

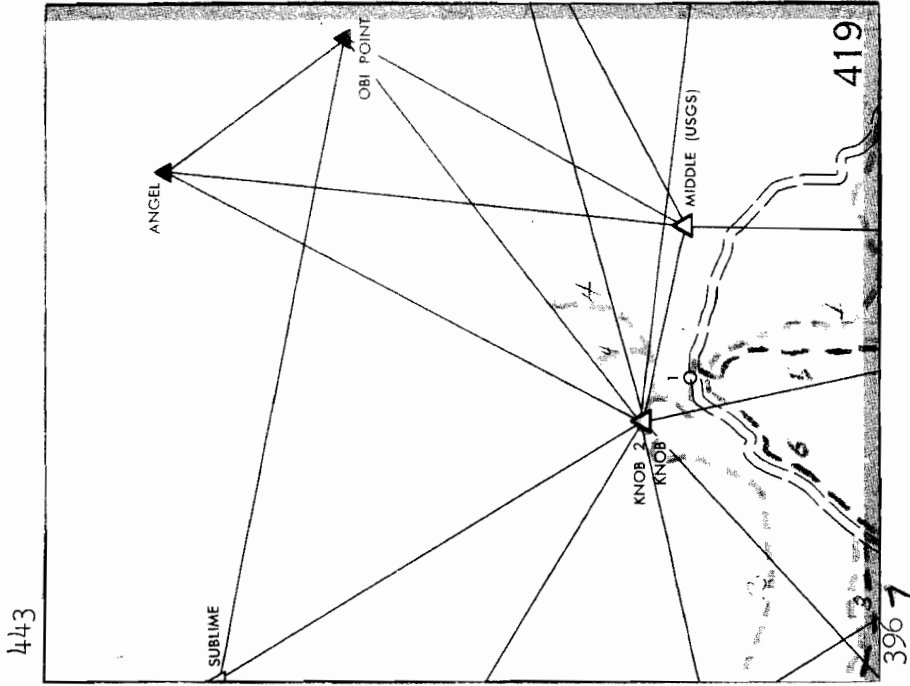
BRIGHT ANGEL

Lat. 36°00'  
 Long. 112°00'

ARIZONA 419

C&GS 36 112 2 2

- (1) J. T. Stewart 1902-03 BK 9462
- (2) " " " "
- (3) " " " "
- (4) " " " "
- (5) B. K. Coker 1974 PV 930
- (6) B. K. Coker 1974 PV 930
- (7) B. K. Coker 1974 PV 930



BRIGHT ANGEL (419)

Arizona

J.T. Stewart, 1902-03

Third Order

Adjusted Elevations Based  
On Sea Level Datum of 1929

Book: 9462

Latitude 36°00' Longitude 112°00'

(1) FROM GRAND CANYON SOUTHEAST ALONG OLD STAGE ROAD INTO RED BUTTE  
QUADRANGLE (396)

Grand Canyon, 100 ft. N. of Bright Angel Hotel, at the rim of the  
canyon, in limestone ledge; standard tablet stamped "6866 CANYON"  
(Recovered by USC&GS, 1934) New Desc.

OK 1985  
JLL  
6860.016

Grand Canyon, 3.4 mi. SE. of, near NE. corner of sec. 1, T. 30 N.,  
R. 2 E., 25 ft. S. of stage rd.; iron post with bronze cap stamped  
"6837 CANYON" New Desc.

OK 1985  
JLL  
6831.110

Grand Canyon, 6 mi. SE. of, in NW. 1/4 sec. 8, T. 30 N., R. 3 E.,  
at S. side of rd. in Long Jim Draw; iron post with bronze cap  
stamped "5811 CANYON" New Desc. '74

6805.092

Grand Canyon, 9.1 mi. SE. of, near W. 1/4 cor. sec. 11, T. 30 N.,  
R. 3 E., on bank near where rd. goes down into Long Jim Draw, 25 ft.  
W. of rd.; iron post with bronze cap stamped "7195 CANYON"

OK 1985  
JLL  
7189.228

New Desc. '74

FILE COPY

12/17/63 lw *ldw*

BRIGHT ANGEL (419)

Arizona

J.P. Stewart, 1902-03

Not Third Order

Adjusted Elevations Based  
On Sea Level Datum of 1929

Book: 9462

Latitude 36°00' Longitude 112°00'

(2) FROM SOUTH RIM OF GRAND CANYON NORTHWEST TO HOPI POINT THENCE  
SOUTH TO ROWES WELL AND WEST INTO HAVASUPAI POINT QUADRANGLE (420)

Note: This work was done prior to adoption of current specifications  
and does not meet present standards for Third Order control.

Grand Canyon, at Bright Angel Point (Different from Bright Angel  
Point on N. rim, near Bright Angel Hotel); aluminum tablet marked  
"6866 CANYON" (USC&GS # ~~61~~ - 2/4/58)  
101

OK 6866  
D.R.  
6860.016

Bright Angel, 1.8 mi. NW. of, Maricopa (Sentinel) Point, top of  
upper stratum of solid rock near point; aluminum tablet marked  
"7050 CANYON"

USF CAR  
7043.883

"ROWE" Triangulation Station (USGS), 0.3 mi. NW. of Maricopa  
(Sentinel) Point, at Hopi (Rowe's) Point, 2.7 mi. along the W.  
rim drive from Grand Canyon Village, about 100 ft. N. of rd., 10  
in. stump ten ft. high, 2 ft. under surface at foot of 10 in.  
stump; bronze tablet marked "7071 CANYON"

Latitude: 36°04'24.972" Longitude: 112°09'12.099" 7065.022

Hopi (Rowe's) Point, 3.2 mi. S. of Rowes Well, 150 ft. N. of  
largest cabin, 40 ft. N. of Supai Rd., 30 ft. W. of Rowe Point Rd.,  
flat sheet limestone; aluminum tablet marked "6681 CANYON"

SFNF 6681  
D.R.  
6675.394

Rowes Well, 2.7 mi. W. (SW. in book) of, E. edge of ridge, 200 ft.  
W. of deserted horse ranch, limestone ledge; aluminum tablet  
marked "6462 CANYON" New Desc.

USF 1985  
D.R.  
6456.569

12/17/63 lw *lw*

FILE COPY

BRIGHT ANGEL (419)

Arizona

J.T. Stewart, 1902-03

Third Order

Adjusted Elevations Based  
On Sea Level Datum of 1929

Book: 9462

Latitude 36°00' Longitude 112°00'

- (3) FROM HAVASUPAI POINT QUADRANGLE (420) EAST TO BASS SIDING THENCE  
SOUTHWEST ALONG THE ATCHISON, TOPEKA AND SANTA FE RAILROAD INTO  
RED BUTTE QUADRANGLE (396)

T. 30 N., R. 1 E., in NW. 1/4 Sec. 12, 3.5 mi. W. of Bass Siding,  
in canyon, 50 ft. N. of intersection; standard aluminum tablet  
stamped "6211 CANYON"

*OK 1984 DAV*  
6205.768

Bass Siding, 250 ft. NE. of camp, 100 ft. N. of rd., in SE. 1/4  
Sec. 5, T. 30 N., R. 2 E., in ledge in side of hill; aluminum  
tablet stamped "6417 CANYON"

*OK 1985*  
*DAV*  
6411.552  
9-1165 9-1165  
5-85

FILE COPY

12/18/63 1w *WJW*

BRIGHT ANGEL (419)

Arizona

J.T. Stewart, 1902-03

Third Order

Adjusted Elevations Based  
On Sea Level Datum of 1929

Book: 9462

Latitude 36°00' Longitude 112°00'

(4) FROM GRAND CANYON NORTH VIA BRIGHT ANGEL TRAIL DOWN TO COLORADO RIVER (Single Spur Line)

Grand Canyon, 100 ft. N. of Bright Angel Hotel; standard aluminum tablet stamped "6866 CANYON" (Described in Line 1)

OK 1985  
6860.016

Bright Angel Hotel, 0.4 mi. N. of, at W. side of trail, in top of large rock detached from ledge; standard aluminum tablet stamped "6327 CANYON" (Not Recovered)

GFNF 1985  
6320.834

Bright Angel Hotel, 0.7 mi. N. of, 15 ft. N. of trail, in large sandstone rock detached from ledge; standard aluminum tablet stamped "5866 CANYON" (Not found) Recovered 6/72

New Desc  
9165985 DdL  
5860.066

Bright Angel Hotel, 1.2 mi. N. of, at W. side of trail near bed of ravine, in reddish sandstone ledge 2 ft. higher than trail; standard aluminum tablet stamped "5361 CANYON" (Not recovered)

GFNF 1985  
5354.712

Bright Angel Hotel, 1.5 mi. N. of, on rim of red wall, 50 ft. NW. of ravine, 25 ft. N. of trail, in brown rock detached from ledge; standard aluminum tablet stamped "4850 CANYON"

9-1165 5-85  
OK 1985 DdL  
4843.870

Bright Angel Hotel, 1.9 mi. N. of, below red wall, 20 ft. E. of trail, in small limestone rock; standard aluminum tablet stamped "4348 CANYON" (Not recovered)

4342.330

Bright Angel Hotel, 2.8 mi. N. of, at W. side of trail, 100 ft. W. of ravine, in limestone rock 3 ft. high; standard bronze tablet stamped "3876 CANYON"

OK 1985 DdL  
3870.292

Bright Angel Hotel, 4.2 mi. N. of, at rim of Granite Gorge at end of Plateau Trail, 75 ft. S. of edge of rim, in quartzite ledge; aluminum tablet stamped "3708 CANYON" (on spur)

OK 1985 DdL  
3702.131

Bright Angel Hotel, 3.9 mi. N. of, at E. edge of trail at top of granite near Salt Creek, in sandstone rock; standard bronze tablet stamped "3472 CANYON" (Not Recovered)

GFNF 1985  
3466.357

Bright Angel Hotel, 4.5 mi. N. of, at E. side of trail in Pipe Creek, in limestone rock opposite mouth of Salt Creek; standard bronze tablet stamped "2781 CANYON"

OK 1985 DdL  
2775.132

Bright Angel Hotel, 5.4 mi. N. of, 100 ft. NE. of mouth of Pipe Creek, at high-water mark on S. side of Colorado River, in granite ledge; standard bronze tablet stamped "2436 CANYON" (Not Recovered)

GFNF 1985  
2429.923

FILE COPY

12/18/63 1w

BENCH MARK DESCRIPTIONS, FIELD SUMMARY

Page Quads. Miles State Adj. By Date  
 Bk.—Page

Page	Quads.	Miles	State	Adj.	By	Date	Altitude by Field Book
c/62			Arizona		B.K. Coker,	1974	
			BRIGHT ANGEL (419)				
			Third Order				
			Book: PV 930				
			Latitude 36°00' Longitude 112°00'				
			FROM THE NORTH EDGE OF RED BUTTE QUADRANGLE (396) NORTH AND EAST ALONG U.S. HIGHWAY 180 TO A POINT ABOUT 4 MILES EAST OF THE EL TOVAR HOTEL AT GRAND CANYON				
			Tusayan Ranger Station, 1.2 mi N. of, along U.S. Hwy. 180; at the south entrance to Grand Canyon National Park; 53 ft SE. of entrance sign, 51 ft E. of centerline of hwy.; set in rock outcrop; standard tablet stamped "145 BKC 1974"				
			Tusayan Ranger Station, 2.4 mi N. of, along U.S. Hwy. 180; about 200 ft N. of rd. fill, 65 ft E. of centerline of hwy.; set in a rock outcrop; standard tablet stamped "146 BKC 1974"				6732.526
			Tusayan Ranger Station, 3.0 mi N. of, along U.S. Hwy. 180; 101 ft W. of centerline of hwy.; USBPR brass cap stamped "296+87.30 6838.80 1954"				6833.452
			Tusayan Ranger Station, 3.9 mi N. of, along U.S. Hwy. 180; 55 ft E. of centerline of rd.; set on a copper-coated rod inside a 6-inch black pipe; standard tablet stamped "147 BKC 1974"				6885.931
			Tusayan Ranger Station, 4.7 mi N. of, along U.S. Hwy. 180; 2.0 mi SE. of the Grand Canyon National Park Visitors Center along U.S. Hwy. 180 to jct. U.S. Hwy. 180 and U.S. Hwy. 64, thence 1.2 mi S. along U.S. Hwy. 180; about 300 ft N. of ticket gate to park, 100 ft W. of centerline of hwy.; set on a 1 1/2-inch iron pipe; USBPR brass cap stamped "213+28.70 6929.31 1954"				6924.019
			Grand Canyon South Rim Visitors Center, 2.0 mi SE. of to jct. of U.S. Hwy. 180 and 64, thence 0.3 mi S. along U.S. Hwy 180; 36 ft SE. of centerline of hwy.; set in concrete post projecting 0.3 ft; USDI NPS brass cap stamped "227 Z 1956"				7065.692
			BM "T 61 1934" (NGS Quad 35 112 2 line 101)				7129.703
			T 61 by NGS 7129.156				
			T 61 this run 7129.703				
			Difference = +0.547				

BENCH MARK DESCRIPTIONS, FIELD SUMMARY

Page Quads. Miles State Adj. By Date  
 Bk.—Page

Page	Quads.	Miles	State	Adj.	By	Date	Altitude by Field Book
d/1			Arizona		B.K. Coker,	1974	
			BRIGHT ANGEL (419)				
			Third Order				
			Book: PV 930				
			Grand Canyon South Rim Visitors Center, 2.1 mi E. of to jct. of U.S. Hwy. 180 and U.S. Hwy. 64, thence 1.7 mi E. along U.S. Hwy. 64; at small cut in hwy.; 51 ft S. of centerline of hwy.; set on 1 1/2-inch pipe; USBPR brass cap stamped "179+53.23 7207.97"				7206.859
			BM "U 61 1934" (NGS Quad 35 112 2 line 101) New description: Grand Canyon South Rim Visitors Center, 2.1 mi E. of to jct. of U.S. Hwy. 180 and 64, thence 2.5 mi E. along U.S. Hwy. 64; 152 ft S. of centerline of hwy., 3.5 ft N. of a small rock mound; in a rock outcrop; standard NGS disk stamped "U 61 1934"				7190.028
			U 61 by NGS 7189.539				
			U 61 this run 7190.028				
			Closure = +0.489				

FILE COPY

MAR 17 1975

BENCH MARK DESCRIPTIONS, FIELD SUMMARY

Page Quads. State Adj. By Date  
 Bk. — Page Miles

Page	Quads.	State	Adj.	By	Date	Altitude by Field Book
d/4		Arizona				7129.703
		BRIGHT ANGEL (419)		B.K. Coker,	1974	
		Third Order		Field Elevations		
		Book: PV 930				
		Latitude 36°00'		Longitude 112°00'		
		<p>(6)                  FROM A POINT ABOUT 2 MILES EASTERLY OF THE EL TOVAR HOTEL AT GRAND CANYON WESTERLY TO THE RAILROAD THENCE SOUTH INTO THE NORTH EDGE OF RED BUTTE QUADRANGLE (396)</p>				
		0.00		EM "S 61 1934"	(NGS Quad 36 112 2 line 101) [1974 USGS ELEVATION]	
		2.43		<p>New Description: At South Rim of Grand Canyon, at east end of Atchison, Topeka, and Santa Fe RR. yards; 67 ft S. of rock steps, 61 ft SW. of fire hydrant, 11 ft N. of culvert, 8 ft SE. of 30-inch pine tree; set in the top of a stone masonry wall; standard NGS disk stamped "S 61 1934"</p>		
				S 61 by NGS	6878.164	
				S 61 this run	6878.693	
				Difference	= +2.529	
				<p>Note: EM "S 61" doesn't fit old description, was apparently moved by construction workers.</p>		
		3.70		RV 266	(NGS Quad 36 112 2 line 101)	6739.757
				RV 266 by NGS	6739.261	
				RV 266 this run	6739.757	
				Difference	= +0.496	
		4.49		RV 265	(NGS Quad 36 112 2 line 101)	6656.186
				RV 265 by NGS	6655.712	
				RV 265 this run	6656.186	
				Difference	= +0.474	
		5.22		RV 264	(NGS Quad 36 112 2 line 101)	6596.381
				RV 264 by NGS	6595.932	
				RV 264 this run	6596.381	
				Difference	= +0.449	
		5.89		RV 263	(NGS Quad 36 112 2 line 101)	6553.801
				RV 263 by NGS	6553.409	
				RV 263 this run	6553.801	
				Difference	= +0.392	

BENCH MARK DESCRIPTIONS, FIELD SUMMARY

Page Quads. State Adj. By Date  
 Bk. — Page Miles

Page	Quads.	State	Adj.	By	Date	Altitude by Field Book
d/20		Arizona				6421.187
		BRIGHT ANGEL (419)		B.K. Coker,	1974	
		Third Order		Field Elevations		
		Book: PV 930				
		7.28		RV 262	(NGS Quad 36 112 2 line 101)	6420.811
				RV 262 by NGS	6420.811	
				RV 262 this run	6421.187	
				Difference	= +0.376	
		8.23		EM "P 61"	(NGS Quad 36 112 2 line 101)	6353.920
				P 61 by NGS	6353.534	
				P 61 this run	6353.920	
				Difference	= +0.386	
		9.31		<p>PP: At southwest corner of bridge, last bolt to S. in wood headwall 8 inches W. of centerline of RR.; top of bolt</p>		
						6425.013

FILE COPY  
 MAR 17 1975

BENCH MARK DESCRIPTIONS, FIELD SUMMARY

36 112 22  
 UNITED STATES  
 DEPARTMENT OF THE INTERIOR  
 GEOLOGICAL SURVEY  
 9-1128  
 Altitude by  
 Field Book

Page

Quads.

State

By

Bk.—Page

Miles

Adj.

Date

	BRIGHT ANGEL (419)	Arizona	B.K. Coker, 1974
	Third Order	Field Elevations	
	Book: PV 930	Latitude 36°00' Longitude 112°00'	
	(7) FROM A POINT ABOUT 5 MILES SOUTHWEST OF THE EL TOVAR HOTEL AT GRAND CANYON THENCE SOUTHWEST INTO THE SOUTH-EAST SIDE OF HAVASUPAI POINT QUADRANGLE (420)		
b/3	0.00 RV 262 (NGS Quad 36 112 2 line 101) [1974 USGS ELEVATION]		6421.187
	1.15 South Rim Grand Canyon El Tovar Hotel, 4.7 mi SW. of, along the Atchison, Topeka and Santa Fe RR., thence 1.2 mi W. along a graded rd.; about 100 ft SW. of a small earth dam, 17 ft N. of centerline of rd.; set in a rock outcrop; standard tablet stamped "80 BKC 1974"		6328.532
	2.11 South Rim Grand Canyon El Tovar Hotel, 4.7 mi SW. of, along the Atchison, Topeka and Santa Fe RR., thence 2.1 mi W. along a graded rd.; 53 ft N. of centerline of rd., 23 ft WNW. of a 24-inch pine, 51 ft E. of 24-inch pine; set in a rock outcrop; standard tablet stamped "81 BKC 1974"		6270.719
	3.03 South Rim Grand Canyon El Tovar Hotel, 4.7 mi SW. of, along the Atchison, Topeka and Santa Fe RR., thence 3.0 mi W. along a graded rd.; 42 ft N. of centerline of rd.; set in an outcrop; standard tablet stamped "82 BKC 1974"		6229.671
	3.69 BM USGS "6211 CANYON" (USGS line 3)		6206.094
		6211 prev. elev. 6205.768	
		6211 this run <u>6206.094</u>	
		Difference = +0.326	

FILE COPY

MAR 17 1975



REPORT ON PERMANENT SURVEY MARK

AREA OFFICE

STATE Arizona COUNTY Coconino QUADRANGLE Bright Angel SW (419)  
QUOTE PRIMARY REFERENCE Bright Angel Hotel, 1.5 mi N. of  
(Direction and distance)

DESIGNATION { LISTED 4850 CANYON  
STAMPED 4850 CANYON TYPE OF MARK: BM X TT \_\_\_\_\_ TRIANG. \_\_\_\_\_

Lat. \_\_\_\_\_ ° \_\_\_\_\_ ' \_\_\_\_\_ " CONDITION ESTABLISHED BY  
Disturbed  USGS  USBR   
Long. \_\_\_\_\_ ° \_\_\_\_\_ ' \_\_\_\_\_ " Destroyed  USC&GS  State GS   
Elev. 4843.870 feet Not Found  USNPS  USNFS   
USGLO }  \_\_\_\_\_   
USBLM } (Other)

REMARKS OR REVISED DESCRIPTION:  
Bright Angel Hotel, about 2.7 mi north of along the Bright Angel Trail, 250 yd SW of a Resthouse, 110 ft north of a switchback near the drain bottom, 90 ft west of drain, 20 ft south of the top of a sheer cliff about 200 ft high, set in the top of a brown boulder projecting about 3 ft, a standard aluminum tablet.

SUBMITTED BY David L. Lough  
TITLE Carto Tech. DATE May 10, 1985  
AGENCY USGS, NMD

Marks found in good condition need not be reported.

FILL IN ALL AVAILABLE INFORMATION

REPORT ON PERMANENT SURVEY MARK

AREA OFFICE

STATE Arizona COUNTY Coconino QUADRANGLE Bright Angel SW(419)  
QUOTE PRIMARY REFERENCE Bass Siding, 250 ft NE of camp  
(Direction and distance)

DESIGNATION { LISTED 6417 CANYON  
STAMPED 6417 CANYON TYPE OF MARK: BM X TT \_\_\_\_\_ TRIANG. \_\_\_\_\_

Lat. \_\_\_\_\_ ° \_\_\_\_\_ ' \_\_\_\_\_ " CONDITION ESTABLISHED BY  
Disturbed  USGS  USBR   
Long. \_\_\_\_\_ ° \_\_\_\_\_ ' \_\_\_\_\_ " Destroyed  USC&GS  State GS   
Elev. 6411.552 feet Not Found  USNPS  USNFS   
USGLO }  \_\_\_\_\_   
USBLM } (Other)

REMARKS OR REVISED DESCRIPTION:  
South Rim Grand Canyon El Tovar Hotel, 4.7 mi SW of along the Atchison, Topeka and Santa Fe RR., thence 0.15 mi west along Forest Rd. 328, 180 ft NE of jct. of Forest Rd. 3223, 110 ft NE of a 24 in. pine, 46 ft SE of rd., set in a limestone ledge on hillside; a standard aluminum tablet.

SUBMITTED BY David L. Lough  
TITLE Carto Tech. DATE 5-13-85  
AGENCY USGS, NMD

Marks found in good condition need not be reported.

FILL IN ALL AVAILABLE INFORMATION

Please prepare in triplicate.

Please prepare in triplicate.

REPORT ON PERMANENT SURVEY MARK

AREA OFFICE

STATE Arizona COUNTY Coconino QUADRANGLE Bright Angel SW (419)  
QUOTE PRIMARY REFERENCE Bright Angel Hotel, 0.7 mi N. of  
(Direction and distance)

DESIGNATION { LISTED 5866 CANYON  
STAMPED 5866 CANYON TYPE OF MARK: BM X TT \_\_\_\_\_ TRIANG. \_\_\_\_\_

	CONDITION	ESTABLISHED BY		
Lat. _____° _____' _____"	Disturbed <input type="checkbox"/>	USGS <input checked="" type="checkbox"/>	USBR	<input type="checkbox"/>
Long. _____° _____' _____"	Destroyed <input type="checkbox"/>	USC&GS <input type="checkbox"/>	State GS	<input type="checkbox"/>
Elev. <u>5860.066</u> feet	Not Found <input type="checkbox"/>	USNPS <input type="checkbox"/>	USNFS	<input type="checkbox"/>
		USGLO <input type="checkbox"/>	(Other)	<input type="checkbox"/>
		USBLM <input type="checkbox"/>		

REMARKS OR REVISED DESCRIPTION:

Bright Angel Hotel, about 1.3 mi north of along the Bright Angel Trail, 1/4 mi west of a resthouse, at the bottom of a series of short switchbacks, 123 ft east of last switchback in series, 40 yd east of a deep drain, 32 ft north of and 13 ft lower than trail, set in the top of a large, sloping sandstone boulder, a standard aluminum tablet.

SUBMITTED BY David L. Lough  
TITLE Carto. Tech.  
AGENCY USGS, NMD

DATE May 10, 1985

Marks found in good condition need not be reported.

FILL IN ALL AVAILABLE INFORMATION

Please prepare in triplicate.

GRAND CANYON LEVELS

2. USGS/ "6866 Canyon" (6860.016 ft.)

100 feet north of Bright Angel Hotel at the rim of the canyon,  
in limestone ledge. USGS tablet marked "6866 Canyon."

Never located, despite repeated attempts.

GRAND CANYON LEVELS

AZ 419

LINE 1

6. USGS/6837 Canyon (6831.110 feet)

This benchmark is located 2.7 miles SSE of the El Tovar Hotel as the crow flies, and about 2/10ths of a mile east of Highway 180 from Williams to the Grand Canyon. To locate it proceed as follows: A very obscure wood-road leads from Route 180 to this station 1.37 miles south of the Park entrance gate and 2.72 miles south of the junction of Route 180 and Route 64 leading east to Cameron. This spot is 270 ft. north (along Route 180) of a road leading west to a small picnic area and then to a dump. It is also .23 miles north of a small picnic area on the east side of the road. It is 1.93 miles north of the intersection of the Park Boundary and Route 180.

Proceed from Route 180 along this wood-road first north, then northeast through open pine forest for 580 feet to a point where this obscure road joins a much better jeep road (this was obviously the road that used to be the way to the station, but it is now blocked deliberately with large boulders at its S. end.) Continue along this ~~new~~ jeep trail for 450 ft. to the station, which is located in a beautiful grove of large pines exactly 20 ft. south of the middle of the road. The station is on a standard iron post with a bronze cap marked "6837 Canyon".

GRAND CANYON LEVELS8. USGS/6462 Canyon (6456.569 ft.) 1903

line: 2

This benchmark is located in the Horsethief Tank area approximately 1.25 miles southwest of Hermit's Rest. However, the direct approach from Hermit's Rest is extremely rugged and impractical. The following is the best route of approach:

From the Park Superintendent's House at the east end of the Santa Fe Railroad Yards, proceed west past Bright Angel Lodge Hotel complex for .70 miles to the point where Rowe's Well Road forks sharply left (S.) from West Rim Drive. This road is blacktop for the first .6 miles and then becomes dirt. Cross the railroad twice at 1.7 and 2.3 miles. At 2.5 miles from West Rim Drive a picnic area is located to the right. Any automobile can drive to this point. From here on a jeep or high-clearance pick-up truck is required. Turn right here past the picnic area and proceed west up gentle grade through open pine forest. At top of hill 1/2 mile beyond picnic area the grade levels and several indistinct roads and trails branch to right and left. An old sign, "Bridle Path to Hermit Basin" is seen. Take this road. If the sign is gone, travel essentially in a straight line anyway. One mile from the picnic area an abandoned telephone line is reached. There are two routes to the station from here:

1. The best route: Turn left (WSW) along the telephone line which is rough, but easy driving. In 1.5 miles the telephone line turns right (WNW) and veers away from the poles for a short distance. Continue for 3/4 mile along from this corner to a point where another indistinct road-trail goes to the right (NE). Turn right and follow this trail up a gradual grade through forest of low open pines for about 1/3 mile. Although three blowdowns had to be cut to pass here, the road is still entirely passable in a pick-up. At the crest of the grade there are a number of very large mysterious rock-piles on both sides of the road. Ignore them, as they have nothing to do with the station. Just after crossing the crest of a little ridge that drops to the SE fork of Hermit creek there is a slight curve to the right. The station is 14 ft. to the left (N.) of this point. It is in a bedrock ledge flush with the ground and extremely difficult to locate. Therefore, a small wall of rocks was built to it from the road to facilitate recovery. All other points of reference in the original description are gone. Station is an aluminum disc marked "6462 Canyon".

2. Proceed straight ahead across telephone line for 1.90 miles to the point where this jeep trail crosses the dry, grassy bed of the SE fork of Hermit Creek. This is easy going in a jeep without a roof, but very narrow in spots for a pick-up or roofed vehicle. As on the other road, bring an axe or saw to cope with blowdowns. Cross hollow of Hermit

Creek 2.85 miles from picnic area and continue (NW) up gentle side hill for 1000 ft. (800 ft. from where Waldron Trail forks right), (N.). (The rotted Waldron trail sign was lying on the ground in 1971; hence, the 1000-ft. distance from the creek crossing is probably most reliable.) Just before reaching the crest of a gentle hill the road begins to swing left (W) and the station is 14 ft. to the right (N.) of the road with a small stone wall leading all the way from the road to it.

07100000

REPORT ON PERMANENT SURVEY MARK

AREA OFFICE

STATE Arizona COUNTY Coconino QUADRANGLE Red Butte NE  
QUOTE PRIMARY REFERENCE Grand Canyon, 6 mi. SE. of,  
(Direction and distance)

DESIGNATION { LISTED 6811 CANYON Quad No. ~~396~~ 419 < -1  
STAMPED \_\_\_\_\_ TYPE OF MARK: BM X TT \_\_\_\_\_ TRIANG. \_\_\_\_\_

Lat. \_\_\_\_\_ ° \_\_\_\_\_ ' \_\_\_\_\_ " CONDITION ESTABLISHED BY  
Disturbed  USGS  USBR   
Long. \_\_\_\_\_ ° \_\_\_\_\_ ' \_\_\_\_\_ " Destroyed  USC&GS  State GS   
Elev. 6805.092 feet Not Found  USNPS  USNFS   
USGLO }  \_\_\_\_\_   
USBLM } (Other)

REMARKS OR REVISED DESCRIPTION:

From the intersection of Highway 64 and 180 and the entrance to the Tusayan Ranger station go N. 2.2 miles to a road on the right. Turn right and proceed 0.7 miles to a road fork. Take the left fork and travel 0.9 miles to the BM on the right. BM is 21 feet E. of the centerline of the road and 15 feet N. of a large Ponderosa pine. A bronze cap stamped "6811 CANYON" on an iron post projecting 0.8 feet above the ground.

SUBMITTED BY M. Kranzler  
TITLE Carto. Tech.  
AGENCY US Geological Survey

DATE 9/11/74

Marks found in good condition need not be reported.

FILL IN ALL AVAILABLE INFORMATION

REPORT ON PERMANENT SURVEY MARK

AREA OFFICE

STATE Arizona COUNTY Coconino QUADRANGLE Red Butte NE  
QUOTE PRIMARY REFERENCE Grand Canyon, 9.1 mi. SE. of,  
(Direction and distance)

DESIGNATION { LISTED 7195 CANYON Quad No. ~~396~~ 419 < -1  
STAMPED \_\_\_\_\_ TYPE OF MARK: BM X TT \_\_\_\_\_ TRIANG. \_\_\_\_\_

Lat. \_\_\_\_\_ ° \_\_\_\_\_ ' \_\_\_\_\_ " CONDITION ESTABLISHED BY  
Disturbed  USGS  USBR   
Long. \_\_\_\_\_ ° \_\_\_\_\_ ' \_\_\_\_\_ " Destroyed  USC&GS  State GS   
Elev. 7169.228 feet Not Found  USNPS  USNFS   
USGLO }  \_\_\_\_\_   
USBLM } (Other)

REMARKS OR REVISED DESCRIPTION:

From the intersection of Highway 64 and 180 and the entrance to the Tusayan Ranger station go N. 2.2 miles to a road on the right. Turn <sup>right</sup> and proceed 0.7 miles to a road fork. Take left fork and travel 4.75 miles to the BM on the right. BM is 75 feet S. of the centerline of the road and 6 feet NE. of an oak tree. BM is a bronze cap stamped "7195 CANYON" on an iron post projecting 0.8 feet above the ground.

SUBMITTED BY M. Kranzler  
TITLE Carto. Tech.  
AGENCY US Geological Survey

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