

SURVEY CONTROL SHEET U3330

GPS Calibration Report

Project : u3330z

TIP Number	u3330	Date & Time	2:53:09 PM 1/22/2009
User name	pwoodard	Zone	North Carolina 3200
Coordinate System	US State Plane 1983(at ground)	Geoid Model	G03NC
Horizontal Datum	NAD 1983 (Comus)		
Vertical Datum	NAVD88		
Coordinate Units	Meters		
Distance Units	Meters		
Height Units	Meters		

LOCAL SITE INFORMATION

Localized around	
Latitude	35°57'39.90505"N
Longitude	77°49'15.01145"W
Site Scale Factor	1.0000502425
Height	-4.944m

The North Carolina Department of Transportation uses a **Localized Coordinate System** which is very similar to North Carolina Zone 3200 from which it is derived.
Please take care in utilizing these coordinates to eliminate confusion of the two systems.
 This file is to aid in the use of Real Time Kinematic (RTK) GPS during construction layout.

Datum Transformation Parameters

Datum Transformation computation not requested

Updated Default Projection (Transverse Mercator) Definition

Updated default projection not requested

Horizontal Adjustment Parameters

Northing coordinate of rotation center	242884.359m
Easting coordinate of rotation center	718667.651m
Rotation about the center point	0°00'00"
Translation north	-0.002m
Translation east	0.000m
Scale factor	1.00000008

Vertical Adjustment Parameters

Northing coordinate of origin point	251068.949m
Easting coordinate of origin point	744724.236m
Vertical separation at origin	0.014m
Slope north	-0.538ppm
Slope east	0.047ppm

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCGS FOR MONUMENT "U3330-GPS-3"
 WITH NAD 83/95 STATE PLANE GRID COORDINATES OF
 NORTHING: 806804.945(ft) EASTING: 2348956.073(ft)
 ELEVATION: 98.21(ft)
 THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.9999497600
 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "U3330-GPS-3" TO -L- STATION 10+00.00 IS
 S 28° 46' 58.9"W 4845.46'
 ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
 VERTICAL DATUM USED IS NAVD 88

Geoid Model Definition

G03NC

Residual Differences Between GPS (WGS84) And Local Coordinates

	Maximum error	Root Mean Square error	Point
Horizontal	0.004m	0.002	SHINGLED_GPS
Vertical	0.011m	0.006	RED OAK_GPS
Three-dimensional	0.011m	0.006	RED OAK_GPS

Point Residuals

WGS84 Coordinates		Calculated point FOR DISPLAY ONLY		Local Coordinates	
Point	CUTOFF_GPS	Northing	251068.949m	Point	CUTOFF
Latitude	36°00'14.53240"N	Easting	744724.236m	Northing	251068.952m
Longitude	77°30'04.24649"W	Elevation	29.273m	Easting	744724.237m
Height	-5.952m	Horz error	0.003m	Elevation	29.277m
		Vert error	0.004m	Utilized	Horz and Vert
		3D error	0.005m	Quality	Control quality

Point	SHINGLED_GPS	Northing	223026.395m	Point	SHINGLED
Latitude	35°45'10.19636"N	Easting	733131.237m	Northing	223026.392m
Longitude	77°38'02.50728"W	Elevation	31.812m	Easting	733131.234m
Height	-3.607m	Horz error	0.004m	Elevation	31.804m
		Vert error	0.008m	Utilized	Horz and Vert
		3D error	0.009m	Quality	Control quality

Point	WILSONPORT_GPS	Northing	224544.515m	Point	WILSONPORT
Latitude	35°46'11.32189"N	Easting	702828.612m	Northing	224544.516m
Longitude	77°58'08.01582"W	Elevation	46.156m	Easting	702828.614m
Height	11.412m	Horz error	0.003m	Elevation	46.163m
		Vert error	0.007m	Utilized	Horz and Vert
		3D error	0.007m	Quality	Control quality

Point	RED OAK_GPS	Northing	254191.632m	Point	RED OAK
Latitude	36°02'11.25674"N	Easting	708353.126m	Northing	254191.633m
Longitude	77°54'15.04985"W	Elevation	64.371m	Easting	708353.127m
Height	29.765m	Horz error	0.001m	Elevation	64.360m
		Vert error	0.011m	Utilized	Horz and Vert
		3D error	0.011m	Quality	Control quality

Point	mon1_GPS	Northing	244602.250m	Point	mon1
Latitude	35°56'57.60899"N	Easting	715231.508m	Northing	244602.249m
Longitude	77°49'44.82909"W	Elevation	31.437m	Easting	715231.508m
Height	-3.449m	Horz error	0.001m	Elevation	31.433m
		Vert error	0.003m	Utilized	Horz and Vert
		3D error	0.003m	Quality	Adjusted quality

Point	mon2_GPS	Northing	244855.529m	Point	mon2
Latitude	35°57'05.80402"N	Easting	715288.962m	Northing	244855.529m

Longitude	77°49'42.41743"W	Elevation	31.797m	Easting	715288.963m
Height	-3.088m	Horz error	0.001m	Elevation	31.794m
		Vert error	0.003m	Utilized	Horz and Vert
		3D error	0.003m	Quality	Adjusted quality

Point	mon3_GPS	Northing	245914.640m	Point	mon3
Latitude	35°57'39.90512"N	Easting	715963.244m	Northing	245914.639m
Longitude	77°49'15.01140"W	Elevation	29.934m	Easting	715963.243m
Height	-4.959m	Horz error	0.001m	Elevation	29.934m
		Vert error	0.001m	Utilized	Horz and Vert
		3D error	0.001m	Quality	Adjusted quality

Point	mon4_GPS	Northing	246123.587m	Point	mon4
Latitude	35°57'46.63578"N	Easting	716087.948m	Northing	246123.587m
Longitude	77°49'09.93591"W	Elevation	29.494m	Easting	716087.948m
Height	-5.400m	Horz error	0.001m	Elevation	29.495m
		Vert error	0.001m	Utilized	Horz and Vert
		3D error	0.001m	Quality	Adjusted quality

Point	mon5_GPS	Northing	247183.417m	Point	mon5
Latitude	35°58'20.51163"N	Easting	717394.955m	Northing	247183.417m
Longitude	77°48'17.26945"W	Elevation	31.765m	Easting	717394.955m
Height	-3.153m	Horz error	0.001m	Elevation	31.770m
		Vert error	0.006m	Utilized	Horz and Vert
		3D error	0.006m	Quality	Adjusted quality

Point	mon6_GPS	Northing	247332.656m	Point	mon6
Latitude	35°58'25.24462"N	Easting	717672.681m	Northing	247332.656m
Longitude	77°48'06.11340"W	Elevation	36.746m	Easting	717672.680m
Height	1.823m	Horz error	0.000m	Elevation	36.752m
		Vert error	0.006m	Utilized	Horz and Vert
		3D error	0.006m	Quality	Adjusted quality

NOTES:

- THE SITE CALIBRATION SHOWN IS BASED UPON A NETWORK TIED TO THE HARN (HIGH ACCURACY REFERENCE NETWORK) NAD 83/95 ADJUSTMENT. THIS CALIBRATION WILL ALLOW THE END USER TO WORK WITHIN THE SAME COORDINATE SYSTEM WHEN USING RTK (REAL TIME KINEMATIC) GPS AND A LOCAL BASE STATION. IF ANOTHER SYSTEM SUCH AS VRS (VIRTUAL REFERENCE STATION) IS USED, ADDITIONAL FIELD TIES MAY BE NEEDED TO REDUCE POSSIBLE ERRORS, OR BIASES.
 - THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:
[HTTPS://CONNECT.NCDOT.GOV/RESOURCES/LOCATION/](https://connect.ncdot.gov/resources/location/)
 THE FILES TO BE FOUND ARE AS FOLLOWS:
 U3330_LS_GPSCALIB.HTML
 U3330_LS_WGS84.TXT
 U3330_LS_LOCAL.TXT
 U3330_LS_CONTROL.TXT

 THE WGS84 AND LOCAL FILES ARE COMMA DELIMITED AND CAN BE USED TO REPRODUCE THE SITE CALIBRATION FOR THE END USER'S GPS EQUIPMENT. IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.
- © INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.
 PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.
 NETWORK ESTABLISHED FROM EXISTING HARN MONUMENTATION
 SEE GPS CALIBRATION SHEET FOR HORIZONTAL AND VERTICAL COORDINATE VALUES.