| DIST | COUNTY | ROUTE | KILOMETER POST TOTAL PROJECT | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|
| | | | | | |

Paul Cotter
REGISTERED CIVIL ENGINEER

July 1, 2002
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
Paul Cotter
No. C34509
Exp. 9-30-03
CIVIL
STATE OF CALIFORNIA

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# 2002 DUAL UNITS STD PLAN D81D

| SPAN | | | 4270 mm (14') | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HEIGHT | | | 2135 mm (7') | | 2440 mm (8') | | 2745 mm (9') | | 3050 mm (10') | | 3350 mm (11') | | 3660 mm (12') | | 3960 mm (13') | | 4270 mm (14') | |
| Maximum Earth Cover | | | 3.0 m (10') | 6.0 m (20') | 3.0 m (10') | 6.0 m (20') | 3.0 m (10') | 6.0 m (20') | 3.0 m (10') | 6.0 m (20') | 3.0 m (10') | 6.0 m (20') | 3.0 m (10') | 6.0 m (20') | 3.0 m (10') | 6.0 m (20') | 3.0 m (10') | 6.0 m (20') |
| Conc | Roof | $T_1$ | 290 mm (11½") | 420 mm (16½") | 290 mm (11½") | 420 mm (16½") | 290 mm (11½") | 420 mm (16½") | 290 mm (11½") | 420 mm (16½") | 290 mm (11½") | 420 mm (16½") | 290 mm (11½") | 420 mm (16½") | 290 mm (11½") | 420 mm (16½") | 290 mm (11½") | 420 mm (16½") |
| Conc | Walls | $T_2$ | 215 mm (8½") | 240 mm (9½") | 215 mm (8½") | 270 mm (10½") | 230 mm (9") | 290 mm (11½") | 240 mm (9½") | 320 mm (12½") | 270 mm (10½") | 355 mm (14") | 290 mm (11½") | 380 mm (15") | 320 mm (12½") | 420 mm (16½") | 330 mm (13") | 445 mm (17½") |
| Conc | Invert | $T_3$ | 290 mm (11½") | 430 mm (17") | 290 mm (11½") | 430 mm (17") | 290 mm (11½") | 430 mm (17") | 290 mm (11½") | 430 mm (17") | 290 mm (11½") | 430 mm (17") | 290 mm (11½") | 430 mm (17") | 290 mm (11½") | 430 mm (17") | 290 mm (11½") | 430 mm (17") |
| Reinf | Spacing | | 215 mm (8½") | 200 mm (8") | 215 mm (8½") | 200 mm (8") | 215 mm (8½") | 200 mm (8") | 215 mm (8½") | 200 mm (8") | 215 mm (8½") | 200 mm (8") | 215 mm (8½") | 200 mm (8") | 225 mm (9") | 200 mm (8") | 225 mm (9") | 200 mm (8") |
| Reinf | "g" | Size Bar * | 25M (#8) | 25M (#8) | 25M (#8) | 25M (#8) | 25M (#8) | 25M (#8) | 25M (#8) | 25M (#8) | 25M (#8) | 25M (#8) | 25M (#8) | 25M (#8) | 25M (#8) | 25M (#8) | 25M (#8) | 25M (#8) |
| Reinf | "f" | Size Bar * | 19M (#6) | 19M (#6) | 19M (#6) | 19M (#6) | 19M (#6) | 19M (#6) | 19M (#6) | 19M (#6) | 19M (#6) | 19M (#6) | 19M (#6) | 19M (#6) | 19M (#6) | 19M (#6) | 19M (#6) | 19M (#6) |
| Reinf | "a" | Size Bar * | 13M (#4) | 13M (#4) | 13M (#4) | 13M (#4) | 13M (#4) | 13M (#4) | 13M (#4) | 13M (#4) | 13M (#4) | 13M (#4) | 13M (#4) | 13M (#4) | 13M (#4) | 13M (#4) | 13M (#4) | 13M (#4) |
| Reinf | "b" | Size Bar * | 16M (#5) | 19M (#6) | 19M (#6) | 19M (#6) | 16M (#5) | 19M (#6) | 19M (#6) | 19M (#6) | 19M (#6) | 19M (#6) | 19M (#6) | 22M (#7) | 22M (#7) | 22M (#7) | 22M (#7) | 22M (#7) |
| Reinf | "b" | Dim "B" | 800 mm (2'-7") | 800 mm (2'-7") | 1000 mm (3'-3") | 1000 mm (3'-3") | 1225 mm (4'-0") | 1225 mm (4'-0") | 1225 mm (4'-0") | 1225 mm (4'-0") | 1400 mm (4'-7") | 1325 mm (4'-4") | 1400 mm (4'-7") | 1500 mm (4'-11") | 1600 mm (5'-3") | 1500 mm (4'-11") | 1600 mm (5'-3") | 1500 mm (4'-11") |
| Reinf | "b" | Dim "Bw" | 1525 mm (5'-0") | 1150 mm (3'-9") | 1525 mm (5'-0") | 1375 mm (4'-6") | 1525 mm (5'-0") | 1525 mm (5'-0") | 1525 mm (5'-0") | 1525 mm (5'-0") | 1450 mm (4'-9") | 1675 mm (5'-6") | 1450 mm (4'-9") | 1875 mm (6'-2") | 1575 mm (5'-2") | 1875 mm (6'-2") | 1575 mm (5'-2") | 1875 mm (6'-2") |
| Reinf | "c" | Size Bar * | 19M (#6) | 19M (#6) | 19M (#6) | 22M (#7) | 22M (#7) | 22M (#7) | 22M (#7) | 22M (#7) | 22M (#7) | 22M (#7) | 22M (#7) | 22M (#7) | 22M (#7) | 22M (#7) | 25M (#8) | 25M (#8) |
| Reinf | "c" | Dim "C" | 1300 mm (4'-3") | 1200 mm (3'-11") | 1675 mm (5'-6") | 1575 mm (5'-2") | 2350 mm (7'-9") | 1725 mm (5'-8") | 2575 mm (8'-6") | 1950 mm (6'-5") | 2700 mm (8'-10") | 2000 mm (6'-6") | 2750 mm (9'-0") | 2075 mm (6'-10") | 2825 mm (9'-3") | 2075 mm (6'-10") | 2825 mm (9'-3") | 2075 mm (6'-10") |
| Reinf | "e" | Size Bar * | 13M (#4) | 13M (#4) | 13M (#4) | 13M (#4) | 13M (#4) | 13M (#4) | 13M (#4) | 13M (#4) | 13M (#4) | 13M (#4) | 16M (#5) | 16M (#5) | 16M (#5) | 16M (#5) | 19M (#6) | 19M (#6) |
| Quantities | Concrete | | 6.67 m 3/m (71.8 CF/LF) | 9.26 m 3/m (99.7 CF/LF) | 6.87 m 3/m (73.9 CF/LF) | 9.66 m 3/m (104.0 CF/LF) | 7.14 m 3/m (76.9 CF/LF) | 10.00 m 3/m (108.0 CF/LF) | 7.43 m 3/m (80.0 CF/LF) | 10.50 m 3/m (113.0 CF/LF) | 7.82 m 3/m (84.2 CF/LF) | 11.10 m 3/m (119.0 CF/LF) | 8.25 m 3/m (88.8 CF/LF) | 11.50 m 3/m (124.0 CF/LF) | 8.74 m 3/m (94.1 CF/LF) | 12.20 m 3/m (131.0 CF/LF) | 9.11 m 3/m (98.1 CF/LF) | 12.70 m 3/m (137.0 CF/LF) |
| Quantities | Reinforcement | | 985 kg/m (662 LB/LF) | 1056 kg/m (710 LB/LF) | 1064 kg/m (715 LB/LF) | 1165 kg/m (783 LB/LF) | 1125 kg/m (756 LB/LF) | 1220 kg/m (820 LB/LF) | 1201 kg/m (807 LB/LF) | 1259 kg/m (846 LB/LF) | 1240 kg/m (833 LB/LF) | 1299 kg/m (873 LB/LF) | 1311 kg/m (881 LB/LF) | 1426 kg/m (958 LB/LF) | 1315 kg/m (884 LB/LF) | 1455 kg/m (978 LB/LF) | 1491 kg/m (1002 LB/LF) | 1652 kg/m (1110 LB/LF) |

* See Note 5, on Standard Plan D81A

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

# CAST-IN-PLACE REINFORCED CONCRETE DOUBLE BOX CULVERT

These "Standard Plans for Construction of Local Streets and Roads" contain units in two systems of measurement: International System of Units (SI or "metric") and United States Standard Measures shown in the parentheses ( ). The measurements expressed in the two systems are not necessarily equal or interchangeable. See the "Foreword" at the beginning of this publication.

NO SCALE

**D81D**