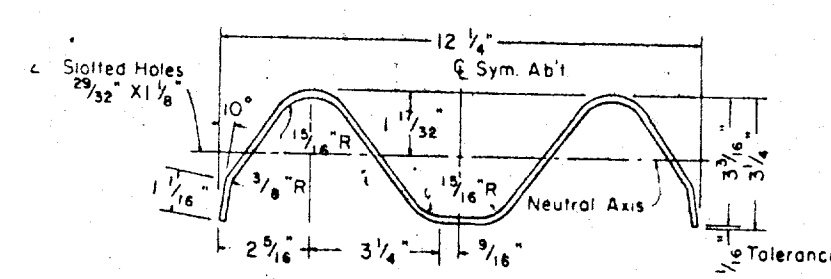
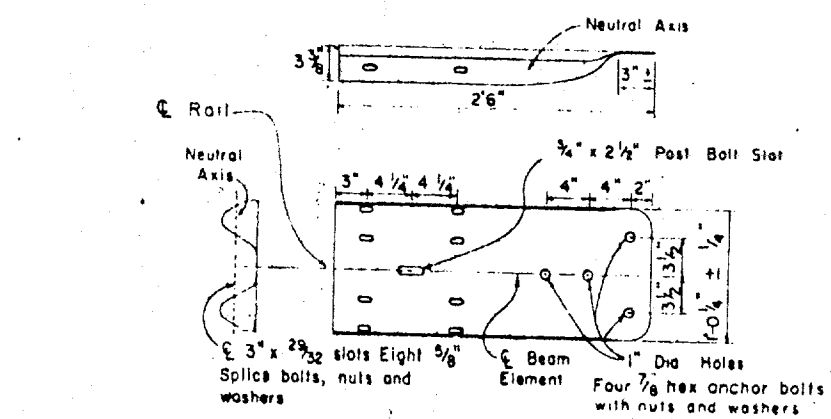


ALLEY WIDTH (A)	HALF SECTION WIDTH (L)	INVERT DEPTH (d)
10'	5'	4"
12'	6'	6"
16'	8'	6"
20'	10'	6"

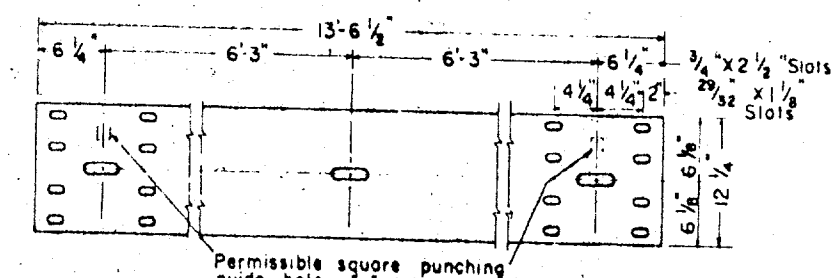
ALLEY WIDTH	A	B	C	D	E	F
10'	10'	2'-6"	15'	1'-6"	12'	8.6'
12'	12'	1'-6"	15'	1'-6"	12'	8.5'
16'	16'	2'-0"	20'	2'-0"	16'	8.0'
20'	20'	0	20'	0	20'	10.0'



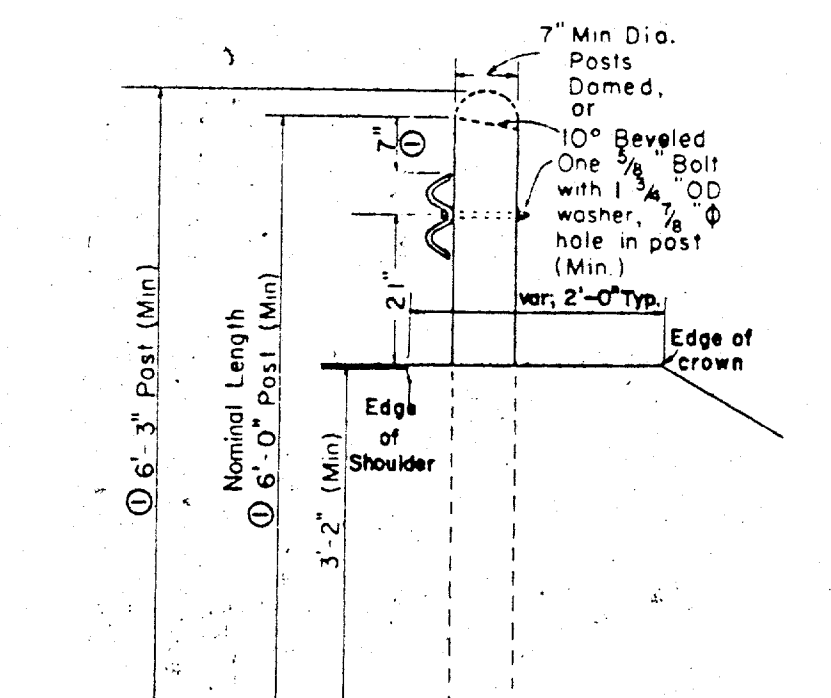
SECTION THRU GUARD RAIL AND BACK-UP PLATE



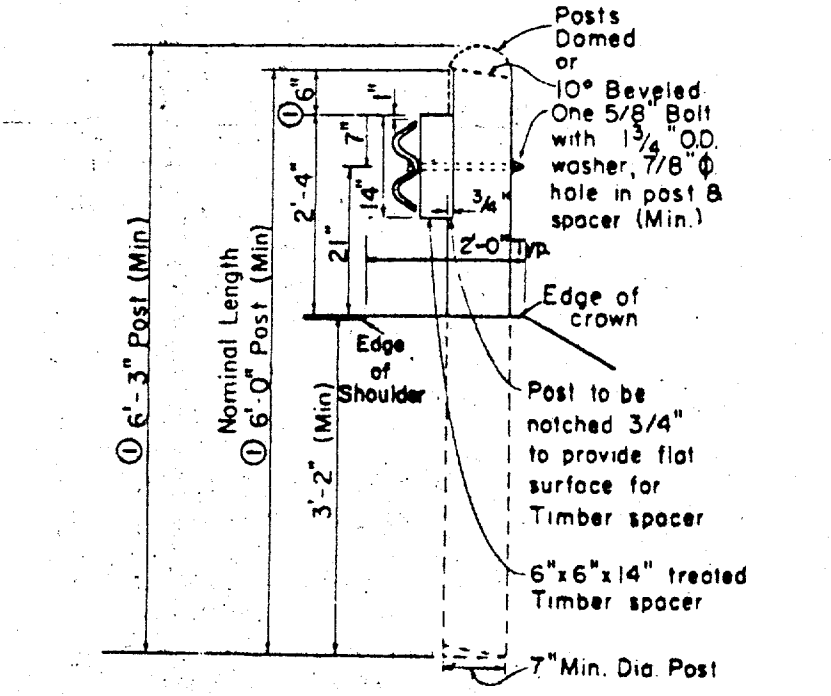
TERMINAL CONNECTOR (10 GAUGE MINIMUM)



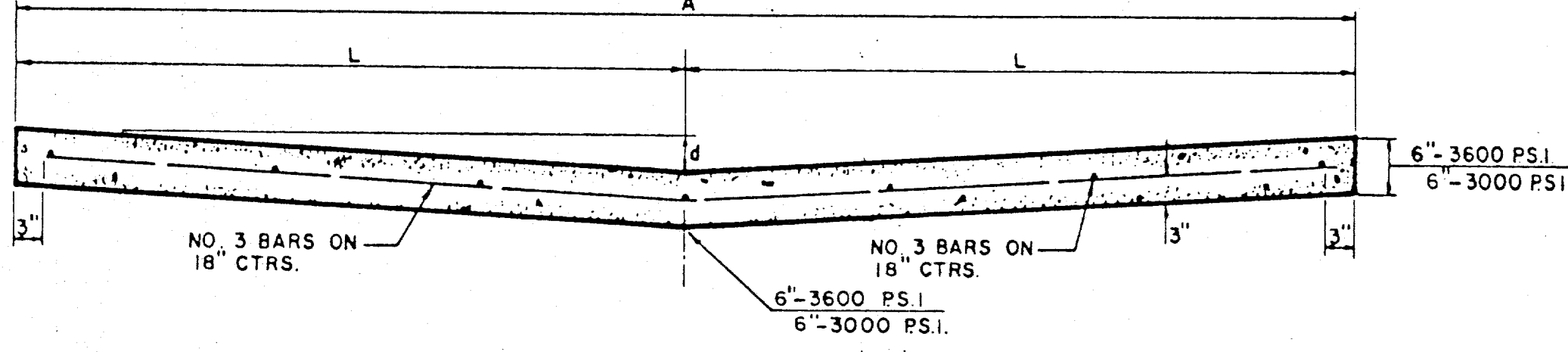
ELEVATION OF NOMINAL 12 1/2 FOOT GUARD RAIL



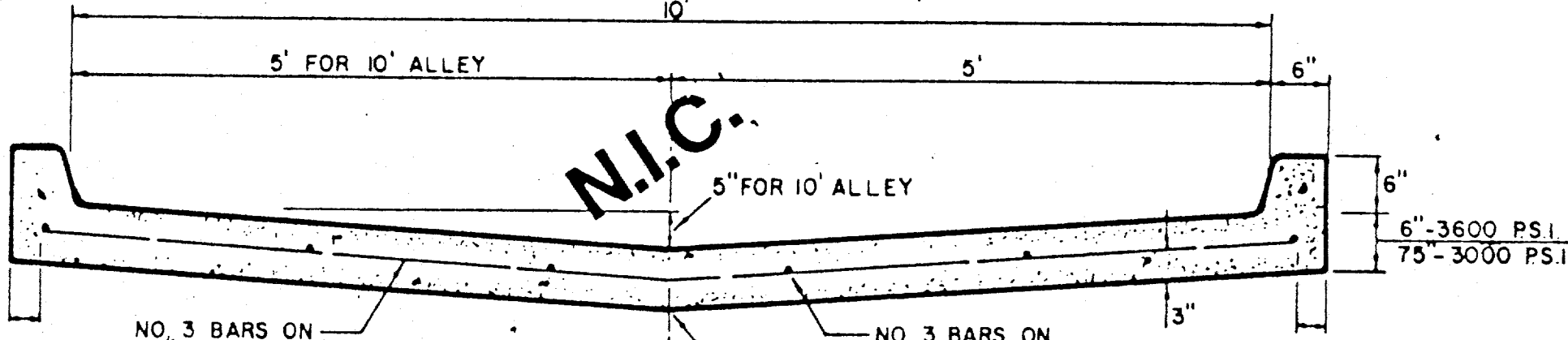
WOOD LINE POST



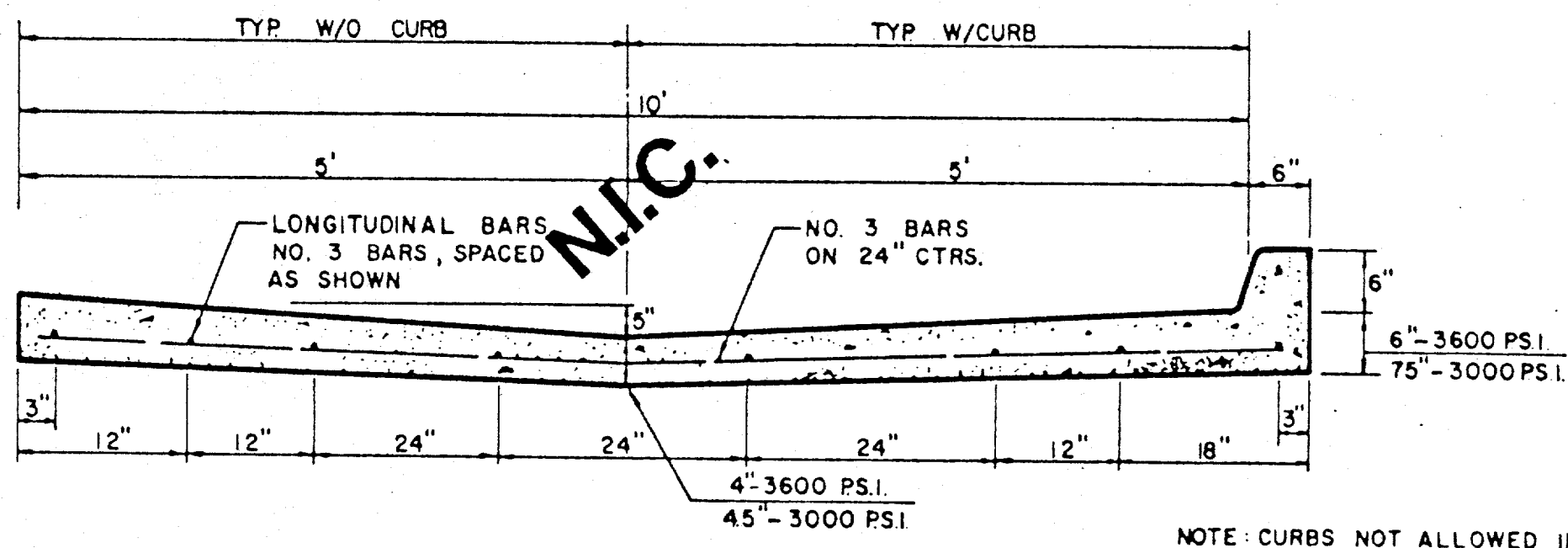
WOOD LINE POST (Blockout)



STANDARD 10', 12', 16', & 20' ALLEY SECTION



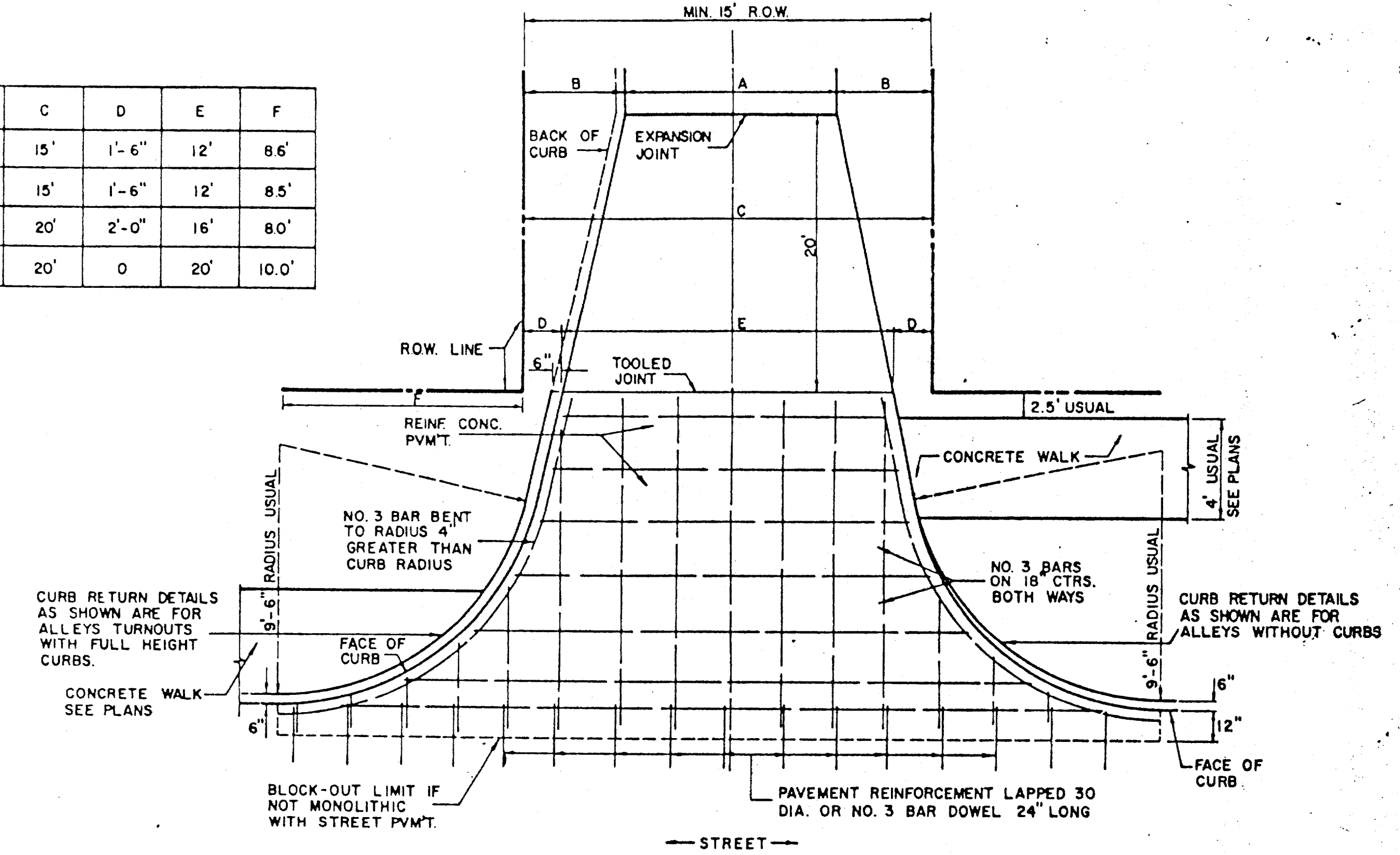
STANDARD ALLEY SECTION WITH CURBS



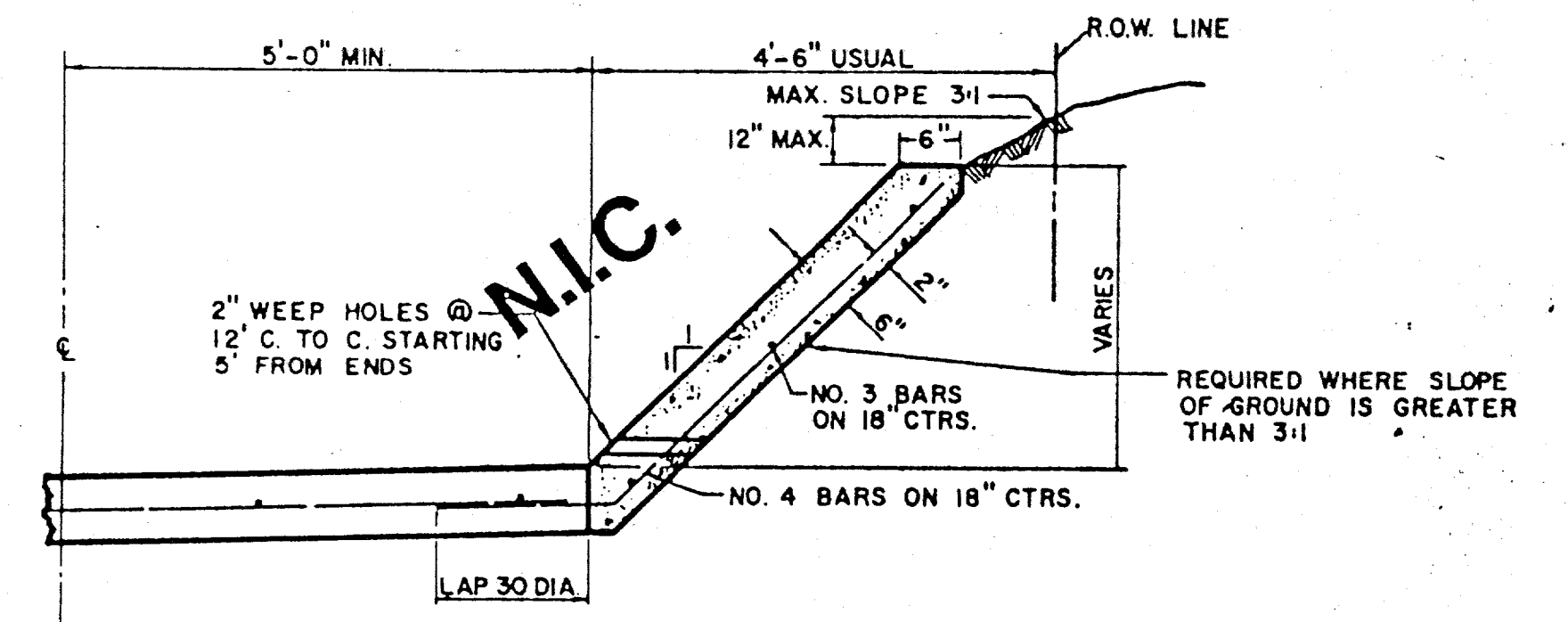
ALTERNATE 10' ALLEY SECTION / CURB

NOTE: CURBS NOT ALLOWED IN RESIDENTIAL AREAS EXCEPT AS APPROVED BY THE ENGINEER.

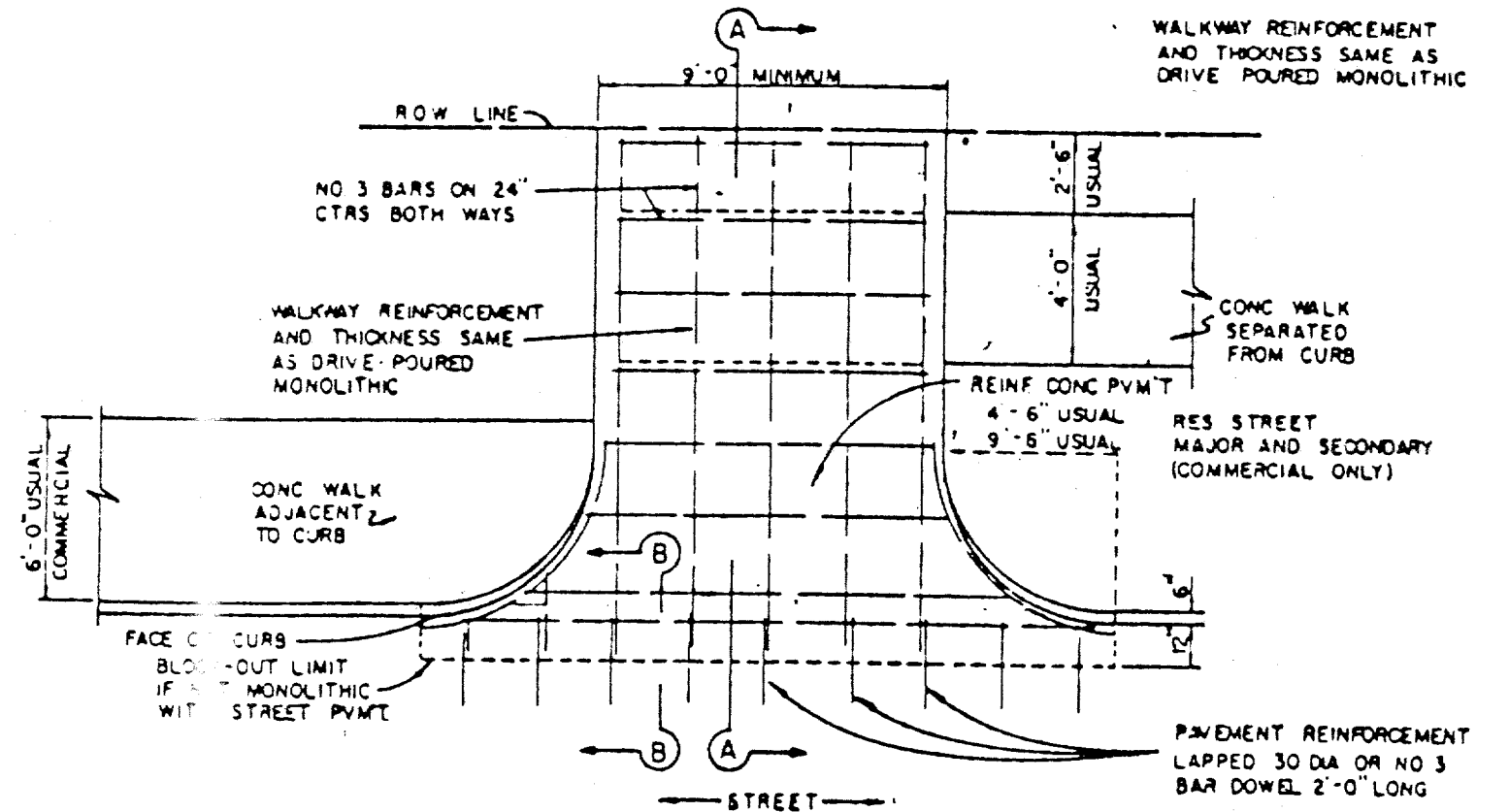
NOTE: CURBS NOT ALLOWED IN RESIDENTIAL AREAS EXCEPT AS APPROVED BY THE ENGINEER.



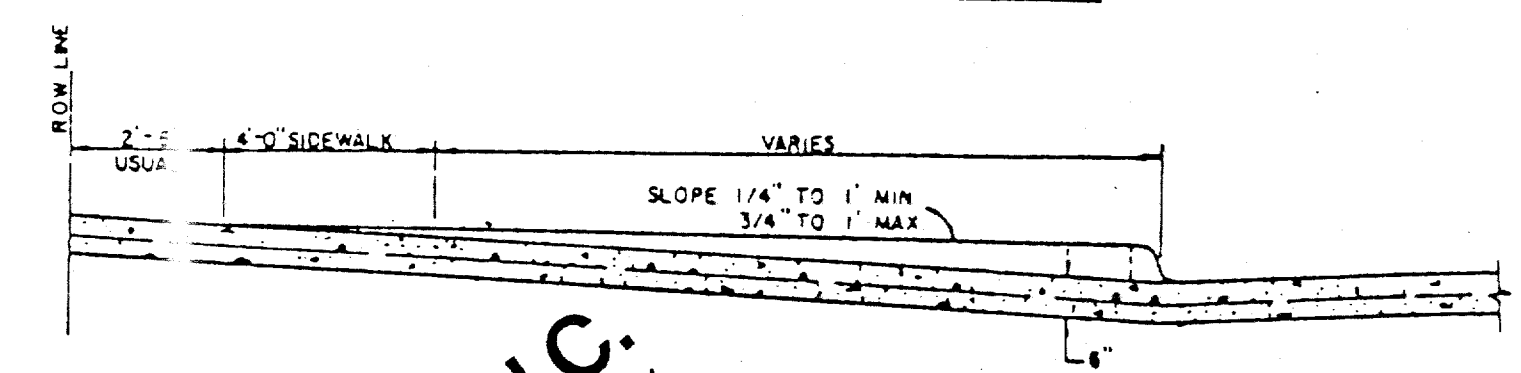
ALLEY RETURN DETAILS FOR DETAILS ONLY-SEE PLAN FOR DIMENSIONS



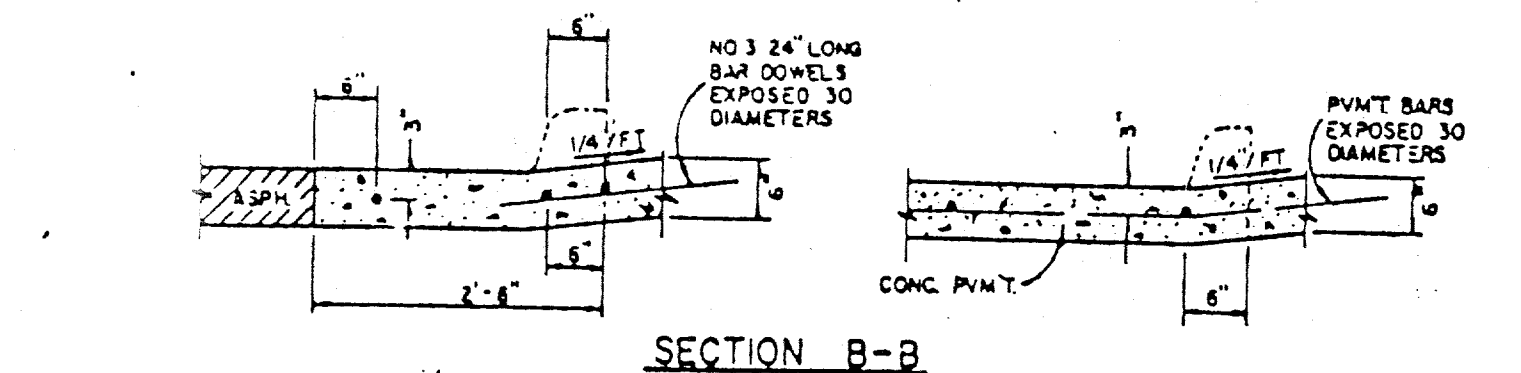
ALLEY SLOPE PROTECTION



DRIVEWAY RETURN TO STREET

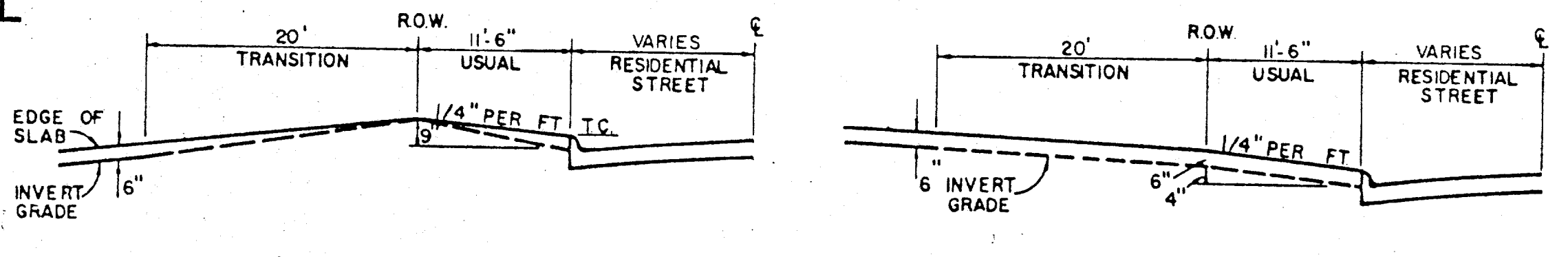


SECTION A-A DRIVEWAY RETURN DETAILS



SECTION B-B DRIVEWAY RETURN DETAILS

BARRICADE DETAIL



TYPE I ALLEY ENTRANCE

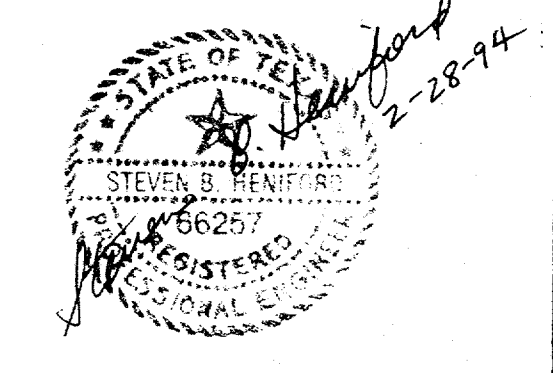
TYPE II ALLEY ENTRANCE

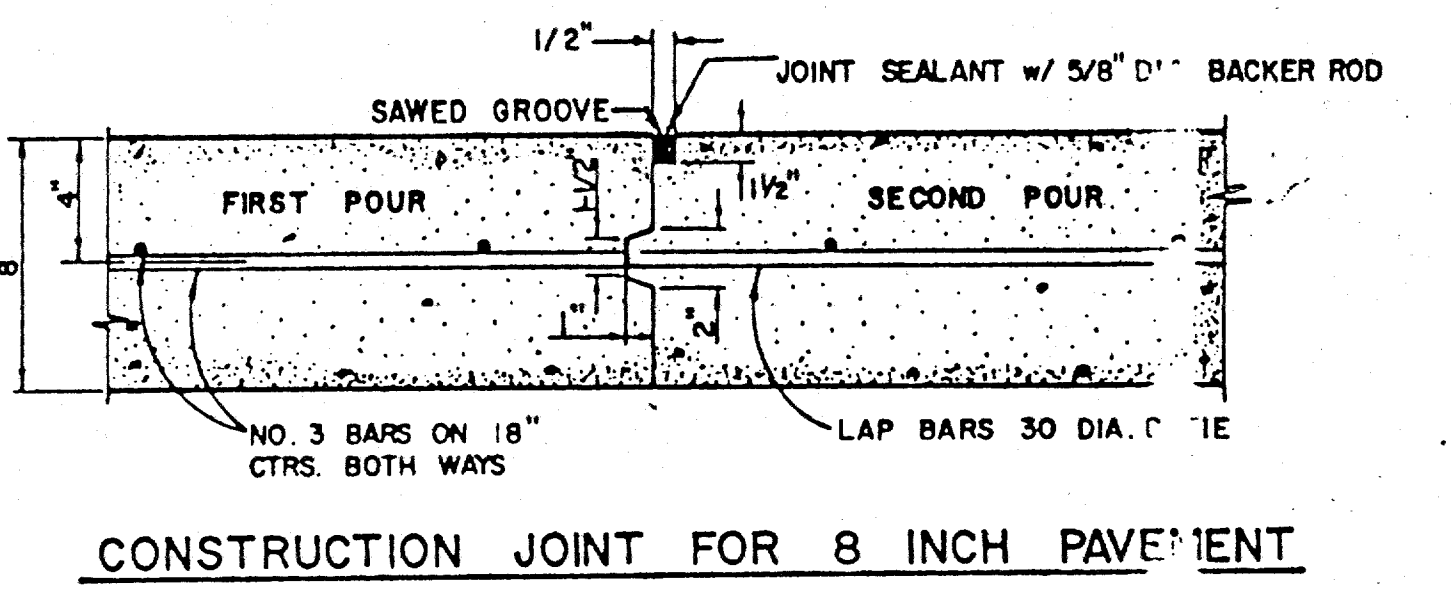
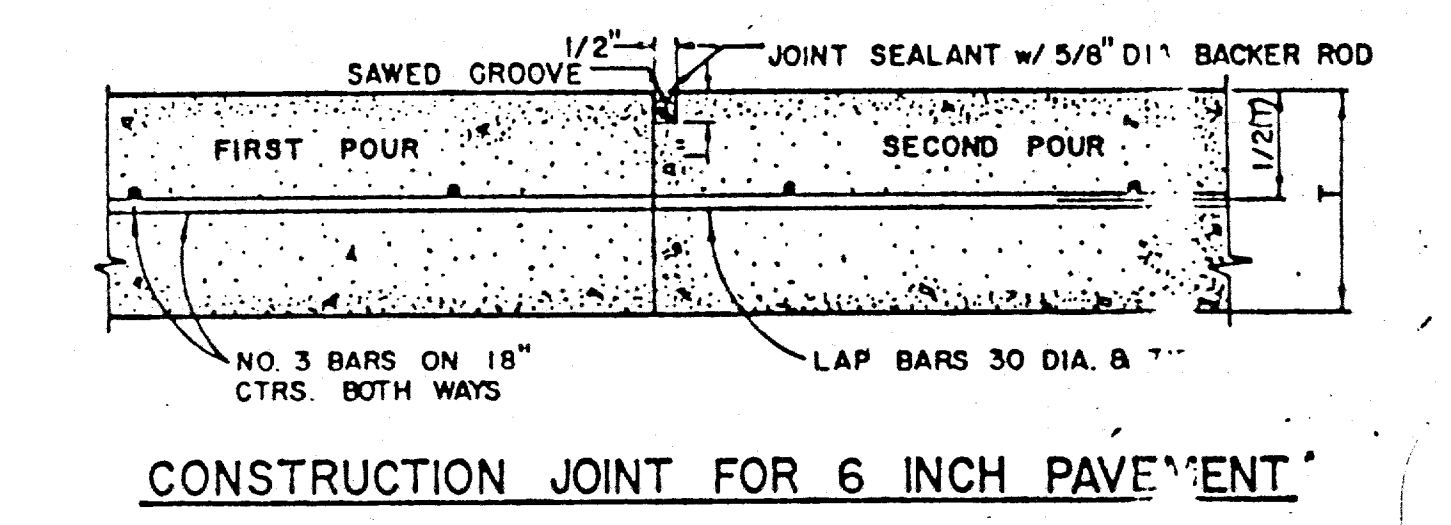
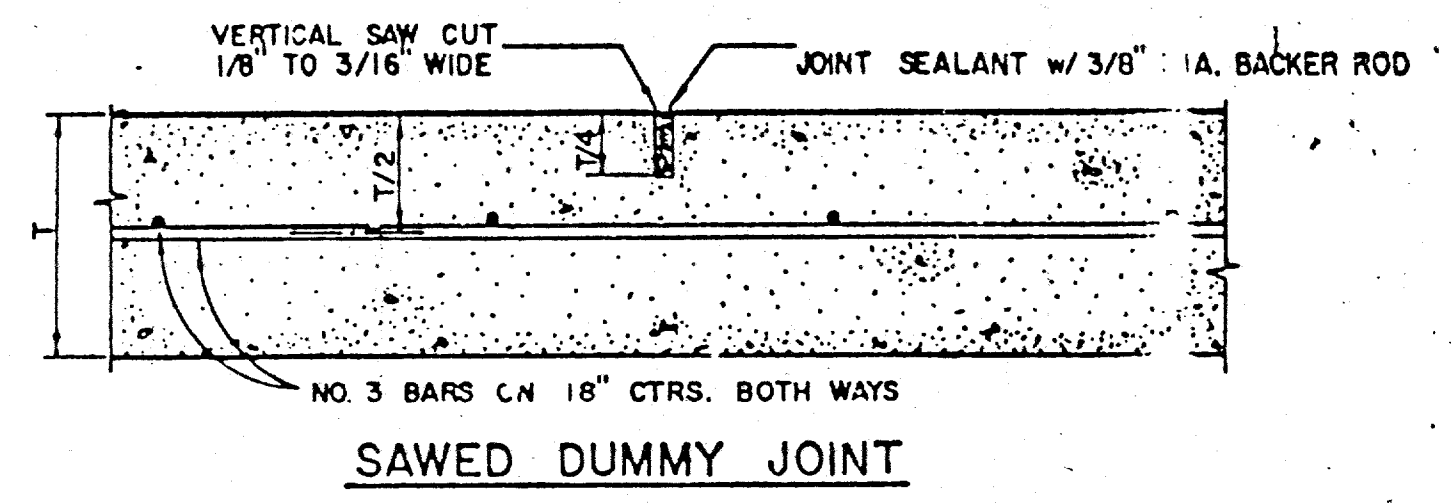
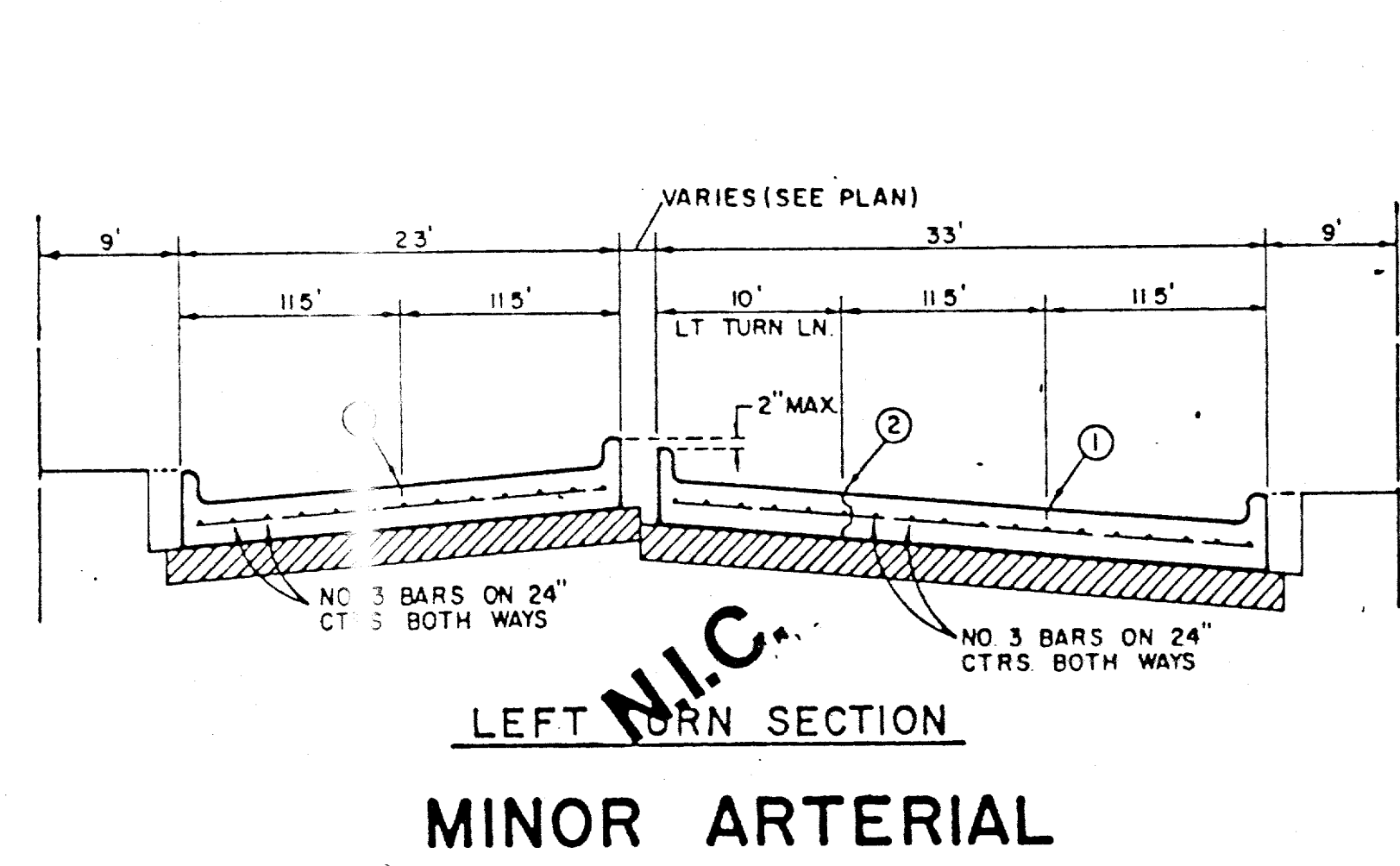
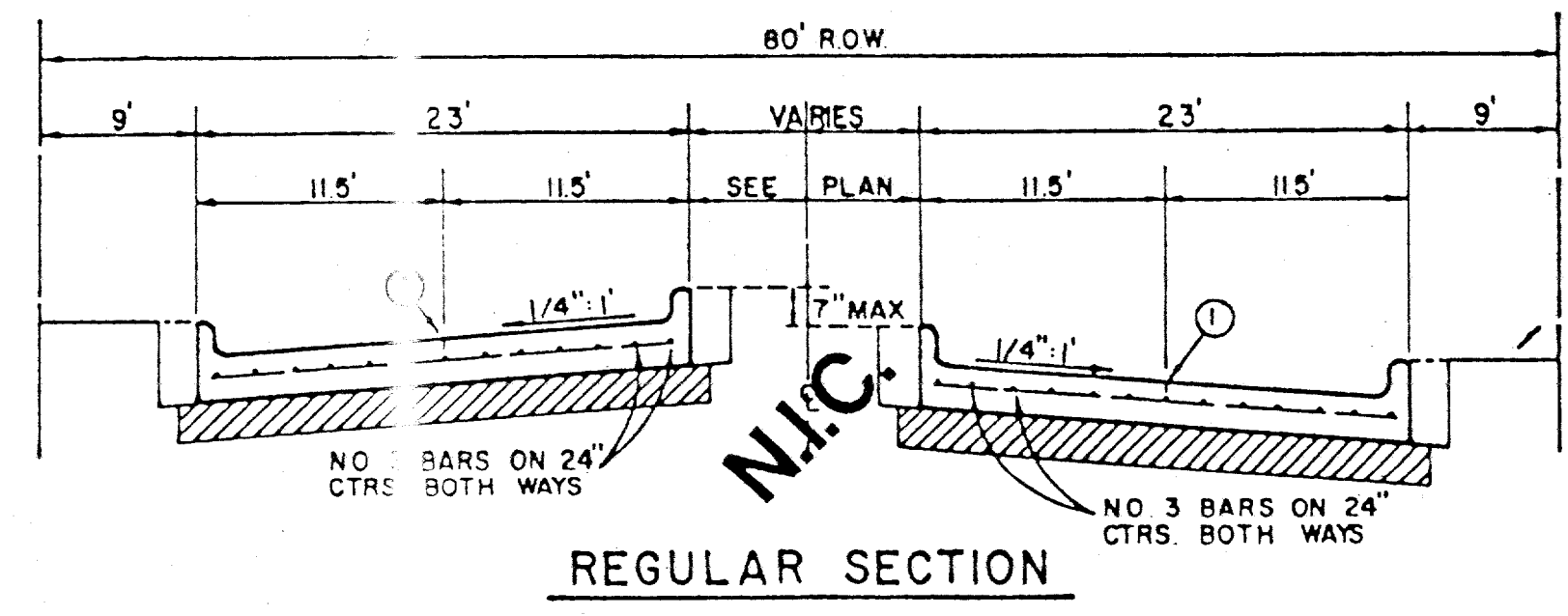
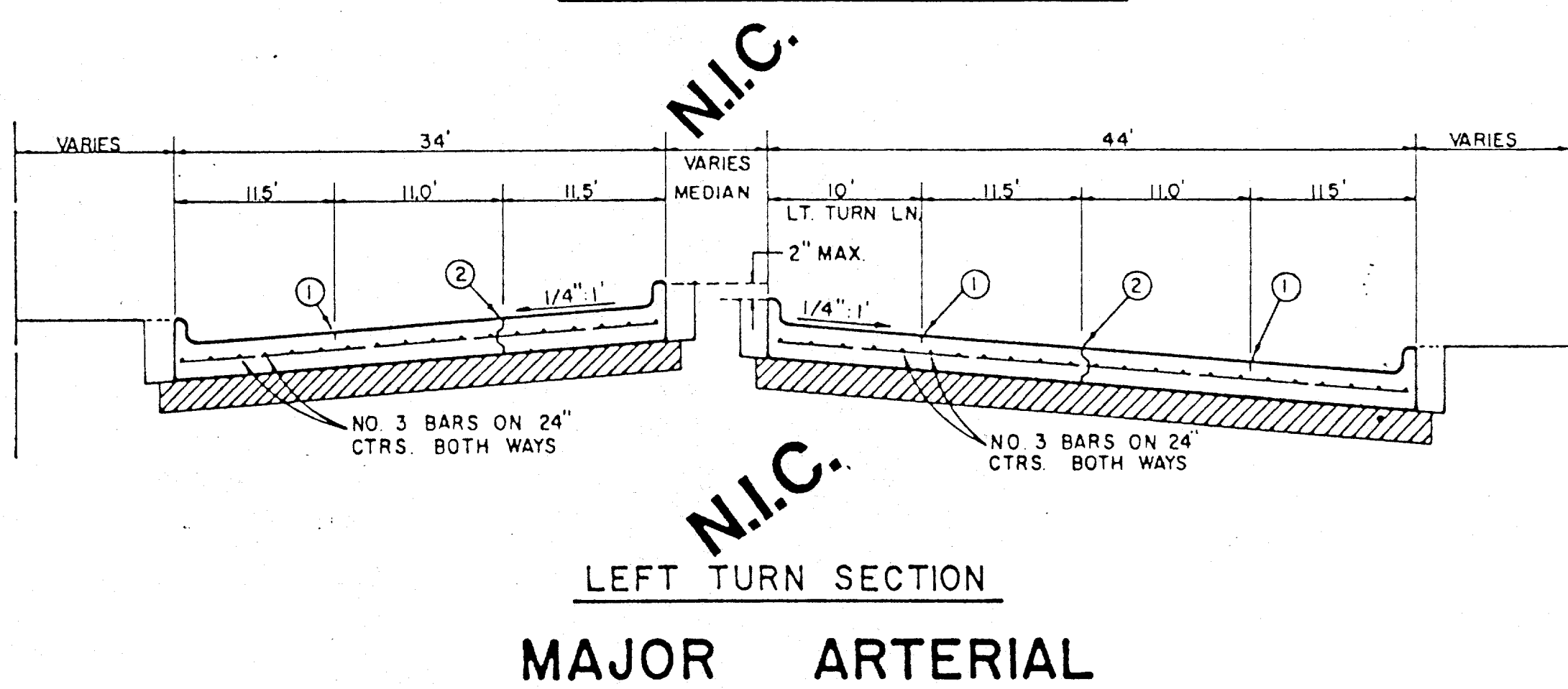
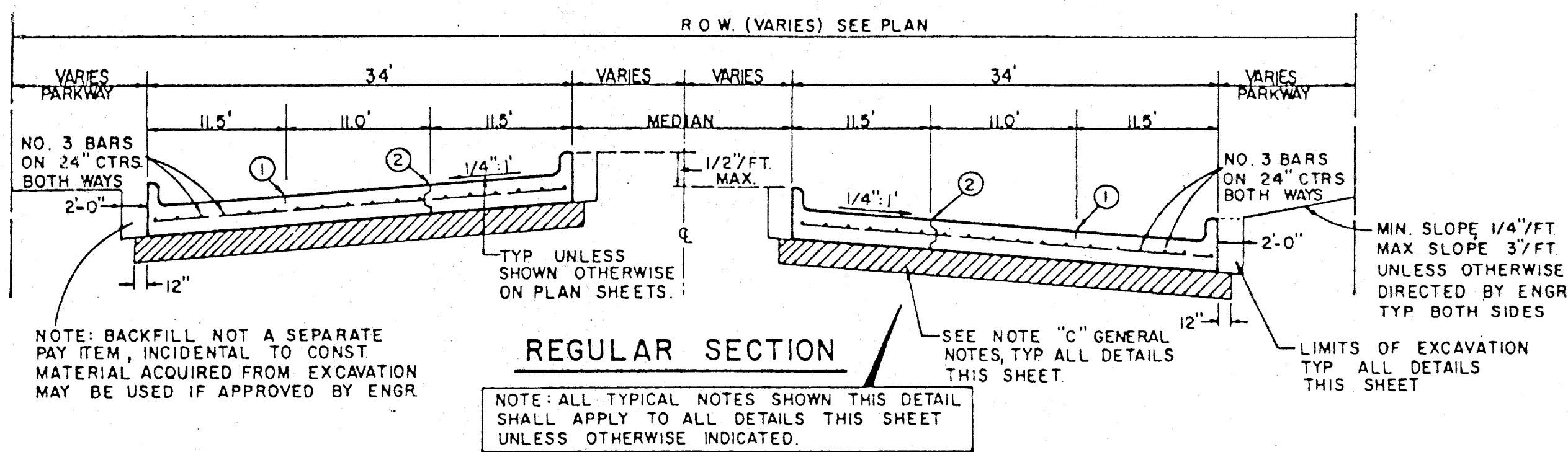
GENERAL NOTES FOR ALLEYS AND DRIVEWAYS

1. CONCRETE FOR ALLEY RETURNS AND DRIVEWAYS SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS IDENTICAL TO THAT SPECIFIED FOR THE STREET PAVEMENT OR BASE WHEN BUILT AS COMPONENTS OF A CONCRETE PAVING PROJECT. WHEN BUILT SEPARATELY, THE STRENGTH SHALL BE AS SPECIFIED ON THE CONSTRUCTION PLANS.
2. CONCRETE FOR ALLEY PAVEMENT SHALL BE OF THE STRENGTH SPECIFIED ON THE CONSTRUCTION PLANS. (3000 PSI. OR 3600 PSI. MINIMUM COMPRESSIVE)
3. SPACING AND CONSTRUCTION OF JOINTS SHALL CONFORM TO STREET PAVEMENT DETAILS.

TOWN OF ADDISON, TEXAS  
 DEPARTMENT OF ENGINEERING  
 STANDARD CONSTRUCTION DETAILS  
 PAVING  
 ALLEY & DRIVEWAY RETURNS

Designed - \_\_\_\_\_ Drawn - \_\_\_\_\_ Date - \_\_\_\_\_ Job No. - \_\_\_\_\_  
 Approved - \_\_\_\_\_ Checked - \_\_\_\_\_ Scale - \_\_\_\_\_ Sheet 1 of \_\_\_\_\_

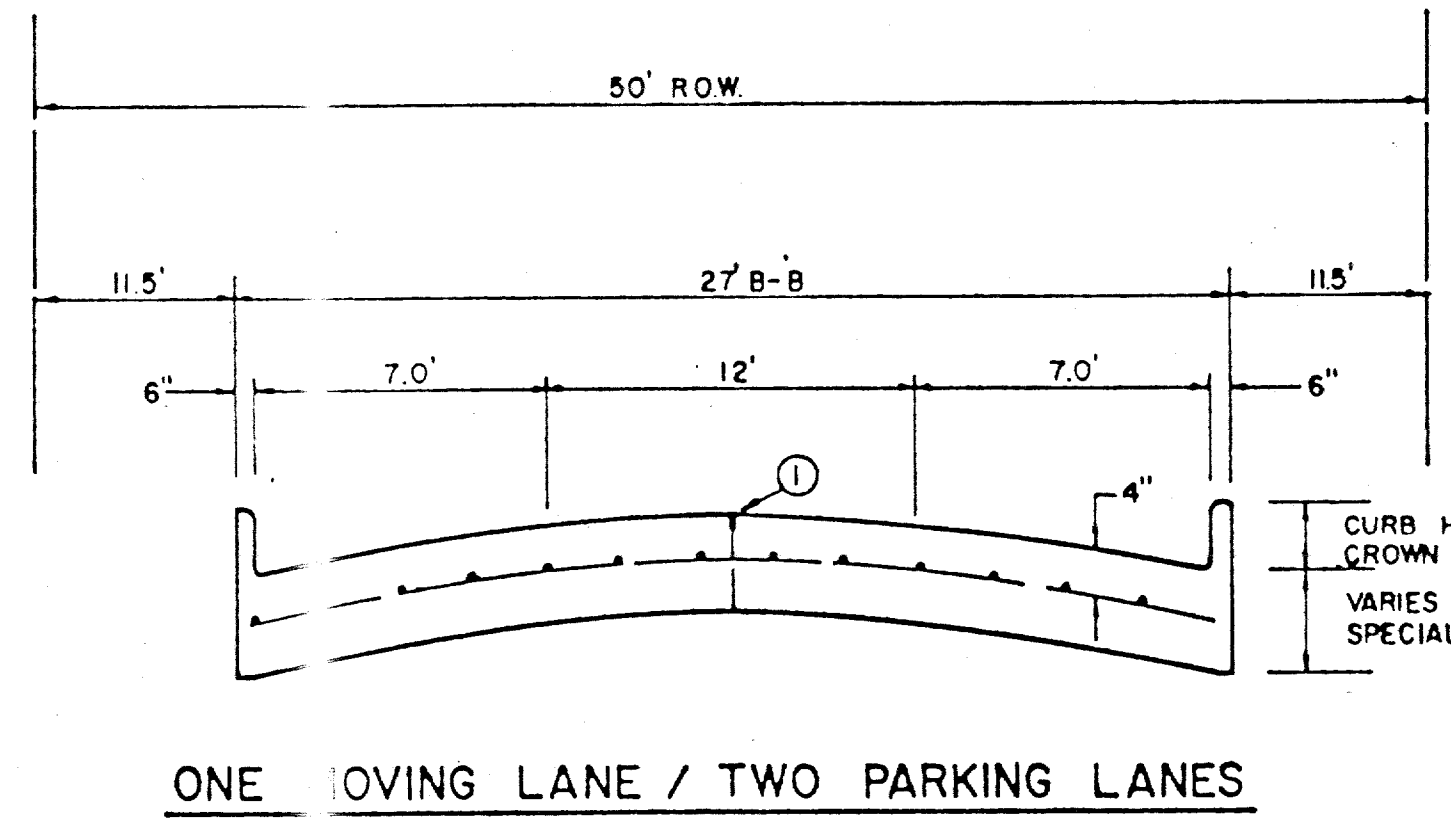
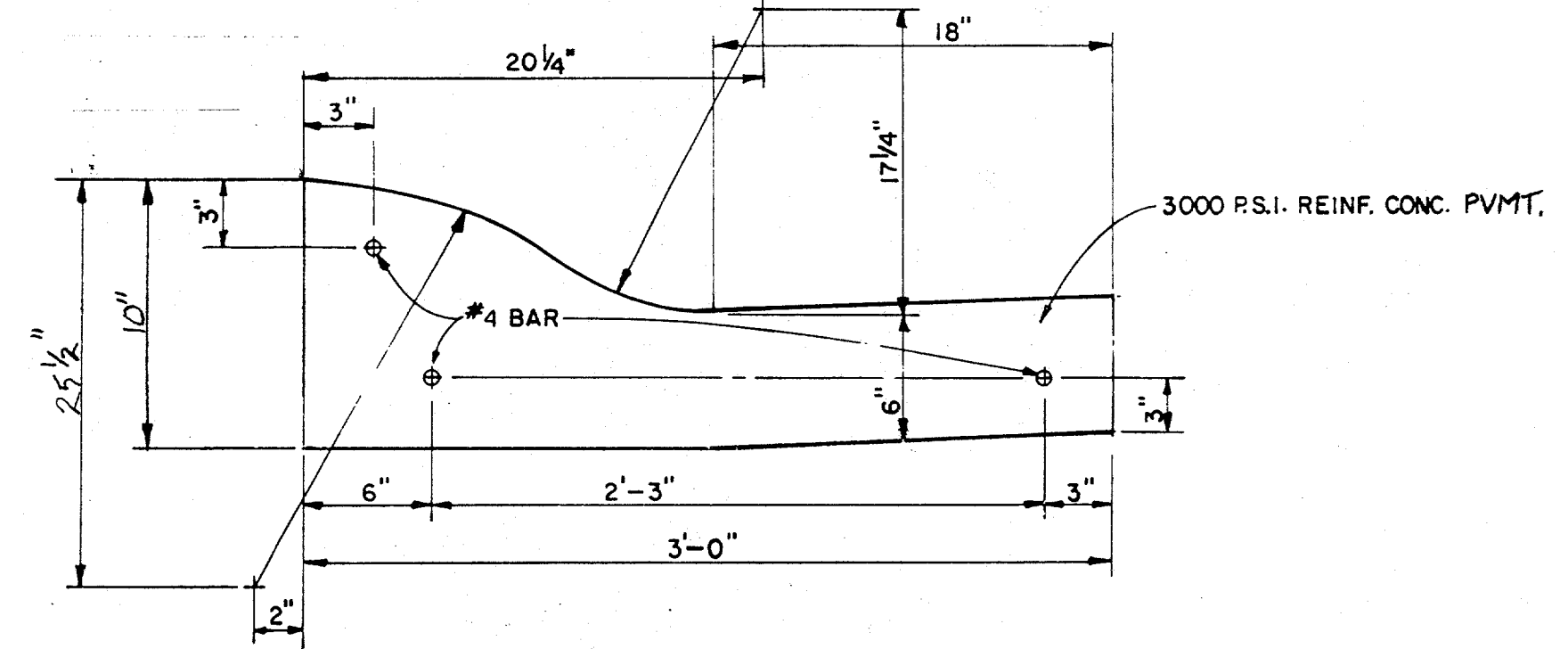




**GENERAL NOTES**

- A. GENERAL PAVEMENT THICKNESS FOR STREETS SHALL BE AS SPECIFIED BELOW IN SPECIAL NOTES.
- B. STANDARD SPECIFICATIONS REINFORCED CONCRETE PAVEMENTS
  - 1. ALL CURBS SHALL BE PLACED INTEGRAL WITH PAVEMENT
  - 2. CURBS SHALL MEET THE SAME COMPRESSIVE STRENGTH AS SPECIFIED FOR THE CONCRETE PAVEMENT.
  - 3. DETAIL AND ARRANGEMENT OF JOINTS, ALL TYPES, SHALL BE AS SHOWN ON THE STANDARD CONSTRUCTION DETAILS, OR AS APPROVED BY ENGINEER.
  - 4. BAR LAPS SHALL BE 30 DIAMETERS.
- C. BAR CHAIRS OR AN APPROVED SUPPORTING DEVICE SHALL BE FURNISHED.

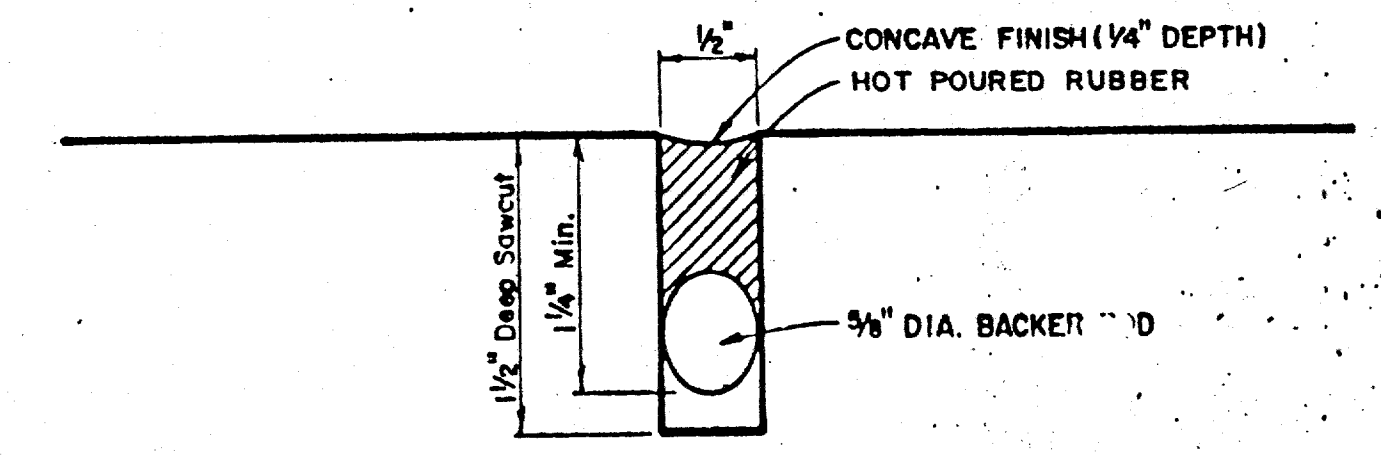
**4" MOUNTABLE CURB AND GUTTER DETAILS**



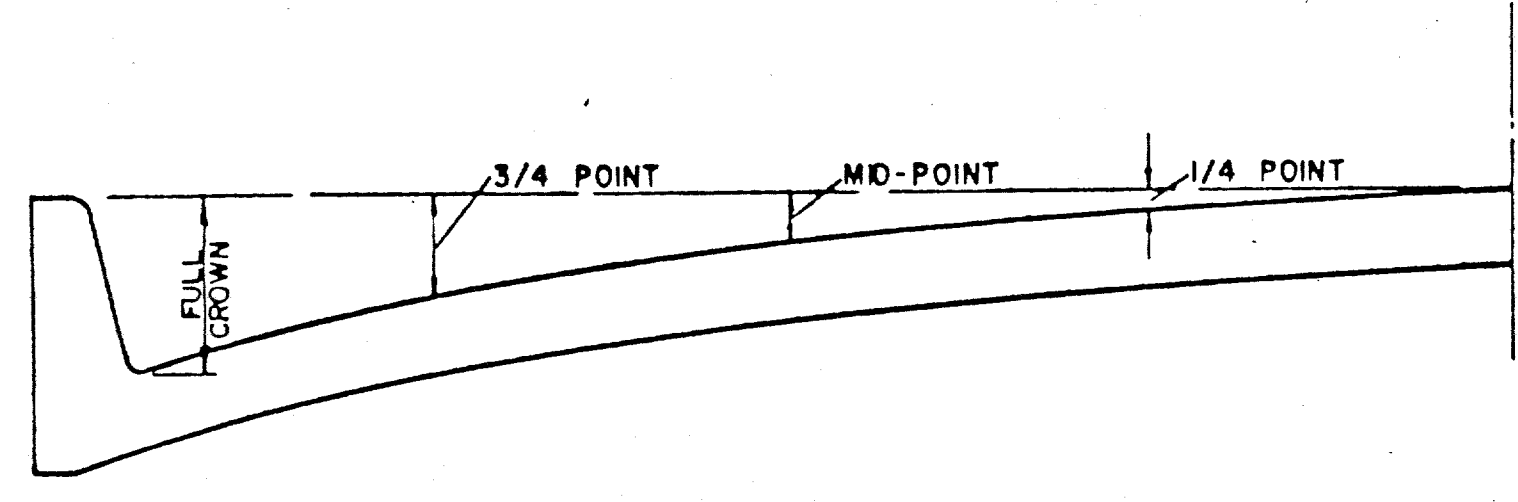
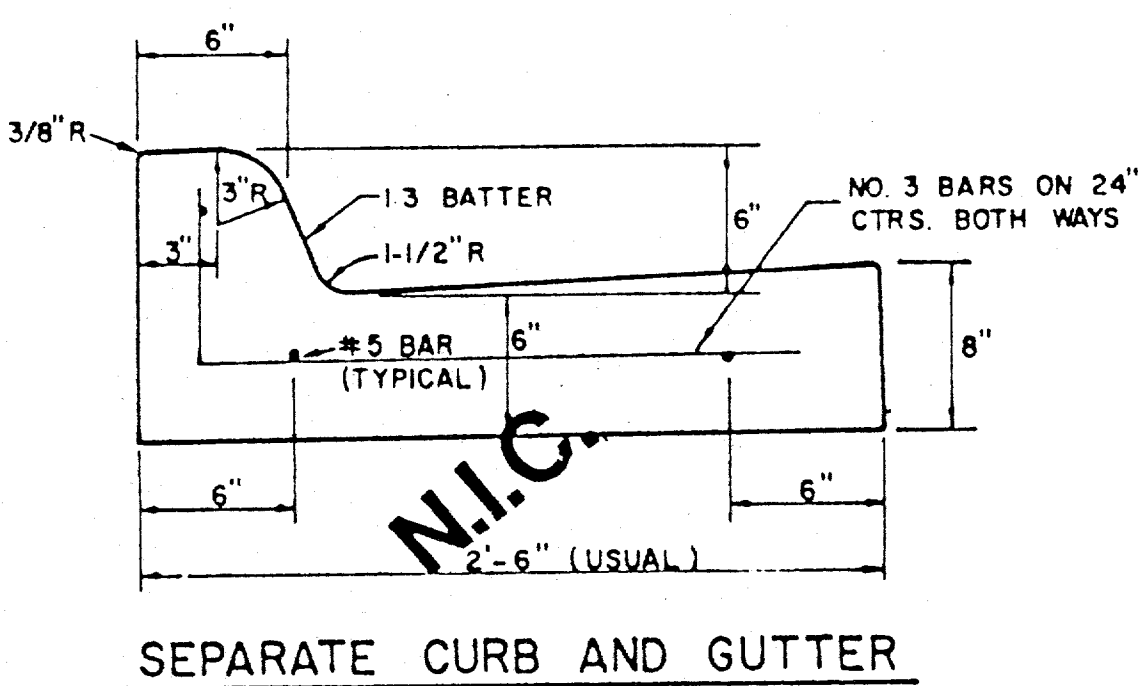
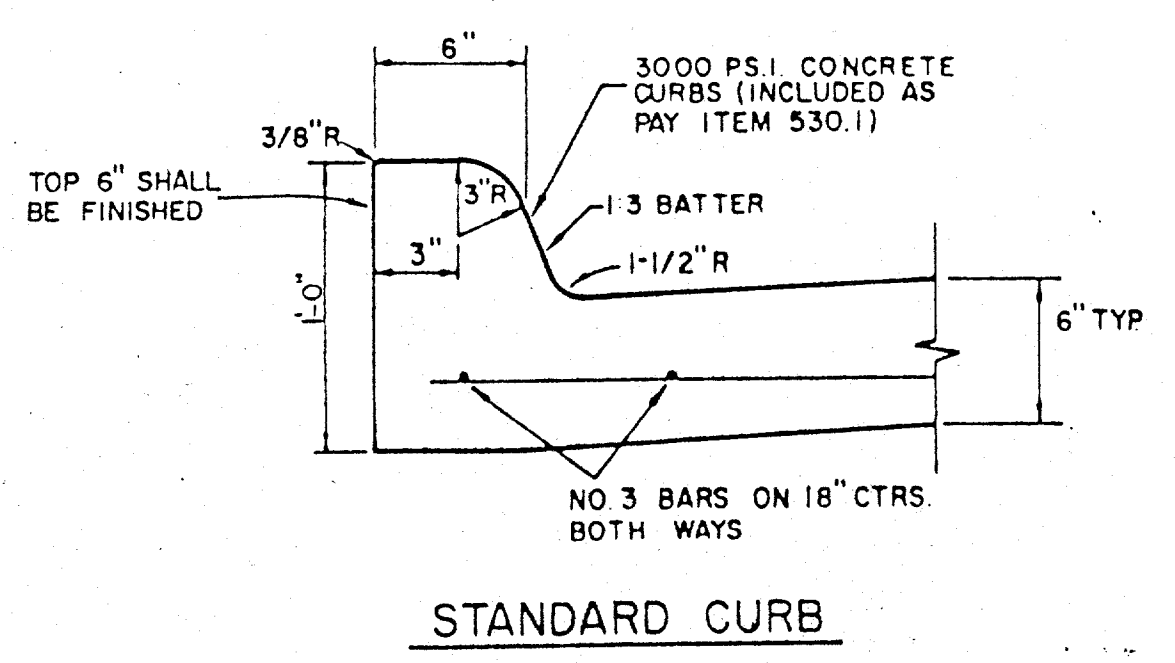
**LOCAL STREET**

**REINFORCED CONCRETE PAVEMENT**

ALL REINFORCING BARS SHALL BE NO.3 TRANSVERSE BARS TO BE SPACED ON 1'-6" CENTERS; LONGITUDINAL BARS TO BE SPACED ON 1'-6" EXCEPT WHERE NOTED.  
 UNDIVIDED STREETS-PROVIDE 4" DBL.-REF YELLOW C BUTTON P-117-Y PATTERNS TO BE ESTABLISHED BY ENGINEER. SEE DETAIL SHEET  
 ① SAWED LONGITUDINAL DUMMY JOINT.  
 ② CONSTRUCTION JOINT (FULL WIDTH PVT) IS ALLOWED WHERE APPROVED BY ENGINEER.  
 ③ FINISH SHALL BE TRANSVERSE WITH TRAFFIC LANES AND SHALL BE STEEL TINED BROOM FINISH.



**TYPICAL JOINT DETAIL**



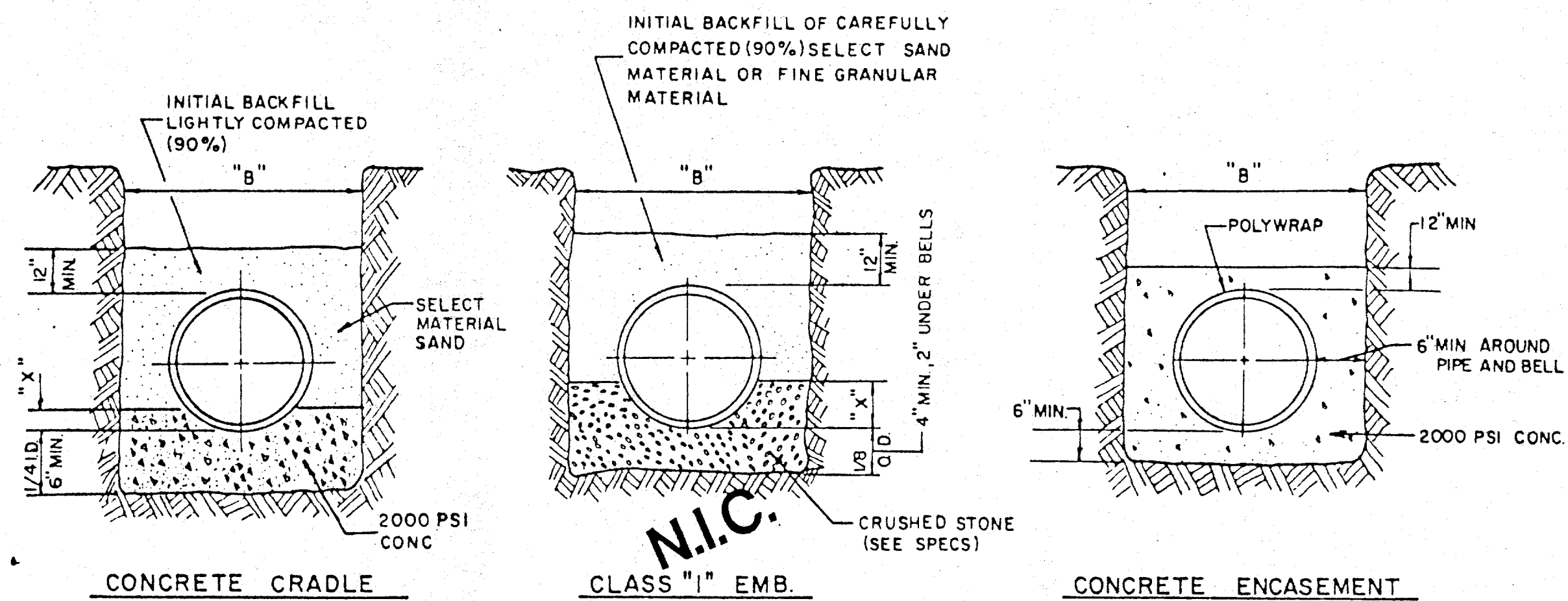
ROADWAY WIDTH (W)	TOTAL CROWN HEIGHT	3/4 POINT	MID-POINT	1/4 POINT
26'	6"	3 - 3/8"	1 - 1/2"	3/8"
36'	6"	3 - 3/8"	1 - 1/2"	3/8"
44'	6"	3 - 3/8"	1 - 1/2"	3/8"
48'	6"	3 - 3/8"	1 - 1/2"	3/8"

TABLE OF CROWN HEIGHTS AND ORDINATES FOR VARIOUS PARABOLIC SECTIONS

TOWN OF ADDISON, TEXAS  
 DEPARTMENT OF ENGINEERING  
**STANDARD CONSTRUCTION DETAILS PAVING**  
**STREET CROWNS & JOINTS**



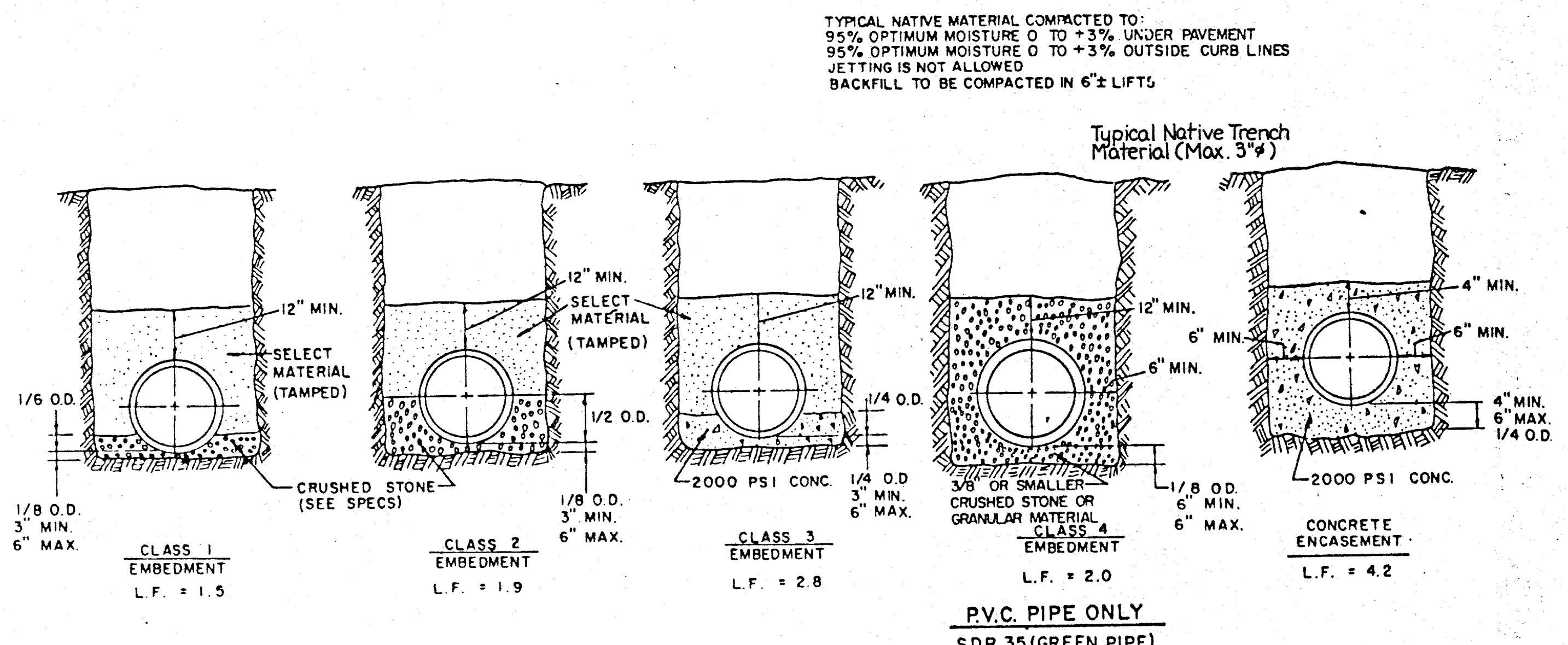
Designed -	Drawn -	Date -	Job No. -
Approved -	Checked -	Scale -	Sheet 16



**EMBEDMENT DETAILS FOR RCCP WATERLINE**

TABLE OF QUANTITIES OF MATERIALS IN CUBIC YARDS PER 100 LINEAR FEET

INSIDE DIAMETER OF PIPE	APPROX. OUTSIDE DIAMETER OF PIPE	IS A MINIMUM DEPTH	TRENCH WIDTH FOR COMPUTATION OF QUANTITIES	CONCRETE		CRUSHED STONE FOR CLASS "1" EMBEDMENT
				FOR EMBEDMENT	FOR ENCASEMENT	
REINFORCED CONCRETE CYLINDER PIPE						
14"	17.25"	2.53'	34"	6.91	16.07	5.16
16"	19.38"	2.84'	36"	7.50	17.76	5.64
18"	21.78"	3.19'	38"	8.11	19.52	6.16
24"	27.75"	4.06'	44"	9.97	24.90	9.28



**EMBEDMENT DETAILS FOR SANITARY SEWER**

TABLE OF QUANTITIES OF 2000 PSI CONCRETE, GRAVEL OR CRUSHED STONE IN CUBIC YARDS PER 100 LINEAR FEET FOR EACH CLASS EMBEDMENT

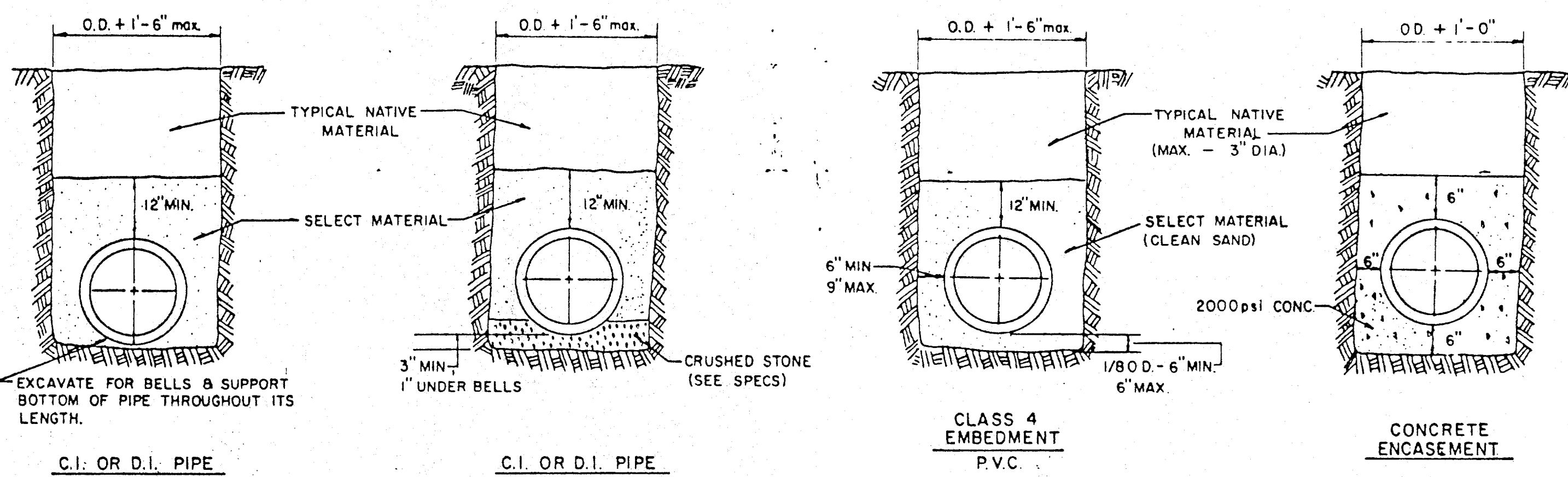
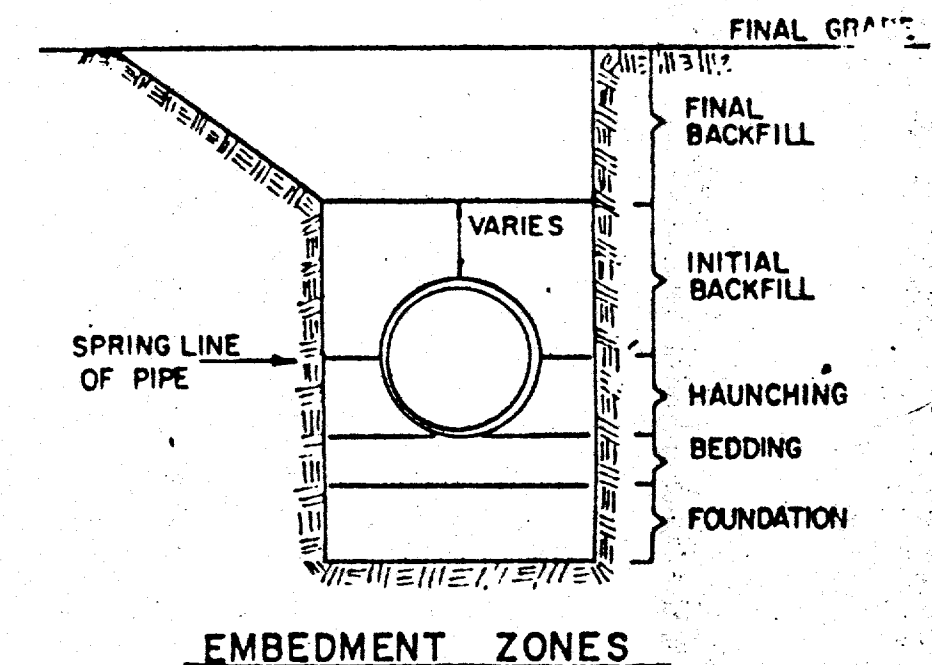
TABLE OF QUANTITIES PER 100 LINEAR FEET REINFORCED CONCRETE PIPE

SIZE OF PIPE IN INCHES I.D.	O.D. OF PIPE IN INCHES	TRENCH WIDTH IN INCHES	TRENCH WIDTH IN FEET	CLASS 1 EMBEDMENT CRUSHED STONE	CLASS 2 EMBEDMENT CRUSHED STONE	CLASS 3 EMBEDMENT CONCRETE	CONCRETE ENCASEMENT
12	16.00	32	2.67	4.1	6.5	4.8	15.8
15	19.50	36	3.00	4.8	7.8	6.4	19.2
18	23.00	39	3.25	5.7	9.2	8.2	21.2
21	26.50	43	3.58	6.9	11.0	10.2	24.9
24	30.00	46	3.83	8.3	13.1	12.4	28.7
27	33.50	51	4.25	10.3	16.1	14.4	32.8
30	37.00	57	4.75	12.7	20.1	17.0	34.8
33	40.50	62	5.17	15.1	23.8	19.3	39.2
36	44.00	67	5.58	18.0	28.6	22.1	43.8

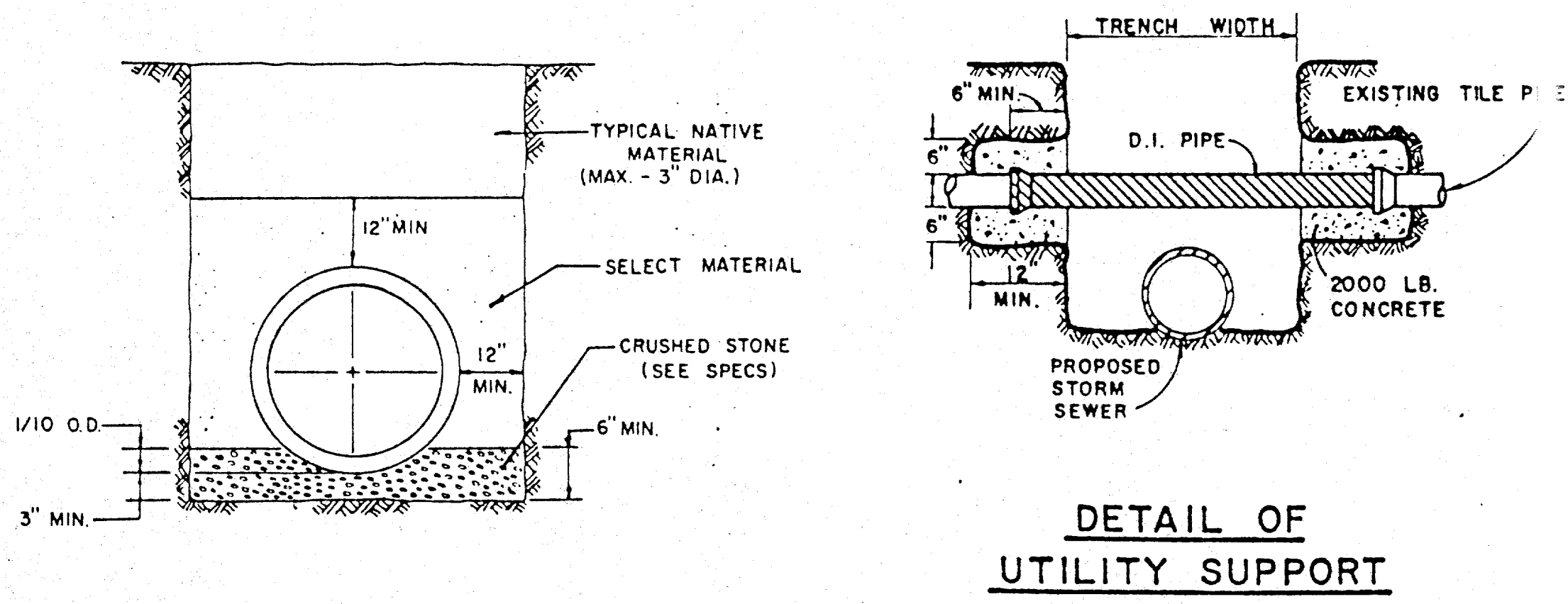
TABLE OF QUANTITIES PER 100 LINEAR FEET-PVC PIPE (IN CUBIC YARDS)

SIZE OF PIPE IN INCHES	O.D. OF PIPE IN INCHES	TRENCH WIDTH IN INCHES	TRENCH WIDTH IN FEET	CLASS 4 EMBEDMENT CRUSHED STONE	CONCRETE ENCASEMENT
6	6.28	24	2.00	8.0	11.7
8	8.16	24	2.00	8.7	12.4
10	10.20	26	2.18	10.2	14.2
12	12.24	28	2.35	11.7	15.9
16	15.30	31	2.61	14.0	18.8
24		36	3.0		
30		42	3.5		

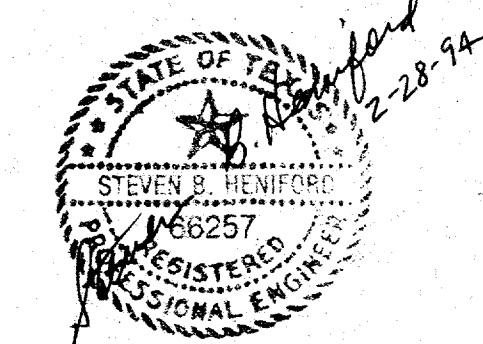
NOTE: ALL SANITARY SEWER LINES THIS PROJECT SHALL HAVE CLASS 4 EMBEDMENT UNLESS OTHERWISE NOTED.



**EMBEDMENT DETAILS FOR WATER MAIN**



**EMBEDMENT DETAIL FOR STORM SEWER**

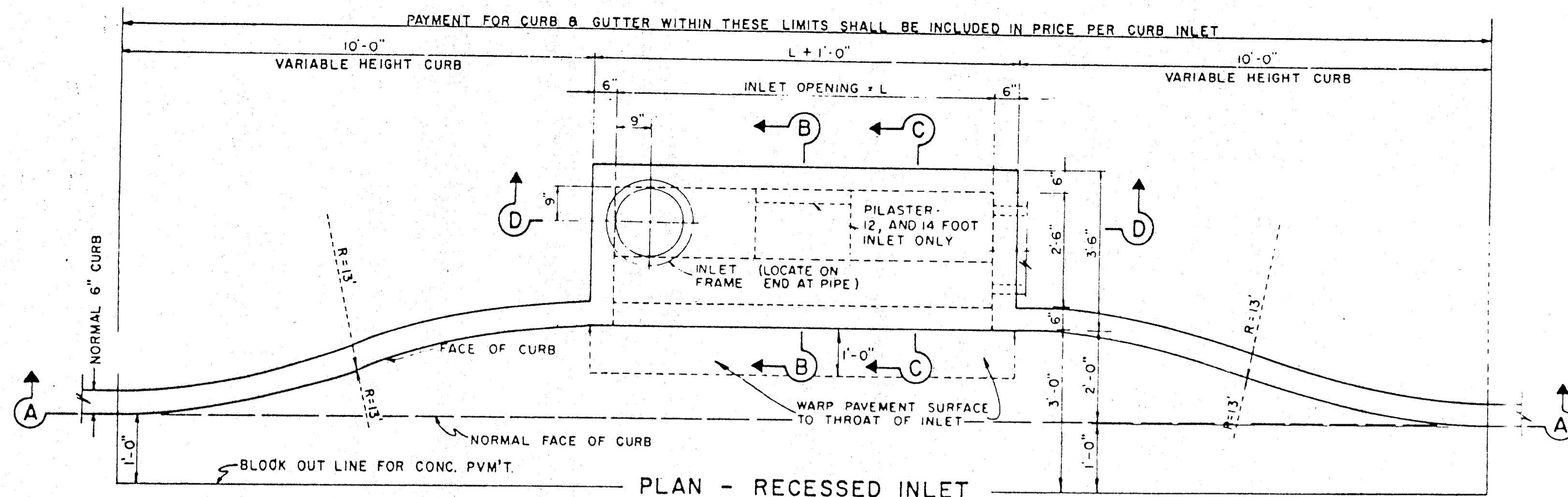


TOWN OF ADDISON, TEXAS  
DEPARTMENT OF ENGINEERING

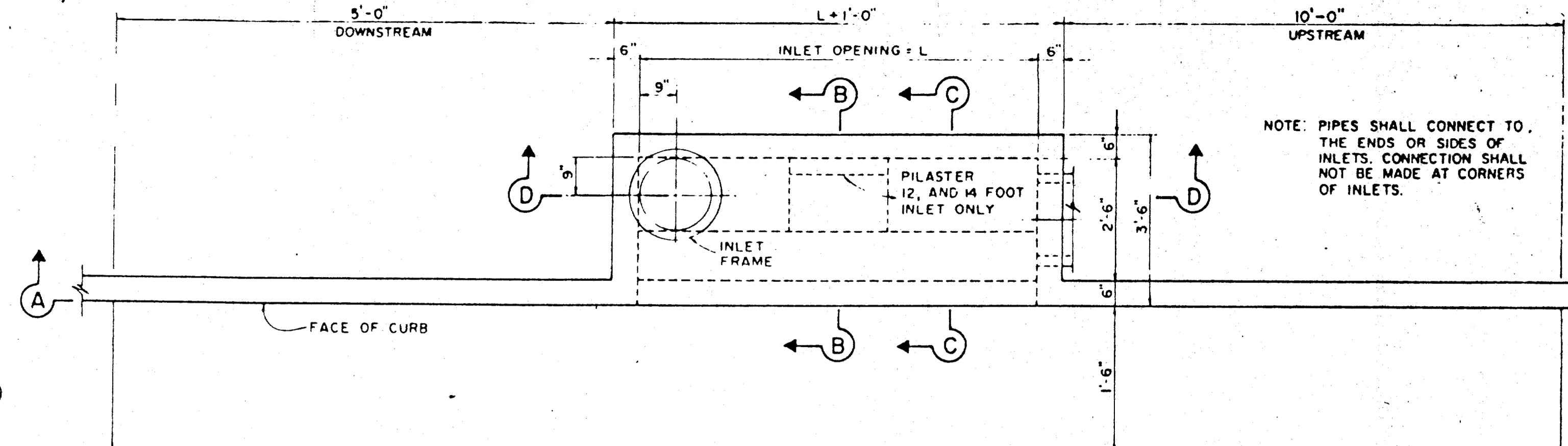
STANDARD CONSTRUCTION DETAILS

EMBEDMENT DETAILS

Designed -	Drawn -	Date - AUGUST, 1991	Job No. -
Approved -	Checked -	Scale -	Sheet 10

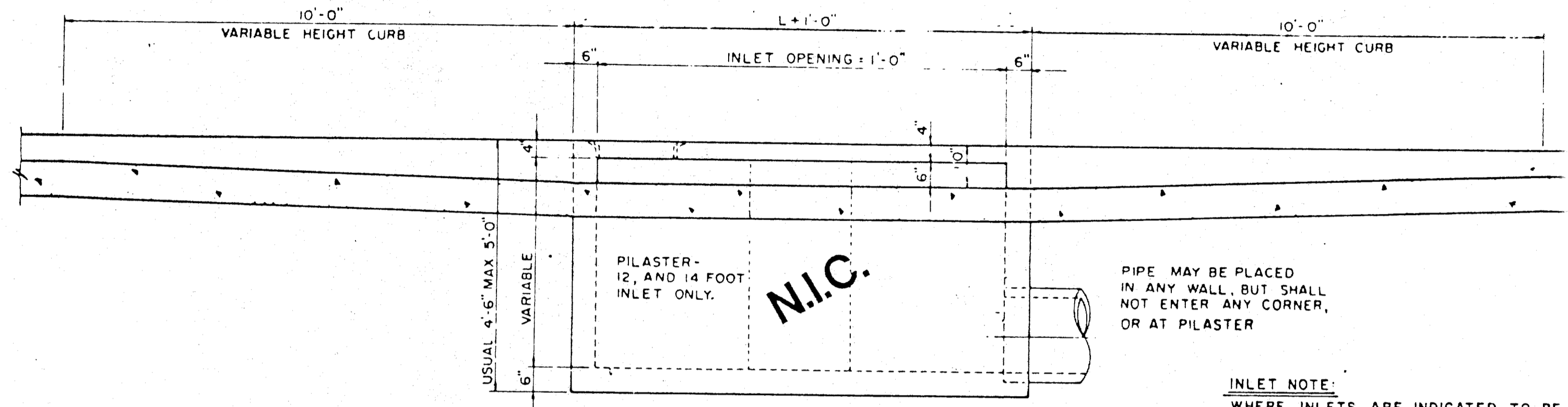


PLAN - RECESSED INLET



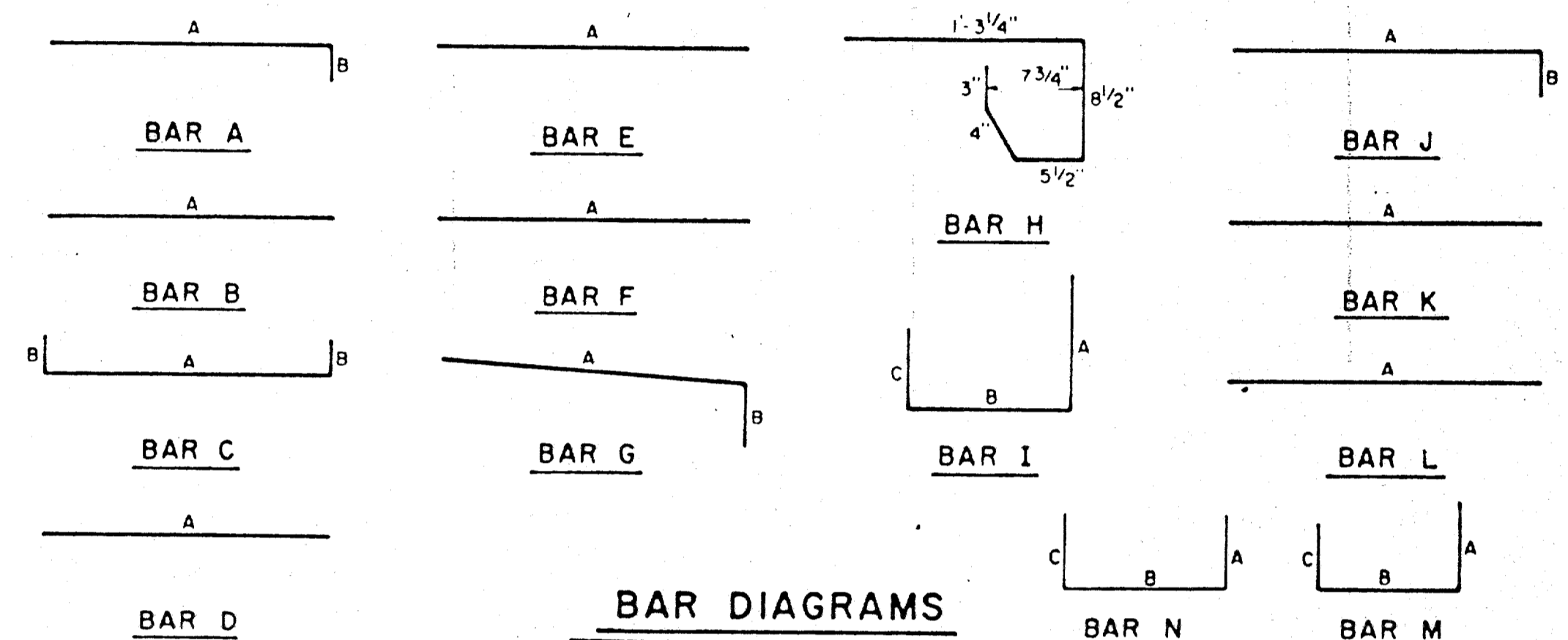
PLAN - STANDARD INLET

NOTE: PIPES SHALL CONNECT TO THE ENDS OR SIDES OF INLETS. CONNECTION SHALL NOT BE MADE AT CORNERS OF INLETS.



SECTION A-A-RECESSED AND STANDARD INLETS  
4, 6, 8, 10, 12, AND 14 FOOT INLETS

INLET NOTE:  
WHERE INLETS ARE INDICATED TO BE MODIFIED, REFER TO PLAN/PROFILE SHEETS FOR ELEV. DIFFERENT SIZES MODIFICATIONS. ALL OTHER ITEMS SHALL REMAIN AS SHOWN ON THIS STANDARD DETAIL SHEET.



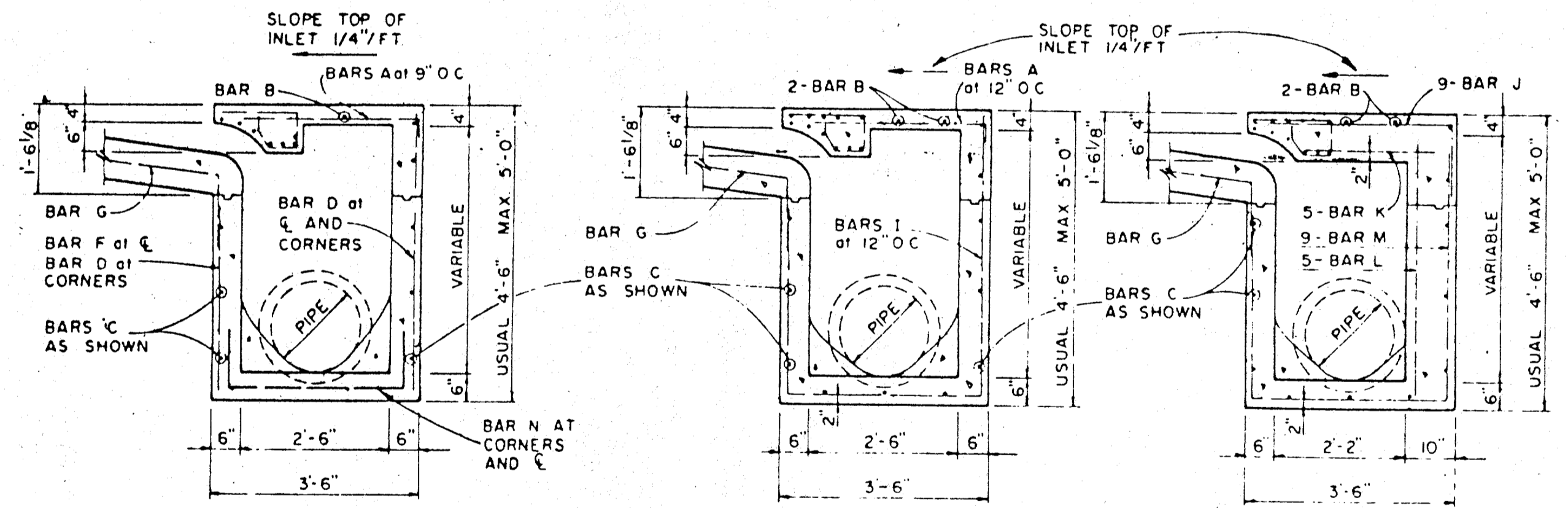
BAR DIAGRAMS

REINFORCING STEEL SCHEDULE

DIMENSIONS SHOWN ARE FOR MAXIMUM SIZE INLETS

INLET LENGTH	BAR TYPE	BAR DIA (1/8 IN)	NO. REQ'D	BAR DIMENSIONS			
				A	B	C	
4	A	3	6	3'-2"	0'-3"	-	
	B	3	1	2'-10"	-	-	
	C	4	15	4'-8"	0'-6"	-	
	D	4	5	4'-8"	-	-	
	F	4	1	3'-2"	-	-	
	G	3	5	2'-0"	1'-3"	-	
	H	3	4	-	-	-	
	N	3	3	3'-2"	3'-2"	3'-2"	
	A	3	9	3'-2"	0'-3"	-	
	6	B	3	1	4'-10"	-	-
C		4	15	6'-8"	0'-6"	-	
D		4	5	4'-8"	-	-	
F		4	1	3'-2"	-	-	
G		3	5	2'-0"	1'-3"	-	
H		3	6	-	-	-	
N		3	3	3'-2"	3'-2"	3'-2"	
A		3	12	3'-2"	0'-3"	-	
8		B	3	1	6'-10"	-	-
		C	4	15	8'-8"	0'-6"	-
	D	4	5	4'-8"	-	-	
	F	4	1	3'-2"	-	-	
	G	3	5	2'-0"	1'-3"	-	
	H	3	6	-	-	-	
	N	3	3	3'-2"	3'-2"	3'-2"	
	A	3	10	3'-2"	0'-3"	-	
	10	B	3	2	8'-10"	-	-
		C	4	16	10'-8"	0'-6"	-
D		4	4	4'-8"	-	-	
E		5	6	12'-8"	-	-	
G		3	5	2'-0"	1'-3"	-	
H		3	15	-	-	-	
I		4	8	4'-8"	3'-2"	3'-2"	
12		A	3	12	3'-2"	0'-3"	-
		B	3	2	10'-10"	-	-
		C	4	16	12'-8"	0'-6"	-
	D	4	4	4'-8"	-	-	
	E	5	6	12'-8"	-	-	
	G	3	5	2'-0"	1'-3"	-	
	H	3	18	-	-	-	
	I	4	10	4'-8"	3'-2"	3'-2"	
	J	5	9	3'-2"	1'-3"	-	
	14	K	4	5	2'-3"	-	-
L		4	5	4'-3"	-	-	
M		5	9	4'-3"	3'-2"	3'-9"	
A		3	14	3'-2"	0'-3"	-	
B		3	2	10'-10"	-	-	
C		4	16	14'-8"	0'-6"	-	
D		4	4	4'-8"	-	-	
E		5	6	14'-8"	-	-	
G		3	5	2'-0"	1'-3"	-	
H		3	21	-	-	-	
I	4	12	4'-8"	3'-2"	3'-2"		
J	5	9	3'-2"	1'-3"	-		
K	4	5	2'-3"	-	-		
L	4	5	4'-3"	-	-		
M	5	9	4'-3"	3'-2"	3'-9"		

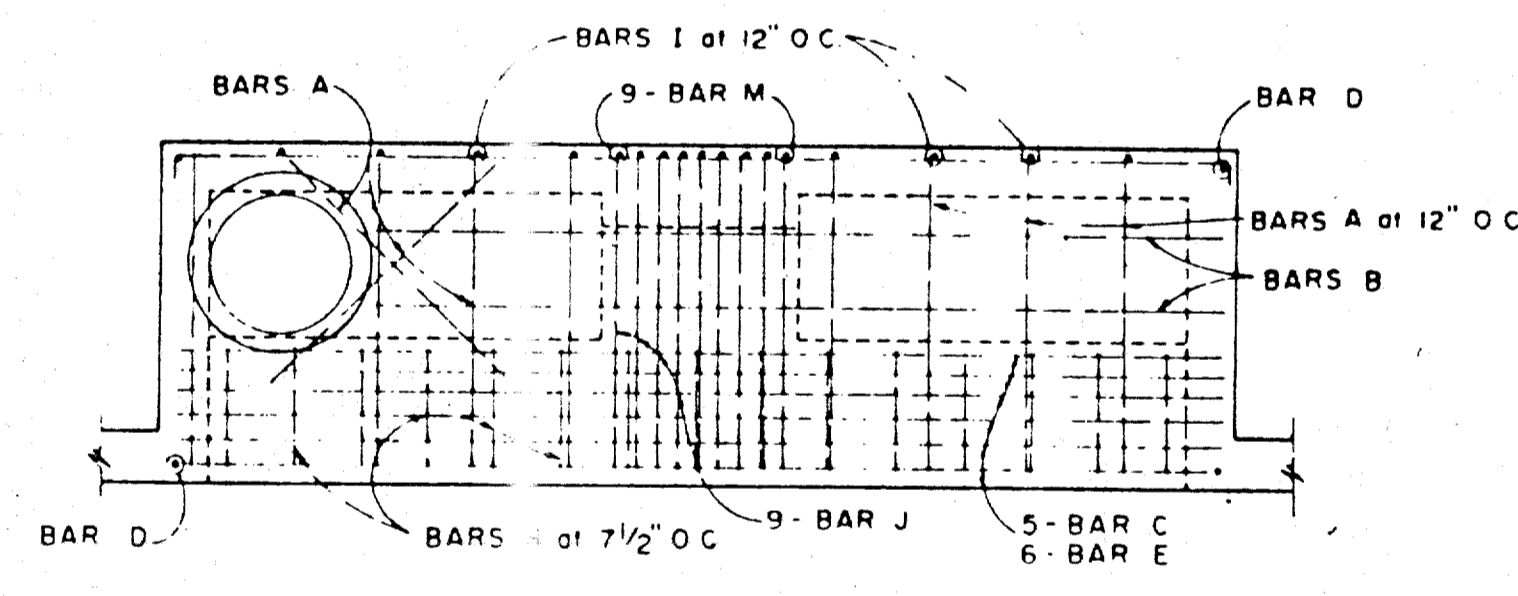
\* SEE DIAGRAM FOR DIMENSIONS



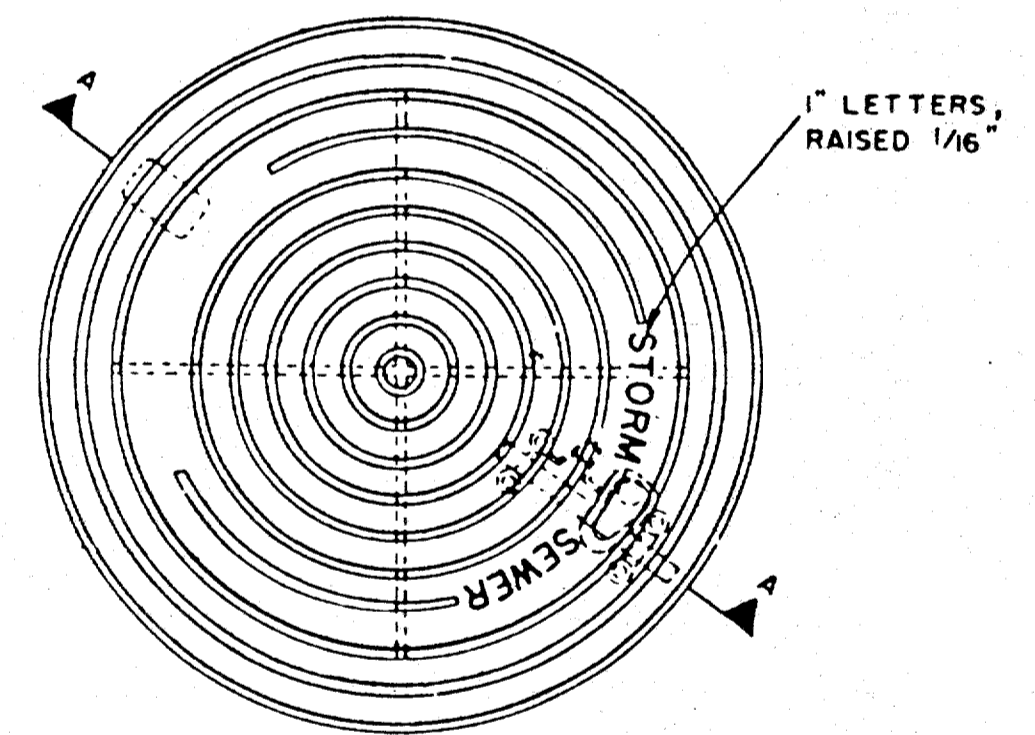
SECTION B-B

SECTION C-C

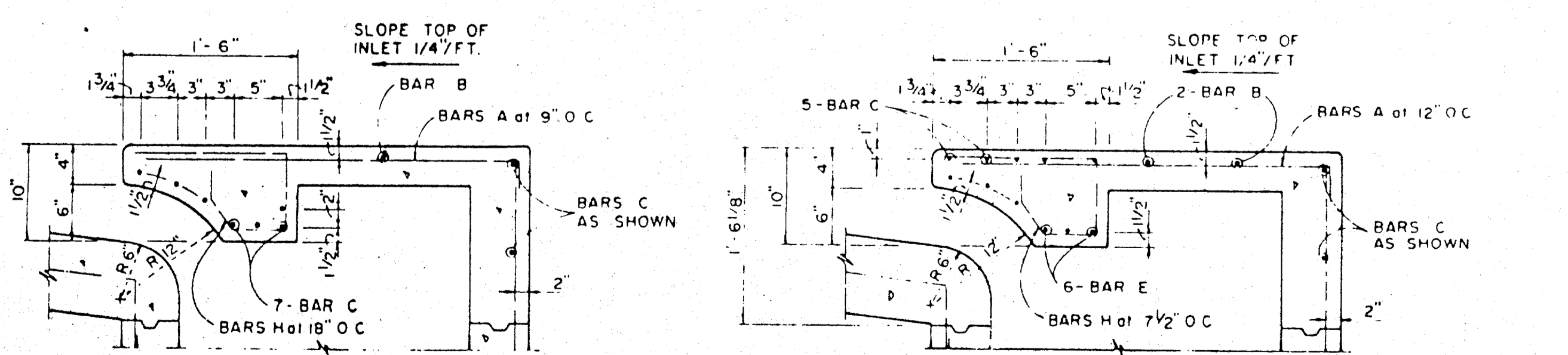
SECTION B-B



PLAN



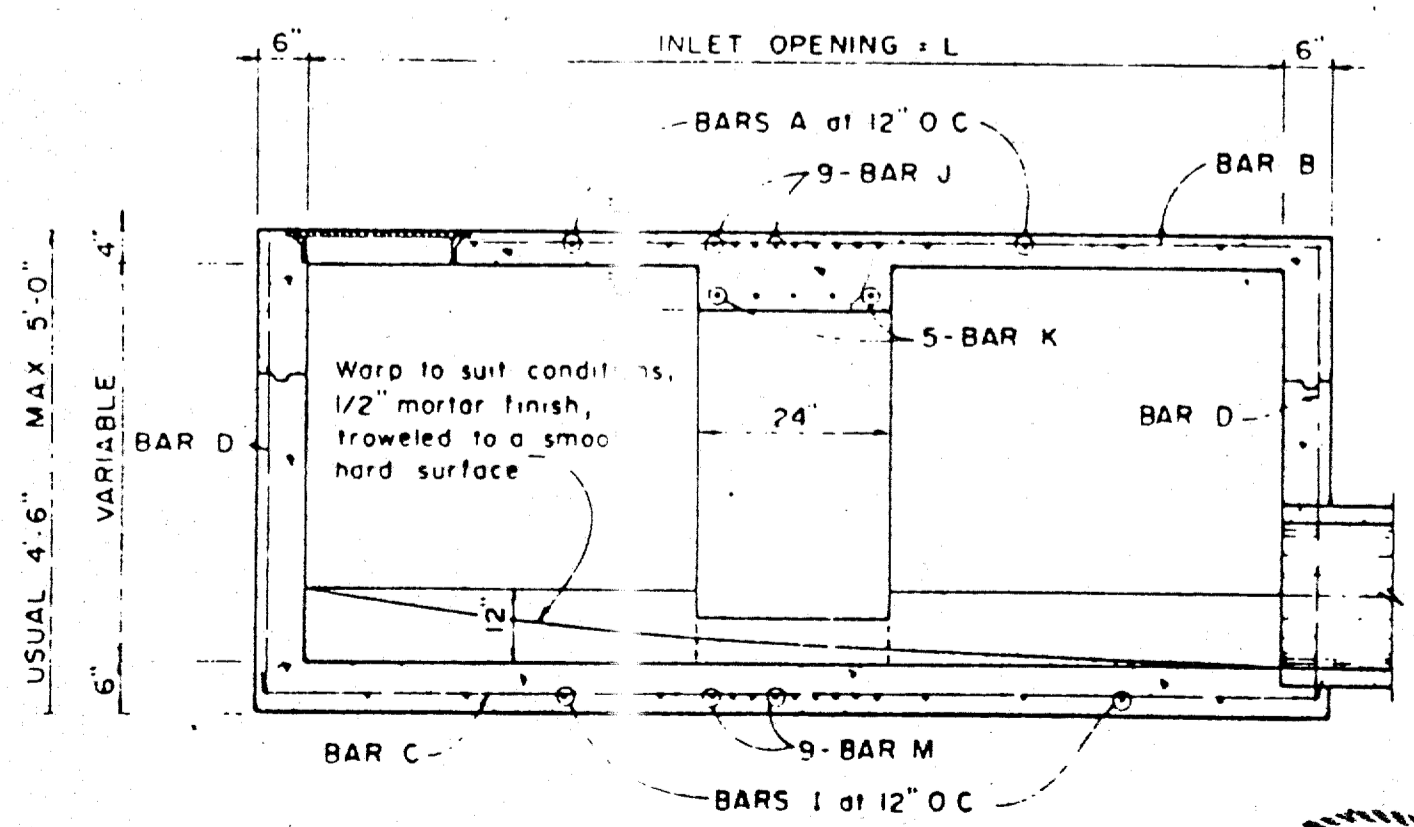
PLAN OF FRAME



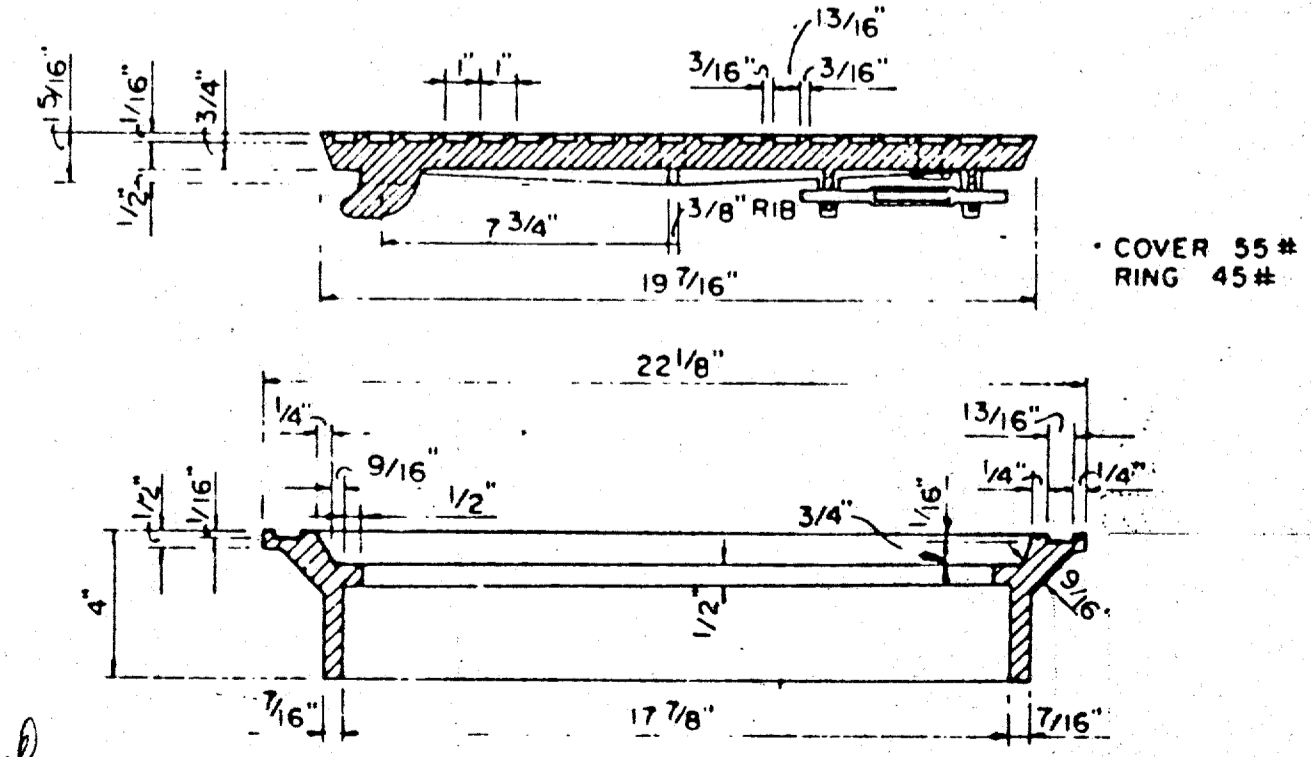
SECTION C-C

SECTION C-C

4, 6, AND 8 FOOT INLETS

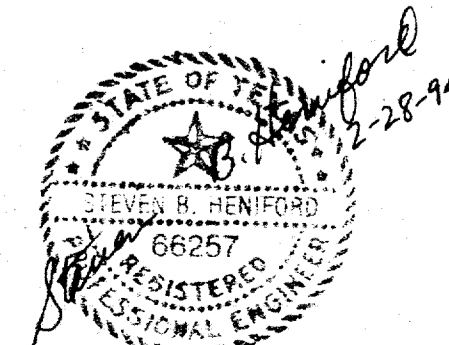


SECTION D-D FOR 12' & 14' ONLY



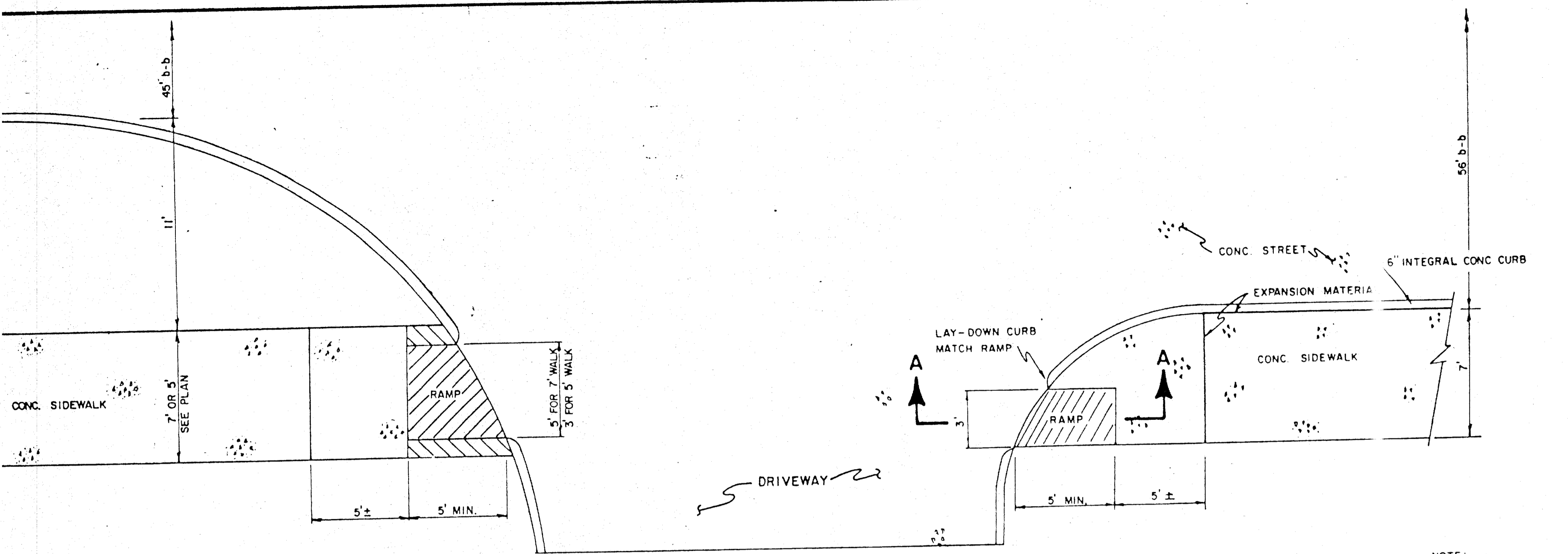
SECTION OF FRAME AND COVER

INLET FRAME AND COVER

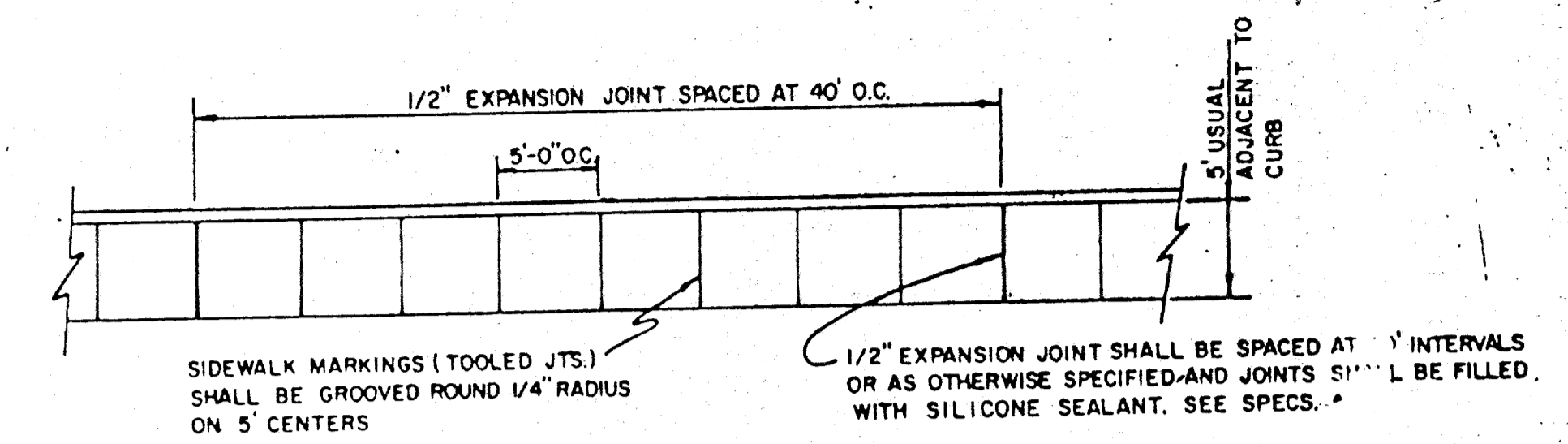


TOWN OF ADDISON, TEXAS  
DEPARTMENT OF ENGINEERING  
STANDARD CONSTRUCTION DETAILS  
STORM DRAINAGE  
CURB INLETS

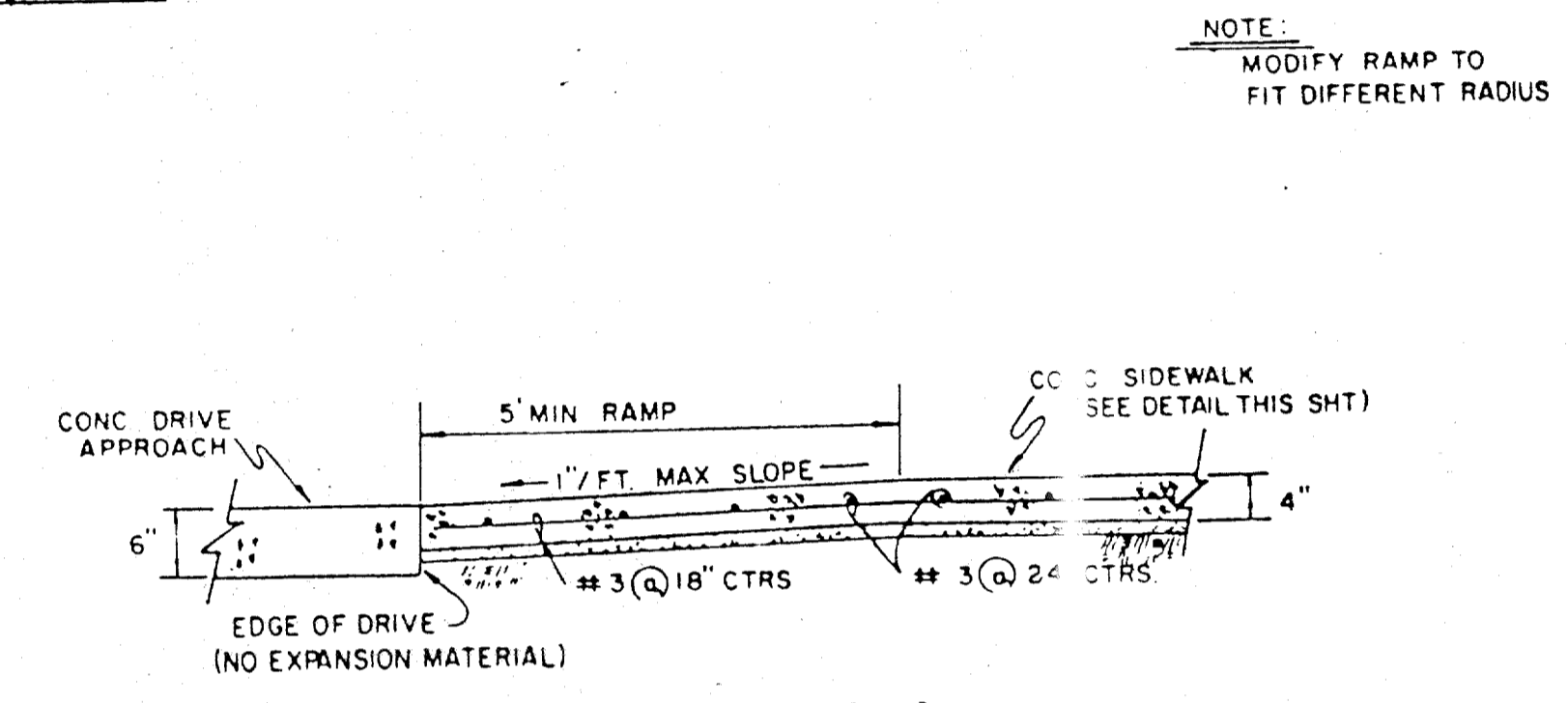
Designed -	Drawn -	Date -	Job No. -
Approved -	Checked -	Scale -	Sheet 18



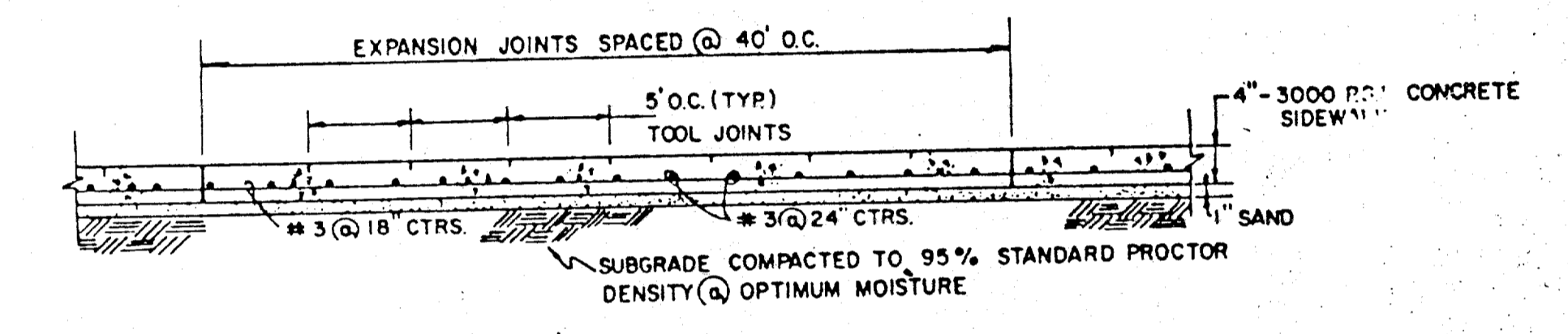
PLAN



PLAN

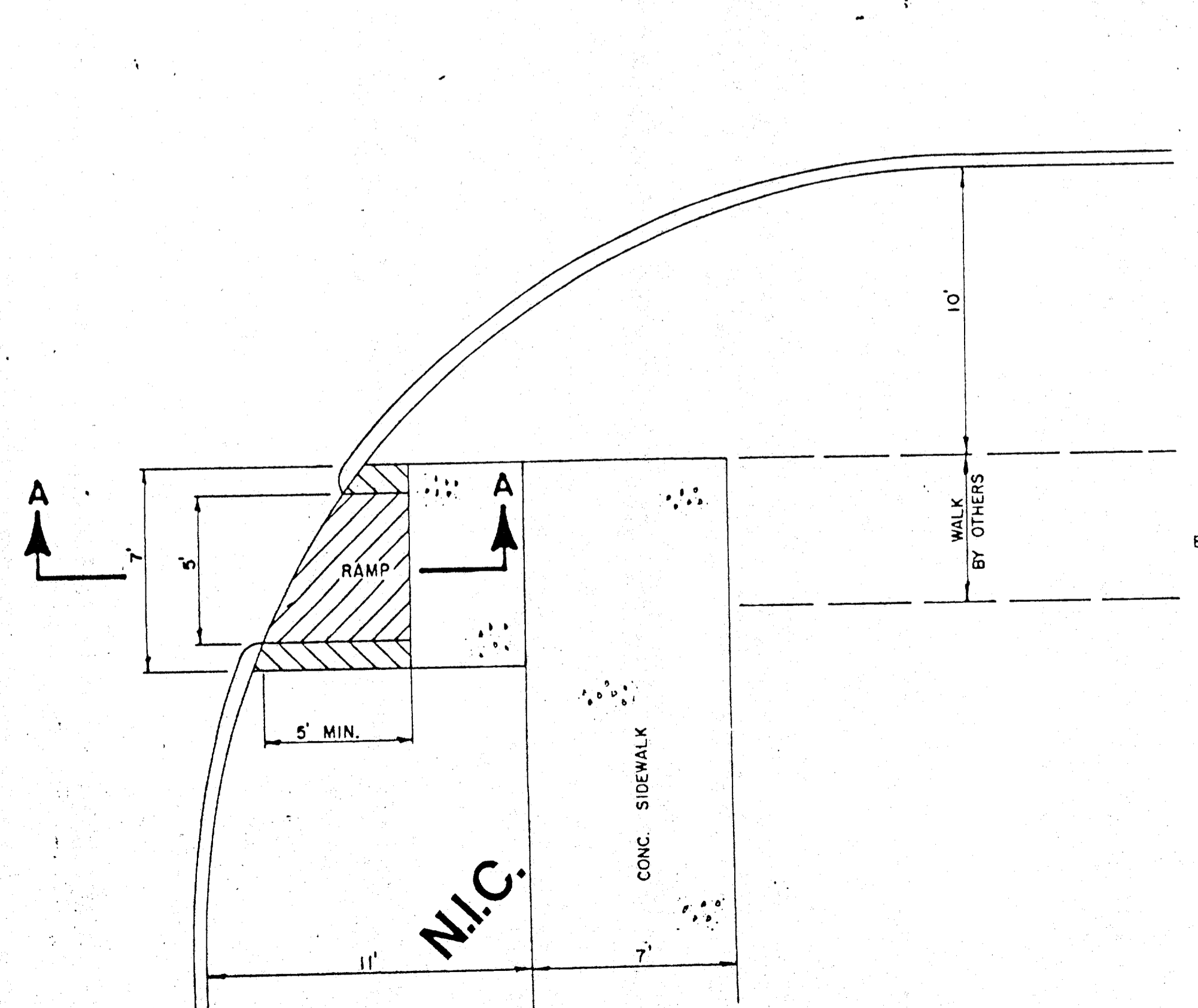


SECTION A-A

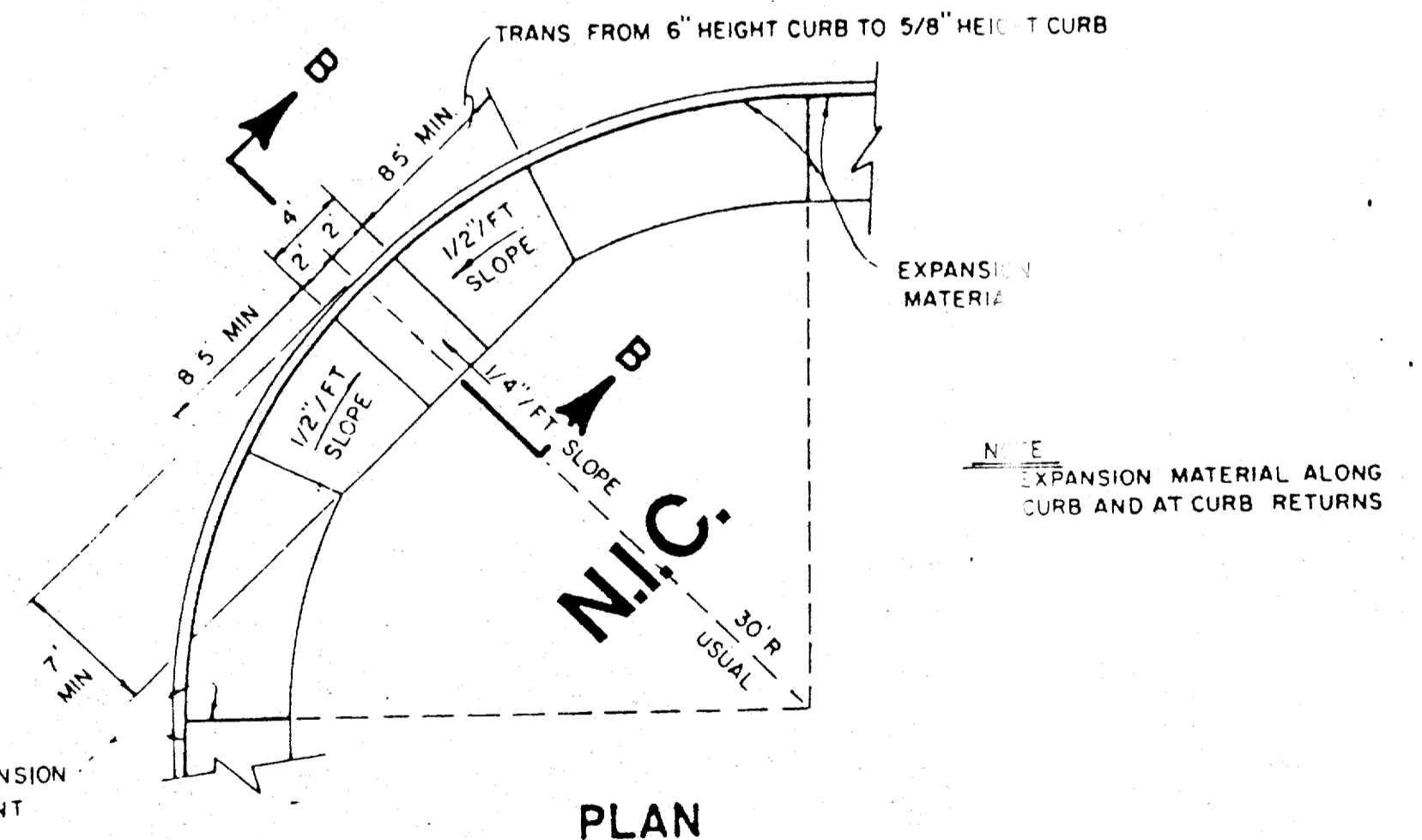


SIDE ELEVATION

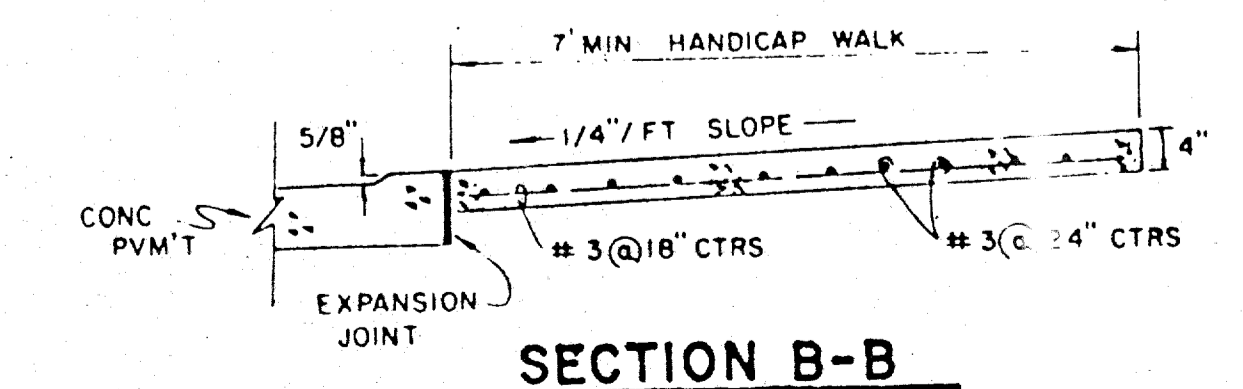
**BARRIER-FREE RAMP DETAIL WITH WALK ADJACENT TO CURB**



**BARRIER FREE RAMP DETAIL WITH WALK SEPARATE FROM CURB**

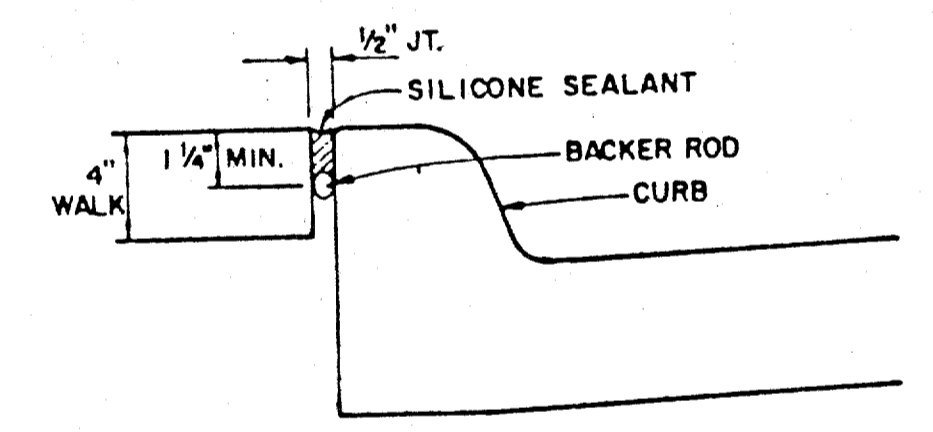


PLAN

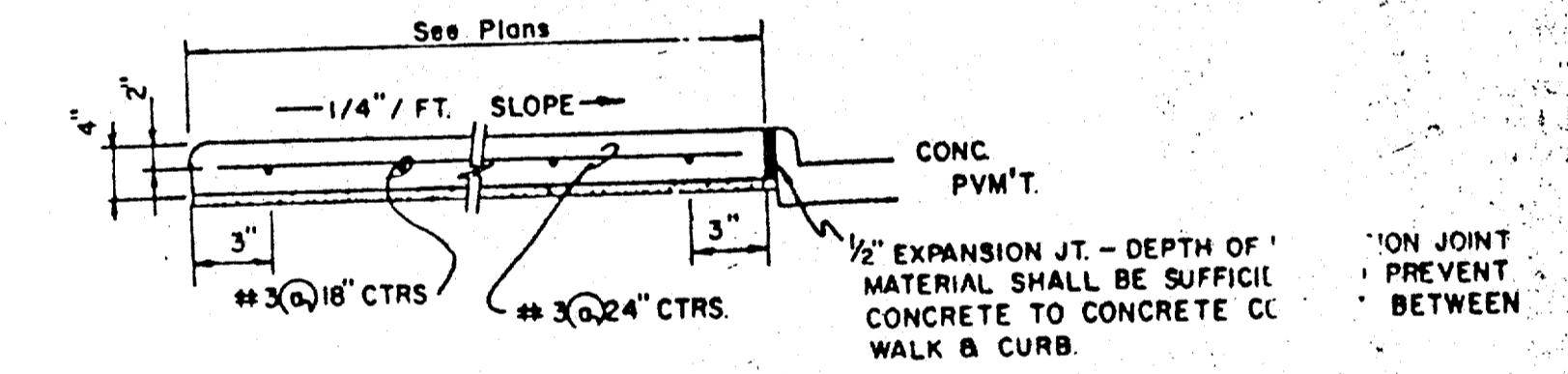


SECTION B-B

**HANDICAP ROLL-DOWN CURB DETAIL**



EXPANSION JOINT DETAIL

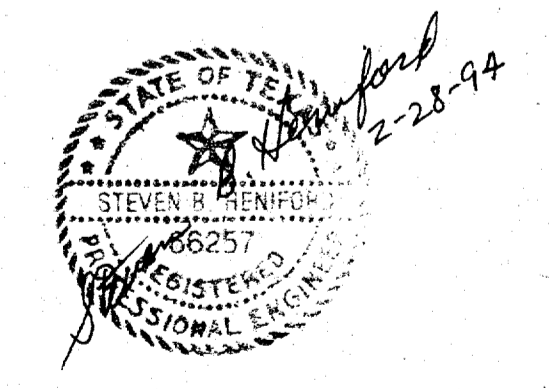


SECTION

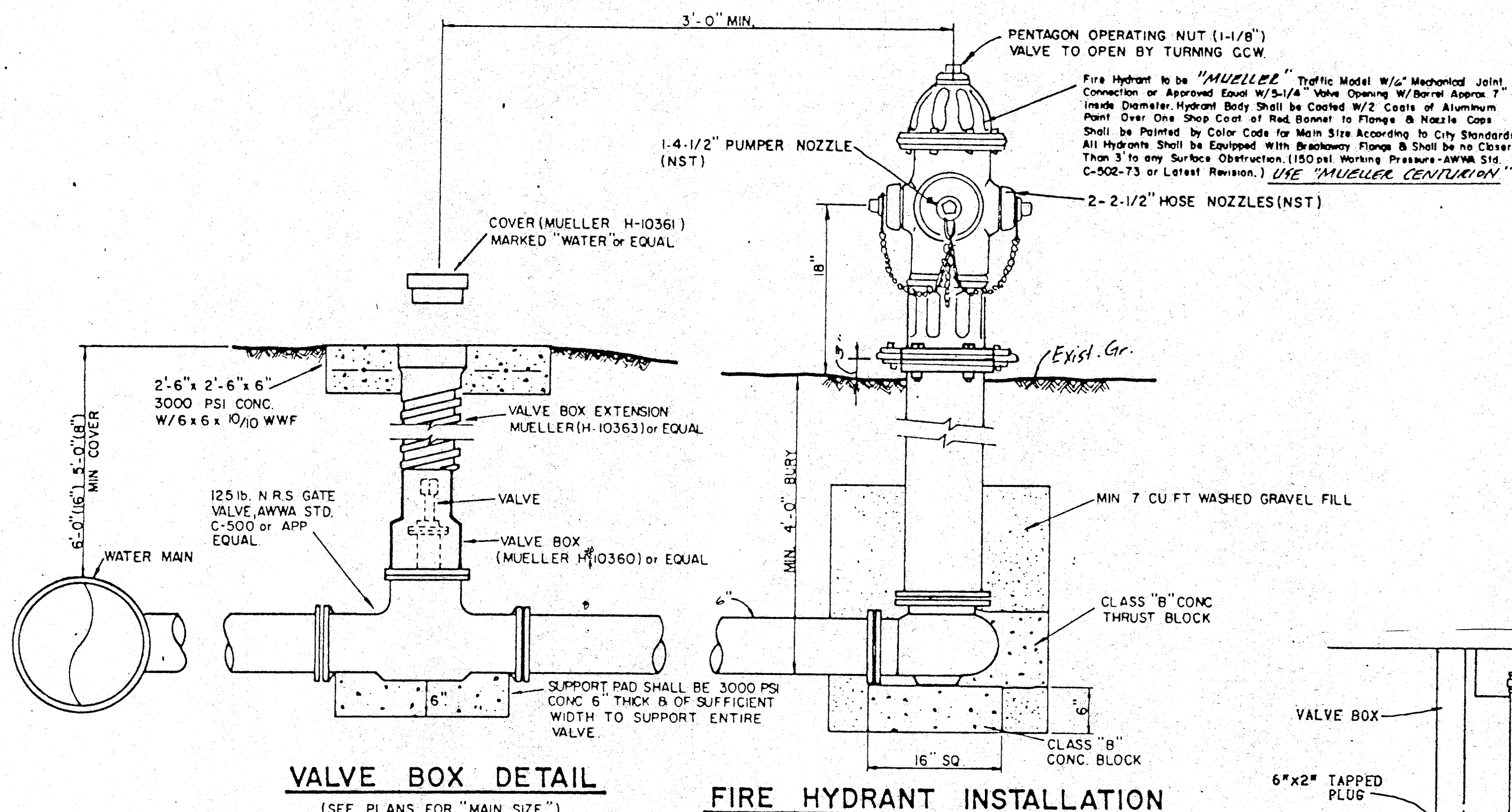
**CONCRETE SIDEWALK DETAIL**

**GENERAL NOTES**

1. Reinforced concrete sidewalk shall be 5 or 7 feet wide, a minimum of four (4) inches thick and shall be 3000 psi at 28 days (5 sack mix). Unless noted otherwise.
2. Chamfer all exposed edges of concrete (1/4) inch.
3. All bar dimensions are given as center to center of bars and are located as shown.
4. All reinforcing steel shall be No. 3 on 18 inch centers longitudinally, 24 inch centers transversely and shall conform to the requirements of ASTM A-615, Grade 60.
5. 1" thick min. fine, washed sand cushion shall be free from organic materials or clays and shall be used for grade adjustment.
6. Subgrade shall be compacted to a density not less than 95% at optimum moisture.
7. Tooled joints (contraction joints) shall be on five (5) foot centers and shall be round one-fourth (1/4) inch radius.
8. A one-half (1/2) inch expansion joint shall be placed every eight (8) foot centers, and where works abut old work, or where new work is constructed adjacent to other concrete, a one-half inch expansion joint shall be used where sidewalk is adjacent to curb, the expansion joint shall be made of pre-molded bituminous expansion joint filler or redwood with silicone sealant. See Specs.
9. Sidewalks shall be finished by lightly brooming surface transversely to direction of main traffic or where adjacent sidewalks differ from this standard, new sidewalks shall conform to adjacent sidewalk (e.g. exposed aggregate).
10. Cross slope walk one-fourth (1/4) inch per foot towards curb or as shown on the drawings to provide drainage.

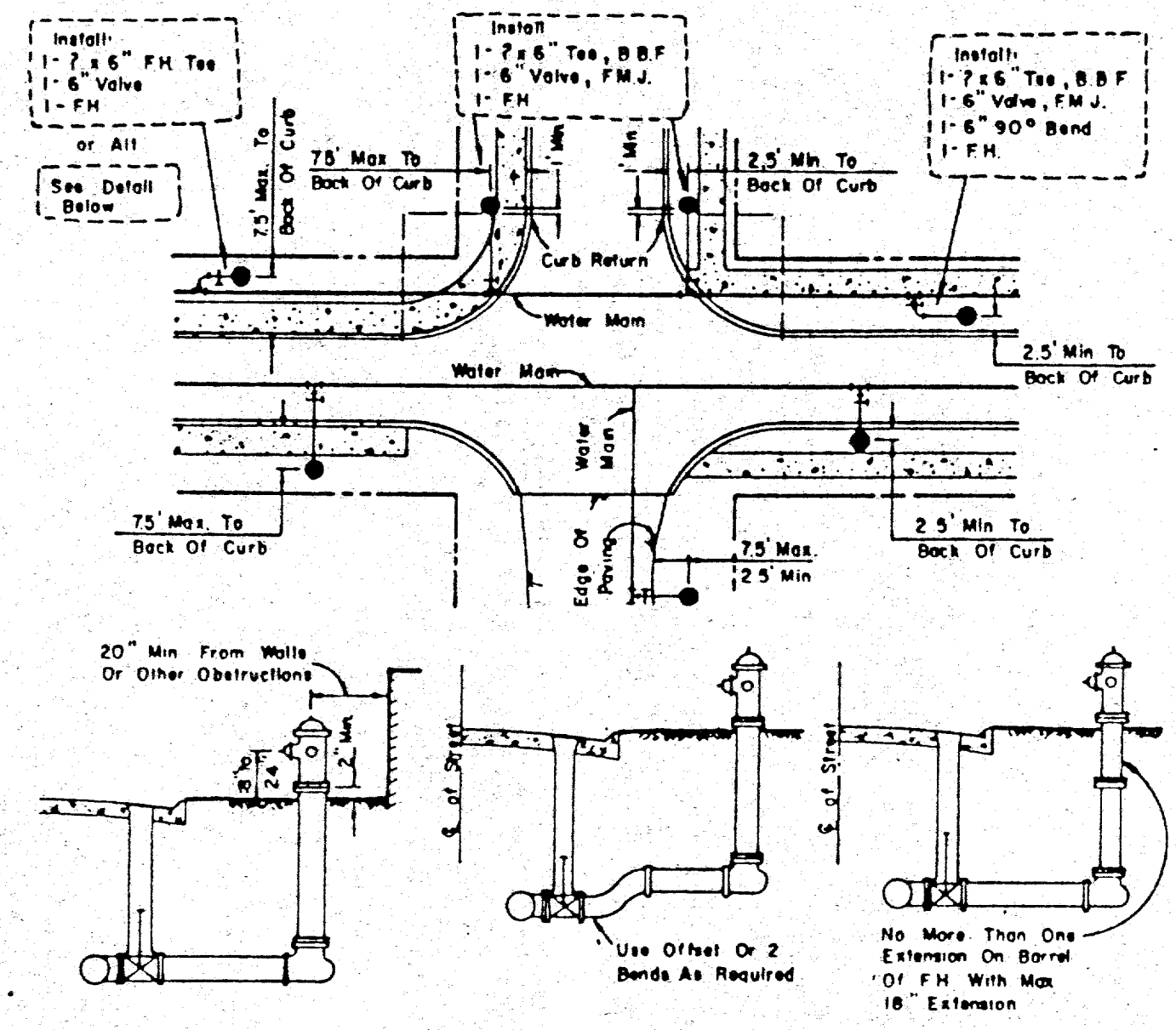


NO.	REVISION	BY	DATE
<b>TOWN OF ADDISON, TEXAS</b> <b>DEPARTMENT OF ENGINEERING</b>			
<b>STANDARD CONSTRUCTION DETAILS</b> <b>PAVING</b>			
<b>SIDEWALKS &amp; RAMPS</b>			
<b>APPROVED</b> _____			



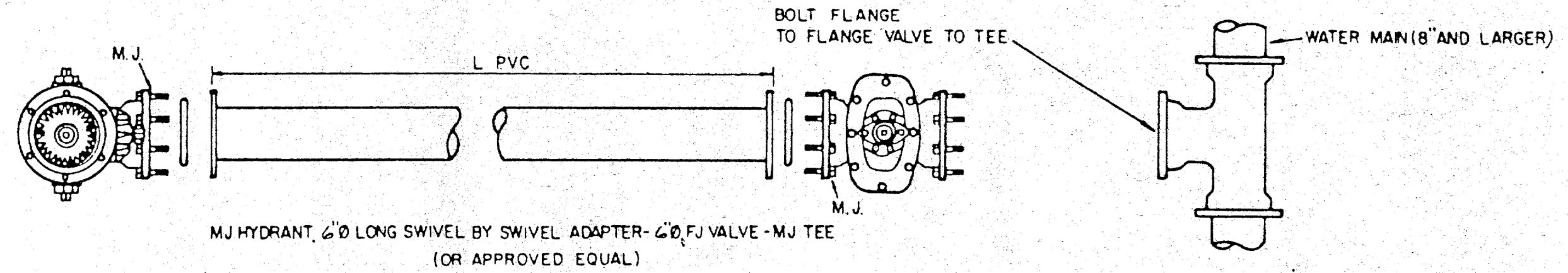
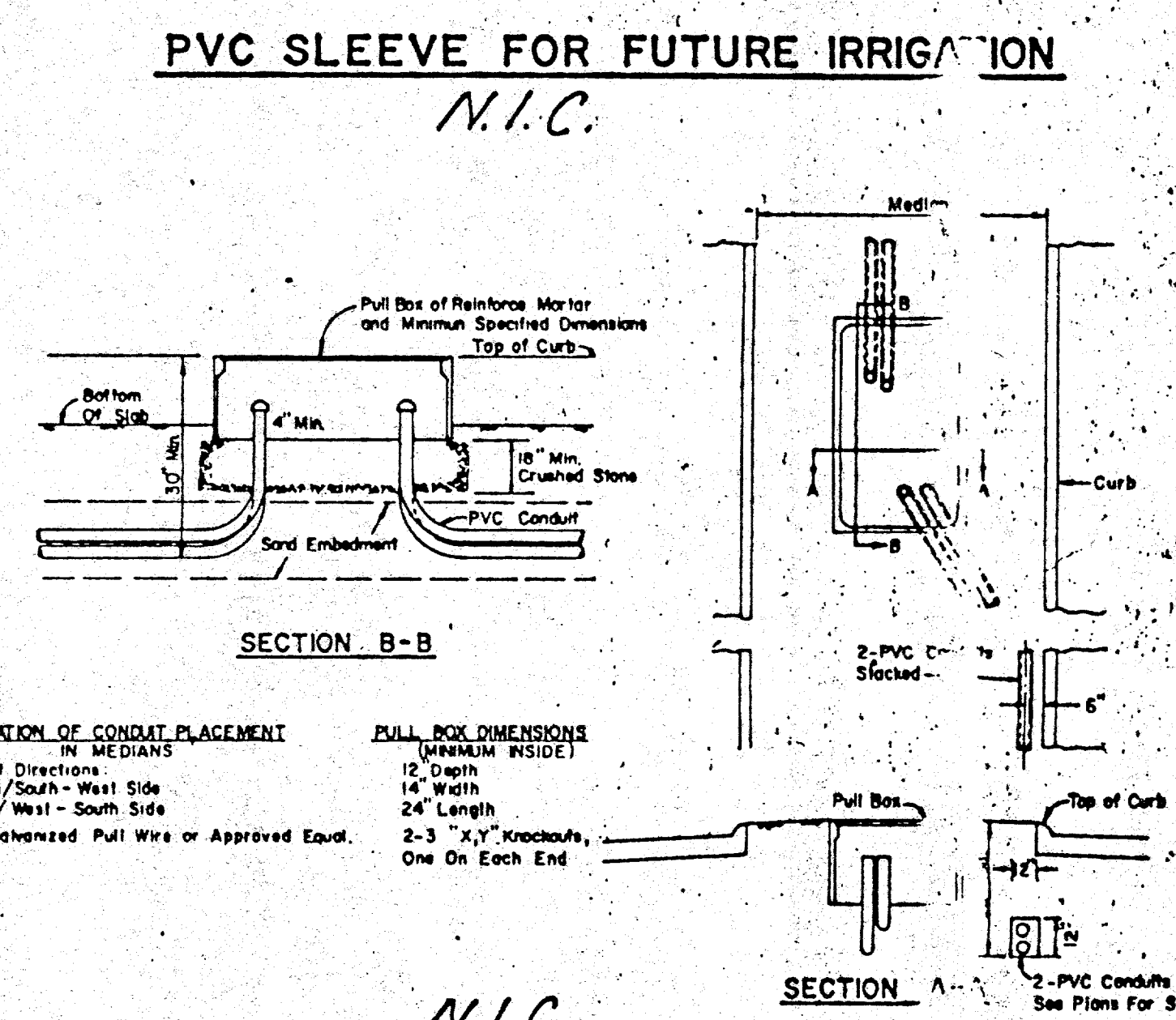
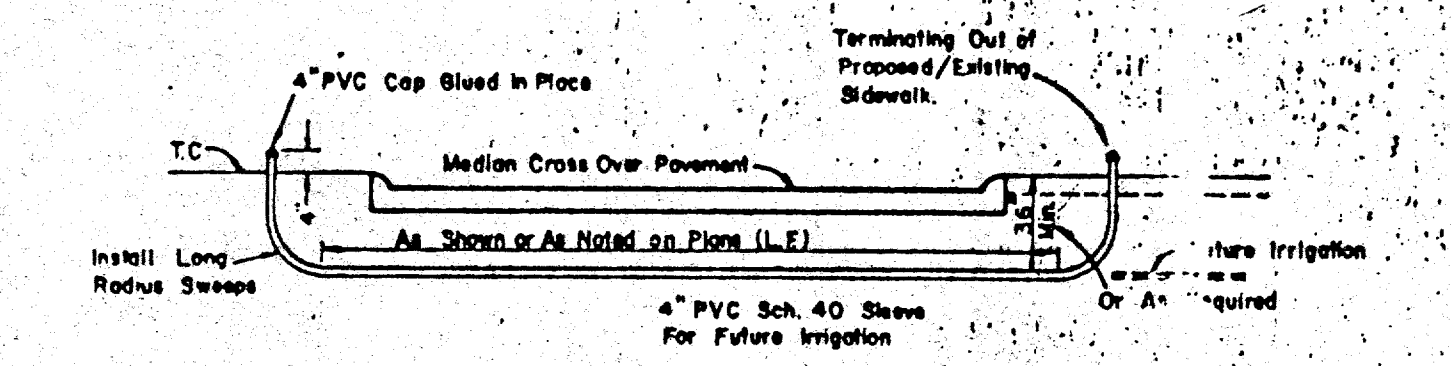
**GATE VALVES AND VALVE BOXES.**

- GATE VALVES SHALL BE IRON BODY, BRONZE OR BRASS MOUNTED, NON-RISING STEM, PARALLEL SEAT TYPE VALVES SHALL BE OF EQUAL OR GREATER PRESSURE CLASS THAN THE PIPING IN WHICH THEY ARE TO BE INSTALLED.
- VALVE BOXES SHALL BE CAST IRON AND SHALL BE OF SUFFICIENT LENGTH AND DIAMETER TO OPERATE. ALL VALVES BURIED IN THE GROUND COVERS SHALL BE MARKED "WATER". THE BOXES SHALL REST ON THE VALVE AND BE ADJUSTED SO THAT THE COVER MAY BE SET FLUSH WITH THE FINISHED GRADE.

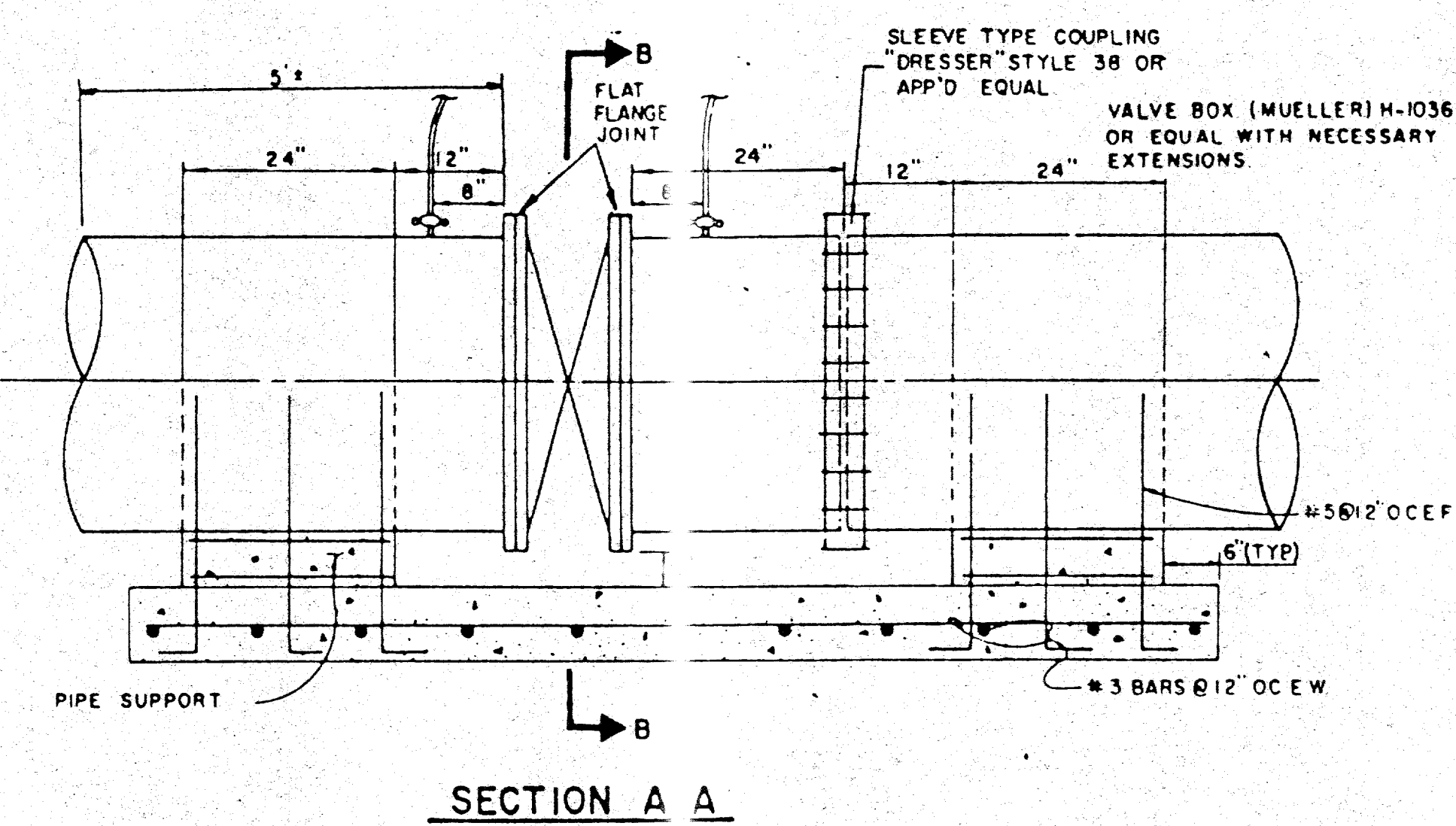


**GENERAL NOTES**

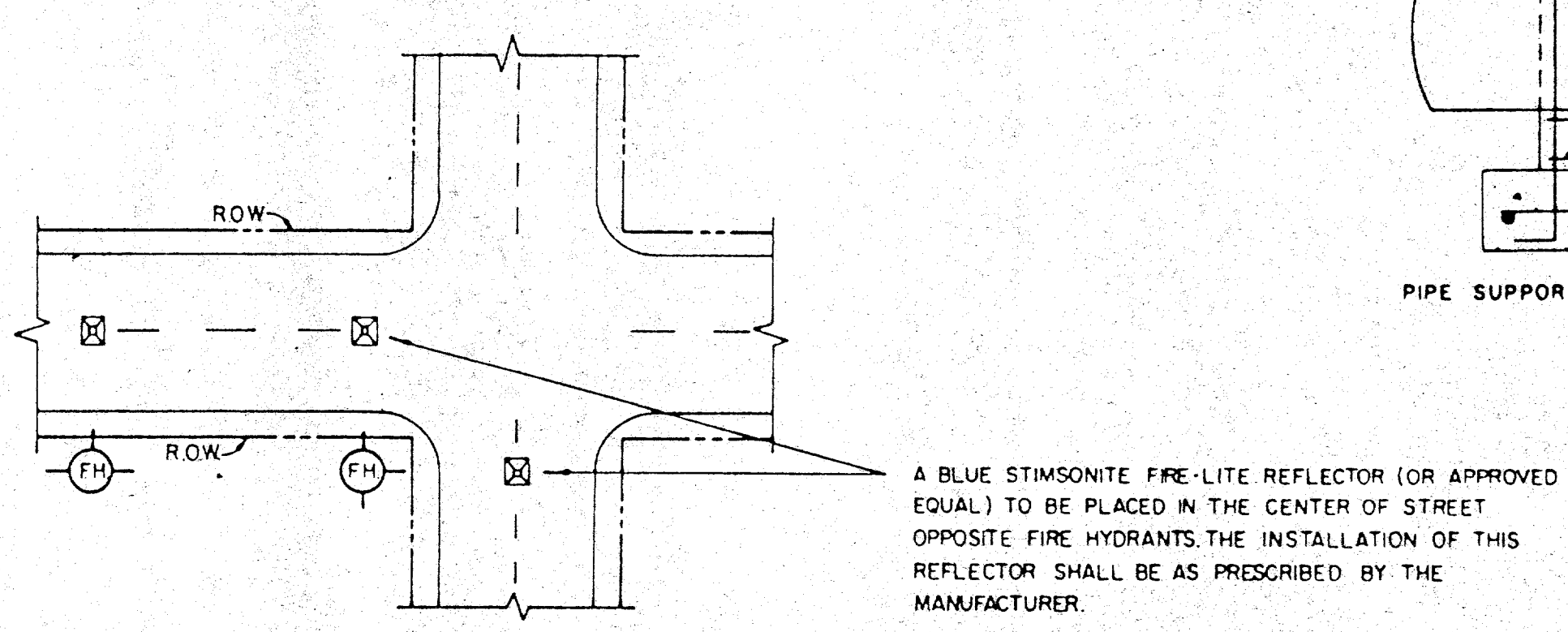
- 2" O.D. F.H. Barrel Shall Be Not Less Than 6.0' Or More Than 9.0' From Back Of Curb Or Edge Of Pavement.
- Do Not Set F.H. In An Existing Or Proposed Sidewalk, Unless Otherwise Noted.
- All F.H. Tees Shall Be M.J. With Anchoring On The Branch With M.J. M.J. 6" Valve.
- Set F.H. On The Lot Line Extended When Possible.
- On Private Contract, The Developer/Engineer Will Stake Location & Grade.
- Never Place F.H. Where Fire Truck Could Not Park Beside It.



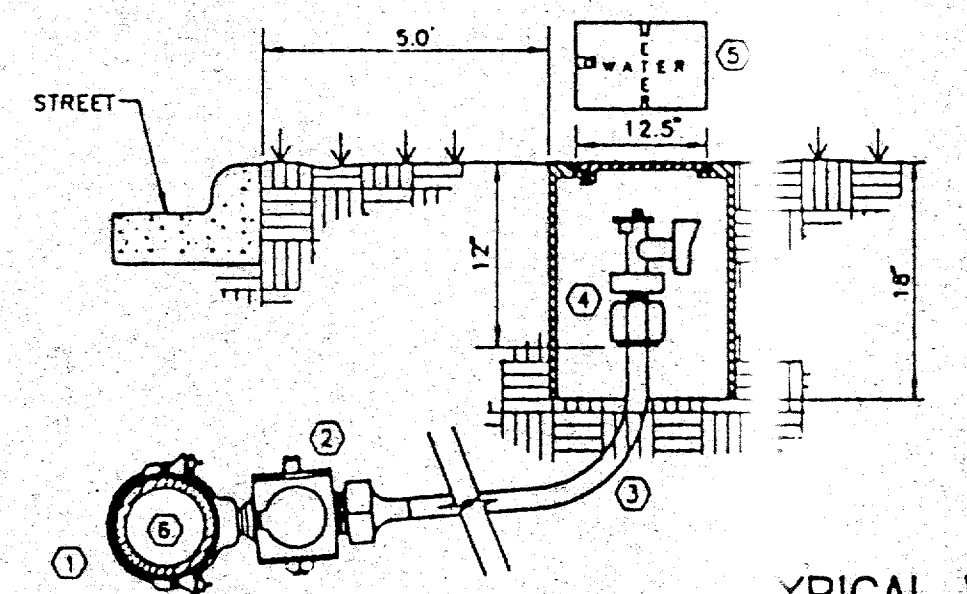
**TYPICAL FIRE HYDRANT INSTALLATION**



**BUTTERFLY VALVE DETAIL**  
N.I.C.



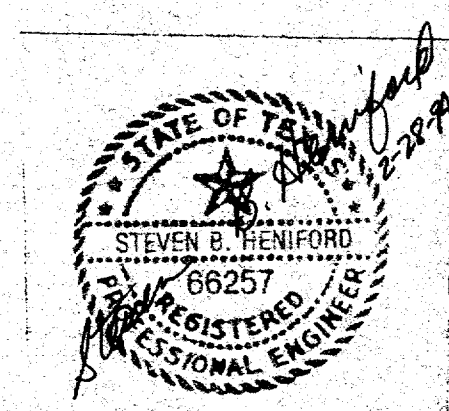
**TYPICAL FIRE HYDRANT REFLECTOR INSTALLATION**

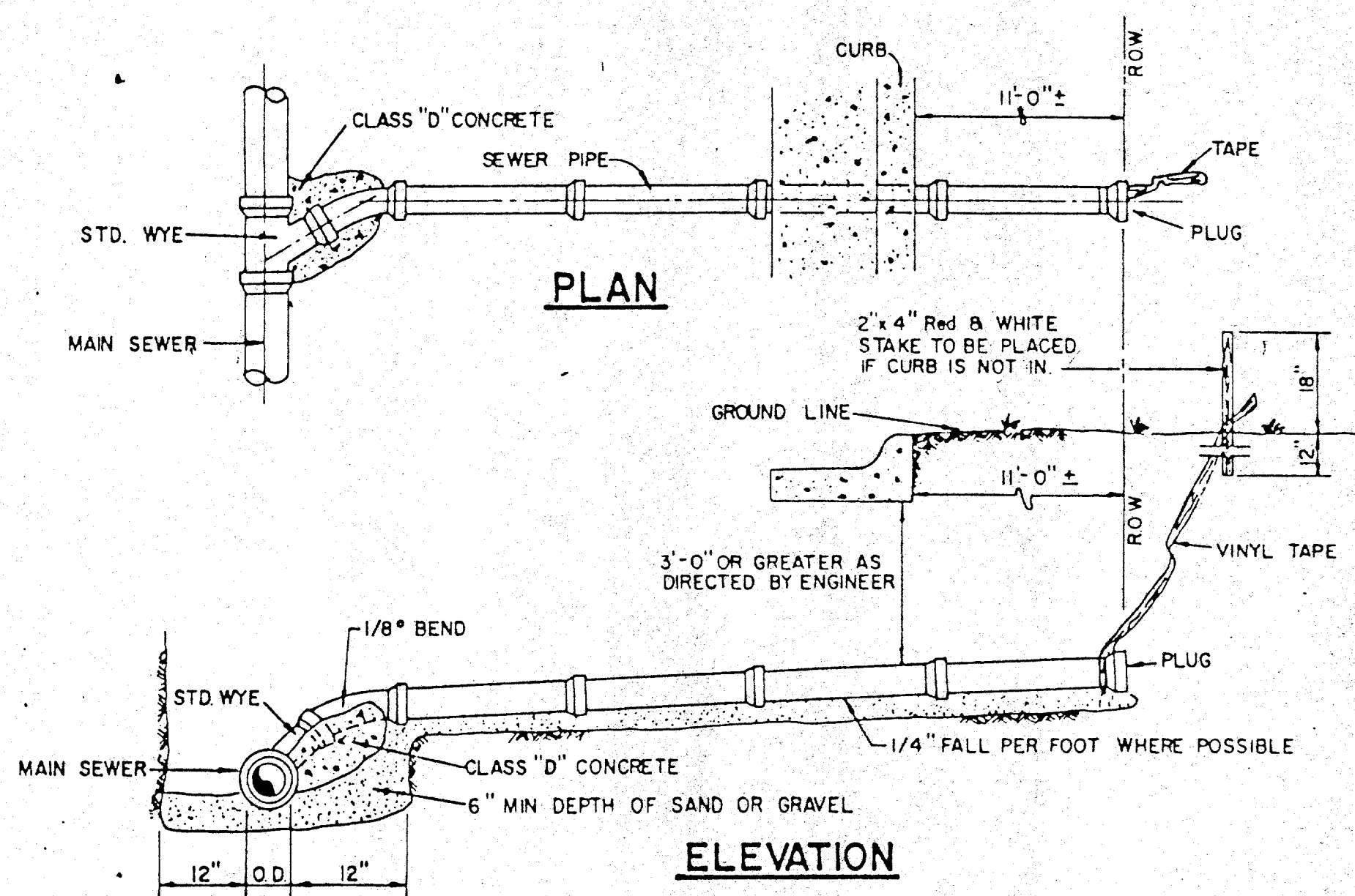


- DOUBLE STRAP BRONZE SADDLE W/CCW THREADS, MUELLER.
- CORPORATION STOP W/CCW THREADS, MUELLER H-13008 COMPRESSION OR H-13000 FLARED.
- 1" TYPE "X" SOFT COPPER W/NO SPLICES
- ANGLE STOP W/LOCK WING, MUELLER H-14258 COMPRESSION OR H-14255 FLARED.
- WATER METER BOX (RECTANGULAR SHAPE ONLY) CONCRETE OR METAL SHELL CONSTRUCTION
- WATER MAIN PVC AWWA C900 SDR 14/18 INTEGRAL WALL BELL

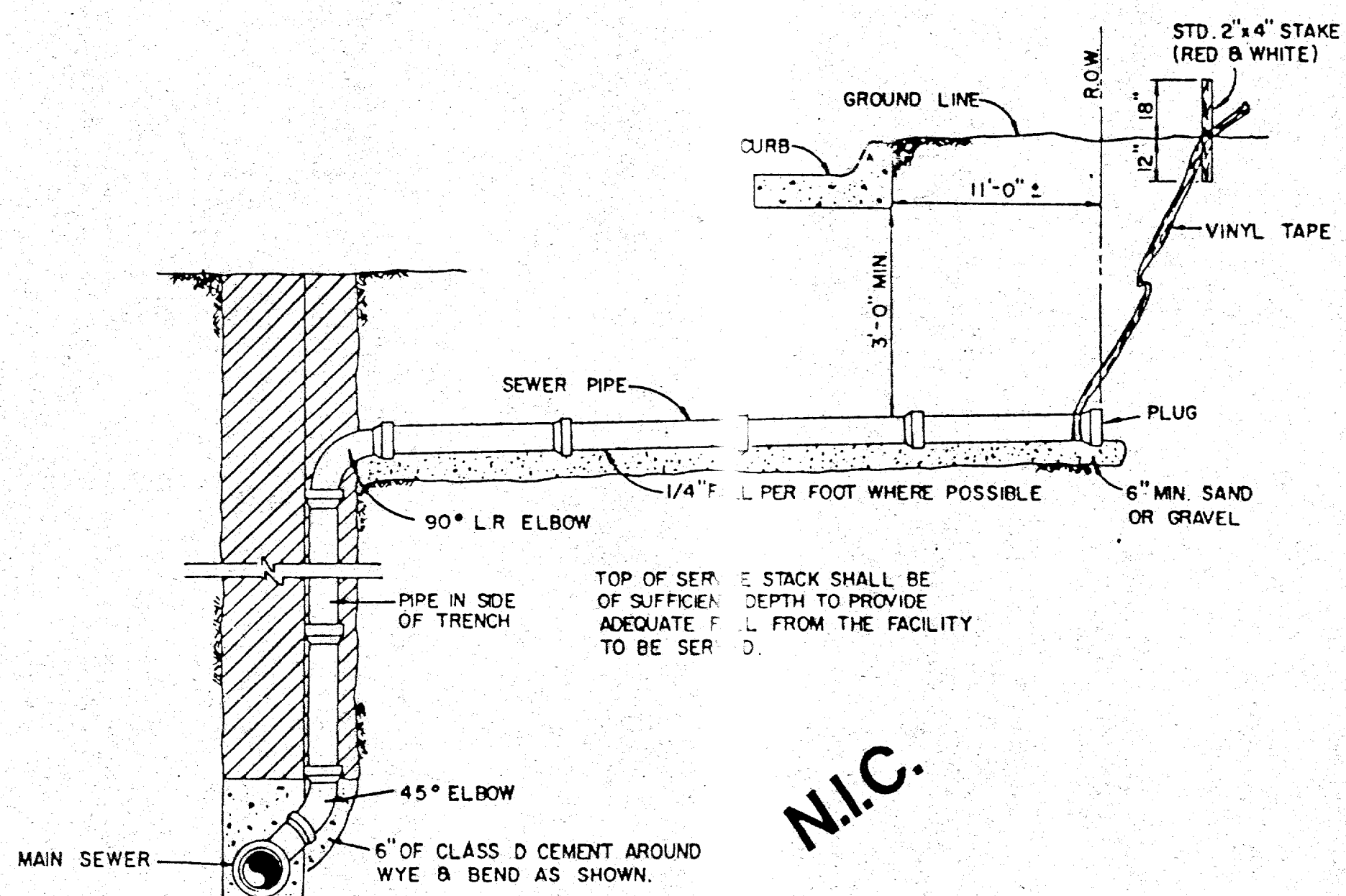
**TYPICAL WATER SERVICE DETAIL**

TOWN OF ADDISON, TEXAS			
DEPARTMENT OF ENGINEERING			
STANDARD CONSTRUCTION DETAILS			
WATER			
FIRE HYDRANTS, PULL BOXES AND VALVES			
Designed -	Drawn -	Date -	Job No. -
Approved -	Checked -	Scale -	Sheet 02

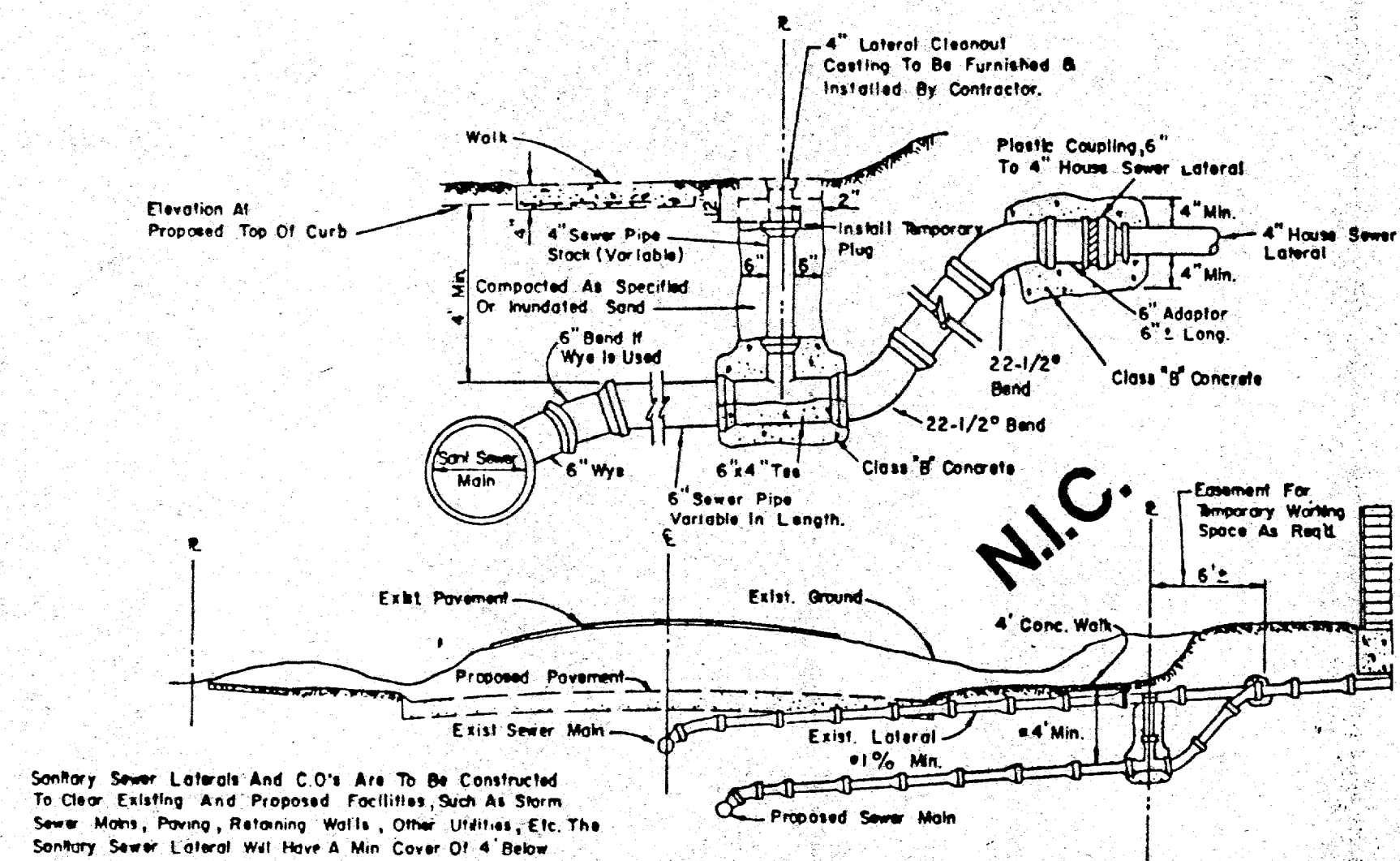




**SANITARY SEWER SERVICE CONNECTION**

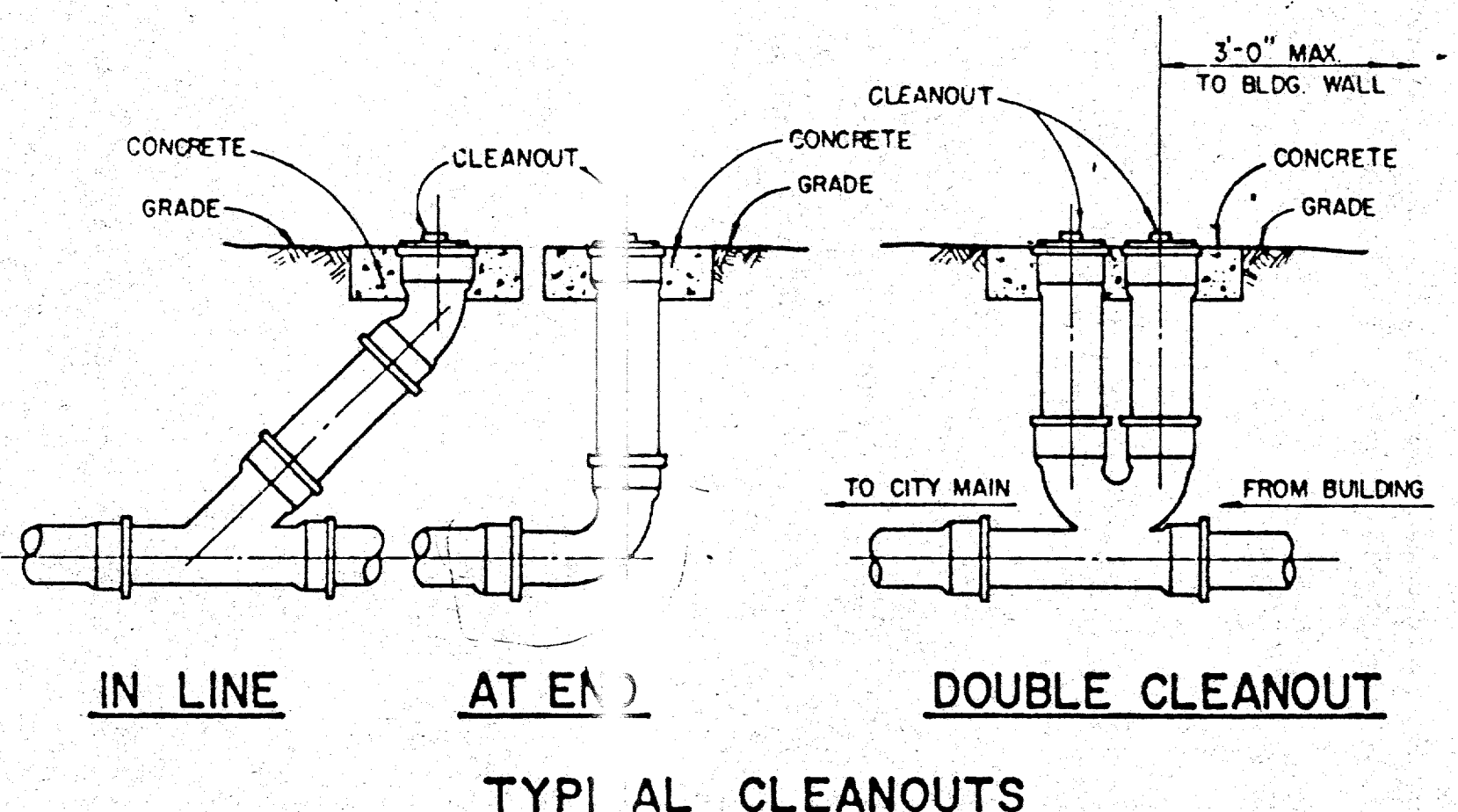
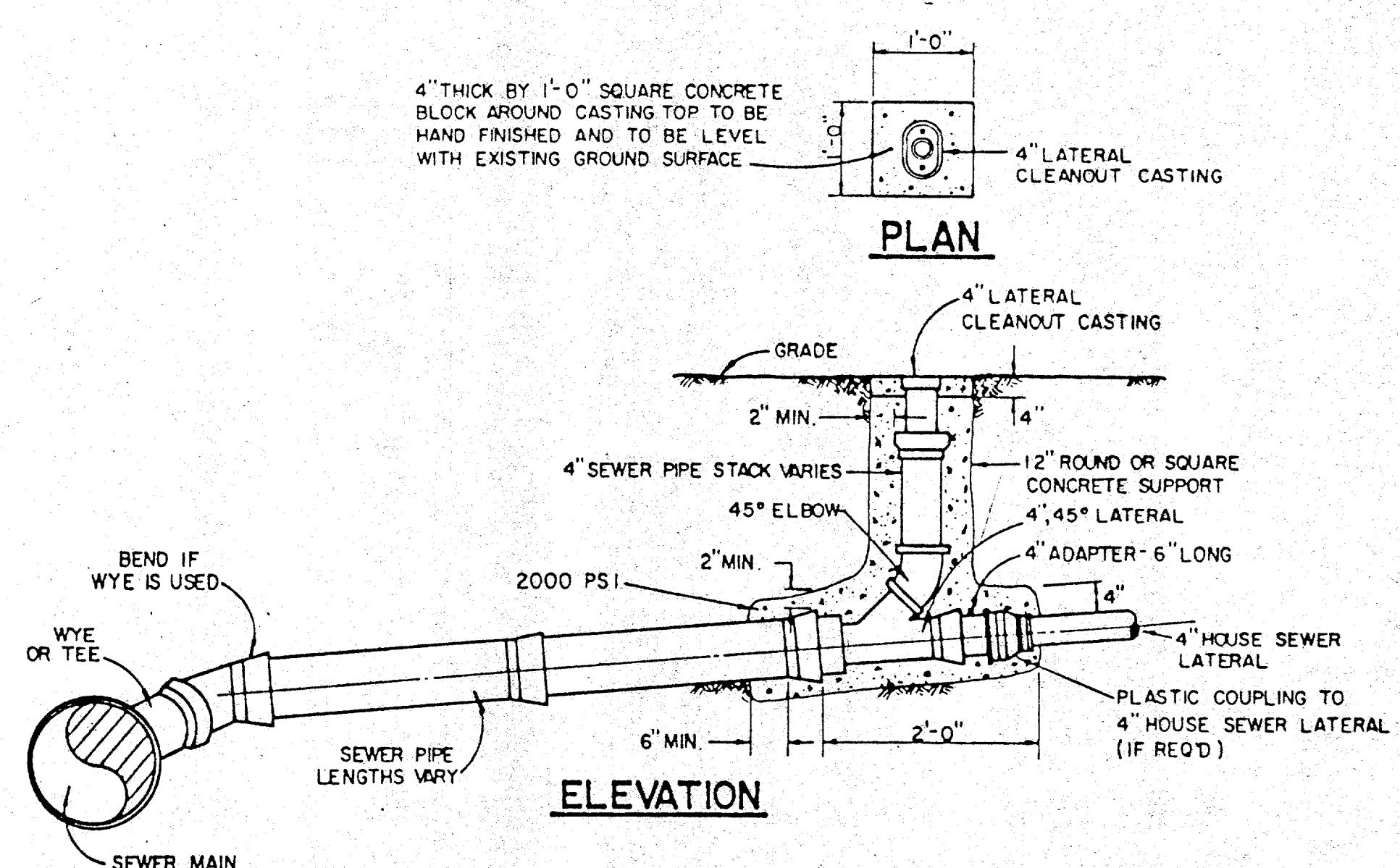


**SANITARY SEWER DEEP SERVICE CONNECTION**

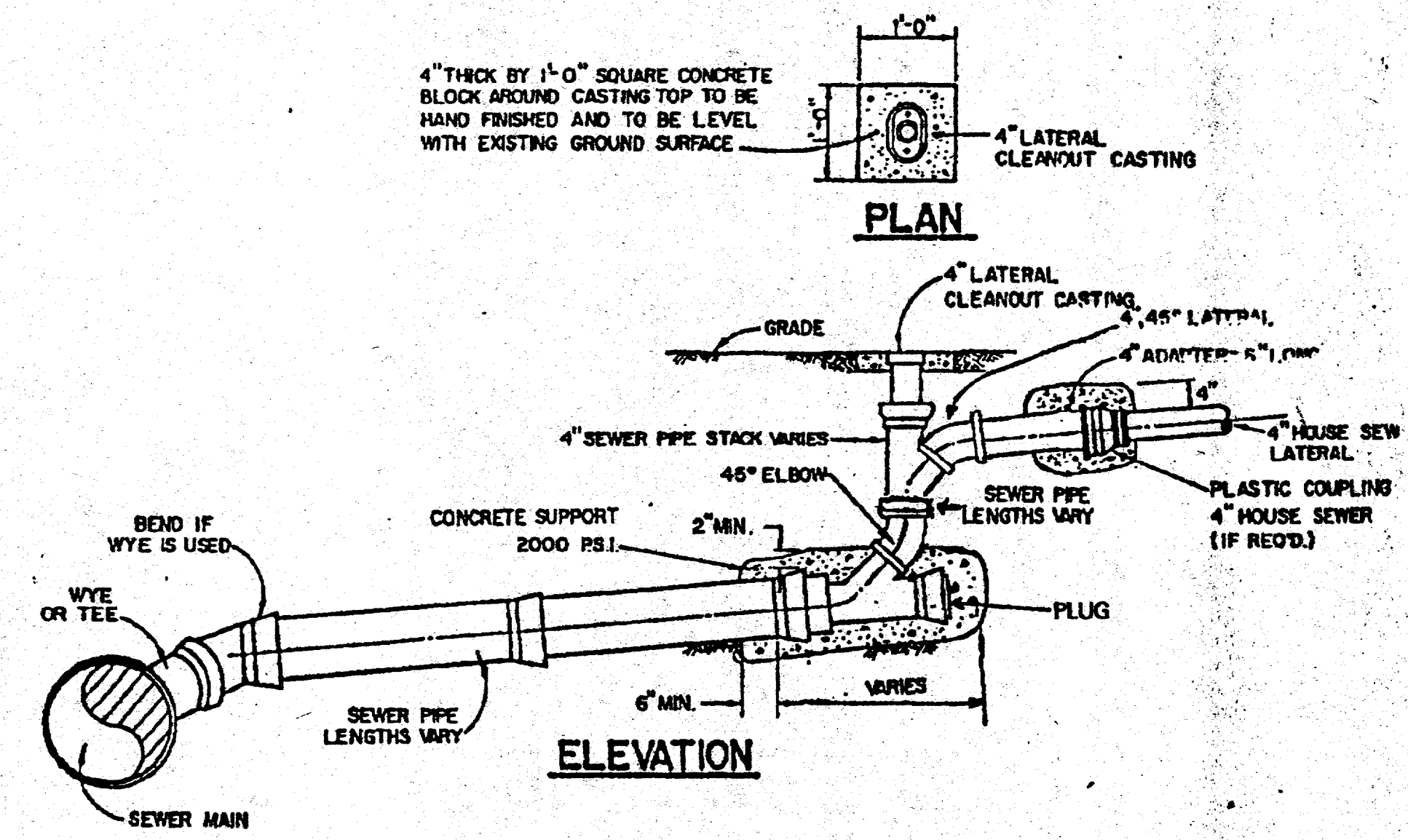


**SANITARY SEWER LATERAL REPLACEMENT**

NOTE: Cleanout to be installed on property line except as required to avoid conflict with existing or proposed facilities in which case the location shall be determined by the Engineer.



**TYPICAL CLEANOUTS**

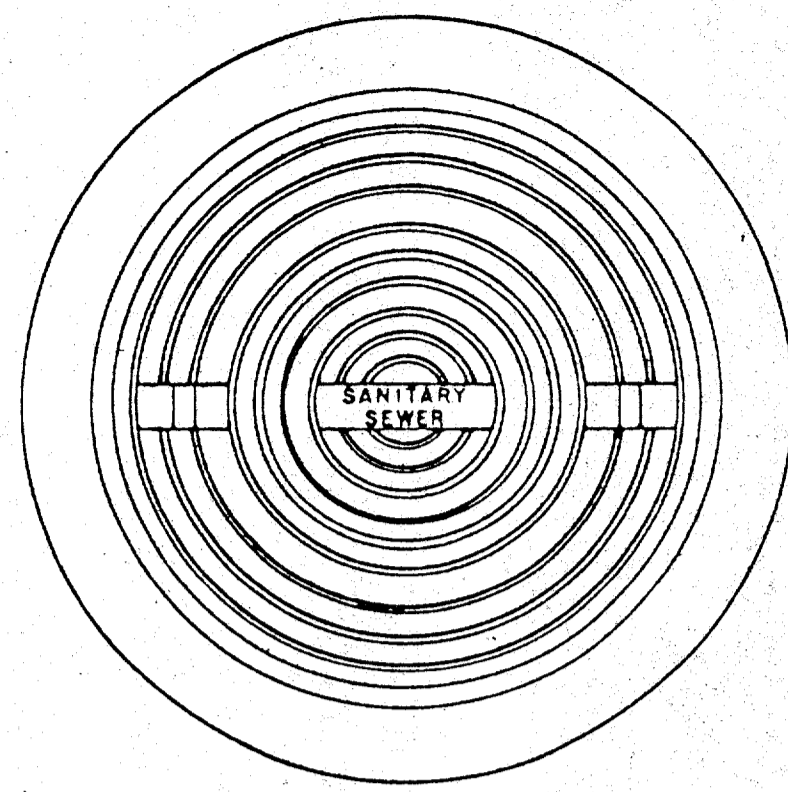


ALL PVC SANITARY SEWER PIPE TO BE SDR 35 WITH INTEGRAL BELL. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO FIELD LOCATE HORIZONTALLY EACH 4\"/>

ALL PVC SANITARY SEWER PIPE TO BE SDR 35 WITH INTEGRAL BELL. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO FIELD LOCATE HORIZONTALLY EACH 4\"/>

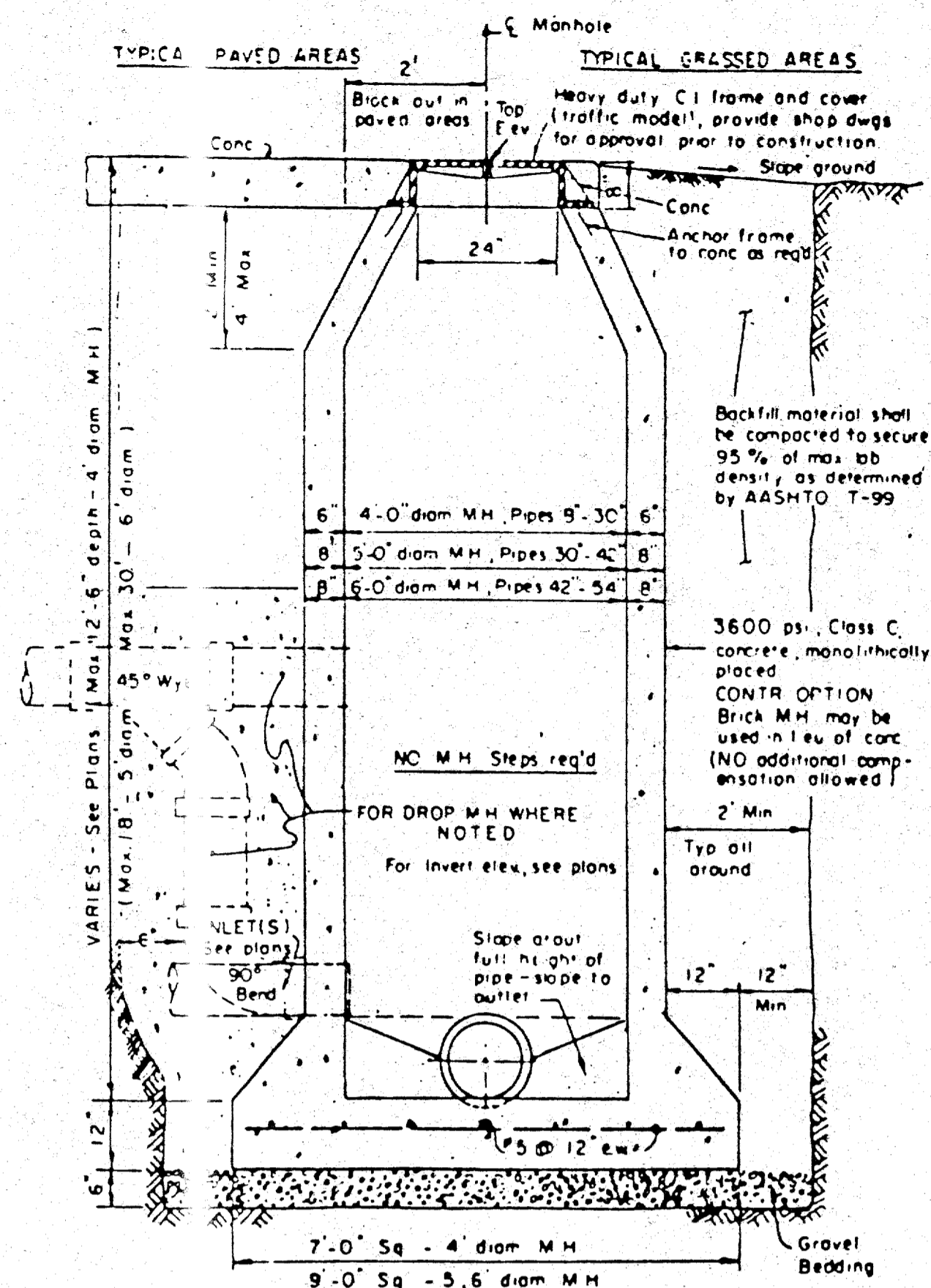
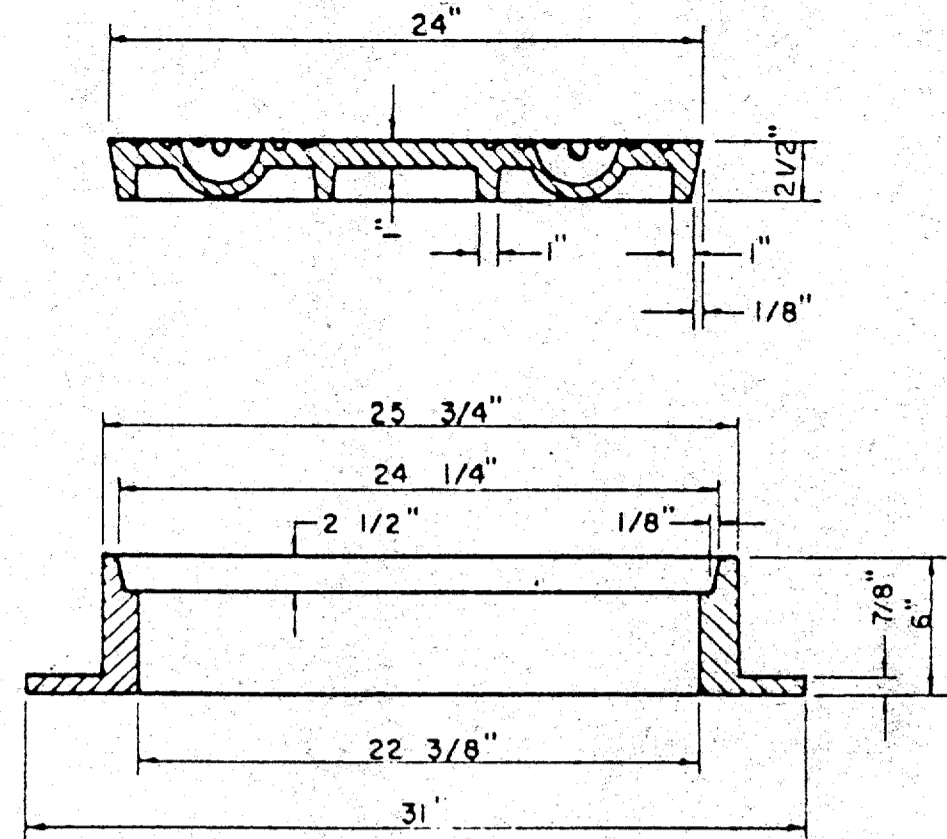
TOWN OF ADDISON, TEXAS DEPARTMENT OF ENGINEERING			
STANDARD CONSTRUCTION DETAILS SANITARY SEWER			
LATERALS AND CLEANOUTS			
Designed -	Drawn -	Date -	Job No. -
Approved -	Checked -	Scale -	Sheet #3





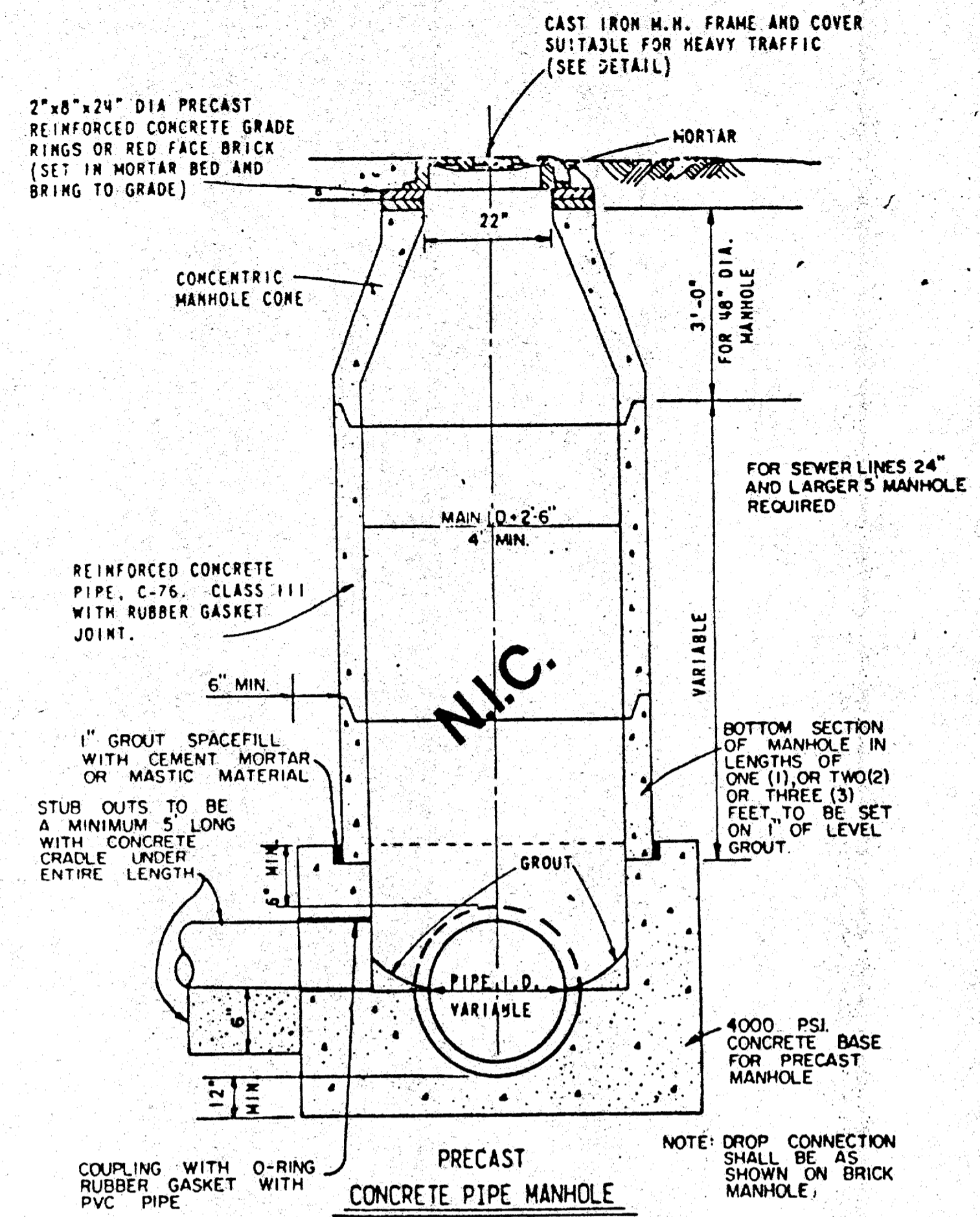
APPROX. WEIGHT RING AND COVER 385 LBS.

CAST IRON GRATE AND FRAME DETAIL

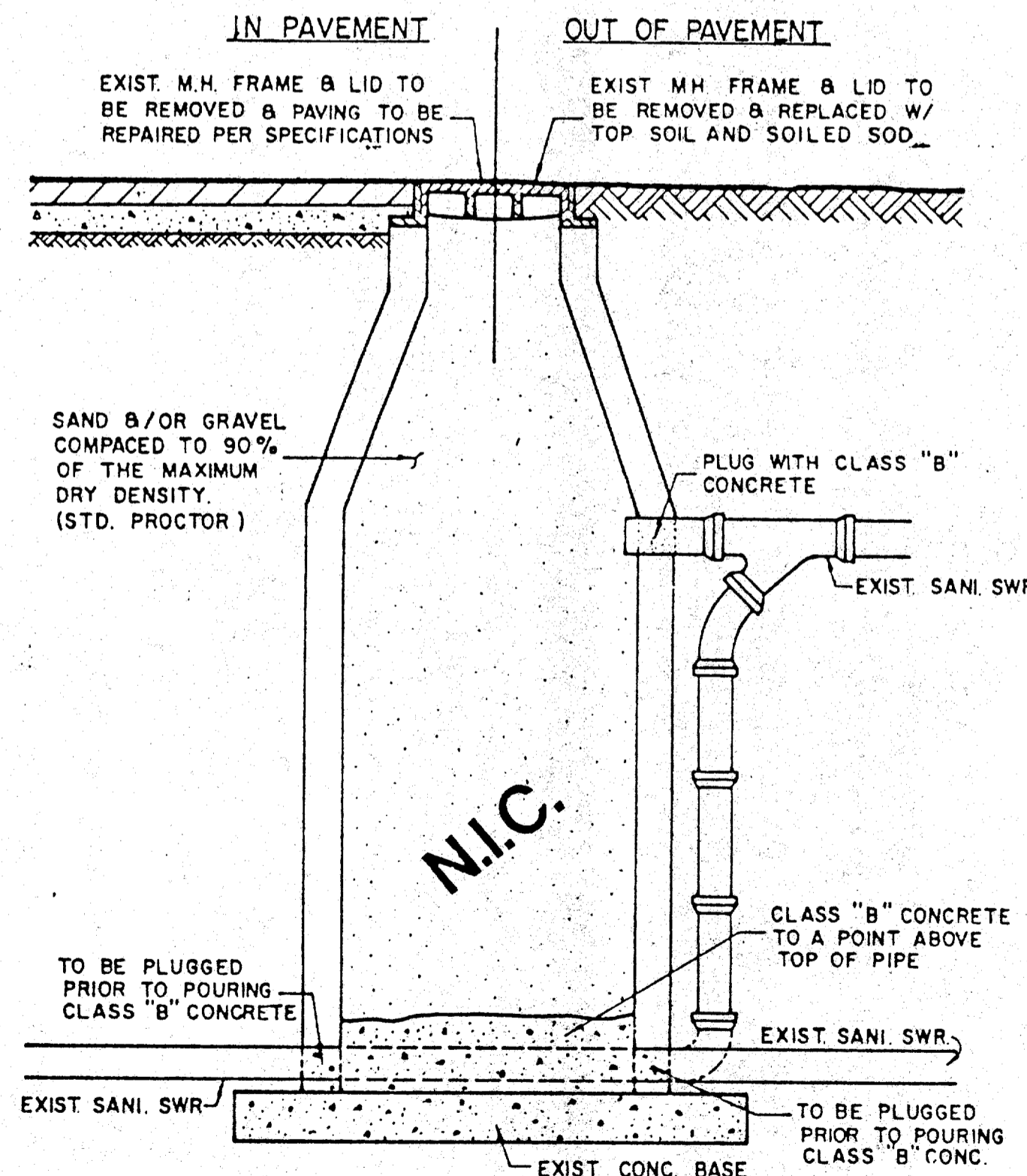


CAST IN PLACE MANHOLE

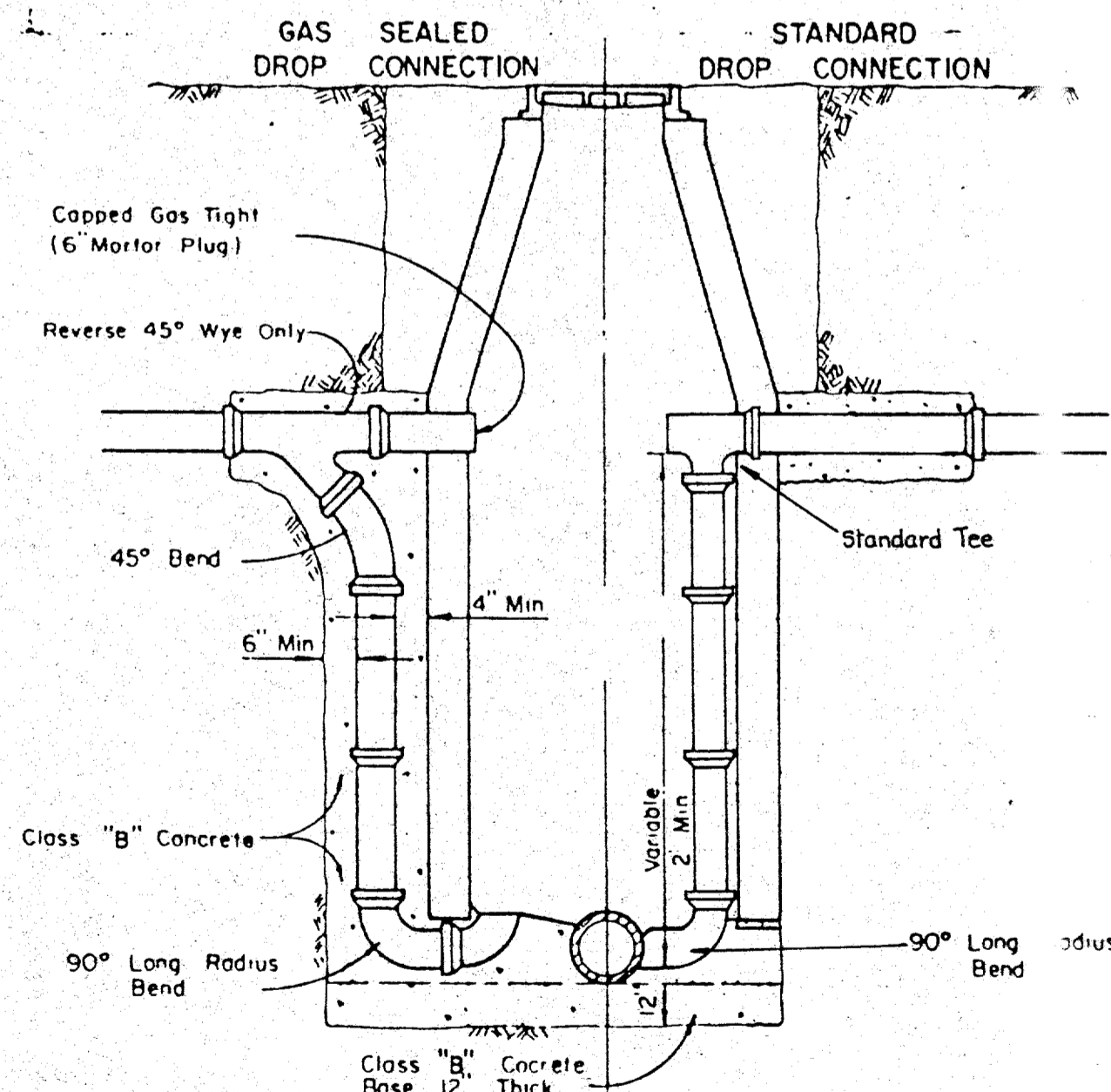
WHERE DROP M.H. IS REQUIRED, USE INSIDE DROP CONNECTION AS PER TOWN OF ADDISON STANDARDS.



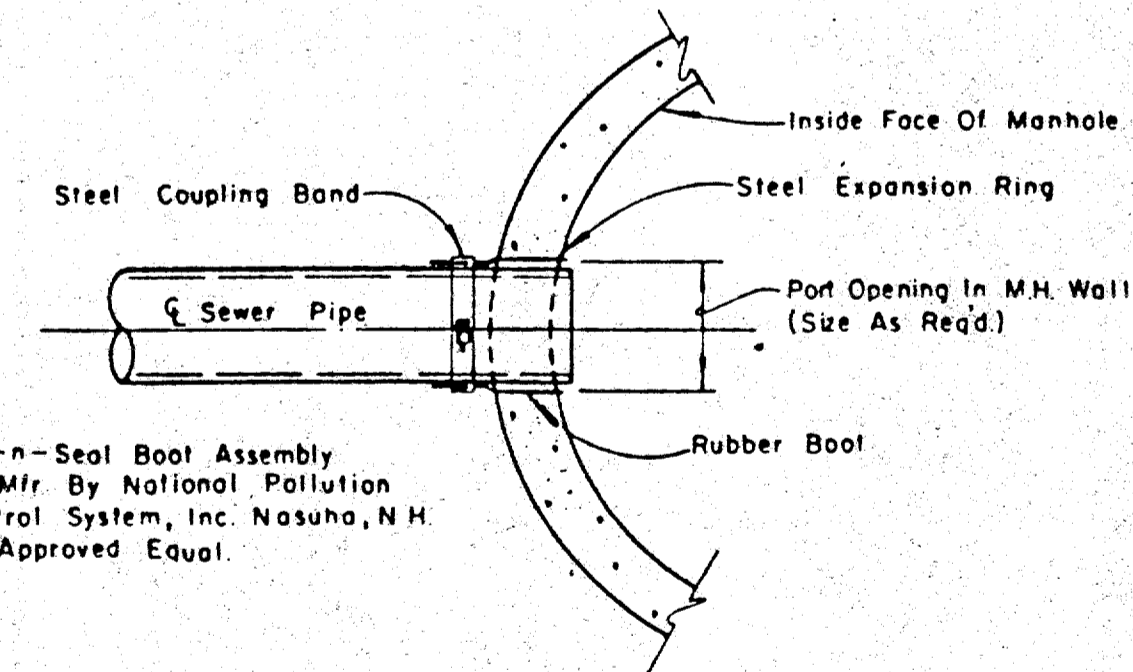
PRECAST MANHOLE



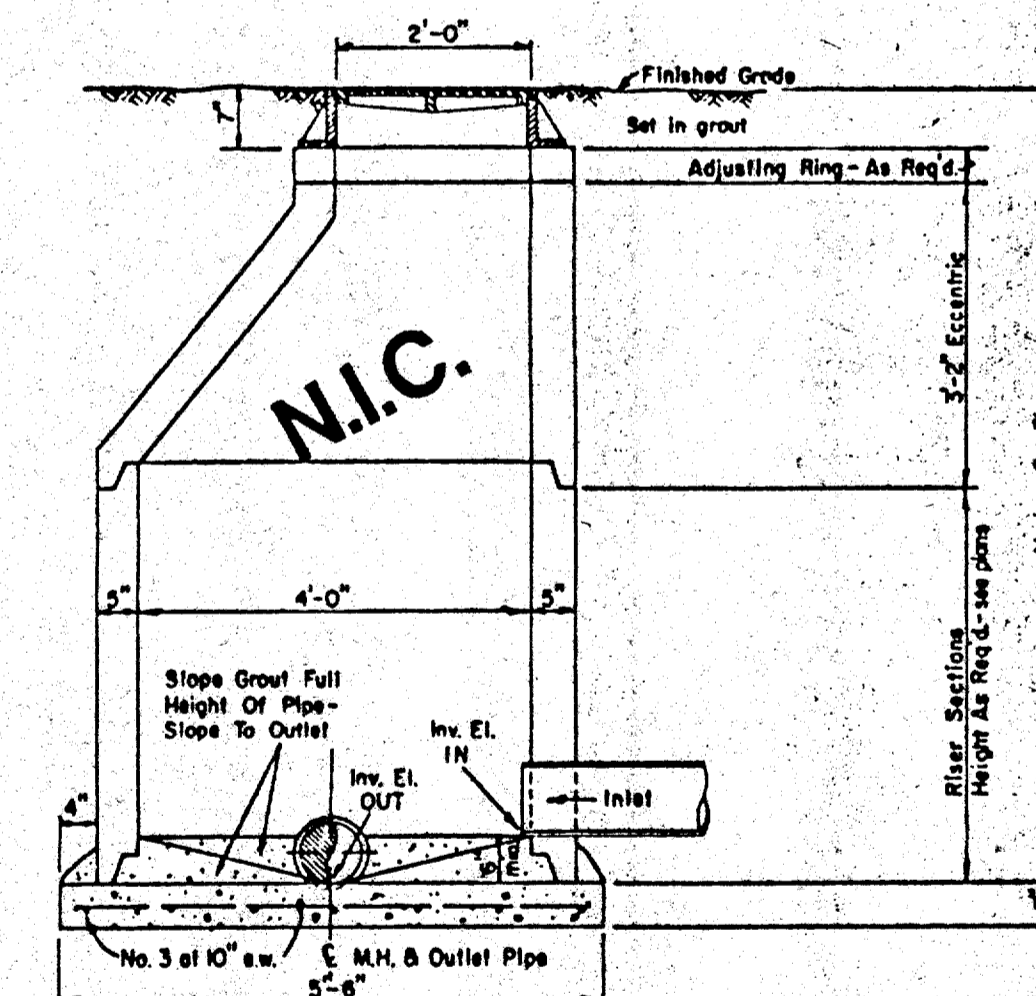
ABANDONMENT OF EXISTING MANHOLE IN AND OUT OF PAVEMENT



DROP CONNECTIONS FOR SANITARY SEWER MANHOLES



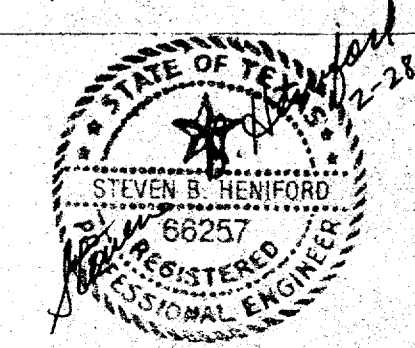
TYPICAL SEWER CONNECTION AT MANHOLE



ECCENTRIC MANHOLE DETAIL

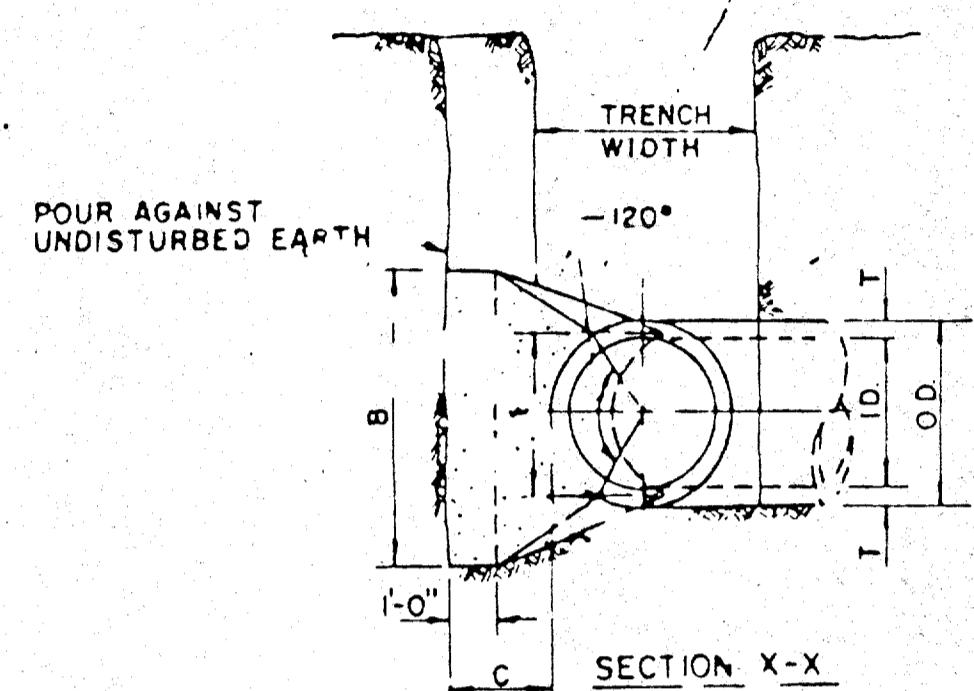
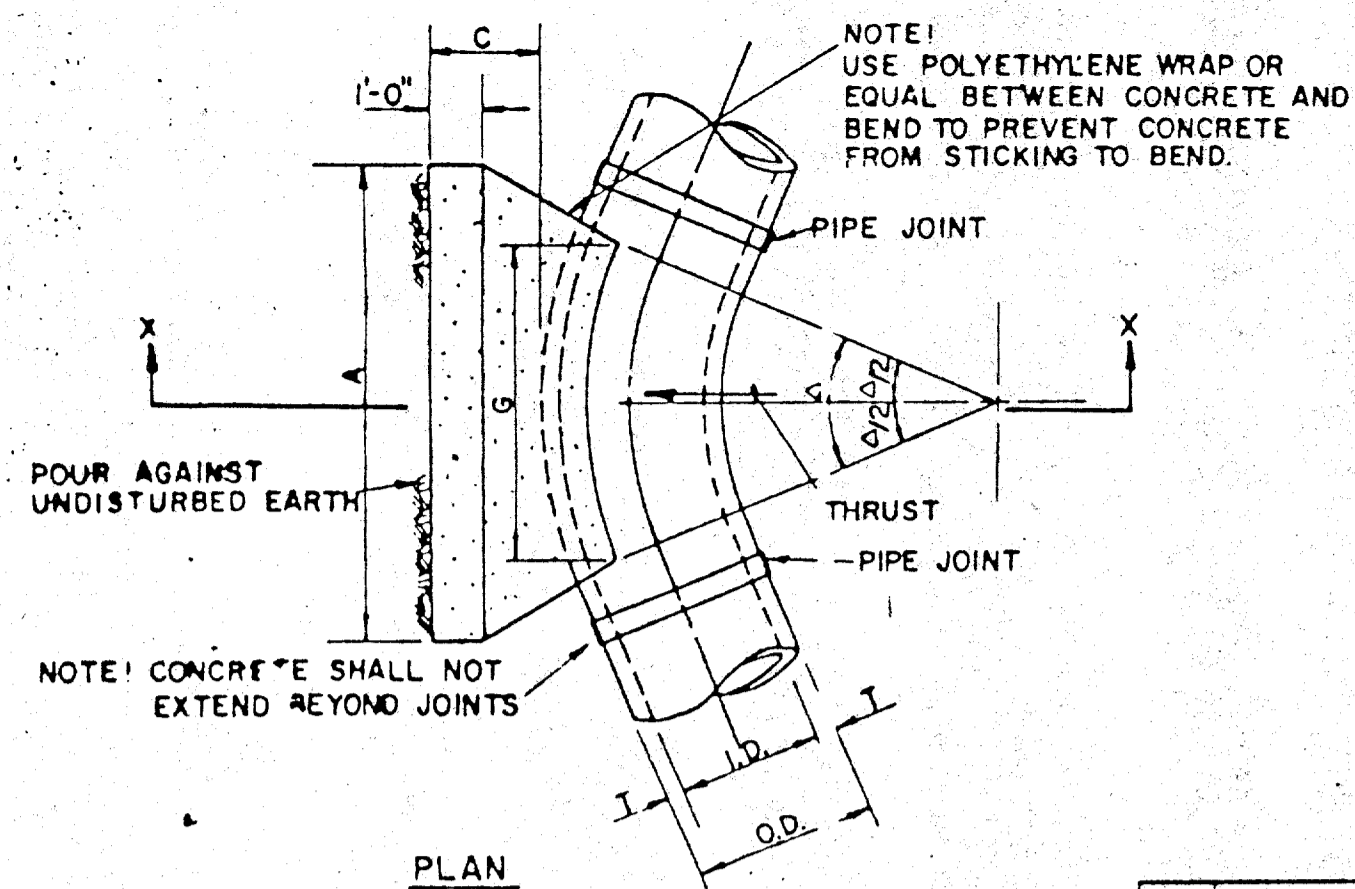
NOTE: Contractor To Install Kor-n-Seal Boot Assembly Per Mfr. Recommendations In A Neat And Workman-Like Manner

CLASS B Conc. - 2000psi at 28 days(Compressive)



TOWN OF ADDISON, TEXAS			
DEPARTMENT OF ENGINEERING			
STANDARD CONSTRUCTION DETAILS			
SANITARY SEWER			
MANHOLES AND CONNECTIONS			
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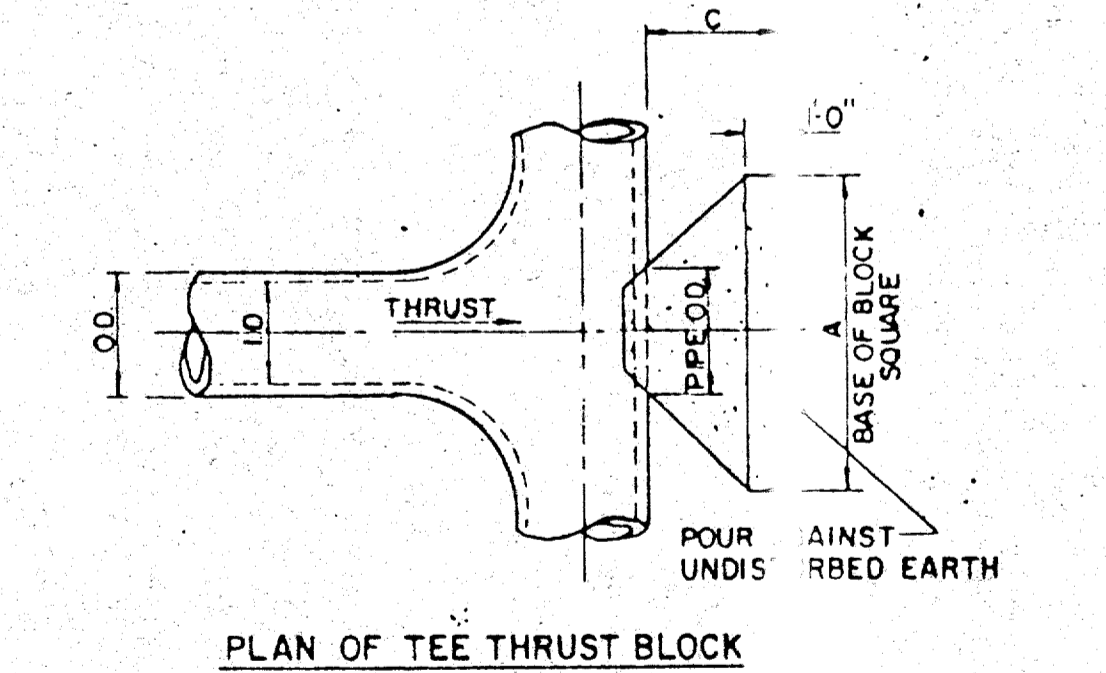
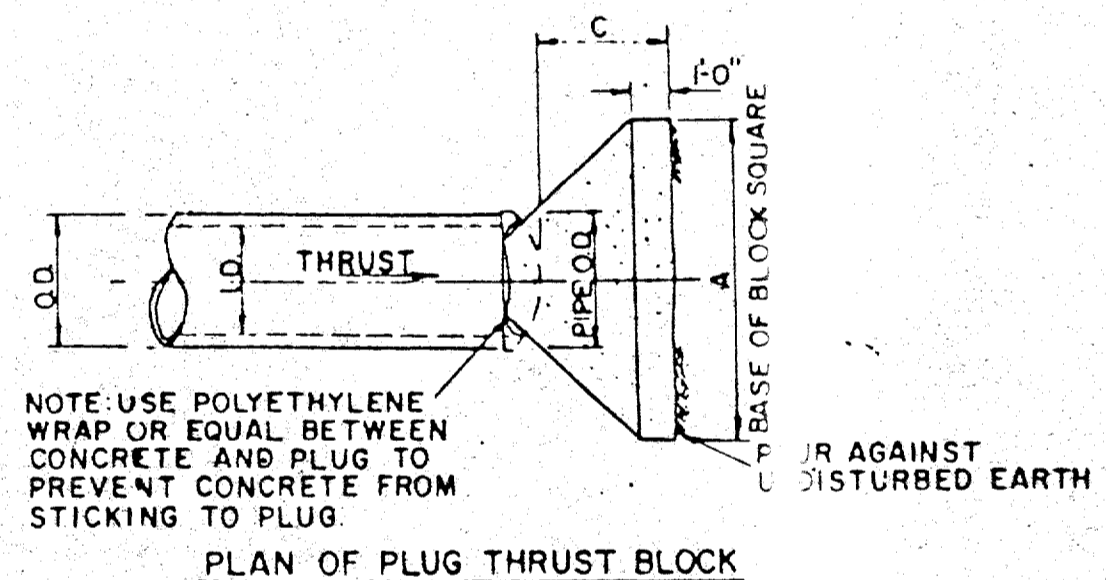
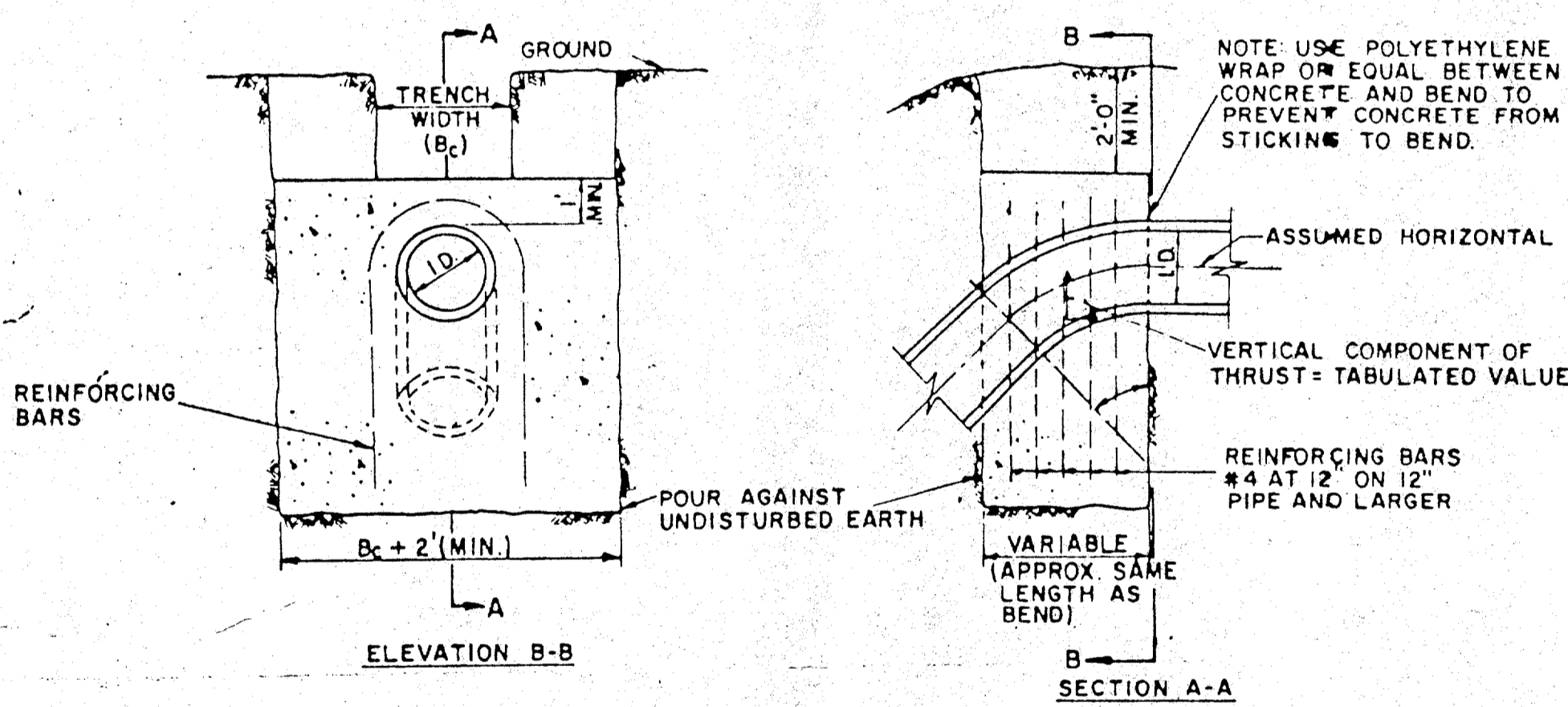




I.D. (IN.)		T	C	C	E	
			11.25°	22.50°		
4.6, 8	0.4	1.5	1.5	1.5	0.9	
10.12	0.5	1.5	1.5	1.5	1.2	
16.18	0.6	1.5	1.5	1.5	1.6	
20	0.7	1.5	1.5	1.5	1.8	
24	0.9	1.5	1.5	1.5	2.1	
30	2.5	1.5	1.5	1.9	2.6	
36	4.5	1.5	2.3	3.3		
42	5.0	1.8	2.6	3.8		
48	5.5	2.0	3.0	4.3		
54	6.0	2.3	3.4	4.8		
60	6.5	2.5	3.8	5.3		
66	6.8	2.8	4.1	5.7		
72	7.5	3.0	4.5	6.3		
78	7.5	3.3	4.9	6.7		
84	8.0	3.5	5.3	7.2		
90	8.5	3.8	5.6	7.7		
96	9.0	4.0	6.0	8.2		

I.D. (IN.)		G	T	EARTH		ROCK		I.D. (IN.)		G	T	EARTH		ROCK	
				A	B	A	B					A	B	A	B
		FT.	TONS	FT.	FT.	FT.	FT.			FT.	TONS	FT.	FT.	FT.	FT.
4.6, 8	0.4	10	10	1.5	0.1	10	0.1	4.6, 8	0.8	20	1.5	0.1	10	10	0.1
10.12	0.6	2.2	1.5	1.5	0.1	1.5	0.1	10.12	1.1	4.4	2.0	2.5	0.3	1.5	1.5
16.18	0.8	5.0	2.0	2.5	0.1	2.0	0.2	16.18	1.6	9.9	3.0	3.5	0.6	2.0	2.5
20	0.9	6.2	2.0	3.5	0.4	1.5	0.3	20	1.8	12.3	3.5	3.5	0.7	2.0	3.5
24	1.1	8.9	3.0	3.0	0.5	1.5	0.3	24	2.2	17.7	4.0	4.5	1.0	3.0	0.5
30	1.4	10.4	3.0	3.5	0.6	2.0	0.4	30	2.7	20.7	5.0	4.5	1.5	3.0	0.8
36	1.7	15.0	3.5	4.5	0.9	2.0	0.5	36	3.3	29.8	5.5	5.5	2.3	4.0	1.3
42	1.9	20.4	4.5	5.0	1.5	2.5	0.8	42	3.8	40.5	7.0	6.0	3.9	4.5	2.1
48	2.2	26.6	4.5	6.0	2.0	3.0	1.1	48	4.4	52.9	8.0	7.0	5.7	4.8	2.8
54	2.5	33.7	6.0	6.0	3.0	4.0	1.4	54	4.9	67.0	9.0	8.0	6.0	6.0	4.1
60	2.7	41.6	6.0	7.0	3.8	3.0	1.8	60	5.5	82.7	9.5	9.0	10.6	6.0	7.0
66	3.0	50.3	6.5	8.0	5.1	3.5	2.0	66	6.0	100.1	10.5	10.0	14.1	6.5	8.0
72	3.3	59.9	7.5	9.0	6.3	4.0	2.3	72	6.6	119.1	11.0	11.0	17.6	7.5	9.0
78	3.6	70.2	8.0	9.0	8.1	4.0	9.0	78	7.1	139.8	12.0	12.0	22.5	8.0	9.0
84	3.8	81.5	8.5	10.0	10.3	4.5	10.0	84	7.6	162.1	13.0	12.5	27.2	8.5	10.0
90	4.1	93.5	9.5	10.0	12.2	5.0	10.0	90	8.2	186.1	14.0	13.5	33.7	9.5	10.0
96	4.4	106.4	10.0	11.0	15.0	5.0	11.0	96	8.7	211.7	15.0	14.5	41.2	10.0	11.0

HORIZONTAL BEND THRUST BLOCK



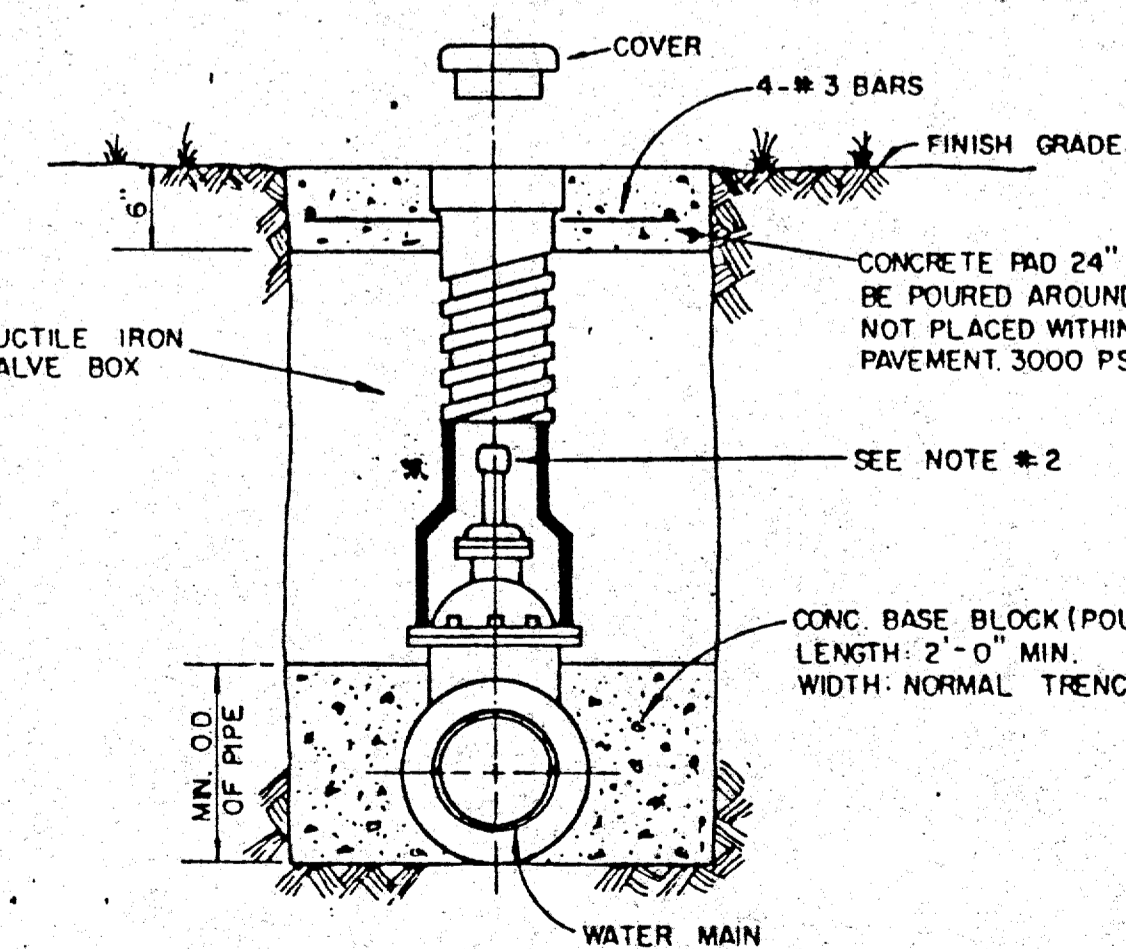
I.D. (IN.)		T	C	EARTH		ROCK		I.D. (IN.)		T	C	EARTH		ROCK	
				A	B	A	B					A	B	A	B
		FT.	TONS	FT.	FT.	FT.	FT.			FT.	TONS	FT.	FT.	FT.	FT.
4.6, 8	1.0	0.5	2.0	1.0	2.5	1.3	3.6	1.8	4.6	2.3	5.0	2.5	4.6, 8		
10.12	2.2	1.1	4.3	2.2	5.7	2.8	8.0	4.0	10.5	5.2	11.3	5.7	10.12		
16.18	3.0	2.5	9.7	4.8	12.7	6.4	18.0	9.0	15.5	11.8	12.5	12.7	16.18		
20	4.1	3.1	12.0	6.0	15.7	7.9	22.2	11.1	22.2	14.5	31.4	15.7	20		
24	4.7	4.4	17.3	8.7	22.6	11.3	32.0	16.0	41.8	20.9	45.2	22.6	24		
30	10.5	5.2	20.3	10.1	26.5	13.3	37.5	18.8	49.0	24.5	53.1	26.5	30		
36	14.3	7.5	29.2	14.6	38.2	19.1	54.0	27.0	70.5	35.3	74.4	38.2	36		
42	20.3	10.1	39.8	19.9	52.0	26.0	73.5	36.7	96.0	48.0	104.0	52.0	42		
48	26.5	13.2	51.9	26.0	67.9	33.9	96.0	48.0	126.0	62.7	136.0	67.9	48		
54	33.5	16.8	65.7	32.9	85.9	42.9	122.0	60.7	159.0	79.4	172.0	85.9	54		
60	41.4	20.7	81.2	40.6	106.0	53.0	150.0	75.0	196.0	98.0	212.0	106.0	60		
66	50.1	25.0	98.2	49.1	128.0	64.2	182.0	90.7	237.0	119.0	257.0	128.0	66		
72	59.8	29.9	117.0	58.4	153.0	76.3	216.0	108.0	282.0	141.0	305.0	153.0	72		
78	69.9	35.0	137.0	68.6	179.0	90.0	254.0	127.0	331.0	164.0	358.0	179.0	78		
84	81.1	40.5	159.0	79.5	208.0	104.0	294.0	147.0	384.0	192.0	416.0	208.0	84		
90	93.1	46.5	183.0	91.3	239.0	119.0	337.0	169.0	441.0	221.0	477.0	239.0	90		
96	110.6	53.0	208.0	104.0	272.0	136.0	384.0	192.0	502.0	251.0	543.0	272.0	96		

GENERAL NOTES-FOR ALL THRUST BLOCKS  
 1. All Calculations Are Based On Internal Pressure Of 200 P.S.I. For 24" I.D. Pipe And Smaller And 150 P.S.I. On 30" I.D. And Larger.  
 2. Volumes Of Vertical Bend Thrust Blocks Are Net Volumes Of Concrete To Be Furnished. The Corresponding Weight Of The Concrete (Class F) Is Equal To Or Greater Than The Vertical Component Of Thrust On The Vertical Bend.  
 3. Wall Thickness (T) Assumed Here For Estimating Purposes Only.  
 4. Concrete For Blocking Shall Be Class B Concrete.  
 5. Dimensions May Be Varied As Required By Field Conditions Where And As Directed By The Engineer. The Volume Of Concrete Blocking Shall Not Be Less Than Shown Here.

VERTICAL BEND THRUST BLOCK

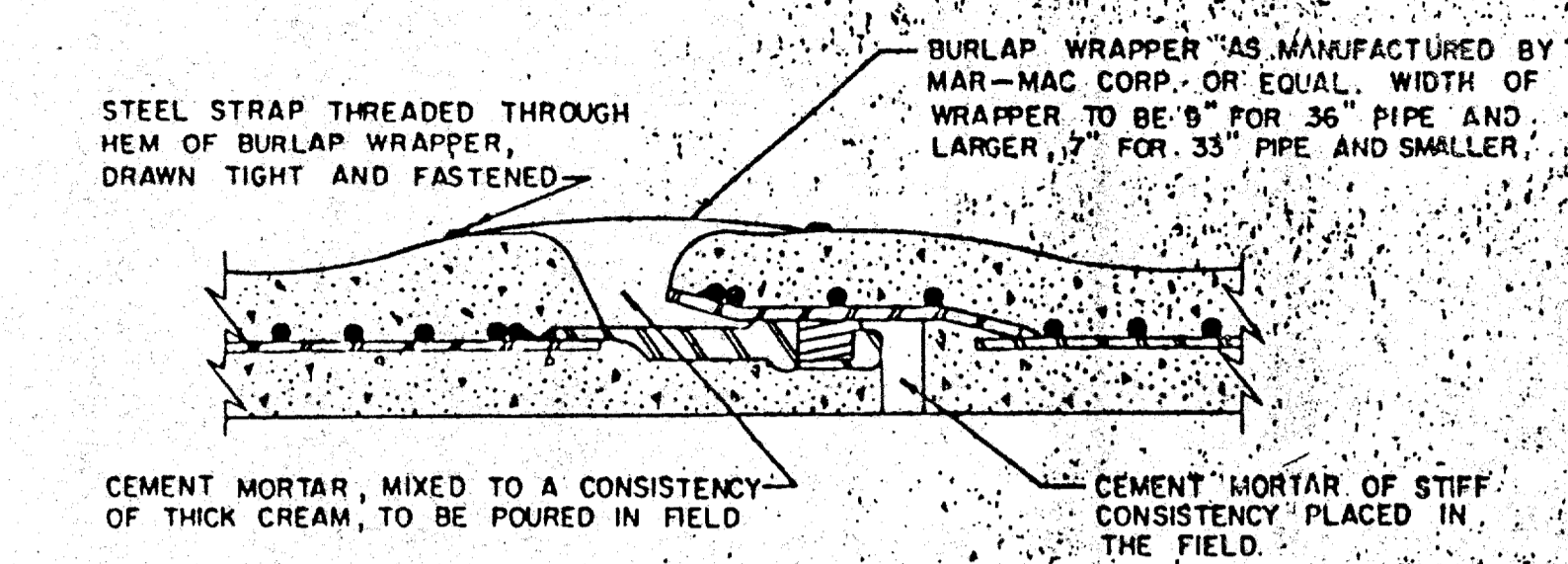
I.D. (IN.)		T	C	EARTH		ROCK	
				A	B	A	B
		FT.	TONS	FT.	FT.	FT.	FT.
4.6, 8	1.5	1.5	2.5	0.3	2.0	0.3	2.0
10.12	1.3	1.5	3.5	0.6	2.3	0.6	2.3
16.18	2.5	2.0	5.5	1.4	4.0	1.4	4.0
20	3.5	2.0	6.0	1.9	4.0	1.9	4.0
24	4.5	3.0	7.5	4.1	3.5	4.1	3.5
30	7.6	4.0	9.0	7.3	6.5	7.3	6.5
42	10.4	4.5	10.5	11.0	7.5	11.0	7.5
48	13.6	5.0	12.0	15.6	8.5	15.6	8.5
54	17.2	5.5	13.5	21.4	9.5	21.4	9.5
60	21.2	6.0	15.0	28.4	10.5	28.4	10.5
66	25.7	6.5	16.5	36.8	11.5	36.8	11.5
72	30.5	7.5	17.5	47.2	12.5	47.2	12.5
78	35.8	8.0	19.0	58.9	13.5	58.9	13.5
84	41.6	8.5	20.5	72.3	14.5	72.3	14.5
90	47.7	9.0	22.0	87.7	15.5	87.7	15.5
96	54.3	9.5	23.5	104.8	16.5	104.8	16.5

PLUG & TEE THRUST BLOCK



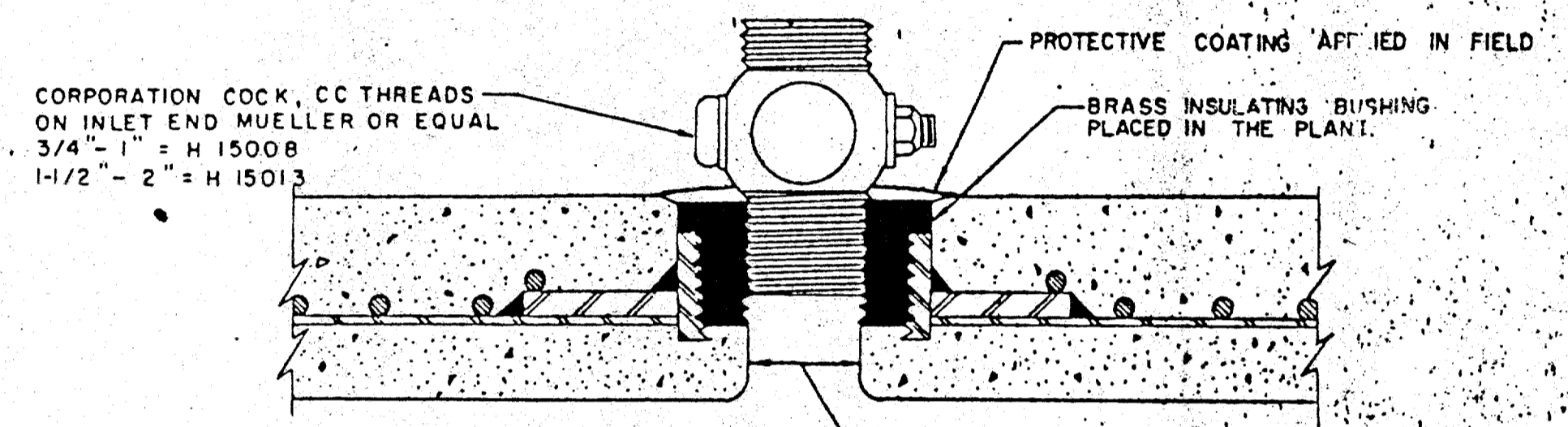
NOTE:  
 1. GATE VALVES SHALL BE IN ACCORDANCE WITH AWWA STANDARD C-509-80 OR LATEST THEREOF. ALL VALVES SHALL BE "MUELLER" OR APPROVED EQUAL.  
 2. A PERMANENTLY ATTACHED VALVE EXTENSION STEM SHALL BE REQUIRED FOR ANY VALVE THATS OPERATING NUT IS LOCATED IN EXCESS OF 4 FEET BELOW THE TOP OF VALVE BOX. THIS EXTENSION SHALL BE OF SUFFICIENT LENGTH TO INSURE THAT ITS TOP IS WITHIN 4" OF VALVE BOX LID. MANUFACTURED VALVE STACK DUCTILE IRON PIPE TO BE USED FOR EXTENSION GREATER THAN 4'-0" BELL END OF STACK TO BE FITTED OVER VALVE. VALVE AND VALVE STACK IS TO BE POLY WRAPPED.  
 3. VALVES SHALL BE OF DUCTILE IRON W/RUBBER ENCAPSULATED DISK BODY BOLTS SHALL BE STAINLESS STEEL OF SAME SIZE ON EACH VALVE.  
**TYPICAL VALVE SETTING AND BOX**

NOTE:  
 PROVIDE 1" MINIMUM THICKNESS CONCRETE OR CEMENT MORTAR COATING IN THE FIELD FOR THE PROTECTION OF ALL EXPOSED STEEL SUCH AS: FLANGES, CAULKED JOINTS, THREADED OUTLETS, CLOSURES, ETC. THE CEMENT MORTAR USED SHALL CONSIST OF ONE PART PORTLAND CEMENT TO TWO AND ONE-HALF PARTS OF FINE SHARP (PLASTER) SAND. WHERE SHOWN, COATING IS TO BE REINFORCED WITH WIRE MESH.

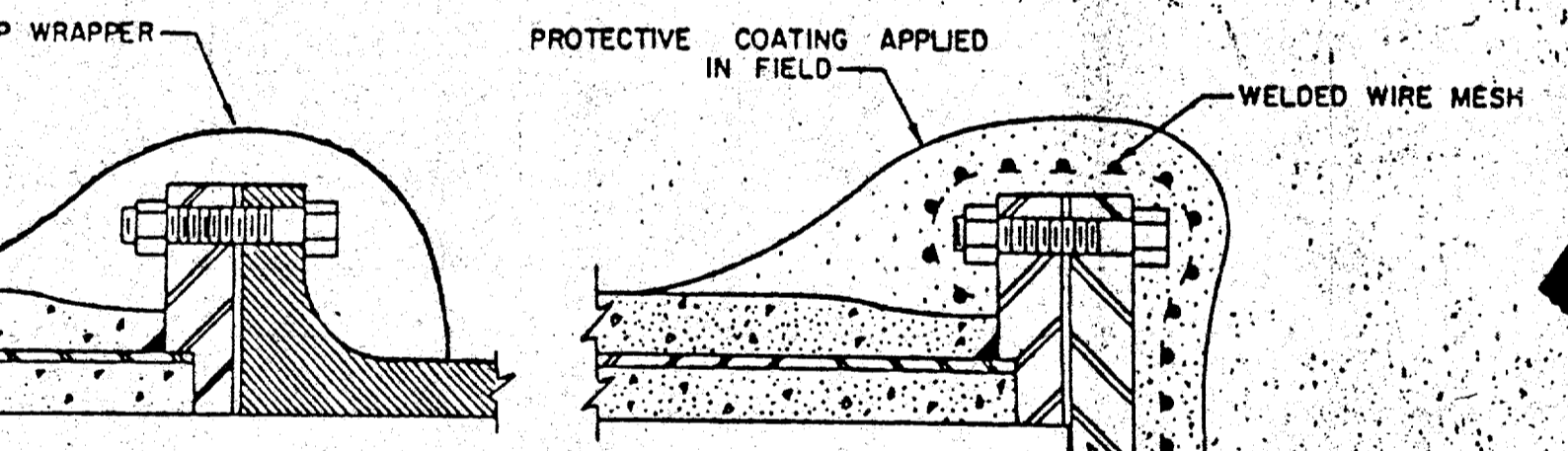


STANDARD RUBBER GASKET JOINT

NOTE: ALL CLOSURE SECTIONS SHALL BE FABRICATED WITH HAND HOLES TO ALLOW WIPING INSIDE OF JOINTS AFTER CLOSURE IS IN PLACE

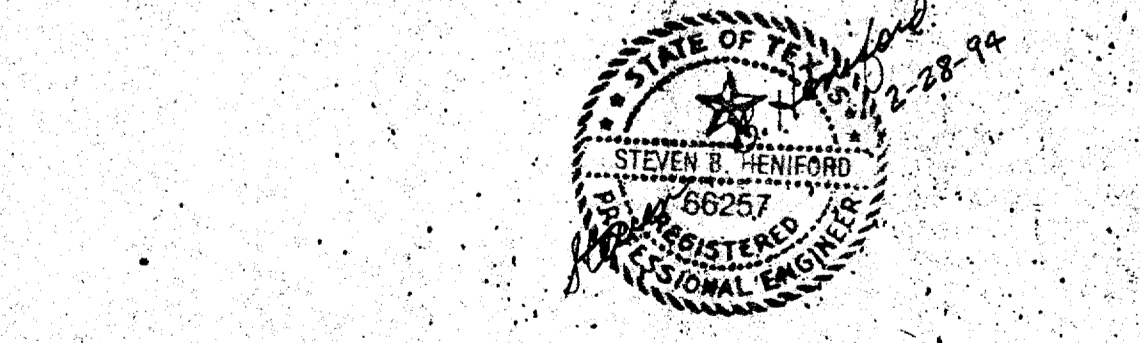


THREADED CONNECTION

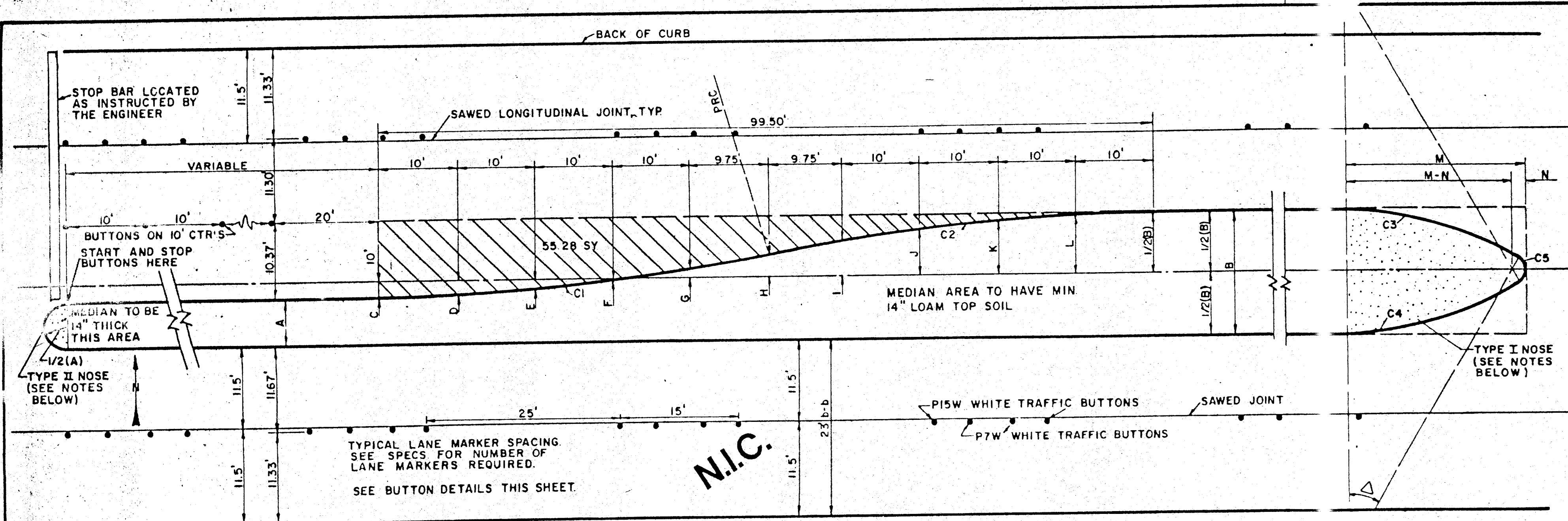


FLANGED CONNECTIONS

REINFORCED CONCRETE CYLINDER PIPE DETAILS



TOWN OF ADDISON, TEXAS			
DEPARTMENT OF ENGINEERING			
STANDARD CONSTRUCTION DETAILS			
WATER			
THRUST BLOCKS			
Designed -	Drawn -	Date -	Job No. -
Approved -	Checked -	Scale -	Sheet - 33



**MEDIAN DIMENSION CHART**

B	C	D	E	F	G	H	I	J	K	L	M	N
12	4.00'S	3.80'S	3.20'S	2.19'S	0.78'S	1.00'N	2.78'N	4.19'N	5.20'N	5.80'N	22.56'	1.00'
13	3.50'S	3.30'S	2.70'S	1.69'S	0.28'S	1.50'N	3.28'N	4.69'N	5.70'N	6.30'N	23.56'	1.00'
14	3.00'S	2.80'S	2.20'S	1.19'S	0.22'N	2.00'N	3.78'N	5.19'N	6.20'N	6.80'N	22.68'	2.50'
15	2.50'S	2.30'S	1.70'S	0.69'S	0.72'N	2.50'N	4.28'N	5.69'N	6.70'N	7.30'N	23.71'	2.50'
16	2.00'S	1.80'S	1.20'S	0.19'S	1.22'N	3.00'N	4.78'N	6.19'N	7.20'N	7.80'N	23.46'	3.50'
17	1.50'S	1.30'S	0.70'S	0.31'N	1.72'N	3.50'N	5.28'N	6.69'N	7.70'N	8.30'N	24.48'	3.50'
18	1.00'S	0.80'S	0.20'S	0.81'N	2.22'N	4.00'N	5.78'N	7.19'N	8.20'N	8.80'N	25.44'	3.50'
19	0.50'S	0.30'S	0.30'N	1.31'N	2.72'N	4.50'N	6.28'N	7.69'N	8.70'N	9.30'N	26.34'	3.50'
20	0.00'	0.20'N	0.80'N	1.81'N	3.22'N	5.00'N	6.78'N	8.19'N	9.20'N	9.80'N	26.72'	4.00'
21	0.50'N	0.70'N	1.30'N	2.31'N	3.72'N	5.50'N	7.28'N	8.69'N	9.70'N	10.30'N	27.57'	4.00'
22	1.00'N	1.20'N	1.80'N	2.81'N	4.22'N	6.00'N	7.78'N	9.19'N	10.20'N	10.80'N	28.39'	4.00'
23	1.50'N	1.70'N	2.30'N	3.31'N	4.72'N	6.50'N	8.28'N	9.69'N	10.70'N	11.30'N	29.17'	4.00'
24	2.00'N	2.30'N	2.80'N	3.81'N	5.22'N	7.00'N	8.78'N	10.19'N	11.20'N	11.80'N	29.92'	4.00'

N = NORTH OF CENTERLINE  
S = SOUTH OF CENTERLINE

**CURVE DATA C3 & C4 FOR 7'A=14'**

A	R	T	L	M	N	
7	18°22'52"	50'	8.09'	16.04'	16.45'	1.00'
8	20°09'11"		8.89'	17.59'	17.88'	1.00'
9	21°47'12"		9.62'	19.01'	19.19'	1.00'
10	23°18'41"		10.31'	20.34'	20.39'	1.00'
11	24°44'50"		10.97'	21.60'	21.51'	1.00'
12	26°06'32"		11.59'	22.78'	22.56'	1.00'
13	27°24'27"		12.19'	23.92'	23.56'	1.00'
14	28°08'28"		12.77'	25.00'	24.56'	2.50'

**CURVE DATA C1**  
C2  
Δ = 11°28'40"  
R = 250'  
T = 25.13'  
L = 50.08'

**CURVE DATA C3 & C4 FOR 12'B=24'**

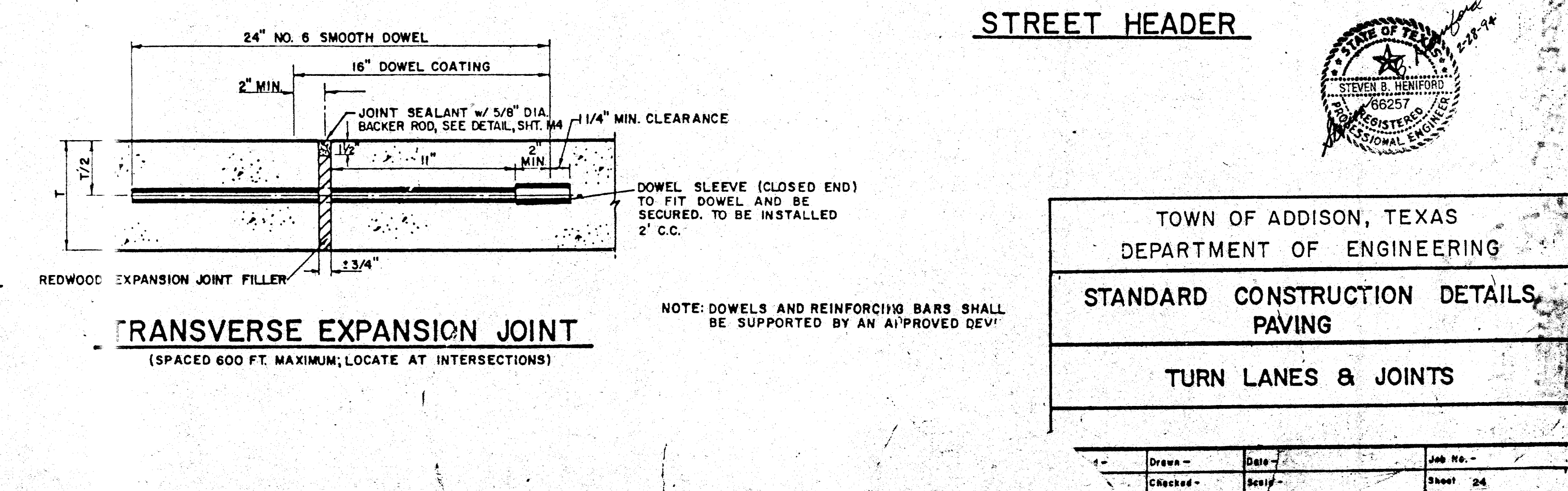
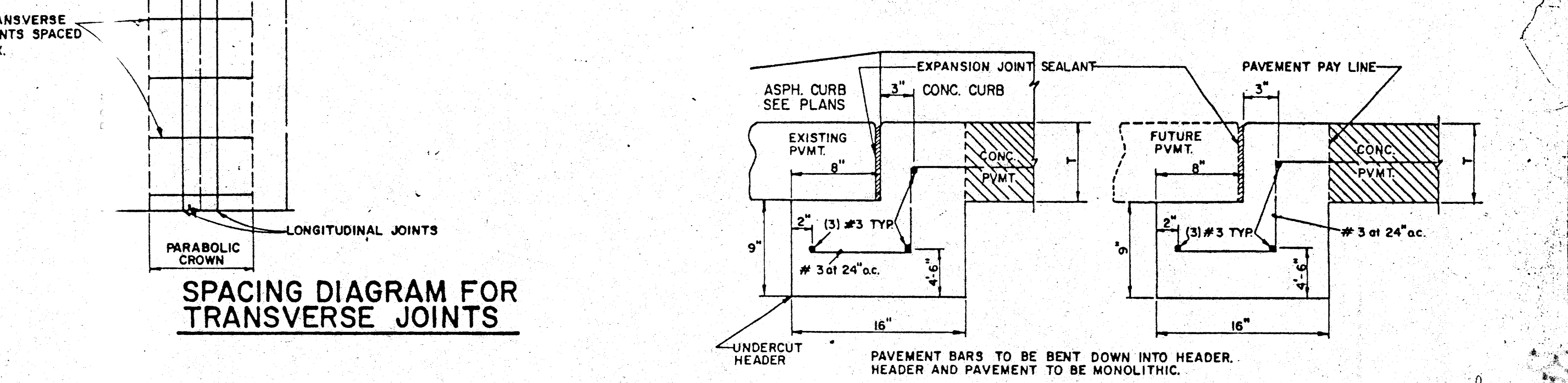
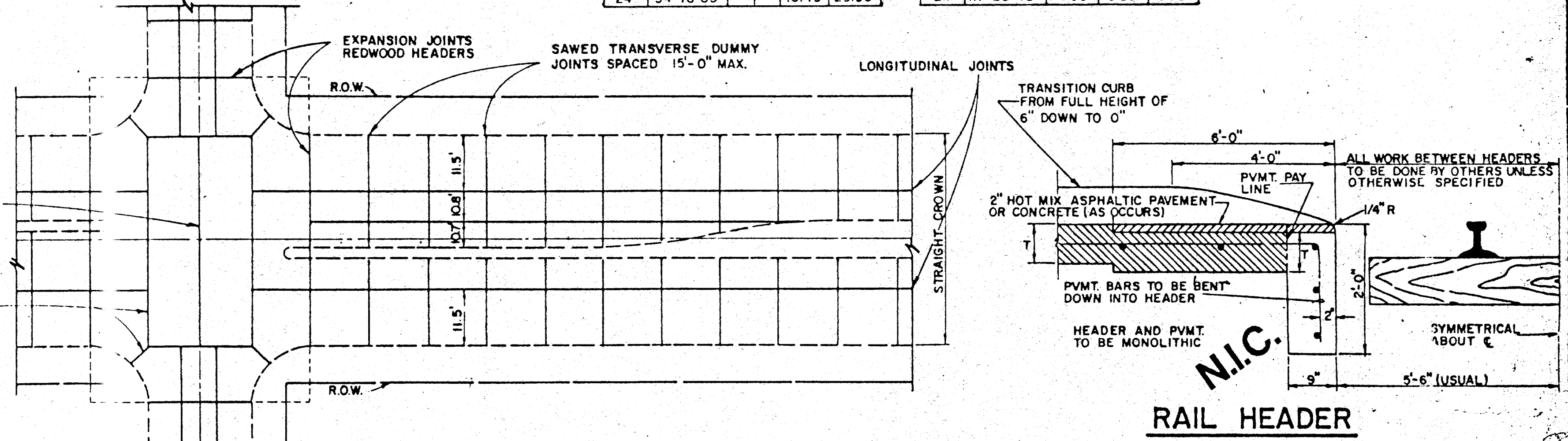
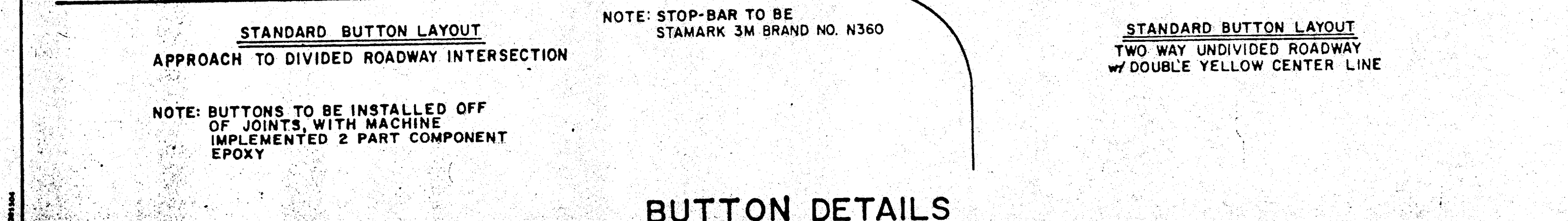
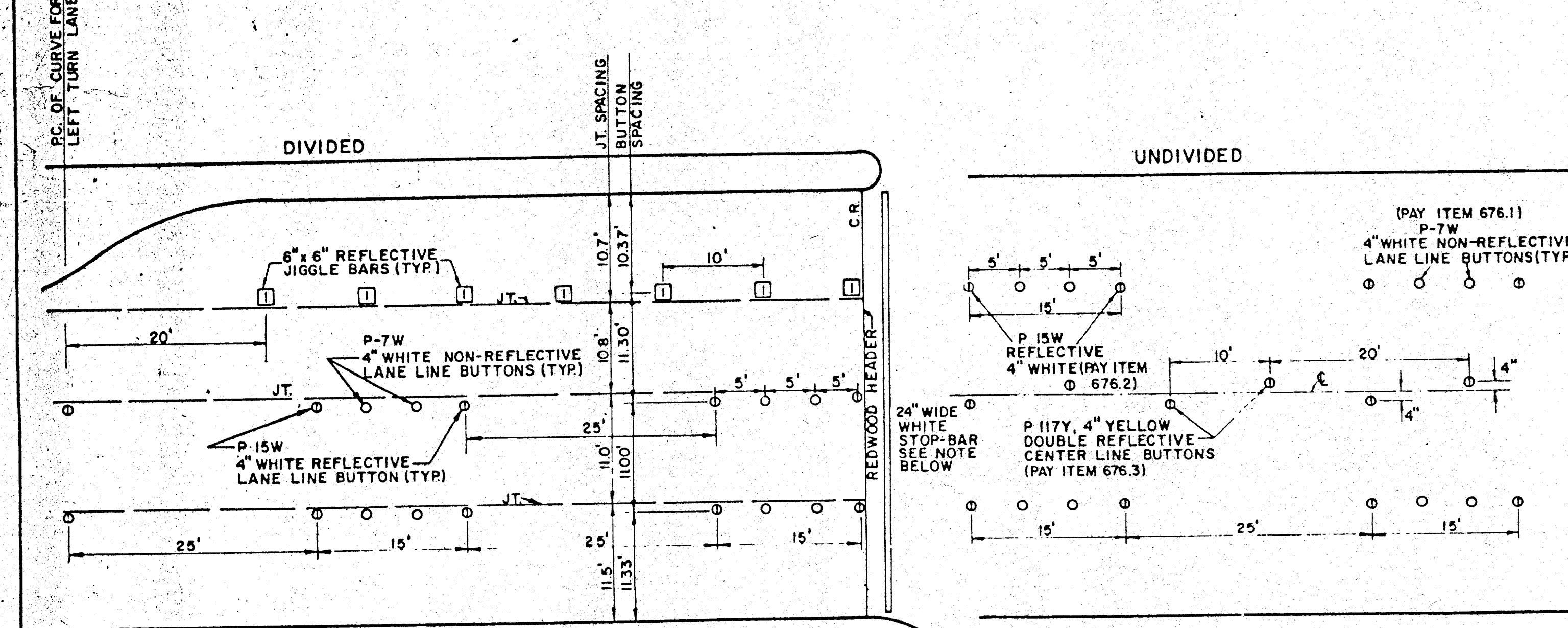
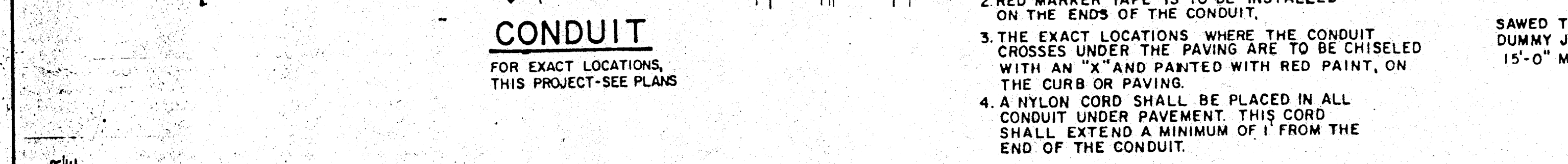
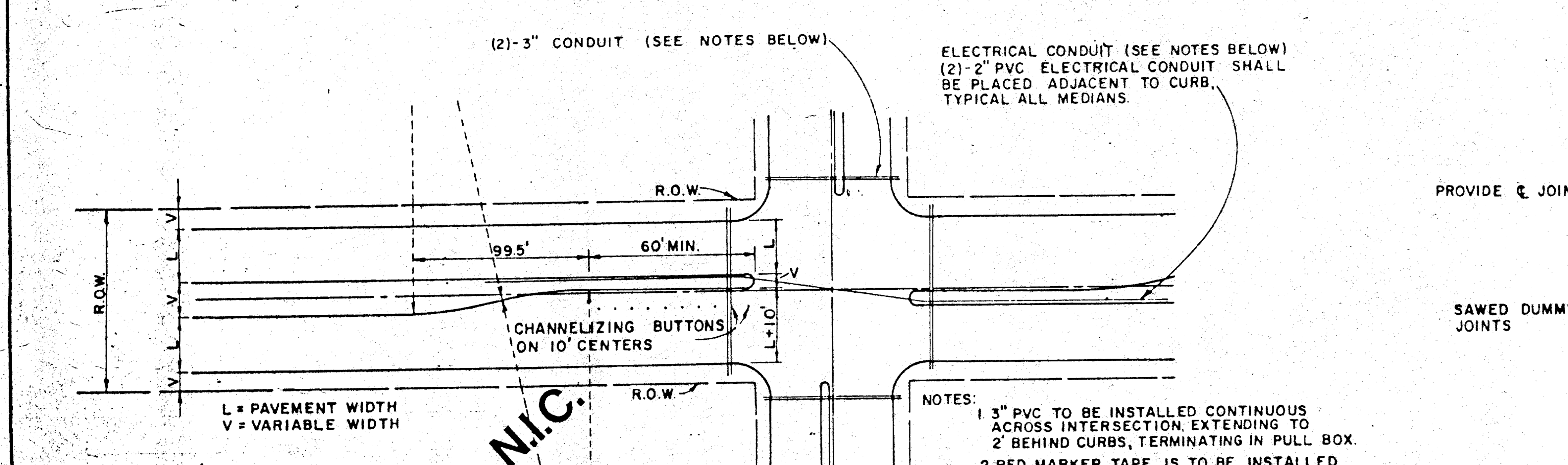
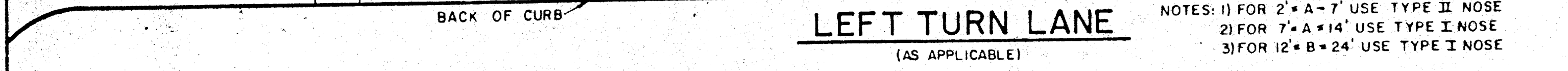
B	Δ	R	T	L
12	26°06'32"	50.00'	11.59'	22.78'
13	27°24'27"		12.19'	23.92'
14	28°08'28"		12.77'	25.00'
15	28°31'32"		13.33'	26.04'
16	28°45'53"		13.87'	27.04'
17	28°48'51"		14.39'	28.00'
18	28°40'58"		14.89'	28.92'
19	28°25'43"		15.37'	29.80'
20	28°05'30"		15.83'	30.64'
21	27°49'46"		16.27'	31.44'
22	27°28'01'		16.69'	32.20'
23	27°01'10'		17.09'	32.92'
24	26°30'18'		17.47'	33.60'

**CURVE DATA C5 FOR 12'B=24'**

B	Δ	R	T	L
12	27°47'32"	100'	2.04'	2.23'
13	28°12'46"	100'	1.93'	2.19'
14	28°43'08"	250'	5.33'	5.66'
15	28°57'31"	250'	5.01'	5.54'
16	29°09'33"	350'	7.36'	7.89'
17	29°14'44"	350'	6.92'	7.72'
18	29°11'38"	350'	6.54'	7.56'
19	29°02'03"	350'	6.17'	7.38'
20	28°48'56"	400'	7.04'	8.43'
21	28°21'08"	400'	6.70'	8.26'
22	27°57'07"	400'	6.40'	8.10'
23	27°38'22"	400'	6.12'	7.93'
24	27°13'48"	400'	5.86'	7.78'

**CURVE DATA C5 FOR 7'A=14'**

A	R	T	L	
7	143°14'15"	1.00'	3.01'	2.50'
8	139°41'38"	1.00'	2.72'	2.44'
9	136°25'35"	1.00'	2.50'	2.38'
10	133°22'38"	1.00'	2.32'	2.33'
11	130°30'20"	1.00'	2.17'	2.28'
12	127°47'32"	1.00'	2.04'	2.23'
13	125°12'46"	1.00'	1.93'	2.19'
14	122°43'08"	2.50'	5.33'	5.66'



TOWN OF ADDISON, TEXAS  
DEPARTMENT OF ENGINEERING

**STANDARD CONSTRUCTION DETAILS**  
PAVING  
TURN LANES & JOINTS

Drawn: \_\_\_\_\_ Date: \_\_\_\_\_ Job No.: \_\_\_\_\_  
Checked: \_\_\_\_\_ Scale: \_\_\_\_\_ Sheet: 24