

THIRD-ORDER LEVELS
NATIONAL GEODETIC VERTICAL DATUM OF 1929

Crawford, Sac and Carroll Counties

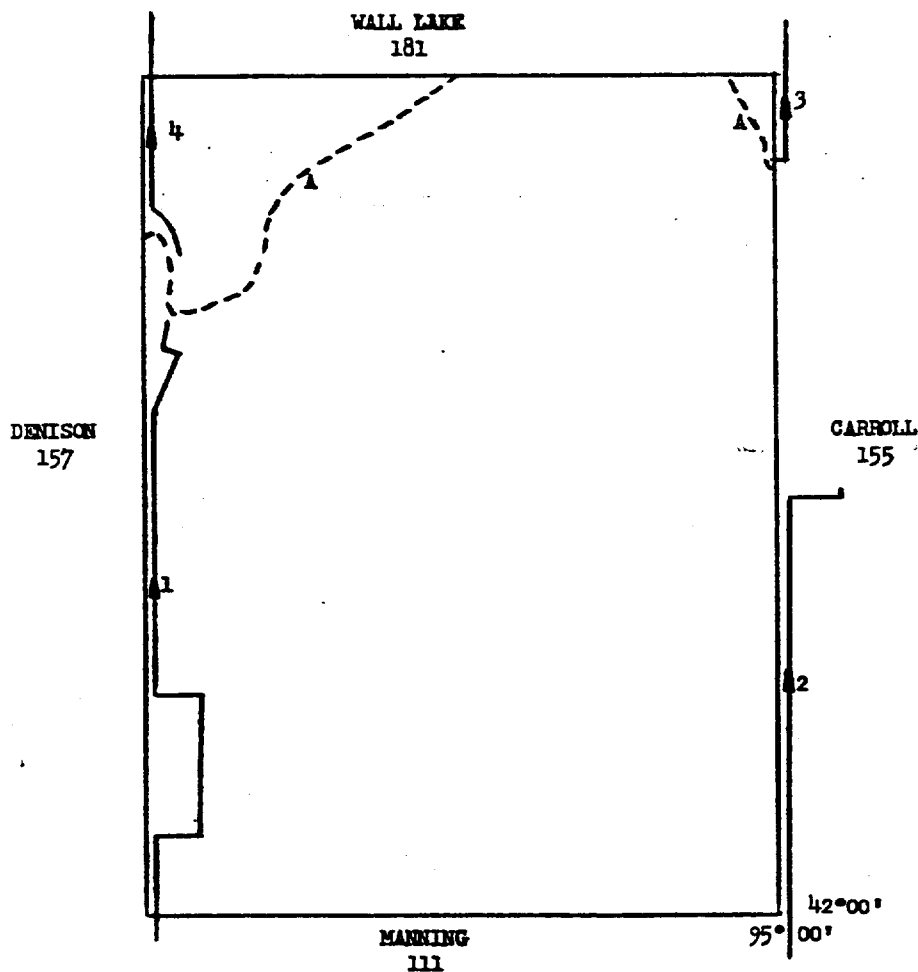
Final Adjustment of 1976

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UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

42-095-22
VAIL QUADRANGLE
156 - IOWA
N4200-W9500/15
DIAGRAM NK 15-4
FT. DODGE



N.G.S. (USC&GS) VERTICAL CONTROL DATA

A. Quadrangle No. 420952

156A

LINE 1

FEET

R.M. Brown, 1971; Book CV-2686

MANNING QUAD. - 131

7.9 UE, 2 mi N. of tablet, near cor. secs. 14, 15, 22 and 23, T. 83 N., R. 38 W., 31 ft N. of, 30 ft W. of and 2.6 ft higher than crossroads; in E. side of power pole; a lag bolt 1382.80

VAIL QUAD. - 156

8.9 Reference mark, 2.40 ft SW. of tablet, in W. side of power pole, a lag bolt 1411.49

8.9 Dermison, about 1 mi S. of and 5 mi E. of, near cor. secs. 10, 11, 14 and 15, T. 83 N., R. 38 W.; 9 ft S. of, 34 ft E. of and 1.1 ft lower than a T-rd. W.; 6.7 ft S. of and 1 ft W. of a cor. fence post; on rod support, standard tablet stamped "20 RB 1971" 1411.690

9.9 UE, 1 mi N. of tablet, near cor. secs. 2, 3, 10 and 11, T. 83 N., R. 38 W.; 30 ft S. of, 26 ft W. of and 0.3 ft lower than T-rd. S.; in E. side of cor. fence post; a lag bolt 1299.59

10.9 UE, 1 mi N. and 1 mi E. of tablet, near cor. secs. 1, 2, 11 and 12, T. 83 N., R. 38 W., 57 ft N. of, 30 ft W. of and 2.5 ft lower than crossroads; on N. end of an iron pipe culvert; a punch mark 1317.91

12.0 Reference mark, 21 ft NE. of tablet, in center of concrete bridge curb, a chiseled square 1246.36

12.0 Vail, about 1.5 mi S. of and 1.5 mi W. of, in the SW $\frac{1}{4}$ sec. 36, T. 84 N., R. 38 W., 10.5 ft SW. of (normal) and 1 ft higher than centerline of bridge; in center of SW. concrete curb, a standard tablet stamped "21 RB 1971" (Drain 25 ft lower) 1246.411 ✓

12.8 UE, 0.9 mi N. of tablet, near cor. secs. 25, 26, 35 and 36, T. 84 N., R. 38 W., 45 ft S. of, 35 ft W. of and 3.6 ft lower than crossroads; in E. side of fence post, a R.R. spike 1351.17

13.8 UE, 1.9 mi N. of tablet, near cor. secs. 23, 24, 25 and 26, T. 84 N., R. 38 W.; 24 ft S. of, 20 ft E. of and 1 ft lower than crossroads, on E. end of an iron pipe culvert, a punch mark 1409.40

14.8 Vail, about 0.5 mi N. of and 2.5 mi W. of, in the SW $\frac{1}{4}$ sec. 23, T. 84 N., R. 38 W., 20 ft N. of (normal) and 2.7 ft lower than road at culvert, in center of N. concrete headwall, a standard tablet stamped "22 RB 1971" 1331.132

15.8 UE, 1 mi N. of tablet, near cor. secs. 14, 15, 22 and 23, T. 84 N., R. 38 W., 32 ft S. of, 30 ft W. of and 1.6 ft higher than crossroads; in N. side of power pole, a lag bolt 1406.09

16.8 UE, 2 mi N. of tablet, near cor. secs. 10, 11, 14, and 15, T. 84 N., R. 38 W., 34 ft N. of, 34 ft E. of and 0.2 ft lower than crossroads; in W. side of cor. fence post; a lag bolt 1372.11

17.8 Reference mark, 79 ft WSW. of tablet, on S. end of a concrete tube culvert, a chiseled square 1360.45

17.8 Vail, about 3.5 mi N. of and 2.5 mi W. of, near cor. secs. 2, 3, 10 and 11, T. 84 N., R. 38 W., 31 ft N. of, 87 ft E. of and 0.2 ft lower than crossroads; 1.2 ft S. of and 49 ft E. of a fence corner, on rod support, a standard tablet, stamped "23 RB 1971" 1360.868

18.9 UE, 1 mi N. of tablet, near cor. secs. 2, 3, 34 and 35, Tps. 84 and 85 N., R. 38 W., 24 ft S. of, 24 ft W. of and 3.1 ft lower than crossroads, on W. end of concrete tube culvert; a chiseled square 1356.74

19.9 UE, 2 mi N. of tablet, near cor. secs. 26, 27, 34 and 35, T. 85 N., R. 38 W., 33 ft N. of, 33 ft E. of and 1.3 ft higher than crossroads; in W. side of power pole, a lag bolt 1326.53

..1 Reference mark, 21 ft NW. of tablet, in center of concrete bridge curb, a chiseled square 1219.28

LINE 1 (Cont'd)

VAIL QUAD. - 156

FEET

- 21.1 Boyer, about 1.9 mi S. of and, 0.3 mi W. of, in the SW $\frac{1}{4}$ sec. 23, T. 85 N., R. 38 W., 10.5 ft SE. of (normal) and 0.8 ft higher than centerline of road at a small concrete bridge; in center of SE. bridge curb, a standard tablet stamped "24 RB 1971" (Drain 16.4 ft lower) 1219.310
- 22.2 UE, 1 mi N. of tablet, near the W. sixteenth cor. between secs. 14 and 23, T. 85 N., R. 38 W., in centerline of deck bridge, a copper nail and washer (Drain 20.4 ft lower) 1214.15
- 23.2 Reference mark, 111.5 ft W. of tablet, in SW. wing wall, a chiseled square 1231.34
- 23.2 Boyer, at the village of, near the quarter cor. between secs. 11 and 14, T. 85 N., R. 38 W.; 16.8 ft S. of, 55.8 ft E. of and 0.9 ft higher than centerline of bridge; in SE. wing wall, a standard tablet stamped "25 RB 1971" (Drain 24.2 ft lower) 1230.778
- 24.5 Boyer, about 1.5 mi N. of, in the SW. quarter of sec. 2, T. 85 N., R. 38 W.; 12 ft NE. of (normal) and 1.6 ft lower than a dismantled R.R. grade; in NE. concrete culvert, headwall a monel rivet, (listed USC&GS "RV 14") (Drain 8.1 ft lower) 1281.369

DENISON QUAD. - 157

- 25.9 Kiron, about 3 mi E. of, near cor. secs. 3, 4, 9 and 10, T. 85 N., R. 38 W.; about 730 ft N. of crossroads and 500 ft E. along an abandoned R.R. grade, on S. side of grade; 3 ft N. and 3.5 ft W. of a fence corner at N.-S. fence crossing the old grade; in concrete post; about 2-in. above ground, standard disk stamped "F 94 1935" 1367.609
- .1 UE, 1.1 mi W. of tablet, near cor. secs. 4, 5, 8 and 9, T. 85 N., R. 38 W., 125 ft N. of, 23 ft E. of and 10.6 ft lower than T-rd. N., on E. end of an iron pipe culvert, a punch mark 1370.89
- 28.3 Kiron, 1 mi E. of, near cor. secs. 5, 6, 7 and 8, T. 85 N., R. 38 W.; about 700 ft N. of crossroads at an abandoned R.R. grade crossing; 50 ft N. and 30 ft E. of the abandoned grade crossing; 15 ft S. of a power pole, 1 ft W. of a N.-S. fence line; in concrete post, projecting 2-in. above ground, a standard disk stamped "G 94 1935" 1340.847

LINE 2

D.D. Bolin, 1975; Book CV-3206

DEDHAM QUAD. - 130

- 2 2 0.0 Manning, Carroll County, 5.45 mi N. and 3.5 mi E. of center of; T. 83 N., R. 36 W., near quarter cor. between secs. 23 and 24, 293 ft S., 30 ft W. and 0.3 ft higher than road at quarter line fence W. (slightly offset with fence E.), 72.5 ft N. and 78 ft E. of NE. corner of a farmhouse, 56 ft N. and 1 ft E. of fence corner N.-W., 24 ft N. of center gate, 3.5 ft S. and 1 ft E. of a fence post, 2 ft S. of a witness sign; a standard tablet crimped to the top of a copper rod stamped "39 PJH 1969" 1420.046

CARROLL QUAD. - 155

- 6 1.7 Reference mark, 490 ft SE. of the tablet; 14 ft N. and 346 ft E. of the centerline of the crossroads; on top and at the W. end of the N. concrete railing, a chiseled square 1372.34
- 7 1.8 EM, Halbur; 1 mi W. of; T. 84 N., R. 35 W., near the cor. of secs. 11, 12, 13 and 14; 340 ft N., 12 ft E. and 3.6 ft lower than the centerline of the crossroads; on N. end of the E. concrete headwall of the concrete box culvert; a standard tablet stamped "1 DDB 1975" 1369.680
- 8 2.7 UE 1 A, 0.9 mi N. along road from the tablet, T. 84 N., R. 35 W., near the cor. of secs. 1, 2, 11 and 12; 39 ft S., 82 ft W. and 1 ft higher than the centerline of the crossroads, on the E. side of a twin oak tree, and approx. 0.5 ft above the ground level; a R.R. spike 1449.45

LINE 2 (Cont'd)

CARROLL QUAD. - 155

FEET

2	12	3.7	UE 1 B, 2 mi N. along road from the tablet, T. 84 and 85 N., R. 35 W., near the cor. of secs. 1, 2, 35 and 36, 16 ft N., 21 ft E. and 0.4 ft lower than the centerline of the T-rd. E., on top and at the N. end of the round concrete culvert; a chiseled square	1405.15
14	4.8	BM, Halbur, 3 mi N. and 1 mi W. of; 2.5 mi S. and 2.5 mi E. of Arcadia, T. 85 N, R. 35 W., near the cor. secs. 25, 26, 35 and 36; 267 ft N., 31 ft W. and 11.4 ft higher than the centerline of the crossroads, 3 ft S. of the S. gate post, 1 ft E. of the E. right-of-way fence, set inside of a round concrete drain, tile and 0.7 ft below ground level, a standard tablet stamped "2 DDB 1975"	1402.230	
15	4.8	Reference mark, 127 ft NW. of the tablet; 389 ft N. and 66 ft W. of the centerline of the crossroads, at the SW. cor. of the concrete slab porch of the tin barn, a chiseled square	1406.11	
16	5.7	UE 2 A, 0.9 mi N. along rd. from the tablet; T. 85 N., R. 35 W., near the cor. of secs. 23, 24, 25 and 26; 380 ft S., 31 ft E. and 0.4 ft higher than the centerline of of the crossroads at the base and on the W. side of a lone cottonwood tree growing in the E. right-of-way fence, a R.R. spike	1411.71	
20	6.8	UE 2 B, 2 mi N. along road from the tablet at the junction of U.S. Hwy. 30; T. 85 N., R. 35 W., near the cor. of secs. 13, 14, 23 and 24; 64 ft N., 58 ft W. and 0.5 ft lower than the centerline of crossroads; on top of the iron rebar projecting from a concrete right-of-way post; and painted orange	1381.24	
21	7.5	Reference mark, 68 ft SW. of the tablet; 68 ft S. and 35 ft W. of the centerline of the road at R.R. overpass; on top and at the S. end of the SW. wingwall; a chiseled square	1314.20	
22	7.5	BM, Arcadia, 0.2 N. and 2.5 mi E. of; T. 85 N., R. 35 W., 0.25 mi S. of the cor. of secs. 11, 12, 13 and 14; 40 ft S., 29 ft E. and 3.5 ft higher than centerline of the road, at the C. & N.W. R.R. overpass, on the SE. wingwall; a standard tablet stamped "3 DDB 1975"	1311.407	
27	8.8	UE 3 A, 1.25 mi N. along road from the tablet; T. 25 N., R. 35 W., near the corner of secs. 1, 2, 11 and 12; 29 ft S., 35 ft W. and 4.4 ft lower than the centerline of the crossroads; on top and at the S. end of the round concrete culvert, a chiseled square	1383.42	
30	10.0	UE 3 B, 2.25 mi N. along road from the tablet; T. 85 & 86 N., R. 35 W., near the cor. of secs. 1, 2, 35 and 36; 6 ft N., 29 ft W. and 2.8 ft lower than the centerline of the T-rd. E. on top and at the N. end of the round metal culvert; a punched hole	1329.98	
32	11.0	UE 3 C, 2.25 mi N. and 1 mi E. of the tablet, T. 85 and 86 N., R. 35 and 36 W., near the cor. of secs. 1, 6, 31 and 36, 15 ft N., 230 ft E. and 2.8 ft higher than the centerline of the crossroads, on top and at the W. end of the NW. wingwall of the concrete bridge; a chiseled square	1283.76	
34	11.6	BM, 4 mi S. along the Chicago & North Western R.R. from the station at Brada, Carroll County, at bridge 1159, and in the top of the W. end of the N. concrete abutment, a standard monel-metal rivet stamped "RV 9"	1289.459	

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LINE 3

FEET

D.D. Bolin, 1975; Book CV-3206

VAIL QUAD. - 156

2 37 0.0 BM, 2.4 mi S. along the Chicago & North Western R.R. from the station at Carnavon, Sac County, at a road crossing and culvert 1192.5, 39 ft N. of the centerline of the road, 22 ft E. of the centerline of the track, and about 4 ft higher than the track, a standard USC&GS disk stamped "P 93 1935" and set in the top of a concrete post 1304.036

CARROLL QUAD. - 155

38 0.4 UE P A, 0.35 mi E. along road from the disk; T. 86 N., R. 36 W., near cor. secs. 25, 26, 35 and 36; 51 ft N., 18 ft W. and 6.6 ft lower than the centerline of the crossroads; on top and at the W. end of the round metal culvert; a chiseled square 1307.69

40 1.4 UE P B, 1 mi N. and 0.35 mi E. of the disk, T. 86 N., R. 36 W., near the cor. of secs. 23, 24, 25 and 26; 23 ft S., 31 ft E. and 2.3 ft lower than the centerline of the crossroads on top and at the S. end of the round concrete culvert; a chiseled square 1319.77

42 2.4 UE P C, 2 mi N. and 0.35 mi E. of the disk; T. 86 N., R. 36 W., near the cor. of secs. 13, 14, 23 and 24; 50 ft S., 39 ft W. and 0.9 ft lower than the centerline of the crossroads; at the NE. cor. fence post of a wire mesh fence around an L.P. Gas Storage Lot; on the top of a painted copper coated rod projecting 0.2 ft above the ground 1253.69

SAC LAKE QUAD. - 180

45 3.5 Reference mark, 24 ft NW. of the tablet; 23 ft N. and 25 ft E., centerline of the T-rd. W. on top and at the N. end of the round concrete culvert; a chiseled square 1228.51

46 3.5 BM, Carnavon; 1 mi N. and 1.3 mi E. of; 1 mi S. and 2.3 mi W. of Ulmer; T. 86 N., R. 36 W., near the cor. of secs. 11, 12, 13 and 14, 1 ft S., 32 ft E. and 1.3 ft lower than the centerline of the T-rd. W., 1 ft W. of the corner fence post, set inside of a 8-in. concrete drain tile, and 0.2 ft under the ground, a standard tablet stamped "4 DDB 1975" 1230.240

LINE 4

D.D. Bolin, 1975; Book CV-3206

VAIL QUAD. - 156

3 4 0.0 BM, 1.5 mi N. along the Chicago & North Western R.R. from the station at Boyer, Crawford County, 3.5 poles N. of bridge 107, at 5 ft culvert 108, in the center of the top of the E. concrete headwall, 11 ft E. of the centerline of the track, and 18-in. lower than the track, a standard monel metal rivet 1281.369

6 1.4 UE RV 14 A, 1.4 mi N. along road from RV 14, T. 85 and 86 N., R. 38 W., near the cor. of secs. 2, 3, 34 and 35, 11 ft S., 101 ft W. and 1.2 ft lower than the centerline of Y-rd. E. on top and at the E. end of the S. concrete railing of a small iron and concrete bridge, a chiseled square 1259.32

9 2.5 UE RV 14 B, 2.5 mi N. along road from RV 14; T. 86 N., R. 38 W., near the cor. of secs. 26, 27, 34 and 35; 134 ft N. and 23 ft W. and 1.1 ft lower than the centerline of the crossroads; on top and at the S. end of the W. concrete headwall of the cattle underpass, a chiseled square 1343.91

11 3.5 BM, Odebolt; 5 mi S. of; T. 86 N., R. 38 W., near the cor. of secs. 22, 23, 26 and 27; 45 ft S., 105 ft E. and 7 ft higher than the centerline of crossroads; 4 ft E. of the cor. fence post; 1 ft N. of the S. right-of-way fence, set inside of a 8-in. concrete drain tile, and level with the ground, standard tablet stamped "8 DDB 1975" 1326.567

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LINE 4 (Cont'd)VAIL QUAD. - 156FEET

- 3 12 3.5 Reference mark, 114 ft NW. of the tablet; 44 ft N. and 30 ft E. of State Hwy. 39 at the centerline of the E.-W. road crossing on top and at the E. end of the round concrete culvert; a chiseled square 1319.53

WALL LAKE QUAD. - 181

- 13 4.5 UE 8 A, 1 mi N. along State Hwy. 39 from the tablet; T. 86 N., R. 38 W., at the cor. of secs. 14, 15, 22 and 23; centerline of State Hwy. 39 at E.-W. section line road crossing 1392.5
- 14 5.5 UE 8 B, 2 mi N. along State Hwy. 39 from the tablet; T. 86 N., R. 38 W., near the cor. of secs. 10, 11, 14 and 15; 29 ft S., 94 ft W. and 5.8 ft lower than the centerline of the crossroads, on top and at the E. end of the concrete headwall of a concrete box culvert, and on top of an eye bolt with a chiseled cross 1367.29
- 16 6.6 Odebolt, 2 mi S. of, T. 86 N., R. 38 W., near the cor. of secs. 2, 3, 10 and 11, 50 ft S., 64 ft E. and 2.8 ft lower than the centerline of a T-rd. E., 3 ft S. of the corner fence post; 1 ft W. of the E. right-of-way fence, set inside of an 8-in. concrete drain tile, a standard tablet stamped "9 DDB 1975" 1429.899