PROJECT REFERENCE NO.	SHEET NO.
U-2579C	1C-2
Location and Surveys	

SURVEY CONTROL SHEET U-2579C

GPS Calibration Report
Project : U2579CZ

TIP Number U2579C
User name tbovender Date & Time 8:37:04 AM 3/16/2006
Coordinate System US State Plane 1983(at ground) Zone North Carolina 3200
Horizontal Datum NAD 1983 (Conus)
Vertical Datum NAVD88 Geoid Model Geoid99 NC Sub Grid
Coordinate Units US survey feet
Distance Units US survey feet
Height Units US survey feet

LOCAL SITE INFORMATION
Localized around
Latitude 36°09'08.35543"N
Longitude 80°10'48.39359"W
Site Scale Factor 1.0000454720
Height 869.698sft

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 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 881656.770sft
Easting coordinate of rotation center 1645222.163sft
Rotation about the center point 0°0'0"
Translation north 0.006sft
Translation east -0.007sft
Scale factor 0.99999960

Vertical Adjustment Parameters

Northing coordinate of origin point 874594.190sft
Easting coordinate of origin point 1650970.241sft
Vertical separation at origin 0.329sft
Slope north -8.333ppm
Slope east -22.536ppm

Geoid Model Definition

Geoid99 NC Sub Grid

Residual Differences Between GPS (WGS84) And Local Coordinates

Summary

Maximum error	Root Mean Square error	Point
Horizontal	0.004sft 0.001	U2579C-2 GPS
Vertical 0.000sft	0.000	U2579C-2 GPS
Three-dimensional	0.004sft 0.001	U2579C-2 GPS

	WGS84 Coordinates	Calculated point FOR DISPLAY ONLY	Local Coordinates
Point	U2579C-1 GPS	Northing 876419.312sft	Point U2579C-1
Latitude	36°09'08.35561"N	Easting 1651591.580sft	Northing 876419.314sft
Longitude	80°10'48.39376"W	Elevation 976.937sft	Easting 1651591.579sft
Height	869.565sft	Horz error 0.002sft	Elevation 976.937sft
		Vert error 0.000sft	Utilized Horz and Vert
		3D error 0.002sft	Quality Adjusted quality
Point	U2579C-2 GPS	Northing 874594.190sft	Point U2579C-2
Latitude	36°08'50.23619"N	Easting 1650970.241sft	Northing 874594.193sft
Longitude	80°10'55.70414"W	Elevation 962.984sft	Easting 1650970.238sft
Height	855.629sft	Horz error 0.004sft	Elevation 962.985sft
		Vert error 0.000sft	Utilized Horz and Vert
		3D error 0.004sft	Quality Adjusted quality
Point	U2579C-3 GPS	Northing 877222.169sft	Point U2579C-3
Latitude	36°09'16.36058"N	Easting 1652158.241sft	Northing 877222.169sft
Longitude	80°10'41.60119"W	Elevation 977.429sft	Easting 1652158.242sft
Height	870.066sft	Horz error 0.001sft	Elevation 977.429sft
		Vert error 0.000sft	Utilized Horz and Vert
		3D error 0.001sft	Quality Adjusted quality
Point	U2579C-4 GPS	Northing 877945.278sft	Point U2579C-4
Latitude	36°09'23.58750"N	Easting 1652815.209sft	Northing 877945.276sft
Longitude	80°10'33.69565"W	Elevation 977.168sft	Easting 1652815.211sft
Height	869.820sft	Horz error 0.004sft	Elevation 977.168sft
		Vert error 0.000sft	Utilized Horz and Vert
		3D error 0.004sft	Quality Adjusted quality
Point	U2579C-5 GPS	Northing 879097.966sft	Point U2579C-5
Latitude	36°09'34.49525"N	Easting 1648659.942sft	Northing 879097.965sft
Longitude	80°11'24.52785"W	Elevation 1007.592sft	Easting 1648659.942sft
Height	899.999sft	Horz error 0.001sft	Elevation 1007.592sft
		Vert error 0.000sft	Utilized Horz and Vert
		3D error 0.001sft	Quality Adjusted quality
Point	U2579C-6 GPS	Northing 878599.757sft	Point U2579C-6
Latitude	36°09'29.44991"N	Easting 1647655.737sft	Northing 878599.757sft
Longitude	80°11'36.69918"W	Elevation 997.261sft	Easting 1647655.736sft
Height	889.629sft	Horz error 0.001sft	Elevation 997.261sft
		Vert error 0.000sft	Utilized Horz and Vert
		3D error 0.001sft	Quality Adjusted quality
Point	U2579D-7 GPS	Northing 880888.478sft	Point U2579D-7
Latitude	36°09'51.74737"N	Easting 1644868.839sft	Northing 880888.477sft
Longitude	80°12'11.01767"W	Elevation 991.488sft	Easting 1644868.839sft
Height	883.654sft	Horz error 0.001sft	Elevation 991.488sft
		Vert error 0.000sft	Utilized Horz and Vert
		3D error 0.001sft	Quality Adjusted quality
Point	U2579D-8 GPS	Northing 881853.892sft	Point U2579D-8
Latitude	36°10'01.29767"N	Easting 1644907.587sft	Northing 881853.891sft
Longitude	80°12'10.68786"W	Elevation 978.362sft	Easting 1644907.587sft
Height	870.505sft	Horz error 0.001sft	Elevation 978.362sft
		Vert error 0.000sft	Utilized Horz and Vert
		3D error 0.001sft	Quality Adjusted quality
Point	U2579D-9 GPS	Northing 885999.857sft	Point U2579D-9
Latitude	36°10'41.58107"N	Easting 1639029.416sft	Northing 885999.857sft
Longitude	80°13'22.99025"W	Elevation 851.244sft	Easting 1639029.416sft
Height	742.988sft	Horz error 0.000sft	Elevation 851.244sft
		Vert error 0.000sft	Utilized Horz and Vert
		3D error 0.000sft	Quality Adjusted quality
Point	U2579D-10 GPS	Northing 887526.306sft	Point U2579D-10
Latitude	36°10'56.69827"N	Easting 1639229.479sft	Northing 887526.307sft
Longitude	80°13'20.77956"W	Elevation 897.604sft	Easting 1639229.479sft
Height	789.321sft	Horz error 0.000sft	Elevation 897.604sft
		Vert error 0.000sft	Utilized Horz and Vert
		3D error 0.001sft	Quality Adjusted quality
Point	U2579D-11 GPS	Northing 888976.550sft	Point U2579D-11
Latitude	36°11'10.57515"N	Easting 1635451.543sft	Northing 888976.550sft
Longitude	80°14'07.07724"W	Elevation 914.716sft	Easting 1635451.543sft
Height	806.214sft	Horz error 0.001sft	Elevation 914.715sft
		Vert error 0.000sft	Utilized Horz and Vert
		3D error 0.001sft	Quality Adjusted quality
Point	U2579D-12 GPS	Northing 890757.558sft	Point U2579D-12
Latitude	36°11'28.16966"N	Easting 1635328.064sft	Northing 890757.558sft
Longitude	80°14'08.85377"W	Elevation 906.848sft	Easting 1635328.064sft
Height	798.301sft	Horz error 0.000sft	Elevation 906.848sft
		Vert error 0.000sft	Utilized Horz and Vert
		3D error 0.000sft	Quality Adjusted quality

NOTES:

1. *THE SITE CALIBRATION SHOWN IS BASED UPON A NETWORK TIED TO THE HARN (HIGH ACCURACY REFERENCE NETWORK) NAD 83/95 ADJUSTMENT. THIS CALIBRATION WILL ALLOW THE END USER TO WORKWITHIN THE SAME COORDINATE SYSTEM WHEN USING RTK (REAL TIME KINEMATIC) GPS AND A LOCAL BASE STATION. IF ANOTHER SYSTEM SUCH AS VRS (VIRTUAL REFERENCE STATION) IS USED, ADDITIONAL FIELD TIES MAY BE NEEDED TO REDUCE POSSIBLE ERRORS, OR BIASES.*

2. *THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:*
HTTPS://CONNECT.NCDOT.GOV/RESOURCES/LOCATION/

THE FILES TO BE FOUND ARE AS FOLLOWS:
U2579C_LS_GPSCALIB.HTML
U2579C_LS_WGS84.TXT
U2579C_LS_LOCAL.TXT
U2579C_LS_CONTROL.TXT

THE WGS84 AND LOCAL FILES ARE COMMA DELIMITED AND CAN BE USED TO REPRODUCE THE SITE CALIBRATION FOR THE END USER'S GPS EQUIPMENT. IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

▲ *INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.*
PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.
NETWORK ESTABLISHED FROM EXISTING HARN MONUMENTATION
SEE GPS CALIBRATION SHEET FOR HORIZONTAL AND VERTICAL COORDINATE VALUES.

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCGS FOR MONUMENT "U2579C-1" WITH NAD 83/95 STATE PLANE GRID COORDINATES OF NORTHING: 876419.285(ft) EASTING: 1651591.602(ft) ELEVATION: 976.94(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99995453
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "U2579C-1" TO -L- STATION 390+00.00 IS N 49°00'53.54" 3884.0262'
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

08-AUG-2017 08:47
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$$USERNAME$$