

# GPS Calibration Report

*Project : R2707A1*

<b>TIP Number</b>	R2707A	<b>Date &amp; Time</b>	12:36:30 PM 6/30/2010
<b>User name</b>	rdwoods	<b>Zone</b>	North Carolina 3200
<b>Coordinate System</b>	US State Plane 1983	<b>Geoid Model</b>	G99NC
<b>Horizontal Datum</b>	NAD 1983 (Conus)		
<b>Vertical Datum</b>	NAVD 88		
<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	M-77
Latitude	35°17'53.47519"N
Longitude	81°32'14.87764"W
Site Scale Factor	N/A
Height	747.565sft

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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

Northing coordinate of rotation center	564891.530sft
Easting coordinate of rotation center	1248940.722sft
Rotation about the center point	0°00'00"
Translation north	-1.241sft
Translation east	0.938sft
Scale factor	1.00015517

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## Vertical Adjustment Parameters

Northing coordinate of origin point	568742.403sft
Easting coordinate of origin point	1203773.275sft
Vertical separation at origin	0.211sft
Slope north	5.123ppm
Slope east	-1.547ppm

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## Geoid Model Definition

G99NC

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## Residual Differences Between GPS (WGS84) And Local Coordinates

Summary
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	Maximum error	Root Mean Square error	Point
Horizontal	0.050sft	0.009	GPS15
Vertical	0.045sft	0.008	MCBRAYER
Three-dimensional	0.057sft	0.012	MCBRAYER

### Point Residuals

WGS84 Coordinates		Calculated point FOR DISPLAY ONLY		Local Coordinates	
<b>Point</b>	MCBRAYER	<b>Northing</b>	568742.403sft	<b>Point</b>	McBrayer_Local
<b>Latitude</b>	35°16'59.95696"N	<b>Easting</b>	1203773.275sft	<b>Northing</b>	568742.428sft
<b>Longitude</b>	81°40'06.15783"W	<b>Elevation</b>	856.819sft	<b>Easting</b>	1203773.299sft
<b>Height</b>	751.773sft	<b>Horz error</b>	<b>0.035sft</b>	<b>Elevation</b>	856.774sft
		<b>Vert error</b>	<b>0.045sft</b>	<b>Utilized</b>	Horz and Vert
		<b>3D error</b>	<b>0.057sft</b>	<b>Quality</b>	Survey quality
<b>Point</b>	LATT-2	<b>Northing</b>	581073.131sft	<b>Point</b>	LATT-2_Local
<b>Latitude</b>	35°19'02.46223"N	<b>Easting</b>	1206029.125sft	<b>Northing</b>	581073.122sft
<b>Longitude</b>	81°39'42.94665"W	<b>Elevation</b>	925.966sft	<b>Easting</b>	1206029.126sft
<b>Height</b>	820.821sft	<b>Horz error</b>	0.009sft	<b>Elevation</b>	925.970sft
		<b>Vert error</b>	0.004sft	<b>Utilized</b>	Horz and Vert
		<b>3D error</b>	0.010sft	<b>Quality</b>	Survey quality
<b>Point</b>	GPS4	<b>Northing</b>	576194.767sft	<b>Point</b>	R2707-4_Local
<b>Latitude</b>	35°18'17.64678"N	<b>Easting</b>	1219011.564sft	<b>Northing</b>	576194.769sft
<b>Longitude</b>	81°37'04.79740"W	<b>Elevation</b>	875.093sft	<b>Easting</b>	1219011.540sft
<b>Height</b>	770.106sft	<b>Horz error</b>	0.024sft	<b>Elevation</b>	875.110sft
		<b>Vert error</b>	0.017sft	<b>Utilized</b>	Horz and Vert
		<b>3D error</b>	0.029sft	<b>Quality</b>	Survey quality
<b>Point</b>	M77	<b>Northing</b>	573127.494sft	<b>Point</b>	M77_Local
<b>Latitude</b>	35°17'53.47450"N	<b>Easting</b>	1242971.651sft	<b>Northing</b>	573127.522sft
<b>Longitude</b>	81°32'14.87790"W	<b>Elevation</b>	852.249sft	<b>Easting</b>	1242971.658sft
<b>Height</b>	747.535sft	<b>Horz error</b>	0.029sft	<b>Elevation</b>	852.279sft
		<b>Vert error</b>	0.030sft	<b>Utilized</b>	Horz and Vert
		<b>3D error</b>	0.042sft	<b>Quality</b>	Survey quality
<b>Point</b>	WALLACE	<b>Northing</b>	593880.476sft	<b>Point</b>	WALLACE_Local
<b>Latitude</b>	35°21'21.03039"N	<b>Easting</b>	1252431.750sft	<b>Northing</b>	593880.490sft
<b>Longitude</b>	81°30'27.11508"W	<b>Elevation</b>	968.736sft	<b>Easting</b>	1252431.739sft
<b>Height</b>	863.861sft	<b>Horz error</b>	0.018sft	<b>Elevation</b>	968.735sft
		<b>Vert error</b>	0.001sft	<b>Utilized</b>	Horz and Vert
		<b>3D error</b>	0.018sft	<b>Quality</b>	Survey quality
<b>Point</b>	GPS15	<b>Northing</b>	578350.583sft	<b>Point</b>	R2707-15_Local
<b>Latitude</b>	35°18'48.68592"N	<b>Easting</b>	1257235.473sft	<b>Northing</b>	578350.547sft
<b>Longitude</b>	81°29'24.43979"W	<b>Elevation</b>	936.723sft	<b>Easting</b>	1257235.438sft
<b>Height</b>	832.090sft	<b>Horz error</b>	<b>0.050sft</b>	<b>Elevation</b>	936.747sft
		<b>Vert error</b>	<b>0.024sft</b>	<b>Utilized</b>	Horz and Vert
		<b>3D error</b>	<b>0.056sft</b>	<b>Quality</b>	Survey quality
<b>Point</b>	2JS13	<b>Northing</b>	553976.489sft	<b>Point</b>	2-JS-13_Local
<b>Latitude</b>	35°14'52.39137"N	<b>Easting</b>	1276400.935sft	<b>Northing</b>	553976.474sft
<b>Longitude</b>	81°25'26.08075"W	<b>Elevation</b>	874.121sft	<b>Easting</b>	1276400.950sft
<b>Height</b>	770.050sft	<b>Horz error</b>	0.021sft	<b>Elevation</b>	874.077sft
		<b>Vert error</b>	0.044sft	<b>Utilized</b>	Horz and Vert
		<b>3D error</b>	0.049sft	<b>Quality</b>	Survey quality

<b>Point</b>	GPS23
<b>Latitude</b>	35°14'49.16395"N
<b>Longitude</b>	81°25'35.37802"W
<b>Height</b>	763.346sft

<b>Northing</b>	553669.095sft
<b>Easting</b>	1275622.024sft
<b>Elevation</b>	867.424sft
<b>Horz error</b>	0.017sft
<b>Vert error</b>	0.007sft
<b>3D error</b>	0.018sft

<b>Point R2707-23_Local</b>	
<b>Northing</b>	553669.094sft
<b>Easting</b>	1275622.041sft
<b>Elevation</b>	867.417sft
<b>Utilized</b>	Horz and Vert
<b>Quality</b>	Survey quality

<b>Point</b>	R26254
<b>Latitude</b>	35°13'23.79431"N
<b>Longitude</b>	81°23'00.98772"W
<b>Height</b>	846.141sft

<b>Northing</b>	544729.486sft
<b>Easting</b>	1288217.128sft
<b>Elevation</b>	949.783sft
<b>Horz error</b>	0.031sft
<b>Vert error</b>	0.017sft
<b>3D error</b>	0.036sft

<b>Point R2625-4_Local</b>	
<b>Northing</b>	544729.474sft
<b>Easting</b>	1288217.099sft
<b>Elevation</b>	949.766sft
<b>Utilized</b>	Horz and Vert
<b>Quality</b>	Survey quality

<b>Point</b>	W200
<b>Latitude</b>	35°10'05.36224"N
<b>Longitude</b>	81°27'02.08704"W
<b>Height</b>	776.498sft

<b>Northing</b>	525158.972sft
<b>Easting</b>	1267723.676sft
<b>Elevation</b>	880.183sft
<b>Horz error</b>	0.036sft
<b>Vert error</b>	0.039sft
<b>3D error</b>	0.053sft

<b>Point W200_Local</b>	
<b>Northing</b>	525158.975sft
<b>Easting</b>	1267723.712sft
<b>Elevation</b>	880.222sft
<b>Utilized</b>	Horz and Vert
<b>Quality</b>	Survey quality