

GPS Calibration Report

Project : r2250z

TIP Number	R-2250	Date & Time	2:58:19 PM 3/20/2007
User name	rstalls	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	R2250-9
Latitude	35°31'40.40985"N
Longitude	77°27'31.97093"W
Site Scale Factor	1.0001129100
Height	-42.137sft

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	653399.238sft
Easting coordinate of rotation center	2461326.611sft
Rotation about the center point	0°00'00"
Translation north	0.005sft
Translation east	0.032sft
Scale factor	1.00000005

Vertical Adjustment Parameters

Northing coordinate of origin point	620763.937sft
Easting coordinate of origin point	2467298.309sft
Vertical separation at origin	0.040sft
Slope north	-0.103ppm
Slope east	0.167ppm

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	0.005sft	0.001	R2250-1_GPS
Vertical	0.002sft	0.000	R2250-16_GPS
Three-dimensional	0.005sft	0.001	R2250-1_GPS

Point Residuals

WGS84 Coordinates		Calculated point FOR DISPLAY ONLY		Local Coordinates	
Point	R2250-1_GPS	Northing	620763.937sft	Point R2250-1	
Latitude	35°26'43.87377"N	Easting	2467298.309sft	Northing	620763.939sft
Longitude	77°25'51.38994"W	Elevation	63.989sft	Easting	2467298.313sft
Height	-54.449sft	Horz error	0.005sft	Elevation	63.989sft
		Vert error	0.000sft	Utilized	Horz and Vert
		3D error	0.005sft	Quality	Adjusted quality
Point	R2250-2_GPS	Northing	622233.447sft	Point R2250-2	
Latitude	35°26'58.34383"N	Easting	2467692.733sft	Northing	622233.449sft
Longitude	77°25'46.34258"W	Elevation	66.899sft	Easting	2467692.736sft
Height	-51.520sft	Horz error	0.003sft	Elevation	66.898sft
		Vert error	0.001sft	Utilized	Horz and Vert
		3D error	0.003sft	Quality	Adjusted quality
Point	R2250-3_GPS	Northing	628501.652sft	Point R2250-3	
Latitude	35°28'00.93965"N	Easting	2463773.547sft	Northing	628501.652sft
Longitude	77°26'32.51754"W	Elevation	63.860sft	Easting	2463773.547sft
Height	-54.342sft	Horz error	0.000sft	Elevation	63.861sft
		Vert error	0.000sft	Utilized	Horz and Vert
		3D error	0.001sft	Quality	Adjusted quality
Point	R2250-4_GPS	Northing	628528.859sft	Point R2250-4	
Latitude	35°28'01.00934"N	Easting	2465056.563sft	Northing	628528.860sft
Longitude	77°26'17.00372"W	Elevation	64.844sft	Easting	2465056.563sft
Height	-53.388sft	Horz error	0.001sft	Elevation	64.844sft
		Vert error	0.000sft	Utilized	Horz and Vert
		3D error	0.001sft	Quality	Adjusted quality
Point	R2250-5_GPS	Northing	631944.371sft	Point R2250-5	
Latitude	35°28'35.17544"N	Easting	2462538.440sft	Northing	631944.371sft
Longitude	77°26'46.79576"W	Elevation	63.382sft	Easting	2462538.438sft
Height	-54.728sft	Horz error	0.002sft	Elevation	63.382sft
		Vert error	0.000sft	Utilized	Horz and Vert
		3D error	0.002sft	Quality	Adjusted quality
Point	R2250-6_GPS	Northing	631877.919sft	Point R2250-6	
Latitude	35°28'34.29637"N	Easting	2463970.199sft	Northing	631877.919sft
Longitude	77°26'29.49973"W	Elevation	65.503sft	Easting	2463970.196sft
Height	-52.641sft	Horz error	0.004sft	Elevation	65.503sft
		Vert error	0.000sft	Utilized	Horz and Vert
		3D error	0.004sft	Quality	Adjusted quality
Point	R2250-7_GPS	Northing	643911.669sft	Point R2250-7	
Latitude	35°30'34.06846"N	Easting	2458964.128sft	Northing	643911.668sft
Longitude	77°27'27.75815"W	Elevation	66.020sft	Easting	2458964.125sft
Height	-51.798sft	Horz error	0.004sft	Elevation	66.021sft

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Vert error	0.001sft
3D error	0.004sft

Utilized	Horz and Vert
Quality	Adjusted quality

Point	R2250-8_GPS
Latitude	35°30'30.82714"N
Longitude	77°27'13.15556"W
Height	-50.202sft

Northing	643602.750sft
Easting	2460176.363sft
Elevation	67.647sft
Horz error	0.003sft
Vert error	0.001sft
3D error	0.003sft

Point	R2250-8
Northing	643602.749sft
Easting	2460176.360sft
Elevation	67.648sft
Utilized	Horz and Vert
Quality	Adjusted quality

Point	R2250-9_GPS
Latitude	35°31'40.40981"N
Longitude	77°27'31.97128"W
Height	-42.172sft

Northing	650613.437sft
Easting	2458511.715sft
Elevation	75.529sft
Horz error	0.002sft
Vert error	0.000sft
3D error	0.002sft

Point	R2250-9
Northing	650613.436sft
Easting	2458511.713sft
Elevation	75.529sft
Utilized	Horz and Vert
Quality	Adjusted quality

Point	R2250-10_GPS
Latitude	35°31'43.12495"N
Longitude	77°27'14.79222"W
Height	-46.967sft

Northing	650910.018sft
Easting	2459927.234sft
Elevation	70.757sft
Horz error	0.002sft
Vert error	0.001sft
3D error	0.002sft

Point	R2250-10
Northing	650910.017sft
Easting	2459927.232sft
Elevation	70.758sft
Utilized	Horz and Vert
Quality	Adjusted quality

Point	R2250-11_GPS
Latitude	35°32'49.75690"N
Longitude	77°27'58.69287"W
Height	-42.095sft

Northing	657590.334sft
Easting	2456194.934sft
Elevation	75.461sft
Horz error	0.001sft
Vert error	0.001sft
3D error	0.001sft

Point	R2250-11
Northing	657590.333sft
Easting	2456194.934sft
Elevation	75.460sft
Utilized	Horz and Vert
Quality	Adjusted quality

Point	R2250-12_GPS
Latitude	35°32'45.87740"N
Longitude	77°27'44.19017"W
Height	-42.546sft

Northing	657216.648sft
Easting	2457399.328sft
Elevation	75.037sft
Horz error	0.001sft
Vert error	0.001sft
3D error	0.001sft

Point	R2250-12
Northing	657216.648sft
Easting	2457399.327sft
Elevation	75.037sft
Utilized	Horz and Vert
Quality	Adjusted quality

Point	R2250-13_GPS
Latitude	35°33'26.75678"N
Longitude	77°28'09.93596"W
Height	-42.207sft

Northing	661316.758sft
Easting	2455208.269sft
Elevation	75.279sft
Horz error	0.004sft
Vert error	0.000sft
3D error	0.004sft

Point	R2250-13
Northing	661316.756sft
Easting	2455208.273sft
Elevation	75.278sft
Utilized	Horz and Vert
Quality	Adjusted quality

Point	R2250-14_GPS
Latitude	35°33'34.64237"N
Longitude	77°27'55.40115"W
Height	-39.381sft

Northing	662132.548sft
Easting	2456396.763sft
Elevation	78.115sft
Horz error	0.002sft
Vert error	0.000sft
3D error	0.002sft

Point	R2250-14
Northing	662132.547sft
Easting	2456396.764sft
Elevation	78.115sft
Utilized	Horz and Vert
Quality	Adjusted quality

Point	R2250-15_GPS
Latitude	35°34'12.40751"N
Longitude	77°26'49.38231"W
Height	-39.258sft

Northing	666035.503sft
Easting	2461791.137sft
Elevation	78.280sft
Horz error	0.001sft
Vert error	0.002sft
3D error	0.002sft

Point	R2250-15
Northing	666035.503sft
Easting	2461791.138sft
Elevation	78.278sft
Utilized	Horz and Vert
Quality	Adjusted quality

Point	R2250-16_GPS
Latitude	35°34'18.08127"N
Longitude	77°26'38.08441"W
Height	-38.103sft

Northing	666623.747sft
Easting	2462715.392sft
Elevation	79.442sft
Horz error	0.001sft
Vert error	0.002sft
3D error	0.003sft

Point R2250-16	
Northing	666623.749sft
Easting	2462715.392sft
Elevation	79.440sft
Utilized	Horz and Vert
Quality	Adjusted quality

Point	R2250-17_GPS
Latitude	35°34'40.28156"N
Longitude	77°27'25.45588"W
Height	-37.447sft

Northing	668807.169sft
Easting	2458767.524sft
Elevation	80.002sft
Horz error	0.001sft
Vert error	0.000sft
3D error	0.001sft

Point R2250-17	
Northing	668807.169sft
Easting	2458767.525sft
Elevation	80.002sft
Utilized	Horz and Vert
Quality	Adjusted quality

Point	R2250-18_GPS
Latitude	35°34'41.74110"N
Longitude	77°27'13.80707"W
Height	-36.704sft

Northing	668969.703sft
Easting	2459727.368sft
Elevation	80.760sft
Horz error	0.001sft
Vert error	0.000sft
3D error	0.001sft

Point R2250-18	
Northing	668969.703sft
Easting	2459727.369sft
Elevation	80.759sft
Utilized	Horz and Vert
Quality	Adjusted quality

Point	R2250-19_GPS
Latitude	35°35'59.76318"N
Longitude	77°26'54.82427"W
Height	-34.857sft

Northing	676882.408sft
Easting	2461171.971sft
Elevation	82.530sft
Horz error	0.001sft
Vert error	0.001sft
3D error	0.001sft

Point R2250-19	
Northing	676882.408sft
Easting	2461171.971sft
Elevation	82.531sft
Utilized	Horz and Vert
Quality	Adjusted quality

Point	R2250-20_GPS
Latitude	35°35'59.72065"N
Longitude	77°26'42.27816"W
Height	-34.892sft

Northing	676894.318sft
Easting	2462208.011sft
Elevation	82.511sft
Horz error	0.001sft
Vert error	0.001sft
3D error	0.001sft

Point R2250-20	
Northing	676894.318sft
Easting	2462208.011sft
Elevation	82.511sft
Utilized	Horz and Vert
Quality	Adjusted quality

Point	R2250-21_GPS
Latitude	35°36'26.04565"N
Longitude	77°26'17.34259"W
Height	-4.468sft

Northing	679588.177sft
Easting	2464225.143sft
Elevation	112.933sft
Horz error	0.001sft
Vert error	0.002sft
3D error	0.002sft

Point R2250-21	
Northing	679588.178sft
Easting	2464225.144sft
Elevation	112.935sft
Utilized	Horz and Vert
Quality	Adjusted quality

Point	R2250-22_GPS
Latitude	35°36'28.32169"N
Longitude	77°26'02.20835"W
Height	-30.599sft

Northing	679837.978sft
Easting	2465471.081sft
Elevation	86.820sft
Horz error	0.001sft
Vert error	0.000sft
3D error	0.001sft

Point R2250-22	
Northing	679837.980sft
Easting	2465471.081sft
Elevation	86.819sft
Utilized	Horz and Vert
Quality	Adjusted quality