal mines opened in Monongalia County. With an established railroad network and the discovery of the lucrative Pittsburgh Coal Seam in central and eastern Monongalia County, mining companies and workers were drawn to the area (Carvell 2018).

The storage tanks of the Eureka Pipeline Company are illustrated as dots northwest of the study area on a 1902 topographic map (**Figure 12**). The oil tanks were located to the southwest of modern day Dorsey Avenue and mostly north of Cobun Creek. In the vicinity of the study area, a few dwellings were scattered along the existing road network although the area was rural and largely undeveloped. Dorsey Knob is illustrated south of the APE; it was by this time a local tourist attraction and popular picnic spot (USGS 1902). In 1909, the organization of a chapel was proposed after several successful Methodist revival meetings were held at the Dorsey School House. As a result the MG-1332 / Harner Chapel was constructed opposite the school on the north side of Luckey Lane, east of Dorsey Avenue. The chapel was formally dedicated in 1914. The land for the chapel was donated by Fairchild Harner, who owned land in the vicinity of the APE, as well as elsewhere in Monongalia County (The Monongalia Historical Society 1954).

A 1925 topographic map shows additional oil storage tanks constructed within and surrounding the western limits of the study area (**Figure 13**). Morgantown continued to expand to the southwest nearer to the study area. Kingwood Pike was signed as a highway by this time. A church (Harner Chapel) and school (MG-2651 / Dorsey School) are labeled at the intersection of Dorsey Avenue and Luckey Lane, although they are not named as were other churches and schools in the vicinity. The school illustrated on the map is likely the existing ca. 1920 Dorsey School standing at the intersection today. An early road alignment in the vicinity of what would become Greenbag Road is illustrated west of the study area and through the oil tank field (USGS 1925). As Morgantown advanced into the middle of the 20th century, its economy was sustained by the established coal industry which saw a boom during both World Wars. Agriculture supplemented the economy of the county. West Virginia University doubled its enrollment after World War II and the campus expanded rapidly in response (Carvell 2018). While development within Morgantown was steady, little change had taken place in the vicinity of the study area by the middle of the 20th century. A 1957 topographic map shows that some

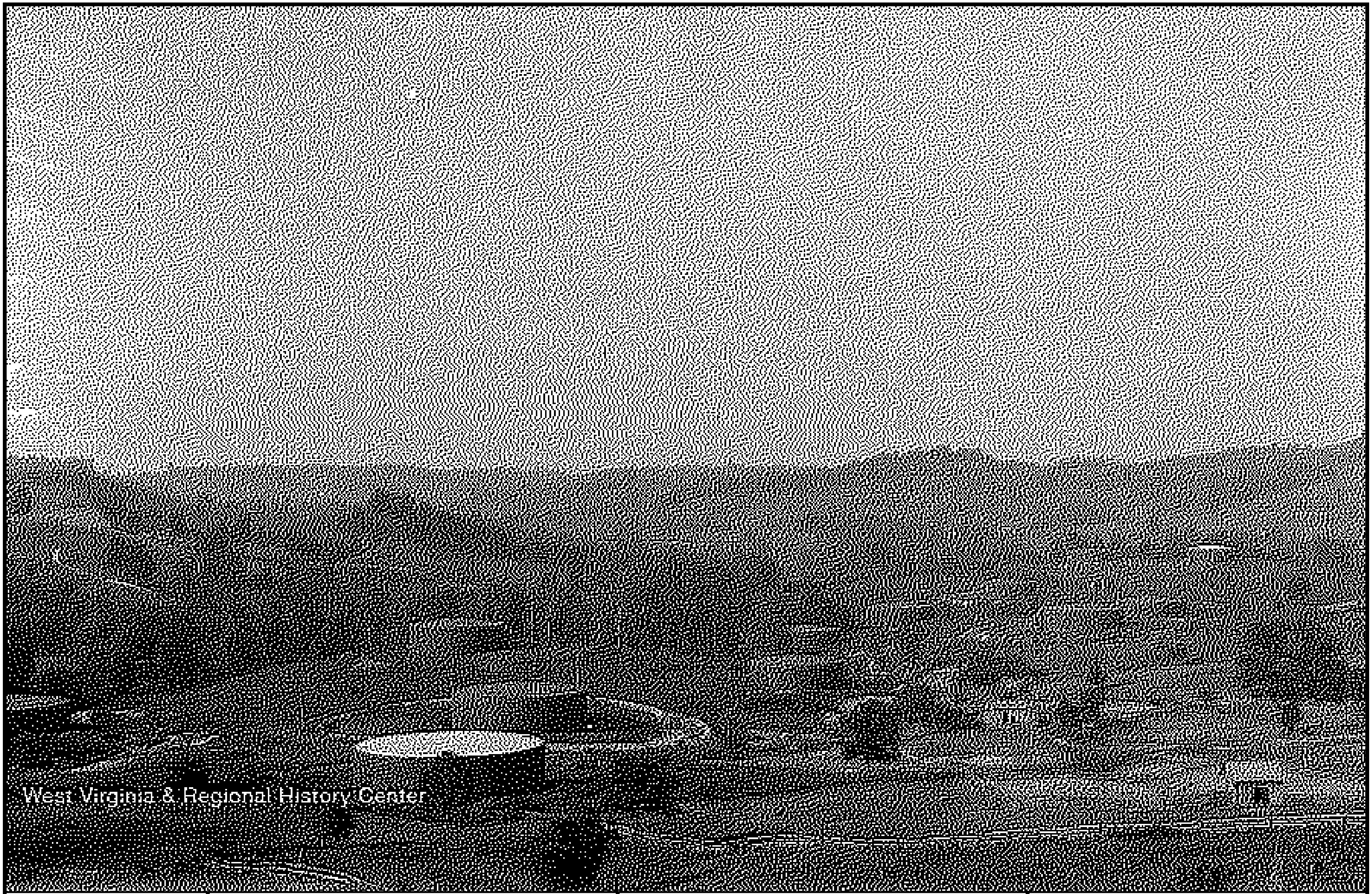

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Figure 10
Oil Tanks South of Morgantown ca. 1895

Monongalia County
West Virginia
Source: WVU 1895a

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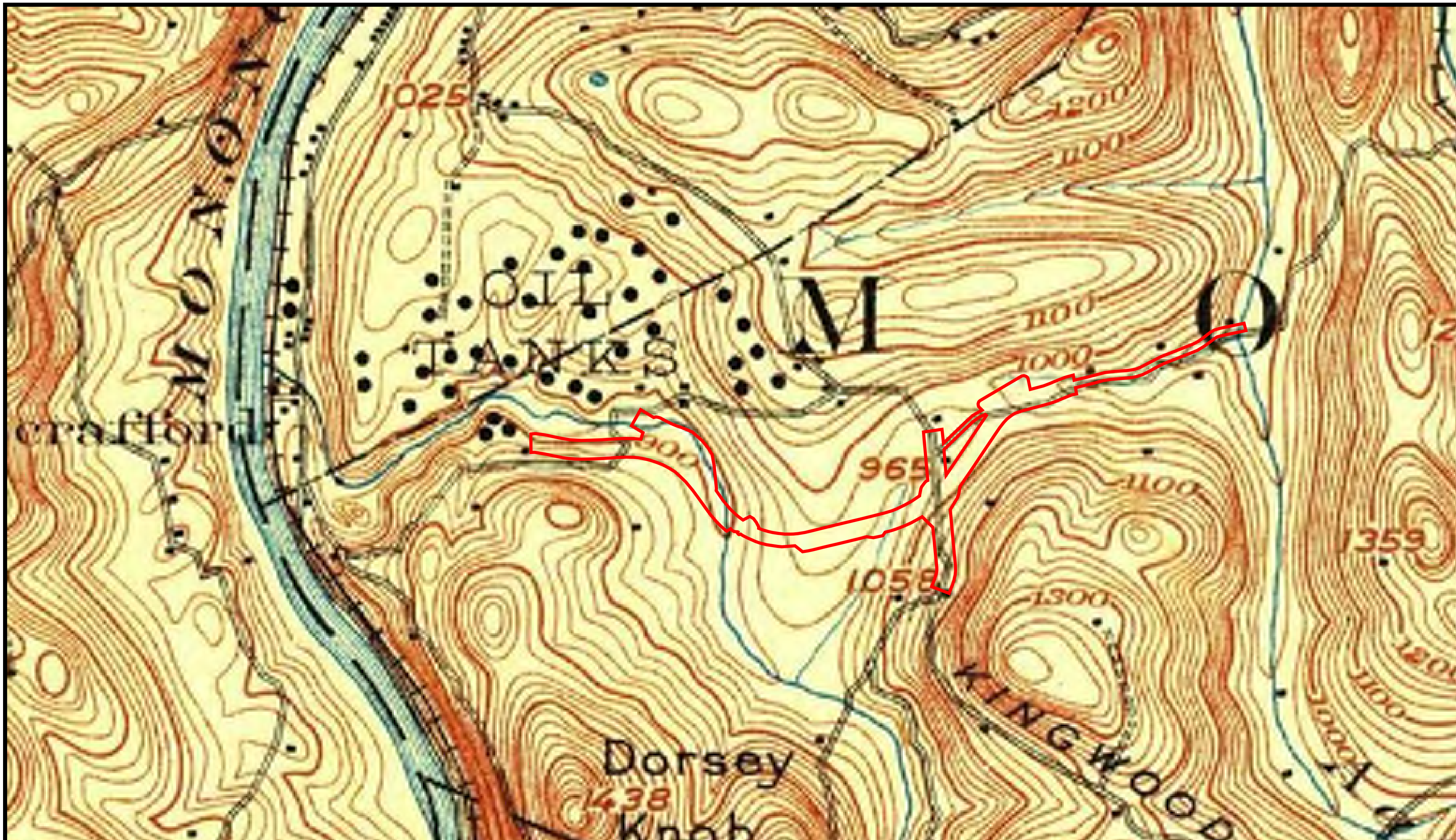
Figure 11
Oil Tanks South
of Morgantown ca. 1895

Monongalia County
West Virginia
Source: WVU 1895b



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Feet

0 1500 3000

Meters

0 450 900

Archaeological Study Area

Figure 12
Archaeological Study Area in 1902

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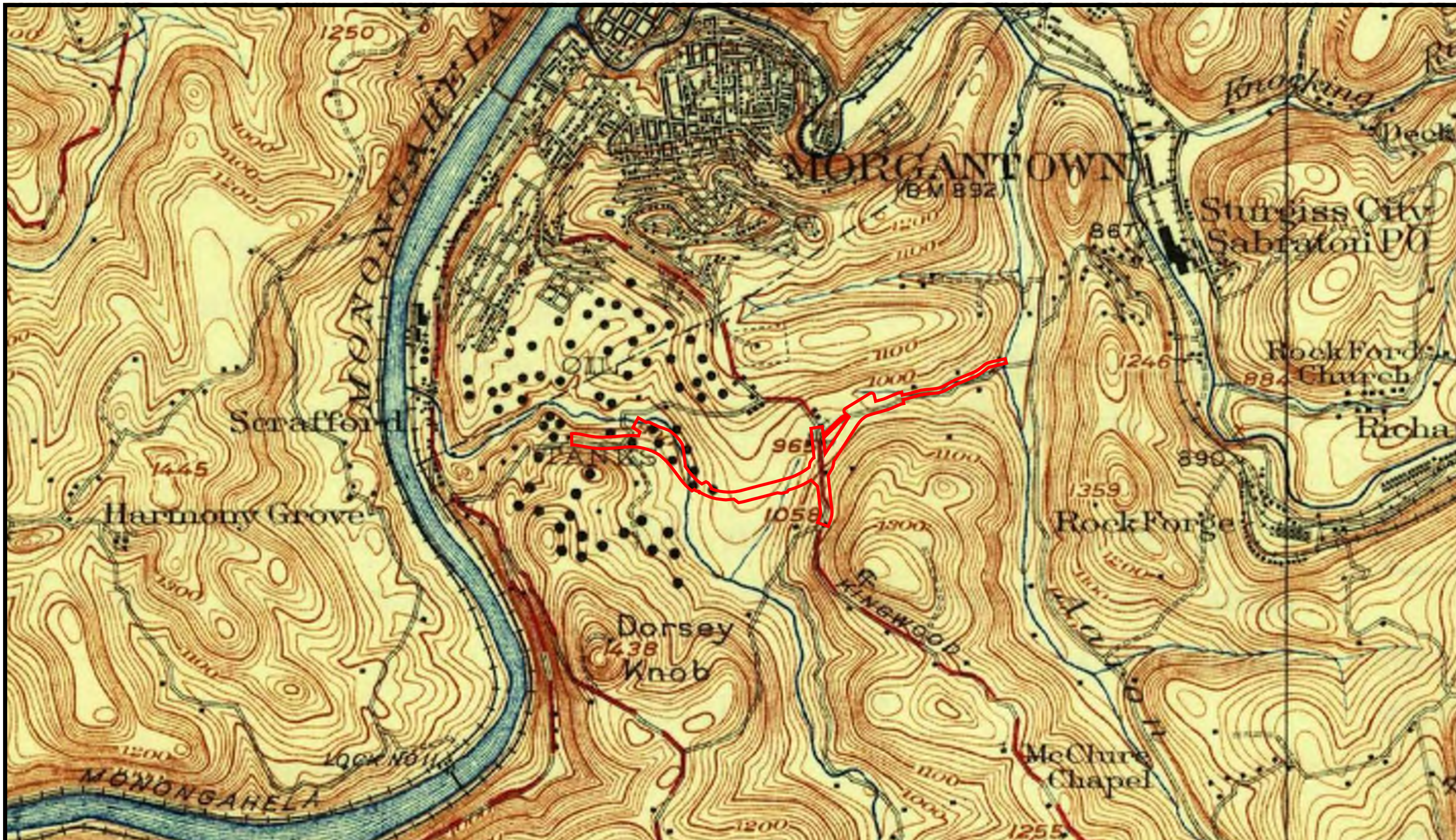
Morgan District and City of Morgantown
Monongalia County
Source: 15' USGS Topographic Quadrangle Morgantown, WV 1902



N S W E	Feet: 0, 2500, 5000	Archaeological Study Area	**Figure 13** Archaeological Study Area in 1925
MARKOSKY	Meters: 0, 750, 1500	Greenbag Road Improvement Phase I Archaeological Survey Abbreviated Technical Report	Morgan District and City of Morgantown Monongalia County ***Source: 15' USGS Topographic Quadrangle*** ***Morgantown, WV 1925***

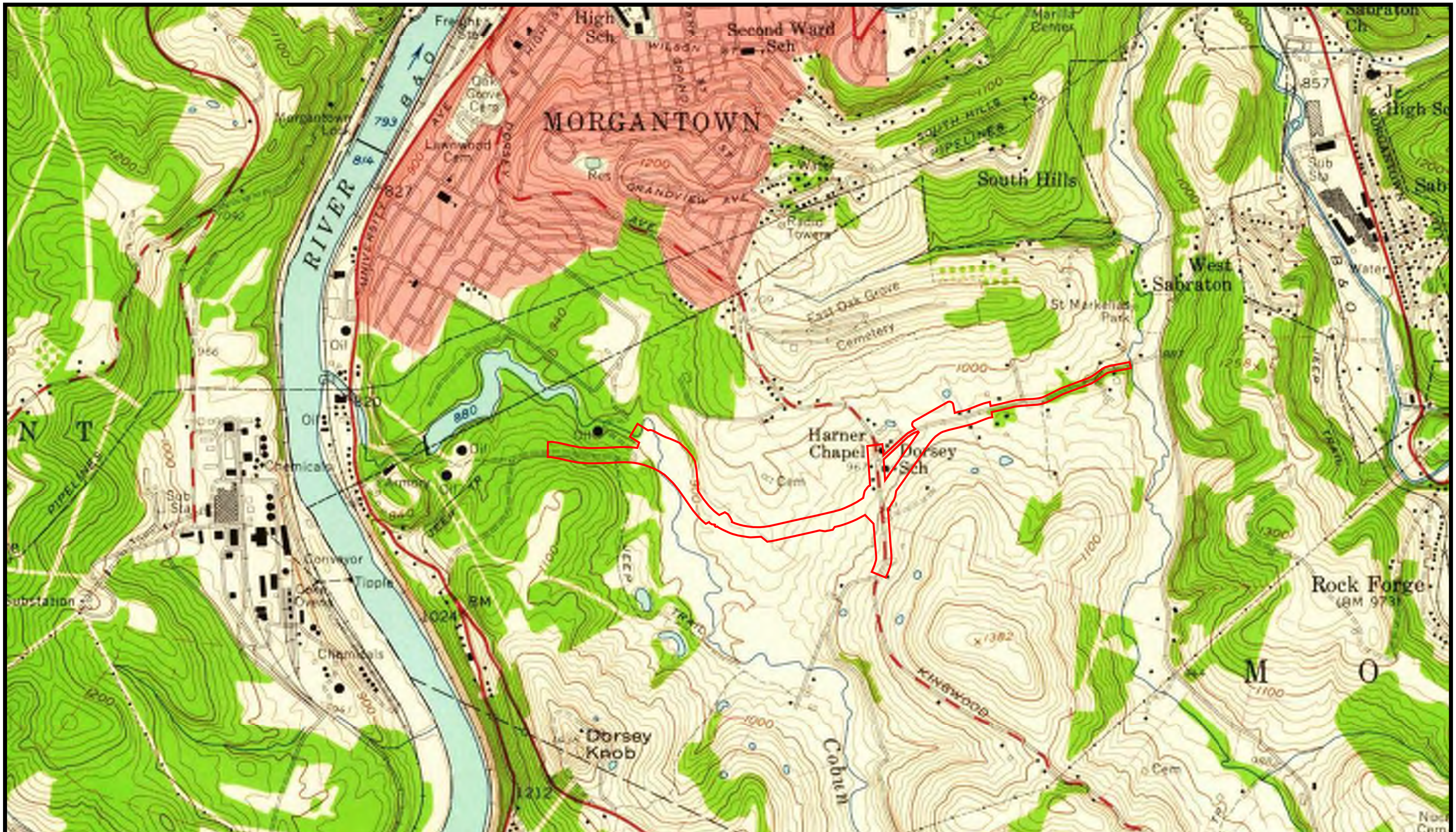
additional residential development had occurred at the intersection of Kingwood Pike and Luckey Lane (**Figure 14**). Both Harner Chapel and the Dorsey School are labeled at the intersection. A cemetery is labeled outside of the APE to the west of the church and school. The vast field of oil tanks illustrated in the previous topographic maps was at this time reduced to just three as the oil industry waned within the county by the late 1930s (Allen and Matchen 2017). No extant remnants of the oil tanks or associated infrastructure were noted within the study area.

In the early 1960s, the Green Bag Cement Company of Pittsburgh established a limestone plant on Deckers Creek near Greer, located 9.25 km (5.75 mi) southeast of the study area (WVU 1961a). The company bought land south of Morgantown and west of the study area along the Monongahela River and constructed a loading dock to ship their products to Pittsburgh on barges (Rote 2015:52; WVU 1961b). The company also paid for the construction of a 7.2 km (4.5 mi) bypass road leading from their docks south of Morgantown to Sabraton located roughly 2.35 km (1.46 mi) east of Morgantown and 2.90 km (1.80 mi) northeast of the study area. Greenbag Road, which was named for the company, provided a throughway from Route 119 south of Morgantown to Route 7 near Sabraton (Rote 2015:52). The construction of Greenbag Road began the commercial and industrial development of the rural area surrounding the APE.

The relatively undeveloped and rural setting along Greenbag Road made it an ideal location for the creation of an experimental juvenile detention facility that was constructed just south of the study area in 1968. The Robert F. Kennedy Youth Center (MG-2645), now known as FCI Morgantown Kennedy Center, was designed as a prototype for the experimental penal system model known as "unit management", a management model in which juvenile offenders were treated more as students and put into groups of 5-200 managed by multidisciplinary teams. (Balchen 1971:15; Kasey 2015:51). The sprawling campus-style complex covers approximately 41.7 ha (103.0 ac) and was built on former farm land likely owned at one time by heirs of George Dorsey.

Development around the study area progressed during the 1960s and into the 1970s. Mountain View Manor (MG-2655), a multi-unit housing complex, was constructed around 1970 north of the study area and west of Dorsey Avenue. A small housing development was constructed behind Mountain View Manor north of the APE on the west side of Dorsey Avenue. The postwar development was typical for the time period and was laid out along three straight, dead end roads extending southwest from Dorsey Avenue (Google Earth 2018). Southwest of the western limit of the study area, the construction of the Mountaineer Mall (MG-2643) in 1974 brought the first large-scale, air conditioned multi-store shopping center to northern West Virginia (Latrobe Bulletin 1975). The construction of the mall prompted more commercial construction in its vicinity on the north side of Greenbag Road. It was also during this time that the Morgantown City Garage (MG-2644) was constructed.

A 1976 aerial photograph shows the study area and vicinity (**Figure 15**) (USGS 1976). The area that was once made up of rural farm land now appears as a developed suburb of Morgantown. The complex of the detention facility, which by this time had been converted to an adult



N
W
E
S

Feet
0 2000 4000

Meters
0 600 1200

Archaeological Study Area

Figure 14
Archaeological Study Area in 1957

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Greenbag Road Improvement
Phase I Archaeological Survey
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Morgan District and City of Morgantown
Monongalia County
Source: 7.5' USGS Topographic Quadrangle
Morgantown South, WV 1957

N
W E
S

Feet
0 1600 3200

Meters
0 600 1200

Archaeological Study Area

Figure 15
Archaeological Study Area in 1976

MARKOSKY

Greenbag Road Improvement
Phase I Archaeological Survey
Abbreviated Technical Report

Morgan District and City of Morgantown
Monongalia County
Source: 7.5' USGS Orthophoto Quadrangle Morgantown South, WV 1976

correctional institution, is visible on the south side of Greenbag Road. The housing development north of the study area on the west side of Dorsey Avenue is also visible. Two farms (MG-2646 and MG-2647) are shown on Kingwood Pike south of its intersection with Greenbag Road, and both the Dorsey School and Harner Chapel are visible at the intersection. The Mountaineer Mall is near the western limit of the study area (USGS 1976).

Commercial and residential development north and south of the APE has continued into the 21st century, as evidenced in a modern aerial photograph (see **Figure 3**). Non-historic commercial and industrial development surrounds the Mountaineer Mall, and a large mobile home park is located on the north side of Greenbag Road west of its intersection with Kingwood Pike and Dorsey Avenue. Commercial and residential development has continued along Greenbag Road, particularly east of the intersection of Dorsey Avenue/Kingwood Pike. Today, the heavily trafficked road is one of the main arteries in southeastern Morgantown.

4.0 PHASE I ARCHAEOLOGICAL SURVEY METHODS

4.1 Background Research

The background research was conducted to collect information regarding the environmental setting, pre-contact and historic use of the project area; however, no archaeological resources were identified during the fieldwork. This research included a review of the existing data on known archaeological and historic resources in the project's vicinity. The West Virginia Interactive GIS Map was searched on January 25, 2019 and again on October 21, 2019 for recorded archaeological site data, archaeology report abstracts, and for recently completed archaeology projects in the region. NRHP Files, and Historic Property Inventory files were also reviewed. Information on the history of Morgantown and the surrounding area was collected from the WV SHPO survey files, Ancestry.com, Archive.org, Google Books, USGS.gov, historicmaps.com, and other online repositories. This research included a review of historic maps and atlases, public documents, county and township histories, thematic studies, and historic photographs (where available). Additional research specific to the environmental setting of the project area was conducted in the Markosky project archives and private collections of the authors.

4.2 Archaeological Fieldwork

The Phase I survey utilized standard methods outlined by the WV SHPO guidelines (Trader 2018) to identify archaeological resources within the study area. These methods consisted of a pedestrian survey/visual examination of the entire study area, the excavation of occasional judgmentally placed auger borings to verify the presence of disturbed soils, and subsurface testing of areas determined to be testable. Testable areas were characterized by less than 20 percent slope and contained intact soils of sufficient age to have the potential for archaeological deposits. No portions of the study area exhibited ground surface visibility that was sufficient for surface collection as part of this survey. Areas suitable for subsurface testing were assigned numerical test area designations. Within these test areas, round 50.0 cm (19.7 in) shovel test pits (STPs) were excavated at 15.0 m (49.2 ft) intervals. The STPs were numbered using the test area numerical designation plus a letter designation for the transect and a number for the specific STP on that transect. For example, STP 6A01 refers to the first STP on transect A in Test Area 6. Additional radial STPs were excavated at 5.0 m (16.4 ft) spacing in cardinal directions around positive STPs. Within the STPs, soil was hand excavated by natural/observable soil and screened through 0.64 cm (0.25 in) hardware mesh. One STP was expanded to a 1.0 x 1.0 m Test Unit (TU) during the Phase I survey in order to test to the appropriate depth in soils that were deep due to thick fill layers at the modern ground surface. The TU was excavated by 10.0 cm (3.9 in) levels within natural strata of sufficient thickness and were screened through 0.64 cm (0.25 in) hardware mesh. STP and TU excavations were conducted to a minimum depth of 10.0 cm (3.9 in) into culturally sterile subsoils.

Information regarding the soil texture and color, depth of cultural materials recovered, and other relevant data were recorded on Markosky's standard excavation forms. Daily field notes and excavation information were kept by the field supervisor. Field data were recorded on standardized forms and were supplemented with notes and project maps as warranted. All fieldwork was documented via digital photography. The locations of all STPs and the TU were recorded using a Trimble Geo7x handheld global positioning system (GPS) unit consistently capable of recording data with sub-meter accuracy. Upon completion of each STP or TU, the excavated area was immediately backfilled and the soils tamped. Efforts were made to return the ground surface to its original condition. Due to the location of the STPs along a public roadway system and within residential and commercial lawns, extra time and care was taken to backfill excavations.

No pre-contact or historic period archaeological materials were recovered during the Phase I archaeological survey of the Greenbag Road project.

5.0 PHASE I ARCHAEOLOGICAL SURVEY RESULTS

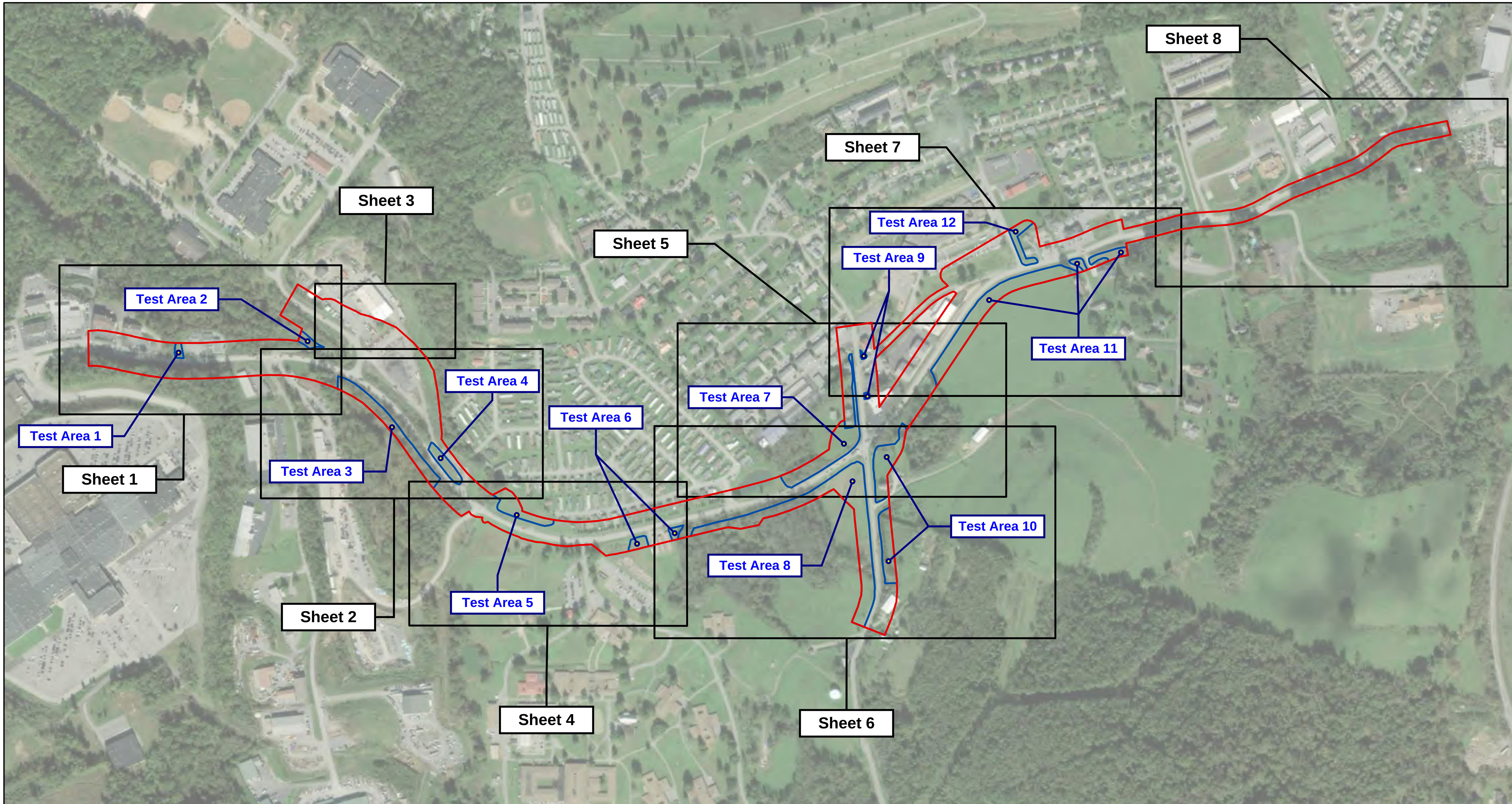
5.1 Introduction

The study area totals 19.96 ha (49.33 ac) in size, of which 0.71 ha (1.76 ac) are wet, 13.23 ha (32.70 ac) are disturbed, 2.40 ha (5.93 ac) are steeply sloped, and 3.62 ha (8.94 ac) were tested. In total, 213 STPs and one TU were excavated within the study area during the Phase I archaeological survey fieldwork (**Figure 16: Sheets 1-8**). Disturbances in the study area have been caused by the existing roadways; residential and commercial development; drainage ditches; buried utility lines including sewer, water, and gas lines; cut slope; grading and fill; and stormwater management areas (**Photographs 1-59)**. Please note that a photograph location map is included in **Appendix B**.

No pre-contact or historic period cultural materials or features were identified; therefore, no archaeological sites were recorded during the Phase I survey. The results of the fieldwork are summarized below by test area. Please note that the soil profiles are summarized in the text and that detailed soil descriptions are included on the corresponding referenced soil profile figures. Also, please refer to **Figure 4** for an overall view of test area locations throughout the study area. Figure 4 shows the 3/29/2019 design on an aerial image background with the results of the Phase I survey. The 3/29/2019 design plan sheets are included in **Appendix C**. There are a few areas on the plan sheets where the design extends outside of the study area. These areas are not yet confirmed as part of the design as of this report submittal and were not surveyed. If any confirmed design changes include areas outside of the surveyed study area, these areas will be surveyed and included in an addendum report.

5.2 Test Area 1

Test Area 1 is located on the north side of Greenbag Road just west of the Mountaineer Veterinary Clinic (see **Figure 16: Sheet 1**). The test area is on an upland landform with elevations ranging from 291.4 to 293.2 m (956.0 to 962.0 ft) above mean sea level. At the time of the survey, vegetation consisted of a maintained grassy lawn (**Photograph 60**). Soils in the test area are mapped as Gilpin-Culleoka-Upshur silt loams, 15 to 25 percent slopes (GuD). The test area is 0.03 ha (0.08 ac) in size. One (1) STP was excavated in Test Area 1. The soil profile consisted of Fill 1-Fill 2-Fill 3-Rock (**Figure 17**). The soils in Test Area 1 were determined to be entirely disturbed. No pre-contact or historic period cultural materials were identified in Test Area 1.



N
W E
S

MARKOSKY

Feet
0 200 400 600 800 1,000

Meters
0 100 200 300 400

Archaeological Study Area

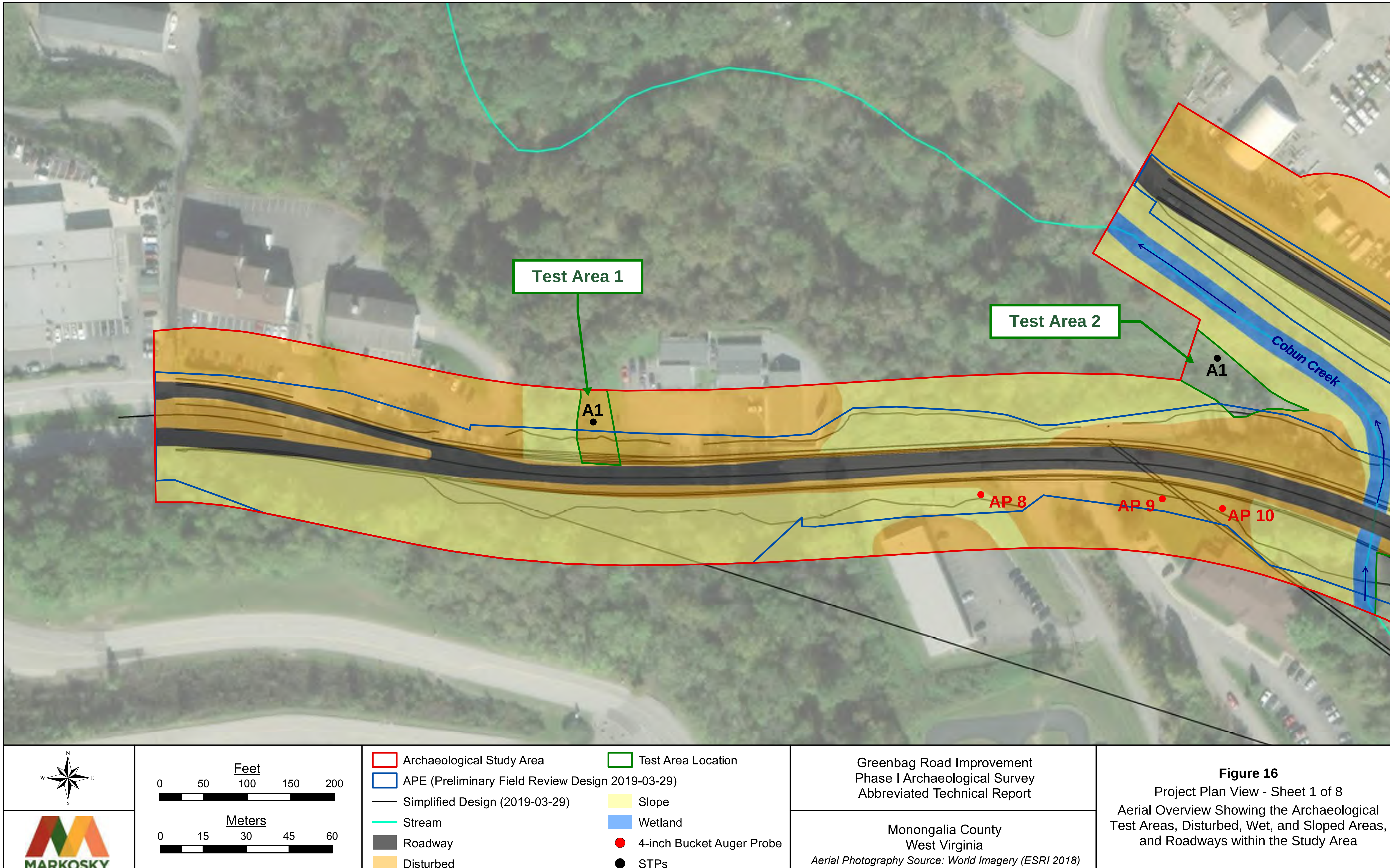
Test Area Location

Sheet Outlines

Greenbag Road Improvement
Phase I Archaeological Survey
Abbreviated Technical Report

Monongalia County
West Virginia
Aerial Photography Source: World Imagery (ESRI 2018)

Figure 16
Project Plan View - Sheet Locations

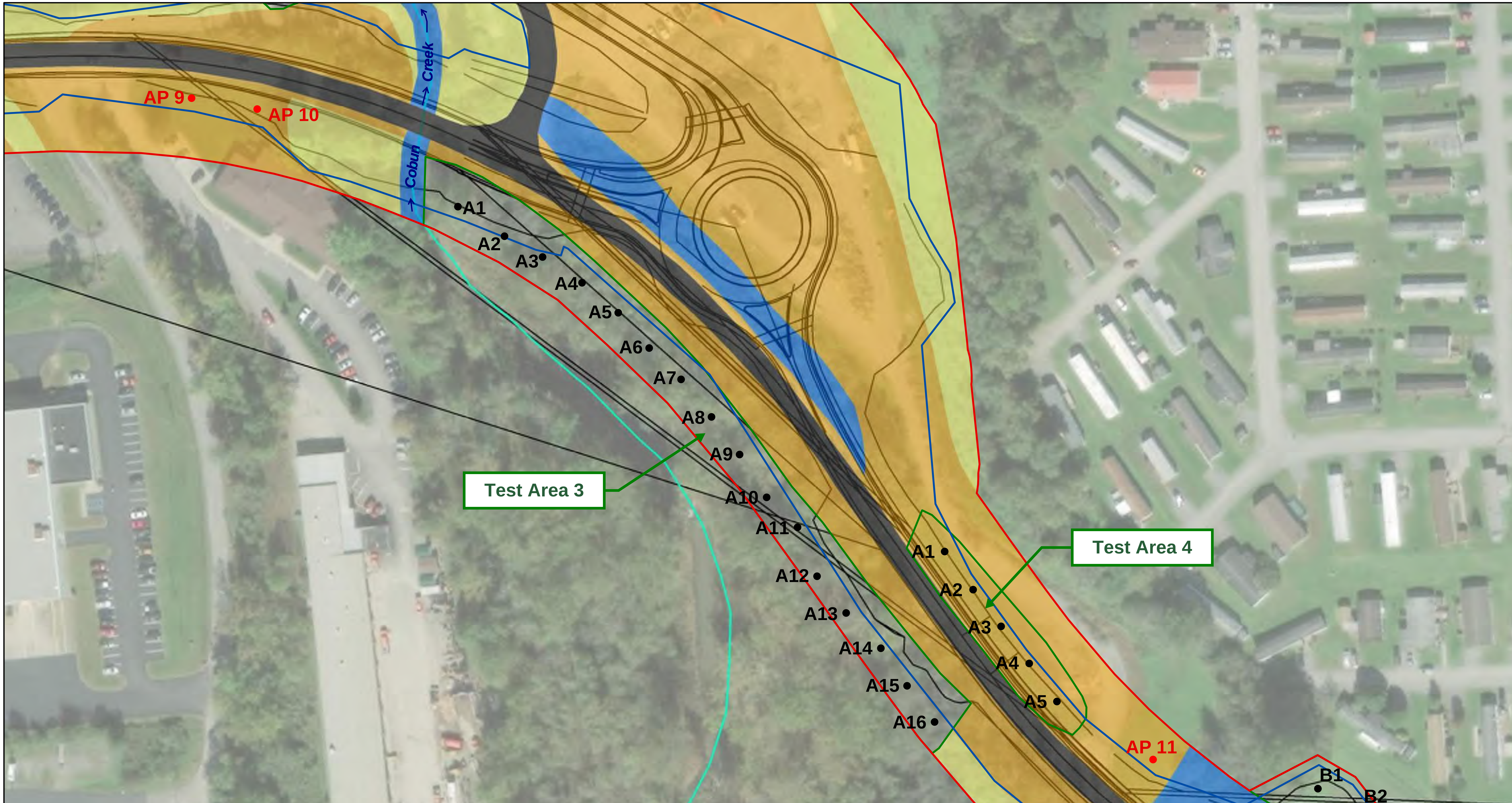


Archaeological Study Area
Test Area Location
APE (Preliminary Field Review Design 2019-03-29)
Simplified Design (2019-03-29)
Slope
Stream
Wetland
Roadway
4-inch Bucket Auger Probe
Disturbed
STPs

Greenbag Road Improvement
Phase I Archaeological Survey
Abbreviated Technical Report

Monongalia County
West Virginia
Aerial Photography Source: World Imagery (ESRI 2018)

Figure 16
Project Plan View - Sheet 1 of 8
Aerial Overview Showing the Archaeological Test Areas, Disturbed, Wet, and Sloped Areas, and Roadways within the Study Area



MARKOSKY

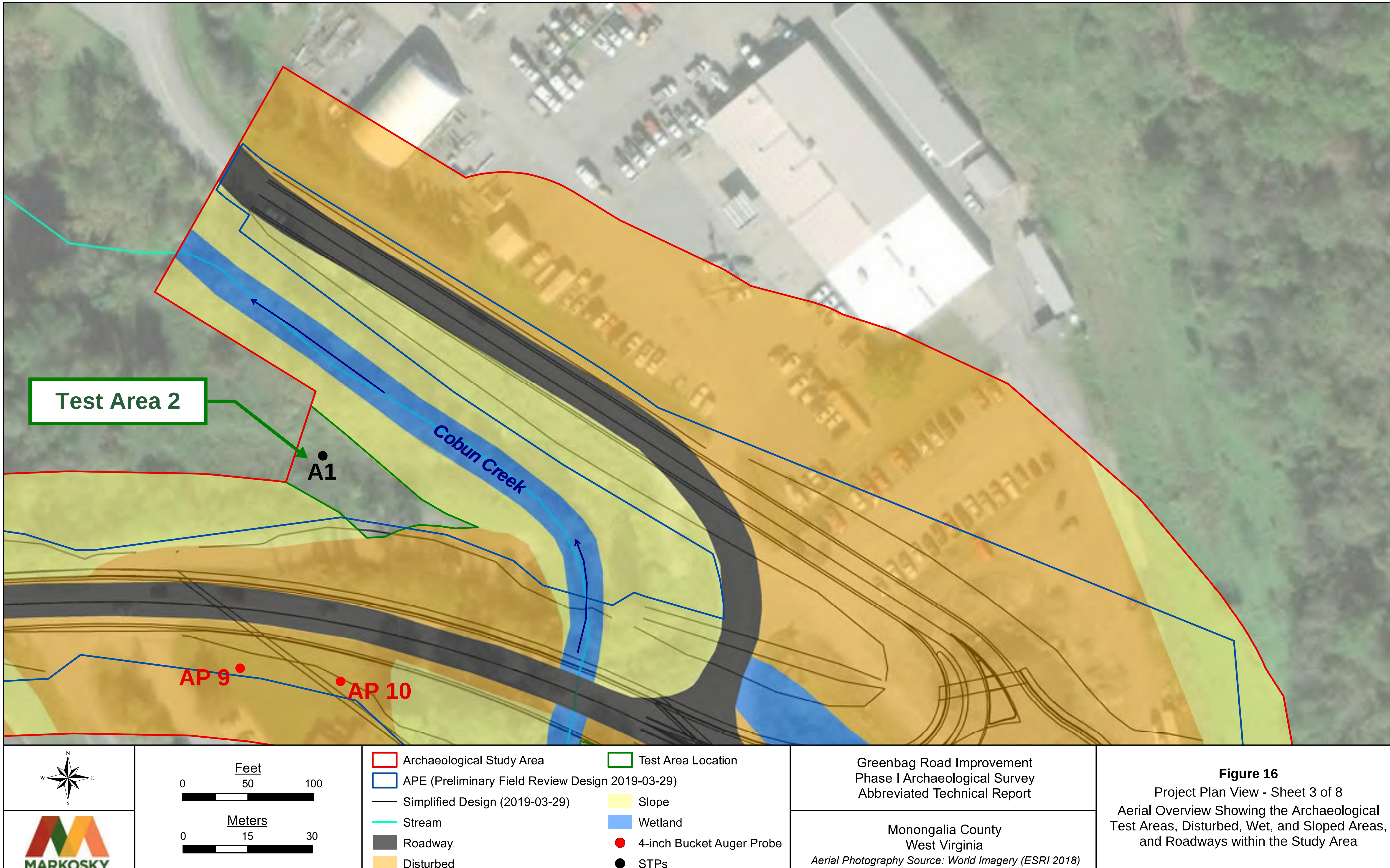
Feet: 0, 50, 100, 150, 200
Meters: 0, 15, 30, 45, 60

- Archaeological Study Area
- APE (Preliminary Field Review Design 2019-03-29)
- Simplified Design (2019-03-29)
- Stream
- Roadway
- Disturbed
- Test Area Location
- Slope
- Wetland
- 4-inch Bucket Auger Probe
- STPs

Greenbag Road Improvement
Phase I Archaeological Survey
Abbreviated Technical Report

Monongalia County
West Virginia
Aerial Photography Source: World Imagery (ESRI 2018)

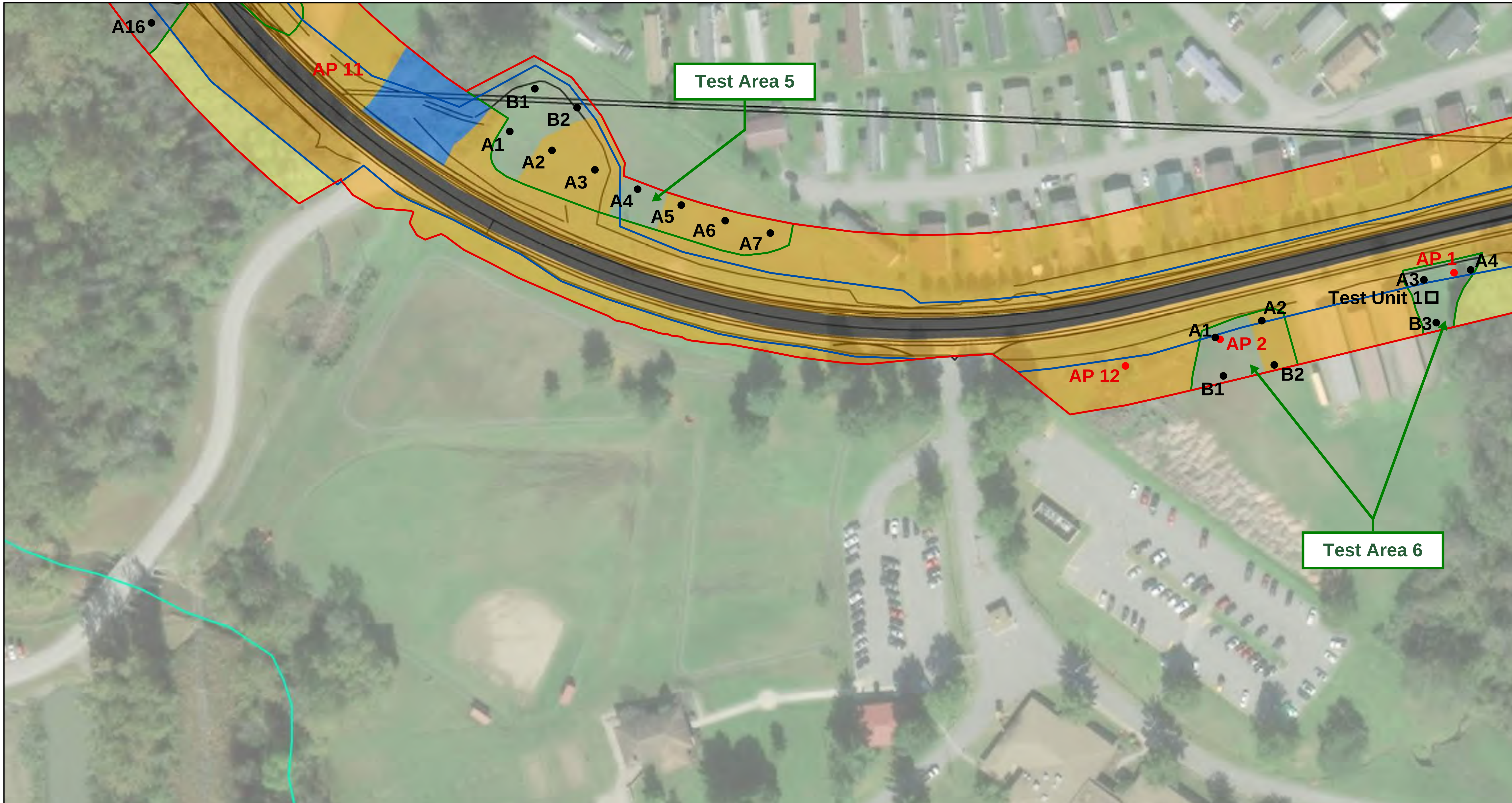
Figure 16
Project Plan View - Sheet 2 of 8
Aerial Overview Showing the Archaeological Test Areas, Disturbed, Wet, and Sloped Areas, and Roadways within the Study Area



Greenbag Road Improvement
Phase I Archaeological Survey
Abbreviated Technical Report

Monongalia County
West Virginia
Aerial Photography Source: World Imagery (ESRI 2018)

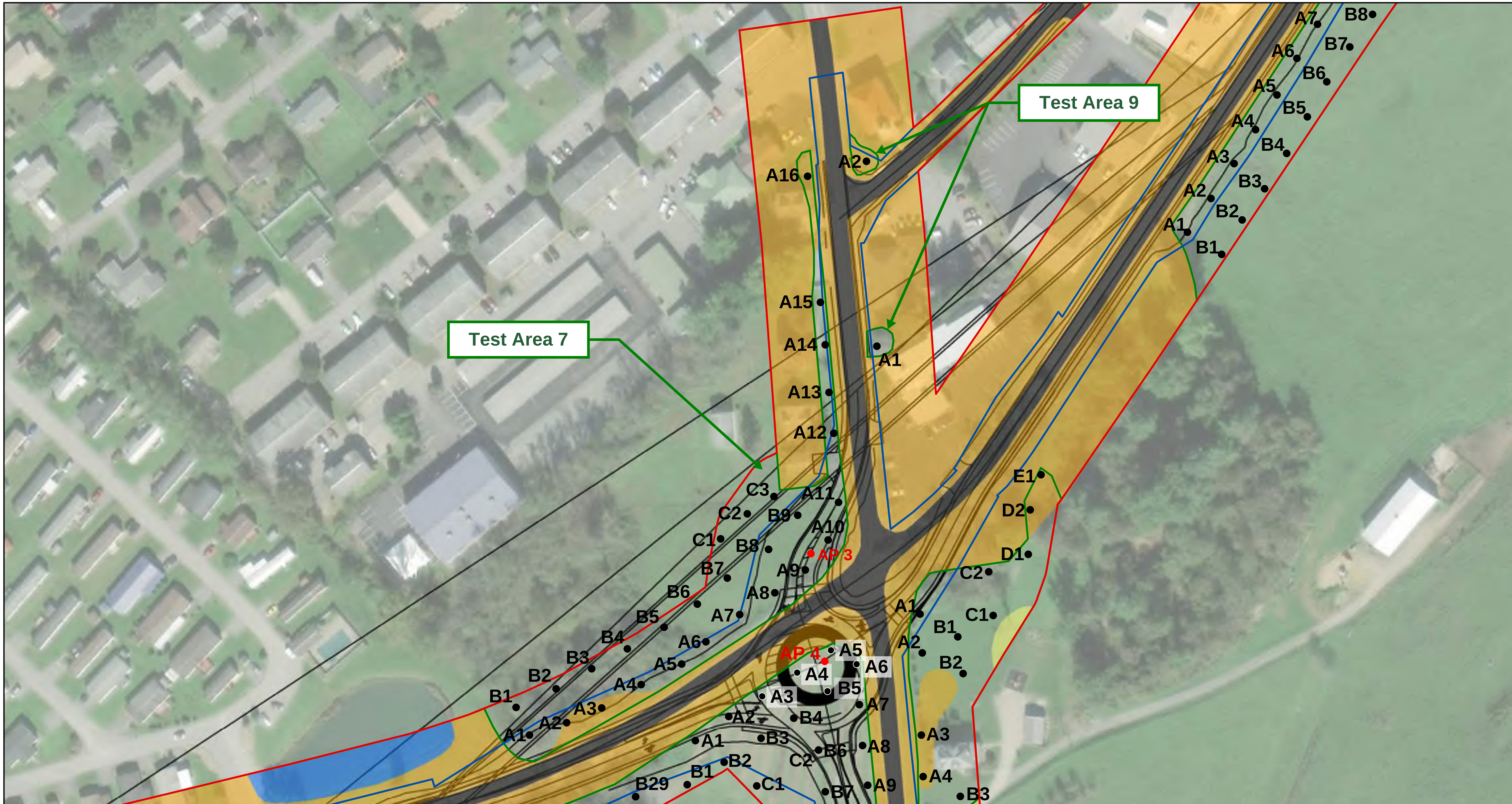
Figure 16
Project Plan View - Sheet 3 of 8
Aerial Overview Showing the Archaeological Test Areas, Disturbed, Wet, and Sloped Areas, and Roadways within the Study Area



N S E W	Feet 0 50 100 150 200 / Meters 0 15 30 45 60	Archaeological Study Area; APE (Preliminary Field Review Design 2019-03-29); Simplified Design (2019-03-29); Stream; Roadway; Disturbed	Test Area Location; Slope; Wetland; 4-inch Bucket Auger Probe; STPs	Greenbag Road Improvement Phase I Archaeological Survey Abbreviated Technical Report Monongalia County West Virginia *Aerial Photography Source: World Imagery (ESRI 2018)*

MARKOSKY

Figure 16
Project Plan View - Sheet 4 of 8
Aerial Overview Showing the Archaeological Test Areas, Disturbed, Wet, and Sloped Areas, and Roadways within the Study Area



Feet
0 50 100 150 200

Meters
0 15 30 45 60

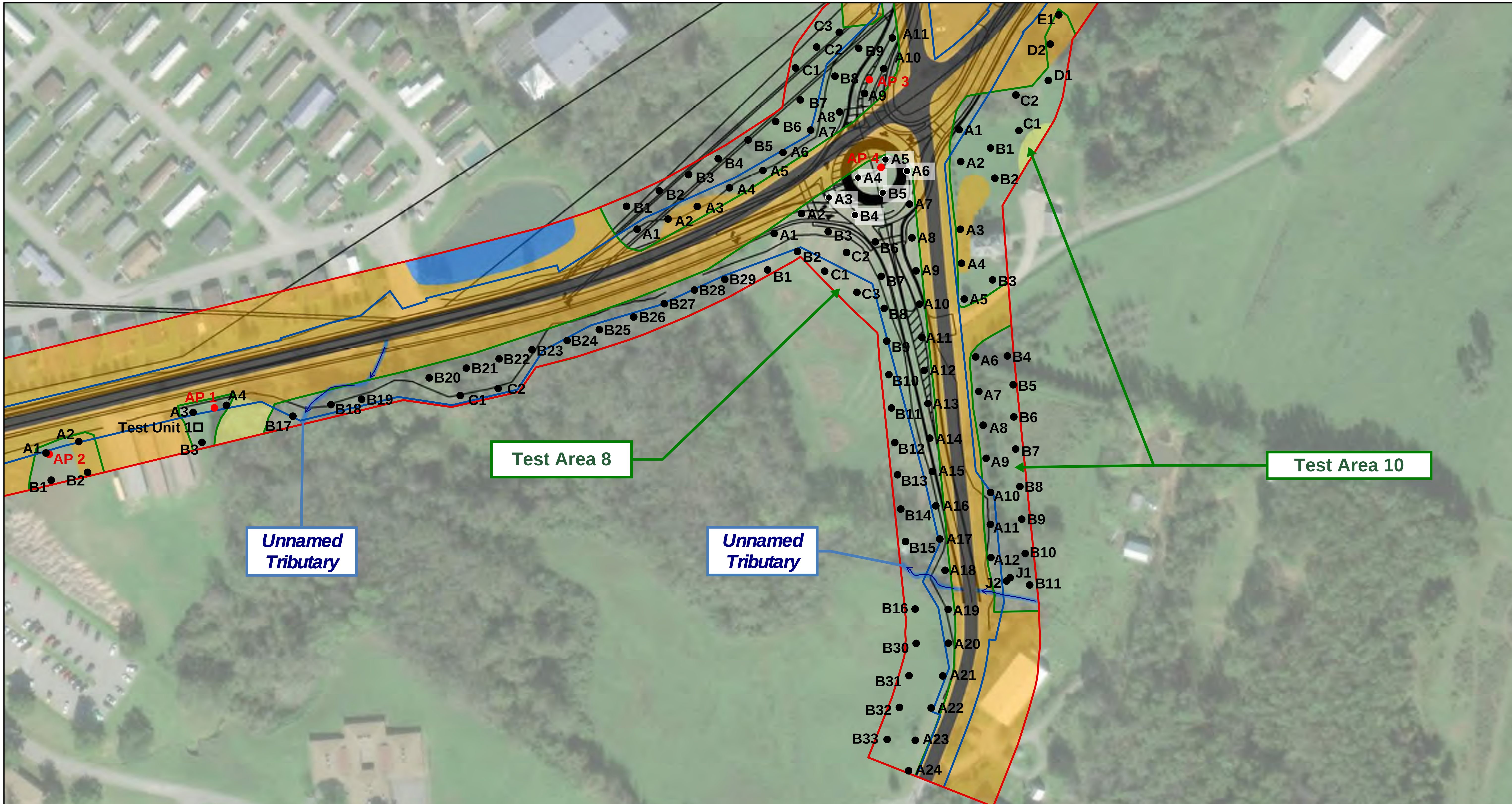
Archaeological Study Area
APE (Preliminary Field Review Design 2019-03-29)
Simplified Design (2019-03-29)
Stream
Roadway
Disturbed
Test Area Location
Slope
Wetland
4-inch Bucket Auger Probe
STPs

MARKOSKY

Greenbag Road Improvement
Phase I Archaeological Survey
Abbreviated Technical Report

Monongalia County
West Virginia
Aerial Photography Source: World Imagery (ESRI 2018)

Figure 16
Project Plan View - Sheet 5 of 8
Aerial Overview Showing the Archaeological Test Areas, Disturbed, Wet, and Sloped Areas, and Roadways within the Study Area



Feet
0 50 100 150 200

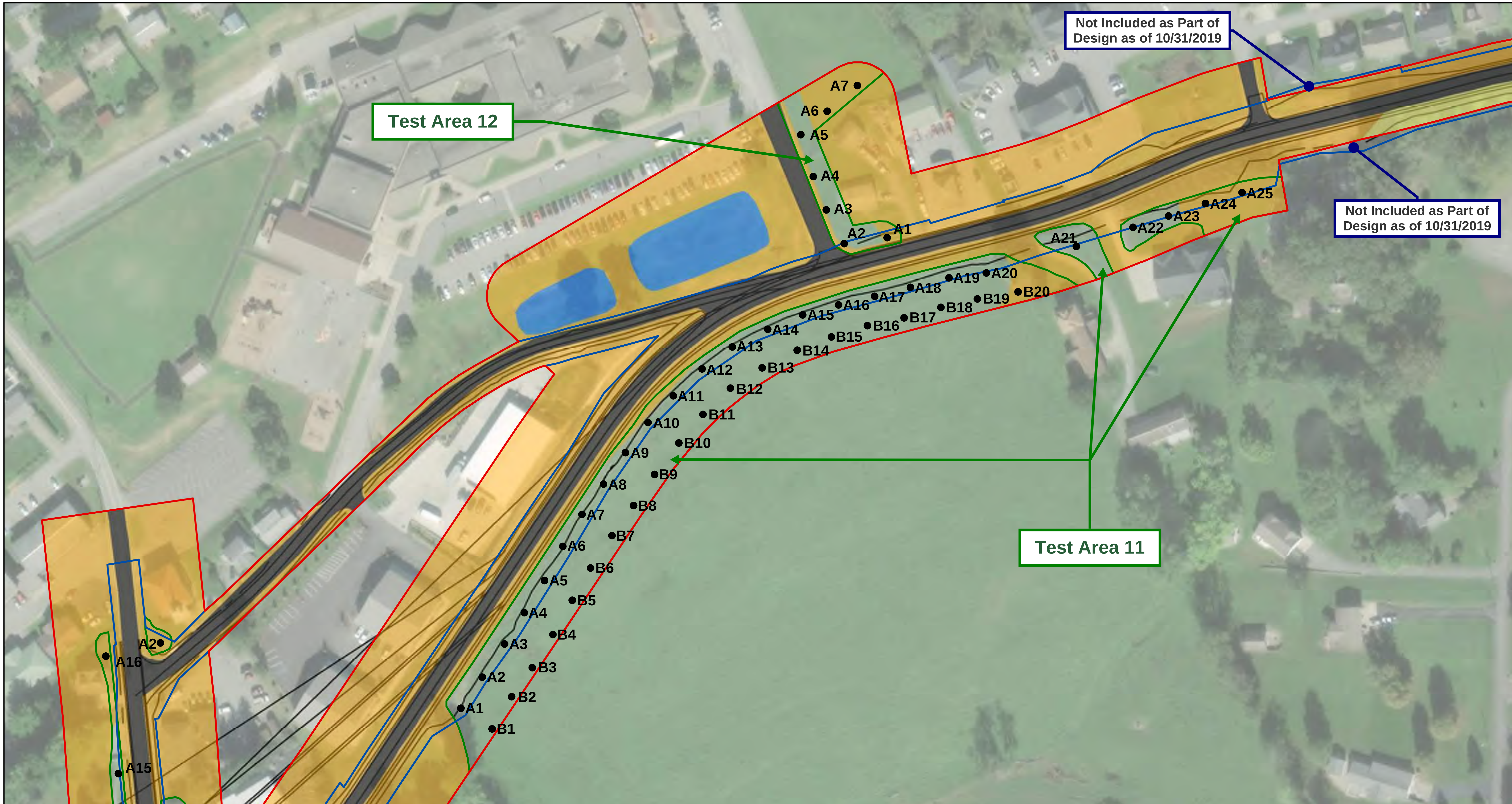
Meters
0 15 30 45 60

Archaeological Study Area	Test Area Location
APE (Preliminary Field Review Design 2019-03-29)	
Simplified Design (2019-03-29)	Slope
Stream	Wetland
Roadway	4-inch Bucket Auger Probe
Disturbed	STPs

Greenbag Road Improvement
Phase I Archaeological Survey
Abbreviated Technical Report

Monongalia County
West Virginia
Aerial Photography Source: World Imagery (ESRI 2018)

Figure 16
Project Plan View - Sheet 6 of 8
Aerial Overview Showing the Archaeological Test Areas, Disturbed, Wet, and Sloped Areas, and Roadways within the Study Area



MARKOSKY

Feet
0 50 100 150 200

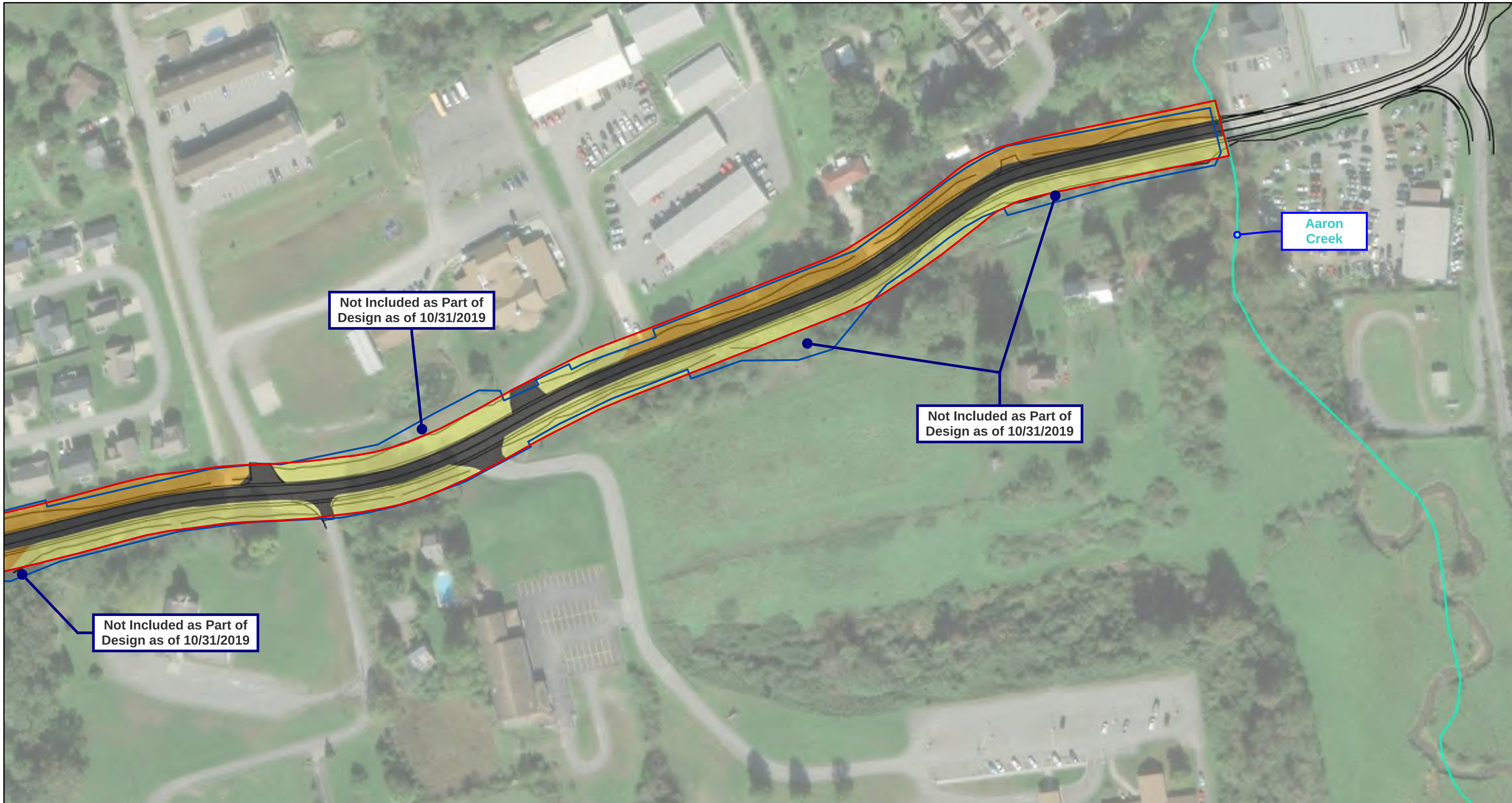
Meters
0 15 30 45 60

- Archaeological Study Area
- APE (Preliminary Field Review Design 2019-03-29)
- Simplified Design (2019-03-29)
- Stream
- Roadway
- Disturbed
- Test Area Location
- Slope
- Wetland
- 4-inch Bucket Auger Probe
- STPs

Greenbag Road Improvement
Phase I Archaeological Survey
Abbreviated Technical Report

Monongalia County
West Virginia
Aerial Photography Source: World Imagery (ESRI 2018)

Figure 16
Project Plan View - Sheet 7 of 8
Aerial Overview Showing the Archaeological Test Areas, Disturbed, Wet, and Sloped Areas, and Roadways within the Study Area



Feet
0 50 100 150 200

Meters
0 15 30 45 60

Archaeological Study Area
APE (Preliminary Field Review Design 2019-03-29)
Simplified Design (2019-03-29)
Stream
Roadway
Disturbed
Test Area Location
Slope
Wetland
4-inch Bucket Auger Probe
STPs

MARKOSKY

Greenbag Road Improvement
Phase I Archaeological Survey
Abbreviated Technical Report

Monongalia County
West Virginia
Aerial Photography Source: World Imagery (ESRI 2018)

Figure 16
Project Plan View - Sheet 8 of 8
Aerial Overview Showing the Archaeological Test Areas, Disturbed, Wet, and Sloped Areas, and Roadways within the Study Area

Photograph 1. General view of the study area, facing east.

Photograph 2. General view of the study area, facing east.

Photograph 3. General view of the study area, facing east.

Photograph 4. General view of the study area, facing southeast.

Photograph 5. General view of the study area, facing east.

Photograph 6. General view of the study area, facing east.

Photograph 7. General view of the study area, facing east.

Photograph 8. General view of the study area, facing west.

Photograph 9. General view of the study area, facing east. Note disturbance from grading and a sewer line (evidenced by a manhole cover) parallel to Greenbag Road.

Photograph 10. General view of the study area, facing east.

Photograph 11. General view of the study area, facing east.

Photograph 12. General view of the study area, facing southeast.

Photograph 13. General view of the study area, facing southeast.

Photograph 14. General view of the study area, facing northwest.

Photograph 15. General view of the study area, facing southwest.

Photograph 16. General view of the study area, facing northwest.

Photograph 17. General view of the study area, facing south.

Photograph 18. General view of the study area, facing southeast.

Photograph 19. General view of the study area, facing north.

Photograph 20. General view of the study area, facing northwest.

Photograph 21. General view of steep slope and disturbance in the study area, facing south-southeast.

Photograph 22. General view of steep slope and disturbance in the study area, facing north.

Photograph 23. General view of the study area, facing northwest.

Photograph 24. General view of the study area, facing northwest.

Photograph 25. General view of the study area, facing northeast. Note that the grassy area is disturbed from grading.

Photograph 26. View of the study area in the vicinity of the Federal Correctional Institution, facing southeast.

Photograph 27. View of buried utility lines (marked by white pin flags) adjacent to Test Area 5, facing southeast.

Photograph 28. View of cut slope in the study area, facing east.

Photograph 29. View of cut slope in the study area, facing east.

Photograph 30. General view of the study area, facing east.


Photograph 31. General view of the study area east of Test Area 6, facing east.


Photograph 32. General view of the study area, facing east.

Photograph 33. General view of the study area, facing south.

Photograph 34. General view of the study area, facing northeast.

Photograph 35. General view of the study area, facing southwest.

Photograph 36. General view of the study area, facing southwest.

Photograph 37. General view of the study area, facing northeast.

Photograph 38. General view of the study area, facing southwest.

Photograph 39. General view of the study area, facing southwest.

Photograph 40. View of a drainage basin in the study area, facing southwest.

Photograph 41. General view of the study area, facing southwest.

Photograph 42. General view of the study area, facing northeast.

Photograph 43. General view of the study area, facing west.

Photograph 44. General view of the study area, facing northeast.


Photograph 45. General view of the study area, facing east.


Photograph 46. General view of the study area, facing northwest.

Photograph 47. General view of the study area, facing west.

Photograph 48. General view of the study area, facing east.

Photograph 49. General view of the study area, facing west.

Photograph 50. General view of the study area, facing east.

Photograph 51. General view of the study area, facing southwest.

Photograph 52. General view of the study area, facing northeast.

Photograph 53. General view of the study area, facing northeast.

Photograph 54. General view of the study area, facing northeast.

Photograph 55. General view of the study area, facing southwest.

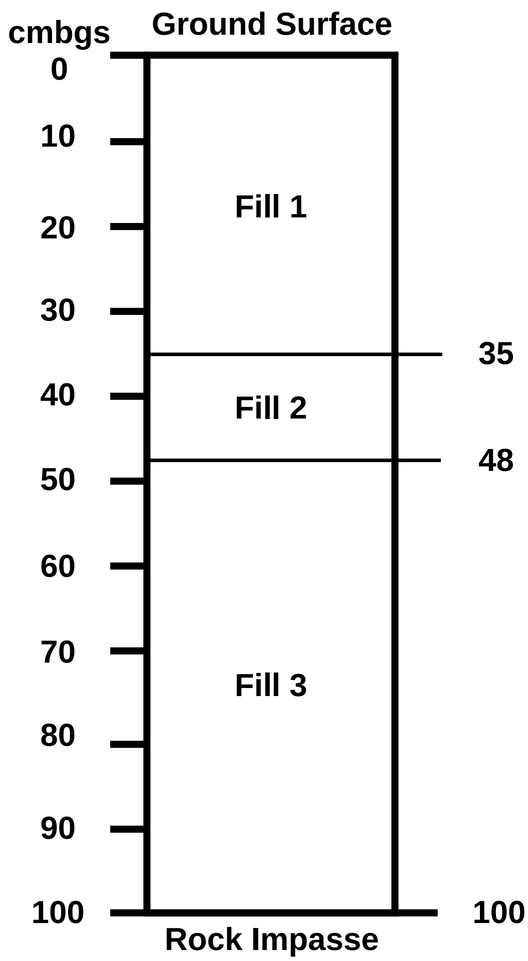
Photograph 56. General view of the study area, facing northeast.

Photograph 57. General view of the study area, facing northeast.

Photograph 58. General view of the study area, facing west.

Photograph 59. General view of the study area, facing southwest.

Photograph 60. View of Test Area 1, facing north.



Horizon	Description
Fill 1	10YR 4/4 Dark Yellowish Brown Silty Clay Loam with 10YR 6/8 Brownish Yellow and 10YR 5/1 Gray Mottles and Clay Pockets
Fill 2	10YR 6/2 Light Brownish Gray Sandy Clay Loam
Fill 3	2 Gley 7/1 Light Bluish Gray Channery Clay Loam with 90% Large Limestone Boulders

MARKOSKY	Greenbag Road Improvement Phase I Archaeological Survey Abbreviated Technical Report	**Figure 17** Test Area 1 STP A1 Soil Profile	Monongalia County

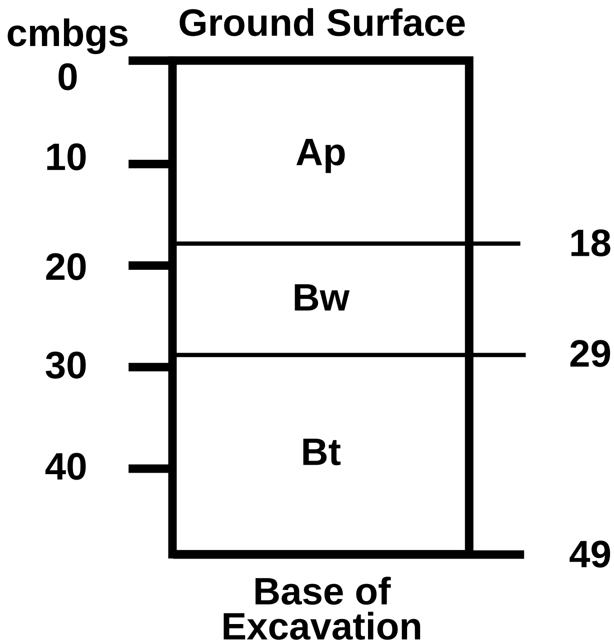
5.3 Test Area 2

Test Area 2 is located on the north side of Greenbag Road just west of the intersection with Mississippi Street (see **Figure 16: Sheet 1 and Sheet 3**). The test area is on a stream bench landform with elevations ranging from 272.2 to 274.3 m (893.0 to 900.0 ft) above mean sea level. At the time of the survey, vegetation consisted of a tall weeds and brush (**Photograph 61**). Soils in the test area are mapped as Clarksburg silt loam, 15 to 25 percent slopes (CkD). The test area is 0.05 ha (0.13 ac) in size. One (1) STP was excavated in Test Area 2. The soil profile consisted of Ap-Bw-Bt (**Figure 18**). No pre-contact or historic period cultural materials were identified in Test Area 2.

Photograph 61. View of Test Area 2, facing north.

5.4 Test Area 3

Test Area 3 is located on the south side of Greenbag Road opposite the intersection with Mississippi Street (see **Figure 16: Sheet 2**). The test area is on a floodplain landform along Cobun Creek with elevations ranging from 270.4 to 278.3 m (887.0 to 913.0 ft) above mean sea level. At the time of the survey, vegetation consisted of mixed hardwood trees with underbrush (**Photographs 62 and 63**). Soils in the test area are mapped primarily as Lobdell silt loam, 0 to 3 percent slopes, occasionally flooded (Lb), with Clarksburg silt loam, 15 to 25 percent slopes in the western end of the test area. The test area is 0.42 ha (1.04 ac) in size. In total, sixteen (16) STPs were excavated in Test Area 3. The soil profile varied, generally consisting of A-BA-Bw-C, AC-C-Cg, or AC-BC-Bg soil profiles. The soils reflect shifting of the stream, areas that have



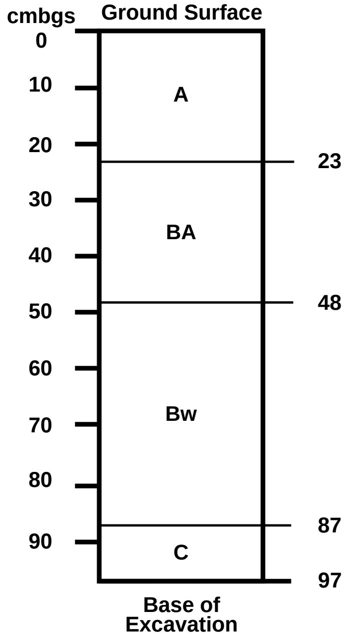
Horizon	Description
Ap Horizon	10YR 5/2 Grayish Brown Silty Clay Loam
Bw Horizon	10YR 6/4 Light Yellowish Brown Silty Clay Loam
Bt Horizon	10YR 5/8 Yellowish Brown Clay Loam

been scoured, and recent alluvial deposits, as well as some pockets of older, more developed soils (**Figure 19**). No pre-contact or historic period cultural materials were identified in Test Area 3.

Photograph 62. View of Test Area 3, facing northwest.

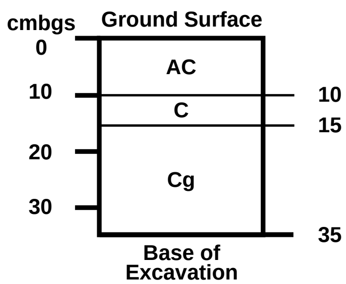
Photograph 63. View of Test Area 3, facing southeast.

STP A5



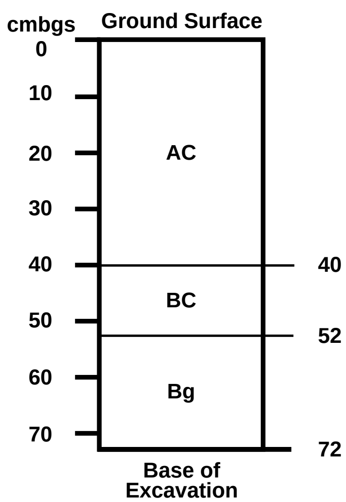
Horizon	Description
A Horizon	10YR 3/2 Very Dark Grayish Brown Silt Loam
BA Horizon	10YR 4/4 Dark Yellowish Brown Silt Loam
Bw Horizon	10YR 5/4 Yellowish Brown Sandy Loam
C Horizon	10YR 5/4 Yellowish Brown Sand

STP A7



Horizon	Description
AC Horizon	10YR 4/3 Brown Sandy Loam
C Horizon	10YR 5/4 Yellowish Brown Sand
Cg Horizon	10YR 7/2 Light Gray Sand with 10YR 5/4 Yellowish Brown Mottles

STP A11



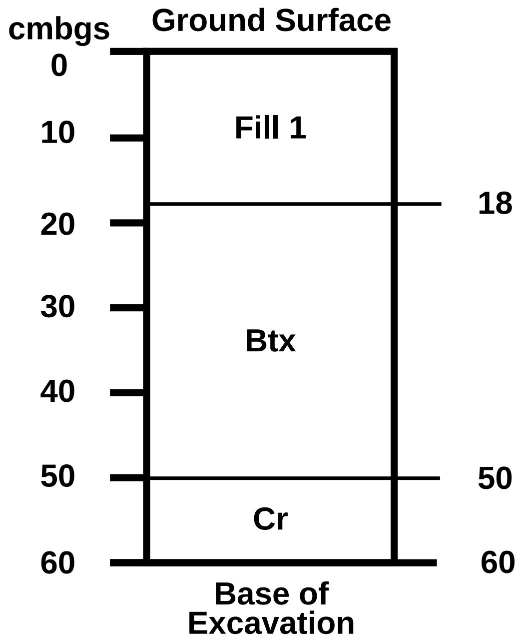
Horizon	Description
AC Horizon	10YR 3/2 Very Dark Grayish Brown Silt Loam
BC Horizon	10YR 5/4 Yellowish Brown Sandy Silt Loam to Sandy Loam with 10YR 5/1 Gray Mottles
Bg Horizon	10YR 6/1 Gray Sandy Clay Loam to Clay Loam with 10YR 5/4 Yellowish Brown Mottles

MARKOSKY	Greenbag Road Improvement Phase I Archaeological Survey Abbreviated Technical Report	**Figure 19** Test Area 3 STPs A5, A7, and A11 Soil Profiles	Monongalia County

5.5 Test Area 4

Test Area 4 is located on the north side of Greenbag Road, opposite Test Area 3, and south of an access road for the City of Morgantown Public Works Garage (see **Figure 16: Sheet 2**). The test area is on an upland landform with elevations ranging from 278.9 to 282.6 m (915.0 to 927.0 ft) above mean sea level. At the time of the survey, vegetation consisted of a maintained grassy lawn (**Photograph 64**). Soils in the test area are mapped as Lobdell silt loam, 0 to 3 percent slopes, occasionally flooded (Lb), but given the upland landform, are more likely to be the Clarksburg silt loam, 8 to 15 percent slopes soils, which are mapped nearby. The test area is 0.13 ha (0.32 ac) in size. In total, five (5) STPs were excavated in Test Area 4. The soil profile generally consisted of Fill 1-Btx-Cr (**Figure 20**). Excavations determined that the area was previously graded and filled. No pre-contact or historic period cultural materials of any kind were identified in Test Area 4.

Photograph 64. View of Test Area 4, facing southeast.



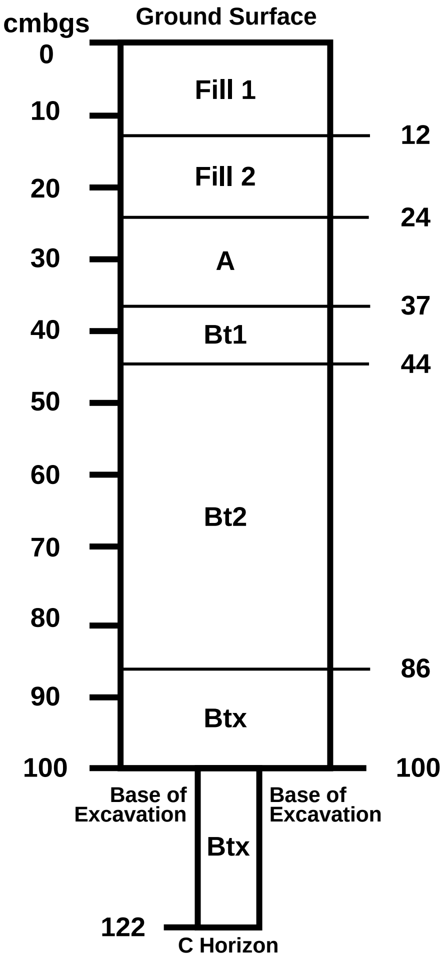
Horizon	Description
Fill 1	10YR 4/1 Dark Gray Gravelly Clay Loam with 10YR 5/8 Yellowish Brown Mottles and 20% Mechanically Crushed Gravels
Btx Horizon	10YR 5/6 Yellowish Brown Compact Sandy Clay Loam with 7.5 YR 4/2 Brown Mottles and 10% Subangular Sandstone
Cr Horizon	10YR 6/2 Light Brownish Gray Shaley Clay Loam with 7.5 YR 4/2 Brown Mottles and 40% Shale Channers

MARKOSKY	Greenbag Road Improvement Phase I Archaeological Survey Abbreviated Technical Report	**Figure 20** Test Area 4 STP A3 Soil Profile	Monongalia County

5.6 Test Area 5

Test Area 5 is located on the north side of Greenbag Road opposite a baseball field associated with the Federal Correctional Institute (see **Figure 16: Sheet 4**). The test area is on an upland landform with elevations ranging from 285.0 to 290.5 m (935.0 to 953.0 ft) above mean sea level. At the time of the survey, vegetation consisted of a maintained grassy lawn (**Photograph 65**). Soils in the test area are mapped as Clarksburg silt loam, 8 to 15 percent slopes (CkC). The test area is 0.22 ha (0.54 ac) in size. In total, nine (9) STPs were excavated in Test Area 5. The natural soil profile underlying two layers of fill consisted of A-Bt1-Bt2-Btx (**Figure 21**). Some STPs exhibited fill over the natural soils and some areas had been graded and filled. The portion of Test Area 5 that is adjacent and parallel to the existing roadway was determined to have been disturbed by buried utility lines, precluding the need for STPs in that location. No pre-contact or historic period cultural materials were identified in Test Area 5.

Photograph 65. View of Test Area 5, facing southeast. White pin flags are marking a sewer line that is parallel to Greenbag Road (right).



Horizon	Description
Fill 1	10YR 4/3 Brown Silty Clay Loam with 10YR 6/8 Brownish Yellow Mottles
Fill 2	10YR 5/2 Grayish Brown Silty Clay Loam with 10YR 4/4 Dark Yellowish Brown Mottles
A Horizon	10YR 4/3 Brown Silt Loam
Bt1 Horizon	10YR 4/6 Dark Yellowish Brown Silt Loam
Bt2 Horizon	10YR 5/6 Yellowish Brown Clay Loam
Btx Horizon	10YR 5/6 Yellowish Brown Clay Loam with Iron Manganese Nodules

MARKOSKY

Greenbag Road Improvement
Phase I Archaeological Survey
Abbreviated Technical Report

Figure 21
Test Area 5
STP A1
Soil Profile

Monongalia County

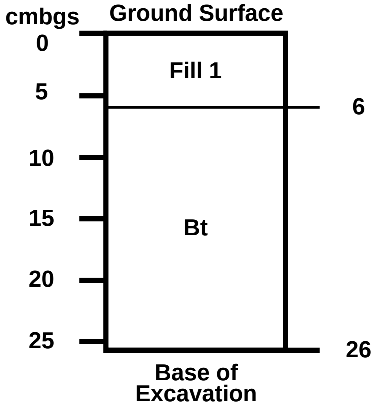
5.7 Test Area 6

Test Area 6 is located on the south side of Greenbag Road at D&D Storage Facility (see **Figure 16: Sheet 4**). The test area is on hilltop and terrace landforms with elevations ranging from 287.4 to 292.0 m (943.0 to 958.0 ft) above mean sea level. At the time of the survey, vegetation consisted of a maintained grassy lawn (**Photographs 66 and 67**). Soils in the test area are mapped as Gilpin-Culleoka-Upshur silt loams, 8 to 15 percent slopes. The test area is 0.09 ha (0.23 ac) in size. In total, seven STPs were excavated in Test Area 6. The natural soil profile was different between the east and west sides of the existing storage unit facility. On the west side, the upland landform consisted of A-Bt, which closer toward the storage facility showed impacts from grading and fill (**Figure 22**). This disturbance to the A and upper Bt horizon soils was likely due to the construction of the storage units. The excavated STPs on the east side of the storage facility exhibited A-Bw-Bt profiles with fill emplaced over the natural soils (see **Figure 22**). STP A3 exhibited very thick fill deposits over intact natural soils. The STP was expanded into a test unit in this location to survey to appropriate depths. The soils in TU1 consisted of multiple fill layers over a natural profile of Ag-Bw-BC-C1-C2 (**Figure 23**), which illustrates a Late Wisconsin stream terrace above an unnamed tributary to Cobun Creek. No pre-contact or historic period cultural materials were identified in Test Area 6.

Photograph 66. View of Test Area 6, facing east.

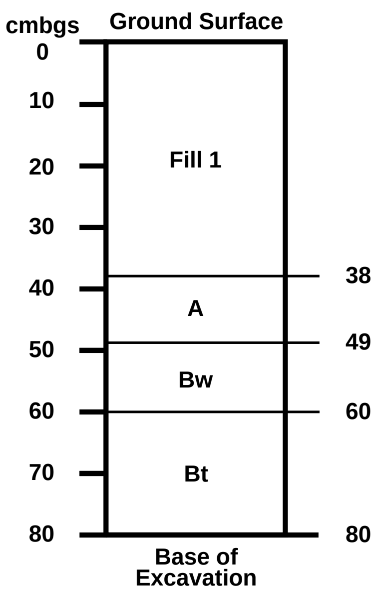
Photograph 67. View of Test Area 6, facing east.

STP A2



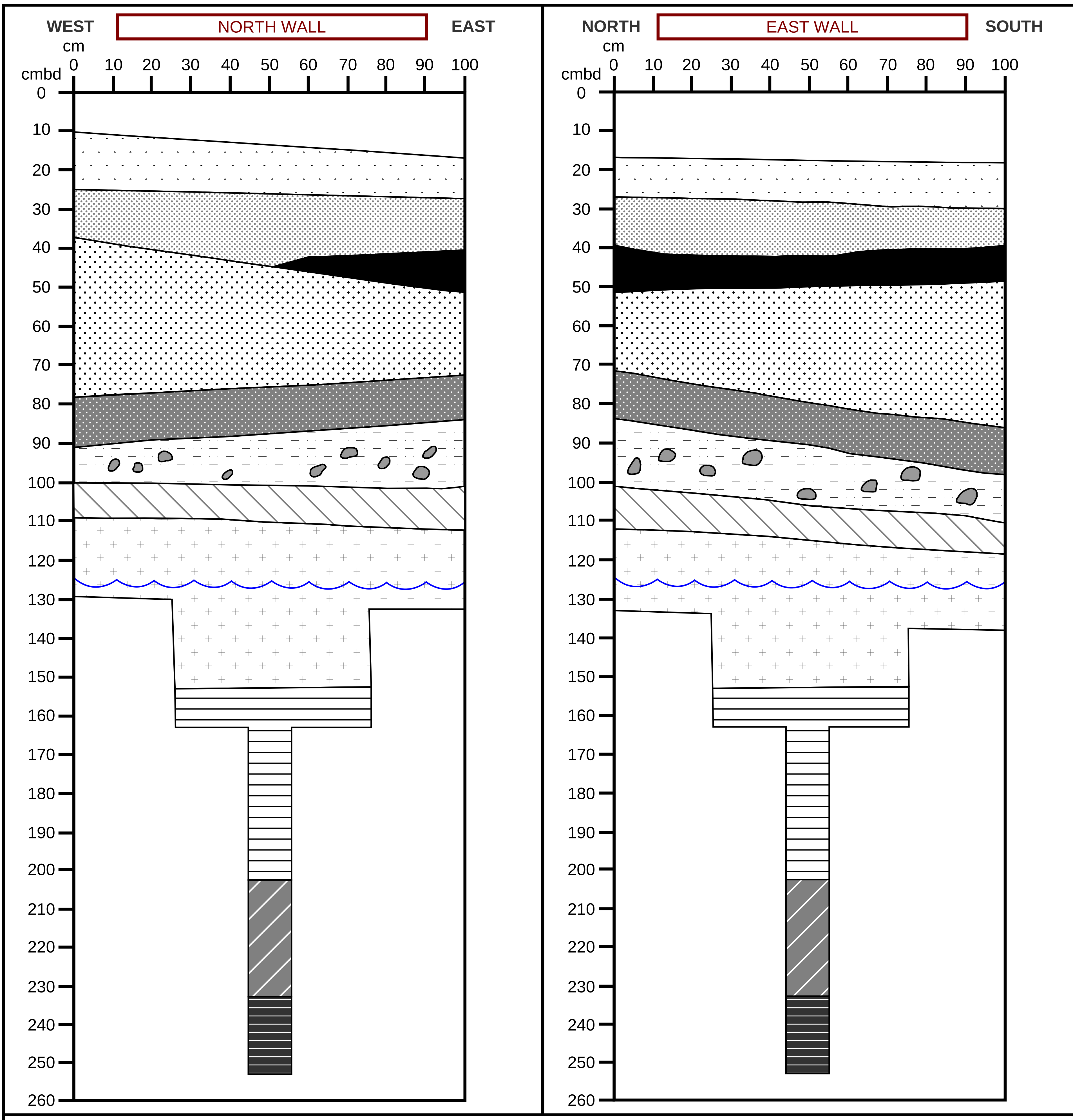
Horizon	Description
Fill 1	10YR 3/4 Dark Yellowish Brown Clay Loam
Bt Horizon	10YR 5/6 Yellowish Brown Clay Loam

STP B3



Horizon	Description
Fill 1	10YR 4/3 Brown Silty Clay Loam with 10YR 5/2 Grayish Brown and 10YR 6/8 Brownish Yellow Mottles
A Horizon	10YR 3/2 Very Dark Grayish Brown Silt Loam
Bw Horizon	10YR 5/3 Brown Sandy Loam
Bt Horizon	10YR 6/6 Brownish Yellow Clay Loam

MARKOSKY	Greenbag Road Improvement Phase I Archaeological Survey Abbreviated Technical Report	**Figure 22** Test Area 6 STPs A2 and B3 Soil Profiles	Monongalia County



	Fill 1	10YR 4/1 Dark Gray Clay Loam with Sparse 10YR 6/8 Brownish Yellow Mottles and Pockets of Decaying Organic Matter		**Ag Horizon**	10YR 3/2 Very Dark Grayish Brown Silt Loam with Moderate Redox
	Fill 2	10YR 3/1 Very Dark Gray Silty Clay Loam with 80% Mechanically Crushed Gravels		**Bw Horizon**	10YR 5/3 Brown Sandy Loam with 10YR 5/1 Gray Mottles and Heavy Redox
	Fill 3	10YR 5/2 Gray Brown Clay Loam with 10YR 6/8 Brownish Yellow Mottles and 70% Mechanically Crushed Gravels		**BC Horizon**	10YR 6/2 Light Brownish Gray Sandy Clay Loam with 10YR 5/4 Yellowish Brown Mottles and Heavy Redox
	Fill 4	10YR 3/2 Very Dark Grayish Brown Silty Clay Loam with Heavy Redox and Decaying Organic Matter near Surface		**C1 Horizon**	10YR 6/1 Gray Sandy Loam to Sand with Depths and Heavy Redox
	Fill 5	10YR 7/4 Clay Loam with 10YR 7/2 Light Gray and 10YR 5/1 Gray Mottles and 5% Angular Sandstone		**C2 Horizon**	10YR 6/1 Gray Channel Lag with Sand and Heavy Redox

Vertical Exaggeration
0 0 10 cm
VE=1
10 cm

Clay Lens **Rock** **Water Table**

Datum is Located 10 cm Above Ground Surface

MARKOSKY	Greenbag Road Improvement Phase I Archaeological Survey Abbreviated Technical Report	Monongalia County	**Figure 23** Test Area 6 Test Unit 1 Soil Profiles

5.8 Test Area 7

Test Area 7 is located in the northwest quadrant of the intersection of Greenbag Road with Dorsey Avenue (see **Figure 16: Sheet 5**). The test area is on a hillslope landform with elevations ranging from 290.5 to 299.9 m (953.0 to 984.0 ft) above mean sea level. At the time of the survey, vegetation was variable and consisted of a wooded area with dense underbrush, an area with grasses and weeds; and maintained grassy lawns (**Photographs 68-72**). Soils in the test area are mapped along Greenbag Road as Clarksburg silt loam, 8 to 15 percent slopes (CkC) and along Dorsey Avenue as Zoar silt loam, 3 to 8 percent slopes (ZoB). The test area is 0.50 ha (1.24 ac) in size. In total, twenty-eight (28) STPs were excavated in Test Area 7. The soil profile typically consisted of A-Bt or Ap-Bw-Bg (**Figure 24**). Some STPs revealed disturbed soils or fill layers over natural soils. No pre-contact or historic period cultural materials were identified in Test Area 7.

Photograph 68. View of Test Area 7, facing northeast.

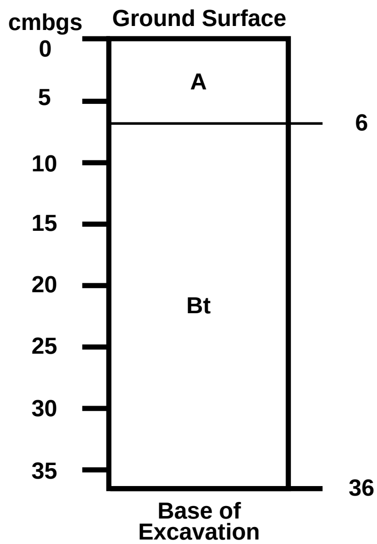
Photograph 69. View of Test Area 7, facing northeast.

Photograph 70. View of Test Area 7, facing north.

Photograph 71. View of Test Area 7, facing north.

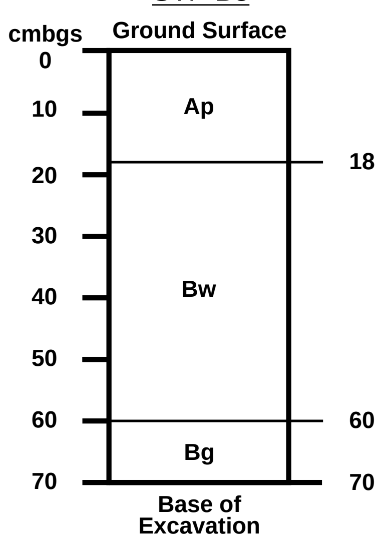
Photograph 72. View of Test Area 7, facing north.

STP A5



Horizon	Description
A Horizon	7.5YR 5/2 Brown Silt Loam
Bt Horizon	7.5YR 5/6 Strong Brown Silty Clay Loam to Clay Loam with Depth

STP B8



Horizon	Description
Ap Horizon	10YR 4/1 Dark Gray Silty Clay Loam with Minor Redox
Bw Horizon	10YR 6/3 Pale Brown Silty Loam with Heavy Manganese Staining
Bg Horizon	10YR 7/2 Light Gray Clay

MARKOSKY	Greenbag Road Improvement Phase I Archaeological Survey Abbreviated Technical Report	**Figure 24** Test Area 7 STPs A5 and B8 Soil Profiles	Monongalia County

5.9 Test Area 8

Test Area 8 is located in the southwest quadrant of the intersection of Greenbag Road with Kingwood Pike (see **Figure 16: Sheet 6**). The test area is on a hillslope landform with elevations ranging from 291 to 293 m (927.0 to 1,025.0 ft) above mean sea level. At the time of the survey, vegetation consisted of forested areas with dense underbrush and grassy fields (**Photographs 73-80**). Soils in the test area are mapped as Clarksburg silt loam, 8 to 15 percent slopes (CkC) and 15 to 25 percent slopes (CkD) although all test locations were less than 20 percent slope. The test area is 1.21 ha (2.98 ac) in size. In total, sixty-two (62) STPs were excavated in Test Area 8. The soil profile generally consisted of Ap-Bw-Bt, except at two locations in the test area where an unnamed tributary passes through. At the western extent of the test area in vicinity of the tributary, the soils consist of A-C1-C2 and in the southern extent of the test area in the vicinity of the tributary, the soils consist of AC-BC-C-Cg (**Figure 25**). No pre-contact or historic period cultural materials were identified in Test Area 8.

Photograph 73. View of Test Area 8, facing east.

Photograph 74. View of Test Area 8, facing west.

Photograph 75. View of Test Area 8, facing west.

Photograph 76. View of Test Area 8, facing northeast.

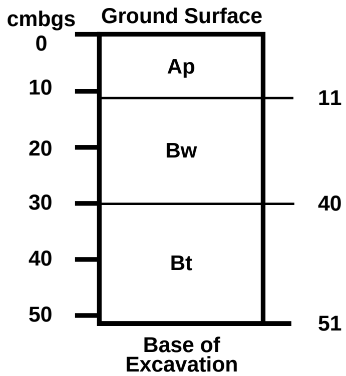
Photograph 77. View of Test Area 8, facing south.

Photograph 78. View of Test Area 8, facing south.

Photograph 79. View of an unnamed tributary at the southern end of Test Area 8, facing west.

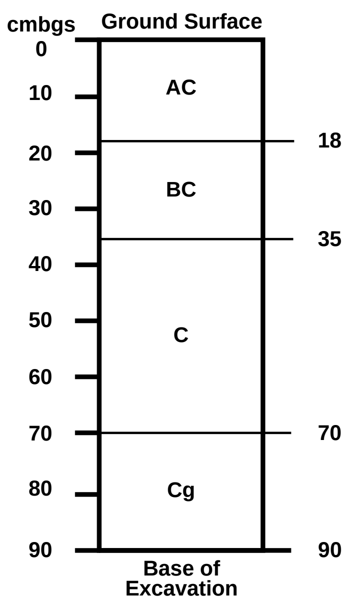
Photograph 80. View of Test Area 8 from the southern terminus, facing northeast.

STP A7



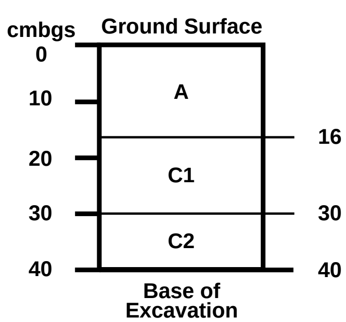
Horizon	Description
Ap Horizon	10YR 4/2 Dark Grayish Brown Silt Loam
Bw Horizon	10YR 5/6 Yellowish Brown Silt Loam
Bt Horizon	10YR 6/6 Brownish Yellow Silty Clay Loam

STP A18



Horizon	Description
AC Horizon	10YR 4/3 Brown Sandy Loam
BC Horizon	10YR 6/3 Pale Brown Sandy Loam
C Horizon	7.5YR 5/8 Strong Brown Sand
Cg Horizon	10YR 6/2 Light Brownish Gray Sand with 7.5YR 5/8 Strong Brown Mottles

STP B18



Horizon	Description
A Horizon	10YR 4/2 Dark Grayish Brown Silt Loam
C1 Horizon	10YR 6/2 Light Brownish Gray Sandy Loam with 10YR 4/1 Dark Gray Mottles
C2 Horizon	10YR 5/6 Yellowish Brown Sand with 10YR 7/1 Light Gray Mottles

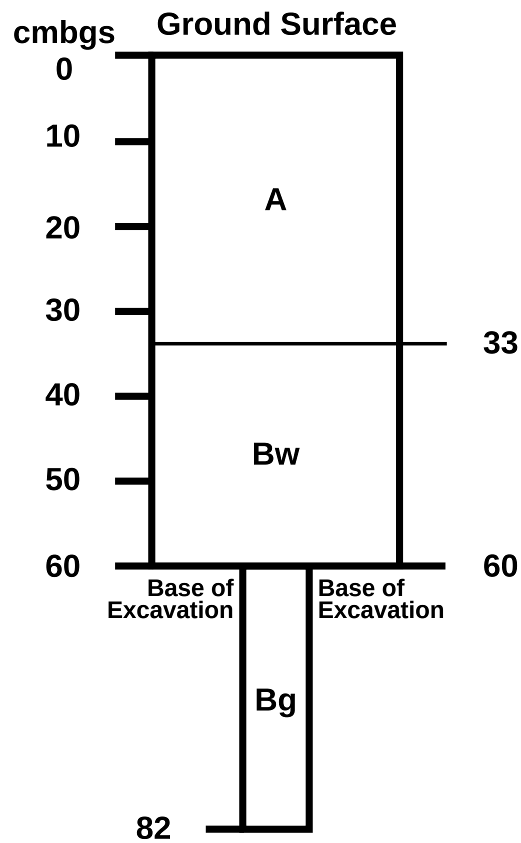
MARKOSKY	Greenbag Road Improvement Phase I Archaeological Survey Abbreviated Technical Report	**Figure 25** Test Area 8 STPs A7, A18, and B18 Soil Profiles	Monongalia County

5.10 Test Area 9

Test Area 9 is located in the northeast quadrant of the intersection of Greenbag Road with Dorsey Avenue (see **Figure 16: Sheet 5**). The test area is on a hillslope landform with elevations ranging from 293.2 to 297.8 m (962.0 to 977.0 ft) above mean sea level. At the time of the survey, vegetation consisted of maintained grassy lawns (**Photographs 81 and 82**). Soils in the test area are mapped as Zoar silt loam, 3 to 8 percent slopes (ZoB). The test area is 0.02 ha (0.05 ac) in size. Two (2) STPs were excavated in Test Area 9. The soil profile consisted of A-Bw-Bg in STP 9A1 (**Figure 26**). STP 9A2 exhibited disturbance from grading and fill. No pre-contact or historic period cultural materials were identified in Test Area 9.

Photograph 81. View of Test Area 9, facing south.


Photograph 82. View of Test Area 9, facing northeast.



Horizon	Description
A Horizon	10YR 4/1 Dark Gray Silty Loam
Bw Horizon	10YR 5/6 Yellowish Brown Silty Loam
Bg Horizon	10YR 7/1 Light Gray Clay Loam Mixed with 10YR 5/6 Yellowish Brown

Figure 26
Test Area 9
STP A1
Soil Profile

5.11 Test Area 10

Test Area 10 is located in the southeast quadrant of the intersection of Greenbag Road and Kingwood Pike (see **Figure 16: Sheet 6**). The test area is on a hillslope landform with elevations ranging from 302.4 to 319.1 m (992.0 to 1,047.0 ft) above mean sea level. At the time of the survey, vegetation consisted of a maintained grassy lawn; grassy meadows; and some mature, planted trees (**Photographs 83-87**). Soils in the test area are mapped as Clarksburg silt loam, 8 to 15 percent slopes (CkC) and 15 to 25 percent slopes (CkD). The test area is 0.58 ha (1.44 ac) in size. In total, 30 STPs were excavated in Test Area 10 in areas with less than 20 percent slope. The soil profiles consisted of A-Bw-Bt-Cr and A-Bt-Cr (**Figure 27**). No pre-contact or historic period cultural materials were identified in Test Area 10.

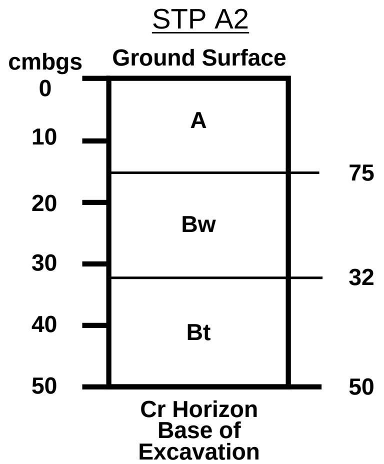
Photograph 83. View of Test Area 10, facing south.

Photograph 84. View of Test Area 10, facing north.

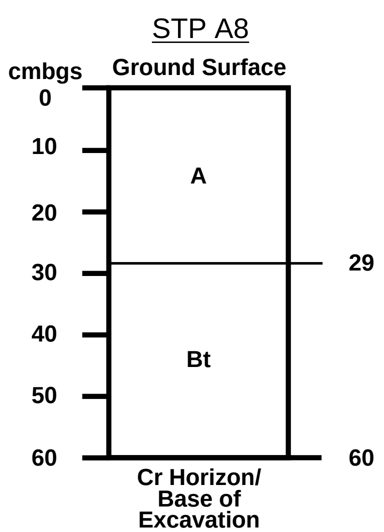
Photograph 85. View of Test Area 10, facing north.

Photograph 86. View of Test Area 10, facing northwest.

Photograph 87. View of Test Area 10, facing south.



Horizon	Description
A Horizon	10YR 4/2 Dark Grayish Brown Silt Loam
Bw Horizon	10YR 5/6 Yellowish Brown Silt Loam with 25% Subangular Sandstone
Bt Horizon	10YR 6/6 Brownish Yellow Silty Clay Loam with 25% Subangular Sandstone



Horizon	Description
A Horizon	10YR 4/2 Dark Grayish Brown Silt Loam
Bt Horizon	10YR 6/6 Brownish Yellow Silty Clay Loam

MARKOSKY	Greenbag Road Improvement Phase I Archaeological Survey Abbreviated Technical Report	**Figure 27** Test Area 10 STPs A2 and A8 Soil Profiles	Monongalia County

5.12 Test Area 11

Test Area 11 is located on the south side of Greenbag Road at the eastern extent of the study area (see **Figure 16: Sheet 7**). The test area is on hillslope landform with elevations ranging from 289.3 to 307.2 m (949.0 to 1,008.0 ft) above mean sea level. At the time of the survey, vegetation consisted of maintained grassy lawns, a hay field, and a cow pasture (**Photographs 88-93**). Soils in the test area are mapped as Clarksburg silt loam, 8 to 15 percent slopes (CkC). The test area is 0.85 ha (2.06 ac) in size. In total, forty-five (45) STPs were excavated in Test Area 11. The soil profile consisted of Ap-Bt (**Figure 28**). The eastern extent of the test area, which consisted of residential yards, exhibited grading and fill activities likely associated with leveling the yards and construction of driveways. No pre-contact or historic period cultural materials were identified in Test Area 11.

Photograph 88. View of Test Area 11, facing northeast.

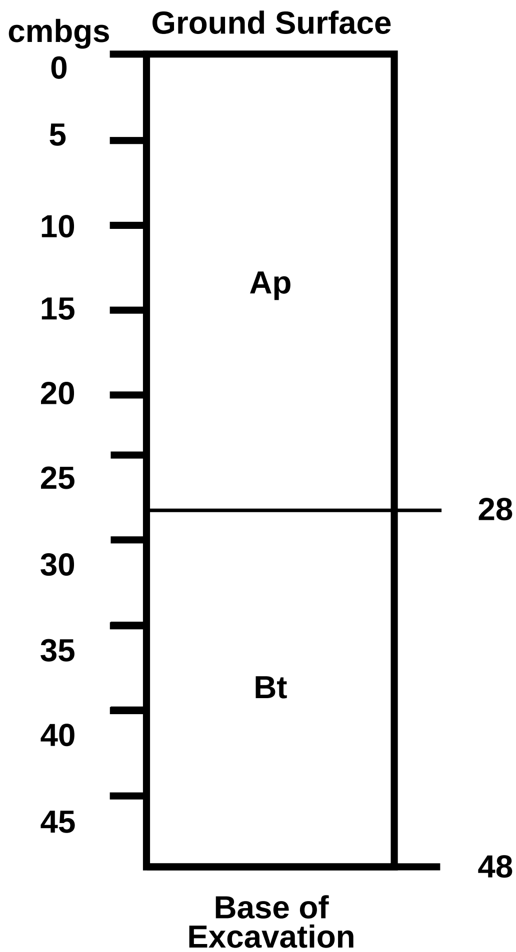
Photograph 89. View of Test Area 11, facing southwest.

Photograph 90. View of Test Area 11, facing northeast.

Photograph 91. View of Test Area 11, facing east.

Photograph 92. View of Test Area 11, facing east-northeast.

Photograph 93. View of Test Area 11, facing west-southwest.



Horizon	Description
Ap Horizon	10YR 4/2 Dark Grayish Brown Silt Loam
Bt Horizon	10YR 5/6 Yellowish Brown Silty Clay Loam

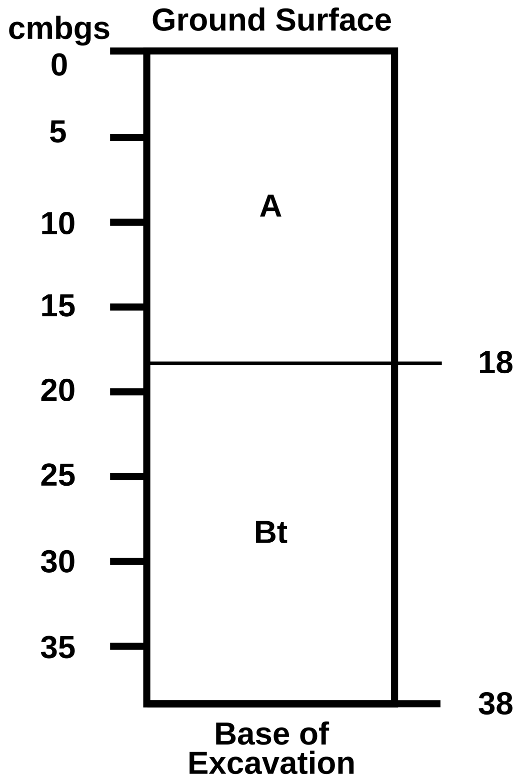
5.13 Test Area 12

Test Area 12 is located on the north side of Greenbag Road east of Richard Avenue (see **Figure 16: Sheet 7**). The test area is on a high terrace landform with elevations ranging from 295.7 to 296.9 m (970 to 974 ft) above mean sea level. At the time of the survey, vegetation consisted of a maintained grassy lawn (**Photographs 94-96**). Soils in the test area are mapped as Zoar silt loam, 3 to 8 percent slopes (ZoB). The test area is 0.12 ha (0.31 ac) in size. In total, seven (7) STPs were excavated in Test Area 12. The soil profile consisted of A-Bt (**Figure 29**). The southeastern-most STP exhibited disturbance from grading and fill. No pre-contact or historic period cultural materials were identified in Test Area 12.

Photograph 94. View of Test Area 12, facing west.

Photograph 95. View of Test Area 12, facing northwest.

Photograph 96. View of Test Area 12, facing northeast.



Horizon	Description
A Horizon	10YR 4/2 Dark Grayish Brown Silt Loam
Bt Horizon	10YR 5/6 Yellowish Brown Silty Clay Loam

Figure 29
Test Area 12
STP A6
Soil Profile

6.0 SUMMARY AND RECOMMENDATIONS

Markosky conducted a Phase I archaeological survey within the study area for the Greenbag Road Improvement project in the City of Morgantown, Monongalia County, West Virginia. The Phase I survey consisted of background research, field investigations, and the preparation of this report. The fieldwork was conducted between January 28 and March 21, 2019 and on October 8, 2019. Because project design and frequent revisions to design was in progress during most of the Phase I archaeology fieldwork, an archaeological Area of Potential Effects (APE) was not initially able to be established for the project; therefore, a study area was delineated, that attempted to capture all permanent impacts and temporary work spaces needed during construction. The Phase I efforts were designed and conducted to determine if any potentially significant archaeological resources are present within the established study area. Prior to the completion of this report, a preliminary APE for the project was established based on Preliminary Field Review Design from 3/29/2019. This report shows the results of the Phase I survey within the larger study area, as well as the preliminary APE.

The study area totals 19.96 ha (49.33 ac) in size, of which 13.23 ha (32.70 ac) are disturbed, 2.40 ha (5.93 ac) are steeply sloped, 0.71 ha (1.76 ac) are in stream beds or small drainages, and 3.62 ha (8.94 ac) contained intact soils. In total, two hundred thirteen (213) STPs and one (1) TU were excavated within twelve (12) total test areas. Additionally, twelve (12) 4-in bucket auger probes and numerous split spoon auger borings were excavated to verify and delineate areas of disturbance. No pre-contact or historic period archaeological resources were identified. No previously recorded archaeological sites are present within the study area, or within the APE based on design from 3/29/2019. The project as currently designed will not impact any archaeological sites eligible for or listed on the NRHP.

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APPENDIX A

Resumes of Key Personnel

MARKOSKY

EXPERIENCE

Ms. Schumer is a Senior Archaeologist / Principal Investigator with 17 years of experience in the fields of Archaeology and Cultural Resources. Jessica has been in charge of supervising prehistoric and historic archaeological investigations and acts as the project manager on various projects. Previous experience includes preparing proposals, budgets, and schedules; conducting fieldwork, laboratory analysis, and curation; managing personnel and logistics; preparing reports, products, and presentations; conducting technical peer review; ensuring internal and external QA/QC; and facilitating client and agency communications and coordination. Jessica has conducted archaeological projects in Pennsylvania, West Virginia, Ohio, Maryland, Delaware, Massachusetts, New York, and Peru.

Select Project Experience

SR 0119, Section 463, Home Bridge No. 3, Indiana County, PA – PennDOT District 10-0
Project Manager
Ms. Schumer oversaw the completion of the Phase I and II archaeological surveys for this bridge replacement project, and is currently overseeing the Phase III data recovery. She is also coordinating with the District, is coordinating the public education and involvement of archaeological and historic resources, and is overseeing a statewide publication that will be distributed to the public as a component of the required mitigation.

SR 0281, Section 023, Gilmore to Welsh Hill Road, Somerset County, PA – PennDOT District 9-0
Principal Investigator
This project involves road improvements to a 9-mile long section of SR 0281 in Somerset County. Markosky conducted geophysical investigations in areas with potential for unmarked burials, Phase I archaeological survey, Phase II excavations of a 19th and 20th century domestic site, burial removal excavations, and monitoring during construction.

SR 0913, Section 02B, Roaring Run Bridge, Fulton County, PA – PennDOT District 9-0
Principal Investigator
The proposed project replaces the SR 0913 structure over Roaring Run adjacent to Sideling Hill Creek in an area with a high probability for archaeological resources. Markosky conducted a Phase IA reconnaissance survey that included both a geophysical survey that identified the locations of subsurface historic resource anomalies, as well as a geomorphological survey that identified potential locations of pre-contact resources. A Phase IB archaeological survey was conducted that identified two archaeological sites, both of which were recommended as not eligible for the NRHP.

SR 0119, Section 464, Pollock Bridge, Indiana County, PA – PennDOT District 10-0
Principal Investigator
The proposed project replaces the SR 0119 structure over an unnamed tributary in an area with a moderate to high probability for pre-contact resources. Markosky conducted a Phase I archaeological survey and provided abbreviated report with negative findings for agency review.

Previous Project Experience

New Cumberland, West Virginia 2, Hancock County, WV – WVDOH
Principal Investigator
Phase IA Geomorphology and Archaeological Constraints. Report prepared for the West Virginia Division of Highways.

U.S. 35 Improvements, Additional 14 Mile Survey, Putnam and Mason Counties, WV – WVDOH
Principal Investigator
Phase I and II Archaeology. State Project # U220-35-0.02 02, Federal Project #CM-0035(107). Report prepared for the West Virginia Division of Highways.

Jessica L. S. Schumer, M.A., RPA

Archaeology Group Leader, Senior Archaeologist

EDUCATION

M.A. Archaeology
University of Pittsburgh, 2008

B.A. Archaeology
Pennsylvania State University, 2001

QUALIFICATIONS & REGISTRATIONS

Secretary of Interior Standards for Archaeology (36CFR§61)

Register of Professional Archaeologists (RPA) – 2015 (35100174)

Historic Archaeologist-Specialization in Historic Ceramic and Glass Manufacturing Technologies

MEMBERSHIPS

West Virginia Archaeological Society

Council for West Virginia Archaeology

TRAINING

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Southpointe Office
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DD SRA Harper Storage Yard, Hardy County, WV – WVDOH
Principal Investigator
Phase I and II Archaeological Investigations at the Harper Site (46HY366/641), State Project #X316-SBV/RR-40.60. Report prepared for the West Virginia Division of Highways.

Buffalo Creek Connector, Boone and Logan Counties, WV – WVDOH
Principal Investigator
Phase I Archaeology, Abbreviated Technical Report, State Project #U303-85/20-0.01 00. Report prepared for the West Virginia Division of Highways.

Seminole Road, Summers County, WV – WVDOH
Principal Investigator
Phase I Archaeology, State Project #S345-21/1-1.15 00. Report prepared for the West Virginia Division of Highways.

District 3 Headquarters, City of Parkersburg, Wood County, WV – WVDOH
Principal Investigator
Phase I Archaeology, State Project #G054-HDQ-1.00. Report prepared for West Virginia Division of Highways.

Chief Logan Connector Project, Logan County, WV – WVDOH
Principal Investigator
Phase I Archaeology and Above-Ground Historic Resources Survey, State Project #X323-210/24-0.00. Report prepared for the West Virginia Division of Highways.

Pleasantview Bridge Replacement, Tyler County, WV – WVDOH
Principal Investigator
Phase I Archaeology Abbreviated Technical Report, State Project #S348-18-19.41, Federal Project #BR-0018(110) D. Report prepared for the West Virginia Division of Highways.

Mill Creek Road Boy Scout Reserve, Fayette and Raleigh Counties, WV – WVDOH
Principal Investigator
Phase I Archaeology, State Project #U310-16-0.00. Report prepared for the West Virginia Division of Highways.

U.S. 35 Improvements Project, Reconnection of Old US 35 Near Henderson, Mason County, WV – WVDOH
Principal Investigator
Phase I Archaeology Survey, Management Summary, State Project #U220-35-0.02 02, Federal Project #CM-0035(107). Report prepared for the West Virginia Division of Highways.

Monongahela River Locks and Dams Hydroelectric Projects (Morgantown and Opekiska), Monongalia County, WV – USACE
Principal Investigator
Phase I Archaeology. Report prepared for Free Flow Power Corporation and Chester Engineers.

Route 9 Ladies Borrow Area, Jefferson County, WV – WVDOH
Principal Investigator
Phase I Archaeology Survey. Report prepared for the West Virginia Division of Highways.

U.S. 35 Improvements, Smithland Farm Proposed Fill Area, Mason County, WV – WVDOH
Principal Investigator
Phase I Archaeology Survey, State Project #U220-35-0.02 02, Federal Project #CM-0035(107). Report prepared for the West Virginia Division of Highways.

Jessica L. S. Schumer, M.A., RPA

Archaeology Group Leader, Senior Archaeologist

EDUCATION

M.A. Archaeology
University of Pittsburgh, 2008

B.A. Archaeology
Pennsylvania State University, 2001

QUALIFICATIONS & REGISTRATIONS

Secretary of Interior Standards for Archaeology (36CFR§61)

Register of Professional Archaeologists (RPA) – 2015 (35100174)

Historic Archaeologist- Specialization in Historic Ceramic and Glass Manufacturing Technologies

MEMBERSHIPS

West Virginia Archaeological Society

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MARKOSKY

EXPERIENCE

Mr. Rowles currently oversees all Section 106 activities and tasks for Markosky, including geomorphology, archaeology, and architectural history. He has extensive experience particularly with archaeological work, ranging from the orchestration of various types of Phase I, II, and III projects, as well as the management of Section 106 on hundreds of transportation projects most recently as a Cultural Resource Professional (CRP) for PennDOT. In his experiences, Mr. Rowles has coordinated with members of the public, project stakeholders, consulting parties, and Tribes and Nations, in addition to conducting various levels of project-specific research, report and other deliverable writing, geomorphological surveys, geophysical surveys, unmarked grave surveys and identification, determinations of eligibility and effect, author of various agreement documents (i.e., PA, MOA, MOU), predictive modeling (including multiple reviews of the PA statewide pre-contact predictive model and its application), pre-contact and historic period artifact analysis, artifact curation, innovative and alternative forms of mitigation, and coordination of cultural resources during design, as well as during construction to ensure environmental mitigation commitments are met.

Select Project Experience

SR 2005, Section 02B, 2017 Blair County DF Box Culvert, Blair County – PennDOT District 9-0
Project Manager
This project involved the replacement of the bridge carrying SR 2005 over Middletown Run. Markosky conducted historic document and deed research, and Phase I archaeological investigations that recorded the Millerstown 1 Site (36BL0124); an early to mid-19th Century blacksmith/wagon shop. Markosky then completed the Phase II excavations that resulted in an eligible determination of the archaeological site. Markosky is currently assisting the District with consulting party and agency coordination by presenting multiple alternative mitigation options as part of the Section 106 and consulting party process.

SR 4012, Section 251, Offsite Wetland Mitigation Site for the SR 4012 Group Bridges, Butler County, PA – PennDOT District 10-0
Project Manager
Mr. Rowles oversaw the Phase I archaeological testing of a proposed wetland mitigation site required due to proposed impacts at three separate bridge locations. A PA SHPO Negative Survey Report was completed.

SR 0281, Section 023, Gilmore to Welsh Hill Road, Somerset County – PennDOT District 9-0
Project Manager
This project involved the reconstruction of approximately 13 miles of SR 0281 in Somerset County, including a slope adjacent to a historic cemetery. Notified of the project as it entered the construction phase, Markosky conducted the Phase I archaeological investigations at locations throughout the project area, clearing a majority for construction. Markosky also conducted a geophysical survey within the project area adjacent to the Cemetery to identify any potential graves. The survey recorded several anomalies, and follow-up archaeological testing revealed an early to late 19th Century historic archaeological site (Mostoller site), as well as several historic graves. Markosky conducted additional historic document, deed, and title research to aid the District with legal right-of-way activities, as well as drafted a project Memorandum of Agreement, Plan of Action, survey of historic cemetery boundaries, public involvement, and assisted with court hearings and permitting regarding the removal of any potential historic graves. Mr. Rowles then coordinated the additional Phase II testing that was required, as well as oversight of the investigation and removal of several historic graves prior to construction. All work was completed without delay to any construction schedules.

SR 0006, Section M36, Sugar Creek to Gulf Road, Bradford County, PA – PennDOT District 3-0
Project Manager
Oversaw the Phase I archaeological survey along approximately 3 miles of proposed roadway reconstruction, including through a previously recorded archaeological site. Completed a Phase I archaeological survey report that recommended the few artifacts recovered did not contribute to the overall eligibility of the archaeological site, and therefore recommended a *No Adverse Effect*.

Ryan A. Rowles, M.A., RPA
Cultural Resources Department Manager

EDUCATION

M.A. Archaeology
University of Oklahoma, 2004

B.A. Archaeology
Indiana University of Pennsylvania, 2001

QUALIFICATIONS & REGISTRATIONS

Secretary of Interior Standards for Archaeology (36CFR§61)

Register of Professional Archaeologists (RPA) – 2004 (37427894)

MEMBERSHIPS

West Virginia Archaeological Society

TRAINING

Section 106 in the New Regulatory Environment

Advanced Section 106: Resolving Adverse Effect and Writing Agreement Documents

Section 4(f) for Specialists

Context Sensitive Solutions

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SR 3041, Section A10, SR 3041 over Short Creek, Washington County – PennDOT District 12-0
Project Manager
Oversaw the completion of the geomorphological survey and Phase I investigations of the deeply stratified pre-contact archaeological site for this bridge project crossing over Short Creek in rural southern Washington County. The archaeological survey identified a complicated lithic reduction site of Ten Mile chert. Mr. Rowles coordinated closely with the District to assist project design to avoid the potentially eligible archaeological site, and assisted with the development of mitigation commitments to be followed through construction.

SR 1019, Section 251, West Winfield Bridge No. 1, Butler County – PennDOT District 10-0
Project Manager
First informed of the project as it headed into construction, Markosky completed the Phase I and II archaeological investigations for the project. In coordination with the District and the contractor, Markosky completed the work without delay to the construction schedule.

South Perry Street Bridge, PennDOT District 1-0
Project Manager
Oversaw assisting the District with the QA/QC review of the Historic Bridge Rehabilitation (Feasibility) Report review, Determination of Effects report, and Section 106 consulting party coordination.

SR 4009, Section B01, Watts Mill Road Bridge, Beaver County – PennDOT District 11-0
Project Manager
Oversaw assistance with the project Purpose and Need, Determinations of Eligibility, the Effects Report, and Resolution of Adverse Effects of this 1878 wrought iron, pin-connected Pratt pony truss bridge.

Select Tribal Consultation Experience

As a regional archaeologist for the Pennsylvania Department of Transportation for almost 9 years, Mr. Rowles was delegated by FHWA to consult with various Tribes and Nations. Whereas Tribal consultation typically only occurs as federal government to federal government coordination, FHWA delegated Mr. Rowles to speak to the Tribes and Nations on their behalf on hundreds of transportation projects.

Select Archaeological Projects with Tribal Consultation
SR 0018, Section X10 Browns Creek Bridge, Greene County, PA – PennDOT District 12-0
PennDOT Regional Archaeologist – Section 106 Coordination of Pre-Contact Graves
Management of 106 between multiple federal and state agencies, and Tribes and Nations of previously recorded pre-contact graves at bridge replacement project. Project consisted of geomorphology, GPR, contract special provisions, mitigation commitments, archaeological monitoring, and more. Coordinated Tribal consultation, which included meeting representatives from the Absentee-Shawnee Tribe, as well as the Seneca Nation to review the proposed project design, visit the project location, and discuss face-to-face any concerns and plans. Successfully moved forward the bridge and intersection realignment project without any project delays and avoided any impacts to existing pre-contact graves.

SR 0356, Section 06M Freeport Bridge over Allegheny River, Westmoreland, Allegheny, Butler, and Armstrong Counties, PA – PennDOT District 12-0
PennDOT Regional Archaeologist – Archaeological Management and Tribal Consultation
Coordinated with Tribes and Nations regarding their concern for previously recorded pre-contact sites located along the Allegheny River. This project in particular had project-specific issues at the location of the large river bridge crossing. Discussed project, alleviated concerns, and moved project forward.

I-70, Section 21H, Bentleyville Interchange, Washington County, PA - PennDOT District 12-0
PennDOT Regional Archaeologist- Phase I – III Archaeological and Section 106 Management
Coordination and management of geomorphological, geophysical, and archaeological surveys through authorship of an agreement document (MOA), Phase III data recovery plan, research design, and public education between multiple agencies, consulting parties, and Tribes and Nations. Specifically coordinated concerns and mitigation commitments with Tribal groups through construction.

Ryan A. Rowles, M.A., RPA
Cultural Resources Department Manager

EDUCATION

M.A. Archaeology
University of Oklahoma, 2004

B.A. Archaeology
Indiana University of Pennsylvania, 2001

QUALIFICATIONS & REGISTRATIONS

Secretary of Interior Standards for Archaeology (36CFR§61)

Register of Professional Archaeologists (RPA) – 2004 (37427894)

MEMBERSHIPS

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EXPERIENCE

Mr. Gajewski is an Archaeological Field Director with 17 years of experience in the field of Archaeology. He specializes in cultural resource surveys, investigations, and data recoveries of prehistoric and historic archaeological sites throughout the Mid-Atlantic region. He has extensive experience with field directing projects for varying types of clients within the public and private sector and is especially reliable on long-term linear, large parcel, and multiple-state projects. His duties include: the direction of field crews, field artifact and site identification, stratigraphic interpretation, the organization of field data, and laboratory analyses/curation of artifacts.

Project Experience

Fourth Street Arch Bridge Replacement Project, Lewis County, WV
West Virginia Division of Highways
Field Director – Phase IA Reconnaissance/Geomorphological Assessment and Phase IB Survey
This project involved a study to evaluate and determine the most suitable and economical location for the replacement of the existing Fourth Street Arch Bridge (#21-N16/70-0.02) over the West Fork River in Weston, Lewis County, WV. The project required the documentation of the existing bridge location in downtown as well as the survey for a proposed replacement location approximately one-half mile downstream. Survey of the replacement bridge location required a geomorphological assessment of the flood plain along West Fork River as well as systematic shovel testing. The survey was conducted in accordance with WV SHPO guidelines.

US Route 35 Road Improvement Project, Mason and Putnam Counties, WV
West Virginia Division of Highways
Archaeologist – Phase I Survey, Phase II Investigations, and Phase III Data Recovery
This large-scale transportation project involved all phases of archaeological survey for a newly proposed US Route 35 corridor in Mason and Putnam Counties, WV. Initial Phase I survey documented numerous archaeological sites and subsequent Phase II investigations identified one site to be eligible for the National Register of Historic Places (NRHP). Phase III Data Recovery excavations were carried out at the Threemile Creek Rockshelter (46MS305) in Mason County. All phases of survey and excavation were carried out in accordance with WV SHPO guidelines.

US Route 50 Widening Project, Taylor County, WV
West Virginia Division of Highways
Archaeologist – Phase III Data Recovery
This project involved the Phase III Data Recovery excavations of two previously recorded sites, 46TA023 and 46TA024, along a section of US Route 50 in Pruntytown, Taylor County, WV in advance of a road widening project. The survey was conducted in accordance with WV SHPO guidelines.

West Virginia General Services Office Building Monitoring, Logan County, WV
WV General Services Division
Archaeologist – Archaeological Monitoring
The project involved archaeological monitoring during the construction of a new state office building in downtown Logan, WV for the General Services Division. Construction impacts to a previously recorded National Register of Historic Places (NHRP) eligible site, 46LG0004, were monitored and mitigated during active construction of the building. Monitoring was carried out in accordance with WV SHPO guidelines.

Deep Valley POD Project, Ritchie County, WV
Dominion Transmission, Inc.
Field Director – Phase IA Reconnaissance and Phase IB Survey
This pipeline project involved the geomorphological assessment, pedestrian survey and systematic shovel testing of a proposed gas pipeline ROW in Ritchie County, WV. Numerous historic and prehistoric-era sites were documented however no sites were recommended eligible for the National Register of Historic Places (NRHP). The survey was carried out in accordance with WV SHPO guidelines.

Scott R. Gajewski

Archaeological Field & Lab Director

EDUCATION

B.S. Anthropology
Franciscan University of Steubenville, 2001

MEMBERSHIPS

West Virginia Archaeological Society

Society for American Archaeology

Pennsylvania Archaeological Council

SAFETY TRAINING

OSHA 10-Hour Construction Safety Training (AOS), August 2017

Safeland USA and SafeGulf Safety Training (PEC Safety), August 2013

National Safety Council Defensive Driving Course, May 2010

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www.markosky.com

H-162 Pipeline Replacement Project, Kanawha and Clay Counties, WV
Dominion Transmission, Inc.
Archaeologist – Phase I Survey, Phase II Investigations, and Phase III Data Recovery
This large-scale pipeline project involved the pedestrian survey and systematic shovel testing of a proposed gas pipeline ROW in Kanawha and Clay Counties, WV. Initial Phase I survey identified numerous sites that underwent subsequent Phase II Investigations to determine their eligibility for the National Register of Historic Places (NRHP). Mr. Gajewski field directed the Phase II Investigations at 46KA602 and 46KA622. Construction impacts could not avoid the Witcher Creek Site (46KA622), therefore Phase III Data Recovery excavations were undertaken. All phases of survey and excavation were carried out in accordance with WV SHPO guidelines and Federal Energy Regulatory Commission (FERC) regulations.

Appalachian Gateway (TL-590) Project, Marshall County, WV
Dominion Transmission, Inc.
Archaeologist– Phase I Survey and Phase II Investigations
This large-scale pipeline project involved the pedestrian survey and systematic shovel testing of a proposed gas pipeline ROW in Marshall County, WV. Initial Phase I survey identified two sites that underwent subsequent Phase II Investigations to determine their eligibility for the National Register of Historic Places (NRHP). The Brushy Ridge Site (46MR141) (historic) and Fish Creek Site (46MR139) (prehistoric) were both determined to be eligible for the NRHP. The survey and investigations were carried out in accordance with WV SHPO guidelines and Federal Energy Regulatory Commission (FERC) regulations.

Kanawha Valley Area (KVA) North and South Improvement Projects, Kanawha County, WV
American Electric Power Company
Field Director – Phase I Survey
This large-scale energy infrastructure project involved the survey of 12 separate 138kV powerline upgrade corridors (50+ miles) and the survey and documentation of over 100 project-related access roads (200+ miles). Within the KVA North project, survey of the Amos-Chemical, Amos-Turner, Turner-Chemical, the UUC #8 Tap Line, and Amos-Sporn 138kV lines were surveyed. Within the KVA South project, survey of the Cabin Creek-Turner, Amos-Logan, Southridge Extension, Ruth Loop, Hernshaw Extension, and Chesterfield Avenue Extension 138kV lines were surveyed. Numerous prehistoric and historic era sites potentially eligible for the National Register of Historic Places (NRHP) were documented, however American Electric Power was able to redesign the pending upgrades to avoid significant impacts. The survey was carried out in accordance with WV SHPO guidelines.

East Mountain Compressor Station Project, Tyler County, WV
Antero Midstream Partners LP
Field Director – Phase I Survey
This project was carried out in advance of a well pad project in northwestern West Virginia. Pedestrian survey and systematic shovel testing was carried out for a proposed 25-acre well pad. Shovel testing documented the Haymond Ridge Site which was determined to ineligible for the National Register of Historic Places (NRHP). The survey was carried out in accordance with WV SHPO guidelines.

MEPCO Pipeline Project, Monongalia County, WV
DTE Energy Corporation
Field Director – Phase I Survey
This pipeline project involved the pedestrian survey and systematic shovel testing of a proposed gas pipeline in Monongalia County, WV. The survey was carried out in accordance with WV SHPO guidelines.

South Chestnut Wind Farm Project, Fayette County, WV
Iberdrola Renewables, Inc.
Archaeologist – Phase I Survey
This project was carried out in advance of the construction of a large-scale wind farm project along South Chestnut Ridge in Fayette County, WV. The project involved the survey of 20+ turbine locations, meterological stations, and other miscellaneous facilities in addition to project-related access roads. The survey was carried out in accordance with WV SHPO guidelines.

Scott R. Gajewski

Archaeological Field & Lab Director

EDUCATION

B.S. Anthropology
Franciscan University of Steubenville, 2001

MEMBERSHIPS

West Virginia Archaeological Society

Society for American Archaeology

Pennsylvania Archaeological Council

SAFETY TRAINING

OSHA 10-Hour Construction Safety Training (AOS), August 2017

Safeland USA and SafeGulf Safety Training (PEC Safety), August 2013

National Safety Council Defensive Driving Course, May 2010

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EXPERIENCE

Mr. McKeel is an Archaeological Principal Investigator with 9 years of experience in the field of Archaeology. His duties include; managing and assisting with planning, developing, and conducting all phases of archaeological survey. He also develops recommendations of eligibility and effect and ensures project compliance with applicable federal and/or state laws and regulations. His duties also include conducting laboratory analyses and curation, preparing reports, articles, and presentations, and managing personnel. Justin has previous experience in spatial analysis, database management and analysis, and producing project and site maps using ESRI ArcGIS.

Select Project Experience

Tunnel Road Wetland Mitigation Project, Somerset County, PA – USACE Pittsburgh District
Principal Investigator – Geomorphology, Phase I
This project involves the design and construction of a wetland mitigation bank. As a consultant to Hunt Valley Environmental, Markosky conducted the geomorphological, archaeological, and historic structures surveys prior to project construction. A PA SHPO Negative Survey Report was completed.

SR 0268, Section 252, PA 268 over Lowrey Run, Butler County, PA – PennDOT District 10-0
Principal Investigator – Geomorphology, Phase I
Markosky conducted geomorphological investigations and Phase IB archaeological investigations for this bridge replacement project. One previously recorded archaeological site was encountered and a Phase I report was prepared that recommended the few artifacts recovered did not contribute to the overall eligibility of the archaeological site, and therefore recommended a *No Adverse Effect*.

SR 4067, Section A10, SR 4067 over Branch of Pine Run, Westmoreland County, PA PennDOT District 12-0
Principal Investigator – Phase I
The proposed project proposed to replace the existing structure carrying SR 4067 over a branch of Pine Run in Westmoreland County, in an area near the Revolutionary War-period Fort Hand. Markosky completed a Phase I archaeological survey, including a metal detecting survey; no historic period archaeological resources were identified and a PA SHPO Negative Survey Report was prepared.

SR 3041, Section A10, SR 3041 over Short Creek, Washington County, PA PennDOT District 12-0
Principal Investigator – Phase I
Markosky completed Phase IB archaeological investigations and supplemental geomorphological investigations for this bridge replacement project. One deeply stratified pre-contact period archaeological site was encountered and a Phase I archaeological report was prepared.

SR 0160, Section 000, Wellersburg Truck Ramp, Somerset County, PA – PennDOT District 9-0
Principal Investigator – Phase I
This project involves the construction of a runaway truck ramp in Wellersburg Borough, Somerset County in an area of high probability for historic period archaeological resources. Markosky completed a Phase I archaeological survey that identified one newly recorded archaeological site, one newly recorded above ground historic resource, and expanded one previously recorded archaeological site.

SR 0219, Section 44M, US 219 Carrolltown Improvements, Cambria County, PA PennDOT District 9-0
Principal Investigator – Phase I
This project involved the design of improvements to increase safety along SR 219 in East Carroll Township and Carrolltown Borough, Cambria County. As a subconsultant to Gannett Fleming, Markosky completed a Phase I archaeological survey, identifying a late 19th to early 20th century farmhouse. A Phase I report was prepared that recommended the site not eligible based on the substantial late 20th century disturbance to the site.

Justin McKeel, M.A., RPA

Archaeological Principal Investigator

EDUCATION

M.A. Anthropology
University of Wyoming, 2015

B.A. Anthropology
University of Pittsburgh at Greensburg, 2012

QUALIFICATIONS & REGISTRATIONS

Secretary of Interior Standards for Archaeology (36CFR§61)

Register of Professional Archaeologists (RPA) – 2016 (39362568)

Pre-Contact Archaeologist- Specialization in Lithic Reduction Technologies

MEMBERSHIPS

West Virginia Archaeological Society

Council for West Virginia Archaeology

TRAINING

Section 106 Principles and Practice

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SR 1019, Section 251, West Winfield Bridge #1, Butler County, PA – PennDOT District 10-0
Principal Investigator – Phase I/Phase II

First informed of the project as it headed into construction, Markosky completed the Phase I and II archaeological investigations for the project. In coordination with the District and the contractor, Markosky completed the work without delay to the construction schedule. Mr. McKeel was responsible for the Phase I Archaeological Survey, Phase II Archeological Testing, and all reporting including the summary of findings for both Phase I and Phase II, the Recommendation of Eligibility for the West Winfield Garage (36BT0503) and the final Phase I Archaeological Survey and Phase II Archaeological Testing report.

SR 3002, Section 02B over Bear Creek, Fulton Department Force Box Culvert, Fulton County, PA PennDOT District 9-0
Principal Investigator – Phase I

Markosky conducted Phase I Archaeological Investigations and reporting for this bridge replacement project. A PA SHPO Negative Survey Report was completed.

SR 0614, P3 RBRP JV-573 over Newburg Run, Cumberland County, PA – PennDOT District 8-0
Principal Investigator – Phase I

Markosky conducted Phase I Archaeological Investigations and reporting for this bridge replacement project as part of the Pennsylvania Rapid Bridge Replacement Project. A PA SHPO Negative Survey Report was completed.

SR 2005, Section 02B Blair Department Force Box Culvert, Blair County, PA – PennDOT District 9-0
Principal Investigator – Phase II

This project involves the replacement of the bridge carrying SR 2005 (Auction Road) over Middletown Run in North Woodbury Township. As a sub-consultant to EADS Group, Markosky conducted Phase I archaeological survey that led to the recordation of the Millerstown 1 Site (36BL0124); a 19th Century blacksmith shop. Mr. McKeel oversaw the Phase II archaeological investigations, and in coordination with the CRP and PA SHPO, the site was determined potentially eligible for the NRHP. A combined Phase I/Phase II report was prepared.

SR 0861, Section 350, South Leatherwood Bridge, Clarion County, PA – PennDOT District 10-0
Principal Investigator – Phase I

Markosky conducted the Phase I archaeological survey and reporting for this bridge replacement project. One isolated pre-contact period artifact was recovered, but it did not constitute an archaeological site. A Phase I report was prepared.

SR 0006, Section M36, Sugar Creek to Gulf Road, Bradford County, PA – PennDOT District 3-0
Principal Investigator – Phase I

This project involved approximately 3 miles of proposed roadway reconstruction, including through a previously recorded archaeological site. Markosky completed a Phase I archaeological survey and the subsequent report recommended that the few artifacts recovered did not contribute to the overall eligibility of the archaeological site, and therefore recommended a *No Adverse Effect*.

Previous Project Experience

Sine Well Pad Project, Tyler County, WV – Antero Resources
Archaeologist – Phase I

DTI TL-255 Pipeline 2017 Replacement, Wirt and Wood Counties, WV – Dominion
Archaeologist – Phase I

Atlantic Coast Pipeline Project, George Washington National Forest, VA – Dominion
Archaeologist - Phase II

Phase II archaeological investigations of four prehistoric sites via close interval STP and 1x1m test unit excavation. Also conducted lithic analysis of over 50,000 quartzite artifacts.

Justin McKeel, M.A., RPA

Archaeological Principal Investigator

EDUCATION

M.A. Anthropology
University of Wyoming, 2015

B.A. Anthropology
University of Pittsburgh at Greensburg, 2012

QUALIFICATIONS & REGISTRATIONS

Secretary of Interior Standards for Archaeology (36CFR§61)

Register of Professional Archaeologists (RPA) – 2016 (39362568)

Pre-Contact Archaeologist-Specialization in Lithic Reduction Technologies

MEMBERSHIPS

West Virginia Archaeological Society

Council for West Virginia Archaeology

TRAINING

Section 106 Principles and Practice

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MARKOSKY

EXPERIENCE

Ms. Baughman is a Staff Archaeologist/GIS Technician with 2 years of experience in the field of Archaeology and 5 years of experience in the field of GIS. Her duties include: assisting with planning, developing, and conducting all phases of archaeological survey; creating and developing report graphics; using GIS to assist in archaeological interpretations; assisting with artifact processing, analysis, and curation; developing GIS databases and standards; ensuring GIS data meets state and federal standards; GPS preparation prior to fieldwork; processing GPS data upon completion of fieldwork; and processing CAD, raster, and image data for development of shapefiles, maps and graphics.

Select Project Experience

Home Bridge No. 3 Replacement, Indiana County, PA - PennDOT District 10-0
Staff Archaeologist/GIS Technician – Phase I/ Phase II/ Phase III
Ms. Baughman assisted with fieldwork on all three phases of the identification and evaluation of the blacksmith shop site, developed spatial data and created various field maps to assist with excavation, assisted with artifact processing, and developed maps and graphics for all reports for this project.

SR 0281 Gilmore to Welsh Hill Road, Somerset County, PA - PennDOT District 9-0
Staff Archaeologist/GIS Technician – Phase I/ Phase II/ Graves
Ms. Baughman assisted with fieldwork at all phases and grave removal, assisted with artifact processing, and developed maps and graphics for all reports for this project. She also created a database and map series of the historic graves in the cemetery that was used in the archaeological interpretations. Completion of this data was done primarily by image processing and prior recordation due to the deterioration of the stones.

Tunnel Road Wetland Mitigation Project, Somerset County, PA – Hunt Valley Environmental USACE Pittsburgh District
Staff Archaeologist/GIS Technician – Geomorphology, Phase I
Ms. Baughman assisted with fieldwork for the Phase I Survey, developed spatial data, and developed maps and graphics for the Phase I report.

SR 3041, Section A10, SR 3041 over Short Creek, Washington County, PA - PennDOT District 12-0
Staff Archaeologist/GIS Technician – Phase IB
Ms. Baughman assisted with fieldwork for the Phase I Survey, developed spatial data, assisted in artifact processing and analysis, and developed maps and graphics for the Phase I archaeological report.

SR 0219, Section 44M, US 219 Carrolltown Improvements, Cambria County, PA – PennDOT District 9-0
Staff Archaeologist/GIS Technician– Phase I
Ms. Baughman assisted with fieldwork for the Phase I Survey of the historic farmstead, developed spatial data, and developed maps and graphics for the Phase I report.

SR 1019, Section 251, West Winfield Bridge #1, Butler County, PA - PennDOT District 10-0
Staff Archaeologist/GIS Technician – Phase I
Ms. Baughman assisted with fieldwork for the Phase I Investigations in the historic mining community, developed spatial data, and developed maps and graphics for all reports for this project.

SR 2005, Section 02B Blair County Department Force Box Culvert, Blair County – PennDOT District 9-0
Staff Archaeologist/GIS Technician – Phase I/Phase II
Ms. Baughman assisted with fieldwork for the Phase II Investigations of the early 19th Century blacksmith shop, developed spatial data, and developed maps and graphics for all reports for this project.

Sarah Baughman

Staff Archaeologist/ GIS Technician

EDUCATION

B.A. Anthropology
Indiana University of Pennsylvania, 2017

B.A. Geography
Indiana University of Pennsylvania, 2017

MEMBERSHIPS

West Virginia Archaeological Society

TRAINING

ESRI Training Course Certifications

- Terrain Analysis Using ArcGIS
- Georeferencing Raster Data Using ArcGIS
- Working with Coordinate Systems in ArcGIS
- Hazus-MH 2.0 in ArcGIS
- Image Processing with ArcGIS
- Using Raster Data for Site Selection
- Network Analysis Using ArcGIS
- 3D Visualization Techniques Using ArcGIS
- Solving Spatial Problems Using ArcGIS
- Creating and Editing Metadata in ArcGIS
- Managing Lidar Data Using Terrain Datasets

GPS Principles and Techniques

Remote Sensing

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SR 0268, Section 252, PA 268 over Lowrey Run - PennDOT District 10-0
Staff Archaeologist/GIS Technician – Geomorphology, Phase I
Ms. Baughman assisted with fieldwork for the Phase I Survey, developed spatial data, assisted in the refining of the previous site boundary, assisted in the artifact processing and analysis, and developed maps and graphics for the Phase I Report.

Ambridge Borough Historic Buildings Survey and Ordinance
Staff Archaeologist/GIS Technician
Ms. Baughman assisted with this project by developing field maps and creating GIS data.

SR 2005, Section 01B, 2019 DF Fulton Box Culvert – PennDOT District 9-0
Staff Archaeologist/GIS Technician– Phase I
Ms. Baughman assisted with fieldwork for the Phase I Survey, developed spatial data, processed and assisted in analyzing artifacts, and developed maps and graphics for the Phase I report.

SR 0006, Section m36, Sugar Creek to Gulf Road – PennDOT District 3-0
Staff Archaeologist/GIS Technician – Phase I
Ms. Baughman assisted with fieldwork for the Phase I Survey, developed spatial data, and developed maps and graphics for the Phase I report.

Pennsylvania Rapid Bridge Replacement Project, JV-567 - HDR
Staff Archaeologist/GIS Technician – Phase I
Ms. Baughman assisted with fieldwork for the Phase I Survey, developed spatial data, and developed maps and graphics for the Phase I report.

SR 4001, Section 451, Five Points Road Bridge – PennDOT District 10-0
Staff Archaeologist/GIS Technician – Phase I
Ms. Baughman assisted with fieldwork for the Phase I Survey, developed spatial data, and developed maps and graphics for the Phase I report.

SR 4019, Section 01B, 2020 DF Huntingdon Box Culvert – PennDOT District 9-0
Staff Archaeologist/GIS Technician – Phase I
Ms. Baughman assisted with fieldwork for the Phase I Survey, developed spatial data, and developed maps and graphics for the Phase I report.

Impact Corry Historic Structure Survey
Staff Archaeologist/GIS Technician
Ms. Baughman assisted with this project by developing field maps and creating GIS data.

Previous Project Experience

Beaver County Network Analysis and County-Wide Improvement/Development - Beaver County Office of Planning and Redevelopment
Student
Beaver County asked for the assistance of Indiana University of Pennsylvania to create a GIS database that would allow them to pinpoint prime areas for improvement/development within the county. The entire analysis and database creation was done by Ms. Baughman and two other students.

Archaeological Investigations of the Squirrel Hill Site - Indiana University of Pennsylvania
Student
This Squirrel Hill Site is a small Monongahelan village in northern Westmoreland County. After the completion of 6 weeks of fieldwork, Ms. Baughman processed and analyzed artifacts and features from three of the test units excavated.

Sarah Baughman

Staff Archaeologist/ GIS Technician

EDUCATION

B.A. Anthropology
Indiana University of Pennsylvania, 2017

B.A. Geography
Indiana University of Pennsylvania, 2017

MEMBERSHIPS

West Virginia Archaeological Society

TRAINING

ESRI Training Course Certifications

- Terrain Analysis Using ArcGIS
- Georeferencing Raster Data Using ArcGIS
- Working with Coordinate Systems in ArcGIS
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GPS Principles and Techniques

Remote Sensing

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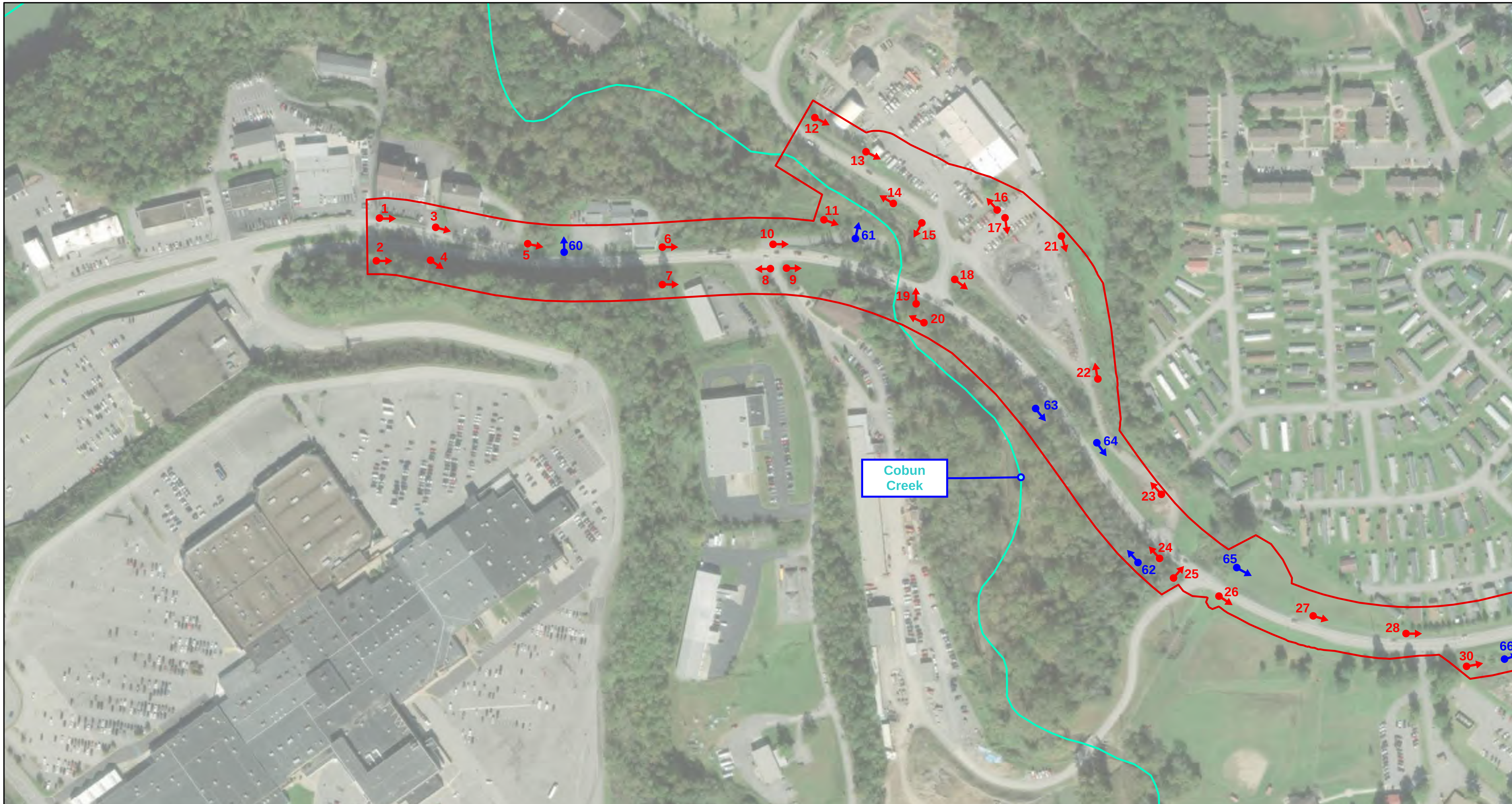
APPENDIX B

Photograph Location Map



Feet
0 100 200 300 400

Meters
0 30 60 90 120

Archaeological Study Area

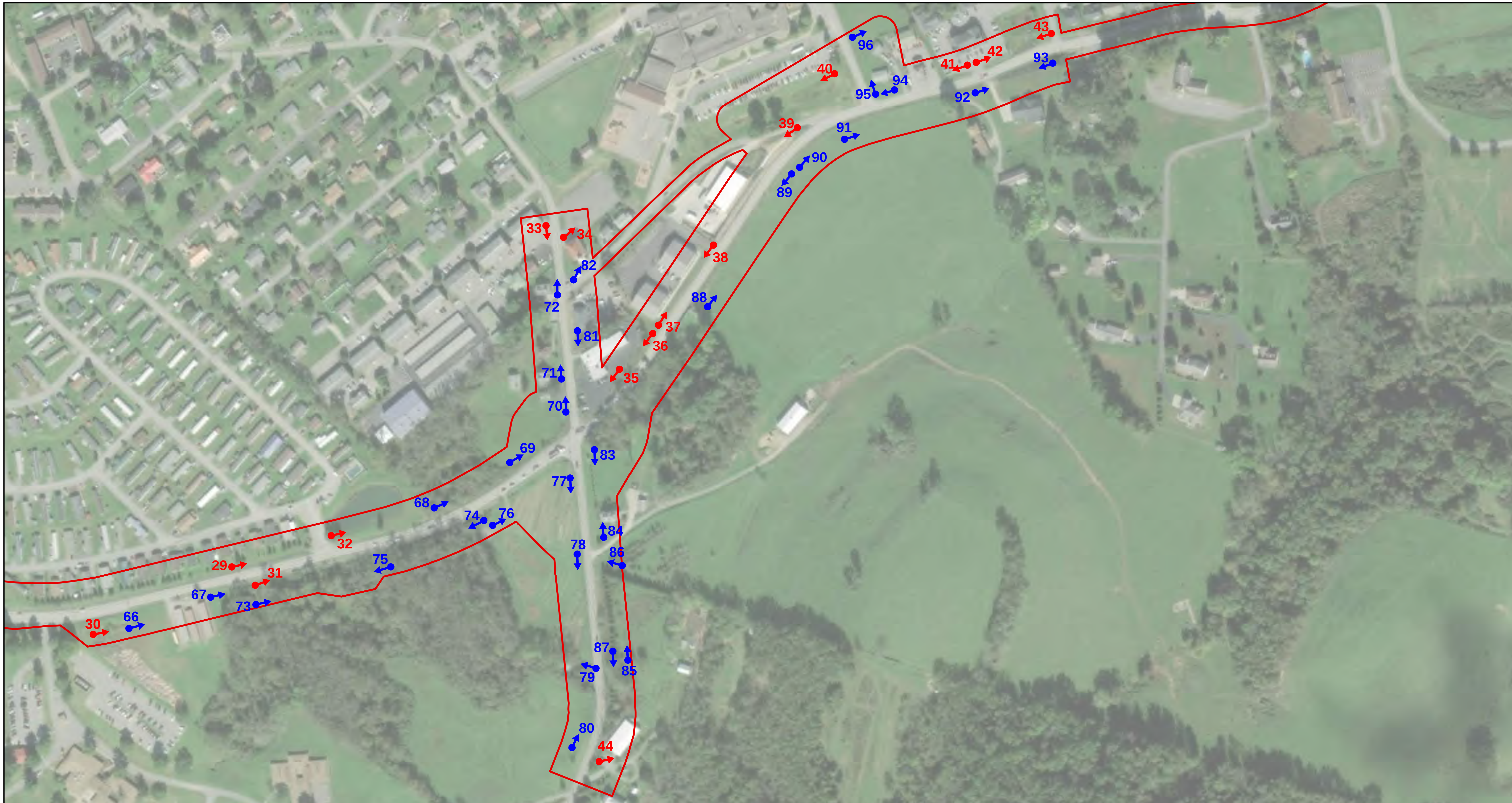
Photo Location - Overview

Photo Location - Test Area

Greenbag Road Improvement
Phase I Archaeological Survey
Abbreviated Technical Report

Monongalia County
West Virginia
Aerial Photography Source: World Imagery (ESRI 2018)

Photograph Location Map
Sheet 1 of 3



Feet
0 100 200 300 400

Meters
0 30 60 90 120

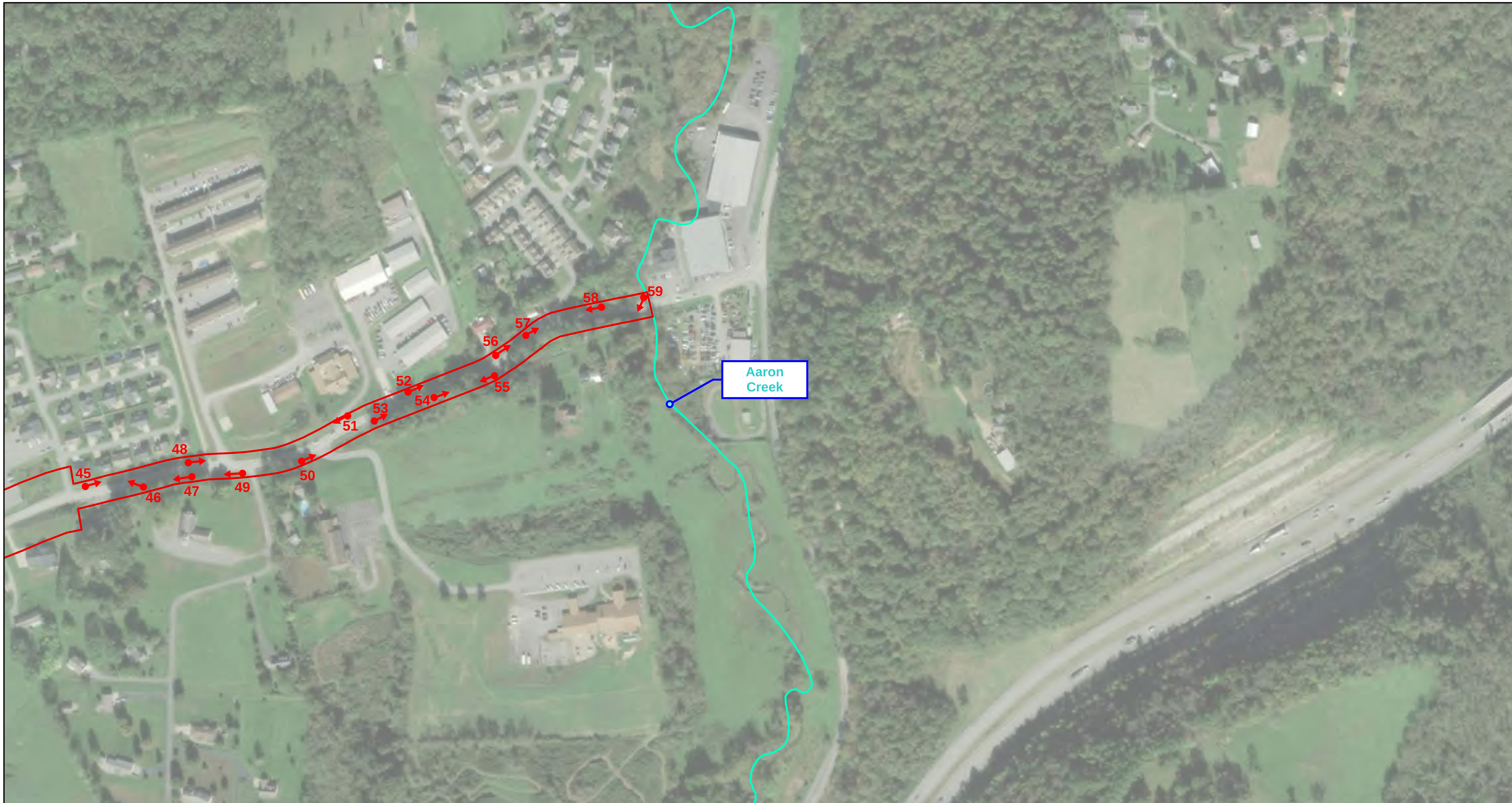
Archaeological Study Area
Photo Location - Overview
Photo Location - Test Area

Greenbag Road Improvement
Phase I Archaeological Survey
Abbreviated Technical Report

Monongalia County
West Virginia
Aerial Photography Source: World Imagery (ESRI 2018)

Photograph Location Map
Sheet 2 of 3

MARKOSKY



N
W
E
S

Feet
0 100 200 300 400

Meters
0 30 60 90 120

Archaeological Study Area
Photo Location - Overview
Photo Location - Test Area

Greenbag Road Improvement
Phase I Archaeological Survey
Abbreviated Technical Report

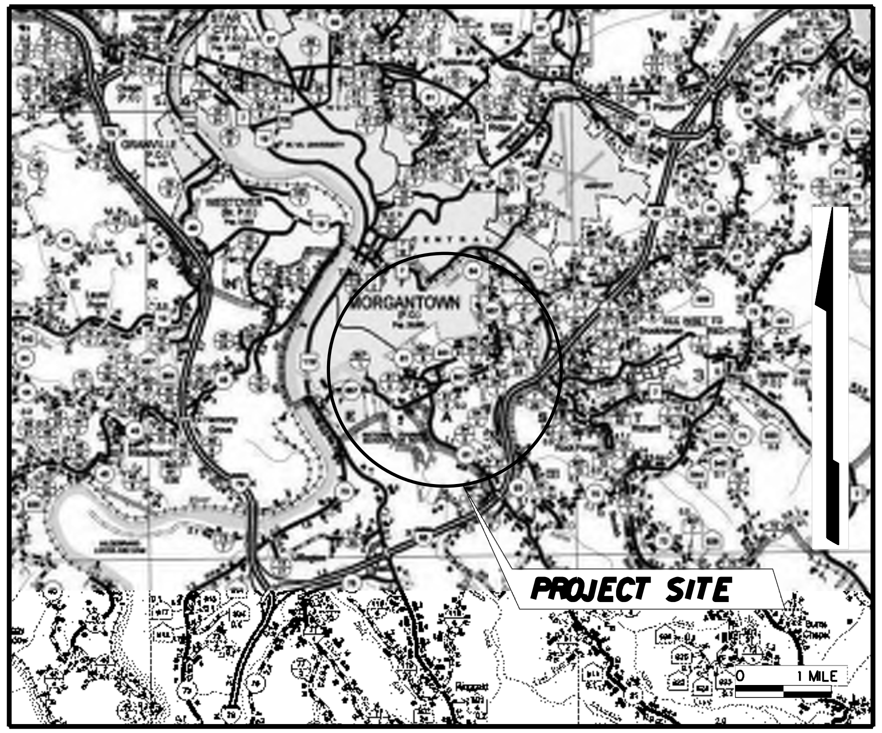
Monongalia County
West Virginia
Aerial Photography Source: World Imagery (ESRI 2018)

Photograph Location Map
Sheet 3 of 3

APPENDIX C

APE: Based on Preliminary Field Review Design (3/29/2019)

Public Roads Div.	State Dist. No.	State Project No.	Federal Project No.	Fiscal Year	County	Sheet No.	Total Sheets
W. V.	4	U331-857 -0.6700	STP -0857(019)D	2019	MONONGALIA	1	272

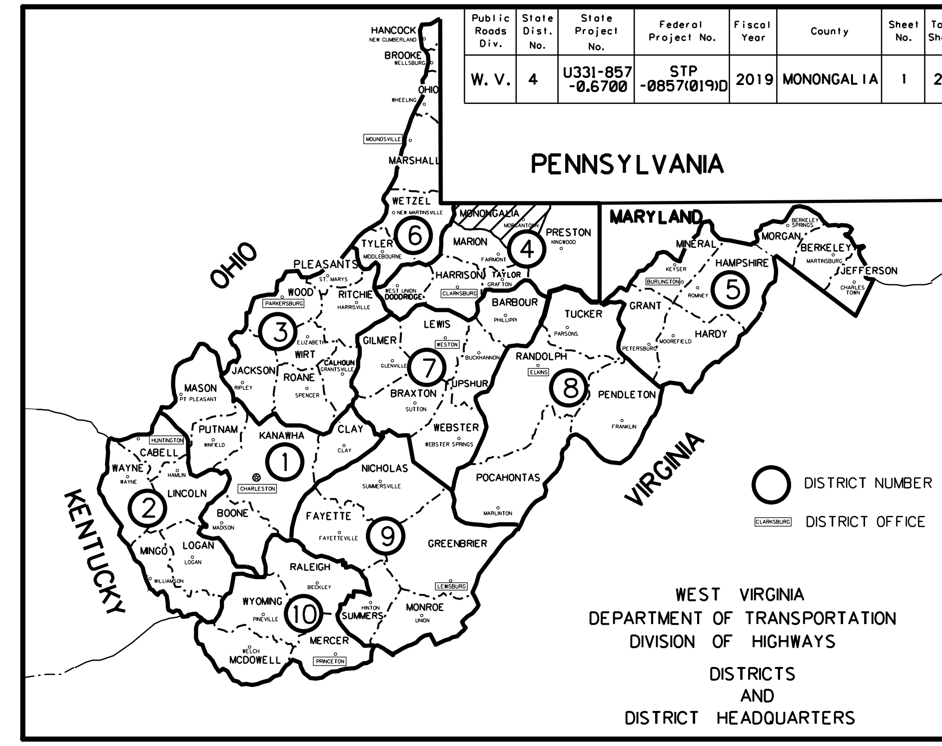


WEST VIRGINIA
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
PLANS FOR CONSTRUCTION
OF
STATE HIGHWAY

FEDERAL PROJECT NO. STP-0857(019)D
STATE PROJECT NO. U331-857-067 00
STATE ROUTE NO. 857
MORGAN DISTRICT
MONONGALIA COUNTY

GREENBAG ROAD

	Station		Station		f.t.		mile(s)
(BEGIN TO MISS. AVE.)	24+00	to	252+95.79	-	1,405	-	0.266
(MISS. AVE. TO CR 81)	252+95.79	to	304+93.28	-	3,013	-	0.571
(CR 81 TO LUCKEY LANE)	304+93.28	to	82+22.99	-	1,475	-	0.279
(LUCKEY LANE TO AARONS CREEK RD.)	82+22.99	to	110+94.89	-	2,872	-	0.544
(AARONS CREEK RD. TO END)	110+94.89	to	166+00	-	5,505	-	1.043
			Total Project Length		14,270		2.703

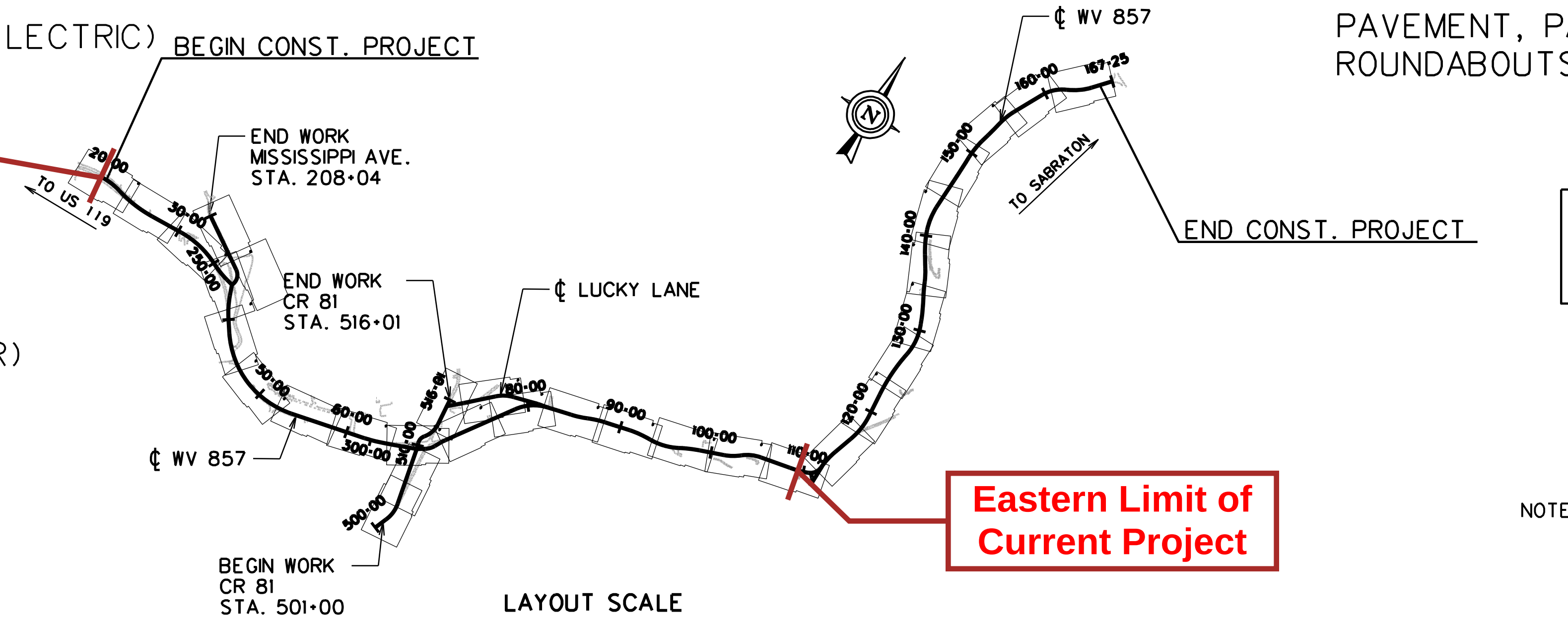


TYPE OF CONSTRUCTION

ROADWAY WIDENING, GRADE, DRAINAGE, PAVEMENT, PAVEMENT MARKING, SIGNING & ROUNDABOUTS.

UTILITIES ENCOUNTERED

FRONTIER WEST VIRGINIA INC. (TELEPHONE)
TRANS-ALLEGHENY INTERSTATE LINE COMPANY (ELECTRIC)
A.V. COMPANY INC. (GAS)
CARDINAL NATURAL GAS NORTHERN DIVISION (GAS)
HOPE GAS INC. (GAS)
MONONGAHELA POWER COMPANY (ELECTRIC)
MOUNTAINEER GAS COMPANY (GAS)
DECKERS CREEK PUBLIC SERVICE DISTRICT (SEWER)
CLINTON WATER ASSOCIATION, INC. - (WATER ASSOCIATIONS/AUTHORITIES)
MORGANTOWN UTILITY BOARD (MUB)
COMCAST COMMUNICATIONS LLC (CABLE)



PFR SUBMITTAL
MARCH 29, 2019

NOTES: STANDARD DETAIL BOOK VOL. I DATED MAY 2016 & VOLUME II DATED JANUARY 2019, SHALL APPLY TO THIS PROJECT.

SCALES

PLAN HOR. 0 20 ft.

PROFILE VERT. 0 5 ft. HOR. 0 20 ft.

LAYOUT SCALE 0 1000 ft.

DESIGN DESIGNATION

A.D.T (2018) 11,127
A.D.T (2048) 14,999
D.H.V. 783
D 54/46
T 4.4%
V 40 MPH

CONVENTIONAL SIGNS

STATE LINE
COUNTY LINE
CORPORATION LINE
PROPOSED R/W & EASEMENT LINE
EXISTING R/W LINE
PROPERTY LINE
EXISTING FENCE
PROPOSED FENCE
EDGE OF STREAM
PROPOSED GUARD RAIL
EXISTING GUARD RAIL
RAILROAD
GAS LINE
WATER LINE
TELEPHONE LINE
ELECTRIC LINE
TELEPHONE POLE
POWER POLE
COMBINED POWER AND TELEPHONE POLE
TREE
SHRUB
RIGHT OF WAY MARKER

INDEX TO SHEETS

NO.	DESCRIPTION
1	TITLE SHEET
2-6	TYPICAL SECTIONS
7-8	SUMMARY OF QUANTITIES
9	GENERAL NOTES
10-14	GEOMETRIC LAYOUT
15-16	MAINTENANCE OF TRAFFIC PLANS
17	REFERENCE POINTS
18-49	PLAN SHEETS
50-84	PROFILE SHEETS
85-89	OWNERSHIP INDEX
90-96	PROPERTY MAPS
97-101	SOIL AND GEOLOGIC INFORMATION PLANS
102-272	CROSS SECTIONS

REVISION NUMBER	SHEET NUMBER	REVISIONS	DATE	BY

.... 20..........
I HEREBY CERTIFY THAT THIS IS A CORRECT COPY OF THE PLANS OF PROJECT..........................

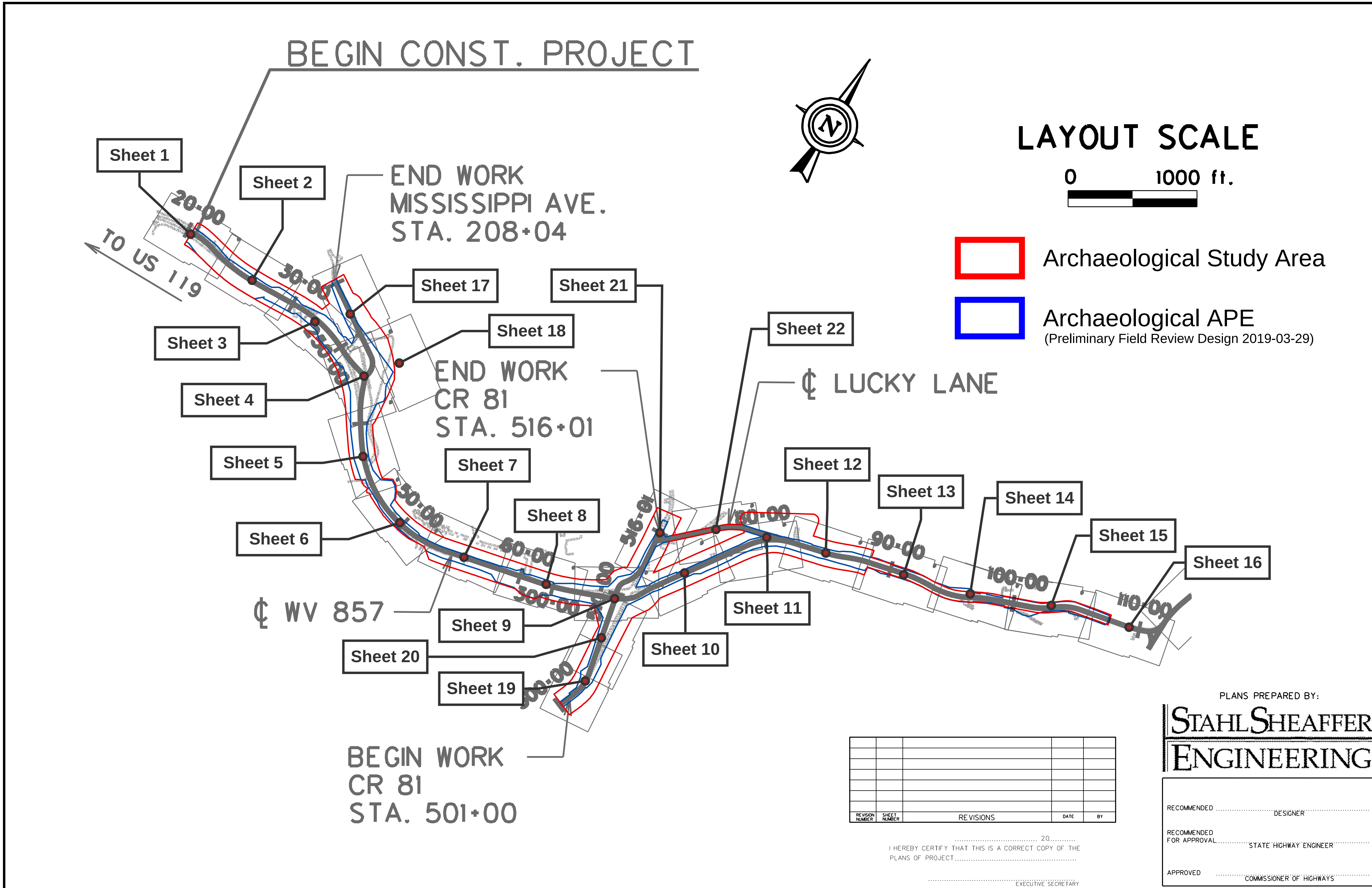
EXECUTIVE SECRETARY

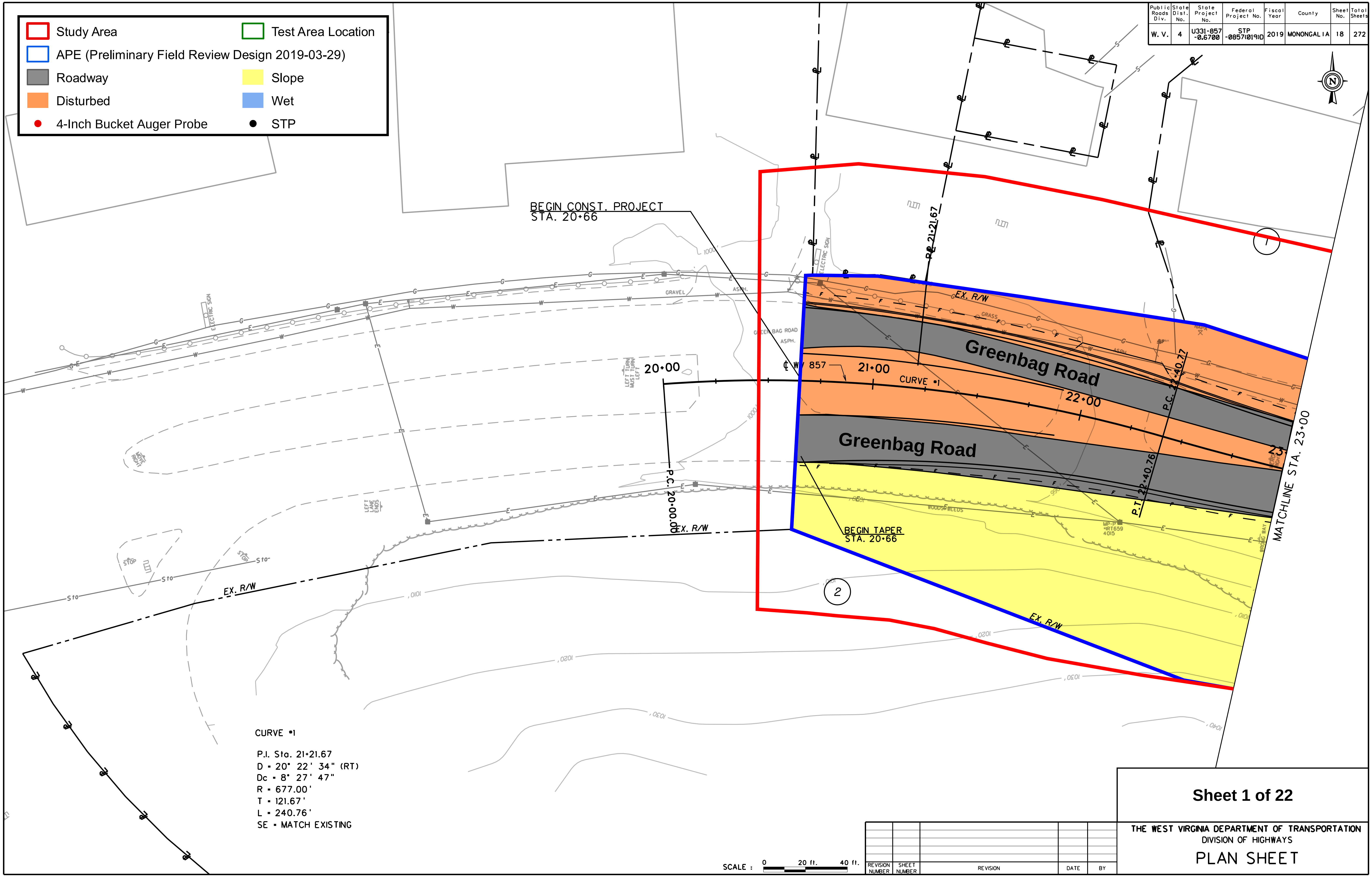
PLANS PREPARED BY:

STAHL SHEAFFER ENGINEERING

RECOMMENDED .... DESIGNER
RECOMMENDED FOR APPROVAL .... STATE HIGHWAY ENGINEER
APPROVED .... COMMISSIONER OF HIGHWAYS

PROJECT NO. U331-857-0.67 00 / STP-0857 (019)D


BEGIN CONST. PROJECT
END WORK
MISSISSIPPI AVE.
STA. 208+04
TO US 119
LAYOUT SCALE
0
1000 ft.
Archaeological Study Area
Archaeological APE
(Preliminary Field Review Design 2019-03-29)
END WORK
CR 81
STA. 516+01
℄ LUCKY LANE
℄ WV 857
BEGIN WORK
CR 81
STA. 501+00
Sheet 1
Sheet 2
Sheet 3
Sheet 4
Sheet 5
Sheet 6
Sheet 7
Sheet 8
Sheet 9
Sheet 10
Sheet 11
Sheet 12
Sheet 13
Sheet 14
Sheet 15
Sheet 16
Sheet 17
Sheet 18
Sheet 19
Sheet 20
Sheet 21
Sheet 22
20+00
30+00
50+00
60+00
90+00
100+00
110+00
516+01
REVISION NUMBER
SHEET NUMBER
REVISIONS
DATE
BY
I HEREBY CERTIFY THAT THIS IS A CORRECT COPY OF THE PLANS OF PROJECT
20
EXECUTIVE SECRETARY
PLANS PREPARED BY:
STAHL SHEAFFER ENGINEERING
RECOMMENDED
DESIGNER
RECOMMENDED FOR APPROVAL
STATE HIGHWAY ENGINEER
APPROVED
COMMISSIONER OF HIGHWAYS



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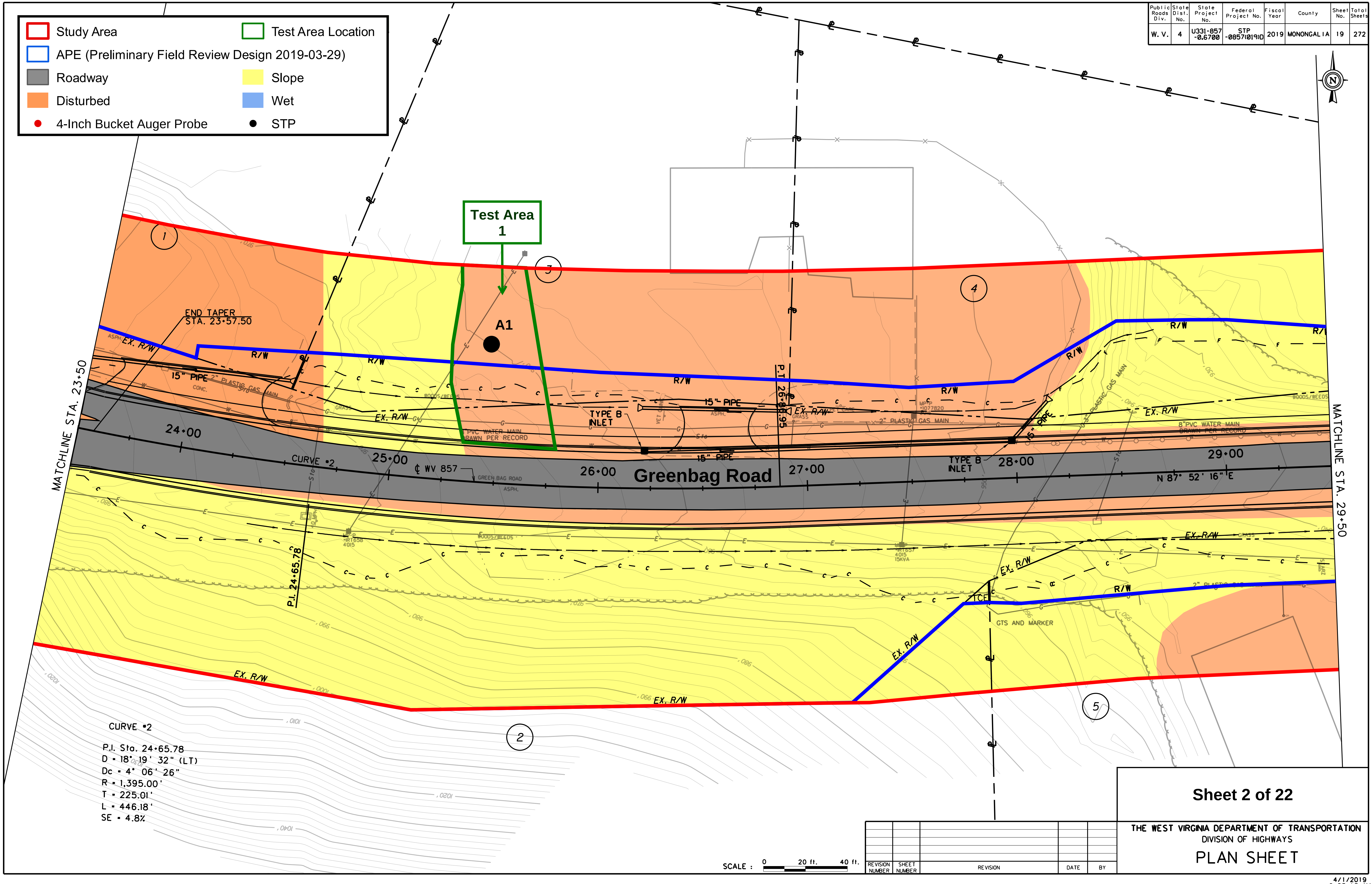

Study Area
Test Area Location
APE (Preliminary Field Review Design 2019-03-29)
Roadway
Slope
Disturbed
Wet
4-Inch Bucket Auger Probe
STP
Public Roads Div.
State Dist. No.
State Project No.
Federal Project No.
Fiscal Year
County
Sheet No.
Total Sheets
W. V.
4
U331-857 -0.6700
STP -0857(019)D
2019
MONONGALIA
19
272
Test Area 1
A1
END TAPER STA. 23+57.50
MATCHLINE STA. 23+50
MATCHLINE STA. 29+50
Greenbag Road
24+00
25+00
26+00
27+00
28+00
29+00
CURVE #2
℄ WV 857
P.I. 24+65.78
P.I. 26+89.95
N 87° 52' 16" E
TYPE B INLET
15" PIPE
EX. R/W
R/W
2" PLASTIC GAS MAIN
PVC WATER MAIN DRAWN PER RECORD
8" PVC WATER MAIN DRAWN PER RECORD
GTS AND MARKER
CURVE #2
P.I. Sta. 24+65.78
D = 18° 19' 32" (LT)
Dc = 4° 06' 26"
R = 1,395.00'
T = 225.01'
L = 446.18'
SE = 4.8%
SCALE : 0 20 ft. 40 ft.
REVISION NUMBER
SHEET NUMBER
REVISION
DATE
BY
Sheet 2 of 22
THE WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
PLAN SHEET
4/1/2019
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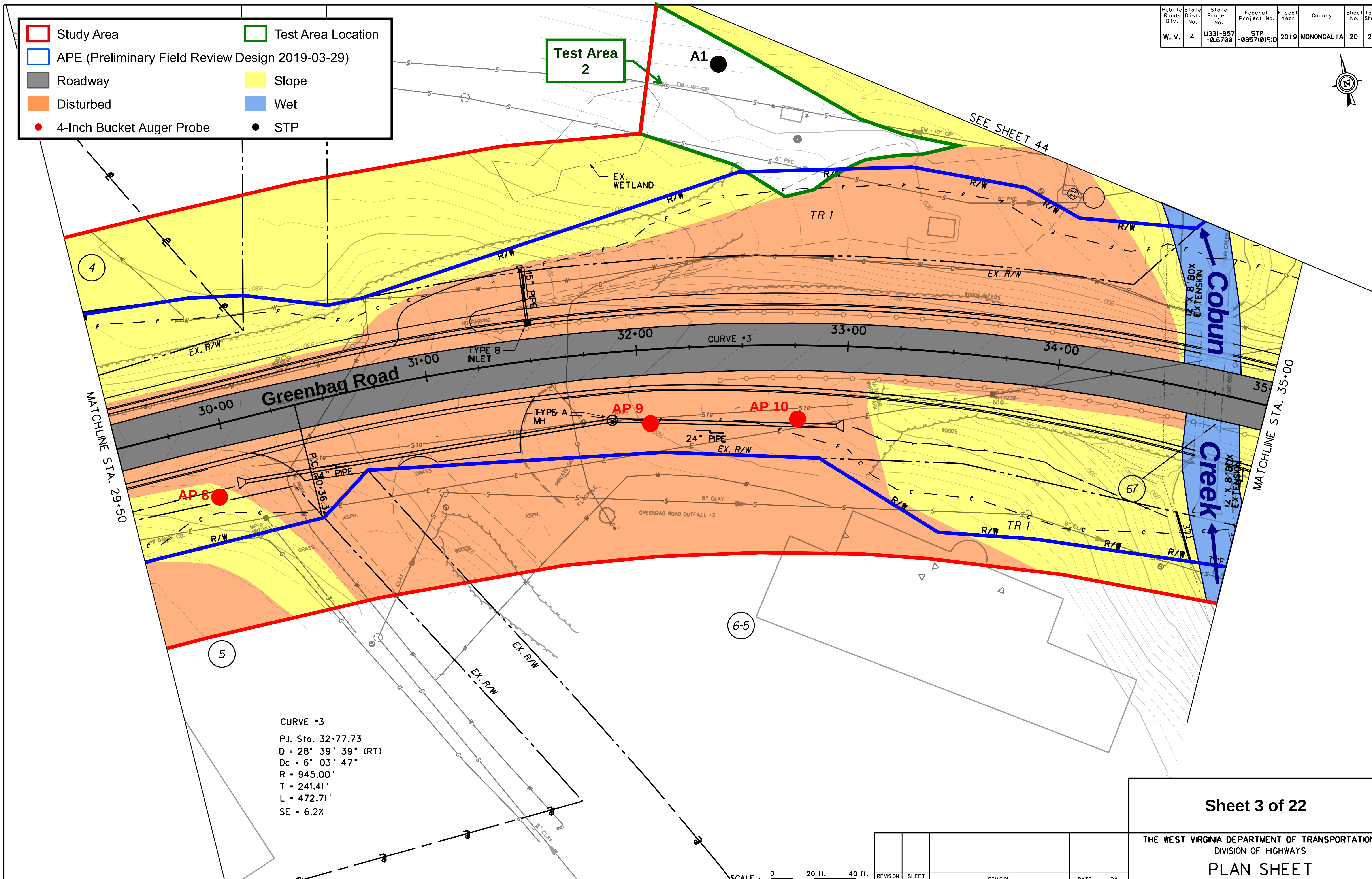

Study Area
Test Area Location
APE (Preliminary Field Review Design 2019-03-29)
Roadway
Slope
Disturbed
Wet
4-Inch Bucket Auger Probe
STP
Test Area 2
A1
SEE SHEET 44
EX. WETLAND
TR 1
Greenbag Road
30+00
31+00
32+00
33+00
34+00
CURVE #3
TYPE B INLET
TYPE A MH
15" PIPE
24" PIPE
EX. R/W
R/W
AP 8
AP 9
AP 10
Cobun Creek
12' X 8' BOX EXTENSION
MATCHLINE STA. 29+50
MATCHLINE STA. 35+00
GREENBAG ROAD OUTFALL #3
8" CLAY
8" PVC
CURVE #3
P.I. Sta. 32+77.73
D = 28° 39' 39" (RT)
Dc = 6° 03' 47"
R = 945.00'
T = 241.41'
L = 472.71'
SE = 6.2%
SCALE : 0 20 ft. 40 ft.
Public Roads Div. | State | State Dist. No. | State Project No. | Federal Project No. | Fiscal Year | County | Sheet No. | Total Sheets
W. V. | 4 | U331-857 -0.6700 | STP -0857(019)D | 2019 | MONONGALIA | 20 | 272
Sheet 3 of 22
THE WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
PLAN SHEET
REVISION NUMBER | SHEET NUMBER | REVISION | DATE | BY
4/1/2019
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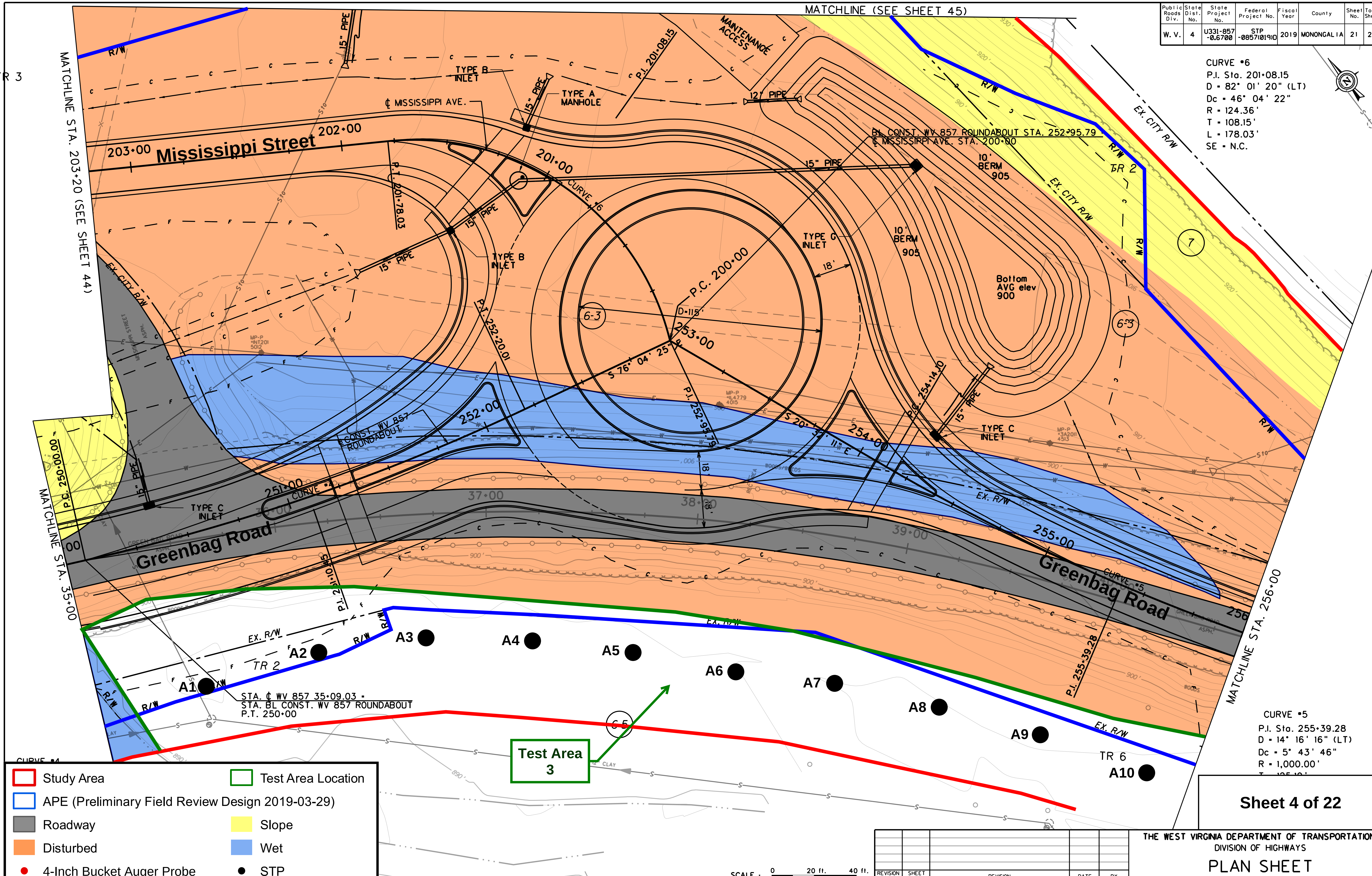

MATCHLINE (SEE SHEET 45)
Public Roads Div. | State Dist. No. | State Project No. | Federal Project No. | Fiscal Year | County | Sheet No. | Total Sheets
W. V. | 4 | U331-857 -0.6700 | STP -0857(019)D | 2019 | MONONGALIA | 21 | 272
CURVE #6
P.I. Sta. 201+08.15
D = 82° 01' 20" (LT)
Dc = 46° 04' 22"
R = 124.36'
T = 108.15'
L = 178.03'
SE = N.C.
TR 3
MATCHLINE STA. 203+20 (SEE SHEET 44)
Mississippi Street
Greenbag Road
MAINTENANCE ACCESS
TYPE B INLET
TYPE A MANHOLE
TYPE C INLET
15" PIPE
12" PIPE
℄ MISSISSIPPI AVE.
BL CONST. WV 857 ROUNDABOUT STA. 252+95.79
℄ MISSISSIPPI AVE. STA. 200+00
10' BERM 905
Bottom AVG elev 900
P.C. 200+00
EX. CITY R/W
R/W
TR 2
TR 6
MATCHLINE STA. 35+00
MATCHLINE STA. 256+00
STA. ℄ WV 857 35+09.03 =
STA. BL CONST. WV 857 ROUNDABOUT
P.T. 250+00
CURVE #5
P.I. Sta. 255+39.28
D = 14° 16' 16" (LT)
Dc = 5° 43' 46"
R = 1,000.00'
A1
A2
A3
A4
A5
A6
A7
A8
A9
A10
Test Area 3
Study Area
Test Area Location
APE (Preliminary Field Review Design 2019-03-29)
Roadway
Slope
Disturbed
Wet
4-Inch Bucket Auger Probe
STP
SCALE : 0 20 ft. 40 ft.
REVISION NUMBER | SHEET NUMBER | REVISION | DATE | BY
Sheet 4 of 22
THE WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
PLAN SHEET
4/1/2019
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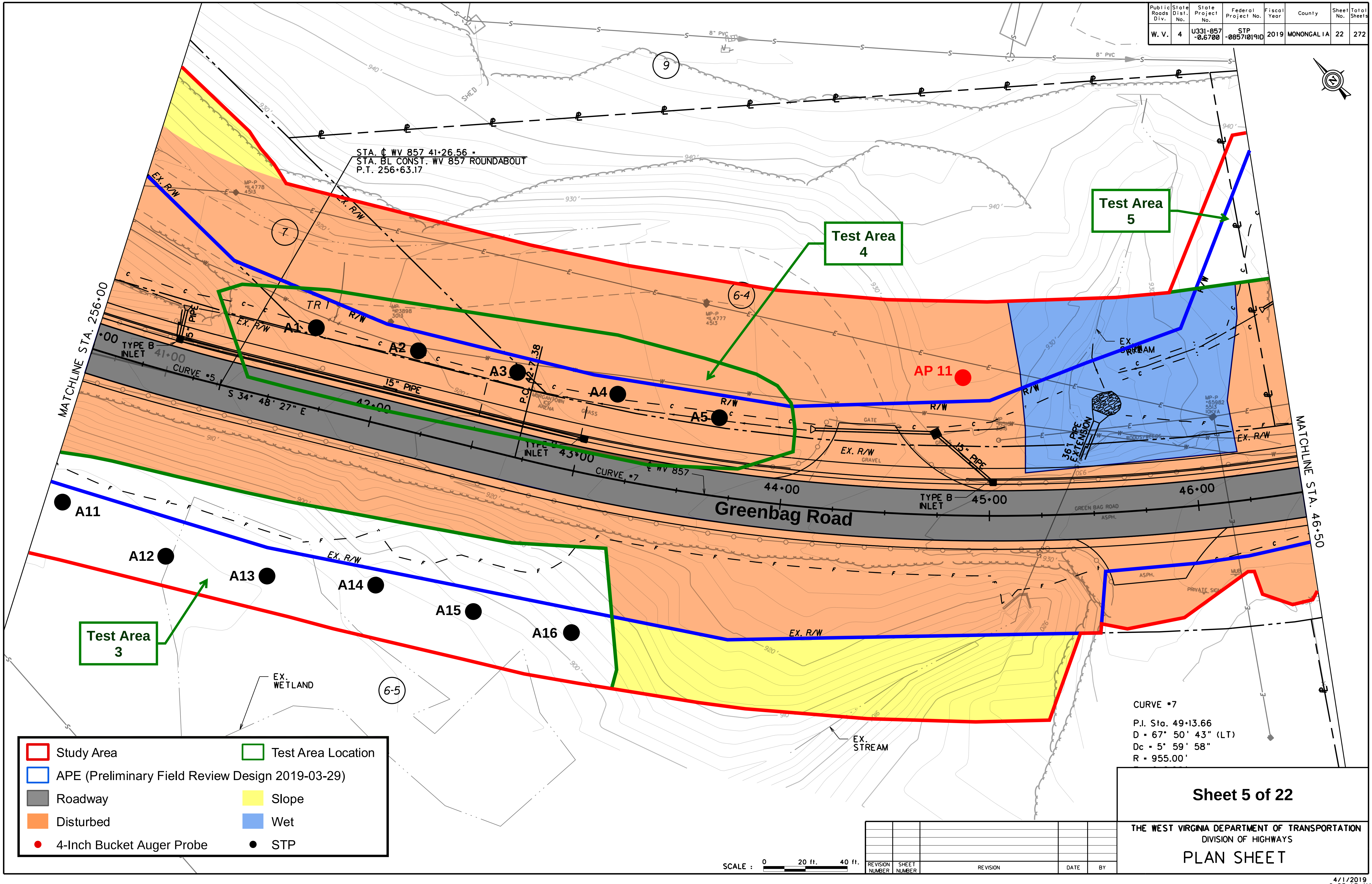

Public Roads Div. | State Dist. No. | State Project No. | Federal Project No. | Fiscal Year | County | Sheet No. | Total Sheets
W. V. | 4 | U331-857 -0.6700 | STP -0857(019)D | 2019 | MONONGALIA | 22 | 272
Test Area 3
Test Area 4
Test Area 5
AP 11
A1
A2
A3
A4
A5
A11
A12
A13
A14
A15
A16
Greenbag Road
MATCHLINE STA. 256+00
MATCHLINE STA. 46+50
STA. ℄ WV 857 41+26.56 =
STA. BL CONST. WV 857 ROUNDABOUT
P.T. 256+63.17
S 34° 48' 27" E
CURVE #5
CURVE #7
TYPE B INLET
15" PIPE
36' PIPE EXTENSION
EX. R/W
R/W
EX. STREAM
EX. WETLAND
44+00
45+00
46+00
CURVE #7
P.I. Sta. 49+13.66
D = 67° 50' 43" (LT)
Dc = 5° 59' 58"
R = 955.00'
Study Area
APE (Preliminary Field Review Design 2019-03-29)
Roadway
Disturbed
4-Inch Bucket Auger Probe
Test Area Location
Slope
Wet
STP
SCALE : 0 20 ft. 40 ft.
Sheet 5 of 22
THE WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
PLAN SHEET
REVISION NUMBER
SHEET NUMBER
REVISION
DATE
BY
4/1/2019
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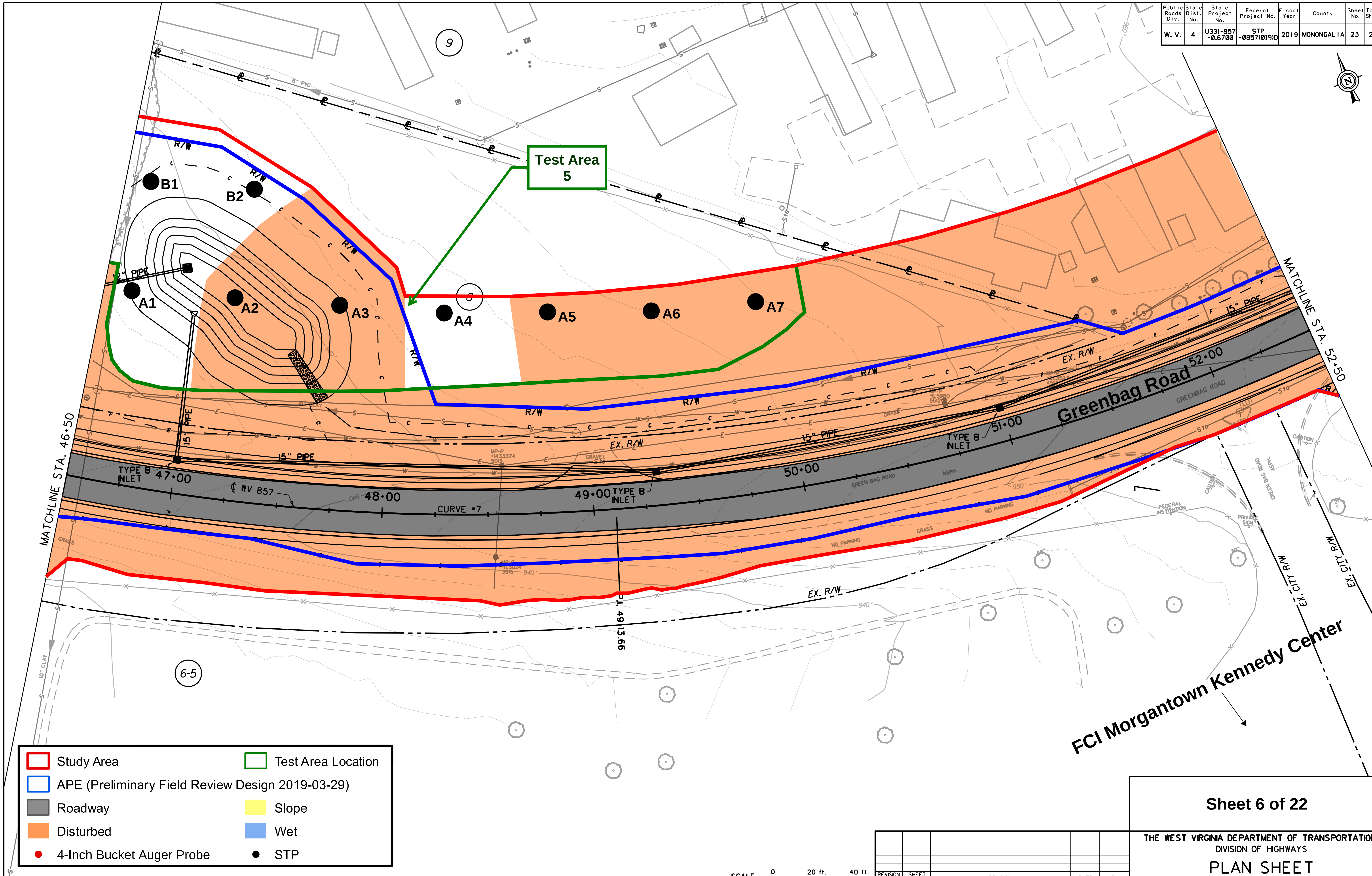
Public Roads Div.	State Dist. No.	State Project No.	Federal Project No.	Fiscal Year	County	Sheet No.	Total Sheets
W. V.	4	U331-857 -0.6700	STP -0857(019)D	2019	MONONGALIA	23	272



Sheet 6 of 22

THE WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
PLAN SHEET

REVISION NUMBER	SHEET NUMBER	REVISION	DATE	BY

4/1/2019
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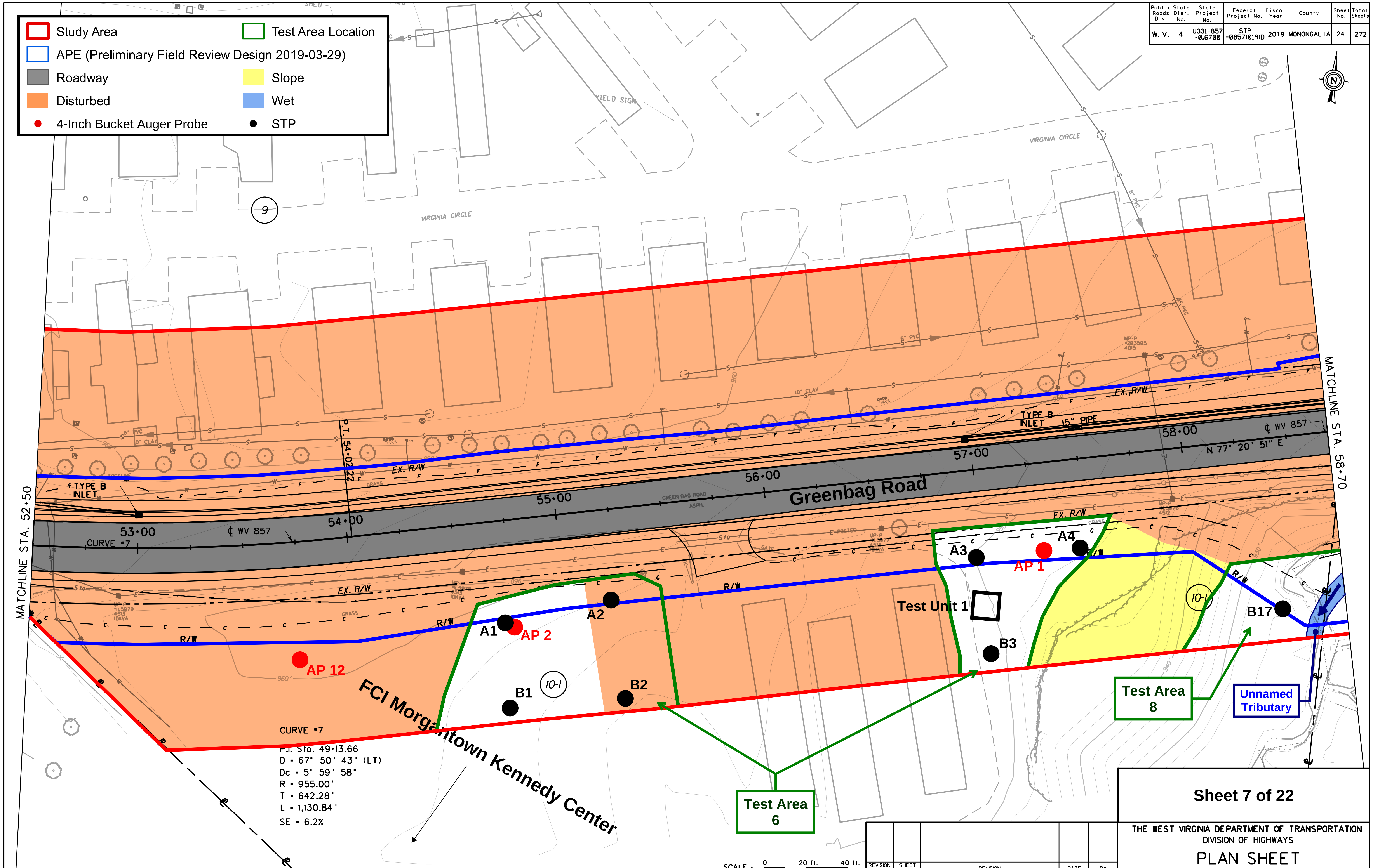

Study Area
Test Area Location
APE (Preliminary Field Review Design 2019-03-29)
Roadway
Slope
Disturbed
Wet
4-Inch Bucket Auger Probe
STP
Public Roads Div.
State Dist. No.
State Project No.
Federal Project No.
Fiscal Year
County
Sheet No.
Total Sheets
W. V.
4
U331-857 -0.6700
STP -0857(019)D
2019
MONONGALIA
24
272
VIRGINIA CIRCLE
YIELD SIGN
Greenbag Road
53+00
54+00
55+00
56+00
57+00
58+00
P.I. 54+02.22
MATCHLINE STA. 52+50
MATCHLINE STA. 58+70
N 77° 20' 51" E
℄ WV 857
TYPE B INLET
15" PIPE
EX. R/W
R/W
CURVE #7
P.I. Sta. 49+13.66
D = 67° 50' 43" (LT)
Dc = 5° 59' 58"
R = 955.00'
T = 642.28'
L = 1,130.84'
SE = 6.2%
FCI Morgantown Kennedy Center
A1
A2
A3
A4
B1
B2
B3
B17
AP 1
AP 2
AP 12
Test Unit 1
Test Area 6
Test Area 8
Unnamed Tributary
SCALE :
0
20 ft.
40 ft.
Sheet 7 of 22
THE WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
PLAN SHEET
REVISION NUMBER
SHEET NUMBER
REVISION
DATE
BY
4/1/2019
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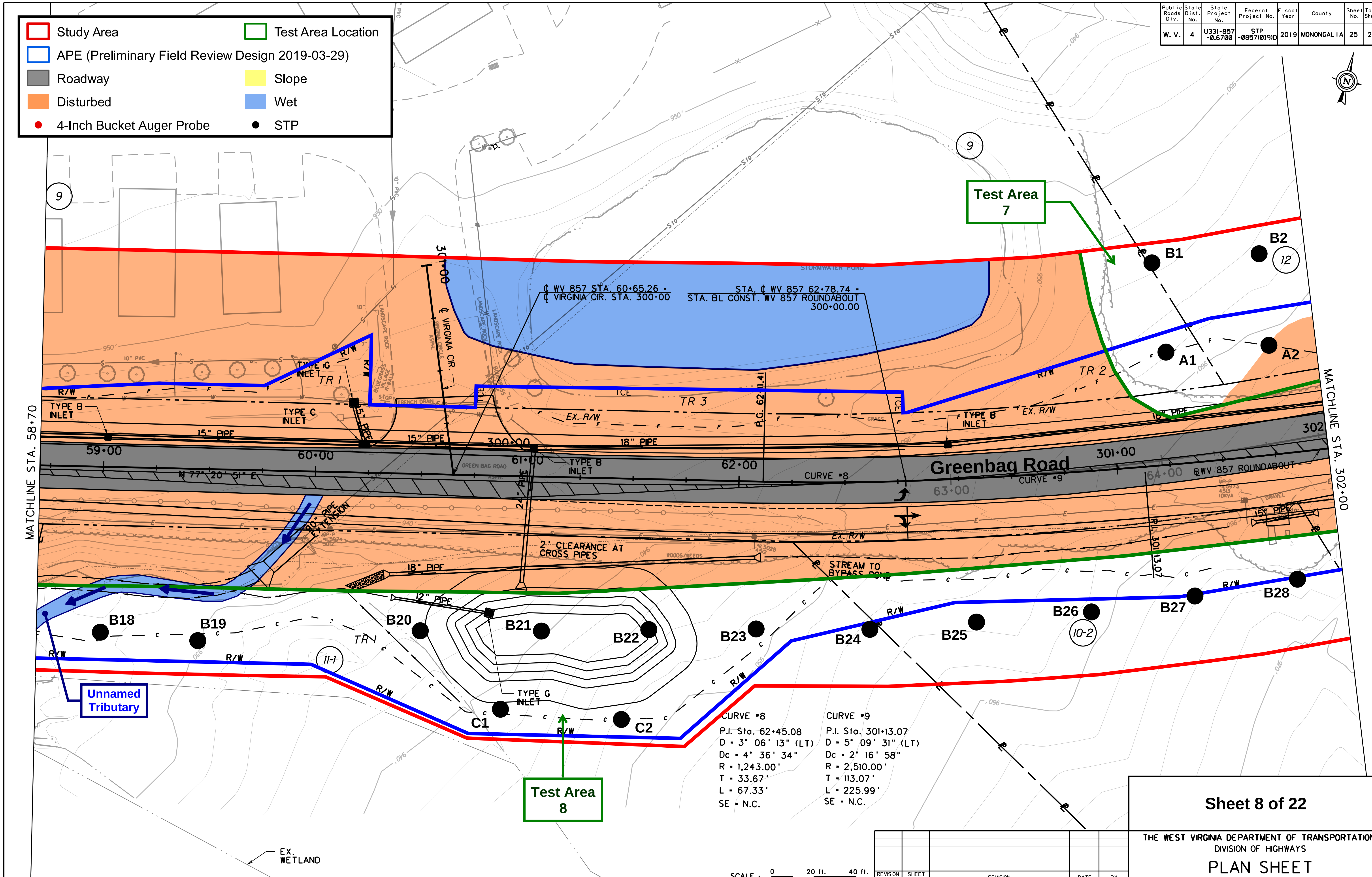
Study Area
Test Area Location
APE (Preliminary Field Review Design 2019-03-29)
Roadway
Slope
Disturbed
Wet
4-Inch Bucket Auger Probe
STP
Public Roads Div. | State Dist. No. | State Project No. | Federal Project No. | Fiscal Year | County | Sheet No. | Total Sheets
W. V. | 4 | U331-857 -0.6700 | STP -0857(019)D | 2019 | MONONGALIA | 25 | 272
Test Area 7
Test Area 8
Unnamed Tributary
Greenbag Road
B1
B2
A1
A2
B18
B19
B20
B21
B22
B23
B24
B25
B26
B27
B28
C1
C2
MATCHLINE STA. 58+70
MATCHLINE STA. 302+00
℄ WV 857 STA. 60+65.26 = ℄ VIRGINIA CIR. STA. 300+00
STA. ℄ WV 857 62+78.74 = STA. BL CONST. WV 857 ROUNDABOUT 300+00.00
℄ VIRGINIA CIR.
STORMWATER POND
2' CLEARANCE AT CROSS PIPES
STREAM TO BYPASS POND
90° PIPE EXTENSION
TYPE B INLET
TYPE C INLET
TYPE G INLET
15" PIPE
18" PIPE
12" PIPE
24" PIPE
EX. R/W
EX. WETLAND
CURVE #8
P.I. Sta. 62+45.08
D = 3° 06' 13" (LT)
Dc = 4° 36' 34"
R = 1,243.00'
T = 33.67'
L = 67.33'
SE = N.C.
CURVE #9
P.I. Sta. 301+13.07
D = 5° 09' 31" (LT)
Dc = 2° 16' 58"
R = 2,510.00'
T = 113.07'
L = 225.99'
SE = N.C.
Sheet 8 of 22
THE WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
PLAN SHEET
SCALE : 0 20 ft. 40 ft.
REVISION NUMBER | SHEET NUMBER | REVISION | DATE | BY
4/1/2019
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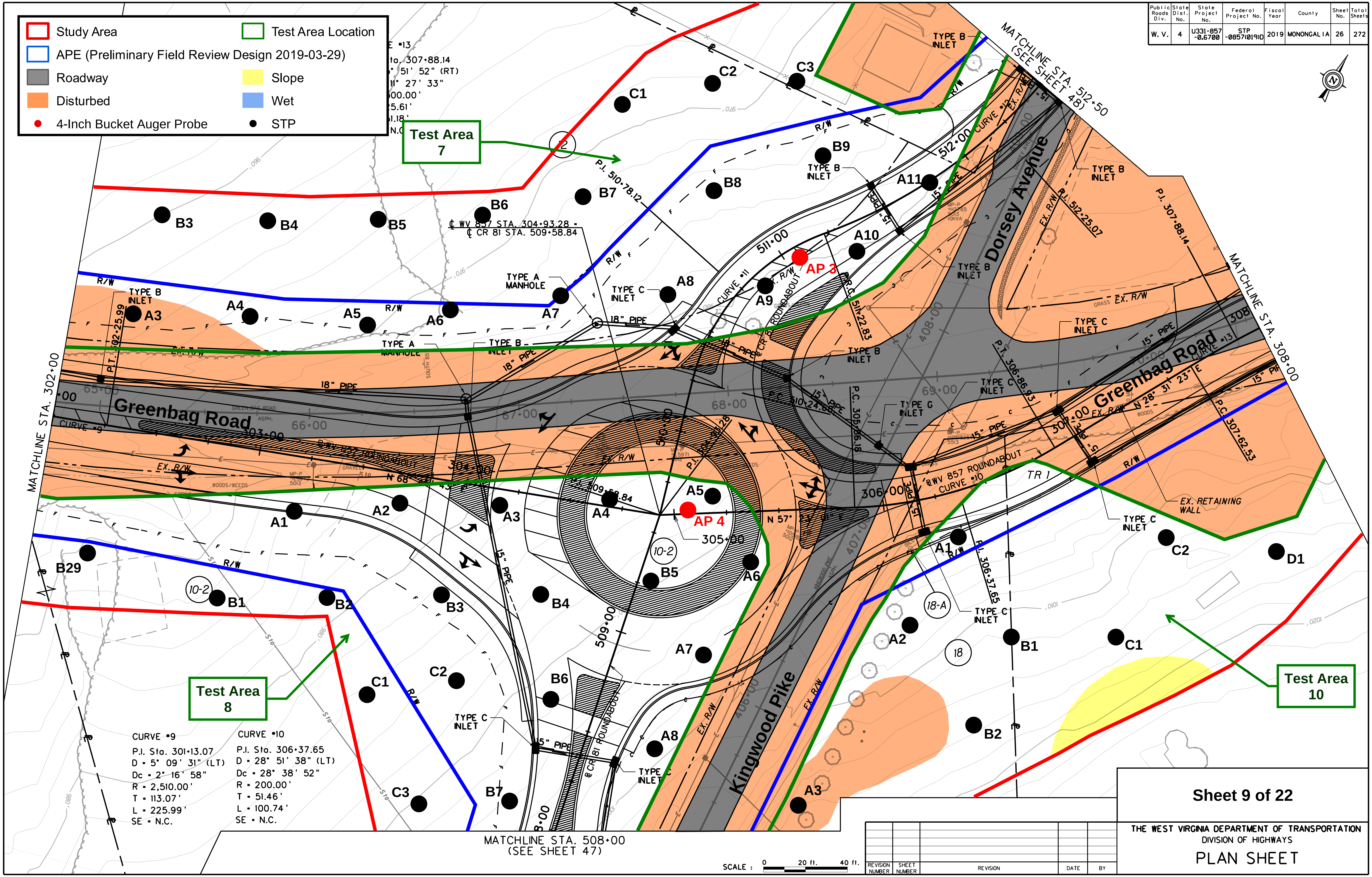
Study Area
Test Area Location
APE (Preliminary Field Review Design 2019-03-29)
Roadway
Slope
Disturbed
Wet
4-Inch Bucket Auger Probe
STP
Test Area 7
Test Area 8
Test Area 10
Greenbag Road
Dorsey Avenue
Kingwood Pike
AP 3
AP 4
MATCHLINE STA. 302+00
MATCHLINE STA. 308+00
MATCHLINE STA. 512+50 (SEE SHEET 48)
MATCHLINE STA. 508+00 (SEE SHEET 47)
CURVE #9
P.I. Sta. 301+13.07
D = 5° 09' 31" (LT)
Dc = 2° 16' 58"
R = 2,510.00'
T = 113.07'
L = 225.99'
SE = N.C.
CURVE #10
P.I. Sta. 306+37.65
D = 28° 51' 38" (LT)
Dc = 28° 38' 52"
R = 200.00'
T = 51.46'
L = 100.74'
SE = N.C.
Public Roads Div. | State Dist. No. | State Project No. | Federal Project No. | Fiscal Year | County | Sheet No. | Total Sheets
W. V. | 4 | U331-857 -0.6700 | STP -0857(019)D | 2019 | MONONGALIA | 26 | 272
Sheet 9 of 22
THE WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
PLAN SHEET
SCALE : 0 20 ft. 40 ft.
REVISION NUMBER | SHEET NUMBER | REVISION | DATE | BY
4/1/2019
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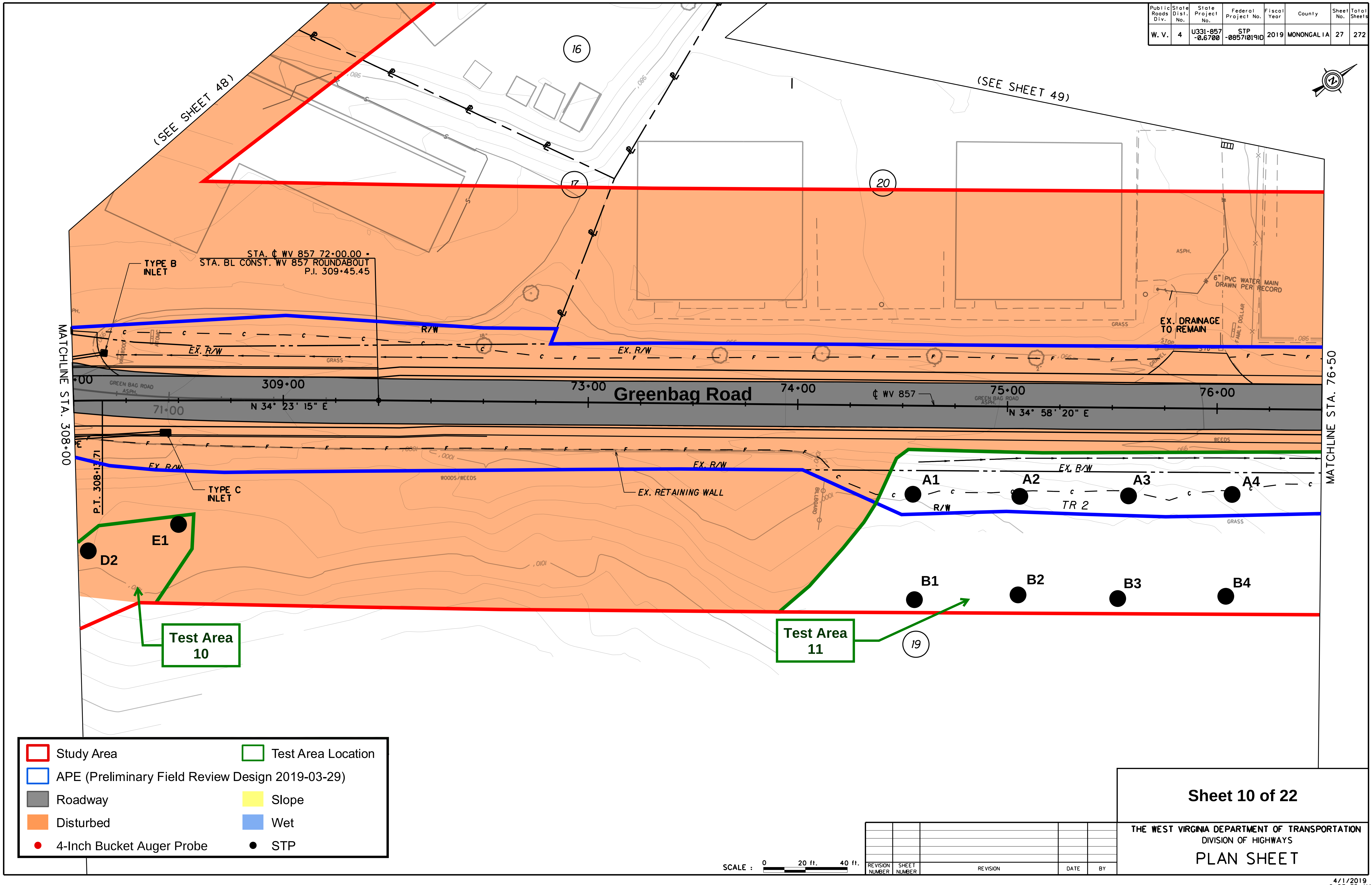
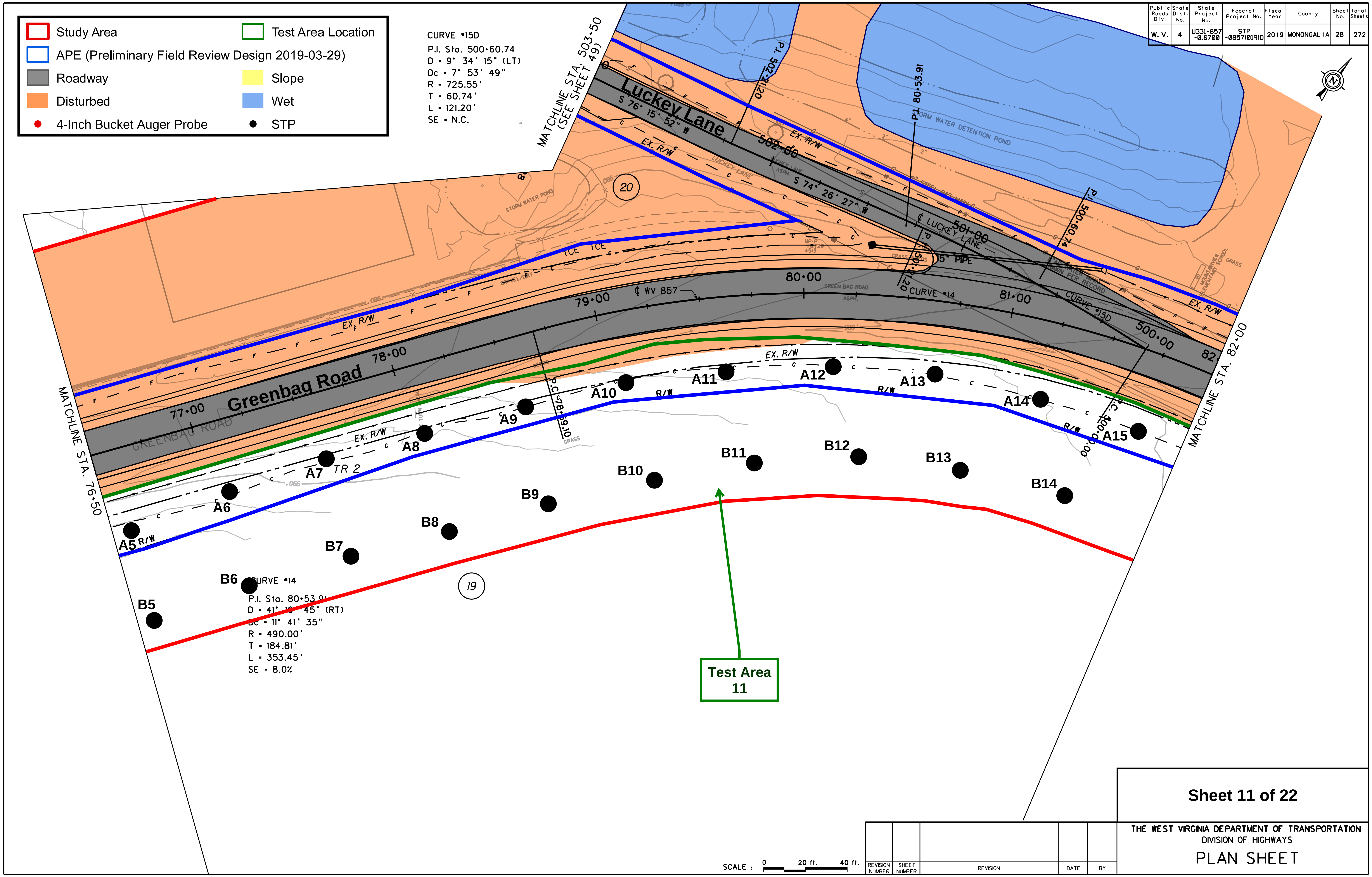


Public Roads Div. | State Dist. No. | State Project No. | Federal Project No. | Fiscal Year | County | Sheet No. | Total Sheets
W. V. | 4 | U331-857 -0.6700 | STP -0857(019)D | 2019 | MONONGALIA | 27 | 272
(SEE SHEET 48)
(SEE SHEET 49)
16
17
20
19
TYPE B INLET
STA. ₵ WV 857 72+00.00 =
STA. BL CONST. WV 857 ROUNDABOUT
P.I. 309+45.45
R/W
EX. R/W
EX. DRAINAGE TO REMAIN
6" PVC WATER MAIN DRAWN PER RECORD
MATCHLINE STA. 308+00
MATCHLINE STA. 76+50
309+00
73+00
Greenbag Road
74+00
₵ WV 857
75+00
76+00
71+00
N 34° 23' 15" E
N 34° 58' 20" E
P.I. 308+13.71
TYPE C INLET
EX. RETAINING WALL
TR 2
A1
A2
A3
A4
B1
B2
B3
B4
D2
E1
Test Area 10
Test Area 11
Study Area
Test Area Location
APE (Preliminary Field Review Design 2019-03-29)
Roadway
Slope
Disturbed
Wet
4-Inch Bucket Auger Probe
STP
SCALE : 0 20 ft. 40 ft.
REVISION NUMBER | SHEET NUMBER | REVISION | DATE | BY
Sheet 10 of 22
THE WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
PLAN SHEET
4/1/2019
9:23:35 AM


Study Area
Test Area Location
APE (Preliminary Field Review Design 2019-03-29)
Roadway
Slope
Disturbed
Wet
4-Inch Bucket Auger Probe
STP
CURVE #15D
P.I. Sta. 500+60.74
D = 9° 34' 15" (LT)
Dc = 7° 53' 49"
R = 725.55'
T = 60.74'
L = 121.20'
SE = N.C.
MATCHLINE STA. 503+50 (SEE SHEET 49)
Luckey Lane
Greenbag Road
STORM WATER DETENTION POND
EX. R/W
TCE
80+00
79+00
78+00
77+00
81+00
82
501+00
502+00
500+00
℄ WV 857
℄ LUCKEY LANE
CURVE #14
CURVE #15D
15" PIPE
GREENBAG ROAD
MOUNTAINVIEW ELEMENTARY SCHOOL
MATCHLINE STA. 76+50
MATCHLINE STA. 82+00
TR 2
20
19
A5
A6
A7
A8
A9
A10
A11
A12
A13
A14
A15
B5
B6
B7
B8
B9
B10
B11
B12
B13
B14
CURVE #14
P.I. Sta. 80+53.91
D = 41° 19' 45" (RT)
Dc = 11° 41' 35"
R = 490.00'
T = 184.81'
L = 353.45'
SE = 8.0%
Test Area 11
Public Roads Div.
State Dist. No.
State Project No.
Federal Project No.
Fiscal Year
County
Sheet No.
Total Sheets
W. V.
4
U331-857-0.6700
STP-0857(019)D
2019
MONONGALIA
28
272
Sheet 11 of 22
THE WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
PLAN SHEET
SCALE : 0 20 ft. 40 ft.
REVISION NUMBER
SHEET NUMBER
REVISION
DATE
BY
4/1/2019
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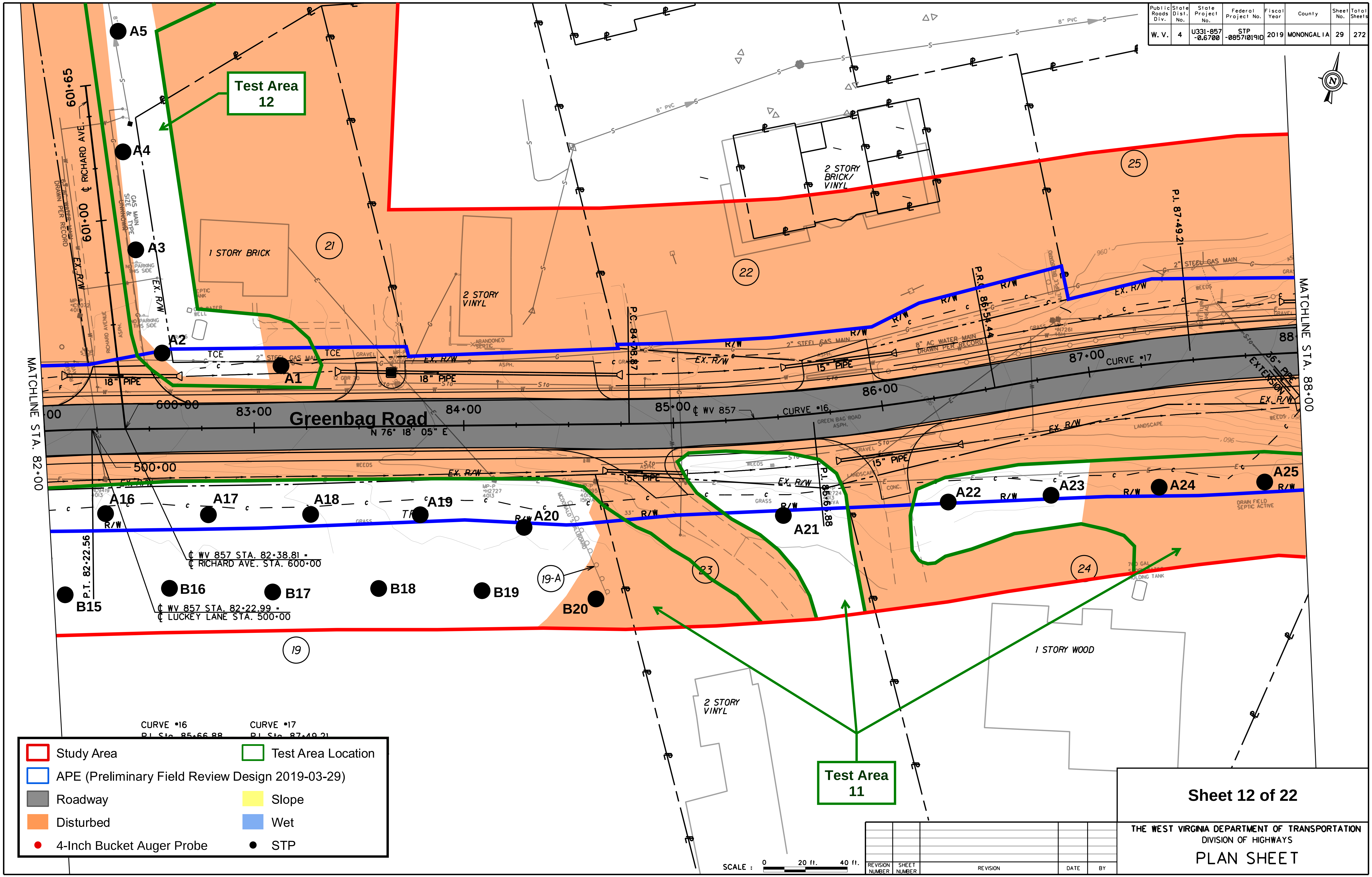
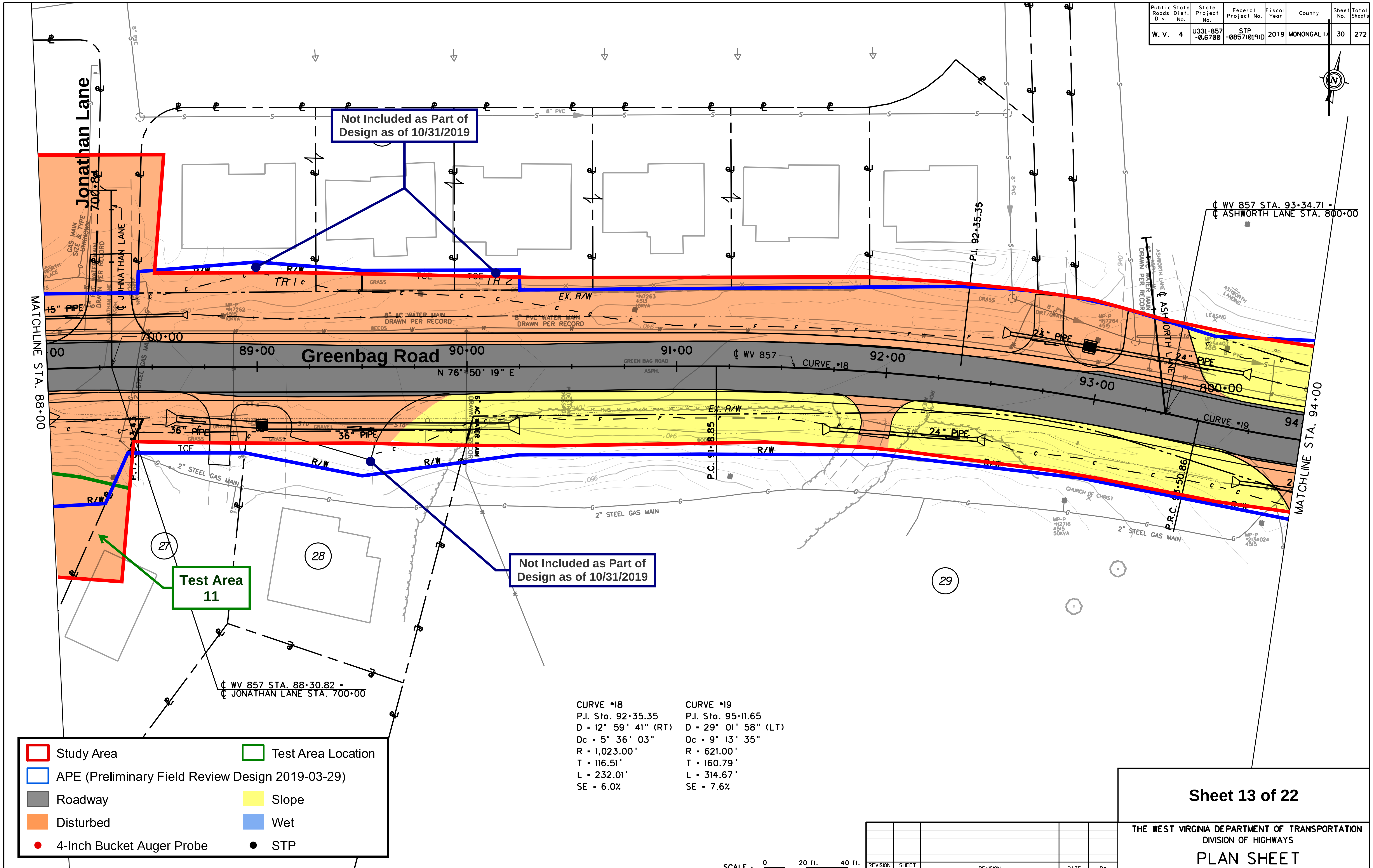

Public Roads Div. | State Dist. No. | State Project No. | Federal Project No. | Fiscal Year | County | Sheet No. | Total Sheets
W. V. | 4 | U331-857 -0.6700 | STP -0857(019)D | 2019 | MONONGALIA | 29 | 272
Test Area 12
Test Area 11
A1
A2
A3
A4
A5
A16
A17
A18
A19
A20
A21
A22
A23
A24
A25
B15
B16
B17
B18
B19
B20
19-A
19
21
22
23
24
25
Greenbag Road
N 76° 18' 05" E
1 STORY BRICK
2 STORY VINYL
2 STORY BRICK/ VINYL
2 STORY VINYL
1 STORY WOOD
MATCHLINE STA. 82+00
MATCHLINE STA. 88+00
℄ RICHARD AVE.
℄ WV 857 STA. 82+38.81 = ℄ RICHARD AVE. STA. 600+00
℄ WV 857 STA. 82+22.99 = ℄ LUCKEY LANE STA. 500+00
P.T. 82+22.56
P.C. 84+78.87
P.I. 85+66.88
P.R.C. 86+54.44
P.I. 87+49.21
CURVE #16
CURVE #17
CURVE #16 P.I. Sta. 85+66.88
CURVE #17 P.I. Sta. 87+49.21
83+00
84+00
85+00
86+00
87+00
600+00
500+00
601+00
601+65
18" PIPE
15" PIPE
2" STEEL GAS MAIN
8" AC WATER MAIN DRAWN PER RECORD
EX. R/W
R/W
TCE
Study Area
Test Area Location
APE (Preliminary Field Review Design 2019-03-29)
Roadway
Slope
Disturbed
Wet
4-Inch Bucket Auger Probe
STP
SCALE : 0 20 ft. 40 ft.
Sheet 12 of 22
THE WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
PLAN SHEET
REVISION NUMBER | SHEET NUMBER | REVISION | DATE | BY
4/1/2019 9:23:38 AM



Public Roads Div. | State Dist. No. | State Project No. | Federal Project No. | Fiscal Year | County | Sheet No. | Total Sheets
W. V. | 4 | U331-857 -0.6700 | STP -0857(019)D | 2019 | MONONGALIA | 30 | 272
Jonathan Lane
Greenbag Road
Not Included as Part of Design as of 10/31/2019
Not Included as Part of Design as of 10/31/2019
Test Area 11
MATCHLINE STA. 88+00
MATCHLINE STA. 94+00
₵ JOHNATHAN LANE
₵ ASHWORTH LANE
₵ WV 857 STA. 93+34.71 = ₵ ASHWORTH LANE STA. 800+00
₵ WV 857 STA. 88+30.82 = ₵ JONATHAN LANE STA. 700+00
N 76° 50' 19" E
89+00
90+00
91+00
92+00
93+00
700+00
800+00
P.I. 92+35.35
P.C. 91+8.85
CURVE #18
CURVE #19
₵ WV 857
EX. R/W
R/W
TCE
TR 1
TR 2
15" PIPE
36" PIPE
24" PIPE
8" AC WATER MAIN DRAWN PER RECORD
8" PVC WATER MAIN DRAWN PER RECORD
2" STEEL GAS MAIN
GRASS
GRAVEL
CHURCH OF CHRIST
27
28
29
CURVE #18
P.I. Sta. 92+35.35
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SE = 6.0%
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R = 621.00'
T = 160.79'
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SE = 7.6%
Study Area
Test Area Location
APE (Preliminary Field Review Design 2019-03-29)
Roadway
Slope
Disturbed
Wet
4-Inch Bucket Auger Probe
STP
SCALE : 0 20 ft. 40 ft.
REVISION NUMBER
SHEET NUMBER
REVISION
DATE
BY
Sheet 13 of 22
THE WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
PLAN SHEET
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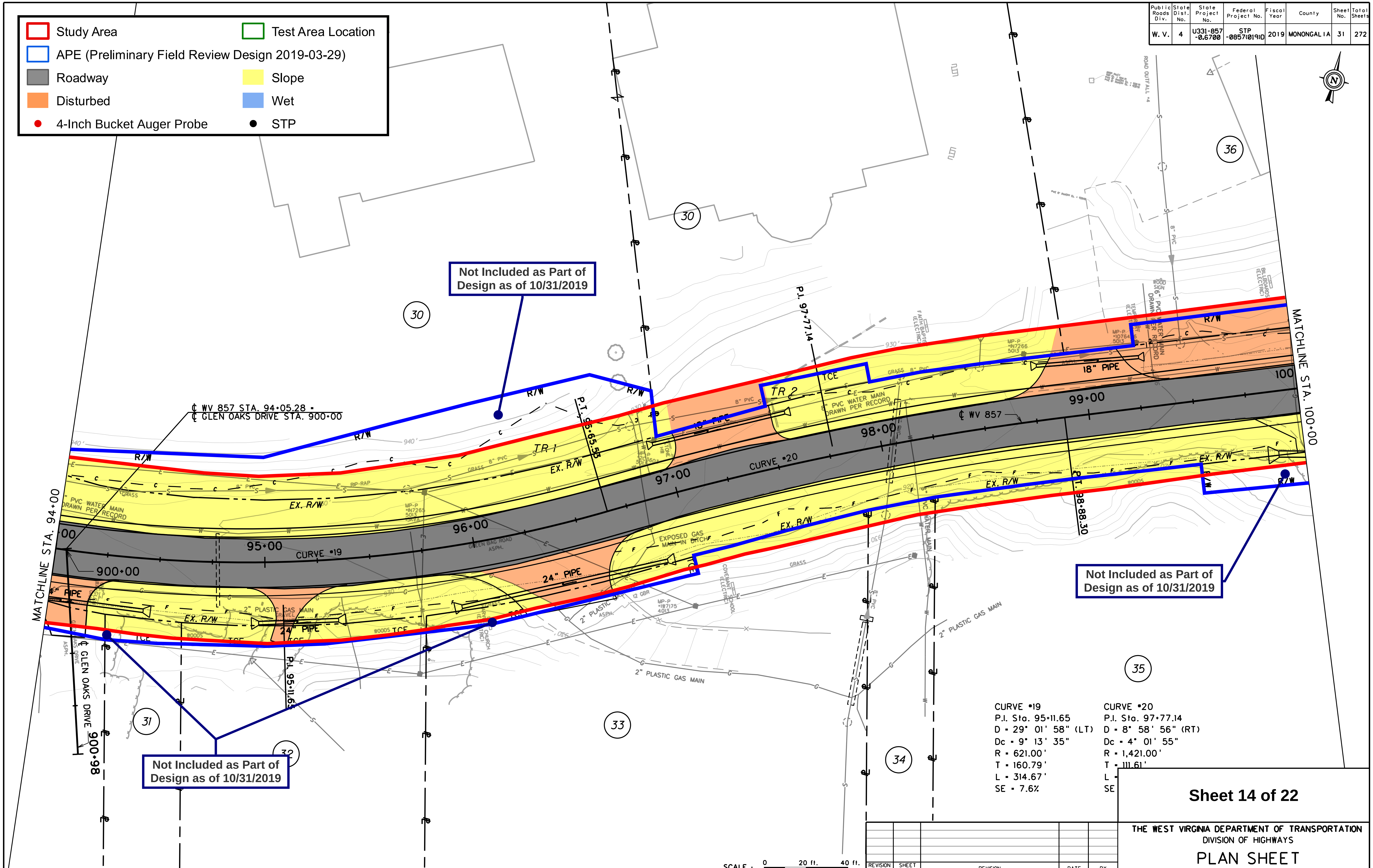

Study Area
Test Area Location
APE (Preliminary Field Review Design 2019-03-29)
Roadway
Slope
Disturbed
Wet
4-Inch Bucket Auger Probe
STP
Public Roads Div. | State Dist. No. | State Project No. | Federal Project No. | Fiscal Year | County | Sheet No. | Total Sheets
W. V. | 4 | U331-857 -0.6700 | STP -0857(019)D | 2019 | MONONGALIA | 31 | 272
Not Included as Part of Design as of 10/31/2019
Not Included as Part of Design as of 10/31/2019
Not Included as Part of Design as of 10/31/2019
℄ WV 857 STA. 94+05.28 =
℄ GLEN OAKS DRIVE STA. 900+00
MATCHLINE STA. 94+00
MATCHLINE STA. 100+00
P.I. 97+77.14
P.I. 95+11.65
CURVE #19
CURVE #20
95+00
96+00
97+00
98+00
99+00
900+00
℄ WV 857
℄ GLEN OAKS DRIVE
18" PIPE
24" PIPE
EXPOSED GAS MAIN IN DITCH
2" PLASTIC GAS MAIN
TR 1
TR 2
TCE
R/W
EX. R/W
30
31
32
33
34
35
36
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Sheet 14 of 22
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DIVISION OF HIGHWAYS
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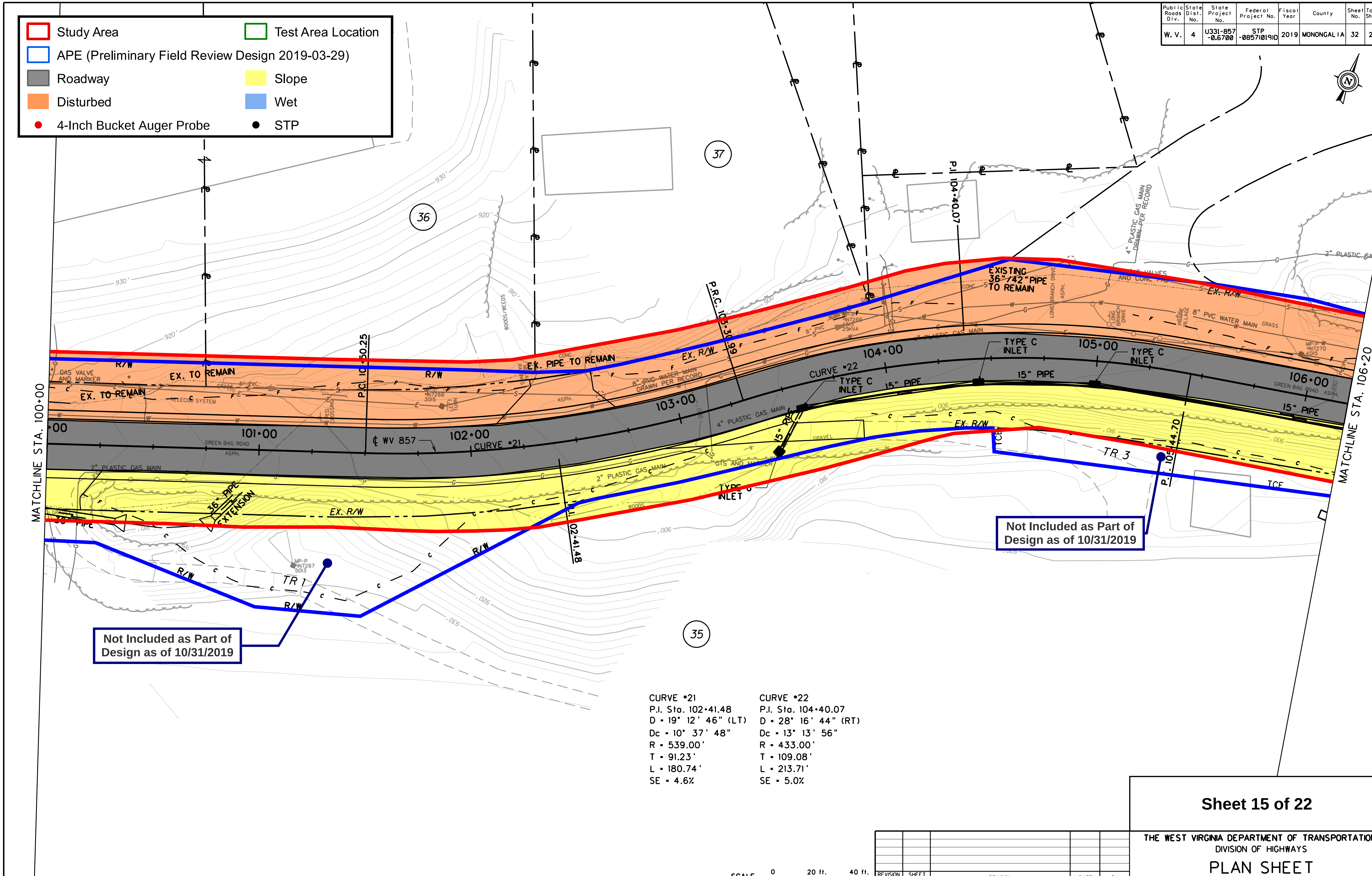

Sheet 15 of 22

THE WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
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PLAN SHEET

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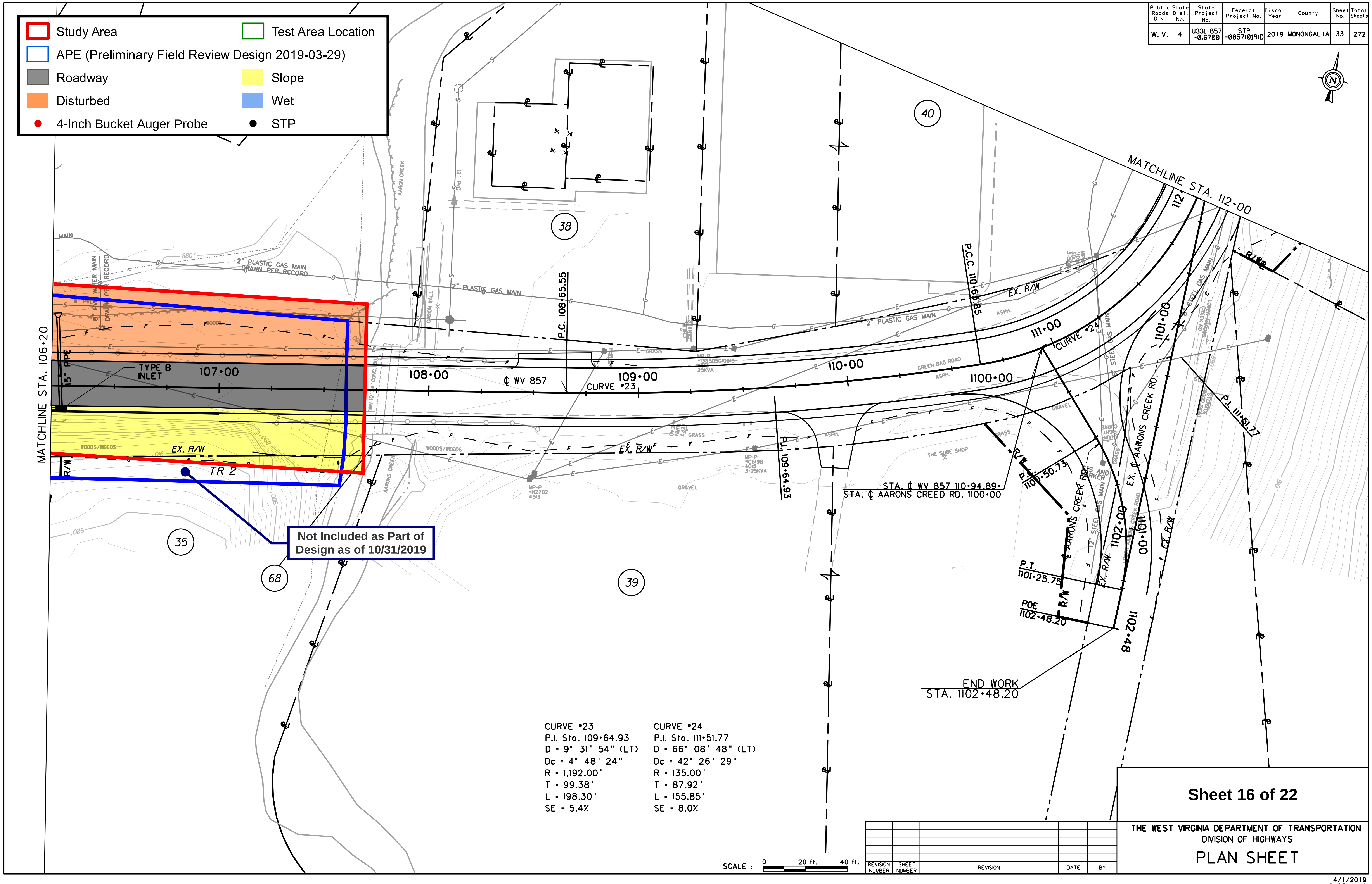
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Test Area Location
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Roadway
Slope
Disturbed
Wet
4-Inch Bucket Auger Probe
STP
Public Roads Div. | State Dist. No. | State Project No. | Federal Project No. | Fiscal Year | County | Sheet No. | Total Sheets
W. V. | 4 | U331-857 -0.6700 | STP -0857(019)D | 2019 | MONONGALIA | 33 | 272
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MATCHLINE STA. 112+00
Not Included as Part of Design as of 10/31/2019
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EX. R/W
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107+00
108+00
109+00
110+00
111+00
1100+00
1101+00
1102+00
1102+48
112
P.C. 108+65.55
P.C.C. 110+65.85
P.I. 109+64.93
P.I. 111+51.77
℄ WV 857
CURVE #23
CURVE #24
AARONS CREEK RD.
STA. ℄ WV 857 110+94.89=
STA. ℄ AARONS CREED RD. 1100+00
P.T. 1101+25.75
POE 1102+48.20
END WORK
STA. 1102+48.20
GREEN BAG ROAD
THE SUBE SHOP
35
38
39
40
68
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Sheet 16 of 22
THE WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
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SHEET NUMBER
REVISION
DATE
BY
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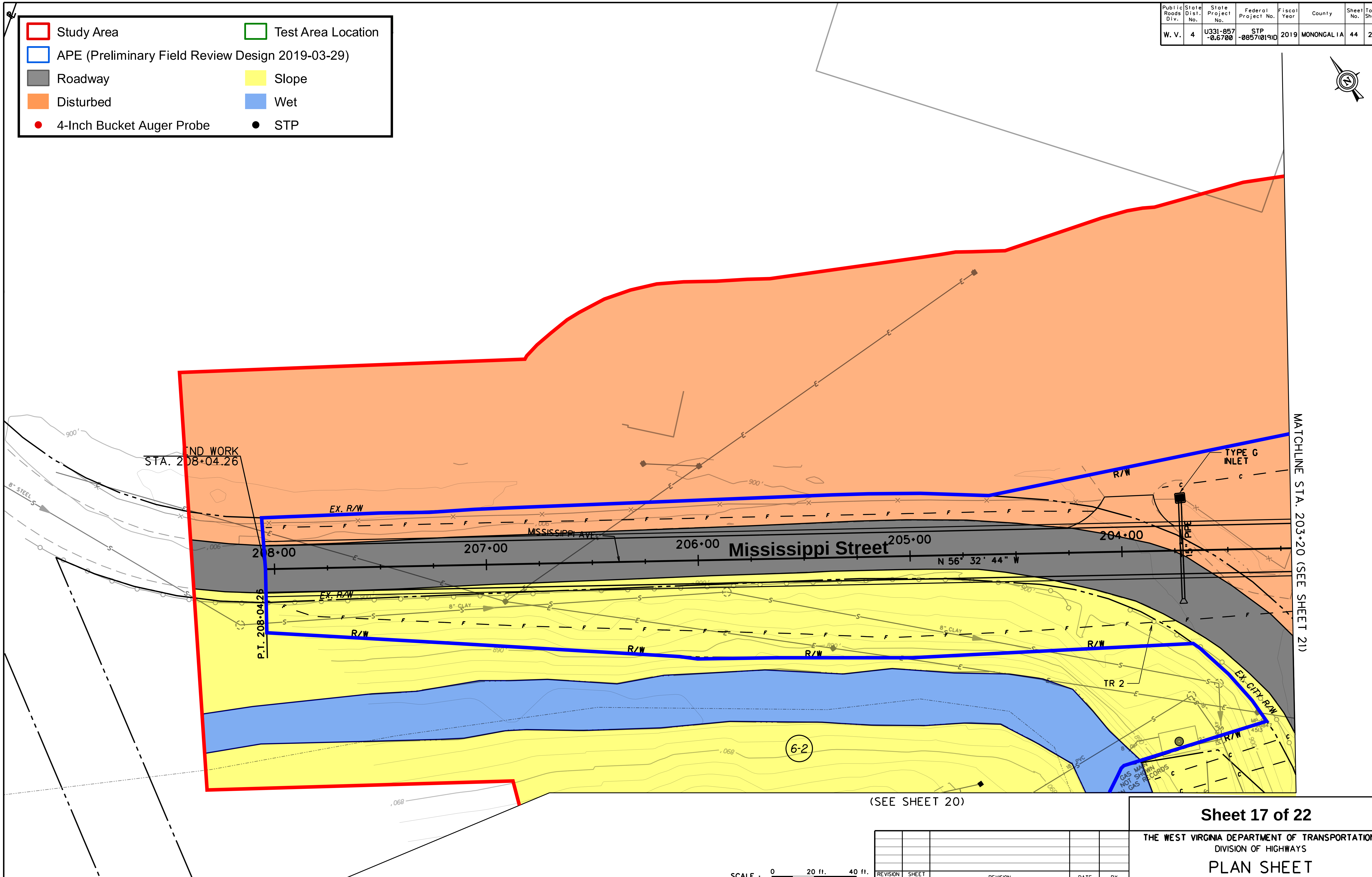
Study Area
Test Area Location
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Roadway
Slope
Disturbed
Wet
4-Inch Bucket Auger Probe
STP
Public Roads Div. | State Dist. | State Project No. | Federal Project No. | Fiscal Year | County | Sheet No. | Total Sheets
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P.T. 208+04.26
EX. R/W
MISSISSIPPI AVE.
Mississippi Street
208+00
207+00
206+00
205+00
204+00
N 56° 32' 44" W
R/W
TYPE G INLET
TR 2
EX. CITY R/W
GAS MAIN NOT SHOWN ON GAS RECORDS
6-2
MATCHLINE STA. 203+20 (SEE SHEET 21)
(SEE SHEET 20)
SCALE : 0 20 ft. 40 ft.
REVISION NUMBER | SHEET NUMBER | REVISION | DATE | BY
Sheet 17 of 22
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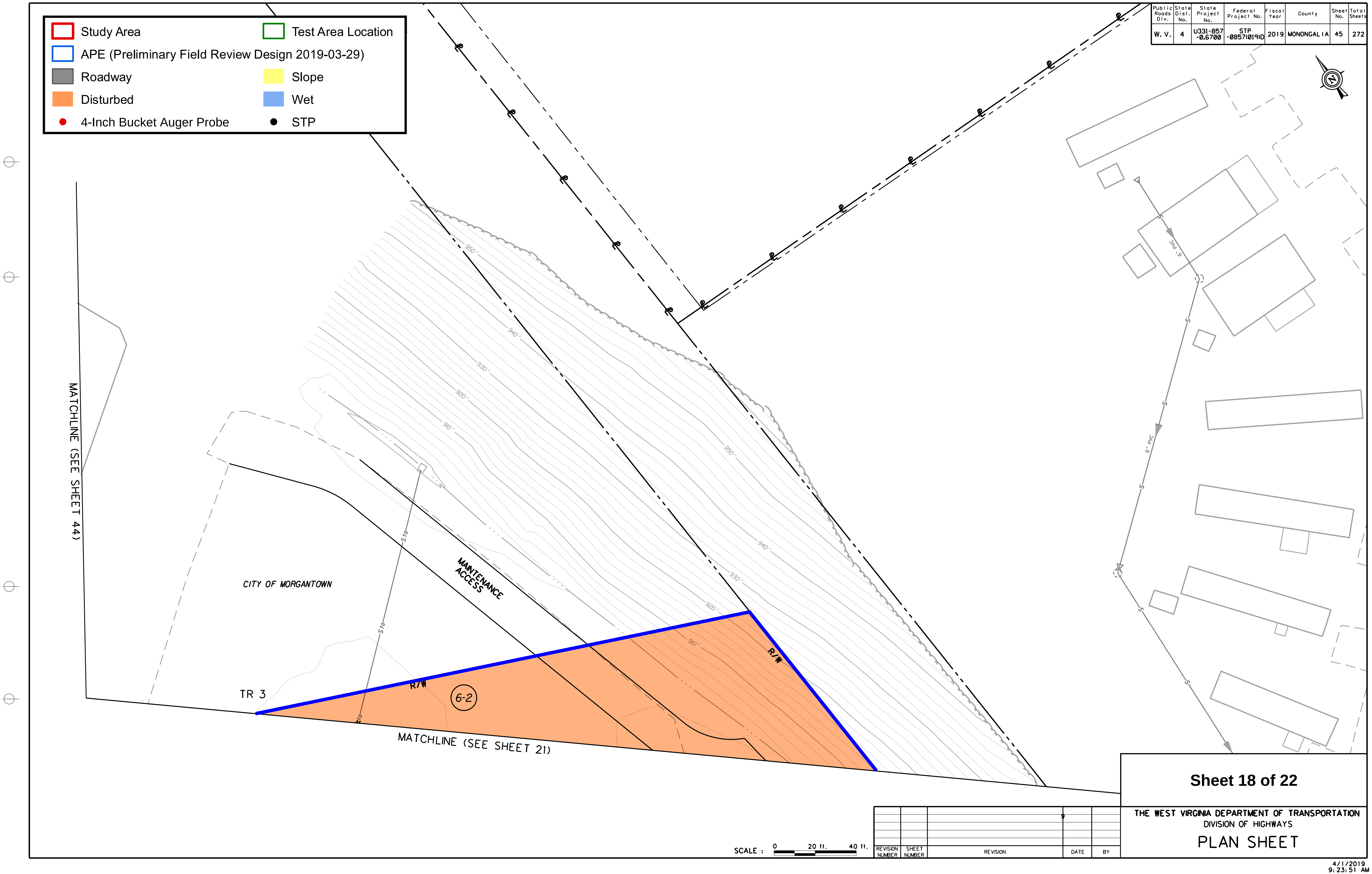

Study Area
Test Area Location
APE (Preliminary Field Review Design 2019-03-29)
Roadway
Slope
Disturbed
Wet
4-Inch Bucket Auger Probe
STP
Public Roads Div. | State Dist. No. | State Project No. | Federal Project No. | Fiscal Year | County | Sheet No. | Total Sheets
W. V. | 4 | U331-857 -0.6700 | STP -0857(019)D | 2019 | MONONGALIA | 45 | 272
MATCHLINE (SEE SHEET 44)
MATCHLINE (SEE SHEET 21)
CITY OF MORGANTOWN
MAINTENANCE ACCESS
TR 3
R/W
R/W
6-2
6" PVC
Sheet 18 of 22
THE WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
PLAN SHEET
SCALE : 0 20 ft. 40 ft.
REVISION NUMBER
SHEET NUMBER
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DATE
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Public Roads Div.	State Dist. No.	State Project No.	Federal Project No.	Fiscal Year	County	Sheet No.	Total Sheets
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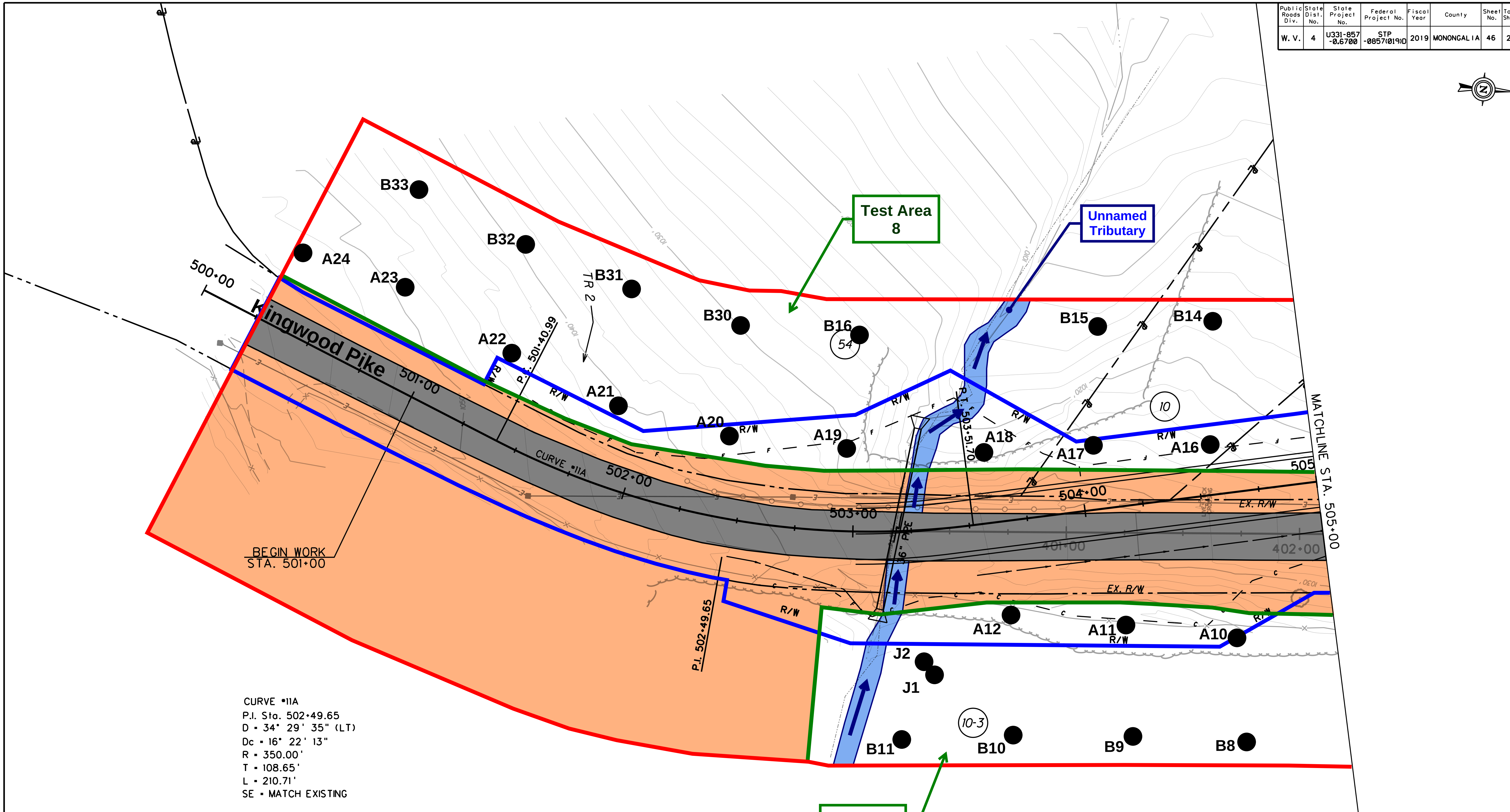

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Roadway	Slope
Disturbed	Wet
4-Inch Bucket Auger Probe	STP

SCALE : 0 20 ft. 40 ft.

REVISION NUMBER	SHEET NUMBER	REVISION	DATE	BY

Sheet 19 of 22

THE WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PLAN SHEET

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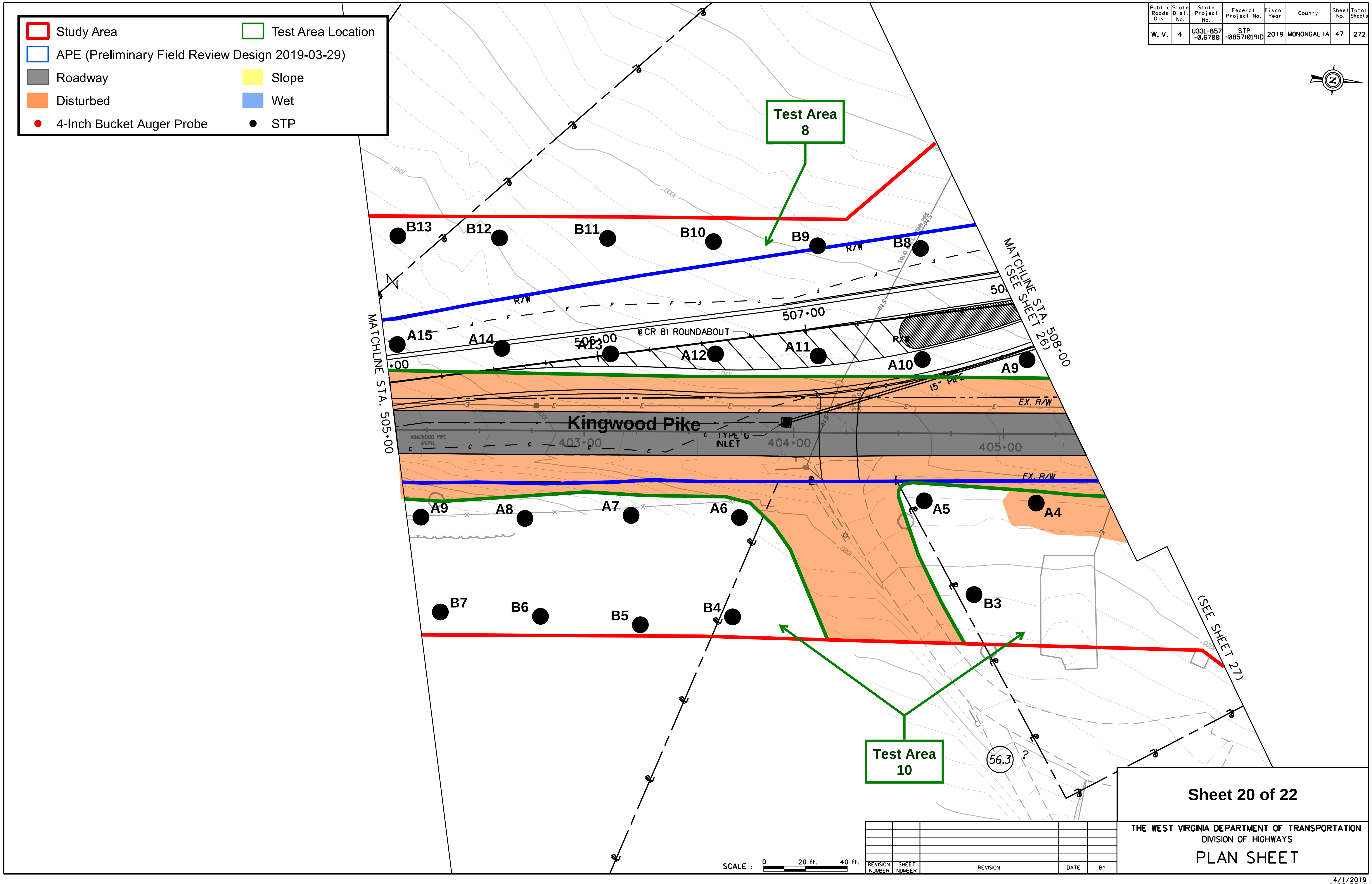
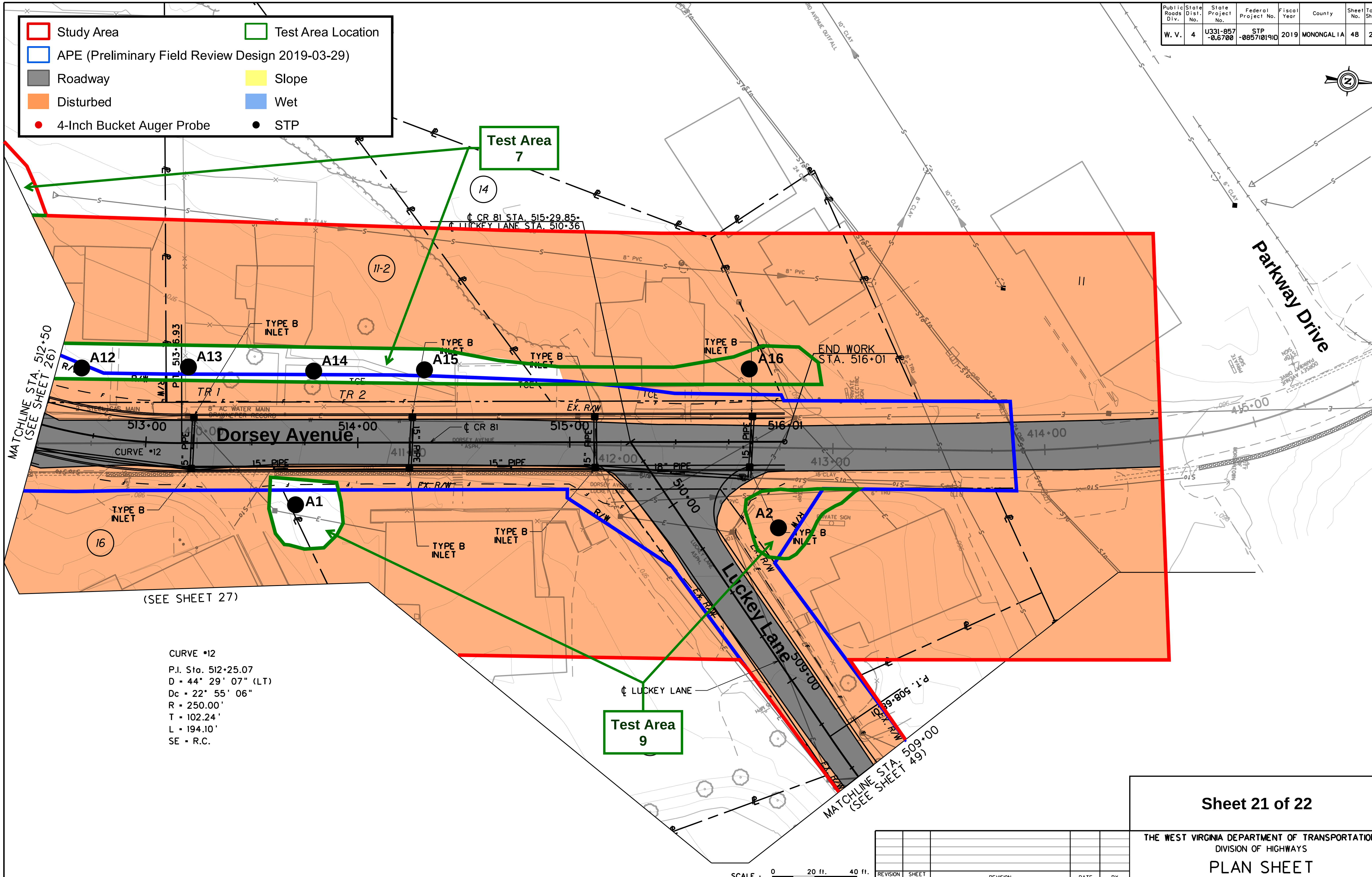


Sheet 20 of 22



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Greenbag Road Improvement Project

Appendix G

Secondary and Cumulative Effects Analysis

Greenbag Road Improvement Project

Secondary and Cumulative Effects Analysis

Monongalia County, West Virginia

State Project: U331-857-0.67
Federal Project: STP-0857(019)D

U.S. Department of Transportation

Federal Highway Administration

West Virginia Department of Transportation
Division of Highways

December 2019

1.0 Background

Cumulative effects are decided by the Council on Environmental Quality (CEQ) as "*the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-federal) or person undertakes such other actions*" (CEQ 2005). Cumulative effects can occur from repeated impacts resulting from a single project, added effects from multiple sources, or impacts resulting from the interactions of numerous sources. Secondary effects are impacts "*caused by an action and are later in time or farther removed in distance but are still reasonably foreseeable*" (CEQ 2005). These are generally induced by the action and examples include growth and development and/or land use change.

The Project includes widening and improvements to the Greenbag Road intersections with Mississippi Street and Dorsey Avenue, and other operational improvements for vehicular and multimodal traffic along Greenbag Road. The Project is expected to reduce congestion and address the lack of safe non-motorized connections along the corridor.

This Cumulative Effects Analysis incorporated information gathered from field views, reviews of US Census data, and information from local planning documents. A Secondary and Cumulative Effects Study Area was delineated for the purposes of this analysis. The Secondary and Cumulative Effects Study Area was generally based on a 0.5-mile buffer of the Project and encompasses other planned or proposed projects including or in the vicinity of Greenbag Road. The analysis evaluated potential Cumulative Effects that may occur through a horizon year of 2045, which is consistent with the current planning horizon identified in the Morgantown and Monongalia Metropolitan Planning Organization's *2016 Metropolitan Transportation Plan Update* (*The MTP*), and concluded that growth in the vicinity of the Project is expected to continue at a similar rate to what has been experienced over the past decade. It is anticipated that available land in the area will continue to be developed regardless of whether this project is constructed or not. Rather than inducing growth, the Project is proposed as a solution to traffic needs that are expected under population and development forecasts for the area. A concerted effort by government and the private sector has occurred over the past decade to plan for growth and redevelopment and protect human and natural environmental resources. Local jurisdictions have plans, ordinances, and commissions in place to effectively manage development and protect natural, cultural, and socioeconomic resources within the Secondary and Cumulative Effects Study Area. Considering the overall scope and nature of the Project, it is not expected to influence land use decisions or induce land use change.

2.0 Demographic Overview

According to the most recent population estimate for West Virginia, the State supports approximately 1,805,832 people (USCB 2018), which is a 0.32% annualized decline and 2.55% overall decline from the population of West Virginia at the 2010 U.S. Census, 1,852,994 (USCB 2010). Despite this recent decline at the state level, the City of Morgantown and Monongalia County have grown over the same timeframe. The Monongalia County population has grown steadily since the 1900s, and in 2018 was its highest ever reported at 106,420. The population of Morgantown has grown since 1990, with a peak population of 30,950 in 2018 (USCB 2018). Population forecasts indicate that Monongalia County will continue to grow and may reach approximately 136,927 by 2035 (State of West Virginia 2015), which would be an annualized growth rate of 1.56%. Approximately 30% of the county's population resides in Morgantown, which will likely experience some level of growth as well.

3.0 Secondary Effects

In order to evaluate the potential for secondary effects as a result of the Project, parcels within 0.5 mile of the Project that hold the potential to be developed in the future were identified using quantitative methods, then qualitatively reviewed for their suitability (e.g., government ownership, slope or other physical constraints, water/sewer availability, local planning goals) for future development. Overall, approximately 450 potentially available parcels were flagged within the Secondary and Cumulative Effects Study Area, totaling 665 acres. The findings from this analysis, as well as a review of local planning documents and existing utilities and infrastructure in the vicinity of the Project, are detailed below.

3.1 Parcel Data Review for Available/Developable Land

The 0.5-mile Secondary and Cumulative Effects Study Area used to evaluate available land includes Morgantown and unincorporated portions of Monongalia County. The parcel data analysis revealed the following properties in the immediate vicinity of Greenbag Road as potential areas for future development (**Figure 1**):

- Several small, commercial properties on the west side of US 119, and others clustered on the north side of Greenbag Road and along Distributor Drive in the vicinity of Mountaineer Mall.
- Four adjacent parcels in the southwest quadrant of the Greenbag Road intersection with Dorsey Avenue/Kingwood Pike, and there are three others in the northwest quadrant of the same intersection.
- Three of the largest tracts identified as developable land (40-80 acres) are contiguous in the southeast quadrant of Greenbag Road and Dorsey Avenue/Kingwood Pike. Two of the parcels are held by the same landowner along with one of the properties noted in the preceding bullet.
- The Haymaker Forest area, including a 22-acre parcel and a cluster of approximately 50 small parcels adjacent to the neighborhood north of East Grove Cemetery and east of Dorsey Avenue. Approximately eight parcels were also identified in the neighborhood south of East Oak Grove Cemetery.
- Parcels on the west side of Greenbag Road north of Lower Aarons Creek Road, all within Monongalia County's jurisdiction.

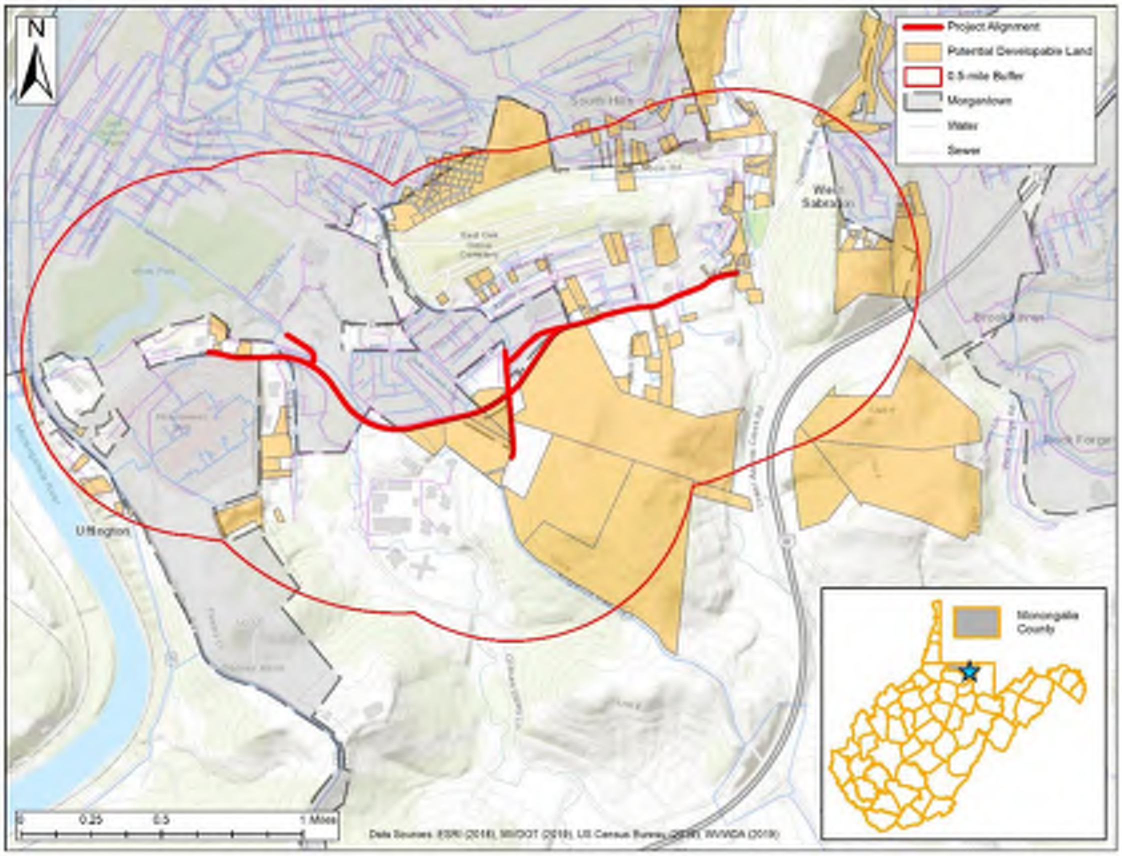

Figure 1: Potential Developable Land

3.2 Local Area Planning Initiatives:

The following information pertaining to development and the vision of the area in the vicinity of the Project was summarized from local planning documents:

The City of Morgantown's Comprehensive Plan (2013):

The *Comprehensive Plan* generally identifies that transportation and land use issues in the area are related to current patterns of development, especially outside of the City of Morgantown. A comparison of the Pattern and Character map, which illustrates existing conditions, and the Land Management map identified the following areas where land use changes may occur in the future as per the City of Morgantown's vision:

1. Mountaineer Mall is identified as a commercial node that is targeted for future infill and redevelopment. This area is also symbolized as an area targeted for encouraged growth in the Conceptual Growth Framework map.
2. "Corridor Enhancement" areas, where development may be improved with a mix of uses, increased intensity at major intersections, and roadway improvements to improve mobility for motorists and multimodal users, are identified at the following locations:

  - On either side of US 119, north and south of the Greenbag Road intersection
  - North of Mountaineer Mall on either side of Greenbag Road
  - Along the entire length of Greenbag Road east of the Dorsey Avenue/Kingwood Pike intersection
  - Though outside of the 0.5-mile buffer of the Project, the area along WV-7 (Earl Core Road) north and south of its intersection with Greenbag Road is also identified as a Corridor Enhancement Area. This area is targeted for encouraged growth according to the Conceptual Growth Framework map, and includes Sabraton, a designated “area of opportunity” and gateway to the City from I-68 in *The Comprehensive Plan*. The City of Morgantown envisions continued infill and redevelopment in this region as a mixed-use employment, retail, accommodation, and residential district.
3. Controlled Growth/Traditional Neighborhood Areas where growth is not strongly encouraged but where mixed-use development is possible due to the proximity to major roadways and utilities.
    - South of the terminus of Distributor Drive
    - Just south of Greenbag Road between Dorsey Avenue / Kingwood Pike and Lower Aaron Creek Road.
4. Areas targeted for “Neighborhood Conservation,” where the existing character will be retained and where maintenance of buildings and infrastructure will continue, are present within the Secondary and Cumulative Effects Study Area. According to the Conceptual Growth Framework map, infill and redevelopment is likely in all of these areas.
    - At the South Middle School and Monongalia County Technical College complex, and at the City of Morgantown property just east of it.
    - Within the Bluegrass Village development.
    - Along the west side of Dorsey Avenue.
5. The area east of Dorsey Avenue and just north of East Oak Grove Cemetery is classified as a natural area, and the City intends this area to be used as a Reserve in the future. The “Reserve” designation is defined as undeveloped land that will likely remain as open space or agricultural use due to environmental constraints. This forested tract is known locally as Haymaker Forest.

The City of Morgantown has defined a conceptual Urban Growth Boundary (UGB), which encompasses the entire Greenbag Road project corridor. Urban Growth Boundaries designate areas outside the corporate limits of a place where sufficient developable land exists through a 20-year period of growth, and when implemented they encourage infill and redevelopment within the UGB limits. City officials wish to expand the boundaries of the City in order to incorporate areas that exist within the functional boundary of the City that are not currently encompassed by Morgantown's legal limits, and implementation of a UGB may help facilitate that expansion.

City of Morgantown's Consulting Report Related to the Proposed Expansion of the City's Boundaries Through Annexation of Specified Adjacent Properties (2019):

As noted above, the City of Morgantown has recently been pursuing minor boundary adjustments to incorporate areas that are currently under Monongalia County's jurisdiction. The proposed annexation would expand the City limits to include the following areas in the vicinity of the Greenbag Road project:

1. Tracts on both sides of Greenbag Road, west and north of the mall;
2. Areas surrounding Distributor Drive;
3. Tracts south, north, and east of Bluegrass Village;
4. A tract just west of Dorsey Avenue, and the East Oak Grove Cemetery and Haymaker Forest areas immediately east of it;
5. A large area just north of Greenbag Road and east of the Dorsey Avenue/Kingwood Pike intersection.

Extension of utility services to a property is generally part of city annexation agreements that facilitate acquisitions. Assuming the parcels along Greenbag Road are successfully acquired by the City of Morgantown, it is reasonable to assume that applicable properties will be subject to extensions where services do not already exist.

MMMPO's Morgantown Industrial Park Access Study (2018)

One of the most highly visible business developments in Morgantown, the Morgantown Industrial Park offers direct access to rail and water transportation within a few miles of both I-79 and I-68. Many types of leasing arrangements are available and build-to-suit terms are available based on project specifications, and at least three industrial sites are currently for lease within the park. The Park is expected to expand, and a planning study was completed by the MPO to evaluate alternative access to the Park. Six build alternatives were developed. Two are applicable to the Secondary and Cumulative Effects Study Area – Alternate D (bridge across Mon River), and Alt E – Bridge over the Mon River and connection with Greenbag Road at the US 119 Donn Knotts Boulevard intersection. No endorsement for any alternative was provided as part of this study.

Availability of water/sewer

Water and sewer availability is abundant within the Secondary and Cumulative Effects Study Area in areas that are within the City of Morgantown's jurisdiction. Water and sewer is less available under the County's jurisdiction. Sewer is limited in areas south of Greenbag Road and east of Colburn Valley Lane, including along Kingwood Pike. Water service is limited south of the corridor and east of Kingwood Pike. The Haymaker Forest and East Oak Grove Cemetery area does not have available water and sewer, but services surround this area. Water and sewer services are limited along Lower Aarons

Creek Road, especially to the east. The areas within the Secondary and Cumulative Effects Study Area with the most limited availability of water and sewer are not identified as proposed areas of expansion under Morgantown's annexation plan.

4.0 Cumulative Effects

While the Project improvements on their own may only result in minor impacts to the notable cultural, community, water quality, natural features, and habitat within the study area, they may contribute to other effects that have resulted from past actions, and/or to impacts that will occur from future planned actions. In order to evaluate the potential for, magnitude of, and interactions between these cumulative effects, past projects since 1989 and planned actions through the year 2045 were identified and evaluated qualitatively. Information was primarily sourced from local planning documents, study area field views, and a review of aerial imagery. Cumulative effects are challenging to quantify since the magnitude of any impact associated with a proposed action is subjective. At times, both positive and negative impacts to a single resource are possible, or negative impacts to one resource may be offset by a positive impact to another.

4.1 Past Projects

As previously discussed, the populations of Morgantown and Monongalia County have grown over the past decade despite a decline in population across the State of West Virginia, and land use along the Greenbag Road corridor has experienced development in response to this growth. A comparison of historical aerial imagery and field view observations have identified the following areas where expansion has occurred since the late 1980s (areas denoted with an asterisk indicate that some level of development has occurred within the last 15 years):

1. Small commercial properties west of US 119.*
2. The existing automotive dealer north of the Greenbag Road intersection with US 119 expanded.
3. The commercial corridor north of Greenbag Road, near Mountaineer Mall.
4. Expansion of the facilities at South Middle School and Monongalia County Technical Education Center.*
5. Extension of Distributor Drive and development at the end and on either side of the roadway.*
6. The Morgantown Utility Board's paved driveway was constructed, and the facilities in this area expanded.
7. New facilities were constructed within the Federal Correctional Institution.
8. Construction of Bluegrass Village.
9. The existing gymnastics center, storage facility, insurance agency, and other buildings in the northwest quadrant of Greenbag Road and Dorsey Avenue/Kingwood Pike were constructed.
10. Construction of Mountainview Elementary.
11. Numerous single family and multifamily residences along Marcus Drive.

12. Many facilities and access streets to these resources on the north side of Greenbag Road, east of Luckey Lane, serving residential (e.g., Ashworth Lane, Jonathan Lane, Long Branch Drive) and commercial uses.*
13. Glen Oaks Drive, south of the corridor, and residences accessed by that road.
14. Harvest Family Worship Center, Covenant Christian School, and the paved access road to these resources.
15. Numerous commercial facilities surrounding Greenbag Road north of Lower Aarons Creek Road.
16. Residential areas along South Point Circle.*

The development that has occurred within and around Morgantown over the past 15 years is expected to continue at a similar pace in the future, and it is anticipated that available land in the area will continue to be developed regardless of if this project is constructed or not.

4.2 Reasonably Foreseeable Future Actions (RFFAs)

In addition to past actions, potential cumulative effects of a proposed action were aggregated with other ongoing and reasonably foreseeable future actions (RFFAs). The identification of RFFAs is complicated by the fact that future actions are not always foreseeable, that planned actions are contingent upon funding security and/or preliminary planning actions, by the economic and political climates of the area, and by many other factors that can be impossible to predict.

Actions that may contribute to cumulative effects are shown in Table 1 below.

Table 1

Activity	Location	Environmental Issues that are Cumulative
Multimodal facility improvements	Sidewalks along Dorsey Avenue, White Park/Caperton Trail Connection	Land use, terrestrial habitat, wetlands, streams, water quality, traffic
Water and sewer enhancements	Areas currently under Monongalia County's jurisdiction that are proposed for annexation into Morgantown: o Tracts on both sides of Greenbag Road, west and north of the mall; o Areas surrounding Distributor Drive; o Tracts south, north, and east of Bluegrass Village; o A tract just west of Dorsey Avenue, and the East Oak Grove Cemetery and Haymaker Forest areas immediately east of it; o A large area just north of Greenbag Road and east of the Dorsey Avenue/Kingwood Pike intersection.	Land use, water quality, wetlands, streams, traffic, noise, air quality, cultural resources
Transportation system improvements	Mississippi Street; WV-7 (Earl Core Road, including intersection with Greenbag Road; US 119 (Grafton Road); Smithtown Road	Land use, terrestrial habitat, water quality, wetlands, streams, traffic, noise, air quality, cultural resources
Residential and/or commercial development	Planned townhomes east of Dorsey Avenue, north of Haymaker Forest (West Virginia Metro News 2019). Other potential areas for future development include areas near the US 119 and Greenbag Road intersection, the region in the southeast quadrant of Greenbag Road and Dorsey Avenue/Kingwood Pike intersection, and the Greenbag Road corridor north of Lower Aarons Creek Road through and including its intersection with WV-7.	Land use, terrestrial habitat, water quality, wetlands, streams, noise, air quality, traffic, cultural resources.

Using the identified RFFAs, a matrix was developed to indicate the likely time period, the importance, the likelihood of occurrence, and potential impacts to natural, social, and cultural resources for each. This method follows procedures developed by the USACE and is recognized by the CEQ as a valid procedure for estimating cumulative effects (CEQ 1997). The results of the analysis are shown in Table 2.

Table 2

	Time Period	Importance	Occurrence Probability	Water Quality	Wetlands	Terrestrial Habitat	RTE Species	Air Quality	Recreation Resources	Socioeconomics	Cultural Resources
Multimodal facility improvements	1,2	M	M	+/-	+/-	+/-	+/-	+/-	+	+	+/-
Water and sewer enhancements	1,2	M	H	+	+	+/-	+/-	+/-	+	+	+/-
Transportation system improvements	1,2	H	H	+/-	+/-	+/-	+/-	+/-	+	+	+/-
Residential and/or commercial development	1,2	L	M	+/-	+/-	+/-	+/-	+/-	+	+	+/-
Regulatory Environment	1,2	H	M	+	+	+	+	+	+	+	+

Time period: 1 = within 10 years, 2 = between 10 and 20 years from now
Importance/Occurrence probability: H = high, M = medium, L = low.
Impacts: + = positive. - = negative, +/- = mixed effects, 0 = none.

Any proposed development, whether it is transportation or utility-oriented, multimodal facility improvements, residential, or commercial in nature, can result in negative impacts to water quality, wetlands, streams, habitat, wildlife, and/or cultural resources. There is risk of physical adverse impacts associated with any temporary or permanent ground disturbance, and any increase in impervious surface can result in impaired water quality which could translate to adverse impacts to aquatic habitat and wildlife. Construction activities in the short-term can also create negative impacts to air quality. At the same time, construction and development activity generally occurs with an intent to avoid, minimize, and/or mitigate any adverse impacts to natural or cultural resources. This can result in new water or habitat features that could offset negative impacts, as well as potential for improved understanding of the status of threatened, rare, and endangered species. These projects may also provide opportunities for enhanced coordination between resource agencies and other stakeholders that may not have otherwise occurred, potentially resulting in improved management of the function and values of these natural and cultural resources at a broader level.

The physical ground disturbance that can be associated with multimodal facility improvements can result in mixed impacts to natural and cultural resources as described above. However, the overall impacts of such improvements would likely be positive. Recreational resources would improve, especially since planned actions described in the *Comprehensive Plan* and *The MTP* identify multimodal facilities improvements that would create direct connections between parks, schools, and cultural resources. Air quality would improve if the availability of multimodal facilities cause motorists to opt for active forms of transportation instead of vehicles. Any reduced congestion that might result from that shift would improve air quality. Socioeconomic conditions may improve if the multimodal facility improvements enhance access between residential areas and employment or commercial opportunities.

Besides the previously described mixed impacts to natural and cultural resources, water and sewer enhancements would result in a positive impact to water quality, recreational resources, and socioeconomics. Sewer systems that are designed to an appropriate capacity are less likely to fail. This impact would therefore offset any negative impact the disturbance would cause to water quality. The presence of adequate utilities is also essential for the health, well-being, and attractiveness of a community. The availability of adequate services increases the likelihood for development and creates a desirable area to live and work in, which would in turn result in a positive effect on the socioeconomics of an area.

Transportation system improvements that are described in the local planning documents generally propose widening and/or new access facilities, construction of which would likely result in mixed impacts to natural and cultural resources as described previously. If these improvements result in overall travel time savings and/or reduced congestion, they could also contribute to air quality improvements over time due to reduced emissions sourced from motorized vehicles. There is potential for mixed access impacts to recreational, socioeconomic, and/or residential areas, since even at the individual project level different areas can experience positive or negative access impacts.

The mixed impacts associated with the construction of new commercial and/or residential areas could be offset by any positive socioeconomic impacts that occur as a result of these developments. These actions may also result in negative impacts to notable resources if population increases result, causing a rise in demand for transportation facilities and recreational, cultural, and community resources.

The regulatory environment is expected to result in a positive impact to water quality, wetlands, streams, terrestrial habitat, wildlife, air quality, recreational resources, socioeconomics, and cultural resources. Federal, state, and local regulations are in place to protect natural, cultural, and socioeconomic resources. Although cumulative effects associated with the development are possible as described above, the City of Morgantown has demonstrated planning and policy initiatives over the past decade to preserve and protect important resources under its jurisdiction from pressures associated with growth and development. Several examples of these efforts are listed below:

1. The City has a conceptual urban growth boundary identified in the *Comprehensive Plan*, as well as identified areas for targeted growth.
2. The City's Urban Landscape Commission promotes an aesthetically attractive environment, plan the urban landscape, provide development recommendations, and encourage a healthy urban forest.

3. The City has an established Land Preservation Program and a Land Reuse and Preservation Agency to oversee responsible land preservation activities within and adjacent to the City boundaries.
4. The City's Stormwater Utility Board manages stormwater pollution
5. Water supply plans for certain developments under the City's Planning and Zoning Code.
6. The City has an established Historic Landmarks Commission to advise the designation and encourage the preservation of historic structures and districts.

5.0 Conclusion

The combined effects of this project when considered in the context of other past, present, and future actions, and the resulting impacts on the human and natural features within the Secondary and Cumulative Effects Study Area, will likely minimally contribute to cumulative effects to environmental resources in the Secondary and Cumulative Effects Study Area. Direct impacts by WVDOH projects will be addressed by avoidance, minimization, or mitigation consistent with programmatic agreements with the respective resource agencies during the permitting process. All developments will be required to follow local, state, and federal guidelines and permitting regulations.

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