

Dewberry Response to USGS Review of the Virginia Fairfax County Lidar Project

Produced for U.S. Geological Survey

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Executive Summary

The primary purpose of this project was to develop a consistent and accurate surface elevation dataset derived from high-accuracy Light Detection and Ranging (lidar) technology for the Virginia Fairfax County Lidar Project Area.

The lidar data were processed to bare-earth digital terrain models (DTM). Detailed breaklines and bare-earth digital elevation Models (DEMs) were produced for the project area.

Deliverables for this project included classified point cloud data, bare earth hydro-flattened digital elevation models, intensity images, breaklines, control points, metadata and project extent shapefiles.

The USGS' review of these deliverables resulted in one point misclassification call, three breakline enforcement calls, ten bridge artifact calls, eight bridge present calls, two missing stream calls, one missing island call, one missing waterbody call, two monotonicity calls, and three point misclassification (building) calls.

PROJECT AREA

Data was formatted according to tiles with each tile covering an area of 1000m by 1000m. A total of 1768 tiles were produced for the project encompassing an area of approximately 600 sq. miles.

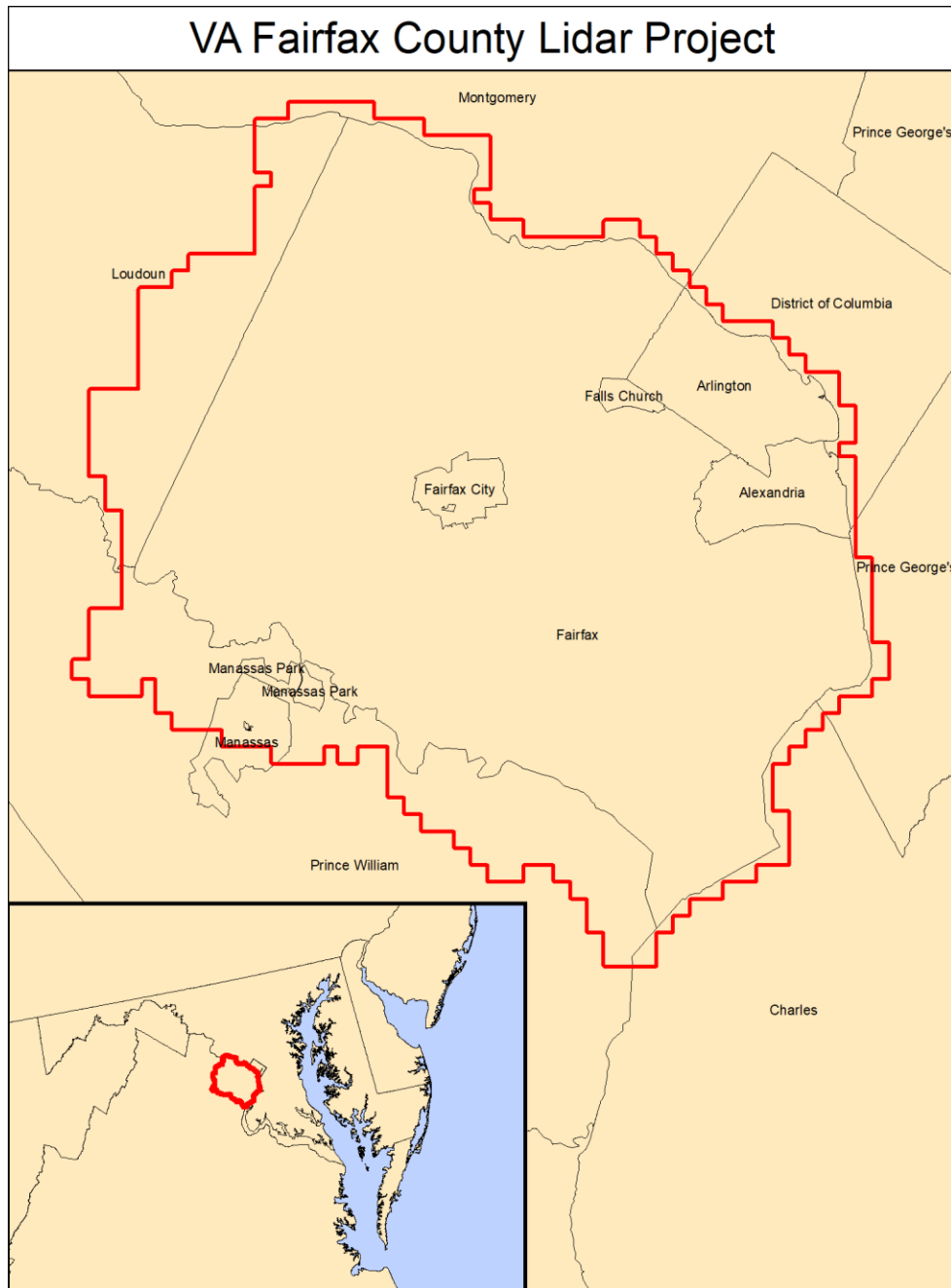


Figure 1- Project Map

Edit Calls

POINT MISCLASSIFICATION

USGS stated that there were six (6) LAS files with points classified to class 32. Dewberry has corrected these LAS files by classifying the points to the correct class.

BREAKLINE ENFORCEMENT

USGS made three (3) calls where a waterbody was not hydroflattened to a single elevation value. Dewberry has addressed these calls and the ~~LAS~~ breaklines and DEMs were corrected. An example is shown below.

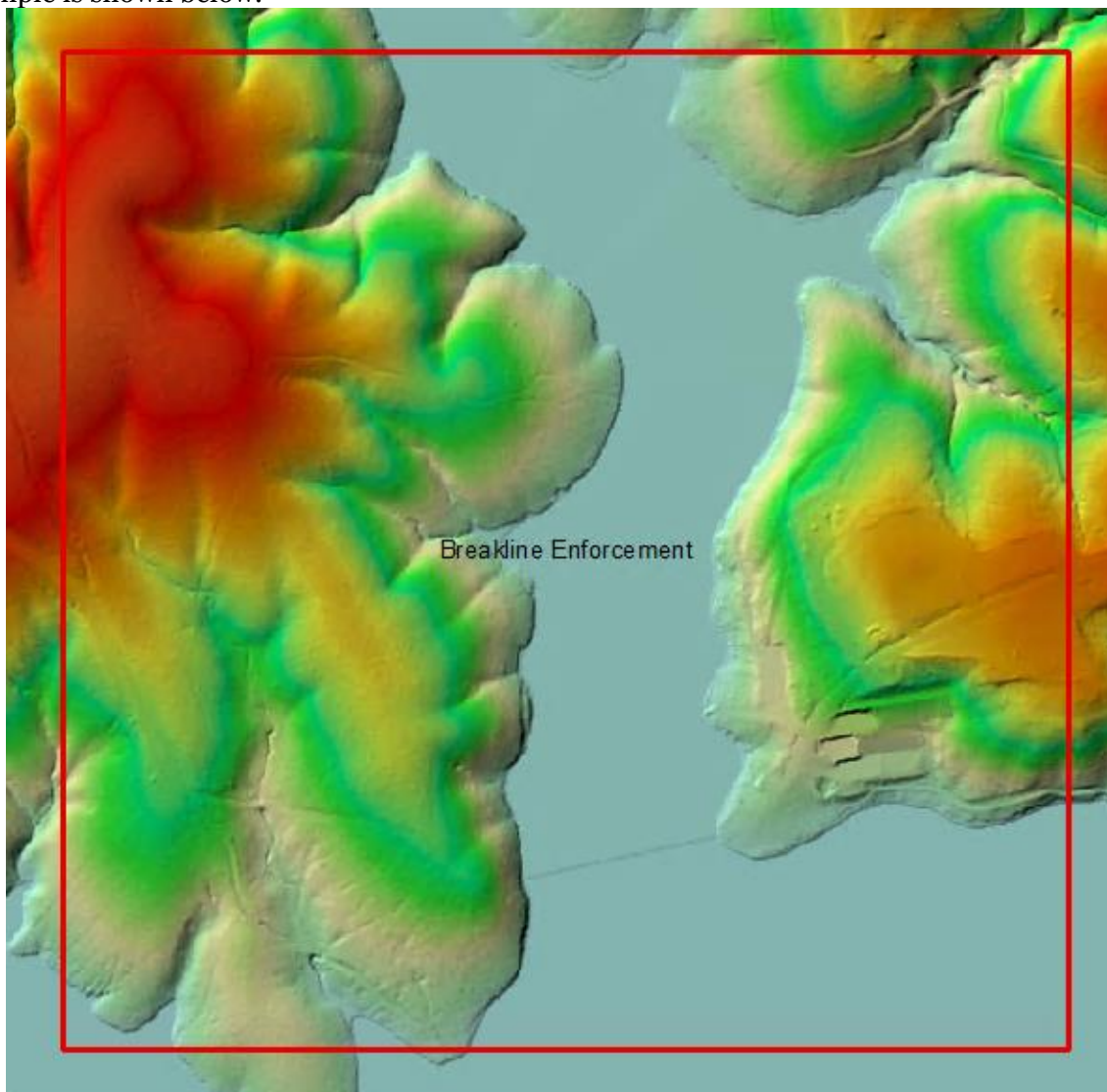


Figure 2 – Tiles e1599n1900 and e1600n1900. The image above is an overview of the DEM where USGS made a call that a waterbody was not hydroflattened to a single elevation.

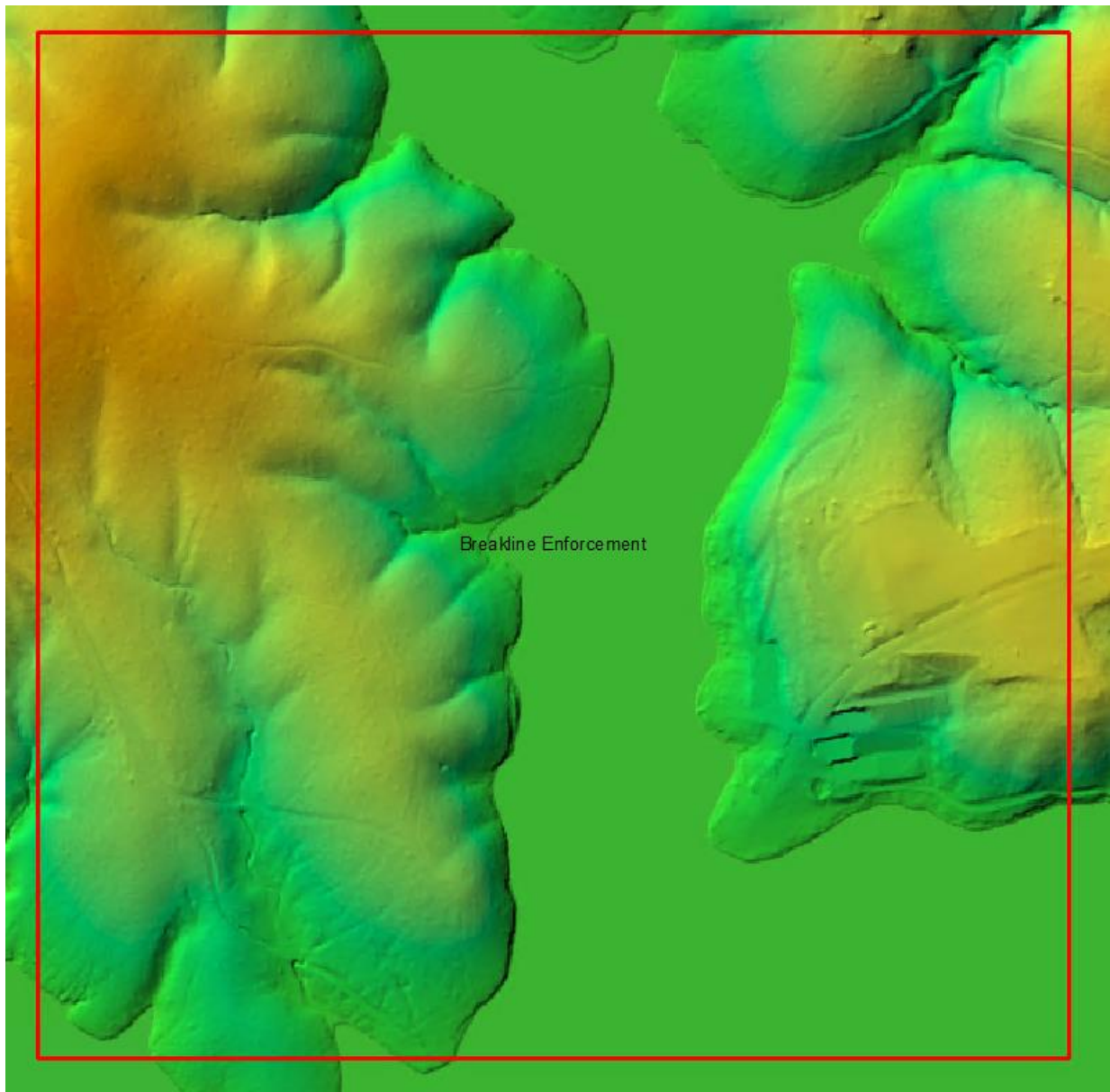


Figure 3 – Tiles e1599n1900 and e1600n1900. The image above is an overview of the corrected DEM.

BRIDGE ARTIFACT

USGS made ten (10) calls where there was a bridge artifact visible on the DEM after the bridge was removed. Dewberry has addressed these calls and the bridge saddle LAS breaklines and DEM_s were corrected. An example is shown below.

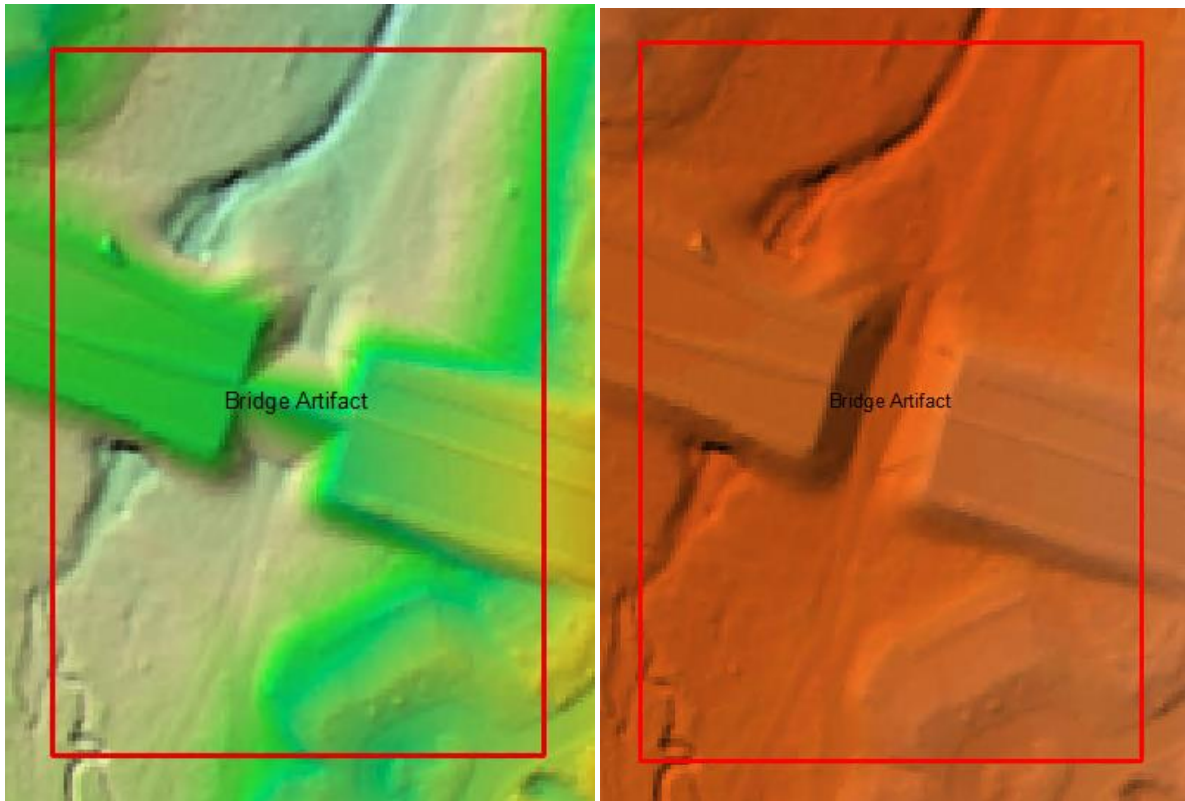


Figure 4 – Tile e1591n1929. The image on the left is an overview of the DEM where USGS made a call that there was a bridge artifact visible on the DEM after the bridge was removed. The image on the right is an overview of the corrected DEM.

BRIDGE PRESENT

USGS made eight (8) calls where a bridge deck was not removed from the DEM surface. Dewberry has addressed these calls and the LAS and DEM were corrected. An example is shown below.

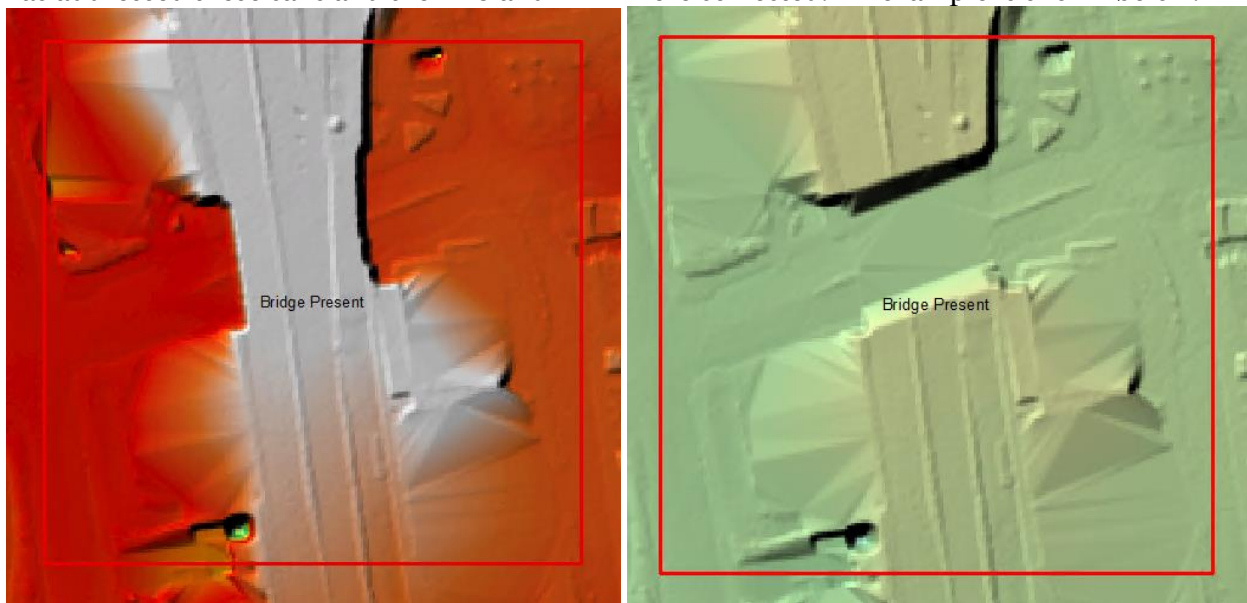


Figure 5 – Tile e1591n1929. The image on the left is an overview of the DEM where USGS made a call that a bridge deck was not removed from the DEM surface. The image on the right is an overview of the corrected DEM.

MISSING STREAM

USGS made two (2) calls where a stream wider than 30m did not have breaklines and was not hydroflattened. Dewberry has addressed these calls and the LAS, breaklines, and DEMs were corrected. An example is shown below.

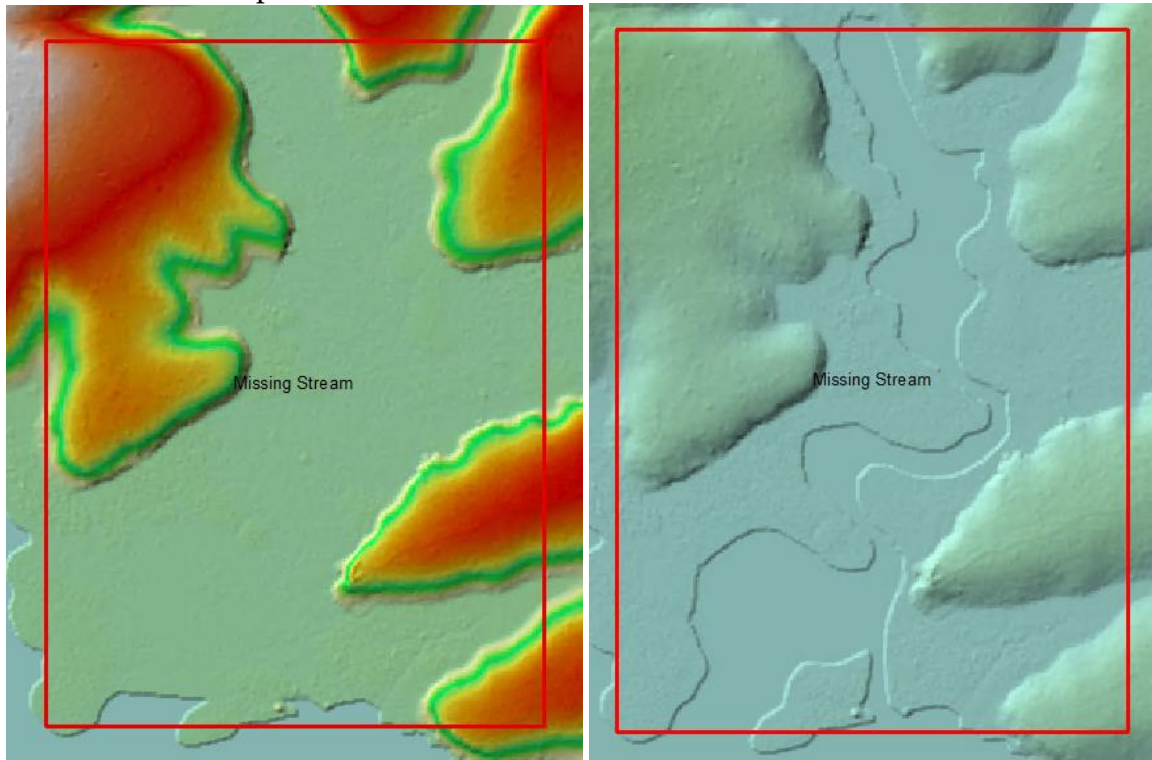


Figure 6 - Tiles e1613n1894, e1613n1895, e1614n1894, e1614n1895. The image on the left is an overview of the DEM where USGS made a call stating that a stream wider than 30m did not have breaklines and was not hydroflattened. The image on the right is an overview of the corrected DEM.

MISSING ISLAND

USGS made one (1) call where only part of an island was marked with breaklines. Dewberry has addressed this call and the LAS, breaklines, and DEMs were corrected.

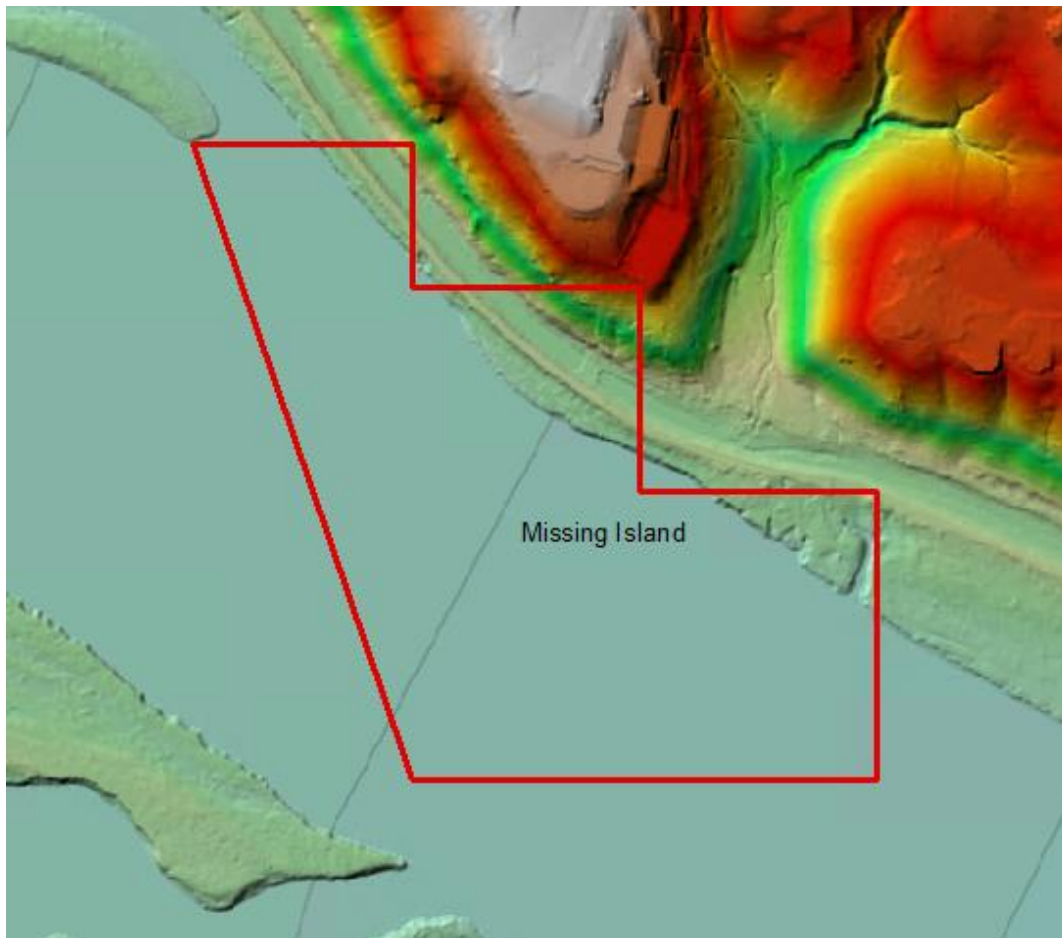


Figure 7 – Tiles e1597n1936 and e1595n1936. The image above is an overview of the DEM where USGS made a call stating that only part of an island was marked with breaklines.

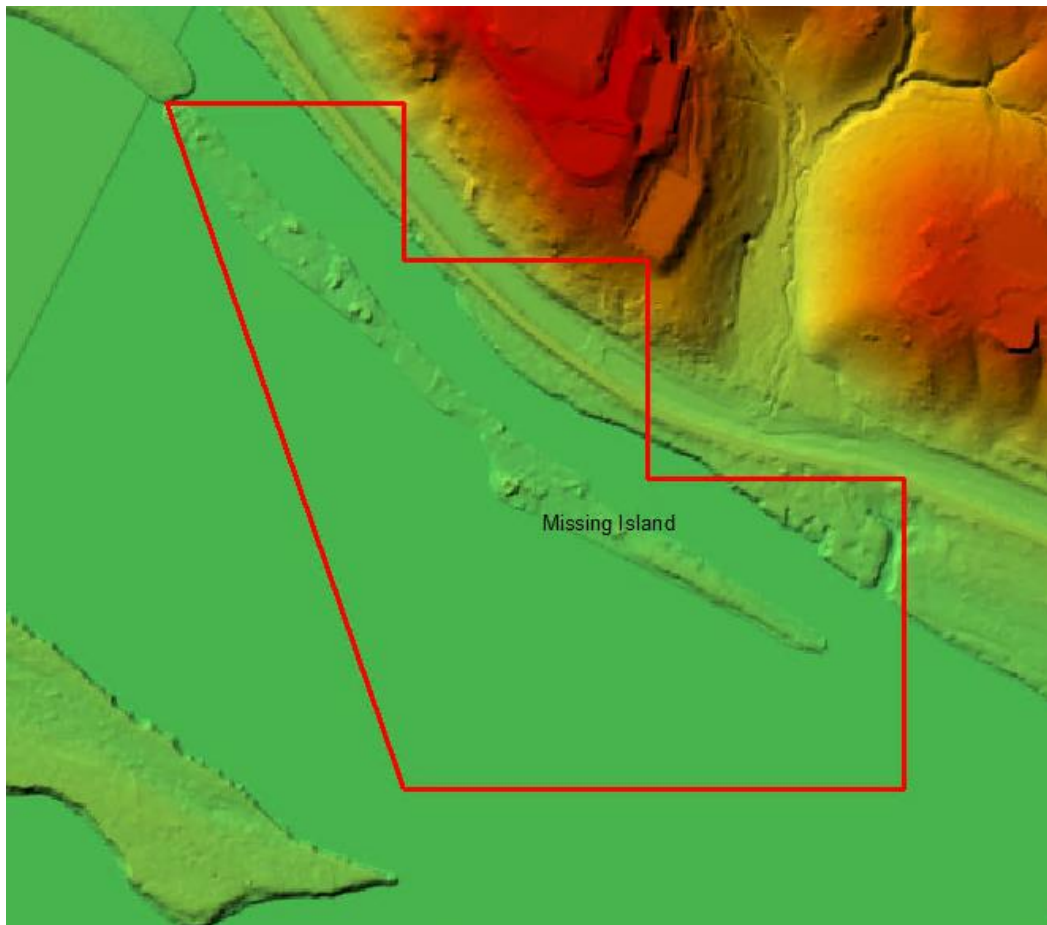


Figure 8 – Tiles e1597n1936 and e1595n1936. The image above is an overview of the corrected DEM.

MISSING WATERBODY

USGS made one (1) call where a waterbody larger than 2 acres was missing breaklines and was not hydroflattened. Dewberry has addressed this call and the LAS, breaklines, and DEMs were corrected.



Figure 9 – Tiles e1588n1937 and e1588n1938. The image above is an overview of the DEM where USGS made a call stating that a waterbody larger than 2 acres was missing breaklines and was not hydroflattened.



Figure 10 – Tiles e1588n1937 and e1588n1938. The image above is an overview of the corrected DEM.

MONOTONICITY

USGS made two (2) calls where a stream was not properly hydroflattened in a downstream manner. Dewberry has addressed these calls and the LAS, breaklines, and DEMs were corrected. An example is shown below.

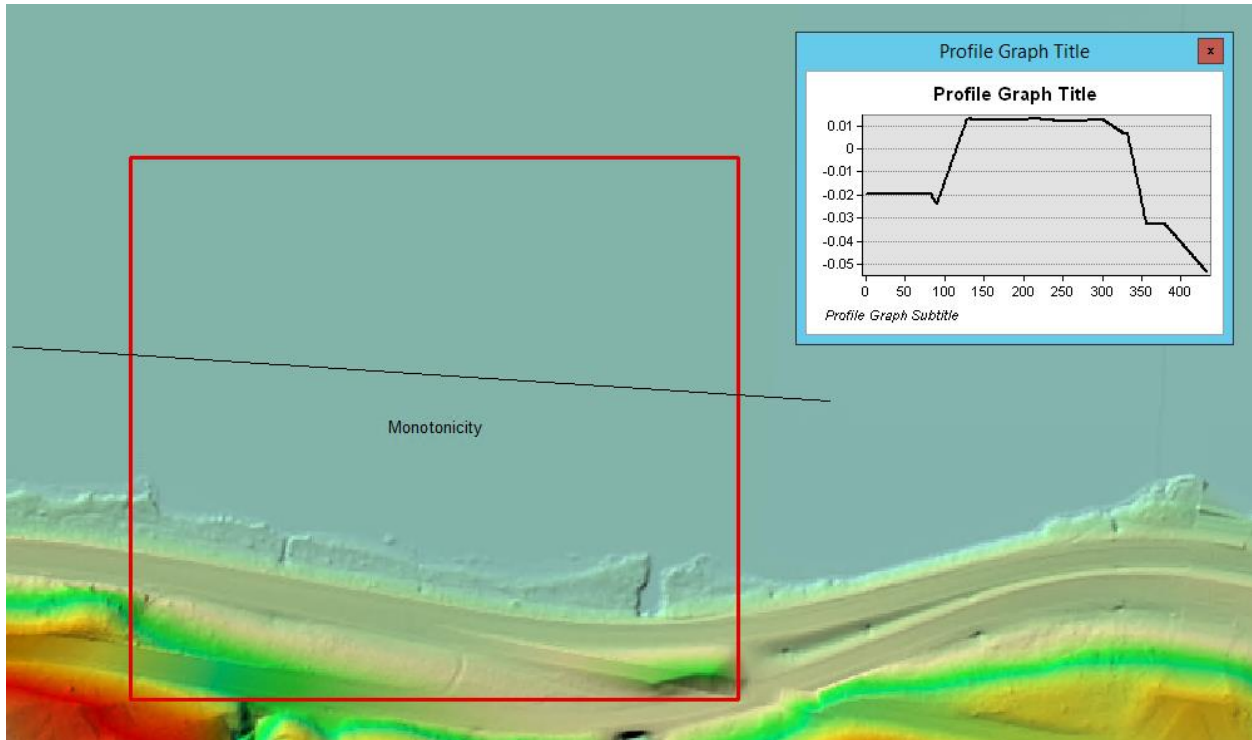


Figure 11 – Tile e1615n1925. The image above shows an overview of the DEM where USGS made a call stating a stream was not properly hydroflattened in a downstream manner.

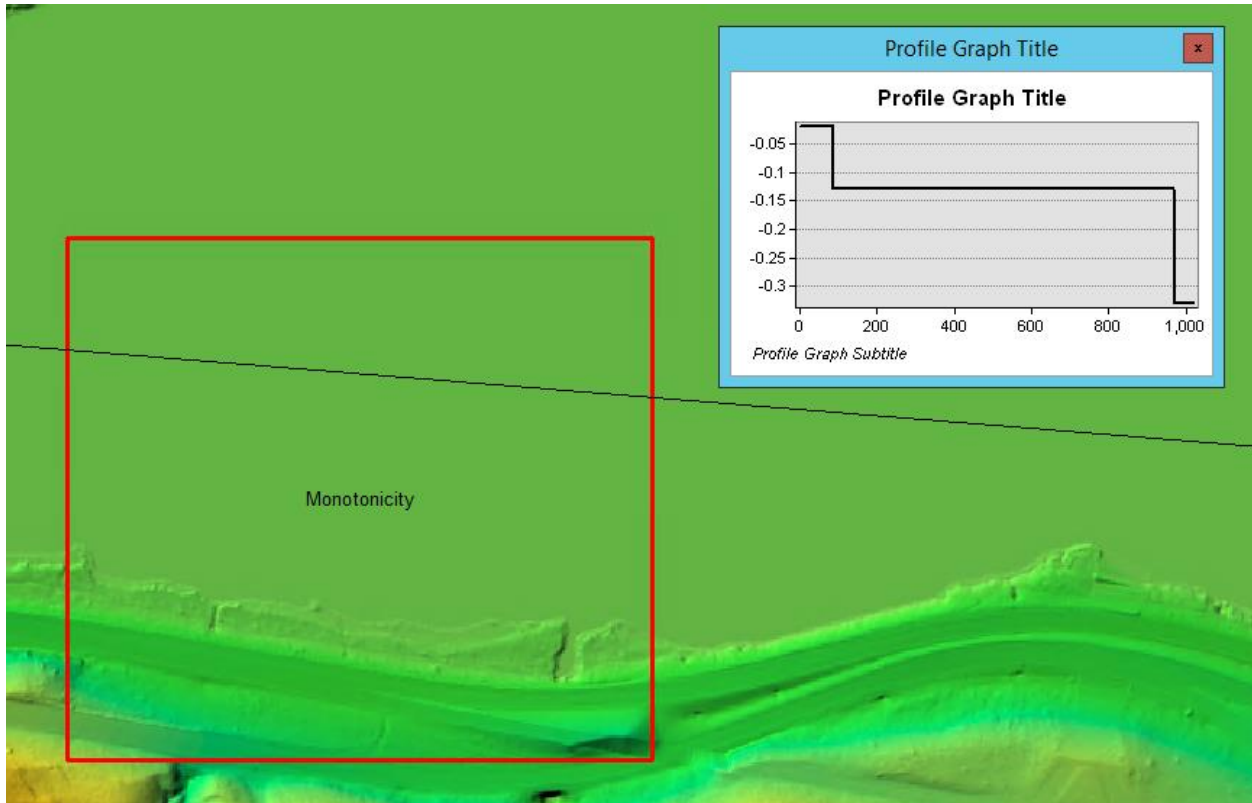


Figure 12 – Tile e1615n1925. The image above shows an overview of the corrected DEM.

BUILDING POINT MISCLASSIFICATION

USGS made three (3) calls where there were building points mistakenly classified as ground points. Dewberry has addressed these calls and the LAS and DEMs were corrected. An example is shown below.

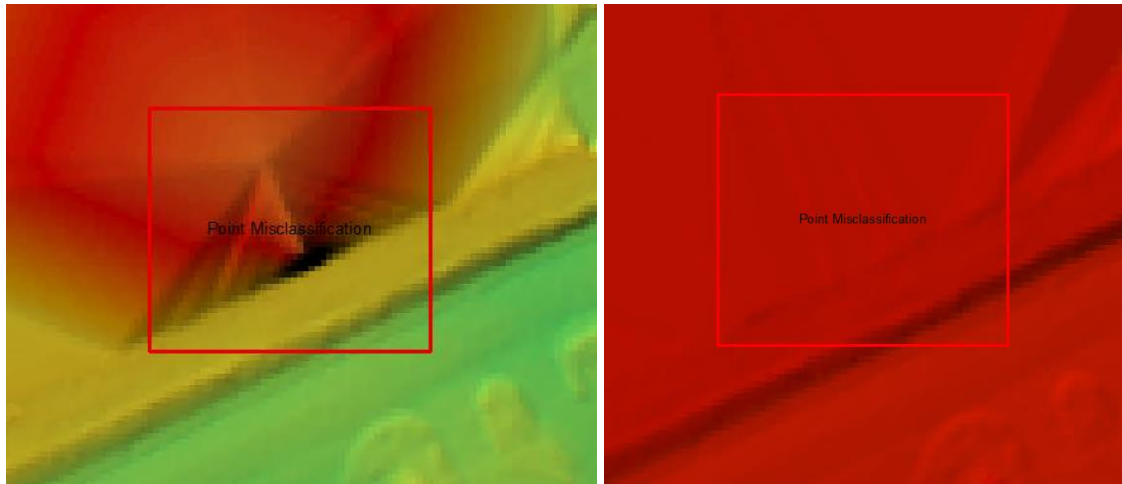


Figure 13 - Tile e1584n1918. The image on the left shows an overview of the DEM where USGS made a call stating that there were building points mistakenly misclassified as ground points. The image on the right is an overview of the corrected DEM.

Summary of Edit Calls

- There were six (6) LAS files with points classified to class 32.
 - All of these issues have been corrected.
- There were three (3) calls where a waterbody was not hydroflattened to a single elevation.
 - All of these issues have been corrected.
- There were ten (10) calls where there was a bridge artifact visible on the DEM after the bridge was removed.
 - All of these issues have been corrected.
- There were eight (8) calls where a bridge deck was not removed from the DEM surface.
 - All of these issues have been corrected.
- There were two (2) calls where a stream wider than 30m did not have breaklines and was not hydroflattened.
 - All of these issues have been corrected.
- There was one (1) call where only part of an island was marked with breaklines.
 - The issue has been corrected.
- There was one (1) call where a waterbody larger than 2 acres was missing breaklines and was not hydroflattened.
 - The issue has been corrected.
- There were two (2) calls where a stream was not properly hydroflattened in a downstream manner.
 - All of these issues have been corrected.
- There were three (3) calls where there were building points mistakenly classified as ground points.
 - All of these issues have been corrected.