# Evaluation for Solar Farm Development

## Marion County Landfill and AmBit Property

## Marion County, WV

July 2022

Prepared for:

**WV Office Of Energy**

A Division of the West Virginia Development Office

Prepared by:

**Marshall University**

Center for Environmental, Geotechnical and Applied Sciences and

Marshall University's WV Brownfields Assistance Center

Report financially assisted through a grant administered by the U.S. Department of Energy

ACKNOWLEDGMENT: The development of this report was financially assisted through a grant administrated by the U.S. Department of Energy. This report was prepared through a cooperative effort by the WEST VIRGINIA OFFICE OF ENERGY and Marshall University Research Corporation (MURC) and compiled by Marshall University's Center for Environmental, Geotechnical and Applied Sciences (CEGAS) and its West Virginia Brownfields Assistance Center.

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**Introduction / Report Background**

Marshall University's Center for Environmental, Geotechnical and Applied Sciences (CEGAS) and its West Virginia Brownfields Assistance Center were retained by the West Virginia Office of Energy, a division of the West Virginia Development Office to complete limited property evaluation studies on select mine land and other properties for potential large-scale solar farm use. This specific evaluation is for the Marion County Landfill & American Bituminous Power (AmBit) property and includes information obtained from multiple sources regarding site-specific information and conditions, local area demographics, available electric utilities, and interaction with property owners. The purpose of this evaluation is to provide sufficient information on the subject property for potential redevelopment and/or reuse considerations by interested parties for solar farm use. CEGAS believes, to the best of its knowledge, that the information contained in the report is accurate at the time of compilation, however, no guarantees are warranted. It is ultimately the responsibility of interested parties to perform their own due diligence in fully evaluating the subject property for potential new development.

**Site Name and Location**

The Marion County Landfill & American Bituminous Power (AmBit) property is located in the northern part of West Virginia (WV) in Farmington, WV. The property is located less than 30 miles southwest of Morgantown, WV, and less than 10 miles west of Fairmont, WV. It can be accessed from WV Route 218. A site location map is provided as an attachment.

The entire property is comprised of approximately 440 acres. Twenty-two tracts associated with this report are listed on the West Virginia Property Viewer (mapwv.gov/parcel) as follows:

| District | Map | Parcel | Parcel Suffix | Book | Page | WV Property Viewer (link) |
|---|---|---|---|---|---|---|
| 08 | 031 | 0044 | 0000 | 1092 | 530 | |
| 11 | 031 | 0044 | 0001 | 1092 | 530 | |
| 11 | 031 | 0045 | 0000 | 1092 | 530 | |
| 11 | 031 | 0046 | 0000 | 1092 | 530 | |
| 11 | 031 | 0047 | 0000 | 1092 | 530 | |
| 11 | 031 | 0048 | 0000 | 881 | 1063 | |
| 11 | 031 | 0049 | 0000 | 881 | 1063 | |
| 11 | 031 | 0050 | 0000 | 881 | 1063 | |
| 11 | 031 | 0051 | 0000 | 881 | 1063 | |
| 11 | 031 | 0052 | 0000 | 881 | 1063 | |
| 11 | 031 | 0052 | 0001 | 881 | 1063 | |
| 11 | 031 | 0052 | 0002 | 881 | 1063 | |
| 11 | 031 | 0053 | 0000 | 930 | 803 | |
| 11 | 031 | 0053 | 0001 | 881 | 1063 | |
| 11 | 032 | 0092 | 0000 | 881 | 1063 | |
| 11 | 032 | 0093 | 0000 | 881 | 1063 | |
| 11 | 032 | 0094 | 0000 | 881 | 1063 | |
| 11 | 032 | 0094 | 0002 | 881 | 1063 | |
| 11 | 044 | 0021 | 0000 | 0 | 0 | |
| 11 | 044 | 0021 | 0001 | 1119 | 492 | |
| 11 | 044 | 0021 | 0002 | 1119 | 492 | |
| 11 | 044 | 0047 | 0001 | 0 | 0 | |

**Current Property Owners**

The tracts are owned by Marion County Solid Waste Authority and American Bituminous Power (AmBit). The contact for this property in its entirety is:

Allen Staggers, Executive Director
Marion Regional Development Corporation
110 Adams St.
Fairmont, WV 26554
director@mrdcwv.org
Tel: 681-753-5630

**Site History and Current Status**

The property has had various uses. Part of the property is a former surface mine site. Another portion of the property is the site of the former Marion County landfill. The landfill was closed in the 1990s. Two years after the closure, the landfill was capped. The landfill is currently monitored within the WV Department of Environmental Protection's landfill closure assistance program. In addition to these prior uses, sections of the property are forested land.

Aerial videos of each location, collected in May of 2022, can be viewed using the following web link:

Site Video:
https://youtube.com/playlist?list=PLO4Yig1CAOAlTCBPfJUM_EZhAUQANTRQf

**Local Area Summary**

Marion County is located in northern West Virginia. The population of Marion County was 56,205 in the 2020 Census. The local area associated with this property is within a primarily rural setting with low density residences close to the property.

**Electric Utility Summary**

Electric service is provided by Mon Power, a subsidiary of FirstEnergy Corp. Three-phase power is available in the vicinity of the properties. The nearest substation is located approximately 2.5 miles west from the center of the property. A 500 kV transmission line run adjacent to the property. A map depicting substations and electric transmission lines in the vicinity of area is provided as an attachment.

**Potential Solar Farm Use**

The property has been evaluated using DEMs derived from FEMA-purchased QL2 LiDAR collected between 2018 and 2020. Properties were evaluated using 10%, 15% and 20% maximum slope factors to determine available land potentially suitable for solar farm development. Using ESRI's ArcGIS software, slope analysis was calculated from DEM referenced data. Maps depicting slope characteristics are provided as attachments. A summary of the slope analysis is provided on the following table:

| total acreage | 10% or less slope (acreage) | 15% or less slope (acreage) | 20% or less slope (acreage) |
|---|---|---|---|
| ~440 | ~145 | ~221 | ~300 |

**Property Availability**

The property owners would like to discuss any development on the property that will fit within restrictions associated with being a closed landfill and former surface mine.

**The Nature Conservancy's (TNC) Resilient Land Mapping Tool Report**

As requested by the West Virginia Office of Energy, CEGAS utilized The Nature Conservancy's Resilient Land Mapping Tool for the property for site resiliency evaluations. TNC's Nature and Economy Program Director, Eriks Brolis, provided the following description of TNC's Resilient Land Mapping Tool.

The Nature Conservancy is working across the country to help private and public partners deliver clean, wildlife-friendly renewable power to customers faster and cheaper with the least potential conflict for people, water, and wildlife. In conjunction, the Nature Conservancy is identifying and mapping a representative, connected network of climate resilient sites which if conserved, could help sustain biodiversity into the future as it moves and changes to adapt to a changing climate. The network also protects the source water, carbon stocks, oxygen, and recreation space that people depend on.

TNC's Resilient and Connected Network (RCN) is a proposed conservation network of representative climate-resilient sites designed to sustain biodiversity and ecological functions into the future under a changing climate. The network was identified and mapped over a 10-year period by Nature Conservancy scientists using public data available at the state and national scale, and an inclusive process that involved over 250 scientists from agencies, academia and NGOs across the US. The Resilient and Connected Map quantifies and integrates three nation-wide assessments:

**Climate Resilient Sites**: ecologically representative sites with a diversity of connected microclimates and low human modification.

**Connectivity and Climate Flow:** Linkages that allow species to move across sites and climate gradients.

**Recognized Biodiversity Value**: Places with intact habitats, rare species, or exemplary communities.

Resilience Score: The map allows users to calculate a site specific "Resilience Score". A site's Resilience Score estimates its capacity to maintain species diversity and ecological function as the climate changes. It was determined by evaluating and quantifying physical characteristics that foster resilience, particularly the site's landscape diversity and local connectedness. The score is calculated within ecoregions based on all cells of the same geophysical setting and is described on a relative basis as above or below the average. Generally,

> the higher the score the more important the land is for conservation, the lower the score the less concern for development.
>
> To learn more, please visit: https://www.conservationgateway.org/ConservationPractices/ClimateChange/Pages/Climate-Resilience.aspx

The Nature Conservancy's (TNC) Resilient Land Mapping Tool results for the Marion County Landfill and AmBit property are shown below.

## Resilient Land Summary

**Total land area: 440 acres (436.3 land, 3.7 open water) in the Northeast study area(s) in the Western Allegheny Plateau ecoregion(s).**

### Resilient and Connected Network Results

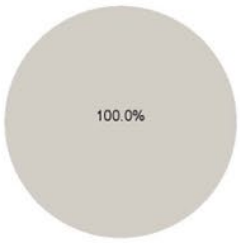
Note: These results are based on the **nationally-consistent** ecoregional data. They are derived from the detailed representations of the Resilient and Connected Networks which can be visualized under the Resilient & Connected Network Components section at right.

**Resilience, Flow and Recognized Biodiversity: 0 ac.**

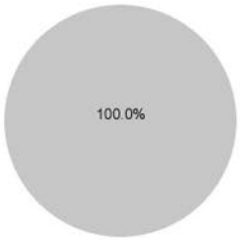
**Resilience and Flow: 0 ac.**

**Resilience and Recognized Biodiversity: 0 ac.**

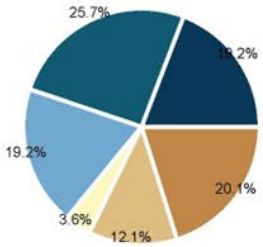
Outside Prioritized Network: 440.1 ac.




Biodiversity




Connectivity and Climate Flow (Continuous)




### Average Terrestrial Resilience with Polygon

(all scores relative to ecoregion)

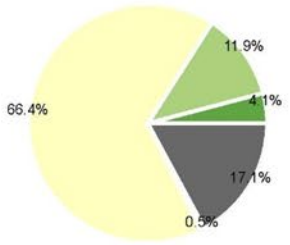
Resilience
Slightly Below Average (-0.56 SD)


Local Connectedness
Below Average (-1.09 SD)

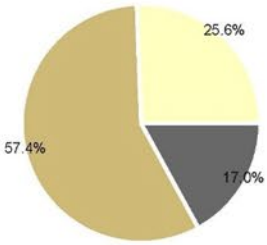

Landscape Diversity
Average (-0.02 SD)


### Terrestrial Resilience Categories

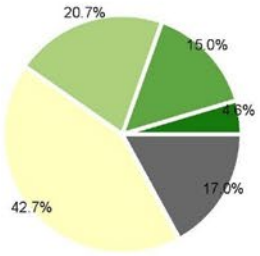
Resilience




Local Connectedness




Landscape Diversity




**Geophysical Setting Results**

The mean elevation in the polygon is 367.54 m (1205.84 ft) and the three most common geophysical settings are:

Low Elevation Acidic Sedimentary : 436 acres

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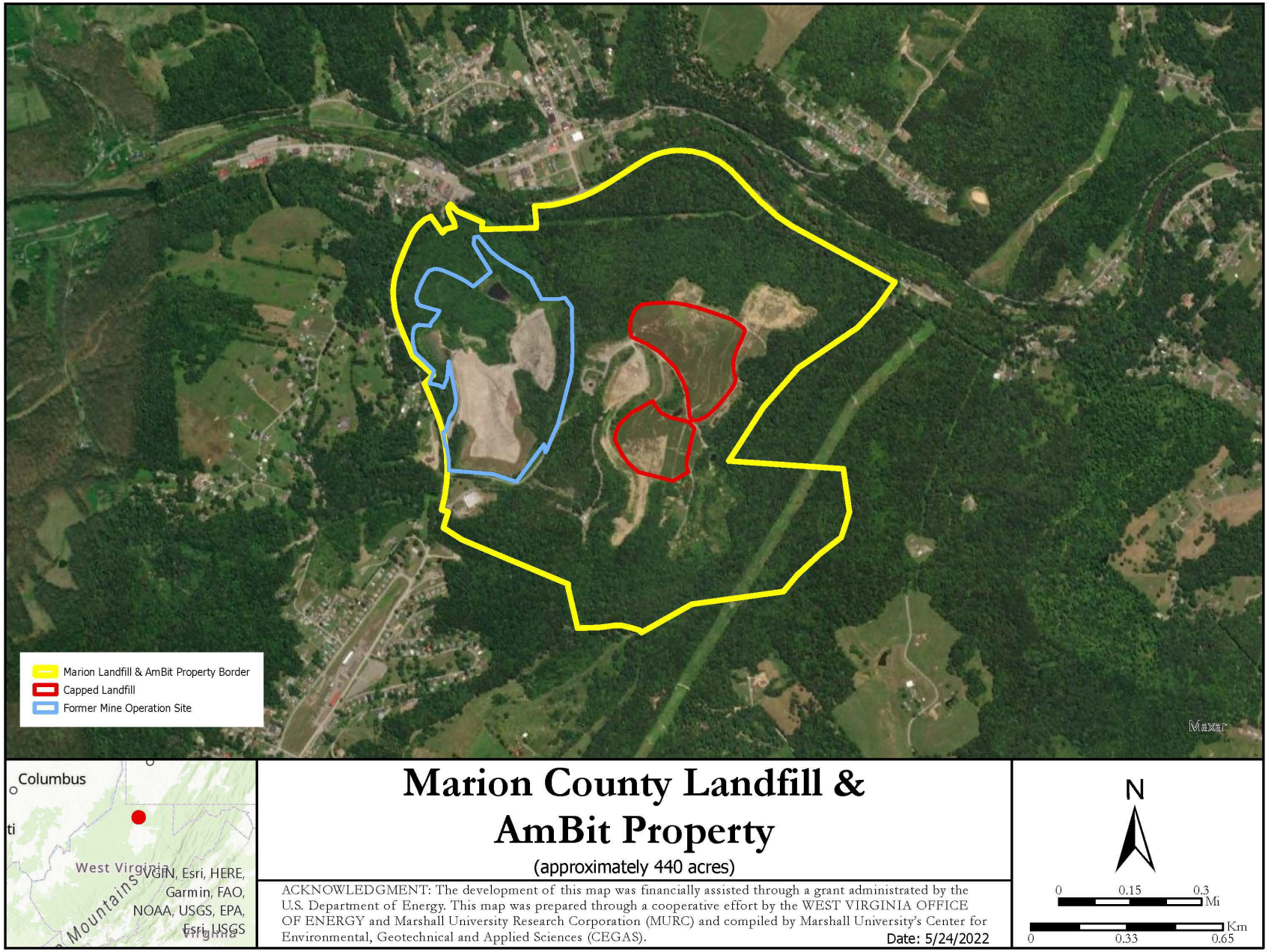
# Attachments

# Maps




# Marion County Landfill & AmBit Property

(approximately 440 acres)

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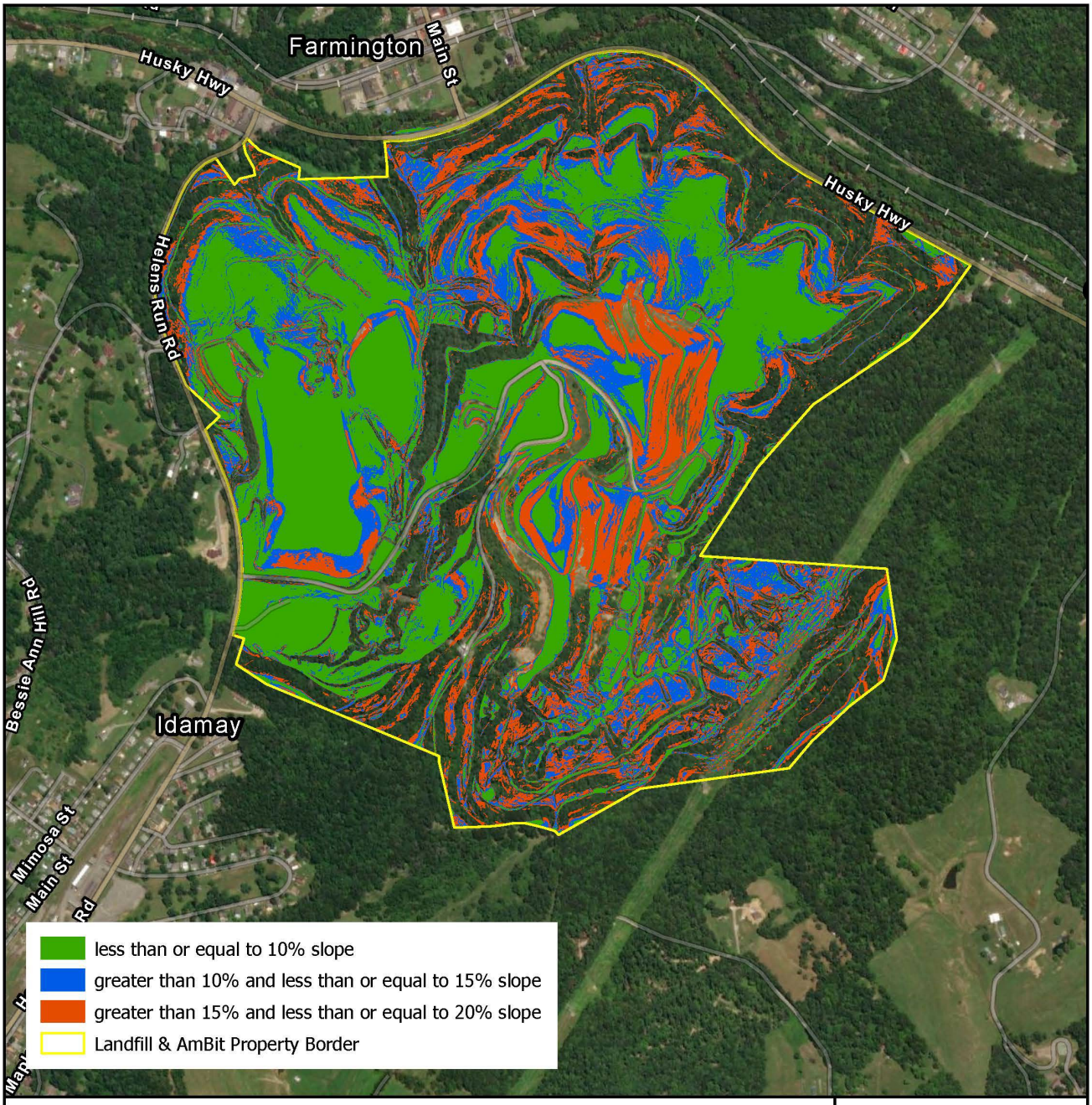
Date: 5/24/2022




# Marion County Landfill & AmBit Property Slope

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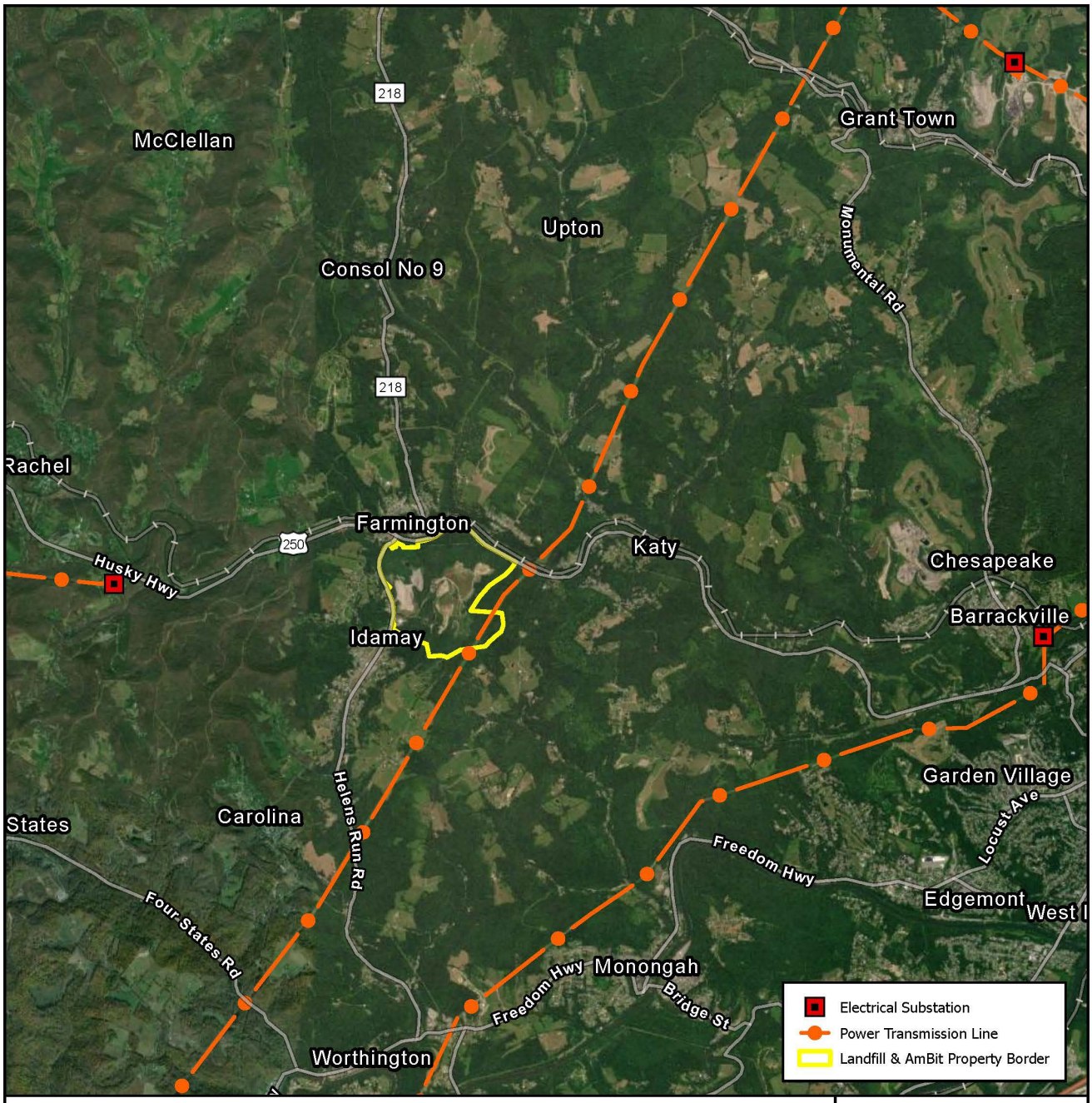
Date: 5/3/2022

Coordinate System: NAD 1983 UTM Zone 17N

N

0 0.1 0.2 Mi

0 0.2 0.4 Km




# Marion County Landfill & AmBit Property Utilities

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Date: 5/25/2022

Coordinate System: NAD 1983 UTM Zone 17N

N

0 0.5 1 Mi

0 1 2 Km

# Photos