

| CARRIER PIPE DIA. | C A S I N G P I P E | | | | |
|-------------------------|-----------------------|--|--|--|-----------|
| | D I A M E T E R | M I N I M U M W A L L T H I C K N E S S | | | |
| | | C R I T E R I A W I T H I N R A I L R O A D R I G H T O F W A Y | | C R I T E R I A W I T H I N V D O T R I G H T O F W A Y | |
| | | R.C.P. WITH P R O T E C T I V E C O A T I N G | S T E E L W I T H P R O T E C T I V E C O A T I N G | R.C.P. | S T E E L |
| 6" | 16" | 3.0" | 0.281" | 3.0" | 0.250" |
| 8" | 20" | 3.0" | 0.375" | 3.0" | 0.250" |
| 10" | 20" | 3.0" | 0.375" | 3.0" | 0.250" |
| 12" | 24" | 3.5" | 0.375" | 3.5" | 0.250" |
| 15" | 24" | 3.5" | 0.375" | 3.5" | 0.250" |
| 16" | 24" | 3.5" | 0.375" | 3.5" | 0.250" |
| 18" | 30" | 4.0" | 0.500" | 4.0" | 0.375" |
| 20" | 30" | 4.0" | 0.500" | 4.0" | 0.375" |
| 21" | 30" | 4.0" | 0.500" | 4.0" | 0.375" |
| 24" | 36" | 4.5" | 0.563" | 4.5" | 0.375" |
| 30" | 42" | 5.0" | 0.625" | 5.0" | 0.500" |
| 33" | 42" | 5.0" | 0.625" | 5.0" | 0.500" |
| 36" | 48" | 5.5" | 0.688" | 5.5" | 0.500" |
| 42" | 54" | 6.0" | 0.781" | 6.0" | 0.500" |

REINFORCED CONCRETE CASING PIPE SHALL BE ASTM C-76, CLASS III.
STEEL CASING PIPE SHALL BE ASTM 139, GRADE B.

NOTES:

- A. Slopes through bores shall not be based on minimum grade unless it is the only slope available.
- B. Increasing thickness of casing must be considered where bore lengths exceed 125'.
- C. When using steel casing, a minimum of .3125" thickness is required where ground cover over pipe exceeds 15'.
- D. Contractor shall make an effort to bore in the appropriate direction based on existing soil conditions. Engineer must show location and size of bore pit; and location and size of permanent and construction easement.
- E. Where restraining devices are required for the carrier pipe, the casing pipe size shall be increased as necessary.

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| DATE MAY 2004 | CASING PIPE REQUIREMENTS | DRWG. NO. |
| HANOVER DPU | | CAS-1 |