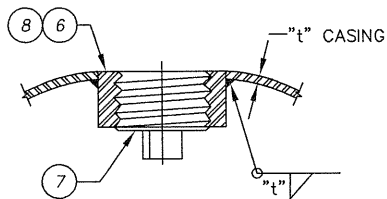


CROSS-SECTION



GROUT FITTING DETAIL

| STEEL CASING SCHEDULE |           |                        |                      |
|-----------------------|-----------|------------------------|----------------------|
| D.I.P. SIZE           | BELL O.D. | MIN. CASING SIZE, I.D. | MIN. WALL THICKNESS. |
| 6"                    | 8.7"      | 16"                    | 5/16"                |
| 8"                    | 10.8"     | 18"                    | 5/16"                |
| 10"                   | 12.9"     | 20"                    | 3/8"                 |
| 12"                   | 15.1"     | 24"                    | 3/8"                 |
| 16"                   | 19.7"     | 28"                    | 3/8"                 |
| 18"                   | 21.9"     | 30"                    | 1/2"                 |
| 20"                   | 24.0"     | 32"                    | 1/2"                 |
| 24"                   | 28.1"     | 36"                    | 1/2"                 |


CASING SIZE FOR CARRIER PIPE LARGER THAN 24-INCH IS SUBJECT TO APPROVAL BY DWP GENERAL MANAGER OR DESIGNEE.

- | ITEM | MATERIALS  |
|------|--|
| 1    | STEEL CASING.  |
| 2    | INSTALL CASING TEST STATION PER CITY STD. DWG 450.   |
| 3    | CARRIER PIPE CENTERED IN CASING WITH ALL JOINTS RESTRAINED.  |
| 4    | INSTALL 60 LB. ANODE.  |
| 5    | STAINLESS STEEL CASING SPACERS WITH HEAVY-DUTY 2-INCH WIDE ANTI-FRICTION RUNNERS.  |
| 6    | GROUT FITTING @ 8-FOOT O.C. PER DETAIL HEREON. FOR ALL CASINGS 24-INCH IN DIAMETER AND LARGER, INSTALL ONE COUPLING IN 6 O'CLOCK POSITION @ 8-FOOT O.C.; STAGGER COUPLINGS BETWEEN 10 O'CLOCK AND 2 O'CLOCK POSITIONS EVERY 4 LINEAR FEET ALONG CASING AXIS. |
| 7    | 2-INCH NPT THREADED STEEL PLUG WITH RAISED HEAD.   |
| 8    | 2-INCH NPT STD. WT. STL. PIPE HALF COUPLING.   |
| 9    | EPDM CASING END SEAL. INSTALL WITH STAINLESS STEEL WORM-SCREW BAND CLAMPS.   |

NOTES:

- INSTALL CASING BY THE BORE, JACK AND/OR TUNNEL METHOD, UNLESS DWP GENERAL MANAGER OR DESIGNEE APPROVES OPEN CUT.
- SIZE AND THICKNESS OF CASING SHALL BE AS SHOWN IN SCHEDULE. FOR LONG BORES OR SPECIAL SITUATIONS GREATER WALL THICKNESS THAN SHOWN IN SCHEDULE MAY BE REQUIRED.
- WELD FULL-CIRCUMFERENCE ALL STEEL CASING PIPE FIELD JOINTS.
- PRESSURE TEST CARRIER PIPE PRIOR TO SEALING ENDS OF CASING.
- SEAL EACH END OF CASING WITH CASING END SEALS.
- BACKFILL CASING IN OPEN CUT PER CITY STD. DWGS. 150 AND 308.
- NUMBER AND PLACEMENT OF SPACERS ON CARRIER PIPE PER MANUFACTURER'S SPECIFICATIONS.
- INSTALLATION OF 30-INCH DIAMETER OR LARGER CASING BY BORE, JACK AND/OR TUNNEL METHOD REQUIRES A TUNNEL CLASSIFICATION FROM THE CALIFORNIA DIVISION OF OCCUPATIONAL SAFETY AND HEALTH, MINING AND TUNNELING UNIT.
- NO BLOWN SAND IN CASING.

STEEL CASING FOR WATER PIPE

| REVISION |          |      | APPROVED:   |          | CITY OF CORONA  |
|----------|----------|------|---|----------|---|
| NO.      | APPROVED | DATE |   | DATE     |   |
|          |          |      | <i>Nelson D. Nelson</i>   | 11-21-12 |  |
|          |          |      | <i>Tom Koper</i>  | 11-20-12 |   |
|          |          |      | NELSON D. NELSON, PE.<br>CITY ENGINEER                              |          | CITY OF CORONA  |
|          |          |      | TOM KOPER, PE., DISTRICT ENGINEER,<br>DEPARTMENT OF WATER AND POWER |          | STD 402   |
|          |          |      |   |          | SHEET 1 OF 1  |