

# LEGEND OF PIPELINE MATERIALS

- |  |  |
|--|--|
| (A) CORPORATION STOP (BRASS).  | (N) THREADED NIPPLE (BRASS).   |
| (B) THREADED/FLARED ELBOW (BRASS).   | (O) THREADED NIPPLE (PVC).   |
| (C) THREADED END ELBOW (SCHEDULE 40 STEEL OR MALLEABLE IRON), WITH 1/8" DRIFICE. | (P) HOSE BIB.  |
| (D) SOLDER END ELBOW.  | (Q) MALLEABLE IRON OR GALVANIZED STEEL SLEEVE.   |
| (E) SOFT COPPER TUBING (TYPE K).   | (R) GALVANIZED STEEL (SCHEDULE 40) OR MALLEABLE IRON PIPE.   |
| (F) RIGID COPPER PIPE (TYPE K).  | (S) CURB BOX.  |
| (G) CURB STOP OR BALL VALVE W/FLARED ENDS.                                       | (T) VALVE BOX.   |
| (H) FLARED/SOLDER TRANSITION COUPLING (BRASS).                                   | (U) CAST IRON PLUG OR CAP/2" I.P. TAP.   |
| (I) SOLDER END TEE.  | (V) MANHOLE FRAME AND COVER, MINIMUM 25" CLEAR OPENING WITH INNER LID FRAME AND COVER TO BE: NENAH 1758-E, EAST JORTON IRON WORKS 1041, WOODWARD FOUNDRIES 3087-WIES, OR ALLEGHENY FOUNDRY 109W-110-300 (WITH TWO HANDLES ON INNER LID ADDED TO STANDARD PATTERN) THE WORD WATER IS TO BE CAST IN LARGE LETTERS ON THE SURFACE OF THE COVER. |
| (J) SOLDER END BALL VALVE W/LEVER OPERATOR.                                      | (W) CAST ALUMINUM OR REINFORCED PLASTIC MANHOLE STEPS.   |
| (K) FLARED/THREADED END BALL VALVE OR CURB STOP (BRASS).                         | (X) PRECAST CONCRETE MANHOLE W/4 FT. INSIDE DIAMETER.  |
| (L) COMBINATION AIR/VACUUM VALVE.  |  |
| (M) SOLDER/THREADED UNION (BRASS).   |  |

STANDARD LAYING CONDITIONS	
LAYING CONDITION	DESCRIPTION
TYPE 1	FLAT-BOTTOM TRENCH + LOOSE BACKFILL.
TYPE 2	FLAT-BOTTOM TRENCH + BACKFILL LIGHTLY CONSOLIDATED TO CENTERLINE OF PIPE.
TYPE 3	PIPE BEDDED IN 4" MINIMUM LOOSE SOIL OR BACKFILL, LIGHTLY CONSOLIDATED TO TOP OF PIPE.
TYPE 4	PIPE BEDDED IN SAND, GRAVEL OR CRUSHED STONE TO DEPTH OF 1/8" PIPE DIAMETER, 4" MINIMUM BACKFILL COMPACTED TO TOP OF PIPE (APPROXIMATELY 80% STANDARD PROCTOR, AASHTO T-99).
TYPE 5	PIPE BEDDED TO ITS CENTERLINE IN COMPACTED GRANULAR MATERIAL, 4" MINIMUM UNDER PIPE, COMPACTED GRANULAR OR SELECT MATERIAL 11" TO TOP OF PIPE (APPROXIMATELY 90% STANDARD PROCTOR, AASHTO T-99).

NOTE: ALL REINFORCING STEEL TO BE #4 AT 6" TEE ALL 1/2" STEEL TO VERTICAL WALL STEEL

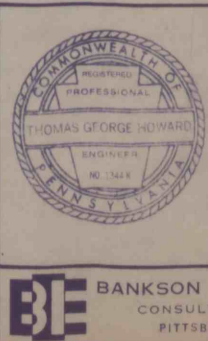
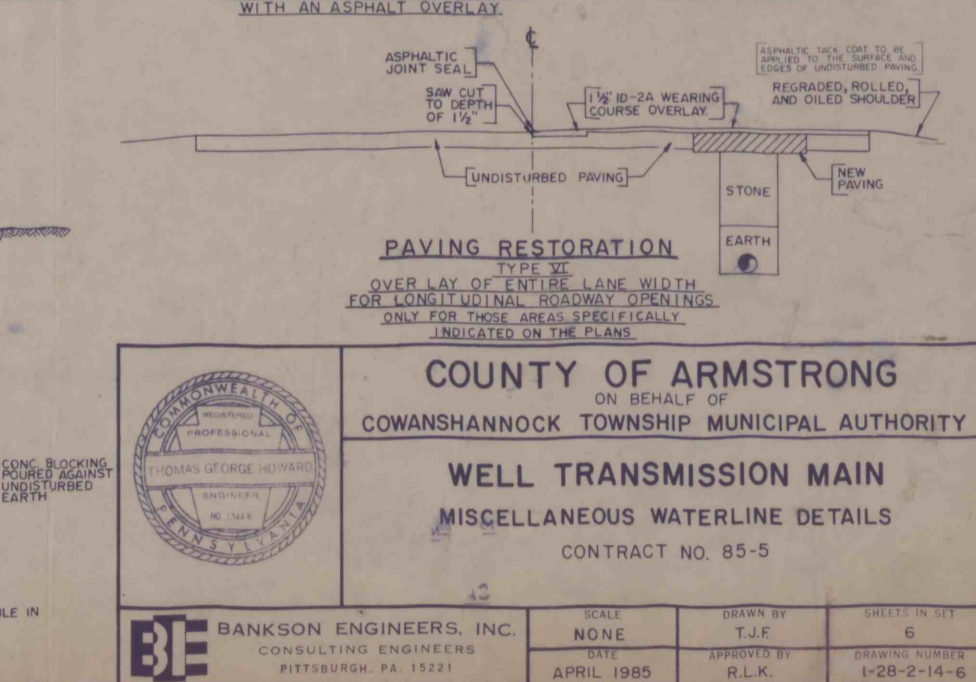
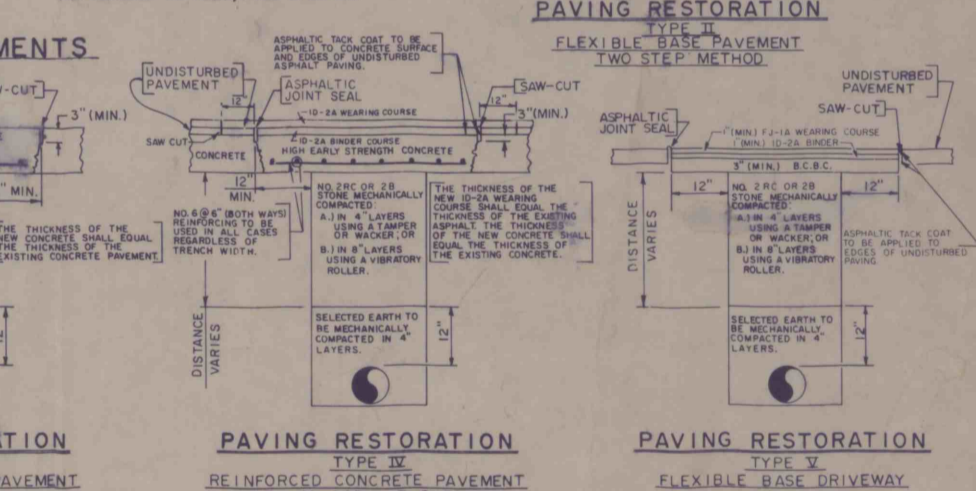
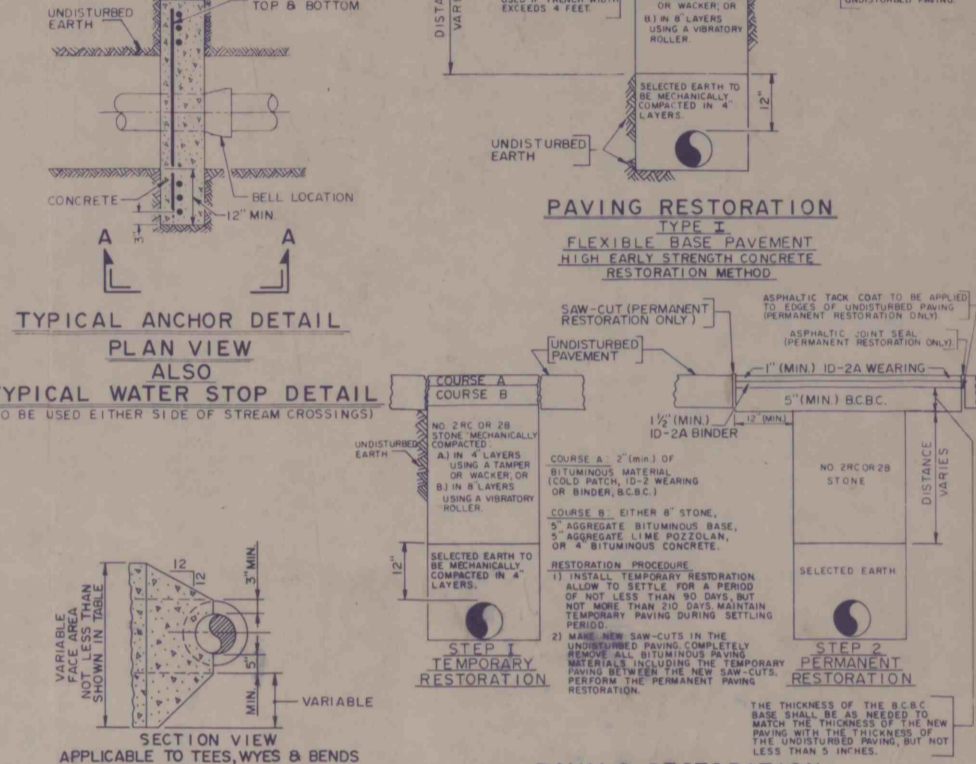
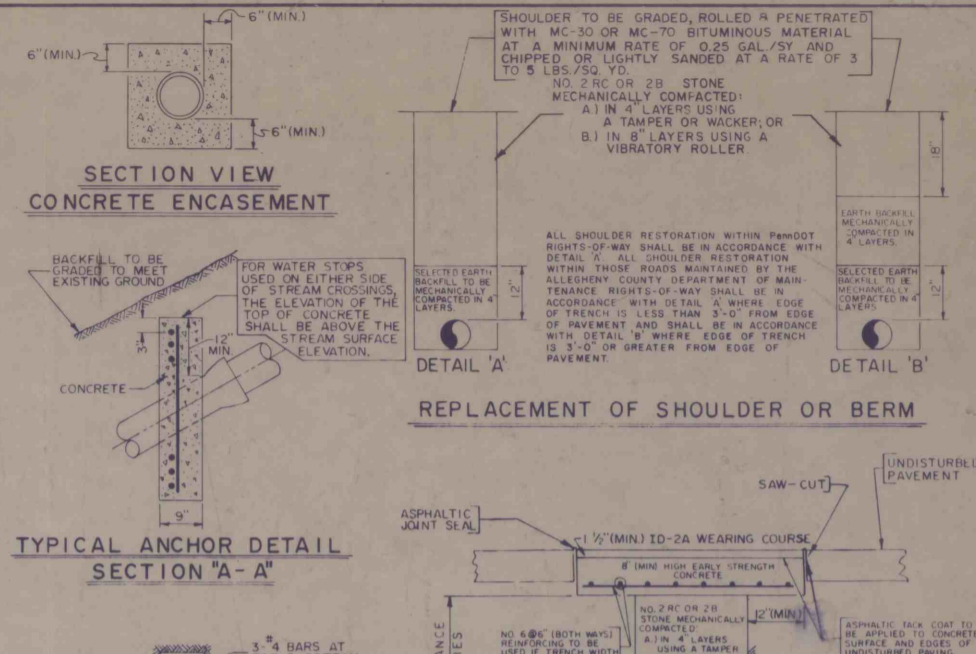
NOTE: UNLESS OTHERWISE INDICATED, PIPE FOR SIZES UP TO AND INCLUDING 24" SHALL HAVE TYPE 1 LAYING CONDITION. PIPE LARGER THAN 24" INCH SHALL HAVE TYPE 4 LAYING CONDITION.

NOTE: 1" FLAT BOTTOM IS DEFINED AS UNDISTURBED EARTH. 1" LAYER OF SOIL OR OTHER MATERIAL NOT NATIVE SOIL EXCAVATED FROM THE TRENCH, FREE OF ROCKS, FOREIGN MATERIAL AND PROTEIN EARTH.

NOTE: UNLESS OTHERWISE INDICATED, PIPE FOR SIZES UP TO AND INCLUDING 24" SHALL HAVE TYPE 1 LAYING CONDITION. PIPE LARGER THAN 24" INCH SHALL HAVE TYPE 4 LAYING CONDITION.

PIPE SIZE	BELL I.D. INCHES	APPROX. END THROST TONS	TEES & PLUGS	90° BENDS	45° BENDS	22 1/2° BENDS	11 1/4° BENDS
4"	5.64	2	1.5	2.1	1.1	1.0	1.0
6"	7.74	4	2.7	3.8	2.1	1.0	1.0
8"	9.98	6	4.5	6.3	3.5	2.0	1.0
10"	12.03	9	6.4	9.1	4.9	2.5	1.3
12"	14.13	12	9.0	12.7	6.9	3.5	2.0
14"	16.64	17	12.2	17.3	9.4	4.8	2.5
16"	18.74	21	16.0	23.0	12.0	6.3	3.1
18"	20.84	26	20.0	28.0	15.0	7.5	3.8
20"	22.94	31	24.0	34.0	18.0	9.5	4.6
24"	27.14	44	33.0	47.0	25.0	12.7	6.5
30"	32.34	62	46.2	65.4	35.4	18.0	9.1
36"	38.64	88	66.0	93.3	50.5	25.7	12.9

MINIMUM REQUIRED AREA OF THRUST BLOCK  
BASED ON 100 P.S.I. WORKING PRESSURE (100 P.S.I. TEST PRESSURE) AT RIGHT ANGLES TO THE LINE. CONTRACTOR RETAINS RESPONSIBILITY FOR ADEQUATE BLOCKING. THE REQUIRED AREA OF BLOCKING UNDER ACTUAL CONDITIONS MUST BE INCREASED PROPORTIONATELY FOR TEST PRESSURES OVER 100 P.S.I. AND EARTH BEARING CAPACITY LESS THAN 4000 POUNDS PER SQUARE FOOT.

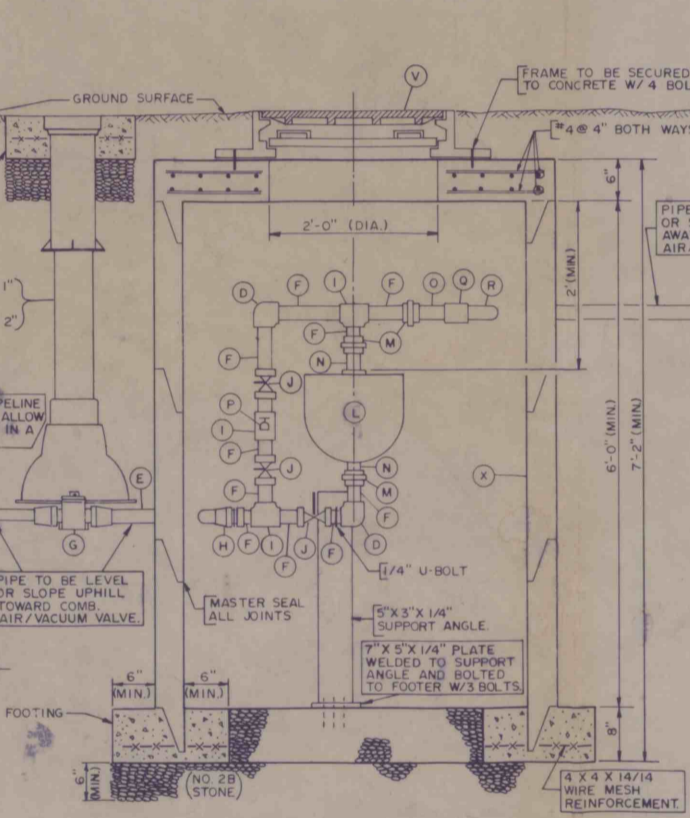


COUNTY OF ARMSTRONG  
ON BEHALF OF  
COWANSHANNOCK TOWNSHIP MUNICIPAL AUTHORITY  
WELL TRANSMISSION MAIN  
MISCELLANEOUS WATERLINE DETAILS  
CONTRACT NO. 85-5

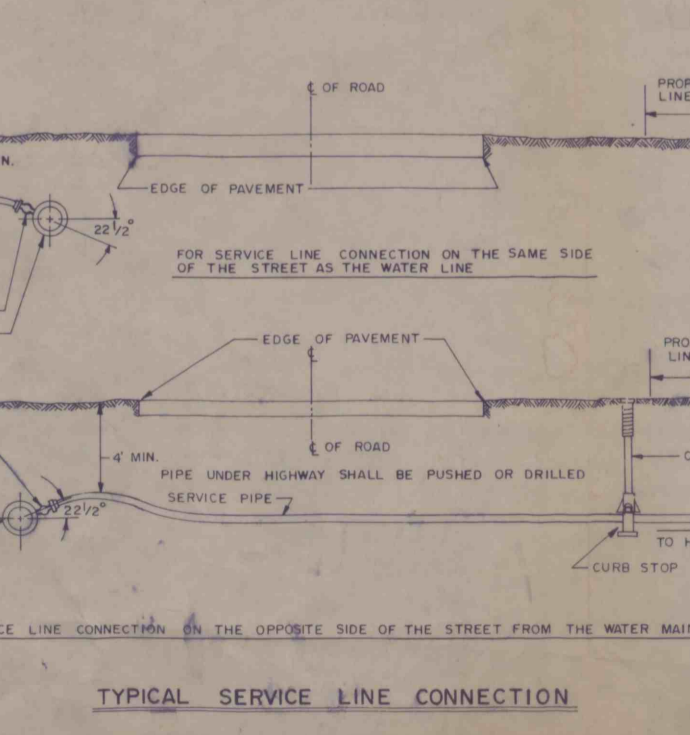
BANKSON ENGINEERS, INC.  
CONSULTING ENGINEERS  
PITTSBURGH, PA. 15221  
SCALE: NONE  
DATE: APRIL 1985  
DRAWN BY: T.J.F.  
APPROVED BY: R.L.K.  
SHEETS IN SET: 6  
DRAWING NUMBER: 1-28-214-6

## PLAN VIEW 1" AND 2" COMBINATION AIR/VACUUM RELIEF VALVE VAULT

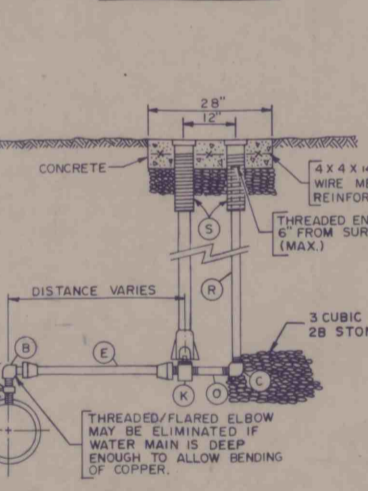
THE SMALL DIAMETER PIPING AND THE COMBINATION AIR/VACUUM VALVE SHALL ALL BE THE SAME SIZE AS INDICATED ON THE PLANS OR IN THE SPECIFICATIONS. WHERE NO SIZE IS SHOWN ON THE PLANS OR IN THE SPECIFICATIONS, ONE INCH DIAMETER SHALL BE USED.



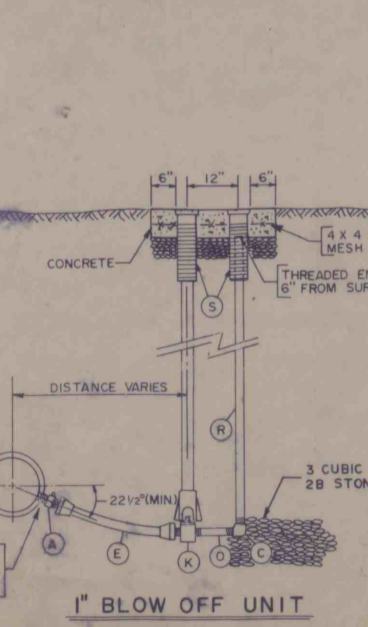
## SECTION A-A 1" AND 2" COMBINATION AIR/VACUUM RELIEF VALVE VAULT



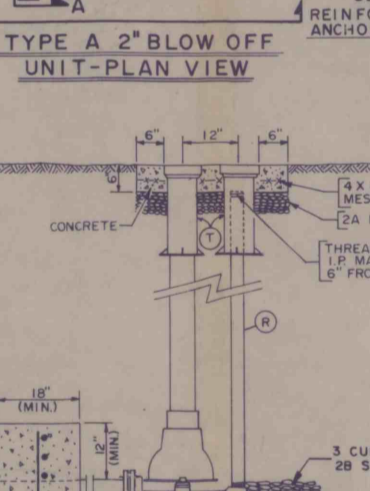
## TYPE A 2" BLOW OFF UNIT SECTION A-A



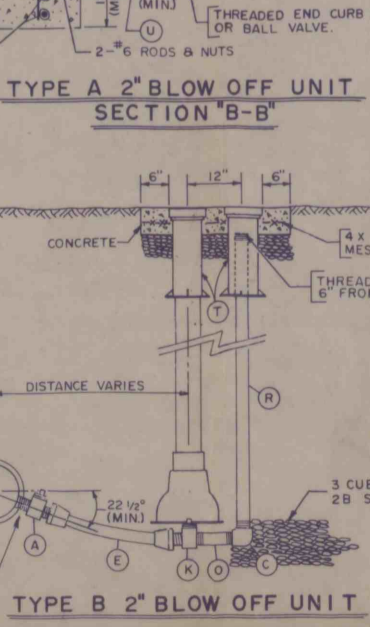
## 3/4" AND 1" MANUAL AIR RELEASE UNIT



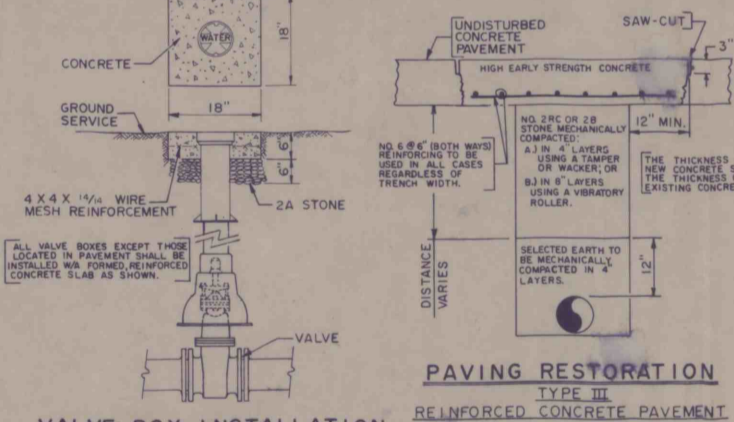
## TYPE A 2" BLOW OFF UNIT SECTION B-B



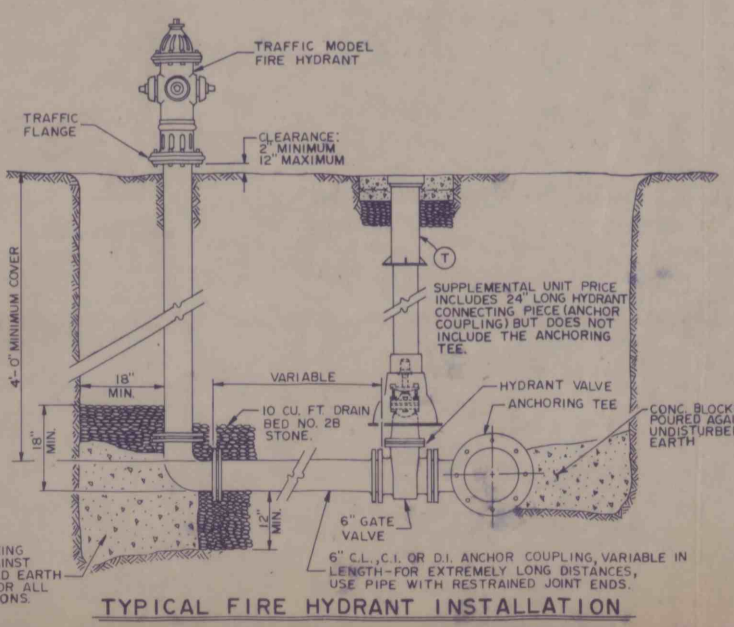
## TYPE B 2" BLOW OFF UNIT



## GUIDE TO THRUST BLOCKING REQUIREMENTS



## VALVE BOX INSTALLATION



## PAVING RESTORATION TYPE VI OVER LAY OF EXISTING LANE WIDTH FOR LONGITUDINAL ROADWAY OPENINGS ONLY FOR THOSE AREAS SPECIFICALLY INDICATED ON THE PLANS.

