

June 3, 2002

MEMORANDUM FOR: Clifton S. Middleton
Project Director, Survey Section B

Curt Smith
NGS Geodetic Advisor, Montana and Idaho

FROM: Charles W. Challstrom
Director, National Geodetic Survey

SUBJECT: INSTRUCTIONS: Canadian Base Network(CBN)2002
Task Number: 8K6D2000

GENERAL:

The National Geodetic Survey (NGS) will conduct a GPS survey in May and June 2002 in cooperation with the Geodetic Survey Division (GSD), Geomatics Canada, in support of GSD's CBN 2002 campaign.

PURPOSE:

This survey will provide critical ties between the Canadian Base Network and the Federal Base Network (FBN). Four stations will be occupied: AIRP (PID TN0877), located in Montana; A 439 (PID TJ0451), located in Montana; FAA D50 A (PID TG2076), located in North Dakota; and W 406 (PID TE0150), located in North Dakota.

GPS SPECIFICATIONS:

Station occupation and observing procedures shall be carried out in accordance with the "NGS Operations Handbook" and appropriate equipment user manuals. Data formats and digital file definitions are given in "Input Formats and Specifications of the National Geodetic Survey Data Base," Volume I, Horizontal Control Data, Federal Geodetic Control Subcommittee, September 1994. Success in meeting the accuracy standards will be based on repeatability of measurements, adjustment residuals, and analysis of loop misclosures.

General specifications for the project are given in "Geometric Geodetic Accuracy Standards and Specifications for Using GPS Relative Positioning Techniques," Version 5.0: dated May 11, 1988, reprinted with corrections August 1, 1989.

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Specific to this project, the observing schedule is as follows:

Monday, May 20th - W 406
Wednesday, May 22nd - FAA D 50 A
Friday, May 24th - A 439
Monday, June 10th - AIRP

Observing sessions will be 24 hours in duration if the receiver can be left unattended, otherwise do 12 hours. Sessions will begin at 9:00 AM local time.

GPS DATA ACQUISITION:

Data collection shall be accomplished at 30-second epoch intervals referred to the minute. The Trimble 4000 series receivers must collect data in the compressed mode as specified in the Trimble users manual. Track satellites down to a 5-degree elevation angle.

Meteorological data is not required.

Antenna set-up is critical to the success of this project. Fixed-height tripods are preferred for all receivers. The plumbing bubbles on the antenna pole of the fixed-height tripod must be shaded when plumbing is performed. Plumbing bubbles must be shaded for 3 minutes before checking and/or re-plumbing. The perpendicularity of the poles must be checked at the beginning of the project and any other time there is suspicion of a problem.

When a fixed-height tripod is not used, the height of the antenna must be carefully measured to prevent station set-up blunders. Tribrachs used for these set-ups must be checked and adjusted when necessary. Totally independent measurements of the antenna height above the mark in both metric units and English units must be made before and after each session.

Antenna set-up will be checked and recorded on the observing log at the beginning, middle, and end of the session.

A legible rubbing of the marks must be made at the time of the first occupation of a station. When not feasible to make the required rubbing, a plan sketch of the mark must be substituted, accurately recording all markings.

The success of this project requires that the highest quality GPS data be collected. Therefore, during each station occupation, the operators shall carefully monitor the operation of the receivers. Any irregularities in the data due to equipment malfunction, DOD

adjustment of the satellite orbit, obstructions, etc., must be reported to the Field Operations Branch (N/NGS41) as soon as possible and noted on the observing log. If the quality of observations for an observing session is questionable, notify N/NGS41.

VECTOR COMPUTATIONS:

Vector computations will be done by the Geodetic Survey Division (GSD), Geomatics, Canada.

GPS DATA:

The CBN 2002 web site and observation schedule is at:
<http://www2.geod.nrcan.gc.ca/~craymer/cbn/>. Data shall be submitted to Bob Morris, GSD.

STATION DESCRIPTIONS:

Station recovery notes must be submitted in computer-readable form using WDDPROC software. Include the name, address, and, if public ownership, the telephone number of the responsible party. Do not include the telephone numbers of private property owners.

LIAISON:

The street address of the following NGS offices in Building SSMC3 is:

1315 East-West Highway
 Silver Spring, MD 20910-3282

Questions concerning survey operations shall be directed to:

William T. McLemore, Jr.
 Chief, Field Operations Branch
 Observation and Analysis Division
 SSMC3 -- N/NGS41, Station 8564
 Telephone: 301-713-3215, ext. 117
 FAX: 301-713-4176
 E-mail: Bill.McLemore@noaa.gov

Questions concerning the GPS portion of the project shall be directed to:

Stephen J. Frakes or Robert J. Siclari
 Project Development Branch
 Spatial Reference System Division
 SSMC3 -- N/NGS21, Station 8853

Telephone: 301-713-3194, ext. 111 or 130
FAX: 301-713-4316
E-mail: Steve.Frakes@noaa.gov or
Bob.Siclari@noaa.gov

Canadian Point-of-Contact:

Mike Craymer, Ph.D
Geodetic Survey Division
Natural Resources Canada
615 Booth Street
4th Floor, Room 493
Ottawa, Ontario, Canada K1A 0E9
Telephone: 613-947-1829
Fax: 613-992-6628
Cell: 613-791-0157
E-mail: craymer@nrcan.gc.ca

Project Supervisor:

Bob Morris
Senior Geodetic Surveyor
ESS/GC-GSD/GGN
Natural Resources Canada
615 Booth Street
4th Floor, Room 498-A
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Fax: 613-992-6628
Cell: 613-794-6535
E-mail: romorris@nrcan.gc.ca

ADDRESS:

Keep the Field Operations Branch informed of the party's physical address and telephone number at all times.

PUBLICITY:

See "NGS Operations Handbook," Section 1.4.1.

EXPENSES:

Expenses for this project will be charged to Task Number 8K6D2000.

TRAVEL:

Travel and per diem are authorized in accordance with Federal Travel Regulations, Part 301-11, Per Diem Allowances. Current per diem rates were effective October 1, 2001.

ACKNOWLEDGMENT:

Please acknowledge receipt of these instructions in your Monthly Report.

Attachments

cc: N/NGS - D. Zilkoski
N/NGS - S. Misenheimer (first page only)
N/NGS - D. Milbert
N/NGS1 - G. Mitchell
N/NGS1x1 - C. Smith
N/NGS21 - S. Frakes
N/NGS21 - C. Craig (first page only)
N/NGS21 - D. Hendrickson
N/NGS4 - E. Wade
N/NGS4 - D. Hoar
N/NGS4 - M. Vorhauer
N/NGS41 - W. McLemore
N/NGS41 - J. Blackwell
FGCS MEMBERS (first page only)
Geodetic Survey Division, Canada - Mike Craymer
Geodetic Survey Division, Canada - Bob Morris