

GPS Calibration Report

Project : R4047SiteCalibration090601

TIP Number	R-4047	Date & Time	2:34:58 PM 6/1/2009
User name	rmcdonald	Zone	North Carolina 3200
Coordinate System	US State Plane 1983(at ground)	Geoid Model	GEOID99 (Conus)
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	R2210A-5
Latitude	35°31'16.10937"N
Longitude	82°57'26.75433"W
Site Scale Factor	1.0002359560
Height	2531.689sft

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	670724.317sft
Easting coordinate of rotation center	820102.140sft
Rotation about the center point	0°00'00"
Translation north	-0.003sft
Translation east	-0.015sft
Scale factor	1.00000009

Vertical Adjustment Parameters

Northing coordinate of origin point	667317.210sft
Easting coordinate of origin point	820034.542sft
Vertical separation at origin	-0.447sft
Slope north	-0.953ppm
Slope east	-2.137ppm

Geoid Model Definition

GEOID99 (Conus)

Residual Differences Between GPS (WGS84) And Local Coordinates

Summary			
	Maximum error	Root Mean Square error	Point
Horizontal	0.027sft	0.004	WHITETAIL_WGS84
Vertical	0.593sft	0.093	WHITETAIL_WGS84
Three-dimensional	0.594sft	0.093	WHITETAIL_WGS84

Point Residuals

WGS84 Coordinates		Calculated point FOR DISPLAY ONLY		Local Coordinates	
Point	GPS100_WGS84	Northing	667317.210sft	Point GPS100_Local	
Latitude	35°31'07.63539"N	Easting	820034.542sft	Northing	667317.213sft
Longitude	82°57'59.29449"W	Elevation	2632.996sft	Easting	820034.539sft
Height	2538.548sft	Horz error	0.004sft	Elevation	2632.784sft
		Vert error	0.212sft	Utilized	Horz and Vert
		3D error	0.212sft	Quality	Survey quality
Point	GPS101_WGS84	Northing	667652.817sft	Point GPS101_Local	
Latitude	35°31'11.23753"N	Easting	820758.989sft	Northing	667652.820sft
Longitude	82°57'50.70106"W	Elevation	2649.829sft	Easting	820758.987sft
Height	2555.359sft	Horz error	0.004sft	Elevation	2649.595sft
		Vert error	0.234sft	Utilized	Horz and Vert
		3D error	0.234sft	Quality	Survey quality
Point	GPS102_WGS84	Northing	670585.916sft	Point GPS102_Local	
Latitude	35°31'42.52525"N	Easting	826615.247sft	Northing	670585.917sft
Longitude	82°56'41.33185"W	Elevation	2611.226sft	Easting	826615.248sft
Height	2516.580sft	Horz error	0.002sft	Elevation	2610.999sft
		Vert error	0.227sft	Utilized	Horz and Vert
		3D error	0.227sft	Quality	Survey quality
Point	GPS103_WGS84	Northing	670650.770sft	Point GPS103_Local	
Latitude	35°31'43.76354"N	Easting	828137.080sft	Northing	670650.772sft
Longitude	82°56'22.96812"W	Elevation	2629.729sft	Easting	828137.084sft
Height	2535.054sft	Horz error	0.004sft	Elevation	2629.503sft
		Vert error	0.226sft	Utilized	Horz and Vert
		3D error	0.226sft	Quality	Survey quality
Point	GPS104_WGS84	Northing	670495.844sft	Point GPS104_Local	
Latitude	35°31'39.81192"N	Easting	821983.058sft	Northing	670495.847sft
Longitude	82°57'37.27860"W	Elevation	2546.059sft	Easting	821983.056sft
Height	2451.508sft	Horz error	0.004sft	Elevation	2545.871sft
		Vert error	0.188sft	Utilized	Horz and Vert
		3D error	0.188sft	Quality	Survey quality
Point	GPS105_WGS84	Northing	670653.904sft	Point GPS105_Local	
Latitude	35°31'41.73061"N	Easting	822888.411sft	Northing	670653.905sft

Longitude	82°57'26.41171"W
Height	2482.534sft

Elevation	2577.108sft
Horz error	0.002sft
Vert error	0.213sft
3D error	0.213sft

Easting	822888.412sft
Elevation	2576.895sft
Utilized	Horz and Vert
Quality	Survey quality

Point	R2210A1_WGS84
Latitude	35°29'51.20893"N
Longitude	82°58'42.19822"W
Height	2544.798sft

Northing	659736.666sft
Easting	816180.613sft
Elevation	2639.001sft
Horz error	0.005sft
Vert error	0.039sft
3D error	0.039sft

Point	R2210A1_Local
Northing	659736.670sft
Easting	816180.616sft
Elevation	2638.962sft
Utilized	Horz and Vert
Quality	Survey quality

Point	R2210A5_WGS84
Latitude	35°31'16.10937"N
Longitude	82°57'26.75417"W
Height	2532.351sft

Northing	668066.123sft
Easting	822756.861sft
Elevation	2626.870sft
Horz error	0.003sft
Vert error	0.208sft
3D error	0.208sft

Point	R2210A5_Local
Northing	668066.125sft
Easting	822756.862sft
Elevation	2626.662sft
Utilized	Horz and Vert
Quality	Survey quality

Point	R2210A7_WGS84
Latitude	35°31'29.13735"N
Longitude	82°57'23.53870"W
Height	2555.969sft

Northing	669371.947sft
Easting	823074.980sft
Elevation	2650.523sft
Horz error	0.001sft
Vert error	0.216sft
3D error	0.216sft

Point	R2210A7_Local
Northing	669371.946sft
Easting	823074.981sft
Elevation	2650.307sft
Utilized	Horz and Vert
Quality	Survey quality

Point	HAYWOOD TECH_WGS
Latitude	35°31'42.03001"N
Longitude	82°55'29.84359"W
Height	2596.845sft

Northing	670301.687sft
Easting	832518.296sft
Elevation	2691.592sft
Horz error	0.014sft
Vert error	0.477sft
3D error	0.478sft

Point	HAYWOOD TECH_Loc
Northing	670301.691sft
Easting	832518.309sft
Elevation	2692.069sft
Utilized	Horz and Vert
Quality	Survey quality

Point	MAX PATCH_WGS84
Latitude	35°47'50.19659"N
Longitude	82°57'24.68614"W
Height	4532.169sft

Northing	768511.050sft
Easting	826933.755sft
Elevation	4629.691sft
Horz error	0.022sft
Vert error	0.428sft
3D error	0.429sft

Point	MAX PATCH_Local
Northing	768511.040sft
Easting	826933.735sft
Elevation	4630.119sft
Utilized	Horz and Vert
Quality	Survey quality

Point	MILE HIGH_WGS84
Latitude	35°31'09.38682"N
Longitude	83°10'42.37199"W
Height	5136.282sft

Northing	670081.561sft
Easting	757006.758sft
Elevation	5229.729sft
Horz error	0.016sft
Vert error	0.264sft
3D error	0.265sft

Point	MILE HIGH_Local
Northing	670081.573sft
Easting	757006.769sft
Elevation	5229.993sft
Utilized	Horz and Vert
Quality	Survey quality

Point	WHITETAIL_WGS84
Latitude	35°19'31.59985"N
Longitude	82°52'54.78327"W
Height	5715.914sft

Northing	595990.587sft
Easting	842439.040sft
Elevation	5810.347sft
Horz error	0.027sft
Vert error	0.593sft
3D error	0.594sft

Point	WHITETAIL_Local
Northing	595990.562sft
Easting	842439.031sft
Elevation	5810.940sft
Utilized	Horz and Vert
Quality	Survey quality