

# HORIZONTAL CONTROL DATA

by the  
 Coast and Geodetic Survey  
 NORTH AMERICAN 1927 DATUM

QUAD 390983 STATION 1015  
 KANS  
 LATITUDE 39°00' TO 39°30'  
 LONGITUDE 98°30' TO 99°00'  
 DIAGRAM NJ 14-2 BELOW

WALDO (Osborne County, Kans., F.D. Granger, 1891; 1922)--About 4-1/2 miles northwest of Waldo, on a high and nearly level ridge, in the SE 1/4 sec. 24, T. 10 S., R. 14 W., on land owned (1922) by John Lake, who lives in the northwest quarter of the same section. Both underground and station marks are standard bronze station tablets set in concrete blocks, the former 3/4 inches and the latter 10 inches below the surface. Reference mark no. 1, a standard bronze reference tablet set in a concrete block, is in the north and south fence line between the cultivated field on the west and the pasture on the east, and is 130.8 meters (429 feet) N. 50° E. (magnetic) from the station. Reference mark no. 2, similar to no. 1 is on the same fence line 121.6 meters (399 feet), N. 75° (magnetic) from the station. A circular trench surrounds the station and broken window glass is mixed with the dirt over the mark. (Special Publication No. 179).

WALDO (Osborne County, Kans., F.D.G., 1891; S.K. McG., 1934)--Original description is correct.  
 An additional reference may be used as follows: A cross mark on a post in an east-and-west wire fence is N. 12° W., 153.5 feet.  
 The following exceptions were noted: Reference mark no. 1, N. 55° W. (magnetic), 429 feet; reference mark no. 2, N. 80° W. (magnetic), 399 feet.

## RECOVERY NOTE, TRIANGULATION STATION

DEPARTMENT OF COMMERCE  
 U. S. COAST AND GEODETIC SURVEY  
 FORM NO. 508  
 (Rev. Feb. 1958)

NAME OF STATION: WALDO  
 ESTABLISHED BY: F.D.G. YEAR: 1892 STATE: Kansas  
 RECOVERED BY: R.L. Engdahl YEAR: 1960 COUNTY: Osborne

Detailed statement as to the fitness of the original description; including marks found, stampings, changes made, and other pertinent facts:  
 The Station, Reference Mark No. 1 and Reference Mark No. 2 were recovered and found to be in good condition. A new Azimuth Mark and Reference Mark No. 3 were established.

Following is a new and complete description:  
 The station is located about 4.5 miles northwest of Waldo on a high, flat topped ridge, near the north edge of a cultivated field, 152 feet south of an east-west fence line and witness post. It is stamped WALDO 1892 and is 6 inches below the ground surface. Notes 1b and 7a.  
 Reference Mark No. 1 is set in a north-south fence line, 4 feet north of a "T" fence corner and is about 10 feet lower in elevation than the station. It is stamped WALDO NO 1 1892 and is flush with the ground surface. Note 11a.  
 Reference Mark No. 2 is in the east edge of a cultivated field, 145 feet south of a "T" fence corner and 1 foot west of a north-south fence line and is about 10 feet lower in elevation than the station. It is stamped WALDO NO 2 1892 and is 4 inches below the ground surface. Note 11a.  
 Reference Mark No. 3 is in the north edge of a cultivated field, on the same elevation as the station, 1 foot west of a witness post and 1 foot south of an east-west fence line. It is stamped WALDO NO 3 1960 and projects 6 inches. Note 11a.  
 The Azimuth Mark is on the road right-of-way, 25 feet west of the center of road, 1 foot northeast of the north end of a wire gate, 1 foot south of a witness post and 1 foot east of a north-south fence line. It is stamped WALDO 1960 and projects 6 inches. Note 11a.

To reach the station from the Post Office in Waldo, go north on graveled road for 0.85 mile to a "T" intersection, turn left and go west for 2.5 miles to a point where road turns north at railroad track, turn right and go north for 2.3 miles to Azimuth Mark on left as described. Continue north for 0.7 mile to a farmhouse on right, turn right and go east-northeast through farmyard to a wire gate at the southeast corner of a large chicken house. Pass through gate and go southeast and east on track road for 0.35 mile to a fork, take right fork and go south on track road for 0.35 mile to a fork, take left fork and go east for 0.15 mile to a wire gate in a north-south fence line. Pass through gate and continue east on track road for 0.2 mile to a fork, take right fork and go south along top of ridge for 0.25 mile to an east-west fence line. From this point the station is 152 feet south.

OBJECT:	BEARING:	feet	DISTANCE: meters	DIRECTION:
PARADISE Azimuth Mark	W		(0.75 mile)	00 00 00
R.M. No. 3	N	151.82	46.275	133 54 19.4
R.M. No. 1	ENE	431.08	131.393	207 06 40.4
R.M. No. 2	E	398.94	121.597	228 36 46.4
Waldo, Municipal Water Tank				287 37 36.8

## ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION: WALDO YEAR: 1892  
 STATE: Kansas LOCALITY: Meades Ranch to Missouri State Line  
 First-order Triangulation SOURCE: G-155 G-1127  
 G-275 G-9310 FIELD SKETCH: SP 179-6  
 G-1126 KANS 13

GRID DATA	COORDINATES (Feet)	PLANE AZIMUTH θ (OR Δθ ANGLE)	MARK
STATE: Kan ZONE: N CODE: 1501	x 1,764,498.81 y 304,138.85	91°23'00"	AZIMUTH MARK
STATE: ZONE: CODE:	x y		

GEODETIC DATA	POSITION		SECONDS IN METERS	ELEVATION
	LATITUDE: 39°09'55"626 LONGITUDE: 98 49 50.121	NORTH WEST		619.0 METERS 2,031 FEET

TO STATION	GEODETIC AZIMUTH (From south)	DISTANCE	
		LOGARITHM (Meters)	METERS
<b>FIRST-ORDER</b>			
ALLEN	5°26'27"12	4.577 3694	37,789.35
BLUE HILL	48 58 27.91	4.489 6332	30,876.87
KILL CREEK	155 38 07.88	4.148 4410	14,074.76
DIAL	209 20 13.88	4.037 6031	10,904.43
MEADES RANCH	255 17 12.64	4.411 3352	25,783.11
WILSON	318 17 09.59	4.650 6421	44,734.45
BUNKER HILL	341 38 07.14	4.536 6549	34,407.64
<b>SECOND-ORDER</b>			
CUT	1 33 14.56	3.723 2515	5,287.51
PARADISE	40 53 15.04	4.126 3011	13,375.22
NATOMA	86 24 58.14	4.273 8347	18,786.02
LIBERTY	128 20 59.36	3.990 3632	9,780.55
KILL CREEK 2	155 16 44.27	4.150 7624	14,150.20
LURAY	288 28 47.75	4.217 5939	16,504.18
PAIR	324 51 35.45	4.211 2995	16,266.70
<b>THIRD-ORDER</b>			
RUSSELL NORTH SCHOOL TALL CUPOLA	4 44 13.2	4.473 572	29,755.8
RUSSELL HIGH SCHOOL CUPOLA POLE	4 56 47.7	4.489 008	30,832.4
PARADISE MUNICIPAL STANDPIPE	54 20 56.	3.956 262	9,041.9
AZIMUTH MARK	90 51 28.2		
LURAY MUNICIPAL WATER TANK	294 28 49.6	4.115 721	13,053.3
WALDO RADIO RANGE TOWER	305 12 00.8	3.933 048	8,571.3
WALDO MUNICIPAL WATER TANK	328 30 54.2	3.766 864	5,846.1
BUNKER HILL SCHOOLHOUSE CUPOLA	340 35 53.1	4.531 734	34,020.0
BUNKER HILL METHODIST CHURCH SPIRE	340 52 50.0	4.531 205	33,978.6
BUNKER HILL FLOURING MILL IRON CHIMNEY	341 32 19.2	4.530 972	33,960.3
BUNKER HILL WATER TOWER	341 33 46.0	4.537 228	34,453.1
RUSSELL SOUTHEAST BASE	353 30 20.0	4.538 486	34,553.0
RUSSELL TRIPOD	357 18 20.3	4.451 510	28,282.0
RUSSELL NORTHWEST BASE	359 01 57.7	4.479 791	30,185.0

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