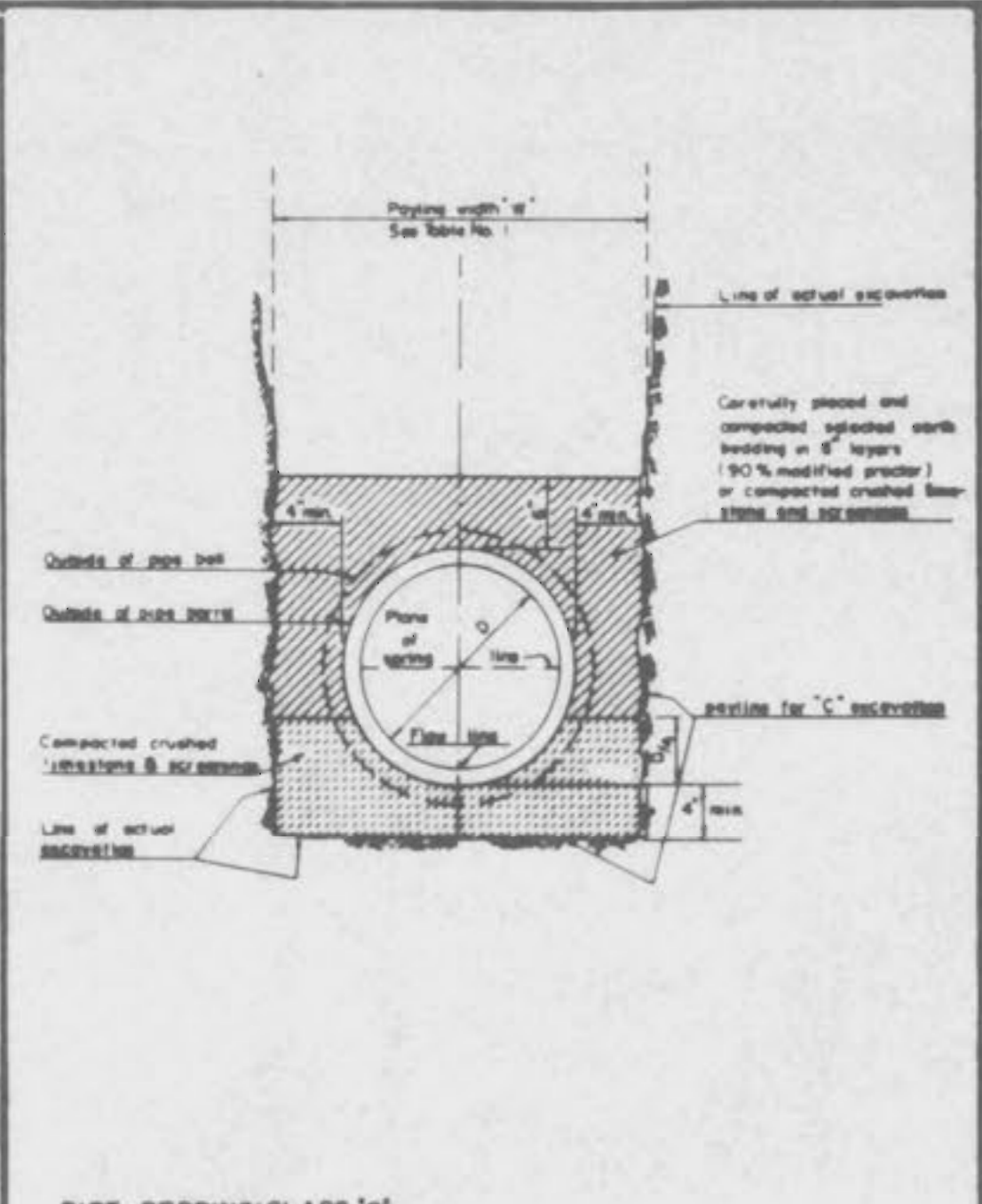
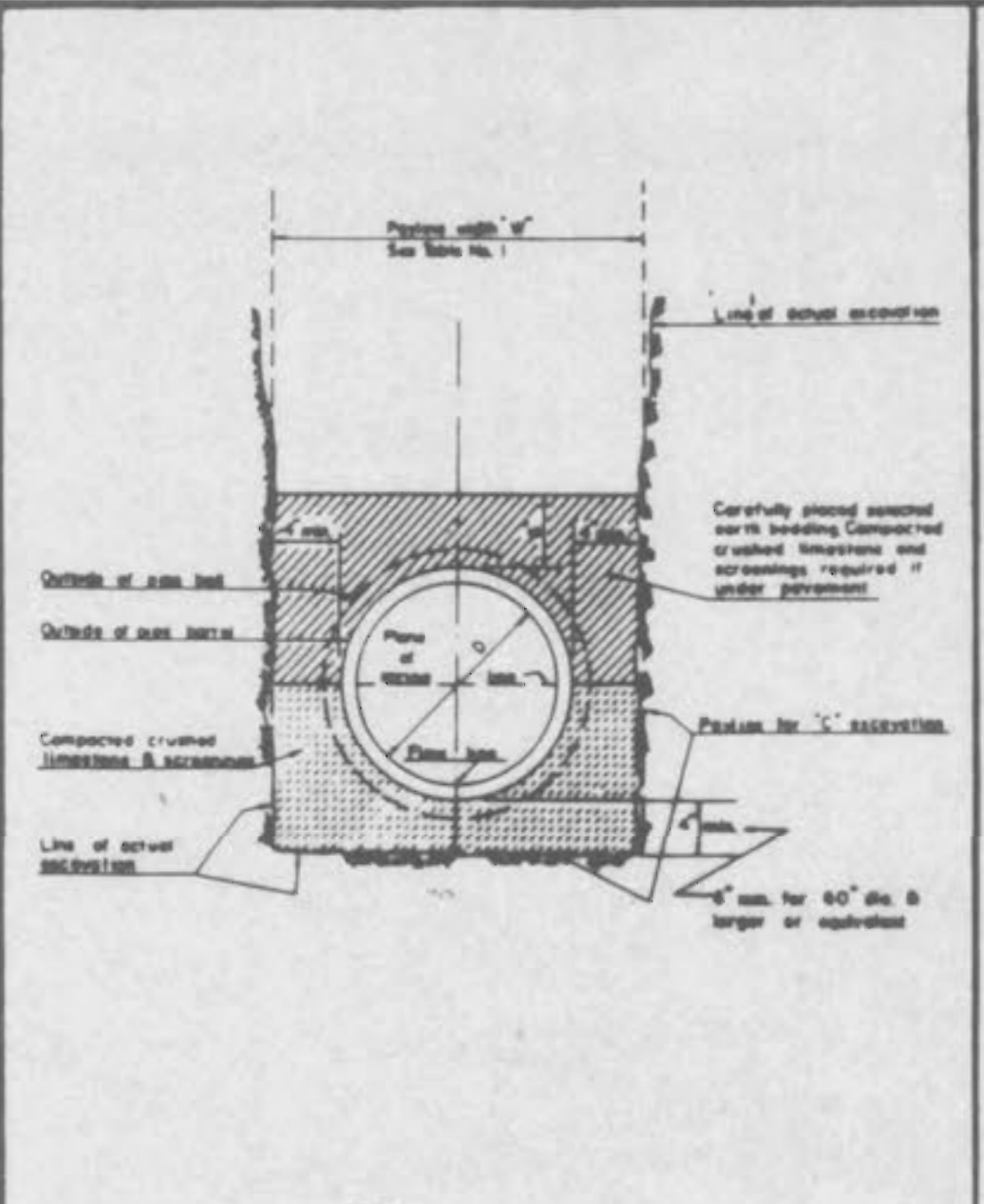


| ROUND PIPE | | | | HORIZONTAL ELLIPTICAL PIPE | | | |
|----------------------------------|------------------------------------|------------------------------------|--|----------------------------------|--------------------------------------|------------------------------------|--|
| Inside Diameter of Pipe (Inches) | "w" Payline Width of Trench (Feet) | "w" Payline Width of Trench (Feet) | Pay Volume cu ft per ft of Concrete Encasement | Inside Diameter of Pipe (Inches) | "w" Payline Width of Trench (Inches) | "w" Payline Width of Trench (Feet) | Pay Volume cu ft per ft of Concrete Encasement |
| 4 | 28 | 2.33 | 3.20 | | | | |
| 6 | 28 | 2.33 | 3.48 | | | | |
| 8 | 28 | 2.33 | 3.70 | | | | |
| 10 | 28 | 2.33 | 3.98 | | | | |
| 12 | 28 | 2.33 | 4.26 | | | | |
| 16 | 32 | 2.67 | 4.89 | | | | |
| 18 | 32 | 2.67 | 5.13 | 14 x 23 | 41 | 3.42 | 5.94 |
| 21 | 32 | 2.67 | 5.37 | | | | |
| 24 | 32 | 2.67 | 5.61 | 19 x 30 | 49 | 4.06 | 7.68 |
| 27 | 45 | 3.75 | 6.18 | 22 x 34 | 53 | 4.42 | 8.81 |
| 30 | 45 | 3.75 | 6.42 | 24 x 38 | 58 | 4.83 | 9.70 |
| 33 | 45 | 3.75 | 6.66 | 27 x 42 | 62 | 5.17 | 10.71 |
| 36 | 56 | 4.67 | 7.43 | 29 x 45 | 66 | 5.50 | 11.72 |
| 38 | DISCONTINUED | | | 32 x 49 | 71 | 5.92 | 13.14 |
| 42 | 63 | 5.25 | 8.36 | 34 x 53 | 75 | 6.25 | 14.00 |
| 48 | 70 | 5.83 | 9.17 | 36 x 60 | 83 | 6.92 | 16.18 |
| 54 | 77 | 6.42 | 10.15 | 43 x 68 | 92 | 7.67 | 18.81 |
| 60 | 84 | 7.00 | 10.73 | 46 x 76 | 101 | 8.42 | 21.90 |
| 66 | 91 | 7.58 | 11.45 | 53 x 83 | 109 | 9.08 | 24.38 |
| 72 | 98 | 8.17 | 12.17 | 56 x 91 | 118 | 9.83 | 27.48 |
| 78 | 105 | 8.75 | 12.89 | 63 x 98 | 126 | 10.50 | 30.80 |
| 84 | 112 | 9.33 | 13.61 | 66 x 106 | 135 | 11.25 | 33.91 |
| 90 | 119 | 9.92 | 14.33 | 72 x 113 | 143 | 11.92 | 36.99 |
| 96 | 126 | 10.50 | 15.05 | 77 x 121 | 152 | 12.67 | 40.80 |
| 102 | 133 | 11.08 | 15.77 | 82 x 128 | 160 | 13.33 | 44.48 |
| 108 | 140 | 11.67 | 16.49 | 87 x 136 | 168 | 14.00 | 47.79 |
| 114 | 147 | 12.25 | 17.21 | 92 x 143 | 176 | 14.67 | 51.70 |
| 120 | 154 | 12.83 | 17.93 | 97 x 151 | 185 | 15.42 | 56.01 |
| 126 | 161 | 13.42 | 18.65 | | | | |
| 132 | 168 | 14.00 | 19.37 | 106 x 168 | 202 | 16.83 | 64.48 |
| 144 | 182 | 15.17 | 21.40 | 118 x 180 | 218 | 18.17 | 73.59 |

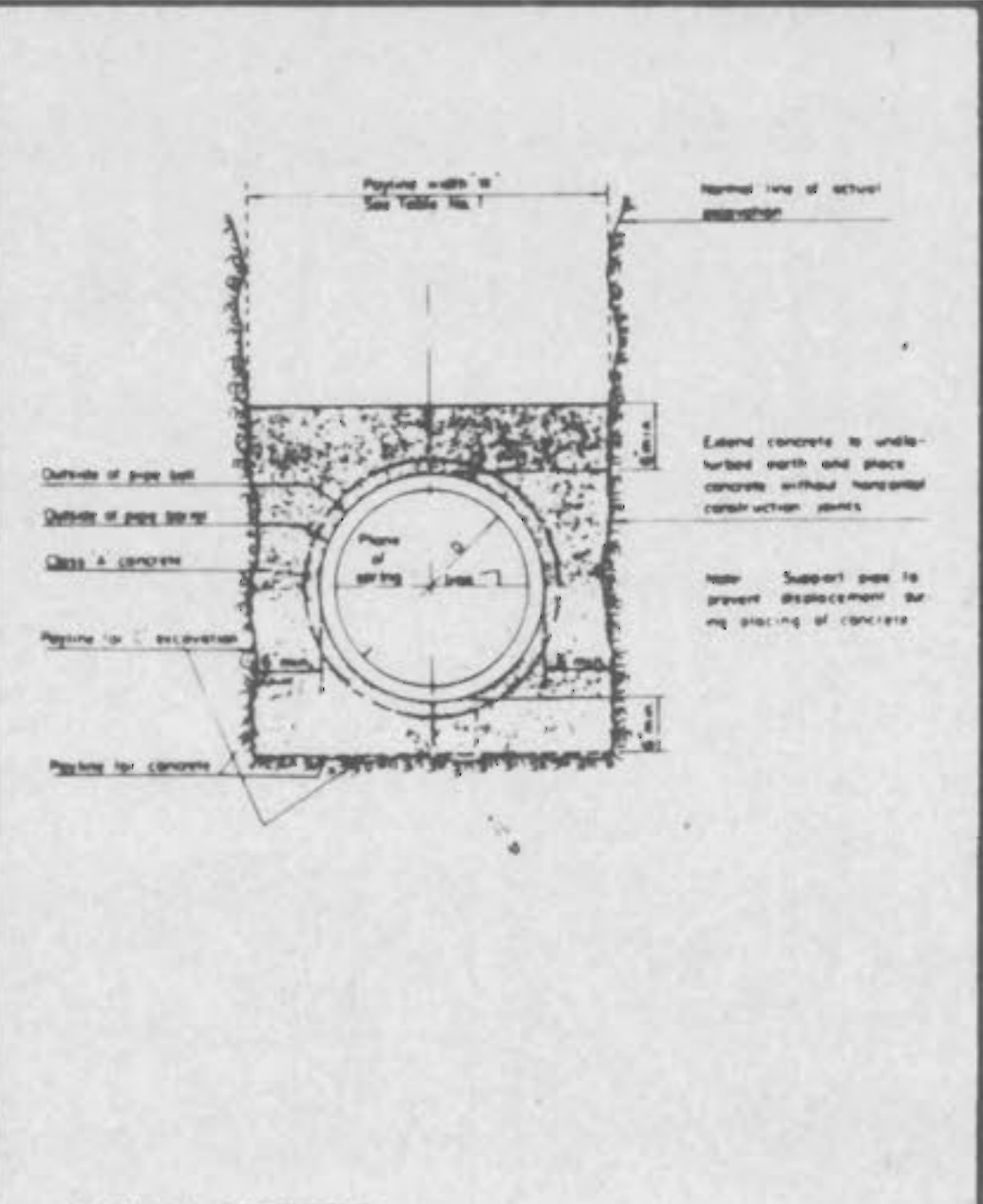
TABLE NO 1
 PAYLINE WIDTHS OF TRENCH AND PAY - QUANTITIES OF CONCRETE



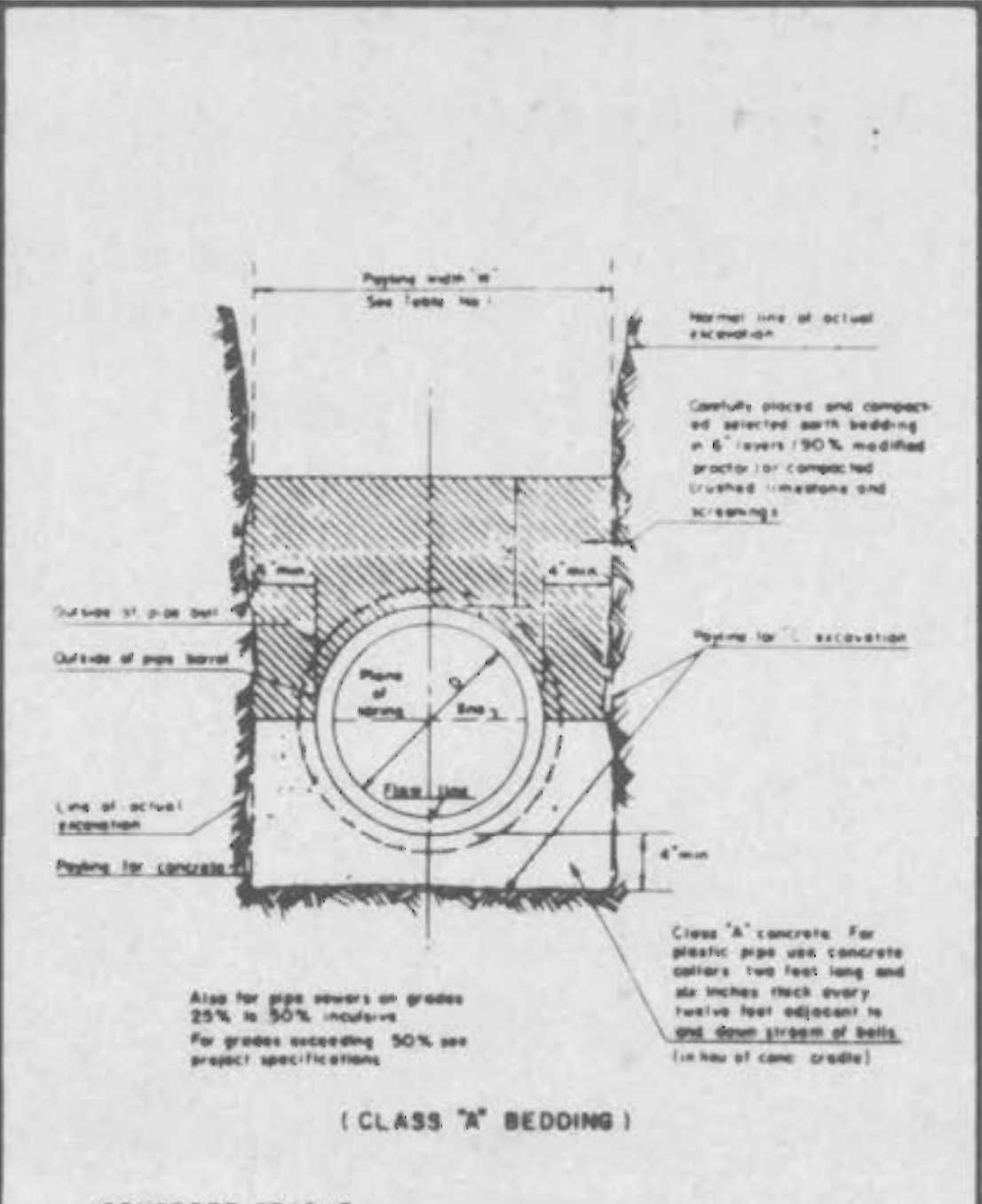
PIPE BEDDING CLASS "C" (FOR ALL PIPE EXCEPT REINFORCED CONCRETE PIPE) DETAIL 2



PIPE BEDDING CLASS "C" (MODIFIED FOR REINFORCED CONCRETE PIPE) DETAIL 3



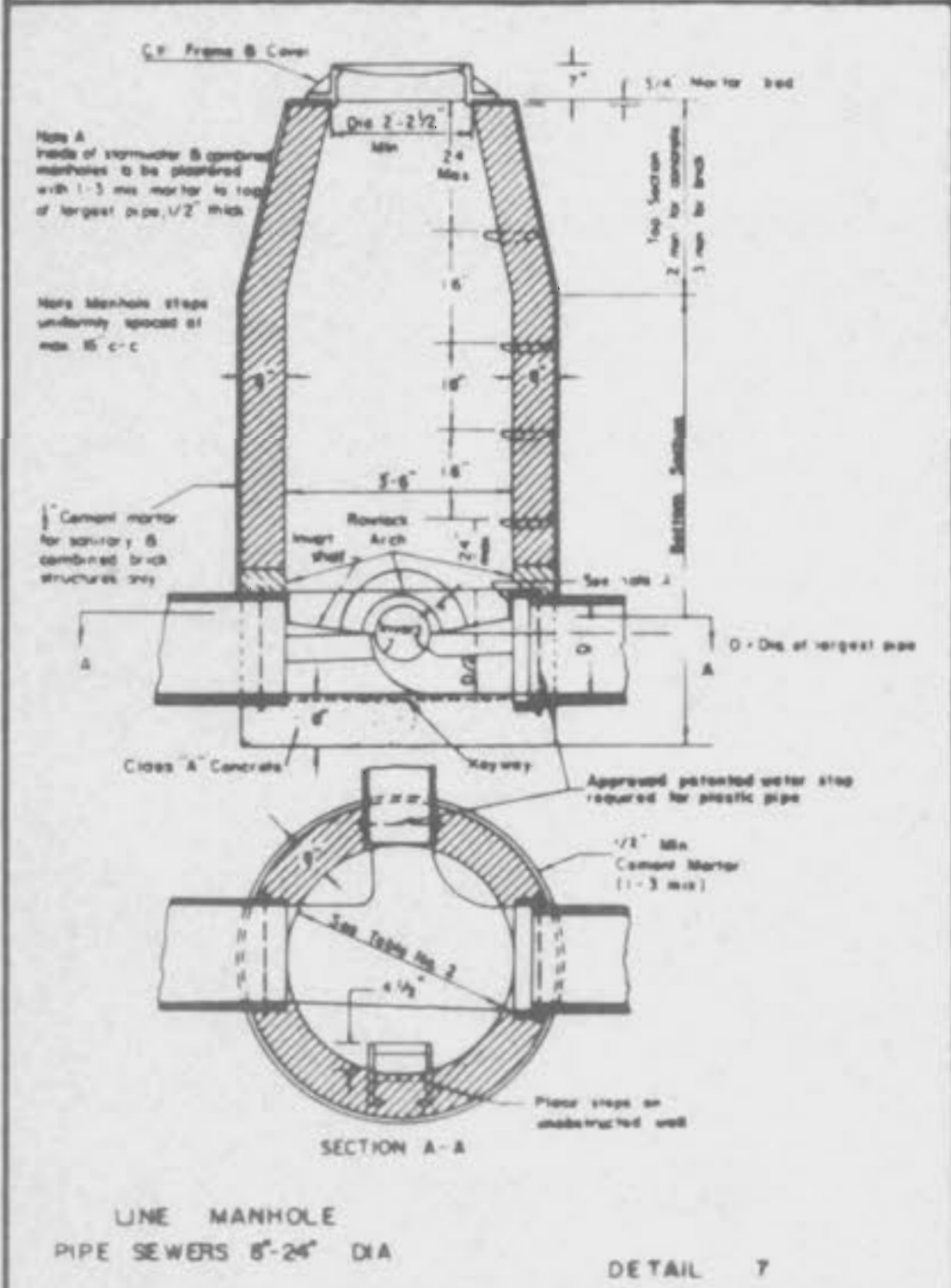
CONCRETE ENCASUREMENT DETAIL 4



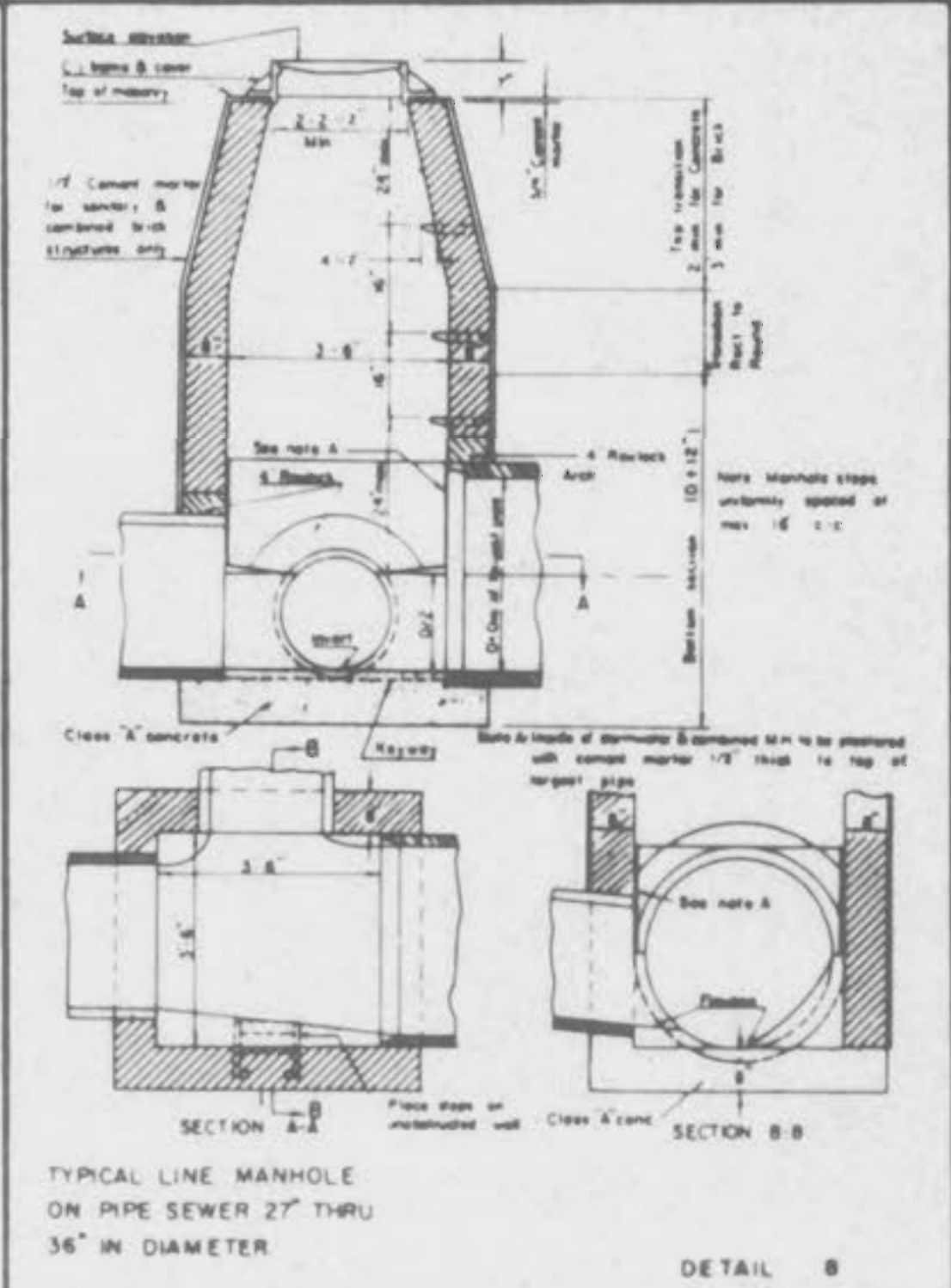
CONCRETE CRADLE DETAIL 5

TABLE NO 2
 STANDARD MANHOLE DIMENSIONS

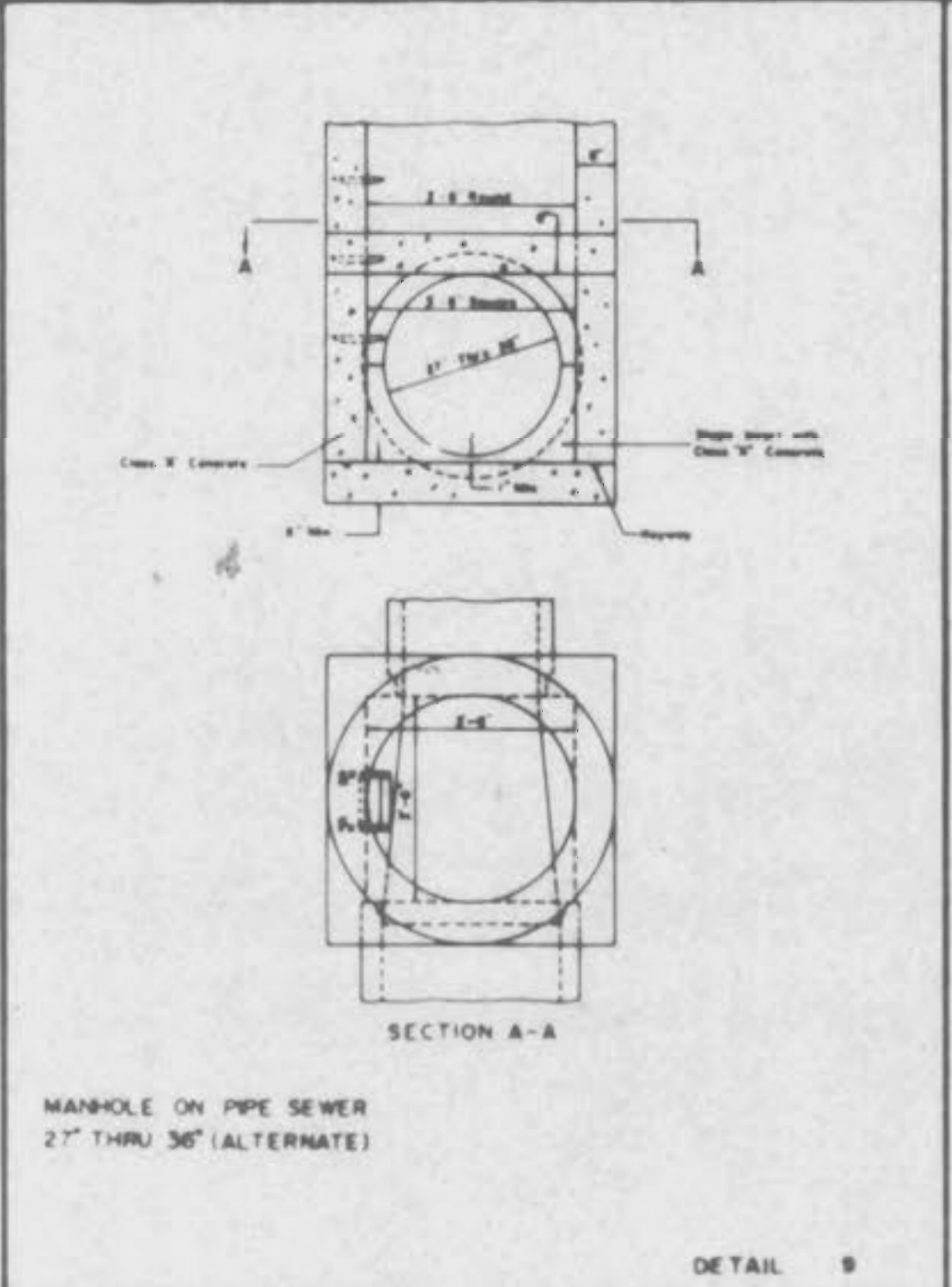
| Section of Manhole | Dimension |
|--------------------|---|
| Top | Upper 2'-2 1/2" Dia |
| Transition | Lower 3'-6" Dia |
| | Bottom Section 8" thru 24" Dia Pipe 3'-6" Dia |
| Bottom Section | 27" thru 36" Dia Pipe 3'-6" Square |



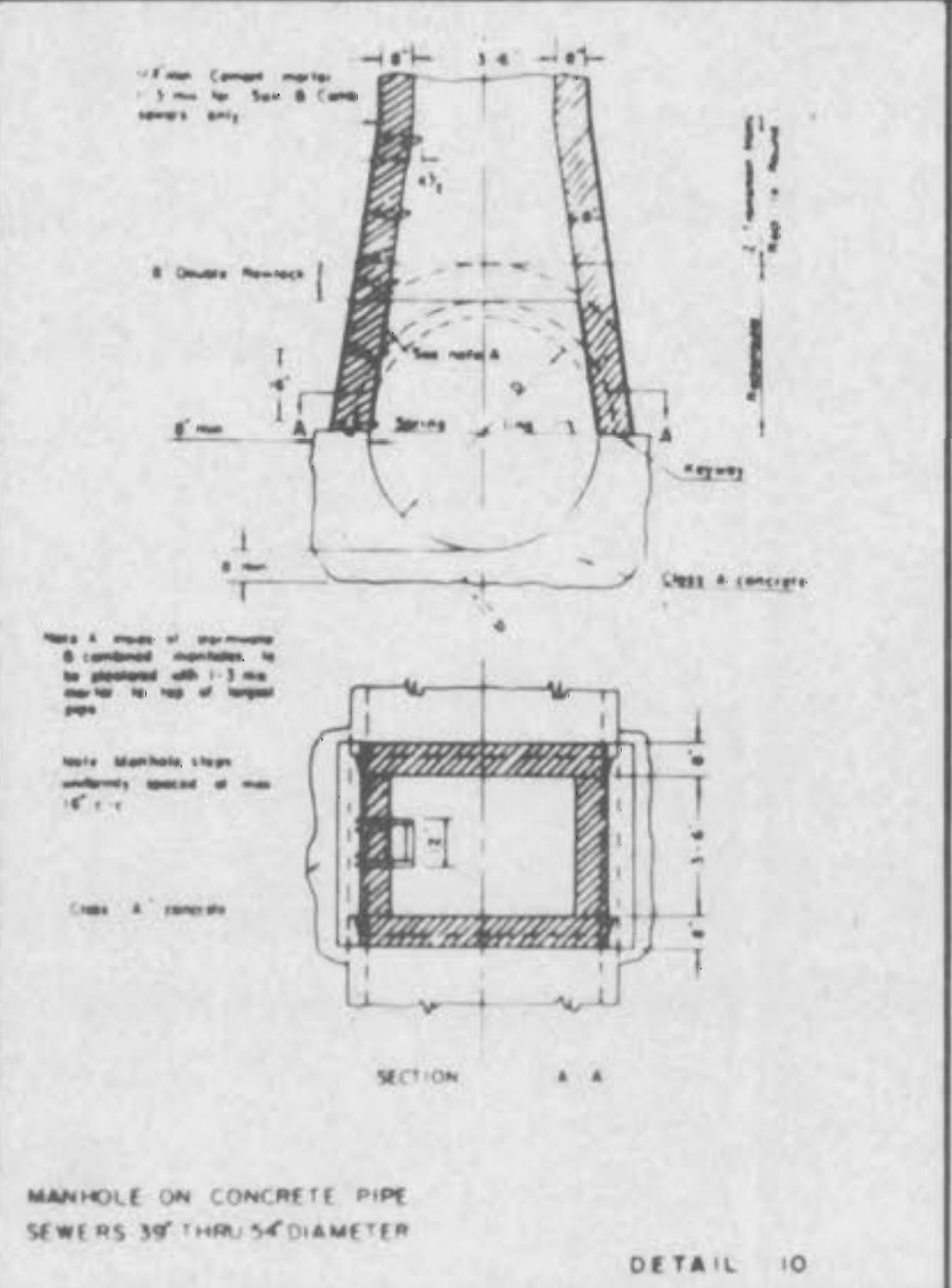
LINE MANHOLE PIPE SEWERS 8" - 24" DIA DETAIL 7



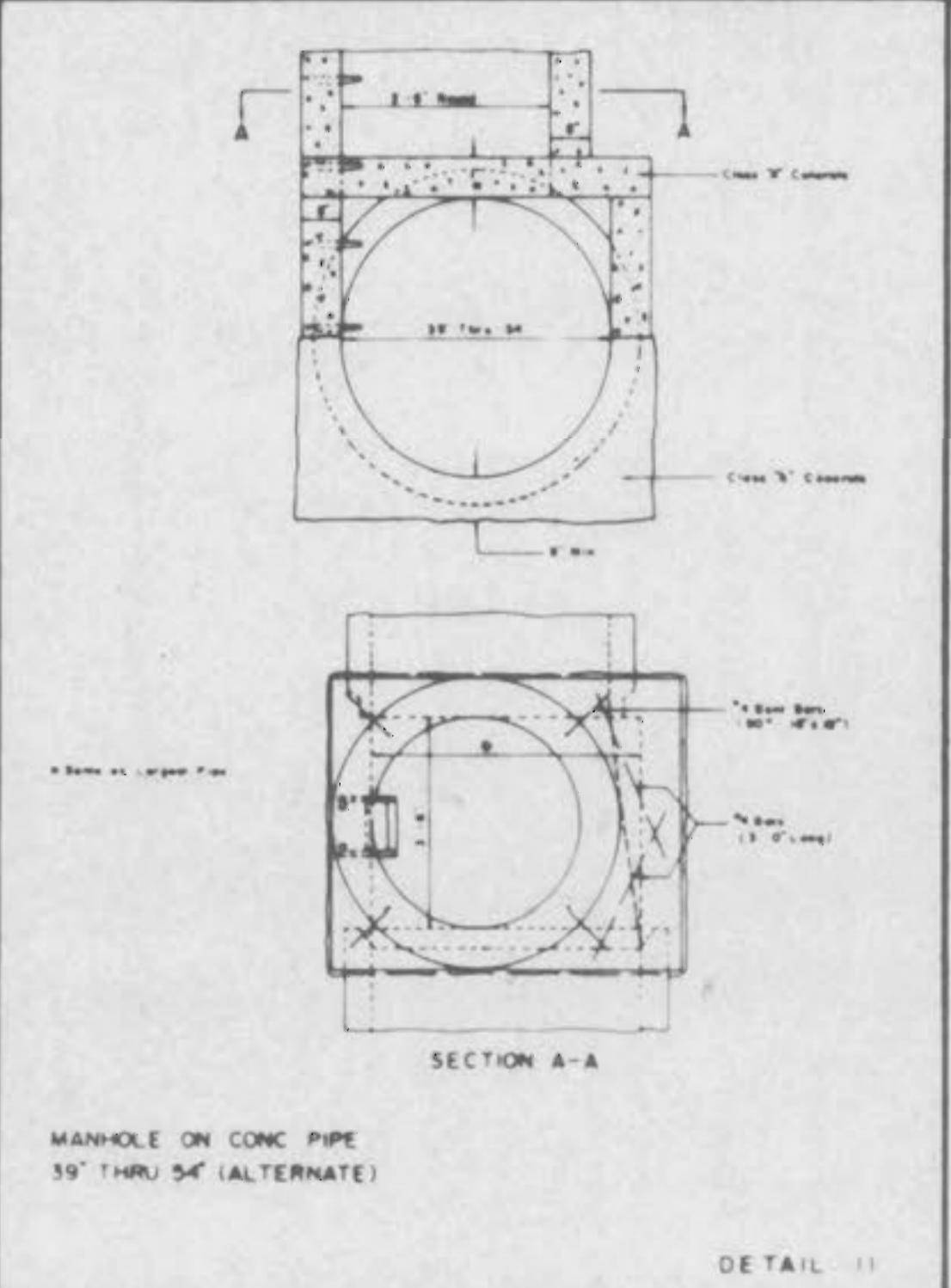
TYPICAL LINE MANHOLE ON PIPE SEWER 27" THRU 36" IN DIAMETER DETAIL 8



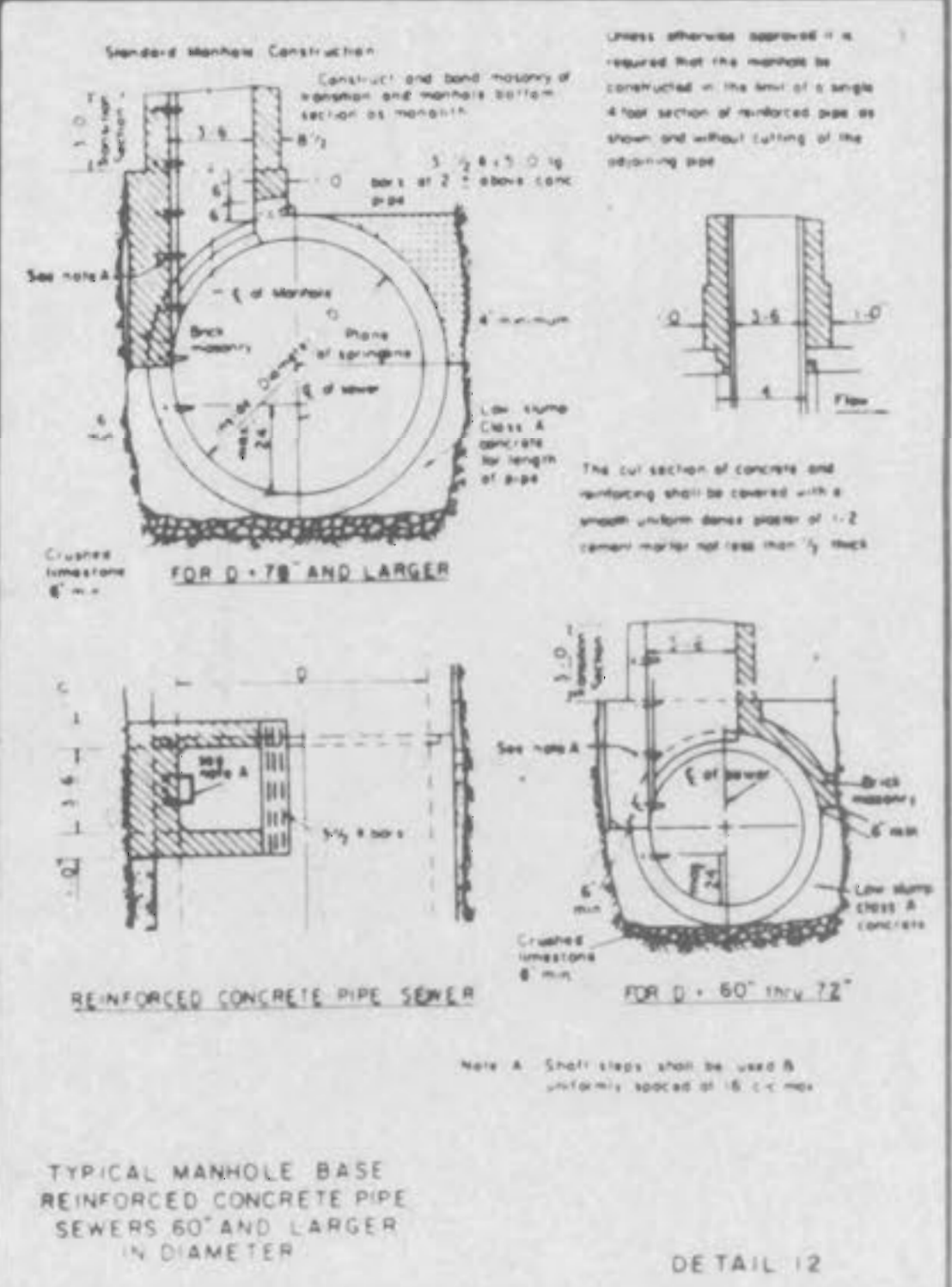
MANHOLE ON PIPE SEWER 27" THRU 36" (ALTERNATE) DETAIL 9



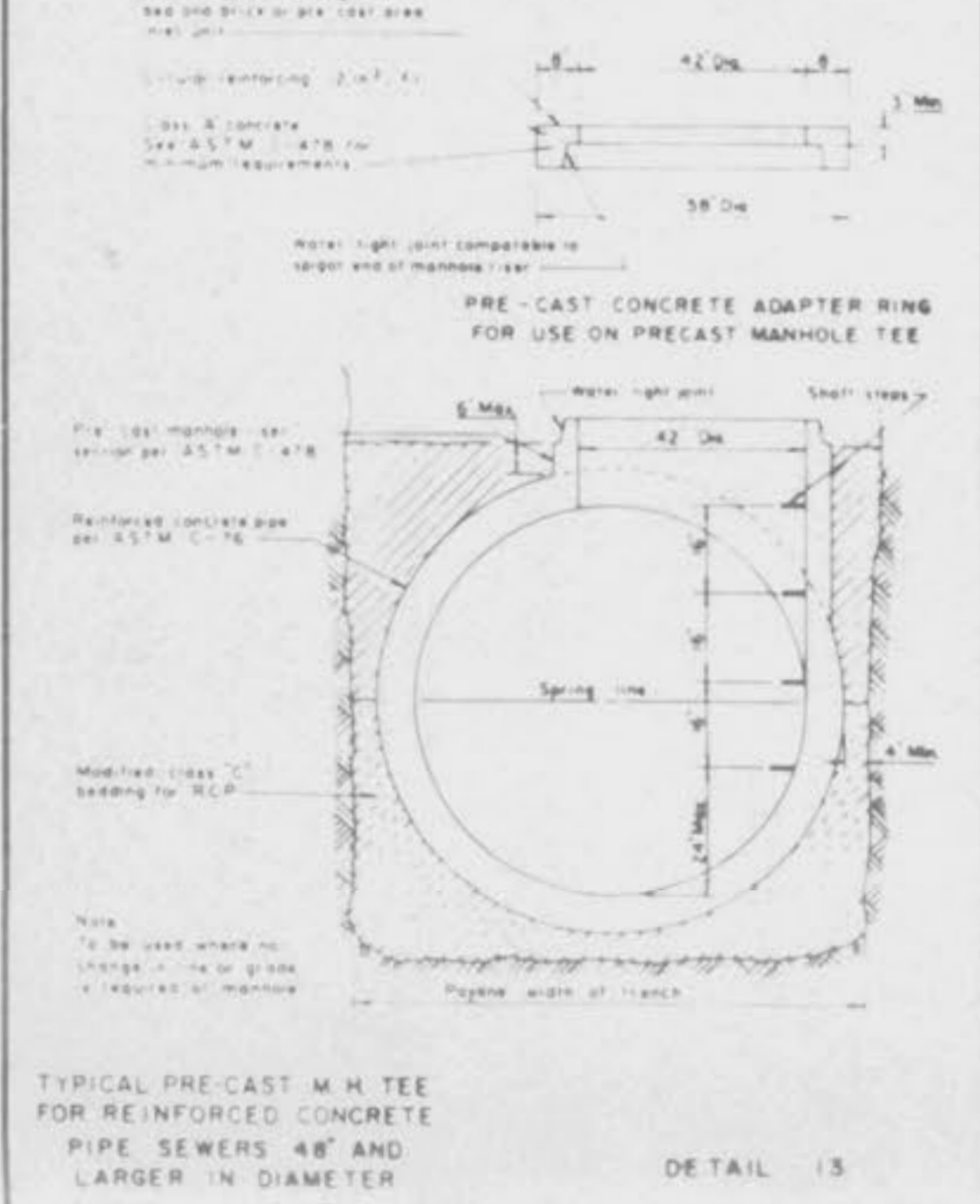
MANHOLE ON CONCRETE PIPE SEWERS 39" THRU 54" DIAMETER DETAIL 10



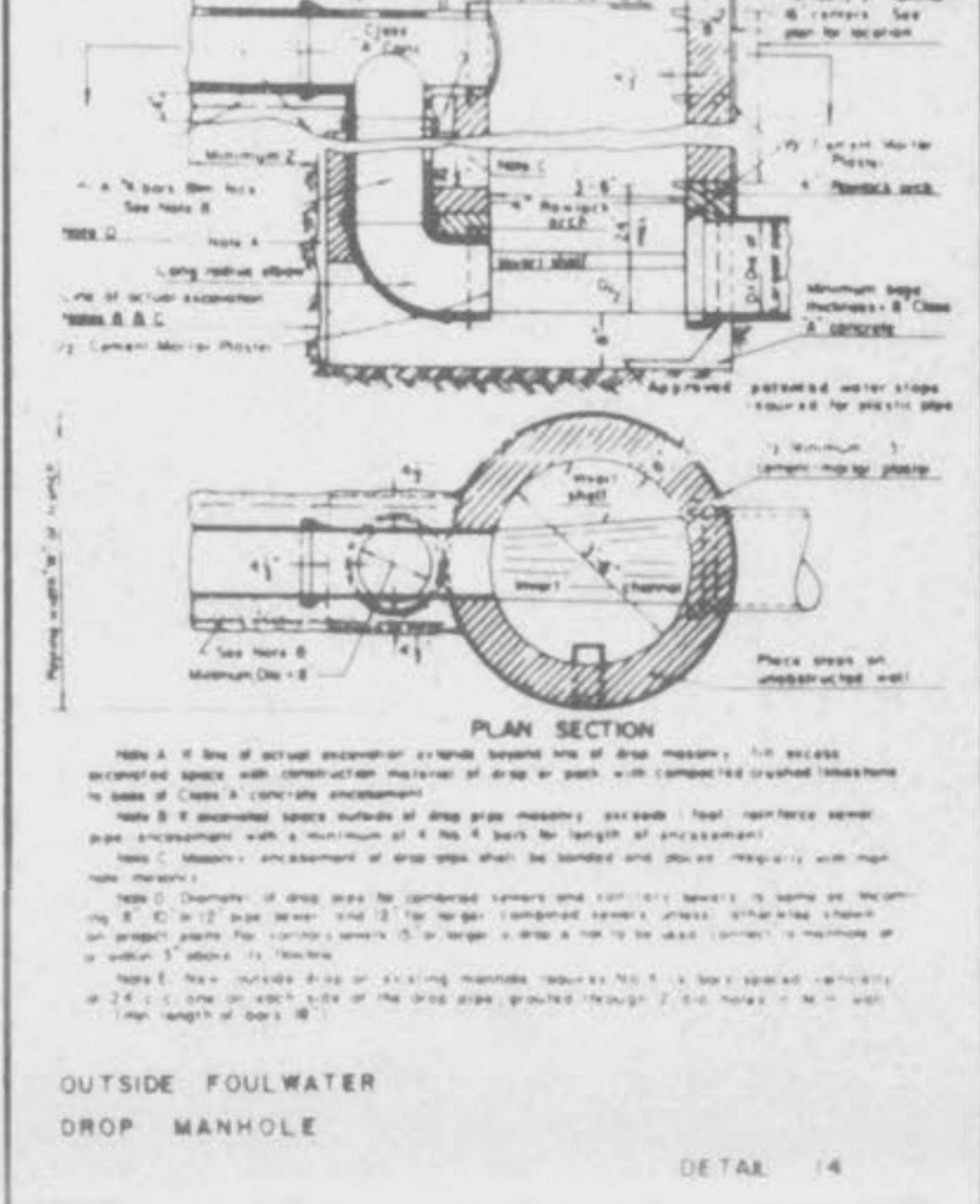
MANHOLE ON CONCRETE PIPE 39" THRU 54" (ALTERNATE) DETAIL 11



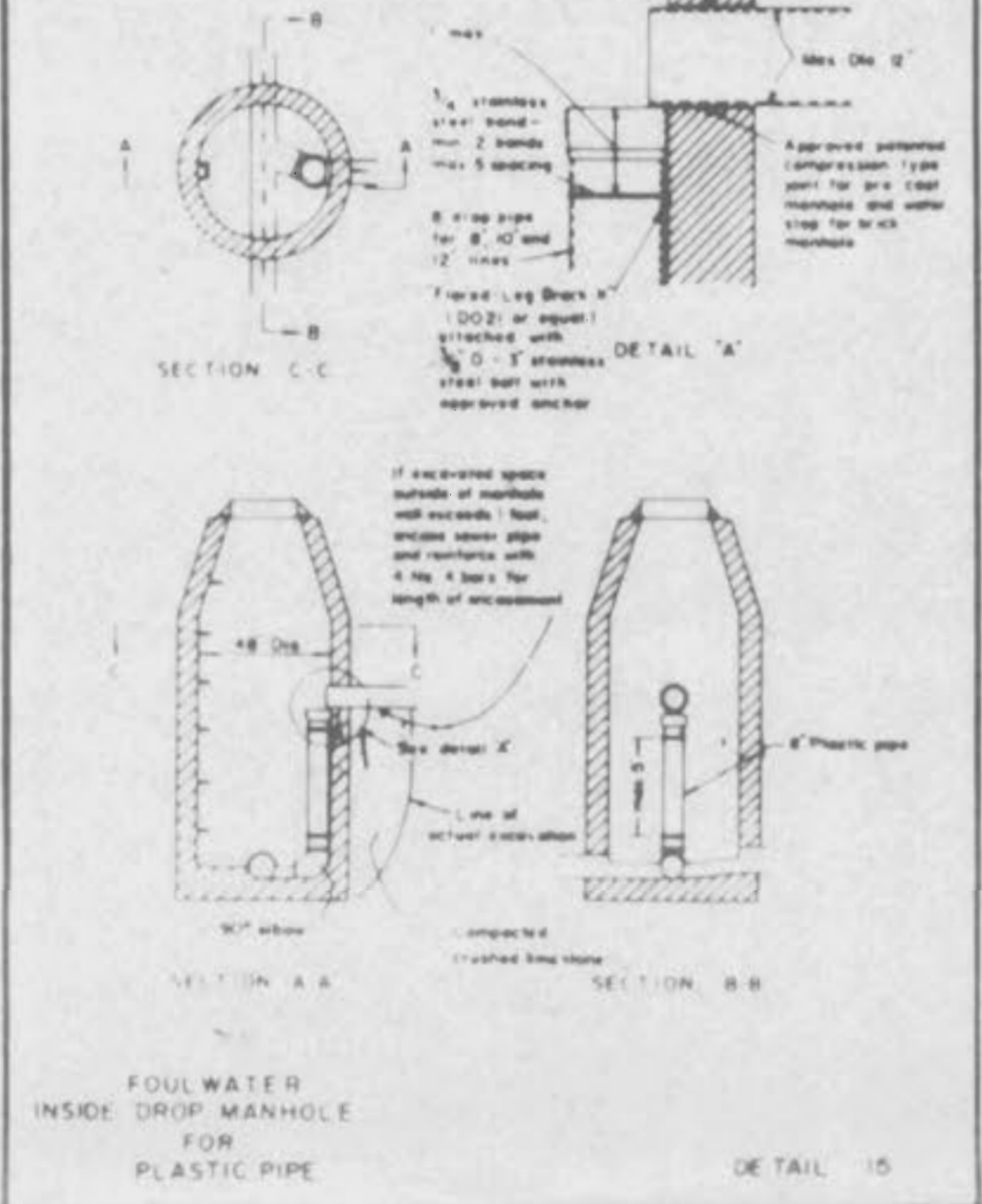
TYPICAL MANHOLE BASE REINFORCED CONCRETE PIPE SEWERS 60" AND LARGER IN DIAMETER DETAIL 12



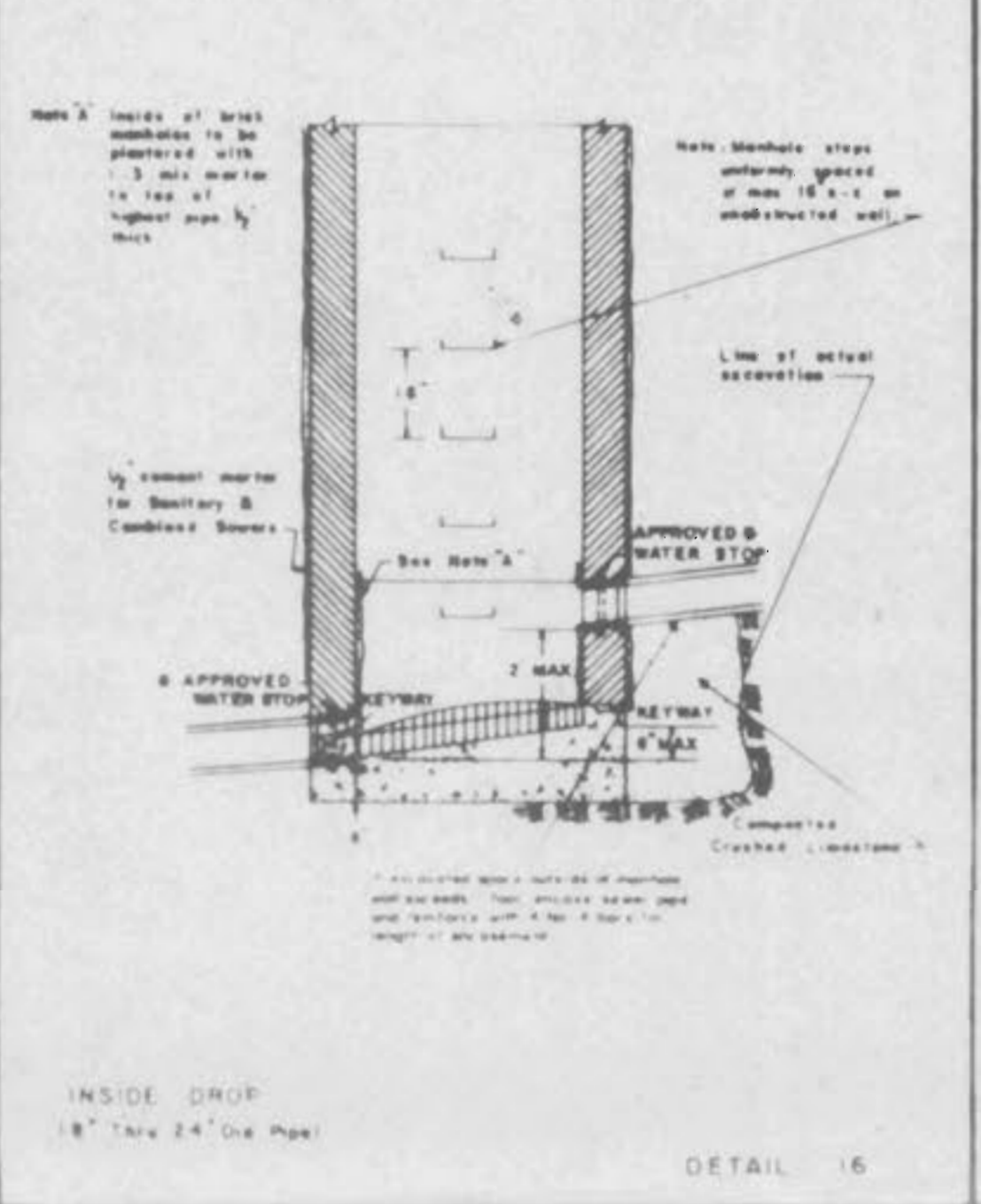
TYPICAL PRE-CAST M.H. TEE FOR REINFORCED CONCRETE PIPE SEWERS 48" AND LARGER IN DIAMETER DETAIL 13



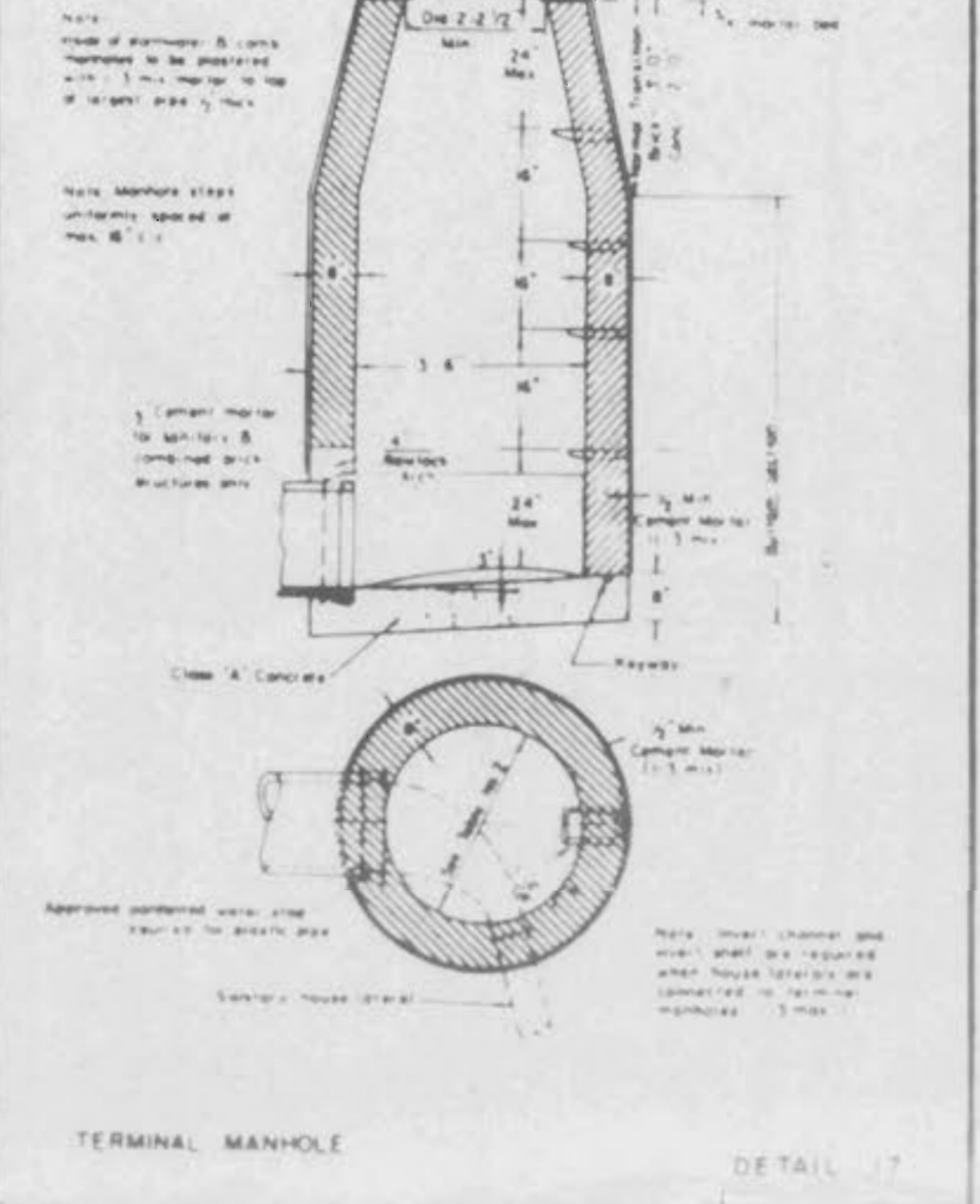
OUTSIDE FOULWATER DROP MANHOLE DETAIL 14



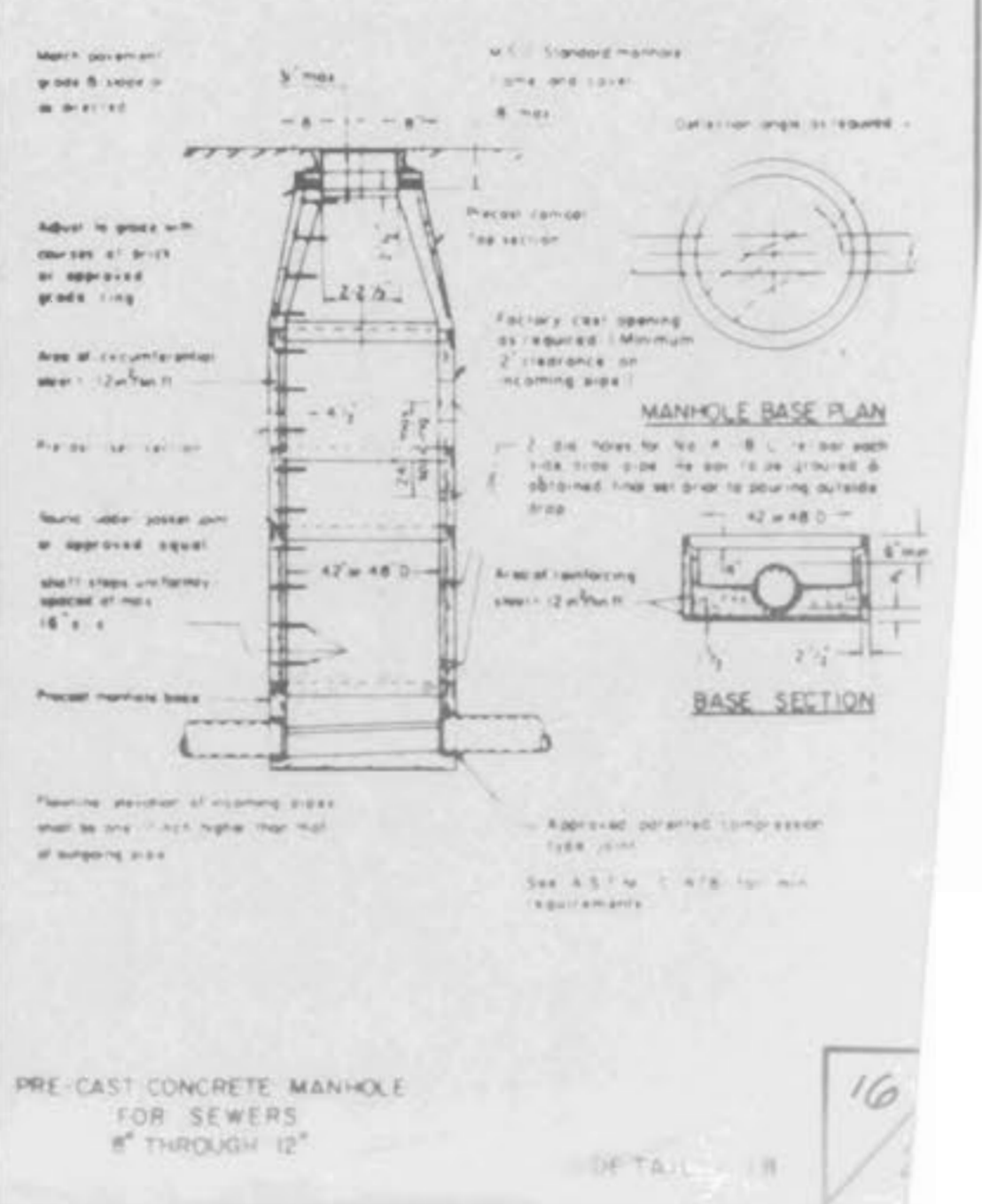
FOULWATER INSIDE DROP MANHOLE FOR PLASTIC PIPE DETAIL 15



INSIDE DROP 18" THRU 24" DIA PIPE DETAIL 16



TERMINAL MANHOLE DETAIL 17



PRE-CAST CONCRETE MANHOLE FOR SEWERS 6" THROUGH 12" DETAIL 18