



## Delivery Lot Summary Report: Delivery Lot 6 August 29, 2014

**USGS Contract: G10PC00026**  
**USGS Task Order: G13PD00813**  
**Task Order Name: Rutland, VT LiDAR**  
**Contractor: Photo Science, A Quantum Spatial Company**

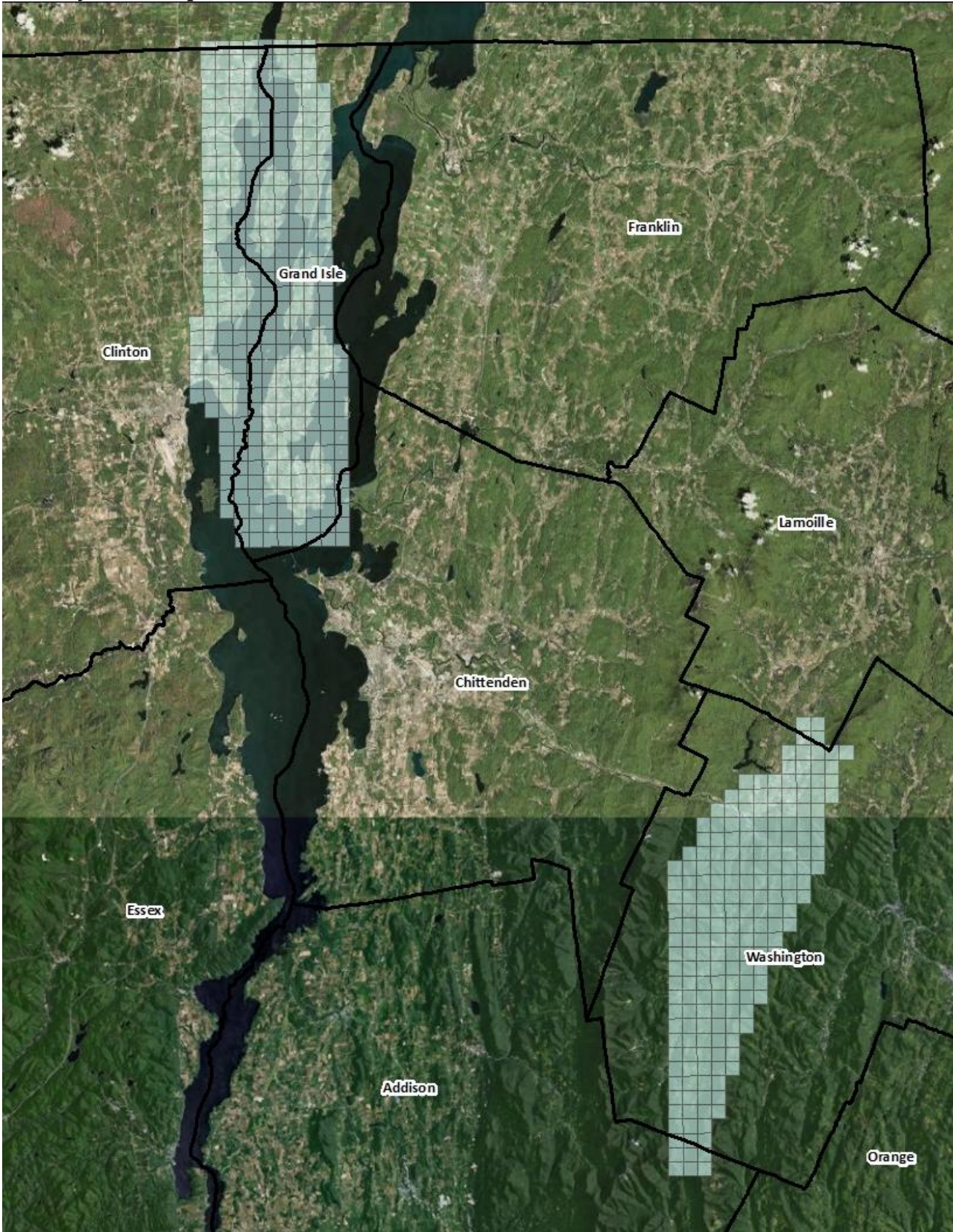
The following is a summary description of the deliverables and other pertinent information that comprise the shipment of Delivery Lot 6 to USGS on August 29, 2014.

### **Rutland, VT AOI Delivery Map:**



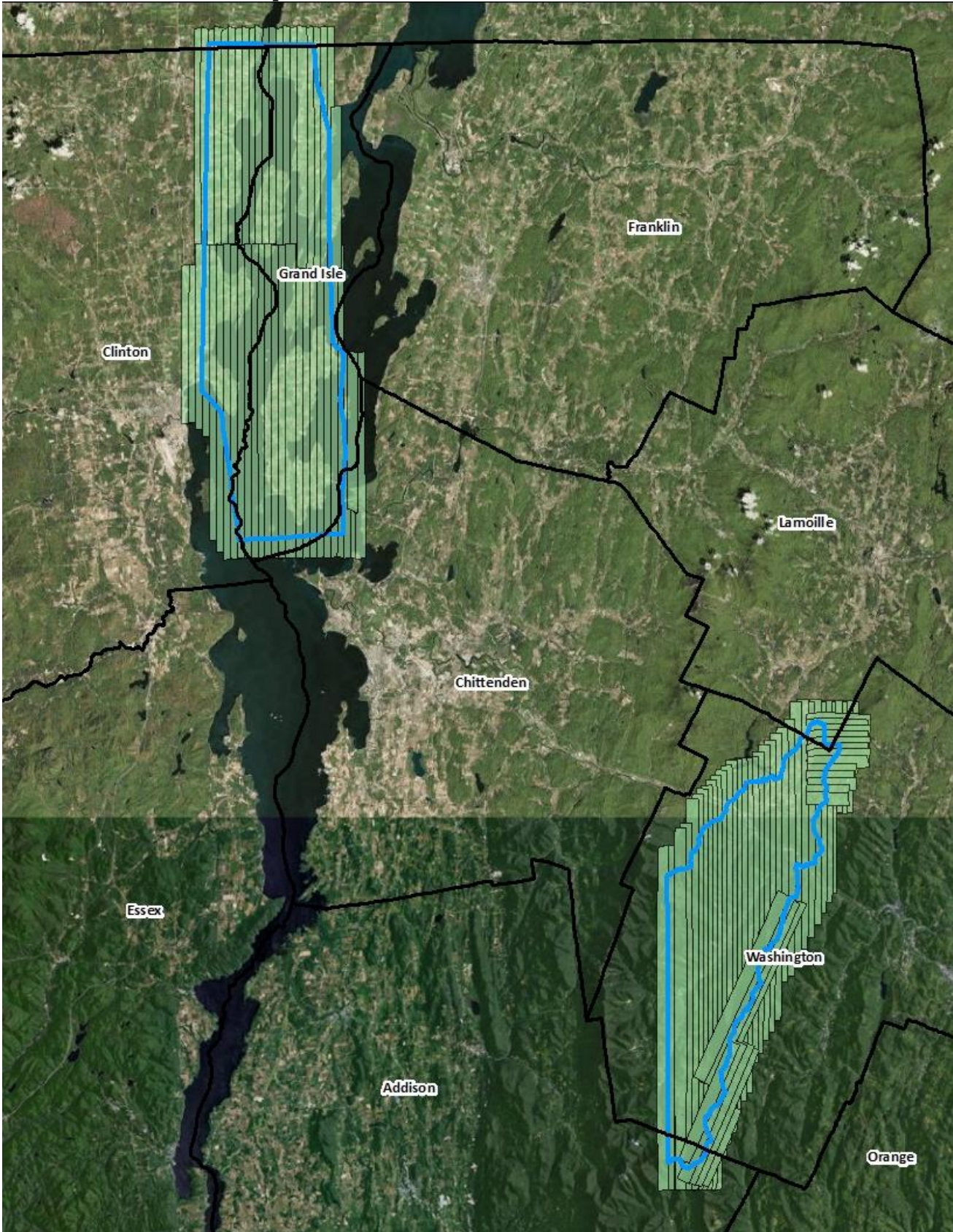


Delivery Lot 6 Map:



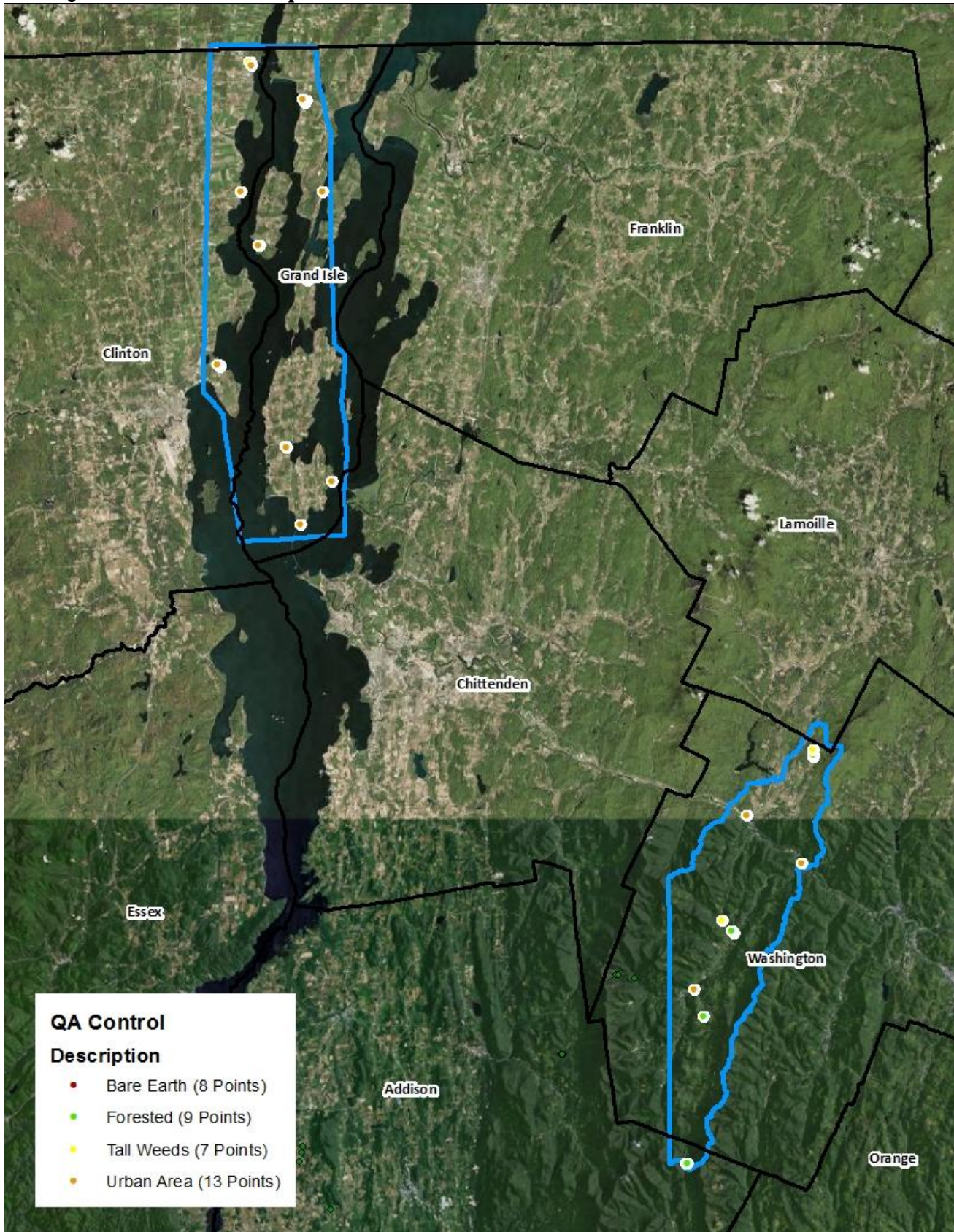


Lot 6 Raw Point Cloud Map:





Lot 6 QA Control Points Map:



**Task Order Spatial Reference System:**

- Horizontal: Vermont SPCS, NAD83 (2011), Zone: 4400, Meters
- Vertical: NAVD88, GEOID12a, Meters

**Deliverables Summary:**

1. C.1.d.(i) Raw Point Cloud Data (calibrated and control adjusted): Included
  - LAS v1.2, Point Record Format 1
  - Total Number of Swath Files: 105
  - Total File Size: 268 GB (288,039,400,145 bytes)
  - Individual Swath Outline Shape File
2. C.1.d.(ii) Classified Point Cloud: Included
  - LAS v1.2, Point Record Format 1 including File Source ID w/assigned value of 65,535
  - Classification Schema:
    - (01) Code 1 – Processed, but unclassified
    - (02) Code 2 – Bare-earth ground
    - (03) Code 7 – Noise
    - (04) Code 9 – Water
    - (05) Code 10 – Ignored Ground (Breakline Proximity)
    - (06) Code 17 – Overlap Default
    - (07) Code 18 – Overlap Ground
    - (08) Code 25 – Overlap Water
  - Total Number of Tiles: 522
  - Tile Dimensions: 1,400 meters x 1,400 meters
  - Total File Size: 198 GB (213,176,922,112 bytes)
  - Delivery Lot 6 Tile Shape Files (Lot 6 Boundary & Lot 6 Individual Tiles)
3. C.1.d.(iii) Hydro Flattened Bare Earth Surface (Raster DEM): Included
  - Format: ERDAS .IMG
  - Resolution: 0.7 meter grid cell size
  - Total Number of Tiles: 522
  - Tile Dimensions: 1,400 meters x 1,400 meters (same used for Classified Point Cloud)
  - Total File Size: 5.53 GB (5,941,280,768 bytes)
4. C.1.d.(iii) Hydro Enforced Bare Earth Surface (Raster DEM): Included
  - Format: ESRI Grid
  - Resolution: 0.7 meter grid cell size
  - Total Number of Tiles: 522
  - Tile Dimensions: 1,400 meters x 1,400 meters (same used for Classified Point Cloud)
  - Total File Size: 7.24 GB (7,779,344,384 bytes)
5. C.1.d.(iv) Control:
  - Complete Control Report dated August 6, 2014 containing published values and shape files for supplemental & QA check points
  - Delivery Lot 6 QA Control Check Point Location Shape File Extract: Included
  - Delivery Lot 6 QA Control Check Point Published Values Extract .xlsx file: Included



6. C.1.d.(v) LiDAR Intensity Image: Included
  - Format: Grayscale, 8-bit, GeoTiff
  - Resolution: 0.7 meter grid cell size
  - Total Number of Tiles: 522
  - Tile Dimensions: 1,400 meters x 1,400 meters (same used for Classified Point Cloud)
  - Total File Size: 2.46 GB (2,651,471,872 bytes)
  
7. C.1.d.(vi) Breaklines: Included
  - Format: esri Shapefile (.shp)
  - Coverage: Lot 6 Continuous, Non-Tiled
  - Total File Size: 1.57 MB (1,646,592 bytes)
  
8. C.1.d.(vii) Metadata: Included
  - Format: FGDC compliant, XML
  - File Types: Project, Lift, Tiled deliverable product group (classified .las, DEM, & Intensity)
  
9. C.1.d.(viii) Project Report:
  - Delivery Lot Summary Report: Lot 6 Included
  - Overall Project Report: To Be Delivered upon final acceptance of all Delivery Lots.
  
10. Lot 6 QA & Accuracy Reporting
  - FOCUS Report: Included
  - Lot 6 Provisional FVA/SVA/CVA Testing Results: .xls file Included
  - LAS Analysis (Excel File): Included
  - Raster Analysis (Excel File): Included



**Lot 9 Provisional Accuracy Reporting:**

- Number of QA Check Points falling within Delivery Lot 9 by Tested Land Cover Type:
  - Bare Earth (BE): 8
  - Forested (FO): 9
  - Tall Weeds (TW): 7
  - Urban (UA): 13
  
- Testing:

**Raw FVA**

	Count	Minimum	Maximum	St. Dev	RMSE	95%	95th	Mean	Median	Skew
RAW FVA	8	-0.017	0.033	0.019	0.020	0.040	-	0.01	0.02	-0.34

**FVA, SVA, CVA**

	Count	Minimum	Maximum	St. Dev	RMSE	95%	95th	Mean	Median	Skew
SVA	31	-0.101	0.239	0.075	0.078	-	0.159	0.03	0.02	0.85
CVA	37	-0.101	0.239	0.071	0.073	-	0.146	0.02	0.01	0.96
Bare Earth (FVA)	8	-0.082	0.091	0.051	0.048	0.094	-	0.00	0.00	0.23
Tall Weeds	7	0.000	0.239	0.093	0.129	-	0.221	0.10	0.09	0.42
Brush Lands	0	-	-	-	-	-	-	-	-	-
Forested	9	-0.101	0.097	0.075	0.071	-	0.096	0.01	0.01	-0.29
Urban Areas	13	-0.076	0.042	0.038	0.036	-	0.041	0.00	0.00	-0.53
Sawgrass	0	-	-	-	-	-	-	-	-	-
Swamp / Wetland	0	-	-	-	-	-	-	-	-	-
LIDAR Calibration	0	-	-	-	-	-	-	-	-	-

**Delivery Lot Notes/Comments:**

Delivery Lot 6 reflects the interim delivery of data collected during the 2013 Fall flight season. Some areas of the project have not been collected yet because of weather issues during the 2014 Winter flight season. This dataset represents the areas completed and are being provided to USGS on an incremental delivery lot basis in order to better support incremental QA review.

Delivery Lot 6 also includes recent agreement between USGS and Photo Science on the population of the file source ID for classified tiled .las file using a numeric value of "65,535". All task order classified .las tiles file source ID will be populated with this numeric value.

Delivery Lot 6 includes a hydro-enforced ESRI Grid format delivery. It should be noted that no hydro-enforcement breaklines were collected in the delivered areas, as there were not areas that met the collection criteria. These files are being provided as they are in a different format.

Delivery Lot 6 does not include a contour delivery. A specific contour format was requested by the Vermont client at the end of May, 2014. QSI responded with the feasibility of the contour format, but we have not heard anything back from them since that time. Contours were not provided during the pilot deliverables (07/01/2014) for this reason as well and were noted on the pilot deliverable transmittal as follows:

*"Contours are not being provided as part of this deliverable, as final approach to contour development has not been finalized at this time. When clarification/acceptance is provided, we will provide the contours for the pilot area."*