

Department of the Interior

U.S. Geological Survey

Bulletin 766

Spirit Leveling in California
1896 - 1923

C.H. Birdseye

Chief Topographic Engineer

- Washington -
Government Printing Office
1925

Stadler's ranch house, 0.5 mile north of, 100 feet southwest of southwest bank of river, 50 feet west of levee 6 feet high, at end of temporary road from ranch house to river, 50 feet south of group of 3-foot oak trees, 1 mile north of Minges's Landing, about 900 feet up second ranch above mouth of Stanislaus River; iron post set in concrete (U. S. C. E. b. m. 434)-----	32.29
At lower end of first ranch below Stanislaus River, 60 feet east of 2.5-foot leaning oak, at top break of east (right) bank of San Joaquin River, 0.5 mile below mouth of Stanislaus River, 150 feet below inlet of nearest of two sloughs which bear northerly; iron post set in concrete (U. S. C. E. b. m. 435)-----	30.71
John Ohm Place, San Joaquin City, at fence line of yard, 50 feet southwest of John Ohm residence, about 100 feet northeast of northeast fence line of main road; iron post set in concrete (U. S. C. E. b. m. 436)-----	43.54
Gerlach ranch house, 500 feet southwest of southwest bank of river, at fence intersection, 320 feet east of barn, 380 feet southeast of house, 0.75 mile north of junction of Ripon and San Joaquin City and Banda roads, at abandoned hotel; iron post set in concrete (U. S. C. E. b. m. 437)-----	31.44
Gerlach place, 4,800 feet north of, 250 feet south of south (left) bank of San Joaquin River, in group of 4-foot oak trees at upper end of long reach, about 350 feet south of mouth of slough which bears northeasterly; iron post set in concrete (U. S. C. E. b. m. 438)-----	27.17
San Joaquin City, 1.3 miles northeast of, at Durham Ferry Bridge, 7 miles west and 4 miles south of Ripon, southeast corner of steel bridge over Red Bridge Slough, in concrete abutment; U. S. G. S. aluminum tablet, stamped "30 1912"-----	30.861
Red Bridge Slough, 2,800 feet west of outlet of, at right angle bend in San Joaquin City-Ripon road, 2 miles west and 6 miles south of Ripon, south side of road, 25 feet east of fence intersection, on levee, 8 feet from 3-foot oak tree; iron post set in concrete (U. S. C. E. b. m. 439)-----	20.54
Kasson Farms Canal Inlet, at sharp bend 1.5 miles above, at lower end and on center line produced of long reach running north and south, about 25 feet south of south (left) bank of river; iron post set in concrete (U. S. C. E. b. m. 440)-----	24.95
Kasson Farms lower pump, on north levee at upper end of canal to first pumping lift, 1,100 feet south of south (left) river bank, 130 feet north of pump; iron post set in concrete (U. S. C. E. b. m. 441)-----	34.02
Paradise Dam, 1.4 miles south of, 600 feet northwest of river, at lower end of Carson Long Reach, at north corner of corral on M. C. Wright place; iron post set in concrete (U. S. C. E. b. m. 442)-----	21.35
Lathrop, at mile 78.1 of Southern Pacific R. R., at west end of viaduct leading to west end of bridge over San Joaquin River, on top surface of bearing stone on northwest pier, about 3.9 feet below top of rail; red metal disk 3 inches in diameter, lettered "U. S. C. & G. S. B. M."-----	27.215
Brandt bridge, at south end abutment of; U. S. G. S. aluminum tablet stamped "21 1010 30" (U. S. G. S. b. m.)-----	21.030 ✓

Garwood bridge, 60 feet east of, north side of road at fence line; iron post stamped "7 1910" (U. S. G. S. b. m.)-----	7.556
Stockton Canal, on landward slope of northerly levee of San Joaquin River, about 600 feet downstream from mouth of Stockton Canal; iron post set in concrete (U. S. C. E. b. m. 201)-----	13.060
Stockton, west door of north entrance of San Joaquin County courthouse, in angle of wall; U. S. G. S. b. m. bronze tablet stamped "18-B"-----	18.353
Primary leveling by S. E. Blout in 1903 and by H. C. Semper in 1905	
From Lathrop southwesterly along Southern Pacific R. R. to Midway	
Lathrop, 3.5 miles southwest of, 30 feet southwest of milepost 79, south side of track; iron post stamped "17.638 B"-----	17.976
Milepost 75, 10 feet north of, south side of track; iron post stamped "22.181 B"-----	22.477
Banta station, in front of freight house; top of rail-----	27.2
Ellis, 1 mile west of, 4 feet north of milepost 69; iron post stamped "102.656 B" (Recovered by U. S. C. & G. S. in 1919)-----	102.962
From Ellis south to Day's farm	
Ellis, 4.8 miles south of, 1, 500 feet west of, at northwest angle of road to Ellis; iron post stamped "265 B"-----	204.068
TESLA QUADRANGLE	
[Latitude 37° 30'-37° 45'; longitude 121° 30'-121° 45']	
ALAMEDA AND SAN JOAQUIN COUNTIES	
Primary leveling by S. E. Blout in 1903 and by C. H. Semper in 1905	
From Midway westerly along Southern Pacific R. R. to Livermore	
Midway station, 5 feet east of milepost 64; iron post stamped "351.341 B"-----	351.450
Milepost 60, 300 feet west of, south side of track, at road crossing; iron post stamped "539.602 B"-----	539.640
Altamont, 5 feet west of milepost 56; iron post stamped "739.899 B"-----	739.871
Milepost 52, 5 feet north of; iron post stamped "575.749 B"-----	575.687
From Livermore easterly along Southern Pacific R. R. to point 5 miles east of Carnegie, thence along highways to Day's farm	
T. 3 S., R. 2 E., northwest corner of sec. 23, at junction of Tesla and Mocho roads, east angle; iron post stamped "601 B"-----	601.317
T. 3 S., R. 2 E., north side of sec. 24, south of road, nearly opposite large farm gate; iron post stamped "688 B"-----	688.246
T. 3 S., R. 3 E., near center of sec. 20, 6.5 miles west of Tesla; 0.25 mile west of Al Allen's house, south of road, near fence; iron post stamped "B 892"-----	891.905
T. 3 S., R. 3 E., sec. 27, 3.5 miles west of Tesla, halfway between old Richards mine and house, north of road; iron post stamped "B 1319"-----	1,319.600
Tesla, 25 feet east of entrance to Tesla Hotel; iron post stamped "No. 11,886 B"-----	885.253
Tesla, in brick steps of Tesla Hotel; aluminum tablet stamped "882 B"-----	881.442
T. 3 S., R. 4 E., south side of sec. 29, 2.9 miles east of Tesla, near San Joaquin and Alameda County line, 20 feet south of track, 200 feet east of railroad culvert; iron post stamped "700 B"-----	699.436

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Feet
5.133
6.050
5.509
58.273
41.731
7.141
15.270
15.183

Collinsville, 12-foot mark, United States water gage-----
Collinsville, 10-foot mark, California water gage-----
Collinsville, 0.5 mile north of, at crossroads, southwest corner of
schoolhouse; iron post stamped "5 B." (Elevation by U. S. Coast
and Geodetic Survey 5.01 feet above mean tide level)-----
Birds Landing, southeast corner of yard of Willow Springs school,
west side of road; iron post stamped "58 B"-----
Montezuma, southeast corner of yard of school; iron post stamped
"41 B"-----
Denverton, 5 feet west of northeast corner of blacksmith shop, in
front of schoolhouse; iron post stamped "7 B"-----
T. 5 N., R. 1 W., southeast corner of sec. 20, 35 feet north of culvert,
on east side of road to north; iron post stamped "15 B"-----
Fairfield courthouse, 2.7 miles east of, 100 feet east of water tank,
on south side of road; iron post stamped "15 B"-----

Primary leveling by R. A. Farmer in 1905

From Denverton east to sec. 36, T. 5 N., R. 1 E.

17.811

T. 5 N., R. 1 E., northeast corner of sec. 36, east side of road; iron
post stamped "17 B"-----

Primary leveling by J. A. Vogelson in 1896

From sec. 29, T. 5 N., R. 1 W., south to Potrero Hills

49.529

Potrero Hills, on line between secs. 3 and 4, 0.5 mile south of north
line of sections, opposite gate to Sylvester Pimental's ranch, 5.5
miles east to Sulsum; iron post stamped "49"-----

From Birds Landing eastward, via Peter Anderson's place to point near Toland
Landing

110.743 ✓

Birds Landing, 5 miles southeast of, at Peter Anderson's place, 10
feet west of gate to barn, on south side of road; iron post stamped
"110 B"-----

Primary leveling by R. A. Farmer in 1905

From sec. 35, T. 5 N., R. 1 E., southeast to Rio Vista

32.327

T. 4 N., R. 2 E., corner of secs. 3, 4, 9, and 10, 300 feet southwest of
M. Egbert's white house; west side of road; iron post stamped
"32 B"-----

10.360 ✓

T. 4 N., R. 2 E., corner of secs. 11, 12, 13, and 14, east side of road;
iron post stamped "19 B"-----

23.308

From Concord north along road to Bay Point, thence east along Southern Pa-
cific R. R. to Black Diamond

20.736

McAvoy's siding, in corner of fence southwest from southwest corner
of warehouse; iron post stamped "22"-----

7.736

Pittsburg, Black Diamond, in primary school yard, near Contra
Costa Bank; iron post stamped "21"-----

Pittsburg, Black Diamond Hotel, tack on porch of, midway between
two doors, 4 inches from side of house-----

54.382

The above bench mark is, as nearly as could be determined, the datum of the level
system of the State engineering department, the elevation of which above the mean
"lowest low tide," as resulting from tidal observations made at New York Landing dur-
ing the months of October, November, and December, 1878, is 11.22 feet.

From Cornwall east along Southern Pacific R. R. to Antioch

Feet

Antioch School, in rear wall of foundation; bronze tablet stamped
"35"----- 35.745
Antioch, in front of station; top of rail----- 43.0

BOULDIN, ISLETON, JERSEY, AND RIO VISTA QUADRANGLES

[Latitude 38°-38° 15'; longitude 121° 30'-121° 45']

CONTRA COSTA, SACRAMENTO, SAN JOAQUIN, AND SOLANO COUNTIES

Precise leveling by L. F. Biggs in 1907

From point near Ryde southwest along northwest side of Sacramento River

Feet

Pier No. 10, Sacramento County, in town of Ryde, on property of W.
A. Kesner, 250 feet west of levee, in northwest corner of alfalfa
patch adjoining levee, 375 feet northwest of W. A. Kesner's house,
750 feet north of pumping station on south side of road near junc-
tion with levee; aluminum tablet in top of pier----- 7.916
Pier No. 10; copper bolt in base----- 4.321
Ryde; gage zero (below sea level)----- -4.066
Ryde, water gage, west end of pier; 15-foot mark----- 10.934
Pier No. 9, Sacramento County, Andrus Island, on property of Jane
Smith, 4 miles north of Isleton, at edge of open space in orchard,
on line of wire fence which marks boundary between property of
Jane Smith and George Nelson, 150 feet east of intersection of
levee with said wire fence, 1,000 feet southeast of house of Jane
Smith, 0.5 mile west of pumping station on Georgiana Slough;
aluminum tablet in top of pier----- 9.525
Pier No. 11; copper bolt in base----- 5.806
Pier No. 8, Sacramento County, on Grand Island, on property of
Stern & Co., 0.5 mile northeast of Isleton, near end of row of pop-
lar trees running north from levee, 280 feet from junction of said
row and levee, 1,000 feet northwest of house, near dividing line be-
tween property of Mrs. Buckley and that of Stern & Co.; aluminum
tablet in top of pier----- 6.407
Pier No. 8; copper bolt in base----- 2.813
Rio Vista, 1.9 miles north of, 100 feet east of saloon, near ferry land-
ing, 60 feet west of river, east side of road, in top of 6 by 6 inch
timber; nail----- 9.829
Rio Vista ferry; gage zero (below sea level)----- -3.843
Rio Vista, water gage; spike in 16.4 foot mark----- 12.921
Rio Vista; gage zero (below sea level)----- -3.479
Rio Vista, southeast corner of bank building, 2 feet above sidewalk;
aluminum tablet stamped "23 B 1905 F. 17"----- 22.985
Pier No. 6, Solano County, 0.3 mile south of Rio Vista, 0.3 mile west
of southern end of Wood Island, just above edge of swamp in
river bottom; tablet in top of pier----- 29.409
Pier No. 6; copper bolt in base----- 25.718
Rio Vista, 3.5 miles southwest of, 100 feet from southwest corner of
Madison's blacksmith shop, north corner of field, east side of road;
iron post stamped "B 54 1907 F 20"----- 54.382

	Feet
Pier No. 14, Yolo County, 1 mile north of Courtland, on property owned by J. L. McFadden, in southwest corner of pasture enclosed by wire fence, 750 feet west of J. L. McFadden's house, 400 feet west of barn, which is 480 feet southwest of house (both buildings adjoin levee); aluminum tablet in top of pier	11.588
Pier No. 14; copper bolt in base	7.914
Grand Island, north corner of bridge abutment; aluminum tablet stamped "B 20 1906 N"	20.250
Pier No. 12, Sacramento County, Grand Island, on property of Isaac G. Hall, 0.5 mile south of Vorden, on fence line on south edge of orchard, 10 feet north of road running west from levee, 160 feet west of large frame house owned by California Transportation Co., in southeast corner of orchard at junction of road and levee, 0.25 mile south of pumping station on west bank of river; aluminum tablet in top of pier	10.897
Pier No. 12; copper bolt in base	7.283
From point near Lisbon School south along east bank of Sacramento River	
Freeport ferry, in front of ferryman's house, north side of road, in top of hitching post; nail	28.392
Pier No. 17, Sacramento County, 1.5 miles south of Freeport, on property of J. H. Beach, at southeast corner of storehouse, 450 feet south of vertex of angle formed by junction of railroad grade with levee, 75 feet north of house and 200 feet west of barn of J. H. Beach, 35 feet north of private road from levee through property of J. H. Beach, 125 feet northeast of junction of private road with levee; aluminum tablet in top of pier	16.861
Pier No. 17; copper bolt in base	12.143
Pier No. 15, Sacramento County, 4 miles northeast of Courtland, on property of the William Johnston estate, in south corner of inclosure south of and adjoining house, 200 feet south of house, 100 feet southwest of windmill, 240 feet northwest of creamery, 185 feet from intersection of fence with levee; aluminum tablet in top of pier	13.353
Pier No. 15; copper bolt in base	9.638
Courtland; gage zero (below sea level)	-3.941
Courtland, south wall of Bauer, Miller & Newbert's store; aluminum tablet stamped "14 B 1906 N"	14.315
Pier No. 13, Sacramento County, in town of Paintersville, on property owned by Maggie V. Painter, 2 miles south of Courtland, 3 feet from south side of high board fence of corral, 30 feet east of two large oak trees standing 20 feet apart, 300 feet southeast of house of Maggie V. Painter, 140 feet east of barn on east side of levee below house, 200 feet from levee; aluminum tablet in top of pier	10.661
Pier No. 13; copper bolt in base	6.962
Vorden; gage zero (below sea level)	-4.692
Grand Island, 4 miles south of bridge, 250 feet southeast of E. B. King's house, 150 feet northeast of Sacramento River levee, 100 feet northeast of cross levee; iron post stamped "8 B 1906 N"	8.411
Grand Island bridge, about 4.1 miles southeast of, 0.9 mile east of E. B. King's house, in base of tree; spike (Sacramento Southern R. R. bench mark)	13.018

	Feet
Primary leveling by R. A. Farmer in 1905, by C. L. Nelson in 1906, and by B. A. Jenkins in 1908	
From Tremont east 4 miles, thence south 8.5 miles, east 2 miles, south 3 miles, and west to Binghamton	
Bulkey's ranch, southeast corner of yard, west side of road; iron post stamped "34 B"	84.673
Hance Timm's house, 400 feet southeast of, west side of road; iron post stamped "31 B"	81.884
Jud King's ranch house, 0.5 mile west of, southeast corner of sec. 36, T. 7 N., R. 2 E., southeast corner of field; iron post stamped "21 B"	21.258
T. 6 N., R. 2 E., near northeast corner of sec. 24, southeast corner of pasture fence; iron post stamped "8 B"	7.959
T. 6 N., R. 2 E., 1 mile east by 0.25 mile north of Peter's house, southeast corner of field; iron post stamped "17 B"	17.671
From Jud King's ranch house east 2 miles (double spur line)	
Jud King's ranch house, 2 miles east of, on north and south fence line, 50 feet east of levee, 150 feet southeast of dead tree on levee; iron post stamped "9 B"	9.327
Bench mark at forks of Sutter and Steamboat sloughs	
Forks of Sutter and Steamboat sloughs, 0.7 mile north of, 0.25 mile northwest of H. M. Donaldson's ranch house, 300 feet west of Sutter Slough, in northwest corner of orchard lot; iron post stamped "6 1906 B. N."	6.476
From Courtland southeast to Walnut Grove	
Grand Island, at head of Steamboat Slough, 0.5 mile north of bridge, at Kercheval House; zero of gage (below sea level)	-3.338
Grand Island bridge, 3 miles east of, 100 feet southeast of school-house, 0.25 mile northwest of pump house, at southeast corner of yard, west side of road; iron post stamped "-2 B. N. 1906" (below sea level)	-1.938
From Courtland north, east, and southeast to Pierson District creamery, thence east to Franklin road	
Courtland, 1.2 miles north of, at east edge of levee, 15 feet south of school, in 24-inch oak tree; nail with aluminum tag stamped "17 41"	16.834
Franklin, 4.3 miles southwest by 5 miles west of, on south edge of second-class road, 600 feet southeast of creamery, in pyramid on root of 30-inch oak tree; nail with aluminum tag stamped "6 39"	6.10
DAVISVILLE QUADRANGLE	
[Latitude 38° 30'-38° 45'; Longitude 121° 30'-121° 45']	
SACRAMENTO AND YOLO COUNTIES	
Precise leveling by C. H. Semper in 1901-2	
From Davisville east along Southern Pacific R. R. to Broderick	
Davisville, in front of Davis station; top of rail	48.0
Davisville, 0.4 mile east of, south side of track, 5 feet from mile-post 77; iron post stamped "42 B"	42.060

From Lodi east along wagon road to Lockeferd, thence north to Dry Creek	
✓ Lodi, 1.2 miles south of, east of railroad at crossing, north of road, at angle of fence; iron post stamped "45"-----	45.840 ✓
Lodi, 3.6 miles east of, where road from south joins Lodi-Lockeford road, angle of fence; iron post stamped "B 1907 72"-----	72.083
Lockeford, at northwest corner of school grounds; iron post stamped "B 1907 101 8"-----	101.311
Lockeford, 5.8 miles north of, southwest corner of Elliott School grounds; iron post stamped "B 1907 105 15"-----	105.649
From Elliott west along road to cemetery entrance	
Galt, 4.6 miles east of, at intersection of roads; iron post stamped "B 1907 64 16"-----	64.179
From Lockeferd east along wagon road to Clements, thence north to point 1.7 miles south of Dry Creek School	
Clements, in front of Leo Friedberger's store; tablet stamped "B 1907 181 11"-----	131.236
Clements, 4.4 miles north of, 20 feet west of road, in front of deserted house; iron post stamped "B 1907 214 26"-----	214.312
From Lockeferd south along wagon road to Farmington road	
Lockeford, 4 miles south of, 40 feet southeast of where Lodi-San Andreas road crosses Lockeferd-Stockton road, at fence corner; iron post stamped "B 1907 80 9"-----	80.019
Lockeford, 8 miles south of, angle of fence at intersection of roads; iron post stamped "B 1907 72 10"-----	72.143
Farmington, near junction with Farmington road; iron post stamped "67"-----	67.051
From Clements south along wagon road to point near Peters	
Clements, 3.0 miles east of, at intersection of roads; iron post stamped "B 1907 192 12"-----	192.308
Clements, 8 miles southeast of, at section corner, on north side of road; iron post stamped "B 1907 194 13"-----	194.362
Bellota, northeast corner of post office; iron post stamped "B 1907 130 14"-----	130.792
Peters, near southeast corner of junction of Peters-Linden road; iron post stamped "102"-----	102.325
From Galt west along road via New Hope to Walnut Grove	
Galt, 3.5 miles west of, north side of road, 200 feet east of intersection of fence from north; iron post stamped "B 1907 29 17"-----	29.027
New Hope, Don Ray & Co.'s store, southwest corner of cement porch; aluminum tablet stamped "B 1907 13 18"-----	13.514
New Hope, Don Ray & Co.'s store, south door of; center of metal doorsill (county bench mark)-----	13.92
From Lodi west along road via Woodbridge to Brack's Landing	
Lodi, northwest corner of opera house; aluminum tablet stamped "B 1907 50 21"-----	51.064
Woodbridge, northwest corner of Masonic Hall; aluminum tablet stamped "B 1907 45 19"-----	46.365
Woodbridge, 3 miles west of, intersection of roads; iron post stamped "B 1907 29 20"-----	29.609

Spur from Brack's Landing west 5 miles to point near pumping plant (stopped by overflow)	
Brack's Landing, southeast corner of warehouse; iron post stamped "B 1907 6 41"-----	6.868
From Brack's Landing southeast to Kettleman's ranch, thence east to Southern Pacific R. R. milepost 99	
Brack's Landing, 4.7 miles south of, on Terminus road, 400 feet west of levee, north side of road; iron post stamped "B 1907 38" (erroneously stamped 4)-----	1.563
Brack's Landing, 9.6 miles southeast of, 500 feet south of Kettleman's ranch house, in fence corner; iron post stamped "1907 B 9 39"-----	9.882
From intersection of Eightmile House and Lower Sacramento roads south to Fivemile House, thence east to Southern Pacific R. R. and north along railroad to milepost 97	
Fivemile House, 1,000 feet north of, west edge of Lower Sacramento road where lane from west intersects; iron post stamped "B 1907 13 40"-----	13.623
Lodi, 7.2 miles south of, 15 feet north of milepost 97; iron post stamped "B 1907 28"-----	28.671

SACRAMENTO QUADRANGLE

[Latitude 38° 30'-39°; longitude 121°-121° 30']

ELDORADO, PLACER, SACRAMENTO, AND SUTTER COUNTIES

Precise leveling by the U. S. Coast and Geodetic Survey

From Clippergap southwest along Southern Pacific R. R. to Brighton

Clippergap, 1 mile northeast of, about 1.2 meters from east end of tunnel O of the westbound line of the Southern Pacific R. R., on south stone wall, 0.6 meter above top of rail; red metal disk (U. S. C. & G. S. b. m. G-10)-----	1,867.516
Clippergap, 0.2 mile east of Southern Pacific R. R. station, on top of old foundation of water tank (now removed), about 0.5 meter below top of rail; red metal disk (U. S. C. & G. S. b. m. F-10)-----	1,755.751
East Auburn, opposite Southern Pacific R. R. passenger and freight station, on old line (now the westbound line) of Southern Pacific R. R., on eastern one of two northwestern concrete pillars under water tank, about 1 meter above top of rail; red metal disk (U. S. C. & G. S. b. m. E-10)-----	1,359.026
Newcastle, about 0.2 mile east of, at west end of Southern Pacific R. R. tunnel, north of track, on top surface of bottom stone of tunnel lining, 0.3 meter above track; red metal disk (U. S. C. & G. S. b. m. D-10)-----	975.825
Rocklin, about 0.5 mile east of, on west side of concrete bridge of Southern Pacific R. R., which carries the eastbound track over the westbound track; north of westbound track and about 1 meter above it, about 0.46 meter from north edge of pier, 1.5 meters above ground; red metal disk (U. S. C. & G. S. b. m. C-10)-----	251.824
Marville, about 0.8 mile east of Southern Pacific R. R. station, on top surface of granite abutment at east end of railroad bridge 107D, on south side of track and about 0.5 meter below it; red metal disk (U. S. C. & G. S. b. m. B-10)-----	172.742

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