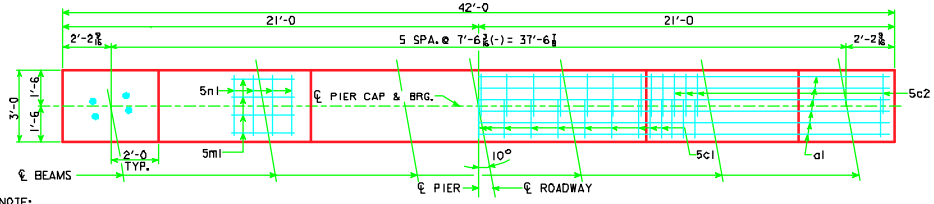
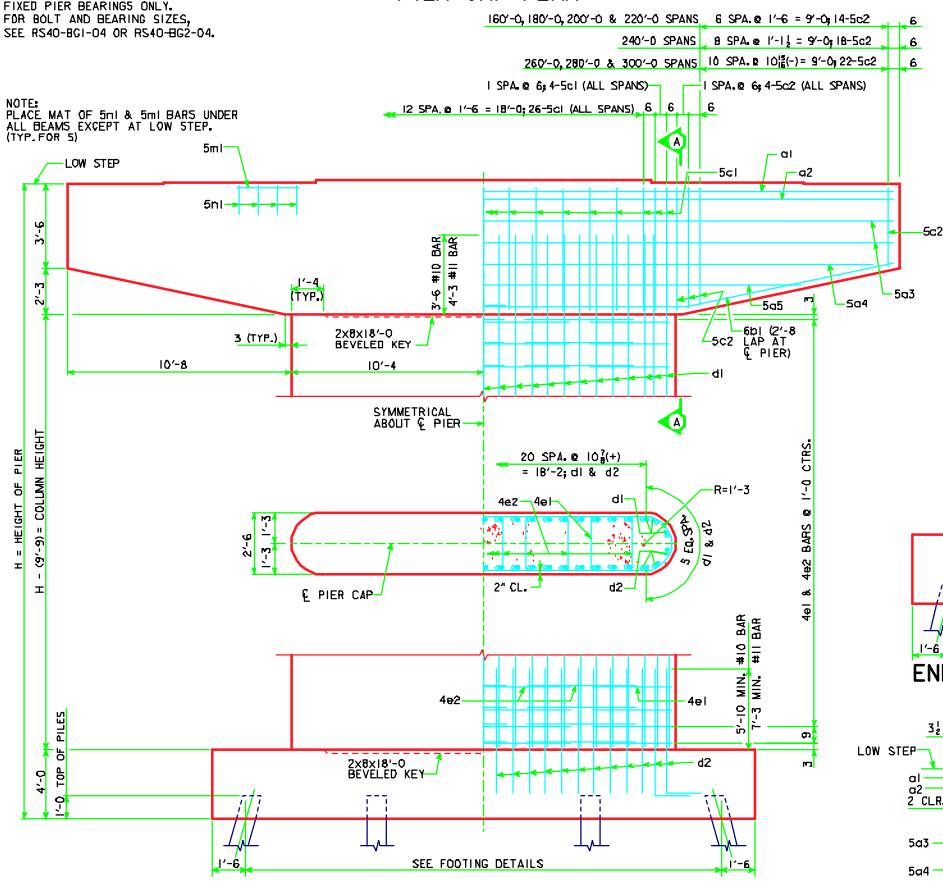



NOTE:
ANCHOR BOLTS REQUIRED FOR FIXED PIER BEARINGS ONLY.
FOR BOLT AND BEARING SIZES, SEE RS40-BG1-04 OR RS40-BG2-04.

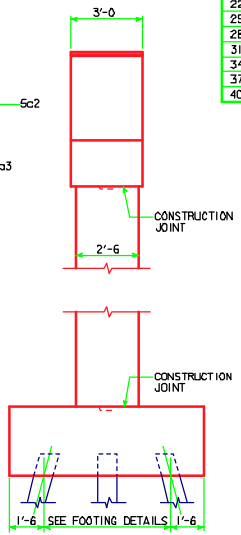
## PIER CAP PLAN

NOTE:
PLACE MAT OF 5n1 & 5m1 BARS UNDER ALL BEAMS EXCEPT AT LOW STEP. (TYP. FOR 5)

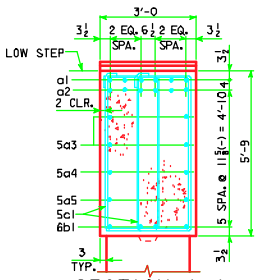



## PIER ELEVATION

STEP NOTE:
THE HEIGHT OF THE STEPS ON THE BRIDGE SEAT IS EQUAL TO THE DIFFERENCE IN ELEVATIONS OF THE TOP OF SLAB AT ADJACENT BEAMS ALONG ℄ PIER.




## END ELEVATION




## SECTION A-A

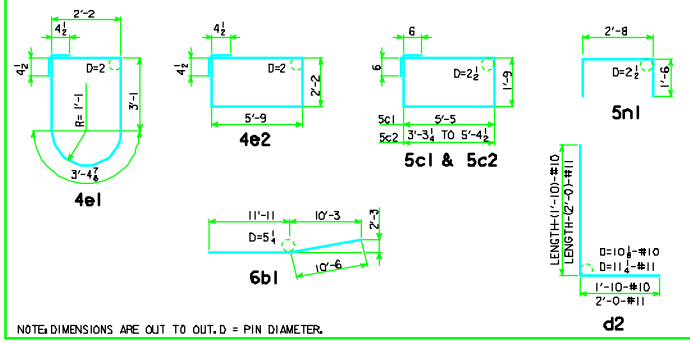
## ONE CAP

| REINFORCING STEEL | | ℄-℄ ABUT. BEARINGS | 160'-0 | | | 180'-0 | | | 200'-0 | | | 220'-0 | | | 240'-0 | | | 260'-0 | | | 280'-0 | | | 300'-0 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BAR | LENGTH | SHAPE | NO. | SIZE | WEIGHT | NO. | SIZE | WEIGHT | NO. | SIZE | WEIGHT | NO. | SIZE | WEIGHT | NO. | SIZE | WEIGHT | NO. | SIZE | WEIGHT | NO. | SIZE | WEIGHT | NO. | SIZE | WEIGHT |
| a1 | 41'-8 | | 6 | 8 | 668 | 6 | 9 | 850 | 6 | 9 | 850 | 6 | 9 | 850 | 6 | 10 | 1076 | 6 | 10 | 1076 | 6 | 10 | 1076 | 6 | 11 | 1328 |
| a2 | 41'-8 | | 6 | 8 | 668 | 6 | 8 | 668 | 6 | 8 | 668 | 6 | 9 | 850 | 6 | 9 | 850 | 6 | 9 | 850 | 6 | 10 | 1076 | 6 | 10 | 1076 |
| a3 | 41'-8 | | 4 | 5 | 174 | 4 | 5 | 174 | 4 | 5 | 174 | 4 | 5 | 174 | 4 | 5 | 174 | 4 | 5 | 174 | 4 | 5 | 174 | 4 | 5 | 174 |
| a4 | 40'-0 | | 2 | 5 | 83 | 2 | 5 | 83 | 2 | 5 | 83 | 2 | 5 | 83 | 2 | 5 | 83 | 2 | 5 | 83 | 2 | 5 | 83 | 2 | 5 | 83 |
| a5 | 31'-0 | | 2 | 5 | 65 | 2 | 5 | 65 | 2 | 5 | 65 | 2 | 5 | 65 | 2 | 5 | 65 | 2 | 5 | 65 | 2 | 5 | 65 | 2 | 5 | 65 |
| b1 | 22'-5 | | 8 | 6 | 269 | 8 | 6 | 269 | 8 | 6 | 269 | 8 | 6 | 269 | 8 | 6 | 269 | 8 | 6 | 269 | 8 | 6 | 269 | 8 | 6 | 269 |
| c1 | 15'-4 | | 34 | 5 | 544 | 34 | 5 | 544 | 34 | 5 | 544 | 34 | 5 | 544 | 34 | 5 | 544 | 34 | 5 | 544 | 34 | 5 | 544 | 34 | 5 | 544 |
| c2 | VARIES | | 36 | 5 | 506 | 36 | 5 | 506 | 36 | 5 | 506 | 36 | 5 | 506 | 44 | 5 | 615 | 52 | 5 | 723 | 52 | 5 | 723 | 52 | 5 | 723 |
| n1 | 5'-8 | | 20 | 5 | 118 | 20 | 5 | 118 | 20 | 5 | 118 | 20 | 5 | 118 | 20 | 5 | 118 | 20 | 5 | 118 | 20 | 5 | 118 | 20 | 5 | 118 |
| m1 | 2'-10 | | 20 | 5 | 59 | 20 | 5 | 59 | 20 | 5 | 59 | 20 | 5 | 59 | 20 | 5 | 59 | 20 | 5 | 59 | 20 | 5 | 59 | 20 | 5 | 59 |
| TOTAL LB. | | | | | 3154 | | | 3336 | | | 3336 | | | 3518 | | | 3853 | | | 3961 | | | 4187 | | | 4439 |
| STRUCTURAL CONCRETE (C.Y.) | | | 25.1 | | | 25.1 | | | 25.1 | | | 25.1 | | | 25.1 | | | 25.1 | | | 25.1 | | | 25.1 | | |

## ONE COLUMN

| H IN FEET | COLUMN HEIGHT | STRUCTURAL CONCRETE C.Y. | REINFORCING STEEL: d1 BAR | | | | d2 BAR | | | | 4e1 BAR | | | | 4e2 BAR | | | | TOTAL WEIGHT LB. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | NO. | SIZE | LENGTH | WEIGHT | NO. | SIZE | LENGTH | WEIGHT | NO. | SIZE | LENGTH | WEIGHT | NO. | SIZE | LENGTH | WEIGHT | |
| 16 | 6'-3 | 11.7 | - | - | - | - | 50 | 10 | 14'-6 | 3120 | 14 | 4 | 12'-6 | 117 | 28 | 4 | 16'-7 | 310 | 3547 |
| 19 | 9'-3 | 17.2 | - | - | - | - | 50 | 10 | 17'-6 | 3765 | 20 | 4 | 12'-6 | 167 | 40 | 4 | 16'-7 | 443 | 4315 |
| 22 | 12'-3 | 22.8 | 50 | 10 | 15'-9 | 3389 | 50 | 10 | 10'-7 | 2277 | 26 | 4 | 12'-6 | 217 | 52 | 4 | 16'-7 | 576 | 6459 |
| 25 | 15'-3 | 28.4 | 50 | 10 | 18'-9 | 4044 | 50 | 10 | 10'-7 | 2277 | 32 | 4 | 12'-6 | 267 | 64 | 4 | 16'-7 | 709 | 7287 |
| 28 | 18'-3 | 34.0 | 50 | 11 | 22'-6 | 5977 | 50 | 11 | 12'-2 | 3232 | 38 | 4 | 12'-6 | 317 | 76 | 4 | 16'-7 | 842 | 10,368 |
| 31 | 21'-3 | 39.6 | 50 | 11 | 25'-6 | 6774 | 50 | 11 | 12'-2 | 3232 | 44 | 4 | 12'-6 | 367 | 88 | 4 | 16'-7 | 975 | 11,348 |
| 34 | 24'-3 | 45.2 | 50 | 11 | 28'-6 | 7571 | 50 | 11 | 12'-2 | 3232 | 50 | 4 | 12'-6 | 418 | 100 | 4 | 16'-7 | 1108 | 12,329 |
| 37 | 27'-3 | 50.8 | 50 | 11 | 31'-6 | 8368 | 50 | 11 | 12'-2 | 3232 | 56 | 4 | 12'-6 | 468 | 112 | 4 | 16'-7 | 1241 | 13,309 |
| 40 | 30'-3 | 56.4 | 50 | 11 | 34'-6 | 9165 | 50 | 11 | 12'-2 | 3232 | 62 | 4 | 12'-6 | 518 | 124 | 4 | 16'-7 | 1374 | 14,289 |

## BENT BAR DETAILS




NOTE: DIMENSIONS ARE OUT TO OUT. D = PIN DIAMETER.

NOTE:
CAP STRUCTURAL CONCRETE QUANTITIES BASED ON 1¾ INCH STEP HEIGHT.

LATEST REVISION DATE

APPROVED BY BRIDGE ENGINEER

Iowa Department of Transportation
Highway Division

STANDARD DESIGN - 40' ROADWAY, 3 SPAN BRIDGES

# ROLLED STEEL BEAM BRIDGES

FEBRUARY, 2004

## T PIER 10° SKEW CAP & COLUMN DETAILS

RS40-PR5-04