DELIVERY REPORT

For the

U.S. Corp of Engineers High Resolution LiDAR Data Acquisition & Processing for portions of Connecticut

USACE Contract:

W912P9-10-D-0534

Task Order Number:

0002

Prepared for:
USDA Natural Resources Conservation Service

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Report Date: August 9, 2012

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U.S. Corp or Engineers Connecticut LiDAR –Deliverables Overview Checklist

☒ **Classified Point Cloud Data**
☐ LAS Version 1.2
☐ Correct Georeference Information
☐ Contains GPS Times
☐ Contains Intensity Values
☐ Tile to 1000 m x 1000 m Tile Grid
☐ Classified with class 1 – unclassified, class 2 – Bare-earth Ground, 7 – Noise, 9 – Water

☒ **Bare Earth LiDAR Data**
☐ LAS Version 1.2
☐ Correct Georeference Information
☐ Contains GPS Times
☐ Contains Intensity Values
☐ Tile to 1000 m x 1000 m Tile Grid
☐ Classified with class 2- Bare-earth Ground

☒ **First Return LiDAR Data**
☐ LAS Version 1.2
☐ Correct Georeference Information
☐ Contains GPS Times
☐ Contains Intensity Values
☐ Tile to 1000 m x 1000 m Tile Grid
☐ First returns from all point classes

☒ **Last Return LiDAR Data**
☐ LAS Version 1.2
☐ Correct Georeference Information
☐ Contains GPS Times
☐ Contains Intensity Values
☐ Tile to 1000 m x 1000 m Tile Grid
☐ Last returns from all point classes

☒ **Model Key Point LiDAR Data**
☐ LAS Version 1.2
☐ Correct Georeference Information
☐ Contains GPS Times
☐ Contains Intensity Values
☐ Tile to 1000 m x 1000 m Tile Grid
☐ Classified with class 8 – Intelligently thinned bare-earth ground points

☒ **Bare Earth Surface (Raster DEM)**
☐ Cell size of 1 m
☐ ESRI GRID File format
☐ Tiled with no overlap
☐ Reviewed for edge-matching and artifacts
☐ Free of void areas
☐ Hydrographic features have been flattened according to SOW

☒ **Survey Data**
☐ Surveyed Quality Check point report, photos, and coordinate listing
☐ Check points in Shapefile format
☐ Check points in ASCII format (X, Y, Z)
☐ RMSE error report in Microsoft Excel format

☒ **Metadata**
☐ FGDC Compliant metadata for:
☐ Deliverables (LAS, First Return, Last Return, Bare Earth, Model Key Points, DEM, Breakline,)
☐ Shapefile of planned flight lines (as flown, including dates for each flight line in the attribute table to be delivered)

☒ **Project Reports**
☐ Collection Report detailing mission planning and flight logs.
☐ Survey Report
☐ Processing report
☐ QA/QC Reports

☒ **Extents**
☐ Project Boundary delivered as shapefile
☐ Tile grid according to USNG format, 1000 m x 1000 m, and in Shapefile format

☒ **Breakline Data**
☐ Breakline Data in GDB
☐ Breakline Data as Shapefiles

☒ **Intensity Imagery**
☐ Intensity imagery in GeoTIFF format and 1 meter pixel size

1.0 Classified Point Cloud

Classified point cloud data has been delivered tiled to 1000 m x 1000 m tiles that are named according to US National Grid format. The final delivery consists of 1,742 LiDAR tiles that meet the project specified requirement.

2.0 Bare Earth LiDAR Data

The bare earth ground data is delivered as its own tile, containing only bare earth ground points. This data is tiled to 1000 m x 1000 m tiles that are named to according to US National Grid format. The final delivery consists of 1,742 tiles that meet the project specified requirement.

3.0 First Return LiDAR Data

First returns from all point classes are delivered tiled to 1000 m x 1000 m tiles that are named to according to US National Grid format. First return points are defined as class 1. The final delivery consists of 1,742 tiles that meet the project specified requirement.

4.0 Last Return LiDAR Data

Last returns from all point classes are delivered tiled to 1000 m x 1000 m tiles that are named to according to US National Grid format. Last return points are defined as class 1. The final delivery consists of 1,742 tiles that meet the project specified requirement.

5.0 Model Key Points

The bare earth ground points were intelligently thinned to create model key points. Model key points are defined as class 8 and are delivered tiled to 1000 m x 1000 m tiles that are named to

according to US National Grid format. The final delivery consists of 1,742 tiles that meet the project specified requirement.

6.0   Bare Earth Surface (Raster DEM)
A total of 1,742 1000 m x 1000 m tiled bare earth raster DEMs in ESRI GRID format have been delivered for this project. All tiles have a cell size of 1 m and have been reviewed to ensure that they meet the project required specifications.

7.0   Survey Data
All survey control data, reports and photos are included in this delivery. Accuracy assessment points are in both ESRI shapefile and ASCII (X, Y, Z) format. The RMSE error report is included as a Microsoft Excel spreadsheet.

8.0   Metadata
Project level metadata for each of the deliverables (Fully classified LiDAR, bare-earth LiDAR, first return LiDAR, last return LiDAR, model key points, breaklines, and DEM) will be delivered in XML format as part of a separate delivery. Metadata will be reviewed through the USGS metaparser tool to ensure that it is FGDC compliant. Flight lines in ESRI shapefile format are also included.

9.0   Project Report
A comprehensive project report will be delivered in PDF format as part of a separate delivery. The report will include the LiDAR acquisition and processing information along with detailed information on the production and quality control process used for the development of all deliverables.

10.0   Extents
Two ESRI shapefiles are included with this delivery. One shapefile is the boundary of the project area. The second shapefile is the tile grid, created and named according to US National Grid format. The extents have been verified against the project boundary to ensure that there is full coverage for the project.

11.0   Breakline Data
Breaklines have been delivered in an ESRI file geodatabase and as shapefiles. Breaklines were derived to meet the project specifications as outlined in the SOW.

12.0   Intensity Imagery
Intensity imagery is delivered tiled to 1000 m x 1000 m tiles that are named to according to US National Grid format. The imagery is in GeoTIFF format with 1 m pixel size, which exceeds project requirements. The intensity imagery is created from the full point cloud LiDAR data. The final delivery consists of 1,742 GeoTIFF tiles.

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13.0   Other Comments