City of McCall

Surveying and Engineering Consultants
Digital Data Submission Standards

Updated
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Table of Contents

I. Definition and Direction Page 3

II. Purpose Page 3

III. Requirements Page 4

IV. Data Standards Page 6

V. Digital Data Drawing Requirements Page 8

VI. Guidance For Preparing your Data Page 8

VII. Densification of McCall Control Points Page 11

VIII. Attachments Page 11

A. Control point Map Page 12

B. McCall Survey Control Point Data Table Page 13

C. Opus Solution Example Page 15

D. Control Point Description Sheets Page 16

I. Definition and Direction

The City of McCall has developed the digital data submittal format and data standards contained in this document. The standards were developed to establish uniform requirements for all digital data submissions, and to streamline the integration of this digital information into the City's Engineering and Geographic Information Systems (GIS) datasets. Additionally, these criteria establish a standard protocol for the collection of survey data using a peer reviewed, City-wide network of survey monuments. The City has defined two control point networks. The first is for the use with engineering standards and is a ground based network know as McCall Ground Grid Point (MGG). The second is for use within the City GIS and is a State Plane Grid based network and is known as McCall State Plane Grid (MSG). Through the use of these standards all survey data and resulting documentation (plats, surveys, engineering plans, etc) submitted to the city and county will be tied to these control networks.

The City intends for these standards to be mutually beneficial to the surveyors, engineers and general public. As efforts continue to densify the control network, it is hoped that users will find it most beneficial for current and future project planning and field surveying within the City and the Area of Impact.

Finally, data submitted to the City using these standards will be used to improve the accuracy of City-wide datasets containing information such as property boundaries, utility infrastructure, ROW, easements, topography, land use, etc. Ultimately, this information will be made available to the public for use in future planning, development and general documentation purposes through the City's GIS and Engineering offices.

II. Purpose

A. To establish a survey control network where all survey and engineering data within the City and the City Area of Impact will be tied.

B. To establish the McCall State Plane Grid (MGG) – a State Plane Coordinate system Idaho State plane West (1103) NAD83 and a modified ground based coordinate system, the McCall Ground Grid (MMG).

C. To provide instruction for converting ground-based engineering and survey data to the State Plane grid and vice versa.

D. To integrate the engineering design, plan production and as-built information for all new projects into a format that is readily usable by the City Engineer and GIS Dept.

E. To integrate the digital data of all new projects into the city GIS and engineering databases.

F. To improve the accuracy and extent of GIS data with the intent to be included in a county and state-wide system.

G. To provide a QA/QC protocol for the expansion of the McCall Control Point Network and a structure for the submission of new control points.

H. To provide local surveyors and engineers CAD drawings to use as a starting point for their drawings

I. To provide local surveyors point descriptions sheets and a database of control points to serve as primary control monuments for survey documents.

This document and the data contained within it have been approved by the Valley County Surveyor City Engineer and City GIS Analyst. The City of McCall reserves the right to modify these standards to insure that digital submittals are compatible with the City's system.

The McCall City Council approved the use of the Digital Data Submission Standards (DDSS) in Ord 899 and subsequent code sections were amended 3.7.032(G), 3.8.16(C), 3.10.09(G)(9), 3.13.032(A)(3)(1), 3.13.032(B)(2) and to provide for a new subsection number 5 and to renumber the existing subsections 5 and 6 to subsections 6 and 7 of Title 3; 9.1.05(B)(2), 9.2.07(C)(19)(20), 9.3.06(A), 9.3.05(F), 9.3.07(B), 9.6.02(A), 9.6.03(4), 9.6.10 and 2.2.040(C)(3) to provide for references to the Digital Data Submission Standards Policy. see ordinance for particular amendments. Valley County Commissioners also approved Ord 12-3.

III. Additional Requirements Include

A. Plats and Record of Survey (ROS) submittals will be reviewed for compliance to these standards and other requirements as deemed necessary in the planning review process.

B. Data, both MGG and MSG drawings, shall be submitted to the City Engineer and the GIS Dept. via email or other electronic format for review via the engineering review process.

C. Plats and ROS submittals must include a standardized note defining the basis of bearing, Coordinate system and whether the survey distances are shown in Ground or Grid.

D. Plats and ROS submittals also must include a signature line for the City Clerk, as they will be signed and released once they have been approved by the City Engineer and GIS Analyst.

E. Any data that is not accurate to the $1/10^{th}$ of a foot will be sent back to be corrected.

F. Digital submittals that do not conform to the requirements provided in this document will need to be re-submitted.

G. Once the Plat or ROS has been received and final engineering approval has been given the plat will be signed by the City Clerk and can be picked up for recordation at the County Recorder's office.

H. Failure to comply with these requirements may result in the following:

- Failure / Delay in receiving final engineering approval.
- Delay in final acceptance/approval of public and private infrastructure which may impact the release of financial guarantees
- Delay in final project approval which may result in the suspension of issuing building, occupancy or other City permits pertaining to the subject property or project area.

Digital File Specifications

The following are the required specifications for digital file submission:

A. Digital files should be submitted in DXF, DWG, GIS shape file, or Geodatabase format. This digital format drawing shall be only the line work and data legend. Please exclude any title blocks, borders and backgrounds.

B. Data must be provided on standard transfer media or by electronic transfer (CD-ROM or DVD or E-mail attachment). The submitted transfer media shall be labeled with:

- The project name (subdivision name, or accepted project name, etc.).
- Filing date.
- Registered land surveyor or professional engineer's name.
- Any other established project identifier.

C. A draft copy of the plat or survey shall also be submitted at scale in Adobe 'PDF' format at the time of digital file submittal.

D. ***Acceptance of digital data by the City of McCall absolves the surveyor or engineer of any additional liability related to the electronic submittal.***

Survey Documents that are Required to Comply with the DDSS

- Plats
- ROS
- Easements (Exhibits)

Engineering Submissions (civil design plans):

1. Proposed engineering designs
    - Water
    - Sewer
    - Roads
    - Grading
    - Drainage
    - Stormwater Management Plans

2. Final "As-built" record drawings
    - Water
    - Sewer
    - Roads
    - Grading
    - Drainage
    - Stormwater Management Plans

IV. Data Standards

Survey Submissions (Plats, ROS, Easement, etc.):

A. All submissions must show ties to a minimum of two McCall Survey Control Point Network (MCPN) monuments as listed in the McCall Control Point Network Data table and subsequent Point Description sheets.

B. The ties must be tied to two different control points and those control points must tie to separate corners within the drawing.

C. All submissions must clearly state the horizontal and vertical datum from which the project coordinates are derived.

D. If derived from GPS measurements, the submissions must also note the geoid model and epoch.

E. All data must be in the McCall Modified Ground Grid (MGG) as well as in a digital format McCall State Plane Grid on Idaho State Plane West (1103) NAD83 (MSG).

F. Labels on drawings must be consistent with the applicable coordinate system (MGG or MSG). *Not only distances in ground*.

G. All Project elevations should correspond to elevations established in the (MCPN).

H. Submissions shall show:

    - Property lines

- ROW Boundaries
- Tie lines to control
- Easements
- Utilities

I. Any other data pertinent to the survey / plat i.e.

- High water line
- Rooflines

J. *See Section IV, Drawing Standards for additional drawing requirements.*

Engineering Submissions (Civil design plans):

All submissions must:

A. Show horizontal and vertical ties to a minimum of two MGG monuments as listed in the McCall Control Point Network Data table and subsequent Point Description Sheets.

B. Clearly state the horizontal and vertical datum from which the project coordinates are derived.

C. Also note the geoid model and epoch if derived from GPS measurements.

D. Be in the McCall Modified Ground Grid (MGG) as well as in a digital format McCall State Plane Grid on Idaho State Plane West (1103) NAD83 (MSG).

E. All Project elevations should correspond to elevations established in the (MGG - Ground).

F. Submissions shall show all data utilizing "**The National Engineering Standard Symbols and Layers."**

G. Electronic engineering files shall contain all site information including:

- All property boundaries
- Both Sides of Rights of Ways
- Easements
- Natural features (wetlands, rock outcroppings, etc.)
- All utility infrastructure (water, wastewater, stormwater, electrical, telecommunications, etc.)
- Final site grading information (for roadways, sidewalks, pathways and new or proposed building locations)

- Any additional information that may be unique to the project. See Section IV, Drawing Standards for additional drawing requirements.

V. Requirements for All Digital Data Submissions

A. Two sets of drawings are required at the time of submittal: the first on McCall State Plane Grid (MSG) and the second on the McCall Ground Grid (MGG).

B. All drawings will be constructed in the Idaho State Plane West Coordinate System in feet using the NAD83 Datum and as in the State Plat and Record of Survey Code.

C. All drawings must include elevational data at ground and should correspond to elevations established in the MCPN.

D. Digital linework must be topologically clean. Lines must be geometrically continuous and boundaries must be geometrically closed with no "undershoots" or "dangles" where boundaries intersect. The digital linework must not include "sliver polygons" (gaps or overlaps between properties). All traverse features will be "snapped" closed at intersections. Essentially, the digital version of the map must be of the highest precision.

VI. Guidance for Preparing Your Data for Submission to the City Of McCall for Review

McCall Ground Grid (MGG): For simplicity, the MGG which is based upon State Plane Coordinates (NAD83, NAVD88, Geoid03, Epoch02, U.S survey feet, with ground elevations), has been modified to a Ground-based network. This initial modification has been made by applying an averaged Combined Factor (CF) of 1.000302 to State Plane Coordinates and scaling them from the **origin of the McCall Grid**, which is **2,536,000 East and 1,190,000 North**. State Plane Grid Azimuth and Orthometric elevations will be retained, as the basis of bearings and the elevational datum.

Digital data submissions will be rotated, translated, and elevated to their correct position on the McCall Ground Grid (modified state plane) through the required horizontal and vertical ties to two control monuments. In this manner they can be translated back to the State Plane database by scaling with the inverse of the CF, .999698, from the origin noted above. Again, State Plane Grid Azimuths (bearings) and orthometric elevations will remain the same.

The following are examples of the steps an applicant may use to accomplish the plat submission goals:

A. State Plane Projects Converted To McCall Ground Grid for Engineering Purposes

If a survey has been performed with a local coordinate system with assumed origin, assumed north bearings, and assumed elevations, then:

1. The first step is to complete the physical ties to two of the **nearest** McCall Control Point Network (MCPN) control points.

2. Then the applicant should rotate the project bearings/azimuths to fit the inversed bearing between the McCall Ground Grid coordinate values for the two tie points. This places the project on State Plane Grid Azimuth.

3. Then the applicant should translate the project coordinate values from the assumed local coordinates to the published coordinate values for the closest tie point to the project. The applicant's inversed ground distance between the two control points is now tied and should be compared to the inversed distance between the published values for these points. If these distances differ markedly, then a local scale factor may need to be calculated and applied to all project points, again, from the closest tie point to the project. This local scale factor should be noted in the digital submission. This step translates and scales the local coordinates into the McCall Ground Grid (modified state plane).

4. Then the applicant should adjust the elevations for their project points to the elevation of the closest tie point to the project. This places the project on the elevational datum used in the McCall Ground Grid system. Variations of these methods can be used, depending upon how the applicant acquires the coordinate, azimuth, and elevational values.

In summary, the project is rotated to MGG azimuths (also State Plane Grid azimuths); translated and scaled to the MGG coordinates; and elevated to the MGG elevational datum.

If a survey has been performed with assumed coordinates, but with State Plane grid azimuths and assumed ground elevations, then there is a little more to do.

1. REMEMBER, the first step is to complete the physical ties to two of the nearest McCall Ground Grid (modified state plane) control points.

2. It is not necessary to rotate the project if its azimuths agree closely with the McCall Ground Grid.

3. REMEMBER, the surveyor / engineer should translate and scale their project coordinate values from the assumed local coordinates to the published coordinate values for the closest tie point to the project. This translates the local coordinates into the McCall Ground Grid (modified state plane.)

4. Then the applicant should adjust the elevations for the project points to the elevational value for the closest tie point to the project. This will place the project on the elevational datum used in the McCall Ground Grid system.

If a survey has been performed in State Plane Coordinates, with ground elevations, then the work is almost done. The surveyor could translate their X and Y coordinates from the Origin of the McCall Grid (2,536,000 East and 1,190,000 North) by the averaged Combined Factor of 1.000302. The coordinates would then be on the McCall Grid coordinate system.

B. Local Coordinates or McCall Modified Grid (MGG) Projects Converted To State Plane (MSG) for McCall GIS Purposes

If a survey has been performed with a local coordinate system with assumed origin, assumed north bearings and assumed elevations, then:

1. The first step is to complete the physical ties to two of the **nearest** McCall Control Point Network (MCPN) control points.

2. Then the applicant should rotate the project bearings/azimuths to fit the inversed bearing between the MSG coordinate values for the two tie points. This places the project on State Plane Grid Azimuth.

3. Then the applicant should translate the project coordinate values from the assumed local coordinates, to the published MSG values for the closest tie point to the project. The applicant's inversed ground distance between the two control points is now tied and should be divided into the inversed distance between the published values for these points. If the result of this division is a "9's" number that differs markedly from the inverse of the MCPN averaged Combined Factor of .999698., then a local scale factor may need to be calculated and applied to all project points, again, from the closest tie point to the project. This local scale factor should be noted in the digital submission. This step translates and scales the local coordinates into the MSG coordinate system.

4. Then the applicant should adjust, the elevations for their project points to the elevational value for the closest tie point to the project. This will place the project on the elevational datum used in the MSG system. Variations of these methods can be used, depending upon how the applicant acquires their coordinate, azimuth, and elevational values.

If a survey has been translated to the MGG, with ground elevations, then the work is almost done. The applicant could translate their X and Y coordinates from the Origin of the McCall Grid (2,536,000 East and 1,190,000 North) by the inverse of the averaged Combined Factor of .999698. Their coordinates would then be on the MSG, with State Plane Azimuths, and ground elevations.

VII. Densifying the McCall Survey Control Point Network

The City of McCall Survey Control Point Network has been created and maintained with high survey accuracy. Attached to these standards is the **McCall Survey Control Network Point Data Table**. Please also see the **Control Point Description Sheets;** these sheets are included in this document to aid in preparing drawings and future surveys. It is hoped that users will be able to benefit from the use of these in the field.

As the control network is densified, the City will be updating this document with new control points. If the applicant is submitting a survey located in an area where it is difficult to utilize the existing McCall Control Point Network monuments, the applicant may opt to create a new control point(s) following the procedures described in this section.

Requirements for Submitting A NEW McCall Survey Control Point Network Control Point:

A. All documentation submitted to the City associated with the new control point must be prepared by a Surveyor licensed in the State of Idaho.

B. A new control point must be marked in the field with a stamped cap on a minimum 5/8 by 30 inch rebar or other monument accepted by the City Engineer.

C. If GPS is used, any new control point must be occupied (continuous data collection) for a minimum of two hours, accompanied with relevant meta-data and OPUS correction sheets (see Attachments). If triangulation, trilateration or traverse methods are used, a complete description of methodology must accompany the submittal.

D. The surveyor of record must submit the OPUS Solution sheet summarizing the data collection results during point occupation. The Data sheet must show that greater than 90% of observations were used in the solution. An example OPUS Solution sheet has been included in the Attachments of this document.

E. The surveyor of record must prepare and submit a **Control Point Description Sheet** summarizing point specific QA/QC data as well as location information including photographs and monument information. Blank sheets can be downloaded from the City web page (www.mccall.id.us) or can be requested from either the GIS Analyst or City Engineer.

IX. Attachments

A. Map of Control Points
B. McCall Survey Control Point Data Table
C. Example OPUS Solution Sheet, with relevant info highlighted and quick descriptions of information provided on the Solution Sheet.
D. Control Point Description Sheets

2520000 2525000 2530000 2535000 2540000 2545000

1210000 1205000 1200000 1195000 1190000 1185000 1180000 1175000 1170000 1165000

N W E S

Legend

McCall Control

- McCall Origin
- GPS Base
- RTK

LAMAH
EAST SIDE DR CP1A
PARADISE
GG1
TP16G
TP17G
GTP104
GTP103
TP20G
MORRISON
GTP101
GTP102
McCall 3
Origin Of McCall Grid
SG1
PLC2
PLC1
McCall 2
FairwayPark1
neCrystalBlueWater
Aspens1
5/8wb REV
GV2
Divot1
McGolf
GC1 REV
REV
Mill1
L137
LARDO
Market1
Alpine-Wooley1
pk-pobCrystalBchx
X rxwall
SpgMtn1
nwPauls1
nwUBank
seParkStPlaza
Mc1
McCall 4
MSD1 REV
WQ16 / McCall 1
SECESH1
EQ16
MDMS REV
PO23
5/8RMnwSprings
E 187 RESET
cp84
FAA MYLC
VC5b REV
Pearson Corners

Downtown Inset

FairwayPark1
neCrystalBlueWater
GV2 REV
Aspens1
5/8wb REV
Mill1
GC1 REV
Divot1
McGolf
Market1
Alpine-Wooley1
SpgMtn1
nwUBank
seParkStPlaza
Mc1

0 0.25 0.5 1 1.5 2 Miles

Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, and the GIS User Community

McCall Survey Control Point Network Data Table

ORIGIN: (2,536,000 East and 1,190,000 North) Ft (362712.762E and 772974.424N) Meters

Horizontal Datum: NAD83 (CORS96)(Epoch 2002.0) Idaho State Plane West (1103), US Survey Feet.

Vertical Datum: NAVD 88

GPS BASE STATION POINTS *BOLD & Italic*

Feet to Meters 3.280833

			NAD83 (Coors96) Epoch 2002 Geodetic Coordinates		NAD 83(Coors96) State Plane Coordinates, Zone 1103 Idaho West (*3.280833 Meter to feet*)				GROUND McCall Ground Grid (MGG)			
Point Lable	**Survier**	**Point Type**	**Latitude (N)**	**Longitude (W)**	**Northing (Y) U.S. Ft**	**Easting (X) U.S. Ft**	**Northing (Y) Meters**	**Easting (X) Meters**	**Northing (Y) U.S. Ft**	**Easting (X) U.S. Ft**	**Northing (Y) Meters**	**Easting (X) Meters**
Club Hill	***Secesh Engineering, Inc***	***GPS Base Station***	***44 55 52.03436 N***	***116 09 12.71963 W***	***1190060.789***	***2520161.318***	***362731.254***	***768146.706***	***1190060.807***	***2520156.535***	***362731.260***	***768145.248***
DOL2	***Russell Surveying, Inc. John Russell***	***GPS Base Station***	***44° 56' 20.74991"***	***116° 02' 43.01066"***	***1192848.100***	***2548206.682***	***363580.865***	***776695.029***	***1192848.962***	***2548210.369***	***3913538.239***	***8360252.671***
E 187 Reset	***Orbitech, Shelby Griggs PLS***	***GPS Base Station***	***44° 53' 45.79873 "***	***116° 06' 09.19596 "***	***1177215.280***	***2533308.060***	***358815.971***	***772153.919***	***1177211.419***	***2533307.247***	***358814.795***	***772153.672***
EAST SIDE DR CP1A	***Skiftun Land Surveying, Inc.***	***GPS Base Station***	***44° 58' 45.53269 "***	***116° 03' 21.92922 "***	***1207520.870***	***2545462.707***	***368053.097***	***775858.585***	***1207526.161***	***2545465.565***	***368054.710***	***775859.456***
FAA MYLC	***Orbitech, Shelby Griggs PLS***	***GPS Base Station***	***44° 53' 32.67216 "***	***116° 06' 08.69952 "***	***1175885.790***	***2533338.020***	***358410.742***	***772163.051***	***1175881.528***	***2533337.216***	***358409.443***	***772162.806***
GG1	***Russell Surveying, Inc. John Russell***	***GPS Base Station***	***44° 57' 13.13127"***	***116° 06' 28.84101"***	***1198218.250***	***2531986.626***	***365217.690***	***771751.145***	***1198220.732***	***2531985.414***	***3931162.119***	***8307021.302***
LAMAH (lamah ck)	***Russell Surveying, Inc. John Russell***	***GPS Base Station***	***44° 58' 48.82633"***	***116° 03' 26.24102"***	***1207855.596***	***2545154.050***	***368155.159***	***775764.585***	***1207860.988***	***2545156.815***	***368156.029***	***775763.797***
LARDO	***Russell Surveying, Inc. John Russell***	***GPS Base Station***	***44° 54' 42.02889"***	***116° 07' 22.01494"***	***1182933.162***	***2528092.591***	***360558.785***	***770564.241***	***1182931.028***	***2528090.203***	***360557.377***	***770561.894***
Mc1	***Russell Surveying, Inc. John Russell***	***GPS Base Station***	***44° 54' 30.70566"***	***116° 05' 56.72852"***	***1181759.153***	***2534225.040***	***360200.947***	***772433.416***	***1181756.664***	***2534224.504***	***360200.188***	***772433.252***
MDMS REV	***Russell Surveying, Inc. John Russell***	***GPS Base Station***	***44 ° 53' 52.69203"***	***116° 05' 04.74212"***	***1177893.728***	***2537950.417***	***359022.763***	***773568.913***	***1177890.072***	***2537951.006***	***359021.648***	***773569.092***
Morrison	***Skiftun Land Surveying, Inc.***	***GPS Base Station***	***44° 56' 44.08972"***	***116° 03' 2.45739"***	***1195216.895***	***2546816.685***	***364302.838***	***776271.278***	***1195218.470***	***2546819.952***	***364302.589***	***776270.721***
MSD1 REV	***Russell Surveying, Inc. John Russell***	***GPS Base Station***	***44 ° 53' 50.38106"***	***116° 07' 04.91910"***	***1177697.136***	***2529299.125***	***358962.841***	***770931.993***	***1177693.421***	***2529297.101***	***358961.709***	***770931.377***
Paradise	***Skiftun Land Surveying, Inc.***	***GPS Base Station***	***44° 57' 57.67270"***	***116° 03' 36.62444"***	***1202678.014***	***2544387.906***	***366576.992***	***775530.985***	***1202681.843***	***2544390.439***	***366577.425***	***775530.205***
Pearson Corners	***Skiftun Land Surveying, Inc.***	***GPS Base Station***	***44° 51' 46.88623 "***	***116° 04' 45.38891 "***	***1165147.647***	***2539291.778***	***355137.713***	***773977.682***	***1165140.141***	***2539292.772***	***355134.714***	***773976.436***
PLC1 (payette lake club beach)	***Russell Surveying, Inc. John Russell***	***GPS Base Station***	***44° 55' 26.61148"***	***116° 07' 26.41065"***	***1187449.538***	***2527797.077***	***361935.380***	***770474.168***	***1187448.768***	***2527794.600***	***361934.384***	***770471.794***
PLC2 (yewwood & brooklawn)	***Russell Surveying, Inc. John Russell***	***GPS Base Station***	***44° 55' 35.86077"***	***116° 07' 31.75063"***	***1188387.998***	***2527417.219***	***362221.423***	***770358.387***	***1188387.511***	***2527414.627***	***362220.513***	***770355.978***
PO23	***Orbitech, Shelby Griggs PLS***	***GPS Base Station***	***44° 53' 54.34181 "***	***116° 06' 10.76508 "***	***1178080.930***	***2533198.870***	***359079.822***	***772120.638***	***1178077.330***	***2533198.024***	***359078.725***	***772120.380***
SECESH 1 (Village Square)	***Secesh Engineering, Inc***	***GPS Base Station***	***44° 53' 52.28974"***	***116° 05' 55.83728"***	***1177868.471***	***2534272.458***	***359015.028***	***772447.790***	***1177864.807***	***2534271.936***	***359013.911***	***772447.631***
SG1 (spruce grove sub.)	***Russell Surveying, Inc. John Russell***	***GPS Base Station***	***44° 55' 45.02354"***	***116° 07' 02.73688"***	***1189235.263***	***2546774.406***	***362479.670***	***776258.470***	***1189235.032***	***2546777.660***	***362478.838***	***776257.831***
SpgMtn1	***Russell Surveying, Inc. John Russell***	***GPS Base Station***	***44 ° 54' 40.29213"***	***116° 04' 49.38878"***	***1182709.696***	***2539075.159***	***360490.673***	***773911.735***	***1182707.494***	***2539076.088***	***360490.002***	***773912.018***
VC5b	***Russell Surveying, Inc. John Russell***	***GPS Base Station***	***44 ° 52' 12.14340"***	***116° 06' 22.74170"***	***1167735.032***	***2532291.390***	***355926.386***	***771844.038***	***1167728.308***	***2532290.270***	***355924.336***	***771843.696***
5/8RMnwSprings	Russell Surveying, Inc. John Russell	RTK	44° 53' 43.79540"	116° 05' 26.07414"	1176999.148	2536411.177	358750.094	773099.751	1176995.222	2536411.301	358748.898	773099.789
5/8wb	Russell Surveying, Inc. John Russell	RTK	44° 55' 01.51623"	116° 05' 33.73529"	1184872.313	2535892.946	361149.840	772941.794	1184870.764	2535892.914	361149.368	772941.785
Alpine-Wooley1	Russell Surveying, Inc. John Russell	RTK	44° 54' 44.20262"	116° 05' 29.62170"	1183117.701	2536181.560	360615.033	773029.764	1183115.623	2536181.615	360614.400	773029.781
Aspens1	Russell Surveying, Inc. John Russell	RTK	44° 55' 00.23236"	116° 05' 22.51466"	1184738.900	2536699.785	361109.176	773187.719	1184737.311	2536699.996	361108.691	773187.784
cp84	Russell Surveying, Inc. John Russell	RTK	44° 53' 39.484345"	116° 05' 26.17959"	1176562.531	2536401.601	358617.013	773096.833	1176558.473	2536401.722	358615.776	773096.870
Divot1	Russell Surveying, Inc. John Russell	RTK	44° 54' 56.84443"	116° 05' 02.19756"	1184389.734	2538160.304	361002.750	773632.887	1184388.040	2538160.956	361002.233	773633.085
EQ16	Russell Surveying, Inc. John Russell	RTK	44° 53' 52.04347"	116° 05' 07.46611"	1177828.858	2537754.075	359002.990	773509.068	1177825.182	2537754.605	359001.870	773509.229
FairwayPark1	Russell Surveying, Inc. John Russell	RTK	44° 55' 07.91801"	116° 05' 23.59562"	1185517.558	2536625.264	361346.511	773165.005	1185516.204	2536625.453	361346.098	773165.063
GC1	Russell Surveying, Inc. John Russell	RTK	44° 54' 54.60604"	116° 05' 38.21296"	1184173.875	2535567.788	360936.956	772842.686	1184172.116	2535567.658	360936.419	772842.646
GTP101	Russell Surveying, Inc. John Russell	RTK	44° 56' 34.34790"	116° 03' 09.94319"	1194240.182	2544198.625	364005.1725	775473.3706	1194241.463	2544201.101	3918106.800	8347098.931
GTP102 (Lucks Point Beach)	Russell Surveying, Inc. John Russell	RTK	44° 56' 34.34790"	116° 03' 38.80739"	1194240.182	2544198.625	364005.172	775473.371	1194187.467	2544310.538	363988.340	775505.852
GTP103 (Warren Wagon Road)	Russell Surveying, Inc. John Russell	RTK	44° 56' 50.92844"	116° 06' 24.12332"	1195968.241	2532315.983	364531.886	771851.534	1194187.467	2532314.870	363988.340	771849.572
GTP104 (Warren Wagon Road)	Russell Surveying, Inc. John Russell	RTK	44° 56' 51.26561"	116° 06' 26.99577"	1196003.296	2532109.555	364542.571	771788.614	1196005.109	2532108.380	364542.357	771786.634
GV2	Russell Surveying, Inc. John Russell	RTK	44° 55' 01.72146"	116° 05' 34.65212"	1184893.375	2535827.063	361156.260	772921.713	1184891.833	2535827.011	361155.790	772921.697
Market1	Russell Surveying, Inc. John Russell	RTK	44° 54' 42.80525"	116° 05' 45.31869"	1182980.972	2535051.382	360573.358	772685.285	1182978.852	2535051.096	360572.712	772685.198
McCall1 / WQ16	Russell Surveying, Inc. John Russell	RTK	44° 53' 51.9953"	116° 06' 21.59667"	1177846.707	2532418.186	359008.431	771882.685	1177843.037	2532417.104	359006.558	771880.733
McCall2 1/4 Crnr	Orbitech, Shelby Griggs PLS	RTK	44° 55' 36.42978 "	116° 05' 07.55002 "	1188400.170	2537791.730	362225.133	773520.545	1188399.687	2537792.271	362224.986	773520.710
McCall3 Sec Crnr	Orbitech, Shelby Griggs PLS	RTK	44° 56' 02.37687 "	116° 10' 06.01416 "	1191127.610	2516332.830	363056.459	766979.858	1191127.951	2516326.891	363056.562	766978.048
McCall4 1/16 Crnr	Orbitech, Shelby Griggs PLS	RTK	44° 54' 04.93116 "	116° 07' 54.45020 "	1179187.100	2525740.810	359416.983	769847.417	1179183.835	2525737.712	359415.988	769846.472
McGolf	Russell Surveying, Inc. John Russell	RTK	44° 54' 56.17705"	116° 04' 58.66071"	1184321.102	2538414.527	360981.831	773710.374	1184319.387	2538415.256	360981.308	773710.596
Mill1	Russell Surveying, Inc. John Russell	RTK	44° 54' 55.82226"	116° 05' 43.94151"	1184298.794	2535156.099	360975.031	772717.203	1184297.072	2535155.844	360974.506	772717.125
neCrystalBlueWater	Russell Surveying, Inc. John Russell	RTK	44° 55' 01.64977"	116° 05' 26.20783"	1184883.556	2536434.643	361153.267	773106.904	1184882.011	2536434.774	361152.796	773106.944
nwPauls1	Russell Surveying, Inc. John Russell	RTK	44° 54' 37.43446"	116° 06' 10.65859"	1182444.920	2533225.513	360409.969	772128.759	1182442.638	2533224.675	360409.274	772128.504
nwUBank	Russell Surveying, Inc. John Russell	RTK	44° 54' 35.95813"	116° 05' 57.04138"	1182291.172	2534204.813	360363.107	772427.250	1182288.844	2534204.271	360362.397	772427.085
pk-pobCrystalBchx	Russell Surveying, Inc. John Russell	RTK	44° 54' 37.62982"	116° 06' 21.12730"	1182467.995	2532472.234	360417.002	771899.159	1182465.720	2532471.169	360416.309	771898.834
seParkStPlaza	Russell Surveying, Inc. John Russell	RTK	44° 54' 34.25335"	116° 05' 52.28574"	1182117.058	2534546.309	360310.037	772531.339	1182114.677	2534545.870	360309.311	772531.205
TP16G (Payette Lake Cottage Sites Park)	Russell Surveying, Inc. John Russell	RTK	44° 57' 06.51782"	116° 07' 59.50023"	1197539.287	2534093.620	365010.742	772393.359	1197541.564	2534093.044	365010.669	772391.560
TP17G (Payette Lake Cottage Sites Park)	Russell Surveying, Inc. John Russell	RTK	44° 57' 04.69555"	116° 05' 58.60446"	1197354.465	2534157.241	364954.408	772412.750	1197356.686	2534156.685	364954.318	772410.957
TP20G (Payette Lake Cottage Sites Park)	Russell Surveying, Inc. John Russell	RTK	44° 56' 47.53982"	116° 06' 02.12588"	1195618.172	2533896.496	364425.185	772333.275	1195619.869	2533895.861	364424.936	772331.458
Y 188	Orbitech, Shelby Griggs PLS	RTK	45° 02' 15.57857 "	116° 03' 29.09214 "	1228794.700	2545028.750	374537.412	775726.393	1228806.416	2545031.477	374540.983	775727.224
X rxwall	Russell Surveying, Inc. John Russell	RTK	44° 54' 37.79509"	116° 06' 15.40203"	1182482.929	2532884.318	360421.554	772024.763	1182480.659	2532883.377	360420.862	772024.476

Abbreviations: rb = rebar, mkd = marked, conc = concrete, shldr = shoulder, SE etc = direction,

	Orthometric Elevation U.S. Ft	Orthometric Elevation Meters	Elipsoid Height Elevation U.S. Ft	Geoid Height U.S Survey Ft	STATE PLANE				
Point Lable	Elevation (Z)	Elevation (Z)	Elevation (Z)	Elevation (Z)	Scale Factor	Elevation Factor	Combined Factor	Survey Methodology	Location Description
Club Hill	*5385.852*	*1641.611*	*5336.880*	*48.972*	*0.99994581*		*0.99969084*	**2 hr 33 Min Occupation May 23, 2016**	*Club Hill is a 5/8" rebar with a red plastic cap mkd. 'CONTROL" 33 feet southeast of North Club Hill Blvd., 0.15 miles northeast of Highway 55, on the so*
DOL2	*5228.505*	*1593.652*	*5180.142*	*48.363*	*0.999940009*	*0.999752281*	*0.999692305*	*3 min. occ 8/30/07 from DOL1 & 6.25 hr occ 8/27/10. OPUS corr.*	*1/2"rb with old & new caps mkd PLS6021 0.2 ft. up, ~40 feet west of IDL road and 150 ft. northwest of IDL locked gate in SE 1/4 Sec 35 19N03E. From E*
E 187 Reset	*5020.110*	*1530.133*	*4971.180*	*48.930*	*0.99994286*	*0.99976254*	*0.99970542*	*3 min. occ 8/30/07 from DOL1 & 6.25 hr occ 8/27/10. OPUS corr.*	*Found 3 1/2" diameter NGS brass disk set in concrete post, at McCall, ID Airport.*
CP1A	*5165.271*	*1574.378*	*5117.148*	*48.123*	*0.9999405*	*0.999757486*	*0.999698*	*3 hr 42 Min Occupation July 22, 2013*	
FAA MYLC	*5012.650*	*1527.859*	*4963.700*	*48.950*	*0.99994286*	*0.9997629*	*0.99970577*		*Found 3 1/2" diameter NGS brass disk set in concrete post, at McCall, ID Airport.*
GG1	*5380.951*	*1640.117*	*5332.256*	*48.694*	*0.999943142*	*0.999745008*	*0.999688164*	*Auton. 3.5 hr occ 9/25/10. OPUS corr.*	*1.5" PK nail in large flat granite outcrop about 200 ft. west of green gate road in NE 1/4 Sec 32 19N03E. From green gate on Warren Wagon road drive*
LAMAH	*5075.262*	*1546.943*	*5027.129*	*48.133*	*0.999940553*	*0.999759594*	*0.999700161*	*Auton 2.5 hr occ 11/8/11. OPUS corr*	*2"blue cap on 1/2"x24" rb mkd PI-IIF, flush with ground 2 ft north of steep shoulder of East Side Drive, near diving rocks turn off, and Lamah Creek box*
LARDO	*5052.757*	*1540.084*	*5003.745*	*49.012*	*0.999943984*	*0.999760717*	*0.999704714*	*27 hours of occupation from 2005 - 2008. 13 OPUS adjustments averaged*	*2" blue cap on 5/8"x30" rb mkd LARDO, 0.1 above ground on top of old water tower hill. Take stone steps up west of white house at 606 W.Lakeside. V*
Mc1	*5036.800*	*1535.220*	*4987.845*	*48.957*	*0.999942674*	*0.999761463*	*0.999704151*	*Auton 2.25 hr. 7/29/11, OPUS corr. ELEVATIONS REVISED BY SKIFTUN LAND SURVEYING, INC SUMMER OF*	*5/8"x30"rebar, red cap mkd Control, 0.3' down, 4.4' South of bike path, 5.8' West of large boulder, City Hall parking lot*
MDMS	*5088.341*	*1550.930*	*5039.434*	*48.907*	*0.999941921*	*0.999759008*	*0.999700943*	*Auton 2 hr. occ. 8/10/11 OPUS corr.*	*5/8"x30"rb, pink cap mkd Control J.Russell, 0.2' down, north shoulder approach to Middle School, large outcrop 6' se*
Morrison	*5079.630*	*1548.372*	*5031.571*	*48.059*	*0.99994025*		*0.999698*	*6 hrs 43 min occupation November 7th, 2014*	
MSD1	*5018.828*	*1529.742*	*4969.803*	*49.025*	*0.99994372*	*0.999762341*	*0.999706074*	*Auton 8.5 hr. occ. 10/15/10 OPUS Corr. 3 min. occ. 7/23/11, from VC5B,*	*1/2"x24"rb, 2" blue cap mkd Survey Control JohnRussell, flush, ne corner shoulder Sewage Storage Pond embankment, s of Deinhard bypass*
Paradise	*5040.910*	*1536.573*	*4992.955*	*47.955*	*0.99994166*	*0.999756326*	*0.999698*	*3 hr 14 min occupation May 5th 2014*	
Pearson	*5087.722*	*1550.741*	*5038.375*	*49.347*	*0.99994166*	*0.999756326*	*0.999698*	*2 hr 43 min Occupation, November 21, 2014*	
PLC1	*4992.867*	*1521.829*	*4943.875*	*48.993*	*0.999944049*	*0.999763577*	*0.999707639*	*Auton 7 hr occ 4/20/13. OPUS corr*	*2" blue cap on 5/8"x30" rb mkd PLC1, 0.5 ft. above ground in boulder pile north of Club Dock.*
PLC2	*5037.608*	*1535.466*	*4988.632*	*48.976*	*0.999944133*	*0.999761438*	*0.999705584*	*Auton 2 hr occ 2/1/14. OPUS corr*	*1/2"rb mkd PLS6021 0.3 above ground on top of remaining berm, corner of Yewwood and Brooklawn*
PO23	*5042.82*	*1537.054766*	*4993.896985*	*48.92301488*	*0.99994289*	*0.99976146*	*0.99970436*		*Antenna Reference Point (ARP) on a Trimble TRM29659.00 SCIT antenna for a Plate Boundary Observatory (PBO) Continuously Operating Reference Station (CORS) and is mounted on a deep-drilled-braced mount at the northwest end of the McCall, ID Airport (MYL).*
SECESH 1	*5032.182*	*1533.812*	*4983.12601*	*49.05599*	*0.99994266*	*0.99976206*	*0.99970459*	*3 hour 50 min. static occupation 4/11/14, OPUS post-processing*	*5/8" x 30" rebar with red plastic cap marked "CONTROL" set flush to the ground in the open space lawn at Village Square Commercial Center, 28 feet north of the sidewalk for Dienhard Lane, 53 feet east of the east edge of an asphalt parking lot, .7 feet north of a3 foot green metal "u-post".*
SG1	*5142.455*	*1567.424*	*5093.945*	*48.510*	*0.999940262*	*0.9997564*	*0.999696677*	*Auton 6 hr occ Nov.12 to March 13. OPUS corr*	*1" Pink cap on 5/8"x30" rebar, flush, 10 ft southeast of low top of cut East Side Drive.*
SpgMtn1	*5063.760*	*1543.437*	*5014.954*	*48.806*	*0.999941699*	*0.999760176*	*0.999701889*	*Auton 2.5hr. Occ. 7/29/11 OPUS corr.*	*5/8"x30"rebar, red cap mkd Control, flush, toe of fill east side of SpgMtnBlvd, 40' north of int. with Wooley Ave., golf course to East*
VC5b	*5087.432*	*1550.653*	*5038.249*	*49.183*	*0.999943078*	*0.999759064*	*0.999702156*	*Auton 3.5hr. Occ. 6/22/11, 3.75 hr.6/24/11, 6.5 hr. 6/28/11, 4 hr.7/23/11, 4 hr.8/4/11 OPUS corr. Avg.*	*1/2"x36" rb mkd PLS6021, 0.2' up, west shldr Norwood Road at crest of hill s of McCall airport*
5/8RMnwSprings	5048.701	1538.847	4999.793	48.907	0.999942228	0.999760902	0.999703144	3 min. occ. 8/10/11, from MDMS	5/8" rb mkd PLS8577, flush, east edge conc bollards, approx nw cor Springs
5/8wb	5021.547	1530.571	4972.590	48.957	0.999942333	0.999762199	0.999704546	15 sec. occ. 8/10/11, set from Mc1	5/8" rb mkd PLS8444, flush, east edge new lawn , approx se cor Lot 15
Alpine-Wooley1	5040.430	1536.326	4991.624	48.806	0.999942275	0.999761302	0.999703591	3 min. occ. 7/29/11, set from SpgMtn1, ELEVATIONS REVISED BY SKIFTUN LAND SURVEYING, INC SU	5/8"x24"rebar, red cap mkd Control, 0.2' down, se quadrant of int. Alpine & Wooley Ave., 4.5' East stop sign
Aspens1	5026.080	1531.952	4977.274	48.806	0.99994217	0.999761989	0.999704173	3 min. occ. 7/29/11, set from SpgMtn1, ELEVATIONS REVISED BY SKIFTUN LAND SURVEYING, INC SU	5/8"x30"rebar, red cap mkd Control, 0.2' down, 1.6' West of wood fence end, north of Lawrence St. bend
cp84	5046.319	1538.121	4997.411	48.907	0.99994223	0.999761016	0.99970326	3 min. occ. 8/10/11, from MDMS, Trimble 5800 rover, 5700 base station.	5/8"x30"rb, pink cap mkd Control J.Russell, 0.2' up, approx sw cor Springs (was CP84 redriven) pp S57dW 11'
Divot1	5059.229	1542.056	5010.423	48.806	0.999941879	0.9997604	0.999702285	Trimble 5800 rtk observation. 3 minute occupation 7/29/11, from SpgMtn1 base station Monument	1/2"x36" rebar, orange cap mkd PLS6021, in face of south sloping berm, 5/8"rebar blue cap mkd PLS6021 falls east 4.3', north of Divot Lane culdesac
EQ16	5074.486	1546.707	5025.303	49.183	0.99994196	0.999759666	0.99970164	3 min. occ. 7/23/11, from VC5B	2.75" brass cap mkd CE-LS1811, 0.3' down in pavement, E of int of Samson Trail and Deinhard Lane, sw of Middle School
FairwayPark1	5022.610	1530.895	4973.804	48.806	0.999942185	0.999762149	0.999704348	Auton 1 hr.11/9/10 OPUS corr. 3 min. 7/29/11, from SpgMtn1, avg. ELEVATIONS REVISED BY SKIFTU	1/2"x24" rebar, orange cap mkd PLS6021, 0.2' down, 4.2' west of baseball field fence, 12th post south of gate post
GC1	5024.289	1531.407	4975.332	48.957	0.999942399	0.999762069	0.999704482	3 min. occ. 8/10/11, set from Mc1	5/8"x30"rb, pink cap mkd Control J.Russell, 0.2' up, sw quad on intersection, 30' S Hemlock, 60' W Roosevelt, pp S74dE, 18', guy anchor W 19'
GTP101	4993.090	1521.897	4944.727	48.363	0.999940353	0.999763627	0.999703994	3 min. occ 8/30/10 from DOL2.	3/4"x21" bolt with 1" square head, set 0.7 ft below surface of sand in Lucks Point beach. A 10" yellow pint bears S63dE 18.3 ft
GTP102	4992.834	1521.819	4944.471	48.363	0.999940728	0.99976354	0.999704282	3 min. occ 8/30/10 from DOL2.	3/4"x21" bolt with 1" square head, set 0.7 ft below surface of sand in Lucks Point beach. A 5" & 3" yellow pine bears N45dW 16.8 ft.
GTP103	5037.607	1535.466	4988.913	48.694	0.999943073	0.999761424	0.999704511	3 min. occ 9/25/10 from GG1	1/2" rb with red cap mkd IPCO, 0.1 above ground in flat area of NE 1/4 Sec.32 T19N R3E. A shattered boulder, 1.5 ft diam bears West 5.3 ft. Stumps with S
GTP104	5048.922	1538.915	5000.228	48.694	0.999943116	0.999760883	0.999704013	3 min. occ 9/25/10 from GG1	1/2" rb with red cap mkd PLS6021, 0.1 above ground slanted to northwest at toe of slope in NE 1/4 Sec.32 T19N R3E. A 6 ft boulder bears S70dW 24.0 ft.
GV2	5021.729	1530.626	4972.772	48.957	0.999942346	0.999762191	0.999704551	3 min. occ 9/25/10 from GG1	5/8"x30"rb, pink cap mkd Control J.Russell, 0.2' down, in new sod Lot 15 Blk 2 GV2, 2" aspens N14dE, 18.2' & N84dW, 24.4'
Market1	5026.311	1532.023	4977.354	48.957	0.999942504	0.99976197	0.999704488	3 min. occ. 7/29/11, set from Mc1	5/8"x30"rebar, red cap mkd Control, flush, West edge of concrete walk, West of Railroad Ave & East of Farmers Market area, South of Pine St.
McCall1 / WQ16	5018.424	1529.619	4969.290	48.940	0.999943051	0.999762357	0.999705422	3 min. occ 10/15/10 from MSD1	Found 2 1/2" brass disk in conc approx 270 ft west of Mission Street, approx 14 ft S of the center of a dirt lane/driveway running east-west and 22 ft N of the corner of a split rail fence south and west.
McCall2 1/4 Crnr	5022.910	1530.986	4974.268	48.642	0.99994195	0.9997624	0.99970436		3" brass disk in conc on the N side of Miles Standish Rd on the S boundary of Ponderosa State Park (0.2 miles NE of main park entrance), at a power line crossing, approx 17 ft N of the center of the road, 6 ft N of the N edge of pavement and 19 ft SW of a sanitary sewer lift station pump well.
McCall3 Sec Crnr	5107.830	1556.870	5058.720	49.110	0.99994674	0.99975837	0.99970511		3 1/4" BLM brass cap on galv iron pipe with cap 0.4 ft above gnd level, at intersection of Longview Rd and Whitefield Ln, approximately 23 ft N of the center of Longview Rd, 23 ft W of the center of Whitefield Ln and 2 ft W of an old fence corner post with brace (wire has been removed).
McCall4 1/16 Crnr	5050.100	1539.274	5001.026	49.074	0.99994451	0.99976112	0.99970564		Found 2 1/2" diameter brass disk in concrete at approximately the point of intersection of the centerlines of West Valley Road to the east and Wisdom Road to the south.
McGolf	5041.636	1536.694	4992.830	48.806	0.999941829	0.999761232	0.999703075	3 min. occ. 7/29/11, set from SpgMtn1	5/8"x30"rebar, red cap mkd Control, 0.3' up in flowers, 3' West of cart path, 4.4' South of Clubhouse Lane
Mill1	5016.159	1528.928	4967.202	48.957	0.999942483	0.999762454	0.999704951	3 min. occ. 7/29/11, set from Mc1	5/8"x30"rb red cap mkd Control, flush, in South berm face btwn. Mill Rd. and McCall Ave. 16.2' North of Hemlock St
neCrystalBlueWater	5021.224	1530.472	4972.419	48.806	0.999942223	0.999762215	0.999704452	3 min. occ. 11/9/10, from FairwayPark1, 3 min. occ. 7/29/11, from SpgMtn1, avg.	5/8"rebar bare, 0.6' down, west of Davis Ave., NE Crystal Blue Waters townhomes
nwPauls1	5014.574	1528.445	4965.617	48.957	0.999942882	0.999762533	0.999705429	3 min. occ. 7/29/11, from Mc1	1/2" rebar, orange cap mkd PLS9585, flush in paved area NW Pauls parking lot, 19.9' North of conc wall, South of Lake St.
nwUBank	5021.370	1530.517	4972.187	49.183	0.999942679	0.999762201	0.999704894	3 min. occ. 7/23/11, from VC5B, 3 min. occ. 7/29/11, from Mc1, avg.ELEVATIONS REVISED BY SKIFTU	5/8" rebar, bare, flush in concrete walk, 6.3' South of Lenora, 9.3' West of 2nd Street, NW corner of U.Bank
pk-pobCrystalBchx	5006.541	1525.997	4957.357	49.183	0.99994304	0.999762913	0.999705967	3 min. occ. 7/23/11, from VC5B, ELEVATIONS REVISED BY SKIFTUN LAND SURVEYING, INC SUMMER	PK nail, flush in center of paved approach to Crystal Beach condos. (POB??)
seParkStPlaza	5029.060	1532.861	4979.877	49.183	0.999942608	0.999761835	0.999704457	3 min. occ. 7/23/11, from VC5B, 3 min. occ. 7/29/11, from MC1, avg. ELEVATIONS REVISED BY SKIFT	5/8" rebar, yellow cap mkd PLS7314, 0.2' up, West edge of concrete walk, SE corner of Park Street Plaza, West of 3rd St.
TP16G	4994.629	1567.424	4945.935	48.694	0.999942701	0.999763475	0.99970619	3 min. occ 9/25/10 from GG1	1/2" rb with orange cap mkd LS6021, 0.2 ft down in parking area of Payette Lakes Cottage Sites community park. SW 1/4 Sec.28 T19N R3E
TP17G	4990.600	1521.138	4941.906	48.694	0.999942688	0.999763668	0.99970637	3 min. occ 9/25/10 from GG1	1/2" rb with red cap mkd IPCO, flush in bouldery rip-rap of Payette Lakes Cottage Sites community park. Sewer manhole A-59 bears N88d37'W., 41.3 ft.
TP20G	4991.938	1521.546	4943.244	48.694	0.999942742	1	0.999942742	3 min. occ 9/25/10 from GG1	1/2" rb with red cap mkd IPCO, flush in ground of short rock jetty opposite Lot 85 Payette Lakes Cottage Sites, west of end of Wagon Wheel Road. Sewer
Y 188	5031.440	1533.586	4984.068	47.372	0.99994058	0.99976193	0.99970252		3 1/2" diameter USC&GS brass disk set in conc curb at NE corner of bridge over Fisher Creek on WWR, located approx 10.0 miles northerly from West Lake Street (ID Hwy 55) and approx 2.2 miles northerly from the intersection with East Side Road.
X rxwall	5012.111	1527.695	4962.928	49.183	0.999942953	0.999762651	0.999705618	15 sec. occ. 7/23/11, from VC5B	X' chisled in top of rock wall 1.7' wide, 2' tall, SE cor. Crystal Beach condos., North of Lake St.

Example OPUS Solution

FILE: MYLC3210.09o 000022364

NGS OPUS SOLUTION REPORT
==========

All computed coordinate accuracies are listed as peak-to-peak values.
For additional information: http://www.ngs.noaa.gov/OPUS/about.html#accuracy

USER: sgriggs@orbitechinc.com DATE: November 30, 2009
RINEX FILE: mylc321q.09o TIME: 04:29:58 UTC

SOFTWARE: page5 0909.08 master12.pl 081023 START: 2009/11/17 16:05:00
EPHEMERIS: igr15582.eph [rapid] STOP: 2009/11/17 18:43:00
NAV FILE: brdc3210.09n OBS USED: 4460 / 4497 : 99%
ANT NAME: LEIAX1202GG NONE # FIXED AMB: 21 / 22 : 95%
ARP HEIGHT: 1.637 OVERALL RMS: 0.008(m)

REF FRAME: NAD_83(CORS96)(EPOCH:2002.0000) ITRF00 (EPOCH:2009.8787)

X:	-1991824.183(m)	0.074(m)	-1991824.957(m)	0.074(m)
Y:	-4065385.105(m)	0.157(m)	-4065383.883(m)	0.157(m)
Z:	4479953.641(m)	0.069(m)	4479953.635(m)	0.069(m)

LAT:	44 53 32.67209	0.047(m)	44 53 32.68925	0.047(m)
E LON:	243 53 51.30245	0.127(m)	243 53 51.24629	0.127(m)
W LON:	116 6 8.69755	0.127(m)	116 6 8.75371	0.127(m)
EL HGT:	1512.958(m)	0.145(m)	1512.417(m)	0.145(m)
ORTHO HGT:	1527.912(m)	0.164(m)	[NAVD88 (Computed using GEOID09)]	

	UTM COORDINATES (UTM (Zone 11))	STATE PLANE COORDINATES (SPC (1103 ID W))
Northing (Y) [meters]	4971390.344	358410.703
Easting (X) [meters]	570875.637	772163.016
Convergence [degrees]	0.63352107	-0.24872894
Point Scale	0.99966177	0.99994286
Combined Factor	0.99942469	0.99970571

US NATIONAL GRID DESIGNATOR: 11TNK7087571390(NAD 83)

BASE STATIONS USED

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
AJ3346	IDTD IDAHO DOT CORS ARP	N433910.573	W1161700.213	138507.0
DG8521	IDNP GRANGEVILLE APT CORS ARP	N455622.935	W1160716.530	116428.1
DK6947	IDSN SALMON CORS ARP	N451131.444	W1135348.907	176956.9

NEAREST NGS PUBLISHED CONTROL POINT

AI7605	FAA MYL C	N445332.672	W1160608.700	0.0

BASE STATION INFORMATION

STATION NAME: idtd a 3 (Idaho DOT; Boise, Idaho USA)
WARNING: ORIGINALLY "ASH700936E "

XYZ	-2047006.7967	-4144825.3020	4380816.5163	MON @ 1997.0000 (M)
XYZ	-0.0182	-0.0010	-0.0085	VEL (M/YR)
NEU	0.0000	0.0000	0.0000	MON TO ARP (M)
NEU	0.0014	-0.0010	0.1089	ARP TO L1 PHASE CENTER (M)
NEU	0.0010	0.0005	0.1274	ARP TO L2 PHASE CENTER (M)
XYZ	-0.2344	-0.0129	-0.1095	VEL TIMES 12.8784 YRS
XYZ	0.0000	0.0000	0.0000	MON TO ARP
XYZ	-0.0354	-0.0693	0.0762	ARP TO L1 PHASE CENTER
XYZ	-2047007.0664	-4144825.3842	4380816.4830	L1 PHS CEN @ 2009.8787
XYZ	-0.0000	-0.0000	-0.0000	+ XYZ ADJUSTMENTS
XYZ	-2047007.0664	-4144825.3842	4380816.4830	NEW L1 PHS CEN @ 2009.8787
XYZ	-2047007.0311	-4144825.3149	4380816.4068	NEW ARP @ 2009.8787
XYZ	-2047007.0311	-4144825.3149	4380816.4068	NEW MON @ 2009.8787
LLH	43 39 10.59023	243 42 59.73038	788.7540	NEW L1 PHS CEN @ 2009.8787
LLH	43 39 10.59019	243 42 59.73043	788.6451	NEW ARP @ 2009.8787
LLH	43 39 10.59019	243 42 59.73043	788.6451	NEW MON @ 2009.8787

STATION NAME: idnp a 2 (GRANGEVILLE APT; Grangeville, Idaho, U.S.A.)
MONUMENT: NO DOMES NUMBER

XYZ	-1956496.8409	-3989956.8142	4561306.1097	MON @ 1997.0000 (M)
XYZ	-0.0200	-0.0003	-0.0080	VEL (M/YR)
NEU	0.0000	0.0000	0.0000	MON TO ARP (M)
NEU	0.0003	0.0006	0.0715	ARP TO L1 PHASE CENTER (M)
NEU	-0.0004	-0.0002	0.0674	ARP TO L2 PHASE CENTER (M)
XYZ	-0.2576	-0.0039	-0.1030	VEL TIMES 12.8784 YRS

XYZ 0.0000 0.0000 0.0000 MON TO ARP
XYZ -0.0213 -0.0447 0.0516 ARP TO L1 PHASE CENTER
XYZ -1956497.1197 -3989956.8628 4561306.0583 L1 PHS CEN @ 2009.8787
XYZ 0.0000 0.0000 0.0000 + XYZ ADJUSTMENTS
XYZ -1956497.1197 -3989956.8628 4561306.0583 NEW L1 PHS CEN @ 2009.8787
XYZ -1956497.0985 -3989956.8181 4561306.0067 NEW ARP @ 2009.8787
XYZ -1956497.0985 -3989956.8181 4561306.0067 NEW MON @ 2009.8787
LLH 45 56 22.95308 243 52 43.41105 996.6680 NEW L1 PHS CEN @ 2009.8787
LLH 45 56 22.95307 243 52 43.41102 996.5965 NEW ARP @ 2009.8787
LLH 45 56 22.95307 243 52 43.41102 996.5965 NEW MON @ 2009.8787

STATION NAME: idsn a 2 (Salmon; Salmon, Idaho USA)
MONUMENT: NO DOMES NUMBER
XYZ -1824256.3085 -4117263.5711 4503257.3828 MON @ 1997.0000 (M)
XYZ -0.0157 -0.0005 -0.0079 VEL (M/YR)
NEU 0.0000 0.0000 0.0000 MON TO ARP (M)
NEU 0.0012 0.0008 0.0847 ARP TO L1 PHASE CENTER (M)
NEU -0.0002 0.0009 0.0740 ARP TO L2 PHASE CENTER (M)
XYZ -0.2022 -0.0064 -0.1017 VEL TIMES 12.8784 YRS
XYZ 0.0000 0.0000 0.0000 MON TO ARP
XYZ -0.0231 -0.0541 0.0609 ARP TO L1 PHASE CENTER
XYZ -1824256.5338 -4117263.6317 4503257.3420 L1 PHS CEN @ 2009.8787
XYZ -0.0000 -0.0000 -0.0000 + XYZ ADJUSTMENTS
XYZ -1824256.5338 -4117263.6317 4503257.3420 NEW L1 PHS CEN @ 2009.8787
XYZ -1824256.5107 -4117263.5775 4503257.2811 NEW ARP @ 2009.8787
XYZ -1824256.5107 -4117263.5775 4503257.2811 NEW MON @ 2009.8787
LLH 45 11 31.46315 246 6 11.03712 1184.6981 NEW L1 PHS CEN @ 2009.8787
LLH 45 11 31.46311 246 6 11.03708 1184.6134 NEW ARP @ 2009.8787
LLH 45 11 31.46311 246 6 11.03708 1184.6134 NEW MON @ 2009.8787

REMOTE STATION INFORMATION

STATION NAME: mylc 1
MONUMENT: NO DOMES NUMBER
XYZ -1991825.5090 -4065384.6800 4479954.4199 MON @ 2009.8785 (M)
NEU -0.0012 -0.0008 1.6370 MON TO ARP (M)
NEU 0.0012 0.0008 0.0847 ARP TO L1 PHASE CENTER (M)
NEU -0.0002 0.0009 0.0740 ARP TO L2 PHASE CENTER (M)
XYZ -0.5113 -1.0418 1.1545 MON TO ARP
XYZ -0.0253 -0.0535 0.0606 ARP TO L1 PHASE CENTER
XYZ -1991826.0456 -4065385.7753 4479955.6350 L1 PHS CEN @ 2009.8787

BASELINE NAME: idtd mylc
XYZ 0.5809 0.6988 -0.7400 + XYZ ADJUSTMENTS
XYZ -1991825.4648 -4065385.0765 4479954.8951 NEW L1 PHS CEN @ 2009.8787
XYZ -1991825.4395 -4065385.0230 4479954.8344 NEW ARP @ 2009.8787
XYZ -1991824.9281 -4065383.9812 4479953.6799 NEW MON @ 2009.8787
LLH 44 53 32.68855 243 53 51.24944 1514.2242 NEW L1 PHS CEN @ 2009.8787
LLH 44 53 32.68851 243 53 51.24940 1514.1395 NEW ARP @ 2009.8787
LLH 44 53 32.68855 243 53 51.24944 1512.5025 NEW MON @ 2009.8787

BASELINE NAME: idnp mylc
XYZ 0.5066 0.8367 -0.8071 + XYZ ADJUSTMENTS
XYZ -1991825.5391 -4065384.9387 4479954.8279 NEW L1 PHS CEN @ 2009.8787
XYZ -1991825.5138 -4065384.8852 4479954.7673 NEW ARP @ 2009.8787
XYZ -1991825.0024 -4065383.8433 4479953.6128 NEW MON @ 2009.8787
LLH 44 53 32.68910 243 53 51.24363 1514.1123 NEW L1 PHS CEN @ 2009.8787
LLH 44 53 32.68906 243 53 51.24360 1514.0276 NEW ARP @ 2009.8787
LLH 44 53 32.68910 243 53 51.24363 1512.3906 NEW MON @ 2009.8787

BASELINE NAME: idsn mylc
XYZ 0.5692 0.8554 -0.8088 + XYZ ADJUSTMENTS
XYZ -1991825.4765 -4065384.9199 4479954.8263 NEW L1 PHS CEN @ 2009.8787
XYZ -1991825.4512 -4065384.8664 4479954.7656 NEW ARP @ 2009.8787
XYZ -1991824.9398 -4065383.8246 4479953.6111 NEW MON @ 2009.8787
LLH 44 53 32.69007 243 53 51.24582 1514.0797 NEW L1 PHS CEN @ 2009.8787
LLH 44 53 32.69003 243 53 51.24578 1513.9950 NEW ARP @ 2009.8787
LLH 44 53 32.69007 243 53 51.24582 1512.3580 NEW MON @ 2009.8787

G-FILES

Axx20091117 91117
B2009111716 4 911171843 1 page5 v0909.08IGS 226 1 2 27NGS 20091129IFDDFX
Iant_info.003 NGS 20091120
C00090001 -551821030 30 -794413337 52 -991372731 57 X3219AMYLCX3219AIDTD
D 1 2 8828651 1 3 -1601337 2 3 -3866796

Axx20091117 91117
B2009111716 4 911171843 1 page5 v0909.08IGS 226 1 2 27NGS 20091129IFDDFX
Iant_info.003 NGS 20091120
C00090002 353279040 32 754270253 54 813523939 55 X3219AMYLCX3219AIDNP
D 1 2 8867159 1 3 -650877 2 3 -1251918

Axx20091117 91117

B2009111716 4 911171843 1 page5 v0909.08IGS 226 1 2 27NGS 20091129IFDDFX
Iant_info.003 NGS 20091120
C00090003 1675684292 50 -518797530 42 233036699 35 X3219AMYLCX3219AIDSN
D 1 2 1168297 1 3 -2632141 2 3 -8972769

POST-FIT RMS BY SATELLITE VS. BASELINE

OVERALL 02 04 09 11 15 17 26 27
idtd-mylc| 0.008 0.008 0.007 0.006 0.010 0.010 ... ... 0.006
28 30
idtd-mylc| 0.009 ...

OVERALL 02 04 09 11 15 17 20 26
idnp-mylc| 0.008 0.009 0.009 0.007 0.010 0.010 ... ...
27 28 30
idnp-mylc| 0.006 0.009 ...

OVERALL 02 04 09 11 15 17 20 26
idsn-mylc| 0.008 0.009 0.008 0.007 0.010 0.012 ... ...
27 28
idsn-mylc| 0.005 0.007

OBS BY SATELLITE VS. BASELINE

OVERALL 02 04 09 11 15 17 26 27
idtd-mylc| 1490 135 226 314 104 136 306
28 30
idtd-mylc| 269 ...
OVERALL 02 04 09 11 15 17 20 26
idnp-mylc| 1489 138 237 314 105 129 ... ...
27 28 30
idnp-mylc| 306 260 ...
OVERALL 02 04 09 11 15 17 20 26
idsn-mylc| 1481 138 235 301 105 135 ... ...
27 28
idsn-mylc| 300 267

Covariance Matrix for the xyz OPUS Position (meters^2).
0.0000098311 0.0000007011 -0.0000001887
0.0000007011 0.0000164089 -0.0000006304
-0.0000001887 -0.0000006304 0.0000166644

Covariance Matrix for the enu OPUS Position (meters^2).

0.0000105504	-0.0000014491	0.0000016178
-0.0000014491	0.0000155330	0.0000004942
0.0000016178	0.0000004942	0.0000168210

Horizontal network accuracy = 0.00888 meters.
Vertical network accuracy = 0.00804 meters.

Derivation of NAD 83 vector components

Position of reference station ARP in NAD_83(CORS96)(EPOCH:2002.0000).

	Xa(m)	Ya(m)	Za(m)	
IDTD	-2047006.23575	-4144826.54045	4380816.42482	2002.00
IDNP	-1956496.28541	-3989958.03130	4561306.00350	2002.00
IDSN	-1824255.73684	-4117264.80371	4503257.29700	2002.00

Position of reference station monument in NAD_83(CORS96)(EPOCH:2002.0000).

	Xr(m)	Yr(m)	Zr(m)	
IDTD	-2047006.23575	-4144826.54045	4380816.42482	2002.00
IDNP	-1956496.28541	-3989958.03130	4561306.00350	2002.00
IDSN	-1824255.73684	-4117264.80371	4503257.29700	2002.00

Velocity of reference station monument in NAD_83(CORS96)(EPOCH:2002.0000).

	Vx (m/yr)	Vy (m/yr)	Vz (m/yr)
IDTD	-0.00000	-0.00000	0.00000
IDNP	-0.00120	0.00070	0.00010
IDSN	0.00290	0.00060	-0.00020

Vectors from unknown station monument to reference station monument
in NAD_83(CORS96)(EPOCH:2002.0000).

	Xr-X= DX(m)	Yr-Y= DY(m)	Zr-Z= DZ(m)	
IDTD	-55182.05275	-79441.43545	-99137.21618	2002.00
IDNP	35327.89759	75427.07370	81352.36250	2002.00
IDSN	167568.44616	-51879.69871	23303.65600	2002.00

STATE PLANE COORDINATES - U.S. Survey Foot
SPC (1103 ID W)
Northing (Y) [feet] 1175885.780
Easting (X) [feet] 2533338.161

Convergence [degrees] -0.24872894
Point Scale 0.99994286
Combined Factor 0.99970571

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.

8002 The Opus solution for your submitted RINEX file appears to be
8002 quite close to an NGS published control point. This suggests that
8002 you may have set your GPS receiver up over an NGS control point.
8002 Furthermore, our files indicate that this control point has not
8002 been recovered in the last five years.
8002 If you did indeed recover an NGS control point, we would
8002 appreciate receiving this information through our web based
8002 Mark Recovery Form at
8002 http://www.ngs.noaa.gov/products_services.shtml#MarkRecoveryForm.
8002

Point Description Sheet

McCall Control Point - CLUB HILL

Survey Type - GPS Base Station

Prepared By:

City of McCall

Point Approved By:

SECESH ENGINEERING, INC

SECESH ENGINEERING, INC
Ralph Miller, ID PLS #8577

Place Seal Here

PROFESSIONAL LAND SURVEYOR
REGISTERED
8577
STATE OF IDAHO
RALPH MILLER

NAD83 (CORS96) NAVD88 GEOID12A
Epoch 2010.00
Geodetic Coordinates

Latitude:	44 55 52.03436 N	
Longitude:	116 09 12.71963 W	
Ellipsoid Height:	1626.6810	Meters
Orthometric Elev:	1641.611	Meters
Orthometric Elev:	5385.852	Feet

State Plane Coordinates
Zone 1103, Idaho West

3.280833 meter to feet

Northing:	362731.254	Meters
Easting	768146.706	Meters
Northing:	*1190060.789*	Feet
Easting	*2520161.318*	Feet

McCall Modified Coordinates

Northing:	362731.260	Meters
Easting	768145.248	Meters
Northing:	*1190060.807*	*Feet*
Easting	*2520156.535*	*Feet*

STATE PLANE

Scale Factor:	0.99994581
Elevation Factor:	
Combined Factor:	0.99969084

Survey Method

2 hr 33 Min Occupation May 23, 2016

Location Description

Club Hill is a 5/8" rebar with a red plastic cap mkd. 'CONTROL" 33 feet southeast of North Club Hill Blvd., 0.15 miles northeast of Highway 55, on the south end of an elevated bench.

Monument Photos:

Close up of point

Point from south

Point from north

Reference location Photo

NGS OPUS SOLUTION REPORT

All computed coordinate accuracies are listed as peak-to-peak values.
For additional information: http://www.ngs.noaa.gov/OPUS/about.jsp#accuracy

```
      USER: rmsecesh@citlink.net                    DATE: May 25, 2016
RINEX FILE: club144s.16o                            TIME: 16:26:33 UTC


  SOFTWARE: page5  1209.04 master53.pl 160321      START: 2016/05/23  18:18:00
 EPHEMERIS: igr18981.eph [rapid]                    STOP: 2016/05/23  20:51:00
  NAV FILE: brdc1440.16n                        OBS USED:  5903 /  6250   :  94%
  ANT NAME: TPSHIPER_PLUS   NONE             # FIXED AMB:    39 /    42   :  93%
ARP HEIGHT: 1.5983                           OVERALL RMS: 0.011(m)


 REF FRAME: NAD_83(2011)(EPOCH:2010.0000)              IGS08 (EPOCH:2016.3929)

         X:     -1994146.770(m)   0.008(m)          -1994147.662(m)   0.008(m)
         Y:     -4060951.733(m)   0.010(m)          -4060950.508(m)   0.010(m)
         Z:      4483081.364(m)   0.013(m)           4483081.333(m)   0.013(m)

       LAT:   44 55 52.03436      0.006(m)        44 55 52.04981      0.006(m)
     E LON:  243 50 47.28037      0.004(m)       243 50 47.21925      0.004(m)
     W LON:  116  9 12.71963      0.004(m)       116  9 12.78075      0.004(m)
    EL HGT:         1626.681(m)   0.017(m)              1626.159(m)   0.017(m)
 ORTHO HGT:         1641.611(m)   0.031(m) [NAVD88 (Computed using GEOID12B)]

                        UTM COORDINATES    STATE PLANE COORDINATES
                         UTM (Zone 11)         SPC (1103 ID W)
Northing (Y) [meters]     4975647.303           362731.254
Easting (X)  [meters]      566794.424           768146.706
Convergence  [degrees]     0.59784443          -0.28500023
Point Scale                0.99965486           0.99994581
Combined Factor            0.99939997           0.99969084

US NATIONAL GRID DESIGNATOR: 11TNK6679475647(NAD 83)
```

BASE STATIONS USED

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
DG8521	IDNP GRANGEVILLE APT CORS ARP	N455622.936	W1160716.529	112146.2
DP8364	P394 BAKERCITY_OR2007 CORS ARP	N445005.554	W1174758.639	130515.7
DL7743	P372 ENTERPRISEOR2007 CORS ARP	N452541.277	W1171505.910	102493.6

NEAREST NGS PUBLISHED CONTROL POINT

QB0054	J 137	N445544.	W1160842.	717.8

BASE STATION INFORMATION

```
 STATION NAME: idnp  a    1 (GRANGEVILLE APT; Grangeville, Idaho, U.S.A.)
  MONUMENT: NO DOMES NUMBER
 XYZ  -1956496.9899  -3989956.7983   4561306.0534  MON @ 2005.0000 (M)
 XYZ        -0.0154         0.0000        -0.0065  VEL (M/YR)
 NEU         0.0000         0.0000         0.0000  MON TO ARP (M)
 NEU         0.0006         0.0004         0.0555  ARP TO L1 PHASE CENTER (M)
 NEU         0.0003         0.0005         0.0579  ARP TO L2 PHASE CENTER (M)
```

```
XYZ         -0.1756          0.0000         -0.0745  VEL TIMES 11.3919 YRS
XYZ          0.0000          0.0000          0.0000  MON TO ARP
XYZ         -0.0164         -0.0344          0.0402  ARP TO L1 PHASE CENTER
XYZ  -1956497.1819  -3989956.8327   4561306.0191  L1 PHS CEN @ 2016.3929
XYZ         -0.0000          0.0000          0.0000  + XYZ ADJUSTMENTS
XYZ  -1956497.1819  -3989956.8327   4561306.0191  NEW L1 PHS CEN @ 2016.3929
XYZ  -1956497.1654  -3989956.7982   4561305.9788  NEW ARP @ 2016.3929
XYZ  -1956497.1654  -3989956.7982   4561305.9788  NEW MON @ 2016.3929
LLH  45 56 22.95219  243 52 43.40784    996.6401  NEW L1 PHS CEN @ 2016.3929
LLH  45 56 22.95217  243 52 43.40783    996.5847  NEW ARP @ 2016.3929
LLH  45 56 22.95217  243 52 43.40783    996.5847  NEW MON @ 2016.3929

STATION NAME: p394  a    1 (BakerCity_OR2007; Baker City, OR  USA)
 MONUMENT: NO DOMES NUMBER
XYZ  -2113295.6583  -4008283.3588   4475067.1718  MON @ 2005.0000 (M)
XYZ         -0.0156          0.0007         -0.0067  VEL (M/YR)
NEU         -0.0000          0.0000          0.0083  MON TO ARP (M)
NEU          0.0012          0.0008          0.0860  ARP TO L1 PHASE CENTER (M)
NEU          0.0006         -0.0006          0.1183  ARP TO L2 PHASE CENTER (M)
XYZ         -0.1777          0.0080         -0.0763  VEL TIMES 11.3919 YRS
XYZ         -0.0027         -0.0052          0.0059  MON TO ARP
XYZ         -0.0274         -0.0536          0.0615  ARP TO L1 PHASE CENTER
XYZ  -2113295.8661  -4008283.4096   4475067.1628  L1 PHS CEN @ 2016.3929
XYZ          0.0000         -0.0000          0.0000  + XYZ ADJUSTMENTS
XYZ  -2113295.8661  -4008283.4096   4475067.1628  NEW L1 PHS CEN @ 2016.3929
XYZ  -2113295.8387  -4008283.3560   4475067.1014  NEW ARP @ 2016.3929
XYZ  -2113295.8359  -4008283.3508   4475067.0955  NEW MON @ 2016.3929
LLH  44 50  5.56947  242 12  1.29801   1010.7954  NEW L1 PHS CEN @ 2016.3929
LLH  44 50  5.56943  242 12  1.29797   1010.7094  NEW ARP @ 2016.3929
LLH  44 50  5.56943  242 12  1.29797   1010.7011  NEW MON @ 2016.3929

STATION NAME: p372  a    1 (EnterpriseOR2007; Enterprise, OR  USA)
 MONUMENT: NO DOMES NUMBER
XYZ  -2053527.9300  -3986887.5770   4521728.3632  MON @ 2005.0000 (M)
XYZ         -0.0146         -0.0002         -0.0067  VEL (M/YR)
NEU         -0.0000          0.0000          0.0083  MON TO ARP (M)
NEU          0.0012          0.0008          0.0860  ARP TO L1 PHASE CENTER (M)
NEU          0.0006         -0.0006          0.1183  ARP TO L2 PHASE CENTER (M)
XYZ         -0.1663         -0.0023         -0.0763  VEL TIMES 11.3919 YRS
XYZ         -0.0027         -0.0052          0.0059  MON TO ARP
XYZ         -0.0266         -0.0533          0.0621  ARP TO L1 PHASE CENTER
XYZ  -2053528.1256  -3986887.6377   4521728.3549  L1 PHS CEN @ 2016.3929
XYZ          0.0000          0.0000          0.0000  + XYZ ADJUSTMENTS
XYZ  -2053528.1256  -3986887.6377   4521728.3549  NEW L1 PHS CEN @ 2016.3929
XYZ  -2053528.0990  -3986887.5844   4521728.2928  NEW ARP @ 2016.3929
XYZ  -2053528.0963  -3986887.5793   4521728.2869  NEW MON @ 2016.3929
LLH  45 25 41.29276  242 44 54.02766   1208.4047  NEW L1 PHS CEN @ 2016.3929
LLH  45 25 41.29272  242 44 54.02762   1208.3188  NEW ARP @ 2016.3929
LLH  45 25 41.29272  242 44 54.02762   1208.3105  NEW MON @ 2016.3929
```

REMOTE STATION INFORMATION

```
STATION NAME: club       1
 MONUMENT: NO DOMES NUMBER
XYZ  -1994147.7669  -4060950.5899   4483081.4413  MON @ 2016.3928 (M)
NEU          0.0002         -0.0012          1.5983  MON TO ARP (M)
NEU         -0.0002          0.0012          0.0877  ARP TO L1 PHASE CENTER (M)
NEU         -0.0008          0.0001          0.0895  ARP TO L2 PHASE CENTER (M)
XYZ         -0.4998         -1.0150          1.1290  MON TO ARP
XYZ         -0.0263         -0.0564          0.0618  ARP TO L1 PHASE CENTER
XYZ  -1994148.2931  -4060951.6614   4483082.6321  L1 PHS CEN @ 2016.3929

BASELINE NAME:   idnp  club
```

```
 XYZ         0.1048         0.0779        -0.1102  + XYZ ADJUSTMENTS
 XYZ  -1994148.1883  -4060951.5835   4483082.5219  NEW L1 PHS CEN @ 2016.3929
 XYZ  -1994148.1619  -4060951.5270   4483082.4601  NEW ARP @ 2016.3929
 XYZ  -1994147.6621  -4060950.5120   4483081.3311  NEW MON @ 2016.3929
 LLH  44 55 52.04968  243 50 47.21932   1627.8463  NEW L1 PHS CEN @ 2016.3929
 LLH  44 55 52.04969  243 50 47.21927   1627.7586  NEW ARP @ 2016.3929
 LLH  44 55 52.04968  243 50 47.21932   1626.1602  NEW MON @ 2016.3929

 BASELINE NAME:   p394  club
 XYZ         0.1014         0.0795        -0.1013  + XYZ ADJUSTMENTS
 XYZ  -1994148.1917  -4060951.5819   4483082.5308  NEW L1 PHS CEN @ 2016.3929
 XYZ  -1994148.1653  -4060951.5255   4483082.4690  NEW ARP @ 2016.3929
 XYZ  -1994147.6655  -4060950.5104   4483081.3400  NEW MON @ 2016.3929
 LLH  44 55 52.04988  243 50 47.21915   1627.8527  NEW L1 PHS CEN @ 2016.3929
 LLH  44 55 52.04989  243 50 47.21910   1627.7649  NEW ARP @ 2016.3929
 LLH  44 55 52.04988  243 50 47.21915   1626.1666  NEW MON @ 2016.3929

 BASELINE NAME:   p372  club
 XYZ         0.1096         0.0878        -0.1139  + XYZ ADJUSTMENTS
 XYZ  -1994148.1834  -4060951.5736   4483082.5182  NEW L1 PHS CEN @ 2016.3929
 XYZ  -1994148.1571  -4060951.5172   4483082.4564  NEW ARP @ 2016.3929
 XYZ  -1994147.6573  -4060950.5021   4483081.3274  NEW MON @ 2016.3929
 LLH  44 55 52.04985  243 50 47.21932   1627.8359  NEW L1 PHS CEN @ 2016.3929
 LLH  44 55 52.04986  243 50 47.21927   1627.7482  NEW ARP @ 2016.3929
 LLH  44 55 52.04985  243 50 47.21932   1626.1498  NEW MON @ 2016.3929
```

G-FILES

```
Axx2016 523  16 523
B2016 5231817  16 5232051 1 page5 v1209.04IGS     126 1 2 27NGS   2016 525IFDDPX
IIGS08_1888          IGS   20160313
C00090003  376504967   13  709937138   26  782246477   24 X1446ACLUBX1446AIDNP
D  1  2  9446688  1  3 -7731611  2  3 -8316785

Axx2016 523  16 523
B2016 5231817  16 5232051 1 page5 v1209.04IGS     126 1 2 27NGS   2016 525IFDDPX
IIGS08_1888          IGS   20160313
C00090001-1191481704   11  526671596   19  -80142445   20 X1446ACLUBX1446AP394
D  1  2  7373822  1  3 -7602343  2  3 -9388846

Axx2016 523  16 523
B2016 5231817  16 5232051 1 page5 v1209.04IGS     126 1 2 27NGS   2016 525IFDDPX
IIGS08_1888          IGS   20160313
C00090002 -593804390   10  740629229   21  386469595   21 X1446ACLUBX1446AP372
D  1  2  7682656  1  3 -8873840  2  3 -8874551
```

POST-FIT RMS BY SATELLITE VS. BASELINE

```
            OVERALL     01     05     07     08     09     11     13     15
 idnp-club|  0.011  0.021  0.024  0.009  0.010  0.013  0.016  0.008  0.016
               17     19     23     27     28     30
 idnp-club|  0.009  0.014    ...  0.016  0.007    ...

            OVERALL     01     05     07     08     09     11     13     15
 p394-club|  0.011  0.022  0.022  0.007  0.011  0.011  0.017  0.009  0.017
               17     19     23     27     28     30
 p394-club|  0.012  0.011    ...  0.018  0.007    ...

            OVERALL     01     05     07     08     09     11     13     15
 p372-club|  0.010  0.020  0.022  0.008  0.011  0.008  0.017  0.008  0.013
               17     19     23     27     28     30
 p372-club|  0.009  0.009    ...  0.017  0.006    ...
```

OPUS solution Club_Hill OP1464193539077.txt
OBS BY SATELLITE VS. BASELINE

	OVERALL	01	05	07	08	09	11	13	15
idnp-club|	1965	65	59	305	219	119	205	268	104
	17	19	23	27	28	30			
idnp-club|	179	54	...	83	305	...			
	OVERALL	01	05	07	08	09	11	13	15
p394-club|	1990	77	59	305	219	120	217	268	104
	17	19	23	27	28	30			
p394-club|	179	54	...	83	305	...			
	OVERALL	01	05	07	08	09	11	13	15
p372-club|	1948	59	59	305	219	120	217	268	104
	17	19	23	27	28	30			
p372-club|	179	54	...	59	305	...			

Covariance Matrix for the xyz OPUS Position (meters^2).

0.0000008667	0.0000001411	-0.0000001322
0.0000001411	0.0000032844	-0.0000002816
-0.0000001322	-0.0000002816	0.0000031489

Covariance Matrix for the enu OPUS Position (meters^2).

0.0000012248	-0.0000006087	0.0000006221
-0.0000006087	0.0000027276	0.0000001141
0.0000006221	0.0000001141	0.0000033476

Horizontal network accuracy = 0.00356 meters.
Vertical network accuracy = 0.00359 meters.

Derivation of NAD 83 vector components

Position of reference station ARP in NAD_83(2011)(EPOCH:2010.0000).

	Xa(m)	Ya(m)	Za(m)	
IDNP	-1956496.26611	-3989958.01493	4561306.00085	2010.00
P394	-2113294.93938	-4008284.58017	4475067.12665	2010.00
P372	-2053527.20484	-3986888.79980	4521728.31523	2010.00

Position of reference station monument in NAD_83(2011)(EPOCH:2010.0000).

	Xr(m)	Yr(m)	Zr(m)	
IDNP	-1956496.26611	-3989958.01493	4561306.00085	2010.00
P394	-2113294.93668	-4008284.57497	4475067.12075	2010.00
P372	-2053527.20214	-3986888.79460	4521728.30933	2010.00

Velocity of reference station monument in NAD_83(2011)(EPOCH:2010.0000).

	Vx (m/yr)	Vy (m/yr)	Vz (m/yr)
IDNP	-0.01540	0.00000	-0.00650
P394	0.00280	0.00140	0.00060
P372	-0.01460	-0.00020	-0.00670

Vectors from unknown station monument to reference station monument
in NAD_83(2011)(EPOCH:2010.0000).

	Xr-X= DX(m)	Yr-Y= DY(m)	Zr-Z= DZ(m)	
IDNP	37650.50389	70993.71807	78224.63685	2010.00
P394	-119148.16668	52667.15803	-8014.24325	2010.00
P372	-59380.43214	74062.93840	38646.94533	2010.00

STATE PLANE COORDINATES - U.S. Survey Foot
SPC (1103 ID W)

Northing (Y) [feet]	1190060.789
Easting (X) [feet]	2520161.318
Convergence [degrees]	-0.28500023

Point Scale 0.99994581
Combined Factor 0.99969084

********** New Reference Frame Preview **********

We are replacing the nation’s NAD 83 and NAVD 88 datums, to improve access and accuracy of the National Spatial Reference System. More at http://geodesy.noaa.gov/datums/newdatums/

Below are approximate coordinates for this solution in the new frames:

APPROX ORTHO HGT: 1640.568 (m) [PROTOTYPE (Computed using USGG2012,GRS80,IGS08)]

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.

Point Description Sheet

McCall Control Point - DOL2

Survey Type - GPS Base Station

Prepared By:

City of McCall

Point Approved By:

Russell Surveying, Inc.

PLS: John Russell, ID PLS # 6021

Prepared By: J.Russell RSI June 2014

Place Seal Here

NAD83 (CORS96) NAVD88 GEOID03

Epoch 2002.00

Geodetic Coordinates

Latitude:	44° 56' 20.74991"	
Longitude:	116° 02' 43.01066"	
Ellipsoid Height:	5180.142	Feet
Orthometric Elev:	1593.652	Meters
Orthometric Elev:	5228.505	Feet

State Plane Coordinates

Zone 1103, Idaho West

3.280833 meter to feet

Northing:	363580.87	Meters
Easting	776695.03	Meters
Northing:	1192848.1	*Feet*
Easting	2548206.7	*Feet*

McCall Modified Coordinates

Northing:	3913538.239	Meters
Easting	8360252.671	Meters
Northing:	1192848.962	Feet
Easting	2548210.369	Feet

Scale Factor:	0.999940009
Elevation Factor:	0.99975228
Combined Factor:	0.999692305

Survey Method

3 min. occ 8/30/07 from DOL1 & 6.25 hr occ 8/27/10. OPUS corr.

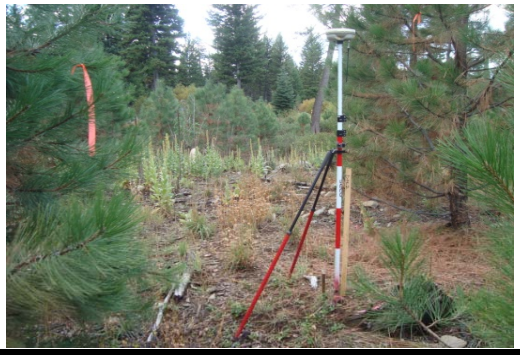
Location Description

1/2"rb with old & new caps mkd PLS6021 0.2 ft. up, ~40 feet west of IDL road and 150 ft. northwest of IDL locked gate in SE 1/4 Sec 35 19N03E. From East Side Drive take Blackwell Lake road 1/2 mi to fork, bear left for 0.1 mi to locked gate. Park at gate and walk in.

Monument Photos:

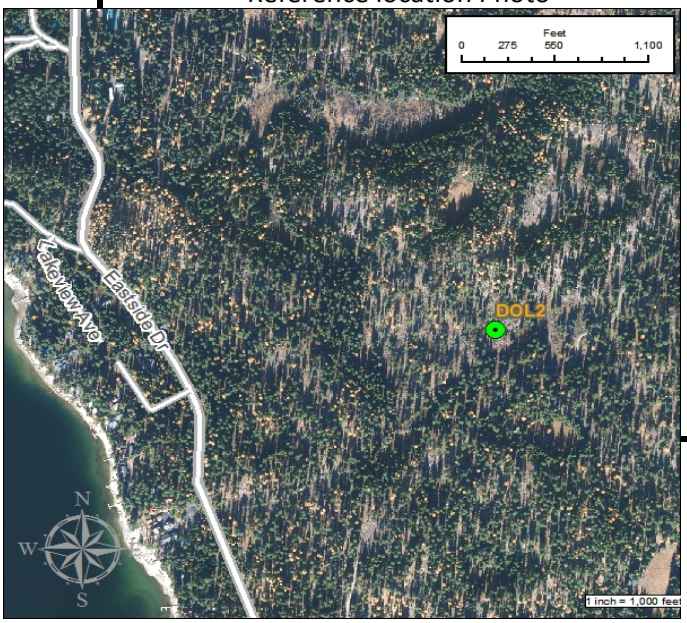
Close up of point

Picture of Equipment set up on point



Reference location Photo

Reference location Photo



Point Description Sheet

McCall Control Point - E 187 Reset

Survey Type GPS BASE STATION

Prepared By: Garrett Mapp

City of McCall

Point Approved By:

Orbitech, Inc.

PLS: Shelby Griggs

NAD83 (CORS96) NAVD88 GEOID03
Epoch 2002.00
Geodetic Coordinates

Latitude:	44° 53' 45.79873 "	
Longitude:	116° 06' 09.19596 "	
Ellipsoid Height:	4971.180	Feet
Orthometric Elev:	1530.133	Meters
Orthometric Elev:	5020.110	Feet
Geoid Height:	48.930	Feet

State Plane Coordinates
Zone 1103, Idaho West

3.280833 meter to feet

Northing Meters:	358815.971
Easting Meters:	772153.919
Northing Feet:	1177215.280
Easting Feet:	2533308.060

McCall Modified Coordinates

Northing Meters:	358814.7946
Easting Meters:	772153.6717
Northing Feet:	1177211.419
Easting Feet:	2533307.247

Factors

Scale Factor:	0.9999429
Elevation Factor:	0.9997625
Combined Factor:	0.9997054

Survey Method

Location Description and Monument Photos ------->

Location Description

Found 3 1/2" diameter NGS brass disk set in concrete post, at McCall, ID Airport.
This point is in the NGS database with a PID = QB1408. See NGS data sheet for a detailed description.

Monument Photos:

Close up of point

Picture of Equipment set up on point

Reference location Photo

Reference location Photo

FILE: E1873210.09o 000022365

NGS OPUS SOLUTION REPORT
==========

All computed coordinate accuracies are listed as peak-to-peak values.
For additional information: http://www.ngs.noaa.gov/OPUS/about.html#accuracy

USER: sgriggs@orbitechinc.com DATE: November 30, 2009
RINEX FILE: e187321t.09o TIME: 04:33:13 UTC

SOFTWARE: page5 0909.08 master40.pl 081023 START: 2009/11/17 19:28:00
EPHEMERIS: igr15582.eph [rapid] STOP: 2009/11/18 01:14:00
NAV FILE: brdc3210.09n OBS USED: 10371 / 10610 : 98%
ANT NAME: LEIAX1202GG NONE # FIXED AMB: 61 / 63 : 97%
ARP HEIGHT: 1.56450 OVERALL RMS: 0.009(m)

REF FRAME: NAD_83(CORS96)(EPOCH:2002.0000) ITRF00 (EPOCH:2009.8793)

X:	-1991708.843(m)	0.011(m)	-1991709.617(m)	0.011(m)
Y:	-4065124.834(m)	0.009(m)	-4065123.612(m)	0.009(m)
Z:	4480242.353(m)	0.015(m)	4480242.348(m)	0.015(m)

LAT:	44 53 45.79873	0.015(m)	44 53 45.81592	0.015(m)
E LON:	243 53 50.80411	0.013(m)	243 53 50.74794	0.013(m)
W LON:	116 6 9.19589	0.013(m)	116 6 9.25206	0.013(m)
EL HGT:	1515.207(m)	0.007(m)	1514.668(m)	0.007(m)
ORTHO HGT:	1530.156(m)	0.079(m)	[NAVD88 (Computed using GEOID09)]	

	UTM COORDINATES (UTM (Zone 11))	STATE PLANE COORDINATES (SPC (1103 ID W))
Northing (Y) [meters]	4971795.272	358815.934
Easting (X) [meters]	570860.228	772153.841
Convergence [degrees]	0.63346382	-0.24884254
Point Scale	0.99966174	0.99994286
Combined Factor	0.99942431	0.99970537

US NATIONAL GRID DESIGNATOR: 11TNK7086071795(NAD 83)

BASE STATIONS USED

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
AJ3346	IDTD IDAHO DOT CORS ARP	N433910.573	W1161700.213	138908.9
DG8521	IDNP GRANGEVILLE APT CORS ARP	N455622.935	W1160716.530	116022.8
DK6947	IDSN SALMON CORS ARP	N451131.444	W1135348.907	176886.4

NEAREST NGS PUBLISHED CONTROL POINT

QB1408	E 187 RESET	N445345.799	W1160609.196	0.0

BASE STATION INFORMATION

STATION NAME: idtd a 3 (Idaho DOT; Boise, Idaho USA)
WARNING: ORIGINALLY "ASH700936E "

XYZ	-2047006.7967	-4144825.3020	4380816.5163	MON @ 1997.0000 (M)
XYZ	-0.0182	-0.0010	-0.0085	VEL (M/YR)
NEU	0.0000	0.0000	0.0000	MON TO ARP (M)
NEU	0.0014	-0.0010	0.1089	ARP TO L1 PHASE CENTER (M)
NEU	0.0010	0.0005	0.1274	ARP TO L2 PHASE CENTER (M)
XYZ	-0.2344	-0.0129	-0.1095	VEL TIMES 12.8790 YRS
XYZ	0.0000	0.0000	0.0000	MON TO ARP
XYZ	-0.0354	-0.0693	0.0762	ARP TO L1 PHASE CENTER
XYZ	-2047007.0665	-4144825.3842	4380816.4830	L1 PHS CEN @ 2009.8793
XYZ	-0.0000	0.0000	-0.0000	+ XYZ ADJUSTMENTS
XYZ	-2047007.0665	-4144825.3842	4380816.4830	NEW L1 PHS CEN @ 2009.8793
XYZ	-2047007.0311	-4144825.3149	4380816.4068	NEW ARP @ 2009.8793
XYZ	-2047007.0311	-4144825.3149	4380816.4068	NEW MON @ 2009.8793
LLH	43 39 10.59023	243 42 59.73038	788.7540	NEW L1 PHS CEN @ 2009.8793
LLH	43 39 10.59019	243 42 59.73043	788.6451	NEW ARP @ 2009.8793
LLH	43 39 10.59019	243 42 59.73043	788.6451	NEW MON @ 2009.8793

STATION NAME: idnp a 2 (GRANGEVILLE APT; Grangeville, Idaho, U.S.A.)
MONUMENT: NO DOMES NUMBER

XYZ	-1956496.8409	-3989956.8142	4561306.1097	MON @ 1997.0000 (M)
XYZ	-0.0200	-0.0003	-0.0080	VEL (M/YR)
NEU	0.0000	0.0000	0.0000	MON TO ARP (M)
NEU	0.0003	0.0006	0.0715	ARP TO L1 PHASE CENTER (M)
NEU	-0.0004	-0.0002	0.0674	ARP TO L2 PHASE CENTER (M)
XYZ	-0.2576	-0.0039	-0.1030	VEL TIMES 12.8790 YRS

XYZ 0.0000 0.0000 0.0000 MON TO ARP
XYZ -0.0213 -0.0447 0.0516 ARP TO L1 PHASE CENTER
XYZ -1956497.1197 -3989956.8628 4561306.0583 L1 PHS CEN @ 2009.8793
XYZ 0.0000 -0.0000 -0.0000 + XYZ ADJUSTMENTS
XYZ -1956497.1197 -3989956.8628 4561306.0583 NEW L1 PHS CEN @ 2009.8793
XYZ -1956497.0985 -3989956.8181 4561306.0067 NEW ARP @ 2009.8793
XYZ -1956497.0985 -3989956.8181 4561306.0067 NEW MON @ 2009.8793
LLH 45 56 22.95308 243 52 43.41105 996.6680 NEW L1 PHS CEN @ 2009.8793
LLH 45 56 22.95307 243 52 43.41102 996.5965 NEW ARP @ 2009.8793
LLH 45 56 22.95307 243 52 43.41102 996.5965 NEW MON @ 2009.8793

STATION NAME: idsn a 2 (Salmon; Salmon, Idaho USA)
MONUMENT: NO DOMES NUMBER
XYZ -1824256.3085 -4117263.5711 4503257.3828 MON @ 1997.0000 (M)
XYZ -0.0157 -0.0005 -0.0079 VEL (M/YR)
NEU 0.0000 0.0000 0.0000 MON TO ARP (M)
NEU 0.0012 0.0008 0.0847 ARP TO L1 PHASE CENTER (M)
NEU -0.0002 0.0009 0.0740 ARP TO L2 PHASE CENTER (M)
XYZ -0.2022 -0.0064 -0.1017 VEL TIMES 12.8790 YRS
XYZ 0.0000 0.0000 0.0000 MON TO ARP
XYZ -0.0231 -0.0541 0.0609 ARP TO L1 PHASE CENTER
XYZ -1824256.5338 -4117263.6317 4503257.3420 L1 PHS CEN @ 2009.8793
XYZ -0.0000 -0.0000 -0.0000 + XYZ ADJUSTMENTS
XYZ -1824256.5338 -4117263.6317 4503257.3420 NEW L1 PHS CEN @ 2009.8793
XYZ -1824256.5107 -4117263.5776 4503257.2810 NEW ARP @ 2009.8793
XYZ -1824256.5107 -4117263.5776 4503257.2810 NEW MON @ 2009.8793
LLH 45 11 31.46315 246 6 11.03712 1184.6981 NEW L1 PHS CEN @ 2009.8793
LLH 45 11 31.46311 246 6 11.03708 1184.6134 NEW ARP @ 2009.8793
LLH 45 11 31.46311 246 6 11.03708 1184.6134 NEW MON @ 2009.8793

REMOTE STATION INFORMATION

STATION NAME: e187 1
MONUMENT: NO DOMES NUMBER
XYZ -1991707.5933 -4065121.0300 4480241.2907 MON @ 2009.8789 (M)
NEU -0.0012 -0.0008 1.5645 MON TO ARP (M)
NEU 0.0012 0.0008 0.0847 ARP TO L1 PHASE CENTER (M)
NEU -0.0002 0.0009 0.0740 ARP TO L2 PHASE CENTER (M)
XYZ -0.4887 -0.9956 1.1034 MON TO ARP
XYZ -0.0253 -0.0535 0.0606 ARP TO L1 PHASE CENTER
XYZ -1991708.1073 -4065122.0791 4480242.4547 L1 PHS CEN @ 2009.8793

BASELINE NAME: idtd e187
XYZ -2.0182 -2.5869 1.0508 + XYZ ADJUSTMENTS
XYZ -1991710.1255 -4065124.6661 4480243.5055 NEW L1 PHS CEN @ 2009.8793
XYZ -1991710.1002 -4065124.6126 4480243.4449 NEW ARP @ 2009.8793
XYZ -1991709.6115 -4065123.6169 4480242.3415 NEW MON @ 2009.8793
LLH 44 53 45.81572 243 53 50.74827 1516.3136 NEW L1 PHS CEN @ 2009.8793
LLH 44 53 45.81568 243 53 50.74823 1516.2289 NEW ARP @ 2009.8793
LLH 44 53 45.81572 243 53 50.74827 1514.6644 NEW MON @ 2009.8793

BASELINE NAME: idnp e187
XYZ -2.0294 -2.5798 1.0547 + XYZ ADJUSTMENTS
XYZ -1991710.1367 -4065124.6589 4480243.5095 NEW L1 PHS CEN @ 2009.8793
XYZ -1991710.1114 -4065124.6055 4480243.4488 NEW ARP @ 2009.8793
XYZ -1991709.6227 -4065123.6098 4480242.3454 NEW MON @ 2009.8793
LLH 44 53 45.81585 243 53 50.74767 1516.3153 NEW L1 PHS CEN @ 2009.8793
LLH 44 53 45.81581 243 53 50.74763 1516.2306 NEW ARP @ 2009.8793
LLH 44 53 45.81585 243 53 50.74767 1514.6661 NEW MON @ 2009.8793

BASELINE NAME: idsn e187
XYZ -2.0228 -2.5781 1.0661 + XYZ ADJUSTMENTS
XYZ -1991710.1301 -4065124.6572 4480243.5209 NEW L1 PHS CEN @ 2009.8793
XYZ -1991710.1048 -4065124.6038 4480243.4602 NEW ARP @ 2009.8793
XYZ -1991709.6161 -4065123.6081 4480242.3568 NEW MON @ 2009.8793
LLH 44 53 45.81621 243 53 50.74791 1516.3202 NEW L1 PHS CEN @ 2009.8793
LLH 44 53 45.81617 243 53 50.74787 1516.2355 NEW ARP @ 2009.8793
LLH 44 53 45.81621 243 53 50.74791 1514.6710 NEW MON @ 2009.8793

G-FILES

Axx20091117 91118
B200911171928 91118 113 1 page5 v0909.08IGS 226 1 2 27NGS 20091129IFDDFX
Iant_info.003 NGS 20091120
C00090001 -552974196 15 -797016979 25 -994259347 27 X3219AE187X3219AIDTD
D 1 2 9212214 1 3 3703985 2 3 2022203

Axx20091117 91118
B200911171928 91118 113 1 page5 v0909.08IGS 226 1 2 27NGS 20091129IFDDFX
Iant_info.003 NGS 20091120
C00090002 352125243 13 751667917 27 810636613 32 X3219AE187X3219AIDNP
D 1 2 9123988 1 3 2720792 2 3 2804718

Axx20091117 91118

B200911171928 91118 113 1 page5 v0909.08IGS 226 1 2 27NGS 20091129IFDDFX
Iant_info.003 NGS 20091120
C00090003 1674531054 29 -521399695 25 230149242 24 X3219AE187X3219AIDSN
D 1 2 -398825 1 3 -657718 2 3 -9040274

POST-FIT RMS BY SATELLITE VS. BASELINE

OVERALL 01 02 03 04 05 06 09 10
idtd-e187| 0.009 ... 0.007 0.020 0.011 0.008 0.016 0.014 0.008
15 16 17 18 21 22 24 26 27
idtd-e187| 0.008 0.011 0.014 0.008 0.006 0.013 ... ... 0.014
29 30 31
idtd-e187| 0.007 0.008 ...

OVERALL 02 03 04 05 06 09 10 15
idnp-e187| 0.009 0.011 0.020 0.010 0.009 0.015 0.013 0.009 0.010
16 17 18 21 22 27 29 30 31
idnp-e187| 0.011 0.018 0.008 0.007 0.011 0.014 0.009 0.008 ...

OVERALL 02 03 04 05 06 09 10 15
idsn-e187| 0.010 0.010 ... 0.009 0.010 0.020 0.013 0.010 0.011
16 17 18 21 22 27 29 30 31
idsn-e187| 0.017 0.011 0.010 0.007 0.015 0.014 0.011 0.007 ...

OBS BY SATELLITE VS. BASELINE

OVERALL 01 02 03 04 05 06 09 10
idtd-e187| 3465 ... 371 23 215 503 75 86 465
15 16 17 18 21 22 24 26 27
idtd-e187| 263 273 27 260 379 99 68
29 30 31
idtd-e187| 142 216 ...
OVERALL 02 03 04 05 06 09 10 15
idnp-e187| 3503 144 23 227 512 75 91 474 261
16 17 18 21 22 27 29 30 31
idnp-e187| 274 28 252 382 93 71 151 445 ...
OVERALL 02 03 04 05 06 09 10 15
idsn-e187| 3403 143 ... 223 505 74 70 461 261
16 17 18 21 22 27 29 30 31
idsn-e187| 261 20 258 379 100 64 149 435 ...

Covariance Matrix for the xyz OPUS Position (meters^2).

0.0000027444	0.0000001415	0.0000000483
0.0000001415	0.0000043978	-0.0000000364
0.0000000483	-0.0000000364	0.0000051756

Covariance Matrix for the enu OPUS Position (meters^2).

0.0000029527	-0.0000003563	0.0000004444
-0.0000003563	0.0000046763	0.0000004931
0.0000004444	0.0000004931	0.0000046888

Horizontal network accuracy = 0.00481 meters.
Vertical network accuracy = 0.00425 meters.

Derivation of NAD 83 vector components

Position of reference station ARP in NAD_83(CORS96)(EPOCH:2002.0000).

	Xa(m)	Ya(m)	Za(m)	
IDTD	-2047006.23575	-4144826.54045	4380816.42482	2002.00
IDNP	-1956496.28541	-3989958.03130	4561306.00350	2002.00
IDSN	-1824255.73684	-4117264.80371	4503257.29700	2002.00

Position of reference station monument in NAD_83(CORS96)(EPOCH:2002.0000).

	Xr(m)	Yr(m)	Zr(m)	
IDTD	-2047006.23575	-4144826.54045	4380816.42482	2002.00
IDNP	-1956496.28541	-3989958.03130	4561306.00350	2002.00
IDSN	-1824255.73684	-4117264.80371	4503257.29700	2002.00

Velocity of reference station monument in NAD_83(CORS96)(EPOCH:2002.0000).

	Vx (m/yr)	Vy (m/yr)	Vz (m/yr)
IDTD	-0.00000	-0.00000	0.00000
IDNP	-0.00120	0.00070	0.00010
IDSN	0.00290	0.00060	-0.00020

Vectors from unknown station monument to reference station monument
in NAD_83(CORS96)(EPOCH:2002.0000).

	Xr-X= DX(m)	Yr-Y= DY(m)	Zr-Z= DZ(m)	
IDTD	-55297.39275	-79701.70645	-99425.92818	2002.00
IDNP	35212.55759	75166.80270	81063.65050	2002.00
IDSN	167453.10616	-52139.96971	23014.94400	2002.00

STATE PLANE COORDINATES - U.S. Survey Foot

SPC (1103 ID W)

Northing (Y) [feet]	1177215.278
Easting (X) [feet]	2533308.061
Convergence [degrees]	-0.24884254
Point Scale	0.99994286
Combined Factor	0.99970537

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.

Point Description Sheet

McCall Control Point - EAST SIDE DR CP1A

Survey Type - GPS Base Station

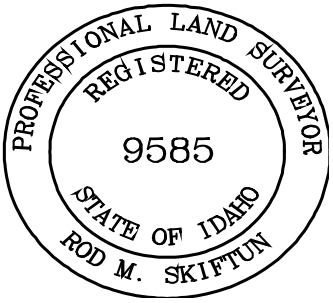
Prepared By:

City of McCall

Point Approved By:

Skiftun Land Surveying, Inc.

Place Seal Here



NAD83 (CORS96) NAVD88 GEOID12A
Epoch 2010.00
Geodetic Coordinates

Latitude:	44° 58' 45.53269 "	
Longitude:	116° 03' 21.92922 "	
Ellipsoid Height:	5117.148	Feet
Orthometric Elev:	1574.378	Meters
Orthometric Elev:	5165.271	Feet

State Plane Coordinates
Zone 1103, Idaho West

3.280833 meter to feet

Northing:	368053.097	Meters
Easting	775858.585	Meters
Northing:	1207520.87	*Feet*
Easting	2545462.707	*Feet*

McCall Modified Coordinates

Northing:	368054.710	Meters
Easting	775859.456	Meters
Northing:	1207526.161	*Feet*
Easting	2545465.565	*Feet*

STATE PLANE

Scale Factor:	0.9999405
Elevation Factor:	
Combined Factor:	0.999698

Survey Method

3 hr 42 Min Occupation July 22, 2013

Location Description

Monument Photos:

Close up of point

Picture of Equipment set up on point

Reference location Photo

Reference location Photo

FILE: EASTSIDECP1A.tps OP1374517906784

NGS OPUS SOLUTION REPORT

All computed coordinate accuracies are listed as peak-to-peak values.
For additional information: http://www.ngs.noaa.gov/OPUS/about.jsp#accuracy

USER: rskiftun@frontiernet.net DATE: July 22, 2013
RINEX FILE: east197t.13o TIME: 18:32:50 UTC

SOFTWARE: page5 1209.04 master53.pl 082112 START: 2013/07/16 19:42:00
EPHEMERIS: igr17492.eph [rapid] STOP: 2013/07/16 23:20:00
NAV FILE: brdc1970.13n OBS USED: 7127 / 7936 : 90%
ANT NAME: TPSGR5 NONE # FIXED AMB: 73 / 86 : 85%
ARP HEIGHT: 1.50 OVERALL RMS: 0.023(m)

REF FRAME:	NAD_83(2011)(EPOCH:2010.0000)		IGS08 (EPOCH:2013.5394)	
X:	-1985554.069(m)	0.021(m)	-1985554.918(m)	0.021(m)
Y:	-4060894.256(m)	0.058(m)	-4060893.031(m)	0.058(m)
Z:	4486825.104(m)	0.028(m)	4486825.092(m)	0.028(m)
LAT:	44 58 45.53269	0.014(m)	44 58 45.54907	0.014(m)
E LON:	243 56 38.07078	0.044(m)	243 56 38.01142	0.044(m)
W LON:	116 3 21.92922	0.044(m)	116 3 21.98858	0.044(m)
EL HGT:	1559.710(m)	0.050(m)	1559.187(m)	0.050(m)
ORTHO HGT:	1574.378(m)	0.085(m)	[NAVD88 (Computed using GEOID12A)]	

	UTM COORDINATES UTM (Zone 11)	STATE PLANE COORDINATES SPC (1103 ID W)
Northing (Y) [meters]	4981085.856	368053.097
Easting (X) [meters]	574421.203	775858.585
Convergence [degrees]	0.66723364	-0.21636223
Point Scale	0.99966810	0.99994050
Combined Factor	0.99942370	0.99969603

US NATIONAL GRID DESIGNATOR: 11TNK7442181085(NAD 83)

BASE STATIONS USED

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
DL7740	P351 GALENA_SU_ID2008 CORS ARP	N435227.874	W1144308.932	162554.0
AJ3346	IDTD IDAHO DOT CORS ARP	N433910.574	W1161700.213	148522.2
DL7743	P372 ENTERPRISEOR2007 CORS ARP	N452541.277	W1171505.910	106373.8

NEAREST NGS PUBLISHED CONTROL POINT Information on nearest mark is not available due to database connectivity issues or has restrictions on when or how it can be published.

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.

Point Description Sheet

McCall Control Point - FAA MYLC

Survey Type - GPS Base Station

Prepared By: Garrett Mapp

City of McCall

Point Approved By:

Orbitech, Inc.

PLS: Shelby Griggs

NAD83 (CORS96) NAVD88 GEOID03
Epoch 2002.00
Geodetic Coordinates

Latitude:	44° 53' 32.67216 "	
Longitude:	116° 06' 08.69952 "	
Ellipsoid Height:	4963.700	Feet
Orthometric Elev:	1527.859	Meters
Orthometric Elev:	5012.650	Feet
Geoid Height:	48.950	Feet

State Plane Coordinates
Zone 1103, Idaho West

3.280833 meter to feet

Northing Meters:	358410.742
Easting Meters:	772163.051
Northing Feet:	1175885.790
Easting Feet:	2533338.020

McCall Modified Coordinates

Northing Meters:	358409.4428
Easting Meters:	772162.8062
Northing Feet:	1175881.528
Easting Feet:	2533337.216

Factors

Scale Factor:	0.9999429
Elevation Factor:	0.9997629
Combined Factor:	0.9997058

Survey Method

Location Description and Monument Photos ------->

Location Description

Found 3 1/2" diameter NGS brass disk set in concrete post, at McCall, ID Airport.
This point is in the NGS database with a PID = AI7605. See NGS data sheet for a detailed description.

Monument Photos:

Close up of point

Picture of Equipment set up on point

Reference location Photo

Reference location Photo

FILE: MYLC3210.09o 000022364

NGS OPUS SOLUTION REPORT
==========

All computed coordinate accuracies are listed as peak-to-peak values.
For additional information: http://www.ngs.noaa.gov/OPUS/about.html#accuracy

USER: sgriggs@orbitechinc.com DATE: November 30, 2009
RINEX FILE: mylc321q.09o TIME: 04:29:58 UTC

SOFTWARE: page5 0909.08 master12.pl 081023 START: 2009/11/17 16:05:00
EPHEMERIS: igr15582.eph [rapid] STOP: 2009/11/17 18:43:00
NAV FILE: brdc3210.09n OBS USED: 4460 / 4497 : 99%
ANT NAME: LEIAX1202GG NONE # FIXED AMB: 21 / 22 : 95%
ARP HEIGHT: 1.637 OVERALL RMS: 0.008(m)

REF FRAME: NAD_83(CORS96)(EPOCH:2002.0000) ITRF00 (EPOCH:2009.8787)

X:	-1991824.183(m)	0.074(m)	-1991824.957(m)	0.074(m)
Y:	-4065385.105(m)	0.157(m)	-4065383.883(m)	0.157(m)
Z:	4479953.641(m)	0.069(m)	4479953.635(m)	0.069(m)

LAT:	44 53 32.67209	0.047(m)	44 53 32.68925	0.047(m)
E LON:	243 53 51.30245	0.127(m)	243 53 51.24629	0.127(m)
W LON:	116 6 8.69755	0.127(m)	116 6 8.75371	0.127(m)
EL HGT:	1512.958(m)	0.145(m)	1512.417(m)	0.145(m)
ORTHO HGT:	1527.912(m)	0.164(m)	[NAVD88 (Computed using GEOID09)]	

	UTM COORDINATES UTM (Zone 11)	STATE PLANE COORDINATES SPC (1103 ID W)
Northing (Y) [meters]	4971390.344	358410.703
Easting (X) [meters]	570875.637	772163.016
Convergence [degrees]	0.63352107	-0.24872894
Point Scale	0.99966177	0.99994286
Combined Factor	0.99942469	0.99970571

US NATIONAL GRID DESIGNATOR: 11TNK7087571390(NAD 83)

BASE STATIONS USED

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
AJ3346	IDTD IDAHO DOT CORS ARP	N433910.573	W1161700.213	138507.0
DG8521	IDNP GRANGEVILLE APT CORS ARP	N455622.935	W1160716.530	116428.1
DK6947	IDSN SALMON CORS ARP	N451131.444	W1135348.907	176956.9

NEAREST NGS PUBLISHED CONTROL POINT

AI7605	FAA MYL C	N445332.672	W1160608.700	0.0

BASE STATION INFORMATION

STATION NAME: idtd a 3 (Idaho DOT; Boise, Idaho USA)
WARNING: ORIGINALLY "ASH700936E "

XYZ	-2047006.7967	-4144825.3020	4380816.5163	MON @ 1997.0000 (M)
XYZ	-0.0182	-0.0010	-0.0085	VEL (M/YR)
NEU	0.0000	0.0000	0.0000	MON TO ARP (M)
NEU	0.0014	-0.0010	0.1089	ARP TO L1 PHASE CENTER (M)
NEU	0.0010	0.0005	0.1274	ARP TO L2 PHASE CENTER (M)
XYZ	-0.2344	-0.0129	-0.1095	VEL TIMES 12.8784 YRS
XYZ	0.0000	0.0000	0.0000	MON TO ARP
XYZ	-0.0354	-0.0693	0.0762	ARP TO L1 PHASE CENTER
XYZ	-2047007.0664	-4144825.3842	4380816.4830	L1 PHS CEN @ 2009.8787
XYZ	-0.0000	-0.0000	-0.0000	+ XYZ ADJUSTMENTS
XYZ	-2047007.0664	-4144825.3842	4380816.4830	NEW L1 PHS CEN @ 2009.8787
XYZ	-2047007.0311	-4144825.3149	4380816.4068	NEW ARP @ 2009.8787
XYZ	-2047007.0311	-4144825.3149	4380816.4068	NEW MON @ 2009.8787
LLH	43 39 10.59023	243 42 59.73038	788.7540	NEW L1 PHS CEN @ 2009.8787
LLH	43 39 10.59019	243 42 59.73043	788.6451	NEW ARP @ 2009.8787
LLH	43 39 10.59019	243 42 59.73043	788.6451	NEW MON @ 2009.8787

STATION NAME: idnp a 2 (GRANGEVILLE APT; Grangeville, Idaho, U.S.A.)
MONUMENT: NO DOMES NUMBER

XYZ	-1956496.8409	-3989956.8142	4561306.1097	MON @ 1997.0000 (M)
XYZ	-0.0200	-0.0003	-0.0080	VEL (M/YR)
NEU	0.0000	0.0000	0.0000	MON TO ARP (M)
NEU	0.0003	0.0006	0.0715	ARP TO L1 PHASE CENTER (M)
NEU	-0.0004	-0.0002	0.0674	ARP TO L2 PHASE CENTER (M)
XYZ	-0.2576	-0.0039	-0.1030	VEL TIMES 12.8784 YRS

XYZ 0.0000 0.0000 0.0000 MON TO ARP
XYZ -0.0213 -0.0447 0.0516 ARP TO L1 PHASE CENTER
XYZ -1956497.1197 -3989956.8628 4561306.0583 L1 PHS CEN @ 2009.8787
XYZ 0.0000 0.0000 0.0000 + XYZ ADJUSTMENTS
XYZ -1956497.1197 -3989956.8628 4561306.0583 NEW L1 PHS CEN @ 2009.8787
XYZ -1956497.0985 -3989956.8181 4561306.0067 NEW ARP @ 2009.8787
XYZ -1956497.0985 -3989956.8181 4561306.0067 NEW MON @ 2009.8787
LLH 45 56 22.95308 243 52 43.41105 996.6680 NEW L1 PHS CEN @ 2009.8787
LLH 45 56 22.95307 243 52 43.41102 996.5965 NEW ARP @ 2009.8787
LLH 45 56 22.95307 243 52 43.41102 996.5965 NEW MON @ 2009.8787

STATION NAME: idsn a 2 (Salmon; Salmon, Idaho USA)
MONUMENT: NO DOMES NUMBER
XYZ -1824256.3085 -4117263.5711 4503257.3828 MON @ 1997.0000 (M)
XYZ -0.0157 -0.0005 -0.0079 VEL (M/YR)
NEU 0.0000 0.0000 0.0000 MON TO ARP (M)
NEU 0.0012 0.0008 0.0847 ARP TO L1 PHASE CENTER (M)
NEU -0.0002 0.0009 0.0740 ARP TO L2 PHASE CENTER (M)
XYZ -0.2022 -0.0064 -0.1017 VEL TIMES 12.8784 YRS
XYZ 0.0000 0.0000 0.0000 MON TO ARP
XYZ -0.0231 -0.0541 0.0609 ARP TO L1 PHASE CENTER
XYZ -1824256.5338 -4117263.6317 4503257.3420 L1 PHS CEN @ 2009.8787
XYZ -0.0000 -0.0000 -0.0000 + XYZ ADJUSTMENTS
XYZ -1824256.5338 -4117263.6317 4503257.3420 NEW L1 PHS CEN @ 2009.8787
XYZ -1824256.5107 -4117263.5775 4503257.2811 NEW ARP @ 2009.8787
XYZ -1824256.5107 -4117263.5775 4503257.2811 NEW MON @ 2009.8787
LLH 45 11 31.46315 246 6 11.03712 1184.6981 NEW L1 PHS CEN @ 2009.8787
LLH 45 11 31.46311 246 6 11.03708 1184.6134 NEW ARP @ 2009.8787
LLH 45 11 31.46311 246 6 11.03708 1184.6134 NEW MON @ 2009.8787

REMOTE STATION INFORMATION

STATION NAME: mylc 1
MONUMENT: NO DOMES NUMBER
XYZ -1991825.5090 -4065384.6800 4479954.4199 MON @ 2009.8785 (M)
NEU -0.0012 -0.0008 1.6370 MON TO ARP (M)
NEU 0.0012 0.0008 0.0847 ARP TO L1 PHASE CENTER (M)
NEU -0.0002 0.0009 0.0740 ARP TO L2 PHASE CENTER (M)
XYZ -0.5113 -1.0418 1.1545 MON TO ARP
XYZ -0.0253 -0.0535 0.0606 ARP TO L1 PHASE CENTER
XYZ -1991826.0456 -4065385.7753 4479955.6350 L1 PHS CEN @ 2009.8787

BASELINE NAME: idtd mylc
XYZ 0.5809 0.6988 -0.7400 + XYZ ADJUSTMENTS
XYZ -1991825.4648 -4065385.0765 4479954.8951 NEW L1 PHS CEN @ 2009.8787
XYZ -1991825.4395 -4065385.0230 4479954.8344 NEW ARP @ 2009.8787
XYZ -1991824.9281 -4065383.9812 4479953.6799 NEW MON @ 2009.8787
LLH 44 53 32.68855 243 53 51.24944 1514.2242 NEW L1 PHS CEN @ 2009.8787
LLH 44 53 32.68851 243 53 51.24940 1514.1395 NEW ARP @ 2009.8787
LLH 44 53 32.68855 243 53 51.24944 1512.5025 NEW MON @ 2009.8787

BASELINE NAME: idnp mylc
XYZ 0.5066 0.8367 -0.8071 + XYZ ADJUSTMENTS
XYZ -1991825.5391 -4065384.9387 4479954.8279 NEW L1 PHS CEN @ 2009.8787
XYZ -1991825.5138 -4065384.8852 4479954.7673 NEW ARP @ 2009.8787
XYZ -1991825.0024 -4065383.8433 4479953.6128 NEW MON @ 2009.8787
LLH 44 53 32.68910 243 53 51.24363 1514.1123 NEW L1 PHS CEN @ 2009.8787
LLH 44 53 32.68906 243 53 51.24360 1514.0276 NEW ARP @ 2009.8787
LLH 44 53 32.68910 243 53 51.24363 1512.3906 NEW MON @ 2009.8787

BASELINE NAME: idsn mylc
XYZ 0.5692 0.8554 -0.8088 + XYZ ADJUSTMENTS
XYZ -1991825.4765 -4065384.9199 4479954.8263 NEW L1 PHS CEN @ 2009.8787
XYZ -1991825.4512 -4065384.8664 4479954.7656 NEW ARP @ 2009.8787
XYZ -1991824.9398 -4065383.8246 4479953.6111 NEW MON @ 2009.8787
LLH 44 53 32.69007 243 53 51.24582 1514.0797 NEW L1 PHS CEN @ 2009.8787
LLH 44 53 32.69003 243 53 51.24578 1513.9950 NEW ARP @ 2009.8787
LLH 44 53 32.69007 243 53 51.24582 1512.3580 NEW MON @ 2009.8787

G-FILES

Axx20091117 91117
B2009111716 4 911171843 1 page5 v0909.08IGS 226 1 2 27NGS 20091129IFDDFX
Iant_info.003 NGS 20091120
C00090001 -551821030 30 -794413337 52 -991372731 57 X3219AMYLCX3219AIDTD
D 1 2 8828651 1 3 -1601337 2 3 -3866796

Axx20091117 91117
B2009111716 4 911171843 1 page5 v0909.08IGS 226 1 2 27NGS 20091129IFDDFX
Iant_info.003 NGS 20091120
C00090002 353279040 32 754270253 54 813523939 55 X3219AMYLCX3219AIDNP
D 1 2 8867159 1 3 -650877 2 3 -1251918

Axx20091117 91117

B2009111716 4 911171843 1 page5 v0909.08IGS 226 1 2 27NGS 20091129IFDDFX
Iant_info.003 NGS 20091120
C00090003 1675684292 50 -518797530 42 233036699 35 X3219AMYLCX3219AIDSN
D 1 2 1168297 1 3 -2632141 2 3 -8972769

POST-FIT RMS BY SATELLITE VS. BASELINE

	OVERALL	02	04	09	11	15	17	26	27
idtd-mylc	0.008	0.008	0.007	0.006	0.010	0.010	...	...	0.006

	28	30
idtd-mylc	0.009	...

	OVERALL	02	04	09	11	15	17	20	26
idnp-mylc	0.008	0.009	0.009	0.007	0.010	0.010	...	...	...

	27	28	30
idnp-mylc	0.006	0.009	...

	OVERALL	02	04	09	11	15	17	20	26
idsn-mylc	0.008	0.009	0.008	0.007	0.010	0.012	...	...	...

	27	28
idsn-mylc	0.005	0.007

OBS BY SATELLITE VS. BASELINE

	OVERALL	02	04	09	11	15	17	26	27
idtd-mylc	1490	135	226	314	104	136	...	...	306

	28	30
idtd-mylc	269	...

	OVERALL	02	04	09	11	15	17	20	26
idnp-mylc	1489	138	237	314	105	129	...	...	...

	27	28	30
idnp-mylc	306	260	...

	OVERALL	02	04	09	11	15	17	20	26
idsn-mylc	1481	138	235	301	105	135	...	...	...

	27	28
idsn-mylc	300	267

Covariance Matrix for the xyz OPUS Position (meters^2).

0.0000098311	0.0000007011	-0.0000001887
0.0000007011	0.0000164089	-0.0000006304
-0.0000001887	-0.0000006304	0.0000166644

Covariance Matrix for the enu OPUS Position (meters^2).

0.0000105504	-0.0000014491	0.0000016178
-0.0000014491	0.0000155330	0.0000004942
0.0000016178	0.0000004942	0.0000168210

Horizontal network accuracy = 0.00888 meters.
Vertical network accuracy = 0.00804 meters.

Derivation of NAD 83 vector components

Position of reference station ARP in NAD_83(CORS96)(EPOCH:2002.0000).

	Xa(m)	Ya(m)	Za(m)	
IDTD	-2047006.23575	-4144826.54045	4380816.42482	2002.00
IDNP	-1956496.28541	-3989958.03130	4561306.00350	2002.00
IDSN	-1824255.73684	-4117264.80371	4503257.29700	2002.00

Position of reference station monument in NAD_83(CORS96)(EPOCH:2002.0000).

	Xr(m)	Yr(m)	Zr(m)	
IDTD	-2047006.23575	-4144826.54045	4380816.42482	2002.00
IDNP	-1956496.28541	-3989958.03130	4561306.00350	2002.00
IDSN	-1824255.73684	-4117264.80371	4503257.29700	2002.00

Velocity of reference station monument in NAD_83(CORS96)(EPOCH:2002.0000).

	Vx (m/yr)	Vy (m/yr)	Vz (m/yr)
IDTD	-0.00000	-0.00000	0.00000
IDNP	-0.00120	0.00070	0.00010
IDSN	0.00290	0.00060	-0.00020

Vectors from unknown station monument to reference station monument
in NAD_83(CORS96)(EPOCH:2002.0000).

	Xr-X= DX(m)	Yr-Y= DY(m)	Zr-Z= DZ(m)	
IDTD	-55182.05275	-79441.43545	-99137.21618	2002.00
IDNP	35327.89759	75427.07370	81352.36250	2002.00
IDSN	167568.44616	-51879.69871	23303.65600	2002.00

STATE PLANE COORDINATES - U.S. Survey Foot
SPC (1103 ID W)
Northing (Y) [feet] 1175885.780
Easting (X) [feet] 2533338.161

Convergence [degrees] -0.24872894
Point Scale 0.99994286
Combined Factor 0.99970571

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.

8002 The Opus solution for your submitted RINEX file appears to be
8002 quite close to an NGS published control point. This suggests that
8002 you may have set your GPS receiver up over an NGS control point.
8002 Furthermore, our files indicate that this control point has not
8002 been recovered in the last five years.
8002 If you did indeed recover an NGS control point, we would
8002 appreciate receiving this information through our web based
8002 Mark Recovery Form at
8002 http://www.ngs.noaa.gov/products_services.shtml#MarkRecoveryForm.
8002

Point Description Sheet

McCall Control Point - GG1(Green Gate)

Survey Type - GPS Base Station

Prepared By:

City of McCall

Point Approved By:

Russell Surveying, Inc.

PLS: John Russell, ID PLS # 6021

Prepared By: J.Russell RSI June 2014

Place Seal Here

NAD83 (CORS96) NAVD88 GEOID03

Epoch 2002.00

Geodetic Coordinates

Latitude:	44° 57' 13.13127"	
Longitude:	116° 06' 28.84101"	
Ellipsoid Height:	5332.256	Feet
Orthometric Elev:	1640.117	Meters
Orthometric Elev:	5380.951	Feet

State Plane Coordinates

Zone 1103, Idaho West

3.280833 meter to feet

Northing:	365217.69	Meters
Easting	771751.15	Meters
Northing:	***1198218.25***	*Feet*
Easting	***2531986.63***	*Feet*

McCall Modified Coordinates

Northing:	3931162.119	Meters
Easting	8307021.302	Meters
Northing:	1198220.732	Feet
Easting	2531985.414	Feet

Scale Factor:	0.999943142
Elevation Factor:	0.99974501
Combined Factor:	0.999688164

Survey Method

Auton. 3.5 hr occ 9/25/10. OPUS corr.

Location Description

1.5" PK nail in large flat granite outcrop about 200 ft. west of green gate road in NE 1/4 Sec 32 19N03E. From green gate on Warren Wagon road drive 1.5 mi. North

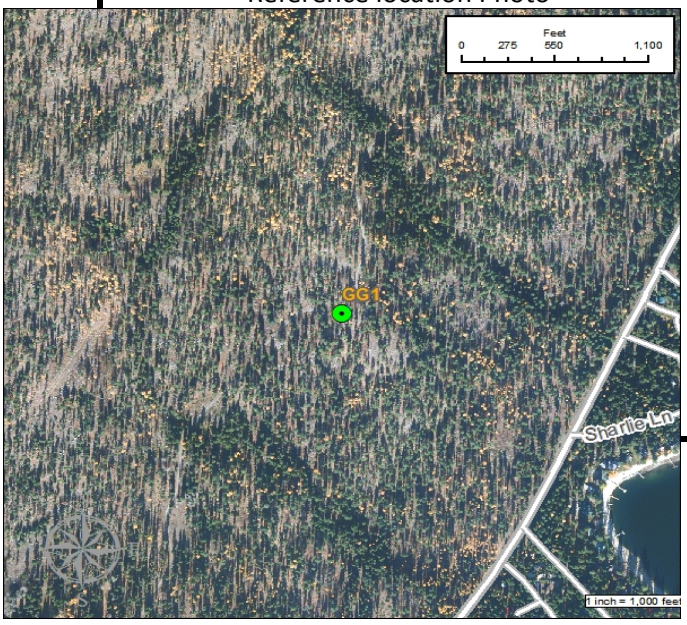
Monument Photos:

Close up of point

Picture of Equipment set up on point

Reference location Photo

Reference location Photo



Point Description Sheet

McCall Control Point - LAMAH (lamah ck)

Survey Type - GPS Base Station

Prepared By:

City of McCall

Point Approved By:

Russell Surveying, Inc.

PLS: John Russell, ID PLS # 6021

Prepared By: D. Bourne RSI 2/12

Place Seal Here

NAD83 (CORS96) NAVD88 GEOID03
Epoch 2002.00
Geodetic Coordinates

Latitude:	44° 58' 48.82633"	
Longitude:	116° 03' 26.24102"	
Ellipsoid Height:	5027.129	Feet
Orthometric Elev:	1546.943	Meters
Orthometric Elev:	5075.262	Feet

State Plane Coordinates
Zone 1103, Idaho West

3.280833 meter to feet

Northing:	368155.159	Meters
Easting	775764.585	Meters
Northing:	1207855.596	*Feet*
Easting	2545154.050	*Feet*

McCall Modified Coordinates

Northing:	368156.029	Meters
Easting	775763.797	Meters
Northing:	***1207860.988***	*Feet*
Easting	***2545156.815***	*Feet*

STATE PLANE

Scale Factor:	0.999940553
Elevation Factor:	0.99975959
Combined Factor:	0.999700161

Survey Method

Auton 2.5 hr occ 11/8/11. OPUS corr

Location Description

2"blue cap on 1/2"x24" rb mkd PI-IIF, flush with ground 2 ft north of steep shoulder of East Side Drive, near diving rocks turn off, and Lamah Creek box culvert.

Monument Photos:

Close up of point

Picture of Equipment set up on point

Reference location Photo

Reference location Map

Point Description Sheet

McCall Control Point - LARDO

Survey Type - GPS Base Station

Prepared By:

City of McCall

Point Approved By:

Russell Surveying, Inc.

PLS: John Russell, ID PLS # 6021

Prepared By: D. Bourne RSI 2/12

Place Seal Here

NAD83 (CORS96) NAVD88 GEOID03

Epoch 2002.00

Geodetic Coordinates

Latitude:	44° 54' 42.02889"	
Longitude:	116° 07' 22.01494"	
Ellipsoid Height:	5003.745	Feet
Orthometric Elev:	1540.084	Meters
Orthometric Elev:	5052.757	Feet

State Plane Coordinates

Zone 1103, Idaho West

3.280833 meter to feet

Northing:	360558.785	Meters
Easting	770564.241	Meters
Northing:	1182933.162	*Feet*
Easting	2528092.591	*Feet*

McCall Modified Coordinates

Northing:	360557.377	Meters
Easting	770561.894	Meters
Northing:	***1182931.028***	*Feet*
Easting	***2528090.203***	*Feet*

STATE PLANE

Scale Factor:	0.999943984
Elevation Factor:	0.99976072
Combined Factor:	0.999704714

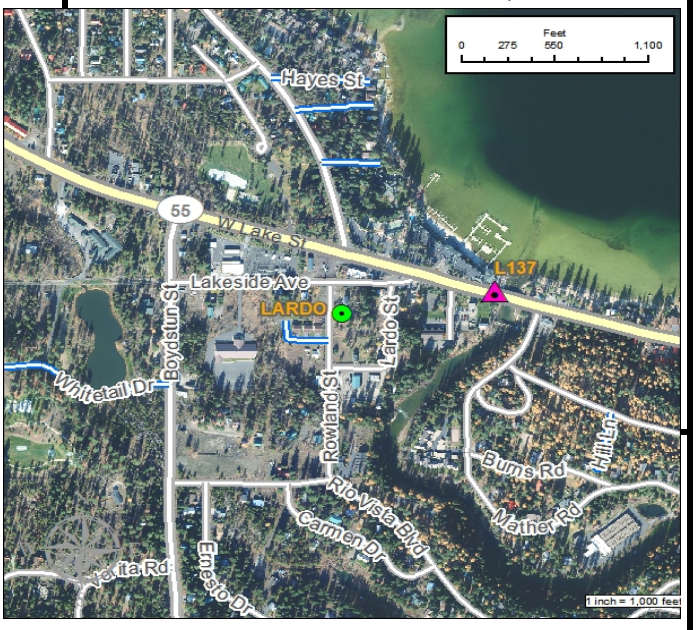
Survey Method

27 hours of occupation from 2005 - 2008. 13 OPUS adjustments averaged

Location Description
2" blue cap on 5/8"x30" rb mkd LARDO, 0.1 above ground on top of old water tower hill. Take stone steps up west of white house at 606 W.Lakeside. Wire fence corner bears south 7.5 feet. Private land. Ask permission first.

Monument Photos:

Close up of point	Picture of Equipment set up on point

Reference location Photo	Reference location Map
	

Point Description Sheet

McCall Control Point - MC1

Survey Type - GPS Base Station

Prepared By:

City of McCall

Point Approved By:

Russell Surveying, Inc.

PLS: John Russell, ID PLS # 6021

Prepared By: D. Bourne RSI 2/12

Place Seal Here

NAD83 (CORS96) NAVD88 GEOID03
Epoch 2002.00
Geodetic Coordinates

Latitude:	44° 54' 30.70566"	
Longitude:	116° 05' 56.72852"	
Ellipsoid Height:	**4987.845**	Feet
Orthometric Elev:	**1535.220**	Meters
Orthometric Elev:	**5036.800**	Feet

State Plane Coordinates
Zone 1103, Idaho West

3.280833 meter to feet

Northing:	**360200.947**	Meters
Easting	**772433.416**	Meters
Northing:	*1181759.15*	*Feet*
Easting	*2534225.04*	*Feet*

McCall Modified Coordinates

Northing:	**360200.188**	Meters
Easting	**772433.252**	Meters
Northing:	*1181756.664*	*Feet*
Easting	*2534224.504*	*Feet*

STATE PLANE

Scale Factor:	0.9999427
Elevation Factor:	0.9997615
Combined Factor:	0.9997042

Survey Method

Auton 2.25 hr. 7/29/11, OPUS corr. ELEVATIONS REVISED BY SKIFTUN LAND SURVEYING, INC SUMMER OF 2014. PREVIOUSE ELEVATION WAS "5036.96 FT".

Location Description

5/8"x30"rebar, red cap mkd Control, 0.3' down, 4.4' South of bike path, 5.8' West of large boulder, City Hall parking lot

Monument Photos:

Close up of point

Picture of Equipment set up on point

Reference location Photo

Reference location Map

Point Description Sheet

McCall Control Point - MDMS REV

Survey Type - GPS Base Station

Prepared By:

City of McCall

Point Approved By:

Russell Surveying, Inc.

PLS: John Russell, ID PLS # 6021

Prepared By: D. Bourne RSI 2/12

Place Seal Here

NAD83 (CORS96) NAVD88 GEOID03

Epoch 2002.00

Geodetic Coordinates

Latitude:	44° 53' 52.69203"	
Longitude:	116° 05' 04.74212"	
Ellipsoid Height:	***5039.434***	Feet
Orthometric Elev:	***1550.930***	Meters
Orthometric Elev:	5088.342	Feet

State Plane Coordinates

Zone 1103, Idaho West

3.280833 meter to feet

Northing:	359022.76	Meters
Easting	773568.91	Meters
Northing:	***1177893.73***	*Feet*
Easting	***2537950.42***	*Feet*

McCall Modified Coordinates

Northing:	**359021.648**	Meters
Easting	**773569.092**	Meters
Northing:	***1177890.072***	*Feet*
Easting	***2537951.006***	*Feet*

STATE PLANE

Scale Factor:	0.9999419
Elevation Factor:	0.999759
Combined Factor:	0.9997009

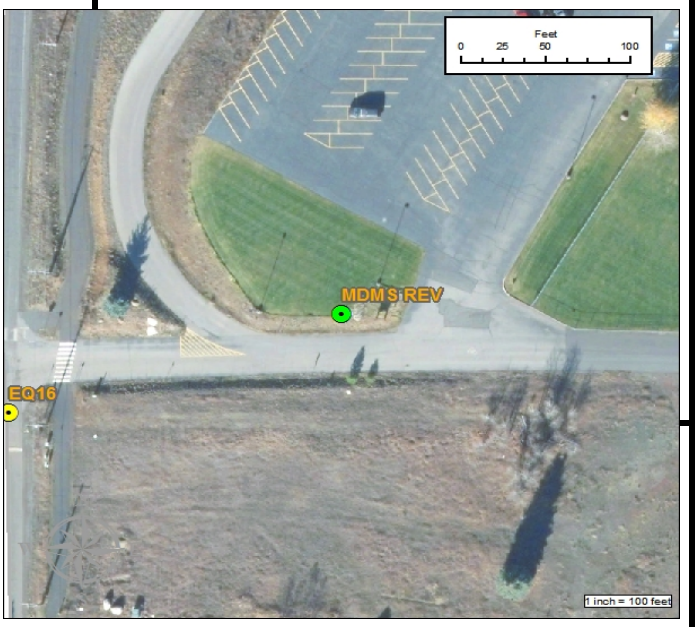
Survey Method

Auton 2 hr. occ. 8/10/11 OPUS corr.

Location Description
5/8"x30"rb, pink cap mkd Control J.Russell, 0.2' down, north shoulder approach to Middle School, large outcrop 6' se

Monument Photos:

Close up of point	Picture of Equipment set up on point

Reference location Photo	Reference location Map
	

Point Description Sheet

McCall Control Point - MSD 1 REV

Survey Type - GPS Base Station

Prepared By:

City of McCall

Point Approved By:

Russell Surveying, Inc.

PLS: John Russell, ID PLS # 6021

Prepared By: D. Bourne RSI 2/12

Place Seal Here

NAD83 (CORS96) NAVD88 GEOID03

Epoch 2002.00

Geodetic Coordinates

Latitude:	44° 53' 50.38106"	
Longitude:	116° 07' 04.91910"	
Ellipsoid Height:	***4969.803***	Feet
Orthometric Elev:	***1529.742***	Meters
Orthometric Elev:	5018.828	Feet

State Plane Coordinates

Zone 1103, Idaho West

3.280833 meter to feet

Northing:	**358962.841**	Meters
Easting	**770931.993**	Meters
Northing:	*1177697.13*	*Feet*
Easting	*2529299.12*	*Feet*

McCall Modified Coordinates

Northing:	**358961.709**	Meters
Easting	**770931.377**	Meters
Northing:	*1177693.421*	*Feet*
Easting	*2529297.101*	*Feet*

STATE PLANE

Scale Factor:	0.9999437
Elevation Factor:	0.9997623
Combined Factor:	0.9997061

Survey Method

Auton 8.5 hr. occ. 10/15/10 OPUS Corr. 3 min. occ. 7/23/11, from VC5B

Location Description

1/2"x24"rb, 2" blue cap mkd Survey Control JohnRussell, flush, ne corner shoulder Sewage Storage Pond embankment, s of Deinhard bypass

Monument Photos:

Close up of point

Picture of Equipment set up on point

Reference location Photo

Reference location Map

Point Description Sheet

McCall Control Point - MORRISON

Survey Type - GPS Base Station

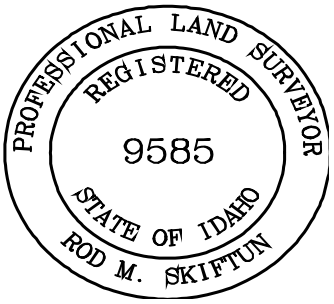
Prepared By:

City of McCall

Point Approved By:

Skiftun Land Surveying, Inc.

Place Seal Here



NAD83 (CORS96) NAVD88 GEOID12A		
Epoch 2010.00		
Geodetic Coordinates		
Latitude:	44° 56' 44.08972"	
Longitude:	116° 03' 2.45739"	
Ellipsoid Height:	5031.571	Feet
Orthometric Elev:	1548.372	Meters
Orthometric Elev:	5079.630	Feet

State Plane Coordinates		
Zone 1103, Idaho West		
	3.280833	meter to feet
Northing:	364302.838	Meters
Easting	776271.278	Meters
Northing:	1195216.895	*Feet*
Easting	2546816.685	*Feet*

McCall Modified Coordinates		
Northing:	364302.589	Meters
Easting	776270.721	Meters
Northing:	1195218.470	*Feet*
Easting	2546819.952	*Feet*

STATE PLANE	
Scale Factor:	0.9999403
Elevation Factor:	
Combined Factor:	0.999698

Survey Method

6 hrs 43 min occupation November 7th, 2014

Location Description

It is set on a dry island in the middle of the meadow in the middle of Camp Morrison. It is a 5/8” rebar with my p

Monument Photos:

Close up of point

Picture of Equipment set up on point

Reference location Photo

Reference location Photo

FILE: MORRISON1LOG.tps OP1415382511745

NGS OPUS SOLUTION REPORT
========================

All computed coordinate accuracies are listed as peak-to-peak values.
For additional information: http://www.ngs.noaa.gov/OPUS/about.jsp#accuracy

USER: rskiftun@frontiernet.net DATE: November 07, 2014
RINEX FILE: morr298r.14o TIME: 17:49:59 UTC

SOFTWARE: page5 1209.04 master93.pl 022814 START: 2014/10/25 17:15:00
EPHEMERIS: igs18156.eph [precise] STOP: 2014/10/25 23:58:00
NAV FILE: brdc2980.14n OBS USED: 12806 / 14311 : 89%
ANT NAME: TPSGR5 NONE # FIXED AMB: 61 / 66 : 92%
ARP HEIGHT: 2.00 OVERALL RMS: 0.013(m)

REF FRAME:	NAD_83(2011)(EPOCH:2010.0000)		IGS08 (EPOCH:2014.8161)	
X:	-1986326.294(m)	0.007(m)	-1986327.162(m)	0.007(m)
Y:	-4063445.681(m)	0.010(m)	-4063444.456(m)	0.010(m)
Z:	4484153.409(m)	0.008(m)	4484153.388(m)	0.008(m)
LAT:	44 56 44.08972	0.005(m)	44 56 44.10569	0.005(m)
E LON:	243 56 57.54261	0.008(m)	243 56 57.48251	0.008(m)
W LON:	116 3 2.45739	0.008(m)	116 3 2.51749	0.008(m)
EL HGT:	1533.626(m)	0.012(m)	1533.102(m)	0.012(m)
ORTHO HGT:	1548.372(m)	0.024(m)	[NAVD88 (Computed using GEOID12A)]	

	UTM COORDINATES UTM (Zone 11)	STATE PLANE COORDINATES SPC (1103 ID W)
Northing (Y) [meters]	4977343.422	364302.838
Easting (X) [meters]	574891.536	776271.278
Convergence [degrees]	0.67066195	-0.21241366
Point Scale	0.99966897	0.99994025
Combined Factor	0.99942865	0.99969987

US NATIONAL GRID DESIGNATOR: 11TNK7489177343(NAD 83)

BASE STATIONS USED

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
DL7743	P372 ENTERPRISEOR2007 CORS ARP	N452541.277	W1171505.910	108576.2
DG8521	IDNP GRANGEVILLE APT CORS ARP	N455622.936	W1160716.529	110647.1
DL7740	P351 GALENA_SU_ID2008 CORS ARP	N435227.874	W1144308.932	159473.3

NEAREST NGS PUBLISHED CONTROL POINT

QB0096	H 187	N445544.	W1160321.	1901.9

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.

Point Description Sheet

McCall Control Point - PARADISE

Survey Type - GPS Base Station

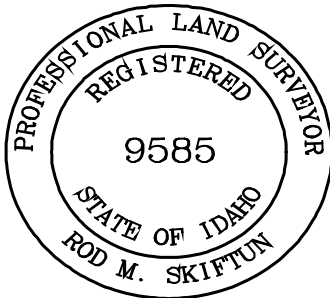
Prepared By:

City of McCall

Point Approved By:

Skiftun Land Surveying, Inc.

Place Seal Here



NAD83 (CORS96) NAVD88 GEOID03
Epoch 2002.00
Geodetic Coordinates

Latitude:	44° 57' 57.67270"	
Longitude:	116° 03' 36.62444"	
Ellipsoid Height:	4992.955	Feet
Orthometric Elev:	1536.573	Meters
Orthometric Elev:	5040.910	Feet

State Plane Coordinates
Zone 1103, Idaho West

3.280833 meter to feet

Northing:	366576.992	Meters
Easting	775530.985	Meters
Northing:	*1202678.014*	*Feet*
Easting	*2544387.906*	*Feet*

McCall Modified Coordinates

Northing:	366577.425	Meters
Easting	775530.205	Meters
Northing:	1202681.843	*Feet*
Easting	2544390.439	*Feet*

STATE PLANE

Scale Factor:	0.9999417
Elevation Factor:	
Combined Factor:	0.999698

Survey Method

3 hr 14 min occupation May 5th 2014

Location Description

Monument Photos:

Close up of point

Picture of Equipment set up on point

Reference location Photo

Reference location Photo

Point Description Sheet

McCall Control Point - Pearson Corners

GPS BASE STATION

Prepared By:

City of McCall

Point Approved By:

Skiftun Land Surveying, Inc.

Place Seal Here

PROFESSIONAL LAND SURVEYOR
REGISTERED
9585
STATE OF IDAHO
ROD M. SKIFTUN

NAD83 (CORS96) NAVD88 GEOID03
Epoch 2002.00
Geodetic Coordinates

Latitude:	44° 51' 46.88623 "	
Longitude:	116° 04' 45.38891 "	
Ellipsoid Height:	5038.375	Feet
Orthometric Elev:	1550.741	Meters
Orthometric Elev:	5087.722	Feet

State Plane Coordinates
Zone 1103, Idaho West

3.280833 meter to feet

Northing:	355137.713	Meters
Easting	773977.682	Meters
Northing:	1165147.647	*Feet*
Easting	2539291.778	*Feet*

McCall Modified Coordinates

Northing:	355134.714	Meters
Easting	773976.436	Meters
Northing:	1165140.141	*Feet*
Easting	2539292.772	*Feet*

STATE PLANE

Scale Factor:	0.9999417
Elevation Factor:	0.9997563
Combined Factor:	0.999698

Survey Method

2 hr 43 min Occupation, November 21, 2014

Location Description

Monument Photos:

Close up of point

Picture of Equipment set up on point

Reference location Photo

Reference location Photo

FILE: CITYPICPTPCORS.tps OP1416613809563

 2005   NOTE: The IGS precise and IGS rapid orbits were not available
 2005   at processing time. The IGS ultra-rapid orbit was/will be used to
 2005   process the data.
 2005

NGS OPUS SOLUTION REPORT
========================

All computed coordinate accuracies are listed as peak-to-peak values.
For additional information: http://www.ngs.noaa.gov/OPUS/about.jsp#accuracy

      USER: rskiftun@frontiernet.net   DATE: November 21, 2014
RINEX FILE: city325s.14o   TIME: 23:50:51 UTC

  SOFTWARE: page5 1209.04 master92.pl 022814   START: 2014/11/21 18:25:00
 EPHEMERIS: igu18195.eph [ultra-rapid]   STOP: 2014/11/21 21:08:00
  NAV FILE: brdc3250.14n   OBS USED: 5550 / 5641   : 98%
  ANT NAME: TPSGR5   NONE   # FIXED AMB: 27 /   27   : 100%
ARP HEIGHT: 1.500   OVERALL RMS: 0.010(m)

 REF FRAME: NAD_83(2011)(EPOCH:2010.0000)   IGS08 (EPOCH:2014.8899)

         X: -1991202.335(m)   0.011(m)   -1991203.204(m)   0.011(m)
         Y: -4068273.833(m)   0.004(m)   -4068272.607(m)   0.004(m)
         Z: 4477655.191(m)   0.004(m)   4477655.169(m)   0.004(m)

       LAT: 44 51 46.88623   0.008(m)   44 51 46.90216   0.008(m)
     E LON: 243 55 14.61109   0.009(m)   243 55 14.55100   0.009(m)
     W LON: 116 4 45.38891   0.009(m)   116 4 45.44900   0.009(m)
    EL HGT: 1535.785(m)   0.003(m)   1535.260(m)   0.003(m)
 ORTHO HGT: 1550.741(m)   0.012(m) [NAVD88 (Computed using GEOID12A)]

                       UTM COORDINATES   STATE PLANE COORDINATES
                        UTM (Zone 11)   SPC (1103 ID W)
Northing (Y) [meters]   4968146.581   355137.713
Easting (X) [meters]   572739.951   773977.682
Convergence [degrees]   0.64952116   -0.23227638
Point Scale   0.99966506   0.99994166
Combined Factor   0.99942440   0.99970094

US NATIONAL GRID DESIGNATOR: 11TNK7273968146(NAD 83)

                            BASE STATIONS USED
PID   DESIGNATION   LATITUDE   LONGITUDE DISTANCE(m)
DK6947 IDSN SALMON CORS ARP   N451131.444 W1135348.906 175860.1
DG8521 IDNP GRANGEVILLE APT CORS ARP   N455622.936 W1160716.529 119730.3
DL6886 LWST LEWISTON CORS ARP   N462223.424 W1170008.246 182652.9

                NEAREST NGS PUBLISHED CONTROL POINT
AH5802   MC01   N445114.456 W1160526.476   1347.8

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.

Point Description Sheet

McCall Control Point - PLC1 (payette lake club beach)

Survey Type - GPS Base Station

Prepared By:

City of McCall

Point Approved By:

Russell Surveying, Inc.

PLS: John Russell, ID PLS # 6021

Prepared By: D. Bourne RSI 2/12

Place Seal Here

NAD83 (CORS96) NAVD88 GEOID03

Epoch 2002.00

Geodetic Coordinates

Latitude:	44° 55' 26.61148"	
Longitude:	116° 07' 26.41065"	
Ellipsoid Height:	4943.875	Feet
Orthometric Elev:	1521.829	Meters
Orthometric Elev:	4992.867	Feet

State Plane Coordinates

Zone 1103, Idaho West

3.280833 meter to feet

Northing:	361935.380	Meters
Easting	770474.168	Meters
Northing:	1187449.538	*Feet*
Easting	2527797.077	*Feet*

McCall Modified Coordinates

Northing:	361934.384	Meters
Easting	770471.794	Meters
Northing:	***1187448.768***	*Feet*
Easting	***2527794.600***	*Feet*

STATE PLANE

Scale Factor:	0.999944049
Elevation Factor:	0.99976358
Combined Factor:	0.999707639

Survey Method

Auton 7 hr occ 4/20/13. OPUS corr

Location Description
2" blue cap on 5/8"x30" rb mkd PLC1, 0.5 ft. above ground in boulder pile north of Club Dock.

Monument Photos:

Close up of point	Picture of Equipment set up on point

Reference location Photo	Reference location Map

Point Description Sheet

McCall Control Point - PLC2 (yewwood & brooklawn)

Survey Type - GPS Base Station

Prepared By:

City of McCall

Point Approved By:

Russell Surveying, Inc.

PLS: John Russell, ID PLS # 6021

Prepared By: D. Bourne RSI 2/12

Place Seal Here

NAD83 (CORS96) NAVD88 GEOID03
Epoch 2002.00
Geodetic Coordinates

Latitude:	44° 55' 35.86077"	
Longitude:	116° 07' 31.75063"	
Ellipsoid Height:	4988.632	Feet
Orthometric Elev:	1535.466	Meters
Orthometric Elev:	5037.608	Feet

State Plane Coordinates
Zone 1103, Idaho West

3.280833 meter to feet

Northing:	362221.423	Meters
Easting	770358.387	Meters
Northing:	1188387.998	*Feet*
Easting	2527417.219	*Feet*

McCall Modified Coordinates

Northing:	362220.513	Meters
Easting	770355.978	Meters
Northing:	***1188387.511***	*Feet*
Easting	***2527414.627***	*Feet*

STATE PLANE

Scale Factor:	0.999944133
Elevation Factor:	0.99976144
Combined Factor:	0.999705584

Survey Method

Auton 2 hr occ 2/1/14. OPUS corr

Location Description
1/2"rb mkd PLS6021 0.3 above ground on top of remaining berm, corner of Yewwood and Brooklawn

Monument Photos:

Close up of point	Picture of Equipment set up on point

Reference location Photo

Reference location Map

Point Description Sheet

McCall Control Point - PO23

Survey Type - GPS Base Station

Prepared By: Garrett Mapp

City of McCall

Point Approved By:

Orbitech, Inc.

PLS: Shelby Griggs

NAD83 (CORS96) NAVD88 GEOID03
Epoch 2002.00
Geodetic Coordinates

Latitude:	44° 53' 54.34181 "	
Longitude:	116° 06' 10.76508 "	
Ellipsoid Height:	4993.897	Feet
Orthometric Elev:	1537.055	Meters
Orthometric Elev:	5042.820	Feet
Geoid Height:	48.923	Feet

State Plane Coordinates
Zone 1103, Idaho West

3.280833 meter to feet

Northing Meters:	359079.822
Easting Meters:	772120.638
Northing Feet:	1178080.930
Easting Feet:	2533198.870

McCall Modified Coordinates

Northing Meters:	359078.725
Easting Meters:	772120.3804
Northing Feet:	1178077.33
Easting Feet:	2533198.024

Factors

Scale Factor:	0.9999429
Elevation Factor:	0.9997615
Combined Factor:	0.9997044

Survey Method

Location Description and Monument Photos ------->

Location Description

Point is the Antenna Reference Point (ARP) on a Trimble TRM29659.00 SCIT antenna for a Plate Boundary Observatory (PBO) Continuously Operating Reference Station (CORS) and is mounted on a deep-drilled-braced mount at the northwest end of the McCall, ID Airport (MYL).

Monument Photos:

Close up of point

Picture of Equipment set up on point

Reference location Photo

Reference location Photo

FILE: p0233230.09o 000022288

1008 NOTE: Antenna offsets supplied by the user were zero. Coordinates
1008 returned will be for the antenna reference point (ARP).
1008

NGS OPUS SOLUTION REPORT
==========

All computed coordinate accuracies are listed as peak-to-peak values.
For additional information: http://www.ngs.noaa.gov/OPUS/about.html#accuracy

USER: sgriggs@orbitechinc.com DATE: November 28, 2009
RINEX FILE: p0233230.09o TIME: 23:55:04 UTC

SOFTWARE: page5 0909.08 master.pl 0810233 START: 2009/11/19 00:00:00
EPHEMERIS: igr15584.eph [rapid] STOP: 2009/11/19 23:59:00
NAV FILE: brdc3230.09n OBS USED: 55084 / 58171 : 95%
ANT NAME: TRM29659.00 SCIT # FIXED AMB: 210 / 225 : 93%
ARP HEIGHT: 0.0 OVERALL RMS: 0.010(m)

REF FRAME: NAD_83(CORS96)(EPOCH:2002.0000) ITRF00 (EPOCH:2009.8835)

X:	-1991660.011(m)	0.024(m)	-1991660.785(m)	0.024(m)
Y:	-4064946.896(m)	0.006(m)	-4064945.674(m)	0.006(m)
Z:	4480434.105(m)	0.014(m)	4480434.099(m)	0.014(m)

LAT:	44 53 54.34181	0.015(m)	44 53 54.35898	0.015(m)
E LON:	243 53 49.23491	0.019(m)	243 53 49.17873	0.019(m)
W LON:	116 6 10.76509	0.019(m)	116 6 10.82127	0.019(m)
EL HGT:	1522.143(m)	0.015(m)	1521.602(m)	0.015(m)
ORTHO HGT:	1537.089(m)	0.080(m) [NAVD88 (Computed using GEOID09)]		

	UTM COORDINATES (UTM (Zone 11))	STATE PLANE COORDINATES (SPC (1103 ID W))
Northing (Y) [meters]	4972058.506	359079.786
Easting (X) [meters]	570822.898	772120.560
Convergence [degrees]	0.63318243	-0.24916056
Point Scale	0.99966168	0.99994289
Combined Factor	0.99942316	0.99970430

US NATIONAL GRID DESIGNATOR: 11TNK7082272058(NAD 83)

BASE STATIONS USED

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
AJ3346	IDTD IDAHO DOT CORS ARP	N433910.573	W1161700.213	139167.7
DG8521	IDNP GRANGEVILLE APT CORS ARP	N455622.935	W1160716.530	115758.7
DK6947	IDSN SALMON CORS ARP	N451131.444	W1135348.907	176867.9

NEAREST NGS PUBLISHED CONTROL POINT

QB1406	MCCALL AZ MK	N445353.695	W1160611.622	27.4

BASE STATION INFORMATION

STATION NAME: idtd a 3 (Idaho DOT; Boise, Idaho USA)
WARNING: ORIGINALLY "ASH700936E "

XYZ	-2047006.7967	-4144825.3020	4380816.5163	MON @ 1997.0000 (M)
XYZ	-0.0182	-0.0010	-0.0085	VEL (M/YR)
NEU	0.0000	0.0000	0.0000	MON TO ARP (M)
NEU	0.0014	-0.0010	0.1089	ARP TO L1 PHASE CENTER (M)
NEU	0.0010	0.0005	0.1274	ARP TO L2 PHASE CENTER (M)
XYZ	-0.2345	-0.0129	-0.1095	VEL TIMES 12.8832 YRS
XYZ	0.0000	0.0000	0.0000	MON TO ARP
XYZ	-0.0354	-0.0693	0.0762	ARP TO L1 PHASE CENTER
XYZ	-2047007.0665	-4144825.3842	4380816.4830	L1 PHS CEN @ 2009.8835
XYZ	-0.0000	-0.0000	-0.0000	+ XYZ ADJUSTMENTS
XYZ	-2047007.0665	-4144825.3842	4380816.4829	NEW L1 PHS CEN @ 2009.8835
XYZ	-2047007.0312	-4144825.3149	4380816.4068	NEW ARP @ 2009.8835
XYZ	-2047007.0312	-4144825.3149	4380816.4068	NEW MON @ 2009.8835
LLH	43 39 10.59023	243 42 59.73038	788.7540	NEW L1 PHS CEN @ 2009.8835
LLH	43 39 10.59018	243 42 59.73042	788.6451	NEW ARP @ 2009.8835
LLH	43 39 10.59018	243 42 59.73042	788.6451	NEW MON @ 2009.8835

STATION NAME: idnp a 2 (GRANGEVILLE APT; Grangeville, Idaho, U.S.A.)
MONUMENT: NO DOMES NUMBER

XYZ	-1956496.8409	-3989956.8142	4561306.1097	MON @ 1997.0000 (M)
XYZ	-0.0200	-0.0003	-0.0080	VEL (M/YR)
NEU	0.0000	0.0000	0.0000	MON TO ARP (M)

NEU 0.0003 0.0006 0.0715 ARP TO L1 PHASE CENTER (M)
NEU -0.0004 -0.0002 0.0674 ARP TO L2 PHASE CENTER (M)
XYZ -0.2577 -0.0039 -0.1031 VEL TIMES 12.8832 YRS
XYZ 0.0000 0.0000 0.0000 MON TO ARP
XYZ -0.0213 -0.0447 0.0516 ARP TO L1 PHASE CENTER
XYZ -1956497.1198 -3989956.8628 4561306.0582 L1 PHS CEN @ 2009.8835
XYZ -0.0000 -0.0001 -0.0001 + XYZ ADJUSTMENTS
XYZ -1956497.1199 -3989956.8629 4561306.0582 NEW L1 PHS CEN @ 2009.8835
XYZ -1956497.0986 -3989956.8181 4561306.0066 NEW ARP @ 2009.8835
XYZ -1956497.0986 -3989956.8181 4561306.0066 NEW MON @ 2009.8835
LLH 45 56 22.95307 243 52 43.41105 996.6681 NEW L1 PHS CEN @ 2009.8835
LLH 45 56 22.95307 243 52 43.41102 996.5966 NEW ARP @ 2009.8835
LLH 45 56 22.95307 243 52 43.41102 996.5966 NEW MON @ 2009.8835

STATION NAME: idsn a 2 (Salmon; Salmon, Idaho USA)
MONUMENT: NO DOMES NUMBER
XYZ -1824256.3085 -4117263.5711 4503257.3828 MON @ 1997.0000 (M)
XYZ -0.0157 -0.0005 -0.0079 VEL (M/YR)
NEU 0.0000 0.0000 0.0000 MON TO ARP (M)
NEU 0.0012 0.0008 0.0847 ARP TO L1 PHASE CENTER (M)
NEU -0.0002 0.0009 0.0740 ARP TO L2 PHASE CENTER (M)
XYZ -0.2023 -0.0064 -0.1018 VEL TIMES 12.8832 YRS
XYZ 0.0000 0.0000 0.0000 MON TO ARP
XYZ -0.0231 -0.0541 0.0609 ARP TO L1 PHASE CENTER
XYZ -1824256.5339 -4117263.6317 4503257.3420 L1 PHS CEN @ 2009.8835
XYZ -0.0001 -0.0000 -0.0000 + XYZ ADJUSTMENTS
XYZ -1824256.5339 -4117263.6317 4503257.3419 NEW L1 PHS CEN @ 2009.8835
XYZ -1824256.5108 -4117263.5775 4503257.2810 NEW ARP @ 2009.8835
XYZ -1824256.5108 -4117263.5775 4503257.2810 NEW MON @ 2009.8835
LLH 45 11 31.46315 246 6 11.03711 1184.6981 NEW L1 PHS CEN @ 2009.8835
LLH 45 11 31.46311 246 6 11.03708 1184.6134 NEW ARP @ 2009.8835
LLH 45 11 31.46311 246 6 11.03708 1184.6134 NEW MON @ 2009.8835

REMOTE STATION INFORMATION

STATION NAME: p023 1
MONUMENT: NO DOMES NUMBER
XYZ -1991660.6307 -4064945.5959 4480433.3818 MON @ 2009.8822 (M)
NEU -0.0009 -0.0009 -0.0000 MON TO ARP (M)
NEU 0.0009 0.0009 0.1068 ARP TO L1 PHASE CENTER (M)
NEU 0.0002 0.0017 0.1251 ARP TO L2 PHASE CENTER (M)
XYZ -0.0011 -0.0002 -0.0006 MON TO ARP

XYZ -0.0322 -0.0678 0.0760 ARP TO L1 PHASE CENTER
XYZ -1991660.6640 -4064945.6638 4480433.4572 L1 PHS CEN @ 2009.8835

BASELINE NAME: idtd p023
XYZ -0.1504 -0.0779 0.7097 + XYZ ADJUSTMENTS
XYZ -1991660.8144 -4064945.7417 4480434.1669 NEW L1 PHS CEN @ 2009.8835
XYZ -1991660.7822 -4064945.6740 4480434.0909 NEW ARP @ 2009.8835
XYZ -1991660.7811 -4064945.6738 4480434.0915 NEW MON @ 2009.8835
LLH 44 53 54.35885 243 53 49.17889 1521.7026 NEW L1 PHS CEN @ 2009.8835
LLH 44 53 54.35882 243 53 49.17885 1521.5958 NEW ARP @ 2009.8835
LLH 44 53 54.35885 243 53 49.17889 1521.5958 NEW MON @ 2009.8835

BASELINE NAME: idnp p023
XYZ -0.1683 -0.0815 0.7192 + XYZ ADJUSTMENTS
XYZ -1991660.8323 -4064945.7453 4480434.1764 NEW L1 PHS CEN @ 2009.8835
XYZ -1991660.8001 -4064945.6776 4480434.1004 NEW ARP @ 2009.8835
XYZ -1991660.7990 -4064945.6774 4480434.1010 NEW MON @ 2009.8835
LLH 44 53 54.35881 243 53 49.17823 1521.7172 NEW L1 PHS CEN @ 2009.8835
LLH 44 53 54.35878 243 53 49.17819 1521.6104 NEW ARP @ 2009.8835
LLH 44 53 54.35881 243 53 49.17823 1521.6104 NEW MON @ 2009.8835

BASELINE NAME: idsn p023
XYZ -0.1440 -0.0751 0.7237 + XYZ ADJUSTMENTS
XYZ -1991660.8079 -4064945.7389 4480434.1809 NEW L1 PHS CEN @ 2009.8835
XYZ -1991660.7757 -4064945.6711 4480434.1049 NEW ARP @ 2009.8835
XYZ -1991660.7747 -4064945.6710 4480434.1055 NEW MON @ 2009.8835
LLH 44 53 54.35929 243 53 49.17910 1521.7086 NEW L1 PHS CEN @ 2009.8835
LLH 44 53 54.35926 243 53 49.17906 1521.6018 NEW ARP @ 2009.8835
LLH 44 53 54.35929 243 53 49.17910 1521.6018 NEW MON @ 2009.8835

G-FILES

Axx20091119 91119
B20091119 0 0 911192359 1 page5 v0909.08IGS 226 1 2 27NGS 20091128IFDDFX
Iant_info.003 NGS 20091120
C00090001 -553462501 4 -798796411 7 -996176847 8 X3239AP023X3239AIDTD
D 1 2 8772235 1 3 -27598 2 3 -1719497

Axx20091119 91119
B20091119 0 0 911192359 1 page5 v0909.08IGS 226 1 2 27NGS 20091128IFDDFX
Iant_info.003 NGS 20091120
C00090002 351637004 5 749888592 9 808719055 10 X3239AP023X3239AIDNP

D 1 2 8656848 1 3 -1529064 2 3 -1350644

Axx20091119 91119
B20091119 0 0 911192359 1 page5 v0909.08IGS 226 1 2 27NGS 20091128IFDDFX
lant_info.003 NGS 20091120
C00090003 1674042638 7 -523179066 7 228231755 7 X3239AP023X3239AIDSN
D 1 2 670986 1 3 -2202051 2 3 -8670439

POST-FIT RMS BY SATELLITE VS. BASELINE

	OVERALL	01	02	03	04	05	06	07	08
idtd-p023|	0.009	...	0.008	0.010	0.011	0.011	0.011	0.007	...
	09	10	11	12	13	14	15	16	17
idtd-p023|	0.011	0.011	0.010	0.014	0.009	0.009	0.010	0.010	0.009
	18	19	20	21	22	23	24	25	26
idtd-p023|	0.010	0.009	0.014	0.007	0.007	0.007	...	0.007	0.008
	27	28	29	30	31	32			
idtd-p023|	0.012	0.011	0.009	0.010	0.008	...			

	OVERALL	02	03	04	05	06	07	09	10
idnp-p023|	0.011	0.009	0.011	0.012	0.017	0.013	0.009	0.014	0.013
	11	12	13	14	15	16	17	18	19
idnp-p023|	0.011	0.019	0.010	0.010	0.010	0.010	0.011	0.013	0.015
	20	21	22	23	25	26	27	28	29
idnp-p023|	0.017	0.007	0.007	0.009	0.008	0.009	0.017	0.013	0.009
	30	31	32						
idnp-p023|	0.014	0.010	...						

	OVERALL	02	03	04	05	06	07	09	10
idsn-p023|	0.010	0.008	0.010	0.020	0.020	0.011	0.009	0.010	0.014
	11	12	13	14	15	16	17	18	19
idsn-p023|	0.011	0.008	0.012	0.009	0.011	0.011	0.008	0.012	0.010
	20	21	22	23	25	26	27	28	29
idsn-p023|	0.016	0.008	0.008	0.008	0.008	0.008	0.012	0.012	0.009
	30	31	32						
idsn-p023|	0.014	0.009	...						

OBS BY SATELLITE VS. BASELINE

	OVERALL	01	02	03	04	05	06	07	08
idtd-p023|	18714	...	678	894	712	788	898	784	...
	09	10	11	12	13	14	15	16	17

idtd-p023| 829 812 881 90 313 376 923 869 715
        18 19 20 21 22 23 24 25 26
idtd-p023| 219 819 174 776 773 730 ... 792 719
        27 28 29 30 31 32
idtd-p023| 899 293 445 805 708 ...
      OVERALL 02 03 04 05 06 07 09 10
idnp-p023| 18426 668 855 671 518 872 769 874 803
        11 12 13 14 15 16 17 18 19
idnp-p023| 837 92 306 400 895 799 712 188 882
        20 21 22 23 25 26 27 28 29
idnp-p023| 244 716 730 736 781 675 897 273 678
        30 31 32
idnp-p023| 821 734 ...
      OVERALL 02 03 04 05 06 07 09 10
idsn-p023| 17944 661 817 314 326 872 753 801 695
        11 12 13 14 15 16 17 18 19
idsn-p023| 838 619 300 384 835 786 706 212 874
        20 21 22 23 25 26 27 28 29
idsn-p023| 210 727 783 697 787 676 855 281 647
        30 31 32
idsn-p023| 787 701 ...

Covariance Matrix for the xyz OPUS Position (meters^2).

0.0000002000	0.0000000148	-0.0000000041
0.0000000148	0.0000003978	-0.0000000143
-0.0000000041	-0.0000000143	0.0000004733

Covariance Matrix for the enu OPUS Position (meters^2).

0.0000002266	-0.0000000467	0.0000000509
-0.0000000467	0.0000004082	0.0000000512
0.0000000509	0.0000000512	0.0000004364

Horizontal network accuracy = 0.00140 meters.
Vertical network accuracy = 0.00130 meters.

Derivation of NAD 83 vector components

Position of reference station ARP in NAD_83(CORS96)(EPOCH:2002.0000).

Xa(m)	Ya(m)	Za(m)

IDTD	-2047006.23575	-4144826.54045	4380816.42482	2002.00
IDNP	-1956496.28541	-3989958.03130	4561306.00350	2002.00
IDSN	-1824255.73684	-4117264.80371	4503257.29700	2002.00

Position of reference station monument in NAD_83(CORS96)(EPOCH:2002.0000).

	Xr(m)	Yr(m)	Zr(m)	
IDTD	-2047006.23575	-4144826.54045	4380816.42482	2002.00
IDNP	-1956496.28541	-3989958.03130	4561306.00350	2002.00
IDSN	-1824255.73684	-4117264.80371	4503257.29700	2002.00

Velocity of reference station monument in NAD_83(CORS96)(EPOCH:2002.0000).

	Vx (m/yr)	Vy (m/yr)	Vz (m/yr)
IDTD	-0.00000	-0.00000	0.00000
IDNP	-0.00120	0.00070	0.00010
IDSN	0.00290	0.00060	-0.00020

Vectors from unknown station monument to reference station monument
in NAD_83(CORS96)(EPOCH:2002.0000).

	Xr-X= DX(m)	Yr-Y= DY(m)	Zr-Z= DZ(m)	
IDTD	-55346.22475	-79879.64445	-99617.68018	2002.00
IDNP	35163.72559	74988.86470	80871.89850	2002.00
IDSN	167404.27416	-52317.90771	22823.19200	2002.00

STATE PLANE COORDINATES - U.S. Survey Foot
SPC (1103 ID W)

Northing (Y) [feet]	1178080.932
Easting (X) [feet]	2533198.869
Convergence [degrees]	-0.24916056
Point Scale	0.99994289
Combined Factor	0.99970430

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.

Point Description Sheet

McCall Control Point - SECESH1

GPS BASE STATION

Prepared By: Ralph Miller

Place Seal Here

City of McCall

City of McCall

Point Approved By: Secesh Engineering

PLS: Ralph Miller, ID PLS # 8577

NAD83 (2011) NAVD88 GEOID12A
Epoch 2010.00
Geodetic Coordinates

Latitude:	44 53 52.28974
Longitude:	W116 05 55.83728
Ellipsoid Height:	1518.860 M
Orthometric Elev:	1533.812 Meters
Orthometric Elev:	5032.182 Feet

State Plane Coordinates
Zone 1103, Idaho West

	3.280833	meter to feet
Northing:	359015.028	Meters
Easting	772447.79	Meters
Northing:	*1177868.471*	*Feet*
Easting	*2534272.458*	*Feet*

McCall Modified Coordinates

Northing:	359013.911	Meters
Easting	772447.631	Meters
Northing:	*1177864.807*	*Feet*
Easting	*2534271.936*	*Feet*

Scale Factor:	0.99994266
Elevation Factor:	
Combined Factor:	0.99970459

Survey Method

3 hour 50 min. static occupation 4/11/14, OPUS post-processing

Location Description

5/8" x 30" rebar with red plastic cap marked "CONTROL" set flush to the ground in the open space lawn at Village Square Commercial Center, 28 feet north of the sidewalk for Dienhard Lane, 53 feet east of the east edge of an asphalt parking lot, .7 feet north of a 3 foot green metal "u-post".

Monument Photos:

Ralph Miller

From: opus [opus@ngs.noaa.gov]
Sent: Monday, April 14, 2014 11:17 AM
To: rmsecesh@citlink.net
Subject: OPUS solution : log0101r.14O OP1397495782125

FILE: log0101r.14O OP1397495782125

NGS OPUS SOLUTION REPORT
========================

All computed coordinate accuracies are listed as peak-to-peak values.
For additional information: http://www.ngs.noaa.gov/OPUS/about.jsp#accuracy

USER: rmsecesh@citlink.net DATE: April 14, 2014
RINEX FILE: log0101r.14o TIME: 17:17:10 UTC

SOFTWARE: page5 1209.04 master92.pl 022814 START: 2014/04/11 17:58:00
EPHEMERIS: igr17875.eph [rapid] STOP: 2014/04/11 21:46:30
NAV FILE: brdc1010.14n OBS USED: 7112 / 7417 : 96%
ANT NAME: TPSPG_A1+GP NONE # FIXED AMB: 46 / 48 : 96%
ARP HEIGHT: 1.61705 OVERALL RMS: 0.013(m)

REF FRAME:	NAD_83(2011)(EPOCH:2010.0000)		IGS08 (EPOCH:2014.2763)	
X:	-1991384.469(m)	0.007(m)	-1991385.329(m)	0.007(m)
Y:	-4065129.101(m)	0.011(m)	-4065127.876(m)	0.011(m)
Z:	4480386.905(m)	0.005(m)	4480386.887(m)	0.005(m)
LAT:	44 53 52.28974	0.012(m)	44 53 52.30583	0.012(m)
E LON:	243 54 4.16272	0.003(m)	243 54 4.10297	0.003(m)
W LON:	116 5 55.83728	0.003(m)	116 5 55.89703	0.003(m)
EL HGT:	1518.860(m)	0.005(m)	1518.336(m)	0.005(m)
ORTHO HGT:	1533.812(m)	0.015(m)	[NAVD88 (Computed using GEOID12A)]	

	UTM COORDINATES UTM (Zone 11)	STATE PLANE COORDINATES SPC (1103 ID W)
Northing (Y) [meters]	4971998.812	359015.028
Easting (X) [meters]	571150.995	772447.790
Convergence [degrees]	0.63610335	-0.24623115
Point Scale	0.99966225	0.99994266
Combined Factor	0.99942425	0.99970459

US NATIONAL GRID DESIGNATOR: 11TNK7115071998(NAD 83)

BASE STATIONS USED

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
AJ3346	IDTD IDAHO DOT CORS ARP	N433910.574	W1161700.213	139139.3
DG8521	IDNP GRANGEVILLE APT CORS ARP	N455622.936	W1160716.529	115826.5
DK6947	IDSN SALMON CORS ARP	N451131.444	W1135348.906	176559.4

NEAREST NGS PUBLISHED CONTROL POINT

QB1399	MCCALL RM 4	N445350.	W1160550.	146.2

BASE STATION INFORMATION

```
STATION NAME: idtd  a    6 (Idaho DOT; Boise, Idaho  USA)
 MONUMENT: 49794S001
XYZ  -2047006.9304  -4144825.2934   4380816.4607  MON @ 2005.0000 (M)
XYZ        -0.0165         0.0020        -0.0086  VEL (M/YR)
NEU         0.0000         0.0000         0.0000  MON TO ARP (M)
NEU         0.0013        -0.0002         0.0667  ARP TO L1 PHASE CENTER (M)
NEU         0.0004         0.0006         0.0577  ARP TO L2 PHASE CENTER (M)
XYZ        -0.1527         0.0190        -0.0795  VEL TIMES 9.2756 YRS
XYZ         0.0000         0.0000         0.0000  MON TO ARP
XYZ        -0.0212        -0.0424         0.0470  ARP TO L1 PHASE CENTER
XYZ  -2047007.1042  -4144825.3168   4380816.4283  L1 PHS CEN @ 2014.2763
XYZ         0.0000         0.0000         0.0000  + XYZ ADJUSTMENTS
XYZ  -2047007.1042  -4144825.3168   4380816.4283  NEW L1 PHS CEN @ 2014.2763
XYZ  -2047007.0830  -4144825.2744   4380816.3813  NEW ARP @ 2014.2763
XYZ  -2047007.0830  -4144825.2744   4380816.3813  NEW MON @ 2014.2763
LLH  43 39 10.58993  243 42 59.72754    788.6846  NEW L1 PHS CEN @ 2014.2763
LLH  43 39 10.58989  243 42 59.72755    788.6179  NEW ARP @ 2014.2763
LLH  43 39 10.58989  243 42 59.72755    788.6179  NEW MON @ 2014.2763

STATION NAME: idnp  a    1 (GRANGEVILLE APT; Grangeville, Idaho, U.S.A.)
 MONUMENT: NO DOMES NUMBER
XYZ  -1956496.9899  -3989956.7983   4561306.0534  MON @ 2005.0000 (M)
XYZ        -0.0154         0.0000        -0.0065  VEL (M/YR)
NEU         0.0000         0.0000         0.0000  MON TO ARP (M)
NEU         0.0006         0.0004         0.0555  ARP TO L1 PHASE CENTER (M)
NEU         0.0003         0.0005         0.0579  ARP TO L2 PHASE CENTER (M)
XYZ        -0.1430         0.0000        -0.0607  VEL TIMES 9.2756 YRS
XYZ         0.0000         0.0000         0.0000  MON TO ARP
XYZ        -0.0164        -0.0344         0.0402  ARP TO L1 PHASE CENTER
XYZ  -1956497.1493  -3989956.8327   4561306.0329  L1 PHS CEN @ 2014.2763
XYZ        -0.0000        -0.0000        -0.0000  + XYZ ADJUSTMENTS
XYZ  -1956497.1493  -3989956.8327   4561306.0329  NEW L1 PHS CEN @ 2014.2763
XYZ  -1956497.1328  -3989956.7982   4561305.9927  NEW ARP @ 2014.2763
XYZ  -1956497.1328  -3989956.7982   4561305.9927  NEW MON @ 2014.2763
LLH  45 56 22.95284  243 52 43.40920    996.6401  NEW L1 PHS CEN @ 2014.2763
LLH  45 56 22.95282  243 52 43.40919    996.5846  NEW ARP @ 2014.2763
LLH  45 56 22.95282  243 52 43.40919    996.5846  NEW MON @ 2014.2763

STATION NAME: idsn  a    1 (Salmon; Salmon, Idaho  USA)
 MONUMENT: NO DOMES NUMBER
XYZ  -1824256.4272  -4117263.5733   4503257.3274  MON @ 2005.0000 (M)
XYZ        -0.0159         0.0002        -0.0070  VEL (M/YR)
NEU         0.0000         0.0000         0.0000  MON TO ARP (M)
NEU         0.0016        -0.0005         0.0634  ARP TO L1 PHASE CENTER (M)
NEU        -0.0012         0.0002         0.0621  ARP TO L2 PHASE CENTER (M)
XYZ        -0.1474         0.0020        -0.0647  VEL TIMES 9.2756 YRS
XYZ         0.0000         0.0000         0.0000  MON TO ARP
XYZ        -0.0181        -0.0396         0.0462  ARP TO L1 PHASE CENTER
XYZ  -1824256.5926  -4117263.6108   4503257.3089  L1 PHS CEN @ 2014.2763
XYZ        -0.0000        -0.0000        -0.0000  + XYZ ADJUSTMENTS
XYZ  -1824256.5926  -4117263.6108   4503257.3089  NEW L1 PHS CEN @ 2014.2763
XYZ  -1824256.5745  -4117263.5712   4503257.2627  NEW ARP @ 2014.2763
XYZ  -1824256.5745  -4117263.5712   4503257.2627  NEW MON @ 2014.2763
LLH  45 11 31.46229  246  6 11.03427   1184.6780  NEW L1 PHS CEN @ 2014.2763
LLH  45 11 31.46223  246  6 11.03429   1184.6146  NEW ARP @ 2014.2763
LLH  45 11 31.46223  246  6 11.03429   1184.6146  NEW MON @ 2014.2763
```

REMOTE STATION INFORMATION

```
STATION NAME: log0       1
 MONUMENT: NO DOMES NUMBER
XYZ  -1991385.0094  -4065128.1933   4480386.5255  MON @ 2014.2760 (M)
NEU         0.0001        -0.0000         1.6170  MON TO ARP (M)
NEU        -0.0001         0.0000         0.0348  ARP TO L1 PHASE CENTER (M)
NEU        -0.0000        -0.0003         0.0400  ARP TO L2 PHASE CENTER (M)
XYZ        -0.5039        -1.0286         1.1414  MON TO ARP
```

```
 XYZ        -0.0108        -0.0222         0.0245  ARP TO L1 PHASE CENTER
 XYZ  -1991385.5241  -4065129.2441   4480387.6914  L1 PHS CEN @ 2014.2763

 BASELINE NAME:   idtd  log0
 XYZ        -0.3236         0.3113         0.3585  + XYZ ADJUSTMENTS
 XYZ  -1991385.8477  -4065128.9328   4480388.0499  NEW L1 PHS CEN @ 2014.2763
 XYZ  -1991385.8369  -4065128.9106   4480388.0254  NEW ARP @ 2014.2763
 XYZ  -1991385.3330  -4065127.8820   4480386.8840  NEW MON @ 2014.2763
 LLH  44 53 52.30559  243 54  4.10293   1519.9907  NEW L1 PHS CEN @ 2014.2763
 LLH  44 53 52.30560  243 54  4.10293   1519.9560  NEW ARP @ 2014.2763
 LLH  44 53 52.30559  243 54  4.10293   1518.3389  NEW MON @ 2014.2763

 BASELINE NAME:   idnp  log0
 XYZ        -0.3170         0.3184         0.3622  + XYZ ADJUSTMENTS
 XYZ  -1991385.8412  -4065128.9257   4480388.0536  NEW L1 PHS CEN @ 2014.2763
 XYZ  -1991385.8303  -4065128.9035   4480388.0291  NEW ARP @ 2014.2763
 XYZ  -1991385.3264  -4065127.8749   4480386.8877  NEW MON @ 2014.2763
 LLH  44 53 52.30589  243 54  4.10305   1519.9867  NEW L1 PHS CEN @ 2014.2763
 LLH  44 53 52.30589  243 54  4.10305   1519.9520  NEW ARP @ 2014.2763
 LLH  44 53 52.30589  243 54  4.10305   1518.3349  NEW MON @ 2014.2763

 BASELINE NAME:   idsn  log0
 XYZ        -0.3188         0.3226         0.3631  + XYZ ADJUSTMENTS
 XYZ  -1991385.8429  -4065128.9215   4480388.0545  NEW L1 PHS CEN @ 2014.2763
 XYZ  -1991385.8321  -4065128.8993   4480388.0300  NEW ARP @ 2014.2763
 XYZ  -1991385.3282  -4065127.8707   4480386.8886  NEW MON @ 2014.2763
 LLH  44 53 52.30598  243 54  4.10290   1519.9853  NEW L1 PHS CEN @ 2014.2763
 LLH  44 53 52.30598  243 54  4.10290   1519.9505  NEW ARP @ 2014.2763
 LLH  44 53 52.30598  243 54  4.10290   1518.3335  NEW MON @ 2014.2763
```

G-FILES

```
Axx2014 411  14 411
B2014 4111758  14 4112146 1 page5 v1209.04IGS     126 1 2 27NGS   2014 414IFDDPX
IIGS08_1787          IGS   20140406
C00090002 -556217500   16 -796973924   30 -995705027   26 X1014ALOG0X1014AIDTD
D  1  2  9637311  1  3 -7948872  2  3 -8524361

Axx2014 411  14 411
B2014 4111758  14 4112146 1 page5 v1209.04IGS     126 1 2 27NGS   2014 414IFDDPX
IIGS08_1787          IGS   20140406
C00090003  348881936   13  751710766   26  809191050   24 X1014ALOG0X1014AIDNP
D  1  2  9489805  1  3 -8041283  2  3 -8278302

Axx2014 411  14 411
B2014 4111758  14 4112146 1 page5 v1209.04IGS     126 1 2 27NGS   2014 414IFDDPX
IIGS08_1787          IGS   20140406
C00090005 1671287537   17 -521357005   31  228703741   35 X1014ALOG0X1014AIDSN
D  1  2  8484585  1  3 -8276694  2  3 -9602799
```

POST-FIT RMS BY SATELLITE VS. BASELINE

```
            OVERALL     01     03     04     07     08     09     10     11
 idtd-log0|  0.014  0.016  0.016    ...  0.012  0.018  0.018  0.014    ...
                13     14     16     19     20     23     25     27     31
 idtd-log0|  0.011    ...  0.011  0.017  0.010    ...    ...  0.023  0.015
                32
 idtd-log0|  0.012

            OVERALL     01     03     04     05     07     08     09     10
 idnp-log0|  0.012  0.017  0.014    ...    ...  0.011  0.017  0.025  0.013
                11     13     14     16     19     20     23     25     27
 idnp-log0|    ...  0.010    ...  0.010    ...  0.009    ...    ...  0.019
                31     32
 idnp-log0|  0.013  0.011
```

```
           OVERALL     01     03     04     07     08     09     10     11
idsn-log0|  0.013  0.020  0.016    ...  0.012  0.016  0.019  0.016    ...
              13     14     16     19     20     23     25     27     31
idsn-log0|  0.011    ...  0.009  0.020    ...    ...    ...  0.019  0.014
              32
idsn-log0|  0.011
```

OBS BY SATELLITE VS. BASELINE

```
           OVERALL     01     03     04     07     08     09     10     11
idtd-log0|   2580    102    123    ...    240     95     22    224    ...
              13     14     16     19     20     23     25     27     31
idtd-log0|    384    ...    400     25    358    ...    ...    115    242
              32
idtd-log0|    250
           OVERALL     01     03     04     05     07     08     09     10
idnp-log0|   2494     88    117    ...    ...    235     95     22    222
              11     13     14     16     19     20     23     25     27
idnp-log0|    ...    384    ...    413    ...    349    ...    ...    109
              31     32
idnp-log0|    210    250
           OVERALL     01     03     04     07     08     09     10     11
idsn-log0|   2038     74    116    ...    213     85     22    191    ...
              13     14     16     19     20     23     25     27     31
idsn-log0|    377    ...    380     25    ...    ...    ...    113    236
              32
idsn-log0|    206
```

Covariance Matrix for the xyz OPUS Position (meters^2).

```
   0.0000012133     0.0000002215    -0.0000001805
   0.0000002215     0.0000046778    -0.0000003759
  -0.0000001805    -0.0000003759     0.0000040622
```

Covariance Matrix for the enu OPUS Position (meters^2).

```
   0.0000017088    -0.0000008650     0.0000008786
  -0.0000008650     0.0000037047    -0.0000000557
   0.0000008786    -0.0000000557     0.0000045398
```

Horizontal network accuracy =   0.00417 meters.
Vertical network accuracy   =   0.00418 meters.

Derivation of NAD 83 vector components

Position of reference station ARP in NAD_83(2011)(EPOCH:2010.0000).

	Xa(m)	Ya(m)	Za(m)	
IDTD	-2047006.22078	-4144826.51873	4380816.41783	2010.00
IDNP	-1956496.26611	-3989958.01493	4561306.00085	2010.00
IDSN	-1824255.71270	-4117264.80367	4503257.28843	2010.00

Position of reference station monument in NAD_83(2011)(EPOCH:2010.0000).

	Xr(m)	Yr(m)	Zr(m)	
IDTD	-2047006.22078	-4144826.51873	4380816.41783	2010.00
IDNP	-1956496.26611	-3989958.01493	4561306.00085	2010.00
IDSN	-1824255.71270	-4117264.80367	4503257.28843	2010.00

Velocity of reference station monument in NAD_83(2011)(EPOCH:2010.0000).

	Vx (m/yr)	Vy (m/yr)	Vz (m/yr)
IDTD	-0.01650	0.00200	-0.00860
IDNP	-0.01540	0.00000	-0.00650
IDSN	-0.01590	0.00020	-0.00700

Vectors from unknown station monument to reference station monument in NAD_83(2011)(EPOCH:2010.0000).

	Xr-X= DX(m)	Yr-Y= DY(m)	Zr-Z= DZ(m)	
IDTD	-55621.75178	-79697.41773	-99570.48717	2010.00
IDNP	34888.20289	75171.08607	80919.09585	2010.00
IDSN	167128.75630	-52135.70267	22870.38343	2010.00

STATE PLANE COORDINATES - U.S. Survey Foot
SPC (1103 ID W)

Northing (Y)	[feet]	1177868.471
Easting (X)	[feet]	2534272.458
Convergence	[degrees]	-0.24623115
Point Scale		0.99994266
Combined Factor		0.99970459

** Orthometric Heights Above Future Geopotential Datum.

Prototype orthometric heights are now being made available as a precursor to the completion of GRAV-D and the replacement of NAVD 88 with a new geopotential reference system. The following height reflects the current best estimate of the true orthometric height, based on the existing gravimetric geoid model. This height is subject to change as data and modeling for the gravimetric geoid change throughout the lifetime of the GRAV-D project, or as new realizations of the ITRF are adopted. However, at the completion of GRAV-D, these heights will supersede the NAVD 88 heights

APPROX ORTHO HGT: 1532.774 (m) [PROTOTYPE (Computed using USGG2012,GRS80,IGS08)]

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.

Point Description Sheet

McCall Control Point - SG1 (spruce grove sub.)

Survey Type - GPS Base Station

Prepared By:

City of McCall

Point Approved By:

Russell Surveying, Inc.

PLS: John Russell, ID PLS # 6021

Prepared By: D. Bourne RSI 2/12

Place Seal Here

NAD83 (CORS96) NAVD88 GEOID03
Epoch 2002.00
Geodetic Coordinates

Latitude:	44° 55' 45.02354"	
Longitude:	116° 07' 02.73688"	
Ellipsoid Height:	5093.945	Feet
Orthometric Elev:	1567.424	Meters
Orthometric Elev:	5142.455	Feet

State Plane Coordinates
Zone 1103, Idaho West

3.280833 meter to feet

Northing:	362479.670	Meters
Easting	776258.470	Meters
Northing:	1189235.263	*Feet*
Easting	2546774.406	*Feet*

McCall Modified Coordinates

Northing:	362478.838	Meters
Easting	776257.831	Meters
Northing:	***1189235.032***	*Feet*
Easting	***2546777.660***	*Feet*

STATE PLANE

Scale Factor:	0.999940262
Elevation Factor:	0.9997564
Combined Factor:	0.999696677

Survey Method

Auton 6 hr occ Nov.12 to March 13. OPUS corr

Location Description
1" Pink cap on 5/8"x30" rebar, flush, 10 ft southeast of low top of cut East Side Drive.

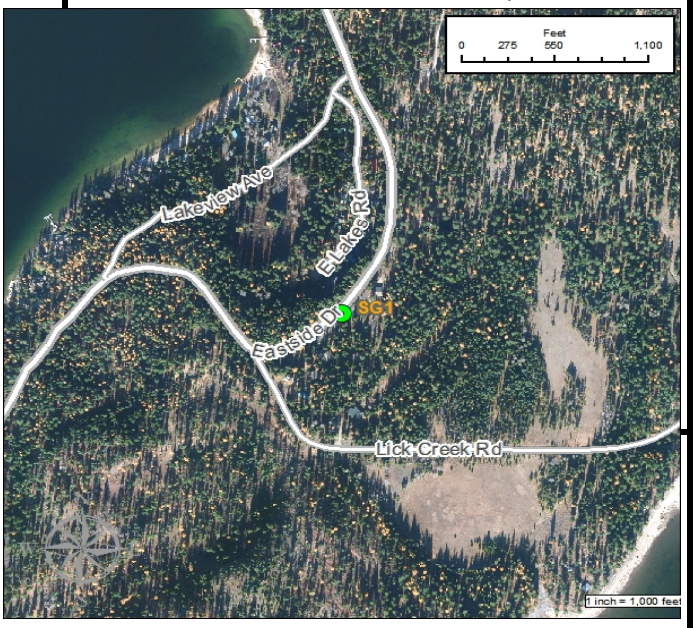
Monument Photos:

Close up of point

Picture of Equipment set up on point

Reference location Photo

Reference location Map



Point Description Sheet

McCall Control Point - SpgMtn1

Survey Type - GPS Base Station

Prepared By:

City of McCall

Point Approved By:

Russell Surveying, Inc.

PLS: John Russell, ID PLS # 6021

Prepared By: D. Bourne RSI 2/12

Place Seal Here

NAD83 (CORS96) NAVD88 GEOID03

Epoch 2002.00

Geodetic Coordinates

Latitude:	44° 54' 40.29213"	
Longitude:	116° 04' 49.38878"	
Ellipsoid Height:	***5014.954***	Feet
Orthometric Elev:	***1543.437***	Meters
Orthometric Elev:	5063.759	Feet

State Plane Coordinates

Zone 1103, Idaho West

3.280833 meter to feet

Northing:	**360490.673**	Meters
Easting	**773911.735**	Meters
Northing:	*1182709.7*	*Feet*
Easting	*2539075.16*	*Feet*

McCall Modified Coordinates

Northing:	**360490.002**	Meters
Easting	**773912.018**	Meters
Northing:	*1182707.494*	*Feet*
Easting	*2539076.088*	*Feet*

STATE PLANE

Scale Factor:	0.9999417
Elevation Factor:	0.9997602
Combined Factor:	0.9997019

Survey Method

Auton 2.5hr. Occ. 7/29/11 OPUS corr.

Location Description
5/8"x30"rebar, red cap mkd Control, flush, toe of fill east side of SpgMtnBlvd, 40' north of int. with Wooley Ave., golf course to East

Monument Photos:

Close up of point	Picture of Equipment set up on point

Reference location Photo	Reference location Map

Point Description Sheet

McCall Control Point - VC5-B

Survey Type - GPS Base Station

Prepared By:

City of McCall

Point Approved By:

Russell Surveying, Inc.

PLS: John Russell, ID PLS # 6021

Prepared By: D. Bourne RSI 2/12

Place Seal Here

NAD83 (CORS96) NAVD88 GEOID03

Epoch 2002.00

Geodetic Coordinates

Latitude:	44° 52' 12.14340"	
Longitude:	116° 06' 22.74170"	
Ellipsoid Height:	***5038.249***	Feet
Orthometric Elev:	***1550.653***	Meters
Orthometric Elev:	5087.434	Feet

State Plane Coordinates

Zone 1103, Idaho West

3.280833 meter to feet

Northing:	**355926.386**	Meters
Easting	**771844.038**	Meters
Northing:	*1167735.03*	*Feet*
Easting	*2532291.39*	*Feet*

McCall Modified Coordinates

Northing:	**360490.002**	Meters
Easting	**771843.696**	Meters
Northing:	*1182707.494*	*Feet*
Easting	*2532290.270*	*Feet*

STATE PLANE

Scale Factor:	0.999943078
Elevation Factor:	0.999759064
Combined Factor:	0.999702156

Survey Method

Auton 3.5hr. Occ. 6/22/11
3.75 hr.6/24/11
6.5 hr. 6/28/11
4 hr.7/23/11
4 hr.8/4/11 OPUS corr. Avg.

Location Description

1/2"x36" rb mkd PLS6021, 0.2' up, west shldr Norwood Road at crest of hill s of McCall airport

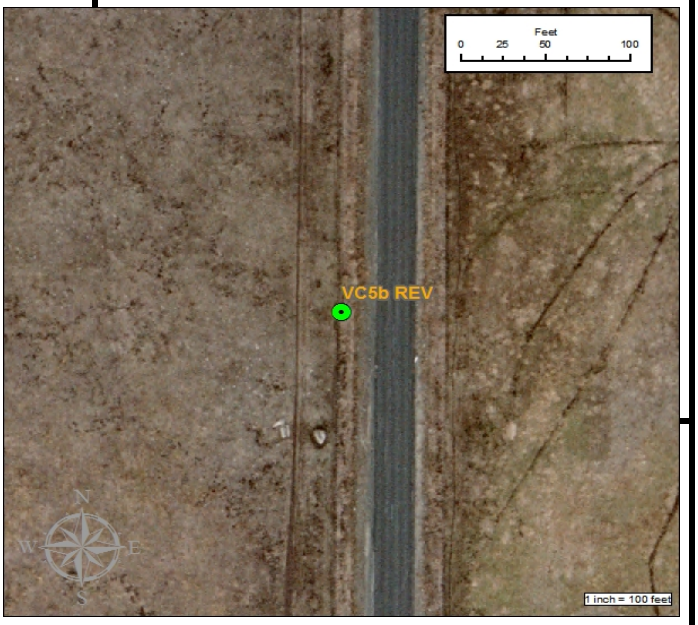
Monument Photos:

Close up of point

Picture of Equipment set up on point

Reference location Photo

Reference location Map



Point Description Sheet

McCall Control Point - 5-8RMnwSprings

Survey Type - RTK

Prepared By:

City of McCall

Point Approved By:

Russell Surveying, Inc.

PLS: John Russell, ID PLS # 6021

Prepared By: D. Bourne RSI 2/12

Place Seal Here

NAD83 (CORS96) NAVD88 GEOID03
Epoch 2002.00
Geodetic Coordinates

Latitude:	44° 53' 43.79540"	
Longitude:	116° 05' 26.07414"	
Ellipsoid Height:	4999.793	Feet
Orthometric Elev:	1538.847	Meters
Orthometric Elev:	5048.700	Feet

State Plane Coordinates
Zone 1103, Idaho West

3.280833 meter to feet

Northing:	358750.09	Meters
Easting	773099.75	Meters
Northing:	***1176999.15***	*Feet*
Easting	***2536411.18***	*Feet*

McCall Modified Coordinates

Northing:	358748.898	Meters
Easting	773099.789	Meters
Northing:	***1176995.22***	*Feet*
Easting	***2536411.3***	*Feet*

Scale Factor:	0.9999422
Elevation Factor:	0.9997609
Combined Factor:	0.9997031

Survey Method

3 min. occ. 8/10/11, from MDMS

Location Description

5/8" rb mkd PLS8577, flush, east edge conc bollards, approx nw cor Springs

Monument Photos:

Close up of point

Picture of Equipment set up on point

Reference location Photo

Reference location Photo

Point Description Sheet

McCall Control Point - 5/8 WB REV

Prepared By:

City of McCall

Point Approved By:

Russell Surveying, Inc.

PLS: John Russell, ID PLS # 6021

Prepared By: D. Bourne RSI 2/12

Place Seal Here

NAD83 (CORS96) NAVD88 GEOID03

Epoch 2002.00

Geodetic Coordinates

Latitude:	44° 55' 01.51623"	
Longitude:	116° 05' 33.73529"	
Ellipsoid Height:	4972.590	Feet
Orthometric Elev:	1530.571	Meters
Orthometric Elev:	5021.548	Feet

State Plane Coordinates

Zone 1103, Idaho West

3.280833 meter to feet

Northing:	361149.840	Meters
Easting	772941.794	Meters
Northing:	***1184872.31***	*Feet*
Easting	***2535892.94***	*Feet*

McCall Modified Coordinates

Northing:	361149.367	Meters
Easting	772941.785	Meters
Northing:	***1184870.76***	*Feet*
Easting	***2535892.91***	*Feet*

Scale Factor:	0.9999423
Elevation Factor:	0.9997622
Combined Factor:	0.9997045

Survey Method

15 sec. occ. 8/10/11, set from Mc1

Location Description

5/8" rb mkd PLS8444, flush, east edge new lawn , approx se cor Lot 15

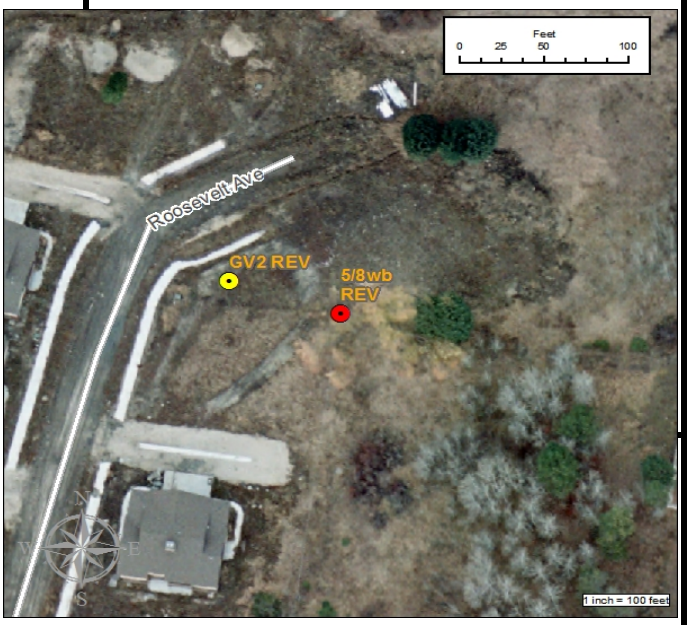
Monument Photos:

Close up of point

Picture of Equipment set up on point

Reference location Photo

Reference location Photo



Point Description Sheet

McCall Control Point - Alpine-Wooley 1

Survey Type - RTK

Prepared By:

City of McCall

Point Approved By:

Russell Surveying, Inc.

PLS: John Russell, ID PLS # 6021

Prepared By: D. Bourne RSI 2/12

Place Seal Here

NAD83 (CORS96) NAVD88 GEOID03
Epoch 2002.00
Geodetic Coordinates

Latitude:	44° 54' 44.20262"	
Longitude:	116° 05' 29.62170"	
Ellipsoid Height:	4991.426	Feet
Orthometric Elev:	1536.266	Meters
Orthometric Elev:	5040.232	Feet

State Plane Coordinates
Zone 1103, Idaho West

3.280833 meter to feet

Northing:	360615.033	Meters
Easting	773029.764	Meters
Northing:	***1183117.7***	*Feet*
Easting	***2536181.56***	*Feet*

McCall Modified Coordinates

Northing:	360614.400	Meters
Easting	773029.781	Meters
Northing:	***1183115.62***	*Feet*
Easting	***2536181.61***	*Feet*

STATE PLANE

Scale Factor:	0.9999423
Elevation Factor:	0.9997613
Combined Factor:	0.9997036

Survey Method

3 min. occ. 7/29/11, set from SpgMtn1

Location Description

5/8"x24"rebar, red cap mkd Control, 0.2' down, se quadrant of int. Alpine & Wooley Ave., 4.5' East stop sign

Monument Photos:

Close up of point

Picture of Equipment set up on point

Reference location Photo

Reference location Map

Point Description Sheet

McCall Control Point - Aspens1

Survey Type - RTK

Prepared By:

City of McCall

Point Approved By:

Russell Surveying, Inc.

PLS: John Russell, ID PLS # 6021

Prepared By: D. Bourne RSI 2/12

Place Seal Here

NAD83 (CORS96) NAVD88 GEOID03

Epoch 2002.00

Geodetic Coordinates

Latitude:	44° 55' 00.23236"	
Longitude:	116° 05' 22.51466"	
Ellipsoid Height:	4977.274	Feet
Orthometric Elev:	1531.952	Meters
Orthometric Elev:	5026.080	Feet

State Plane Coordinates

Zone 1103, Idaho West

3.280833 meter to feet

Northing:	361109.176	Meters
Easting	773187.719	Meters
Northing:	*1184738.9*	*Feet*
Easting	*2536699.78*	*Feet*

McCall Modified Coordinates

Northing:	361108.691	Meters
Easting	773187.784	Meters
Northing:	*1184737.311*	*Feet*
Easting	*2536699.996*	*Feet*

STATE PLANE

Scale Factor:	0.9999422
Elevation Factor:	0.999762
Combined Factor:	0.9997042

Survey Method

3 min. occ. 7/29/11, set from SpgMtn1, ELEVATIONS REVISED BY SKIFTUN LAND SURVEYING, INC SUMMER OF 2014. PREVIOUSE ELEVATION WAS "5026.85 FT".

Location Description
5/8"x30"rebar, red cap mkd Control, 0.2' down, 1.6' West of wood fence end, north of Lawrence St. bend

Monument Photos:

Close up of point

Picture of Equipment set up on point

Reference location Photo

Reference location Map

Point Description Sheet

McCall Control Point - CP84

Survey Type - RTK

Prepared By:

City of McCall

Point Approved By:

Russell Surveying, Inc.

PLS: John Russell, ID PLS # 6021

Prepared By: D. Bourne RSI 2/12

Place Seal Here

NAD83 (CORS96) NAVD88 GEOID03
Epoch 2002.00
Geodetic Coordinates

Latitude:	44° 53' 39.48434545"	
Longitude:	116° 05' 26.17959"	
Ellipsoid Height:	4997.411	Feet
Orthometric Elev:	1538.121	Meters
Orthometric Elev:	5046.318	Feet

State Plane Coordinates
Zone 1103, Idaho West

3.280833 meter to feet

Northing:	358617.01	Meters
Easting	773096.83	Meters
Northing:	***1176562.53***	*Feet*
Easting	***2536401.6***	*Feet*

McCall Modified Coordinates

Northing:	358615.776	Meters
Easting	773096.870	Meters
Northing:	***1176558.473***	*Feet*
Easting	***2536401.722***	*Feet*

STATE PLANE

Scale Factor:	0.9999422
Elevation Factor:	0.999761
Combined Factor:	0.9997033

Survey Method

3 min. occ. 8/10/11, from MDMS, Trimble 5800 rover, 5700 base station.

Location Description
5/8"x30"rb, pink cap mkd Control J.Russell, 0.2' up, approx sw cor Springs (was CP84 redriven) pp S57dW 11'

Monument Photos:

Close up of point

Picture of Equipment set up on point

Reference location Photo

Reference location Map

Point Description Sheet

McCall Control Point - Divot1

Survey Type - RTK

Prepared By:

City of McCall

Point Approved By:

Russell Surveying, Inc.

PLS: John Russell, ID PLS # 6021

Prepared By: D. Bourne RSI 2/12

Place Seal Here

NAD83 (CORS96) NAVD88 GEOID03
Epoch 2002.00
Geodetic Coordinates

Latitude:	44° 54' 56.84443"	
Longitude:	116° 05' 02.19756"	
Ellipsoid Height:	5010.423	Feet
Orthometric Elev:	1542.056	Meters
Orthometric Elev:	5059.228	Feet

State Plane Coordinates
Zone 1103, Idaho West

3.280833 meter to feet

Northing:	361002.750	Meters
Easting	773632.887	Meters
Northing:	***1184389.74***	*Feet*
Easting	***2538160.31***	*Feet*

McCall Modified Coordinates

Northing:	361002.233	Meters
Easting	773633.085	Meters
Northing:	***1184388.040***	*Feet*
Easting	***2538160.956***	*Feet*

STATE PLANE

Scale Factor:	0.9999419
Elevation Factor:	0.9997604
Combined Factor:	0.9997023

Survey Method

Trimble 5800 rtk observation. 3 minute occupation 7/29/11, from SpgMtn1 base station
Monument set during 2009 survey for gate location.

Location Description
1/2"x36" rebar, orange cap mkd PLS6021, in face of south sloping berm, 5/8"rebar blue cap mkd PLS6021 falls east 4.3', north of Divot Lane culdesac

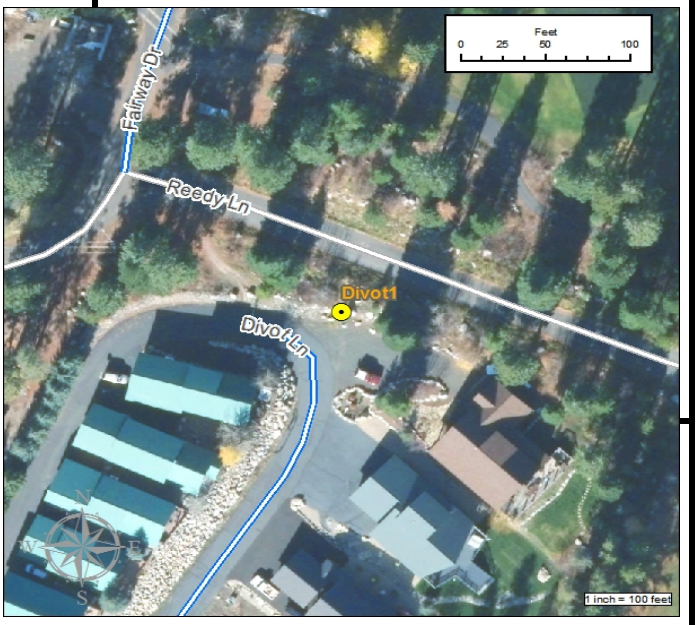
Monument Photos:

Close up of point

Picture of Equipment set up on point

Reference location Photo

Reference location Map



Point Description Sheet

McCall Control Point - EQ16

Survey Type - RTK

Prepared By:

City of McCall

Point Approved By:

Russell Surveying, Inc.

PLS: John Russell, ID PLS # 6021

Prepared By: D. Bourne RSI 2/12

Place Seal Here

NAD83 (CORS96) NAVD88 GEOID03
Epoch 2002.00
Geodetic Coordinates

Latitude:	44° 53' 52.04347"	
Longitude:	116° 05' 07.46611"	
Ellipsoid Height:	5025.303	Feet
Orthometric Elev:	1546.707	Meters
Orthometric Elev:	5074.487	Feet

State Plane Coordinates
Zone 1103, Idaho West

3.280833 meter to feet

Northing:	359002.990	Meters
Easting	773509.068	Meters
Northing:	***1177828.86***	*Feet*
Easting	***2537754.08***	*Feet*

McCall Modified Coordinates

Northing:	359001.870	Meters
Easting	773509.229	Meters
Northing:	***1177825.182***	*Feet*
Easting	***2537754.605***	*Feet*

STATE PLANE

Scale Factor:	0.999942
Elevation Factor:	0.9997597
Combined Factor:	0.9997016

Survey Method

3 min. occ. 7/23/11, from VC5B

Location Description
2.75" brass cap mkd CE-LS1811, 0.3' down in pavement, E of int of Samson Trail and Deinhard Lane, sw of Middle School

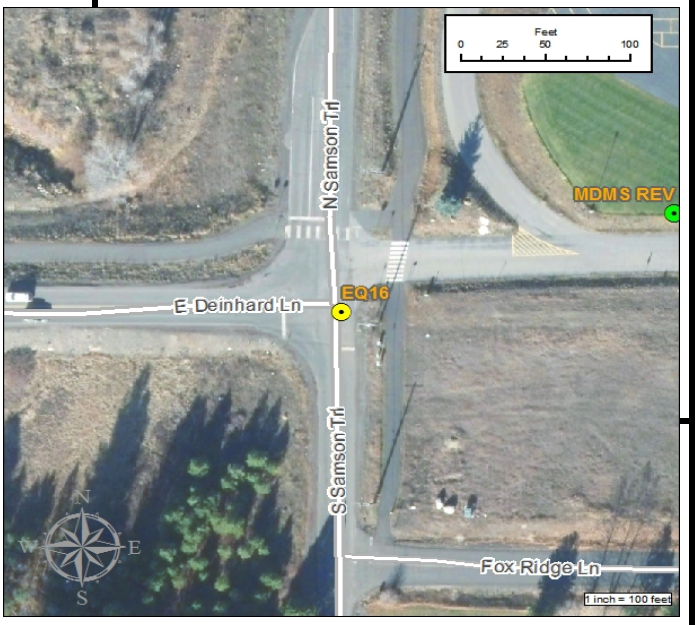
Monument Photos:

Close up of point

Picture of Equipment set up on point

Reference location Photo

Reference location Map



Point Description Sheet

McCall Control Point - FairwayPark 1

Survey Type - RTK

Prepared By:

City of McCall

Point Approved By:

Russell Surveying, Inc.

PLS: John Russell, ID PLS # 6021

Prepared By: D. Bourne RSI 2/12

Place Seal Here

NAD83 (CORS96) NAVD88 GEOID03
Epoch 2002.00
Geodetic Coordinates

Latitude:	44° 55' 07.91801"	
Longitude:	116° 05' 23.59562"	
Ellipsoid Height:	4973.804	Feet
Orthometric Elev:	1530.895	Meters
Orthometric Elev:	5022.610	Feet

State Plane Coordinates
Zone 1103, Idaho West

3.280833 meter to feet

Northing:	361346.511	Meters
Easting	773165.005	Meters
Northing:	*1185517.56*	*Feet*
Easting	*2536625.26*	*Feet*

McCall Modified Coordinates

Northing:	361346.098	Meters
Easting	773165.063	Meters
Northing:	*1185516.204*	*Feet*
Easting	*2536625.453*	*Feet*

STATE PLANE

Scale Factor:	0.9999422
Elevation Factor:	0.9997621
Combined Factor:	0.9997043

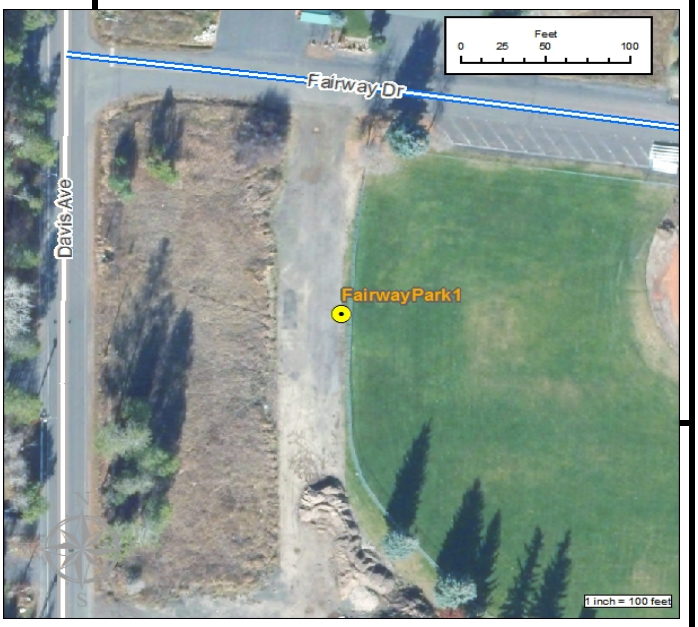
Survey Method

Auton 1 hr.11/9/10 OPUS corr. 3 min. 7/29/11, from SpgMtn1, avg. ELEVATIONS REVISED BY SKIFTUN LAND SURVEYING, INC SUMMER OF 2014. PREVIOUSE ELEVATION WAS "5022.48 FT".

Location Description
1/2"x24" rebar, orange cap mkd PLS6021, 0.2' down, 4.2' west of baseball field fence, 12th post south of gate post

Monument Photos:

Close up of point	Picture of Equipment set up on point

Reference location Photo	Reference location Map
	

Point Description Sheet

McCall Control Point - GC1

Survey Type - RTK

Prepared By:

City of McCall

Point Approved By:

Russell Surveying, Inc.

PLS: John Russell, ID PLS # 6021

Prepared By: D. Bourne RSI 2/12

Place Seal Here

NAD83 (CORS96) NAVD88 GEOID03
Epoch 2002.00
Geodetic Coordinates

Latitude:	44° 54' 54.60604"	
Longitude:	116° 05' 38.21296"	
Ellipsoid Height:	4975.332	Feet
Orthometric Elev:	1531.407	Meters
Orthometric Elev:	5024.291	Feet

State Plane Coordinates
Zone 1103, Idaho West

3.280833 meter to feet

Northing:	360936.956	Meters
Easting	772842.686	Meters
Northing:	***1184173.88***	*Feet*
Easting	***2535567.79***	*Feet*

McCall Modified Coordinates

Northing:	360936.419	Meters
Easting	772842.646	Meters
Northing:	***1184172.116***	*Feet*
Easting	***2535567.658***	*Feet*

STATE PLANE

Scale Factor:	0.9999424
Elevation Factor:	0.9997621
Combined Factor:	0.9997045

Survey Method

3 min. occ. 8/10/11, set from Mc1

Location Description
5/8"x30"rb, pink cap mkd Control J.Russell, 0.2' up, sw quad on intersection, 30' S Hemlock, 60' W Roosevelt, pp S74dE, 18', guy anchor W 19'

Monument Photos:

Close up of point

Picture of Equipment set up on point

Reference location Photo

Reference location Map

Point Description Sheet

McCall Control Point - GTP101 (Lucks Point Beach)

Survey Type - RTK

Prepared By:

City of McCall

Point Approved By:

Russell Surveying, Inc.

PLS: John Russell, ID PLS # 6021

Prep. By: J.Russell RSI Sept. 2014

Place Seal Here

NAD83 (CORS96) NAVD88 GEOID03
Epoch 2002.00
Geodetic Coordinates

Latitude:	44° 56' 34.34790"	
Longitude:	116° 03' 09.94319"	
Ellipsoid Height:	4944.727	Feet
Orthometric Elev:	1521.897	Meters
Orthometric Elev:	4993.090	Feet

State Plane Coordinates
Zone 1103, Idaho West

3.280833 meter to feet

Northing:	364005.17	Meters
Easting	775473.37	Meters
Northing:	***1194240.18***	*Feet*
Easting	***2544198.63***	*Feet*

McCall Modified Coordinates

Northing:	3918106.800	Meters
Easting	8347098.931	Meters
Northing:	1194241.463	Feet
Easting	2544201.101	Feet

Scale Factor:	0.999940353
Elevation Factor:	0.99976363
Combined Factor:	0.999703994

Survey Method

3 min. occ 8/30/10 from DOL2.

Location Description

3/4"x21" bolt with 1" square head, set 0.7 ft below surface of sand in Lucks Point beach. A 10" yellow pint bears S63dE 18.3 ft

Monument Photos:

Close up of point

Picture of Equipment set up on point

Reference location Photo

Reference location Photo

Point Description Sheet

McCall Control Point - GTP102 (Lucks Point Beach)

Survey Type - RTK

Prepared By:

City of McCall

Point Approved By:

Russell Surveying, Inc.

PLS: John Russell, ID PLS # 6021

Prepared By: D. Bourne RSI 2/12

Place Seal Here

NAD83 (CORS96) NAVD88 GEOID03
Epoch 2002.00
Geodetic Coordinates

Latitude:	44° 56' 34.34790"	
Longitude:	116° 03' 38.80739"	
Ellipsoid Height:	4944.471	Feet
Orthometric Elev:	1521.819	Meters
Orthometric Elev:	4992.834	Feet

State Plane Coordinates
Zone 1103, Idaho West

3.280833 meter to feet

Northing:	364005.172	Meters
Easting	775473.371	Meters
Northing:	1194240.182	*Feet*
Easting	2544198.625	*Feet*

McCall Modified Coordinates

Northing:	363988.340	Meters
Easting	775505.852	Meters
Northing:	***1194187.467***	*Feet*
Easting	***2544310.538***	*Feet*

STATE PLANE

Scale Factor:	0.999940728
Elevation Factor:	0.99976354
Combined Factor:	0.999704282

Survey Method

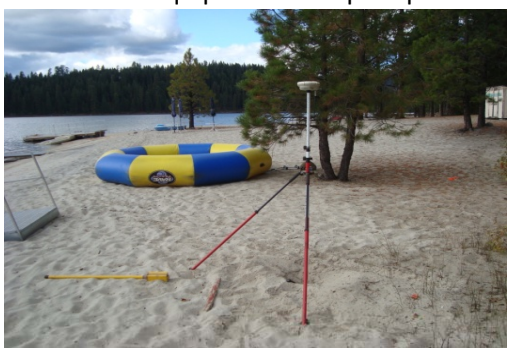
3 min. occ 8/30/10 from DOL2.

Location Description
3/4"x21" bolt with 1" square head, set 0.7 ft below surface of sand in Lucks Point beach. A 5" & 3" yellow pine bears N45dW 16.8 ft.

Monument Photos:

Close up of point

Picture of Equipment set up on point



Reference location Photo

Reference location Map

Point Description Sheet

McCall Control Point - GTP103 (Warren Wagon Road)

Survey Type - RTK

Prepared By:

City of McCall

Point Approved By:

Russell Surveying, Inc.

PLS: John Russell, ID PLS # 6021

Prepared By: D. Bourne RSI 2/12

Place Seal Here

NAD83 (CORS96) NAVD88 GEOID03
Epoch 2002.00
Geodetic Coordinates

Latitude:	44° 56' 50.92844"	
Longitude:	116° 06' 24.12332"	
Ellipsoid Height:	4988.913	Feet
Orthometric Elev:	1535.466	Meters
Orthometric Elev:	5037.607	Feet

State Plane Coordinates
Zone 1103, Idaho West

3.280833 meter to feet

Northing:	364531.886	Meters
Easting	771851.534	Meters
Northing:	1195968.241	*Feet*
Easting	2532315.983	*Feet*

McCall Modified Coordinates

Northing:	363988.340	Meters
Easting	771849.572	Meters
Northing:	***1194187.467***	*Feet*
Easting	***2532314.870***	*Feet*

STATE PLANE

Scale Factor:	0.999943073
Elevation Factor:	0.99976142
Combined Factor:	0.999704511

Survey Method

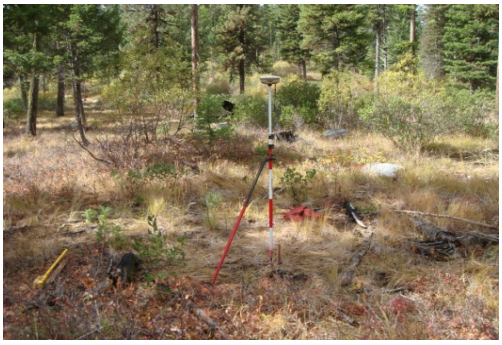
3 min. occ 9/25/10 from GG1

Location Description
1/2" rb with red cap mkd IPCO, 0.1 above ground in flat area of NE 1/4 Sec.32 T19N R3E. A shattered boulder, 1.5 ft diam bears West 5.3 ft. Stumps with 5" spikes in top ctr: 36" fir S75d17'13"E, 31.81 ft. 24" fir N73d50'08"W., 28.7 ft. 42" pine N67d22'42"E, 82.75 ft. GTP104 bears N80d21'44"W., 209.38 ft. Bikepath along Warren Wagon road falls about 90 ft southeast

Monument Photos:

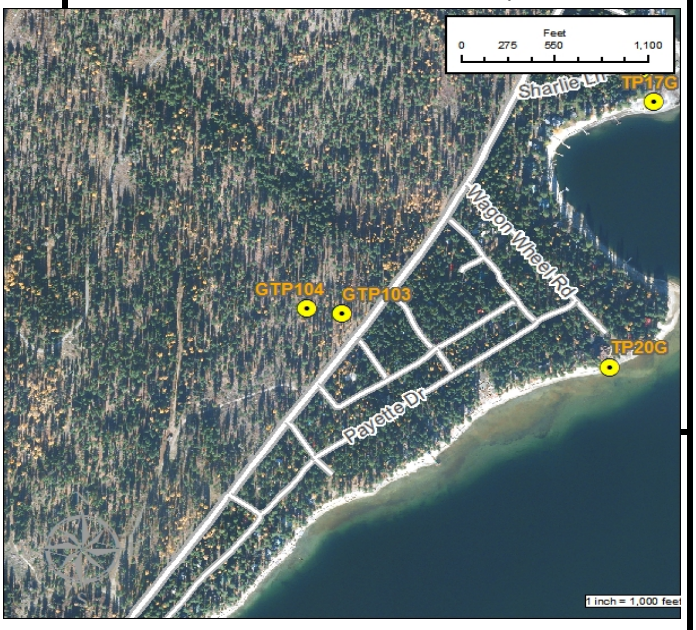
Close up of point

Picture of Equipment set up on point



Reference location Photo

Reference location Map



Point Description Sheet

McCall Control Point - GTP104 (Warren Wagon Road)

Survey Type - RTK

Prepared By:

City of McCall

Point Approved By:

Russell Surveying, Inc.

PLS: John Russell, ID PLS # 6021

Prepared By: D. Bourne RSI 2/12

Place Seal Here

NAD83 (CORS96) NAVD88 GEOID03
Epoch 2002.00
Geodetic Coordinates

Latitude:	44° 56' 51.26561"	
Longitude:	116° 06' 26.99577"	
Ellipsoid Height:	5000.228	Feet
Orthometric Elev:	1538.915	Meters
Orthometric Elev:	5048.922	Feet

State Plane Coordinates
Zone 1103, Idaho West

3.280833 meter to feet

Northing:	364542.571	Meters
Easting	771788.614	Meters
Northing:	1196003.296	*Feet*
Easting	2532109.555	*Feet*

McCall Modified Coordinates

Northing:	364542.357	Meters
Easting	771786.634	Meters
Northing:	***1196005.109***	*Feet*
Easting	***2532108.380***	*Feet*

STATE PLANE

Scale Factor:	0.999943116
Elevation Factor:	0.99976088
Combined Factor:	0.999704013

Survey Method

3 min. occ 9/25/10 from GG1

Location Description

1/2" rb with red cap mkd PLS6021, 0.1 above ground slanted to northwest at toe of slope in NE 1/4 Sec.32 T19N R3E. A 6 ft boulder bears S70dW 24.0 ft. A 20" pine bears S23dW, 24.0 ft. ATV trails south & west

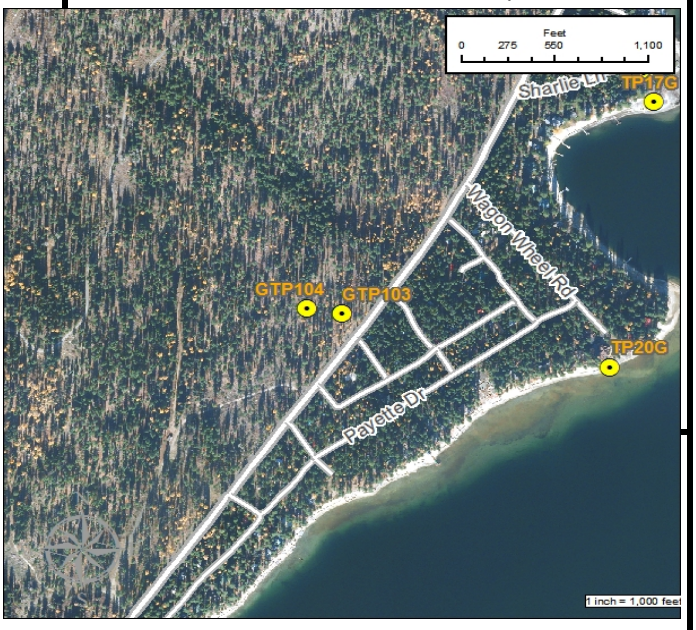
Monument Photos:

Close up of point

Picture of Equipment set up on point

Reference location Photo

Reference location Map



Point Description Sheet

McCall Control Point - GV2 REV

Survey Type - RTK

Prepared By:

City of McCall

Point Approved By:

Russell Surveying, Inc.

PLS: John Russell, ID PLS # 6021

Prepared By: D. Bourne RSI 2/12

Place Seal Here

NAD83 (CORS96) NAVD88 GEOID03
Epoch 2002.00
Geodetic Coordinates

Latitude:	44° 55' 01.72146"	
Longitude:	116° 05' 34.65212"	
Ellipsoid Height:	4972.772	Feet
Orthometric Elev:	1530.626	Meters
Orthometric Elev:	5021.728	Feet

State Plane Coordinates
Zone 1103, Idaho West

3.280833 meter to feet

Northing:	361156.260	Meters
Easting	772921.713	Meters
Northing:	***1184893.38***	*Feet*
Easting	***2535827.06***	*Feet*

McCall Modified Coordinates

Northing:	361155.790	Meters
Easting	772921.697	Meters
Northing:	***1184891.833***	*Feet*
Easting	***2535827.011***	*Feet*

STATE PLANE

Scale Factor:	0.9999423
Elevation Factor:	0.9997622
Combined Factor:	0.9997046

Survey Method

3 min. occ. 8/10/11, set from Mc1

Location Description
5/8"x30"rb, pink cap mkd Control J.Russell, 0.2' down, in new sod Lot 15 Blk 2 GV2, 2" aspens N14dE, 18.2' & N84dW, 24.4'

Monument Photos:

Close up of point

Picture of Equipment set up on point

Reference location Photo

Reference location Map

Point Description Sheet

McCall Control Point - Market 1

Survey Type - RTK

Prepared By:

City of McCall

Point Approved By:

Russell Surveying, Inc.

PLS: John Russell, ID PLS # 6021

Prepared By: D. Bourne RSI 2/12

Place Seal Here

NAD83 (CORS96) NAVD88 GEOID03
Epoch 2002.00
Geodetic Coordinates

Latitude:	44° 54' 42.80525"	
Longitude:	116° 05' 45.31869"	
Ellipsoid Height:	4977.354	Feet
Orthometric Elev:	1532.023	Meters
Orthometric Elev:	5026.312	Feet

State Plane Coordinates
Zone 1103, Idaho West

3.280833 meter to feet

Northing:	360573.358	Meters
Easting	772685.285	Meters
Northing:	***1182980.97***	*Feet*
Easting	***2535051.38***	*Feet*

McCall Modified Coordinates

Northing:	360572.712	Meters
Easting	772685.198	Meters
Northing:	***1182978.852***	*Feet*
Easting	***2535051.096***	*Feet*

STATE PLANE

Scale Factor:	0.9999425
Elevation Factor:	0.999762
Combined Factor:	0.9997045

Survey Method

3 min. occ. 7/29/11, set from Mc1

Location Description
5/8"x30"rebar, red cap mkd Control, flush, West edge of concrete walk, West of Railroad Ave & East of Farmers Market area, South of Pine St.

Monument Photos:

Close up of point	Picture of Equipment set up on point

Reference location Photo	Reference location Map

Point Description Sheet

McCall Control Point - McCall1 1/4 Crnr

Prepared By: Garrett Mapp

City of McCall

Point Approved By:

Orbitech, Inc.

PLS: Shelby Griggs

NAD83 (CORS96) NAVD88 GEOID03
Epoch 2002.00
Geodetic Coordinates

Latitude:	44° 53' 51.99565 "	
Longitude:	116° 06' 21.59615 "	
Ellipsoid Height:	4969.340	
Orthometric Elev:	1529.575	Meters
Orthometric Elev:	5018.280	Feet
Geoid Height:	48.94	**Feet**

State Plane Coordinates
Zone 1103, Idaho West

3.280833 meter to feet

Northing Meters:	359008.441
Easting Meters:	771882.696
Northing Feet:	1177846.740
Easting Feet:	2532418.220

McCall Modified Coordinates

Northing Meters:	359007.3221
Easting Meters:	771882.3659
Northing Feet:	1177843.07
Easting Feet:	2532417.138

Factors

Scale Factor:	0.9999431
Elevation Factor:	0.9997626
Combined Factor:	0.9997057

Survey Method

Location Description and Monument Photos ------->

Location Description

Found 2 1/2" diameter brass disk in concrete approximately 270 feet west of Mission Street, approximately 14 feet south of the center of a dirt lane/driveway running east-west and 22 feet north of the corner of a split rail fence south and west.
This is Point #2 of a geodetic survey by CH2M Hill and is the 1/4 corner common to Sections 16 and 17, T18N, R3E.

Monument Photos:

Close up of point

Picture of Equipment set up on point

Reference location Photo

Reference location Photo

Point Description Sheet

McCall Control Point - WQ16 (West 1/4 Corner Sec. 16)

Survey Type - RTK

Prepared By:

City of McCall

Point Approved By:

Russell Surveying, Inc.

PLS: John Russell, ID PLS # 6021

Prepared By: L.Schoonover RSI July 2014

Place Seal Here

NAD83 (CORS96) NAVD88 GEOID03
Epoch 2002.00
Geodetic Coordinates

Latitude:	44° 53' 51.9953"	
Longitude:	116° 06' 21.59667"	
Ellipsoid Height:	4969.290	Feet
Orthometric Elev:	1529.619	Meters
Orthometric Elev:	5018.424	Feet

State Plane Coordinates
Zone 1103, Idaho West

3.280833 meter to feet

Northing:	359008.431	Meters
Easting	771882.685	Meters
Northing:	1177846.707	*Feet*
Easting	2532418.186	*Feet*

McCall Modified Coordinates

Northing:	359006.558	Meters
Easting	771880.733	Meters
Northing:	***1177843.037***	*Feet*
Easting	***2532417.104***	*Feet*

STATE PLANE

Scale Factor:	0.999943051
Elevation Factor:	0.99976236
Combined Factor:	0.999705422

Survey Method

3 min. occ 10/15/10 from MSD1

Location Description
3" brass cap flush in ctr of old Deinhard Lane, mkd LS8022 Nov.95, about 20.3 ft. south of manhole. Sec 16 T18N R3E

Monument Photos:

Close up of point	Picture of Equipment set up on point

Reference location Photo	Reference location Map

Point Description Sheet

McCall Control Point - McCall2 1/4 Crnr

Prepared By: Garrett Mapp

City of McCall

Point Approved By:

Orbitech, Inc.

PLS: Shelby Griggs

NAD83 (CORS96) NAVD88 GEOID03
Epoch 2002.00
Geodetic Coordinates

Latitude:	44° 55' 36.42978 "	
Longitude:	116° 05' 07.55002 "	
Ellipsoid Height:	4974.268	Feet
Orthometric Elev:	1530.986	Meters
Orthometric Elev:	5022.910	Feet
Geoid Height:	48.642	Feet

State Plane Coordinates
Zone 1103, Idaho West

3.280833 meter to feet

Northing Meters:	362225.133
Easting Meters:	773520.545
Northing Feet:	1188400.170
Easting Feet:	2537791.730

McCall Modified Coordinates

Northing Meters:	362224.9858
Easting Meters:	773520.7099
Northing Feet:	1188399.687
Easting Feet:	2537792.271

Factors

Scale Factor:	0.999942
Elevation Factor:	0.9997624
Combined Factor:	0.9997044

Survey Method

Location Description and Monument Photos ------->

Location Description

Found 3" diameter brass disk in concrete on the north side of Miles Standish Road on the south boundary of Ponderosa State Park (0.2 miles northeasterly of main park entrance), at a power line crossing, approximately 17 feet north of the center of the road, 6 feet north of the north edge of pavement and 19 feet southwest of a sanitary sewer lift station pump well. This is Point #4 of a geodetic survey by CH2M Hill and is the 1/4 corner common to Sections 3 and 4, T18N, R3E.

Monument Photos:

Close up of point

Picture of Equipment set up on point

Reference location Photo

Reference location Photo

Point Description Sheet

McCall Control Point - McCall3 Sec Crnr

Prepared By: Garrett Mapp

City of McCall

Point Approved By:

Orbitech, Inc.

PLS: Shelby Griggs

NAD83 (CORS96) NAVD88 GEOID03
Epoch 2002.00
Geodetic Coordinates

Latitude:	44° 56' 02.37687 "	
Longitude:	116° 10' 06.01416 "	
Ellipsoid Height:	5058.720	Feet
Orthometric Elev:	1556.870	Meters
Orthometric Elev:	5107.830	Feet
Geoid Height:	49.110	Feet

State Plane Coordinates
Zone 1103, Idaho West

3.280833 meter to feet

Northing Meters:	363056.459
Easting Meters:	766979.858
Northing Feet:	1191127.610
Easting Feet:	2516332.830

McCall Modified Coordinates

Northing Meters:	363056.5623
Easting Meters:	766978.0481
Northing Feet:	1191127.951
Easting Feet:	2516326.891

Factors

Scale Factor:	0.9999467
Elevation Factor:	0.9997584
Combined Factor:	0.9997051

Survey Method

Location Description and Monument Photos ------->

Location Description

Found 3 1/4" diameter BLM brass cap on galvanized iron pipe with cap 0.4 feet above ground level, at intersection of Longview Road and Whitefield Lane, approximately 23 feet north of the center of Longview Road, 23 feet west of the center of Whitefield Lane and 2 feet west of an old fence corner post with brace (wire has been removed).
This is Point #6 of a geodetic survey by CH2M Hill and is the NW section corner of Section 1, T18N, R2E

Monument Photos:

Close up of point

Picture of Equipment set up on point

Reference location Photo

Reference location Photo

Point Description Sheet

McCall Control Point - McCall4 1/16 Crnr

Prepared By: Garrett Mapp

City of McCall

Point Approved By:

Orbitech, Inc.

PLS: Shelby Griggs

NAD83 (CORS96) NAVD88 GEOID03
Epoch 2002.00
Geodetic Coordinates

Latitude:	44° 54' 04.93116 "	
Longitude:	116° 07' 54.45020 "	
Ellipsoid Height:	5001.026	Feet
Orthometric Elev:	1539.274	Meters
Orthometric Elev:	5050.100	Feet
Geoid Height:	49.074	Feet

State Plane Coordinates
Zone 1103, Idaho West

3.280833 meter to feet

Northing Meters:	359416.983
Easting Meters:	769847.417
Northing Feet:	1179187.100
Easting Feet:	2525740.810

McCall Modified Coordinates

Northing Meters:	359415.9881
Easting Meters:	769846.4724
Northing Feet:	1179183.835
Easting Feet:	2525737.712

Factors

Scale Factor:	0.9999445
Elevation Factor:	0.9997611
Combined Factor:	0.9997056

Survey Method

Location Description and Monument Photos ------->

Location Description

Found 2 1/2" diameter brass disk in concrete at approximately the point of intersection of the centerlines of West Valley Road to the east and Wisdom Road to the south.
This is Point #21 of a geodetic survey by CH2M Hill and is the NE 1/16 Corner of Section 18, T18N, R3E.

Monument Photos:

Close up of point

Picture of Equipment set up on point

Reference location Photo

Reference location Photo

Point Description Sheet

McCall Control Point - McGolf

Survey Type - RTK

Prepared By:

City of McCall

Point Approved By:

Russell Surveying, Inc.

PLS: John Russell, ID PLS # 6021

Prepared By: D. Bourne RSI 2/12

Place Seal Here

NAD83 (CORS96) NAVD88 GEOID03
Epoch 2002.00
Geodetic Coordinates

Latitude:	44° 54' 56.17705"	
Longitude:	116° 04' 58.66071"	
Ellipsoid Height:	4992.830	Feet
Orthometric Elev:	1536.694	Meters
Orthometric Elev:	5041.636	Feet

State Plane Coordinates
Zone 1103, Idaho West

3.280833 meter to feet

Northing:	360981.831	Meters
Easting	773710.374	Meters
Northing:	***1184321.1***	*Feet*
Easting	***2538414.53***	*Feet*

McCall Modified Coordinates

Northing:	360981.308	Meters
Easting	773710.596	Meters
Northing:	***1184319.387***	*Feet*
Easting	***2538415.256***	*Feet*

STATE PLANE

Scale Factor:	0.9999418
Elevation Factor:	0.9997612
Combined Factor:	0.9997031

Survey Method

3 min. occ. 7/29/11, set from SpgMtn1

Location Description

5/8"x30"rebar, red cap mkd Control, 0.3' up in flowers, 3' West of cart path, 4.4' South of Clubhouse Lane

Monument Photos:

Close up of point

Picture of Equipment set up on point

Reference location Photo

Reference location Map

Point Description Sheet

McCall Control Point - Mill 1

Survey Type - RTK

Prepared By:

City of McCall

Point Approved By:

Russell Surveying, Inc.

PLS: John Russell, ID PLS # 6021

Prepared By: D. Bourne RSI 2/12

Place Seal Here

NAD83 (CORS96) NAVD88 GEOID03

Epoch 2002.00

Geodetic Coordinates

Latitude:	44° 54' 55.82226"	
Longitude:	116° 05' 43.94151"	
Ellipsoid Height:	4967.202	Feet
Orthometric Elev:	1528.928	Meters
Orthometric Elev:	5016.157	Feet

State Plane Coordinates

Zone 1103, Idaho West

3.280833 meter to feet

Northing:	360975.031	Meters
Easting	772717.203	Meters
Northing:	***1184298.79***	*Feet*
Easting	***2535156.1***	*Feet*

McCall Modified Coordinates

Northing:	360974.506	Meters
Easting	772717.125	Meters
Northing:	***1184297.072***	*Feet*
Easting	***2535155.844***	*Feet*

STATE PLANE

Scale Factor:	0.9999425
Elevation Factor:	0.9997625
Combined Factor:	0.999705

Survey Method

3 min. occ. 7/29/11, set from Mc1

Location Description

5/8"x30"rb red cap mkd Control, flush, in South berm face btwn. Mill Rd. and McCall Ave. 16.2' North of Hemlock St

Monument Photos:

Close up of point

Picture of Equipment set up on point

Reference location Photo

Reference location Map

Point Description Sheet

McCall Control Point - neCrystalBlueWater

Survey Type - RTK

Prepared By:

City of McCall

Point Approved By:

Russell Surveying, Inc.

PLS: John Russell, ID PLS # 6021

Prepared By: D. Bourne RSI 2/12

Place Seal Here

NAD83 (CORS96) NAVD88 GEOID03
Epoch 2002.00
Geodetic Coordinates

Latitude:	44° 55' 01.64977"	
Longitude:	116° 05' 26.20783"	
Ellipsoid Height:	4972.419	Feet
Orthometric Elev:	1530.472	Meters
Orthometric Elev:	5021.223	Feet

State Plane Coordinates
Zone 1103, Idaho West

3.280833 meter to feet

Northing:	361153.267	Meters
Easting	773106.904	Meters
Northing:	***1184883.56***	*Feet*
Easting	***2536434.64***	*Feet*

McCall Modified Coordinates

Northing:	361152.796	Meters
Easting	773106.944	Meters
Northing:	***1184882.011***	*Feet*
Easting	***2536434.774***	*Feet*

STATE PLANE

Scale Factor:	0.9999422
Elevation Factor:	0.9997622
Combined Factor:	0.9997045

Survey Method

3 min. occ. 11/9/10, from FairwayPark1
3 min. occ. 7/29/11, from SpgMtn1, avg.

Location Description
5/8"rebar bare, 0.6' down, west of Davis Ave., NE Crystal Blue Waters townhomes

Monument Photos:

Close up of point

Picture of Equipment set up on point

Reference location Photo

Reference location Map

Point Description Sheet

McCall Control Point - NWPauls 1

Survey Type - RTK

Prepared By:

City of McCall

Point Approved By:

Russell Surveying, Inc.

PLS: John Russell, ID PLS # 6021

Prepared By: D. Bourne RSI 2/12

Place Seal Here

NAD83 (CORS96) NAVD88 GEOID03

Epoch 2002.00

Geodetic Coordinates

Latitude:	44° 54' 37.43446"	
Longitude:	116° 06' 10.65859"	
Ellipsoid Height:	4965.617	Feet
Orthometric Elev:	1528.445	Meters
Orthometric Elev:	5014.573	Feet

State Plane Coordinates

Zone 1103, Idaho West

3.280833 meter to feet

Northing:	360409.969	Meters
Easting	772128.759	Meters
Northing:	*1182444.92*	*Feet*
Easting	*2533225.51*	*Feet*

McCall Modified Coordinates

Northing:	360409.274	Meters
Easting	772128.504	Meters
Northing:	*1182442.638*	*Feet*
Easting	*2533224.675*	*Feet*

STATE PLANE

Scale Factor:	0.9999429
Elevation Factor:	0.9997625
Combined Factor:	0.9997054

Survey Method

3 min. occ. 7/29/11, from Mc1

Location Description
1/2" rebar, orange cap mkd PLS9585, flush in paved area NW Pauls parking lot, 19.9' North of conc wall, South of Lake St.

Monument Photos:

Close up of point	Picture of Equipment set up on point

Reference location Photo	Reference location Map

Point Description Sheet

McCall Control Point - nwUBank

Survey Type - RTK

Prepared By:

City of McCall

Point Approved By:

Russell Surveying, Inc.

PLS: John Russell, ID PLS # 6021

Prepared By: D. Bourne RSI 2/12

Place Seal Here

NAD83 (CORS96) NAVD88 GEOID03

Epoch 2002.00

Geodetic Coordinates

Latitude:	44° 54' 35.95813"	
Longitude:	116° 05' 57.04138"	
Ellipsoid Height:	**4972.187**	Feet
Orthometric Elev:	**1530.517**	Meters
Orthometric Elev:	**5021.370**	Feet

State Plane Coordinates

Zone 1103, Idaho West

3.280833 meter to feet

Northing:	360363.107	Meters
Easting	772427.250	Meters
Northing:	***1182291.17***	*Feet*
Easting	***2534204.81***	*Feet*

McCall Modified Coordinates

Northing:	360362.397	Meters
Easting	772427.085	Meters
Northing:	***1182288.844***	*Feet*
Easting	***2534204.271***	*Feet*

STATE PLANE

Scale Factor:	0.9999427
Elevation Factor:	0.9997622
Combined Factor:	0.9997049

Survey Method

3 min. occ. 7/23/11, from VC5B

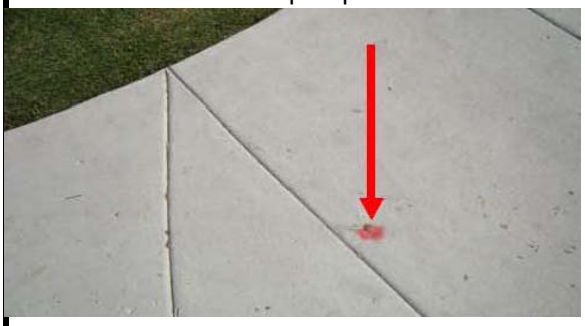
3 min. occ. 7/29/11, from Mc1, avg. ELEVATIONS REVISED BY SKIFTUN LAND SURVEYING, INC SUMMER OF 2014. PREVIOUSE ELEVATION WAS "5021.50 FT".

Location Description

5/8" rebar, bare, flush in concrete walk, 6.3' South of Lenora, 9.3' West of 2nd Street, NW corner of U.Bank

Monument Photos:

Close up of point



Picture of Equipment set up on point

Reference location Photo

Reference location Map

Point Description Sheet

McCall Control Point - pk-pobCrystalBeach

Survey Type - RTK

Prepared By:

City of McCall

Point Approved By:

Russell Surveying, Inc.

PLS: John Russell, ID PLS # 6021

Prepared By: D. Bourne RSI 2/12

Place Seal Here

NAD83 (CORS96) NAVD88 GEOID03
Epoch 2002.00
Geodetic Coordinates

Latitude:	44° 54' 37.62982"	
Longitude:	116° 06' 21.12730"	
Ellipsoid Height:	4957.357	Feet
Orthometric Elev:	1525.997	Meters
Orthometric Elev:	5006.541	Feet

State Plane Coordinates
Zone 1103, Idaho West

3.280833 meter to feet

Northing:	360417.002	Meters
Easting	771899.159	Meters
Northing:	***1182467.99***	*Feet*
Easting	***2532472.23***	*Feet*

McCall Modified Coordinates

Northing:	360416.309	Meters
Easting	771898.834	Meters
Northing:	***1182465.720***	*Feet*
Easting	***2532471.169***	*Feet*

STATE PLANE

Scale Factor:	0.999943
Elevation Factor:	0.9997629
Combined Factor:	0.999706

Survey Method

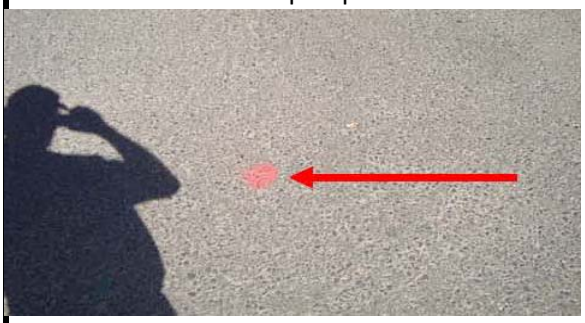
3 min. occ. 7/23/11, from VC5B, ELEVATIONS REVISED BY SKIFTUN LAND SURVEYING, INC SUMMER OF 2014. PREVIOUSE ELEVATION WAS "5006.63 FT".

Location Description

PK nail, flush in center of paved approach to Crystal Beach condos. (POB??)

Monument Photos:

Close up of point



Picture of Equipment set up on point

Reference location Photo

Reference location Map

Point Description Sheet

McCall Control Point - SeParkStPlaza

Survey Type - RTK

Prepared By:

City of McCall

Point Approved By:

Russell Surveying, Inc.

PLS: John Russell, ID PLS # 6021

Prepared By: D. Bourne RSI 2/12

Place Seal Here

NAD83 (CORS96) NAVD88 GEOID03
Epoch 2002.00
Geodetic Coordinates

Latitude:	44° 54' 34.25335"	
Longitude:	116° 05' 52.28574"	
Ellipsoid Height:	**4979.877**	Feet
Orthometric Elev:	**1532.861**	Meters
Orthometric Elev:	**5029.060**	Feet

State Plane Coordinates
Zone 1103, Idaho West

3.280833 meter to feet

Northing:	360310.037	Meters
Easting	772531.339	Meters
Northing:	***1182117.06***	*Feet*
Easting	***2534546.31***	*Feet*

McCall Modified Coordinates

Northing:	360309.311	Meters
Easting	772531.205	Meters
Northing:	***1182114.677***	*Feet*
Easting	***2534545.870***	*Feet*

STATE PLANE

Scale Factor:	0.9999426
Elevation Factor:	0.9997618
Combined Factor:	0.9997045

Survey Method

3 min. occ. 7/23/11, from VC5B
3 min. occ. 7/29/11, from MC1, avg. ELEVATIONS REVISED BY SKIFTUN LAND SURVEYING, INC SUMMER OF 2014. PREVIOUSE ELEVATION WAS "5029.16 FT".

Location Description

5/8" rebar, yellow cap mkd PLS7314, 0.2' up, West edge of concrete walk, SE corner of Park Street Plaza, West of 3rd St.

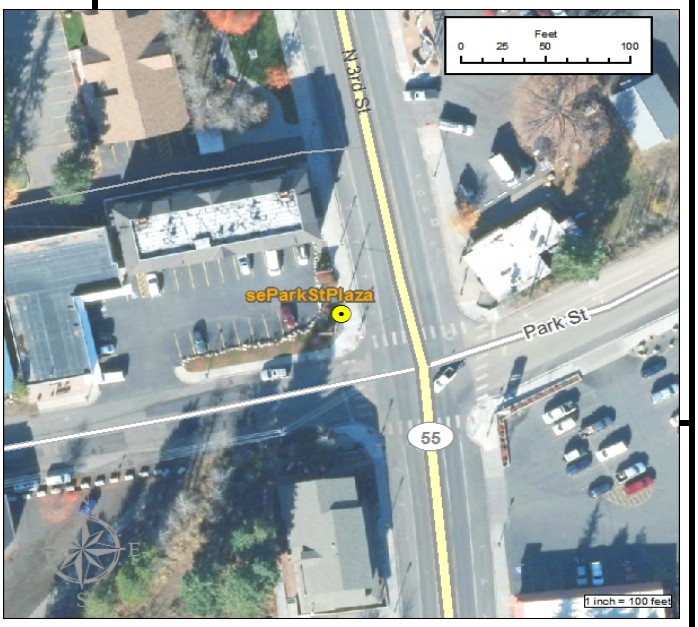
Monument Photos:

Close up of point

Picture of Equipment set up on point

Reference location Photo

Reference location Map



Point Description Sheet

McCall Control Point - TP16G (Payette Lake Cottage Sites Park)

Survey Type - RTK

Prepared By:

City of McCall

Point Approved By:

Russell Surveying, Inc.

PLS: John Russell, ID PLS # 6021

Prepared By: D. Bourne RSI 2/12

Place Seal Here

NAD83 (CORS96) NAVD88 GEOID03
Epoch 2002.00
Geodetic Coordinates

Latitude:	44° 57' 06.51782"	
Longitude:	116° 07' 59.50023"	
Ellipsoid Height:	4945.935	Feet
Orthometric Elev:	1567.424	Meters
Orthometric Elev:	4994.629	Feet

State Plane Coordinates
Zone 1103, Idaho West

3.280833 meter to feet

Northing:	365010.742	Meters
Easting	772393.359	Meters
Northing:	1197539.287	*Feet*
Easting	2534093.620	*Feet*

McCall Modified Coordinates

Northing:	365010.669	Meters
Easting	772391.560	Meters
Northing:	***1197541.564***	*Feet*
Easting	***2534093.044***	*Feet*

STATE PLANE

Scale Factor:	0.999942701
Elevation Factor:	0.99976348
Combined Factor:	0.99970619

Survey Method

3 min. occ 9/25/10 from GG1

Location Description

1/2" rb with orange cap mkd LS6021, 0.2 ft down in parking area of Payette Lakes Cottage Sites community park. SW 1/4 Sec.28 T19N R3E

Monument Photos:

Close up of point

Picture of Equipment set up on point

Reference location Photo

Reference location Map

Point Description Sheet

McCall Control Point - TP17G (Payette Lake Cottage Sites Park)

Survey Type - RTK

Prepared By:

City of McCall

Point Approved By:

Russell Surveying, Inc.

PLS: John Russell, ID PLS # 6021

Prepared By: J.Russell RSI Aug. 2014

Place Seal Here

NAD83 (CORS96) NAVD88 GEOID03
Epoch 2002.00
Geodetic Coordinates

Latitude:	44° 57' 04.69555"	
Longitude:	116° 05' 58.60446"	
Ellipsoid Height:	4941.906	Feet
Orthometric Elev:	1521.138	Meters
Orthometric Elev:	4990.600	Feet

State Plane Coordinates
Zone 1103, Idaho West

3.280833 meter to feet

Northing:	364954.408	Meters
Easting	772412.750	Meters
Northing:	1197354.465	*Feet*
Easting	2534157.241	*Feet*

McCall Modified Coordinates

Northing:	364954.318	Meters
Easting	772410.957	Meters
Northing:	***1197356.686***	*Feet*
Easting	***2534156.685***	*Feet*

STATE PLANE

Scale Factor:	0.999942688
Elevation Factor:	0.99976367
Combined Factor:	0.99970637

Survey Method

3 min. occ 9/25/10 from GG1

Location Description

1/2" rb with red cap mkd IPCO, flush in bouldery rip-rap of Payette Lakes Cottage Sites community park. Sewer manhole A-59 bears N88d37'W., 41.3 ft.

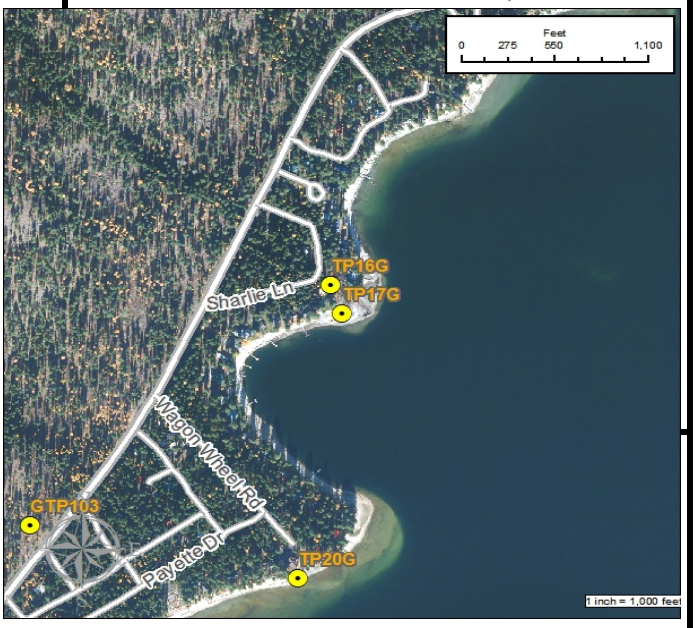
Monument Photos:

Close up of point

Picture of Equipment set up on point

Reference location Photo

Reference location Map



Point Description Sheet

McCall Control Point - TP20G (Payette Lake Cottage Sites Park)

Survey Type - RTK

Prepared By:

City of McCall

Point Approved By:

Russell Surveying, Inc.

PLS: John Russell, ID PLS # 6021

Prepared By: J.Russell RSI Aug. 2014

Place Seal Here

NAD83 (CORS96) NAVD88 GEOID03
Epoch 2002.00
Geodetic Coordinates

Latitude:	44° 56' 47.53982"	
Longitude:	116° 06' 02.12588"	
Ellipsoid Height:	4943.244	Feet
Orthometric Elev:	1521.546	Meters
Orthometric Elev:	4991.938	Feet

State Plane Coordinates
Zone 1103, Idaho West

3.280833 meter to feet

Northing:	364425.185	Meters
Easting	772333.275	Meters
Northing:	1195618.172	*Feet*
Easting	2533896.496	*Feet*

McCall Modified Coordinates

Northing:	364424.936	Meters
Easting	772331.458	Meters
Northing:	***1195619.869***	*Feet*
Easting	***2533895.861***	*Feet*

STATE PLANE

Scale Factor:	0.999942742
Elevation Factor:	1
Combined Factor:	0.999942742

Survey Method

3 min. occ 9/25/10 from GG1

Location Description

1/2" rb with red cap mkd IPCO, flush in ground of short rock jetty opposite Lot 85 Payette Lakes Cottage Sites, west of end of Wagon Wheel Road. Sewer manhole A-47 bears N41d40'11"'W., 11.31 ft. A 3.25" alum cap mkd "50' access" bears N38d40'48"E 101.77 ft. NW 1/4 Sec. 33 T19N R3E

Monument Photos:

Close up of point

Picture of Equipment set up on point

Reference location Photo

Reference location Map

Point Description Sheet

McCall Control Point - Y188

Prepared By: Garrett Mapp

City of McCall

Point Approved By:

Orbitech, Inc.

PLS: Shelby Griggs

NAD83 (CORS96) NAVD88 GEOID03
Epoch 2002.00
Geodetic Coordinates

Latitude:	45° 02' 15.57857 "	
Longitude:	116° 03' 29.09214 "	
Ellipsoid Height:	4984.068	Feet
Orthometric Elev:	1533.586	Meters
Orthometric Elev:	5031.440	Feet
Geoid Height:	47.372	Feet

State Plane Coordinates
Zone 1103, Idaho West

3.280833 meter to feet

Northing Meters:	374537.412
Easting Meters:	775726.393
Northing Feet:	1228794.700
Easting Feet:	2545028.750

McCall Modified Coordinates

Northing Meters:	374540.9827
Easting Meters:	775727.2244
Northing Feet:	1228806.416
Easting Feet:	2545031.477

Factors

Scale Factor:	0.9999406
Elevation Factor:	0.9997619
Combined Factor:	0.9997025

Survey Method

Location Description and Monument Photos ------->

Location Description

Found 3 1/2" diameter USC&GS brass disk set in concrete curb at northeast corner of bridge over Fisher Creek on Warren Wagon Road, located approximately 10.0 miles northerly from West Lake Street (Idaho State Highway 55) and approximately 2.2 miles northerly from the intersection with East Side Road.

This point is in the NGS database with a PID = RA0268. See NGS data sheet for a detailed description.

Monument Photos:

Close up of point

Picture of Equipment set up on point

Reference location Photo

Reference location Photo

Point Description Sheet

McCall Control Point - X-rxwall

Survey Type - RTK

Prepared By:

City of McCall

Point Approved By:

Russell Surveying, Inc.

PLS: John Russell, ID PLS # 6021

Prepared By: D. Bourne RSI 2/12

Place Seal Here

NAD83 (CORS96) NAVD88 GEOID03

Epoch 2002.00

Geodetic Coordinates

Latitude:	44° 54' 37.79509"	
Longitude:	116° 06' 15.40203"	
Ellipsoid Height:	4962.928	Feet
Orthometric Elev:	1527.695	Meters
Orthometric Elev:	5012.112	Feet

State Plane Coordinates

Zone 1103, Idaho West

3.280833 meter to feet

Northing:	360421.554	Meters
Easting	772024.763	Meters
Northing:	***1182482.93***	*Feet*
Easting	***2532884.32***	*Feet*

McCall Modified Coordinates

Northing:	360420.862	Meters
Easting	772024.476	Meters
Northing:	***1182480.659***	*Feet*
Easting	***2532883.377***	*Feet*

STATE PLANE

Scale Factor:	0.999942953
Elevation Factor:	0.999762651
Combined Factor:	0.999705618

Survey Method

15 sec. occ. 7/23/11, from VC5B

Location Description
X' chisled in top of rock wall 1.7' wide, 2' tall, SE cor. Crystal Beach Condos, North of Lake St.

Monument Photos:

Close up of point	Picture of Equipment set up on point

Reference location Photo	Reference location Map