

Ground Control Point Survey Report

ID SouthernID 2018 D19 QL1 & QL2 LiDAR Project

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Task Order Number: 140G0219F0356

Prepared for:

United States Geological Survey (USGS)



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	Including: a) Point Documentation Report & Photos of Survey Points	
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	c) NGS Data Sheets for Project Controls	

1. INTRODUCTION

1.1 *Project Summary*

Dewberry Engineers Inc. is under contract to the United States Geological Survey to provide 422 Ground Control Points in the State of Idaho. Under the above referenced USGS Task Order, Dewberry is tasked to complete the quality assurance of LiDAR products. As part of this work Dewberry staff will complete Ground Control Point surveys that will be used to evaluate vertical and horizontal accuracy. The ground survey was conducted October 2019 thru October 2020.

Existing NGS Control Points were located and surveyed to check the accuracy of the RTK/GPS survey equipment with the results shown in Section 2.4 of this Report.

As an internal QA/QC procedure and to verify that the Ground Control Points meet the 95% confidence level approximately 50% of the points were re-observed and are shown in Section 5 of this report.

Final horizontal coordinates are referenced to Albers Equal Area, NAD83 (2011) in meters. Final Vertical elevations are referenced to NAVD88 in meters using Geoid model 2012B (Geoid12B).

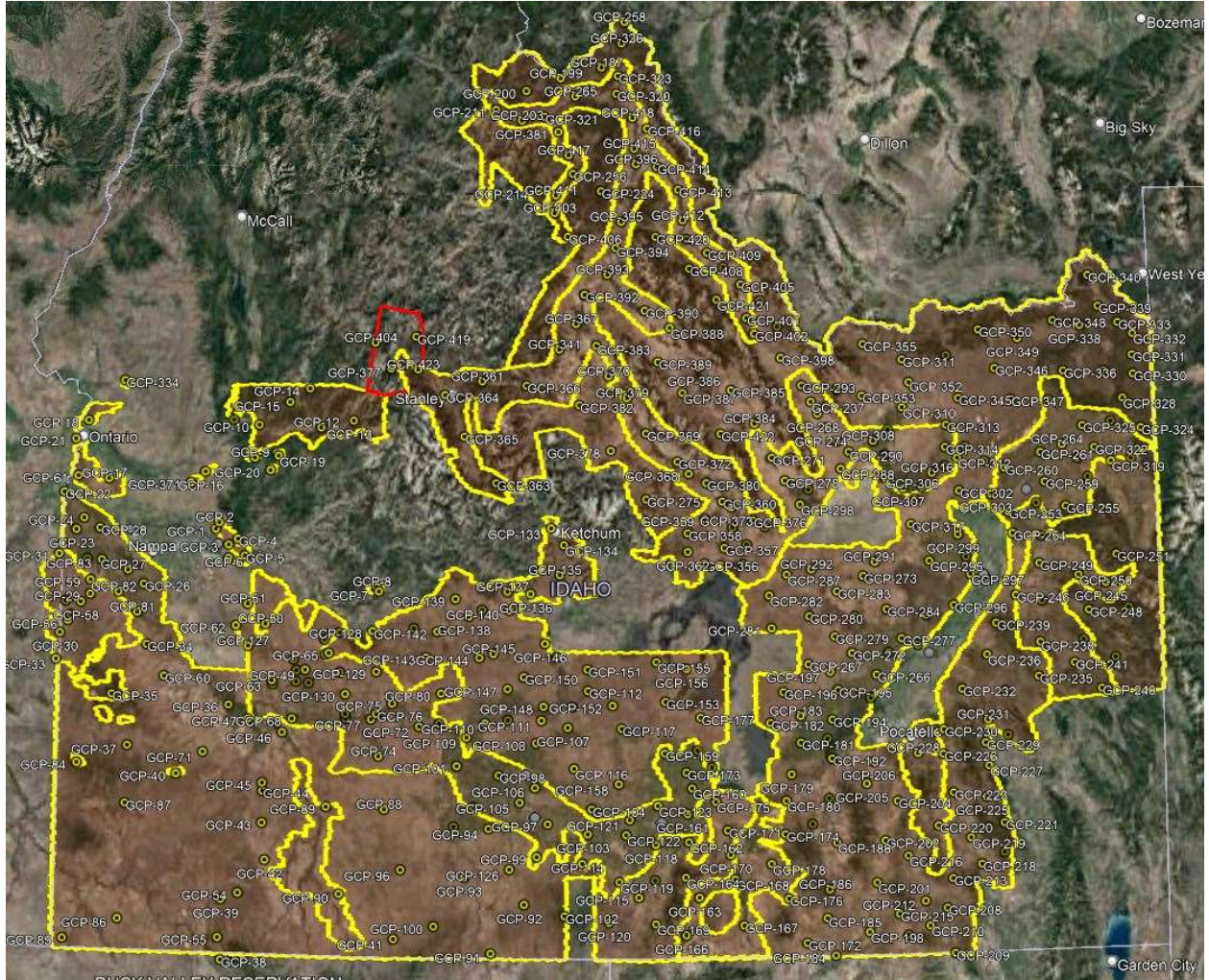
1.2 *Points of Contact*

Questions regarding the technical aspects of this report should be addressed to:

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1.3 Project Area



GCP Points

PROJECT DETAILS

2.1 Survey Equipment

In performing the GPS observations Trimble R-10 GNSS receiver/antenna attached to a two meter fixed height pole with a Trimble TSC3 Data Collector to collect GPS raw data were used to perform the field surveys.

2.2 Survey Point Detail

The 422 Ground Control Points were well distributed throughout the project area.

A sketch was made for each location and a nail was set at the point where possible or at an identifiable point. The Ground Control Point locations are detailed on the “Control Point Documentation Report” sheets attached to this report.

2.3 Network Design

The GPS survey performed by Dewberry Engineers Inc. office located in Lanham, MD was tied to a Real Time Network operated by Utah, Turn. The network is a series of “real-time” continuously operating, high precision GPS reference stations. All of the reference stations have been linked together using Trimble GPSNet software, creating a Virtual Reference Station System (VRS).

The Trimble NetR5 Reference Station is a multi-channel, multi-frequency GNSS (Global Navigation Satellite System) receiver designed for use as a stand-alone reference station or as part of a GNSS infrastructure solution. Trimble R-Track technology in the NetR5 receiver supports the modernized GPS L2C and L5 signals as well as GLONASS L1/L2 signals.

2.4 Field Survey Procedures and Analysis

Dewberry field surveyors used Trimble R-10 GNSS receivers, which is a geodetic quality dual frequency GPS receiver, to collect data at each surveyed location.

All locations were occupied once with approximately 50% of the locations being re-observed. All re-observations matched the initially derived station positions within the allowable tolerance of $\pm 5\text{cm}$ or within the 95% confidence level. Each occupation which utilized the VRS network was occupied for approximately three (3) minutes in duration and measured to 180 epochs.

Each occupation which utilized OPUS (if used) was occupied between 20 and 30 minutes.

Field GPS observations are detailed on the “Control Point Documentation Reports” submitted as part of this report.

Thirty-seven (37) existing NGS monument listed in the NSRS database were located for the Louisiana area as an additional QA/QC method to check the horizontal and vertical accuracy of the VRS network. The results are as follows:

PT. #	Observed Values			Data Sheet Values			ΔX	ΔY	ΔZ
	NORTHING	EASTING	ELEVS.	NORTHING	EASTING	ELEVS.			
NGS-H412	4885060.759	507079.523	650.341	4885060.756	507079.531	650.310	0.003	0.008	0.031
NGS-IDA802	4868635.995	507014.407	697.406	4868635.858	507014.596	697.369	N/A	N/A	0.037
NGS-N417RESET	4853562.819	503629.531	721.985	4853562.833	503629.527	721.990	-0.014	0.004	-0.005
NGS-M223	4822217.334	539027.684	769.788	4822217.332	539027.669	769.826	0.002	0.015	-0.038
NGS-Y223	4811960.193	552229.971	842.936	4811960.204	552229.962	842.963	-0.011	0.009	-0.027
NGS-S418	4748173.948	594869.706	766.808	4748173.946	594869.707	766.779	0.002	0.001	0.029
NGS-SCOTCH	4768485.402	610822.515	944.400	4768485.117	610822.745	944.426	N/A	N/A	-0.026
NGS-M88	4733793.399	699940.059	1104.097	4733793.203	699940.314	1104.099	N/A	N/A	-0.002
NGS-PASADENA2	4759561.909	650169.834	815.962	4759561.714	650169.988	815.941	N/A	N/A	0.021
NGS-SIMPSON	4756624.385	662029.945	998.921	4756624.161	662030.066	998.946	N/A	N/A	-0.025
NGS-UNION	4714665.439	702714.493	1146.333	4714665.368	702714.803	1146.370	N/A	N/A	-0.037
NGS-U423	4713112.960	264055.739	1266.592	4713112.979	264055.760	1266.634	-0.019	0.021	-0.042
NGS-B118	4818375.687	316976.681	1643.746	4818375.688	316976.718	1643.722	-0.001	0.037	0.024
NGS-IDA1569	4703093.862	405080.267	1477.540	4703093.853	405080.308	1477.520	0.009	0.041	0.020
NGS-IDA1595	4779012.304	387656.913	1366.571	4779012.293	387656.907	1366.585	0.011	0.006	-0.014
NGS-IDA1598A	4787420.994	391507.324	1379.856	4787420.997	391507.348	1379.850	-0.003	0.024	0.006
NGS-Q96	4755571.742	382640.345	1403.906	4755571.460	382640.384	1403.945	N/A	N/A	-0.039
NGS-IDA15111	4820584.232	413996.624	1438.731	4820584.252	413996.641	1438.745	-0.020	0.017	-0.014
E19	4826613.782	488615.224	1869.948	4826613.794	488615.224	1869.940	-0.012	0.000	0.008
MOODY	4854491.772	450270.754	1584.586	4854491.825	450270.641	1584.615	N/A	N/A	-0.029

SWAN GPS	4810944.928	473186.628	1609.472	4810944.949	473186.642	1609.480	-0.021	-	-0.008
NGS-LOMNGPS	4881996.596	610935.589	1169.078	4881996.593	610935.625	1169.050	0.003	-	0.028
NGS- B 160 OPUS	4901215.395	654738.264	1994.065	N/A	N/A	1994.030	N/A	N/A	0.035
NGS-D40CK	4880365.714	673351.629	2056.319	4880365.510	673351.713	2056.341	N/A	N/A	-0.022
NGS-OBSNGPS	4880141.182	673481.978	2058.684	4880141.176	673481.998	2058.700	0.006	-	-0.016
NGS-SUNNY	4894249.850	665638.928	1943.910	4894249.756	665638.953	N/A	0.094	-	N/A
NGS-574028	4861114.859	299350.546	1750.564	4861114.874	299350.506	1750.616	-0.015	-	-0.052
NGS-U62A	4865059.498	290903.635	1794.564	4865059.486	290903.626	1794.530	0.012	-	0.034
A-436	4845024.534	336755.906	1505.447	N/A	N/A	1505.500	N/A	-	-0.053
H-57CK2	4864980.139	368970.408	1461.926	4864980.091	368970.405	1461.949	0.048	-	-0.023
IDA-15-131	4876973.029	401016.353	1483.945	4876973.040	401016.354	1483.965	-0.011	-	-0.020
IDA-15-138CK1	4899382.545	401801.891	1638.565	4899382.494	401802.117	1638.538	N/A	-	0.027
MOODY	4854491.779	450270.685	1584.590	4854491.825	450270.641	1584.615	-0.046	-	-0.025
NATURAL WARM RIVER CK	4864972.735	368966.764	1462.031	4864972.694	368966.772	1462.014	0.041	-	0.017
X-56	4884222.299	473273.967	1607.702	4884222.511	473273.620	1607.743	N/A	-	-0.041
Z 409	4865823.263	367967.980	1464.083	4865823.259	367967.972	1464.088	0.004	-	-0.005
	4883668.698	463889.555	1588.865	4883668.737	463889.576	1588.907	-0.039	-	-0.042

The above results indicate that the VRS network is providing positional values within the 5cm parameters for this survey.

2.5 Adjustment

The survey data was collected using Virtual Reference Stations (VRS) methodology within a Virtual Reference System (VRS).

The system is designed to provide a true Network RTK performance, the RTKNet software enables high-accuracy positioning in real time across a geographic region. The RTKNet software package uses real-time data streams from the Utah, Turn network user and generates correction models for high-accuracy RTK GPS corrections throughout the network. Therefore, corrections were applied to the points as they were being collected, thus negating the need for a post process adjustment.

2.6 Data Processing Procedures

After field data is collected the information is downloaded from the data collectors into the office software. The Software program used is called Trimble Business Center.

Downloaded data is run through the TBC program to obtain the following reports; points report, point comparison report and a point detail report. The reports are reviewed for point accuracy and precision.

After review of the point data an “ASCII” or “txt” file which is the industry standard is created. Point files are loaded into our CADD program (Carlson Survey 2019) to make a visual check of the point data (Pt. #, Coordinates, Elev. and Description). The data can now be imported into the final product.

3. ***FINAL COORDINATES/ELEVATIONS***

POINT ID	NORTHING (m)	EASTING (m)	ELEV. (m)
ALBERS EQUAL AREA, NAD83 (2011), NAVD 88, Meters, Geoid 12B			
GCP			
GCP-01	2469785.687	-1608478.293	985.715
GCP-02	2472313.942	-1606398.355	1301.201
GCP-03	2462631.460	-1606768.810	945.984
GCP-04	2463752.757	-1599787.476	1462.833
GCP-05	2455778.344	-1598179.184	1106.392
GCP-06	2456145.467	-1605388.377	854.077
GCP-07	2429317.191	-1543347.931	1285.181
GCP-08	2431548.327	-1543794.410	1288.922
GCP-09	2494853.961	-1585351.392	1330.559
GCP-10	2511014.826	-1581061.712	948.057
GCP-11	2515329.588	-1591594.956	937.246
GCP-12	2504652.216	-1554565.981	1171.408
GCP-13	2504878.887	-1539971.238	1307.569
GCP-14	2522394.118	-1556178.818	1788.469
GCP-15	2518195.354	-1565897.060	2494.130
GCP-16	2495372.044	-1608239.867	812.644
GCP-17	2500537.220	-1650754.455	776.809
GCP-18	2527329.455	-1654841.373	678.298
GCP-19	2496027.029	-1575323.057	1349.654
GCP-20	2490571.687	-1579991.393	1283.916
GCP-21	2520468.718	-1661900.688	655.665
GCP-22	2498468.800	-1671325.030	668.561
GCP-23	2481182.087	-1669216.676	680.764
GCP-24	2485568.952	-1664873.808	735.405
GCP-25	2467562.053	-1666999.838	709.559
GCP-26	2452063.945	-1644372.472	837.809
GCP-27	2459472.575	-1650018.271	856.152
GCP-28	2479904.320	-1658757.539	738.820
GCP-29	2452088.211	-1668481.289	1187.758
GCP-30	2437920.929	-1684933.018	1266.253
GCP-31	2471434.308	-1676073.925	761.547
GCP-32	2451750.152	-1679712.272	1316.538
GCP-33	2426743.421	-1688874.281	1414.482
GCP-34	2425720.844	-1648126.362	859.540
GCP-35	2407161.645	-1667546.137	1885.785

GCP-36	2392807.250	-1617675.682	723.000
GCP-37	2383566.228	-1665039.200	1566.187
GCP-38	2282779.744	-1642965.466	1637.931
GCP-39	2309119.151	-1637606.594	1648.773
GCP-40	2367327.047	-1646212.554	1865.640
GCP-41	2277855.933	-1566496.514	1668.603
GCP-42	2322686.119	-1615170.337	1562.707
GCP-43	2397064.958	-1528518.416	1647.382
GCP-44	2352819.858	-1610232.701	1271.461
GCP-45	2356384.731	-1609676.743	1087.311
GCP-46	2376608.722	-1596788.485	774.148
GCP-47	2385217.961	-1610495.034	771.786
GCP-48	2398088.052	-1596803.905	925.791
GCP-49	2401695.750	-1581603.363	955.910
GCP-50	2424737.287	-1594861.855	993.580
GCP-51	2434838.478	-1600865.424	1027.175
GCP-52	2414874.095	-1563664.206	1491.844
GCP-53	2407072.052	-1585701.527	973.222
GCP-54	2310842.817	-1629362.701	1736.665
GCP-55	2292805.277	-1642306.707	1628.802
GCP-56	2442569.715	-1680488.029	1324.935
GCP-57	2444843.663	-1678787.834	1308.167
GCP-58	2449477.556	-1673248.483	1217.572
GCP-59	2458201.146	-1667214.372	838.007
GCP-60	2410593.509	-1643222.082	931.603
GCP-61	2504334.935	-1663966.350	694.311
GCP-62	2426495.636	-1607740.304	957.479
GCP-63	2399835.310	-1596865.833	932.282
GCP-64	2406626.356	-1571674.050	1126.636
GCP-65	2406915.710	-1570017.463	1170.410
GCP-66	2413104.837	-1570720.257	1429.566
GCP-67	2402150.177	-1585378.136	963.076
GCP-68	2381662.761	-1591385.269	749.982
GCP-69	2397346.215	-1586454.949	949.411
GCP-70	2377218.972	-1568206.924	773.653
GCP-71	2374603.949	-1632766.754	1150.376
GCP-72	2367797.792	-1537349.557	810.928
GCP-73	2367390.478	-1528556.161	996.916
GCP-74	2358280.236	-1557341.912	948.554
GCP-75	2379924.857	-1547014.955	774.858

GCP-76	2376805.384	-1554477.067	815.757
GCP-77	2374863.877	-1557400.463	767.298
GCP-78	2395753.351	-1581152.649	942.513
GCP-79	2379336.195	-1568126.446	801.270
GCP-80	2380241.008	-1525114.600	1006.636
GCP-81	2440347.274	-1649524.491	687.317
GCP-82	2450699.071	-1656037.418	690.034
GCP-83	2465997.332	-1660601.066	690.509
GCP-84	2380117.873	-1688495.810	2367.600
GCP-85	2304956.900	-1710025.868	1559.079
GCP-86	2309118.594	-1684244.407	1594.136
GCP-87	2358759.408	-1670981.503	1648.254
GCP-88	2334856.782	-1559345.065	1190.544
GCP-89	2340804.176	-1584171.911	1256.971
GCP-90	2301933.509	-1586090.401	1524.381
GCP-91	2263162.411	-1525994.644	1717.161
GCP-92	2282052.263	-1507431.276	1620.586
GCP-93	2298268.653	-1531066.715	1464.475
GCP-94	2317921.418	-1516229.713	1255.147
GCP-95	2328629.499	-1520918.531	1136.214
GCP-96	2307246.724	-1557519.216	1565.243
GCP-97	2315005.034	-1490453.014	1193.711
GCP-98	2340250.054	-1507444.655	1062.102
GCP-99	2301696.933	-1497929.695	1304.887
GCP-100	2282545.996	-1549455.858	1741.570
GCP-101	2347978.823	-1524811.051	904.090
GCP-102	2273642.818	-1490764.243	2117.599
GCP-103	2307409.966	-1474083.600	1238.808
GCP-104	2317780.577	-1470330.574	1247.245
GCP-105	2326688.092	-1500644.530	1084.352
GCP-106	2331822.603	-1492874.626	1154.927
GCP-107	2355096.417	-1473766.470	1259.612
GCP-108	2348843.012	-1489047.873	1186.183
GCP-109	2359185.520	-1517871.358	1020.321
GCP-110	2363960.343	-1508890.188	1088.471
GCP-111	2360331.006	-1484379.489	1211.494
GCP-112	2369239.051	-1462020.934	1321.616
GCP-113	2363259.020	-1498788.156	1129.362
GCP-114	2295644.227	-1480341.946	1551.441
GCP-115	2275724.435	-1458016.354	1386.861

GCP-116	2336818.264	-1474499.546	1243.477
GCP-117	2350164.986	-1450765.547	1288.676
GCP-118	2297069.911	-1445912.604	1296.486
GCP-119	2283932.910	-1464608.887	1394.023
GCP-120	2267178.944	-1472474.046	1558.521
GCP-121	2310073.174	-1454938.879	1307.339
GCP-122	2303749.664	-1457755.561	1333.465
GCP-123	2313794.210	-1441744.116	1265.311
GCP-124	2325880.096	-1415429.319	1303.499
GCP-125	2321648.634	-1531025.306	1179.426
GCP-126	2298556.052	-1510698.190	1378.811
GCP-127	2416691.835	-1604274.159	1031.887
GCP-128	2412638.195	-1549767.087	1718.913
GCP-129	2395417.472	-1551389.661	1421.557
GCP-130	2387853.194	-1566354.179	967.063
GCP-131	2397530.967	-1566823.681	1034.912
GCP-132	2410551.171	-1531420.556	1552.773
GCP-133	2442267.752	-1464330.312	1812.829
GCP-134	2433921.356	-1460011.651	1804.808
GCP-135	2421444.114	-1464627.744	1620.157
GCP-136	2415722.677	-1478518.750	1831.288
GCP-137	2418561.063	-1488290.812	1636.453
GCP-138	2411085.376	-1506841.352	1544.904
GCP-139	2419755.572	-1511081.693	1636.317
GCP-140	2410306.277	-1488933.543	1571.297
GCP-141	2412299.144	-1500664.924	1552.372
GCP-142	2407156.526	-1521579.182	1547.322
GCP-143	2397064.958	-1528518.416	1647.382
GCP-144	2392491.121	-1505759.528	1667.266
GCP-145	2392538.922	-1499467.435	1692.829
GCP-146	2393220.377	-1476525.103	1468.313
GCP-147	2376698.993	-1496289.130	1192.319
GCP-148	2366153.453	-1482399.810	1224.455
GCP-149	2386499.657	-1472689.866	1402.783
GCP-150	2380434.248	-1488010.131	1388.705
GCP-151	2378499.485	-1460525.782	1394.887
GCP-152	2360847.100	-1452746.081	1327.967
GCP-153	2358195.540	-1429849.148	1347.668
GCP-154	2363227.785	-1470759.183	1258.831
GCP-155	2376064.952	-1430388.289	1440.812

GCP-156	2370544.755	-1418120.866	1410.279
GCP-157	2334565.455	-1420488.521	1318.656
GCP-158	2326447.117	-1456666.741	1282.242
GCP-159	2335939.861	-1434442.664	1325.792
GCP-160	2318566.504	-1425658.907	1269.643
GCP-161	2307902.771	-1429755.180	1267.770
GCP-162	2295533.115	-1431333.949	1372.017
GCP-163	2270529.618	-1431550.077	1587.435
GCP-164	2280387.735	-1435695.376	2522.411
GCP-165	2281660.963	-1449129.399	1393.947
GCP-166	2255162.826	-1440365.946	1635.183
GCP-167	2254731.260	-1414736.006	1445.008
GCP-168	2275442.502	-1414738.592	1376.319
GCP-169	2262559.741	-1452424.581	1725.791
GCP-170	2286579.060	-1414654.728	1347.359
GCP-171	2297318.434	-1413804.383	1366.130
GCP-172	2241689.800	-1388998.110	1456.039
GCP-173	2325875.925	-1426769.226	1289.713
GCP-174	2290921.766	-1389405.072	1512.986
GCP-175	2310692.665	-1416289.699	1315.140
GCP-176	2262648.462	-1393303.824	1585.600
GCP-177	2348390.097	-1416108.844	1344.217
GCP-178	2279092.285	-1397823.157	1495.283
GCP-179	2316296.859	-1381841.717	1335.112
GCP-180	2305261.678	-1386045.560	1321.988
GCP-181	2329150.082	-1374815.632	1393.851
GCP-182	2340312.840	-1386754.355	1529.790
GCP-183	2341148.316	-1373046.059	1468.684
GCP-184	2233966.265	-1377946.099	1381.727
GCP-185	2250848.767	-1378391.697	1622.503
GCP-186	2263042.673	-1375133.232	1804.553
GCP-187	2636648.421	-1404305.436	2018.007
GCP-188	2283056.574	-1368039.720	1502.486
GCP-189	2293047.621	-1376963.732	1549.997
GCP-190	2427526.888	-1386677.585	1654.718
GCP-191	2302821.827	-1367709.733	1489.164
GCP-192	2319750.628	-1363180.626	1346.893
GCP-193	2328748.200	-1363525.806	1340.673
GCP-194	2336507.279	-1359830.522	1342.777
GCP-195	2348760.792	-1354895.986	1352.648

GCP-196	2352505.153	-1378603.371	1595.841
GCP-197	2357370.393	-1356761.875	1398.460
GCP-198	2241206.155	-1361373.934	1425.821
GCP-199	2635346.550	-1422811.538	2407.399
GCP-200	2632768.897	-1438473.515	2311.695
GCP-201	2262101.506	-1354110.622	1539.488
GCP-202	2279674.438	-1347089.316	1573.828
GCP-203	2620261.212	-1443033.912	947.432
GCP-204	2295837.606	-1338615.648	1597.072
GCP-205	2308776.353	-1345344.121	1422.941
GCP-206	2314910.788	-1345631.916	1391.901
GCP-207	2236595.016	-1344953.869	1534.177
GCP-208	2245023.309	-1325914.058	1397.389
GCP-209	2224727.530	-1326181.883	1370.920
GCP-210	2238795.591	-1334690.655	1358.276
GCP-211	2626897.455	-1453000.785	905.821
GCP-212	2249977.374	-1334760.922	1448.009
GCP-213	2257494.054	-1321085.246	1580.711
GCP-214	2589556.727	-1441702.512	2296.729
GCP-215	2246565.008	-1347012.103	1608.135
GCP-216	2271139.844	-1338478.071	1618.956
GCP-217	2604329.307	-1407664.731	2609.676
GCP-218	2261236.736	-1307404.197	1458.951
GCP-219	2273609.422	-1309914.043	1524.955
GCP-220	2281629.464	-1322938.823	1511.333
GCP-221	2277383.244	-1296174.994	2273.699
GCP-222	2264457.124	-1296596.587	1858.918
GCP-223	2294694.059	-1313761.275	1464.660
GCP-224	2583081.379	-1414978.649	2823.765
GCP-225	2290054.828	-1299866.374	1542.188
GCP-226	2312264.937	-1315050.719	1379.276
GCP-227	2303367.071	-1296297.517	1607.330
GCP-228	2314815.295	-1325824.625	1378.986
GCP-229	2313583.005	-1295791.882	1781.162
GCP-230	2322851.312	-1312790.520	1637.510
GCP-231	2323308.880	-1292843.805	1669.517
GCP-232	2344432.288	-1298142.776	1573.614
GCP-233	2334327.921	-1283106.821	1796.462
GCP-234	2315026.095	-1285518.403	1655.733
GCP-235	2337784.657	-1267274.984	2039.097

GCP-236	2351471.301	-1287859.901	1685.098
GCP-237	2475019.747	-1342540.561	1893.078
GCP-238	2352463.887	-1263786.977	1915.230
GCP-239	2364374.108	-1281330.460	1914.538
GCP-240	2327126.818	-1240939.935	1952.433
GCP-241	2340593.893	-1250592.080	1955.257
GCP-242	2339449.852	-1232305.101	1941.998
GCP-243	2349840.589	-1244647.332	1948.805
GCP-244	2359919.662	-1222470.757	1641.094
GCP-245	2372588.422	-1230400.431	1608.985
GCP-246	2374723.200	-1270418.054	1767.617
GCP-247	2370188.830	-1259542.147	1883.252
GCP-248	2366796.867	-1242361.138	1728.480
GCP-249	2386426.544	-1257610.998	1693.603
GCP-250	2379537.606	-1239422.459	1744.950
GCP-251	2383787.780	-1223461.502	1812.070
GCP-252	2398147.587	-1254444.374	1524.469
GCP-253	2411307.087	-1266664.358	1483.060
GCP-254	2401663.786	-1266648.047	1496.561
GCP-255	2408910.335	-1241361.982	1918.812
GCP-256	2592919.198	-1425557.333	1544.247
GCP-257	2412768.556	-1253837.117	1605.184
GCP-258	2654514.969	-1390571.419	2142.994
GCP-259	2421187.973	-1248335.416	1535.404
GCP-260	2430412.439	-1264531.587	1482.020
GCP-261	2434209.237	-1247821.013	1517.491
GCP-262	2428651.811	-1232175.289	1632.844
GCP-263	2419682.052	-1229318.963	1767.104
GCP-264	2435735.213	-1237799.534	1551.707
GCP-265	2626312.988	-1418028.704	1037.016
GCP-266	2352167.047	-1337109.617	1354.255
GCP-267	2362374.917	-1365548.083	1476.486
GCP-268	2469383.147	-1340626.035	1834.567
GCP-269	2344964.094	-1341167.400	1335.743
GCP-270	2360750.916	-1330211.926	1360.547
GCP-271	2454256.315	-1364016.589	1620.259
GCP-272	2363574.607	-1345875.844	1387.715
GCP-273	2399659.054	-1338036.708	1612.825
GCP-274	2462669.774	-1338146.043	1751.587
GCP-275	2446732.431	-1421275.526	2385.175

GCP-276	2361510.089	-1316940.412	1369.928
GCP-277	2365806.631	-1323198.159	1369.850
GCP-278	2443331.231	-1360250.092	1538.761
GCP-279	2372068.409	-1351764.665	1454.062
GCP-280	2382992.281	-1361169.789	1582.830
GCP-281	2380995.673	-1378299.031	1573.908
GCP-282	2395275.793	-1376633.450	1593.113
GCP-283	2391441.199	-1347240.510	1529.644
GCP-284	2379520.696	-1327362.549	1439.421
GCP-285	2379165.764	-1341556.332	1453.266
GCP-286	2410837.177	-1385226.557	1622.697
GCP-287	2408689.320	-1364363.118	1550.596
GCP-288	2443801.578	-1335303.354	1515.141
GCP-289	2373705.094	-1310863.260	1420.558
GCP-290	2450414.203	-1330416.929	1560.120
GCP-291	2400886.014	-1328478.257	1640.889
GCP-292	2401053.941	-1356792.011	1508.930
GCP-293	2482780.969	-1345143.182	1988.088
GCP-294	2395445.388	-1288749.145	1460.238
GCP-295	2396804.396	-1304919.953	1545.603
GCP-296	2375458.609	-1297780.379	1402.931
GCP-297	2387630.917	-1288259.037	1438.648
GCP-298	2431841.858	-1355790.014	1469.429
GCP-299	2405731.461	-1290384.720	1465.564
GCP-300	2424617.589	-1306106.465	1461.336
GCP-301	2429205.006	-1302060.200	1459.751
GCP-302	2424414.340	-1286189.637	1470.835
GCP-303	2420446.274	-1272773.731	1466.420
GCP-304	2436422.219	-1290297.884	1464.496
GCP-305	2446152.493	-1315397.582	1460.869
GCP-306	2436344.758	-1317044.605	1459.006
GCP-307	2430328.946	-1310006.023	1459.695
GCP-308	2453103.454	-1319018.832	1467.090
GCP-309	2456704.923	-1311815.647	1471.707
GCP-310	2465101.397	-1303802.052	1521.598
GCP-311	2485690.479	-1299734.217	1996.708
GCP-312	2438793.057	-1284250.641	1501.598
GCP-313	2453856.357	-1286225.284	1503.293
GCP-314	2444450.454	-1288518.207	1468.548
GCP-315	2442964.763	-1279883.276	1521.976

GCP-316	2434410.331	-1296380.482	1460.674
GCP-317	2414064.384	-1309755.495	1528.406
GCP-318	2423944.512	-1208939.419	1813.064
GCP-319	2424511.590	-1217787.828	1798.178
GCP-320	2623996.077	-1400126.379	1114.471
GCP-321	2620029.511	-1433019.506	977.724
GCP-322	2431791.981	-1223939.593	1680.570
GCP-323	2631623.850	-1397919.217	1210.133
GCP-324	2436337.441	-1202036.664	1929.635
GCP-325	2442228.810	-1227318.744	1606.526
GCP-326	2645515.411	-1393615.289	1550.004
GCP-327	2441724.564	-1214650.996	1715.105
GCP-328	2450723.277	-1207469.956	1853.583
GCP-329	2435177.446	-1272757.941	1484.418
GCP-330	2460219.721	-1200778.941	2202.434
GCP-331	2468529.566	-1199587.478	2332.681
GCP-332	2477689.185	-1197528.103	2308.829
GCP-333	2483717.339	-1203075.252	2052.403
GCP-334	2541594.891	-1635705.554	1061.599
GCP-335	2464122.250	-1213324.166	1872.756
GCP-336	2467403.780	-1230923.767	1954.639
GCP-337	2456210.333	-1239995.940	1677.416
GCP-338	2485604.768	-1219871.042	1944.218
GCP-339	2492381.110	-1210235.685	1961.086
GCP-340	2506570.631	-1212049.011	1993.362
GCP-341	2518368.641	-1445944.059	1864.699
GCP-342	2455930.654	-1334662.961	1654.130
GCP-343	2452514.626	-1355903.411	1934.751
GCP-344	2437536.075	-1350960.360	1486.234
GCP-345	2464522.419	-1278753.024	1640.410
GCP-346	2474173.585	-1260451.446	1906.388
GCP-347	2459536.427	-1256101.563	1762.320
GCP-348	2489998.483	-1231202.583	2026.777
GCP-349	2485040.861	-1248595.336	1952.303
GCP-350	2492198.703	-1264237.967	2014.319
GCP-351	2483820.072	-1280422.792	1793.975
GCP-352	2475312.239	-1298764.898	1657.567
GCP-353	2473423.868	-1320141.560	1808.209
GCP-354	2478179.209	-1330395.659	2313.259
GCP-355	2495576.781	-1315297.731	1964.540

GCP-356	2414290.898	-1401706.866	1715.901
GCP-357	2419438.786	-1391815.164	1640.883
GCP-358	2428814.933	-1406331.131	1892.072
GCP-359	2433475.688	-1397898.864	1803.540
GCP-360	2439597.476	-1388873.719	1719.672
GCP-361	2511022.040	-1481605.360	1818.437
GCP-362	2420764.821	-1407870.359	1972.767
GCP-363	2466270.076	-1484070.559	2227.949
GCP-364	2508252.376	-1498704.040	1910.540
GCP-365	2488818.144	-1493836.198	2065.542
GCP-366	2505524.338	-1462981.003	1697.151
GCP-367	2527948.403	-1436680.767	1571.908
GCP-368	2454251.581	-1400905.184	1795.885
GCP-369	2475125.191	-1416211.163	1913.058
GCP-370	2502866.132	-1427140.715	1927.849
GCP-371	2491915.815	-1615425.417	1216.941
GCP-372	2460231.357	-1404786.079	1858.074
GCP-373	2436368.538	-1385437.315	1698.748
GCP-374	2419075.961	-1382008.882	1620.204
GCP-375	2425244.756	-1372814.531	1785.971
GCP-376	2428926.310	-1377378.591	1877.645
GCP-378	2470549.444	-1432342.881	2032.957
GCP-379	2491871.236	-1421010.926	2072.155
GCP-380	2448840.074	-1394174.311	1752.279
GCP-381	2612458.376	-1428262.584	1088.570
GCP-382	2492729.017	-1442064.095	1881.499
GCP-383	2516898.042	-1429777.191	1684.334
GCP-384	2470333.882	-1368596.008	1761.516
GCP-385	2486625.956	-1375788.057	1901.697
GCP-386	2499214.694	-1387752.196	2043.055
GCP-387	2489463.168	-1396838.070	2188.684
GCP-388	2519021.390	-1397006.501	1779.428
GCP-389	2504776.542	-1404785.132	2012.656
GCP-390	2527740.343	-1405867.200	1593.604
GCP-391	2535919.375	-1410121.984	1541.665
GCP-392	2539835.943	-1430623.399	1464.849
GCP-393	2546549.013	-1419155.636	1417.523
GCP-394	2557417.244	-1413410.319	1372.643
GCP-395	2568196.208	-1408787.349	1328.315
GCP-396	2591869.712	-1397601.929	1228.291

GCP-397	2580141.098	-1402907.046	1287.214
GCP-398	2496470.340	-1351779.510	2057.492
GCP-399	2510218.420	-1350714.293	2261.171
GCP-400	2522693.094	-1355890.383	2002.736
GCP-401	2516921.777	-1363391.531	2019.600
GCP-402	2509037.248	-1361108.947	2124.272
GCP-403	2577502.187	-1436600.271	1907.337
GCP-404	2536610.030	-1524269.486	1941.224
GCP-405	2531357.865	-1362845.504	1849.765
GCP-406	2566222.798	-1432912.546	2314.120
GCP-407	2540217.825	-1368818.457	1770.442
GCP-408	2542375.926	-1383560.748	2094.758
GCP-409	2547694.361	-1374516.738	1807.046
GCP-410	2555323.021	-1382233.097	1601.394
GCP-411	2584987.271	-1434652.289	1718.354
GCP-412	2563751.541	-1382255.487	1533.209
GCP-413	2577303.131	-1381653.156	1416.730
GCP-414	2589008.092	-1388898.710	1295.586
GCP-415	2598730.404	-1397051.596	1197.056
GCP-416	2606372.109	-1389861.558	1334.254
GCP-417	2601329.932	-1425827.456	1386.533
GCP-418	2612233.503	-1395184.908	1148.735
GCP-419	2572822.824	-1392814.444	2365.138
GCP-420	2558862.902	-1395355.700	1990.961
GCP-421	2526727.795	-1374438.507	2224.845
GCP-422	2468737.869	-1383927.486	2115.954
GCP-423	2521507.857	-1508097.314	2029.809

4. GPS OBSERVATIONS

POINT ID	OBSERV. DATE	JULIAN DATE	TIME OF DAY (AST)	RE-OBSERV. DATE	RE-OBSERV. TIME
GCP-1	11/24/2019	328	15:39	N/A	N/A
GCP-2	11/24/2019	328	16:12	N/A	N/A
GCP-3	11/24/2019	328	13:04	N/A	N/A
GCP-4	11/24/2019	328	13:52	N/A	N/A
GCP-5	11/24/2019	328	10:33	N/A	N/A
GCP-6	11/24/2019	328	9:36	N/A	N/A
GCP-7	1/7/2020	7	13:41	N/A	N/A
GCP-8	1/7/2020	7	14:25	N/A	N/A
GCP-9	7/10/2020	189	11:43	N/A	N/A
GCP-10	1/9/2020	9	16:47	1/10/2020	14:02
GCP-11	1/9/2020	9	13:41	1/10/2020	14:48
GCP-12	7/11/2020	189	17:29	N/A	N/A
GCP-13	7/12/2020	190	11:08	N/A	N/A
GCP-14	7/11/2020	189	14:29	N/A	N/A
GCP-15	7/10/2020	188	12:25	7/11/2020	12:28
GCP-16	1/9/2020	9	12:06	N/A	N/A
GCP-17	11/22/2019	326	15:12	11/23/2019	12:46
GCP-18	11/23/2019	327	14:09	N/A	N/A
GCP-19	7/10/2020	188	14:20	N/A	N/A
GCP-20	7/10/2020	188	12:49	N/A	N/A
GCP-21	11/23/2019	327	13:14	N/A	N/A
GCP-22	1/14/2020	14	11:55	N/A	N/A
GCP-23	1/14/2020	14	12:51	N/A	N/A
GCP-24	1/14/2020	14	10:57	N/A	N/A
GCP-25	1/14/2020	14	14:07	N/A	N/A
GCP-26	1/14/2020	14	16:17	1/15/2020	10:17
GCP-27	1/14/2020	14	17:01	N/A	N/A
GCP-28	1/14/2020	14	10:31	N/A	N/A
GCP-29	2/12/2020	43	10:11	2/12/2020	15:07
GCP-30	2/12/2020	43	13:13	N/A	N/A
GCP-31	1/14/2020	14	13:44	N/A	N/A
GCP-32	2/12/2020	43	11:41	N/A	N/A
GCP-33	2/12/2020	43	13:51	N/A	N/A
GCP-34	1/15/2020	15	10:56	N/A	N/A
GCP-35	7/14/2020	196	12:53	7/14/2020	12:59
GCP-36	1/15/2020	15	12:21	1/18/2020	15:18

GCP-37	7/15/2020	197	13:07	N/A	N/A
GCP-38	2/13/2020	44	14:47	N/A	N/A
GCP-39	2/13/2020	44	13:59	N/A	N/A
GCP-40	2/13/2020	44	11:14	N/A	N/A
GCP-41	1/28/2020	28	14:37	1/29/2020	16:04
GCP-42	2/13/2020	44	12:55	N/A	N/A
GCP-43	1/21/2020	21	10:48	N/A	N/A
GCP-44	1/20/2020	20	13:22	1/21/2020	10:21
GCP-45	1/20/2020	20	11:37	1/21/2020	10:12
GCP-46	1/15/2020	15	15:26	1/18/2020	16:56
GCP-47	1/15/2020	15	14:20	1/18/2020	16:09
GCP-48	1/16/2020	16	15:29	1/18/2020	14:14
GCP-49	1/16/2020	16	17:30	1/17/2020	17:07
GCP-50	1/16/2020	16	11:23	1/18/2020	12:44
GCP-51	1/16/2020	16	9:55	N/A	N/A
GCP-52	1/17/2020	17	11:48	N/A	N/A
GCP-53	1/16/2020	16	14:05	1/18/2020	9:42
GCP-54	2/13/2020	44	15:33	N/A	N/A
GCP-55	2/13/2020	44	14:28	N/A	N/A
GCP-56	2/12/2020	43	12:50	N/A	N/A
GCP-57	2/12/2020	43	12:16	N/A	N/A
GCP-58	2/12/2020	43	10:27	N/A	N/A
GCP-59	1/14/2020	14	14:54	N/A	N/A
GCP-60	1/15/2020	15	11:26	N/A	N/A
GCP-61	1/14/2020	14	11:26	N/A	N/A
GCP-62	1/18/2020	18	11:55	N/A	N/A
GCP-63	1/16/2020	16	14:59	1/18/2020	14:24
GCP-64	1/17/2020	17	10:19	N/A	N/A
GCP-65	1/17/2020	17	10:38	N/A	N/A
GCP-66	1/17/2020	17	11:08	N/A	N/A
GCP-67	1/16/2020	16	14:36	1/18/2020	13:54
GCP-68	1/15/2020	15	16:40	1/18/2020	17:23
GCP-69	1/15/2020	15	17:43	1/18/2020	17:45
GCP-70	1/20/2019	20	9:55	1/22/2020	17:46
GCP-71	2/13/2020	44	10:39	N/A	N/A
GCP-72	1/22/2020	22	14:37	N/A	N/A
GCP-73	1/24/2020	24	11:34	1/26/2020	14:32
GCP-74	1/25/2020	25	16:43	N/A	N/A
GCP-75	1/22/2020	22	12:46	1/24/2020	13:33
GCP-76	1/22/2020	22	12:09	1/24/2020	13:46

GCP-77	1/22/2020	22	16:17	1/24/2020	16:15
GCP-78	1/16/2020	16	16:53	1/17/2020	16:50
GCP-79	1/20/2020	20	9:40	1/24/2020	15:52
GCP-80	1/24/2020	24	12:08	N/A	N/A
GCP-81	1/14/2020	14	15:49	1/15/2020	10:36
GCP-82	1/14/2020	14	15:20	N/A	N/A
GCP-83	1/14/2020	14	14:29	N/A	N/A
GCP-84	9/8/2020	252	14:53	N/A	N/A
GCP-85	9/12/2020	256	18:31	N/A	N/A
GCP-86	9/13/2020	257	17:23	N/A	N/A
GCP-87	8/27/2020	240	16:24	9/3/2020	15:10
GCP-88	2/14/2020	45	11:26	N/A	N/A
GCP-89	2/14/2020	45	10:02	N/A	N/A
GCP-90	9/4/2020	249	18:00	N/A	N/A
GCP-91	2/18/2020	49	13:46	3/8/2020	14:21
GCP-92	2/14/2020	45	16:19	2/18/2020	15:18
GCP-93	2/14/2020	45	14:23	N/A	N/A
GCP-94	1/30/2020	30	14:22	N/A	N/A
GCP-95	1/30/2020	30	15:20	N/A	N/A
GCP-96	2/14/2020	45	12:54	N/A	N/A
GCP-97	1/30/2020	30	10:44	N/A	N/A
GCP-98	2/15/2020	46	16:31	2/17/2020	13:05
GCP-99	1/30/2020	30	11:57	N/A	N/A
GCP-100	2/14/2020	45	15:07	N/A	N/A
GCP-101	2/15/2020	46	15:55	2/16/2020	11:19
GCP-102	7/25/2020	209	13:45	7/26/2020	14:03
GCP-103	2/17/2020	48	14:09	3/4/2020	15:39
GCP-104	2/17/2020	48	9:33	2/17/2020	1:46
GCP-105	2/14/2020	45	17:14	2/16/2020	9:42
GCP-106	2/15/2020	46	9:02	2/15/2020	17:04
GCP-107	2/15/2020	46	12:08	2/16/2020	13:31
GCP-108	2/15/2020	46	11:02	2/17/2020	12:38
GCP-109	2/15/2020	46	15:28	2/16/2020	11:42
GCP-110	2/15/2020	46	14:52	2/16/2020	12:03
GCP-111	2/15/2020	46	11:38	2/16/2020	12:36
GCP-112	2/15/2020	46	13:37	2/16/2020	13:08
GCP-113	2/15/2020	46	14:17	2/16/2020	12:19
GCP-114	7/17/2020	199	13:50	7/26/2020	12:32
GCP-115	2/17/2020	48	15:49	2/23/2020	11:25
GCP-116	2/15/2020	46	10:04	N/A	N/A

GCP-117	2/17/2020	48	11:51	2/22/2020	14:35
GCP-118	2/17/2020	48	16:25	2/23/2020	10:31
GCP-119	2/17/2020	48	15:22	3/4/2020	10:26
GCP-120	3/3/2020	63	15:54	N/A	N/A
GCP-121	2/17/2020	48	10:05	2/25/2020	14:55
GCP-122	2/16/2020	47	17:26	2/17/2020	17:03
GCP-123	2/16/2020	47	16:30	2/17/2020	10:29
GCP-124	2/17/2020	48	11:04	2/20/2020	15:56
GCP-125	2/16/2020	47	10:31	N/A	N/A
GCP-126	1/30/2020	30	12:46	N/A	N/A
GCP-127	2/20/2020	51	10:40	N/A	N/A
GCP-128	7/16/2020	198	11:13	7/18/2020	18:10
GCP-129	2/20/2020	51	12:43	N/A	N/A
GCP-130	2/20/2020	51	12:08	N/A	N/A
GCP-131	2/20/2020	51	11:44	N/A	N/A
GCP-132	2/19/2020	50	17:35	N/A	N/A
GCP-133	2/19/2020	50	15:31	N/A	N/A
GCP-134	2/19/2020	50	14:55	N/A	N/A
GCP-135	2/19/2020	50	14:08	N/A	N/A
GCP-136	7/21/2020	203	13:53	7/22/2020	11:17
GCP-137	7/22/2020	204	14:24	N/A	N/A
GCP-138	2/19/2020	50	17:05	2/21/2020	12:48
GCP-139	2/21/2020	52	11:32	N/A	N/A
GCP-140	2/21/2020	52	13:16	2/22/2020	11:36
GCP-141	2/21/2020	52	14:10	2/22/2020	11:16
GCP-142	2/21/2020	52	10:48	2/22/2020	10:47
GCP-143	7/18/2020	202	11:23	N/A	N/A
GCP-144	7/19/2020	203	14:30	7/19/2020	14:33
GCP-145	2/21/2020	52	14:46	N/A	N/A
GCP-146	2/19/2020	50	12:45	2/22/2020	12:25
GCP-147	2/21/2020	52	15:30	N/A	N/A
GCP-148	2/19/2020	50	10:48	2/22/2020	12:53
GCP-149	2/19/2020	50	12:24	2/22/2020	12:12
GCP-150	7/20/2020	202	13:28	7/20/2020	13:31
GCP-151	2/19/2020	50	11:56	3/10/2020	13:41
GCP-152	7/23/2020	205	12:03	7/23/2020	12:06
GCP-153	7/21/2020	203	14:24	7/22/2020	12:03
GCP-154	2/19/2020	50	11:28	2/22/2020	13:18
GCP-155	7/21/2020	203	10:38	7/22/2020	10:58
GCP-156	7/21/2020	203	13:00	7/21/2020	13:03

GCP-157	2/22/2020	53	15:33	2/29/2020	11:27
GCP-158	2/25/2020	56	15:32	N/A	N/A
GCP-159	2/22/2020	53	15:06	2/25/2020	16:34
GCP-160	2/22/2020	53	16:37	2/24/2020	17:03
GCP-161	2/22/2020	53	17:05	2/23/2020	15:07
GCP-162	2/23/2020	54	14:45	2/24/2020	9:35
GCP-163	2/24/2020	55	10:16	2/28/2020	15:42
GCP-164	7/17/2020	199	12:05	7/23/2020	15:10
GCP-165	2/23/2020	54	10:55	3/3/2020	12:01
GCP-166	2/24/2020	55	11:11	3/2/2020	11:14
GCP-167	2/24/2020	55	12:55	3/2/2020	13:11
GCP-168	2/24/2020	55	13:26	2/27/2020	15:33
GCP-169	2/23/2020	54	13:44	N/A	N/A
GCP-170	2/23/2020	54	16:27	2/24/2020	13:48
GCP-171	2/23/2020	54	16:52	2/25/2020	14:02
GCP-172	2/25/2020	56	11:03	3/2/2020	15:37
GCP-173	2/22/2020	53	16:17	2/25/2020	16:50
GCP-174	2/24/2020	55	15:17	N/A	N/A
GCP-175	2/23/2020	54	15:29	2/24/2020	16:42
GCP-176	2/25/2020	56	10:22	3/2/2020	16:42
GCP-177	7/22/2020	204	13:46	N/A	N/A
GCP-178	2/24/2020	55	14:25	2/25/2020	13:30
GCP-179	2/26/2020	57	11:27	2/26/2020	16:11
GCP-180	2/24/2020	55	16:05	2/26/2020	10:41
GCP-181	2/26/2020	57	11:58	N/A	N/A
GCP-182	6/21/2020	173	15:16	N/A	N/A
GCP-183	2/26/2020	57	12:25	N/A	N/A
GCP-184	2/25/2020	56	11:50	N/A	N/A
GCP-185	6/22/2020	174	12:40	N/A	N/A
GCP-186	6/22/2020	174	11:03	N/A	N/A
GCP-187	9/1/2020	245	12:53	N/A	N/A
GCP-188	6/22/2020	174	10:15	N/A	N/A
GCP-189	6/21/2020	173	18:05	6/22/2020	9:46
GCP-190	8/21/2020	234	12:20	8/24/2020	10:46
GCP-191	6/21/2020	173	17:55	6/22/2020	9:25
GCP-192	6/19/2020	171	21:33	6/20/2020	9:59
GCP-193	6/19/2020	171	9:56	6/20/2020	10:14
GCP-194	6/19/2020	171	10:16	6/20/2020	10:26
GCP-195	6/19/2020	171	10:12	6/20/2020	10:42
GCP-196	6/21/2020	173	13:06	N/A	N/A

GCP-197	6/21/2020	173	11:41	N/A	N/A
GCP-198	6/22/2020	174	14:48	N/A	N/A
GCP-199	9/3/2020	247	13:36	N/A	N/A
GCP-200	9/23/2020	267	14:28	N/A	N/A
GCP-201	6/23/2020	175	14:35	N/A	N/A
GCP-202	6/23/2020	175	15:05	N/A	N/A
GCP-203	9/16/2020	260	14:58	9/17/2020	10:46
GCP-204	6/23/2020	175	15:46	N/A	N/A
GCP-205	6/23/2020	175	16:17	N/A	N/A
GCP-206	6/23/2020	175	16:41	N/A	N/A
GCP-207	6/22/2020	174	16:03	N/A	N/A
GCP-208	6/23/2020	175	11:51	N/A	N/A
GCP-209	6/23/2020	175	12:14	N/A	N/A
GCP-210	6/22/2020	174	16:36	N/A	N/A
GCP-211	9/16/2020	260	11:34	9/17/2020	13:50
GCP-212	6/22/2020	174	17:01	N/A	N/A
GCP-213	6/23/2020	175	11:25	N/A	N/A
GCP-214	9/25/2020	269	12:11	N/A	N/A
GCP-215	6/22/2020	174	15:18	N/A	N/A
GCP-216	6/22/2020	174	17:42	N/A	N/A
GCP-217	9/4/2020	248	16:18	N/A	N/A
GCP-218	6/24/2020	176	9:58	6/24/2020	15:05
GCP-219	6/18/2020	170	14:27	6/23/2020	10:55
GCP-220	6/18/2020	170	13:41	6/22/2020	18:20
GCP-221	6/24/2020	176	13:09	N/A	N/A
GCP-222	6/24/2020	176	11:05	N/A	N/A
GCP-223	6/18/2020	170	13:06	6/23/2020	10:29
GCP-224	9/14/2020	258	16:14	N/A	N/A
GCP-225	6/18/2020	170	15:08	N/A	N/A
GCP-226	6/18/2020	170	11:51	6/23/2020	10:19
GCP-227	6/18/2020	170	15:42	N/A	N/A
GCP-228	6/18/2020	170	11:32	6/23/2020	9:53
GCP-229	6/18/2020	170	16:31	N/A	N/A
GCP-230	6/18/2020	170	12:22	N/A	N/A
GCP-231	6/18/2020	170	17:43	N/A	N/A
GCP-232	6/30/2020	182	11:15	N/A	N/A
GCP-233	6/27/2020	179	15:40	N/A	N/A
GCP-234	6/18/2020	170	17:03	N/A	N/A
GCP-235	6/27/2020	179	14:25	N/A	N/A
GCP-236	6/27/2020	179	12:54	N/A	N/A

GCP-237	8/20/2020	233	11:39	8/21/2020	12:18
GCP-238	6/27/2020	179	17:36	N/A	N/A
GCP-239	6/27/2020	179	11:40	N/A	N/A
GCP-240	6/29/2020	181	17:14	N/A	N/A
GCP-241	6/29/2020	181	17:51	N/A	N/A
GCP-242	6/29/2020	181	16:12	N/A	N/A
GCP-243	6/29/2020	181	18:33	N/A	N/A
GCP-244	6/29/2020	181	14:22	N/A	N/A
GCP-245	6/29/2020	181	13:35	N/A	N/A
GCP-246	6/30/2020	182	12:50	7/1/2020	16:05
GCP-247	6/30/2020	182	13:37	7/1/2020	15:20
GCP-248	6/29/2020	181	12:49	7/1/2020	14:28
GCP-249	6/29/2020	181	10:52	N/A	N/A
GCP-250	6/29/2020	181	12:04	N/A	N/A
GCP-251	6/30/2020	182	15:19	N/A	N/A
GCP-252	6/29/2020	181	11:31	N/A	N/A
GCP-253	7/1/2020	183	9:32	N/A	N/A
GCP-254	6/29/2020	181	10:13	N/A	N/A
GCP-255	7/1/2020	183	10:38	N/A	N/A
GCP-256	9/26/2020	270	10:17	9/27/2020	10:45
GCP-257	7/1/2020	183	10:00	N/A	N/A
GCP-258	9/1/2020	245	7:29	9/5/2020	15:19
GCP-259	7/1/2020	183	11:36	N/A	N/A
GCP-260	8/17/2020	230	10:27	8/18/2020	11:54
GCP-261	8/10/2020	223	10:19	8/11/2020	13:56
GCP-262	8/13/2020	226	14:28	8/14/2020	13:09
GCP-263	7/1/2020	183	12:13	N/A	N/A
GCP-264	8/10/2020	223	10:53	8/11/2020	14:19
GCP-265	9/3/2020	247	11:14	N/A	N/A
GCP-266	6/19/2020	171	10:54	6/20/2020	11:01
GCP-267	6/19/2020	171	18:40	6/21/2020	12:09
GCP-268	8/20/2020	233	11:14	8/21/2020	11:48
GCP-269	6/23/2020	175	18:09	N/A	N/A
GCP-270	6/19/2020	171	13:05	6/20/2020	11:15
GCP-271	8/24/2020	237	14:50	N/A	N/A
GCP-272	6/19/2020	171	13:34	N/A	N/A
GCP-273	6/26/2020	178	17:10	N/A	N/A
GCP-274	8/20/2020	233	10:05	8/21/2020	11:36
GCP-275	8/25/2020	238	12:23	N/A	N/A
GCP-276	6/20/2020	172	11:33	6/28/2020	16:50

GCP-277	6/20/2020	172	12:40	6/28/2020	16:35
GCP-278	8/21/2020	234	15:30	8/24/2020	12:10
GCP-279	6/19/2020	171	14:27	N/A	N/A
GCP-280	6/19/2020	171	15:13	N/A	N/A
GCP-281	6/19/2020	171	17:15	N/A	N/A
GCP-282	6/19/2020	171	16:22	N/A	N/A
GCP-283	6/20/2020	172	14:17	6/28/2020	14:51
GCP-284	6/20/2020	172	13:05	6/28/2020	16:04
GCP-285	6/20/2020	172	13:50	6/28/2020	15:20
GCP-286	6/20/2020	172	15:52	N/A	N/A
GCP-287	6/20/2020	172	15:10	6/28/2020	14:26
GCP-288	8/12/2020	225	14:30	8/13/2020	14:45
GCP-289	6/20/2020	172	12:01	6/28/2020	17:12
GCP-290	8/12/2020	225	13:47	8/13/2020	13:25
GCP-291	6/26/2020	178	16:50	6/28/2020	13:38
GCP-292	6/20/2020	172	14:47	6/28/2020	14:12
GCP-293	8/20/2020	233	14:10	N/A	N/A
GCP-294	6/26/2020	178	13:48	N/A	N/A
GCP-295	6/26/2020	178	14:20	6/28/2020	13:10
GCP-296	6/27/2020	179	10:38	6/28/2020	17:51
GCP-297	6/27/2020	179	10:11	6/28/2020	10:38
GCP-298	8/21/2020	234	14:16	8/24/2020	11:28
GCP-299	6/28/2020	180	11:09	N/A	N/A
GCP-300	8/10/2020	223	12:15	8/11/2020	11:56
GCP-301	8/10/2020	223	11:09	8/11/2020	11:23
GCP-302	8/10/2020	223	10:06	N/A	N/A
GCP-303	8/10/2020	223	9:14	8/11/2020	10:12
GCP-304	8/12/2020	225	9:49	8/13/2020	9:46
GCP-305	8/14/2020	227	13:09	8/15/2020	12:17
GCP-306	8/14/2020	227	12:08	8/15/2020	11:01
GCP-307	8/10/2020	223	13:55	8/11/2020	14:18
GCP-308	8/14/2020	227	13:46	8/15/2020	12:42
GCP-309	8/14/2020	227	15:48	8/15/2020	14:29
GCP-310	8/14/2020	227	16:59	8/15/2020	15:05
GCP-311	8/29/2020	242	14:39	N/A	N/A
GCP-312	8/17/2020	230	11:53	8/18/2020	12:40
GCP-313	8/18/2020	231	15:54	8/19/2020	13:29
GCP-314	8/17/2020	230	12:14	8/18/2020	12:56
GCP-315	8/17/2020	230	13:19	8/18/2020	13:24
GCP-316	8/14/2020	227	10:14	8/15/2020	9:45

GCP-317	6/26/2020	178	15:31	6/28/2020	12:00
GCP-318	8/12/2020	225	11:55	8/14/2020	11:36
GCP-319	8/13/2020	226	13:25	8/14/2020	13:41
GCP-320	9/2/2020	246	11:27	9/5/2020	10:22
GCP-321	9/16/2020	260	17:30	9/17/2020	15:18
GCP-322	8/13/2020	226	13:51	8/14/2020	11:58
GCP-323	9/2/2020	246	10:07	N/A	N/A
GCP-324	8/13/2020	226	16:21	N/A	N/A
GCP-325	8/10/2020	223	11:49	8/11/2020	14:51
GCP-326	9/1/2020	245	10:08	9/5/2020	13:39
GCP-327	8/10/2020	223	13:21	8/11/2020	15:41
GCP-328	8/15/2020	228	10:06	N/A	N/A
GCP-329	8/17/2020	230	11:14	8/18/2020	12:19
GCP-330	8/15/2020	228	12:34	N/A	N/A
GCP-331	8/26/2020	239	16:19	N/A	N/A
GCP-332	8/26/2020	239	14:44	N/A	N/A
GCP-333	8/26/2020	239	12:32	N/A	N/A
GCP-334	9/15/2020	259	13:02	N/A	N/A
GCP-335	8/15/2020	228	16:07	N/A	N/A
GCP-336	8/15/2020	228	17:15	N/A	N/A
GCP-337	8/19/2020	232	11:11	8/20/2020	9:52
GCP-338	8/28/2020	241	15:53	8/29/2020	18:27
GCP-339	8/27/2020	240	13:09	N/A	N/A
GCP-340	8/28/2020	241	13:15	N/A	N/A
GCP-341	9/29/2020	273	14:19	10/1/2020	16:22
GCP-342	8/20/2020	233	9:42	8/21/2020	11:21
GCP-343	8/24/2020	237	13:54	N/A	N/A
GCP-344	8/21/2020	234	14:48	8/24/2020	11:40
GCP-345	8/18/2020	231	17:26	8/19/2020	15:08
GCP-346	8/26/2020	239	14:59	8/26/2020	14:56
GCP-347	8/19/2020	232	15:43	8/20/2020	13:08
GCP-348	8/28/2820	241	14:21	8/28/2020	14:17
GCP-349	8/28/2020	241	11:13	8/28/2020	11;10
GCP-350	8/27/2020	240	14:26	8/27/2020	14:24
GCP-351	8/26/2020	239	23:37	8/27/2020	11:33
GCP-352	8/18/2020	231	13:29	8/19/2020	10:44
GCP-353	8/17/2020	230	12:03	8/18/2020	11:48
GCP-354	8/17/2020	230	16:16	N/A	N/A
GCP-355	8/29/2020	242	18:19	N/A	N/A
GCP-356	8/1/2020	214	12:08	N/A	N/A

GCP-357	8/2/2020	215	11:39	N/A	N/A
GCP-358	8/1/2020	214	13:52	N/A	N/A
GCP-359	8/1/2020	214	15:16	N/A	N/A
GCP-360	7/30/2020	212	15:55	8/1/2020	16:19
GCP-361	7/31/2020	213	14:14	N/A	N/A
GCP-362	8/2/2020	215	12:59	N/A	N/A
GCP-363	7/28/2020	210	11:19	N/A	N/A
GCP-364	7/28/2020	210	12:50	7/29/2020	13:08
GCP-365	7/28/2020	210	14:47	7/29/2020	12:03
GCP-366	10/2/2020	276	10:49	10/3/2020	10:48
GCP-367	10/2/2020	276	16:36	10/3/2020	14:24
GCP-368	7/31/2020	213	11:34	8/2/2020	15:20
GCP-369	7/29/2020	211	16:15	7/30/2020	16:13
GCP-370	10/4/2020	278	11:40	10/5/2020	10:50
GCP-371	9/15/2020	259	14:50	10/7/2020	12:37
GCP-372	7/31/2020	213	10:54	8/2/2020	16:13
GCP-373	7/31/2020	213	16:15	8/1/2020	16:34
GCP-374	8/1/2020	214	17:39	8/2/2020	12:25
GCP-375	8/2/2020	215	12:48	N/A	N/A
GCP-376	8/2/2020	215	13:37	N/A	N/A
GCP-378	7/29/2020	211	12:06	N/A	N/A
GCP-379	7/29/2020	211	14:02	7/30/2020	15:31
GCP-380	7/31/2020	213	14:29	8/2/2020	15:02
GCP-381	9/15/2020	259	16:33	N/A	N/A
GCP-382	9/30/2020	274	13:25	10/1/2020	13:57
GCP-383	10/4/2020	278	12:26	10/5/2020	10:20
GCP-384	8/25/2020	238	13:16	N/A	N/A
GCP-385	8/25/2020	238	16:28	N/A	N/A
GCP-386	9/18/2020	262	11:39	9/19/2020	10:52
GCP-387	9/18/2020	262	16:37	9/19/2020	15:08
GCP-388	9/20/2020	264	13:46	9/21/2020	12:36
GCP-389	9/18/2020	262	14:05	9/19/2020	12:20
GCP-390	9/20/2020	264	13:12	9/21/2020	12:12
GCP-391	9/20/2020	264	11:48	9/21/2020	11:05
GCP-392	10/2/2020	276	17:13	10/3/2020	14:48
GCP-393	9/20/2020	264	15:19	9/21/2020	9:40
GCP-394	9/11/2020	255	14:59	N/A	N/A
GCP-395	9/11/2020	255	13:08	9/12/2020	17:55
GCP-396	9/11/2020	255	9:43	9/12/2020	16:09
GCP-397	9/11/2020	255	10:35	9/12/2020	15:14

GCP-398	9/10/2020	254	18:10	N/A	N/A
GCP-399	9/13/2020	257	13:45	9/14/2020	13:45
GCP-400	9/13/2020	257	12:28	9/14/2020	12:42
GCP-401	9/10/2020	254	15:07	N/A	N/A
GCP-402	9/10/2020	254	15:29	N/A	N/A
GCP-403	9/26/2020	270	14:06	9/27/2020	13:33
GCP-404	10/8/2020	282	13:58	N/A	N/A
GCP-405	9/10/2020	254	13:42	N/A	N/A
GCP-406	9/26/2020	270	17:07	9/27/2020	15:43
GCP-407	9/10/2020	254	12:42	N/A	N/A
GCP-408	9/12/2020	256	13:29	9/13/2020	12:12
GCP-409	9/10/2020	254	12:01	N/A	N/A
GCP-410	9/8/2020	252	16:48	9/9/2020	14:47
GCP-411	9/26/2020	270	12:35	9/27/2020	12:26
GCP-412	9/8/2020	252	16:13	9/9/2020	14:19
GCP-413	9/8/2020	252	14:39	9/9/2020	12:00
GCP-414	9/8/2020	252	13:37	9/9/2020	10:42
GCP-415	9/4/2020	248	17:53	9/5/2020	8:47
GCP-416	9/4/2020	248	13:10	9/5/2020	9:21
GCP-417	9/15/2020	259	14:02	9/24/2020	14:45
GCP-418	9/4/2020	248	13:58	N/A	N/A
GCP-419	9/12/2020	256	17:48	N/A	N/A
GCP-420	9/12/2020	256	15:26	N/A	N/A
GCP-421	9/3/2020	247	11:15	N/A	N/A
GCP-422	8/25/2020	235	17:19	N/A	N/A
GCP-423	10/8/2020	282	12:43	N/A	N/A

5. POINT COMPARISON

Point ID	Point CK	Delta North (M)	Delta East (M)	Vertical Difference (M)
GCP-01	GCP-01 CK	N/A	N/A	N/A
GCP-02	GCP-02 CK	N/A	N/A	N/A
GCP-03	GCP-03 CK	N/A	N/A	N/A
GCP-04	GCP-04 CK	N/A	N/A	N/A
GCP-05	GCP-05 CK	N/A	N/A	N/A
GCP-06	GCP-06 CK	N/A	N/A	N/A
GCP-07	GCP-07 CK	N/A	N/A	N/A
GCP-08	GCP-08 CK	N/A	N/A	N/A
GCP-09	GCP-09 CK	N/A	N/A	N/A
GCP-10	GCP-10 CK	0.023	-0.005	0.016
GCP-11	GCP-11 CK	0.037	0.001	0.008
GCP-12	GCP-12 CK	N/A	N/A	N/A
GCP-13	GCP-13 CK	N/A	N/A	N/A
GCP-14	GCP-14 CK	N/A	N/A	N/A
GCP-15	GCP-15 CK	0.001	0.003	-0.014
GCP-16	GCP-16 CK	N/A	N/A	N/A
GCP-17	GCP-17 CK	-0.007	-0.011	-0.002
GCP-18	GCP-18 CK	N/A	N/A	N/A
GCP-19	GCP-19 CK	N/A	N/A	N/A
GCP-20	GCP-20 CK	N/A	N/A	N/A
GCP-21	GCP-21 CK	N/A	N/A	N/A
GCP-22	GCP-22 CK	N/A	N/A	N/A
GCP-23	GCP-23 CK	N/A	N/A	N/A
GCP-24	GCP-24 CK	N/A	N/A	N/A
GCP-25	GCP-25 CK	N/A	N/A	N/A
GCP-26	GCP-26 CK	-0.010	0.003	-0.015
GCP-27	GCP-27 CK	N/A	N/A	N/A
GCP-28	GCP-28 CK	N/A	N/A	N/A
GCP-29	GCP-29 CK	0.003	0.002	0.000
GCP-30	GCP-30 CK	N/A	N/A	N/A
GCP-31	GCP-31 CK	N/A	N/A	N/A
GCP-32	GCP-32 CK	N/A	N/A	N/A
GCP-33	GCP-33 CK	N/A	N/A	N/A
GCP-34	GCP-34 CK	N/A	N/A	N/A
GCP-35	GCP-35 CK	0.008	0.001	0.008
GCP-36	GCP-36 CK	0.008	-0.016	0.015
GCP-37	GCP-37 CK	N/A	N/A	N/A
GCP-38	GCP-38 CK	N/A	N/A	N/A
GCP-39	GCP-39 CK	N/A	N/A	N/A

GCP-40	GCP-40 CK	N/A	N/A	N/A
GCP-41	GCP-41 CK	-0.007	-0.017	-0.007
GCP-42	GCP-42 CK	N/A	N/A	N/A
GCP-43	GCP-43 CK	N/A	N/A	N/A
GCP-44	GCP-44 CK	0.012	-0.008	-0.001
GCP-45	GCP-45 CK	-0.024	0.004	-0.036
GCP-46	GCP-46 CK	-0.017	0.010	-0.005
GCP-47	GCP-47 CK	0.006	0.018	0.020
GCP-48	GCP-48 CK	0.025	-0.005	0.007
GCP-49	GCP-49 CK	0.026	0.007	-0.006
GCP-50	GCP-50 CK	0.011	0.002	-0.005
GCP-51	GCP-51 CK	N/A	N/A	N/A
GCP-52	GCP-52 CK	N/A	N/A	N/A
GCP-53	GCP-53 CK	0.023	0.000	0.021
GCP-54	GCP-54 CK	N/A	N/A	N/A
GCP-55	GCP-55 CK	N/A	N/A	N/A
GCP-56	GCP-56 CK	N/A	N/A	N/A
GCP-57	GCP-57 CK	N/A	N/A	N/A
GCP-58	GCP-58 CK	N/A	N/A	N/A
GCP-59	GCP-59 CK	N/A	N/A	N/A
GCP-60	GCP-60 CK	N/A	N/A	N/A
GCP-61	GCP-61 CK	N/A	N/A	N/A
GCP-62	GCP-62 CK	N/A	N/A	N/A
GCP-63	GCP-63 CK	0.027	0.020	0.000
GCP-64	GCP-64 CK	N/A	N/A	N/A
GCP-65	GCP-65 CK	N/A	N/A	N/A
GCP-66	GCP-66 CK	N/A	N/A	N/A
GCP-67	GCP-67 CK	0.023	0.007	-0.009
GCP-68	GCP-68 CK	0.004	0.003	0.010
GCP-69	GCP-69 CK	-0.004	-0.001	-0.006
GCP-70	GCP-70 CK	0.017	-0.001	-0.034
GCP-71	GCP-71 CK	N/A	N/A	N/A
GCP-72	GCP-72 CK	N/A	N/A	N/A
GCP-73	GCP-73 CK	-0.002	0.004	0.014
GCP-74	GCP-74 CK	N/A	N/A	N/A
GCP-75	GCP-75 CK	-0.002	0.015	0.013
GCP-76	GCP-76 CK	-0.002	0.006	-0.002
GCP-77	GCP-77 CK	-0.010	0.009	-0.040
GCP-78	GCP-78 CK	0.009	-0.010	0.020
GCP-79	GCP-79 CK	0.015	-0.015	0.009
GCP-80	GCP-80 CK	N/A	N/A	N/A
GCP-81	GCP-81 CK	0.004	0.009	-0.013
GCP-82	GCP-82 CK	N/A	N/A	N/A

GCP-83	GCP-83 CK	N/A	N/A	N/A
GCP-84	GCP-84 CK	N/A	N/A	N/A
GCP-85	GCP-85 CK	N/A	N/A	N/A
GCP-86	GCP-86 CK	N/A	N/A	N/A
GCP-87	GCP-87 CK	-0.007	0.030	0.028
GCP-88	GCP-88 CK	N/A	N/A	N/A
GCP-89	GCP-89 CK	N/A	N/A	N/A
GCP-90	GCP-90 CK	N/A	N/A	N/A
GCP-91	GCP-91 CK	0.024	-0.004	0.007
GCP-92	GCP-92 CK	-0.008	-0.007	-0.010
GCP-93	GCP-93CK	N/A	N/A	N/A
GCP-94	GCP-94 CK	N/A	N/A	N/A
GCP-95	GCP-95 CK	N/A	N/A	N/A
GCP-96	GCP-96 CK	N/A	N/A	N/A
GCP-97	GCP-97 CK	N/A	N/A	N/A
GCP-98	GCP-98 CK	0.010	0.011	0.032
GCP-99	GCP-99 CK	N/A	N/A	N/A
GCP-100	GCP-100 CK	N/A	N/A	N/A
GCP-101	GCP-101 CK	-0.002	-0.005	-0.002
GCP-102	GCP-102 CK	0.016	-0.005	0.011
GCP-103	GCP-103 CK	-0.017	0.016	0.005
GCP-104	GCP-104 CK	-0.016	0.004	0.011
GCP-105	GCP-105 CK	0.001	0.012	0.010
GCP-106	GCP-106 CK	-0.020	0.011	0.003
GCP-107	GCP-107 CK	-0.010	0.002	0.027
GCP-108	GCP-108 CK	-0.011	-0.012	-0.025
GCP-109	GCP-109 CK	0.017	-0.007	-0.024
GCP-110	GCP-110 CK	-0.006	0.000	-0.029
GCP-111	GCP-111 CK	0.004	0.002	-0.003
GCP-112	GCP-112 CK	0.005	0.000	-0.036
GCP-113	GCP-113 CK	0.007	-0.003	0.008
GCP-114	GCP-114 CK	-0.012	0.013	0.008
GCP-115	GCP-115 CK	-0.012	-0.002	0.015
GCP-116	GCP-116 CK	N/A	N/A	N/A
GCP-117	GCP-117 CK	-0.009	0.007	-0.045
GCP-118	GCP-118 CK	-0.011	0.008	-0.020
GCP-119	GCP-119 CK	0.011	-0.009	-0.028
GCP-120	GCP-120 CK	N/A	N/A	N/A
GCP-121	GCP-121 CK	-0.030	0.002	0.015
GCP-122	GCP-122 CK	-0.007	-0.006	-0.003
GCP-123	GCP-123 CK	0.005	0.005	-0.008
GCP-124	GCP-124 CK	-0.002	0.005	-0.014
GCP-125	GCP-125 CK	N/A	N/A	N/A

GCP-126	GCP-126 CK	N/A	N/A	N/A
GCP-127	GCP-127 CK	N/A	N/A	N/A
GCP-128	GCP-128 CK	0.005	-0.003	-0.005
GCP-129	GCP-129 CK	N/A	N/A	N/A
GCP-130	GCP-130 CK	N/A	N/A	N/A
GCP-131	GCP-131 CK	N/A	N/A	N/A
GCP-132	GCP-132 CK	N/A	N/A	N/A
GCP-133	GCP-133 CK	N/A	N/A	N/A
GCP-134	GCP-134 CK	N/A	N/A	N/A
GCP-135	GCP-135 CK	N/A	N/A	N/A
GCP-136	GCP-136 CK	0.007	0.014	-0.007
GCP-137	GCP-137 CK	N/A	N/A	N/A
GCP-138	GCP-138 CK	0.010	0.008	-0.026
GCP-139	GCP-139 CK	N/A	N/A	N/A
GCP-140	GCP-140 CK	-0.018	0.011	-0.012
GCP-141	GCP-141 CK	0.023	0.009	0.006
GCP-142	GCP-142 CK	0.007	-0.023	-0.021
GCP-143	GCP-143 CK	N/A	N/A	N/A
GCP-144	GCP-144 CK	0.009	0.010	0.013
GCP-145	GCP-145 CK	N/A	N/A	N/A
GCP-146	GCP-146 CK	0.011	-0.012	-0.030
GCP-147	GCP-147 CK	N/A	N/A	N/A
GCP-148	GCP-148 CK	-0.015	0.008	0.032
GCP-149	GCP-149 CK	-0.002	-0.001	-0.006
GCP-150	GCP-150 CK	-0.010	-0.002	0.007
GCP-151	GCP-151 CK	-0.004	-0.014	-0.002
GCP-152	GCP-152 CK	0.000	0.007	0.010
GCP-153	GCP-153 CK	-0.003	0.005	0.010
GCP-154	GCP-154 CK	0.001	-0.010	-0.033
GCP-155	GCP-155 CK	0.003	0.014	-0.002
GCP-156	GCP-156 CK	-0.002	0.001	-0.013
GCP-157	GCP-157 CK	0.017	-0.013	0.022
GCP-158	GCP-158 CK	N/A	N/A	N/A
GCP-159	GCP-159 CK	0.014	0.000	0.031
GCP-160	GCP-160 CK	0.019	-0.016	0.009
GCP-161	GCP-161 CK	-0.012	-0.013	-0.039
GCP-162	GCP-162 CK	0.004	0.007	0.014
GCP-163	GCP-163 CK	0.005	-0.001	0.002
GCP-164	GCP-164 CK	-0.011	-0.012	-0.006
GCP-165	GCP-165 CK	0.010	-0.015	-0.010
GCP-166	GCP-166 CK	-0.015	-0.013	0.028
GCP-167	GCP-167 CK	-0.005	-0.013	0.030
GCP-168	GCP-168 CK	-0.005	0.009	0.031

GCP-169	GCP-169 CK	N/A	N/A	N/A
GCP-170	GCP-170 CK	0.019	-0.004	-0.020
GCP-171	GCP-171 CK	-0.008	-0.001	0.017
GCP-172	GCP-172 CK	-0.005	-0.010	0.025
GCP-173	GCP-173 CK	0.023	-0.016	0.029
GCP-174	GCP-174 CK	N/A	N/A	N/A
GCP-175	GCP-175 CK	-0.007	0.003	-0.034
GCP-176	GCP-176 CK	-0.017	-0.007	0.033
GCP-177	GCP-177 CK	N/A	N/A	N/A
GCP-178	GCP-178 CK	-0.010	-0.002	0.031
GCP-179	GCP-179 CK	-0.001	-0.013	0.027
GCP-180	GCP-180 CK	0.008	0.002	0.014
GCP-181	GCP-181 CK	N/A	N/A	N/A
GCP-182	GCP-182 CK	N/A	N/A	N/A
GCP-183	GCP-183 CK	N/A	N/A	N/A
GCP-184	GCP-184 CK	N/A	N/A	N/A
GCP-185	GCP-185 CK	N/A	N/A	N/A
GCP-186	GCP-186 CK	N/A	N/A	N/A
GCP-187	GCP-187 CK	N/A	N/A	N/A
GCP-188	GCP-188 CK	N/A	N/A	N/A
GCP-189	GCP-189 CK	0.000	0.008	-0.018
GCP-190	GCP-190 CK	-0.007	-0.020	0.033
GCP-191	GCP-191 CK	0.001	-0.009	-0.015
GCP-192	GCP-192 CK	-0.002	0.000	-0.002
GCP-193	GCP-193 CK	-0.003	0.000	-0.013
GCP-194	GCP-194 CK	-0.009	0.007	-0.002
GCP-195	GCP-195 CK	-0.001	0.005	-0.005
GCP-196	GCP-196 CK	N/A	N/A	N/A
GCP-197	GCP-197 CK	N/A	N/A	N/A
GCP-198	GCP-198 CK	N/A	N/A	N/A
GCP-199	GCP-199 CK	N/A	N/A	N/A
GCP-200	GCP-200 CK	N/A	N/A	N/A
GCP-201	GCP-201 CK	N/A	N/A	N/A
GCP-202	GCP-202 CK	N/A	N/A	N/A
GCP-203	GCP-203 CK	-0.006	-0.004	0.009
GCP-204	GCP-204 CK	N/A	N/A	N/A
GCP-205	GCP-205 CK	N/A	N/A	N/A
GCP-206	GCP-206 CK	N/A	N/A	N/A
GCP-207	GCP-207 CK	N/A	N/A	N/A
GCP-208	GCP-208 CK	N/A	N/A	N/A
GCP-209	GCP-209 CK	N/A	N/A	N/A
GCP-210	GCP-210 CK	N/A	N/A	N/A
GCP-211	GCP-211 CK	-0.006	-0.004	0.037

GCP-212	GCP-212 CK	N/A	N/A	N/A
GCP-213	GCP-213 CK	N/A	N/A	N/A
GCP-214	GCP-214 CK	N/A	N/A	N/A
GCP-215	GCP-215 CK	N/A	N/A	N/A
GCP-216	GCP-216 CK	N/A	N/A	N/A
GCP-217	GCP-217 CK	N/A	N/A	N/A
GCP-218	GCP-218 CK	0.019	-0.007	-0.012
GCP-219	GCP-219 CK	-0.015	-0.021	-0.006
GCP-220	GCP-220 CK	0.012	-0.003	-0.027
GCP-221	GCP-221 CK	N/A	N/A	N/A
GCP-222	GCP-222 CK	N/A	N/A	N/A
GCP-223	GCP-223 CK	0.020	-0.008	-0.004
GCP-224	GCP-224 CK	N/A	N/A	N/A
GCP-225	GCP-225 CK	N/A	N/A	N/A
GCP-226	GCP-226 CK	0.000	-0.003	-0.007
GCP-227	GCP-227 CK	N/A	N/A	N/A
GCP-228	GCP-228 CK	0.017	-0.016	0.017
GCP-229	GCP-229 CK	N/A	N/A	N/A
GCP-230	GCP-230 CK	N/A	N/A	N/A
GCP-231	GCP-231 CK	N/A	N/A	N/A
GCP-232	GCP-232 CK	N/A	N/A	N/A
GCP-233	GCP-233 CK	N/A	N/A	N/A
GCP-234	GCP-234 CK	N/A	N/A	N/A
GCP-235	GCP-235 CK	N/A	N/A	N/A
GCP-236	GCP-236 CK	N/A	N/A	N/A
GCP-237	GCP-237 CK	-0.001	0.008	-0.048
GCP-238	GCP-238 CK	N/A	N/A	N/A
GCP-239	GCP-239 CK	N/A	N/A	N/A
GCP-240	GCP-240 CK	N/A	N/A	N/A
GCP-241	GCP-241 CK	N/A	N/A	N/A
GCP-242	GCP-242 CK	N/A	N/A	N/A
GCP-243	GCP-243 CK	N/A	N/A	N/A
GCP-244	GCP-244 CK	N/A	N/A	N/A
GCP-245	GCP-245 CK	N/A	N/A	N/A
GCP-246	GCP-246 CK	-0.008	0.010	0.020
GCP-247	GCP-247 CK	0.015	-0.024	-0.040
GCP-248	GCP-248 CK	0.014	-0.011	-0.042
GCP-249	GCP-249 CK	N/A	N/A	N/A
GCP-250	GCP-250 CK	N/A	N/A	N/A
GCP-251	GCP-251 CK	N/A	N/A	N/A
GCP-252	GCP-252 CK	N/A	N/A	N/A
GCP-253	GCP-253 CK	N/A	N/A	N/A
GCP-254	GCP-254 CK	N/A	N/A	N/A

GCP-255	GCP-255 CK	N/A	N/A	N/A
GCP-256	GCP-256 CK	0.003	0.008	-0.036
GCP-257	GCP-257 CK	N/A	N/A	N/A
GCP-258	GCP-258 CK	-0.012	-0.016	0.038
GCP-259	GCP-259 CK	N/A	N/A	N/A
GCP-260	GCP-260 CK	-0.025	0.027	0.024
GCP-261	GCP-261 CK	-0.019	0.004	0.021
GCP-262	GCP-262 CK	-0.001	0.000	0.031
GCP-263	GCP-263 CK	N/A	N/A	N/A
GCP-264	GCP-264 CK	-0.009	-0.005	0.020
GCP-265	GCP-265 CK	N/A	N/A	N/A
GCP-266	GCP-266 CK	0.005	-0.012	-0.014
GCP-267	GCP-267 CK	-0.031	-0.010	0.014
GCP-268	GCP-268 CK	-0.013	-0.011	-0.017
GCP-269	GCP-269 CK	N/A	N/A	N/A
GCP-270	GCP-270 CK	-0.008	0.011	-0.005
GCP-271	GCP-271 CK	N/A	N/A	N/A
GCP-272	GCP-272 CK	N/A	N/A	N/A
GCP-273	GCP-273 CK	N/A	N/A	N/A
GCP-274	GCP-274 CK	-0.026	-0.002	-0.030
GCP-275	GCP-275 CK	N/A	N/A	N/A
GCP-276	GCP-276 CK	-0.017	0.009	0.018
GCP-277	GCP-277 CK	-0.015	0.014	-0.029
GCP-278	GCP-278 CK	0.009	0.001	0.031
GCP-279	GCP-279 CK	N/A	N/A	N/A
GCP-280	GCP-280 CK	N/A	N/A	N/A
GCP-281	GCP-281 CK	N/A	N/A	N/A
GCP-282	GCP-282 CK	N/A	N/A	N/A
GCP-283	GCP-283 CK	-0.004	0.010	-0.006
GCP-284	GCP-284 CK	0.023	0.012	-0.030
GCP-285	GCP-285 CK	-0.011	0.007	0.005
GCP-286	GCP-286 CK	N/A	N/A	N/A
GCP-287	GCP-287 CK	0.000	0.024	0.013
GCP-288	GCP-288 CK	-0.014	-0.009	-0.017
GCP-289	GCP-289 CK	0.022	0.026	0.000
GCP-290	GCP-290 CK	-0.008	0.001	0.035
GCP-291	GCP-291 CK	0.001	-0.011	0.037
GCP-292	GCP-292 CK	0.005	-0.005	0.013
GCP-293	GCP-293 CK	N/A	N/A	N/A
GCP-294	GCP-294 CK	N/A	N/A	N/A
GCP-295	GCP-295CK	-0.003	0.016	0.028
GCP-296	GCP-296 CK	0.013	-0.008	0.016
GCP-297	GCP-297 CK	-0.008	0.011	-0.022

GCP-298	GCP-298 CK	0.015	-0.024	-0.034
GCP-299	GCP-299 CK	N/A	N/A	N/A
GCP-300	GCP-300 CK	0.008	-0.001	-0.037
GCP-301	GCP-301 CK	0.028	0.015	0.002
GCP-302	GCP-302 CK	N/A	N/A	N/A
GCP-303	GCP-303 CK	-0.007	0.020	-0.021
GCP-304	GCP-304 CK	-0.006	0.005	0.031
GCP-305	GCP-305 CK	0.005	0.018	0.015
GCP-306	GCP-306 CK	-0.001	0.000	0.028
GCP-307	GCP-307 CK	-0.019	0.007	-0.032
GCP-308	GCP-308 CK	0.022	0.006	0.033
GCP-309	GCP-309 CK	0.023	0.028	0.007
GCP-310	GCP-310 CK	0.026	0.003	-0.003
GCP-311	GCP-311 CK	N/A	N/A	N/A
GCP-312	GCP-312 CK	0.003	0.022	-0.005
GCP-313	GCP-313 CK	-0.008	0.005	0.034
GCP-314	GCP-314 CK	-0.036	0.013	0.010
GCP-315	GCP-315 CK	0.006	0.016	0.028
GCP-316	GCP-316 CK	-0.001	0.015	-0.009
GCP-317	GCP-317 CK	-0.018	-0.018	0.021
GCP-318	GCP-318 CK	0.026	-0.010	0.004
GCP-319	GCP-319 CK	0.003	0.006	-0.013
GCP-320	GCP-320 CK	-0.024	0.023	0.019
GCP-321	GCP-321 CK	0.002	-0.001	-0.021
GCP-322	GCP-322 CK	N/A	N/A	N/A
GCP-323	GCP-323 CK	N/A	N/A	N/A
GCP-324	GCP-324 CK	N/A	N/A	N/A
GCP-325	GCP-325 CK	-0.013	-0.002	0.004
GCP-326	GCP-326 CK	-0.003	-0.008	0.026
GCP-327	GCP-327 CK	-0.029	-0.018	0.033
GCP-328	GCP-328 CK	N/A	N/A	N/A
GCP-329	GCP-329 CK	-0.001	0.007	0.003
GCP-330	GCP-330 CK	N/A	N/A	N/A
GCP-331	GCP-331 CK	N/A	N/A	N/A
GCP-332	GCP-332 CK	N/A	N/A	N/A
GCP-333	GCP-333 CK	N/A	N/A	N/A
GCP-334	GCP-334 CK	N/A	N/A	N/A
GCP-335	GCP-335 CK	N/A	N/A	N/A
GCP-336	GCP-336 CK	N/A	N/A	N/A
GCP-337	GCP-337 CK	0.003	-0.002	-0.032
GCP-338	GCP-338 CK	0.020	0.009	-0.020
GCP-339	GCP-339 CK	N/A	N/A	N/A
GCP-340	GCP-340 CK	N/A	N/A	N/A

GCP-341	GCP-341 CK	-0.009	0.010	-0.045
GCP-342	GCP-342 CK	-0.007	0.013	0.013
GCP-343	GCP-343 CK	N/A	N/A	N/A
GCP-344	GCP-344 CK	0.011	-0.012	0.026
GCP-345	GCP-345 CK	-0.027	-0.010	-0.029
GCP-346	GCP-346 CK	N/A	N/A	N/A
GCP-347	GCP-347 CK	0.006	-0.007	0.011
GCP-348	GCP-348 CK	N/A	N/A	N/A
GCP-349	GCP-349 CK	N/A	N/A	N/A
GCP-350	GCP-350 CK	N/A	N/A	N/A
GCP-351	GCP-351 CK	N/A	N/A	N/A
GCP-352	GCP-352 CK	-0.010	-0.008	0.043
GCP-353	GCP-353 CK	0.009	0.022	0.028
GCP-354	GCP-354 CK	N/A	N/A	N/A
GCP-355	GCP-355 CK	N/A	N/A	N/A
GCP-356	GCP-356 CK	N/A	N/A	N/A
GCP-357	GCP-357 CK	N/A	N/A	N/A
GCP-358	GCP-358 CK	N/A	N/A	N/A
GCP-359	GCP-359 CK	N/A	N/A	N/A
GCP-360	GCP-360 CK	-0.003	0.012	0.026
GCP-361	GCP-361 CK	N/A	N/A	N/A
GCP-362	GCP-362 CK	N/A	N/A	N/A
GCP-363	GCP-363 CK	N/A	N/A	N/A
GCP-364	GCP-364 CK	-0.006	0.000	-0.032
GCP-365	GCP-365 CK	0.021	-0.011	0.001
GCP-366	GCP-366 CK	0.000	0.000	0.002
GCP-367	GCP-367 CK	0.004	0.000	-0.011
GCP-368	GCP-368 CK	0.023	-0.014	0.026
GCP-369	GCP-369 CK	-0.020	0.008	0.006
GCP-370	GCP-370 CK	-0.004	-0.002	-0.001
GCP-371	GCP-371 CK	0.009	0.025	0.024
GCP-372	GCP-372 CK	-0.003	-0.018	0.001
GCP-373	GCP-373 CK	0.002	0.014	-0.013
GCP-374	GCP-374 CK	0.004	0.009	0.011
GCP-375	GCP-375 CK	N/A	N/A	N/A
GCP-376	GCP-376 CK	N/A	N/A	N/A
GCP-378	GCP-378 CK	N/A	N/A	N/A
GCP-379	GCP-379 CK	-0.025	0.018	-0.008
GCP-380	GCP-380 CK	0.040	0.015	-0.017
GCP-381	GCP-381 CK	N/A	N/A	N/A
GCP-382	GCP-382 CK	-0.005	0.001	0.027
GCP-383	GCP-383 CK	0.007	0.002	0.000
GCP-384	GCP-384 CK	N/A	N/A	N/A

GCP-385	GCP-385 CK	N/A	N/A	N/A
GCP-386	GCP-386 CK	-0.008	0.007	-0.004
GCP-387	GCP-387 CK	0.001	0.004	0.037
GCP-388	GCP-388 CK	-0.005	0.000	-0.005
GCP-389	GCP-389 CK	0.006	0.003	0.030
GCP-390	GCP-390 CK	-0.017	0.005	0.001
GCP-391	GCP-391 CK	-0.003	0.001	-0.005
GCP-392	GCP-392 CK	0.012	-0.019	-0.011
GCP-393	GCP-393 CK	-0.005	0.001	-0.009
GCP-394	GCP-394 CK	N/A	N/A	N/A
GCP-395	GCP-395 CK	-0.007	0.005	-0.022
GCP-396	GCP-396 CK	0.007	0.004	-0.002
GCP-397	GCP-397 CK	0.038	-0.006	-0.026
GCP-398	GCP-398 CK	N/A	N/A	N/A
GCP-399	GCP-399 CK	-0.010	-0.007	0.008
GCP-400	GCP-400 CK	-0.002	-0.004	0.000
GCP-401	GCP-401 CK	N/A	N/A	N/A
GCP-402	GCP-402 CK	N/A	N/A	N/A
GCP-403	GCP-403 CK	0.001	0.007	-0.044
GCP-404	GCP-404 CK	N/A	N/A	N/A
GCP-405	GCP-405 CK	N/A	N/A	N/A
GCP-406	GCP-406 CK	-0.001	0.009	-0.032
GCP-407	GCP-407 CK	N/A	N/A	N/A
GCP-408	GCP-408 CK	0.001	-0.003	0.006
GCP-409	GCP-409 CK	N/A	N/A	N/A
GCP-410	GCP-410 CK	0.003	-0.001	-0.004
GCP-411	GCP-411 CK	-0.002	-0.007	0.001
GCP-412	GCP-412 CK	0.000	0.012	0.035
GCP-413	GCP-413 CK	0.009	0.007	0.021
GCP-414	GCP-414 CK	0.037	-0.013	-0.033
GCP-415	GCP-415 CK	-0.013	0.002	0.001
GCP-416	GCP-416 CK	-0.003	-0.006	-0.015
GCP-417	GCP-417 CK	0.003	-0.003	-0.025
GCP-418	GCP-418 CK	N/A	N/A	N/A
GCP-419	GCP-419 CK	N/A	N/A	N/A
GCP-420	GCP-420 CK	N/A	N/A	N/A
GCP-421	GCP-421 CK	N/A	N/A	N/A
GCP-422	GCP-422 CK	N/A	N/A	N/A
GCP-423	GCP-423 CK	N/A	N/A	N/A