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MANAGEMENT PROJECT

2

STANDARD DETAIL DRAWINGS - WATERWORKS

A JOB-AID

BY

J. CLEVELAND ROYER
ACTING ENGINEER

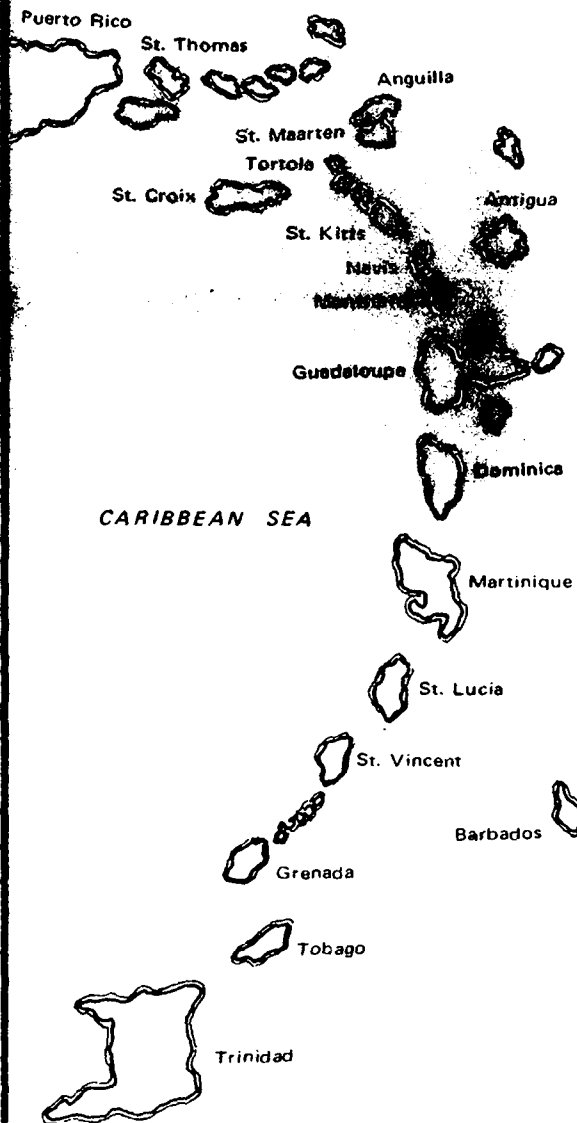
DOMINICA CENTRAL WATER AUTHORITY

A JOINT-VENTURE PROJECT OF THE GOVERNMENTS OF:

ANGUILLA, ANTIGUA, BRITISH VIRGIN ISLANDS, BARBADOS,
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PREFACE

IN AN EFFORT TO STANDARDISE CONSTRUCTION PRACTICES OF EASTERN CARIBBEAN WATER UTILITIES THUS AVOIDING TIME-CONSUMING AD HOC DECISIONS AND INDIVIDUAL METHODOLOGY, A SET OF TYPICAL DETAILED DRAWINGS WERE PREPARED.

THE STANDARD CONSTRUCTION DETAILS PRESENTED IN THIS BOOKLET, PREPARED AND COMPILED BY J.C. ROYER, CIVIL ENGINEERING TECHNOLOGIST, ARE INTENDED TO PROVIDE THE ENGINEERS, SUPERVISORS AND CONSTRUCTION FOREMEN IN WATER SYSTEM CONSTRUCTION WITH A COMPREHENSIVE SET OF GUIDELINE DRAWINGS DIRECTLY APPLICABLE TO WATERWORKS CONSTRUCTION.

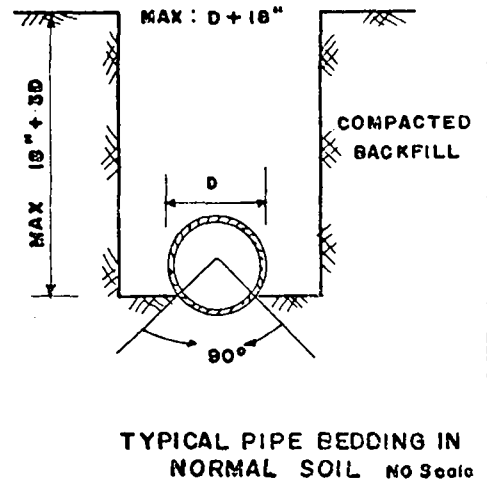
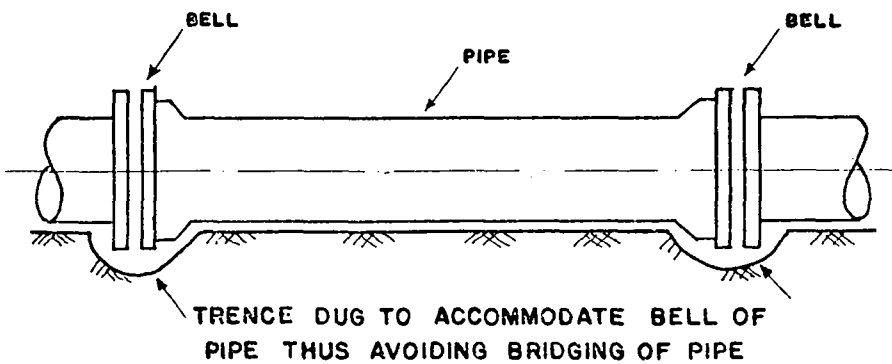
THESE DRAWINGS ARE BY NO MEANS THE BE ALL AND END ALL BUT SIMPLY A GUIDE TO CONSTRUCTION PRACTICES AND METHODOLOGY IN AN EFFORT TO STANDARDISE CONSTRUCTION PRACTICES THROUGHOUT THE EASTERN CARIBBEAN WATER UTILITIES.

STANDARD DETAIL DRAWINGS - WATERWORKS

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NOTE :

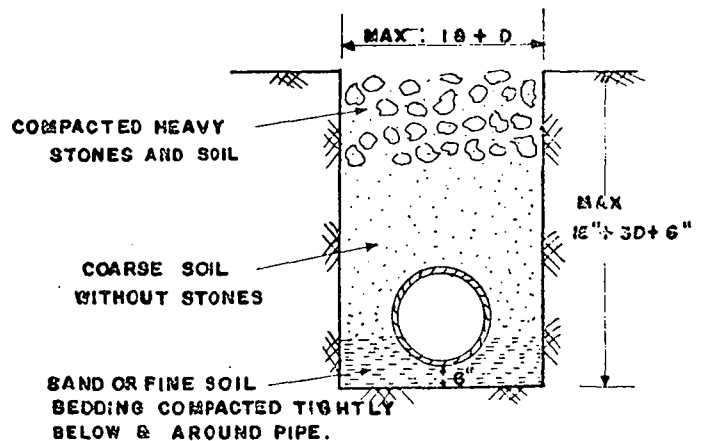
BACK FILL MUST BE COMPACTED IN STAGES - LIFTS OF 6" - 12" AT A TIME .

BEGIN BY COMPACTING FINE MATERIAL UNDER AND AROUND THE PIPE USING A TAMPING POLE OR RAMMER.

COMPACT MATERIAL FOR THE NEXT 12" INCHES ABOVE THE PIPE WITHOUT STONES OR HARD ROCKS.

COMPLETE FILLING THE TRENCH WITH ANY MATERIAL AVAILABLE AND COMPACT

ENSURE THAT NO STONES OR HARD ROCKS ARE IN CONTACT WITH THE PIPE OR WITHIN 12" FROM IT.

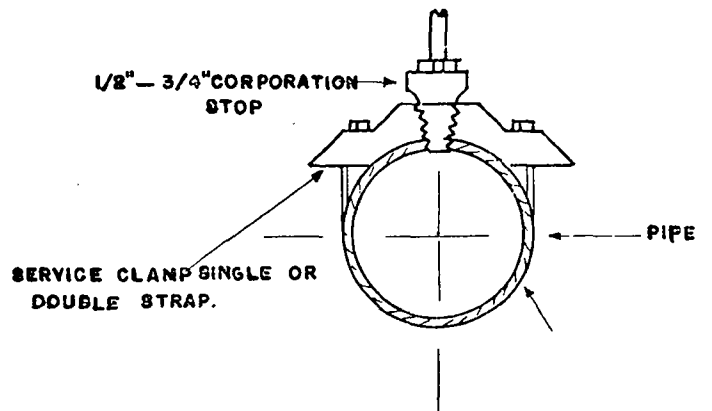
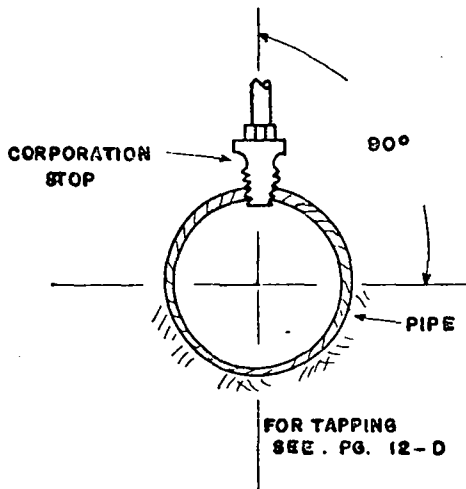
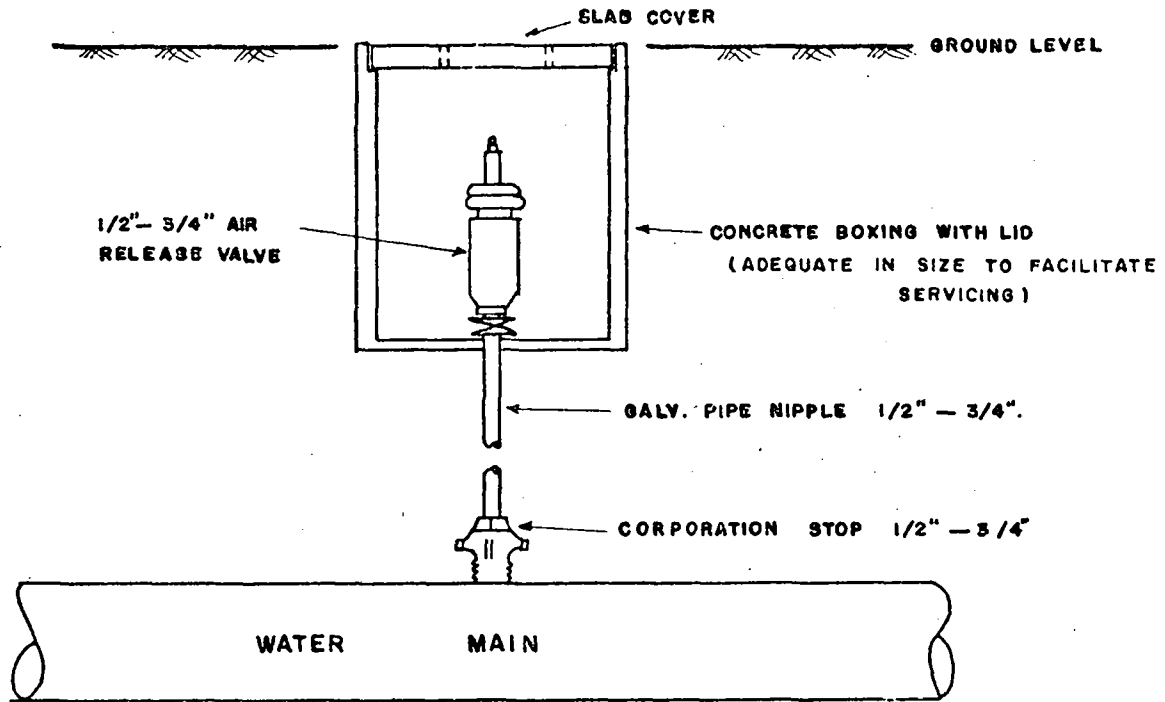


STANDARD DETAIL DRAWINGS WATERWORKS .

TITLE : TYPICAL PIPE BEDDING .

DATE : 21 JULY 78 : SCALE : N° Scale :

PAGE N° S - 1



NOTE : TAPPING FOR INSTALLATION OF AIR RELEASE VALVE MUST BE DONE NORMAL TO PIPE SURFACE AND DIRECTLY ON TOP OF PIPE . THIS ALLOWS MAXIMUM ESCAPE OF AIR .

AIR VALVE SHOULD ALWAYS BE LOCATED AT A HIGH POINT ON THE LINE ie WHERE THE PIPE GRADE RAISES SIGNIFICANTLY ABOVE THE NATURAL LEVEL OF THE ADJACENT LINE .

STANDARD DETAIL DRAWINGS WATERWORKS.

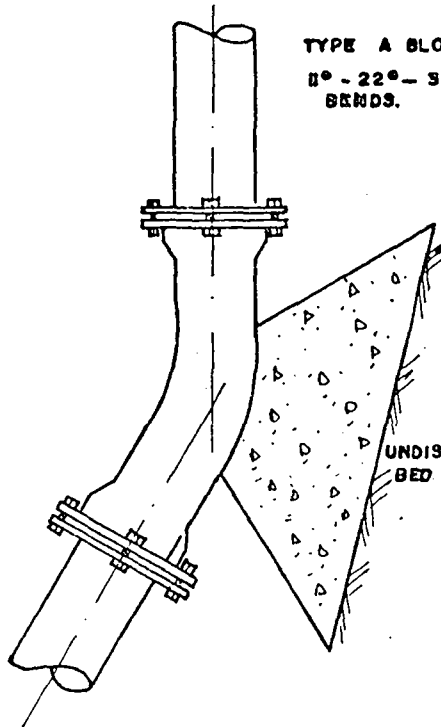
TITLE : INSTALLATION OF AIR RELEASE VALVES

DATE : 24 JULY 78 : SCALE: No. Scale : PAGE N° : S- 2

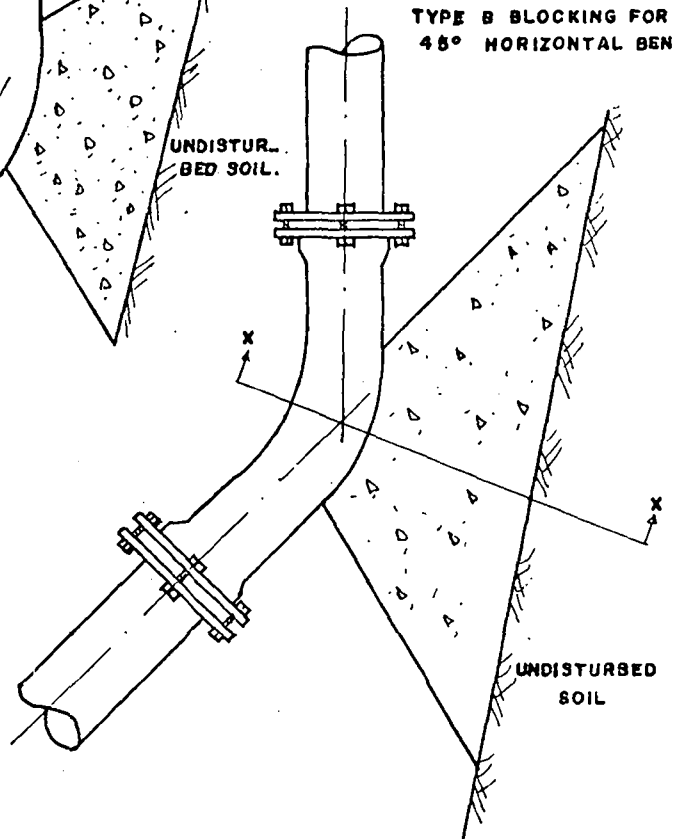
TYPE A BLOCKING FOR 11 1/4 - 22 1/2 - 30° HORIZONTAL BENDS

PIPE DIAM INCHES	TEST PRESSURE P.S.I	HORIZONTAL BENDS DEGREES	Nº OF FT 3 CONG BLOCKING	MIN. DEPTH FROM CENTER OF BEND D.		
4"	300	11 1/4	4	9"		
		22 1/2	7	9"		
		30	12	9"		
6"	300	11 1/4	5	12"		
		22 1/2	11	12"		
		30	15	12"		
8"	300	11 1/4	12	15"		
		22 1/2	17	18"		
		30	25	15"		
10"	250	11 1/4	15	20"		
		22 1/2	21	20"		
		30	28	20"		
12"	250	11 1/4	17	24"		
		22 1/2	24	24"		
		30	31	24"		

TYPE A BLOCKING FOR 11° - 22° - 30° HORIZONTAL BENDS.



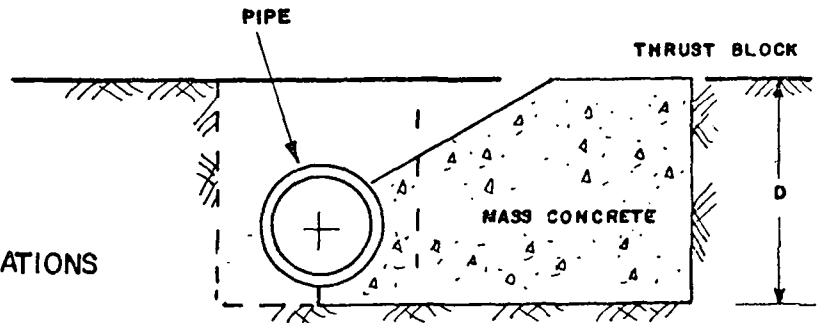
TYPE B BLOCKING FOR 45° HORIZONTAL BENDS



TYPE B BLOCKING FOR 45° HORIZONTAL BENDS

PIPE DIAM INCHES	TEST PRESSURE PSI	HORIZONTAL BENDS DEGREES	Nº OF FT 3 CONG BLOCKING	MIN. DEPTH FROM CENTER OF BEND		
4	300	45°	14	9"		
6	300	45°	17	12"		
8	300	45°	27	15"		
10	250	45°	30	30"		
12	250	45°	33	24"		

NOTE : SHAPE OF BLOCKING USED IS ESSENTIAL FOR EASY ACCESS TO BOLTS DURING REPAIR OPERATIONS



SECTION X . X

STANDARD DETAIL DRAWINGS WATERWORKS

TITLE: BLOCKING FOR HORIZONTAL BENDS

DATE : 20 JULY 78

SCALE : NO Scale :

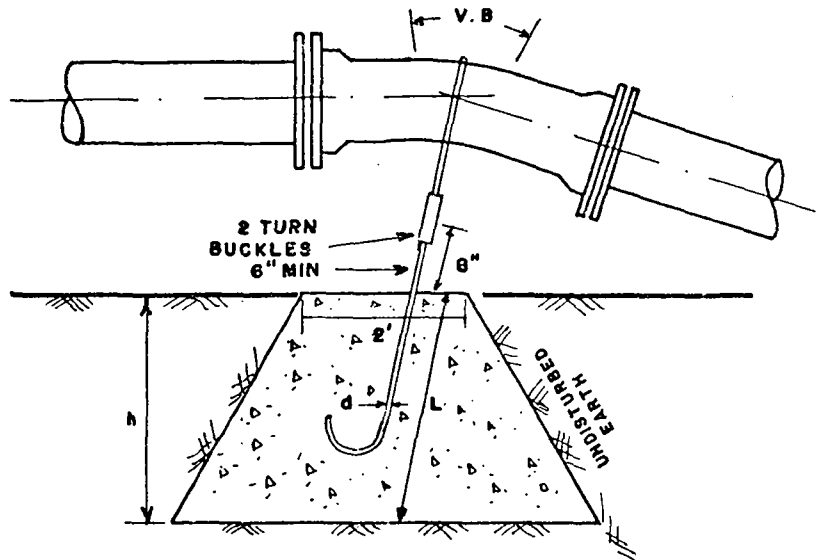
PAGE Nº S-3

TYPE "I" BLOCKING FOR 11° - 22 1/2° - 30° V.B						
PIPE SIZE NOM. DIA. INCHES	TEST PRESSURE P.S.I	VERTICAL BENDS DEGREES	Nº OF FT.º CONC. BLOCKING	HEIGHT OF TRAPIZOID FT.	DIA. OF SHACKLE RODS (2) INCHES	DEPTH OF ROD IN CONCRETE FEET
		V.B		h	d	L
4"	300	11 1/4	8	BY VARYING THE BASE LENGTH THE h VARIES	5/8"	1.5
		22 1/2	11			2.0
		30	17			
6	300	11 1/4	11		5/8"	2.0
		22 1/2	25			
		30	41			
8	300	11 1/4	16		5/8"	2.0
		22 1/2	47			2.0
		30	70			2.5
12	250	11 1/4	32		5/8"	2.0
		22 1/2	88			
		30	132			3.0

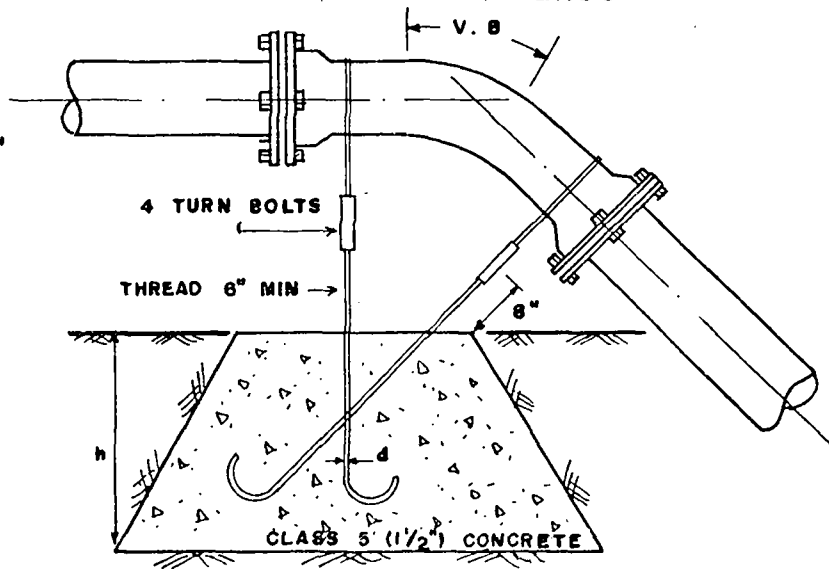
NOTE : FOR 4"-6" PIPES TOP OF CONCRETE 2' MAX BASE 4'
FOR 8"-12" TOP 3' MAX BASE 5'

TYPE I BLOCKING FOR 45° VERTICAL BEND						
PIPE SIZE DIA. INCHES	TEST PRESSURE P.S.I	V.B	Nº OF FT.º CONC. BLOCKING	HEIGHT OF TRAPIZOID FT.	DIA. OF SHACKLE RODS (4) INCHES	DEPTH OF ROD IN CONCRETE FEET
		V.B		h	d	L
4	300	45	30	THIS VARIES AS BASE WIDTH VARIES	5/8"	2.0
6			68		5/8"	
8			123		5/8"	
12	250		232		5/8"	2.5
16	225		478		1 1/2"	4.0
20	200				1 1/4"	

TYPE "I" BLOCKING
FOR 11° - 22 1/2° - 30° VERTICAL BENDS



TYPE 2 BLOCKING FOR 45° VERTICAL BENDS



NOTE : SHAPE OF BLOCKING USED IS ESSENTIAL FOR
EASY ACCESS TO BOLTS DURING REPAIR
OPERATIONS

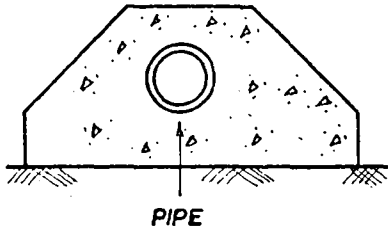
STANDARD DETAIL DRAWINGS WATERWORKS

TITLE : BLOCKING FOR CONVEX VERTICAL BENDS

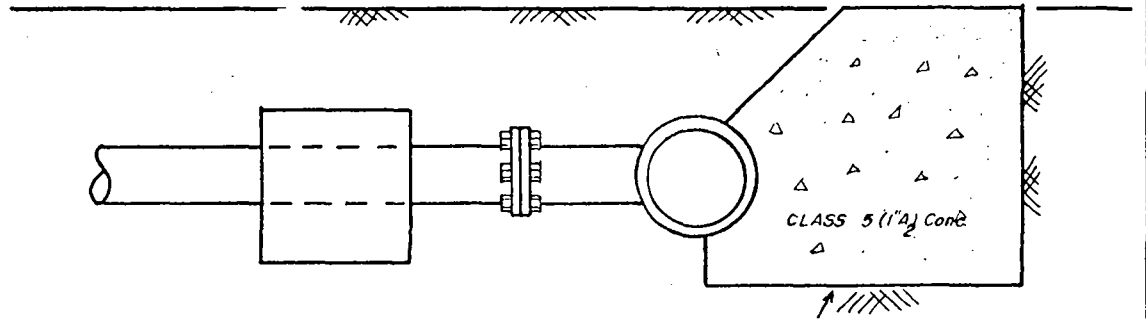
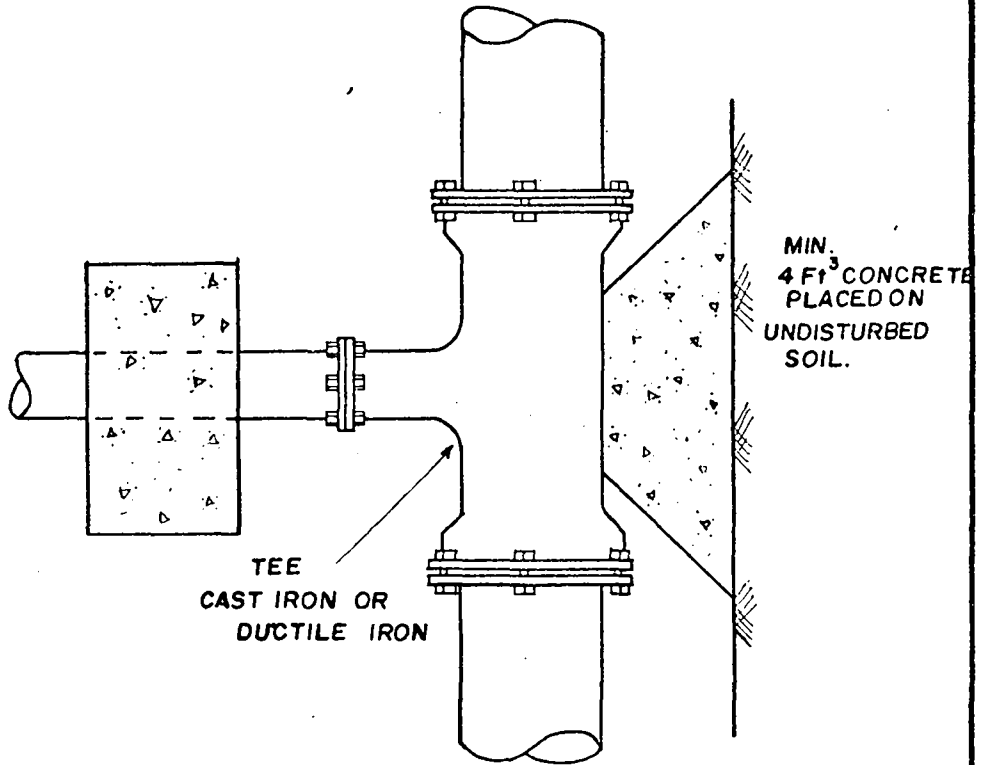
DATE : 14 JULY 78

SCALE : No Scale

PAGE : Nº S-4



END VIEW OF ANCHOR OR
GRADIENT BLOCK.



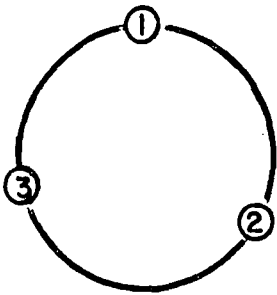
BLOCKING PROVIDES STABILITY
TO TEE AND SUPPORT AS
WELL TO WITHSTAND
THRUST DURING CHANGE IN
DIRECTION OF WATER

STANDARD DETAIL DRAWINGS WATERWORKS

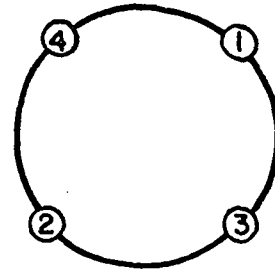
TITLE : BLOCKING FOR REDUCING TEES

DATE 20th JULY 78 : SCALE : No. Scale :

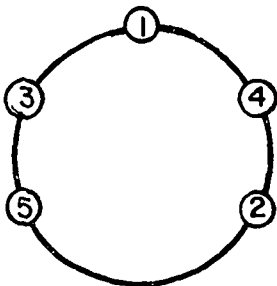
PAGE No. S-5



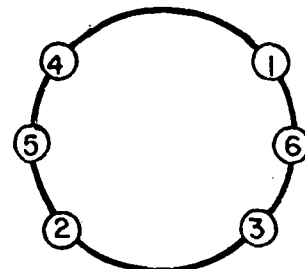
3 BOLTS



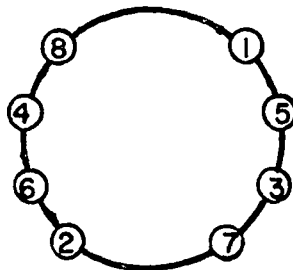
4 BOLTS



5 BOLTS



6 BOLTS



8 BOLTS

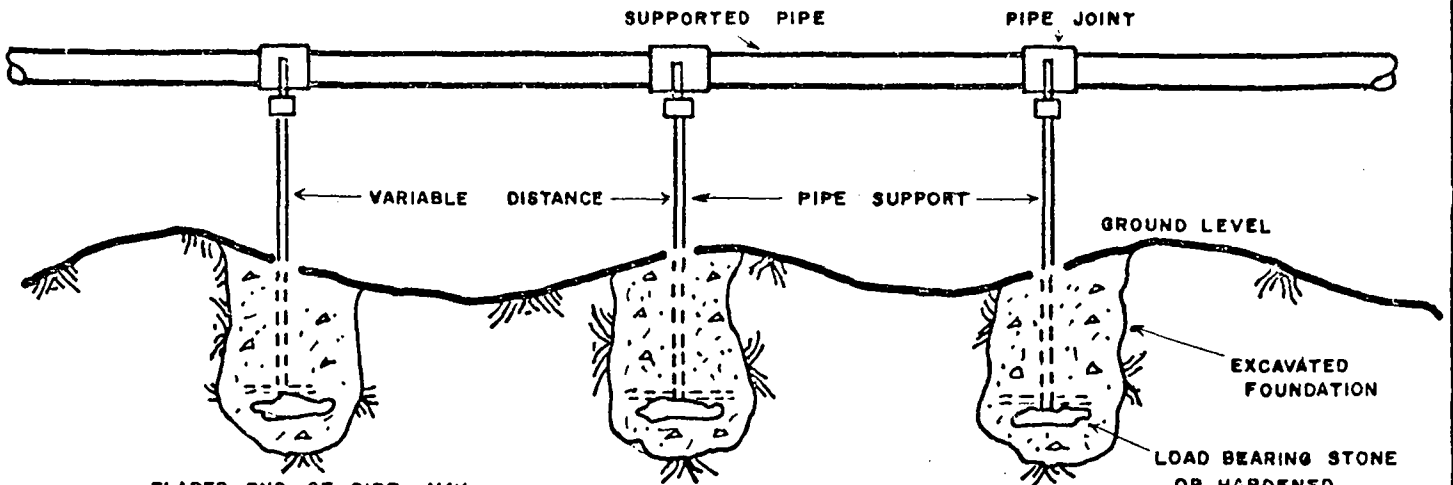
IT IS IMPERATIVE THAT SUCH SEQUENCES ARE ADHERED TO SO AS TO MINIMIZE, IF NOT STOP, CRACKING OR BREAKING OF GLANDS BY UNEVEN PRESSURES APPLIED TO THE GASKETS AND GLANDS. IT IS A LONGER PROCESS THOUGH FOLLOWING THE CORRECT SEQUENCE BUT THAT IS UNDERSTANDABLE.

STANDARD DETAIL DRAWINGS WATERWORKS

TITLE : BOLT TIGHTENING SEQUENCE

DATE : 27 JULY 78 SCALE No Scale

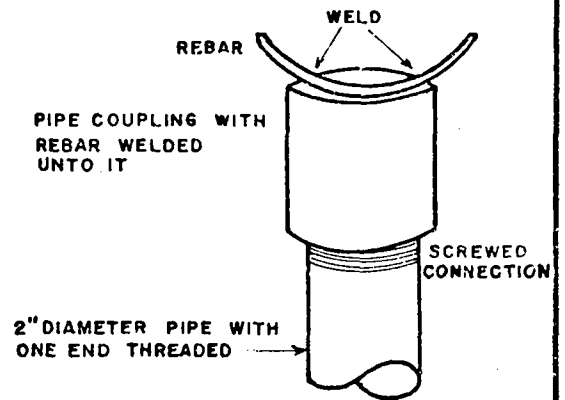
PAGE N° S—6



FLARED END OF PIPE - MAY USE HOLE DRILLED IN PIPE FITTED WITH REBAR AS SHOWN IN DETAIL.

NOTE: MINIMUM DEPTH OF FOUNDATION DEPENDS ON HEIGHT OF SUPPORT AND DIAMETER OF SUPPORTED PIPE. PIPE SUPPORTS TO BE USED ONLY FOR PIPES UP TO A MAXIMUM DIAMETER OF 6" AND MAXIMUM HEIGHT OF SUPPORT 6'. PIPE DIAMETER GREATER THAN 6" USE CONCRETE SUPPORT.

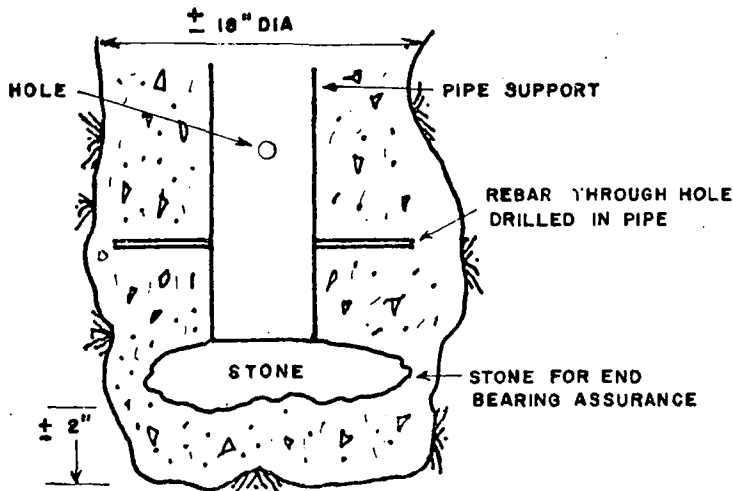
SEE DETAIL PAGE No S-8



FLARED END FOR LOAD BEARING, AND FOR BOND WITH CONCRETE.

HOLES MAY ALSO BE USED SEE DETAIL B

BASE DETAIL A



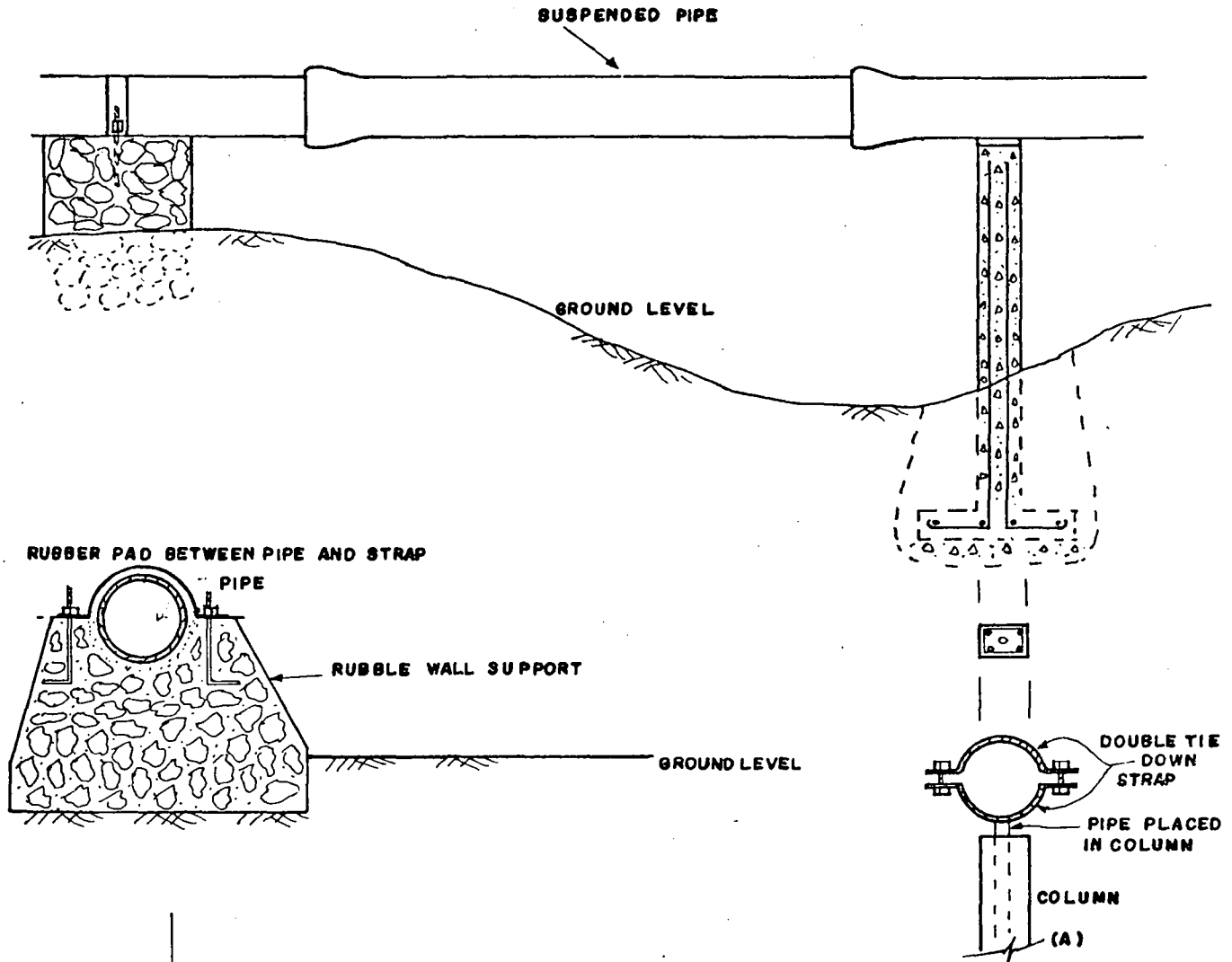
BASE DETAIL B

STANDARD DETAIL DRAWING WATERWORKS

TITLE : PIPE SUPPORT

DATE : 4 JULY 78 SCALE : No Scale

PAGE No S-7



NOTE :

THIS METHOD (A) OF POURING CONCRETE COLUMNS WITH A PIECE OF 2" GALV. PIPE THREADED ONE END STICKING OUT OF THE TOP OF THE COLUMN ALLOWS THE CLAMP ASSEMBLY TO BE SCREWED UNTO THE COLUMN AFTER THE CONCRETE HAS SET.

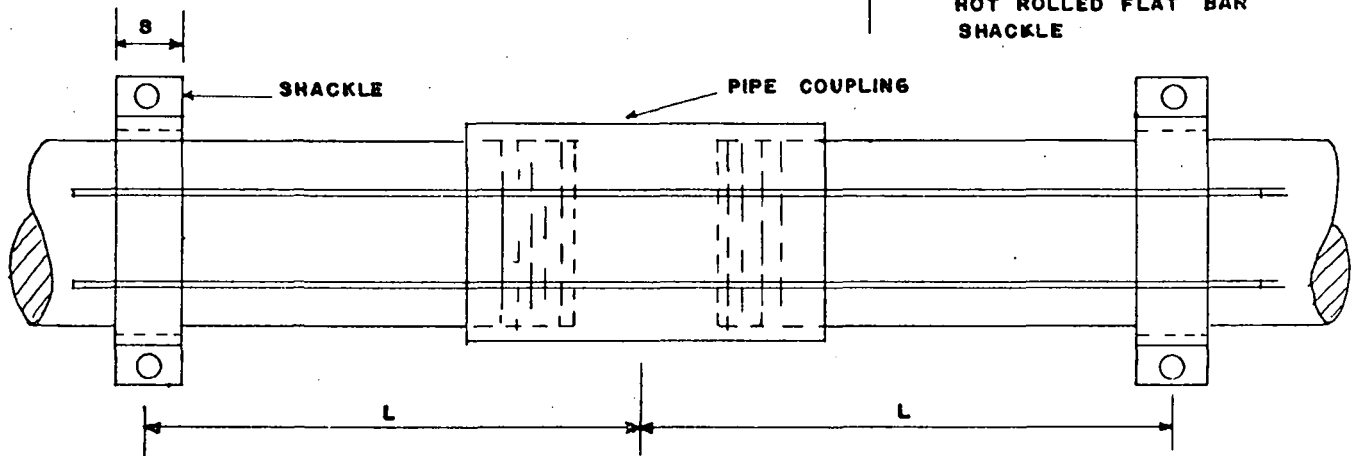
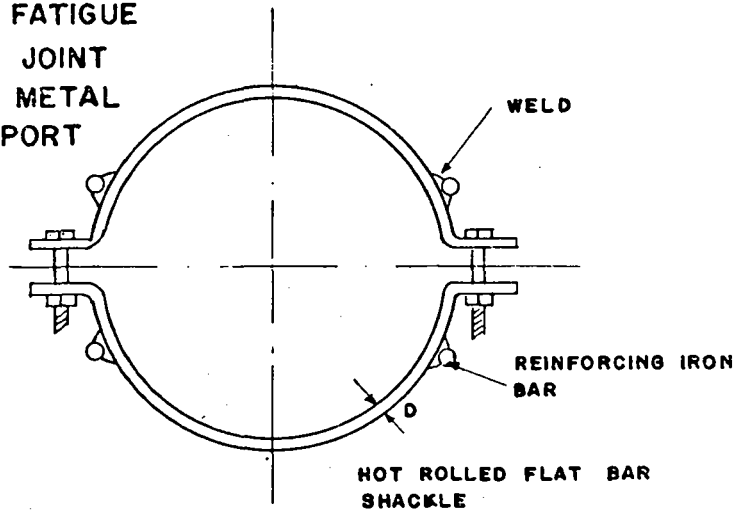
STANDARD DETAIL DRAWINGS WATERWORKS :

TITLE : PIPE SUPPORTS :

DATE : 4 JULY 78 : SCALE : NO Scale : PAGE N° S-8

NOTE .

TO REDUCE STRAIN CAUSED BY FATIGUE OR CREEP, IMPOSED ON A PIPE JOINT THIS SYSTEM OF CLAMPS AND METAL REINFORCING ALLOWS RIGID SUPPORT TO A JOINT BY SIMPLY BOLTING, THIS PIPE SUPPORT IS VERY EFFECTIVE WHERE PIPE TO GROUND SUPPORTS ARE NOT POSSIBLE e.g. IN RIVER CROSSINGS

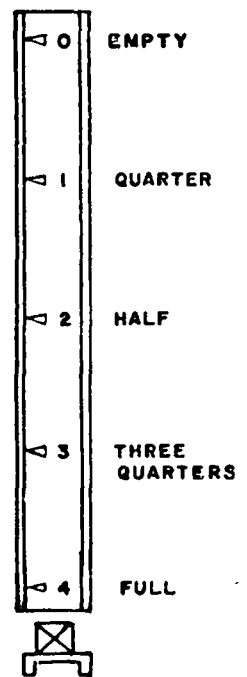
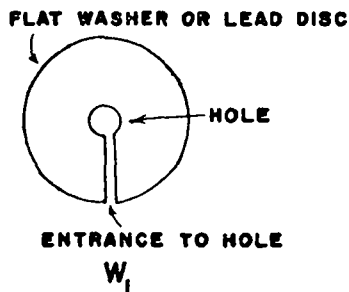
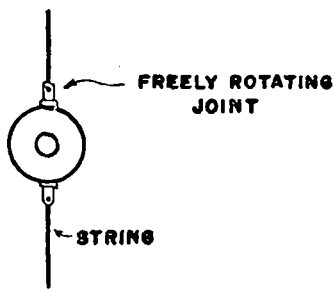
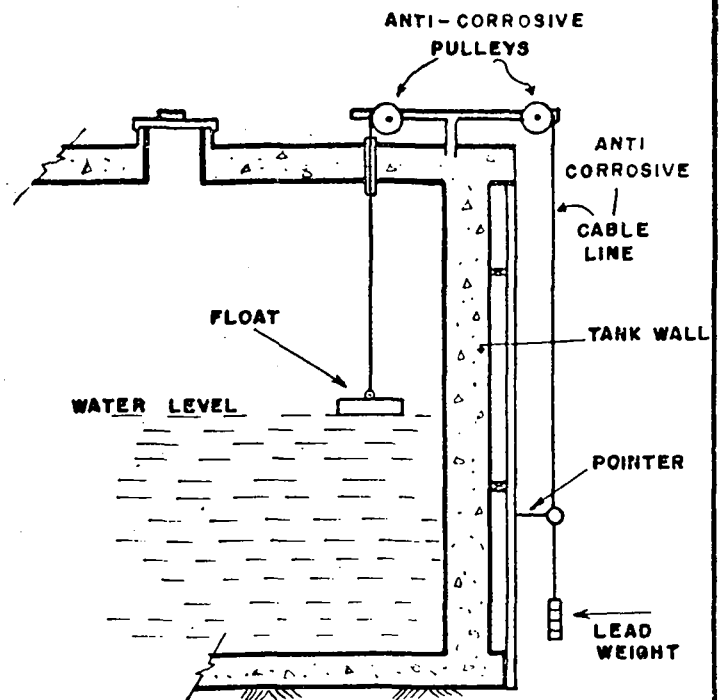
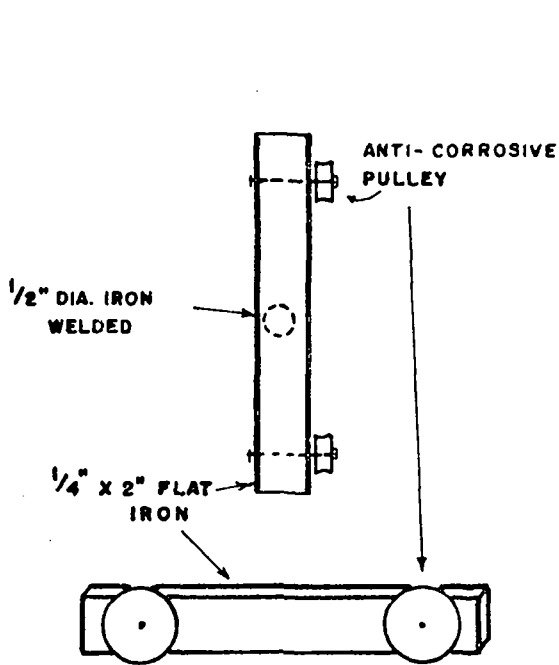


SIZE OF PIPE	BOLT THICKNESS	D	A	L	S		
2"	1/2"	3/8"	5/8"	9"	1 1/2"		
4"	3/4"	1/2"	3/4"	9"	2"		
6"	3/4"	1/2"	3/4"	12"	2"		
8"	1"	1/2"	1"	12"	2 1/2"		

STANDARD DETAIL DRAWINGS WATERWORKS.

TITLE: SMALL DIAMETER THREADED PIPE SUPPORT

DATE: 17 JULY 78: SCALE: No Scale: PAGE: N° S-9



NOTE : IT MAY BE NECESSARY TO USE TRIAL AND ERROR METHOD TO BALANCE THE WEIGHT AND FLOAT SO IT IS ADVISABLE NOT TO USE A FIXED WEIGHT BUT ONE WHICH CAN BE ADJUSTED SEE DETAIL W_1 .

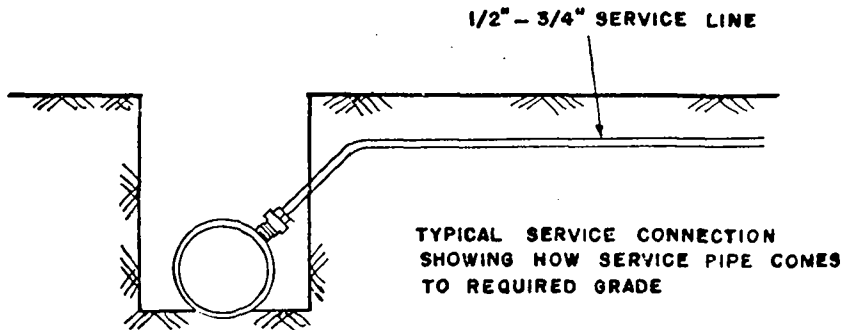
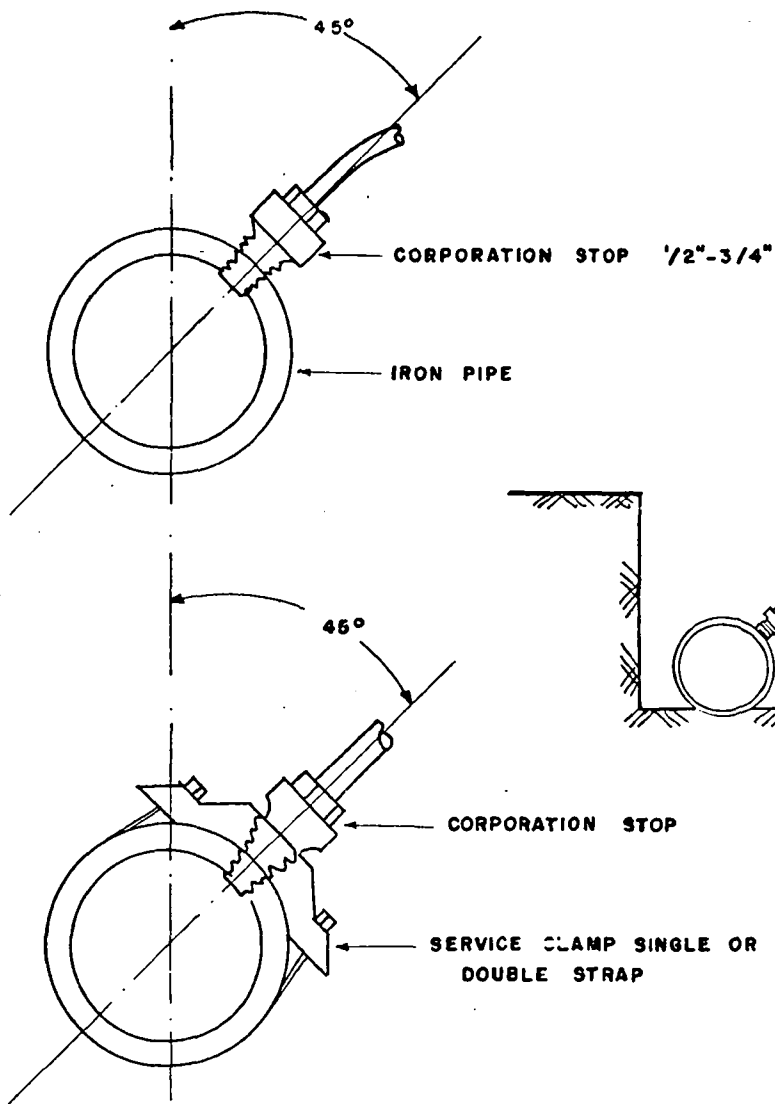
STANDARD DETAIL DRAWINGS WATERWORKS

TITLE : WATER LEVEL INDICATOR

DATE : 5 JULY 78

SCALE : No Scale

PAGE N° D - 1



TYPICAL SERVICE CONNECTION
SHOWING HOW SERVICE PIPE COMES
TO REQUIRED GRADE

NOTE

AVOID TAPPING SERVICE CONNECTIONS AT TOP OF PIPE IS 90° TO THE HORIZONTAL SINCE AIR IN LINE WILL CAUSE AIR LOCK IN HOUSE CONNECTIONS. BESIDES, IT BECOMES AWKWARD TO BRING SERVICE LINE TO REQUIRED GRADE.

SERVICE	3/4"	1"	1 1/2"	2"	1/2"
CLAMP STRAP	SINGLE	SINGLE	DOUBLE	DOUBLE	SINGLE
CORP STOP	3/4"	1"	1 1/2"	1 1/2" X 2"	1/2"
SERVICE PIPE	3/4"	1"	1 1/2"	2"	1/2"
MINIMUM MAINS DIA.	4"	4"	6"	8"	3"

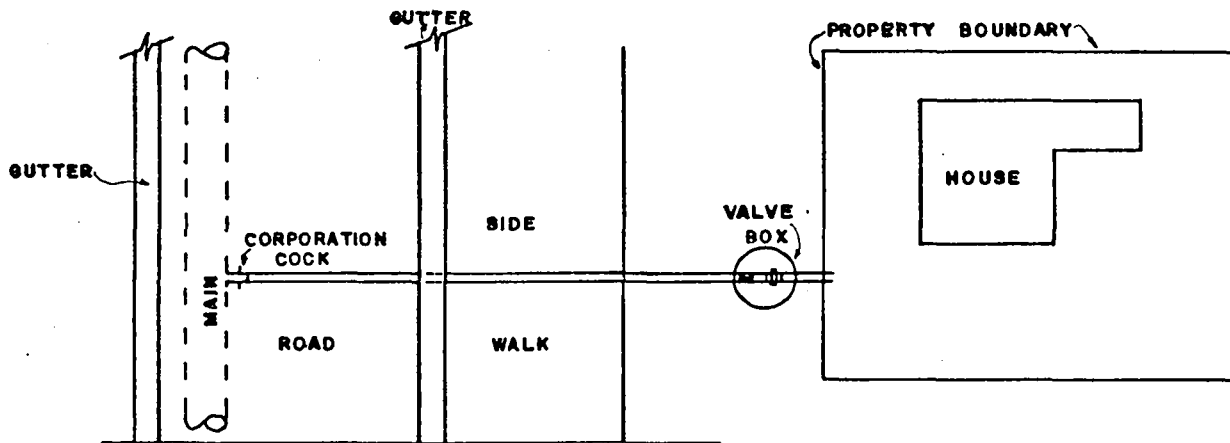
STANDARD DETAIL DRAWINGS WATERWORKS

TITLE : TYPICAL SERVICE CONNECTION TAPPINGS

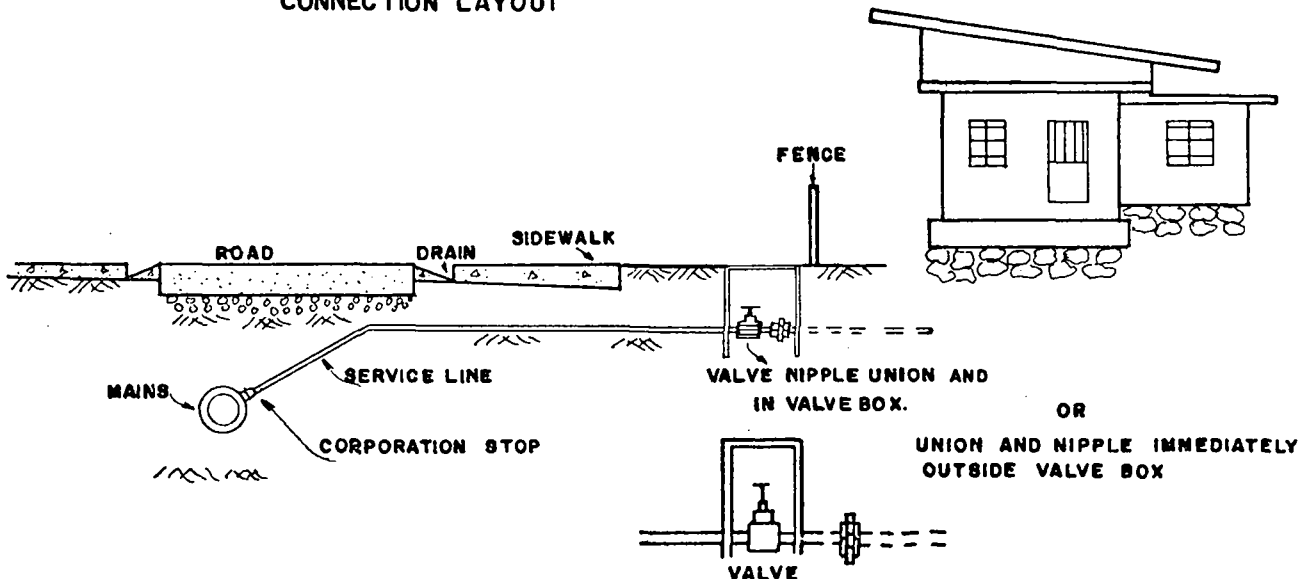
DATE : 21 JULY 78

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PLAN OF SERVICE CONNECTION LAYOUT

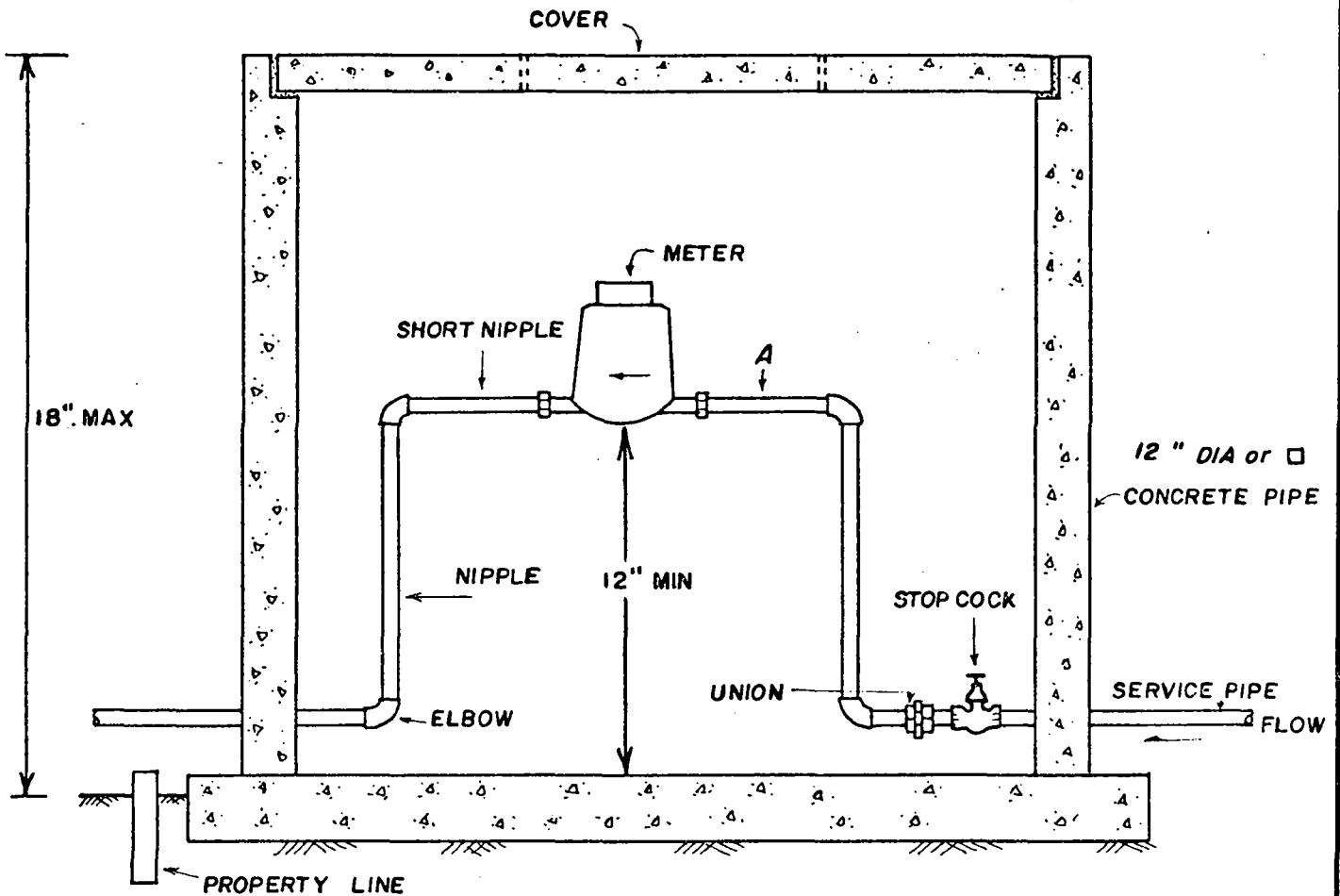


NOTE : ALL LINES MUST BE LAID FROM MAINS UP TO PROPERTY BOUNDARY BY THE UTILITY. ANY LINES BEYOND THE PROPERTY LINE ARE NOT THE UTILITIES RESPONSIBILITY.

STANDARD DETAIL DRAWINGS WATERWORKS.

TITLE : TYPICAL HOUSE SERVICE CONNECTION.

DATE : 26 JULY 78 : SCALE : Scale No : : PAGE N° D- 3

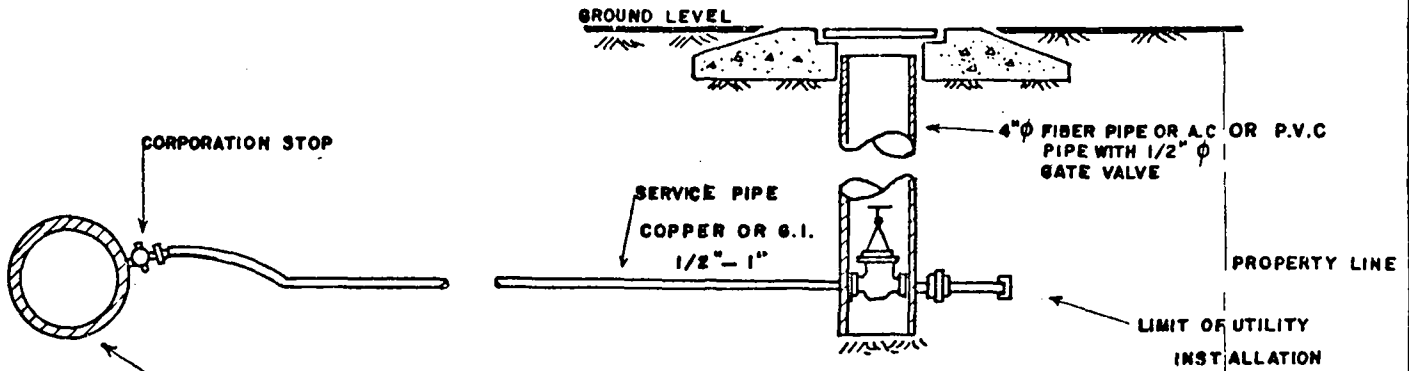


NOTE: IN AREAS WHERE THE WATER IS NOT FILTERED A STRAINER MAY BE PLACED ON THE LINE BEFORE THE METER AT POINT A. IT IS NOT ABSOLUTELY NECESSARY TO INSTALL A METER OF THE SAME SIZE AS THE SERVICE LINE. eg A 1/2" METER CAN BE INSTALLED ON A 3/4" SERVICE LINE AND VICE VERSA.

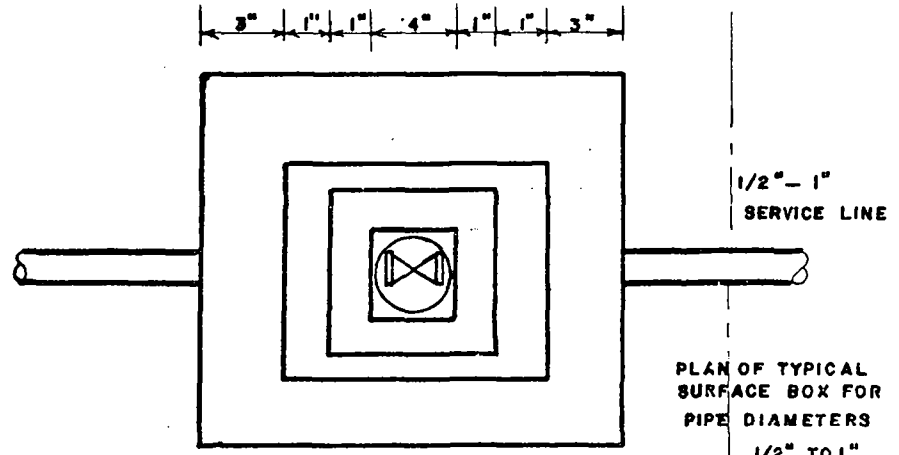
STANDARD DETAIL DRAWINGS WATERWORKS

TITLE: METER INSTALLATION

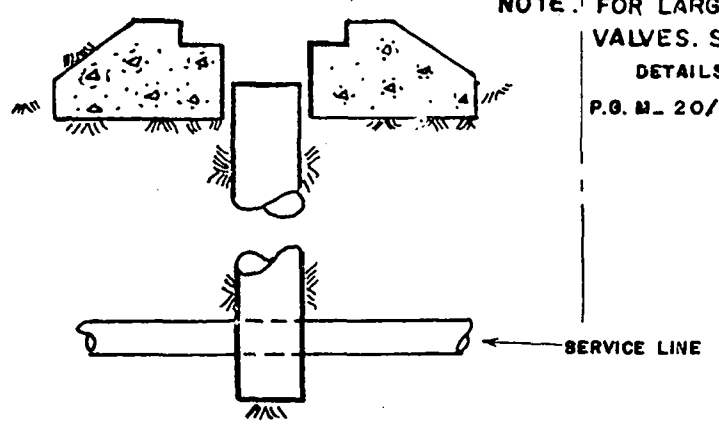
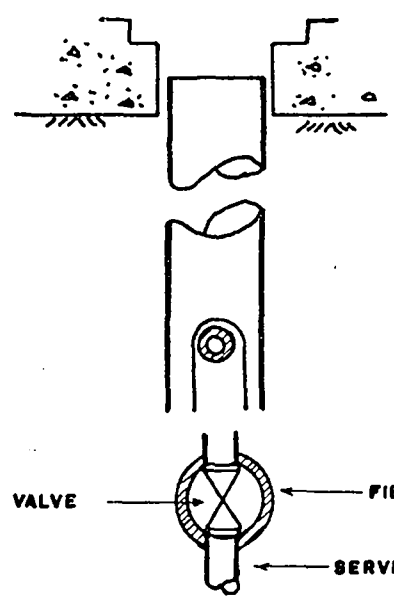
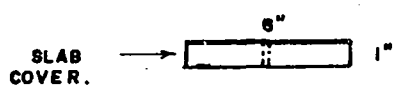
DATE 20th JULY 78 : SCALE: No. Scale: PAGE No. D-4



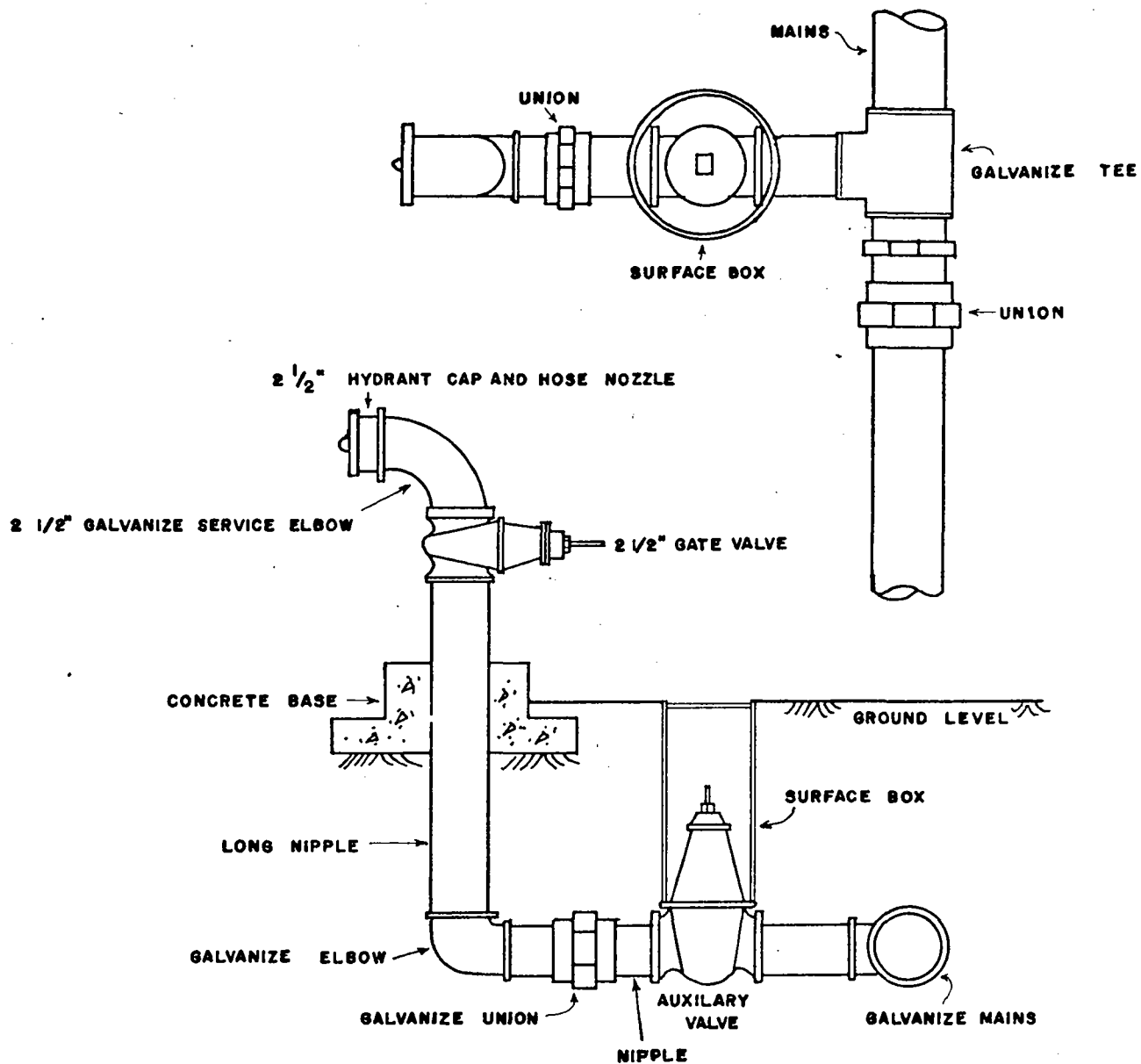
TRANSVERSE CROSS SECTION THROUGH SERVICE CONNECTION FOR 1/2" - 1" DIA. LINES SHOWING INSTALLATION OF SURFACE BOX.



PLAN OF TYPICAL SURFACE BOX FOR PIPE DIAMETERS 1/2" TO 1"



NOTE: FOR LARGER VALVES. SEE DETAILS P.G. N. 20/21



NOTE : HYDRANT NOZZLE IS STANDARD 2 1/2" DIA. AND CAN BE USED ON ANY PIPE SIZE LARGER THAN 1 1/2" THOUGH THIN WELDING MAY BE NECESSARY

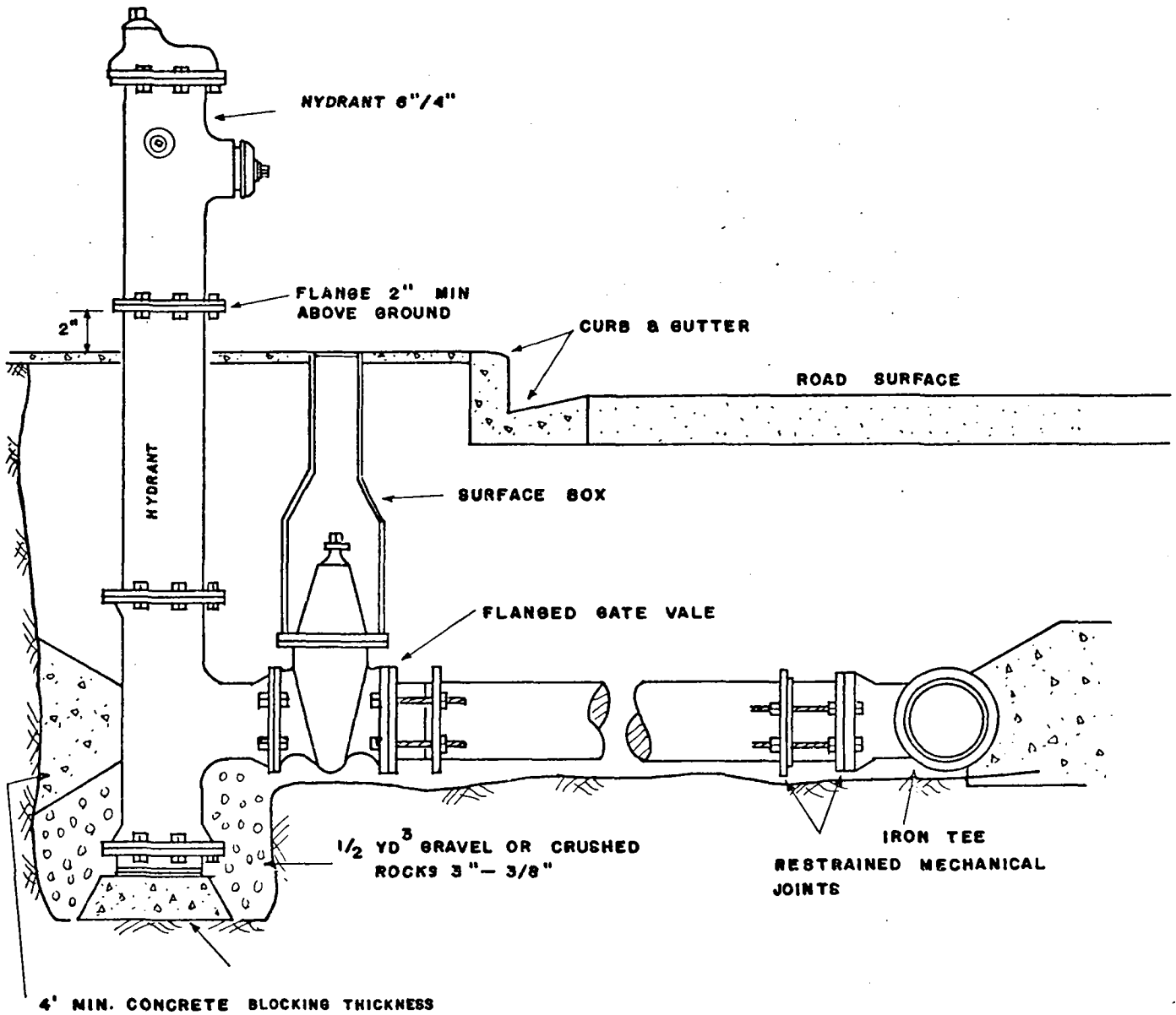
STANDARD DETAIL DRAWINGS WATERWORKS

TITLE : FIRE HYDRANT ASSEMBLE. LOCALLY MADE

DATE : 26 JULY 78

SCALE No Scale

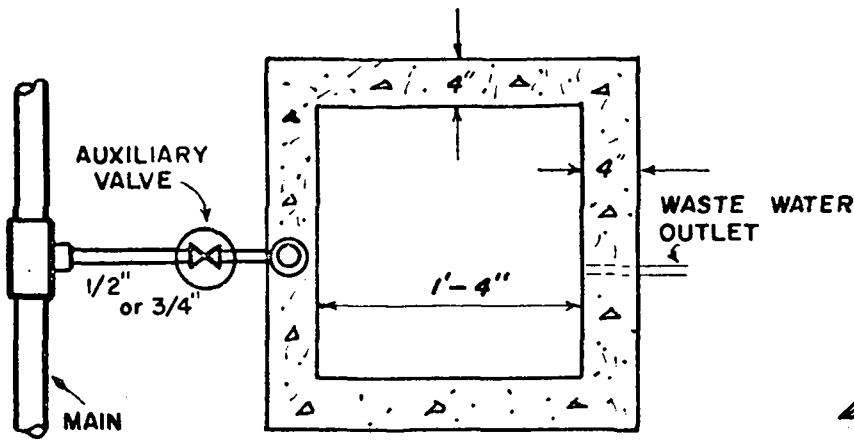
PAGE N° D-6



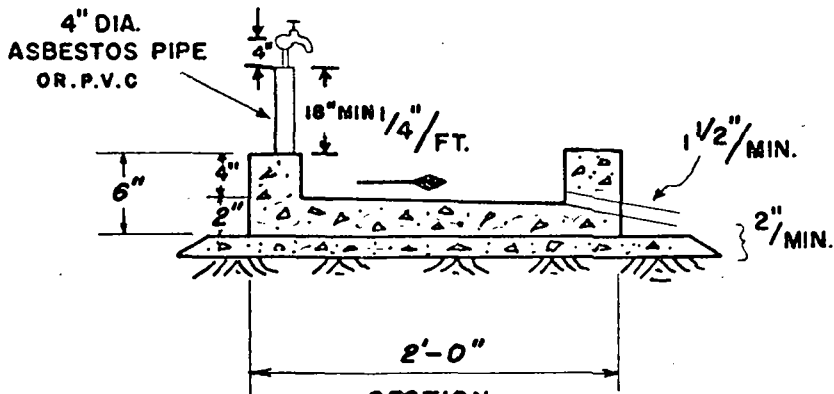
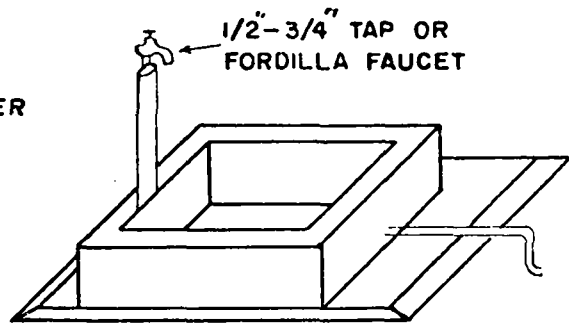
STANDARD DETAIL DRAWINGS WATERWORKS.

TITLE: TYPICAL HYDRANT CONNECTION

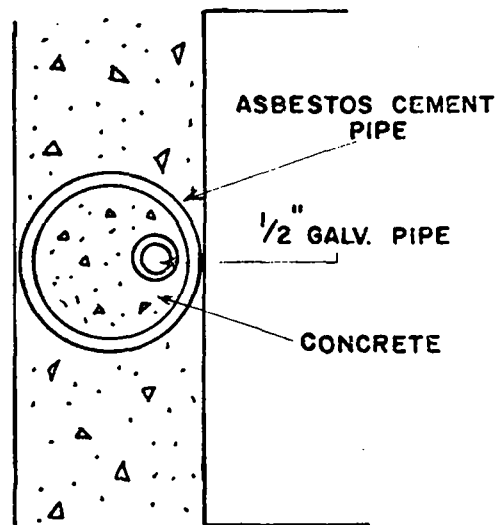
DATE: 22 JULY 78 : SCALE: No. Scale: PAGE N^o D-7



PLAN



SECTION



LOCATION OF 1/2" LINE
INSIDE ASBESTOS CEMENT
PIPE SUPPORT.

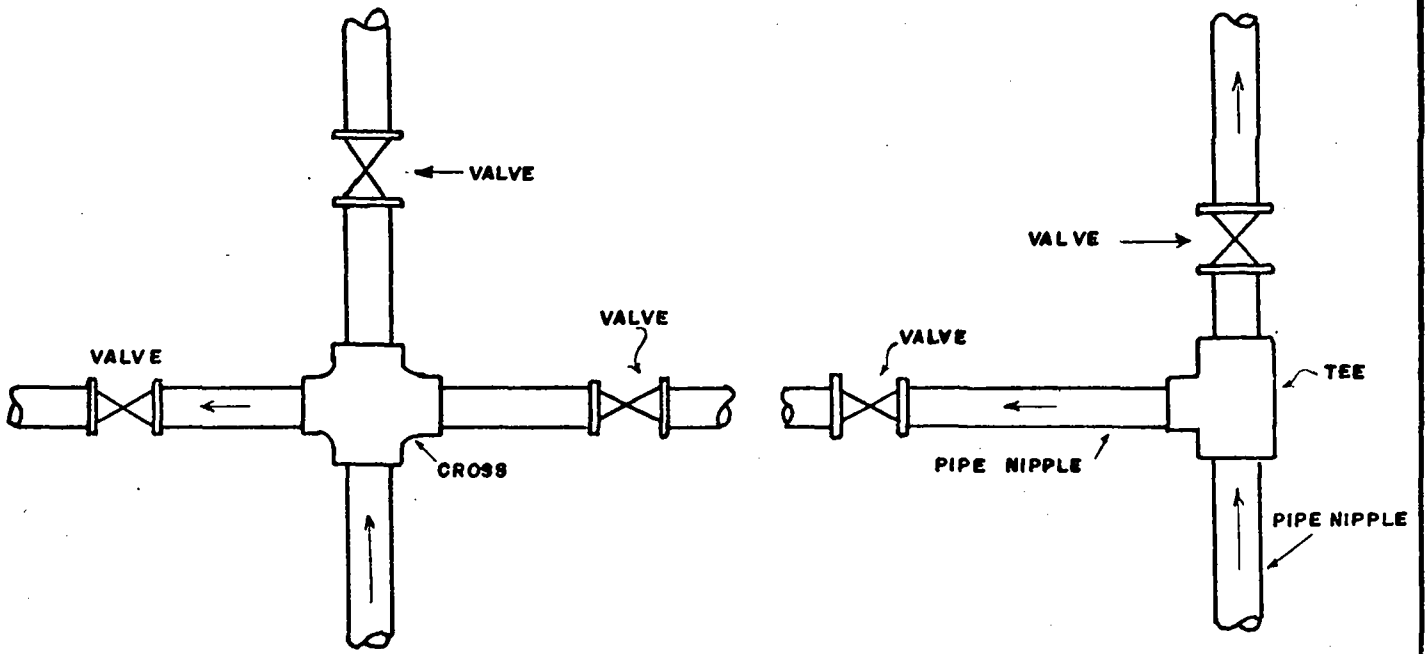
STANDARD DETAIL DRAWINGS WATERWORKS

TITLE : STAND PIPE CONSTRUCTION

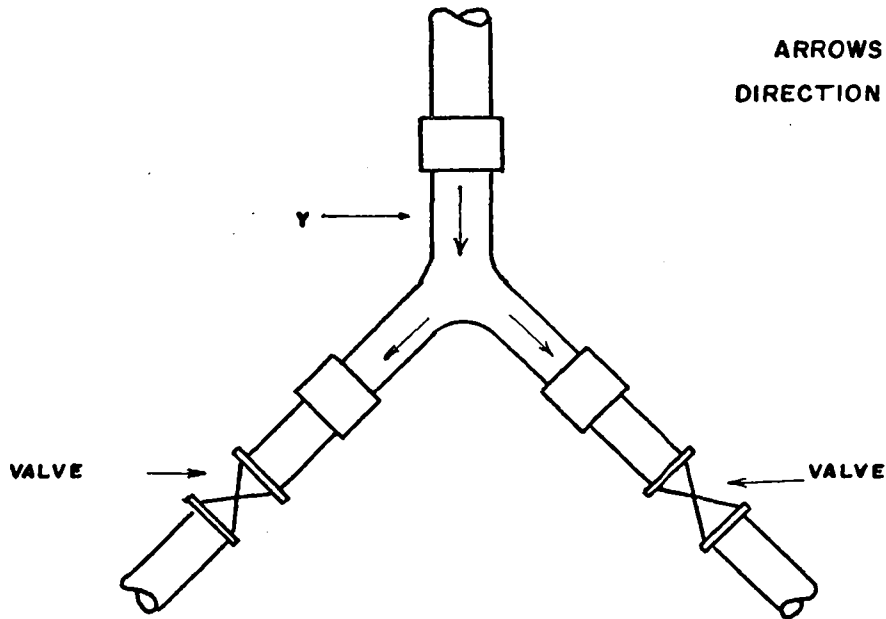
DATE : 28 JULY 78

SCALE : No Scale

PAGE N° D-8



ARROWS INDICATE
DIRECTION OF FLOW

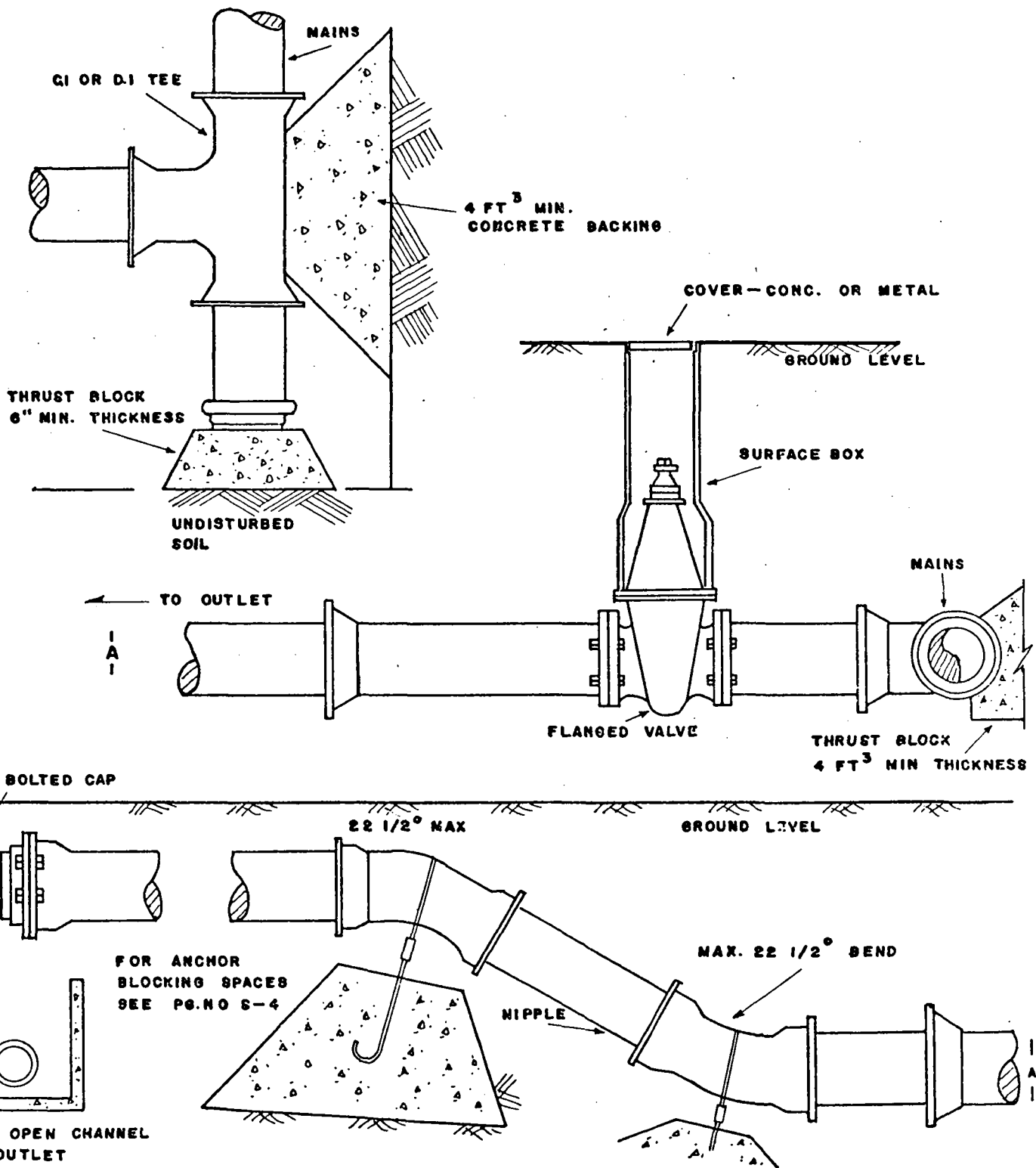


AS A RULE AT EACH TEE ON A DISTRIBUTION MAIN TWO VALVES ARE USED, AT CROSSES THREE VALVES AND AT Ys TWO VALVES ARE NECESSARY

STANDARD DETAIL DRAWINGS WATERWORKS

TITLE : VALVE LOCATION

DATE : 28 JULY 78 SCALE : No Scale PAGE N° D- 9

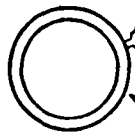


STANDARD DETAIL DRAWINGS WATERWORKS.

TITLE: DEAD END WASH OUT.

DATE: 22 JULY 78: SCALE No. Scale: PAGE N°: D-10

1/2" - 1" CORPORATION STOP



IRON PIPE

1/2" - 1" SERVICE LINE

GATE VALE NIPPLE & UNION
PLACED ON LINE IN BOX
TO EFFECT EASY RE-
PLACEMENT OF VAVLES
WITHOUT DAMAGE TO
BOX.

PROPERTY LINE

PLAN SHOWING
LAYOUT OF FITTINGS

CONCRETE SLAB.
SEE PG: M - 23

ELEVATION OF
VALVE BOX SHOWING
PIPE THROUGH WALL
OF BOX

SEVICE LINE

PLAN THOUGH
BOX

CONCRETE
VALVE

FLOW

NOTE : FOR CONSTRUCTION OF
VALVE BOX COVER SEE.
DRAWING. PG. NO. 13.

LARGE DIAMETER PRE - FAB
CONCRETE PIPE MAY BE USED
AS IN DRAWING ON PG. M. 21

BY PLACING A VALVE NIPPLE AND UNION IN A VALVE BOX REDUCES VALVE
REPLACEMENT TIME AND THE VALVE BOX NEED NOT BE BROKEN DURING SUCH
REPLACEMENT OPERATIONS.

STANDARD DETAIL DRAWINGS WATERWORKS.

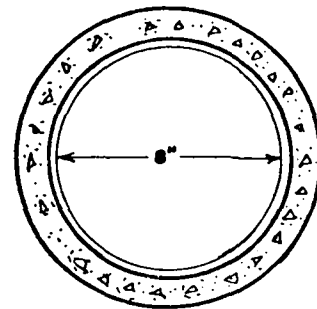
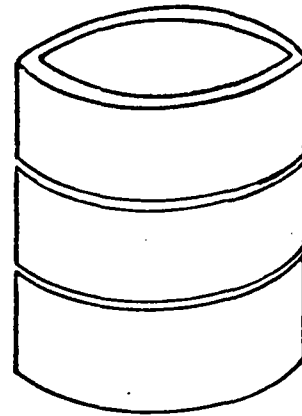
TITLE : CAST IN PLACE VALVE BOX

DATE : 4 JULY 78 : SCALE : No. Scale : PAGE N° M-1

THIS PROTECTIVE BOX MAY BE USED AS A VALVE BOX OR METER BOX AT ANY DEPTH. THIS BOX IS PRE-FABRICATE FROM 2" THICK CONCRETE WITH EXPANDED METAL REINFORCING.

THE SECTIONS ARE 9" HIGH STANDARD AND HAVE MALE AND FEMALE END FOR EASY COUPLING.

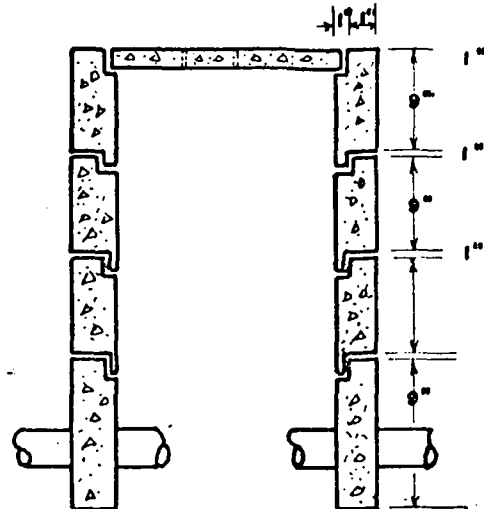
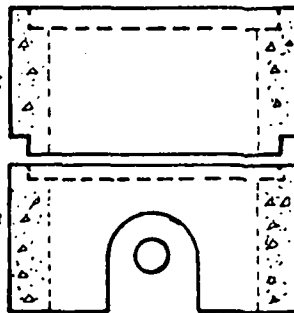
USING THIS TYPE OF BOXING A VALVE OR METER CAN BE COMPLETELY SECURED USING ONLY THE BOTTOM PIECE WITH A LID OR A NUMBER OF EXTENSIONS WITH THE LID AT TOP.



O.D. 10"
I.D. 8"

TYPICAL EXTENSION OR SURFACE BOX CAN BE USED IN ANY POSITION ABOVE THE BOTTOM PIECE.

BOTTOM PIECE OF EXTENDED VALVE BOX MAY BE USE ALONE WITH COVER OR WITH EXTENSIONS



THIS EXTENDED BOX SAVES IN MASON WORK AND IN INSTALLATION AND PREPARATION

FOR PREFABRICATION FROM DETAILS SEE FORM DETAILS PAGE No M-22

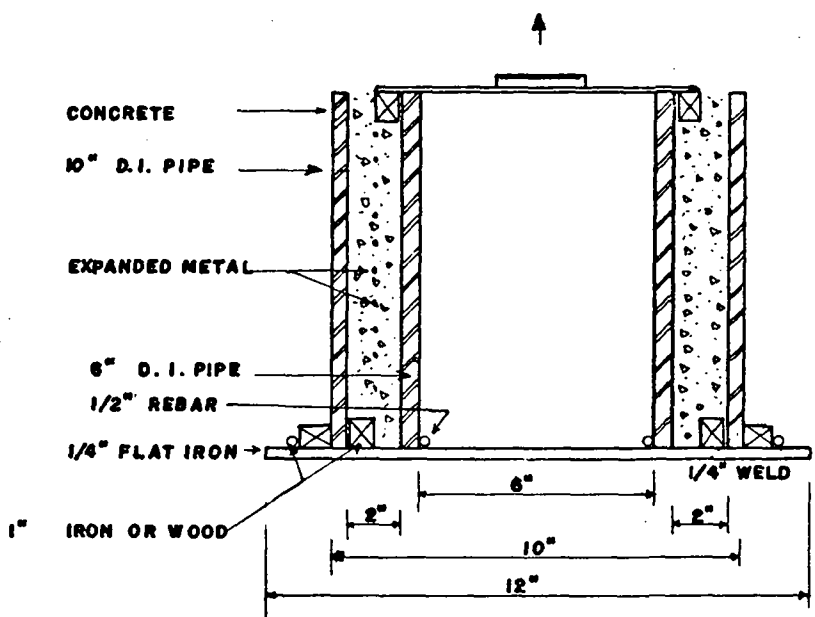
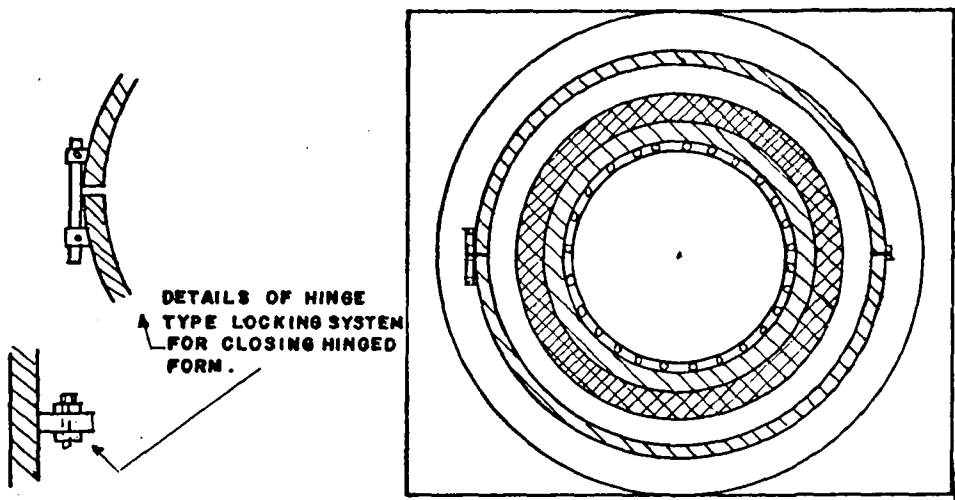
STANDARD DETAIL DRAWINGS WATERWORKS

TITLE: CYLINDRICAL VALVE BOX EXTENSION TYPE

DATE: 5 JULY 78

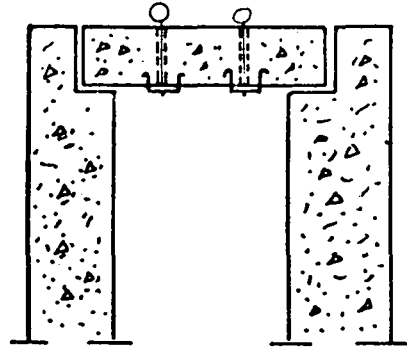
SCALE: No Scale

PAGE N° M - 2

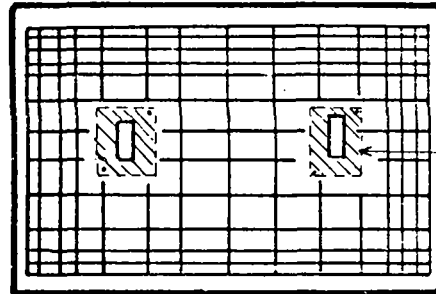


USING ONE PIECE 10" DIA DUCTILE IRON PIPE CUT AND WELDED TWO HINGES AND TO INSERT ONE PIECE 6" DIA D.I PIPE INSIDE SO THAT THERE IS A 2" PERIPHERAL OPENING BETWEEN THE TWO PIPES. USE TWO 1" SQUARE OR CIRCULAR PIECES OF WOOD OR METAL AS SHOWN IN DRAWING. PLACE PIPES ON FLAT IRON BASE SECURING THEM WITH 1/2" IRON WELDED TO BASE AS SHOWN. GREASE FORMWORK. PLACE CONCRETE WHEN SET LIFT AS INDICATED BY ARROW.

TRANSVERSE SECTION
THROUGH MANHOLE OR
VALVE BOX SHOWING
SLAB DESIGN.



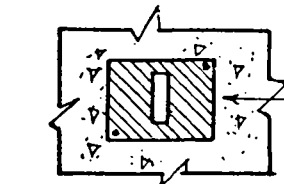
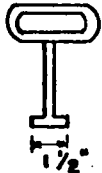
EXAGGERATED STEEL DETAIL OF SLAB
SHOWING CLOSER SPACING AT THE
EDGES FOR GREATER LOAD BEARING
CAPACITY.



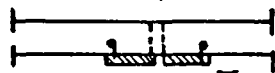
METAL
PLATE

TWO HOLES $2'' \times \frac{1}{2}''$ WITH
A METAL UNDERSIDE WILL ALLOW
THE SLAB TO BE LIFTED USING
THE LIFTING HANDLE SHOWN
BELOW.

HANDLE FOR LIFTING



METAL PLATE $2'' \times 2'' \times \frac{1}{4}''$
FOR LOAD BEARING CAPACITY IN HEAVY SLABS.



METAL PLATE CAST IN PLACE AND
FASTENED TO REINFORCINGS

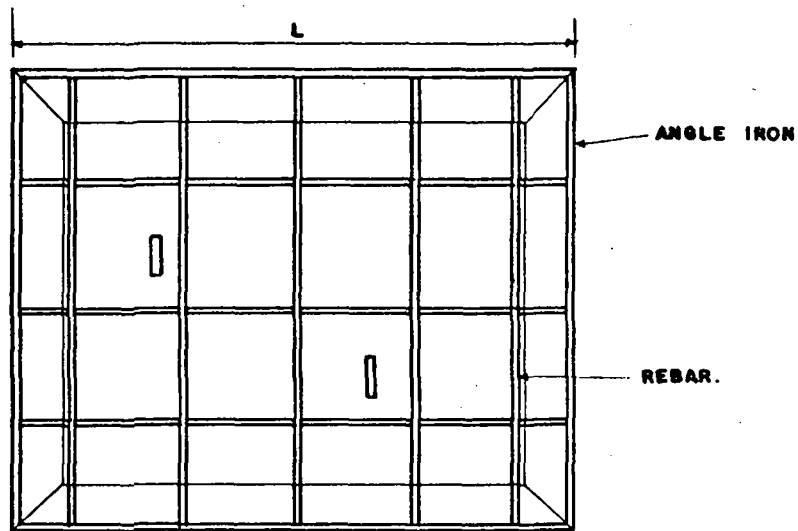
STANDARD DETAIL DRAWINGS WATERWORKS

TITLE : CONCRETE SLAB COVERS

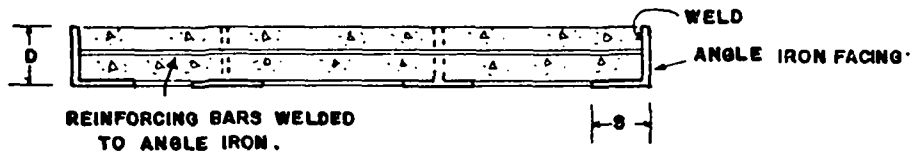
DATE : 14 JULY 78

SCALE : No Scale

PAGE N° M-4



PLAN
OF
STEELWORK OF SLAB



LOCATION OF SLAB	SLAB THICKNESS	ANGLE IRON	REBAR DIAMETER	SPACING OF REBARS	AGGREGATE SIZE MIX
TRAFFIC	2 1/2"	2 1/2" x 2 1/2" x 1/4"	5/8" Ø	8" C.C	3/8"
HEAVY TRAFFIC	3"	3" x 3" x 1/4"	3/4"	4" C.C	1/2"
NO TRAFFIC	2"	2" x 2" x 1/4"	1/2"	8" C.C	1/4"

NOTE : ANGLE IRON CASTED UNTO CONCRETE WILL ALLOW GREATER LOADING TO SLAB AND PREVENT BREAKAGE AT EDGES. GREATER END BEARING IS ACHIEVED.

STANDARD DETAIL DRAWINGS WATERWORKS.

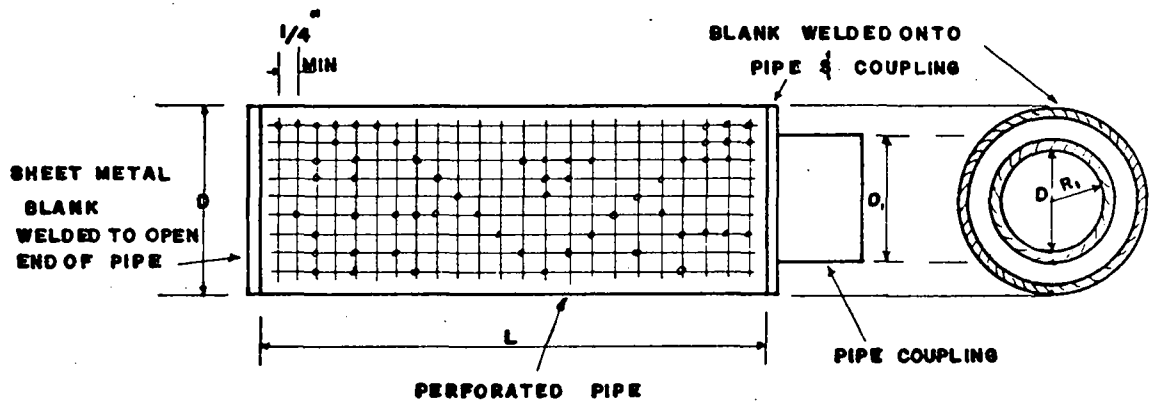
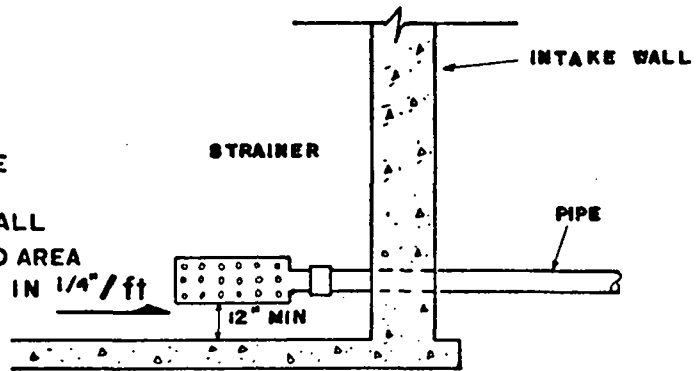
TITLE : SLABS WITH ANGLE IRON EDGES.

DATE : 20 JULY 78 : SCALE No Scale PAGE N° M-5

STRAINER CAN BE FABRICATED LOCALLY
USING AVAILABLE PIPES.

STRAINER HOLE SIZES WILL DEPEND UPON THE
FINENESS OF MATERIALS IN THE WATER.

IT IS IMPORTANT THAT THE TOTAL AREA OF ALL
HOLES IS EQUAL TO, OR MORE THAN THE END AREA
OF THE PIPE. SO THAT INFAC T NO LOSSES IN $1/4''/ft$
QUANTITY OF FLOW IS EXPERIENCED

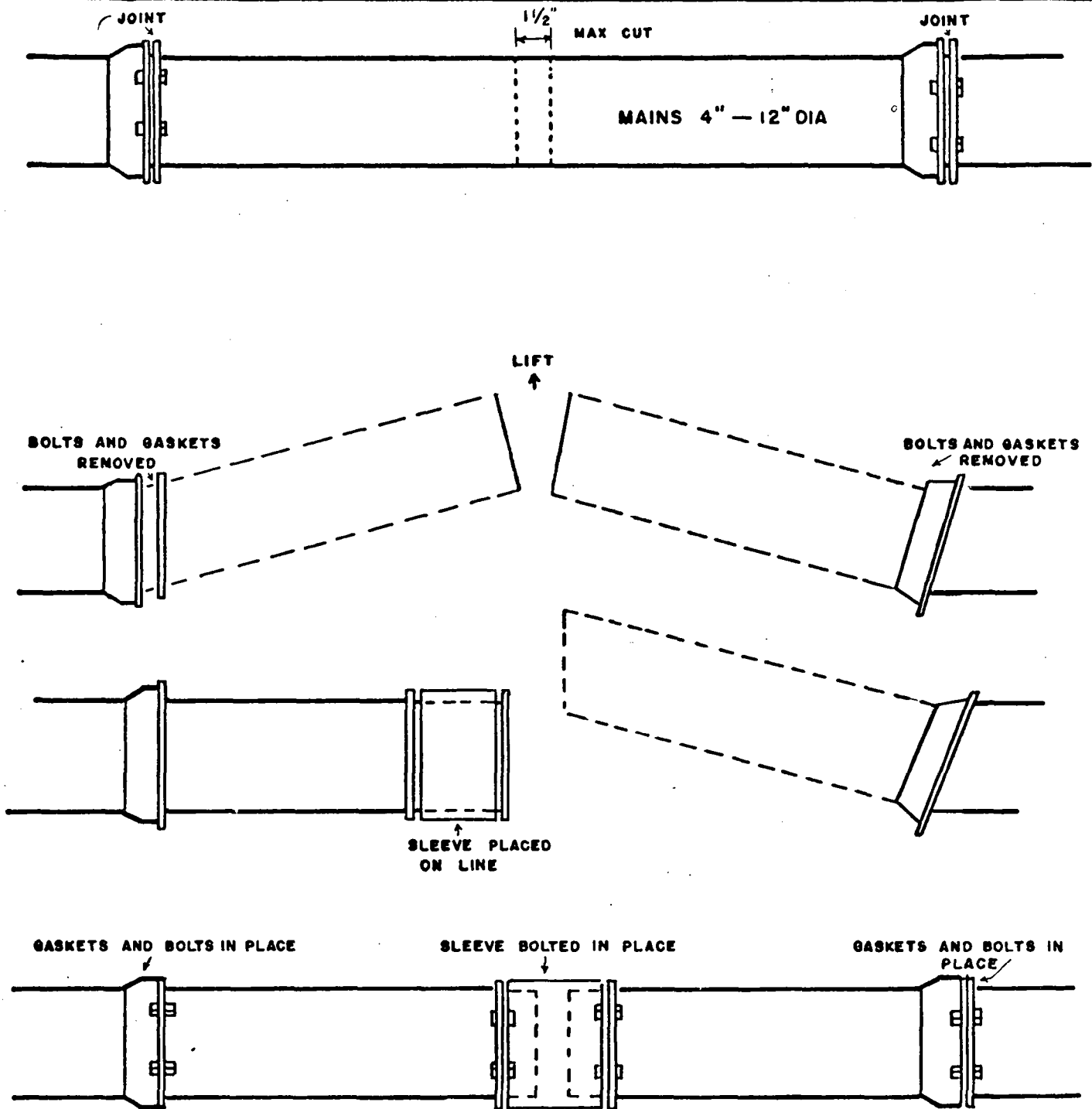


DIAM. OF MAINS	RECOMMENDED PIPE DIAM. FOR FABRICATING STR.	AREA OF PIPE END TTR, 2	HOLE DIAM	HOLES SPACING	LENGTH OF STRAINER	TOTAL NO OF HOLES MIN	NO OF HOLES PER INCH	REMARKS
D_1	D				L MIN	N		
2" ϕ	4" ϕ	3.2 IN ²	1/4"	1/2" C.C	2"	13	52	USE 4" ϕ 12" LONG WITH HOLES ALLOWE
3" ϕ	4" ϕ	4.7 IN ²	1/4"	1/2" C.C	2"	19	52	USE 4" ϕ . 12" L.
4"	6" ϕ	12.6. IN ²	1/4"	1/2" C.C	2"	31	75	USE 6" ϕ X 12" L
6"	8" ϕ	26.3 IN ²	1/4"	1/2" C.C	2"	113	101	USE 8" ϕ X 12" L
8"	10" ϕ	50.3 IN ²	1/4"	1/2" C.	2"	201	126	USE 8" ϕ X 12" L

STANDARD DETAIL DRAWINGS WATERWORKS

TITLE : PERFORATED PIPE STRAINERS .

DATE : 21 JULY 78 : SCALE : No. Scale : PAGE : M - 6



STEPS

- STEP No 1 EXCAVATE FULL LENGHT OF PIPE TO BE SLEEVED AND 12" BELOW PIPE.
- STEP No 2 REMOVE ALL BOLTS AND GASKETS AT BOTH ENDS OF PIPE.
- STEP No 3 CUT OUT NO MORE THAN 1/2" AT POINT TO BE SLEEVED.
- STEP No 4 LIFT BOTH CUT ENDS AND PLACE SLEEVE OVER ONE END.
- STEP No 5 DROP BOTH ENDS BACK TO ORIGINAL POSITION AND SLIDE SLEEVE MIDWAY OVER CUT ENDS AND BOLT.

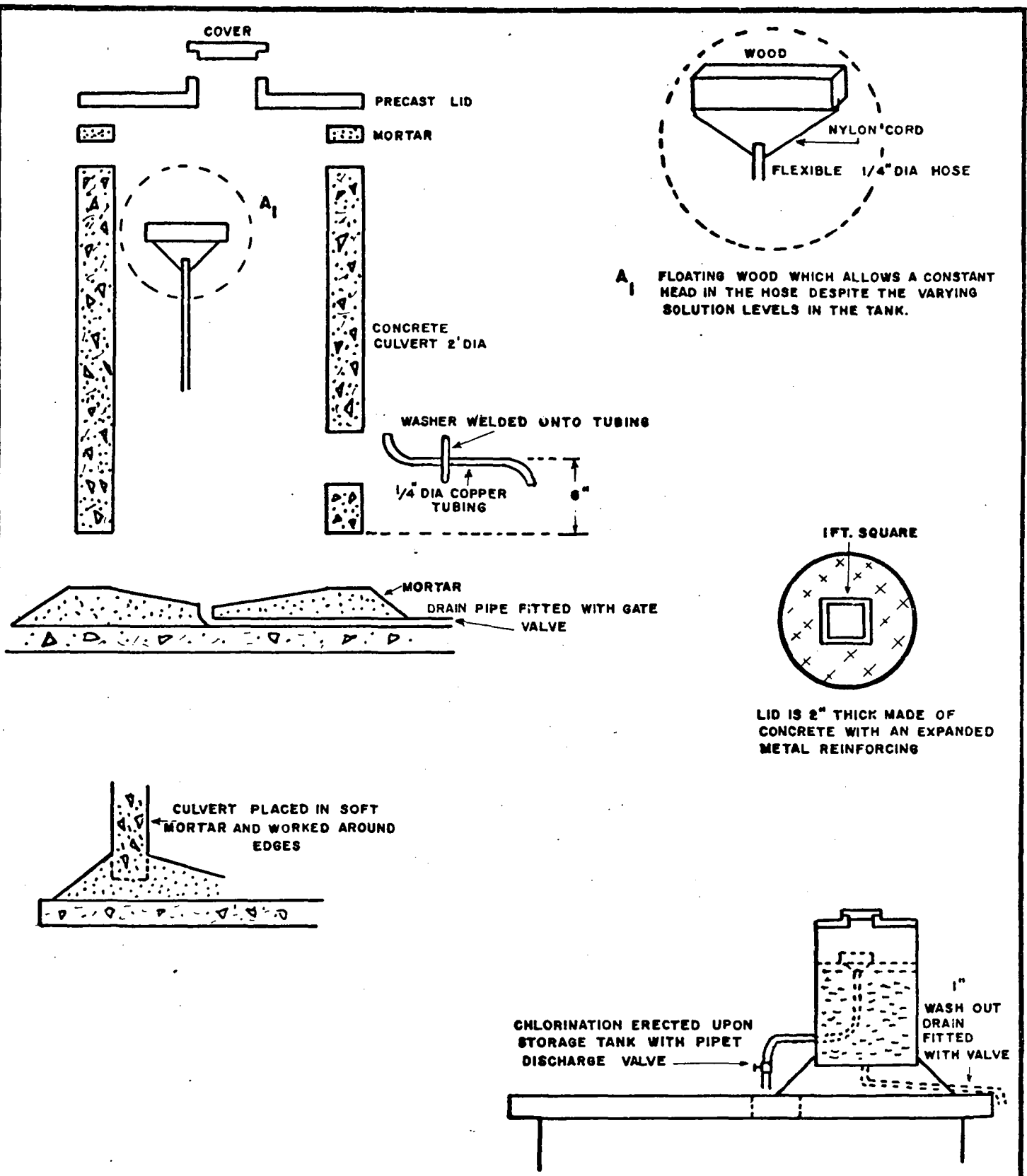
STANDARD DETAIL DRAWINGS WATERWORKS

TITLE : SLEEVING

DATE : 26 JULY 78

SCALE : No Scale

PAGE N° - M - 7



A₁ FLOATING WOOD WHICH ALLOWS A CONSTANT HEAD IN THE HOSE DESPITE THE VARYING SOLUTION LEVELS IN THE TANK.

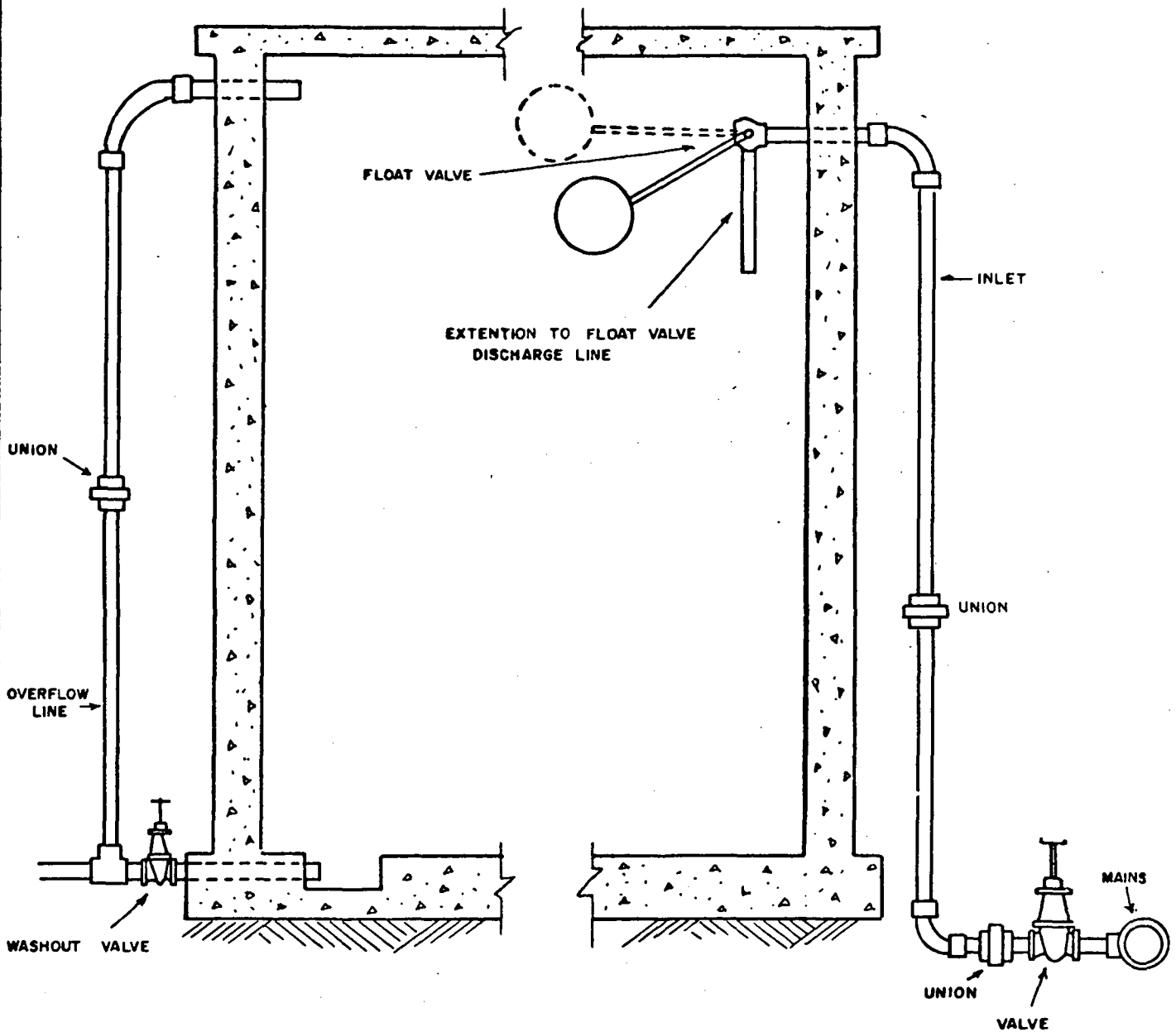
STANDARD DETAIL DRAWINGS WATERWORKS

TITLE : CULVERT TYPE DRIP CHLORINATOR

DATE : 26 JULY 78

SCALE : No Scale

PAGE N° M-8



NOTE

THE OVERFLOW LINE IS 3" min. HIGHER THAN THE INLET ALLOWING FOR SURGE AND SPILLAGE AND IN CASES WHERE FLOAT VALVE BECOMES DEFECTIVE IT MAY BE NECESSARY TO USE A BYPASS LINE. (NOT INDICATED HERE) TO EASE CLEANING OF TANK WITHOUT INTERFERENCE TO THE SERVICE.

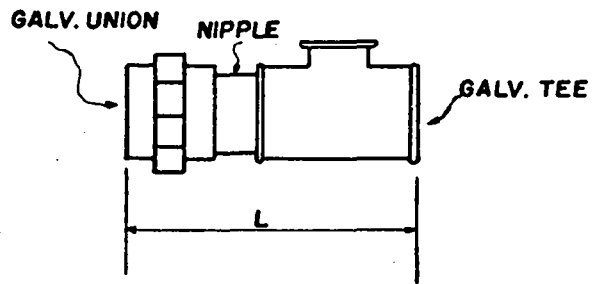
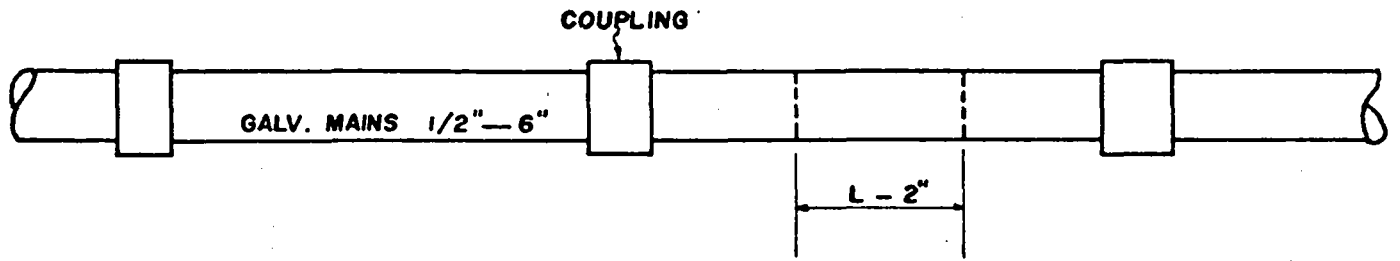
STANDARD DETAIL DRAWINGS WATERWORKS

TITLE: STORAGE TANK OVERFLOW / WASHOUT ASSEMBLY

DATE 28 JUNE 78

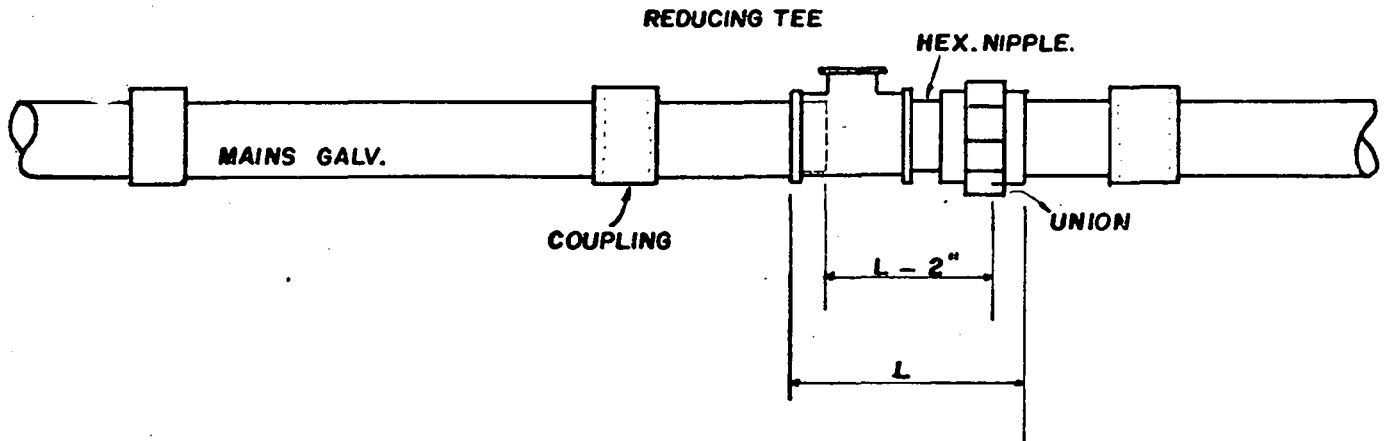
SCALE: No Scale

PAGE N° M- 9



L = TOTAL LENGTH OF A GALVANIZE UNION
NIPPLE + TEE COUPLED TIGHTLY
TOGETHER.

$L - 2''$ IS THE PIECE OF LINE TO BE
REMOVED. IT IS 2'' SHORTER THAN
 L BECAUSE 1'' IS REQUIRED ON
EITHER END TO COUPLE L UNTO
THE LINE.



STANDARD DETAIL DRAWINGS WATERWORKS.

TITLE: INSTALLING GALVANIZE TEE ON EXISTING MAINS.

DATE: 26th JULY 78.

SCALE: No Scale :

PAGE No: M- 10