

GPS Calibration Report

Project : R3403

TIP Number	R-3403	Date & Time	7:37:08 AM 10/18/2007
User name	breigner	Zone	North Carolina 3200
Coordinate System	US State Plane 1983(at ground)	Geoid Model	Geoid99 (Conus) NC Sub Grid
Horizontal Datum	NAD 1983 (Conus)		
Vertical Datum	NGVD29		
Coordinate Units	US survey feet		
Distance Units	US survey feet		
Height Units	US survey feet		

LOCAL SITE INFORMATION

Localized around	R3403-4
Latitude	35°11'47.27071"N
Longitude	77°03'17.23378"W
Site Scale Factor	1.0001215750
Height	-97.636sft

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	533655.915sft
Easting coordinate of rotation center	2579560.924sft
Rotation about the center point	0°00'00"
Translation north	0.014sft
Translation east	0.049sft
Scale factor	1.00000000

Vertical Adjustment Parameters

Northing coordinate of origin point	506989.548sft
Easting coordinate of origin point	2590426.616sft
Vertical separation at origin	-0.023sft
Slope north	13.087ppm
Slope east	28.340ppm

Geoid Model Definition

Geoid99 (Conus) NC Sub Grid

Residual Differences Between GPS (WGS84) And Local Coordinates

Summary

	Maximum error	Root Mean Square error	Point
Horizontal	0.154sft	0.017	WEST PINE_GPS
Vertical	0.077sft	0.009	WEST PINE_GPS
Three-dimensional	0.172sft	0.020	WEST PINE_GPS

Point Residuals

WGS84 Coordinates		Calculated point FOR DISPLAY ONLY		Local Coordinates	
Point	WEST PINE_GPS	Northing	506989.548sft	Point WEST PINE	
Latitude	35°07'36.90994"N	Easting	2590426.616sft	Northing	506989.497sft
Longitude	77°01'30.74675"W	Elevation	9.198sft	Easting	2590426.762sft
Height	-112.829sft	Horz error	0.154sft	Elevation	9.275sft
		Vert error	0.077sft	Utilized	Horz and Vert
		3D error	0.172sft	Quality	Control quality
Point	R3403-1_GPS	Northing	515277.209sft	Point R3403-1	
Latitude	35°08'59.37724"N	Easting	2587808.453sft	Northing	515277.161sft
Longitude	77°02'00.28312"W	Elevation	10.369sft	Easting	2587808.479sft
Height	-111.537sft	Horz error	0.055sft	Elevation	10.387sft
		Vert error	0.018sft	Utilized	Horz and Vert
		3D error	0.057sft	Quality	Control quality
Point	ANTIOCH_GPS	Northing	516203.132sft	Point ANTIOCH	
Latitude	35°09'08.60317"N	Easting	2587451.723sft	Northing	516203.069sft
Longitude	77°02'04.35727"W	Elevation	13.184sft	Easting	2587451.721sft
Height	-108.706sft	Horz error	0.063sft	Elevation	13.166sft
		Vert error	0.018sft	Utilized	Horz and Vert
		3D error	0.065sft	Quality	Control quality
Point	R3403-2_GPS	Northing	523237.650sft	Point R3403-2	
Latitude	35°10'18.71540"N	Easting	2584632.099sft	Northing	523237.650sft
Longitude	77°02'36.63611"W	Elevation	15.617sft	Easting	2584632.043sft
Height	-106.145sft	Horz error	0.055sft	Elevation	15.581sft
		Vert error	0.036sft	Utilized	Horz and Vert
		3D error	0.066sft	Quality	Control quality
Point	R3403-3_GPS	Northing	524155.221sft	Point R3403-3	
Latitude	35°10'27.86037"N	Easting	2584265.141sft	Northing	524155.194sft
Longitude	77°02'40.83766"W	Elevation	15.639sft	Easting	2584265.077sft
Height	-106.106sft	Horz error	0.070sft	Elevation	15.633sft
		Vert error	0.006sft	Utilized	Horz and Vert
		3D error	0.070sft	Quality	Control quality
Point	R3403-4_GPS	Northing	532123.293sft	Point R3403-4	
Latitude	35°11'47.27071"N	Easting	2581086.878sft	Northing	532123.276sft
Longitude	77°03'17.23378"W	Elevation	23.959sft	Easting	2581086.826sft
Height	-97.636sft	Horz error	0.055sft	Elevation	23.917sft
		Vert error	0.042sft	Utilized	Horz and Vert
		3D error	0.069sft	Quality	Control quality
Point	R3403-5_GPS	Northing	533230.866sft	Point R3403-5	
Latitude	35°11'58.30870"N	Easting	2580644.542sft	Northing	533230.869sft
Longitude	77°03'22.30111"W	Elevation	19.668sft	Easting	2580644.526sft
Height	-101.906sft	Horz error	0.017sft	Elevation	19.610sft

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Vert error	0.058sft
3D error	0.061sft

Utilized	Horz and Vert
Quality	Control quality

Point	R3403-112_GPS
Latitude	35°13'11.36524"N
Longitude	77°03'57.04562"W
Height	-101.460sft

Northing	540559.728sft
Easting	2577617.658sft
Elevation	19.967sft
Horz error	0.021sft
Vert error	0.035sft
3D error	0.041sft

Point	R3403-112
Northing	540559.740sft
Easting	2577617.640sft
Elevation	19.933sft
Utilized	Horz and Vert
Quality	Adjusted quality

Point	R3403-6_GPS
Latitude	35°13'19.92229"N
Longitude	77°04'02.69977"W
Height	-107.911sft

Northing	541415.612sft
Easting	2577131.772sft
Elevation	13.493sft
Horz error	0.025sft
Vert error	0.028sft
3D error	0.038sft

Point	R3403-6
Northing	541415.624sft
Easting	2577131.750sft
Elevation	13.465sft
Utilized	Horz and Vert
Quality	Control quality

Point	SNAPPYS_GPS
Latitude	35°14'25.45355"N
Longitude	77°04'43.09329"W
Height	-105.623sft

Northing	547975.059sft
Easting	2573652.757sft
Elevation	15.618sft
Horz error	0.054sft
Vert error	0.011sft
3D error	0.055sft

Point	SNAPPYS
Northing	547975.109sft
Easting	2573652.738sft
Elevation	15.607sft
Utilized	Horz and Vert
Quality	Control quality

Point	R3403-7_GPS
Latitude	35°14'32.71348"N
Longitude	77°04'51.02883"W
Height	-103.786sft

Northing	548696.228sft
Easting	2572980.434sft
Elevation	17.425sft
Horz error	0.037sft
Vert error	0.016sft
3D error	0.040sft

Point	R3403-7
Northing	548696.265sft
Easting	2572980.434sft
Elevation	17.441sft
Utilized	Horz and Vert
Quality	Control quality

Point	R3403-8_GPS
Latitude	35°15'21.20456"N
Longitude	77°05'44.12225"W
Height	-102.473sft

Northing	553513.367sft
Easting	2568483.187sft
Elevation	18.534sft
Horz error	0.054sft
Vert error	0.016sft
3D error	0.057sft

Point	R3403-8
Northing	553513.419sft
Easting	2568483.203sft
Elevation	18.550sft
Utilized	Horz and Vert
Quality	Control quality

Point	R3403-9_GPS
Latitude	35°15'29.07477"N
Longitude	77°05'52.69466"W
Height	-101.352sft

Northing	554295.335sft
Easting	2567757.123sft
Elevation	19.621sft
Horz error	0.053sft
Vert error	0.032sft
3D error	0.062sft

Point	R3403-9
Northing	554295.386sft
Easting	2567757.138sft
Elevation	19.652sft
Utilized	Horz and Vert
Quality	Control quality

Point	R3403-101_GPS
Latitude	35°06'12.72209"N
Longitude	77°02'06.70470"W
Height	-117.948sft

Northing	498420.009sft
Easting	2587608.803sft
Elevation	3.992sft
Horz error	0.084sft
Vert error	0.008sft
3D error	0.084sft

Point	R3403-101
Northing	498419.952sft
Easting	2587608.864sft
Elevation	4.000sft
Utilized	Horz and Vert
Quality	Adjusted quality

Point	R3403-102_GPS
Latitude	35°09'34.63128"N
Longitude	77°00'33.45906"W
Height	-105.259sft

Northing	518984.637sft
Easting	2594945.629sft
Elevation	16.936sft
Horz error	0.039sft
Vert error	0.011sft
3D error	0.041sft

Point	R3403-102
Northing	518984.598sft
Easting	2594945.634sft
Elevation	16.925sft
Utilized	Horz and Vert
Quality	Adjusted quality

Point	R3403-103_GPS
Latitude	35°08'53.28616"N
Longitude	77°02'39.21875"W
Height	-105.656sft

Northing	514597.600sft
Easting	2584587.905sft
Elevation	16.119sft
Horz error	0.043sft
Vert error	0.003sft
3D error	0.043sft

Point R3403-103	
Northing	514597.557sft
Easting	2584587.912sft
Elevation	16.117sft
Utilized	Horz and Vert
Quality	Adjusted quality

Point	R3403-104_GPS
Latitude	35°12'23.96024"N
Longitude	77°02'14.74458"W
Height	-98.135sft

Northing	535934.243sft
Easting	2586198.825sft
Elevation	23.667sft
Horz error	0.019sft
Vert error	0.005sft
3D error	0.020sft

Point R3403-104	
Northing	535934.237sft
Easting	2586198.807sft
Elevation	23.662sft
Utilized	Horz and Vert
Quality	Adjusted quality

Point	R3403-105_GPS
Latitude	35°11'48.20854"N
Longitude	77°04'17.81212"W
Height	-104.118sft

Northing	532120.002sft
Easting	2576058.293sft
Elevation	17.264sft
Horz error	0.032sft
Vert error	0.025sft
3D error	0.041sft

Point R3403-105	
Northing	532119.991sft
Easting	2576058.262sft
Elevation	17.239sft
Utilized	Horz and Vert
Quality	Adjusted quality

Point	R3403-106_GPS
Latitude	35°13'34.49676"N
Longitude	77°03'13.49638"W
Height	-105.740sft

Northing	542968.683sft
Easting	2581184.447sft
Elevation	15.833sft
Horz error	0.017sft
Vert error	0.011sft
3D error	0.020sft

Point R3403-106	
Northing	542968.698sft
Easting	2581184.439sft
Elevation	15.844sft
Utilized	Horz and Vert
Quality	Adjusted quality

Point	R3403-107_GPS
Latitude	35°12'42.03929"N
Longitude	77°04'40.75008"W
Height	-110.823sft

Northing	537524.765sft
Easting	2574049.539sft
Elevation	10.460sft
Horz error	0.015sft
Vert error	0.016sft
3D error	0.022sft

Point R3403-107	
Northing	537524.767sft
Easting	2574049.524sft
Elevation	10.443sft
Utilized	Horz and Vert
Quality	Adjusted quality

Point	R3403-108_GPS
Latitude	35°15'43.62018"N
Longitude	77°04'30.37423"W
Height	-99.997sft

Northing	555897.322sft
Easting	2574554.356sft
Elevation	21.265sft
Horz error	0.044sft
Vert error	0.036sft
3D error	0.057sft

Point R3403-108	
Northing	555897.366sft
Easting	2574554.353sft
Elevation	21.301sft
Utilized	Horz and Vert
Quality	Adjusted quality

Point	R3403-109_GPS
Latitude	35°14'19.81541"N
Longitude	77°06'01.81738"W
Height	-97.961sft

Northing	547279.426sft
Easting	2567134.691sft
Elevation	23.002sft
Horz error	0.031sft
Vert error	0.003sft
3D error	0.031sft

Point R3403-109	
Northing	547279.455sft
Easting	2567134.681sft
Elevation	22.999sft
Utilized	Horz and Vert
Quality	Adjusted quality

Point	R3403-110_GPS
Latitude	35°16'29.27926"N
Longitude	77°06'05.90143"W
Height	-92.912sft

Northing	560360.456sft
Easting	2566545.647sft
Elevation	27.993sft
Horz error	0.059sft
Vert error	0.034sft
3D error	0.068sft

Point R3403-110	
Northing	560360.515sft
Easting	2566545.642sft
Elevation	28.027sft
Utilized	Horz and Vert
Quality	Adjusted quality

Point	R3403-111_GPS
Latitude	35°15'07.26639"N
Longitude	77°06'48.74604"W

Northing	552002.017sft
Easting	2563151.406sft
Elevation	9.110sft

Point R3403-111	
Northing	552002.061sft
Easting	2563151.401sft

Height	-111.668sft

Horz error	0.044sft
Vert error	0.013sft
3D error	0.046sft

Elevation	9.123sft
Utilized	Horz and Vert
Quality	Adjusted quality

Point	R3403-100_GPS
Latitude	35°07'41.59810"N
Longitude	76°59'46.59922"W
Height	-104.664sft

Northing	507636.817sft
Easting	2599066.414sft
Elevation	17.711sft
Horz error	0.084sft
Vert error	0.036sft
3D error	0.091sft

Point	R3403-100
Northing	507636.768sft
Easting	2599066.481sft
Elevation	17.747sft
Utilized	Horz and Vert
Quality	Adjusted quality