PHOTOGRAMMETRIC GROUND CONTROL
SURVEY REPORT

BLUESTONE LAKE AND DOWNSTREAM DIGITAL ELEVATION MODEL AND ORTHOPHOTOGRAPHY PROJECT

USACE HUNTINGTON DISTRICT

SUBCONTRACT TO 3001 INC.
PROJECT 08033.04

WEST VIRGINIA

WOOLPERT PROJECT #69422

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PREPARED BY:

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NOTICE OF PROPRIETARY INFORMATION

Photogrammetric Ground Control Survey Report:

Bluestone Lake and Downstream Digital Elevation Models and Orthophotography Project

Woolpert Inc. Project Number 69422

for:

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Introduction

This report contains a comprehensive outline of the Photogrammetric Ground Control Survey that supported the 2009 USACE Huntington District - Bluestone Lake and Downstream Digital Elevation Models and Orthophotography Project. All surveys were performed in such a way as to achieve ground control accuracies that meet or exceed the National Map Accuracy Standards necessary to support 1"=200' and 1"=400' digital scale ortho-imagery mapping for 3001 International Inc., Prime Contractor.

Project Area

The project area encompasses approximately +/- 1,425 square miles of West Virginia.

Purpose

The purpose of this survey was to establish three dimensional coordinates for thirty-two (32) new photogrammetric ground control stations throughout the project area.

These photogrammetric ground control stations, in conjunction with aerial triangulation, will be used for photogrammetric mapping as outlined in the *Geospatial Positioning Accuracy Standards, Part 3: National Standard for Spatial Data Accuracy* (NSSDA), published by the *Federal Geographic Data Committee* (FGDC-STD-007.3-1998) for ADS40 imagery capable of producing 1"=200' scale digital orthophotography with 1-foot pixel resolutions, 1"=400' scale digital orthophotography with 2-foot pixel resolutions and Bare Earth Elevation Model.

Date of Survey

All ground control survey field activities took place between April 6, 2009 and May 7, 2009.

Monumentation

Prior to aerial imagery acquisition, Woolpert field crews performed a field reconnaissance to verify the existence and suitability of all pre-selected existing National Geodetic Survey (NGS) control stations. These existing control stations were utilized to insure that quality x, y, and z coordinate values were computed for each of the newly established photogrammetric control stations.

Woolpert also installed and surveyed thirty-two (32) new photogrammetric ground control stations in designated locations for both GPS observations and aerial imagery. Of these 32 photogrammetric ground control stations, two (2) additional stations were surveyed at photo identifiable locations due to the aerial target being disturbed. These newly established imagery control stations consist of either 5/8-inch diameter by 24-inch long rebar with logo cap placed in the center of a cloth aerial target, Mag (PK) nail placed in the center of a painted aerial target, or photo identifiable point (PID) at well-define features.

Each photo control station was targeted with an 8-foot by 8-foot by 2-foot fiberglass reinforced cloth material or painted target prior to acquisition of aerial imagery.

Information sheets for the new and existing ground control stations can be found in Section 3 of this report. A control diagram showing the ground control used to support this digital ortho-imagery mapping project can be found in Section 5 of this report.

Accuracy Requirements

The accuracy of the survey control is a function of the photography pixel resolution. Bluestone Lake, West Virginia was photographed at a 1-foot and 2-foot pixel resolution. Control for the 1-foot pixel resolution has a 1-foot and 2-foot horizontal accuracy requirement and a 0.25-foot vertical accuracy requirement.

Survey Method

Rapid Static GPS

Rapid-Static GPS surveying techniques were used for measuring all new photogrammetric ground control stations. Rapid-Static GPS surveying, requires a minimum of two receivers to occupy stations at either end of a baseline for approximately 10-15 minutes, depending upon baseline length, number of satellites, and satellite geometry. This is similar in theory to static surveying; however, shorter observation time is made possible due to advances in both hardware and software.

For this survey, Woolpert utilized five (5), Woolpert-owned, Trimble Navigation 4000-5000 series dual-frequency GPS receivers. Each observation session utilized a 5-second sync rate, lasting between 35-60 minutes each.

GPS Data Analysis and Processing

The field crew chief processed all session baselines each day using *Trimble Navigation's* Trimble Geomatics Office (TGO) Version 1.63 baseline processor with the broadcast ephemeris. *Trimble Navigation's* Trimble Geomatics Office (TGO) Wave Software User's Guide (November 1999) was used as a reference. The ratio and root-mean-square error (RMSE) criteria on pages 3-4 to 3-6 of the guide were followed. Other criteria used a maximum of 10.5 percent rejections, along with float-versus-fixed deltas of 10 cm. All cases that failed to meet any of these criteria were rejected and not used. Fixed solutions were obtained for all vector baselines.

Daily processing allowed the field crews to discover any weak links in the network and immediately schedule re-observations of the affected baselines. Once the fieldwork was complete, the processed baselines were then run through a rigorous loop closure analysis. Any baselines that failed this analysis were either reprocessed or removed from the network.

Rapid Static Adjustment

Upon completion of all field data processing, Woolpert performed a minimally constrained and fully constrained least-squares adjustments using *Trimble Navigation's* Trimble Geomatics Office (TGO) Version 1.63. After an acceptable minimally constrained least-squares adjustment was obtained, a fully constrained least-squares adjustment was performed by fixing the GPS networks to existing NGS control stations.

Geoid model GEOID03 was used to model the orthometric heights from the ellipsoidal heights. The following NGS control stations were constrained in the adjustment:

Dimension	NGS Control Stations
3-D Control Stations	BLACKS, C 441, ELKVIEW, S 37, P 96 RESET, ZERO MILESTONE RESET, GALLIPOLIS CORS ARP, KY HWY DIST 12 CORS ARP, MARSHALL UNIV-HUN CORS ARP, MARSHALL UNIV-RAV CORS ARP, and GLENVILLE COOP CORS ARP
2-D Control Stations	X 200 RESET, T 206, and BLACKSBURG CORS ARP
1-D Control Stations	RAVPORT AZ MK and U 112

Datum References and Coordinate Systems

All horizontal GPS control was based on the West Virginia State Plane Coordinate System (South Zone), reference to the North American Datum of 1983, national re-adjustment of 2007 (NAD83/2007), expressed in U.S. Survey Feet. The vertical datum used for this project was based on the North American Vertical Datum of 1988 (NAVD88), also expressed in U.S. Survey Feet. The final ground control coordinates can be found in Section 2 of this report.

LiDAR Quality Control and Quality Assurance Checks

Woolpert implemented QA/QC ground control observations to verify the accuracy of the LiDAR mission. For this project, Woolpert established three-dimensional coordinates for thirty-seven (37) quality control check points on various ground cover types throughout the project area. These quality control check point coordinates and descriptions can be found in Section 2 of the report.

Quality Assurance and Accuracy Specifications

Existing NGS published control stations were surveyed to assure that there were no discrepancies in the field observation data. Close examinations of the residuals showed no distortions in orientation or scale.

The GPS adjustment indicates that the survey control network meets or exceeds the National Map Accuracy Standards (NMAS) necessary to support ADS40 digital imagery capable of producing 1"=200' scale digital orthophotography with 1-foot pixel resolutions, 1"=400' scale digital orthophotography with 2-foot pixel resolutions.

GROUND CONTROL STATION COORDINATE LISTING

This section includes a complete listing of the West Virginia State Plane Coordinates and Orthometric Heights for the 2009 Bluestone Lake COE – West Virginia Digital Ortho-Imagery and LIDAR Mapping Project.

BLUESTONE LAKE COE – WEST VIRGINIA
WOOLPERT PROJECT NO. 69422
HORIZONTAL DATUM: NAD 83 (2007)
VERTICAL DATUM; NAVD 88
UNITS: US SURVEY FEET
STATE PLANE ZONE: WEST VIRGINIA SOUTH
GEOID MODEL: GEOID 03
DATE: MAY 2009

PHOTO CONTROL POINTS:

STATION NAME	NORTHING (USFT)	EASTING (USFT)	ELEVATION (USFT)	CONTROL CLASSIFICATION
101	671558.01	1635212.84	673.42	PAINTED TARGET (MAG NAIL)
102	673322.93	1669030.67	662.55	PAINTED TARGET (MAG NAIL)
103	670707.39	1705755.14	909.45	PAINTED TARGET (MAG NAIL)
104	599399.69	1737101.13	1012.14	CLOTH TARGET (IP W/ CAP)
105	563104.88	1786093.89	622.76	PAINTED TARGET (MAG NAIL)
106	536945.59	1833452.20	682.53	PAINTED TARGET (MAG NAIL)
107	568264.41	1865367.68	658.01	PAINTED TARGET (MAG NAIL)
108	573330.40	1898392.71	857.89	PAINTED TARGET (MAG NAIL)
109	468026.60	1914171.98	920.94	PAINTED TARGET (MAG NAIL)
110	459730.08	1944411.63	2017.95	CLOTH TARGET (IP W/ CAP)
111	279070.61	2075323.68	1652.20	PID - NW CORNER OF WALK
112	102831.31	2073421.05	1837.80	PAINTED TARGET (MAG NAIL)
113	111208.13	2011712.78	1603.80	CLOTH TARGET (IP W/ CAP)
114	176435.56	1969127.83	2606.12	PID - NW CORNER OF INT. WALKS
115	313378.54	2009727.22	2460.98	PID - ANGLE PT OF WEST EDGE OF DRIVE
116	289020.25	1934245.19	2512.56	PID - NE CORNER OF CONCRETE PAD
117	401795.63	1918423.14	1266.57	CLOTH TARGET (IP W/ CAP)
117 RESET	400709.39	1921219.64	1234.31	PID - SOUTH CORNER OF GRAVEL DRIVE/BRM INT.
117A-PID	401699.29	1919060.85	1262.10	PID - NE CORNER OF CONCRETE DRIVE APRON
118	409547.84	1837550.49	725.38	PID - SE CORNER OF CONCRETE PAD
119	429392.93	1785445.18	1217.51	CLOTH TARGET (IP W/ CAP)
120	457868.53	1736206.65	626.34	CLOTH TARGET (IP W/ CAP)
121	475206.52	1708198.02	679.01	CLOTH TARGET (IP W/ CAP)
122	556014.39	1670055.08	877.77	PAINTED TARGET (MAG NAIL)
123	527900.00	1725459.39	686.50	PID - SW CORNER OF CONCRETE DRIVE APRON
124	481819.98	1800538.87	611.42	PID - SW CORNER OF CONCRETE DRIVE @ ROAD
125	245655.29	1999843.81	1421.35	PID - SW CORNER OF TWO WALKS
126	618071.42	1692436.00	569.44	CLOTH TARGET (IP W/ CAP)
127	479718.60	1846176.49	808.61	PID - SE CORNER OF CONCRETE DRIVE

128	394136.41	1972992.82	2515.81	PID - NW CORNER OF CONCRETE APRON
129	355312.46	1927720.71	1981.27	CLOTH TARGET (IP W/ CAP)
130	177747.64	2068739.92	1974.27	PID - NE CORNER OF CONCRETE WALK AND ASPH
131	567558.99	1885319.03	722.15	PID - SOUTHEAST CORNER OF CONC DRIVE
132	428491.87	1881151.61	675.42	PID - INSIDE CORNER OF CONCRETE WALK

BLUESTONE LAKE COE – WEST VIRGINIA
WOOLPERT PROJECT NO. 69422
HORIZONTAL DATUM: NAD 83 (2007)
VERTICAL DATUM; NAVD 88
UNITS: US SURVEY FEET
STATE PLANE ZONE: WEST VIRGINIA SOUTH
GEOID MODEL: GEOID 03
DATE: MAY 2009

LIDAR QUALITY CONTROL POINTS:

STATION NAME	NORTHING (USFT)	EASTING (USFT)	ELEVATION (USFT)	CONTROL CLASSIFICATION
CHAR 1	508262.24	1726693.54	589.86	LOW GRASS
CHAR 2	505810.03	1727098.85	597.67	HARD SURFACE
CHAR 3	502689.76	1728105.48	597.62	LOW GRASS
CHAR 4	499291.38	1748958.79	589.00	HARD SURFACE
CHAR 5	495001.15	1752458.21	595.55	HARD SURFACE
CHAR 6	491549.10	1764587.75	597.51	HARD SURFACE
CHAR 7	488776.99	1766768.91	595.30	HARD SURFACE
CHAR 8	485334.15	1763955.24	819.75	LOW GRASS
CHAR 9	482579.21	1763319.75	883.45	HARD SURFACE
CHAR 10	477490.92	1758556.38	757.41	HARD SURFACE
CHAR 11	475568.72	1806840.45	603.36	BARE EARTH
CHAR 12	480164.15	1803859.93	614.46	LIGHT ASPHALT
CHAR 13	483581.06	1799121.82	611.45	LOW GRASS
CHAR 14	487616.99	1793897.52	597.62	GRAVEL
CHAR 15	490362.31	1794298.10	727.89	LOW GRASS
CHAR 16	492674.53	1796748.47	763.62	CONCRETE
CHAR 17	495598.53	1798153.43	611.19	BARE EARTH
CHAR 18	500213.69	1800490.42	729.73	LOW GRASS
CHAR 19	502886.28	1807192.49	647.39	CONCRETE
CHAR 20	506874.91	1808367.66	638.82	BARE EARTH
CHAR 21	497544.04	1771889.13	637.73	SHORT GRASS
QC-101	668960.69	1643341.28	563.73	SHORT GRASS
QC-102	652446.93	1667789.42	573.17	BARE EARTH
QC-103	626674.85	1692019.92	567.29	GRAVEL
QC-104	584560.36	1681473.29	572.86	SHORT GRASS
QC-105	560800.30	1697341.31	571.45	GRAVEL
QC-106	561217.19	1717178.20	583.75	CONCRETE
QC-107	540396.77	1728418.05	597.21	SHORT GRASS
QC-108	534708.13	1853293.17	616.95	GRAVEL

QC-109	540374.31	1864636.63	631.44	CONCRETE
QC-110	222110.38	1992195.59	1530.81	GRAVEL
QC-111	233121.83	2032052.14	1671.54	SHORT GRASS
QC-112	415547.82	1888183.52	674.62	MAG IN LIGHT ASP
QC-113	347282.22	1945956.51	1060.84	GRAVEL
QC-114	293653.70	2021333.82	1548.87	SHORT GRASS-WV LID
QC-115	161577.20	2012575.97	1458.21	GRAVEL
QC-116	151886.69	2043643.88	1847.91	SHORT GRASS

SECTION 3: GROUND CONTROL STATION RECOVERY INFORMATION SHEETS

This section the Station Recovery Logs of each of the ground control stations established for the 2009 Bluestone Lake, WV Digital Ortho Imagery and LIDAR Mapping Project. Each station recovery log contains a sketch, to reach description, and witness ties.

GPS Station Recovery - GPS Log Sheet

WOOLPERT

Project Name:	USACA Huntington District, West Virginia	Operator Name	Jack O'Dell	Job No.	
Station Name:	101	Date of Survey:	4/10/09	Julian Day	100
WGS 84 Coordinates		File Name:	WV 101 100	Session #	1
Latitude	38 50 18.36	Type of Reciever:	R8 Model 2		
Longitude	82 10 12.25	Type of Antenna:	Internal Antenna		
Ellip. Height	567.57 sft	Antenna Height:	2.0	Circle one: USFT / Meters	Circle one: ARP / Phase Center
Type of Mark:	Painted "x" w/ mag nail	Start Time (local) :	14:00		
Stamping on Mark:		Weather Condition:	Rain		

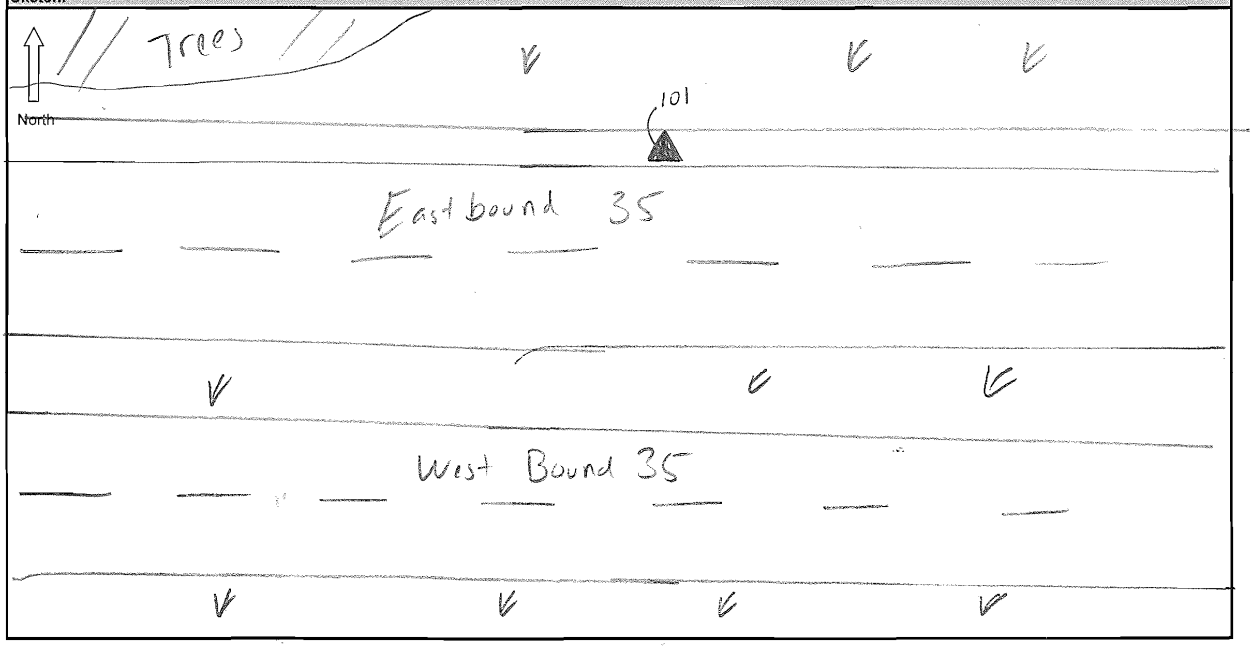
To-Reach Description:

@ 38 50 18.29
82 10 12.57

Witness Ties:

Reference Object	Distance	Azimuth
1) Edge of road	4	S
2) Edge line of Highway	7	N
3)		
4)		

Sketch:



GPS Station Recovery - GPS Log Sheet

WOOLPERT

Project Name:	USACA Huntington District, West Virginia	Operator Name	Jack O'Dell	Job No.	
Station Name:	102	Date of Survey:	4/10/09	Julian Day	100
WGS 84 Coordinates		File Name:	WV102100	Session #	1
Latitude	38 50 39.73	Type of Reciever:	R8 Model 2		
Longitude	82 03 05.16	Type of Antenna:	Internal Antenna		
Ellip. Height	551.845ft			Circle one:	Circle one:
		Antenna Height:	2.0	USFT	ARP
				Meters	Phase Center
Type of Mark:	Painted "X" w/mag nail	Start Time (local) :	9:53		
Stamping on Mark:		Weather Condition:	Rain		

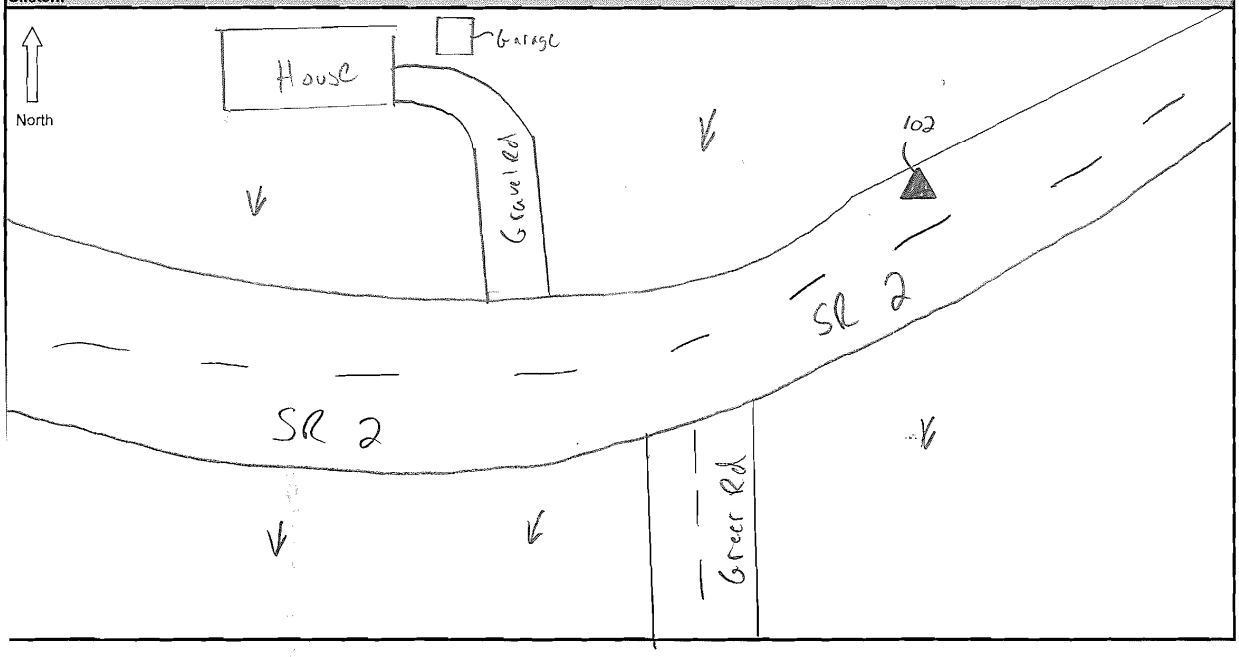
To-Reach Description:

@ 38 50 40.09
82 03 4.80

Witness Ties:

Reference Object	Distance	Azimuth
1) Edge of Road	4	S
2) ℄ of road	7	N
3)		
4)		

Sketch:



GPS Station Recovery - GPS Log Sheet

WOOLPERT

Project Name:	USACA Huntington District, West Virginia	Operator Name	Jack O'Dell	Job No.	
Station Name:	103	Date of Survey:	4/10/09	Julian Day	100
WGS 84 Coordinates		File Name:	WV 103/00	Session #	1
Latitude	38 50 17.74	Type of Reciever:	R8 Model 2		
Longitude	81 55 20.69	Type of Antenna:	Internal Antenna		
Ellip. Height	798.48 sft	Antenna Height:	2.0	Circle one: USFT / Meters	Circle one: ARP / Phase Center
Type of Mark:	Painted "X" w/mag Nail	Start Time (local) :	8:55		
Stamping on Mark:	N/A	Weather Condition:	Rain		

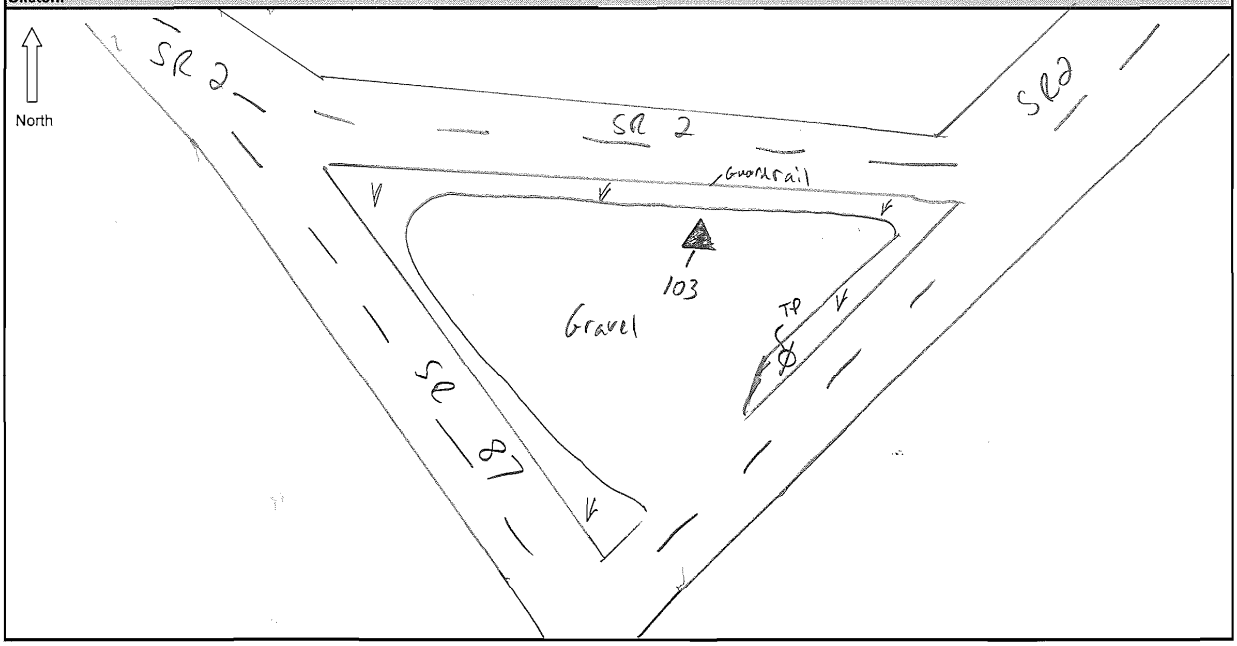
To-Reach Description:

@ 38 50 16.53
81 55 17.64

Witness Ties:

Reference Object	Distance	Azimuth
1) Guardrail	45	S
2) Telephone pole	75	NW
3)		
4)		

Sketch:



GPS Station Recovery - GPS Log Sheet

WOOLPERT

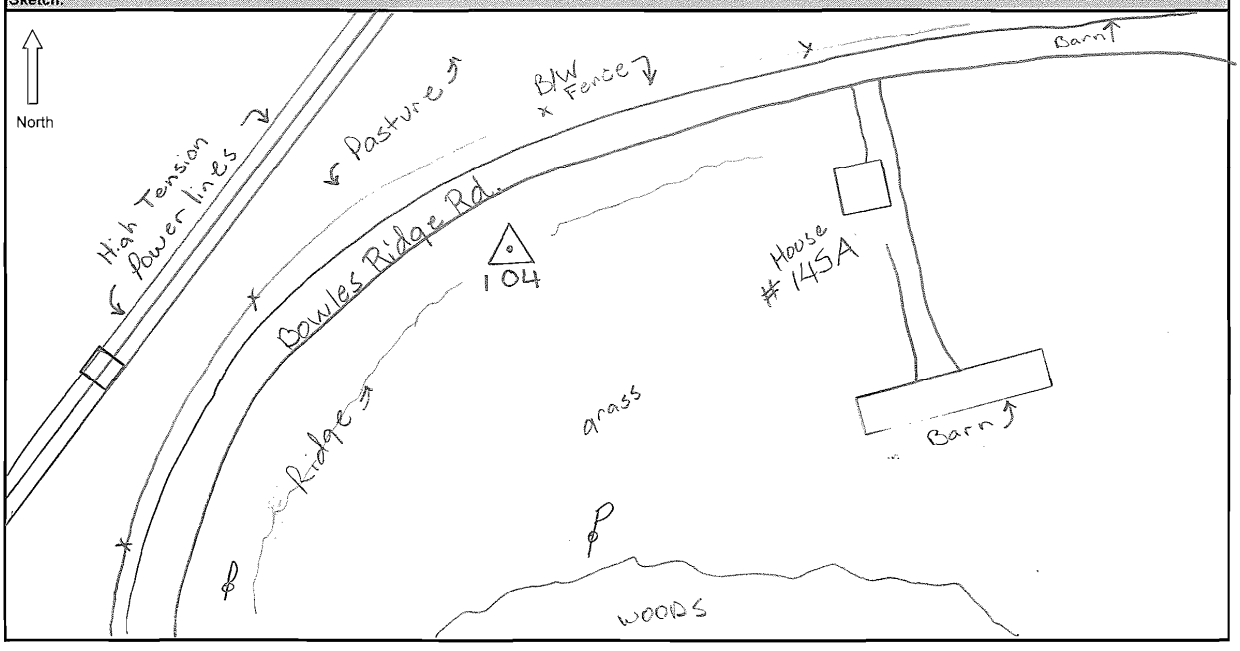
Project Name:	USACA Huntington District, West Virgina	Operator Name	Guy Titcombe	Job No.	
Station Name:	104	Date of Survey:	04/10/2009	Julian Day	100
WGS 84 Coordinates		File Name:	104-100-A	Session #	1
Latitude	38° 38' 35.87"	Type of Reciever:	4000 SSE		
Longitude	81° 48' 36.67"	Type of Antenna:	COMPACT L1/L2		
Ellip. Height	+0276.3 m.				
		Antenna Height:	2.0	Circle one: USFT / (Meters)	Circle one: (ARP) / Phase Center
Type of Mark:	2'x8' White Cloth "X"				
		Start Time (local) :	9:04		
Stamping on Mark:	Woolpert	Weather Condition:	45° sunny		

To-Reach Description: From Jct @ 34 & Bowles-Ridge Rd. Follow Bowles Ridge Rd. to House # 145A Taraet is aprox 300' west from driveway @ top of ridge

Witness Ties:

Reference Object	Distance	Azimuth
1) South EIP	21.0'	South
2) North EIP	37.5'	South
3) Barbed Wire Fence	42.5'	South
4) Power Pole "aprox Dist."	150.0'	North

Sketch:



GPS Station Recovery - GPS Log Sheet

WOOLPERT

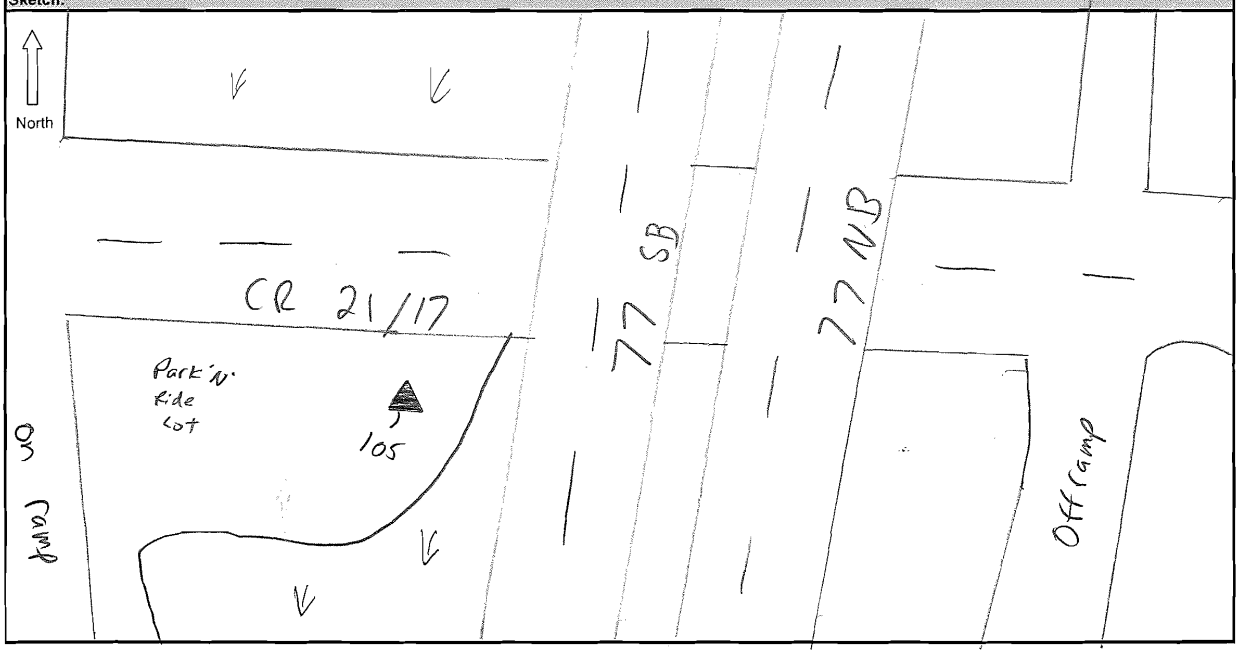
Project Name:	USACA Huntington District, West Virginia	Operator Name	Jack O'Dell	Job No.	
Station Name:	105	Date of Survey:	4/9/09	Julian Day	99
WGS 84 Coordinates		File Name:	WV 10599	Session #	1
Latitude	38 32 40.82	Type of Reciever:	R8 Model 2		
Longitude	81 38 16.01	Type of Antenna:	Internal Antenna		
Ellip. Height	513.19 ft			Circle one:	Circle one:
		Antenna Height:	2.0	USFT	ARP
				Meters	Phase Center
Type of Mark:	Painted "X" w/ mag nail				
		Start Time (local) :	17:26		
Stamping on Mark:		Weather Condition:	Sunny		

To-Reach Description:

Witness Ties:

Reference Object	Distance	Azimuth
1)		
2)		
3)		
4)		

Sketch:



GPS Station Recovery - GPS Log Sheet

WOOLPERT

Project Name:	USACA Huntington District, West Virginia	Operator Name	Jack O'Dell	Job No.	
Station Name:	106	Date of Survey:	4/9/09	Julian Day	99
WGS 84 Coordinates		File Name:	WV 106 99	Session #	1
Latitude	38 28 25.03	Type of Reciever:	R8 Model 2		
Longitude	81 28 18.23	Type of Antenna:	Internal Antenna		
Ellip. Height	573.96 sft	Antenna Height:	2.0	Circle one: USFT / Meters	Circle one: ARP / Phase Center
Type of Mark:	Painted "X" w/ mag nail	Start Time (local) :	13:28		
Stamping on Mark:		Weather Condition:	Sunny		

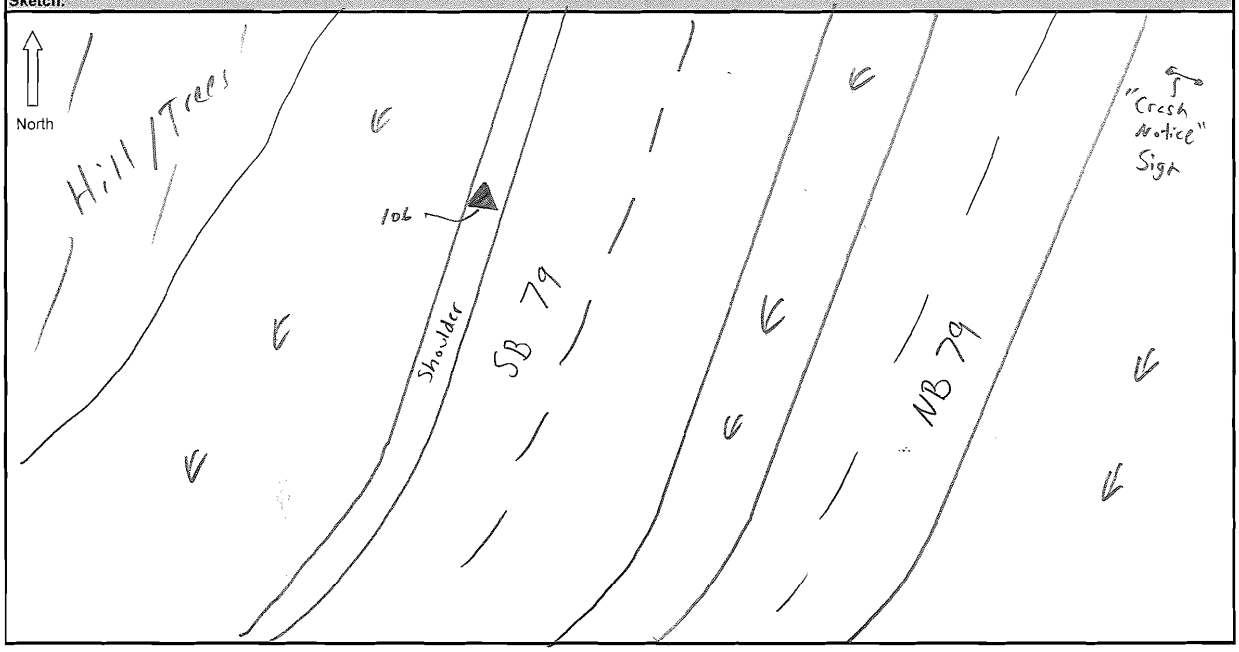
To-Reach Description:

@ 38 28 24.9
81 28 18.1

Witness Ties:

Reference Object	Distance	Azimuth
1) Edge of Highway	7	W
2) Edge of Road	4	E
3)		
4)		

Sketch:



38 28 24.9
81 28 18.1
7 4

GPS Station Recovery - GPS Log Sheet

WOOLPERT

Project Name:	USACA Huntington District, West Virginia	Operator Name	Jack O'Dell	Job No.	
Station Name:	107	Date of Survey:	4/9/09	Julian Day	99
WGS 84 Coordinates		File Name:	WV 107 99	Session #	1
Latitude	38 33 36.04	Type of Reciever:	R8 Model 2		
Longitude	81 21 38.43	Type of Antenna:	Internal Antenna		
Ellip. Height	549.35 sft	Antenna Height:	2.0	Circle one: USFT / Meters	Circle one: ARP / Phase Center
Type of Mark:	Painted "x" & mag nail	Start Time (local) :	12:18		
Stamping on Mark:		Weather Condition:	Sunny		

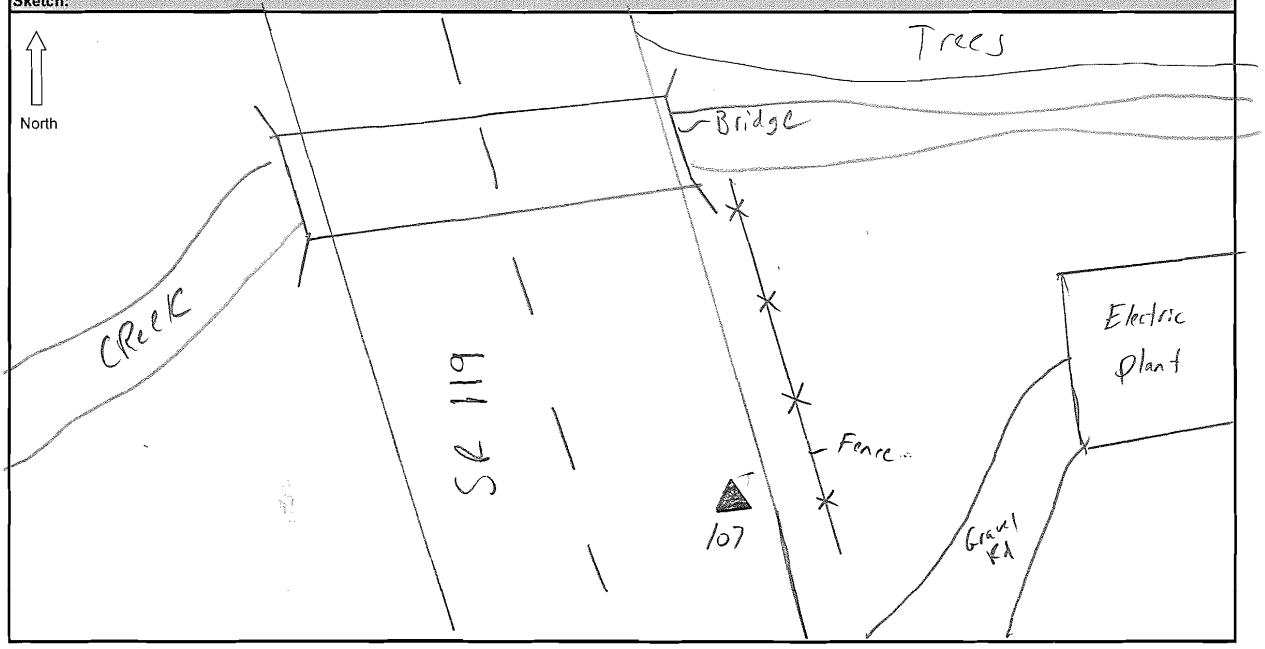
To-Reach Description:

@ 38 33 36.9
81 21 40.3

Witness Ties:

Reference Object	Distance	Azimuth
1) ℄ of road	6	E
2) Edge of road	5	W
3)		
4)		

Sketch:



GPS Station Recovery - GPS Log Sheet

WOOLPERT

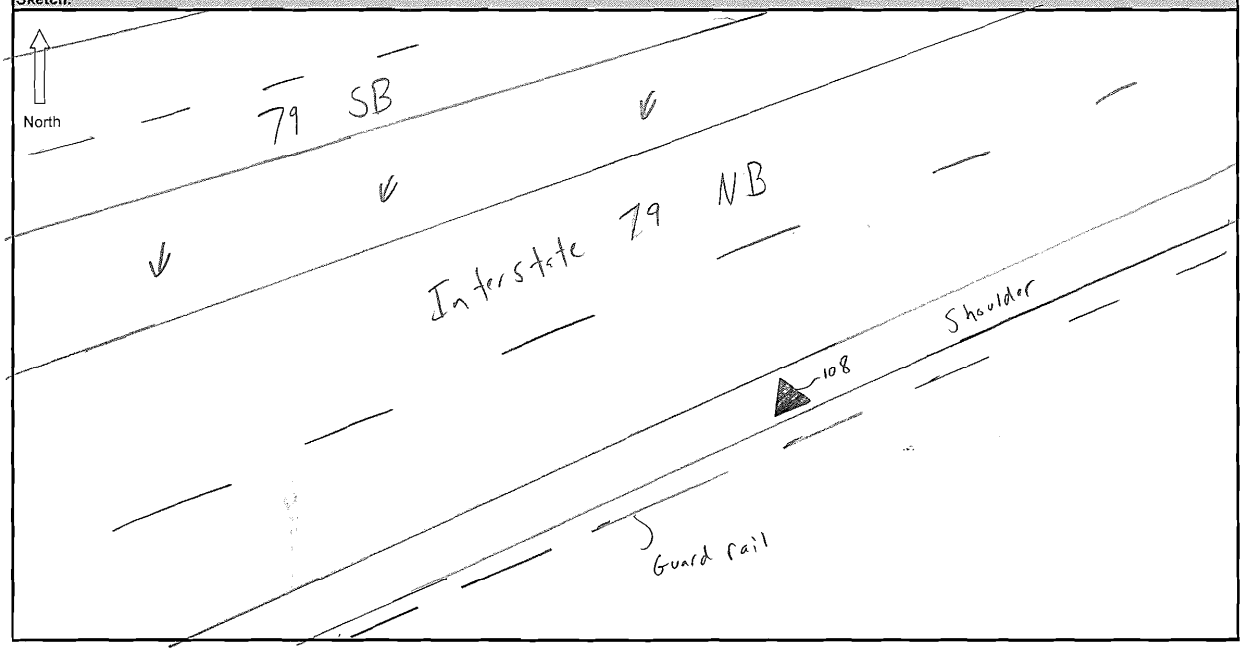
Project Name:	USACA Huntington District, West Virginia	Operator Name	Jack O'Dell	Job No.	
Station Name:	108	Date of Survey:	4/9/09	Julian Day	99
WGS 84 Coordinates		File Name:	WV10899	Session #	1
Latitude	38 34 27.19	Type of Reciever:	R8 Model 2		
Longitude	81 14 42.82	Type of Antenna:	Internal Antenna		
Ellip. Height	749.798 sft	Antenna Height:	2.0	Circle one: USFT / Meters	Circle one: ARP / Phase Center
Type of Mark:	Painted "X" w/ Mag nail in center	Start Time (local) :	11:08		
Stamping on Mark:	N/A	Weather Condition:	Sunny		

To-Reach Description:

Witness Ties:

Reference Object	Distance	Azimuth
1) Guard rail	7	NW
2) Edge of Highway	6	SE
3)		
4)		

Sketch:



GPS Station Recovery - GPS Log Sheet

WOOLPERT

Project Name:	USACE Huntington District - Bluestone Lake - WV	Operator Name	Rob Cross	Job No.	

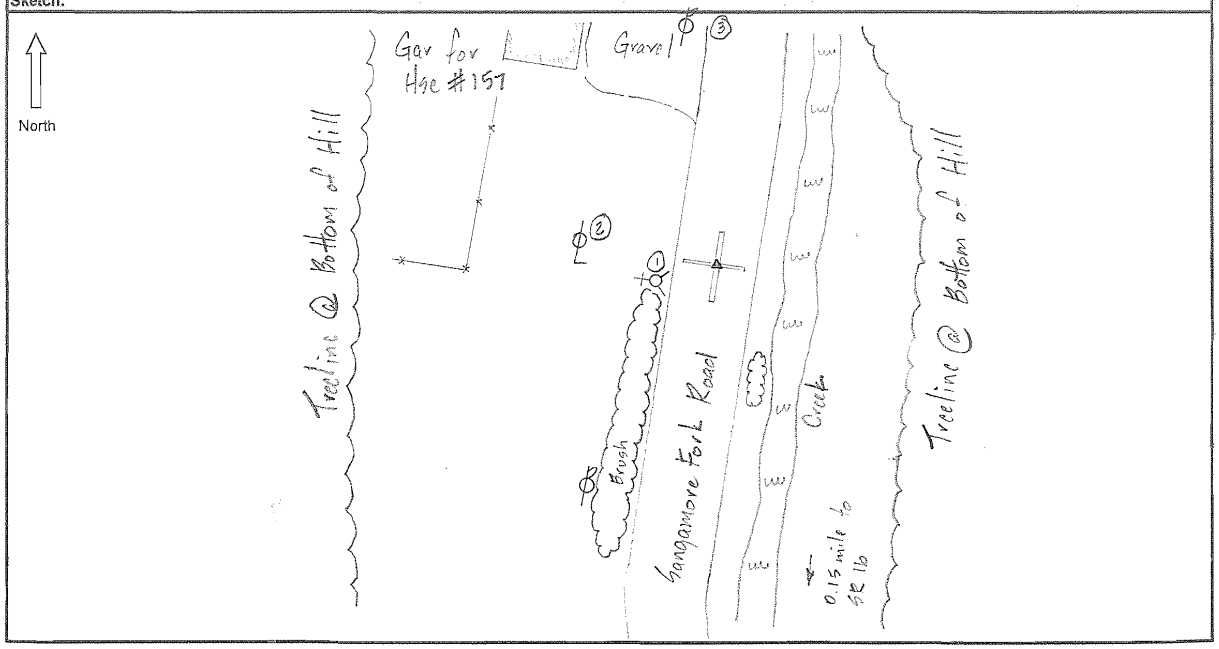
Station Name:	109	Date of Survey:	09 APR 2009	Julian Day	099
WGS 84 Coordinates		File Name:	109-099	Session #	
Latitude	N 38-17-06.67	Type of Reciever:	Trimble Navigation 5800		
Longitude	W 081-11-21.50	Type of Antenna:	Internal - NGS Calibrated Antenna TRM5800		
Ellip. Height	750'				
		Antenna Height:	2.00m	Circle one: USFT / Meters	Circle one: ARP / Phase Center
Type of Mark:	Mag Nail in Painted +				
		Start Time (local) :	17:08		
Stamping on Mark:		Weather Condition:	Sunny		

To-Reach Description:

Witness Ties:

Reference Object	Distance	Azimuth
1) FH	12'	
2) Light Pole	33'	
3) Service Pole	108'	
4)		

Sketch:



GPS Station Recovery - GPS Log Sheet

WOOLPERT

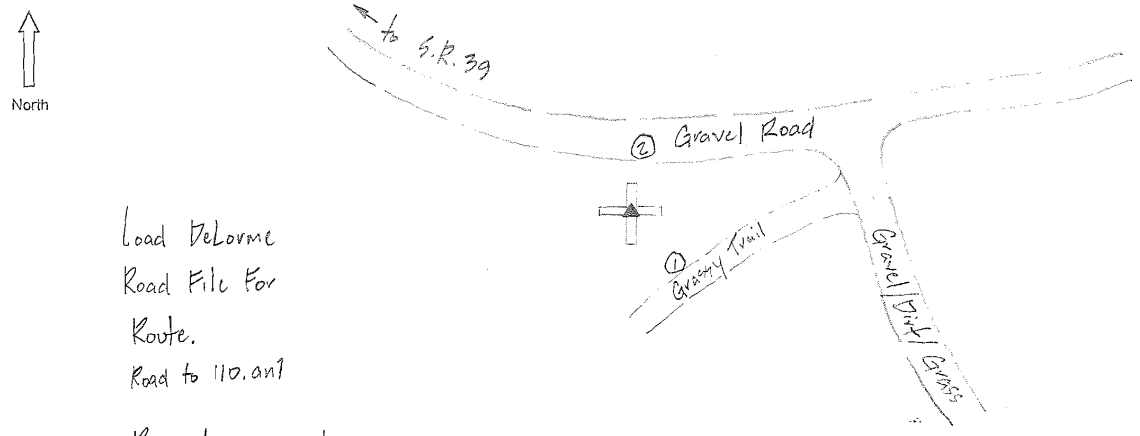
Project Name:	USACE Huntington District - Bluestone Lake - WV	Operator Name	Rob Cross	Job No.	
Station Name:	110	Date of Survey:	09APR2009	Julian Day	099
WGS 84 Coordinates		File Name:	110-099	Session #	
Latitude	N 38·15·45.03	Type of Reciever:	Trimble Navigation 5800		
Longitude	W 081·05·02.06	Type of Antenna:	Internal - NGS Calibrated Antenna TRM5800		
Ellip. Height	1894'				
		Antenna Height:	2.00m	Circle one: USFT / Meters	Circle one: ARP / Phase Center
Type of Mark:	Iron Pin in Cloth +				
		Start Time (local):	15:30		
Stamping on Mark:		Weather Condition:	65°F Sunny		

To-Reach Description:

Witness Ties:

Reference Object	Distance	Azimuth
1) Perp to Grassy Trail	2'	
2) South Edge Gravel Road	70'	
3) Perp to W edge Grav/Dirt/Grass	57'	
4)		

Sketch:



Load DeLorme
Road File For
Route.
Road to 110.anl

Road begins west side
common drive apron (gravel)
with #16631 S.R. 39 Mailbox
Names "Bird Eder" on MB

Note: Point is marked
as 117

GPS Station Recovery - GPS Log Sheet

WOOLPERT

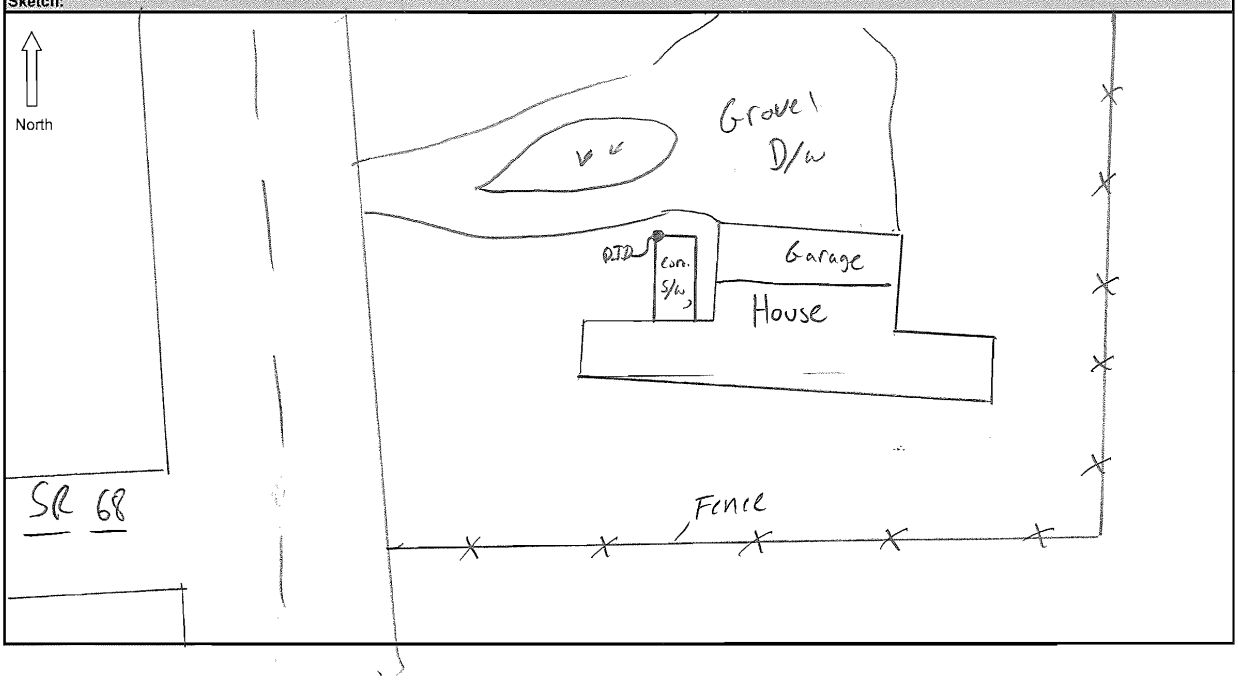
Project Name:	USACA Huntington District, West Virginia	Operator Name	Jack O'Dell	Job No.	
Station Name:	111	Date of Survey:	4/7/09	Julian Day	97
WGS 84 Coordinates		File Name:	WV 111	Session #	1
Latitude	37 45 56.97	Type of Reciever:	R8 Model 2		
Longitude	80 37 49.60	Type of Antenna:	Internal Antenna		
Ellip. Height	1538.16 sft				
		Antenna Height:	2.0	Circle one: USFT / Meters	Circle one: ARP / Phase Center
Type of Mark:	PID corner of S/W	Start Time (local) :	14:48		
Stamping on Mark:	N/A	Weather Condition:	Sunny		

To-Reach Description:

Witness Ties:

Reference Object	Distance	Azimuth
1) Garage	7	W
2) House	20	N
3)		
4)		

Sketch:



GPS Station Recovery - GPS Log Sheet

WOOLPERT

Project Name:	USACA Huntington District, West Virginia	Operator Name	Jack O'Dell	Job No.	
Station Name:	112	Date of Survey:	4/6/09	Julian Day	96
WGS 84 Coordinates		File Name:	WV 112	Session #	1
Latitude	37 16 54.65	Type of Reciever:	R8 Model 2		
Longitude	80 38 21.84	Type of Antenna:	Internal Antenna		
Ellip. Height	1722.93 sft	Antenna Height:	2.0	Circle one: USFT / Meters	Circle one: ARP / Phase Center
Type of Mark:	Mag nail painted "x"	Start Time (local) :	18:16		
Stamping on Mark:		Weather Condition:	Cloudy		

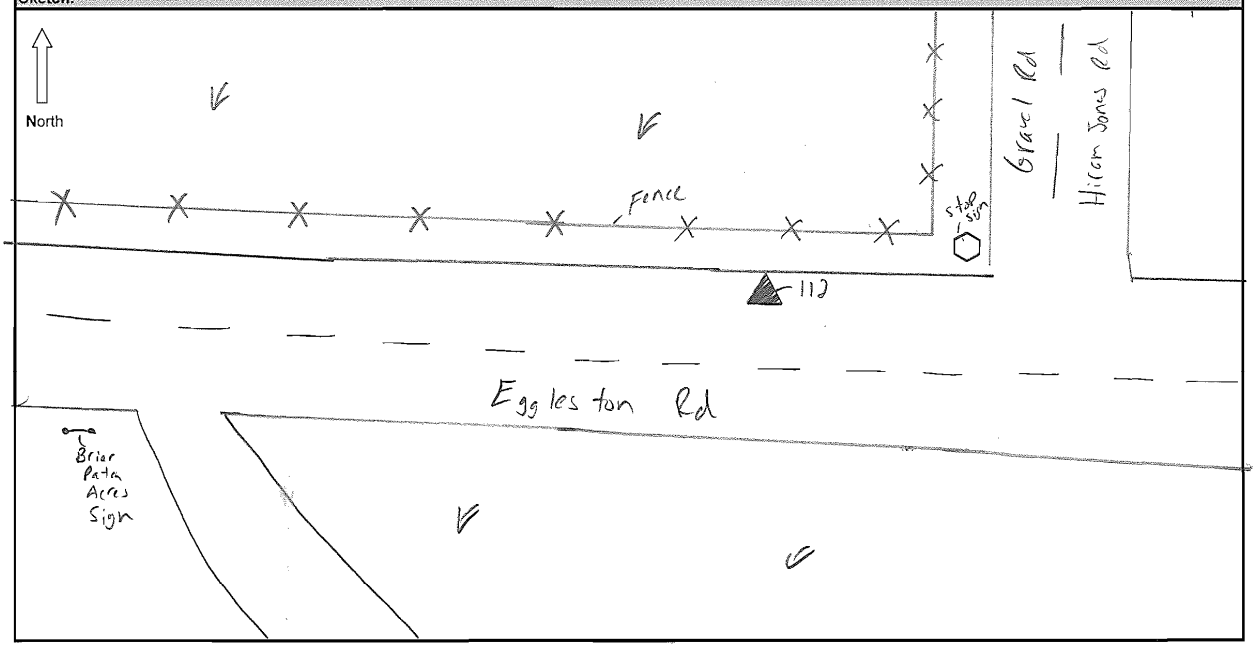
To-Reach Description:

Painted "X"

Witness Ties:

Reference Object	Distance	Azimuth
1) Edge of road	6	S
2) ℄ of road	4	N
3) Stop sign	35	W
4)		

Sketch:



GPS Station Recovery - GPS Log Sheet

WOOLPERT

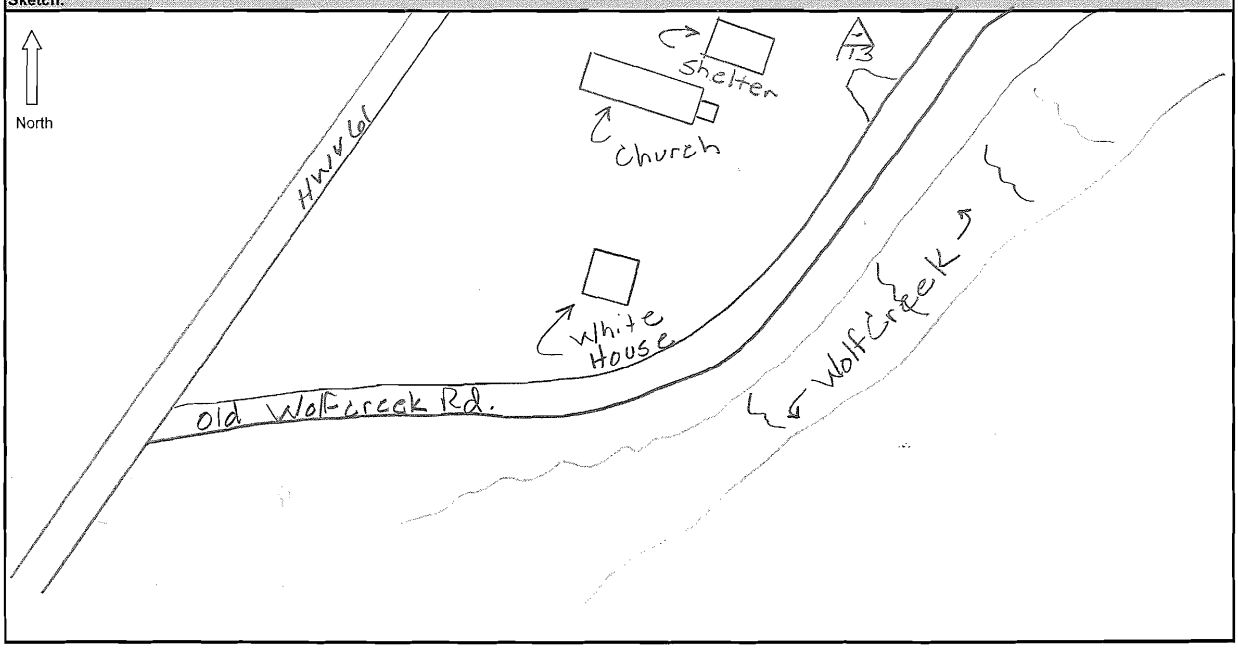
Project Name:	USACA Huntington District, West Virgina	Operator Name	Guy Titcombe	Job No.	
Station Name:	113	Date of Survey:	04/04/09	Julian Day	096
WGS 84 Coordinates		File Name:	113-096-A.dat	Session #	
Latitude	N 37-18-19.09	Type of Reciever:	4000 SSE		
Longitude	W 080-51-05.18	Type of Antenna:	COMPACT L1/L2		
Ellip. Height	1501.'				
		Antenna Height:	2.0	Circle one: USFT / Meters	Circle one: ARP / Phase Center
Type of Mark:	2'X12" White Cloth "X"				
Stamping on Mark:	Woolpert	Start Time (local):	8:11		
		Weather Condition:	Cloudy 35°		

To-Reach Description: From JCT HWY 601 & old Wolf Creek Rd. Go North onto old Wolfcreek to Church & Gravel pull off, on the left. Taract is located Just North in a grass field.

Witness Ties:

Reference Object	Distance	Azimuth
1) NE Cor. of Shelter	64.8'	N.E.
2) E/P @ old Wolf Creek Rd	34.5'	North
3) North E/P @ Gravel Pull in	30.6'	West.
4)		

Sketch:



GPS Station Recovery - GPS Log Sheet

WOOLPERT

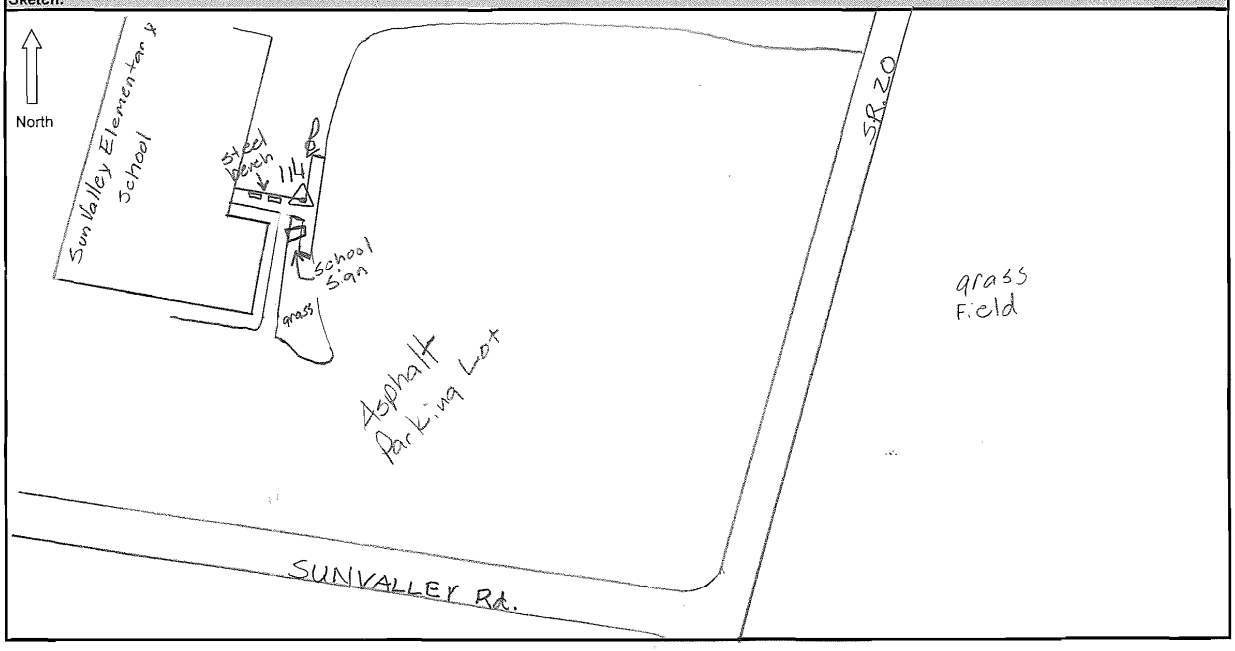
Project Name:	USACA Huntington District, West Virgina	Operator Name	Guy Titcombe	Job No.	
Station Name:	114	Date of Survey:	04/06/09	Julian Day	96
WGS 84 Coordinates		File Name:	0114-096-A	Session #	1
Latitude	37° 29' 04.36"	Type of Reciever:	4000 SSE		
Longitude	80° 59' 52.23"	Type of Antenna:	COMPACT L1/L2		
Ellip. Height	+0762.9 m.	Antenna Height:	2.0	Circle one: USFT / (Meters)	Circle one: (ARP) / Phase Center
Type of Mark:	PID	Start Time (local):	5:39		
Stamping on Mark:	N/A	Weather Condition:	35° overcast		

To-Reach Description: From Jct of SR. 20 & Sunvalley Rd. Proceed North to school Parking Lot & conc. walk on left. PID is @ the N.W. cor. of intersecting conc. walk ways.

Witness Ties:

Reference Object	Distance	Azimuth
1) Electric/Light pole	13.5'	South
2) Steel bench	11.3'	East
3) Electronic School Sign	34.7'	North
4) EP @ asphalt walk	4.7'	West

Sketch:



GPS Station Recovery - GPS Log Sheet

WOOLPERT

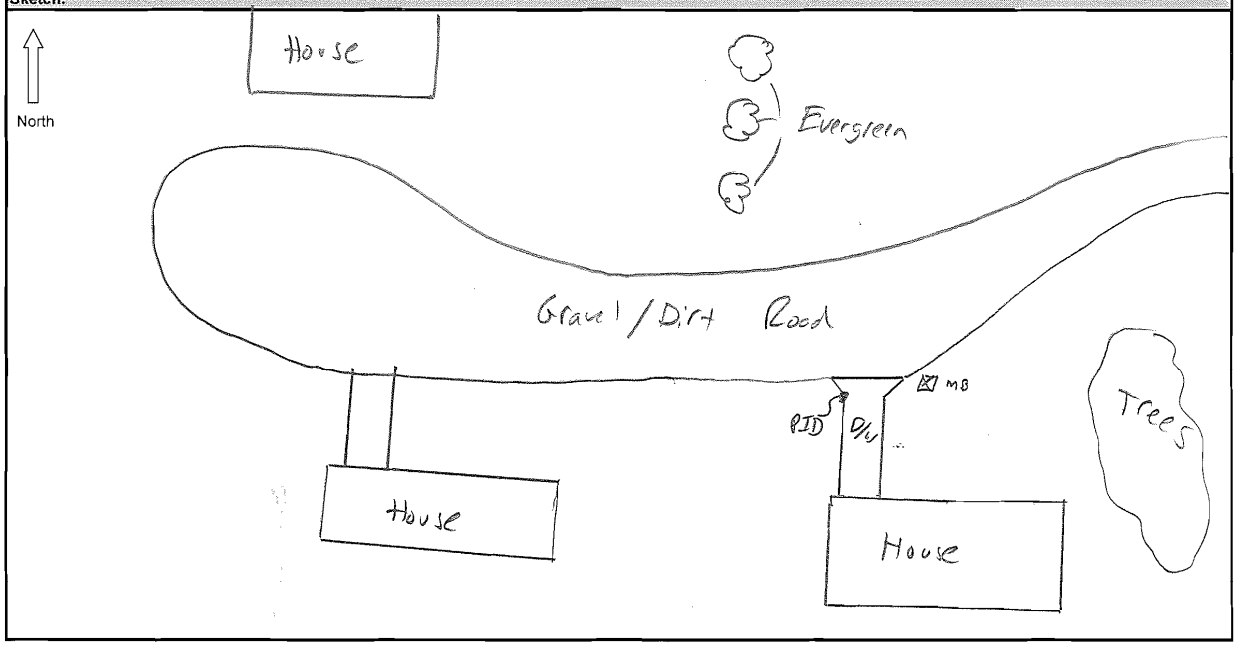
Project Name:	USACA Huntington District, West Virginia	Operator Name	Jack O'Dell	Job No.	
Station Name:	115	Date of Survey:	4/7/09	Julian Day	97
WGS 84 Coordinates		File Name:	WV 115	Session #	1
Latitude	37 51 37.95	Type of Reciever:	R8 Model 2		
Longitude	80 51 25.89	Type of Antenna:	Internal Antenna		
Ellip. Height	2347.95 sft	Antenna Height:	2.0 (USFT / Meters)	Circle one: ARP / Phase Center	
Type of Mark:	PID Corner of Conc. D/W	Start Time (local):	10:46 11:36		
Stamping on Mark:	N/A	Weather Condition:	Snowy		

To-Reach Description:

Witness Ties:

Reference Object	Distance	Azimuth
1) Edge of road	5	S
2) MB	33	SW
3) Garage / House	40	N
4)		

Sketch:



GPS Station Recovery - GPS Log Sheet

WOOLPERT

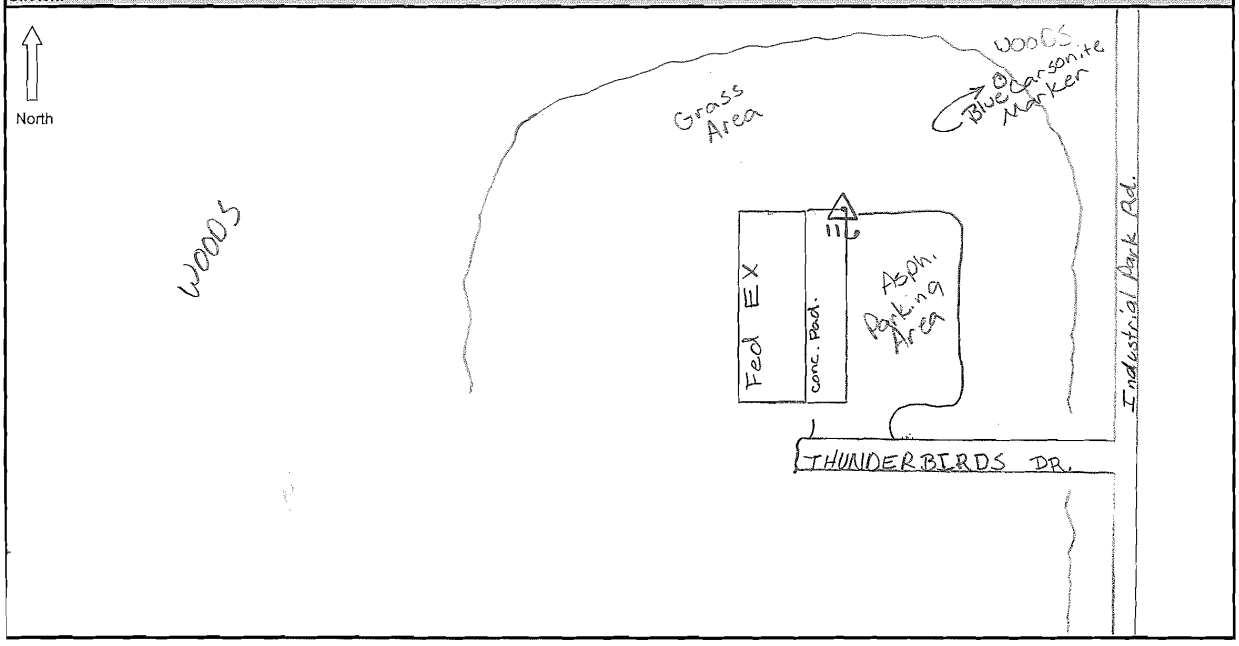
Project Name:	USACA Huntington District, West Virgina	Operator Name	Guy Titcombe	Job No.	
Station Name:	116	Date of Survey:	04/07/2009	Julian Day	97
WGS 84 Coordinates		File Name:	116-097-A	Session #	2
Latitude	37°47'37.23"	Type of Reciever:	4000 SSE		
Longitude	81°07'06.78"	Type of Antenna:	COMPACT L1/L2		
Ellip. Height	+0731.4 m.				
		Antenna Height:	2.0	Circle one: USFT / Meters	Circle one: ARP / Phase Center
Type of Mark:	PID				
		Start Time (local) :	12:05		
Stamping on Mark:	N/A	Weather Condition:	35° Overcast		

To-Reach Description: Located @ the N.E. Tip of 70'x90' conc. pad. @ FedEx Terminal on Industrial Park Rd. in Beaver

Witness Ties:

Reference Object	Distance	Azimuth
1) East E/P @ Asph. Parking	34.3'	West
2) NE cor. FedEx Bldg.	70.6'	East
3) Blue Carsonite Marker.	110.8'	S.W.
4)		

Sketch:



GPS Station Recovery - GPS Log Sheet

WOOLPERT

Project Name:	USACE Huntington District - Bluestone Lake - WV	Operator Name	Rob Cross	Job No.	
Station Name:	117	Date of Survey:	09APR2009	Julian Day	099
WGS 84 Coordinates		File Name:	117X-099	Session #	
Latitude	N 38 · 06 · 11.9	Type of Reciever:	Trimble Navigation 5800		
Longitude	W 081 · 10 · 26.6	Type of Antenna:	Internal - NGS Calibrated Antenna TRM5800		
Ellip. Height	1299'	Antenna Height:	2.00m	Circle one: USFT / Meters	Circle one: ARP / Phase Center
Type of Mark:	Iron Pin in Cloth +	Start Time (local) :	13:50		
Stamping on Mark:		Weather Condition:	65°F Sunny		

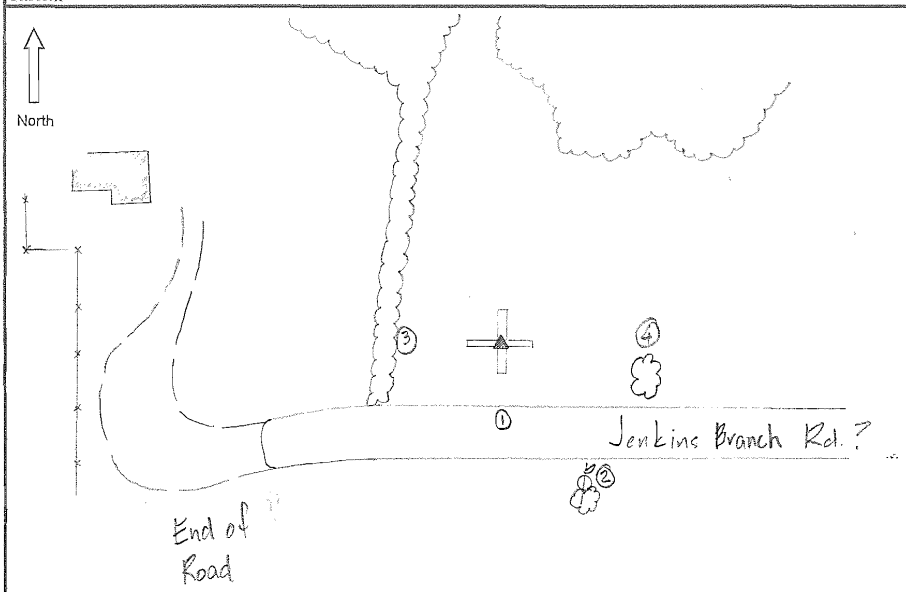
To-Reach Description:

Target removed @ unknown time. Located for possibility of capture in aerial imagery

Witness Ties:

Reference Object	Distance	Azimuth
1) Perp to N. edge road	26'	
2) Power Pole	60'	
3) Perp to E. edge brush line	57'	
4) 8" tree	94'	

Sketch:



GPS Station Recovery - GPS Log Sheet

WOOLPERT

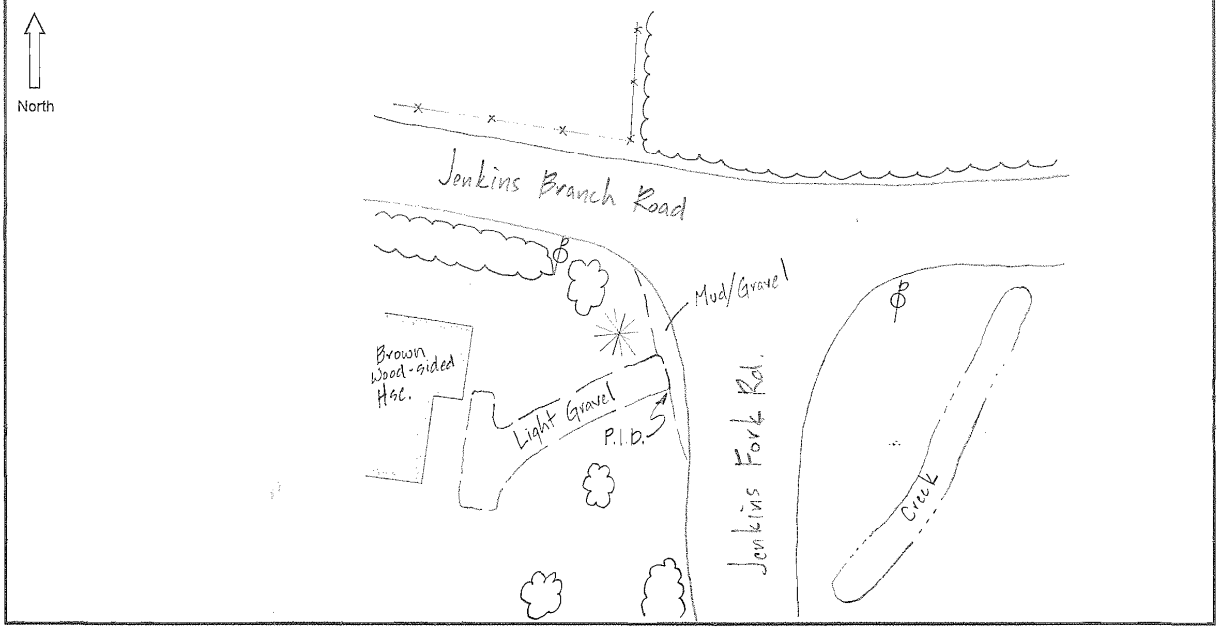
Project Name:	USACE Huntington District - Bluestone Lake - WV	Operator Name	Rob Cross	Job No.	
Station Name:	117 Reset	Date of Survey:	09APR2009	Julian Day	099
WGS 84 Coordinates		File Name:	117 - 099	Session #	
Latitude	N 38 - 06 - 01.21	Type of Reciever:	Trimble Navigation 5800		
Longitude	W 081 - 09 - 51.54	Type of Antenna:	Internal - NGS Calibrated Antenna TRM5800		
Ellip. Height	1125'	Antenna Height:	2.00m	Circle one: USFT / Meters	Circle one: ARP / Phase Center
Type of Mark:	P.I.D.	Start Time (local) :	12:56		
Stamping on Mark:		Weather Condition:	65°F Sunny		

To-Reach Description: Southern corner of east end of gravel drive @ intersection with grass and mud/gravel.

Witness Ties:

Reference Object	Distance	Azimuth
1)		
2)		
3)		
4)		

Sketch:



GPS Station Recovery - GPS Log Sheet

WOOLPERT

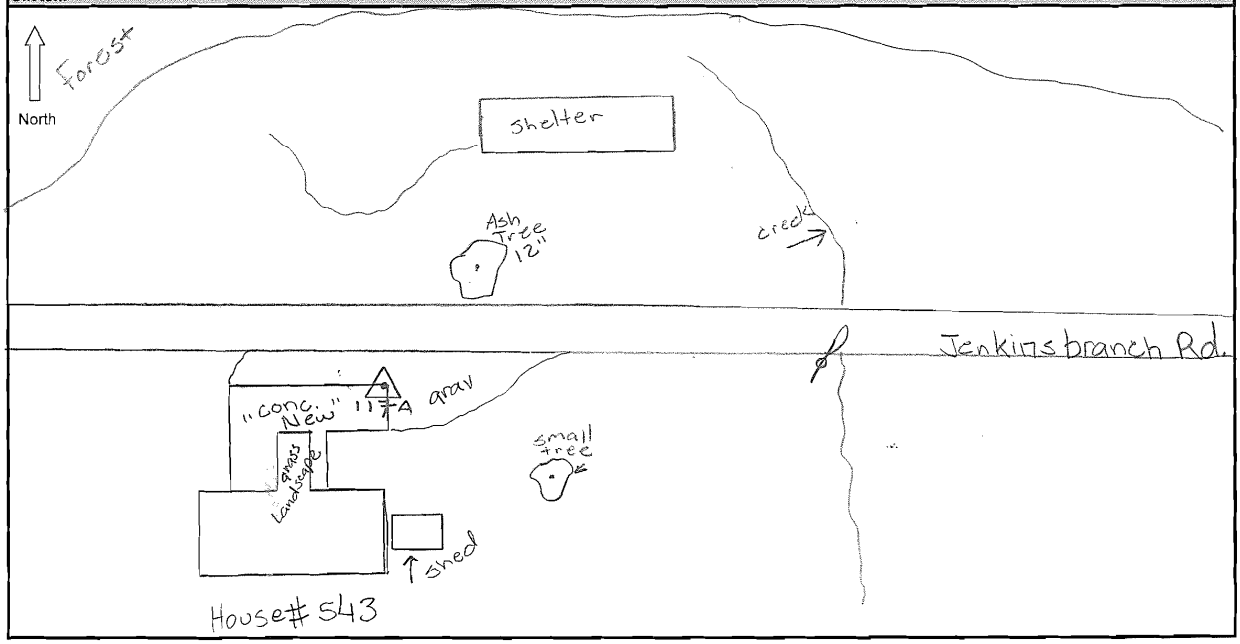
Project Name:	USACA Huntington District, West Virgina	Operator Name	Guy Titcombe	Job No.	
Station Name:	117A-PID	Date of Survey:	04/16/2009	Julian Day	106
WGS 84 Coordinates		File Name:	117A-106-B	Session #	1
Latitude	38°06'11.02"	Type of Reciever:	4000 SSE		
Longitude	81°10'18.55"	Type of Antenna:	COMPACT L1/L2		
Ellip. Height	+0351.7 m.				
		Antenna Height:	2.0	Circle one: USFT / Meters	Circle one: ARP / Phase Center
Type of Mark:	PID N.W. tip of conc. drive				
Stamping on Mark:	N/A	Start Time (local) :			
		Weather Condition:			

To-Reach Description: From Jct @ Jenkins branch & Jenkins Fork Crossing, Proceed West on Jenkins branch to House #543 "RHODES" PID is @ N.W. Tip of Conc. drive.

Witness Ties:

Reference Object	Distance	Azimuth
1)		
2)		
3)		
4)		

Sketch:



GPS Station Recovery - GPS Log Sheet

WOOLPERT

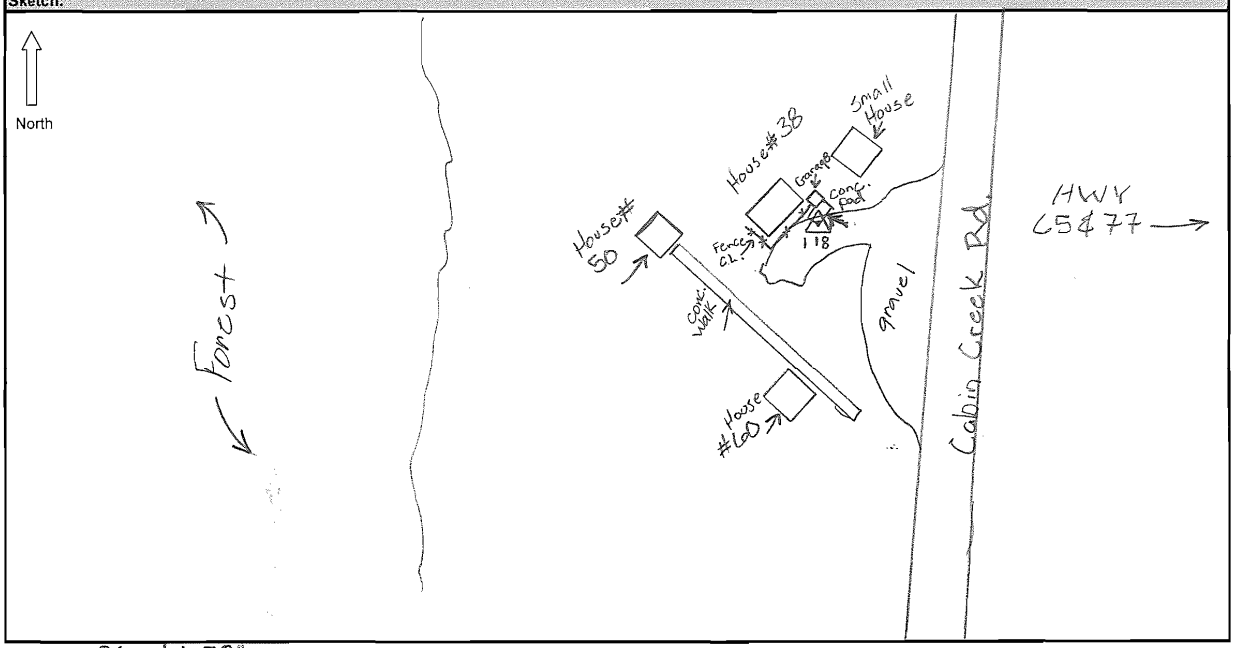
Project Name:	USACA Huntington District, West Virgina	Operator Name	Guy Titcombe	Job No.	
Station Name:	118	Date of Survey:	04/09/2009	Julian Day	99
WGS 84 Coordinates		File Name:	118-99-A	Session #	2
Latitude	38° 07' 25.83"	Type of Reciever:	4000 SSE		
Longitude	81° 27' 18.83"	Type of Antenna:	COMPACT L1/L2		
Ellip. Height					
	SE. Cor.	Antenna Height:	2.0	Circle one: USFT / Meters	Circle one: ARP / Phase Center
Type of Mark:	PID aprox 40'x70' conc. pad.				
		Start Time (local) :	1:40		
Stamping on Mark:	N/A	Weather Condition:	60° sunny		

To-Reach Description: Take the Cabin Creek Rd. EXIT off of 77 and go south to - Dawes W.V. Continue South to a small group of Houses on the right, Pad is in front of small house # 38.

Witness Ties:

Reference Object	Distance	Azimuth
1) Chain Link Fence		East
2) NE Tip Conc. Pad		S.W.
3) NE Cor. Garage		South
4)		

Sketch:



N = 38° 74' 38"
W = 81° 27' 31"
Aprox. coord.

GPS Station Recovery - GPS Log Sheet

WOOLPERT

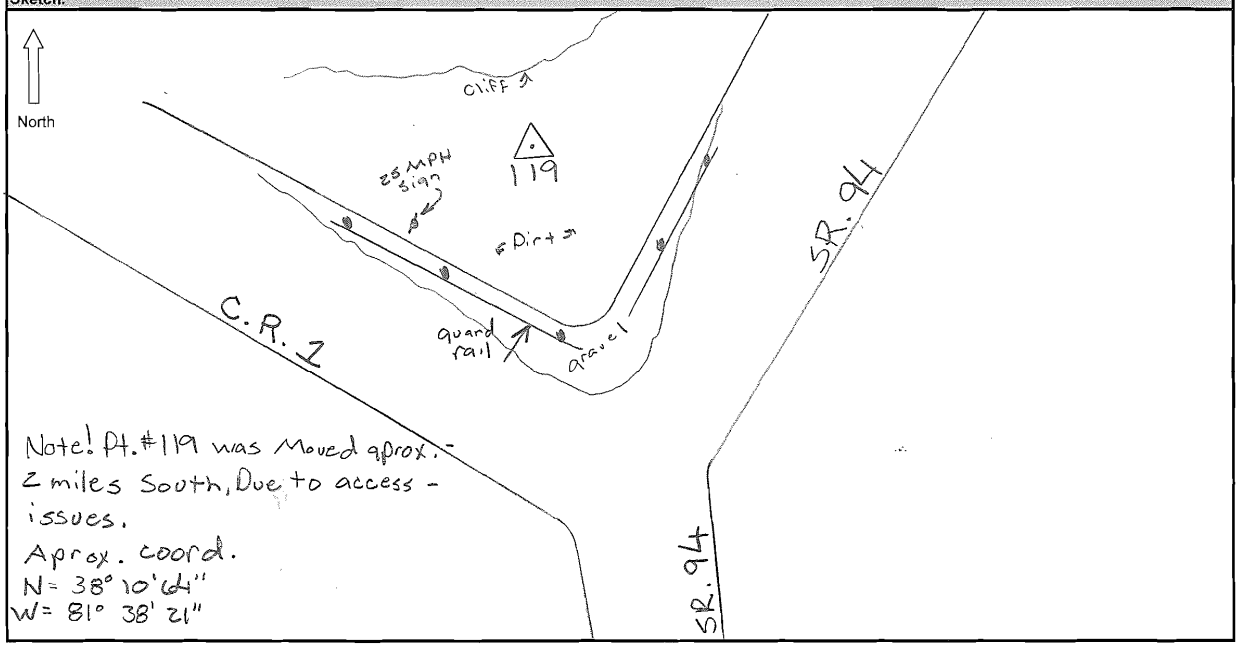
Project Name:	USACA Huntington District, West Virgina	Operator Name	Guy Titcombe	Job No.	
Station Name:	119	Date of Survey:	04/09/2009	Julian Day	99
WGS 84 Coordinates		File Name:	119-99-A	Session #	3
Latitude		Type of Reciever:	4000 SSE		
Longitude		Type of Antenna:	COMPACT L1/L2		
Ellip. Height		Antenna Height:	2.0	Circle one: USFT / Meters	Circle one: ARP / Phase Center
Type of Mark:	2'X2' White Cloth "X"	Start Time (local):	3:19		
Stamping on Mark:	Woolpert.	Weather Condition:	60° sunny		

To-Reach Description: Located @ Int. of SR. 94 & C.R. 1, In Hernshaw W.V.

Witness Ties:

Reference Object	Distance	Azimuth
1) 25 MPH Sign @ C.R. 1	77.5'	N.E.
2) guard Rail @ N. side of CR 1	37.0'	North
3) guard Rail @ W. side of 94	37.5'	West.
4)		

Sketch:



Note! Pt. #119 was Moved aprox. 2 miles South, Due to access - issues.
Aprox. coord.
N = 38° 10' 04"
W = 81° 38' 21"

GPS Station Recovery - GPS Log Sheet

WOOLPERT

Project Name:	USACA Huntington District, West Virgina	Operator Name	Guy Titcombe	Job No.	

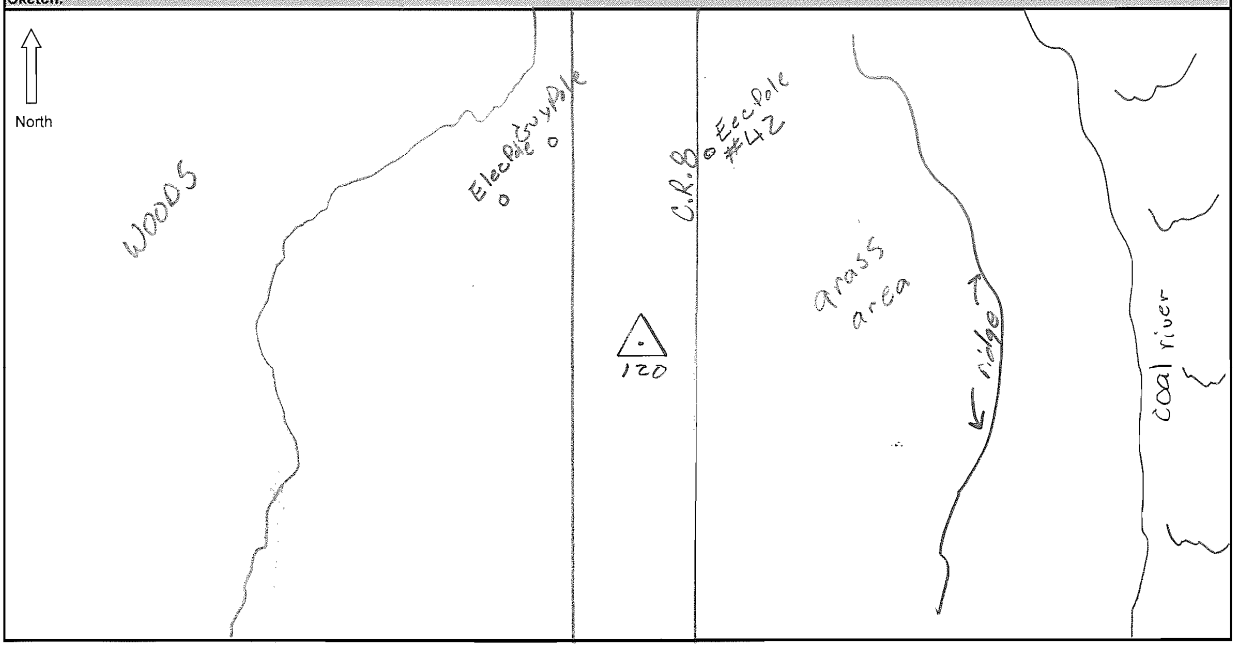
Station Name:	120	Date of Survey:	04/09/2009	Julian Day	99
WGS 84 Coordinates		File Name:	120-99-A	Session #	4
Latitude	38°15' 16.71"	Type of Reciever:	4000 SSE		
Longitude	81° 48' 32.37"	Type of Antenna:	COMPACT L1/L2		
Ellip. Height	+0156.1 m.	Antenna Height:	2.0	Circle one: USFT / Meters	Circle one: ARP / Phase Center
Type of Mark:	2'X8' White paint Chevron	Start Time (local) :	5:42		
Stamping on Mark:	N/A	Weather Condition:			

To-Reach Description: From Jct. @ 119 & C.R. 8 proceed East on CR. 8 For aprox 1.3 mi to station in road.
Aprox. coord.
N= 38° 15' 29"
W= 81°48' 55"

Witness Ties:

Reference Object	Distance	Azimuth
1) Elec. Pole # 42	135.8'	South
2) E/P @ E. side of C.R. 8.	0.3'	West
3) E/P @ W. side of C.R. 8.	10.0'	East
4)		

Sketch:



GPS Station Recovery - GPS Log Sheet

WOOLPERT

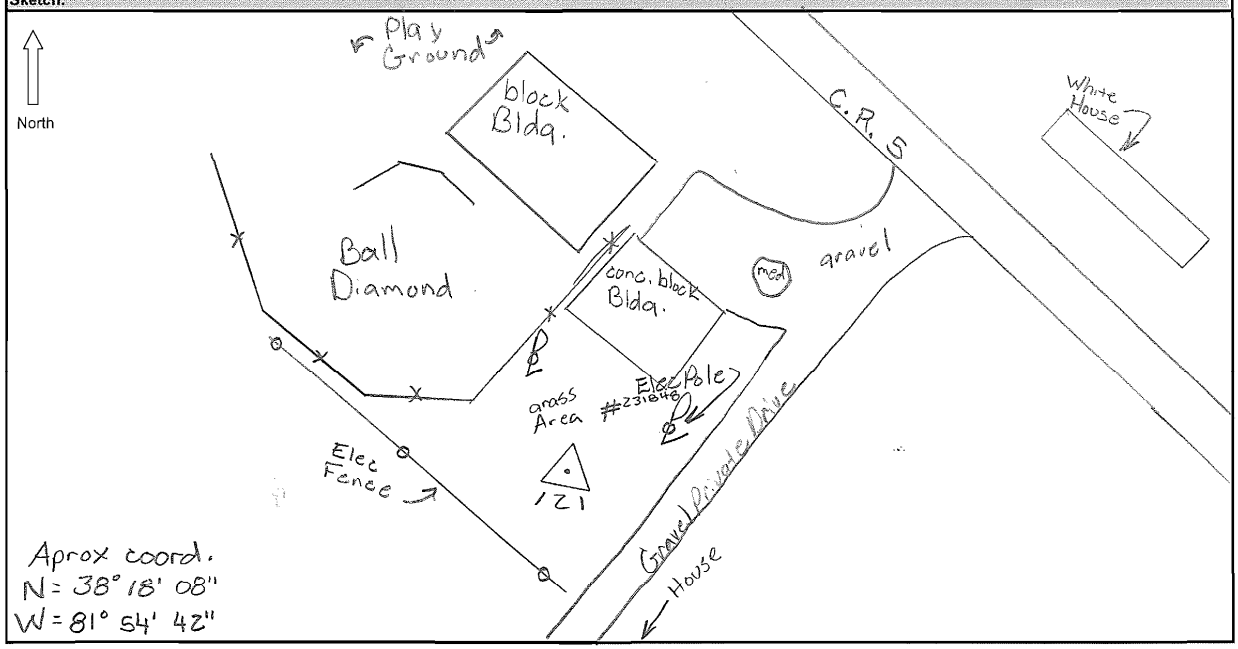
Project Name:	USACA Huntington District, West Virgina	Operator Name	Guy Titcombe	Job No.	
Station Name:	121	Date of Survey:	04/10/2009	Julian Day	100
WGS 84 Coordinates		File Name:	121-100-A	Session #	2
Latitude		Type of Reciever:	4000 SSE		
Longitude		Type of Antenna:	COMPACT L1/L2		
Ellip. Height					
		Antenna Height:	2.0	Circle one: USFT / Meters	Circle one: ARP / Phase Center
Type of Mark:	2'x8' White Cloth "X"				
Stamping on Mark:		Start Time (local):	11:27		
		Weather Condition:	50° rain		

To-Reach Description: From Jct of SR 214 & C.R. 5/9 go North onto C.R. 5/9 aprox 4.8 mi. ± to - Garretts Bend Com. Cntr. turn left into Ball park and proceed to rear of conc. Bldg. to Station on right.

Witness Ties:

Reference Object	Distance	Azimuth
1) Elec. Pole #231848	95.4'	S.W.
2) West Side of Gravel Drive	22.2'	West
3) Elec. Fence	47.4'	North
4) Chain link Fence	82.5'	East.

Sketch:



Needs I/P & cap!

GPS Station Recovery - GPS Log Sheet

WOOLPERT

Project Name:	USACE Huntington District - Bluestone Lake - WV	Operator Name	Rob Cross	Job No.	

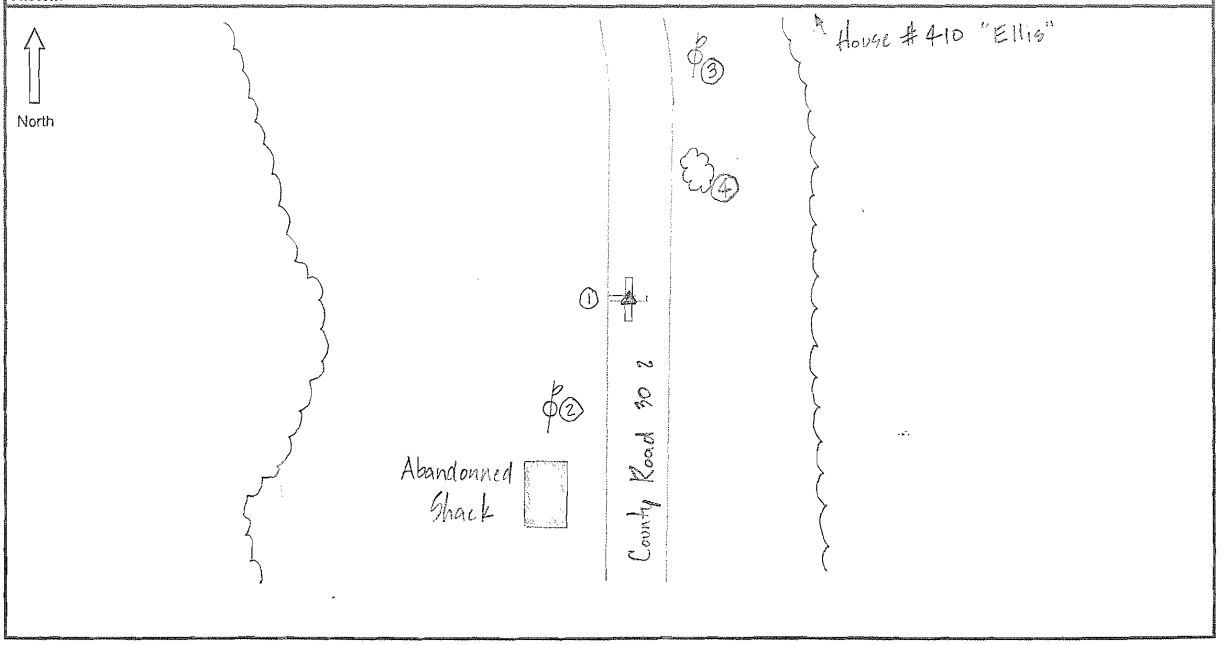
Station Name:	122	Date of Survey:	04/10/2009 Julian Day 100
WGS 84 Coordinates		File Name:	122-100-A Session # 3
Latitude	N 38° - 31' - 20.37"	Type of Reciever:	~~Trimble Navigation 5800~~ 4000 SSE
Longitude	W 082° - 07' 35.89"	Type of Antenna:	Internal - NGS Calibrated Antenna TRM5800
Ellip. Height	+0230.8 m.	Antenna Height:	2.00m (Circle one: USFT / Meters; Circle one: ARP / Phase Center)
Type of Mark:	Mag Nail in Painted +	Start Time (local) :	1:54
Stamping on Mark:		Weather Condition:	60° sunny

To-Reach Description:

Witness Ties:

Reference Object	Distance	Azimuth
1) West E/Pavement	4'	
2) Power Pole	102'	
3) Power Pole	234'	
4) Tree	126'	

Sketch:



GPS Station Recovery - GPS Log Sheet

WOOLPERT

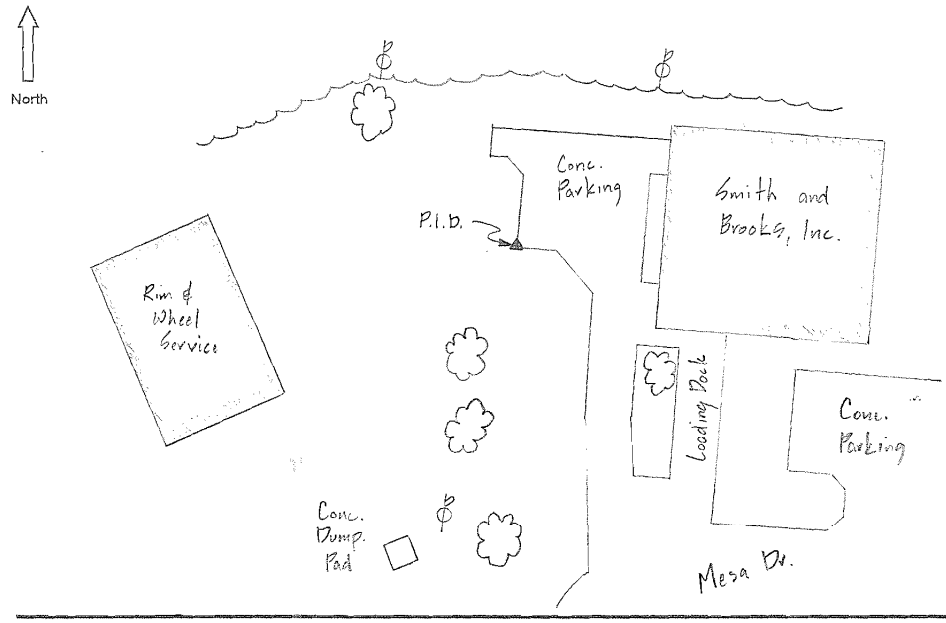
Project Name:	USACE Huntington District - Bluestone Lake - WV	Operator Name	Rob Cross	Job No.	
Station Name:	123	Date of Survey:	04/10/09	Julian Day	100
WGS 84 Coordinates		File Name:	123-100-A	Session #	4
Latitude	N 38-26-48.1	Type of Reciever:	Trimble Navigation 5800		
Longitude	W 081-50-54.8	Type of Antenna:	Internal - NGS Calibrated Antenna TRM5800		
Ellip. Height	690'				
		Antenna Height:	2.00m	Circle one: USFT / Meters	Circle one: ARP / Phase Center
Type of Mark:	P.I.D. - Mag Nail				
Stamping on Mark:	Mag Nail	Start Time (local):	4:00		
		Weather Condition:	60° sunny		

To-Reach Description: Mag Nail & Washer set @ the southwest corner of the counter sales concrete parking lot.

Witness Ties:

Reference Object	Distance	Azimuth
1)		
2)		
3)		
4)		

Sketch:



GPS Station Recovery - GPS Log Sheet

WOOLPERT

Project Name:	USACA Huntington District, West Virginia	Operator Name	Jack O'Dell	Job No.	
Station Name:	124	Date of Survey:	4/9/09	Julian Day	99
WGS 84 Coordinates		File Name:	WV 124 99	Session #	1
Latitude	38 19 18.20	Type of Reciever:	R8 Model 2		
Longitude	81 35 07.73	Type of Antenna:	Internal Antenna		
Ellip. Height	503.56 sFt			Circle one:	Circle one:
		Antenna Height:	2.0	USFT / Meters	ARP / Phase Center
Type of Mark:	PID @ South corner of D/W	Start Time (local) :	16:28		
Stamping on Mark:		Weather Condition:	Sunny		

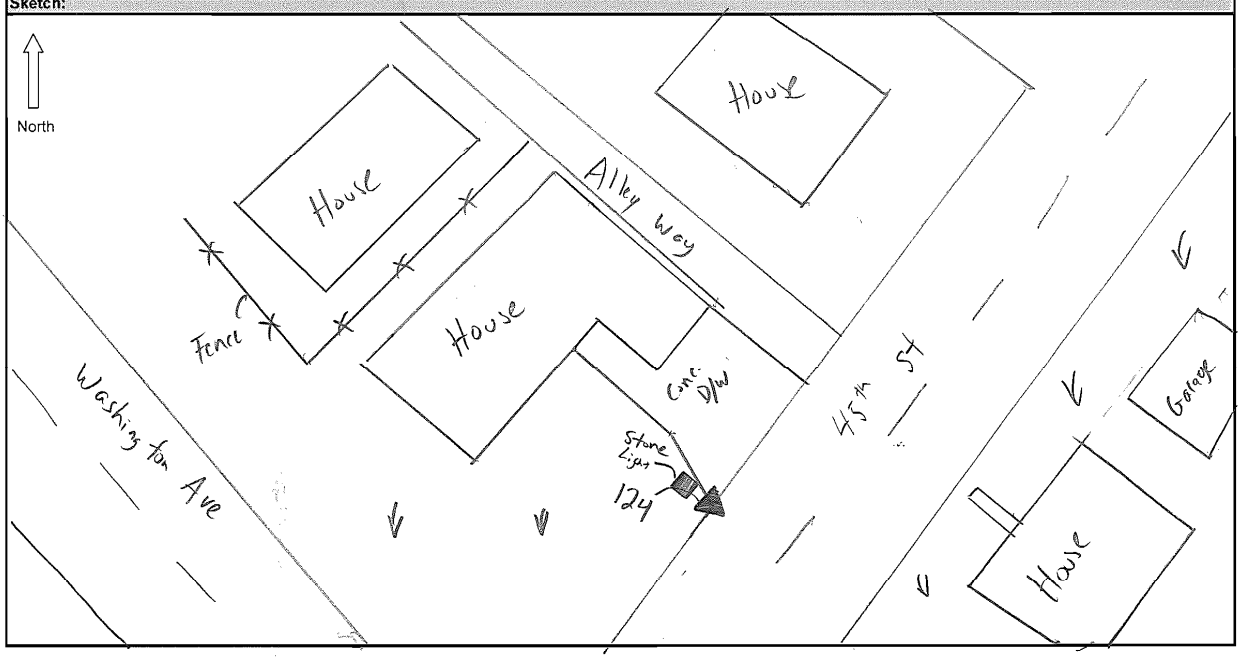
To-Reach Description:

@ 38 19 17.72
81 35 7.99

Witness Ties:

Reference Object	Distance	Azimuth
1)		
2)		
3)		
4)		

Sketch:



GPS Station Recovery - GPS Log Sheet

WOOLPERT

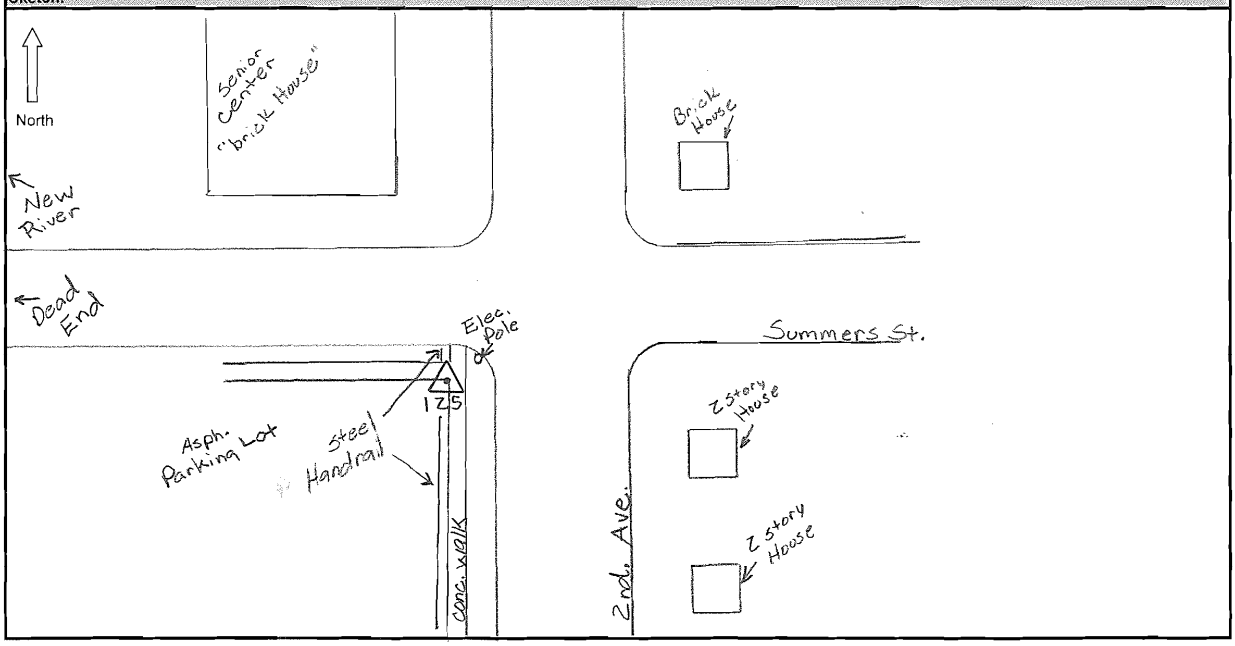
Project Name:	USACA Huntington District, West Virgina	Operator Name	Guy Titcombe	Job No.	
Station Name:	125	Date of Survey:	04/07/2009	Julian Day	97
WGS 84 Coordinates		File Name:	125-097-A	Session #	1
Latitude	37°40' 28.55"	Type of Reciever:	4000 SSE		
Longitude	80°53' 30.12"	Type of Antenna:	COMPACT L1/L2		
Ellip. Height	+0398.3 m.				
		Antenna Height:	2.0	Circle one: USFT / Meters	Circle one: ARP / Phase Center
Type of Mark:	PID - SW JCT of conc. walk	Start Time (local) :	10:00		
Stamping on Mark:	N/A	Weather Condition:	35° Cloudy		

To-Reach Description: Located in the S.W. Quad @ the intersection of Summers St. & 2nd. in Hinton.

Witness Ties:

Reference Object	Distance	Azimuth
1) Elec. /Light Pole # D-1408	15.3'	South West
2) West E/P @ 2nd Ave.	14.6'	West
3) South E/P @ Summers St.	15.6'	South
4)		

Sketch:



GPS Station Recovery - GPS Log Sheet

WOOLPERT

Project Name:	USACA Huntington District, West Virginia	Operator Name	Jack O'Dell	Job No.	
Station Name:	126	Date of Survey:	# 4/10/09	Julian Day	100
WGS 84 Coordinates		File Name:	WV 126 100	Session #	1
Latitude	38 41 36.22	Type of Reciever:	R8 Model 2		
Longitude	81 58 02.03	Type of Antenna:	Internal Antenna		
Ellip. Height	463.88 sft				
		Antenna Height:	2.0	Circle one: USFT / Meters	Circle one: ARP / Phase Center
Type of Mark:	cloth "x" Tp w/cap				
Stamping on Mark:		Start Time (local) :	13:38		
		Weather Condition:	Rain		

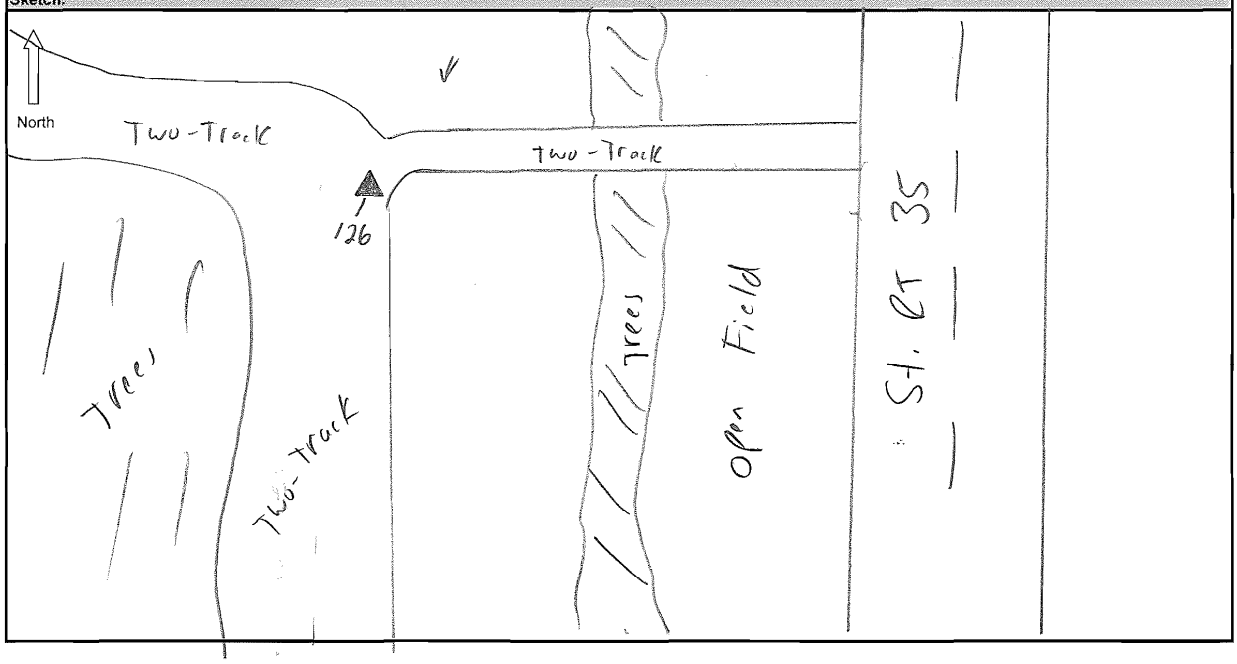
To-Reach Description:

@ 38 41 35.98
81 58 1.93

Witness Ties:

Reference Object	Distance	Azimuth
1)		
2)		
3)		
4)		

Sketch:



GPS Station Recovery - GPS Log Sheet

WOOLPERT

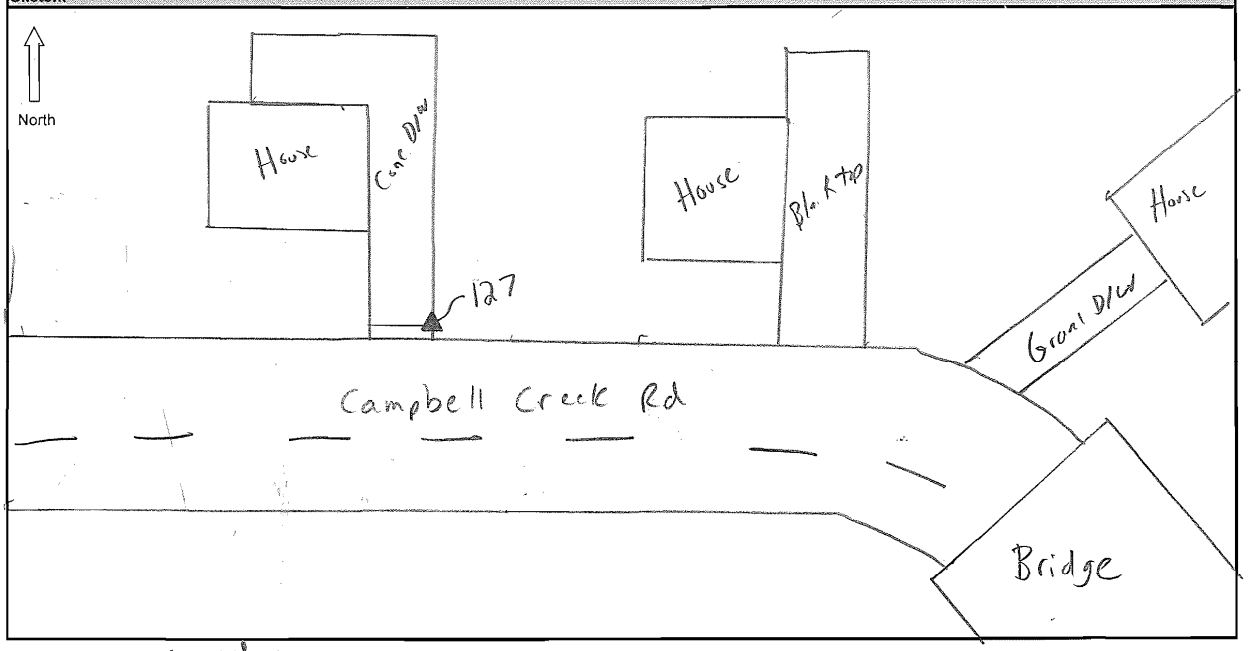
Project Name:	USACA Huntington District, West Virgina	Operator Name	Guy Titcombe	Job No.	
Station Name:	127	Date of Survey:	4/9/09	Julian Day	99
WGS 84 Coordinates		File Name:	WV12799	Session #	1
Latitude	38 18 59.92	Type of Reciever:	4000 SSE		
Longitude	81 25 34.91	Type of Antenna:	COMPACT L1/L2		
Ellip. Height	701.66 sft			Circle one:	Circle one:
		Antenna Height:	2.0	USFT	ARP
				Meters	Phase Center
Type of Mark:	PID				
		Start Time (local) :	14:50		
Stamping on Mark:		Weather Condition:	Sunny		

To-Reach Description: From Jct of HWY 60 & Campbells creek Rd. go east on campbells creek several mile to the town of Blount. Stay on campbells creek and proceed to Conc. bridge crossing -

Witness Ties:

Reference Object	Distance	Azimuth
1)		
2)		
3)		
4)		

Sketch:



Aprox. coord.
N = 38° 19' 01"
W = 81° 25' 54"

GPS Station Recovery - GPS Log Sheet

WOOLPERT

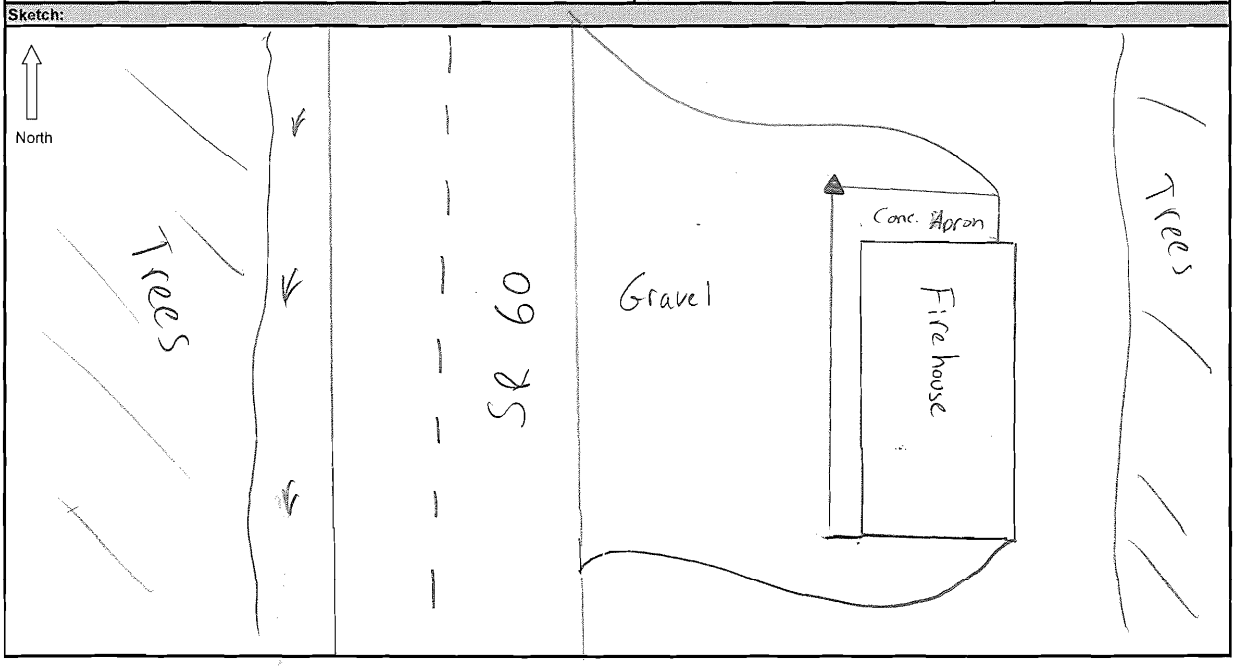
Project Name:	USACA Huntington District, West Virginia	Operator Name	Jack O'Dell	Job No.	
Station Name:	128	Date of Survey:	4/7/09	Julian Day	97
WGS 84 Coordinates		File Name:	WV 128	Session #	1
Latitude	38 04 56.67	Type of Reciever:	R8 Model 2		
Longitude	80 59 03.80	Type of Antenna:	Internal Antenna		
Ellip. Height	2401.92 sft			Circle one:	Circle one:
		Antenna Height:	2.0	USFT	ARP
				Meters	Phase Center
Type of Mark:	RFD @ corner of Conc. Apron				
		Start Time (local) :	17:12		
Stamping on Mark:	N/A	Weather Condition:	Cloudy		

To-Reach Description:

Witness Ties:

Reference Object	Distance	Azimuth
1)		
2)		
3)		
4)		

Sketch:



GPS Station Recovery - GPS Log Sheet

WOOLPERT

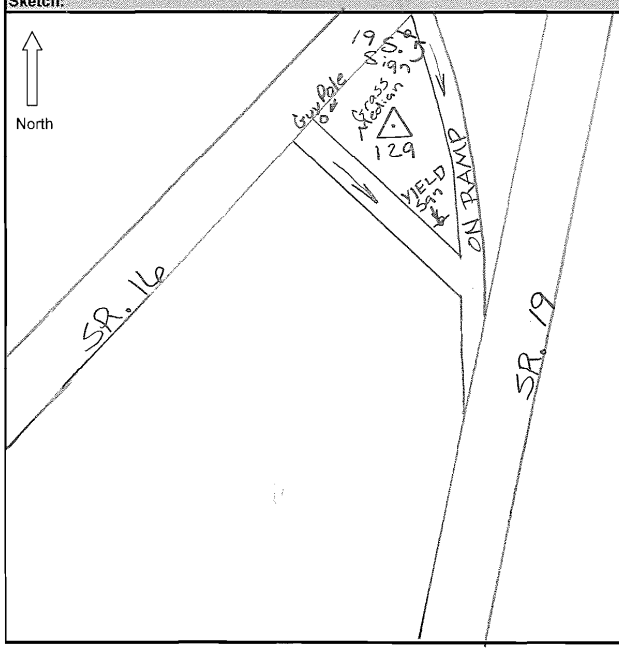
Project Name:	USACA Huntington District, West Virgina	Operator Name	Guy Titcombe	Job No.	
Station Name:	129	Date of Survey:	04/07/2009	Julian Day	97
WGS 84 Coordinates		File Name:	129-097-A	Session #	3
Latitude	37° 58' 32.53"	Type of Reciever:	4000 SSE		
Longitude	81° 08' 29.34"	Type of Antenna:	COMPACT L1/L2		
Ellip. Height	+0570.6 m.				
		Antenna Height:	2.0	Circle one: USFT / Meters	Circle one: ARP / Phase Center
Type of Mark:	2'x12' WhiteCloth "X"				
Stamping on Mark:	Woolpert	Start Time (local) :	5:00		
		Weather Condition:	37° overcast		

To-Reach Description: Located in the Median between SR. 16 & SR. 19. Median is @ on ramp to 19 south From 16-N.

Witness Ties:

Reference Object	Distance	Azimuth
1) Guy Pole # 6090406	27.1'	East
2) Yield Sign	49.2'	N.W.
3) 19 South Sign	67.3'	South
4)		

Sketch:



GPS Station Recovery - GPS Log Sheet

WOOLPERT

Project Name:	USACE Huntington District - Bluestone Lake - WV	Operator Name	Rob Cross	Job No.	
Station Name:	130	Date of Survey:	06APR 2009	Julian Day	096
WGS 84 Coordinates		File Name:	130-096.dat	Session #	
Latitude	N 37-29-15.52	Type of Reciever:	Trimble Navigation 5800		
Longitude	W 080-39-16.31	Type of Antenna:	Internal - NGS Calibrated Antenna TRM5800		
Ellip. Height	1859.2'	Antenna Height:	2.00m	Circle one: USFT / Meters	Circle one: ARP / Phase Center
Type of Mark:	P.I.D.	Start Time (local) :	18:46		
Stamping on Mark:		Weather Condition:			

To-Reach Description:

Witness Ties:

Reference Object	Distance	Azimuth
1)		
2)		
3)		
4)		

Sketch:

GPS Station Recovery - GPS Log Sheet

WOOLPERT

Project Name:	Bluestone Lake, WV - COE	**Operator Name**	Guy Titcombe	**Job No.**	69422

Station Name: 131

Date of Survey: 5/7/2009 **Julian Day** 127

WGS 84 Coordinates

Latitude 38° 33' 29.80720"
Longitude 81° 17' 27.21301"
Ellip. Height 599.499

File Name: CHARLSTONADDPT **Session #** 1
Type of Reciever: R8-2
Type of Antenna: R8-2

Antenna Height: 2.000 (Circle one: USFT / Meters) (Circle one: ARP / Phase Center)

Type of Mark: PID - Southeast Corner of Drive
Stamping on Mark: N/A

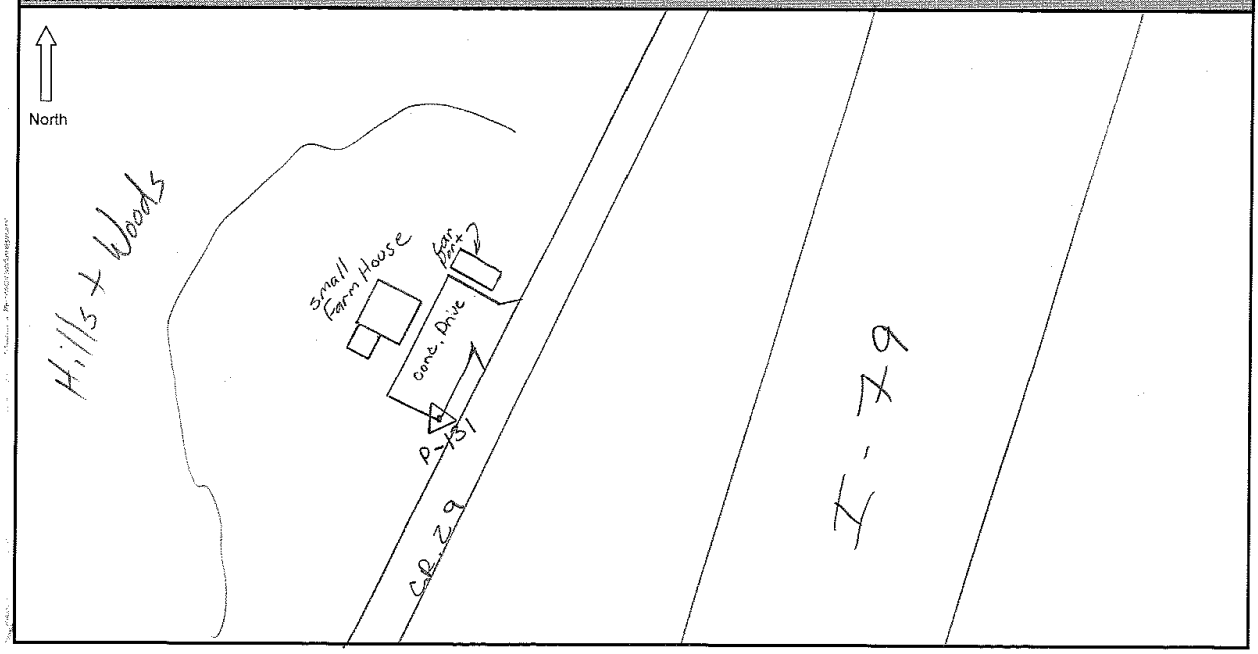
Start Time (local): 5:06
Weather Condition: 65° sunny

To-Reach Description:
From Jct. of C.R. 29 & HWY 79 Exit 25 Proceed South on C.R. 29 for aprox 1.3 mi ± to Drive # 7 Sloan on right PID is S.E. Tip of conc. drive.

Witness Ties:

Reference Object	Distance	Azimuth
1)		
2)		
3)		
4)		

Sketch:



GPS Station Recovery - GPS Log Sheet

WOOLPERT

Project Name:	Bluestone Lake, WV - COE	**Operator Name**	Guy Titcombe	**Job No.**	69422

Station Name: 132

Date of Survey: 5/7/2009 **Julian Day** 127

File Name: Charlston Add Pts **Session #** 2

Type of Reciever: R-8-2

Type of Antenna: R-8-2

WGS 84 Coordinates

Latitude	38°10'34.93037"
Longitude	81°18' 13.96875"
Ellip. Height	559.339 ift

		Circle one:	Circle one:
Antenna Height:	2.000	USFT	ARP
		Meters	Phase Center

Type of Mark: PID Inside cor. of conc. walk

Stamping on Mark: NA

Start Time (local): 7:00

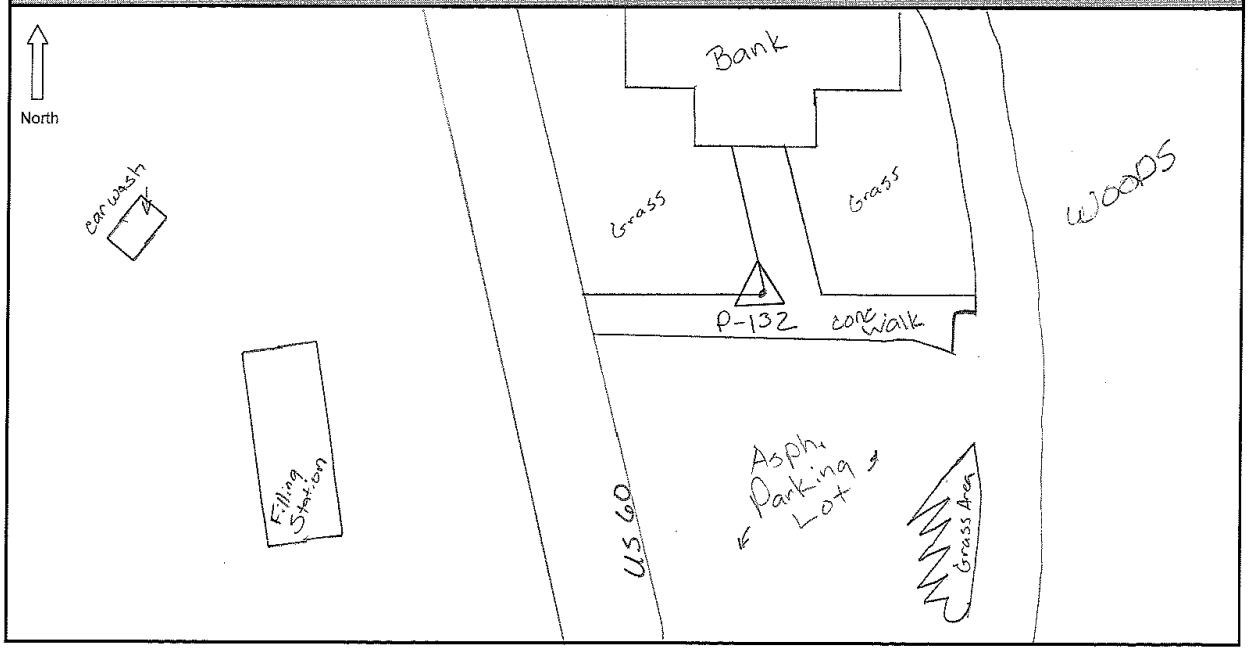
Weather Condition: 60° overcast

To-Reach Description: S.W. Inside cor. of conc. walk @ East Side of US 60. Note! PID Moved East From Designated-Location Due to Homeowner & Elec. wires.

Witness Ties:

Reference Object	Distance	Azimuth
1)		
2)		
3)		
4)		

Sketch:



SECTION 4: EXISTING NGS CONTROL INFORMATION SHEETS

This section contains the published National Geodetic Survey (NGS) Data Sheets used in the final control network for the 2009 Bluestone Lake, WV Digital Ortho Imagery and LIDAR Mapping Project.

The NGS Data Sheet

See file dsdata.txt for more information about the datasheet.

```
DATABASE =  ,PROGRAM = datasheet, VERSION = 7.67
1        National Geodetic Survey,   Retrieval Date = APRIL 13, 2009
 GX0342 ***********************************************************************
 GX0342  CBN         -  This is a Cooperative Base Network Control Station.
 GX0342  DESIGNATION -  BLACKS
 GX0342  PID         -  GX0342
 GX0342  STATE/COUNTY-  VA/MONTGOMERY
 GX0342  USGS QUAD   -  BLACKSBURG (1983)
 GX0342
 GX0342                        *CURRENT SURVEY CONTROL
 GX0342  ______________________________________________________________________
 GX0342* NAD 83(2007)-  37 13 29.52049(N)    080 23 43.22597(W)     ADJUSTED
 GX0342* NAVD 88     -       711.561  (meters)    2334.51   (feet)  ADJUSTED
 GX0342  ______________________________________________________________________
 GX0342  EPOCH DATE  -        2002.00
 GX0342  X           -     848,506.321 (meters)                     COMP
 GX0342  Y           -  -5,014,190.734 (meters)                     COMP
 GX0342  Z           -   3,837,705.272 (meters)                     COMP
 GX0342  LAPLACE CORR-          -2.55  (seconds)                    DEFLEC99
 GX0342  ELLIP HEIGHT-         679.661 (meters)          (02/10/07) ADJUSTED
 GX0342  GEOID HEIGHT-         -31.92  (meters)                     GEOID03
 GX0342  DYNAMIC HT  -         710.933 (meters)    2332.45  (feet)  COMP
 GX0342
 GX0342  ------- Accuracy Estimates (at 95% Confidence Level in cm) --------
 GX0342  Type    PID    Designation                      North   East  Ellip
 GX0342  ----------------------------------------------------------------------
 GX0342  NETWORK GX0342 BLACKS                            0.24   0.18   0.53
 GX0342  ----------------------------------------------------------------------
 GX0342  MODELED GRAV-     979,724.7   (mgal)                       NAVD 88
 GX0342
 GX0342  VERT ORDER  -  SECOND    CLASS 0
 GX0342
 GX0342.The horizontal coordinates were established by GPS observations
 GX0342.and adjusted by the National Geodetic Survey in February 2007.
 GX0342
 GX0342.The datum tag of NAD 83(2007) is equivalent to NAD 83(NSRS2007).
 GX0342.See National Readjustment for more information.
 GX0342.The horizontal coordinates are valid at the epoch date displayed above.
 GX0342.The epoch date for horizontal control is a decimal equivalence
 GX0342.of Year/Month/Day.
 GX0342
 GX0342.The orthometric height was determined by differential leveling
 GX0342.and adjusted in June 1991.
 GX0342
 GX0342.The X, Y, and Z were computed from the position and the ellipsoidal ht.
 GX0342
 GX0342.The Laplace correction was computed from DEFLEC99 derived deflections.
 GX0342
 GX0342.The ellipsoidal height was determined by GPS observations
 GX0342.and is referenced to NAD 83.
 GX0342
 GX0342.The geoid height was determined by GEOID03.
 GX0342
 GX0342.The dynamic height is computed by dividing the NAVD 88
 GX0342.geopotential number by the normal gravity value computed on the
 GX0342.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
 GX0342.degrees latitude (g = 980.6199 gals.).
 GX0342
```

```
GX0342.The modeled gravity was interpolated from observed gravity values.
GX0342
GX0342;                    North         East     Units Scale Factor Converg.
GX0342;SPC VA S     - 1,100,625.795 3,331,810.644   MT  0.99994848   -1 09 01.2
GX0342;SPC VA S     - 3,610,969.80 10,931,115.42   sFT  0.99994848   -1 09 01.2
GX0342;UTM  17      - 4,119,989.282   553,641.644   MT  0.99963544   +0 21 56.9
GX0342
GX0342!             -  Elev Factor  x  Scale Factor =   Combined Factor
GX0342!SPC VA S     -   0.99989335  x   0.99994848  =   0.99984184
GX0342!UTM  17      -   0.99989335  x   0.99963544  =   0.99952883
GX0342
GX0342|---------------------------------------------------------------------|
GX0342| PID    Reference Object                      Distance      Geod. Az  |
GX0342|                                                            dddmmss.s |
GX0342| GX0341 BLACKS RM 1                           17.462 METERS 15340     |
GX0342| GX0336 BLACKS AZ MK                         APPROX. 3.8 KM 1911930.1 |
GX0342| GX3304 AIRWAY BEACON 37 BLACKSBURG MT       APPROX. 6.3 KM 2303949.7 |
GX0342| GX3306 BLACKSBURG VPI POWER PLANT STK       APPROX. 2.4 KM 2892016.0 |
GX0342| GX3305 BLACKSBURG BAPTIST CH SPIRE          APPROX. 2.1 KM 2945515.0 |
GX0342|---------------------------------------------------------------------|
GX0342
GX0342                          SUPERSEDED SURVEY CONTROL
GX0342
GX0342  ELLIP H (04/23/01)  679.635  (m)                        GP(       ) 4 1
GX0342  NAD 83(1993)-  37 13 29.52129(N)    080 23 43.22552(W) AD(       ) B
GX0342  ELLIP H (06/29/94)  679.707  (m)                        GP(       ) 4 1
GX0342  NAD 83(1993)-  37 13 29.52153(N)    080 23 43.22547(W) AD(       ) B
GX0342  ELLIP H (04/04/94)  679.699  (m)                        GP(       ) 4 1
GX0342  NAD 83(1986)-  37 13 29.52563(N)    080 23 43.22866(W) AD(       ) 2
GX0342  NAD 27      -  37 13 29.05907(N)    080 23 44.05896(W) AD(       ) 2
GX0342  NAVD 88 (04/04/94)  711.56   (m)          2334.5    (f) LEVELING    3
GX0342  NGVD 29 (??/??/92)  711.675  (m)          2334.89   (f) ADJ UNCH    2 0
GX0342
GX0342.Superseded values are not recommended for survey control.
GX0342.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
GX0342.See file dsdata.txt to determine how the superseded data were derived.
GX0342
GX0342_U.S. NATIONAL GRID SPATIAL ADDRESS: 17SNB5364219989(NAD 83)
GX0342_MARKER: DE = TRAVERSE STATION DISK
GX0342_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT
GX0342_SP_SET: NGS
GX0342_STAMPING: BLACKS 1964
GX0342_MARK LOGO: CGS
GX0342_MAGNETIC: N = NO MAGNETIC MATERIAL
GX0342_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO
GX0342+STABILITY: SURFACE MOTION
GX0342_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR
GX0342+SATELLITE: SATELLITE OBSERVATIONS - February 23, 2000
GX0342
GX0342  HISTORY     - Date     Condition        Report By
GX0342  HISTORY     - 1964     MONUMENTED       CGS
GX0342  HISTORY     - 1964     GOOD             CGS
GX0342  HISTORY     - 1987     GOOD             NGS
GX0342  HISTORY     - 19880427 GOOD
GX0342  HISTORY     - 19930621 GOOD             NGS
GX0342  HISTORY     - 19950607 SEE DESCRIPTION  NGS
GX0342  HISTORY     - 19981124 GOOD             NGS
GX0342  HISTORY     - 20000205 GOOD             NGS
GX0342  HISTORY     - 20000223 GOOD             VADHT
GX0342
GX0342                          STATION DESCRIPTION
GX0342
GX0342'DESCRIBED BY COAST AND GEODETIC SURVEY 1964 (ELH)
```

```
GX0342'THE STATION IS LOCATED ABOUT 1-1/2 MILES SOUTHEAST OF THE
GX0342'BUSINESS SECTION OF BLACKSBURG ON THE BLACKSBURG COUNTRY
GX0342'CLUB GOLF COURSE BETWEEN THE NO. 2 GREEN AND THE NO. 3 TEE.
GX0342'
GX0342'TO REACH THE STATION FROM THE POST OFFICE IN BLACKSBURG,
GX0342'GO SOUTHEAST ON U.S. HIGHWAY 460 FOR 0.8 MILE TO A SIDE STREET
GX0342'ON THE LEFT, SUNSET BLVD., TURN LEFT AND GO 0.3 MILE TO A
GX0342'T-ROAD, TURN LEFT AND FOLLOW THE PAVED ROAD FOR 0.5 MILE TO
GX0342'THE CLUB HOUSE ON THE RIGHT, KEEP LEFT AROUND THE SWIMMING
GX0342'POOL ON A TRACK ROAD AND GO 0.05 MILE TO A FORK, KEEP RIGHT
GX0342'UP HILL FOR ABOUT 200 FEET PASSING TO THE RIGHT OF NO. 3 TEE
GX0342'AND THE STATION ON THE RIGHT.
GX0342'
GX0342'THE STATION MARK IS 174 FEET WEST-SOUTHWEST OF A POWER LINE
GX0342'POLE, 107 FEET WEST OF THE NORTH CORNER OF TEE NO. 3, 64.4 FEET
GX0342'SOUTH OF A WATER SPIGOT, 50 FEET NORTHWEST OF THE APPROXIMATE
GX0342'CENTER OF THE TRACK ROAD AND AT GREEN NO. 2.  IT IS A STANDARD
GX0342'TRAVERSE DISK SET IN A FLUSH SQUARE CONCRETE MONUMENT AND IS
GX0342'STAMPED BLACKS 1964.
GX0342'
GX0342'REFERENCE MARK NO. 1 IS 51 FEET WEST OF THE WEST CORNER OF TEE
GX0342'NO. 3, 7 FEET NORTHWEST OF A 4-INCH PINE TREE, 7 FEET SOUTHEAST
GX0342'OF THE APPROXIMATE CENTER OF THE TRACK ROAD AND 1 FOOT LOWER
GX0342'THAN STATION MARK.  IT IS A STANDARD DISK SET IN A FLUSH
GX0342'SQUARE CONCRETE MONUMENT AND IS STAMPED BLACKS NO 1 1964.
GX0342'
GX0342'THE AZIMUTH MARK IS 71 FEET EAST OF THE APPROXIMATE CENTER
GX0342'OF U.S. HIGHWAY 460, 19 FEET SOUTHEAST OF TELEPHONE POLE NO.
GX0342'176, 4.6 FEET NORTHEAST OF A METAL WITNESS SIGN AND
GX0342'APPROXIMATELY 20 FEET HIGHER THAN THE HIGHWAY SURFACE.  IT IS
GX0342'A STANDARD DISK SET IN A CONCRETE MONUMENT PROJECTING 3 INCHES
GX0342'AND IS STAMPED BLACKS 1964.
GX0342'
GX0342'TO REACH THE AZIMUTH MARK FROM THE POST OFFICE IN BLACKSBURG,
GX0342'GO SOUTHEAST ON U.S. HIGHWAY 460 FOR 2.8 MILES TO COUNTY ROAD
GX0342'643 ON THE LEFT, CONTINUE ON THE HIGHWAY FOR 0.05 MILE TO THE
GX0342'AZIMUTH MARK ON THE LEFT.
GX0342'
GX0342'HEIGHT OF LIGHT ABOVE STATION MARK 1.3 METERS.
GX0342
GX0342                          STATION RECOVERY (1964)
GX0342
GX0342'RECOVERY NOTE BY COAST AND GEODETIC SURVEY 1964
GX0342'AT BLACKSBURG.
GX0342'AT BLACKSBURG, SET IN THE TOP OF A CONCRETE POST, FLUSH ON THE
GX0342'BLACKSBURG COUNTRY CLUB GOLF COURSE BETWEEN THE NO. 2 GREEN AND
GX0342'THE NO. 3 TEE, 174 FEET WEST OF A POWER LINE POLE, 107 FEET WEST
GX0342'OF THE CORNER OF TEE NO 3, 64.4 FEET SOUTH OF A WATER SPIGOT, 50
GX0342'FEET NORTHWEST OF THE APPROXIMATE CENTER OF A TRACK ROAD AND AT
GX0342'GREEN NO 2 AND IS ON THE HIGHEST PART OF THE GOLF COURSE.
GX0342
GX0342                          STATION RECOVERY (1987)
GX0342
GX0342'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1987 (AJL)
GX0342'THE STATION WAS RECOVERED AT THIS DATE.
GX0342'OTHER MARKS NOT SEARCHED FOR.
GX0342'
GX0342'THE STATION IS LOCATED ABOUT 1.6 KM (1.0 MI)
GX0342'NORTH OF DOWNTOWN BLACKSBURG, ON HIGH GROUND AT THE MUNICIPAL GOLF
GX0342'COURSE.
GX0342'OWNERSHIP--BLACKSBURG PARKS AND RECREATION DEPARTMENT, C/O BILL
GX0342'WINFREY, BLACKSBURG, VA 24060. PHONE (703) 961-1137. GOLF COURSE
GX0342'MANAGER IS PAUL HYPES AT THE SAME NUMBER.
```

```
GX0342'
GX0342'TO REACH THE STATION FROM THE MUNICIPAL BUILDING IN DOWNTOWN
GX0342'BLACKSBURG, GO SOUTH FOR 0.8 KM (0.5 MI) ON US HIGHWAY 460 BUSINESS
GX0342'TO A CROSS STREET AT A STOP LIGHT.
GX0342'TURN LEFT AND GO NORTHEAST FOR 1.1 KM (0.7 MI) ON GRAVES AVENUE TO
GX0342'THE ROADS END AT THE GOLF COURSE PARKING LOT.  KEEP FAR RIGHT,
GX0342'SOUTHERLY, FOR 60 METERS (200 FT) ON A PAVED LANE TO A MACADAM
GX0342'SIDEWALK ON THE RIGHT AT THE BUILDING.
GX0342'TURN RIGHT AND GO SOUTH FOR 60 METERS (200 FT) ON THE SIDEWALK TO
GX0342'THE CORNER OF THE CLUBHOUSE.
GX0342'TURN LEFT AND GO EAST FOR 55 METERS (185 FT) ON THE
GX0342'SIDEWALK, UPGRADE, TO THE CURVE TO THE RIGHT JUST BEFORE THE END OF
GX0342'THE SIDEWALK.  BEAR SLIGHT LEFT, SOUTHEAST, UPHILL, FOR 75 METERS
GX0342'(245 FT) ON A DIM GOLF CART PATH AROUND THE LEFT SIDE OF A TEE TO
GX0342'THE HIGH GROUND AND THE STATION ON THE EAST SIDE OF THE SECOND
GX0342'GREEN.
GX0342'
GX0342'THE STATION IS A STANDARD CGS DISK
GX0342'STAMPED---BLACKS 1964---,
GX0342'SET INTO THE TOP OF A SQUARE CONCRETE MONUMENT
GX0342'30 CM ON SIDE RECESSED 1 CM BELOW GROUND.  LOCATED
GX0342'23.4 METERS (76.8 FT) WEST-NORTHWEST FROM A METAL PIPE SUPPORTING A
GX0342'TRASH CAN,
GX0342'19.6 METERS (64.3 FT) SOUTH FROM AN ELEVATED WATER SPIGOT,
GX0342'19.5 METERS (64.0 FT) NORTH-NORTHWEST FROM A 40 CM PINE TREE, AND
GX0342'5.6 METERS (18.4 FT) EAST FROM THE EAST EDGE OF THE GREEN.
GX0342'
GX0342'DESCRIBED BY G. R. HEID, TYPED BY C. L. SMITH.
GX0342
GX0342                          STATION RECOVERY (1988)
GX0342
GX0342'RECOVERED 1988
GX0342'RECOVERED IN GOOD CONDITION.
GX0342
GX0342                          STATION RECOVERY (1993)
GX0342
GX0342'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1993
GX0342'THE STATION IS LOCATED ABOUT 40.0 KM (24.85 MI) WEST OF ROANOKE, 30.0
GX0342'KM (18.65 MI) NORTHWEST OF RADFORD AND IN THE CITY OF BLACKSBURG.
GX0342'OWNERSHIP--BLACKSBURG PARKS AND RECREATION DEPARTMENT, BLACKSBURG VA.
GX0342'24060,  C/O BILL WINFREY, PHONE (703) 961-1137. GOLF COURSE MANAGER
GX0342'IS PAUL HYPES AT THE SAME NUMBER.
GX0342'TO REACH THE STATION FROM THE MUNICIPAL BUILDING IN BLACKBURG, GO
GX0342'SOUTH ON U.S. HIGHWAY 460 BUSINESS ROUTE FOR 0.83 KM (0.50 MI) TO A
GX0342'CROSS STREET AT A STOP LIGHT, TURN LEFT, NORTHEAST ON GRAVES AVENUE
GX0342'FOR 1.09 KM (0.65 MI) TO THE ROAD END AT GOLF COURSE PARKING LOT,
GX0342'KEEP FAR RIGHT, SOUTHERLY ON PAVED LANE FOR 60 M (196.8 FT) TO A
GX0342'MACADAM SIDEWALK ON THE RIGHT AT BUILDING, TURN RIGHT, SOUTH ON
GX0342'SIDEWALK FOR 6O M TO CORNER OF CLUBHOUSE, TURN LEFT, EAST, ON
GX0342'SIDEWALK, UPGRADE FOR 55 M (180.4 FT) TO CURVE RIGHT JUST BEFORE END
GX0342'OF SIDEWALK, BEAR SLIGHT LEFT, SOUTHEAST, UPHILL, AROUND LEFT SIDE OF
GX0342'TEE, ON DIM LANE FOR 75 M (246.1 FT) TO HIGH GROUND AND STATION ON
GX0342'EAST SIDE OF THE SECOND GREEN.
GX0342'STATION IS RECESSED 1 CM BELOW GROUND LEVEL.  LOCATED 23.4 M
GX0342'(76.8 FT) WEST-NORTHWEST OF A METAL PIPE SUPPORTING A TRASH CAN, 19.6
GX0342'M (64.3 FT) SOUTH OF A ELEVATED WATER SPIGOT, 19.5 M (64.0 FT)
GX0342'NORTH-NORTHWEST OF A 40 CM PINE TREE AND 5.6 M (18.4 FT) EAST OF THE
GX0342'EAST EDGE OF THE GREEN.
GX0342'NOTE--6/22/93--CALL IN ADVANCE, PARK TO THE NORTH AND DOWNHILL FROM
GX0342'THE STATION AS REQUESTED BY MR. HYPES.
GX0342
GX0342                          STATION RECOVERY (1995)
GX0342
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GX0342'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1995 (CSS)
GX0342'THE STATION IS LOCATED ABOUT 40.0 KM (24.85 MI) WEST OF ROANOKE, 30.0
GX0342'KM (18.65 MI) NORTHWEST OF RADFORD AND IN THE CITY OF BLACKSBURG.
GX0342'OWNEERSHIP--BLACKSBURG PARKS AND RECREATION DEPARTMENT, BLACKSBURG,
GX0342'VA.  24060, C/O BILL WINFREY, PHONE (703) 961-1137.  GOLF COURSE
GX0342'MANAGER IS PAUL HYPES AAT THE SAME NUMBER.  TO REACH THE STATION FROM
GX0342'THE MUNICIPAL BUILDING IN BLACKSBURG, GO SOUTH ON U.S.  HIGHWAY 460
GX0342'BUSINESS ROUTE FOR 0.83 KM (0.50 MI) TO A CROSS STREET AT A STOP
GX0342'LIGHT, TURN LEFT, NORTHEAST ON GRAVES AVENUE FOR 1.09 KM (0.65 MI)
GX0342'(0.65) TO THE ROAD END AT GOLF COURSE PARKING LOT, KEEP FAAAR RIGHT,
GX0342'SOUTHERLY ON PAVED LANE FOR 60 M (196.8 FT) TO A MACADAM SIDEWALK ON
GX0342'THE RIGHT AT BUILDING, TURN RIGHT, SOUTH ON SIDEWALK FOR 60 M (196.8
GX0342'FT) TO CORNER OF CLUBHOUSE, TURN LEFT, EAST, ON SIDEWALK, UPGRADE FOR
GX0342'55 M (180.4 FT) TO CURVE RIGHT JUST BEFORE END OF SIDEWALK, BEAR
GX0342'SLIGHT LEFT, SOUTHEAST UPHILL, AROUND LEFT SIDE OF TEE, ON DIM LANE
GX0342'FOR 75 M (246.1 FT) TO HIGH GROUND AND STATION ON EAST OF THE SECOND
GX0342'GREEN.  STATION IS RECESSED 1 CM BELOW GROUND LEVEL.  19.6 M (64.3 FT)
GX0342'SOUTH OF AN ELEVATED WATER SPIGOT AND 5.6 M (18.4 FT) EAST OF THE EAST
GX0342'EDGE OF THE GREEN.  NOTE--6/22/93--CALL IN ADVANCE, PARK TO THE NORTH
GX0342'AND DOWNHILL FROM THE STATION AS REQUESTED BY MR.  HYPES.
GX0342
GX0342                          STATION RECOVERY (1998)
GX0342
GX0342'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1998 (AJL)
GX0342'THE STATION IS LOCATED IN THE CITY OF BLACKSBURG AT THE BLACKSBURG
GX0342'MUNICIPAL GOLF COURSE.  JUST SOUTH-SOUTHWEST OF THE CLUBHOUSE SWIMMING
GX0342'POOL, AND JUST SOUTHEAST OF GREEN NUMBER 2. OWNERSHIP--BLACKSBURG
GX0342'PARKS AND RECREATION DEPARTMENT, BLACKSBURG, VA.  24060.  C/O MANAGER
GX0342'BOB CLARK-PRO SHOP OR BOB THOMPSON-MAINTENANCE SHOP, PHONE
GX0342'540-961-1137.  --NOTE--CONTACT GOLF COURSE MANAGER (24-HOURS IN
GX0342'ADVANCE) BEFORE USING STATION.  TO REACH THE STATION FROM THE JUNCTION
GX0342'OF U.S.  HIGHWAYS 460 AND BUSINESS ROUTE 460 NEAR THE SOUTH EDGE OF
GX0342'BLACKSBURG, GO NORTHERLY, FOR 3.94 KM (2.45 MI) ON BUSINESS 460 (SOUTH
GX0342'MAIN STREET) TO A TRAFFIC LIGHT AT THE INTERSECTION OF SOUTH MAIN
GX0342'STREET AND GRAVES AVENUE.  TURN RIGHT, NORTHEAST, FOR 1.09 KM (0.65
GX0342'MI) ON THE AVENUE TO THE ROADS END AT THE GOLF COURSE PARKING LOT.
GX0342'CONTINUE EAST-SOUTHEAST FOR 0.16 KM (0.10 MI) PASSED CLUBHOUSE ON
GX0342'RIGHT AND PASSED THE SOUTHEAST CORNER OF THE PARKING LOT AND ALONG A
GX0342'TRACK ROAD TO THE SOUTHEAST END OF A GREEN METAL MAINTENANCE BUILDING
GX0342'ON THE RIGHT AND THE STATION ON THE RIGHT, UP THE HILL NEXT TO THE
GX0342'GREEN.  STATION IS 66.9 M (219.5 FT) SOUTHWEST OF THE SOUTHWEST CORNER
GX0342'OF THE METAL MAINTENANCE GARAGE BUILDING, 50.9 M (167.0 FT)
GX0342'SOUTH-SOUTHWEST OF THE SOUTH CORNER OF A CHAIN-LINK FENCE AROUND THE
GX0342'SWIMMING POOL, 17.4 M (57.1 FT) WEST OF THE V INTERSECTION OF PAVED
GX0342'GOLF-CART PATHS, 6.0 M (19.7 FT) SOUTHEAST OF THE SOUTHEAST EDGE OF
GX0342'GREEN NUMBER 2, AND THE MONUMENT IS ABOUT 0.3 M (1.0 FT) BELOW THE
GX0342'GREEN LEVEL AND RECESSED ABOUT 1-CM BELOW THE GROUND SURFACE.
GX0342
GX0342                          STATION RECOVERY (2000)
GX0342
GX0342'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 2000 (MLM)
GX0342'THE STATION IS LOCATED IN THE CITY OF BLACKSBURG ON THE EAST SIDE OF
GX0342'THE SECOND GREEN OF THE MUNICIPAL GOLF COURSE.  OWNERSHIP--CITY OF
GX0342'BLACKSBURG.  NOTE--CONTACT MR.  DEAN CRANE (MAINTENANCE MANAGER) ONE
GX0342'DAY IN ADVANCE BEFORE OCCUPYING THE STATION, PHONE (540) 961-1132 OR
GX0342'MR.  BOBBY THOMPSON (GOLF COURSE MANAGER) PHONE (540) 961-1136.  TO
GX0342'REACH THE STATION FROM THE JUNCTION OF SOUTH MAIN STREET (BUSINESS
GX0342'ROUTE 460) AND ROANOKE STREET LOCATED 0.08 KM (0.05 MI) SOUTH OF THE
GX0342'POST OFFICE IN THE CENTER OF BLACKSBURG, GO SOUTH ON SOUTH MAIN STREET
GX0342'FOR 1.22 KM (0.75 MI) TO THE JUNCTION OF GRAVES STREET (AT A TRAFFIC
GX0342'LIGHT) , TURN LEFT, NORTHEAST ON GRAVES STREET FOR 1.09 KM (0.65 MI)
GX0342'TO THE ROADS END AT THE ENTRANCE TO THE GOLF COURSE PARKING LOT, TURN
GX0342'RIGHT, SOUTH INTO THE PARKING LOT AND GO ABOUT 0.08 KM (0.05 MI) TO
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GX0342'THE NORTH END OF THE PARKING LOT AND THE ENTRANCE ROAD TO THE
GX0342'MAINTENANCE SHOP, CONTINUE AHEAD SOUTHERLY TO THE ROAD FOR 0.80 KM
GX0342'(0.50 MI) TO THE NORTHWEST CORNER OF THE MAINTENANCE BUILDING.  FROM
GX0342'THIS POINT PACK UPHILL SOUTHWESTERLY FOR ABOUT 76.2 M (250.0 FT) TO
GX0342'THE TOP OF THE HILL TO THE EAST SIDE OF THE SECOND GREEN AND THE
GX0342'STATION.  THE STATION IS AN NGS TRAVERSE STATION DISK SET IN THE TOP
GX0342'OF A CONCRETE POST ABOUT FLUSH WITH THE GROUND AND ABOUT 0.3 M (1.0
GX0342'FT) BELOW THE LEVEL OF THE GREEN, LOCATED 22.0 M (72.2 FT) NORTHWEST
GX0342'OF THE NORTHWEST CORNER A SMALL WOOD FRAME FENCE AROUND A TRASH CAN
GX0342'WITH A BALL WASHER MOUNTED TO ITS NORTHWEST CORNER, 19.51 M (64.01 FT)
GX0342'NORTHWEST OF A SIGN (PLEASE STAY ON CART PATH UNTIL EVEN WITH YOUR
GX0342'BALL) , 19.6 M (64.3 FT) SOUTH OF AN ELEVATED WATER SPIGOT AND 5.6 M
GX0342'(18.4 FT) EAST OF THE EAST EDGE OF THE GREEN.
GX0342
GX0342                          STATION RECOVERY (2000)
GX0342
GX0342'RECOVERY NOTE BY VA DEPT HWYS-TRANSP 2000 (RCW)
GX0342'RECOVERED AS DESCRIBED.
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The NGS Data Sheet

See file dsdata.txt for more information about the datasheet.

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DATABASE =  ,PROGRAM = datasheet, VERSION = 7.67
1        National Geodetic Survey,   Retrieval Date = APRIL 13, 2009
 AI1571 ***********************************************************************
 AI1571  CORS         -  This is a GPS Continuously Operating Reference Station.
 AI1571  DESIGNATION -  BLACKSBURG CORS ARP
 AI1571  CORS_ID      -  BLKV
 AI1571  PID          -  AI1571
 AI1571  STATE/COUNTY-  VA/MONTGOMERY
 AI1571  USGS QUAD    -  BLACKSBURG (1983)
 AI1571
 AI1571                         *CURRENT SURVEY CONTROL
 AI1571  ______________________________________________________________________
 AI1571* NAD 83(CORS)-  37 12 21.63726(N)    080 24 52.27622(W)     ADJUSTED
 AI1571* NAVD 88      -       639.6    (meters)    2098.     (feet)  GPS OBS
 AI1571  ______________________________________________________________________
 AI1571  EPOCH DATE   -        2002.00
 AI1571  X           -     847,028.954 (meters)                     COMP
 AI1571  Y           -  -5,015,666.242 (meters)                     COMP
 AI1571  Z           -   3,835,995.072 (meters)                     COMP
 AI1571  ELLIP HEIGHT-         607.808 (meters)          (03/??/02) ADJUSTED
 AI1571  GEOID HEIGHT-         -31.92  (meters)                     GEOID03
 AI1571  HORZ ORDER   -  SPECIAL (CORS)
 AI1571  ELLP ORDER   -  SPECIAL (CORS)
 AI1571
 AI1571.ITRF positions are available for this station.
 AI1571.The coordinates were established by GPS observations
 AI1571.and adjusted by the National Geodetic Survey in March 2002.
 AI1571.The coordinates are valid at the epoch date displayed above.
 AI1571.The epoch date for horizontal control is a decimal equivalence
 AI1571.of Year/Month/Day.
 AI1571
 AI1571.The orthometric height was determined by GPS observations and a
 AI1571.high-resolution geoid model.
 AI1571
 AI1571.The PID for the CORS L1 Phase Center is AI1572.
 AI1571
 AI1571.The XYZ, and position/ellipsoidal ht. are equivalent.
 AI1571
 AI1571.The ellipsoidal height was determined by GPS observations
 AI1571.and is referenced to NAD 83.
 AI1571
 AI1571.The geoid height was determined by GEOID03.
 AI1571
 AI1571;                   North         East     Units Scale Factor Converg.
 AI1571;SPC VA S     - 1,098,567.956 3,330,066.384   MT  0.99994935   -1 09 43.1
 AI1571;SPC VA S     - 3,604,218.37 10,925,392.79   sFT  0.99994935   -1 09 43.1
 AI1571
 AI1571!             -  Elev Factor  x  Scale Factor =   Combined Factor
 AI1571!SPC VA S     -   0.99990463  x   0.99994935  =   0.99985398
 AI1571
 AI1571                          SUPERSEDED SURVEY CONTROL
 AI1571
 AI1571  NAD 83(CORS)-  37 12 21.63708(N)    080 24 52.27656(W) AD(1997.00) c
 AI1571  ELLIP H (12/??/99)  607.814  (m)                       GP(1997.00) c c
 AI1571  NAD 83(CORS)-  37 12 21.63702(N)    080 24 52.27643(W) AD(1997.00) c
 AI1571  ELLIP H (09/??/99)  607.940  (m)                       GP(1997.00) c c
 AI1571  NAD 83(CORS)-  37 12 21.63708(N)    080 24 52.27656(W) AD(1997.00) c
 AI1571  ELLIP H (12/??/97)  607.814  (m)                       GP(1997.00) c c
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AI1571
AI1571.Superseded values are not recommended for survey control.
AI1571.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
AI1571.See file dsdata.txt to determine how the superseded data were derived.
AI1571
AI1571_U.S. NATIONAL GRID SPATIAL ADDRESS: 17SNB5195317887(NAD 83)
AI1571_MARKER: STATION IS THE ANTENNA REFERENCE POINT OF THE GPS ANTENNA
AI1571_MARK LOGO: NGS
AI1571_MAGNETIC: O = OTHER; SEE DESCRIPTION
AI1571
AI1571                          STATION DESCRIPTION
AI1571
AI1571'DESCRIBED BY NATIONAL GEODETIC SURVEY 2002
AI1571'STATION IS A GPS CORS.  LATEST INFORMATION INCLUDING POSITIONS AND
AI1571'VELOCITIES ARE AVAILABLE IN THE COORDINATE AND LOG FILES ACCESSIBLE
AI1571'BY ANONYMOUS FTP OR THE WORLDWIDE WEB.
AI1571'   FTP CORS.NGS.NOAA.GOV: CORS/COORD  AND  CORS/STATION_LOG
AI1571'   HTTP://WWW.NGS.NOAA.GOV  UNDER PRODUCTS AND SERVICES.
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The NGS Data Sheet

See file dsdata.txt for more information about the datasheet.

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DATABASE =  ,PROGRAM = datasheet, VERSION = 7.67
1        National Geodetic Survey,   Retrieval Date = APRIL 13, 2009
 GX0608 ***********************************************************************
 GX0608  CBN         -  This is a Cooperative Base Network Control Station.
 GX0608  DESIGNATION -  C 441
 GX0608  PID         -  GX0608
 GX0608  STATE/COUNTY-  VA/GILES
 GX0608  USGS QUAD   -  PEARISBURG (1985)
 GX0608
 GX0608                        *CURRENT SURVEY CONTROL
 GX0608  ______________________________________________________________________
 GX0608* NAD 83(2007)-  37 19 59.42699(N)    080 41 27.13033(W)     ADJUSTED
 GX0608* NAVD 88     -       575.210  (meters)    1887.17   (feet)  ADJUSTED
 GX0608  ______________________________________________________________________
 GX0608  EPOCH DATE  -        2002.00
 GX0608  X           -     821,436.857 (meters)                     COMP
 GX0608  Y           -  -5,011,208.429 (meters)                     COMP
 GX0608  Z           -   3,847,188.352 (meters)                     COMP
 GX0608  LAPLACE CORR-          -1.28  (seconds)                    DEFLEC99
 GX0608  ELLIP HEIGHT-         543.775 (meters)          (02/10/07) ADJUSTED
 GX0608  GEOID HEIGHT-         -31.48  (meters)                     GEOID03
 GX0608  DYNAMIC HT  -         574.714 (meters)    1885.54  (feet)  COMP
 GX0608
 GX0608  ------- Accuracy Estimates (at 95% Confidence Level in cm) --------
 GX0608  Type    PID    Designation                       North   East  Ellip
 GX0608  ----------------------------------------------------------------------
 GX0608  NETWORK GX0608 C 441                               0.67   0.59   2.02
 GX0608  ----------------------------------------------------------------------
 GX0608  MODELED GRAV-     979,750.6   (mgal)                      NAVD 88
 GX0608
 GX0608  VERT ORDER  -  SECOND    CLASS 0
 GX0608
 GX0608.The horizontal coordinates were established by GPS observations
 GX0608.and adjusted by the National Geodetic Survey in February 2007.
 GX0608
 GX0608.The datum tag of NAD 83(2007) is equivalent to NAD 83(NSRS2007).
 GX0608.See National Readjustment for more information.
 GX0608.The horizontal coordinates are valid at the epoch date displayed above.
 GX0608.The epoch date for horizontal control is a decimal equivalence
 GX0608.of Year/Month/Day.
 GX0608
 GX0608.The orthometric height was determined by differential leveling
 GX0608.and adjusted in June 1991.
 GX0608
 GX0608.The X, Y, and Z were computed from the position and the ellipsoidal ht.
 GX0608
 GX0608.The Laplace correction was computed from DEFLEC99 derived deflections.
 GX0608
 GX0608.The ellipsoidal height was determined by GPS observations
 GX0608.and is referenced to NAD 83.
 GX0608
 GX0608.The geoid height was determined by GEOID03.
 GX0608
 GX0608.The dynamic height is computed by dividing the NAVD 88
 GX0608.geopotential number by the normal gravity value computed on the
 GX0608.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
 GX0608.degrees latitude (g = 980.6199 gals.).
 GX0608
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GX0608.The modeled gravity was interpolated from observed gravity values.
GX0608
GX0608;                    North         East     Units Scale Factor Converg.
GX0608;SPC VA S     - 1,113,209.738 3,305,869.207   MT  0.99994558   -1 19 46.9
GX0608;SPC VA S     - 3,652,255.62 10,846,005.89   sFT  0.99994558   -1 19 46.9
GX0608;UTM  17      - 4,131,878.306   527,384.773   MT  0.99960924   +0 11 14.9
GX0608
GX0608!             -  Elev Factor  x  Scale Factor =   Combined Factor
GX0608!SPC VA S     -   0.99991467  x   0.99994558  =   0.99986026
GX0608!UTM  17      -   0.99991467  x   0.99960924  =   0.99952395
GX0608
GX0608                          SUPERSEDED SURVEY CONTROL
GX0608
GX0608  NAD 83(1993)-  37 19 59.42723(N)    080 41 27.13033(W) AD(       ) A
GX0608  ELLIP H (07/14/04)  543.783  (m)                       GP(       ) 3 2
GX0608  NAD 83(1993)-  37 19 59.42727(N)    080 41 27.13054(W) AD(       ) A
GX0608  ELLIP H (08/14/01)  543.718  (m)                       GP(       ) 4 1
GX0608  NAD 83(1993)-  37 19 59.42745(N)    080 41 27.13052(W) AD(       ) 1
GX0608  ELLIP H (04/23/01)  543.699  (m)                       GP(       ) 4 1
GX0608  NAVD 88 (04/23/01)  575.21   (m)         1887.2    (f) LEVELING    3
GX0608  NGVD 29 (??/??/92)  575.336  (m)         1887.58   (f) ADJ UNCH    2 0
GX0608
GX0608.Superseded values are not recommended for survey control.
GX0608.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
GX0608.See file dsdata.txt to determine how the superseded data were derived.
GX0608
GX0608_U.S. NATIONAL GRID SPATIAL ADDRESS: 17SNB2738531878(NAD 83)
GX0608_MARKER: DB = BENCH MARK DISK
GX0608_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT
GX0608_SP_SET: SET IN TOP OF CONCRETE MONUMENT
GX0608_STAMPING: C 441 1964
GX0608_MARK LOGO: CGS
GX0608_MAGNETIC: O = OTHER; SEE DESCRIPTION
GX0608_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO
GX0608+STABILITY: SURFACE MOTION
GX0608_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR
GX0608+SATELLITE: SATELLITE OBSERVATIONS - February 23, 2000
GX0608
GX0608  HISTORY     - Date     Condition        Report By
GX0608  HISTORY     - 1964     MONUMENTED       CGS
GX0608  HISTORY     - 1965     GOOD             NGS
GX0608  HISTORY     - 20000216 GOOD             VADOT
GX0608  HISTORY     - 20000223 GOOD             VADHT
GX0608
GX0608                          STATION DESCRIPTION
GX0608
GX0608'DESCRIBED BY COAST AND GEODETIC SURVEY 1964
GX0608'2.6 MI SE FROM PEARISBURG.
GX0608'2.6 MILES SOUTHEAST ALONG U.S. HIGHWAY 460 FROM THE COURT HOUSE IN
GX0608'PEARISBURG TO THE MARK SET IN THE TOP OF A CONCRETE POST
GX0608'PROJECTING 1 INCH, 54.5 FEET SOUTH OF CENTERLINE OF HIGHWAY,
GX0608'26.0 FEET WEST APPROXIMATE CENTER OF A GATE, 7.4 FEET SOUTHWEST
GX0608'OF TELEPHONE POLE 104, 1.0 FOOT NORTH OF A WIRE FENCE, 3.0 FEET
GX0608'EAST OF A METAL WITNESS SIGN AND IS ABOUT 2.0 FEET ABOVE THE
GX0608'LEVEL OF THE HIGHWAY.  NOTE-- MARK IS ABOUT 1.2 MILES NORTHWEST
GX0608'OF BRIDGE OVER NEW RIVER.
GX0608
GX0608                          STATION RECOVERY (1965)
GX0608
GX0608'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1965
GX0608'RECOVERED IN GOOD CONDITION.
GX0608
GX0608                          STATION RECOVERY (2000)
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GX0608
GX0608'RECOVERY NOTE BY VIRGINIA DEPARTMENT OF TRANSPORTATION 2000 (GC)
GX0608'TO REACH THE STATION FROM INTERSECTION OF ROUTE 100 AND ROUTE 460 AT
GX0608'THE PEARISBURG COURTHOUSE, PROCEED EAST ON ROUTE 460 2.6 MILES (4.2
GX0608'KM) , TO THE EAST SIDE OF ROUTE 460 BYPASS INTERCHANGE TO STATION ON
GX0608'THE RIGHT.  THE STATION IS A DISK SET IN TOP OF CONCRETE POST FLUSH
GX0608'WITH THE GROUND 260 FEET (79.2 M) EAST OF CENTER OF INTERSECTION OF
GX0608'ROUTE 460 BYPASS EXIT RAMP,121 FEET EAST OF RIGHT - OF - WAY MONUMENT
GX0608'IN CORNER OF FENCE, 54.5 FEET (16.6 M) SOUTH OF CENTERLINE OF
GX0608'HIGHWAY,1 FOOT NORTH OF WIRE FENCE AND IS ABOUT 2 FEET (0.6 M) ABOVE
GX0608'GRADE OF HIGHWAY.
GX0608
GX0608                          STATION RECOVERY (2000)
GX0608
GX0608'RECOVERY NOTE BY VA DEPT HWYS-TRANSP 2000 (RLH)
GX0608'RECOVERED AS DESCRIBED.
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The NGS Data Sheet

See file dsdata.txt for more information about the datasheet.

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DATABASE =  ,PROGRAM = datasheet, VERSION = 7.67
1        National Geodetic Survey,   Retrieval Date = MAY 27, 2009
 AJ2508 ***********************************************************************
 AJ2508  CBN         -  This is a Cooperative Base Network Control Station.
 AJ2508  DESIGNATION -  ELKVIEW
 AJ2508  PID         -  AJ2508
 AJ2508  STATE/COUNTY-  WV/KANAWHA
 AJ2508  USGS QUAD   -  BLUE CREEK (1995)
 AJ2508
 AJ2508                        *CURRENT SURVEY CONTROL
 AJ2508  ______________________________________________________________________
 AJ2508* NAD 83(2007)-  38 27 24.52196(N)    081 29 45.18827(W)     ADJUSTED
 AJ2508* NAVD 88     -       192.4    (meters)     631.     (feet)  GPS OBS
 AJ2508  ______________________________________________________________________
 AJ2508  EPOCH DATE  -        2002.00
 AJ2508  X           -     739,576.221 (meters)                     COMP
 AJ2508  Y           -  -4,946,190.352 (meters)                     COMP
 AJ2508  Z           -   3,945,375.378 (meters)                     COMP
 AJ2508  LAPLACE CORR-           2.43  (seconds)                    DEFLEC99
 AJ2508  ELLIP HEIGHT-         159.257 (meters)          (02/10/07) ADJUSTED
 AJ2508  GEOID HEIGHT-         -33.10  (meters)                     GEOID03
 AJ2508
 AJ2508  ------- Accuracy Estimates (at 95% Confidence Level in cm) --------
 AJ2508  Type    PID    Designation                      North   East  Ellip
 AJ2508  ----------------------------------------------------------------------
 AJ2508  NETWORK AJ2508 ELKVIEW                           1.00   0.92   1.96
 AJ2508  ----------------------------------------------------------------------
 AJ2508
 AJ2508.The horizontal coordinates were established by GPS observations
 AJ2508.and adjusted by the National Geodetic Survey in February 2007.
 AJ2508
 AJ2508.The datum tag of NAD 83(2007) is equivalent to NAD 83(NSRS2007).
 AJ2508.See National Readjustment for more information.
 AJ2508.The horizontal coordinates are valid at the epoch date displayed above.
 AJ2508.The epoch date for horizontal control is a decimal equivalence
 AJ2508.of Year/Month/Day.
 AJ2508
 AJ2508.The orthometric height was determined by GPS observations and a
 AJ2508.high-resolution geoid model.
 AJ2508
 AJ2508.The X, Y, and Z were computed from the position and the ellipsoidal ht.
 AJ2508
 AJ2508.The Laplace correction was computed from DEFLEC99 derived deflections.
 AJ2508
 AJ2508.The ellipsoidal height was determined by GPS observations
 AJ2508.and is referenced to NAD 83.
 AJ2508
 AJ2508.The geoid height was determined by GEOID03.
 AJ2508
 AJ2508;                   North         East     Units Scale Factor Converg.
 AJ2508;SPC WV S     -   161,806.672   556,719.643   MT  0.99993694   -0 18 23.6
 AJ2508;SPC WV S     -   530,860.72  1,826,504.36   sFT  0.99993694   -0 18 23.6
 AJ2508;UTM  17      - 4,256,617.644   456,733.897   MT  0.99962305   -0 18 30.3
 AJ2508
 AJ2508!             -  Elev Factor  x  Scale Factor =   Combined Factor
 AJ2508!SPC WV S     -   0.99997501  x   0.99993694  =   0.99991195
 AJ2508!UTM  17      -   0.99997501  x   0.99962305  =   0.99959807
 AJ2508
```

```
AJ2508                          SUPERSEDED SURVEY CONTROL
AJ2508
AJ2508  NAD 83(1995)-  38 27 24.52229(N)    081 29 45.18834(W) AD(       ) A
AJ2508  ELLIP H (04/23/01)  159.250  (m)                       GP(       ) 4 1
AJ2508
AJ2508.Superseded values are not recommended for survey control.
AJ2508.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
AJ2508.See file dsdata.txt to determine how the superseded data were derived.
AJ2508
AJ2508_U.S. NATIONAL GRID SPATIAL ADDRESS: 17SMC5673456618(NAD 83)
AJ2508_MARKER: DD = SURVEY DISK
AJ2508_SETTING: 32 = SET IN A RETAINING WALL OR CONCRETE LEDGE
AJ2508_SP_SET: LARGE CONCRETE RETAINING WALL
AJ2508_STAMPING: RICHARD HENLINE PS 1984 ELKVIEW 2000
AJ2508_MARK LOGO: NONE
AJ2508_MAGNETIC: O = OTHER; SEE DESCRIPTION
AJ2508_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO
AJ2508+STABILITY: SURFACE MOTION
AJ2508_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR
AJ2508+SATELLITE: SATELLITE OBSERVATIONS - July 16, 2006
AJ2508
AJ2508  HISTORY     - Date     Condition        Report By
AJ2508  HISTORY     - 20000320 MONUMENTED       WVALS
AJ2508  HISTORY     - 20041214 GOOD             INDIV
AJ2508  HISTORY     - 20060716 GOOD             INDIV
AJ2508
AJ2508                          STATION DESCRIPTION
AJ2508
AJ2508'DESCRIBED BY WV ASSOCIATION OF LAND SURVEYORS 2000 (RH)
AJ2508'THE STATION IS LOCATED ABOUT 17.0 KM (10.6 MI) NORTHEAST OF
AJ2508'CHARLESTON, 14.1 KM (8.8 MI) SOUTHEAST OF SISSONVILLE AND 13.5 KM (8.4
AJ2508'MI) WEST-SOUTHWEST OF CLENDENIN.
AJ2508'
AJ2508'TO REACH THE STATION FROM THE INTERSECTION OF INTERSTATE
AJ2508'HIGHWAY 79 AND COUNTY ROUTE 43 GO NORTHWEST ON ROUTE 43 FOR
AJ2508'0.16 KM (0.1 MI) TO THE JUNCTION OF COUNTY ROUTE 53 ON THE RIGHT.
AJ2508'TURN RIGHT AND GO EAST ON ROUTE 53 FOR 46 M (150 FT) TO THE
AJ2508'ENTRANCE TO A PARK AND RIDE PARKING LOT.  TURN RIGHT INTO THE LOT
AJ2508'AND DRIVE SOUTH TO THE END OF THE LOT AND PARK.  CONTINUE SOUTH
AJ2508'ON FOOT FOR 32 M (105 FT) TO THE STATION IN A LARGE CONCRETE
AJ2508'RETAINING WALL WITH TWO LARGE CULVERTS AND THE STATION IN TOP OF
AJ2508'THE NORTHWEST CORNER.
AJ2508'
AJ2508'THE STATION IS 3.66 M (12 FT) BELOW THE LEVEL OF THE PARK AND RIDE
AJ2508'PARKING LOT, 0.3 M (1.0 FT) WEST OF THE FACE OF THE RETAINING WALL
AJ2508'AND 0.15 M (0.5 FT) NORTH OF THE BEND IN THE RETAINING WALL.
AJ2508
AJ2508                          STATION RECOVERY (2004)
AJ2508
AJ2508'RECOVERY NOTE BY INDIVIDUAL CONTRIBUTORS 2004 (HSE)
AJ2508'RECOVERED IN GOOD CONDITION.
AJ2508
AJ2508                          STATION RECOVERY (2006)
AJ2508
AJ2508'RECOVERY NOTE BY INDIVIDUAL CONTRIBUTORS 2006 (RL)
AJ2508'RECOVERED IN GOOD CONDITION.
```

The NGS Data Sheet

See file dsdata.txt for more information about the datasheet.

```
DATABASE =  ,PROGRAM = datasheet, VERSION = 7.67
1        National Geodetic Survey,   Retrieval Date = MAY 27, 2009
 DF4048 ***********************************************************************
 DF4048  CORS         -  This is a GPS Continuously Operating Reference Station.
 DF4048  DESIGNATION -  GALLIPOLIS CORS ARP
 DF4048  CORS_ID      -  GALP
 DF4048  PID          -  DF4048
 DF4048  STATE/COUNTY-  OH/GALLIA
 DF4048  USGS QUAD    -  RODNEY (1983)
 DF4048
 DF4048                         *CURRENT SURVEY CONTROL
 DF4048  ______________________________________________________________________
 DF4048* NAD 83(CORS)-  38 50 39.14896(N)    082 16 40.09229(W)     ADJUSTED
 DF4048* NAVD 88      -              **(meters)            **(feet)
 DF4048  ______________________________________________________________________
 DF4048  EPOCH DATE   -        2002.00
 DF4048  X            -     668,400.506 (meters)                    COMP
 DF4048  Y            -  -4,929,214.152 (meters)                    COMP
 DF4048  Z            -   3,978,967.747 (meters)                    COMP
 DF4048  ELLIP HEIGHT-         169.501 (meters)          (02/??/03) ADJUSTED
 DF4048  GEOID HEIGHT-         -33.71  (meters)                    GEOID03
 DF4048  HORZ ORDER   -  SPECIAL (CORS)
 DF4048  ELLP ORDER   -  SPECIAL (CORS)
 DF4048
 DF4048.ITRF positions are available for this station.
 DF4048.The coordinates were established by GPS observations
 DF4048.and adjusted by the National Geodetic Survey in February 2003.
 DF4048.The coordinates are valid at the epoch date displayed above.
 DF4048.The epoch date for horizontal control is a decimal equivalence
 DF4048.of Year/Month/Day.
 DF4048
 DF4048
 DF4048.The PID for the CORS L1 Phase Center is DF9327.
 DF4048
 DF4048.The XYZ, and position/ellipsoidal ht. are equivalent.
 DF4048
 DF4048.The ellipsoidal height was determined by GPS observations
 DF4048.and is referenced to NAD 83.
 DF4048
 DF4048.The geoid height was determined by GEOID03.
 DF4048
 DF4048;                    North         East     Units Scale Factor Converg.
 DF4048;SPC OH S      -    93,742.541   619,289.825   MT  0.99998005   +0 08 27.6
 DF4048;SPC OH S      -   307,553.65  2,031,786.70   sFT  0.99998005   +0 08 27.6
 DF4048
 DF4048!              -  Elev Factor  x  Scale Factor =   Combined Factor
 DF4048!SPC OH S      -   0.99997341  x   0.99998005  =   0.99995346
 DF4048
 DF4048                          SUPERSEDED SURVEY CONTROL
 DF4048
 DF4048.No superseded survey control is available for this station.
 DF4048
 DF4048_U.S. NATIONAL GRID SPATIAL ADDRESS: 17SLD8910900264(NAD 83)
 DF4048_MARKER: STATION IS THE ANTENNA REFERENCE POINT OF THE GPS ANTENNA
 DF4048
 DF4048                          STATION DESCRIPTION
 DF4048
 DF4048'DESCRIBED BY NATIONAL GEODETIC SURVEY 2003
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DF4048'STATION IS A GPS CORS.  LATEST INFORMATION INCLUDING POSITIONS AND
DF4048'VELOCITIES ARE AVAILABLE IN THE COORDINATE AND LOG FILES ACCESSIBLE
DF4048'BY ANONYMOUS FTP OR THE WORLDWIDE WEB.
DF4048'   FTP CORS.NGS.NOAA.GOV: CORS/COORD  AND  CORS/STATION_LOG
DF4048'   HTTP://WWW.NGS.NOAA.GOV  UNDER PRODUCTS AND SERVICES.
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The NGS Data Sheet

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See file  dsdata.txt for more information about the datasheet.

DATABASE =  ,PROGRAM = datasheet, VERSION = 7.67
1        National Geodetic Survey,   Retrieval Date = MAY 27, 2009
 DE9159 ***********************************************************************
 DE9159  CORS         -  This is a GPS Continuously Operating Reference Station.
 DE9159  DESIGNATION  -  GLENVILLE COOP CORS ARP
 DE9159  CORS_ID      -  GSSP
 DE9159  PID          -  DE9159
 DE9159  STATE/COUNTY-  WV/GILMER
 DE9159  USGS QUAD    -  GLENVILLE (1976)
 DE9159
 DE9159                         *CURRENT SURVEY CONTROL
 DE9159  ______________________________________________________________________
 DE9159* NAD 83(CORS)-  38 56 44.52062(N)    080 49 33.46355(W)     ADJUSTED
 DE9159* NAVD 88     -              **(meters)           **(feet)
 DE9159  ______________________________________________________________________
 DE9159  EPOCH DATE  -        2002.00
 DE9159  X           -     791,956.505 (meters)                    COMP
 DE9159  Y           -  -4,903,765.119 (meters)                    COMP
 DE9159  Z           -   3,987,780.134 (meters)                    COMP
 DE9159  ELLIP HEIGHT-         238.023 (meters)          (02/??/06) ADJUSTED
 DE9159  GEOID HEIGHT-         -32.91  (meters)                    GEOID03
 DE9159  HORZ ORDER  -  SPECIAL (CORS)
 DE9159  ELLP ORDER  -  SPECIAL (CORS)
 DE9159
 DE9159.ITRF positions are available for this station.
 DE9159.The coordinates were established by GPS observations
 DE9159.and adjusted by the National Geodetic Survey in February 2006.
 DE9159.The coordinates are valid at the epoch date displayed above.
 DE9159.The epoch date for horizontal control is a decimal equivalence
 DE9159.of Year/Month/Day.
 DE9159
 DE9159
 DE9159.The PID for the CORS L1 Phase Center is DE9160.
 DE9159
 DE9159.The XYZ, and position/ellipsoidal ht. are equivalent.
 DE9159
 DE9159.The ellipsoidal height was determined by GPS observations
 DE9159.and is referenced to NAD 83.
 DE9159
 DE9159.The geoid height was determined by GEOID03.
 DE9159
 DE9159;                    North         East     Units Scale Factor Converg.
 DE9159;SPC WV S     -   215,974.801   615,087.995   MT  1.00001388   +0 06 27.3
 DE9159;SPC WV S     -   708,577.33  2,018,001.20   sFT  1.00001388   +0 06 27.3
 DE9159
 DE9159!             -  Elev Factor  x  Scale Factor =   Combined Factor
 DE9159!SPC WV S     -   0.99996266  x   1.00001388  =   0.99997654
 DE9159
 DE9159                          SUPERSEDED SURVEY CONTROL
 DE9159
 DE9159  NAD 83(CORS)-  38 56 44.52474(N)    080 49 33.46324(W) AD(2002.00) c
 DE9159  ELLIP H (01/??/03)  238.041  (m)                      GP(2002.00) c c
 DE9159
 DE9159.Superseded values are not recommended for survey control.
 DE9159.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
 DE9159.See file dsdata.txt to determine how the superseded data were derived.
 DE9159
 DE9159_U.S. NATIONAL GRID SPATIAL ADDRESS: 17SND1508210765(NAD 83)
```

```
DE9159_MARKER: STATION IS THE ANTENNA REFERENCE POINT OF THE GPS ANTENNA
DE9159
DE9159                          STATION DESCRIPTION
DE9159
DE9159'DESCRIBED BY NATIONAL GEODETIC SURVEY 2006
DE9159'STATION IS A GPS CORS.  LATEST INFORMATION INCLUDING POSITIONS AND
DE9159'VELOCITIES ARE AVAILABLE IN THE COORDINATE AND LOG FILES ACCESSIBLE
DE9159'BY ANONYMOUS FTP OR THE WORLDWIDE WEB.
DE9159'   FTP CORS.NGS.NOAA.GOV: CORS/COORD  AND  CORS/STATION_LOG
DE9159'   HTTP://WWW.NGS.NOAA.GOV  UNDER PRODUCTS AND SERVICES.
```

The NGS Data Sheet

See file dsdata.txt for more information about the datasheet.

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DATABASE =  ,PROGRAM = datasheet, VERSION = 7.67
1        National Geodetic Survey,   Retrieval Date = MAY 27, 2009
 DK3332 ***********************************************************************
 DK3332  CORS         -  This is a GPS Continuously Operating Reference Station.
 DK3332  DESIGNATION  -  KY HWY DIST 12 CORS ARP
 DK3332  CORS_ID      -  KYTL
 DK3332  PID          -  DK3332
 DK3332  STATE/COUNTY-  KY/PIKE
 DK3332  USGS QUAD    -  PIKEVILLE (1992)
 DK3332
 DK3332                         *CURRENT SURVEY CONTROL
 DK3332  ______________________________________________________________________
 DK3332* NAD 83(CORS)-  37 29 00.17715(N)    082 32 07.69604(W)     ADJUSTED
 DK3332* NAVD 88      -              **(meters)           **(feet)
 DK3332  ______________________________________________________________________
 DK3332  EPOCH DATE   -        2002.00
 DK3332  X            -     658,353.786 (meters)                    COMP
 DK3332  Y            -  -5,024,729.545 (meters)                    COMP
 DK3332  Z            -   3,860,214.527 (meters)                    COMP
 DK3332  ELLIP HEIGHT-         186.989 (meters)          (04/??/08) ADJUSTED
 DK3332  GEOID HEIGHT-         -31.67  (meters)                    GEOID03
 DK3332  HORZ ORDER   -  SPECIAL (CORS)
 DK3332  ELLP ORDER   -  SPECIAL (CORS)
 DK3332
 DK3332.ITRF positions are available for this station.
 DK3332.The coordinates were established by GPS observations
 DK3332.and adjusted by the National Geodetic Survey in April 2008.
 DK3332.The coordinates are valid at the epoch date displayed above.
 DK3332.The epoch date for horizontal control is a decimal equivalence
 DK3332.of Year/Month/Day.
 DK3332
 DK3332
 DK3332.The PID for the CORS L1 Phase Center is DK3333.
 DK3332
 DK3332.The XYZ, and position/ellipsoidal ht. are equivalent.
 DK3332
 DK3332.The ellipsoidal height was determined by GPS observations
 DK3332.and is referenced to NAD 83.
 DK3332
 DK3332.The geoid height was determined by GEOID03.
 DK3332
 DK3332;                    North         East     Units Scale Factor Converg.
 DK3332;SPC KY1Z     - 1,132,531.605 1,784,232.531   MT  0.99992833   +1 58 24.9
 DK3332;SPC KY1Z     - 3,715,647.44  5,853,769.56   sFT  0.99992833   +1 58 24.9
 DK3332;SPC KY S     -   632,462.542   784,239.709   MT  0.99994878   +1 56 58.2
 DK3332;SPC KY S     - 2,075,004.19  2,572,959.78   sFT  0.99994878   +1 56 58.2
 DK3332
 DK3332!             -  Elev Factor  x  Scale Factor =   Combined Factor
 DK3332!SPC KY1Z     -   0.99997066  x   0.99992833  =   0.99989899
 DK3332!SPC KY S     -   0.99997066  x   0.99994878  =   0.99991944
 DK3332
 DK3332                          SUPERSEDED SURVEY CONTROL
 DK3332
 DK3332.No superseded survey control is available for this station.
 DK3332
 DK3332_U.S. NATIONAL GRID SPATIAL ADDRESS: 17SLB6424549605(NAD 83)
 DK3332_MARKER: STATION IS THE ANTENNA REFERENCE POINT OF THE GPS ANTENNA
 DK3332
```

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DK3332                          STATION DESCRIPTION
DK3332
DK3332'DESCRIBED BY NATIONAL GEODETIC SURVEY 2008
DK3332'STATION IS A GPS CORS.  LATEST INFORMATION INCLUDING POSITIONS AND
DK3332'VELOCITIES ARE AVAILABLE IN THE COORDINATE AND LOG FILES ACCESSIBLE
DK3332'BY ANONYMOUS FTP OR THE WORLDWIDE WEB.
DK3332'   FTP CORS.NGS.NOAA.GOV: CORS/COORD  AND  CORS/STATION_LOG
DK3332'   HTTP://WWW.NGS.NOAA.GOV  UNDER PRODUCTS AND SERVICES.
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The NGS Data Sheet

See file dsdata.txt for more information about the datasheet.

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DATABASE =  ,PROGRAM = datasheet, VERSION = 7.67
1        National Geodetic Survey,   Retrieval Date = MAY 27, 2009
 DH9001 ***********************************************************************
 DH9001  CORS         -  This is a GPS Continuously Operating Reference Station.
 DH9001  DESIGNATION  -  MARSHALL UNIV-HUN CORS ARP
 DH9001  CORS_ID      -  WVHU
 DH9001  PID          -  DH9001
 DH9001  STATE/COUNTY-  WV/CABELL
 DH9001  USGS QUAD    -  HUNTINGTON (1985)
 DH9001
 DH9001                         *CURRENT SURVEY CONTROL
 DH9001  ______________________________________________________________________
 DH9001* NAD 83(CORS)-  38 25 22.61741(N)    082 25 28.91887(W)     ADJUSTED
 DH9001* NAVD 88      -              **(meters)            **(feet)
 DH9001  ______________________________________________________________________
 DH9001  EPOCH DATE   -        2002.00
 DH9001  X            -     659,611.553 (meters)                    COMP
 DH9001  Y            -  -4,959,867.715 (meters)                    COMP
 DH9001  Z            -   3,942,448.782 (meters)                    COMP
 DH9001  ELLIP HEIGHT-         187.685 (meters)          (03/??/06) ADJUSTED
 DH9001  GEOID HEIGHT-         -33.13  (meters)                    GEOID03
 DH9001  HORZ ORDER   -  SPECIAL (CORS)
 DH9001  ELLP ORDER   -  SPECIAL (CORS)
 DH9001
 DH9001.ITRF positions are available for this station.
 DH9001.The coordinates were established by GPS observations
 DH9001.and adjusted by the National Geodetic Survey in March 2006.
 DH9001.The coordinates are valid at the epoch date displayed above.
 DH9001.The epoch date for horizontal control is a decimal equivalence
 DH9001.of Year/Month/Day.
 DH9001
 DH9001
 DH9001.The PID for the CORS L1 Phase Center is DL3007.
 DH9001
 DH9001.The XYZ, and position/ellipsoidal ht. are equivalent.
 DH9001
 DH9001.The ellipsoidal height was determined by GPS observations
 DH9001.and is referenced to NAD 83.
 DH9001
 DH9001.The geoid height was determined by GEOID03.
 DH9001
 DH9001;                    North         East     Units Scale Factor Converg.
 DH9001;SPC WV S      -   158,888.390   475,600.294   MT  0.99993431   -0 52 50.7
 DH9001;SPC WV S      -   521,286.33  1,560,365.30   sFT  0.99993431   -0 52 50.7
 DH9001
 DH9001!              -  Elev Factor  x  Scale Factor =   Combined Factor
 DH9001!SPC WV S      -   0.99997055  x   0.99993431  =   0.99990486
 DH9001
 DH9001                          SUPERSEDED SURVEY CONTROL
 DH9001
 DH9001.No superseded survey control is available for this station.
 DH9001
 DH9001_U.S. NATIONAL GRID SPATIAL ADDRESS: 17SLC7563453705(NAD 83)
 DH9001_MARKER: STATION IS THE ANTENNA REFERENCE POINT OF THE GPS ANTENNA
 DH9001
 DH9001                          STATION DESCRIPTION
 DH9001
 DH9001'DESCRIBED BY NATIONAL GEODETIC SURVEY 2006
```

```
DH9001'STATION IS A GPS CORS.  LATEST INFORMATION INCLUDING POSITIONS AND
DH9001'VELOCITIES ARE AVAILABLE IN THE COORDINATE AND LOG FILES ACCESSIBLE
DH9001'BY ANONYMOUS FTP OR THE WORLDWIDE WEB.
DH9001'   FTP CORS.NGS.NOAA.GOV: CORS/COORD  AND  CORS/STATION_LOG
DH9001'   HTTP://WWW.NGS.NOAA.GOV  UNDER PRODUCTS AND SERVICES.
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The NGS Data Sheet

See file dsdata.txt for more information about the datasheet.

```
DATABASE =  ,PROGRAM = datasheet, VERSION = 7.67
1        National Geodetic Survey,   Retrieval Date = MAY 27, 2009
 DH9003 ***********************************************************************
 DH9003  CORS         -  This is a GPS Continuously Operating Reference Station.
 DH9003  DESIGNATION  -  MARSHALL UNIV-RAV CORS ARP
 DH9003  CORS_ID      -  WVRA
 DH9003  PID          -  DH9003
 DH9003  STATE/COUNTY-  WV/JACKSON
 DH9003  USGS QUAD    -  RAVENSWOOD (1994)
 DH9003
 DH9003                         *CURRENT SURVEY CONTROL
 DH9003  ______________________________________________________________________
 DH9003* NAD 83(CORS)-  38 56 28.86375(N)    081 45 04.84284(W)     ADJUSTED
 DH9003* NAVD 88      -              **(meters)            **(feet)
 DH9003  ______________________________________________________________________
 DH9003  EPOCH DATE   -        2002.00
 DH9003  X            -     712,689.667 (meters)                    COMP
 DH9003  Y            -  -4,916,147.875 (meters)                    COMP
 DH9003  Z            -   3,987,348.800 (meters)                    COMP
 DH9003  ELLIP HEIGHT-         149.239 (meters)          (03/??/06) ADJUSTED
 DH9003  GEOID HEIGHT-         -34.05  (meters)                    GEOID03
 DH9003  HORZ ORDER   -  SPECIAL (CORS)
 DH9003  ELLP ORDER   -  SPECIAL (CORS)
 DH9003
 DH9003.ITRF positions are available for this station.
 DH9003.The coordinates were established by GPS observations
 DH9003.and adjusted by the National Geodetic Survey in March 2006.
 DH9003.The coordinates are valid at the epoch date displayed above.
 DH9003.The epoch date for horizontal control is a decimal equivalence
 DH9003.of Year/Month/Day.
 DH9003
 DH9003
 DH9003.The PID for the CORS L1 Phase Center is DI4572.
 DH9003
 DH9003.The XYZ, and position/ellipsoidal ht. are equivalent.
 DH9003
 DH9003.The ellipsoidal height was determined by GPS observations
 DH9003.and is referenced to NAD 83.
 DH9003
 DH9003.The geoid height was determined by GEOID03.
 DH9003
 DH9003;                    North         East     Units Scale Factor Converg.
 DH9003;SPC WV S      -   215,741.849   534,859.841   MT  1.00001288   -0 27 52.1
 DH9003;SPC WV S      -   707,813.05  1,754,786.00   sFT  1.00001288   -0 27 52.1
 DH9003
 DH9003!              -  Elev Factor  x  Scale Factor =   Combined Factor
 DH9003!SPC WV S      -   0.99997659  x   1.00001288  =   0.99998947
 DH9003
 DH9003                          SUPERSEDED SURVEY CONTROL
 DH9003
 DH9003.No superseded survey control is available for this station.
 DH9003
 DH9003_U.S. NATIONAL GRID SPATIAL ADDRESS: 17SMD3488610537(NAD 83)
 DH9003_MARKER: STATION IS THE ANTENNA REFERENCE POINT OF THE GPS ANTENNA
 DH9003
 DH9003                          STATION DESCRIPTION
 DH9003
 DH9003'DESCRIBED BY NATIONAL GEODETIC SURVEY 2006
```

```
DH9003'STATION IS A GPS CORS.  LATEST INFORMATION INCLUDING POSITIONS AND
DH9003'VELOCITIES ARE AVAILABLE IN THE COORDINATE AND LOG FILES ACCESSIBLE
DH9003'BY ANONYMOUS FTP OR THE WORLDWIDE WEB.
DH9003'   FTP CORS.NGS.NOAA.GOV: CORS/COORD  AND  CORS/STATION_LOG
DH9003'   HTTP://WWW.NGS.NOAA.GOV  UNDER PRODUCTS AND SERVICES.
```

The NGS Data Sheet

See file dsdata.txt for more information about the datasheet.

```
DATABASE =  ,PROGRAM = datasheet, VERSION = 7.67
1        National Geodetic Survey,   Retrieval Date = APRIL 13, 2009
 AE2213 ***********************************************************************
 AE2213  SACS        -  This is a Secondary Airport Control Station.
 AE2213  DESIGNATION -  P 96 RESET
 AE2213  PID         -  AE2213
 AE2213  STATE/COUNTY-  WV/KANAWHA
 AE2213  USGS QUAD   -  CHARLESTON EAST (1976)
 AE2213
 AE2213                        *CURRENT SURVEY CONTROL
 AE2213  ______________________________________________________________________
 AE2213* NAD 83(2007)-  38 22 08.82898(N)    081 35 49.43603(W)     ADJUSTED
 AE2213* NAVD 88     -       286.10   (meters)     938.6    (feet)  GPS OBS
 AE2213  ______________________________________________________________________
 AE2213  EPOCH DATE  -        2002.00
 AE2213  X           -     731,735.070 (meters)                     COMP
 AE2213  Y           -  -4,953,544.677 (meters)                     COMP
 AE2213  Z           -   3,937,806.036 (meters)                     COMP
 AE2213  LAPLACE CORR-           2.42  (seconds)                    DEFLEC99
 AE2213  ELLIP HEIGHT-         252.927 (meters)          (02/10/07) ADJUSTED
 AE2213  GEOID HEIGHT-         -33.03  (meters)                     GEOID03
 AE2213
 AE2213  ------- Accuracy Estimates (at 95% Confidence Level in cm) --------
 AE2213  Type    PID    Designation                       North   East  Ellip
 AE2213  ----------------------------------------------------------------------
 AE2213  NETWORK AE2213 P 96 RESET                          2.25   1.67   3.45
 AE2213  ----------------------------------------------------------------------
 AE2213
 AE2213.This mark is at Yeager Airport (CRW)
 AE2213
 AE2213.The horizontal coordinates were established by GPS observations
 AE2213.and adjusted by the National Geodetic Survey in February 2007.
 AE2213
 AE2213.The datum tag of NAD 83(2007) is equivalent to NAD 83(NSRS2007).
 AE2213.See National Readjustment for more information.
 AE2213.The horizontal coordinates are valid at the epoch date displayed above.
 AE2213.The epoch date for horizontal control is a decimal equivalence
 AE2213.of Year/Month/Day.
 AE2213
 AE2213.The orthometric height was determined by GPS observations and a
 AE2213.high-resolution geoid model.
 AE2213
 AE2213.GPS derived orthometric heights for airport stations designated as
 AE2213.PACS or SACS are published to 2 decimal places.  This maintains
 AE2213.centimeter relative accuracy between the PACS and SACS.  It does
 AE2213.not indicate centimeter accuracy relative to other marks which are
 AE2213.part of the NAVD 88 network.
 AE2213
 AE2213.The X, Y, and Z were computed from the position and the ellipsoidal ht.
 AE2213
 AE2213.The Laplace correction was computed from DEFLEC99 derived deflections.
 AE2213
 AE2213.The ellipsoidal height was determined by GPS observations
 AE2213.and is referenced to NAD 83.
 AE2213
 AE2213.The geoid height was determined by GEOID03.
 AE2213
 AE2213;                   North         East     Units Scale Factor Converg.
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AE2213;SPC WV S     -   152,125.344   547,826.177   MT  0.99993085   -0 22 08.8
AE2213;SPC WV S     -   499,097.90  1,797,326.38   sFT  0.99993085   -0 22 08.8
AE2213;UTM  17      - 4,246,939.539   447,842.860   MT  0.99963350   -0 22 14.2
AE2213
AE2213!             -  Elev Factor  x  Scale Factor =   Combined Factor
AE2213!SPC WV S     -   0.99996032  x   0.99993085  =   0.99989117
AE2213!UTM  17      -   0.99996032  x   0.99963350  =   0.99959383
AE2213
AE2213                          SUPERSEDED SURVEY CONTROL
AE2213
AE2213  ELLIP H (01/16/02)  252.918  (m)                        GP(       ) 4 2
AE2213  NAD 83(1995)-  38 22 08.82927(N)    081 35 49.43629(W) AD(       ) 1
AE2213  ELLIP H (08/27/97)  252.959  (m)                        GP(       ) 4 2
AE2213
AE2213.Superseded values are not recommended for survey control.
AE2213.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
AE2213.See file dsdata.txt to determine how the superseded data were derived.
AE2213
AE2213_U.S. NATIONAL GRID SPATIAL ADDRESS: 17SMC4784346940(NAD 83)
AE2213_MARKER: DV = VERTICAL CONTROL DISK
AE2213_SETTING: 35 = SET IN A MAT FOUNDATION OR CONCRETE SLAB OTHER THAN
AE2213+WITH SETTING: PAVEMENT
AE2213_SP_SET: FLAGPOLE FOUNDATION
AE2213_STAMPING: P 96 RESET 1984
AE2213_MARK LOGO: NGS
AE2213_MAGNETIC: N = NO MAGNETIC MATERIAL
AE2213_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO
AE2213+STABILITY: SURFACE MOTION
AE2213_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR
AE2213+SATELLITE: SATELLITE OBSERVATIONS - July 18, 2008
AE2213
AE2213  HISTORY     - Date     Condition        Report By
AE2213  HISTORY     - 1984     MONUMENTED       NGS
AE2213  HISTORY     - 19960620 GOOD             NGS
AE2213  HISTORY     - 20080718 GOOD             INDIV
AE2213
AE2213                          STATION DESCRIPTION
AE2213
AE2213'DESCRIBED BY NATIONAL GEODETIC SURVEY 1996 (AJL)
AE2213'NOTE--A TEMPORARY BADGE IS REQUIRED FOR ANYONE VISITING THE AIRFIELD.
AE2213'IT CAN BE OBTAINED AT THE TERMINAL AT THE TIME OF OBSERVATIONS.  THE
AE2213'STATION IS LOCATED ABOUT 1 KM (0.60 MI) SOUTHEAST OF INTERSTATE
AE2213'HIGHWAY 79, ON THE NORTHEAST SIDE OF CHARLESTON, IN A TRIANGLE FORMED
AE2213'BY THE INTERSECTION OF THE ROAD FROM THE TERMINAL, THE ROAD FROM SHORT
AE2213'TERM PARKING AND THE SOUTHWEST SIDE OF THE SHORT TERM PARKING LOT.
AE2213'OWNERSHIP--CENTRAL WEST VIRGINIA REGIONAL AIRPORT AUTHORITY, YEAGER
AE2213'AIRPORT, 100 AIRPORT ROAD, CHARLESTON, WV 25311.  AIRPORT DIRECTOR IS
AE2213'JEFFREY D.  DUBAR, PHONE 304-344-8033.  ASSISTANT MANAGER IS DENNY
AE2213'HUFFMAN AND SUPPORT SERVICE MANAGER IS BRIAN BELCHER, PHONE
AE2213'304-345-9176.  CONTACT ONE OF THEM AT LEAST ONE DAY IN ADVANCE TO
AE2213'ARRANGE FOR AN ESCORT TO THIS STATION.  TO REACH FROM THE UNDERPASS AT
AE2213'THE JUNCTION OF INTERSTATE HIGHWAY 77 AND STATE HIGHWAY 114
AE2213'(GREENBRIER STREET) (EXIT 99) IN EAST CHARLESTON, GO NORTHEAST ON
AE2213'HIGHWAY 114 FOR 2.4 KM (1.50 MI) TO A PAVED Y-JUNCTION.  BEAR LEFT,
AE2213'NORTHERLY, ON AIRPORT ROAD FOR 1.62 KM (1.00 MI) TO A PAVED Y-JUNCTION
AE2213'AND THE STATION ON THE LEFT.  THE STATION IS SET IN FLUSH IN THE TOP
AE2213'OF THE NORTHEAST SIDE OF THE CONCRETE BASE OF A FLAGPOLE SET 15 CM
AE2213'ABOVE GROUND.  IT IS 6.5 M (21.3 FT) SOUTHEAST OF THE CENTER OF THE
AE2213'ROAD FROM THE TERMINAL, 6.4 M (21.0 FT) NORTHWEST OF THE CENTER OF THE
AE2213'ROAD FROM SHORT TERM PARKING, AND 0.8 M (2.6 FT) NE OF FLAGPOLE.
AE2213'DESCRIBED BY D.G.  AUG.  NO LEVELING DATA AVAILABLE.
AE2213
AE2213                          STATION RECOVERY (2008)
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AE2213
AE2213'RECOVERY NOTE BY INDIVIDUAL CONTRIBUTORS 2008 (SH)
AE2213'RECOVERED IN GOOD CONDITION.
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The NGS Data Sheet

See file dsdata.txt for more information about the datasheet.

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DATABASE =  ,PROGRAM = datasheet, VERSION = 7.67
1        National Geodetic Survey,   Retrieval Date = APRIL 13, 2009
 HX3165 ***********************************************************************
 HX3165  CBN         -  This is a Cooperative Base Network Control Station.
 HX3165  PACS        -  This is a Primary Airport Control Station.
 HX3165  DESIGNATION -  RAVPORT AZ MK
 HX3165  PID         -  HX3165
 HX3165  STATE/COUNTY-  WV/JACKSON
 HX3165  USGS QUAD   -  RAVENSWOOD (1994)
 HX3165
 HX3165                        *CURRENT SURVEY CONTROL
 HX3165  ______________________________________________________________________
 HX3165* NAD 83(2007)-  38 55 59.75658(N)    081 48 59.99800(W)     ADJUSTED
 HX3165* NAVD 88     -       229.80   (meters)     753.9    (feet)  GPS OBS
 HX3165  ______________________________________________________________________
 HX3165  EPOCH DATE  -        2002.00
 HX3165  X           -     707,169.930 (meters)                     COMP
 HX3165  Y           -  -4,917,551.397 (meters)                     COMP
 HX3165  Z           -   3,986,679.853 (meters)                     COMP
 HX3165  LAPLACE CORR-          -0.40  (seconds)                    DEFLEC99
 HX3165  ELLIP HEIGHT-         195.774 (meters)          (02/10/07) ADJUSTED
 HX3165  GEOID HEIGHT-         -34.03  (meters)                     GEOID03
 HX3165
 HX3165  ------- Accuracy Estimates (at 95% Confidence Level in cm) --------
 HX3165  Type    PID    Designation                      North   East  Ellip
 HX3165  ----------------------------------------------------------------------
 HX3165  NETWORK HX3165 RAVPORT AZ MK                      0.90   0.78   2.16
 HX3165  ----------------------------------------------------------------------
 HX3165
 HX3165.This mark is at Jackson County Airport (I18)
 HX3165
 HX3165.The horizontal coordinates were established by GPS observations
 HX3165.and adjusted by the National Geodetic Survey in February 2007.
 HX3165
 HX3165.The datum tag of NAD 83(2007) is equivalent to NAD 83(NSRS2007).
 HX3165.See National Readjustment for more information.
 HX3165.The horizontal coordinates are valid at the epoch date displayed above.
 HX3165.The epoch date for horizontal control is a decimal equivalence
 HX3165.of Year/Month/Day.
 HX3165
 HX3165.The orthometric height was determined by GPS observations and a
 HX3165.high-resolution geoid model.
 HX3165
 HX3165.GPS derived orthometric heights for airport stations designated as
 HX3165.PACS or SACS are published to 2 decimal places.  This maintains
 HX3165.centimeter relative accuracy between the PACS and SACS.  It does
 HX3165.not indicate centimeter accuracy relative to other marks which are
 HX3165.part of the NAVD 88 network.
 HX3165
 HX3165.The X, Y, and Z were computed from the position and the ellipsoidal ht.
 HX3165
 HX3165.The Laplace correction was computed from DEFLEC99 derived deflections.
 HX3165
 HX3165.The ellipsoidal height was determined by GPS observations
 HX3165.and is referenced to NAD 83.
 HX3165
 HX3165.The geoid height was determined by GEOID03.
 HX3165
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HX3165;                    North         East     Units Scale Factor Converg.
HX3165;SPC WV S     -   214,892.191   529,188.881   MT  1.00001102   -0 30 17.5
HX3165;SPC WV S     -   705,025.46  1,736,180.52   sFT  1.00001102   -0 30 17.5
HX3165;SPC OH S     -   103,829.315   659,247.784   MT  0.99996671   +0 26 00.9
HX3165;SPC OH S     -   340,646.68  2,162,882.10   sFT  0.99996671   +0 26 00.9
HX3165;UTM  17      - 4,309,688.070   429,216.560   MT  0.99966169   -0 30 47.6
HX3165
HX3165!             -  Elev Factor  x  Scale Factor =   Combined Factor
HX3165!SPC WV S     -   0.99996928  x   1.00001102  =   0.99998030
HX3165!SPC OH S     -   0.99996928  x   0.99996671  =   0.99993600
HX3165!UTM  17      -   0.99996928  x   0.99966169  =   0.99963098
HX3165
HX3165:                Primary Azimuth Mark                    Grid Az
HX3165:SPC WV S     -  RAVPORT                                 210 17 30.7
HX3165:SPC OH S     -  RAVPORT                                 209 21 12.3
HX3165:UTM  17      -  RAVPORT                                 210 18 00.8
HX3165
HX3165|----------------------------------------------------------------------|
HX3165| PID    Reference Object                    Distance      Geod. Az  |
HX3165|                                                          dddmmss.s |
HX3165| HX3162 RAVPORT                           APPROX. 1.0 KM 2094713.2 |
HX3165| AE2079 I18 A                             252.803 METERS 22704     |
HX3165|----------------------------------------------------------------------|
HX3165
HX3165                          SUPERSEDED SURVEY CONTROL
HX3165
HX3165  ELLIP H (09/26/01)  195.765  (m)                       GP(       ) 4 2
HX3165  NAD 83(1995)-  38 55 59.75710(N)    081 48 59.99791(W) AD(1995.00) B
HX3165  ELLIP H (12/04/95)  195.805  (m)                       GP(1995.00) 4 1
HX3165  NAD 83(1986)-  38 55 59.76381(N)    081 49 00.00022(W) AD(       ) 3
HX3165  NAD 27      -  38 55 59.47474(N)    081 49 00.52696(W) AD(       ) 3
HX3165  NGVD 29 (02/23/89)  230.0    (m)          755.     (f) GPS OBS     3
HX3165
HX3165.Superseded values are not recommended for survey control.
HX3165.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
HX3165.See file dsdata.txt to determine how the superseded data were derived.
HX3165
HX3165_U.S. NATIONAL GRID SPATIAL ADDRESS: 17SMD2921709688(NAD 83)
HX3165_MARKER: DZ = AZIMUTH MARK DISK
HX3165_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT
HX3165_SP_SET: CONCRETE POST
HX3165_STAMPING: RAVPORT 1986
HX3165_MARK LOGO: NGS
HX3165_MAGNETIC: N = NO MAGNETIC MATERIAL
HX3165_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO
HX3165+STABILITY: SURFACE MOTION
HX3165_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR
HX3165+SATELLITE: SATELLITE OBSERVATIONS - July 24, 1996
HX3165
HX3165  HISTORY     - Date     Condition        Report By
HX3165  HISTORY     - 1986     MONUMENTED       NGS
HX3165  HISTORY     - 19870720 GOOD
HX3165  HISTORY     - 19950712 GOOD             NGS
HX3165  HISTORY     - 19960724 GOOD             NGS
HX3165
HX3165                          STATION DESCRIPTION
HX3165
HX3165'DESCRIBED BY NATIONAL GEODETIC SURVEY 1986
HX3165'THE STATION IS LOCATED ABOUT 2.5 MILES WEST OF RAVENSWOOD, ON THE
HX3165'JACKSON COUNTY AIRPORT, NEAR THE END OF RUNWAY 3.
HX3165'OWNERSHIP JACKSON COUNTY AIRPORT COMMISSION COURTHOUSE RIBLEY W. VIR.
HX3165'252271. CONTACT THE MANAGER, MR CHARLES ROGERS, TELE. 304-273-8114.
HX3165'TO REACH THE STATION FROM THE INTERSECTION OF US INTERSTATE 77 AND
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HX3165'STATE HIGHWAY 2, EXIT 146, WHICH IS ABOUT 2.5 MILES EAST OF
HX3165'RAVENSWOOD, GO WEST ON STATE 2 FOR 2.35 MILES TO THE JUNCTION WITH
HX3165'STATE HIGHWAY 68 AT THE EDGE OF RAVENSWOOD. CONTINUE WESTERLY ON
HX3165'STATE HIGHWAY 2 FOR 2.25 MILES TO AIRPORT ROAD. TURN RIGHT AND GO
HX3165'NORTH ON AIRPORT ROAD FOR 0.9 MILE TO THE JACKSON COUNTY AIRPORT
HX3165'AND A GATE.  PASS THROUGH LOCKED GATE AND GO NORTHWEST FOR
HX3165'0.05 MILE TO A TAXIWAY, BEAR LEFT ON TAXIWAY FOR 0.05 MILES TO
HX3165'THE RUNWAY.  TURN LEFT AND GO SOUTHWEST ON RUNWAY FOR 0.6 MILE
HX3165'TO THE MARK ON THE LEFT INSIDE A TURN AROUND. TO REACH FROM THE
HX3165'AZIMUTH MARK FROM THE GATE GO NORTHWEST OF 0.05 MILE TO A TAXIWAY,
HX3165'BEAR LEFT ON THE TAXIWAY FOR 0.05 MILE TO THE MARK ON THE RIGHT.
HX3165'THE STATION IS STANDARD NGS DISK STAMPED --RAVPORT 1986-- SET INTO
HX3165'THE TOP OF A ROUND CONCRETE MONUMENT 32 CM DIAMETER IN DIAMETER
HX3165'RECESSED 1 CM BELOW GROUND.
HX3165'METERS  FEET  HDNG  FROM
HX3165'20.7    67.91 SE    THE CENTER LINE OF THE RUNWAY
HX3165'43.1    141.4 NE    THE CENTER LINE OF THE TAXIWAY
HX3165'7.2     23.62 W     THE SOUTHWEST CORNER OF A VASI LIGHT
HX3165'6.7     21.98 W     THE CENTER OF A FUSE BOX FOR VASI
HX3165'0.25    0.82  NW    A FIBERGLASS WITNESS POST
HX3165'TYPED BY JAMES MALONEY 9/10/87.
HX3165
HX3165                          STATION RECOVERY (1987)
HX3165
HX3165'RECOVERED 1987
HX3165'RECOVERED IN GOOD CONDITION.
HX3165
HX3165                          STATION RECOVERY (1995)
HX3165
HX3165'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1995 (AJL)
HX3165'THE STATION IS LOCATED ABOUT 44 KM (27.35 MI) SOUTH-SOUTHWEST OF
HX3165'PARKERSBURG, 8 KM (4.95 MI) WEST OF INTERSTATE HIGHWAY 77, 7 KM (4.35
HX3165'MI) SOUTHWEST OF RAVENSWOOD, 2 KM (1.25 MI) EAST OF THE OHIO RIVER, AT
HX3165'THE JACKSON COUNTY AIRPORT, NEAR THE SOUTHWEST END OF A GRASS ISLAND
HX3165'BETWEEN THE TAXI AND RUNWAY, AND ACROSS TAXI FROM THE VASI LIGHTS.
HX3165'OWNERSHIP--JACKSON COUNTY AIRPORT COMMISSION, COURTHOUSE, RIPLEY WV
HX3165'25271.  AIRPORT MANAGER IS RALPH DENNIS, PHONE 304-273-8114.  CALL
HX3165'AHEAD TO MAKE SURE THE GATE IS UNLOCKED.  TO REACH FROM THE JUNCTION
HX3165'OF INTERSTATE HIGHWAY 77 AND STATE HIGHWAY 2 (EXIT 146) ABOUT 4 KM
HX3165'(2.50 MI) EAST OF RAVENSWOOD, GO WEST ON HIGHWAY 2 FOR 3.78 KM (2.35
HX3165'MI) TO THE JUNCTION OF STATE HIGHWAY 68 AT THE EDGE OF RAVENSWOOD.
HX3165'CONTINUE AHEAD, SOUTH AND WESTERLY ON HIGHWAY 2 FOR 7.16 KM (4.45 MI)
HX3165'TO AIRPORT ROAD ON THE RIGHT.  TURN RIGHT, NORTH ON AIRPORT ROAD FOR
HX3165'1.45 KM (0.90 MI) TO A LOCKED GATE AT THE APRON.  PASS THROUGH THE
HX3165'GATE, NORTHWEST AND ACROSS THE APRON FOR 0.08 KM (0.05 MI) TO A TAXI.
HX3165'TURN LEFT, WEST-SOUTHWEST ALONG THE TAXI FOR 0.08 KM (0.05 MI) TO
HX3165'STATION ON THE RIGHT JUST BEFORE THE RUNWAY.  THE STATION IS RECESSED
HX3165'2 CM BELOW GROUND.  IT IS 20.7 M (67.9 FT) EAST-SOUTHEAST OF THE
HX3165'CENTER OF THE RUNWAY, 20.2 M (66.3 FT) NORTHWEST OF THE CENTER OF THE
HX3165'TAXI AND 0.20 M (0.66 FT) NORTHWEST OF A FIBERGLASS WITNESS POST.
HX3165'NOTE--THIS STATION WAS USED AS AN AREA NAVIGATION APPROACH PRIMARY
HX3165'AIRPORT CONTROL STATION.
HX3165
HX3165                          STATION RECOVERY (1996)
HX3165
HX3165'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1996 (AJL)
HX3165'THE STATION IS LOCATED ABOUT 44 KM (27.35 MI) SOUTH-SOUTHWEST OF
HX3165'PARKERSBURG, 8 KM (4.95 MI) WEST OF INTERSTATE HIGHWAY 77, 7 KM (4.35
HX3165'MI) SOUTHWEST OF RAVENSWOOD, 2 KM (1.25 MI) EAST OF THE OHIO RIVER AT
HX3165'THE JACKSON COUNTY AIRPORT, NEAR THE SOUTHWEST END OF A GRASS ISLAND
HX3165'BETWEEN THE TAXI AND RUNWAY, AND ACROSS TAXI FROM THE VASI LIGHTS.
HX3165'OWNERSHIP--JACKSON COUNTY AIRPORT COMMISSION, COURTHOUSE, RIPLEY, W.V.
HX3165'25271.  AIRPORT MANAGER IS RALPH DENNIS. PHONE 304-273-8114.  CALL
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HX3165'AHEAD TO MAKE SURE THE GATE IS UNLOCKED. TO REACH FROM THE JUNCTION OF
HX3165'INTERSTATE HIGHWAY 77 AND STATE HIGHWAY 2 (EXIT 146) ABOUT 4 KM (2.50
HX3165'MI) EAST OF RAVENSWOOD, GO WEST ON HIGHWAY 2 FOR 3.78 KM (2.35 MI) TO
HX3165'THE JUNCTION OF STATE HIGHWAY 68 AT THE EDGE OF RAVENSWOOD. CONTINUE
HX3165'AHEAD, SOUTH AND WESTERLY, ON HIGHWAY 2 FOR 7.16 KM (4.45 MI) TO
HX3165'AIRPORT ROAD ON THE RIGHT. TURN RIGHT, NORTH, ON AIRPORT ROAD FOR
HX3165'1.45 KM (0.90 MI) TO A LOCKED GATE AT THE APRON. PASS THROUGH THE
HX3165'GATE, NORTHWEST, AND ACROSS THE APRON FOR 0.08 KM (0.05 MI) TO A TAXI.
HX3165'TURN LEFT, WEST-SOUTHWEST ALONG THE TAXI FOR 0.08 KM (0.05 MI) TO
HX3165'STATION ON THE RIGHT JUST BEFORE THE RUNWAY. THE STATION IS SET IN
HX3165'THE TOP OF A 30 CM ROUND CONCRETE POST SET 2 CM BELOW THE GROUND
HX3165'SURFACE. IT IS 20.7 M (67.9 FT) EAST-SOUTHEAST OF THE CENTER OF THE
HX3165'RUNWAY, 20.2 M (66.3 FT) NORTHWEST OF THE CENTER OF THE TAXI, AND 0.20
HX3165'M (0.66 FT) NORTHWEST OF A FIBERGLASS WITNESS POST.

The NGS Data Sheet

See file dsdata.txt for more information about the datasheet.

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DATABASE =  ,PROGRAM = datasheet, VERSION = 7.67
1        National Geodetic Survey,   Retrieval Date = APRIL 13, 2009
 HX2130 ***********************************************************************
 HX2130  DESIGNATION -  S 37
 HX2130  PID         -  HX2130
 HX2130  STATE/COUNTY-  WV/KANAWHA
 HX2130  USGS QUAD   -  SAINT ALBANS (1976)
 HX2130
 HX2130                        *CURRENT SURVEY CONTROL
 HX2130  ______________________________________________________________________
 HX2130* NAD 83(1986)-  38 23 24.     (N)    081 50 24.     (W)     SCALED
 HX2130* NAVD 88     -       181.526  (meters)     595.56   (feet)  ADJUSTED
 HX2130  ______________________________________________________________________
 HX2130  GEOID HEIGHT-         -33.25  (meters)                     GEOID03
 HX2130  DYNAMIC HT  -         181.401 (meters)     595.15  (feet)  COMP
 HX2130  MODELED GRAV-     979,934.6   (mgal)                       NAVD 88
 HX2130
 HX2130  VERT ORDER  -  SECOND    CLASS 0
 HX2130
 HX2130.The horizontal coordinates were scaled from a topographic map and have
 HX2130.an estimated accuracy of +/- 6 seconds.
 HX2130
 HX2130.The orthometric height was determined by differential leveling
 HX2130.and adjusted in June 1991.
 HX2130
 HX2130.The geoid height was determined by GEOID03.
 HX2130
 HX2130.The dynamic height is computed by dividing the NAVD 88
 HX2130.geopotential number by the normal gravity value computed on the
 HX2130.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
 HX2130.degrees latitude (g = 980.6199 gals.).
 HX2130
 HX2130.The modeled gravity was interpolated from observed gravity values.
 HX2130
 HX2130;                    North         East    Units  Estimated Accuracy
 HX2130;SPC WV S     -   154,610.      526,620.      MT  (+/- 180 meters Scaled)
 HX2130
 HX2130                         SUPERSEDED SURVEY CONTROL
 HX2130
 HX2130  NGVD 29 (??/??/92)  181.727  (m)          596.22   (f) ADJ UNCH    2 0
 HX2130
 HX2130.Superseded values are not recommended for survey control.
 HX2130.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
 HX2130.See file dsdata.txt to determine how the superseded data were derived.
 HX2130
 HX2130_U.S. NATIONAL GRID SPATIAL ADDRESS: 17SMC266494(NAD 83)
 HX2130_MARKER: DB = BENCH MARK DISK
 HX2130_SETTING: 36 = SET IN A MASSIVE STRUCTURE
 HX2130_SP_SET: BRIDGE SEAT
 HX2130_STAMPING: S 37 1935
 HX2130_STABILITY: B = PROBABLY HOLD POSITION/ELEVATION WELL
 HX2130_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR
 HX2130+SATELLITE: SATELLITE OBSERVATIONS - April 02, 2005
 HX2130
 HX2130  HISTORY     - Date     Condition        Report By
 HX2130  HISTORY     - 1935     MONUMENTED       CGS
 HX2130  HISTORY     - 1976     GOOD             NGS
 HX2130  HISTORY     - 20041214 GOOD             INDIV
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HX2130  HISTORY     - 20050402 GOOD             GEOCAC
HX2130
HX2130                          STATION DESCRIPTION
HX2130
HX2130'DESCRIBED BY COAST AND GEODETIC SURVEY 1935
HX2130'AT ST ALBANS.
HX2130'AT ST. ALBANS, KANAWHA COUNTY, ABOUT 0.4 MILE WEST OF THE CHESAPEAKE
HX2130'AND OHIO RAILWAY STATION, ABOUT 190 YARDS EAST OF SIGNAL 466.0,
HX2130'AT BRIDGE 466.0 OVER COAL RIVER, IN THE TOP OF THE NORTHEAST
HX2130'BRIDGE SEAT, 9-2/3 FEET NORTH OF THE NORTH RAIL, AND 7-1/2 FEET
HX2130'EAST OF MILEPOST FM 466.  A STANDARD DISK, STAMPED S 37 1935.
HX2130
HX2130                          STATION RECOVERY (1976)
HX2130
HX2130'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1976
HX2130'RECOVERED IN GOOD CONDITION.
HX2130
HX2130                          STATION RECOVERY (2004)
HX2130
HX2130'RECOVERY NOTE BY INDIVIDUAL CONTRIBUTORS 2004 (HSE)
HX2130'RECOVERED IN GOOD CONDITION.
HX2130
HX2130                          STATION RECOVERY (2005)
HX2130
HX2130'RECOVERY NOTE BY GEOCACHING 2005 (DEB)
HX2130'RECOVERED IN GOOD CONDITION.
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The NGS Data Sheet

See file dsdata.txt for more information about the datasheet.

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DATABASE =  ,PROGRAM = datasheet, VERSION = 7.67
1        National Geodetic Survey,   Retrieval Date = APRIL 13, 2009
 GX0785 ***********************************************************************
 GX0785  CBN         -  This is a Cooperative Base Network Control Station.
 GX0785  DESIGNATION -  T 206
 GX0785  PID         -  GX0785
 GX0785  STATE/COUNTY-  WV/FAYETTE
 GX0785  USGS QUAD   -  DANESE (1987)
 GX0785
 GX0785                        *CURRENT SURVEY CONTROL
 GX0785  ______________________________________________________________________
 GX0785* NAD 83(2007)-  37 57 28.50299(N)    080 55 07.59424(W)     ADJUSTED
 GX0785* NAVD 88     -       797.915  (meters)    2617.83   (feet)  ADJUSTED
 GX0785  ______________________________________________________________________
 GX0785  EPOCH DATE  -        2002.00
 GX0785  X           -     794,839.961 (meters)                     COMP
 GX0785  Y           -  -4,972,786.170 (meters)                     COMP
 GX0785  Z           -   3,902,233.790 (meters)                     COMP
 GX0785  LAPLACE CORR-           2.52  (seconds)                    DEFLEC99
 GX0785  ELLIP HEIGHT-         766.840 (meters)          (02/10/07) ADJUSTED
 GX0785  GEOID HEIGHT-         -31.06  (meters)                     GEOID03
 GX0785  DYNAMIC HT  -         797.250 (meters)    2615.64  (feet)  COMP
 GX0785
 GX0785  ------- Accuracy Estimates (at 95% Confidence Level in cm) --------
 GX0785  Type    PID    Designation                       North   East  Ellip
 GX0785  ----------------------------------------------------------------------
 GX0785  NETWORK GX0785 T 206                               0.86   0.80   1.76
 GX0785  ----------------------------------------------------------------------
 GX0785  MODELED GRAV-     979,769.0   (mgal)                       NAVD 88
 GX0785
 GX0785  VERT ORDER  -  SECOND    CLASS 0
 GX0785
 GX0785.The horizontal coordinates were established by GPS observations
 GX0785.and adjusted by the National Geodetic Survey in February 2007.
 GX0785
 GX0785.The datum tag of NAD 83(2007) is equivalent to NAD 83(NSRS2007).
 GX0785.See National Readjustment for more information.
 GX0785.The horizontal coordinates are valid at the epoch date displayed above.
 GX0785.The epoch date for horizontal control is a decimal equivalence
 GX0785.of Year/Month/Day.
 GX0785
 GX0785.The orthometric height was determined by differential leveling
 GX0785.and adjusted in June 1991.
 GX0785
 GX0785.The X, Y, and Z were computed from the position and the ellipsoidal ht.
 GX0785
 GX0785.The Laplace correction was computed from DEFLEC99 derived deflections.
 GX0785
 GX0785.The ellipsoidal height was determined by GPS observations
 GX0785.and is referenced to NAD 83.
 GX0785
 GX0785.The geoid height was determined by GEOID03.
 GX0785
 GX0785.The dynamic height is computed by dividing the NAVD 88
 GX0785.geopotential number by the normal gravity value computed on the
 GX0785.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
 GX0785.degrees latitude (g = 980.6199 gals.).
 GX0785
```

```
GX0785.The modeled gravity was interpolated from observed gravity values.
GX0785
GX0785;                    North         East     Units Scale Factor Converg.
GX0785;SPC WV S     -   106,320.499   607,137.687   MT  0.99993345   +0 03 00.8
GX0785;SPC WV S     -   348,819.84  1,991,917.56   sFT  0.99993345   +0 03 00.8
GX0785;UTM  17      - 4,201,149.006   507,135.308   MT  0.99960063   +0 02 59.9
GX0785
GX0785!             -  Elev Factor  x  Scale Factor =   Combined Factor
GX0785!SPC WV S     -   0.99987969  x   0.99993345  =   0.99981314
GX0785!UTM  17      -   0.99987969  x   0.99960063  =   0.99948036
GX0785
GX0785                          SUPERSEDED SURVEY CONTROL
GX0785
GX0785  NAD 83(1995)-  37 57 28.50336(N)    080 55 07.59431(W) AD(       ) A
GX0785  ELLIP H (04/23/01)  766.830  (m)                       GP(       ) 4 1
GX0785  NAVD 88 (04/23/01)  797.91   (m)         2617.8    (f) LEVELING    3
GX0785  NGVD 29 (??/??/92)  798.060  (m)         2618.30   (f) ADJ UNCH    2 0
GX0785
GX0785.Superseded values are not recommended for survey control.
GX0785.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
GX0785.See file dsdata.txt to determine how the superseded data were derived.
GX0785
GX0785_U.S. NATIONAL GRID SPATIAL ADDRESS: 17SNC0713501149(NAD 83)
GX0785_MARKER: DB = BENCH MARK DISK
GX0785_SETTING: 66 = SET IN ROCK OUTCROP
GX0785_SP_SET: ROCK OUTCROP
GX0785_STAMPING: T 206 1961
GX0785_MARK LOGO: CGS
GX0785_MAGNETIC: N = NO MAGNETIC MATERIAL
GX0785_STABILITY: A = MOST RELIABLE AND EXPECTED TO HOLD
GX0785+STABILITY: POSITION/ELEVATION WELL
GX0785_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR
GX0785+SATELLITE: SATELLITE OBSERVATIONS - March 09, 2006
GX0785
GX0785  HISTORY     - Date     Condition        Report By
GX0785  HISTORY     - 1961     MONUMENTED       CGS
GX0785  HISTORY     - 20000323 GOOD             WVHD
GX0785  HISTORY     - 20060309 GOOD             GREOMA
GX0785
GX0785                          STATION DESCRIPTION
GX0785
GX0785'DESCRIBED BY COAST AND GEODETIC SURVEY 1961
GX0785'2.4 MI S FROM LANDISBURG.
GX0785'ABOUT 2.4 MILES SOUTH ALONG U.S. HIGHWAY 19 FROM THE POST OFFICE
GX0785'AT LANDISBURG, ABOUT 2.35 MILE NORTH OF THE POST OFFICE AT DANESE,
GX0785'NEAR THE WEST CORNER OF THE ZACKAFOOSE MEMORIAL CHURCH, SET IN
GX0785'THE TOP OF A LARGE FLAT OUTCROP, 105 FEET NORTHWEST OF THE CENTER
GX0785'LINE OF THE HIGHWAY, 15 FEET WEST OF THE WEST CORNER OF THE CHURCH
GX0785'BUILDING AND ABOUT 12 FEET ABOVE THE LEVEL OF THE HIGHWAY.
GX0785
GX0785                          STATION RECOVERY (2000)
GX0785
GX0785'RECOVERY NOTE BY WEST VIRGINIA HIGHWAY DEPARTMENT 2000 (TL)
GX0785'RECOVERED AS DESCRIBED.
GX0785
GX0785                          STATION RECOVERY (2006)
GX0785
GX0785'RECOVERY NOTE BY GREENHORNE-OMARA 2006 (TDT)
GX0785'RECOVERED IN GOOD CONDITION.
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The NGS Data Sheet

See file dsdata.txt for more information about the datasheet.

```
DATABASE =  ,PROGRAM = datasheet, VERSION = 7.67
1        National Geodetic Survey,   Retrieval Date = MAY 27, 2009
 HX2430 ***********************************************************************
 HX2430  DESIGNATION -  U 112
 HX2430  PID         -  HX2430
 HX2430  STATE/COUNTY-  WV/PUTNAM
 HX2430  USGS QUAD   -  ROBERTSBURG (1987)
 HX2430
 HX2430                        *CURRENT SURVEY CONTROL
 HX2430  ______________________________________________________________________
 HX2430* NAD 83(1986)-  38 39 29.     (N)    081 53 34.     (W)     SCALED
 HX2430* NAVD 88     -       292.657  (meters)     960.16   (feet)  ADJUSTED
 HX2430  ______________________________________________________________________
 HX2430  GEOID HEIGHT-         -33.60  (meters)                     GEOID03
 HX2430  DYNAMIC HT  -         292.464 (meters)     959.53  (feet)  COMP
 HX2430  MODELED GRAV-     979,961.2   (mgal)                       NAVD 88
 HX2430
 HX2430  VERT ORDER  -  SECOND    CLASS 0
 HX2430
 HX2430.The horizontal coordinates were scaled from a topographic map and have
 HX2430.an estimated accuracy of +/- 6 seconds.
 HX2430
 HX2430.The orthometric height was determined by differential leveling
 HX2430.and adjusted in June 1991.
 HX2430
 HX2430.The geoid height was determined by GEOID03.
 HX2430
 HX2430.The dynamic height is computed by dividing the NAVD 88
 HX2430.geopotential number by the normal gravity value computed on the
 HX2430.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
 HX2430.degrees latitude (g = 980.6199 gals.).
 HX2430
 HX2430.The modeled gravity was interpolated from observed gravity values.
 HX2430
 HX2430;                    North         East     Units  Estimated Accuracy
 HX2430;SPC WV S     -   184,400.      522,300.      MT  (+/- 180 meters Scaled)
 HX2430
 HX2430                         SUPERSEDED SURVEY CONTROL
 HX2430
 HX2430  NGVD 29 (??/??/92)  292.856  (m)          960.81   (f) ADJ UNCH    2 0
 HX2430
 HX2430.Superseded values are not recommended for survey control.
 HX2430.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
 HX2430.See file dsdata.txt to determine how the superseded data were derived.
 HX2430
 HX2430_U.S. NATIONAL GRID SPATIAL ADDRESS: 17SMC223792(NAD 83)
 HX2430_MARKER: DB = BENCH MARK DISK
 HX2430_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT
 HX2430_SP_SET: SET IN TOP OF CONCRETE MONUMENT
 HX2430_STAMPING: U 112 1956
 HX2430_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO
 HX2430+STABILITY: SURFACE MOTION
 HX2430_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR
 HX2430+SATELLITE: SATELLITE OBSERVATIONS - March 16, 2008
 HX2430
 HX2430  HISTORY     - Date     Condition        Report By
 HX2430  HISTORY     - 1956     MONUMENTED       CGS
 HX2430  HISTORY     - 1976     GOOD             NGS
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HX2430  HISTORY     - 20080316 GOOD             GEOCAC
HX2430
HX2430                          STATION DESCRIPTION
HX2430
HX2430'DESCRIBED BY COAST AND GEODETIC SURVEY 1956
HX2430'4.9 MI E FROM ROBERTSBURG.
HX2430'ABOUT 4.9 MILES EAST ALONG A GRAVEL ROAD FROM THE JUNCTION OF
HX2430'U.S. HIGHWAY 35 AND NORTH END OF HIGHWAY BRIDGE OVER EIGHTEENMILE
HX2430'CREEK AT ROBERTSBURG, ABOUT 0.55 MILE SOUTHEAST OF MANILA CHAPEL
HX2430'EUB CHURCH, 25 FEET SOUTH OF CENTER LINE OF ROAD, 44 FEET SOUTHWEST
HX2430'OF CENTER OF JUNCTION OF ROAD AND A DIRT ROAD LEADING SOUTHWEST AND
HX2430'SOUTH, 56 FEET EAST OF A LONE 20-INCH OAK TREE, 31 FEET NORTHWEST
HX2430'OF CENTER LINE OF ROAD SOUTHWEST, 23 FEET EAST OF POWER POLE NO.
HX2430'47-3266/9-75-C-18, 2 FEET SOUTHWEST OF A WHITE WOODEN WITNESS
HX2430'POST, ABOUT 1 1/2 FEET ABOVE LEVEL OF ROAD AND SET IN THE TOP OF A
HX2430'CONCRETE POST PROJECTING 4 INCHES.
HX2430
HX2430                          STATION RECOVERY (1976)
HX2430
HX2430'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1976
HX2430'RECOVERED IN GOOD CONDITION.
HX2430
HX2430                          STATION RECOVERY (2008)
HX2430
HX2430'RECOVERY NOTE BY GEOCACHING 2008 (DEB)
HX2430'RECOVERED IN GOOD CONDITION.
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The NGS Data Sheet

See file dsdata.txt for more information about the datasheet.

```
DATABASE =  ,PROGRAM = datasheet, VERSION = 7.67
1        National Geodetic Survey,   Retrieval Date = APRIL 13, 2009
 AJ2513 ***********************************************************************
 AJ2513  CBN         -  This is a Cooperative Base Network Control Station.
 AJ2513  DESIGNATION -  X 200 RESET
 AJ2513  PID         -  AJ2513
 AJ2513  STATE/COUNTY-  WV/MONROE
 AJ2513  USGS QUAD   -  FOREST HILL (1976)
 AJ2513
 AJ2513                        *CURRENT SURVEY CONTROL
 AJ2513  ______________________________________________________________________
 AJ2513* NAD 83(2007)-  37 31 47.21822(N)    080 46 32.19739(W)     ADJUSTED
 AJ2513* NAVD 88     -       541.4    (meters)    1776.     (feet)  GPS OBS
 AJ2513  ______________________________________________________________________
 AJ2513  EPOCH DATE  -        2002.00
 AJ2513  X           -     811,893.806 (meters)                     COMP
 AJ2513  Y           -  -4,999,298.873 (meters)                     COMP
 AJ2513  Z           -   3,864,496.679 (meters)                     COMP
 AJ2513  LAPLACE CORR-          -0.72  (seconds)                    DEFLEC99
 AJ2513  ELLIP HEIGHT-         509.969 (meters)          (02/10/07) ADJUSTED
 AJ2513  GEOID HEIGHT-         -31.42  (meters)                     GEOID03
 AJ2513
 AJ2513  ------- Accuracy Estimates (at 95% Confidence Level in cm) --------
 AJ2513  Type    PID    Designation                      North   East  Ellip
 AJ2513  ----------------------------------------------------------------------
 AJ2513  NETWORK AJ2513 X 200 RESET                        0.76   0.59   1.53
 AJ2513  ----------------------------------------------------------------------
 AJ2513
 AJ2513.The horizontal coordinates were established by GPS observations
 AJ2513.and adjusted by the National Geodetic Survey in February 2007.
 AJ2513
 AJ2513.The datum tag of NAD 83(2007) is equivalent to NAD 83(NSRS2007).
 AJ2513.See National Readjustment for more information.
 AJ2513.The horizontal coordinates are valid at the epoch date displayed above.
 AJ2513.The epoch date for horizontal control is a decimal equivalence
 AJ2513.of Year/Month/Day.
 AJ2513
 AJ2513.The orthometric height was determined by GPS observations and a
 AJ2513.high-resolution geoid model.
 AJ2513
 AJ2513.The X, Y, and Z were computed from the position and the ellipsoidal ht.
 AJ2513
 AJ2513.The Laplace correction was computed from DEFLEC99 derived deflections.
 AJ2513
 AJ2513.The ellipsoidal height was determined by GPS observations
 AJ2513.and is referenced to NAD 83.
 AJ2513
 AJ2513.The geoid height was determined by GEOID03.
 AJ2513
 AJ2513;                   North         East     Units Scale Factor Converg.
 AJ2513;SPC WV S     -    58,824.040   619,833.660   MT  0.99999049   +0 08 19.4
 AJ2513;SPC WV S     -   192,991.87  2,033,570.93   sFT  0.99999049   +0 08 19.4
 AJ2513;UTM  17      - 4,153,669.187   519,825.948   MT  0.99960484   +0 08 12.1
 AJ2513
 AJ2513!             -  Elev Factor  x  Scale Factor =   Combined Factor
 AJ2513!SPC WV S     -   0.99991998  x   0.99999049  =   0.99991047
 AJ2513!UTM  17      -   0.99991998  x   0.99960484  =   0.99952485
 AJ2513
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AJ2513                          SUPERSEDED SURVEY CONTROL
AJ2513
AJ2513  NAD 83(1995)-  37 31 47.21860(N)    080 46 32.19738(W) AD(       ) A
AJ2513  ELLIP H (04/23/01)  509.958  (m)                       GP(       ) 4 1
AJ2513
AJ2513.Superseded values are not recommended for survey control.
AJ2513.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
AJ2513.See file dsdata.txt to determine how the superseded data were derived.
AJ2513
AJ2513_U.S. NATIONAL GRID SPATIAL ADDRESS: 17SNB1982653669(NAD 83)
AJ2513_MARKER: DV = VERTICAL CONTROL DISK
AJ2513_SETTING: 32 = SET IN A RETAINING WALL OR CONCRETE LEDGE
AJ2513_SP_SET: CONCRETE HEAD WALL
AJ2513_STAMPING: X 200 RESET 1988
AJ2513_MARK LOGO: NGS
AJ2513_MAGNETIC: O = OTHER; SEE DESCRIPTION
AJ2513_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO
AJ2513+STABILITY: SURFACE MOTION
AJ2513_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR
AJ2513+SATELLITE: SATELLITE OBSERVATIONS - 1988
AJ2513
AJ2513  HISTORY     - Date     Condition        Report By
AJ2513  HISTORY     - 1988     MONUMENTED       RBNF
AJ2513
AJ2513                           STATION DESCRIPTION
AJ2513
AJ2513'DESCRIBED BY RESEARCHED BUT NOT FOUND 1988 (DCS)
AJ2513'THE STATION IS LOCATED ABOUT 8.27 KM (5.15 MI) SOUTHWEST FROM
AJ2513'GREENVILLE, 4.74 KM (2.95 MI) SOUTHEAST FROM FOREST HILL AND 2.01 KM
AJ2513'(1.25 MI) NORTHWEST FROM RED SULPHUR SPRINGS.  OWNERSHIP -- WVHT.
AJ2513'
AJ2513'TO REACH THE STATION FROM THE JUNCTION OF STATE HIGHWAY 12 AND
AJ2513'MONROE COUNTY ROUTE 27, GO NORTH ON HIGHWAY 12 FOR 1.93 KM (1.2 MI)
AJ2513'TO THE CALVARY BAPTIST CHURCH ON THE LEFT.  CONTINUE AHEAD FOR
AJ2513'0.17 KM (0.11 MI) TO THE STATION ON THE LEFT.
AJ2513'
AJ2513'THE STATION IS IN THE NORTHWEST CORNER OF A 1.2 M BY 1.2 M (4 FT BY 4
AJ2513'FT) DROP INLET, 173.7 M (570 FT) NORTHWEST FROM THE CALVARY BAPTIST
AJ2513'CHURCH, 27.4 M (90 FT) NORTHWEST FROM THE CENTER OF A DRIVEWAY
AJ2513'LEADING WEST, 6.0 M (19.7 FT) SOUTHWEST FROM THE CENTERLINE OF THE
AJ2513'HIGHWAY AND ABOUT 0.3 M (1 FT) BELOW THE LEVEL OF THE HIGHWAY.
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The NGS Data Sheet

See file dsdata.txt for more information about the datasheet.

```
DATABASE =  ,PROGRAM = datasheet, VERSION = 7.67
1        National Geodetic Survey,   Retrieval Date = MAY 27, 2009
 AJ2515 ***********************************************************************
 AJ2515  CBN         -  This is a Cooperative Base Network Control Station.
 AJ2515  DESIGNATION -  ZERO MILESTONE RESET
 AJ2515  PID         -  AJ2515
 AJ2515  STATE/COUNTY-  WV/KANAWHA
 AJ2515  USGS QUAD   -  CHARLESTON EAST (1976)
 AJ2515
 AJ2515                        *CURRENT SURVEY CONTROL
 AJ2515  ______________________________________________________________________
 AJ2515* NAD 83(2007)-  38 20 07.04162(N)    081 36 45.86635(W)     ADJUSTED
 AJ2515* NAVD 88     -       183.0    (meters)     600.     (feet)  GPS OBS
 AJ2515  ______________________________________________________________________
 AJ2515  EPOCH DATE  -        2002.00
 AJ2515  X           -     730,707.952 (meters)                     COMP
 AJ2515  Y           -  -4,955,970.059 (meters)                     COMP
 AJ2515  Z           -   3,934,797.185 (meters)                     COMP
 AJ2515  LAPLACE CORR-           2.35  (seconds)                   DEFLEC99
 AJ2515  ELLIP HEIGHT-         149.987 (meters)          (02/10/07) ADJUSTED
 AJ2515  GEOID HEIGHT-         -32.96  (meters)                     GEOID03
 AJ2515
 AJ2515  ------- Accuracy Estimates (at 95% Confidence Level in cm) --------
 AJ2515  Type    PID    Designation                      North   East  Ellip
 AJ2515  ----------------------------------------------------------------------
 AJ2515  NETWORK AJ2515 ZERO MILESTONE RESET               1.02   0.76   1.23
 AJ2515  ----------------------------------------------------------------------
 AJ2515
 AJ2515.The horizontal coordinates were established by GPS observations
 AJ2515.and adjusted by the National Geodetic Survey in February 2007.
 AJ2515
 AJ2515.The datum tag of NAD 83(2007) is equivalent to NAD 83(NSRS2007).
 AJ2515.See National Readjustment for more information.
 AJ2515.The horizontal coordinates are valid at the epoch date displayed above.
 AJ2515.The epoch date for horizontal control is a decimal equivalence
 AJ2515.of Year/Month/Day.
 AJ2515
 AJ2515.The orthometric height was determined by GPS observations and a
 AJ2515.high-resolution geoid model.
 AJ2515
 AJ2515.The X, Y, and Z were computed from the position and the ellipsoidal ht.
 AJ2515
 AJ2515.The Laplace correction was computed from DEFLEC99 derived deflections.
 AJ2515
 AJ2515.The ellipsoidal height was determined by GPS observations
 AJ2515.and is referenced to NAD 83.
 AJ2515
 AJ2515.The geoid height was determined by GEOID03.
 AJ2515
 AJ2515;                   North         East     Units Scale Factor Converg.
 AJ2515;SPC WV S     -   148,379.412   546,431.624   MT  0.99992913   -0 22 43.7
 AJ2515;SPC WV S     -   486,808.12  1,792,751.09   sFT  0.99992913   -0 22 43.7
 AJ2515;UTM  17      - 4,243,194.748   446,448.628   MT  0.99963532   -0 22 48.2
 AJ2515
 AJ2515!             -  Elev Factor  x  Scale Factor =   Combined Factor
 AJ2515!SPC WV S     -   0.99997647  x   0.99992913  =   0.99990560
 AJ2515!UTM  17      -   0.99997647  x   0.99963532  =   0.99961179
 AJ2515
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AJ2515                          SUPERSEDED SURVEY CONTROL
AJ2515
AJ2515  NAD 83(1995)-  38 20 07.04183(N)    081 36 45.86655(W) AD(       ) A
AJ2515  ELLIP H (04/23/01)  149.979  (m)                       GP(       ) 4 1
AJ2515
AJ2515.Superseded values are not recommended for survey control.
AJ2515.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
AJ2515.See file dsdata.txt to determine how the superseded data were derived.
AJ2515
AJ2515_U.S. NATIONAL GRID SPATIAL ADDRESS: 17SMC4644943195(NAD 83)
AJ2515_MARKER: DH = HORIZONTAL CONTROL DISK
AJ2515_SETTING: 30 = SET IN A LIGHT STRUCTURE
AJ2515_SP_SET: CONCRETE FOUNDATION (SEE TEXT)
AJ2515_STAMPING: ZERO MILESTONE RESET
AJ2515_MARK LOGO: NGS
AJ2515_MAGNETIC: O = OTHER; SEE DESCRIPTION
AJ2515_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO
AJ2515+STABILITY: SURFACE MOTION
AJ2515_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR
AJ2515+SATELLITE: SATELLITE OBSERVATIONS - December 14, 2004
AJ2515
AJ2515  HISTORY     - Date     Condition        Report By
AJ2515  HISTORY     - 20000621 MONUMENTED       WVHD
AJ2515  HISTORY     - 20041214 GOOD             INDIV
AJ2515
AJ2515                          STATION DESCRIPTION
AJ2515
AJ2515'DESCRIBED BY WEST VIRGINIA HIGHWAY DEPARTMENT 2000 (TEL)
AJ2515'THE STATION IS LOCATED IN CHARLESTON ON THE LEVEE BETWEEN THE
AJ2515'KANAWHA RIVER AND KANAWHA BOULEVARD AT THE CAPITOL COMPLEX
AJ2515'UNDER AN ORNAMENTAL CUT LIMESTONE PILLAR WITH A BRASS PLAQUE.
AJ2515'OWNERSHIP -- WVHD, 1900 KANAWHA BOULEVARD EAST, CAPITOL COMPLEX,
AJ2515'BUILDING 5, ROOM A-650, CHARLESTON WV 25305.
AJ2515'TO REACH THE STATION FROM THE JUNCTION OF INTERSTATE HIGHWAY 64
AJ2515'AND GREENBRIER STREET (STATE HIGHWAY 114, EXIT 99) GO SOUTHWEST
AJ2515'ON GREENBRIER STREET FOR 0.72 KM (0.45 MI) TO THE END OF GREENBRIER
AJ2515'STREET AT KANAWHA BOULEVARD EAST.  TURN LEFT AND GO EAST ON
AJ2515'KANAWHA BOULEVARD FOR 0.32 KM (0.2 MI) TO THE STATION ON THE RIGHT.
AJ2515'
AJ2515'THE STATION IS A DISK SET IN A 0.81 M (2.67 FT) SQUARE CONCRETE
AJ2515'FOUNDATION THAT IS 6.4 M (21.0 FT) SOUTH OF THE SOUTH CURB OF
AJ2515'KANAWHA BOULEVARD, 0.53 M (1.75 FT) NORTH OF A 1.07 M (3.5 FT)
AJ2515'LIMESTONE WALL AND BENEATH THE REMOVABLE PLAQUE ON THE CUT
AJ2515'LIMESTONE PILLAR DENOTING THE ZERO MILE POINT OF THE MIDLAND
AJ2515'TRAIL.
AJ2515
AJ2515                          STATION RECOVERY (2004)
AJ2515
AJ2515'RECOVERY NOTE BY INDIVIDUAL CONTRIBUTORS 2004 (HSE)
AJ2515'RECOVERED IN GOOD CONDITION.
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SECTION 5: GPS CONTROL DIAGRAM

This section contains a map of the photogrammetric ground control stations and surrounding area for the 2009 Bluestone Lake, WV Digital Ortho Imagery and LIDAR Mapping Project. Diagram can be found on the following page.

Ground Control Diagram