

Ground Control Survey Report



Yellowstone Aerial LiDAR Data Collection

Contract Number: G16PC00022
Task Order Number: 140G0220F0199

Contractor: Woolpert, Inc.
Woolpert Project # 81200

December 2020

Ground Control Survey Report

Yellowstone Aerial Lidar Data Collection

Contract Number: G16PC0002

Task Order Number: 140G0220F0199

Woolpert

4454 Idea Center Boulevard

Dayton, OH 45430-1500

Tel 937.461.5660

Table of Contents

Section 1: Survey Report.....	1-1
Section 2: Ground Control /Geodetic Control Coordinate Listings.....	2-1
Section 3: Ground Control/Geodetic Logs and Photos.....	3-1
Section 4: Geodetic Control Information and Resources.....	4-1
Section 5: GPS Control Diagram.....	5-1

Section 1: Survey Report

Introduction

This report contains a comprehensive outline of the Ground Control Survey that supported the Aerial LiDAR, over western portions of Montana and Wyoming. All surveys were performed in such a way as to achieve ground control accuracies that meet or exceed the National Mapping Accuracy Standards.

Project Area

The project area consists of approximately 16,960 square kilometers encompassing Yellowstone National Park.

Purpose

The purpose of this survey was to establish three-dimensional coordinates for 117 LiDAR control points, 144 non-vegetated check points, and 104 vegetated check points. The points were collected per the flight layout and were uniformly dispersed over the project area.

Date of Survey

Ground control field operations took place September 23rd thru November 11th of 2020.

Monumentation

Prior to aerial imagery acquisition, Woolpert field crews performed a field reconnaissance to verify the existence and suitability of pre-selected existing National Geodetic Survey (NGS) control stations. These existing NSRS control stations were utilized as checks to ensure that quality x, y, and z coordinate values were computed for each of the newly established photogrammetric control stations. Recovery information sheets for the existing NGS control stations can be found in Section 4 of this report. A control diagram showing the ground control stations used to support this mapping project can be found in Section 5 of this report.

Accuracy Standards

The relative vertical accuracy of the LiDAR data will be 10 cm RMSEz with swath overlap (between adjacent swaths) and an absolute vertical accuracy of 15cm RMSE.

GPS Equipment

Woolpert utilized 2 Trimble Navigation R8 Model 3 GNSS dual-frequency GPS receivers, 2 Trimble Navigation R10 GNSS dual-frequency GPS receivers, and 2 TSC3 data collector for this project.

Methodology

Static GPS

The field crew utilized Static GPS surveying throughout the ground control data collection process. Using Static GPS techniques, observations were performed on a total of 31 Survey control points with each observation lasting at least 120 minutes. Each station was occupied twice to insure the necessary horizontal and vertical accuracies were being met for this project. Using Static GPS techniques, observations were performed on a total of 74 ground control points. The survey was conducted using a 1-second epoch rate, in a fixed solution, with each observation lasting at least 30 minutes.

Real-Time Kinematic (RTK) GPS

The field crew utilized Real-Time Kinematic (RTK) GPS surveying throughout the ground control data collection process. Using RTK GPS techniques, observations were performed on a total of 86 LiDAR control points, 122 NVA, and 87 VVA. The survey was conducted using a 1-second epoch rate, in a fixed solution RTK mode, with each observation lasting between 60 to 180 seconds. Each station was occupied twice to insure the necessary horizontal and vertical accuracies were being met for this LiDAR project.

GPS Data Analysis and Processing

The field crew chief processed all session baselines each day using Trimble Navigation's Trimble Business Center (TBC) Version 5.30 baseline processor with the accompanying broadcast ephemeris. Daily processing ensured the integrity of the network as it was constructed, and allowed the field crews to immediately reschedule observations of poor baselines.

Datum Reference and Final Coordinates

The spatial reference system for the Yellowstone National Park AOI is UTM 12N. The horizontal datum is NAD83 (2011) 2010.00 epoch. Orthometric heights referenced to Geoid 18. Units for both the horizontal and vertical datums will be expressed in Meters to three (3) decimal places.

Quality Assurance

Existing NGS published bench marks were surveyed to assure that there were no discrepancies in the field observation data. Close examinations of the residuals showed no distortions in orientation or scale. The ground control data meets positional accuracies necessary to support 1.0 point per 0.3 meters squared (1' GSD) data at 95% confidence level as outlined in the Geospatial Positioning Accuracy Standards, Part 3: National Standard for Spatial Data Accuracy (NSSDA), published by the Federal Geographic Data Committee (FGDC-STD-007.3-1998).

Section 2: Ground Control / Geodetic Control Coordinate Listings

Coordinate System: World wide/UTM
 HORIZONTAL DATUM: NAD 1983 2011
 PROJECTION: 12 North
 VERTICAL DATUM: NAVD88
 GEOID MODEL: GEOID18
 UNITS: METER

Ground Control

Point No.	UTM 12 North		Ortho Height GEOID 18 (m)	Description
	Northing (m)	Easting (m)		
1001_2020_MT	4996908.251	496518.316	2077.165	LCP
1002_2020_MT	5000646.833	501608.194	1940.280	LCP
1003_2020_MT	5004304.556	506616.944	1587.908	LCP
1003A_2020_MT	5004630.607	507241.497	1560.500	LCP
1004_2020_MT	5013047.267	510958.741	1517.869	LCP
1005_2020_MT	5018576.095	514929.215	1522.181	LCP
1006_2020_MT	5022494.507	519720.147	1498.594	LCP
1007_2020_MT	5028905.571	523840.220	1482.037	LCP
1008_2020_MT	5029154.374	527863.797	1474.590	LCP
1009_2020_MT	5034396.435	531696.311	1461.648	LCP
1010_2020_MT	5046158.759	537365.762	1594.904	LCP
1011_2020_MT	4993368.609	531834.201	2341.872	LCP
1012_2020_MT	5012881.630	540972.696	1922.938	LCP
1013_2020_MT	5012488.714	542136.291	2014.309	LCP
1014_2020_MT	5013593.277	558814.520	2033.879	LCP
1015_2020_MT	5018575.849	559933.537	1902.919	LCP
1017_2020_MT	5022159.984	560954.925	1879.927	LCP
1018_2020_MT	5037695.104	560965.018	1601.967	LCP
1019_2020_WY	4984334.243	589750.016	2403.636	LCP
1020_2020_WY	4990377.795	583313.998	2765.010	LCP

Point No.	UTM 12 North		Ortho Height GEOID 18 (m)	Description
	Northing (m)	Easting (m)		
1021_2020_WY	4990299.195	581631.344	2900.010	LCP
1022_2020_MT	5090963.539	501480.633	1987.428	LCP
1023_2020_MT	5088028.470	508217.137	1775.443	LCP
1024_2020_MT	5092821.759	513724.331	1645.354	LCP
1025_2020_MT	5093332.974	518341.763	1603.212	LCP
1026_2020_MT	5094023.902	524150.746	1561.788	LCP
1027_2020_MT	5088885.858	528021.154	1511.807	LCP
1028_2020_MT	5078059.037	532178.169	1453.646	LCP
1029_2020_MT	5072791.016	536229.339	1408.584	LCP
1030_2020_MT	5065662.842	539939.648	1357.564	LCP
1031_2020_MT	5061549.700	542448.175	1356.757	LCP
1032_2020_MT	5062356.539	546373.065	1330.200	LCP
1033_2020_MT	5061557.972	549432.967	1328.916	LCP
1034_2020_MT	5061212.267	551851.840	1317.792	LCP
1035_2020_MT	5060379.729	554234.941	1309.498	LCP
1036_2020_MT	5060225.235	556963.073	1303.283	LCP
1037_2020_MT	5064992.493	560464.419	1295.340	LCP
1038_2020_MT	5049494.964	533436.278	1389.482	LCP
1039_2020_WY	4949015.472	477932.267	2285.099	LCP
1040_2020_WY	4948155.509	482123.886	2013.475	LCP
1041_2020_WY	4959408.190	489660.657	2009.454	LCP
1042_2020_WY	4964166.100	493843.805	2081.773	LCP
1043_2020_WY	4944247.436	497592.391	2041.838	LCP
1044_2020_WY	4990316.604	485445.834	2020.457	LCP
1045_2020_WY	4988339.517	488996.104	2056.595	LCP
1046_2020_WY	4945353.971	500653.353	2053.566	LCP
1047_2020_WY	4945835.763	502459.099	2057.048	LCP
1048_2020_WY	4943949.895	504513.558	2059.525	LCP
1049_2020_WY	4943369.114	506767.778	2067.131	LCP
1050_2020_WY	4942941.963	509298.096	2073.014	LCP
1051_2020_WY	4943884.875	511947.195	2094.028	LCP
1052_2020_WY	4944096.586	513366.373	2090.472	LCP
1053_2020_WY	4944253.688	515308.634	2105.513	LCP

Point No.	UTM 12 North		Ortho Height GEOID 18 (m)	Description
	Northing (m)	Easting (m)		
1054_2020_WY	4943970.223	517909.126	2138.181	LCP
1055_2020_WY	4946028.853	520229.826	2211.504	LCP
1056_2020_WY	4951631.361	521990.832	2271.110	LCP
1057_2020_WY	4952627.105	524647.398	2283.719	LCP
1058_2020_WY	4951784.205	527196.867	2352.809	LCP
1059_2020_WY	4951143.948	529457.553	2382.959	LCP
1060_2020_WY	4950102.165	531965.882	2507.670	LCP
1061_2020_WY	4950362.349	533812.453	2501.561	LCP
1062_2020_WY	4951629.304	535670.609	2481.459	LCP
1063_2020_WY	4951960.379	536991.543	2484.591	LCP
1064_2020_WY	4954174.842	539714.939	2410.457	LCP
1069_2020_WY	4973013.426	550847.525	1896.781	LCP
1070_2020_WY	4973647.694	553318.594	1887.035	LCP
1071_2020_WY	4974097.579	555802.796	1971.807	LCP
1072_2020_WY	4973435.121	558515.535	2022.578	LCP
1072A_2020_WY	4972952.257	559085.210	2023.235	LCP
1073_2020_WY	4970693.385	561343.202	2007.637	LCP
1074_2020_WY	4968924.359	564205.966	2008.650	LCP
1075_2020_WY	4969592.001	566804.956	2028.760	LCP
1076_2020_WY	4972126.588	569247.556	2062.313	LCP
1077_2020_WY	4974641.407	571396.728	2109.564	LCP
1078_2020_WY	4980176.474	573535.394	2204.404	LCP
1079_2020_WY	4983989.331	576078.649	2224.460	LCP
1080_2020_WY	4983819.869	578683.594	2246.623	LCP
1081_2020_WY	4985248.743	581306.694	2274.696	LCP
1082_2020_WY	4931900.671	514825.712	2218.112	LCP
1083_2020_WY	4878527.720	496306.246	1964.621	LCP
1084_2020_WY	4879589.121	498305.298	1974.081	LCP
1085_2020_WY	4880738.887	501412.382	1960.524	LCP
1086_2020_WY	4883619.582	504307.808	1972.985	LCP
1087_2020_WY	4884880.497	506384.896	2101.500	LCP
1088_2020_WY	4886506.929	510045.928	2224.766	LCP
1089_2020_WY	4923237.650	512394.033	2237.641	LCP

Point No.	UTM 12 North		Ortho Height GEOID 18 (m)	Description
	Northing (m)	Easting (m)		
1090_2020_WY	4921983.058	515062.155	2298.886	LCP
1091_2020_WY	4919650.514	518587.581	2416.163	LCP
1092_2020_WY	4920203.012	521108.889	2457.667	LCP
1093_2020_WY	4921487.000	522785.490	2478.770	LCP
1094_2020_WY	4920132.896	528553.671	2559.436	LCP
1095_2020_WY	4919874.896	525889.052	2559.462	LCP
1096_2020_WY	4918458.670	531789.246	2498.410	LCP
1097_2020_WY	4911766.660	533311.872	2435.205	LCP
1098_2020_WY	4914837.440	533962.830	2414.306	LCP
1099_2020_WY	4923131.802	535340.851	2366.197	LCP
1100_2020_WY	4924593.477	537668.941	2364.627	LCP
1101_2020_WY	4923940.369	542416.304	2366.110	LCP
1102_2020_WY	4927362.661	546093.446	2374.308	LCP
1103_2020_WY	4933113.307	547921.957	2368.924	LCP
1104_2020_WY	4932970.101	555919.070	2361.136	LCP
1105_2020_WY	4928334.954	557563.688	2388.998	LCP
1106_2020_WY	4927985.747	561088.828	2559.935	LCP
1107_2020_WY	4926669.494	563792.472	2624.690	LCP
1108_2020_WY	4924715.173	567559.402	2578.168	LCP
1109_2020_WY	4923255.310	570573.986	2528.842	LCP
1110_2020_WY	4923989.095	572884.692	2390.251	LCP
1111_2020_WY	4924986.331	575249.347	2258.079	LCP
1112_2020_WY	4925523.189	576690.300	2181.592	LCP
1113_2020_WY	4926579.676	579065.214	2120.435	LCP
1114_2020_WY	4927622.029	581186.506	2083.798	LCP
1115_2020_WY	4989954.279	518611.840	1594.869	LCP
1116_2020_WY	4985653.686	583925.860	2308.960	LCP
1117_2020_WY	4986474.451	586476.604	2444.502	LCP
1118_2020_WY	4984560.186	589473.344	2423.760	LCP
1119_2020_WY	4980234.496	592372.092	2138.123	LCP
1120_2020_WY	4978495.630	594886.515	2107.727	LCP
2001_2020_WY	4986968.581	587733.452	2453.172	NVA
2002_2020_MT	5112934.653	539051.366	1832.600	NVA

Point No.	UTM 12 North		Ortho Height GEOID 18 (m)	Description
	Northing (m)	Easting (m)		
2003_2020_MT	5050405.261	556380.223	1779.072	NVA
2004_2020_MT	5069268.162	540241.499	1418.050	NVA
2005_2020_MT	5038777.614	528613.200	1453.619	NVA
2006_2020_MT	5092875.368	543224.121	2020.081	NVA
2007_2020_MT	5096353.665	521582.678	1586.483	NVA
2008_2020_WY	4968943.389	496382.720	2149.103	NVA
2009_2020_MT	5031475.033	523295.873	1544.102	NVA
2010_2020_MT	5107406.771	539282.374	1832.127	NVA
2011_2020_WY	4974935.741	521153.084	2218.188	NVA
2012_2020_MT	5106500.930	520907.018	1622.902	NVA
2013_2020_WY	4982296.368	574387.098	2198.109	NVA
2014_2020_MT	5089030.249	537283.341	1758.724	NVA
2015_2020_MT	5021372.340	520726.606	1498.997	NVA
2016_2020_MT	5094892.777	544656.553	2024.370	NVA
2017_2020_MT	5084963.459	544826.936	1822.404	NVA
2018_2020_MT	5060749.564	532880.721	1468.980	NVA
2019_2020_MT	5056253.603	540527.187	1448.138	NVA
2020_2020_MT	5065715.778	520951.858	2175.096	NVA
2021_2020_MT	5069245.790	527440.481	1594.210	NVA
2022_2020_MT	5025227.777	524939.788	1526.023	NVA
2023_2020_MT	5099928.757	536329.417	1727.420	NVA
2024_2020_MT	5074293.127	513458.179	2158.959	NVA
2025_2020_WY	4939718.963	547651.049	2359.767	NVA
2026_2020_MT	5017556.075	518733.440	1533.145	NVA
2027_2020_WY	4942036.487	544500.617	2365.998	NVA
2028_2020_MT	5037238.400	519031.578	1833.359	NVA
2029A_2020_MT	5003246.157	504490.151	1747.811	NVA
2030_2020_MT	5113064.827	520703.353	1633.890	NVA
2031_2020_MT	5072717.414	515180.747	2210.885	NVA
2032_2020_MT	5073483.827	527683.866	1575.852	NVA
2033_2020_MT	5116472.401	536664.727	1825.223	NVA
2034_2020_MT	5081216.051	529990.243	1467.990	NVA
2035_2020_MT	5078510.505	511584.692	1719.237	NVA

Point No.	UTM 12 North		Ortho Height GEOID 18 (m)	Description
	Northing (m)	Easting (m)		
2036_2020_WY	4986482.960	522662.079	1607.989	NVA
2037_2020_MT	5073693.102	538397.213	1436.364	NVA
2038_2020_WY	4977428.108	495326.159	2175.432	NVA
2039_2020_MT	5056462.710	520259.128	1582.592	NVA
2040_2020_MT	5044454.809	519810.736	1702.915	NVA
2041_2020_MT	5060707.433	525454.200	1603.972	NVA
2042_2020_MT	5118596.583	536882.249	1879.860	NVA
2043_2020_MT	5056915.219	537035.712	1414.000	NVA
2044_2020_MT	5113207.578	547079.601	2088.567	NVA
2045_2020_MT	4995472.416	511334.579	1827.004	NVA
2046_2020_WY	4975907.429	554242.539	1896.801	NVA
2047_2020_MT	5074536.884	534425.366	1418.841	NVA
2048_2020_WY	4884919.203	507075.241	2129.657	NVA
2049_2020_MT	5055328.518	530186.681	1407.675	NVA
2050_2020_MT	5078324.896	509211.931	1766.526	NVA
2051_2020_WY	4977282.938	554548.084	1909.803	NVA
2052_2020_MT	5072485.809	543456.386	1487.496	NVA
2053_2020_WY	4951638.423	536111.632	2481.632	NVA
2054_2020_WY	4983938.338	524081.103	1666.159	NVA
2055_2020_MT	5076903.775	507624.690	1899.447	NVA
2056_2020_MT	5018694.102	515946.757	1508.040	NVA
2057_2020_MT	5090834.676	537637.986	1772.772	NVA
2058_2020_WY	4952494.079	487953.723	1999.191	NVA
2059_2020_MT	5088038.124	510735.110	1740.233	NVA
2060_2020_MT	5010149.405	510273.985	1524.122	NVA
2061_2020_MT	5115488.157	520564.451	1646.799	NVA
2062_2020_MT	5088818.903	540701.029	1812.894	NVA
2063_2020_MT	5083827.089	529799.474	1478.276	NVA
2064_2020_WY	4931341.997	544536.759	2364.333	NVA
2065_2020_MT	5014824.138	537990.530	1796.897	NVA
2066_2020_MT	5050536.178	554071.677	1872.241	NVA
2067_2020_MT	5081624.584	531085.710	1491.861	NVA
2068_2020_WY	4949989.449	491903.744	2004.488	NVA

Point No.	UTM 12 North		Ortho Height GEOID 18 (m)	Description
	Northing (m)	Easting (m)		
2069_2020_MT	5056896.389	534540.405	1370.197	NVA
2070_2020_MT	5097698.821	516128.537	1665.470	NVA
2071_2020_MT	5085555.433	538856.503	1665.785	NVA
2072A_2020_MT	5015661.037	559466.319	1949.393	NVA
2073_2020_MT	5042828.306	534474.422	1480.857	NVA
2074_2020_MT	5045220.280	525608.983	1567.242	NVA
2075_2020_MT	5033454.874	529048.828	1461.406	NVA
2076_2020_MT	5022996.455	522078.888	1511.936	NVA
2076A_2020_MT	5022025.028	530532.109	1598.806	NVA
2077_2020_MT	5006521.631	506301.298	1695.423	NVA
2078_2020_MT	5015773.605	512955.222	1503.941	NVA
2079_2020_MT	5090764.660	542546.313	1943.766	NVA
2080_2020_MT	5113063.317	536684.874	1790.322	NVA
2081_2020_MT	5054884.560	533287.130	1380.397	NVA
2082_2020_MT	5001659.106	511403.789	1538.427	NVA
2083_2020_MT	5007311.846	501172.171	2064.573	NVA
2084_2020_MT	5024708.622	528661.061	1558.193	NVA
2085_2020_MT	5082508.302	527017.833	1521.871	NVA
2086_2020_MT	5106552.442	533776.181	1676.273	NVA
2087_2020_MT	5096349.835	521585.479	1586.535	NVA
2088_2020_MT	5062856.500	518857.167	2121.349	NVA
2089_2020_MT	5052387.678	520014.717	1752.245	NVA
2090_2020_MT	5081112.353	528388.418	1523.311	NVA
2091_2020_MT	5096877.242	515576.431	1675.773	NVA
2092_2020_MT	5052933.261	548311.524	1619.174	NVA
2093_2020_MT	5056491.896	523311.729	1528.141	NVA
2094_2020_MT	5079433.563	527547.230	1507.871	NVA
2095_2020_MT	5076177.943	532589.560	1435.797	NVA
2096_2020_WY	4929742.416	545496.271	2405.890	NVA
2097_2020_MT	5117970.358	536054.382	1868.858	NVA
2098_2020_MT	5074791.958	533410.357	1437.046	NVA
2099_2020_WY	4903638.749	529728.307	2379.143	NVA
2100_2020_MT	5072299.733	539672.281	1437.678	NVA

Point No.	UTM 12 North		Ortho Height GEOID 18 (m)	Description
	Northing (m)	Easting (m)		
2101_2020_WY	4940365.892	511537.332	2167.586	NVA
2102_2020_MT	5036588.953	533314.956	1467.903	NVA
2103_2020_MT	5090459.693	511992.752	1672.003	NVA
2104_2020_WY	4964551.427	521376.936	2244.489	NVA
2105_2020_WY	4954912.509	484830.241	2003.967	NVA
2106_2020_MT	5019316.992	518754.002	1505.304	NVA
2107_2020_MT	5026306.436	522203.425	1483.730	NVA
2108_2020_MT	5056762.747	520302.321	1605.863	NVA
2109A_2020_MT	5028085.223	563131.976	1707.669	NVA
2110_2020_MT	5003246.623	500909.413	2157.653	NVA
2111_2020_MT	5061447.624	550628.729	1324.478	NVA
2112_2020_MT	5021581.930	523057.672	1583.793	NVA
2113_2020_WY	4922492.718	540190.597	2367.629	NVA
2114_2020_MT	5096063.544	524138.704	1565.745	NVA
2115_2020_MT	5112256.690	546259.817	2046.725	NVA
2116_2020_MT	5030115.090	529330.295	1472.077	NVA
2117_2020_MT	5018358.708	518758.626	1518.286	NVA
2118_2020_MT	5081568.559	536056.407	1552.337	NVA
2119_2020_WY	4991323.789	517343.398	1585.263	NVA
2120_2020_MT	5095726.548	536436.270	1709.117	NVA
2121_2020_MT	5024085.080	519166.053	1546.601	NVA
2122_2020_MT	5055694.505	548011.466	1493.604	NVA
2123_2020_MT	5093830.350	543721.668	2096.224	NVA
2124_2020_MT	5002192.589	501375.590	1966.992	NVA
2125_2020_WY	4989437.077	585331.746	2696.889	NVA
2126_2020_MT	5032975.621	530781.073	1460.795	NVA
2127_2020_MT	5080312.068	519389.289	1595.335	NVA
2127A_2020_MT	5080346.587	518290.608	1611.775	NVA
2128_2020_WY	4986601.398	586718.929	2448.366	NVA
2129_2020_MT	5008748.721	508808.600	1526.637	NVA
2130_2020_MT	5054253.589	528762.095	1497.890	NVA
2131_2020_MT	5089626.664	539260.398	1826.730	NVA
2132_2020_MT	5092639.397	543608.703	1970.785	NVA

Point No.	UTM 12 North		Ortho Height GEOID 18 (m)	Description
	Northing (m)	Easting (m)		
2133_2020_MT	5084723.020	550045.842	2023.078	NVA
2134_2020_MT	5051035.064	559169.191	1639.469	NVA
2135_2020_MT	5046138.879	515431.047	1784.714	NVA
2136_2020_MT	5020240.066	518005.582	1493.613	NVA
2137_2020_MT	5073431.523	528323.468	1558.767	NVA
2138A_2020_MT	5000915.182	502883.959	1922.844	NVA
2139_2020_WY	4978797.593	522791.538	2043.198	NVA
2140_2020_MT	4995501.145	516507.130	1566.161	NVA
2141_2020_MT	5063845.538	558966.342	1289.031	NVA
2142_2020_MT	5072557.001	535601.731	1422.891	NVA
3001_2020_MT	5093101.324	537186.167	1692.409	VVA
3002_2020_MT	5083903.796	544167.786	1766.631	VVA
3003_2020_WY	4931395.263	515231.738	2226.449	VVA
3004_2020_MT	5065716.731	520953.911	2175.038	VVA
3005_2020_MT	5054690.694	534832.588	1394.236	VVA
3006_2020_WY	4985372.237	523863.735	1631.032	VVA
3007_2020_MT	5082694.307	543730.852	1783.553	VVA
3008_2020_MT	5085439.647	550050.466	2009.918	VVA
3009_2020_WY	4985515.829	492434.966	2091.437	VVA
3010_2020_MT	5014971.441	512311.582	1503.249	VVA
3011_2020_MT	5052213.111	531145.026	1446.782	VVA
3012_2020_MT	5052851.370	527669.690	1591.240	VVA
3013_2020_MT	5091164.104	521087.590	1610.676	VVA
3014_2020_WY	4977495.796	554585.079	1906.661	VVA
3015_2020_MT	5001053.687	512993.438	1548.802	VVA
3016_2020_MT	5080104.696	542096.206	1698.477	VVA
3017_2020_MT	5102762.729	515363.003	1788.480	VVA
3018_2020_WY	4953490.085	491317.606	2012.077	VVA
3019_2020_WY	4953478.767	481672.378	1996.905	VVA
3020_2020_MT	5118638.457	536813.776	1879.769	VVA
3021_2020_MT	5037237.393	519073.917	1839.269	VVA
3022_2020_MT	5071268.367	539167.575	1403.240	VVA
3023_2020_MT	4997791.904	498447.827	2028.823	VVA

Point No.	UTM 12 North		Ortho Height GEOID 18 (m)	Description
	Northing (m)	Easting (m)		
3024_2020_MT	5104118.468	521651.332	1628.517	VVA
3025_2020_WY	4986275.694	583320.244	2535.577	VVA
3026_2020_MT	5112922.732	539046.367	1832.436	VVA
3027_2020_MT	4993215.652	525875.637	2569.872	VVA
3028_2020_MT	5086447.219	542122.559	1803.056	VVA
3029_2020_MT	5015725.353	513341.709	1505.660	VVA
3030_2020_MT	4995247.937	514201.327	1677.269	VVA
3031_2020_MT	5019096.536	513122.071	1590.268	VVA
3032_2020_MT	5097624.631	513025.785	1719.113	VVA
3033_2020_WY	4938357.251	513387.590	2181.552	VVA
3034_2020_MT	5080739.873	544107.962	1758.007	VVA
3035_2020_MT	5065884.884	520949.737	2178.474	VVA
3036_2020_WY	4954977.954	479089.624	2004.979	VVA
3037_2020_MT	5114605.021	545898.988	1941.754	VVA
3038_2020_MT	5044771.825	519168.271	1699.251	VVA
3039_2020_MT	5017269.200	507815.241	1709.969	VVA
3040_2020_MT	5022260.360	518283.369	1536.527	VVA
3041_2020_MT	5118438.681	536027.749	1871.668	VVA
3042_2020_MT	5017039.177	505390.835	1746.480	VVA
3043_2020_MT	5073413.345	517375.394	2103.838	VVA
3044_2020_MT	5072425.719	516942.519	2206.632	VVA
3045_2020_MT	5016630.938	512601.533	1521.617	VVA
3046_2020_MT	5110524.099	543461.992	2082.644	VVA
3047_2020_MT	5096025.407	527966.019	1548.580	VVA
3048_2020_MT	5063676.146	518442.002	1921.133	VVA
3049_2020_MT	5012514.795	542156.938	2017.328	VVA
3050_2020_MT	5017208.470	506650.421	1720.857	VVA
3051_2020_MT	5017091.067	509746.298	1607.283	VVA
3052_2020_WY	4955668.826	492272.112	2008.791	VVA
3053_2020_MT	5092274.387	537193.802	1663.325	VVA
3054_2020_MT	5053597.278	520538.336	1640.639	VVA
3055_2020_MT	5073907.897	514012.430	2082.159	VVA
3056_2020_MT	5080676.534	509014.794	1928.478	VVA

Point No.	UTM 12 North		Ortho Height GEOID 18 (m)	Description
	Northing (m)	Easting (m)		
3057_2020_MT	5118055.315	538213.800	1932.834	VVA
3058_2020_MT	5112190.187	543280.514	1951.177	VVA
3059_2020_MT	5096338.131	538774.320	1806.826	VVA
3060_2020_MT	5079005.801	508624.793	1796.358	VVA
3061_2020_MT	5042664.193	534799.818	1482.408	VVA
3062_2020_MT	5007303.850	500148.493	2080.791	VVA
3063_2020_MT	5082071.518	508668.453	1859.515	VVA
3064_2020_MT	5089510.759	506632.870	1832.403	VVA
3065_2020_MT	5086393.487	510626.023	1743.014	VVA
3066_2020_MT	5069433.728	526581.746	1654.496	VVA
3067_2020_MT	5059128.847	516596.225	1877.437	VVA
3068_2020_MT	5112597.989	534866.186	1761.909	VVA
3069_2020_MT	5068645.590	537614.599	1422.710	VVA
3070_2020_MT	5080285.535	518885.493	1611.778	VVA
3070A_2020_MT	5080283.914	518874.446	1612.232	VVA
3071_2020_MT	5047329.623	516249.275	1813.570	VVA
3072_2020_MT	5064432.148	535832.686	1484.941	VVA
3073_2020_MT	5036598.128	529691.681	1439.002	VVA
3074_2020_MT	5067272.389	536526.861	1417.815	VVA
3075_2020_MT	5088000.838	538221.069	1729.524	VVA
3076_2020_MT	5079949.957	522242.344	1556.384	VVA
3077_2020_MT	5113082.820	531127.281	1729.233	VVA
3078_2020_MT	5073202.567	535029.724	1431.933	VVA
3079_2020_MT	5079951.737	523655.444	1533.796	VVA
3080_2020_MT	5113038.912	541686.884	1885.992	VVA
3081_2020_MT	5080330.809	518086.080	1606.445	VVA
3081A_2020_MT	5080302.016	519492.651	1592.220	VVA
3082_2020_MT	5008431.362	509662.532	1525.602	VVA
3083_2020_MT	5086333.224	525951.340	1537.089	VVA
3084_2020_MT	5099851.853	530370.806	1597.842	VVA
3085_2020_MT	5081128.794	542088.453	1729.330	VVA
3086_2020_MT	5031310.528	527411.572	1498.928	VVA
3087_2020_WY	4953465.186	476846.796	2432.757	VVA

Point No.	UTM 12 North		Ortho Height GEOID 18 (m)	Description
	Northing (m)	Easting (m)		
3088_2020_MT	5054479.654	528903.362	1492.000	VVA
3089_2020_MT	5056752.000	531369.908	1413.688	VVA
3090_2020_MT	5075146.867	536477.594	1453.590	VVA
3091_2020_MT	5088073.010	513970.372	1733.382	VVA
3092_2020_MT	5022534.557	523588.488	1551.670	VVA
3093_2020_MT	5029329.754	523001.054	1509.029	VVA
3094_2020_MT	5056379.952	519867.825	1581.024	VVA
3095_2020_MT	5028416.223	528732.236	1517.743	VVA
3096_2020_MT	5018841.370	513640.936	1538.871	VVA
3096A_2020_MT	5018999.334	511409.070	1717.999	VVA
3097_2020_MT	5080771.441	513166.784	1788.735	VVA
3098_2020_MT	5055385.038	536893.358	1461.648	VVA
3099_2020_MT	4995258.957	509943.346	1912.632	VVA
3100_2020_MT	5094528.807	512938.327	1673.524	VVA
3101_2020_MT	5086313.639	527883.025	1518.025	VVA

Geodetic Control

Point No.	UTM 12 North		Ortho Height GEOID 18 (m)	Description
	Northing (m)	Easting (m)		
9 MDC	4917000.570	534275.619	2374.925	PY0803
10 12	4952634.977	524673.697	2283.324	PY0955
10 26	4953678.919	539299.510	2405.516	PY0971
150_2020_WY	4886203.900	512196.794	2222.839	TSM
151_2020_WY	4917944.699	533584.072	2379.013	TSM
152_2020_WY	4922768.120	513354.219	2241.536	TSM
153_2020_WY	4942190.403	511324.737	2131.202	TSM
154_2020_WY	4951605.688	521922.217	2270.563	TSM
155_2020_WY	4953663.432	539291.352	2405.373	TSM
156_2020_WY	4934264.319	553816.821	2378.398	TSM
157_2020_WY	4924317.349	574178.936	2314.753	TSM
158_2020_MT	5056451.552	520211.418	1583.209	TSM
160_2020_MT	5062046.609	546437.276	1350.409	TSM
161_2020_MT	5081589.928	538879.741	1620.201	TSM
162_2020_MT	5103595.484	533767.751	1650.122	TSM
165_2020_MT	5010393.118	510308.763	1520.403	TSM
166_2020_MT	5078842.138	514359.208	1701.790	TSM
201_2020_MT	5093515.577	519322.582	1597.785	TSM
250_2020_WY	4958698.366	491003.163	2009.924	TSM
251_2020_WY	4973750.788	557348.617	1992.926	TSM
252_2020_WY	4983945.716	576190.643	2217.290	TSM
253_2020_WY	4986908.648	586418.742	2475.052	TSM
254_2020_MT	4995392.355	516555.407	1566.090	TSM
255_2020_MT	5001949.915	503457.353	1847.104	TSM
256_2020_MT	5036919.857	529492.037	1458.009	TSM
257_2020_MT	5022719.377	529850.194	1597.686	TSM
258_2020_MT	5021875.139	560753.887	1884.604	TSM
259_2020_MT	5050551.342	554054.745	1871.775	TSM
A 162	4994330.276	516741.976	1582.494	QX0098
C 157	4979670.046	523504.953	1937.300	PY0138
E 128 RESET	5072775.150	536217.319	1408.640	AA9696

Point No.	UTM 12 North		Ortho Height GEOID 18 (m)	Description
	Northing (m)	Easting (m)		
GRSL AZ MK	4886514.860	514636.488	2201.013	PY1285
HARLEQUIN	4942924.799	508830.250	2072.701	PY0952
K 12	4925366.001	566888.320	2566.058	PY0036
LAKE ASTRO STATION	4933662.426	548042.987	2367.655	PY0011
MEERTENS 2	4922323.865	514385.532	2255.705	PY0802
PRAY	5030736.130	527265.813	1481.609	QX0055
R 161	4978943.037	494069.374	2153.825	PY0164
W 2	5056804.540	520295.853	1608.176	QX0138
X 155	5015202.015	512538.464	1503.255	QX0077
X 558	5058726.111	537351.543	1356.641	QX0522
Y 368	4981084.986	573883.277	2204.758	PY1076
Y 565	5005151.564	507915.049	1535.792	QX0565
Z 161	4960232.453	491734.341	2075.535	PY0192

Coordinate System: Geodetic
HORIZONTAL DATUM: NAD 1983 (Conus)
Epoch: 2010.00
Ellipsoid: NAVD88
UNITS: Meter

Ground Control

Point No.	Geodetic Coordinates: NAD 1983 2011		Ellipsoid Height (m)	Description
	Latitude (N)	Longitude (W)		
1001_2020_MT	N45°07'32.29531"	W111°02'39.37953"	2068.398	LCP
1002_2020_MT	N45°09'33.47256"	W110°58'46.33908"	1931.486	LCP
1003_2020_MT	N45°11'31.89927"	W110°54'56.74620"	1578.969	LCP
1003A_2020_MT	N45°11'42.44311"	W110°54'28.10600"	1551.537	LCP
1004_2020_MT	N45°16'15.01646"	W110°51'37.06897"	1508.562	LCP
1005_2020_MT	N45°19'13.91530"	W110°48'34.25279"	1512.659	LCP
1006_2020_MT	N45°21'20.46436"	W110°44'53.62913"	1488.947	LCP
1007_2020_MT	N45°24'47.74932"	W110°41'43.15076"	1472.271	LCP
1008_2020_MT	N45°24'55.27606"	W110°38'37.98528"	1464.914	LCP
1009_2020_MT	N45°27'44.55030"	W110°35'40.43928"	1452.067	LCP
1010_2020_MT	N45°34'04.67387"	W110°31'16.14977"	1585.196	LCP
1011_2020_MT	N45°05'35.03986"	W110°35'43.56817"	2333.429	LCP
1012_2020_MT	N45°16'05.65725"	W110°28'39.72009"	1914.407	LCP
1013_2020_MT	N45°15'52.67756"	W110°27'46.44389"	2005.821	LCP
1014_2020_MT	N45°16'24.15721"	W110°15'00.69622"	2025.794	LCP
1015_2020_MT	N45°19'05.26398"	W110°14'07.17420"	1894.755	LCP
1017_2020_MT	N45°21'01.08053"	W110°13'18.67471"	1871.649	LCP
1018_2020_MT	N45°29'24.43921"	W110°13'11.28646"	1593.174	LCP
1019_2020_WY	N45°00'24.40236"	W109°51'40.05817"	2396.182	LCP
1020_2020_WY	N45°03'43.04736"	W109°56'30.40738"	2757.585	LCP
1021_2020_WY	N45°03'41.20628"	W109°57'47.38122"	2892.549	LCP
1022_2020_MT	N45°58'20.07009"	W110°58'51.19649"	1976.514	LCP
1023_2020_MT	N45°56'44.79827"	W110°53'38.33969"	1764.581	LCP
1024_2020_MT	N45°59'19.79011"	W110°49'22.05374"	1634.406	LCP

Point No.	Geodetic Coordinates: NAD 1983 2011		Ellipsoid Height (m)	Description
	Latitude (N)	Longitude (W)		
1025_2020_MT	N45°59'35.96523"	W110°45'47.35323"	1592.211	LCP
1026_2020_MT	N45°59'57.70359"	W110°41'17.19100"	1550.775	LCP
1027_2020_MT	N45°57'10.69681"	W110°38'18.33647"	1500.816	LCP
1028_2020_MT	N45°51'19.24142"	W110°35'07.84883"	1442.707	LCP
1029_2020_MT	N45°48'27.82730"	W110°32'01.42179"	1397.687	LCP
1030_2020_MT	N45°44'36.12840"	W110°29'11.64311"	1346.787	LCP
1031_2020_MT	N45°42'22.31904"	W110°27'16.85393"	1346.130	LCP
1032_2020_MT	N45°42'47.55513"	W110°24'15.06710"	1319.555	LCP
1033_2020_MT	N45°42'20.91843"	W110°21'53.83640"	1318.321	LCP
1034_2020_MT	N45°42'09.08033"	W110°20'02.10942"	1307.223	LCP
1035_2020_MT	N45°41'41.44839"	W110°18'12.24585"	1298.983	LCP
1036_2020_MT	N45°41'35.65429"	W110°16'06.17594"	1292.784	LCP
1037_2020_MT	N45°44'09.04436"	W110°13'22.15707"	1284.548	LCP
1038_2020_MT	N45°35'53.49588"	W110°34'16.60650"	1379.446	LCP
1039_2020_WY	N44°41'39.02081"	W111°16'42.65535"	2276.374	LCP
1040_2020_WY	N44°41'11.57106"	W111°13'32.10107"	2004.660	LCP
1041_2020_WY	N44°47'16.78561"	W111°07'50.53214"	2000.779	LCP
1042_2020_WY	N44°49'51.15370"	W111°04'40.36932"	2073.335	LCP
1043_2020_WY	N44°39'05.70250"	W111°01'49.31050"	2032.921	LCP
1044_2020_WY	N45°03'58.17604"	W111°11'05.54847"	2011.819	LCP
1045_2020_WY	N45°02'54.33629"	W111°08'23.04244"	2048.056	LCP
1046_2020_WY	N44°39'41.57755"	W110°59'30.33131"	2044.691	LCP
1047_2020_WY	N44°39'57.17777"	W110°58'08.32429"	2048.208	LCP
1048_2020_WY	N44°38'56.02299"	W110°56'35.08449"	2050.671	LCP
1049_2020_WY	N44°38'37.13677"	W110°54'52.77056"	2058.283	LCP
1050_2020_WY	N44°38'23.19139"	W110°52'57.93258"	2064.153	LCP
1051_2020_WY	N44°38'53.60906"	W110°50'57.60361"	2085.186	LCP
1052_2020_WY	N44°39'00.38029"	W110°49'53.15409"	2081.638	LCP
1053_2020_WY	N44°39'05.33217"	W110°48'24.95716"	2096.691	LCP
1054_2020_WY	N44°38'55.92892"	W110°46'26.92610"	2129.379	LCP
1055_2020_WY	N44°40'02.42432"	W110°44'41.27477"	2202.787	LCP
1056_2020_WY	N44°43'03.80563"	W110°43'20.43349"	2262.495	LCP
1057_2020_WY	N44°43'35.76446"	W110°41'19.51119"	2275.155	LCP

Point No.	Geodetic Coordinates: NAD 1983 2011		Ellipsoid Height (m)	Description
	Latitude (N)	Longitude (W)		
1058_2020_WY	N44°43'08.11563"	W110°39'23.77404"	2344.262	LCP
1059_2020_WY	N44°42'47.04446"	W110°37'41.15016"	2374.420	LCP
1060_2020_WY	N44°42'12.89551"	W110°35'47.38355"	2499.126	LCP
1061_2020_WY	N44°42'21.02246"	W110°34'23.41063"	2493.020	LCP
1062_2020_WY	N44°43'01.75713"	W110°32'58.65187"	2472.935	LCP
1063_2020_WY	N44°43'12.24531"	W110°31'58.52662"	2476.061	LCP
1064_2020_WY	N44°44'23.48501"	W110°29'54.11735"	2401.937	LCP
1069_2020_WY	N44°54'31.43120"	W110°21'21.14613"	1888.381	LCP
1070_2020_WY	N44°54'51.33378"	W110°19'28.22225"	1878.719	LCP
1071_2020_WY	N44°55'05.22654"	W110°17'34.75134"	1963.584	LCP
1072_2020_WY	N44°54'42.97522"	W110°15'31.30541"	2014.416	LCP
1072A_2020_WY	N44°54'27.15872"	W110°15'05.52977"	2015.072	LCP
1073_2020_WY	N44°53'13.27329"	W110°13'23.55329"	1999.476	LCP
1074_2020_WY	N44°52'15.04080"	W110°11'13.86881"	2000.523	LCP
1075_2020_WY	N44°52'35.81512"	W110°09'15.11787"	2020.725	LCP
1076_2020_WY	N44°53'57.10578"	W110°07'22.55219"	2054.394	LCP
1077_2020_WY	N44°55'17.83025"	W110°05'43.29133"	2101.722	LCP
1078_2020_WY	N44°58'16.39848"	W110°04'02.84751"	2196.639	LCP
1079_2020_WY	N45°00'18.97979"	W110°02'04.68176"	2216.762	LCP
1080_2020_WY	N45°00'12.46585"	W110°00'05.79945"	2238.984	LCP
1081_2020_WY	N45°00'57.69882"	W109°58'05.16629"	2267.133	LCP
1082_2020_WY	N44°32'25.01889"	W110°48'48.16528"	2209.183	LCP
1083_2020_WY	N44°03'35.66752"	W111°02'46.02510"	1955.114	LCP
1084_2020_WY	N44°04'10.09641"	W111°01'16.18494"	1964.653	LCP
1085_2020_WY	N44°04'47.36502"	W110°58'56.49561"	1951.236	LCP
1086_2020_WY	N44°06'20.69364"	W110°56'46.22510"	1963.849	LCP
1087_2020_WY	N44°07'01.50776"	W110°55'12.73812"	2092.467	LCP
1088_2020_WY	N44°07'54.07542"	W110°52'27.91386"	2215.869	LCP
1089_2020_WY	N44°27'44.41862"	W110°50'39.10585"	2228.709	LCP
1090_2020_WY	N44°27'03.57506"	W110°48'38.49148"	2289.995	LCP
1091_2020_WY	N44°25'47.68230"	W110°45'59.28097"	2407.346	LCP
1092_2020_WY	N44°26'05.33969"	W110°44'05.16202"	2448.880	LCP
1093_2020_WY	N44°26'46.77030"	W110°42'49.12045"	2469.988	LCP

Point No.	Geodetic Coordinates: NAD 1983 2011		Ellipsoid Height (m)	Description
	Latitude (N)	Longitude (W)		
1094_2020_WY	N44°26'02.14741"	W110°38'28.42490"	2550.738	LCP
1095_2020_WY	N44°25'54.14662"	W110°40'28.99859"	2550.731	LCP
1096_2020_WY	N44°25'07.40097"	W110°36'02.44218"	2489.744	LCP
1097_2020_WY	N44°21'30.26941"	W110°34'55.13294"	2426.632	LCP
1098_2020_WY	N44°23'09.68353"	W110°34'25.00471"	2405.703	LCP
1099_2020_WY	N44°27'38.26037"	W110°33'20.69053"	2357.519	LCP
1100_2020_WY	N44°28'25.20835"	W110°31'34.95595"	2355.969	LCP
1101_2020_WY	N44°28'03.09487"	W110°28'00.27318"	2357.502	LCP
1102_2020_WY	N44°29'53.19464"	W110°25'12.75867"	2365.718	LCP
1103_2020_WY	N44°32'59.13209"	W110°23'48.04030"	2360.334	LCP
1104_2020_WY	N44°32'52.41691"	W110°17'45.66956"	2352.748	LCP
1105_2020_WY	N44°30'21.73937"	W110°16'33.00089"	2380.801	LCP
1106_2020_WY	N44°30'09.37950"	W110°13'53.51354"	2551.947	LCP
1107_2020_WY	N44°29'25.88221"	W110°11'51.67222"	2616.844	LCP
1108_2020_WY	N44°28'21.31646"	W110°09'02.05444"	2570.473	LCP
1109_2020_WY	N44°27'32.97066"	W110°06'46.33769"	2521.202	LCP
1110_2020_WY	N44°27'55.92419"	W110°05'01.41321"	2382.609	LCP
1111_2020_WY	N44°28'27.36776"	W110°03'13.88677"	2250.449	LCP
1112_2020_WY	N44°28'44.21939"	W110°02'08.38555"	2173.964	LCP
1113_2020_WY	N44°29'17.53316"	W110°00'20.31230"	2112.803	LCP
1114_2020_WY	N44°29'50.46298"	W109°58'43.69607"	2076.144	LCP
1115_2020_WY	N45°03'46.09218"	W110°45'48.94767"	1586.071	LCP
1116_2020_WY	N45°01'09.72089"	W109°56'05.27592"	2301.458	LCP
1117_2020_WY	N45°01'35.21090"	W109°54'08.24072"	2437.058	LCP
1118_2020_WY	N45°00'31.84886"	W109°51'52.54991"	2416.309	LCP
1119_2020_WY	N44°58'10.35785"	W109°49'43.00846"	2130.570	LCP
1120_2020_WY	N44°57'12.82530"	W109°47'49.42209"	2100.129	LCP
2001_2020_WY	N45°01'50.66501"	W109°53'10.50624"	2445.739	NVA
2002_2020_MT	N46°10'07.92886"	W110°29'38.86636"	1822.098	NVA
2003_2020_MT	N45°36'17.65243"	W110°16'37.22009"	1769.291	NVA
2004_2020_MT	N45°46'32.88241"	W110°28'56.59454"	1407.209	NVA
2005_2020_MT	N45°30'06.99536"	W110°38'01.48862"	1443.819	NVA
2006_2020_MT	N45°59'17.11599"	W110°26'30.84484"	2009.690	NVA

Point No.	Geodetic Coordinates: NAD 1983 2011		Ellipsoid Height (m)	Description
	Latitude (N)	Longitude (W)		
2007_2020_MT	N46°01'13.49828"	W110°43'16.20404"	1575.463	NVA
2008_2020_WY	N44°52'26.03758"	W111°02'44.86316"	2140.839	NVA
2009_2020_MT	N45°26'11.07640"	W110°42'07.75716"	1534.311	NVA
2010_2020_MT	N46°07'08.78241"	W110°29'29.74330"	1821.642	NVA
2011_2020_WY	N44°55'39.13535"	W110°43'55.01856"	2209.674	NVA
2012_2020_MT	N46°06'42.35024"	W110°43'46.02334"	1611.908	NVA
2013_2020_WY	N44°59'24.76933"	W110°03'22.84277"	2190.373	NVA
2014_2020_MT	N45°57'13.78893"	W110°31'08.05409"	1747.975	NVA
2015_2020_MT	N45°20'43.99642"	W110°44'07.54050"	1489.390	NVA
2016_2020_MT	N46°00'22.14873"	W110°25'23.58647"	2014.099	NVA
2017_2020_MT	N45°55'00.40072"	W110°25'19.01292"	1811.798	NVA
2018_2020_MT	N45°41'58.26692"	W110°34'39.51154"	1458.380	NVA
2019_2020_MT	N45°39'31.13089"	W110°28'47.28322"	1437.804	NVA
2020_2020_MT	N45°44'40.85382"	W110°43'50.35177"	2164.526	NVA
2021_2020_MT	N45°46'34.41571"	W110°38'49.34351"	1583.439	NVA
2022_2020_MT	N45°22'48.43537"	W110°40'53.23200"	1516.363	NVA
2023_2020_MT	N46°03'07.08624"	W110°31'49.38070"	1716.766	NVA
2024_2020_MT	N45°49'19.45124"	W110°49'36.29558"	2148.220	NVA
2025_2020_WY	N44°36'33.26991"	W110°23'58.11547"	2351.171	NVA
2026_2020_MT	N45°18'40.53314"	W110°45'39.65273"	1523.665	NVA
2027_2020_WY	N44°37'49.10186"	W110°26'20.31749"	2357.349	NVA
2028_2020_MT	N45°29'18.29754"	W110°45'23.22485"	1823.568	NVA
2029A_2020_MT	N45°10'57.66129"	W110°56'34.25113"	1738.948	NVA
2030_2020_MT	N46°10'15.04337"	W110°43'54.47913"	1622.891	NVA
2031_2020_MT	N45°48'28.26601"	W110°48'16.64407"	2200.177	NVA
2032_2020_MT	N45°48'51.70067"	W110°38'37.19867"	1564.991	NVA
2033_2020_MT	N46°12'03.02607"	W110°31'29.17421"	1814.655	NVA
2034_2020_MT	N45°53'01.88809"	W110°36'48.59512"	1457.034	NVA
2035_2020_MT	N45°51'36.22534"	W110°51'02.75471"	1708.430	NVA
2036_2020_WY	N45°01'53.17467"	W110°42'44.31099"	1599.225	NVA
2037_2020_MT	N45°48'56.63377"	W110°30'20.72497"	1425.474	NVA
2038_2020_WY	N44°57'00.98331"	W111°03'33.29985"	2167.238	NVA
2039_2020_MT	N45°39'41.10471"	W110°44'23.80200"	1572.182	NVA

Point No.	Geodetic Coordinates: NAD 1983 2011		Ellipsoid Height (m)	Description
	Latitude (N)	Longitude (W)		
2040_2020_MT	N45°33'12.05747"	W110°44'46.27896"	1692.924	NVA
2041_2020_MT	N45°41'58.02796"	W110°40'22.93430"	1593.425	NVA
2042_2020_MT	N46°13'11.80495"	W110°31'18.42749"	1869.302	NVA
2043_2020_MT	N45°39'53.27157"	W110°31'28.43313"	1403.575	NVA
2044_2020_MT	N46°10'14.94424"	W110°23'24.39705"	2078.351	NVA
2045_2020_MT	N45°06'45.46893"	W110°51'21.25977"	1818.200	NVA
2046_2020_WY	N44°56'04.30917"	W110°18'45.21235"	1888.576	NVA
2047_2020_MT	N45°49'24.72833"	W110°33'24.55219"	1407.926	NVA
2048_2020_WY	N44°07'02.73944"	W110°54'41.67710"	2120.656	NVA
2049_2020_MT	N45°39'03.05398"	W110°36'45.30041"	1397.255	NVA
2050_2020_MT	N45°51'30.34025"	W110°52'52.80510"	1755.725	NVA
2051_2020_WY	N44°56'48.79829"	W110°18'30.73806"	1901.628	NVA
2052_2020_MT	N45°48'16.43573"	W110°26'26.69186"	1476.661	NVA
2053_2020_WY	N44°43'01.97312"	W110°32'38.60419"	2473.104	NVA
2054_2020_WY	N45°00'30.54424"	W110°41'39.89923"	1657.427	NVA
2055_2020_MT	N45°50'44.36287"	W110°54'06.49286"	1888.645	NVA
2056_2020_MT	N45°19'17.65871"	W110°47'47.50040"	1498.504	NVA
2057_2020_MT	N45°58'12.18322"	W110°30'51.06925"	1762.062	NVA
2058_2020_WY	N44°43'32.61540"	W111°09'07.62438"	1990.357	NVA
2059_2020_MT	N45°56'44.98594"	W110°51'41.38726"	1729.358	NVA
2060_2020_MT	N45°14'41.14737"	W110°52'08.71035"	1514.929	NVA
2061_2020_MT	N46°11'33.57404"	W110°44'00.57758"	1635.789	NVA
2062_2020_MT	N45°57'06.24234"	W110°28'29.36132"	1802.268	NVA
2063_2020_MT	N45°54'26.51848"	W110°36'56.86237"	1467.312	NVA
2064_2020_WY	N44°32'02.50931"	W110°26'22.01042"	2355.721	NVA
2065_2020_MT	N45°17'09.20572"	W110°30'56.03420"	1788.227	NVA
2066_2020_MT	N45°36'22.55493"	W110°18'23.73331"	1862.464	NVA
2067_2020_MT	N45°53'14.94997"	W110°35'57.67672"	1480.913	NVA
2068_2020_WY	N44°42'11.64404"	W111°06'07.91369"	1995.611	NVA
2069_2020_MT	N45°39'53.12518"	W110°33'23.75232"	1359.738	NVA
2070_2020_MT	N46°01'57.62316"	W110°47'29.70675"	1654.492	NVA
2071_2020_MT	N45°55'20.88956"	W110°29'55.99230"	1655.021	NVA
2072A_2020_MT	N45°17'30.96032"	W110°14'29.89187"	1941.291	NVA

Point No.	Geodetic Coordinates: NAD 1983 2011		Ellipsoid Height (m)	Description
	Latitude (N)	Longitude (W)		
2073_2020_MT	N45°32'17.29531"	W110°33'30.38147"	1471.145	NVA
2074_2020_MT	N45°33'36.18005"	W110°40'18.70875"	1557.263	NVA
2075_2020_MT	N45°27'14.45493"	W110°37'42.54898"	1451.712	NVA
2076_2020_MT	N45°21'36.47648"	W110°43'05.13792"	1502.296	NVA
2076A_2020_MT	N45°21'03.85564"	W110°36'36.80726"	1589.522	NVA
2077_2020_MT	N45°12'43.75566"	W110°55'11.11120"	1686.439	NVA
2078_2020_MT	N45°17'43.24168"	W110°50'05.18817"	1494.516	NVA
2079_2020_MT	N45°58'08.88198"	W110°27'03.02556"	1933.273	NVA
2080_2020_MT	N46°10'12.57103"	W110°31'29.18619"	1779.723	NVA
2081_2020_MT	N45°38'48.15801"	W110°34'22.16515"	1370.026	NVA
2082_2020_MT	N45°10'05.95101"	W110°51'17.58401"	1529.515	NVA
2083_2020_MT	N45°13'09.46113"	W110°59'06.25404"	2055.769	NVA
2084_2020_MT	N45°22'31.09983"	W110°38'02.23425"	1548.696	NVA
2085_2020_MT	N45°53'44.20200"	W110°39'06.23646"	1510.905	NVA
2086_2020_MT	N46°06'42.16353"	W110°33'46.50025"	1665.522	NVA
2087_2020_MT	N46°01'13.37387"	W110°43'16.07438"	1575.515	NVA
2088_2020_MT	N45°43'08.42324"	W110°45'27.69350"	2110.845	NVA
2089_2020_MT	N45°37'29.08722"	W110°44'35.69974"	1742.008	NVA
2090_2020_MT	N45°52'58.77281"	W110°38'02.93267"	1512.356	NVA
2091_2020_MT	N46°01'31.04933"	W110°47'55.48695"	1664.799	NVA
2092_2020_MT	N45°37'41.75215"	W110°22'48.78370"	1609.182	NVA
2093_2020_MT	N45°39'41.70514"	W110°42'02.73447"	1517.707	NVA
2094_2020_MT	N45°52'04.50087"	W110°38'42.30472"	1496.926	NVA
2095_2020_MT	N45°50'18.22199"	W110°34'49.23094"	1424.867	NVA
2096_2020_WY	N44°31'10.45440"	W110°25'39.04427"	2397.284	NVA
2097_2020_MT	N46°12'51.67575"	W110°31'57.24117"	1858.271	NVA
2098_2020_MT	N45°49'33.17280"	W110°34'11.52793"	1426.127	NVA
2099_2020_WY	N44°17'07.40345"	W110°37'38.68546"	2370.550	NVA
2100_2020_MT	N45°48'11.22737"	W110°29'22.05490"	1426.803	NVA
2101_2020_WY	N44°36'59.58671"	W110°51'16.49601"	2158.671	NVA
2102_2020_MT	N45°28'55.32392"	W110°34'25.36995"	1458.362	NVA
2103_2020_MT	N45°58'03.37314"	W110°50'42.75545"	1661.093	NVA
2104_2020_WY	N44°50'02.58413"	W110°43'46.38463"	2236.047	NVA

Point No.	Geodetic Coordinates: NAD 1983 2011		Ellipsoid Height (m)	Description
	Latitude (N)	Longitude (W)		
2105_2020_WY	N44°44'50.77887"	W111°11'29.87614"	1995.219	NVA
2106_2020_MT	N45°19'37.59338"	W110°45'38.46826"	1495.749	NVA
2107_2020_MT	N45°23'23.72027"	W110°42'58.87756"	1474.006	NVA
2108_2020_MT	N45°39'50.82222"	W110°44'21.76089"	1595.443	NVA
2109A_2020_MT	N45°24'12.37384"	W110°11'35.90435"	1699.257	NVA
2110_2020_MT	N45°10'57.72575"	W110°59'18.32864"	2148.888	NVA
2111_2020_MT	N45°42'17.03197"	W110°20'58.58007"	1313.892	NVA
2112_2020_MT	N45°20'50.52601"	W110°42'20.38608"	1574.231	NVA
2113_2020_WY	N44°27'16.63629"	W110°29'41.40744"	2359.003	NVA
2114_2020_MT	N46°01'03.79099"	W110°41'17.37952"	1554.731	NVA
2115_2020_MT	N46°09'44.33904"	W110°24'02.96085"	2036.510	NVA
2116_2020_MT	N45°25'26.19106"	W110°37'30.30704"	1462.455	NVA
2117_2020_MT	N45°19'06.53994"	W110°45'38.38659"	1508.770	NVA
2118_2020_MT	N45°53'12.26148"	W110°32'07.06724"	1541.461	NVA
2119_2020_WY	N45°04'30.58890"	W110°46'46.77801"	1576.455	NVA
2120_2020_MT	N46°00'50.91439"	W110°31'45.56461"	1698.419	NVA
2121_2020_MT	N45°22'12.06154"	W110°45'18.87375"	1536.935	NVA
2122_2020_MT	N45°39'11.29528"	W110°23'01.66017"	1483.387	NVA
2123_2020_MT	N45°59'47.94355"	W110°26'07.40422"	2085.882	NVA
2124_2020_MT	N45°10'23.56607"	W110°58'56.97783"	1958.201	NVA
2125_2020_WY	N45°03'11.70214"	W109°54'58.73658"	2689.476	NVA
2126_2020_MT	N45°26'58.65828"	W110°36'22.90376"	1451.194	NVA
2127_2020_MT	N45°52'33.96710"	W110°45'00.55433"	1584.443	NVA
2127A_2020_MT	N45°52'35.19387"	W110°45'51.51561"	1600.896	NVA
2128_2020_WY	N45°01'39.21750"	W109°53'57.09026"	2440.925	NVA
2129_2020_MT	N45°13'55.82903"	W110°53'16.01988"	1517.523	NVA
2130_2020_MT	N45°38'28.44145"	W110°37'51.34715"	1487.527	NVA
2131_2020_MT	N45°57'32.71605"	W110°29'36.04009"	1816.066	NVA
2132_2020_MT	N45°59'09.38291"	W110°26'13.04697"	1960.399	NVA
2133_2020_MT	N45°54'51.31374"	W110°21'16.84228"	2012.567	NVA
2134_2020_MT	N45°36'37.22348"	W110°14'28.20400"	1629.619	NVA
2135_2020_MT	N45°34'07.02650"	W110°48'08.08845"	1774.662	NVA
2136_2020_MT	N45°20'07.57602"	W110°46'12.72836"	1484.026	NVA

Point No.	Geodetic Coordinates: NAD 1983 2011		Ellipsoid Height (m)	Description
	Latitude (N)	Longitude (W)		
2137_2020_MT	N45°48'49.91246"	W110°38'07.57277"	1547.900	NVA
2138A_2020_MT	N45°09'42.15406"	W110°57'47.89897"	1914.040	NVA
2139_2020_WY	N44°57'44.10352"	W110°42'39.64720"	2034.600	NVA
2140_2020_MT	N45°06'46.03311"	W110°47'24.52991"	1557.327	NVA
2141_2020_MT	N45°43'32.34874"	W110°14'31.97331"	1278.312	NVA
2142_2020_MT	N45°48'20.36256"	W110°32'30.56132"	1411.995	NVA
3001_2020_MT	N45°59'25.71181"	W110°31'11.42853"	1681.704	VVA
3002_2020_MT	N45°54'26.22114"	W110°25'49.96205"	1755.979	VVA
3003_2020_WY	N44°32'08.60844"	W110°48'29.81982"	2217.527	VVA
3004_2020_MT	N45°44'40.88446"	W110°43'50.25660"	2164.469	VVA
3005_2020_MT	N45°38'41.60314"	W110°33'10.81851"	1383.908	VVA
3006_2020_WY	N45°01'17.03820"	W110°41'49.58421"	1622.281	VVA
3007_2020_MT	N45°53'47.13398"	W110°26'10.63791"	1772.863	VVA
3008_2020_MT	N45°55'14.53102"	W110°21'16.35847"	1999.436	VVA
3009_2020_WY	N45°01'22.99222"	W111°05'45.68227"	2083.048	VVA
3010_2020_MT	N45°17'17.28913"	W110°50'34.81115"	1493.858	VVA
3011_2020_MT	N45°37'21.95442"	W110°36'01.74111"	1436.543	VVA
3012_2020_MT	N45°37'43.16568"	W110°38'42.09625"	1580.970	VVA
3013_2020_MT	N45°58'25.40741"	W110°43'40.05479"	1599.680	VVA
3014_2020_WY	N44°56'55.68570"	W110°18'28.96710"	1898.494	VVA
3015_2020_MT	N45°09'46.23290"	W110°50'04.81803"	1539.880	VVA
3016_2020_MT	N45°52'23.59664"	W110°27'27.30812"	1687.708	VVA
3017_2020_MT	N46°04'41.76087"	W110°48'04.73070"	1777.535	VVA
3018_2020_WY	N44°44'05.06962"	W111°06'34.76338"	2003.242	VVA
3019_2020_WY	N44°44'04.04789"	W111°13'53.29999"	1988.179	VVA
3020_2020_MT	N46°13'13.17496"	W110°31'21.61177"	1869.208	VVA
3021_2020_MT	N45°29'18.26076"	W110°45'21.27447"	1829.477	VVA
3022_2020_MT	N45°47'37.91375"	W110°29'45.73736"	1392.367	VVA
3023_2020_MT	N45°08'00.95589"	W111°01'11.06305"	2020.051	VVA
3024_2020_MT	N46°05'25.07426"	W110°43'11.74002"	1617.526	VVA
3025_2020_WY	N45°01'30.13189"	W109°56'32.57182"	2528.088	VVA
3026_2020_MT	N46°10'07.54365"	W110°29'39.10300"	1821.935	VVA
3027_2020_MT	N45°05'30.95845"	W110°40'16.19913"	2561.336	VVA

Point No.	Geodetic Coordinates: NAD 1983 2011		Ellipsoid Height (m)	Description
	Latitude (N)	Longitude (W)		
3028_2020_MT	N45°55'49.09073"	W110°27'24.08226"	1792.419	VVA
3029_2020_MT	N45°17'41.65203"	W110°49'47.44819"	1496.234	VVA
3030_2020_MT	N45°06'38.00796"	W110°49'10.08322"	1668.426	VVA
3031_2020_MT	N45°19'30.91023"	W110°49'57.21072"	1580.783	VVA
3032_2020_MT	N46°01'55.45722"	W110°49'54.05213"	1708.179	VVA
3033_2020_WY	N44°35'54.37313"	W110°49'52.72968"	2172.630	VVA
3034_2020_MT	N45°52'43.72304"	W110°25'53.78470"	1747.286	VVA
3035_2020_MT	N45°44'46.33348"	W110°43'50.42357"	2167.900	VVA
3036_2020_WY	N44°44'52.37887"	W111°15'50.94981"	1996.327	VVA
3037_2020_MT	N46°11'00.50932"	W110°24'18.96500"	1931.482	VVA
3038_2020_MT	N45°33'22.39464"	W110°45'15.86606"	1689.250	VVA
3039_2020_MT	N45°18'31.98036"	W110°54'01.09420"	1700.676	VVA
3040_2020_MT	N45°21'13.01716"	W110°45'59.69647"	1526.897	VVA
3041_2020_MT	N46°13'06.85398"	W110°31'58.35549"	1861.081	VVA
3042_2020_MT	N45°18'24.60854"	W110°55'52.44113"	1737.258	VVA
3043_2020_MT	N45°48'50.62921"	W110°46'34.87191"	2093.099	VVA
3044_2020_MT	N45°48'18.66683"	W110°46'55.05492"	2195.928	VVA
3045_2020_MT	N45°18'11.04681"	W110°50'21.34851"	1512.175	VVA
3046_2020_MT	N46°08'48.86830"	W110°26'13.98578"	2072.364	VVA
3047_2020_MT	N46°01'02.03117"	W110°38'19.39369"	1537.614	VVA
3048_2020_MT	N45°43'35.02215"	W110°45'46.78602"	1910.607	VVA
3049_2020_MT	N45°15'53.51821"	W110°27'45.48851"	2008.841	VVA
3050_2020_MT	N45°18'30.05560"	W110°54'54.59008"	1711.600	VVA
3051_2020_MT	N45°18'26.12097"	W110°52'32.42547"	1597.929	VVA
3052_2020_WY	N44°45'15.71841"	W111°05'51.48366"	2000.001	VVA
3053_2020_MT	N45°58'58.91741"	W110°31'11.30531"	1652.609	VVA
3054_2020_MT	N45°38'08.22684"	W110°44'11.33506"	1630.346	VVA
3055_2020_MT	N45°49'06.92921"	W110°49'10.64985"	2071.425	VVA
3056_2020_MT	N45°52'46.54721"	W110°53'01.78843"	1917.679	VVA
3057_2020_MT	N46°12'54.00385"	W110°30'16.43404"	1922.333	VVA
3058_2020_MT	N46°09'42.88913"	W110°26'21.89704"	1940.854	VVA
3059_2020_MT	N46°01'10.26747"	W110°29'56.66087"	1796.256	VVA
3060_2020_MT	N45°51'52.43028"	W110°53'19.98908"	1785.552	VVA

Point No.	Geodetic Coordinates: NAD 1983 2011		Ellipsoid Height (m)	Description
	Latitude (N)	Longitude (W)		
3061_2020_MT	N45°32'11.91931"	W110°33'15.41987"	1472.722	VVA
3062_2020_MT	N45°13'09.20545"	W110°59'53.19137"	2072.002	VVA
3063_2020_MT	N45°53'31.76327"	W110°53'17.76512"	1848.706	VVA
3064_2020_MT	N45°57'32.88830"	W110°54'51.84994"	1821.529	VVA
3065_2020_MT	N45°55'51.70336"	W110°51'46.58531"	1732.157	VVA
3066_2020_MT	N45°46'40.62617"	W110°39'29.07009"	1643.731	VVA
3067_2020_MT	N45°41'07.84568"	W110°47'12.73983"	1866.976	VVA
3068_2020_MT	N46°09'57.83858"	W110°32'54.12207"	1751.240	VVA
3069_2020_MT	N45°46'13.24327"	W110°30'58.40454"	1411.869	VVA
3070_2020_MT	N45°52'33.15782"	W110°45'23.92835"	1600.893	VVA
3070A_2020_MT	N45°52'33.10639"	W110°45'24.44101"	1601.346	VVA
3071_2020_MT	N45°34'45.54364"	W110°47'30.19712"	1803.490	VVA
3072_2020_MT	N45°43'57.06206"	W110°32'22.02948"	1474.221	VVA
3073_2020_MT	N45°28'56.21019"	W110°37'12.26765"	1429.276	VVA
3074_2020_MT	N45°45'28.95968"	W110°31'49.13965"	1407.008	VVA
3075_2020_MT	N45°56'40.25001"	W110°30'24.79064"	1718.790	VVA
3076_2020_MT	N45°52'21.92348"	W110°42'48.26640"	1545.466	VVA
3077_2020_MT	N46°10'14.19873"	W110°35'48.35504"	1718.444	VVA
3078_2020_MT	N45°48'41.38518"	W110°32'56.89300"	1421.030	VVA
3079_2020_MT	N45°52'21.81155"	W110°41'42.71895"	1522.871	VVA
3080_2020_MT	N46°10'10.74452"	W110°27'35.93309"	1875.600	VVA
3081_2020_MT	N45°52'34.70209"	W110°46'01.00554"	1595.568	VVA
3081A_2020_MT	N45°52'33.63090"	W110°44'55.76101"	1581.327	VVA
3082_2020_MT	N45°13'45.50452"	W110°52'36.87915"	1516.486	VVA
3083_2020_MT	N45°55'48.28184"	W110°39'54.98143"	1526.098	VVA
3084_2020_MT	N46°03'05.64040"	W110°36'26.67999"	1586.956	VVA
3085_2020_MT	N45°52'56.77959"	W110°27'27.34492"	1718.576	VVA
3086_2020_MT	N45°26'05.20822"	W110°38'58.35955"	1489.198	VVA
3087_2020_WY	N44°44'03.10454"	W111°17'32.69943"	2424.154	VVA
3088_2020_MT	N45°38'35.74541"	W110°37'44.77319"	1481.623	VVA
3089_2020_MT	N45°39'48.98921"	W110°35'50.30314"	1403.214	VVA
3090_2020_MT	N45°49'44.11257"	W110°31'49.27842"	1442.689	VVA
3091_2020_MT	N45°56'45.90675"	W110°49'11.11633"	1722.485	VVA

Point No.	Geodetic Coordinates: NAD 1983 2011		Ellipsoid Height (m)	Description
	Latitude (N)	Longitude (W)		
3092_2020_MT	N45°21'21.33182"	W110°41'55.82908"	1542.080	VVA
3093_2020_MT	N45°25'01.59576"	W110°42'21.68757"	1499.255	VVA
3094_2020_MT	N45°39'38.46387"	W110°44'41.89652"	1570.617	VVA
3095_2020_MT	N45°24'31.23058"	W110°37'58.18418"	1508.130	VVA
3096_2020_MT	N45°19'22.60595"	W110°49'33.40103"	1529.370	VVA
3096A_2020_MT	N45°19'27.86821"	W110°51'15.90874"	1708.572	VVA
3097_2020_MT	N45°52'49.38145"	W110°49'49.16190"	1777.924	VVA
3098_2020_MT	N45°39'03.71784"	W110°31'35.42957"	1451.322	VVA
3099_2020_MT	N45°06'38.62691"	W110°52'24.94629"	1903.854	VVA
3100_2020_MT	N46°00'15.15541"	W110°49'58.42285"	1662.582	VVA
3101_2020_MT	N45°55'47.37477"	W110°38'25.29183"	1507.039	VVA

Geodetic Control

Point No.	Geodetic Coordinates: NAD 1983 2011		Ellipsoid Height (m)	Description
	Latitude (N)	Longitude (W)		
9 MDC	N44°24'19.73640"	W110°34'10.35433"	2366.290	PY0803
10 12	N44°43'36.01630"	W110°41'18.31424"	2274.761	PY0955
10 26	N44°44'07.49607"	W110°30'13.14415"	2397.005	PY0971
150_2020_WY	N44°07'44.13592"	W110°50'51.14632"	2214.009	TSM
151_2020_WY	N44°24'50.45173"	W110°34'41.39930"	2370.359	TSM
152_2020_WY	N44°27'29.13964"	W110°49'55.69625"	2232.617	TSM
153_2020_WY	N44°37'58.72940"	W110°51'25.99751"	2122.314	TSM
154_2020_WY	N44°43'02.98119"	W110°43'23.55620"	2261.947	TSM
155_2020_WY	N44°44'06.99579"	W110°30'13.51937"	2396.847	TSM
156_2020_WY	N44°33'34.93512"	W110°19'20.45296"	2369.914	TSM
157_2020_WY	N44°28'06.08745"	W110°04'02.67708"	2307.115	TSM
158_2020_MT	N45°39'40.74818"	W110°44'26.00838"	1572.799	TSM
160_2020_MT	N45°42'37.49756"	W110°24'12.20411"	1339.779	TSM
161_2020_MT	N45°53'12.40031"	W110°29'56.06982"	1609.382	TSM
162_2020_MT	N46°05'06.36036"	W110°33'47.64954"	1639.361	TSM
165_2020_MT	N45°14'49.04319"	W110°52'07.09679"	1511.200	TSM
166_2020_MT	N45°51'46.78272"	W110°48'54.05026"	1690.959	TSM
201_2020_MT	N45°59'41.78472"	W110°45'01.73207"	1586.776	TSM
250_2020_WY	N44°46'53.84692"	W111°06'49.39114"	2001.220	TSM
251_2020_WY	N44°54'53.54634"	W110°16'24.39137"	1984.737	TSM
252_2020_WY	N45°00'17.52327"	W110°01'59.59031"	2209.593	TSM
253_2020_WY	N45°01'49.30465"	W109°54'10.61560"	2467.610	TSM
254_2020_MT	N45°06'42.50356"	W110°47'22.33340"	1557.257	TSM
255_2020_MT	N45°10'15.67634"	W110°57'21.60861"	1838.280	TSM
256_2020_MT	N45°29'06.66584"	W110°37'21.39434"	1448.269	TSM
257_2020_MT	N45°21'26.46122"	W110°37'07.99493"	1588.328	TSM
258_2020_MT	N45°20'51.91382"	W110°13'28.03908"	1876.334	TSM
259_2020_MT	N45°36'23.05100"	W110°18'24.50887"	1861.997	TSM
A 162	N45°06'08.06990"	W110°47'13.92295"	1573.669	QX0098
C 157	N44°58'12.29317"	W110°42'06.93637"	1928.666	PY0138
E 128 RESET	N45°48'27.31551"	W110°32'01.98294"	1397.733	AA9696

Point No.	Geodetic Coordinates: NAD 1983 2011		Ellipsoid Height (m)	Description
	Latitude (N)	Longitude (W)		
GRSL AZ MK	N44°07'54.05350"	W110°49'01.32987"	2192.240	PY1285
HARLEQUIN	N44°38'22.65637"	W110°53'19.17051"	2063.838	PY0952
K 12	N44°28'42.63224"	W110°09'32.12343"	2558.341	PY0036
LAKE ASTRO STATION	N44°33'16.89874"	W110°23'42.37086"	2359.067	PY0011
MEERTENS 2	N44°27'14.67015"	W110°49'09.07201"	2246.802	PY0802
PRAY	N45°25'46.61604"	W110°39'05.18269"	1471.909	QX0055
R 161	N44°57'50.04410"	W111°04'30.71980"	2145.651	PY0164
W 2	N45°39'52.17712"	W110°44'22.05352"	1597.758	QX0138
X 155	N45°17'24.74647"	W110°50'24.37471"	1493.882	QX0077
X 558	N45°40'51.88705"	W110°31'13.33667"	1346.072	QX0522
Y 368	N44°58'45.70678"	W110°03'46.48807"	2197.003	PY1076
Y 565	N45°11'59.29903"	W110°53'57.20583"	1526.810	QX0565
Z 161	N44°47'43.59553"	W111°06'16.20944"	2066.904	PY0192

Coordinate System:
 HORIZONTAL DATUM: NAD 1983 2011
 PROJECTION: STATE PLANE MONTANA
 VERTICAL DATUM: NAVD88
 GEOID MODEL: GEOID18
 UNITS: US FEET

Ground Control

Point No.	State Plane Montana 2500		Ortho Height GEOID 18 (US Ft)	Description
	Northing (US Ft)	Easting (US Ft)		
1001_2020_MT	323240.538	1569951.510	6814.831	LCP
1002_2020_MT	335187.887	1586887.804	6365.734	LCP
1003_2020_MT	346875.214	1603552.210	5209.663	LCP
1003A_2020_MT	347905.867	1605621.935	5119.739	LCP
1004_2020_MT	375288.789	1618346.359	4979.877	LCP
1005_2020_MT	393180.151	1631719.842	4994.023	LCP
1006_2020_MT	405736.337	1647683.764	4916.637	LCP
1007_2020_MT	426512.440	1661601.938	4862.315	LCP
1008_2020_MT	427077.348	1674817.997	4837.882	LCP
1009_2020_MT	444035.981	1687718.720	4795.425	LCP
1010_2020_MT	482270.037	1707051.728	5232.614	LCP
1011_2020_MT	309414.733	1685612.856	7683.290	LCP
1012_2020_MT	372871.196	1716812.573	6308.839	LCP
1013_2020_MT	371509.664	1720605.884	6608.613	LCP
1014_2020_MT	374098.573	1775395.046	6672.817	LCP
1015_2020_MT	390376.478	1779375.022	6243.161	LCP
1017_2020_MT	402072.076	1782948.012	6167.726	LCP
1018_2020_MT	453037.039	1783943.954	5255.787	LCP
1019_2020_WY	276191.414	1875094.123	7885.929	LCP
1020_2020_WY	296416.317	1854346.943	9071.537	LCP
1021_2020_WY	296261.777	1848821.030	9514.449	LCP
1022_2020_MT	631489.933	1592142.475	6520.419	LCP
1023_2020_MT	621439.707	1614054.627	5824.934	LCP

Point No.	State Plane Montana 2500		Ortho Height GEOID 18 (US Ft)	Description
	Northing (US Ft)	Easting (US Ft)		
1024_2020_MT	636816.697	1632419.356	5398.133	LCP
1025_2020_MT	638204.103	1647596.852	5259.872	LCP
1026_2020_MT	640106.555	1666693.866	5123.967	LCP
1027_2020_MT	623011.240	1679067.484	4959.988	LCP
1028_2020_MT	587237.947	1692026.047	4769.169	LCP
1029_2020_MT	569704.714	1704985.614	4621.329	LCP
1030_2020_MT	546090.912	1716711.520	4453.942	LCP
1031_2020_MT	532442.099	1724683.781	4451.295	LCP
1032_2020_MT	534844.207	1737608.954	4364.164	LCP
1033_2020_MT	532034.106	1747596.644	4359.951	LCP
1034_2020_MT	530749.534	1755509.768	4323.458	LCP
1035_2020_MT	527870.303	1763275.267	4296.244	LCP
1036_2020_MT	527193.885	1772214.745	4275.856	LCP
1037_2020_MT	542614.103	1783996.360	4249.794	LCP
1038_2020_MT	493459.655	1694369.110	4558.657	LCP
1039_2020_WY	167242.548	1505935.380	7497.029	LCP
1040_2020_WY	164154.786	1519638.603	6605.875	LCP
1041_2020_WY	200611.098	1545085.449	6592.683	LCP
1042_2020_WY	215962.611	1559114.093	6829.950	LCP
1043_2020_WY	150351.900	1570163.449	6698.929	LCP
1044_2020_WY	302308.592	1533203.503	6628.783	LCP
1045_2020_WY	295597.021	1544728.743	6747.347	LCP
1046_2020_WY	153791.371	1580279.958	6737.408	LCP
1047_2020_WY	155259.276	1586237.161	6748.830	LCP
1048_2020_WY	148940.330	1592862.041	6756.957	LCP
1049_2020_WY	146892.582	1600224.632	6781.913	LCP
1050_2020_WY	145331.890	1608503.143	6801.214	LCP
1051_2020_WY	148260.863	1617257.365	6870.156	LCP
1052_2020_WY	148866.913	1621928.775	6858.491	LCP
1053_2020_WY	149261.043	1628313.667	6907.838	LCP
1054_2020_WY	148168.046	1636831.506	7015.014	LCP
1055_2020_WY	154780.043	1644577.266	7255.577	LCP
1056_2020_WY	173058.566	1650706.999	7451.132	LCP

Point No.	State Plane Montana 2500		Ortho Height GEOID 18 (US Ft)	Description
	Northing (US Ft)	Easting (US Ft)		
1057_2020_WY	176160.963	1659488.283	7492.502	LCP
1058_2020_WY	173235.538	1667803.373	7719.173	LCP
1059_2020_WY	170993.318	1675183.337	7818.093	LCP
1060_2020_WY	167417.924	1683351.167	8227.249	LCP
1061_2020_WY	168157.036	1689428.049	8207.204	LCP
1062_2020_WY	172199.826	1695605.486	8141.255	LCP
1063_2020_WY	173204.380	1699961.492	8151.528	LCP
1064_2020_WY	180303.292	1709037.358	7908.308	LCP
1069_2020_WY	241438.427	1746740.472	6223.022	LCP
1070_2020_WY	243366.927	1754888.862	6191.048	LCP
1071_2020_WY	244689.635	1763068.872	6469.170	LCP
1072_2020_WY	242348.071	1771930.067	6635.741	LCP
1072A_2020_WY	240728.316	1773769.693	6637.898	LCP
1073_2020_WY	233176.148	1781040.134	6586.722	LCP
1074_2020_WY	227194.256	1790325.626	6590.047	LCP
1075_2020_WY	229225.069	1798895.743	6656.023	LCP
1076_2020_WY	237392.173	1807067.487	6766.104	LCP
1077_2020_WY	245512.390	1814274.891	6921.128	LCP
1078_2020_WY	263543.918	1821633.438	7232.283	LCP
1079_2020_WY	275898.852	1830213.340	7298.084	LCP
1080_2020_WY	275182.639	1838750.582	7370.795	LCP
1081_2020_WY	279710.038	1847445.528	7462.898	LCP
1082_2020_WY	108743.507	1625955.851	7277.257	LCP
1083_2020_WY	-65326.577	1561803.839	6445.595	LCP
1084_2020_WY	-61967.011	1568435.164	6476.630	LCP
1085_2020_WY	-58386.865	1578710.456	6432.151	LCP
1086_2020_WY	-49109.345	1588399.210	6473.034	LCP
1087_2020_WY	-45099.261	1595298.821	6894.671	LCP
1088_2020_WY	-39988.135	1607422.274	7299.085	LCP
1089_2020_WY	80458.047	1617431.444	7341.326	LCP
1090_2020_WY	76172.596	1626111.739	7542.261	LCP
1091_2020_WY	68295.010	1637539.207	7927.027	LCP
1092_2020_WY	69951.359	1645850.671	8063.196	LCP

Point No.	State Plane Montana 2500		Ortho Height GEOID 18 (US Ft)	Description
	Northing (US Ft)	Easting (US Ft)		
1093_2020_WY	74061.833	1651434.688	8132.432	LCP
1094_2020_WY	69257.271	1670286.013	8397.084	LCP
1095_2020_WY	68576.205	1661522.546	8397.167	LCP
1096_2020_WY	63559.883	1680803.663	8196.865	LCP
1097_2020_WY	41496.087	1685386.527	7989.501	LCP
1098_2020_WY	51536.845	1687714.277	7920.936	LCP
1099_2020_WY	78680.070	1692753.041	7763.098	LCP
1100_2020_WY	83333.823	1700486.152	7757.948	LCP
1101_2020_WY	80895.638	1716029.715	7762.813	LCP
1102_2020_WY	91902.182	1728312.223	7789.709	LCP
1103_2020_WY	110665.717	1734669.990	7772.045	LCP
1104_2020_WY	109701.860	1760911.216	7746.494	LCP
1105_2020_WY	94385.736	1766023.961	7837.905	LCP
1106_2020_WY	93022.433	1777573.810	8398.720	LCP
1107_2020_WY	88535.545	1786367.653	8611.169	LCP
1108_2020_WY	81889.052	1798612.760	8458.538	LCP
1109_2020_WY	76912.068	1808418.812	8296.708	LCP
1110_2020_WY	79179.195	1816048.809	7842.014	LCP
1111_2020_WY	82307.892	1823871.919	7408.382	LCP
1112_2020_WY	83981.973	1828634.699	7157.440	LCP
1113_2020_WY	87304.658	1836494.898	6956.794	LCP
1114_2020_WY	90596.512	1843521.601	6836.595	LCP
1115_2020_WY	299036.353	1642012.204	5232.498	LCP
1116_2020_WY	280877.956	1856064.559	7575.311	LCP
1117_2020_WY	283414.580	1864484.505	8020.004	LCP
1118_2020_WY	276949.736	1874200.140	7951.952	LCP
1119_2020_WY	262578.526	1883446.838	7014.824	LCP
1120_2020_WY	256719.009	1891591.064	6915.103	LCP
2001_2020_WY	284958.848	1868638.793	8048.449	NVA
2002_2020_MT	701200.529	1716750.151	6012.454	NVA
2003_2020_MT	495017.124	1769692.529	5836.839	NVA
2004_2020_MT	557898.510	1717926.580	4652.384	NVA
2005_2020_MT	458601.689	1677877.530	4769.082	NVA

Point No.	State Plane Montana 2500		Ortho Height GEOID 18 (US Ft)	Description
	Northing (US Ft)	Easting (US Ft)		
2006_2020_MT	635146.914	1729183.187	6627.549	NVA
2007_2020_MT	647909.063	1658416.411	5204.985	NVA
2008_2020_WY	231481.099	1567747.144	7050.847	NVA
2009_2020_MT	434976.300	1659976.665	5065.940	NVA
2010_2020_MT	683055.358	1717162.239	6010.903	NVA
2011_2020_WY	249593.517	1649412.783	7277.504	NVA
2012_2020_MT	681234.218	1656835.915	5324.470	NVA
2013_2020_WY	270447.708	1824558.636	7211.628	NVA
2014_2020_MT	622905.815	1709457.123	5770.081	NVA
2015_2020_MT	401991.670	1650915.675	4917.961	NVA
2016_2020_MT	641674.576	1734007.491	6641.622	NVA
2017_2020_MT	609095.529	1733946.709	5979.005	NVA
2018_2020_MT	530414.305	1693249.264	4819.478	NVA
2019_2020_MT	515188.722	1718052.075	4751.098	NVA
2020_2020_MT	547451.028	1654428.906	7136.127	NVA
2021_2020_MT	558624.627	1675934.421	5230.337	NVA
2022_2020_MT	414377.541	1664979.603	5006.627	NVA
2023_2020_MT	658712.621	1707009.316	5667.376	NVA
2024_2020_MT	576056.621	1630384.749	7083.184	NVA
2025_2020_WY	132364.777	1734189.307	7742.003	NVA
2026_2020_MT	389595.402	1644137.525	5029.995	NVA
2027_2020_WY	140166.580	1723992.108	7762.444	NVA
2028_2020_MT	454151.031	1646347.160	6014.944	NVA
2029A_2020_MT	343535.872	1596507.374	5734.278	NVA
2030_2020_MT	702775.990	1656579.197	5360.521	NVA
2031_2020_MT	570779.916	1635936.453	7253.546	NVA
2032_2020_MT	572511.266	1676997.789	5170.108	NVA
2033_2020_MT	712953.031	1709143.614	5988.253	NVA
2034_2020_MT	597730.238	1685046.633	4816.230	NVA
2035_2020_MT	590008.033	1624503.702	5640.529	NVA
2036_2020_WY	287392.314	1655085.900	5275.545	NVA
2037_2020_MT	572528.414	1712153.024	4712.470	NVA
2038_2020_WY	259392.055	1564813.767	7137.229	NVA

Point No.	State Plane Montana 2500		Ortho Height GEOID 18 (US Ft)	Description
	Northing (US Ft)	Easting (US Ft)		
2039_2020_MT	517140.749	1651577.329	5192.221	NVA
2040_2020_MT	477776.710	1649354.887	5586.981	NVA
2041_2020_MT	530740.184	1668884.859	5262.365	NVA
2042_2020_MT	719906.362	1709989.929	6167.507	NVA
2043_2020_MT	517576.836	1706639.901	4639.098	NVA
2044_2020_MT	701593.945	1743098.490	6852.239	NVA
2045_2020_MT	317598.921	1618478.213	5994.095	NVA
2046_2020_WY	250725.310	1758060.676	6223.087	NVA
2047_2020_MT	575544.202	1699177.227	4654.981	NVA
2048_2020_WY	-45015.462	1597568.103	6987.049	NVA
2049_2020_MT	512799.356	1684073.153	4618.346	NVA
2050_2020_MT	589548.018	1616708.914	5795.678	NVA
2051_2020_WY	255220.228	1759148.430	6265.745	NVA
2052_2020_MT	568252.604	1728672.836	4880.227	NVA
2053_2020_WY	172202.351	1697053.537	8141.821	NVA
2054_2020_WY	278953.554	1659583.528	5466.390	NVA
2055_2020_MT	584986.015	1611413.261	6231.769	NVA
2056_2020_MT	393503.620	1635065.741	4947.627	NVA
2057_2020_MT	628802.266	1710733.103	5816.171	NVA
2058_2020_WY	178026.369	1539047.053	6559.013	NVA
2059_2020_MT	621313.407	1622314.466	5709.415	NVA
2060_2020_MT	365823.629	1615917.994	5000.391	NVA
2061_2020_MT	710732.922	1656275.480	5402.874	NVA
2062_2020_MT	621999.134	1720654.117	5947.804	NVA
2063_2020_MT	606306.734	1684584.150	4849.978	NVA
2064_2020_WY	105060.860	1723448.561	7756.982	NVA
2065_2020_MT	379430.132	1707149.026	5895.319	NVA
2066_2020_MT	495590.044	1762127.665	6142.512	NVA
2067_2020_MT	599001.798	1688665.468	4894.548	NVA
2068_2020_WY	169556.716	1551853.608	6576.390	NVA
2069_2020_MT	517670.783	1698453.111	4495.388	NVA
2070_2020_MT	652662.943	1640610.995	5464.130	NVA
2071_2020_MT	611409.913	1714400.166	5465.164	NVA

Point No.	State Plane Montana 2500		Ortho Height GEOID 18 (US Ft)	Description
	Northing (US Ft)	Easting (US Ft)		
2072A_2020_MT	380842.322	1777661.604	6395.633	NVA
2073_2020_MT	471524.619	1697358.795	4858.446	NVA
2074_2020_MT	479925.272	1668424.387	5141.861	NVA
2075_2020_MT	441112.241	1678974.317	4794.628	NVA
2076_2020_MT	407235.673	1655453.922	4960.409	NVA
2076A_2020_MT	403520.596	1683127.289	5245.417	NVA
2077_2020_MT	354169.608	1602655.627	5562.400	NVA
2078_2020_MT	384108.870	1625067.689	4934.180	NVA
2079_2020_MT	628266.079	1726828.200	6377.172	NVA
2080_2020_MT	701770.519	1708996.458	5873.747	NVA
2081_2020_MT	511149.367	1694216.256	4528.853	NVA
2082_2020_MT	337894.821	1619092.958	5047.322	NVA
2083_2020_MT	357084.450	1585875.842	6773.520	NVA
2084_2020_MT	412441.876	1677156.110	5112.172	NVA
2085_2020_MT	602154.911	1675377.508	4993.004	NVA
2086_2020_MT	680597.541	1699049.048	5499.573	NVA
2087_2020_MT	647896.325	1658425.359	5205.158	NVA
2088_2020_MT	538202.729	1647378.587	6959.792	NVA
2089_2020_MT	503788.042	1650520.505	5748.823	NVA
2090_2020_MT	597490.260	1679785.917	4997.730	NVA
2091_2020_MT	650002.755	1638748.576	5497.932	NVA
2092_2020_MT	503811.751	1743381.046	5312.239	NVA
2093_2020_MT	517045.493	1661593.029	5013.576	NVA
2094_2020_MT	592036.163	1676921.687	4947.073	NVA
2095_2020_MT	581041.897	1693257.932	4710.610	NVA
2096_2020_WY	99750.820	1726499.184	7893.323	NVA
2097_2020_MT	717904.250	1707235.498	6131.412	NVA
2098_2020_MT	576444.301	1695863.717	4714.707	NVA
2099_2020_WY	15034.222	1673116.367	7805.571	NVA
2100_2020_MT	567878.290	1716248.559	4716.782	NVA
2101_2020_WY	136736.056	1615691.694	7111.488	NVA
2102_2020_MT	451127.957	1693165.787	4815.945	NVA
2103_2020_MT	629177.519	1626591.533	5485.562	NVA

Point No.	State Plane Montana 2500		Ortho Height GEOID 18 (US Ft)	Description
	Northing (US Ft)	Easting (US Ft)		
2104_2020_WY	215500.545	1649498.841	7363.795	NVA
2105_2020_WY	186161.060	1528948.210	6574.683	NVA
2106_2020_MT	395371.606	1644315.149	4938.650	NVA
2107_2020_MT	418087.471	1656069.444	4867.872	NVA
2108_2020_MT	518122.300	1651737.802	5268.567	NVA
2109A_2020_MT	421376.352	1790457.346	5602.579	NVA
2110_2020_MT	343762.276	1584758.280	7078.901	NVA
2111_2020_MT	531597.696	1751512.242	4345.392	NVA
2112_2020_MT	402533.585	1658576.788	5196.162	NVA
2113_2020_WY	76281.326	1708633.720	7767.795	NVA
2114_2020_MT	646797.399	1666782.066	5136.947	NVA
2115_2020_MT	698526.406	1740350.342	6714.965	NVA
2116_2020_MT	430137.683	1679689.232	4829.639	NVA
2117_2020_MT	392227.237	1644270.371	4981.245	NVA
2118_2020_MT	598507.412	1704966.542	5092.958	NVA
2119_2020_WY	303609.596	1637935.584	5200.984	NVA
2120_2020_MT	644922.785	1707097.130	5607.328	NVA
2121_2020_MT	410989.483	1645965.346	5074.141	NVA
2122_2020_MT	512888.407	1742568.611	4900.265	NVA
2123_2020_MT	638248.192	1730874.759	6877.363	NVA
2124_2020_MT	340274.480	1586221.682	6453.373	NVA
2125_2020_WY	293205.779	1860909.768	8848.042	NVA
2126_2020_MT	439431.812	1684627.417	4792.626	NVA
2127_2020_MT	595428.403	1650217.180	5234.029	NVA
2127A_2020_MT	595610.450	1646615.474	5287.966	NVA
2128_2020_WY	283816.258	1865287.414	8032.681	NVA
2129_2020_MT	361319.713	1611022.105	5008.642	NVA
2130_2020_MT	509362.111	1679332.722	4914.329	NVA
2131_2020_MT	624738.593	1715979.225	5993.197	NVA
2132_2020_MT	634348.920	1730429.887	6465.817	NVA
2133_2020_MT	607981.411	1751050.065	6637.383	NVA
2134_2020_MT	496909.904	1778880.591	5378.826	NVA
2135_2020_MT	483575.639	1635092.387	5855.351	NVA

Point No.	State Plane Montana 2500		Ortho Height GEOID 18 (US Ft)	Description
	Northing (US Ft)	Easting (US Ft)		
2136_2020_MT	398446.982	1641917.385	4900.295	NVA
2137_2020_MT	572299.705	1679092.563	5114.056	NVA
2138A_2020_MT	335988.274	1591090.753	6308.531	NVA
2139_2020_WY	262164.406	1655030.790	6703.393	NVA
2140_2020_MT	317369.316	1635452.831	5138.312	NVA
2141_2020_MT	538944.925	1779011.039	4229.097	NVA
2142_2020_MT	568976.283	1702912.308	4668.267	NVA
3001_2020_MT	636265.166	1709392.744	5552.510	VVA
3002_2020_MT	605660.876	1731718.535	5796.021	VVA
3003_2020_WY	107059.083	1627257.045	7304.608	VVA
3004_2020_MT	547454.024	1654435.701	7135.938	VVA
3005_2020_MT	510416.937	1699273.930	4574.257	VVA
3006_2020_WY	283672.465	1658959.751	5351.144	VVA
3007_2020_MT	601720.901	1730209.889	5851.540	VVA
3008_2020_MT	610331.700	1751109.902	6594.207	VVA
3009_2020_WY	286114.491	1555835.333	6861.657	VVA
3010_2020_MT	381517.288	1622905.645	4931.908	VVA
3011_2020_MT	502519.548	1687022.381	4746.650	VVA
3012_2020_MT	504830.443	1675661.507	5220.595	VVA
3013_2020_MT	630918.065	1656467.475	5284.359	VVA
3014_2020_WY	255916.444	1759282.996	6255.437	VVA
3015_2020_MT	335808.715	1624271.035	5081.363	VVA
3016_2020_MT	593328.675	1724686.484	5572.420	VVA
3017_2020_MT	669320.537	1638417.493	5867.705	VVA
3018_2020_WY	181083.202	1550150.481	6601.289	VVA
3019_2020_WY	181654.984	1518493.278	6551.514	VVA
3020_2020_MT	720047.982	1709767.971	6167.208	VVA
3021_2020_MT	454145.079	1646485.999	6034.334	VVA
3022_2020_MT	564526.671	1714528.651	4603.796	VVA
3023_2020_MT	326018.720	1576338.377	6656.232	VVA
3024_2020_MT	673373.235	1659127.966	5342.892	VVA
3025_2020_WY	282956.090	1854115.561	8318.805	VVA
3026_2020_MT	701161.742	1716733.011	6011.917	VVA

Point No.	State Plane Montana 2500		Ortho Height GEOID 18 (US Ft)	Description
	Northing (US Ft)	Easting (US Ft)		
3027_2020_MT	309284.401	1666051.230	8431.323	VVA
3028_2020_MT	614131.126	1725168.756	5915.527	VVA
3029_2020_MT	383926.346	1626332.730	4939.820	VVA
3030_2020_MT	316682.777	1627870.894	5502.841	VVA
3031_2020_MT	395000.879	1625823.280	5217.403	VVA
3032_2020_MT	652614.126	1630429.255	5640.122	VVA
3033_2020_WY	130027.077	1621639.215	7157.310	VVA
3034_2020_MT	595286.618	1731324.921	5767.728	VVA
3035_2020_MT	548005.885	1654432.534	7147.210	VVA
3036_2020_WY	186738.778	1510111.346	6578.001	VVA
3037_2020_MT	706251.057	1739313.597	6370.571	VVA
3038_2020_MT	478856.914	1647267.061	5574.961	VVA
3039_2020_MT	389338.101	1608297.202	5610.124	VVA
3040_2020_MT	405058.011	1642955.194	5041.088	VVA
3041_2020_MT	719441.929	1707177.447	6140.631	VVA
3042_2020_MT	388735.510	1600328.332	5729.909	VVA
3043_2020_MT	572925.250	1643179.066	6902.343	VVA
3044_2020_MT	569712.698	1641697.253	7239.592	VVA
3045_2020_MT	386943.933	1623960.946	4992.170	VVA
3046_2020_MT	693018.584	1731065.671	6832.808	VVA
3047_2020_MT	646432.749	1679333.342	5080.633	VVA
3048_2020_MT	540917.463	1646068.016	6302.917	VVA
3049_2020_MT	371593.950	1720675.249	6618.517	VVA
3050_2020_MT	389211.918	1604471.638	5645.846	VVA
3051_2020_MT	388632.555	1614621.797	5273.228	VVA
3052_2020_WY	188173.832	1553420.555	6590.507	VVA
3053_2020_MT	633552.317	1709366.117	5457.091	VVA
3054_2020_MT	507723.346	1652313.930	5382.664	VVA
3055_2020_MT	574758.227	1632178.684	6831.218	VVA
3056_2020_MT	597274.218	1616209.792	6327.015	VVA
3057_2020_MT	718047.811	1714323.308	6341.306	VVA
3058_2020_MT	698494.438	1730574.565	6401.487	VVA
3059_2020_MT	646782.666	1714804.133	5927.895	VVA

Point No.	State Plane Montana 2500		Ortho Height GEOID 18 (US Ft)	Description
	Northing (US Ft)	Easting (US Ft)		
3060_2020_MT	591818.359	1614825.698	5893.553	VVA
3061_2020_MT	470965.934	1698416.049	4863.532	VVA
3062_2020_MT	357122.532	1582516.513	6826.729	VVA
3063_2020_MT	601871.743	1615161.250	6100.758	VVA
3064_2020_MT	626401.191	1608951.080	6011.809	VVA
3065_2020_MT	615925.645	1621853.492	5718.539	VVA
3066_2020_MT	559294.815	1673129.280	5428.126	VVA
3067_2020_MT	526116.158	1639728.375	6159.557	VVA
3068_2020_MT	700358.069	1703002.314	5780.529	VVA
3069_2020_MT	556020.229	1709270.822	4667.674	VVA
3070_2020_MT	595372.924	1648562.978	5287.976	VVA
3070A_2020_MT	595368.299	1648526.642	5289.463	VVA
3071_2020_MT	487430.707	1637851.216	5950.021	VVA
3072_2020_MT	542310.139	1703162.639	4871.845	VVA
3073_2020_MT	451384.180	1681279.572	4721.127	VVA
3074_2020_MT	551583.648	1705617.032	4651.614	VVA
3075_2020_MT	619470.709	1712468.624	5674.280	VVA
3076_2020_MT	594061.970	1659553.039	5106.237	VVA
3077_2020_MT	702182.200	1690769.546	5673.326	VVA
3078_2020_MT	571129.607	1701076.310	4697.934	VVA
3079_2020_MT	593979.359	1664188.367	5032.129	VVA
3080_2020_MT	701377.720	1725400.756	6187.625	VVA
3081_2020_MT	595571.507	1645943.597	5270.478	VVA
3081A_2020_MT	595388.958	1650555.596	5223.810	VVA
3082_2020_MT	360224.884	1613804.055	5005.247	VVA
3083_2020_MT	614767.864	1672118.586	5042.934	VVA
3084_2020_MT	658833.011	1687460.448	5242.253	VVA
3085_2020_MT	596688.326	1724724.958	5673.642	VVA
3086_2020_MT	434179.436	1673469.000	4917.734	VVA
3087_2020_WY	181915.760	1502654.492	7981.472	VVA
3088_2020_MT	510094.880	1679810.266	4895.004	VVA
3089_2020_MT	517395.082	1688043.555	4638.076	VVA
3090_2020_MT	577416.899	1705947.044	4768.988	VVA

Point No.	State Plane Montana 2500		Ortho Height GEOID 18 (US Ft)	Description
	Northing (US Ft)	Easting (US Ft)		
3091_2020_MT	621224.964	1632928.670	5686.938	VVA
3092_2020_MT	405625.881	1660377.877	5090.772	VVA
3093_2020_MT	427956.548	1658875.322	4950.871	VVA
3094_2020_MT	516893.757	1650288.506	5187.076	VVA
3095_2020_MT	424601.409	1677621.075	4979.462	VVA
3096_2020_MT	394131.188	1627509.667	5048.780	VVA
3096A_2020_MT	394789.293	1620196.913	5636.470	VVA
3097_2020_MT	597325.142	1629835.032	5868.542	VVA
3098_2020_MT	512566.095	1706077.460	4795.422	VVA
3099_2020_MT	316985.678	1613899.741	6275.026	VVA
3100_2020_MT	642465.197	1629948.254	5490.553	VVA
3101_2020_MT	614582.766	1678453.493	4980.388	VVA



Geodetic Control

Point No.	State Plane Montana 2500		Ortho Height GEOID 18 (US Ft)	Description
	Northing (US Ft)	Easting (US Ft)		
9 MDC	58618.714	1688875.443	7791.734	PY0803
10 12	176185.158	1659575.091	7491.207	PY0955
10 26	178701.437	1707643.119	7892.097	PY0971
150_2020_WY	-41117.835	1614465.928	7292.765	TSM
151_2020_WY	61761.088	1686663.836	7805.147	TSM
152_2020_WY	78856.605	1620554.105	7354.105	TSM
153_2020_WY	142738.053	1615108.147	6992.119	TSM
154_2020_WY	172978.587	1650480.195	7449.340	TSM
155_2020_WY	178651.114	1707615.382	7891.629	TSM
156_2020_WY	114079.703	1754090.586	7803.127	TSM
157_2020_WY	80177.457	1820317.321	7594.318	TSM
158_2020_MT	517107.133	1651420.121	5194.245	TSM
160_2020_MT	533823.542	1737800.280	4430.468	TSM

Point No.	State Plane Montana 2500		Ortho Height GEOID 18 (US Ft)	Description
	Northing (US Ft)	Easting (US Ft)		
161_2020_MT	598401.189	1714228.775	5315.609	TSM
162_2020_MT	670899.470	1698836.454	5413.774	TSM
165_2020_MT	366621.094	1616047.382	4988.190	TSM
166_2020_MT	590921.914	1633625.467	5583.291	TSM
201_2020_MT	638741.599	1650825.433	5242.066	TSM
250_2020_WY	198196.821	1549446.776	6594.225	TSM
251_2020_WY	243456.060	1768120.208	6538.457	TSM
252_2020_WY	275748.847	1830578.147	7274.558	TSM
253_2020_WY	284842.823	1864321.281	8120.233	TSM
254_2020_MT	317009.318	1635604.438	5138.080	TSM
255_2020_MT	339347.468	1593037.166	6060.040	TSM
256_2020_MT	452452.136	1680644.692	4783.485	TSM
257_2020_MT	405841.221	1680933.335	5241.740	TSM
258_2020_MT	401150.013	1782270.806	6183.071	TSM
259_2020_MT	495640.841	1762073.064	6140.983	TSM
A 162	313512.609	1636150.179	5191.898	QX0098
C 157	264982.906	1657426.402	6355.689	PY0138
E 128 RESET	569653.422	1704945.197	4621.513	AA9696
GRSL AZ MK	-40249.372	1622496.406	7221.158	PY1285
HARLEQUIN	145304.875	1606966.446	6799.970	PY0952
K 12	84066.619	1796449.842	8418.810	PY0036
LAKE ASTRO STATION	112460.687	1735101.218	7767.881	PY0011
MEERTENS 2	77333.701	1623911.861	7400.593	PY0802
PRAY	432304.079	1672954.925	4860.912	QX0055
R 161	264442.602	1560784.828	7066.341	PY0164
W 2	518259.805	1651719.199	5276.157	QX0138
X 155	382259.589	1623664.494	4931.929	QX0077
X 558	523497.567	1707788.930	4450.913	QX0522
Y 368	266503.705	1822830.880	7233.442	PY1076
Y 565	349572.969	1607864.654	5038.677	QX0565
Z 161	203185.572	1551943.177	6809.483	PY0192



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 1001_2020_MT	Northing (m) 16394023.153	Easting (m) 1628993.842	Elevation (m) 6814.831	
Point Type LCP	Latitude N45°07'32.29531"	Longitude W111°02'39.37953"	Ellipsoid Height (m) 6786.068	
Location Photo  NORTH				



1001_2020_MT_3W_20201008



1001_2020_MT_3S_20201008




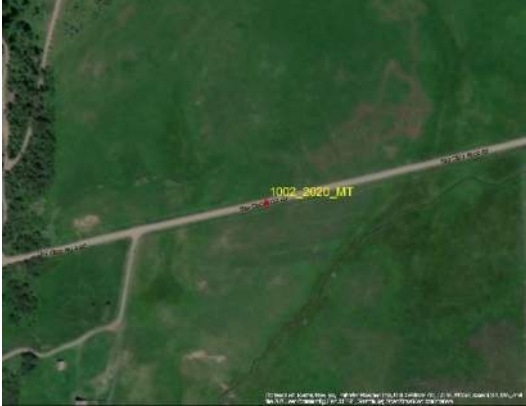
1001_2020_MT_3N_20201008



1001_2020_MT_3E_20201008



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 1002_2020_MT	Northing (m) 16406288.818	Easting (m) 1645692.883	Elevation (m) 6365.734	
Point Type LCP	Latitude N45°09'33.47256"	Longitude W110°58'46.33908"	Ellipsoid Height (m) 6336.882	
Location Photo  NORTH				



1002_2020_MT_3W_20201008



1002_2020_MT_3S_20201008





1002_2020_MT_3N_20201008



1002_2020_MT_3E_20201008



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 1003_2020_MT	Northing (m) 16418289.198	Easting (m) 1662125.756	Elevation (m) 5209.663	
Point Type LCP	Latitude N45°11'31.89927"	Longitude W110°54'56.74620"	Ellipsoid Height (m) 5180.336	
Location Photo  NORTH				



1003_2020_MT_3W_20201008



1003_2020_MT_3S_20201008





1003_2020_MT_3N_20201008



1003_2020_MT_3E_20201008



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 1003A_2020_MT	Northing (m) 16419358.917	Easting (m) 1664174.810	Elevation (m) 5119.739	
Point Type LCP	Latitude N45°11'42.44311"	Longitude W110°54'28.10600"	Ellipsoid Height (m) 5090.333	
Location Photo  NORTH				



1003A_2020_MT_3W_20201007



1003A_2020_MT_3S_20201007





1003A_2020_MT_3N_20201007



1003A_2020_MT_3E_20201007



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 1004_2020_MT	Northing (m) 16446972.574	Easting (m) 1676370.471	Elevation (m) 4979.877	
Point Type LCP	Latitude N45°16'15.01646"	Longitude W110°51'37.06897"	Ellipsoid Height (m) 4949.341	
Location Photo  NORTH				



1004_2020_MT_3SW_20201010



1004_2020_MT_3SE_20201010





1004_2020_MT_3NW_20201010



1004_2020_MT_3NE_20201010



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 1005_2020_MT	Northing (m) 16465111.739	Easting (m) 1689396.934	Elevation (m) 4994.023	
Point Type LCP	Latitude N45°19'13.91530"	Longitude W110°48'34.25279"	Ellipsoid Height (m) 4962.782	
Location Photo  NORTH				



1005_2020_MT_3W_20201010



1005_2020_MT_3S_20201010





1005_2020_MT_3N_20201010



1005_2020_MT_3E_20201010



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 1006_2020_MT	Northing (m) 16477967.395	Easting (m) 1705115.182	Elevation (m) 4916.637	
Point Type LCP	Latitude N45°21'20.46436"	Longitude W110°44'53.62913"	Ellipsoid Height (m) 4884.988	
Location Photo  NORTH				



1006_2020_MT_3SW_20201010



1006_2020_MT_3SE_20201010





1006_2020_MT_3NW_20201010



1006_2020_MT_3NE_20201010



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 1007_2020_MT	Northing (m) 16499001.028	Easting (m) 1718632.455	Elevation (m) 4862.315	
Point Type LCP	Latitude N45°24'47.74932"	Longitude W110°41'43.15076"	Ellipsoid Height (m) 4830.275	
Location Photo  NORTH				



1007_2020_MT_3SW_20201012



1007_2020_MT_3SE_20201012





1007_2020_MT_3NW_20201012



1007_2020_MT_3NE_20201012



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 1008_2020_MT	Northing (m) 16499817.308	Easting (m) 1731833.140	Elevation (m) 4837.882	
Point Type LCP	Latitude N45°24'55.27606"	Longitude W110°38'37.98528"	Ellipsoid Height (m) 4806.138	
Location Photo  NORTH				



1008_2020_MT_3SW_20201013



1008_2020_MT_3SE_20201013





1008_2020_MT_3NW_20201013



1008_2020_MT_3NE_20201013



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 1009_2020_MT	Northing (m) 16517015.637	Easting (m) 1744406.980	Elevation (m) 4795.425	
Point Type LCP	Latitude N45°27'44.55030"	Longitude W110°35'40.43928"	Ellipsoid Height (m) 4763.990	
Location Photo  NORTH				



1009_2020_MT_3SW_20201013



1009_2020_MT_3SE_20201013





1009_2020_MT_3NW_20201013



1009_2020_MT_3NE_20201013



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 1010_2020_MT	Northing (m) 16555605.860	Easting (m) 1763007.506	Elevation (m) 5232.614	
Point Type LCP	Latitude N45°34'04.67387"	Longitude W110°31'16.14977"	Ellipsoid Height (m) 5200.764	
Location Photo  NORTH				



1010_2020_MT_3SW_20201014



1010_2020_MT_3SE_20201014





1010_2020_MT_3NW_20201014



1010_2020_MT_3NE_20201014



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 1011_2020_MT	Northing (m) 16382410.179	Easting (m) 1744859.375	Elevation (m) 7683.290	
Point Type LCP	Latitude N45°05'35.03986"	Longitude W110°35'43.56817"	Ellipsoid Height (m) 7655.591	
Location Photo  NORTH				



1011_2020_MT_3W_20201007



1011_2020_MT_3S_20201007





1011_2020_MT_3N_20201007



1011_2020_MT_3E_20201007



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 1012_2020_MT	Northing (m) 16446429.148	Easting (m) 1774841.253	Elevation (m) 6308.839	
Point Type LCP	Latitude N45°16'05.65725"	Longitude W110°28'39.72009"	Ellipsoid Height (m) 6280.850	
Location Photo  NORTH				



1012_2020_MT_3W_20201015



1012_2020_MT_3S_20201015





1012_2020_MT_3N_20201015



1012_2020_MT_3E_20201015



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 1013_2020_MT	Northing (m) 16445140.057	Easting (m) 1778658.815	Elevation (m) 6608.613	
Point Type LCP	Latitude N45°15'52.67756"	Longitude W110°27'46.44389"	Ellipsoid Height (m) 6580.766	
Location Photo  NORTH				



1013_2020_MT_3W_20201015



1013_2020_MT_3S_20201015





1013_2020_MT_3N_20201015



1013_2020_MT_3E_20201015



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 1014_2020_MT	Northing (m) 16448763.942	Easting (m) 1833377.304	Elevation (m) 6672.817	
Point Type LCP	Latitude N45°16'24.15721"	Longitude W110°15'00.69622"	Ellipsoid Height (m) 6646.294	
Location Photo  NORTH				



1014_2020_MT_3W_20201020



1014_2020_MT_3S_20201020





1014_2020_MT_3N_20201020



1014_2020_MT_3E_20201020



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 1015_2020_MT	Northing (m) 16465110.931	Easting (m) 1837048.611	Elevation (m) 6243.161	
Point Type LCP	Latitude N45°19'05.26398"	Longitude W110°14'07.17420"	Ellipsoid Height (m) 6216.375	
Location Photo  NORTH				



1015_2020_MT_3SW_20201020



1015_2020_MT_3SE_20201020





1015_2020_MT_3NW_20201020



1015_2020_MT_3NE_20201020



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 1017_2020_MT	Northing (m) 16476869.881	Easting (m) 1840399.616	Elevation (m) 6167.726	
Point Type LCP	Latitude N45°21'01.08053"	Longitude W110°13'18.67471"	Ellipsoid Height (m) 6140.570	
Location Photo  NORTH				



1017_2020_MT_3SW_20201020



1017_2020_MT_3SE_20201020





1017_2020_MT_3NW_20201020



1017_2020_MT_3NE_20201020



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 1018_2020_MT	Northing (m) 16527838.022	Easting (m) 1840432.729	Elevation (m) 5255.787	
Point Type LCP	Latitude N45°29'24.43921"	Longitude W110°13'11.28646"	Ellipsoid Height (m) 5226.939	
Location Photo  NORTH				



1018_2020_MT_3SW_20201020



1018_2020_MT_3SE_20201020





1018_2020_MT_3NW_20201020



1018_2020_MT_3NE_20201020



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 1019_2020_WY	Northing (m) 16352769.930	Easting (m) 1934871.510	Elevation (m) 7885.929	
Point Type LCP	Latitude N45°00'24.40236"	Longitude W109°51'40.05817"	Ellipsoid Height (m) 7861.472	
Location Photo  NORTH				



1019_2020_WY_3SW_20201005



1019_2020_WY_3SE_20201005





1019_2020_WY_3NW_20201005



1019_2020_WY_3NE_20201005



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 1020_2020_WY	Northing (m) 16372597.817	Easting (m) 1913756.008	Elevation (m) 9071.537	
Point Type LCP	Latitude N45°03'43.04736"	Longitude W109°56'30.40738"	Ellipsoid Height (m) 9047.178	
Location Photo  NORTH				



1020_2020_WY_3SW_20201005



1020_2020_WY_3SE_20201005




1020_2020_WY_3NW_20201005



1020_2020_WY_3NE_20201005



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 1021_2020_WY	Northing (m) 16372339.941	Easting (m) 1908235.501	Elevation (m) 9514.449	
Point Type LCP	Latitude N45°03'41.20628"	Longitude W109°57'47.38122"	Ellipsoid Height (m) 9489.972	
Location Photo ↑ NORTH				



1021_2020_WY_3W_20201003



1021_2020_WY_3S_20201003





1021_2020_WY_3N_20201003



1021_2020_WY_3E_20201003



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 1022_2020_MT	Northing (m) 16702602.876	Easting (m) 1645274.376	Elevation (m) 6520.419	
Point Type LCP	Latitude N45°58'20.07009"	Longitude W110°58'51.19649"	Ellipsoid Height (m) 6484.615	
Location Photo  NORTH				



1022_2020_MT_3W_20201105



1022_2020_MT_3S_20201105





1022_2020_MT_3N_20201105



1022_2020_MT_3E_20201105



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 1023_2020_MT	Northing (m) 16692973.406	Easting (m) 1667375.725	Elevation (m) 5824.934	
Point Type LCP	Latitude N45°56'44.79827"	Longitude W110°53'38.33969"	Ellipsoid Height (m) 5789.296	
Location Photo  NORTH				



1023_2020_MT_3W_20201106



1023_2020_MT_3S_20201106





1023_2020_MT_3N_20201106



1023_2020_MT_3E_20201106



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 1024_2020_MT	Northing (m) 16708699.388	Easting (m) 1685443.909	Elevation (m) 5398.133	
Point Type LCP	Latitude N45°59'19.79011"	Longitude W110°49'22.05374"	Ellipsoid Height (m) 5362.215	
Location Photo  NORTH				



1024_2020_MT_3W_20201104



1024_2020_MT_3S_20201104





1024_2020_MT_3N_20201104



1024_2020_MT_3E_20201104



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 1025_2020_MT	Northing (m) 16710376.599	Easting (m) 1700592.933	Elevation (m) 5259.872	
Point Type LCP	Latitude N45°59'35.96523"	Longitude W110°45'47.35323"	Ellipsoid Height (m) 5223.780	
Location Photo  NORTH				



1025_2020_MT_3W_20201104



1025_2020_MT_3S_20201104





1025_2020_MT_3N_20201104



1025_2020_MT_3E_20201104





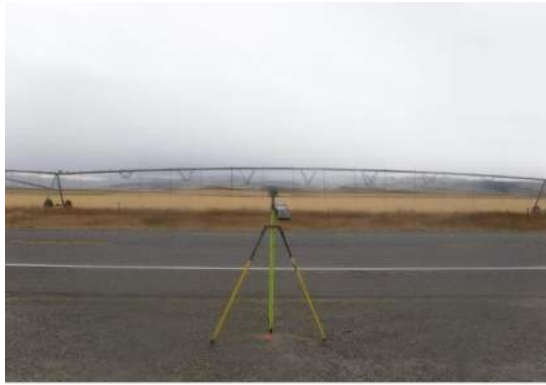
GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 1026_2020_MT	Northing (m) 16712643.417	Easting (m) 1719651.238		Elevation (m) 5123.967
Point Type LCP	Latitude N45°59'57.70359"	Longitude W110°41'17.19100"		Ellipsoid Height (m) 5087.833
Location Photo  NORTH				



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 1027_2020_MT	Northing (m) 16695786.351	Easting (m) 1732349.403	Elevation (m) 4959.988	
Point Type LCP	Latitude N45°57'10.69681"	Longitude W110°38'18.33647"	Ellipsoid Height (m) 4923.928	
Location Photo  NORTH				



1027_2020_MT_3W_20201013



1027_2020_MT_3S_20201013





1027_2020_MT_3N_20201013



1027_2020_MT_3E_20201013



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 1028_2020_MT	Northing (m) 16660265.357	Easting (m) 1745987.878	Elevation (m) 4769.169	
Point Type LCP	Latitude N45°51'19.24142"	Longitude W110°35'07.84883"	Ellipsoid Height (m) 4733.280	
Location Photo  NORTH				



1028_2020_MT_3W_20201013



1028_2020_MT_3S_20201013





1028_2020_MT_3N_20201013



1028_2020_MT_3E_20201013



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 1029_2020_MT	Northing (m) 16642981.857	Easting (m) 1759279.089	Elevation (m) 4621.329	
Point Type LCP	Latitude N45°48'27.82730"	Longitude W110°32'01.42179"	Ellipsoid Height (m) 4585.577	
Location Photo  NORTH				



1029_2020_MT_3W_20201012



1029_2020_MT_3S_20201012





1029_2020_MT_3N_20201012



1029_2020_MT_3E_20201012

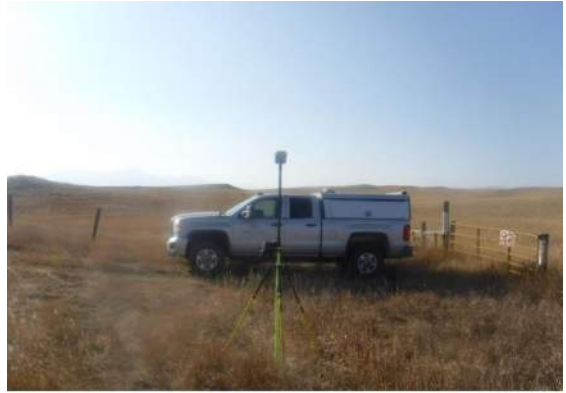


GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 1030_2020_MT	Northing (m) 16619595.506	Easting (m) 1771451.996	Elevation (m) 4453.942	
Point Type LCP	Latitude N45°44'36.12840"	Longitude W110°29'11.64311"	Ellipsoid Height (m) 4418.584	
Location Photo  NORTH				



1030_2020_MT_3W_20201010



1030_2020_MT_3S_20201010





1030_2020_MT_3N_20201010



1030_2020_MT_3E_20201010



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 1031_2020_MT	Northing (m) 16606100.973	Easting (m) 1779682.055	Elevation (m) 4451.295	
Point Type LCP	Latitude N45°42'22.31904"	Longitude W110°27'16.85393"	Ellipsoid Height (m) 4416.430	
Location Photo  NORTH				



1031_2020_MT_3W_20201009



1031_2020_MT_3S_20201009





1031_2020_MT_3N_20201009



1031_2020_MT_3E_20201009



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 1032_2020_MT	Northing (m) 16608748.077	Easting (m) 1792558.964	Elevation (m) 4364.164	
Point Type LCP	Latitude N45°42'47.55513"	Longitude W110°24'15.06710"	Ellipsoid Height (m) 4329.240	
Location Photo  NORTH				



1032_2020_MT_3W_20201009



1032_2020_MT_3S_20201009





1032_2020_MT_3N_20201009



1032_2020_MT_3E_20201009



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 1033_2020_MT	Northing (m) 16606128.113	Easting (m) 1802597.991	Elevation (m) 4359.951	
Point Type LCP	Latitude N45°42'20.91843"	Longitude W110°21'53.83640"	Ellipsoid Height (m) 4325.190	
Location Photo  NORTH				



1033_2020_MT_3W_20201009



1033_2020_MT_3S_20201009





1033_2020_MT_3N_20201009



1033_2020_MT_3E_20201009



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 1034_2020_MT	Northing (m) 16604993.912	Easting (m) 1810533.912	Elevation (m) 4323.458	
Point Type LCP	Latitude N45°42'09.08033"	Longitude W110°20'02.10942"	Ellipsoid Height (m) 4288.780	
Location Photo  NORTH				



1034_2020_MT_3W_20201010



1034_2020_MT_3S_20201010





1034_2020_MT_3N_20201010



1034_2020_MT_3E_20201010



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 1035_2020_MT	Northing (m) 16602262.494	Easting (m) 1818352.469	Elevation (m) 4296.244	
Point Type LCP	Latitude N45°41'41.44839"	Longitude W110°18'12.24585"	Ellipsoid Height (m) 4261.747	
Location Photo  NORTH				



1035_2020_MT_3W_20201107



1035_2020_MT_3S_20201107





1035_2020_MT_3N_20201107



1035_2020_MT_3E_20201107



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 1036_2020_MT	Northing (m) 16601755.625	Easting (m) 1827303.014	Elevation (m) 4275.856	
Point Type LCP	Latitude N45°41'35.65429"	Longitude W110°16'06.17594"	Ellipsoid Height (m) 4241.409	
Location Photo  NORTH				



1036_2020_MT_3W_20201010



1036_2020_MT_3S_20201010





1036_2020_MT_3N_20201010



1036_2020_MT_3E_20201010



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 1037_2020_MT	Northing (m) 16617396.205	Easting (m) 1838790.348	Elevation (m) 4249.794	
Point Type LCP	Latitude N45°44'09.04436"	Longitude W110°13'22.15707"	Ellipsoid Height (m) 4214.388	
Location Photo  NORTH				



1037_2020_MT_3W_20201010



1037_2020_MT_3S_20201010





1037_2020_MT_3N_20201010



1037_2020_MT_3E_20201010



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 1038_2020_MT	Northing (m) 16566551.393	Easting (m) 1750115.523	Elevation (m) 4558.657	
Point Type LCP	Latitude N45°35'53.49588"	Longitude W110°34'16.60650"	Ellipsoid Height (m) 4525.733	
Location Photo  NORTH				



1038_2020_MT_3W_20201009



1038_2020_MT_3S_20201009





1038_2020_MT_3N_20201009



1038_2020_MT_3E_20201009



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 1039_2020_WY	Northing (m) 16236894.929	Easting (m) 1568016.112	Elevation (m) 7497.029	
Point Type LCP	Latitude N44°41'39.02081"	Longitude W111°16'42.65535"	Ellipsoid Height (m) 7468.404	
Location Photo  NORTH				



1039_2020_WY_3SW_20200927



1039_2020_WY_3SE_20200927





1039_2020_WY_3NW_20200927



1039_2020_WY_3NE_20200927



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 1040_2020_WY	Northing (m) 16234073.533	Easting (m) 1581768.117	Elevation (m) 6605.875	
Point Type LCP	Latitude N44°41'11.57106"	Longitude W111°13'32.10107"	Ellipsoid Height (m) 6576.956	
Location Photo  NORTH				



1040_2020_WY_3W_20200927



1040_2020_WY_3S_20200927





1040_2020_WY_3N_20200927



1040_2020_WY_3E_20200927



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 1041_2020_WY	Northing (m) 16270991.705	Easting (m) 1606495.006	Elevation (m) 6592.683	
Point Type LCP	Latitude N44°47'16.78561"	Longitude W111°07'50.53214"	Ellipsoid Height (m) 6564.221	
Location Photo  NORTH				



1041_2020_WY_3SW_20200927



1041_2020_WY_3SE_20200927





1041_2020_WY_3NW_20200927



1041_2020_WY_3NE_20200927



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 1042_2020_WY	Northing (m) 16286601.612	Easting (m) 1620219.217	Elevation (m) 6829.950	
Point Type LCP	Latitude N44°49'51.15370"	Longitude W111°04'40.36932"	Ellipsoid Height (m) 6802.267	
Location Photo  NORTH				



1042_2020_WY_3SW_20200926



1042_2020_WY_3SE_20200926





1042_2020_WY_3NW_20200926



1042_2020_WY_3NE_20200926



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 1043_2020_WY	Northing (m) 16221251.796	Easting (m) 1632517.703	Elevation (m) 6698.929	
Point Type LCP	Latitude N44°39'05.70250"	Longitude W111°01'49.31050"	Ellipsoid Height (m) 6669.676	
Location Photo  NORTH				



1043_2020_WY_3W_20200926



1043_2020_WY_3S_20200926





1043_2020_WY_3N_20200926



1043_2020_WY_3E_20200926



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 1044_2020_WY	Northing (m) 16372397.059	Easting (m) 1592666.874	Elevation (m) 6628.783	
Point Type LCP	Latitude N45°03'58.17604"	Longitude W111°11'05.54847"	Ellipsoid Height (m) 6600.442	
Location Photo  NORTH				



1044_2020_WY_3SW_20200926



1044_2020_WY_3SE_20200926





1044_2020_WY_3NW_20200926



1044_2020_WY_3NE_20200926



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 1045_2020_WY	Northing (m) 16365910.566	Easting (m) 1604314.717	Elevation (m) 6747.347	
Point Type LCP	Latitude N45°02'54.33629"	Longitude W111°08'23.04244"	Ellipsoid Height (m) 6719.331	
Location Photo  NORTH				



1045_2020_WY_3SW_20200926



1045_2020_WY_3SE_20200926





1045_2020_WY_3NW_20200926



1045_2020_WY_3NE_20200926



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 1046_2020_WY	Northing (m) 16224882.154	Easting (m) 1642560.210	Elevation (m) 6737.408	
Point Type LCP	Latitude N44°39'41.57755"	Longitude W110°59'30.33131"	Ellipsoid Height (m) 6708.289	
Location Photo  NORTH				



1046_2020_WY_3W_20200926



1046_2020_WY_3S_20200926





1046_2020_WY_3N_20200926



1046_2020_WY_3E_20200926



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 1047_2020_WY	Northing (m) 16226462.832	Easting (m) 1648484.562	Elevation (m) 6748.830	
Point Type LCP	Latitude N44°39'57.17777"	Longitude W110°58'08.32429"	Ellipsoid Height (m) 6719.829	
Location Photo  NORTH				



1047_2020_WY_3W_20200926



1047_2020_WY_3S_20200926





1047_2020_WY_3N_20200926



1047_2020_WY_3E_20200926



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 1048_2020_WY	Northing (m) 16220275.615	Easting (m) 1655224.897	Elevation (m) 6756.957	
Point Type LCP	Latitude N44°38'56.02299"	Longitude W110°56'35.08449"	Ellipsoid Height (m) 6727.911	
Location Photo  NORTH				



1048_2020_WY_3W_20200926



1048_2020_WY_3S_20200926





1048_2020_WY_3N_20200926



1048_2020_WY_3E_20200926



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 1049_2020_WY	Northing (m) 16218370.169	Easting (m) 1662620.620	Elevation (m) 6781.913	
Point Type LCP	Latitude N44°38'37.13677"	Longitude W110°54'52.77056"	Ellipsoid Height (m) 6752.882	
Location Photo  NORTH				



1049_2020_WY_3W_20200926



1049_2020_WY_3S_20200926





1049_2020_WY_3N_20200926



1049_2020_WY_3E_20200926



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 1050_2020_WY	Northing (m) 16216968.757	Easting (m) 1670922.171	Elevation (m) 6801.214	
Point Type LCP	Latitude N44°38'23.19139"	Longitude W110°52'57.93258"	Ellipsoid Height (m) 6772.142	
Location Photo  NORTH				



1050_2020_WY_3W_20200926



1050_2020_WY_3S_20200926





1050_2020_WY_3N_20200926



1050_2020_WY_3E_20200926



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 1051_2020_WY	Northing (m) 16220062.295	Easting (m) 1679613.423	Elevation (m) 6870.156	
Point Type LCP	Latitude N44°38'53.60906"	Longitude W110°50'57.60361"	Ellipsoid Height (m) 6841.148	
Location Photo  NORTH				



1051_2020_WY_3W_20200926



1051_2020_WY_3S_20200926





1051_2020_WY_3N_20200926



1051_2020_WY_3E_20200926



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 1052_2020_WY	Northing (m) 16220756.881	Easting (m) 1684269.508	Elevation (m) 6858.491	
Point Type LCP	Latitude N44°39'00.38029"	Longitude W110°49'53.15409"	Ellipsoid Height (m) 6829.506	
Location Photo  NORTH				



1052_2020_WY_3W_20200926



1052_2020_WY_3S_20200926





1052_2020_WY_3N_20200926



1052_2020_WY_3E_20200926



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 1053_2020_WY	Northing (m) 16221272.306	Easting (m) 1690641.745	Elevation (m) 6907.838	
Point Type LCP	Latitude N44°39'05.33217"	Longitude W110°48'24.95716"	Ellipsoid Height (m) 6878.892	
Location Photo  NORTH				



1053_2020_WY_3W_20200926



1053_2020_WY_3S_20200926





1053_2020_WY_3N_20200926



1053_2020_WY_3E_20200926



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 1054_2020_WY	Northing (m) 16220342.307	Easting (m) 1699173.524	Elevation (m) 7015.014	
Point Type LCP	Latitude N44°38'55.92892"	Longitude W110°46'26.92610"	Ellipsoid Height (m) 6986.137	
Location Photo  NORTH				



1054_2020_WY_3W_20200927



1054_2020_WY_3S_20200927





1054_2020_WY_3N_20200927



1054_2020_WY_3E_20200927



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 1055_2020_WY	Northing (m) 16227096.330	Easting (m) 1706787.353	Elevation (m) 7255.577	
Point Type LCP	Latitude N44°40'02.42432"	Longitude W110°44'41.27477"	Ellipsoid Height (m) 7226.976	
Location Photo  NORTH				



1055_2020_WY_3W_20200927



1055_2020_WY_3S_20200927





1055_2020_WY_3N_20200927



1055_2020_WY_3E_20200927



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 1056_2020_WY	Northing (m) 16245477.222	Easting (m) 1712564.920	Elevation (m) 7451.132	
Point Type LCP	Latitude N44°43'03.80563"	Longitude W110°43'20.43349"	Ellipsoid Height (m) 7422.870	
Location Photo  NORTH				



1056_2020_WY_3W_20200927



1056_2020_WY_3S_20200927





1056_2020_WY_3N_20200927



1056_2020_WY_3E_20200927



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 1057_2020_WY	Northing (m) 16248744.093	Easting (m) 1721280.670	Elevation (m) 7492.502	
Point Type LCP	Latitude N44°43'35.76446"	Longitude W110°41'19.51119"	Ellipsoid Height (m) 7464.406	
Location Photo  NORTH				



1057_2020_WY_3W_20200927



1057_2020_WY_3S_20200927





1057_2020_WY_3N_20200927



1057_2020_WY_3E_20200927



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 1058_2020_WY	Northing (m) 16245978.680	Easting (m) 1729645.053	Elevation (m) 7719.173	
Point Type LCP	Latitude N44°43'08.11563"	Longitude W110°39'23.77404"	Ellipsoid Height (m) 7691.132	
Location Photo  NORTH				



1058_2020_WY_3W_20200927



1058_2020_WY_3S_20200927





1058_2020_WY_3N_20200927



1058_2020_WY_3E_20200927



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 1059_2020_WY	Northing (m) 16243878.104	Easting (m) 1737061.988	Elevation (m) 7818.093	
Point Type LCP	Latitude N44°42'47.04446"	Longitude W110°37'41.15016"	Ellipsoid Height (m) 7790.076	
Location Photo  NORTH				



1059_2020_WY_3W_20200927



1059_2020_WY_3S_20200927





1059_2020_WY_3N_20200927



1059_2020_WY_3E_20200927



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 1060_2020_WY	Northing (m) 16240460.186	Easting (m) 1745291.398	Elevation (m) 8227.249	
Point Type LCP	Latitude N44°42'12.89551"	Longitude W110°35'47.38355"	Ellipsoid Height (m) 8199.216	
Location Photo  NORTH				



1060_2020_WY_3W_20200927



1060_2020_WY_3S_20200927





1060_2020_WY_3N_20200927



1060_2020_WY_3E_20200927



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 1061_2020_WY	Northing (m) 16241313.807	Easting (m) 1751349.691	Elevation (m) 8207.204	
Point Type LCP	Latitude N44°42'21.02246"	Longitude W110°34'23.41063"	Ellipsoid Height (m) 8179.183	
Location Photo  NORTH				



1061_2020_WY_3W_20200928



1061_2020_WY_3S_20200928





1061_2020_WY_3N_20200928



1061_2020_WY_3E_20200928



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 1062_2020_WY	Northing (m) 16245470.473	Easting (m) 1757445.988	Elevation (m) 8141.255	
Point Type LCP	Latitude N44°43'01.75713"	Longitude W110°32'58.65187"	Ellipsoid Height (m) 8113.286	
Location Photo  NORTH				



1062_2020_WY_3W_20200928



1062_2020_WY_3S_20200928




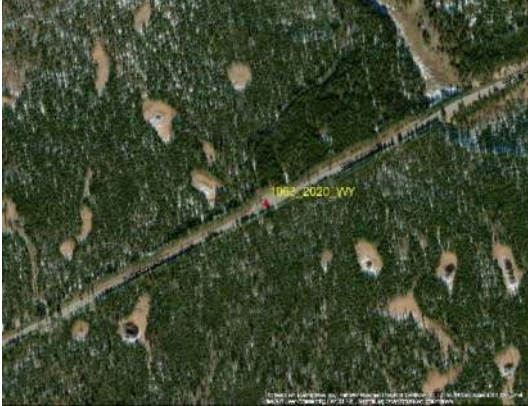
1062_2020_WY_3N_20200928



1062_2020_WY_3E_20200928



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 1063_2020_WY	Northing (m) 16246556.678	Easting (m) 1761779.755	Elevation (m) 8151.528	
Point Type LCP	Latitude N44°43'12.24531"	Longitude W110°31'58.52662"	Ellipsoid Height (m) 8123.542	
Location Photo  NORTH				



1063_2020_WY_3W_20200928



1063_2020_WY_3S_20200928





1063_2020_WY_3N_20200928



1063_2020_WY_3E_20200928



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 1064_2020_WY	Northing (m) 16253821.961	Easting (m) 1770714.762	Elevation (m) 7908.308	
Point Type LCP	Latitude N44°44'23.48501"	Longitude W110°29'54.11735"	Ellipsoid Height (m) 7880.354	
Location Photo  NORTH				



1064_2020_WY_3W_20200928



1064_2020_WY_3S_20200928





1064_2020_WY_3N_20200928



1064_2020_WY_3E_20200928



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 1069_2020_WY	Northing (m) 16315628.214	Easting (m) 1807238.923	Elevation (m) 6223.022	
Point Type LCP	Latitude N44°54'31.43120"	Longitude W110°21'21.14613"	Ellipsoid Height (m) 6195.464	
Location Photo  NORTH				



1069_2020_WY_3W_20201001



1069_2020_WY_3S_20201001





1069_2020_WY_3N_20201001



1069_2020_WY_3E_20201001



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 1070_2020_WY	Northing (m) 16317709.143	Easting (m) 1815346.087	Elevation (m) 6191.048	
Point Type LCP	Latitude N44°54'51.33378"	Longitude W110°19'28.22225"	Ellipsoid Height (m) 6163.765	
Location Photo  NORTH				



1070_2020_WY_3SW_20201001



1070_2020_WY_3SE_20201001





1070_2020_WY_3NW_20201001



1070_2020_WY_3NE_20201001



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 1071_2020_WY	Northing (m) 16319185.139	Easting (m) 1823496.340	Elevation (m) 6469.170	
Point Type LCP	Latitude N44°55'05.22654"	Longitude W110°17'34.75134"	Ellipsoid Height (m) 6442.190	
Location Photo  NORTH				



1071_2020_WY_3SW_20201002



1071_2020_WY_3SE_20201002





1071_2020_WY_3NW_20201002



1071_2020_WY_3NE_20201002



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 1072_2020_WY	Northing (m) 16317011.726	Easting (m) 1832396.384	Elevation (m) 6635.741	
Point Type LCP	Latitude N44°54'42.97522"	Longitude W110°15'31.30541"	Ellipsoid Height (m) 6608.963	
Location Photo  NORTH				



1072_2020_WY_3SW_20201001



1072_2020_WY_3SE_20201001





1072_2020_WY_3NW_20201001



1072_2020_WY_3NE_20201001



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 1072A_2020_WY	Northing (m) 16315427.531	Easting (m) 1834265.393	Elevation (m) 6637.898	
Point Type LCP	Latitude N44°54'27.15872"	Longitude W110°15'05.52977"	Ellipsoid Height (m) 6611.115	
Location Photo  NORTH				



1072A_2020_WY_3SW_20201001



1072A_2020_WY_3SE_20201001





1072A_2020_WY_3NW_20201001



1072A_2020_WY_3NE_20201001



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 1073_2020_WY	Northing (m) 16308016.547	Easting (m) 1841673.489	Elevation (m) 6586.722	
Point Type LCP	Latitude N44°53'13.27329"	Longitude W110°13'23.55329"	Ellipsoid Height (m) 6559.947	
Location Photo  NORTH				



1073_2020_WY_3SW_20201001



1073_2020_WY_3SE_20201001





1073_2020_WY_3NW_20201001



1073_2020_WY_3NE_20201001



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 1074_2020_WY	Northing (m) 16302212.667	Easting (m) 1851065.740	Elevation (m) 6590.047	
Point Type LCP	Latitude N44°52'15.04080"	Longitude W110°11'13.86881"	Ellipsoid Height (m) 6563.383	
Location Photo  NORTH				



1074_2020_WY_3W_20201001



1074_2020_WY_3S_20201001





1074_2020_WY_3N_20201001



1074_2020_WY_3E_20201001



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 1075_2020_WY	Northing (m) 16304403.089	Easting (m) 1859592.592	Elevation (m) 6656.023	
Point Type LCP	Latitude N44°52'35.81512"	Longitude W110°09'15.11787"	Ellipsoid Height (m) 6629.663	
Location Photo  NORTH				



1075_2020_WY_3SW_20201001



1075_2020_WY_3SE_20201001





1075_2020_WY_3NW_20201001



1075_2020_WY_3NE_20201001



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 1076_2020_WY	Northing (m) 16312718.647	Easting (m) 1867606.358	Elevation (m) 6766.104	
Point Type LCP	Latitude N44°53'57.10578"	Longitude W110°07'22.55219"	Ellipsoid Height (m) 6740.124	
Location Photo  NORTH				



1076_2020_WY_3SW_20201001



1076_2020_WY_3SE_20201001





1076_2020_WY_3NW_20201001



1076_2020_WY_3NE_20201001



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 1077_2020_WY	Northing (m) 16320969.348	Easting (m) 1874657.432	Elevation (m) 6921.128	
Point Type LCP	Latitude N44°55'17.83025"	Longitude W110°05'43.29133"	Ellipsoid Height (m) 6895.399	
Location Photo  NORTH				



1077_2020_WY_3SW_20201002



1077_2020_WY_3SE_20201002




1077_2020_WY_3NW_20201002



1077_2020_WY_3NE_20201002



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 1078_2020_WY	Northing (m) 16339128.983	Easting (m) 1881674.039	Elevation (m) 7232.283	
Point Type LCP	Latitude N44°58'16.39848"	Longitude W110°04'02.84751"	Ellipsoid Height (m) 7206.807	
Location Photo ↑ NORTH				



1078_2020_WY_3SW_20201003



1078_2020_WY_3SE_20201003





1078_2020_WY_3NW_20201003



1078_2020_WY_3NE_20201003



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 1079_2020_WY	Northing (m) 16351638.332	Easting (m) 1890018.033	Elevation (m) 7298.084	
Point Type LCP	Latitude N45°00'18.97979"	Longitude W110°02'04.68176"	Ellipsoid Height (m) 7272.827	
Location Photo  NORTH				



1079_2020_WY_3W_20201003



1079_2020_WY_3S_20201003





1079_2020_WY_3N_20201003



1079_2020_WY_3E_20201003



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 1080_2020_WY	Northing (m) 16351082.353	Easting (m) 1898564.426	Elevation (m) 7370.795	
Point Type LCP	Latitude N45°00'12.46585"	Longitude W110°00'05.79945"	Ellipsoid Height (m) 7345.735	
Location Photo  NORTH				



1080_2020_WY_3W_20201003



1080_2020_WY_3S_20201003





1080_2020_WY_3N_20201003



1080_2020_WY_3E_20201003



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 1081_2020_WY	Northing (m) 16355770.251	Easting (m) 1907170.379	Elevation (m) 7462.898	
Point Type LCP	Latitude N45°00'57.69882"	Longitude W109°58'05.16629"	Ellipsoid Height (m) 7438.087	
Location Photo  NORTH				



1081_2020_WY_3SW_20201003



1081_2020_WY_3SE_20201003





1081_2020_WY_3NW_20201003



1081_2020_WY_3NE_20201003



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 1082_2020_WY	Northing (m) 16180744.117	Easting (m) 1689057.356	Elevation (m) 7277.257	
Point Type LCP	Latitude N44°32'25.01889"	Longitude W110°48'48.16528"	Ellipsoid Height (m) 7247.962	
Location Photo  NORTH				



1082_2020_WY_3W_20200925



1082_2020_WY_3S_20200925





1082_2020_WY_3N_20200925



1082_2020_WY_3E_20200925



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 1083_2020_WY	Northing (m) 16005636.360	Easting (m) 1628298.076	Elevation (m) 6445.595	
Point Type LCP	Latitude N44°03'35.66752"	Longitude W111°02'46.02510"	Ellipsoid Height (m) 6414.402	
Location Photo  NORTH				



1083_2020_WY_3W_20200923



1083_2020_WY_3S_20200923





1083_2020_WY_3N_20200923



1083_2020_WY_3E_20200923



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 1084_2020_WY	Northing (m) 16009118.642	Easting (m) 1634856.631	Elevation (m) 6476.630	
Point Type LCP	Latitude N44°04'10.09641"	Longitude W111°01'16.18494"	Ellipsoid Height (m) 6445.699	
Location Photo  NORTH				



1084_2020_WY_3W_20200923



1084_2020_WY_3S_20200923





1084_2020_WY_3N_20200923



1084_2020_WY_3E_20200923



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 1085_2020_WY	Northing (m) 16012890.833	Easting (m) 1645050.458	Elevation (m) 6432.151	
Point Type LCP	Latitude N44°04'47.36502"	Longitude W110°58'56.49561"	Ellipsoid Height (m) 6401.679	
Location Photo  NORTH				



1085_2020_WY_3W_20200923



1085_2020_WY_3S_20200923





1085_2020_WY_3N_20200923



1085_2020_WY_3E_20200923



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 1086_2020_WY	Northing (m) 16022341.910	Easting (m) 1654549.868	Elevation (m) 6473.034	
Point Type LCP	Latitude N44°06'20.69364"	Longitude W110°56'46.22510"	Ellipsoid Height (m) 6443.062	
Location Photo  NORTH				



1086_2020_WY_3W_20200923



1086_2020_WY_3S_20200923





1086_2020_WY_3N_20200923



1086_2020_WY_3E_20200923



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 1087_2020_WY	Northing (m) 16026478.763	Easting (m) 1661364.447	Elevation (m) 6894.671	
Point Type LCP	Latitude N44°07'01.50776"	Longitude W110°55'12.73812"	Ellipsoid Height (m) 6865.035	
Location Photo  NORTH				



1087_2020_WY_3W_20200923



1087_2020_WY_3S_20200923





1087_2020_WY_3N_20200923



1087_2020_WY_3E_20200923



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 1088_2020_WY	Northing (m) 16031814.817	Easting (m) 1673375.682	Elevation (m) 7299.085	
Point Type LCP	Latitude N44°07'54.07542"	Longitude W110°52'27.91386"	Ellipsoid Height (m) 7269.897	
Location Photo  NORTH				



1088_2020_WY_3W_20200923



1088_2020_WY_3S_20200923





1088_2020_WY_3N_20200923



1088_2020_WY_3E_20200923



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 1089_2020_WY	Northing (m) 16152322.190	Easting (m) 1681079.423	Elevation (m) 7341.326	
Point Type LCP	Latitude N44°27'44.41862"	Longitude W110°50'39.10585"	Ellipsoid Height (m) 7312.023	
Location Photo  NORTH				



1089_2020_WY_3W_20200925



1089_2020_WY_3S_20200925





1089_2020_WY_3N_20200925



1089_2020_WY_3E_20200925



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 1090_2020_WY	Northing (m) 16148206.084	Easting (m) 1689833.088	Elevation (m) 7542.261	
Point Type LCP	Latitude N44°27'03.57506"	Longitude W110°48'38.49148"	Ellipsoid Height (m) 7513.091	
Location Photo  NORTH				



1090_2020_WY_3W_20200925



1090_2020_WY_3S_20200925





1090_2020_WY_3N_20200925



1090_2020_WY_3E_20200925



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 1091_2020_WY	Northing (m) 16140553.393	Easting (m) 1701399.423	Elevation (m) 7927.027	
Point Type LCP	Latitude N44°25'47.68230"	Longitude W110°45'59.28097"	Ellipsoid Height (m) 7898.100	
Location Photo  NORTH				



1091_2020_WY_3W_20200925



1091_2020_WY_3S_20200925




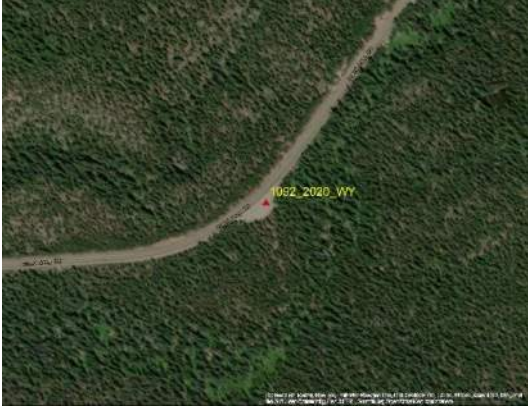
1091_2020_WY_3N_20200925



1091_2020_WY_3E_20200925



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 1092_2020_WY	Northing (m) 16142366.047	Easting (m) 1709671.414	Elevation (m) 8063.196	
Point Type LCP	Latitude N44°26'05.33969"	Longitude W110°44'05.16202"	Ellipsoid Height (m) 8034.366	
Location Photo  NORTH				



1092_2020_WY_3W_20200925



1092_2020_WY_3S_20200925





1092_2020_WY_3N_20200925



1092_2020_WY_3E_20200925



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 1093_2020_WY	Northing (m) 16146578.600	Easting (m) 1715172.061	Elevation (m) 8132.432	
Point Type LCP	Latitude N44°26'46.77030"	Longitude W110°42'49.12045"	Ellipsoid Height (m) 8103.618	
Location Photo  NORTH				



1093_2020_WY_3W_20200925



1093_2020_WY_3S_20200925





1093_2020_WY_3N_20200925



1093_2020_WY_3E_20200925



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 1094_2020_WY	Northing (m) 16142136.010	Easting (m) 1734096.502	Elevation (m) 8397.084	
Point Type LCP	Latitude N44°26'02.14741"	Longitude W110°38'28.42490"	Ellipsoid Height (m) 8368.547	
Location Photo  NORTH				



1094_2020_WY_3W_20200925



1094_2020_WY_3S_20200925





1094_2020_WY_3N_20200925



1094_2020_WY_3E_20200925



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 1095_2020_WY	Northing (m) 16141289.553	Easting (m) 1725354.332	Elevation (m) 8397.167	
Point Type LCP	Latitude N44°25'54.14662"	Longitude W110°40'28.99859"	Ellipsoid Height (m) 8368.523	
Location Photo  NORTH				



1095_2020_WY_3W_20200925



1095_2020_WY_3S_20200925





1095_2020_WY_3N_20200925



1095_2020_WY_3E_20200925



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 1096_2020_WY	Northing (m) 16136643.153	Easting (m) 1744711.883	Elevation (m) 8196.865	
Point Type LCP	Latitude N44°25'07.40097"	Longitude W110°36'02.44218"	Ellipsoid Height (m) 8168.435	
Location Photo  NORTH				



1096_2020_WY_3W_20200925



1096_2020_WY_3S_20200925




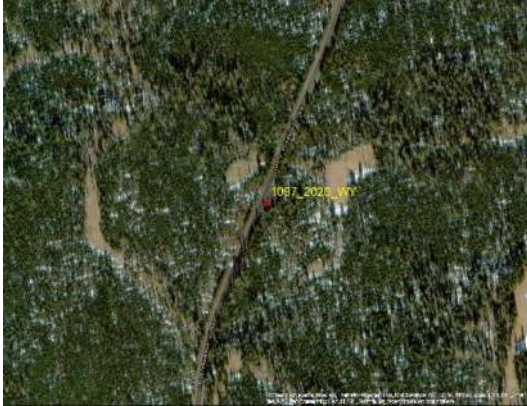
1096_2020_WY_3N_20200925



1096_2020_WY_3E_20200925



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 1097_2020_WY	Northing (m) 16114687.784	Easting (m) 1749707.366	Elevation (m) 7989.501	
Point Type LCP	Latitude N44°21'30.26941"	Longitude W110°34'55.13294"	Ellipsoid Height (m) 7961.375	
Location Photo  NORTH				



1097_2020_WY_3W_20200924



1097_2020_WY_3S_20200924





1097_2020_WY_3N_20200924



1097_2020_WY_3E_20200924



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 1098_2020_WY	Northing (m) 16124762.499	Easting (m) 1751843.051	Elevation (m) 7920.936	
Point Type LCP	Latitude N44°23'09.68353"	Longitude W110°34'25.00471"	Ellipsoid Height (m) 7892.711	
Location Photo  NORTH				



1098_2020_WY_3W_20200924



1098_2020_WY_3S_20200924




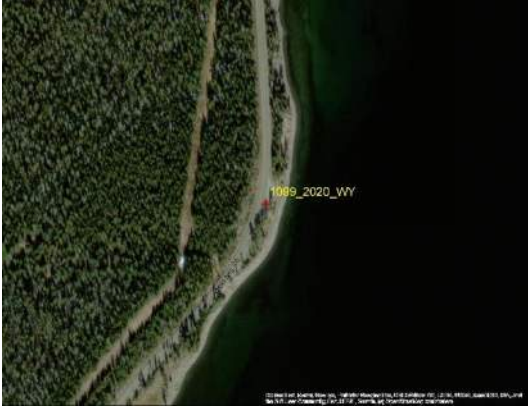
1098_2020_WY_3N_20200924



1098_2020_WY_3E_20200924



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 1099_2020_WY	Northing (m) 16151974.919	Easting (m) 1756364.108	Elevation (m) 7763.098	
Point Type LCP	Latitude N44°27'38.26037"	Longitude W110°33'20.69053"	Ellipsoid Height (m) 7734.628	
Location Photo  NORTH				



1099_2020_WY_3W_20200924



1099_2020_WY_3S_20200924





1099_2020_WY_3N_20200924



1099_2020_WY_3E_20200924



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 1100_2020_WY	Northing (m) 16156770.433	Easting (m) 1764002.184	Elevation (m) 7757.948	
Point Type LCP	Latitude N44°28'25.20835"	Longitude W110°31'34.95595"	Ellipsoid Height (m) 7729.541	
Location Photo  NORTH				



1100_2020_WY_3W_20200924



1100_2020_WY_3S_20200924





1100_2020_WY_3N_20200924



1100_2020_WY_3E_20200924



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 1101_2020_WY	Northing (m) 16154627.692	Easting (m) 1779577.489	Elevation (m) 7762.813	
Point Type LCP	Latitude N44°28'03.09487"	Longitude W110°28'00.27318"	Ellipsoid Height (m) 7734.572	
Location Photo  NORTH				



1101_2020_WY_3W_20200924



1101_2020_WY_3S_20200924




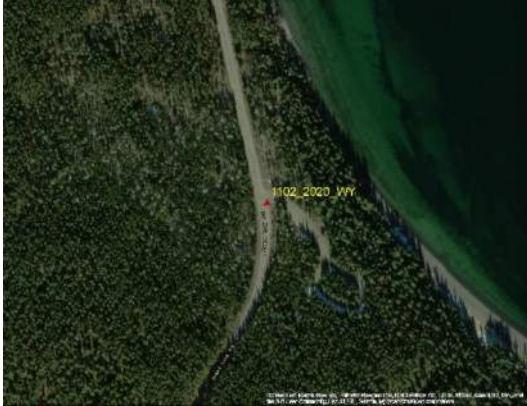
1101_2020_WY_3N_20200924



1101_2020_WY_3E_20200924



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 1102_2020_WY	Northing (m) 16165855.664	Easting (m) 1791641.581	Elevation (m) 7789.709	
Point Type LCP	Latitude N44°29'53.19464"	Longitude W110°25'12.75867"	Ellipsoid Height (m) 7761.527	
Location Photo  NORTH				



1102_2020_WY_3W_20200924



1102_2020_WY_3S_20200924





1102_2020_WY_3N_20200924



1102_2020_WY_3E_20200924



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 1103_2020_WY	Northing (m) 16184722.575	Easting (m) 1797640.620	Elevation (m) 7772.045	
Point Type LCP	Latitude N44°32'59.13209"	Longitude W110°23'48.04030"	Ellipsoid Height (m) 7743.862	
Location Photo  NORTH				



1103_2020_WY_3W_20200929



1103_2020_WY_3S_20200929





1103_2020_WY_3N_20200929



1103_2020_WY_3E_20200929



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 1104_2020_WY	Northing (m) 16184252.738	Easting (m) 1823877.816	Elevation (m) 7746.494	
Point Type LCP	Latitude N44°32'52.41691"	Longitude W110°17'45.66956"	Ellipsoid Height (m) 7718.976	
Location Photo  NORTH				



1104_2020_WY_3W_20200929



1104_2020_WY_3S_20200929





1104_2020_WY_3N_20200929



1104_2020_WY_3E_20200929



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 1105_2020_WY	Northing (m) 16169045.594	Easting (m) 1829273.531	Elevation (m) 7837.905	
Point Type LCP	Latitude N44°30'21.73937"	Longitude W110°16'33.00089"	Ellipsoid Height (m) 7811.012	
Location Photo  NORTH				



1105_2020_WY_3W_20200929



1105_2020_WY_3S_20200929





1105_2020_WY_3N_20200929



1105_2020_WY_3E_20200929



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 1106_2020_WY	Northing (m) 16167899.905	Easting (m) 1840838.929	Elevation (m) 8398.720	
Point Type LCP	Latitude N44°30'09.37950"	Longitude W110°13'53.51354"	Ellipsoid Height (m) 8372.512	
Location Photo  NORTH				



1106_2020_WY_3W_20200929



1106_2020_WY_3S_20200929





1106_2020_WY_3N_20200929



1106_2020_WY_3E_20200929



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 1107_2020_WY	Northing (m) 16163581.499	Easting (m) 1849709.135	Elevation (m) 8611.169	
Point Type LCP	Latitude N44°29'25.88221"	Longitude W110°11'51.67222"	Ellipsoid Height (m) 8585.430	
Location Photo  NORTH				



1107_2020_WY_3W_20200929



1107_2020_WY_3S_20200929





1107_2020_WY_3N_20200929



1107_2020_WY_3E_20200929



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 1108_2020_WY	Northing (m) 16157169.696	Easting (m) 1862067.805	Elevation (m) 8458.538	
Point Type LCP	Latitude N44°28'21.31646"	Longitude W110°09'02.05444"	Ellipsoid Height (m) 8433.294	
Location Photo  NORTH				



1108_2020_WY_3W_20200929



1108_2020_WY_3S_20200929





1108_2020_WY_3N_20200929



1108_2020_WY_3E_20200929



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 1109_2020_WY	Northing (m) 16152380.128	Easting (m) 1871958.153	Elevation (m) 8296.708	
Point Type LCP	Latitude N44°27'32.97066"	Longitude W110°06'46.33769"	Ellipsoid Height (m) 8271.645	
Location Photo  NORTH				



1109_2020_WY_3W_20200930



1109_2020_WY_3S_20200930





1109_2020_WY_3N_20200930



1109_2020_WY_3E_20200930



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 1110_2020_WY	Northing (m) 16154787.555	Easting (m) 1879539.193	Elevation (m) 7842.014	
Point Type LCP	Latitude N44°27'55.92419"	Longitude W110°05'01.41321"	Ellipsoid Height (m) 7816.943	
Location Photo  NORTH				



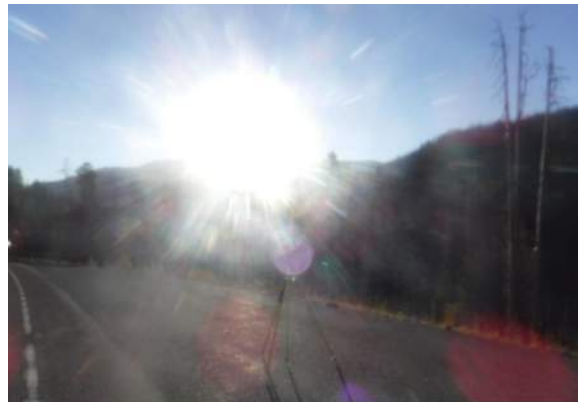
1110_2020_WY_3W_20200930



1110_2020_WY_3S_20200930





1110_2020_WY_3N_20200930

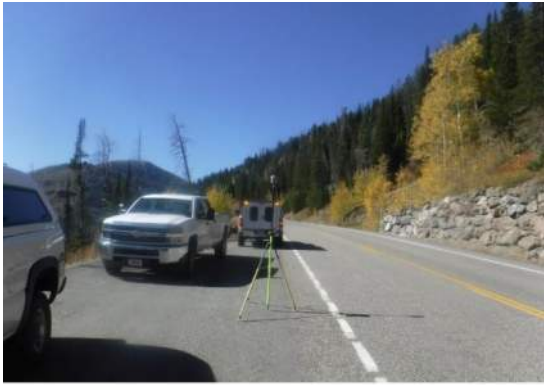


1110_2020_WY_3E_20200930



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 1111_2020_WY	Northing (m) 16158059.321	Easting (m) 1887297.233	Elevation (m) 7408.382	
Point Type LCP	Latitude N44°28'27.36776"	Longitude W110°03'13.88677"	Ellipsoid Height (m) 7383.349	
Location Photo  NORTH				



1111_2020_WY_3W_20200930



1111_2020_WY_3S_20200930





1111_2020_WY_3N_20200930



1111_2020_WY_3E_20200930



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 1112_2020_WY	Northing (m) 16159820.663	Easting (m) 1892024.759	Elevation (m) 7157.440	
Point Type LCP	Latitude N44°28'44.21939"	Longitude W110°02'08.38555"	Ellipsoid Height (m) 7132.414	
Location Photo  NORTH				



1112_2020_WY_3W_20200930



1112_2020_WY_3S_20200930





1112_2020_WY_3N_20200930



1112_2020_WY_3E_20200930



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 1113_2020_WY	Northing (m) 16163286.821	Easting (m) 1899816.457	Elevation (m) 6956.794	
Point Type LCP	Latitude N44°29'17.53316"	Longitude W110°00'20.31230"	Ellipsoid Height (m) 6931.753	
Location Photo  NORTH				



1113_2020_WY_3W_20200930



1113_2020_WY_3S_20200930





1113_2020_WY_3N_20200930



1113_2020_WY_3E_20200930



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 1114_2020_WY	Northing (m) 16166706.607	Easting (m) 1906776.062	Elevation (m) 6836.595	
Point Type LCP	Latitude N44°29'50.46298"	Longitude W109°58'43.69607"	Ellipsoid Height (m) 6811.482	
Location Photo  NORTH				



1114_2020_WY_3W_20200930



1114_2020_WY_3S_20200930





1114_2020_WY_3N_20200930



1114_2020_WY_3E_20200930



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 1115_2020_WY	Northing (m) 16371208.330	Easting (m) 1701479.012	Elevation (m) 5232.498	
Point Type LCP	Latitude N45°03'46.09218"	Longitude W110°45'48.94767"	Ellipsoid Height (m) 5203.634	
Location Photo  NORTH				



1115_2020_WY_3SW_20200930



1115_2020_WY_3SE_20200930





1115_2020_WY_3NW_20200930



1115_2020_WY_3NE_20200930



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 1116_2020_WY	Northing (m) 16357098.802	Easting (m) 1915763.426	Elevation (m) 7575.311	
Point Type LCP	Latitude N45°01'09.72089"	Longitude W109°56'05.27592"	Ellipsoid Height (m) 7550.701	
Location Photo  NORTH				



1116_2020_WY_3SW_20201004



1116_2020_WY_3SE_20201004





1116_2020_WY_3NW_20201004



1116_2020_WY_3NE_20201004



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 1117_2020_WY	Northing (m) 16359791.596	Easting (m) 1924131.991	Elevation (m) 8020.004	
Point Type LCP	Latitude N45°01'35.21090"	Longitude W109°54'08.24072"	Ellipsoid Height (m) 7995.581	
Location Photo  NORTH				



1117_2020_WY_3SW_20201004



1117_2020_WY_3SE_20201004





1117_2020_WY_3NW_20201004



1117_2020_WY_3NE_20201004



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 1118_2020_WY	Northing (m) 16353511.210	Easting (m) 1933963.796	Elevation (m) 7951.952	
Point Type LCP	Latitude N45°00'31.84886"	Longitude W109°51'52.54991"	Ellipsoid Height (m) 7927.507	
Location Photo  NORTH				



1118_2020_WY_3SW_20201005



1118_2020_WY_3SE_20201005





1118_2020_WY_3NW_20201005



1118_2020_WY_3NE_20201005



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 1119_2020_WY	Northing (m) 16339319.343	Easting (m) 1943474.105	Elevation (m) 7014.824	
Point Type LCP	Latitude N44°58'10.35785"	Longitude W109°49'43.00846"	Ellipsoid Height (m) 6990.045	
Location Photo  NORTH				



1119_2020_WY_3SW_20201004



1119_2020_WY_3SE_20201004





1119_2020_WY_3NW_20201004



1119_2020_WY_3NE_20201004



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 1120_2020_WY	Northing (m) 16333614.414	Easting (m) 1951723.507	Elevation (m) 6915.103	
Point Type LCP	Latitude N44°57'12.82530"	Longitude W109°47'49.42209"	Ellipsoid Height (m) 6890.173	
Location Photo  NORTH				



1120_2020_WY_3SW_20201004



1120_2020_WY_3SE_20201004





1120_2020_WY_3NW_20201004



1120_2020_WY_3NE_20201004



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2001_2020_WY	Northing (m) 16361412.753	Easting (m) 1928255.502	Elevation (m) 8048.449	
Point Type NVA	Latitude N45°01'50.66501"	Longitude W109°53'10.50624"	Ellipsoid Height (m) 8024.062	
Location Photo  NORTH				



2001_2020_WY_3SW_20201005



2001_2020_WY_3SE_20201005





2001_2020_WY_3NW_20201005



2001_2020_WY_3NE_20201005



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2002_2020_MT	Northing (m) 16774686.440	Easting (m) 1768537.689	Elevation (m) 6012.454	
Point Type NVA	Latitude N46°10'07.92886"	Longitude W110°29'38.86636"	Ellipsoid Height (m) 5978.001	
Location Photo  NORTH				



2002_2020_MT_3W_20201022



2002_2020_MT_3S_20201022





2002_2020_MT_3N_20201022



2002_2020_MT_3E_20201022



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2003_2020_MT	Northing (m) 16569537.928	Easting (m) 1825390.782	Elevation (m) 5836.839	
Point Type NVA	Latitude N45°36'17.65243"	Longitude W110°16'37.22009"	Ellipsoid Height (m) 5804.748	
Location Photo  NORTH				



2003_2020_MT_3W_20201009



2003_2020_MT_3S_20201009





2003_2020_MT_3N_20201009



2003_2020_MT_3E_20201009



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2004_2020_MT	Northing (m) 16631423.962	Easting (m) 1772442.319	Elevation (m) 4652.384	
Point Type NVA	Latitude N45°46'32.88241"	Longitude W110°28'56.59454"	Ellipsoid Height (m) 4616.818	
Location Photo  NORTH				



2004_2020_MT_3W_20201010



2004_2020_MT_3S_20201010





2004_2020_MT_3N_20201010



2004_2020_MT_3E_20201010



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2005_2020_MT	Northing (m) 16531389.557	Easting (m) 1734291.808	Elevation (m) 4769.082	
Point Type NVA	Latitude N45°30'06.99536"	Longitude W110°38'01.48862"	Ellipsoid Height (m) 4736.928	
Location Photo  NORTH				



2005_2020_MT_3SW_20201014



2005_2020_MT_3SE_20201014





2005_2020_MT_3NW_20201014



2005_2020_MT_3NE_20201014



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2006_2020_MT	Northing (m) 16708875.269	Easting (m) 1782227.802	Elevation (m) 6627.549	
Point Type NVA	Latitude N45°59'17.11599"	Longitude W110°26'30.84484"	Ellipsoid Height (m) 6593.459	
Location Photo  NORTH				



2006_2020_MT_3W_20201020



2006_2020_MT_3S_20201020





2006_2020_MT_3N_20201020



2006_2020_MT_3E_20201020



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2007_2020_MT	Northing (m) 16720286.983	Easting (m) 1711225.836	Elevation (m) 5204.985	
Point Type NVA	Latitude N46°01'13.49828"	Longitude W110°43'16.20404"	Ellipsoid Height (m) 5168.830	
Location Photo  NORTH				



2007_2020_MT_3W_20201104



2007_2020_MT_3S_20201104





2007_2020_MT_3N_20201104



2007_2020_MT_3E_20201104



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2008_2020_WY	Northing (m) 16302275.103	Easting (m) 1628548.973	Elevation (m) 7050.847	
Point Type NVA	Latitude N44°52'26.03758"	Longitude W111°02'44.86316"	Ellipsoid Height (m) 7023.737	
Location Photo  NORTH				



2008_2020_WY_3SW_20200926



2008_2020_WY_3SE_20200926





2008_2020_WY_3NW_20200926



2008_2020_WY_3NE_20200926



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2009_2020_MT	Northing (m) 16507431.004	Easting (m) 1716846.544	Elevation (m) 5065.940	
Point Type NVA	Latitude N45°26'11.07640"	Longitude W110°42'07.75716"	Ellipsoid Height (m) 5033.818	
Location Photo  NORTH				



2009_2020_MT_3W_20201012



2009_2020_MT_3S_20201012





2009_2020_MT_3N_20201012



2009_2020_MT_3E_20201012



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2010_2020_MT	Northing (m) 16756550.380	Easting (m) 1769295.588	Elevation (m) 6010.903	
Point Type NVA	Latitude N46°07'08.78241"	Longitude W110°29'29.74330"	Ellipsoid Height (m) 5976.505	
Location Photo  NORTH				



2010_2020_MT_3W_20201021



2010_2020_MT_3S_20201021





2010_2020_MT_3N_20201021



2010_2020_MT_3E_20201021



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2011_2020_WY	Northing (m) 16321935.011	Easting (m) 1709816.410	Elevation (m) 7277.504	
Point Type NVA	Latitude N44°55'39.13535"	Longitude W110°43'55.01856"	Ellipsoid Height (m) 7249.571	
Location Photo  NORTH				



2011_2020_WY_3SW_20200929



2011_2020_WY_3SE_20200929





2011_2020_WY_3NW_20200929



2011_2020_WY_3NE_20200929



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2012_2020_MT	Northing (m) 16753578.469	Easting (m) 1709009.109	Elevation (m) 5324.470	
Point Type NVA	Latitude N46°06'42.35024"	Longitude W110°43'46.02334"	Ellipsoid Height (m) 5288.403	
Location Photo  NORTH				



2012_2020_MT_3W_20201023



2012_2020_MT_3S_20201023





2012_2020_MT_3N_20201023



2012_2020_MT_3E_20201023



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2013_2020_WY	Northing (m) 16346084.001	Easting (m) 1884468.337	Elevation (m) 7211.628	
Point Type NVA	Latitude N44°59'24.76933"	Longitude W110°03'22.84277"	Ellipsoid Height (m) 7186.248	
Location Photo  NORTH				



2013_2020_WY_3W_20201003



2013_2020_WY_3S_20201003





2013_2020_WY_3N_20201003



2013_2020_WY_3E_20201003



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2014_2020_MT	Northing (m) 16696260.075	Easting (m) 1762737.096	Elevation (m) 5770.081	
Point Type NVA	Latitude N45°57'13.78893"	Longitude W110°31'08.05409"	Ellipsoid Height (m) 5734.814	
Location Photo  NORTH				



2014_2020_MT_3W_20201020



2014_2020_MT_3S_20201020





2014_2020_MT_3N_20201020



2014_2020_MT_3E_20201020



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2015_2020_MT	Northing (m) 16474285.752	Easting (m) 1708417.206	Elevation (m) 4917.961	
Point Type NVA	Latitude N45°20'43.99642"	Longitude W110°44'07.54050"	Ellipsoid Height (m) 4886.441	
Location Photo  NORTH				



2015_2020_MT_3W_20201011



2015_2020_MT_3S_20201011





2015_2020_MT_3N_20201011



2015_2020_MT_3E_20201011



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2016_2020_MT	Northing (m) 16715494.051	Easting (m) 1786927.375	Elevation (m) 6641.622	
Point Type NVA	Latitude N46°00'22.14873"	Longitude W110°25'23.58647"	Ellipsoid Height (m) 6607.924	
Location Photo  NORTH				



2016_2020_MT_3W_20201020



2016_2020_MT_3S_20201020





2016_2020_MT_3N_20201020



2016_2020_MT_3E_20201020



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2017_2020_MT	Northing (m) 16682917.616	Easting (m) 1787486.372	Elevation (m) 5979.005	
Point Type NVA	Latitude N45°55'00.40072"	Longitude W110°25'19.01292"	Ellipsoid Height (m) 5944.207	
Location Photo  NORTH				



2017_2020_MT_3W_20201011



2017_2020_MT_3S_20201011





2017_2020_MT_3N_20201011



2017_2020_MT_3E_20201011



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2018_2020_MT	Northing (m) 16603475.860	Easting (m) 1748292.831	Elevation (m) 4819.478	
Point Type NVA	Latitude N45°41'58.26692"	Longitude W110°34'39.51154"	Ellipsoid Height (m) 4784.700	
Location Photo  NORTH				



2018_2020_WY_3W_20201007



2018_2020_WY_3S_20201007





2018_2020_WY_3N_20201007



2018_2020_WY_3E_20201007



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2019_2020_MT	Northing (m) 16588725.361	Easting (m) 1773379.611	Elevation (m) 4751.098	
Point Type NVA	Latitude N45°39'31.13089"	Longitude W110°28'47.28322"	Ellipsoid Height (m) 4717.194	
Location Photo  NORTH				



2019_2020_MT_3W_20201009



2019_2020_MT_3S_20201009





2019_2020_MT_3N_20201009



2019_2020_MT_3E_20201009



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2020_2020_MT	Northing (m) 16619769.182	Easting (m) 1709156.220	Elevation (m) 7136.127	
Point Type NVA	Latitude N45°44'40.85382"	Longitude W110°43'50.35177"	Ellipsoid Height (m) 7101.449	
Location Photo  NORTH				



2020_2020_MT_3W_20201107



2020_2020_MT_3S_20201107





2020_2020_MT_3N_20201107



2020_2020_MT_3E_20201107



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2021_2020_MT	Northing (m) 16631350.562	Easting (m) 1730444.312	Elevation (m) 5230.337	
Point Type NVA	Latitude N45°46'34.41571"	Longitude W110°38'49.34351"	Ellipsoid Height (m) 5195.001	
Location Photo  NORTH				



2021_2020_WY_3W_20201007



2021_2020_WY_3S_20201007





2021_2020_WY_3N_20201007



2021_2020_WY_3E_20201007



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2022_2020_MT	Northing (m) 16486934.798	Easting (m) 1722239.955	Elevation (m) 5006.627	
Point Type NVA	Latitude N45°22'48.43537"	Longitude W110°40'53.23200"	Ellipsoid Height (m) 4974.933	
Location Photo  NORTH				



2022_2020_MT_3SW_20201012



2022_2020_MT_3SE_20201012





2022_2020_MT_3NW_20201012



2022_2020_MT_3NE_20201012



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2023_2020_MT	Northing (m) 16732016.265	Easting (m) 1759607.429	Elevation (m) 5667.376	
Point Type NVA	Latitude N46°03'07.08624"	Longitude W110°31'49.38070"	Ellipsoid Height (m) 5632.422	
Location Photo  NORTH				



2023_2020_MT_3W_20201021



2023_2020_MT_3S_20201021





2023_2020_MT_3N_20201021



2023_2020_MT_3E_20201021



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2024_2020_MT	Northing (m) 16647910.035	Easting (m) 1684570.708	Elevation (m) 7083.184	
Point Type NVA	Latitude N45°49'19.45124"	Longitude W110°49'36.29558"	Ellipsoid Height (m) 7047.951	
Location Photo  NORTH				



2024_2020_MT_3W_20201106



2024_2020_MT_3S_20201106





2024_2020_MT_3N_20201106



2024_2020_MT_3E_20201106



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2025_2020_WY	Northing (m) 16206394.632	Easting (m) 1796751.818	Elevation (m) 7742.003	
Point Type NVA	Latitude N44°36'33.26991"	Longitude W110°23'58.11547"	Ellipsoid Height (m) 7713.799	
Location Photo  NORTH				



2025_2020_WY_3W_20200928



2025_2020_WY_3S_20200928





2025_2020_WY_3N_20200928



2025_2020_WY_3E_20200928



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2026_2020_MT	Northing (m) 16461765.223	Easting (m) 1701877.962	Elevation (m) 5029.995	
Point Type NVA	Latitude N45°18'40.53314"	Longitude W110°45'39.65273"	Ellipsoid Height (m) 4998.891	
Location Photo  NORTH				



2026_2020_MT_3W_20201011



2026_2020_MT_3S_20201011





2026_2020_MT_3N_20201011



2026_2020_MT_3E_20201011



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2027_2020_WY	Northing (m) 16213998.042	Easting (m) 1786415.775	Elevation (m) 7762.444	
Point Type NVA	Latitude N44°37'49.10186"	Longitude W110°26'20.31749"	Ellipsoid Height (m) 7734.069	
Location Photo  NORTH				



2027_2020_WY_3W_20200928



2027_2020_WY_3S_20200928





2027_2020_WY_3N_20200928



2027_2020_WY_3E_20200928



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2028_2020_MT	Northing (m) 16526339.650	Easting (m) 1702856.101	Elevation (m) 6014.944	
Point Type NVA	Latitude N45°29'18.29754"	Longitude W110°45'23.22485"	Ellipsoid Height (m) 5982.822	
Location Photo  NORTH				



2028_2020_MT_3W_20201014



2028_2020_MT_3S_20201014





2028_2020_MT_3N_20201014



2028_2020_MT_3E_20201014



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2029A_2020_MT	Northing (m) 16414816.768	Easting (m) 1655148.105	Elevation (m) 5734.278	
Point Type NVA	Latitude N45°10'57.66129"	Longitude W110°56'34.25113"	Ellipsoid Height (m) 5705.198	
Location Photo  NORTH				



2029A_2020_MT_3SW_20201009



2029A_2020_MT_3SE_20201009





2029A_2020_MT_3NW_20201009



2029A_2020_MT_3NE_20201009



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2030_2020_MT	Northing (m) 16775113.520	Easting (m) 1708340.916	Elevation (m) 5360.521	
Point Type NVA	Latitude N46°10'15.04337"	Longitude W110°43'54.47913"	Ellipsoid Height (m) 5324.436	
Location Photo  NORTH				



2030_2020_MT_3W_20201023



2030_2020_MT_3S_20201023





2030_2020_MT_3N_20201023



2030_2020_MT_3E_20201023



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2031_2020_MT	Northing (m) 16642740.381	Easting (m) 1690222.167	Elevation (m) 7253.546	
Point Type NVA	Latitude N45°48'28.26601"	Longitude W110°48'16.64407"	Ellipsoid Height (m) 7218.415	
Location Photo  NORTH				



2031_2020_MT_3W_20201106



2031_2020_MT_3S_20201106





2031_2020_MT_3N_20201106



2031_2020_MT_3E_20201106



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2032_2020_MT	Northing (m) 16645254.855	Easting (m) 1731242.817	Elevation (m) 5170.108	
Point Type NVA	Latitude N45°48'51.70067"	Longitude W110°38'37.19867"	Ellipsoid Height (m) 5134.474	
Location Photo  NORTH				



2032_2020_MT_3W_20201107



2032_2020_MT_3S_20201107





2032_2020_MT_3N_20201107



2032_2020_MT_3E_20201107



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2033_2020_MT	Northing (m) 16786293.201	Easting (m) 1760707.525	Elevation (m) 5988.253	
Point Type NVA	Latitude N46°12'03.02607"	Longitude W110°31'29.17421"	Ellipsoid Height (m) 5953.581	
Location Photo  NORTH				



2033_2020_MT_3W_20201023



2033_2020_MT_3S_20201023





2033_2020_MT_3N_20201023



2033_2020_MT_3E_20201023



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2034_2020_MT	Northing (m) 16670622.992	Easting (m) 1738809.655	Elevation (m) 4816.230	
Point Type NVA	Latitude N45°53'01.88809"	Longitude W110°36'48.59512"	Ellipsoid Height (m) 4780.287	
Location Photo  NORTH				



2034_2020_MT_3W_20201013



2034_2020_MT_3S_20201013





2034_2020_MT_3N_20201013



2034_2020_MT_3E_20201013

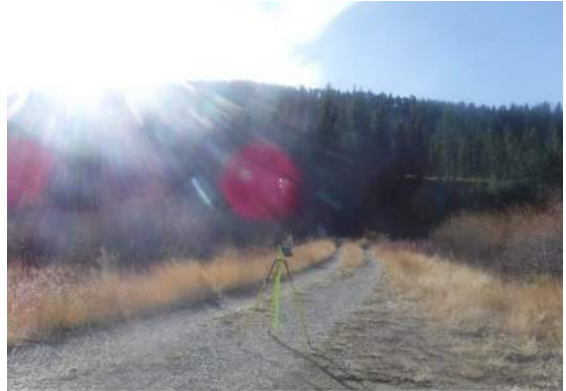


GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2035_2020_MT	Northing (m) 16661746.548	Easting (m) 1678424.110	Elevation (m) 5640.529	
Point Type NVA	Latitude N45°51'36.22534"	Longitude W110°51'02.75471"	Ellipsoid Height (m) 5605.076	
Location Photo  NORTH				



2035_2020_MT_3W_20201107



2035_2020_MT_3S_20201107





2035_2020_MT_3N_20201107



2035_2020_MT_3E_20201107



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2036_2020_WY	Northing (m) 16359819.513	Easting (m) 1714767.172	Elevation (m) 5275.545	
Point Type NVA	Latitude N45°01'53.17467"	Longitude W110°42'44.31099"	Ellipsoid Height (m) 5246.790	
Location Photo  NORTH				



2036_2020_WY_3W_20200930



2036_2020_WY_3S_20200930





2036_2020_WY_3N_20200930



2036_2020_WY_3E_20200930



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2037_2020_MT	Northing (m) 16645941.452	Easting (m) 1766391.522	Elevation (m) 4712.470	
Point Type NVA	Latitude N45°48'56.63377"	Longitude W110°30'20.72497"	Ellipsoid Height (m) 4676.741	
Location Photo  NORTH				



2037_2020_MT_3W_20201012



2037_2020_MT_3S_20201012





2037_2020_MT_3N_20201012



2037_2020_MT_3E_20201012



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2038_2020_WY	Northing (m) 16330112.051	Easting (m) 1625082.575	Elevation (m) 7137.229	
Point Type NVA	Latitude N44°57'00.98331"	Longitude W111°03'33.29985"	Ellipsoid Height (m) 7110.345	
Location Photo  NORTH				



2038_2020_WY_3W_20200926



2038_2020_WY_3S_20200926





2038_2020_WY_3N_20200926



2038_2020_WY_3E_20200926



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2039_2020_MT	Northing (m) 16589411.407	Easting (m) 1706883.488	Elevation (m) 5192.221	
Point Type NVA	Latitude N45°39'41.10471"	Longitude W110°44'23.80200"	Ellipsoid Height (m) 5158.066	
Location Photo  NORTH				



2039_2020_WY_3W_20201006



2039_2020_WY_3S_20201006





2039_2020_WY_3N_20201006



2039_2020_WY_3E_20201006



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2040_2020_MT	Northing (m) 16550015.487	Easting (m) 1705412.390	Elevation (m) 5586.981	
Point Type NVA	Latitude N45°33'12.05747"	Longitude W110°44'46.27896"	Ellipsoid Height (m) 5554.201	
Location Photo  NORTH				



2040_2020_WY_3W_20201008



2040_2020_WY_3S_20201008





2040_2020_WY_3N_20201008



2040_2020_WY_3E_20201008



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2041_2020_MT	Northing (m) 16603337.636	Easting (m) 1723927.655	Elevation (m) 5262.365	
Point Type NVA	Latitude N45°41'58.02796"	Longitude W110°40'22.93430"	Ellipsoid Height (m) 5227.762	
Location Photo  NORTH				



2041_2020_WY_3W_20201008



2041_2020_WY_3S_20201008





2041_2020_WY_3N_20201008



2041_2020_WY_3E_20201008



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2042_2020_MT	Northing (m) 16793262.290	Easting (m) 1761421.180	Elevation (m) 6167.507	
Point Type NVA	Latitude N46°13'11.80495"	Longitude W110°31'18.42749"	Ellipsoid Height (m) 6132.868	
Location Photo  NORTH				



2042_2020_MT_3W_20201023



2042_2020_MT_3S_20201023





2042_2020_MT_3N_20201023



2042_2020_MT_3E_20201023



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2043_2020_MT	Northing (m) 16590896.013	Easting (m) 1761924.664	Elevation (m) 4639.098	
Point Type NVA	Latitude N45°39'53.27157"	Longitude W110°31'28.43313"	Ellipsoid Height (m) 4604.895	
Location Photo  NORTH				



2043_2020_MT_3W_20201009



2043_2020_MT_3S_20201009





2043_2020_MT_3N_20201009



2043_2020_MT_3E_20201009

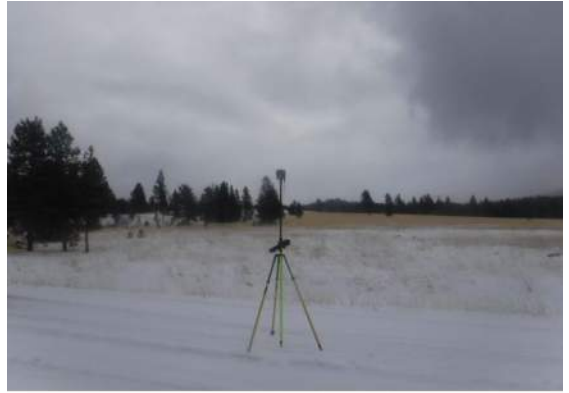


GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2044_2020_MT	Northing (m) 16775581.864	Easting (m) 1794876.992	Elevation (m) 6852.239	
Point Type NVA	Latitude N46°10'14.94424"	Longitude W110°23'24.39705"	Ellipsoid Height (m) 6818.724	
Location Photo  NORTH				



2044_2020_MT_3W_20201022



2044_2020_MT_3S_20201022





2044_2020_MT_3N_20201022



2044_2020_MT_3E_20201022



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2045_2020_MT	Northing (m) 16389312.419	Easting (m) 1677603.532	Elevation (m) 5994.095	
Point Type NVA	Latitude N45°06'45.46893"	Longitude W110°51'21.25977"	Ellipsoid Height (m) 5965.211	
Location Photo  NORTH				



2045_2020_MT_3W_20201006



2045_2020_MT_3S_20201006





2045_2020_MT_3N_20201006



2045_2020_MT_3E_20201006



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2046_2020_WY	Northing (m) 16325122.957	Easting (m) 1818377.398	Elevation (m) 6223.087	
Point Type NVA	Latitude N44°56'04.30917"	Longitude W110°18'45.21235"	Ellipsoid Height (m) 6196.103	
Location Photo  NORTH				



2046_2020_WY_3W_20201001



2046_2020_WY_3S_20201001





2046_2020_WY_3N_20201001



2046_2020_WY_3E_20201001



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2047_2020_MT	Northing (m) 16648709.762	Easting (m) 1753360.557	Elevation (m) 4654.981	
Point Type NVA	Latitude N45°49'24.72833"	Longitude W110°33'24.55219"	Ellipsoid Height (m) 4619.172	
Location Photo  NORTH				



2047_2020_MT_3W_20201012



2047_2020_MT_3S_20201012





2047_2020_MT_3N_20201012



2047_2020_MT_3E_20201012



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2048_2020_WY	Northing (m) 16026605.752	Easting (m) 1663629.352	Elevation (m) 6987.049	
Point Type NVA	Latitude N44°07'02.73944"	Longitude W110°54'41.67710"	Ellipsoid Height (m) 6957.520	
Location Photo  NORTH				



2048_2020_WY_3W_20200923



2048_2020_WY_3S_20200923





2048_2020_WY_3N_20200923



2048_2020_WY_3E_20200923



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2049_2020_MT	Northing (m) 16585690.312	Easting (m) 1739454.137	Elevation (m) 4618.346	
Point Type NVA	Latitude N45°39'03.05398"	Longitude W110°36'45.30041"	Ellipsoid Height (m) 4584.161	
Location Photo  NORTH				



2049_2020_WY_3W_20201006



2049_2020_WY_3S_20201006





2049_2020_WY_3N_20201006



2049_2020_WY_3E_20201006



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2050_2020_MT	Northing (m) 16661137.598	Easting (m) 1670639.476	Elevation (m) 5795.678	
Point Type NVA	Latitude N45°51'30.34025"	Longitude W110°52'52.80510"	Ellipsoid Height (m) 5760.240	
Location Photo  NORTH				



2050_2020_MT_3W_20201107



2050_2020_MT_3S_20201107





2050_2020_MT_3N_20201107



2050_2020_MT_3E_20201107



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2051_2020_WY	Northing (m) 16329635.773	Easting (m) 1819379.840	Elevation (m) 6265.745	
Point Type NVA	Latitude N44°56'48.79829"	Longitude W110°18'30.73806"	Ellipsoid Height (m) 6238.924	
Location Photo  NORTH				



2051_2020_WY_3W_20201001



2051_2020_WY_3S_20201001





2051_2020_WY_3N_20201001



2051_2020_WY_3E_20201001



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2052_2020_MT	Northing (m) 16641980.527	Easting (m) 1782989.827	Elevation (m) 4880.227	
Point Type NVA	Latitude N45°48'16.43573"	Longitude W110°26'26.69186"	Ellipsoid Height (m) 4844.678	
Location Photo  NORTH				



2052_2020_MT_3W_20201010



2052_2020_MT_3S_20201010





2052_2020_MT_3N_20201010



2052_2020_MT_3E_20201010



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2053_2020_WY	Northing (m) 16245500.391	Easting (m) 1758892.913	Elevation (m) 8141.821	
Point Type NVA	Latitude N44°43'01.97312"	Longitude W110°32'38.60419"	Ellipsoid Height (m) 8113.842	
Location Photo  NORTH				



2053_2020_WY_3W_20200928



2053_2020_WY_3S_20200928





2053_2020_WY_3N_20200928



2053_2020_WY_3E_20200928



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2054_2020_WY	Northing (m) 16351471.031	Easting (m) 1719422.753	Elevation (m) 5466.390	
Point Type NVA	Latitude N45°00'30.54424"	Longitude W110°41'39.89923"	Ellipsoid Height (m) 5437.742	
Location Photo  NORTH				



2054_2020_WY_3SW_20200929



2054_2020_WY_3SE_20200929





2054_2020_WY_3NW_20200929



2054_2020_WY_3NE_20200929



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2055_2020_MT	Northing (m) 16656475.135	Easting (m) 1665432.005	Elevation (m) 6231.769	
Point Type NVA	Latitude N45°50'44.36287"	Longitude W110°54'06.49286"	Ellipsoid Height (m) 6196.329	
Location Photo  NORTH				



2055_2020_MT_3W_20201107



2055_2020_MT_3S_20201107





2055_2020_MT_3N_20201107



2055_2020_MT_3E_20201107



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2056_2020_MT	Northing (m) 16465498.901	Easting (m) 1692735.318	Elevation (m) 4947.627	
Point Type NVA	Latitude N45°19'17.65871"	Longitude W110°47'47.50040"	Ellipsoid Height (m) 4916.343	
Location Photo  NORTH				



2056_2020_MT_3SW_20201010



2056_2020_MT_3SE_20201010





2056_2020_MT_3NW_20201010



2056_2020_MT_3NE_20201010



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2057_2020_MT	Northing (m) 16702180.100	Easting (m) 1763900.625	Elevation (m) 5816.171	
Point Type NVA	Latitude N45°58'12.18322"	Longitude W110°30'51.06925"	Ellipsoid Height (m) 5781.032	
Location Photo  NORTH				



2057_2020_MT_3W_20201020



2057_2020_MT_3S_20201020





2057_2020_MT_3N_20201020



2057_2020_MT_3E_20201020



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2058_2020_WY	Northing (m) 16248307.657	Easting (m) 1600894.839	Elevation (m) 6559.013	
Point Type NVA	Latitude N44°43'32.61540"	Longitude W111°09'07.62438"	Ellipsoid Height (m) 6530.029	
Location Photo  NORTH				



2058_2020_WY_3W_20200927



2058_2020_WY_3S_20200927





2058_2020_WY_3N_20200927



2058_2020_WY_3E_20200927



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2059_2020_MT	Northing (m) 16693005.077	Easting (m) 1675636.774	Elevation (m) 5709.415	
Point Type NVA	Latitude N45°56'44.98594"	Longitude W110°51'41.38726"	Ellipsoid Height (m) 5673.735	
Location Photo  NORTH				



2059_2020_MT_3W_20201106



2059_2020_MT_3S_20201106





2059_2020_MT_3N_20201106



2059_2020_MT_3E_20201106



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2060_2020_MT	Northing (m) 16437465.173	Easting (m) 1674123.898	Elevation (m) 5000.391	
Point Type NVA	Latitude N45°14'41.14737"	Longitude W110°52'08.71035"	Ellipsoid Height (m) 4970.230	
Location Photo  NORTH				



2060_2020_MT_3SW_20201009



2060_2020_MT_3SE_20201009





2060_2020_MT_3NW_20201009



2060_2020_MT_3NE_20201009



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2061_2020_MT	Northing (m) 16783064.060	Easting (m) 1707885.202	Elevation (m) 5402.874	
Point Type NVA	Latitude N46°11'33.57404"	Longitude W110°44'00.57758"	Ellipsoid Height (m) 5366.752	
Location Photo  NORTH				



2061_2020_MT_3W_20201023



2061_2020_MT_3S_20201023





2061_2020_MT_3N_20201023



2061_2020_MT_3E_20201023



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2062_2020_MT	Northing (m) 16695566.686	Easting (m) 1773949.958	Elevation (m) 5947.804	
Point Type NVA	Latitude N45°57'06.24234"	Longitude W110°28'29.36132"	Ellipsoid Height (m) 5912.940	
Location Photo  NORTH				



2062_2020_MT_3W_20201020



2062_2020_MT_3S_20201020





2062_2020_MT_3N_20201020



2062_2020_MT_3E_20201020



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2063_2020_MT	Northing (m) 16679189.376	Easting (m) 1738183.776	Elevation (m) 4849.978	
Point Type NVA	Latitude N45°54'26.51848"	Longitude W110°36'56.86237"	Ellipsoid Height (m) 4814.006	
Location Photo  NORTH				



2063_2020_MT_3W_20201013



2063_2020_MT_3S_20201013





2063_2020_MT_3N_20201013



2063_2020_MT_3E_20201013



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2064_2020_WY	Northing (m) 16178911.202	Easting (m) 1786534.352	Elevation (m) 7756.982	
Point Type NVA	Latitude N44°32'02.50931"	Longitude W110°26'22.01042"	Ellipsoid Height (m) 7728.729	
Location Photo  NORTH				



2064_2020_WY_3W_20200924



2064_2020_WY_3S_20200924





2064_2020_WY_3N_20200924



2064_2020_WY_3E_20200924



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2065_2020_MT	Northing (m) 16452802.193	Easting (m) 1765057.263	Elevation (m) 5895.319	
Point Type NVA	Latitude N45°17'09.20572"	Longitude W110°30'56.03420"	Ellipsoid Height (m) 5866.874	
Location Photo  NORTH				



2065_2020_MT_3SW_20201015



2065_2020_MT_3SE_20201015





2065_2020_MT_3NW_20201015



2065_2020_MT_3NE_20201015



GCP OBSERVATION LOG

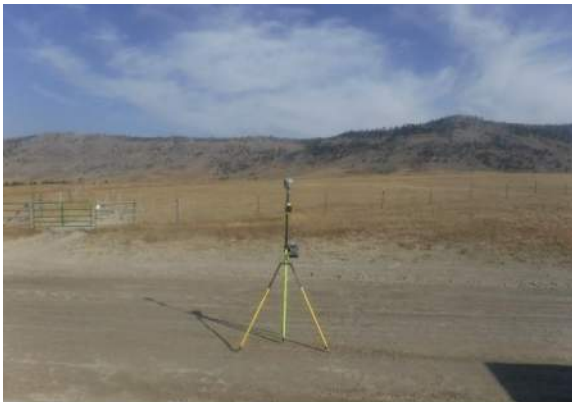
Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2066_2020_MT	Northing (m) 16569967.444	Easting (m) 1817816.826	Elevation (m) 6142.512	
Point Type NVA	Latitude N45°36'22.55493"	Longitude W110°18'23.73331"	Ellipsoid Height (m) 6110.435	
Location Photo  NORTH				



2066_2020_MT_3W_20201009



2066_2020_MT_3S_20201009





2066_2020_MT_3N_20201009



2066_2020_MT_3E_20201009



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2067_2020_MT	Northing (m) 16671963.321	Easting (m) 1742403.700	Elevation (m) 4894.548	
Point Type NVA	Latitude N45°53'14.94997"	Longitude W110°35'57.67672"	Ellipsoid Height (m) 4858.629	
Location Photo  NORTH				



2067_2020_MT_3W_20201013



2067_2020_MT_3S_20201013





2067_2020_MT_3N_20201013



2067_2020_MT_3E_20201013



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2068_2020_WY	Northing (m) 16240090.385	Easting (m) 1613854.199	Elevation (m) 6576.390	
Point Type NVA	Latitude N44°42'11.64404"	Longitude W111°06'07.91369"	Ellipsoid Height (m) 6547.267	
Location Photo  NORTH				



2068_2020_WY_3W_20200927



2068_2020_WY_3S_20200927





2068_2020_WY_3N_20200927



2068_2020_WY_3E_20200927



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2069_2020_MT	Northing (m) 16590834.237	Easting (m) 1753737.980	Elevation (m) 4495.388	
Point Type NVA	Latitude N45°39'53.12518"	Longitude W110°33'23.75232"	Ellipsoid Height (m) 4461.075	
Location Photo  NORTH				



2069_2020_WY_3W_20201007



2069_2020_WY_3S_20201007





2069_2020_WY_3N_20201007



2069_2020_WY_3E_20201007



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2070_2020_MT	Northing (m) 16724700.214	Easting (m) 1693331.708	Elevation (m) 5464.130	
Point Type NVA	Latitude N46°01'57.62316"	Longitude W110°47'29.70675"	Ellipsoid Height (m) 5428.111	
Location Photo  NORTH				



2070_2020_MT_3W_20201105



2070_2020_MT_3S_20201105





2070_2020_MT_3N_20201105

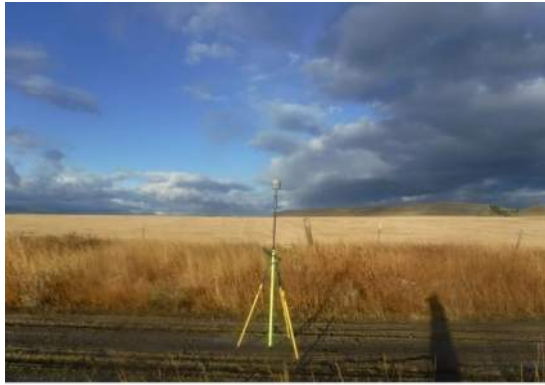


2070_2020_MT_3E_20201105



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2071_2020_MT	Northing (m) 16684859.784	Easting (m) 1767898.376	Elevation (m) 5465.164	
Point Type NVA	Latitude N45°55'20.88956"	Longitude W110°29'55.99230"	Ellipsoid Height (m) 5429.847	
Location Photo  NORTH				



2071_2020_MT_3W_20201020



2071_2020_MT_3S_20201020





2071_2020_MT_3N_20201020



2071_2020_MT_3E_20201020



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2072A_2020_MT	Northing (m) 16455547.919	Easting (m) 1835515.747	Elevation (m) 6395.633	
Point Type NVA	Latitude N45°17'30.96032"	Longitude W110°14'29.89187"	Ellipsoid Height (m) 6369.052	
Location Photo  NORTH				



2072A_2020_MT_3SW_20201020



2072A_2020_MT_3SE_20201020





2072A_2020_MT_3NW_20201020



2072A_2020_MT_3NE_20201020



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2073_2020_MT	Northing (m) 16544679.200	Easting (m) 1753521.498	Elevation (m) 4858.446	
Point Type NVA	Latitude N45°32'17.29531"	Longitude W110°33'30.38147"	Ellipsoid Height (m) 4826.583	
Location Photo  NORTH				



2073_2020_MT_3W_20201014



2073_2020_MT_3S_20201014





2073_2020_MT_3N_20201014



2073_2020_MT_3E_20201014



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2074_2020_MT	Northing (m) 16552526.868	Easting (m) 1724435.473	Elevation (m) 5141.861	
Point Type NVA	Latitude N45°33'36.18005"	Longitude W110°40'18.70875"	Ellipsoid Height (m) 5109.120	
Location Photo  NORTH				



2074_2020_WY_3W_20201008



2074_2020_WY_3S_20201008





2074_2020_WY_3N_20201008



2074_2020_WY_3E_20201008



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2075_2020_MT	Northing (m) 16513926.533	Easting (m) 1735721.031	Elevation (m) 4794.628	
Point Type NVA	Latitude N45°27'14.45493"	Longitude W110°37'42.54898"	Ellipsoid Height (m) 4762.826	
Location Photo  NORTH				



2075_2020_MT_3SW_20201012



2075_2020_MT_3SE_20201012





2075_2020_MT_3NW_20201012



2075_2020_MT_3NE_20201012



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2076_2020_MT	Northing (m) 16479614.203	Easting (m) 1712853.819	Elevation (m) 4960.409	
Point Type NVA	Latitude N45°21'36.47648"	Longitude W110°43'05.13792"	Ellipsoid Height (m) 4928.782	
Location Photo  NORTH				



2076_2020_MT_3W_20201011



2076_2020_MT_3S_20201011





2076_2020_MT_3N_20201011



2076_2020_MT_3E_20201011



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2076A_2020_MT	Northing (m) 16476427.112	Easting (m) 1740587.426	Elevation (m) 5245.417	
Point Type NVA	Latitude N45°21'03.85564"	Longitude W110°36'36.80726"	Ellipsoid Height (m) 5214.958	
Location Photo  NORTH				



2076A_2020_MT_3SW_20201013



2076A_2020_MT_3SE_20201013





2076A_2020_MT_3NW_20201013



2076A_2020_MT_3NE_20201013



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2077_2020_MT	Northing (m) 16425563.050	Easting (m) 1661090.176	Elevation (m) 5562.400	
Point Type NVA	Latitude N45°12'43.75566"	Longitude W110°55'11.11120"	Ellipsoid Height (m) 5532.925	
Location Photo  NORTH				



2077_2020_MT_3W_20201104



2077_2020_MT_3S_20201104





2077_2020_MT_3N_20201104



2077_2020_MT_3E_20201104



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2078_2020_MT	Northing (m) 16455917.235	Easting (m) 1682920.592	Elevation (m) 4934.180	
Point Type NVA	Latitude N45°17'43.24168"	Longitude W110°50'05.18817"	Ellipsoid Height (m) 4903.259	
Location Photo  NORTH				



2078_2020_MT_3SW_20201009



2078_2020_MT_3SE_20201009





2078_2020_MT_3NW_20201009



2078_2020_MT_3NE_20201009



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2079_2020_MT	Northing (m) 16701950.390	Easting (m) 1780004.029	Elevation (m) 6377.172	
Point Type NVA	Latitude N45°58'08.88198"	Longitude W110°27'03.02556"	Ellipsoid Height (m) 6342.746	
Location Photo  NORTH				



2079_2020_MT_3W_20201020



2079_2020_MT_3S_20201020





2079_2020_MT_3N_20201020



2079_2020_MT_3E_20201020



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2080_2020_MT	Northing (m) 16775108.566	Easting (m) 1760773.625	Elevation (m) 5873.747	
Point Type NVA	Latitude N46°10'12.57103"	Longitude W110°31'29.18619"	Ellipsoid Height (m) 5838.974	
Location Photo  NORTH				



2080_2020_MT_3W_20201022



2080_2020_MT_3S_20201022





2080_2020_MT_3N_20201022



2080_2020_MT_3E_20201022



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2081_2020_MT	Northing (m) 16584233.761	Easting (m) 1749626.193	Elevation (m) 4528.853	
Point Type NVA	Latitude N45°38'48.15801"	Longitude W110°34'22.16515"	Ellipsoid Height (m) 4494.826	
Location Photo  NORTH				



2081_2020_WY_3W_20201007



2081_2020_WY_3S_20201007





2081_2020_WY_3N_20201007



2081_2020_WY_3E_20201007



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2082_2020_MT	Northing (m) 16409609.918	Easting (m) 1677830.596	Elevation (m) 5047.322	
Point Type NVA	Latitude N45°10'05.95101"	Longitude W110°51'17.58401"	Ellipsoid Height (m) 5018.085	
Location Photo  NORTH				



2082_2020_MT_3SW_20201006



2082_2020_MT_3SE_20201006





2082_2020_MT_3NW_20201006



2082_2020_MT_3NE_20201006



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2083_2020_MT	Northing (m) 16428155.616	Easting (m) 1644262.363	Elevation (m) 6773.520	
Point Type NVA	Latitude N45°13'09.46113"	Longitude W110°59'06.25404"	Ellipsoid Height (m) 6744.635	
Location Photo  NORTH				



2083_2020_MT_3SW_20201009



2083_2020_MT_3SE_20201009





2083_2020_MT_3NW_20201009



2083_2020_MT_3NE_20201009



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2084_2020_MT	Northing (m) 16485231.538	Easting (m) 1734448.831	Elevation (m) 5112.172	
Point Type NVA	Latitude N45°22'31.09983"	Longitude W110°38'02.23425"	Ellipsoid Height (m) 5081.015	
Location Photo  NORTH				



2084_2020_MT_3SW_20201012



2084_2020_MT_3SE_20201012





2084_2020_MT_3NW_20201012



2084_2020_MT_3NE_20201012



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2085_2020_MT	Northing (m) 16674862.654	Easting (m) 1729057.673	Elevation (m) 4993.004	
Point Type NVA	Latitude N45°53'44.20200"	Longitude W110°39'06.23646"	Ellipsoid Height (m) 4957.029	
Location Photo  NORTH				



2085_2020_MT_3W_20201013



2085_2020_MT_3S_20201013





2085_2020_MT_3N_20201013

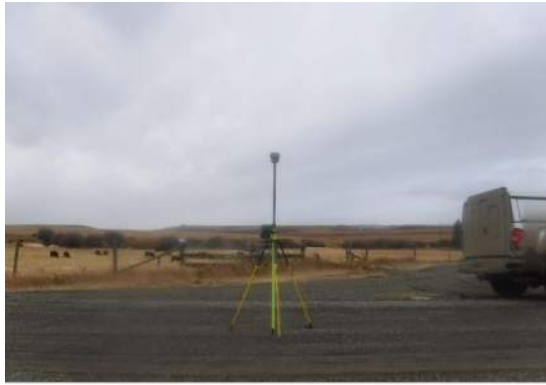


2085_2020_MT_3E_20201013



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2086_2020_MT	Northing (m) 16753747.471	Easting (m) 1751230.686	Elevation (m) 5499.573	
Point Type NVA	Latitude N46°06'42.16353"	Longitude W110°33'46.50025"	Ellipsoid Height (m) 5464.299	
Location Photo  NORTH				



2086_2020_MT_3W_20201021



2086_2020_MT_3S_20201021





2086_2020_MT_3N_20201021



2086_2020_MT_3E_20201021



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2087_2020_MT	Northing (m) 16720274.418	Easting (m) 1711235.027	Elevation (m) 5205.158	
Point Type NVA	Latitude N46°01'13.37387"	Longitude W110°43'16.07438"	Ellipsoid Height (m) 5169.004	
Location Photo  NORTH				



2087_2020_MT_3W_20201022



2087_2020_MT_3S_20201022





2087_2020_MT_3N_20201022



2087_2020_MT_3E_20201022



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2088_2020_MT	Northing (m) 16610388.368	Easting (m) 1702283.889	Elevation (m) 6959.792	
Point Type NVA	Latitude N45°43'08.42324"	Longitude W110°45'27.69350"	Ellipsoid Height (m) 6925.330	
Location Photo  NORTH				



2088_2020_WY_3W_20201007



2088_2020_WY_3S_20201007





2088_2020_WY_3N_20201007

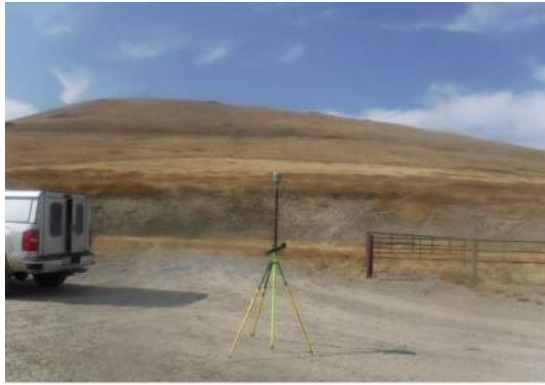


2088_2020_WY_3E_20201007



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2089_2020_MT	Northing (m) 16576041.906	Easting (m) 1706081.617	Elevation (m) 5748.823	
Point Type NVA	Latitude N45°37'29.08722"	Longitude W110°44'35.69974"	Ellipsoid Height (m) 5715.239	
Location Photo  NORTH				



2089_2020_WY_3W_20201008



2089_2020_WY_3S_20201008





2089_2020_WY_3N_20201008



2089_2020_WY_3E_20201008



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2090_2020_MT	Northing (m) 16670282.778	Easting (m) 1733554.334	Elevation (m) 4997.730	
Point Type NVA	Latitude N45°52'58.77281"	Longitude W110°38'02.93267"	Ellipsoid Height (m) 4961.789	
Location Photo  NORTH				



2090_2020_MT_3W_20201013



2090_2020_MT_3S_20201013





2090_2020_MT_3N_20201013



2090_2020_MT_3E_20201013



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2091_2020_MT	Northing (m) 16722004.752	Easting (m) 1691520.341	Elevation (m) 5497.932	
Point Type NVA	Latitude N46°01'31.04933"	Longitude W110°47'55.48695"	Ellipsoid Height (m) 5461.927	
Location Photo  NORTH				



2091_2020_MT_3W_20201104



2091_2020_MT_3S_20201104





2091_2020_MT_3N_20201104



2091_2020_MT_3E_20201104



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2092_2020_MT	Northing (m) 16577831.874	Easting (m) 1798918.726	Elevation (m) 5312.239	
Point Type NVA	Latitude N45°37'41.75215"	Longitude W110°22'48.78370"	Ellipsoid Height (m) 5279.459	
Location Photo  NORTH				



2092_2020_MT_3W_20201009



2092_2020_MT_3S_20201009





2092_2020_MT_3N_20201009



2092_2020_MT_3E_20201009



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2093_2020_MT	Northing (m) 16589507.163	Easting (m) 1716898.566	Elevation (m) 5013.576	
Point Type NVA	Latitude N45°39'41.70514"	Longitude W110°42'02.73447"	Ellipsoid Height (m) 4979.344	
Location Photo  NORTH				



2093_2020_WY_3W_20201006



2093_2020_WY_3S_20201006





2093_2020_WY_3N_20201006



2093_2020_WY_3E_20201006



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2094_2020_MT	Northing (m) 16664774.947	Easting (m) 1730794.538	Elevation (m) 4947.073	
Point Type NVA	Latitude N45°52'04.50087"	Longitude W110°38'42.30472"	Ellipsoid Height (m) 4911.165	
Location Photo  NORTH				



2094_2020_MT_3W_20201013



2094_2020_MT_3S_20201013





2094_2020_MT_3N_20201013



2094_2020_MT_3E_20201013



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2095_2020_MT	Northing (m) 16654093.800	Easting (m) 1747337.580	Elevation (m) 4710.610	
Point Type NVA	Latitude N45°50'18.22199"	Longitude W110°34'49.23094"	Ellipsoid Height (m) 4674.751	
Location Photo  NORTH				



2095_2020_MT_3W_20201012



2095_2020_MT_3S_20201012





2095_2020_MT_3N_20201012



2095_2020_MT_3E_20201012



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2096_2020_WY	Northing (m) 16173663.244	Easting (m) 1789682.350	Elevation (m) 7893.323	
Point Type NVA	Latitude N44°31'10.45440"	Longitude W110°25'39.04427"	Ellipsoid Height (m) 7865.089	
Location Photo  NORTH				



2096_2020_WY_3W_20200924



2096_2020_WY_3S_20200924





2096_2020_WY_3N_20200924



2096_2020_WY_3E_20200924



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2097_2020_MT	Northing (m) 16791207.749	Easting (m) 1758705.083	Elevation (m) 6131.412	
Point Type NVA	Latitude N46°12'51.67575"	Longitude W110°31'57.24117"	Ellipsoid Height (m) 6096.677	
Location Photo  NORTH				



2097_2020_MT_3W_20201023



2097_2020_MT_3S_20201023





2097_2020_MT_3N_20201023



2097_2020_MT_3E_20201023



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2098_2020_MT	Northing (m) 16649546.614	Easting (m) 1750030.479	Elevation (m) 4714.707	
Point Type NVA	Latitude N45°49'33.17280"	Longitude W110°34'11.52793"	Ellipsoid Height (m) 4678.884	
Location Photo  NORTH				



2098_2020_MT_3W_20201012



2098_2020_MT_3S_20201012





2098_2020_MT_3N_20201012



2098_2020_MT_3E_20201012



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2099_2020_WY	Northing (m) 16088021.462	Easting (m) 1737950.289	Elevation (m) 7805.571	
Point Type NVA	Latitude N44°17'07.40345"	Longitude W110°37'38.68546"	Ellipsoid Height (m) 7777.379	
Location Photo  NORTH				



2099_2020_WY_3W_20200924



2099_2020_WY_3S_20200924





2099_2020_WY_3N_20200924



2099_2020_WY_3E_20200924



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2100_2020_MT	Northing (m) 16641370.041	Easting (m) 1770574.807	Elevation (m) 4716.782	
Point Type NVA	Latitude N45°48'11.22737"	Longitude W110°29'22.05490"	Ellipsoid Height (m) 4681.102	
Location Photo  NORTH				



2100_2020_MT_3W_20201012



2100_2020_MT_3S_20201012




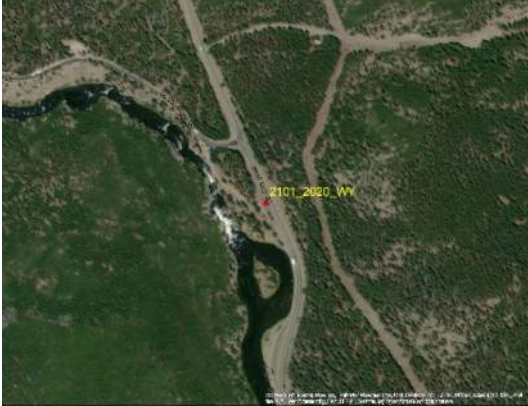
2100_2020_MT_3N_20201012



2100_2020_MT_3E_20201012



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2101_2020_WY	Northing (m) 16208517.097	Easting (m) 1678268.729	Elevation (m) 7111.488	
Point Type NVA	Latitude N44°36'59.58671"	Longitude W110°51'16.49601"	Ellipsoid Height (m) 7082.239	
Location Photo  NORTH				



2101_2020_WY_3W_20200926



2101_2020_WY_3S_20200926





2101_2020_WY_3N_20200926



2101_2020_WY_3E_20200926



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2102_2020_MT	Northing (m) 16524208.924	Easting (m) 1749717.486	Elevation (m) 4815.945	
Point Type NVA	Latitude N45°28'55.32392"	Longitude W110°34'25.36995"	Ellipsoid Height (m) 4784.641	
Location Photo  NORTH				



2102_2020_MT_3SW_20201013



2102_2020_MT_3SE_20201013





2102_2020_MT_3NW_20201013



2102_2020_MT_3NE_20201013



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2103_2020_MT	Northing (m) 16700949.842	Easting (m) 1679762.889	Elevation (m) 5485.562	
Point Type NVA	Latitude N45°58'03.37314"	Longitude W110°50'42.75545"	Ellipsoid Height (m) 5449.771	
Location Photo  NORTH				



2103_2020_MT_3W_20201105



2103_2020_MT_3S_20201105




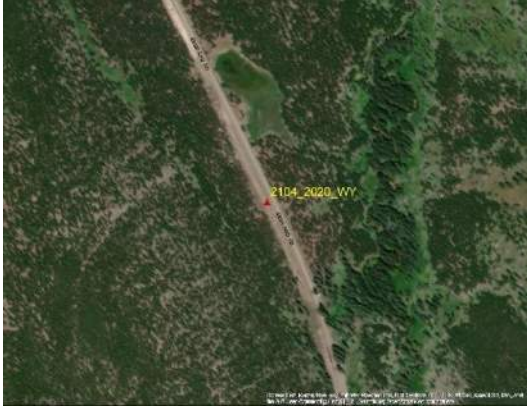
2103_2020_MT_3N_20201105



2103_2020_MT_3E_20201105



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2104_2020_WY	Northing (m) 16287865.806	Easting (m) 1710550.831	Elevation (m) 7363.795	
Point Type NVA	Latitude N44°50'02.58413"	Longitude W110°43'46.38463"	Ellipsoid Height (m) 7336.098	
Location Photo  NORTH				



2104_2020_WY_3W_20200927



2104_2020_WY_3S_20200927





2104_2020_WY_3N_20200927



2104_2020_WY_3E_20200927



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2105_2020_WY	Northing (m) 16256242.124	Easting (m) 1590647.215	Elevation (m) 6574.683	
Point Type NVA	Latitude N44°44'50.77887"	Longitude W111°11'29.87614"	Ellipsoid Height (m) 6545.980	
Location Photo  NORTH				



2105_2020_WY_3SW_20200927



2105_2020_WY_3SE_20200927





2105_2020_WY_3NW_20200927



2105_2020_WY_3NE_20200927



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2106_2020_MT	Northing (m) 16467542.496	Easting (m) 1701945.421	Elevation (m) 4938.650	
Point Type NVA	Latitude N45°19'37.59338"	Longitude W110°45'38.46826"	Ellipsoid Height (m) 4907.302	
Location Photo  NORTH				



2106_2020_MT_3W_20201011



2106_2020_MT_3S_20201011





2106_2020_MT_3N_20201011



2106_2020_MT_3E_20201011



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2107_2020_MT	Northing (m) 16490473.699	Easting (m) 1713262.404	Elevation (m) 4867.872	
Point Type NVA	Latitude N45°23'23.72027"	Longitude W110°42'58.87756"	Ellipsoid Height (m) 4835.967	
Location Photo  NORTH				



2107_2020_MT_3SW_20201012



2107_2020_MT_3SE_20201012





2107_2020_MT_3NW_20201012



2107_2020_MT_3NE_20201012



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2108_2020_MT	Northing (m) 16590395.780	Easting (m) 1707025.199	Elevation (m) 5268.567	
Point Type NVA	Latitude N45°39'50.82222"	Longitude W110°44'21.76089"	Ellipsoid Height (m) 5234.382	
Location Photo  NORTH				



2108_2020_WY_3W_20201006



2108_2020_WY_3S_20201006





2108_2020_WY_3N_20201006



2108_2020_WY_3E_20201006



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2109A_2020_MT	Northing (m) 16496309.602	Easting (m) 1847542.159	Elevation (m) 5602.579	
Point Type NVA	Latitude N45°24'12.37384"	Longitude W110°11'35.90435"	Ellipsoid Height (m) 5574.979	
Location Photo  NORTH				



2109A_2020_MT_3W_20201020



2109A_2020_MT_3S_20201020





2109A_2020_MT_3N_20201020



2109A_2020_MT_3E_20201020



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2110_2020_MT	Northing (m) 16414818.296	Easting (m) 1643400.299	Elevation (m) 7078.901	
Point Type NVA	Latitude N45°10'57.72575"	Longitude W110°59'18.32864"	Ellipsoid Height (m) 7050.142	
Location Photo  NORTH				



2110_2020_MT_3W_20201008



2110_2020_MT_3S_20201008





2110_2020_MT_3N_20201008



2110_2020_MT_3E_20201008



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2111_2020_MT	Northing (m) 16605766.079	Easting (m) 1806521.090	Elevation (m) 4345.392	
Point Type NVA	Latitude N45°42'17.03197"	Longitude W110°20'58.58007"	Ellipsoid Height (m) 4310.660	
Location Photo  NORTH				



2111_2020_MT_3W_20201010



2111_2020_MT_3S_20201010





2111_2020_MT_3N_20201010



2111_2020_MT_3E_20201010



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2112_2020_MT	Northing (m) 16474973.382	Easting (m) 1716065.045	Elevation (m) 5196.162	
Point Type NVA	Latitude N45°20'50.52601"	Longitude W110°42'20.38608"	Ellipsoid Height (m) 5164.791	
Location Photo  NORTH				



2112_2020_MT_3SW_20201011



2112_2020_MT_3SE_20201011





2112_2020_MT_3NW_20201011



2112_2020_MT_3NE_20201011



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2113_2020_WY	Northing (m) 16149878.193	Easting (m) 1772275.316	Elevation (m) 7767.795	
Point Type NVA	Latitude N44°27'16.63629"	Longitude W110°29'41.40744"	Ellipsoid Height (m) 7739.497	
Location Photo  NORTH				



2113_2020_WY_3W_20200924



2113_2020_WY_3S_20200924





2113_2020_WY_3N_20200924



2113_2020_WY_3E_20200924



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2114_2020_MT	Northing (m) 16719335.145	Easting (m) 1719611.731	Elevation (m) 5136.947	
Point Type NVA	Latitude N46°01'03.79099"	Longitude W110°41'17.37952"	Ellipsoid Height (m) 5100.815	
Location Photo  NORTH				



2114_2020_MT_3W_20201022



2114_2020_MT_3S_20201022





2114_2020_MT_3N_20201022

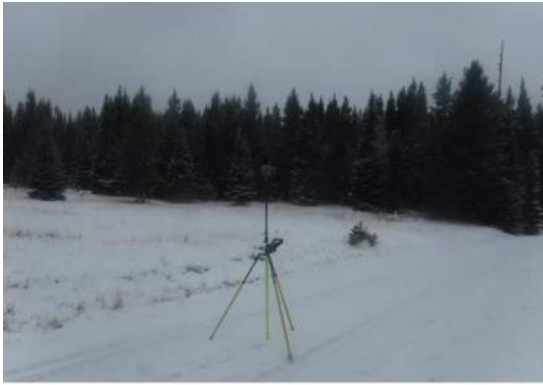


2114_2020_MT_3E_20201022



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2115_2020_MT	Northing (m) 16772462.156	Easting (m) 1792187.417	Elevation (m) 6714.965	
Point Type NVA	Latitude N46°09'44.33904"	Longitude W110°24'02.96085"	Ellipsoid Height (m) 6681.450	
Location Photo  NORTH				



2115_2020_MT_3W_20201022



2115_2020_MT_3S_20201022





2115_2020_MT_3N_20201022



2115_2020_MT_3E_20201022



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2116_2020_MT	Northing (m) 16502969.257	Easting (m) 1736644.475	Elevation (m) 4829.639	
Point Type NVA	Latitude N45°25'26.19106"	Longitude W110°37'30.30704"	Ellipsoid Height (m) 4798.070	
Location Photo  NORTH				



2116_2020_MT_3SW_20201013



2116_2020_MT_3SE_20201013





2116_2020_MT_3NW_20201013



2116_2020_MT_3NE_20201013



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2117_2020_MT	Northing (m) 16464398.529	Easting (m) 1701960.592	Elevation (m) 4981.245	
Point Type NVA	Latitude N45°19'06.53994"	Longitude W110°45'38.38659"	Ellipsoid Height (m) 4950.024	
Location Photo  NORTH				



2117_2020_MT_3W_20201011



2117_2020_MT_3S_20201011





2117_2020_MT_3N_20201011



2117_2020_MT_3E_20201011



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2118_2020_MT	Northing (m) 16671779.513	Easting (m) 1758711.729	Elevation (m) 5092.958	
Point Type NVA	Latitude N45°53'12.26148"	Longitude W110°32'07.06724"	Ellipsoid Height (m) 5057.277	
Location Photo  NORTH				



2118_2020_MT_3W_20201012



2118_2020_MT_3S_20201012





2118_2020_MT_3N_20201012



2118_2020_MT_3E_20201012



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2119_2020_WY	Northing (m) 16375701.463	Easting (m) 1697317.465	Elevation (m) 5200.984	
Point Type NVA	Latitude N45°04'30.58890"	Longitude W110°46'46.77801"	Ellipsoid Height (m) 5172.087	
Location Photo  NORTH				



2119_2020_WY_3SW_20200930



2119_2020_WY_3SE_20200930





2119_2020_WY_3NW_20200930



2119_2020_WY_3NE_20200930



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2120_2020_MT	Northing (m) 16718229.517	Easting (m) 1759957.994	Elevation (m) 5607.328	
Point Type NVA	Latitude N46°00'50.91439"	Longitude W110°31'45.56461"	Ellipsoid Height (m) 5572.231	
Location Photo  NORTH				



2120_2020_MT_3W_20201021



2120_2020_MT_3S_20201021





2120_2020_MT_3N_20201021



2120_2020_MT_3E_20201021



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2121_2020_MT	Northing (m) 16483185.799	Easting (m) 1703297.292	Elevation (m) 5074.141	
Point Type NVA	Latitude N45°22'12.06154"	Longitude W110°45'18.87375"	Ellipsoid Height (m) 5042.429	
Location Photo  NORTH				



2121_2020_MT_3W_20201012



2121_2020_MT_3S_20201012





2121_2020_MT_3N_20201012



2121_2020_MT_3E_20201012



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2122_2020_MT	Northing (m) 16586891.054	Easting (m) 1797934.286	Elevation (m) 4900.265	
Point Type NVA	Latitude N45°39'11.29528"	Longitude W110°23'01.66017"	Ellipsoid Height (m) 4866.745	
Location Photo  NORTH				



2122_2020_MT_3W_20201009



2122_2020_MT_3S_20201009





2122_2020_MT_3N_20201009



2122_2020_MT_3E_20201009



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2123_2020_MT	Northing (m) 16712008.406	Easting (m) 1783860.172	Elevation (m) 6877.363	
Point Type NVA	Latitude N45°59'47.94355"	Longitude W110°26'07.40422"	Ellipsoid Height (m) 6843.433	
Location Photo  NORTH				



2123_2020_MT_3W_20201020



2123_2020_MT_3S_20201020





2123_2020_MT_3N_20201020



2123_2020_MT_3E_20201020



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2124_2020_MT	Northing (m) 16411360.185	Easting (m) 1644929.747	Elevation (m) 6453.373	
Point Type NVA	Latitude N45°10'23.56607"	Longitude W110°58'56.97783"	Ellipsoid Height (m) 6424.532	
Location Photo  NORTH				



2124_2020_MT_3SW_20201008



2124_2020_MT_3SE_20201008





2124_2020_MT_3NW_20201008



2124_2020_MT_3NE_20201008



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2125_2020_WY	Northing (m) 16369511.475	Easting (m) 1920375.902	Elevation (m) 8848.042	
Point Type NVA	Latitude N45°03'11.70214"	Longitude W109°54'58.73658"	Ellipsoid Height (m) 8823.721	
Location Photo  NORTH				



2125_2020_WY_3SW_20201005



2125_2020_WY_3SE_20201005





2125_2020_WY_3NW_20201005



2125_2020_WY_3NE_20201005



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2126_2020_MT	Northing (m) 16512354.185	Easting (m) 1741404.237	Elevation (m) 4792.626	
Point Type NVA	Latitude N45°26'58.65828"	Longitude W110°36'22.90376"	Ellipsoid Height (m) 4761.127	
Location Photo  NORTH				



2126_2020_MT_3W_20201013



2126_2020_MT_3S_20201013




2126_2020_MT_3N_20201013



2126_2020_MT_3E_20201013





GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2127_2020_MT	Northing (m) 16667657.176	Easting (m) 1704029.691		Elevation (m) 5234.029
Point Type NVA	Latitude N45°52'33.96710"	Longitude W110°45'00.55433"		Ellipsoid Height (m) 5198.295
Location Photo  NORTH				



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2127A_2020_MT	Northing (m) 16667770.429	Easting (m) 1700425.104	Elevation (m) 5287.966	
Point Type NVA	Latitude N45°52'35.19387"	Longitude W110°45'51.51561"	Ellipsoid Height (m) 5252.272	
Location Photo  NORTH				



2127A_2020_MT_3W_20201106



2127A_2020_MT_3S_20201106





2127A_2020_MT_3N_20201106



2127A_2020_MT_3E_20201106



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2128_2020_WY	Northing (m) 16360208.087	Easting (m) 1924927.021	Elevation (m) 8032.681	
Point Type NVA	Latitude N45°01'39.21750"	Longitude W109°53'57.09026"	Ellipsoid Height (m) 8008.267	
Location Photo  NORTH				



2128_2020_WY_3W_20201005



2128_2020_WY_3S_20201005





2128_2020_WY_3N_20201005



2128_2020_WY_3E_20201005



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2129_2020_MT	Northing (m) 16432869.761	Easting (m) 1669316.216	Elevation (m) 5008.642	
Point Type NVA	Latitude N45°13'55.82903"	Longitude W110°53'16.01988"	Ellipsoid Height (m) 4978.742	
Location Photo  NORTH				



2129_2020_MT_3W_20201104



2129_2020_MT_3S_20201104





2129_2020_MT_3N_20201104



2129_2020_MT_3E_20201104



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2130_2020_MT	Northing (m) 16582163.651	Easting (m) 1734780.308	Elevation (m) 4914.329	
Point Type NVA	Latitude N45°38'28.44145"	Longitude W110°37'51.34715"	Ellipsoid Height (m) 4880.328	
Location Photo  NORTH				



2130_2020_WY_3W_20201008



2130_2020_WY_3S_20201008





2130_2020_WY_3N_20201008



2130_2020_WY_3E_20201008

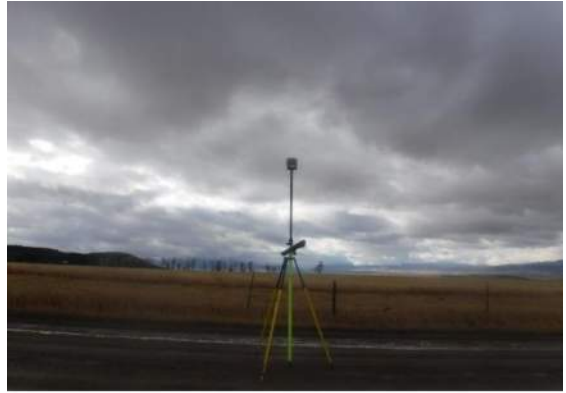


GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2131_2020_MT	Northing (m) 16698216.815	Easting (m) 1769223.490	Elevation (m) 5993.197	
Point Type NVA	Latitude N45°57'32.71605"	Longitude W110°29'36.04009"	Ellipsoid Height (m) 5958.211	
Location Photo  NORTH				



2131_2020_MT_3W_20201020



2131_2020_MT_3S_20201020





2131_2020_MT_3N_20201020



2131_2020_MT_3E_20201020



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2132_2020_MT	Northing (m) 16708101.088	Easting (m) 1783489.553	Elevation (m) 6465.817	
Point Type NVA	Latitude N45°59'09.38291"	Longitude W110°26'13.04697"	Ellipsoid Height (m) 6431.744	
Location Photo  NORTH				



2132_2020_MT_3W_20201020



2132_2020_MT_3S_20201020





2132_2020_MT_3N_20201020

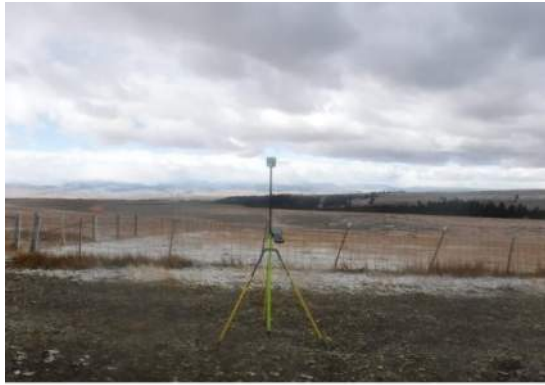


2132_2020_MT_3E_20201020

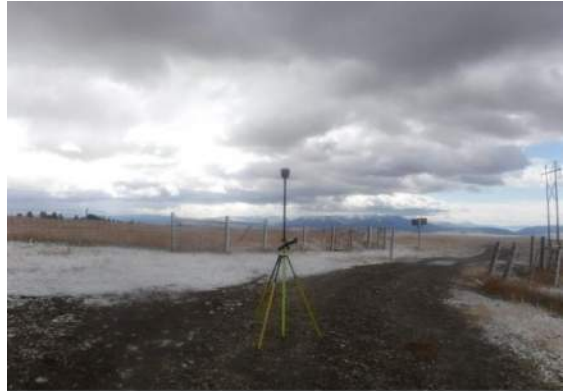


GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2133_2020_MT	Northing (m) 16682128.773	Easting (m) 1804608.734	Elevation (m) 6637.383	
Point Type NVA	Latitude N45°54'51.31374"	Longitude W110°21'16.84228"	Ellipsoid Height (m) 6602.896	
Location Photo  NORTH				



2133_2020_MT_3W_20201011



2133_2020_MT_3S_20201011





2133_2020_MT_3N_20201011



2133_2020_MT_3E_20201011



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2134_2020_MT	Northing (m) 16571604.206	Easting (m) 1834540.921	Elevation (m) 5378.826	
Point Type NVA	Latitude N45°36'37.22348"	Longitude W110°14'28.20400"	Ellipsoid Height (m) 5346.509	
Location Photo  NORTH				



2134_2020_MT_3W_20201009



2134_2020_MT_3S_20201009





2134_2020_MT_3N_20201009



2134_2020_MT_3E_20201009



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2135_2020_MT	Northing (m) 16555540.639	Easting (m) 1691043.360	Elevation (m) 5855.351	
Point Type NVA	Latitude N45°34'07.02650"	Longitude W110°48'08.08845"	Ellipsoid Height (m) 5822.369	
Location Photo  NORTH				



2135_2020_WY_3W_20201008



2135_2020_WY_3S_20201008





2135_2020_WY_3N_20201008



2135_2020_WY_3E_20201008



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2136_2020_MT	Northing (m) 16470570.951	Easting (m) 1699489.979	Elevation (m) 4900.295	
Point Type NVA	Latitude N45°20'07.57602"	Longitude W110°46'12.72836"	Ellipsoid Height (m) 4868.843	
Location Photo  NORTH				



2136_2020_MT_3SW_20201010



2136_2020_MT_3SE_20201010





2136_2020_MT_3NW_20201010



2136_2020_MT_3NE_20201010



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2137_2020_MT	Northing (m) 16645083.256	Easting (m) 1733341.244	Elevation (m) 5114.056	
Point Type NVA	Latitude N45°48'49.91246"	Longitude W110°38'07.57277"	Ellipsoid Height (m) 5078.403	
Location Photo  NORTH				



2137_2020_MT_3W_20201012



2137_2020_MT_3S_20201012





2137_2020_MT_3N_20201012



2137_2020_MT_3E_20201012



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2138A_2020_MT	Northing (m) 16407169.226	Easting (m) 1649878.457	Elevation (m) 6308.531	
Point Type NVA	Latitude N45°09'42.15406"	Longitude W110°57'47.89897"	Ellipsoid Height (m) 6279.647	
Location Photo  NORTH				



2138A_2020_MT_3SW_20201009



2138A_2020_MT_3SE_20201009





2138A_2020_MT_3NW_20201009



2138A_2020_MT_3NE_20201009



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2139_2020_WY	Northing (m) 16334605.101	Easting (m) 1715191.905	Elevation (m) 6703.393	
Point Type NVA	Latitude N44°57'44.10352"	Longitude W110°42'39.64720"	Ellipsoid Height (m) 6675.184	
Location Photo  NORTH				



2139_2020_WY_3SW_20200929



2139_2020_WY_3SE_20200929





2139_2020_WY_3NW_20200929



2139_2020_WY_3NE_20200929



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2140_2020_MT	Northing (m) 16389406.674	Easting (m) 1694573.808	Elevation (m) 5138.312	
Point Type NVA	Latitude N45°06'46.03311"	Longitude W110°47'24.52991"	Ellipsoid Height (m) 5109.329	
Location Photo  NORTH				



2140_2020_MT_3SW_20201007



2140_2020_MT_3SE_20201007





2140_2020_MT_3NW_20201007



2140_2020_MT_3NE_20201007



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2141_2020_MT	Northing (m) 16613633.234	Easting (m) 1833875.408	Elevation (m) 4229.097	
Point Type NVA	Latitude N45°43'32.34874"	Longitude W110°14'31.97331"	Ellipsoid Height (m) 4193.929	
Location Photo  NORTH				



2141_2020_MT_3W_20201010



2141_2020_MT_3S_20201010





2141_2020_MT_3N_20201010



2141_2020_MT_3E_20201010



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 2142_2020_MT	Northing (m) 16642214.095	Easting (m) 1757220.013	Elevation (m) 4668.267	
Point Type NVA	Latitude N45°48'20.36256"	Longitude W110°32'30.56132"	Ellipsoid Height (m) 4632.520	
Location Photo  NORTH				



2142_2020_MT_3W_20201010



2142_2020_MT_3S_20201010





2142_2020_MT_3N_20201010



2142_2020_MT_3E_20201010



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 3001_2020_MT	Northing (m) 16709616.595	Easting (m) 1762418.283	Elevation (m) 5552.510	
Point Type VVA	Latitude N45°59'25.71181"	Longitude W110°31'11.42853"	Ellipsoid Height (m) 5517.390	
Location Photo  NORTH				



3001_2020_MT_3W_20201021



3001_2020_MT_3S_20201021





3001_2020_MT_3N_20201021

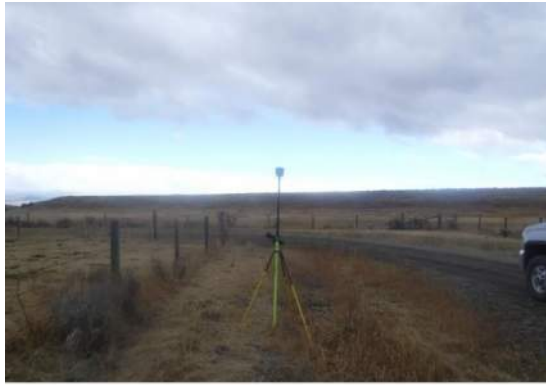


3001_2020_MT_3E_20201021



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 3002_2020_MT	Northing (m) 16679441.039	Easting (m) 1785323.812	Elevation (m) 5796.021	
Point Type VVA	Latitude N45°54'26.22114"	Longitude W110°25'49.96205"	Ellipsoid Height (m) 5761.073	
Location Photo  NORTH				



3002_2020_MT_3W_20201011



3002_2020_MT_3S_20201011





3002_2020_MT_3N_20201011



3002_2020_MT_3E_20201011



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 3003_2020_WY	Northing (m) 16179085.957	Easting (m) 1690389.462	Elevation (m) 7304.608	
Point Type VVA	Latitude N44°32'08.60844"	Longitude W110°48'29.81982"	Ellipsoid Height (m) 7275.338	
Location Photo  NORTH				



3003_2020_WY_3W_20200925



3003_2020_WY_3S_20200925





3003_2020_WY_3N_20200925



3003_2020_WY_3E_20200925



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 3004_2020_MT	Northing (m) 16619772.307	Easting (m) 1709162.957	Elevation (m) 7135.938	
Point Type VVA	Latitude N45°44'40.88446"	Longitude W110°43'50.25660"	Ellipsoid Height (m) 7101.261	
Location Photo  NORTH				



3004_2020_WY_3W_20201007



3004_2020_WY_3S_20201007





3004_2020_WY_3N_20201007



3004_2020_WY_3E_20201007



GCP OBSERVATION LOG

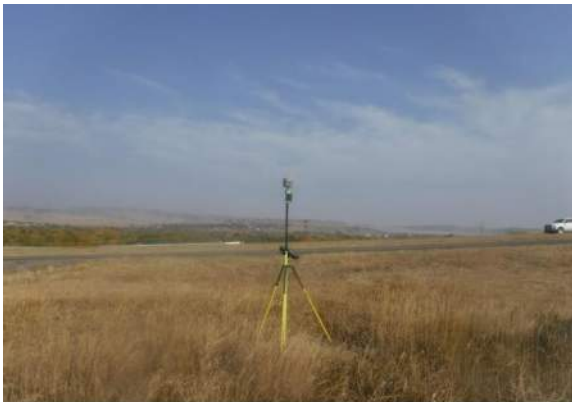
Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 3005_2020_MT	Northing (m) 16583597.719	Easting (m) 1754696.584	Elevation (m) 4574.257	
Point Type VVA	Latitude N45°38'41.60314"	Longitude W110°33'10.81851"	Ellipsoid Height (m) 4540.372	
Location Photo  NORTH				



3005_2020_MT_3W_20201009



3005_2020_MT_3S_20201009





3005_2020_MT_3N_20201009



3005_2020_MT_3E_20201009



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 3006_2020_WY	Northing (m) 16356175.416	Easting (m) 1718709.605	Elevation (m) 5351.144	
Point Type VVA	Latitude N45°01'17.03820"	Longitude W110°41'49.58421"	Ellipsoid Height (m) 5322.434	
Location Photo  NORTH				



3006_2020_WY_3SW_20200930



3006_2020_WY_3SE_20200930





3006_2020_WY_3NW_20200930



3006_2020_WY_3NE_20200930



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 3007_2020_MT	Northing (m) 16675472.906	Easting (m) 1783890.303	Elevation (m) 5851.540	
Point Type VVA	Latitude N45°53'47.13398"	Longitude W110°26'10.63791"	Ellipsoid Height (m) 5816.469	
Location Photo  NORTH				



3007_2020_MT_3W_20201011



3007_2020_MT_3S_20201011





3007_2020_MT_3N_20201011



3007_2020_MT_3E_20201011



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 3008_2020_MT	Northing (m) 16684479.910	Easting (m) 1804623.903	Elevation (m) 6594.207	
Point Type VVA	Latitude N45°55'14.53102"	Longitude W110°21'16.35847"	Ellipsoid Height (m) 6559.817	
Location Photo  NORTH				



3008_2020_MT_3W_20201011



3008_2020_MT_3S_20201011





3008_2020_MT_3N_20201011



3008_2020_MT_3E_20201011



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 3009_2020_WY	Northing (m) 16356646.517	Easting (m) 1615597.050	Elevation (m) 6861.657	
Point Type VVA	Latitude N45°01'22.99222"	Longitude W111°05'45.68227"	Ellipsoid Height (m) 6834.132	
Location Photo  NORTH				



3009_2020_WY_3SW_20200926



3009_2020_WY_3SE_20200926





3009_2020_WY_3NW_20200926

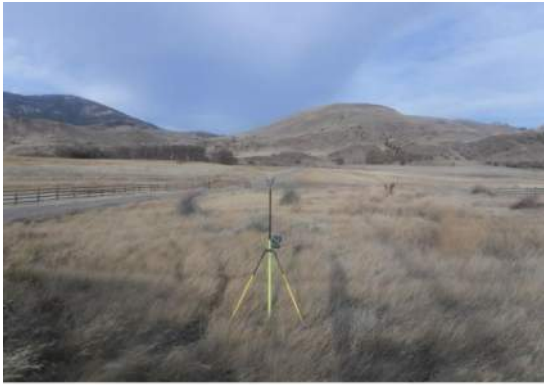


3009_2020_WY_3NE_20200926



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 3010_2020_MT	Northing (m) 16453285.469	Easting (m) 1680808.916	Elevation (m) 4931.908	
Point Type VVA	Latitude N45°17'17.28913"	Longitude W110°50'34.81115"	Ellipsoid Height (m) 4901.099	
Location Photo  NORTH				



3010_2020_MT_3W_20201105



3010_2020_MT_3S_20201105





3010_2020_MT_3N_20201105



3010_2020_MT_3E_20201105



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 3011_2020_MT	Northing (m) 16575469.182	Easting (m) 1742598.307	Elevation (m) 4746.650	
Point Type VVA	Latitude N45°37'21.95442"	Longitude W110°36'01.74111"	Ellipsoid Height (m) 4713.060	
Location Photo  NORTH				



3011_2020_WY_3W_20201008



3011_2020_WY_3S_20201008





3011_2020_WY_3N_20201008



3011_2020_WY_3E_20201008



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 3012_2020_MT	Northing (m) 16577563.202	Easting (m) 1731196.308	Elevation (m) 5220.595	
Point Type VVA	Latitude N45°37'43.16568"	Longitude W110°38'42.09625"	Ellipsoid Height (m) 5186.899	
Location Photo  NORTH				



3012_2020_WY_3W_20201008



3012_2020_WY_3S_20201008





3012_2020_WY_3N_20201008



3012_2020_WY_3E_20201008



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 3013_2020_MT	Northing (m) 16703260.898	Easting (m) 1709601.536	Elevation (m) 5284.359	
Point Type VVA	Latitude N45°58'25.40741"	Longitude W110°43'40.05479"	Ellipsoid Height (m) 5248.284	
Location Photo  NORTH				



3013_2020_MT_3W_20201105



3013_2020_MT_3S_20201105





3013_2020_MT_3N_20201105



3013_2020_MT_3E_20201105



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 3014_2020_WY	Northing (m) 16330334.125	Easting (m) 1819501.212	Elevation (m) 6255.437	
Point Type VVA	Latitude N44°56'55.68570"	Longitude W110°18'28.96710"	Ellipsoid Height (m) 6228.643	
Location Photo  NORTH				



3014_2020_WY_3SW_20201001



3014_2020_WY_3SE_20201001





3014_2020_WY_3NW_20201001



3014_2020_WY_3NE_20201001



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 3015_2020_MT	Northing (m) 16407623.638	Easting (m) 1683045.971	Elevation (m) 5081.363	
Point Type VVA	Latitude N45°09'46.23290"	Longitude W110°50'04.81803"	Ellipsoid Height (m) 5052.091	
Location Photo  NORTH				



3015_2020_MT_3SW_20201007



3015_2020_MT_3SE_20201007





3015_2020_MT_3NW_20201007

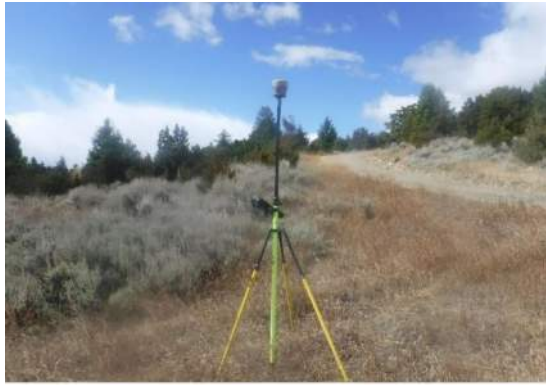


3015_2020_MT_3NE_20201007



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 3016_2020_MT	Northing (m) 16666976.824	Easting (m) 1778527.301	Elevation (m) 5572.420	
Point Type VVA	Latitude N45°52'23.59664"	Longitude W110°27'27.30812"	Ellipsoid Height (m) 5537.089	
Location Photo  NORTH				



3016_2020_MT_3W_20201011



3016_2020_MT_3S_20201011





3016_2020_MT_3N_20201011



3016_2020_MT_3E_20201011



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 3017_2020_MT	Northing (m) 16741314.052	Easting (m) 1690820.119	Elevation (m) 5867.705	
Point Type VVA	Latitude N46°04'41.76087"	Longitude W110°48'04.73070"	Ellipsoid Height (m) 5831.796	
Location Photo  NORTH				



3017_2020_MT_3W_201105



3017_2020_MT_3S_201105





3017_2020_MT_3N_201105



3017_2020_MT_3E_201105



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 3018_2020_WY	Northing (m) 16251575.387	Easting (m) 1611931.180	Elevation (m) 6601.289	
Point Type VVA	Latitude N44°44'05.06962"	Longitude W111°06'34.76338"	Ellipsoid Height (m) 6572.304	
Location Photo  NORTH				



3018_2020_WY_3W_20200927



3018_2020_WY_3S_20200927





3018_2020_WY_3N_20200927



3018_2020_WY_3E_20200927



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 3019_2020_WY	Northing (m) 16251538.255	Easting (m) 1580286.793	Elevation (m) 6551.514	
Point Type VVA	Latitude N44°44'04.04789"	Longitude W111°13'53.29999"	Ellipsoid Height (m) 6522.884	
Location Photo  NORTH				



3019_2020_WY_3W_20200927



3019_2020_WY_3S_20200927





3019_2020_WY_3N_20200927



3019_2020_WY_3E_20200927



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 3020_2020_MT	Northing (m) 16793399.670	Easting (m) 1761196.532	Elevation (m) 6167.208	
Point Type VVA	Latitude N46°13'13.17496"	Longitude W110°31'21.61177"	Ellipsoid Height (m) 6132.560	
Location Photo  NORTH				



3020_2020_MT_3W_20201023



3020_2020_MT_3S_20201023





3020_2020_MT_3N_20201023



3020_2020_MT_3E_20201023



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 3021_2020_MT	Northing (m) 16526336.347	Easting (m) 1702995.008	Elevation (m) 6034.334	
Point Type VVA	Latitude N45°29'18.26076"	Longitude W110°45'21.27447"	Ellipsoid Height (m) 6002.210	
Location Photo  NORTH				



3021_2020_MT_3W_20201014



3021_2020_MT_3S_20201014





3021_2020_MT_3N_20201014

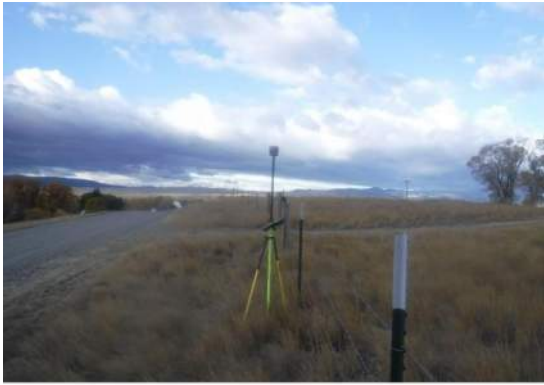


3021_2020_MT_3E_20201014



GCP OBSERVATION LOG

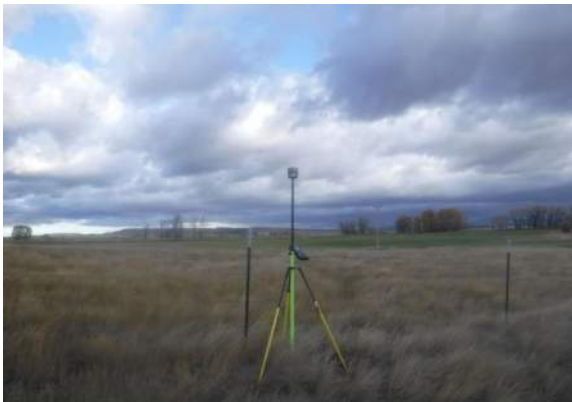
Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 3022_2020_MT	Northing (m) 16637986.301	Easting (m) 1768918.952	Elevation (m) 4603.796	
Point Type VVA	Latitude N45°47'37.91375"	Longitude W110°29'45.73736"	Ellipsoid Height (m) 4568.125	
Location Photo  NORTH				



3022_2020_MT_3W_20201012



3022_2020_MT_3S_20201012





3022_2020_MT_3N_20201012



3022_2020_MT_3E_20201012



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 3023_2020_MT	Northing (m) 16396922.271	Easting (m) 1635324.245	Elevation (m) 6656.232	
Point Type VVA	Latitude N45°08'00.95589"	Longitude W111°01'11.06305"	Ellipsoid Height (m) 6627.449	
Location Photo  NORTH				



3023_2020_MT_3SW_20201008



3023_2020_MT_3SE_20201008





3023_2020_MT_3NW_20201008



3023_2020_MT_3NE_20201008



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 3024_2020_MT	Northing (m) 16745762.006	Easting (m) 1711451.077	Elevation (m) 5342.892	
Point Type VVA	Latitude N46°05'25.07426"	Longitude W110°43'11.74002"	Ellipsoid Height (m) 5306.832	
Location Photo  NORTH				



3024_2020_MT_3W_20201023



3024_2020_MT_3S_20201023





3024_2020_MT_3N_20201023



3024_2020_MT_3E_20201023



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 3025_2020_WY	Northing (m) 16359139.505	Easting (m) 1913776.499	Elevation (m) 8318.805	
Point Type VVA	Latitude N45°01'30.13189"	Longitude W109°56'32.57182"	Ellipsoid Height (m) 8294.236	
Location Photo  NORTH				



3025_2020_WY_3W_20201004



3025_2020_WY_3S_20201004





3025_2020_WY_3N_20201004



3025_2020_WY_3E_20201004

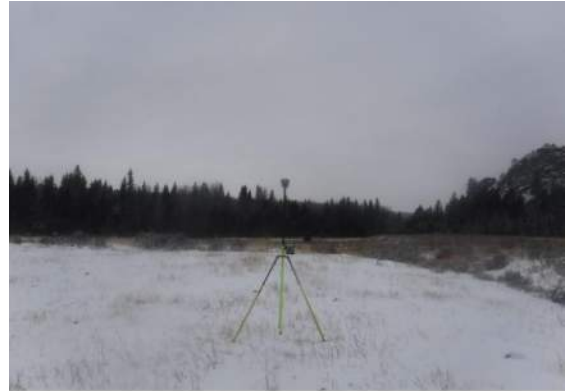


GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 3026_2020_MT	Northing (m) 16774647.328	Easting (m) 1768521.289	Elevation (m) 6011.917	
Point Type VVA	Latitude N46°10'07.54365"	Longitude W110°29'39.10300"	Ellipsoid Height (m) 5977.464	
Location Photo  NORTH				



3026_2020_MT_3W_20201022



3026_2020_MT_3S_20201022





3026_2020_MT_3N_20201022



3026_2020_MT_3E_20201022



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 3027_2020_MT	Northing (m) 16381908.353	Easting (m) 1725310.318	Elevation (m) 8431.323	
Point Type VVA	Latitude N45°05'30.95845"	Longitude W110°40'16.19913"	Ellipsoid Height (m) 8403.315	
Location Photo  NORTH				



3027_2020_MT_3W_20201007



3027_2020_MT_3S_20201007





3027_2020_MT_3N_20201007



3027_2020_MT_3E_20201007



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 3028_2020_MT	Northing (m) 16687785.584	Easting (m) 1778613.762	Elevation (m) 5915.527	
Point Type VVA	Latitude N45°55'49.09073"	Longitude W110°27'24.08226"	Ellipsoid Height (m) 5880.628	
Location Photo  NORTH				



3028_2020_MT_3W_20201011



3028_2020_MT_3S_20201011





3028_2020_MT_3N_20201011



3028_2020_MT_3E_20201011



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 3029_2020_MT	Northing (m) 16455758.930	Easting (m) 1684188.590	Elevation (m) 4939.820	
Point Type VVA	Latitude N45°17'41.65203"	Longitude W110°49'47.44819"	Ellipsoid Height (m) 4908.893	
Location Photo  NORTH				



3029_2020_MT_3SW_20201011



3029_2020_MT_3SE_20201011





3029_2020_MT_3NW_20201011



3029_2020_MT_3NE_20201011



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 3030_2020_MT	Northing (m) 16388575.940	Easting (m) 1687008.855	Elevation (m) 5502.841	
Point Type VVA	Latitude N45°06'38.00796"	Longitude W110°49'10.08322"	Ellipsoid Height (m) 5473.826	
Location Photo  NORTH				



3030_2020_MT_3W_20201006



3030_2020_MT_3S_20201006





3030_2020_MT_3N_20201006



3030_2020_MT_3E_20201006



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 3031_2020_MT	Northing (m) 16466819.220	Easting (m) 1683467.995	Elevation (m) 5217.403	
Point Type VVA	Latitude N45°19'30.91023"	Longitude W110°49'57.21072"	Ellipsoid Height (m) 5186.287	
Location Photo  NORTH				



3031_2020_MT_3W_20201010



3031_2020_MT_3S_20201010





3031_2020_MT_3N_20201010



3031_2020_MT_3E_20201010



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 3032_2020_MT	Northing (m) 16724456.809	Easting (m) 1683152.097	Elevation (m) 5640.122	
Point Type VVA	Latitude N46°01'55.45722"	Longitude W110°49'54.05213"	Ellipsoid Height (m) 5604.251	
Location Photo  NORTH				



3032_2020_MT_3W_20201104



3032_2020_MT_3S_20201104





3032_2020_MT_3N_20201104



3032_2020_MT_3E_20201104



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 3033_2020_WY	Northing (m) 16201927.080	Easting (m) 1684339.120	Elevation (m) 7157.310	
Point Type VVA	Latitude N44°35'54.37313"	Longitude W110°49'52.72968"	Ellipsoid Height (m) 7128.038	
Location Photo  NORTH				



3033_2020_WY_3W_20200926



3033_2020_WY_3S_20200926





3033_2020_WY_3N_20200926



3033_2020_WY_3E_20200926



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 3034_2020_MT	Northing (m) 16669060.732	Easting (m) 1785127.538	Elevation (m) 5767.728	
Point Type VVA	Latitude N45°52'43.72304"	Longitude W110°25'53.78470"	Ellipsoid Height (m) 5732.556	
Location Photo  NORTH				



3034_2020_MT_3W_20201011



3034_2020_MT_3S_20201011





3034_2020_MT_3N_20201011



3034_2020_MT_3E_20201011



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 3035_2020_MT	Northing (m) 16620323.990	Easting (m) 1709149.263	Elevation (m) 7147.210	
Point Type VVA	Latitude N45°44'46.33348"	Longitude W110°43'50.42357"	Ellipsoid Height (m) 7112.517	
Location Photo  NORTH				



3035_2020_WY_3W_20201007



3035_2020_WY_3S_20201007





3035_2020_WY_3N_20201007



3035_2020_WY_3E_20201007



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 3036_2020_WY	Northing (m) 16256456.837	Easting (m) 1571813.209	Elevation (m) 6578.001	
Point Type VVA	Latitude N44°44'52.37887"	Longitude W111°15'50.94981"	Ellipsoid Height (m) 6549.615	
Location Photo  NORTH				



3036_2020_WY_3W_20200927



3036_2020_WY_3S_20200927





3036_2020_WY_3N_20200927



3036_2020_WY_3E_20200927



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 3037_2020_MT	Northing (m) 16780166.640	Easting (m) 1791003.596	Elevation (m) 6370.571	
Point Type VVA	Latitude N46°11'00.50932"	Longitude W110°24'18.96500"	Ellipsoid Height (m) 6336.870	
Location Photo  NORTH				



3037_2020_MT_3W_20201022



3037_2020_MT_3S_20201022





3037_2020_MT_3N_20201022



3037_2020_MT_3E_20201022



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 3038_2020_MT	Northing (m) 16551055.562	Easting (m) 1703304.568	Elevation (m) 5574.961	
Point Type VVA	Latitude N45°33'22.39464"	Longitude W110°45'15.86606"	Ellipsoid Height (m) 5542.148	
Location Photo  NORTH				



3038_2020_WY_3W_20201008



3038_2020_WY_3S_20201008





3038_2020_WY_3N_20201008



3038_2020_WY_3E_20201008



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 3039_2020_MT	Northing (m) 16460824.034	Easting (m) 1666057.171	Elevation (m) 5610.124	
Point Type VVA	Latitude N45°18'31.98036"	Longitude W110°54'01.09420"	Ellipsoid Height (m) 5579.634	
Location Photo  NORTH				



3039_2020_MT_3W_20201105



3039_2020_MT_3S_20201105





3039_2020_MT_3N_20201105



3039_2020_MT_3E_20201105



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 3040_2020_MT	Northing (m) 16477199.198	Easting (m) 1700401.352	Elevation (m) 5041.088	
Point Type VVA	Latitude N45°21'13.01716"	Longitude W110°45'59.69647"	Ellipsoid Height (m) 5009.494	
Location Photo  NORTH				



3040_2020_MT_3W_20201014



3040_2020_MT_3S_20201014





3040_2020_MT_3N_20201014



3040_2020_MT_3E_20201014



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 3041_2020_MT	Northing (m) 16792744.238	Easting (m) 1758617.706	Elevation (m) 6140.631	
Point Type VVA	Latitude N46°13'06.85398"	Longitude W110°31'58.35549"	Ellipsoid Height (m) 6105.896	
Location Photo  NORTH				



3041_2020_MT_3W_20201023



3041_2020_MT_3S_20201023





3041_2020_MT_3N_20201023



3041_2020_MT_3E_20201023



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 3042_2020_MT	Northing (m) 16460069.367	Easting (m) 1658103.098	Elevation (m) 5729.909	
Point Type VVA	Latitude N45°18'24.60854"	Longitude W110°55'52.44113"	Ellipsoid Height (m) 5699.653	
Location Photo  NORTH				



3042_2020_MT_3W_20201105



3042_2020_MT_3S_20201105





3042_2020_MT_3N_20201105



3042_2020_MT_3E_20201105



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 3043_2020_MT	Northing (m) 16645023.618	Easting (m) 1697422.440	Elevation (m) 6902.343	
Point Type VVA	Latitude N45°48'50.62921"	Longitude W110°46'34.87191"	Ellipsoid Height (m) 6867.109	
Location Photo  NORTH				



3043_2020_MT_3W_20201106



3043_2020_MT_3S_20201106





3043_2020_MT_3N_20201106



3043_2020_MT_3E_20201106



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 3044_2020_MT	Northing (m) 16641783.381	Easting (m) 1696002.247	Elevation (m) 7239.592	
Point Type VVA	Latitude N45°48'18.66683"	Longitude W110°46'55.05492"	Ellipsoid Height (m) 7204.472	
Location Photo  NORTH				



3044_2020_MT_3W_20201106



3044_2020_MT_3S_20201106





3044_2020_MT_3N_20201106



3044_2020_MT_3E_20201106



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 3045_2020_MT	Northing (m) 16458730.001	Easting (m) 1681760.197	Elevation (m) 4992.170	
Point Type VVA	Latitude N45°18'11.04681"	Longitude W110°50'21.34851"	Ellipsoid Height (m) 4961.194	
Location Photo  NORTH				



3045_2020_MT_3W_20201010



3045_2020_MT_3SW_20201010





3045_2020_MT_3SE_20201010



3045_2020_MT_3E_20201010



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 3046_2020_MT	Northing (m) 16766777.815	Easting (m) 1783008.217	Elevation (m) 6832.808	
Point Type VVA	Latitude N46°08'48.86830"	Longitude W110°26'13.98578"	Ellipsoid Height (m) 6799.082	
Location Photo  NORTH				



3046_2020_MT_3W_20201022



3046_2020_MT_3S_20201022





3046_2020_MT_3N_20201022



3046_2020_MT_3E_20201022



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 3047_2020_MT	Northing (m) 16719210.023	Easting (m) 1732168.513	Elevation (m) 5080.633	
Point Type VVA	Latitude N46°01'02.03117"	Longitude W110°38'19.39369"	Ellipsoid Height (m) 5044.655	
Location Photo  NORTH				



3047_2020_MT_3W_20201021



3047_2020_MT_3S_20201021





3047_2020_MT_3N_20201021



3047_2020_MT_3E_20201021



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 3048_2020_MT	Northing (m) 16613077.491	Easting (m) 1700921.800	Elevation (m) 6302.917	
Point Type VVA	Latitude N45°43'35.02215"	Longitude W110°45'46.78602"	Ellipsoid Height (m) 6268.382	
Location Photo  NORTH				



3048_2020_WY_3W_20201007



3048_2020_WY_3S_20201007





3048_2020_WY_3N_20201007



3048_2020_WY_3E_20201007



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 3049_2020_MT	Northing (m) 16445225.622	Easting (m) 1778726.554	Elevation (m) 6618.517	
Point Type VVA	Latitude N45°15'53.51821"	Longitude W110°27'45.48851"	Ellipsoid Height (m) 6590.672	
Location Photo  NORTH				



3049_2020_MT_3W_20201015



3049_2020_MT_3S_20201015





3049_2020_MT_3N_20201015



3049_2020_MT_3E_20201015



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 3050_2020_MT	Northing (m) 16460624.788	Easting (m) 1662235.589	Elevation (m) 5645.846	
Point Type VVA	Latitude N45°18'30.05560"	Longitude W110°54'54.59008"	Ellipsoid Height (m) 5615.474	
Location Photo  NORTH				



3050_2020_MT_3W_20201010



3050_2020_MT_3S_20201010





3050_2020_MT_3N_20201010



3050_2020_MT_3E_20201010



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 3051_2020_MT	Northing (m) 16460239.609	Easting (m) 1672392.647	Elevation (m) 5273.228	
Point Type VVA	Latitude N45°18'26.12097"	Longitude W110°52'32.42547"	Ellipsoid Height (m) 5242.539	
Location Photo  NORTH				



3051_2020_MT_3W_20201105



3051_2020_MT_3S_20201105




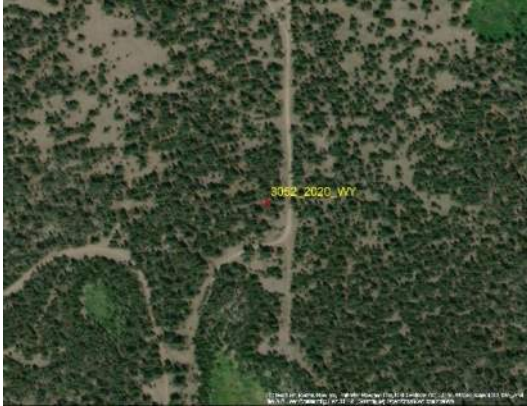
3051_2020_MT_3N_20201105



3051_2020_MT_3E_20201105



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 3052_2020_WY	Northing (m) 16258723.474	Easting (m) 1615062.754	Elevation (m) 6590.507	
Point Type VVA	Latitude N44°45'15.71841"	Longitude W111°05'51.48366"	Ellipsoid Height (m) 6561.670	
Location Photo  NORTH				



3052_2020_WY_3W_20200927



3052_2020_WY_3S_20200927





3052_2020_WY_3N_20200927



3052_2020_WY_3E_20200927



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 3053_2020_MT	Northing (m) 16706903.552	Easting (m) 1762443.332	Elevation (m) 5457.091	
Point Type VVA	Latitude N45°58'58.91741"	Longitude W110°31'11.30531"	Ellipsoid Height (m) 5421.935	
Location Photo  NORTH				



3053_2020_MT_3W_20201021



3053_2020_MT_3S_20201021





3053_2020_MT_3N_20201021



3053_2020_MT_3E_20201021



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 3054_2020_MT	Northing (m) 16580010.403	Easting (m) 1707799.525	Elevation (m) 5382.664	
Point Type VVA	Latitude N45°38'08.22684"	Longitude W110°44'11.33506"	Ellipsoid Height (m) 5348.894	
Location Photo  NORTH				



3054_2020_WY_3W_20201008



3054_2020_WY_3S_20201008





3054_2020_WY_3N_20201008



3054_2020_WY_3E_20201008



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 3055_2020_MT	Northing (m) 16646646.157	Easting (m) 1686389.114	Elevation (m) 6831.218	
Point Type VVA	Latitude N45°49'06.92921"	Longitude W110°49'10.64985"	Ellipsoid Height (m) 6796.000	
Location Photo  NORTH				



3055_2020_MT_3W_20201106



3055_2020_MT_3S_20201106





3055_2020_MT_3N_20201106



3055_2020_MT_3E_20201106



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 3056_2020_MT	Northing (m) 16668852.928	Easting (m) 1669992.702	Elevation (m) 6327.015	
Point Type VVA	Latitude N45°52'46.54721"	Longitude W110°53'01.78843"	Ellipsoid Height (m) 6291.584	
Location Photo  NORTH				



3056_2020_MT_3W_20201107



3056_2020_MT_3S_20201107





3056_2020_MT_3N_20201107



3056_2020_MT_3E_20201107



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 3057_2020_MT	Northing (m) 16791486.480	Easting (m) 1765789.775	Elevation (m) 6341.306	
Point Type VVA	Latitude N46°12'54.00385"	Longitude W110°30'16.43404"	Ellipsoid Height (m) 6306.854	
Location Photo  NORTH				



3057_2020_MT_3W_20201023



3057_2020_MT_3S_20201023





3057_2020_MT_3N_20201023



3057_2020_MT_3E_20201023



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 3058_2020_MT	Northing (m) 16772243.973	Easting (m) 1782412.821	Elevation (m) 6401.487	
Point Type VVA	Latitude N46°09'42.88913"	Longitude W110°26'21.89704"	Ellipsoid Height (m) 6367.618	
Location Photo  NORTH				



3058_2020_MT_3W_20201022



3058_2020_MT_3S_20201022





3058_2020_MT_3N_20201022



3058_2020_MT_3E_20201022



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 3059_2020_MT	Northing (m) 16720236.017	Easting (m) 1767628.749	Elevation (m) 5927.895	
Point Type VVA	Latitude N46°01'10.26747"	Longitude W110°29'56.66087"	Ellipsoid Height (m) 5893.216	
Location Photo  NORTH				



3059_2020_MT_3W_20201021



3059_2020_MT_3S_20201021





3059_2020_MT_3N_20201021



3059_2020_MT_3E_20201021



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 3060_2020_MT	Northing (m) 16663371.533	Easting (m) 1668713.175	Elevation (m) 5893.553	
Point Type VVA	Latitude N45°51'52.43028"	Longitude W110°53'19.98908"	Ellipsoid Height (m) 5858.098	
Location Photo  NORTH				



3060_2020_MT_3W_20201107



3060_2020_MT_3S_20201107





3060_2020_MT_3N_20201107



3060_2020_MT_3E_20201107



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 3061_2020_MT	Northing (m) 16544140.774	Easting (m) 1754589.070	Elevation (m) 4863.532	
Point Type VVA	Latitude N45°32'11.91931"	Longitude W110°33'15.41987"	Ellipsoid Height (m) 4831.757	
Location Photo  NORTH				



3061_2020_MT_3SW_20201014



3061_2020_MT_3SE_20201014





3061_2020_MT_3NW_20201014



3061_2020_MT_3NE_20201014

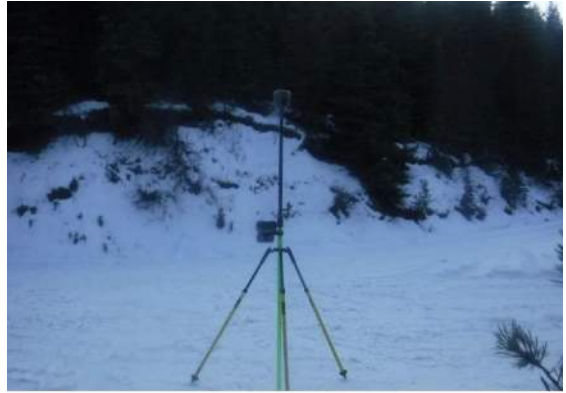


GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 3062_2020_MT	Northing (m) 16428129.380	Easting (m) 1640903.847	Elevation (m) 6826.729	
Point Type VVA	Latitude N45°13'09.20545"	Longitude W110°59'53.19137"	Ellipsoid Height (m) 6797.893	
Location Photo  NORTH				



3062_2020_MT_3W_20201104



3062_2020_MT_3S_20201104





3062_2020_MT_3N_20201104



3062_2020_MT_3E_20201104



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 3063_2020_MT	Northing (m) 16673429.639	Easting (m) 1668856.417	Elevation (m) 6100.758	
Point Type VVA	Latitude N45°53'31.76327"	Longitude W110°53'17.76512"	Ellipsoid Height (m) 6065.296	
Location Photo  NORTH				



3063_2020_MT_3W_20201106



3063_2020_MT_3S_20201106





3063_2020_MT_3N_20201106



3063_2020_MT_3E_20201106



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 3064_2020_MT	Northing (m) 16697836.549	Easting (m) 1662178.007	Elevation (m) 6011.809	
Point Type VVA	Latitude N45°57'32.88830"	Longitude W110°54'51.84994"	Ellipsoid Height (m) 5976.134	
Location Photo  NORTH				



3064_2020_MT_3W_20201105



3064_2020_MT_3S_20201105





3064_2020_MT_3N_20201105



3064_2020_MT_3E_20201105



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 3065_2020_MT	Northing (m) 16687609.299	Easting (m) 1675278.878	Elevation (m) 5718.539	
Point Type VVA	Latitude N45°55'51.70336"	Longitude W110°51'46.58531"	Ellipsoid Height (m) 5682.920	
Location Photo  NORTH				



3065_2020_MT_3W_20201106



3065_2020_MT_3S_20201106





3065_2020_MT_3N_20201106



3065_2020_MT_3E_20201106



GCP OBSERVATION LOG

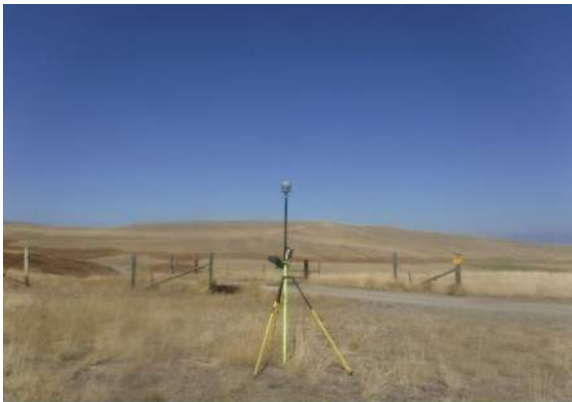
Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 3066_2020_MT	Northing (m) 16631967.155	Easting (m) 1727626.945	Elevation (m) 5428.126	
Point Type VVA	Latitude N45°46'40.62617"	Longitude W110°39'29.07009"	Ellipsoid Height (m) 5392.808	
Location Photo  NORTH				



3066_2020_WY_3W_20201007



3066_2020_WY_3S_20201007





3066_2020_WY_3N_20201007



3066_2020_WY_3E_20201007



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 3067_2020_MT	Northing (m) 16598158.558	Easting (m) 1694866.116	Elevation (m) 6159.557	
Point Type VVA	Latitude N45°41'07.84568"	Longitude W110°47'12.73983"	Ellipsoid Height (m) 6125.237	
Location Photo  NORTH				



3067_2020_WY_3W_20201006



3067_2020_WY_3S_20201006





3067_2020_WY_3N_20201006



3067_2020_WY_3E_20201006



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 3068_2020_MT	Northing (m) 16773581.902	Easting (m) 1754806.814	Elevation (m) 5780.529	
Point Type VVA	Latitude N46°09'57.83858"	Longitude W110°32'54.12207"	Ellipsoid Height (m) 5745.525	
Location Photo  NORTH				



3068_2020_MT_3W_20201022



3068_2020_MT_3S_20201022





3068_2020_MT_3N_20201022



3068_2020_MT_3E_20201022



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 3069_2020_MT	Northing (m) 16629381.405	Easting (m) 1763823.897	Elevation (m) 4667.674	
Point Type VVA	Latitude N45°46'13.24327"	Longitude W110°30'58.40454"	Ellipsoid Height (m) 4632.106	
Location Photo  NORTH				



3069_2020_MT_3W_20201010



3069_2020_MT_3S_20201010





3069_2020_MT_3N_20201010



3069_2020_MT_3E_20201010



GCP OBSERVATION LOG

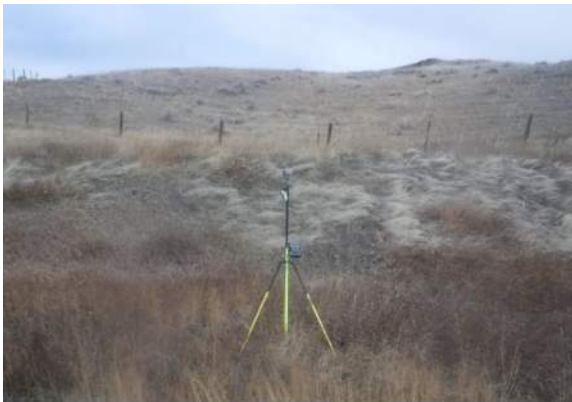
Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 3070_2020_MT	Northing (m) 16667570.125	Easting (m) 1702376.821	Elevation (m) 5287.976	
Point Type VVA	Latitude N45°52'33.15782"	Longitude W110°45'23.92835"	Ellipsoid Height (m) 5252.262	
Location Photo  NORTH				



3070_2020_MT_3W_20201106



3070_2020_MT_3S_20201106





3070_2020_MT_3N_20201106



3070_2020_MT_3E_20201106



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 3070A_2020_MT	Northing (m) 16667564.808	Easting (m) 1702340.579	Elevation (m) 5289.463	
Point Type VVA	Latitude N45°52'33.10639"	Longitude W110°45'24.44101"	Ellipsoid Height (m) 5253.749	
Location Photo  NORTH				



3070A_2020_MT_3W_20201106



3070A_2020_MT_3S_20201106





3070A_2020_MT_3N_20201106



3070A_2020_MT_3E_20201106



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 3071_2020_MT	Northing (m) 16559447.272	Easting (m) 1693727.830	Elevation (m) 5950.021	
Point Type VVA	Latitude N45°34'45.54364"	Longitude W110°47'30.19712"	Ellipsoid Height (m) 5916.949	
Location Photo  NORTH				



3071_2020_WY_3W_20201008



3071_2020_WY_3S_20201008





3071_2020_WY_3N_20201008



3071_2020_WY_3E_20201008



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 3072_2020_MT	Northing (m) 16615557.807	Easting (m) 1757977.738	Elevation (m) 4871.845	
Point Type VVA	Latitude N45°43'57.06206"	Longitude W110°32'22.02948"	Ellipsoid Height (m) 4836.674	
Location Photo  NORTH				



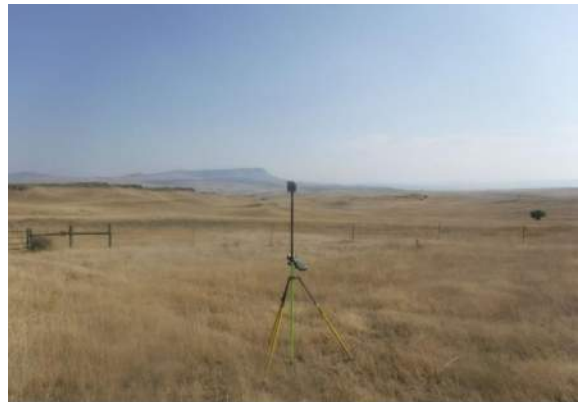
3072_2020_MT_3W_20201010



3072_2020_MT_3S_20201010





3072_2020_MT_3N_20201010



3072_2020_MT_3E_20201010



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 3073_2020_MT	Northing (m) 16524239.024	Easting (m) 1737830.125	Elevation (m) 4721.127	
Point Type VVA	Latitude N45°28'56.21019"	Longitude W110°37'12.26765"	Ellipsoid Height (m) 4689.216	
Location Photo  NORTH				



3073_2020_MT_3SW_20201016



3073_2020_MT_3SE_20201016




3073_2020_MT_3NW_20201016



3073_2020_MT_3NE_20201016





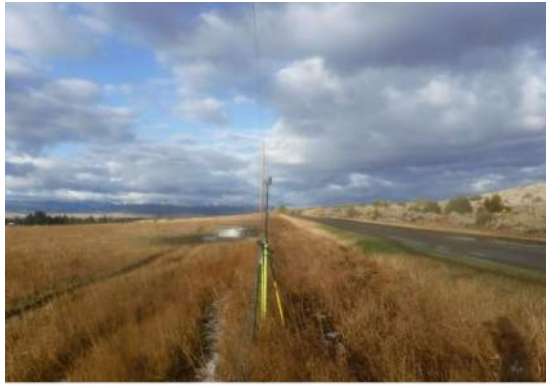
GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 3074_2020_MT	Northing (m) 16624876.163	Easting (m) 1760255.210		Elevation (m) 4651.614
Point Type VVA	Latitude N45°45'28.95968"	Longitude W110°31'49.13965"		Ellipsoid Height (m) 4616.158
Location Photo  NORTH				



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 3075_2020_MT	Northing (m) 16692882.751	Easting (m) 1765813.625	Elevation (m) 5674.280	
Point Type VVA	Latitude N45°56'40.25001"	Longitude W110°30'24.79064"	Ellipsoid Height (m) 5639.063	
Location Photo  NORTH				



3075_2020_MT_3W_20201020



3075_2020_MT_3S_20201020





3075_2020_MT_3N_20201020

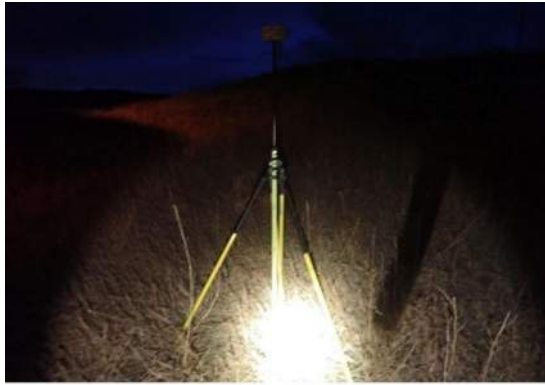


3075_2020_MT_3E_20201020



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 3076_2020_MT	Northing (m) 16666469.150	Easting (m) 1713390.091	Elevation (m) 5106.237	
Point Type VVA	Latitude N45°52'21.92348"	Longitude W110°42'48.26640"	Ellipsoid Height (m) 5070.417	
Location Photo  NORTH				



3076_2020_MT_3W_20201107



3076_2020_MT_3S_20201107





3076_2020_MT_3N_20201107



3076_2020_MT_3E_20201107



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 3077_2020_MT	Northing (m) 16775172.553	Easting (m) 1742540.089	Elevation (m) 5673.326	
Point Type VVA	Latitude N46°10'14.19873"	Longitude W110°35'48.35504"	Ellipsoid Height (m) 5637.929	
Location Photo  NORTH				



3077_2020_MT_3W_20201023



3077_2020_MT_3S_20201023





3077_2020_MT_3N_20201023



3077_2020_MT_3E_20201023



GCP OBSERVATION LOG

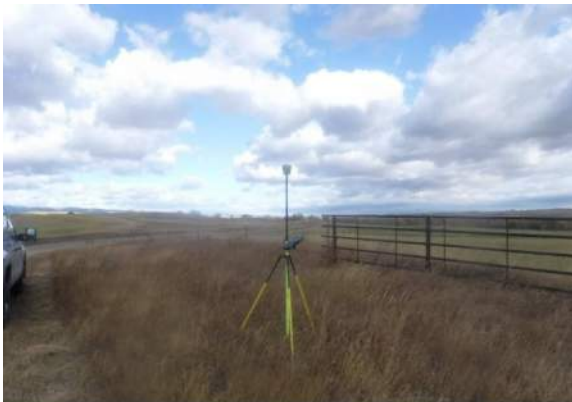
Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 3078_2020_MT	Northing (m) 16644332.090	Easting (m) 1755343.352	Elevation (m) 4697.934	
Point Type VVA	Latitude N45°48'41.38518"	Longitude W110°32'56.89300"	Ellipsoid Height (m) 4662.162	
Location Photo  NORTH				



3078_2020_MT_3W_20201012



3078_2020_MT_3S_20201012





3078_2020_MT_3N_20201012



3078_2020_MT_3E_20201012



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 3079_2020_MT	Northing (m) 16666474.991	Easting (m) 1718026.236	Elevation (m) 5032.129	
Point Type VVA	Latitude N45°52'21.81155"	Longitude W110°41'42.71895"	Ellipsoid Height (m) 4996.284	
Location Photo  NORTH				



3079_2020_MT_3W_20201107



3079_2020_MT_3S_20201107





3079_2020_MT_3N_20201107



3079_2020_MT_3E_20201107



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 3080_2020_MT	Northing (m) 16775028.497	Easting (m) 1777184.384	Elevation (m) 6187.625	
Point Type VVA	Latitude N46°10'10.74452"	Longitude W110°27'35.93309"	Ellipsoid Height (m) 6153.530	
Location Photo  NORTH				



3080_2020_MT_3W_20201022



3080_2020_MT_3S_20201022





3080_2020_MT_3N_20201022



3080_2020_MT_3E_20201022



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 3081_2020_MT	Northing (m) 16667718.663	Easting (m) 1699754.081	Elevation (m) 5270.478	
Point Type VVA	Latitude N45°52'34.70209"	Longitude W110°46'01.00554"	Ellipsoid Height (m) 5234.792	
Location Photo  NORTH				



3081_2020_MT_3W_20201106



3081_2020_MT_3S_20201106




3081_2020_MT_3N_20201106



3081_2020_MT_3E_20201106





GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 3081A_2020_MT	Northing (m) 16667624.198	Easting (m) 1704368.804		Elevation (m) 5223.810
Point Type VVA	Latitude N45°52'33.63090"	Longitude W110°44'55.76101"		Ellipsoid Height (m) 5188.072
Location Photo  NORTH				



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 3082_2020_MT	Northing (m) 16431828.562	Easting (m) 1672117.823	Elevation (m) 5005.247	
Point Type VVA	Latitude N45°13'45.50452"	Longitude W110°52'36.87915"	Ellipsoid Height (m) 4975.338	
Location Photo  NORTH				



3082_2020_MT_3SW_20201009



3082_2020_MT_3SE_20201009





3082_2020_MT_3NW_20201009



3082_2020_MT_3NE_20201009



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 3083_2020_MT	Northing (m) 16687411.586	Easting (m) 1725558.686	Elevation (m) 5042.934	
Point Type VVA	Latitude N45°55'48.28184"	Longitude W110°39'54.98143"	Ellipsoid Height (m) 5006.873	
Location Photo  NORTH				



3083_2020_MT_3W_20201013



3083_2020_MT_3S_20201013





3083_2020_MT_3N_20201013



3083_2020_MT_3E_20201013



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 3084_2020_MT	Northing (m) 16731763.956	Easting (m) 1740058.219	Elevation (m) 5242.253	
Point Type VVA	Latitude N46°03'05.64040"	Longitude W110°36'26.67999"	Ellipsoid Height (m) 5206.540	
Location Photo  NORTH				



3084_2020_MT_3W_20201021



3084_2020_MT_3S_20201021





3084_2020_MT_3N_20201021



3084_2020_MT_3E_20201021



GCP OBSERVATION LOG

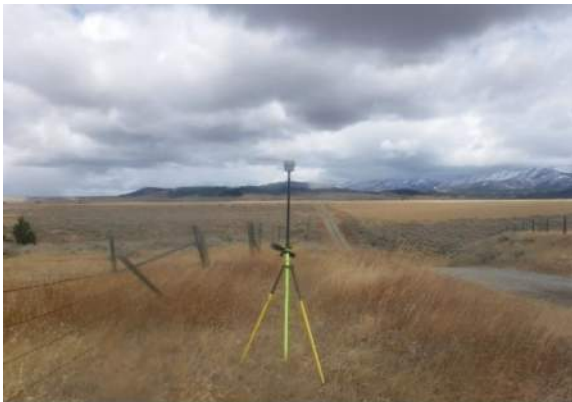
Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 3085_2020_MT	Northing (m) 16670336.717	Easting (m) 1778501.865	Elevation (m) 5673.642	
Point Type VVA	Latitude N45°52'56.77959"	Longitude W110°27'27.34492"	Ellipsoid Height (m) 5638.362	
Location Photo  NORTH				



3085_2020_MT_3W_20201011



3085_2020_MT_3S_20201011





3085_2020_MT_3N_20201011



3085_2020_MT_3E_20201011



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 3086_2020_MT	Northing (m) 16506891.289	Easting (m) 1730349.465	Elevation (m) 4917.734	
Point Type VVA	Latitude N45°26'05.20822"	Longitude W110°38'58.35955"	Ellipsoid Height (m) 4885.811	
Location Photo  NORTH				



3086_2020_MT_3SW_20201012



3086_2020_MT_3S_20201012





3086_2020_MT_3NW_20201012



3086_2020_MT_3N_20201012



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 3087_2020_WY	Northing (m) 16251493.698	Easting (m) 1564454.863	Elevation (m) 7981.472	
Point Type VVA	Latitude N44°44'03.10454"	Longitude W111°17'32.69943"	Ellipsoid Height (m) 7953.245	
Location Photo  NORTH				



3087_2020_WY_3W_20200927



3087_2020_WY_3S_20200927





3087_2020_WY_3N_20200927



3087_2020_WY_3E_20200927



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 3088_2020_MT	Northing (m) 16582905.332	Easting (m) 1735243.781	Elevation (m) 4895.004	
Point Type VVA	Latitude N45°38'35.74541"	Longitude W110°37'44.77319"	Ellipsoid Height (m) 4860.959	
Location Photo  NORTH				



3088_2020_WY_3W_20201008



3088_2020_WY_3S_20201008





3088_2020_WY_3N_20201008



3088_2020_WY_3E_20201008



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 3089_2020_MT	Northing (m) 16590360.521	Easting (m) 1743336.107	Elevation (m) 4638.076	
Point Type VVA	Latitude N45°39'48.98921"	Longitude W110°35'50.30314"	Ellipsoid Height (m) 4603.711	
Location Photo  NORTH				



3089_2020_WY_3W_20201007



3089_2020_WY_3S_20201007





3089_2020_WY_3N_20201007



3089_2020_WY_3E_20201007



GCP OBSERVATION LOG

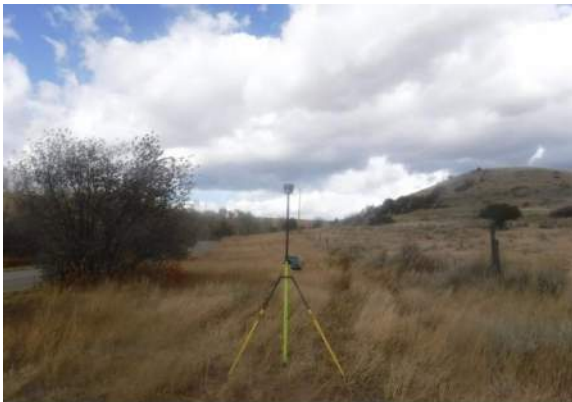
Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 3090_2020_MT	Northing (m) 16650711.011	Easting (m) 1760093.572	Elevation (m) 4768.988	
Point Type VVA	Latitude N45°49'44.11257"	Longitude W110°31'49.27842"	Ellipsoid Height (m) 4733.221	
Location Photo  NORTH				



3090_2020_MT_3W_20201012



3090_2020_MT_3S_20201012





3090_2020_MT_3N_20201012



3090_2020_MT_3E_20201012



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 3091_2020_MT	Northing (m) 16693119.534	Easting (m) 1686251.129	Elevation (m) 5686.938	
Point Type VVA	Latitude N45°56'45.90675"	Longitude W110°49'11.11633"	Ellipsoid Height (m) 5651.186	
Location Photo  NORTH				



3091_2020_MT_3W_20201105



3091_2020_MT_3S_20201105





3091_2020_MT_3N_20201105



3091_2020_MT_3E_20201105



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 3092_2020_MT	Northing (m) 16478098.793	Easting (m) 1717806.565	Elevation (m) 5090.772	
Point Type VVA	Latitude N45°21'21.33182"	Longitude W110°41'55.82908"	Ellipsoid Height (m) 5059.306	
Location Photo  NORTH				



3092_2020_MT_3SW_20201011



3092_2020_MT_3SE_20201011





3092_2020_MT_3NW_20201011



3092_2020_MT_3NE_20201011



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 3093_2020_MT	Northing (m) 16500392.700	Easting (m) 1715879.291	Elevation (m) 4950.871	
Point Type VVA	Latitude N45°25'01.59576"	Longitude W110°42'21.68757"	Ellipsoid Height (m) 4918.807	
Location Photo  NORTH				



3093_2020_MT_3SW_20201012



3093_2020_MT_3SE_20201012





3093_2020_MT_3NW_20201012



3093_2020_MT_3NE_20201012



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 3094_2020_MT	Northing (m) 16589139.891	Easting (m) 1705599.691	Elevation (m) 5187.076	
Point Type VVA	Latitude N45°39'38.46387"	Longitude W110°44'41.89652"	Ellipsoid Height (m) 5152.933	
Location Photo  NORTH				



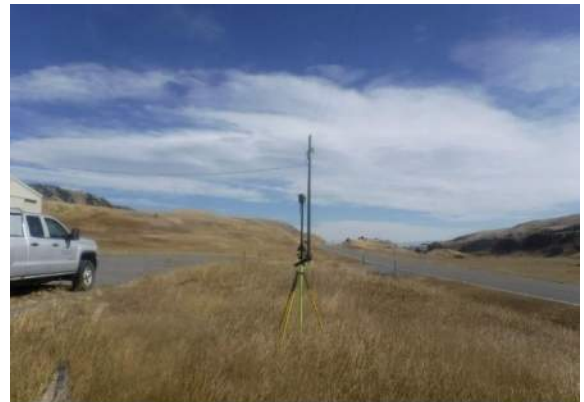
3094_2020_WY_3W_20201006



3094_2020_WY_3S_20201006





3094_2020_WY_3N_20201006



3094_2020_WY_3E_20201006



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 3095_2020_MT	Northing (m) 16497395.559	Easting (m) 1734682.343	Elevation (m) 4979.462	
Point Type VVA	Latitude N45°24'31.23058"	Longitude W110°37'58.18418"	Ellipsoid Height (m) 4947.922	
Location Photo  NORTH				



3095_2020_MT_3W_20201013



3095_2020_MT_3S_20201013





3095_2020_MT_3N_20201013



3095_2020_MT_3E_20201013



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 3096_2020_MT	Northing (m) 16465982.062	Easting (m) 1685170.303	Elevation (m) 5048.780	
Point Type VVA	Latitude N45°19'22.60595"	Longitude W110°49'33.40103"	Ellipsoid Height (m) 5017.607	
Location Photo  NORTH				



3096_2020_MT_3W_20201010



3096_2020_MT_3S_20201010





3096_2020_MT_3N_20201010



3096_2020_MT_3E_20201010



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 3096A_2020_MT	Northing (m) 16466500.314	Easting (m) 1677847.923	Elevation (m) 5636.470	
Point Type VVA	Latitude N45°19'27.86821"	Longitude W110°51'15.90874"	Ellipsoid Height (m) 5605.540	
Location Photo  NORTH				



3096A_2020_MT_3SW_20201010



3096A_2020_MT_3SE_20201010





3096A_2020_MT_3NW_20201010



3096A_2020_MT_3NE_20201010



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 3097_2020_MT	Northing (m) 16669164.302	Easting (m) 1683614.692	Elevation (m) 5868.542	
Point Type VVA	Latitude N45°52'49.38145"	Longitude W110°49'49.16190"	Ellipsoid Height (m) 5833.073	
Location Photo  NORTH				



3097_2020_MT_3W_20201107



3097_2020_MT_3S_20201107





3097_2020_MT_3N_20201107



3097_2020_MT_3E_20201107



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 3098_2020_MT	Northing (m) 16585875.744	Easting (m) 1761457.625	Elevation (m) 4795.422	
Point Type VVA	Latitude N45°39'03.71784"	Longitude W110°31'35.42957"	Ellipsoid Height (m) 4761.546	
Location Photo  NORTH				



3098_2020_MT_3W_20201009



3098_2020_MT_3S_20201009





3098_2020_MT_3N_20201009



3098_2020_MT_3E_20201009



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 3099_2020_MT	Northing (m) 16388612.094	Easting (m) 1673039.127	Elevation (m) 6275.026	
Point Type VVA	Latitude N45°06'38.62691"	Longitude W110°52'24.94629"	Ellipsoid Height (m) 6246.227	
Location Photo  NORTH				



3099_2020_MT_3W_20201006



3099_2020_MT_3S_20201006





3099_2020_MT_3N_20201006



3099_2020_MT_3E_20201006



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 3100_2020_MT	Northing (m) 16714299.928	Easting (m) 1682865.160	Elevation (m) 5490.553	
Point Type VVA	Latitude N46°00'15.15541"	Longitude W110°49'58.42285"	Ellipsoid Height (m) 5454.656	
Location Photo  NORTH				



3100_2020_MT_3W_20201104



3100_2020_MT_3S_20201104





3100_2020_MT_3N_20201104



3100_2020_MT_3E_20201104



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 3101_2020_MT	Northing (m) 16687347.330	Easting (m) 1731896.223	Elevation (m) 4980.388	
Point Type VVA	Latitude N45°55'47.37477"	Longitude W110°38'25.29183"	Ellipsoid Height (m) 4944.345	
Location Photo  NORTH				



3101_2020_MT_3W_20201013



3101_2020_MT_3S_20201013




3101_2020_MT_3N_20201013



3101_2020_MT_3E_20201013



GCP OBSERVATION LOG

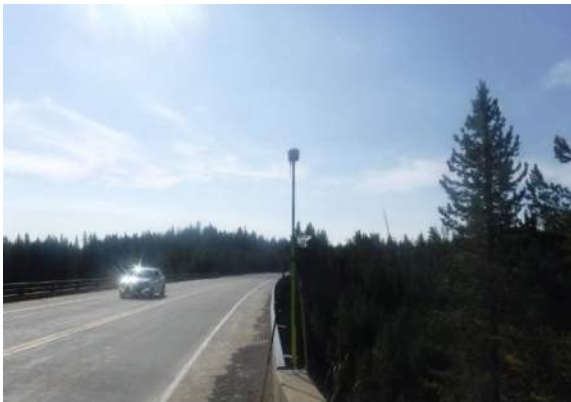
Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 9 MDC	Northing (m) 16131859.369	Easting (m) 1752869.260	Elevation (m) 7791.734	
Point Type PY0803	Latitude N44°24'19.73640"	Longitude W110°34'10.35433"	Ellipsoid Height (m) 7763.402	
 <p>9 MDC_PY0803_1_20200924</p>				



9 MDC_PY0803_3E_20200924



9 MDC_PY0803_3N_20200924




9 MDC_PY0803_3S_20200924



9 MDC_PY0803_3W_20200924



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 10 12	Northing (m) 16248769.919	Easting (m) 1721366.954	Elevation (m) 7491.207	
Point Type PY0955	Latitude N44°43'36.01630"	Longitude W110°41'18.31424"	Ellipsoid Height (m) 7463.112	
 <p>10 12_PY0955_1_20200927</p>				



10 12_PY0955_3E_20200927



10 12_PY0955_3N_20200927



10 12_PY0955_3S_20200927



10 12_PY0955_3W_20200927



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 10 26	Northing (m) 16252194.920	Easting (m) 1769351.810	Elevation (m) 7892.097	
Point Type PY0971	Latitude N44°44'07.49607"	Longitude W110°30'13.14415"	Ellipsoid Height (m) 7864.175	
				
10 26_PY0971_1_20200928				



10 26_PY0971_3E_20200928



10 26_PY0971_3N_20200928




10 26_PY0971_3S_20200928

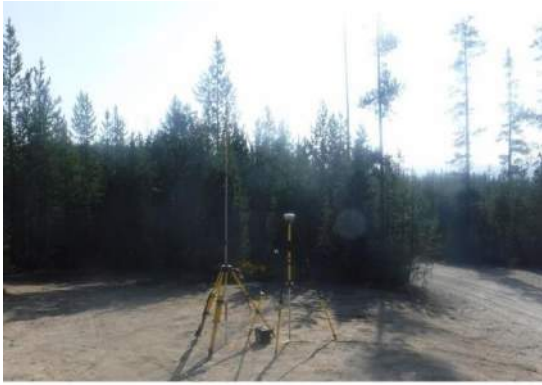


10 26_PY0971_3W_20200928



GCP OBSERVATION LOG

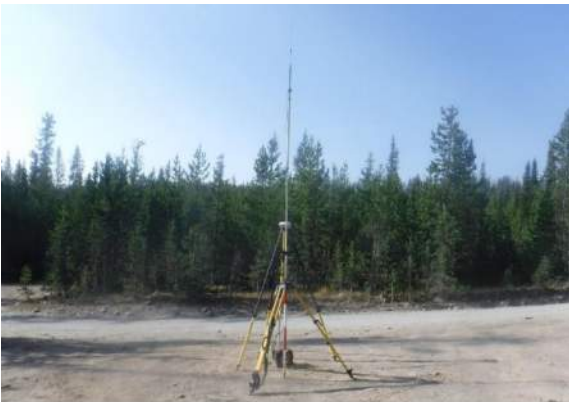
Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 150_2020_WY	Northing (m) 16030820.628	Easting (m) 1680432.314	Elevation (m) 7292.765	
Point Type TSM	Latitude N44°07'44.13592"	Longitude W110°50'51.14632"	Ellipsoid Height (m) 7263.794	
 <p>150_2020_WY_1_20200923</p>				



150_2020_WY_3E_20200923



150_2020_WY_3N_20200923




150_2020_WY_3S_20200923



150_2020_WY_3W_20200923



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 151_2020_WY	Northing (m) 16134956.900	Easting (m) 1750600.410	Elevation (m) 7805.147	
Point Type TSM	Latitude N44°24'50.45173"	Longitude W110°34'41.39930"	Ellipsoid Height (m) 7776.753	
 <p>151_2020_WY_1_20200924</p>				



151_2020_WY_3E_20200924



151_2020_WY_3N_20200924




151_2020_WY_3S_20200924



151_2020_WY_3W_20200924



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 152_2020_WY	Northing (m) 16150781.740	Easting (m) 1684229.633	Elevation (m) 7354.105	
Point Type TSM	Latitude N44°27'29.13964"	Longitude W110°49'55.69625"	Ellipsoid Height (m) 7324.846	
				

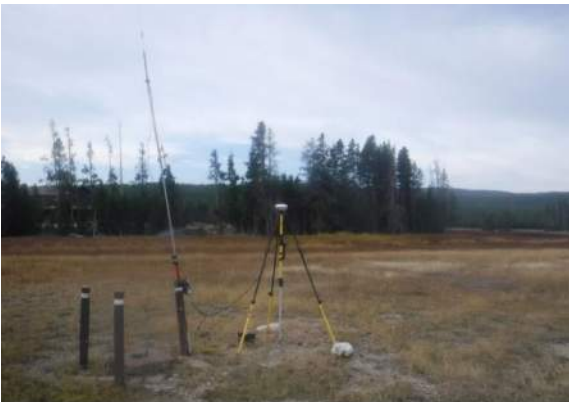
152_2020_WY_1_20200925



152_2020_WY_3E_20200925



152_2020_WY_3N_20200925




152_2020_WY_3S_20200925



152_2020_WY_3W_20200925

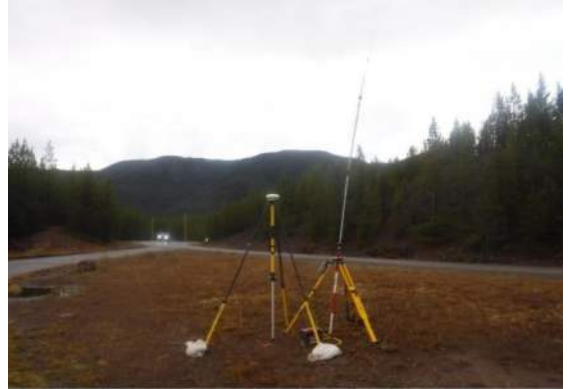


GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 153_2020_WY	Northing (m) 16214503.012	Easting (m) 1677571.240	Elevation (m) 6992.119	
Point Type TSM	Latitude N44°37'58.72940"	Longitude W110°51'25.99751"	Ellipsoid Height (m) 6962.958	
 <p>153_2020_WY_1_20200926</p>				



153_2020_WY_3E_20200926



153_2020_WY_3N_20200926




153_2020_WY_3S_20200926



153_2020_WY_3W_20200926

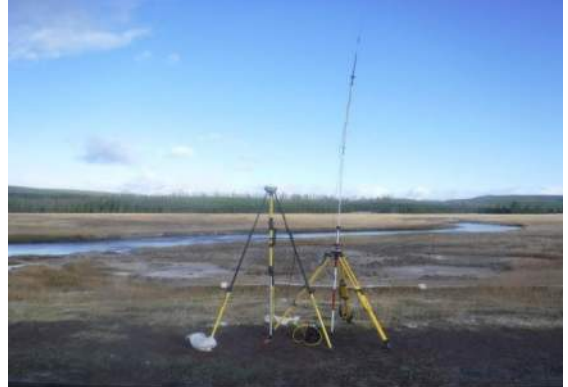


GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 154_2020_WY	Northing (m) 16245392.994	Easting (m) 1712339.808	Elevation (m) 7449.340	
Point Type TSM	Latitude N44°43'02.98119"	Longitude W110°43'23.55620"	Ellipsoid Height (m) 7421.073	
 <p>154_2020_WY_1_20200927</p>				



154_2020_WY_3E_20200927



154_2020_WY_3N_20200927




154_2020_WY_3S_20200927



154_2020_WY_3W_20200927

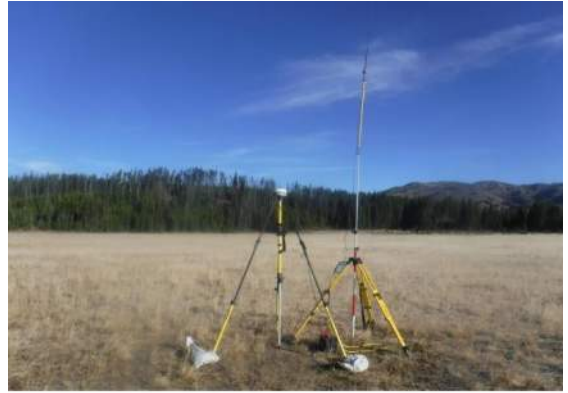


GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 155_2020_WY	Northing (m) 16252144.110	Easting (m) 1769325.043	Elevation (m) 7891.629	
Point Type TSM	Latitude N44°44'06.99579"	Longitude W110°30'13.51937"	Ellipsoid Height (m) 7863.655	
 <p>155_2020_WY_1_20200928</p>				



155_2020_WY_3E_20200928



155_2020_WY_3N_20200928




155_2020_WY_3S_20200928



155_2020_WY_3W_20200928



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 156_2020_WY	Northing (m) 16188498.853	Easting (m) 1816980.688	Elevation (m) 7803.127	
Point Type TSM	Latitude N44°33'34.93512"	Longitude W110°19'20.45296"	Ellipsoid Height (m) 7775.294	
 <p>156_2020_WY_1_20200929</p>				



156_2020_WY_3E_20200929



156_2020_WY_3N_20200929




156_2020_WY_3S_20200929



156_2020_WY_3W_20200929



GCP OBSERVATION LOG

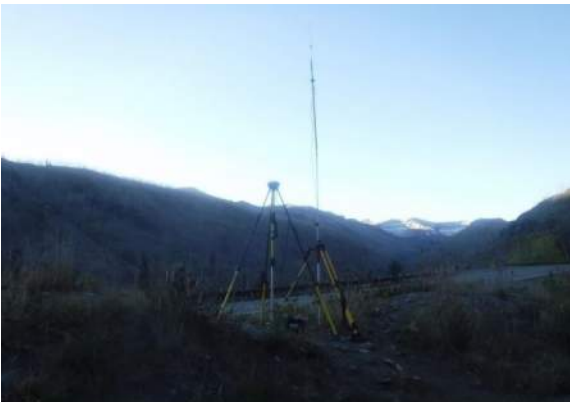
Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 157_2020_WY	Northing (m) 16155864.502	Easting (m) 1883785.393	Elevation (m) 7594.318	
Point Type TSM	Latitude N44°28'06.08745"	Longitude W110°04'02.67708"	Ellipsoid Height (m) 7569.261	
 <p>157_2020_WY_1_20200930</p>				



157_2020_WY_3E_20200930



157_2020_WY_3N_20200930




157_2020_WY_3S_20200930



157_2020_WY_3W_20200930

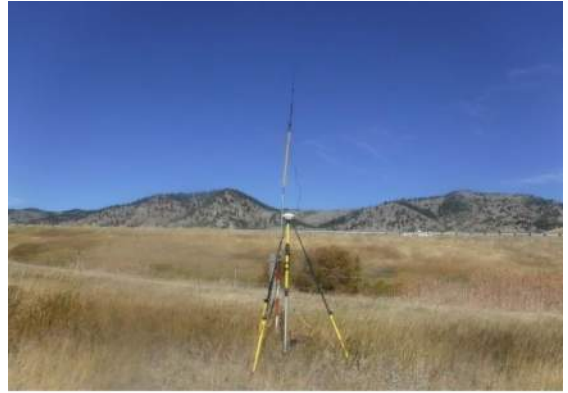


GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 158_2020_MT	Northing (m) 16589374.801	Easting (m) 1706726.959	Elevation (m) 5194.245	
Point Type TSM	Latitude N45°39'40.74818"	Longitude W110°44'26.00838"	Ellipsoid Height (m) 5160.092	
 <p>158_2020_WY_1_20201006</p>				



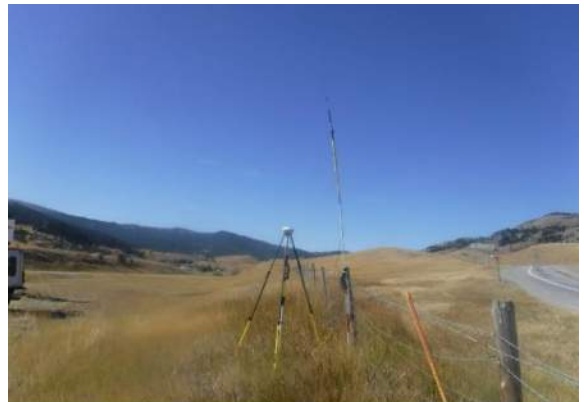
158_2020_WY_3E_20201006



158_2020_WY_3N_20201006




158_2020_WY_3S_20201006

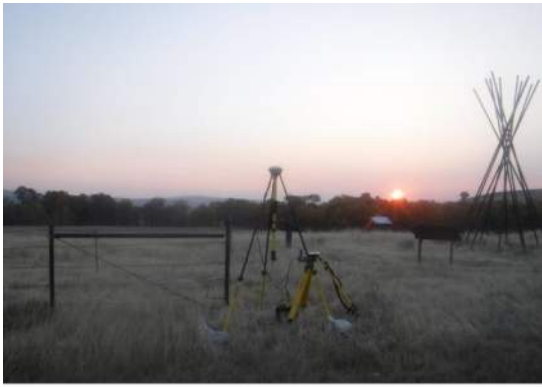


158_2020_WY_3W_20201006



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 160_2020_MT	Northing (m) 16607731.250	Easting (m) 1792769.629	Elevation (m) 4430.468	
Point Type TSM	Latitude N45°42'37.49756"	Longitude W110°24'12.20411"	Ellipsoid Height (m) 4395.590	
 <p>160_2020_MT_1_20201009</p>				



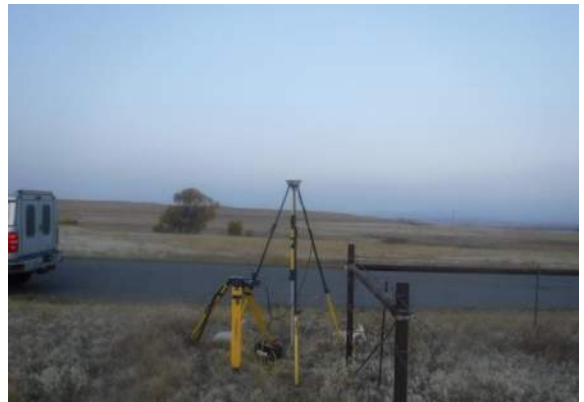
160_2020_MT_3E_20201009



160_2020_MT_3N_20201009




160_2020_MT_3S_20201009



160_2020_MT_3W_20201009

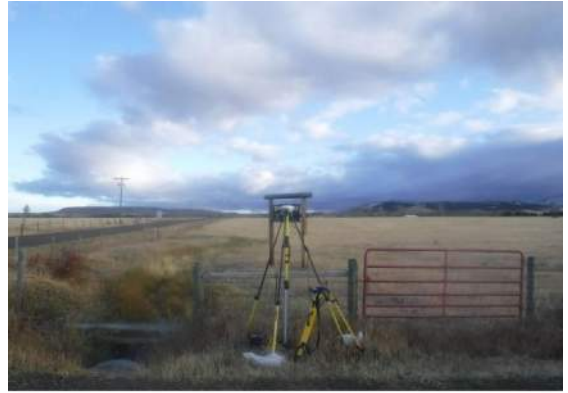


GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 161_2020_MT	Northing (m) 16671849.622	Easting (m) 1767974.617	Elevation (m) 5315.609	
Point Type TSM	Latitude N45°53'12.40031"	Longitude W110°29'56.06982"	Ellipsoid Height (m) 5280.115	
				
161_2020_MT_1_20201011				



161_2020_MT_3E_20201011



161_2020_MT_3N_20201011




161_2020_MT_3S_20201011



161_2020_MT_3W_20201011



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 162_2020_MT	Northing (m) 16744046.184	Easting (m) 1751203.031	Elevation (m) 5413.774	
Point Type TSM	Latitude N46°05'06.36036"	Longitude W110°33'47.64954"	Ellipsoid Height (m) 5378.471	
 <p>162_2020_MT_1_20201021</p>				



162_2020_MT_3E_20201021



162_2020_MT_3N_20201021




162_2020_MT_3S_20201021

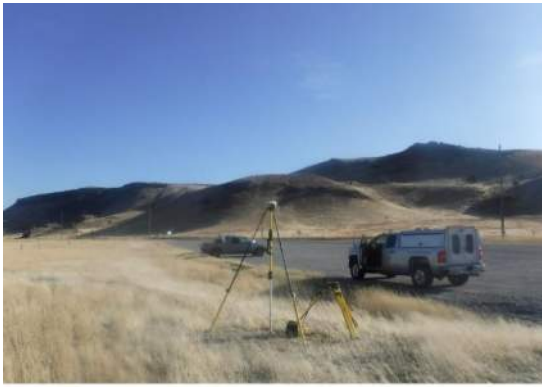


162_2020_MT_3W_20201021



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 165_2020_MT	Northing (m) 16438264.756	Easting (m) 1674238.001	Elevation (m) 4988.190	
Point Type TSM	Latitude N45°14'49.04319"	Longitude W110°52'07.09679"	Ellipsoid Height (m) 4957.995	
 <p>165_2020_MT_1_20201104</p>				



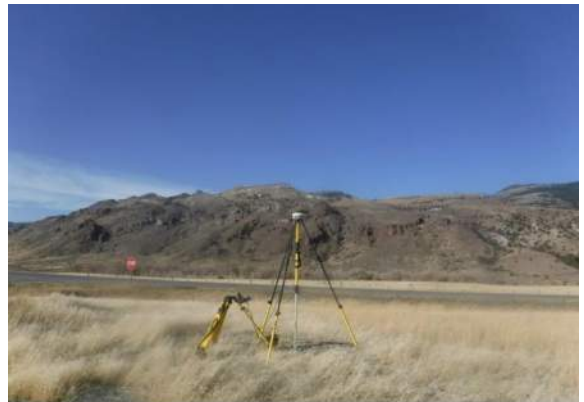
165_2020_MT_3E_20201104



165_2020_MT_3N_20201104




165_2020_MT_3S_20201104

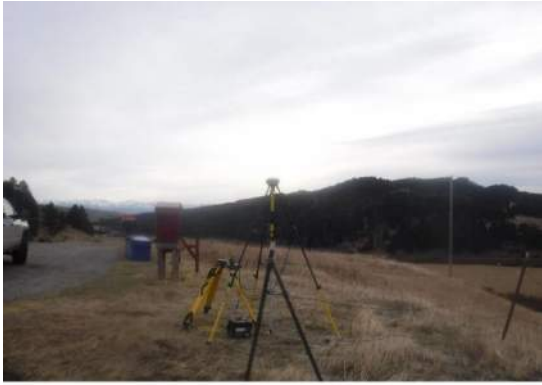


165_2020_MT_3W_20201104



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 166_2020_MT	Northing (m) 16662834.582	Easting (m) 1687526.835	Elevation (m) 5583.291	
Point Type TSM	Latitude N45°51'46.78272"	Longitude W110°48'54.05026"	Ellipsoid Height (m) 5547.754	
 <p>166_2020_MT_1_20201106</p>				



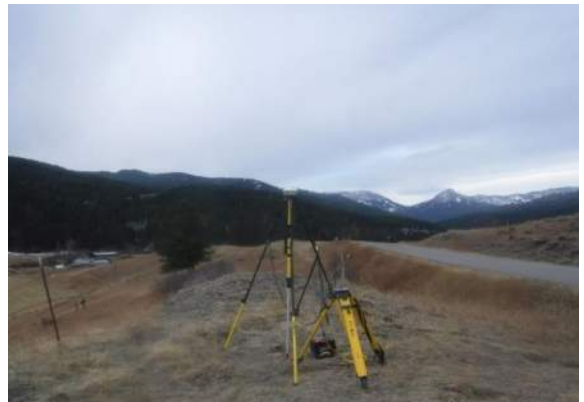
166_2020_MT_3E_20201106



166_2020_MT_3N_20201106




166_2020_MT_3S_20201106



166_2020_MT_3W_20201106



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 201_2020_MT	Northing (m) 16710975.689	Easting (m) 1703810.839	Elevation (m) 5242.066	
Point Type 103	Latitude N45°59'41.78472"	Longitude W110°45'01.73207"	Ellipsoid Height (m) 5205.947	
 <p>201_2020_MT_1_20201104</p>				



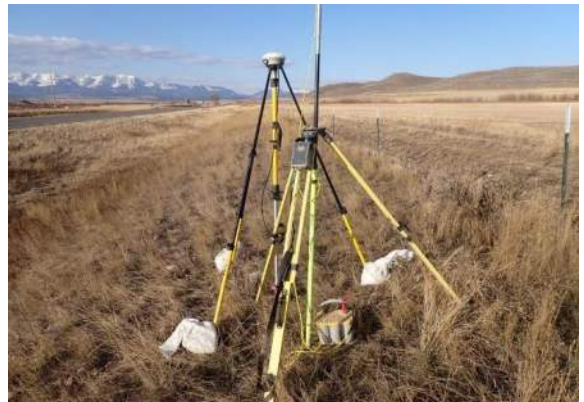
201_2020_MT_3E_20201104



201_2020_MT_3N_20201104




201_2020_MT_3S_20201104



201_2020_MT_3W_20201104



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 250_2020_WY	Northing (m) 16268662.888	Easting (m) 1610899.543	Elevation (m) 6594.225	
Point Type TSM	Latitude N44°46'53.84692"	Longitude W111°06'49.39114"	Ellipsoid Height (m) 6565.671	
 <p>250_2020_WY_1_20200927</p>				



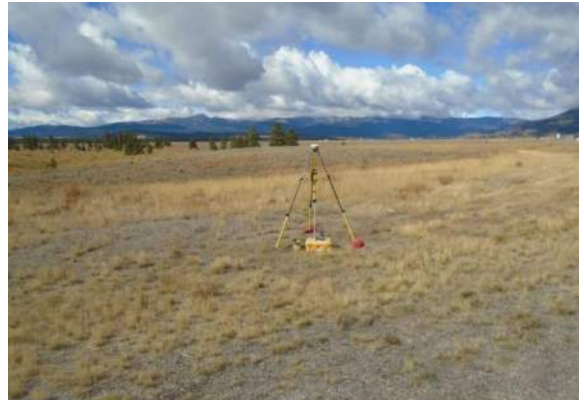
250_2020_WY_3E_20200927



250_2020_WY_3N_20200927




250_2020_WY_3S_20200927

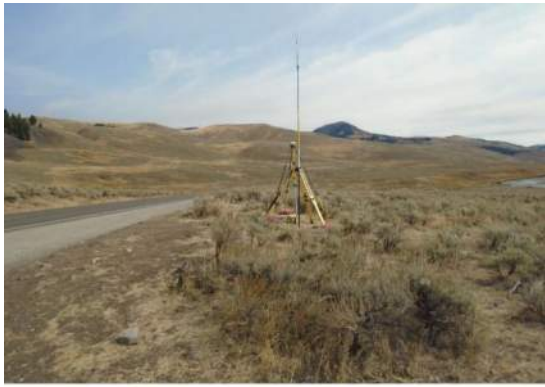


250_2020_WY_3W_20200927

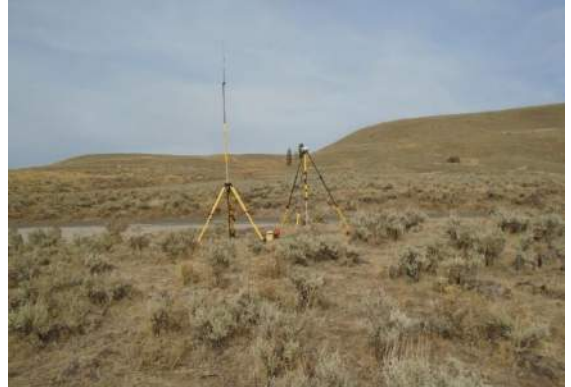


GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 251_2020_WY	Northing (m) 16318047.377	Easting (m) 1828567.920	Elevation (m) 6538.457	
Point Type TSM	Latitude N44°54'53.54634"	Longitude W110°16'24.39137"	Ellipsoid Height (m) 6511.593	
 <p>251_2020_WY_1_20201001</p>				



251_2020_WY_3E_20201001



251_2020_WY_3N_20201001




251_2020_WY_3S_20201001



251_2020_WY_3W_20201001



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 252_2020_WY	Northing (m) 16351495.236	Easting (m) 1890385.467	Elevation (m) 7274.558	
Point Type TSM	Latitude N45°00'17.52327"	Longitude W110°01'59.59031"	Ellipsoid Height (m) 7249.308	
 <p>252_2020_WY_1_20201003</p>				



252_2020_WY_3E_20201003



252_2020_WY_3N_20201003




252_2020_WY_3S_20201003

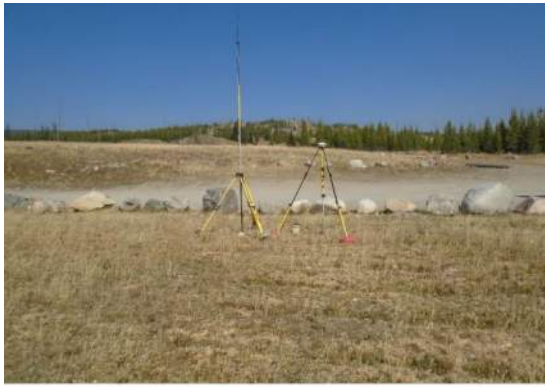


252_2020_WY_3W_20201003



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 253_2020_WY	Northing (m) 16361216.124	Easting (m) 1923942.157	Elevation (m) 8120.233	
Point Type TSM	Latitude N45°01'49.30465"	Longitude W109°54'10.61560"	Ellipsoid Height (m) 8095.817	
 <p>253_2020_WY_1_20201004</p>				



253_2020_WY_3NE_20201004



253_2020_WY_3NW_20201004




253_2020_WY_3SE_20201004



253_2020_WY_3SW_20201004



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 254_2020_MT	Northing (m) 16389049.750	Easting (m) 1694732.198	Elevation (m) 5138.080	
Point Type TSM	Latitude N45°06'42.50356"	Longitude W110°47'22.33340"	Ellipsoid Height (m) 5109.102	
 <p>254_2020_MT_1_20201006</p>				



254_2020_MT_3NE_20201006



254_2020_MT_3NW_20201006




254_2020_MT_3SE_20201006



254_2020_MT_3SW_20201006



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 255_2020_MT	Northing (m) 16410564.014	Easting (m) 1651759.666	Elevation (m) 6060.040	
Point Type TSM	Latitude N45°10'15.67634"	Longitude W110°57'21.60861"	Ellipsoid Height (m) 6031.092	
 <p>255_2020_MT_1_20201009</p>				



255_2020_MT_3N_20201009



255_2020_MT_3NE_20201009




255_2020_MT_3SW_20201009



255_2020_MT_3W_20201009



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 256_2020_MT	Northing (m) 16525294.566	Easting (m) 1737175.126	Elevation (m) 4783.485	
Point Type TSM	Latitude N45°29'06.66584"	Longitude W110°37'21.39434"	Ellipsoid Height (m) 4751.530	
 <p>256_2020_MT_1_20201012</p>				



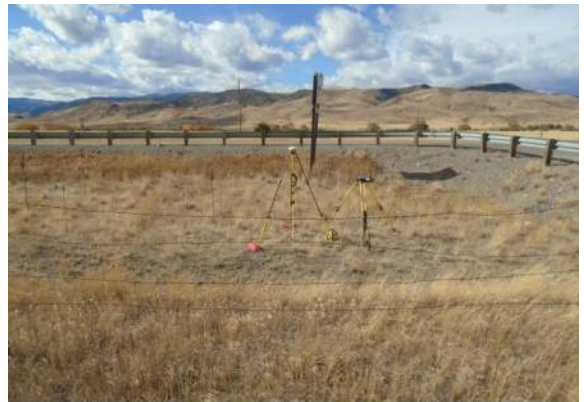
256_2020_MT_3E_20201012



256_2020_MT_3N_20201012




256_2020_MT_3S_20201012



256_2020_MT_3W_20201012



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 257_2020_MT	Northing (m) 16478705.156	Easting (m) 1738350.178	Elevation (m) 5241.740	
Point Type TSM	Latitude N45°21'26.46122"	Longitude W110°37'07.99493"	Ellipsoid Height (m) 5211.041	
 <p>257_2020_MT_1_20201015</p>				



257_2020_MT_3E_20201015



257_2020_MT_3N_20201015




257_2020_MT_3S_20201015



257_2020_MT_3W_20201015



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 258_2020_MT	Northing (m) 16475935.351	Easting (m) 1839740.044	Elevation (m) 6183.071	
Point Type TSM	Latitude N45°20'51.91382"	Longitude W110°13'28.03908"	Ellipsoid Height (m) 6155.939	
 <p>258_2020_MT_1_20201020</p>				



258_2020_MT_3NE_20201020



258_2020_MT_3NW_20201020




258_2020_MT_3SE_20201020

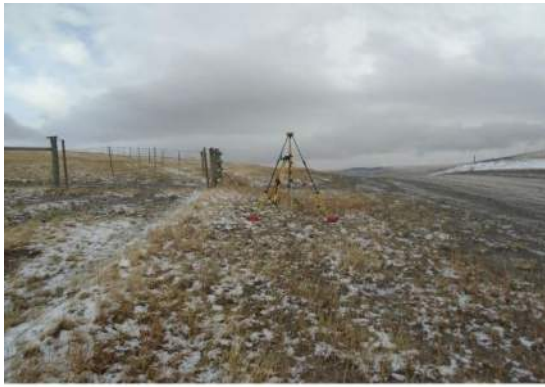


258_2020_MT_3SW_20201020



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID 259_2020_MT	Northing (m) 16570017.194	Easting (m) 1817761.275	Elevation (m) 6140.983	
Point Type TSM	Latitude N45°36'23.05100"	Longitude W110°18'24.50887"	Ellipsoid Height (m) 6108.903	
 <p>259_2020_MT_1_20201021</p>				



259_2020_MT_3E_20201021



259_2020_MT_3NE_20201021




259_2020_MT_3NW_20201021



259_2020_MT_3W_20201021



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID A 162	Northing (m) 16385565.246	Easting (m) 1695344.298	Elevation (m) 5191.898	
Point Type QX0098	Latitude N45°06'08.06990"	Longitude W110°47'13.92295"	Ellipsoid Height (m) 5162.947	
 <p>A 162_QX0098_1_20201006</p>				



A 162_QX0098_3NE_20201006



A 162_QX0098_3NW_20201006




A 162_QX0098_3SE_20201006



A 162_QX0098_3SW_20201006



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID C 157	Northing (m) 16337467.477	Easting (m) 1717532.501	Elevation (m) 6355.689	
Point Type PY0138	Latitude N44°58'12.29317"	Longitude W110°42'06.93637"	Ellipsoid Height (m) 6327.630	
 <p>C 157_PY0138_1_20200929</p>				



C 157_PY0138_3E_20200929



C 157_PY0138_3N_20200929




C 157_PY0138_3S_20200929



C 157_PY0138_3W_20200929



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID E 128 RESET	Northing (m) 16642929.805	Easting (m) 1759239.654	Elevation (m) 4621.513	
Point Type AA9696	Latitude N45°48'27.31551"	Longitude W110°32'01.98294"	Ellipsoid Height (m) 4585.728	
 <p>E 128 RESET_AA9696_1_20201012</p>				



E 128 RESET_AA9696_3E_20201012



E 128 RESET_AA9696_3N_20201012



E 128 RESET_AA9696_3S_20201012



E 128 RESET_AA9696_3W_20201012



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID GRSL AZ MK	Northing (m) 16031840.835	Easting (m) 1688436.546	Elevation (m) 7221.158	
Point Type PY1285	Latitude N44°07'54.05350"	Longitude W110°49'01.32987"	Ellipsoid Height (m) 7192.374	



GRSL AZ MK PY1285_1_20200923



GRSL AZ MK PY1285_3E_20200923



GRSL AZ MK PY1285_3N_20200923




GRSL AZ MK PY1285_3S_20200923



GRSL AZ MK PY1285_3W_20200923



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID HARLEQUIN	Northing (m) 16216912.445	Easting (m) 1669387.244	Elevation (m) 6799.970	
Point Type PY0952	Latitude N44°38'22.65637"	Longitude W110°53'19.17051"	Ellipsoid Height (m) 6771.109	
				

HARLEQUIN_PY0952_1_20200926



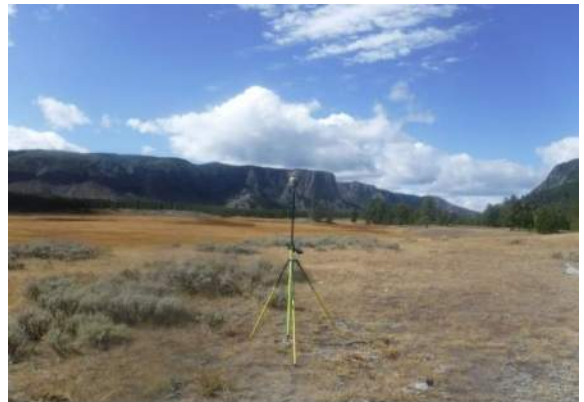
HARLEQUIN_PY0952_3E_20200926



HARLEQUIN_PY0952_3N_20200926




HARLEQUIN_PY0952_3S_20200926



HARLEQUIN_PY0952_3W_20200926



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID K 12	Northing (m) 16159304.954	Easting (m) 1859866.096	Elevation (m) 8418.810	
Point Type PY0036	Latitude N44°28'42.63224"	Longitude W110°09'32.12343"	Ellipsoid Height (m) 8393.490	
 <p>K 12_PY0036_1_20200930</p>				



K 12_PY0036_3E_20200930



K 12_PY0036_3N_20200930




K 12_PY0036_3S_20200930



K 12_PY0036_3W_20200930



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID LAKE ASTRO STATION	Northing (m) 16186524.296	Easting (m) 1798037.530	Elevation (m) 7767.881	
Point Type PY0011	Latitude N44°33'16.90028"	Longitude W110°23'42.37317"	Ellipsoid Height (m) 7739.772	
 <p>LAKE ASTRO STATION_PY0011_1_20200929</p>				



LAKE ASTRO STATION_PY0011_3E_20200929



LAKE ASTRO STATION_PY0011_3N_20200929




LAKE ASTRO STATION_PY0011_3S_20200929



LAKE ASTRO STATION_PY0011_3W_20200929



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID MEERTENS 2	Northing (m) 16149324.213	Easting (m) 1687613.201	Elevation (m) 7400.593	
Point Type PY0802	Latitude N44°27'14.67015"	Longitude W110°49'09.07201"	Ellipsoid Height (m) 7371.384	
				
MEERTEN 2_PY0802_1_20200925				



MEERTEN 2_PY0802_3E_20200925



MEERTEN 2_PY0802_3N_20200925




MEERTEN 2_PY0802_3S_20200925



MEERTEN 2_PY0802_3W_20200925



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID PRAY	Northing (m) 16505006.787	Easting (m) 1729871.253	Elevation (m) 4860.912	
Point Type QX0055	Latitude N45°25'46.61604"	Longitude W110°39'05.18269"	Ellipsoid Height (m) 4829.088	
				

PRAY_QX0055_1_20201012



PRAY_QX0055_3NE_20201012



PRAY_QX0055_3NW_20201012




PRAY_QX0055_3SE_20201012



PRAY_QX0055_3SW_20201012

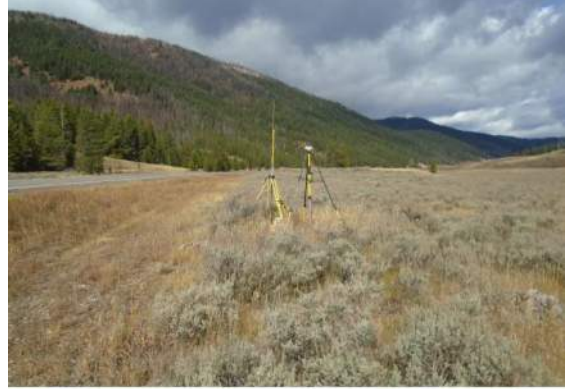


GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID R 161	Northing (m) 16335082.282	Easting (m) 1620959.270	Elevation (m) 7066.341	
Point Type PY0164	Latitude N44°57'50.04410"	Longitude W111°04'30.71980"	Ellipsoid Height (m) 7039.525	
 <p>R 161_PY0164_1_20200926</p>				



R 161_PY0164_3NE_20200926



R 161_PY0164_3NW_20200926




R 161_PY0164_3SE_20200926



R 161_PY0164_3SW_20200926



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID W 2	Northing (m) 16590532.897	Easting (m) 1707003.977	Elevation (m) 5276.157	
Point Type QX0138	Latitude N45°39'52.17712"	Longitude W110°44'22.05352"	Ellipsoid Height (m) 5241.977	
 <p>W 2_QX0138_1_20201006</p>				



W 2_QX0138_3E_20201006



W 2_QX0138_3N_20201006




W 2_QX0138_3S_20201006



W 2_QX0138_3W_20201006



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID X 155	Northing (m) 16454041.944	Easting (m) 1681553.278	Elevation (m) 4931.929	
Point Type QX0077	Latitude N45°17'24.74647"	Longitude W110°50'24.37471"	Ellipsoid Height (m) 4901.179	
 <p>X 155_QX0077_1_20201009</p>				



X 155_QX0077_3E_20201009



X 155_QX0077_3NE_20201009




X 155_QX0077_3S_20201009



X 155_QX0077_3SW_20201009



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID X 558	Northing (m) 16596837.250	Easting (m) 1762960.855	Elevation (m) 4450.913	
Point Type QX0522	Latitude N45°40'51.88705"	Longitude W110°31'13.33667"	Ellipsoid Height (m) 4416.238	
 <p>X 558_QX0522_1_20201009</p>				



X 558_QX0522_3E_20201009



X 558_QX0522_3N_20201009




X 558_QX0522_3S_20201009



X 558_QX0522_3W_20201009



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID Y 368	Northing (m) 16342109.660	Easting (m) 1882815.386	Elevation (m) 7233.442	
Point Type PY1076	Latitude N44°58'45.70678"	Longitude W110°03'46.48807"	Ellipsoid Height (m) 7207.999	
				
Y 368_PY0176_1_20201002				



Y 368_PY0176_3NE_20201002



Y 368_PY0176_3NW_20201002




Y 368_PY0176_3SE_20201002



Y 368_PY0176_3SW_20201002



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID Y 565	Northing (m) 16421068.089	Easting (m) 1666384.623	Elevation (m) 5038.677	
Point Type QX0565	Latitude N45°11'59.29903"	Longitude W110°53'57.20583"	Ellipsoid Height (m) 5009.208	
 <p>Y 565_QX0565_1_20201009</p>				



Y 565_QX0565_3E_20201009



Y 565_QX0565_3N_20201009




Y 565_QX0565_3S_20201009



Y 565_QX0565_3W_20201009



GCP OBSERVATION LOG

Project Number 81200	Project Name Yellowstone LiDAR		Company Woolpert	Field Operator NP & BC
Coordinate System World wide/UTM	Hor. Datum NAD 1983 (Conus)	Ver. Datum NAVD88	Zone 12 North	Geoid GEOID18 (Conus)
Station ID Z 161	Northing (m) 16273695.972	Easting (m) 1613298.417	Elevation (m) 6809.483	
Point Type PY0192	Latitude N44°47'43.59553"	Longitude W111°06'16.20944"	Ellipsoid Height (m) 6781.167	
 <p>Z 161_PY0192_1_20200927</p>				



Z 161_PY0192_3E_20200927



Z 161_PY0192_3N_20200927



Z 161_PY0192_3S_20200927



Z 161_PY0192_3W_20200927

Section 4: Geodetic Control Information and Resources

This section contains the solutions returned from Online Positioning User Service (OPUS) and National Geodetic Survey monument datasheets for the control station used to establish 3-dimensional coordinates for each of the newly established ground control survey points for the project.

FILE: 150_83272670.20o OP1603731442935

NGS OPUS SOLUTION REPORT
=====

All computed coordinate accuracies are listed as peak-to-peak values.
For additional information:

<https://nam02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.ngs.noaa.gov%2FOPUS%2Fabout.jsp%23accuracy&data=04%7C01%7Cmichael.zarlengo%40woolpert.com%7C850ecd916ec7404e02fa08d879d06f03%7C987179e81c49493a88e806d464695b5c%7C0%7C0%7C637393283411580417%7CUnknown%7CTWfpbGZsb3d8eyJWljoiMC4wLjAwMDAiLCJQljoiv2luMzliLCJBTil6lk1haWwiLCJXVCI6Mn0%3D%7C1000&sd=GD%2Fp5q%2FWvGatVOM65RxNJg99Oihn6FiCso4QiCZubo%3D&reserved=0>

USER: michael.zarlengo@woolpert.com DATE: October 26, 2020
RINEX FILE: 150_267q.20o TIME: 16:58:48 UTC

SOFTWARE: page5 2008.25 master90.pl 160321 START: 2020/09/23 16:11:00
EPHEMERIS: igs21243.eph [precise] STOP: 2020/09/23 21:07:00
NAV FILE: brdc2670.20n OBS USED: 11170 / 12829 : 87%
ANT NAME: TRMR8_GNSS3 NONE # FIXED AMB: 93 / 96 : 97%
ARP HEIGHT: 2.000 OVERALL RMS: 0.016(m)

REF FRAME: NAD_83(2011)(EPOCH:2010.0000) ITRF2014 (EPOCH:2020.7289)

X: -1632469.555(m) 0.005(m) -1632470.511(m) 0.005(m)
Y: -4286788.222(m) 0.020(m) -4286786.973(m) 0.020(m)
Z: 4419926.847(m) 0.011(m) 4419926.762(m) 0.011(m)

LAT: 44 7 44.13612 0.016(m) 44 7 44.15279 0.016(m)
E LON: 249 9 8.85341 0.004(m) 249 9 8.79325 0.004(m)
W LON: 110 50 51.14659 0.004(m) 110 50 51.20675 0.004(m)
EL HGT: 2213.980(m) 0.019(m) 2213.327(m) 0.019(m)
ORTHO HGT: 2222.810(m) 0.064(m) [NAVD88 (Computed using GEOID18)]

UTM COORDINATES STATE PLANE COORDINATES

UTM (Zone 12) SPC (4904 WY W)
Northing (Y) [meters] 4886203.906 503357.911
Easting (X) [meters] 512196.788 738842.484
Convergence [degrees] 0.10615278 -0.53211389
Point Scale 0.99960183 0.99998348
Combined Factor 0.99925493 0.99963645

US NATIONAL GRID DESIGNATOR: 12TWP1219686203(NAD 83)

BASE STATIONS USED

PID DESIGNATION LATITUDE LONGITUDE DISTANCE(m)

DG8532 TSWY TSWY_EBRY_WY2001 CORS ARP N434026.703 W1103550.864 54403.4
DP3858 P707 REDROCKLAKMT2008 CORS ARP N444307.553 W1115013.738 102533.5
DI1692 IDBY REXBURG CORS ARP N434913.279 W1114700.726 82586.2

NEAREST NGS PUBLISHED CONTROL POINT

PY1273 GRASSY LAKE DAM N440753.417 W1104913.234 2195.4

This position and the above vector components were computed without any knowledge by the National Geodetic Survey regarding the equipment or field operating procedures used.

FILE: 150_83272671.20o OP1603731494067

NGS OPUS SOLUTION REPORT
=====

All computed coordinate accuracies are listed as peak-to-peak values.
For additional information:

<https://nam02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.ngs.noaa.gov%2FOPUS%2Fabout.jsp%23accuracy&data=04%7C01%7Cmichael.zarlengo%40woolpert.com%7Cba48efff8a2f404d69e908d879d07dfa%7C987179e81c49493a88e806d464695b5c%7C0%7C0%7C637393283667588610%7CUnknown%7CTWFpbGZsb3d8eyJWljoimC4wLjAwMDAiLCJQIjoiV2luMzliLCJBTiI6Ikk1haWwiLCJXVCi6Mn0%3D%7C1000&sdata=o%2FJkhmn%2BpccO7HqExXs3Qg7ICcFWO1WO3CXWlQ6yFuo%3D&reserved=0>

USER: michael.zarlengo@woolpert.com DATE: October 26, 2020
RINEX FILE: 150_267v.20o TIME: 16:59:13 UTC

SOFTWARE: page5 2008.25 master92.pl 160321 START: 2020/09/23 21:11:00
EPHEMERIS: igs21243.eph [precise] STOP: 2020/09/23 23:13:00
NAV FILE: brdc2670.20n OBS USED: 4708 / 5315 : 89%
ANT NAME: TRMR8_GNSS3 NONE # FIXED AMB: 38 / 50 : 76%
ARP HEIGHT: 2.000 OVERALL RMS: 0.022(m)

REF FRAME: NAD_83(2011)(EPOCH:2010.0000) ITRF2014 (EPOCH:2020.7293)

X: -1632469.561(m) 0.010(m) -1632470.517(m) 0.010(m)
Y: -4286788.273(m) 0.118(m) -4286787.024(m) 0.118(m)
Z: 4419926.879(m) 0.018(m) 4419926.794(m) 0.018(m)

LAT: 44 7 44.13572 0.068(m) 44 7 44.15239 0.068(m)
E LON: 249 9 8.85395 0.036(m) 249 9 8.79379 0.036(m)
W LON: 110 50 51.14605 0.036(m) 110 50 51.20621 0.036(m)
EL HGT: 2214.038(m) 0.091(m) 2213.385(m) 0.091(m)
ORTHO HGT: 2222.868(m) 0.128(m) [NAVD88 (Computed using GEOID18)]

UTM COORDINATES STATE PLANE COORDINATES

UTM (Zone 12) SPC (4904 WY W)
Northing (Y) [meters] 4886203.894 503357.899
Easting (X) [meters] 512196.800 738842.496
Convergence [degrees] 0.10615278 -0.53211389
Point Scale 0.99960183 0.99998348
Combined Factor 0.99925492 0.99963644

US NATIONAL GRID DESIGNATOR: 12TWP1219686203(NAD 83)

BASE STATIONS USED

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
DP3858	P707 REDROCKLAKMT2008	CORS ARP	N444307.553 W1115013.738	102533.6
AI5647	MAWY MAWY_EBRY_WY1998	CORS ARP	N445824.319 W1104121.433	94711.5
DG8532	TSWY TSWY_EBRY_WY2001	CORS ARP	N434026.703 W1103550.864	54403.4

NEAREST NGS PUBLISHED CONTROL POINT

PY1273	GRASSY LAKE DAM	N440753.417	W1104913.234	2195.4
--------	-----------------	-------------	--------------	--------

This position and the above vector components were computed without any knowledge by the National Geodetic Survey regarding the equipment or field operating procedures used.

FILE: 151_83272680.20o OP1603731530053

NGS OPUS SOLUTION REPORT
=====

All computed coordinate accuracies are listed as peak-to-peak values.
For additional information:

<https://nam02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.ngs.noaa.gov%2FOPUS%2Fabout.jsp%23accuracy&data=04%7C01%7Cmichael.zarlengo%40woolpert.com%7Ca26ffe6cbc4748f0bbc308d879d0b9e7%7C987179e81c49493a88e806d464695b5c%7C0%7C0%7C637393284670068817%7CUnknown%7CTWFpbGZsb3d8eyJWljiMC4wLjAwMDAiLCJQIjoiV2luMzliLCJBTil6lk1haWwiLCJXVCi6Mn0%3D%7C1000&sdata=SKOK2Crjnet%2FPLDpTXZj%2Fdi5MP66pezMQw8KZDOAJAw%3D&reserved=0>

USER: michael.zarlengo@woolpert.com DATE: October 26, 2020
RINEX FILE: 151_268p.20o TIME: 17:00:53 UTC

SOFTWARE: page5 2008.25 master74.pl 160321 START: 2020/09/24 15:04:00
EPHEMERIS: igs21244.eph [precise] STOP: 2020/09/24 17:35:00
NAV FILE: brdc2680.20n OBS USED: 6086 / 6399 : 95%
ANT NAME: TRMR8_GNSS3 NONE # FIXED AMB: 37 / 40 : 93%
ARP HEIGHT: 2.000 OVERALL RMS: 0.016(m)

REF FRAME: NAD_83(2011)(EPOCH:2010.0000) ITRF2014 (EPOCH:2020.7314)

X: -1604561.484(m) 0.002(m) -1604562.438(m) 0.002(m)
Y: -4273810.915(m) 0.014(m) -4273809.668(m) 0.014(m)
Z: 4442727.056(m) 0.011(m) 4442726.974(m) 0.011(m)

LAT: 44 24 50.45162 0.006(m) 44 24 50.46858 0.006(m)
E LON: 249 25 18.60038 0.003(m) 249 25 18.54023 0.003(m)
W LON: 110 34 41.39962 0.003(m) 110 34 41.45977 0.003(m)
EL HGT: 2370.368(m) 0.016(m) 2369.716(m) 0.016(m)
ORTHO HGT: 2379.023(m) 0.065(m) [NAVD88 (Computed using GEOID18)]

UTM COORDINATES STATE PLANE COORDINATES

UTM (Zone 12) SPC (4904 WY W)
Northing (Y) [meters] 4917944.696 534869.279
Easting (X) [meters] 533584.065 760590.788
Convergence [degrees] 0.29521667 -0.34630833
Point Scale 0.99961387 0.99995659
Combined Factor 0.99924248 0.99958508

US NATIONAL GRID DESIGNATOR: 12TWQ3358417944(NAD 83)

BASE STATIONS USED

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
AI5647	MAWY MAWY_EBRY_WY1998	CORS ARP	N445824.319 W1104121.433	62808.3
DI1692	IDBY REXBURG	CORS ARP	N434913.279 W1114700.726	116915.8
DP3858	P707 REDROCKLAKMT2008	CORS ARP	N444307.553 W1115013.738	105626.6

NEAREST NGS PUBLISHED CONTROL POINT

PY0801	54 MDC	N442450.000	W1103445.000	80.9
--------	--------	-------------	--------------	------

This position and the above vector components were computed without any knowledge by the National Geodetic Survey regarding the equipment or field operating procedures used.

FILE: 151_83272682.20o OP1603731733947

NGS OPUS SOLUTION REPORT
=====

All computed coordinate accuracies are listed as peak-to-peak values.
For additional information:

<https://nam02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.ngs.noaa.gov%2FOPUS%2Fabout.jsp%23accuracy&data=04%7C01%7Cmichael.zarlengo%40woolpert.com%7Cc626ce9f107443009cda08d879d110db%7C987179e81c49493a88e806d464695b5c%7C0%7C0%7C637393286121523111%7CUnknown%7CTWFpbGZsb3d8eyJWljiMC4wLjAwMDAiLCJQIjoiV2luMzliLCJBTil6lk1haWwiLCJXVCi6Mn0%3D%7C1000&sdata=CyvULSnCte6mBedBNO9yqGe5jpbDuh%2FLTsoQnzbTZ0c%3D&reserved=0>

USER: michael.zarlengo@woolpert.com DATE: October 26, 2020
RINEX FILE: 151_268r.20o TIME: 17:03:18 UTC

SOFTWARE: page5 2008.25 master90.pl 160321 START: 2020/09/24 17:39:00
EPHEMERIS: igs21244.eph [precise] STOP: 2020/09/24 20:35:30
NAV FILE: brdc2680.20n OBS USED: 7294 / 7867 : 93%
ANT NAME: TRMR8_GNSS3 NONE # FIXED AMB: 41 / 46 : 89%
ARP HEIGHT: 2.000 OVERALL RMS: 0.016(m)

REF FRAME: NAD_83(2011)(EPOCH:2010.0000) ITRF2014 (EPOCH:2020.7317)

X: -1604561.465(m) 0.004(m) -1604562.419(m) 0.004(m)
Y: -4273810.903(m) 0.014(m) -4273809.656(m) 0.014(m)
Z: 4442727.048(m) 0.007(m) 4442726.966(m) 0.007(m)

LAT: 44 24 50.45184 0.012(m) 44 24 50.46880 0.012(m)
E LON: 249 25 18.60103 0.003(m) 249 25 18.54084 0.003(m)
W LON: 110 34 41.39897 0.003(m) 110 34 41.45916 0.003(m)
EL HGT: 2370.350(m) 0.011(m) 2369.698(m) 0.011(m)
ORTHO HGT: 2379.005(m) 0.061(m) [NAVD88 (Computed using GEOID18)]

UTM COORDINATES STATE PLANE COORDINATES

UTM (Zone 12) SPC (4904 WY W)
Northing (Y) [meters] 4917944.702 534869.285
Easting (X) [meters] 533584.079 760590.802
Convergence [degrees] 0.29521667 -0.34630833
Point Scale 0.99961387 0.99995659
Combined Factor 0.99924249 0.99958508

US NATIONAL GRID DESIGNATOR: 12TWQ3358417944(NAD 83)

BASE STATIONS USED

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
DI1692	IDBY REXBURG CORS ARP	N434913.279	W1114700.726	116915.8
DG8532	TSWY TSWY_EBRY_WY2001 CORS ARP	N434026.703	W1103550.864	82259.6
AI5647	MAWY MAWY_EBRY_WY1998 CORS ARP	N445824.319	W1104121.433	62808.3

NEAREST NGS PUBLISHED CONTROL POINT

PY0801	54 MDC	N442450.000	W1103445.000	80.9
--------	--------	-------------	--------------	------

This position and the above vector components were computed without any knowledge by the National Geodetic Survey regarding the equipment or field operating procedures used.

FILE: 152_83272690.20o OP1603731801327

NGS OPUS SOLUTION REPORT
=====

All computed coordinate accuracies are listed as peak-to-peak values.

For additional information:

<https://nam02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.ngs.noaa.gov%2FOPUS%2Fabout.jsp%23accuracy&data=04%7C01%7Cmichael.zarlengo%40woolpert.com%7Cb9288684ed1c46596fd008d879d14494%7C987179e81c49493a88e806d464695b5c%7C0%7C0%7C637393287012857426%7CUnknown%7CTWFpbGZsb3d8eyJWljiMC4wLjAwMDAiLCJQIjoiV2luMzliLCJBTil6lk1haWwiLCJXVCi6Mn0%3D%7C1000&sdata=9qnnSjLcFpvTSZTLUpbWmx0e1jrFqniXME4MrrQJXmc%3D&reserved=0>

USER: michael.zarlengo@woolpert.com DATE: October 26, 2020
RINEX FILE: 152_269o.20o TIME: 17:04:44 UTC

SOFTWARE: page5 2008.25 master92.pl 160321 START: 2020/09/25 14:33:00
EPHEMERIS: igs21245.eph [precise] STOP: 2020/09/25 18:44:00
NAV FILE: brdc2690.20n OBS USED: 9725 / 10437 : 93%
ANT NAME: TRMR8_GNSS3 NONE # FIXED AMB: 68 / 69 : 99%
ARP HEIGHT: 2.000 OVERALL RMS: 0.016(m)

REF FRAME: NAD_83(2011)(EPOCH:2010.0000) ITRF2014 (EPOCH:2020.7341)

X: -1622234.915(m) 0.011(m) -1622235.869(m) 0.011(m)
Y: -4263358.325(m) 0.009(m) -4263357.080(m) 0.009(m)
Z: 4446129.354(m) 0.008(m) 4446129.273(m) 0.008(m)

LAT: 44 27 29.13955 0.010(m) 44 27 29.15636 0.010(m)
E LON: 249 10 4.30399 0.008(m) 249 10 4.24366 0.008(m)
W LON: 110 49 55.69601 0.008(m) 110 49 55.75634 0.008(m)
EL HGT: 2232.620(m) 0.011(m) 2231.975(m) 0.011(m)
ORTHO HGT: 2241.539(m) 0.058(m) [NAVD88 (Computed using GEOID18)]

UTM COORDINATES STATE PLANE COORDINATES

UTM (Zone 12) SPC (4904 WY W)
Northing (Y) [meters] 4922768.117 539920.814
Easting (X) [meters] 513354.224 740408.960
Convergence [degrees] 0.11756944 -0.52446944
Point Scale 0.99960219 0.99998116
Combined Factor 0.99925238 0.99963122

US NATIONAL GRID DESIGNATOR: 12TWQ1335422768(NAD 83)

BASE STATIONS USED

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
DI1692	IDBY REXBURG CORS ARP	N434913.279	W1114700.726	104036.0
DG8532	TSWY TSWY_EBRY_WY2001 CORS ARP	N434026.703	W1103550.864	89150.1
DH7135	IDDR DRIGGS CORS ARP	N434446.001	W1110636.921	82212.4

NEAREST NGS PUBLISHED CONTROL POINT

PY0780	Y 366	N4427000019	W11050000003	339.1
--------	-------	-------------	--------------	-------

This position and the above vector components were computed without any knowledge by the National Geodetic Survey regarding the equipment or field operating procedures used.

FILE: 152_83272691.20o OP1603731854452

NGS OPUS SOLUTION REPORT
=====

All computed coordinate accuracies are listed as peak-to-peak values.

For additional information:

<https://nam02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.ngs.noaa.gov%2FOPUS%2Fabout.jsp%23accuracy&data=04%7C01%7Cmichael.zarlengo%40woolpert.com%7C3ab1c4c373fa416fde1e08d879d15d50%7C987179e81c49493a88e806d464695b5c%7C0%7C0%7C637393287433433669%7CUnknown%7CTWFpbGZsb3d8eyJWljiMC4wLjAwMDAiLCJQIjoiV2luMzliLCJBTil6lk1haWwiLCJXVCi6Mn0%3D%7C1000&odata=lsDOGR3Y4B%2FZg69tYjFU7wGihVlXPAhzO%2FKx3vkzz5g%3D&reserved=0>

USER: michael.zarlengo@woolpert.com DATE: October 26, 2020
RINEX FILE: 152_269s.20o TIME: 17:05:26 UTC

SOFTWARE: page5 2008.25 master90.pl 160321 START: 2020/09/25 18:47:00
EPHEMERIS: igs21245.eph [precise] STOP: 2020/09/25 21:00:00
NAV FILE: brdc2690.20n OBS USED: 5789 / 6215 : 93%
ANT NAME: TRMR8_GNSS3 NONE # FIXED AMB: 29 / 34 : 85%
ARP HEIGHT: 2.000 OVERALL RMS: 0.012(m)

REF FRAME: NAD_83(2011)(EPOCH:2010.0000) ITRF2014 (EPOCH:2020.7345)

X: -1622234.922(m) 0.003(m) -1622235.876(m) 0.003(m)
Y: -4263358.314(m) 0.008(m) -4263357.069(m) 0.008(m)
Z: 4446129.355(m) 0.010(m) 4446129.274(m) 0.010(m)

LAT: 44 27 29.13973 0.011(m) 44 27 29.15654 0.011(m)
E LON: 249 10 4.30352 0.005(m) 249 10 4.24319 0.005(m)
W LON: 110 49 55.69648 0.005(m) 110 49 55.75681 0.005(m)
EL HGT: 2232.615(m) 0.004(m) 2231.970(m) 0.004(m)
ORTHO HGT: 2241.534(m) 0.064(m) [NAVD88 (Computed using GEOID18)]

UTM COORDINATES STATE PLANE COORDINATES

UTM (Zone 12) SPC (4904 WY W)
Northing (Y) [meters] 4922768.123 539920.820
Easting (X) [meters] 513354.214 740408.950
Convergence [degrees] 0.11756944 -0.52446944
Point Scale 0.99960219 0.99998116
Combined Factor 0.99925239 0.99963122

US NATIONAL GRID DESIGNATOR: 12TWQ1335422768(NAD 83)

BASE STATIONS USED

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
DH7135	IDDR DRIGGS CORS ARP	N434446.001	W1110636.921	82212.4
DG8532	TSWY TSWY_EBRY_WY2001 CORS ARP	N434026.703	W1103550.864	89150.1
DP3858	P707 REDROCKLAKMT2008 CORS ARP	N444307.553	W1115013.738	84930.2

NEAREST NGS PUBLISHED CONTROL POINT

PY0780	Y 366	N4427000019	W11050000003	339.1
--------	-------	-------------	--------------	-------

This position and the above vector components were computed without any knowledge by the National Geodetic Survey regarding the equipment or field operating procedures used.

FILE: 153_83272700.20o OP1603731890281

NGS OPUS SOLUTION REPORT
=====

All computed coordinate accuracies are listed as peak-to-peak values.
For additional information:

<https://nam02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.ngs.noaa.gov%2FOPUS%2Fabout.jsp%23accuracy&data=04%7C01%7Cmichael.zarlengo%40woolpert.com%7Caafe972320a44078210b08d879d18052%7C987179e81c49493a88e806d464695b5c%7C0%7C0%7C637393288015936668%7CUnknown%7CTWFpbGZsb3d8eyJWljiMC4wLjAwMDAiLCJQIjoiV2luMzliLCJBTil6lk1haWwiLCJXVCi6Mn0%3D%7C1000&data=TqPTsdp6TcZWY2GPKf2htak2rzc639mSWfr%2Bpo1HBf4%3D&reserved=0>

USER: michael.zarlengo@woolpert.com DATE: October 26, 2020
RINEX FILE: 153_270n.20o TIME: 17:06:27 UTC

SOFTWARE: page5 2008.25 master94.pl 160321 START: 2020/09/26 13:52:00
EPHEMERIS: igs21246.eph [precise] STOP: 2020/09/26 19:12:00
NAV FILE: brdc2700.20n OBS USED: 12261 / 13032 : 94%
ANT NAME: TRMR8_GNSS3 NONE # FIXED AMB: 72 / 84 : 86%
ARP HEIGHT: 2.000 OVERALL RMS: 0.016(m)

REF FRAME: NAD_83(2011)(EPOCH:2010.0000) ITRF2014 (EPOCH:2020.7369)

X: -1619217.905(m) 0.007(m) -1619218.860(m) 0.007(m)
Y: -4249830.846(m) 0.008(m) -4249829.602(m) 0.008(m)
Z: 4459907.077(m) 0.016(m) 4459906.998(m) 0.016(m)

LAT: 44 37 58.72933 0.005(m) 44 37 58.74622 0.005(m)
E LON: 249 8 34.00267 0.006(m) 249 8 33.94208 0.006(m)
W LON: 110 51 25.99733 0.006(m) 110 51 26.05792 0.006(m)
EL HGT: 2122.314(m) 0.018(m) 2121.673(m) 0.018(m)
ORTHO HGT: 2131.202(m) 0.055(m) [NAVD88 (Computed using GEOID18)]

UTM COORDINATES STATE PLANE COORDINATES
UTM (Zone 12) SPC (4904 WY W)

Northing (Y) [meters] 4942190.400 559372.054
Easting (X) [meters] 511324.741 738596.888
Convergence [degrees] 0.10031111 -0.54372222
Point Scale 0.99960158 0.99998385
Combined Factor 0.99926906 0.99965120

US NATIONAL GRID DESIGNATOR: 12TWQ1132442190(NAD 83)

BASE STATIONS USED

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
DG8532	TSWY_TSWY_EBRY_WY2001 CORS ARP	N434026.703	W1103550.864	108590.8
DP3858	P707 REDROCKLAKMT2008 CORS ARP	N444307.553	W1115013.738	78307.5
DK7547	MTSU BOZEMAN CORS ARP	N453940.376	W1110242.008	115255.7

NEAREST NGS PUBLISHED CONTROL POINT

PY0709	40 MDC	N443754.000	W1105129.000	160.3
--------	--------	-------------	--------------	-------

This position and the above vector components were computed without any knowledge by the National Geodetic Survey regarding the equipment or field operating procedures used.

FILE: 153_83272701.20o OP1603731955113

NGS OPUS SOLUTION REPORT
=====

All computed coordinate accuracies are listed as peak-to-peak values.

For additional information:

<https://nam02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.ngs.noaa.gov%2FOPUS%2Fabout.jsp%23accuracy&data=04%7C01%7Cmichael.zarlengo%40woolpert.com%7C8914098043af4cb0d95008d879d18fee%7C987179e81c49493a88e806d464695b5c%7C0%7C0%7C637393288254238355%7CUnknown%7CTWfpGZsb3d8eyJWljoimC4wLjAwMDAiLCJQljoiv2luMzliLCJBTil6lk1haWwiLCJXVCi6Mn0%3D%7C1000&sdata=8vBu4PJHVSHLeGcXW1Ov7w26QuyhzNMyCzwbzCDlzmg%3D&reserved=0>

USER: michael.zarlengo@woolpert.com DATE: October 26, 2020
RINEX FILE: 153_270t.20o TIME: 17:06:53 UTC

SOFTWARE: page5 2008.25 master92.pl 160321 START: 2020/09/26 19:18:00
EPHEMERIS: igs21246.eph [precise] STOP: 2020/09/26 21:24:00
NAV FILE: brdc2700.20n OBS USED: 5794 / 5938 : 98%
ANT NAME: TRMR8_GNSS3 NONE # FIXED AMB: 30 / 33 : 91%
ARP HEIGHT: 2.000 OVERALL RMS: 0.015(m)

REF FRAME: NAD_83(2011)(EPOCH:2010.0000) ITRF2014 (EPOCH:2020.7373)

X: -1619217.911(m) 0.006(m) -1619218.866(m) 0.006(m)
Y: -4249830.841(m) 0.010(m) -4249829.597(m) 0.010(m)
Z: 4459907.080(m) 0.004(m) 4459907.001(m) 0.004(m)

LAT: 44 37 58.72948 0.004(m) 44 37 58.74636 0.004(m)
E LON: 249 8 34.00231 0.006(m) 249 8 33.94176 0.006(m)
W LON: 110 51 25.99769 0.006(m) 110 51 26.05824 0.006(m)
EL HGT: 2122.314(m) 0.009(m) 2121.673(m) 0.009(m)
ORTHO HGT: 2131.202(m) 0.064(m) [NAVD88 (Computed using GEOID18)]

UTM COORDINATES STATE PLANE COORDINATES
UTM (Zone 12) SPC (4904 WY W)

Northing (Y) [meters] 4942190.405 559372.059
Easting (X) [meters] 511324.733 738596.880
Convergence [degrees] 0.10031111 -0.54372222
Point Scale 0.99960158 0.99998385
Combined Factor 0.99926906 0.99965120

US NATIONAL GRID DESIGNATOR: 12TWQ1132442190(NAD 83)

BASE STATIONS USED

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
DK7547	MTSU BOZEMAN CORS ARP	N453940.376	W1110242.008	115255.7
DP3858	P707 REDROCKLAKMT2008 CORS ARP	N444307.553	W1115013.738	78307.5
DG8532	TSWY TSWY_EBRY_WY2001 CORS ARP	N434026.703	W1103550.864	108590.8

NEAREST NGS PUBLISHED CONTROL POINT

PY0709	40 MDC	N443754.000	W1105129.000	160.3
--------	--------	-------------	--------------	-------

This position and the above vector components were computed without any knowledge by the National Geodetic Survey regarding the equipment or field operating procedures used.

FILE: 154_83272710.20o OP1603732017520

NGS OPUS SOLUTION REPORT
=====

All computed coordinate accuracies are listed as peak-to-peak values.
For additional information:

<https://nam02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.ngs.noaa.gov%2FOPUS%2Fabout.jsp%23accuracy&data=04%7C01%7Cmichael.zarlengo%40woolpert.com%7Ce8e08371402740bfaa3f08d879d1b731%7C987179e81c49493a88e806d464695b5c%7C0%7C0%7C637393288925958820%7CUnknown%7CTWFpbGZsb3d8eyJWljoImC4wLjAwMDAiLCJQIjoIb2luMzliLCJBTil6lk1haWwiLCJXVCi6Mn0%3D%7C1000&sdata=Eob06hMTmePTxC%2BoiqG2%2FVz5ONepJHhZpl1WAaAEe%2Bg%3D&reserved=0>

USER: michael.zarlengo@woolpert.com DATE: October 26, 2020
RINEX FILE: 154_271o.20o TIME: 17:07:59 UTC

SOFTWARE: page5 2008.25 master70.pl 160321 START: 2020/09/27 14:36:00
EPHEMERIS: igs21250.eph [precise] STOP: 2020/09/27 17:45:00
NAV FILE: brdc2710.20n OBS USED: 7153 / 7726 : 93%
ANT NAME: TRMR8_GNSS3 NONE # FIXED AMB: 48 / 49 : 98%
ARP HEIGHT: 2.00 OVERALL RMS: 0.016(m)

REF FRAME: NAD_83(2011)(EPOCH:2010.0000) ITRF2014 (EPOCH:2020.7396)

X: -1606971.153(m) 0.007(m) -1606972.108(m) 0.007(m)
Y: -4247521.251(m) 0.004(m) -4247520.007(m) 0.004(m)
Z: 4466686.024(m) 0.004(m) 4466685.946(m) 0.004(m)

LAT: 44 43 2.98128 0.004(m) 44 43 2.99831 0.004(m)
E LON: 249 16 36.44375 0.008(m) 249 16 36.38320 0.008(m)
W LON: 110 43 23.55625 0.008(m) 110 43 23.61680 0.008(m)
EL HGT: 2261.950(m) 0.003(m) 2261.309(m) 0.003(m)
ORTHO HGT: 2270.566(m) 0.057(m) [NAVD88 (Computed using GEOID18)]

UTM COORDINATES STATE PLANE COORDINATES
UTM (Zone 12) SPC (4903 WYWC)
Northing (Y) [meters] 4951605.690 470366.324
Easting (X) [meters] 521922.216 443665.417
Convergence [degrees] 0.19475278 -1.38865278
Point Scale 0.99960591 1.00023795
Combined Factor 0.99925152 0.99988334

US NATIONAL GRID DESIGNATOR: 12TWQ2192251605(NAD 83)

BASE STATIONS USED

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
AI5647	MAWY MAWY_EBRY_WY1998	CORS ARP	N445824.319 W1104121.433	28579.5
DG8532	TSWY TSWY_EBRY_WY2001	CORS ARP	N434026.703 W1103550.864	116413.7
DH7135	IDDR DRIGGS	CORS ARP	N434446.001 W1110636.921	112314.3

NEAREST NGS PUBLISHED CONTROL POINT

PY0704	J 339	N444300.000	W1104329.000	151.1
--------	-------	-------------	--------------	-------

This position and the above vector components were computed without any knowledge by the National Geodetic Survey regarding the equipment or field operating procedures used.

FILE: 154_83272711.20o OP1603732058760

NGS OPUS SOLUTION REPORT
=====

All computed coordinate accuracies are listed as peak-to-peak values.
For additional information:

<https://nam02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.ngs.noaa.gov%2FOPUS%2Fabout.jsp%23accuracy&data=04%7C01%7Cmichael.zarlengo%40woolpert.com%7Cf62f5f083ada4624ca1b08d879d1e06b%7C987179e81c49493a88e806d464695b5c%7C0%7C0%7C637393289602504431%7CUnknown%7CTWFpbGZsb3d8eyJWljiMC4wLjAwMDAiLCJQIjoiV2luMzliLCJBTil6lk1haWwiLCJXVCi6Mn0%3D%7C1000&odata=HuJhLXVily6Jc0dCQ%2FvcHWHfzz63ux9TCGaaQ8bJFiA%3D&reserved=0>

USER: michael.zarlengo@woolpert.com DATE: October 26, 2020
RINEX FILE: 154_271r.20o TIME: 17:09:08 UTC

SOFTWARE: page5 2008.25 master92.pl 160321 START: 2020/09/27 17:48:00
EPHEMERIS: igs21250.eph [precise] STOP: 2020/09/27 22:51:00
NAV FILE: brdc2710.20n OBS USED: 13342 / 14004 : 95%
ANT NAME: TRMR8_GNSS3 NONE # FIXED AMB: 61 / 62 : 98%
ARP HEIGHT: 2.00 OVERALL RMS: 0.014(m)

REF FRAME: NAD_83(2011)(EPOCH:2010.0000) ITRF2014 (EPOCH:2020.7400)

X: -1606971.151(m) 0.004(m) -1606972.106(m) 0.004(m)
Y: -4247521.252(m) 0.014(m) -4247520.008(m) 0.014(m)
Z: 4466686.016(m) 0.011(m) 4466685.938(m) 0.011(m)

LAT: 44 43 2.98110 0.009(m) 44 43 2.99809 0.009(m)
E LON: 249 16 36.44386 0.002(m) 249 16 36.38330 0.002(m)
W LON: 110 43 23.55614 0.002(m) 110 43 23.61670 0.002(m)
EL HGT: 2261.945(m) 0.014(m) 2261.303(m) 0.014(m)
ORTHO HGT: 2270.561(m) 0.053(m) [NAVD88 (Computed using GEOID18)]

UTM COORDINATES STATE PLANE COORDINATES
UTM (Zone 12) SPC (4903 WYWC)

Northing (Y) [meters] 4951605.685 470366.319
Easting (X) [meters] 521922.219 443665.419
Convergence [degrees] 0.19475278 -1.38865278
Point Scale 0.99960591 1.00023795
Combined Factor 0.99925152 0.99988334

US NATIONAL GRID DESIGNATOR: 12TWQ2192251605(NAD 83)

BASE STATIONS USED

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
DH7135	IDDR DRIGGS CORS ARP	N434446.001	W1110636.921	112314.3
DG8532	TSWY TSWY_EBRY_WY2001 CORS ARP	N434026.703	W1103550.864	116413.7
DP3858	P707 REDROCKLAKMT2008 CORS ARP	N444307.553	W1115013.738	88290.4

NEAREST NGS PUBLISHED CONTROL POINT

PY0704	J 339	N444300.000	W1104329.000	151.1
--------	-------	-------------	--------------	-------

This position and the above vector components were computed without any knowledge by the National Geodetic Survey regarding the equipment or field operating procedures used.

FILE: 155_83272720.20o OP1603732116990

NGS OPUS SOLUTION REPORT
=====

All computed coordinate accuracies are listed as peak-to-peak values.
For additional information:

<https://nam02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.ngs.noaa.gov%2FOPUS%2Fabout.jsp%23accuracy&data=04%7C01%7Cmichael.zarlengo%40woolpert.com%7Cc98645edd7d8402306e708d879d1ec3f%7C987179e81c49493a88e806d464695b5c%7C0%7C0%7C637393289800427412%7CUnknown%7CTWFpbGZsb3d8eyJWljoijMc4wLjAwMDAiLCJQIjoiV2luMzliLCJBTil6lk1haWwiLCJXVCi6Mn0%3D%7C1000&sd=0&reserved=0>

USER: michael.zarlengo@woolpert.com DATE: October 26, 2020
RINEX FILE: 155_272o.20o TIME: 17:09:27 UTC

SOFTWARE: page5 2008.25 master91.pl 160321 START: 2020/09/28 14:56:00
EPHEMERIS: igs21251.eph [precise] STOP: 2020/09/28 17:00:00
NAV FILE: brdc2720.20n OBS USED: 5063 / 5357 : 95%
ANT NAME: TRMR8_GNSS3 NONE # FIXED AMB: 37 / 37 : 100%
ARP HEIGHT: 2.00 OVERALL RMS: 0.013(m)

REF FRAME: NAD_83(2011)(EPOCH:2010.0000) ITRF2014 (EPOCH:2020.7423)

X: -1590236.839(m) 0.007(m) -1590237.795(m) 0.007(m)
Y: -4252431.928(m) 0.007(m) -4252430.684(m) 0.007(m)
Z: 4468185.391(m) 0.011(m) 4468185.313(m) 0.011(m)

LAT: 44 44 6.99576 0.006(m) 44 44 7.01290 0.006(m)
E LON: 249 29 46.48063 0.009(m) 249 29 46.42015 0.009(m)
W LON: 110 30 13.51937 0.009(m) 110 30 13.57985 0.009(m)
EL HGT: 2396.853(m) 0.009(m) 2396.209(m) 0.009(m)
ORTHO HGT: 2405.380(m) 0.063(m) [NAVD88 (Computed using GEOID18)]

UTM COORDINATES STATE PLANE COORDINATES
UTM (Zone 12) SPC (4903 WYWC)
Northing (Y) [meters] 4953663.431 471944.207
Easting (X) [meters] 539291.352 461095.134
Convergence [degrees] 0.34927778 -1.23454722
Point Scale 0.99961898 1.00017469
Combined Factor 0.99924346 0.99979896

US NATIONAL GRID DESIGNATOR: 12TWQ3929153663(NAD 83)

BASE STATIONS USED

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
DP3858	P707 REDROCKLAKMT2008	CORS ARP	N444307.553 W1115013.738	105684.3
DL7758	P722 YNPBASSRCHMT2005	CORS ARP	N452725.985 W1093415.586	108790.4
DG8532	TSWY TSWY_EBRY_WY2001	CORS ARP	N434026.703 W1103550.864	118194.4

NEAREST NGS PUBLISHED CONTROL POINT

PY0971	10 26	N444408.000	W1103015.000	45.0
--------	-------	-------------	--------------	------

This position and the above vector components were computed without any knowledge by the National Geodetic Survey regarding the equipment or field operating procedures used.

FILE: 155_83272721.20o OP1603732153416

NGS OPUS SOLUTION REPORT
=====

All computed coordinate accuracies are listed as peak-to-peak values.
For additional information:

<https://nam02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.ngs.noaa.gov%2FOPUS%2Fabout.jsp%23accuracy&data=04%7C01%7Cmichael.zarlengo%40woolpert.com%7C4b22ff7455394c7ed05f08d879d20cab%7C987179e81c49493a88e806d464695b5c%7C0%7C0%7C637393290358723950%7CUnknown%7CTWFpbGZsb3d8eyJWljoimC4wLjAwMDAiLCJQIjoiv2luMzliLCJBTil6lk1haWwiLCJXVCi6Mn0%3D%7C1000&data=r5hNl8tA8ijNaf77dliQXi1M9dOtYU09ewX37Kyb7gw%3D&reserved=0>

USER: michael.zarlengo@woolpert.com DATE: October 26, 2020
RINEX FILE: 155_272r.20o TIME: 17:10:22 UTC

SOFTWARE: page5 2008.25 master95.pl 160321 START: 2020/09/28 17:04:00
EPHEMERIS: igs21251.eph [precise] STOP: 2020/09/28 19:48:00
NAV FILE: brdc2720.20n OBS USED: 7565 / 7681 : 98%
ANT NAME: TRMR8_GNSS3 NONE # FIXED AMB: 42 / 42 : 100%
ARP HEIGHT: 2.00 OVERALL RMS: 0.013(m)

REF FRAME: NAD_83(2011)(EPOCH:2010.0000) ITRF2014 (EPOCH:2020.7425)

X: -1590236.835(m) 0.008(m) -1590237.791(m) 0.008(m)
Y: -4252431.919(m) 0.004(m) -4252430.675(m) 0.004(m)
Z: 4468185.384(m) 0.015(m) 4468185.306(m) 0.015(m)

LAT: 44 44 6.99583 0.008(m) 44 44 7.01293 0.008(m)
E LON: 249 29 46.48063 0.008(m) 249 29 46.42019 0.008(m)
W LON: 110 30 13.51937 0.008(m) 110 30 13.57981 0.008(m)
EL HGT: 2396.841(m) 0.014(m) 2396.197(m) 0.014(m)
ORTHO HGT: 2405.368(m) 0.060(m) [NAVD88 (Computed using GEOID18)]

UTM COORDINATES STATE PLANE COORDINATES
UTM (Zone 12) SPC (4903 WYWC)
Northing (Y) [meters] 4953663.433 471944.209
Easting (X) [meters] 539291.352 461095.135
Convergence [degrees] 0.34927778 -1.23454722
Point Scale 0.99961898 1.00017469
Combined Factor 0.99924346 0.99979896

US NATIONAL GRID DESIGNATOR: 12TWQ3929153663(NAD 83)

BASE STATIONS USED

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
DP3858	P707 REDROCKLAKMT2008 CORS ARP	N444307.553	W1115013.738	105684.3
DL7758	P722 YNPBASSRCHMT2005 CORS ARP	N452725.985	W1093415.586	108790.4
DK7547	MTSU BOZEMAN CORS ARP	N453940.376	W1110242.008	111382.1

NEAREST NGS PUBLISHED CONTROL POINT

PY0971	10 26	N444408.000	W1103015.000	45.0
--------	-------	-------------	--------------	------

This position and the above vector components were computed without any knowledge by the National Geodetic Survey regarding the equipment or field operating procedures used.

FILE: 156_83272730.20o OP1603732191070

NGS OPUS SOLUTION REPORT
=====

All computed coordinate accuracies are listed as peak-to-peak values.
For additional information:

<https://nam02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.ngs.noaa.gov%2FOPUS%2Fabout.jsp%23accuracy&data=04%7C01%7Cmichael.zarlengo%40woolpert.com%7Cc2ed40682aec4c35447a08d879d22617%7C987179e81c49493a88e806d464695b5c%7C0%7C0%7C637393290817198955%7CUnknown%7CTWFpbGZsb3d8eyJWljoimC4wLjAwMDAiLCJQIjoiv2luMzliLCJBTil6lk1haWwiLCJXVCi6Mn0%3D%7C1000&reserved=0>

USER: michael.zarlengo@woolpert.com DATE: October 26, 2020
RINEX FILE: 156_273p.20o TIME: 17:11:05 UTC

SOFTWARE: page5 2008.25 master90.pl 160321 START: 2020/09/29 15:48:00
EPHEMERIS: igs21252.eph [precise] STOP: 2020/09/29 18:04:00
NAV FILE: brdc2730.20n OBS USED: 5846 / 6168 : 95%
ANT NAME: TRMR8_GNSS3 NONE # FIXED AMB: 36 / 37 : 97%
ARP HEIGHT: 2.00 OVERALL RMS: 0.012(m)

REF FRAME: NAD_83(2011)(EPOCH:2010.0000) ITRF2014 (EPOCH:2020.7451)

X: -1581521.954(m) 0.011(m) -1581522.909(m) 0.011(m)
Y: -4270289.776(m) 0.017(m) -4270288.530(m) 0.017(m)
Z: 4454280.674(m) 0.014(m) 4454280.593(m) 0.014(m)

LAT: 44 33 34.93498 0.023(m) 44 33 34.95211 0.023(m)
E LON: 249 40 39.54702 0.009(m) 249 40 39.48683 0.009(m)
W LON: 110 19 20.45298 0.009(m) 110 19 20.51317 0.009(m)
EL HGT: 2369.923(m) 0.005(m) 2369.270(m) 0.005(m)
ORTHO HGT: 2378.406(m) 0.061(m) [NAVD88 (Computed using GEOID18)]

UTM COORDINATES STATE PLANE COORDINATES
UTM (Zone 12) SPC (4903 WYWC)

Northing (Y) [meters] 4934264.314 452141.240
Easting (X) [meters] 553816.821 475087.070
Convergence [degrees] 0.47548611 -1.10338333
Point Scale 0.99963562 1.00012932
Combined Factor 0.99926430 0.99975782

US NATIONAL GRID DESIGNATOR: 12TWQ5381634264(NAD 83)

BASE STATIONS USED

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
DL7758	P722 YNPBASSRCHMT2005	CORS ARP	N452725.985 W1093415.586	116040.3
DH7135	IDDR DRIGGS	CORS ARP	N434446.001 W1110636.921	110242.8
AI5647	MAWY MAWY_EBRY_WY1998	CORS ARP	N445824.319 W1104121.433	54404.0

NEAREST NGS PUBLISHED CONTROL POINT

PY0881	CVO 84 12	N443300034.	W1101900022.	42.0
--------	-----------	-------------	--------------	------

This position and the above vector components were computed without any knowledge by the National Geodetic Survey regarding the equipment or field operating procedures used.

FILE: 156_83272731.20o OP1603732223792

NGS OPUS SOLUTION REPORT
=====

All computed coordinate accuracies are listed as peak-to-peak values.
For additional information:

<https://nam02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.ngs.noaa.gov%2FOPUS%2Fabout.jsp%23accuracy&data=04%7C01%7Cmichael.zarlengo%40woolpert.com%7Cf60b7e7eca2d451e6af008d879d2389a%7C987179e81c49493a88e806d464695b5c%7C0%7C0%7C637393291165268462%7CUnknown%7CTWFpbGZsb3d8eyJWljiMC4wLjAwMDAiLCJQIjoiV2luMzliLCJBTil6lk1haWwiLCJXVCi6Mn0%3D%7C1000&sdata=0ETZ9iZ5zFuJ9uNp8RyYa9ORpkeUOfyiwwvvvZNBnuR4%3D&reserved=0>

USER: michael.zarlengo@woolpert.com DATE: October 26, 2020
RINEX FILE: 156_273s.20o TIME: 17:11:36 UTC

SOFTWARE: page5 2008.25 master91.pl 160321 START: 2020/09/29 18:07:00
EPHEMERIS: igs21252.eph [precise] STOP: 2020/09/29 20:50:00
NAV FILE: brdc2730.20n OBS USED: 7587 / 7692 : 99%
ANT NAME: TRMR8_GNSS3 NONE # FIXED AMB: 43 / 43 : 100%
ARP HEIGHT: 2.00 OVERALL RMS: 0.010(m)

REF FRAME: NAD_83(2011)(EPOCH:2010.0000) ITRF2014 (EPOCH:2020.7454)

X: -1581521.947(m) 0.003(m) -1581522.902(m) 0.003(m)
Y: -4270289.759(m) 0.003(m) -4270288.513(m) 0.003(m)
Z: 4454280.668(m) 0.003(m) 4454280.587(m) 0.003(m)

LAT: 44 33 34.93526 0.002(m) 44 33 34.95240 0.002(m)
E LON: 249 40 39.54706 0.004(m) 249 40 39.48686 0.004(m)
W LON: 110 19 20.45294 0.004(m) 110 19 20.51314 0.004(m)
EL HGT: 2369.906(m) 0.003(m) 2369.253(m) 0.003(m)
ORTHO HGT: 2378.389(m) 0.057(m) [NAVD88 (Computed using GEOID18)]

UTM COORDINATES STATE PLANE COORDINATES
UTM (Zone 12) SPC (4903 WYWC)

Northing (Y) [meters] 4934264.323 452141.249
Easting (X) [meters] 553816.822 475087.071
Convergence [degrees] 0.47548611 -1.10338333
Point Scale 0.99963562 1.00012932
Combined Factor 0.99926430 0.99975782

US NATIONAL GRID DESIGNATOR: 12TWQ5381634264(NAD 83)

BASE STATIONS USED

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
DP3858	P707 REDROCKLAKMT2008 CORS ARP	N444307.553	W1115013.738	121517.9
DH7135	IDDR DRIGGS CORS ARP	N434446.001	W1110636.921	110242.8
DL7758	P722 YNPBASSRCHMT2005 CORS ARP	N452725.985	W1093415.586	116040.2

NEAREST NGS PUBLISHED CONTROL POINT

PY0881	CVO 84 12	N443300034.	W1101900022.	42.0
--------	-----------	-------------	--------------	------

This position and the above vector components were computed without any knowledge by the National Geodetic Survey regarding the equipment or field operating procedures used.

FILE: 157_83272740.20o OP1603732271128

NGS OPUS SOLUTION REPORT
=====

All computed coordinate accuracies are listed as peak-to-peak values.
For additional information:

<https://nam02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.ngs.noaa.gov%2FOPUS%2Fabout.jsp%23accuracy&data=04%7C01%7Cmichael.zarlengo%40woolpert.com%7C1bfcfb15e66f46060dc408d879d24428%7C987179e81c49493a88e806d464695b5c%7C0%7C0%7C637393291295012565%7CUnknown%7CTWFpbGZsb3d8eyJWljoImMC4wLjAwMDAiLCJQIjoiV2luMzliLCJBTil6lk1haWwiLCJXVCi6Mn0%3D%7C1000&odata=VfGB7xXvrKCtajQdTNioJY6t%2FuDSxJ1hYHgoTvxIbi8%3D&reserved=0>

USER: michael.zarlengo@woolpert.com DATE: October 26, 2020
RINEX FILE: 157_274o.20o TIME: 17:11:55 UTC

SOFTWARE: page5 2008.25 master96.pl 160321 START: 2020/09/30 14:01:00
EPHEMERIS: igs21253.eph [precise] STOP: 2020/09/30 16:03:00
NAV FILE: brdc2740.20n OBS USED: 3519 / 3732 : 94%
ANT NAME: TRMR8_GNSS3 NONE # FIXED AMB: 22 / 29 : 76%
ARP HEIGHT: 2.00 OVERALL RMS: 0.017(m)

REF FRAME: NAD_83(2011)(EPOCH:2010.0000) ITRF2014 (EPOCH:2020.7476)

X: -1564933.057(m) 0.154(m) -1564934.011(m) 0.154(m)
Y: -4283929.261(m) 0.085(m) -4283928.013(m) 0.085(m)
Z: 4446995.781(m) 0.128(m) 4446995.699(m) 0.128(m)

LAT: 44 28 6.08743 0.005(m) 44 28 6.10471 0.005(m)
E LON: 249 55 57.32292 0.115(m) 249 55 57.26305 0.115(m)
W LON: 110 4 2.67708 0.115(m) 110 4 2.73695 0.115(m)
EL HGT: 2307.117(m) 0.185(m) 2306.457(m) 0.185(m)
ORTHO HGT: 2314.753(m) 0.223(m) [NAVD88 (Computed using GEOID18)]

UTM COORDINATES STATE PLANE COORDINATES
UTM (Zone 12) SPC (4903 WYWC)

Northing (Y) [meters] 4924317.348 441632.748
Easting (X) [meters] 574178.936 495176.650
Convergence [degrees] 0.65332222 -0.92295000
Point Scale 0.99966767 1.00007258
Combined Factor 0.99930617 0.99971094

US NATIONAL GRID DESIGNATOR: 12TWQ7417824317(NAD 83)

BASE STATIONS USED

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
AI5647	MAWY MAWY_EBRY_WY1998	CORS ARP	N445824.319 W1104121.433	74708.8
DH7135	IDDR DRIGGS	CORS ARP	N434446.001 W1110636.921	115842.2
DG8532	TSWY TSWY_EBRY_WY2001	CORS ARP	N434026.703 W1103550.864	97971.6

NEAREST NGS PUBLISHED CONTROL POINT

PY0039	N 12	N442758.000	W1100423.000	513.9
--------	------	-------------	--------------	-------

This position and the above vector components were computed without any knowledge by the National Geodetic Survey regarding the equipment or field operating procedures used.

FILE: 157_83272741.20o OP1603732316789

NGS OPUS SOLUTION REPORT
=====

All computed coordinate accuracies are listed as peak-to-peak values.
For additional information:

<https://nam02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.ngs.noaa.gov%2FOPUS%2Fabout.jsp%23accuracy&data=04%7C01%7Cmichael.zarlengo%40woolpert.com%7C010264c66434451b26fa08d879d2700b%7C987179e81c49493a88e806d464695b5c%7C0%7C0%7C637393292040200549%7CUnknown%7CTWFpbGZsb3d8eyJWljojMC4wLjAwMDAiLCJQIjojV2luMzliLCJBTil6lk1haWwiLCJXVCi6Mn0%3D%7C1000&sdata=7WC0v%2F8tXmO1qr5v%2Bb2RCSa8Q3rDoKV%2FAhHxJuNx1CY%3D&reserved=0>

USER: michael.zarlengo@woolpert.com DATE: October 26, 2020
RINEX FILE: 157_274q.20o TIME: 17:13:09 UTC

SOFTWARE: page5 2008.25 master94.pl 160321 START: 2020/09/30 16:07:00
EPHEMERIS: igs21253.eph [precise] STOP: 2020/09/30 19:12:00
NAV FILE: brdc2740.20n OBS USED: 5423 / 6117 : 89%
ANT NAME: TRMR8_GNSS3 NONE # FIXED AMB: 32 / 35 : 91%
ARP HEIGHT: 2.00 OVERALL RMS: 0.013(m)

REF FRAME: NAD_83(2011)(EPOCH:2010.0000) ITRF2014 (EPOCH:2020.7479)

X: -1564933.056(m) 0.003(m) -1564934.010(m) 0.003(m)
Y: -4283929.258(m) 0.003(m) -4283928.010(m) 0.003(m)
Z: 4446995.779(m) 0.005(m) 4446995.697(m) 0.005(m)

LAT: 44 28 6.08747 0.004(m) 44 28 6.10475 0.004(m)
E LON: 249 55 57.32292 0.004(m) 249 55 57.26305 0.004(m)
W LON: 110 4 2.67708 0.004(m) 110 4 2.73695 0.004(m)
EL HGT: 2307.114(m) 0.003(m) 2306.453(m) 0.003(m)
ORTHO HGT: 2314.750(m) 0.059(m) [NAVD88 (Computed using GEOID18)]

UTM COORDINATES STATE PLANE COORDINATES
UTM (Zone 12) SPC (4903 WYWC)

Northing (Y) [meters] 4924317.349 441632.749
Easting (X) [meters] 574178.936 495176.650
Convergence [degrees] 0.65332222 -0.92295000
Point Scale 0.99966767 1.00007258
Combined Factor 0.99930617 0.99971094

US NATIONAL GRID DESIGNATOR: 12TWQ7417824317(NAD 83)

BASE STATIONS USED

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
DG8532	TSWY_TSWY_EBRY_WY2001 CORS ARP	N434026.703	W1103550.864	97971.6
DL7758	P722_YNPBASSRCHMT2005 CORS ARP	N452725.985	W1093415.586	116699.2
DQ9810	P715_WINDYMOUNTWY2006 CORS ARP	N433002.747	W1094123.417	111743.9

NEAREST NGS PUBLISHED CONTROL POINT

PY0039	N 12	N442758.000	W1100423.000	513.9
--------	------	-------------	--------------	-------

This position and the above vector components were computed without any knowledge by the National Geodetic Survey regarding the equipment or field operating procedures used.

FILE: 158_83272800.20o OP1603735158693

NGS OPUS SOLUTION REPORT
=====

All computed coordinate accuracies are listed as peak-to-peak values.

For additional information:

<https://nam02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.ngs.noaa.gov%2FOPUS%2Fabout.jsp%23accuracy&data=04%7C01%7Cmichael.zarlengo%40woolpert.com%7C5ce4f8e0a24c405b50af08d879d911ef%7C987179e81c49493a88e806d464695b5c%7C0%7C0%7C637393320523344394%7CUnknown%7CTWFpbGZsb3d8eyJWljojMC4wLjAwMDAiLCJQIjojV2luMzliLCJBTil6lk1haWwiLCJXVCi6Mn0%3D%7C1000&sdata=Whmrn2F%2BVj%2BK3Gh1lrJ1SPGta97uHTJFn%2FLnE4iyyf4%3D&reserved=0>

USER: michael.zarlengo@woolpert.com DATE: October 26, 2020
RINEX FILE: 158_280s.20o TIME: 18:00:37 UTC

SOFTWARE: page5 2008.25 master95.pl 160321 START: 2020/10/06 18:27:00
EPHEMERIS: igs21262.eph [precise] STOP: 2020/10/06 21:19:00
NAV FILE: brdc2800.20n OBS USED: 8785 / 9324 : 94%
ANT NAME: TRMR8_GNSS3 NONE # FIXED AMB: 50 / 50 : 100%
ARP HEIGHT: 2.00 OVERALL RMS: 0.015(m)

REF FRAME: NAD_83(2011)(EPOCH:2010.0000) ITRF2014 (EPOCH:2020.7646)

X: -1581724.429(m) 0.006(m) -1581725.386(m) 0.006(m)
Y: -4176967.799(m) 0.016(m) -4176966.566(m) 0.016(m)
Z: 4540143.024(m) 0.002(m) 4540142.955(m) 0.002(m)

LAT: 45 39 40.74826 0.013(m) 45 39 40.76557 0.013(m)
E LON: 249 15 33.99178 0.001(m) 249 15 33.93029 0.001(m)
W LON: 110 44 26.00822 0.001(m) 110 44 26.06971 0.001(m)
EL HGT: 1572.786(m) 0.011(m) 1572.168(m) 0.011(m)
ORTHO HGT: 1583.196(m) 0.062(m) [NAVD88 (Computed using GEOID18)]

UTM COORDINATES STATE PLANE COORDINATES
UTM (Zone 12) SPC (2500 MT)

Northing (Y) [meters] 5056451.554 157614.572
Easting (X) [meters] 520211.421 503353.863
Convergence [degrees] 0.18555833 -0.90747222
Point Scale 0.99960502 0.99966747
Combined Factor 0.99935861 0.99942104

US NATIONAL GRID DESIGNATOR: 12TWR2021156451(NAD 83)

BASE STATIONS USED

United States Geological Survey
Yellowstone LiDAR
Ground Control Survey Report
December 2020

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
DK7547	MTSU BOZEMAN CORS ARP	N453940.376	W1110242.008	23732.6
DL7705	NOMT NOMT_EBRY_MT1999 CORS ARP	N453548.888	W1113747.304	69727.9
DP3858	P707 REDROCKLAKMT2008 CORS ARP	N444307.553	W1115013.738	135681.3

NEAREST NGS PUBLISHED CONTROL POINT

QX0138	W 2	N453900052.	W1104400022.	362.9
--------	-----	-------------	--------------	-------

This position and the above vector components were computed without any knowledge by the National Geodetic Survey regarding the equipment or field operating procedures used.

FILE: 158_83272810.20o OP1603735223756

NGS OPUS SOLUTION REPORT
=====

All computed coordinate accuracies are listed as peak-to-peak values.
For additional information:

<https://nam02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.ngs.noaa.gov%2FOPUS%2Fabout.jsp%23accuracy&data=04%7C01%7Cmichael.zarlengo%40woolpert.com%7C6dd7b383f7584544462008d879d93039%7C987179e81c49493a88e806d464695b5c%7C0%7C0%7C637393321044507503%7CUnknown%7CTWFpbGZsb3d8eyJWljiMC4wLjAwMDAiLCJQIjoiV2luMzliLCJBTil6lk1haWwiLCJXVCi6Mn0%3D%7C1000&odata=jH%2F1ZwfE78QU271ItE1gEtUovHKa%2BsEM%2FNlQeOyvP4%3D&reserved=0>

USER: michael.zarlengo@woolpert.com DATE: October 26, 2020
RINEX FILE: 158_281n.20o TIME: 18:01:25 UTC

SOFTWARE: page5 2008.25 master57.pl 160321 START: 2020/10/07 13:52:00
EPHEMERIS: igs21263.eph [precise] STOP: 2020/10/07 21:52:00
NAV FILE: brdc2810.20n OBS USED: 21215 / 22309 : 95%
ANT NAME: TRMR8_GNSS3 NONE # FIXED AMB: 90 / 94 : 96%
ARP HEIGHT: 2.00 OVERALL RMS: 0.013(m)

REF FRAME: NAD_83(2011)(EPOCH:2010.0000) ITRF2014 (EPOCH:2020.7671)

X: -1581724.435(m) 0.001(m) -1581725.392(m) 0.001(m)
Y: -4176967.807(m) 0.003(m) -4176966.574(m) 0.003(m)
Z: 4540143.032(m) 0.007(m) 4540142.963(m) 0.007(m)

LAT: 45 39 40.74822 0.007(m) 45 39 40.76550 0.007(m)
E LON: 249 15 33.99163 0.001(m) 249 15 33.93014 0.001(m)
W LON: 110 44 26.00837 0.001(m) 110 44 26.06986 0.001(m)
EL HGT: 1572.799(m) 0.002(m) 1572.180(m) 0.002(m)
ORTHO HGT: 1583.209(m) 0.049(m) [NAVD88 (Computed using GEOID18)]

UTM COORDINATES STATE PLANE COORDINATES
UTM (Zone 12) SPC (2500 MT)

Northing (Y) [meters] 5056451.553 157614.570
Easting (X) [meters] 520211.418 503353.860
Convergence [degrees] 0.18555833 -0.90747222
Point Scale 0.99960502 0.99966747
Combined Factor 0.99935860 0.99942104

US NATIONAL GRID DESIGNATOR: 12TWR2021156451(NAD 83)

BASE STATIONS USED

United States Geological Survey
Yellowstone LiDAR
Ground Control Survey Report
December 2020

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
DL7758	P722 YNPBASSRCHMT2005	CORS ARP	N452725.985 W1093415.586	94110.7
DP3858	P707 REDROCKLAKMT2008	CORS ARP	N444307.553 W1115013.738	135681.3
DL7705	NOMT NOMT_EBRY_MT1999	CORS ARP	N453548.888 W1113747.304	69727.9

NEAREST NGS PUBLISHED CONTROL POINT

QX0138	W 2	N453900052. W1104400022.	362.9
--------	-----	--------------------------	-------

This position and the above vector components were computed without any knowledge by the National Geodetic Survey regarding the equipment or field operating procedures used.

FILE: 158_83272820.20o OP1603735373989

NGS OPUS SOLUTION REPORT
=====

All computed coordinate accuracies are listed as peak-to-peak values.

For additional information:

<https://nam02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.ngs.noaa.gov%2FOPUS%2Fabout.jsp%23accuracy&data=04%7C01%7Cmichael.zarlengo%40woolpert.com%7C041b5c1179f9499983ca08d879d98fc1%7C987179e81c49493a88e806d464695b5c%7C0%7C0%7C637393322625259980%7CUnknown%7CTWFpbGZsb3d8eyJWljojMC4wLjAwMDAiLCJQIjoiV2luMzliLCJBTil6lk1haWwiLCJXVCi6Mn0%3D%7C1000&sdata=D7LT0Salg9AlHCSSNL5XxRz3DN8De2n6wsTcqjCzo%2B0%3D&reserved=0>

USER: michael.zarlengo@woolpert.com DATE: October 26, 2020
RINEX FILE: 158_282n.20o TIME: 18:04:07 UTC

SOFTWARE: page5 2008.25 master91.pl 160321 START: 2020/10/08 13:45:00
EPHEMERIS: igs21264.eph [precise] STOP: 2020/10/08 20:38:00
NAV FILE: brdc2820.20n OBS USED: 17942 / 19073 : 94%
ANT NAME: TRMR8_GNSS3 NONE # FIXED AMB: 87 / 88 : 99%
ARP HEIGHT: 2.00 OVERALL RMS: 0.013(m)

REF FRAME: NAD_83(2011)(EPOCH:2010.0000) ITRF2014 (EPOCH:2020.7697)

X: -1581724.444(m) 0.008(m) -1581725.401(m) 0.008(m)
Y: -4176967.818(m) 0.005(m) -4176966.585(m) 0.005(m)
Z: 4540143.039(m) 0.008(m) 4540142.970(m) 0.008(m)

LAT: 45 39 40.74808 0.004(m) 45 39 40.76536 0.004(m)
E LON: 249 15 33.99145 0.006(m) 249 15 33.92993 0.006(m)
W LON: 110 44 26.00855 0.006(m) 110 44 26.07007 0.006(m)
EL HGT: 1572.813(m) 0.010(m) 1572.195(m) 0.010(m)
ORTHO HGT: 1583.223(m) 0.051(m) [NAVD88 (Computed using GEOID18)]

UTM COORDINATES STATE PLANE COORDINATES
UTM (Zone 12) SPC (2500 MT)

Northing (Y) [meters] 5056451.549 157614.566
Easting (X) [meters] 520211.414 503353.856
Convergence [degrees] 0.18555833 -0.90747222
Point Scale 0.99960502 0.99966747
Combined Factor 0.99935860 0.99942104

US NATIONAL GRID DESIGNATOR: 12TWR2021156451(NAD 83)

BASE STATIONS USED

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
DL7705	NOMT NOMT_EBRY_MT1999	CORS ARP	N453548.888 W1113747.304	69727.9
DP3858	P707 REDROCKLAKMT2008	CORS ARP	N444307.553 W1115013.738	135681.2
DK7547	MTSU BOZEMAN	CORS ARP	N453940.376 W1110242.008	23732.6

NEAREST NGS PUBLISHED CONTROL POINT

QX0138	W 2	N453900052. W1104400022.	362.9
--------	-----	--------------------------	-------

This position and the above vector components were computed without any knowledge by the National Geodetic Survey regarding the equipment or field operating procedures used.

FILE: 160_83272830.20o OP1603735720032

NGS OPUS SOLUTION REPORT
=====

All computed coordinate accuracies are listed as peak-to-peak values.

For additional information:

<https://nam02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.ngs.noaa.gov%2FOPUS%2Fabout.jsp%23accuracy&data=04%7C01%7Cmichael.zarlengo%40woolpert.com%7C61916c4e6889421c1f9208d879da517c%7C987179e81c49493a88e806d464695b5c%7C0%7C0%7C637393325874344114%7CUnknown%7CTWFpbGZsb3d8eyJWljoImMC4wLjAwMDAiLCJQIjoiV2luMzliLCJBTil6lk1haWwiLCJXVCi6Mn0%3D%7C1000&sdata=JxIBRMP2IaZVtzjG35zbc%2Bla7kDRNeZjnOry8qPOLrM%3D&reserved=0>

USER: michael.zarlengo@woolpert.com DATE: October 26, 2020
RINEX FILE: 160_283n.20o TIME: 18:09:34 UTC

SOFTWARE: page5 2008.25 master75.pl 160321 START: 2020/10/09 13:45:00
EPHEMERIS: igs21265.eph [precise] STOP: 2020/10/09 18:40:00
NAV FILE: brdc2830.20n OBS USED: 12328 / 13038 : 95%
ANT NAME: TRMR8_GNSS3 NONE # FIXED AMB: 69 / 73 : 95%
ARP HEIGHT: 2.00 OVERALL RMS: 0.012(m)

REF FRAME: NAD_83(2011)(EPOCH:2010.0000) ITRF2014 (EPOCH:2020.7724)

X: -1555698.749(m) 0.001(m) -1555699.712(m) 0.001(m)
Y: -4182390.427(m) 0.002(m) -4182389.193(m) 0.002(m)
Z: 4543789.326(m) 0.002(m) 4543789.256(m) 0.002(m)

LAT: 45 42 37.49753 0.003(m) 45 42 37.51499 0.003(m)
E LON: 249 35 47.79589 0.001(m) 249 35 47.73430 0.001(m)
W LON: 110 24 12.20411 0.001(m) 110 24 12.26570 0.001(m)
EL HGT: 1339.791(m) 0.001(m) 1339.167(m) 0.001(m)
ORTHO HGT: 1350.421(m) 0.054(m) [NAVD88 (Computed using GEOID18)]

UTM COORDINATES STATE PLANE COORDINATES
UTM (Zone 12) SPC (2500 MT)

Northing (Y) [meters] 5062046.608 162709.740
Easting (X) [meters] 546437.276 529682.585
Convergence [degrees] 0.42707222 -0.66083333
Point Scale 0.99962651 0.99964793
Combined Factor 0.99941659 0.99943800

US NATIONAL GRID DESIGNATOR: 12TWR4643762046(NAD 83)

BASE STATIONS USED

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
DL7758	P722 YNPBASSRCHMT2005 CORS ARP	N452725.985	W1093415.586	70809.9
DL7705	NOMT NOMT_EBRY_MT1999 CORS ARP	N453548.888	W1113747.304	96442.5
DQ9786	MTBR MTBR BRIDGER CORS ARP	N451611.092	W1085451.420	126309.4

NEAREST NGS PUBLISHED CONTROL POINT

QX0521	Y 558	N4542000048	W11023000059	441.7
--------	-------	-------------	--------------	-------

This position and the above vector components were computed without any knowledge by the National Geodetic Survey regarding the equipment or field operating procedures used.

FILE: 160_83272831.20o OP1603735742751

NGS OPUS SOLUTION REPORT
=====

All computed coordinate accuracies are listed as peak-to-peak values.
For additional information:

<https://nam02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.ngs.noaa.gov%2FOPUS%2Fabout.jsp%23accuracy&data=04%7C01%7Cmichael.zarlengo%40woolpert.com%7Ca4da47c0de354d3d5e2508d879da722d%7C987179e81c49493a88e806d464695b5c%7C0%7C0%7C637393326417129365%7CUnknown%7CTWfPbGZsb3d8eyJWljoimC4wLjAwMDAiLCJQljoiv2luMzliLCJBTil6lk1haWwiLCJXVCI6Mn0%3D%7C1000&sdata=zcexzR32LxNTnbUbbZB4%2BviAZ8m5LHYScoVoprN2XW4%3D&reserved=0>

USER: michael.zarlengo@woolpert.com DATE: October 26, 2020
RINEX FILE: 160_283s.20o TIME: 18:10:27 UTC

SOFTWARE: page5 2008.25 master95.pl 160321 START: 2020/10/09 18:43:00
EPHEMERIS: igs21265.eph [precise] STOP: 2020/10/09 22:44:00
NAV FILE: brdc2830.20n OBS USED: 11515 / 11821 : 97%
ANT NAME: TRMR8_GNSS3 NONE # FIXED AMB: 54 / 54 : 100%
ARP HEIGHT: 2.00 OVERALL RMS: 0.011(m)

REF FRAME: NAD_83(2011)(EPOCH:2010.0000) ITRF2014 (EPOCH:2020.7728)

X: -1555698.741(m) 0.006(m) -1555699.704(m) 0.006(m)
Y: -4182390.402(m) 0.004(m) -4182389.168(m) 0.004(m)
Z: 4543789.306(m) 0.007(m) 4543789.236(m) 0.007(m)

LAT: 45 42 37.49767 0.002(m) 45 42 37.51513 0.002(m)
E LON: 249 35 47.79586 0.005(m) 249 35 47.73422 0.005(m)
W LON: 110 24 12.20414 0.005(m) 110 24 12.26578 0.005(m)
EL HGT: 1339.758(m) 0.008(m) 1339.135(m) 0.008(m)
ORTHO HGT: 1350.388(m) 0.057(m) [NAVD88 (Computed using GEOID18)]

UTM COORDINATES STATE PLANE COORDINATES
UTM (Zone 12) SPC (2500 MT)
Northing (Y) [meters] 5062046.612 162709.744
Easting (X) [meters] 546437.275 529682.584
Convergence [degrees] 0.42707222 -0.66083333
Point Scale 0.99962651 0.99964793
Combined Factor 0.99941659 0.99943801

US NATIONAL GRID DESIGNATOR: 12TWR4643762046(NAD 83)

BASE STATIONS USED

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
DL7758	P722 YNPBASSRCHMT2005 CORS ARP	N452725.985	W1093415.586	70809.9
DQ9786	MTBR MTBR BRIDGER CORS ARP	N451611.092	W1085451.420	126309.4
DK7547	MTSU BOZEMAN CORS ARP	N453940.376	W1110242.008	50291.4

NEAREST NGS PUBLISHED CONTROL POINT

QX0521	Y 558	N4542000048	W11023000059	441.7
--------	-------	-------------	--------------	-------

This position and the above vector components were computed without any knowledge by the National Geodetic Survey regarding the equipment or field operating procedures used.

FILE: 160_83272840.20o OP1603735809556

NGS OPUS SOLUTION REPORT
=====

All computed coordinate accuracies are listed as peak-to-peak values.

For additional information:

<https://nam02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.ngs.noaa.gov%2FOPUS%2Fabout.jsp%23accuracy&data=04%7C01%7Cmichael.zarlengo%40woolpert.com%7Cbdfd3a4df829442432e808d879da94db%7C987179e81c49493a88e806d464695b5c%7C0%7C0%7C637393326996243976%7CUnknown%7CTWFpbGZsb3d8eyJWljiMC4wLjAwMDAiLCJQIjoiV2luMzliLCJBTil6lk1haWwiLCJXVCi6Mn0%3D%7C1000&sdata=lRA10b1709ooztao3oiDmvTWpHOH1LsXb%2BZCHCTBE8%3D&reserved=0>

USER: michael.zarlengo@woolpert.com DATE: October 26, 2020
RINEX FILE: 160_284n.20o TIME: 18:11:27 UTC

SOFTWARE: page5 2008.25 master93.pl 160321 START: 2020/10/10 13:48:00
EPHEMERIS: igs21266.eph [precise] STOP: 2020/10/10 22:04:00
NAV FILE: brdc2840.20n OBS USED: 22165 / 23161 : 96%
ANT NAME: TRMR8_GNSS3 NONE # FIXED AMB: 110 / 113 : 97%
ARP HEIGHT: 2.00 OVERALL RMS: 0.013(m)

REF FRAME: NAD_83(2011)(EPOCH:2010.0000) ITRF2014 (EPOCH:2020.7753)

X: -1555698.748(m) 0.003(m) -1555699.711(m) 0.003(m)
Y: -4182390.425(m) 0.003(m) -4182389.191(m) 0.003(m)
Z: 4543789.323(m) 0.003(m) 4543789.253(m) 0.003(m)

LAT: 45 42 37.49749 0.000(m) 45 42 37.51495 0.000(m)
E LON: 249 35 47.79593 0.003(m) 249 35 47.73430 0.003(m)
W LON: 110 24 12.20407 0.003(m) 110 24 12.26570 0.003(m)
EL HGT: 1339.787(m) 0.004(m) 1339.164(m) 0.004(m)
ORTHO HGT: 1350.417(m) 0.050(m) [NAVD88 (Computed using GEOID18)]

UTM COORDINATES STATE PLANE COORDINATES
UTM (Zone 12) SPC (2500 MT)

Northing (Y) [meters] 5062046.607 162709.739
Easting (X) [meters] 546437.277 529682.585
Convergence [degrees] 0.42707222 -0.66083333
Point Scale 0.99962651 0.99964793
Combined Factor 0.99941659 0.99943800

US NATIONAL GRID DESIGNATOR: 12TWR4643762046(NAD 83)

BASE STATIONS USED

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
DK7547	MTSU BOZEMAN CORS ARP	N453940.376	W1110242.008	50291.4
DL7705	NOMT NOMT_EBRY_MT1999 CORS ARP	N453548.888	W1113747.304	96442.5
DL7758	P722 YNPBASSRCHMT2005 CORS ARP	N452725.985	W1093415.586	70809.9

NEAREST NGS PUBLISHED CONTROL POINT

QX0521	Y 558	N4542000048	W11023000059	441.7
--------	-------	-------------	--------------	-------

This position and the above vector components were computed without any knowledge by the National Geodetic Survey regarding the equipment or field operating procedures used.

FILE: 160_83272840.20o OP1603735929537

NGS OPUS SOLUTION REPORT
=====

All computed coordinate accuracies are listed as peak-to-peak values.

For additional information:

<https://nam02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.ngs.noaa.gov%2FOPUS%2Fabout.jsp%23accuracy&data=04%7C01%7Cmichael.zarlengo%40woolpert.com%7Cb1ffa8e723084d07330908d879dacc4%7C987179e81c49493a88e806d464695b5c%7C0%7C0%7C637393327941198013%7CUnknown%7CTWFpbGZsb3d8eyJWljiMC4wLjAwMDAiLCJQIjoiV2luMzliLCJBTil6lk1haWwiLCJXVCi6Mn0%3D%7C1000&sdata=MycJ7hqd%2BgwmOGA9wnxbOwMxSno69RI%2Fi63VUsob2Ag%3D&reserved=0>

USER: michael.zarlengo@woolpert.com DATE: October 26, 2020
RINEX FILE: 160_284n.20o TIME: 18:13:01 UTC

SOFTWARE: page5 2008.25 master71.pl 160321 START: 2020/10/10 13:48:00
EPHEMERIS: igs21266.eph [precise] STOP: 2020/10/10 22:04:00
NAV FILE: brdc2840.20n OBS USED: 22165 / 23161 : 96%
ANT NAME: TRMR8_GNSS3 NONE # FIXED AMB: 110 / 113 : 97%
ARP HEIGHT: 2.00 OVERALL RMS: 0.013(m)

REF FRAME: NAD_83(2011)(EPOCH:2010.0000) ITRF2014 (EPOCH:2020.7753)

X: -1555698.748(m) 0.003(m) -1555699.711(m) 0.003(m)
Y: -4182390.425(m) 0.003(m) -4182389.191(m) 0.003(m)
Z: 4543789.323(m) 0.003(m) 4543789.253(m) 0.003(m)

LAT: 45 42 37.49749 0.000(m) 45 42 37.51495 0.000(m)
E LON: 249 35 47.79593 0.003(m) 249 35 47.73430 0.003(m)
W LON: 110 24 12.20407 0.003(m) 110 24 12.26570 0.003(m)
EL HGT: 1339.787(m) 0.004(m) 1339.164(m) 0.004(m)
ORTHO HGT: 1350.417(m) 0.050(m) [NAVD88 (Computed using GEOID18)]

UTM COORDINATES STATE PLANE COORDINATES
UTM (Zone 12) SPC (2500 MT)

Northing (Y) [meters] 5062046.607 162709.739
Easting (X) [meters] 546437.277 529682.585
Convergence [degrees] 0.42707222 -0.66083333
Point Scale 0.99962651 0.99964793
Combined Factor 0.99941659 0.99943800

US NATIONAL GRID DESIGNATOR: 12TWR4643762046(NAD 83)

BASE STATIONS USED

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
DK7547	MTSU BOZEMAN CORS ARP	N453940.376	W1110242.008	50291.4
DL7705	NOMT NOMT_EBRY_MT1999 CORS ARP	N453548.888	W1113747.304	96442.5
DL7758	P722 YNPBASSRCHMT2005 CORS ARP	N452725.985	W1093415.586	70809.9

NEAREST NGS PUBLISHED CONTROL POINT

QX0521	Y 558	N4542000048	W11023000059	441.7
--------	-------	-------------	--------------	-------

This position and the above vector components were computed without any knowledge by the National Geodetic Survey regarding the equipment or field operating procedures used.

FILE: 161_83272850.20o OP1605019960695

NGS OPUS SOLUTION REPORT
=====

All computed coordinate accuracies are listed as peak-to-peak values.
For additional information:

<https://nam02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.ngs.noaa.gov%2FOPUS%2Fabout.jsp%23accuracy&data=04%7C01%7Cmichael.zarlengo%40woolpert.com%7Ca607633af5d945703f7f08d885888b4f%7C987179e81c49493a88e806d464695b5c%7C0%7C0%7C637406168794519330%7CUnknown%7CTWfPbGZsb3d8eyJWljoiMC4wLjAwMDAiLCJQIjoiV2luMzliLCJBTil6lk1haWwiLCJXVCi6Mn0%3D%7C1000&sdata=OmCQugdB4Lbr5t%2Bg0qTUf%2BtXkrttwKkBsPH%2BPlj3XmE%3D&reserved=0>

USER: michael.zarlengo@woolpert.com DATE: November 10, 2020
RINEX FILE: 161_285o.20o TIME: 14:54:26 UTC

SOFTWARE: page5 2008.25 master93.pl 160321 START: 2020/10/11 14:26:00
EPHEMERIS: igs21270.eph [precise] STOP: 2020/10/11 21:39:00
NAV FILE: brdc2850.20n OBS USED: 19322 / 20606 : 94%
ANT NAME: TRMR8_GNSS3 NONE # FIXED AMB: 96 / 106 : 91%
ARP HEIGHT: 2.000 OVERALL RMS: 0.016(m)

REF FRAME: NAD_83(2011)(EPOCH:2010.0000) ITRF2014 (EPOCH:2020.7780)

X: -1557812.667(m) 0.007(m) -1557813.632(m) 0.007(m)
Y: -4166801.285(m) 0.020(m) -4166800.052(m) 0.020(m)
Z: 4557652.053(m) 0.014(m) 4557651.985(m) 0.014(m)

LAT: 45 53 12.40040 0.005(m) 45 53 12.41786 0.005(m)
E LON: 249 30 3.93034 0.000(m) 249 30 3.86842 0.000(m)
W LON: 110 29 56.06966 0.000(m) 110 29 56.13158 0.000(m)
EL HGT: 1609.397(m) 0.025(m) 1608.779(m) 0.025(m)
ORTHO HGT: 1620.216(m) 0.061(m) [NAVD88 (Computed using GEOID18)]

UTM COORDINATES STATE PLANE COORDINATES
UTM (Zone 12) SPC (2500 MT)

Northing (Y) [meters] 5081589.931 182393.050
Easting (X) [meters] 538879.744 522497.979
Convergence [degrees] 0.35977222 -0.73070556
Point Scale 0.99961858 0.99958366
Combined Factor 0.99936643 0.99933152

US NATIONAL GRID DESIGNATOR: 12TWR3887981589(NAD 83)

BASE STATIONS USED

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
DL7758	P722 YNPBASSRCHMT2005	CORS ARP	N452725.985 W1093415.586	86662.9
AI5647	MAWY MAWY_EBRY_WY1998	CORS ARP	N445824.319 W1104121.433	102624.6
DL7705	NOMT NOMT_EBRY_MT1999	CORS ARP	N453548.888 W1113747.304	93742.6

NEAREST NGS PUBLISHED CONTROL POINT

QX0713	CHOSE	N455533.219	W1103128.952	4786.5
--------	-------	-------------	--------------	--------

This position and the above vector components were computed without any knowledge by the National Geodetic Survey regarding the equipment or field operating procedures used.

FILE: 161_83272860.20o OP1605019993672

NGS OPUS SOLUTION REPORT
=====

All computed coordinate accuracies are listed as peak-to-peak values.
For additional information:

<https://nam02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.ngs.noaa.gov%2FOPUS%2Fabout.jsp%23accuracy&data=04%7C01%7Cmichael.zarlengo%40woolpert.com%7C8095d48bbc3d4e6c268408d8858896a0%7C987179e81c49493a88e806d464695b5c%7C0%7C0%7C637406168988923800%7CUnknown%7CTWFpbGZsb3d8eyJWljiMC4wLjAwMDAiLCJQIjoiV2luMzliLCJBTil6lk1haWwiLCJXVCi6Mn0%3D%7C1000&sdata=pVth2PNc0c8mx9%2BfnTBzahtDxQsfQ6voU3R9C%2BS%2Fgo4%3D&reserved=0>

USER: michael.zarlengo@woolpert.com DATE: November 10, 2020
RINEX FILE: 161_286o.20o TIME: 14:54:45 UTC

SOFTWARE: page5 2008.25 master55.pl 160321 START: 2020/10/12 14:19:00
EPHEMERIS: igs21271.eph [precise] STOP: 2020/10/12 21:44:00
NAV FILE: brdc2860.20n OBS USED: 19702 / 21033 : 94%
ANT NAME: TRMR8_GNSS3 NONE # FIXED AMB: 104 / 120 : 87%
ARP HEIGHT: 2.000 OVERALL RMS: 0.017(m)

REF FRAME: NAD_83(2011)(EPOCH:2010.0000) ITRF2014 (EPOCH:2020.7807)

X: -1557812.670(m) 0.003(m) -1557813.636(m) 0.003(m)
Y: -4166801.264(m) 0.005(m) -4166800.031(m) 0.005(m)
Z: 4557652.034(m) 0.007(m) 4557651.966(m) 0.007(m)

LAT: 45 53 12.40040 0.009(m) 45 53 12.41786 0.009(m)
E LON: 249 30 3.92987 0.002(m) 249 30 3.86788 0.002(m)
W LON: 110 29 56.07013 0.002(m) 110 29 56.13212 0.002(m)
EL HGT: 1609.370(m) 0.002(m) 1608.753(m) 0.002(m)
ORTHO HGT: 1620.189(m) 0.055(m) [NAVD88 (Computed using GEOID18)]

UTM COORDINATES STATE PLANE COORDINATES
UTM (Zone 12) SPC (2500 MT)

Northing (Y) [meters] 5081589.931 182393.050
Easting (X) [meters] 538879.734 522497.969
Convergence [degrees] 0.35977222 -0.73070556
Point Scale 0.99961858 0.99958366
Combined Factor 0.99936644 0.99933153

US NATIONAL GRID DESIGNATOR: 12TWR3887981589(NAD 83)

BASE STATIONS USED

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
AI5647	MAWY MAWY_EBRY_WY1998	CORS ARP	N445824.319 W1104121.433	102624.6
DL7705	NOMT NOMT_EBRY_MT1999	CORS ARP	N453548.888 W1113747.304	93742.6
DL7758	P722 YNPBASSRCHMT2005	CORS ARP	N452725.985 W1093415.586	86662.9

NEAREST NGS PUBLISHED CONTROL POINT

QX0713	CHOSE	N455533.219	W1103128.952	4786.5
--------	-------	-------------	--------------	--------

This position and the above vector components were computed without any knowledge by the National Geodetic Survey regarding the equipment or field operating procedures used.

FILE: 161_83272871.20o OP1605020023996

NGS OPUS SOLUTION REPORT
=====

All computed coordinate accuracies are listed as peak-to-peak values.
For additional information:

<https://nam02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.ngs.noaa.gov%2FOPUS%2Fabout.jsp%23accuracy&data=04%7C01%7Cmichael.zarlengo%40woolpert.com%7C3b1d5b8fb8904591378808d8858896da%7C987179e81c49493a88e806d464695b5c%7C0%7C0%7C637406168988199781%7CUnknown%7CTWFpbGZsb3d8eyJWljiMC4wLjAwMDAiLCJQIjoiV2luMzliLCJBTil6lk1haWwiLCJXVCi6Mn0%3D%7C1000&sdata=dVvyz8ZodOC%2FX3uTUl9pRW2KzRBNyl7Rl1HsJi%2Bofk%3D&reserved=0>

USER: michael.zarlengo@woolpert.com DATE: November 10, 2020
RINEX FILE: 161_287o.20o TIME: 14:54:45 UTC

SOFTWARE: page5 2008.25 master95.pl 160321 START: 2020/10/13 14:32:00
EPHEMERIS: igs21272.eph [precise] STOP: 2020/10/13 21:35:00
NAV FILE: brdc2870.20n OBS USED: 19444 / 20433 : 95%
ANT NAME: TRMR8_GNSS3 NONE # FIXED AMB: 93 / 98 : 95%
ARP HEIGHT: 2.000 OVERALL RMS: 0.015(m)

REF FRAME: NAD_83(2011)(EPOCH:2010.0000) ITRF2014 (EPOCH:2020.7835)

X: -1557812.664(m) 0.007(m) -1557813.630(m) 0.007(m)
Y: -4166801.276(m) 0.013(m) -4166800.043(m) 0.013(m)
Z: 4557652.036(m) 0.017(m) 4557651.968(m) 0.017(m)

LAT: 45 53 12.40022 0.011(m) 45 53 12.41768 0.011(m)
E LON: 249 30 3.93034 0.004(m) 249 30 3.86834 0.004(m)
W LON: 110 29 56.06966 0.004(m) 110 29 56.13166 0.004(m)
EL HGT: 1609.378(m) 0.019(m) 1608.761(m) 0.019(m)
ORTHO HGT: 1620.197(m) 0.058(m) [NAVD88 (Computed using GEOID18)]

UTM COORDINATES STATE PLANE COORDINATES
UTM (Zone 12) SPC (2500 MT)
Northing (Y) [meters] 5081589.925 182393.044
Easting (X) [meters] 538879.744 522497.979
Convergence [degrees] 0.35977222 -0.73070556
Point Scale 0.99961858 0.99958366
Combined Factor 0.99936644 0.99933153

US NATIONAL GRID DESIGNATOR: 12TWR3887981589(NAD 83)

BASE STATIONS USED

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
AI5647	MAWY MAWY_EBRY_WY1998 CORS ARP	N445824.319	W1104121.433	102624.6
DL7758	P722 YNPBASSRCHMT2005 CORS ARP	N452725.985	W1093415.586	86662.9
DL7335	MTDT HELENA CORS ARP	N463518.591	W1115936.962	139219.4

NEAREST NGS PUBLISHED CONTROL POINT

QX0713	CHOSE	N455533.219	W1103128.952	4786.5
--------	-------	-------------	--------------	--------

This position and the above vector components were computed without any knowledge by the National Geodetic Survey regarding the equipment or field operating procedures used.

FILE: 161_83272942.20o OP1605020065809

NGS OPUS SOLUTION REPORT
=====

All computed coordinate accuracies are listed as peak-to-peak values.

For additional information:

<https://nam02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.ngs.noaa.gov%2FOPUS%2Fabout.jsp%23accuracy&data=04%7C01%7Cmichael.zarlengo%40woolpert.com%7C046b12d398e94f48a94308d88588b4fc%7C987179e81c49493a88e806d464695b5c%7C0%7C0%7C637406169483393406%7CUnknown%7CTWFpbGZsb3d8eyJWljoijMc4wLjAwMDAiLCJQIjoiV2luMzliLCJBTil6lk1haWwiLCJXVCi6Mn0%3D%7C1000&reserved=0>

USER: michael.zarlengo@woolpert.com DATE: November 10, 2020
RINEX FILE: 161_294o.20o TIME: 14:55:35 UTC

SOFTWARE: page5 2008.25 master56.pl 160321 START: 2020/10/20 14:28:00
EPHEMERIS: igs21282.eph [precise] STOP: 2020/10/20 21:36:00
NAV FILE: brdc2940.20n OBS USED: 19304 / 20452 : 94%
ANT NAME: TRMR8_GNSS3 NONE # FIXED AMB: 97 / 101 : 96%
ARP HEIGHT: 2.000 OVERALL RMS: 0.015(m)

REF FRAME: NAD_83(2011)(EPOCH:2010.0000) ITRF2014 (EPOCH:2020.8026)

X: -1557812.669(m) 0.007(m) -1557813.635(m) 0.007(m)
Y: -4166801.279(m) 0.012(m) -4166800.046(m) 0.012(m)
Z: 4557652.040(m) 0.009(m) 4557651.972(m) 0.009(m)

LAT: 45 53 12.40022 0.009(m) 45 53 12.41765 0.009(m)
E LON: 249 30 3.93016 0.003(m) 249 30 3.86816 0.003(m)
W LON: 110 29 56.06984 0.003(m) 110 29 56.13184 0.003(m)
EL HGT: 1609.384(m) 0.013(m) 1608.767(m) 0.013(m)
ORTHO HGT: 1620.203(m) 0.056(m) [NAVD88 (Computed using GEOID18)]

UTM COORDINATES STATE PLANE COORDINATES
UTM (Zone 12) SPC (2500 MT)

Northing (Y) [meters] 5081589.925 182393.044
Easting (X) [meters] 538879.741 522497.975
Convergence [degrees] 0.35977222 -0.73070556
Point Scale 0.99961858 0.99958366
Combined Factor 0.99936644 0.99933152

US NATIONAL GRID DESIGNATOR: 12TWR3887981589(NAD 83)

BASE STATIONS USED

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
AI5647	MAWY MAWY_EBRY_WY1998	CORS ARP	N445824.319 W1104121.433	102624.6
DL7705	NOMT NOMT_EBRY_MT1999	CORS ARP	N453548.888 W1113747.304	93742.6
DK7547	MTSU BOZEMAN	CORS ARP	N453940.376 W1110242.008	49333.1

NEAREST NGS PUBLISHED CONTROL POINT

QX0713	CHOSE	N455533.219	W1103128.952	4786.5
--------	-------	-------------	--------------	--------

This position and the above vector components were computed without any knowledge by the National Geodetic Survey regarding the equipment or field operating procedures used.

FILE: 162_83272950.20o OP1605020103426

NGS OPUS SOLUTION REPORT
=====

All computed coordinate accuracies are listed as peak-to-peak values.
For additional information:

<https://nam02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.ngs.noaa.gov%2FOPUS%2Fabout.jsp%23accuracy&data=04%7C01%7Cmichael.zarlengo%40woolpert.com%7Cfb2fa49ba35544edffe108d88588cda4%7C987179e81c49493a88e806d464695b5c%7C0%7C0%7C637406169915621758%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzliLCJBTiI6Ikk1haWwiLCJXVCi6Mn0%3D%7C1000&sdata=QXWnwLZhi1LzVlFWM8ajfsxAnOUymNi9SsOKgykELo%3D&reserved=0>

USER: michael.zarlengo@woolpert.com DATE: November 10, 2020
RINEX FILE: 162_295o.20o TIME: 14:56:17 UTC

SOFTWARE: page5 2008.25 master94.pl 160321 START: 2020/10/21 14:46:00
EPHEMERIS: igs21283.eph [precise] STOP: 2020/10/21 19:07:00
NAV FILE: brdc2950.20n OBS USED: 12375 / 13105 : 94%
ANT NAME: TRMR8_GNSS3 NONE # FIXED AMB: 65 / 69 : 94%
ARP HEIGHT: 2.000 OVERALL RMS: 0.015(m)

REF FRAME: NAD_83(2011)(EPOCH:2010.0000) ITRF2014 (EPOCH:2020.8052)

X: -1556927.500(m) 0.006(m) -1556928.466(m) 0.006(m)
Y: -4150222.276(m) 0.021(m) -4150221.045(m) 0.021(m)
Z: 4572994.242(m) 0.006(m) 4572994.176(m) 0.006(m)

LAT: 46 5 6.36040 0.012(m) 46 5 6.37789 0.012(m)
E LON: 249 26 12.35008 0.002(m) 249 26 12.28787 0.002(m)
W LON: 110 33 47.64992 0.002(m) 110 33 47.71213 0.002(m)
EL HGT: 1639.353(m) 0.019(m) 1638.741(m) 0.019(m)
ORTHO HGT: 1650.113(m) 0.063(m) [NAVD88 (Computed using GEOID18)]

UTM COORDINATES STATE PLANE COORDINATES
UTM (Zone 12) SPC (2500 MT)

Northing (Y) [meters] 5103595.485 204490.568
Easting (X) [meters] 533767.743 517806.378
Convergence [degrees] 0.31463611 -0.77776111
Point Scale 0.99961402 0.99952244
Combined Factor 0.99935719 0.99926563

US NATIONAL GRID DESIGNATOR: 12TWS3376703595(NAD 83)

BASE STATIONS USED

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
DK7547	MTSU BOZEMAN CORS ARP	N453940.376	W1110242.008	60171.3
DL7705	NOMT NOMT_EBRY_MT1999 CORS ARP	N453548.888	W1113747.304	99065.3
AI5647	MAWY MAWY_EBRY_WY1998 CORS ARP	N445824.319	W1104121.433	123977.8

NEAREST NGS PUBLISHED CONTROL POINT

RW0505	MATHER	N460212.228	W1103123.745	6202.7
--------	--------	-------------	--------------	--------

This position and the above vector components were computed without any knowledge by the National Geodetic Survey regarding the equipment or field operating procedures used.

FILE: 162_83272951.20o OP1605020160426

NGS OPUS SOLUTION REPORT
=====

All computed coordinate accuracies are listed as peak-to-peak values.
For additional information:

<https://nam02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.ngs.noaa.gov%2FOPUS%2Fabout.jsp%23accuracy&data=04%7C01%7Cmichael.zarlengo%40woolpert.com%7Cd247da29b40d4cf1c53a08d88588ea5b%7C987179e81c49493a88e806d464695b5c%7C0%7C0%7C637406170386922943%7CUnknown%7CTWFpbGZsb3d8eyJWljiMC4wLjAwMDAiLCJQIjoiV2luMzliLCJBTil6lk1haWwiLCJXVCi6Mn0%3D%7C1000&sdata=syodeloZGlcXDPx%2FFO2UzEvkyyCeb7g%2B8bGjBj%2FV%2Bhs%3D&reserved=0>

USER: michael.zarlengo@woolpert.com DATE: November 10, 2020
RINEX FILE: 162_295t.20o TIME: 14:57:05 UTC

SOFTWARE: page5 2008.25 master93.pl 160321 START: 2020/10/21 19:12:00
EPHEMERIS: igs21283.eph [precise] STOP: 2020/10/21 21:17:00
NAV FILE: brdc2950.20n OBS USED: 5697 / 6211 : 92%
ANT NAME: TRMR8_GNSS3 NONE # FIXED AMB: 36 / 44 : 82%
ARP HEIGHT: 2.000 OVERALL RMS: 0.015(m)

REF FRAME: NAD_83(2011)(EPOCH:2010.0000) ITRF2014 (EPOCH:2020.8056)

X: -1556927.491(m) 0.021(m) -1556928.457(m) 0.021(m)
Y: -4150222.321(m) 0.067(m) -4150221.090(m) 0.067(m)
Z: 4572994.256(m) 0.034(m) 4572994.190(m) 0.034(m)

LAT: 46 5 6.35978 0.037(m) 46 5 6.37728 0.037(m)
E LON: 249 26 12.35119 0.043(m) 249 26 12.28898 0.043(m)
W LON: 110 33 47.64881 0.043(m) 110 33 47.71102 0.043(m)
EL HGT: 1639.390(m) 0.063(m) 1638.778(m) 0.063(m)
ORTHO HGT: 1650.150(m) 0.101(m) [NAVD88 (Computed using GEOID18)]

UTM COORDINATES STATE PLANE COORDINATES
UTM (Zone 12) SPC (2500 MT)

Northing (Y) [meters] 5103595.466 204490.549
Easting (X) [meters] 533767.767 517806.402
Convergence [degrees] 0.31463611 -0.77776111
Point Scale 0.99961402 0.99952244
Combined Factor 0.99935718 0.99926563

US NATIONAL GRID DESIGNATOR: 12TWS3376703595(NAD 83)

BASE STATIONS USED

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
AI5647	MAWY MAWY_EBRY_WY1998	CORS ARP	N445824.319 W1104121.433	123977.8
DL7335	MTDT HELENA	CORS ARP	N463518.591 W1115936.962	123551.1
DK7547	MTSU BOZEMAN	CORS ARP	N453940.376 W1110242.008	60171.3

NEAREST NGS PUBLISHED CONTROL POINT

RW0505	MATHER	N460212.228	W1103123.745	6202.7
--------	--------	-------------	--------------	--------

This position and the above vector components were computed without any knowledge by the National Geodetic Survey regarding the equipment or field operating procedures used.

FILE: 162_83272960.20o OP1605020198427

NGS OPUS SOLUTION REPORT
=====

All computed coordinate accuracies are listed as peak-to-peak values.
For additional information:

<https://nam02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.ngs.noaa.gov%2FOPUS%2Fabout.jsp%23accuracy&data=04%7C01%7Cmichael.zarlengo%40woolpert.com%7C8e0204eda530441679be08d88589267e%7C987179e81c49493a88e806d464695b5c%7C0%7C0%7C637406171401521720%7CUnknown%7CTWfpgZsb3d8eyJWljoimc4wLjAwMDAiLCJQljoiv2luMzliLCJBTil6lk1haWwiLCJXVCI6Mn0%3D%7C1000&sdata=vAD8nURqwROR%2FPKaYw2jfYi7faZH8QHlKdCtrx2N6xc%3D&reserved=0>

USER: michael.zarlengo@woolpert.com DATE: November 10, 2020
RINEX FILE: 162_296o.20o TIME: 14:58:45 UTC

SOFTWARE: page5 2008.25 master54.pl 160321 START: 2020/10/22 14:54:00
EPHEMERIS: igs21284.eph [precise] STOP: 2020/10/22 21:14:00
NAV FILE: brdc2960.20n OBS USED: 18631 / 19360 : 96%
ANT NAME: TRMR8_GNSS3 NONE # FIXED AMB: 81 / 86 : 94%
ARP HEIGHT: 2.000 OVERALL RMS: 0.013(m)

REF FRAME: NAD_83(2011)(EPOCH:2010.0000) ITRF2014 (EPOCH:2020.8081)

X: -1556927.495(m) 0.001(m) -1556928.461(m) 0.001(m)
Y: -4150222.271(m) 0.005(m) -4150221.040(m) 0.005(m)
Z: 4572994.248(m) 0.011(m) 4572994.182(m) 0.011(m)

LAT: 46 5 6.36068 0.004(m) 46 5 6.37814 0.004(m)
E LON: 249 26 12.35022 0.001(m) 249 26 12.28801 0.001(m)
W LON: 110 33 47.64978 0.001(m) 110 33 47.71199 0.001(m)
EL HGT: 1639.352(m) 0.012(m) 1638.741(m) 0.012(m)
ORTHO HGT: 1650.112(m) 0.057(m) [NAVD88 (Computed using GEOID18)]

UTM COORDINATES STATE PLANE COORDINATES
UTM (Zone 12) SPC (2500 MT)
Northing (Y) [meters] 5103595.494 204490.577
Easting (X) [meters] 533767.746 517806.382
Convergence [degrees] 0.31463611 -0.77776111
Point Scale 0.99961402 0.99952244
Combined Factor 0.99935719 0.99926563

US NATIONAL GRID DESIGNATOR: 12TWS3376703595(NAD 83)

BASE STATIONS USED

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
DL7758	P722 YNPBASSRCHMT2005 CORS ARP	N452725.985	W1093415.586	104074.3
DL7705	NOMT NOMT_EBRY_MT1999 CORS ARP	N453548.888	W1113747.304	99065.3
DK7547	MTSU BOZEMAN CORS ARP	N453940.376	W1110242.008	60171.3

NEAREST NGS PUBLISHED CONTROL POINT

RW0505	MATHER	N460212.228	W1103123.745	6202.7
--------	--------	-------------	--------------	--------

This position and the above vector components were computed without any knowledge by the National Geodetic Survey regarding the equipment or field operating procedures used.

FILE: 162_83272970.20o OP1605020284568

NGS OPUS SOLUTION REPORT
=====

All computed coordinate accuracies are listed as peak-to-peak values.

For additional information:

<https://nam02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.ngs.noaa.gov%2FOPUS%2Fabout.jsp%23accuracy&data=04%7C01%7Cmichael.zarlengo%40woolpert.com%7Cf2b63069ae134730fa8c08d88589751b%7C987179e81c49493a88e806d464695b5c%7C0%7C0%7C637406172715416887%7CUnknown%7CTWFpbGZsb3d8eyJWljiMC4wLjAwMDAiLCJQIjoiV2luMzliLCJBTil6lk1haWwiLCJXVCi6Mn0%3D%7C1000&sdata=Ezlr0pHb6moPvCRshuFc0IVy8NB4KZyixch1dmv2hqs%3D&reserved=0>

USER: michael.zarlengo@woolpert.com DATE: November 10, 2020
RINEX FILE: 162_297o.20o TIME: 15:00:55 UTC

SOFTWARE: page5 2008.25 master70.pl 160321 START: 2020/10/23 14:47:00
EPHEMERIS: igs21285.eph [precise] STOP: 2020/10/23 21:06:00
NAV FILE: brdc2970.20n OBS USED: 18395 / 19283 : 95%
ANT NAME: TRMR8_GNSS3 NONE # FIXED AMB: 89 / 90 : 99%
ARP HEIGHT: 2.000 OVERALL RMS: 0.013(m)

REF FRAME: NAD_83(2011)(EPOCH:2010.0000) ITRF2014 (EPOCH:2020.8108)

X: -1556927.492(m) 0.001(m) -1556928.458(m) 0.001(m)
Y: -4150222.272(m) 0.002(m) -4150221.041(m) 0.002(m)
Z: 4572994.245(m) 0.003(m) 4572994.179(m) 0.003(m)

LAT: 46 5 6.36061 0.002(m) 46 5 6.37811 0.002(m)
E LON: 249 26 12.35036 0.001(m) 249 26 12.28816 0.001(m)
W LON: 110 33 47.64964 0.001(m) 110 33 47.71184 0.001(m)
EL HGT: 1639.350(m) 0.003(m) 1638.739(m) 0.003(m)
ORTHO HGT: 1650.110(m) 0.055(m) [NAVD88 (Computed using GEOID18)]

UTM COORDINATES STATE PLANE COORDINATES
UTM (Zone 12) SPC (2500 MT)

Northing (Y) [meters] 5103595.492 204490.575
Easting (X) [meters] 533767.749 517806.385
Convergence [degrees] 0.31463611 -0.77776111
Point Scale 0.99961402 0.99952244
Combined Factor 0.99935719 0.99926563

US NATIONAL GRID DESIGNATOR: 12TWS3376703595(NAD 83)

BASE STATIONS USED

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
DL7758	P722 YNPBASSRCHMT2005 CORS ARP	N452725.985	W1093415.586	104074.3
DL7705	NOMT NOMT_EBRY_MT1999 CORS ARP	N453548.888	W1113747.304	99065.3
DK7547	MTSU BOZEMAN CORS ARP	N453940.376	W1110242.008	60171.3

NEAREST NGS PUBLISHED CONTROL POINT

RW0505	MATHER	N460212.228	W1103123.745	6202.7
--------	--------	-------------	--------------	--------

This position and the above vector components were computed without any knowledge by the National Geodetic Survey regarding the equipment or field operating procedures used.

FILE: 250_32272710.20o OP1603737224206

NGS OPUS SOLUTION REPORT
=====

All computed coordinate accuracies are listed as peak-to-peak values.
For additional information:

<https://nam02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.ngs.noaa.gov%2FOPUS%2Fabout.jsp%23accuracy&data=04%7C01%7Cmichael.zarlengo%40woolpert.com%7C1f1e6e4f15504bfb415708d879ddcd98%7C987179e81c49493a88e806d464695b5c%7C0%7C0%7C637393340831381139%7CUnknown%7CTWFpbGZsb3d8eyJWljojMC4wLjAwMDAiLCJQIjojV2luMzliLCJBTil6lk1haWwiLCJXVCi6Mn0%3D%7C1000&data=zldTSvGXgVOFUu2VVTviDaLCF1K8wxqtGwDyshCQogo%3D&reserved=0>

USER: michael.zarlengo@woolpert.com DATE: October 26, 2020
RINEX FILE: 250_271r.20o TIME: 18:34:30 UTC

SOFTWARE: page5 2008.25 master94.pl 160321 START: 2020/09/27 17:15:00
EPHEMERIS: igs21250.eph [precise] STOP: 2020/09/27 19:49:00
NAV FILE: brdc2710.20n OBS USED: 6653 / 7058 : 94%
ANT NAME: TRMR8_GNSS3 NONE # FIXED AMB: 41 / 43 : 95%
ARP HEIGHT: 2.000 OVERALL RMS: 0.013(m)

REF FRAME: NAD_83(2011)(EPOCH:2010.0000) ITRF2014 (EPOCH:2020.7398)

X: -1634008.787(m) 0.009(m) -1634009.740(m) 0.009(m)
Y: -4231615.488(m) 0.013(m) -4231614.246(m) 0.013(m)
Z: 4471565.343(m) 0.002(m) 4471565.268(m) 0.002(m)

LAT: 44 46 53.84669 0.008(m) 44 46 53.86357 0.008(m)
E LON: 248 53 10.60868 0.012(m) 248 53 10.54792 0.012(m)
W LON: 111 6 49.39132 0.012(m) 111 6 49.45208 0.012(m)
EL HGT: 2001.243(m) 0.006(m) 2000.611(m) 0.006(m)
ORTHO HGT: 2009.946(m) 0.059(m) [NAVD88 (Computed using GEOID18)]

UTM COORDINATES STATE PLANE COORDINATES
UTM (Zone 12) SPC (2500 MT)
Northing (Y) [meters] 4958698.358 60410.505
Easting (X) [meters] 491003.159 472272.318
Convergence [degrees] -0.08010556 -1.18044167
Point Scale 0.99960100 1.00013805
Combined Factor 0.99928745 0.99982433

US NATIONAL GRID DESIGNATOR: 12TVQ9100358698(NAD 83)

BASE STATIONS USED

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
DP3858	P707 REDROCKLAKMT2008 CORS ARP	N444307.553	W1115013.738	57731.5
DP4103	IDDU DUBOIS CORS ARP	N441027.078	W1121409.084	111950.6
AI5647	MAWY MAWY_EBRY_WY1998 CORS ARP	N445824.319	W1104121.433	39748.7

NEAREST NGS PUBLISHED CONTROL POINT

PY0195	Y 162	N4446000051	W11106000046	95.8
--------	-------	-------------	--------------	------

This position and the above vector components were computed without any knowledge by the National Geodetic Survey regarding the equipment or field operating procedures used.

FILE: 250_32272711.20o OP1603737249071

NGS OPUS SOLUTION REPORT
=====

All computed coordinate accuracies are listed as peak-to-peak values.
For additional information:

<https://nam02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.ngs.noaa.gov%2FOPUS%2Fabout.jsp%23accuracy&data=04%7C01%7Cmichael.zarlengo%40woolpert.com%7C05c61edaf58e46216e9708d879ddda8%7C987179e81c49493a88e806d464695b5c%7C0%7C0%7C637393341110452381%7CUnknown%7CTWFpbGZsb3d8eyJWljoImMC4wLjAwMDAiLCJQIjoIb2luMzliLCJBTil6lk1haWwiLCJXVCi6Mn0%3D%7C1000&sdata=QnwMhdQ5BKrK8jBhYCUdvOkm8a2wmNmX4xQaw9Rhx6E%3D&reserved=0>

USER: michael.zarlengo@woolpert.com DATE: October 26, 2020
RINEX FILE: 250_271t.20o TIME: 18:34:55 UTC

SOFTWARE: page5 2008.25 master75.pl 160321 START: 2020/09/27 19:54:00
EPHEMERIS: igs21250.eph [precise] STOP: 2020/09/28 01:24:00
NAV FILE: brdc2710.20n OBS USED: 14409 / 15108 : 95%
ANT NAME: TRMR8_GNSS3 NONE # FIXED AMB: 79 / 82 : 96%
ARP HEIGHT: 2.000 OVERALL RMS: 0.014(m)

REF FRAME: NAD_83(2011)(EPOCH:2010.0000) ITRF2014 (EPOCH:2020.7403)

X: -1634008.765(m) 0.009(m) -1634009.718(m) 0.009(m)
Y: -4231615.452(m) 0.001(m) -4231614.210(m) 0.001(m)
Z: 4471565.322(m) 0.005(m) 4471565.247(m) 0.005(m)

LAT: 44 46 53.84716 0.002(m) 44 46 53.86404 0.002(m)
E LON: 248 53 10.60904 0.008(m) 248 53 10.54828 0.008(m)
W LON: 111 6 49.39096 0.008(m) 111 6 49.45172 0.008(m)
EL HGT: 2001.198(m) 0.006(m) 2000.567(m) 0.006(m)
ORTHO HGT: 2009.901(m) 0.050(m) [NAVD88 (Computed using GEOID18)]

UTM COORDINATES STATE PLANE COORDINATES
UTM (Zone 12) SPC (2500 MT)

Northing (Y) [meters] 4958698.373 60410.519
Easting (X) [meters] 491003.167 472272.326
Convergence [degrees] -0.08010556 -1.18044167
Point Scale 0.99960100 1.00013805
Combined Factor 0.99928745 0.99982434

US NATIONAL GRID DESIGNATOR: 12TVQ9100358698(NAD 83)

BASE STATIONS USED

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
DL7705	NOMT NOMT_EBRY_MT1999	CORS ARP N453548.888	W1113747.304	99297.8
DP3858	P707 REDROCKLAKMT2008	CORS ARP N444307.553	W1115013.738	57731.5
DP4103	IDDU DUBOIS CORS ARP	N441027.078	W1121409.084	111950.6

NEAREST NGS PUBLISHED CONTROL POINT

PY0195	Y 162	N4446000051	W11106000046	95.8
--------	-------	-------------	--------------	------

This position and the above vector components were computed without any knowledge by the National Geodetic Survey regarding the equipment or field operating procedures used.

FILE: 251_32272750.20o OP1603737385736

NGS OPUS SOLUTION REPORT
=====

All computed coordinate accuracies are listed as peak-to-peak values.
For additional information:

<https://nam02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.ngs.noaa.gov%2FOPUS%2Fabout.jsp%23accuracy&data=04%7C01%7Cmichael.zarlengo%40woolpert.com%7C81f8bc35df2347f84de508d879de420f%7C987179e81c49493a88e806d464695b5c%7C0%7C0%7C637393342791800730%7CUnknown%7CTWfpbGZsb3d8eyJWljoimc4wLjAwMDAiLCJQljoiv2luMzliLCJBTil6lk1haWwiLCJXVCI6Mn0%3D%7C1000&sdata=4rS2QYdRKTVCWiT9SvtTRsITJkO6zN1A7Pog1vlf7P0%3D&reserved=0>

USER: michael.zarlengo@woolpert.com DATE: October 26, 2020
RINEX FILE: 251_275t.20o TIME: 18:37:46 UTC

SOFTWARE: page5 2008.25 master97.pl 160321 START: 2020/10/01 19:12:00
EPHEMERIS: igs21254.eph [precise] STOP: 2020/10/01 21:20:00
NAV FILE: brdc2750.20n OBS USED: 5719 / 6135 : 93%
ANT NAME: TRMR8_GNSS3 NONE # FIXED AMB: 42 / 43 : 98%
ARP HEIGHT: 2.000 OVERALL RMS: 0.013(m)

REF FRAME: NAD_83(2011)(EPOCH:2010.0000) ITRF2014 (EPOCH:2020.7509)

X: -1568152.363(m) 0.007(m) -1568153.320(m) 0.007(m)
Y: -4245313.221(m) 0.010(m) -4245311.977(m) 0.010(m)
Z: 4482055.451(m) 0.010(m) 4482055.375(m) 0.010(m)

LAT: 44 54 53.54622 0.011(m) 44 54 53.56357 0.011(m)
E LON: 249 43 35.60858 0.005(m) 249 43 35.54803 0.005(m)
W LON: 110 16 24.39142 0.005(m) 110 16 24.45197 0.005(m)
EL HGT: 1984.740(m) 0.010(m) 1984.095(m) 0.010(m)
ORTHO HGT: 1992.929(m) 0.069(m) [NAVD88 (Computed using GEOID18)]

UTM COORDINATES STATE PLANE COORDINATES
UTM (Zone 12) SPC (4903 WYWC)

Northing (Y) [meters] 4973750.784 491534.083
Easting (X) [meters] 557348.616 479711.138
Convergence [degrees] 0.51300278 -1.07576389
Point Scale 0.99964044 1.00011536
Combined Factor 0.99932946 0.99980424

US NATIONAL GRID DESIGNATOR: 12TWQ5734873750(NAD 83)

BASE STATIONS USED

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
AI5647	MAWY MAWY_EBRY_WY1998	CORS ARP	N445824.319 W1104121.433	33468.9
DK7547	MTSU BOZEMAN	CORS ARP	N453940.376 W1110242.008	102710.6
DP3858	P707 REDROCKLAKMT2008	CORS ARP	N444307.553 W1115013.738	125629.2

NEAREST NGS PUBLISHED CONTROL POINT

PY1048	1 GWM	N445451.000	W1101653.000	632.4
--------	-------	-------------	--------------	-------

This position and the above vector components were computed without any knowledge by the National Geodetic Survey regarding the equipment or field operating procedures used.

FILE: 251_32272761.20o OP1603737409561

NGS OPUS SOLUTION REPORT
=====

All computed coordinate accuracies are listed as peak-to-peak values.
For additional information:

<https://nam02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.ngs.noaa.gov%2FOPUS%2Fabout.jsp%23accuracy&data=04%7C01%7Cmichael.zarlengo%40woolpert.com%7Cf04a15735fee44b895c208d879de4648%7C987179e81c49493a88e806d464695b5c%7C0%7C0%7C637393342862908013%7CUnknown%7CTWFpbGZsb3d8eyJWljoIjoiMC4wLjAwMDAiLCJQIjoiV2luMzliLCJBTil6lk1haWwiLCJXVCi6Mn0%3D%7C1000&data=4fiG GcbJ0guS76rGBh45Jx4Y4bkG6t282ljs3vSQUFw%3D&reserved=0>

USER: michael.zarlengo@woolpert.com DATE: October 26, 2020
RINEX FILE: 251_276s.20o TIME: 18:37:53 UTC

SOFTWARE: page5 2008.25 master70.pl 160321 START: 2020/10/02 18:17:00
EPHEMERIS: igs21255.eph [precise] STOP: 2020/10/02 23:52:00
NAV FILE: brdc2760.20n OBS USED: 15370 / 16691 : 92%
ANT NAME: TRMR8_GNSS3 NONE # FIXED AMB: 68 / 70 : 97%
ARP HEIGHT: 2.000 OVERALL RMS: 0.012(m)

REF FRAME: NAD_83(2011)(EPOCH:2010.0000) ITRF2014 (EPOCH:2020.7538)

X: -1568152.358(m) 0.007(m) -1568153.315(m) 0.007(m)
Y: -4245313.213(m) 0.004(m) -4245311.969(m) 0.004(m)
Z: 4482055.452(m) 0.005(m) 4482055.376(m) 0.005(m)

LAT: 44 54 53.54647 0.006(m) 44 54 53.56382 0.006(m)
E LON: 249 43 35.60869 0.008(m) 249 43 35.54810 0.008(m)
W LON: 110 16 24.39131 0.008(m) 110 16 24.45190 0.008(m)
EL HGT: 1984.735(m) 0.001(m) 1984.089(m) 0.001(m)
ORTHO HGT: 1992.924(m) 0.056(m) [NAVD88 (Computed using GEOID18)]

UTM COORDINATES STATE PLANE COORDINATES
UTM (Zone 12) SPC (4903 WYWC)

Northing (Y) [meters] 4973750.792 491534.091
Easting (X) [meters] 557348.618 479711.141
Convergence [degrees] 0.51300278 -1.07576389
Point Scale 0.99964044 1.00011536
Combined Factor 0.99932947 0.99980424

US NATIONAL GRID DESIGNATOR: 12TWQ5734873750(NAD 83)

BASE STATIONS USED

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
DL7758	P722 YNPBASSRCHMT2005 CORS ARP	N452725.985	W1093415.586	81757.6
DQ9786	MTBR MTBR BRIDGER CORS ARP	N451611.092	W1085451.420	114058.0
DP3858	P707 REDROCKLAKMT2008 CORS ARP	N444307.553	W1115013.738	125629.2

NEAREST NGS PUBLISHED CONTROL POINT

PY1048	1 GWM	N445451.000	W1101653.000	632.4
--------	-------	-------------	--------------	-------

This position and the above vector components were computed without any knowledge by the National Geodetic Survey regarding the equipment or field operating procedures used.

FILE: 252_32272770.20o OP1603737447006

NGS OPUS SOLUTION REPORT
=====

All computed coordinate accuracies are listed as peak-to-peak values.
For additional information:

<https://nam02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.ngs.noaa.gov%2FOPUS%2Fabout.jsp%23accuracy&data=04%7C01%7Cmichael.zarlengo%40woolpert.com%7C6f316ece7bc64746344408d879de5ab9%7C987179e81c49493a88e806d464695b5c%7C0%7C0%7C637393343201634057%7CUnknown%7CTWFpbGZsb3d8eyJWljojMC4wLjAwMDAiLCJQIjojV2luMzliLCJBTil6lk1haWwiLCJXVCi6Mn0%3D%7C1000&sdata=aapiGO5WBc13uDh7lchY6wGfSdjcxLkgqx9yyFsHD0%3D&reserved=0>

USER: michael.zarlengo@woolpert.com DATE: October 26, 2020
RINEX FILE: 252_277t.20o TIME: 18:38:27 UTC

SOFTWARE: page5 2008.25 master93.pl 160321 START: 2020/10/03 19:33:00
EPHEMERIS: igs21256.eph [precise] STOP: 2020/10/03 21:38:00
NAV FILE: brdc2770.20n OBS USED: 6182 / 6321 : 98%
ANT NAME: TRMR8_GNSS3 NONE # FIXED AMB: 43 / 43 : 100%
ARP HEIGHT: 2.000 OVERALL RMS: 0.013(m)

REF FRAME: NAD_83(2011)(EPOCH:2010.0000) ITRF2014 (EPOCH:2020.7564)

X: -1547972.263(m) 0.001(m) -1547973.220(m) 0.001(m)
Y: -4245358.640(m) 0.008(m) -4245357.397(m) 0.008(m)
Z: 4489293.447(m) 0.018(m) 4489293.370(m) 0.018(m)

LAT: 45 0 17.52332 0.007(m) 45 0 17.54078 0.007(m)
E LON: 249 58 0.40955 0.003(m) 249 58 0.34907 0.003(m)
W LON: 110 1 59.59045 0.003(m) 110 1 59.65093 0.003(m)
EL HGT: 2209.591(m) 0.018(m) 2208.942(m) 0.018(m)
ORTHO HGT: 2217.287(m) 0.080(m) [NAVD88 (Computed using GEOID18)]

UTM COORDINATES STATE PLANE COORDINATES
UTM (Zone 12) SPC (2500 MT)

Northing (Y) [meters] 4983945.717 84048.418
Easting (X) [meters] 576190.640 557961.332
Convergence [degrees] 0.68370833 -0.39005278
Point Scale 0.99967138 0.99999708
Combined Factor 0.99932518 0.99965077

US NATIONAL GRID DESIGNATOR: 12TWQ7619083945(NAD 83)

BASE STATIONS USED

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
DK7547	MTSU BOZEMAN CORS ARP	N453940.376	W1110242.008	107787.3
DG9745	MTEI ENGINC CORS ARP	N454447.035	W1083600.736	139287.2
DL7758	P722 YNPBASSRCHMT2005 CORS ARP	N452725.985	W1093415.586	62029.0

NEAREST NGS PUBLISHED CONTROL POINT

QX0620	GWM 93	N450017.000	W1100156.000	80.3
--------	--------	-------------	--------------	------

This position and the above vector components were computed without any knowledge by the National Geodetic Survey regarding the equipment or field operating procedures used.

FILE: 252_32272771.20o OP1603737468792

NGS OPUS SOLUTION REPORT
=====

All computed coordinate accuracies are listed as peak-to-peak values.
For additional information:

<https://nam02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.ngs.noaa.gov%2FOPUS%2Fabout.jsp%23accuracy&data=04%7C01%7Cmichael.zarlengo%40woolpert.com%7C2cf9ca2b7286412ff01308d879de6aee%7C987179e81c49493a88e806d464695b5c%7C0%7C0%7C637393343488295990%7CUnknown%7CTWFpbGZsb3d8eyJWljojMC4wLjAwMDAiLCJQIjojV2luMzliLCJBTil6lk1haWwiLCJXVCi6Mn0%3D%7C1000&sdata=OTxhtzX7olqwLy%2FP9dNUqXDK6h%2Bi%2BaYzcfu9YyFtxw8%3D&reserved=0>

USER: michael.zarlengo@woolpert.com DATE: October 26, 2020
RINEX FILE: 252_277v.20o TIME: 18:38:55 UTC

SOFTWARE: page5 2008.25 master92.pl 160321 START: 2020/10/03 21:42:00
EPHEMERIS: igs21256.eph [precise] STOP: 2020/10/04 00:04:00
NAV FILE: brdc2770.20n OBS USED: 5605 / 6072 : 92%
ANT NAME: TRMR8_GNSS3 NONE # FIXED AMB: 35 / 37 : 95%
ARP HEIGHT: 2.000 OVERALL RMS: 0.014(m)

REF FRAME: NAD_83(2011)(EPOCH:2010.0000) ITRF2014 (EPOCH:2020.7567)

X: -1547972.259(m) 0.008(m) -1547973.216(m) 0.008(m)
Y: -4245358.648(m) 0.011(m) -4245357.405(m) 0.011(m)
Z: 4489293.448(m) 0.006(m) 4489293.371(m) 0.006(m)

LAT: 45 0 17.52322 0.012(m) 45 0 17.54068 0.012(m)
E LON: 249 58 0.40984 0.005(m) 249 58 0.34936 0.005(m)
W LON: 110 1 59.59016 0.005(m) 110 1 59.65064 0.005(m)
EL HGT: 2209.596(m) 0.008(m) 2208.947(m) 0.008(m)
ORTHO HGT: 2217.292(m) 0.076(m) [NAVD88 (Computed using GEOID18)]

UTM COORDINATES STATE PLANE COORDINATES
UTM (Zone 12) SPC (2500 MT)

Northing (Y) [meters] 4983945.714 84048.415
Easting (X) [meters] 576190.646 557961.338
Convergence [degrees] 0.68370833 -0.39005278
Point Scale 0.99967138 0.99999708
Combined Factor 0.99932518 0.99965077

US NATIONAL GRID DESIGNATOR: 12TWQ7619083945(NAD 83)

BASE STATIONS USED

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
AI5647	MAWY MAWY_EBRY_WY1998 CORS ARP	N445824.319	W1104121.433	51874.0
DG9745	MTEI ENGINC CORS ARP	N454447.035	W1083600.736	139287.1
DQ9786	MTBR MTBR BRIDGER CORS ARP	N451611.092	W1085451.420	92834.8

NEAREST NGS PUBLISHED CONTROL POINT

QX0620	GWM 93	N450017.000	W1100156.000	80.3
--------	--------	-------------	--------------	------

This position and the above vector components were computed without any knowledge by the National Geodetic Survey regarding the equipment or field operating procedures used.

FILE: 253_32272780.20o OP1603737547123

NGS OPUS SOLUTION REPORT
=====

All computed coordinate accuracies are listed as peak-to-peak values.
For additional information:

<https://nam02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.ngs.noaa.gov%2FOPUS%2Fabout.jsp%23accuracy&data=04%7C01%7Cmichael.zarlengo%40woolpert.com%7Caeb190a8ce0749a6c7a708d879de975d%7C987179e81c49493a88e806d464695b5c%7C0%7C0%7C637393344228061389%7CUnknown%7CTWFpbGZsb3d8eyJWljiMC4wLjAwMDAiLCJQIjoiV2luMzliLCJBTil6lk1haWwiLCJXVCi6Mn0%3D%7C1000&sdata=c1fxCo1X0ae5477%2FTr1%2F6lxCTXWYvQXFT%2BMoCgTho9c%3D&reserved=0>

USER: michael.zarlengo@woolpert.com DATE: October 26, 2020
RINEX FILE: 253_278t.20o TIME: 18:40:06 UTC

SOFTWARE: page5 2008.25 master93.pl 160321 START: 2020/10/04 19:10:00
EPHEMERIS: igs21260.eph [precise] STOP: 2020/10/04 21:33:00
NAV FILE: brdc2780.20n OBS USED: 7348 / 7849 : 94%
ANT NAME: TRMR8_GNSS3 NONE # FIXED AMB: 47 / 48 : 98%
ARP HEIGHT: 2.000 OVERALL RMS: 0.012(m)

REF FRAME: NAD_83(2011)(EPOCH:2010.0000) ITRF2014 (EPOCH:2020.7591)

X: -1537695.395(m) 0.005(m) -1537696.353(m) 0.005(m)
Y: -4247153.669(m) 0.005(m) -4247152.426(m) 0.005(m)
Z: 4491479.517(m) 0.003(m) 4491479.440(m) 0.003(m)

LAT: 45 1 49.30478 0.006(m) 45 1 49.32232 0.006(m)
E LON: 250 5 49.38446 0.003(m) 250 5 49.32402 0.003(m)
W LON: 109 54 10.61554 0.003(m) 109 54 10.67598 0.003(m)
EL HGT: 2467.616(m) 0.003(m) 2466.966(m) 0.003(m)
ORTHO HGT: 2475.059(m) 0.076(m) [NAVD88 (Computed using GEOID18)]

UTM COORDINATES STATE PLANE COORDINATES
UTM (Zone 12) SPC (2500 MT)

Northing (Y) [meters] 4986908.653 86820.270
Easting (X) [meters] 586418.744 568246.264
Convergence [degrees] 0.77619167 -0.29475833
Point Scale 0.99969183 0.99998191
Combined Factor 0.99930521 0.99959518

US NATIONAL GRID DESIGNATOR: 12TWQ8641886908(NAD 83)

BASE STATIONS USED

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
DL7758	P722 YNPBASSRCHMT2005 CORS ARP	N452725.985	W1093415.586	54152.8
DQ9786	MTBR MTBR BRIDGER CORS ARP	N451611.092	W1085451.420	82208.1
DK7547	MTSU BOZEMAN CORS ARP	N453940.376	W1110242.008	113731.5

NEAREST NGS PUBLISHED CONTROL POINT

PX0471	COOKE	N445839.539	W1095404.885	5859.4
--------	-------	-------------	--------------	--------

This position and the above vector components were computed without any knowledge by the National Geodetic Survey regarding the equipment or field operating procedures used.

FILE: 253_32272781.20o OP1603737566776

NGS OPUS SOLUTION REPORT
=====

All computed coordinate accuracies are listed as peak-to-peak values.
For additional information:

<https://nam02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.ngs.noaa.gov%2FOPUS%2Fabout.jsp%23accuracy&data=02%7C01%7Cmichael.zarlengo%40woolpert.com%7C9af91b5b0db14fd1762508d879dea7c1%7C987179e81c49493a88e806d464695b5c%7C0%7C0%7C637393344485817526&sdata=cWnzBZz%2BNJ5D45zBaxrKls2qWPu2Glb2JqGjafb8w%2Fk%3D&reserved=0>

USER: michael.zarlengo@woolpert.com DATE: October 26, 2020
RINEX FILE: 253_278v.20o TIME: 18:40:36 UTC

SOFTWARE: page5 2008.25 master92.pl 160321 START: 2020/10/04 21:37:00
EPHEMERIS: igs21260.eph [precise] STOP: 2020/10/04 23:46:00
NAV FILE: brdc2780.20n OBS USED: 5843 / 6243 : 94%
ANT NAME: TRMR8_GNSS3 NONE # FIXED AMB: 40 / 41 : 98%
ARP HEIGHT: 2.000 OVERALL RMS: 0.015(m)

REF FRAME: NAD_83(2011)(EPOCH:2010.0000) ITRF2014 (EPOCH:2020.7594)

X: -1537695.393(m) 0.002(m) -1537696.351(m) 0.002(m)
Y: -4247153.660(m) 0.005(m) -4247152.417(m) 0.005(m)
Z: 4491479.500(m) 0.007(m) 4491479.423(m) 0.007(m)

LAT: 45 1 49.30460 0.007(m) 45 1 49.32214 0.007(m)
E LON: 250 5 49.38439 0.002(m) 250 5 49.32395 0.002(m)
W LON: 109 54 10.61561 0.002(m) 109 54 10.67605 0.002(m)
EL HGT: 2467.597(m) 0.004(m) 2466.947(m) 0.004(m)
ORTHO HGT: 2475.040(m) 0.079(m) [NAVD88 (Computed using GEOID18)]

UTM COORDINATES STATE PLANE COORDINATES

UTM (Zone 12) SPC (2500 MT)
Northing (Y) [meters] 4986908.647 86820.265
Easting (X) [meters] 586418.742 568246.263
Convergence [degrees] 0.77619167 -0.29475833
Point Scale 0.99969183 0.99998191
Combined Factor 0.99930521 0.99959518

US NATIONAL GRID DESIGNATOR: 12TWQ8641886908(NAD 83)

BASE STATIONS USED

PID DESIGNATION LATITUDE LONGITUDE DISTANCE(m)

DQ9786 MTBR MTBR BRIDGER CORS ARP N451611.092 W1085451.420 82208.1
DG9745 MTEI ENGINC CORS ARP N454447.035 W1083600.736 129426.2
DK7547 MTSU BOZEMAN CORS ARP N453940.376 W1110242.008 113731.5

NEAREST NGS PUBLISHED CONTROL POINT

PX0471 COOKE N445839.539 W1095404.885 5859.4

This position and the above vector components were computed without any knowledge by the National Geodetic Survey regarding the equipment or field operating procedures used.

FILE: 253_32272790.20o OP1603737589020

NGS OPUS SOLUTION REPORT
=====

All computed coordinate accuracies are listed as peak-to-peak values.
For additional information:

<https://nam02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.ngs.noaa.gov%2FOPUS%2Fabout.jsp%23accuracy&data=04%7C01%7Cmichael.zarlengo%40woolpert.com%7C5ea760659cbd4db1040b08d879debbf7%7C987179e81c49493a88e806d464695b5c%7C0%7C0%7C637393344892603135%7CUnknown%7CTWFPbGZsb3d8eyJWljoimc4wLjAwMDAiLCJQljoiv2luMzliLCJBTil6lk1haWwiLCJXVCI6Mn0%3D%7C1000&data=bCxGER%2FlctNNSDBimuN%2FtfcTJwzeL4YYNyeXwXRznOQ%3D&reserved=0>

USER: michael.zarlengo@woolpert.com DATE: October 26, 2020
RINEX FILE: 253_279u.20o TIME: 18:41:09 UTC

SOFTWARE: page5 2008.25 master90.pl 160321 START: 2020/10/05 20:37:00
EPHEMERIS: igs21261.eph [precise] STOP: 2020/10/06 00:02:00
NAV FILE: brdc2790.20n OBS USED: 9494 / 10238 : 93%
ANT NAME: TRMR8_GNSS3 NONE # FIXED AMB: 66 / 69 : 96%
ARP HEIGHT: 2.000 OVERALL RMS: 0.014(m)

REF FRAME: NAD_83(2011)(EPOCH:2010.0000) ITRF2014 (EPOCH:2020.7621)

X: -1537695.399(m) 0.008(m) -1537696.357(m) 0.008(m)
Y: -4247153.673(m) 0.018(m) -4247152.430(m) 0.018(m)
Z: 4491479.514(m) 0.014(m) 4491479.437(m) 0.014(m)

LAT: 45 1 49.30457 0.006(m) 45 1 49.32214 0.006(m)
E LON: 250 5 49.38436 0.001(m) 250 5 49.32391 0.001(m)
W LON: 109 54 10.61564 0.001(m) 109 54 10.67609 0.001(m)
EL HGT: 2467.617(m) 0.023(m) 2466.967(m) 0.023(m)
ORTHO HGT: 2475.060(m) 0.077(m) [NAVD88 (Computed using GEOID18)]

UTM COORDINATES STATE PLANE COORDINATES
UTM (Zone 12) SPC (2500 MT)

Northing (Y) [meters] 4986908.646 86820.264
Easting (X) [meters] 586418.741 568246.262
Convergence [degrees] 0.77619167 -0.29475833
Point Scale 0.99969183 0.99998191
Combined Factor 0.99930521 0.99959518

US NATIONAL GRID DESIGNATOR: 12TWQ8641886908(NAD 83)

BASE STATIONS USED

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
DL7758	P722 YNPBASSRCHMT2005 CORS ARP	N452725.985	W1093415.586	54152.8
DG9745	MTEI ENGINC CORS ARP	N454447.035	W1083600.736	129426.2
DK7547	MTSU BOZEMAN CORS ARP	N453940.376	W1110242.008	113731.5

NEAREST NGS PUBLISHED CONTROL POINT

PX0471	COOKE	N445839.539	W1095404.885	5859.4
--------	-------	-------------	--------------	--------

This position and the above vector components were computed without any knowledge by the National Geodetic Survey regarding the equipment or field operating procedures used.

FILE: 254_32272800.20o OP1603737627994

NGS OPUS SOLUTION REPORT
=====

All computed coordinate accuracies are listed as peak-to-peak values.
For additional information:

<https://nam02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.ngs.noaa.gov%2FOPUS%2Fabout.jsp%23accuracy&data=04%7C01%7Cmichael.zarlengo%40woolpert.com%7C4d658480ae4a4e02b37908d879deddf7%7C987179e81c49493a88e806d464695b5c%7C0%7C0%7C637393345421700624%7CUnknown%7CTWfpbGZsb3d8eyJWljoimc4wLjAwMDAiLCJQljoiv2luMzliLCJBTil6lk1haWwiLCJXVCI6Mn0%3D%7C1000&sdata=pz2iQ%2FMyK11bCTOw5LQyIUzDQZFkelUhg7T66laYa%2BA%3D&reserved=0>

USER: michael.zarlengo@woolpert.com DATE: October 26, 2020
RINEX FILE: 254_280u.20o TIME: 18:42:06 UTC

SOFTWARE: page5 2008.25 master97.pl 160321 START: 2020/10/06 20:07:00
EPHEMERIS: igs21262.eph [precise] STOP: 2020/10/07 01:00:00
NAV FILE: brdc2800.20n OBS USED: 10957 / 11713 : 94%
ANT NAME: TRMR8_GNSS3 NONE # FIXED AMB: 65 / 71 : 92%
ARP HEIGHT: 2.000 OVERALL RMS: 0.015(m)

REF FRAME: NAD_83(2011)(EPOCH:2010.0000) ITRF2014 (EPOCH:2020.7648)

X: -1600725.280(m) 0.002(m) -1600726.235(m) 0.002(m)
Y: -4216258.248(m) 0.005(m) -4216257.009(m) 0.005(m)
Z: 4497229.185(m) 0.010(m) 4497229.112(m) 0.010(m)

LAT: 45 6 42.50333 0.009(m) 45 6 42.52043 0.009(m)
E LON: 249 12 37.66669 0.003(m) 249 12 37.60574 0.003(m)
W LON: 110 47 22.33331 0.003(m) 110 47 22.39426 0.003(m)
EL HGT: 1557.249(m) 0.005(m) 1556.619(m) 0.005(m)
ORTHO HGT: 1566.081(m) 0.059(m) [NAVD88 (Computed using GEOID18)]

UTM COORDINATES STATE PLANE COORDINATES
UTM (Zone 12) SPC (2500 MT)

Northing (Y) [meters] 4995392.347 96624.626
Easting (X) [meters] 516555.409 498533.232
Convergence [degrees] 0.14911111 -0.94330278
Point Scale 0.99960337 0.99993473
Combined Factor 0.99935937 0.99969065

US NATIONAL GRID DESIGNATOR: 12TWQ1655595392(NAD 83)

BASE STATIONS USED

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
DK7547	MTSU BOZEMAN CORS ARP	N453940.376	W1110242.008	64270.1
AI5647	MAWY MAWY_EBRY_WY1998 CORS ARP	N445824.319	W1104121.433	17295.4
DP3858	P707 REDROCKLAKMT2008 CORS ARP	N444307.553	W1115013.738	93575.2

NEAREST NGS PUBLISHED CONTROL POINT

QX0574	P 565	N450651.000	W1104723.000	262.7
--------	-------	-------------	--------------	-------

This position and the above vector components were computed without any knowledge by the National Geodetic Survey regarding the equipment or field operating procedures used.

FILE: 254_32272810.20o OP1603737704028

NGS OPUS SOLUTION REPORT
=====

All computed coordinate accuracies are listed as peak-to-peak values.
For additional information:

<https://nam02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.ngs.noaa.gov%2FOPUS%2Fabout.jsp%23accuracy&data=04%7C01%7Cmichael.zarlengo%40woolpert.com%7C16dbcce2fedd456ee28f08d879def7c1%7C987179e81c49493a88e806d464695b5c%7C0%7C0%7C637393345831461470%7CUnknown%7CTWFpbGZsb3d8eyJWljojMC4wLjAwMDAiLCJQIjojV2luMzliLCJBTil6lk1haWwiLCJXVCi6Mn0%3D%7C1000&sdata=r5N1vj6Ow9VVsp6WIHlKPnNDprGycYFbhoBX5dhtOuw%3D&reserved=0>

USER: michael.zarlengo@woolpert.com DATE: October 26, 2020
RINEX FILE: 254_281r.20o TIME: 18:42:48 UTC

SOFTWARE: page5 2008.25 master92.pl 160321 START: 2020/10/07 17:40:00
EPHEMERIS: igs21263.eph [precise] STOP: 2020/10/07 21:58:00
NAV FILE: brdc2810.20n OBS USED: 11155 / 12075 : 92%
ANT NAME: TRMR8_GNSS3 NONE # FIXED AMB: 67 / 70 : 96%
ARP HEIGHT: 2.000 OVERALL RMS: 0.014(m)

REF FRAME: NAD_83(2011)(EPOCH:2010.0000) ITRF2014 (EPOCH:2020.7673)

X: -1600725.284(m) 0.013(m) -1600726.239(m) 0.013(m)
Y: -4216258.248(m) 0.011(m) -4216257.009(m) 0.011(m)
Z: 4497229.208(m) 0.012(m) 4497229.135(m) 0.012(m)

LAT: 45 6 42.50380 0.007(m) 45 6 42.52093 0.007(m)
E LON: 249 12 37.66651 0.009(m) 249 12 37.60556 0.009(m)
W LON: 110 47 22.33349 0.009(m) 110 47 22.39444 0.009(m)
EL HGT: 1557.266(m) 0.018(m) 1556.636(m) 0.018(m)
ORTHO HGT: 1566.098(m) 0.063(m) [NAVD88 (Computed using GEOID18)]

UTM COORDINATES STATE PLANE COORDINATES
UTM (Zone 12) SPC (2500 MT)
Northing (Y) [meters] 4995392.362 96624.640
Easting (X) [meters] 516555.405 498533.228
Convergence [degrees] 0.14911111 -0.94330278
Point Scale 0.99960337 0.99993473
Combined Factor 0.99935937 0.99969065

US NATIONAL GRID DESIGNATOR: 12TWQ1655595392(NAD 83)

BASE STATIONS USED

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
AI5647	MAWY MAWY_EBRY_WY1998	CORS ARP	N445824.319 W1104121.433	17295.4
DL7705	NOMT NOMT_EBRY_MT1999	CORS ARP	N453548.888 W1113747.304	85119.5
DP3858	P707 REDROCKLAKMT2008	CORS ARP	N444307.553 W1115013.738	93575.2

NEAREST NGS PUBLISHED CONTROL POINT

QX0574	P 565	N450651.000	W1104723.000	262.7
--------	-------	-------------	--------------	-------

This position and the above vector components were computed without any knowledge by the National Geodetic Survey regarding the equipment or field operating procedures used.

FILE: 255_32272822.20o OP1603738794512

NGS OPUS SOLUTION REPORT
=====

All computed coordinate accuracies are listed as peak-to-peak values.
For additional information:

<https://nam02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.ngs.noaa.gov%2FOPUS%2Fabout.jsp%23accuracy&data=04%7C01%7Cmichael.zarlengo%40woolpert.com%7Cd971e8f9dd544deb64f708d879e1872a%7C987179e81c49493a88e806d464695b5c%7C0%7C0%7C637393356837887544%7CUnknown%7CTWFpbGZsb3d8eyJWljiMC4wLjAwMDAiLCJQIjoiV2luMzliLCJBTil6lk1haWwiLCJXVCi6Mn0%3D%7C1000&sdata=wyCWWxEpQyYnFb1TP6jUQu2Rg1Kv1eMlclT7jU2Whng%3D&reserved=0>

USER: michael.zarlengo@woolpert.com DATE: October 26, 2020
RINEX FILE: 255_282v.20o TIME: 19:01:08 UTC

SOFTWARE: page5 2008.25 master94.pl 160321 START: 2020/10/08 21:49:00
EPHEMERIS: igs21264.eph [precise] STOP: 2020/10/09 00:43:00
NAV FILE: brdc2820.20n OBS USED: 7625 / 7984 : 96%
ANT NAME: TRMR8_GNSS3 NONE # FIXED AMB: 51 / 54 : 94%
ARP HEIGHT: 2.000 OVERALL RMS: 0.013(m)

REF FRAME: NAD_83(2011)(EPOCH:2010.0000) ITRF2014 (EPOCH:2020.7704)

X: -1611370.370(m) 0.006(m) -1611371.324(m) 0.006(m)
Y: -4207417.459(m) 0.014(m) -4207416.221(m) 0.014(m)
Z: 4502071.452(m) 0.016(m) 4502071.379(m) 0.016(m)

LAT: 45 10 15.67636 0.001(m) 45 10 15.69338 0.001(m)
E LON: 249 2 38.39132 0.005(m) 249 2 38.33027 0.005(m)
W LON: 110 57 21.60868 0.005(m) 110 57 21.66973 0.005(m)
EL HGT: 1838.266(m) 0.022(m) 1837.640(m) 0.022(m)
ORTHO HGT: 1847.091(m) 0.067(m) [NAVD88 (Computed using GEOID18)]

UTM COORDINATES STATE PLANE COORDINATES
UTM (Zone 12) SPC (2500 MT)

Northing (Y) [meters] 5001949.916 103433.316
Easting (X) [meters] 503457.352 485558.698
Convergence [degrees] 0.03120278 -1.06507222
Point Scale 0.99960015 0.99990165
Combined Factor 0.99931214 0.99961355

US NATIONAL GRID DESIGNATOR: 12TWR0345701949(NAD 83)

BASE STATIONS USED

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
DP3858	P707 REDROCKLAKMT2008	CORS ARP	N444307.553 W1115013.738	85830.5
DL7758	P722 YNPBASSRCHMT2005	CORS ARP	N452725.985 W1093415.586	113193.5
DK7547	MTSU BOZEMAN	CORS ARP	N453940.376 W1110242.008	54939.0

NEAREST NGS PUBLISHED CONTROL POINT

QX0087	V 32	N4511000007	W11053000042	5037.5
--------	------	-------------	--------------	--------

This position and the above vector components were computed without any knowledge by the National Geodetic Survey regarding the equipment or field operating procedures used.

FILE: 255_32272831.20o OP1603738822318

NGS OPUS SOLUTION REPORT
=====

All computed coordinate accuracies are listed as peak-to-peak values.
For additional information:

<https://nam02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.ngs.noaa.gov%2FOPUS%2Fabout.jsp%23accuracy&data=04%7C01%7Cmichael.zarlengo%40woolpert.com%7Cef0d5bd607334dd5c3e608d879e1806b%7C987179e81c49493a88e806d464695b5c%7C0%7C0%7C637393356736821745%7CUnknown%7CTWFpbGZsb3d8eyJWljiMC4wLjAwMDAiLCJQIjoiV2luMzliLCJBTil6lk1haWwiLCJXVCi6Mn0%3D%7C1000&data=AnDUUJP8XvH4MeMPCtaJ5Yq2aAdxImScrxV0GTnqlQ8%3D&reserved=0>

USER: michael.zarlengo@woolpert.com DATE: October 26, 2020
RINEX FILE: 255_283s.20o TIME: 19:00:59 UTC

SOFTWARE: page5 2008.25 master70.pl 160321 START: 2020/10/09 18:04:00
EPHEMERIS: igs21265.eph [precise] STOP: 2020/10/09 20:20:00
NAV FILE: brdc2830.20n OBS USED: 6927 / 7134 : 97%
ANT NAME: TRMR8_GNSS3 NONE # FIXED AMB: 32 / 33 : 97%
ARP HEIGHT: 2.000 OVERALL RMS: 0.011(m)

REF FRAME: NAD_83(2011)(EPOCH:2010.0000) ITRF2014 (EPOCH:2020.7727)

X: -1611370.375(m) 0.003(m) -1611371.329(m) 0.003(m)
Y: -4207417.480(m) 0.005(m) -4207416.242(m) 0.005(m)
Z: 4502071.472(m) 0.006(m) 4502071.399(m) 0.006(m)

LAT: 45 10 15.67632 0.005(m) 45 10 15.69335 0.005(m)
E LON: 249 2 38.39147 0.003(m) 249 2 38.33041 0.003(m)
W LON: 110 57 21.60853 0.003(m) 110 57 21.66959 0.003(m)
EL HGT: 1838.295(m) 0.007(m) 1837.669(m) 0.007(m)
ORTHO HGT: 1847.120(m) 0.066(m) [NAVD88 (Computed using GEOID18)]

UTM COORDINATES STATE PLANE COORDINATES
UTM (Zone 12) SPC (2500 MT)

Northing (Y) [meters] 5001949.915 103433.314
Easting (X) [meters] 503457.355 485558.701
Convergence [degrees] 0.03120278 -1.06507222
Point Scale 0.99960015 0.99990165
Combined Factor 0.99931213 0.99961355

US NATIONAL GRID DESIGNATOR: 12TWR0345701949(NAD 83)

BASE STATIONS USED

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
DL7705	NOMT NOMT_EBRY_MT1999	CORS ARP	N453548.888 W1113747.304	70907.7
DL7758	P722 YNPBASSRCHMT2005	CORS ARP	N452725.985 W1093415.586	113193.5
DP3858	P707 REDROCKLAKMT2008	CORS ARP	N444307.553 W1115013.738	85830.5

NEAREST NGS PUBLISHED CONTROL POINT

QX0087	V 32	N4511000007	W11053000042	5037.5
--------	------	-------------	--------------	--------

This position and the above vector components were computed without any knowledge by the National Geodetic Survey regarding the equipment or field operating procedures used.

FILE: 256_32272860.20o OP1605015804966

NGS OPUS SOLUTION REPORT
=====

All computed coordinate accuracies are listed as peak-to-peak values.
For additional information:

<https://nam02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.ngs.noaa.gov%2FOPUS%2Fabout.jsp%23accuracy&data=04%7C01%7Cmichael.zarlengo%40woolpert.com%7C49c0495cb1e84290890508d8857ec128%7C987179e81c49493a88e806d464695b5c%7C0%7C0%7C637406126750764637%7CUnknown%7CTWfpbGZsb3d8eyJWljoimc4wLjAwMDAiLCJQljoiv2luMzliLCJBTil6lk1haWwiLCJXVCI6Mn0%3D%7C1000&odata=HlzQZOfrWV7clv6vcJUnrDV66SHw8NXd%2F0RCADunOfQ%3D&reserved=0>

USER: michael.zarlengo@woolpert.com DATE: November 10, 2020
RINEX FILE: 256_286u.20o TIME: 13:44:21 UTC

SOFTWARE: page5 2008.25 master57.pl 160321 START: 2020/10/12 20:10:00
EPHEMERIS: igs21271.eph [precise] STOP: 2020/10/13 00:35:00
NAV FILE: brdc2860.20n OBS USED: 11586 / 12492 : 93%
ANT NAME: TRMR8_GNSS3 NONE # FIXED AMB: 76 / 87 : 87%
ARP HEIGHT: 2.000 OVERALL RMS: 0.017(m)

REF FRAME: NAD_83(2011)(EPOCH:2010.0000) ITRF2014 (EPOCH:2020.7812)

X: -1578016.866(m) 0.003(m) -1578017.817(m) 0.003(m)
Y: -4193220.898(m) 0.012(m) -4193219.664(m) 0.012(m)
Z: 4526347.663(m) 0.011(m) 4526347.593(m) 0.011(m)

LAT: 45 29 6.66575 0.011(m) 45 29 6.68310 0.011(m)
E LON: 249 22 38.60566 0.007(m) 249 22 38.54467 0.007(m)
W LON: 110 37 21.39434 0.007(m) 110 37 21.45533 0.007(m)
EL HGT: 1448.252(m) 0.012(m) 1447.627(m) 0.012(m)
ORTHO HGT: 1457.992(m) 0.057(m) [NAVD88 (Computed using GEOID18)]

UTM COORDINATES STATE PLANE COORDINATES
UTM (Zone 12) SPC (2500 MT)
Northing (Y) [meters] 5036919.855 137907.684
Easting (X) [meters] 529492.037 512261.526
Convergence [degrees] 0.26910833 -0.82119444
Point Scale 0.99961069 0.99974342
Combined Factor 0.99938378 0.99951648

US NATIONAL GRID DESIGNATOR: 12TWR2949236919(NAD 83)

BASE STATIONS USED

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
DK7547	MTSU BOZEMAN CORS ARP	N453940.376	W1110242.008	38347.2
DL7705	NOMT NOMT_EBRY_MT1999 CORS ARP	N453548.888	W1113747.304	79655.4
DL7758	P722 YNPBASSRCHMT2005 CORS ARP	N452725.985	W1093415.586	82310.2

NEAREST NGS PUBLISHED CONTROL POINT

QX0051	P 155	N452854.000	W1103727.000	409.5
--------	-------	-------------	--------------	-------

This position and the above vector components were computed without any knowledge by the National Geodetic Survey regarding the equipment or field operating procedures used.

FILE: 256_32272870.20o OP1605015838368

NGS OPUS SOLUTION REPORT
=====

All computed coordinate accuracies are listed as peak-to-peak values.
For additional information:

<https://nam02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.ngs.noaa.gov%2FOPUS%2Fabout.jsp%23accuracy&data=04%7C01%7Cmichael.zarlengo%40woolpert.com%7C4c9529156dee41ba863a08d8857ee5ae%7C987179e81c49493a88e806d464695b5c%7C0%7C0%7C637406127368970318%7CUnknown%7CTWFpbGZsb3d8eyJWljiMC4wLjAwMDAiLCJQIjoiV2luMzliLCJBTil6lk1haWwiLCJXVCi6Mn0%3D%7C1000&sdata=1OSuqIJEpl%2FJtcMa7g3VgQ4oZwXSu0L9oj%2BZGILwZu4%3D&reserved=0>

USER: michael.zarlengo@woolpert.com DATE: November 10, 2020
RINEX FILE: 256_287s.20o TIME: 13:45:22 UTC

SOFTWARE: page5 2008.25 master75.pl 160321 START: 2020/10/13 18:24:00
EPHEMERIS: igs21272.eph [precise] STOP: 2020/10/14 00:01:00
NAV FILE: brdc2870.20n OBS USED: 15982 / 16693 : 96%
ANT NAME: TRMR8_GNSS3 NONE # FIXED AMB: 83 / 86 : 97%
ARP HEIGHT: 2.000 OVERALL RMS: 0.015(m)

REF FRAME: NAD_83(2011)(EPOCH:2010.0000) ITRF2014 (EPOCH:2020.7838)

X: -1578016.872(m) 0.004(m) -1578017.823(m) 0.004(m)
Y: -4193220.917(m) 0.015(m) -4193219.683(m) 0.015(m)
Z: 4526347.690(m) 0.009(m) 4526347.620(m) 0.009(m)

LAT: 45 29 6.66589 0.004(m) 45 29 6.68324 0.004(m)
E LON: 249 22 38.60569 0.009(m) 249 22 38.54471 0.009(m)
W LON: 110 37 21.39431 0.009(m) 110 37 21.45529 0.009(m)
EL HGT: 1448.285(m) 0.015(m) 1447.660(m) 0.015(m)
ORTHO HGT: 1458.025(m) 0.055(m) [NAVD88 (Computed using GEOID18)]

UTM COORDINATES STATE PLANE COORDINATES
UTM (Zone 12) SPC (2500 MT)
Northing (Y) [meters] 5036919.859 137907.688
Easting (X) [meters] 529492.038 512261.527
Convergence [degrees] 0.26910833 -0.82119444
Point Scale 0.99961069 0.99974342
Combined Factor 0.99938377 0.99951647

US NATIONAL GRID DESIGNATOR: 12TWR2949236919(NAD 83)

BASE STATIONS USED

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
DL7758	P722 YNPBASSRCHMT2005	CORS ARP	N452725.985 W1093415.586	82310.2
DP3858	P707 REDROCKLAKMT2008	CORS ARP	N444307.553 W1115013.738	128069.6
AI5647	MAWY MAWY_EBRY_WY1998	CORS ARP	N445824.319 W1104121.433	57131.7

NEAREST NGS PUBLISHED CONTROL POINT

QX0051	P 155	N452854.000	W1103727.000	409.5
--------	-------	-------------	--------------	-------

This position and the above vector components were computed without any knowledge by the National Geodetic Survey regarding the equipment or field operating procedures used.

FILE: 256_32272880.20o OP1605015867651

NGS OPUS SOLUTION REPORT
=====

All computed coordinate accuracies are listed as peak-to-peak values.
For additional information:

<https://nam02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.ngs.noaa.gov%2FOPUS%2Fabout.jsp%23accuracy&data=04%7C01%7Cmichael.zarlengo%40woolpert.com%7Cbc0c9a0d8cb54f394c7e08d8857efad1%7C987179e81c49493a88e806d464695b5c%7C0%7C0%7C637406127732148252%7CUnknown%7CTWfpbGZsb3d8eyJWljoimc4wLjAwMDAiLCJQljoiv2luMzliLCJBTil6lk1haWwiLCJXVCI6Mn0%3D%7C1000&reserved=0>

USER: michael.zarlengo@woolpert.com DATE: November 10, 2020
RINEX FILE: 256_288t.20o TIME: 13:45:57 UTC

SOFTWARE: page5 2008.25 master94.pl 160321 START: 2020/10/14 19:30:00
EPHEMERIS: igs21273.eph [precise] STOP: 2020/10/15 01:11:00
NAV FILE: brdc2880.20n OBS USED: 15264 / 15989 : 95%
ANT NAME: TRMR8_GNSS3 NONE # FIXED AMB: 85 / 91 : 93%
ARP HEIGHT: 2.000 OVERALL RMS: 0.015(m)

REF FRAME: NAD_83(2011)(EPOCH:2010.0000) ITRF2014 (EPOCH:2020.7867)

X: -1578016.870(m) 0.004(m) -1578017.821(m) 0.004(m)
Y: -4193220.907(m) 0.005(m) -4193219.673(m) 0.005(m)
Z: 4526347.680(m) 0.005(m) 4526347.610(m) 0.005(m)

LAT: 45 29 6.66589 0.006(m) 45 29 6.68324 0.006(m)
E LON: 249 22 38.60562 0.005(m) 249 22 38.54464 0.005(m)
W LON: 110 37 21.39438 0.005(m) 110 37 21.45536 0.005(m)
EL HGT: 1448.271(m) 0.002(m) 1447.646(m) 0.002(m)
ORTHO HGT: 1458.011(m) 0.052(m) [NAVD88 (Computed using GEOID18)]

UTM COORDINATES STATE PLANE COORDINATES
UTM (Zone 12) SPC (2500 MT)
Northing (Y) [meters] 5036919.859 137907.688
Easting (X) [meters] 529492.037 512261.526
Convergence [degrees] 0.26910833 -0.82119444
Point Scale 0.99961069 0.99974342
Combined Factor 0.99938377 0.99951647

US NATIONAL GRID DESIGNATOR: 12TWR2949236919(NAD 83)

BASE STATIONS USED

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
DL7758	P722 YNPBASSRCHMT2005	CORS ARP	N452725.985 W1093415.586	82310.2
DP3858	P707 REDROCKLAKMT2008	CORS ARP	N444307.553 W1115013.738	128069.6
DL7705	NOMT NOMT_EBRY_MT1999	CORS ARP	N453548.888 W1113747.304	79655.4

NEAREST NGS PUBLISHED CONTROL POINT

QX0051	P 155	N452854.000	W1103727.000	409.5
--------	-------	-------------	--------------	-------

This position and the above vector components were computed without any knowledge by the National Geodetic Survey regarding the equipment or field operating procedures used.

FILE: 257_32272890.20o OP1605015913537

NGS OPUS SOLUTION REPORT
=====

All computed coordinate accuracies are listed as peak-to-peak values.

For additional information:

<https://nam02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.ngs.noaa.gov%2FOPUS%2Fabout.jsp%23accuracy&data=04%7C01%7Cmichael.zarlengo%40woolpert.com%7C2142437db3ad4cb29a4f08d8857ef6b7%7C987179e81c49493a88e806d464695b5c%7C0%7C0%7C637406127650331693%7CUnknown%7CTWfpbGZsb3d8eyJWljoimc4wLjAwMDAiLCJQljoiv2luMzliLCJBTil6lk1haWwiLCJXVCI6Mn0%3D%7C1000&sdata=3gNH%2BwYRxNXkSlz8xLE5LT8pZVt1kkov%2B%2Bzg0%2FMCTJo%3D&reserved=0>

USER: michael.zarlengo@woolpert.com DATE: November 10, 2020
RINEX FILE: 257_289t.20o TIME: 13:45:50 UTC

SOFTWARE: page5 2008.25 master90.pl 160321 START: 2020/10/15 19:33:00
EPHEMERIS: igs21274.eph [precise] STOP: 2020/10/15 21:48:00
NAV FILE: brdc2890.20n OBS USED: 6416 / 6652 : 96%
ANT NAME: TRMR8_GNSS3 NONE # FIXED AMB: 44 / 45 : 98%
ARP HEIGHT: 2.000 OVERALL RMS: 0.014(m)

REF FRAME: NAD_83(2011)(EPOCH:2010.0000) ITRF2014 (EPOCH:2020.7892)

X: -1581343.632(m) 0.007(m) -1581344.586(m) 0.007(m)
Y: -4202889.267(m) 0.026(m) -4202888.032(m) 0.026(m)
Z: 4516472.948(m) 0.024(m) 4516472.875(m) 0.024(m)

LAT: 45 21 26.46133 0.002(m) 45 21 26.47858 0.002(m)
E LON: 249 22 52.00514 0.003(m) 249 22 51.94416 0.003(m)
W LON: 110 37 7.99486 0.003(m) 110 37 8.05584 0.003(m)
EL HGT: 1588.319(m) 0.036(m) 1587.691(m) 0.036(m)
ORTHO HGT: 1597.675(m) 0.077(m) [NAVD88 (Computed using GEOID18)]

UTM COORDINATES STATE PLANE COORDINATES
UTM (Zone 12) SPC (2500 MT)

Northing (Y) [meters] 5022719.380 123700.655
Easting (X) [meters] 529850.196 512349.507
Convergence [degrees] 0.27116389 -0.81847222
Point Scale 0.99961096 0.99980430
Combined Factor 0.99936210 0.99955539

US NATIONAL GRID DESIGNATOR: 12TWR2985022719(NAD 83)

BASE STATIONS USED

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
DP3858	P707 REDROCKLAKMT2008	CORS ARP	N444307.553 W1115013.738	119411.7
DL7705	NOMT NOMT_EBRY_MT1999	CORS ARP	N453548.888 W1113747.304	83426.7
DL7758	P722 YNPBASSRCHMT2005	CORS ARP	N452725.985 W1093415.586	82801.5

NEAREST NGS PUBLISHED CONTROL POINT

QX0696	ARROW	N452007.275	W1103311.667	5696.0
--------	-------	-------------	--------------	--------

This position and the above vector components were computed without any knowledge by the National Geodetic Survey regarding the equipment or field operating procedures used.

FILE: 257_32272891.20o OP1605015953108

NGS OPUS SOLUTION REPORT
=====

All computed coordinate accuracies are listed as peak-to-peak values.

For additional information:

<https://nam02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.ngs.noaa.gov%2FOPUS%2Fabout.jsp%23accuracy&data=04%7C01%7Cmichael.zarlengo%40woolpert.com%7Cf778aca531ac451b1b3e08d8857f144a%7C987179e81c49493a88e806d464695b5c%7C0%7C0%7C637406128139993523%7CUnknown%7CTWFpbGZsb3d8eyJWljoijMc4wLjAwMDAiLCJQIjoiV2luMzliLCJBTil6lk1haWwiLCJXVCi6Mn0%3D%7C1000&sd=QGZjOhCS4YLF5Y19zMOYueHnA7d1NcxS49H%2Bp1811gU%3D&reserved=0>

USER: michael.zarlengo@woolpert.com DATE: November 10, 2020
RINEX FILE: 257_289v.20o TIME: 13:46:41 UTC

SOFTWARE: page5 2008.25 master57.pl 160321 START: 2020/10/15 21:51:00
EPHEMERIS: igs21274.eph [precise] STOP: 2020/10/16 00:35:00
NAV FILE: brdc2890.20n OBS USED: 6971 / 7353 : 95%
ANT NAME: TRMR8_GNSS3 NONE # FIXED AMB: 42 / 46 : 91%
ARP HEIGHT: 2.000 OVERALL RMS: 0.013(m)

REF FRAME: NAD_83(2011)(EPOCH:2010.0000) ITRF2014 (EPOCH:2020.7895)

X: -1581343.641(m) 0.004(m) -1581344.595(m) 0.004(m)
Y: -4202889.283(m) 0.018(m) -4202888.048(m) 0.018(m)
Z: 4516472.956(m) 0.009(m) 4516472.883(m) 0.009(m)

LAT: 45 21 26.46112 0.007(m) 45 21 26.47832 0.007(m)
E LON: 249 22 52.00500 0.005(m) 249 22 51.94402 0.005(m)
W LON: 110 37 7.99500 0.005(m) 110 37 8.05598 0.005(m)
EL HGT: 1588.338(m) 0.019(m) 1587.710(m) 0.019(m)
ORTHO HGT: 1597.694(m) 0.064(m) [NAVD88 (Computed using GEOID18)]

UTM COORDINATES STATE PLANE COORDINATES
UTM (Zone 12) SPC (2500 MT)

Northing (Y) [meters] 5022719.374 123700.648
Easting (X) [meters] 529850.192 512349.504
Convergence [degrees] 0.27116389 -0.81847222
Point Scale 0.99961096 0.99980430
Combined Factor 0.99936210 0.99955539

US NATIONAL GRID DESIGNATOR: 12TWR2985022719(NAD 83)

BASE STATIONS USED

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
DP3858	P707 REDROCKLAKMT2008	CORS ARP	N444307.553 W1115013.738	119411.7
DK7547	MTSU BOZEMAN	CORS ARP	N453940.376 W1110242.008	47438.8
DL7758	P722 YNPBASSRCHMT2005	CORS ARP	N452725.985 W1093415.586	82801.5

NEAREST NGS PUBLISHED CONTROL POINT

QX0696	ARROW	N452007.275	W1103311.667	5696.0
--------	-------	-------------	--------------	--------

This position and the above vector components were computed without any knowledge by the National Geodetic Survey regarding the equipment or field operating procedures used.

FILE: 258_32272940.20o OP1605018280936

NGS OPUS SOLUTION REPORT
=====

All computed coordinate accuracies are listed as peak-to-peak values.
For additional information:

<https://nam02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.ngs.noaa.gov%2FOPUS%2Fabout.jsp%23accuracy&data=04%7C01%7Cmichael.zarlengo%40woolpert.com%7C893d9e1ceaa44cd7801108d885848c89%7C987179e81c49493a88e806d464695b5c%7C0%7C0%7C637406151630662711%7CUnknown%7CTWfPbGZsb3d8eyJWljoimC4wLjAwMDAiLCJQljoiv2luMzliLCJBTil6lk1haWwiLCJXVCI6Mn0%3D%7C1000&sdata=llklBMzii2ZeN5QHnrjqE%2FY1ZgxPdwZEJeHiRgskvU%3D&reserved=0>

USER: michael.zarlengo@woolpert.com DATE: November 10, 2020
RINEX FILE: 258_294s.20o TIME: 14:25:50 UTC

SOFTWARE: page5 2008.25 master70.pl 160321 START: 2020/10/20 18:27:00
EPHEMERIS: igs21282.eph [precise] STOP: 2020/10/20 20:35:00
NAV FILE: brdc2940.20n OBS USED: 5508 / 5725 : 96%
ANT NAME: TRMR8_GNSS3 NONE # FIXED AMB: 34 / 38 : 89%
ARP HEIGHT: 2.000 OVERALL RMS: 0.012(m)

REF FRAME: NAD_83(2011)(EPOCH:2010.0000) ITRF2014 (EPOCH:2020.8028)

X: -1552705.459(m) 0.013(m) -1552706.416(m) 0.013(m)
Y: -4214577.893(m) 0.031(m) -4214576.653(m) 0.031(m)
Z: 4515928.133(m) 0.022(m) 4515928.062(m) 0.022(m)

LAT: 45 20 51.91382 0.009(m) 45 20 51.93139 0.009(m)
E LON: 249 46 31.96103 0.004(m) 249 46 31.90012 0.004(m)
W LON: 110 13 28.03897 0.004(m) 110 13 28.09988 0.004(m)
EL HGT: 1876.319(m) 0.039(m) 1875.683(m) 0.039(m)
ORTHO HGT: 1884.591(m) 0.088(m) [NAVD88 (Computed using GEOID18)]

UTM COORDINATES STATE PLANE COORDINATES
UTM (Zone 12) SPC (2500 MT)

Northing (Y) [meters] 5021875.139 122270.769
Easting (X) [meters] 560753.889 543237.230
Convergence [degrees] 0.55172778 -0.52994167
Point Scale 0.99964538 0.99980906
Combined Factor 0.99935140 0.99951503

US NATIONAL GRID DESIGNATOR: 12TWR6075321875(NAD 83)

BASE STATIONS USED

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
AI5647	MAWY MAWY_EBRY_WY1998	CORS ARP	N445824.319 W1104121.433	55391.0
DL7758	P722 YNPBASSRCHMT2005	CORS ARP	N452725.985 W1093415.586	52602.9
DK7547	MTSU BOZEMAN	CORS ARP	N453940.376 W1110242.008	72999.1

NEAREST NGS PUBLISHED CONTROL POINT

QX0692	WEST BOULDER	N452623.182	W1101823.408	12077.5
--------	--------------	-------------	--------------	---------

This position and the above vector components were computed without any knowledge by the National Geodetic Survey regarding the equipment or field operating procedures used.

FILE: 258_32272941.20o OP1605018298747

NGS OPUS SOLUTION REPORT
=====

All computed coordinate accuracies are listed as peak-to-peak values.
For additional information:

<https://nam02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.ngs.noaa.gov%2FOPUS%2Fabout.jsp%23accuracy&data=04%7C01%7Cmichael.zarlengo%40woolpert.com%7C3b1f6491137d42aca13e08d885849bd8%7C987179e81c49493a88e806d464695b5c%7C0%7C0%7C637406151906773244%7CUnknown%7CTWFpbGZsb3d8eyJWljoImMC4wLjAwMDAiLCJQIjoiV2luMzliLCJBTil6lk1haWwiLCJXVCi6Mn0%3D%7C1000&sdata=qGp8b80sJkNxDXgFnn8My18wZc3y7pMg3wFYi5%2FEDP0%3D&reserved=0>

USER: michael.zarlengo@woolpert.com DATE: November 10, 2020
RINEX FILE: 258_294u.20o TIME: 14:26:15 UTC

SOFTWARE: page5 2008.25 master72.pl 160321 START: 2020/10/20 20:42:00
EPHEMERIS: igs21282.eph [precise] STOP: 2020/10/20 23:56:00
NAV FILE: brdc2940.20n OBS USED: 6732 / 7366 : 91%
ANT NAME: TRMR8_GNSS3 NONE # FIXED AMB: 37 / 39 : 95%
ARP HEIGHT: 2.000 OVERALL RMS: 0.016(m)

REF FRAME: NAD_83(2011)(EPOCH:2010.0000) ITRF2014 (EPOCH:2020.8031)

X: -1552705.471(m) 0.013(m) -1552706.428(m) 0.013(m)
Y: -4214577.911(m) 0.004(m) -4214576.671(m) 0.004(m)
Z: 4515928.154(m) 0.013(m) 4515928.083(m) 0.013(m)

LAT: 45 20 51.91382 0.008(m) 45 20 51.93139 0.008(m)
E LON: 249 46 31.96081 0.013(m) 249 46 31.89986 0.013(m)
W LON: 110 13 28.03919 0.013(m) 110 13 28.10014 0.013(m)
EL HGT: 1876.349(m) 0.010(m) 1875.713(m) 0.010(m)
ORTHO HGT: 1884.621(m) 0.072(m) [NAVD88 (Computed using GEOID18)]

UTM COORDINATES STATE PLANE COORDINATES
UTM (Zone 12) SPC (2500 MT)

Northing (Y) [meters] 5021875.139 122270.769
Easting (X) [meters] 560753.884 543237.226
Convergence [degrees] 0.55172778 -0.52994167
Point Scale 0.99964538 0.99980906
Combined Factor 0.99935140 0.99951503

US NATIONAL GRID DESIGNATOR: 12TWR6075321875(NAD 83)

BASE STATIONS USED

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
DQ9786	MTBR MTBR BRIDGER CORS ARP	N451611.092	W1085451.420	103136.4
DL7758	P722 YNPBASSRCHMT2005 CORS ARP	N452725.985	W1093415.586	52602.9
DL7705	NOMT NOMT_EBRY_MT1999 CORS ARP	N453548.888	W1113747.304	113356.5

NEAREST NGS PUBLISHED CONTROL POINT

QX0692	WEST BOULDER	N452623.182	W1101823.408	12077.5
--------	--------------	-------------	--------------	---------

This position and the above vector components were computed without any knowledge by the National Geodetic Survey regarding the equipment or field operating procedures used.

FILE: 259_32272950.20o OP1605018356283

NGS OPUS SOLUTION REPORT
=====

All computed coordinate accuracies are listed as peak-to-peak values.

For additional information:

<https://nam02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.ngs.noaa.gov%2FOPUS%2Fabout.jsp%23accuracy&data=04%7C01%7Cmichael.zarlengo%40woolpert.com%7C12493ecdc16f4397124908d88584b3c4%7C987179e81c49493a88e806d464695b5c%7C0%7C0%7C637406152292410277%7CUnknown%7CTWfPbGZsb3d8eyJWljoimC4wLjAwMDAiLCJQljoiv2luMzliLCJBTil6lk1haWwiLCJXVCI6Mn0%3D%7C1000&sdata=ugfW WKtYFsf91fa9i23%2FwLN59X%2BqQjMYXs%2Fz%2F1ohlHU%3D&reserved=0>

USER: michael.zarlengo@woolpert.com DATE: November 10, 2020
RINEX FILE: 259_295t.20o TIME: 14:26:54 UTC

SOFTWARE: page5 2008.25 master52.pl 160321 START: 2020/10/21 19:13:00
EPHEMERIS: igs21283.eph [precise] STOP: 2020/10/21 21:39:00
NAV FILE: brdc2950.20n OBS USED: 7210 / 7584 : 95%
ANT NAME: TRMR8_GNSS3 NONE # FIXED AMB: 46 / 46 : 100%
ARP HEIGHT: 2.000 OVERALL RMS: 0.013(m)

REF FRAME: NAD_83(2011)(EPOCH:2010.0000) ITRF2014 (EPOCH:2020.8056)

X: -1551643.129(m) 0.007(m) -1551644.092(m) 0.007(m)
Y: -4193105.152(m) 0.012(m) -4193103.917(m) 0.012(m)
Z: 4536080.751(m) 0.010(m) 4536080.679(m) 0.010(m)

LAT: 45 36 23.05109 0.006(m) 45 36 23.06855 0.006(m)
E LON: 249 41 35.49113 0.002(m) 249 41 35.42971 0.002(m)
W LON: 110 18 24.50887 0.002(m) 110 18 24.57029 0.002(m)
EL HGT: 1861.994(m) 0.018(m) 1861.366(m) 0.018(m)
ORTHO HGT: 1871.770(m) 0.069(m) [NAVD88 (Computed using GEOID18)]

UTM COORDINATES STATE PLANE COORDINATES
UTM (Zone 12) SPC (2500 MT)

Northing (Y) [meters] 5050551.344 151071.633
Easting (X) [meters] 554054.745 537080.944
Convergence [degrees] 0.49533333 -0.59018333
Point Scale 0.99963592 0.99969016
Combined Factor 0.99934420 0.99939842

US NATIONAL GRID DESIGNATOR: 12TWR5405450551(NAD 83)

BASE STATIONS USED

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
DL7758	P722 YNPBASSRCHMT2005 CORS ARP	N452725.985	W1093415.586	59837.4
DK7547	MTSU BOZEMAN CORS ARP	N453940.376	W1110242.008	57896.5
DQ9786	MTBR MTBR BRIDGER CORS ARP	N451611.092	W1085451.420	115227.5

NEAREST NGS PUBLISHED CONTROL POINT

QX0663	GREELEY	N453708.678	W1101648.163	2518.4
--------	---------	-------------	--------------	--------

This position and the above vector components were computed without any knowledge by the National Geodetic Survey regarding the equipment or field operating procedures used.

FILE: 259_32272951.20o OP1605018382185

NGS OPUS SOLUTION REPORT
=====

All computed coordinate accuracies are listed as peak-to-peak values.
For additional information:

<https://nam02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.ngs.noaa.gov%2FOPUS%2Fabout.jsp%23accuracy&data=04%7C01%7Cmichael.zarlengo%40woolpert.com%7C48b0bcec12b2478f1d8d08d88584b353%7C987179e81c49493a88e806d464695b5c%7C0%7C0%7C637406152299195833%7CUnknown%7CTWFpbGZsb3d8eyJWljoImMC4wLjAwMDAiLCJQIjo1V2luMzliLCJBTil6lk1haWwiLCJXVCi6Mn0%3D%7C1000&odata=6SPjIme1mRTEz6LLAUbro7A2KNwa29jhZo3YFnMR9Cs%3D&reserved=0>

USER: michael.zarlengo@woolpert.com DATE: November 10, 2020
RINEX FILE: 259_295v.20o TIME: 14:26:55 UTC

SOFTWARE: page5 2008.25 master93.pl 160321 START: 2020/10/21 21:43:00
EPHEMERIS: igs21283.eph [precise] STOP: 2020/10/21 23:55:00
NAV FILE: brdc2950.20n OBS USED: 5426 / 5929 : 92%
ANT NAME: TRMR8_GNSS3 NONE # FIXED AMB: 37 / 45 : 82%
ARP HEIGHT: 2.000 OVERALL RMS: 0.013(m)

REF FRAME: NAD_83(2011)(EPOCH:2010.0000) ITRF2014 (EPOCH:2020.8059)

X: -1551643.132(m) 0.012(m) -1551644.095(m) 0.012(m)
Y: -4193105.160(m) 0.039(m) -4193103.925(m) 0.039(m)
Z: 4536080.752(m) 0.020(m) 4536080.680(m) 0.020(m)

LAT: 45 36 23.05091 0.015(m) 45 36 23.06837 0.015(m)
E LON: 249 41 35.49113 0.003(m) 249 41 35.42971 0.003(m)
W LON: 110 18 24.50887 0.003(m) 110 18 24.57029 0.003(m)
EL HGT: 1862.001(m) 0.043(m) 1861.373(m) 0.043(m)
ORTHO HGT: 1871.777(m) 0.083(m) [NAVD88 (Computed using GEOID18)]

UTM COORDINATES STATE PLANE COORDINATES
UTM (Zone 12) SPC (2500 MT)

Northing (Y) [meters] 5050551.339 151071.628
Easting (X) [meters] 554054.745 537080.944
Convergence [degrees] 0.49533333 -0.59018333
Point Scale 0.99963592 0.99969016
Combined Factor 0.99934420 0.99939842

US NATIONAL GRID DESIGNATOR: 12TWR5405450551(NAD 83)

BASE STATIONS USED

United States Geological Survey
Yellowstone LiDAR
Ground Control Survey Report
December 2020

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
DL7758	P722 YNPBASSRCHMT2005	CORS ARP	N452725.985 W1093415.586	59837.4
DQ9786	MTBR MTBR BRIDGER	CORS ARP	N451611.092 W1085451.420	115227.5
AI5647	MAWY MAWY_EBRY_WY1998	CORS ARP	N445824.319 W1104121.433	76500.9

NEAREST NGS PUBLISHED CONTROL POINT

QX0663	GREELEY	N453708.678	W1101648.163	2518.4
--------	---------	-------------	--------------	--------

This position and the above vector components were computed without any knowledge by the National Geodetic Survey regarding the equipment or field operating procedures used.

FILE: C157_32272730.20o OP1603737275657

NGS OPUS SOLUTION REPORT
=====

All computed coordinate accuracies are listed as peak-to-peak values.

For additional information:

<https://nam02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.ngs.noaa.gov%2FOPUS%2Fabout.jsp%23accuracy&data=04%7C01%7Cmichael.zarlengo%40woolpert.com%7Cab4fa845ffac46f17c5908d879dde6e3%7C987179e81c49493a88e806d464695b5c%7C0%7C0%7C63739334127777964%7CUnknown%7CTWFpbGZsb3d8eyJWljoijMc4wLjAwMDAiLCJQIjoiV2luMzliLCJBTil6lk1haWwiLCJXVCi6Mn0%3D%7C1000&sdata=EajG0edlk8LiAJC3EXTKEqrqv90yK6VLKwKLD%2BKIEuY%3D&reserved=0>

USER: michael.zarlengo@woolpert.com DATE: October 26, 2020
RINEX FILE: c157273u.20o TIME: 18:35:10 UTC

SOFTWARE: page5 2008.25 master70.pl 160321 START: 2020/09/29 20:19:00
EPHEMERIS: igs21252.eph [precise] STOP: 2020/09/29 22:22:00
NAV FILE: brdc2730.20n OBS USED: 5512 / 5835 : 94%
ANT NAME: TRMR8_GNSS3 NONE # FIXED AMB: 39 / 40 : 98%
ARP HEIGHT: 2.000 OVERALL RMS: 0.012(m)

REF FRAME: NAD_83(2011)(EPOCH:2010.0000) ITRF2014 (EPOCH:2020.7456)

X: -1598310.088(m) 0.009(m) -1598311.043(m) 0.009(m)
Y: -4229374.781(m) 0.021(m) -4229373.538(m) 0.021(m)
Z: 4486359.799(m) 0.012(m) 4486359.726(m) 0.012(m)

LAT: 44 58 12.29315 0.016(m) 44 58 12.31039 0.016(m)
E LON: 249 17 53.06377 0.001(m) 249 17 53.00297 0.001(m)
W LON: 110 42 6.93623 0.001(m) 110 42 6.99703 0.001(m)
EL HGT: 1928.665(m) 0.025(m) 1928.029(m) 0.025(m)
ORTHO HGT: 1937.298(m) 0.073(m) [NAVD88 (Computed using GEOID18)]

UTM COORDINATES STATE PLANE COORDINATES
UTM (Zone 12) SPC (4903 WYWC)

Northing (Y) [meters] 4979670.046 498393.656
Easting (X) [meters] 523504.956 446026.229
Convergence [degrees] 0.21066111 -1.37976944
Point Scale 0.99960679 1.00022893
Combined Factor 0.99930461 0.99992656

US NATIONAL GRID DESIGNATOR: 12TWQ2350479670(NAD 83)

BASE STATIONS USED

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
DL7758	P722 YNPBASSRCHMT2005	CORS ARP	N452725.985 W1093415.586	104060.6
DK7547	MTSU BOZEMAN	CORS ARP	N453940.376 W1110242.008	81408.1
DP3858	P707 REDROCKLAKMT2008	CORS ARP	N444307.553 W1115013.738	94025.6

NEAREST NGS PUBLISHED CONTROL POINT

PY0138	C 157	N445812.292	W1104206.938	0.1
--------	-------	-------------	--------------	-----

This position and the above vector components were computed without any knowledge by the National Geodetic Survey regarding the equipment or field operating procedures used.

FILE: C157_32272731.20o OP1603737297027

NGS OPUS SOLUTION REPORT
=====

All computed coordinate accuracies are listed as peak-to-peak values.
For additional information:

<https://nam02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.ngs.noaa.gov%2FOPUS%2Fabout.jsp%23accuracy&data=04%7C01%7Cmichael.zarlengo%40woolpert.com%7Ca0f3a432983f42227dac08d879de350d%7C987179e81c49493a88e806d464695b5c%7C0%7C0%7C637393342647848359%7CUnknown%7CTWfPbGZsb3d8eyJWljoimc4wLjAwMDAiLCJQljoiv2luMzliLCJBTil6lk1haWwiLCJXVCI6Mn0%3D%7C1000&odata=t7l1oWcSd9EBANmM%2F%2ByKBvGx0BOVLRMw7VDgqfDMjo%3D&reserved=0>

USER: michael.zarlengo@woolpert.com DATE: October 26, 2020
RINEX FILE: c157273w.20o TIME: 18:37:19 UTC

SOFTWARE: page5 2008.25 master72.pl 160321 START: 2020/09/29 22:26:00
EPHEMERIS: igs21252.eph [precise] STOP: 2020/09/30 00:29:00
NAV FILE: brdc2730.20n OBS USED: 5190 / 5641 : 92%
ANT NAME: TRMR8_GNSS3 NONE # FIXED AMB: 48 / 48 : 100%
ARP HEIGHT: 2.000 OVERALL RMS: 0.014(m)

REF FRAME: NAD_83(2011)(EPOCH:2010.0000) ITRF2014 (EPOCH:2020.7458)

X: -1598310.097(m) 0.002(m) -1598311.052(m) 0.002(m)
Y: -4229374.790(m) 0.011(m) -4229373.547(m) 0.011(m)
Z: 4486359.805(m) 0.019(m) 4486359.732(m) 0.019(m)

LAT: 44 58 12.29304 0.009(m) 44 58 12.31025 0.009(m)
E LON: 249 17 53.06356 0.005(m) 249 17 53.00275 0.005(m)
W LON: 110 42 6.93644 0.005(m) 110 42 6.99725 0.005(m)
EL HGT: 1928.677(m) 0.020(m) 1928.042(m) 0.020(m)
ORTHO HGT: 1937.310(m) 0.072(m) [NAVD88 (Computed using GEOID18)]

UTM COORDINATES STATE PLANE COORDINATES
UTM (Zone 12) SPC (4903 WYWC)

Northing (Y) [meters] 4979670.042 498393.652
Easting (X) [meters] 523504.952 446026.224
Convergence [degrees] 0.21066111 -1.37976944
Point Scale 0.99960679 1.00022893
Combined Factor 0.99930461 0.99992656

US NATIONAL GRID DESIGNATOR: 12TWQ2350479670(NAD 83)

BASE STATIONS USED

United States Geological Survey
Yellowstone LiDAR
Ground Control Survey Report
December 2020

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
DL7758	P722 YNPBASSRCHMT2005 CORS ARP	N452725.985	W1093415.586	104060.6
DK7547	MTSU BOZEMAN CORS ARP	N453940.376	W1110242.008	81408.1
DL7705	NOMT NOMT_EBRY_MT1999 CORS ARP	N453548.888	W1113747.304	100786.9

NEAREST NGS PUBLISHED CONTROL POINT

PY0138	C 157	N445812.292	W1104206.938	0.0
--------	-------	-------------	--------------	-----

This position and the above vector components were computed without any knowledge by the National Geodetic Survey regarding the equipment or field operating procedures used.

FILE: C157_32272740.20o OP1603737321036

NGS OPUS SOLUTION REPORT
=====

All computed coordinate accuracies are listed as peak-to-peak values.

For additional information:

<https://nam02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.ngs.noaa.gov%2FOPUS%2Fabout.jsp%23accuracy&data=04%7C01%7Cmichael.zarlengo%40woolpert.com%7C13b2050e5aa84f1beeda08d879de39cc%7C987179e81c49493a88e806d464695b5c%7C0%7C0%7C637393342655964869%7CUnknown%7CTWfPbGZsb3d8eyJWljoimC4wLjAwMDAiLCJQljoiv2luMzliLCJBTil6lk1haWwiLCJXVCI6Mn0%3D%7C1000&sdata=k6kP6mnSc49cq9S%2BQoR7r5y9XUWhaS2rGnf5czRlagU%3D&reserved=0>

USER: michael.zarlengo@woolpert.com DATE: October 26, 2020
RINEX FILE: c157274s.20o TIME: 18:37:32 UTC

SOFTWARE: page5 2008.25 master73.pl 160321 START: 2020/09/30 18:51:00
EPHEMERIS: igs21253.eph [precise] STOP: 2020/09/30 21:19:00
NAV FILE: brdc2740.20n OBS USED: 6714 / 7095 : 95%
ANT NAME: TRMR8_GNSS3 NONE # FIXED AMB: 39 / 39 : 100%
ARP HEIGHT: 2.000 OVERALL RMS: 0.013(m)

REF FRAME: NAD_83(2011)(EPOCH:2010.0000) ITRF2014 (EPOCH:2020.7482)

X: -1598310.089(m) 0.001(m) -1598311.044(m) 0.001(m)
Y: -4229374.770(m) 0.008(m) -4229373.527(m) 0.008(m)
Z: 4486359.796(m) 0.007(m) 4486359.723(m) 0.007(m)

LAT: 44 58 12.29333 0.008(m) 44 58 12.31054 0.008(m)
E LON: 249 17 53.06356 0.002(m) 249 17 53.00275 0.002(m)
W LON: 110 42 6.93644 0.002(m) 110 42 6.99725 0.002(m)
EL HGT: 1928.655(m) 0.006(m) 1928.020(m) 0.006(m)
ORTHO HGT: 1937.288(m) 0.064(m) [NAVD88 (Computed using GEOID18)]

UTM COORDINATES STATE PLANE COORDINATES

UTM (Zone 12) SPC (4903 WYWC)
Northing (Y) [meters] 4979670.051 498393.661
Easting (X) [meters] 523504.952 446026.224
Convergence [degrees] 0.21066111 -1.37976944
Point Scale 0.99960679 1.00022893
Combined Factor 0.99930461 0.99992656

US NATIONAL GRID DESIGNATOR: 12TWQ2350479670(NAD 83)

BASE STATIONS USED

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
DP3858	P707 REDROCKLAKMT2008	CORS ARP	N444307.553 W1115013.738	94025.6
DL7705	NOMT NOMT_EBRY_MT1999	CORS ARP	N453548.888 W1113747.304	100786.9
DL7758	P722 YNPBASSRCHMT2005	CORS ARP	N452725.985 W1093415.586	104060.6

NEAREST NGS PUBLISHED CONTROL POINT

PY0138	C 157	N445812.292	W1104206.938	0.1
--------	-------	-------------	--------------	-----

This position and the above vector components were computed without any knowledge by the National Geodetic Survey regarding the equipment or field operating procedures used.

FILE: R161_32272700.20o OP1603737130921

NGS OPUS SOLUTION REPORT
=====

All computed coordinate accuracies are listed as peak-to-peak values.

For additional information:

<https://nam02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.ngs.noaa.gov%2FOPUS%2Fabout.jsp%23accuracy&data=04%7C01%7Cmichael.zarlengo%40woolpert.com%7C8bf8eb9088a547f85b7d08d879dd945e%7C987179e81c49493a88e806d464695b5c%7C0%7C0%7C637393339867094233%7CUnknown%7CTWFpbGZsb3d8eyJWljojMC4wLjAwMDAiLCJQIjojV2luMzliLCJBTil6lk1haWwiLCJXVCi6Mn0%3D%7C1000&sdata=kS1sBkibhlxyRLh%2FxFgEMJRWzCCxCXEbL9ODK0J35YE%3D&reserved=0>

USER: michael.zarlengo@woolpert.com DATE: October 26, 2020
RINEX FILE: r161270r.20o TIME: 18:32:53 UTC

SOFTWARE: page5 2008.25 master73.pl 160321 START: 2020/09/26 17:28:00
EPHEMERIS: igs21246.eph [precise] STOP: 2020/09/26 20:03:00
NAV FILE: brdc2700.20n OBS USED: 6143 / 6640 : 93%
ANT NAME: TRMR8_GNSS3 NONE # FIXED AMB: 38 / 43 : 88%
ARP HEIGHT: 1.8 OVERALL RMS: 0.014(m)

REF FRAME: NAD_83(2011)(EPOCH:2010.0000) ITRF2014 (EPOCH:2020.7371)

X: -1626059.501(m) 0.005(m) -1626060.453(m) 0.005(m)
Y: -4219468.664(m) 0.020(m) -4219467.422(m) 0.020(m)
Z: 4486027.050(m) 0.007(m) 4486026.979(m) 0.007(m)

LAT: 44 57 50.04407 0.017(m) 44 57 50.06113 0.017(m)
E LON: 248 55 29.28025 0.010(m) 248 55 29.21938 0.010(m)
W LON: 111 4 30.71975 0.010(m) 111 4 30.78062 0.010(m)
EL HGT: 2145.651(m) 0.008(m) 2145.023(m) 0.008(m)
ORTHO HGT: 2153.847(m) 0.064(m) [NAVD88 (Computed using GEOID18)]

UTM COORDINATES STATE PLANE COORDINATES
UTM (Zone 12) SPC (2500 MT)

Northing (Y) [meters] 4978943.036 80602.265
Easting (X) [meters] 494069.375 475728.168
Convergence [degrees] -0.05314167 -1.15226667
Point Scale 0.99960043 1.00002186
Combined Factor 0.99926427 0.99968555

US NATIONAL GRID DESIGNATOR: 12TVQ9406978943(NAD 83)

BASE STATIONS USED

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
DK7547	MTSU BOZEMAN CORS ARP	N453940.376	W1110242.008	77558.7
DP3858	P707 REDROCKLAKMT2008 CORS ARP	N444307.553	W1115013.738	66138.4
DL7705	NOMT NOMT_EBRY_MT1999 CORS ARP	N453548.888	W1113747.304	82746.6

NEAREST NGS PUBLISHED CONTROL POINT

PY0164	R 161	N445750.044	W1110430.719	0.0
--------	-------	-------------	--------------	-----

This position and the above vector components were computed without any knowledge by the National Geodetic Survey regarding the equipment or field operating procedures used.

FILE: R161_32272701.20o OP1603737181321

NGS OPUS SOLUTION REPORT
=====

All computed coordinate accuracies are listed as peak-to-peak values.
For additional information:

<https://nam02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.ngs.noaa.gov%2FOPUS%2Fabout.jsp%23accuracy&data=04%7C01%7Cmichael.zarlengo%40woolpert.com%7Ccee5573f0ae44ab7ece808d879ddb59d%7C987179e81c49493a88e806d464695b5c%7C0%7C0%7C637393340433686585%7CUnknown%7CTWFpbGZsb3d8eyJWljoImMC4wLjAwMDAiLCJQIjoIb2luMzliLCJBTil6lk1haWwiLCJXVCi6Mn0%3D%7C1000&sdata=qjcXkdJj8uLJc3VOLCBufF1dVcz4xv2r%2BjHLGEKSxQ%3D&reserved=0>

USER: michael.zarlengo@woolpert.com DATE: October 26, 2020
RINEX FILE: r161270u.20o TIME: 18:33:47 UTC

SOFTWARE: page5 2008.25 master94.pl 160321 START: 2020/09/26 20:08:00
EPHEMERIS: igs21246.eph [precise] STOP: 2020/09/26 22:59:00
NAV FILE: brdc2700.20n OBS USED: 7143 / 7427 : 96%
ANT NAME: TRMR8_GNSS3 NONE # FIXED AMB: 50 / 50 : 100%
ARP HEIGHT: 1.8 OVERALL RMS: 0.015(m)

REF FRAME: NAD_83(2011)(EPOCH:2010.0000) ITRF2014 (EPOCH:2020.7374)

X: -1626059.501(m) 0.009(m) -1626060.453(m) 0.009(m)
Y: -4219468.662(m) 0.008(m) -4219467.420(m) 0.008(m)
Z: 4486027.052(m) 0.006(m) 4486026.981(m) 0.006(m)

LAT: 44 57 50.04414 0.008(m) 44 57 50.06120 0.008(m)
E LON: 248 55 29.28022 0.005(m) 248 55 29.21934 0.005(m)
W LON: 111 4 30.71978 0.005(m) 111 4 30.78066 0.005(m)
EL HGT: 2145.651(m) 0.009(m) 2145.023(m) 0.009(m)
ORTHO HGT: 2153.847(m) 0.063(m) [NAVD88 (Computed using GEOID18)]

UTM COORDINATES STATE PLANE COORDINATES
UTM (Zone 12) SPC (2500 MT)

Northing (Y) [meters] 4978943.038 80602.267
Easting (X) [meters] 494069.374 475728.168
Convergence [degrees] -0.05314167 -1.15226667
Point Scale 0.99960043 1.00002186
Combined Factor 0.99926427 0.99968555

US NATIONAL GRID DESIGNATOR: 12TVQ9406978943(NAD 83)

BASE STATIONS USED

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
DP3858	P707 REDROCKLAKMT2008 CORS ARP	N444307.553	W1115013.738	66138.4
DL7705	NOMT NOMT_EBRY_MT1999 CORS ARP	N453548.888	W1113747.304	82746.6
DK7547	MTSU BOZEMAN CORS ARP	N453940.376	W1110242.008	77558.6

NEAREST NGS PUBLISHED CONTROL POINT

PY0164	R 161	N445750.044	W1110430.719	0.0
--------	-------	-------------	--------------	-----

This position and the above vector components were computed without any knowledge by the National Geodetic Survey regarding the equipment or field operating procedures used.

FILE: X155_32272832.20o OP1603738859703

NGS OPUS SOLUTION REPORT
=====

All computed coordinate accuracies are listed as peak-to-peak values.

For additional information:

<https://nam02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.ngs.noaa.gov%2FOPUS%2Fabout.jsp%23accuracy&data=04%7C01%7Cmichael.zarlengo%40woolpert.com%7Cc47f6c065f614b86bd7008d879e19c8c%7C987179e81c49493a88e806d464695b5c%7C0%7C0%7C637393357181157748%7CUnknown%7CTWfPbGZsb3d8eyJWljoimC4wLjAwMDAiLCJQljoiv2luMzliLCJBTil6lk1haWwiLCJXVCI6Mn0%3D%7C1000&data=Dab%2Bk8emBucnuf4EXlBDZJ4pdoksZ%2FeSd7TS7PGf5Og%3D&reserved=0>

USER: michael.zarlengo@woolpert.com DATE: October 26, 2020
RINEX FILE: x155283v.20o TIME: 19:01:46 UTC

SOFTWARE: page5 2008.25 master96.pl 160321 START: 2020/10/09 21:30:00
EPHEMERIS: igs21265.eph [precise] STOP: 2020/10/10 00:23:00
NAV FILE: brdc2830.20n OBS USED: 7476 / 7803 : 96%
ANT NAME: TRMR8_GNSS3 NONE # FIXED AMB: 45 / 48 : 94%
ARP HEIGHT: 2.000 OVERALL RMS: 0.013(m)

REF FRAME: NAD_83(2011)(EPOCH:2010.0000) ITRF2014 (EPOCH:2020.7731)

X: -1599423.592(m) 0.007(m) -1599424.546(m) 0.007(m)
Y: -4201650.721(m) 0.010(m) -4201649.486(m) 0.010(m)
Z: 4511157.895(m) 0.009(m) 4511157.822(m) 0.009(m)

LAT: 45 17 24.74639 0.004(m) 45 17 24.76345 0.004(m)
E LON: 249 9 35.62510 0.007(m) 249 9 35.56404 0.007(m)
W LON: 110 50 24.37490 0.007(m) 110 50 24.43596 0.007(m)
EL HGT: 1493.890(m) 0.012(m) 1493.265(m) 0.012(m)
ORTHO HGT: 1503.291(m) 0.061(m) [NAVD88 (Computed using GEOID18)]

UTM COORDINATES STATE PLANE COORDINATES
UTM (Zone 12) SPC (2500 MT)

Northing (Y) [meters] 5015202.012 116512.953
Easting (X) [meters] 512538.460 494893.923
Convergence [degrees] 0.11363611 -0.98029167
Point Scale 0.99960193 0.99983820
Combined Factor 0.99936786 0.99960408

US NATIONAL GRID DESIGNATOR: 12TWR1253815202(NAD 83)

BASE STATIONS USED

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
DP3858	P707 REDROCKLAKMT2008	CORS ARP	N444307.553 W1115013.738	101085.8
AI5647	MAWY MAWY_EBRY_WY1998	CORS ARP	N445824.319 W1104121.433	37162.1
DL7758	P722 YNPBASSRCHMT2005	CORS ARP	N452725.985 W1093415.586	101151.6

NEAREST NGS PUBLISHED CONTROL POINT

QX0077	X 155	N4517000024	W11050000024	1.5
--------	-------	-------------	--------------	-----

This position and the above vector components were computed without any knowledge by the National Geodetic Survey regarding the equipment or field operating procedures used.

FILE: X155_32272840.20o OP1603738888508

NGS OPUS SOLUTION REPORT
=====

All computed coordinate accuracies are listed as peak-to-peak values.
For additional information:

<https://nam02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.ngs.noaa.gov%2FOPUS%2Fabout.jsp%23accuracy&data=04%7C01%7Cmichael.zarlengo%40woolpert.com%7Ccc0fced006db4910046808d879e1bfd6%7C987179e81c49493a88e806d464695b5c%7C0%7C0%7C637393357786342799%7CUnknown%7CTWfpbGZsb3d8eyJWljoimC4wLjAwMDAiLCJQljoiv2luMzliLCJBTil6lk1haWwiLCJXVCI6Mn0%3D%7C1000&sdata=TzHw5d0ax%2Btk1SlTOYgrG4w7aBSck4IR4xBW6NVk%2Bco%3D&reserved=0>

USER: michael.zarlengo@woolpert.com DATE: October 26, 2020
RINEX FILE: x155284t.20o TIME: 19:02:45 UTC

SOFTWARE: page5 2008.25 master73.pl 160321 START: 2020/10/10 19:32:00
EPHEMERIS: igs21266.eph [precise] STOP: 2020/10/11 00:59:00
NAV FILE: brdc2840.20n OBS USED: 13394 / 14112 : 95%
ANT NAME: TRMR8_GNSS3 NONE # FIXED AMB: 75 / 80 : 94%
ARP HEIGHT: 2.000 OVERALL RMS: 0.013(m)

REF FRAME: NAD_83(2011)(EPOCH:2010.0000) ITRF2014 (EPOCH:2020.7757)

X: -1599423.577(m) 0.004(m) -1599424.531(m) 0.004(m)
Y: -4201650.709(m) 0.002(m) -4201649.474(m) 0.002(m)
Z: 4511157.890(m) 0.006(m) 4511157.817(m) 0.006(m)

LAT: 45 17 24.74664 0.005(m) 45 17 24.76374 0.005(m)
E LON: 249 9 35.62556 0.004(m) 249 9 35.56447 0.004(m)
W LON: 110 50 24.37444 0.004(m) 110 50 24.43553 0.004(m)
EL HGT: 1493.875(m) 0.003(m) 1493.250(m) 0.003(m)
ORTHO HGT: 1503.276(m) 0.051(m) [NAVD88 (Computed using GEOID18)]

UTM COORDINATES STATE PLANE COORDINATES
UTM (Zone 12) SPC (2500 MT)

Northing (Y) [meters] 5015202.020 116512.961
Easting (X) [meters] 512538.470 494893.934
Convergence [degrees] 0.11363611 -0.98029167
Point Scale 0.99960193 0.99983820
Combined Factor 0.99936787 0.99960408

US NATIONAL GRID DESIGNATOR: 12TWR1253815202(NAD 83)

BASE STATIONS USED

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
DK7547	MTSU BOZEMAN CORS ARP	N453940.376	W1110242.008	44247.7
DL7758	P722 YNPBASSRCHMT2005 CORS ARP	N452725.985	W1093415.586	101151.6
DP3858	P707 REDROCKLAKMT2008 CORS ARP	N444307.553	W1115013.738	101085.8

NEAREST NGS PUBLISHED CONTROL POINT

QX0077	X 155	N4517000024	W1105000024	1.5
--------	-------	-------------	-------------	-----

This position and the above vector components were computed without any knowledge by the National Geodetic Survey regarding the equipment or field operating procedures used.

FILE: X155_32272850.20o OP1603738913633

NGS OPUS SOLUTION REPORT
=====

All computed coordinate accuracies are listed as peak-to-peak values.
For additional information:

<https://nam02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.ngs.noaa.gov%2FOPUS%2Fabout.jsp%23accuracy&data=04%7C01%7Cmichael.zarlengo%40woolpert.com%7Cecaa19c614394c23863c08d879e1d1f8%7C987179e81c49493a88e806d464695b5c%7C0%7C0%7C637393358082284257%7CUnknown%7CTWfpbGZsb3d8eyJWljoimc4wLjAwMDAiLCJQljoiv2luMzliLCJBTil6lk1haWwiLCJXVCI6Mn0%3D%7C1000&sdata=ZuNSQCVM15hv8zlXTU3FsOsCeJDQFn13nyiKx7OA%2BE%3D&reserved=0>

USER: michael.zarlengo@woolpert.com DATE: October 26, 2020
RINEX FILE: x155285w.20o TIME: 19:03:16 UTC

SOFTWARE: page5 2008.25 master57.pl 160321 START: 2020/10/11 22:15:00
EPHEMERIS: igr21270.eph [rapid] STOP: 2020/10/12 00:53:00
NAV FILE: brdc2850.20n OBS USED: 6464 / 6984 : 93%
ANT NAME: TRMR8_GNSS3 NONE # FIXED AMB: 47 / 48 : 98%
ARP HEIGHT: 2.000 OVERALL RMS: 0.015(m)

REF FRAME: NAD_83(2011)(EPOCH:2010.0000) ITRF2014 (EPOCH:2020.7786)

X: -1599423.588(m) 0.004(m) -1599424.543(m) 0.004(m)
Y: -4201650.716(m) 0.014(m) -4201649.481(m) 0.014(m)
Z: 4511157.890(m) 0.012(m) 4511157.817(m) 0.012(m)

LAT: 45 17 24.74639 0.004(m) 45 17 24.76349 0.004(m)
E LON: 249 9 35.62520 0.007(m) 249 9 35.56408 0.007(m)
W LON: 110 50 24.37480 0.007(m) 110 50 24.43592 0.007(m)
EL HGT: 1493.882(m) 0.017(m) 1493.257(m) 0.017(m)
ORTHO HGT: 1503.283(m) 0.064(m) [NAVD88 (Computed using GEOID18)]

UTM COORDINATES STATE PLANE COORDINATES
UTM (Zone 12) SPC (2500 MT)
Northing (Y) [meters] 5015202.012 116512.953
Easting (X) [meters] 512538.462 494893.926
Convergence [degrees] 0.11363611 -0.98029167
Point Scale 0.99960193 0.99983820
Combined Factor 0.99936787 0.99960408

US NATIONAL GRID DESIGNATOR: 12TWR1253815202(NAD 83)

BASE STATIONS USED

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
DK7547	MTSU BOZEMAN CORS ARP	N453940.376	W1110242.008	44247.7
AI5647	MAWY MAWY_EBRY_WY1998 CORS ARP	N445824.319	W1104121.433	37162.1
DP3858	P707 REDROCKLAKMT2008 CORS ARP	N444307.553	W1115013.738	101085.8

NEAREST NGS PUBLISHED CONTROL POINT

QX0077	X 155	N4517000024	W1105000024	1.5
--------	-------	-------------	-------------	-----

This position and the above vector components were computed without any knowledge by the National Geodetic Survey regarding the equipment or field operating procedures used.

FILE: 151_83272683.20o OP1603731585777

NGS OPUS-RS SOLUTION REPORT
=====

All computed coordinate accuracies are listed as 1-sigma RMS values.
For additional information:

<https://nam02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.ngs.noaa.gov%2FOPUS%2Fabout.jsp%23accuracy&data=04%7C01%7Cmichael.zarlengo%40woolpert.com%7C9556e7b5b1504c4ed3e808d879d112be%7C987179e81c49493a88e806d464695b5c%7C0%7C0%7C637393286194704787%7CUnknown%7CTWfPbGZsb3d8eyJWljoimC4wLjAwMDAiLCJQljoiv2luMzliLCJBTil6lk1haWwiLCJXVCI6Mn0%3D%7C1000&sdata=HCowZGq6kz4hM2JiwsMlvvjy3TIfB4gs14MxECvoSgE%3D&reserved=0>

USER: michael.zarlengo@woolpert.com DATE: October 26, 2020
RINEX FILE: 151_268u.20o TIME: 17:02:57 UTC

SOFTWARE: rsgps 1.38 RS53.prl 1.99.3 START: 2020/09/24 20:42:07
EPHEMERIS: igs21244.eph [precise] STOP: 2020/09/24 22:13:26
NAV FILE: brdc2680.20n OBS USED: 9513 / 10431 : 91%
ANT NAME: TRMR8_GNSS3 NONE QUALITY IND. 18.69/ 54.36
ARP HEIGHT: 2.000 NORMALIZED RMS: 0.347

REF FRAME: NAD_83(2011)(EPOCH:2010.0000) ITRF2014 (EPOCH:2020.73195)

X: -1604561.471(m) 0.006(m) -1604562.425(m) 0.006(m)
Y: -4273810.872(m) 0.019(m) -4273809.625(m) 0.019(m)
Z: 4442727.018(m) 0.021(m) 4442726.936(m) 0.021(m)

LAT: 44 24 50.45173 0.006(m) 44 24 50.46872 0.006(m)
E LON: 249 25 18.60028 0.004(m) 249 25 18.54012 0.004(m)
W LON: 110 34 41.39972 0.004(m) 110 34 41.45988 0.004(m)
EL HGT: 2370.310(m) 0.028(m) 2369.658(m) 0.028(m)
ORTHO HGT: 2378.965(m) 0.034(m) [NAVD88 (Computed using GEOID18)]

UTM COORDINATES STATE PLANE COORDINATES
UTM (Zone 12) SPC (4904 WY W)

Northing (Y) [meters] 4917944.699 534869.282
Easting (X) [meters] 533584.063 760590.785
Convergence [degrees] 0.29521667 -0.34630833
Point Scale 0.99961387 0.99995659
Combined Factor 0.99924249 0.99958509

US NATIONAL GRID DESIGNATOR: 12TWQ3358417944(NAD 83)

BASE STATIONS USED

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
DL7758	P722 YNPBASSRCHMT2005 CORS ARP	N452725.985	W1093415.586	140611.9
DQ9810	P715 WINDYMOUNTWY2006 CORS ARP	N433002.747	W1094123.417	124067.8
DG8532	TSWY TSWY_EBRY_WY2001 CORS ARP	N434026.703	W1103550.864	82259.6
DP3858	P707 REDROCKLAKMT2008 CORS ARP	N444307.553	W1115013.738	105626.6
DQ9786	MTBR MTBR BRIDGER CORS ARP	N451611.092	W1085451.420	162363.8
DG5942	BLW2 BOULDER CORS ARP	N424601.637	W1093328.036	200734.6
DI1692	IDBY REXBURG CORS ARP	N434913.279	W1114700.726	116915.8
DL7705	NOMT NOMT_EBRY_MT1999 CORS ARP	N453548.888	W1113747.304	155462.7
DG9745	MTEI ENGINC CORS ARP	N454447.035	W1083600.736	214932.6

NEAREST NGS PUBLISHED CONTROL POINT

PY0801	54 MDC	N442450.000	W1103445.000	80.9
--------	--------	-------------	--------------	------

This position and the above vector components were computed without any knowledge by the National Geodetic Survey regarding the equipment or field operating procedures used.

FILE: 153_28222714.20o OP1603731993716

NGS OPUS-RS SOLUTION REPORT
=====

All computed coordinate accuracies are listed as 1-sigma RMS values.
For additional information:

<https://nam02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.ngs.noaa.gov%2FOPUS%2Fabout.jsp%23accuracy&data=04%7C01%7Cmichael.zarlengo%40woolpert.com%7Ca4b88243abd746efe36c08d879d1ed7d%7C987179e81c49493a88e806d464695b5c%7C0%7C0%7C637393289833829927%7CUnknown%7CTWFpbGZsb3d8eyJWljiMC4wLjAwMDAiLCJQIjoiV2luMzliLCJBTil6lk1haWwiLCJXVCi6Mn0%3D%7C1000&sdata=6HyPwrh2o0A%2FuEVj%2FrQcuamnYWdz5GhNQsEOhX6KoNY%3D&reserved=0>

USER: michael.zarlengo@woolpert.com DATE: October 26, 2020
RINEX FILE: 153_271s.20o TIME: 17:09:11 UTC

SOFTWARE: rsgps 1.38 RS73.prl 1.99.3 START: 2020/09/27 18:59:20
EPHEMERIS: igs21250.eph [precise] STOP: 2020/09/27 19:40:15
NAV FILE: brdc2710.20n OBS USED: 4644 / 5346 : 87%
ANT NAME: TRMR10 NONE QUALITY IND. 16.45/ 40.30
ARP HEIGHT: 2.05 NORMALIZED RMS: 0.341

REF FRAME: NAD_83(2011)(EPOCH:2010.0000) ITRF2014 (EPOCH:2020.73991)

X: -1619217.923(m) 0.011(m) -1619218.878(m) 0.011(m)
Y: -4249830.885(m) 0.021(m) -4249829.641(m) 0.021(m)
Z: 4459907.105(m) 0.017(m) 4459907.026(m) 0.017(m)

LAT: 44 37 58.72901 0.009(m) 44 37 58.74589 0.009(m)
E LON: 249 8 34.00253 0.005(m) 249 8 33.94198 0.005(m)
W LON: 110 51 25.99747 0.005(m) 110 51 26.05802 0.005(m)
EL HGT: 2122.364(m) 0.027(m) 2121.723(m) 0.027(m)
ORTHO HGT: 2131.252(m) 0.033(m) [NAVD88 (Computed using GEOID18)]

UTM COORDINATES STATE PLANE COORDINATES
UTM (Zone 12) SPC (4904 WY W)

Northing (Y) [meters] 4942190.390 559372.044
Easting (X) [meters] 511324.738 738596.885
Convergence [degrees] 0.10031111 -0.54372222
Point Scale 0.99960158 0.99998385
Combined Factor 0.99926905 0.99965119

US NATIONAL GRID DESIGNATOR: 12TWQ1132442190(NAD 83)

BASE STATIONS USED

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
DL7758	P722 YNPBASSRCHMT2005 CORS ARP	N452725.985	W1093415.586	136633.1
DQ9810	P715 WINDYMOUNTWY2006 CORS ARP	N433002.747	W1094123.417	156818.2
DH7135	IDDR DRIGGS CORS ARP	N434446.001	W1110636.921	100631.0
DP3858	P707 REDROCKLAKMT2008 CORS ARP	N444307.553	W1115013.738	78307.5
DQ9786	MTBR MTBR BRIDGER CORS ARP	N451611.092	W1085451.420	168901.1
DG5942	BLW2 BOULDER CORS ARP	N424601.637	W1093328.036	232326.6
DI1692	IDBY REXBURG CORS ARP	N434913.279	W1114700.726	116784.5
DL7705	NOMT NOMT_EBRY_MT1999 CORS ARP	N453548.888	W1113747.304	123207.5
DG9745	MTEI ENGINC CORS ARP	N454447.035	W1083600.736	216299.4

NEAREST NGS PUBLISHED CONTROL POINT

PY0709	40 MDC	N443754.000	W1105129.000	160.3
--------	--------	-------------	--------------	-------

This position and the above vector components were computed without any knowledge by the National Geodetic Survey regarding the equipment or field operating procedures used.

FILE: 165_83273090.20o OP1605020360726

NGS OPUS SOLUTION REPORT
=====

All computed coordinate accuracies are listed as peak-to-peak values.
For additional information:

<https://nam02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.ngs.noaa.gov%2FOPUS%2Fabout.jsp%23accuracy&data=04%7C01%7Cmichael.zarlengo%40woolpert.com%7Cfe465a4689eb47d4e82c08d88589802d%7C987179e81c49493a88e806d464695b5c%7C0%7C0%7C637406172908336615%7CUnknown%7CTWFpbGZsb3d8eyJWljoImMC4wLjAwMDAiLCJQIjoiV2luMzliLCJBTil6lk1haWwiLCJXVCi6Mn0%3D%7C1000&odata=BifkLvSkodTo%2BFDDYQbgGKThhcLsmVQyDL9yVodwGtY%3D&reserved=0>

USER: michael.zarlengo@woolpert.com DATE: November 10, 2020
RINEX FILE: 165_309q.20o TIME: 15:01:06 UTC

SOFTWARE: page5 2008.25 master57.pl 160321 START: 2020/11/04 16:52:00
EPHEMERIS: igr21303.eph [rapid] STOP: 2020/11/04 18:55:00
NAV FILE: brdc3090.20n OBS USED: 5848 / 6267 : 93%
ANT NAME: TRMR8_GNSS3 NONE # FIXED AMB: 35 / 36 : 97%
ARP HEIGHT: 2.000 OVERALL RMS: 0.014(m)

REF FRAME: NAD_83(2011)(EPOCH:2010.0000) ITRF2014 (EPOCH:2020.8436)

X: -1602736.928(m) 0.010(m) -1602737.884(m) 0.010(m)
Y: -4204056.597(m) 0.009(m) -4204055.362(m) 0.009(m)
Z: 4507786.465(m) 0.028(m) 4507786.391(m) 0.028(m)

LAT: 45 14 49.04318 0.016(m) 45 14 49.06021 0.016(m)
E LON: 249 7 52.90316 0.013(m) 249 7 52.84204 0.013(m)
W LON: 110 52 7.09684 0.013(m) 110 52 7.15796 0.013(m)
EL HGT: 1511.205(m) 0.024(m) 1510.580(m) 0.024(m)
ORTHO HGT: 1520.409(m) 0.071(m) [NAVD88 (Computed using GEOID18)]

UTM COORDINATES STATE PLANE COORDINATES
UTM (Zone 12) SPC (2500 MT)

Northing (Y) [meters] 5010393.118 111746.333
Easting (X) [meters] 510308.762 492572.226
Convergence [degrees] 0.09328611 -1.00116389
Point Scale 0.99960131 0.99986074
Combined Factor 0.99936453 0.99962390

US NATIONAL GRID DESIGNATOR: 12TWR1030810393(NAD 83)

BASE STATIONS USED

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
DL7755	P706 MATADORRCHMT2006	CORS ARP	N450236.472 W1123126.669	132175.2
DL7758	P722 YNPBASSRCHMT2005	CORS ARP	N452725.985 W1093415.586	104358.7
AI5647	MAWY MAWY_EBRY_WY1998	CORS ARP	N445824.319 W1104121.433	33525.9

NEAREST NGS PUBLISHED CONTROL POINT

QX0562	Z 565	N4515000012	W11052000005	718.4
--------	-------	-------------	--------------	-------

This position and the above vector components were computed without any knowledge by the National Geodetic Survey regarding the equipment or field operating procedures used.

FILE: 165_83273091.20o OP1605020382982

NGS OPUS SOLUTION REPORT
=====

All computed coordinate accuracies are listed as peak-to-peak values.

For additional information:

<https://nam02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.ngs.noaa.gov%2FOPUS%2Fabout.jsp%23accuracy&data=04%7C01%7Cmichael.zarlengo%40woolpert.com%7C06aecbcf580243963f3608d885899b48%7C987179e81c49493a88e806d464695b5c%7C0%7C0%7C637406173372379136%7CUnknown%7CTWFpbGZsb3d8eyJWljiMC4wLjAwMDAiLCJQIjoiV2luMzliLCJBTil6lk1haWwiLCJXVCi6Mn0%3D%7C1000&sdata=drjk%2BHFbRRKN0TzantDlohPBfG7tx%2FxtqWJAuZP8k%3D&reserved=0>

USER: michael.zarlengo@woolpert.com DATE: November 10, 2020
RINEX FILE: 165_309s.20o TIME: 15:01:11 UTC

SOFTWARE: page5 2008.25 master91.pl 160321 START: 2020/11/04 18:57:00
EPHEMERIS: igr21303.eph [rapid] STOP: 2020/11/04 23:18:00
NAV FILE: brdc3090.20n OBS USED: 9582 / 11040 : 87%
ANT NAME: TRMR8_GNSS3 NONE # FIXED AMB: 67 / 73 : 92%
ARP HEIGHT: 2.000 OVERALL RMS: 0.015(m)

REF FRAME: NAD_83(2011)(EPOCH:2010.0000) ITRF2014 (EPOCH:2020.8439)

X: -1602736.928(m) 0.014(m) -1602737.884(m) 0.014(m)
Y: -4204056.601(m) 0.007(m) -4204055.366(m) 0.007(m)
Z: 4507786.461(m) 0.014(m) 4507786.387(m) 0.014(m)

LAT: 45 14 49.04300 0.014(m) 45 14 49.06003 0.014(m)
E LON: 249 7 52.90324 0.012(m) 249 7 52.84211 0.012(m)
W LON: 110 52 7.09676 0.012(m) 110 52 7.15789 0.012(m)
EL HGT: 1511.205(m) 0.010(m) 1510.580(m) 0.010(m)
ORTHO HGT: 1520.409(m) 0.056(m) [NAVD88 (Computed using GEOID18)]

UTM COORDINATES STATE PLANE COORDINATES

UTM (Zone 12) SPC (2500 MT)
Northing (Y) [meters] 5010393.113 111746.327
Easting (X) [meters] 510308.764 492572.228
Convergence [degrees] 0.09328611 -1.00116389
Point Scale 0.99960131 0.99986074
Combined Factor 0.99936453 0.99962390

US NATIONAL GRID DESIGNATOR: 12TWR1030810393(NAD 83)

BASE STATIONS USED

United States Geological Survey
Yellowstone LiDAR
Ground Control Survey Report
December 2020

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
DL7755	P706 MATADORRCHMT2006	CORS ARP	N450236.472 W1123126.669	132175.2
DL7705	NOMT NOMT_EBRY_MT1999	CORS ARP	N453548.888 W1113747.304	71162.6
AI5647	MAWY MAWY_EBRY_WY1998	CORS ARP	N445824.319 W1104121.433	33525.9

NEAREST NGS PUBLISHED CONTROL POINT

QX0562	Z 565	N4515000012	W11052000005	718.4
--------	-------	-------------	--------------	-------

This position and the above vector components were computed without any knowledge by the National Geodetic Survey regarding the equipment or field operating procedures used.

FILE: 165_83273100.20o OP1605020469639

NGS OPUS SOLUTION REPORT
=====

All computed coordinate accuracies are listed as peak-to-peak values.
For additional information:

<https://nam02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.ngs.noaa.gov%2FOPUS%2Fabout.jsp%23accuracy&data=04%7C01%7Cmichael.zarlengo%40woolpert.com%7C870992dd5f1b47ef88d408d88589fd58%7C987179e81c49493a88e806d464695b5c%7C0%7C0%7C637406174995322232%7CUnknown%7CTWFpbGZsb3d8eyJWljoijMc4wLjAwMDAiLCJQIjoiV2luMzliLCJBTil6lk1haWwiLCJXVCi6Mn0%3D%7C1000&sd=N7%2FRiNR8LeVZu%2B31xf9fKoD06T79bMvCm%2BcaiyFUtzU%3D&reserved=0>

USER: michael.zarlengo@woolpert.com DATE: November 10, 2020
RINEX FILE: 165_310p.20o TIME: 15:04:38 UTC

SOFTWARE: page5 2008.25 master50.pl 160321 START: 2020/11/05 15:09:00
EPHEMERIS: igr21304.eph [rapid] STOP: 2020/11/05 21:30:00
NAV FILE: brdc3100.20n OBS USED: 16756 / 18279 : 92%
ANT NAME: TRMR8_GNSS3 NONE # FIXED AMB: 81 / 91 : 89%
ARP HEIGHT: 2.000 OVERALL RMS: 0.017(m)

REF FRAME: NAD_83(2011)(EPOCH:2010.0000) ITRF2014 (EPOCH:2020.8463)

X: -1602736.921(m) 0.022(m) -1602737.877(m) 0.022(m)
Y: -4204056.583(m) 0.005(m) -4204055.348(m) 0.005(m)
Z: 4507786.459(m) 0.002(m) 4507786.385(m) 0.002(m)

LAT: 45 14 49.04340 0.007(m) 45 14 49.06043 0.007(m)
E LON: 249 7 52.90324 0.019(m) 249 7 52.84211 0.019(m)
W LON: 110 52 7.09676 0.019(m) 110 52 7.15789 0.019(m)
EL HGT: 1511.190(m) 0.011(m) 1510.565(m) 0.011(m)
ORTHO HGT: 1520.394(m) 0.054(m) [NAVD88 (Computed using GEOID18)]

UTM COORDINATES STATE PLANE COORDINATES
UTM (Zone 12) SPC (2500 MT)

Northing (Y) [meters] 5010393.125 111746.339
Easting (X) [meters] 510308.764 492572.228
Convergence [degrees] 0.09328611 -1.00116389
Point Scale 0.99960131 0.99986074
Combined Factor 0.99936453 0.99962390

US NATIONAL GRID DESIGNATOR: 12TWR1030810393(NAD 83)

BASE STATIONS USED

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
DK7547	MTSU BOZEMAN CORS ARP	N453940.376	W1110242.008	48074.6
DL7758	P722 YNPBASSRCHMT2005 CORS ARP	N452725.985	W1093415.586	104358.7
DL7755	P706 MATADORRCHMT2006 CORS ARP	N450236.472	W1123126.669	132175.2

NEAREST NGS PUBLISHED CONTROL POINT

QX0562	Z 565	N4515000012	W11052000005	718.4
--------	-------	-------------	--------------	-------

This position and the above vector components were computed without any knowledge by the National Geodetic Survey regarding the equipment or field operating procedures used.

FILE: 201_88443091.20o OP1605020430113

NGS OPUS SOLUTION REPORT
=====

All computed coordinate accuracies are listed as peak-to-peak values.

For additional information:

<https://nam02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.ngs.noaa.gov%2FOPUS%2Fabout.jsp%23accuracy&data=04%7C01%7Cmichael.zarlengo%40woolpert.com%7C46286fd417cd4bfec55608d88589b370%7C987179e81c49493a88e806d464695b5c%7C0%7C0%7C637406173785040638%7CUnknown%7CTWFpbGZsb3d8eyJWljoImMC4wLjAwMDAiLCJQIjoiV2luMzliLCJBTil6lk1haWwiLCJXVCi6Mn0%3D%7C1000&sdata=7AOPwZ7LhLvavvJR0lgm8PYh2Xvja9RlBcrnQ4iwCGk%3D&reserved=0>

USER: michael.zarlengo@woolpert.com DATE: November 10, 2020
RINEX FILE: 201_309t.20o TIME: 15:02:23 UTC

SOFTWARE: page5 2008.25 master97.pl 160321 START: 2020/11/04 19:56:00
EPHEMERIS: igr21303.eph [rapid] STOP: 2020/11/04 23:15:00
NAV FILE: brdc3090.20n OBS USED: 8081 / 8744 : 92%
ANT NAME: TRMR8_GNSS3 NONE # FIXED AMB: 50 / 54 : 93%
ARP HEIGHT: 2.000 OVERALL RMS: 0.018(m)

REF FRAME: NAD_83(2011)(EPOCH:2010.0000) ITRF2014 (EPOCH:2020.8440)

X: -1573025.786(m) 0.012(m) -1573026.749(m) 0.012(m)
Y: -4151825.358(m) 0.041(m) -4151824.127(m) 0.041(m)
Z: 4565998.179(m) 0.034(m) 4565998.114(m) 0.034(m)

LAT: 45 59 41.78472 0.007(m) 45 59 41.80214 0.007(m)
E LON: 249 14 58.26793 0.007(m) 249 14 58.20583 0.007(m)
W LON: 110 45 1.73207 0.007(m) 110 45 1.79417 0.007(m)
EL HGT: 1586.776(m) 0.054(m) 1586.167(m) 0.054(m)
ORTHO HGT: 1597.785(m) 0.088(m) [NAVD88 (Computed using GEOID18)]

UTM COORDINATES STATE PLANE COORDINATES
UTM (Zone 12) SPC (2500 MT)

Northing (Y) [meters] 5093515.577 194688.829
Easting (X) [meters] 519322.582 503172.599
Convergence [degrees] 0.17947500 -0.91473333
Point Scale 0.99960459 0.99954882
Combined Factor 0.99935599 0.99930024

US NATIONAL GRID DESIGNATOR: 12TWR1932293515(NAD 83)

BASE STATIONS USED

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
DL7705	NOMT NOMT_EBRY_MT1999	CORS ARP	N453548.888 W1113747.304	81449.7
AI5647	MAWY MAWY_EBRY_WY1998	CORS ARP	N445824.319 W1104121.433	113662.7
DL7758	P722 YNPBASSRCHMT2005	CORS ARP	N452725.985 W1093415.586	109577.6

NEAREST NGS PUBLISHED CONTROL POINT

QX0722	KMIW 1	N455941.338	W1104441.445	436.8
--------	--------	-------------	--------------	-------

This position and the above vector components were computed without any knowledge by the National Geodetic Survey regarding the equipment or field operating procedures used.

The NGS Data Sheet

See file [dsdata.pdf](#) for more information about the datasheet.

PROGRAM = datasheet95, VERSION = 8.12.5.10

Starting Datasheet Retrieval...

```

1      National Geodetic Survey,      Retrieval Date = SEPTEMBER 28, 2020
PY0803 *****
PY0803 DESIGNATION - 9 MDC
PY0803 PID - PY0803
PY0803 STATE/COUNTY- WY/TETON
PY0803 COUNTRY - US
PY0803 USGS QUAD - WEST THUMB (2017)
PY0803
PY0803 *CURRENT SURVEY CONTROL
PY0803
PY0803* NAD 83(1986) POSITION- 44 24 19.82 (N) 110 34 10.34 (W) HD_HELD1
PY0803* NAVD 88 ORTHO HEIGHT - 2375.017 (meters) 7792.03 (feet) ADJUSTED
PY0803
PY0803 GEOID HEIGHT - -8.636 (meters) GEOID18
PY0803 DYNAMIC HEIGHT - 2373.422 (meters) 7786.80 (feet) COMP
PY0803 MODELED GRAVITY - 979,860.7 (mgal) NAVD 88
PY0803
PY0803 VERT ORDER - FIRST CLASS II
PY0803
PY0803.The horizontal coordinates were determined by differentially corrected
PY0803.hand held GPS observations or other comparable positioning techniques
PY0803.and have an estimated accuracy of +/- 3 meters.
PY0803.
PY0803.The orthometric height was determined by differential leveling and
PY0803.adjusted by the NATIONAL GEODETIC SURVEY
PY0803.in June 1991.
PY0803
PY0803.Significant digits in the geoid height do not necessarily reflect accuracy.
PY0803.GEOID18 height accuracy estimate available here.
PY0803
PY0803.Click photographs - Photos may exist for this station.
PY0803
PY0803.The dynamic height is computed by dividing the NAVD 88
PY0803.geopotential number by the normal gravity value computed on the
PY0803.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
PY0803.degrees latitude (g = 980.6199 gals.).
PY0803
PY0803.The modeled gravity was interpolated from observed gravity values.
PY0803
PY0803; North East Units Estimated Accuracy
PY0803;SPC WY W - 533,919.7 761,272.3 MT (+/- 3 meters HH1 GPS)
PY0803
PY0803_U.S. NATIONAL GRID SPATIAL ADDRESS: 12TWQ3427517003(NAD 83)
PY0803
PY0803 SUPERSEDED SURVEY CONTROL
PY0803

```

PY0803 NGVD 29 (08/20/92) 2373.630 (m) 7787.48 (f) ADJUSTED 1 2

PY0803

PY0803.Superseded values are not recommended for survey control.

PY0803

PY0803.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.

PY0803.See file [dsdata.pdf](#) to determine how the superseded data were derived.

PY0803

PY0803_MARKER: DB = BENCH MARK DISK

PY0803_SETTING: 35 = SET IN A MAT FOUNDATION OR CONCRETE SLAB OTHER THAN

PY0803+WITH SETTING: PAVEMENT

PY0803_SP_SET: BRIDGE GUARDRAIL

PY0803_STAMPING: 9 MDC 1977 7787

PY0803_MARK LOGO: USGS

PY0803_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO

PY0803+STABILITY: SURFACE MOTION

PY0803

PY0803	HISTORY	- Date	Condition	Report By
PY0803	HISTORY	- 1977	MONUMENTED	USGS
PY0803	HISTORY	- 1987	GOOD	NGS

PY0803

STATION DESCRIPTION

PY0803

PY0803'DESCRIBED BY NATIONAL GEODETIC SURVEY 1987

PY0803'1.6 KM (1.00 MI) NORTH FROM GRANT VILLAGE.

PY0803'1.6 KM (1.00 MI) NORTHERLY ALONG THE SOUTH ENTRANCE ROAD FROM THE
PY0803'JUNCTION OF GRANT VILLAGE ENTRANCE ROAD IN GRANT VILLAGE, IN TOP OF
PY0803'THE NORTHWEST GUARDRAIL OF A HIGHWAY BRIDGE SPANNING BIG THUMB CREEK,
PY0803'AND 6.2 M (20.3 FT) SOUTHWEST OF THE CENTERLINE OF THE HIGHWAY.
PY0803'THE MARK IS 0.7 M ABOVE THE HIGHWAY.

*** retrieval complete.
Elapsed Time = 00:00:01

The NGS Data Sheet

See file [dsdata.pdf](#) for more information about the datasheet.

PROGRAM = datasheet95, VERSION = 8.12.5.10

Starting Datasheet Retrieval...

```

1      National Geodetic Survey,      Retrieval Date = DECEMBER  2,  2020
PY0955 *****
PY0955 DESIGNATION - 10 12
PY0955 PID - PY0955
PY0955 STATE/COUNTY- WY/PARK
PY0955 COUNTRY - US
PY0955 USGS QUAD - NORRIS JUNCTION (2017)
PY0955
PY0955 *CURRENT SURVEY CONTROL
PY0955
PY0955* NAD 83(1986) POSITION- 44 43 36. (N) 110 41 18. (W) SCALED
PY0955* NAVD 88 ORTHO HEIGHT - 2284.485 (meters) 7495.01 (feet) ADJUSTED
PY0955
PY0955 GEOID HEIGHT - -8.564 (meters) GEOID18
PY0955 DYNAMIC HEIGHT - 2283.087 (meters) 7490.43 (feet) COMP
PY0955 MODELED GRAVITY - 979,922.8 (mgal) NAVD 88
PY0955
PY0955 VERT ORDER - FIRST CLASS II
PY0955
PY0955.The horizontal coordinates were scaled from a map and have
PY0955.an estimated accuracy of +/- 6 seconds.
PY0955.
PY0955.The orthometric height was determined by differential leveling and
PY0955.adjusted by the NATIONAL GEODETIC SURVEY
PY0955.in June 1991.
PY0955
PY0955.Significant digits in the geoid height do not necessarily reflect accuracy.
PY0955.GEOID18 height accuracy estimate available here.
PY0955
PY0955.Click photographs - Photos may exist for this station.
PY0955
PY0955.The dynamic height is computed by dividing the NAVD 88
PY0955.geopotential number by the normal gravity value computed on the
PY0955.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
PY0955.degrees latitude (g = 980.6199 gals.).
PY0955
PY0955.The modeled gravity was interpolated from observed gravity values.
PY0955
PY0955; North East Units Estimated Accuracy
PY0955;SPC WYWC - 471,320. 446,450. MT (+/- 180 meters Scaled)
PY0955
PY0955_U.S. NATIONAL GRID SPATIAL ADDRESS: 12TWQ246526(NAD 83)
PY0955
PY0955 SUPERSEDED SURVEY CONTROL
PY0955
PY0955 NGVD 29 (08/20/92) 2283.160 (m) 7490.67 (f) ADJUSTED 1 2

```


PY0955
 PY0955.Superseded values are not recommended for survey control.
 PY0955
 PY0955.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
 PY0955.See file [dsdata.pdf](#) to determine how the superseded data were derived.
 PY0955
 PY0955_MARKER: DB = BENCH MARK DISK
 PY0955_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT
 PY0955_STAMPING: 10-12 1986
 PY0955_MARK LOGO: FHWA
 PY0955_PROJECTION: FLUSH
 PY0955_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO
 PY0955+STABILITY: SURFACE MOTION
 PY0955

PY0955	HISTORY	- Date	Condition	Report By
PY0955	HISTORY	- 1986	MONUMENTED	FHWA
PY0955	HISTORY	- 1987	GOOD	NGS

 PY0955
 PY0955 STATION DESCRIPTION
 PY0955
 PY0955'DESCRIBED BY NATIONAL GEODETIC SURVEY 1987
 PY0955'1.1 KM (0.70 MI) EAST FROM NORRIS JUNCTION.
 PY0955'1.1 KM (0.70 MI) EASTERLY ALONG CANYON VILLAGE HIGHWAY FROM THE
 PY0955'MUSEUM AT NORRIS JUNCTION, 0.1 KM (0.05 MI) EAST OF THE INTERSECTION
 PY0955'OF THE GIBBON RIVER, 10.4 M (34.1 FT) SOUTHWEST OF A SIGN (NORRIS
 PY0955'PICNIC AREA), AND 6.1 M (20.0 FT) SOUTH OF THE CENTERLINE OF THE
 PY0955'HIGHWAY.
 PY0955'THE MARK IS 1.3 METERS N FROM A WITNESS POST
 PY0955'THE MARK IS 0.7 M BELOW THE HIGHWAY.

 *** retrieval complete.
 Elapsed Time = 00:00:02

The NGS Data Sheet

See file [dsdata.pdf](#) for more information about the datasheet.

PROGRAM = datasheet95, VERSION = 8.12.5.10

Starting Datasheet Retrieval...

```

1      National Geodetic Survey,   Retrieval Date = DECEMBER  2,  2020
PY0971 *****
PY0971 DESIGNATION - 10 26
PY0971 PID - PY0971
PY0971 STATE/COUNTY- WY/PARK
PY0971 COUNTRY - US
PY0971 USGS QUAD - CRYSTAL FALLS (2017)
PY0971
PY0971 *CURRENT SURVEY CONTROL
PY0971
PY0971* NAD 83(1986) POSITION- 44 44 08. (N) 110 30 15. (W) SCALED
PY0971* NAVD 88 ORTHO HEIGHT - 2405.516 (meters) 7892.10 (feet) ADJUSTED
PY0971
PY0971 GEOID HEIGHT - -8.526 (meters) GEOID18
PY0971 DYNAMIC HEIGHT - 2403.974 (meters) 7887.04 (feet) COMP
PY0971 MODELED GRAVITY - 979,889.0 (mgal) NAVD 88
PY0971
PY0971 VERT ORDER - FIRST CLASS II
PY0971
PY0971.The horizontal coordinates were scaled from a map and have
PY0971.an estimated accuracy of +/- 6 seconds.
PY0971.
PY0971.The orthometric height was determined by differential leveling and
PY0971.adjusted by the NATIONAL GEODETIC SURVEY
PY0971.in June 1991.
PY0971
PY0971.Significant digits in the geoid height do not necessarily reflect accuracy.
PY0971.GEOID18 height accuracy estimate available here.
PY0971
PY0971.Click photographs - Photos may exist for this station.
PY0971
PY0971.The dynamic height is computed by dividing the NAVD 88
PY0971.geopotential number by the normal gravity value computed on the
PY0971.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
PY0971.degrees latitude (g = 980.6199 gals.).
PY0971
PY0971.The modeled gravity was interpolated from observed gravity values.
PY0971
PY0971; North East Units Estimated Accuracy
PY0971;SPC WYWC - 471,980. 461,060. MT (+/- 180 meters Scaled)
PY0971
PY0971_U.S. NATIONAL GRID SPATIAL ADDRESS: 12TWQ392536(NAD 83)
PY0971
PY0971 SUPERSEDED SURVEY CONTROL
PY0971
PY0971 NGVD 29 (08/20/92) 2404.141 (m) 7887.59 (f) ADJUSTED 1 2

```

PY0971
 PY0971.Superseded values are not recommended for survey control.
 PY0971
 PY0971.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
 PY0971.See file [dsdata.pdf](#) to determine how the superseded data were derived.
 PY0971
 PY0971_MARKER: DB = BENCH MARK DISK
 PY0971_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT
 PY0971_STAMPING: 10-26 1986
 PY0971_MARK LOGO: FHWA
 PY0971_PROJECTION: FLUSH
 PY0971_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO
 PY0971+STABILITY: SURFACE MOTION
 PY0971

PY0971	HISTORY	- Date	Condition	Report By
PY0971	HISTORY	- 1986	MONUMENTED	FHWA
PY0971	HISTORY	- 1987	GOOD	NGS

 PY0971
 PY0971 STATION DESCRIPTION
 PY0971
 PY0971'DESCRIBED BY NATIONAL GEODETIC SURVEY 1987
 PY0971'0.8 KM (0.50 MI) WEST FROM CANYON VILLAGE.
 PY0971'0.8 KM (0.50 MI) WESTERLY ALONG NORRIS JUNCTION HIGHWAY FROM THE
 PY0971'JUNCTION OF NORTH RIM DRIVE IN CANYON VILLAGE, 28.0 M (91.9 FT) NORTH
 PY0971'OF THE CENTERLINE OF THE HIGHWAY, 23.5 M (77.1 FT) WEST OF THE CENTER
 PY0971'OF A HORSE TRAIL, AND 15.4 M (50.5 FT) NORTH OF THE NORTH CURB OF A
 PY0971'PAVED PARKING AREA.
 PY0971'THE MARK IS 0.9 METERS S FROM A WITNESS POST
 PY0971'THE MARK IS ABOVE LEVEL WITH THE HIGHWAY.

 *** retrieval complete.
 Elapsed Time = 00:00:02

The NGS Data Sheet

See file [dsdata.pdf](#) for more information about the datasheet.

PROGRAM = datasheet95, VERSION = 8.12.5.10

Starting Datasheet Retrieval...

```

1      National Geodetic Survey,      Retrieval Date = DECEMBER  2, 2020
QX0098 *****
QX0098 FBN          - This is a Federal Base Network Control Station.
QX0098 DESIGNATION - A 162
QX0098 PID          - QX0098
QX0098 STATE/COUNTY- MT/PARK
QX0098 COUNTRY      - US
QX0098 USGS QUAD    - ELECTRIC PEAK (2017)
QX0098
QX0098                      *CURRENT SURVEY CONTROL
QX0098
QX0098 * NAD 83(2011) POSITION- 45 06 08.07010(N) 110 47 13.92315(W) ADJUSTED
QX0098 * NAD 83(2011) ELLIP HT- 1573.650 (meters) (06/27/12) ADJUSTED
QX0098 * NAD 83(2011) EPOCH - 2010.00
QX0098 * NAVD 88 ORTHO HEIGHT - 1582.360 (meters) 5191.46 (feet) POSTED
QX0098
QX0098 GEOID HEIGHT - -8.822 (meters) GEOID18
QX0098 NAD 83(2011) X - -1,600,824.792 (meters) COMP
QX0098 NAD 83(2011) Y - -4,217,038.525 (meters) COMP
QX0098 NAD 83(2011) Z - 4,496,490.391 (meters) COMP
QX0098 LAPLACE CORR - -1.57 (seconds) DEFLEC18
QX0098 DYNAMIC HEIGHT - 1581.62 (meters) 5189.0 (feet) COMP
QX0098 MODELED GRAVITY - 980,095.9 (mgal) NAVD 88
QX0098
QX0098 VERT ORDER - * POSTED, SEE BELOW
QX0098
QX0098 Network accuracy estimates per FGDC Geospatial Positioning Accuracy
QX0098 Standards:
QX0098          FGDC (95% conf, cm)          Standard deviation (cm)          CorrNE
QX0098          Horiz Ellip          SD_N   SD_E   SD_h          (unitless)
QX0098 -----
QX0098 NETWORK    0.75    2.02          0.34   0.26   1.03          0.08839035
QX0098 -----
QX0098 Click here for local accuracies and other accuracy information.
QX0098
QX0098
QX0098 .The horizontal coordinates were established by GPS observations
QX0098 .and adjusted by the National Geodetic Survey in June 2012.
QX0098
QX0098 .NAD 83(2011) refers to NAD 83 coordinates where the reference frame has
QX0098 .been affixed to the stable North American tectonic plate. See
QX0098 .NA2011 for more information.
QX0098
QX0098 .The horizontal coordinates are valid at the epoch date displayed above
QX0098 .which is a decimal equivalence of Year/Month/Day.
QX0098

```

QX0098.The orthometric height was determined by differential leveling
 QX0098.and adjusted by the NATIONAL GEODETIC SURVEY in 1992.
 QX0098
 QX0098.* This is a POSTED BENCH MARK height.
 QX0098
 QX0098.Significant digits in the geoid height do not necessarily reflect accuracy.
 QX0098.GEOID18 height accuracy estimate available [here](#).

QX0098.Click [photographs](#) - Photos may exist for this station.

QX0098
 QX0098.The X, Y, and Z were computed from the position and the ellipsoidal ht.
 QX0098

QX0098.The Laplace correction was computed from DEFLEC18 derived deflections.

QX0098
 QX0098.The ellipsoidal height was determined by GPS observations
 QX0098.and is referenced to NAD 83.

QX0098
 QX0098.The dynamic height is computed by dividing the NAVD 88
 QX0098.geopotential number by the normal gravity value computed on the
 QX0098.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
 QX0098.degrees latitude (g = 980.6199 gals.).

QX0098
 QX0098.The modeled gravity was interpolated from observed gravity values.

QX0098
 QX0098. The following values were computed from the NAD 83(2011) position.

QX0098;		North	East	Units	Scale Factor	Converg.
QX0098;SPC MT	-	95,558.841	498,699.568	MT	0.99994017	-0 56 29.7
QX0098;SPC MT	-	313,513.26	1,636,153.44	iFT	0.99994017	-0 56 29.7
QX0098;SPC WYWC	-	513,245.599	439,669.176	MT	1.00025348	-1 26 36.2
QX0098;SPC WYWC	-	1,683,873.27	1,442,481.29	sFT	1.00025348	-1 26 36.2
QX0098;UTM 12	-	4,994,330.282	516,741.971	MT	0.99960345	+0 09 02.7
QX0098!	-	Elev Factor	x	Scale Factor	=	Combined Factor
QX0098!SPC MT	-	0.99975334	x	0.99994017	=	0.99969352
QX0098!SPC WYWC	-	0.99975334	x	1.00025348	=	1.00000675
QX0098!UTM 12	-	0.99975334	x	0.99960345	=	0.99935688

QX0098
 QX0098_U.S. NATIONAL GRID SPATIAL ADDRESS: 12TWQ1674194330 (NAD 83)

QX0098
 QX0098 SUPERSEDED SURVEY CONTROL

QX0098	NAD 83(2007)-	45 06 08.06970(N)		110 47 13.92463(W)	AD(2002.00)	0
QX0098	ELLIP H (02/10/07)	1573.673 (m)			GP(2002.00)	
QX0098	NAD 83(1999)-	45 06 08.06970(N)		110 47 13.92476(W)	AD()	A
QX0098	ELLIP H (10/12/00)	1573.674 (m)			GP()	3 1
QX0098	NAD 83(1992)-	45 06 08.06813(N)		110 47 13.92418(W)	AD()	B
QX0098	ELLIP H (05/15/92)	1573.751 (m)			GP()	4 2
QX0098	NAD 83(1986)-	45 06 08.05823(N)		110 47 13.90907(W)	AD()	1
QX0098	NAD 27	- 45 06 08.29108(N)		110 47 11.13758(W)	AD()	1
QX0098	NAVD 88	1582.36 (m)		5191.5 (f)	LEVELING	3
QX0098	NAVD 88 (05/28/92)	1582.5 (m)	UNKNOWN model used		GPS OBS	
QX0098	NGVD 29 (??/??/92)	1581.096 (m)		5187.31 (f)	ADJ UNCH	1 2
QX0098	NGVD 29	1581.10 (m)		5187.3 (f)	LEVELING	3

QX0098'RIVER IN THE SMALL VILLAGE OF CORWIN SPRINGS, ABOUT 0.48 KM (0.30 MI)
 QX0098'SOUTH OF HIGHWAY 89 MILEPOST 8, GO WEST ON CINNABAR BASIN ROAD FOR
 QX0098'0.32 KM (0.20 MI) TO THE WEST END OF A BRIDGE OVER THE YELLOWSTONE
 QX0098'RIVER AND YELLOWSTONE TRAIL ROAD ON THE LEFT. TURN LEFT, SOUTHEAST ON
 QX0098'YELLOWSTONE TRAIL FOR 1.13 KM (0.70 MI) TO THE NORTHWEST END OF A
 QX0098'METAL GUARDRAIL ON THE LEFT JUST BEFORE A CURVE IN THE ROAD RIGHT AND
 QX0098'A DIM TRACK ROAD ON THE RIGHT. TURN RIGHT, SOUTHERLY UPHILL ON THE
 QX0098'TRACK ROAD FOR ABOUT 0.08 KM (0.05 MI) TO AN ABANDONED RAILROAD BED
 QX0098'AND THE STATION STRAIGHT AHEAD, IN ROCK OUTCROP PROJECTING 0.45 M
 QX0098'(1.48 FT) ABOVE GROUND AND ABOUT 0.9 M (3.0 FT) ABOVE THE OLD RAILROAD
 QX0098'BED. THE STATION IS A SET IN ROCK OUTCROP ABOUT 9.14 M (29.99 FT)
 QX0098'ABOVE YELLOWSTONE TRAIL ROAD. LOCATED 7.8 M (25.6 FT) SOUTHWEST OF
 QX0098'THE CENTER OF THE ABANDONED RAILROAD BED AND 0.6 M (2.0 FT) NORTHWEST
 QX0098'OF A WITNESS POST.

QX0098
 QX0098 STATION RECOVERY (1999)
 QX0098

QX0098'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1999 (CSM)
 QX0098'RECOVERED AS DESCRIBED.

QX0098
 QX0098 STATION RECOVERY (2005)
 QX0098

QX0098'RECOVERY NOTE BY COMPASDATA INC 2005 (RL)
 QX0098'RECOVERED IN GOOD CONDITION.

QX0098
 QX0098 STATION RECOVERY (2008)
 QX0098

QX0098'RECOVERY NOTE BY CTA CIVIL ENGINEERS 2008 (CDK)
 QX0098'RECOVERED IN GOOD CONDITION.

QX0098
 QX0098 STATION RECOVERY (2009)
 QX0098

QX0098'RECOVERY NOTE BY GEOCACHING 2009 (MEL)
 QX0098'RECOVERED IN GOOD CONDITION.

QX0098
 QX0098 STATION RECOVERY (2018)
 QX0098

QX0098'RECOVERY NOTE BY MONTANA DEPARTMENT OF TRANSPORTATION 2018 (JW)
 QX0098'RECOVERED IN GOOD CONDITION.

*** retrieval complete.
 Elapsed Time = 00:00:02

The NGS Data Sheet

See file [dsdata.pdf](#) for more information about the datasheet.

PROGRAM = datasheet95, VERSION = 8.12.5.10

Starting Datasheet Retrieval...

```

1      National Geodetic Survey,      Retrieval Date = OCTOBER  1, 2020
PY0138 *****
PY0138 CBN          - This is a Cooperative Base Network Control Station.
PY0138 DESIGNATION - C 157
PY0138 PID          - PY0138
PY0138 STATE/COUNTY- WY/PARK
PY0138 COUNTRY      - US
PY0138 USGS QUAD    - MAMMOTH (2017)
PY0138
PY0138                      *CURRENT SURVEY CONTROL
PY0138
PY0138* NAD 83(2011) POSITION- 44 58 12.29242(N) 110 42 06.93838(W) ADJUSTED
PY0138* NAD 83(2011) ELLIP HT- 1928.624 (meters) (06/27/12) ADJUSTED
PY0138* NAD 83(2011) EPOCH   - 2010.00
PY0138* NAVD 88 ORTHO HEIGHT - 1937.218 (meters) 6355.69 (feet) ADJUSTED
PY0138
PY0138 GEOID HEIGHT   - -8.633 (meters) GEOID18
PY0138 NAD 83(2011) X - -1,598,310.128 (meters) COMP
PY0138 NAD 83(2011) Y - -4,229,374.753 (meters) COMP
PY0138 NAD 83(2011) Z - 4,486,359.754 (meters) COMP
PY0138 LAPLACE CORR   - -12.17 (seconds) DEFLEC18
PY0138 DYNAMIC HEIGHT - 1936.200 (meters) 6352.35 (feet) COMP
PY0138 MODELED GRAVITY - 980,022.4 (mgal) NAVD 88
PY0138
PY0138 VERT ORDER      - FIRST CLASS II
PY0138
PY0138 Network accuracy estimates per FGDC Geospatial Positioning Accuracy
PY0138 Standards:
PY0138          FGDC (95% conf, cm)      Standard deviation (cm)      CorrNE
PY0138          Horiz Ellip              SD_N   SD_E   SD_h      (unitless)
PY0138 -----
PY0138 NETWORK      2.19   7.94           0.89   0.90   4.05      -0.16548839
PY0138 -----
PY0138 Click here for local accuracies and other accuracy information.
PY0138
PY0138
PY0138.The horizontal coordinates were established by GPS observations
PY0138.and adjusted by the National Geodetic Survey in June 2012.
PY0138
PY0138.NAD 83(2011) refers to NAD 83 coordinates where the reference frame has
PY0138.been affixed to the stable North American tectonic plate. See
PY0138.NA2011 for more information.
PY0138
PY0138.The horizontal coordinates are valid at the epoch date displayed above
PY0138.which is a decimal equivalence of Year/Month/Day.
PY0138

```

PY0138.The orthometric height was determined by differential leveling and
 PY0138.adjusted by the NATIONAL GEODETIC SURVEY
 PY0138.in June 1991.
 PY0138
 PY0138.Significant digits in the geoid height do not necessarily reflect accuracy.
 PY0138.GEOID18 height accuracy estimate available [here](#).

PY0138
 PY0138.Click [photographs](#) - Photos may exist for this station.
 PY0138

PY0138.The X, Y, and Z were computed from the position and the ellipsoidal ht.
 PY0138

PY0138.The Laplace correction was computed from DEFLEC18 derived deflections.
 PY0138

PY0138.The ellipsoidal height was determined by GPS observations
 PY0138.and is referenced to NAD 83.
 PY0138

PY0138.The dynamic height is computed by dividing the NAVD 88
 PY0138.geopotential number by the normal gravity value computed on the
 PY0138.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
 PY0138.degrees latitude (g = 980.6199 gals.).
 PY0138

PY0138.The modeled gravity was interpolated from observed gravity values.
 PY0138

PY0138. The following values were computed from the NAD 83(2011) position.
 PY0138

PY0138;		North	East	Units	Scale	Factor	Converg.
PY0138;SPC WYWC	-	498,393.634	446,026.181	MT	1.00022893	-1 22	47.2
PY0138;SPC WYWC	-	1,635,146.45	1,463,337.56	sFT	1.00022893	-1 22	47.2
PY0138;UTM 12	-	4,979,670.023	523,504.909	MT	0.99960679	+0 12	38.4

PY0138!		Elev Factor	x	Scale Factor	=	Combined Factor
PY0138!SPC WYWC	-	0.99969771	x	1.00022893	=	0.99992657
PY0138!UTM 12	-	0.99969771	x	0.99960679	=	0.99930462

PY0138_U.S. NATIONAL GRID SPATIAL ADDRESS: 12TWQ2350479670 (NAD 83)
 PY0138

SUPERSEDED SURVEY CONTROL

PY0138	NAD 83(2007)-	44 58 12.29211(N)	110 42 06.93975(W)	AD(2002.00)	0
PY0138	ELLIP H (02/10/07)	1928.674 (m)		GP(2002.00)	
PY0138	ELLIP H (09/07/01)	1928.670 (m)		GP()	4 1
PY0138	NAD 83(1992)-	44 58 12.29096(N)	110 42 06.93849(W)	AD()	B
PY0138	ELLIP H (05/15/92)	1928.757 (m)		GP()	4 2
PY0138	NAD 83(1986)-	44 58 12.28092(N)	110 42 06.92365(W)	AD()	1
PY0138	NAVD 88	1937.22 (m)	6355.7 (f)	LEVELING	3
PY0138	NGVD 29 (08/20/92)	1935.992 (m)	6351.67 (f)	ADJUSTED	1 2
PY0138	NGVD 29	1935.95 (m)	6351.5 (f)	LEVELING	3
PY0138	NGVD 29 (??/??/87)	1935.886 (m)	6351.32 (f)	SUPERSEDED	1 2

PY0138
 PY0138.Superseded values are not recommended for survey control.
 PY0138
 PY0138.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
 PY0138.See file [dsdata.pdf](#) to determine how the superseded data were derived.

PY0138
 PY0138_MARKER: DB = BENCH MARK DISK
 PY0138_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT
 PY0138_STAMPING: C 157 1960
 PY0138_MARK LOGO: CGS
 PY0138_PROJECTION: PROJECTING 3 CENTIMETERS
 PY0138_MAGNETIC: N = NO MAGNETIC MATERIAL
 PY0138_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO
 PY0138+STABILITY: SURFACE MOTION
 PY0138_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR
 PY0138+SATELLITE: SATELLITE OBSERVATIONS - 1987

PY0138

HISTORY	- Date	Condition	Report By
PY0138 HISTORY	- 1960	MONUMENTED	CGS
PY0138 HISTORY	- 1983	GOOD	NGS
PY0138 HISTORY	- 1987	GOOD	NGS
PY0138 HISTORY	- 1987	GOOD	NGS

PY0138
 STATION DESCRIPTION

PY0138'DESCRIBED BY COAST AND GEODETIC SURVEY 1960
 PY0138'0.7 MI S FROM MAMMOTH HOT SPRINGS.
 PY0138'ABOUT 0.7 MILE SOUTH ALONG THE MAMMOTH HOT SPRINGS-NORRIS JUNCTION
 PY0138'HIGHWAY FROM THE POST OFFICE AT MAMMOTH HOT SPRINGS, ON THE CREST OF
 PY0138'CAPITAL HILL, 46 FEET NORTHEAST OF THE CENTER LINE OF THE HIGHWAY, 283
 PY0138'FEET NORTHWEST OF A FIRE HYDRANT, 148 FEET WEST-NORTHWEST OF A FORKED
 PY0138'FIR TREE, ABOUT LEVEL WITH THE HIGHWAY, AND IN THE TOP OF A CONCRETE
 PY0138'POST PROJECTING 2 INCHES.

PY0138
 STATION RECOVERY (1983)

PY0138'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1983
 PY0138'RECOVERED IN GOOD CONDITION, NEW DESCRIPTION FOLLOWS. 1.0 KM (0.6 MI)
 PY0138'SOUTHERLY ALONG THE MAMMOTH HOT SPRINGS-NORRIS JUNCTION HIGHWAY FROM
 PY0138'THE POST OFFICE IN MAMMOTH HOT SPRINGS, IN ABOUT THE CENTER AND ACROSS
 PY0138'THE HIGHWAY FROM MAMMOTH HOT SPRINGS, AT THE CREST OF CAPITAL HILL,
 PY0138'14.0 METERS (45.9 FT) EAST OF THE CENTERLINE OF THE HIGHWAY, AND 0.3
 PY0138'METER (1.0 FT) WEST OF A METAL FENCE POST.
 PY0138'THE MARK IS 0.5 M ABOVE THE HIGHWAY.

PY0138
 STATION RECOVERY (1987)

PY0138'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1987 (MRM)
 PY0138'THE STATION WAS RECOVERED AT THIS DATE.
 PY0138'
 PY0138'THE STATION IS LOCATED IN THE NORTHWEST PART OF YELLOWSTONE
 PY0138'NATIONAL PARK, 1.0 KM (0.6 MI) SOUTH OF MAMMOTH, ALONG THE
 PY0138'MAMMOTH-NORRIS JUNCTION ROAD, AT THE CREST OF A GRADE, ACROSS ROAD
 PY0138'FROM THE MAMMOTH HOT SPRINGS, JUST NORTHEAST OF A SMALL PARKING
 PY0138'AREA, IN A FLAT, OPEN AREA. OWNERSHIP--NATIONAL PARK SERVICE,
 PY0138'PHONE 307-344-7311 (INFORMATION).
 PY0138'
 PY0138'TO REACH THE STATION FROM THE YELLOWSTONE PARK POST OFFICE IN
 PY0138'MAMMOTH, GO SOUTH FOR 1.0 KM (0.6 MI) ON THE NORRIS JUNCTION ROAD

PY0138'TO THE TOP OF HILL AND STATION ON THE LEFT.
PY0138'
PY0138'THE STATION IS A STANDARD CGS BENCH MARK DISK
PY0138'STAMPED---C 157 1960---,
PY0138'SET INTO THE TOP OF A ROUND CONCRETE MONUMENT
PY0138'30 CM IN DIAMETER PROJECTING 5 CM ABOVE GROUND. LOCATED
PY0138'13.9 METERS (45.5 FT) NORTHEAST FROM THE APPROXIMATE CENTER OF
PY0138'ROAD, 0.3 METERS HIGHER THAN THE ROAD,
PY0138'29.0 METERS (95.0 FT) NORTH FROM THE JUNCTION OF ROAD CENTER AND THE
PY0138'NORTHWEST ENTRANCE TO A SMALL PARKING LOT AND
PY0138'0.34 METERS (1.1 FT) SOUTHWEST FROM A SHORT METAL POST.
PY0138'
PY0138'TI4100 GPS SURVEY FOR CRUSTAL MOTION IN YELLOWSTONE PARK AND HEBGEN
PY0138'LAKE AREAS OF WYOMING, MONTANA AND IDAHO, AUGUST - SEPTEMBER 1987.
PY0138'
PY0138'THIS STATION SUITABLE FOR GPS SURVEYS.
PY0138'
PY0138'DESCRIBED BY G.R. HEID.
PY0138
PY0138 STATION RECOVERY (1987)
PY0138
PY0138'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1987
PY0138'RECOVERED IN GOOD CONDITION.

*** retrieval complete.
Elapsed Time = 00:00:01

The NGS Data Sheet

See file [dsdata.pdf](#) for more information about the datasheet.

PROGRAM = datasheet95, VERSION = 8.12.5.10

Starting Datasheet Retrieval...

```

1      National Geodetic Survey,   Retrieval Date = DECEMBER  2,  2020
AA9696 *****
AA9696 DESIGNATION - E 128 RESET
AA9696 PID - AA9696
AA9696 STATE/COUNTY- MT/PARK
AA9696 COUNTRY - US
AA9696 USGS QUAD - CHADBORN (2017)
AA9696
AA9696 *CURRENT SURVEY CONTROL
AA9696
AA9696* NAD 83(1986) POSITION- 45 48 27.3 (N) 110 32 02.1 (W) HD_HELD2
AA9696* NAVD 88 ORTHO HEIGHT - 1408.64 (meters) 4621.5 (feet) RESET
AA9696
AA9696 GEOID HEIGHT - -10.897 (meters) GEOID18
AA9696 VERT ORDER - THIRD
AA9696
AA9696.The horizontal coordinates were established by autonomous hand held GPS
AA9696.observations and have an estimated accuracy of +/- 10 meters.
AA9696.
AA9696.The orthometric height was computed from unverified reset data.
AA9696
AA9696.Significant digits in the geoid height do not necessarily reflect accuracy.
AA9696.GEOID18 height accuracy estimate available here.
AA9696
AA9696.Click photographs - Photos may exist for this station.
AA9696
AA9696; North East Units Estimated Accuracy
AA9696;SPC MT - 173,630. 519,666. MT (+/- 10 meters HH2 GPS)
AA9696
AA9696_U.S. NATIONAL GRID SPATIAL ADDRESS: 12TWR3621472774(NAD 83)
AA9696
AA9696 SUPERSEDED SURVEY CONTROL
AA9696
AA9696.No superseded survey control is available for this station.
AA9696
AA9696_MARKER: I = METAL ROD
AA9696_SETTING: 66 = SET IN ROCK OUTCROP
AA9696_STAMPING: E 128 RESET 1995
AA9696_MARK LOGO: NGS
AA9696_MAGNETIC: I = MARKER IS A STEEL ROD
AA9696_STABILITY: A = MOST RELIABLE AND EXPECTED TO HOLD
AA9696+STABILITY: POSITION/ELEVATION WELL
AA9696_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR
AA9696+SATELLITE: SATELLITE OBSERVATIONS - March 14, 2009
AA9696
AA9696 HISTORY - Date Condition Report By

```

AA9696 HISTORY - 1995 MONUMENTED NGS
AA9696 HISTORY - 20090314 GOOD GEOCAC

AA9696
AA9696 STATION DESCRIPTION
AA9696

AA9696'DESCRIBED BY NATIONAL GEODETIC SURVEY 1995 (CWW)
AA9696'LOCATED ABOUT 6.0 MI (9.7 KM) SOUTH OF CLYDE PARK, 0.5 MI (0.8 KM)
AA9696'SOUTH OF THE CHADBORN ELEVATOR AND 0.05 MI (0.08 KM) SOUTHWEST OF U.S.
AA9696'HIGHWAY 89. THE STATION IS ON COUNTY PROPERTY. TO REACH FROM THE
AA9696'SAINT MARGARETS CATHOLIC CHURCH, IN CLYDE PARK, GO SOUTH ON U.S.
AA9696'HIGHWAY 89 FOR 6.15 MI (9.90 KM) TO HIGHWAY MILEPOST 9. CONTINUE
AA9696'SOUTH ON THE HIGHWAY FOR 0.3 MI (0.5 KM) TO CASTLE MOUNTAIN ROAD ON
AA9696'THE RIGHT. TURN RIGHT AND GO SOUTHWEST FOR 0.05 MI (0.08 KM) TO THE
AA9696'STATION ON THE LEFT. THE STATION MARK IS A STAINLESS STEEL ROAD
AA9696'DRIVEN INTO BEDROCK AND IS 164.0 FT (50.0 M) SOUTHWEST OF THE SOUTH
AA9696'ONE OF TWO SIPHONS, 62.3 FT (19.0 M) SOUTHWEST OF THE GRAVEL ROAD,
AA9696'33.8 FT (10.3 M) NORTHWEST OF A FENCE AND 6.1 FT (1.9 M) NORTHWEST OF
AA9696'A WITNESS POST.

AA9696
AA9696 STATION RECOVERY (2009)
AA9696

AA9696'RECOVERY NOTE BY GEOCACHING 2009 (MEL)
AA9696'RECOVERED IN GOOD CONDITION.

*** retrieval complete.
Elapsed Time = 00:00:01

The NGS Data Sheet

See file [dsdata.pdf](#) for more information about the datasheet.

PROGRAM = datasheet95, VERSION = 8.12.5.10

Starting Datasheet Retrieval...

```

1      National Geodetic Survey,      Retrieval Date = SEPTEMBER 28, 2020
PY1285 *****
PY1285 DESIGNATION -  GRSL AZ MK
PY1285 PID          -  PY1285
PY1285 STATE/COUNTY-  WY/TETON
PY1285 COUNTRY      -  US
PY1285 USGS QUAD    -  GRASSY LAKE RESERVOIR (2017)
PY1285
PY1285                      *CURRENT SURVEY CONTROL
PY1285
PY1285* NAD 83(2011) POSITION- 44 07 54.05350(N) 110 49 01.32987(W) ADJUSTED
PY1285* NAD 83(2011) ELLIP HT- 2192.240 (meters) (06/27/12) ADJUSTED
PY1285* NAD 83(2011) EPOCH - 2010.00
PY1285* NAVD 88 ORTHO HEIGHT - 2201.0 (meters) 7221. (feet) GPS OBS
PY1285
PY1285 NAVD 88 orthometric height was determined with an earlier geoid model
PY1285 GEOID HEIGHT - -8.773 (meters) GEOID18
PY1285 NAD 83(2011) X - -1,630,105.692 (meters) COMP
PY1285 NAD 83(2011) Y - -4,287,442.874 (meters) COMP
PY1285 NAD 83(2011) Z - 4,420,131.493 (meters) COMP
PY1285 LAPLACE CORR - 4.20 (seconds) DEFLEC18
PY1285
PY1285 Network accuracy estimates per FGDC Geospatial Positioning Accuracy
PY1285 Standards:
PY1285      FGDC (95% conf, cm)      Standard deviation (cm)      CorrNE
PY1285      Horiz Ellip              SD_N   SD_E   SD_h      (unitless)
PY1285 -----
PY1285 NETWORK      3.11   7.98              1.07   1.42   4.07      -0.04097287
PY1285 -----
PY1285 Click here for local accuracies and other accuracy information.
PY1285
PY1285
PY1285.The horizontal coordinates were established by GPS observations
PY1285.and adjusted by the National Geodetic Survey in June 2012.
PY1285
PY1285.NAD 83(2011) refers to NAD 83 coordinates where the reference frame has
PY1285.been affixed to the stable North American tectonic plate. See
PY1285.NA2011 for more information.
PY1285
PY1285.The horizontal coordinates are valid at the epoch date displayed above
PY1285.which is a decimal equivalence of Year/Month/Day.
PY1285
PY1285.The orthometric height was determined by GPS observations and a
PY1285.high-resolution geoid model.
PY1285
PY1285.Significant digits in the geoid height do not necessarily reflect accuracy.

```

PY1285.GEOID18 height accuracy estimate available [here](#).
 PY1285
 PY1285.Click [photographs](#) - Photos may exist for this station.
 PY1285
 PY1285.The X, Y, and Z were computed from the position and the ellipsoidal ht.
 PY1285
 PY1285.The Laplace correction was computed from DEFLEC18 derived deflections.
 PY1285
 PY1285.The ellipsoidal height was determined by GPS observations
 PY1285.and is referenced to NAD 83.
 PY1285
 PY1285. The following values were computed from the NAD 83(2011) position.
 PY1285
 PY1285;

	North	East	Units	Scale	Factor	Converg.
PY1285;SPC WY W	- 503,641.775	741,286.424	MT	0.99997988	-0 30	39.2
PY1285;SPC WY W	- 1,652,364.72	2,432,037.21	sFT	0.99997988	-0 30	39.2
PY1285;UTM 12	- 4,886,514.860	514,636.488	MT	0.99960263	+0 07	38.6

 PY1285
 PY1285!

	- Elev Factor	x	Scale Factor	=	Combined Factor
PY1285!SPC WY W	- 0.99965637	x	0.99997988	=	0.99963626
PY1285!UTM 12	- 0.99965637	x	0.99960263	=	0.99925914

 PY1285
 PY1285_U.S. NATIONAL GRID SPATIAL ADDRESS: 12TWP1463686514(NAD 83)
 PY1285

PID	Reference Object	Distance	Geod. Az
			ddmmss.s
PY1284	GRSL	351.417 METERS	22203
PY1273	GRASSY LAKE DAM	265.371 METERS	26546

 PY1285
 PY1285

SUPERSEDED SURVEY CONTROL

 PY1285

PY1285	NAD 83(2007)-	44 07 54.05307(N)	110 49 01.33058(W)	AD(2002.00)	0
PY1285	ELLIP H (02/10/07)	2192.280 (m)		GP(2002.00)	
PY1285	ELLIP H (09/07/01)	2192.281 (m)		GP()	4 1
PY1285	NAD 83(1992)-	44 07 54.04248(N)	110 49 01.31307(W)	AD()	1
PY1285	NAD 83(1992)-	44 07 54.05189(N)	110 49 01.32916(W)	AD()	1
PY1285	NAD 27	- 44 07 54.28511(N)	110 48 58.54424(W)	AD()	1
PY1285	ELLIP H (05/15/92)	2192.364 (m)		GP()	4 2
PY1285	NGVD 29 (06/11/92)	2199.7 (m)	GEOID90 model used	GPS OBS	

 PY1285
 PY1285.Superseded values are not recommended for survey control.
 PY1285
 PY1285.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
 PY1285.See file [dsdata.pdf](#) to determine how the superseded data were derived.
 PY1285
 PY1285_MARKER: DZ = AZIMUTH MARK DISK
 PY1285_SETTING: 80 = SET IN A BOULDER
 PY1285_STAMPING: GRSL 1991
 PY1285_MARK LOGO: NGS
 PY1285_MAGNETIC: N = NO MAGNETIC MATERIAL
 PY1285_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO

PY1285+STABILITY: SURFACE MOTION
PY1285_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR
PY1285+SATELLITE: SATELLITE OBSERVATIONS - September 24, 1991

PY1285	HISTORY	- Date	Condition	Report By
PY1285	HISTORY	- 1991	MONUMENTED	NGS
PY1285	HISTORY	- 19910924	GOOD	NGS

PY1285
PY1285 STATION DESCRIPTION
PY1285

PY1285'DESCRIBED BY NATIONAL GEODETIC SURVEY 1991
PY1285'THE STATION IS LOCATED ABOUT 12.6 KM (7.8 MI) WEST OF THE SOUTH
PY1285'ENTRANCE TO YELLOWSTONE NATIONAL PARK, AT THE GRASSY LAKE DAM IN THE
PY1285'TARGHEE NATIONAL FOREST. OWNERSHIP--U.S. FOREST SERVICE.
PY1285'TO REACH THE STATION FROM THE SOUTH ENTRANCE TO YELLOWSTONE NATIONAL
PY1285'PARK, GO SOUTH ON U.S. HIGHWAYS 187 AND 191 FOR 3.2 KM (2.0 MI) TO A
PY1285'PAVED ROAD RIGHT INTO THE FLAGG RANCH CAMPGROUND. TURN RIGHT AND GO
PY1285'NORTHWEST ON THE PAVED ROAD FOR 1.0 KM (0.6 MI) TO A FORK. TAKE THE
PY1285'LEFT FORK AND GO WESTERLY ON GRASSY LAKE ROAD (PAVED, THEN DIRT) FOR
PY1285'15.9 KM (9.9 MI) TO THE NORTHEAST END OF GRASSY LAKE DAM, A DIRT
PY1285'CROSSROAD AND THE STATION ON THE LEFT.
PY1285'THE STATION IS AN AZIMUTH MARK DISK SET IN A DRILL HOLE IN A 0.5 X 0.3
PY1285'METER BOULDER. LOCATED 9.8 M (32.2 FT) SOUTHWEST OF THE CENTER OF
PY1285'THE DIRT ROAD THAT LEADS ACROSS THE DAM, 5.4 M (17.7 FT) SOUTHWEST OF
PY1285'THE CENTER OF THE DIRT ROAD THAT LEADS ALONG THE NORTH SIDE OF THE
PY1285'RESERVOIR AND 5.4 M (17.7 FT) SOUTHWEST FROM THE NORTHEAST CORNER
PY1285'POST OF THE STONE HEADWALL ACROSS THE DAM.

*** retrieval complete.
Elapsed Time = 00:00:01

The NGS Data Sheet

See file [dsdata.pdf](#) for more information about the datasheet.

PROGRAM = datasheet95, VERSION = 8.12.5.10

Starting Datasheet Retrieval...

```

1      National Geodetic Survey,      Retrieval Date = SEPTEMBER 28, 2020
PY0952 *****
PY0952 CBN          - This is a Cooperative Base Network Control Station.
PY0952 DESIGNATION - HARLEQUIN
PY0952 PID          - PY0952
PY0952 STATE/COUNTY- WY/TETON
PY0952 COUNTRY     - US
PY0952 USGS QUAD   - MOUNT JACKSON (2017)
PY0952
PY0952                      *CURRENT SURVEY CONTROL
PY0952
PY0952* NAD 83(2011) POSITION- 44 38 22.65748(N) 110 53 19.16750(W) ADJUSTED
PY0952* NAD 83(2011) ELLIP HT- 2063.772 (meters) (06/27/12) ADJUSTED
PY0952* NAD 83(2011) EPOCH   - 2010.00
PY0952* NAVD 88 ORTHO HEIGHT - 2072.635 (meters) 6799.97 (feet) ADJUSTED
PY0952
PY0952 GEOID HEIGHT   - -8.863 (meters) GEOID18
PY0952 NAD 83(2011) X - -1,621,349.444 (meters) COMP
PY0952 NAD 83(2011) Y - -4,248,417.876 (meters) COMP
PY0952 NAD 83(2011) Z - 4,460,391.701 (meters) COMP
PY0952 LAPLACE CORR   - 2.37 (seconds) DEFLEC18
PY0952 DYNAMIC HEIGHT - 2071.409 (meters) 6795.95 (feet) COMP
PY0952 MODELED GRAVITY - 979,951.7 (mgal) NAVD 88
PY0952
PY0952 VERT ORDER     - FIRST CLASS II
PY0952
PY0952 Network accuracy estimates per FGDC Geospatial Positioning Accuracy
PY0952 Standards:
PY0952          FGDC (95% conf, cm)          Standard deviation (cm)          CorrNE
PY0952          Horiz Ellip                SD_N   SD_E   SD_h          (unitless)
PY0952 -----
PY0952 NETWORK    2.60    9.55                1.03   1.09   4.87          -0.12132588
PY0952 -----
PY0952 Click here for local accuracies and other accuracy information.
PY0952
PY0952
PY0952.The horizontal coordinates were established by GPS observations
PY0952.and adjusted by the National Geodetic Survey in June 2012.
PY0952
PY0952.NAD 83(2011) refers to NAD 83 coordinates where the reference frame has
PY0952.been affixed to the stable North American tectonic plate. See
PY0952.NA2011 for more information.
PY0952
PY0952.The horizontal coordinates are valid at the epoch date displayed above
PY0952.which is a decimal equivalence of Year/Month/Day.
PY0952

```


PY0952_MARKER: DH = HORIZONTAL CONTROL DISK
 PY0952_SETTING: 80 = SET IN A BOULDER
 PY0952_STAMPING: HARLEQUIN 1987
 PY0952_MARK LOGO: NGS
 PY0952_MAGNETIC: N = NO MAGNETIC MATERIAL
 PY0952_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO
 PY0952+STABILITY: SURFACE MOTION
 PY0952_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR
 PY0952+SATELLITE: SATELLITE OBSERVATIONS - May 20, 2009

PY0952

PY0952	HISTORY	- Date	Condition	Report By
PY0952	HISTORY	- 1987	MONUMENTED	NGS
PY0952	HISTORY	- 1987	GOOD	NGS
PY0952	HISTORY	- 20090520	GOOD	GEOCAC

PY0952

PY0952 STATION DESCRIPTION

PY0952

PY0952'DESCRIBED BY NATIONAL GEODETIC SURVEY 1987 (MRM)
 PY0952'THE STATION IS LOCATED IN YELLOWSTONE NATIONAL PARK, 16.9 KM (10.5
 PY0952'MI) EAST OF WEST YELLOWSTONE MT, 2.4 KM (1.5 MI) WEST OF MADISON
 PY0952'JUNCTION, AT A ROADSIDE PARKING AREA AT THE MADISON PLATEAU SIGN,
 PY0952'ON A SLOPING BENCH BETWEEN THE PARKING AREA AND THE MADISON RIVER.
 PY0952'OWNERSHIP--NATIONAL PARK SERVICE, JOHN VARLEY, YELLOWSTONE PARK WY,
 PY0952'PHONE 307-344-7381 EXTENSION 2248.

PY0952'

PY0952'TO REACH THE STATION FROM THE WEST ENTRANCE TO YELLOWSTONE NATIONAL
 PY0952'PARK NEAR WEST YELLOWSTONE MT, GO EAST FOR 11.8 KM (7.35 MI) ON THE
 PY0952'PARK ROAD TO THE EAST END OF THE BRIDGE OVER THE MADISON RIVER.
 PY0952'CONTINUE AHEAD FOR 7.2 KM (4.5 MI) TO THE WEST ENTRANCE TO A
 PY0952'PARKING AREA. BEAR RIGHT INTO PARKING AREA FOR 0.2 KM (0.1 MI) TO
 PY0952'THE STATION ON THE RIGHT.

PY0952'

PY0952'THE STATION IS A STANDARD NGS DISK
 PY0952'STAMPED---HARLEQUIN 1987---,
 PY0952'SET INTO A DRILL HOLE IN A 0.4-METER IRREGULAR BOULDER PROJECTING 2
 PY0952'CM ABOVE GROUND. LOCATED
 PY0952'27.6 METERS (90.5 FT) SOUTHEAST FROM A METAL POST SUPPORTING A TRASH
 PY0952'CAN,
 PY0952'24.8 METERS (81.4 FT) SOUTH-SOUTHEAST FROM THE PAVEMENT EDGE,
 PY0952'23.5 METERS (77.1 FT) NORTH FROM THE CENTER OF A BUFFALO WALLOW,
 PY0952'20.4 METERS (67.0 FT) SOUTH-SOUTHEAST FROM THE MADISON PLATEAU WOOD
 PY0952'SIGN, ABOUT 100 METERS (328 FT) SOUTHEAST FROM THE PARK ROAD,
 PY0952'1.5 METERS LOWER THAN THE PARKING AREA AND IN THE APPROXIMATE CENTER
 PY0952'OF THE LARGE TRIANGULAR-SHAPED BENCH.

PY0952'

PY0952'NO REFERENCE MARKS WERE SET AT THIS TIME.

PY0952'

PY0952'TI4100 GPS SURVEY FOR CRUSTAL MOTION IN YELLOWSTONE PARK AND HEBGEN
 PY0952'LAKE AREAS OF WYOMING, MONTANA AND IDAHO, AUGUST - SEPTEMBER 1987.

PY0952'

PY0952'THIS STATION SUITABLE FOR GPS SURVEYS.

PY0952'

PY0952'DESCRIBED BY G.R. HEID.

PY0952

PY0952 STATION RECOVERY (1987)

PY0952

PY0952'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1987

PY0952'19.2 KM (11.95 MI) EAST FROM WEST YELLOWSTONE.

PY0952'19.2 KM (11.95 MI) EASTERLY ALONG THE WEST ENTRANCE ROAD FROM THE

PY0952'MUSEUM OF THE YELLOWSTONE IN WEST YELLOWSTONE, IN A SMALL BOULDER

PY0952'NEAR THE CENTER OF A TRIANGLE SHAPED BENCH OVERLOOKING THE MADISON

PY0952'PLATEAU, 98.2 M (322.2 FT) SOUTH OF THE CENTERLINE OF THE HIGHWAY,

PY0952'24.8 M (81.4 FT) SOUTH OF THE SOUTH EDGE OF A PAVED PARKING AREA, AND

PY0952'20.4 M (66.9 FT) SOUTHEAST OF A MADISON PLATEAU SIGN.

PY0952'THE MARK IS 1.5 M BELOW THE PARKING AREA.

PY0952

PY0952 STATION RECOVERY (2009)

PY0952

PY0952'RECOVERY NOTE BY GEOCACHING 2009 (WD)

PY0952'THE STATION IS ABOUT 75 FEET SOUTH OF THE EAST END OF A WOOD AND STONE

PY0952'BENCH.

*** retrieval complete.

Elapsed Time = 00:00:02

The NGS Data Sheet

See file [dsdata.pdf](#) for more information about the datasheet.

PROGRAM = datasheet95, VERSION = 8.12.5.10

Starting Datasheet Retrieval...

```

1      National Geodetic Survey,      Retrieval Date = OCTOBER  1, 2020
PY0036 *****
PY0036 DESIGNATION - K 12
PY0036 PID - PY0036
PY0036 STATE/COUNTY- WY/PARK
PY0036 COUNTRY - US
PY0036 USGS QUAD - SYLVAN LAKE (2017)
PY0036
PY0036 *CURRENT SURVEY CONTROL
PY0036
PY0036* NAD 83(1986) POSITION- 44 28 42.69 (N) 110 09 32.07 (W) HD_HELD1
PY0036* NAVD 88 ORTHO HEIGHT - 2565.926 (meters) 8418.38 (feet) ADJUSTED
PY0036
PY0036 GEOID HEIGHT - -7.717 (meters) GEOID18
PY0036 DYNAMIC HEIGHT - 2564.232 (meters) 8412.82 (feet) COMP
PY0036 MODELED GRAVITY - 979,863.6 (mgal) NAVD 88
PY0036
PY0036 VERT ORDER - FIRST CLASS II
PY0036
PY0036.The horizontal coordinates were determined by differentially corrected
PY0036.hand held GPS observations or other comparable positioning techniques
PY0036.and have an estimated accuracy of +/- 3 meters.
PY0036.
PY0036.The orthometric height was determined by differential leveling and
PY0036.adjusted by the NATIONAL GEODETIC SURVEY
PY0036.in June 1991.
PY0036
PY0036.Significant digits in the geoid height do not necessarily reflect accuracy.
PY0036.GEOID18 height accuracy estimate available here.
PY0036
PY0036.Click photographs - Photos may exist for this station.
PY0036
PY0036.The dynamic height is computed by dividing the NAVD 88
PY0036.geopotential number by the normal gravity value computed on the
PY0036.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
PY0036.degrees latitude (g = 980.6199 gals.).
PY0036
PY0036.The modeled gravity was interpolated from observed gravity values.
PY0036
PY0036; North East Units Estimated Accuracy
PY0036;SPC WYWC - 442,883.9 487,915.8 MT (+/- 3 meters HH1 GPS)
PY0036
PY0036_U.S. NATIONAL GRID SPATIAL ADDRESS: 12TWQ6688925367(NAD 83)
PY0036
PY0036 SUPERSEDED SURVEY CONTROL
PY0036

```

PY0036 NGVD 29 (??/??/92) 2564.625 (m) 8414.11 (f) SUPERSEDED 1 2
PY0036 NGVD 29 (08/20/92) 2564.625 (m) 8414.11 (f) ADJUSTED 1 2

PY0036

PY0036.Superseded values are not recommended for survey control.

PY0036

PY0036.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.

PY0036.See file [dsdata.pdf](#) to determine how the superseded data were derived.

PY0036

PY0036_MARKER: DB = BENCH MARK DISK

PY0036_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT

PY0036_STAMPING: K 12 1923 8413.920

PY0036_MARK LOGO: CGS

PY0036_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO

PY0036+STABILITY: SURFACE MOTION

PY0036

PY0036	HISTORY	- Date	Condition	Report By
PY0036	HISTORY	- 1923	MONUMENTED	CGS
PY0036	HISTORY	- 1934	GOOD	CGS
PY0036	HISTORY	- 1987	GOOD	NGS

PY0036

STATION DESCRIPTION

PY0036

PY0036'DESCRIBED BY COAST AND GEODETIC SURVEY 1934

PY0036'16.9 MI E FROM LAKE JUNCTION.

PY0036'16.9 MILES EAST ALONG THE LAKE JUNCTION-EAST ENTRANCE ROAD FROM LAKE
PY0036'JUNCTION, YELLOWSTONE NATIONAL PARK, 30 FEET FROM THE EDGE OF SYLVAN
PY0036'LAKE, 60 FEET SOUTH OF THE ROAD, AND 4 FEET HIGHER THAN THE ROAD. A
PY0036'STANDARD DISK, STAMPED 8413.920 K 12 1923 AND SET IN THE TOP OF A
PY0036'CONCRETE POST PROJECTING 14 INCHES ABOVE GROUND.

PY0036

STATION RECOVERY (1987)

PY0036

PY0036'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1987

PY0036'RECOVERED IN GOOD CONDITION.

*** retrieval complete.

Elapsed Time = 00:00:01

The NGS Data Sheet

See file [dsdata.pdf](#) for more information about the datasheet.

PROGRAM = datasheet95, VERSION = 8.12.5.10

Starting Datasheet Retrieval...

```

1      National Geodetic Survey,      Retrieval Date = DECEMBER  2,  2020
PY0011 *****
PY0011 DESIGNATION - LAKE ASTRO STATION
PY0011 PID - PY0011
PY0011 STATE/COUNTY- WY/TETON
PY0011 COUNTRY - US
PY0011 USGS QUAD - LAKE (2017)
PY0011
PY0011 *CURRENT SURVEY CONTROL
PY0011
PY0011* NAD 83(1993) POSITION- 44 33 16.89874(N) 110 23 42.37086(W) ADJUSTED
PY0011* NAVD 88 ORTHO HEIGHT - 2367.655 (meters) 7767.88 (feet) POSTED
PY0011
PY0011 GEOID HEIGHT - -8.588 (meters) GEOID18
PY0011 LAPLACE CORR - 0.89 (seconds) DEFLEC18
PY0011 DYNAMIC HEIGHT - 2366.08 (meters) 7762.7 (feet) COMP
PY0011 MODELED GRAVITY - 979,867.4 (mgal) NAVD 88
PY0011
PY0011 HORZ ORDER - SECOND
PY0011 VERT ORDER - * POSTED, SEE BELOW
PY0011
PY0011.The horizontal coordinates were established by classical geodetic methods
PY0011.and adjusted by the National Geodetic Survey in January 1997.
PY0011.
PY0011.The orthometric height was determined by differential leveling
PY0011.and adjusted by the NATIONAL GEODETIC SURVEY in 1992.
PY0011
PY0011.* This is a POSTED BENCH MARK height.
PY0011
PY0011.Significant digits in the geoid height do not necessarily reflect accuracy.
PY0011.GEOID18 height accuracy estimate available here.
PY0011
PY0011.Click photographs - Photos may exist for this station.
PY0011
PY0011.The Laplace correction was computed from DEFLEC18 derived deflections.
PY0011
PY0011.The dynamic height is computed by dividing the NAVD 88
PY0011.geopotential number by the normal gravity value computed on the
PY0011.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
PY0011.degrees latitude (g = 980.6199 gals.).
PY0011
PY0011.The modeled gravity was interpolated from observed gravity values.
PY0011
PY0011. The following values were computed from the NAD 83(1993) position.
PY0011
PY0011; North East Units Scale Factor Converg.

```


PY0011;SPC WY W - 550,429.059 775,229.831 MT 0.99994504 -0 13 07.4
 PY0011;SPC WY W - 1,805,866.00 2,543,399.87 sFT 0.99994504 -0 13 07.4
 PY0011;UTM 12 - 4,933,662.426 548,042.987 MT 0.99962838 +0 25 27.8
 PY0011
 PY0011!
 PY0011!SPC WY W - Elev Factor x Scale Factor = Combined Factor
 PY0011!SPC WY W - 0.99963025 x 0.99994504 = 0.99957531
 PY0011!UTM 12 - 0.99963025 x 0.99962838 = 0.99925876

PY0011 U.S. NATIONAL GRID SPATIAL ADDRESS: 12TWQ4804233662(NAD 83)

PY0011 SUPERSEDED SURVEY CONTROL

PY0011 NAD 83(1992)- 44 33 16.89874(N) 110 23 42.37085(W) AD() 2
 PY0011 NAD 83(1986)- 44 33 16.88615(N) 110 23 42.36107(W) AD() 2
 PY0011 NAD 27 - 44 33 17.08900(N) 110 23 39.62200(W) AD() 2
 PY0011 NGVD 29 (??/??/92) 2365.667 (m) 7761.36 (f) ADJ UNCH 2 0
 PY0011 NGVD 29 (07/19/86) 2358.7 (m) 7739. (f) VERT ANG

PY0011.Superseded values are not recommended for survey control.

PY0011.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.

PY0011.See file [dsdata.pdf](#) to determine how the superseded data were derived.

PY0011_MARKER: V = STONE MONUMENT

PY0011_SETTING: 30 = SET IN A LIGHT STRUCTURE

PY0011_SP_SET: GRANITE MONUMENT

PY0011_STABILITY: D = MARK OF QUESTIONABLE OR UNKNOWN STABILITY

HISTORY	Date	Condition	Report By
PY0011 HISTORY	- 1892	MONUMENTED	CGS
PY0011 HISTORY	- 1950	GOOD	CGS
PY0011 HISTORY	- 20070810	GOOD	GEOCAC

PY0011 STATION DESCRIPTION

PY0011'DESCRIBED BY COAST AND GEODETIC SURVEY 1892 (CHS)
 PY0011'THE STATION IS LOCATED IN YELLOWSTONE NATIONAL PARK ABOUT 1.5
 PY0011'MILES WEST-SOUTHWEST OF FISHING BRIDGE.
 PY0011'
 PY0011'LAKE ASTRONOMICAL STATION IS 200 FEET EAST OF LAKE LODGE, AND 27 FEET
 PY0011'EAST OF THE CENTER OF AN OILED ROAD. THE MARK IS A GRANITE
 PY0011'MONUMENT 18 INCHES BY 24 INCHES, AND PROJECTS 3 FEET. THERE
 PY0011'IS A BRASS PLUG IN THE TOP OF THE MONUMENT. THE MONUMENT IS
 PY0011'INSCRIBED ALTITUDE 7738.43 ON THE SOUTH SIDE, LATITUDE 44 33 16.1
 PY0011'ON THE WEST SIDE, U.S.C. AND G.S. SURVEY ON THE NORTH SIDE, AND
 PY0011'LONGITUDE 110 23 43.1 ON THE EAST SIDE.

PY0011 STATION RECOVERY (1950)

PY0011'RECOVERY NOTE BY COAST AND GEODETIC SURVEY 1950
 PY0011'1.3 MI SW FROM LAKE JUNCTION.
 PY0011'1.3 MILES SOUTHWEST ALONG THE LAKE JUNCTION-THUMB RANGER STATION ROAD
 PY0011'FROM LAKE JUNCTION, YELLOWSTONE NATIONAL PARK, 200 FEET EAST OF LAKE
 PY0011'LODGE AND 27 FEET EAST OF THE CENTER OF AN OILED ROAD. A BRASS PLUG

PY0011'IN THE TOP OF A GRANITE MONUMENT WHICH PROJECTS 3 FEET.

PY0011

PY0011

STATION RECOVERY (2007)

PY0011

PY0011'RECOVERY NOTE BY GEOCACHING 2007 (TFW)

PY0011'RECOVERED IN GOOD CONDITION.

*** retrieval complete.

Elapsed Time = 00:00:02

The NGS Data Sheet

See file [dsdata.pdf](#) for more information about the datasheet.

PROGRAM = datasheet95, VERSION = 8.12.5.10

Starting Datasheet Retrieval...

```

1      National Geodetic Survey,      Retrieval Date = SEPTEMBER 28, 2020
PY0802 *****
PY0802 FBN          -   This is a Federal Base Network Control Station.
PY0802 DESIGNATION -   MEERTENS 2
PY0802 PID          -   PY0802
PY0802 STATE/COUNTY-   WY/TETON
PY0802 COUNTRY     -   US
PY0802 USGS QUAD   -   OLD FAITHFUL (2017)
PY0802
PY0802                      *CURRENT SURVEY CONTROL
PY0802
PY0802* NAD 83(2011) POSITION- 44 27 14.39222(N) 110 49 08.91062(W) ADJUSTED
PY0802* NAD 83(2011) ELLIP HT- 2246.384 (meters) (06/27/12) ADJUSTED
PY0802* NAD 83(2011) EPOCH   - 2010.00
PY0802* NAVD 88 ORTHO HEIGHT - 2255.437 (meters) 7399.71 (feet) ADJUSTED
PY0802
PY0802 GEOID HEIGHT   -           -8.903 (meters) GEOID18
PY0802 NAD 83(2011) X - -1,621,384.692 (meters) COMP
PY0802 NAD 83(2011) Y - -4,264,033.454 (meters) COMP
PY0802 NAD 83(2011) Z -  4,445,813.960 (meters) COMP
PY0802 LAPLACE CORR   -           5.74 (seconds) DEFLEC18
PY0802 DYNAMIC HEIGHT -           2253.969 (meters) 7394.90 (feet) COMP
PY0802 MODELED GRAVITY -           979,886.3 (mgal) NAVD 88
PY0802
PY0802 VERT ORDER     -   FIRST      CLASS II
PY0802
PY0802 Network accuracy estimates per FGDC Geospatial Positioning Accuracy
PY0802 Standards:
PY0802           FGDC (95% conf, cm)      Standard deviation (cm)      CorrNE
PY0802           Horiz Ellip              SD_N   SD_E   SD_h      (unitless)
PY0802 -----
PY0802 NETWORK    0.62   1.76              0.28   0.22   0.90      0.01584684
PY0802 -----
PY0802 Click here for local accuracies and other accuracy information.
PY0802
PY0802
PY0802.The horizontal coordinates were established by GPS observations
PY0802.and adjusted by the National Geodetic Survey in June 2012.
PY0802
PY0802.NAD 83(2011) refers to NAD 83 coordinates where the reference frame has
PY0802.been affixed to the stable North American tectonic plate. See
PY0802.NA2011 for more information.
PY0802
PY0802.The horizontal coordinates are valid at the epoch date displayed above
PY0802.which is a decimal equivalence of Year/Month/Day.
PY0802

```


PY0802
 PY0802_MARKER: DH = HORIZONTAL CONTROL DISK
 PY0802_SETTING: 35 = SET IN A MAT FOUNDATION OR CONCRETE SLAB OTHER THAN
 PY0802+WITH SETTING: PAVEMENT
 PY0802_SP_SET: CONCRETE CURBBING/WALK WAY OF HI
 PY0802_STAMPING: MEERTENS 2 1987
 PY0802_MARK LOGO: NGS
 PY0802_MAGNETIC: N = NO MAGNETIC MATERIAL
 PY0802_STABILITY: D = MARK OF QUESTIONABLE OR UNKNOWN STABILITY
 PY0802_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR
 PY0802+SATELLITE: SATELLITE OBSERVATIONS - October 19, 1999

PY0802

PY0802	HISTORY	- Date	Condition	Report By
PY0802	HISTORY	- 1987	MONUMENTED	NGS
PY0802	HISTORY	- 1987	GOOD	NGS
PY0802	HISTORY	- 19991019	GOOD	NGS
PY0802	HISTORY	- 20100702	GOOD	GEOCAC
PY0802	HISTORY	- 20100810	GOOD	GEOCAC

PY0802
 STATION DESCRIPTION
 PY0802

PY0802'DESCRIBED BY NATIONAL GEODETIC SURVEY 1987 (MRM)
 PY0802'THE STATION IS LOCATED IN THE WEST CENTRAL SECTION OF YELLOWSTONE
 PY0802'NATIONAL PARK, ALONG THE OLD FAITHFUL-WEST THUMB ROAD, ABOUT 2.3 KM
 PY0802'(1.4 MI) EAST-SOUTHEAST OF THE OVERPASS AT OLD FAITHFUL JUNCTION,
 PY0802'IN THE SIDEWALK OF A BRIDGE OVER THE FIREHOLE RIVER.
 PY0802'OWNERSHIP--NATIONAL PARK SERVICE.
 PY0802'
 PY0802'TO REACH THE STATION FROM THE OVERPASS AT OLD FAITHFUL JUNCTION IN
 PY0802'YELLOWSTONE NATIONAL PARK, GO SOUTHEAST FOR 2.5 KM (1.55 MI) ON THE
 PY0802'OLD FAITHFUL-WEST THUMB ROAD TO THE EAST END OF THE BRIDGE AND THE
 PY0802'STATION ON THE RIGHT.
 PY0802'
 PY0802'THE STATION IS A STANDARD NGS DISK
 PY0802'STAMPED---MEERTENS 2 1987---,
 PY0802'SET INTO A DRILL HOLE IN THE SOUTH SIDEWALK OF BRIDGE. LOCATED
 PY0802'4.8 METERS (15.7 FT) SOUTHEAST FROM THE APPROXIMATE CENTER OF
 PY0802'HIGHWAY, 0.25 METERS ABOVE THE HIGHWAY,
 PY0802'0.9 METERS (3.0 FT) SOUTHWEST FROM THE NORTHEAST END OF SIDEWALK AND
 PY0802'0.4 METERS (1.3 FT) NORTHWEST FROM THE METAL BRIDGE RAILING.
 PY0802'
 PY0802'THE STATION IS NEAR MEERTENS 1987, WHICH IS SET IN THE BRIDGE
 PY0802'SIDEWALK, BEYOND THE EXPANSION JOINT.
 PY0802'
 PY0802'NO REFERENCE MARKS WERE SET AT THIS TIME.
 PY0802'
 PY0802'TI4100 GPS SURVEY FOR CRUSTAL MOTION IN YELLOWSTONE PARK AND
 PY0802'HEBGEN LAKE AREAS OF WYOMING, MONTANA AND IDAHO, AUGUST - SEPTEMBER
 PY0802'1987.
 PY0802'
 PY0802'THIS STATION SUITABLE FOR GPS SURVEYS.
 PY0802'
 PY0802'DESCRIBED BY D.L. SPRANGERS.
 PY0802

PY0802 STATION RECOVERY (1987)

PY0802

PY0802'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1987

PY0802'25.7 KM (15.95 MI) WEST FROM WEST THUMB.

PY0802'25.7 KM (15.95 MI) WESTERLY ALONG MADISON JUNCTION-WEST THUMB HIGHWAY

PY0802'FROM THE SOUTH JUNCTION OF WEST THUMB-LAKE JUNCTION HIGHWAY IN WEST

PY0802'THUMB, IN TOP OF AND 0.7 M (2.3 FT) NORTHWEST OF THE SOUTHEAST END OF

PY0802'THE SOUTHWEST WALKWAY OF A HIGHWAY BRIDGE SPANNING THE FIREHOLE

PY0802'RIVER, 4.7 M (15.4 FT) SOUTHEAST OF THE CENTERLINE OF THE HIGHWAY,

PY0802'AND 0.8 M (2.6 FT) NORTHEAST OF TRIANGULATION STATION MEERTENS.

PY0802'THE MARK IS 0.3 M ABOVE THE HIGHWAY.

PY0802

PY0802 STATION RECOVERY (1999)

PY0802

PY0802'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1999 (CSM)

PY0802'RECOVERED BY NATIONAL GEODETIC SURVEY 1999. RECOVERED IN GOOD

PY0802'CONDITION, NEW DESCRIPTION FOLLOWS. THE STATION IS LOCATED IN

PY0802'YELLOWSTONE NATIONAL PARK, ABOUT 28.32 KM (17.60 MI) SOUTHEAST OF

PY0802'MADISON JUNCTION, 25.74 KM (16.00 MI) WEST OF WEST THUMB JUNCTION,

PY0802'ABOUT 2.5 KM (1.55 MI) EAST OF THE OLD FAITHFUL JUNCTION OVERPASS

PY0802'BRIDGE OVER WEST THUMB/MADISON HIGHWAY. OWNERSHIP--US NATIONAL PARK

PY0802'SERVICE. TO REACH THE STATION FROM OLD FAITHFUL JUNCTION OVERPASS

PY0802'BRIDGE OVER THE MADISON/WEST THUMB HIGHWAY IN YELLOWSTONE NATIONAL

PY0802'PARK, FROM THE CENTER OF THE UNDERPASS GO EASTERLY ON WEST

PY0802'THUMB/MADISON HIGHWAY FOR 2.5 KM (1.55 MI) TO THE NORTHEAST END OF THE

PY0802'HIGHWAY BRIDGE OVER THE FIRE HOLE RIVER AND THE STATION ON THE RIGHT

PY0802'SET IN A DRILL HOLE IN THE CONCRETE WALKWAY OF THE BRIDGE. NOTE--

PY0802'THERE IS VERY LIMITED ROOM TO PULL OVER FOR ACCESS TO THE STATION,

PY0802'THERE IS A SMALL AREA OF HIGHWAY SHOULDER ON THE OPPOSITE SIDE OF THE

PY0802'HIGHWAY AT THE NORTHEAST END OF THE BRIDGE. THE STATION IS AN NGS

PY0802'HORIZONTAL CONTROL MARK DISK SET IN A DRILL HOLE IN THE NORTHEAST END

PY0802'OF THE SOUTHEAST CONCRETE WALKWAY OF A HIGHWAY BRIDGE, ABOUT 0.23 M

PY0802'(0.75 FT) ABOVE THE HIGHWAY. LOCATED 4.7 M (15.4 FT) SOUTHEAST OF THE

PY0802'CENTER OF THE HIGHWAY, 0.88 M (2.89 FT) SOUTHWEST OF THE NORTHEAST END

PY0802'OF THE WALKWAY AND 0.8 M (2.6 FT) NORTHEAST OF HORIZONTAL CONTROL MARK

PY0802'MEERTENS. DESCRIBED BY V.C. PICZAK.

PY0802

PY0802 STATION RECOVERY (2010)

PY0802

PY0802'RECOVERY NOTE BY GEOCACHING 2010 (DDI)

PY0802'RECOVERED IN GOOD CONDITION.

PY0802

PY0802 STATION RECOVERY (2010)

PY0802

PY0802'RECOVERY NOTE BY GEOCACHING 2010 (GAH)

PY0802'GROUP OF MARKS INCLUDES PY0779, MEERTENS 1987, PY0802 MEERTENS 2 1987

PY0802'CLOSE BY AND PY0781 ACROSS THE ROAD.

*** retrieval complete.

Elapsed Time = 00:00:02

The NGS Data Sheet

See file [dsdata.pdf](#) for more information about the datasheet.

PROGRAM = datasheet95, VERSION = 8.12.5.10

Starting Datasheet Retrieval...

```

1      National Geodetic Survey,   Retrieval Date = DECEMBER  2,  2020
QX0055 *****
QX0055 DESIGNATION - PRAY
QX0055 PID - QX0055
QX0055 STATE/COUNTY- MT/PARK
QX0055 COUNTRY - US
QX0055 USGS QUAD - PRAY (2017)
QX0055
QX0055 *CURRENT SURVEY CONTROL
QX0055
QX0055* NAD 83(1992) POSITION- 45 25 46.60399(N) 110 39 05.18314(W) ADJUSTED
QX0055* NAVD 88 ORTHO HEIGHT - 1481.609 (meters) 4860.91 (feet) ADJUSTED
QX0055
QX0055 GEOID HEIGHT - -9.728 (meters) GEOID18
QX0055 LAPLACE CORR - 7.57 (seconds) DEFLEC18
QX0055 DYNAMIC HEIGHT - 1481.020 (meters) 4858.98 (feet) COMP
QX0055 MODELED GRAVITY - 980,167.1 (mgal) NAVD 88
QX0055
QX0055 HORZ ORDER - THIRD
QX0055 VERT ORDER - FIRST CLASS II
QX0055
QX0055.The horizontal coordinates were established by classical geodetic methods
QX0055.and adjusted by the National Geodetic Survey in July 1992.
QX0055.
QX0055.The orthometric height was determined by differential leveling and
QX0055.adjusted by the NATIONAL GEODETIC SURVEY
QX0055.in June 1991.
QX0055
QX0055.Significant digits in the geoid height do not necessarily reflect accuracy.
QX0055.GEOID18 height accuracy estimate available here.
QX0055
QX0055.Click photographs - Photos may exist for this station.
QX0055
QX0055.The Laplace correction was computed from DEFLEC18 derived deflections.
QX0055
QX0055.The dynamic height is computed by dividing the NAVD 88
QX0055.geopotential number by the normal gravity value computed on the
QX0055.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
QX0055.degrees latitude (g = 980.6199 gals.).
QX0055
QX0055.The modeled gravity was interpolated from observed gravity values.
QX0055
QX0055. The following values were computed from the NAD 83(1992) position.
QX0055
QX0055; North East Units Scale Factor Converg.
QX0055;SPC MT - 131,766.175 509,917.666 MT 0.99976929 -0 50 32.2

```

QX0055;SPC MT - 432,303.72 1,672,958.22 iFT 0.99976929 -0 50 32.2
 QX0055;UTM 12 - 5,030,735.758 527,265.804 MT 0.99960914 +0 14 53.9
 QX0055
 QX0055! - Elev Factor x Scale Factor = Combined Factor
 QX0055!SPC MT - 0.99976929 x 0.99976929 = 0.99953864
 QX0055!UTM 12 - 0.99976929 x 0.99960914 = 0.99937852
 QX0055
 QX0055: Primary Azimuth Mark Grid Az
 QX0055:SPC MT - JEEP 340 03 45.2
 QX0055:UTM 12 - JEEP 338 58 19.1
 QX0055

QX0055_U.S. NATIONAL GRID SPATIAL ADDRESS: 12TWR2726530735 (NAD 83)

QX0055

PID	Reference Object	Distance	Geod. Az
			dddmmss.s
QX0698	JEEP	APPROX. 8.3 KM	3391313.0

QX0055

SUPERSEDED SURVEY CONTROL

QX0055 NAD 83(1986)- 45 25 46.59747(N) 110 39 05.17562(W) AD() 3
 QX0055 NAD 27 - 45 25 46.82706(N) 110 39 02.41281(W) AD() 3
 QX0055 NGVD 29 (??/??/92) 1480.405 (m) 4856.96 (f) ADJ UNCH 1 2
 QX0055 NGVD 29 1480.40 (m) 4856.9 (f) LEVELING 3
 QX0055

QX0055.Superseded values are not recommended for survey control.

QX0055

QX0055.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.

QX0055.See file [dsdata.pdf](#) to determine how the superseded data were derived.

QX0055

QX0055_MARKER: DS = TRIANGULATION STATION DISK

QX0055_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT

QX0055_STAMPING: PRAY 1950

QX0055_MARK LOGO: CGS

QX0055_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO

QX0055+STABILITY: SURFACE MOTION

QX0055_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR

QX0055+SATELLITE: SATELLITE OBSERVATIONS - August 12, 2010

QX0055

HISTORY	Date	Condition	Report By
QX0055	1950	MONUMENTED	CGS
QX0055	1951	GOOD	USGS
QX0055	1960	GOOD	CGS
QX0055	1983	MARK NOT FOUND	NGS
QX0055	20010622	GOOD	INDIV
QX0055	20090331	GOOD	GEOCAC
QX0055	20100812	GOOD	GEOCAC

QX0055

STATION DESCRIPTION

QX0055

QX0055'DESCRIBED BY US GEOLOGICAL SURVEY 1951 (IHG)

QX0055'STATION MARK--STANDARD USC AND GS DISK, STAMPED ---PRAY 1950---, SET

QX0055'IN TOP OF CONCRETE POST.

QX0055
 QX0055 STATION RECOVERY (1960)
 QX0055
 QX0055'RECOVERY NOTE BY COAST AND GEODETIC SURVEY 1960
 QX0055'6.1 MI NE FROM EMIGRANT.
 QX0055'ABOUT 6.1 MILES NORTHEAST ALONG A BRANCH LINE OF THE NORTHERN PACIFIC
 QX0055'RAILWAY FROM THE POST OFFICE AT EMIGRANT, NEAR THE LINE OF SECTIONS 5
 QX0055'AND 6, T 5 S, R 9 E, 91 FEET EAST AND ACROSS THE TRACK FROM MILEPOST
 QX0055'17, 41 FEET SOUTHEAST OF THE SOUTHEAST RAIL, 53.8 FEET NORTHWEST OF
 QX0055'PRAY R.M. 1, 74.0 FEET NORTHEAST OF BENCH MARK F 32, 52 FEET SOUTHEAST
 QX0055'OF THE CENTER OF A ROAD CROSSING, IN LINE WITH A ROW OF TELEPHONE
 QX0055'POLES, 4.0 FEET SOUTH OF A WOODEN WITNESS POST, ABOUT LEVEL WITH THE
 QX0055'TRACK, AND IN THE TOP OF A CONCRETE POST PROJECTING 2 INCHES.
 QX0055
 QX0055 STATION RECOVERY (1983)
 QX0055
 QX0055'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1983
 QX0055'THE RAILROAD AND SURROUNDING AREA HAS BEEN GRADED.
 QX0055
 QX0055 STATION RECOVERY (2001)
 QX0055
 QX0055'RECOVERY NOTE BY INDIVIDUAL CONTRIBUTORS 2001 (RSL)
 QX0055'DOES NEED A WITNESS POST, I PUT A T POST NEXT TO THE MONUMENT AND
 QX0055'PAINTED IT ORANGE. IT IS AT THE EDGE OF AN AIRPORT RUNWAY.
 QX0055
 QX0055 STATION RECOVERY (2009)
 QX0055
 QX0055'RECOVERY NOTE BY GEOCACHING 2009 (MEL)
 QX0055'RECOVERED IN GOOD CONDITION.
 QX0055
 QX0055 STATION RECOVERY (2010)
 QX0055
 QX0055'RECOVERY NOTE BY GEOCACHING 2010 (GAH)
 QX0055'PER 2001 REPORT THERE IS A STEEL POST NEAR MARK BUT IT IS GREEN WITH A
 QX0055'WHITE TIP AND A FADED ORANGE RIBBON.
 QX0055'TRACKS, TELEPHONE POLES, MILEPOST ALL GONE.
 QX0055'MARK IS SOUTHEAST OF AN UNPAVED RUNWAY THAT OCCUPIES OLD RAILROAD
 QX0055'RIGHT OF WAY AND NORTHWEST OF A FENCE.
 QX0055'ALSO FOUND QX0056 AND QX0057 NEARBY.

*** retrieval complete.
 Elapsed Time = 00:00:01

The NGS Data Sheet

See file [dsdata.pdf](#) for more information about the datasheet.

PROGRAM = datasheet95, VERSION = 8.12.5.10

Starting Datasheet Retrieval...

```

1      National Geodetic Survey,      Retrieval Date = DECEMBER  2, 2020
PY0164 *****
PY0164 FBN          -   This is a Federal Base Network Control Station.
PY0164 DESIGNATION -   R 161
PY0164 PID          -   PY0164
PY0164 STATE/COUNTY- MT/GALLATIN
PY0164 COUNTRY      -   US
PY0164 USGS QUAD    -   DIVIDE LAKE (2018)
PY0164
PY0164                      *CURRENT SURVEY CONTROL
PY0164
PY0164* NAD 83(2011) POSITION- 44 57 50.04457(N) 111 04 30.71985(W) ADJUSTED
PY0164* NAD 83(2011) ELLIP HT- 2145.577 (meters) (06/27/12) ADJUSTED
PY0164* NAD 83(2011) EPOCH   - 2010.00
PY0164* NAVD 88 ORTHO HEIGHT - 2153.825 (meters) 7066.34 (feet) ADJUSTED
PY0164
PY0164 GEOID HEIGHT   -           -8.196 (meters) GEOID18
PY0164 NAD 83(2011) X - -1,626,059.480 (meters) COMP
PY0164 NAD 83(2011) Y - -4,219,468.604 (meters) COMP
PY0164 NAD 83(2011) Z -  4,486,027.009 (meters) COMP
PY0164 LAPLACE CORR   -           -8.18 (seconds) DEFLEC18
PY0164 DYNAMIC HEIGHT -           2152.674 (meters) 7062.56 (feet) COMP
PY0164 MODELED GRAVITY -           980,004.6 (mgal) NAVD 88
PY0164
PY0164 VERT ORDER      -   FIRST      CLASS II
PY0164
PY0164 Network accuracy estimates per FGDC Geospatial Positioning Accuracy
PY0164 Standards:
PY0164          FGDC (95% conf, cm)      Standard deviation (cm)      CorrNE
PY0164          Horiz Ellip              SD_N   SD_E   SD_h      (unitless)
PY0164 -----
PY0164 NETWORK    0.70   1.82              0.31   0.26   0.93      0.07208519
PY0164 -----
PY0164 Click here for local accuracies and other accuracy information.
PY0164
PY0164
PY0164.The horizontal coordinates were established by GPS observations
PY0164.and adjusted by the National Geodetic Survey in June 2012.
PY0164
PY0164.NAD 83(2011) refers to NAD 83 coordinates where the reference frame has
PY0164.been affixed to the stable North American tectonic plate. See
PY0164.NA2011 for more information.
PY0164
PY0164.The horizontal coordinates are valid at the epoch date displayed above
PY0164.which is a decimal equivalence of Year/Month/Day.
PY0164

```


PY0164
 PY0164_MARKER: DB = BENCH MARK DISK
 PY0164_SETTING: 66 = SET IN ROCK OUTCROP
 PY0164_STAMPING: R 161 1960
 PY0164_MARK LOGO: CGS
 PY0164_MAGNETIC: N = NO MAGNETIC MATERIAL
 PY0164_STABILITY: A = MOST RELIABLE AND EXPECTED TO HOLD
 PY0164+STABILITY: POSITION/ELEVATION WELL
 PY0164_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR
 PY0164+SATELLITE: SATELLITE OBSERVATIONS - October 18, 1999

PY0164

HISTORY	- Date	Condition	Report By
PY0164 HISTORY	- 1960	MONUMENTED	CGS
PY0164 HISTORY	- 1987	GOOD	NGS
PY0164 HISTORY	- 19990614	GOOD	NGS
PY0164 HISTORY	- 19991018	GOOD	NGS

PY0164
 PY0164 STATION DESCRIPTION

PY0164'DESCRIBED BY COAST AND GEODETIC SURVEY 1960
 PY0164'13.1 MI S FROM 320 RANCH.
 PY0164'ABOUT 13.1 MILES SOUTH ALONG U.S. HIGHWAY 191 FROM THE ENTRANCE TO THE
 PY0164'320 RANCH, FORMERLY ELDRIDGE, 0.6 MILE SOUTH OF BRIDGE OVER WEST
 PY0164'GALLATIN RIVER, SET IN THE TOP OF A FLAT ROCK, 56 FEET NORTHEAST OF
 PY0164'THE CENTER LINE OF THE HIGHWAY, ABOUT 1 FOOT BELOW THE HIGHWAY, AND
 PY0164'ABOUT 12 INCHES ABOVE THE GROUND.

PY0164
 PY0164 STATION RECOVERY (1987)

PY0164
 PY0164'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1987 (MRM)
 PY0164'THE STATION WAS RECOVERED AT THIS DATE.

PY0164'
 PY0164'THE STATION IS LOCATED ABOUT 25.7 KM (16 MI)
 PY0164'NORTH OF WEST YELLOWSTONE, ALONG U.S. HIGHWAY 191, AT THE
 PY0164'CONFLUENCE OF BACON RIND CREEK AND THE GALLATIN RIVER, IN THE
 PY0164'NARROW NORTH-SOUTH STRIP OF YELLOWSTONE NATIONAL PARK THAT LAYS
 PY0164'BETWEEN THE PARK BOUNDARY AND THE WYOMING STATE LINE, IN AN OPEN
 PY0164'RANGE AREA COVERED WITH SAGEBRUSH.
 PY0164'OWNERSHIP--NATIONAL PARK SERVICE.

PY0164'
 PY0164'TO REACH THE STATION FROM THE JUNCTION OF U.S. HIGHWAYS 191 AND 287,
 PY0164'ABOUT 12.9 KM (8 MI) NORTH OF WEST YELLOWSTONE, GO
 PY0164'NORTH FOR 2.7 KM (1.65 MI) ON HIGHWAY 191 TO THE BRIDGE OVER
 PY0164'GRAYLING CREEK. CONTINUE AHEAD FOR 20.1 KM (12.5 MI) TO A TRACK
 PY0164'ROAD LEFT. CONTINUE AHEAD FOR 0.6 KM (0.4 MI) TO HIGHWAY MILEPOST
 PY0164'23, AT THE NORTH END OF A LONG GUARDRAIL ALONG THE RIVER BANK.
 PY0164'CONTINUE AHEAD FOR 0.2 KM (0.1 MI) TO THE STATION ON THE RIGHT.

PY0164'
 PY0164'THE STATION IS A STANDARD CGS BENCH MARK DISK
 PY0164'STAMPED---R 161 1960---,
 PY0164'SET INTO A DRILL HOLE IN A 1.0 METERS BY 0.7 METERS FLAT BOULDER
 PY0164'PROJECTING 10 CM ABOVE GROUND. LOCATED
 PY0164'17.3 METERS (56.8 FT) NORTHEAST FROM THE APPROXIMATE CENTER OF
 PY0164'HIGHWAY, 0.5 METERS LOWER THAN THE HIGHWAY,

The NGS Data Sheet

See file [dsdata.pdf](#) for more information about the datasheet.

PROGRAM = datasheet95, VERSION = 8.12.5.10

Starting Datasheet Retrieval...

```

1      National Geodetic Survey,      Retrieval Date = DECEMBER  2,  2020
QX0138 *****
QX0138 DESIGNATION -   W 2
QX0138 PID          -   QX0138
QX0138 STATE/COUNTY-  MT/PARK
QX0138 COUNTRY      -   US
QX0138 USGS QUAD    -   HOPPERS (2017)
QX0138
QX0138                      *CURRENT SURVEY CONTROL
QX0138
QX0138* NAD 83(1986) POSITION- 45 39 52.17 (N) 110 44 22.05 (W) HD_HELD1
QX0138* NAVD 88 ORTHO HEIGHT - 1608.176 (meters)      5276.16 (feet) ADJUSTED
QX0138
QX0138 GEOID HEIGHT   -          -10.421 (meters)                GEOID18
QX0138 DYNAMIC HEIGHT -          1607.568 (meters)      5274.16 (feet) COMP
QX0138 MODELED GRAVITY -    980,181.0 (mgal)                NAVD 88
QX0138
QX0138 VERT ORDER    -   FIRST      CLASS II
QX0138
QX0138.The horizontal coordinates were determined by differentially corrected
QX0138.hand held GPS observations or other comparable positioning techniques
QX0138.and have an estimated accuracy of +/- 3 meters.
QX0138.
QX0138.The orthometric height was determined by differential leveling and
QX0138.adjusted by the NATIONAL GEODETIC SURVEY
QX0138.in June 1991.
QX0138
QX0138.Significant digits in the geoid height do not necessarily reflect accuracy.
QX0138.GEOID18 height accuracy estimate available here.
QX0138
QX0138.Click photographs - Photos may exist for this station.
QX0138
QX0138.The dynamic height is computed by dividing the NAVD 88
QX0138.geopotential number by the normal gravity value computed on the
QX0138.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
QX0138.degrees latitude (g = 980.6199 gals.).
QX0138
QX0138.The modeled gravity was interpolated from observed gravity values.
QX0138
QX0138;              North      East      Units  Estimated Accuracy
QX0138;SPC MT      -   157,965.7    503,445.1    MT    (+/- 3 meters HH1 GPS)
QX0138
QX0138_U.S. NATIONAL GRID SPATIAL ADDRESS: 12TWR2029556804(NAD 83)
QX0138
QX0138                      SUPERSEDED SURVEY CONTROL
QX0138

```

QX0138 NGVD 29 (??/??/92) 1606.943 (m) 5272.11 (f) ADJ UNCH 1 2

QX0138

QX0138.Superseded values are not recommended for survey control.

QX0138

QX0138.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.

QX0138.See file [dsdata.pdf](#) to determine how the superseded data were derived.

QX0138

QX0138_MARKER: DD = SURVEY DISK

QX0138_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT

QX0138_STAMPING: W 2 1948 5272

QX0138_MARK LOGO: USGS

QX0138_PROJECTION: FLUSH

QX0138_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO

QX0138+STABILITY: SURFACE MOTION

QX0138_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR

QX0138+SATELLITE: SATELLITE OBSERVATIONS - February 25, 2009

QX0138

HISTORY	- Date	Condition	Report By
QX0138 HISTORY	- 1948	MONUMENTED	USGS
QX0138 HISTORY	- 1958	GOOD	CGS
QX0138 HISTORY	- 1982	GOOD	NGS
QX0138 HISTORY	- 20090225	GOOD	GEOCAC

QX0138

STATION DESCRIPTION

QX0138

QX0138'DESCRIBED BY COAST AND GEODETIC SURVEY 1958

QX0138'8.95 MI W FROM LIVINGSTON.

QX0138'ABOUT 8.95 MILES WEST ALONG THE NORTHERN PACIFIC RAILWAY FROM THE
QX0138'STATION AT LIVINGSTON, IN SECTION 16, T 2 S, R 8 E, 13 POLES WEST OF
QX0138'MILEPOST 124, 42 FEET NORTH OF THE NORTH RAIL, 46 FEET NORTH-NORTHWEST
QX0138'OF THE CENTER OF THE CROSSING, 12 1/2 FEET WEST OF THE CENTER LINE OF
QX0138'A GATE, 1 FOOT EAST OF A WHITE WOODEN WITNESS POST, 2 FEET SOUTH OF A
QX0138'FENCE, ABOUT LEVEL WITH THE TRACK, AND IN THE TOP OF A CONCRETE POST
QX0138'PROJECTING 1 INCH.

QX0138

STATION RECOVERY (1982)

QX0138

QX0138'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1982

QX0138'RECOVERED IN GOOD CONDITION. NEW DESCRIPTION FOLLOWS.

QX0138'13.5 KM (8.4 MI) WESTERLY ALONG INTERSTATE HIGHWAY 90 FROM ITS
QX0138'JUNCTION WITH U. S. HIGHWAY 89 IN LIVINGSTON, THENCE 0.2 KM (0.1 MI)
QX0138'NORTHERLY ALONG A PAVED ROAD, AT THE INTERSECTION OF THE BURLINGTON
QX0138'NORTHERN RAILROAD, 0.7 KM (0.45 MI) WEST OF MILEPOST 124, 12.8 METERS
QX0138'(42.0 FT) NORTH OF THE NEAR RAIL, 3.8 METERS (12.5 FT) WEST OF THE
QX0138'CENTER OF THE ROAD AND A GATE AND 0.3 METER (1.0 FT) EAST OF A WOODEN
QX0138'WITNESS POST.

QX0138'THE MARK IS 0.6 METERS S FROM A WITNESS POST AND FENCE

QX0138'THE MARK IS 0.3 M BELOW THE TRACKS.

QX0138

STATION RECOVERY (2009)

QX0138

QX0138'RECOVERY NOTE BY GEOCACHING 2009 (MEL)

QX0138'RECOVERED IN GOOD CONDITION.

*** retrieval complete.
Elapsed Time = 00:00:01

The NGS Data Sheet

See file [dsdata.pdf](#) for more information about the datasheet.

PROGRAM = datasheet95, VERSION = 8.12.5.10

Starting Datasheet Retrieval...

```

1      National Geodetic Survey,   Retrieval Date = OCTOBER 26, 2020
QX0077 *****
QX0077 DESIGNATION - X 155
QX0077 PID - QX0077
QX0077 STATE/COUNTY- MT/PARK
QX0077 COUNTRY - US
QX0077 USGS QUAD - DAILEY LAKE (2017)
QX0077
QX0077 *CURRENT SURVEY CONTROL
QX0077
QX0077* NAD 83(1986) POSITION- 45 17 24.7 (N) 110 50 24.4 (W) HD_HELD2
QX0077* NAVD 88 ORTHO HEIGHT - 1503.255 (meters) 4931.93 (feet) ADJUSTED
QX0077
QX0077 GEOID HEIGHT - -9.401 (meters) GEOID18
QX0077 DYNAMIC HEIGHT - 1502.606 (meters) 4929.80 (feet) COMP
QX0077 MODELED GRAVITY - 980,133.1 (mgal) NAVD 88
QX0077
QX0077 VERT ORDER - FIRST CLASS II
QX0077
QX0077.The horizontal coordinates were established by autonomous hand held GPS
QX0077.observations and have an estimated accuracy of +/- 10 meters.
QX0077.
QX0077.The orthometric height was determined by differential leveling and
QX0077.adjusted by the NATIONAL GEODETIC SURVEY
QX0077.in June 1991.
QX0077
QX0077.Significant digits in the geoid height do not necessarily reflect accuracy.
QX0077.GEOID18 height accuracy estimate available here.
QX0077
QX0077.Click photographs - Photos may exist for this station.
QX0077
QX0077.The dynamic height is computed by dividing the NAVD 88
QX0077.geopotential number by the normal gravity value computed on the
QX0077.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
QX0077.degrees latitude (g = 980.6199 gals.).
QX0077
QX0077.The modeled gravity was interpolated from observed gravity values.
QX0077
QX0077; North East Units Estimated Accuracy
QX0077;SPC MT - 116,512. 494,893. MT (+/- 10 meters HH2 GPS)
QX0077
QX0077_U.S. NATIONAL GRID SPATIAL ADDRESS: 12TWR1253715200(NAD 83)
QX0077
QX0077 SUPERSEDED SURVEY CONTROL
QX0077
QX0077 NGVD 29 (??/??/92) 1502.016 (m) 4927.86 (f) SUPERSEDED 1 2

```

QX0077 NGVD 29 (08/20/92) 1502.061 (m) 4928.01 (f) ADJUSTED 1 2

QX0077

QX0077.Superseded values are not recommended for survey control.

QX0077

QX0077.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.

QX0077.See file [dsdata.pdf](#) to determine how the superseded data were derived.

QX0077

QX0077_MARKER: DB = BENCH MARK DISK

QX0077_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT

QX0077_STAMPING: X 155 1960

QX0077_MARK LOGO: CGS

QX0077_PROJECTION: PROJECTING 5 CENTIMETERS

QX0077_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO

QX0077+STABILITY: SURFACE MOTION

QX0077_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR

QX0077+SATELLITE: SATELLITE OBSERVATIONS - April 04, 2009

QX0077

HISTORY	- Date	Condition	Report By
QX0077 HISTORY	- 1960	MONUMENTED	CGS
QX0077 HISTORY	- 1983	GOOD	NGS
QX0077 HISTORY	- 20090404	GOOD	GEOCAC

QX0077

STATION DESCRIPTION

QX0077

QX0077'DESCRIBED BY COAST AND GEODETIC SURVEY 1960

QX0077'7.75 MI SW FROM EMIGRANT.

QX0077'ABOUT 7.75 MILES SOUTHWEST ALONG A BRANCH LINE OF THE NORTHERN PACIFIC RAILWAY FROM THE POST OFFICE AT EMIGRANT, IN SECTION 23, T 6 S, R 7 E, 156 FEET SOUTHEAST OF THE SOUTHEAST RAIL, 138 FEET SOUTHEAST AND ACROSS A GRAVELED ROAD FROM THE DAILEY SIDING SIGN, 126 FEET SOUTHWEST OF A FENCE CORNER, 79 FEET SOUTHEAST OF THE CENTER LINE OF A GRAVELED ROAD, 79 FEET NORTHEAST OF THE CENTER OF A GATE, 2 FEET NORTHWEST OF A FENCE, 2.0 FEET SOUTHWEST OF A METAL WITNESS POST, ABOUT LEVEL WITH THE TRACK AND THE GRAVELED ROAD, AND IN THE TOP OF A CONCRETE POST PROJECTING 6 INCHES.

QX0077

STATION RECOVERY (1983)

QX0077

QX0077'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1983

QX0077'RECOVERED IN GOOD CONDITION, NEW DESCRIPTION FOLLOWS. 37.8 KM (23.5 MI) NORTHERLY ALONG U.S. HIGHWAY 89 FROM ITS JUNCTION WITH MAIN STREET IN GARDINER, 23.5 METERS (77.0 FT) SOUTHEAST OF THE CENTERLINE OF THE HIGHWAY, AND 0.6 METER (2.0 FT) NORTHWEST OF A FENCE. THE MARK IS 0.7 METERS SW FROM A WITNESS POST.

QX0077

STATION RECOVERY (2009)

QX0077

QX0077'RECOVERY NOTE BY GEOCACHING 2009 (MEL)

QX0077'RECOVERED IN GOOD CONDITION.

*** retrieval complete.

Elapsed Time = 00:00:01

The NGS Data Sheet

See file [dsdata.pdf](#) for more information about the datasheet.

PROGRAM = datasheet95, VERSION = 8.12.5.10

Starting Datasheet Retrieval...

```

1      National Geodetic Survey,   Retrieval Date = DECEMBER  2,  2020
QX0522 *****
QX0522 DESIGNATION - X 558
QX0522 PID - QX0522
QX0522 STATE/COUNTY- MT/PARK
QX0522 COUNTRY - US
QX0522 USGS QUAD - LIVINGSTON (2017)
QX0522
QX0522 *CURRENT SURVEY CONTROL
QX0522
QX0522* NAD 83(1986) POSITION- 45 40 51.9 (N) 110 31 13.5 (W) HD_HELD2
QX0522* NAVD 88 ORTHO HEIGHT - 1356.641 (meters) 4450.91 (feet) ADJUSTED
QX0522
QX0522 GEOID HEIGHT - -10.526 (meters) GEOID18
QX0522 DYNAMIC HEIGHT - 1356.175 (meters) 4449.38 (feet) COMP
QX0522 MODELED GRAVITY - 980,225.2 (mgal) NAVD 88
QX0522
QX0522 VERT ORDER - FIRST CLASS II
QX0522
QX0522.The horizontal coordinates were established by autonomous hand held GPS
QX0522.observations and have an estimated accuracy of +/- 10 meters.
QX0522.
QX0522.The orthometric height was determined by differential leveling and
QX0522.adjusted by the NATIONAL GEODETIC SURVEY
QX0522.in June 1991.
QX0522
QX0522.Significant digits in the geoid height do not necessarily reflect accuracy.
QX0522.GEOID18 height accuracy estimate available here.
QX0522
QX0522.Click photographs - Photos may exist for this station.
QX0522
QX0522.The dynamic height is computed by dividing the NAVD 88
QX0522.geopotential number by the normal gravity value computed on the
QX0522.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
QX0522.degrees latitude (g = 980.6199 gals.).
QX0522
QX0522.The modeled gravity was interpolated from observed gravity values.
QX0522
QX0522; North East Units Estimated Accuracy
QX0522;SPC MT - 159,563. 520,532. MT (+/- 10 meters HH2 GPS)
QX0522
QX0522_U.S. NATIONAL GRID SPATIAL ADDRESS: 12TWR3734858726(NAD 83)
QX0522
QX0522 SUPERSEDED SURVEY CONTROL
QX0522
QX0522.No superseded survey control is available for this station.

```

QX0522
 QX0522_MARKER: I = METAL ROD
 QX0522_SETTING: 15 = METAL ROD DRIVEN INTO GROUND. SEE TEXT FOR ADDITIONAL
 QX0522+WITH SETTING: INFORMATION.
 QX0522_STAMPING: X 558 1982
 QX0522_MARK LOGO: NGS
 QX0522_PROJECTION: FLUSH
 QX0522_STABILITY: B = PROBABLY HOLD POSITION/ELEVATION WELL
 QX0522_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR
 QX0522+SATELLITE: SATELLITE OBSERVATIONS - March 02, 2009
 QX0522_ROD/PIPE-DEPTH: 1.2 meters

QX0522	HISTORY	- Date	Condition	Report By
QX0522	HISTORY	- 1982	MONUMENTED	NGS
QX0522	HISTORY	- 20060910	GOOD	GEOCAC
QX0522	HISTORY	- 20090302	GOOD	GEOCAC

QX0522
 QX0522 STATION DESCRIPTION
 QX0522
 QX0522'DESCRIBED BY NATIONAL GEODETIC SURVEY 1982
 QX0522'3.9 KM (2.4 MI) NE FROM LIVINGSTON.
 QX0522'3.9 KM (2.4 MI) NORTHEASTERLY ALONG THE BURLINGTON NORTHERN RAILROAD
 QX0522'FROM THE RAILROAD STATION IN LIVINGSTON, 84.7 METERS (277.9 FT) SOU
 QX0522'SOUTHEAST OF THE NEAR RAIL, 24.6 METERS (80.7 FT) SOUTHEAST OF THE
 QX0522'CENTERLINE OF INTERSTATE HIGHWAY BUSSINESS LOOP 90, 17.0 METERS (55.8
 QX0522'FT) WEST OF THE CENTER OF A GRAVELED ROAD AND 7.8 METERS (25.6 FT)
 QX0522'SOUTHWEST OF A FENCE CORNER. NOTE=REFUSAL WAS REACHED AT 4.0 FT.
 QX0522'ACCESS TO THE DATUM POINT IS THROUGH A 5-INCH LOGO CAP.
 QX0522'THE MARK IS 0.3 METERS NW FROM A WITNESS POST AND FENCE
 QX0522'THE MARK IS 0.5 M BELOW THE HIGHWAY.

QX0522
 QX0522 STATION RECOVERY (2006)
 QX0522
 QX0522'RECOVERY NOTE BY GEOCACHING 2006 (WD)
 QX0522'RECOVERED IN GOOD CONDITION.

QX0522
 QX0522 STATION RECOVERY (2009)
 QX0522
 QX0522'RECOVERY NOTE BY GEOCACHING 2009 (MEL)
 QX0522'RECOVERED IN GOOD CONDITION.

*** retrieval complete.
 Elapsed Time = 00:00:02

The NGS Data Sheet

See file [dsdata.pdf](#) for more information about the datasheet.

PROGRAM = datasheet95, VERSION = 8.12.5.10

Starting Datasheet Retrieval...

```

1      National Geodetic Survey,      Retrieval Date = DECEMBER  2,  2020
PY1076 *****
PY1076 FBN          -   This is a Federal Base Network Control Station.
PY1076 DESIGNATION -   Y 368
PY1076 PID          -   PY1076
PY1076 STATE/COUNTY-   WY/PARK
PY1076 COUNTRY      -   US
PY1076 USGS QUAD    -   ABIATHAR PEAK (2018)
PY1076
PY1076                      *CURRENT SURVEY CONTROL
PY1076
PY1076* NAD 83(2011) POSITION- 44 58 45.70721(N) 110 03 46.48789(W) ADJUSTED
PY1076* NAD 83(2011) ELLIP HT- 2197.030 (meters) (06/27/12) ADJUSTED
PY1076* NAD 83(2011) EPOCH   - 2010.00
PY1076* NAVD 88 ORTHO HEIGHT - 2204.611 (meters) 7232.96 (feet) ADJUSTED
PY1076
PY1076 GEOID HEIGHT   -          -7.756 (meters) GEOID18
PY1076 NAD 83(2011) X   - -1,550,856.863 (meters) COMP
PY1076 NAD 83(2011) Y   - -4,246,430.446 (meters) COMP
PY1076 NAD 83(2011) Z   -  4,487,279.406 (meters) COMP
PY1076 LAPLACE CORR    -          -0.79 (seconds) DEFLEC18
PY1076 DYNAMIC HEIGHT  -          2203.377 (meters) 7228.91 (feet) COMP
PY1076 MODELED GRAVITY -          979,977.5 (mgal) NAVD 88
PY1076
PY1076 VERT ORDER      -   FIRST      CLASS II
PY1076
PY1076 Network accuracy estimates per FGDC Geospatial Positioning Accuracy
PY1076 Standards:
PY1076          FGDC (95% conf, cm)          Standard deviation (cm)          CorrNE
PY1076          Horiz Ellip                  SD_N   SD_E   SD_h          (unitless)
PY1076 -----
PY1076 NETWORK    0.84    2.10                0.31   0.37   1.07          -0.01275088
PY1076 -----
PY1076 Click here for local accuracies and other accuracy information.
PY1076
PY1076
PY1076.The horizontal coordinates were established by GPS observations
PY1076.and adjusted by the National Geodetic Survey in June 2012.
PY1076
PY1076.NAD 83(2011) refers to NAD 83 coordinates where the reference frame has
PY1076.been affixed to the stable North American tectonic plate. See
PY1076.NA2011 for more information.
PY1076
PY1076.The horizontal coordinates are valid at the epoch date displayed above
PY1076.which is a decimal equivalence of Year/Month/Day.
PY1076

```

PY1076.The orthometric height was determined by differential leveling and
PY1076.adjusted by the NATIONAL GEODETIC SURVEY
PY1076.in June 1991.
PY1076
PY1076.Significant digits in the geoid height do not necessarily reflect accuracy.
PY1076.GEOID18 height accuracy estimate available [here](#).

PY1076.Click [photographs](#) - Photos may exist for this station.

PY1076.The X, Y, and Z were computed from the position and the ellipsoidal ht.

PY1076.The Laplace correction was computed from DEFLEC18 derived deflections.

PY1076.The ellipsoidal height was determined by GPS observations

PY1076.and is referenced to NAD 83.

PY1076.The dynamic height is computed by dividing the NAVD 88
PY1076.geopotential number by the normal gravity value computed on the
PY1076.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
PY1076.degrees latitude (g = 980.6199 gals.).

PY1076.The modeled gravity was interpolated from observed gravity values.

PY1076. The following values were computed from the NAD 83(2011) position.

PY1076;		North	East	Units	Scale	Factor	Converg.
PY1076;SPC WYWC	-	498,409.803	496,450.239	MT	1.00006930	-0 55	41.2
PY1076;SPC WYWC	-	1,635,199.50	1,628,770.49	sFT	1.00006930	-0 55	41.2
PY1076;UTM 12	-	4,981,085.000	573,883.281	MT	0.99966712	+0 39	44.7

PY1076!
PY1076!SPC WYWC

PY1076!UTM 12

PY1076_U.S. NATIONAL GRID SPATIAL ADDRESS: 12TWQ7388381084(NAD 83)

SUPERSEDED SURVEY CONTROL

PY1076	NAD 83(2007)-	44 58 45.70687(N)	110 03 46.48899(W)	AD(2002.00)	0
PY1076	ELLIP H (02/10/07)	2197.062 (m)		GP(2002.00)	
PY1076	ELLIP H (02/28/01)	2197.087 (m)		GP()	2 1
PY1076	NAD 83(1992)-	44 58 45.70557(N)	110 03 46.48764(W)	AD()	B
PY1076	ELLIP H (05/15/92)	2197.163 (m)		GP()	4 2
PY1076	NAD 83(1992)-	44 58 45.69612(N)	110 03 46.47234(W)	AD()	1
PY1076	NAVD 88	2204.61 (m)	7233.0	(f) LEVELING	3
PY1076	NGVD 29 (08/20/92)	2203.338 (m)	7228.78	(f) ADJUSTED	1 2
PY1076	NGVD 29	2203.29 (m)	7228.6	(f) LEVELING	3

PY1076.Superseded values are not recommended for survey control.

PY1076.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.

PY1076.See file [dsdata.pdf](#) to determine how the superseded data were derived.

PY1076_MARKER: I = METAL ROD
 PY1076_SETTING: 49 = STAINLESS STEEL ROD W/O SLEEVE (10 FT.+)

PY1076_STAMPING: Y 368 1987
 PY1076_MARK LOGO: NGS
 PY1076_PROJECTION: FLUSH
 PY1076_MAGNETIC: N = NO MAGNETIC MATERIAL
 PY1076_STABILITY: B = PROBABLY HOLD POSITION/ELEVATION WELL
 PY1076_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR
 PY1076+SATELLITE: SATELLITE OBSERVATIONS - October 22, 2005
 PY1076_ROD/PIPE-DEPTH: 6.7 meters

PY1076

HISTORY	- Date	Condition	Report By
PY1076 HISTORY	- 1987	MONUMENTED	NGS
PY1076 HISTORY	- 1987	GOOD	NGS
PY1076 HISTORY	- 19991015	GOOD	NGS
PY1076 HISTORY	- 20051022	GOOD	COMPDA

PY1076

STATION DESCRIPTION

PY1076

PY1076'DESCRIBED BY NATIONAL GEODETIC SURVEY 1987
 PY1076'6.4 KM (4.00 MI) SW FROM SILVER GATE.
 PY1076'6.4 KM (4.00 MI) SOUTHWESTERLY ALONG THE NORTHEAST ENTRANCE HIGHWAY
 PY1076'FROM THE PARK ENTRANCE IN SILVER GATE, 21.6 M (70.9 FT) SOUTHWEST OF
 PY1076'A SIGN (BARRONETTE PEAK), AND 21.2 M (69.6 FT) WEST OF THE CENTERLINE
 PY1076'OF THE HIGHWAY. NOTE--ACCESS TO DATUM POINT IS HAD THROUGH A 5-INCH
 PY1076'LOGO CAP.
 PY1076'THE MARK IS ABOVE LEVEL WITH THE HIGHWAY.

PY1076

STATION RECOVERY (1987)

PY1076

PY1076'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1987 (MRM)
 PY1076'THE STATION WAS RECOVERED AT THIS DATE.
 PY1076'
 PY1076'THE STATION IS LOCATED ABOUT 6.4 KM (4 MI) SOUTHWEST OF SILVER LAKE
 PY1076'MT, IN THE NORTHEAST CORNER OF YELLOWSTONE NATIONAL PARK, ALONG THE
 PY1076'NORTHEAST ENTRANCE ROAD.
 PY1076'OWNERSHIP--NATIONAL PARK SERVICE.
 PY1076'
 PY1076'TO REACH THE STATION FROM THE NORTHEAST ENTRANCE TO YELLOWSTONE
 PY1076'NATIONAL PARK AT SILVER GATE, GO SOUTHWESTERLY FOR 6.4 KM (4.0 MI) ON
 PY1076'THE NORTHEAST ENTRANCE ROAD TO THE STATION ON THE RIGHT.
 PY1076'
 PY1076'THE STATION IS A PUNCH MARK ON TOP OF A STAINLESS STEEL ROD
 PY1076'THAT IS ---UNSTAMPED---,
 PY1076'DRIVEN TO A DEPTH OF 6.7 METERS (22.0 FT), ENCASED IN A PVC PIPE
 PY1076'WITH NGS LOGO FLANGE STAMPED---Y 368 1987---, FLUSH WITH GROUND.
 PY1076'LOCATED
 PY1076'21.6 METERS (70.9 FT) SOUTHWEST FROM A SIGN, BARRONETTE PEAK, AND
 PY1076'21.2 METERS (69.6 FT) WEST FROM THE APPROXIMATE CENTER OF ROAD.
 PY1076'
 PY1076'TI4100 GPS SURVEY FOR CRUSTAL MOTION IN YELLOWSTONE PARK AND HEBGEN
 PY1076'LAKE AREAS OF WYOMING, MONTANA AND IDAHO, AUGUST - SEPTEMBER 1987.
 PY1076'
 PY1076'THIS STATION SUITABLE FOR GPS SURVEYS.

PY1076'
 PY1076'DESCRIBED BY M.R. MATHWIG.
 PY1076
 PY1076 STATION RECOVERY (1999)
 PY1076
 PY1076'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1999 (CSM)
 PY1076'RECOVERED BY NATIONAL GEODETIC SURVEY 1999. RECOVERED IN GOOD
 PY1076'CONDITION, NEW DESCRIPTION FOLLOWS. THE STATION IS LOCATED IN
 PY1076'YELLOWSTONE NATIONAL PARK ABOUT 39.43 KM (24.50 MI) EAST-NORTHEAST OF
 PY1076'TOWER JUNCTION, 6.12 KM (3.80 MI) SOUTHWEST OF THE ENTRANCE-ADMISSIONS
 PY1076'GATE AT SILVER GATE (NORTHEAST ENTRANCE OF THE PARK) , 14.08 KM (8.75
 PY1076'MI) NORTHEAST OF THE SODA BUTTE FORMATION, 1.53 KM (0.95 MI) SOUTHWEST
 PY1076'OF THE HIGHWAY BRIDGE OVER SODA CREEK. OWNERSHIP--US NATIONAL PARK
 PY1076'SERVICE. TO REACH THE STATION FROM THE NORTHEAST ENTRANCE-ADMISSIONS
 PY1076'GATE AT THE NORTHEAST ENTRANCE TO YELLOWSTONE NATIONAL PARK AT SILVER
 PY1076'GATE, GO WEST-SOUTHWEST ON THE HIGHWAY FOR 6.12 KM (3.80 MI) TO THE
 PY1076'STATION ON THE RIGHT AT PULLOVER-PARKING AREA AND CLEARED AREA WITH
 PY1076'BARRONETTE PEAK TO THE NORTHWEST. THE STATION IS A PUNCH MARK ON THE
 PY1076'TOP OF A STAINLESS STEEL ROD DRIVEN TO REFUSAL, ENCASED IN A 13 CM PVC
 PY1076'PIPE SURROUNDED BY CONCRETE ABOUT FLUSH WITH THE GROUND. LOCATED
 PY1076'ABOUT 32.0 M (105.0 FT) WEST OF THE NORTHWEST END OF THE PULLOVER,
 PY1076'21.18 M (69.49 FT) NORTHWEST OF THE CENTER OF THE HIGHWAY, 36.9 FT
 PY1076'(11.2 M) WEST-NORTHWEST FROM THE CENTER OF A WOOD SIGNPOST SUPPORTING
 PY1076'A SIGN INDICATING BARRONETTE PEAK AND 0.3 M (1.0 FT) SOUTHEAST OF A
 PY1076'FIBERGLASS WITNESS POST. DESCRIBED BY M.L. MCCREADY WITH ADDITIONAL
 PY1076'NOTES BY T.G. WILKINS.
 PY1076
 PY1076 STATION RECOVERY (2005)
 PY1076
 PY1076'RECOVERY NOTE BY COMPASSDATA INC 2005 (RL)
 PY1076'RECOVERED IN GOOD CONDITION.

*** retrieval complete.
 Elapsed Time = 00:00:01

The NGS Data Sheet

See file [dsdata.pdf](#) for more information about the datasheet.

PROGRAM = datasheet95, VERSION = 8.12.5.10

Starting Datasheet Retrieval...

```

1      National Geodetic Survey,   Retrieval Date = DECEMBER  2,  2020
QX0565 *****
QX0565 DESIGNATION - Y 565
QX0565 PID - QX0565
QX0565 STATE/COUNTY- MT/PARK
QX0565 COUNTRY - US
QX0565 USGS QUAD - MINER (2017)
QX0565
QX0565 *CURRENT SURVEY CONTROL
QX0565
QX0565* NAD 83(1986) POSITION- 45 11 59.3 (N) 110 53 57.3 (W) HD_HELD2
QX0565* NAVD 88 ORTHO HEIGHT - 1535.723 (meters) 5038.45 (feet) ADJUSTED
QX0565
QX0565 GEOID HEIGHT - -8.982 (meters) GEOID18
QX0565 DYNAMIC HEIGHT - 1535.067 (meters) 5036.30 (feet) COMP
QX0565 MODELED GRAVITY - 980,135.6 (mgal) NAVD 88
QX0565
QX0565 VERT ORDER - FIRST CLASS II
QX0565
QX0565.The horizontal coordinates were established by autonomous hand held GPS
QX0565.observations and have an estimated accuracy of +/- 10 meters.
QX0565.
QX0565.The orthometric height was determined by differential leveling and
QX0565.adjusted by the NATIONAL GEODETIC SURVEY
QX0565.in June 1991.
QX0565
QX0565.Significant digits in the geoid height do not necessarily reflect accuracy.
QX0565.GEOID18 height accuracy estimate available here.
QX0565
QX0565.Click photographs - Photos may exist for this station.
QX0565
QX0565.The dynamic height is computed by dividing the NAVD 88
QX0565.geopotential number by the normal gravity value computed on the
QX0565.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
QX0565.degrees latitude (g = 980.6199 gals.).
QX0565
QX0565.The modeled gravity was interpolated from observed gravity values.
QX0565
QX0565; North East Units Estimated Accuracy
QX0565;SPC MT - 106,550. 490,076. MT (+/- 10 meters HH2 GPS)
QX0565
QX0565_U.S. NATIONAL GRID SPATIAL ADDRESS: 12TWR0791205151(NAD 83)
QX0565
QX0565 SUPERSEDED SURVEY CONTROL
QX0565
QX0565 NGVD 29 (08/20/92) 1534.560 (m) 5034.64 (f) ADJUSTED 1 2

```

QX0565

QX0565.Superseded values are not recommended for survey control.

QX0565

QX0565.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.

QX0565.See file [dsdata.pdf](#) to determine how the superseded data were derived.

QX0565

QX0565_MARKER: DV = VERTICAL CONTROL DISK

QX0565_SETTING: 66 = SET IN ROCK OUTCROP

QX0565_STAMPING: Y 565 1983

QX0565_MARK LOGO: NGS

QX0565_STABILITY: A = MOST RELIABLE AND EXPECTED TO HOLD

QX0565+STABILITY: POSITION/ELEVATION WELL

QX0565

QX0565	HISTORY	- Date	Condition	Report By
QX0565	HISTORY	- 1983	MONUMENTED	NGS
QX0565	HISTORY	- 20090405	GOOD	GEOCAC

QX0565

QX0565

STATION DESCRIPTION

QX0565

QX0565'DESCRIBED BY NATIONAL GEODETIC SURVEY 1983

QX0565'26.2 KM (16.25 MI) NORT FROM GARDINER.

QX0565'26.2 KM (16.25 MI) NORTHERLY ALONG U.S. HIGHWAY 89 FORM ITS JUNCTION

QX0565'WITH MAIN STREET IN GARDINER, 0.5 KM (0.3 MI) NORTHWEST OF MILEPOST

QX0565'16, 0.5 KM (0.3 MI) SOUTH OF A GRAVELED ROAD LENDING WEST TO TOM MINER

QX0565'BASIN, IN THE CENTER OF THE SOUTHERN 1/2 OF A 5 BY 7 FT EXPOSED AREA

QX0565'OF OUTCROPPING BEDROCK, 24.7 METERS (81.0 FT) EAST OF THE CENTERLINE

QX0565'OF THE HIGHWAY, AND 0.5 METER (1.6 FT) EAST OF A FENCE.

QX0565'THE MARK IS 0.3 METERS S FROM A WITNESS POST.

QX0565'THE MARK IS ABOVE LEVEL WITH THE HIGHWAY.

QX0565

QX0565

STATION RECOVERY (2009)

QX0565

QX0565'RECOVERY NOTE BY GEOCACHING 2009 (MEL)

QX0565'RECOVERED IN GOOD CONDITION.

*** retrieval complete.

Elapsed Time = 00:00:02

The NGS Data Sheet

See file [dsdata.pdf](#) for more information about the datasheet.

PROGRAM = datasheet95, VERSION = 8.12.5.10

Starting Datasheet Retrieval...

```

1      National Geodetic Survey,      Retrieval Date = DECEMBER  2,  2020
PY0192 *****
PY0192 CBN          -   This is a Cooperative Base Network Control Station.
PY0192 DESIGNATION -   Z 161
PY0192 PID          -   PY0192
PY0192 STATE/COUNTY-   MT/GALLATIN
PY0192 COUNTRY     -   US
PY0192 USGS QUAD   -   RICHARDS CREEK (2017)
PY0192
PY0192                      *CURRENT SURVEY CONTROL
PY0192
PY0192* NAD 83(2011) POSITION- 44 47 43.59548(N) 111 06 16.21017(W) ADJUSTED
PY0192* NAD 83(2011) ELLIP HT- 2066.784 (meters) (06/27/12) ADJUSTED
PY0192* NAD 83(2011) EPOCH   - 2010.00
PY0192* NAVD 88 ORTHO HEIGHT - 2075.398 (meters) 6809.03 (feet) ADJUSTED
PY0192
PY0192 GEOID HEIGHT   -           -8.632 (meters) GEOID18
PY0192 NAD 83(2011) X   - -1,632,955.112 (meters) COMP
PY0192 NAD 83(2011) Y   - -4,230,912.053 (meters) COMP
PY0192 NAD 83(2011) Z   -  4,472,701.758 (meters) COMP
PY0192 LAPLACE CORR    -           2.56 (seconds) DEFLEC18
PY0192 DYNAMIC HEIGHT -           2074.244 (meters) 6805.25 (feet) COMP
PY0192 MODELED GRAVITY -           979,986.7 (mgal) NAVD 88
PY0192
PY0192 VERT ORDER      -   FIRST      CLASS II
PY0192
PY0192 Network accuracy estimates per FGDC Geospatial Positioning Accuracy
PY0192 Standards:
PY0192          FGDC (95% conf, cm)      Standard deviation (cm)      CorrNE
PY0192          Horiz Ellip              SD_N   SD_E   SD_h      (unitless)
PY0192 -----
PY0192 NETWORK      2.46   8.62              1.00   1.00   4.40      -0.21203350
PY0192 -----
PY0192 Click here for local accuracies and other accuracy information.
PY0192
PY0192
PY0192.The horizontal coordinates were established by GPS observations
PY0192.and adjusted by the National Geodetic Survey in June 2012.
PY0192
PY0192.NAD 83(2011) refers to NAD 83 coordinates where the reference frame has
PY0192.been affixed to the stable North American tectonic plate. See
PY0192.NA2011 for more information.
PY0192
PY0192.The horizontal coordinates are valid at the epoch date displayed above
PY0192.which is a decimal equivalence of Year/Month/Day.
PY0192

```

PY0192.The orthometric height was determined by differential leveling and
 PY0192.adjusted by the NATIONAL GEODETIC SURVEY
 PY0192.in June 1991.
 PY0192
 PY0192.Significant digits in the geoid height do not necessarily reflect accuracy.
 PY0192.GEOID18 height accuracy estimate available [here](#).

PY0192
 PY0192.Click [photographs](#) - Photos may exist for this station.
 PY0192

PY0192.The X, Y, and Z were computed from the position and the ellipsoidal ht.
 PY0192

PY0192.The Laplace correction was computed from DEFLEC18 derived deflections.
 PY0192

PY0192.The ellipsoidal height was determined by GPS observations
 PY0192.and is referenced to NAD 83.
 PY0192

PY0192.The dynamic height is computed by dividing the NAVD 88
 PY0192.geopotential number by the normal gravity value computed on the
 PY0192.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
 PY0192.degrees latitude (g = 980.6199 gals.).
 PY0192

PY0192.The modeled gravity was interpolated from observed gravity values.
 PY0192

PY0192. The following values were computed from the NAD 83(2011) position.
 PY0192

PY0192;		North	East	Units	Scale	Factor	Converg.
PY0192;SPC MT	-	61,931.085	473,033.210	MT	1.00012890	-1 10	25.3
PY0192;SPC MT	-	203,185.97	1,551,946.23	iFT	1.00012890	-1 10	25.3
PY0192;UTM 12	-	4,960,232.451	491,734.325	MT	0.99960084	-0 04	25.1
PY0192!	-	Elev Factor	x	Scale Factor	=	Combined Factor	
PY0192!SPC MT	-	0.99967605	x	1.00012890	=	0.99980491	
PY0192!UTM 12	-	0.99967605	x	0.99960084	=	0.99927702	

PY0192_U.S. NATIONAL GRID SPATIAL ADDRESS: 12TVQ9173460232 (NAD 83)

PY0192 SUPERSEDED SURVEY CONTROL

PY0192	NAD 83(2007)-	44 47 43.59511(N)	111 06 16.21162(W)	AD(2002.00)	0
PY0192	ELLIP H (02/10/07)	2066.812 (m)		GP(2002.00)	
PY0192	NAD 83(1999)-	44 47 43.59433(N)	111 06 16.21128(W)	AD()	B
PY0192	ELLIP H (04/16/01)	2066.841 (m)		GP()	4 2
PY0192	NAD 83(1992)-	44 47 43.59392(N)	111 06 16.21018(W)	AD()	B
PY0192	ELLIP H (05/15/92)	2066.912 (m)		GP()	4 2
PY0192	NAD 83(1986)-	44 47 43.58459(N)	111 06 16.19430(W)	AD()	1
PY0192	NAVD 88	2075.40 (m)	6809.0 (f)	LEVELING	3
PY0192	NGVD 29 (??/??/92)	2073.792 (m)	6803.77 (f)	ADJ UNCH	1 2
PY0192	NGVD 29 (04/22/91)	2074.2 (m)	UNKNOWN model used	GPS OBS	

PY0192.Superseded values are not recommended for survey control.
 PY0192

PY0192.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.

PY0192.See file [dsdata.pdf](#) to determine how the superseded data were derived.

PY0192
 PY0192_MARKER: DB = BENCH MARK DISK
 PY0192_SETTING: 80 = SET IN A BOULDER
 PY0192_STAMPING: Z 161 1960
 PY0192_MARK LOGO: CGS
 PY0192_MAGNETIC: N = NO MAGNETIC MATERIAL
 PY0192_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO
 PY0192+STABILITY: SURFACE MOTION
 PY0192_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR
 PY0192+SATELLITE: SATELLITE OBSERVATIONS - October 12, 2016

PY0192

PY0192	HISTORY	- Date	Condition	Report By
PY0192	HISTORY	- 1960	MONUMENTED	CGS
PY0192	HISTORY	- 1987	GOOD	NGS
PY0192	HISTORY	- 20161012	GOOD	USPSQD

PY0192 STATION DESCRIPTION

PY0192'DESCRIBED BY COAST AND GEODETIC SURVEY 1960
 PY0192'9.7 MI N FROM WEST YELLOWSTONE.
 PY0192'ABOUT 9.7 MILES NORTH ALONG U.S. HIGHWAY 191 FROM THE UNION PACIFIC
 PY0192'RAILROAD STATION AT WEST YELLOWSTONE, NEAR THE TOP OF A LONG GRADE SET
 PY0192'IN THE TOP OF A LARGE BOULDER WHICH PROJECTS 2 FEET ABOVE THE GROUND,
 PY0192'159 FEET SOUTHEAST OF THE CENTER LINE OF THE HIGHWAY, 88 FEET SOUTH OF
 PY0192'A POLE FENCE, 60 FEET SOUTHWEST OF A FENCE, AND ABOUT 5 FEET BELOW THE
 PY0192'HIGHWAY.

PY0192 STATION RECOVERY (1987)

PY0192'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1987 (MRM)
 PY0192'THE STATION WAS RECOVERED AT THIS DATE.
 PY0192'
 PY0192'THE STATION IS LOCATED ABOUT 14.5 KM (9 MI) NORTH OF WEST
 PY0192'YELLOWSTONE,
 PY0192'1.6 KM (1 MI) NORTHEAST OF THE JUNCTION OF U.S. HIGHWAYS 191 AND
 PY0192'287, BETWEEN HIGHWAY 191 AND A LINE OF BOULDERS MARKING THE
 PY0192'BOUNDARY OF THE FIR RIDGE CEMETERY, IN NORTH CENTRAL SECTION 15, T
 PY0192'12 S, R 5 E.
 PY0192'OWNERSHIP--UNKNOWN.
 PY0192'
 PY0192'TO REACH THE STATION FROM THE JUNCTION OF U.S. HIGHWAYS 191 AND
 PY0192'287, ABOUT 12.9 KM (8 MI) NORTH OF WEST YELLOWSTONE, GO NORTHERLY
 PY0192'FOR 1.8 KM (1.1 MI) ON HIGHWAY 191 TO A ROAD RIGHT AND STATION ON
 PY0192'THE RIGHT.
 PY0192'
 PY0192'THE STATION IS A STANDARD CGS BENCH MARK DISK STAMPED---Z 161
 PY0192'1960, SET INTO A DRILL HOLE IN A ROUND BOULDER 1 METER IN DIAMETER
 PY0192'PROJECTING
 PY0192'40 CM ABOVE GROUND. LOCATED 39.9 METERS (131.0 FT) EAST FROM THE
 PY0192'APPROXIMATE CENTER OF HIGHWAY, ABOUT LEVEL WITH THE HIGHWAY, 25.1
 PY0192'METERS (82.3 FT) SOUTH-SOUTHWEST FROM THE APPROXIMATE CENTER OF A
 PY0192'DIRT ROAD, 20.2 METERS (66.3 FT) SOUTH-SOUTHWEST FROM A METAL
 PY0192'FLAGPOLE AND 13.5 METERS (44.3 FT) WEST FROM THE ROW OF BOULDERS.
 PY0192'

PY0192'TI4100 GPS SURVEY FOR CRUSTAL MOTION IN YELLOWSTONE PARK AND HEBGEN
PY0192'LAKE AREAS OF WYOMING, MONTANA AND IDAHO, AUGUST - SEPTEMBER 1987.

PY0192'

PY0192'THIS STATION SUITABLE FOR GPS SURVEYS.

PY0192'

PY0192'DESCRIBED BY G.R. HEID.

PY0192

PY0192

STATION RECOVERY (2016)

PY0192

PY0192'RECOVERY NOTE BY US POWER SQUADRON 2016 (GDH)

PY0192'RECOVERED IN GOOD CONDITION.

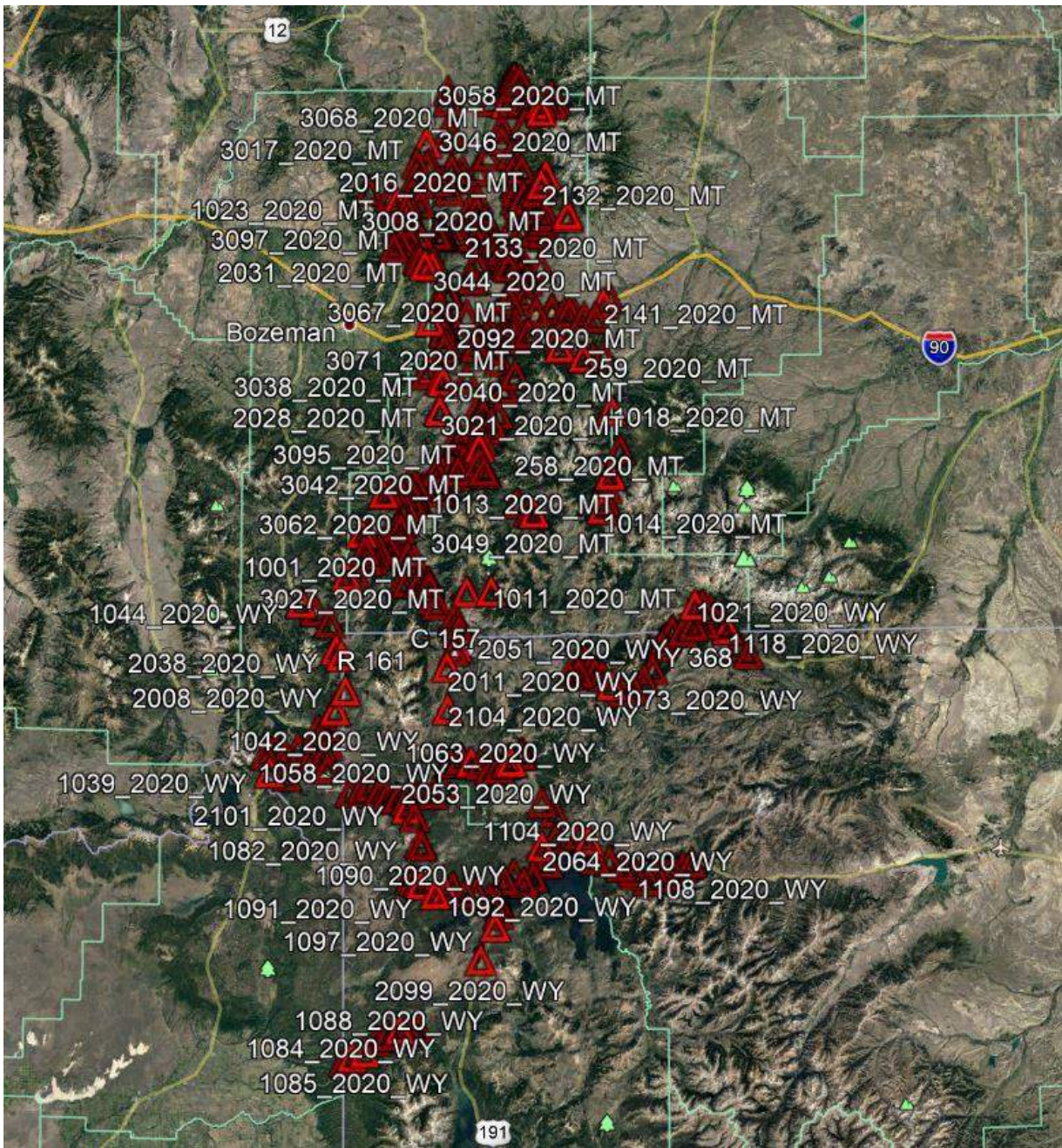
*** retrieval complete.

Elapsed Time = 00:00:01

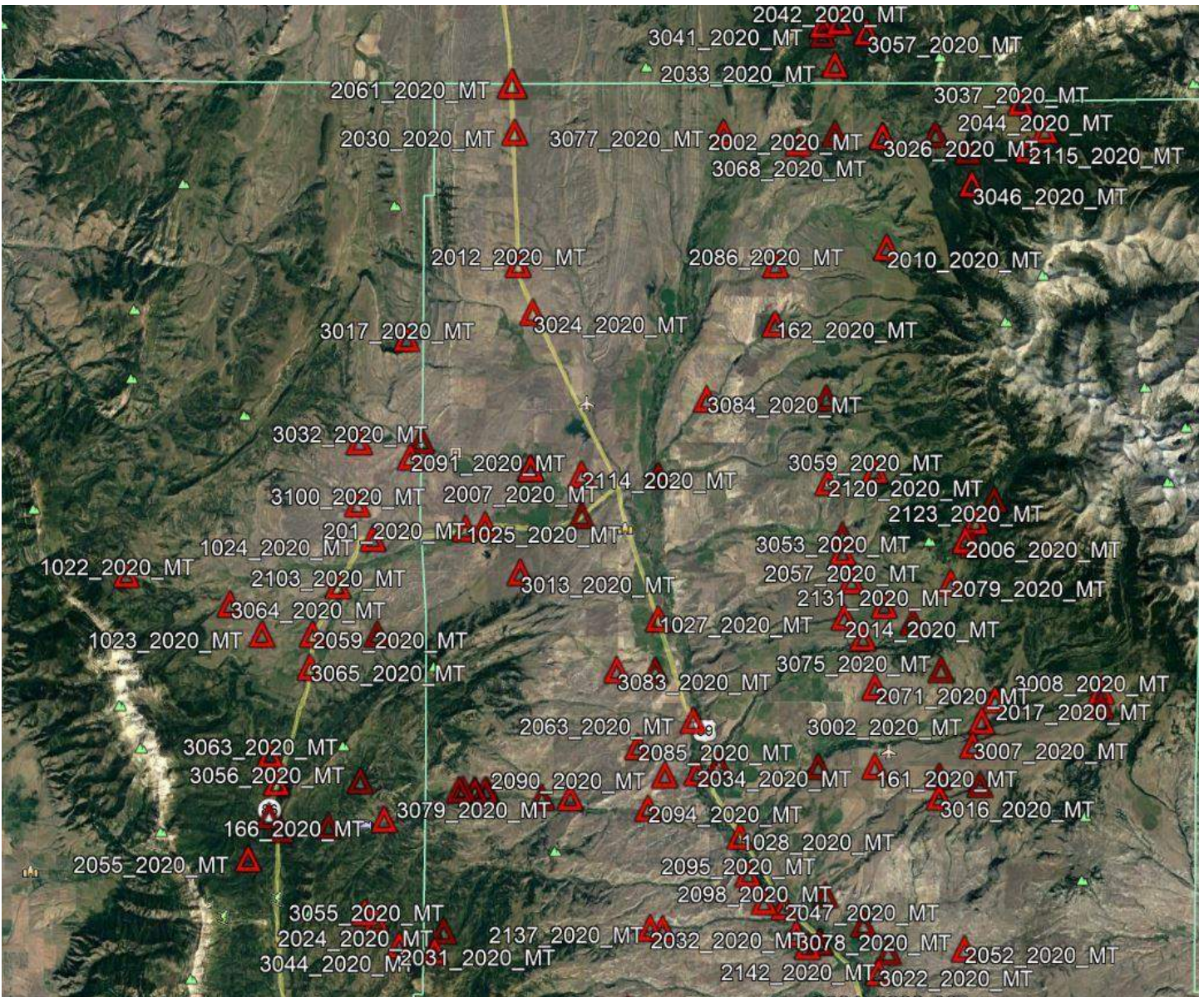
Section 5: GPS Control Diagram

This section contains a graphical representation of the new and existing control stations used for the project.

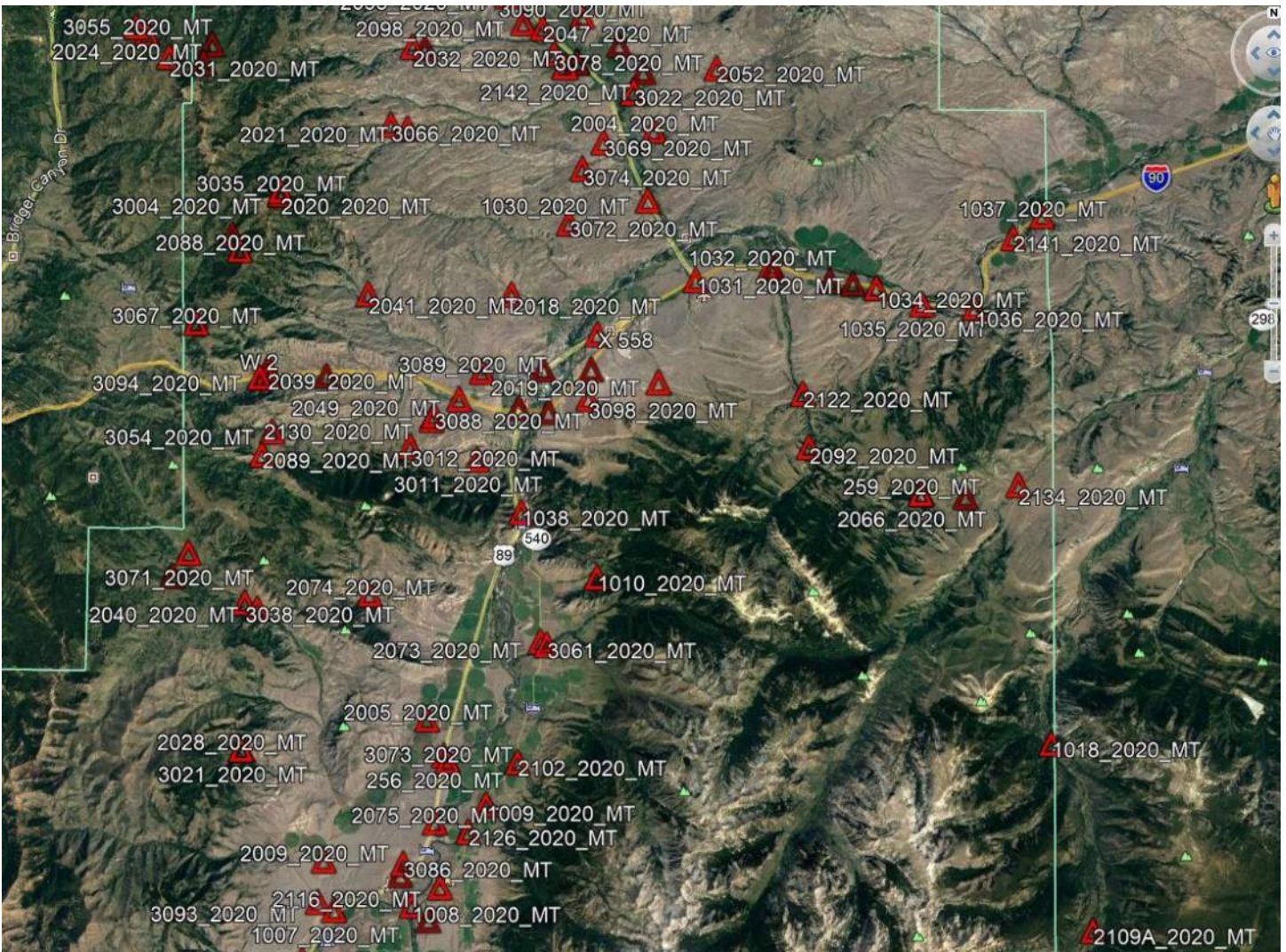
Overview of Control Network:



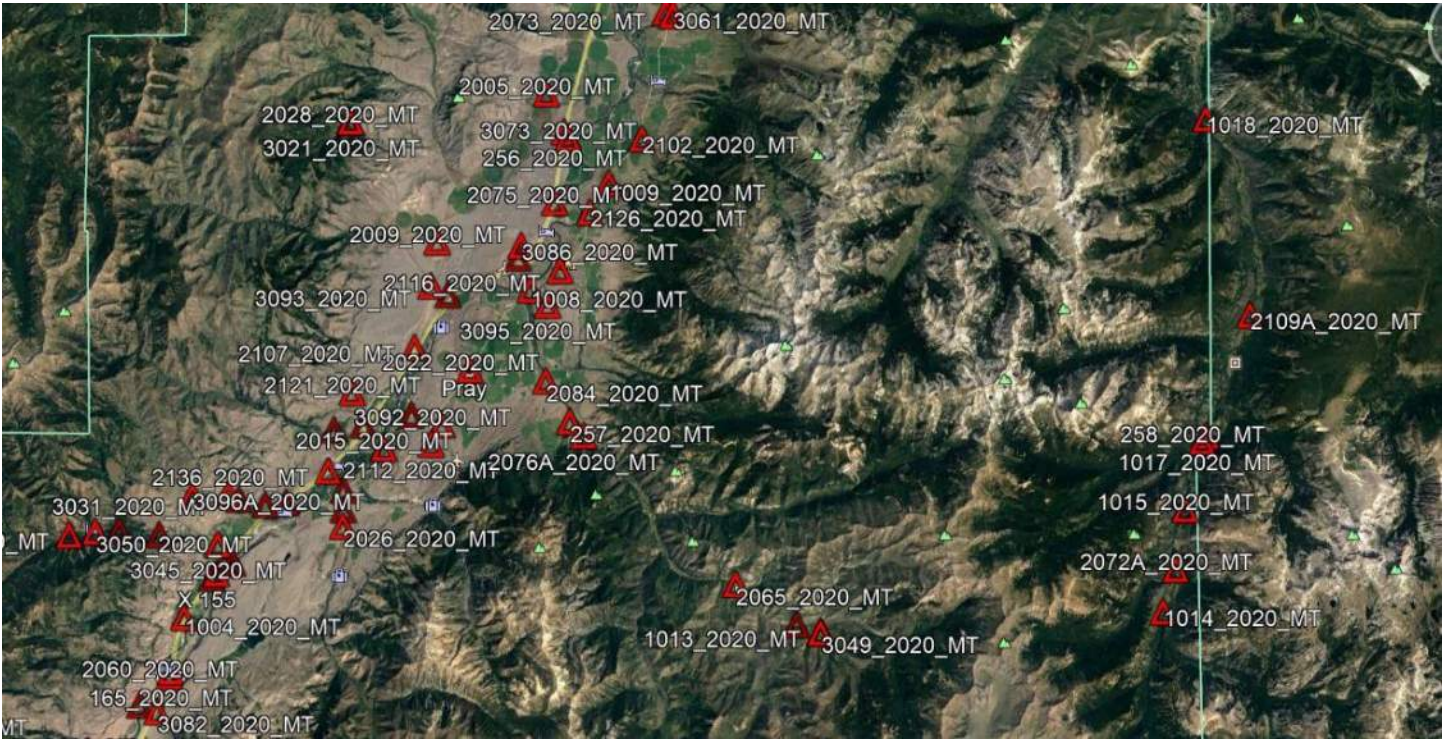
Montana North Control Network:



Montana Central Control Network:



Montana South Control Network:

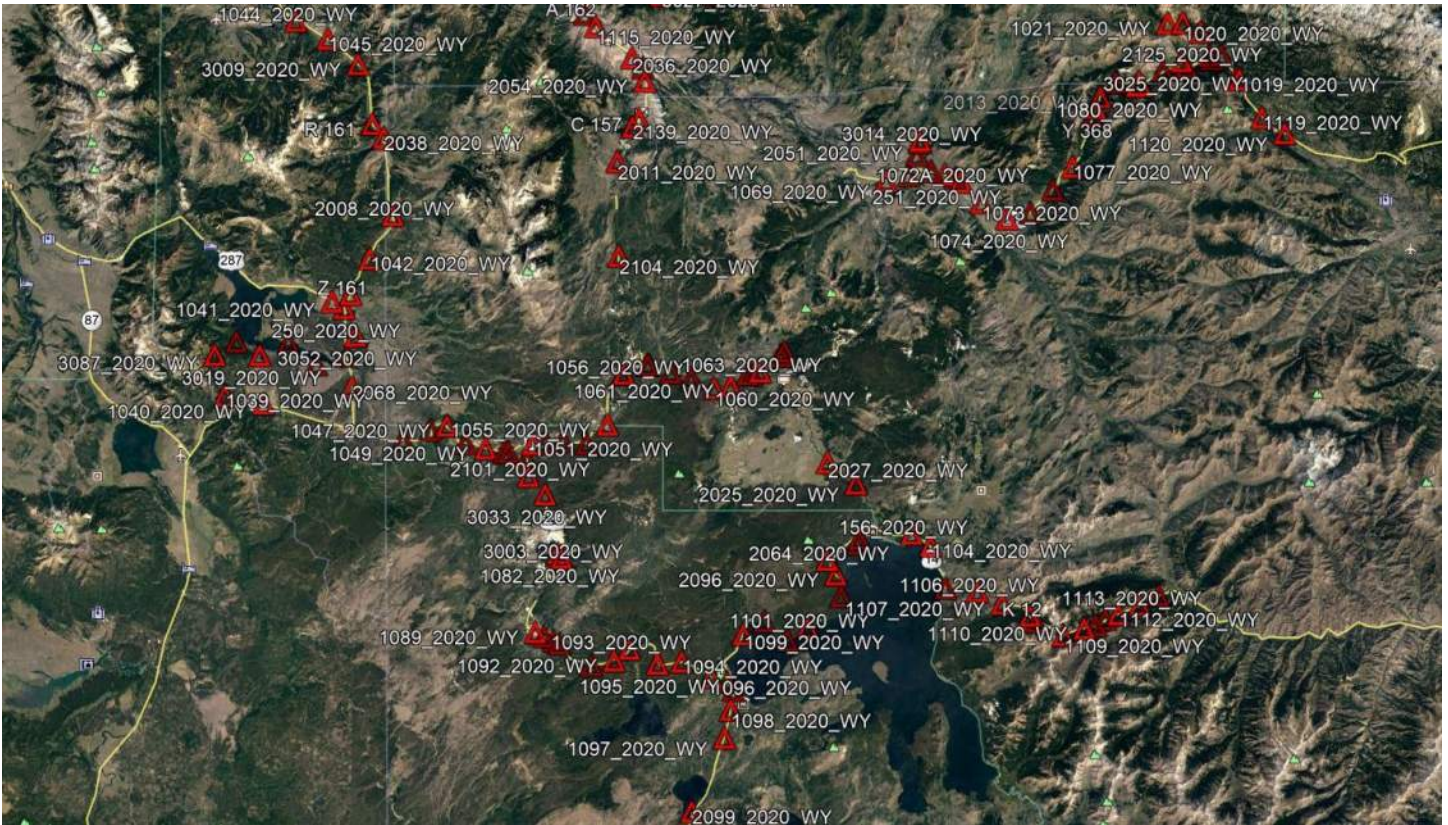


Not to Scale

Wyoming North Control Network:

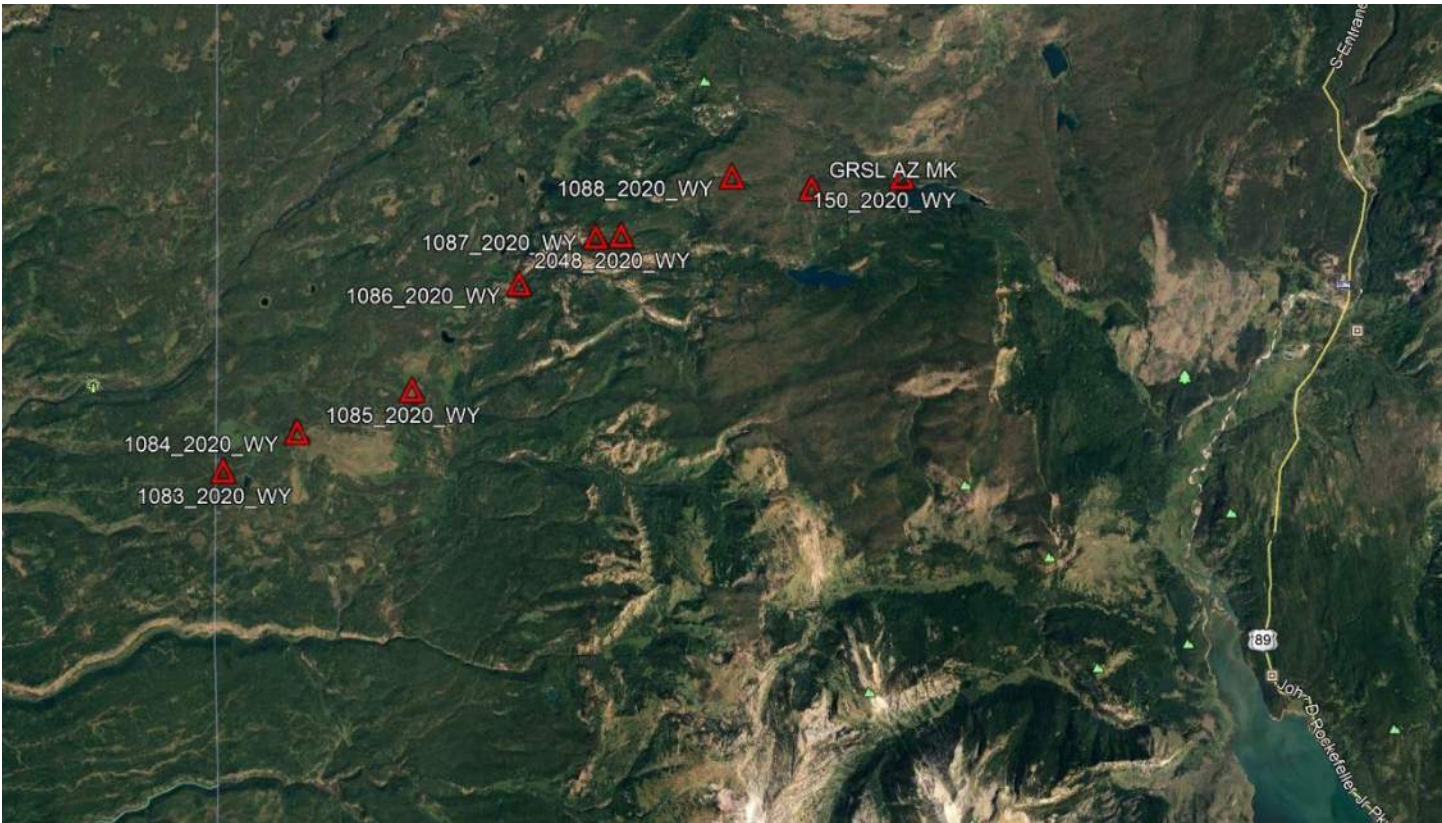


Wyoming Central Control Network:



Not to Scale

Wyoming South Control Network:



Not to Scale