

# C-19-836

All computed coordinate accuracies are listed as peak-to-peak values.  
For additional information:  
<http://www.ngs.noaa.gov/OPUS/about.html#accuracy>

USER: [cculpepper@cobbengr.com](mailto:cculpepper@cobbengr.com) DATE: January 26, 2012  
RINEX FILE: log0017q.12o TIME: 22:20:29 UTC

SOFTWARE: page5 1108.09 master28.pl 060711 START: 2012/01/17 16:19:00  
EPOCH: 2012/01/17 22:44:00  
NAV FILE: brdc0170.12n OBS USED: 14693/17135 : 86%  
ANT NAME: TP5HIPER\*11 NONE # FIXED AMB: 123/132 : 93%  
ARP HEIGHT: 2 OVERALL RMS: 0.015(m)

REF FRAME: NAD83(CORS96)EPOCH: 2002.0000 ITRF00 (EPOCH: 2012.0459)

X: -546325.013(m) 0.013(m) -546325.768(m) 0.013(m)  
Y: -5145211.207(m) 0.008(m) -5145209.814(m) 0.008(m)  
Z: 3717301.993(m) 0.011(m) 3717301.832(m) 0.011(m)

LAT: 35 52 39.02148 0.006(m) 35 52 39.04207 0.006(m)  
E LON: 263 56 20.29950 0.012(m) 263 56 20.26371 0.012(m)  
W LON: 96 3 39.70050 0.012(m) 96 3 39.73629 0.012(m)  
EL HGT: 195.794(m) 0.012(m) 194.642(m) 0.012(m)  
ORTHO HGT: 224.614(m) 0.022(m) [NAVD86 (Computed using GEOID09)]

UTM COORDINATES STATE PLANE COORDINATES  
UTM (Zone 14) SPC (3501 OK N)  
Northing (Y) [meters] 3974352.339 99109.847  
Easting (X) [meters] 765328.325 775075.866  
Convergence [degrees] 1.72340271 1.14427870  
Point Scale 1.00046756 0.99995814  
Combined Factor 1.00043682 0.99992741

US NATIONAL GRID DESIGNATOR: 14SQE6532874352INAD 83

PID	DESIGNATION	BASE STATIONS USED	LATITUDE	LONGITUDE	DISTANCE(m)
DE7174	OKTE TECUMSEH CORS ARP	N351536.668 W0965352.108	102204.3		
DE8101	OKTU TULSA CORS ARP	N361238.113 W0955115.783	41385.8		
DE7170	OKMA MCALESTER CORS ARP	N345540.833 W0954414.056	109375.6		

NEAREST NGS PUBLISHED CONTROL POINT  
FJ1156 MOUNDS N355325.138 W0960055.021 4365.2

This position and the above vector components were computed without any knowledge by the National Geodetic Survey regarding the equipment or field operating procedures used.

STATE OF OKLAHOMA DEPARTMENT OF HIGHWAYS SURVEY DIVISION  
S.D. FORM NO. 11 REVISED 3/10/75  
POSITION AND DESCRIPTION OF SURVEY MONUMENTS

COUNTY: CREEK STATION NUMBER: C-19-836 BND: 4732(II) DATE: 01/26/12

TYPE OF MONUMENT: 5/8" IRON PIN WITH ALUMINUM CAP MONUMENT SET FOR GPS CONTROL

METHOD ESTABLISHED: TRILATERATION TRIANGULATION TRAVERSE OTHER (SPECIFY):

STATIC GPS OBSERVATIONS USING OPUS SOLUTIONS

HEIGHT OF INSTRUMENT ABOVE MONUMENT: FEET, TYPE OF WITNESS POST:

WRITTEN DESCRIPTION OF LOCATION: APPROXIMATELY 425' SOUTH OF EW765 AND APPROXIMATELY 63' WEST OF THE WEST EDGE OF U.S.75A.

ESTABLISHED BY: DARREN H. SMITH, RPLS

COORDINATE SYSTEM:	USC&GS	DHD	OTHER (SPECIFY)	OK STATE PLANE (NAD 83)
GRID DATA:				
NORTH ZONE	X 2542894737			
ACCURACY:				
3RD ORDER	Y 325422899			

GRID BEARING	DISTANCE	POINTS OBSERVED
NORTH 42.5°		RP 1 - CONCRETE BOLLARD
NORTHEAST 48.9°		RP 2 - LIGHT POLE
SOUTHWEST 71.6°		RP 3 - S. EDGE OF ASPH. LOT

GEODETIC DATA:	POSITION	ELEVATION
LATITUDE	N35°53'39.0215"	NORTH 73652'
LONGITUDE	W96°03'39.005"	WEST
ANGLE OF VARIANCE (θ)		SOURCE: NAVD88
		ACCURACY: 3RD

GENERAL VICINITY: SEC. 08 R. 12 E. T. 15 N.

DETAIL SKETCH: ASPHALT PARKING LOT, RP \*2, RP \*3, 45.9', 71.6', RP \*2

LEGEND: Δ = CONTROL MONUMENT, ○ = LAND CORNER, □ = OTHER

# C-19-837

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For additional information:  
<http://www.ngs.noaa.gov/OPUS/about.html#accuracy>

USER: [TWentworth@cobbengr.com](mailto:TWentworth@cobbengr.com) DATE: February 13, 2012  
RINEX FILE: log0040o.12o TIME: 17:12:46 UTC

SOFTWARE: page5 1108.09 master81.pl 060711 START: 2012/02/09 14:55:00  
EPOCH: 2012/02/09 21:33:30  
NAV FILE: brdc0400.12n OBS USED: 17124/17852 : 96%  
ANT NAME: TP5HIPER\*11 NONE # FIXED AMB: 89/90 : 99%  
ARP HEIGHT: 2 OVERALL RMS: 0.013(m)

REF FRAME: NAD83(CORS96)EPOCH: 2002.0000 ITRF00 (EPOCH: 2012.1086)

X: -546094.653(m) 0.013(m) -546095.409(m) 0.013(m)  
Y: -5144165.472(m) 0.009(m) -5144164.079(m) 0.009(m)  
Z: 3718765.202(m) 0.008(m) 3718765.041(m) 0.008(m)

LAT: 35 53 37.72195 0.007(m) 35 53 37.74255 0.007(m)  
E LON: 263 56 25.03063 0.014(m) 263 56 24.99479 0.014(m)  
W LON: 96 3 34.96937 0.014(m) 96 3 35.00521 0.014(m)  
EL HGT: 191.271(m) 0.010(m) 190.119(m) 0.010(m)  
ORTHO HGT: 220.084(m) 0.019(m) [NAVD86 (Computed using GEOID09)]

UTM COORDINATES STATE PLANE COORDINATES  
UTM (Zone 14) SPC (3501 OK N)  
Northing (Y) [meters] 3976165.166 100921.007  
Easting (X) [meters] 765392.531 775158.360  
Convergence [degrees] 1.72485217 1.14505427  
Point Scale 1.00046796 0.99995675  
Combined Factor 1.00043795 0.99992673

US NATIONAL GRID DESIGNATOR: 14SQE6539276165INAD 83

PID	DESIGNATION	BASE STATIONS USED	LATITUDE	LONGITUDE	DISTANCE(m)
DE7174	OKTE TECUMSEH CORS ARP	N351536.668 W0965352.108	103507.2		
DE8101	OKTU TULSA CORS ARP	N361238.113 W0955115.783	39722.2		
DE7170	OKMA MCALESTER CORS ARP	N345540.833 W0954414.056	111086.8		

NEAREST NGS PUBLISHED CONTROL POINT  
FJ1410 V 219 N355405. W0960338. 846.9

This position and the above vector components were computed without any knowledge by the National Geodetic Survey regarding the equipment or field operating procedures used.

STATE OF OKLAHOMA DEPARTMENT OF HIGHWAYS SURVEY DIVISION  
S.D. FORM NO. 11 REVISED 3/10/75  
POSITION AND DESCRIPTION OF SURVEY MONUMENTS

COUNTY: CREEK STATION NUMBER: C-19-837 BND: 4732(II) DATE: 01/26/12

TYPE OF MONUMENT: 5/8" IRON PIN WITH ALUMINUM CAP MONUMENT SET FOR GPS CONTROL

METHOD ESTABLISHED: TRILATERATION TRIANGULATION TRAVERSE OTHER (SPECIFY):

STATIC GPS OBSERVATIONS USING OPUS SOLUTIONS

HEIGHT OF INSTRUMENT ABOVE MONUMENT: FEET, TYPE OF WITNESS POST:

WRITTEN DESCRIPTION OF LOCATION: APPROXIMATELY 185' NORTH OF EW775 AND APPROXIMATELY 22' EAST OF THE EAST EDGE OF U.S.75A.

ESTABLISHED BY: DARREN H. SMITH, RPLS

COORDINATE SYSTEM:	USC&GS	DHD	OTHER (SPECIFY)	OK STATE PLANE (NAD 83)
GRID DATA:				
NORTH ZONE	X 254365387			
ACCURACY:				
3RD ORDER	Y 33105005			

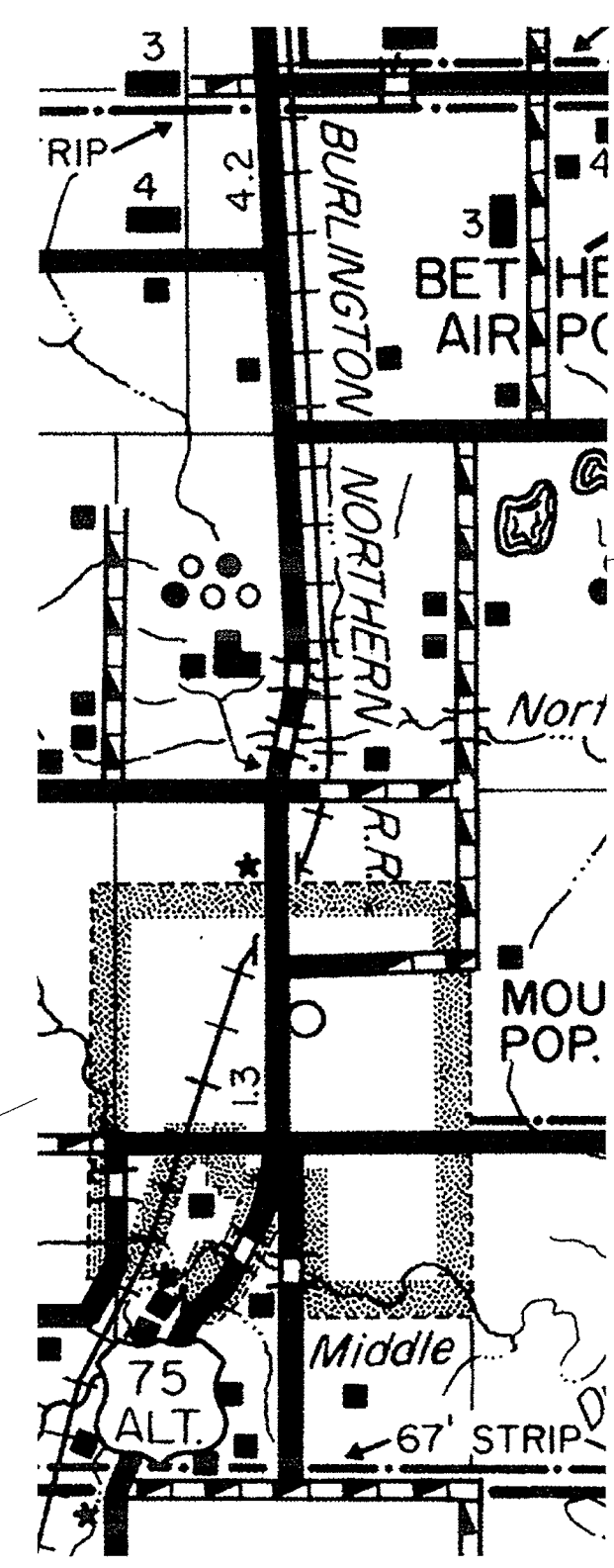
GRID BEARING	DISTANCE	POINTS OBSERVED
NORTHEAST 33.9°		RP 1 - TOP OF WEST RAIL ON R.R.
SOUTHWEST 53.2°		RP 2 - SPEED ZONE AHEAD SIGN
WEST 22.3°		RP 3 - EAST EDGE OF U.S.75A

GEODETIC DATA:	POSITION	ELEVATION
LATITUDE	N35°53'37.7220"	NORTH 7220'
LONGITUDE	W96°03'34.6694"	WEST
ANGLE OF VARIANCE (θ)		SOURCE: NAVD88
		ACCURACY: 3RD

GENERAL VICINITY: SEC. 05 R. 12 E. T. 15 N.

DETAIL SKETCH: U.S.75A, RP \*2, RP \*1, 51.2', 35.9'

LEGEND: Δ = CONTROL MONUMENT, ○ = LAND CORNER, □ = OTHER



CP #1  
C-19-836

CP #2  
C-19-837

# CONTROL MAP

P.L.S.	D.M.S.	DATE	DESCRIPTION
		06/11/2012	U.S. 75A, FROM 14TH STREET, NORTHERLY TO EW-77.5 1/4 SECTION LINE
DRAWN	J.E.M.	06/11/2012	
CHECKED	A.K.H.	06/11/2012	
APPROV.	D.M.S.	06/11/2012	
CREW CHIEF	A.K.H.		

SWO NO. 4732(II) J/P NO. 27075(Q4) SHEET NO. 54