

THIRD-ORDER LEVELING  
SEA LEVEL DATUM OF 1929

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY

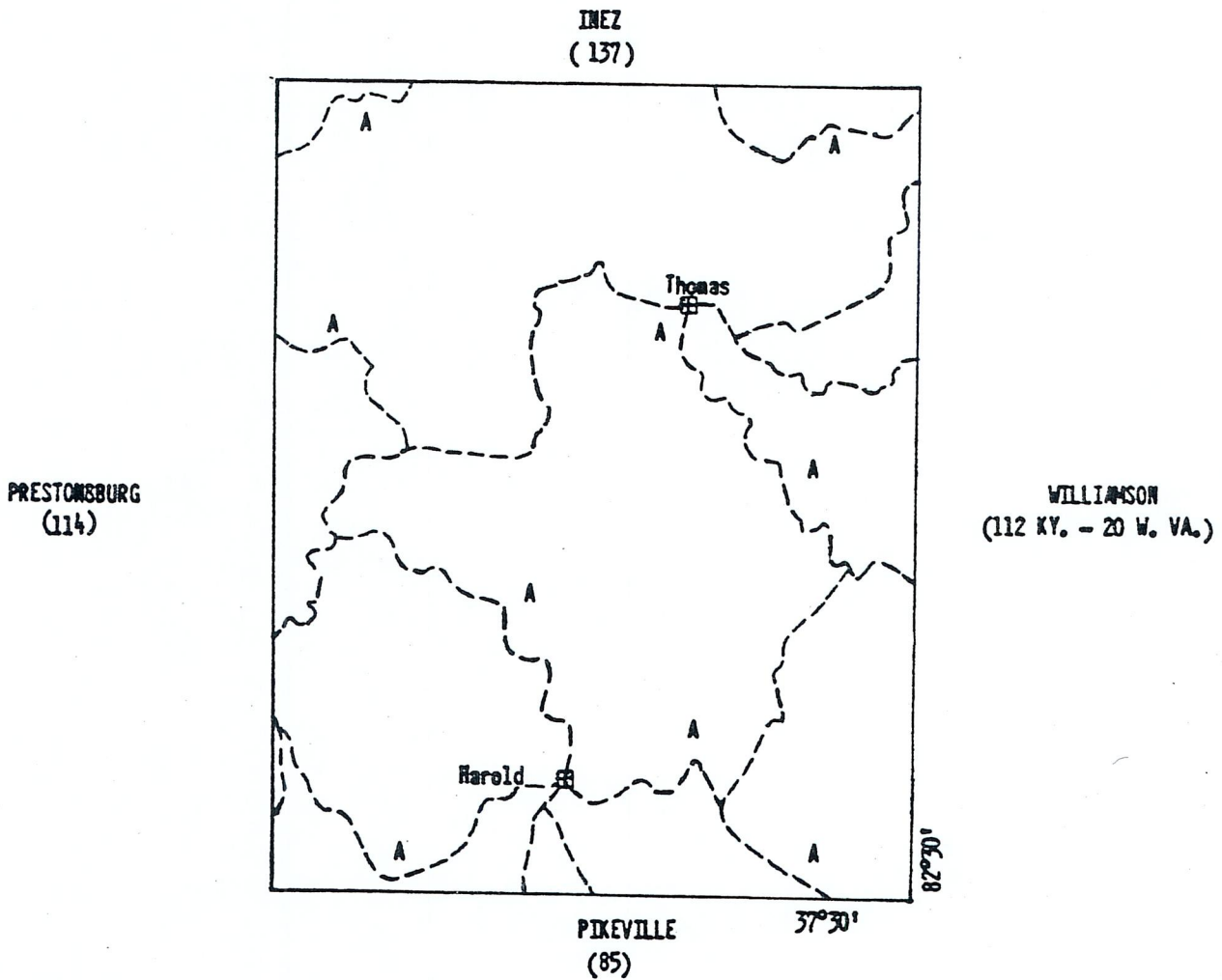
37-082-42  
HAROLD QUADRANGLE  
113 KENTUCKY  
N3730-W8230/15  
DIAGRAM NJ 17-7  
JENKINS

Floyd, Johnson, Martin  
and Pike Counties

Final adjustment of 1973

Edition of 3/25/74

PR: WSM/mjh



NGS (USC&GS) VERTICAL CONTROL DATA

A. Quadrangle 370824

INDEX OF PERMANENT MARKS

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ISOLATED BENCH MARKS (By S. R. Archer, 1912 - 1914; Books A9094, A9195 and A9341)	<u>Feet</u>
Allen, 3.3 mi SW. of; 200 ft E. of mouth of Arkansas Creek; on W. side of rd.; E. bank of Beaver Creek; S. end of loop to S.; in face of rock cliff; standard tablet stamped "639" (Reported destroyed, 1926)	639.152
Allen, 720 ft W. of Beaver Creek station; E. stone abutment of Chesapeake & Ohio Railway bridge No. 836 over mouth of Beaver Creek; in top of S. end of bridge seat; standard tablet stamped "KY 637.991" (Tied by MGS, 1952)	637.991
Woods, 0.2 mi N. of; N. end of siding; in top of E. end of concrete culvert under track; standard tablet stamped "640" (Reported not found, 1954)	639.522
Bull Creek station, 0.2 mi N. of; at concrete RR. bridge over mouth of Bull Creek; in top of S. end of bridge seat, E. abutment; tablet stamped "635" (Tied by MGS, 1935)	634.322
Wagner station, 0.2 mi N. of; 0.2 mi S. of Mossy Bottom station; 510 ft N. of milepost N 98 E 30; in top of E. end of concrete culvert under railroad; standard tablet stamped "665" (Reported not found, 1953)	664.900
Harold station, 1.3 mi SE. of; 770 ft W. of Boldman station; in top of E. end N. side of track of Chesapeake & Ohio Railway stone arch culvert over mouth of Hurricane Creek; standard tablet stamped "653" (Reported not found, 1954) (Reported destroyed, 1976)	652.862
Betsy Layne station, 780 ft W. of; on N. side of track; in top of E. end of concrete culvert under railroad; standard tablet stamped "646" (Reported not found, 1953)	646.158
Ivel station, 150 ft N. of; on E. side of track; at cattle guard; in top of N. side of E. end of concrete culvert under RR.; bronze tablet stamped "KY 652.712" (Tied by MGS, 1952)	652.712
Harold station, 2.2 mi SW. of; 0.3 mi SE. of schoolhouse; 250 ft S. of residence of Press Tackett; on E. side of and 12 ft above rd.; in face of sandstone cliff; standard tablet stamped "667" (Reported not found, 1953)	666.846
Printer, 0.2 mi N. of; 1.6 mi S. of Alphoretta; 150 ft N. of house standing in mouth of cove from W.; 150 ft N. of bend in rd. to N.; on W. side of rd.; at foot of low spur from W.; opposite blacksmith shop; on N. side of entrance to coal opening; in face of sandstone rock; standard tablet stamped "689" (Reported not found, 1954)	688.428
Coal Run, 4.21 mi NE. of; 750 ft N. of forks of rd. at head of Miller Creek; 125 ft S. of residence of Henry Stratton standing on E. side of rd.; on W. edge of rd. and 3.5 ft above top of rock outcrop; standard tablet stamped "895 KY"	895.284
John's Creek High Schools, 3.1 mi NW. of; at mouth of Miller Creek; steel hwy. bridge over Johns Creek; S. concrete abutment; top of W. end; standard tablet stamped "KY 706.216" (Tied by MGS, 1952)	706.216
Gulnare Post Office, 560 ft S. of; 250 ft N. of mouth of Sycamore Creek; 540 ft N. of John Scott & Co. store; 400 ft N. of rd. forks; on W. edge of rd.; on E. bank of Johns Creek; in top of large rock; standard tablet stamped "KY 693.598" (Tied by MGS, 1922)	693.598

ISOLATED BENCH MARKS (Cont'd.)Feet

McCombs post office, 0.5 mi SE. of; N. bank of Johns Creek, 400 ft W. of bend to W.; 250 ft E. of branch from NE.; 400 ft E. of residence of Amos Spear; 17 ft S. of rd.; at foot of black-ash tree 15 in. in diameter; in top of sandstone rock; standard tablet stamped "KY 676.902" (Tied by MGS, 1952)	676.902
Thomas Post Office; 235 ft SW. of post office; 400 ft E. of mouth of Brushy Fork; 89 ft E. of NE. abutment of bridge; at foot of buckeye tree 1 ft in diameter; on top of sandstone rock; standard tablet stamped "KY 654.530" (Tied by MGS, 1952)	654.530
German post office, 2.30 mi E. of; 350 ft N. of mouth of Mill Creek; 60 ft above water level of Johns Creek; at point of rd. crossing end of low spur from NE.; on N. side of, and 8 ft above rd.; in top of sandstone outcrop; standard tablet stamped "701 KY" (Reported not found, 1953)	700.881
German post office, 0.14 mi E. of; 650 ft E. of mouth of Buffalo Creek; 230 ft E. of point of spur and rd. forks; N. side of Johns Creek and hwy.; in face of sandstone rock; standard tablet stamped "660 KY" (Reported not found, 1953)	659.818
Edgar post office, 0.2 mi E. of; 700 ft NE. of mouth of Dicks Creek; 180 ft E. of rd. forks; opposite house standing on lower side of rd.; on N. side of rd.; in sandstone outcrop; standard tablet stamped "661" (Reported not found, 1954)	660.381
Brandy Keg post office, 1 mi N. of; just E. of mouth of Frogonery Branch and just below what is known as Ratliff's Ford; at steel hwy. bridge over Johns Creek; N. concrete abutment; in top of E. end of bridge seat; standard tablet stamped "644 KY" (Reported not found, 1954)	643.257
Dewey Post Office, 290 ft N. of rd. forks; 160 ft N. of branch from W.; 75 ft NE. of NE. corner of schoolhouse; 20 ft W. of rd.; E. side of W. road fenceline; in top of rock outcrop; standard tablet stamped "654 KY"	653.538
Nero post office, 0.25 mi W. of, thence 0.62 mi SE.; 0.95 mi W. of mouth of Daniels Creek; S. side of rd. crossing low spur ridge from NE.; at bend in main rd. to N.; at foot of hill at back side of field in bottom of what is known as Widow Webbs's farm; 80 ft NE. of rd. forks; 150 ft E. of North East Coal Co.'s house; standing on W. side of rd. to N.; in projection of large sandstone rock; standard tablet stamped "618 KY" (Reported not found, 1953)	617.680
Eden (Inez), 12.80 mi S. of; on Wolf Creek at mouths of Little and Big branches; on E. side of, and 60 ft N. of end of low spur between branches; 150 ft NW. of mouth of Little Branch; on W. side of and 8 ft above; in top of sandstone outcrop; standard tablet stamped "698" (Reported not found, 1953)	697.689
Thomas post office, 4 mi NE. of; on Wolf Creek; 0.37 mi S. of Panther Fork; 0.30 mi S. of Andy McCoy's residence; on E. bank of Wolf Creek; W. side of rd.; in top of stone foundation NE. corner of schoolhouse; standard tablet stamped "727 KY"	726.680
Thomas post office, 2.0 mi NE. of; 0.62 mi N. of Wolf Gap; on Wolf Creek; at last forks of Wolf Creek; 160 ft S. of forks of creek; on E. side of S. fork and rd.; in face of rock outcrop 5 ft above rd.; standard tablet stamped "815 KY" (Reported not found, 1953)	814.610

ISOLATED BENCH MARKS (Cont'd.)Feet

- Thomas post office, 235 ft SW. of; 400 ft E. of mouth of Brushy Fork; on S. bank; on E. side of rd. at ford; at foot of buckeye tree 1 ft in diameter; in top of sandstone rock; standard tablet stamped "655 KY" 654.392
- Eden (Inez), 12.80 mi S. of; on Wolf Creek; at mouth of Big and Little branches; on E. side of and 60 ft N. of end of low spur between branches; 150 ft NW. of mouth of Little Branch; on W. side of, and 8 ft above; in top of sandstone outcrop; standard tablet stamped "698 KY" (Reported not found, 1953) 697.689
- Thomas post office, 5.93 mi SE. of; at point in rd. opposite mouth of Scott Branch; 0.30 mi S. of schoolhouse; fourthclass rd. to S. at; 40 ft N. of, and 12 ft above rd.; 10 ft NE. of small walnut and bushy buckeye trees; top of end of low spur ridge from NE.; in top of sandstone outcrop; standard tablet stamped "717 KY" (Reported not found, 1953) 717.167
- Thomas post office, 2.51 mi SE. of; 60 ft E. of house of B. Maynard (standing on N. side of rd.); 30 ft N. of, and 11 ft above rd.; on E. bank of small drain from N.; on S. side of sycamore tree 3 ft in diameter; on top of stone in roots; standard tablet stamped "697 KY" (Reported not found, 1953) 697.009
- John post office, 1.91 mi SE. of; at mouth of Miller Creek; at steel hwy. bridge over Johns Creek; in top of W. end S. concrete abutment; standard tablet stamped "706 KY" 706.213
- McClure post office, 4.44 mi SW. of; at mouth of Meathouse Creek; on W. bank of Wolf Creek; opposite schoolhouse at water's edge; in top of large sandstone rock; standard tablet stamped "655 KY" 654.587

HORIZONTAL CONTROL  
NORTH AMERICAN DATUM OF 1927

37-082-42  
HAROLD QUADRANGLE  
113 KENTUCKY  
N3730-W8230/15  
DIAGRAM NJ 17-7  
JENKINS

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY

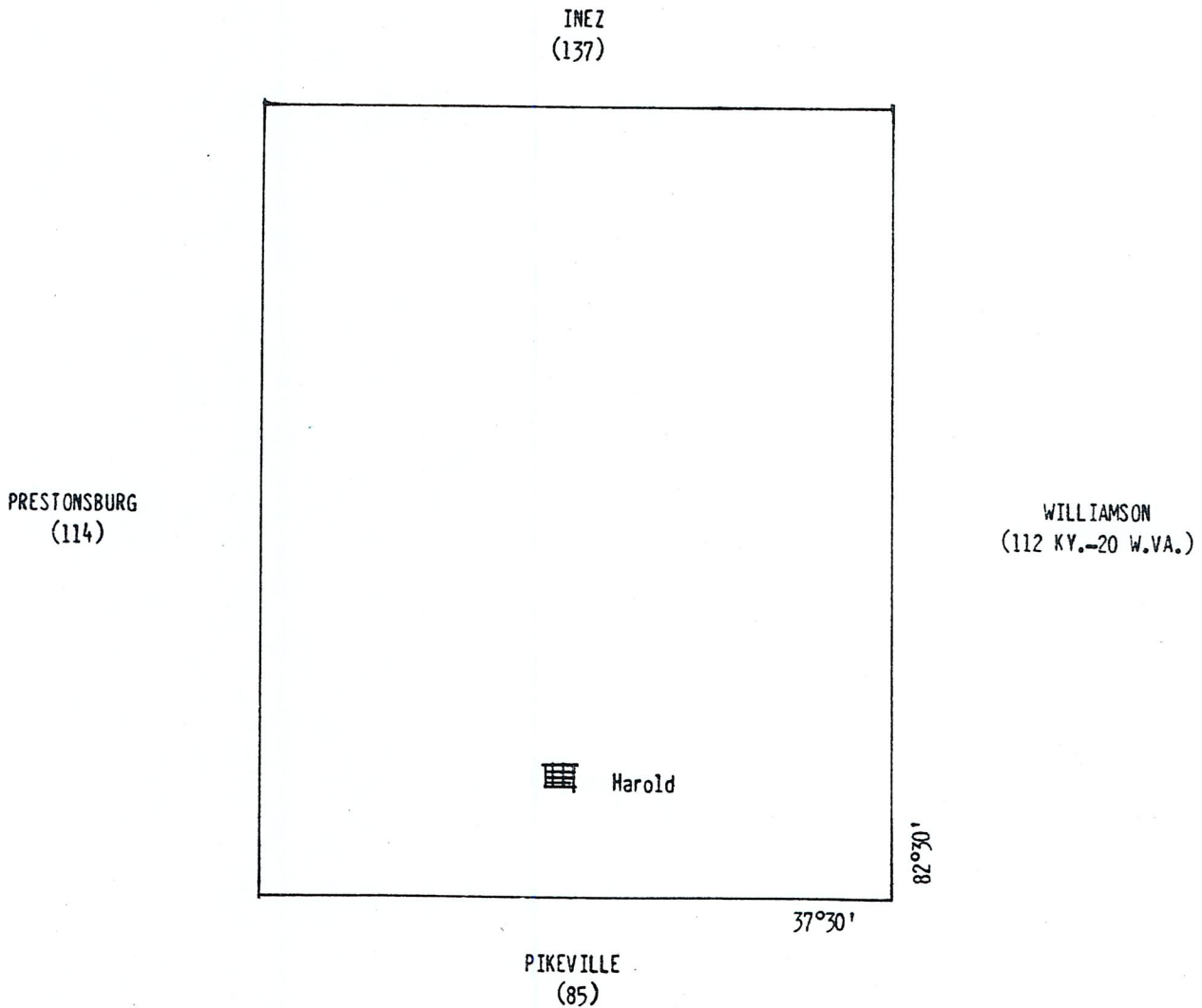
Floyd, Johnson, Martin, and Pike Counties

Only the permanent marks are  
listed for control classified  
obsolete and are not shown on  
sketch

Edition of 10/12/77

PR: CRV/rmm

Plane coordinates are based on Lambert  
projection, Kentucky, South Zone



DISCLAIMER

We no longer attest to the validity of the positions listed for horizontal control established by transit traverse procedures. This control is now considered OBSOLETE and is included in this list for the purpose of identification only.

113 KENTUCKY  
HAROLD QUADRANGLE

37-082-42  
N3730-W8230/15

INDEX OF PERMANENT MARKS

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TT 26 TWC 1951 661.820	3
TT 27 TWC 1951 668.706	4
TT 59 TWC 1952	4
 <u>NGS</u>	
Q 86 1935 650.186	3



STATION	DESCRIPTION	LATITUDE	LONGITUDE
PLANE COORDINATES, FEET		° ' "	° ' "

The following positions are considered OBSOLETE. To be used only to locate permanent marks in the field.

By T. W. Cayce, 1951; Book AH 270

Prestonsburg, 2.8 mi SE. of post office, along U. S. Highway 23-460; at Lancer; 77 ft E. of centerline of hwy. at junction of State Highway 304; 2 ft SW. of powerline junction pole; on high bank in NE. corner of small orchard; in concrete post; standard tablet stamped "TT 20 TWC 1951" (Not found, 1975)

X = 2,873,612	Y = 500,118	37 40 07.06	82 43 52.78
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Prestonsburg, 2.8 mi SE. of post office, along U. S. Highway 23-460, thence 0.8 mi NE. along State Highway 304, thence 1.7 mi SE. along dirt rd. to Corn Fork School; 57 ft S. of front entrance to school; 34 ft E. of centerline of rd. at culvert; 18 ft NE. of centerline of rd.; in concrete post; standard tablet stamped "TT 21 TWC 1951"

X = 2,882,484	Y = 503,415	37 40 36.82	82 42 01.17
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Prestonsburg, 4.4 mi SE. of post office, along U. S. Highway 23-460; 140 ft NE. of NE. corner of Sugar Loaf Inn; 140 ft S. and 23 ft E. of centerline of hwy. at junction of driveway E.; in concrete post; standard tablet stamped "TT 22 TWC 1951" (Reported destroyed, 1975)

X = 2,879,449	Y = 497,410	37 39 38.45	82 42 41.30
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Prestonsburg, 7.6 mi SE. of post office, along U. S. Highway 23-460; 2.0 mi NE. of Allen; 500 ft W. of Outside Inn; 24 ft S. and 21 ft W. of centerline of hwy. at junction of driveway S.; 3 ft NE. of powerline pole; in concrete post; standard tablet stamped "TT 23 TWC 1951" (Not found, 1975)

X = 2,879,788	Y = 486,442	37 37 49.95	82 42 41.47
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Allen; 19 ft E. of E. end of Chesapeake and Ohio Railway Station; 11 ft S. of S. edge of station platform; 3 ft SE. of pole; in concrete post; NGS standard disk stamped "Q 86 1935 650.186"

X = 2,875,317	Y = 479,640	37 36 44.15	82 43 39.73
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Allen, 2.3 mi S. of post office, along State Highway 80; 160 ft S. of centerline of hwy. at swinging bridge; 12 ft S. and 27 ft E. of junction of driveway NE.; in concrete post; standard tablet stamped "TT 24 TWC 1951"

X = 2,875,214	Y = 471,436	37 35 23.11	82 43 44.26
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Martin, 0.9 mi SW. of post office, along State Highway 80, thence 1.3 mi SE. along State Highway 122; 26 ft E. of centerline of hwy.; 45 ft SW. of SW. corner of small grocery store; in concrete post; standard tablet stamped "TT 26 TWC 1951 661.820" (Not found, 1976)

X = 2,869,626	Y = 456,640	37 32 58.66	82 44 59.48
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STATION	DESCRIPTION	LATITUDE	LONGITUDE
PLANE COORDINATES, FEET		° ' "	° ' "

OBsolete MARKS (Cont'd.)

Martin, 0.9 mi S. of post office, along State Highway 80, thence 3.2 mi SE. along State Highway 122; at Salisbury; 77 ft NW. of RR. crossing; 36 ft W. of centerline of RR.; 33 ft E. of centerline of rd.; in concrete post; standard tablet stamped "TT 27 TWC 1951 668.706" (Not found, 1976)

X = 2,871,042      Y = 448,676      37 31 39.51      82 44 45.06

Pikeville, 1.8 mi NW. of high school, along U. S. Highway 23-460, thence 1.3 mi E. along Ratcliff Road to small brick-siding house; 24 ft N. and 24 ft W. of centerline of rd. at junction of driveway N.; 2 ft N. and 5 ft E. of SE. corner of yard fence; in concrete post; standard tablet stamped "TT 59 TWC 1952"

X = 2,939,550      Y = 440,890      37 30 00.19      82 30 38.42

Station: MAYNARD

County: Martin

State: Kentucky 8-11

Observer: Ky. By Products Coal Year: 1929 Datum: 1927 N.A.D.

Description: Co.  
1/21/54 jmr

Martin County, Ky. - On a high knob locally known as Spring Knob, on ridge between Meathouse Fork and Maynard Fork (both waters of Wolf Creek) *Not found*

Station Mark: - Houston Triangulation Survey tablet cemented in a 6" x 8" x 26" stone set on end flush with surface.

Reference Mark No. 1: Nail in root of 12-in. hickory tree, 31.89 ft. from station in true azimuth 57°10'

Reference Mark No. 2: Nail 4 ft. above ground in 14-in. hickory tree, 110.70 ft. from station in true azimuth 328°52'.

Kentucky Lambert Projection  
(South Zone)

X = 2932478 Y = 511659

*Handled*

[Latitude 37 41 41.867

Longitude 82 31 36.164 1

To Station—	Azimuth	Back Azimuth	Distance	
			<del>Feet</del> Feet	Miles
Cow	80 08 57.0	260 07 34.5	11,013.14	
Panther	108 32 49.6	288 29 49.8	24,919.72	
Big Andy	152 25 46.3	332 24 43.8	17,754.1	
Hurricane (USGS & USC&GS)	196 04 52.8	16 06 05.9	34,599.30	
Flag (USGS)	323 12 30.4	143 13 46.4	16,705.03	

Station: McGEE

County: Martin

State: Kentucky <sup>2-113</sup>

Observer: Ky. By Products Coal Year: 1929 Datum: Prelim. 1927 N.A.D.

Description: Co.

1/21/54 jmr

PRELIMINARY

Martin County, Ky. - On a knob on ridge between Wolf Creek and McGee Branch. Station may be reached by going up a spur opposite the site of former residence of Ben Hardin on Wolf Creek.

Station Mark: - Houston Triangulation Survey tablet cemented in a 6" x 8" x 27" stone set on end flush with the surface.

Reference Mark No. 1: Nail in hollow 28-in. chestnut stump, 11.45 ft. from station in true azimuth 38°05'

Reference Mark No. 2: Cross mark in large flat rock on ridge, 167.00 ft. from station in true azimuth 57°37'

Reference Mark No. 3: Nail in base of leaning double chestnut tree, 127.88 ft. from station in true azimuth 283°22'

*Handled*

Kentucky Lambert Projection  
(South Zone)

X = 2931892

Y = 525682

[Latitude 37 44 00.632

Longitude 82 31 37.498 ]

To Station—	Azimuth	Back Azimuth	Distance
			<del>X, Y, Meters</del> Feet
			Miles
Goble	107 14 08.0	287 11 04.7	25,180.8
Hickory	113 14 50.4	293 12 45.3	17,860.1
Walnut	184 36 31.8	4 36 38.4	10,915.2

# 113 HAROLD

Station: PANTHER

County: Martin

State Kentucky

Observer: Ky. By Products Coal Year: 1929 Datum: 1927 N.A.D.

Description: Co.

1/21/54 jmr

Martin County, Ky. - On a knob on the dividing ridge between Panther Fork of Wolf Creek and Middle Fork of Rockcastle Creek. Station may be reached by following ridge east about 1000' from Sand Gap.

Station Mark: - Houston Triangulation Survey tablet cemented in a 6" x 6" x 26" stone set on end flush with ground.

Reference Mark No. 1: Cross mark in head of 20d nail in center of 13-in. pine stump, 30.65 ft. from station in true azimuth 49°19'

Reference Mark No. 2: Cross mark in head of 10d nail in root of 17-in. black oak tree (marked as a corner), 11.03 ft. from station in true azimuth 112°27'

Reference Mark No. 3: Cross mark in boulder above base of two black pines 20 ft. W. of top of ridge, 71.15 ft. from station in true azimuth 139°30'

Kentucky Lambert Projection  
(South Zone)

X = 2908597 Y = 518774

[Latitude 37 43 00.130

Longitude 82 36 30.180 ]

To Station—	Azimuth	Back Azimuth	Distance	Miles
Goble	177 42 21.9	357 42 17.8	13,580.28	
Hurricane (USGS & USC&GS)	232 37 41.6	52 41 54.7	41,760.21	
Maynard	288 29 49.8	108 32 49.6	24,919.7	
Cow	307 28 25.3	127 30 02.6	16,107.24	

Station: PANTHER

County: Martin

State Kentucky

Observer: Ky. By Products Coal Year: 1929 Datum: 1927 N.A.D.

Description: Co.

1/21/54 jmr

Martin County, Ky. - On a knob on the dividing ridge between Panther Fork of Wolf Creek and Middle Fork of Rockcastle Creek. Station may be reached by following ridge east about 1000' from Sand Gap.

*Not found*

Station Mark: - Houston Triangulation Survey tablet cemented in a 6" x 6" x 26" stone set on end flush with ground.

Reference Mark No. 1: Cross mark in head of 20d nail in center of 13-in. pine stump, 30.65 ft. from station in true azimuth 49°19'

Reference Mark No. 2: Cross mark in head of 10d nail in root of 17-in. black oak tree (marked as a corner), 11.03 ft. from station in true azimuth 112°27'

Reference Mark No. 3: Cross mark in boulder above base of two black pines 20 ft. W. of top of ridge, 71.15 ft. from station in true azimuth 139°30'

*Harold*

Kentucky Lambert Projection  
(South Zone)

X = 2908597 Y = 518774

[Latitude 37 43 00.130

Longitude 82 36 30.180 ]

To Station—	Azimuth	Back Azimuth	Distance
			<del>Log. Miles</del> Feet Miles
Goble	177 42 21.9	357 42 17.8	13,580.28
Hurricane (USGS & USC&GS)	232 37 41.6	52 41 54.7	41,760.21
Maynard	288 29 49.8	108 32 49.6	24,919.7
Cow	307 28 25.3	127 30 02.6	16,107.24

N 113

Station: BIG ANDY

County: Martin

State: Kentucky 8.113

Observer: Ky. By Products Coal Year:

Datum: Prelim. 1927 N.A.D.

Description: 1/21/54 Jmr

Co.

PRELIMINARY

Martin County, Ky. - On a high knob on ridge between Big Andy Branch and Wolf Creek. Station may be reached by going up spur from mouth of Big Andy Branch.

Station Mark: - Houston Triangulation Survey tablet cemented in a 6" x 7" x 25" stone set on end flush with ground.

Signal: - Quadripod set on center.

Reference Mark No. 1: Cross mark in head of 10d nail in root of 7-in. locust tree 19.00 ft. from station in true azimuth 6°35'

Reference Mark No. 2: Cross mark in head of 10d nail in root of 12-in. hickory tree 108.85 ft. from station in true azimuth 29°02'

*Handled*

Kentucky Lambert Projection  
(South Zone)

X = 2923729

Y = 527107

[Latitude 37 44 17.450

Longitude 82 33 18.462 ]

To Station—	Azimuth	Back Azimuth	Distance	
			Feet	Miles
Goble	109 50 53.0	289 48 51.4	16,947.6	
Hickory	122 46 37.3	302 45 34.0	9,872.6	
Walnut	224 23 14.5	44 24 23.0	12,845.6	
Maynard	332 24 43.8	152 25 46.3	17,754.1	

Station: CCW

County: Martin

2. 113  
State: Kentucky

Observer: Ky. By Products Coal Year: 1929 Datum: 1927 N.A.D.

Description:  
1/21/54 jmr Co.

Martin County, Ky. - On ridge between last forks of Cow Fork of Wolf Creek. Station may be reached by following ridge west from Kittennarrow Gap.

Station Mark: - Houston Triangulation Survey tablet cemented in solid rock.

Reference Mark No. 1: Cross mark cut in solid rock on top of ridge, 35.72 ft. from station in true azimuth 43°34'

Reference Mark No. 2: Cross mark cut in large boulder on W. side of ridge, 36.04 ft. from station in true azimuth 119°33'

Reference Mark No. 3: 8d nail in base of 20-in. chestnut tree, 205.69 ft. from station in true azimuth 202°11'

*Harold*

Kentucky Lambert Projection  
(South Zone)

X = 2921698      Y = 509405

[Latitude 37 41 23.217

Longitude 82 33 51.152 ]

To Station—	Azimuth	Back Azimuth	Distance
			<del>XXXXXX</del> Feet      Miles
Panther	127 30 02.6	307 28 25.3	16,107.24
Maynard	260 07 34.5	80 08 57.0	11,013.14
Flag (U.S.G.S.)	298 50 11.1	118 52 49.7	23,812.92





Station: Brandy Keg *Harold 15' 113* County: Lloyd State: KY *13-496, p. 113*

Observer: F. I. McNair Year: 1909 Base: U. S. Standard.

Description: On going in cleared knob between Sandy River and J. W. Creek, and about 0.2 mile west of top of ridge between Brandy Keg and Louders Creek. It can be identified by going to head of flowing Sandy River and ascending northward. Station: Brandy Keg Station mark: An aluminum triangulation tablet set in rock at north edge of knob. Reference marks: No. 1 is an oak tree 20 inches in diameter, setting on highest part of knob, distant 110.43 feet, true azimuth 303° 57' 55.2  
No. 2 is a hole drilled in rock, distant 11 feet, true azimuth 105° 55' 13.3  
No. 3 is a chisel mark (+) on rock, distant 11 feet, true azimuth 105° 55' 13.3

Latitude 37° 40' 26.05" *25.94 - 1927 N.A. by Graph 8/35* Longitude 82° 40' 57.23" *57.04*

To Station	Azimuth	Back Azimuth	Log. Distance
592 Porter Standifer I	147° 27' 00.20"	327° 25' 39.25"	3.0209275 36
593 Standifer I	173° 30' 00.71"	358° 29' 07.29"	4.1885556 16
594 Hurricane	233° 06' 59.30"	33° 13' 32.69"	4.3183996 278
595 Flag	323° 30' 03.13"	95° 57' 50.87"	4.2295225 03
596 Ivy	323° 03' 40.71"	148° 11' 00.44"	4.0452148-159

*Reported Dist 1978  
Top of mtn has been removed by Strip-mining*

*16866.70 m  
1) 695.61 m*

