



February 4, 2021

Survey Report of
LiDAR Calibration & Quality Control Points

USGS Contract: G16PC00016

CA_LASSENNP_LOWERBEARCREEKHUC
10_2020_D20

USGS Task Order: 140G0220F0297

Presented to:



Presented By:



CONTENTS OF REPORT

PROJECT PROCEDURE SUMMARY.....	1
AREA OF INTEREST & POINT LOCATION MAPS.....	5
LASSEN VOLCANIC NATIONAL PARK SITE	
• CALIBRATION POINTS.....	6
• NVA – BARE EARTH POINTS.....	7
• NVA - URBAN AREA POINTS.....	8
• VVA - TALL WEED POINTS.....	9
• VVA - FOREST POINTS.....	10
• VVA - BRUSHLAND POINTS.....	11
LOWER BEAR CREEK SITE	
• CALIBRATION POINTS.....	12
• NVA – BARE EARTH POINTS.....	13
• NVA - URBAN AREA POINTS.....	14
• VVA - TALL WEED POINTS.....	15
• VVA - FOREST POINTS.....	16
• VVA - BRUSHLAND POINTS.....	17
FINAL POINT COORDINATES.....	18
• CALIBRATION POINTS.....	19
• NVA – BARE EARTH POINTS.....	20
• NVA - URBAN AREA POINTS.....	22

- **VVA - TALL WEED POINTS.....23**
- **VVA - FOREST POINTS.....24**
- **VVA - BRUSHLAND POINTS.....25**

POINT LOCATION & ACCURACY DATA SHEETS.....26

- **CALIBRATION POINTS.....27**
- **NVA – BARE EARTH POINTS.....43**
- **NVA - URBAN AREA POINTS.....81**
- **VVA - TALL WEED POINTS.....94**
- **VVA – FOREST POINTS.....109**
- **VVA – BRUSHLAND POINTS.....115**

Introduction

NV5 Geospatial, Inc. was contracted by USGS under task order 140G0220F0297 to survey LiDAR calibration and quality control points in support of the CA_LASSENNP_LOWERBEARCREEKHUC10_2020_D20 project. The project consisted of QL1 LiDAR in the Lassen Volcanic National Park area and QL2 Lidar in the Lower Bear Creek area in the state of California. This is the report of the technical approach used and detail of each point surveyed.

Project Area

The Project Area, shown in the figure below, consist of approximately 315 square miles.



Technical Approach to Land Cover Validation Point Selection

Referencing ASPRS Positional Accuracy Standards for Digital Geospatial Data (Edition 1, Version 1.0, - November, 2014) table C.1 Recommended Number of Checkpoints based on Area, NV5 Geospatial calculated the total number of checkpoints required for the entire project area. It was determined that 49 Non-Vegetated Vertical Accuracy (NVA) and 26 Vegetated Vertical Accuracy (VVA) points were required for the project area.

To ensure that checkpoints were distributed generally proportionate among the various vegetated land cover types, NV5 Geospatial used existing USGS Land Cover data to divide both the NVA and VVA categories among the various types, calculating the approximate number of required points in each representative type proportionate to the total project area. The resulting point classes are detailed below:

<u>NVA Class</u>	<u># of Points</u>	<u>VVA Class</u>	<u># of Points</u>
Bare Earth	37	Forested	5
Urban Area	12	Tall Weeds/Crops	14
		Brushland	7

NV5 Geospatial has adopted the philosophy that each vegetative class must be well distributed throughout the project area. While points in varying classes may be near to one another, points of a single vegetative class may not. Proposed point locations are selected with this distribution methodology in mind; however, access to the entire AOI limited the distribution.

Survey Accuracy Requirements

Given that the survey accuracy of calibration and quality control check points should be 3 times more accurate than the required accuracy of the data set, NV5 Geospatial requires that calibration and NVA points are better than 3 centimeters RMSE, both horizontally and vertically, and that VVA points be better than 5 centimeters RMSE, both horizontally and vertically. The surveyed accuracy of each point must be determined through redundant measurements and/or network adjustment using procedures and methodologies that reliably and consistently result in the aforementioned accuracies.

Due to variances in reference control accuracy and adjustment, NV5 Geospatial requires that the survey methodology used be explained, so that it can be repeated if necessary.

Field Survey Methodology

Date Range: July 12, 2020 – December 14, 2020

Equipment Used:

Field crews used Trimble R7, R8, and R10 dual frequency GNSS receivers as base stations and rovers. Nikon NPL322 and Trimble Total Stations were used for conventional measurements.

GNSS Methodology:

A combination of RTN and RTK GNSS surveying methods were used during this project. The CSDS RTN network was used on the Lower Bear Creek site. Temporary marks were established and used as base stations for RTK surveys on the Lassen site. The data was downloaded and baselines processed to temporary mark base stations and/or RTN stations. Coordinates for the temporary marks were derived with the NGS OPUS-Projects program using multiple sessions of data for each station. The network was adjusted holding the RTN and temporary mark stations as control.

Conventional Methodology:

A total station was used to determine the positions of VVA-Forest points under the tree canopy. After backsight and instrument station positions were established with GNSS observations in open areas, a total station was used to observe the foresighted Forest point under the tree canopy.

All the GNSS and conventional information was downloaded, processed and analyzed using Trimble Business Center processing software. A network was formed and adjusted.

Overall Project Accuracy Statement

All point coordinates have been reported in the North American Datum of 1983 (2011). UTM Zone 10 coordinates in meters horizontally. Elevations are relative to the North American Vertical Datum of 1988 (NAVD 88) which were derived using the Geoid 18 model and are reported in meters.

Calibration Points

Average Horizontal RMSE is 0.005 meter.

Average Elevation RMSE is 0.010 meter.

Average 3 dimensional RMSE is 0.011 meter.

NVA Points

Average Horizontal RMSE is 0.006 meter.

Average Elevation RMSE is 0.011 meter.

Average 3 dimensional RMSE is 0.012 meter.

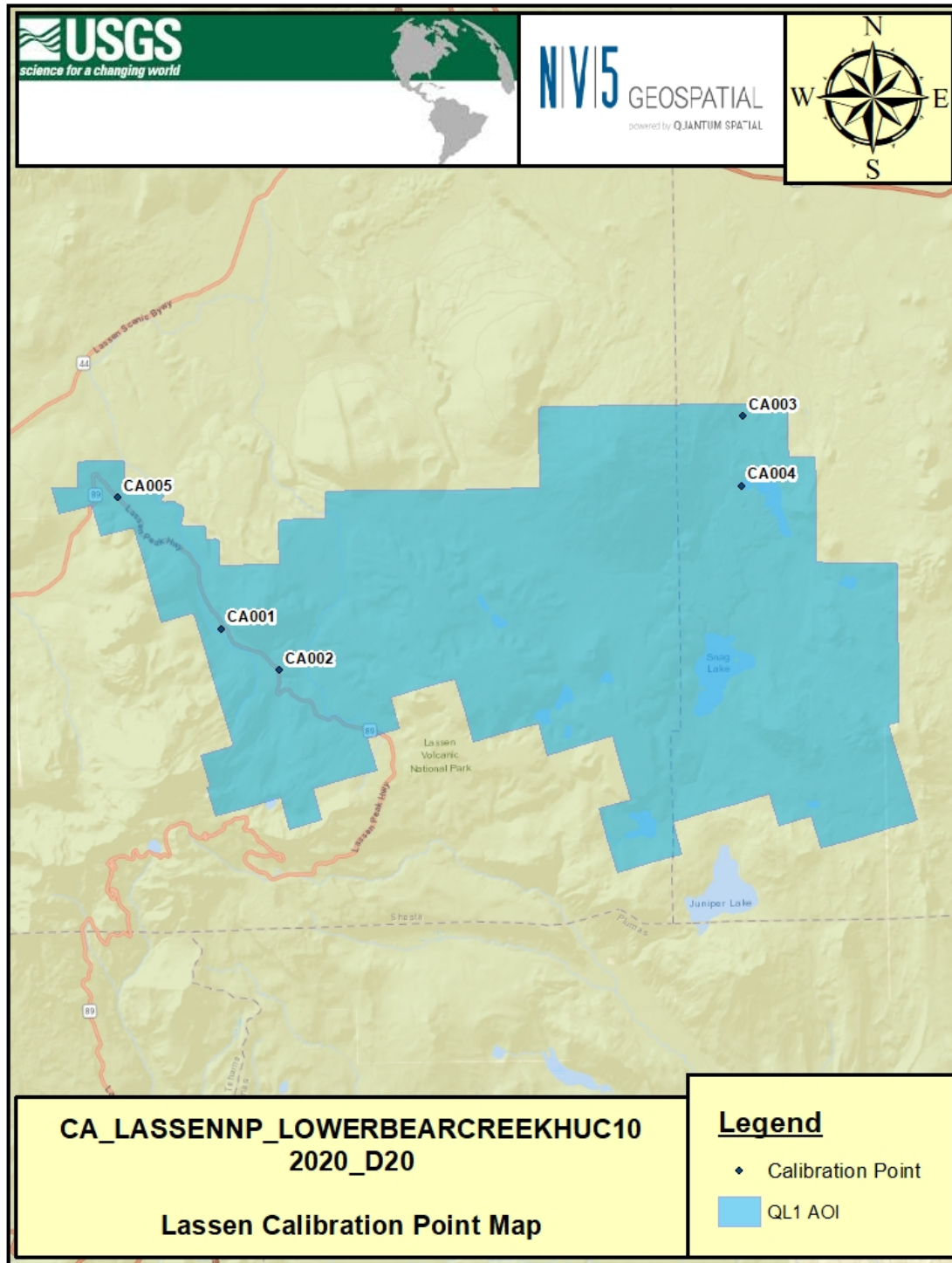
VVA Points

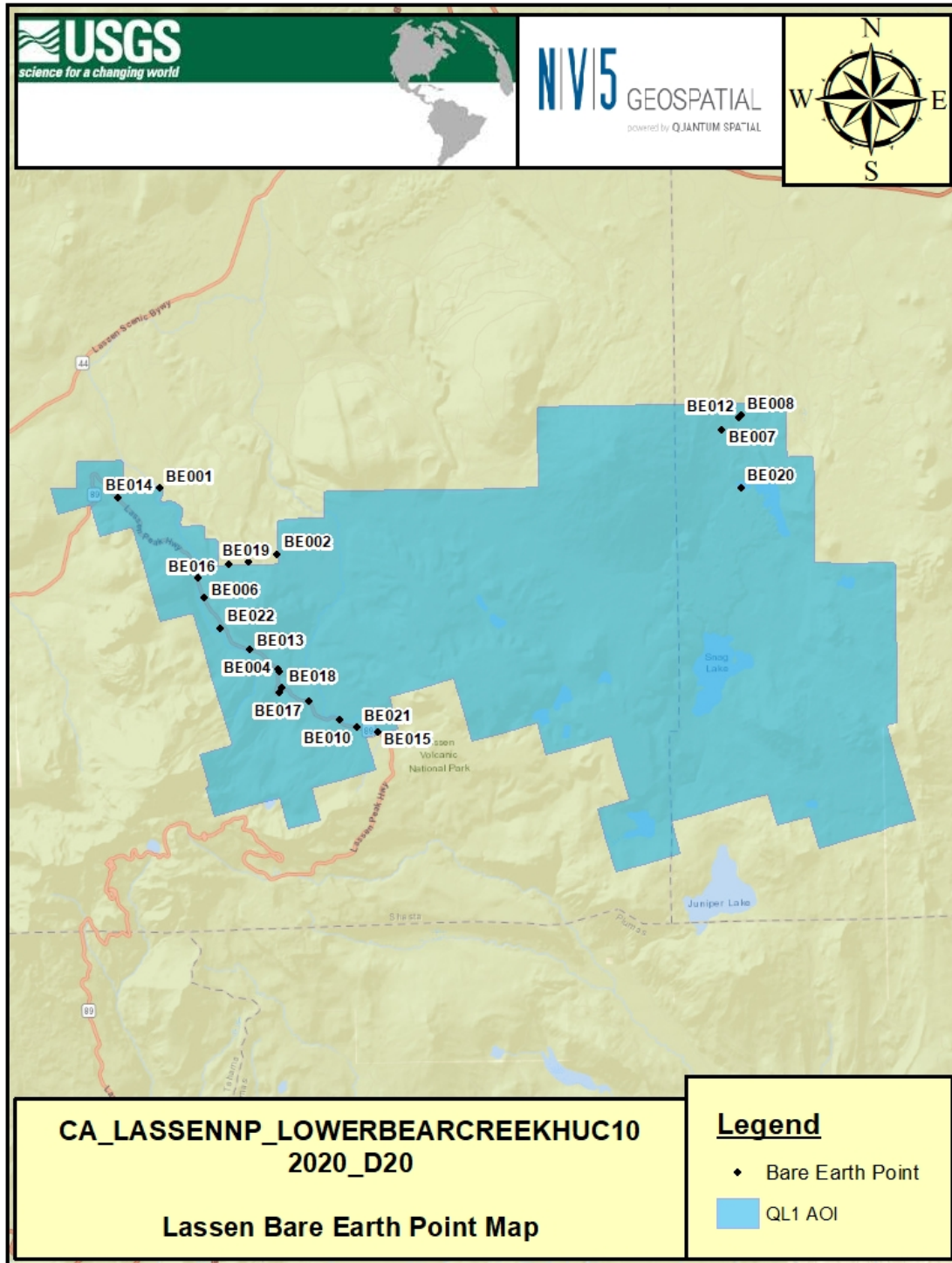
Average Horizontal RMSE is 0.008 meter.

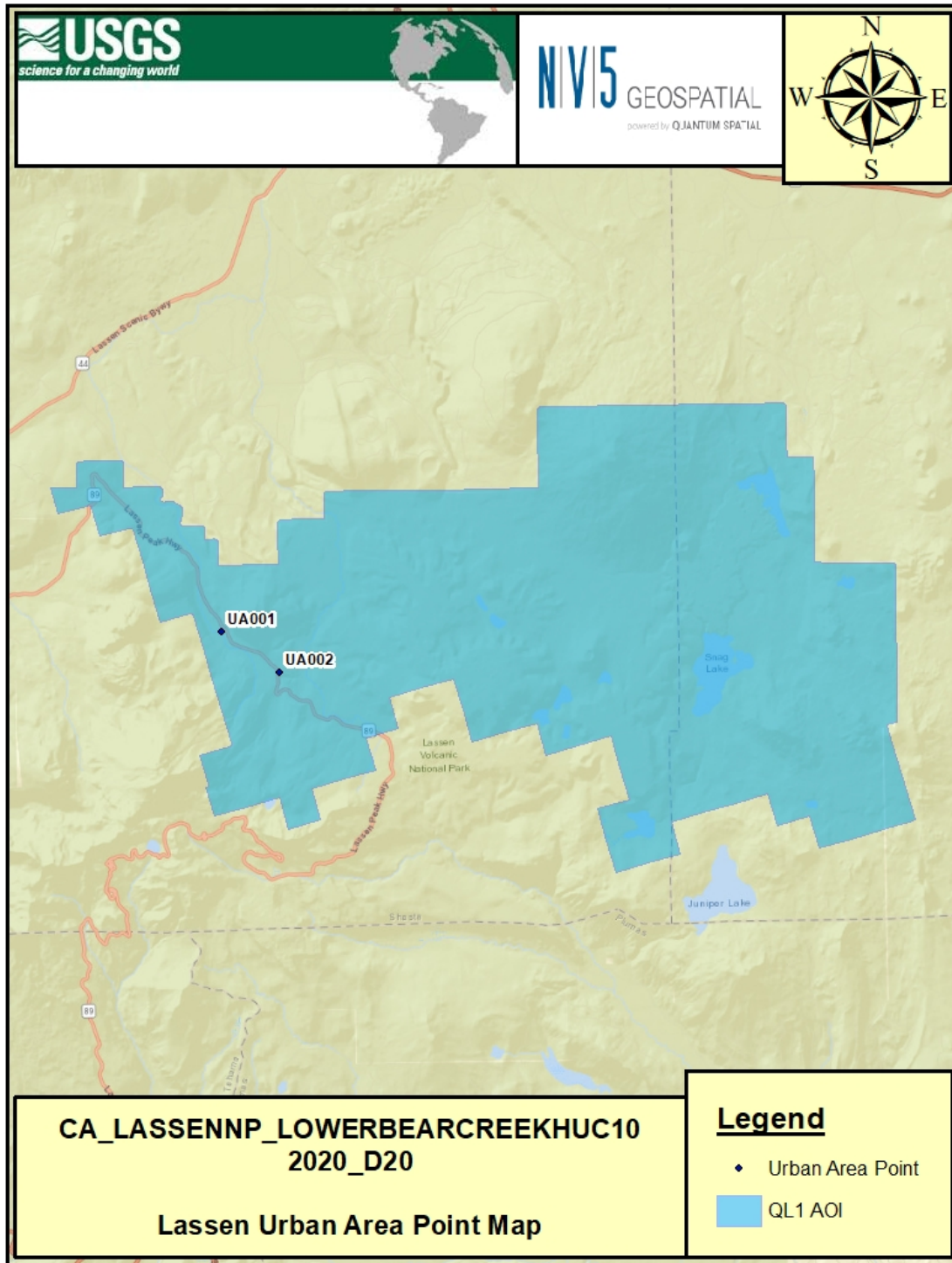
Average Elevation RMSE is 0.013 meter.

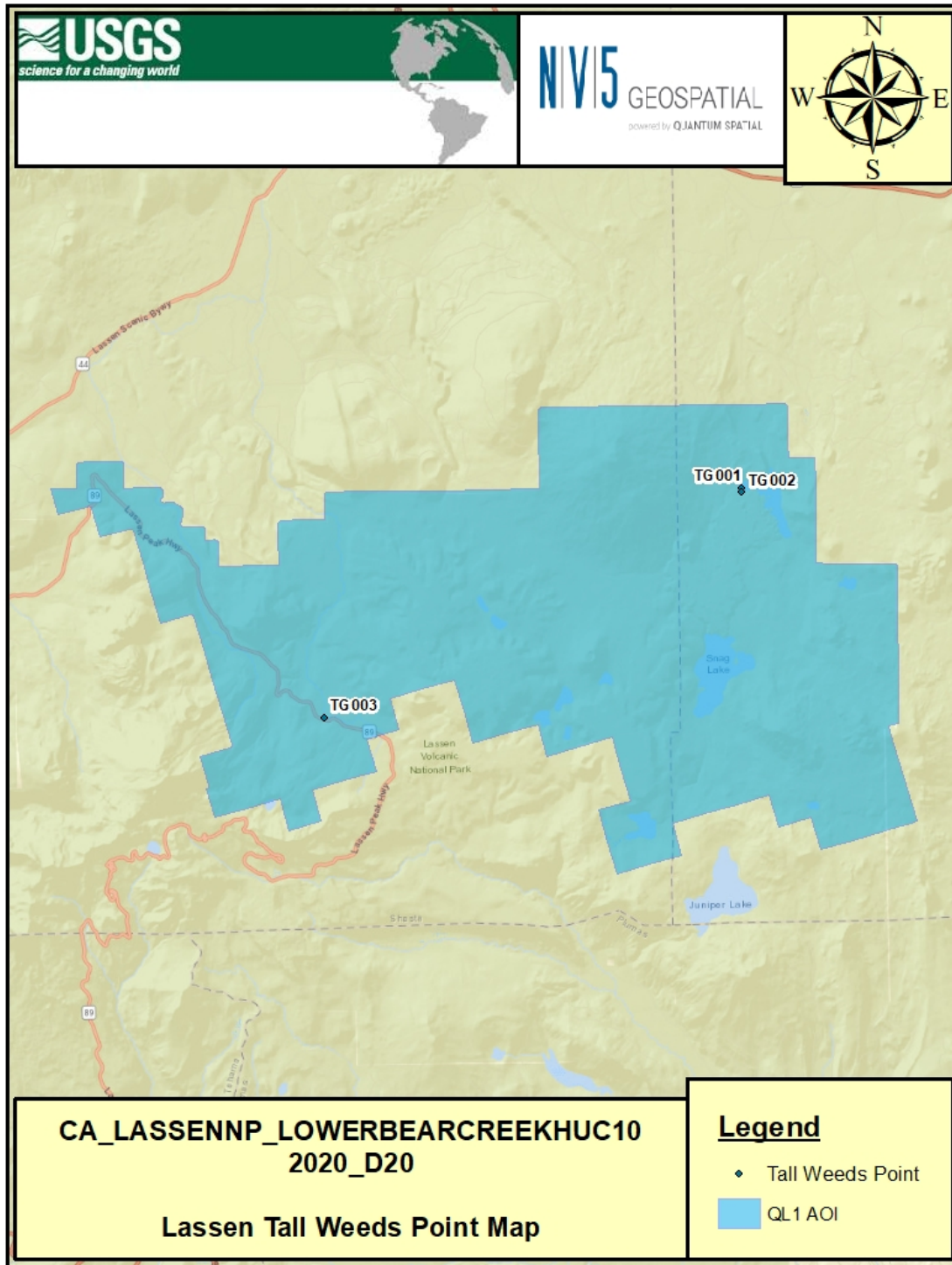
Average 3 dimensional RMSE is 0.015 meter.

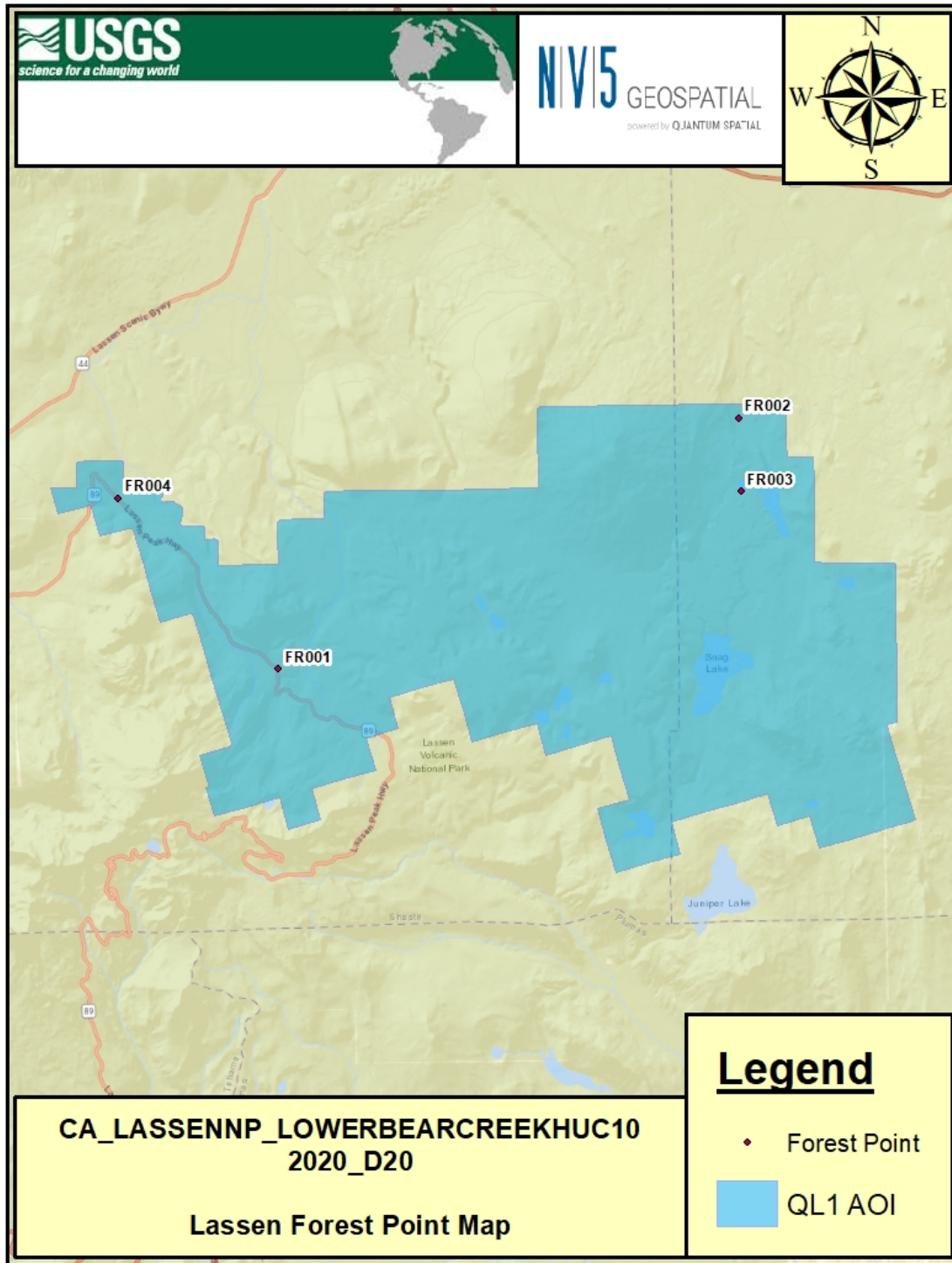
PROJECT AOI & POINT LOCATION MAPS

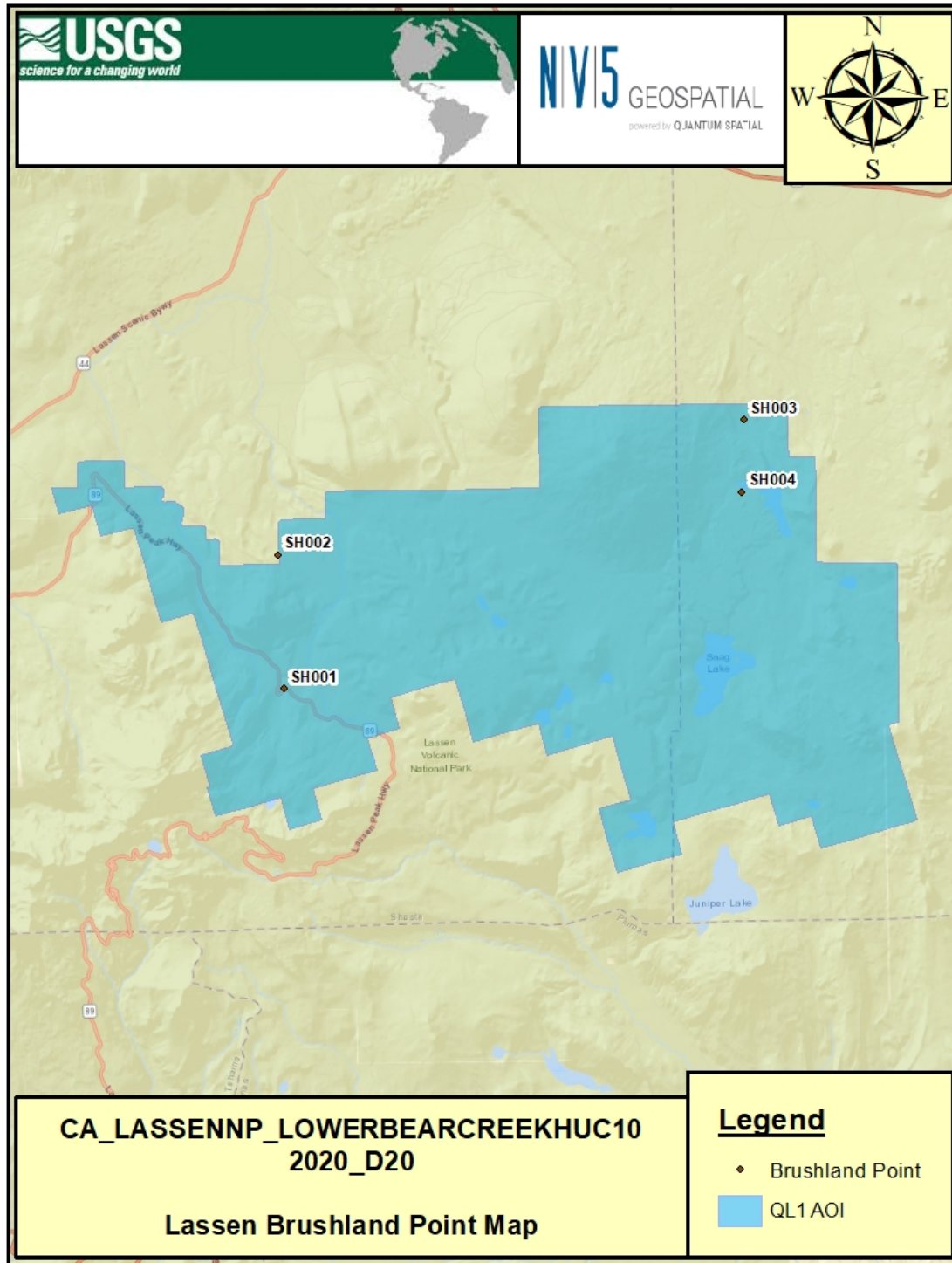


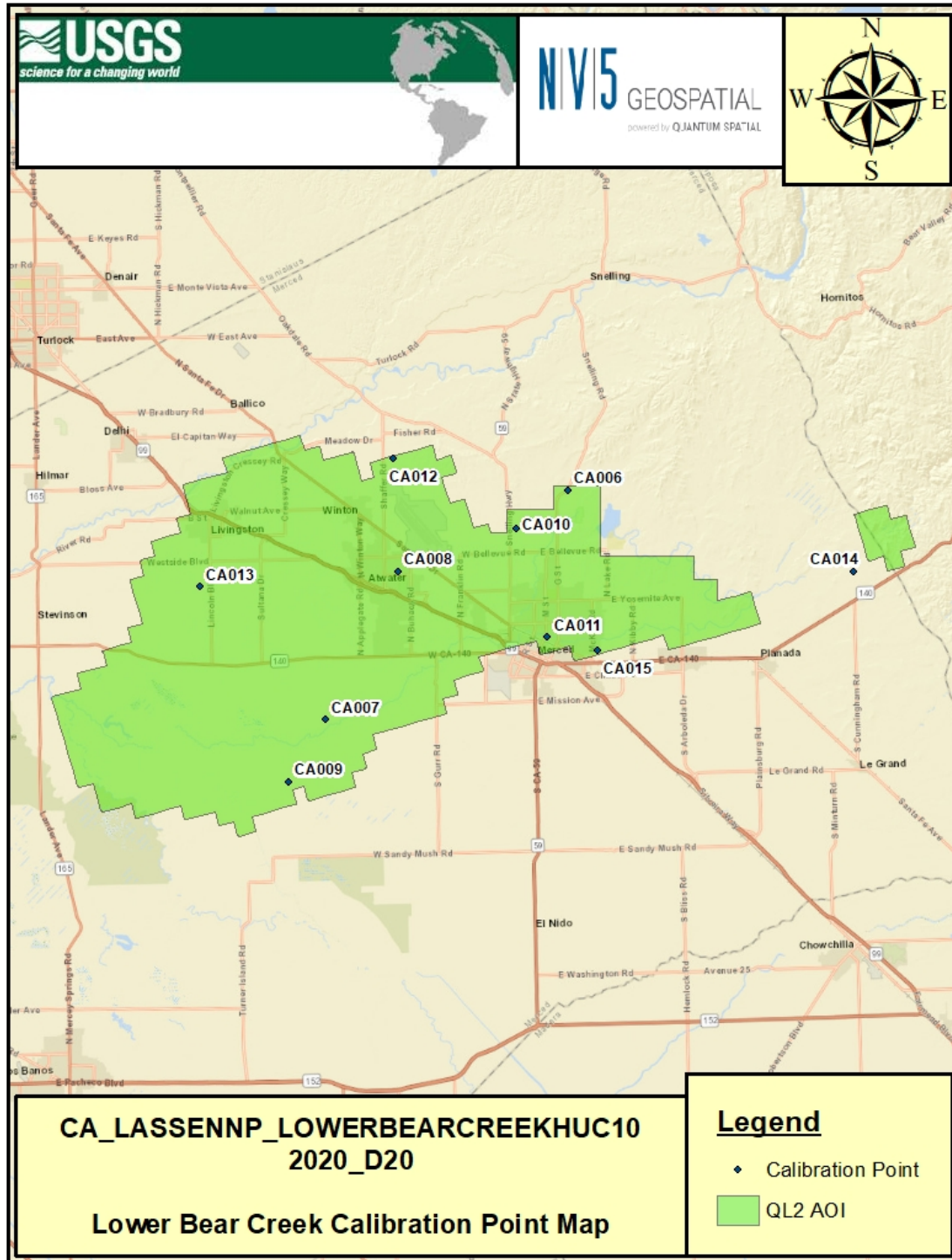


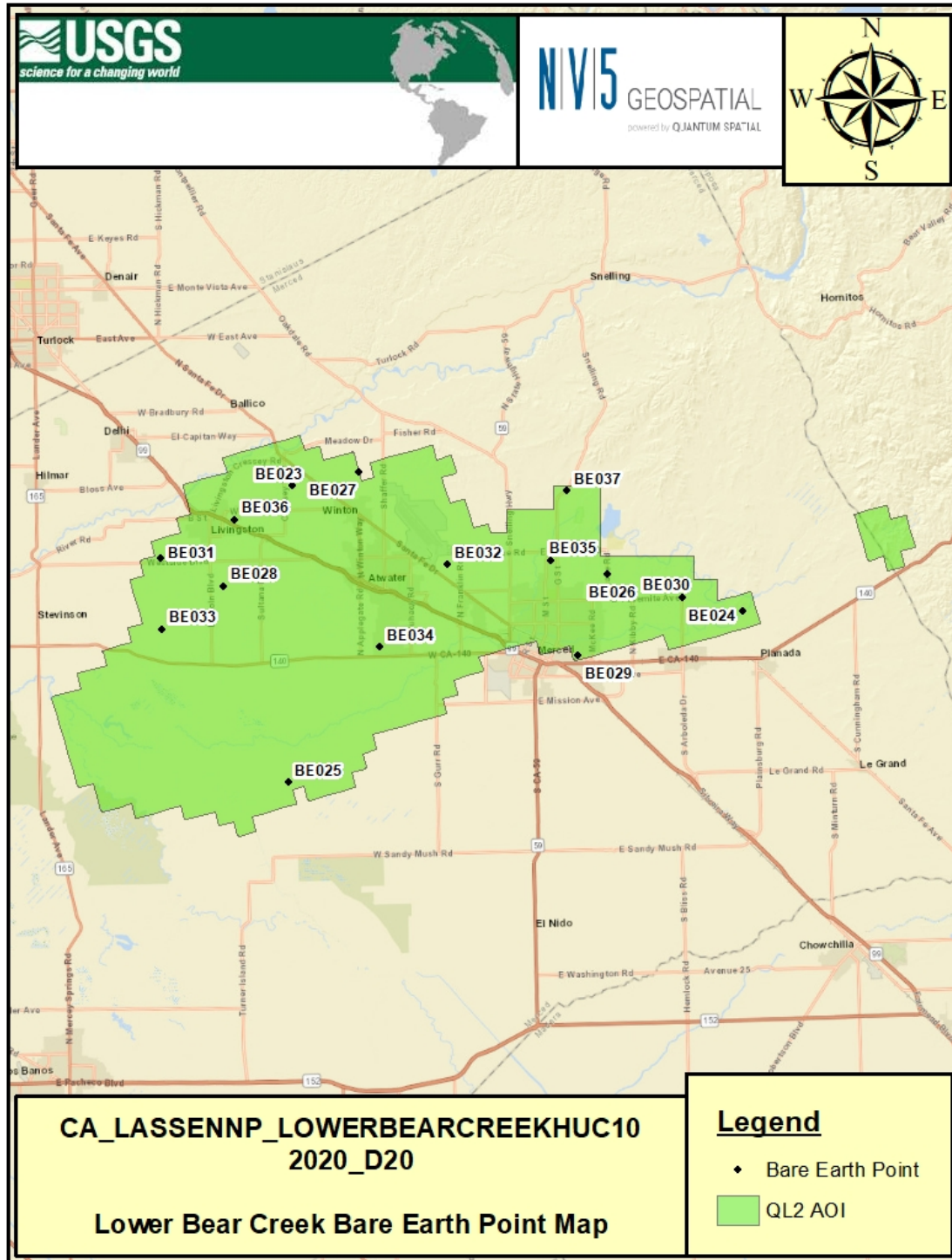


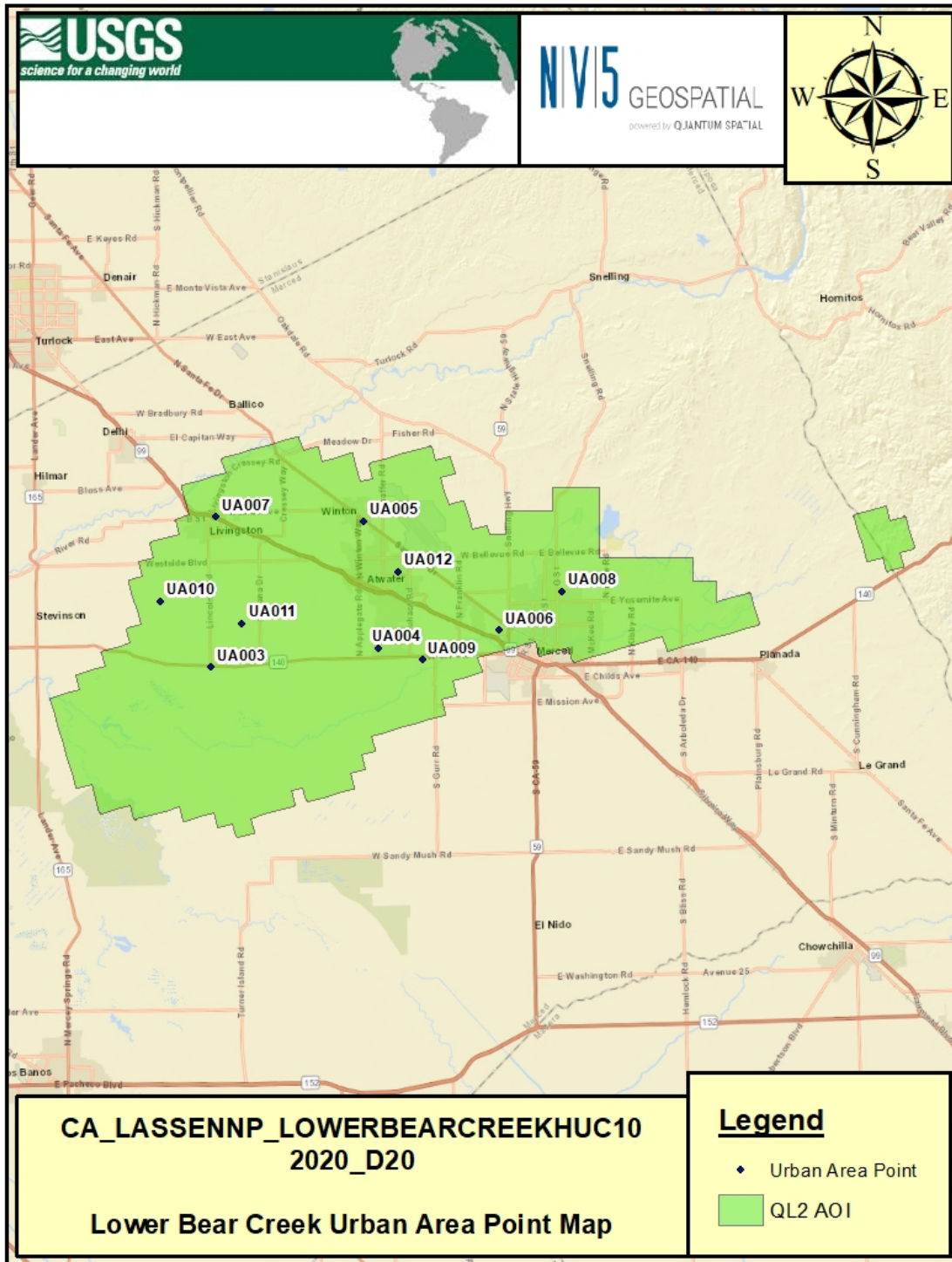


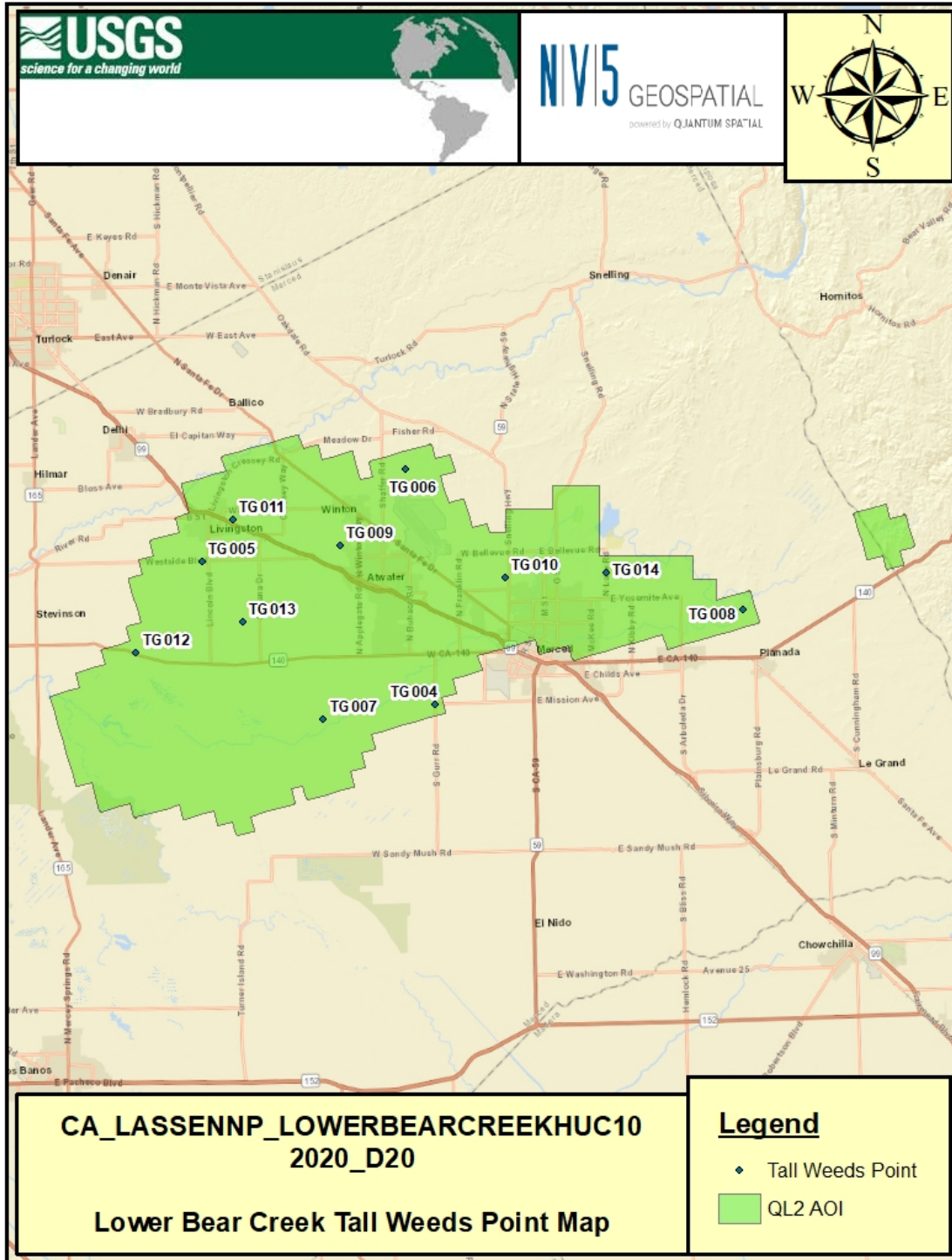


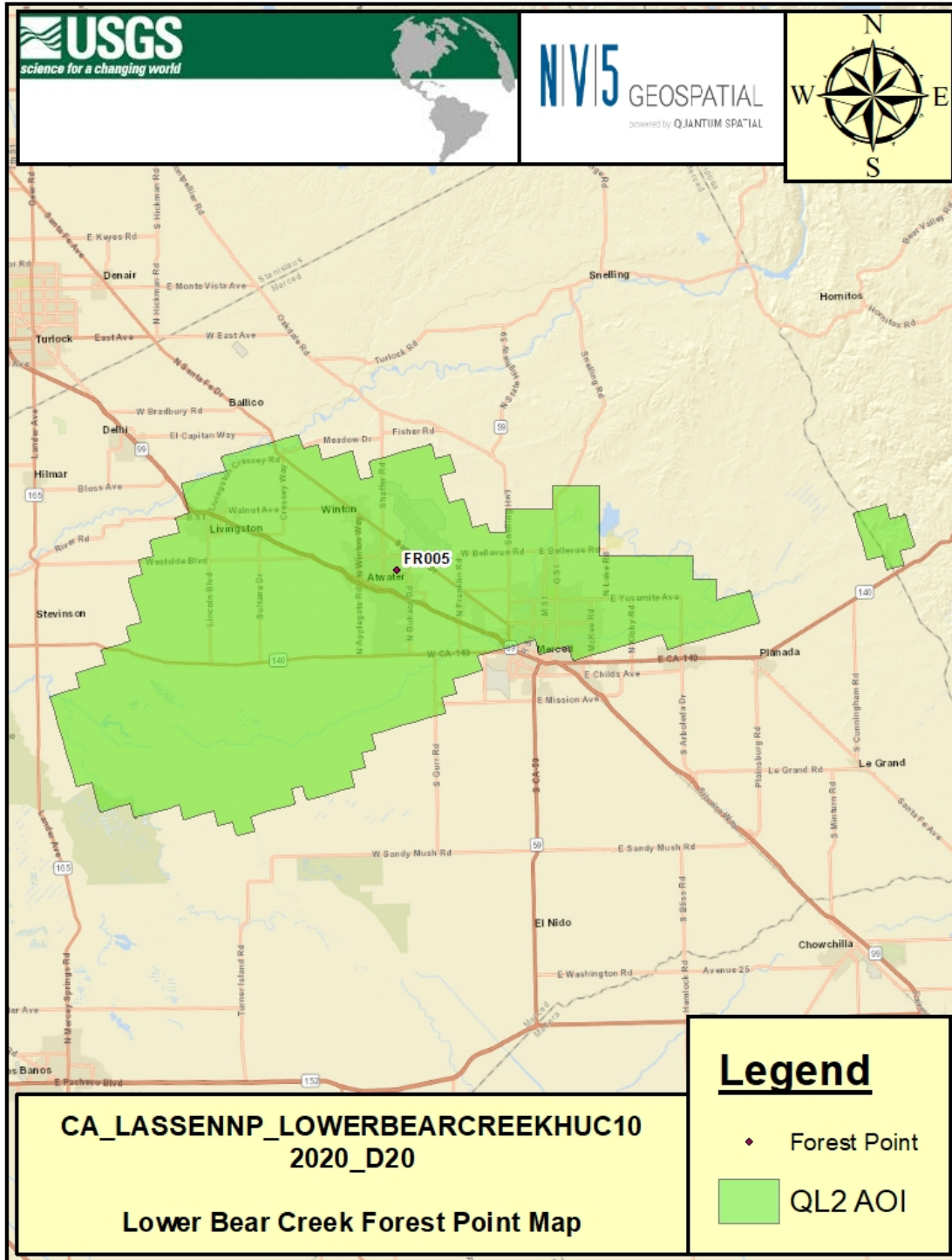


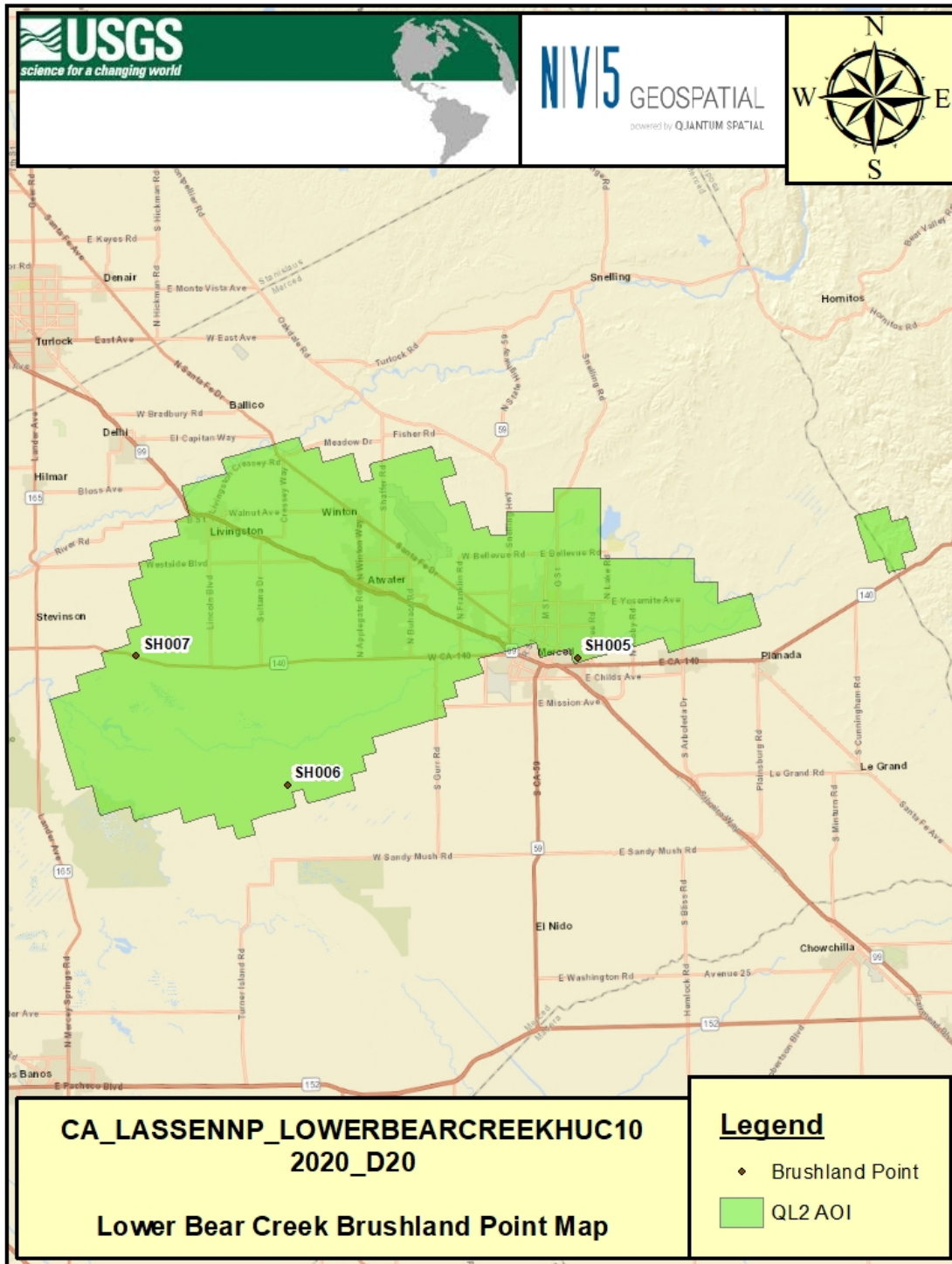












FINAL POINT COORDINATES

CALIBRATION POINT COORDINATES

Horizontal Datum - NAD83(2011)

UTM ZONE 10

Vertical Datum - NAVD 88

Geoid - GEOID18

Units – Meters

Point ID	Northing (m)	Easting (m)	Elev. (m)
CA001	4487366.904	628280.173	1889.774
CA002	4486140.778	630022.552	1966.805
CA003	4493774.226	643928.186	1796.743
CA004	4491663.509	643911.612	1842.563
CA005	4491326.372	625177.971	1712.188
CA006	4141923.250	724827.765	69.215
CA007	4126999.818	709061.035	34.243
CA008	4136677.125	713840.658	48.884
CA009	4122942.023	706662.485	30.741
CA010	4139470.320	721522.196	58.000
CA011	4132369.505	723500.924	53.047
CA012	4144019.636	713472.366	61.984
CA013	4135665.069	700883.894	34.708
CA014	4136680.656	743459.376	98.220
CA015	4131532.217	726788.465	55.611

BARE EARTH POINT COORDINATES

Horizontal Datum - NAD83(2011)

UTM ZONE 10

Vertical Datum - NAVD 88

Geoid - GEOID18

Units – Meters

Point ID	Northing (m)	Easting (m)	Elev. (m)
BE001	4491600.229	626451.941	1677.568
BE002	4489610.301	629982.423	1930.847
BE003	4486096.876	630053.994	1967.523
BE004	4486166.424	630014.935	1966.173
BE005	4489313.125	628543.303	1941.245
BE006	4488301.323	627809.326	1872.707
BE007	4493341.500	643369.624	1851.886
BE008	4493789.016	643935.489	1796.353
BE009	4485207.622	630954.428	1994.606
BE010	4484642.422	631865.951	2006.240
BE011	4485208.724	630927.567	1997.484
BE012	4493707.081	643888.899	1798.061
BE013	4486753.744	629184.898	1936.013
BE014	4491313.298	625194.575	1712.447
BE015	4484283.656	633003.177	2027.420
BE016	4488902.860	627594.528	1861.452
BE017	4485477.661	630047.283	1961.206
BE018	4485602.792	630126.043	1966.085
BE019	4489375.760	629111.713	1948.003
BE020	4491631.540	643933.221	1842.772
BE021	4484416.209	632406.076	2012.846
BE022	4487385.486	628286.387	1889.391
BE023	4142233.971	706911.293	49.525
BE024	4134102.226	736245.865	70.598
BE025	4122935.617	706664.081	30.735
BE026	4136481.182	727426.172	58.593
BE027	4143164.491	711242.199	56.949
BE028	4135702.111	702455.135	36.771
BE029	4131181.652	725502.644	54.173

BE030	4134989.629	732272.978	63.930
BE031	4137504.511	698363.231	35.942
BE032	4137108.123	717048.060	51.997
BE033	4132874.649	698453.530	30.167
BE034	4131731.760	712628.374	40.936
BE035	4137366.848	723718.912	54.085
BE036	4139999.777	703152.721	41.933
BE037	4141907.010	724814.553	69.064

URBAN AREA POINT COORDINATES

Horizontal Datum - NAD83(2011)

UTM ZONE 10

Vertical Datum - NAVD 88

Geoid - GEOID18

Units – Meters

Point ID	Northing (m)	Easting (m)	Elev. (m)
UA001	4487307.080	628312.109	1890.123
UA002	4486094.004	630038.993	1967.589
UA003	4130487.968	701724.946	30.961
UA004	4131732.579	712623.973	41.255
UA005	4139991.881	711612.564	52.430
UA006	4132886.173	720441.525	49.300
UA007	4140256.700	702046.797	41.023
UA008	4135397.108	724545.681	53.957
UA009	4130966.339	715521.623	44.123
UA010	4134795.488	698420.481	33.497
UA011	4133313.429	703755.096	36.725
UA012	4136678.022	713864.258	48.738

TALL WEEDS POINT COORDINATES

Horizontal Datum - NAD83(2011)

UTM ZONE 10

Vertical Datum - NAVD 88

Geoid - GEOID18

Units – Meters

Point ID	Northing (m)	Easting (m)	Elev. (m)
TG001	4491632.173	643917.915	1843.733
TG002	4491514.159	643914.630	1848.963
TG003	4484750.937	631372.107	1987.233
TG004	4127979.148	716326.631	41.603
TG005	4137275.546	701133.187	38.011
TG006	4143239.517	714347.571	63.609
TG007	4126984.769	709033.892	34.077
TG008	4134134.658	736301.468	70.727
TG009	4138286.001	710102.871	45.384
TG010	4136212.281	720831.020	51.603
TG011	4139993.568	703166.648	42.093
TG012	4131308.952	696848.509	29.154
TG013	4133317.356	703771.353	36.710
TG014	4136516.064	727407.627	58.758

FOREST POINT COORDINATES

Horizontal Datum - NAD83(2011)
UTM ZONE 10
Vertical Datum - NAVD 88
Geoid - GEOID18
Units – Meters

Point ID	Northing (m)	Easting (m)	Elev. (m)
FR001	4486178.673	630029.262	1968.166
FR002	4493708.829	643860.479	1798.942
FR003	4491507.755	643932.188	1848.734
FR004	4491305.760	625212.240	1712.442
FR005	4136665.846	713828.706	48.641

BRUSHLAND POINT COORDINATES

Horizontal Datum - NAD83(2011)
UTM ZONE 10
Vertical Datum - NAVD 88
Geoid - GEOID18
Units – Meters

Point ID	Northing (m)	Easting (m)	Elev. (m)
SH001	4485583.923	630157.192	1967.537
SH002	4489607.480	629969.903	1931.277
SH003	4493656.941	643967.315	1800.123
SH004	4491499.658	643901.972	1850.105
SH005	4131191.225	725466.192	54.068
SH006	4122920.888	706670.257	30.448
SH007	4131298.114	696851.395	29.176

POINT DATA AND ACCURACY LOG SHEETS

CALIBRATION POINT LOG SHEETS

Point ID	CA001
Project No.	37630
Project Name	USGS - Lassen-Bear Crk
State	California
County	Shasta
Quad	West Prospect Peak

	Aerial Target
X	LiDAR Ground Control
	LiDAR QC Point
	New Control
	Photo ID
	Published Control

Coordinate System
UTM 10N
NAD83(2011)
NAVD88
GEOID18
Meters

Northing	Easting	Elevation
4487366.904	628280.173	1889.774

Operator	EG
Receiver Model	Trimble R8 Model 3
Receiver S/N	0435
Antenna Height	2.000 m

Date (MM-DD-YYYY)	10-21-2020
RMSE Hz	0.006 m
RMSE Z	0.012 m
GPS Method	RTK

PHOTOS



Point ID	CA002
Project No.	37630
Project Name	USGS - Lassen-Bear Crk
State	California
County	Shasta
Quad	West Prospect Peak

	Aerial Target
X	LiDAR Ground Control
	LiDAR QC Point
	New Control
	Photo ID
	Published Control

Coordinate System
UTM 10N
NAD83(2011)
NAVD88
GEOID18
Meters

Northing	Easting	Elevation
4486140.778	630022.552	1966.805

Operator	LB
Receiver Model	Trimble R8 Model 3
Receiver S/N	0435
Antenna Height	2.000 m

Date (MM-DD-YYYY)	07-15-2020
RMSE Hz	0.008 m
RMSE Z	0.013 m
GPS Method	RTK

PHOTOS



Point ID	CA003
Project No.	37630
Project Name	USGS - Lassen-Bear Crk
State	California
County	Lassen
Quad	Prospect Peak

	Aerial Target
X	LiDAR Ground Control
	LiDAR QC Point
	New Control
	Photo ID
	Published Control

Coordinate System
UTM 10N
NAD83(2011)
NAVD88
GEOID18
Meters

Northing	Easting	Elevation
4493774.226	643928.186	1796.743

Operator	LB
Receiver Model	Trimble R8 Model 3
Receiver S/N	0435
Antenna Height	2.000 m

Date (MM-DD-YYYY)	07-15-2020
RMSE Hz	0.006 m
RMSE Z	0.012 m
GPS Method	RTK

PHOTOS



Point ID	CA004
Project No.	37630
Project Name	USGS - Lassen-Bear Crk
State	California
County	Lassen
Quad	Prospect Peak

	Aerial Target
X	LiDAR Ground Control
	LiDAR QC Point
	New Control
	Photo ID
	Published Control

Coordinate System
UTM 10N
NAD83(2011)
NAVD88
GEOID18
Meters

Northing	Easting	Elevation
4491663.509	643911.612	1842.563

Operator	EG
Receiver Model	Trimble R8 Model 3
Receiver S/N	0435
Antenna Height	2.000 m

Date (MM-DD-YYYY)	10-20-2020
RMSE Hz	0.006 m
RMSE Z	0.011 m
GPS Method	RTK

PHOTOS



Point ID	CA005
Project No.	37630
Project Name	USGS - Lassen-Bear Crk
State	California
County	Shasta
Quad	Manzanita Lake

	Aerial Target
X	LiDAR Ground Control
	LiDAR QC Point
	New Control
	Photo ID
	Published Control

Coordinate System
UTM 10N
NAD83(2011)
NAVD88
GEOID18
Meters

Northing	Easting	Elevation
4491326.372	625177.971	1712.188

Operator	LB
Receiver Model	Trimble R8 Model 3
Receiver S/N	0435
Antenna Height	2.000 m

Date (MM-DD-YYYY)	07-15-2020
RMSE Hz	0.010 m
RMSE Z	0.019 m
GPS Method	RTK

PHOTOS



Point ID	CA006
Project No.	37630
Project Name	USGS - Lassen-Bear Crk
State	California
County	Merced
Quad	Yosemite Lake

	Aerial Target
X	LiDAR Ground Control
	LiDAR QC Point
	New Control
	Photo ID
	Published Control

Coordinate System
UTM 10N
NAD83(2011)
NAVD88
GEOID18
Meters

Northing	Easting	Elevation
4141923.250	724827.765	69.215

Operator	LB
Receiver Model	Trimble R8 Model 3
Receiver S/N	0435
Antenna Height	2.000 m

Date (MM-DD-YYYY)	07-15-2020
RMSE Hz	0.004 m
RMSE Z	0.006 m
GPS Method	RTK

PHOTOS



Point ID	CA007
Project No.	37630
Project Name	USGS - Lassen-Bear Crk
State	California
County	Merced
Quad	Arena

	Aerial Target
X	LiDAR Ground Control
	LiDAR QC Point
	New Control
	Photo ID
	Published Control

Coordinate System
UTM 10N
NAD83(2011)
NAVD88
GEOID18
Meters

Northing	Easting	Elevation
4126999.818	709061.035	34.243

Operator	WJ
Receiver Model	Trimble R10 Model 2
Receiver S/N	0321
Antenna Height	2.000 m

Date (MM-DD-YYYY)	12-13-2020
RMSE Hz	0.006 m
RMSE Z	0.012 m
GPS Method	RTK

PHOTOS



Point ID	CA008
Project No.	37630
Project Name	USGS - Lassen-Bear Crk
State	California
County	Merced
Quad	Atwater

	Aerial Target
X	LiDAR Ground Control
	LiDAR QC Point
	New Control
	Photo ID
	Published Control

Coordinate System
UTM 10N
NAD83(2011)
NAVD88
GEOID18
Meters

Northing	Easting	Elevation
4136677.125	713840.658	48.884

Operator	WJ
Receiver Model	Trimble R10 Model 2
Receiver S/N	0321
Antenna Height	2.000 m

Date (MM-DD-YYYY)	12-13-2020
RMSE Hz	0.004 m
RMSE Z	0.007 m
GPS Method	RTK

PHOTOS



Point ID	CA009
Project No.	37630
Project Name	USGS - Lassen-Bear Crk
State	California
County	Merced
Quad	Turner Ranch

	Aerial Target
X	LiDAR Ground Control
	LiDAR QC Point
	New Control
	Photo ID
	Published Control

Coordinate System
UTM 10N
NAD83(2011)
NAVD88
GEOID18
Meters

Northing	Easting	Elevation
4122942.023	706662.485	30.741

Operator	WJ
Receiver Model	Trimble R10 Model 2
Receiver S/N	0321
Antenna Height	2.000 m

Date (MM-DD-YYYY)	12-13-2020
RMSE Hz	0.006 m
RMSE Z	0.012 m
GPS Method	RTK

PHOTOS



Point ID	CA010
Project No.	37630
Project Name	USGS - Lassen-Bear Crk
State	California
County	Merced
Quad	Yosemite Lake

	Aerial Target
X	LiDAR Ground Control
	LiDAR QC Point
	New Control
	Photo ID
	Published Control

Coordinate System
UTM 10N
NAD83(2011)
NAVD88
GEOID18
Meters

Northing	Easting	Elevation
4139470.320	721522.196	58.000

Operator	LB
Receiver Model	Trimble R8 Model 3
Receiver S/N	0435
Antenna Height	2.000 m

Date (MM-DD-YYYY)	07-12-2020
RMSE Hz	0.003 m
RMSE Z	0.006 m
GPS Method	RTK

PHOTOS



Point ID	CA011
Project No.	37630
Project Name	USGS - Lassen-Bear Crk
State	California
County	Merced
Quad	Merced

	Aerial Target
X	LiDAR Ground Control
	LiDAR QC Point
	New Control
	Photo ID
	Published Control

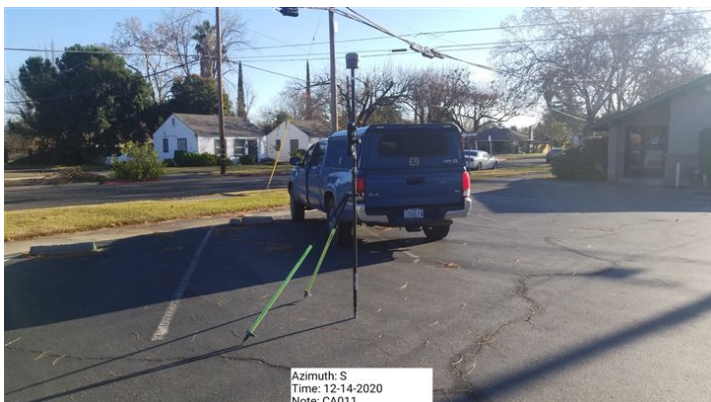
Coordinate System
UTM 10N
NAD83(2011)
NAVD88
GEOID18
Meters

Northing	Easting	Elevation
4132369.505	723500.924	53.047

Operator	LB
Receiver Model	Trimble R8 Model 3
Receiver S/N	0435
Antenna Height	2.000 m

Date (MM-DD-YYYY)	07-14-2020
RMSE Hz	0.003 m
RMSE Z	0.003 m
GPS Method	Fast-Static

PHOTOS



Point ID	CA012
Project No.	37630
Project Name	USGS - Lassen-Bear Crk
State	California
County	Merced
Quad	Winton

	Aerial Target
X	LiDAR Ground Control
	LiDAR QC Point
	New Control
	Photo ID
	Published Control

Coordinate System
UTM 10N
NAD83(2011)
NAVD88
GEOID18
Meters

Northing	Easting	Elevation
4144019.636	713472.366	61.984

Operator	WJ
Receiver Model	Trimble R10 Model 2
Receiver S/N	0321
Antenna Height	2.000 m

Date (MM-DD-YYYY)	12-13-2020
RMSE Hz	0.006 m
RMSE Z	0.008 m
GPS Method	RTK

PHOTOS



Point ID	CA013
Project No.	37630
Project Name	USGS - Lassen-Bear Crk
State	California
County	Merced
Quad	Arena

	Aerial Target
X	LiDAR Ground Control
	LiDAR QC Point
	New Control
	Photo ID
	Published Control

Coordinate System
UTM 10N
NAD83(2011)
NAVD88
GEOID18
Meters

Northing	Easting	Elevation
4135665.069	700883.894	34.708

Operator	WJ
Receiver Model	Trimble R10 Model 2
Receiver S/N	0321
Antenna Height	2.000 m

Date (MM-DD-YYYY)	12-12-2020
RMSE Hz	0.006 m
RMSE Z	0.012 m
GPS Method	RTK

PHOTOS



Point ID	CA014
Project No.	37630
Project Name	USGS - Lassen-Bear Crk
State	California
County	Merced
Quad	Planada

	Aerial Target
X	LiDAR Ground Control
	LiDAR QC Point
	New Control
	Photo ID
	Published Control

Coordinate System
UTM 10N
NAD83(2011)
NAVD88
GEOID18
Meters

Northing	Easting	Elevation
4136680.656	743459.376	98.220

Operator	WJ
Receiver Model	Trimble R10 Model 2
Receiver S/N	0321
Antenna Height	2.000 m

Date (MM-DD-YYYY)	12-14-2020
RMSE Hz	0.005 m
RMSE Z	0.011 m
GPS Method	RTK

PHOTOS



Point ID	CA015
Project No.	37630
Project Name	USGS - Lassen-Bear Crk
State	California
County	Merced
Quad	Merced

	Aerial Target
X	LiDAR Ground Control
	LiDAR QC Point
	New Control
	Photo ID
	Published Control

Coordinate System
UTM 10N
NAD83(2011)
NAVD88
GEOID18
Meters

Northing	Easting	Elevation
4131532.217	726788.465	55.611

Operator	WJ
Receiver Model	Trimble R10 Model 2
Receiver S/N	0321
Antenna Height	2.000 m

Date (MM-DD-YYYY)	12-14-2020
RMSE Hz	0.002 m
RMSE Z	0.003 m
GPS Method	RTK

PHOTOS



BARE EARTH POINT LOG SHEETS

Point ID	BE001
Project No.	37630
Project Name	USGS - Lassen-Bear Crk
State	California
County	Shasta
Quad	Manzanita Lake

	Aerial Target
	LiDAR Ground Control
X	LiDAR QC Point
	New Control
	Photo ID
	Published Control

Coordinate System
UTM 10N
NAD83(2011)
NAVD88
GEOID18
Meters

Northing	Easting	Elevation
4491600.229	626451.941	1677.568

Operator	EG
Receiver Model	Trimble R8 Model 3
Receiver S/N	0435
Antenna Height	2.000 m

Date (MM-DD-YYYY)	10-21-2020
RMSE Hz	0.009 m
RMSE Z	0.013 m
GPS Method	RTK

PHOTOS



Point ID	BE002
Project No.	37630
Project Name	USGS - Lassen-Bear Crk
State	California
County	Shasta
Quad	West Prospect Peak

	Aerial Target
	LiDAR Ground Control
X	LiDAR QC Point
	New Control
	Photo ID
	Published Control

Coordinate System
UTM 10N
NAD83(2011)
NAVD88
GEOID18
Meters

Northing	Easting	Elevation
4489610.301	629982.423	1930.847

Operator	EG
Receiver Model	Trimble R8 Model 3
Receiver S/N	0435
Antenna Height	2.000 m

Date (MM-DD-YYYY)	10-21-2020
RMSE Hz	0.005 m
RMSE Z	0.008 m
GPS Method	RTK

PHOTOS



Point ID	BE003
Project No.	37630
Project Name	USGS - Lassen-Bear Crk
State	California
County	Shasta
Quad	West Prospect Peak

	Aerial Target
	LiDAR Ground Control
X	LiDAR QC Point
	New Control
	Photo ID
	Published Control

Coordinate System
UTM 10N
NAD83(2011)
NAVD88
GEOID18
Meters

Northing	Easting	Elevation
4486096.876	630053.994	1967.523

Operator	EG
Receiver Model	Trimble R8 Model 3
Receiver S/N	0435
Antenna Height	2.000 m

Date (MM-DD-YYYY)	10-22-2020
RMSE Hz	0.007 m
RMSE Z	0.011 m
GPS Method	RTK

PHOTOS



Point ID	BE004
Project No.	37630
Project Name	USGS - Lassen-Bear Crk
State	California
County	Shasta
Quad	West Prospect Peak

	Aerial Target
	LiDAR Ground Control
X	LiDAR QC Point
	New Control
	Photo ID
	Published Control

Coordinate System
UTM 10N
NAD83(2011)
NAVD88
GEOID18
Meters

Northing	Easting	Elevation
4486166.424	630014.935	1966.173

Operator	EG
Receiver Model	Trimble R8 Model 3
Receiver S/N	0435
Antenna Height	2.000 m

Date (MM-DD-YYYY)	10-22-2020
RMSE Hz	0.007 m
RMSE Z	0.012 m
GPS Method	RTK

PHOTOS



Point ID	BE005
Project No.	37630
Project Name	USGS - Lassen-Bear Crk
State	California
County	Shasta
Quad	West Prospect Peak

	Aerial Target
	LiDAR Ground Control
X	LiDAR QC Point
	New Control
	Photo ID
	Published Control

Coordinate System
UTM 10N
NAD83(2011)
NAVD88
GEOID18
Meters

Northing	Easting	Elevation
4489313.125	628543.303	1941.245

Operator	EG
Receiver Model	Trimble R8 Model 3
Receiver S/N	0435
Antenna Height	2.000 m

Date (MM-DD-YYYY)	10-21-2020
RMSE Hz	0.005 m
RMSE Z	0.008 m
GPS Method	RTK

PHOTOS



Point ID	BE006
Project No.	37630
Project Name	USGS - Lassen-Bear Crk
State	California
County	Shasta
Quad	West Prospect Peak

	Aerial Target
	LiDAR Ground Control
X	LiDAR QC Point
	New Control
	Photo ID
	Published Control

Coordinate System
UTM 10N
NAD83(2011)
NAVD88
GEOID18
Meters

Northing	Easting	Elevation
4488301.323	627809.326	1872.707

Operator	EG
Receiver Model	Trimble R8 Model 3
Receiver S/N	0435
Antenna Height	2.000 m

Date (MM-DD-YYYY)	10-21-2020
RMSE Hz	0.008 m
RMSE Z	0.016 m
GPS Method	RTK

PHOTOS



Point ID	BE007
Project No.	37630
Project Name	USGS - Lassen-Bear Crk
State	California
County	Lassen
Quad	Prospect Peak

	Aerial Target
	LiDAR Ground Control
X	LiDAR QC Point
	New Control
	Photo ID
	Published Control

Coordinate System
UTM 10N
NAD83(2011)
NAVD88
GEOID18
Meters

Northing	Easting	Elevation
4493341.500	643369.624	1851.886

Operator	EG
Receiver Model	Trimble R8 Model 3
Receiver S/N	0435
Antenna Height	2.000 m

Date (MM-DD-YYYY)	10-20-2020
RMSE Hz	0.007 m
RMSE Z	0.014 m
GPS Method	RTK

PHOTOS



Point ID	BE008
Project No.	37630
Project Name	USGS - Lassen-Bear Crk
State	California
County	Lassen
Quad	Prospect Peak

	Aerial Target
	LiDAR Ground Control
X	LiDAR QC Point
	New Control
	Photo ID
	Published Control

Coordinate System
UTM 10N
NAD83(2011)
NAVD88
GEOID18
Meters

Northing	Easting	Elevation
4493789.016	643935.489	1796.353

Operator	EG
Receiver Model	Trimble R8 Model 3
Receiver S/N	0435
Antenna Height	2.000 m

Date (MM-DD-YYYY)	10-20-2020
RMSE Hz	0.007 m
RMSE Z	0.014 m
GPS Method	RTK

PHOTOS



Point ID	BE009
Project No.	37630
Project Name	USGS - Lassen-Bear Crk
State	California
County	Shasta
Quad	West Prospect Peak

	Aerial Target
	LiDAR Ground Control
X	LiDAR QC Point
	New Control
	Photo ID
	Published Control

Coordinate System
UTM 10N
NAD83(2011)
NAVD88
GEOID18
Meters

Northing	Easting	Elevation
4485207.622	630954.428	1994.606

Operator	EG
Receiver Model	Trimble R8 Model 3
Receiver S/N	0435
Antenna Height	2.000 m

Date (MM-DD-YYYY)	10-22-2020
RMSE Hz	0.008 m
RMSE Z	0.015 m
GPS Method	RTK

PHOTOS



Point ID	BE010
Project No.	37630
Project Name	USGS - Lassen-Bear Crk
State	California
County	Shasta
Quad	West Prospect Peak

	Aerial Target
	LiDAR Ground Control
X	LiDAR QC Point
	New Control
	Photo ID
	Published Control

Coordinate System
UTM 10N
NAD83(2011)
NAVD88
GEOID18
Meters

Northing	Easting	Elevation
4484642.422	631865.951	2006.240

Operator	EG
Receiver Model	Trimble R8 Model 3
Receiver S/N	0435
Antenna Height	2.000 m

Date (MM-DD-YYYY)	10-22-2020
RMSE Hz	0.009 m
RMSE Z	0.017 m
GPS Method	RTK

PHOTOS



Point ID	BE011
Project No.	37630
Project Name	USGS - Lassen-Bear Crk
State	California
County	Shasta
Quad	West Prospect Peak

	Aerial Target
	LiDAR Ground Control
X	LiDAR QC Point
	New Control
	Photo ID
	Published Control

Coordinate System
UTM 10N
NAD83(2011)
NAVD88
GEOID18
Meters

Northing	Easting	Elevation
4485208.724	630927.567	1997.484

Operator	EG
Receiver Model	Trimble R8 Model 3
Receiver S/N	0435
Antenna Height	2.000 m

Date (MM-DD-YYYY)	10-22-2020
RMSE Hz	0.006 m
RMSE Z	0.012 m
GPS Method	RTK

PHOTOS



Point ID	BE012
Project No.	37630
Project Name	USGS - Lassen-Bear Crk
State	California
County	Lassen
Quad	Prospect Peak

	Aerial Target
	LiDAR Ground Control
X	LiDAR QC Point
	New Control
	Photo ID
	Published Control

Coordinate System
UTM 10N
NAD83(2011)
NAVD88
GEOID18
Meters

Northing	Easting	Elevation
4493707.081	643888.899	1798.061

Operator	EG
Receiver Model	Trimble R8 Model 3
Receiver S/N	0435
Antenna Height	2.000 m

Date (MM-DD-YYYY)	10-20-2020
RMSE Hz	0.009 m
RMSE Z	0.014 m
GPS Method	RTK

PHOTOS



Point ID	BE013
Project No.	37630
Project Name	USGS - Lassen-Bear Crk
State	California
County	Shasta
Quad	West Prospect Peak

	Aerial Target
	LiDAR Ground Control
X	LiDAR QC Point
	New Control
	Photo ID
	Published Control

Coordinate System
UTM 10N
NAD83(2011)
NAVD88
GEOID18
Meters

Northing	Easting	Elevation
4486753.744	629184.898	1936.013

Operator	EG
Receiver Model	Trimble R8 Model 3
Receiver S/N	0435
Antenna Height	2.000 m

Date (MM-DD-YYYY)	10-22-2020
RMSE Hz	0.010 m
RMSE Z	0.016 m
GPS Method	RTK

PHOTOS



Point ID	BE014
Project No.	37630
Project Name	USGS - Lassen-Bear Crk
State	California
County	Shasta
Quad	Manzanita Lake

	Aerial Target
	LiDAR Ground Control
X	LiDAR QC Point
	New Control
	Photo ID
	Published Control

Coordinate System
UTM 10N
NAD83(2011)
NAVD88
GEOID18
Meters

Northing	Easting	Elevation
4491313.298	625194.575	1712.447

Operator	EG
Receiver Model	Trimble R8 Model 3
Receiver S/N	0435
Antenna Height	2.000 m

Date (MM-DD-YYYY)	10-21-2020
RMSE Hz	0.009 m
RMSE Z	0.017 m
GPS Method	RTK

PHOTOS



Point ID	BE015
Project No.	37630
Project Name	USGS - Lassen-Bear Crk
State	California
County	Shasta
Quad	Reading Peak

	Aerial Target
	LiDAR Ground Control
X	LiDAR QC Point
	New Control
	Photo ID
	Published Control

Coordinate System
UTM 10N
NAD83(2011)
NAVD88
GEOID18
Meters

Northing	Easting	Elevation
4484283.656	633003.177	2027.420

Operator	EG
Receiver Model	Trimble R8 Model 3
Receiver S/N	0435
Antenna Height	2.000 m

Date (MM-DD-YYYY)	10-22-2020
RMSE Hz	0.010 m
RMSE Z	0.019 m
GPS Method	RTK

PHOTOS



Point ID	BE016
Project No.	37630
Project Name	USGS - Lassen-Bear Crk
State	California
County	Shasta
Quad	West Prospect Peak

	Aerial Target
	LiDAR Ground Control
X	LiDAR QC Point
	New Control
	Photo ID
	Published Control

Coordinate System
UTM 10N
NAD83(2011)
NAVD88
GEOID18
Meters

Northing	Easting	Elevation
4488902.860	627594.528	1861.452

Operator	EG
Receiver Model	Trimble R8 Model 3
Receiver S/N	0435
Antenna Height	2.000 m

Date (MM-DD-YYYY)	10-21-2020
RMSE Hz	0.006 m
RMSE Z	0.012 m
GPS Method	RTK

PHOTOS



Point ID	BE017
Project No.	37630
Project Name	USGS - Lassen-Bear Crk
State	California
County	Shasta
Quad	West Prospect Peak

	Aerial Target
	LiDAR Ground Control
X	LiDAR QC Point
	New Control
	Photo ID
	Published Control

Coordinate System
UTM 10N
NAD83(2011)
NAVD88
GEOID18
Meters

Northing	Easting	Elevation
4485477.661	630047.283	1961.206

Operator	EG
Receiver Model	Trimble R8 Model 3
Receiver S/N	0435
Antenna Height	2.000 m

Date (MM-DD-YYYY)	10-22-2020
RMSE Hz	0.009 m
RMSE Z	0.016 m
GPS Method	RTK

PHOTOS



Point ID	BE018
Project No.	37630
Project Name	USGS - Lassen-Bear Crk
State	California
County	Shasta
Quad	West Prospect Peak

	Aerial Target
	LiDAR Ground Control
X	LiDAR QC Point
	New Control
	Photo ID
	Published Control

Coordinate System
UTM 10N
NAD83(2011)
NAVD88
GEOID18
Meters

Northing	Easting	Elevation
4485602.792	630126.043	1966.085

Operator	EG
Receiver Model	Trimble R8 Model 3
Receiver S/N	0435
Antenna Height	2.000 m

Date (MM-DD-YYYY)	10-22-2020
RMSE Hz	0.006 m
RMSE Z	0.012 m
GPS Method	RTK

PHOTOS



Point ID	BE019
Project No.	37630
Project Name	USGS - Lassen-Bear Crk
State	California
County	Shasta
Quad	West Prospect Peak

	Aerial Target
	LiDAR Ground Control
X	LiDAR QC Point
	New Control
	Photo ID
	Published Control

Coordinate System
UTM 10N
NAD83(2011)
NAVD88
GEOID18
Meters

Northing	Easting	Elevation
4489375.760	629111.713	1948.003

Operator	EG
Receiver Model	Trimble R8 Model 3
Receiver S/N	0435
Antenna Height	2.000 m

Date (MM-DD-YYYY)	10-21-2020
RMSE Hz	0.007 m
RMSE Z	0.010 m
GPS Method	RTK

PHOTOS



Point ID	BE020
Project No.	37630
Project Name	USGS - Lassen-Bear Crk
State	California
County	Lassen
Quad	Prospect Peak

	Aerial Target
	LiDAR Ground Control
X	LiDAR QC Point
	New Control
	Photo ID
	Published Control

Coordinate System
UTM 10N
NAD83(2011)
NAVD88
GEOID18
Meters

Northing	Easting	Elevation
4491631.540	643933.221	1842.772

Operator	EG
Receiver Model	Trimble R8 Model 3
Receiver S/N	0435
Antenna Height	2.000 m

Date (MM-DD-YYYY)	10-20-2020
RMSE Hz	0.008 m
RMSE Z	0.014 m
GPS Method	RTK

PHOTOS



Point ID	BE021
Project No.	37630
Project Name	USGS - Lassen-Bear Crk
State	California
County	Shasta
Quad	Reading Peak

	Aerial Target
	LiDAR Ground Control
X	LiDAR QC Point
	New Control
	Photo ID
	Published Control

Coordinate System
UTM 10N
NAD83(2011)
NAVD88
GEOID18
Meters

Northing	Easting	Elevation
4484416.209	632406.076	2012.846

Operator	EG
Receiver Model	Trimble R8 Model 3
Receiver S/N	0435
Antenna Height	2.000 m

Date (MM-DD-YYYY)	10-22-2020
RMSE Hz	0.009 m
RMSE Z	0.020 m
GPS Method	RTK

PHOTOS



Point ID	BE022
Project No.	37630
Project Name	USGS - Lassen-Bear Crk
State	California
County	Shasta
Quad	West Prospect Peak

	Aerial Target
	LiDAR Ground Control
X	LiDAR QC Point
	New Control
	Photo ID
	Published Control

Coordinate System
UTM 10N
NAD83(2011)
NAVD88
GEOID18
Meters

Northing	Easting	Elevation
4487385.486	628286.387	1889.391

Operator	EG
Receiver Model	Trimble R8 Model 3
Receiver S/N	0435
Antenna Height	2.000 m

Date (MM-DD-YYYY)	10-21-2020
RMSE Hz	0.007 m
RMSE Z	0.014 m
GPS Method	RTK

PHOTOS



Point ID	BE023
Project No.	37630
Project Name	USGS - Lassen-Bear Crk
State	California
County	Merced
Quad	Cressey

	Aerial Target
	LiDAR Ground Control
X	LiDAR QC Point
	New Control
	Photo ID
	Published Control

Coordinate System
UTM 10N
NAD83(2011)
NAVD88
GEOID18
Meters

Northing	Easting	Elevation
4142233.971	706911.293	49.525

Operator	WJ
Receiver Model	Trimble R10 Model 2
Receiver S/N	0321
Antenna Height	2.000 m

Date (MM-DD-YYYY)	12-13-2020
RMSE Hz	0.006 m
RMSE Z	0.011 m
GPS Method	RTK

PHOTOS



Point ID	BE024
Project No.	37630
Project Name	USGS - Lassen-Bear Crk
State	California
County	Merced
Quad	Planada

	Aerial Target
	LiDAR Ground Control
X	LiDAR QC Point
	New Control
	Photo ID
	Published Control

Coordinate System
UTM 10N
NAD83(2011)
NAVD88
GEOID18
Meters

Northing	Easting	Elevation
4134102.226	736245.865	70.598

Operator	WJ
Receiver Model	Trimble R10 Model 2
Receiver S/N	0321
Antenna Height	2.000 m

Date (MM-DD-YYYY)	12-14-2020
RMSE Hz	0.004 m
RMSE Z	0.007 m
GPS Method	RTK

PHOTOS



Point ID	BE025
Project No.	37630
Project Name	USGS - Lassen-Bear Crk
State	California
County	Merced
Quad	Turner Ranch

	Aerial Target
	LiDAR Ground Control
X	LiDAR QC Point
	New Control
	Photo ID
	Published Control

Coordinate System
UTM 10N
NAD83(2011)
NAVD88
GEOID18
Meters

Northing	Easting	Elevation
4122935.617	706664.081	30.735

Operator	WJ
Receiver Model	Trimble R10 Model 2
Receiver S/N	0321
Antenna Height	2.000 m

Date (MM-DD-YYYY)	12-13-2020
RMSE Hz	0.006 m
RMSE Z	0.012 m
GPS Method	RTK

PHOTOS



Point ID	BE026
Project No.	37630
Project Name	USGS - Lassen-Bear Crk
State	California
County	Merced
Quad	Merced

	Aerial Target
	LiDAR Ground Control
X	LiDAR QC Point
	New Control
	Photo ID
	Published Control

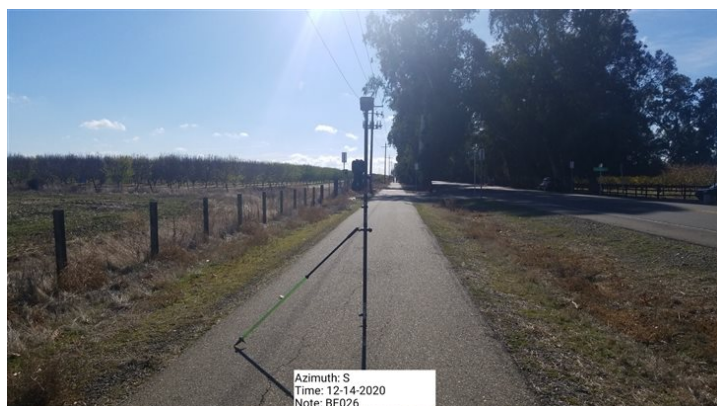
Coordinate System
UTM 10N
NAD83(2011)
NAVD88
GEOID18
Meters

Northing	Easting	Elevation
4136481.182	727426.172	58.593

Operator	WJ
Receiver Model	Trimble R10 Model 2
Receiver S/N	0321
Antenna Height	2.000 m

Date (MM-DD-YYYY)	12-14-2020
RMSE Hz	0.002 m
RMSE Z	0.003 m
GPS Method	RTK

PHOTOS



Point ID	BE027
Project No.	37630
Project Name	USGS - Lassen-Bear Crk
State	California
County	Merced
Quad	Winton

	Aerial Target
	LiDAR Ground Control
X	LiDAR QC Point
	New Control
	Photo ID
	Published Control

Coordinate System
UTM 10N
NAD83(2011)
NAVD88
GEOID18
Meters

Northing	Easting	Elevation
4143164.491	711242.199	56.949

Operator	WJ
Receiver Model	Trimble R10 Model 2
Receiver S/N	0321
Antenna Height	2.000 m

Date (MM-DD-YYYY)	12-13-2020
RMSE Hz	0.006 m
RMSE Z	0.011 m
GPS Method	RTK

PHOTOS



Point ID	BE028
Project No.	37630
Project Name	USGS - Lassen-Bear Crk
State	California
County	Merced
Quad	Arena

	Aerial Target
	LiDAR Ground Control
X	LiDAR QC Point
	New Control
	Photo ID
	Published Control

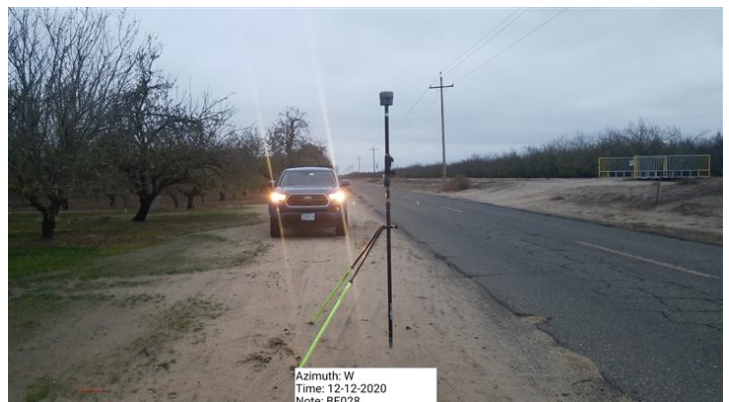
Coordinate System
UTM 10N
NAD83(2011)
NAVD88
GEOID18
Meters

Northing	Easting	Elevation
4135702.111	702455.135	36.771

Operator	WJ
Receiver Model	Trimble R10 Model 2
Receiver S/N	0321
Antenna Height	2.000 m

Date (MM-DD-YYYY)	12-12-2020
RMSE Hz	0.005 m
RMSE Z	0.010 m
GPS Method	RTK

PHOTOS



Point ID	BE029
Project No.	37630
Project Name	USGS - Lassen-Bear Crk
State	California
County	Merced
Quad	Merced

	Aerial Target
	LiDAR Ground Control
X	LiDAR QC Point
	New Control
	Photo ID
	Published Control

Coordinate System
UTM 10N
NAD83(2011)
NAVD88
GEOID18
Meters

Northing	Easting	Elevation
4131181.652	725502.644	54.173

Operator	WJ
Receiver Model	Trimble R10 Model 2
Receiver S/N	0321
Antenna Height	2.000 m

Date (MM-DD-YYYY)	12-14-2020
RMSE Hz	0.003 m
RMSE Z	0.003 m
GPS Method	RTK

PHOTOS



Point ID	BE030
Project No.	37630
Project Name	USGS - Lassen-Bear Crk
State	California
County	Merced
Quad	Merced

	Aerial Target
	LiDAR Ground Control
X	LiDAR QC Point
	New Control
	Photo ID
	Published Control

Coordinate System
UTM 10N
NAD83(2011)
NAVD88
GEOID18
Meters

Northing	Easting	Elevation
4134989.629	732272.978	63.930

Operator	WJ
Receiver Model	Trimble R10 Model 2
Receiver S/N	0321
Antenna Height	2.000 m

Date (MM-DD-YYYY)	12-14-2020
RMSE Hz	0.004 m
RMSE Z	0.004 m
GPS Method	RTK

PHOTOS



Point ID	BE031
Project No.	37630
Project Name	USGS - Lassen-Bear Crk
State	California
County	Merced
Quad	Stevinson

	Aerial Target
	LiDAR Ground Control
X	LiDAR QC Point
	New Control
	Photo ID
	Published Control

Coordinate System
UTM 10N
NAD83(2011)
NAVD88
GEOID18
Meters

Northing	Easting	Elevation
4137504.511	698363.231	35.942

Operator	WJ
Receiver Model	Trimble R10 Model 2
Receiver S/N	0321
Antenna Height	2.000 m

Date (MM-DD-YYYY)	12-12-2020
RMSE Hz	0.005 m
RMSE Z	0.009 m
GPS Method	RTK

PHOTOS



Point ID	BE032
Project No.	37630
Project Name	USGS - Lassen-Bear Crk
State	California
County	Merced
Quad	Atwater

	Aerial Target
	LiDAR Ground Control
X	LiDAR QC Point
	New Control
	Photo ID
	Published Control

Coordinate System
UTM 10N
NAD83(2011)
NAVD88
GEOID18
Meters

Northing	Easting	Elevation
4137108.123	717048.060	51.997

Operator	WJ
Receiver Model	Trimble R10 Model 2
Receiver S/N	0321
Antenna Height	2.000 m

Date (MM-DD-YYYY)	12-14-2020
RMSE Hz	0.004 m
RMSE Z	0.009 m
GPS Method	RTK

PHOTOS



Point ID	BE033
Project No.	37630
Project Name	USGS - Lassen-Bear Crk
State	California
County	Merced
Quad	Stevinson

	Aerial Target
	LiDAR Ground Control
X	LiDAR QC Point
	New Control
	Photo ID
	Published Control

Coordinate System
UTM 10N
NAD83(2011)
NAVD88
GEOID18
Meters

Northing	Easting	Elevation
4132874.649	698453.530	30.167

Operator	WJ
Receiver Model	Trimble R10 Model 2
Receiver S/N	0321
Antenna Height	2.000 m

Date (MM-DD-YYYY)	12-12-2020
RMSE Hz	0.007 m
RMSE Z	0.008 m
GPS Method	RTK

PHOTOS



Point ID	BE034
Project No.	37630
Project Name	USGS - Lassen-Bear Crk
State	California
County	Merced
Quad	Atwater

	Aerial Target
	LiDAR Ground Control
X	LiDAR QC Point
	New Control
	Photo ID
	Published Control

Coordinate System
UTM 10N
NAD83(2011)
NAVD88
GEOID18
Meters

Northing	Easting	Elevation
4131731.760	712628.374	40.936

Operator	WJ
Receiver Model	Trimble R10 Model 2
Receiver S/N	0321
Antenna Height	2.000 m

Date (MM-DD-YYYY)	12-13-2020
RMSE Hz	0.004 m
RMSE Z	0.010 m
GPS Method	RTK

PHOTOS



Point ID	BE035
Project No.	37630
Project Name	USGS - Lassen-Bear Crk
State	California
County	Merced
Quad	Merced

	Aerial Target
	LiDAR Ground Control
X	LiDAR QC Point
	New Control
	Photo ID
	Published Control

Coordinate System
UTM 10N
NAD83(2011)
NAVD88
GEOID18
Meters

Northing	Easting	Elevation
4137366.848	723718.912	54.085

Operator	WJ
Receiver Model	Trimble R10 Model 2
Receiver S/N	0321
Antenna Height	2.000 m

Date (MM-DD-YYYY)	12-14-2020
RMSE Hz	0.003 m
RMSE Z	0.003 m
GPS Method	RTK

PHOTOS



Point ID	BE036
Project No.	37630
Project Name	USGS - Lassen-Bear Crk
State	California
County	Merced
Quad	Cressey

	Aerial Target
	LiDAR Ground Control
X	LiDAR QC Point
	New Control
	Photo ID
	Published Control

Coordinate System
UTM 10N
NAD83(2011)
NAVD88
GEOID18
Meters

Northing	Easting	Elevation
4139999.777	703152.721	41.933

Operator	WJ
Receiver Model	Trimble R10 Model 2
Receiver S/N	0321
Antenna Height	2.000 m

Date (MM-DD-YYYY)	12-13-2020
RMSE Hz	0.007 m
RMSE Z	0.010 m
GPS Method	RTK

PHOTOS



Point ID	BE037
Project No.	37630
Project Name	USGS - Lassen-Bear Crk
State	California
County	Merced
Quad	Yosemite Lake

	Aerial Target
	LiDAR Ground Control
X	LiDAR QC Point
	New Control
	Photo ID
	Published Control

Coordinate System
UTM 10N
NAD83(2011)
NAVD88
GEOID18
Meters

Northing	Easting	Elevation
4141907.010	724814.553	69.064

Operator	WJ
Receiver Model	Trimble R10 Model 2
Receiver S/N	0321
Antenna Height	2.000 m

Date (MM-DD-YYYY)	12-14-2020
RMSE Hz	0.004 m
RMSE Z	0.005 m
GPS Method	RTK

PHOTOS



URBAN AREA POINT LOG SHEETS

Point ID	UA001
Project No.	37630
Project Name	USGS - Lassen-Bear Crk
State	California
County	Shasta
Quad	West Prospect Peak

	Aerial Target
	LiDAR Ground Control
X	LiDAR QC Point
	New Control
	Photo ID
	Published Control

Coordinate System
UTM 10N
NAD83(2011)
NAVD88
GEOID18
Meters

Northing	Easting	Elevation
4487307.080	628312.109	1890.123

Operator	EG
Receiver Model	Trimble R8 Model 3
Receiver S/N	0435
Antenna Height	2.000 m

Date (MM-DD-YYYY)	10-21-2020
RMSE Hz	0.007 m
RMSE Z	0.012 m
GPS Method	RTK

PHOTOS



Point ID	UA002
Project No.	37630
Project Name	USGS - Lassen-Bear Crk
State	California
County	Shasta
Quad	West Prospect Peak

	Aerial Target
	LiDAR Ground Control
X	LiDAR QC Point
	New Control
	Photo ID
	Published Control

Coordinate System
UTM 10N
NAD83(2011)
NAVD88
GEOID18
Meters

Northing	Easting	Elevation
4486094.004	630038.993	1967.589

Operator	EG
Receiver Model	Trimble R8 Model 3
Receiver S/N	0435
Antenna Height	2.000 m

Date (MM-DD-YYYY)	10-22-2020
RMSE Hz	0.007 m
RMSE Z	0.010 m
GPS Method	RTK

PHOTOS



Point ID	UA003
Project No.	37630
Project Name	USGS - Lassen-Bear Crk
State	California
County	Merced
Quad	Arena

	Aerial Target
	LiDAR Ground Control
X	LiDAR QC Point
	New Control
	Photo ID
	Published Control

Coordinate System
UTM 10N
NAD83(2011)
NAVD88
GEOID18
Meters

Northing	Easting	Elevation
4130487.968	701724.946	30.961

Operator	WJ
Receiver Model	Trimble R10 Model 2
Receiver S/N	0321
Antenna Height	2.000 m

Date (MM-DD-YYYY)	12-13-2020
RMSE Hz	0.007 m
RMSE Z	0.008 m
GPS Method	RTK

PHOTOS



Point ID	UA004
Project No.	37630
Project Name	USGS - Lassen-Bear Crk
State	California
County	Merced
Quad	Atwater

	Aerial Target
	LiDAR Ground Control
X	LiDAR QC Point
	New Control
	Photo ID
	Published Control

Coordinate System
UTM 10N
NAD83(2011)
NAVD88
GEOID18
Meters

Northing	Easting	Elevation
4131732.579	712623.973	41.255

Operator	WJ
Receiver Model	Trimble R10 Model 2
Receiver S/N	0321
Antenna Height	2.000 m

Date (MM-DD-YYYY)	12-13-2020
RMSE Hz	0.005 m
RMSE Z	0.011 m
GPS Method	RTK

PHOTOS



Point ID	UA005
Project No.	37630
Project Name	USGS - Lassen-Bear Crk
State	California
County	Merced
Quad	Winton

	Aerial Target
	LiDAR Ground Control
X	LiDAR QC Point
	New Control
	Photo ID
	Published Control

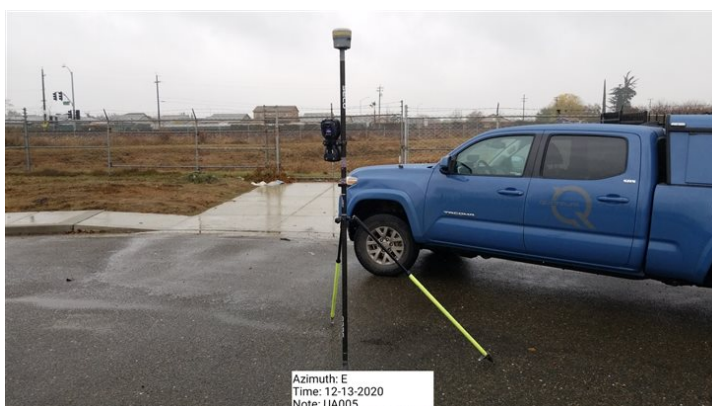
Coordinate System
UTM 10N
NAD83(2011)
NAVD88
GEOID18
Meters

Northing	Easting	Elevation
4139991.881	711612.564	52.430

Operator	WJ
Receiver Model	Trimble R10 Model 2
Receiver S/N	0321
Antenna Height	2.000 m

Date (MM-DD-YYYY)	12-13-2020
RMSE Hz	0.005 m
RMSE Z	0.012 m
GPS Method	RTK

PHOTOS



Point ID	UA006
Project No.	37630
Project Name	USGS - Lassen-Bear Crk
State	California
County	Merced
Quad	Atwater

	Aerial Target
	LiDAR Ground Control
X	LiDAR QC Point
	New Control
	Photo ID
	Published Control

Coordinate System
UTM 10N
NAD83(2011)
NAVD88
GEOID18
Meters

Northing	Easting	Elevation
4132886.173	720441.525	49.300

Operator	WJ
Receiver Model	Trimble R10 Model 2
Receiver S/N	0321
Antenna Height	2.000 m

Date (MM-DD-YYYY)	12-14-2020
RMSE Hz	0.004 m
RMSE Z	0.007 m
GPS Method	RTK

PHOTOS



Point ID	UA007
Project No.	37630
Project Name	USGS - Lassen-Bear Crk
State	California
County	Merced
Quad	Cressey

	Aerial Target
	LiDAR Ground Control
X	LiDAR QC Point
	New Control
	Photo ID
	Published Control

Coordinate System
UTM 10N
NAD83(2011)
NAVD88
GEOID18
Meters

Northing	Easting	Elevation
4140256.700	702046.797	41.023

Operator	WJ
Receiver Model	Trimble R10 Model 2
Receiver S/N	0321
Antenna Height	2.000 m

Date (MM-DD-YYYY)	12-13-2020
RMSE Hz	0.007 m
RMSE Z	0.009 m
GPS Method	RTK

PHOTOS



Point ID	UA008
Project No.	37630
Project Name	USGS - Lassen-Bear Crk
State	California
County	Merced
Quad	Merced

	Aerial Target
	LiDAR Ground Control
X	LiDAR QC Point
	New Control
	Photo ID
	Published Control

Coordinate System
UTM 10N
NAD83(2011)
NAVD88
GEOID18
Meters

Northing	Easting	Elevation
4135397.108	724545.681	53.957

Operator	WJ
Receiver Model	Trimble R10 Model 2
Receiver S/N	0321
Antenna Height	2.000 m

Date (MM-DD-YYYY)	12-14-2020
RMSE Hz	0.002 m
RMSE Z	0.002 m
GPS Method	RTK

PHOTOS



Point ID	UA009
Project No.	37630
Project Name	USGS - Lassen-Bear Crk
State	California
County	Merced
Quad	Atwater

	Aerial Target
	LiDAR Ground Control
X	LiDAR QC Point
	New Control
	Photo ID
	Published Control

Coordinate System
UTM 10N
NAD83(2011)
NAVD88
GEOID18
Meters

Northing	Easting	Elevation
4130966.339	715521.623	44.123

Operator	WJ
Receiver Model	Trimble R10 Model 2
Receiver S/N	0321
Antenna Height	2.000 m

Date (MM-DD-YYYY)	12-13-2020
RMSE Hz	0.008 m
RMSE Z	0.013 m
GPS Method	RTK

PHOTOS



Point ID	UA010
Project No.	37630
Project Name	USGS - Lassen-Bear Crk
State	California
County	Merced
Quad	Stevinson

	Aerial Target
	LiDAR Ground Control
X	LiDAR QC Point
	New Control
	Photo ID
	Published Control

Coordinate System
UTM 10N
NAD83(2011)
NAVD88
GEOID18
Meters

Northing	Easting	Elevation
4134795.488	698420.481	33.497

Operator	WJ
Receiver Model	Trimble R10 Model 2
Receiver S/N	0321
Antenna Height	2.000 m

Date (MM-DD-YYYY)	12-12-2020
RMSE Hz	0.008 m
RMSE Z	0.010 m
GPS Method	RTK

PHOTOS



Point ID	UA011
Project No.	37630
Project Name	USGS - Lassen-Bear Crk
State	California
County	Merced
Quad	Arena

	Aerial Target
	LiDAR Ground Control
X	LiDAR QC Point
	New Control
	Photo ID
	Published Control

Coordinate System
UTM 10N
NAD83(2011)
NAVD88
GEOID18
Meters

Northing	Easting	Elevation
4133313.429	703755.096	36.725

Operator	WJ
Receiver Model	Trimble R10 Model 2
Receiver S/N	0321
Antenna Height	2.000 m

Date (MM-DD-YYYY)	12-13-2020
RMSE Hz	0.006 m
RMSE Z	0.007 m
GPS Method	RTK

PHOTOS



Point ID	UA012
Project No.	37630
Project Name	USGS - Lassen-Bear Crk
State	California
County	Merced
Quad	Atwater

	Aerial Target
	LiDAR Ground Control
X	LiDAR QC Point
	New Control
	Photo ID
	Published Control

Coordinate System
UTM 10N
NAD83(2011)
NAVD88
GEOID18
Meters

Northing	Easting	Elevation
4136678.022	713864.258	48.738

Operator	WJ
Receiver Model	Trimble R10 Model 2
Receiver S/N	0321
Antenna Height	2.000 m

Date (MM-DD-YYYY)	12-13-2020
RMSE Hz	0.004 m
RMSE Z	0.007 m
GPS Method	RTK

PHOTOS



TALL WEEDS POINT LOG SHEETS

Point ID	TG001
Project No.	37630
Project Name	USGS - Lassen-Bear Crk
State	California
County	Lassen
Quad	Prospect Peak

	Aerial Target
	LiDAR Ground Control
X	LiDAR QC Point
	New Control
	Photo ID
	Published Control

Coordinate System
UTM 10N
NAD83(2011)
NAVD88
GEOID18
Meters

Northing	Easting	Elevation
4491632.173	643917.915	1843.733

Operator	EG
Receiver Model	Trimble R8 Model 3
Receiver S/N	0435
Antenna Height	2.000 m

Date (MM-DD-YYYY)	10-20-2020
RMSE Hz	0.007 m
RMSE Z	0.013 m
GPS Method	RTK

PHOTOS



Point ID	TG002
Project No.	37630
Project Name	USGS - Lassen-Bear Crk
State	California
County	Lassen
Quad	Prospect Peak

	Aerial Target
	LiDAR Ground Control
X	LiDAR QC Point
	New Control
	Photo ID
	Published Control

Coordinate System
UTM 10N
NAD83(2011)
NAVD88
GEOID18
Meters

Northing	Easting	Elevation
4491514.159	643914.630	1848.963

Operator	EG
Receiver Model	Trimble R8 Model 3
Receiver S/N	0435
Antenna Height	2.000 m

Date (MM-DD-YYYY)	10-20-2020
RMSE Hz	0.006 m
RMSE Z	0.011 m
GPS Method	RTK

PHOTOS



Point ID	TG003
Project No.	37630
Project Name	USGS - Lassen-Bear Crk
State	California
County	Shasta
Quad	West Prospect Peak

	Aerial Target
	LiDAR Ground Control
X	LiDAR QC Point
	New Control
	Photo ID
	Published Control

Coordinate System
UTM 10N
NAD83(2011)
NAVD88
GEOID18
Meters

Northing	Easting	Elevation
4484750.937	631372.107	1987.233

Operator	EG
Receiver Model	Trimble R8 Model 3
Receiver S/N	0435
Antenna Height	2.000 m

Date (MM-DD-YYYY)	10-22-2020
RMSE Hz	0.008 m
RMSE Z	0.015 m
GPS Method	RTK

PHOTOS



Point ID	TG004
Project No.	37630
Project Name	USGS - Lassen-Bear Crk
State	California
County	Merced
Quad	Atwater

	Aerial Target
	LiDAR Ground Control
X	LiDAR QC Point
	New Control
	Photo ID
	Published Control

Coordinate System
UTM 10N
NAD83(2011)
NAVD88
GEOID18
Meters

Northing	Easting	Elevation
4127979.148	716326.631	41.603

Operator	WJ
Receiver Model	Trimble R10 Model 2
Receiver S/N	0321
Antenna Height	2.000 m

Date (MM-DD-YYYY)	12-13-2020
RMSE Hz	0.004 m
RMSE Z	0.008 m
GPS Method	RTK

PHOTOS



Point ID	TG005
Project No.	37630
Project Name	USGS - Lassen-Bear Crk
State	California
County	Merced
Quad	Arena

	Aerial Target
	LiDAR Ground Control
X	LiDAR QC Point
	New Control
	Photo ID
	Published Control

Coordinate System
UTM 10N
NAD83(2011)
NAVD88
GEOID18
Meters

Northing	Easting	Elevation
4137275.546	701133.187	38.011

Operator	WJ
Receiver Model	Trimble R10 Model 2
Receiver S/N	0321
Antenna Height	2.000 m

Date (MM-DD-YYYY)	12-12-2020
RMSE Hz	0.006 m
RMSE Z	0.012 m
GPS Method	RTK

PHOTOS



Point ID	TG006
Project No.	37630
Project Name	USGS - Lassen-Bear Crk
State	California
County	Merced
Quad	Winton

	Aerial Target
	LiDAR Ground Control
X	LiDAR QC Point
	New Control
	Photo ID
	Published Control

Coordinate System
UTM 10N
NAD83(2011)
NAVD88
GEOID18
Meters

Northing	Easting	Elevation
4143239.517	714347.571	63.609

Operator	WJ
Receiver Model	Trimble R10 Model 2
Receiver S/N	0321
Antenna Height	2.000 m

Date (MM-DD-YYYY)	12-13-2020
RMSE Hz	0.005 m
RMSE Z	0.006 m
GPS Method	RTK

PHOTOS



Point ID	TG007
Project No.	37630
Project Name	USGS - Lassen-Bear Crk
State	California
County	Merced
Quad	Arena

	Aerial Target
	LiDAR Ground Control
X	LiDAR QC Point
	New Control
	Photo ID
	Published Control

Coordinate System
UTM 10N
NAD83(2011)
NAVD88
GEOID18
Meters

Northing	Easting	Elevation
4126984.769	709033.892	34.077

Operator	WJ
Receiver Model	Trimble R10 Model 2
Receiver S/N	0321
Antenna Height	2.000 m

Date (MM-DD-YYYY)	12-13-2020
RMSE Hz	0.005 m
RMSE Z	0.012 m
GPS Method	RTK

PHOTOS



Point ID	TG008
Project No.	37630
Project Name	USGS - Lassen-Bear Crk
State	California
County	Merced
Quad	Planada

	Aerial Target
	LiDAR Ground Control
X	LiDAR QC Point
	New Control
	Photo ID
	Published Control

Coordinate System
UTM 10N
NAD83(2011)
NAVD88
GEOID18
Meters

Northing	Easting	Elevation
4134134.658	736301.468	70.727

Operator	WJ
Receiver Model	Trimble R10 Model 2
Receiver S/N	0321
Antenna Height	2.000 m

Date (MM-DD-YYYY)	12-14-2020
RMSE Hz	0.004 m
RMSE Z	0.007 m
GPS Method	RTK

PHOTOS



Point ID	TG009
Project No.	37630
Project Name	USGS - Lassen-Bear Crk
State	California
County	Merced
Quad	Arena

	Aerial Target
	LiDAR Ground Control
X	LiDAR QC Point
	New Control
	Photo ID
	Published Control

Coordinate System
UTM 10N
NAD83(2011)
NAVD88
GEOID18
Meters

Northing	Easting	Elevation
4138286.001	710102.871	45.384

Operator	WJ
Receiver Model	Trimble R10 Model 2
Receiver S/N	0321
Antenna Height	2.000 m

Date (MM-DD-YYYY)	12-13-2020
RMSE Hz	0.006 m
RMSE Z	0.013 m
GPS Method	RTK

PHOTOS



Point ID	TG010
Project No.	37630
Project Name	USGS - Lassen-Bear Crk
State	California
County	Merced
Quad	Atwater

	Aerial Target
	LiDAR Ground Control
X	LiDAR QC Point
	New Control
	Photo ID
	Published Control

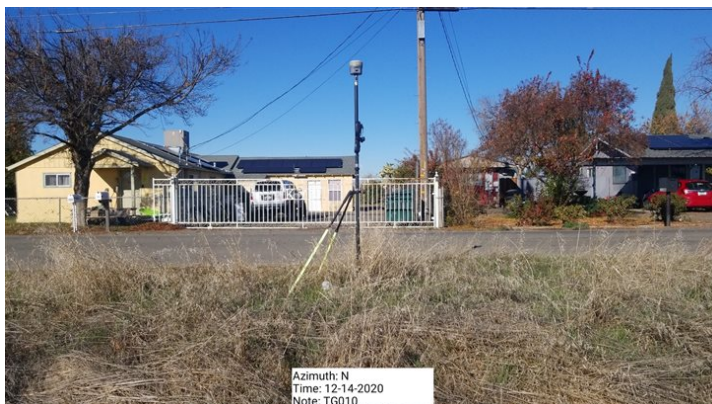
Coordinate System
UTM 10N
NAD83(2011)
NAVD88
GEOID18
Meters

Northing	Easting	Elevation
4136212.281	720831.020	51.603

Operator	WJ
Receiver Model	Trimble R10 Model 2
Receiver S/N	0321
Antenna Height	2.000 m

Date (MM-DD-YYYY)	12-14-2020
RMSE Hz	0.003 m
RMSE Z	0.007 m
GPS Method	RTK

PHOTOS



Point ID	TG011
Project No.	37630
Project Name	USGS - Lassen-Bear Crk
State	California
County	Merced
Quad	Cressey

	Aerial Target
	LiDAR Ground Control
X	LiDAR QC Point
	New Control
	Photo ID
	Published Control

Coordinate System
UTM 10N
NAD83(2011)
NAVD88
GEOID18
Meters

Northing	Easting	Elevation
4139993.568	703166.648	42.093

Operator	WJ
Receiver Model	Trimble R10 Model 2
Receiver S/N	0321
Antenna Height	2.000 m

Date (MM-DD-YYYY)	12-13-2020
RMSE Hz	0.007 m
RMSE Z	0.009 m
GPS Method	RTK

PHOTOS



Point ID	TG012
Project No.	37630
Project Name	USGS - Lassen-Bear Crk
State	California
County	Merced
Quad	Stevinson

	Aerial Target
	LiDAR Ground Control
X	LiDAR QC Point
	New Control
	Photo ID
	Published Control

Coordinate System
UTM 10N
NAD83(2011)
NAVD88
GEOID18
Meters

Northing	Easting	Elevation
4131308.952	696848.509	29.154

Operator	WJ
Receiver Model	Trimble R10 Model 2
Receiver S/N	0321
Antenna Height	2.000 m

Date (MM-DD-YYYY)	12-12-2020
RMSE Hz	0.007 m
RMSE Z	0.014 m
GPS Method	RTK

PHOTOS



Point ID	TG013
Project No.	37630
Project Name	USGS - Lassen-Bear Crk
State	California
County	Merced
Quad	Arena

	Aerial Target
	LiDAR Ground Control
X	LiDAR QC Point
	New Control
	Photo ID
	Published Control

Coordinate System
UTM 10N
NAD83(2011)
NAVD88
GEOID18
Meters

Northing	Easting	Elevation
4133317.356	703771.353	36.710

Operator	WJ
Receiver Model	Trimble R10 Model 2
Receiver S/N	0321
Antenna Height	2.000 m

Date (MM-DD-YYYY)	12-13-2020
RMSE Hz	0.007 m
RMSE Z	0.008 m
GPS Method	RTK

PHOTOS



Point ID	TG014
Project No.	37630
Project Name	USGS - Lassen-Bear Crk
State	California
County	Merced
Quad	Merced

	Aerial Target
	LiDAR Ground Control
X	LiDAR QC Point
	New Control
	Photo ID
	Published Control

Coordinate System
UTM 10N
NAD83(2011)
NAVD88
GEOID18
Meters

Northing	Easting	Elevation
4136516.064	727407.627	58.758

Operator	WJ
Receiver Model	Trimble R10 Model 2
Receiver S/N	0321
Antenna Height	2.000 m

Date (MM-DD-YYYY)	12-14-2020
RMSE Hz	0.002 m
RMSE Z	0.003 m
GPS Method	RTK

PHOTOS



FOREST POINT LOG SHEETS

Point ID	FR001
Project No.	37630
Project Name	USGS - Lassen-Bear Crk
State	California
County	Shasta
Quad	West Prospect Peak

	Aerial Target
	LiDAR Ground Control
X	LiDAR QC Point
	New Control
	Photo ID
	Published Control

Coordinate System
UTM 10N
NAD83(2011)
NAVD88
GEOID18
Meters

Northing	Easting	Elevation
4486178.673	630029.262	1968.166

Operator	EG
Receiver Model	Trimble M3 Total Station
Receiver S/N	
Antenna Height	2.115 m

Date (MM-DD-YYYY)	10-22-2020
RMSE Hz	0.021 m
RMSE Z	0.028 m
GPS Method	Total Station

PHOTOS



Point ID	FR002
Project No.	37630
Project Name	USGS - Lassen-Bear Crk
State	California
County	Lassen
Quad	Prospect Peak

	Aerial Target
	LiDAR Ground Control
X	LiDAR QC Point
	New Control
	Photo ID
	Published Control

Coordinate System
UTM 10N
NAD83(2011)
NAVD88
GEOID18
Meters

Northing	Easting	Elevation
4493708.829	643860.479	1798.942

Operator	EG
Receiver Model	Trimble M3 Total Station
Receiver S/N	
Antenna Height	2.115 m

Date (MM-DD-YYYY)	10-20-2020
RMSE Hz	0.019 m
RMSE Z	0.026 m
GPS Method	Total Station

PHOTOS



Point ID	FR003
Project No.	37630
Project Name	USGS - Lassen-Bear Crk
State	California
County	Lassen
Quad	Prospect Peak

	Aerial Target
	LiDAR Ground Control
X	LiDAR QC Point
	New Control
	Photo ID
	Published Control

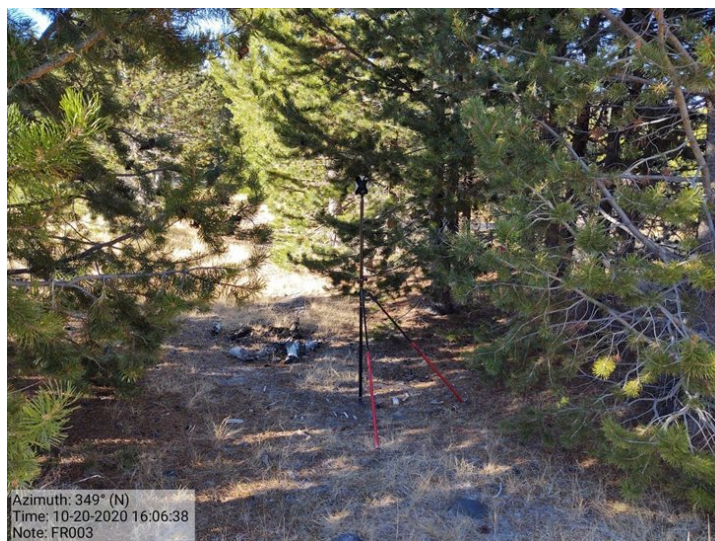
Coordinate System
UTM 10N
NAD83(2011)
NAVD88
GEOID18
Meters

Northing	Easting	Elevation
4491507.755	643932.188	1848.734

Operator	EG
Receiver Model	Trimble M3 Total Station
Receiver S/N	
Antenna Height	2.115 m

Date (MM-DD-YYYY)	10-20-2020
RMSE Hz	0.018 m
RMSE Z	0.020 m
GPS Method	Total Station

PHOTOS



Point ID	FR004
Project No.	37630
Project Name	USGS - Lassen-Bear Crk
State	California
County	Shasta
Quad	Manzanita Lake

	Aerial Target
	LiDAR Ground Control
X	LiDAR QC Point
	New Control
	Photo ID
	Published Control

Coordinate System
UTM 10N
NAD83(2011)
NAVD88
GEOID18
Meters

Northing	Easting	Elevation
4491305.760	625212.240	1712.442

Operator	EG
Receiver Model	Trimble M3 Total Station
Receiver S/N	
Antenna Height	2.115 m

Date (MM-DD-YYYY)	10-21-2020
RMSE Hz	0.017 m
RMSE Z	0.018 m
GPS Method	Total Station

PHOTOS



Point ID	FR005
Project No.	37630
Project Name	USGS - Lassen-Bear Crk
State	California
County	Merced
Quad	Atwater

	Aerial Target
	LiDAR Ground Control
X	LiDAR QC Point
	New Control
	Photo ID
	Published Control

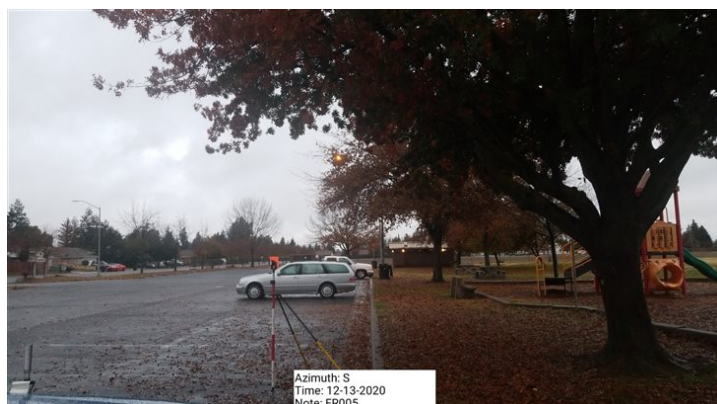
Coordinate System
UTM 10N
NAD83(2011)
NAVD88
GEOID18
Meters

Northing	Easting	Elevation
4136665.846	713828.706	48.641

Operator	WJ
Receiver Model	Nikon NPL-322+ 5" P Total Station
Receiver S/N	
Antenna Height	1.550 m

Date (MM-DD-YYYY)	12-13-2020
RMSE Hz	0.019 m
RMSE Z	0.022 m
GPS Method	Total Station

PHOTOS



BRUSHLAND POINT LOG SHEETS

Point ID	SH001
Project No.	37630
Project Name	USGS - Lassen-Bear Crk
State	California
County	Shasta
Quad	West Prospect Peak

	Aerial Target
	LiDAR Ground Control
X	LiDAR QC Point
	New Control
	Photo ID
	Published Control

Coordinate System
UTM 10N
NAD83(2011)
NAVD88
GEOID18
Meters

Northing	Easting	Elevation
4485583.923	630157.192	1967.537

Operator	EG
Receiver Model	Trimble R8 Model 3
Receiver S/N	0435
Antenna Height	2.000 m

Date (MM-DD-YYYY)	10-22-2020
RMSE Hz	0.008 m
RMSE Z	0.017 m
GPS Method	RTK

PHOTOS



Point ID	SH002
Project No.	37630
Project Name	USGS - Lassen-Bear Crk
State	California
County	Shasta
Quad	West Prospect Peak

	Aerial Target
	LiDAR Ground Control
X	LiDAR QC Point
	New Control
	Photo ID
	Published Control

Coordinate System
UTM 10N
NAD83(2011)
NAVD88
GEOID18
Meters

Northing	Easting	Elevation
4489607.480	629969.903	1931.277

Operator	EG
Receiver Model	Trimble R8 Model 3
Receiver S/N	0435
Antenna Height	2.000 m

Date (MM-DD-YYYY)	10-21-2020
RMSE Hz	0.005 m
RMSE Z	0.008 m
GPS Method	RTK

PHOTOS



Point ID	SH003
Project No.	37630
Project Name	USGS - Lassen-Bear Crk
State	California
County	Lassen
Quad	Prospect Peak

	Aerial Target
	LiDAR Ground Control
X	LiDAR QC Point
	New Control
	Photo ID
	Published Control

Coordinate System
UTM 10N
NAD83(2011)
NAVD88
GEOID18
Meters

Northing	Easting	Elevation
4493656.941	643967.315	1800.123

Operator	EG
Receiver Model	Trimble R8 Model 3
Receiver S/N	0435
Antenna Height	2.000 m

Date (MM-DD-YYYY)	10-20-2020
RMSE Hz	0.006 m
RMSE Z	0.009 m
GPS Method	RTK

PHOTOS



Point ID	SH004
Project No.	37630
Project Name	USGS - Lassen-Bear Crk
State	California
County	Lassen
Quad	Prospect Peak

	Aerial Target
	LiDAR Ground Control
X	LiDAR QC Point
	New Control
	Photo ID
	Published Control

Coordinate System
UTM 10N
NAD83(2011)
NAVD88
GEOID18
Meters

Northing	Easting	Elevation
4491499.658	643901.972	1850.105

Operator	EG
Receiver Model	Trimble R8 Model 3
Receiver S/N	0435
Antenna Height	2.000 m

Date (MM-DD-YYYY)	10-20-2020
RMSE Hz	0.007 m
RMSE Z	0.011 m
GPS Method	RTK

PHOTOS



Point ID	SH005
Project No.	37630
Project Name	USGS - Lassen-Bear Crk
State	California
County	Merced
Quad	Merced

	Aerial Target
	LiDAR Ground Control
X	LiDAR QC Point
	New Control
	Photo ID
	Published Control

Coordinate System
UTM 10N
NAD83(2011)
NAVD88
GEOID18
Meters

Northing	Easting	Elevation
4131191.225	725466.192	54.068

Operator	WJ
Receiver Model	Trimble R10 Model 2
Receiver S/N	0321
Antenna Height	2.000 m

Date (MM-DD-YYYY)	12-14-2020
RMSE Hz	0.003 m
RMSE Z	0.003 m
GPS Method	RTK

PHOTOS



Point ID	SH006
Project No.	37630
Project Name	USGS - Lassen-Bear Crk
State	California
County	Merced
Quad	Turner Ranch

	Aerial Target
	LiDAR Ground Control
X	LiDAR QC Point
	New Control
	Photo ID
	Published Control

Coordinate System
UTM 10N
NAD83(2011)
NAVD88
GEOID18
Meters

Northing	Easting	Elevation
4122920.888	706670.257	30.448

Operator	WJ
Receiver Model	Trimble R10 Model 2
Receiver S/N	0321
Antenna Height	2.000 m

Date (MM-DD-YYYY)	12-13-2020
RMSE Hz	0.007 m
RMSE Z	0.014 m
GPS Method	RTK

PHOTOS



Point ID	SH007
Project No.	37630
Project Name	USGS - Lassen-Bear Crk
State	California
County	Merced
Quad	Stevinson

	Aerial Target
	LiDAR Ground Control
X	LiDAR QC Point
	New Control
	Photo ID
	Published Control

Coordinate System
UTM 10N
NAD83(2011)
NAVD88
GEOID18
Meters

Northing	Easting	Elevation
4131298.114	696851.395	29.176

Operator	WJ
Receiver Model	Trimble R10 Model 2
Receiver S/N	0321
Antenna Height	2.000 m

Date (MM-DD-YYYY)	12-12-2020
RMSE Hz	0.008 m
RMSE Z	0.017 m
GPS Method	RTK

PHOTOS

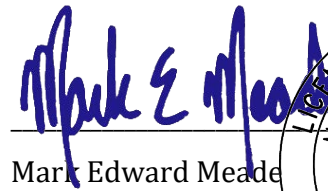


Surveyor's Certificate

Surveyor's Certificate

I, Mark Meade, being a Licensed Professional Land Surveyor in the State of California, hereby certify to the best of my professional knowledge and belief that the survey methodologies and results shown on the attached report for the State portion of the report titled CA_LASSENNP_LOWERBEARCREEKHUC10_2020_D20 dated February 4, 2021, were performed and obtained utilizing commonly acceptable survey standards, practices and procedures. The survey portion of this project was accomplished on July 12, 2020 through December 14, 2020.

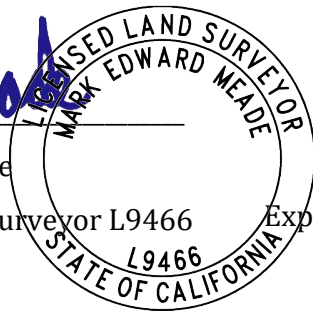
I have reviewed the accuracy statements as part of my oversight and found them to meet the National Standards for Spatial Accuracy (NSSDA) shown.



Mark Edward Meade

Professional Land Surveyor L9466

February 10, 2021



Expires September 30, 2022