

# GPS Calibration Report

*Project : u0209b\_ctrlsheets*

<b>TIP Number</b>	U-0209-B	<b>Date &amp; Time</b>	3:00:42 PM 7/28/2008
<b>User name</b>	jjeffreys	<b>Zone</b>	North Carolina 3200
<b>Coordinate System</b>	US State Plane 1983		
<b>Horizontal Datum</b>	NAD 1983 (Conus)		
<b>Vertical Datum</b>	NAVD 88	<b>Geoid Model</b>	Geoid03 (Conus) NC Sub Grid
<b>Coordinate Units</b>	US survey feet		
<b>Distance Units</b>	US survey feet		
<b>Height Units</b>	US survey feet		

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## LOCAL SITE INFORMATION

Localized around	U209B-6
Latitude	N/A
Longitude	N/A
Site Scale Factor	N/A
Height	N/A

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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.

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## Datum Transformation Parameters

Datum Transformation computation not requested

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## Updated Default Projection (Transverse Mercator) Definition

Updated default projection not requested

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## Horizontal Adjustment Parameters

<b>Northing coordinate of rotation center</b>	532499.106sft
<b>Easting coordinate of rotation center</b>	1473291.616sft
<b>Rotation about the center point</b>	0°00'00"
<b>Translation north</b>	1.386sft
<b>Translation east</b>	-0.350sft
<b>Scale factor</b>	1.00015791

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## Vertical Adjustment Parameters

<b>Northing coordinate of origin point</b>	532646.296sft
<b>Easting coordinate of origin point</b>	1473097.354sft
<b>Vertical separation at origin</b>	-0.011sft
<b>Slope north</b>	0.633ppm
<b>Slope east</b>	0.362ppm

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# 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	0.044sft	0.006	M084_GPS
Vertical	0.043sft	0.005	U209B-5_GPS
Three-dimensional	0.052sft	0.008	M084_GPS

### Point Residuals

WGS84 Coordinates		Calculated point FOR DISPLAY ONLY		Local Coordinates	
<b>Point</b>	U209B-1_GPS	<b>Northing</b>	532646.296sft	<b>Point</b>	U209B-1
<b>Latitude</b>	35°12'02.44185"N	<b>Easting</b>	1473097.354sft	<b>Northing</b>	532646.300sft
<b>Longitude</b>	80°45'50.03603"W	<b>Elevation</b>	761.887sft	<b>Easting</b>	1473097.353sft
<b>Height</b>	662.565sft	<b>Horz error</b>	0.004sft	<b>Elevation</b>	761.890sft
		<b>Vert error</b>	0.003sft	<b>Utilized</b>	Horz and Vert
		<b>3D error</b>	0.005sft	<b>Quality</b>	Survey quality
<b>Point</b>	U209B-2_GPS	<b>Northing</b>	531845.995sft	<b>Point</b>	U209B-2
<b>Latitude</b>	35°11'54.20968"N	<b>Easting</b>	1471288.642sft	<b>Northing</b>	531845.999sft
<b>Longitude</b>	80°46'11.65401"W	<b>Elevation</b>	767.738sft	<b>Easting</b>	1471288.645sft
<b>Height</b>	668.406sft	<b>Horz error</b>	0.005sft	<b>Elevation</b>	767.740sft
		<b>Vert error</b>	0.002sft	<b>Utilized</b>	Horz and Vert
		<b>3D error</b>	0.006sft	<b>Quality</b>	Survey quality
<b>Point</b>	U209B-3_GPS	<b>Northing</b>	528502.609sft	<b>Point</b>	U209B-3
<b>Latitude</b>	35°11'21.56462"N	<b>Easting</b>	1473654.074sft	<b>Northing</b>	528502.613sft
<b>Longitude</b>	80°45'42.44307"W	<b>Elevation</b>	759.987sft	<b>Easting</b>	1473654.079sft
<b>Height</b>	660.692sft	<b>Horz error</b>	0.007sft	<b>Elevation</b>	759.980sft
		<b>Vert error</b>	0.007sft	<b>Utilized</b>	Horz and Vert
		<b>3D error</b>	0.010sft	<b>Quality</b>	Survey quality
<b>Point</b>	U209B-4_GPS	<b>Northing</b>	527336.576sft	<b>Point</b>	U209B-4
<b>Latitude</b>	35°11'10.21550"N	<b>Easting</b>	1474687.811sft	<b>Northing</b>	527336.579sft
<b>Longitude</b>	80°45'29.74236"W	<b>Elevation</b>	760.057sft	<b>Easting</b>	1474687.813sft
<b>Height</b>	660.774sft	<b>Horz error</b>	0.004sft	<b>Elevation</b>	760.060sft
		<b>Vert error</b>	0.003sft	<b>Utilized</b>	Horz and Vert
		<b>3D error</b>	0.004sft	<b>Quality</b>	Survey quality
<b>Point</b>	U209B-5_GPS	<b>Northing</b>	523457.185sft	<b>Point</b>	U209B-5
<b>Latitude</b>	35°10'32.33587"N	<b>Easting</b>	1477447.005sft	<b>Northing</b>	523457.183sft
<b>Longitude</b>	80°44'55.68437"W	<b>Elevation</b>	741.643sft	<b>Easting</b>	1477447.005sft
<b>Height</b>	642.386sft	<b>Horz error</b>	<b>0.002sft</b>	<b>Elevation</b>	741.600sft
		<b>Vert error</b>	<b>0.043sft</b>	<b>Utilized</b>	Horz and Vert
		<b>3D error</b>	<b>0.043sft</b>	<b>Quality</b>	Survey quality
<b>Point</b>	U209B-6_GPS	<b>Northing</b>	523701.425sft	<b>Point</b>	U209B-6
<b>Latitude</b>	35°10'34.36113"N	<b>Easting</b>	1475213.677sft	<b>Northing</b>	523701.426sft

<b>Longitude</b>	80°45'22.63353"W
<b>Height</b>	667.158sft

<b>Elevation</b>	766.427sft
<b>Horz error</b>	0.006sft
<b>Vert error</b>	0.007sft
<b>3D error</b>	0.009sft

<b>Easting</b>	1475213.683sft
<b>Elevation</b>	766.420sft
<b>Utilized</b>	Horz and Vert
<b>Quality</b>	Survey quality

<b>Point</b>	CHME_GPS
<b>Latitude</b>	35°16'35.97221"N
<b>Longitude</b>	80°53'20.58187"W
<b>Height</b>	743.614sft

<b>Northing</b>	560986.420sft
<b>Easting</b>	1436237.468sft
<b>Elevation</b>	843.827sft
<b>Horz error</b>	0.008sft
<b>Vert error</b>	0.003sft
<b>3D error</b>	0.008sft

<b>Point</b>	CHME
<b>Northing</b>	560986.424sft
<b>Easting</b>	1436237.462sft
<b>Elevation</b>	843.830sft
<b>Utilized</b>	Horz and Vert
<b>Quality</b>	Survey quality

<b>Point</b>	IBM_GPS
<b>Latitude</b>	35°19'01.10247"N
<b>Longitude</b>	80°46'31.73072"W
<b>Height</b>	632.111sft

<b>Northing</b>	575032.948sft
<b>Easting</b>	1470394.579sft
<b>Elevation</b>	732.100sft
<b>Horz error</b>	0.012sft
<b>Vert error</b>	0.005sft
<b>3D error</b>	0.013sft

<b>Point</b>	IBM
<b>Northing</b>	575032.959sft
<b>Easting</b>	1470394.575sft
<b>Elevation</b>	732.095sft
<b>Utilized</b>	Horz and Vert
<b>Quality</b>	Survey quality

<b>Point</b>	M048_GPS
<b>Latitude</b>	35°14'17.58644"N
<b>Longitude</b>	80°40'17.44755"W
<b>Height</b>	645.252sft

<b>Northing</b>	545831.456sft
<b>Easting</b>	1500926.055sft
<b>Elevation</b>	744.530sft
<b>Horz error</b>	0.029sft
<b>Vert error</b>	0.022sft
<b>3D error</b>	0.037sft

<b>Point</b>	M048
<b>Northing</b>	545831.451sft
<b>Easting</b>	1500926.026sft
<b>Elevation</b>	744.552sft
<b>Utilized</b>	Horz and Vert
<b>Quality</b>	Survey quality

<b>Point</b>	M084_GPS
<b>Latitude</b>	35°08'51.93083"N
<b>Longitude</b>	80°48'20.36581"W
<b>Height</b>	578.768sft

<b>Northing</b>	513611.031sft
<b>Easting</b>	1460272.585sft
<b>Elevation</b>	678.095sft
<b>Horz error</b>	<b>0.044sft</b>
<b>Vert error</b>	<b>0.027sft</b>
<b>3D error</b>	<b>0.052sft</b>

<b>Point</b>	M084
<b>Northing</b>	513611.033sft
<b>Easting</b>	1460272.629sft
<b>Elevation</b>	678.122sft
<b>Utilized</b>	Horz and Vert
<b>Quality</b>	Survey quality

<b>Point</b>	M099_GPS
<b>Latitude</b>	35°05'49.18159"N
<b>Longitude</b>	80°41'42.60932"W
<b>Height</b>	671.275sft

<b>Northing</b>	494553.475sft
<b>Easting</b>	1492984.668sft
<b>Elevation</b>	770.566sft
<b>Horz error</b>	0.033sft
<b>Vert error</b>	0.003sft
<b>3D error</b>	0.034sft

<b>Point</b>	M099
<b>Northing</b>	494553.448sft
<b>Easting</b>	1492984.649sft
<b>Elevation</b>	770.569sft
<b>Utilized</b>	Horz and Vert
<b>Quality</b>	Survey quality