

GPS Calibration Report

Project : R2413 NSRS2007 SITE CALIBRATION

TIP Number	R-2413	Date & Time	11:02:06 AM 9/28/2009
User name	khudson	Zone	North Carolina 3200
Coordinate System	US State Plane 1983(at ground)	Geoid Model	Geoid03 (Conus) NC Sub Grid
Horizontal Datum	NAD 1983 (Conus)		
Vertical Datum	NAVD88		
Coordinate Units	US survey feet		
Distance Units	US survey feet		
Height Units	US survey feet		

LOCAL SITE INFORMATION

Localized around	R2413-10
Latitude	36°10'05.55674"N
Longitude	79°56'44.02452"W
Site Scale Factor	1.0000364200
Height	781.382sft

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	881386.329sft
Easting coordinate of rotation center	1722750.095sft
Rotation about the center point	0°00'00"
Translation north	-0.015sft
Translation east	-0.027sft
Scale factor	0.99999974

Vertical Adjustment Parameters

Northing coordinate of origin point	853277.629sft
Easting coordinate of origin point	1714836.090sft
Vertical separation at origin	0.124sft
Slope north	-0.579ppm
Slope east	-5.123ppm

Geoid Model Definition

Geoid03 (Conus) NC Sub Grid

Residual Differences Between GPS (WGS84) And Local Coordinates

Summary			
	Maximum error	Root Mean Square error	Point
Horizontal	0.013sft	0.002	R2413-17_GPS
Vertical	0.004sft	0.001	R2413-12_GPS
Three-dimensional	0.012sft	0.003	R2413-8_GPS

Point Residuals

WGS84 Coordinates		Calculated point FOR DISPLAY ONLY		Local Coordinates	
Point	R2413-1_GPS	Northing	853277.629sft	Point	R2413-1
Latitude	36°05'26.28878"N	Easting	1714836.090sft	Northing	853277.636sft
Longitude	79°57'54.51596"W	Elevation	870.779sft	Easting	1714836.099sft
Height	766.754sft	Horz error	0.012sft	Elevation	870.779sft
		Vert error	0.000sft	Utilized	Horz and Vert
		3D error	0.012sft	Quality	Adjusted quality
Point	R2413-2_GPS	Northing	854365.180sft	Point	R2413-2
Latitude	36°05'37.01346"N	Easting	1714530.942sft	Northing	854365.186sft
Longitude	79°57'58.36256"W	Elevation	895.814sft	Easting	1714530.948sft
Height	791.721sft	Horz error	0.008sft	Elevation	895.813sft
		Vert error	0.001sft	Utilized	Horz and Vert
		3D error	0.008sft	Quality	Adjusted quality
Point	R2413-3_GPS	Northing	859578.352sft	Point	R2413-3
Latitude	36°06'28.78814"N	Easting	1716883.022sft	Northing	859578.354sft
Longitude	79°57'30.31914"W	Elevation	897.036sft	Easting	1716883.025sft
Height	792.826sft	Horz error	0.004sft	Elevation	897.033sft
		Vert error	0.002sft	Utilized	Horz and Vert
		3D error	0.004sft	Quality	Adjusted quality
Point	BY-150_GPS	Northing	859976.018sft	Point	BY-150
Latitude	36°06'32.62546"N	Easting	1715890.706sft	Northing	859976.023sft
Longitude	79°57'42.45816"W	Elevation	936.701sft	Easting	1715890.712sft
Height	832.424sft	Horz error	0.007sft	Elevation	936.702sft
		Vert error	0.000sft	Utilized	Horz and Vert
		3D error	0.008sft	Quality	Adjusted quality
Point	R2413-5_GPS	Northing	867524.310sft	Point	R2413-5
Latitude	36°07'47.23261"N	Easting	1715559.582sft	Northing	867524.310sft
Longitude	79°57'47.38567"W	Elevation	944.015sft	Easting	1715559.580sft
Height	839.376sft	Horz error	0.002sft	Elevation	944.018sft
		Vert error	0.003sft	Utilized	Horz and Vert
		3D error	0.004sft	Quality	Adjusted quality
Point	R2413-6_GPS	Northing	869041.320sft	Point	R2413-6
Latitude	36°08'02.24204"N	Easting	1715653.794sft	Northing	869041.319sft

Longitude	79°57'46.41667"W
Height	836.785sft

Elevation	941.488sft
Horz error	0.004sft
Vert error	0.002sft
3D error	0.005sft

Easting	1715653.790sft
Elevation	941.490sft
Utilized	Horz and Vert
Quality	Adjusted quality

Point	BY6-174_GPS
Latitude	36°08'52.00636"N
Longitude	79°57'17.04909"W
Height	804.493sft

Northing	874050.334sft
Easting	1718111.193sft
Elevation	909.305sft
Horz error	0.006sft
Vert error	0.000sft
3D error	0.006sft

Point	BY6-174
Northing	874050.331sft
Easting	1718111.188sft
Elevation	909.305sft
Utilized	Horz and Vert
Quality	Adjusted quality

Point	R2413-8_GPS
Latitude	36°09'05.43891"N
Longitude	79°57'17.67849"W
Height	804.787sft

Northing	875409.166sft
Easting	1718072.640sft
Elevation	909.660sft
Horz error	0.012sft
Vert error	0.003sft
3D error	0.012sft

Point	R2413-8
Northing	875409.160sft
Easting	1718072.630sft
Elevation	909.657sft
Utilized	Horz and Vert
Quality	Adjusted quality

Point	R2413-9_GPS
Latitude	36°09'54.12636"N
Longitude	79°56'45.18413"W
Height	789.744sft

Northing	880307.082sft
Easting	1720784.461sft
Elevation	894.701sft
Horz error	0.008sft
Vert error	0.002sft
3D error	0.008sft

Point	R2413-9
Northing	880307.076sft
Easting	1720784.456sft
Elevation	894.699sft
Utilized	Horz and Vert
Quality	Adjusted quality

Point	R2413-10_GPS
Latitude	36°10'05.55696"N
Longitude	79°56'44.02411"W
Height	781.305sft

Northing	881462.078sft
Easting	1720890.591sft
Elevation	886.307sft
Horz error	0.010sft
Vert error	0.000sft
3D error	0.010sft

Point	R2413-10
Northing	881462.071sft
Easting	1720890.584sft
Elevation	886.307sft
Utilized	Horz and Vert
Quality	Adjusted quality

Point	R2413-11_GPS
Latitude	36°11'08.71963"N
Longitude	79°55'30.02632"W
Height	725.049sft

Northing	887792.187sft
Easting	1727017.522sft
Elevation	830.033sft
Horz error	0.010sft
Vert error	0.003sft
3D error	0.010sft

Point	R2413-11
Northing	887792.179sft
Easting	1727017.516sft
Elevation	830.036sft
Utilized	Horz and Vert
Quality	Adjusted quality

Point	R2413-12_GPS
Latitude	36°11'14.82826"N
Longitude	79°55'25.41237"W
Height	732.811sft

Northing	888406.399sft
Easting	1727401.506sft
Elevation	837.803sft
Horz error	0.011sft
Vert error	0.004sft
3D error	0.011sft

Point	R2413-12
Northing	888406.391sft
Easting	1727401.499sft
Elevation	837.808sft
Utilized	Horz and Vert
Quality	Adjusted quality

Point	R2413-13_GPS
Latitude	36°12'16.90573"N
Longitude	79°55'14.32423"W
Height	802.718sft

Northing	894675.547sft
Easting	1728368.677sft
Elevation	907.922sft
Horz error	0.005sft
Vert error	0.001sft
3D error	0.005sft

Point	R2413-13
Northing	894675.542sft
Easting	1728368.676sft
Elevation	907.923sft
Utilized	Horz and Vert
Quality	Adjusted quality

Point	R2413-14_GPS
Latitude	36°12'23.55998"N

Northing	895341.110sft
Easting	1729168.783sft

Point	R2413-14
Northing	895341.114sft

Longitude	79°55'04.63770"W
Height	814.729sft

Elevation	919.924sft
Horz error	0.004sft
Vert error	0.001sft
3D error	0.004sft

Easting	1729168.786sft
Elevation	919.923sft
Utilized	Horz and Vert
Quality	Adjusted quality

Point	R2413-15_GPS
Latitude	36°13'13.41413"N
Longitude	79°54'36.38304"W
Height	745.136sft

Northing	900361.341sft
Easting	1731530.633sft
Elevation	850.425sft
Horz error	0.003sft
Vert error	0.002sft
3D error	0.003sft

Point	R2413-15
Northing	900361.344sft
Easting	1731530.633sft
Elevation	850.423sft
Utilized	Horz and Vert
Quality	Adjusted quality

Point	R2413-16_GPS
Latitude	36°13'21.60689"N
Longitude	79°54'40.43767"W
Height	729.690sft

Northing	901192.894sft
Easting	1731205.996sft
Elevation	835.026sft
Horz error	0.010sft
Vert error	0.002sft
3D error	0.011sft

Point	R2413-16
Northing	901192.902sft
Easting	1731206.002sft
Elevation	835.023sft
Utilized	Horz and Vert
Quality	Adjusted quality

Point	R2413-17_GPS
Latitude	36°14'58.89153"N
Longitude	79°54'38.88568"W
Height	783.390sft

Northing	911029.840sft
Easting	1731423.431sft
Elevation	889.089sft
Horz error	0.013sft
Vert error	0.001sft
3D error	0.013sft

Point	R2413-17
Northing	911029.847sft
Easting	1731423.441sft
Elevation	889.089sft
Utilized	Horz and Vert
Quality	Adjusted quality

Point	R2413-18_GPS
Latitude	36°15'00.27460"N
Longitude	79°54'29.76691"W
Height	804.980sft

Northing	911162.863sft
Easting	1732171.644sft
Elevation	910.651sft
Horz error	0.004sft
Vert error	0.001sft
3D error	0.004sft

Point	R2413-18
Northing	911162.864sft
Easting	1732171.648sft
Elevation	910.652sft
Utilized	Horz and Vert
Quality	Adjusted quality