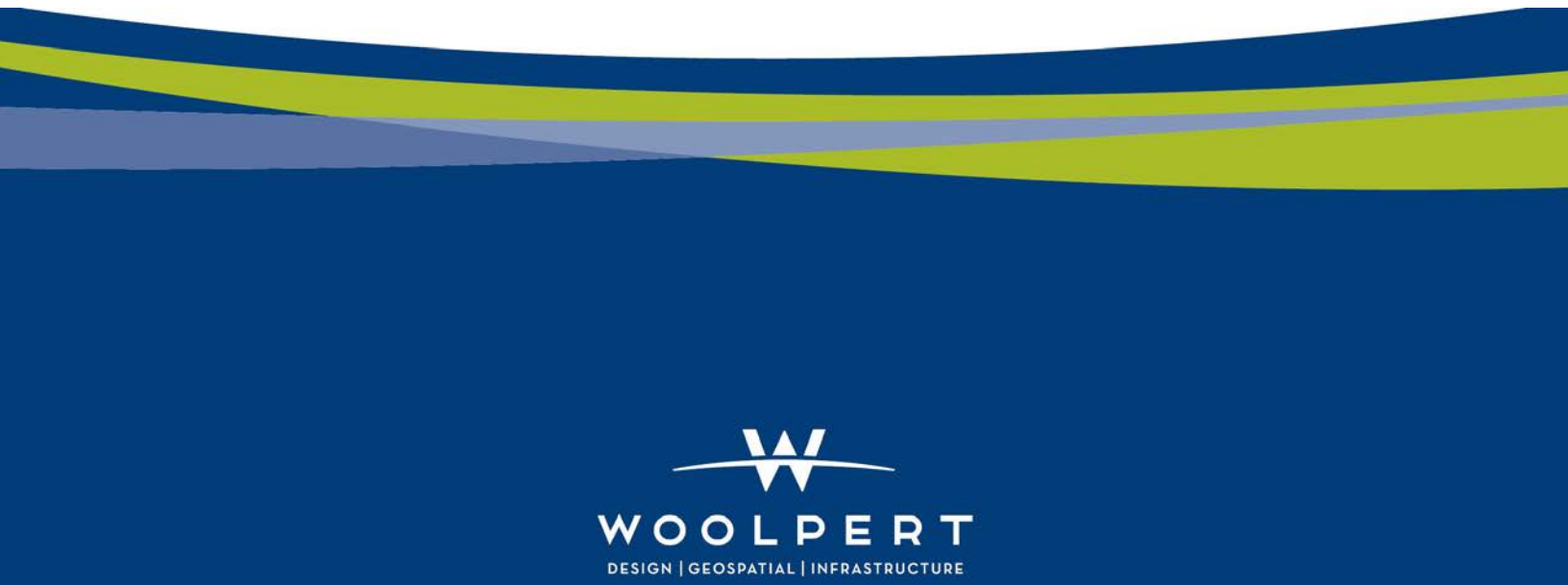
# GROUND CONTROL SURVEY REPORT

# 74038 - ORTHOIMAGERY FOR HORRY CO SOUTH CAROLINA

## NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION (NOAA)

WOOLPERT

DESIGN | GEOSPATIAL | INFRASTRUCTURE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## QUALITY

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## TRADEMARKS

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## NOTICE OF PROPRIETARY INFORMATION

# SECTION 1: SURVEY REPORT

## INTRODUCTION

| | |
|---|---|
| Report Date: | June 25, 2014 |
| Project Name: | Horry Co SC Orthoimagery |
| Client Information: | National Oceanic & Atmospheric Administration (NOAA)<br>Attn: Dennis Hall<br>2234 South Hobson Ave, Charleston, SC 29405<br>843.740.1310 |
| Contract Number: | EA133C11CQ0010 |
| Requisition/Reference Number: | G12PD00712 |
| Delivery Date: | 06/25/2014 |
| Prepared By: | Ross Chaloupka, SIT<br>Phase Manager<br>Woolpert, Inc.<br>375 Northridge Road<br>Suite 300<br>Atlanta, GA 30350-3295<br>ross.chaloupka@woolpert.com |
| Woolpert Project Number: | 074038 |

This report contains a comprehensive outline of the Control Survey that supported the Horry Co SC Orthoimagery Task Order. All surveys were performed in such a way as to achieve ground control accuracies that meet or exceed the National Mapping Accuracy Standards.

## PROJECT AREA

The data acquisition and processing for the Area of Interest (AOI) consisted of approximately 1,200 square miles of Horry Co SC.

# PURPOSE

The purpose of this survey was to establish three-dimensional coordinates for photo identifiable (PID) points to perform the aerial triangulation of digital imagery and 20 PID quality control points (QCP).

The PIDs were located at locations easily identifiable in the imagery. The PIDs and QCPs were collected uniformly dispersed over the project area to verify fundamental, supplemental, and consolidated vertical accuracies throughout the task order AOI.

# DATE OF SURVEY

Ground control field operations took place between March 18, 2013, and March 22, 2014.

# MONUMENTATION

Prior to aerial imagery acquisition, Woolpert field crews performed a field reconnaissance to verify the existence and suitability of pre-selected existing National Geodetic Survey (NGS) control stations. These existing control stations were utilized to ensure that quality *x, y,* and *z* coordinate values were computed for each of the newly established photogrammetric control stations. Recovery information sheets for the existing NGS control stations can be found in Section 5 of this report. A control diagram showing the ground control stations used to support this project can be found in Section 6 of this report.

# ACCURACY

The overall accuracy of the ground control survey is expressed in terms of standard deviation, at a 95% confidence level, based on the published NGS control monuments that were used throughout the task order AOI. The standard deviation of the ground control survey is 0.060 feet horizontally and 0.089 feet vertically at the 95% confidence level.

# GPS EQUIPMENT

Woolpert utilized the following equipment for this project:

- a Trimble Navigation R8 Model 3 GNSS dual-frequency GPS receivers with Air Link Communications Raven CDMA cellular modem
- a Trimble Navigation R8 Model 2 receiver
- a Trimble Navigation R8 receiver
- a Trimble Navigation R8 Model 3 GNSS dual-frequency GPS receiver with Air Link Communications Raven CDMA cellular modem as a rover for this project.

# METHODOLOGY

## REAL-TIME KINEMATIC (RTK) GPS

The field crew utilized Real-Time Kinematic (RTK) GPS surveying throughout the ground control data collection process. Using RTK GPS techniques, observations were performed on 27 ground control points and 21 quality control check The survey was conducted using a 1-second epoch rate, in a fixed solution RTK mode, with each observation lasting between 60 to 180 seconds. Each station was occupied twice to insure the necessary horizontal and vertical accuracies were being met for this photogrammetric project.

## RAPID-STATIC GPS

In addition to the RTK GPS techniques, the project field crew utilized rapid-static (RS) GPS surveying techniques to tie additional NGS control monument stations to the NGS control monument RTK base stations to verify the positions of the base stations.

Using RS GPS techniques, observations were performed on one (1) LIDAR Base stations (LIDAR BASE). The survey was conducted at a 5-second sync rate with each observation lasting between 40-360 minutes.

# GPS DATA ANALYSIS AND PROCESSING

The field crew chief processed all GPS data each day using *Trimble Navigation's* Trimble Business Center (TBC) Version 3.20. Daily processing ensured the integrity of the network as it was constructed, and allowed the field crews to immediately reschedule observations of poor quality. Once the field work was complete, the processed observations were adjusted to fit the local NGS control. Once this process was completed, the results were closely analyzed to be sure that it meets the requirements of the survey.

The GPS Control stations consisted of the following:

| Dimension | NGS Control Stations |
|---|---|
| 3-D | 026 055 AZ MK (DJ1662), 026 058 AZ MK (DD1638), 026 089 (DD1902), 026 096 AZ MK (EB1874), 26 213 (DD1648), 26 262 (DD1866), 26 383 (DD2332), P 146 (EB1292) |

# DATUM REFERENCE AND FINAL COORDINATES

New horizontal GPS control was based on the South Carolina State Plane Zone (3900) referenced to North American Datum 1983, national re-adjustment of 2011 (NAD83/2011), expressed in international feet. Vertical control was based on the North American Vertical Datum of 1988 (NAVD88), also expressed in international feet using the geoid model of 2012 (GEID12A). These coordinates for the photogrammetric control survey can be found in Section 2 of this report.

# QUALITY ASSURANCE

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.

# SECTION 2: GEODETIC / GROUND CONTROL COORDINATE LISTINGS

## COORDINATE SYSTEM: GRID

### Coordinates in SC State Plane Zone (3900)

**HORIZONTAL DATUM: NAD83 (2011)**
**VERTICAL DATUM: NAVD88**
**GEOID MODEL: GEOID 12A**
**UNITS: International Foot**

**NGS CONTROL POINTS**

| Station Name | Northing (Int foot) | Easting (Int foot) | Elevation (Int foot) | Description |
|---|---|---|---|---|
| 026 055 AZ MK | 689660.04 | 2649913.46 | 33.36 | DJ1662 |
| 026 058 AZ MK | 702603.45 | 2620383.93 | 30.86 | DD1638 |
| 026 089 | 786798.20 | 2649961.18 | 46.54 | DD1902 |
| 026 096 AZ MK | 832903.36 | 2557564.62 | 73.64 | EB1874 |
| 26 213 | 699110.44 | 2600398.56 | 18.80 | DD1648 |
| 26 262 | 758808.59 | 2643071.15 | 46.29 | DD1866 |
| 26 383 | 755984.90 | 2534741.24 | 30.31 | DD2332 |
| P 146 | 837424.69 | 2642794.54 | 97.41 | EB1292 |

## GROUND CONTROL

| Station Name | Northing (Int Foot) | Easting (Int Foot) | Elevation (Int Foot) | Description |
|---|---|---|---|---|
| 1 | 791393.43 | 2501764.54 | 35.51 | PID |
| 2 | 813502.21 | 2530394.27 | 37.69 | PID |
| 3 | 845619.46 | 2542657.43 | 57.01 | PID |
| 4 | 877606.84 | 2560345.26 | 53.24 | PID |
| 5 | 903309.95 | 2591276.02 | 71.61 | PID |
| 6 | 881789.65 | 2614342.85 | 91.70 | PID |
| 7 | 848245.36 | 2642231.30 | 101.90 | PID |
| 8 | 814875.68 | 2673174.33 | 76.14 | PID |
| 9 | 785263.32 | 2704939.15 | 35.08 | PID |
| 10 | 752939.03 | 2740153.59 | 25.54 | PID |
| 11 | 734317.73 | 2716985.54 | 8.72 | PID |
| 12 | 718293.80 | 2684794.03 | 7.88 | PID |
| 13 | 689478.83 | 2650200.55 | 20.18 | PID |
| 14 | 644021.53 | 2612106.72 | 6.61 | PID |
| 15 | 641689.90 | 2585077.17 | 20.82 | PID |
| 16 | 694935.80 | 2556520.74 | 19.51 | PID |
| 17 | 739715.03 | 2523083.43 | 21.44 | PID |
| 18 | 847967.45 | 2595372.30 | 86.11 | PID |
| 19 | 800369.46 | 2562472.98 | 105.75 | PID |
| 20 | 804552.99 | 2625579.59 | 110.30 | PID |
| 21 | 770886.56 | 2547439.82 | 81.49 | PID |
| 22 | 759337.29 | 2590154.59 | 35.58 | PID |
| 23 | 759797.47 | 2636496.14 | 46.75 | PID |
| 24 | 760468.50 | 2697688.96 | 24.53 | PID |
| 25 | 723175.45 | 2584179.13 | 15.26 | PID |
| 26 | 731015.16 | 2638232.57 | 38.20 | PID |
| 27 | 683737.92 | 2604887.58 | 21.25 | PID |

## QUALITY CONTROL POINTS

| Station Name | Northing (Int Foot) | Easting (Int Foot) | Elevation (Int Foot) | Description |
|---|---|---|---|---|
| 3000 | 850659.21 | 2645310.48 | 84.92 | PID QC |
| 3001 | 815072.75 | 2638616.14 | 96.09 | PID QC |
| 3002 | 782378.45 | 2602041.53 | 86.71 | PID QC |
| 3003 | 757893.67 | 2563797.26 | 64.96 | PID QC |
| 3004 | 708144.41 | 2585466.94 | 14.09 | PID QC |
| 3005 | 671154.30 | 2576544.70 | 16.22 | PID QC |
| 3006 | 753929.42 | 2727266.34 | 44.63 | PID QC |
| 3007 | 731246.70 | 2705875.71 | 10.75 | PID QC |
| 3008 | 714195.12 | 2669776.36 | 15.73 | PID QC |
| 3009 | 691140.05 | 2636150.37 | 17.62 | PID QC |
| 3010 | 654296.84 | 2609571.82 | 23.91 | PID QC |
| 3011 | 626600.57 | 2593960.15 | 9.49 | PID QC |
| 3012 | 888075.29 | 2593618.45 | 102.83 | PID QC |
| 3013 | 874744.69 | 2568000.73 | 60.36 | PID QC |
| 3014 | 837960.26 | 2589452.50 | 80.71 | PID QC |
| 3015 | 830336.02 | 2573950.78 | 71.91 | PID QC |
| 3016 | 815555.31 | 2560909.42 | 62.39 | PID QC |
| 3017 | 792583.76 | 2544486.51 | 102.39 | PID QC |
| 3018 | 775889.59 | 2538818.15 | 72.73 | PID QC |
| 3019 | 734222.78 | 2539517.60 | 43.39 | PID QC |
| 3020 | 704786.06 | 2551451.51 | 20.60 | PID QC |

# COORDINATE SYSTEM: WGS84

**HORIZONTAL DATUM: NAD83 (2011)**
**VERTICAL DATUM: NAVD88**
**GEOID MODEL: GEOID 12A**
**UNITS: Int. Feet**

**NGS CONTROL POINTS**

| Station Name | Latitude | Longitude | Ellipsoid Ht. (Int Foot) | Description |
|---|---|---|---|---|
| 026 055 AZ MK | N 33 42 37.45921 | W 78 51 44.66950 | -80.71 | DJ1662 |
| 026 058 AZ MK | N 33 44 51.41244 | W 78 57 31.19549 | -84.25 | DD1638 |
| 026 089 | N 33 58 38.38251 | W 78 51 20.24300 | -66.44 | DD1902 |
| 026 096 AZ MK | N 34 06 32.09793 | W 79 09 27.64873 | -37.06 | EB1874 |
| 26 213 | N 33 44 20.69905 | W 79 01 28.66584 | -93.82 | DD1648 |
| 26 262 | N 33 54 02.90873 | W 78 52 48.87233 | -66.49 | DD1866 |
| 26 383 | N 33 53 55.10643 | W 79 14 14.68691 | -80.17 | DD2332 |
| P 146 | N 34 07 00.64213 | W 78 52 32.98166 | -15.22 | EB1292 |

## GROUND CONTROL

| Station Name | Latitude | Longitude | Ellipsoid Ht. (Int Foot) | Description |
|---|---|---|---|---|
| 1 | N 33 59 50.79810 | W 79 20 39.19288 | -73.93 | PID |
| 2 | N 34 03 24.84622 | W 79 14 54.69314 | -72.38 | PID |
| 3 | N 34 08 40.48401 | W 79 12 22.31168 | -53.18 | PID |
| 4 | N 34 13 53.81848 | W 79 08 45.04028 | -57.21 | PID |
| 5 | N 34 18 02.42268 | W 79 02 30.87137 | -39.44 | PID |
| 6 | N 34 14 25.14752 | W 78 58 00.98728 | -20.12 | PID |
| 7 | N 34 08 47.79181 | W 78 52 37.03634 | -10.88 | PID |
| 8 | N 34 03 11.27110 | W 78 46 37.44604 | -37.64 | PID |
| 9 | N 33 58 11.43668 | W 78 40 27.87748 | -79.71 | PID |
| 10 | N 33 52 43.66129 | W 78 33 38.86823 | -90.36 | PID |
| 11 | N 33 49 44.78543 | W 78 38 18.68231 | -106.60 | PID |
| 12 | N 33 47 13.38635 | W 78 44 44.39769 | -106.71 | PID |
| 13 | N 33 42 35.60778 | W 78 51 41.31564 | -93.90 | PID |
| 14 | N 33 35 13.46717 | W 78 59 22.71586 | -107.56 | PID |
| 15 | N 33 34 55.48713 | W 79 04 42.73866 | -93.09 | PID |
| 16 | N 33 43 47.39323 | W 79 10 09.13319 | -92.51 | PID |
| 17 | N 33 51 16.09236 | W 79 16 36.21308 | -88.96 | PID |
| 18 | N 34 08 54.21876 | W 79 01 54.61129 | -25.42 | PID |
| 19 | N 34 01 09.38918 | W 79 08 36.22672 | -5.01 | PID |
| 20 | N 34 01 38.92810 | W 78 56 05.53761 | -1.88 | PID |
| 21 | N 33 56 20.35876 | W 79 11 40.94567 | -29.11 | PID |
| 22 | N 33 54 18.43573 | W 79 03 16.54379 | -76.06 | PID |
| 23 | N 33 54 14.01861 | W 78 54 06.63622 | -65.81 | PID |
| 24 | N 33 54 07.77446 | W 78 42 00.50686 | -90.08 | PID |
| 25 | N 33 48 21.80013 | W 79 04 35.42523 | -96.67 | PID |
| 26 | N 33 49 28.94102 | W 78 53 52.98146 | -74.77 | PID |
| 27 | N 33 41 47.76690 | W 79 00 39.01344 | -91.89 | PID |

## QUALITY CONTROL POINTS

| Station Name | Latitude | Longitude | Ellipsoid Ht. (Int Foot) | Description |
|---|---|---|---|---|
| 3000 | N 34 09 11.04160 | W 78 51 59.80963 | -27.95 | PID QC |
| 3001 | N 34 03 20.38578 | W 78 53 28.10160 | -16.48 | PID QC |
| 3002 | N 33 58 04.13509 | W 79 00 50.26000 | -24.99 | PID QC |
| 3003 | N 33 54 08.95349 | W 79 08 29.56933 | -46.12 | PID QC |
| 3004 | N 33 45 52.86107 | W 79 04 23.48513 | -98.07 | PID QC |
| 3005 | N 33 39 48.54557 | W 79 06 17.20626 | -96.76 | PID QC |
| 3006 | N 33 52 56.44114 | W 78 36 11.43397 | -70.90 | PID QC |
| 3007 | N 33 49 16.89861 | W 78 40 31.18606 | -104.30 | PID QC |
| 3008 | N 33 46 36.04598 | W 78 47 43.35593 | -98.50 | PID QC |
| 3009 | N 33 42 54.88737 | W 78 54 27.23234 | -96.11 | PID QC |
| 3010 | N 33 36 55.60915 | W 78 59 50.32600 | -90.07 | PID QC |
| 3011 | N 33 32 24.55757 | W 79 03 01.10676 | -104.74 | PID QC |
| 3012 | N 34 15 31.28812 | W 79 02 06.40465 | -8.41 | PID QC |
| 3013 | N 34 13 24.13836 | W 79 07 14.48647 | -50.33 | PID QC |
| 3014 | N 34 07 16.33671 | W 79 03 07.28921 | -30.69 | PID QC |
| 3015 | N 34 06 03.76873 | W 79 06 13.33524 | -39.15 | PID QC |
| 3016 | N 34 03 39.89281 | W 79 08 51.56838 | -48.37 | PID QC |
| 3017 | N 33 59 55.51345 | W 79 12 11.52150 | -8.05 | PID QC |
| 3018 | N 33 57 11.33138 | W 79 13 22.25816 | -37.66 | PID QC |
| 3019 | N 33 50 19.00308 | W 79 13 22.46104 | -67.56 | PID QC |
| 3020 | N 33 45 25.72879 | W 79 11 07.10740 | -91.16 | PID QC |

# SECTION 3: PART 1 GEODETIC/GROUND CONTROL LOGS AND PHOTOS FOR HORRY CO SOUTH CAROLINA

This section contains the station recovery information sheets and photographs for the geodetic and ground control stations established for the project. The stations appear as they are ordered in the final coordinate listing of Section 2.

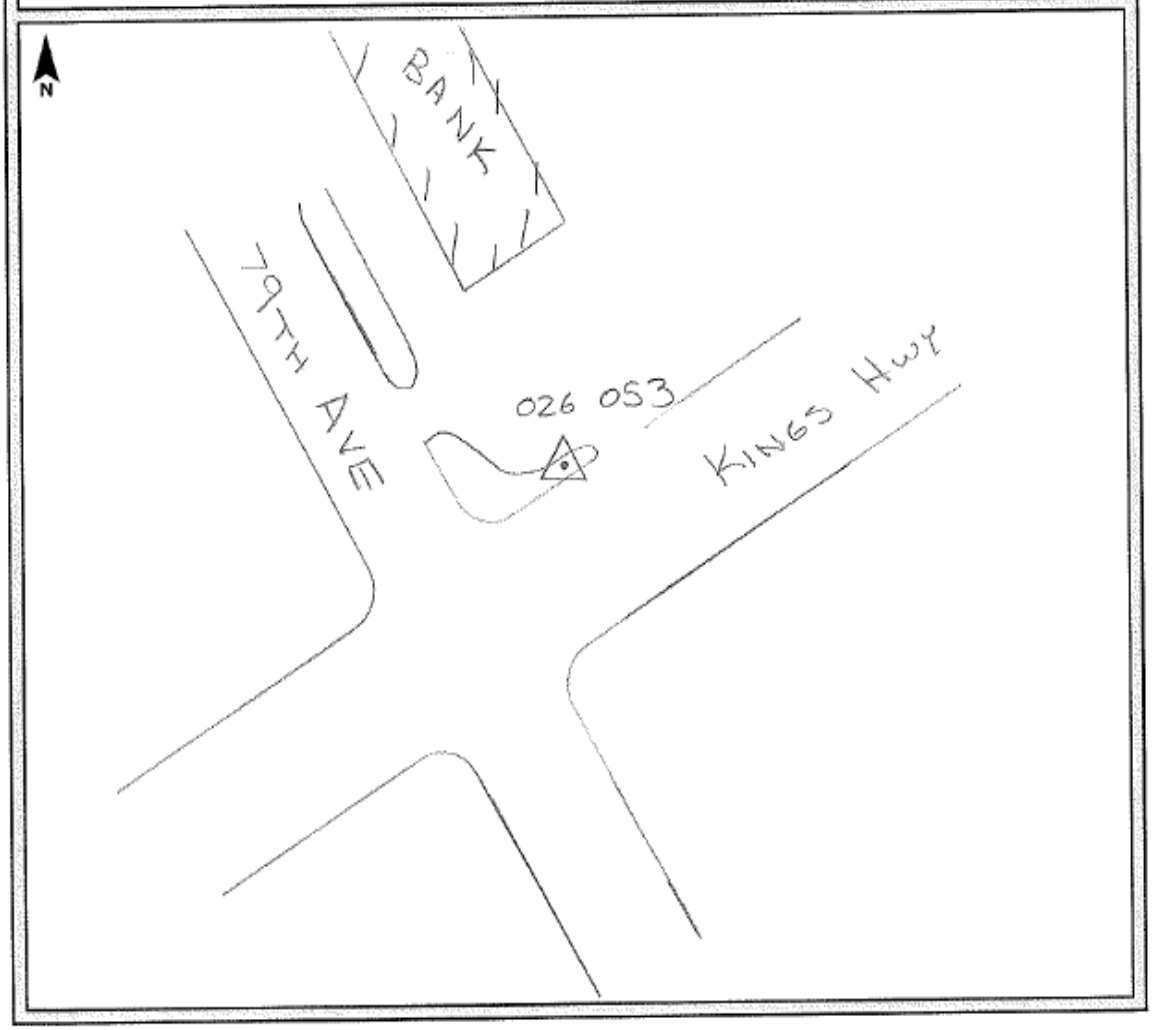
The data is assembled on the following pages.

# NGS CONTROL STATION: 026 053 (DD1672)

## GPS Observation Log Sheet

WOOLPERT

| | | | |
|---|---|---|---|
| Project Name: | Horry Co South Carolina | Project Number: 74038 | Survey Date: 3-19 |
| Station Name: | 026 053 | Operator Name: | R. Chaloupka |
| Latitude: | 33-44-57.8 | Julian Day: 78 | Session No. 2 |
| Longitude: | 78-48-57.8 | Start Time: 3:15 | End Time: 3:45 |
| Ellip. Height: | -26.3 m | Data File Name: | 3S430780.DAT |
| Type of Mark: | CONC MON W/ CAP | Type of Reciever: | 5800 |
| Stamping on Mark: | 026 053 1981 | Type of Antenna: | INTERNAL |
| Weather Condition: | 70°/PC | Antenna Height: 6.112 | to bottom of antenna mount |



# GPS Observation Log Sheet

WOOLPERT

| | | | | | |
|---|---|---|---|---|---|
| **Project Name:** | Horry Co South Carolina | **Project Number:** | 74038 | **Survey Date:** | 3/20/14 |
| **Station Name:** | 26 053 | **Operator Name:** | R. Chaloupka | | |
| **Latitude:** | 33° 44' 57.70374" N | **Julian Day:** | 79 | **Session No.** | 1 |
| **Longitude:** | 78° 49' 57.84033" W | **Start Time:** | 11:36 | **End Time:** | 12:16 |
| **Ellip. Height:** | -25.291' | **Data File Name:** | 77540791 | | |
| **Type of Mark:** | SURVEY DISK | **Type of Reciever:** | RB MODEL 3 | | |
| **Stamping on Mark:** | HORZ 026 053 1981 | **Type of Antenna:** | | | |
| **Weather Condition:** | SUNNY / CALM | **Antenna Height:** | 6.562 | to bottom of antenna mount | |

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See 3-19 SHEET

026 053-DD1672-1-19MAR2014


026 053-DD1672-2-19MAR2014


026 053-DD1672-3N-19MAR2014


026 053-DD1672-3E-19MAR2014

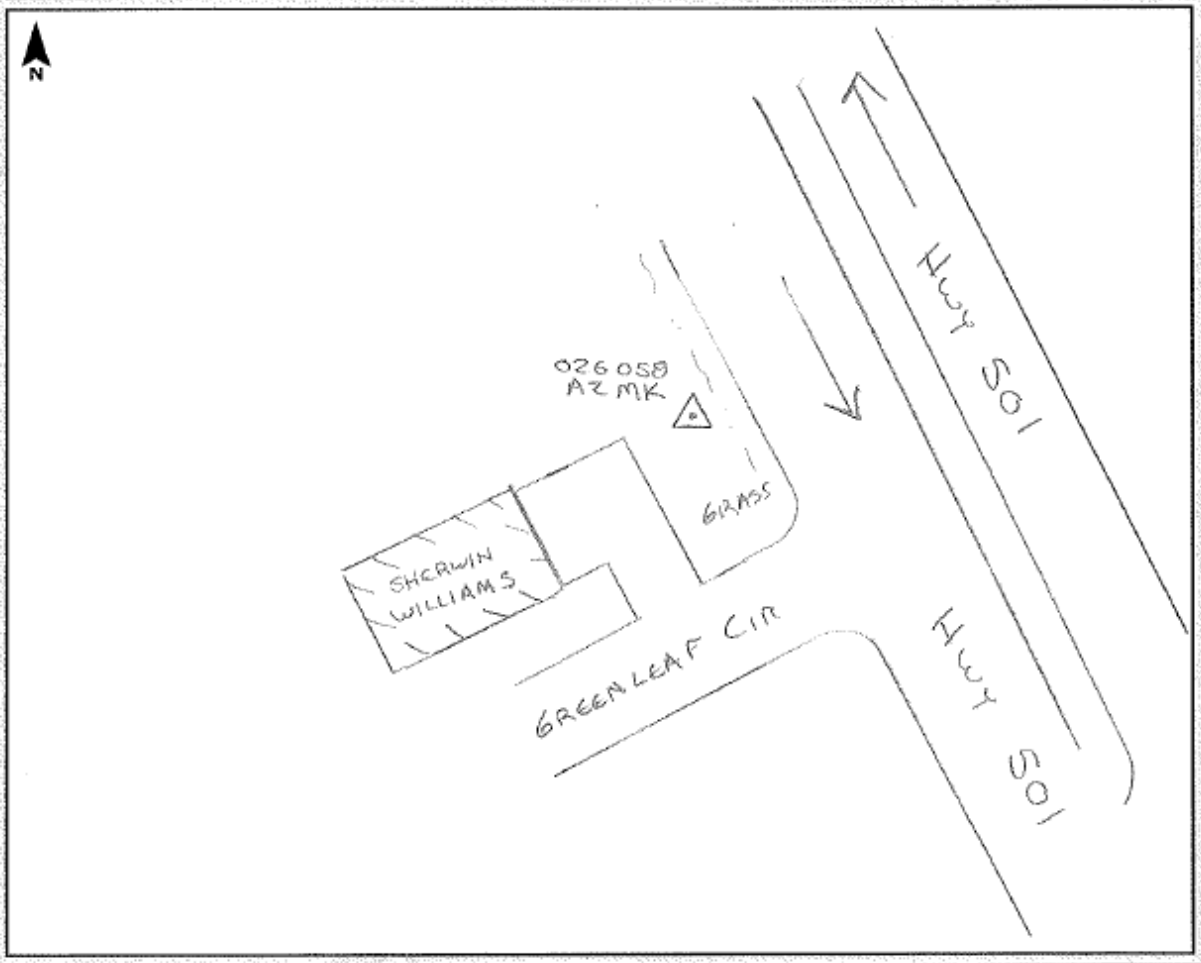
026 053-DD1672-3S-19MAR2014

# NGS CONTROL STATION: 026 058 AZ MK (DD1638)

## GPS Observation Log Sheet

WOOLPERT

| | | | | | |
|---|---|---|---|---|---|
| Project Name: | Horry Co South Carolina | Project Number: | 74038 | Survey Date: | 3-18-14 |
| Station Name: | 026 058 AZ MK | Operator Name: | R. Chaloupka | | |
| Latitude: | 33-44-51.4 | Julian Day: | 77 | Session No. | |
| Longitude: | 78-57-31.2 | Start Time: | 7:41 | End Time: | 5:59 |
| Ellip. Height: | -25.1 m | Data File Name: | 87340770.DAT | | |
| Type of Mark: | CONC MONU/CAP | Type of Reciever: | INTERNAL | | |
| Stamping on Mark: | AZ MK 026-058 1981 | Type of Antenna: | R812 | | |
| Weather Condition: | 60° / CLDY | Antenna Height: | 6.812 | to bottom of antenna mount | |



# GPS Observation Log Sheet

WOOLPERT

| | | | | | |
|---|---|---|---|---|---|
| **Project Name:** | Horry Co South Carolina | **Project Number:** | 74038 | **Survey Date:** | 3-19 |
| **Station Name:** | 026 058 A2 MK | **Operator Name:** | R. Chaloupka | | |
| **Latitude:** | 33-44-51.4 | **Julian Day:** | 78 | **Session No.** | 1 |
| **Longitude:** | 78-57-31.2 | **Start Time:** | 2:47 | **End Time:** | 5:37 |
| **Ellip. Height:** | -25.1m | **Data File Name:** | 04060780.DAT | | |
| **Type of Mark:** | CONCMON w/ CAP | **Type of Reciever:** | R8/Z | | |
| **Stamping on Mark:** | A2 MK 026-058 1987 | **Type of Antenna:** | INTERNAL | | |
| **Weather Condition:** | 65°/ PC | **Antenna Height:** | | to bottom of antenna mount | |

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SEE 3-18 SHEET

# GPS Observation Log Sheet

WOOLPERT

| | | | |
|---|---|---|---|
| **Project Name:** | Horry Co South Carolina | **Project Number:** 74038 | **Survey Date:** 3-20-14 |
| **Station Name:** | 026058 AZ MK | **Operator Name:** | R. Chaloupka |
| **Latitude:** | 33-44-51.4 | **Julian Day:** 79 | **Session No.** 1 |
| **Longitude:** | -78-57-31.2 | **Start Time:** 7:47 | **End Time:** 6:22 |
| **Ellip. Height:** | -29.1m | **Data File Name:** | 87340790.DAT |
| **Type of Mark:** | CONC MON W/ CAP | **Type of Reciever:** | R8 |
| **Stamping on Mark:** | AZ MK 026058 1981 | **Type of Antenna:** | INTERNAL |
| **Weather Condition:** | 70° / PC | **Antenna Height:** | 6.562ft to bottom of antenna mount |

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SEE 3-18 SHEET

# GPS Observation Log Sheet

WOOLPERT

| | | | | | |
|---|---|---|---|---|---|
| Project Name: | Horry Co South Carolina | Project Number: | 74038 | Survey Date: | 03-22-14 |
| Station Name: | 026 058 AZMK | Operator Name: | R. Chaloupka | | |
| Latitude: | 33-44-51.4 | Julian Day: | 81 | Session No. | [redacted]1 |
| Longitude: | 78-57-31.2 | Start Time: | 7:15 | End Time: | 10:16 |
| Ellip. Height: | -25.1m | Data File Name: | 77540810.DAT | | |
| Type of Mark: | Conc Mon w/ CAP | Type of Reciever: | R8/3 | | |
| Stamping on Mark: | AZMK 026 058 1981 | Type of Antenna: | INTERNAL | | |
| Weather Condition: | 70°/CLR | Antenna Height: | 6.812sft | to bottom of antenna mount | |

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SEE 3-18 SHEET

026 058 AZ MK-DD1638-1-18MAR2014

026 058 AZ MK-DD1638-2-18MAR2014

026 058 AZ MK-DD1638-3N-18MAR2014

026 058 AZ MK-DD1638-3E-18MAR2014

026 058 AZ MK-DD1638-3W-18MAR2014

# NGS CONTROL STATION: 026 089 (DD1902)

## GPS Observation Log Sheet

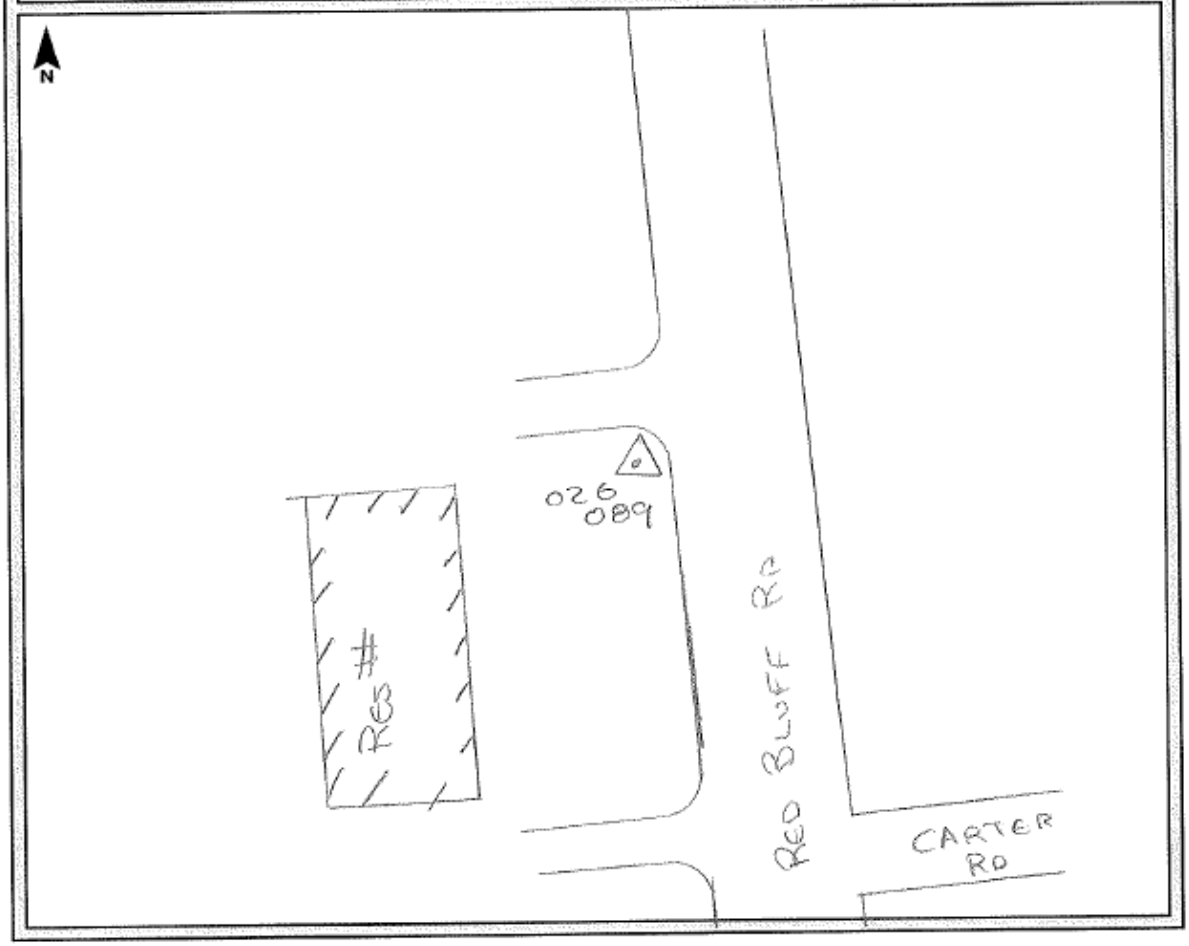
WOOLPERT

| | | | |
|---|---|---|---|
| Project Name: | Horry Co South Carolina | Project Number: | 74038 |
| Station Name: | 026 089 | Operator Name: | R. Chaloupka |
| Latitude: | 33-58-38.4 | Julian Day: | 78 |
| Longitude: | 78-51-20.2 | Start Time: | 7:46 |
| Ellip. Height: | -20.2m | Data File Name: | 87340780.DAT |
| Type of Mark: | CONC MON W/ CAP | Type of Reciever: | R8/2 |
| Stamping on Mark: | 026-089 1981 | Type of Antenna: | INTERNAL |
| Weather Condition: | 60° PC | Antenna Height: | 6.812 to bottom of antenna mount |

Survey Date: 3-19

Session No. 1

End Time: 4:58



# GPS Observation Log Sheet

WOOLPERT

| | | | |
|---|---|---|---|
| Project Name: | Horry Co South Carolina | Project Number: 74038 | Survey Date: 3-2014 |
| Station Name: | 026 089 | Operator Name: | R. Chaloupka |
| Latitude: | 33-58-38.4 | Julian Day: 79 | Session No. 1 |
| Longitude: | 78-51-20.2 | Start Time: 9:00 | End Time: 4:53 |
| Ellip. Height: | -20.2 m | Data File Name: | 04060790.DAT |
| Type of Mark: | CONC MONW \| CAP | Type of Reciever: | R8/2 |
| Stamping on Mark: | 026 089 1981 | Type of Antenna: | INTERNAL |
| Weather Condition: | 70°/PC | Antenna Height: | 6.812sft to bottom of antenna mount |

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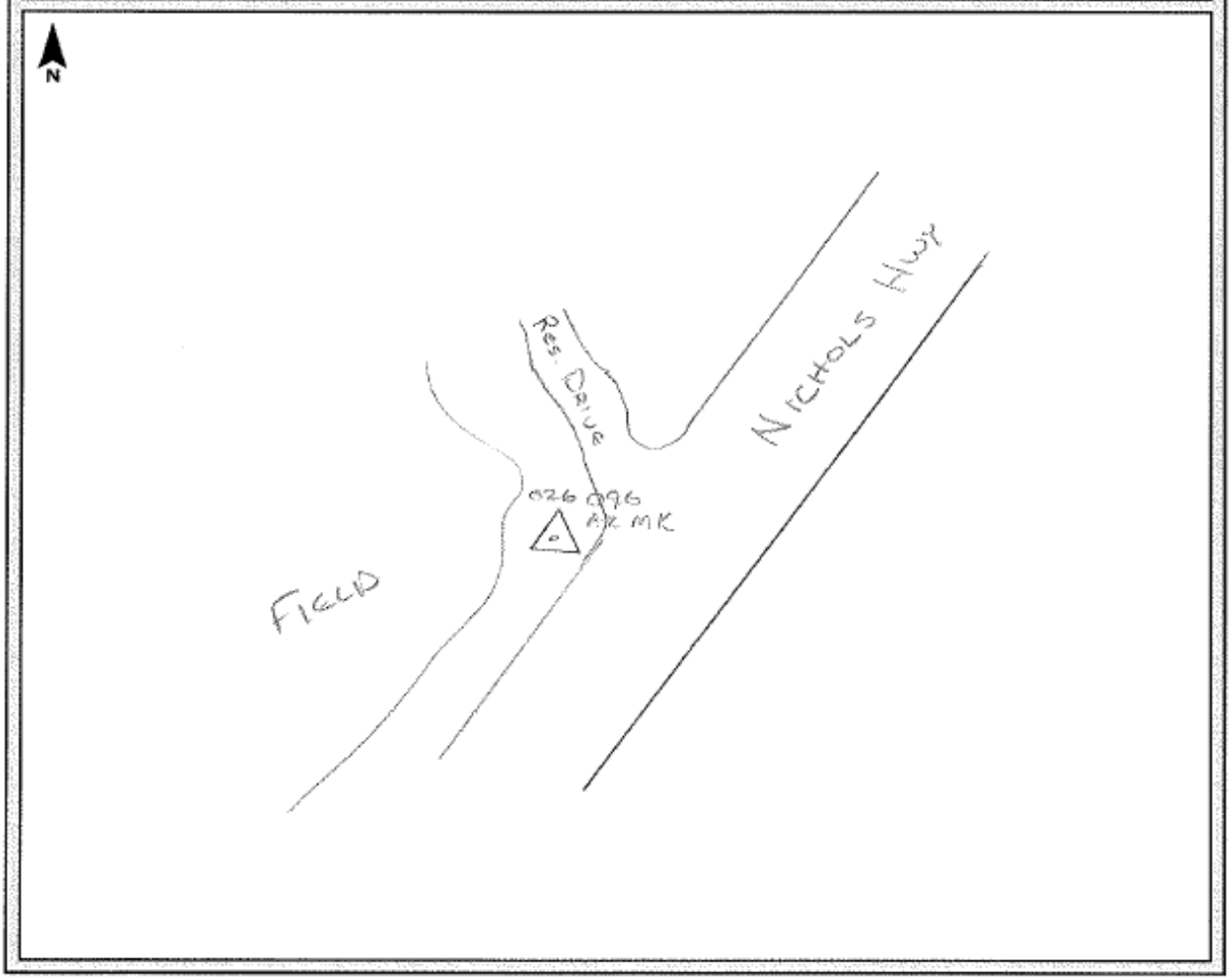
SEE 3-19 SHEET

# NGS CONTROL STATION: 026 096 AZ MK (EB1874)

## GPS Observation Log Sheet

WOOLPERT

| | | | | | |
|---|---|---|---|---|---|
| **Project Name:** | Horry Co South Carolina | **Project Number:** | 74038 | **Survey Date:** | 3/20/14 |
| **Station Name:** | 26 096 AZ MK | **Operator Name:** | R. Chaloupka | | |
| **Latitude:** | 34° 06' 32.09793" N | **Julian Day:** | 79 | **Session No.** | 3 |
| **Longitude:** | 79° 09' 27.64873" W | **Start Time:** | 2:55 | **End Time:** | 5:45 |
| **Ellip. Height:** | -11.296 | **Data File Name:** | 35430792.DAT | | |
| **Type of Mark:** | SURVEY DISK | **Type of Reciever:** | R8 MODEL 3 | | |
| **Stamping on Mark:** | AZ MK 026-096 1981 | **Type of Antenna:** | INTERNAL | | |
| **Weather Condition:** | SUNNY / CALM | **Antenna Height:** | 6.562 | to bottom of antenna mount | |



# GPS Observation Log Sheet

WOOLPERT

| | | | |
|---|---|---|---|
| Project Name: | Horry Co South Carolina | Project Number: 74038 | Survey Date: 3-21-14 |
| Station Name: | 026 096 AZ MK | Operator Name: | R. Chaloupka |
| Latitude: | 34-06-32.1 | Julian Day: 80 | Session No. 1 |
| Longitude: | 79-09-27.6 | Start Time: 7:31 | End Time: 4:11 |
| Ellip. Height: | -11.3m | Data File Name: | 77540800.DAT |
| Type of Mark: | CONC MON w/ DISK | Type of Reciever: | R8/3 |
| Stamping on Mark: | AZ MK 026-096 1981 | Type of Antenna: | INTERNAL |
| Weather Condition: | 70°/PC | Antenna Height: | 6.812 sft to bottom of antenna mount |

N

SEE 3-20 SHEET

026 096 AZ MK-EB1874-1-20MAR2014


026 096 AZ MK-EB1874-2-20MAR2014


026 096 AZ MK-EB1874-3N-20MAR2014


026 096 AZ MK-EB1874-3E-20MAR2014


026 096 AZ MK-EB1874-3S-20MAR2014

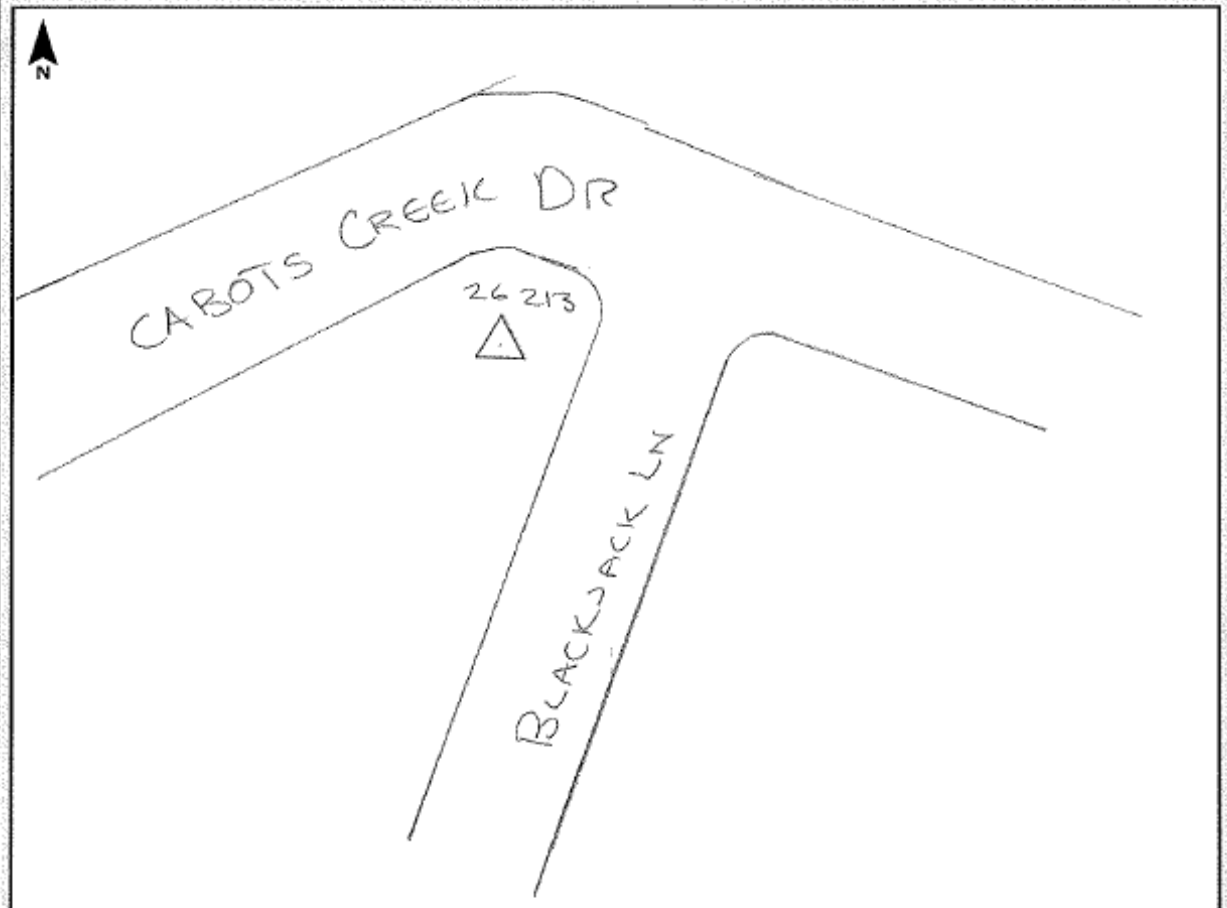

026 096 AZ MK-EB1874-3W-20MAR2014

# NGS CONTROL STATION: 26 213 (DD1648)

## GPS Observation Log Sheet

WOOLPERT

| | | | | | |
|---|---|---|---|---|---|
| **Project Name:** | Horry Co South Carolina | **Project Number:** | 74038 | **Survey Date:** | 3/20/14 |
| **Station Name:** | 26 213 | **Operator Name:** | R. Chaloupka | | |
| **Latitude:** | 33° 44' 20.69905" N | **Julian Day:** | 79 | **Session No.** | 0 |
| **Longitude:** | 79° 01' 28.66584" W | **Start Time:** | 10:14 | **End Time:** | 10:46 |
| **Ellip. Height:** | -28.595 | **Data File Name:** | 77541079O | | |
| **Type of Mark:** | SURVEY DISK | **Type of Reciever:** | R8 MODEL 3 | | |
| **Stamping on Mark:** | VERT 26 213 1986 | **Type of Antenna:** | INTERNAL | | |
| **Weather Condition:** | SUNNY / CALM | **Antenna Height:** | 6.562 | to bottom of antenna mount | |



26 213-DD1648-1-20MAR2014


26 213-DD1648-2-20MAR2014


26 213-DD1648-3N-20MAR2014


26 213-DD1648-3E-20MAR2014


26 213-DD1648-3S-20MAR2014


26 213-DD1648-3W-20MAR2014

# NGS CONTROL STATION: 26 262 (DN1886)

## GPS Observation Log Sheet

WOOLPERT

| | | | | | |
|---|---|---|---|---|---|
| **Project Name:** | Horry Co South Carolina | **Project Number:** | 74038 | **Survey Date:** | 3/20/14 |
| **Station Name:** | 26 262 | **Operator Name:** | R. Chaloupka | | |
| **Latitude:** | 33° 54' 02.90873" | **Julian Day:** | 79 | **Session No.** | 3 |
| **Longitude:** | 78° 52' 48.87233" | **Start Time:** | 1:19 | **End Time:** | 2:00 |
| **Ellip. Height:** | -20.767 | **Data File Name:** | 77540793 | | |
| **Type of Mark:** | SURVEY DISK | **Type of Reciever:** | R8 MODEL 3 | | |
| **Stamping on Mark:** | VERT 26 262 1986 | **Type of Antenna:** | INTERNAL | | |
| **Weather Condition:** | SUNNY / CALM | **Antenna Height:** | 6.562 | to bottom of antenna mount | |

26 262-DD1886-1-19MAR2014

26 262-DD1886-2-19MAR2014

26 262-DD1886-3N-19MAR2014

26 262-DD1886-3E-19MAR2014

26 262-DD1886-3S-19MAR2014

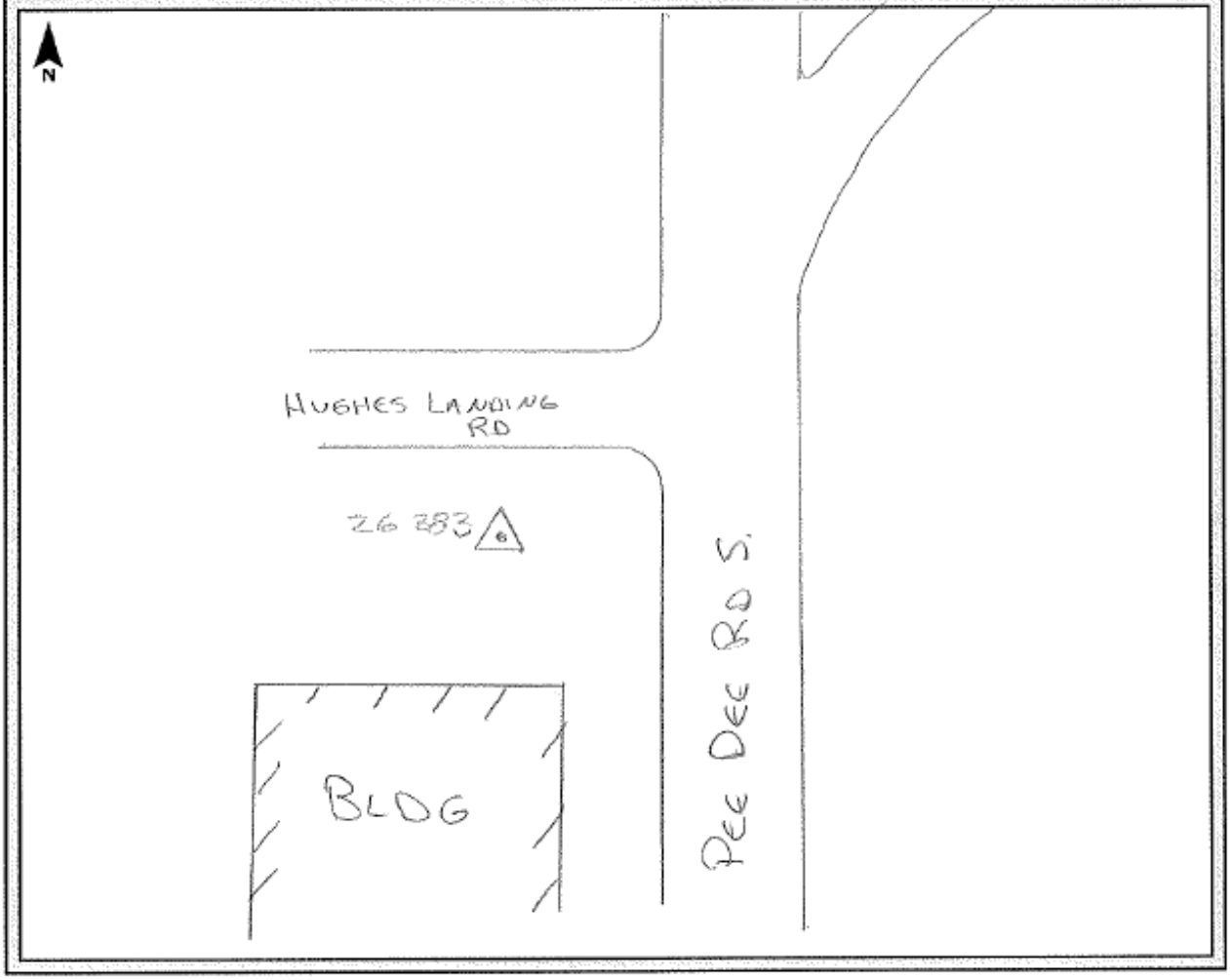
26 262-DD1886-3W-19MAR2014

# NGS CONTROL STATION: 26 383 (DD2332)

## GPS Observation Log Sheet

WOOLPERT

| | | | |
|---|---|---|---|
| Project Name: | Horry Co South Carolina | Project Number: 74038 | Survey Date: 3-20-14 |
| Station Name: | 26 383 | Operator Name: | R. Chaloupka |
| Latitude: | 33-53-55.2 | Julian Day: 79 | Session No. 1 |
| Longitude: | 79-14-14.7 | Start Time: 4:45 | End Time: 5:41 |
| Ellip. Height: | -26.1 m | Data File Name: | 77740791.DAT |
| Type of Mark: | CONC MON w/ CAP | Type of Reciever: | R8/3 |
| Stamping on Mark: | VERT 26 383 1987 | Type of Antenna: | INTERNAL |
| Weather Condition: | 70°/PC | Antenna Height: 6.112 ft | to bottom of antenna mount |



26 383-DD2332-1-20MAR2014

26 383-DD2332-2-20MAR2014

26 383-DD2332-3N-20MAR2014

26 383-DD2332-3E-20MAR2014

26 383-DD2332-3S-20MAR2014

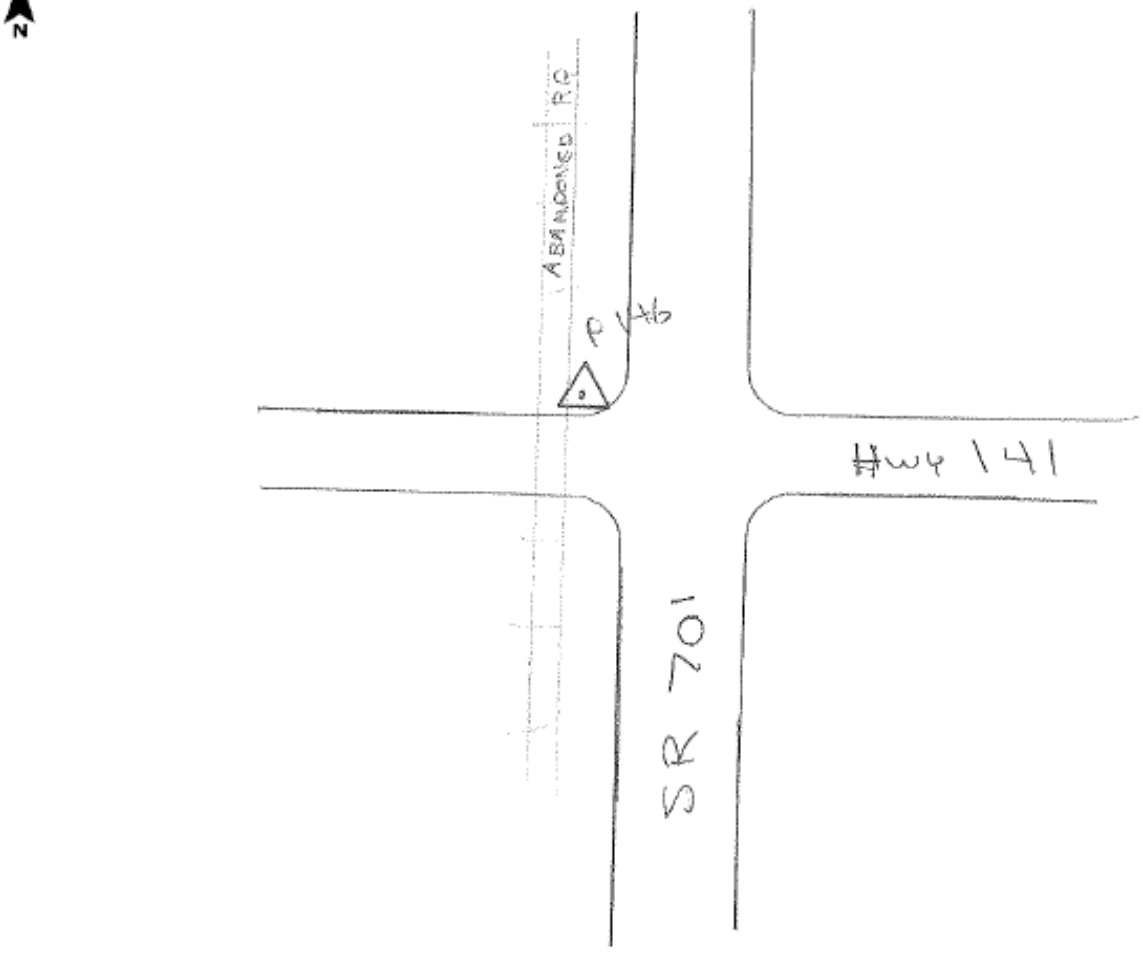
26 383-DD2332-3W-20MAR2014

# NGS CONTROL STATION: P 146 (EB1292)

## GPS Observation Log Sheet

WOOLPERT

| | | | | | |
|---|---|---|---|---|---|
| Project Name: | Horry Co South Carolina | Project Number: | 74038 | Survey Date: | 3/20/14 |
| Station Name: | P-146 | Operator Name: | R. Chaloupka | | |
| Latitude: | 34° 07' 00.64213" N | Julian Day: | 79 | Session No. | 4 |
| Longitude: | 78° 52' 32.98166" W | Start Time: | 3:30 | End Time: | |
| Ellip. Height: | -4.664 | Data File Name: | 77540794 | | |
| Type of Mark: | VERTICAL CONTROL DISK | Type of Reciever: | R8 MODEL 3 | | |
| Stamping on Mark: | P 146 1979 | Type of Antenna: | INTERNAL | | |
| Weather Condition: | SUNNY / CALM | Antenna Height: | 6.562 | to bottom of antenna mount | |




P 146-EB1292-1-20MAR2014

P 146-EB1292-2-20MAR2014

P 146-EB1292-3N-20MAR2014


P 146-EB1292-3E-20MAR2014


P 146-EB1292-3S-20MAR2014

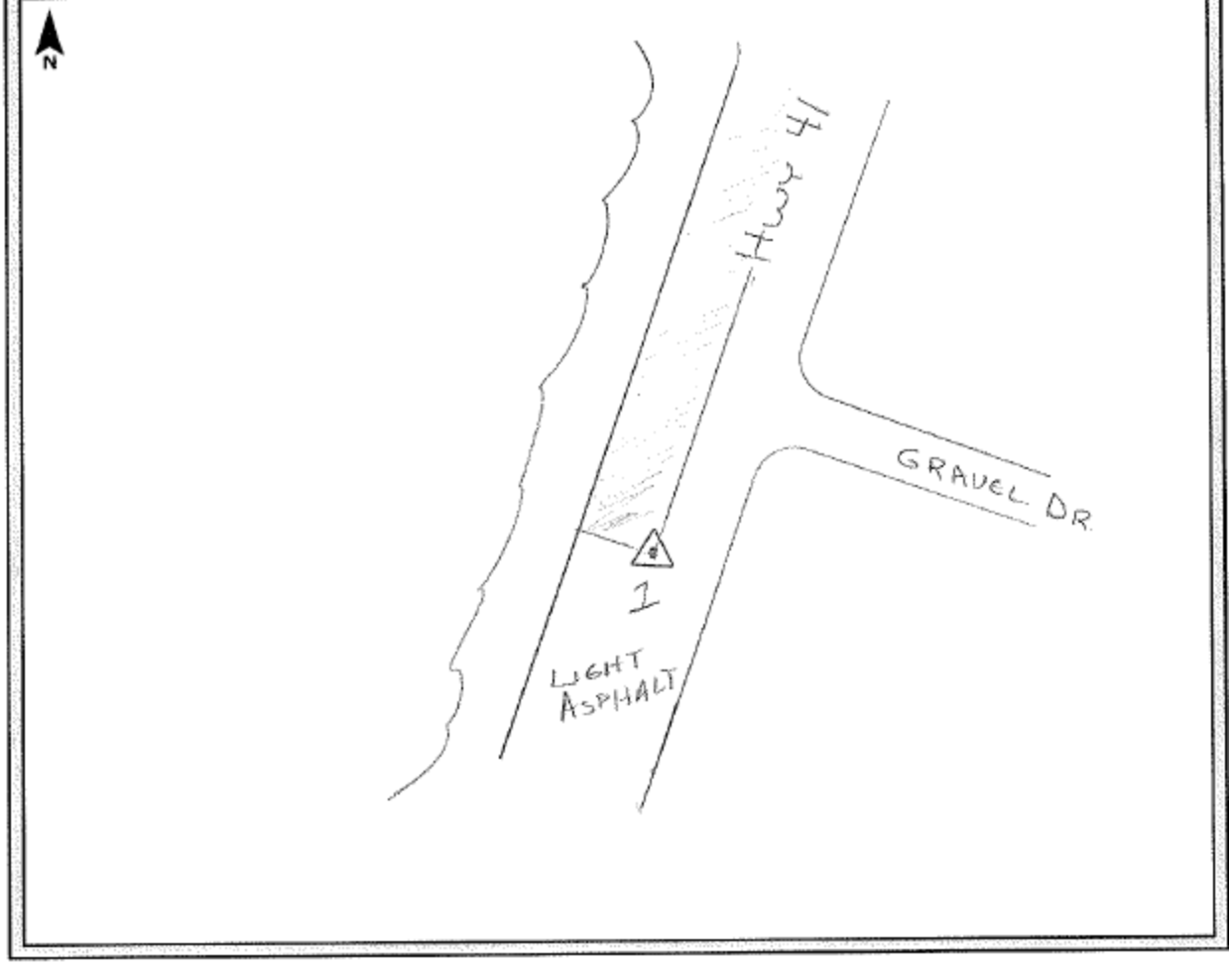

P 146-EB1292-3W-20MAR2014

# GROUND CONTROL – 1

## GPS Observation Log Sheet

WOOLPERT

| | | | |
|---|---|---|---|
| Project Name: | Horry Co South Carolina | Project Number: | 74038 |
| Survey Date: | 3-21-14 | | |
| Station Name: | 1 PID | Operator Name: | R. Chaloupka |
| Latitude: | N 33-59-50.8 | Julian Day: | 80 |
| Session No. | | | |
| Longitude: | W 79-20-39.2 | Start Time: | 12:58 |
| End Time: | 1:01 | | |
| Ellip. Height: | -73.9 ft | Data File Name: | HORRY 0321 |
| Type of Mark: | PK-SE COR DARK PVMT | Type of Reciever: | R8-3 |
| Stamping on Mark: | NA | Type of Antenna: | INTERNAL |
| Weather Condition: | 65°/PC | Antenna Height: | 6.112 ft to bottom of antenna mount |



1-1-21MAR2014

1-2-21MAR2014

1-3N-21MAR2014

1-3E-21MAR2014

# GROUND CONTROL –2

## GPS Observation Log Sheet

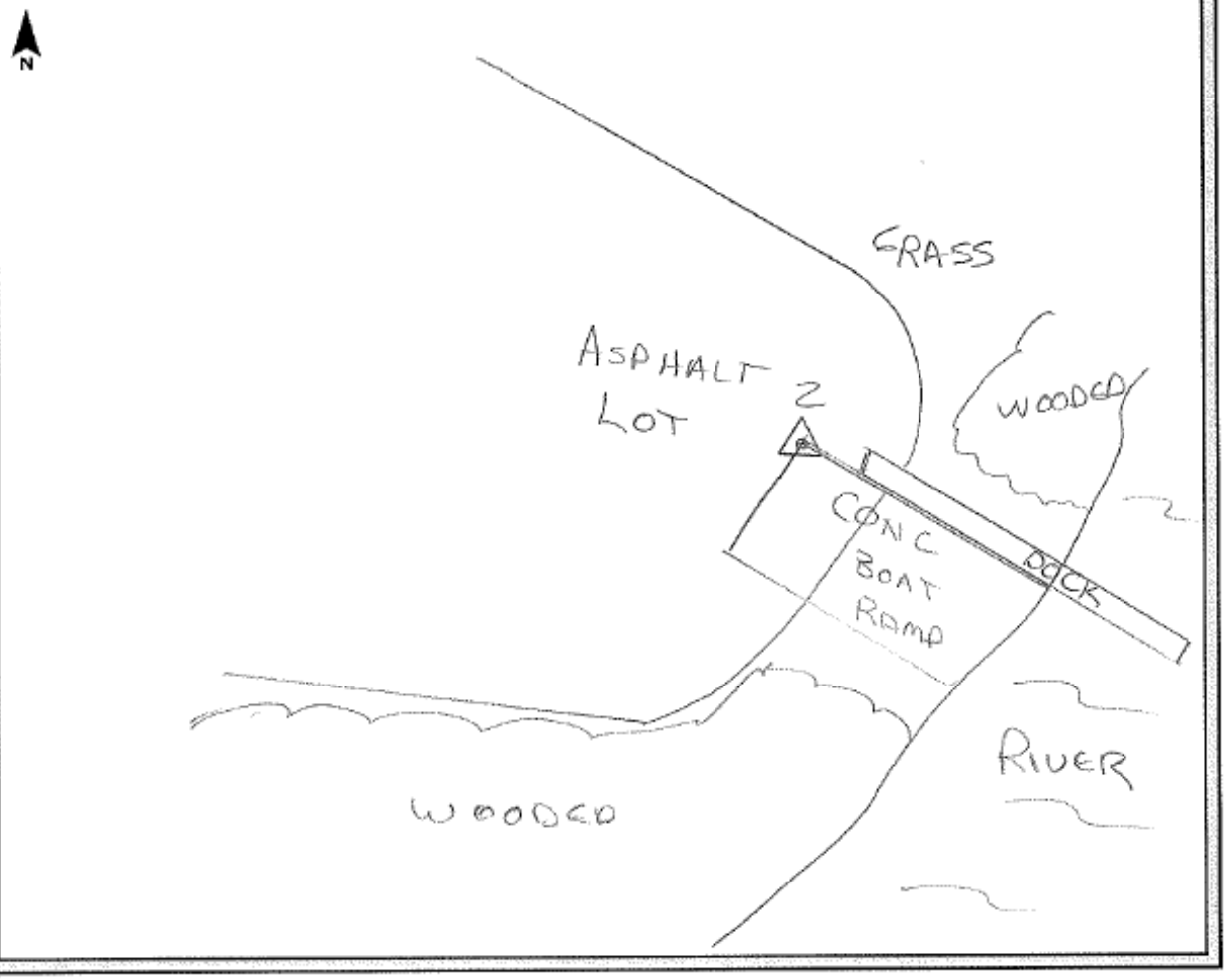
WOOLPERT

| | | | |
|---|---|---|---|
| Project Name: | Horry Co South Carolina | Project Number: | 74038 |
| Station Name: | 2 PID | Operator Name: | R. Chaloupka |
| Latitude: | N 34-03-24.8 | Julian Day: | 80 |
| Longitude: | W 79-14-54.7 | Start Time: | 12:34 |
| Ellip. Height: | -72.4 ft | Data File Name: | HORRY 0321 |
| Type of Mark: | PK-NE COR CONC | Type of Reciever: | R8-3 |
| Stamping on Mark: | NA | Type of Antenna: | INTERNAL |
| Weather Condition: | 70°/ PC | Antenna Height: | 6.112 ft to bottom of antenna mount |

Survey Date: 3-21-14

Session No.

End Time: 12:37



2-1-21MAR2014

2-2-21MAR2014

2-3N-21MAR2014

2-3E-21MAR2014

2-3S-21MAR2014

2-3W-21MAR2014

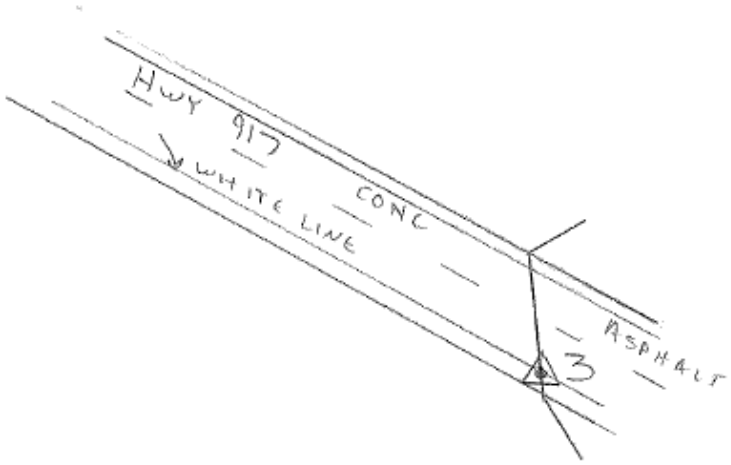
# GROUND CONTROL – 3

## GPS Observation Log Sheet

WOOLPERT

| | | | |
|---|---|---|---|
| Project Name: | Horry Co South Carolina | Project Number: | 74038 |
| Survey Date: | 3-21-14 | | |
| Station Name: | 3 PID | Operator Name: | R. Chaloupka |
| Latitude: | N 34-08-40.5 | Julian Day: | 80 |
| Session No. | | | |
| Longitude: | W 79-12-22.3 | Start Time: | 12:06 |
| End Time: | 12:09 | | |
| Ellip. Height: | -53.2 ft | Data File Name: | HORRY 0321 |
| Type of Mark: | PT MK - WHITE STRIPE @ END OF BRIDGE | Type of Reciever: | R8-3 |
| Stamping on Mark: | | Type of Antenna: | INTERNAL |
| Weather Condition: | 70°/PC | Antenna Height: | 6.112 ft to bottom of antenna mount |

N



3-1-21MAR2014

3-2-21MAR2014

3-3N-21MAR2014

3-3E-21MAR2014

3-3S-21MAR2014

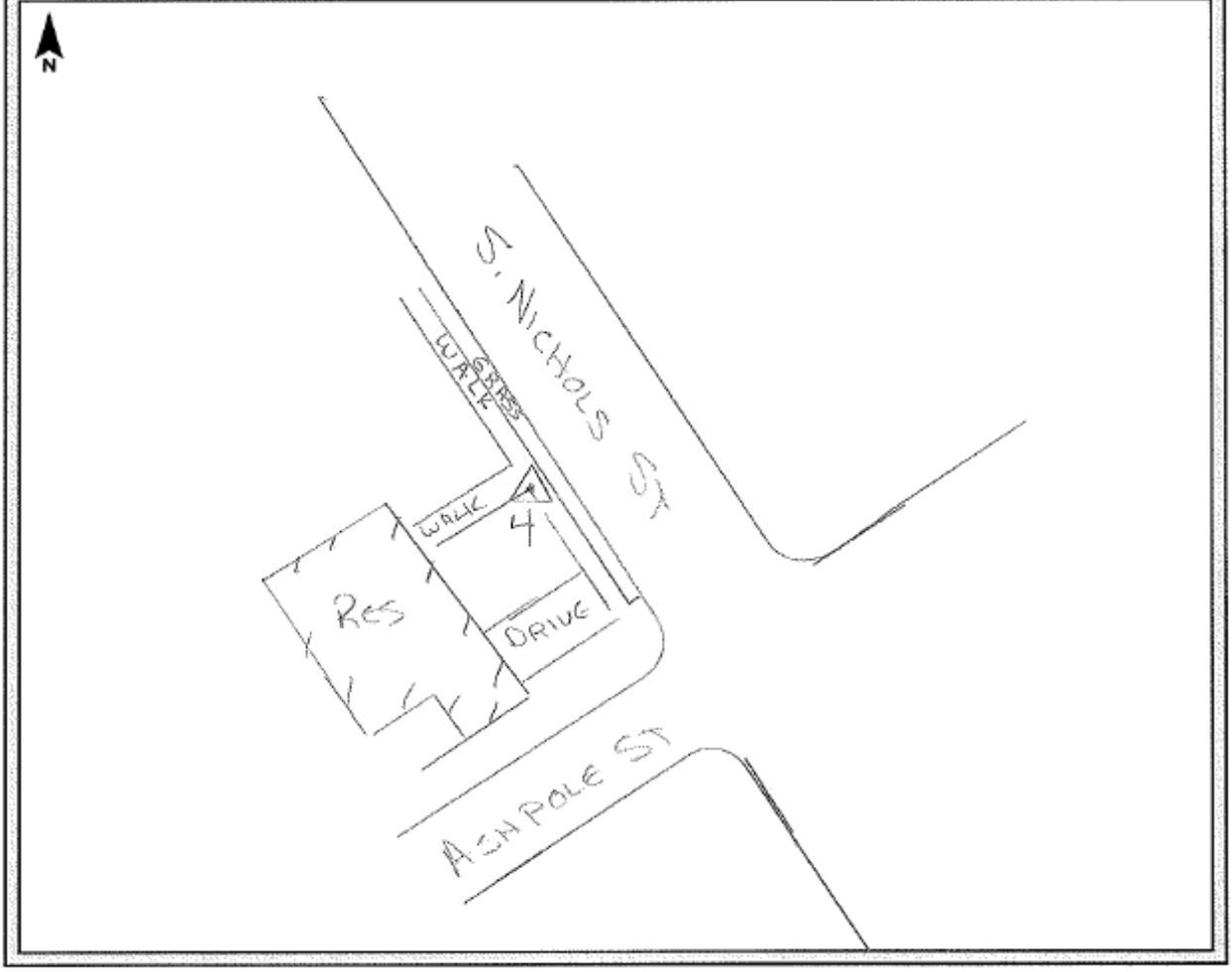
3-3W-21MAR2014

# GROUND CONTROL – 4

## GPS Observation Log Sheet

WOOLPERT

| | | | | | |
|---|---|---|---|---|---|
| Project Name: | Horry Co South Carolina | Project Number: | 74038 | Survey Date: | 3-21-14 |
| Station Name: | 4 PID | Operator Name: | R. Chaloupka | | |
| Latitude: | N 34-13-53.8 | Julian Day: | 80 | Session No. | |
| Longitude: | W 79-08-45.0 | Start Time: | 11:39 | End Time: | 11:42 |
| Ellip. Height: | -57.2 ft | Data File Name: | HORRY 0321 | | |
| Type of Mark: | PK- S. EDGE OF WALK @ W. EDGE OF WALK | Type of Reciever: | R8-3 | | |
| Stamping on Mark: | NA | Type of Antenna: | INTERNAL | | |
| Weather Condition: | 70° / CLR | Antenna Height: | 6.112 ft | to bottom of antenna mount | |



4-1-21MAR2014

4-2-21MAR2014

4-3N-21MAR2014

4-3E-21MAR2014

4-3S-21MAR2014

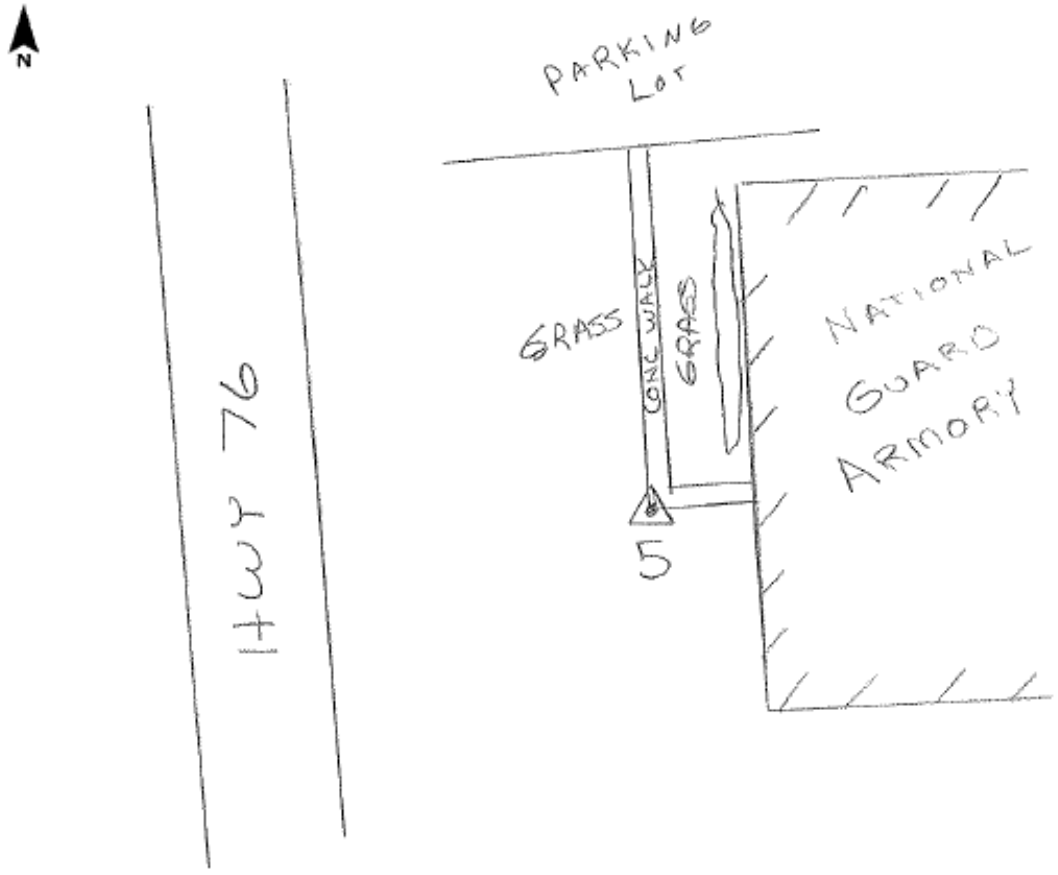
4-3W-21MAR2014

# GROUND CONTROL – 5

## GPS Observation Log Sheet

WOOLPERT

| | | | |
|---|---|---|---|
| Project Name: | Horry Co South Carolina | Project Number: 74038 | Survey Date: 3-21-14 |
| Station Name: | 5 PID | Operator Name: | R. Chaloupka |
| Latitude: | N 34-18-02.4 | Julian Day: 80 | Session No. |
| Longitude: | W 79-02-30.9 | Start Time: 10:27 | End Time: 10:30 |
| Ellip. Height: | -39.4 ft | Data File Name: | HORRY 0321 |
| Type of Mark: | PK SW CORNER CONC WALK | Type of Reciever: | R8-3 |
| Stamping on Mark: | NA | Type of Antenna: | INTERNAL |
| Weather Condition: | 70° / CLR | Antenna Height: 6.112 ft | to bottom of antenna mount |



5-1-21MAR2014

5-2-21MAR2014

5-3N-21MAR2014


5-3E-21MAR2014

5-3S-21MAR2014

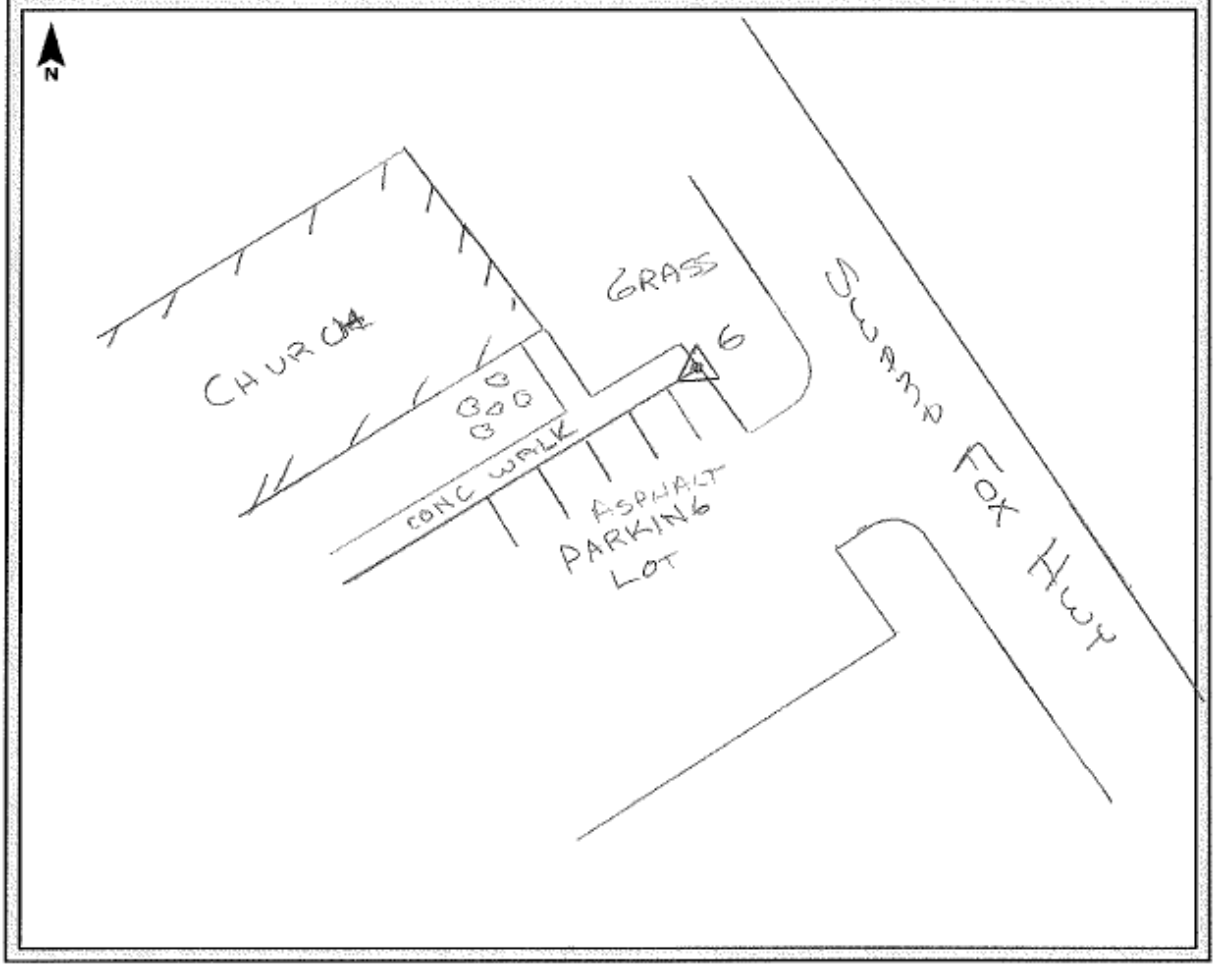
5-3W-21MAR2014

# GROUND CONTROL – 6

## GPS Observation Log Sheet

WOOLPERT

| | | | |
|---|---|---|---|
| Project Name: | Horry Co South Carolina | Project Number: 74038 | Survey Date: 3-21-14 |
| Station Name: | 6 PID | Operator Name: | R. Chaloupka |
| Latitude: | N 34-14-25.1 | Julian Day: 80 | Session No. |
| Longitude: | W 78-58-00.9 | Start Time: 10:03 | End Time: 10:06 |
| Ellip. Height: | -20.1 ft | Data File Name: | HORRY 0321 |
| Type of Mark: | PK - SE CORNER CONC WALK | Type of Reciever: | R8-3 |
| Stamping on Mark: | NA | Type of Antenna: | INTERNAL |
| Weather Condition: | 70° / CLR | Antenna Height: 6.112 ft | to bottom of antenna mount |



6-1-21MAR2014

6-2-21MAR2014

6-3N-21MAR2014

6-3E-21MAR2014

6-3S-21MAR2014

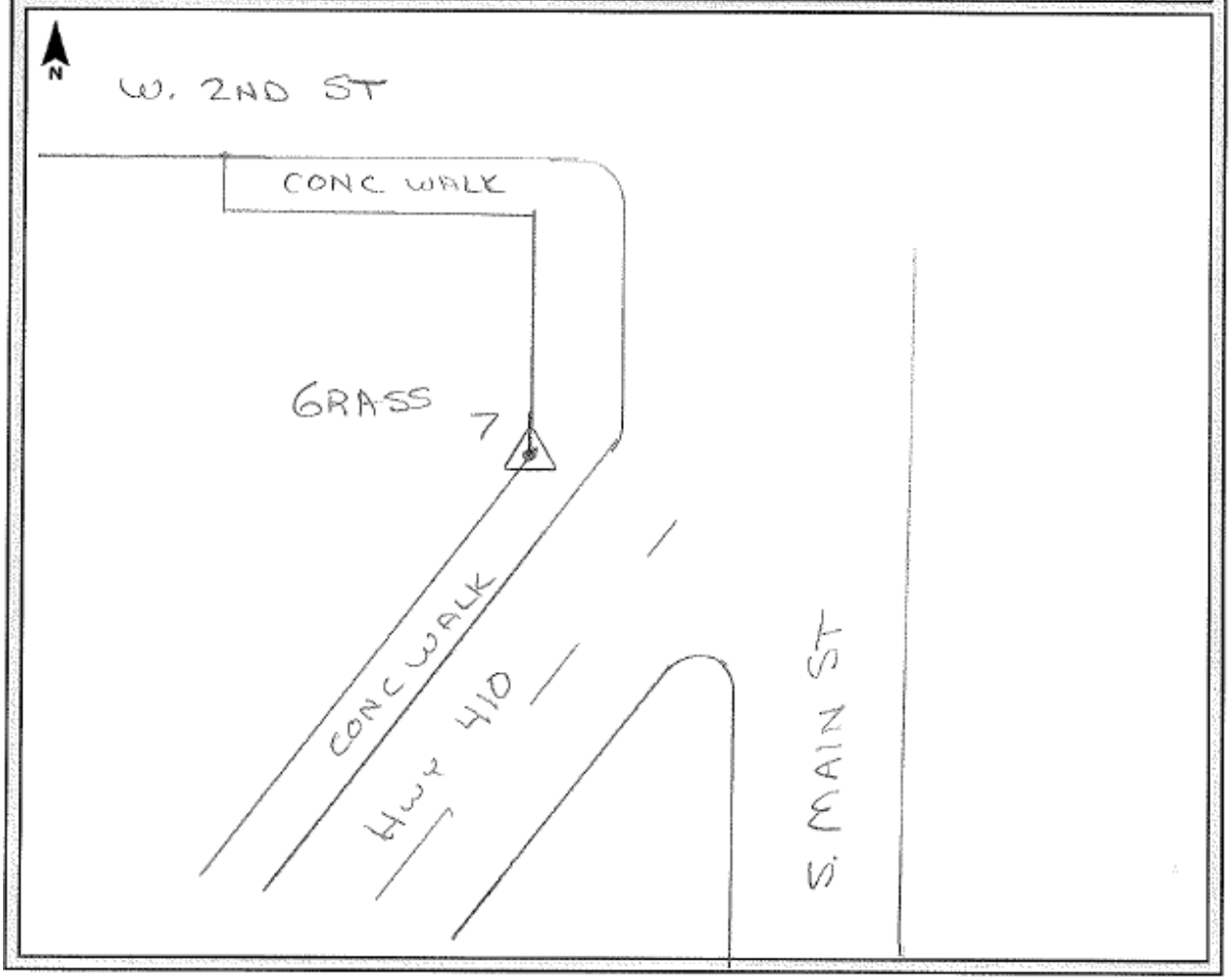
6-3W-21MAR2014

# GROUND CONTROL – 7

## GPS Observation Log Sheet

WOOLPERT

| | | | |
|---|---|---|---|
| **Project Name:** | Horry Co South Carolina | **Project Number:** 74038 | **Survey Date:** 3-20-14 |
| **Station Name:** | 7 PID | **Operator Name:** | R. Chaloupka |
| **Latitude:** | N 34-08-47.8 | **Julian Day:** 79 | **Session No.** |
| **Longitude:** | W 78-52-37.0 | **Start Time:** 12:08 | **End Time:** 12:11 |
| **Ellip. Height:** | -10.9 ft | **Data File Name:** | HORRY 0320 |
| **Type of Mark:** | PK - W. EDGE OF WALK @ SW EDGE WALK | **Type of Reciever:** | R8-2 |
| **Stamping on Mark:** | NA | **Type of Antenna:** | INTERNAL |
| **Weather Condition:** | 70°/PC | **Antenna Height:** 6.112 ft | to bottom of antenna mount |



7-1-20MAR2014

7-2-20MAR2014

7-3N-20MAR2014

7-3E-20MAR2014

7-3S-20MAR2014

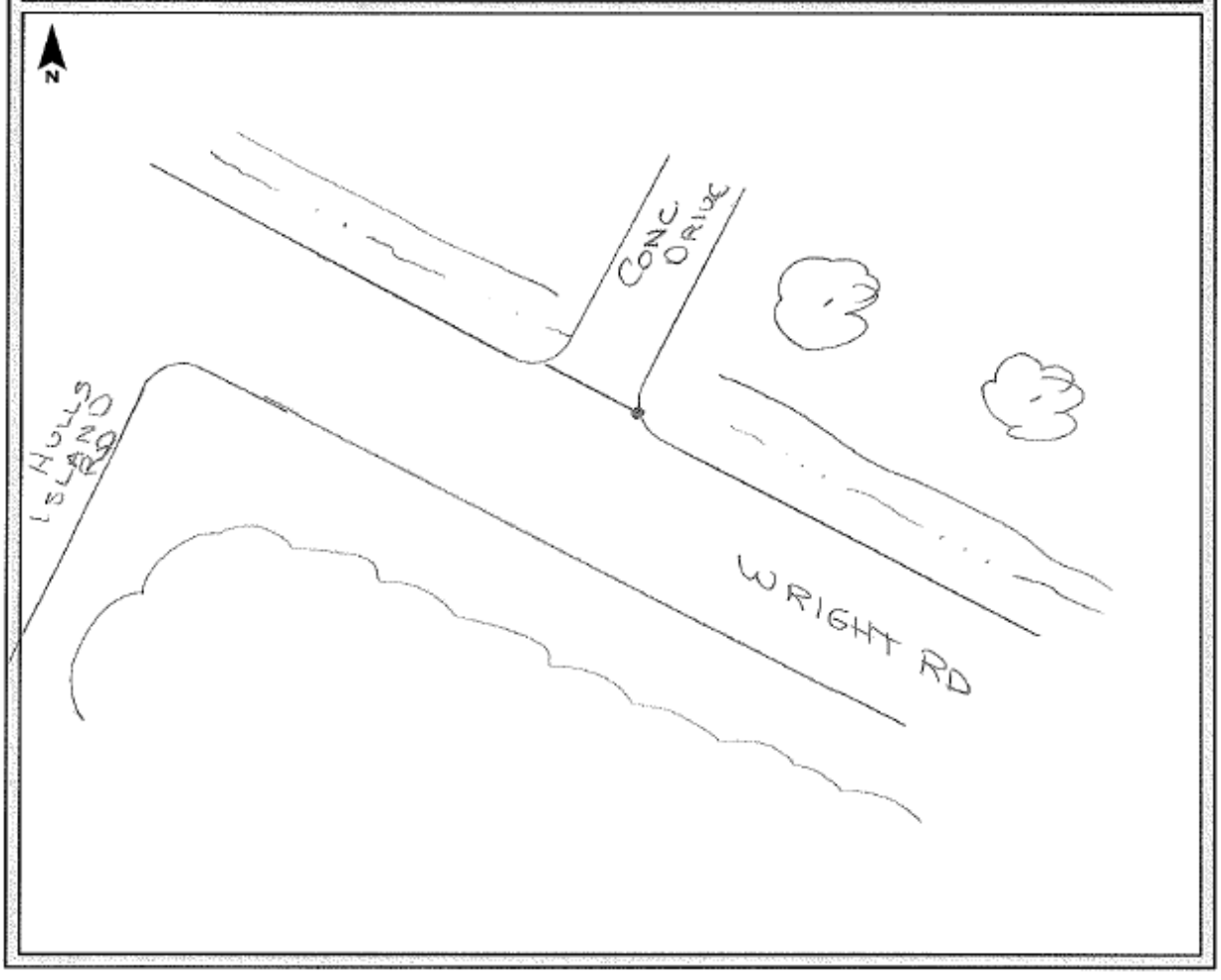
7-3W-20MAR2014

# GROUND CONTROL – 8

## GPS Observation Log Sheet

WOOLPERT

| | | | | | |
|---|---|---|---|---|---|
| Project Name: | Horry Co South Carolina | Project Number: | 74038 | Survey Date: | 3-20-14 |
| Station Name: | 8 P10 | Operator Name: | R. Chaloupka | | |
| Latitude: | N 34-03-11.3 | Julian Day: | 79 | Session No. | |
| Longitude: | W 78-46-37.4 | Start Time: | 11:04 | End Time: | 11:07 |
| Ellip. Height: | -37.6 ft | Data File Name: | HORRY 0320 | | |
| Type of Mark: | PK- SE COR CONC DRIVE | Type of Reciever: | R8-2 | | |
| Stamping on Mark: | NA | Type of Antenna: | INTERNAL | | |
| Weather Condition: | 70° / CLR | Antenna Height: | 6.112 ft | to bottom of antenna mount | |



8-1-20MAR2014

8-2-20MAR2014

8-3N-20MAR2014

8-3E-20MAR2014

8-3S-20MAR2014

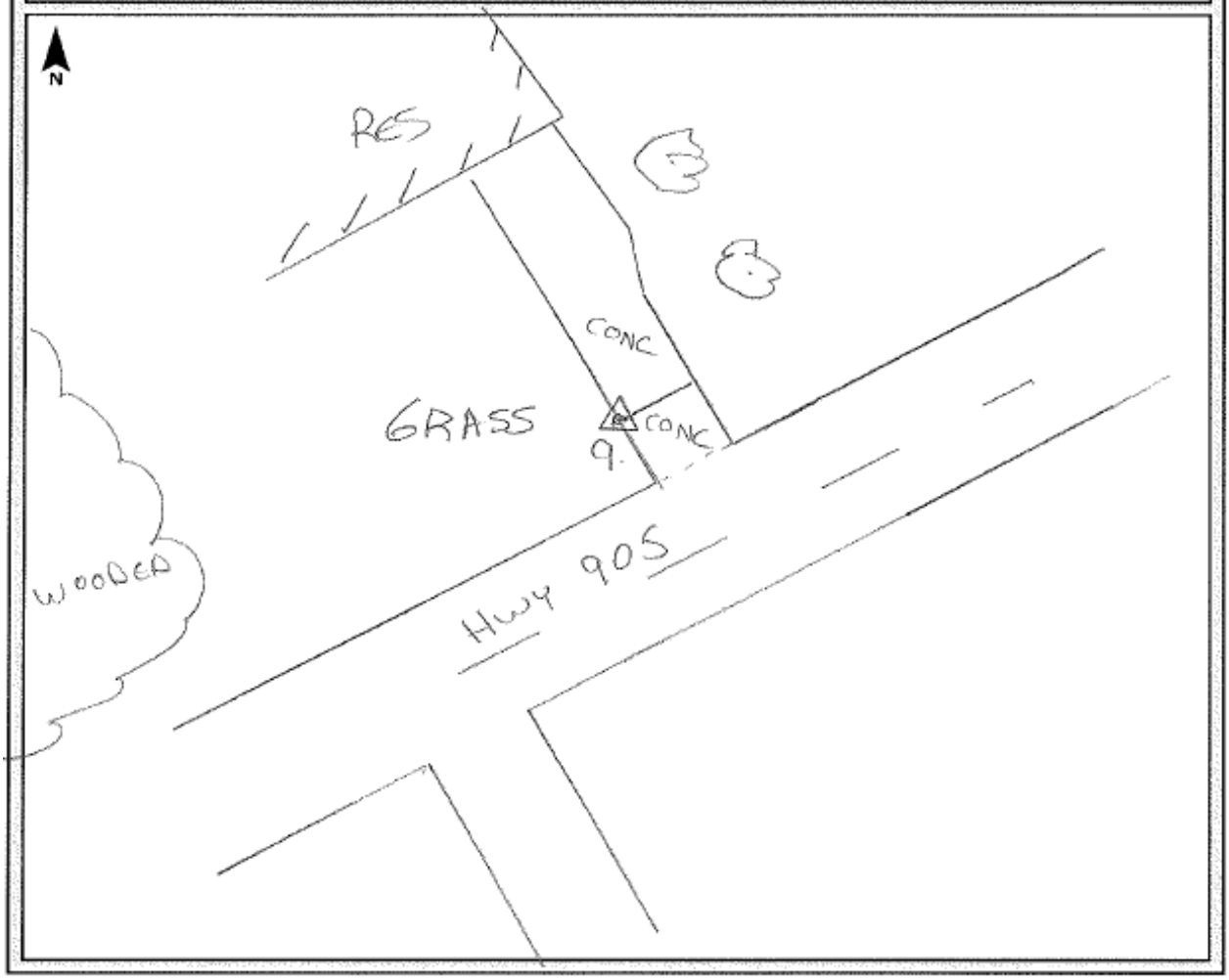
8-3W-20MAR2014

# GROUND CONTROL – 9

## GPS Observation Log Sheet

WOOLPERT

| | | | |
|---|---|---|---|
| Project Name: | Horry Co South Carolina | Project Number: 74038 | Survey Date: 3-20-14 |
| Station Name: | 9 PID | Operator Name: | R. Chaloupka |
| Latitude: | N 33-58-11.4 | Julian Day: 79 | Session No. |
| Longitude: | W 78-46-27.9 | Start Time: 10:22 | End Time: 10:25 |
| Ellip. Height: | -79.7 ft | Data File Name: | HORRY 0320 |
| Type of Mark: | PK - S. EDGE DRIVE @ CHNG. PVMT | Type of Reciever: | R8-2 |
| Stamping on Mark: | NA | Type of Antenna: | INTERNAL |
| Weather Condition: | 65° / PC | Antenna Height: | 6.112 ft to bottom of antenna mount |



9-1-20MAR2014

9-2-20MAR2014

9-3N-20MAR2014

9-3E-20MAR2014

9-3S-20MAR2014

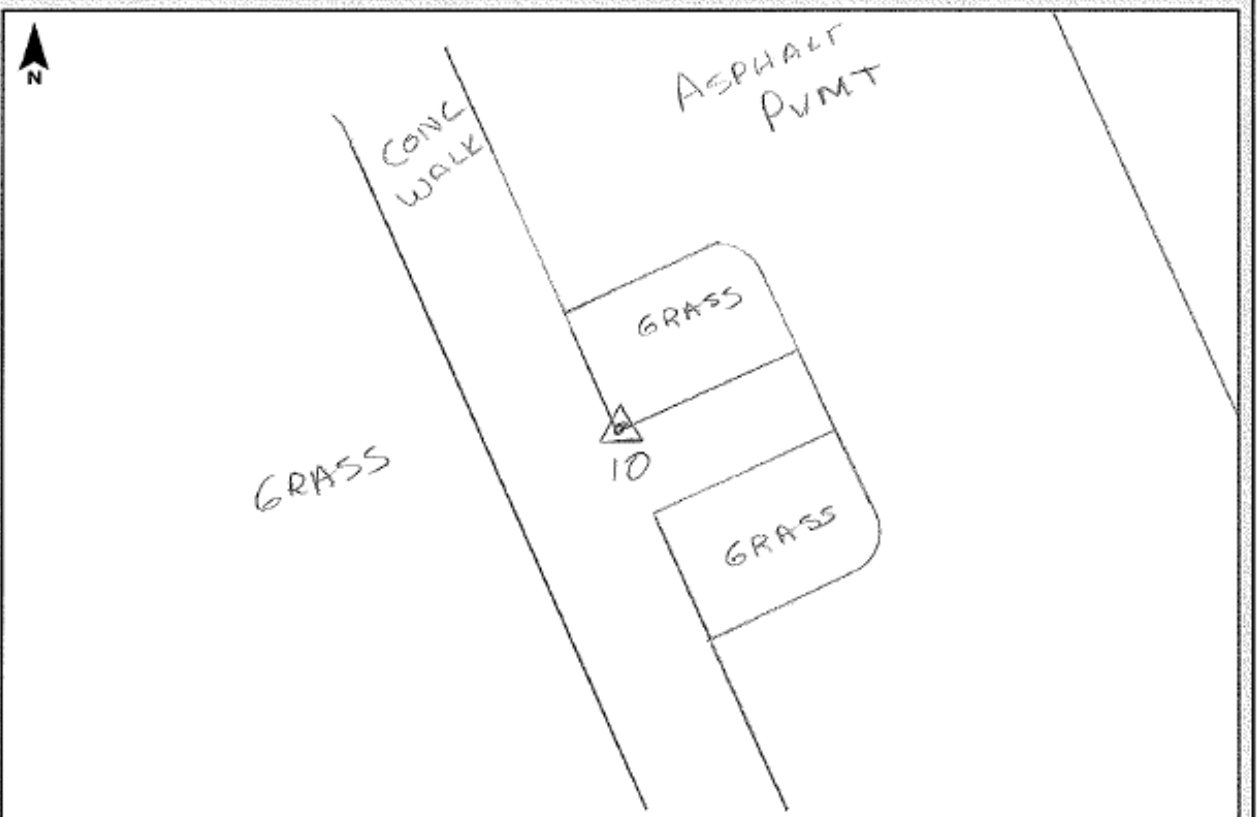
9-3W-20MAR2014

# GROUND CONTROL – 10

## GPS Observation Log Sheet

WOOLPERT

| | | | | | |
|---|---|---|---|---|---|
| **Project Name:** | Horry Co South Carolina | **Project Number:** | 74038 | **Survey Date:** | 3-19-14 |
| **Station Name:** | 10 PID | **Operator Name:** | R. Chaloupka | | |
| **Latitude:** | N 33-52-43.7 | **Julian Day:** | 78 | **Session No.** | |
| **Longitude:** | W 78-33-38.9 | **Start Time:** | 10:59 | **End Time:** | 11:02 |
| **Ellip. Height:** | -90.4 ft | **Data File Name:** | HORRY 0319 | | |
| **Type of Mark:** | PK - E. EDGE OF WALK N. EDGE OF WALK | **Type of Reciever:** | RB-2 | | |
| **Stamping on Mark:** | NA | **Type of Antenna:** | INTERNAL | | |
| **Weather Condition:** | 65° / PC | **Antenna Height:** | 6.112 ft | to bottom of antenna mount | |



10-1-19MAR2014

10-2-19MAR2014

10-3N-19MAR2014

10-3E-19MAR2014

10-3S-19MAR2014

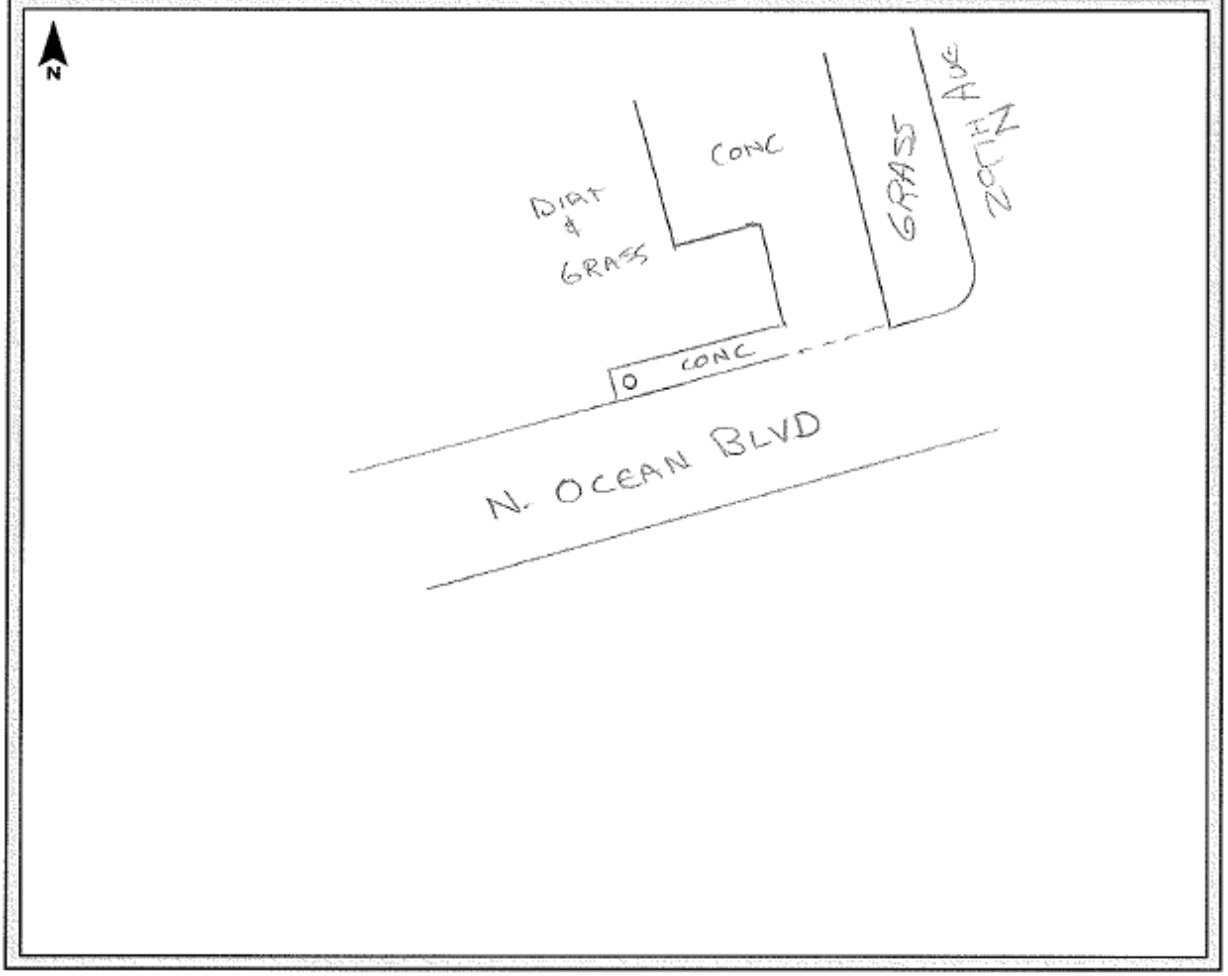
10-3W-19MAR2014

# GROUND CONTROL – 11

## GPS Observation Log Sheet

WOOLPERT

| | | | |
|---|---|---|---|
| Project Name: | Horry Co South Carolina | Project Number: | 74038 |
| Survey Date: | 3-19-14 | | |
| Station Name: | 11 PID | Operator Name: | R. Chaloupka |
| Latitude: | N 33-49-44.8 | Julian Day: | 78 |
| Session No. | | | |
| Longitude: | W 78-38-18.7 | Start Time: | 10:22 |
| End Time: | 10:26 | | |
| Ellip. Height: | -106.6 ft | Data File Name: | HORRY 0319 |
| Type of Mark: | MINI MARK- NW CORNER CONC. WALK | Type of Reciever: | R8-2 |
| Stamping on Mark: | NA | Type of Antenna: | INTERNAL |
| Weather Condition: | 65° / PC | Antenna Height: | 6.112 ft to bottom of antenna mount |



11-1-19MAR2014

11-2-19MAR2014

11-3N-19MAR2014

11-3E-19MAR2014

11-3S-19MAR2014

11-3W-19MAR2014

# GROUND CONTROL – 12

## GPS Observation Log Sheet

WOOLPERT

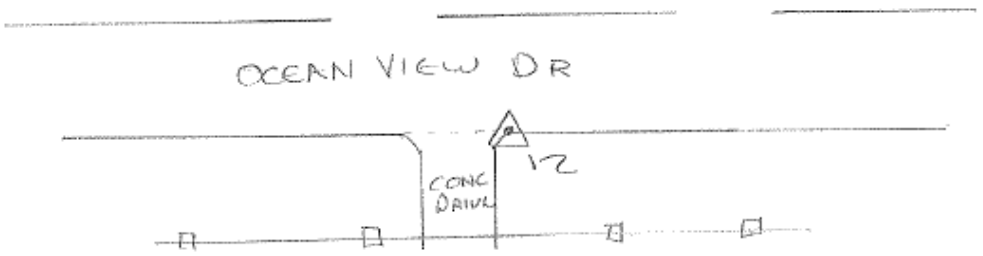
| | | | |
|---|---|---|---|
| Project Name: | Horry Co South Carolina | Project Number: | 74038 |
| Station Name: | 12 PID | Operator Name: | R. Chaloupka |
| Latitude: | N 33-47-13.4 | Julian Day: | 77 |
| Longitude: | W 78-44-44.4 | Start Time: | 1:49 |
| Ellip. Height: | -106.7 ft | Data File Name: | HORRY 0318 |
| Type of Mark: | 60d nail - NE TIP CONC DR. | Type of Reciever: | R8-2 |
| Stamping on Mark: | NA | Type of Antenna: | INTERNAL |
| Weather Condition: | 70°/ PC | Antenna Height: | 6.112 ft to bottom of antenna mount |

Survey Date: 3-18-14

Session No.

End Time: 1:52

N



12-1-18MAR2014

12-2-18MAR2014

12-3N-18MAR2014

12-3N-18MAR2014

12-3S-18MAR2014

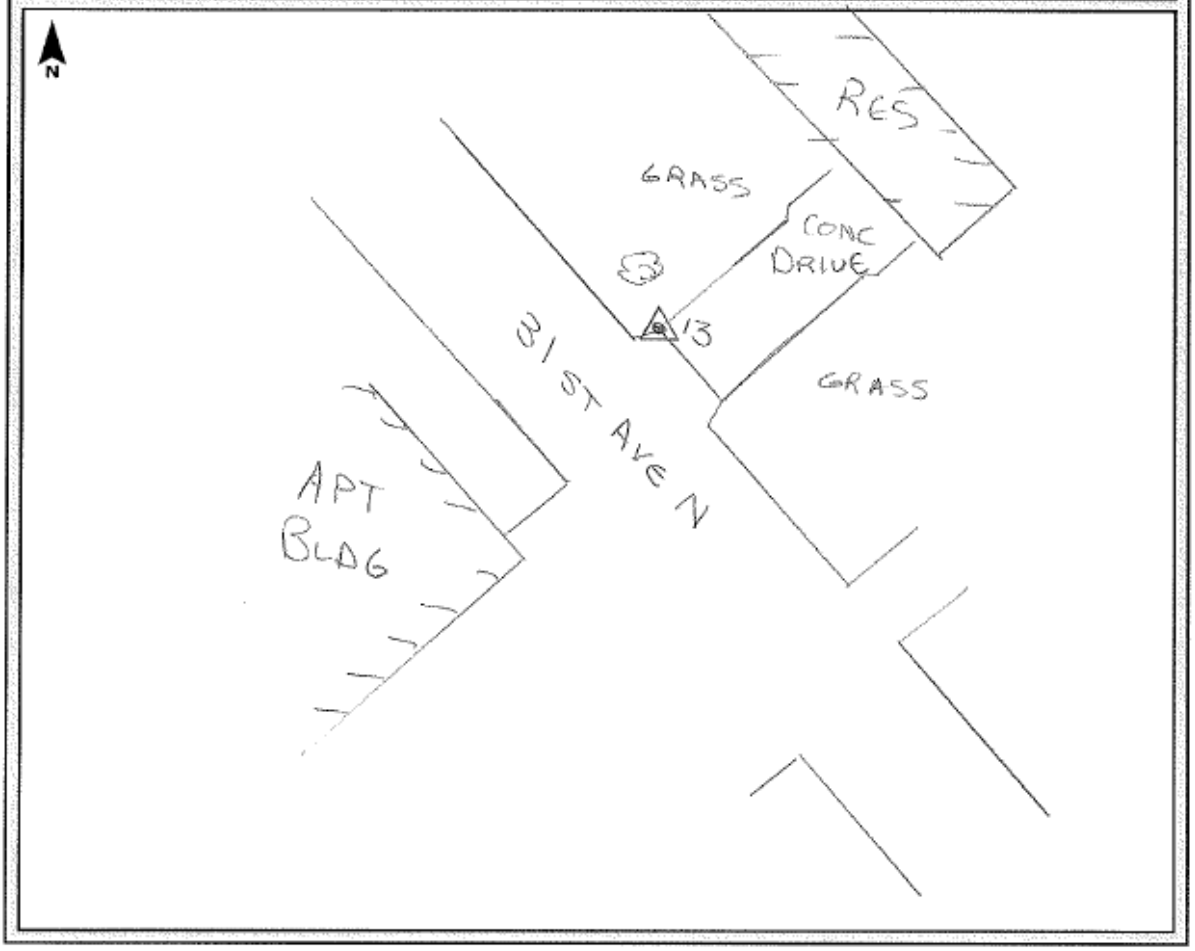
12-3W-18MAR2014

# GROUND CONTROL – 13

## GPS Observation Log Sheet

WOOLPERT

| | | | |
|---|---|---|---|
| Project Name: | Horry Co South Carolina | Project Number: 74038 | Survey Date: 3-18-14 |
| Station Name: | 13 PID | Operator Name: | R. Chaloupka |
| Latitude: | N 33-42-35.6 | Julian Day: 77 | Session No. |
| Longitude: | W 78-51-41.3 | Start Time: 8:37 | End Time: 8:40 |
| Ellip. Height: | -93.9 ft | Data File Name: | HORRY 0318 |
| Type of Mark: | PK - NW CORNER OF CONCRETE DRIVE | Type of Reciever: | R8-2 |
| Stamping on Mark: | NA | Type of Antenna: | INTERNAL |
| Weather Condition: | 60°/ CLOY | Antenna Height: 6.112 ft | to bottom of antenna mount |



13-1-18MAR2014

13-2-18MAR2014

13-3N-18MAR2014


13-3E-18MAR2014

13-3S-18MAR2014

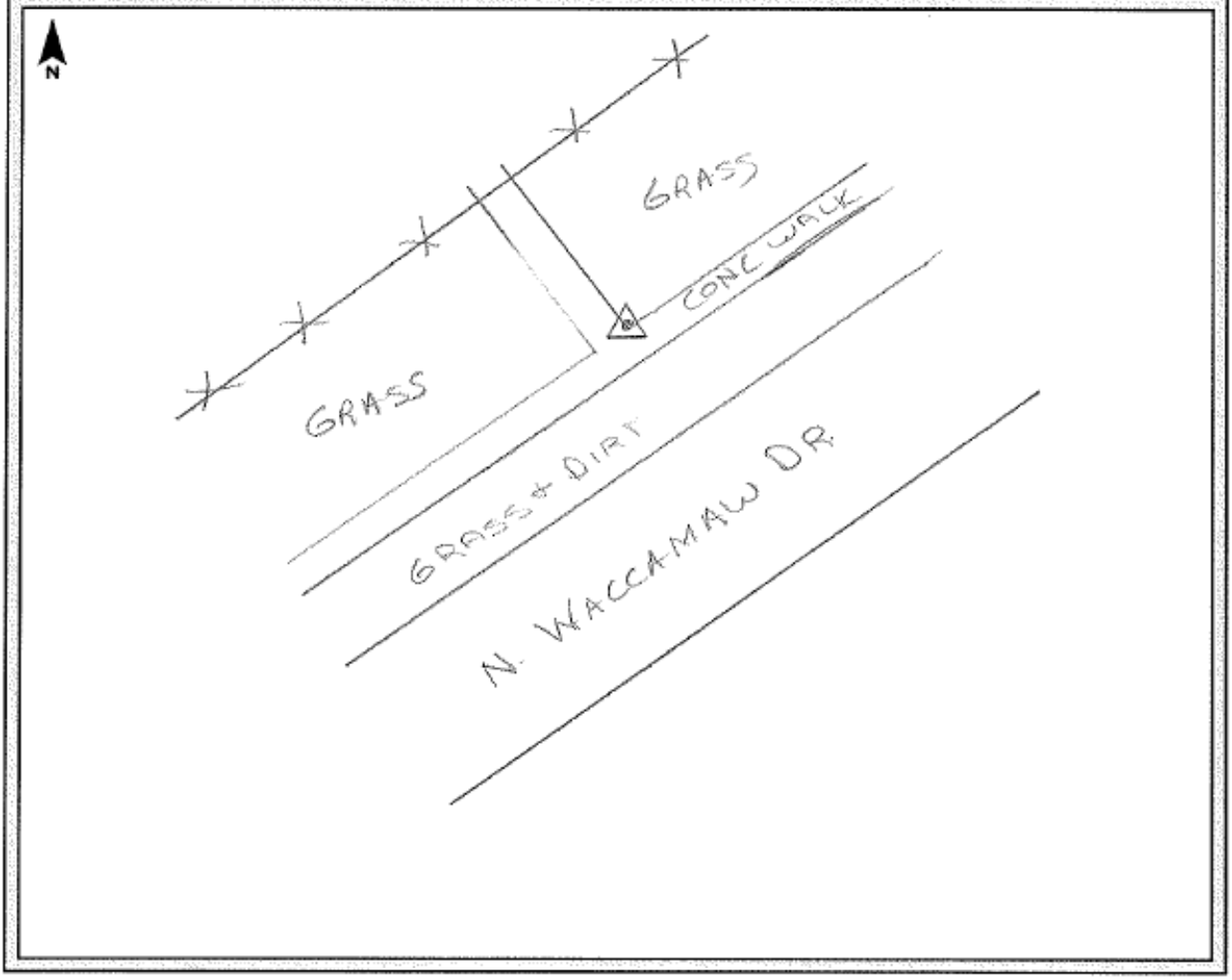

13-3W-18MAR2014

# GROUND CONTROL – 14

## GPS Observation Log Sheet

WOOLPERT

| | | | |
|---|---|---|---|
| Project Name: | Horry Co South Carolina | Project Number: | 74038 |
| Survey Date: | 3-18-14 | | |
| Station Name: | 14 P10 | Operator Name: | R. Chaloupka |
| Latitude: | N 33-35-13.5 | Julian Day: | 77 |
| Session No. | | | |
| Longitude: | W 78-59-22.7 | Start Time: | 10:09 |
| End Time: | 10:12 | | |
| Ellip. Height: | -107.6 ft | Data File Name: | HORRY 0318 |
| Type of Mark: | 60d NAIL - WALK @ E. EDGE INT. N. EDGE WALK | Type of Reciever: | RB-2 |
| Stamping on Mark: | NA | Type of Antenna: | INTERNAL |
| Weather Condition: | 65° / CLDY | Antenna Height: | 6.112 ft to bottom of antenna mount |



14-1-18MAR2014

14-2-18MAR2014

14-3N-18MAR2014

14-3E-18MAR2014

14-3S-18MAR2014

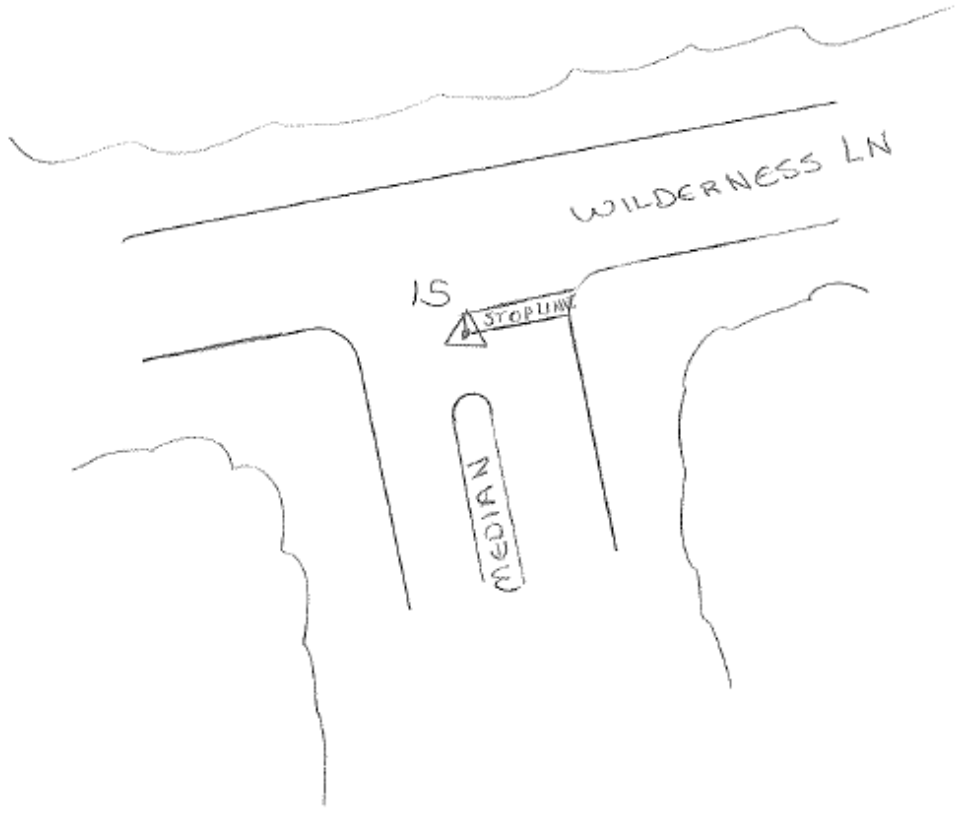
14-3W-18MAR2014

# GROUND CONTROL – 15

## GPS Observation Log Sheet

WOOLPERT

| | | | |
|---|---|---|---|
| Project Name: | Horry Co South Carolina | Project Number: 74038 | Survey Date: 3-18-14 |
| Station Name: | 15 PID | Operator Name: | R. Chaloupka |
| Latitude: | N 33-24-55.5 | Julian Day: 77 | Session No. |
| Longitude: | W 79-04-42.7 | Start Time: 10:09 | End Time: 10:12 |
| Ellip. Height: | -193.1 | Data File Name: | HORRY 0318 |
| Type of Mark: | PK - SW CORNER WHITE STOP LINE | Type of Reciever: | R8-2 |
| Stamping on Mark: | NA | Type of Antenna: | INTERNAL |
| Weather Condition: | 65°/PC | Antenna Height: 6.112 ft | to bottom of antenna mount |



15-1-18MAR2014

15-2-18MAR2014

15-3N-18MAR2014

15-3E-18MAR2014

15-3S-18MAR2014

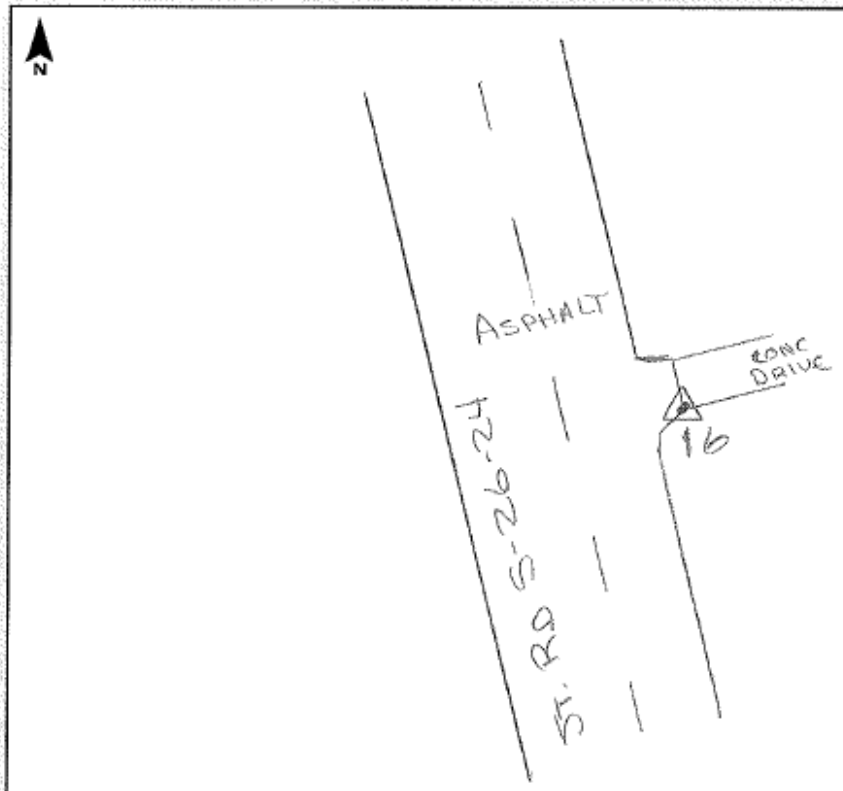
15-3W-18MAR2014

# GROUND CONTROL – 16

## GPS Observation Log Sheet

WOOLPERT

| | | | |
|---|---|---|---|
| Project Name: | Horry Co South Carolina | Project Number: 74038 | Survey Date: 3-22-14 |
| Station Name: | 16 PID | Operator Name: | R. Chaloupka |
| Latitude: | N 33-43-47.4 | Julian Day: 81 | Session No. |
| Longitude: | W 79-10-09.1 | Start Time: 8:20 | End Time: 8:23 |
| Ellip. Height: | -92.5 | Data File Name: | HORAY 0322 |
| Type of Mark: | PK - SW CORNER OF CONC DRIVE | Type of Reciever: | R8-3 |
| Stamping on Mark: | NA | Type of Antenna: | INTERNAL |
| Weather Condition: | 70°/ CLR | Antenna Height: 6.112 ft | to bottom of antenna mount |



16-1-22MAR2014

16-2-22MAR2014

16-3N-22MAR2014

16-3E-22MAR2014

16-3S-22MAR2014

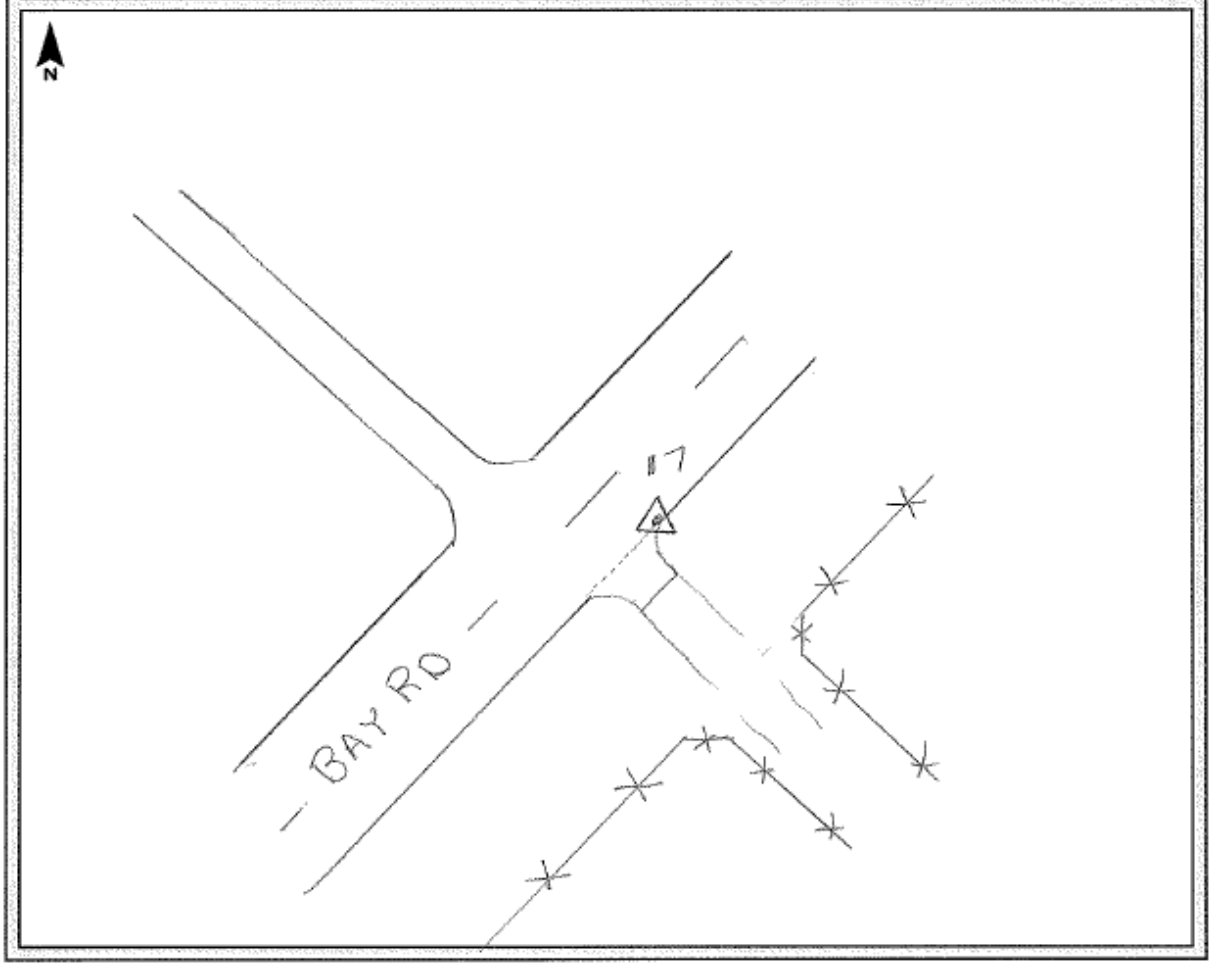
16-3W-22MAR2014

# GROUND CONTROL – 17

## GPS Observation Log Sheet

WOOLPERT

| | | | |
|---|---|---|---|
| Project Name: | Horry Co South Carolina | Project Number: | 74038 |
| Survey Date: | 3-22-14 | | |
| Station Name: | 17 PID | Operator Name: | R. Chaloupka |
| Latitude: | N 33-51-16.1 | Julian Day: | 81. |
| Session No. | | | |
| Longitude: | W 79-16-36.2 | Start Time: | 9:35 |
| End Time: | 9:38 | | |
| Ellip. Height: | -89.0 ft | Data File Name: | HORRY 0322 |
| Type of Mark: | PK- NW TIP OF DRIVE | Type of Reciever: | R8-3 |
| Stamping on Mark: | NA | Type of Antenna: | INTERNAL |
| Weather Condition: | 78° / PC | Antenna Height: | 6.112 ft to bottom of antenna mount |



17-1-22MAR2014

17-2-22MAR2014

17-3N-22MAR2014

17-3E-22MAR2014

17-3S-22MAR2014

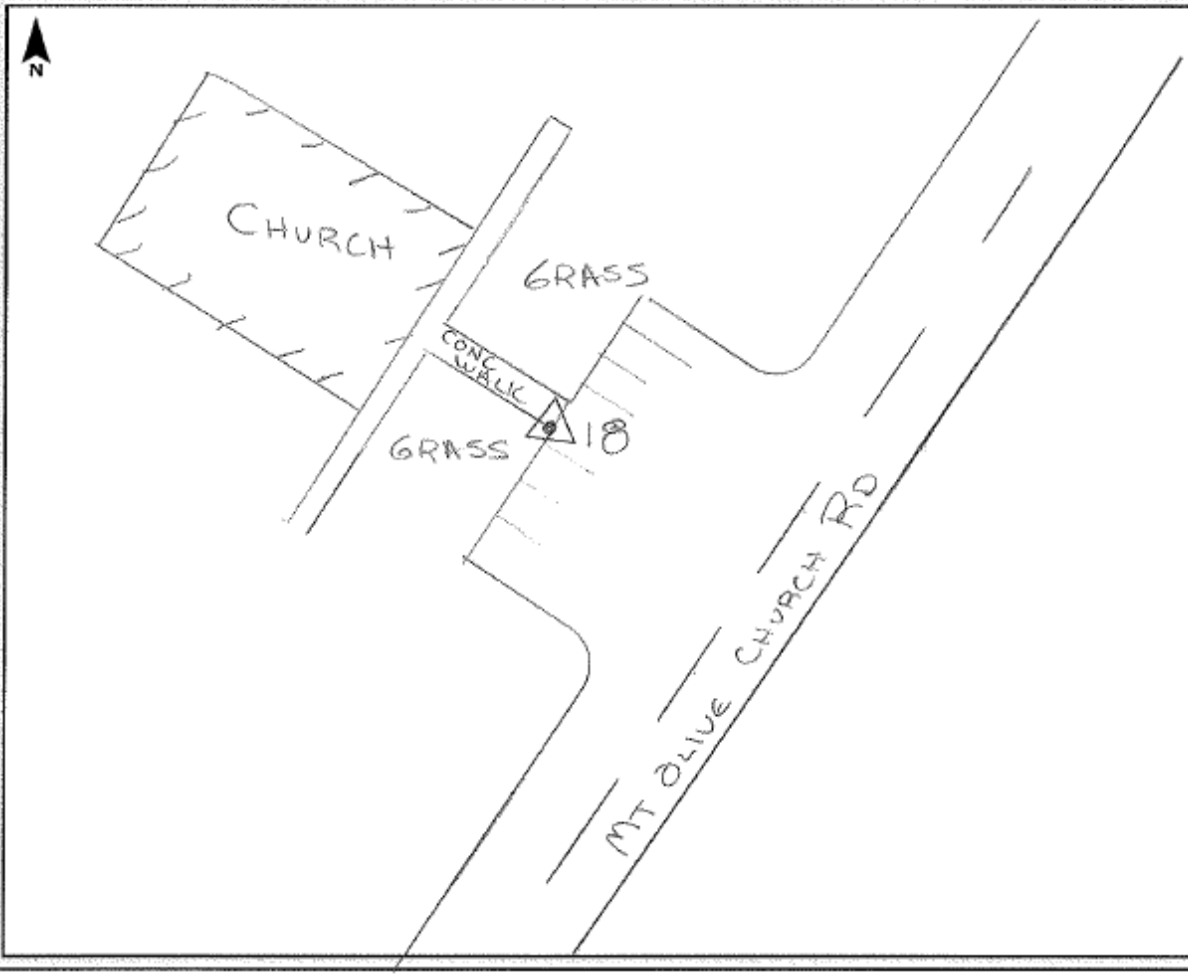
17-3W-22MAR2014

# GROUND CONTROL – 18

## GPS Observation Log Sheet

WOOLPERT

| | | | |
|---|---|---|---|
| Project Name: | Horry Co South Carolina | Project Number: | 74038 |
| Survey Date: | 3-21-14 | | |
| Station Name: | 18 PID | Operator Name: | R. Chaloupka |
| Latitude: | N 34-08-54.2 | Julian Day: | 80 |
| Session No. | | | |
| Longitude: | W 79-01-54.6 | Start Time: | 9:01 |
| End Time: | 9:05 | | |
| Ellip. Height: | -25.4 ft | Data File Name: | HORRY 0321 |
| Type of Mark: | PK - SE CORNER CONC WALK | Type of Reciever: | R8-3 |
| Stamping on Mark: | NA | Type of Antenna: | INTERNAL |
| Weather Condition: | 70°/PC | Antenna Height: | 6.112 ft to bottom of antenna mount |



18-1-21MAR2014

18-2-21MAR2014

18-3N-21MAR2014

18-3E-21MAR2014

18-3S-21MAR2014

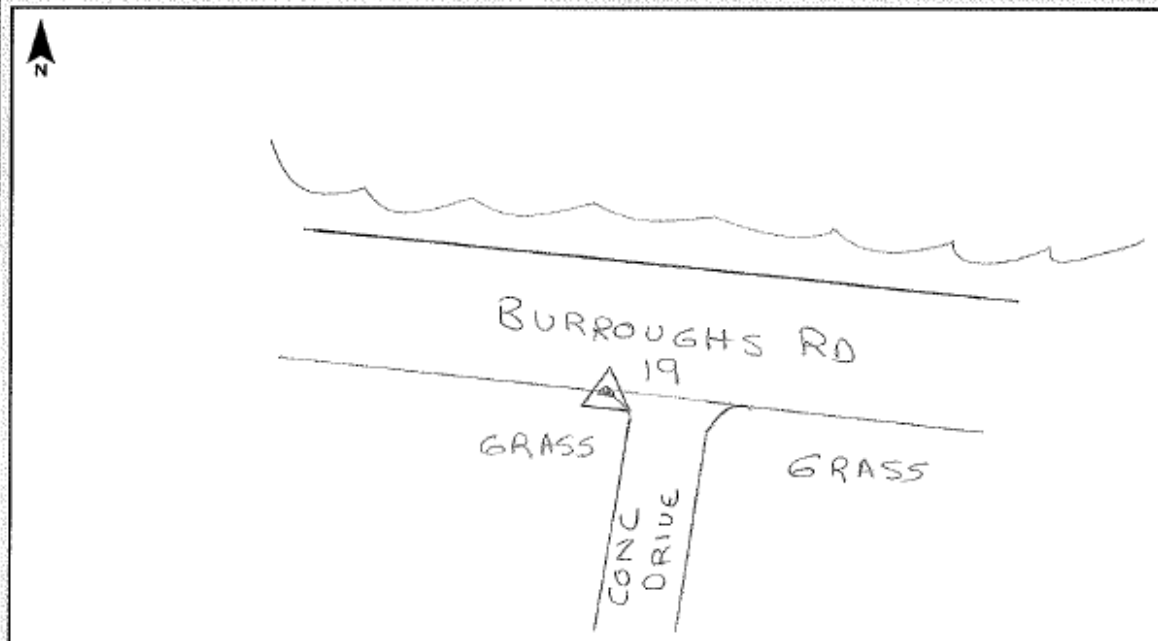
18-3W-21MAR2014

# GROUND CONTROL – 19

## GPS Observation Log Sheet

WOOLPERT

| | | | |
|---|---|---|---|
| Project Name: | Horry Co South Carolina | Project Number: | 74038 |
| Survey Date: | 3-21-14 | | |
| Station Name: | 19 PID | Operator Name: | R. Chaloupka |
| Latitude: | N 34-01-09.4 | Julian Day: | 80 |
| Session No. | | | |
| Longitude: | W 79-08-36.2 | Start Time: | 3:34 |
| End Time: | 3:37 | | |
| Ellip. Height: | -5.0 ft | Data File Name: | HORRY 0321 |
| Type of Mark: | PK - NW TIP OF CONC DRIVE | Type of Reciever: | R8-3 |
| Stamping on Mark: | NA | Type of Antenna: | INTERNAL |
| Weather Condition: | 70°/PC | Antenna Height: | 6.112 ft to bottom of antenna mount |



19-1-21MAR2014

19-2-21MAR2014

19-3N-21MAR2014

19-3E-21MAR2014

19-3S-21MAR2014

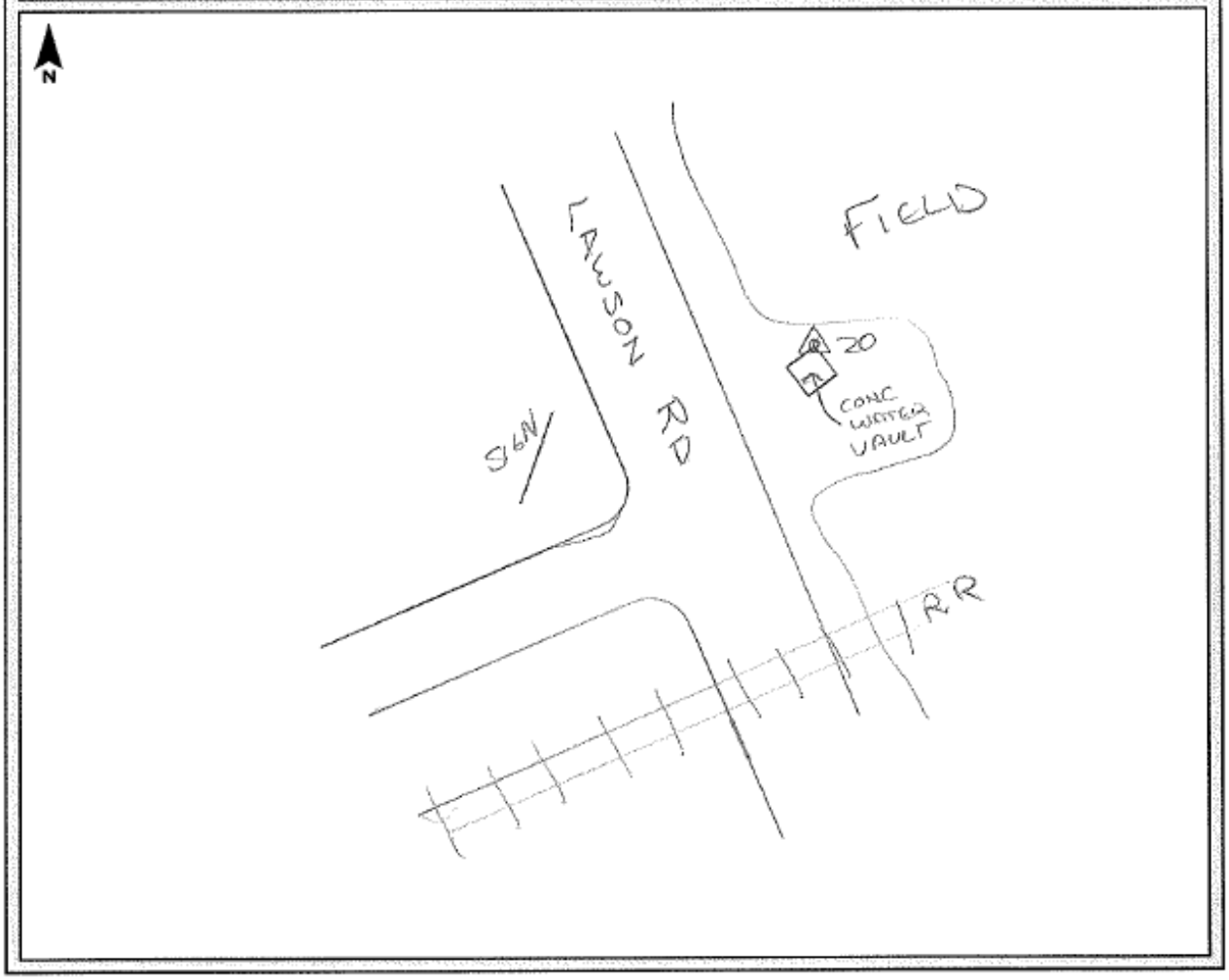
19-3W-21MAR2014

# GROUND CONTROL – 20

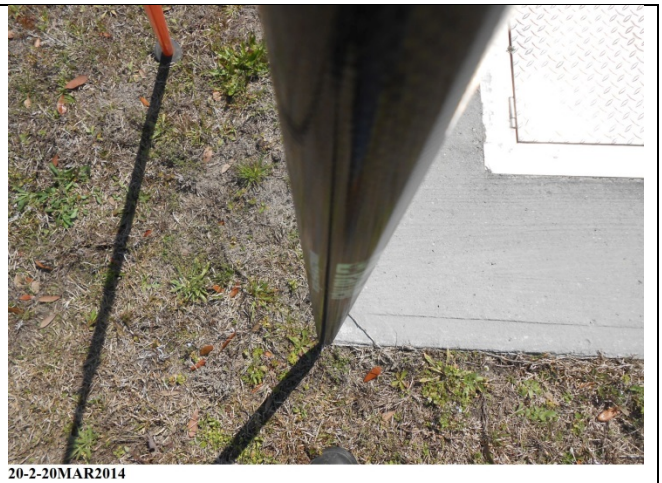
## GPS Observation Log Sheet

WOOLPERT

| | | | |
|---|---|---|---|
| Project Name: | Horry Co South Carolina | Project Number: | 74038 |
| Survey Date: | 3-20-14 | | |
| Station Name: | 20 PID | Operator Name: | R. Chaloupka |
| Latitude: | N 34-01-38.9 | Julian Day: | 79 |
| Session No. | | | |
| Longitude: | W 78-56-05.5 | Start Time: | 1:10 |
| End Time: | 1:13 | | |
| Ellip. Height: | -1.8 ft | Data File Name: | HORRY 0320 |
| Type of Mark: | PAINT "+" N MOST COR CONC WATER VAULT | Type of Reciever: | R8-2 |
| Stamping on Mark: | NA | Type of Antenna: | INTERNAL |
| Weather Condition: | 70°/PC | Antenna Height: | 6.112 ft to bottom of antenna mount |



20-1-20MAR2014



20-2-20MAR2014

20-3N-20MAR2014


20-3E-20MAR2014

20-3S-20MAR2014

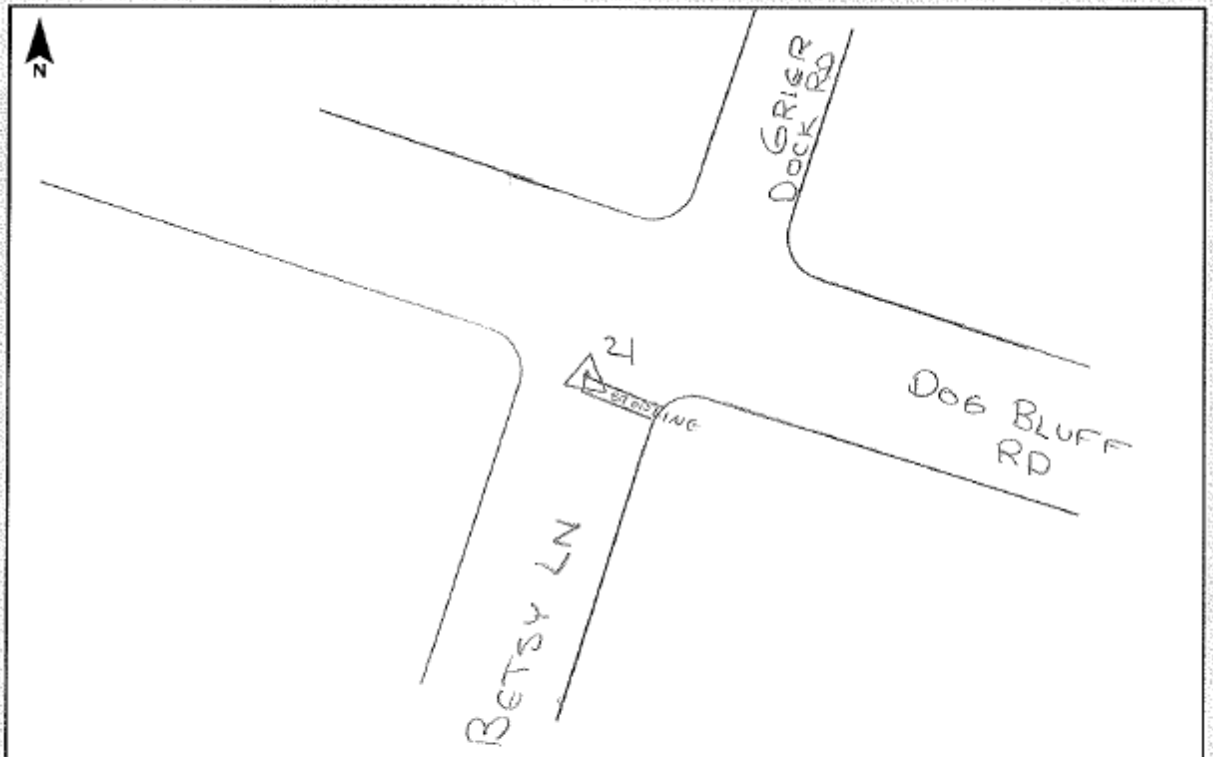
20-3W-20MAR2014

# GROUND CONTROL – 21

## GPS Observation Log Sheet

WOOLPERT

| | | | |
|---|---|---|---|
| **Project Name:** | Horry Co South Carolina | **Project Number:** 74038 | **Survey Date:** 3-21-14 |
| **Station Name:** | 21 PID | **Operator Name:** | R. Chaloupka |
| **Latitude:** | N 33-56-20.4 | **Julian Day:** 80 | **Session No.** |
| **Longitude:** | W 79-11-40.9 | **Start Time:** 2:02 | **End Time:** 2:05 |
| **Ellip. Height:** | -29.1 ft | **Data File Name:** | HORRY0321 |
| **Type of Mark:** | PK - NW CORNER OF WHITE STOP LINE | **Type of Reciever:** | R8-3 |
| **Stamping on Mark:** | NA | **Type of Antenna:** | INTERNAL |
| **Weather Condition:** | 75° / PC | **Antenna Height:** 6.112 ft | to bottom of antenna mount |



21-1-21MAR2014

21-2-21MAR2014

21-3N-21MAR2014

21-3E-21MAR2014

21-3S-21MAR2014

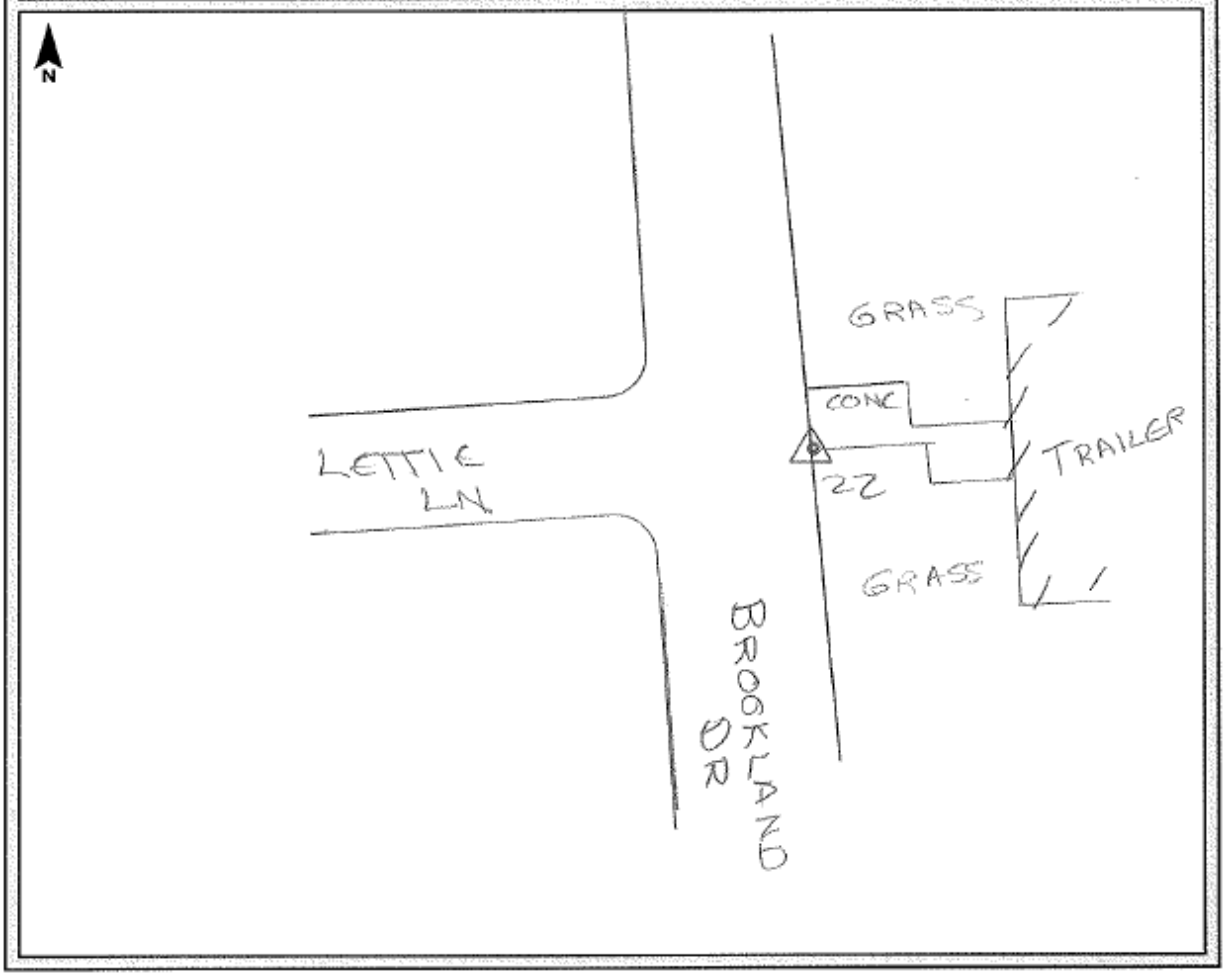
21-3W-21MAR2014

# GROUND CONTROL – 22

## GPS Observation Log Sheet

WOOLPERT

| | | | |
|---|---|---|---|
| Project Name: | Horry Co South Carolina | Project Number: 74038 | Survey Date: 3-20-14 |
| Station Name: | 22 PID | Operator Name: | R. Chaloupka |
| Latitude: | N 33-54-18.4 | Julian Day: 79 | Session No. |
| Longitude: | W 79-03-16.5 | Start Time: 2:27 | End Time: 2:30 |
| Ellip. Height: | -76.1 ft | Data File Name: | HORRY 0320 |
| Type of Mark: | PK- SW CORNER OF CONCRETE DRIVE | Type of Reciever: | R8-2 |
| Stamping on Mark: | NA | Type of Antenna: | INTERNAL |
| Weather Condition: | 65° / PC | Antenna Height: 6.112 ft | to bottom of antenna mount |



22-1-20MAR2014

22-2-20MAR2014

22-3N-20MAR2014

22-3E-20MAR2014

22-3S-20MAR2014

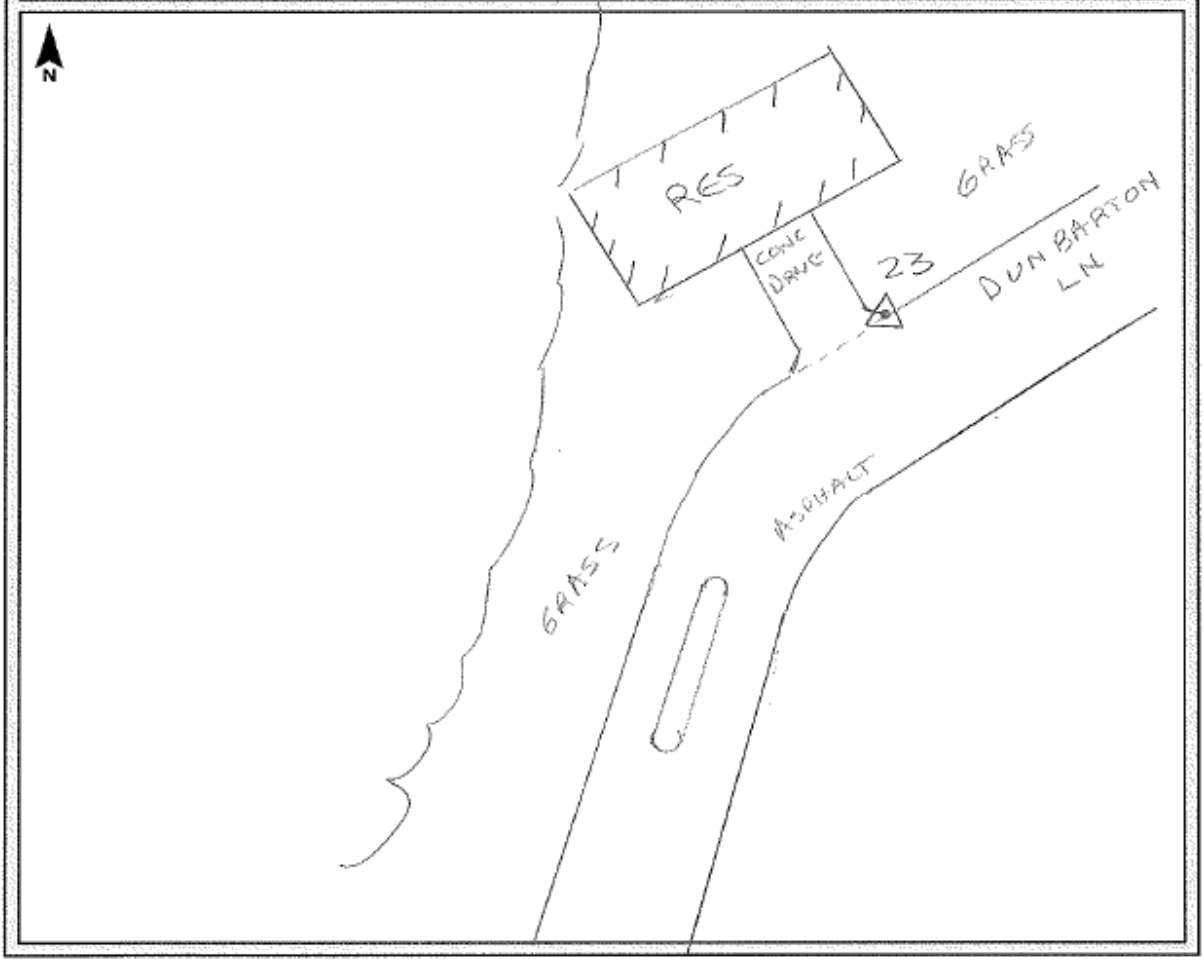
22-3W-20MAR2014

# GROUND CONTROL – 23

## GPS Observation Log Sheet

WOOLPERT

| | | | |
|---|---|---|---|
| Project Name: | Horry Co South Carolina | Project Number: | 74038 |
| Survey Date: | 3-20-14 | | |
| Station Name: | 23 PID | Operator Name: | R. Chaloupka |
| Latitude: | N 33-54-14.0 | Julian Day: | 79 |
| Session No. | | | |
| Longitude: | W 78-54-06.6 | Start Time: | 9:49 |
| End Time: | 9:52 | | |
| Ellip. Height: | -65.8 | Data File Name: | HORRY0320 |
| Type of Mark: | PK- SE TIP OF CONCRETE DR. | Type of Reciever: | R8-2 |
| Stamping on Mark: | NA | Type of Antenna: | INTERNAL |
| Weather Condition: | 60°/CLDY | Antenna Height: | 6.1284 to bottom of antenna mount |



23-1-20MAR2014

23-2-20MAR2014

23-3N-20MAR2014

23-3E-20MAR2014

23-3S-20MAR2014

23-3W-20MAR2014

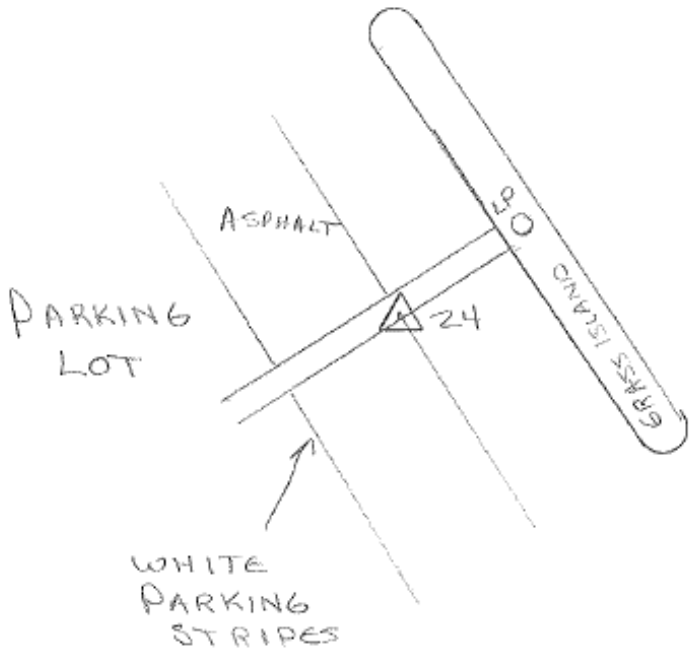
# GROUND CONTROL – 24

## GPS Observation Log Sheet

WOOLPERT

| | | | |
|---|---|---|---|
| Project Name: | Horry Co South Carolina | Project Number: | 74038 |
| Survey Date: | 3-19-14 | | |
| Station Name: | 24 PID | Operator Name: | R. Chaloupka |
| Latitude: | N 33-54-07.89 | Julian Day: | 78 |
| Session No. | | | |
| Longitude: | W 78-42-00.5 | Start Time: | 8:48 |
| End Time: | 8:51 | | |
| Ellip. Height: | -90.1 ft | Data File Name: | HORRY 0319 |
| Type of Mark: | PK- INT OF WHITE PARKING STRIPES | Type of Reciever: | R8-2 |
| Stamping on Mark: | NA | Type of Antenna: | INTERNAL |
| Weather Condition: | 60°/CLDY | Antenna Height: | 6.112 ft to bottom of antenna mount |

N



24-1-19MAR2014

24-2-19MAR2014

24-3N-19MAR2014

24-3E-19MAR2014

24-3S-19MAR2014

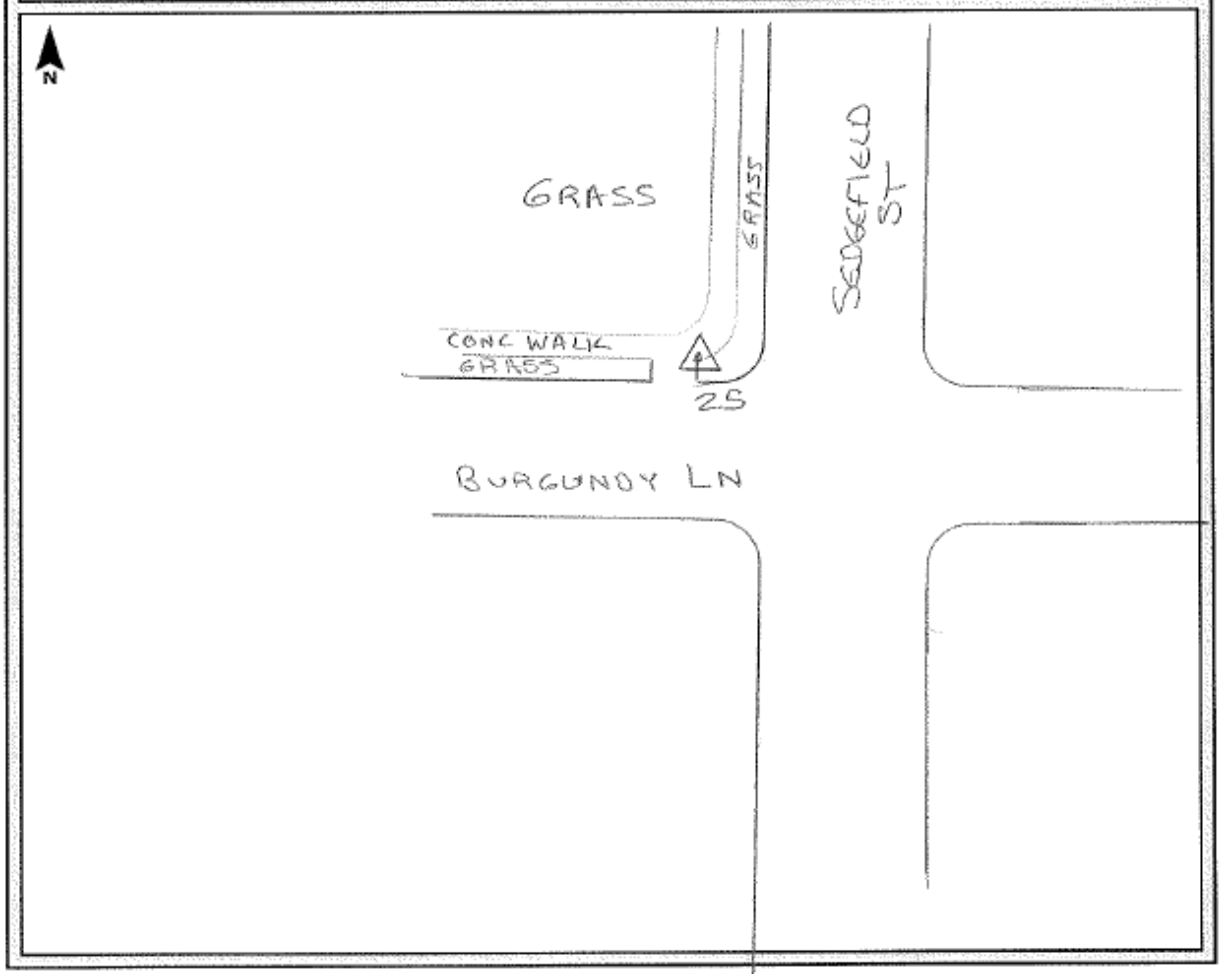
24-3W-19MAR2014

# GROUND CONTROL – 25

## GPS Observation Log Sheet

WOOLPERT

| | | | | | |
|---|---|---|---|---|---|
| Project Name: | Horry Co South Carolina | Project Number: | 74038 | Survey Date: | 3-18-14 |
| Station Name: | 25 PID | Operator Name: | R. Chaloupka | | |
| Latitude: | N 33-48-21.8 | Julian Day: | 77 | Session No. | |
| Longitude: | W 79-04-35.4 | Start Time: | 2:59 | End Time: | 3:02 |
| Ellip. Height: | -96.7 ft | Data File Name: | HORRY 0318 | | |
| Type of Mark: | 60d NAIL - WALK @ EDGE INT. S. EDGE WALK | Type of Reciever: | R8-2 | | |
| Stamping on Mark: | NA | Type of Antenna: | INTERNAL | | |
| Weather Condition: | 60° / CLDY | Antenna Height: | 6.112 ft | to bottom of antenna mount | |



25-1-18MAR2014

25-2-18MAR2014

25-3N-18MAR2014

25-3E-18MAR2014

25-3S-18MAR2014

25-3W-18MAR2014

# GROUND CONTROL – 26

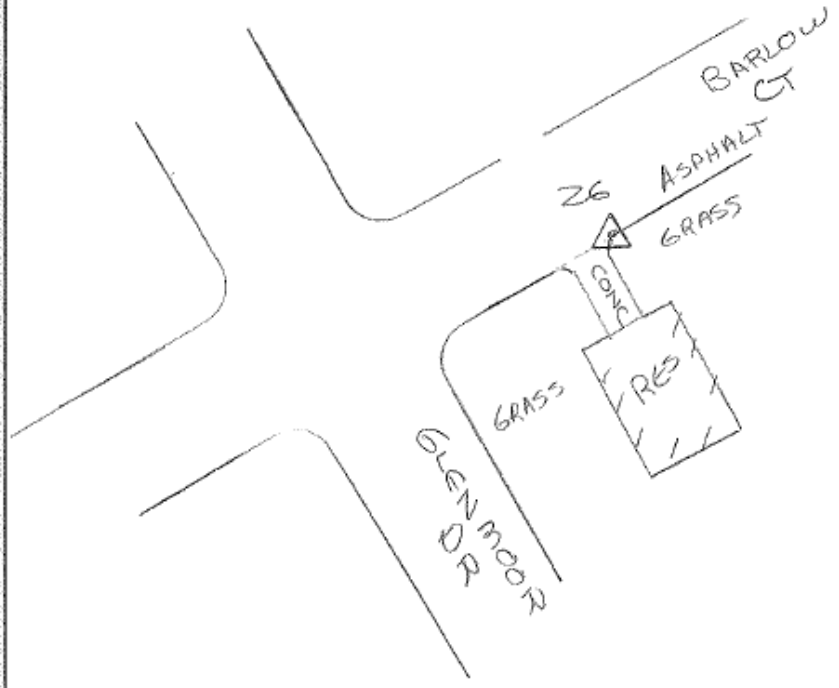
## GPS Observation Log Sheet

WOOLPERT

| | | | |
|---|---|---|---|
| Project Name: | Horry Co South Carolina | Project Number: | 74038 |
| Station Name: | 26 PID | Operator Name: | R. Chaloupka |
| Latitude: | N 33-49-28.9 | Julian Day: | 77 |
| Longitude: | W 78-53-52.9 | Start Time: | 2:17 |
| Ellip. Height: | -74.8 ft | Data File Name: | HORRY 0318 |
| Type of Mark: | 60d NAIL - NE TIP OF CONC DRIVE | Type of Reciever: | R8-2 |
| Stamping on Mark: | NA | Type of Antenna: | INTERNAL |
| Weather Condition: | 65°/ CLDY | Antenna Height: | 6.112 ft to bottom of antenna mount |

Session No. _____

End Time: 2:20



26-1-18MAR2014

26-3N-18MAR2014

26-3E-18MAR2014

26-3S-18MAR2014

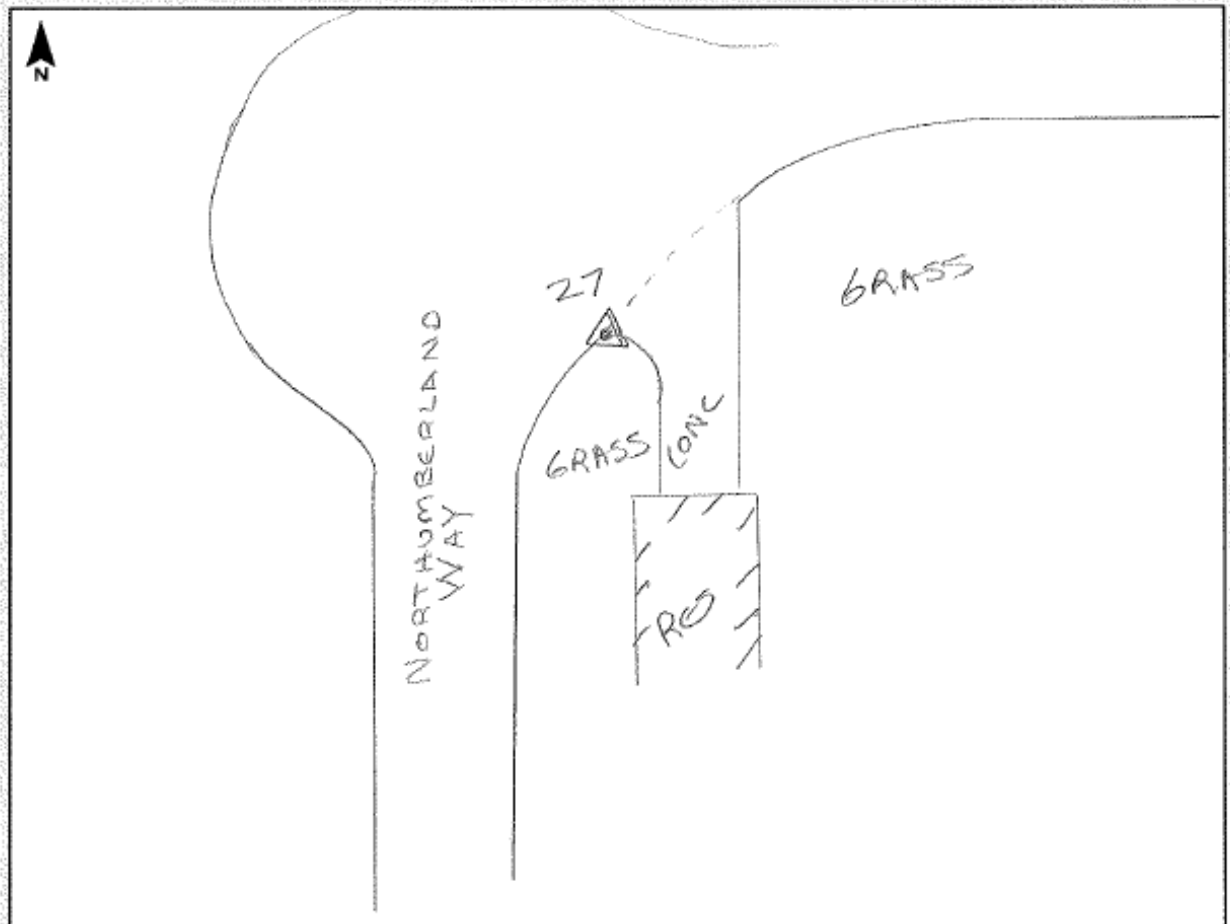
26-3W-18MAR2014

# GROUND CONTROL – 27

## GPS Observation Log Sheet

WOOLPERT

| | | | |
|---|---|---|---|
| Project Name: | Horry Co South Carolina | Project Number: | 74038 |
| Survey Date: | 3-18-14 | | |
| Station Name: | 27 P10 | Operator Name: | R. Chaloupka |
| Latitude: | N 33-41-47.8 | Julian Day: | 77 |
| Session No. | | | |
| Longitude: | W 79-00-39.0 | Start Time: | 11:57 |
| End Time: | 12:00 | | |
| Ellip. Height: | -91.9 ft | Data File Name: | HORRY 0318 |
| Type of Mark: | PK - NEW TIP OF CONCRETE DRIVE | Type of Reciever: | R8-2 |
| Stamping on Mark: | NA | Type of Antenna: | INTERNAL |
| Weather Condition: | 65°/ CLOY | Antenna Height: | to bottom of antenna mount |



27-1-18MAR2014

27-2-18MAR2014

27-3E-18MAR2014

27-3S-18MAR2014

27-3W-18MAR2014

# SECTION 4: GEODETIC AND GROUND QUALITY CONTROL CHECKS

This section includes the quality control checks on existing National Geodetic Survey control stations and a percentage of survey points surveyed within the site.

| | |
|---|---|
| **Coordinate System:** | **U.S. State Plane 1983** |
| **Project Datum:** | **South Carolina Zone 3900, NAD83 (2011)** |
| **Vertical Datum:** | **NAVD88** |
| **Coordinate Units:** | **International foot** |
| **Distance Units:** | **International foot** |
| **Height Units:** | **International foot** |
| **Date** | **06/25/2014** |
| **Geoid Model:** | **Geoid 12A** |

Listed below are coordinates and differences between the northing, easting and elevation value for the RTK GPS observations taken on different days on the same point and times to verify accuracy of GPS observation.

**Woolpert RTK Coordinate**

| Point | Northing (Int Foot) | Easting (Int Foot) | Elev (Int Foot) | Ellip. Height (Int Foot) |
|---|---|---|---|---|
| 1 | 791393.43 | 2501764.54 | 35.51 | -73.93 |
| 9 | 785263.32 | 2704939.15 | 35.08 | -79.71 |
| 12 | 718293.80 | 2684794.03 | 7.88 | -106.71 |
| 15 | 641689.90 | 2585077.17 | 20.82 | -93.09 |
| 25 | 723175.45 | 2584179.13 | 15.26 | -96.67 |

**Woolpert RTK Check Coordinate**

| Point | Northing (Int Foot) | Easting (Int Foot) | Elev (Int Foot) | Ellip. Height (Int Foot) |
|---|---|---|---|---|
| 1 CHK | 791393.51 | 2501764.52 | 35.37 | -74.07 |
| 9 CHK | 785263.36 | 2704939.13 | 35.03 | -79.76 |
| 12 CHK | 718293.81 | 2684794.04 | 7.74 | -106.85 |
| 15 CHK | 641689.93 | 2585077.15 | 20.87 | -93.18 |
| 25 CHK | 723175.46 | 2584179.14 | 15.32 | -96.61 |

**Differences**

| Point | Northing (Int Foot) | Easting (Int Foot) | Elev (Int Foot) |
|---|---|---|---|
| 1 CHK | 0.08 | -0.02 | -0.14 |
| 9 CHK | 0.04 | -0.02 | -0.05 |
| 12 CHK | 0.01 | 0.01 | -0.14 |
| 15 CHK | 0.03 | -0.02 | 0.05 |
| 25 CHK | 0.01 | 0.01 | -0.06 |

Listed below are coordinates and differences between the northing, easting and elevation coordinate for the Published NGS coordinate and the RTK GPS observations.

***NGS Published Coordinates***

| Point | PID | Northing (Int Foot) | Easting (Int Foot) | Elev (Int Foot) | Ellip. Height (Int Foot) |
|---|---|---|---|---|---|
| 026 055 AZ | DJ1662 | 689660.04 | 2649913.46 | 33.36 | -80.71 |
| 26 213 | DD1648 | 699110.44 | 2600398.56 | 18.80 | -93.82 |
| 26 262 | DD1866 | 758808.59 | 2643071.15 | 46.29 | -66.49 |
| P 146 | EB1292 | 837424.69 | 2642794.54 | 97.41 | -15.22 |

***Woolpert RTK Coordinate***

| Point | Northing (Int Foot) | Easting (Int Foot) | Elev (Int Foot) | Ellip. Height (Int Foot) | Description |
|---|---|---|---|---|---|
| 026 055 AZ | 689659.99 | 2649913.50 | 33.47 | -80.60 | 026 055 AZ MK RTK CHK |
| 26 213 | 699110.40 | 2600398.58 | 18.74 | -93.89 | 26 213 RTK CHK |
| 26 262 | 758808.68 | 2643071.09 | 46.17 | -66.57 | 26 262 RTK CHK |
| P 146 | 837424.74 | 2642794.53 | 97.52 | -15.25 | P 146 RTK CHK |

**DIFFERENCES**

| Point | Northing (Int Foot) | Easting (Int Foot) | Elev (Int Foot) | Ellip. Height (Int Foot) | Description |
|---|---|---|---|---|---|
| 026 055 AZ | -0.05 | 0.04 | 0.11 | 0.11 | 026 055 AZ MK RTK CHK |
| 26 213 | -0.04 | 0.02 | -0.06 | -0.07 | 26 213 RTK CHK |
| 26 262 | 0.09 | -0.06 | 0.12 | 0.08 | 26 262 RTK CHK |
| P 146 | 0.05 | -0.01 | 0.11 | 0.03 | P 146 RTK CHK |

# SECTION 5 PART 1: EXISTING NGS DATA SHEETS

This section contains the published National Geodetic Survey (NGS) Data Sheets used in the final control network for Horry Co SC.

**NGS DATA SHEET: 026 055 AZ MK2 (DD1662)**

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DD1662 ***********************************************************************
DD1662  DESIGNATION -  026 055 AZ MK
DD1662  PID         -  DD1662
DD1662  STATE/COUNTY-  SC/HORRY
DD1662  COUNTRY     -  US
DD1662  USGS QUAD   -  OCEAN FOREST (1984)
DD1662
DD1662                        *CURRENT SURVEY CONTROL
DD1662 ______________________________________________________________________
DD1662* NAD 83(2011) POSITION- 33 42 37.45921(N) 078 51 44.66950(W)   ADJUSTED
DD1662* NAD 83(2011) ELLIP HT-   -24.599 (meters)        (06/27/12)   ADJUSTED
DD1662* NAD 83(2011) EPOCH   -  2010.00
DD1662* NAVD 88 ORTHO HEIGHT -    10.168 (meters)       33.36  (feet) ADJUSTED
DD1662 ______________________________________________________________________
DD1662  NAD 83(2011) X  -  1,025,928.954 (meters)                     COMP
DD1662  NAD 83(2011) Y  - -5,211,103.629 (meters)                     COMP
DD1662  NAD 83(2011) Z  -  3,519,757.473 (meters)                     COMP
DD1662  LAPLACE CORR    -         -2.97  (seconds)                    DEFLEC12A
DD1662  GEOID HEIGHT    -        -34.77  (meters)                     GEOID12A
DD1662  DYNAMIC HEIGHT  -         10.158 (meters)       33.33  (feet) COMP
DD1662  MODELED GRAVITY -    979,616.8   (mgal)                       NAVD 88
DD1662
DD1662  VERT ORDER      -  FIRST     CLASS II
DD1662
DD1662  FGDC Geospatial Positioning Accuracy Standards (95% confidence, cm)
DD1662  Type                                           Horiz  Ellip  Dist(km)
DD1662  ----------------------------------------------------------------------
DD1662  NETWORK                                         0.48   0.98
DD1662  ----------------------------------------------------------------------
DD1662  MEDIAN LOCAL ACCURACY AND DIST (006 points)   0.33   0.55      1.87
DD1662  ----------------------------------------------------------------------
DD1662  NOTE: Click here for information on individual local accuracy
DD1662  values and other accuracy information.
DD1662
DD1662
DD1662.The horizontal coordinates were established by GPS observations
DD1662.and adjusted by the National Geodetic Survey in June 2012.
DD1662
DD1662.NAD 83(2011) refers to NAD 83 coordinates where the reference
DD1662.frame has been affixed to the stable North American tectonic plate. See
DD1662.NA2011 for more information.
DD1662
DD1662.The horizontal coordinates are valid at the epoch date displayed above
DD1662.which is a decimal equivalence of Year/Month/Day.
DD1662
DD1662.The orthometric height was determined by differential leveling and
DD1662.adjusted by the NATIONAL GEODETIC SURVEY
DD1662.in June 1991.
DD1662
DD1662.Photographs are available for this station.
DD1662
DD1662.The X, Y, and Z were computed from the position and the ellipsoidal ht.
DD1662
DD1662.The Laplace correction was computed from DEFLEC12A derived deflections.
DD1662
DD1662.The ellipsoidal height was determined by GPS observations
DD1662.and is referenced to NAD 83.
DD1662
DD1662.The dynamic height is computed by dividing the NAVD 88
DD1662.geopotential number by the normal gravity value computed on the
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DD1662.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
DD1662.degrees latitude (g = 980.6199 gals.).
DD1662
DD1662.The modeled gravity was interpolated from observed gravity values.
DD1662
DD1662. The following values were computed from the NAD 83(2011) position.
DD1662
DD1662;                    North         East     Units Scale Factor Converg.
DD1662;SPC SC       -   210,208.381   807,693.624   MT  0.99979391   +1 11 06.3
DD1662;SPC SC       -   689,660.04  2,649,913.46   iFT  0.99979391   +1 11 06.3
DD1662;UTM  17      - 3,732,098.398   698,087.111   MT  1.00008376   +1 11 12.3
DD1662
DD1662!             -  Elev Factor  x  Scale Factor =   Combined Factor
DD1662!SPC SC       -   1.00000386  x   0.99979391  =   0.99979777
DD1662!UTM  17      -   1.00000386  x   1.00008376  =   1.00008762
DD1662
DD1662                          SUPERSEDED SURVEY CONTROL
DD1662
DD1662  NAD 83(2007)-  33 42 37.45935(N)    078 51 44.67058(W) AD(2002.00) 0
DD1662  ELLIP H (02/10/07)  -24.584  (m)                       GP(2002.00)
DD1662  NAD 83(2001)-  33 42 37.45942(N)    078 51 44.67051(W) AD(       ) 1
DD1662  ELLIP H (03/13/03)  -24.568  (m)                       GP(       ) 4 2
DD1662  NAD 83(1995)-  33 42 37.45957(N)    078 51 44.67023(W) AD(       ) 1
DD1662  ELLIP H (12/20/99)  -24.585  (m)                       GP(       ) 4 1
DD1662  NAD 83(1986)-  33 42 37.46811(N)    078 51 44.67588(W) AD(       ) 1
DD1662  NAD 83(1986)-  33 42 37.46701(N)    078 51 44.67755(W) AD(       ) 2
DD1662  NAD 27      -  33 42 36.85155(N)    078 51 45.60532(W) AD(       ) 2
DD1662  NAVD 88 (04/10/98)   10.17   (m)           33.4    (f) LEVELING    3
DD1662  NGVD 29 (05/09/91)   10.475  (m)           34.37   (f) ADJUSTED    1 2
DD1662
DD1662.Superseded values are not recommended for survey control.
DD1662
DD1662.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
DD1662.See file dsdata.txt to determine how the superseded data were derived.
DD1662
DD1662_U.S. NATIONAL GRID SPATIAL ADDRESS: 17SPT9808732098(NAD 83)
DD1662
DD1662_MARKER: DD = SURVEY DISK
DD1662_SETTING: 31 = SET IN A PAVEMENT SUCH AS STREET, SIDEWALK, CURB, ETC.
DD1662_SP_SET: MEDIAN
DD1662_STAMPING: AZ MK 026-055 1981
DD1662_MARK LOGO: SCGS
DD1662_MAGNETIC: N = NO MAGNETIC MATERIAL
DD1662_STABILITY: D = MARK OF QUESTIONABLE OR UNKNOWN STABILITY
DD1662_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR
DD1662+SATELLITE: SATELLITE OBSERVATIONS - July 29, 2008
DD1662
DD1662  HISTORY     - Date     Condition        Report By
DD1662  HISTORY     - 1981     MONUMENTED       MJH
DD1662  HISTORY     - 1985     GOOD             SCGS
DD1662  HISTORY     - 19900424 GOOD             NGS
DD1662  HISTORY     - 19970618 GOOD             SCGS
DD1662  HISTORY     - 20071124 GOOD             GEOCAC
DD1662  HISTORY     - 20080729 GOOD             SCGS
DD1662
DD1662                          STATION DESCRIPTION
DD1662
DD1662'DESCRIBED BY SOUTH CAROLINA GEODETIC SURVEY 1985
DD1662'2.7 KM (1.7 MI) NE FROM MYRTLE BEACH.
DD1662'2.7 KM (1.7 MI) NORTHEAST ALONG U.S. HIGHWAY 17 BUSINESS (KINGS
DD1662'HIGHWAY) FROM THE JUNCTION OF U.S. HIGHWAY 501 (MAIN STREET) IN
DD1662'MYRTLE BEACH, SET IN THE NORTHEAST END OF A CONCRETE MEDIAN SOUTHWEST
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DD1662'OF THE INTERSECTION OF 31ST AVENUE NORTH.
DD1662'THE MARK IS 0.30 M ABOVE HIGHWAY.
DD1662
DD1662                          STATION RECOVERY (1990)
DD1662
DD1662'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1990
DD1662'RECOVERED IN GOOD CONDITION.
DD1662
DD1662                          STATION RECOVERY (1997)
DD1662
DD1662'RECOVERY NOTE BY SOUTH CAROLINA GEODETIC SURVEY 1997 (DDW)
DD1662'STATION IS LOCATED IN MYRTLE BEACH, 13.75 MILES (22.13 KM) EAST
DD1662'SOUTHEAST OF CONWAY.  OWNERSHIP--SCDOT, DIRECTOR OF PRECONSTRUCTION,
DD1662'P.O.  BOX 191, COLUMBIA, SC 29202, PHONE 803-737-1350.  TO REACH THE
DD1662'STATION FROM THE JUNCTION OF U.S.  HIGHWAYS 17 BUSINESS (KINGS
DD1662'HIGHWAY) AND 501 (MAIN STREET) IN MYRTLE BEACH, GO EAST NORTHEAST ON
DD1662'HIGHWAY 17 BUSINESS FOR 1.7 MILES (2.7 KM) TO THE STATION IN THE
DD1662'CONCRETE MEDIAN SOUTHWEST OF THE JUNCTION OF STATE ROAD 352 (31ST
DD1662'AVENUE NORTH) .  STATION IS A DISK IN A DRILL HOLE IN THE CONCRETE
DD1662'MEDIAN AND 0.5 FOOT (15.2 CM) ABOVE THE HIGHWAY, 13.2 FEET (4.0 M)
DD1662'SOUTHWEST OF THE NORTHEAST END OF THE MEDIAN, 20.7 FEET (6.3 M)
DD1662'SOUTHEAST OF THE CENTER OF THE SOUTHBOUND LANES OF THE HIGHWAY, 52.6
DD1662'FEET (16.0 M) SOUTHWEST OF THE CENTER OF THE ROAD, 127.3 FEET (38.8 M)
DD1662'NORTH OF THE NORTH CORNER OF THE MAIN PART OF THE TRINITY EPISCOPAL
DD1662'CHURCH, 39.8 FEET (12.1 M) SOUTH OF A POWER POLE NUMBER 49018 WITH GUY
DD1662'WIRE AND STREET LIGHT, 5.4 FEET (1.6 M) SOUTHWEST OF A REFLECTOR POST
DD1662'IN THE MEDIAN.  NOTE-SANDBAGS REQUIRED FOR GPS OBSERVATIONS.  RECOVERY
DD1662'BY C.E.  GEOGHEGAN.
DD1662
DD1662                          STATION RECOVERY (2007)
DD1662
DD1662'RECOVERY NOTE BY GEOCACHING 2007 (EK)
DD1662'RECOVERED IN GOOD CONDITION.
DD1662
DD1662                          STATION RECOVERY (2008)
DD1662
DD1662'RECOVERY NOTE BY SOUTH CAROLINA GEODETIC SURVEY 2008 (DDW)
DD1662'STATION IS LOCATED 9.6 MI (15.5 KM) NORTHEAST OF SURFSIDE BEACH, 8.1
DD1662'MI (13.0 KM) EAST-NORTHEAST OF SOCASTEE, 2.0 MI (3.3 KM) NORTHEAST OF
DD1662'MYRTLE BEACH.  OWNERSHIP--SCDOT, DIRECTOR OF PRECONSTRUCTION, P.O. BOX
DD1662'191, COLUMBIA, SC 29202, PHONE 803-737-1350.
DD1662'
DD1662'TO REACH THE STATION FROM THE JUNCTION OF U.S. HIGHWAYS 17 (KINGS
DD1662'HIGHWAY) AND 501 (MAIN STREET) IN MYRTLE BEACH, GO NORTHEAST ON
DD1662'HIGHWAY 17 FOR 1.7 MI (2.7 KM) TO THE STATION IN THE NORTHEAST END OF
DD1662'A CONCRETE MEDIAN AT THE JUNCTION OF STATE ROAD 352 (31ST AVENUE
DD1662'NORTH). STATION IS A DISK SET IN A DRILL HOLE AND 0.5 FT (0.2 M) ABOVE
DD1662'THE ROAD, 21.0 FT (6.4 M) NORTHWEST OF THE CENTER OF THE NORTHBOUND
DD1662'LANES OF HIGHWAY, 20.5 FT (6.2 M) SOUTHEAST OF THE CENTER OF THE
DD1662'SOUTHBOUND LANES OF HIGHWAY, 13.0 FT (4.0 M) SOUTHWEST OF THE
DD1662'NORTHEAST END OF THE MEDIAN, 52.5 FT (16.0 M) SOUTHWEST OF THE CENTER
DD1662'OF ROAD 352. RECOVERED BY R.P.  MCKEOWN.
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**NGS DATA SHEET: 026 058 AZ MK (DD1638)**

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DD1638 ***********************************************************************
DD1638  DESIGNATION -  026 058 AZ MK
DD1638  PID         -  DD1638
DD1638  STATE/COUNTY-  SC/HORRY
DD1638  COUNTRY     -  US
DD1638  USGS QUAD   -  MYRTLE BEACH (1994)
DD1638
DD1638                        *CURRENT SURVEY CONTROL
DD1638 ______________________________________________________________________
DD1638* NAD 83(2011) POSITION- 33 44 51.41244(N) 078 57 31.19549(W)   ADJUSTED
DD1638* NAD 83(2011) ELLIP HT-   -25.068 (meters)        (06/27/12)   ADJUSTED
DD1638* NAD 83(2011) EPOCH   -  2010.00
DD1638* NAVD 88 ORTHO HEIGHT -     9.405  (meters)      30.86  (feet) ADJUSTED
DD1638 ______________________________________________________________________
DD1638  NAD 83(2011) X  -  1,016,733.862 (meters)                     COMP
DD1638  NAD 83(2011) Y  - -5,210,570.220 (meters)                     COMP
DD1638  NAD 83(2011) Z  -  3,523,189.643 (meters)                     COMP
DD1638  LAPLACE CORR    -         -3.88  (seconds)                    DEFLEC12A
DD1638  GEOID HEIGHT    -        -34.46  (meters)                     GEOID12A
DD1638  DYNAMIC HEIGHT  -          9.395 (meters)       30.82  (feet) COMP
DD1638  MODELED GRAVITY -    979,629.6   (mgal)                       NAVD 88
DD1638
DD1638  VERT ORDER      -  FIRST     CLASS II
DD1638
DD1638  FGDC Geospatial Positioning Accuracy Standards (95% confidence, cm)
DD1638  Type                                           Horiz  Ellip  Dist(km)
DD1638  ----------------------------------------------------------------------
DD1638  NETWORK                                         0.67   1.06
DD1638  ----------------------------------------------------------------------
DD1638  MEDIAN LOCAL ACCURACY AND DIST (003 points)   0.49   0.65      3.00
DD1638  ----------------------------------------------------------------------
DD1638  NOTE: Click here for information on individual local accuracy
DD1638  values and other accuracy information.
DD1638
DD1638
DD1638.The horizontal coordinates were established by GPS observations
DD1638.and adjusted by the National Geodetic Survey in June 2012.
DD1638
DD1638.NAD 83(2011) refers to NAD 83 coordinates where the reference
DD1638.frame has been affixed to the stable North American tectonic plate. See
DD1638.NA2011 for more information.
DD1638
DD1638.The horizontal coordinates are valid at the epoch date displayed above
DD1638.which is a decimal equivalence of Year/Month/Day.
DD1638
DD1638.The orthometric height was determined by differential leveling and
DD1638.adjusted by the NATIONAL GEODETIC SURVEY
DD1638.in June 1991.
DD1638
DD1638.The X, Y, and Z were computed from the position and the ellipsoidal ht.
DD1638
DD1638.The Laplace correction was computed from DEFLEC12A derived deflections.
DD1638
DD1638.The ellipsoidal height was determined by GPS observations
DD1638.and is referenced to NAD 83.
DD1638
DD1638.The dynamic height is computed by dividing the NAVD 88
DD1638.geopotential number by the normal gravity value computed on the
DD1638.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
DD1638.degrees latitude (g = 980.6199 gals.).
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DD1638
DD1638.The modeled gravity was interpolated from observed gravity values.
DD1638
DD1638. The following values were computed from the NAD 83(2011) position.
DD1638
DD1638;                    North         East     Units Scale Factor Converg.
DD1638;SPC SC       -   214,153.533   798,693.022   MT  0.99979459   +1 07 54.2
DD1638;SPC SC       -   702,603.45  2,620,383.93   iFT  0.99979459   +1 07 54.2
DD1638;UTM  17      - 3,736,044.266   689,083.949   MT  1.00004078   +1 08 03.7
DD1638
DD1638!             -  Elev Factor  x  Scale Factor =   Combined Factor
DD1638!SPC SC       -   1.00000394  x   0.99979459  =   0.99979852
DD1638!UTM  17      -   1.00000394  x   1.00004078  =   1.00004472
DD1638
DD1638:                Primary Azimuth Mark                    Grid Az
DD1638:SPC SC       -  MB SPEEDWAY                             131 47 37.0
DD1638:UTM  17      -  MB SPEEDWAY                             131 47 27.5
DD1638
DD1638|---------------------------------------------------------------------|
DD1638| PID    Reference Object                    Distance      Geod. Az  |
DD1638|                                                          dddmmss.s |
DD1638| DL3257 MB SPEEDWAY                       APPROX. 0.5 KM 1325531.2 |
DD1638|---------------------------------------------------------------------|
DD1638
DD1638                          SUPERSEDED SURVEY CONTROL
DD1638
DD1638  NAD 83(2007)-  33 44 51.41253(N)    078 57 31.19636(W) AD(2002.00) 1
DD1638  ELLIP H (05/15/09)  -25.048  (m)                       GP(2002.00) 3 1
DD1638  NAD 83(1986)-  33 44 51.42069(N)    078 57 31.20021(W) AD(       ) 2
DD1638  NAD 83(2001)-  33 44 51.41244(N)    078 57 31.19493(W) AD(       ) 2
DD1638  NAD 83(1986)-  33 44 51.42635(N)    078 57 31.20048(W) AD(       ) 2
DD1638  NAD 27      -  33 44 50.80675(N)    078 57 32.08416(W) AD(       ) 2
DD1638  NAVD 88 (06/10/03)    9.41   (m)           30.9    (f) LEVELING    3
DD1638  NGVD 29 (03/21/89)    9.716  (m)           31.88   (f) ADJUSTED    1 2
DD1638
DD1638.Superseded values are not recommended for survey control.
DD1638
DD1638.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
DD1638.See file dsdata.txt to determine how the superseded data were derived.
DD1638
DD1638_U.S. NATIONAL GRID SPATIAL ADDRESS: 17SPT8908336044(NAD 83)
DD1638
DD1638_MARKER: DD = SURVEY DISK
DD1638_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT
DD1638_SP_SET: CONCRETE POST
DD1638_STAMPING: AZ MK 026 - 058 1981
DD1638_MARK LOGO: SCGS
DD1638_PROJECTION: RECESSED 5 CENTIMETERS
DD1638_MAGNETIC: M = MARKER EQUIPPED WITH BAR MAGNET
DD1638_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO
DD1638+STABILITY: SURFACE MOTION
DD1638_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR
DD1638+SATELLITE: SATELLITE OBSERVATIONS - June 02, 2008
DD1638
DD1638  HISTORY     - Date     Condition        Report By
DD1638  HISTORY     - 1981     MONUMENTED       MJH
DD1638  HISTORY     - 1986     GOOD             SCGS
DD1638  HISTORY     - 19970709 GOOD             SCGS
DD1638  HISTORY     - 20080602 GOOD             SCGS
DD1638
DD1638                          STATION DESCRIPTION
DD1638
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DD1638'DESCRIBED BY SOUTH CAROLINA GEODETIC SURVEY 1986
DD1638'9.3 KM (5.8 MI) NW FROM MYRTLE BEACH.
DD1638'9.3 KM (5.8 MI) NORTHWEST ALONG U.S. HIGHWAY 501 (MAIN STREET) FROM
DD1638'THE JUNCTION OF U.S. HIGHWAY 17 BUSINESS (KINGS HIGHWAY) IN MYRTLE
DD1638'BEACH, SET NEAR A POWER POLE IN THE NORTHWEST ANGLE OF STATE ROAD 1014
DD1638'(GREENLEAF CIRCLE), 4.05 METERS (13.29 FT) SOUTH SOUTHEAST OF THE
DD1638'POWER POLE NUMBER 134, 25.4 METERS (83.33 FT) WEST SOUTHWEST OF THE
DD1638'CENTER OF THE SOUTHBOUND LANES OF THE HIGHWAY, 36.83 METERS
DD1638'(120.83 FT) NORTH NORTHWEST OF THE CENTER OF THE STATE ROAD,
DD1638'40.9 METERS (134.19 FT) EAST NORTHEAST OF THE NORTHEAST CORNER OF A
DD1638'BUILDING (CYCLE WORLD).
DD1638'THE MARK IS 5.50 METERS  W FROM A WITNESS POST.
DD1638'THE MARK IS ABOVE LEVEL WITH STATE ROAD.
DD1638
DD1638                          STATION RECOVERY (1997)
DD1638
DD1638'RECOVERY NOTE BY SOUTH CAROLINA GEODETIC SURVEY 1997 (DDW)
DD1638'STATION IS LOCATED 5.7 MILES (9.2 KM) NORTHWEST OF MYRTLE BEACH, 8.0
DD1638'MILES (12.9 KM) SOUTHEAST OF CONWAY.  OWNERSHIP--MIKE FRIEDMAN, 4405
DD1638'HIGHWAY 501, MYRTLE BEACH, SC 29577, PHONE 803-236-3079.  TO REACH THE
DD1638'STATION FROM THE JUNCTION OVERPASS OF U.S.  HIGHWAYS 17 (MARK GARNER
DD1638'HIGHWAY) AND 501, 2.1 MILES (3.4 KM) NORTHWEST OF MYRTLE BEACH, GO
DD1638'NORTHWEST ON HIGHWAY 501 FOR 3.7 MILES (6.0 KM) TO THE STATION NEAR A
DD1638'SIGN FOR GOLFEX IN THE NORTHWEST ANGLE OF THE 2ND JUNCTION OF STATE
DD1638'ROAD 1014 (GREENLEAF CIRCLE) .  STATION IS A CONCRETE POST RECESSED
DD1638'0.3 FOOT (9.1 CM) AND 2.0 FEET (0.6 M) BELOW THE HIGHWAY, 83.4 FEET
DD1638'(25.4 M) WEST SOUTHWEST OF THE CENTER OF THE SOUTHBOUND LANES OF THE
DD1638'HIGHWAY, 120.9 FEET (36.9 M) NORTH NORTHWEST OF THE CENTER OF THE
DD1638'ROAD, 28.9 FEET (8.8 M) SOUTH OF THE SOUTHWEST LEG OF THE SIGN, 45.2
DD1638'FEET (13.8 M) SOUTH SOUTHEAST OF A POWER POLE NUMBER 84215, 152.6 FEET
DD1638'(46.5 M) NORTHEAST OF THE SOUTHEAST CORNER OF A BUILDING (GOLFEX) ,
DD1638'77.4 FEET (23.6 M) NORTH NORTHWEST OF A MANHOLE COVER.  NOTE-STATION
DD1638'IS INTERVISIBLE WITH SURVEY STATION 026 058.  RECOVERED BY C.E.
DD1638'GEOGHEGAN.
DD1638
DD1638                          STATION RECOVERY (2008)
DD1638
DD1638'RECOVERY NOTE BY SOUTH CAROLINA GEODETIC SURVEY 2008 (DDW)
DD1638'STATION IS LOCATED 8.0 MI (12.8 KM) SOUTHEAST OF CONWAY, 5.8 MI (9.3
DD1638'KM) NORTHWEST OF MYRTLE BEACH, 5.0 MI (8.1 KM) NORTH-NORTHEAST OF
DD1638'SOCASTEE.   OWNERSHIP--SCDOT, DIRECTOR OF PRECONSTRUCTION, P.O. BOX
DD1638'191, COLUMBIA, SC 29202, PHONE 803-737-1350.
DD1638'
DD1638'TO REACH THE STATION FROM THE WEST JUNCTION OVERPASS OF U.S. HIGHWAY
DD1638'501 AND STATE HIGHWAY 31, 5.2 MI (8.4 KM) NORTHWEST OF MYRTLE BEACH,
DD1638'GO NORTH-NORTHWEST ON HIGHWAY 501 FOR 0.55 MI (0.9 KM) TO THE STATION
DD1638'ON THE LEFT IN THE NORTHWEST ANGLE OF THE JUNCTION OF GREENLEAF
DD1638'CIRCLE. STATION IS A CONCRETE POST RECESSED 0.2 FT (0.1 M) AND 1.5 FT
DD1638'(0.5 M) BELOW THE HIGHWAY, 83.5 FT (25.5 M) WEST-SOUTHWEST OF THE
DD1638'CENTER OF THE SOUTHBOUND LANES OF THE HIGHWAY, 115.7 FT (35.3 M)
DD1638'NORTH-NORTHWEST OF THE CENTER OF THE ROAD, 45.5 FT (13.9 M)
DD1638'SOUTH-SOUTHEAST OF A POWER POLE NUMBER 84215 WITH GUY WIRE, 52.0 FT
DD1638'(15.8 M) NORTH OF THE A TELEPHONE JUNCTION BOX NUMBER 1/16, 134.3 FT
DD1638'(40.9 M) EAST-NORTHEAST OF THE NORTHEAST CORNER OF A METAL BUILDING
DD1638'(SHERWIN-WILLIAMS PAINT). RECOVERED BY R.P.  MCKEOWN.

**NGS DATA SHEET: 026 089 (DD1902)**

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DD1902 ************************************************************************
DD1902  DESIGNATION -  026 089
DD1902  PID         -  DD1902
DD1902  STATE/COUNTY-  SC/HORRY
DD1902  COUNTRY     -  US
DD1902  USGS QUAD   -  HAMMOND (1984)
DD1902
DD1902                        *CURRENT SURVEY CONTROL
DD1902 ______________________________________________________________________
DD1902* NAD 83(2011) POSITION- 33 58 38.38251(N) 078 51 20.24300(W)   ADJUSTED
DD1902* NAD 83(2011) ELLIP HT-   -20.251 (meters)        (06/27/12)   ADJUSTED
DD1902* NAD 83(2011) EPOCH   -  2010.00
DD1902* NAVD 88 ORTHO HEIGHT -    14.186  (meters)      46.54  (feet) ADJUSTED
DD1902 ______________________________________________________________________
DD1902  NAD 83(2011) X  -  1,023,359.733 (meters)                     COMP
DD1902  NAD 83(2011) Y  - -5,194,807.568 (meters)                     COMP
DD1902  NAD 83(2011) Z  -  3,544,350.125 (meters)                     COMP
DD1902  LAPLACE CORR    -         -4.71  (seconds)                    DEFLEC12A
DD1902  GEOID HEIGHT    -        -34.43  (meters)                     GEOID12A
DD1902  DYNAMIC HEIGHT  -         14.172 (meters)       46.50  (feet) COMP
DD1902  MODELED GRAVITY -    979,646.7   (mgal)                       NAVD 88
DD1902
DD1902  VERT ORDER      -  FIRST     CLASS II
DD1902
DD1902  FGDC Geospatial Positioning Accuracy Standards (95% confidence, cm)
DD1902  Type                                           Horiz  Ellip  Dist(km)
DD1902  ----------------------------------------------------------------------
DD1902  NETWORK                                         0.77   1.08
DD1902  ----------------------------------------------------------------------
DD1902  MEDIAN LOCAL ACCURACY AND DIST (003 points)   0.40   0.53      1.32
DD1902  ----------------------------------------------------------------------
DD1902  NOTE: Click here for information on individual local accuracy
DD1902  values and other accuracy information.
DD1902
DD1902
DD1902.The horizontal coordinates were established by GPS observations
DD1902.and adjusted by the National Geodetic Survey in June 2012.
DD1902
DD1902.NAD 83(2011) refers to NAD 83 coordinates where the reference
DD1902.frame has been affixed to the stable North American tectonic plate. See
DD1902.NA2011 for more information.
DD1902
DD1902.The horizontal coordinates are valid at the epoch date displayed above
DD1902.which is a decimal equivalence of Year/Month/Day.
DD1902
DD1902.The orthometric height was determined by differential leveling and
DD1902.adjusted by the NATIONAL GEODETIC SURVEY
DD1902.in June 1991.
DD1902
DD1902.The X, Y, and Z were computed from the position and the ellipsoidal ht.
DD1902
DD1902.The Laplace correction was computed from DEFLEC12A derived deflections.
DD1902
DD1902.The ellipsoidal height was determined by GPS observations
DD1902.and is referenced to NAD 83.
DD1902
DD1902.The dynamic height is computed by dividing the NAVD 88
DD1902.geopotential number by the normal gravity value computed on the
DD1902.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
DD1902.degrees latitude (g = 980.6199 gals.).
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DD1902
DD1902.The modeled gravity was interpolated from observed gravity values.
DD1902
DD1902. The following values were computed from the NAD 83(2011) position.
DD1902
DD1902;                    North         East     Units Scale Factor Converg.
DD1902;SPC SC       -   239,816.090   807,708.168   MT  0.99980805   +1 11 19.8
DD1902;SPC SC       -   786,798.20  2,649,961.18   iFT  0.99980805   +1 11 19.8
DD1902;UTM  17      - 3,761,714.536   698,098.656   MT  1.00008378   +1 11 55.7
DD1902
DD1902!             -  Elev Factor  x  Scale Factor =   Combined Factor
DD1902!SPC SC       -   1.00000318  x   0.99980805  =   0.99981123
DD1902!UTM  17      -   1.00000318  x   1.00008378  =   1.00008696
DD1902
DD1902:                Primary Azimuth Mark                    Grid Az
DD1902:SPC SC       -  026 089 AZ MK                           353 03 10.4
DD1902:UTM  17      -  026 089 AZ MK                           353 02 34.5
DD1902
DD1902|---------------------------------------------------------------------|
DD1902| PID    Reference Object                     Distance      Geod. Az  |
DD1902|                                                           dddmmss.s |
DD1902| DD1903 026 089 RM 1                                       17702     |
DD1902| DD1904 026 089 AZ MK                      APPROX. 0.5 KM 3541430.2 |
DD1902|---------------------------------------------------------------------|
DD1902
DD1902                          SUPERSEDED SURVEY CONTROL
DD1902
DD1902  NAD 83(2007)-  33 58 38.38270(N)    078 51 20.24385(W) AD(2002.00) 1
DD1902  ELLIP H (05/15/09)  -20.241  (m)                       GP(2002.00) 3 1
DD1902  NAD 83(2001)-  33 58 38.38436(N)    078 51 20.24372(W) AD(       ) 2
DD1902  NAD 83(1986)-  33 58 38.39216(N)    078 51 20.24884(W) AD(       ) 2
DD1902  NAD 27      -  33 58 37.77691(N)    078 51 21.16869(W) AD(       ) 2
DD1902  NAVD 88 (05/15/09)   14.19   (m)           46.6    (f) LEVELING    3
DD1902  NGVD 29 (03/21/89)   14.501  (m)           47.58   (f) ADJUSTED    1 2
DD1902
DD1902.Superseded values are not recommended for survey control.
DD1902
DD1902.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
DD1902.See file dsdata.txt to determine how the superseded data were derived.
DD1902
DD1902_U.S. NATIONAL GRID SPATIAL ADDRESS: 17SPT9809861714(NAD 83)
DD1902
DD1902_MARKER: DD = SURVEY DISK
DD1902_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT
DD1902_SP_SET: CONCRETE POST
DD1902_STAMPING: HORZ 026 - 089 1981
DD1902_MARK LOGO: SCGS
DD1902_PROJECTION: FLUSH
DD1902_MAGNETIC: M = MARKER EQUIPPED WITH BAR MAGNET
DD1902_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO
DD1902+STABILITY: SURFACE MOTION
DD1902_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR
DD1902+SATELLITE: SATELLITE OBSERVATIONS - May 20, 2008
DD1902
DD1902  HISTORY     - Date     Condition        Report By
DD1902  HISTORY     - 1981     MONUMENTED       SCGS
DD1902  HISTORY     - 1986     GOOD             SCGS
DD1902  HISTORY     - 20080520 GOOD             SCGS
DD1902
DD1902                          STATION DESCRIPTION
DD1902
DD1902'DESCRIBED BY SOUTH CAROLINA GEODETIC SURVEY 1981 (MHH)
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DD1902'THE STATION IS LOCATED ABOUT 5 MILES SOUTHEAST OF LORIS, ON THE EAST
DD1902'SIDE OF STATE HIGHWAY 33 ON HIGHWAY RIGHT OF WAY IN FRONT OF MR.
DD1902'KINGS RESIDENCE.
DD1902'
DD1902'TO REACH THE STATION FROM THE JUNCTION OF U.S. HIGHWAY 701 AND STATE
DD1902'HIGHWAY 9 IN LORIS, GO EAST ON HIGHWAY 9 FOR 0.2 MILE TO BRYANT
DD1902'STREET ON THE RIGHT.  TURN RIGHT, SOUTHEAST, ON THE PAVED ROAD FOR
DD1902'4.2 MILES TO A CROSSROAD IN THE DAISY COMMUNITY.  CONTINUE AHEAD FOR
DD1902'0.25 MILE TO A CROSSROAD CONTINUE AHEAD FOR (0.95) TO AZIMUTH ON
DD1902'THE RIGHT BY POWER POLE 10-176, STATION IS (0.35 MI) SSE ON S-26-31
DD1902'A BRICK HOUSE AND STATION ON THE RIGHT BY NORTH DRIVEWAY
DD1902'
DD1902'THE STATION IS A STANDARD SOUTH CAROLINA GEODETIC SURVEY DISK STAMPED
DD1902'---026-089 HORZ 1981---SET INTO THE TOP OF A ROUND CONCRETE MONUMENT
DD1902'30 CM IN DIAMETER FLUSH WITH THE GROUND LOCATED  6.4 METERS W FROM
DD1902'THE CENTER OF HIGHWAY,  6.1 METERS S FROM THE CENTER OF DRIVEWAY,
DD1902'35.4 METERS N FROM THE CENTER OF DRIVEWAY,  6.1 METERS ESE FROM THE
DD1902'CENTER OF BRICK POST WITH LAMP, AND 35.9 METERS E FROM THE NORTHEAST
DD1902'CORNER OF BRICK HOUSE.
DD1902'
DD1902'REFERENCE MARK NO. 1 IS A STANDARD SOUTH CAROLINA GEODETIC SURVEY
DD1902'DISK STAMPED---026-089 RM 1 1981---SET INTO THE TOP OF A ROUND
DD1902'CONCRETE MONUMENT  30 CM IN DIAMETER RECESSED 2 INCHES BELOW THE
DD1902'GROUND LOCATED  8.5 METERS W FROM THE CENTER OF HIGHWAY, 10.7 METERS
DD1902'S FROM THE CENTER OF DRIVEWAY,  2.7 METERS S FROM THE TELEPHONE
DD1902'UNDERGROUND JUNCTION BOX, AND  4.9 METERS S FROM THE CENTER OF
DD1902'EXTENDED SAND ROAD.
DD1902'
DD1902'AZIMUTH MARK NO. 1 IS A STANDARD SCGS DISK STAMPED
DD1902'---026-089 AZ MK 1981---SET INTO THE TOP OF A ROUND CONCRETE
DD1902'MONUMENT 30 CM IN DIAMETER AND FLUSH WITH THE GROUND  SURFACE
DD1902'LOCATED  1.6 METERS S FROM POWERLINE POLE NO. 10-176,  5.3 METERS W
DD1902'FROM CENTER OF COUNTY ROAD, 16.3 METERS W FROM UNDERGROUND JUNCTION
DD1902'BOX 28, AND  2.6 METERS S FROM THE EXTENDED CENTER OF SAND ROAD.
DD1902'TO REACH THE AZIMUTH MARK FROM STATION GO 0.41
DD1902'K (0.35 MI) NORTH-NORTHWEST TO THE MARK ON LEFT.
DD1902
DD1902                          STATION RECOVERY (1986)
DD1902
DD1902'RECOVERY NOTE BY SOUTH CAROLINA GEODETIC SURVEY 1986
DD1902'9.3 KM (5.8 MI) SE FROM LORIS.
DD1902'0.25 KM (0.15 MI) SOUTHEAST ALONG STATE HIGHWAY 9 BUSINESS (MAIN
DD1902'STREET) FROM  THE JUNCTION OF U.S. HIGHWAY 701 (BROAD STREET)IN LORIS,
DD1902'THENCE 9.25 KM (5.75 MI) SOUTHERLY ALONG STATE ROAD 31 (BRYANT
DD1902'STREET), SET IN THE SOUTHWEST ANGLE OF THE NORTH SAND DRIVE TO A ONE
DD1902'STORY BRICK HOUSE, 1.8 KM (1.1 MI) SOUTH OF THE DAISY ELEMENTARY
DD1902'SCHOOL, 41.1 METERS (134.8 FT) EAST NORTHEAST OF THE SOUTHEAST CORNER
DD1902'OF THE HOUSE, 6.15 METERS (20.2 FT) WEST OF THE CENTER OF THE ROAD,
DD1902'5.81 METERS (19.1 FT) EAST SOUTHEAST OF THE NORTHEAST CORNER OF A 3
DD1902'FOOT HIGH BRICK PILLAR WITH A SECURITY LIGHT ATTACHED, 5.6 METERS
DD1902'(18.4 FT) SOUTH OF THE CENTER OF THE DRIVE.
DD1902'THE MARK IS ABOVE LEVEL WITH THE ROAD.
DD1902
DD1902                          STATION RECOVERY (2008)
DD1902
DD1902'RECOVERY NOTE BY SOUTH CAROLINA GEODETIC SURVEY 2008 (DDW)
DD1902'STATION IS LOCATED 14.8 MI (23.8 KM) NORTHEAST OF CONWAY, 11.9 MI
DD1902'(19.2 KM) SOUTH OF TABOR CITY, 5.8 MI (9.3 KM) SOUTH-SOUTHEAST OF
DD1902'LORIS.   OWNERSHIP--SCDOT, DIRECTOR OF PRECONSTRUCTION, P.O. BOX 191,
DD1902'COLUMBIA, SC 29202, PHONE 803-737-1350.
DD1902'
DD1902'TO REACH THE STATION FROM THE JUNCTION OF U.S. HIGHWAY 701 (BROAD

DD1902'STREET) AND STATE HIGHWAY 9 BUSINESS (MAIN STREET) IN LORIS, GO
DD1902'SOUTHEAST ON HIGHWAY 9 FOR 0.25 MI (0.4 KM) TO THE JUNCTION OF STATE
DD1902'ROAD 31 (BRYANT STREET), TURN RIGHT ON ROAD 31 FOR 5.75 MI (9.3 KM) TO
DD1902'THE STATION ON THE RIGHT IN THE SOUTHWEST ANGLE OF THE NORTHERN SAND
DD1902'DRIVEWAY TO A BRICK HOUSE. STATION IS A CONCRETE POST FLUSH WITH THE
DD1902'GROUND AND LEVEL WITH THE ROAD, 135.0 FT (41.1 M) EAST-NORTHEAST OF
DD1902'THE SOUTHEAST CORNER OF THE HOUSE, 20.2 FT (6.2 M) WEST OF THE CENTER
DD1902'OF THE ROAD, 19.0 FT (5.8 M) EAST-SOUTHEAST OF THE NORTHEAST CORNER OF
DD1902'A 3-FOOT TALL BRICK PILLAR WITH A SECURITY LIGHT, 18.5 FT (5.6 M)
DD1902'SOUTH OF THE CENTER OF THE DRIVEWAY.
DD1902'
DD1902'NOTE-STATION IS INTERVISIBLE WITH SURVEY STATION 026 089 AZ MK.
DD1902'RECOVERED BY T. HALL.

**NGS DATA SHEET: 026 096 AZ MK (EB1874)**

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EB1874 ***********************************************************************
EB1874  DESIGNATION -  026 096 AZ MK
EB1874  PID         -  EB1874
EB1874  STATE/COUNTY-  SC/HORRY
EB1874  COUNTRY     -  US
EB1874  USGS QUAD   -  GALIVANTS FERRY (1980)
EB1874
EB1874                        *CURRENT SURVEY CONTROL
EB1874  ______________________________________________________________________
EB1874* NAD 83(2011) POSITION- 34 06 32.09793(N) 079 09 27.64873(W)   ADJUSTED
EB1874* NAD 83(2011) ELLIP HT-   -11.296 (meters)        (06/27/12)   ADJUSTED
EB1874* NAD 83(2011) EPOCH   -  2010.00
EB1874* NAVD 88 ORTHO HEIGHT -    22.446  (meters)      73.64  (feet) ADJUSTED
EB1874  ______________________________________________________________________
EB1874  NAD 83(2011) X  -    994,423.527 (meters)                    COMP
EB1874  NAD 83(2011) Y  - -5,192,112.423 (meters)                    COMP
EB1874  NAD 83(2011) Z  -  3,556,449.687 (meters)                    COMP
EB1874  LAPLACE CORR    -         -3.50  (seconds)                   DEFLEC12A
EB1874  GEOID HEIGHT    -        -33.73  (meters)                    GEOID12A
EB1874  DYNAMIC HEIGHT  -         22.424 (meters)       73.57  (feet) COMP
EB1874  MODELED GRAVITY -    979,647.0   (mgal)                      NAVD 88
EB1874
EB1874  VERT ORDER      -  FIRST     CLASS II
EB1874
EB1874  FGDC Geospatial Positioning Accuracy Standards (95% confidence, cm)
EB1874  Type                                           Horiz  Ellip  Dist(km)
EB1874  ----------------------------------------------------------------------
EB1874  NETWORK                                         0.82   1.18
EB1874  ----------------------------------------------------------------------
EB1874  MEDIAN LOCAL ACCURACY AND DIST (003 points)   0.73   1.06      6.33
EB1874  ----------------------------------------------------------------------
EB1874  NOTE: Click here for information on individual local accuracy
EB1874  values and other accuracy information.
EB1874
EB1874
EB1874.The horizontal coordinates were established by GPS observations
EB1874.and adjusted by the National Geodetic Survey in June 2012.
EB1874
EB1874.NAD 83(2011) refers to NAD 83 coordinates where the reference
EB1874.frame has been affixed to the stable North American tectonic plate. See
EB1874.NA2011 for more information.
EB1874
EB1874.The horizontal coordinates are valid at the epoch date displayed above
EB1874.which is a decimal equivalence of Year/Month/Day.
EB1874
EB1874.The orthometric height was determined by differential leveling and
EB1874.adjusted by the NATIONAL GEODETIC SURVEY
EB1874.in June 1991.
EB1874
EB1874.The X, Y, and Z were computed from the position and the ellipsoidal ht.
EB1874
EB1874.The Laplace correction was computed from DEFLEC12A derived deflections.
EB1874
EB1874.The ellipsoidal height was determined by GPS observations
EB1874.and is referenced to NAD 83.
EB1874
EB1874.The dynamic height is computed by dividing the NAVD 88
EB1874.geopotential number by the normal gravity value computed on the
EB1874.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
EB1874.degrees latitude (g = 980.6199 gals.).
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EB1874
EB1874.The modeled gravity was interpolated from observed gravity values.
EB1874
EB1874. The following values were computed from the NAD 83(2011) position.
EB1874
EB1874;                    North         East     Units Scale Factor Converg.
EB1874;SPC SC       -   253,868.945   779,545.695   MT  0.99982299   +1 01 17.0
EB1874;SPC SC       -   832,903.36  2,557,564.62   iFT  0.99982299   +1 01 17.0
EB1874;UTM  17      - 3,775,764.805   669,927.747   MT  0.99995596   +1 02 00.1
EB1874
EB1874!             -  Elev Factor  x  Scale Factor =   Combined Factor
EB1874!SPC SC       -   1.00000177  x   0.99982299  =   0.99982476
EB1874!UTM  17      -   1.00000177  x   0.99995596  =   0.99995773
EB1874
EB1874|---------------------------------------------------------------------|
EB1874| PID    Reference Object                     Distance      Geod. Az  |
EB1874|                                                           dddmmss.s |
EB1874| EB1873 026 096                           349.709 METERS 02529     |
EB1874|---------------------------------------------------------------------|
EB1874
EB1874                          SUPERSEDED SURVEY CONTROL
EB1874
EB1874  NAD 83(2007)-  34 06 32.09809(N)    079 09 27.64965(W) AD(2002.00) 1
EB1874  ELLIP H (05/15/09)  -11.286  (m)                       GP(2002.00) 3 1
EB1874  NAD 83(2001)-  34 06 32.10271(N)    079 09 27.64625(W) AD(       ) 2
EB1874  NAD 83(1986)-  34 06 32.11075(N)    079 09 27.64933(W) AD(       ) 2
EB1874  NAD 27      -  34 06 31.51888(N)    079 09 28.50017(W) AD(       ) 2
EB1874  NAVD 88 (05/15/09)   22.45   (m)           73.7    (f) LEVELING    3
EB1874  NGVD 29 (03/21/89)   22.753  (m)           74.65   (f) ADJUSTED    1 2
EB1874
EB1874.Superseded values are not recommended for survey control.
EB1874
EB1874.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
EB1874.See file dsdata.txt to determine how the superseded data were derived.
EB1874
EB1874_U.S. NATIONAL GRID SPATIAL ADDRESS: 17SPT6992775764(NAD 83)
EB1874
EB1874_MARKER: DD = SURVEY DISK
EB1874_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT
EB1874_SP_SET: CONCRETE POST
EB1874_STAMPING: AZ MK 026 - 096 1981
EB1874_MARK LOGO: SCGS
EB1874_PROJECTION: FLUSH
EB1874_MAGNETIC: M = MARKER EQUIPPED WITH BAR MAGNET
EB1874_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO
EB1874+STABILITY: SURFACE MOTION
EB1874_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR
EB1874+SATELLITE: SATELLITE OBSERVATIONS - May 19, 2008
EB1874
EB1874  HISTORY     - Date     Condition        Report By
EB1874  HISTORY     - 1981     MONUMENTED       MJH
EB1874  HISTORY     - 1986     GOOD             SCGS
EB1874  HISTORY     - 20011002 GOOD             SCGS
EB1874  HISTORY     - 20080519 GOOD             SCGS
EB1874
EB1874                           STATION DESCRIPTION
EB1874
EB1874'DESCRIBED BY SOUTH CAROLINA GEODETIC SURVEY 1986
EB1874'13.7 KM (8.5 MI) SOUTH FROM NICHOLS.
EB1874'2.65 KM (1.65 MI) EAST SOUTHEAST ALONG U.S. HIGHWAY 76 AND STATE
EB1874'HIGHWAY 9 (SOUTH NICHOLS STREET) FROM THE JUNCTION OF STATE HIGHWAY 9
EB1874'(NORTH MAIN STREET) IN NICHOLS TO A FORK LEFT (HIGHWAY 76 GOES EAST
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EB1874'NORTHEAST), CONTINUE 1.7 KM (1.05 MI) SOUTHEASTERLY ALONG HIGHWAY 9 TO
EB1874'THE JUNCTION OF STATE ROAD 23 (FLOYDS CROSSROADS), THENCE 6.4 KM
EB1874'(4.0 MI) SOUTHERLY ALONG ROAD 23 TO THE JUNCTION OF STATE ROAD 266 AND
EB1874'THE CEDAR CREEK BAPTIST CHURCH, THENCE 6.9 KM (4.3 MI) SOUTHWESTERLY
EB1874'ALONG ROAD 23, SET IN THE SOUTHWEST ANGLE OF A SAND DRIVEWAY LEADING
EB1874'TO A HOUSE, 0.4 KM (0.25 MI) SOUTH OF THE MOUNT PISGAH BAPTIST CHURCH,
EB1874'34.9 METERS (114.5 FT) NORTH OF A POWER POLE WITH A TRANSFORMER,
EB1874'8.0 METERS (26.2 FT) SOUTH SOUTHWEST OF THE CENTER  OF THE DRIVEWAY,
EB1874'6.18 METERS (20.3 FT) WEST NORTHWEST OF THE CENTER OF THE ROAD,
EB1874'5.35 METERS (17.6 FT) EAST NORTHEAST OF A 24 INCH PINE TREE.
EB1874'THE MARK IS 3.2 METERS  ESE FROM  A WITNESS POST
EB1874'THE MARK IS 0.30 M BELOW THE ROAD.
EB1874
EB1874                          STATION RECOVERY (2001)
EB1874
EB1874'RECOVERY NOTE BY SOUTH CAROLINA GEODETIC SURVEY 2001 (DDW)
EB1874'STATION IS LOCATED 8.65 MILES (13.92 KM) SOUTHEAST OF MULLINS, 19.85
EB1874'MILES (31.94 KM) NORTH NORTHWEST OF CONWAY.  OWNERSHIP--SCDOT,
EB1874'DIRECTOR OF PRECONSTRUCTION, P.O.  BOX 191, COLUMBIA, SC 29202, PHONE
EB1874'803-737-1350.  TO REACH THE STATION FROM THE EAST JUNCTION OF STATE
EB1874'HIGHWAY 917 (PARK STREET) AND U.S.  HIGHWAY 76 (MCKINTYRE STREET) IN
EB1874'MULLINS, GO SOUTH ON HIGHWAY 917 FOR 8.2 MILES (13.2 KM) TO THE
EB1874'JUNCTION OF STATE ROAD 23 (NICHOLS HIGHWAY) , TURN RIGHT ON ROAD 23
EB1874'FOR 1.1 MILES (1.8 KM) TO THE STATION ON THE RIGHT NEAR A TELEPHONE
EB1874'JUNCTION BOX OPPOSITE A WOODEN HOUSE NUMBER 685, 0.05 MILE (0.08 KM)
EB1874'NORTH NORTHEAST OF A FORKED SAND ROAD RIGHT (GERALD ROAD) .  STATION
EB1874'IS A CONCRETE POST RECESSED 0.1 FOOT (3.0 CM) AND 0.5 FOOT (15.2 CM)
EB1874'BELOW THE ROAD, 9.3 FEET (2.8 M) EAST NORTHEAST OF THE TELEPHONE
EB1874'JUNCTION BOX NUMBER 3/77.6, 20.0 FEET (6.1 M) WEST NORTHWEST OF THE
EB1874'CENTER OF THE ROAD, 68.5 FEET (20.9 M) SOUTH OF A POWER POLE NUMBER
EB1874'42-1 WITH GUY WIRE, 108.8 FEET (33.2 M) SOUTHWEST OF A POWER POLE
EB1874'NUMBER 12/42 WITH A TRANSFORMER AND GUY WIRE, 9.2 FEET (2.8 M) EAST
EB1874'NORTHEAST OF A WITNESS POST.  NOTE-STATION IS INTERVISIBLE WITH SURVEY
EB1874'STATION 026 096.
EB1874
EB1874                          STATION RECOVERY (2008)
EB1874
EB1874'RECOVERY NOTE BY SOUTH CAROLINA GEODETIC SURVEY 2008 (DDW)
EB1874'STATION IS LOCATED 8.6 MI (13.9 KM) SOUTHEAST OF MULLINS, 8.5 MI (13.7
EB1874'KM) SOUTH OF NICHOLS, 7.9 MI (12.8 KM) NORTH-NORTHEAST OF AYNOR.
EB1874'OWNERSHIP--SCDOT, DIRECTOR OF PRECONSTRUCTION, P.O. BOX 191, COLUMBIA,
EB1874'SC 29202, PHONE 803-737-1350.
EB1874'
EB1874'TO REACH THE STATION FROM THE EAST JUNCTION OF STATE HIGHWAY 917 (PARK
EB1874'STREET) AND U.S. HIGHWAY 76 (MCKINTYRE STREET) IN MULLINS, GO SOUTH ON
EB1874'HIGHWAY 917 FOR 8.2 MI (13.2 KM) TO THE JUNCTION OF STATE ROAD 23
EB1874'(NICHOLS HIGHWAY), TURN RIGHT ON ROAD 23 FOR 1.1 MI (1.8 KM) TO THE
EB1874'STATION ON THE RIGHT NEAR A TELEPHONE JUNCTION BOX OPPOSITE A WOODEN
EB1874'HOUSE NUMBER 685. STATION IS A CONCRETE POST FLUSH WITH THE GROUND AND
EB1874'0.5 FT (0.2 M) BELOW THE ROAD, 20.0 FT (6.1 M) WEST-NORTHWEST OF THE
EB1874'CENTER OF THE ROAD, 9.1 FT (2.8 M) NORTHEAST OF THE TELEPHONE JUNCTION
EB1874'BOX 3/77.6, 68.5 FT (20.9 M) SOUTH OF A POWER POLE 42-1 WITH GUY WIRE,
EB1874'8.3 FT (2.5 M) NORTHEAST OF A FIBERGLASS HTC BURIED FIBER OPTIC
EB1874'WARNING POST, 9.2 FT (2.8 M) NORTHEAST OF A WITNESS POST.
EB1874'
EB1874'NOTE-STATION IS INTERVISIBLE WITH SURVEY STATION 026 096. RECOVERED BY
EB1874'T. HALL.
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**NGS DATA SHEET: 26 213 (DD1648)**

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DD1648 ************************************************************************
DD1648  DESIGNATION -  26 213
DD1648  PID         -  DD1648
DD1648  STATE/COUNTY-  SC/HORRY
DD1648  COUNTRY     -  US
DD1648  USGS QUAD   -  BUCKSVILLE (1973)
DD1648
DD1648                        *CURRENT SURVEY CONTROL
DD1648  ______________________________________________________________________
DD1648* NAD 83(2011) POSITION- 33 44 20.69905(N) 079 01 28.66584(W)   ADJUSTED
DD1648* NAD 83(2011) ELLIP HT-   -28.595 (meters)        (06/27/12)   ADJUSTED
DD1648* NAD 83(2011) EPOCH   -  2010.00
DD1648* NAVD 88 ORTHO HEIGHT -     5.730  (meters)      18.80  (feet) ADJUSTED
DD1648  ______________________________________________________________________
DD1648  NAD 83(2011) X  -  1,010,833.835 (meters)                     COMP
DD1648  NAD 83(2011) Y  - -5,212,250.467 (meters)                     COMP
DD1648  NAD 83(2011) Z  -  3,522,400.811 (meters)                     COMP
DD1648  LAPLACE CORR    -         -2.96  (seconds)                    DEFLEC12A
DD1648  GEOID HEIGHT    -        -34.33  (meters)                     GEOID12A
DD1648  DYNAMIC HEIGHT  -          5.724 (meters)       18.78  (feet) COMP
DD1648  MODELED GRAVITY -    979,631.3   (mgal)                       NAVD 88
DD1648
DD1648  VERT ORDER      -  FIRST     CLASS II
DD1648
DD1648  FGDC Geospatial Positioning Accuracy Standards (95% confidence, cm)
DD1648  Type                                           Horiz  Ellip  Dist(km)
DD1648  ----------------------------------------------------------------------
DD1648  NETWORK                                         0.96   1.33
DD1648  ----------------------------------------------------------------------
DD1648  MEDIAN LOCAL ACCURACY AND DIST (002 points)   0.77   1.00      3.85
DD1648  ----------------------------------------------------------------------
DD1648  NOTE: Click here for information on individual local accuracy
DD1648  values and other accuracy information.
DD1648
DD1648
DD1648.The horizontal coordinates were established by GPS observations
DD1648.and adjusted by the National Geodetic Survey in June 2012.
DD1648
DD1648.NAD 83(2011) refers to NAD 83 coordinates where the reference
DD1648.frame has been affixed to the stable North American tectonic plate. See
DD1648.NA2011 for more information.
DD1648
DD1648.The horizontal coordinates are valid at the epoch date displayed above
DD1648.which is a decimal equivalence of Year/Month/Day.
DD1648
DD1648.The orthometric height was determined by differential leveling and
DD1648.adjusted by the NATIONAL GEODETIC SURVEY
DD1648.in June 1991.
DD1648
DD1648.The X, Y, and Z were computed from the position and the ellipsoidal ht.
DD1648
DD1648.The Laplace correction was computed from DEFLEC12A derived deflections.
DD1648
DD1648.The ellipsoidal height was determined by GPS observations
DD1648.and is referenced to NAD 83.
DD1648
DD1648.The dynamic height is computed by dividing the NAVD 88
DD1648.geopotential number by the normal gravity value computed on the
DD1648.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
DD1648.degrees latitude (g = 980.6199 gals.).
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DD1648
DD1648.The modeled gravity was interpolated from observed gravity values.
DD1648
DD1648. The following values were computed from the NAD 83(2011) position.
DD1648
DD1648;                    North         East     Units Scale Factor Converg.
DD1648;SPC SC       -   213,088.862   792,601.481   MT  0.99979439   +1 05 42.5
DD1648;SPC SC       -   699,110.44  2,600,398.56   iFT  0.99979439   +1 05 42.5
DD1648;UTM  17      - 3,734,979.084   682,991.039   MT  1.00001283   +1 05 50.8
DD1648
DD1648!             -  Elev Factor  x  Scale Factor =   Combined Factor
DD1648!SPC SC       -   1.00000449  x   0.99979439  =   0.99979888
DD1648!UTM  17      -   1.00000449  x   1.00001283  =   1.00001732
DD1648
DD1648                          SUPERSEDED SURVEY CONTROL
DD1648
DD1648  NAD 83(2007)-  33 44 20.69915(N)    079 01 28.66674(W) AD(2002.00) 1
DD1648  ELLIP H (05/15/09)  -28.572  (m)                       GP(2002.00) 3 1
DD1648  NAVD 88 (05/15/09)    5.73   (m)           18.8    (f) LEVELING    3
DD1648  NGVD 29 (03/21/89)    6.043  (m)           19.83   (f) ADJUSTED    1 2
DD1648
DD1648.Superseded values are not recommended for survey control.
DD1648
DD1648.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
DD1648.See file dsdata.txt to determine how the superseded data were derived.
DD1648
DD1648_U.S. NATIONAL GRID SPATIAL ADDRESS: 17SPT8299134979(NAD 83)
DD1648
DD1648_MARKER: DD = SURVEY DISK
DD1648_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT
DD1648_SP_SET: CONCRETE POST
DD1648_STAMPING: VERT 26 213 1986
DD1648_MARK LOGO: SCGS
DD1648_PROJECTION: RECESSED 15 CENTIMETERS
DD1648_MAGNETIC: M = MARKER EQUIPPED WITH BAR MAGNET
DD1648_STABILITY: B = PROBABLY HOLD POSITION/ELEVATION WELL
DD1648_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR
DD1648+SATELLITE: SATELLITE OBSERVATIONS - May 21, 2008
DD1648
DD1648  HISTORY     - Date     Condition        Report By
DD1648  HISTORY     - 1986     MONUMENTED       SCGS
DD1648  HISTORY     - 20080521 GOOD             SCGS
DD1648
DD1648                          STATION DESCRIPTION
DD1648
DD1648'DESCRIBED BY SOUTH CAROLINA GEODETIC SURVEY 1986
DD1648'10.9 KM (6.8 MI) SSE FROM CONWAY.
DD1648'3.6 KM (2.25 MI) SOUTHEAST ALONG U.S. HIGHWAY 501 BUSINESS (MAIN
DD1648'STREET) FROM THE CITY HALL AT 3RD AVENUE IN CONWAY, THENCE 0.8 KM
DD1648'(0.5 MI) SOUTH ALONG STATE HIGHWAY 544 TO THE INTERSECTION OF U.S.
DD1648'HIGHWAY 501, CONTINUE 7.7 KM (4.8 MI) SOUTH ALONG STATE HIGHWAY 544,
DD1648'THENCE 0.1 KM (0.05 MI) WEST ALONG THE ENTRANCE ROAD TO CABOTS CREEK,
DD1648'SET NEAR A FIRE HYDRANT IN THE SOUTHWEST ANGLE OF A PAVED ROAD LEADING
DD1648'SOUTH SOUTHWEST, 10.57 METERS (34.68 FT) WEST NORTHWEST OF THE CENTER
DD1648'OF THE PAVED ROAD, 10.53 METERS (34.55 FT) SOUTH SOUTHEAST OF THE
DD1648'CENTER OF THE ENTRANCE ROAD, 43.3 METERS (142.06 FT) EAST OF THE
DD1648'CENTER OF AN ELECTRIC TRANSFORMER BOX, 23.33 METERS (76.54 FT) NORTH
DD1648'NORTHWEST OF A TELEPHONE JUNCTION BOX, 2.18 METERS (7.15 FT) SOUTH
DD1648'SOUTHWEST OF THE FIRE HYDRANT.
DD1648'THE MARK IS 2.55 METERS  SW FROM A WITNESS POST.
DD1648'THE MARK IS ABOVE LEVEL WITH ENTRANCE ROAD.
DD1648
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DD1648                          STATION RECOVERY (2008)
DD1648
DD1648'RECOVERY NOTE BY SOUTH CAROLINA GEODETIC SURVEY 2008 (DDW)
DD1648'STATION IS LOCATED 6.9 MI (11.1 KM) NORTHEAST OF BUCKSPORT, 6.7 MI
DD1648'(10.8 KM) SOUTH-SOUTHEAST OF CONWAY, 4.2 MI (6.8 KM) NORTH-NORTHWEST
DD1648'OF SOCASTEE.  OWNERSHIP--KENNETH RICHARDSON, 248 CABOTS CREEK DRIVE,
DD1648'SOCASTEE, SC 29588.
DD1648'
DD1648'TO REACH THE STATION FROM THE JUNCTION OVERPASS OF STATE HIGHWAYS 31
DD1648'AND 544, 1.6 MI (2.6 KM) NORTHWEST OF SOCASTEE, GO NORTH-NORTHWEST ON
DD1648'HIGHWAY 544 FOR 2.8 MI (4.5 KM) TO THE JUNCTION OF CABOTS CREEK DRIVE,
DD1648'TURN LEFT ON CABOTS CREEK DRIVE FOR 0.05 MI (0.1 KM) TO THE STATION
DD1648'NEAR A LIGHTHOUSE IN THE SOUTHWEST ANGLE OF THE JUNCTION OF BLACKJACK
DD1648'LANE. STATION IS A CONCRETE POST RECESSED 0.5 FT (0.2 M) AND LEVEL
DD1648'WITH THE DRIVE, 32.0 FT (9.8 M) SOUTH-SOUTHEAST OF THE CENTER OF
DD1648'CABOTS CREEK DRIVE, 31.5 FT (9.6 M) WEST-NORTHWEST OF THE CENTER OF
DD1648'BLACKJACK LANE, 7.0 FT (2.1 M) SOUTHWEST OF A FIRE HYDRANT, 108.5 FT
DD1648'(33.1 M) NORTHEAST OF THE NORTH CORNER OF A CHIMNEY OF A BRICK HOUSE
DD1648'NUMBER 248, 8.6 FT (2.6 M) SOUTHWEST OF A WITNESS POST.   RECOVERED BY
DD1648'R.P.  MCKEOWN.
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**NGS DATA SHEET: 26 262 (DD1866)**

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DD1886 ***********************************************************************
DD1886  DESIGNATION -  26 262
DD1886  PID         -  DD1886
DD1886  STATE/COUNTY-  SC/HORRY
DD1886  COUNTRY     -  US
DD1886  USGS QUAD   -  SHELL (1984)
DD1886
DD1886                        *CURRENT SURVEY CONTROL
DD1886 ______________________________________________________________________
DD1886* NAD 83(2011) POSITION- 33 54 02.90873(N) 078 52 48.87233(W)   ADJUSTED
DD1886* NAD 83(2011) ELLIP HT-   -20.267 (meters)        (06/27/12)   ADJUSTED
DD1886* NAD 83(2011) EPOCH   -  2010.00
DD1886* NAVD 88 ORTHO HEIGHT -    14.109  (meters)      46.29  (feet) ADJUSTED
DD1886 ______________________________________________________________________
DD1886  NAD 83(2011) X  -  1,022,041.419 (meters)                     COMP
DD1886  NAD 83(2011) Y  - -5,199,896.624 (meters)                     COMP
DD1886  NAD 83(2011) Z  -  3,537,308.430 (meters)                     COMP
DD1886  LAPLACE CORR    -         -4.03  (seconds)                    DEFLEC12A
DD1886  GEOID HEIGHT    -        -34.36  (meters)                     GEOID12A
DD1886  DYNAMIC HEIGHT  -         14.096 (meters)       46.25  (feet) COMP
DD1886  MODELED GRAVITY -    979,653.8   (mgal)                       NAVD 88
DD1886
DD1886  VERT ORDER      -  FIRST     CLASS II
DD1886
DD1886  FGDC Geospatial Positioning Accuracy Standards (95% confidence, cm)
DD1886  Type                                           Horiz  Ellip  Dist(km)
DD1886  ----------------------------------------------------------------------
DD1886  NETWORK                                         0.99   1.39
DD1886  ----------------------------------------------------------------------
DD1886  MEDIAN LOCAL ACCURACY AND DIST (003 points)   1.17   1.43      6.81
DD1886  ----------------------------------------------------------------------
DD1886  NOTE: Click here for information on individual local accuracy
DD1886  values and other accuracy information.
DD1886
DD1886
DD1886.The horizontal coordinates were established by GPS observations
DD1886.and adjusted by the National Geodetic Survey in June 2012.
DD1886
DD1886.NAD 83(2011) refers to NAD 83 coordinates where the reference
DD1886.frame has been affixed to the stable North American tectonic plate. See
DD1886.NA2011 for more information.
DD1886
DD1886.The horizontal coordinates are valid at the epoch date displayed above
DD1886.which is a decimal equivalence of Year/Month/Day.
DD1886
DD1886.The orthometric height was determined by differential leveling and
DD1886.adjusted by the NATIONAL GEODETIC SURVEY
DD1886.in June 1991.
DD1886
DD1886.The X, Y, and Z were computed from the position and the ellipsoidal ht.
DD1886
DD1886.The Laplace correction was computed from DEFLEC12A derived deflections.
DD1886
DD1886.The ellipsoidal height was determined by GPS observations
DD1886.and is referenced to NAD 83.
DD1886
DD1886.The dynamic height is computed by dividing the NAVD 88
DD1886.geopotential number by the normal gravity value computed on the
DD1886.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
DD1886.degrees latitude (g = 980.6199 gals.).
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DD1886
DD1886.The modeled gravity was interpolated from observed gravity values.
DD1886
DD1886. The following values were computed from the NAD 83(2011) position.
DD1886
DD1886;                    North         East     Units Scale Factor Converg.
DD1886;SPC SC       -   231,284.858   805,608.086   MT  0.99980178   +1 10 30.7
DD1886;SPC SC       -   758,808.59  2,643,071.15   iFT  0.99980178   +1 10 30.7
DD1886;UTM  17      - 3,753,180.647   695,999.298   MT  1.00007359   +1 10 57.7
DD1886
DD1886!             -  Elev Factor  x  Scale Factor =   Combined Factor
DD1886!SPC SC       -   1.00000318  x   0.99980178  =   0.99980496
DD1886!UTM  17      -   1.00000318  x   1.00007359  =   1.00007677
DD1886
DD1886                          SUPERSEDED SURVEY CONTROL
DD1886
DD1886  NAD 83(2007)-  33 54 02.90878(N)    078 52 48.87316(W) AD(2002.00) 1
DD1886  ELLIP H (05/15/09)  -20.254  (m)                       GP(2002.00) 3 1
DD1886  NAVD 88 (05/15/09)   14.11   (m)           46.3    (f) LEVELING    3
DD1886  NGVD 29 (03/21/89)   14.423  (m)           47.32   (f) ADJUSTED    1 2
DD1886
DD1886.Superseded values are not recommended for survey control.
DD1886
DD1886.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
DD1886.See file dsdata.txt to determine how the superseded data were derived.
DD1886
DD1886_U.S. NATIONAL GRID SPATIAL ADDRESS: 17SPT9599953180(NAD 83)
DD1886
DD1886_MARKER: DD = SURVEY DISK
DD1886_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT
DD1886_SP_SET: CONCRETE POST
DD1886_STAMPING: VERT 26 262 1986
DD1886_MARK LOGO: SCGS
DD1886_PROJECTION: FLUSH
DD1886_MAGNETIC: M = MARKER EQUIPPED WITH BAR MAGNET
DD1886_STABILITY: B = PROBABLY HOLD POSITION/ELEVATION WELL
DD1886_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR
DD1886+SATELLITE: SATELLITE OBSERVATIONS - July 16, 2008
DD1886
DD1886  HISTORY     - Date     Condition        Report By
DD1886  HISTORY     - 1986     MONUMENTED       SCGS
DD1886  HISTORY     - 20080716 GOOD             SCGS
DD1886
DD1886                          STATION DESCRIPTION
DD1886
DD1886'DESCRIBED BY SOUTH CAROLINA GEODETIC SURVEY 1986
DD1886'18.0 KM (11.2 MI) NE FROM CONWAY.
DD1886'0.2 KILOMETER (0.1 MILE) NORTHWEST ALONG U.S. HIGHWAY 501 BUSINESS
DD1886'(MAIN STREET) FROM THE CONWAY CITY HALL AT 3RD AVENUE IN CONWAY,
DD1886'THENCE 17.8 KILOMETERS (11.05 MILES) NORTHEASTERLY ALONG STATE HIGHWAY
DD1886'905 (4TH AVENUE), SET NEAR A POWER POLE WITH A TRANSFORMER AND YARD
DD1886'LIGHT IN FRONT OF THE MOUNT CALVARY NUMBER 1 MISSIONARY BAPTIST
DD1886'CHURCH, 1.25 METERS (4.1 FEET) EAST SOUTHEAST OF THE POWER POLE, 18.45
DD1886'METERS (60.5 FEET) EAST NORTHEAST OF THE NORTHWEST CORNER OF THE
DD1886'CHURCH, 14.63 METERS (48.0 FEET) NORTH NORTHEAST OF THE NORTHEAST
DD1886'CORNER OF THE CHURCH, 27.8 METERS (91.2 FEET) SOUTH SOUTHWEST OF THE
DD1886'CENTER LINE OF THE HIGHWAY, 16.55 METERS (54.3 FEET) NORTH OF A 14
DD1886'INCH HICKORY TREE.
DD1886'THE MARK IS 1.25 METERS  ESE FROM  A WITNESS POST
DD1886'THE MARK IS 0.3 M BELOW HIGHWAY.
DD1886
DD1886                          STATION RECOVERY (2008)
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DD1886
DD1886'RECOVERY NOTE BY SOUTH CAROLINA GEODETIC SURVEY 2008 (DDW)
DD1886'STATION IS LOCATED 14.6 MI (23.6 KM) NORTH OF MYRTLE BEACH, 10.7 MI
DD1886'(17.2 KM) SOUTH OF LORIS, 10.7 MI (17.2 KM) EAST-NORTHEAST OF CONWAY.
DD1886'OWNERSHIP--MOUNT CALVARY NUMBER 1 MISSIONARY BAPTIST CHURCH, 5916
DD1886'HIGHWAY 905, CONWAY, SC 29526.
DD1886'
DD1886'TO REACH THE STATION FROM THE JUNCTION OVERPASS OF STATE HIGHWAYS 22
DD1886'AND 905, 11.8 MI (19.0 KM) EAST-NORTHEAST OF CONWAY, GO WEST ON
DD1886'HIGHWAY 905 FOR 1.2 MI (1.9 KM) TO THE STATION ON THE LEFT NEAR A
DD1886'SECURITY LIGHT POLE IN THE FRONT YARD OF THE MOUNT CALVARY NUMBER 1
DD1886'MISSIONARY BAPTIST CHURCH. STATION IS A CONCRETE POST FLUSH WITH THE
DD1886'GROUND AND LEVEL WITH THE HIGHWAY, 3.7 FT (1.1 M) EAST-SOUTHEAST OF
DD1886'THE SECURITY LIGHT POLE, 48.0 FT (14.6 M) NORTH-NORTHEAST OF THE
DD1886'NORTHEAST CORNER OF THE CHURCH, 67.4 FT (20.5 M) SOUTH-SOUTHEAST OF
DD1886'THE SOUTHEAST CORNER OF A BRICK SIGN FOR THE CHURCH, 91.3 FT (27.8 M)
DD1886'SOUTH-SOUTHWEST OF THE CENTER OF THE HIGHWAY, 58.7 FT (17.9 M)
DD1886'NORTHWEST OF A TELEPHONE JUNCTION BOX PS, 3.8 FT (1.2 M)
DD1886'EAST-SOUTHEAST OF A WITNESS POST. RECOVERED BY J.B.  SMOAK.
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**NGS DATA SHEET: 26 383 (DD2332)**

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DD2332 ***********************************************************************
DD2332  DESIGNATION -  26 383
DD2332  PID         -  DD2332
DD2332  STATE/COUNTY-  SC/HORRY
DD2332  COUNTRY     -  US
DD2332  USGS QUAD   -  HORRY (1980)
DD2332
DD2332                        *CURRENT SURVEY CONTROL
DD2332 ______________________________________________________________________
DD2332* NAD 83(2011) POSITION- 33 53 55.10643(N) 079 14 14.68691(W)   ADJUSTED
DD2332* NAD 83(2011) ELLIP HT-   -24.435 (meters)        (06/27/12)   ADJUSTED
DD2332* NAD 83(2011) EPOCH   -  2010.00
DD2332* NAVD 88 ORTHO HEIGHT -     9.240  (meters)      30.31  (feet) ADJUSTED
DD2332 ______________________________________________________________________
DD2332  NAD 83(2011) X  -    989,631.021 (meters)                    COMP
DD2332  NAD 83(2011) Y  - -5,206,295.078 (meters)                    COMP
DD2332  NAD 83(2011) Z  -  3,537,106.572 (meters)                    COMP
DD2332  LAPLACE CORR    -         -3.15  (seconds)                   DEFLEC12A
DD2332  GEOID HEIGHT    -        -33.67  (meters)                    GEOID12A
DD2332  DYNAMIC HEIGHT  -          9.231 (meters)       30.29  (feet) COMP
DD2332  MODELED GRAVITY -    979,639.3   (mgal)                      NAVD 88
DD2332
DD2332  VERT ORDER      -  FIRST     CLASS II
DD2332
DD2332  FGDC Geospatial Positioning Accuracy Standards (95% confidence, cm)
DD2332  Type                                           Horiz  Ellip  Dist(km)
DD2332  ----------------------------------------------------------------------
DD2332  NETWORK                                         1.35   2.12
DD2332  ----------------------------------------------------------------------
DD2332  MEDIAN LOCAL ACCURACY AND DIST (002 points)   1.27   1.91      7.76
DD2332  ----------------------------------------------------------------------
DD2332  NOTE: Click here for information on individual local accuracy
DD2332  values and other accuracy information.
DD2332
DD2332
DD2332.The horizontal coordinates were established by GPS observations
DD2332.and adjusted by the National Geodetic Survey in June 2012.
DD2332
DD2332.NAD 83(2011) refers to NAD 83 coordinates where the reference
DD2332.frame has been affixed to the stable North American tectonic plate. See
DD2332.NA2011 for more information.
DD2332
DD2332.The horizontal coordinates are valid at the epoch date displayed above
DD2332.which is a decimal equivalence of Year/Month/Day.
DD2332
DD2332.The orthometric height was determined by differential leveling and
DD2332.adjusted by the NATIONAL GEODETIC SURVEY
DD2332.in June 1991.
DD2332
DD2332.The X, Y, and Z were computed from the position and the ellipsoidal ht.
DD2332
DD2332.The Laplace correction was computed from DEFLEC12A derived deflections.
DD2332
DD2332.The ellipsoidal height was determined by GPS observations
DD2332.and is referenced to NAD 83.
DD2332
DD2332.The dynamic height is computed by dividing the NAVD 88
DD2332.geopotential number by the normal gravity value computed on the
DD2332.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
DD2332.degrees latitude (g = 980.6199 gals.).
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DD2332
DD2332.The modeled gravity was interpolated from observed gravity values.
DD2332
DD2332. The following values were computed from the NAD 83(2011) position.
DD2332
DD2332;                    North         East     Units Scale Factor Converg.
DD2332;SPC SC       -   230,424.198   772,589.131   MT  0.99980163   +0 58 37.8
DD2332;SPC SC       -   755,984.90  2,534,741.24   iFT  0.99980163   +0 58 37.8
DD2332;UTM  17      - 3,752,315.909   662,973.954   MT  0.99992743   +0 58 59.7
DD2332
DD2332!             -  Elev Factor  x  Scale Factor =   Combined Factor
DD2332!SPC SC       -   1.00000384  x   0.99980163  =   0.99980547
DD2332!UTM  17      -   1.00000384  x   0.99992743  =   0.99993127
DD2332
DD2332                          SUPERSEDED SURVEY CONTROL
DD2332
DD2332  NAD 83(2007)-  33 53 55.10656(N)    079 14 14.68769(W) AD(2002.00) 1
DD2332  ELLIP H (05/15/09)  -24.417  (m)                       GP(2002.00) 3 1
DD2332  NAVD 88 (05/15/09)    9.24   (m)           30.3    (f) LEVELING    3
DD2332  NGVD 29 (03/21/89)    9.546  (m)           31.32   (f) ADJUSTED    1 2
DD2332
DD2332.Superseded values are not recommended for survey control.
DD2332
DD2332.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
DD2332.See file dsdata.txt to determine how the superseded data were derived.
DD2332
DD2332_U.S. NATIONAL GRID SPATIAL ADDRESS: 17SPT6297352315(NAD 83)
DD2332
DD2332_MARKER: DD = SURVEY DISK
DD2332_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT
DD2332_SP_SET: CONCRETE POST
DD2332_STAMPING: VERT 26 383 1987
DD2332_MARK LOGO: SCGS
DD2332_PROJECTION: FLUSH
DD2332_MAGNETIC: M = MARKER EQUIPPED WITH BAR MAGNET
DD2332_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO
DD2332+STABILITY: SURFACE MOTION
DD2332_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR
DD2332+SATELLITE: SATELLITE OBSERVATIONS - August 05, 2008
DD2332
DD2332  HISTORY     - Date     Condition        Report By
DD2332  HISTORY     - 1987     MONUMENTED       SCGS
DD2332  HISTORY     - 20080805 GOOD             SCGS
DD2332
DD2332                          STATION DESCRIPTION
DD2332
DD2332'DESCRIBED BY SOUTH CAROLINA GEODETIC SURVEY 1987
DD2332'11.5 KM (7.15 MI) SSW FROM AYNOR.
DD2332'6.75 KM (4.2 MI) NORTHWESTERLY ALONG U.S. HIGHWAY 501 FROM THE
DD2332'JUNCTION OF STATE HIGHWAY 319 (ELM STREET) IN AYNOR, THENCE 19.05 KM
DD2332'(11.85 MI) SOUTHWEST AND SOUTHERLY ALONG STATE ROAD 99 TO THE
DD2332'JUNCTION OF STATE ROAD 24 IN JORDANVILLE, SET ON THE NORTH SIDE AND
DD2332'IN LINE WITH THE FRONT FACE OF THE JORDANVILLE FARM AND HOME SUPPLY
DD2332'COMPANY STORE, 23.4 METERS (76.8 FT) WEST OF THE CENTER OF ROAD 24,
DD2332'14.0 METERS (45.9 FT) SOUTH OF THE CENTER OF A SAND ROAD ON THE NORTH
DD2332'SIDE OF THE STORE, 12.27 METERS (40.3 FT) NORTH OF THE NORTHEAST
DD2332'CORNER OF THE STORE, 7.55 METERS (24.8 FT) NORTHEAST OF THE STAND FOR
DD2332'A SATELLITE DISH.
DD2332'THE MARK IS 7.20 METERS  W FROM  A WITNESS POST
DD2332'THE MARK IS ABOVE LEVEL WITH THE ROAD.
DD2332
DD2332                          STATION RECOVERY (2008)
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DD2332
DD2332'RECOVERY NOTE BY SOUTH CAROLINA GEODETIC SURVEY 2008 (DDW)
DD2332'STATION IS LOCATED 13.4 MI (21.6 KM) EAST-NORTHEAST OF JOHNSONVILLE,
DD2332'11.7 MI (18.8 KM) WEST-NORTHWEST OF CONWAY, 7.3 MI (11.7 KM)
DD2332'SOUTH-SOUTHWEST OF AYNOR.  OWNERSHIP--JORDANVILLE FARM AND HOME
DD2332'SUPPLY.
DD2332'
DD2332'TO REACH THE STATION FROM THE JUNCTION OF U.S. HIGHWAY 501, STATE
DD2332'HIGHWAY 319 (ELM STREET) AND STATE ROAD 100 (SAINT JOHNS ROAD) IN
DD2332'AYNOR, GO WEST-NORTHWEST ON ROAD 100 FOR 3.0 MI (4.8 KM) TO THE
DD2332'JUNCTION OF STATE ROAD 99 (PEE DEE ROAD SOUTH), TURN LEFT ON ROAD 99
DD2332'FOR 7.8 MI (12.6 KM) TO THE STATION ON THE RIGHT IN AN OPEN AREA IN
DD2332'THE SOUTHWEST ANGLE OF A SAND ROAD (HUGHES LANDING ROAD) RIGHT AND
DD2332'STATE ROAD 24 (JORDANVILLE ROAD) LEFT AND AHEAD AND INLINE WITH THE
DD2332'FACE OF A STORE (NOW A TEMPORARY MINISTRY). STATION IS A CONCRETE POST
DD2332'FLUSH WITH THE GROUND AND LEVEL WITH THE ROADS, 46.0 FT (14.0 M) SOUTH
DD2332'OF THE CENTER OF THE SAND ROAD (HUGHES LANDING ROAD), 77.0 FT (23.5 M)
DD2332'WEST OF THE CENTER OF ROAD 24, 40.5 FT (12.3 M) NORTH OF THE NORTHEAST
DD2332'CORNER OF THE BUILDING. RECOVERED BY T. HALL.
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**NGS DATA SHEET: P 146 (EB1292)**

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EB1292 ***********************************************************************
EB1292  DESIGNATION -  P 146
EB1292  PID         -  EB1292
EB1292  STATE/COUNTY-  SC/HORRY
EB1292  COUNTRY     -  US
EB1292  USGS QUAD   -  LORIS (1962)
EB1292
EB1292                        *CURRENT SURVEY CONTROL
EB1292 ______________________________________________________________________
EB1292* NAD 83(2011) POSITION- 34 07 00.64213(N) 078 52 32.98166(W)   ADJUSTED
EB1292* NAD 83(2011) ELLIP HT-    -4.664 (meters)        (06/27/12)   ADJUSTED
EB1292* NAD 83(2011) EPOCH   -  2010.00
EB1292* NAVD 88 ORTHO HEIGHT -    29.690  (meters)      97.41  (feet) ADJUSTED
EB1292 ______________________________________________________________________
EB1292  NAD 83(2011) X  -  1,019,858.557 (meters)                     COMP
EB1292  NAD 83(2011) Y  - -5,186,679.210 (meters)                     COMP
EB1292  NAD 83(2011) Z  -  3,557,181.585 (meters)                     COMP
EB1292  LAPLACE CORR    -         -4.35  (seconds)                    DEFLEC12A
EB1292  GEOID HEIGHT    -        -34.37  (meters)                     GEOID12A
EB1292  DYNAMIC HEIGHT  -         29.660 (meters)       97.31  (feet) COMP
EB1292  MODELED GRAVITY -    979,646.5   (mgal)                       NAVD 88
EB1292
EB1292  VERT ORDER      -  FIRST     CLASS II
EB1292
EB1292  FGDC Geospatial Positioning Accuracy Standards (95% confidence, cm)
EB1292  Type                                           Horiz  Ellip  Dist(km)
EB1292  ----------------------------------------------------------------------
EB1292  NETWORK                                         0.71   1.10
EB1292  ----------------------------------------------------------------------
EB1292  MEDIAN LOCAL ACCURACY AND DIST (002 points)   0.44   0.65      2.43
EB1292  ----------------------------------------------------------------------
EB1292  NOTE: Click here for information on individual local accuracy
EB1292  values and other accuracy information.
EB1292
EB1292
EB1292.The horizontal coordinates were established by GPS observations
EB1292.and adjusted by the National Geodetic Survey in June 2012.
EB1292
EB1292.NAD 83(2011) refers to NAD 83 coordinates where the reference
EB1292.frame has been affixed to the stable North American tectonic plate. See
EB1292.NA2011 for more information.
EB1292
EB1292.The horizontal coordinates are valid at the epoch date displayed above
EB1292.which is a decimal equivalence of Year/Month/Day.
EB1292
EB1292.The orthometric height was determined by differential leveling and
EB1292.adjusted by the NATIONAL GEODETIC SURVEY
EB1292.in June 1991.
EB1292
EB1292.The X, Y, and Z were computed from the position and the ellipsoidal ht.
EB1292
EB1292.The Laplace correction was computed from DEFLEC12A derived deflections.
EB1292
EB1292.The ellipsoidal height was determined by GPS observations
EB1292.and is referenced to NAD 83.
EB1292
EB1292.The dynamic height is computed by dividing the NAVD 88
EB1292.geopotential number by the normal gravity value computed on the
EB1292.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
EB1292.degrees latitude (g = 980.6199 gals.).
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EB1292
EB1292.The modeled gravity was interpolated from observed gravity values.
EB1292
EB1292. The following values were computed from the NAD 83(2011) position.
EB1292
EB1292;                    North         East     Units Scale Factor Converg.
EB1292;SPC SC       -   255,247.047   805,523.777   MT  0.99982406   +1 10 39.5
EB1292;SPC SC       -   837,424.69  2,642,794.54   iFT  0.99982406   +1 10 39.5
EB1292;UTM  17      - 3,777,149.090   695,910.440   MT  1.00007314   +1 11 30.4
EB1292
EB1292!             -  Elev Factor  x  Scale Factor =   Combined Factor
EB1292!SPC SC       -   1.00000073  x   0.99982406  =   0.99982479
EB1292!UTM  17      -   1.00000073  x   1.00007314  =   1.00007387
EB1292
EB1292                          SUPERSEDED SURVEY CONTROL
EB1292
EB1292  NAD 83(2007)-  34 07 00.64235(N)    078 52 32.98249(W) AD(2002.00) 1
EB1292  ELLIP H (05/15/09)   -4.657  (m)                       GP(2002.00) 3 1
EB1292  NAVD 88 (05/15/09)   29.69   (m)           97.4    (f) LEVELING    3
EB1292  NGVD 29 (03/21/89)   30.002  (m)           98.43   (f) ADJUSTED    1 2
EB1292
EB1292.Superseded values are not recommended for survey control.
EB1292
EB1292.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
EB1292.See file dsdata.txt to determine how the superseded data were derived.
EB1292
EB1292_U.S. NATIONAL GRID SPATIAL ADDRESS: 17SPT9591077149(NAD 83)
EB1292
EB1292_MARKER: DV = VERTICAL CONTROL DISK
EB1292_SETTING: 49 = STAINLESS STEEL ROD W/O SLEEVE (10 FT.+)
EB1292_SP_SET: STAINLESS STEEL ROD
EB1292_STAMPING: P 146 1979
EB1292_MARK LOGO: NGS
EB1292_PROJECTION: RECESSED 5 CENTIMETERS
EB1292_MAGNETIC: M = MARKER EQUIPPED WITH BAR MAGNET
EB1292_STABILITY: B = PROBABLY HOLD POSITION/ELEVATION WELL
EB1292_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR
EB1292+SATELLITE: SATELLITE OBSERVATIONS - June 10, 2008
EB1292_ROD/PIPE-DEPTH: 6.10 meters
EB1292
EB1292  HISTORY     - Date     Condition        Report By
EB1292  HISTORY     - 1979     MONUMENTED       NGS
EB1292  HISTORY     - 1989     GOOD             USPSQD
EB1292  HISTORY     - 20041029 GOOD             USPSQD
EB1292  HISTORY     - 20080610 GOOD             SCGS
EB1292
EB1292                          STATION DESCRIPTION
EB1292
EB1292'DESCRIBED BY NATIONAL GEODETIC SURVEY 1979
EB1292'2.4 MI SOUTH FROM TABOR CITY.
EB1292'2.4 MILES SOUTH ALONG THE ATLANTIC COAST LINE RAILROAD FROM THE
EB1292'STATION IN LORIS.  SET AT THE INTERSECTION OF COUNTY ROAD S 26-141,
EB1292'51 FEET WEST OF THE CENTERLINE OF U.S. HIGHWAY 701, 20 FEET NORTH OF
EB1292'THE CENTERLINE OF THE ROAD, 12.5 FEET EAST OF THE EAST RAIL, AND 2.5
EB1292'FEET NORTH OF A CROSSING SIGN AND POST.
EB1292'THE MARK IS 2 FT  S FROM A WITNESS POST.
EB1292'THE MARK IS ABOVE LEVEL WITH THE HIGHWAY.
EB1292
EB1292                          STATION RECOVERY (1989)
EB1292
EB1292'RECOVERY NOTE BY US POWER SQUADRON 1989 (RMP)
EB1292'RECOVERED IN GOOD CONDITION.
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EB1292
EB1292                          STATION RECOVERY (2004)
EB1292
EB1292'RECOVERY NOTE BY US POWER SQUADRON 2004
EB1292'RECOVERED IN GOOD CONDITION.
EB1292
EB1292                          STATION RECOVERY (2008)
EB1292
EB1292'RECOVERY NOTE BY SOUTH CAROLINA GEODETIC SURVEY 2008 (DDW)
EB1292'STATION IS LOCATED 16.2 MI (26.1 KM) SOUTHEAST OF FAIR BLUFF, 4.3 MI
EB1292'(6.9 KM) NORTH OF LORIS, 2.2 MI (3.6 KM) SOUTH OF TABOR CITY.
EB1292'OWNERSHIP--SCDOT, DIRECTOR OF PRECONSTRUCTION, P.O. BOX 191, COLUMBIA,
EB1292'SC 29202, PHONE 803-737-1350.
EB1292'
EB1292'TO REACH THE STATION FROM THE JUNCTION OVERPASS OF U.S. HIGHWAY 701
EB1292'AND STATE HIGHWAY 9, 2.05 MI (3.3 KM) NORTH-NORTHEAST OF LORIS, GO
EB1292'NORTH ON HIGHWAY 701 FOR 2.35 MI (3.8 KM) TO THE STATION ON THE LEFT
EB1292'IN THE NORTHWEST ANGLE OF THE JUNCTION OF STATE ROAD 141 (EDWARDS ROAD
EB1292'LEFT AND HIGHWAY 141 RIGHT). STATION IS A DISK ATTACHED TO A STAINLESS
EB1292'STEEL ROD RECESSED 0.2 FT (0.1 M) AND 0.5 FT (0.2 M) BELOW THE RAIL,
EB1292'51.0 FT (15.5 M) WEST OF THE CENTER OF THE ROAD, 20.6 FT (6.3 M) NORTH
EB1292'OF THE CENTER OF ROAD 141, 3.8 FT (1.2 M) NORTH OF A WOODEN RAILROAD
EB1292'CROSSING SIGN POST, 12.8 FT (3.9 M) EAST OF THE EAST RAIL OF A SET OF
EB1292'RAILROAD TRACKS, 1.6 FT (0.5 M) WEST OF A WITNESS POST.   RECOVERED BY
EB1292'T. HALL.
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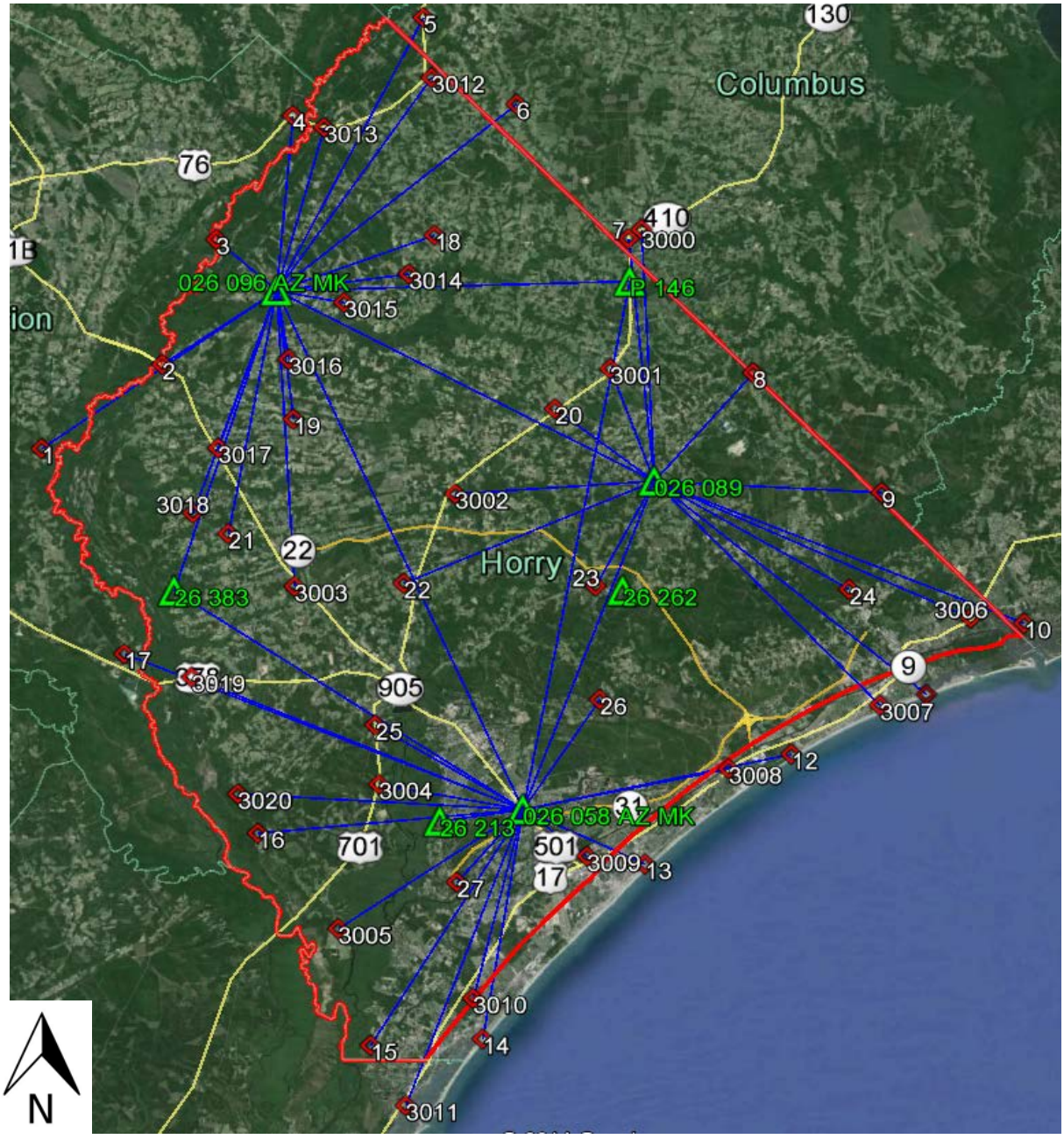
# SECTION 6: GPS CONTROL DIAGRAM

This section contains a graphical representation of the new and existing control stations used for Horry Co SC control surveys.




Not to Scale