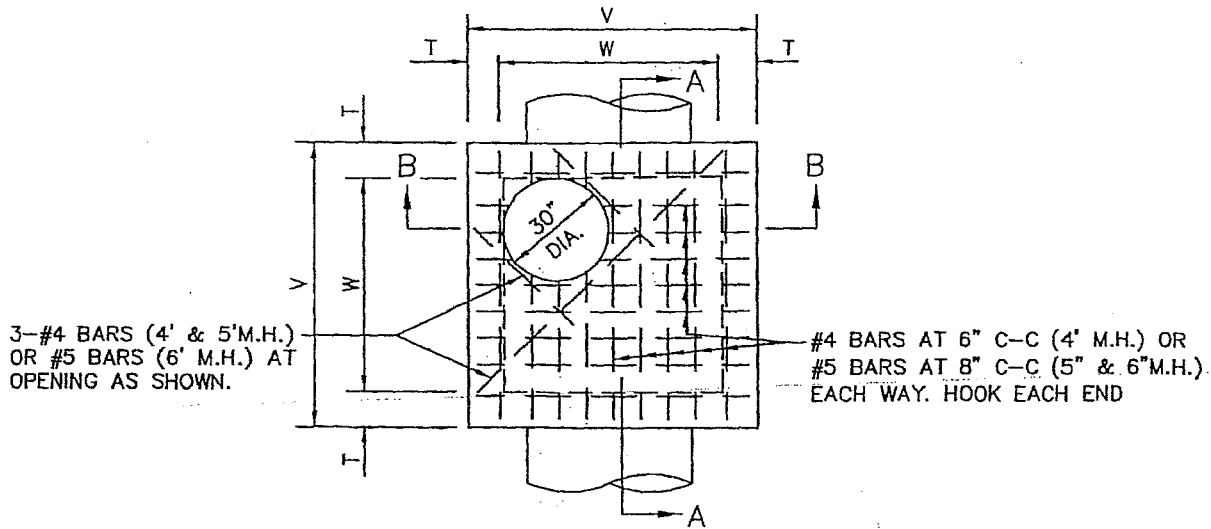




*Easy to Find.
Hard to Leave.*

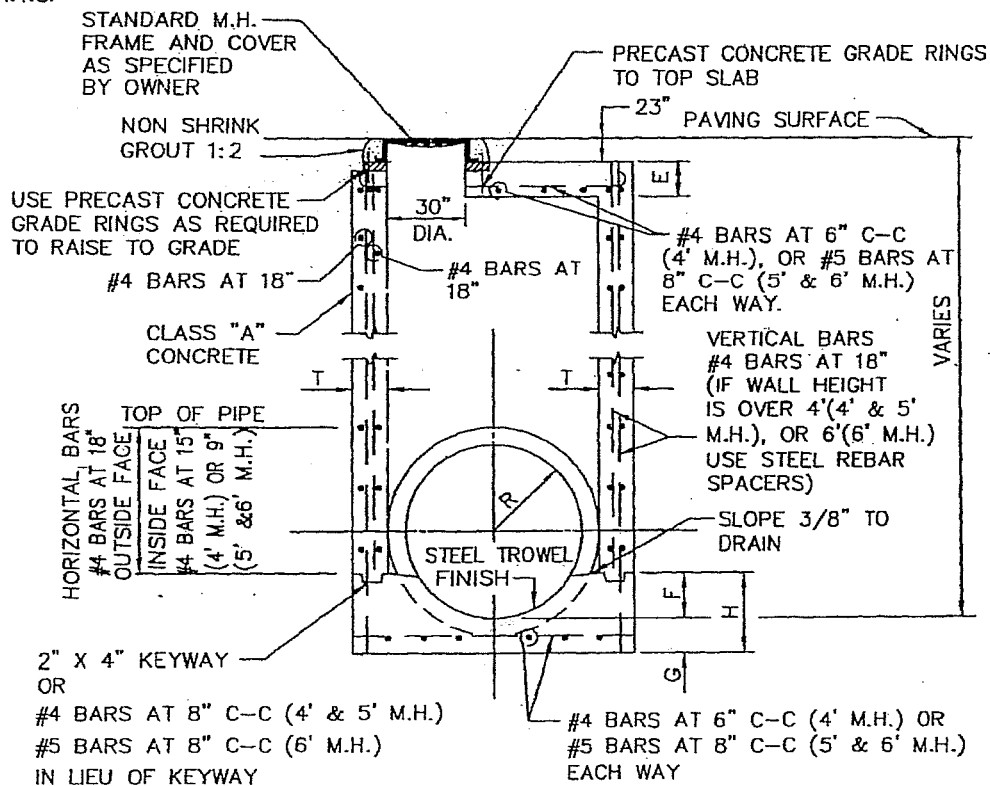
Standard Drawings



PLAN
N.T.S.

M.H. SIZE(W)	V	T	E	F	G	H
4'	5'-4"	8"	6"	9"	6"	1'-3"
5'	6'-4"	8"	6"	12"	8"	1'-8"
6'	7'-6"	9"	9"	16"	10"	2'-2"

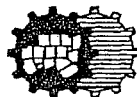
TABLE OF DIMENSIONS
N.T.S.



SECTION B-B
N.T.S.

STORM WATER MANHOLE
4', 5', OR 6' SQUARE

North Central Texas Council of Governments



STANDARD SPECIFICATION REFERENCE

502.1

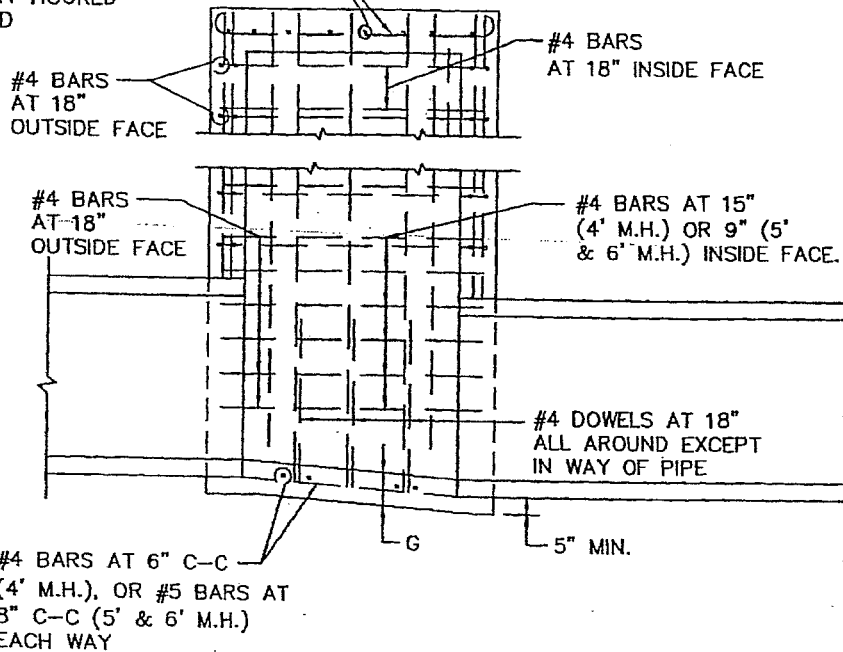
DATE

OCT. '04

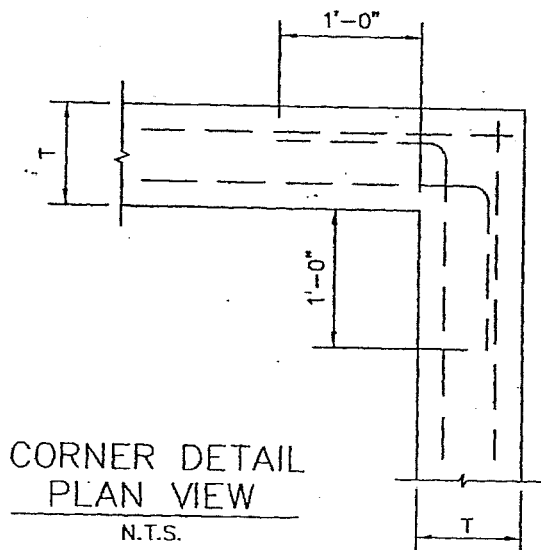
STANDARD DRAWING NO.

6010A

#4 BARS AT 6" C-C (4' M.H.), OR
#5 BARS AT 8" C-C (5' & 6' M.H.)
EACH WAY HOOKED
EACH END



SECTION A-A
N.T.S.



NOTES:

1. SLOPE INVERT OF MANHOLE AS INDICATED ON PLAN-PROFILE SHEET.
2. LAYERS OF REINFORCING STEEL NEAREST THE INTERIOR AND EXTERIOR SURFACE SHALL HAVE A COVER OF 2" TO THE CENTER OF BARS, UNLESS OTHERWISE NOTED.
3. CONCRETE SHALL BE CLASS "A".

STORM WATER MANHOLE
4', 5', OR 6' SQUARE

North Central Texas Council of Governments



STANDARD SPECIFICATION REFERENCE

502.1

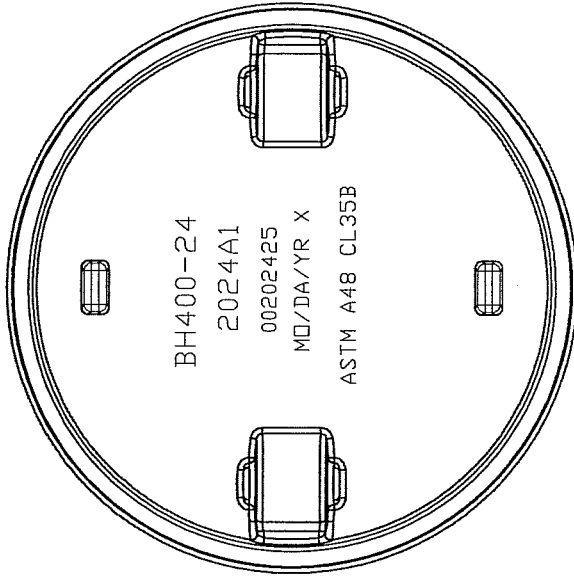
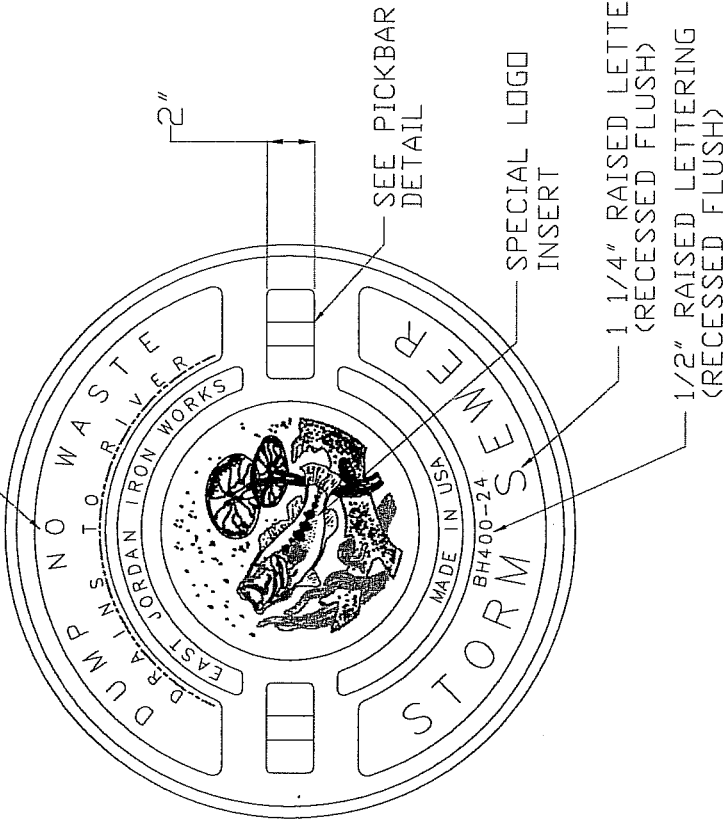
DATE

OCT. '04

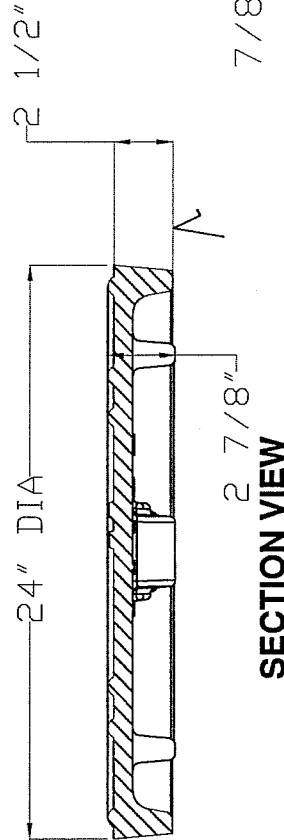
STANDARD DRAWING NO.

6010B

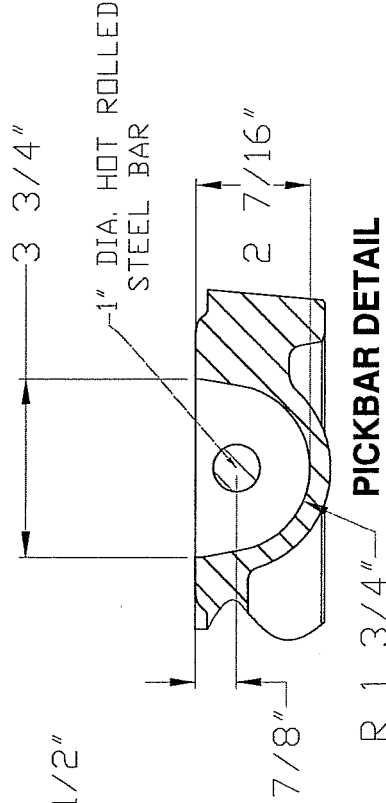
3/4" RAISED LETTERING
(RECESSED FLUSH)



BOTTOM VIEW



SECTION VIEW



PICKBAR DETAIL

EJW EAST JORDAN IRON WORKS EST. 1989 800-626-4653 www.ejw.com MADE IN USA	
PRODUCT NUMBER	00202425
CATALOG NUMBER	2024 A1
COVER	
LOAD RATING	HEAVY DUTY
COATING	DIPPED
ESTIMATED WEIGHT	COVER: 147 LBS
MATERIAL SPECIFICATION	
COVER - GRAY IRON ASTM A48 CL35B	
OPEN AREA	
N/A	
DESIGNATES MACHINE SURFACE	
DRAWN TLC	DATE 08/08/03
LAST REVISED DEW	DATE 02/27/08
REFERENCE INFORMATION	
00202450.1D 00202425.1C 00202425.1D	

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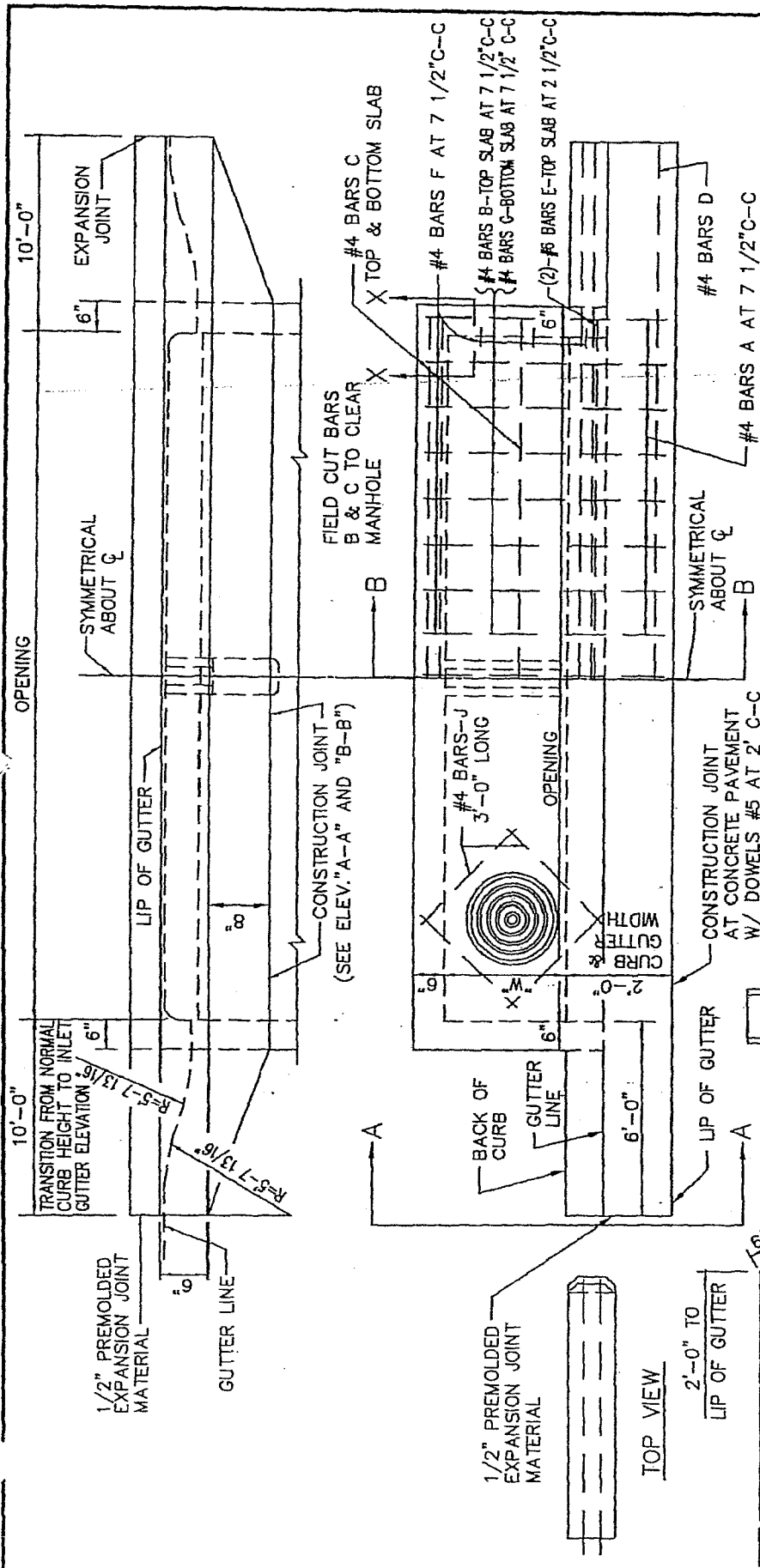


STORMWATER MANHOLE

RING AND COVER

NCTDOG STANDARD SPECIFICATION REFERENCE
508

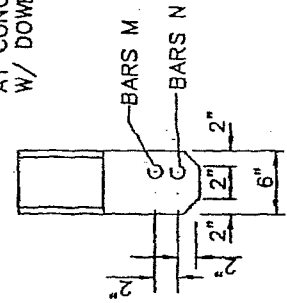
DATE
02/03/09
STANDARD DRAWING NO.
6011M*



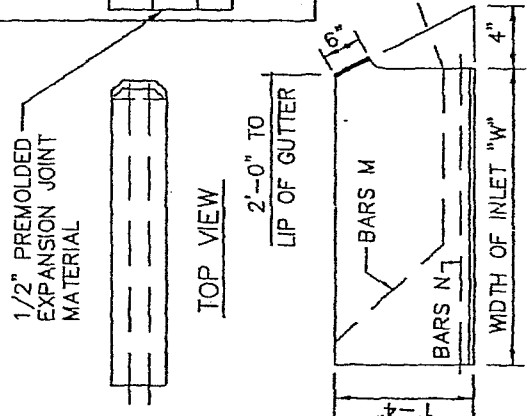
NOTES:

1. LOCATION OF MANHOLE OPENING TO BE AT OUTFALL END, UNLESS OTHERWISE DIRECTED BY THE OWNER.
2. INLETS OVER 10' IN WIDTH SHALL HAVE A MANHOLE OPENING AT EACH END.

PLAN
N.T.S.



END VIEW

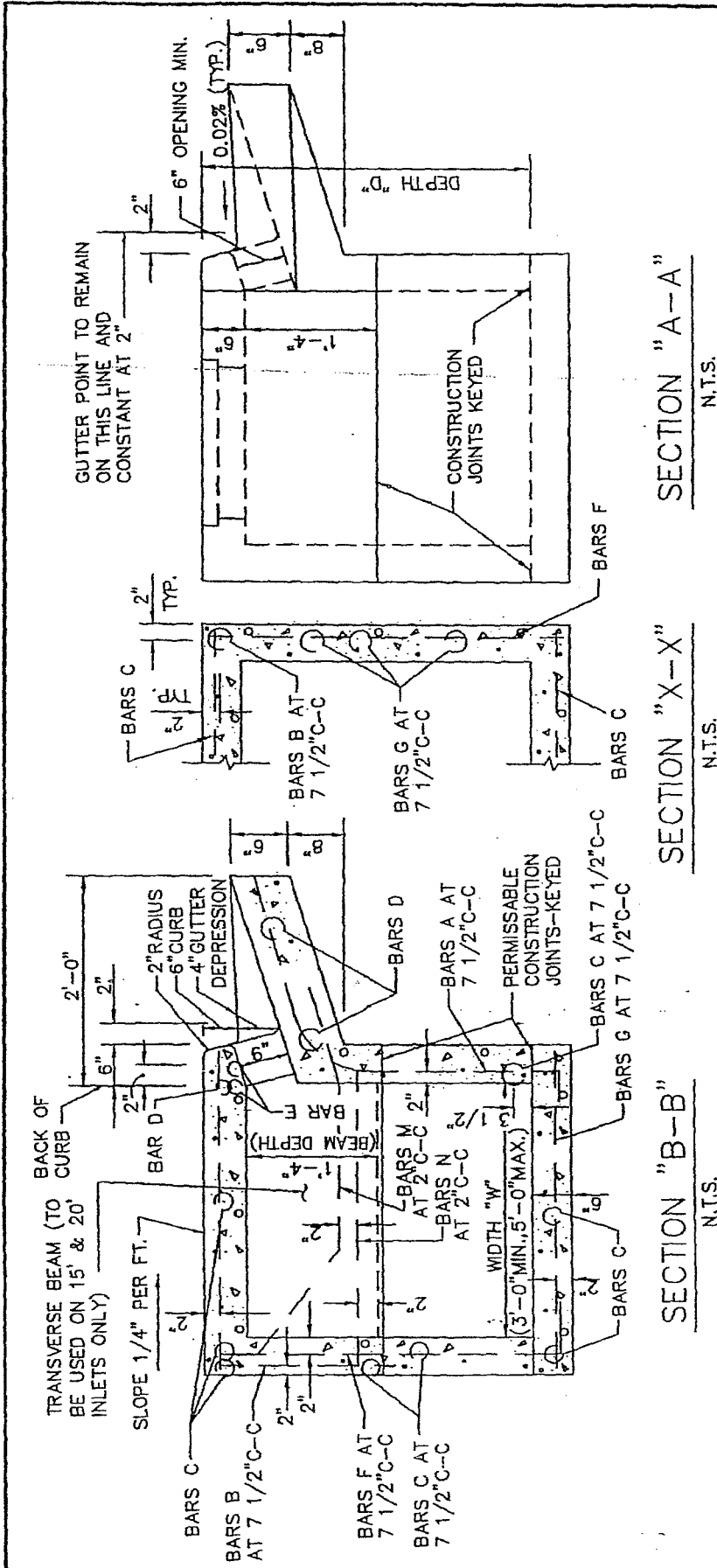


SIDE SECTION

TRANSVERSE BEAM DETAIL

(FOR USE WITH 15' & 20' INLETS)
N.T.S.

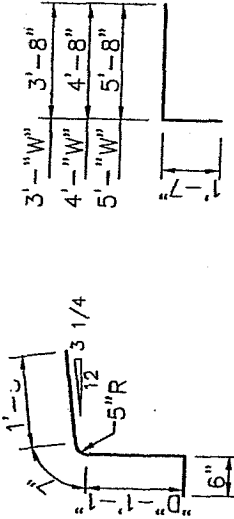
STANDARD SPECIFICATION REFERENCE 702	North Central Texas Council of Governments	CURB INLET	STANDARD DRAWING NO. 6020A
DATE OCT. '04	STANDARD DRAWING NO. 6020A		



GENERAL NOTES:

1. ALL CONCRETE SHALL BE CLASS "A" CONCRETE.
2. REINFORCING BARS SHALL BE STANDARD GRADE STEEL, DEFORMED REINFORCING BARS OF A DIAMETER AND LENGTH AS SHOWN.
3. CHAMFER ALL EXPOSED CORNERS 3/4" EXCEPT WHERE OTHERWISE NOTED.
4. DIMENSIONS RELATING TO REINFORCING STEEL ARE TO CENTERS OF BARS.
5. FIELD CUT AND BEND BARS AS NECESSARY TO ACCOMMODATE STORM SEWER PIPE.
6. RING AND COVER SHALL BE APPROVED BY THE OWNER AND INSTALLED BY THE CONTRACTOR.

STANDARD DRAWING NO. 6020B	STANDARD SPECIFICATION REFERENCE 702	North Central Texas Council of Governments 	DATE OCT. '04	STANDARD DRAWING NO. 6020B
CURB INLET	CROSS SECTION & INLET THROAT			



#4 BARS A
N.T.S.

#4 BARS B
N.T.S.

BARS C LGTH. OPEN. + 0'-8"
BARS D LGTH. OPEN. + 11'-8"

#4 BARS C & D
N.T.S.

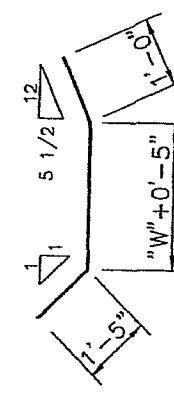
LENGTH OF OPENING + 0'-8"

#4 BARS E
N.T.S.

3'-0"

#4 BARS F
N.T.S.

#4 BARS G
N.T.S.



#4 BARS J
N.T.S.

#3 BARS M
N.T.S.

11'-0"

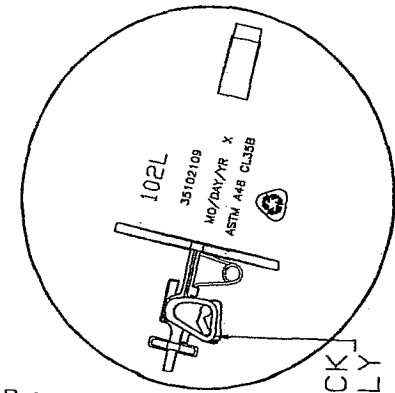
#5 BARS N
N.T.S.

1" LETTERING

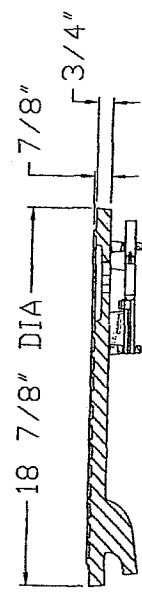


KEYED LOCK ASSEMBLY

1" LETTERING



BOTTOM VIEW



COVER SECTION

EJIW EAST JORDAN IRON WORKS, INC. 800-626-4653 WWW.EJIW.COM MADE IN USA	
PRODUCT NUMBER	35102209
CATALOG NUMBER	102 LOCK
LOCK COVER ASSEMBLY	
LOAD RATING	LIGHT DUTY
COATING	DIPPED
ESTIMATED WEIGHT	COVER: 60 LBS 27kg
MATERIAL SPECIFICATION	
COVER - GRAY IRON ASTM A48 CL35B	
OPEN AREA	N/A
DESIGNATES MACHINED SURFACE	
DRAWN	DATE
DEW	10/16/06
LAST REVISED	DATE
DAL	07/13/07
REFERENCE INFORMATION	
35102110	

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NCTCOG STANDARD SPECIFICATION REFERENCE	
702	
DATE	02/03/09
STANDARD DRAWING NO.	6020CM*



CURB INLET
REBAR & M.H. FRAME & COVER

STANDARD DRAWING NO.

BILL OF REINFORCING STEEL

[illegible]

NOTE:

FOR CONVENIENCE, DEPTHS OF INLETS SHOWN IN ABOVE TABLES ARE IN INCREMENTS OF 3 INCHES BUT ANY DEPTHS OTHER THAN THOSE SHOWN ABOVE MAY BE USED WHEREVER DEEMED NECESSARY. QUANTITIES FOR OTHER DEPTHS FALLING WITHIN THE LIMITS OF THE TABLE MAY BE FOUND BY INTERPOLATION.

STANDARD DRAWING NO.
6020D

CURB INLET
BILL OF REINFORCING STEEL

North Central Texas Council of Governments

STANDARD	SPECIFICATION	REFERENCE
702		

DATE	STANDARD DRAWING NO.
OCT. '04	6020D

SUMMARY OF QUANTITIES FOR CURB INLETS

DEPTH "D"	5'-0" OPENING						10'-0" OPENING						15'-0" OPENING						20'-0" OPENING					
	WIDTH 3'-0"		WIDTH 4'-0"		WIDTH 5'-0"		WIDTH 3'-0"		WIDTH 4'-0"		WIDTH 5'-0"		WIDTH 3'-0"		WIDTH 4'-0"		WIDTH 5'-0"		WIDTH 3'-0"		WIDTH 4'-0"		WIDTH 5'-0"	
	CONC C.Y.	STEEL LBS.	CONC C.Y.	STEEL LBS.	CONC C.Y.	STEEL LBS.	CONC C.Y.	STEEL LBS.	CONC C.Y.	STEEL LBS.	CONC C.Y.	STEEL LBS.	CONC C.Y.	STEEL LBS.	CONC C.Y.	STEEL LBS.	CONC C.Y.	STEEL LBS.	CONC C.Y.	STEEL LBS.	CONC C.Y.	STEEL LBS.	CONC C.Y.	STEEL LBS.
3'-6"	2.62	306	2.95	332	3.28	373	4.12	479	4.64	521	5.20	564	5.69	667	6.40	721	7.10	775	7.20	846	8.11	909	9.03	976
3'-9"	2.70	309	3.04	341	3.39	373	4.25	494	4.78	536	5.34	579	5.87	687	6.58	741	7.30	796	7.42	874	8.34	937	9.27	1010
4'-0"	2.78	328	3.14	364	3.49	399	4.38	518	4.92	565	5.49	610	6.05	718	6.77	776	7.49	835	7.64	909	8.58	976	9.51	1046
4'-3"	2.87	334	3.23	370	3.59	406	4.51	526	5.06	573	5.64	619	6.22	729	6.95	787	7.69	847	7.87	922	8.81	990	9.75	1061
4'-6"	2.95	356	3.32	394	3.69	431	4.64	558	5.20	607	5.79	656	6.40	770	7.14	830	7.88	891	8.09	973	9.04	1043	9.99	1115
4'-9"	3.03	361	3.41	410	3.79	438	4.77	566	5.34	616	5.94	665	6.57	780	7.32	841	8.07	903	8.31	986	9.27	1056	10.23	1129
5'-0"	3.12	367	3.51	416	3.90	445	4.90	574	5.47	624	6.09	674	6.75	791	7.51	853	8.27	915	8.53	999	9.50	1070	10.47	1144
5'-3"	3.20	383	3.60	424	4.00	465	5.03	600	5.61	652	6.23	704	6.93	827	7.69	890	8.46	955	8.76	1044	9.73	1118	10.71	1194
5'-6"	3.28	389	3.69	430	4.10	472	5.16	608	5.75	661	6.38	713	7.11	837	7.88	901	8.66	967	8.98	1057	9.97	1131	10.95	1208
5'-9"	3.37	405	3.78	451	4.20	495	5.29	635	5.89	690	6.53	744	7.28	874	8.07	940	8.85	1007	9.20	1102	10.20	1178	11.19	1258
6'-0"	3.45	415	3.88	460	4.30	504	5.42	646	6.03	702	6.68	757	7.45	888	8.25	954	9.05	1022	9.42	1119	10.43	1196	11.43	1276
6'-3"	3.53	425	3.97	470	4.41	515	5.55	661	6.17	718	6.83	773	7.63	908	8.44	975	9.24	1044	9.64	1147	10.66	1223	11.67	1305
6'-6"	3.62	437	4.06	486	4.51	532	5.68	681	6.31	739	6.97	797	7.81	935	8.62	1005	9.43	1057	9.87	1178	10.89	1258	11.92	1340
6'-9"	3.70	441	4.15	490	4.61	537	5.81	688	6.45	747	7.12	806	7.98	945	8.81	1015	9.63	1066	10.09	1191	11.12	1272	12.15	1355
7'-0"	3.78	460	4.25	510	4.71	560	5.94	716	6.59	777	7.27	837	8.16	981	8.99	1053	9.82	1126	10.31	1237	11.35	1319	12.40	1404
7'-3"	3.86	465	4.34	516	4.81	567	6.07	724	6.72	785	7.42	846	8.33	992	9.18	1065	10.02	1138	10.53	1249	11.59	1333	12.64	1418
7'-6"	3.95	477	4.43	529	4.91	570	6.20	742	6.86	804	7.57	866	8.51	1016	9.36	1089	10.21	1163	10.75	1290	11.82	1365	12.88	1451
7'-9"	4.03	491	4.53	544	5.02	597	6.33	762	7.00	826	7.71	890	8.67	1040	9.55	1116	10.41	1193	10.98	1313	12.05	1399	13.12	1498
8'-0"	4.12	496	4.62	550	5.12	604	6.46	770	7.14	834	7.86	899	8.86	1051	9.73	1129	10.60	1205	11.20	1325	12.28	1412	13.36	1510
8'-3"	4.20	504	4.71	559	5.22	613	6.59	784	7.28	849	8.01	915	9.04	1069	9.92	1149	10.80	1228	11.42	1353	12.51	1440	13.60	1529
8'-6"	4.28	519	4.80	576	5.32	632	6.71	804	7.42	871	8.16	938	9.21	1107	10.10	1176	10.99	1257	11.64	1385	12.74	1474	13.84	1565
8'-9"	4.37	528	4.90	586	5.42	643	6.84	819	7.56	886	8.31	954	9.39	1119	10.29	1199	11.18	1280	11.87	1410	12.97	1500	14.08	1592
9'-0"	4.45	545	4.99	605	5.53	664	6.97	842	7.70	912	8.46	982	9.56	1148	10.47	1231	11.38	1313	12.09	1447	13.21	1539	14.32	1631
9'-3"	4.53	554	5.08	614	5.63	674	7.10	858	7.84	929	8.60	999	9.74	1169	10.66	1252	11.57	1335	12.31	1474	13.44	1563	14.56	1660
9'-6"	4.62	568	5.17	630	5.73	692	7.23	878	7.97	950	8.75	1022	9.92	1195	10.84	1280	11.77	1365	12.53	1505	13.67	1600	14.80	1696
10'-0"	4.78	582	5.36	645	5.93	708	7.49	900	8.11	974	9.05	1048	10.27	1227	11.21	1312	12.16	1399	12.98	1546	14.13	1642	15.29	1739

NOTE.

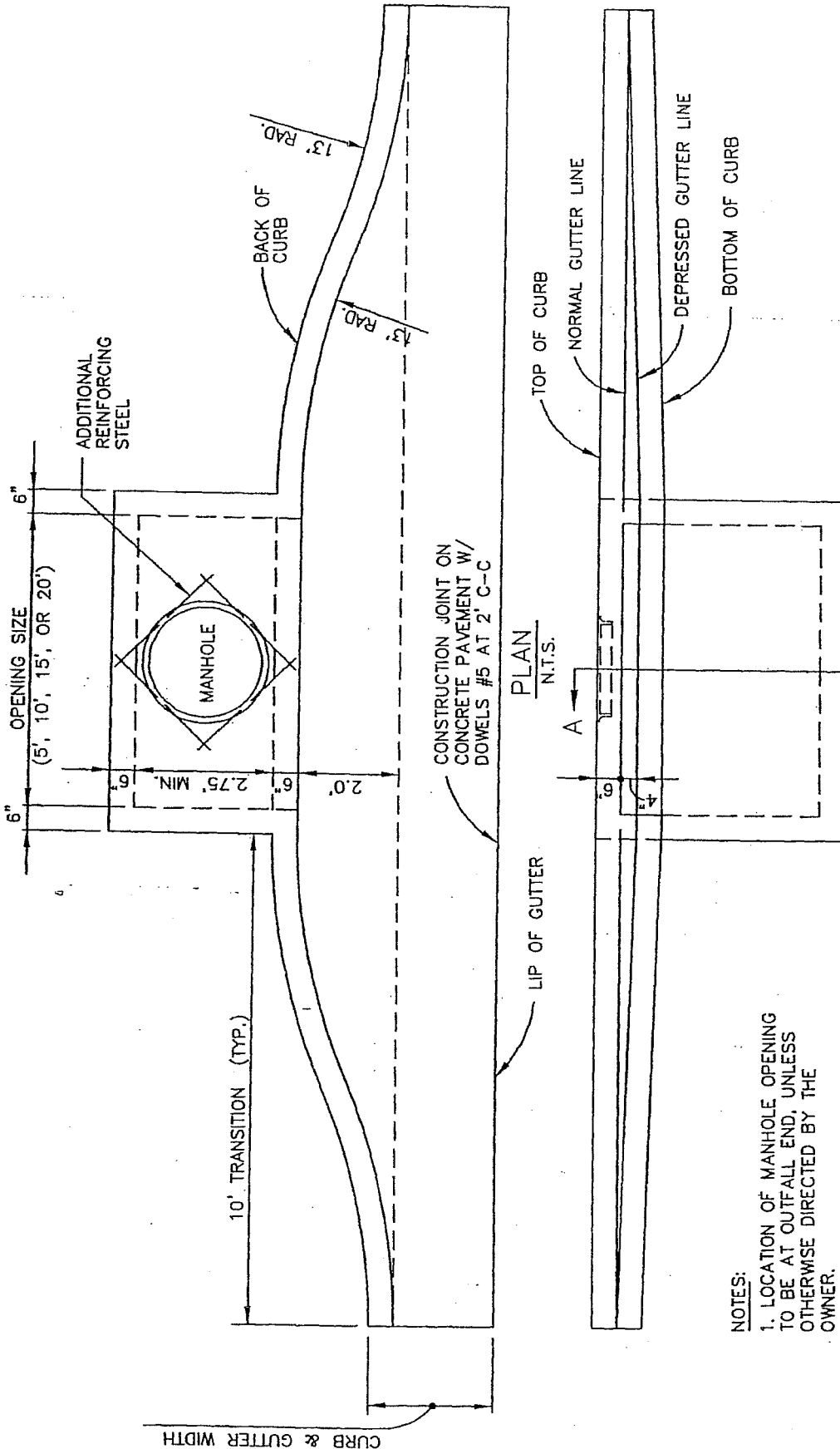
FOR CONVENIENCE, DEPTHS OF INLETS SHOWN IN ABOVE TABLES ARE IN INCREMENTS OF 3 INCHES BUT ANY DEPTHS OTHER THAN THOSE SHOWN ABOVE MAY BE USED WHEREVER DEEMED NECESSARY. QUANTITIES FOR OTHER DEPTHS FALLING WITHIN THE LIMITS OF THE TABLE MAY BE FOUND BY INTERPOLATION.

STANDARD DRAWING NO.
6020E

CURB INLET SUMMARY OF QUANTITIES



North Central Texas Council of Governments
STANDARD SPECIFICATION REFERENCE
702
DATE
OCT. '04
STANDARD DRAWING NO.
6020E



- NOTES:
1. LOCATION OF MANHOLE OPENING TO BE AT OUTFALL END, UNLESS OTHERWISE DIRECTED BY THE OWNER.
 2. IF INLET OPENING IS OVER 10' WIDTH, THEN THERE SHALL BE A MANHOLE OPENING AT EACH END OF INLET.

STANDARD SPECIFICATION REFERENCE
702

DATE
OCT. '04

STANDARD DRAWING NO.
6030A

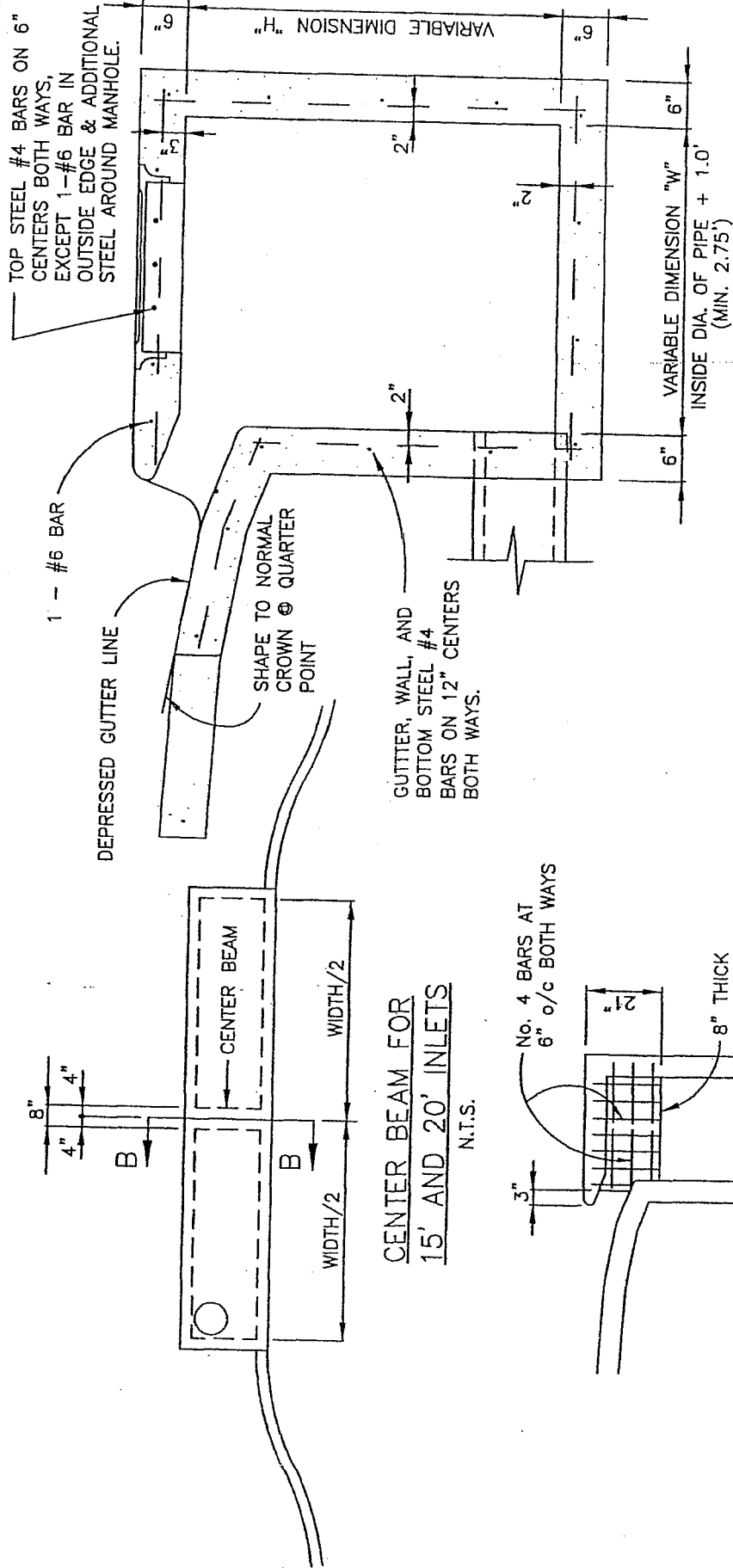
North Central Texas Council of Governments



CURB INLET RECESSED

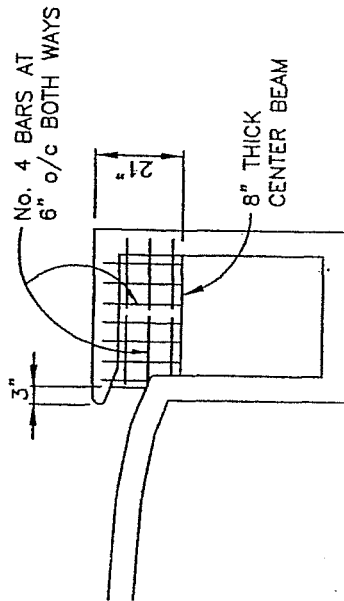
5', 10', 15' OR 20' OPENING

STANDARD DRAWING NO.
6030A



SECTION A-A
N.T.S.

CENTER BEAM FOR
15' AND 20' INLETS
N.T.S.



SECTION B-B
N.T.S.

North Central Texas Council of Governments



STANDARD SPECIFICATION REFERENCE
702

DATE
OCT. '04

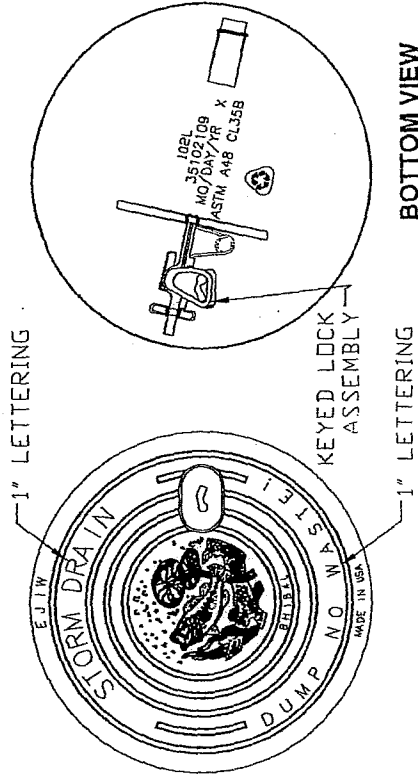
STANDARD DRAWING NO.
6030B

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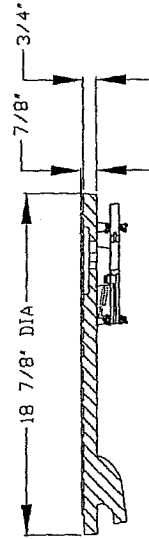
CROSS SECTION & CENTER BEAM

STANDARD DRAWING NO.
6030B

EJW EAST JORDAN IRON WORKS EST. 1983 800-626-4653 WWW.EJW.COM MADE IN USA		PRODUCT NUMBER	35102209
		CATALOG NUMBER	102 LOCK
		LOCK COVER ASSEMBLY	
		LOAD RATING	LIGHT DUTY
		COATING	DIPPED
		ESTIMATED WEIGHT	COVER: 60 LBS 27kg
		MATERIAL SPECIFICATION	COVER - GRAY IRON ASTM A48 CL35B
		OPEN AREA	N/A
		DESIGNATES MACHINED SURFACE	
		DRAWN DATE	10/16/06
		LAST REVISED DATE	07/13/07
		REFERENCE INFORMATION	35102110

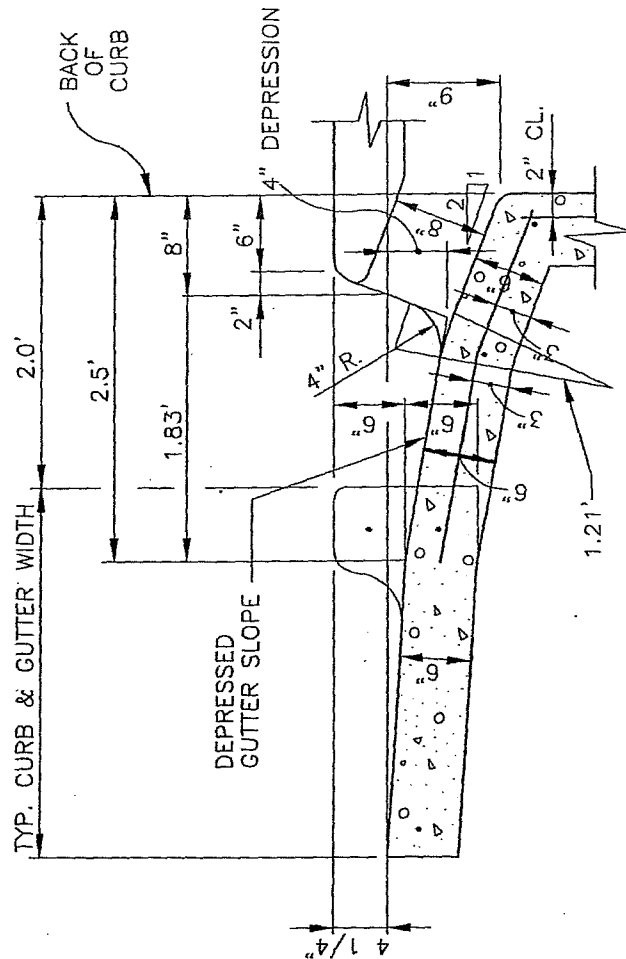


BOTTOM VIEW



COVER SECTION

MANHOLE FRAME & COVER N.T.S.



INLET THROAT N.T.S.

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CURB INLET RECESSED

INLET THROAT & M.H. FRAME & COVER

STANDARD SPECIFICATION REFERENCE		702
DATE	02/03/09	STANDARD DRAWING NO.
		6030CM*

GENERAL NOTES:

1. IN GENERAL, REINFORCING STEEL SHALL BE #4 BARS ON 12" CENTERS BOTH WAYS FOR GUTTER, BOTTOM SLAB ENDS, FRONT AND BACK WALLS, AND #4 BARS ON 6" CENTERS BOTH WAYS FOR TOP SLAB. AN ADDITIONAL #6 BAR SHALL BE PLACED IN THE FRONT EDGE OF THE TOP SLAB IN THE INLETS AND ADDITIONAL REINFORCING STEEL SHALL BE PLACED AROUND MANHOLES AS SHOWN.
2. ALL REINFORCING STEEL SHALL BE GRADE 60.
3. ALL CONCRETE SHALL BE CLASS "A". ALL EXPOSED CORNERS SHALL BE CHAMFERED 3/4".
4. ALL REINFORCING STEEL SHALL HAVE A MINIMUM COVER OF 2" TO THE CENTERS OF THE BARS.
5. 10'-0" OF EXISTING CURB AND GUTTER UPSTREAM AND 10'-0" OF EXISTING CURB AND GUTTER DOWNSTREAM SHALL BE REMOVED AND REPOURED INTEGRALLY WITH EACH INLET.
6. ALL BACK FILLING SHALL BE PERFORMED BY MECHANICAL TAMPING TO 90% STANDARD PROCTOR DENSITY.

CURB INLET RECESSED

GENERAL NOTES

North Central Texas Council of Governments



STANDARD SPECIFICATION REFERENCE

702

DATE

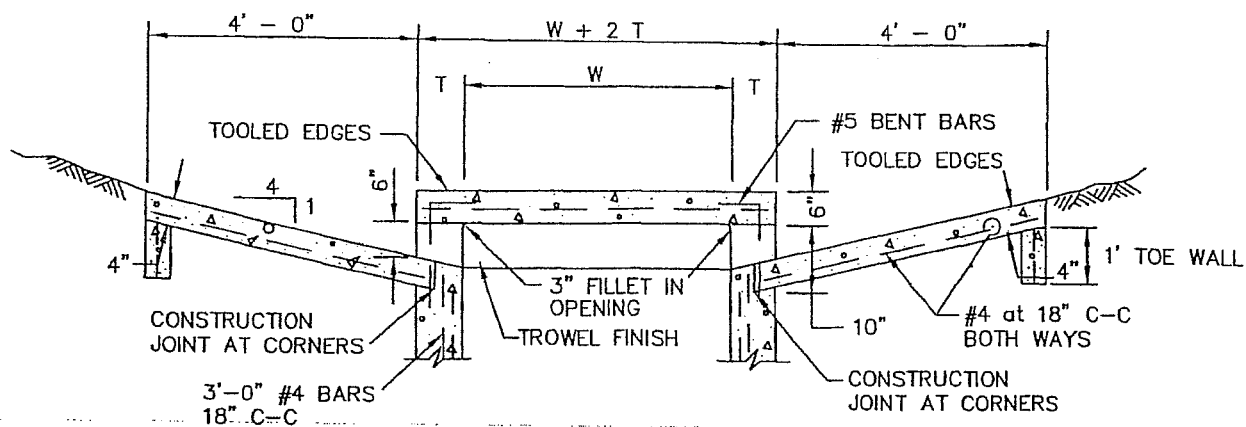
OCT. '04

STANDARD DRAWING NO.

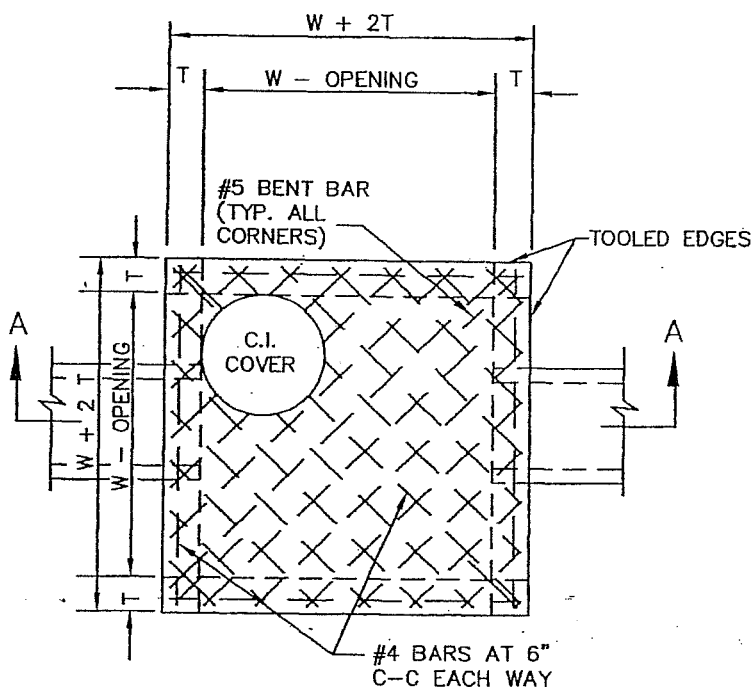
6030D

STANDARD DRAWING NO.

6030D



SECTION "A-A"
N.T.S.



PLAN OF TOP SLAB
N.T.S.

INLET SIZE	T	W
2' SQUARE	7"	2'-0"
4' SQUARE	7"	4'-0"
5' SQUARE	8"	5'-0"
6' SQUARE	9"	6'-0"

NOTES:

1. MATERIAL AND WORKMANSHIP SHALL CONFORM WITH THE REQUIREMENTS OF NCTCOG STANDARD SPECIFICATIONS FOR STANDARD CONCRETE MANHOLES. MINIMUM CLASS "A" CONCRETE.
2. LAYERS OF REINFORCING STEEL NEAREST THE INTERIOR AND EXTERIOR SURFACES SHALL HAVE A COVER OF 2" TO THE CENTER OF BARS, UNLESS OTHERWISE NOTED.
3. FOR DETAILS OF REINFORCING OF LOWER PORTIONS OF INLET SEE APPROPRIATE SQUARE MANHOLE DETAILS.
4. DEPTH OF DROP INLET FROM FINISHED GRADE TO FLOW LINE OF INLET IS VARIABLE. APPROXIMATE DEPTH WILL BE SHOWN ON PLANS AT LOCATION OF INLET.
5. ALL STANDARD DROP INLETS SHALL HAVE ONE OPENING ON EACH SIDE UNLESS OTHERWISE SHOWN ON PLANS.
6. DECK MAY BE REINFORCED SAME AS 4' SQUARE MANHOLE.

DROP INLET

2', 4', 5' OR 6' SQUARE

North Central Texas Council of Governments



STANDARD SPECIFICATION REFERENCE

702

DATE

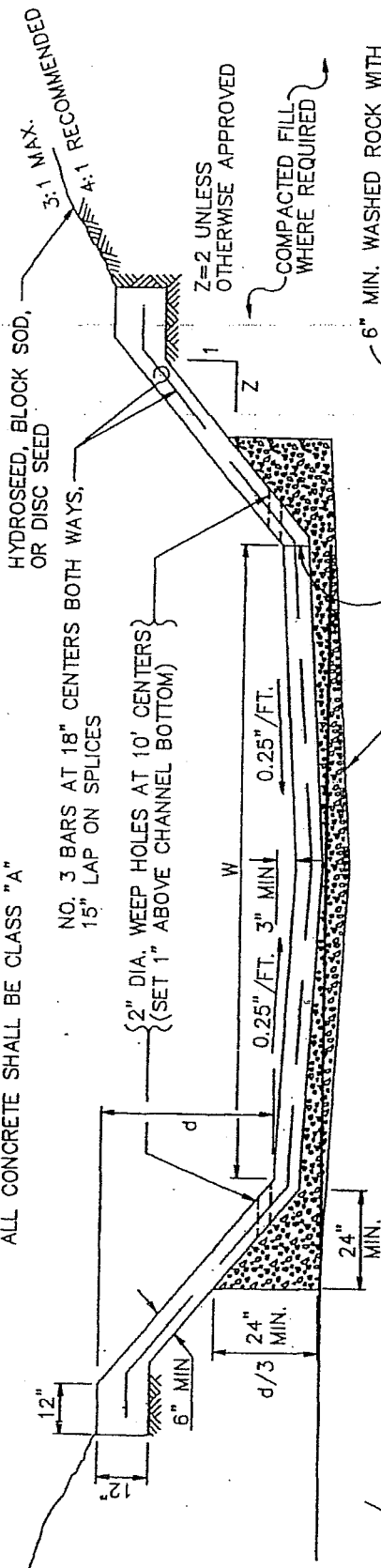
OCT. '04

STANDARD DRAWING NO.

6040

FILL AREAS SHALL BE COMPACTED TO 95% STD. PROCTOR DENSITY AT OPTIMUM MOISTURE CONTENT PRIOR TO CHANNEL EXCAVATION.

ALL CONCRETE SHALL BE CLASS "A"



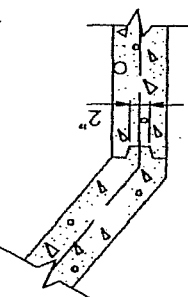
6" MIN. WASHED ROCK WITH CONTINUOUS FILTER FABRIC. UNLESS FABRIC SPECIFICALLY DELETED BY THE OWNER.

NOTE: WASHED ROCK SHALL BE GAP GRADED 1 1/2".

CONSTRUCTION JOINT WHERE PERMITTED

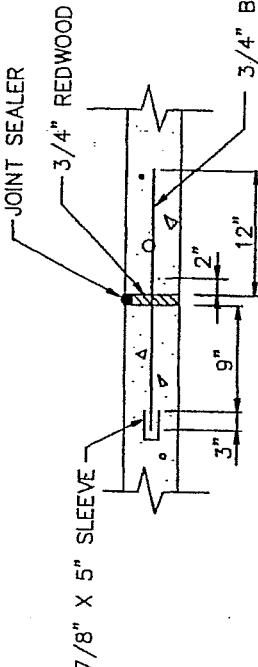
REINFORCED CONCRETE CHANNEL SECTION

N.T.S.



CONSTRUCTION JOINT

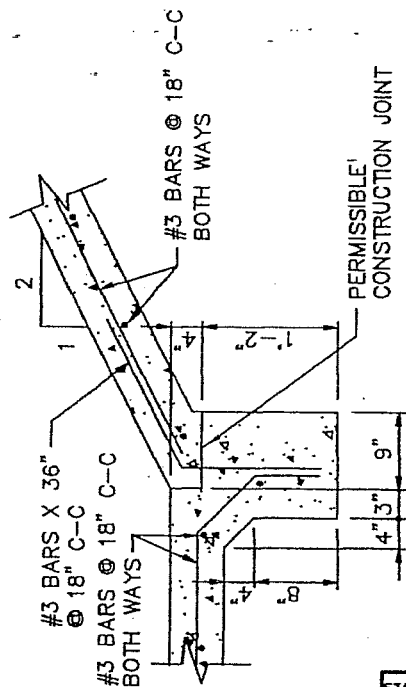
N.T.S.



3/4" BARS @ 21" C-C SHALL SERVE AS DOWELS. DOWELS SHALL BE ASPHALT COATED 12" ON FREE END.

TRANSVERSE EXPANSION JOINT

SPACE 100' C-C AND USE AT ENDS OF CURVES - P.C. AND P.T. N.T.S.



PERMISSIBLE! CONSTRUCTION JOINT

ALTERNATE CONSTRUCTION JOINT

N.T.S.

FULL CHANNEL LINING CONCRETE REINFORCED

North Central Texas Council of Governments



STANDARD SPECIFICATION REFERENCE

803.3

DATE

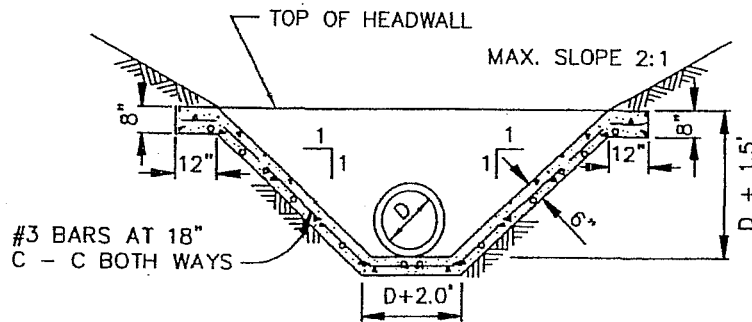
OCT. '04

STANDARD DRAWING NO.

6050

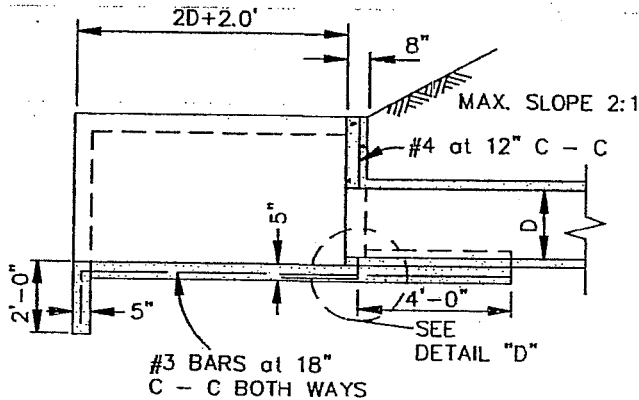
STANDARD DRAWING NO.

6050



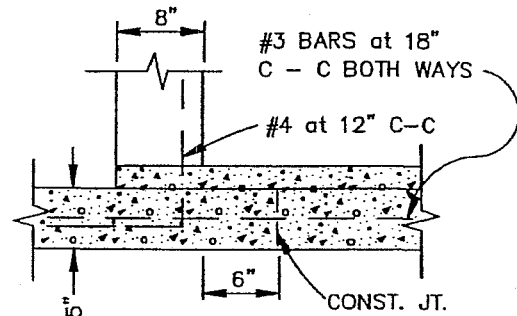
SECTION "B-B"

N.T.S.



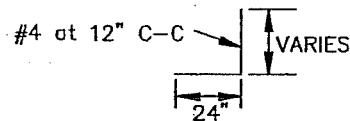
SECTION "A-A"

N.T.S.



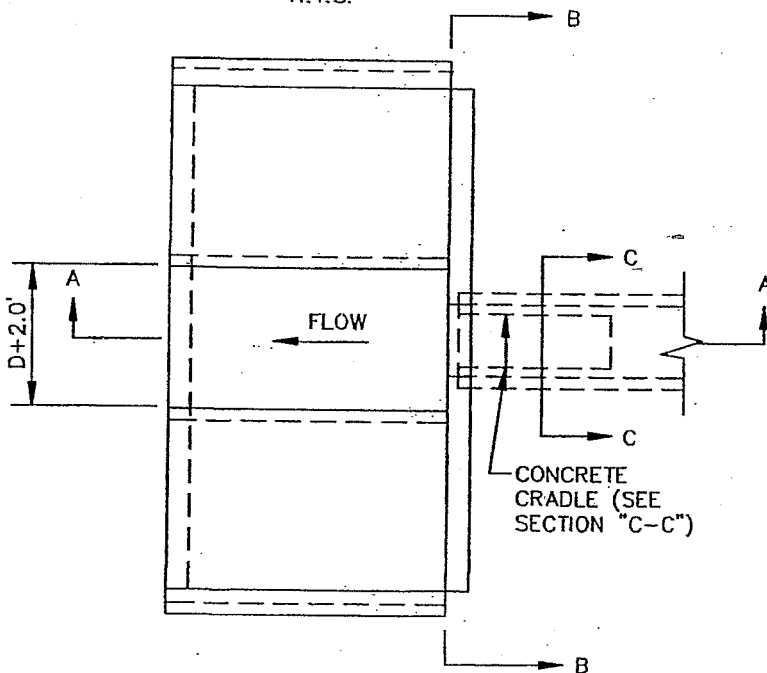
DETAIL "D"

N.T.S.



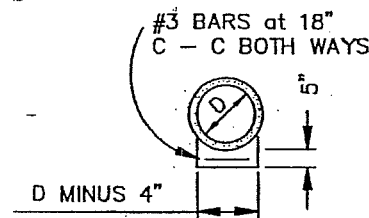
BAR DETAIL

N.T.S.



PLAN

N.T.S.



SECTION "C-C"

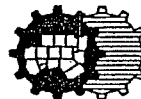
N.T.S.

NOTE:

CONCRETE SHALL BE CLASS "A"

CONCRETE APRON
VERTICAL HEADWALL

North Central Texas Council of Governments



STANDARD SPECIFICATION REFERENCE

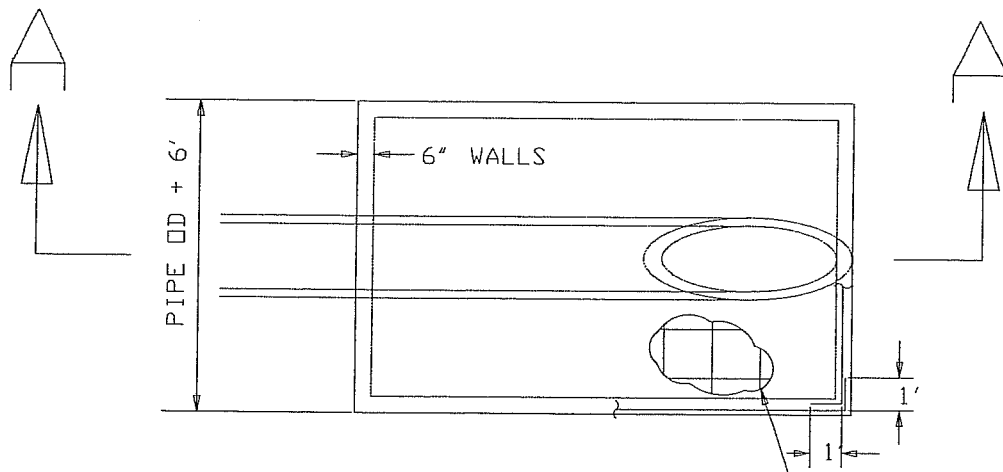
803.3

DATE

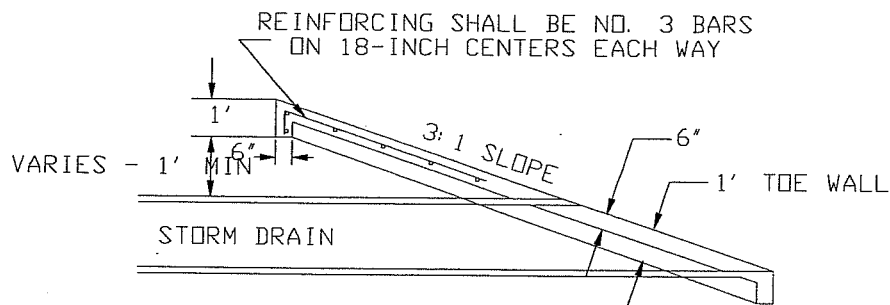
OCT. '04

STANDARD DRAWING NO.

6060



REINFORCING SHALL BE NO. 3 BARS
ON 18-INCH CENTERS EACH WAY



SECTION A-A

NOTE:

CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI AT 28 DAYS.

M* - CITY OF MELISSA REVISION

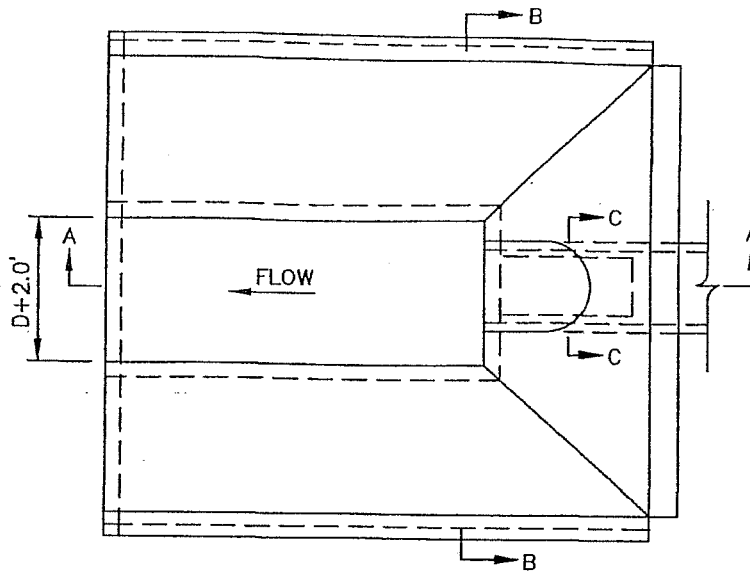
NCTCOG STANDARD SPECIFICATION REFERENCE

SLOPED END HEADWALL
CITY OF MELISSA, TEXAS

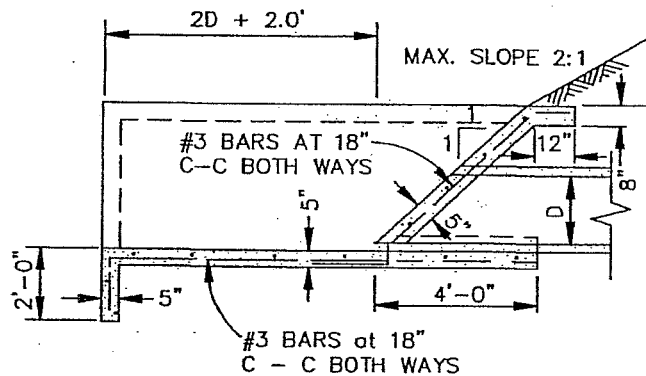


DATE
12/04/03

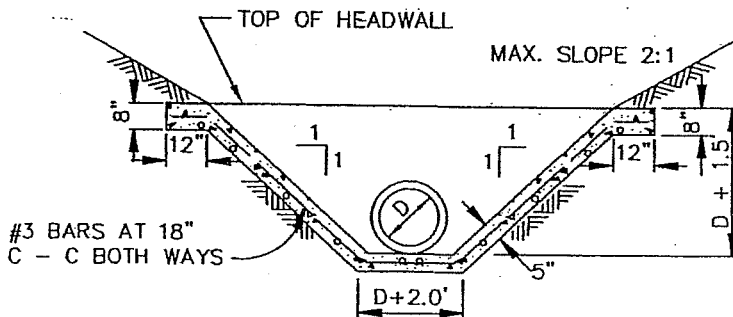
STANDARD DRAWING NO.
6070AM*



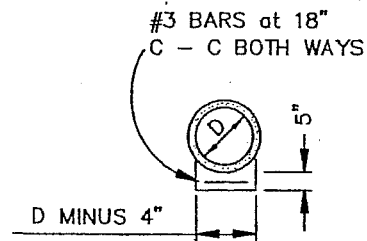
PLAN
N.T.S.



SECTION A-A
N.T.S.



SECTION B-B
N.T.S.



SECTION C-C
N.T.S.

NOTE:
CONCRETE SHALL BE CLASS "A".

CONCRETE APRON
SLOPING HEADWALL

North Central Texas Council of Governments



STANDARD SPECIFICATION REFERENCE

803.3

DATE

OCT. '04

STANDARD DRAWING NO.

6070

1. MANHOLE SPACING FOR TRUNK LINES IS AS FOLLOWS:
 - 400' MAX. SPACING FOR UP TO 8" DIAMETER PIPE.
 - 500' MAX. SPACING FOR PIPE 10" THROUGH 15" IN DIAMETER.
 - 800' MAX. SPACING FOR PIPE 16" THROUGH 30" IN DIAMETER.
 - 1000' MAX. SPACING FOR PIPE 31" THROUGH 48" IN DIAMETER.
 - 2000' MAX. SPACING FOR PIPE 54" AND LARGER.
 - AT ALL LOCATIONS WHERE DIAMETER OF PIPE CHANGES.
 - AT ALL LOCATIONS WHERE HORIZONTAL AND VERTICAL ALIGNMENT CHANGES.
 - AT THE ENDS OF ALL MAINS LONGER THAN 400'.
 - AT LATERAL CONNECTIONS 6" AND LARGER.
2. THE MAXIMUM ALLOWABLE MANHOLE SPACING IN SUBDIVISIONS IS 400'. MAXIMUM ALLOWABLE MANHOLE SPACING FOR SEWER LINES WITH HORIZONTAL CURVATURE SHALL BE 300 FEET. A MANHOLE SHALL BE LOCATED AT THE PC AND PT OF THE CURVE.
3. ALL MANHOLES SHALL HAVE A 30" OPENNING.
4. THERE SHALL BE A MINIMUM OF 0.10 FEET IN FLOW LINE DROP AT EACH MANHOLE.
5. WHERE SEWER LINES ENTER THE MANHOLE HIGHER THAN 24 INCHES, ABOVE THE MANHOLE INVERT, THE INVERT SHALL BE FILLED TO PREVENT SOLIDS DEPOSITION.
6. A DROP PIPE SHALL BE PROVIDED FOR A SEWER ENTERING A MANHOLE MORE THAN 18 INCHES ABOVE THE INVERT. IF THE DROP PIPE IS INSIDE THE MANHOLE, A MINIMUM OF 48 INCHES OF CLEAR SPACE SHALL BE MAINTAINED AND THE DROP SHALL BE PERMANENTLY AFFIXED TO THE WALL OF THE MANHOLE.
7. MANHOLES 10 FEET DEEP SHALL BE A MINIMUM OF 60-INCH DIAMETER, AT THE FLOW LINE AND ECCENTRIC WITH ONE VERTICAL WALL.
8. WHEN ECCENTRIC CONES ARE SPECIFIED, THE VERTICAL WALL SHALL BE ALIGNED WITH THE OUTGOING (DOWNSTREAM) PIPE.
9. PIPE MATERIAL SHALL BE AS FOLLOWS:
 - FOR PIPE 6" THROUGH 15" DIAM. USE SDR-35 PVC (LESS THAN 10' DEEP).
 - FOR PIPE 6" THROUGH 15" DIAM. USE SDR-26 PVC. (MORE THAN 10' DEEP).
 - FOR PIPE 16" DIAM. AND LARGER USE ASTM F679.
10. THE INTERIOR OF ALL WASTEWATER MANHOLES SHALL BE COATED WITH AN APPROVED CORROSION-RESISTANT EPOXY COATING SUCH AS RAVEN 405, OR AN APPROVED EQUAL, NUMBER AND THICKNESS OF COATINGS AS RECOMMENDED BY THE MANUFACTURER.
11. ALL TESTING SHALL CONFORM TO THE LATEST EDITION OF THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION PUBLISHED BY THE NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS (NCTCOG).
12. ALL WASTEWATER LINES SIX (6) INCHES OR LARGER SHALL BE AIR, AND MANDREL TESTED, UPON COMPLETION OF FRANCHISE UTILITIES. TELEVISION INSPECTION SHALL ALSO BE REQUIRED.
13. ALL FORCE MAINS SHALL BE HYDROSTATICALLY TESTED.
14. ALL WASTEWATER MANHOLES SHALL BE VACUUM TESTED.
15. SEWER LINES 12 INCHES AND LARGER WILL REQUIRE AN AS-BUILT SURVEY FOR COMPARISON TO THE DESIGN. THE TOLERANCES ALLOWED ARE AS FOLLOWS:
 - FLOW LINE: ± 0.10 FROM THE DESIGN
 - PERCENT SLOPE: $\pm 1\%$ OF THE DESIGN SLOPE
 - MINIMUM ALLOWABLE SLOPES: AS DEFINED BY TCEQ.
16. THE CITY ENGINEER SHALL BE NOTIFIED A MINIMUM OF 48 HOURS IN ADVANCE OF CONSTRUCTION OF ANY AND ALL PUBLIC IMPROVEMENTS.

M* - CITY OF MELISSA REVISION

GENERAL CONSTRUCTION WASTEWATER NOTES



NCTCOG STANDARD SPECIFICATION REFERENCE

DIVISION 500

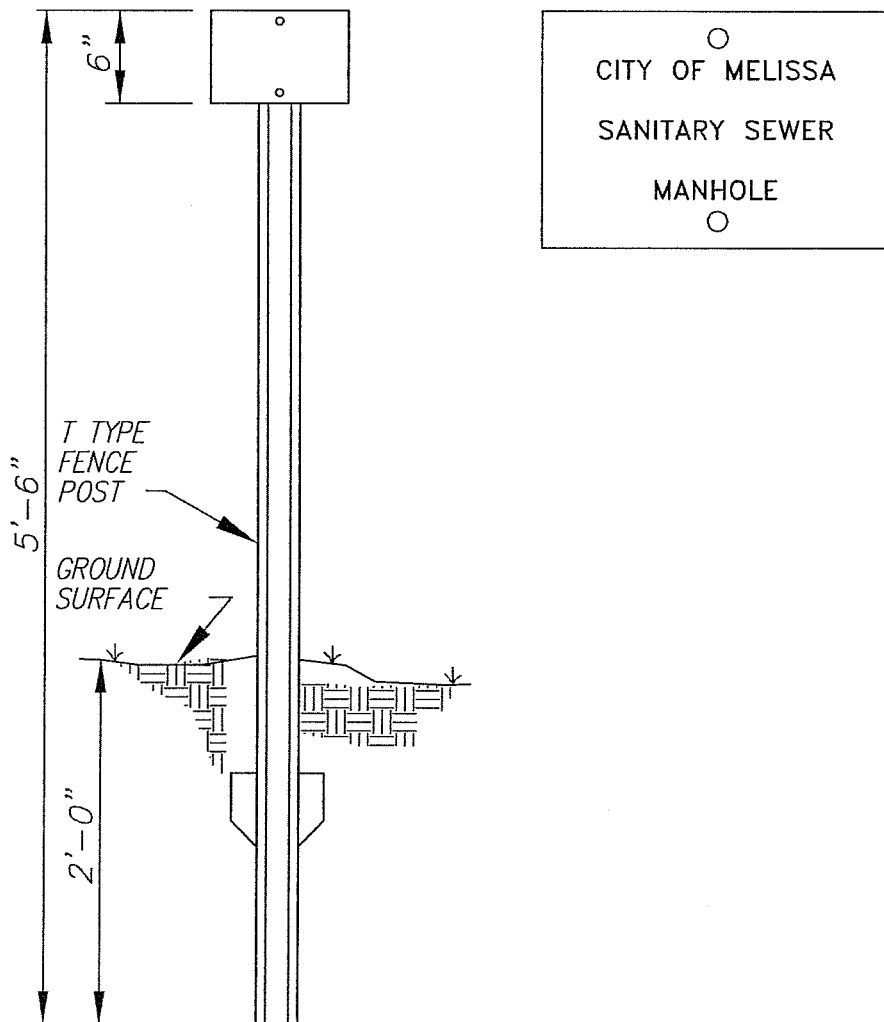
CITY OF MELISSA, TEXAS

DATE

11/13/08

STANDARD DRAWING NO.

5001M*



NOTES:

1. THE CONTRACTOR SHALL FURNISH AND INSTALL THE STEEL POST AND MOUNT THE SIGN ON THE POST.
2. THE SIGN SHALL HAVE BLACK LETTERING ON AN ORANGE BACKGROUND.
3. POST SIGNS SHALL BE MOUNTED WITH TWO 1/4" MACHINE BOLTS, LOCK WASHERS AND HEX NUTS.
4. SIGNS SHALL BE PLACED AT BOTH SIDES OF HIGHWAYS, ROADS OR RAILROAD CROSSINGS WHICH EVER THE CASE MAY BE.

WASTEWATER MARKER SIGN
CITY OF MELISSA, TEXAS



M* - CITY OF MELISSA REVISION

NCTCOG STANDARD SPECIFICATION REFERENCE

N/A

DATE

11/06/03

STANDARD DRAWING NO.

5002M*

TELEVISION REPORT ON SANITARY SEWERS

A. DIGITAL VIDEO DISC (DVD) FORMAT IN COLOR WITH DATA VIEW (ACCURATE FOOTAGE DISPLAYED ON VIDEO). VHS SHALL BE USED IF DVD FORMAT CANNOT BE ACCOMODATED.

B. ALL PERTINENT DATA RECORDED IN AUDIO ON THE MEDIA TO INCLUDE:

1. SUBDIVISION NAME AND PHASE NUMBER.
2. MANHOLE NUMBERS (THESE NUMBERS MUST MATCH MANHOLE NUMBERS ON "AS BUILT" DRAWINGS).
3. DATE
4. SIZE AND MATERIAL OF PIPE.
5. SERVICE CONNECTIONS LOCATIONS RIGHT OR LEFT
6. ALL DISTANCES BETWEEN MANHOLES.
7. LOCATIONS OF SUSPECTED AND OBVIOUS PIPE DEFICIENCIES (i.e. BAD JOINTS, BREAKS OR LEAKS, ETC).

C. PVC PIPE SHALL HAVE A DEFLECTION TEST USING A 5% (GO NO GO) TEST MANDREL OF APPROPRIATE SIZE WHICH SHALL BE VISIBLE ON VIDEO AT ALL TIMES.

D. THE CONTRACTOR WILL ALSO PROVIDE A WRITTEN TELEVISION REPORT (INDICATING MANHOLE NUMBERS) THAT WILL ACCOMPANY THE VIDEO RECORDING. THIS WRITTEN REPORT MUST INCLUDE:

1. MANHOLE NUMBERS (THESE NUMBERS MUST MATCH MANHOLE NUMBERS ON "AS BUILT" DRAWINGS).
2. SERVICE CONNECTION LOCATIONS RIGHT OR LEFT.
3. REFERENCE TO SERVICE CONNECTION LOCATIONS OUT OF MANHOLES.
4. LOCATIONS OF SUSPECTED AND OBVIOUS DEFICIENCIES (i.e. BAD JOINTS, BREAKS, OR LEAKS, ETC).
5. DEPTH OF EACH MANHOLE.
6. ACTUAL MEASURED DISTANCE (ON GROUND) BETWEEN MANHOLES.

E. ALL VISUAL AND TELEVISION INSPECTIONS SHALL BE COMPLETED AND APPROVED BY THE CITY INSPECTOR FROM THE CITY OF MELISSA ENGINEERING DEPARTMENT PRIOR TO PLACING OF ANY PAVEMENT. AN INSPECTOR FROM THE MELISSA ENGINEERING DEPARTMENT MUST WITNESS THE RECORDING. THE ENGINEERING DEPARTMENT SHALL BE NOTIFIED AT LEAST 48 HOURS IN ADVANCE FOR SCHEDULING. TELEVISION RECORDINGS MUST CLEARLY SHOW DETAILS OF STRUCTURAL DEFECTS, MISALIGNMENTS AND INFILTRATION. ALL KNOWN OR INDICATED BREAKS SHALL BE REPAIRED BY THE CONTRACTOR, REGARDLESS OF THE TEST ALLOWANCES. FAULTY SECTIONS OF SEWER LINES OR MANHOLES REJECTED BY THE ENGINEER SHALL BE REMOVED AND RELAYED BY THE CONTRACTOR. SUNKEN MANHOLES WILL NOT BE ACCEPTED. ALL MANHOLE INVERTS MUST BE COMPLETED PRIOR TO VIDEO RECORDING.

TELEVISION REPORT SPECIFICATION

CITY OF MELISSA TEXAS



M* - CITY OF MELISSA REVISION

NCTCOG STANDARD SPECIFICATION REFERENCE

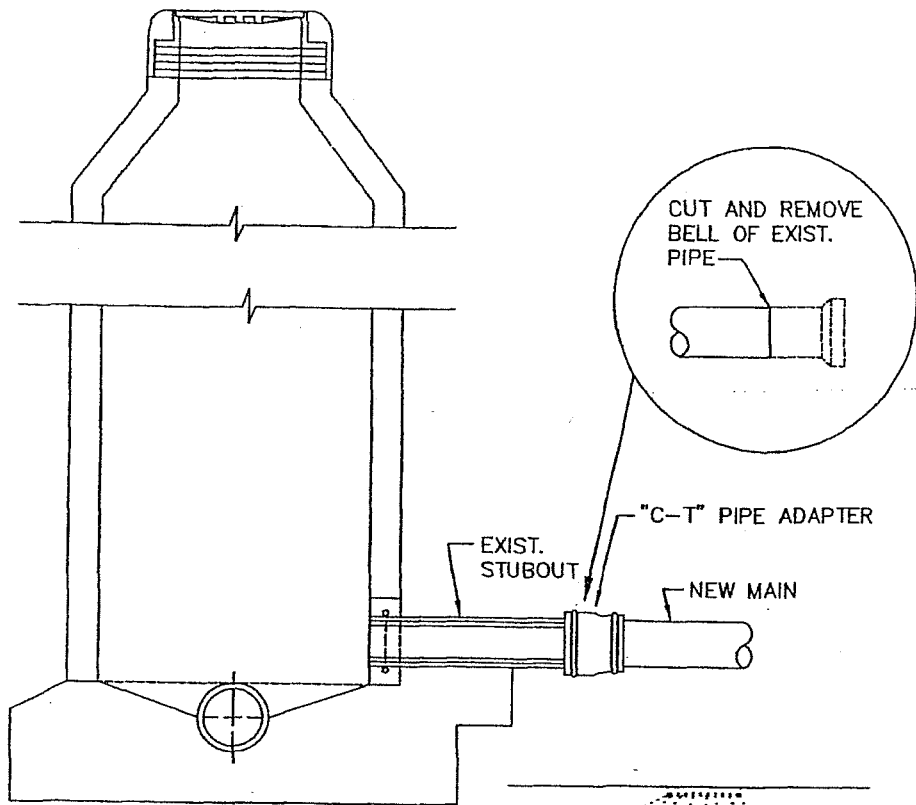
507.5

DATE

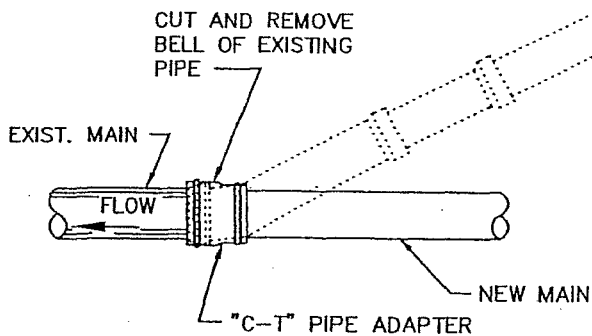
11/17/08

STANDARD DRAWING NO.

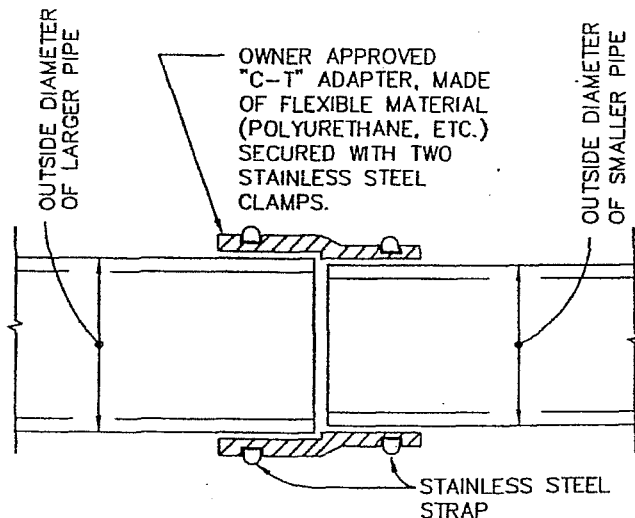
50071



AT STUBOUT
N.T.S.



AT CLEANOUT
N.T.S.



"C-T" PIPE ADAPTER
N.T.S.

NOTE:

THIS DETAIL FOR USE ONLY WHEN NEW MAIN WILL NOT MATE WITH EXISTING MAIN JOINT DUE TO DIFFERENT DIMENSIONS OR MATERIALS AND A MANHOLE IS NOT REQUIRED.

WASTEWATER MAIN TIE-IN
AT CLEANOUT OR M.H. STUBOUT

North Central Texas Council of Governments



STANDARD SPECIFICATION REFERENCE

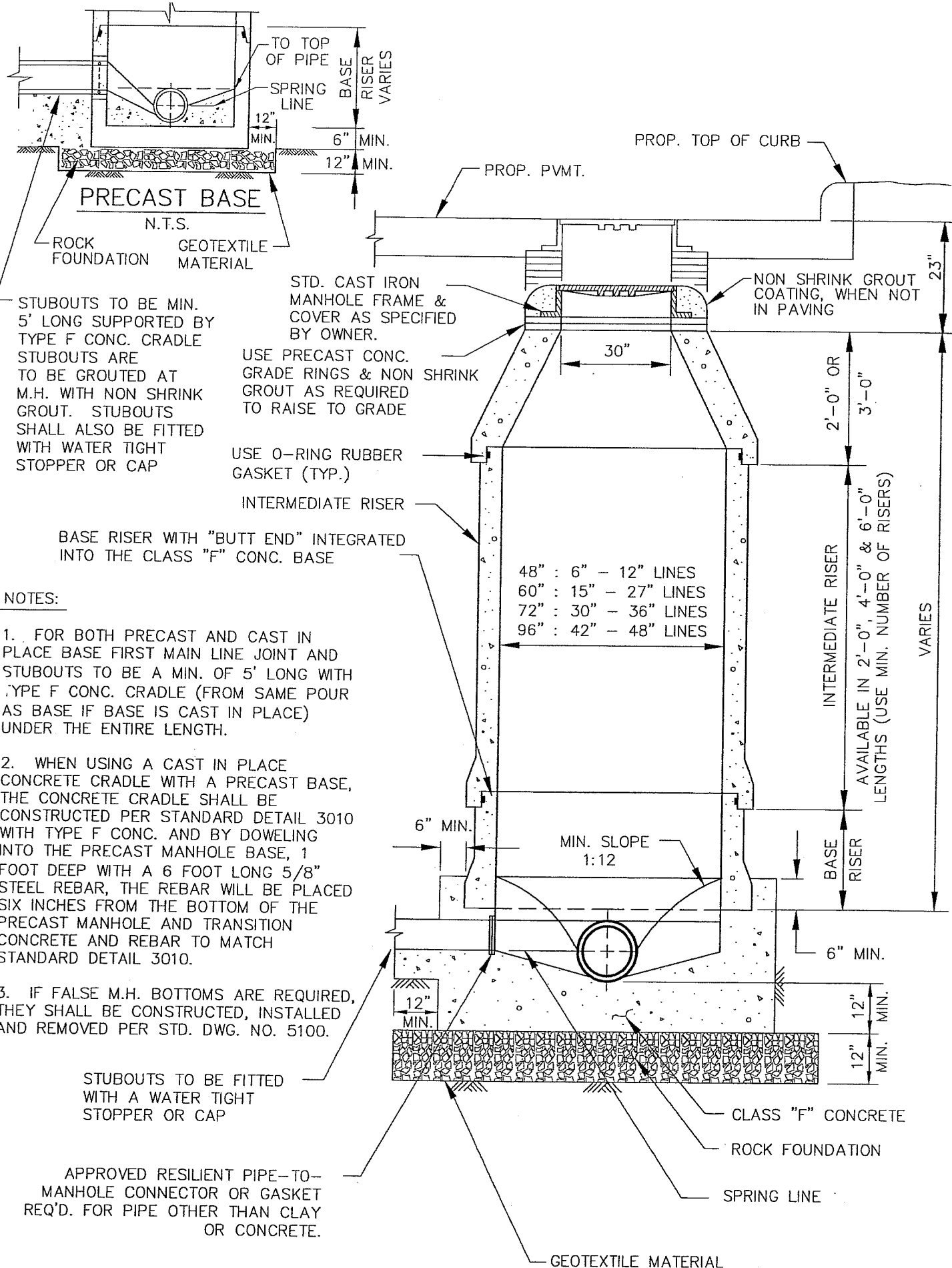
502.10

DATE

OCT. '04

STANDARD DRAWING NO.

5010



WASTEWATER MANHOLE PRECAST



ADJUSTABLE FRAME

ROOF OPTIONS

FRAME CAST IN CONC.

N.T.S.

1/2" NON SHRINK
GROUT COATING

STD. M.H. FRAME & COVER
AS SPECIFIED BY OWNER

STD. M.H. FRAME & COVER
AS SPECIFIED BY OWNER

24"
OR
36"

30"

USE PRECAST CONCRETE
GRADE RINGS & NON
SHRINK GROUT AS
REQUIRED TO RAISE
TO GRADE.
(MIN. 4 COURSES)

FOR 5' & 6' DIA. M.H.'S
SEE TRANSITION DETAIL

30"

VARIES

6" MIN.

8" MIN.

12"
MIN.

12"
MIN.

48" : 6"-12" LINES
60" : 15"-27" LINES
72" : 30"-36" LINES

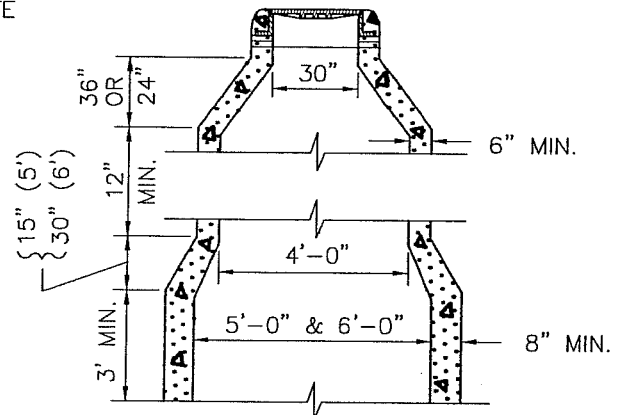
CLASS "F" CONCRETE
MONOLITHIC POUR

12" MIN.

12" MIN.

GEOTEXTILE
MATERIAL

ROCK FOUNDATION



TRANSITION DETAIL FOR 5' & 6' DIA. M.H.'S

N.T.S.

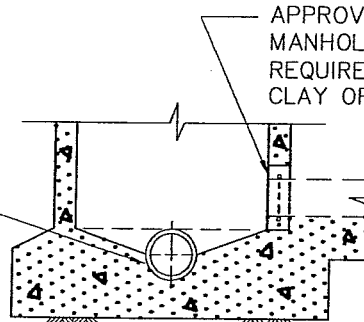
NOTES

1. WHERE M.H.'S ARE IN "PROPOSED" PAVING, FRAME & COVER SHALL BE SET 23" BELOW THE PROPOSED PAVEMENT GRADE.
2. IF FALSE M.H. BOTTOMS ARE REQUIRED THEY SHALL BE CONSTRUCTED, INSTALLED AND REMOVED. PER STD. DWG. NO. 5100.

FIRST MAIN LINE JOINT TO BE A
MIN. OF 5' LONG WITH CONC. CRADLE
(FROM SAME POUR AS BASE) UNDER
ENTIRE LENGTH.

APPROVED RESILIENT PIPE-TO-
MANHOLE CONNECTOR OR GASKET
REQUIRED FOR PIPE OTHER THAN
CLAY OR CONCRETE.

STUBOUT TO BE FITTED
WITH WATERTIGHT
STOPPER OR CAP
STUBOUTS TO BE
A MIN. OF 5' LONG
WITH CONC. CRADLE
(FROM SAME POUR)
UNDER ENTIRE LENGTH



STUBOUT CONNECTION

N.T.S.

WASTEWATER MANHOLE

CAST-IN-PLACE



M* - CITY OF MELISSA REVISION

NCTCOG STANDARD SPECIFICATION REFERENCE

502.1

DATE

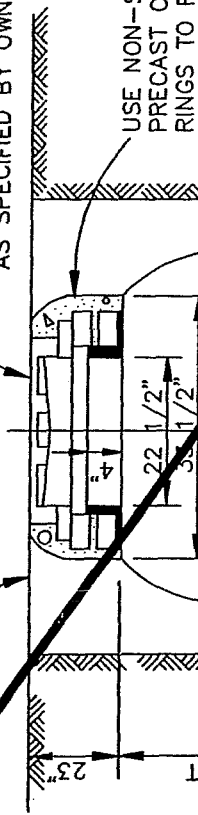
STANDARD DRAWING NO.

11/17/08

50201*

STANDARD CAST-IRON
M.H. FRAME & COVER
AS SPECIFIED BY OWNER.

FINISHED GRADE



VARIABLE - NOT TO EXCEED 12' WITHOUT
AUTHORIZATION FROM OWNER.

USE NON-SHRINK GROUT &
PRECAST CONCRETE GRADE
RINGS TO RAISE TO GRADE

FABRIC - BONDED JOINT

SAND OR STABILIZED SOIL
COMPACTED TO 90% STD.
PROCTOR DENSITY AND PLACED
IN 6 - INCH LIFTS
BEGINNING AT THE MANHOLE
WORKING OUTWARD TO THE
EXCAVATION WALLS.

RUBBER "O" - RING
GASKETS FOR
WATER STOP ON
PVC PIPE ONLY

SECTION A-A
N.T.S.

FIRST MAIN LINE JOINT TO BE A MIN. OF
OF 5' LONG WITH CONC. CRADLE (FROM
SAME POUR AS BASE) UNDER THE
ENTIRE LENGTH

CUT OUT M.H.
TO SET OVER
PIPE (O.D. + 1" MAX.)

CLASS "F" CONCRETE
CLASS "F" CONC. BASE

1' LONG #4 BAR at
2' CENTERS AROUND BASE

ENFORCED
ONC. BASE
5 BARS AT
3" EACH WAY

M.H. O.D. + 20" MIN.
FOR PIPE UP TO 24" DIA.

NOT ALLOWED

WASTEWATER MANHOLE

FIBERGLASS



STANDARD DRAWING NO.

M* - CH. OF MELISSA REVISION

NCTCOG STANDARD SPECIFICATION REFERENCE

6.7.

DATE

STANDARD DRAWING NO.

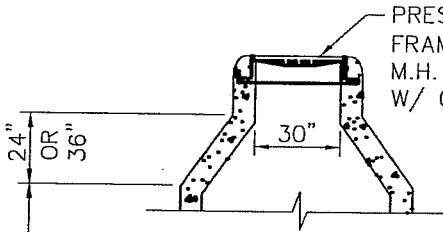
SEPT. 03 5040M

CONCRETE CONE ← ROOF OPTIONS → REINFORCED CONCRETE SLAB

N.T.S.

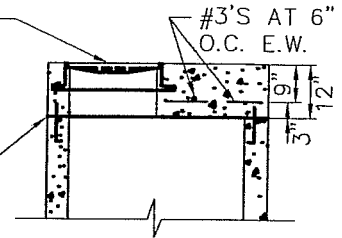
SLAB

PRESSURE-TYPE M.H. FRAME & COVER AS SPECIFIED BY OWNER. M.H. FRAME CAST IN ROOF W/ CONTINUOUS POUR FROM BASE.



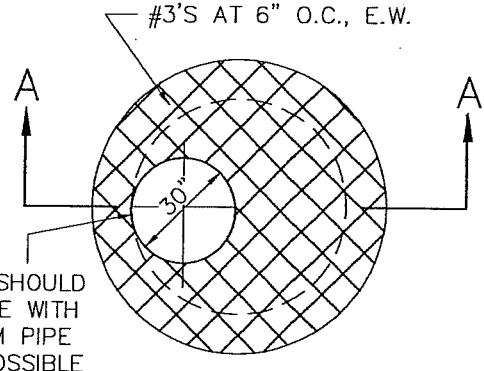
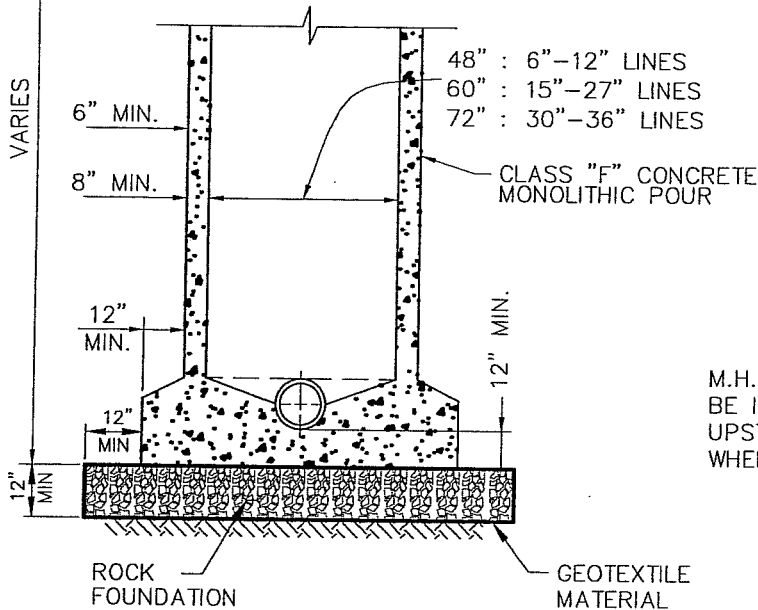
FOR 5' & 6' DIA. M.H.'S
SEE TRANSITION DETAIL

CONSTRUCTION JOINT WITH KEY WAY WATERSTOP, AND #3'S AT 12" O.C. EXTENDING 9" INTO WALL (NOT REQ'D FOR CONTINUOUS POUR)



SECTION A - A

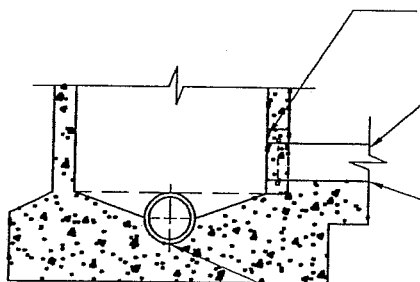
N.T.S.



ROOF STEEL LAYOUT

N.T.S.

APPROVED RESILIENT PIPE-TO-MANHOLE CONNECTOR OR GASKET REQUIRED FOR PIPE OTHER THAN CLAY OR CONCRETE.



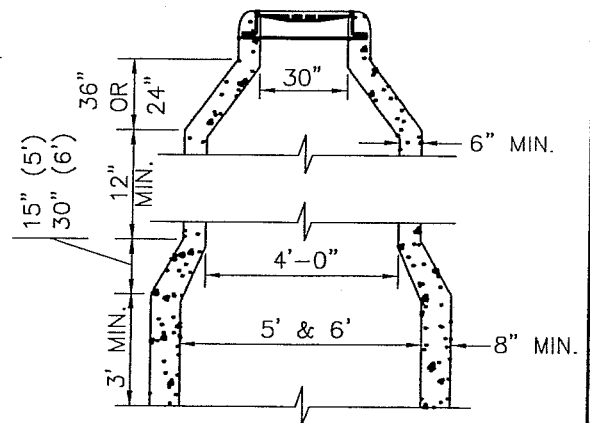
STUBOUT TO BE FITTED WITH WATER TIGHT STOPPER OR CAP

STUBOUTS TO BE A MIN. OF 5' LONG WITH CONC. CRADLE (FROM SAME POUR AS BASE) UNDER ENTIRE LENGTH.

FIRST MAIN LINE JOINT TO BE A MIN. OF 6' LONG WITH CONC. CRADLE (FROM SAME POUR AS BASE) UNDER THE ENTIRE LENGTH.

STUBOUT CONNECTION

N.T.S.



TRANSITION DETAIL FOR
5' & 6' DIA. M.H.'S

N.T.S.

WASTEWATER MANHOLE

PRESSURE-TYPE



M* - CITY OF MELISSA REVISION

NCTCOG STANDARD SPECIFICATION REFERENCE

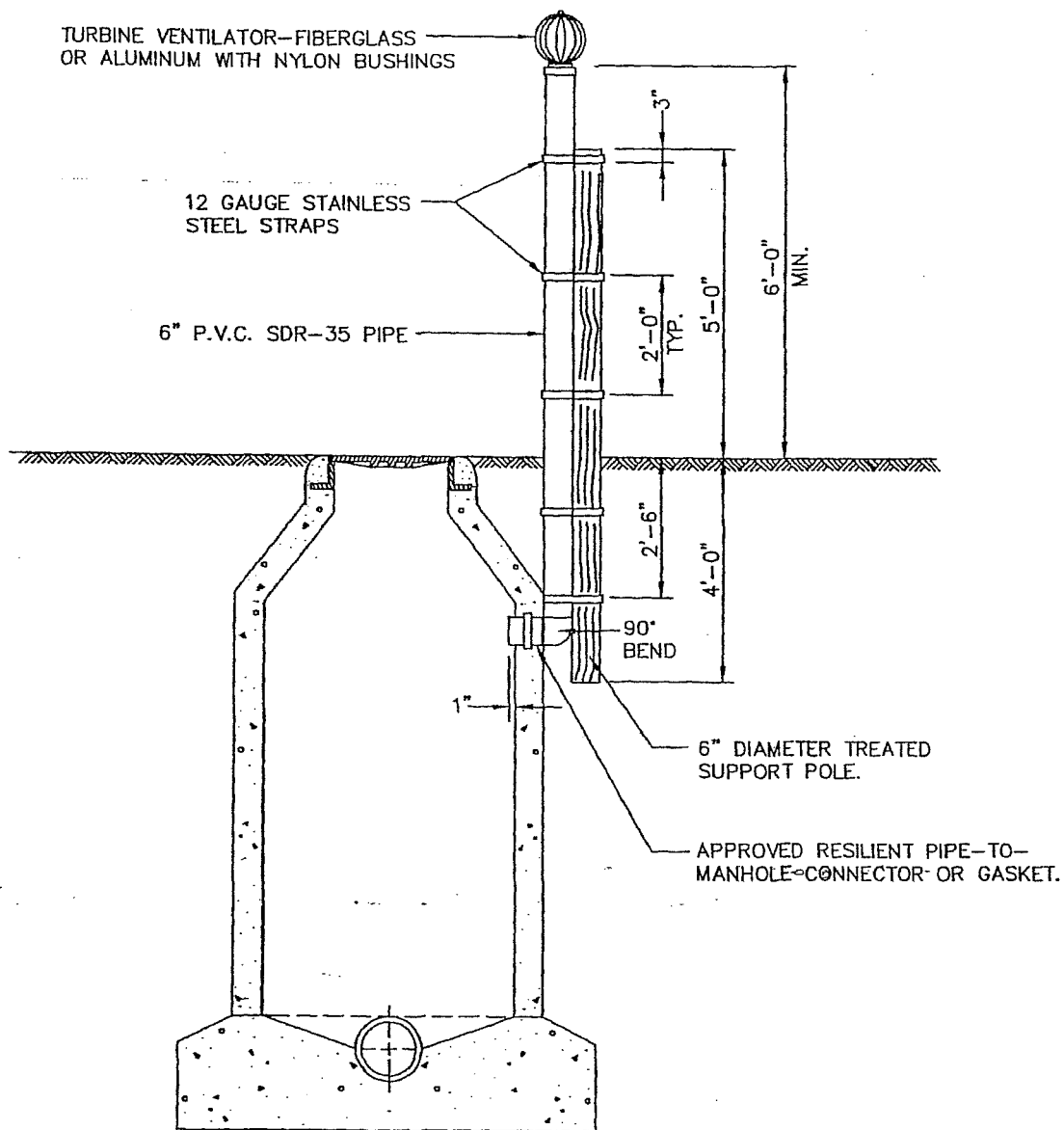
502.1

DATE

11/13/08

STANDARD DRAWING NO.

5050M*



WASTEWATER MANHOLE

VENTED

North Central Texas Council of Governments



STANDARD SPECIFICATION REFERENCE

502.1

DATE

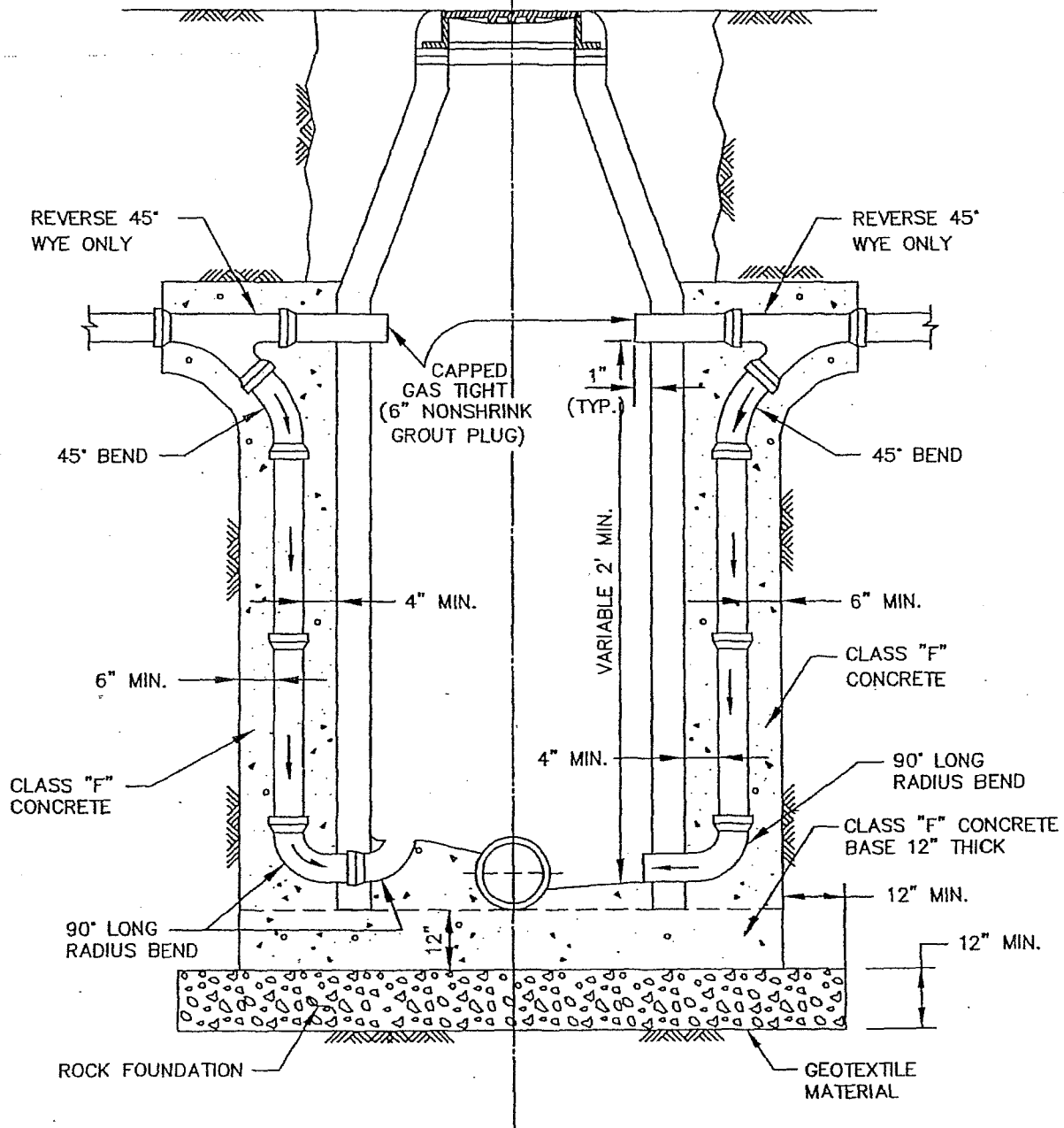
OCT. '04

STANDARD DRAWING NO.

5060

GAS SEALED
DROP CONNECTION
N.T.S.

STANDARD
DROP CONNECTION
N.T.S.



WASTEWATER MANHOLE
OUTSIDE DROP CONNECTIONS

North Central Texas Council of Governments



STANDARD SPECIFICATION REFERENCE

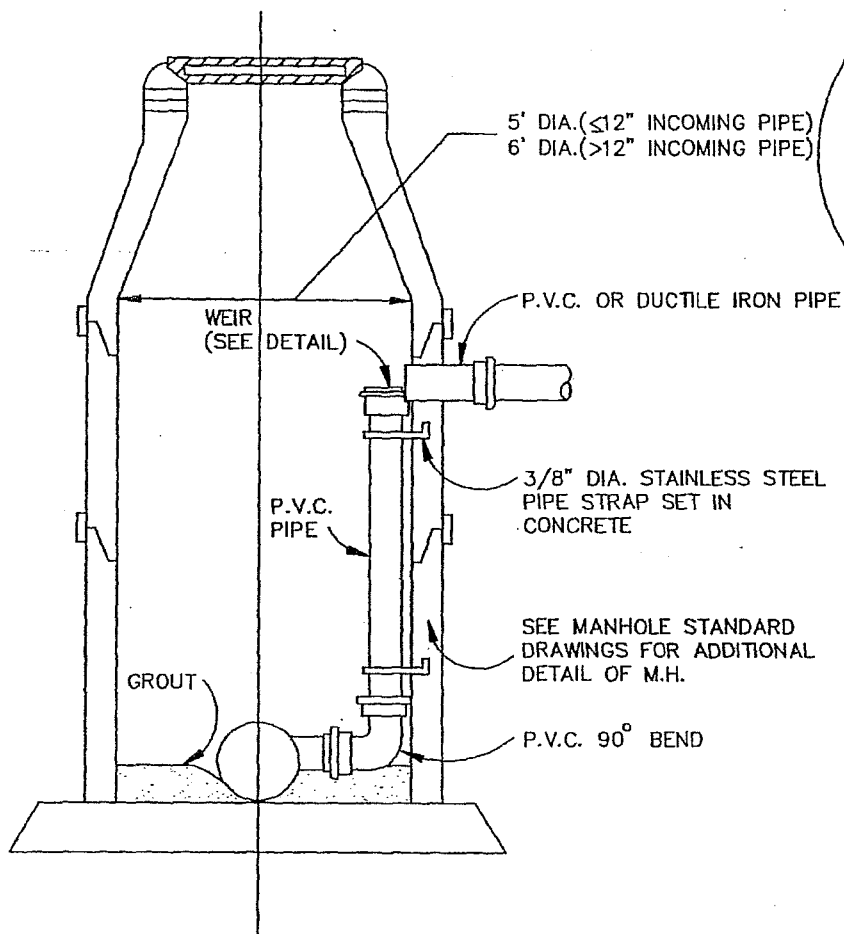
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DATE

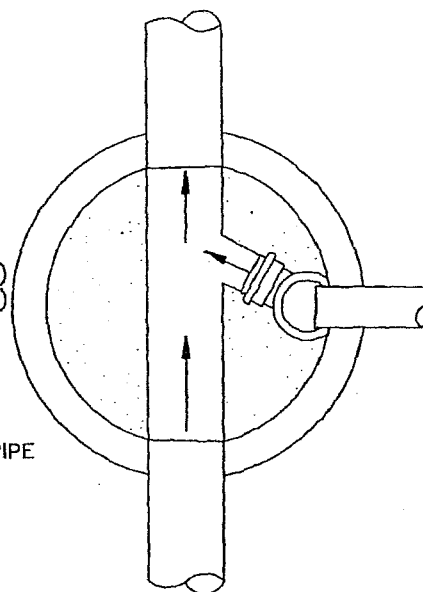
OCT. '04

STANDARD DRAWING NO.

5070

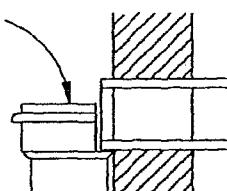


ELEVATION
N.T.S.



PLAN
N.T.S.

REMOVE PORTION OF DROP PIPE TO CONNECT AS SHOWN



WEIR DETAIL
N.T.S.

NOTE:

FLOW LINE OF SURCHARGE LINE
NORMALLY PLACED AT TOP OF
EXISTING WASTEWATER LINE
UNLESS NOTED OTHERWISE ON
PLANS.

WASTEWATER MANHOLE

INSIDE DROP CONNECTION

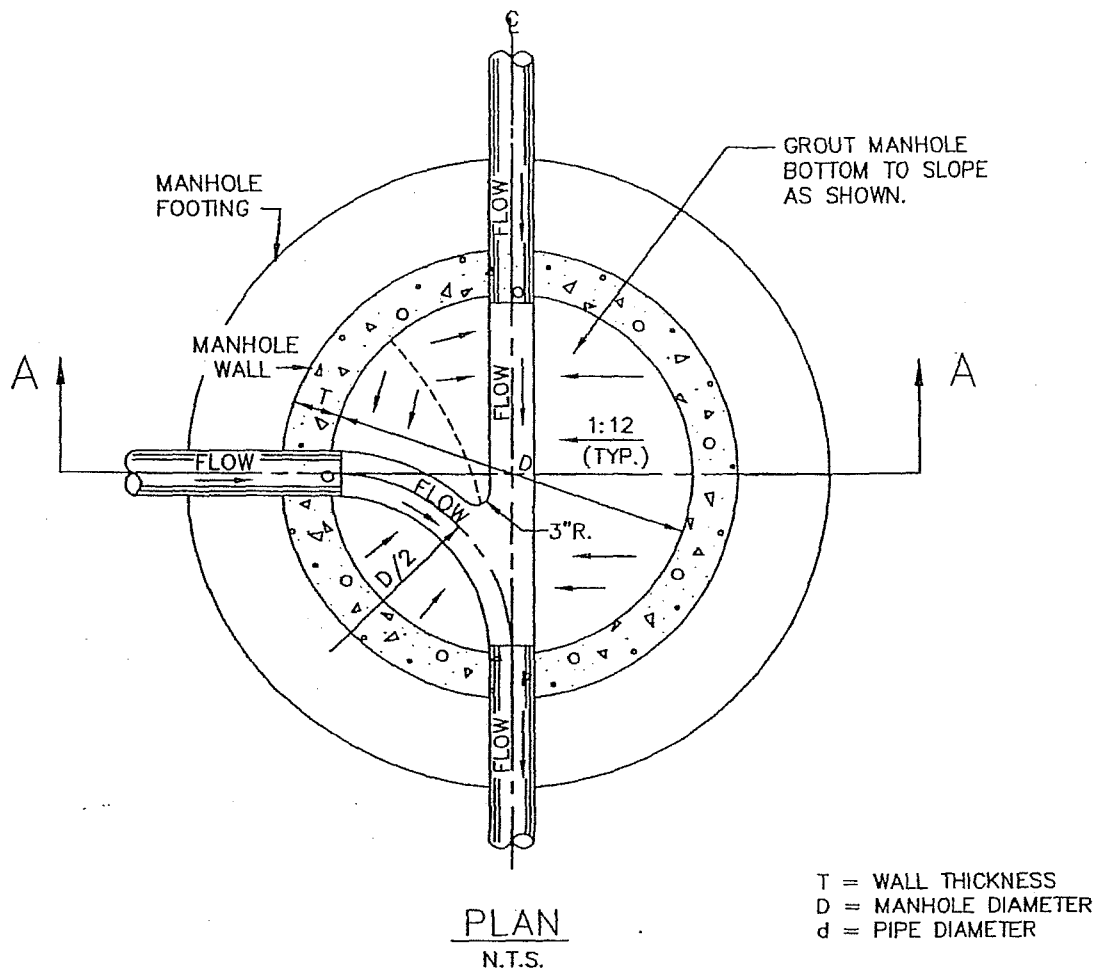
North Central Texas Council of Governments



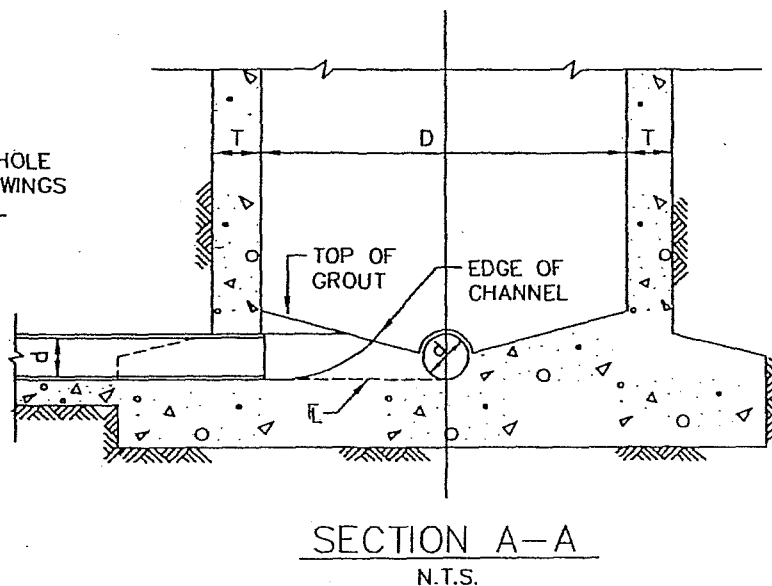
STANDARD SPECIFICATION REFERENCE
502.1

DATE
OCT. '04

STANDARD DRAWING NO.
5080



NOTE:
REFER TO MANHOLE
STANDARD DRAWINGS
FOR ADDITIONAL
DETAIL OF M.H.



WASTEWATER MANHOLE LINE INTERSECTION

North Central Texas Council of Governments



STANDARD SPECIFICATION REFERENCE

502.1

DATE

OCT. '04

STANDARD DRAWING NO.

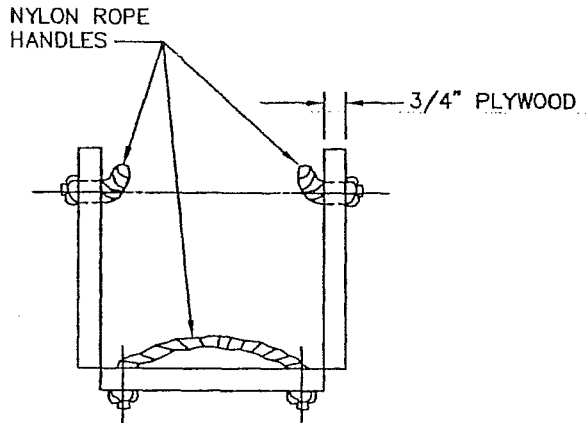
5090

INSTALLATION

FALSE MANHOLE BOTTOM SHALL BE FURNISHED AND
INSTALLED IN ALL MANHOLES CONSTRUCTED IN
ADVANCE OF PAVING. THESE FALSE MANHOLE
BOTTOMS WILL BE INSTALLED AT A TIME DIRECTED
BY THE ENGINEER BUT WILL USUALLY BE AFTER ALL
WORK IS COMPLETED ON THE WASTEWATER
SYSTEM INCLUDING THE AIR TEST, BUT PRIOR TO THE
FINAL INSPECTION.

REMOVAL

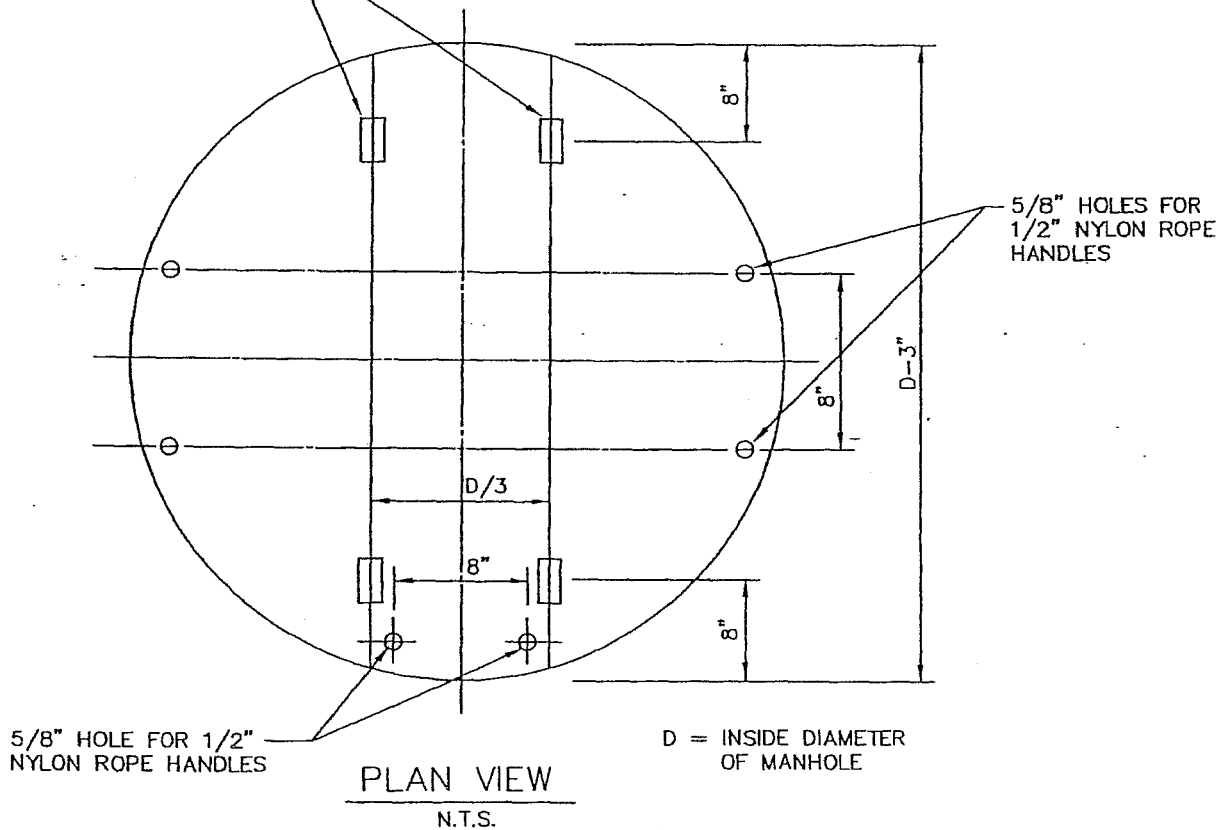
FALSE MANHOLE BOTTOM SHALL BE REMOVED AFTER THE FINAL APPURTENANCE ADJUSTMENT INSPECTION. THE PAVING CONTRACTOR AND OWNER'S REPRESENTATIVE WILL COORDINATE THE REMOVAL OF THE FALSE MANHOLE BOTTOMS.



METAL STRAP HINGES
(MIN. 3" LONG) W/BOLTS

INSTALLATION AND REMOVAL POSITION

N.T.S.



WASTEWATER MANHOLE
FALSE BOTTOM

North Central Texas Council of Governments



STANDARD SPECIFICATION REFERENCE

502.1

DATE _____

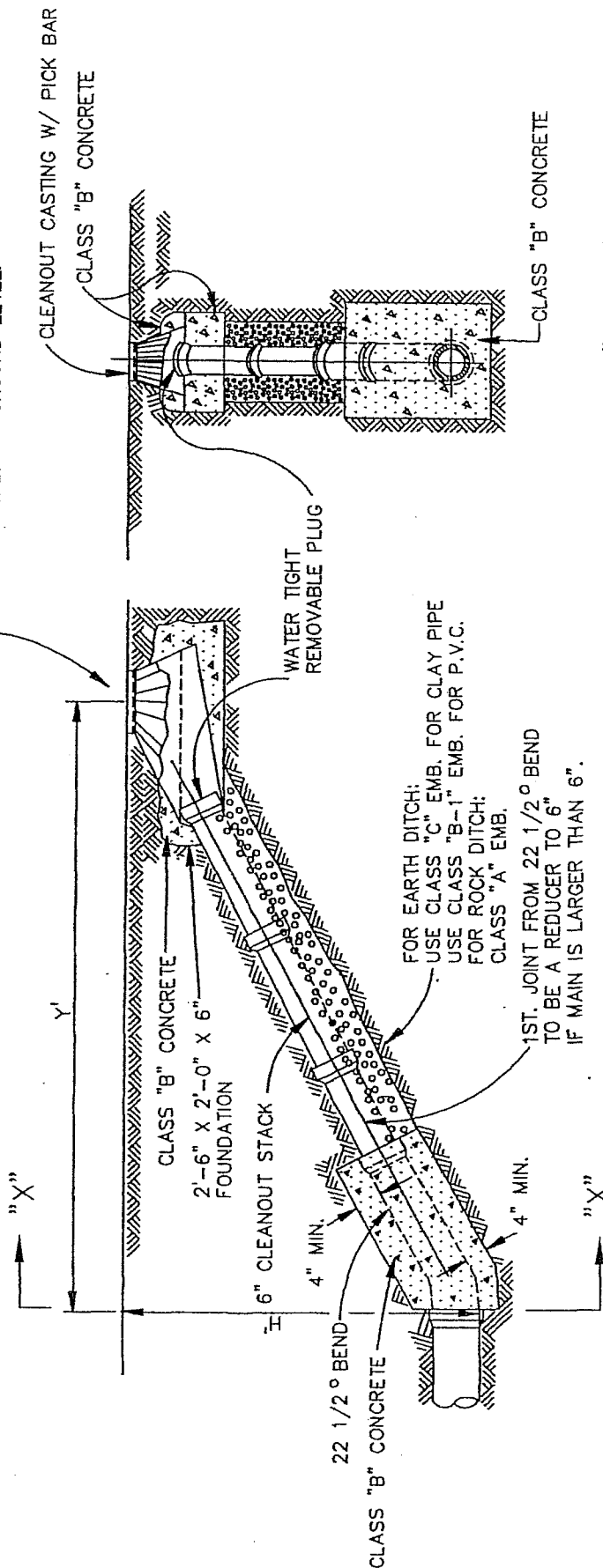
OCT. '04

STANDARD DRAWING NO.

5100

H'	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	H'
Y'	10	12	14	17	19	22	24	27	29	31	34	36	39	41	43	46	48	Y'

CLEANOUT CASTING OPENING TO BE INSTALLED CENTERED OVER THE CENTERLINE OF THE CLEANOUT STACK EXTENDED TO GROUND LEVEL.



SECTION "X - X"
N.T.S.

PROFILE VIEW
N.T.S.

- NOTES:
1. IF CLEANOUT IS PLACED IN ADVANCE OF PAVEMENT PLACE SAND AROUND CLEANOUT CASTING IN LIEU OF CLASS "B" CONCRETE.
 2. IF CLEANOUT IS OUTSIDE OF PAVEMENT, CENTER CASTING IN 15"x15" CLASS "A" CONCRETE PAD "4" THICK.

STANDARD SPECIFICATION REFERENCE
502.2

DATE
OCT. '04

STANDARD DRAWING NO.
5110

North Central Texas Council of Governments



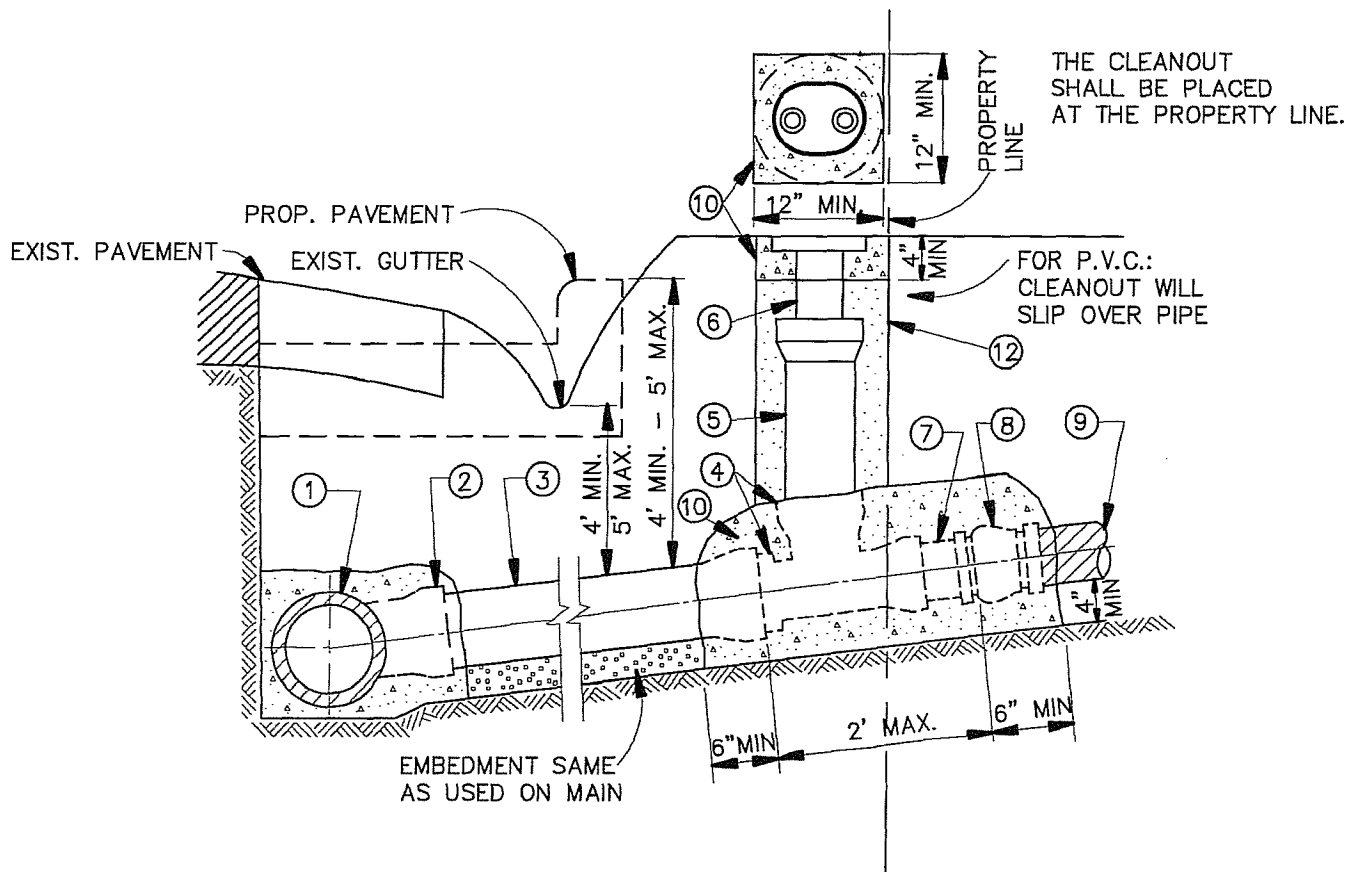
WASTEWATER MAIN

CLEANOUT

STANDARD DRAWING NO.
5110

KEY:

- | | |
|--|---|
| ①. WASTEWATER MAIN | ⑦. 4" WASTEWATER PIPE (LENGTH VARIES) |
| ②. 6" WYE | ⑧. ADAPTOR |
| ③. 6" WASTEWATER LAT. (LENGTH VARIES) | ⑨. BUILDING SEWER LAT. |
| ④. SWEEPING TYPE TEE | ⑩. CLASS "B" CONCRETE |
| ⑤. 4" STACK (LENGTH VARIES) | ⑪. 6" X 4" REDUCER |
| ⑥. 4" WASTEWATER LAT. CLEANOUT CASTING | ⑫. COMPACTED AS SPECIFIED,
OR INUNDATED SAND |



NOTES:

- CLEANOUT CASTING TO BE FURNISHED AND PLACED PER SPECIAL CONDITIONS. IN VEHICLE TRAFFIC AREAS AND FOR COMMERCIAL MAINLINE LATERALS, WASTEWATER CLEANOUT SHALL BE OF CAST IRON.
- SLOPE OF LATERAL TO BE 1% MIN., 2% MAX. UNLESS INSTRUCTED OTHERWISE BY OWNER.
- THE WASTEWATER LATERAL SHALL BE CONNECTED TO BUILDING LATERAL AND CONSTRUCTED IN SUCH MANNER AS TO CLEAR EXISTING UTILITIES AND PROPOSED FACILITIES SUCH AS STORM SEWER MAINS, PAVING, SIDEWALKS, RETAINING WALLS, ETC. VERTICAL BENDS (22.5° MAX.) MAY BE USED IF APPROVED BY OWNER.
- THE MAINLINE LATERAL CONNECTION TO THE PRIVATE BUILDING LATERAL SHALL BE AS CLOSE TO THE PROPERTY LINE AS POSSIBLE.
- INSTALL 4" STOPPER OR CAP AT PROPERTY LINE IF BUILDING LATERAL DOES NOT EXIST.
- SUBSTITUTE 4" FOR 6" FITTINGS IF PLANS OR SPEC. COND. CALL FOR 4" LATERALS.
- TYPICAL CLEANOUT STACK & CASTING SHALL BE PLACED AT THE PROPERTY LINE.

M* - CITY OF MELISSA REVISION

WASTEWATER LATERALS

WITH & WITHOUT CLEANOUT



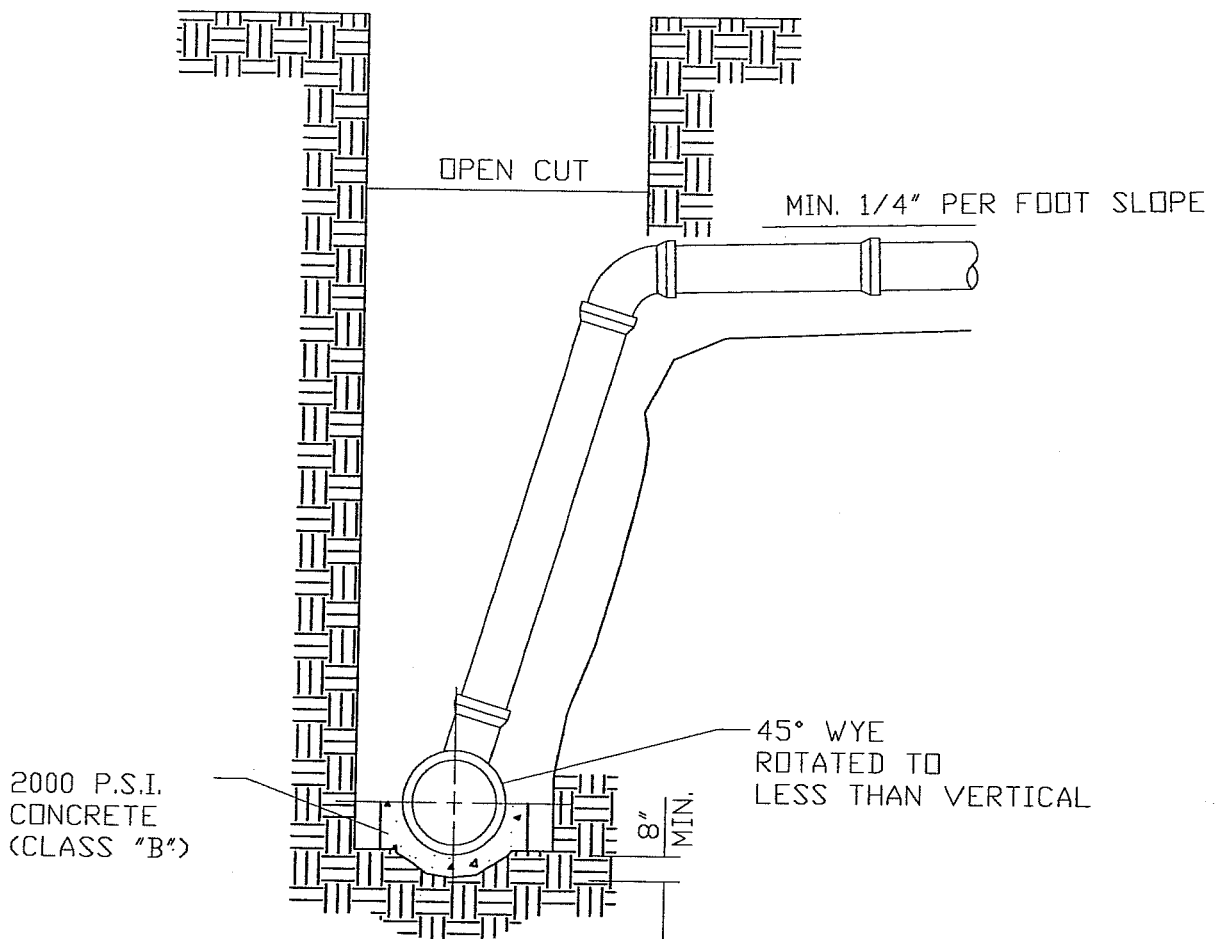
NCTCOG STANDARD SPECIFICATION REFERENCE

DIVISION 500

DATE

STANDARD DRAWING NO.

06/16/00 512011*



STACKED DEEP CUT

STACKED DEEP CUT LATERALS
SHALL NOT BE INSTALLED WITHOUT
VERIFICATION OF FLOW LINE ELEVATIONS
FOR EACH LOT AND WRITTEN APPROVAL
FROM THE ENGINEER.

STACKED DEEP CUT LATERALS

CITY OF MELISSA, TEXAS



M* - CITY OF MELISSA REVISION

NCTCOG STANDARD SPECIFICATION REFERENCE

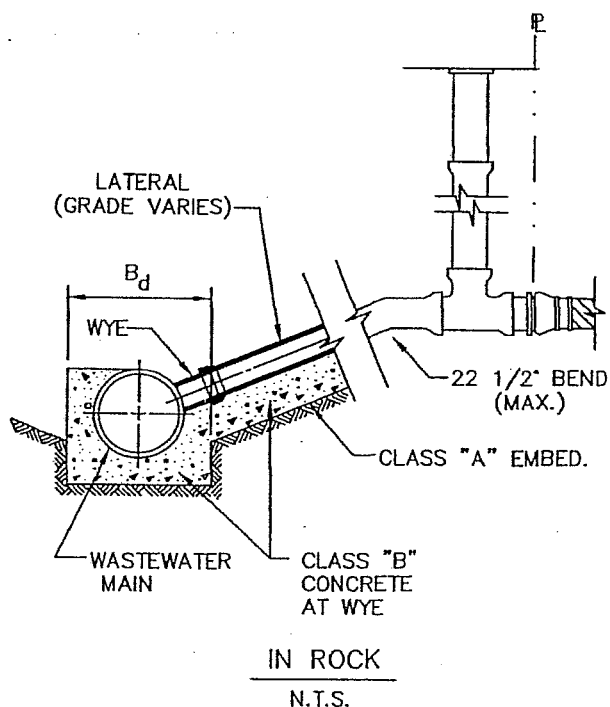
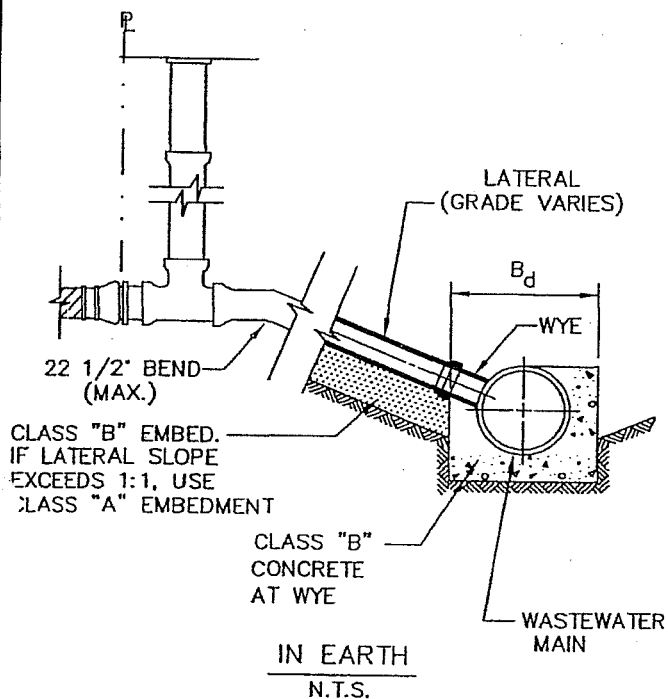
DIVISION 500

DATE

11/17/22

STANDARD DRAWING NO.

510111



TRENCH WITH SLOPING SIDES
N.T.S.

NOTES:

1. WYE SHALL BE SUPPORTED AS SHOWN FOR WYE CONNECTION SUPPORT.
2. LATERALS ARE TO CLEAR ALL EXISTING UTILITIES. 11 1/4" OR 22 1/2" BEND, ONLY, MAY BE REQUIRED.

WASTEWATER LATERAL CONNECTIONS
IN EARTH & IN ROCK

North Central Texas Council of Governments



STANDARD SPECIFICATION REFERENCE

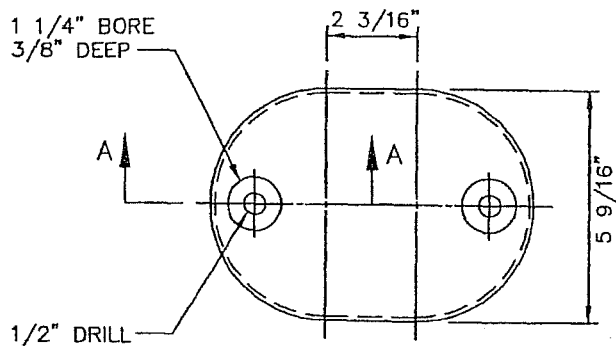
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DATE

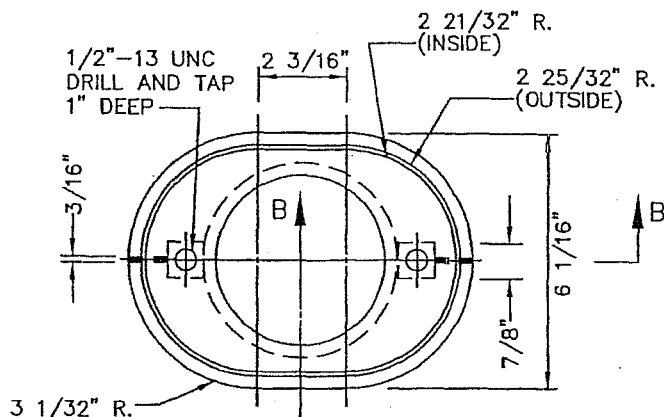
OCT. '04

STANDARD DRAWING NO.

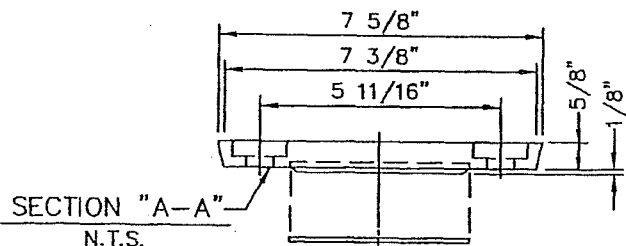
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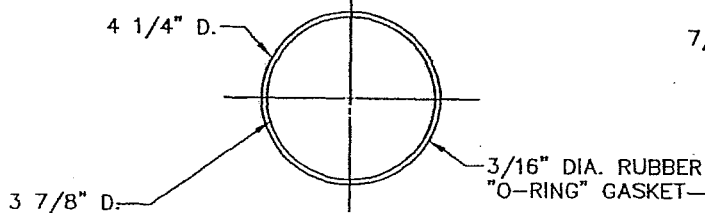
COVER
N.T.S.



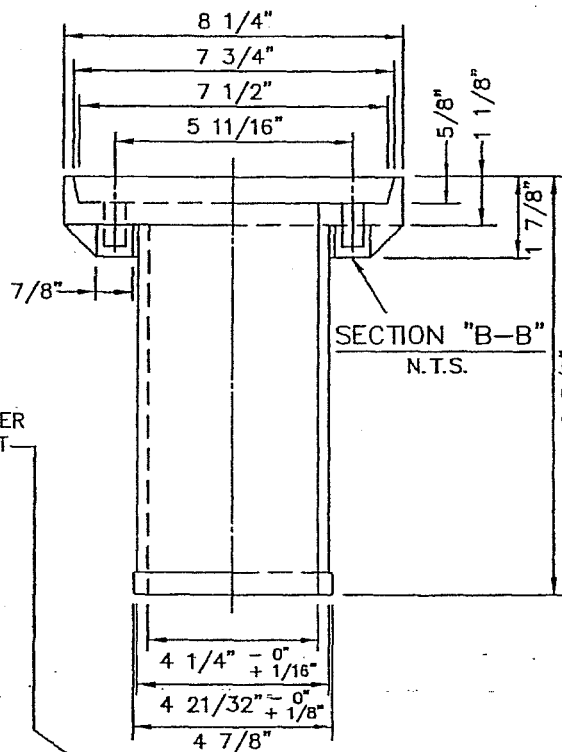
CLEANOUT FRAME TOP
N.T.S.



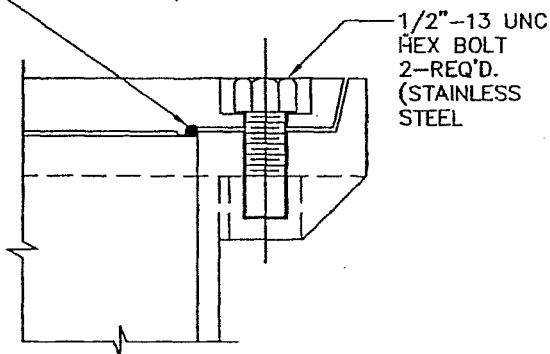
SECTION "A-A"
N.T.S.



CLEANOUT FRAME BOTTOM
N.T.S.



SECTION "B-B"
N.T.S.



ASSEMBLY VIEW
N.T.S.

NOTES:

1. THE WORDS "WASTEWATER LATERAL CLEANOUT" SHALL BE CAST INTO TOP OF COVER.
2. MATERIALS TO BE CAST IRON, P.V.C. OR ABS PLASTIC.

WASTEWATER LATERAL
CLEANOUT FRAME & COVER

North Central Texas Council of Governments



STANDARD SPECIFICATION REFERENCE

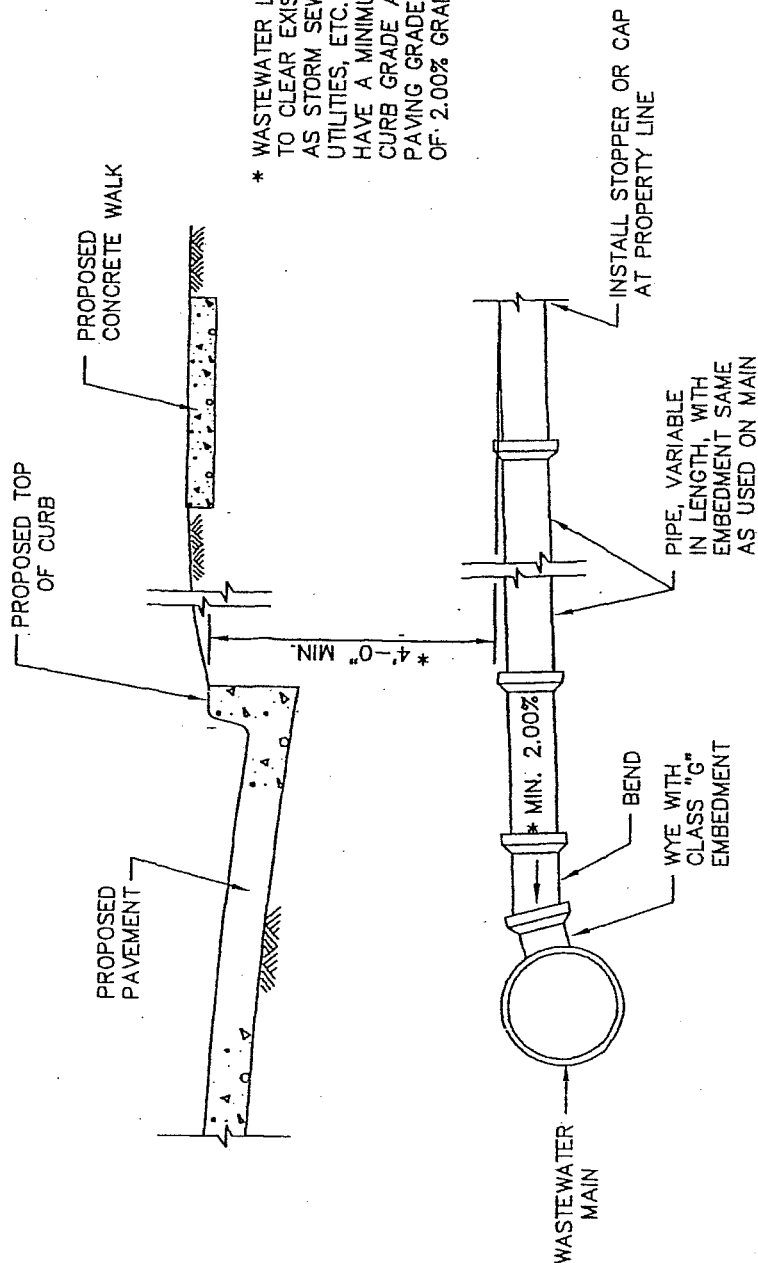
502.10

DATE

OCT. '04

STANDARD DRAWING NO.

5140



* WASTEWATER LATERALS ARE TO BE CONSTRUCTED TO CLEAR EXISTING AND PROPOSED FACILITIES, SUCH AS STORM SEWER MAINS, RETAINING WALLS, OTHER UTILITIES, ETC. THE WASTEWATER LATERAL SHALL HAVE A MINIMUM COVER OF 4'-0" BELOW THE PROPOSED CURB GRADE AT THE PROPERTY LINE, DETERMINED FROM PAVING GRADE, OR AS REQUIRED TO MAINTAIN A MINIMUM OF 2.00% GRADE, OR AS DIRECTED BY THE OWNER.

WASTEWATER LATERAL STUBOUT (FOR FUTURE CONNECTION, 4" OR 6" AS SPECIFIED) N.T.S.

STANDARD DRAWING NO.
5150

WASTEWATER LATERAL STUBOUT
IN ADVANCE OF PAVING

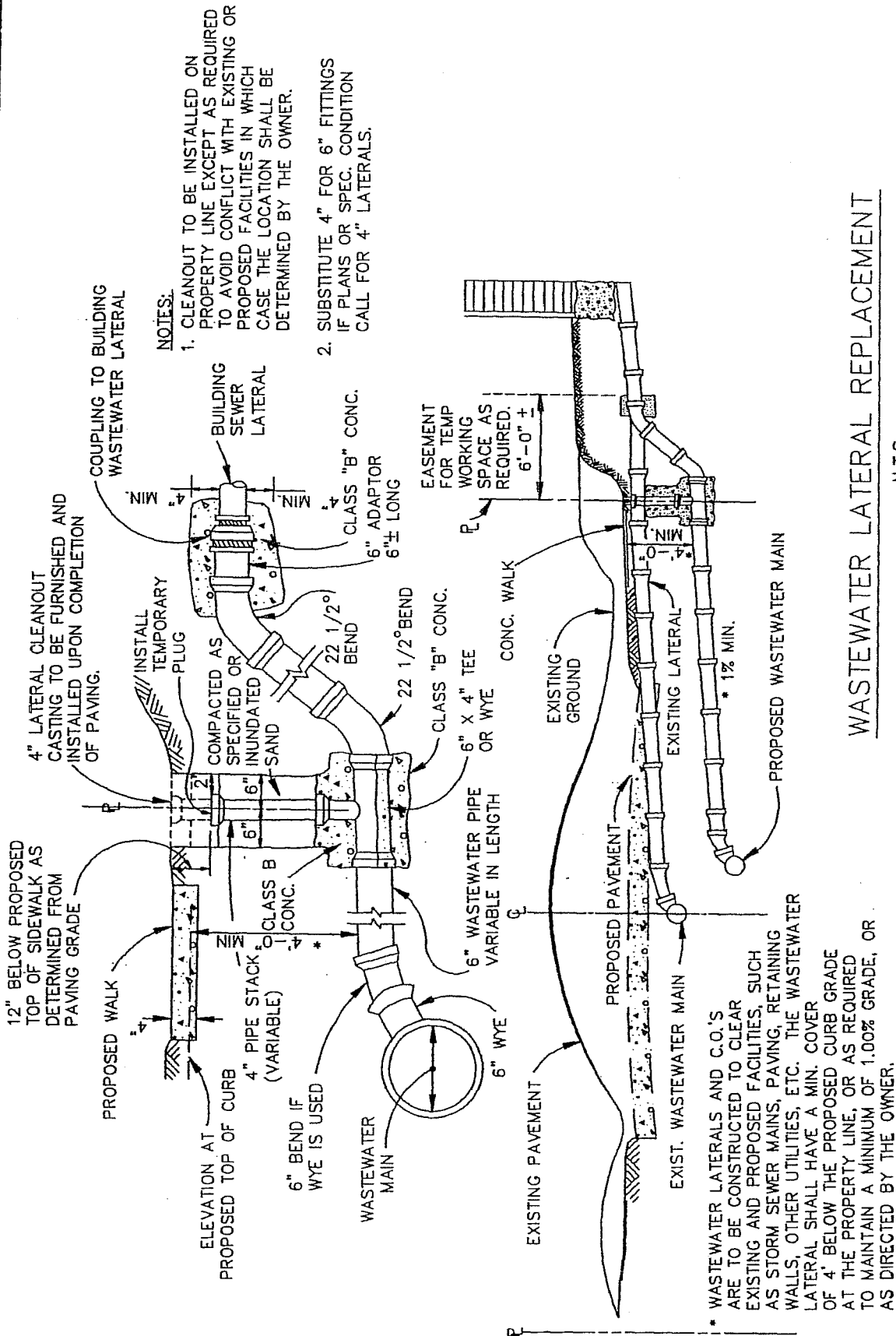
North Central Texas Council of Governments



STANDARD SPECIFICATION REFERENCE
502.10

DATE
OCT. '04

STANDARD DRAWING NO.
5150



N.T.S.

WASTEWATER LATERAL REPLACEMENT

WASTEWATER LATERAL REPLACEMENT

IN ADVANCE OF PAVING

North Central Texas Council of Governments



STANDARD SPECIFICATION REFERENCE

502.10

DATE

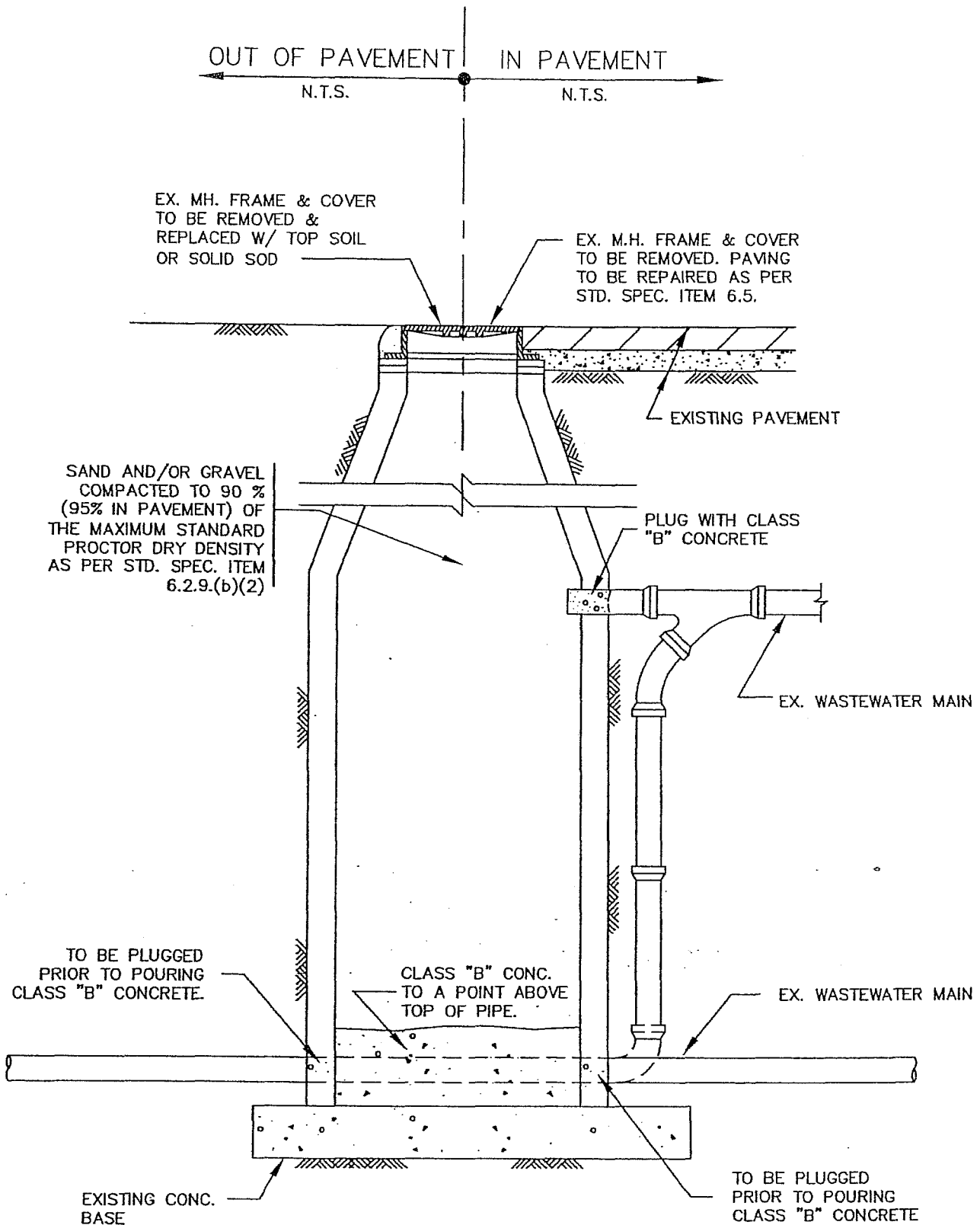
OCT. '04

STANDARD DRAWING NO

5160

STANDARD DRAWING NO.

5160



ABANDONMENT OF MANHOLE IN OR OUT OF PAVEMENT

North Central Texas Council of Governments



STANDARD SPECIFICATION REFERENCE

504

DATE

OCT. '04

STANDARD DRAWING NO.

5170

1. GATE VALVES AND BUTTERFLY VALVES SHALL NOT BE OVER 1000 FT APART FOR LINES 12" AND LARGER.
2. GATE VALVES SIXTEEN (16) INCHES AND LARGER SHALL BE PLACED IN A VAULT.
3. MINIMUM COVER FOR WATER LINES:
 - 4" thru 12" - 4 FT COVER (5 FT UNIMPROVED)
 - 14" THRU 18" - 5 FT COVER (6 FT UNIMPROVED)
 - 20" AND LARGER - 6 FT COVER (7 FT UNIMPROVED)
4. THE MINIMUM WATER MAIN SIZE SHALL BE 8" IN RESIDENTIAL (LARGER LINE SIZE MAY BE REQUIRED BY THE COMPREHENSIVE PLAN, WATER MASTER PLAN, OR TO MEET FIRE PROTECTION NEEDS AS DETERMINED BY THE CITY ENGINEER.
5. THERE SHALL BE A MINIMUM OF A FIFTEEN (15) FOOT EASEMENT FOR WATER LINES.
6. THE MINIMUM RESIDENTIAL WATER SERVICE LINE SHALL BE ONE INCH (1") COPPER, AND SHALL BE INSTALLED BEHIND BACK OF CURB IN PARKWAY AWAY FROM DRIVEWAYS.
7. DEAD END MAINS SHALL NOT EXCEED SIX HUNDRED FEET (600'). PROVISIONS SHALL BE PROVIDED FOR FLUSHING DEAD END MAINS WITH A FIRE HYDRANT PLACED NEAR THE TERMINAL END OF THE LINE.
8. TRACER TAPE SHALL BE INSTALLED ALONG THE TOP CENTERLINE OF ALL NON-METALLIC WATER PIPES A MINIMUM OF ONE INCH (1") ABOVE TOP OF PIPE. THE TAPE IS TO CONSIST OF A METAL STRIP COATED WITH A CORROSION RESISTANT SUBSTANCE. THE TAPE MUST BE DETECTABLE BY A METAL DETECTION DEVICE TO A MINIMUM DEPTH OF 4 FT. THE TAPE SHALL BE AT LEAST 2" WIDE.
9. A MAXIMUM OF 6 FEET BURY IS ALLOWED FOR FIRE HYDRANTS.
10. REDUCED SIZE DETECTOR VALVES WILL NOT BE ALLOWED.
11. ONLY MUELLER SUPER CENTURION 250 FIRE HYDRANT WITH SAFETY FLANGE WILL BE ALLOWED.
12. ALL FIRE HYDRANT LEADS SHALL CONTAIN A GATE VALVE.
13. FIRE HYDRANT MARKERS SHALL CONSIST OF A 4" BY 4" BLUE REFLECTOR PAVEMENT MARKER INSTALLED OPPOSITE EACH FIRE HYDRANT ON ALL STREETS' CENTER LINE.
14. MINIMUM 6" WATER LINES SHALL BE PROVIDED UP TO 25 FT OF FIRE HYDRANTS; OTHERWISE 8" OR LARGER MUST BE USED.
15. ALL WATER LINES SHALL MEET THE REQUIREMENTS OF AWWA AND NCTCOG UNDER THE FOLLOWING SPECIFICATIONS:
 - 8" THRU 12" : C900 DR 18 - PVC
 - 14" AND LARGER : AWWA C301 & C303 - REINFORCED CONCRETE CYLINDER PIPE
 - : AWWA C905 - PVC - DR 18 (14"-24"), DR 21 (30"), DR 25 (36"), DR 32.5 (42" AND LARGER)
 - : AWWA C151 - DUCTILE IRON PIPE - THICKNESS CLASS 50
16. ALL FEEDER MAINS SHALL BE LOOPED AND ALL OTHER WATER LINES IN EXCESS OF 800' IN LENGTH SHALL BE LOOPED.
17. ALL WATER LINE FITTINGS SHALL BE DUCTILE IRON PER AWWA C110 OR AWWA C153 WITH CORROSION RESISTANT BOLTS/NUTS PER ASTM A325.
18. ALL GATE VALVES SHALL BE RESILIENT-SEATED GATE VALVES PER AWWA C509 AND NCTCOG 502.6.2 AND SHALL INCLUDE VALVE BOXES. VALVES SHALL BE FURNISHED WITH EXTENSIONS TO 1' BELOW GRADE AT LOCATIONS WHERE THE VALVE OPERATING NUT IS MORE THAN 3' BELOW GRADE.
19. ALL VALVES, FIRE HYDRANTS, AND FITTINGS SHALL BE INSTALLED WITH ADEQUATE THRUST BLOCKING OR MECHANICAL JOINT RESTRAINT IN ACCORDANCE WITH THE CITY OF MELISSA STANDARD CONSTRUCTION DETAILS. POLYETHYLENE WRAPPING SHALL PRECEDE BLOCKING OR RESTRAINT. ALL JOINT RESTRAINTS SHALL BE MEGALUG, OR APPROVED EQUIVALENT.
20. THE CITY ENGINEER SHALL BE NOTIFIED A MINIMUM OF 48 HOURS PRIOR TO THE INSTALLATION OF ANY AND ALL WATER IMPROVEMENTS.

M* - CITY OF MELISSA REVISION

NCTCOG STANDARD SPECIFICATION REFERENCE

DIVISION 500

DATE

STANDARD DRAWING NO.

GENERAL CONSTRUCTION WATER NOTES

CITY OF MELISSA, TEXAS



WATER PIPELINE TESTING AND DISINFECTION

PART 1 – GENERAL

1.1 WORK OF THIS SECTION

- A. THE WORK OF THIS SECTION INCLUDES FLUSHING AND TESTING OF ALL PRESSURE PIPELINES AND APPURTENANT PIPING FOR POTABLE WATER AND DISINFECTION OF ALL PIPELINES AND APPURTENANT PIPING FOR POTABLE WATER, COMPLETE, INCLUDING PROVIDING TEST WATER AND ALL DISPOSAL THEREOF.

1.2 STANDARD SPECIFICATIONS

- B. EXCEPT AS OTHERWISE INDICATED IN THIS SECTION OF THE SPECIFICATIONS, THE CONTRACTOR SHALL COMPLY WITH THE LATEST EDITION OF THE NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION TOGETHER WITH ANY LATEST STATE OF TEXAS, TEXAS COMMISSION ON ENVIRONMENTAL QUALITY REQUIREMENTS.

1.3 SPECIFICATIONS AND STANDARDS

- A. EXCEPT AS OTHERWISE INDICATED, THE CURRENT EDITIONS OF THE FOLLOWING APPLY TO THE WORK OF THIS SECTION:
1. ANSI/AWWA B300 – HYPOCHLORITES
 2. ANSI/AWWA B301 – LIQUID CHLORINE
 3. ANSI/AWWA C651 – DISINFECTING WATER MAINS
 4. APHA, AWWA, AND WEF – STANDARD METHODS FOR THE EXAMINATION OF WATER AND WASTEWATER

1.4 TESTING SCHEDULE

- A. THE FOLLOWING SHALL BE SUBMITTED:
1. A TESTING SCHEDULE, INCLUDING PROPOSED PLANS FOR WATER CONVEYANCE, CONTROL, AND DISINFECTION SHALL BE SUBMITTED IN WRITING FOR APPROVAL A MINIMUM OF 48 HOURS BEFORE TESTING IS TO START. THE SUBMITTAL SHALL ALSO INCLUDE THE CONTRACTOR'S PLAN FOR THE RELEASE OF WATER FROM PIPELINES AFTER TESTING AND DISINFECTION HAS BEEN COMPLETED.

PART 2 – PRODUCTS

2.1 MATERIALS REQUIREMENTS

- A. ALL TEST EQUIPMENT, CHEMICALS FOR CHLORINATION, TEMPORARY VALVES, TEMPORARY BLOW-OFFS, BULKHEADS, BACKFLOW DEVICES, OR OTHER WATER CONTROL EQUIPMENT AND MATERIALS SHALL BE DETERMINED AND FURNISHED BY THE CONTRACTOR. NO MATERIALS SHALL BE USED WHICH WOULD BE INJURIOUS TO THE PIPELINE OR ITS FUTURE FUNCTION.
- B. CHLORINE FOR DISINFECTION SHALL BE IN THE FORM OF LIQUID CHLORINE, SODIUM HYPOCHLORITE SOLUTION, OR CALCIUM HYPOCHLORITE GRANULES OR TABLETS.
- C. LIQUID CHLORINE SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF ANSI/AWWA B301. LIQUID CHLORINE SHALL BE USED ONLY:
1. IN COMBINATION WITH APPROPRIATE GAS FLOW CHLORINATORS AND EJECTORS;
 2. UNDER THE DIRECT SUPERVISION OF AN EXPERIENCED TECHNICIAN;
 3. WHEN APPROPRIATE SAFETY PRACTICES ARE OBSERVED.
- D. SODIUM HYPOCHLORITE AND CALCIUM HYPOCHLORITE SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF ANSI/AWWA B300.

M* – CITY OF MELISSA REVISION

WATER PIPELINE TESTING AND DISINFECTION



NCTCOG STANDARD SPECIFICATION REFERENCE

506

CITY OF MELISSA, TEXAS

DATE

STANDARD DRAWING NO.

11/13/08

4002AM*

WATER PIPELINE TESTING AND DISINFECTION

PART 3 – EXECUTION

3.1 GENERAL

- A. UNLESS OTHERWISE INDICATED, POTABLE WATER FOR TESTING AND DISINFECTING WATER PIPELINES WILL BE FURNISHED BY THE CONTRACTOR. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL MATERIALS INCLUDING BUT NOT LIMITED TO APPROVED BACKFLOW DEVICES AND ALSO MAKE ALL NECESSARY ARRANGEMENTS FOR CONVEYING THE WATER TO THE POINTS OF USE.
- B. ALL PRESSURE PIPELINES SHALL BE TESTED. DISINFECTION SHALL BE ACCOMPLISHED BY CHLORINATION. ALL CHLORINATING AND TESTING OPERATIONS SHALL BE PERFORMED IN THE PRESENCE OF THE CITY'S AUTHORIZED REPRESENTATIVE.
- C. DISINFECTION OPERATIONS SHALL BE SCHEDULED BY THE CONTRACTOR AS LATE AS POSSIBLE DURING CONTRACT TIME PERIOD SO AS TO ASSURE THE MAXIMUM DEGREE OF STERILITY OF THE FACILITIES AT THE TIME THE WORK IS ACCEPTED BY THE OWNER.

3.2 HYDROSTATIC TESTING OF PIPELINES

- A. PRIOR TO HYDROSTATIC TESTING, ALL PIPELINES SHALL BE FLUSHED OR BLOWN OUT AS APPROPRIATE. THE CONTRACTOR SHALL TEST ALL PIPELINES EITHER IN SECTIONS OR AS A UNIT. NO SECTION OF THE PIPELINE SHALL BE TESTED UNTIL ALL FIELD-PLACED CONCRETE OR MORTAR HAS ATTAINED AN AGE OF 14 DAYS. THE TEST SHALL BE MADE BY CLOSING VALVES WHEN AVAILABLE, OR BY PLACING TEMPORARY BULKHEADS IN THE PIPE AND FILLING THE LINE SLOWLY WITH WATER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ASCERTAINING THAT ALL TEST BULKHEADS ARE SUITABLY RESTRAINED TO RESIST THE THRUST OF THE TEST PRESSURE WITHOUT DAMAGE TO, OR MOVEMENT OF, THE ADJACENT PIPE. ANY UNHARNESSED SLEEVE-TYPE COUPLINGS, EXPANSION JOINTS, OR OTHER SLIDING JOINTS SHALL BE RESTRAINED OR SUITABLY ANCHORED PRIOR TO TEST, TO AVOID MOVEMENT AND DAMAGE TO PIPING AND EQUIPMENT. THE CONTRACTOR SHALL PROVIDE SUFFICIENT TEMPORARY AIR TRAPPINGS IN THE PIPELINES TO ALLOW FOR EVACUATION OF ALL ENTRAPPED AIR IN EACH PIPE SEGMENT TO BE TESTED. AFTER COMPLETION OF THE TESTS, SUCH TAPS SHALL BE PERMANENTLY PLUGGED. CARE SHALL BE TAKEN TO SEE THAT ALL AIR VENTS ARE OPEN DURING FILLING.
- B. THE PIPELINE SHALL BE FILLED AT A RATE WHICH WILL NOT CAUSE ANY SURGES OR EXCEED THE RATE AT WHICH THE AIR CAN BE RELEASED THROUGH THE AIR VALVES AT A REASONABLE VELOCITY AND ALL THE AIR WITHIN THE PIPELINE SHALL BE PROPERLY PURGED. AFTER THE PIPELINE OR SECTION THEREOF HAS BEEN FILLED, IT SHALL BE ALLOWED TO STAND UNDER A SLIGHT PRESSURE FOR AT LEAST 24 HOURS TO ALLOW THE CONCRETE OR MORTAR LINING, AS APPLICABLE, TO ABSORB WATER AND TO ALLOW THE ESCAPE OF AIR FROM ANY AIR POCKETS. DURING THIS PERIOD, BULKHEADS, VALVES, AND CONNECTIONS SHALL BE EXAMINED FOR LEAKS. IF LEAKS ARE FOUND, CORRECTIVE MEASURES SATISFACTORY TO THE CITY SHALL BE TAKEN.
- C. HYDROSTATIC TEST. BEFORE BEING ACCEPTED, ALL GRAY IRON, DUCTILE IRON, PLASTIC AND ASBESTOS-CEMENT PIPE LINES CONSTRUCTED SHALL BE TESTED WITH A HYDRAULIC TEST PRESSURE OF NOT LESS THAN 150 PSI (134.3 KPA). MAINTAINED OVER A PERIOD OF NOT LESS THAN 4 HOURS UNLESS OTHERWISE SPECIFIED BY THE OWNER. CONCRETE PRESSURE PIPE SHALL BE TESTED WITH A HYDRAULIC TEST PRESSURE OF 120 PERCENT OF THE DESIGN PRESSURE. STEEL PRESSURE PIPE SHALL BE TESTED WITH A HYDRAULIC TEST PRESSURE NOT TO EXCEED 150 PERCENT AND NOT LESS THAN 120 PERCENT OF THE DESIGN WORKING PRESSURE. THE RATE OF LEAKAGE OF ALL PIPE TESTED SHALL NOT EXCEED 11.65 GALLONS PER INCH OF NOMINAL DIAMETER OF PIPE PER MILE (0.01 CU. M. PER CM. OF NOMINAL DIAMETER PER KM.) OVER A 24 HOUR PERIOD. WATER LINES OF MATERIALS IN COMBINATION SHALL BE TESTED FOR THE TYPE OF PIPE (MATERIAL) WITH THE LEAST STRINGENT HYDRAULIC TEST PRESSURE MAINTAINED OVER A PERIOD OF NOT LESS THAN 4 HOURS.

M* – CITY OF MELISSA REVISION

WATER PIPELINE TESTING AND DISINFECTION



NCTCOG STANDARD SPECIFICATION REFERENCE

506

CITY OF MELISSA, TEXAS

DATE

11/13/08

STANDARD DRAWING NO.

4002RM*

WATER PIPELINE TESTING AND DISINFECTION

- D. THE MAXIMUM ALLOWABLE LEAKAGE FOR DISTRIBUTION AND TRANSMISSION PIPELINES SHALL BE PER NCTCOG 6.7.3 (f). THE ALLOWABLE LEAKAGE FOR 4 HOURS SHALL BE DETERMINED AS FOLLOWS:

$$\text{ALLOWABLE LEAKAGE (GALS.) FOR 4 HOURS} = (S D sP \times 4) / 133,200$$

WHERE:

S = LENGTH OF PIPE, FT.

D = DIAMETER OF PIPE, IN.

P = 150 PSI

HEIGHT CORRECTION = 0.43 PSI/FT.

VALVE LEAKAGE ALLOWABLE = 0.0078 GAL./HOUR/IN. OF NOMINAL VALVE SIZE

TEST - GRAY IRON, DUCTILE IRON, PLASTIC, AND AC AT 150 PSI

- CONCRETE 120% OF DESIGN PRESSURE

- STEEL 120% MIN. TO 150% MAX. DESIGN WORKING PRESSURE

STEEL PIPE WITH WELDED JOINTS SHALL HAVE NO LEAKAGE.

IN THE CASE OF PIPELINES THAT FAIL TO PASS THE PRESCRIBED LEAKAGE TEST, THE CONTRACTOR SHALL DETERMINE THE CAUSE OF THE LEAKAGE, SHALL TAKE CORRECTIVE MEASURE NECESSARY TO REPAIR THE LEAKS, AND SHALL AGAIN TEST PIPELINES.

3.3 DISINFECTING PIPELINES

- A. GENERAL: ALL POTABLE PIPELINES EXCEPT THOSE APPURTENANT TO HYDRAULIC STRUCTURES SHALL BE DISINFECTED IN ACCORDANCE WITH THE REQUIREMENTS OF ANSI/AWWA C651 USING THE CONTINUOUS-FEED METHOD AS MODIFIED HEREIN. PRELIMINARY AND FINAL FLUSHING SHALL BE DONE AT THE ENDS OF MAINS, WHICH HAVE BEEN HYDROSTATICALLY TESTED.
- B. CHLORINATION: A CHLORINE-WATER MIXTURE SHALL BE UNIFORMLY INTRODUCED INTO THE PIPELINE BY MEANS OF A SOLUTION-FEED CHLORINATING DEVICE. THE CHLORINE SOLUTION SHALL BE INTRODUCED AT ONE END OF THE PIPELINE THROUGH A TAP IN SUCH A MANNER THAT AS THE PIPELINE IS FILLED WITH WATER, THE DOSAGE APPLIED TO THE WATER ENTERING THE PIPE SHALL BE APPROXIMATELY 50 MG/L. CARE SHALL BE TAKEN TO PREVENT THE STRONG CHLORINE SOLUTION IN THE LINE BEING DISINFECTED FROM FLOWING BACK INTO THE LINE SUPPLYING THE WATER.
- C. CHLORINE RESIDUAL TEST: THE CONTRACTOR SHALL MAKE 24-HOUR CHLORINE RESIDUAL TESTS. THE CONTRACTOR SHALL NOTIFY THE OWNER OF THE CHLORINE TEST RESULT. CHLORINATED WATER SHALL BE RETAINED IN THE PIPELINE FOR AT LEAST 24 HOURS. AFTER THE CHLORINE-TREATED WATER HAS BEEN RETAINED FOR THE REQUIRED TIME, THE FREE CHLORINE RESIDUAL AT THE PIPELINE EXTREMITIES AND AT OTHER REPRESENTATIVE POINTS SHALL BE AT LEAST 25 MG/L.
- D. REPETITION OF TEST: THE DISINFECTION TESTING PROCEDURE SHALL BE REPEATED IF THE INITIAL TESTS FAIL TO PRODUCE SATISFACTORY RESULTS. TWO CONSECUTIVE SATISFACTORY TEST RESULTS SHALL BE REQUIRED AFTER ANY UNSATISFACTORY TEST. THE TABLET METHOD SHALL NOT BE USED FOR REPEATED DISINFECTION.
- E. CHLORINATING VALVES: DURING THE PROCESS OF CHLORINATING THE PIPELINES, ALL VALVES AND OTHER APPURTENANCES SHALL BE OPERATED WHILE THE PIPELINE IS FILLED WITH THE HEAVILY-CHLORINATED WATER.
- F. FINAL FLUSHING: FINAL FLUSHING SHALL BE DONE BY THE CONTRACTOR AFTER HE HAS ACHIEVED A SATISFACTORY CHLORINE RESIDUAL TEST. AFTER THE APPLICABLE RETENTION PERIOD, THE HEAVILY CHLORINATED WATER SHALL BE FLUSHED FROM THE PIPELINE UNTIL CHLORINE MEASUREMENTS SHOW THAT THE CONCENTRATION IN THE WATER LEAVING THE PIPELINE IS NO HIGHER THAN THAT GENERALLY PREVAILING IN THE SYSTEM OR IS ACCEPTABLE FOR THE INTENDED USE. IF THERE IS ANY QUESTION THAT THE CHLORINATED DISCHARGE WILL CAUSE DAMAGE TO THE ENVIRONMENT, A REDUCING AGENT SHALL BE APPLIED TO THE WATER TO NEUTRALIZE THOROUGHLY THE CHLORINE RESIDUAL REMAINING IN THE WATER AT NO ADDITIONAL COST.

M* - CITY OF MELISSA REVISION

WATER PIPELINE TESTING AND DISINFECTION



NCTCOG STANDARD SPECIFICATION REFERENCE

506

CITY OF MELISSA, TEXAS

DATE

11/13/08

STANDARD DRAWING NO.

4002CM*

WATER PIPELINE TESTING AND DISINFECTION

- G. DISINFECTION OF CONNECTIONS: PIPE AND APPURTENANCES USED TO CONNECT THE NEWLY INSTALLED WATER MAIN SHALL ALSO BE DISINFECTED IN ACCORDANCE WITH AWWA C651.
- H. NEUTRALIZATION OF CHLORINATED WATER: NEUTRALIZING AND DISPOSING OF CHLORINATED WATER SHALL BE IN ACCORDANCE WITH APPENDIX "B" OF AWWA STANDARD C651.

3.4 BACTERIOLOGICAL TESTING OF DISINFECTED PIPELINES

- A. THE CONTRACTOR SHALL COLLECT A MINIMUM OF 2 SETS OF SAMPLES AT LEAST 24 HOURS APART AFTER COMPLETION OF FINAL FLUSHING AS INDICATED ABOVE. SAMPLES WILL BE TAKEN AT LOCATIONS INDICATED IN ANSI/AWWA C651 AND WILL BE TESTED FOR COLIFORM ORGANISMS AND HETESOTROPHIC PLATE COUNT ACCORDING TO THE LATEST EDITION OF THE STANDARD METHODS FOR THE EXAMINATION OF WATER AND WASTEWATER. LABORATORY COSTS OF TESTING WILL BE THE CONTRACTOR'S RESPONSIBILITY.
- B. SATISFACTORY BACTERIOLOGICAL RESULTS WILL BE
 - a) ABSENCE OF TOTAL AND FECAL COLIFORM AND,
 - b) A HETEROTROPHIC PLATE COUNT LESS THAN 500 CFU.
- C. IF DISINFECTION FAILS TO PRODUCE SATISFACTORY BACTERIOLOGICAL COUNTS, THE PIPE SHALL BE REFLUSHED AND WILL BE RESAMPLED AND RETESTED. IF COUNTS FROM ANALYSIS OF THE SECOND SAMPLES EXCEED THE CRITERIA IN STANDARD METHODS, THE PIPE SHALL BE RE-DISINFECTED AND WILL BE RESAMPLED AND RETESTED UNTIL SATISFACTORY RESULTS ARE OBTAINED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL REPEAT BACTERIOLOGICAL TESTING COSTS.

M* - CITY OF MELISSA REVISION

WATER PIPELINE TESTING AND DISINFECTION



NCTCOG STANDARD SPECIFICATION REFERENCE

506

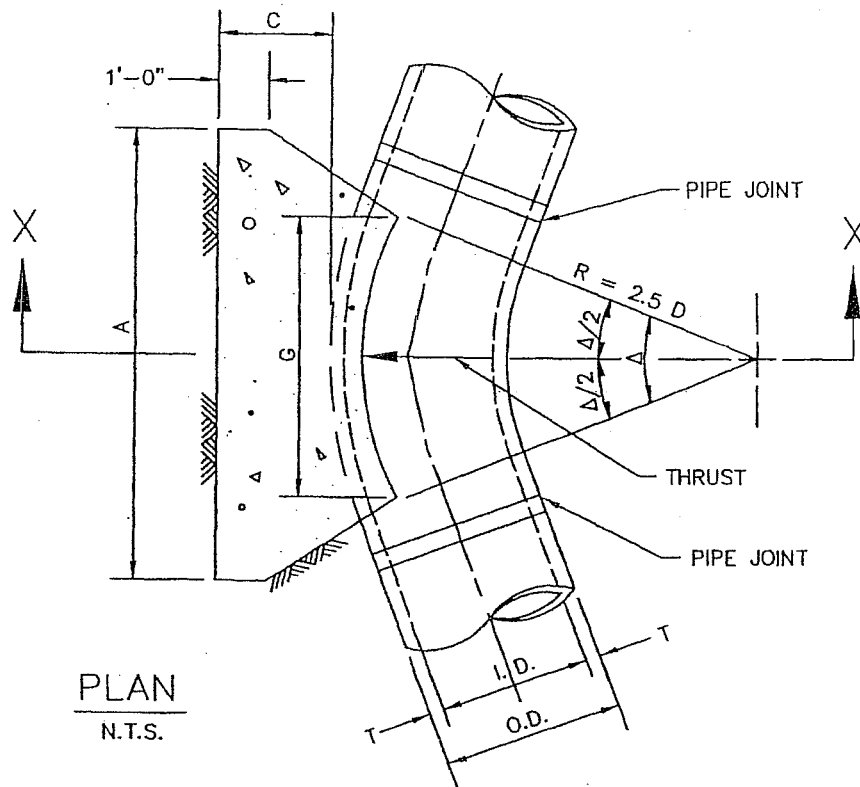
CITY OF MELISSA, TEXAS

DATE

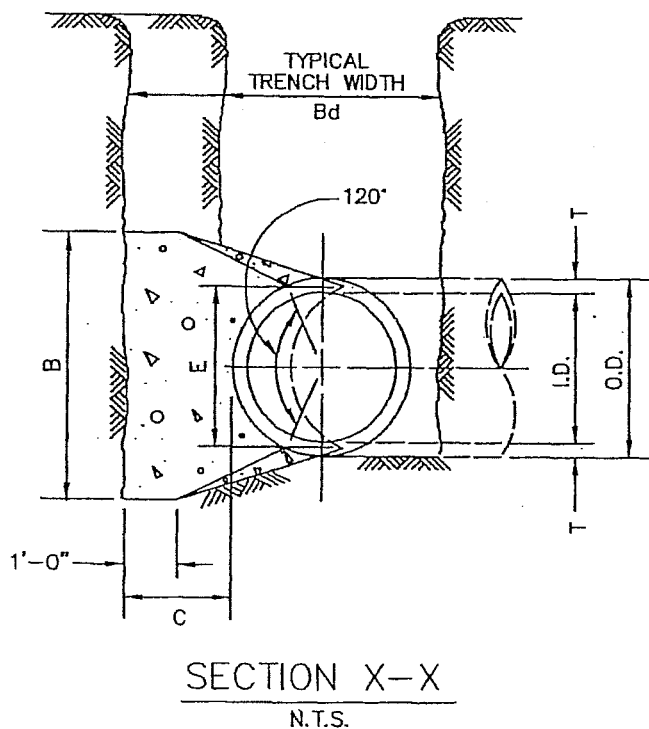
11/13/08

STANDARD DRAWING NO.

4002DM*

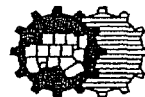


REFER TO
STD. DWG. No. 4040
FOR GENERAL NOTES.



HORIZONTAL THRUST BLOCK AT PIPE BEND

North Central Texas Council of Governments



STANDARD SPECIFICATION REFERENCE
502.4

DATE
OCT. '04

STANDARD DRAWING NO.
4010A

I.D. (IN.)	T (IN.)	$\Delta = 11.25'$ C (FT.)	$\Delta = 22.50'$ C (FT.)	E (FT.)
4,6,8	0.4	1.5	1.5	0.9
10,12	0.5	1.5	1.5	1.2
16,18	0.6	1.5	1.5	1.6
20	0.7	1.5	1.5	1.8
24	0.9	1.5	1.5	2.1
30	2.9	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

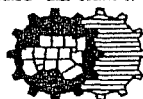
I.D. (IN.)	Δ = 11.25'								I.D. (IN.)	Δ = 22.50'							
	G (FT.)	THRUST (TONS)	EARTH			ROCK				G (FT.)	THRUST (TONS)	EARTH			ROCK		
			A (FT.)	B (FT.)	VOL. (C.Y.)	A (FT.)	B (FT.)	VOL. (C.Y.)				A (FT.)	B (FT.)	VOL. (C.Y.)	A (FT.)	B (FT.)	VOL. (C.Y.)
4,6,8	0.4	1.0	1.0	1.5	0.1	1.0	1.0	0.1	4,6,8	0.8	2.0	1.5	1.5	0.1	1.0	1.0	0.1
10,12	0.6	2.2	1.5	1.5	0.1	1.0	1.5	0.1	10,12	1.1	4.4	2.0	2.5	0.3	1.5	1.5	0.1
16,18	0.8	5.0	2.0	2.5	0.3	1.5	2.0	0.2	16,18	1.6	9.9	3.0	3.5	0.6	2.0	2.5	0.3
20	0.9	6.2	2.0	3.5	0.4	1.5	3.0	0.3	20	1.8	12.3	3.5	3.5	0.7	2.0	3.0	0.4
24	1.1	8.9	3.0	3.5	0.5	1.5	3.0	0.3	24	2.2	17.7	4.0	4.5	1.0	3.0	3.5	0.5
30	1.4	10.4	3.0	3.5	0.6	2.0	3.5	0.4	30	2.7	20.7	5.0	4.5	1.5	3.0	4.0	0.8
36	1.7	15.0	3.5	4.5	0.9	2.0	4.0	0.5	36	3.3	29.8	5.5	5.5	2.3	4.0	4.0	1.3
42	1.9	20.4	4.5	5.0	1.5	2.5	5.0	0.8	42	3.8	40.5	7.0	6.0	3.9	4.5	5.0	2.1
48	2.2	26.6	4.5	6.0	2.0	2.5	6.0	1.1	48	4.4	52.9	8.0	7.0	5.7	4.5	6.0	2.8
54	2.5	33.7	6.0	6.0	3.0	3.0	6.0	1.4	54	4.9	67.0	9.0	8.0	8.0	6.0	6.0	4.1
60	2.7	41.6	6.0	7.0	3.8	3.0	7.0	1.8	60	5.5	82.7	9.5	9.0	10.6	6.0	7.0	5.3
66	3.0	50.3	6.5	8.0	5.1	3.5	8.0	2.7	66	6.0	100.1	10.5	10.0	14.1	6.5	8.0	7.2
72	3.3	59.9	7.5	8.0	6.3	4.0	8.0	3.3	72	6.6	119.1	11.0	11.0	17.6	7.5	8.0	9.1
78	3.6	70.2	8.0	9.0	8.1	4.0	9.0	3.9	78	7.1	139.8	12.0	12.0	22.5	8.0	9.0	11.7
84	3.8	81.5	8.5	10.0	10.3	4.5	10.0	5.3	84	7.6	162.1	13.0	12.5	27.2	8.5	10.0	14.8
90	4.1	93.5	9.5	10.0	12.2	5.0	10.0	6.3	90	8.2	186.1	14.0	13.5	33.7	9.5	10.0	17.7
96	4.4	106.4	10.0	11.0	15.0	5.0	11.0	7.4	96	8.7	211.7	15.0	14.5	41.2	10.0	11.0	21.8

TABLES OF DIMENSIONS AND QUANTITIES

HORIZONTAL THRUST BLOCK

AT PIPE BEND

North Central Texas Council of Governments



STANDARD SPECIFICATION REFERENCE

502.4

DATE

OCT. '04

STANDARD DRAWING NO.

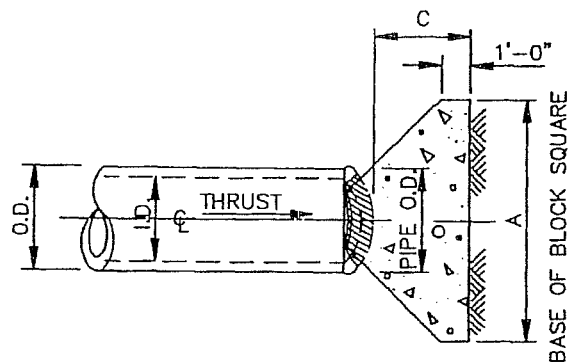
4010B

$\Delta = 30^\circ$									$\Delta = 45^\circ$								
I.D. (IN.)	G (FT.)	THRUST (TONS)	EARTH			ROCK			I.D. (IN.)	G (FT.)	THRUST (TONS)	EARTH			ROCK		
			A (FT.)	B (FT.)	VOL. (C.Y.)	A (FT.)	B (FT.)	VOL. (C.Y.)				A (FT.)	B (FT.)	VOL. (C.Y.)	A (FT.)	B (FT.)	VOL. (C.Y.)
4,6,8	1.0	2.6	2.0	1.5	0.2	1.0	1.5	0.1	4,6,8	1.5	3.9	2.0	2.0	0.2	1.5	1.5	0.1
10,12	1.5	5.9	2.5	2.5	0.3	2.0	1.5	0.2	10,12	2.2	8.7	3.5	2.5	0.5	2.0	2.5	0.3
16,18	2.2	13.2	3.5	4.0	0.8	2.5	3.0	0.4	16,18	3.2	19.5	4.5	4.5	1.2	3.0	3.5	0.6
20	2.4	16.3	4.5	4.0	1.0	3.0	3.0	0.5	20	3.6	24.1	5.5	4.5	1.5	3.5	3.5	0.7
24	2.9	23.4	6.0	4.0	1.4	3.5	3.5	0.7	24	4.3	34.6	8.0	4.5	2.3	4.5	4.0	1.1
30	3.6	27.5	6.5	5.0	1.9	3.5	4.0	0.9	30	5.4	40.6	8.5	5.0	3.2	5.5	4.0	1.6
36	4.4	39.5	7.0	6.0	3.4	4.5	4.5	1.6	36	6.5	58.5	10.0	6.0	5.3	6.5	4.5	2.6
42	5.1	53.8	8.0	7.0	5.1	5.5	5.0	2.5	42	7.5	79.6	11.5	7.0	8.1	8.0	5.0	4.2
48	5.8	70.3	9.0	8.0	7.4	6.0	6.0	3.7	48	8.6	104.0	13.0	8.0	11.9	9.0	6.0	6.3
54	6.5	89.0	10.0	9.0	10.3	7.0	6.5	5.3	54	9.7	131.5	15.0	9.0	17.1	10.5	6.5	8.9
60	7.3	110.0	11.0	10.0	13.9	7.5	7.5	7.3	60	10.7	162.4	16.5	10.0	23.1	11.0	7.5	12.0
66	8.0	132.9	12.5	11.0	18.9	8.5	8.0	9.6	66	11.8	196.5	18.0	11.0	30.1	12.0	8.5	16.2
72	8.7	158.2	13.5	12.0	24.0	9.0	9.0	12.3	72	12.9	233.9	19.5	12.0	38.6	14.0	8.5	20.7
78	9.4	185.6	14.5	13.0	30.0	10.0	9.5	15.6	78	13.9	274.5	21.5	13.0	49.8	14.5	9.5	25.9
84	10.1	215.3	15.5	14.0	37.1	10.5	10.5	19.5	84	15.0	318.4	23.0	14.0	61.2	15.5	10.5	32.6
90	10.9	247.1	16.5	15.0	45.0	11.5	11.0	23.9	90	16.1	365.5	24.5	15.0	74.5	17.5	10.5	39.6
96	11.6	281.2	18.0	16.0	55.5	12.5	11.5	28.9	96	17.1	415.6	26.0	16.0	89.5	18.5	11.5	48.5

$\Delta = 67.50^\circ$									$\Delta = 90^\circ$								
I.D. (IN.)	G (FT.)	THRUST (TONS)	EARTH			ROCK			I.D. (IN.)	G (FT.)	THRUST (TONS)	EARTH			ROCK		
			A (FT.)	B (FT.)	VOL. (C.Y.)	A (FT.)	B (FT.)	VOL. (C.Y.)				A (FT.)	B (FT.)	VOL. (C.Y.)	A (FT.)	B (FT.)	VOL. (C.Y.)
4,6,8	2.1	5.6	3.0	2.0	0.3	2.0	1.5	0.2	4,6,8	2.7	7.1	5.0	1.5	0.4	2.0	2.0	0.2
10,12	3.1	12.6	5.5	2.5	0.8	3.5	2.0	0.4	10,12	4.0	16.0	6.5	2.5	1.0	3.5	2.5	0.5
16,18	4.7	28.3	7.5	4.0	1.9	5.5	3.0	0.9	16,18	6.0	36.0	9.0	4.0	2.4	4.5	4.0	1.0
20	5.2	34.9	9.0	4.0	2.3	5.5	3.5	1.2	20	6.6	44.4	10.0	4.5	3.1	6.0	4.0	1.5
24	6.2	50.3	11.5	4.5	3.5	6.5	4.0	1.6	24	7.9	64.0	14.5	4.5	5.0	8.0	4.0	2.1
30	7.8	58.9	12.0	5.0	4.8	7.5	4.0	2.2	30	9.9	75.0	15.0	5.0	6.7	10.0	4.0	3.3
36	9.4	84.9	14.5	6.0	8.2	9.5	4.5	3.8	36	11.9	108.0	18.0	6.0	11.4	12.0	4.5	5.3
42	10.9	115.5	17.0	7.0	12.8	11.0	5.5	6.3	42	13.9	147.0	21.0	7.0	17.8	14.0	5.5	8.7
48	12.5	150.9	19.0	8.0	18.4	13.0	6.0	9.2	48	15.9	192.0	24.0	8.0	26.2	16.0	6.0	12.4
54	14.0	191.0	21.5	9.0	26.0	15.0	6.5	12.9	54	17.9	243.0	27.0	9.0	36.9	18.0	7.0	18.1
60	15.6	235.8	24.0	10.0	35.6	16.0	7.5	17.6	60	19.9	299.8	30.0	10.0	50.3	20.0	7.5	24.0
66	17.1	285.3	26.0	11.0	46.0	18.0	8.0	23.0	66	21.8	362.8	33.0	11.0	66.2	22.0	8.5	32.5
72	18.7	339.5	28.5	12.0	57.8	19.0	9.0	28.4	72	23.8	431.8	36.0	12.0	85.6	24.0	9.0	41.0
78	20.2	398.5	31.0	13.0	75.7	21.0	9.5	37.4	78	25.7	506.7	39.0	13.0	108.2	26.0	10.0	53.2
84	21.8	462.1	33.5	14.0	94.7	22.0	10.5	46.5	84	27.7	587.7	42.0	14.0	134.4	28.0	10.5	64.8
90	23.3	530.5	35.5	15.0	114.4	24.5	11.0	58.2	90	29.0	674.6	45.0	15.0	164.9	30.0	11.5	81.2
96	24.9	603.6	38.0	16.0	138.9	25.5	12.0	70.0	96	31.6	767.5	48.0	16.0	199.0	32.0	12.0	95.1

TABLES OF DIMENSIONS AND QUANTITIES

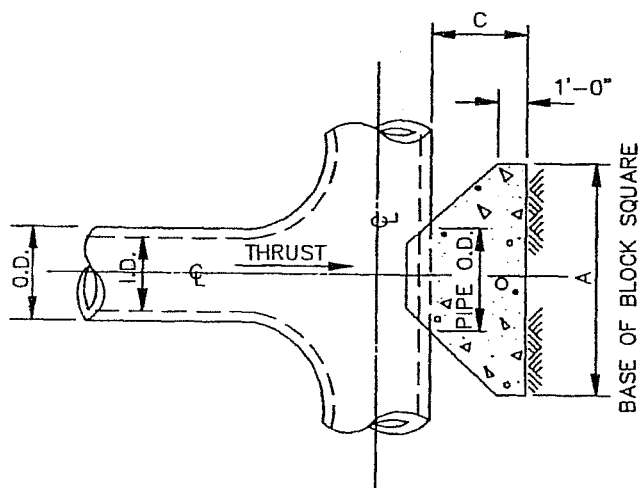
HORIZONTAL THRUST BLOCK	North Central Texas Council of Governments 	STANDARD SPECIFICATION REFERENCE	
AT PIPE BEND		502.4	
		DATE	STANDARD DRAWING NO.
		OCT. '04	4010C



PLAN OF PLUG THRUST BLOCK

N.T.S.

REFER TO
STD. DWG. No. 4040
FOR GENERAL NOTES.



PLAN OF TEE THRUST BLOCK

N.T.S.

I.D. (IN.)	THRUST (TONS)	C (FT.)	EARTH		ROCK	
			A (FT.)	VOL. (C.Y.)	A (FT.)	VOL. (C.Y.)
4,6,8	5.1	1.5	2.5	0.3	2.0	0.2
10,12	11.3	1.5	3.5	0.6	2.5	0.3
16,18	25.5	2.0	5.5	1.6	4.0	0.9
20	31.5	2.0	6.0	1.9	4.0	0.9
24	45.2	2.5	7.0	3.1	5.0	1.7
30	53.0	3.0	7.5	4.1	5.5	2.4
36	76.3	4.0	9.0	7.3	6.5	4.2
42	104.0	4.5	10.5	11.0	7.5	6.2
48	136.0	5.0	12.0	15.6	8.5	8.7
54	172.0	5.5	13.5	21.4	9.5	11.9
60	212.0	6.0	15.0	28.4	10.5	15.7
66	257.0	6.5	16.5	36.8	11.5	20.5
72	305.0	7.5	17.5	47.2	12.5	27.2
78	358.0	8.0	19.0	58.9	13.5	33.7
84	416.0	8.5	20.5	72.3	14.5	41.2
90	477.0	9.0	22.0	87.7	15.5	49.7
96	543.0	9.5	23.5	104.8	16.5	61.0

HORIZONTAL THRUST BLOCK
AT TEES AND PLUGS

North Central Texas Council of Governments



STANDARD SPECIFICATION REFERENCE

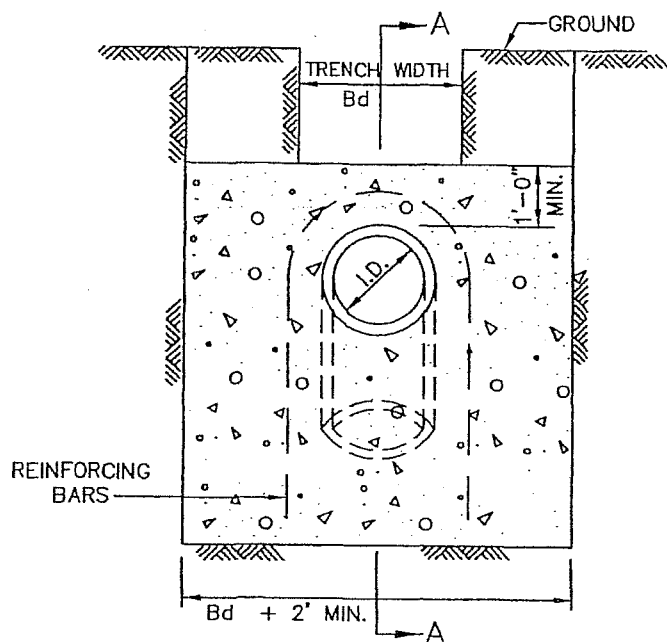
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DATE

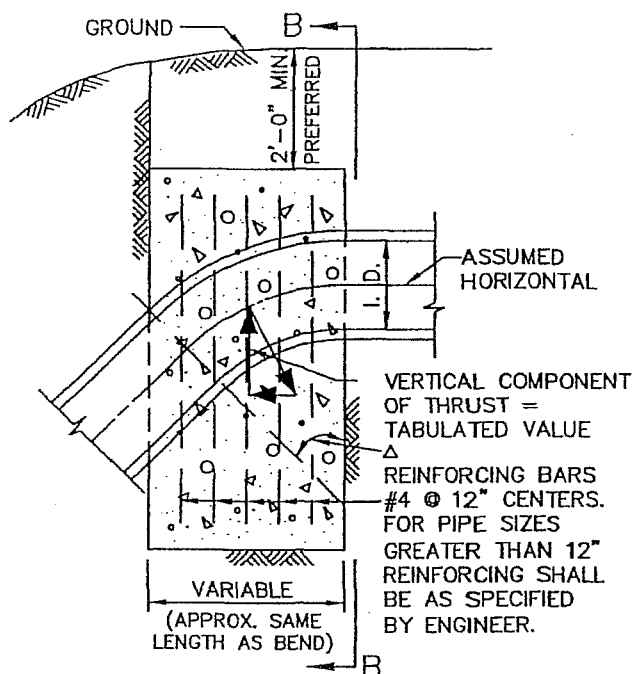
OCT. '04

STANDARD DRAWING NO.

4020



ELEVATION "B-B"
N.T.S.



SECTION "A-A"
N.T.S.

REFER TO
STD. DWG. No. 4040
FOR GENERAL NOTES.

Δ →	11.25'		22.50'		30'		45'		67.50'		90'		← Δ
I.D. (IN.)	THRUST (TONS)	VOL. (C.Y.)	THRUST (TONS)	VOL. (C.Y.)	THRUST (TONS)	VOL. (C.Y.)	THRUST (TONS)	VOL. (C.Y.)	THRUST (TONS)	VOL. (C.Y.)	THRUST (TONS)	VOL. (C.Y.)	I.D. (IN.)
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	5.0	2.5	9.7	4.9	12.7	6.4	18.0	9.0	23.5	11.8	25.5	12.7	16,18
20	6.1	3.1	12.0	6.0	15.7	7.9	22.2	11.1	29.2	14.5	31.4	15.7	20
24	8.2	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	14.9	7.5	29.2	14.6	38.2	19.1	54.0	27.0	70.5	35.3	76.4	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	59.6	29.8	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	166.0	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	106.0	53.0	208.0	104.0	272.0	136.0	384.0	192.0	502.0	251.0	543.0	272.0	96

VERTICAL THRUST BLOCK

AT PIPE BEND

North Central Texas Council of Governments



STANDARD SPECIFICATION REFERENCE

502.4

DATE

OCT. '04

STANDARD DRAWING NO.

4030

GENERAL NOTES FOR ALL THRUST BLOCKS:

1. CONCRETE FOR BLOCKING SHALL BE CLASS "B".
2. ALL CALCULATIONS ARE BASED ON INTERNAL PRESSURE OF 200 PSI FOR DUCTILE IRON, P.V.C., AND 150 PSI FOR CONCRETE PIPE.
3. VOLUMES OF THRUST BLOCKS ARE NET VOLUMES OF CONCRETE TO BE FURNISHED. THE CORRESPONDING WEIGHT OF THE CONCRETE (CLASS "B") IS EQUAL TO OR GREATER THAN THE VERTICAL COMPONENT OF THE THRUST ON THE VERTICAL BEND.
4. WALL THICKNESS (T) ASSUMED HERE FOR ESTIMATING PURPOSES ONLY.
5. POUR CONCRETE FOR BLOCK AGAINST UNDISTURBED EARTH.
6. 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.
7. THE SOIL BEARING PRESSURES ARE BASED ON 1000 LBS./S.F. IN SOIL AND 2000 LBS./S.F. IN ROCK.
8. USE POLYETHYLENE WRAP OR EQUAL BETWEEN CONCRETE AND BEND, TEE, OR PLUG TO PREVENT THE CONCRETE FROM STICKING TO IT.
9. CONCRETE SHALL NOT EXTEND BEYOND JOINTS.

THRUST BLOCK

GENERAL NOTES

North Central Texas Council of Governments



STANDARD SPECIFICATION REFERENCE

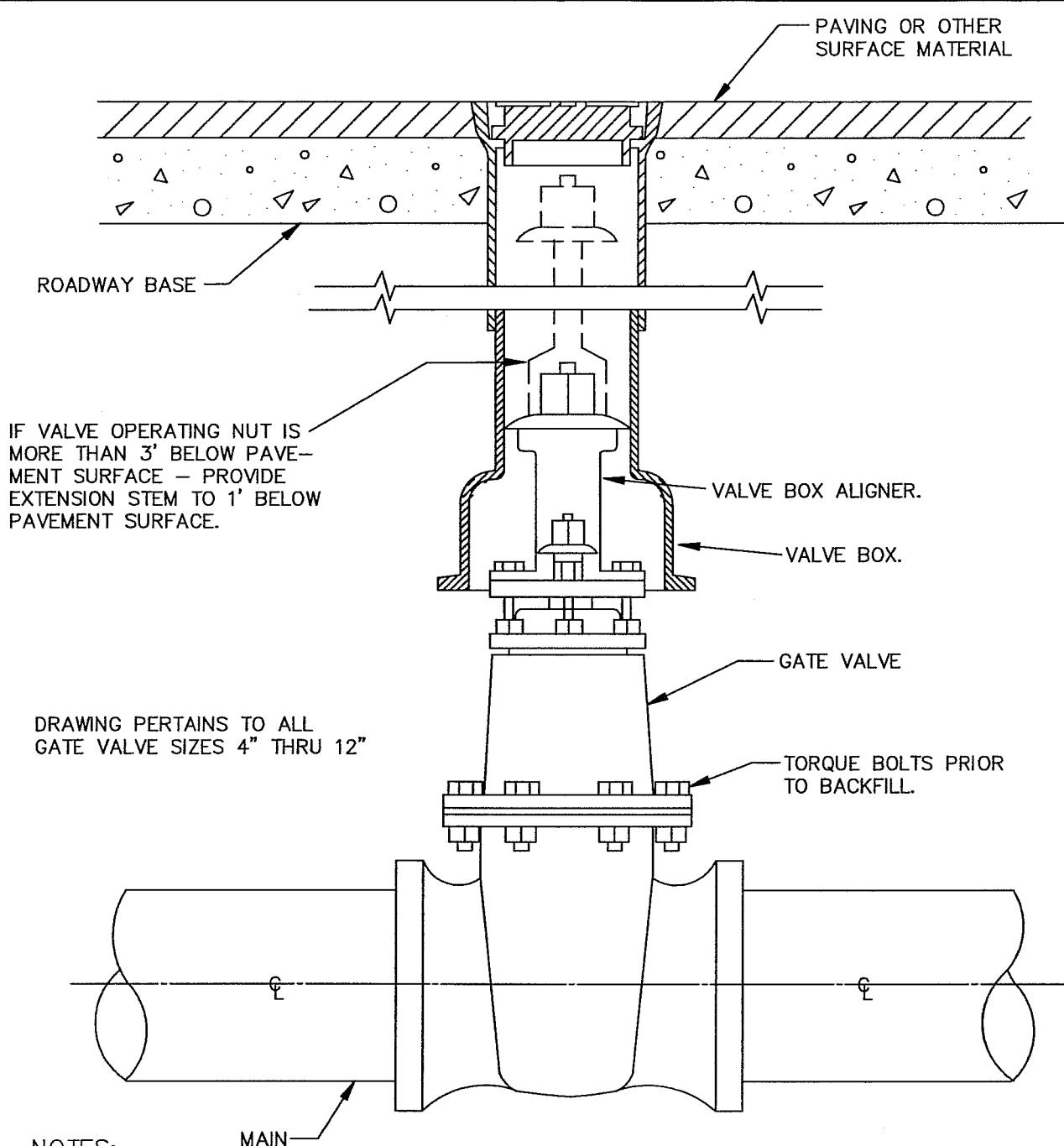
502.4

DATE

OCT. '04

STANDARD DRAWING NO.

4040



NOTES:

1. IN UNPAVED AREAS, INSTALL 2'x2'x6" CONCRETE VALVE PAD FLUSH WITH THE TOP OF VALVE BOX. REINFORCE WITH #3 BARS ON 6" CENTERS BOTH WAYS.
2. ALL VALVES SHALL BE MARKED ON THE CURB WITH A SAWED "V" AND A BLUE VALVE MARKER CENTERED ON THE "V".
3. ALL VALVE BOX COVERS SHALL BE PAINTED BLUE.
4. ALL VALVES WILL BE CONSTRUCTED WITH GATE BOX ALIGNER USA BLUE BOOK MODEL NUMBER 75181

GATE VALVE BOX AND EXTENSION STEM
N.T.S.

M* - CITY OF MELISSA REVISION

GATE VALVE 4" TO 12"
BOX & EXTENSION STEM



NCTCOG STANDARD SPECIFICATION REFERENCE

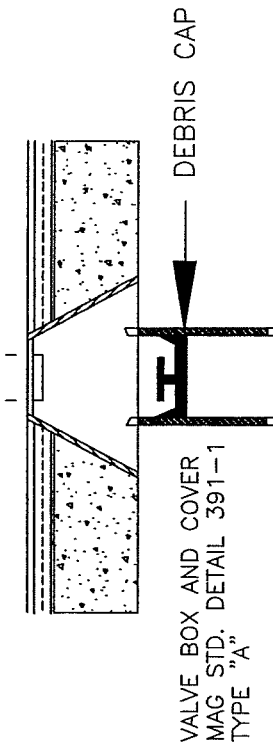
502.6

DATE

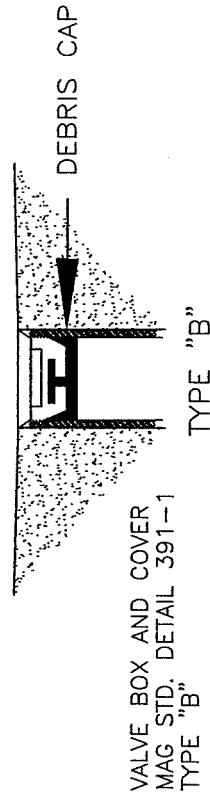
11/13/08

STANDARD DRAWING NO.

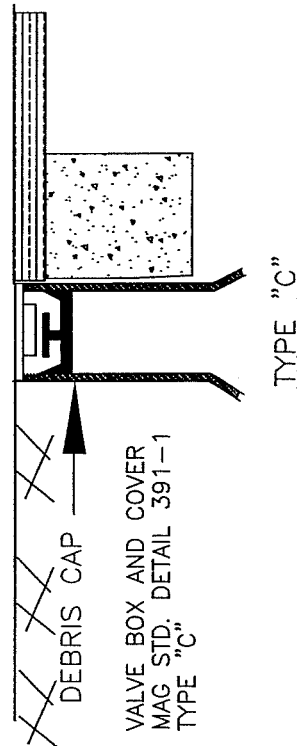
4050M*



TYPE "A"



TYPE "B"



TYPE "C"

NOTES

1. THE DEBRIS CAP SHALL BE DESIGNED AND INSTALLED TO PREVENT DEBRIS SUCH AS DIRT, DUST, SAND ETC., FROM PASSING AROUND THE CAP AND DOWN INTO THE VALVE HOUSING. THE CAP SHALL BE HELD IN PLACE BY A MECHANISM WHICH WILL NOT DAMAGE THE VALVE HOUSING. ONCE INSTALLED THE CAP MUST WITHSTAND, WITHOUT SLIPPAGE, A MINIMUM VERTICAL FORCE OF 50 POUNDS, AT A LOADING RATE OF 1.0 IN./MINUTE.
2. THE CAP SHALL BE MANUFACTURED OF CORROSIVE RESISTANT MATERIALS.
3. DEBRIS CAP SHALL BE INSTALLED AS CLOSE UNDER THE CAST IRON COVER WITHOUT INTERFERING WITH COVER OPERATION.
4. THE CAP SHALL BE CAPABLE OF SECURELY HOLDING A STANDARD LOCATING COIL, "SCOTCH MARK" 4 DISK MARKER BY 3M OR EQUAL.
5. THE CAP SHALL BE CONSTRUCTED TO ALLOW THE DEVICE TO BE SECURED BY A LOCK. THE LOCK (PAD, BARREL, ETC.) SHALL BE SUPPLIED BY THE AGENCY.
6. THE HANDLE AND/OR BODY OF THE CAP SHALL BE INTEGRALLY COLORED IF REQUIRED BY THE AGENCY. IF REQUIRED THE COLOR SHALL CONFORM TO THE ONE CALL LOCATING SERVICE (BLUE STAKE) COLORS (ARS 40-360.21)
7. THE CAP SHALL BE INSTALLED IN ALL VALVE HOUSINGS AS REQUIRED BY THE CONTRACT DOCUMENTS OR BY THE AGENCY'S POLICIES.
8. THE DEBRIS CAP SHALL BE MANUFACTURED BY SW SERVICES, INC., PHOENIX, ARIZONA OR EQUAL.



DEBRIS CAP

CITY OF MELISSA

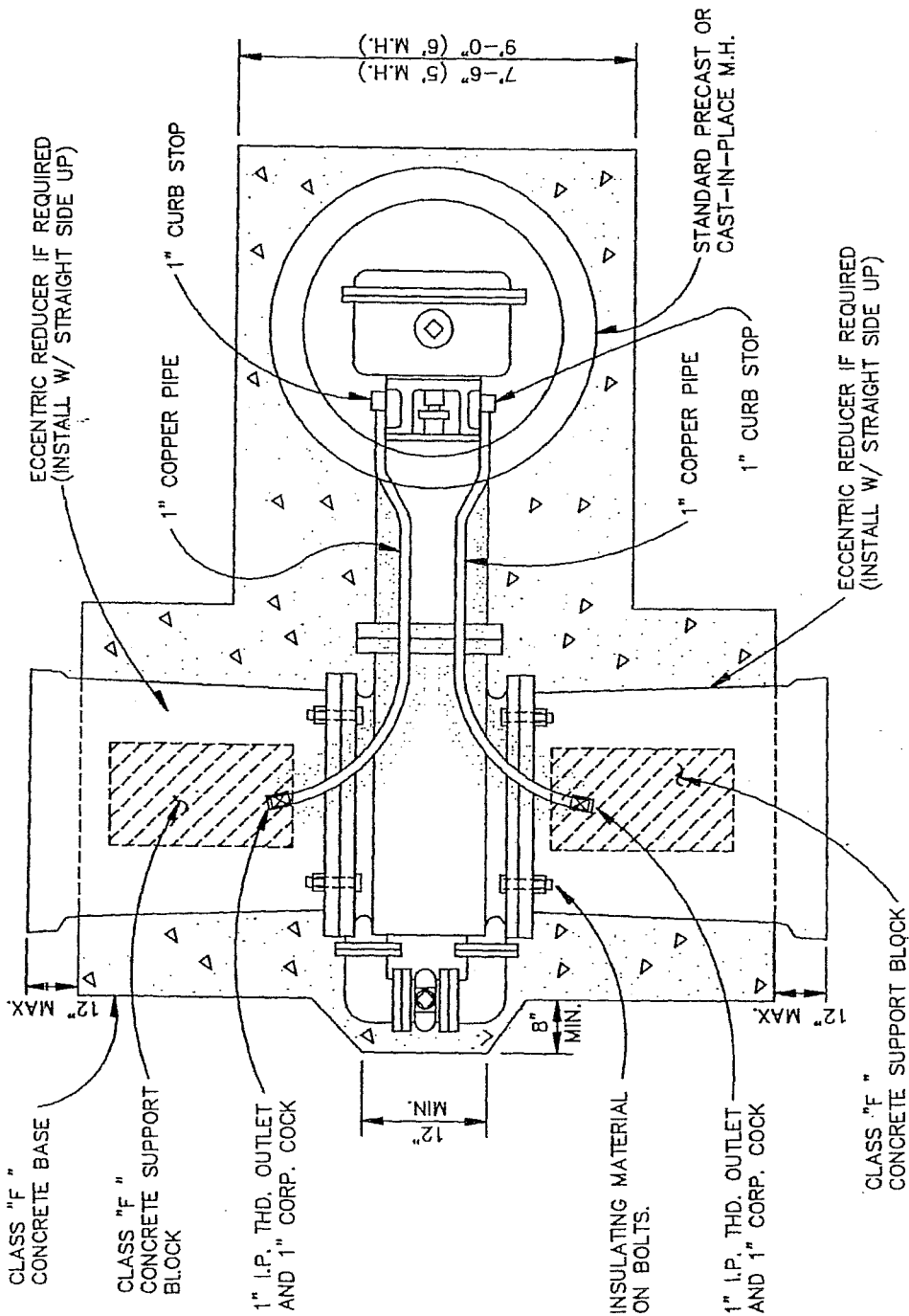
STANDARD SPECIFICATION REFERENCE

DATE

NOV. '04

STANDARD DRAWING NO.

4051M*

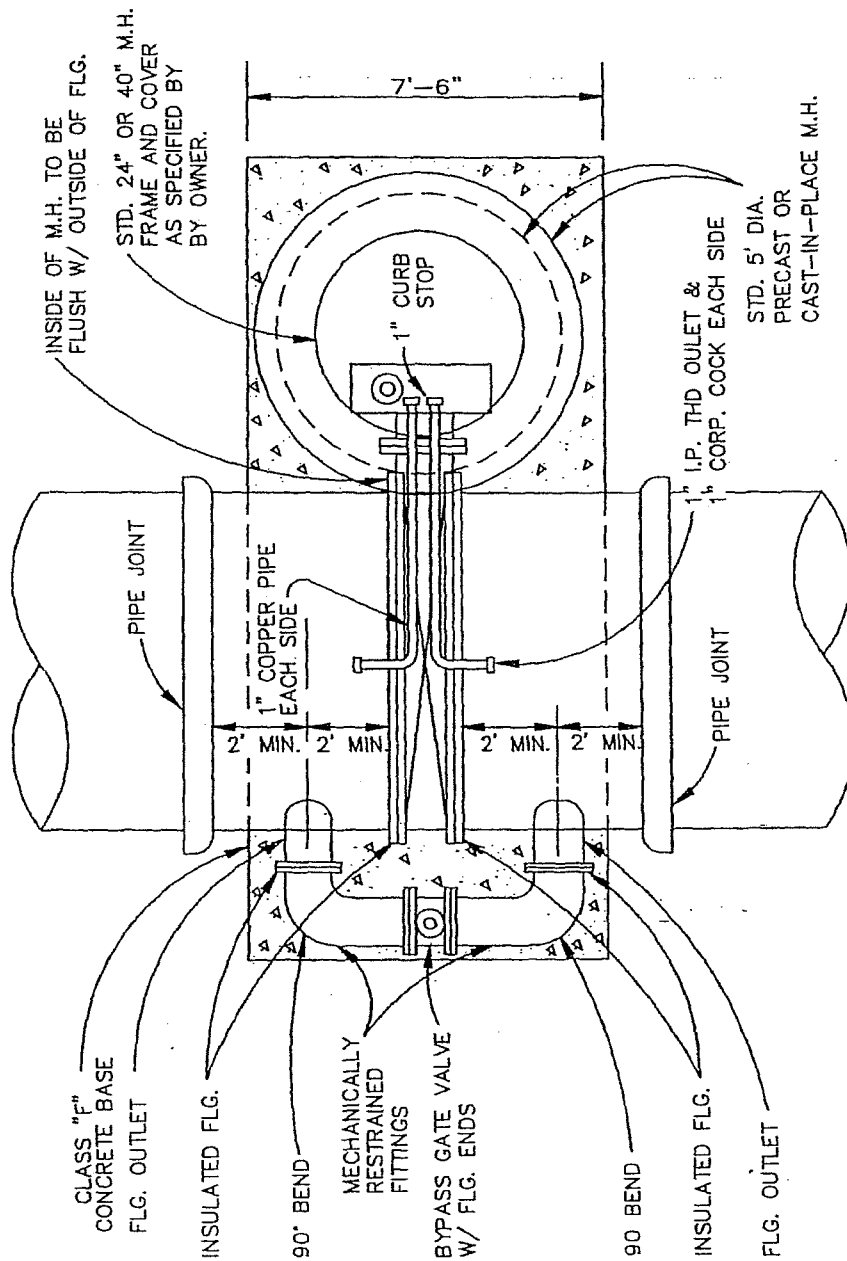


PLAN
N.T.S.

STANDARD SPECIFICATION REFERENCE 702.4	DATE OCT. '04	STANDARD DRAWING NO. 4060A
North Central Texas Council of Governments		
VAULT CONSTRUCTION		
HORIZONTAL GATE VALVE $\geq 16"$		



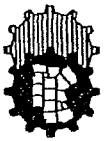
STANDARD DRAWING NO.
4060A



PLAN
N.T.S.

STANDARD SPECIFICATION REFERENCE		702.4	
DATE	OCT. '04	STANDARD DRAWING NO.	4080A

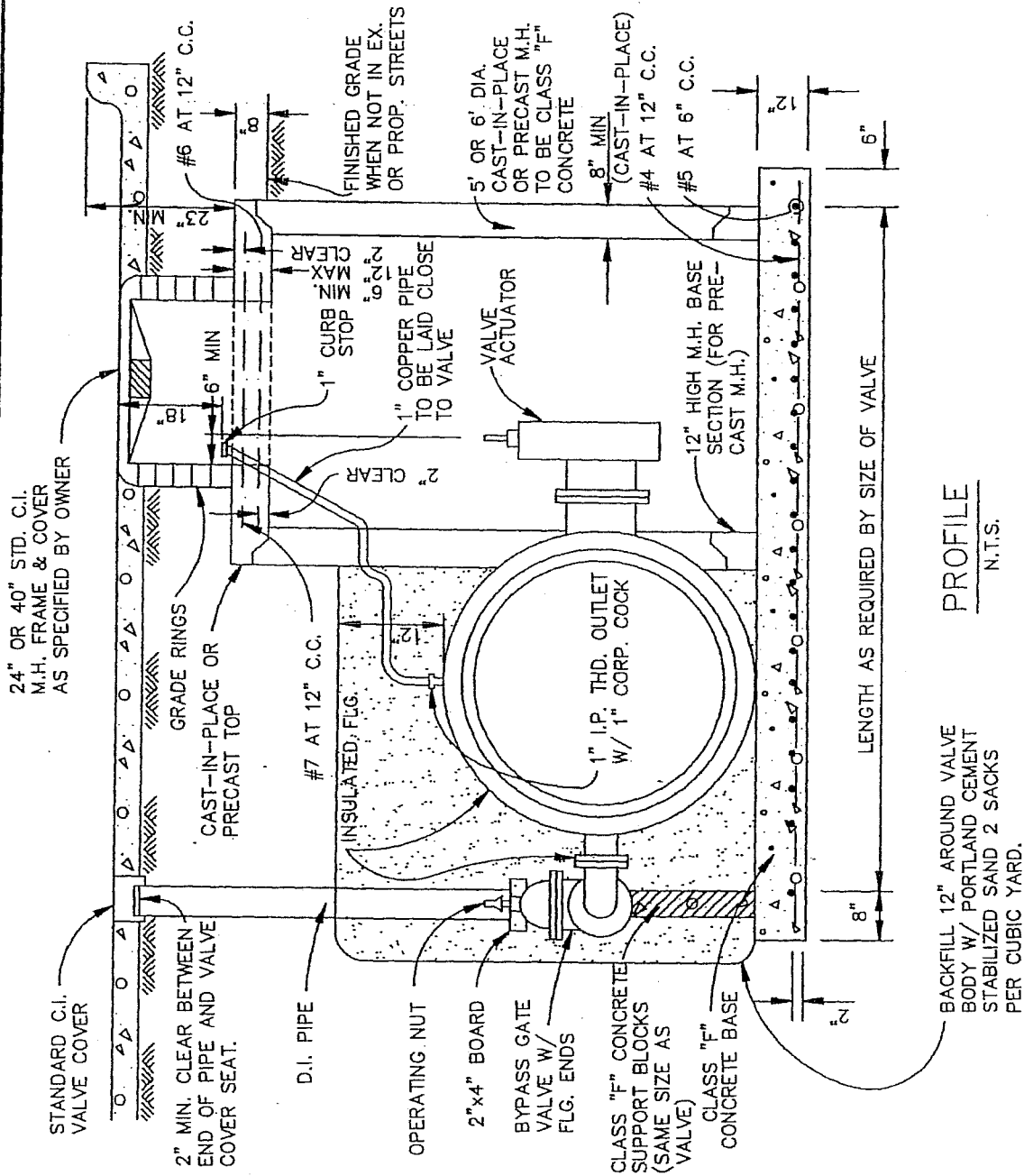
North Central Texas Council of Governments



VAULT CONSTRUCTION

BUTTERFLY VALVE $\geq 48"$

STANDARD DRAWING NO.
4080A



BACKFILL 12" AROUND VALVE
BODY W/ PORTLAND CEMENT
STABILIZED SAND 2 SACKS
PER CUBIC YARD.

PROFILE
N.T.S.

STANDARD SPECIFICATION REFERENCE

702.4

STANDARD DRAWING NO.

OCT. '04

4080B

North Central Texas Council of Governments



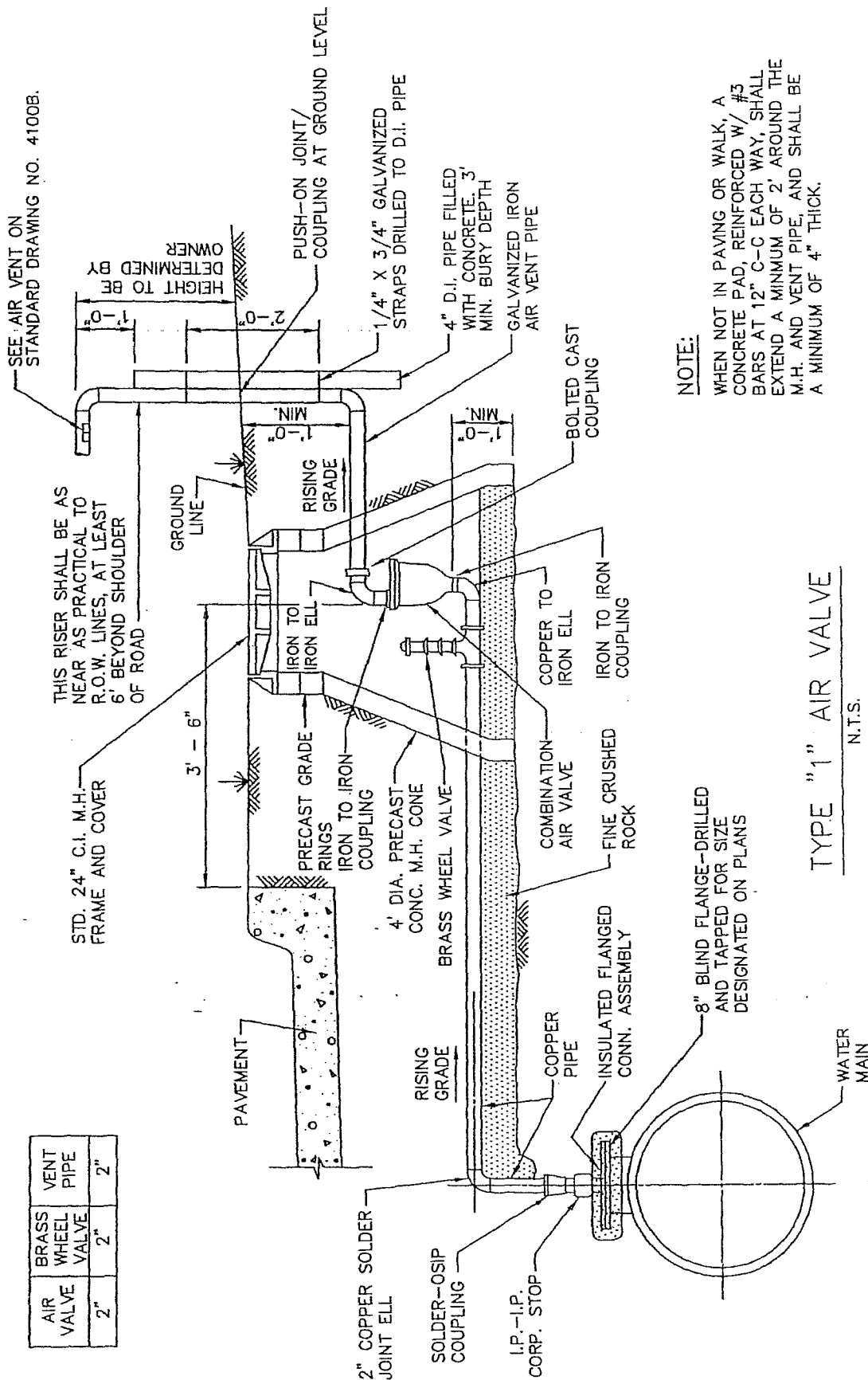
VAULT CONSTRUCTION

BUTTERFLY VALVE $\geq 48"$

STANDARD DRAWING NO.

4080B

AIR VALVE	2"
BRASS WHEEL VALVE	2"
VENT PIPE	2"



NOTE:

WHEN NOT IN PAVING OR WALK, A CONCRETE PAD, REINFORCED W/ #3 BARS AT 12" C-C EACH WAY, SHALL EXTEND A MINIMUM OF 2' AROUND THE M.H. AND VENT PIPE, AND SHALL BE A MINIMUM OF 4" THICK.

TYPE "1" AIR VALVE

N.T.S.

STANDARD DRAWING NO. 4090

COMBINATION AIR VACUUM VALVE

TYPE "1"

North Central Texas Council of Governments



STANDARD SPECIFICATION REFERENCE

502.6

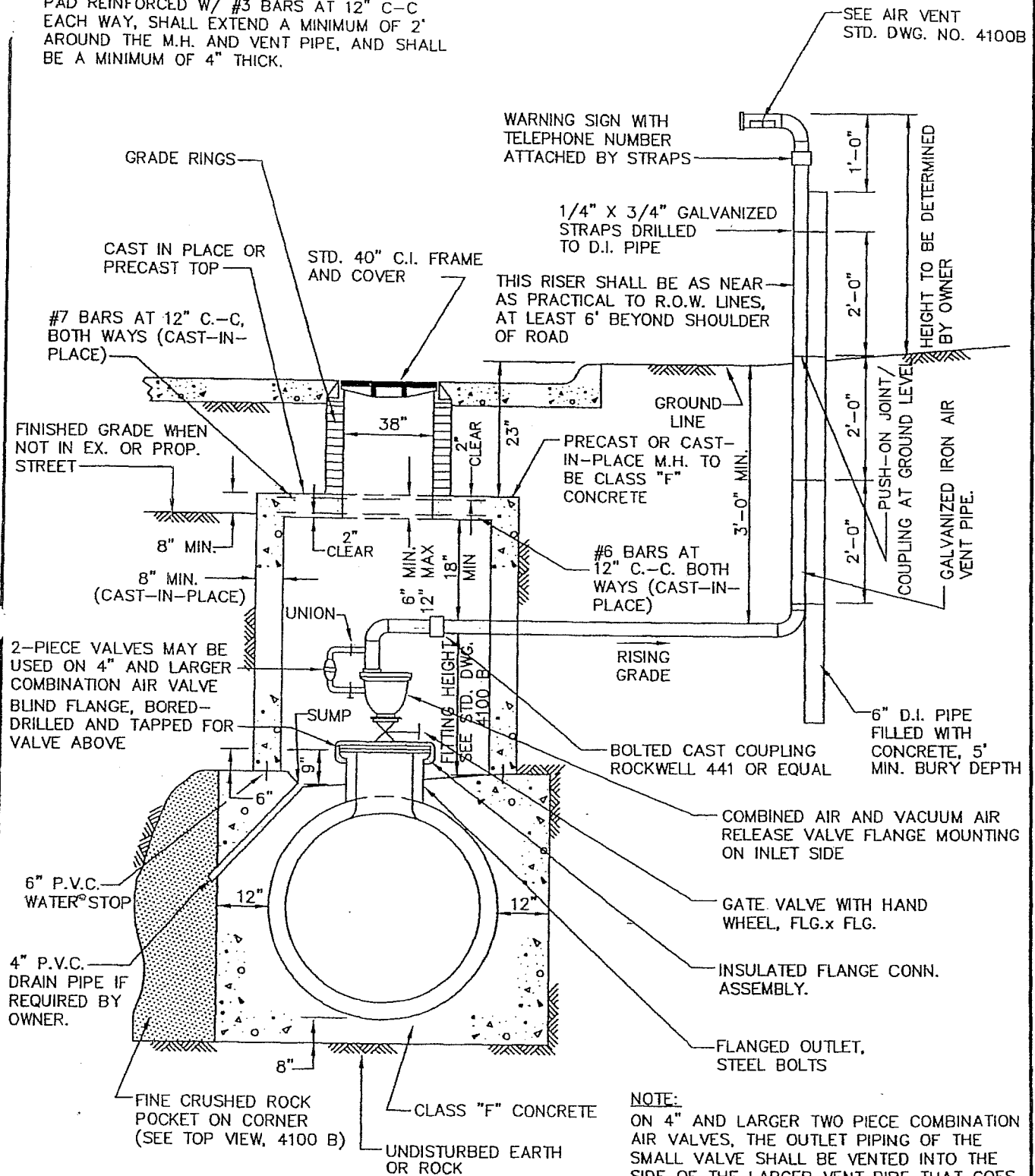
DATE

OCT. '04

STANDARD DRAWING NO.

4090

WHEN NOT IN PAVING OR WALK, A CONCRETE PAD REINFORCED W/ #3 BARS AT 12" C-C EACH WAY, SHALL EXTEND A MINIMUM OF 2' AROUND THE M.H. AND VENT PIPE, AND SHALL BE A MINIMUM OF 4" THICK.



N.T.S.

TYPE "2"

North Central Texas Council of Governments



STANDARD SPECIFICATION REFERENCE

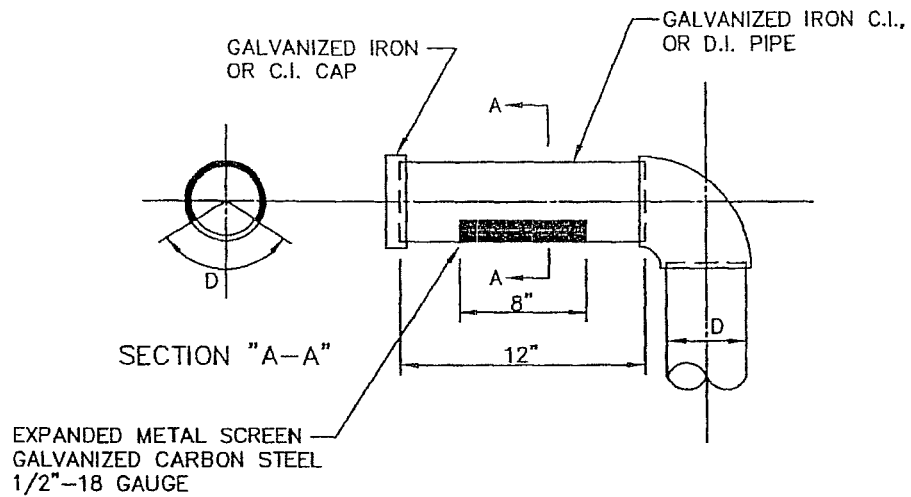
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DATE _____

OCT. '04

STANDARD DRAWING NO.

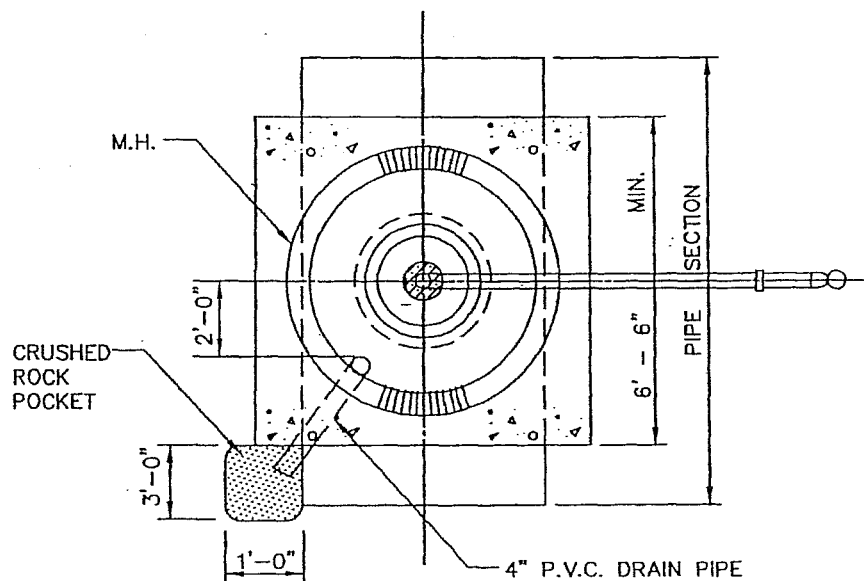
4100A



AIR VENT

N.T.S.

AIR VALVE	GATE VALVE	FLG. OUTLET	MIN. FITTING HEIGHT	VENT PIPE D	M.H. DIA.
2"	2"	8"	26"	2"	5'
3"	3"	18"	31"	3"	5'
4"	4"	18"	38"	4"	5'
6"	6"	18"	46"	6"	5'
8"	8"	18"	53"	8"	6'
10"	10"	20"	62"	10"	6'
12"	12"	24"	72"	12"	6'



PLAN VIEW

N.T.S.

AIR RELEASE VALVE
TYPE "2"

North Central Texas Council of Governments



STANDARD SPECIFICATION REFERENCE

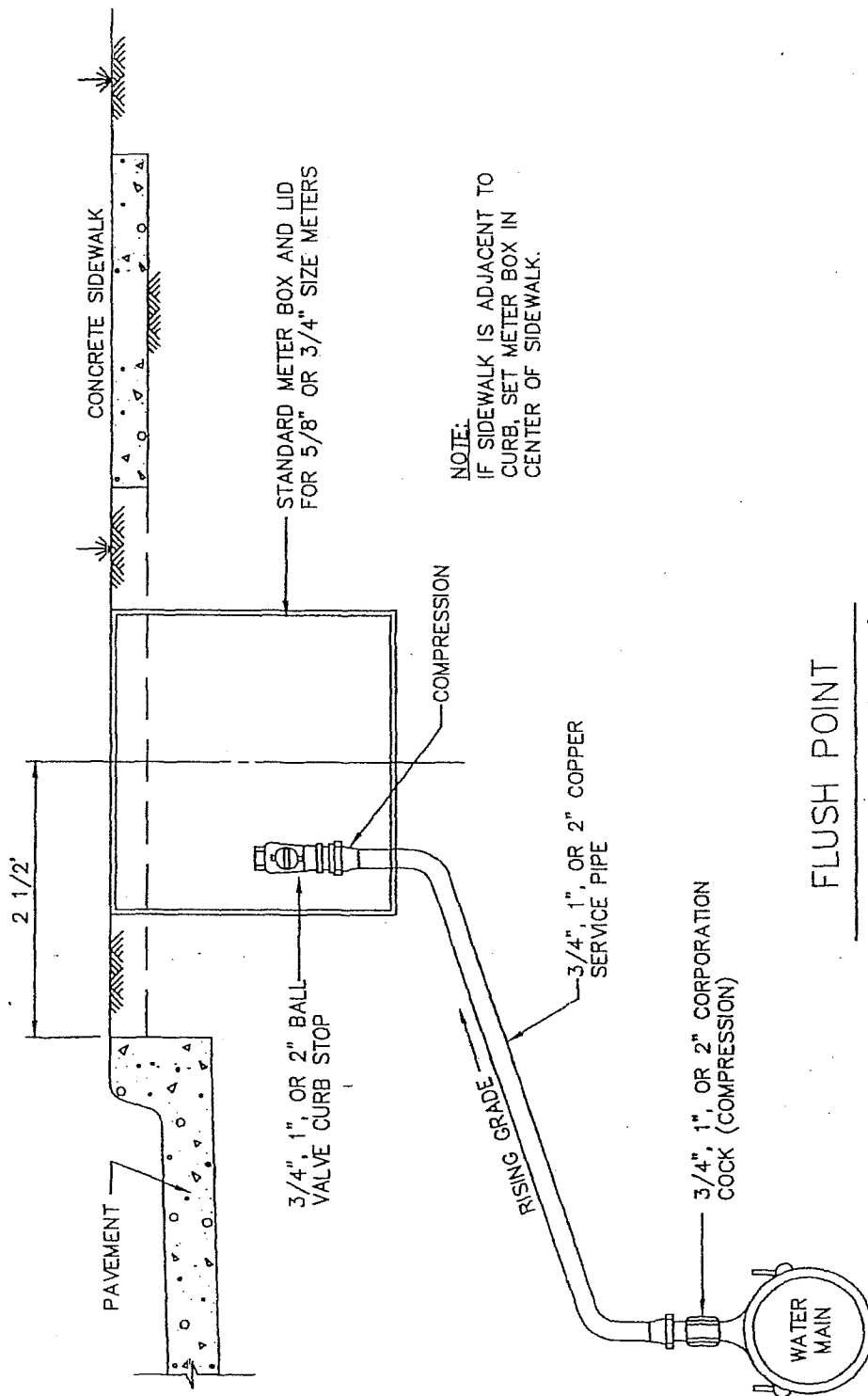
502.6

DATE

OCT. '04

STANDARD DRAWING NO.

4100B



FLUSH POINT

(SIZE DESIGNATED ON PLANS)
N.T.S.

FLUSH POINT INSTALLATION

TYPE "1"

North Central Texas Council of Governments



STANDARD SPECIFICATION REFERENCE
502.10

DATE
OCT. '04

STANDARD DRAWING NO.
4110

STANDARD DRAWING NO.
4110

MUELLER SUPER CENTURION 250 FIRE HYDRANT WITH SAFETY FLANGE

WATER MAIN SIZE	COLOR
6"	red
8"	blue
10"	green
12"	yellow
14" or larger	silver

*FIRE HYDRANTS SHALL BE ORDERED FROM MUELLER IN FACTORY RED ENAMEL FINISH. TOP AND SIDE CAPS WILL BE FIELD PAINTED WITH TWO COATS OF TNE MEC HI-BUILD SAFETY PAINT IN ACCORDANCE TO WATER MAIN SIZE AS LISTED ABOVE.

3'-6" USUAL
3'-0" MIN.
8'-0" MAX.

2" MIN.
6" MAX.

FINISH GRADE AT HYDRANT

3' X 3'
CONC. PAD
CLASS "A"
CONCRETE, IN
UNPAVED AREAS

MIN. 7 CUBIC FEET OF
WASHED GRAVEL OR
CLEAN STONE FILL

THRUST BLOCK MUST
NOT BLOCK WEEP HOLE

VALVE (REF. DETAIL 4050M*)

6" nom. at 25' MAX otherwise 8" PVC

FIRE HYDRANT INSTALLATION

STANDARD DRAWING NO.
4120M*

NOTES:

1. IN GENERAL, ALL FIRE HYDRANTS SHALL CONFORM TO AWWA STANDARD SPECIFICATIONS FOR FIRE HYDRANTS FOR ORDINARY WATER WORKS SERVICE, C-502. FIRE HYDRANTS SHALL HAVE A 5 1/4" MIN. VALVE OPENING AND A BARREL APPROXIMATELY 7" INSIDE DIAMETER. ALL HYDRANTS SHALL BE EQUIPPED WITH A BREAKAWAY FLANGE.
2. ALL JOINTS SHALL BE MECHANICAL JOINTS.
3. TYPICAL VALVE: ACTUAL VALVE LOCATION WILL DEPEND ON LOCATION OF WATER MAIN.
4. F.H. NO CLOSER THAN 18" TO EXISTING OR PROPOSED SIDEWALKS. (USUAL)
5. STANDARD BURY DEPTH 5' FEET WITH 6' MAXIMUM.
6. SET FIRE HYDRANT ON THE LOT LINE EXTENDED WHEN POSSIBLE.
7. F.H. SHALL BE LOCATED MINIMUM 1 FT. OUTSIDE OF THE AREA BETWEEN THE P.C.'S OF THE CORNER TURNING RADII AT INTERSECTIONS. (SEE PLAN VIEW)

RESTRAINED JOINT
(BEFORE VALVE)

8" MIN.

1' MIN.

P.C.

F.H.

PLAN VIEW
N.T.S.

VARIABLE

M* - CITY OF MELISSA REVISION

NCTCOG STANDARD SPECIFICATION REFERENCE

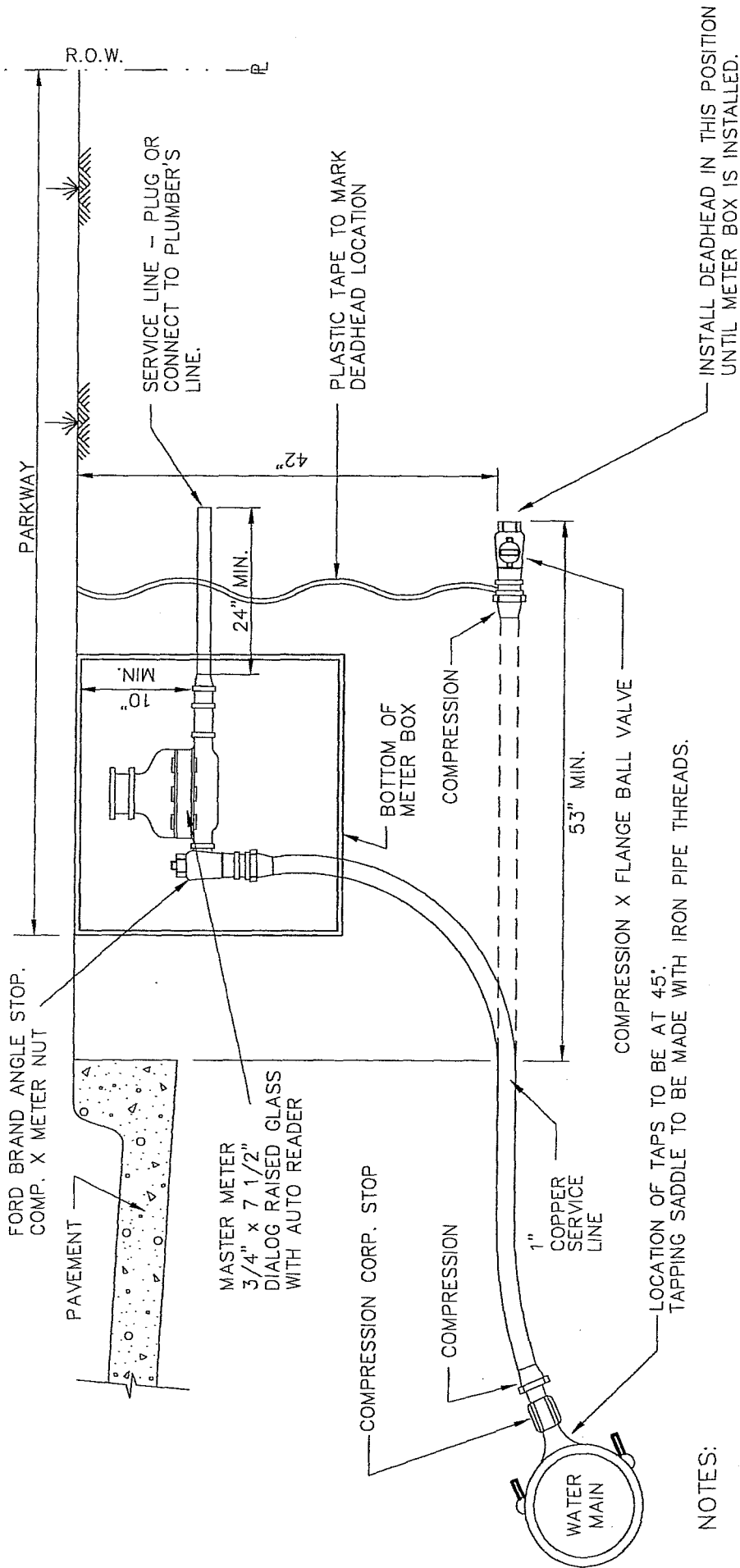
502.3

DATE

07/07/09

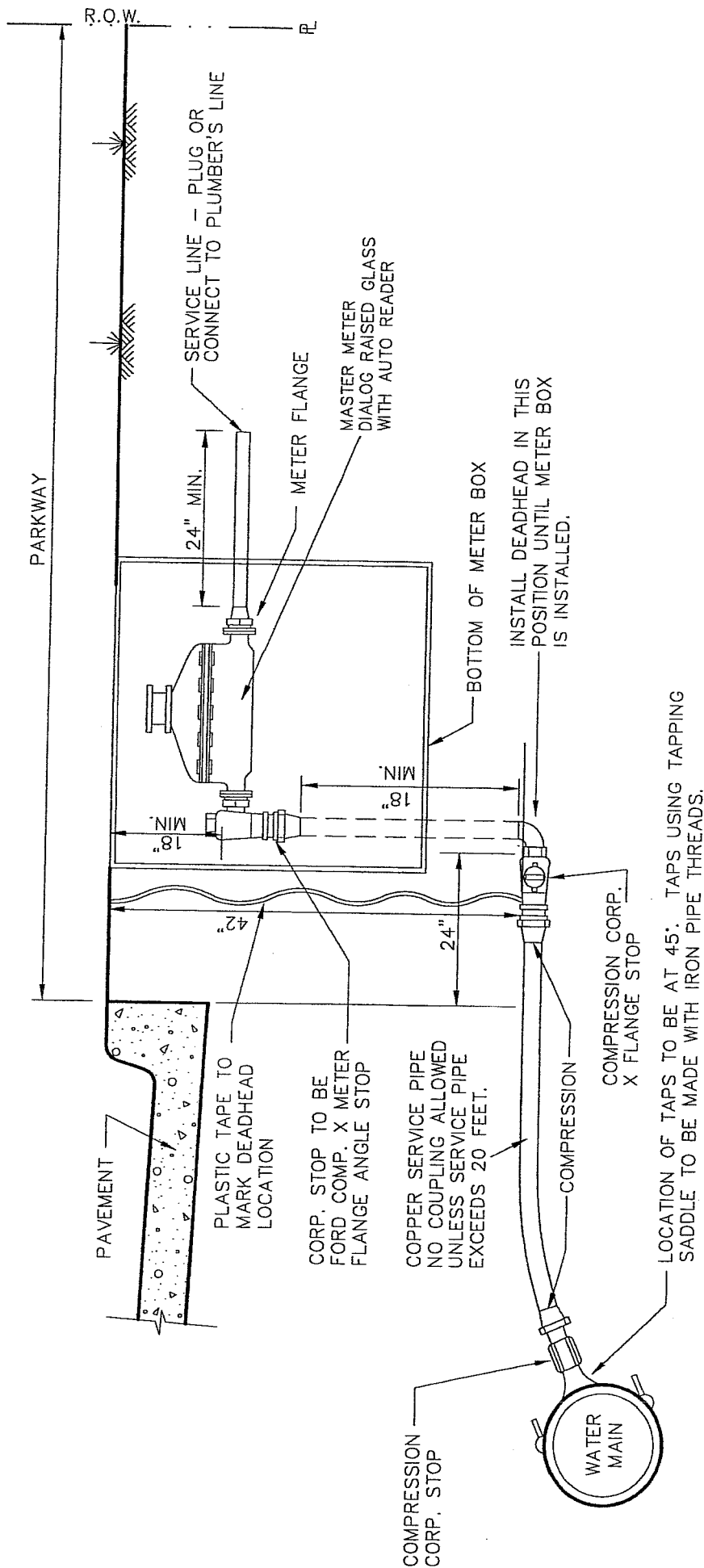
STANDARD DRAWING NO.

4120M*



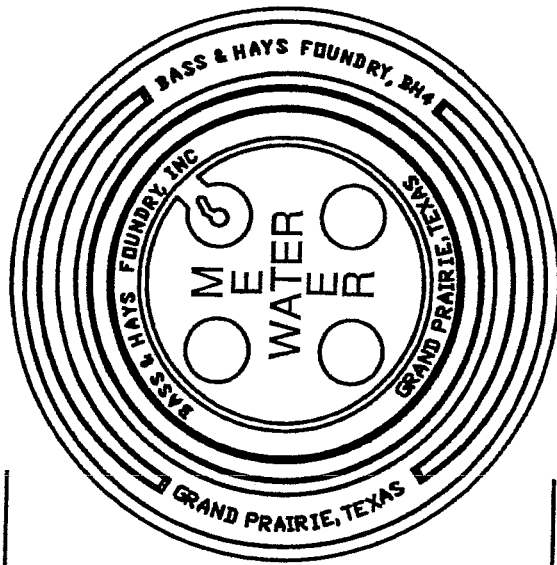
NOTES:

1. METER LOCATION TO BE AT PROPERTY LINES.
2. METER SHALL NOT BE LOCATED WITH IN SIDEWALKS OR DRIVEWAYS.
3. THE METER AND AUTOMATIC METER READER SHALL BE PROVIDED AND INSTALLED BY THE CITY OF MELISSA AT DEVELOPER'S EXPENSE.
4. METER BOXES SHALL BE CORRUGATED METAL FOR AREAS OF TRAFFIC AND PLASTIC FOR NON TRAFFIC AREAS.

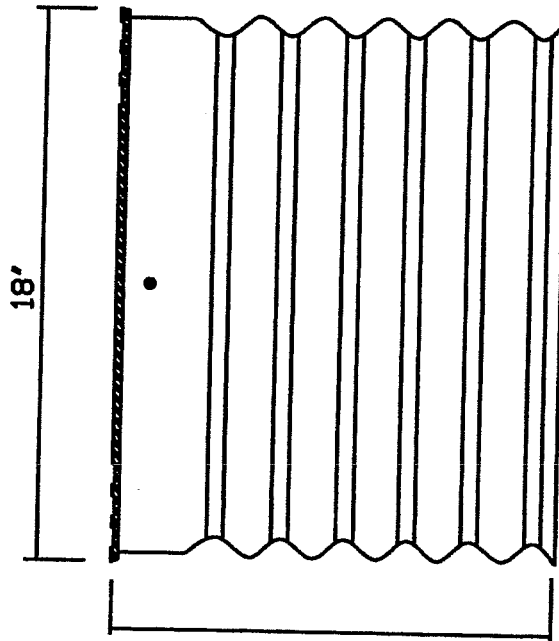


NOTES:

1. METER LOCATION TO BE AT PROPERTY LINES.
2. METER SHALL NOT BE LOCATED WITH IN SIDEWALKS OR DRIVEWAYS.
3. THE METER AND AUTOMATIC METER READER SHALL BE PROVIDED AND INSTALLED BY THE CITY OF MELISSA AT DEVELOPER'S EXPENSE.
4. METER BOXES SHALL BE CORRUGATED METAL FOR AREAS OF TRAFFIC AND PLASTIC FOR NON TRAFFIC AREAS.



18"



Height

34 SERIES GALVANIZED METER BOXES WITH 18" DIA. CORRUGATED CANS

PART NO.	SLOT	HEIGHT	WEIGHT
34A		14"	40 LBS
34A1S	1	14"	40 LBS
34B		18"	43 LBS
34B1S	1	18"	43 LBS
34B2S	2	18"	43 LBS
34C		24"	47 LBS
34C1S		24"	47 LBS
34D		30"	51 LBS
34E		36"	56 LBS
34F		42"	62 LBS
34G		48"	70 LBS
34I		60"	95 LBS

FOR METERS 1 1/2"-2", A RECTANGLE PLASTIC REINFORCED METER BOX MEASURING 16"x22"x12" IS TO BE USED IN NON TRAFFIC AREAS.

FOR METERS LARGER THAN 2", A VAULT IS TO BE USED.

FOR STANDARD 3/4" METERS, A RECTANGLE PLASTIC REINFORCED BOX MEASURING 12"x16"x12" IS TO BE USED IN NON TRAFFIC AREAS.



WATER METER BOX DETAIL

M* - CITY OF MELISSA REVISION

NTCOG STANDARD SPECIFICATION REFERENCE

502

DATE

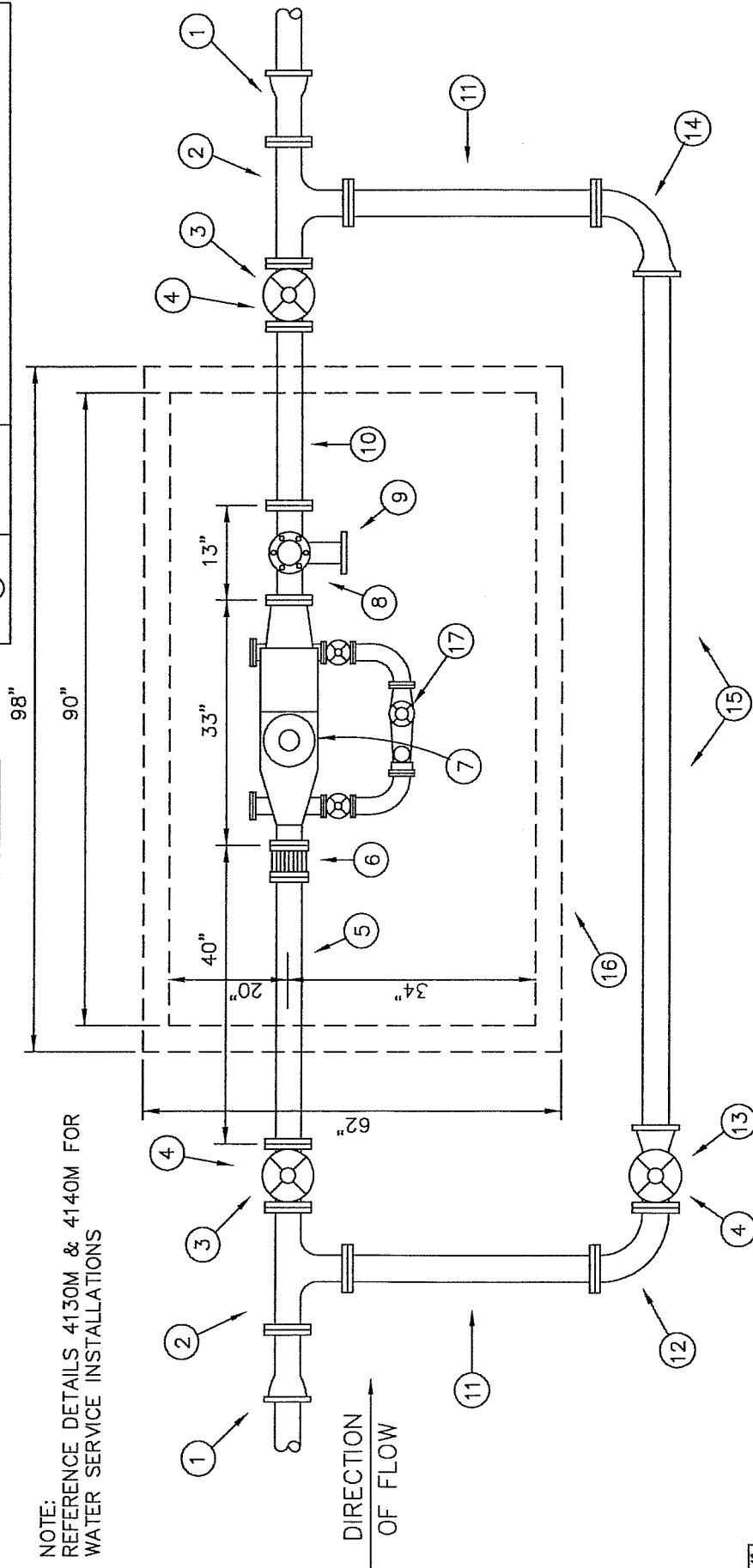
11/13/08

STANDARD DRAWING NO.

4141M *

MATERIALS LIST	
PART NO.	DESCRIPTION
①	2 EA. 4" X 12" D.I. NIPPLE M.J. X F.
②	2 EA. 4" X 4" D.I. TEE F. X F.
③	2 EA. 4" GATE VALVE F. X F.
④	3 EA. VALVE STACK RISER COVER & LID
⑤	1 EA. 4" X 40" D.I. NIPPLE F. X SLEEVE
⑥	1 EA. 4" FLANGED COUPLING ADAPTER
⑦	1 EA. 4" MASTER METER WITH RAISED GLASS
⑧	1 EA. 4" X 4" D.I. TEE F. X F. (TEST POINT)
⑨	1 EA. 4" BLIND FLG.

MATERIALS LIST	
PART NO.	DESCRIPTION
⑩	1 EA. 4" X 24" D.I. NIPPLE F. X F.
⑪	2 EA. 4" X 36" D.I. NIPPLE F. X F.
⑫	1 EA. 4" D.I. 90° BEND F. X F.
⑬	1 EA. 4" GATE VALVE F. X M.J.
⑭	1 EA. 4" D.I. 90° BEND M.J. X F.
⑮	1 EA. 4" D.I. PIPE, CLASS 52, APPROX. 10'
⑯	1 EA. PRECAST METER VAULT
⑰	1 EA. VAULT FLOOR (NOT SHOWN)
⑱	1 EA. ACCESS HATCH (NOT SHOWN)
⑲	1 EA. BY-PASS METER



STANDARD DRAWING NO.
4150M*

4" COMBINED SERVICE
WITH 4" METER



M* - CITY OF MELISSIA REVISION

NCTCOG STANDARD SPECIFICATION REFERENCE

DIVISION 500

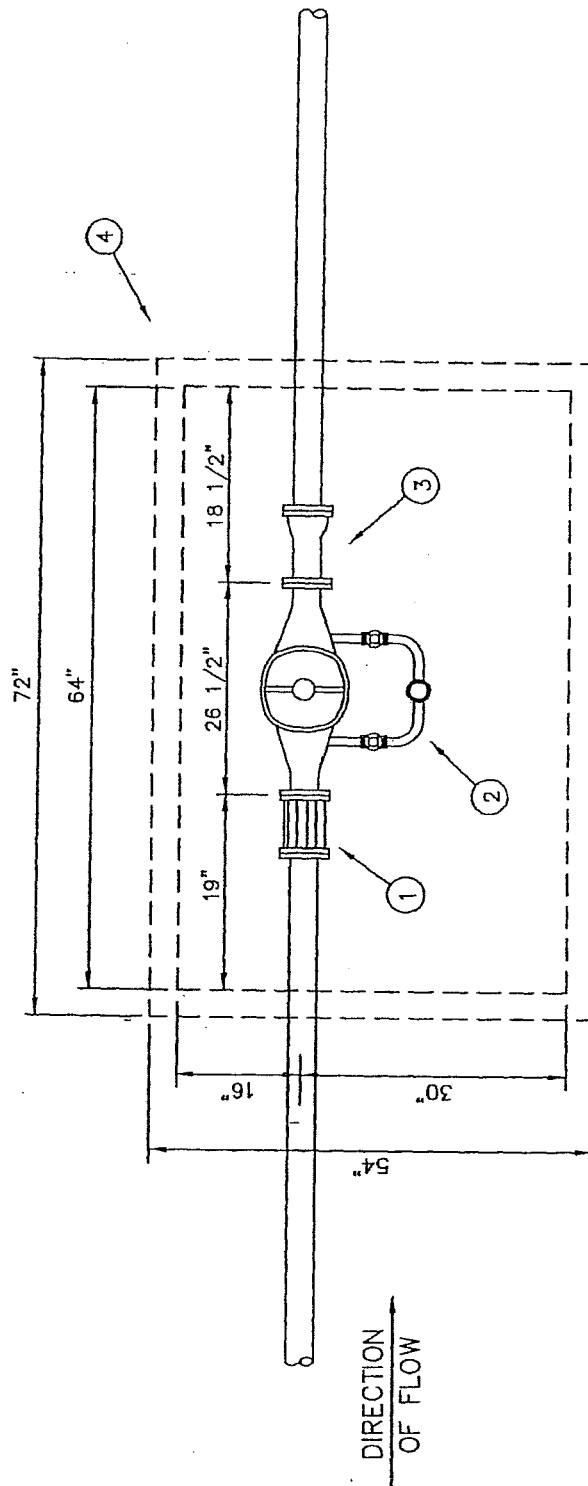
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11/13/08

STANDARD DRAWING NO.

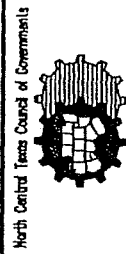
4150M*

MATERIALS LIST		
PART NO.	QUANTITY	DESCRIPTION
①	1 EA.	8" FLANGED COUPLING METER ADAPTER
②	1 EA.	8" DETECTOR CHECK VALVE WITH 5/8" BY-PASS METER
③	1 EA.	8" X 12" D.I. NIPPLE M.J. X F.
④	1 EA.	PRECAST METER VAULT
	1 EA.	VAULT FLOOR (NOT SHOWN)
	1 EA.	36" X 48" ACCESS HATCH (NOT SHOWN)



STANDARD DRAWING NO.
4160

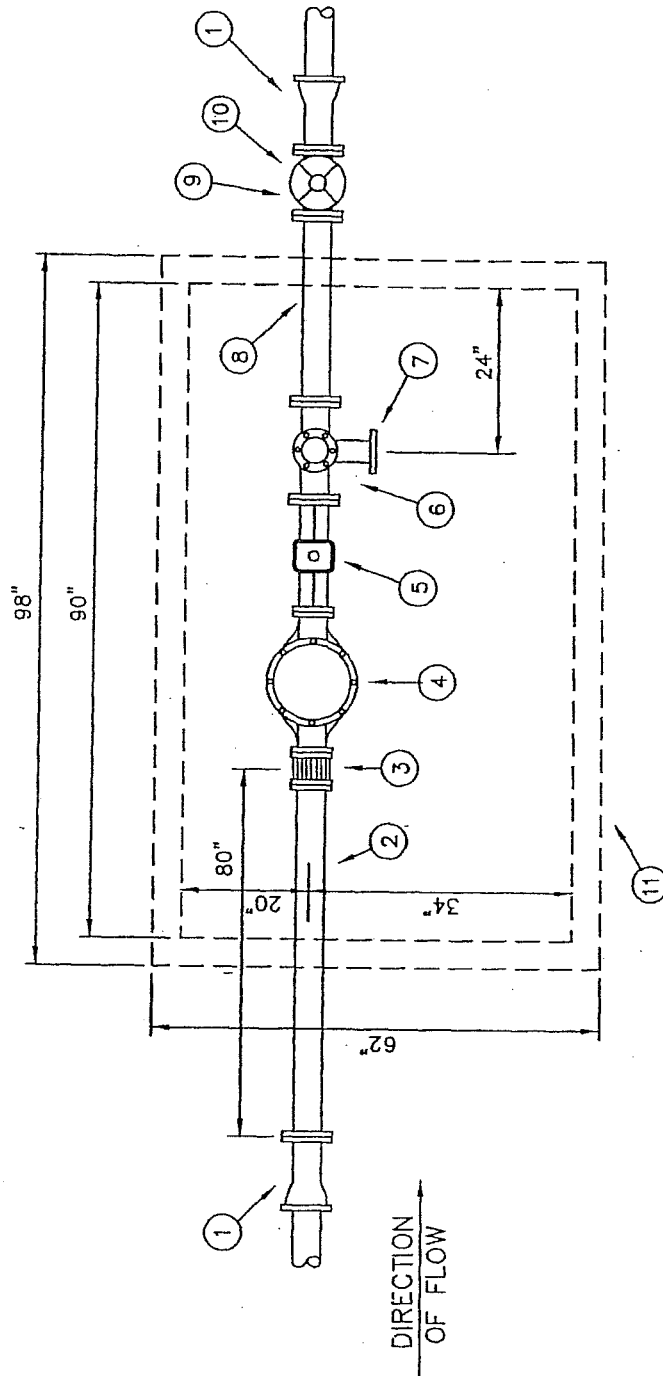
8" DETECTOR CHECK
SERVICE WITH 8" METER



STANDARD SPECIFICATION REFERENCE
502.10
DATE
OCT. '04
STANDARD DRAWING NO.
4160

MATERIALS LIST	
PART NO.	DESCRIPTION
①	2 EA. 8" X 12" D.I. NIPPLE M.J. X F.
②	1 EA. 8" X 36" D.I. NIPPLE F. X SLEEVE
③	1 EA. 8" FLANGED COUPLING ADAPTER
④	1 EA. 8" U.L. APPROVED (FOR TURBINE)
⑤	1 EA. 8" TURBINE METER
⑥	1 EA. 8" X 4" D.I. TEE F. X F. (TEST PT)
⑦	1 EA. 8" BLIND FLG F. X F.

MATERIALS LIST	
PART NO.	DESCRIPTION
⑧	1 EA. 8" X 24" D.I. NIPPLE F X F.
⑨	1 EA. 8" GATE VALVE F. X F.
⑩	1 EA. VALVE STACK RISER COVER & LID
⑪	1 EA. PRECAST METER VAULT
	1 EA. VAULT FLOOR (NOT SHOWN)
	1 EA. ACCESS HATCH (NOT SHOWN)



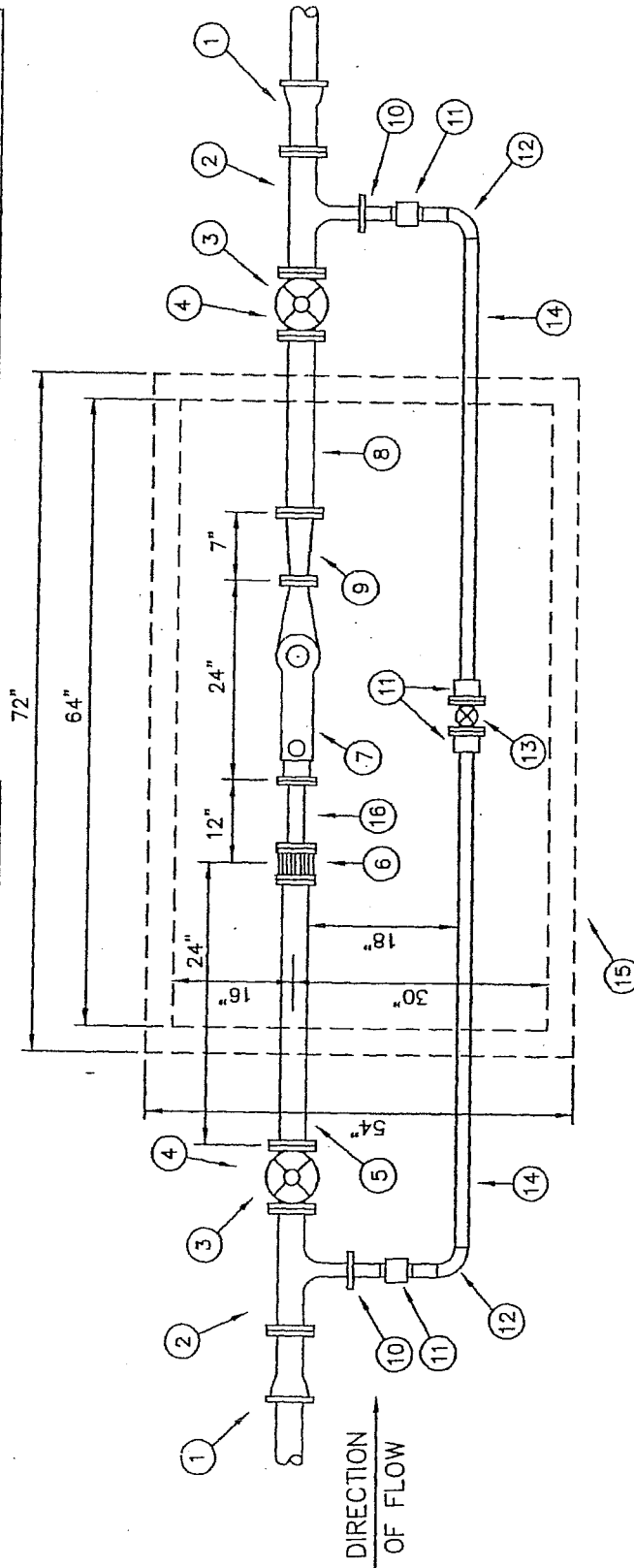
8" FIRE LINE STANDPIPE
SERVICE WITH 8" METER

North Central Texas Council of Governments
STANDARD SPECIFICATION REFERENCE
502.10
DATE
OCT. '04
STANDARD DRAWING NO.
4170

STANDARD DRAWING NO.
4170

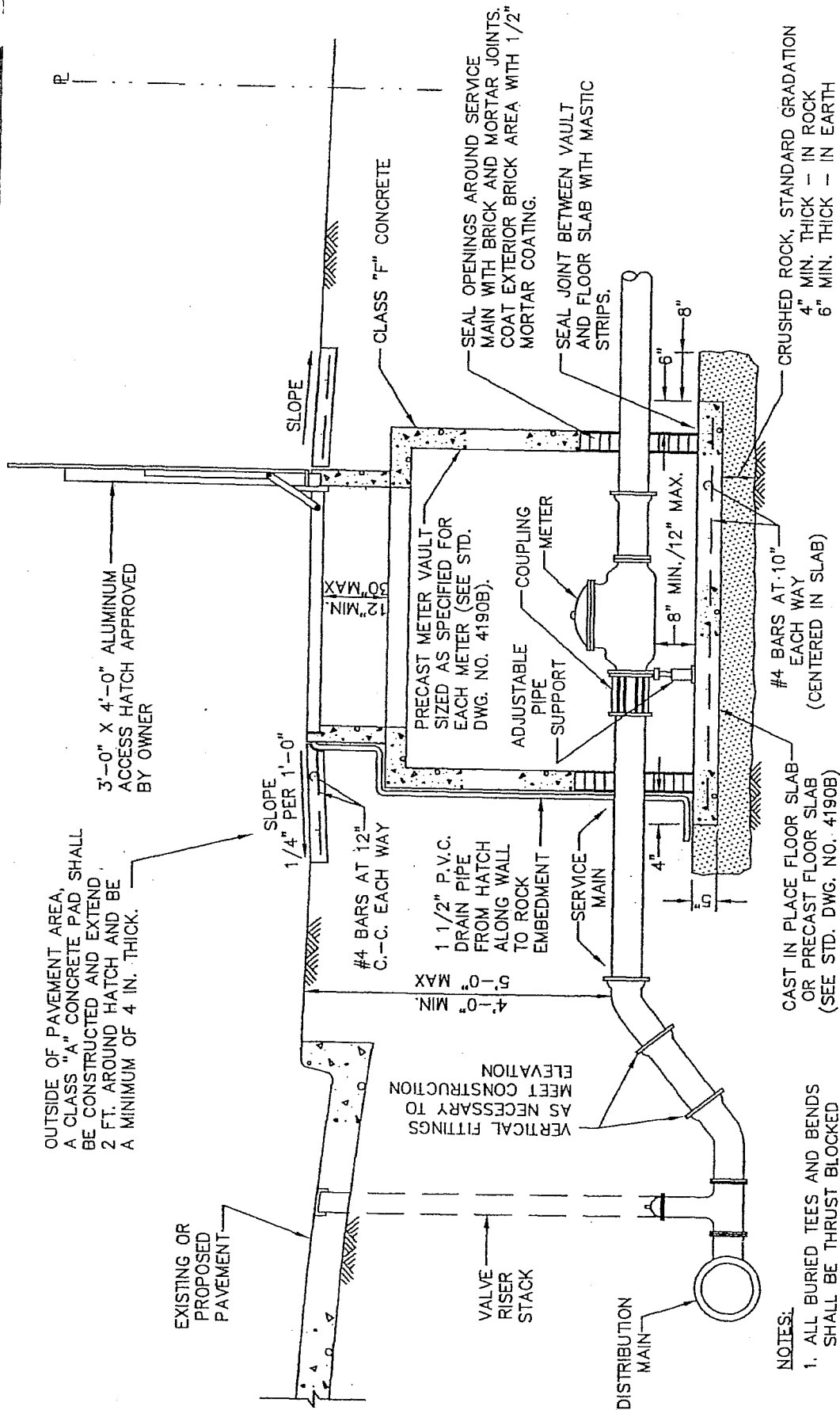
MATERIALS LIST	
PART NO.	DESCRIPTION
①	4" X 12" D.I. NIPPLE M.J. X F.
②	4" X 2" D.I. TEE F. X F.
③	4" GATE VALVE F. X F.
④	VALVE STACK RISER COVER & LID
⑤	4" X 24" D.I. NIPPLE F. X SLEEVE
⑥	4" X 3" FLANGED RED. COUPLING ADAPTER
⑦	3" METER AS SPECIFIED (TYPE C.T. SHOWN)
⑧	4" X 18" D.I. NIPPLE F. X F.
⑨	4" X 3" D.I. REDUCER F. X F.

MATERIALS LIST	
PART NO.	DESCRIPTION
⑩	2" COMPANION FLANGE
⑪	2" SOL. X OSIP UNION
⑫	2" SOL. 90° ELL.
⑬	2" BALL VALVE
⑭	2" COPPER PIPE, APPROX. 5'
⑮	PRECAST METER VAULT
⑯	VAULT FLOOR (NOT SHOWN)
⑰	ACCESS HATCH (NOT SHOWN)
⑱	3"x12" D.I. NIPPLE F. X SLEEVE



North Central Texas Council of Governments 		STANDARD SPECIFICATION REFERENCE 502.10
		DATE OCT. '04
4" DOMESTIC SERVICE WITH 3" METER		STANDARD DRAWING NO. 4180

STANDARD DRAWING NO.
4180



NOTES:

1. ALL BURIED TEES AND BENDS SHALL BE THRUST BLOCKED PER STANDARD DRAWINGS 4010-4040.

2. BY-PASS LINE MAY BE INSTALLED ON LEFT SIDE OF METER VAULT TO FACILITATE LIMITED WORKING AREA CONDITIONS BY PERMISSION OF OWNER.

3. ALL BURIED D.I. PIPE AND C.I. FITTINGS SHALL BE POLY-WRAPPED AS SPECIFIED FOR THE ADJACENT DISTRIBUTION MAIN.

ELEVATION VIEW
(D.C. METER SHOWN) N.T.S.

LARGE SERVICE METER VAULT INSTALLATION

North Central Texas Council of Governments



STANDARD SPECIFICATION REFERENCE

702.4

DATE

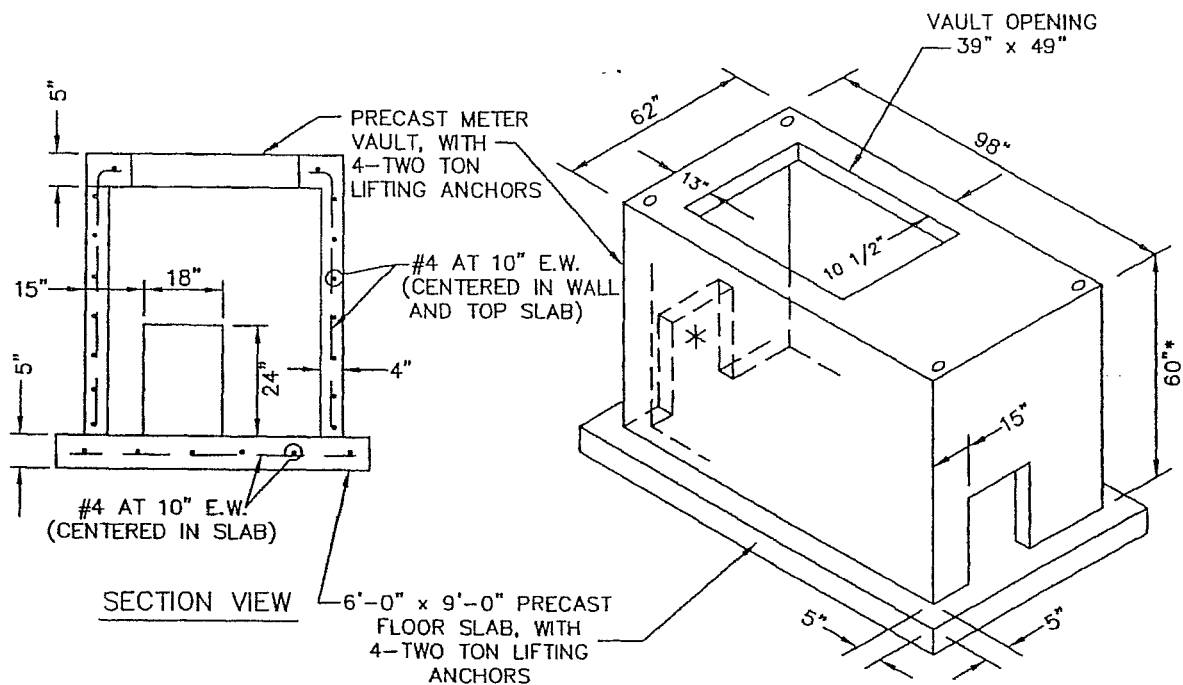
OCT. '04

STANDARD DRAWING NO.

4190A

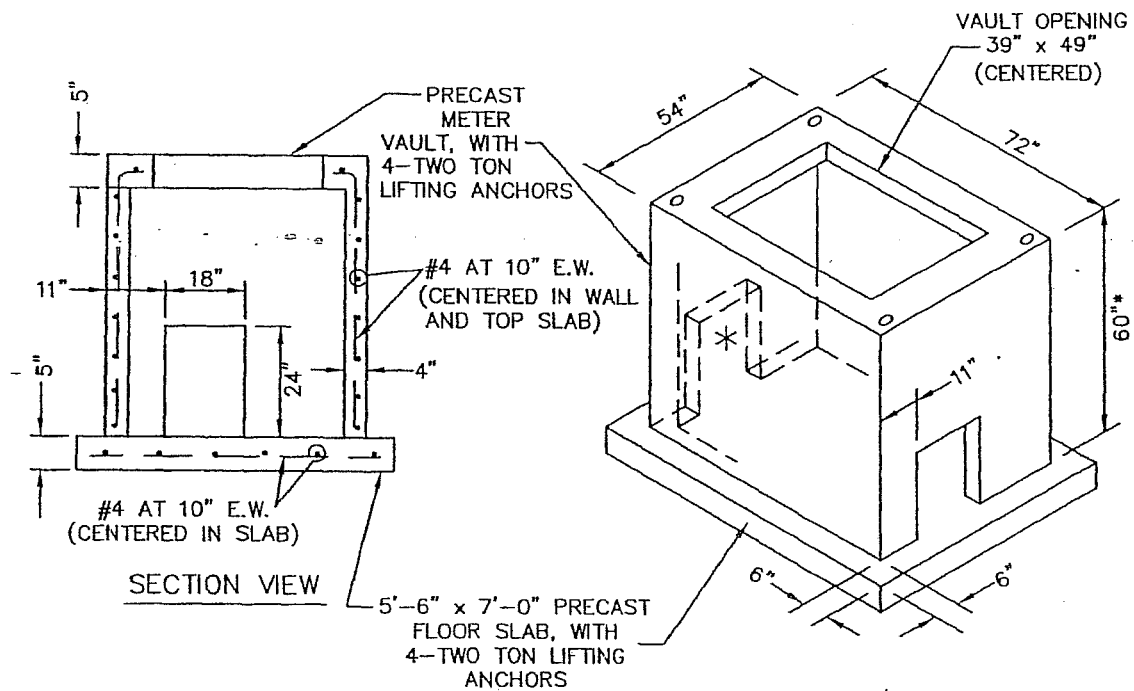
STANDARD DRAWING NO.

4190A



F.M. METER VAULT

N.T.S.



D.C. METER VAULT

N.T.S.

LARGE SERVICE METER
PRECAST VAULT

North Central Texas Council of Governments



STANDARD SPECIFICATION REFERENCE

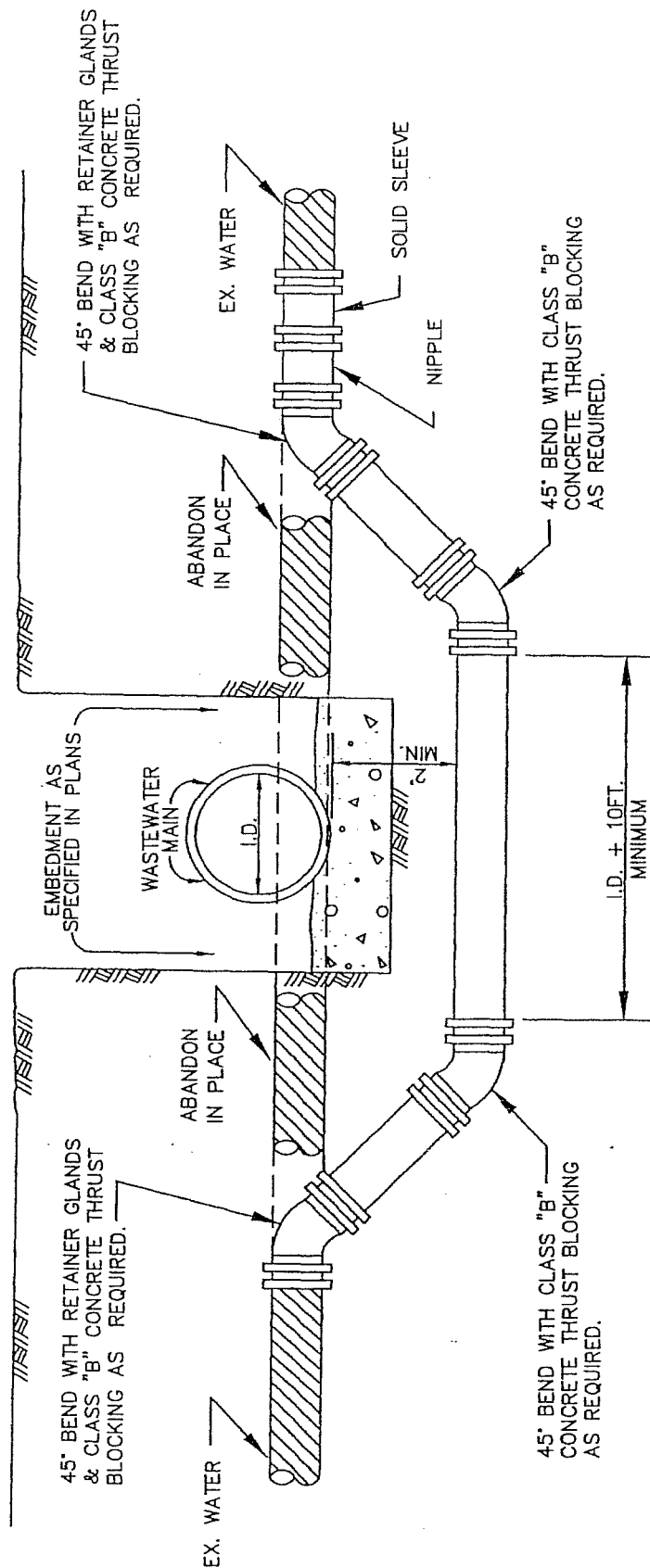
702.4

DATE

OCT. '04

STANDARD DRAWING NO.

4190B



STANDARD SPECIFICATION REFERENCE

506.6

DATE
OCT. '04

STANDARD DRAWING NO
4200

North Central Texas Council of Governments

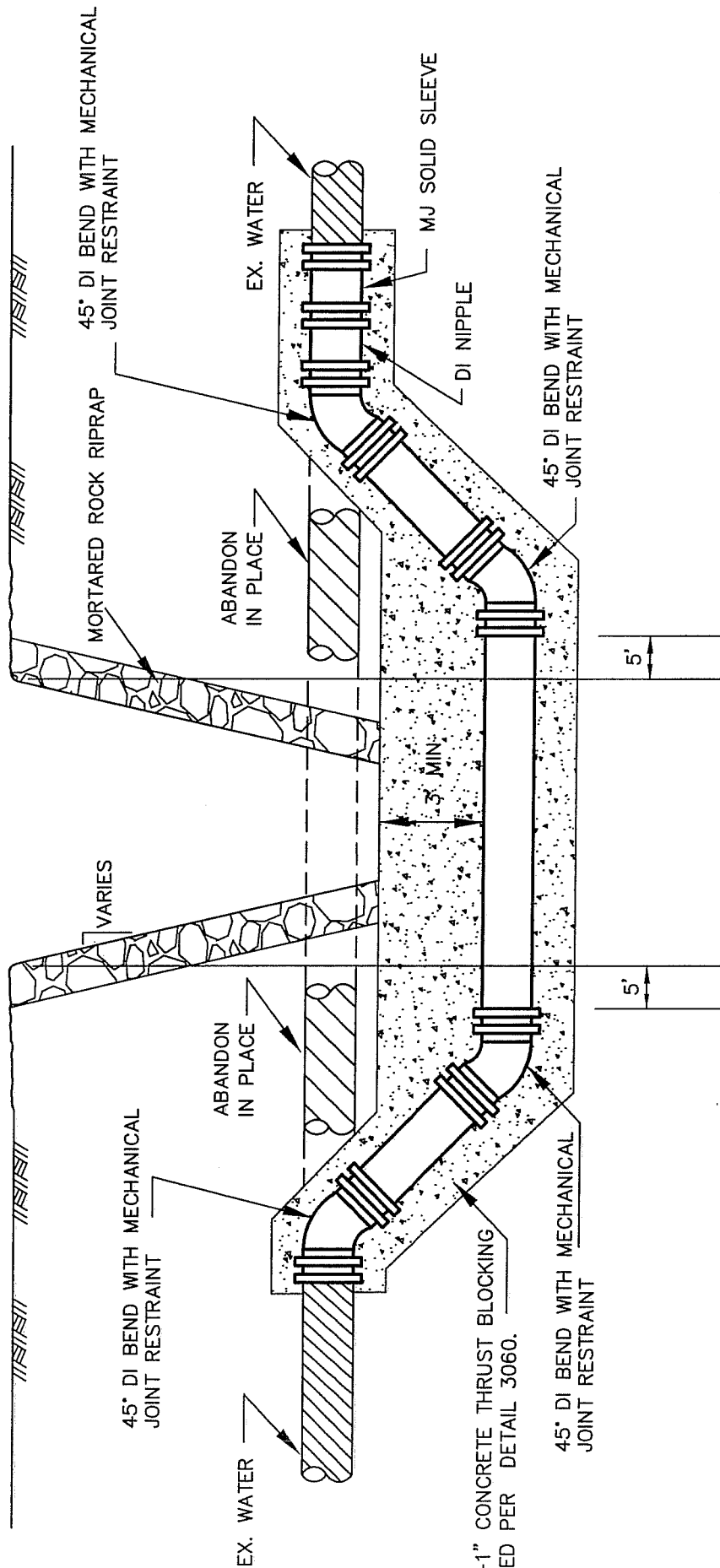


WATER MAIN LOWERING

BELOW WASTEWATER MAIN

STANDARD DRAWING NO

4200



CLASS "G-1" CONCRETE THRUST BLOCKING
AS REQUIRED PER DETAIL 3060.

STANDARD DRAWING NO.
4201M*

WATER MAIN LOWERING AT CREEK CROSSING

CITY OF MELISSA



M* - CITY OF MELISSA REVISION

STANDARD SPECIFICATION REFERENCE

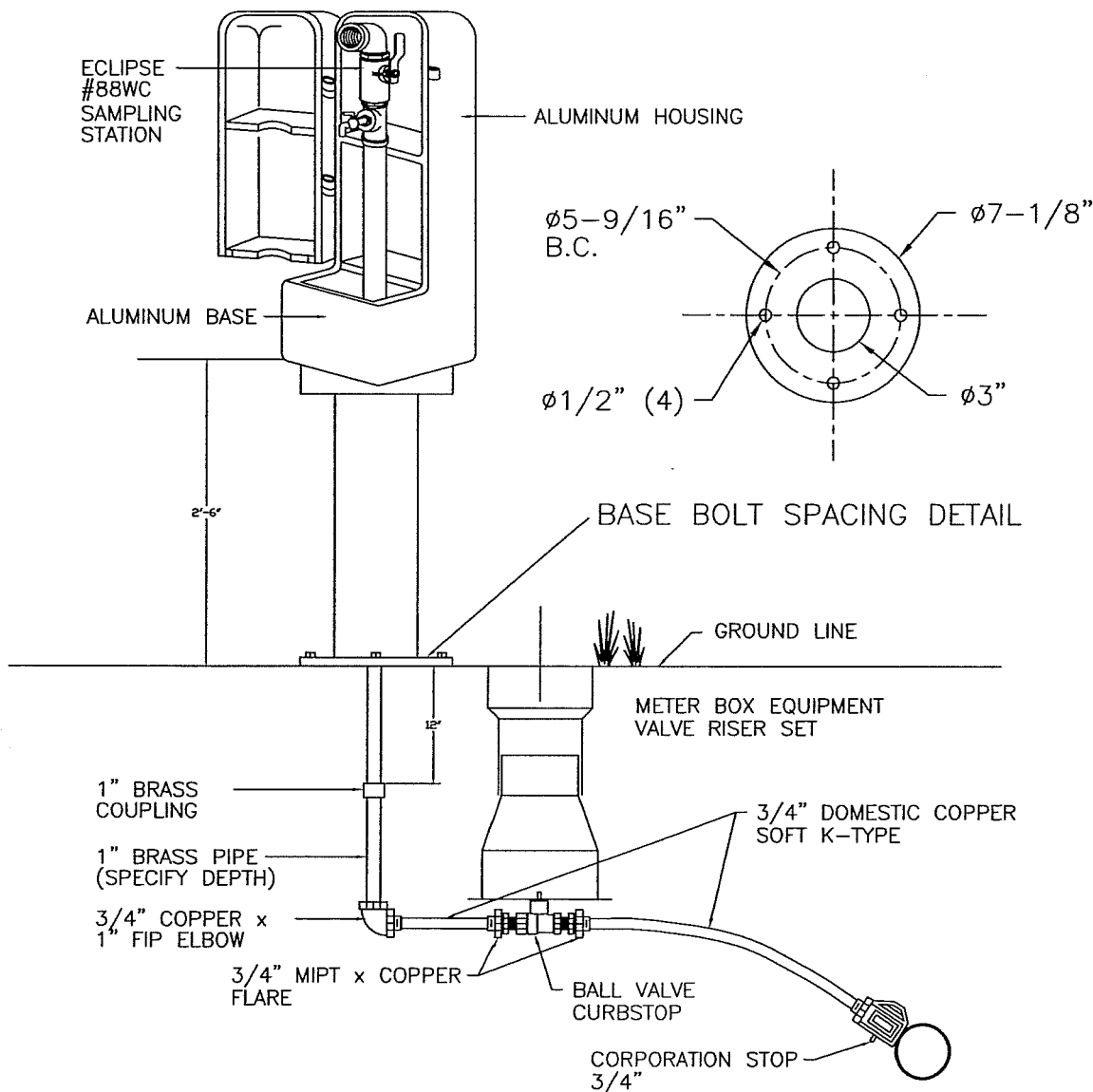
506.6

DATE

08/26/09 4201M*

STANDARD DRAWING NO.

ECLIPSE NO. 88WC SAMPLING STATION ON PEDESTAL



Sampling Stations shall be 3' bury, with a 1" MIP inlet, and a 1" FIP discharge. A 1/4" bent-nose sampling bibb shall be located before the discharge.

All stations shall be enclosed in a lockable, nonremovable, aluminum-cast housing with the City of Melissa Logo. Housing shall be on a 2'-6" pedestal with a 7-1/8" mounting flange. When opened, the station shall require no key for operation, and the water will flow in an all brass waterway.

All working parts will be of brass and serviceable from above ground with no digging.

A 1" ball valve will control the water flow, and be located before (or after) the sampling bibb.

M* - CITY OF MELISSA REVISION

NCTCOG STANDARD SPECIFICATION REFERENCE

SAMPLING STATION

CITY OF MELISSA

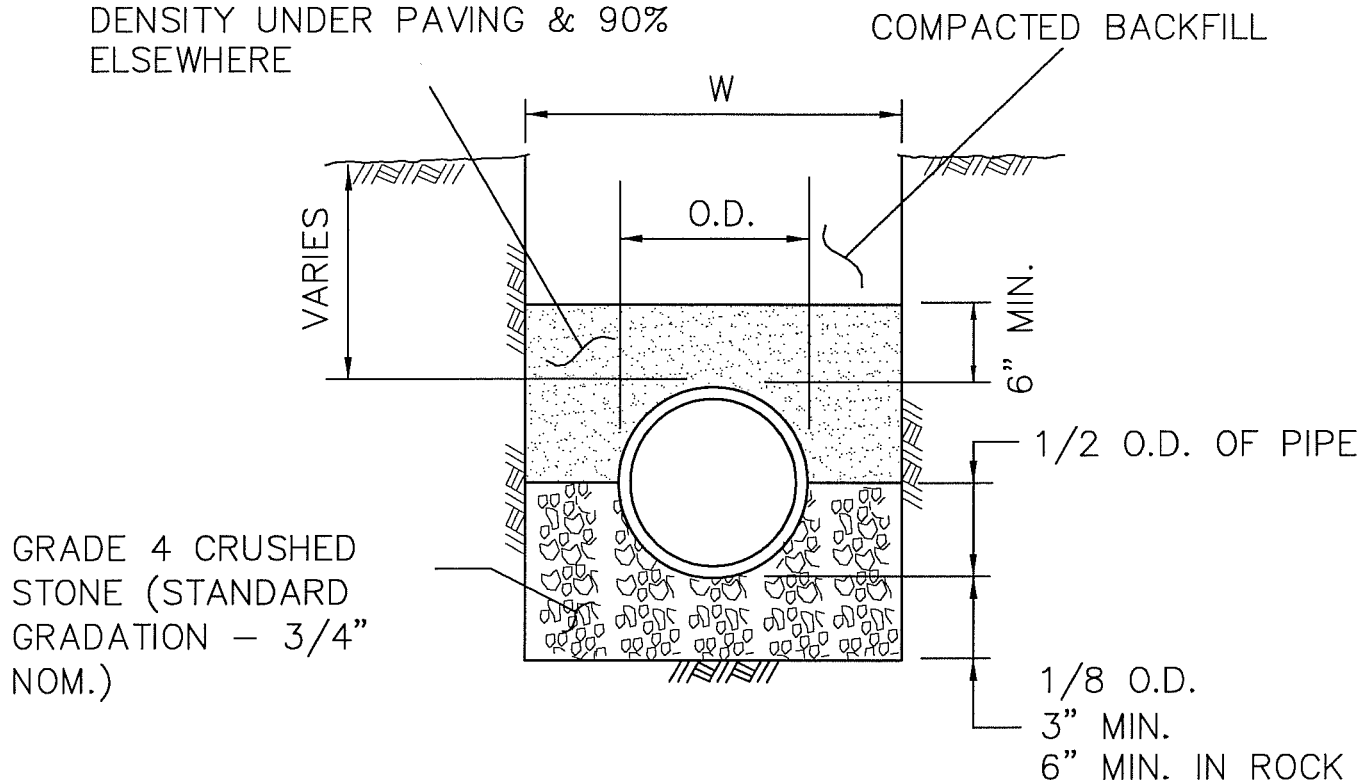


DATE

STANDARD DRAWING NO.

NOV 04 4210M*

TYPE "B" BACKFILL PER NCTCOG
504.2.3.3 (4TH ed.) COMPACTED
TO 95% STANDARD PROCTOR
DENSITY UNDER PAVING & 90%
ELSEWHERE



NOTES:

1. THE DEPTH OF TRENCH BELOW PIPE ARE AS FOLLOWS:
 3" MIN. FOR 27" PIPE & SMALLER
 4" MIN. FOR 30" TO 60" PIPE
 6" MIN. FOR 66" PIPE & LARGER
2. O.D. = OUTSIDE DIAMETER OF PIPE.
3. W = TRENCH WIDTH = O.D. PLUS 24" FOR PIPE GREATER
 THAN 24" AND O.D. PLUS 16" FOR PIPE 24" AND SMALLER.

M* - CITY OF MELISSA REVISION

STORM SEWER PIPE BEDDING DETAIL



NCTCOG STANDARD SPECIFICATION REFERENCE

504

CITY OF MELISSA

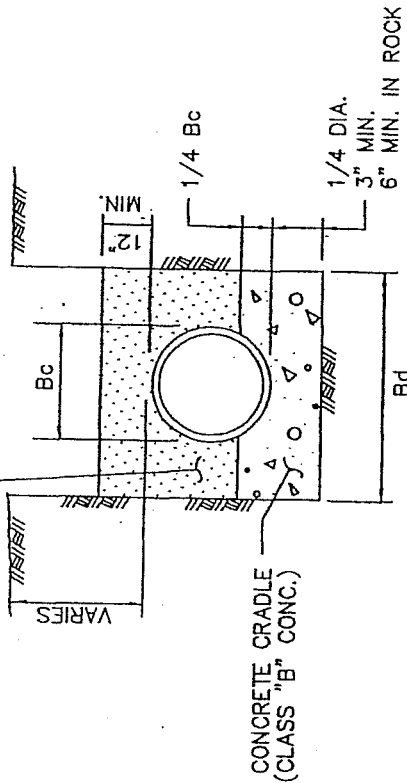
DATE

STANDARD DRAWING NO.

02/02/10

3010AM*

SELECT OR GRANULAR
MATERIAL COMPACTED
TO 90% OF STD. PROCTOR
DENSITY.

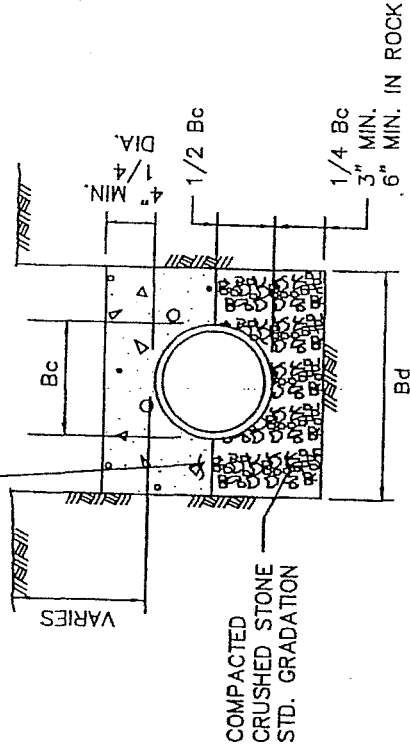


CLASS "A"

CLASS "B" CONCRETE CRADLE
PLAIN CONC. LF 2.8
REINF. CONC. LF 3.4 P=0.4%

N.T.S.

CLASS "B" PLAIN
OR REINFORCED
CONCRETE.



CLASS "A-1"

CLASS "B" CONCRETE CAP
PLAIN CONC. LF 2.8
REINF. CONC. LF 3.4 P=0.4%
REINF. CONC. LF 4.8 P=1.0%

N.T.S.

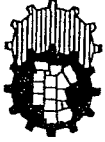
NOTES:

1. LF. = LOAD FACTOR TO BE USED TO DETERMINE 3 EDGE BEARING BASED ON TYPE OF EMBEDMENT.
2. FREE-FALL OF CONCRETE NOT TO EXCEED 5 FT. MAXIMUM.
3. P = Rho FOR STEEL %
4. Bc = OUTSIDE DIAMETER OF PIPE
5. Bd = TRENCH WIDTH

EMBEDMENT

CLASS "A" & "A-1"

North Central Texas Council of Governments



STANDARD SPECIFICATION REFERENCE
504.5

DATE
OCT. '04

STANDARD DRAWING NO.
3010

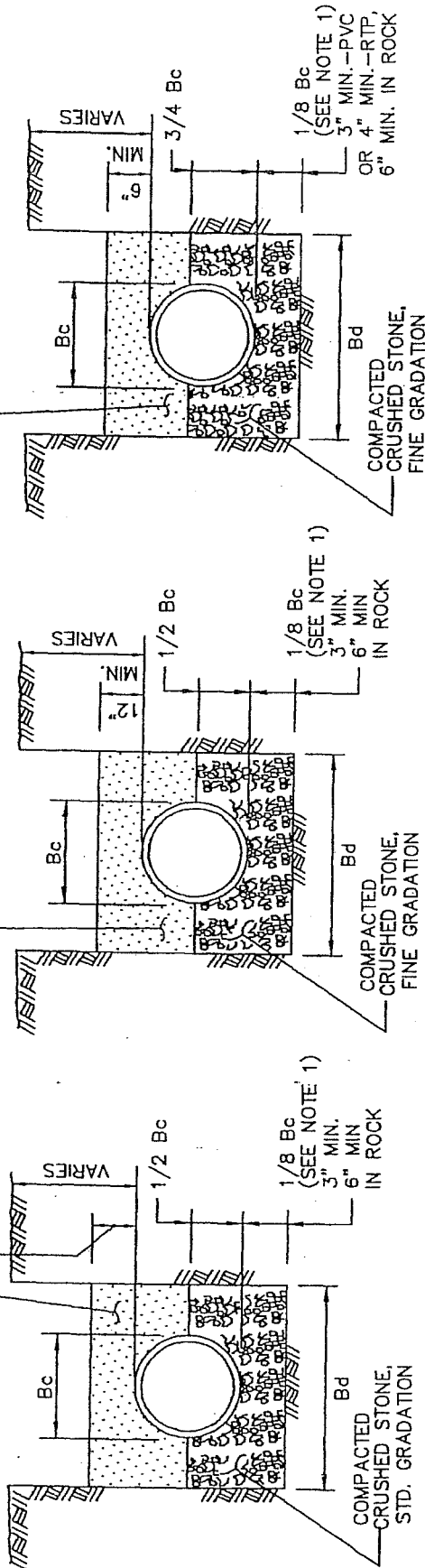
STANDARD DRAWING NO.

3010

SELECT OR GRANULAR MATERIAL COMPACTED TO 90% OF STD. PROCTOR DENSITY

AS SHOWN
ON PLANS

GRANULAR MATERIAL COMPACTED
TO 90% OF STD. PROCTOR DENSITY



CLASS "B"

N.T.S.

CLASS "B+"

N.T.S.

CLASS "B-1"

N.T.S.

NOTES:

1. FOR MAINS 42" DIAMETER AND LARGER, LARGER, 1/8 Bc SHALL BE TAKEN AS 6".
2. Bc = OUTSIDE DIAMETER OF PIPE
3. Bd = TRENCH WIDTH

EMBEDMENT

CLASS "B", "B+", & "B-1"

North Central Texas Council of Governments



STANDARD SPECIFICATION REFERENCE

504.5

DATE

OCT. '04

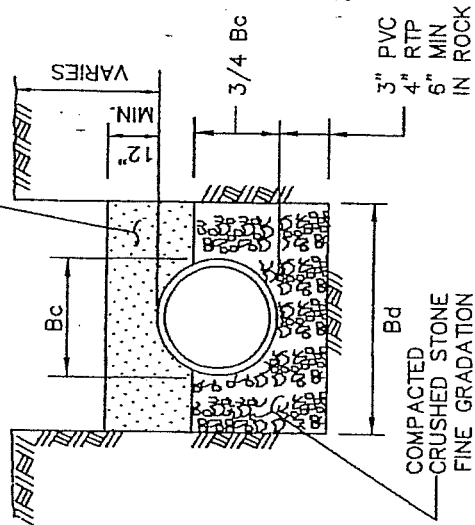
STANDARD DRAWING NO.

3020

STANDARD DRAWING NO.

3020

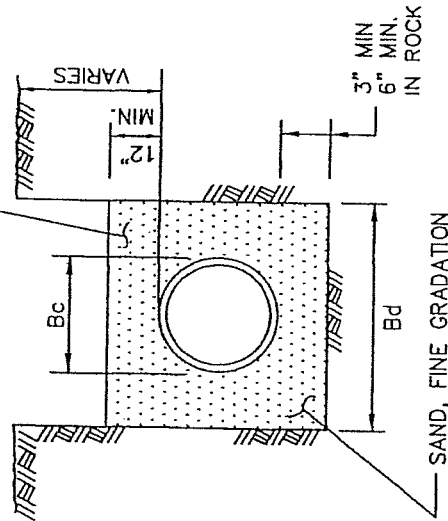
COMPACTED SELECT OR GRANULAR
MATERIAL COMPACTED TO 90% OF
STD. PROCTOR DENSITY



CLASS "B-2"

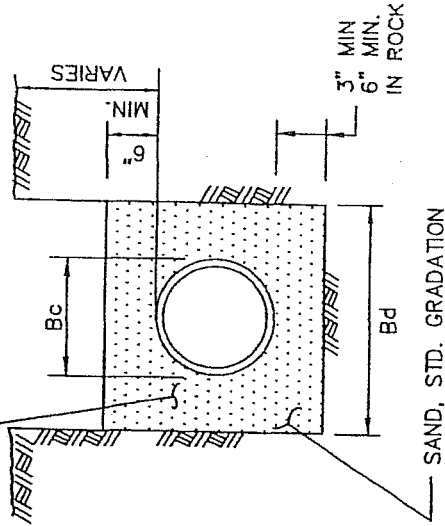
N.T.S.

SAND COMPACTED TO
90% OF STD.
PROCTOR DENSITY



CLASS "B-3"

N.T.S.



CLASS "B-4"

N.T.S.

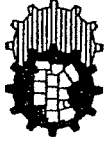
NOTES:

1. Bc = OUTSIDE DIAMETER OF PIPE
2. Bd = TRENCH WIDTH

EMBEDMENT

CLASS "B-2", "B-3", & "B-4"

North Central Texas Council of Governments



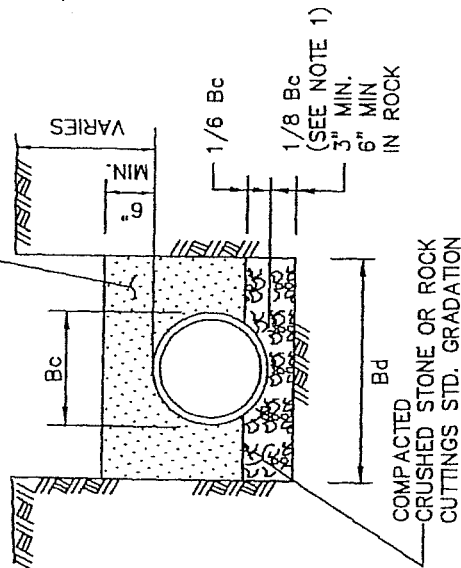
STANDARD SPECIFICATION REFERENCE
504.5

DATE
OCT. '04
STANDARD DRAWING NO.
3030

STANDARD DRAWING NO.
3030

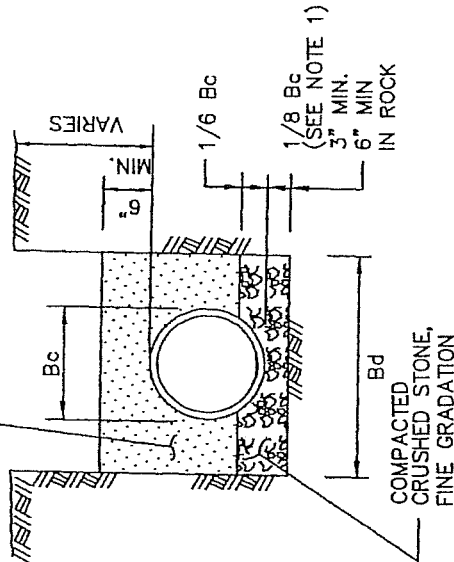
SELECT OR GRANULAR MATERIAL
COMPACTED TO 90% STD.
PROCTOR DENSITY

GRANULAR MATERIAL COMPACTED TO
90% OF STD. PROCTOR DENSITY



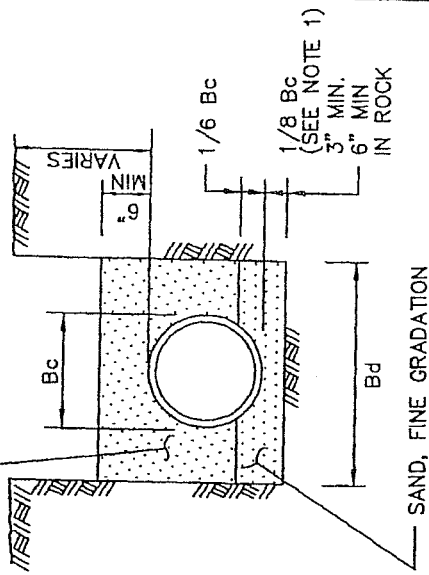
CLASS "C"

N.T.S.



CLASS "C+"

N.T.S.



CLASS "C-1"

N.T.S.

NOTES:

1. FOR MAINS 42" DIAMETER AND LARGER, 1/8 Bc SHALL BE TAKEN AS 6".
2. Bc = OUTSIDE DIAMETER OF PIPE
3. Bd = TRENCH WIDTH

EMBEDMENT

CLASS "C", "C+", & "C-1"

North Central Texas Council of Governments



STANDARD SPECIFICATION REFERENCE

504.5

DATE

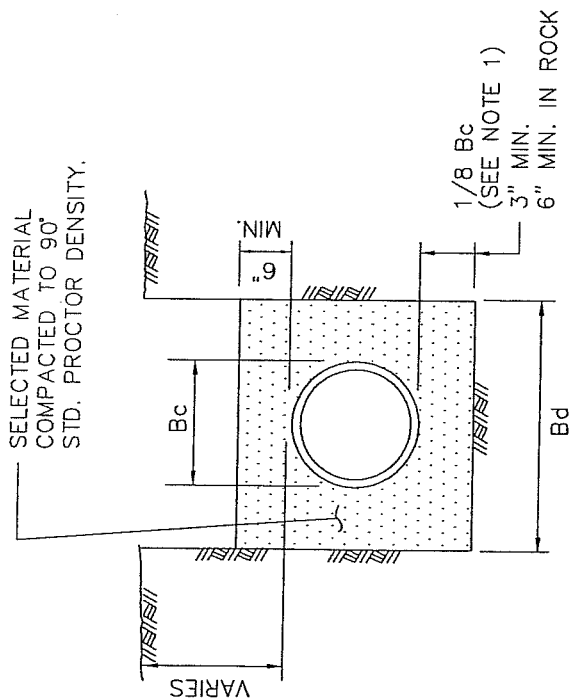
OCT. '04

STANDARD DRAWING NO.

3040

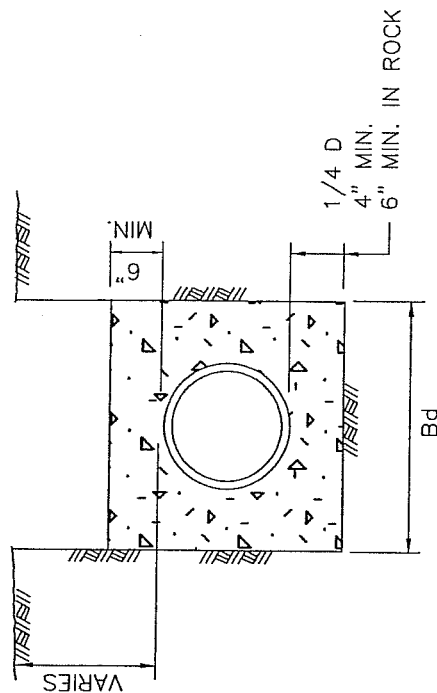
STANDARD DRAWING NO.

3040



CLASS "D+"

N.T.S.



CLASS "G"

N.T.S.

NOTES:

1. FOR MAINS 42" DIAMETER AND LARGER, $\frac{1}{8}$ Bc SHALL BE TAKEN AS 6".
2. Bc=OUTSIDE DIAMETER OF PIPE.
3. Bd=TRENCH DEPTH.
4. D=INSIDE DIAMETER OF PIPE.

EMBEDMENT

CLASS "D+" & "G"

North Central Texas Council of Governments



STANDARD SPECIFICATION REFERENCE
504.5

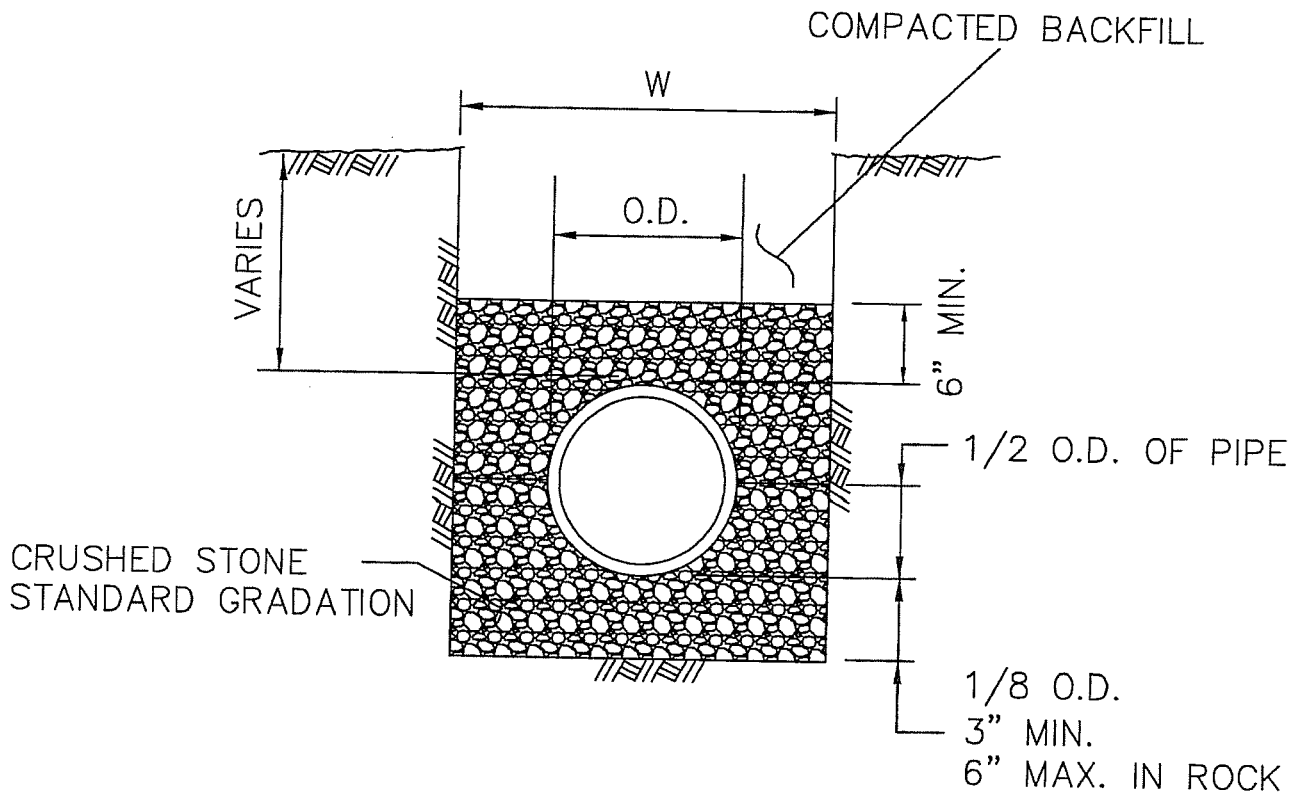
DATE
OCT. '04

STANDARD DRAWING NO.
3050

STANDARD DRAWING NO.

3050

STANDARD DRAWING NO.
3060



NOTES:

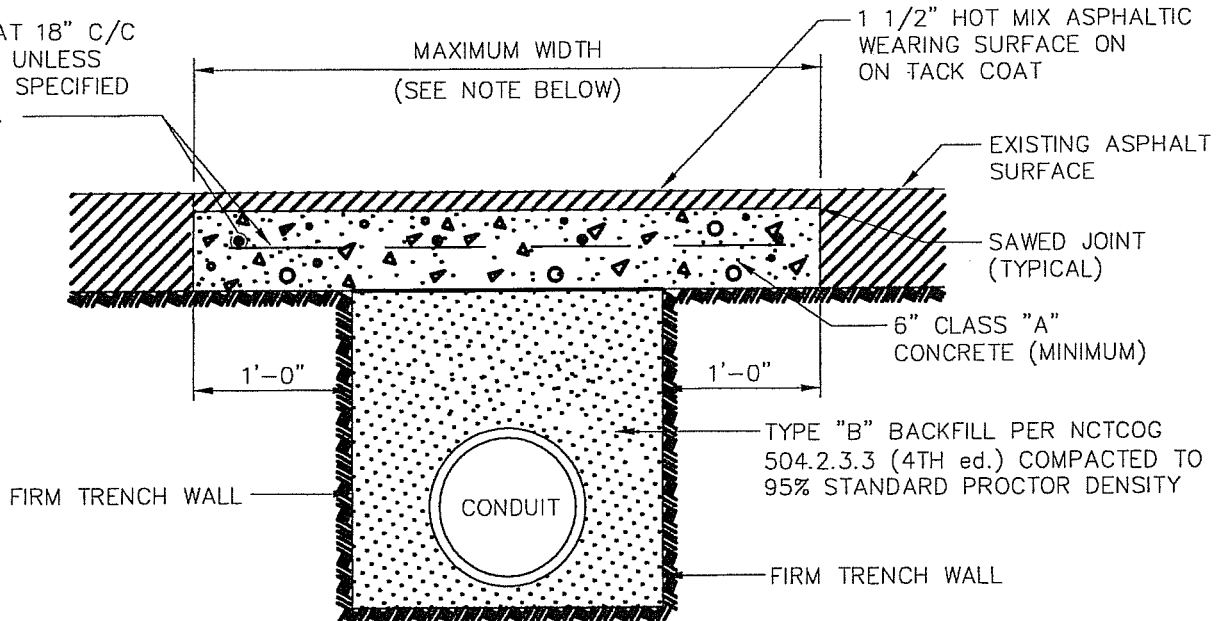
1. CLASS H EMBEDMENT ACCEPTABLE FOR STANDARD P.V.C. SEWER INSTALLATION. STANDARD P.V.C., R.C.C.P., AND DUCTILE IRON WATER LINE INSTALLATION.

2. O.D. = OUTSIDE DIAMETER OF PIPE.

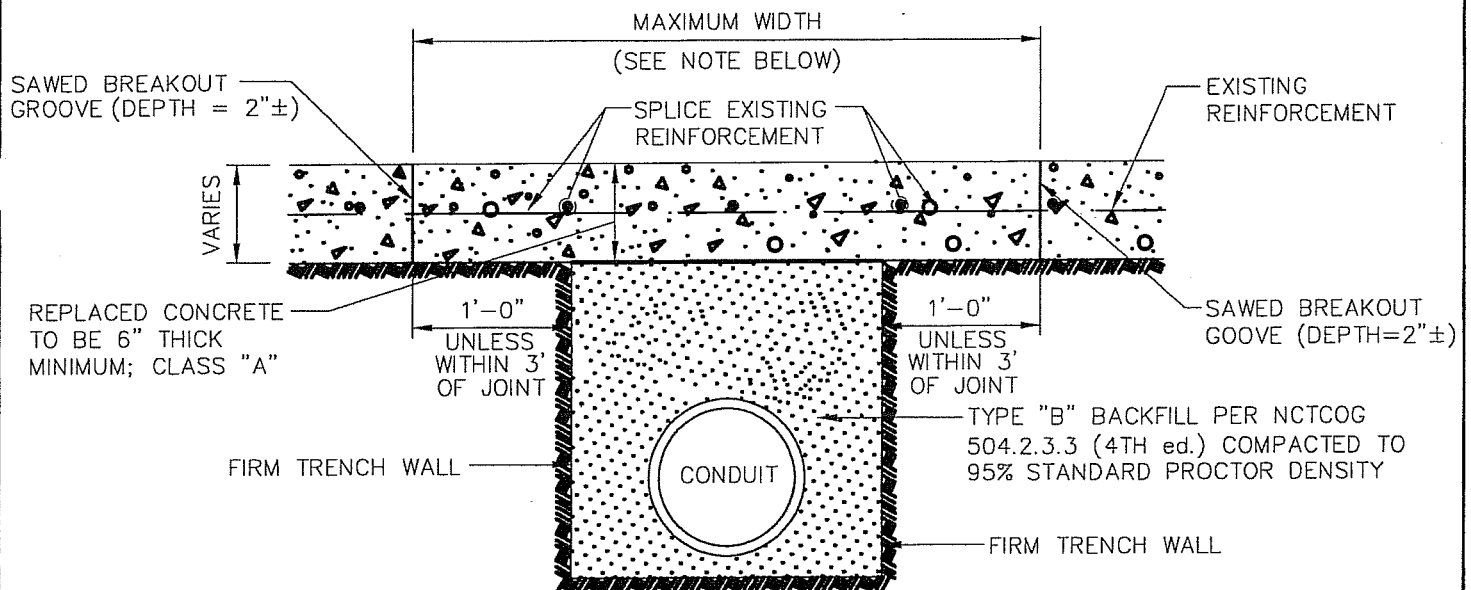
3. W = TRENCH WIDTH.

WIDTH OF TRENCH SHALL BE 24 INCHES PLUS O.D. FOR PIPE GREATER THAN 24 INCHES IN DIAMETER AND O.D. PLUS SIXTEEN INCHES FOR PIPE LESS THAN OR EQUAL TO 24 INCHES I.D.

#3 BARS AT 18" C/C
EACH WAY UNLESS
OTHERWISE SPECIFIED
BY OWNER.



ASPHALT PAVEMENT
N.T.S.



CONCRETE PAVEMENT
N.T.S.

NOTES:

1. PAYMENT TO THE CONTRACTOR FOR REPLACEMENT OF PAVEMENT AND/OR DRIVEWAYS WILL BE BASED ON ACTUAL MEASUREMENTS UP TO A MAXIMUM WIDTH EQUAL TO THE SPECIFIED MAXIMUM TRENCH WIDTH PLUS 2 FEET. ANY EXISTING PAVEMENT DAMAGED OR REMOVED IN EXCESS OF THE MAXIMUM LIMITS SHALL BE AT THE EXPENSE OF THE CONTRACTOR.
2. WHEN REMOVING CONCRETE PAVEMENT THE CONTRACTOR SHALL ENDEAVOR TO LIMIT DAMAGE TO EXISTING REINFORCEMENT SO IT MAY BE EMPLOYED IN THE REPLACEMENT OPERATION. IF ORIGINAL REINFORCEMENT IS CUT OR BROKEN, REPLACEMENT BARS OF THE SAME SIZE SHALL BE INSTALLED BY DRILLING AND DOWELLING AS DIRECTED BY THE OWNER.

M* - CITY OF MELISSA REVISION

PAVEMENT CUTS REMOVAL & REPLACEMENT



STANDARD SPECIFICATION REFERENCE

402 & 403

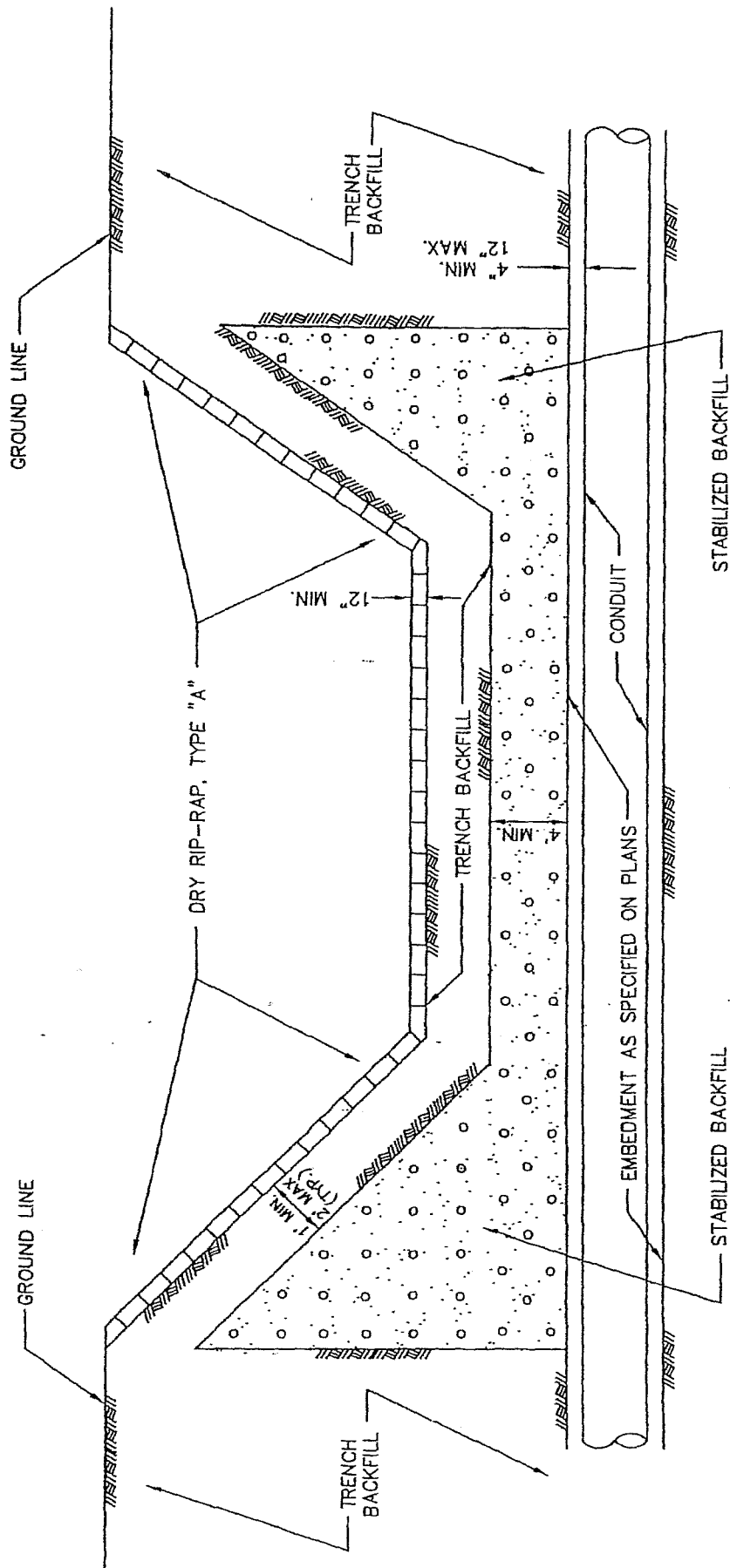
DATE

03/01/10

STANDARD DRAWING NO.

3070M*

CITY OF MELISSA



STANDARD SPECIFICATION REFERENCE
504; 803

DATE
OCT. '04

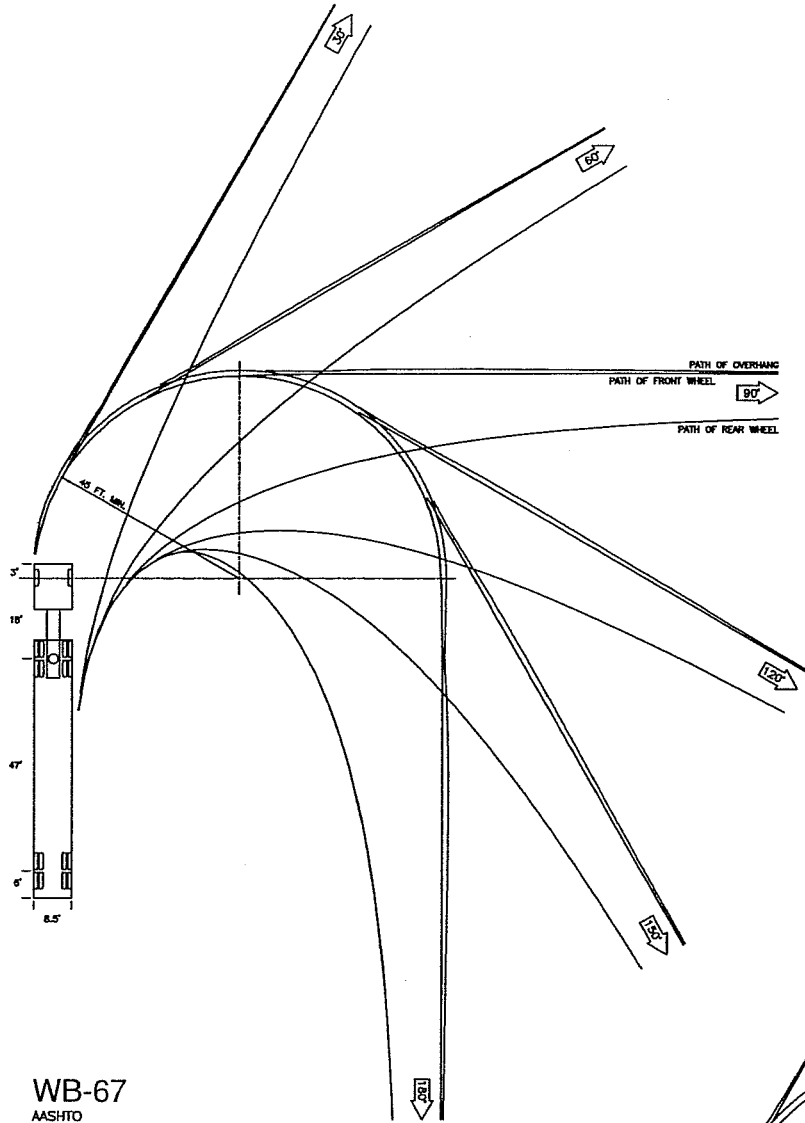
STANDARD DRAWING NO.
3080

North Central Texas Council of Governments

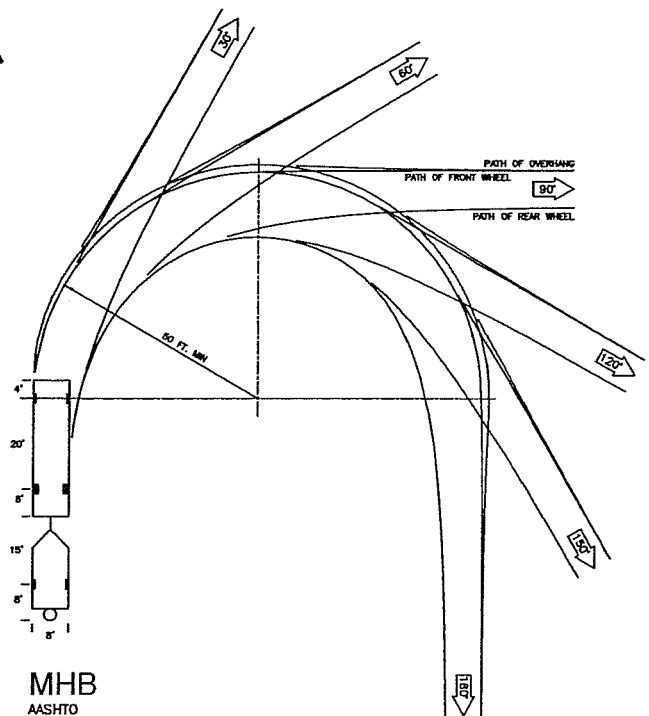


INFILTRATION PROTECTION CONDUIT UNDER CHANNEL

STANDARD DRAWING NO.
3080



WB-67
AASHTO



MHB
AASHTO

M* - CITY OF MELISSA REVISION

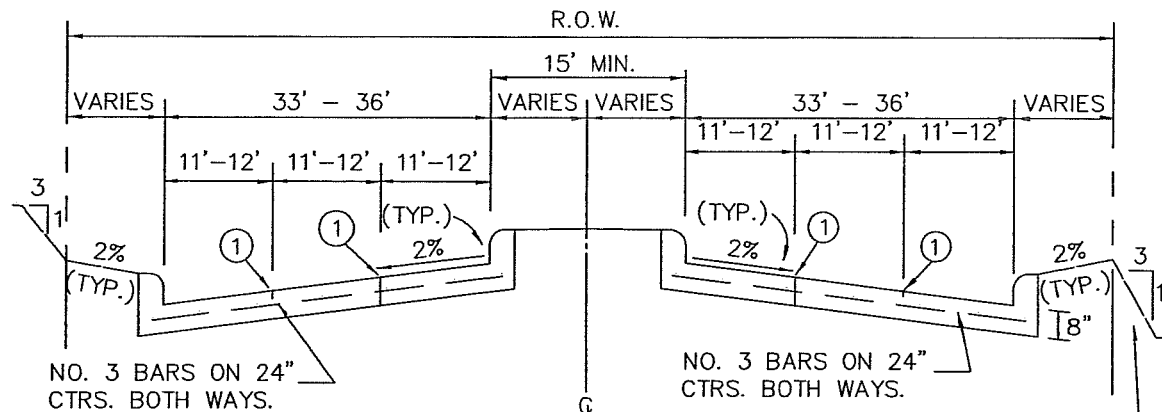
CURB RETURN TEMPLATES

CITY OF MELISSA



NCTCOG STANDARD SPECIFICATION REFERENCE

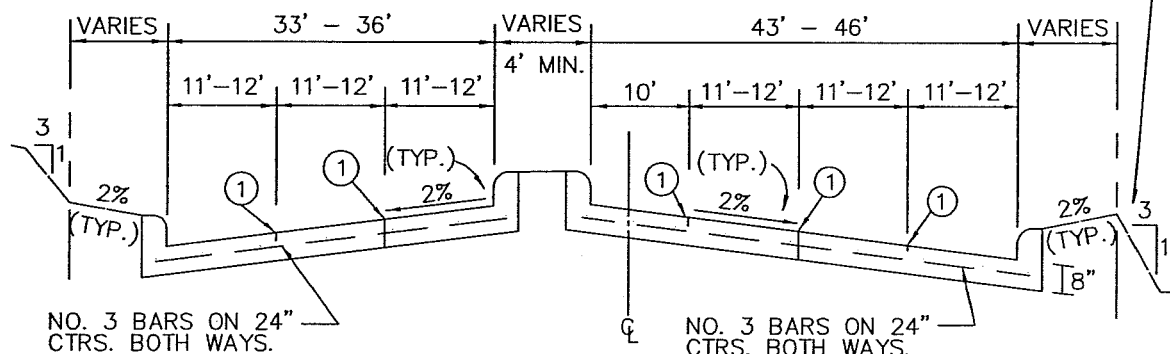
DATE	STANDARD DRAWING NO.
AUG. 04	2005M*



REGULAR SECTION

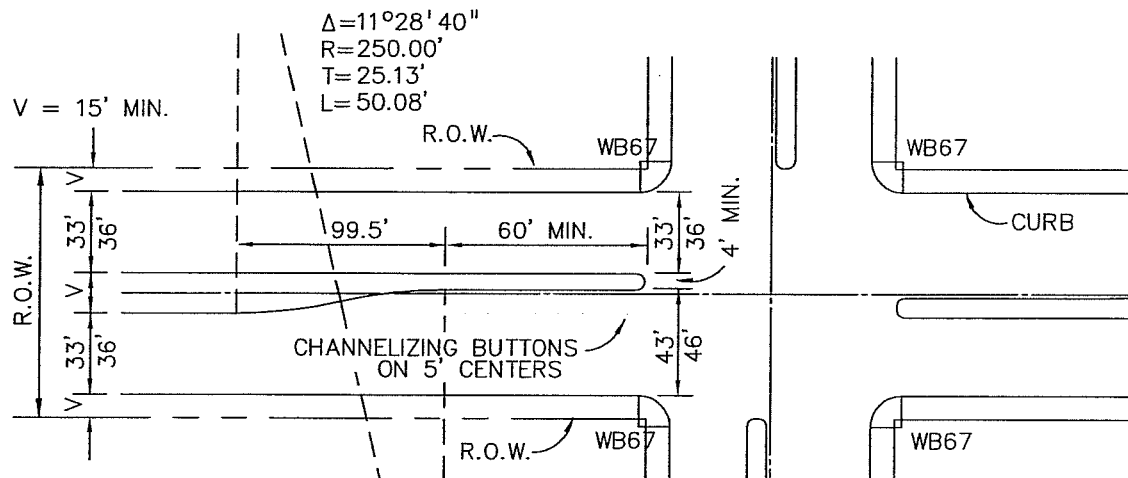
N.T.S.

(FILL SECTIONS ONLY. ALTERNATE REVERSE SLOPE ACCEPTABLE. NOT TO EXCEED 3:1)



LEFT TURN SECTION

N.T.S.



NOTES:

1. MIN. PAVEMENT DEPTH AND STRENGTH SHALL BE 8\" - CLASS \"C\", OR AS SPECIFIED BY OWNER.
2. MIN. CURB HEIGHT AND WIDTH SHALL BE 6\", OR AS SPECIFIED BY OWNER.
3. ALTERNATE REINFORCEMENT SHALL BE #4 BARS ON 30\" CENTERS BOTH WAYS.

PLAN
N.T.S.

- ① SAWED LONGITUDINAL CONTRACTION JOINT OR CONSTRUCTION JOINT.

M* - CITY OF MELISSA REVISION

STANDARD SPECIFICATION REFERENCE

303

DATE

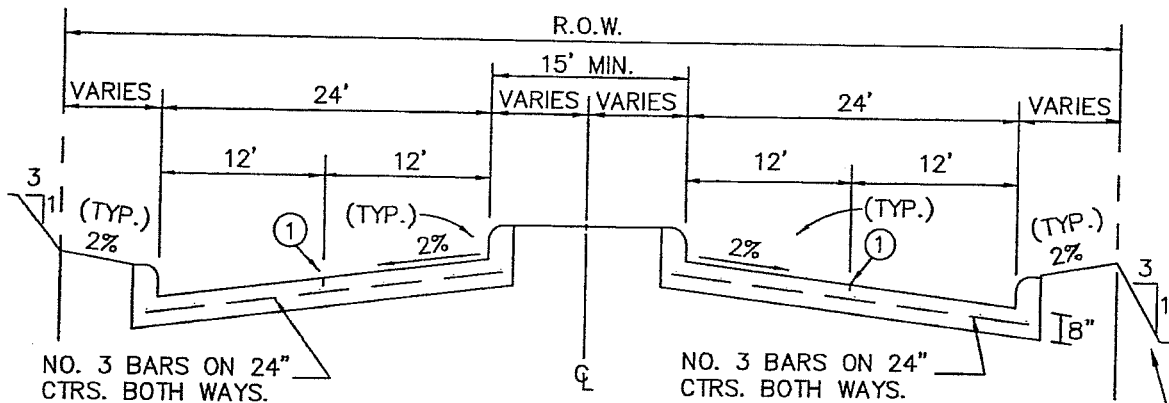
11/13/08

STANDARD DRAWING NO.

2010M*

REINFORCED CONCRETE PAVEMENT
SIX-LANE DIVIDED THOROUGHFARE

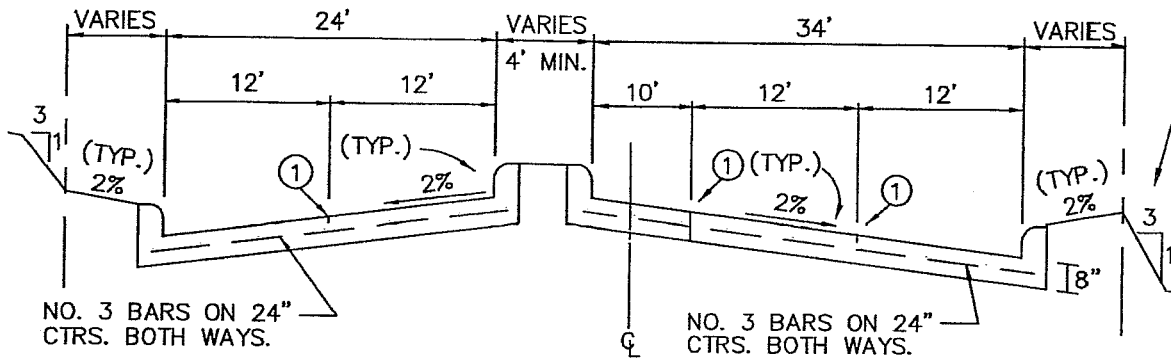




REGULAR SECTION

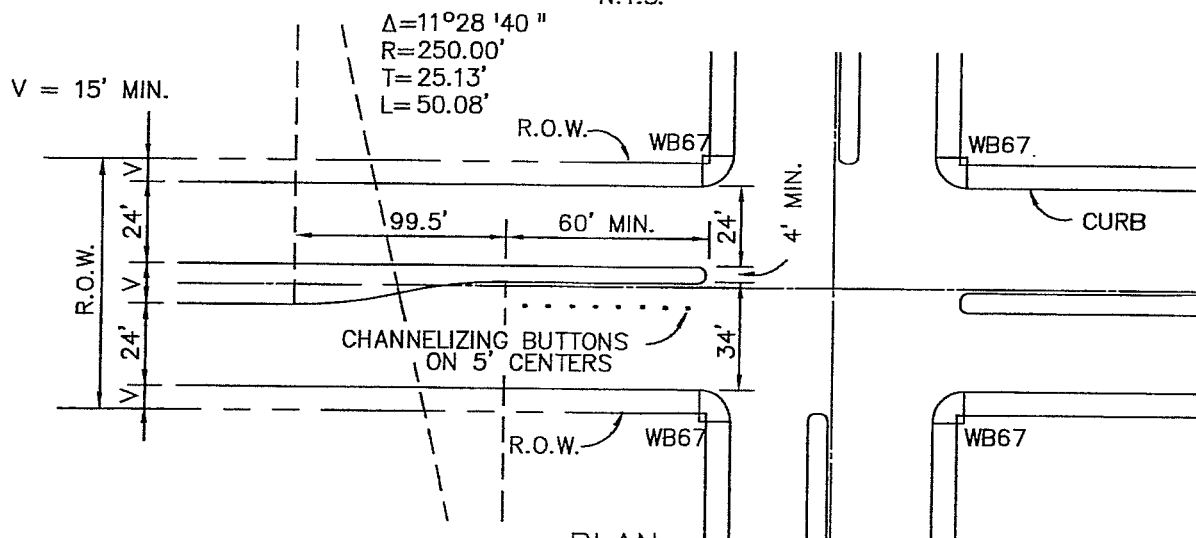
N.T.S.

(FILL SECTIONS ONLY. ALTERNATE REVERSE SLOPE ACCEPTABLE. NOT TO EXCEED 3:1.)



LEFT TURN SECTION

N.T.S.



PLAN

N.T.S.

NOTES:

1. MIN. PAVEMENT DEPTH AND STRENGTH SHALL BE 8\" - CLASS \"C\", OR AS SPECIFIED BY OWNER.
2. MIN. CURB HEIGHT AND WIDTH SHALL BE 6\", OR AS SPECIFIED BY OWNER.

ALTERNATE REINFORCEMENT SHALL BE #4 BARS ON 30\" CENTERS BOTH WAYS.

- ① SAWED LONGITUDINAL CONTRACTION JOINT OR CONSTRUCTION JOINT.

M* - CITY OF MELISSA REVISION

STANDARD SPECIFICATION REFERENCE

303

DATE

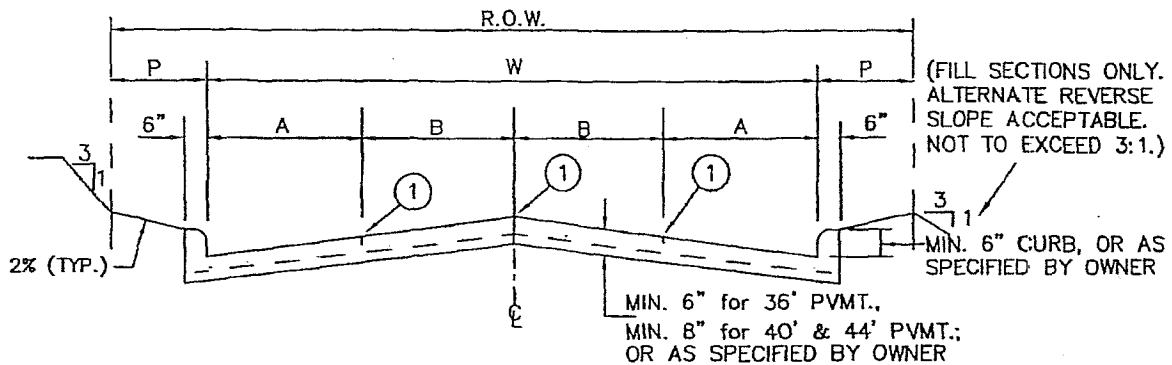
11/13/08

STANDARD DRAWING NO.

2020M*

REINFORCED CONCRETE PAVEMENT
FOUR-LANE DIVIDED THOROUGHFARE

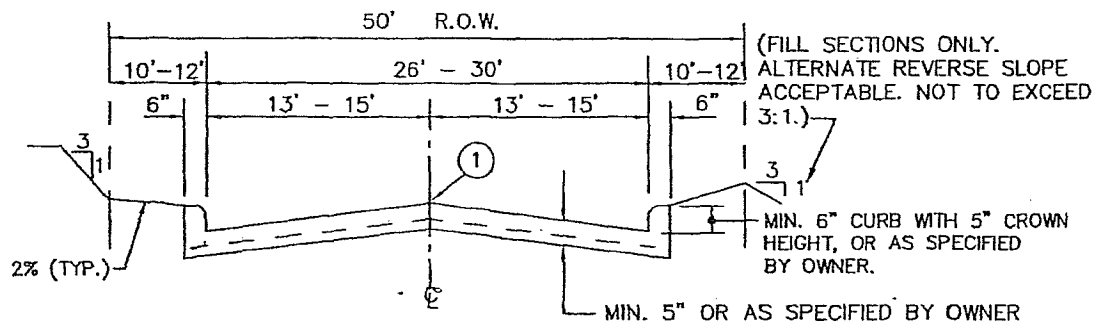




STREET WIDTH(W)	A	B	R.O.W. WIDTH	P	CROWN HEIGHT
36'	8'	10'	VARIES	VARIES	6"
40'	8' OR 10'	10' OR 12'	VARIES	VARIES	6"
44'	11'	11'	VARIES	VARIES	8"

FOUR TRAVEL LANES OR TWO TRAVEL LANES & TWO PARKING LANES

N.T.S.



ONE TRAVEL LANE & TWO PARKING LANES

N.T.S.

① INDICATES SAWED LONGITUDINAL CONTRACTION OR CONSTRUCTION JOINT.

NOTES :

1. ALL REINFORCEMENT SHALL BE #3 BARS ON 24" CENTERS BOTH WAYS, EXCEPT WHERE NOTED.
2. ALTERNATE REINFORCEMENT SHALL BE #4 BARS ON 30" CENTERS BOTH WAYS.
3. PAVEMENT STRENGTH SHALL CONFORM TO CLASS "C" OR "PC" CONCRETE, OR AS SPECIFIED BY THE OWNER.

REINFORCED CONCRETE PAVEMENT

2- & 4-LANE UNDIVIDED THOROUGHFARE

North Central Texas Council of Governments



STANDARD SPECIFICATION REFERENCE

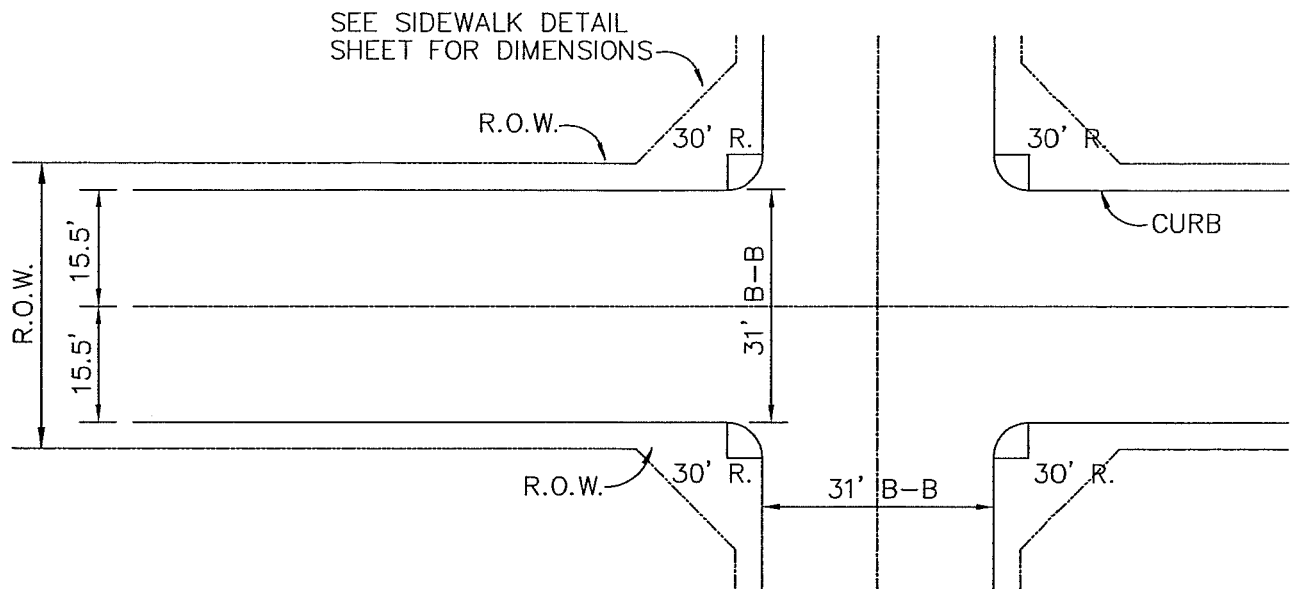
303

DATE

OCT. '04

STANDARD DRAWING NO.

2030



RESIDENTIAL TO RESIDENTIAL N.T.S.

TYPE OF INTERSECTION	TEMPLATE OR RADIUS
RESIDENTIAL TO RESIDENTIAL -	30'
RESIDENTIAL TO COLLECTOR -	MHB
RESIDENTIAL TO THOROUGHFARE -	WB67
RESIDENTIAL TO ARTERIAL -	NOT ALLOWED
COLLECTOR TO THOROUGHFARE -	WB67
COLLECTOR TO ARTERIAL -	WB67
THOROUGHFARE TO ARTERIAL -	WB67

M* - CITY OF MELISSA REVISION

NCTCOG STANDARD SPECIFICATION REFERENCE

DATE

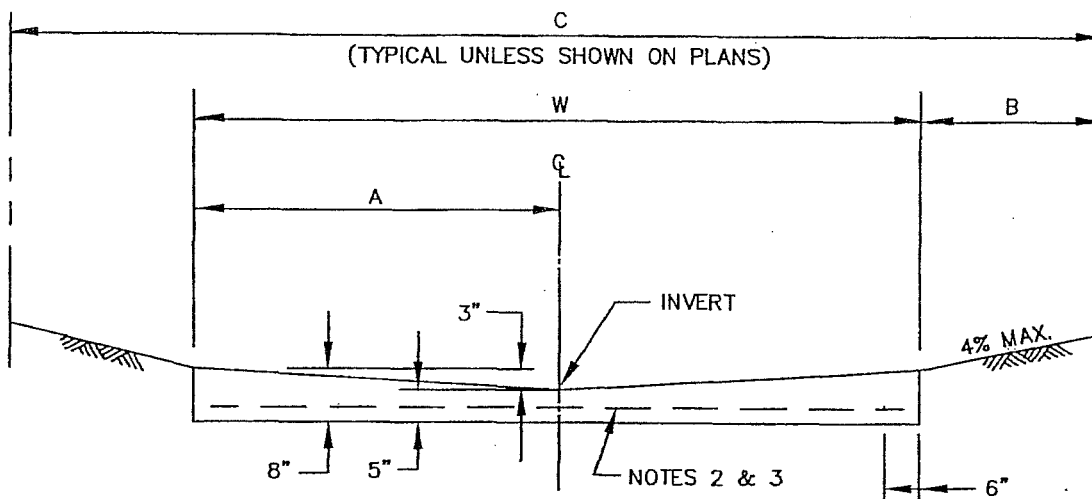
STANDARD DRAWING NO.

AUG. 04 2035M*



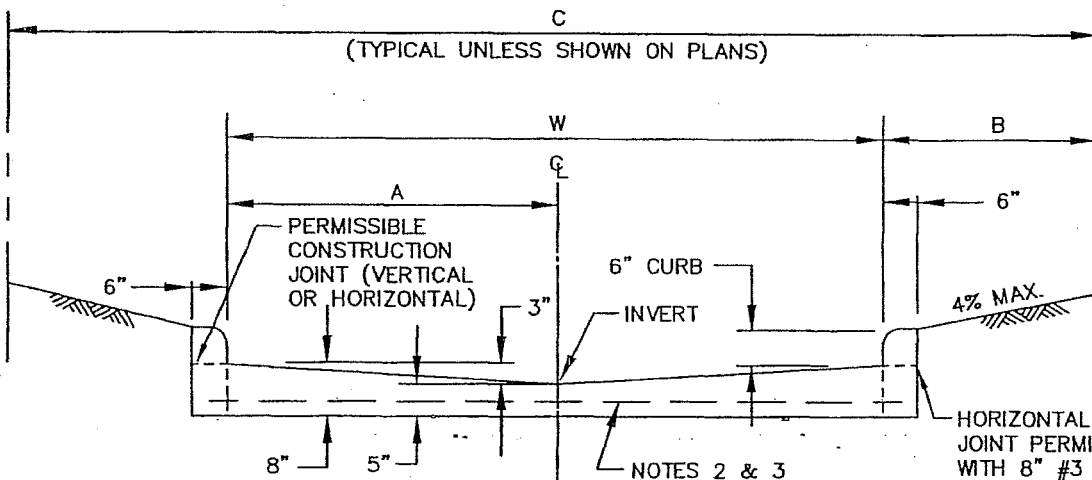
REINFORCED CONCRETE PAVEMENT

INTERSECTION ROW AND CURB RETURN DETAILS



ALLEY SECTION WITHOUT CURB

N.T.S.



ALLEY SECTION WITH CURB

N.T.S.

NOTES:

1. PROVIDE SAWED TRANSVERSE CONTRACTION JOINTS NOT MORE THAN 20' C-C.
2. REINFORCED WITH NO. 3 BARS AT 24" C-C BOTH WAYS.
3. ALTERNATE REINFORCEMENT - NO. 4 BARS AT 30" C-C BOTH WAYS.
4. EXPANSION JOINTS TO BE PLACED AT ALL INTERSECTIONS AND NOT TO EXCEED 600' BETWEEN JOINTS.
5. CONCRETE SHALL BE CLASS "C" OR "PC", OR AS SPECIFIED BY OWNER.

ALLEY WIDTH (W)	A	B	R.O.W. WIDTH (C)
10'	5'	2'-6"	15'
12'	6'	2'-6"	17'
16'	8'	2'-6"	21'
20'	10'	2'-6"	25'

REINFORCED CONCRETE PAVEMENT

ALLEYS

North Central Texas Council of Governments



STANDARD SPECIFICATION REFERENCE

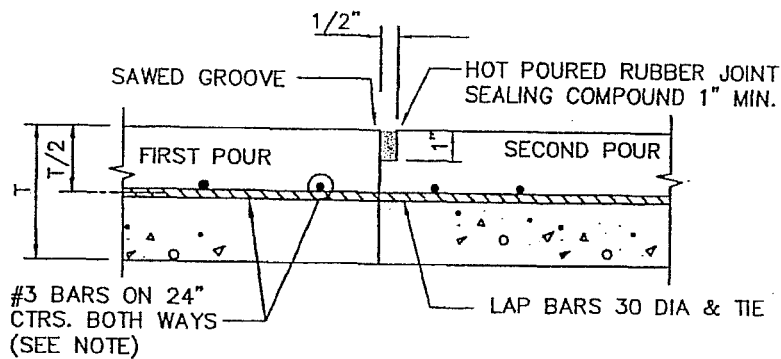
303.5

DATE

OCT. '04

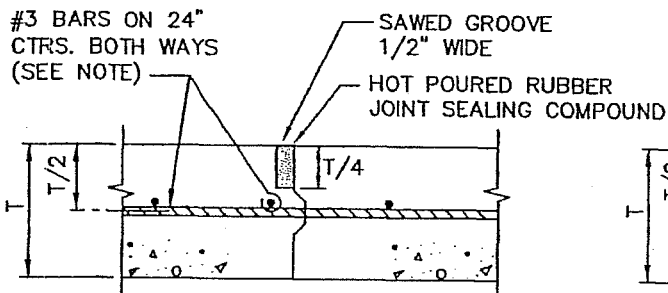
STANDARD DRAWING NO.

2040



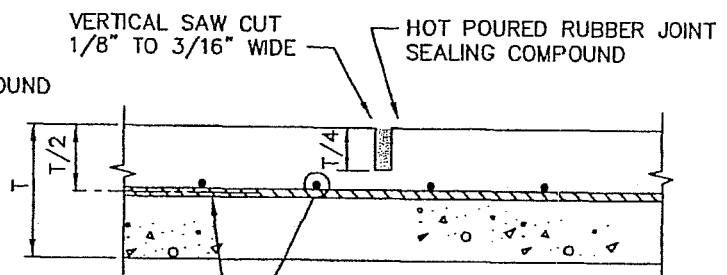
CONSTRUCTION JOINT

N.T.S.



KEYWAY JOINT

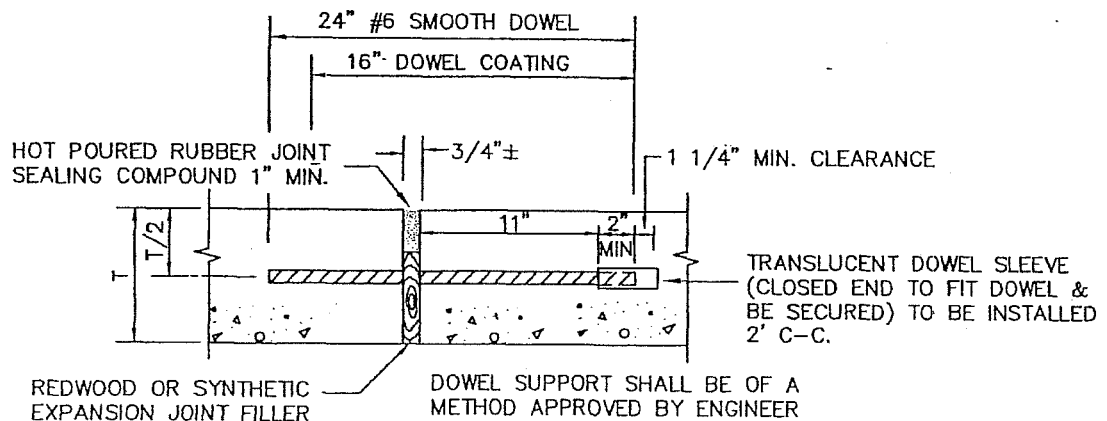
(FOR PAVEMENT THICKNESS > 6")
N.T.S.



SAWED CONTRACTION JOINT

N.T.S.

NOTE:
ALTERNATE REINFORCEMENT
#4 BARS ON 30" CTRS.
BOTH WAYS.



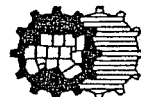
EXPANSION JOINT

(SPACED 600 FT. MAXIMUM; LOCATE AT
STRUCTURES AND AT INTERSECTION P.C.'S & P.T.'S)
N.T.S.

REINFORCED CONCRETE PAVEMENT

JOINTS

North Central Texas Council of Governments



STANDARD SPECIFICATION REFERENCE

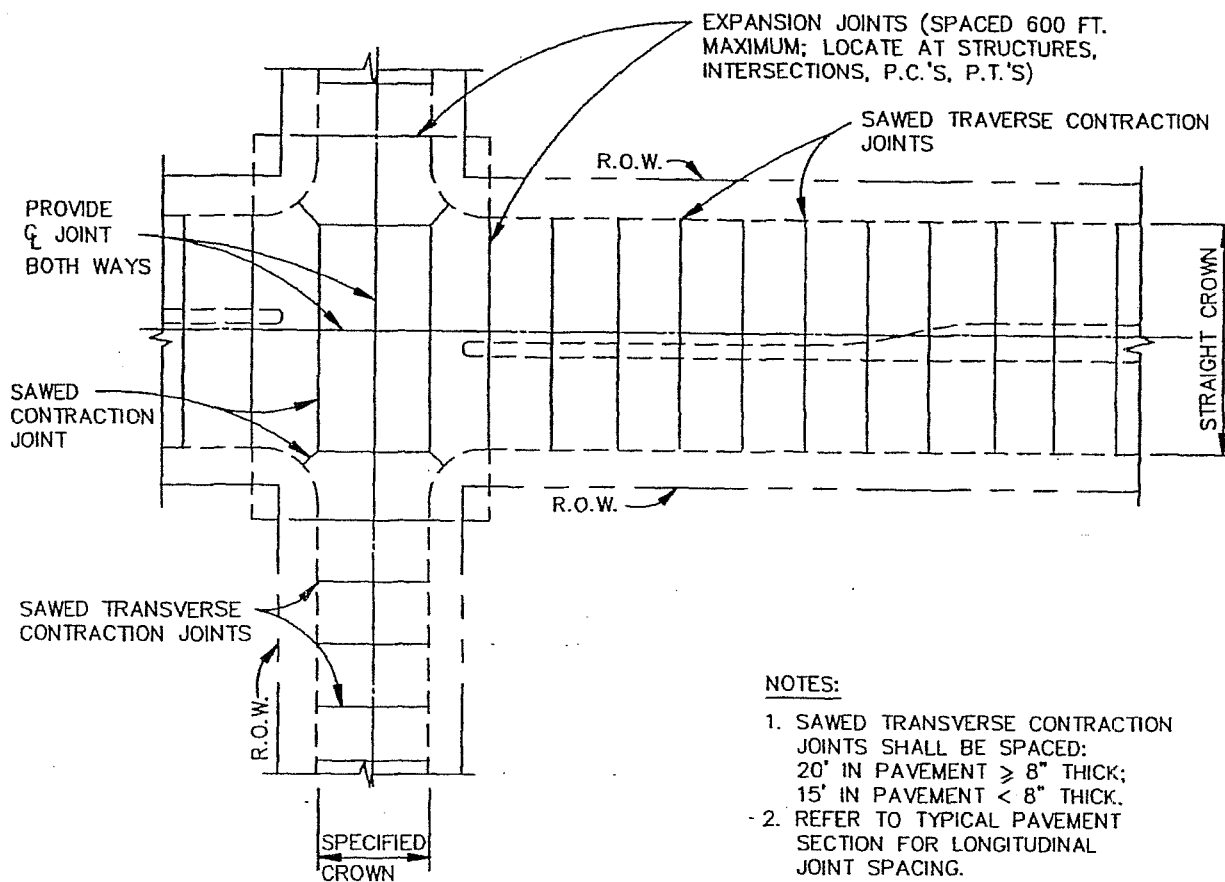
303.5.4.

DATE

OCT. '04

STANDARD DRAWING NO.

2050



NOTES:

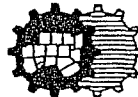
1. SAWED TRAVERSE CONTRACTION JOINTS SHALL BE SPACED:
20' IN PAVEMENT $\geq$ 8" THICK;
15' IN PAVEMENT $<$ 8" THICK.
2. REFER TO TYPICAL PAVEMENT SECTION FOR LONGITUDINAL JOINT SPACING.

SPACING DIAGRAM FOR TRANSVERSE JOINTS

N.T.S.

REINFORCED CONCRETE PAVEMENT
TRANSVERSE JOINT SPACING

North Central Texas Council of Governments



STANDARD SPECIFICATION REFERENCE

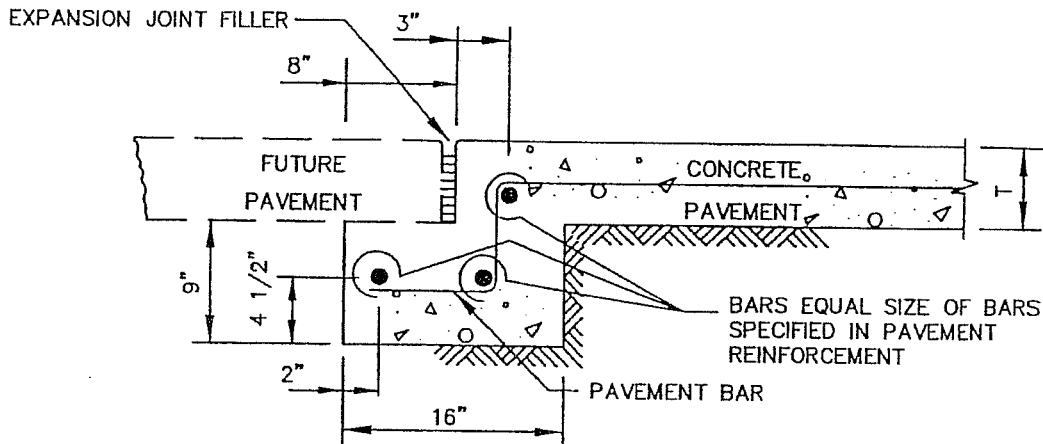
303.5.4.

DATE

OCT. '04

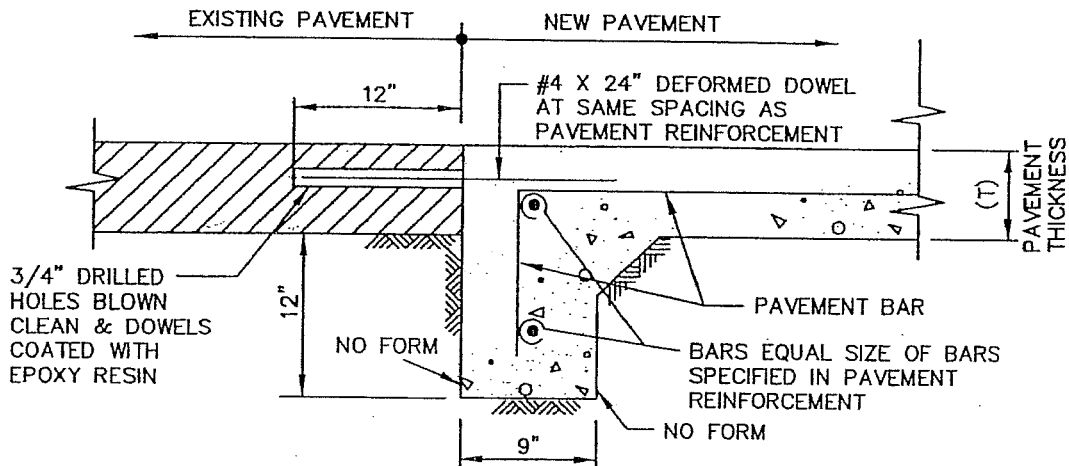
STANDARD DRAWING NO.

2060



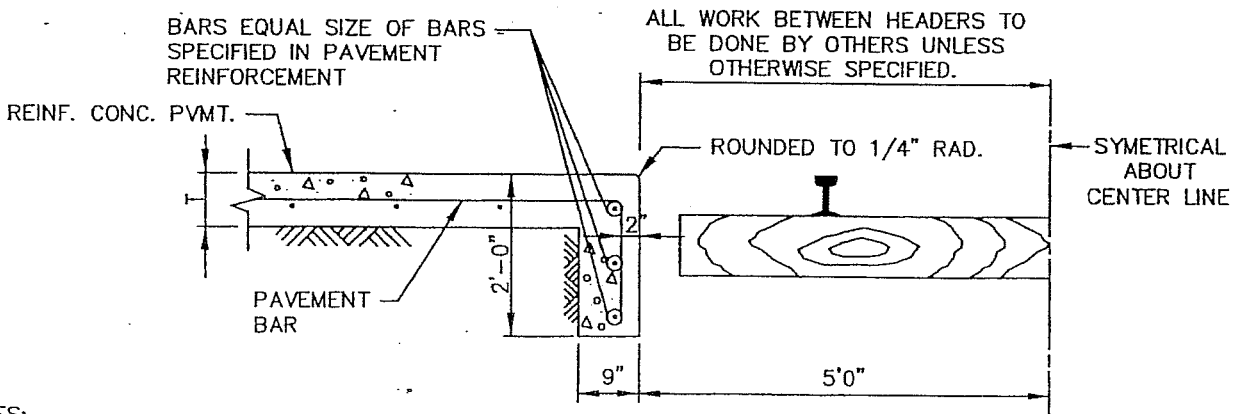
STREET HEADER FOR FUTURE PAVEMENT

N.T.S.



STREET HEADER AT EXISTING PAVEMENT

N.T.S.



NOTES:

1. PAVEMENT BARS TO BE BENT DOWN INTO HEADER.

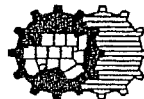
2. HEADER AND PAVEMENT TO BE MONOLITHIC.

STREET HEADER AT RAILROAD

N.T.S.

REINFORCED CONCRETE PAVEMENT
STREET HEADERS

North Central Texas Council of Governments



STANDARD SPECIFICATION REFERENCE

305.4

DATE

OCT. '04

STANDARD DRAWING NO.

2070

10' (TYP.) 2' (TYP.) 6" THICK ASPHALT TRANSITION

1.5' (TYP.) 1.5' (TYP.)

END CURBS

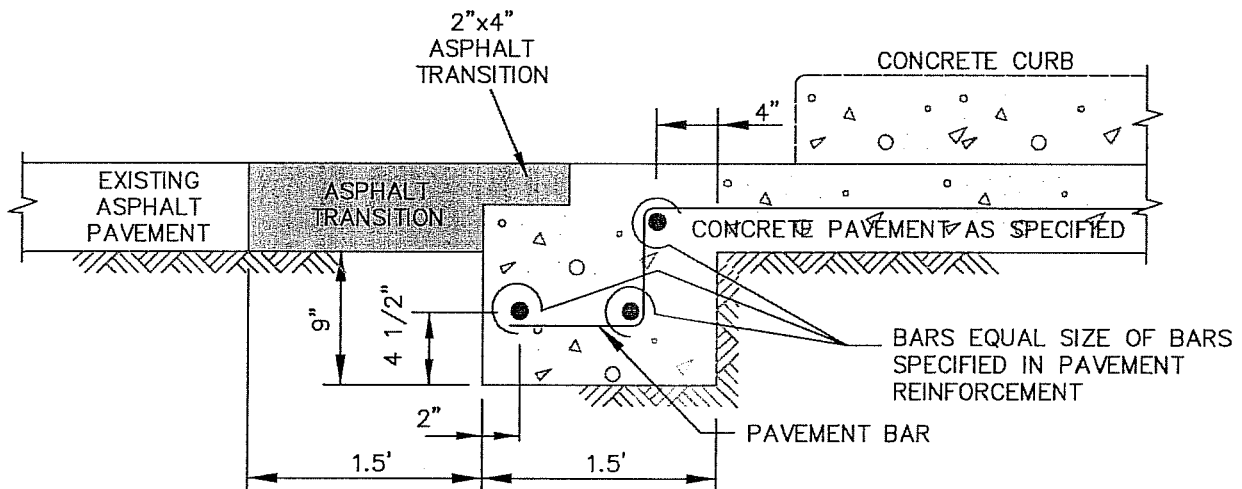
10'R (MIN.)

REINF. CONC. PAVEMENT THICKNESS & STRENGTH AS SPECIFIED ON PLANS

A

A

N.T.S.

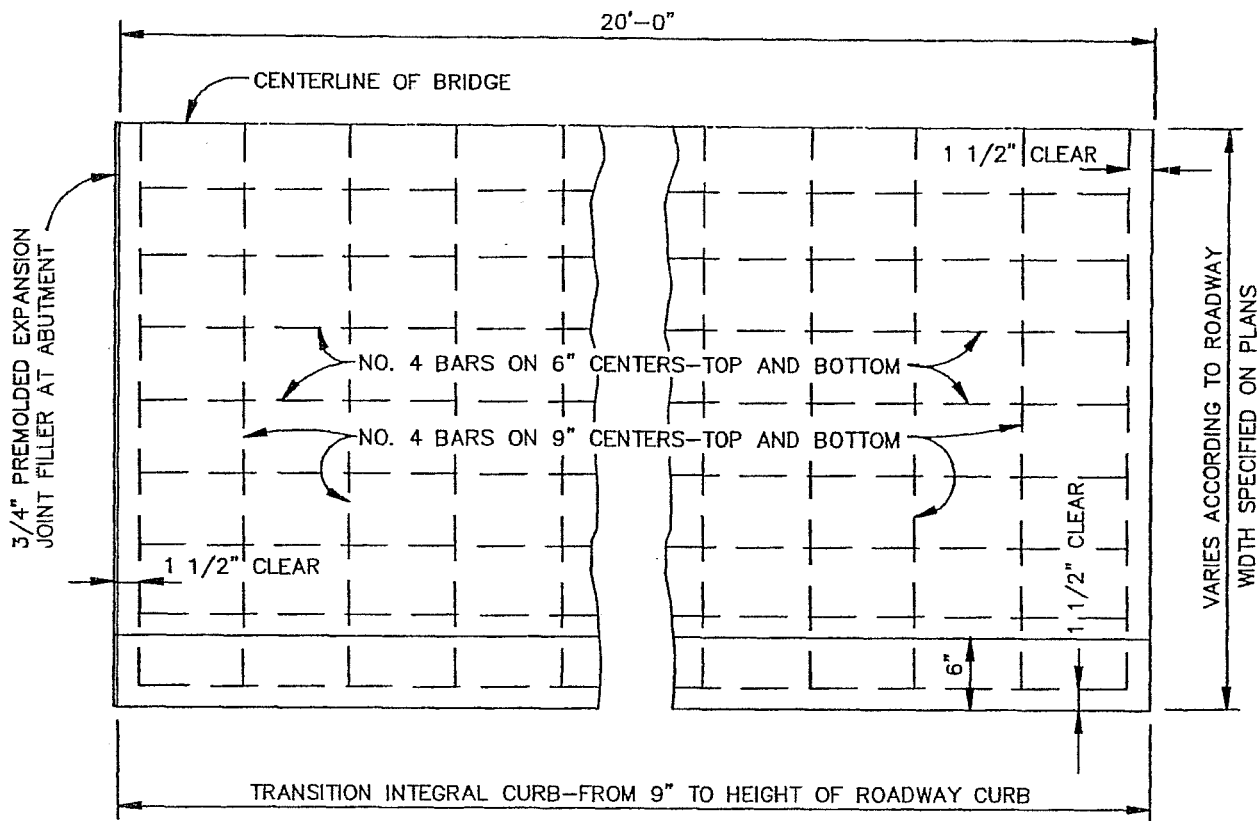


N.T.S.

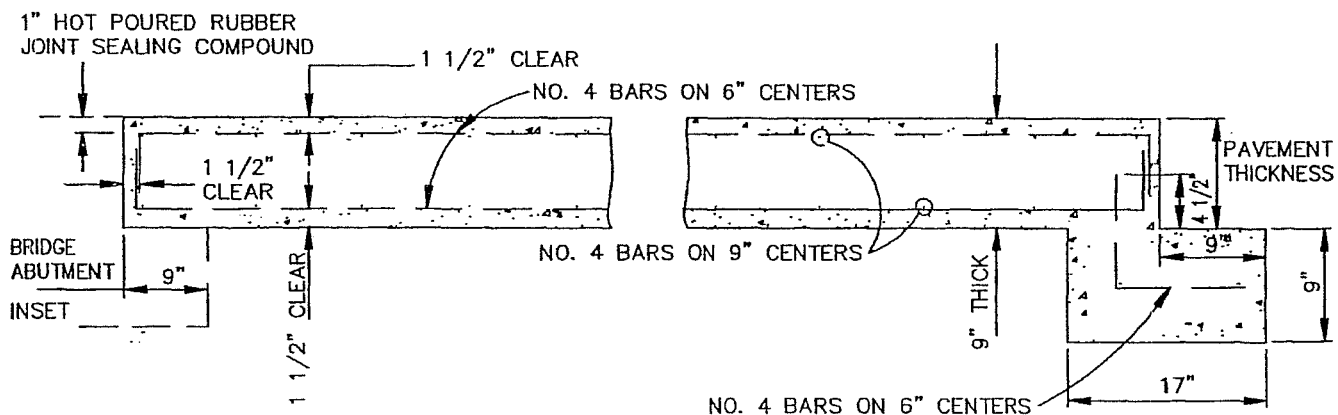
305.4

11/13/08

2070AM*



PLAN
N.T.S.



SECTION
N.T.S.

REINFORCED CONCRETE PAVEMENT

BRIDGE APPROACH SLAB

North Central Texas Council of Governments



STANDARD SPECIFICATION REFERENCE

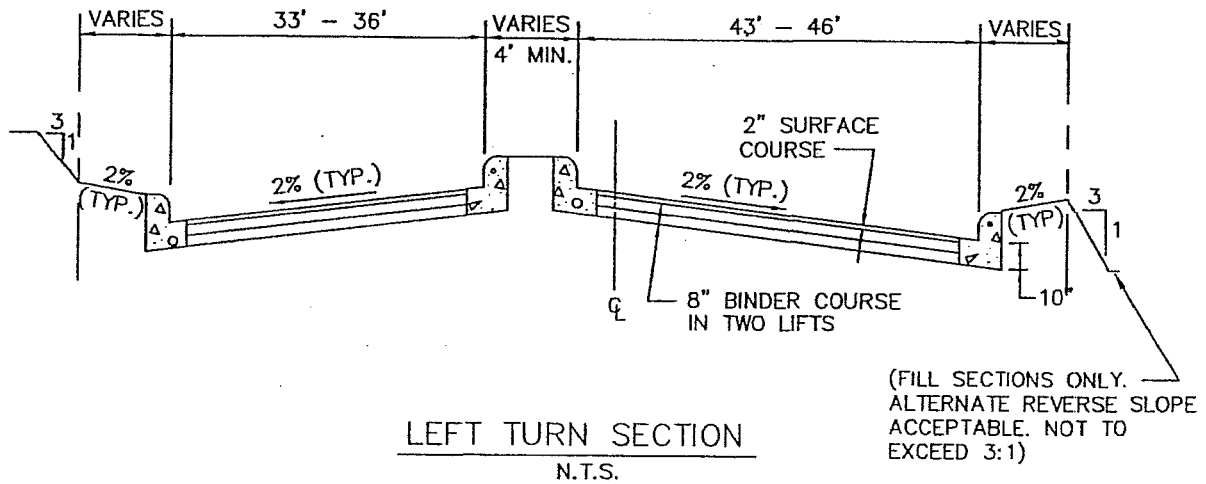
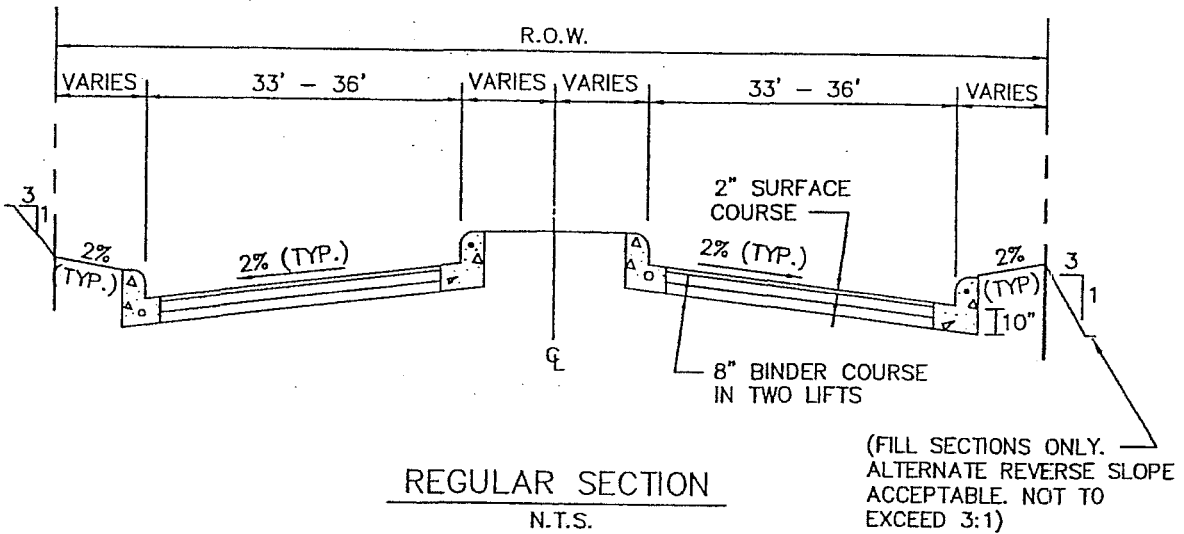
303

DATE

OCT. '04

STANDARD DRAWING NO.

2080



MIN. PAVEMENT DEPTH = 10" $\left\{ \begin{array}{l} 2" \text{ HMA SURFACE COURSE} \\ 8" \text{ HMA BINDER COURSE} \end{array} \right.$

(SEE STANDARD DRAWING NO. 2010 FOR PLAN VIEW)

NOTES:

1. A SOIL INVESTIGATION FOR SUBGRADE DESIGN SHALL BE CONDUCTED BY THE ENGINEER AND THIS DESIGN SHALL BE APPROVED BY THE OWNER PRIOR TO CONSTRUCTION.
2. WHERE FULL-DEPTH ASPHALT PAVEMENTS ARE BEING CONSIDERED FOR USE, THE ASPHALT PAVEMENT THICKNESS SHALL BE BASED UPON NECESSARY SUBGRADE ANALYSES AND PAVEMENT THICKNESS DESIGN DETERMINATIONS AS APPROVED BY THE OWNER.
3. MIN. CURB HEIGHT AND WIDTH SHALL BE 6", OR AS SPECIFIED BY OWNER.
4. TACK COAT BETWEEN COURSES AS REQUIRED.

HOT MIX ASPHALT PAVEMENT
SIX-LANE DIVIDED THOROUGHFARE

North Central Texas Council of Governments



STANDARD SPECIFICATION REFERENCE

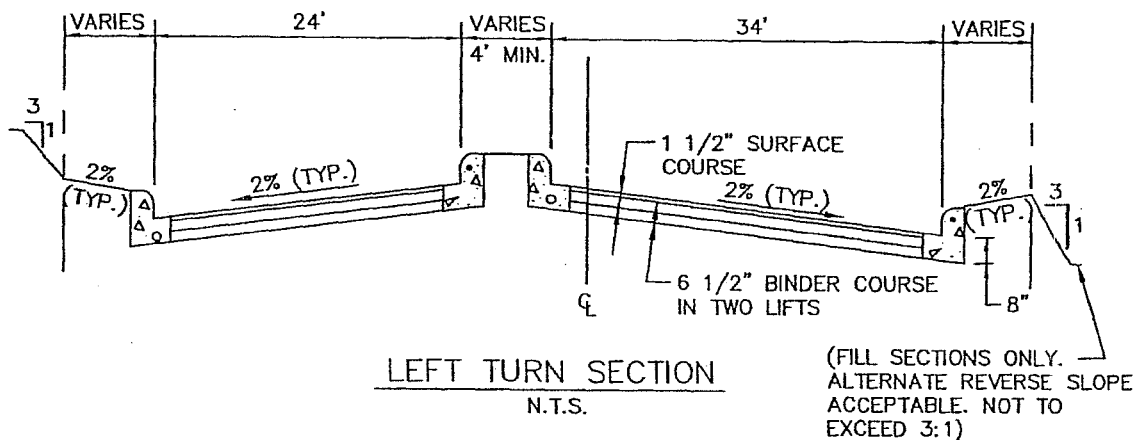
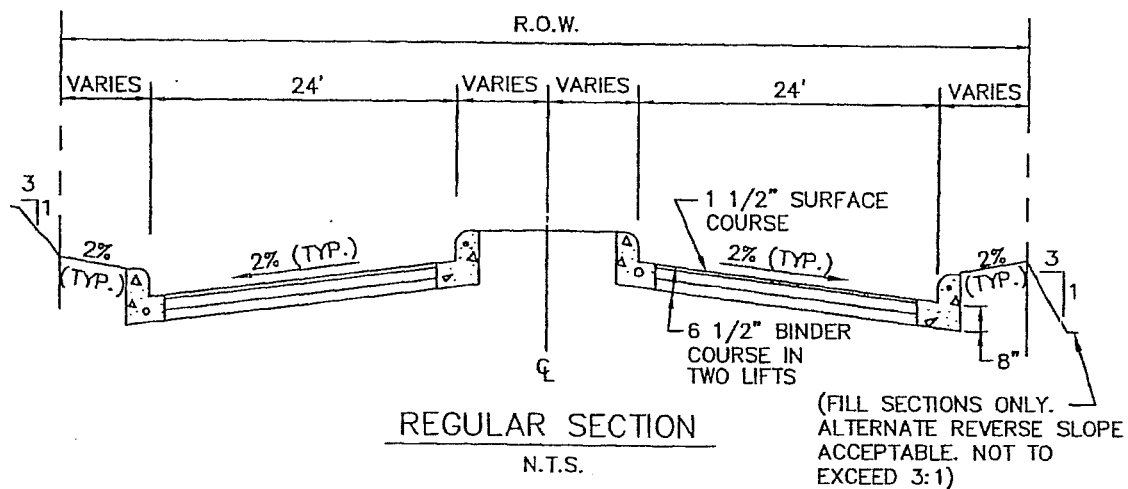
302

DATE

OCT. '04

STANDARD DRAWING NO.

2090



MIN. PAVEMENT DEPTH = 8" { 1 1/2" HMA SURFACE COURSE
2-3 1/4" HMA BINDER COURSES

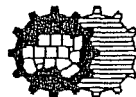
(SEE STANDARD DRAWING NO. 2020 FOR PLAN VIEW)

NOTES:

1. A SOIL INVESTIGATION FOR SUBGRADE DESIGN SHALL BE CONDUCTED BY THE ENGINEER AND THIS DESIGN SHALL BE APPROVED BY THE OWNER PRIOR TO CONSTRUCTION.
2. WHERE FULL-DEPTH ASPHALT PAVEMENTS ARE BEING CONSIDERED FOR USE, THE ASPHALT PAVEMENT THICKNESS SHALL BE BASED UPON NECESSARY SUBGRADE ANALYSES AND PAVEMENT THICKNESS DESIGN DETERMINATIONS AS APPROVED BY THE OWNER.
3. MIN. CURB HEIGHT AND WIDTH SHALL BE 6", OR AS SPECIFIED BY OWNER.
4. TACK COAT BETWEEN COURSES AS REQUIRED.

HOT MIX ASPHALT PAVEMENT
FOUR-LANE DIVIDED THOROUGHFARE

North Central Texas Council of Governments



STANDARD SPECIFICATION REFERENCE

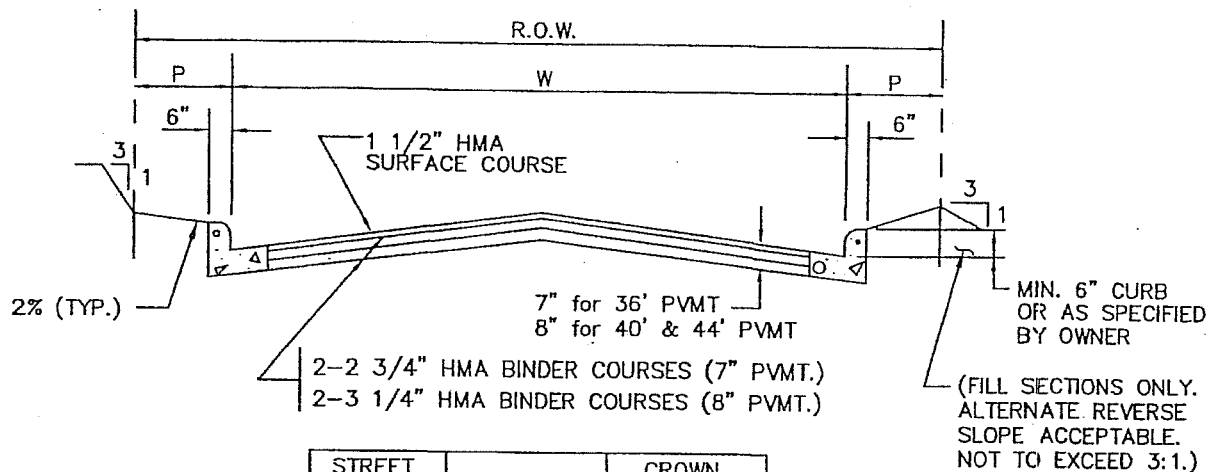
302

DATE

OCT. '04

STANDARD DRAWING NO.

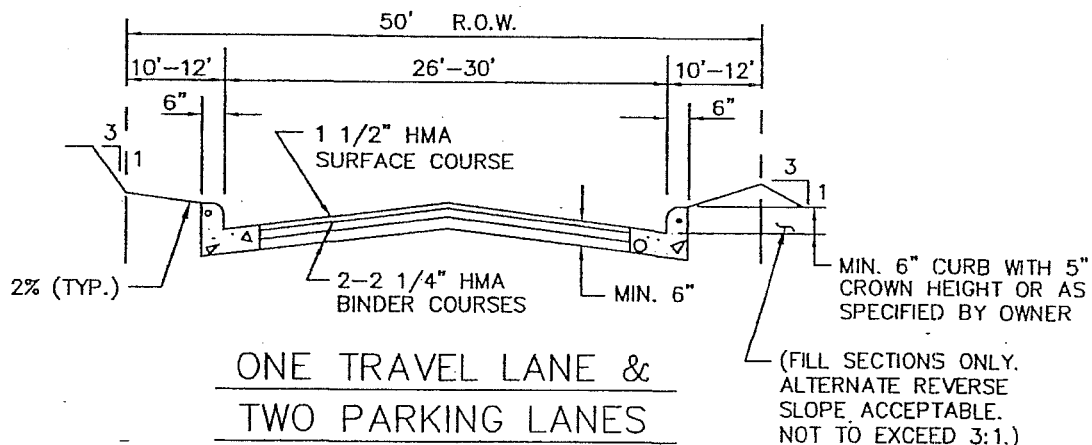
2100



STREET WIDTH(W)	P	CROWN HEIGHT
36'	VARIES	6"
40'	VARIES	6"
44'	VARIES	8"

FOUR TRAVEL LANES OR
TWO TRAVEL LANES &
TWO PARKING LANES

N.T.S.



ONE TRAVEL LANE &
TWO PARKING LANES

N.T.S.

NOTES:

1. A SOIL INVESTIGATION FOR SUBGRADE DESIGN SHALL BE CONDUCTED BY THE ENGINEER THIS DESIGN SHALL BE APPROVED BY THE OWNER PRIOR TO CONSTRUCTION.
2. WHERE FULL-DEPTH ASPHALT PAVEMENTS ARE BEING CONSIDERED FOR USE, THE ASPHALT PAVEMENT THICKNESS SHALL BE BASED UPON NECESSARY SUBGRADE ANALYSES AND PAVEMENT THICKNESS DESIGN DETERMINATIONS AS APPROVED BY THE OWNER. THICKNESSES SHOWN ARE TYPICAL.
3. TACK COAT BETWEEN COURSES AS REQUIRED.

HOT MIX ASPHALT PAVEMENT

2- & 4-LANE UNDIVIDED THOROUGHFARE

North Central Texas Council of Governments



STANDARD SPECIFICATION REFERENCE

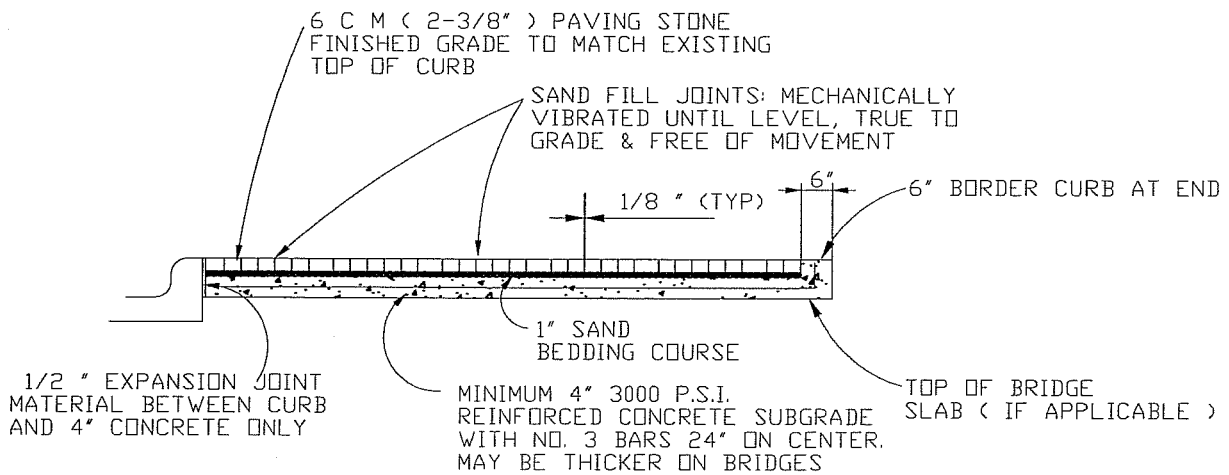
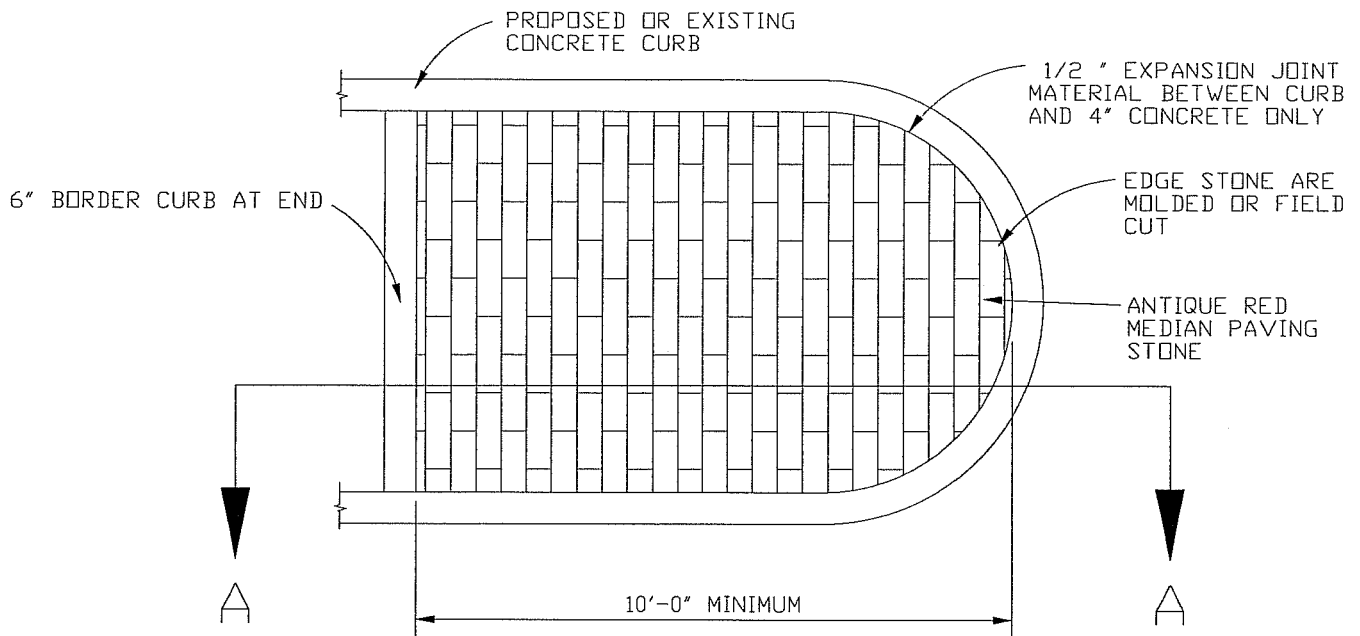
302

DATE

OCT. '04

STANDARD DRAWING NO.

2110



SECTION A-A

NOTES:

1. MEDIAN PAVING SHALL EXTEND TO A POINT WHERE MEDIAN IS 6' WIDE, IF MEDIAN IS 6' WIDE, OR LESS PAVING SHALL EXTEND 15' FROM NOSE.
2. FOR MEDIANS WIDER THAN 6', PAVING SHALL EXTEND 10' FROM NOSE.
3. ALL DISTANCES ARE MINIMUM.
4. PAVING STONE SHALL BE INTERLOCKING CONCRETE.

MEDIAN ISLAND STONE PAVING
CITY OF MELISSA, TEXAS



M* - CITY OF MELISSA REVISION

NCTCOG STANDARD SPECIFICATION REFERENCE

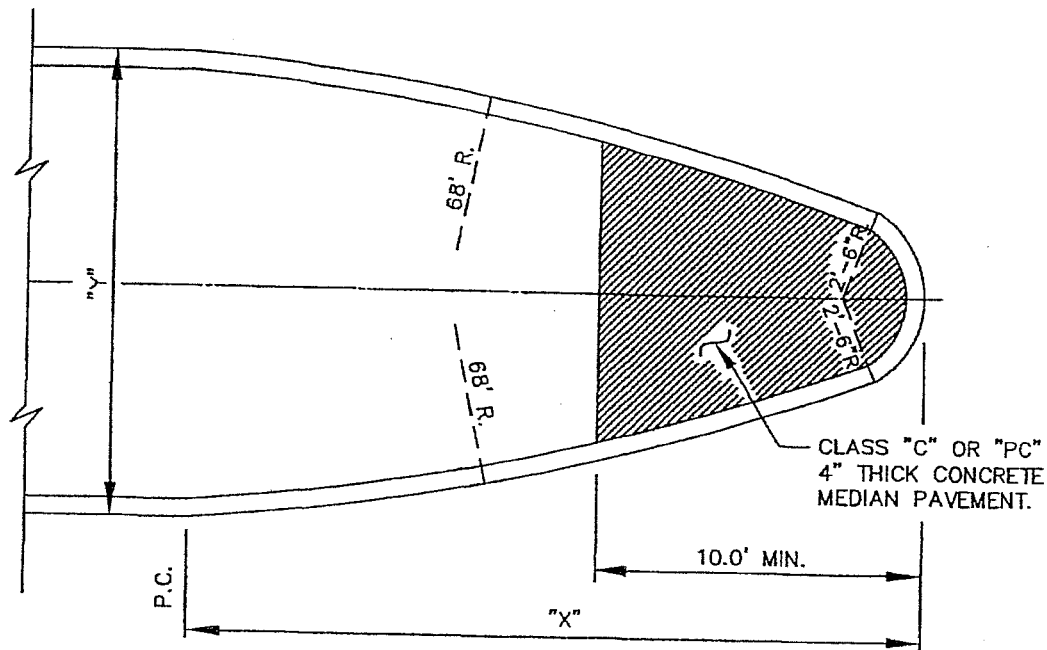
305.3

DATE

11/13/08

STANDARD DRAWING NO.

2130AM*



DIMENSIONS OF MEDIAN NOSE

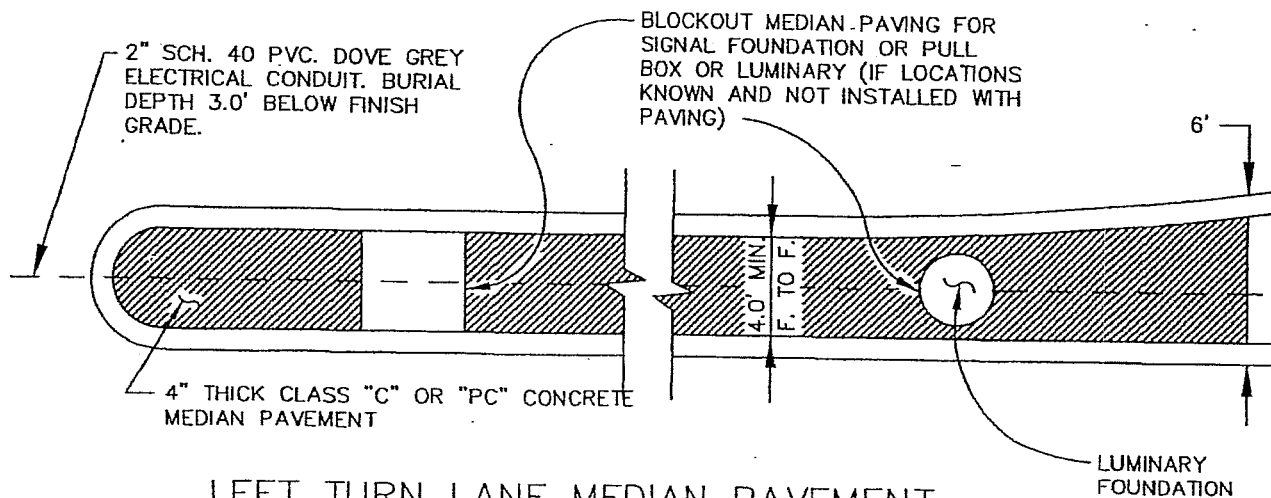
Y = 15'	X = 27.6'
Y = 16'	X = 28.8'
Y = 17'	X = 29.9'
Y = 18'	X = 30.9'

CONCRETE NOSE FOR MEDIAN ISLAND

N.T.S.

NOTE:

MEDIAN PAVING SHALL EXTEND TO POINT WHERE MEDIAN IS 6' WIDE. IF MEDIAN IS 6' WIDE, PAVING SHALL EXTEND 15' FROM NOSE. FOR MEDIANS WIDER THAN 6' PAVING SHALL EXTEND 10' FROM NOSE. ALL DISTANCES ARE MINIMUM.

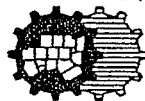


LEFT TURN LANE MEDIAN PAVEMENT

N.T.S.

MEDIAN ISLAND PAVEMENT
NOSE & LEFT TURN LANE

North Central Texas Council of Governments



STANDARD SPECIFICATION REFERENCE

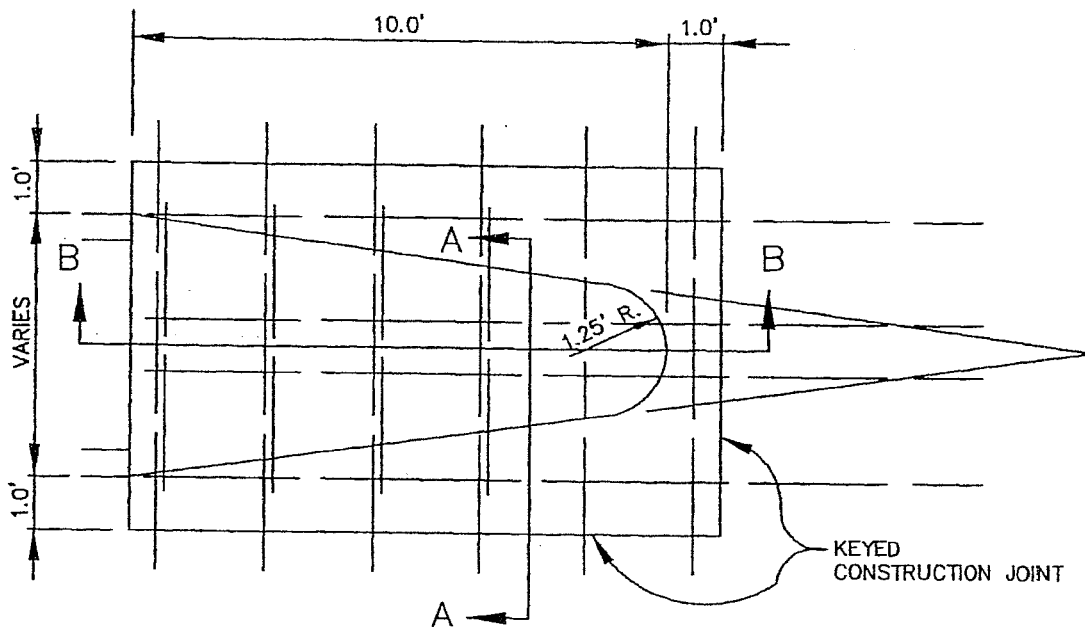
305.3

DATE

OCT. '04

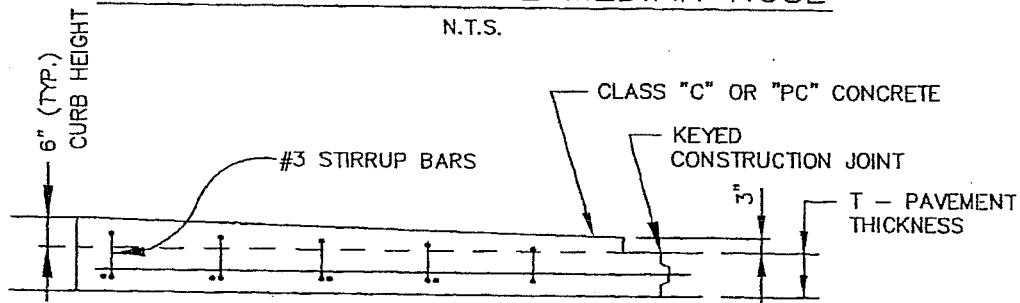
STANDARD DRAWING NO.

2130



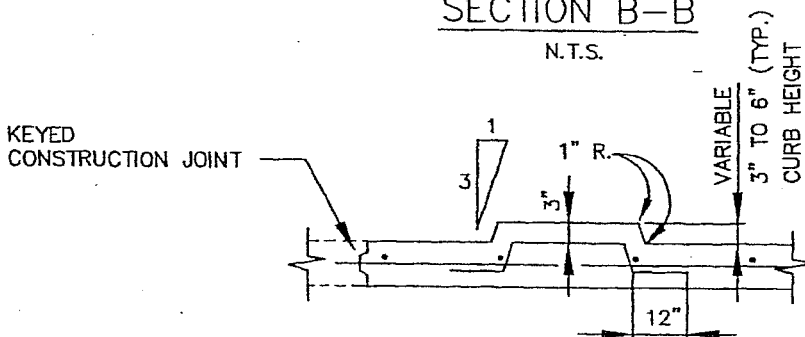
MONOLITHIC CONCRETE MEDIAN NOSE

N.T.S.



SECTION B-B

N.T.S.



SECTION A-A

N.T.S.

NOTE:

REINFORCEMENT BARS SHALL MATCH THOSE IN PAVEMENT.

MEDIAN ISLAND PAVEMENT
MONOLITHIC CONCRETE NOSE

North Central Texas Council of Governments



STANDARD SPECIFICATION REFERENCE

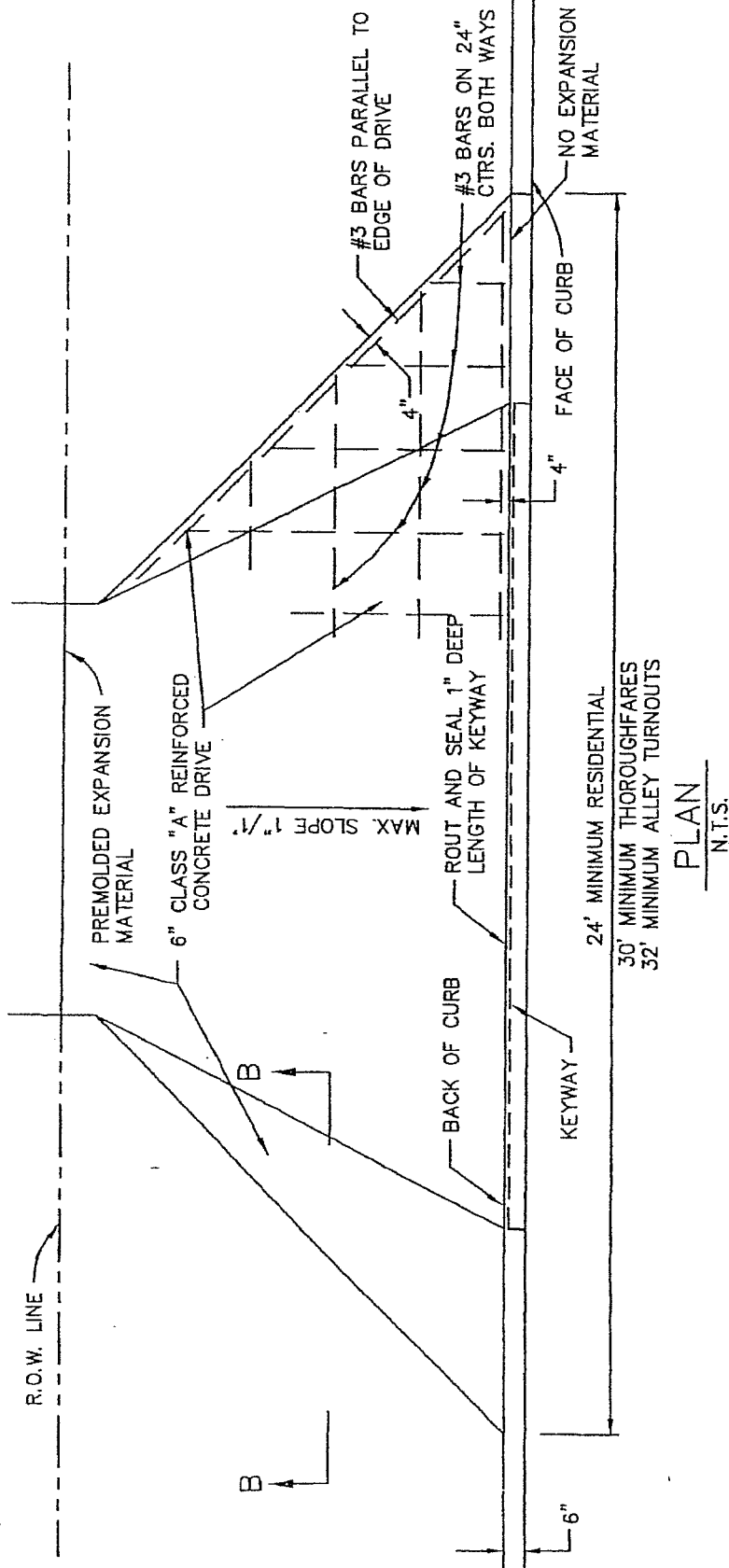
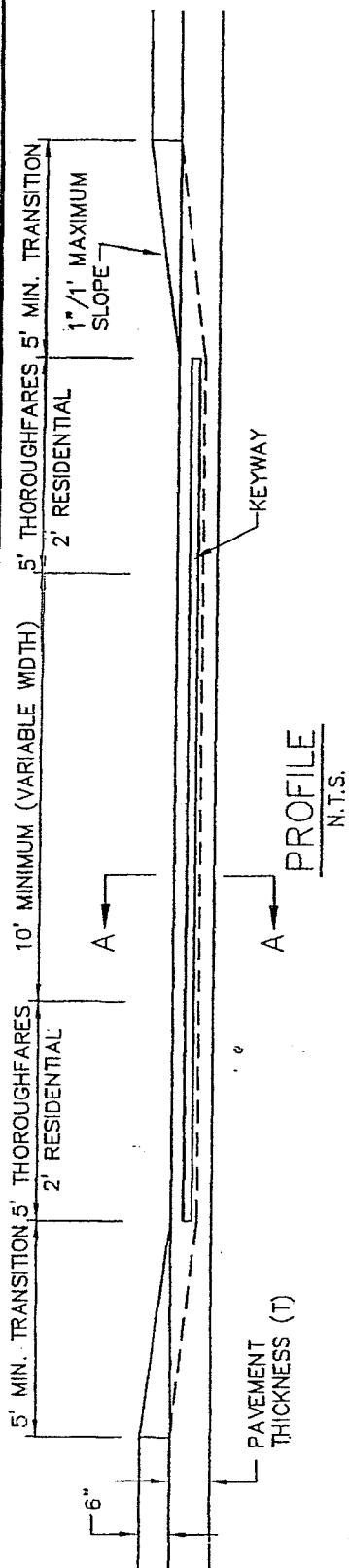
305.3

DATE

OCT. '04

STANDARD DRAWING NO.

2140



SEE NOTES, STANDARD DRAWING NO. 2150B.

DRIVEWAY APPROACH

FLARED RETURN TYPE

North Central Texas Council of Governments



STANDARD SPECIFICATION REFERENCE
 305.2

DATE
 OCT. '04

STANDARD DRAWING NO.
 2150A

STANDARD DRAWING NO.
 2150A

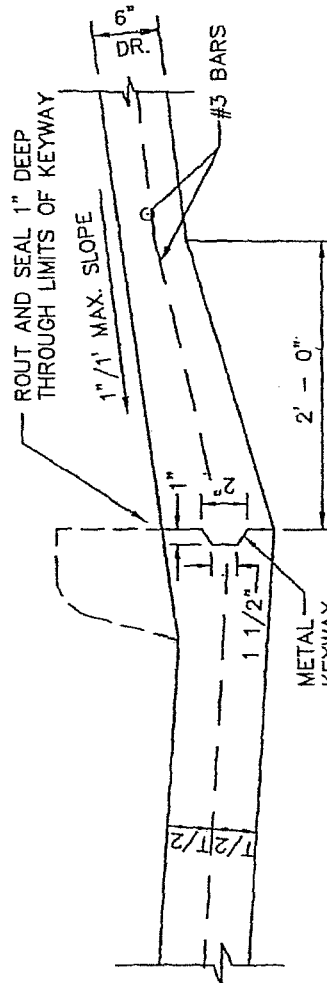
6" CLASS "A" P.S.I. REINF.
CONC. DRIVE



SECTION "B-B"
N.T.S.

NOTES:

1. OFFSETS IN DRIVES TO MATCH PROPOSED WALKS SHALL BE BUILT MONOLITHIC WITH THE DRIVE.
2. PAVEMENT JOINTS SHALL NOT EXTEND THROUGH DRIVE.
3. KEYWAY LIMITS SHALL COINCIDE WITH LIMITS OF 1" CURB.
4. REINFORCING STEEL SHALL NOT EXTEND THROUGH KEYWAY. DRIVE SHALL NOT BE TIED TO PAVEMENT.
5. MAXIMUM SLOPE ON DRIVE IN ANY DIRECTION SHOULD BE 1"/1', WITH EXCEPTION OF 1 1/4"/1' THROUGH ANY SIDEWALK PASSTHROUGH TO RESPECT PRINCIPLES OF BARRIER FREE CONSTRUCTION.
6. LENGTH OF TRANSITION FOR CURB AT EACH SIDE OF DRIVE MAY VARY DUE TO STREET GRADES AND REQUIREMENT TO HOLD MAXIMUM SLOPE OF 1"/1'.
7. SIDEWALKS SHALL BE AS DIRECTED BY OWNER AND SHALL MEET REQUIREMENTS OF A.D.A.
8. EXTEND TRANSVERSE PAVEMENT SAWED JOINTS TO R.O.W.



SECTION "A - A"
N.T.S.

STANDARD SPECIFICATION REFERENCE
305.2

DATE
OCT. '04

STANDARD DRAWING NO.
2150B

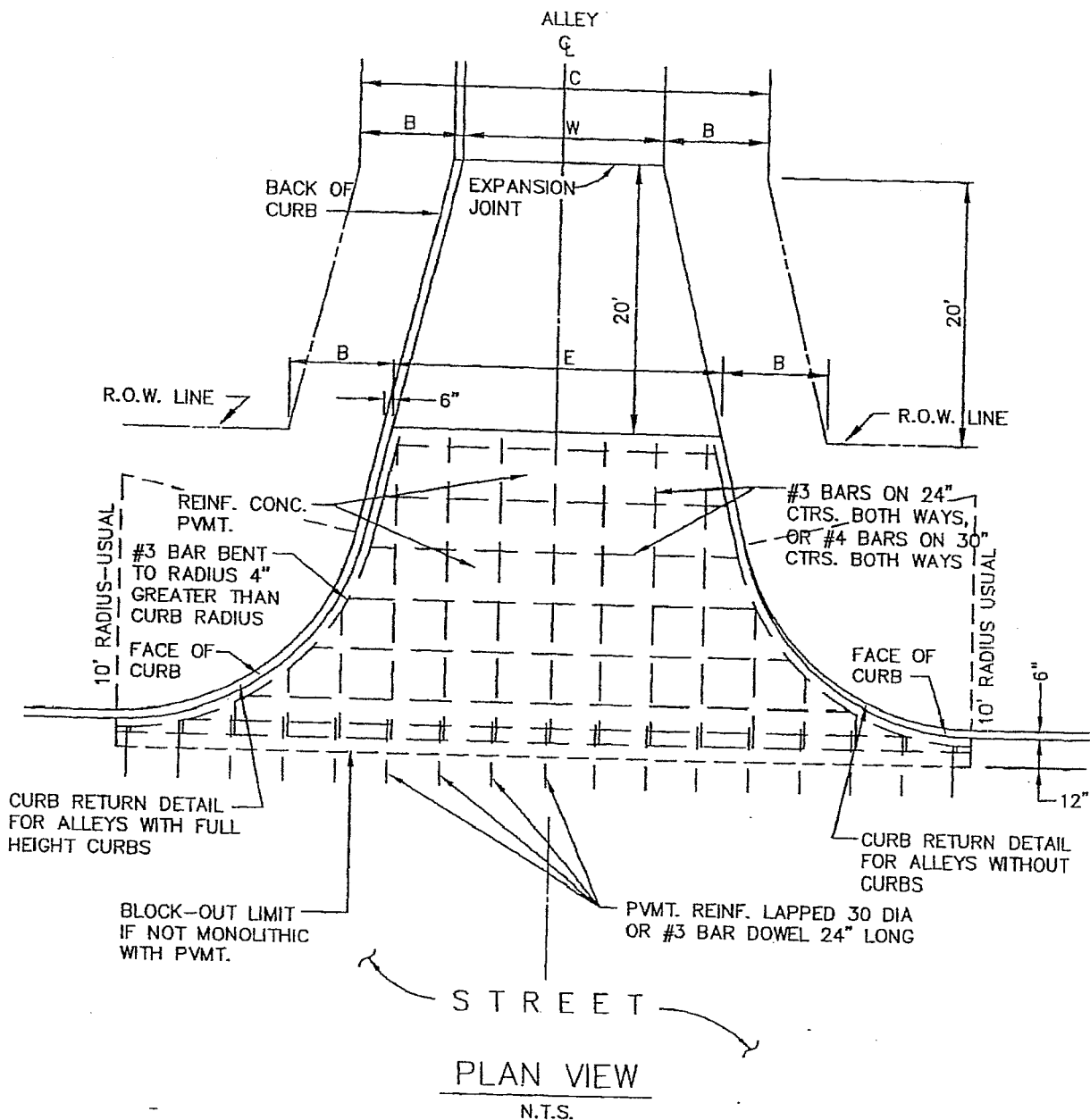
North Central Texas Council of Governments



DRIVEWAY APPROACH

FLARED RETURN TYPE

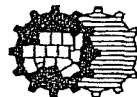
STANDARD DRAWING NO.
2150B



ALLEY WIDTH (W)	R.O.W. WIDTH (C)	B	E
10'	15'	2' - 6"	12'
12'	17'	2' - 6"	14'
16'	21'	2' - 6"	18'
20'	25'	2' - 6"	22'

ALLEY APPROACH RADIUS RETURN TYPE

North Central Texas Council of Governments



STANDARD SPECIFICATION REFERENCE

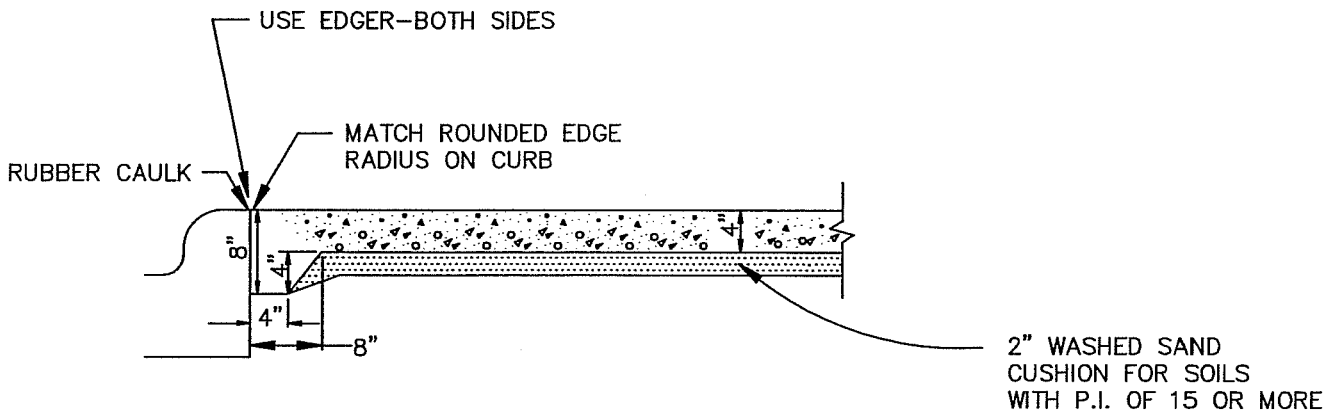
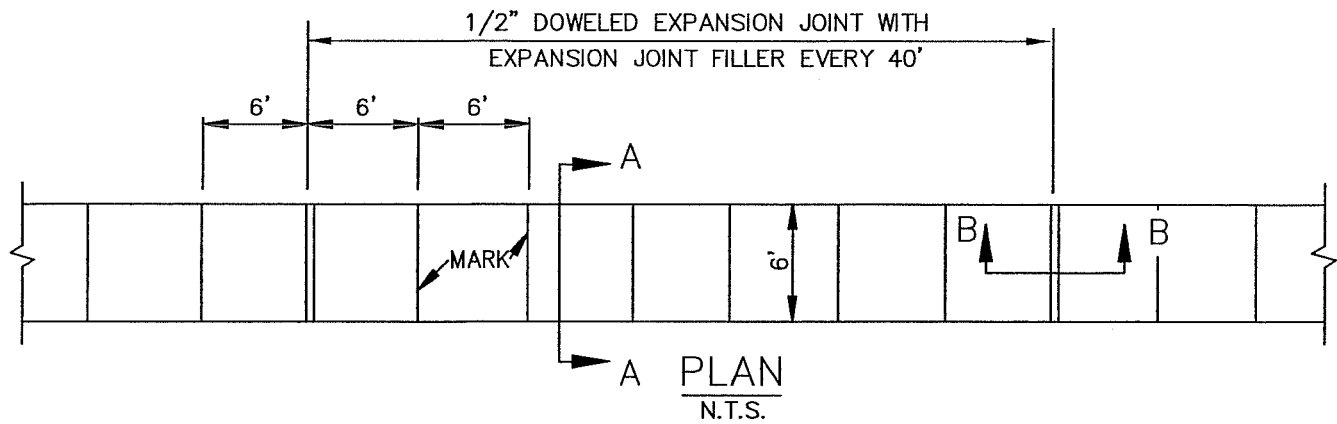
305.2

DATE

OCT. '04

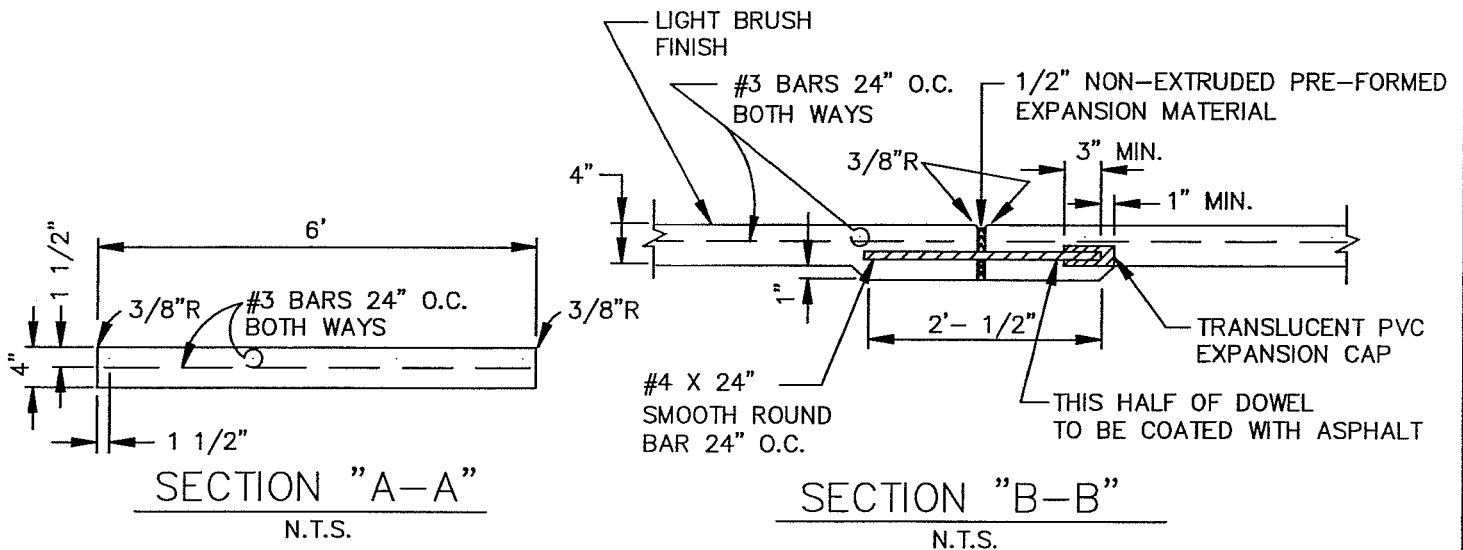
STANDARD DRAWING NO.

2160



JOINT LUG DETAIL FOR MEDIAN PAVEMENT OR SIDEWALK ADJACENT TO CURB

N.T.S.



NOTE:

1. REFER TO STANDARD SPECIFICATION ITEM 8.3. FOR ALTERNATE REINFORCEMENT.
2. CROSS SLOPE OF SIDEWALK SHALL BE $\pm 1/4"$ PER FT. MIN. TO $\pm 3/8"$ PER FT. MAX.
3. 5'-0" SIDEWALK FOR RESIDENTIAL STREETS AND 6'-0" SIDEWALK FOR COLLECTOR AND THOROUGHFARE STREETS.
4. SIDEWALK SHALL BE CLASS "A" CONCRETE UNLESS OTHERWISE SPECIFIED BY OWNER.
5. ALL HONEYCOMB IN BACK OF CURB TO BE TROWEL-PLASTERED BEFORE POURING SIDEWALK.
6. LUG MAY BE FORMED BY SHAPING SUBGRADE TO APPROXIMATE DIMENSIONS SHOWN.

REINFORCED CONCRETE SIDEWALKS

JOINTS AND SPACING



STANDARD SPECIFICATION REFERENCE

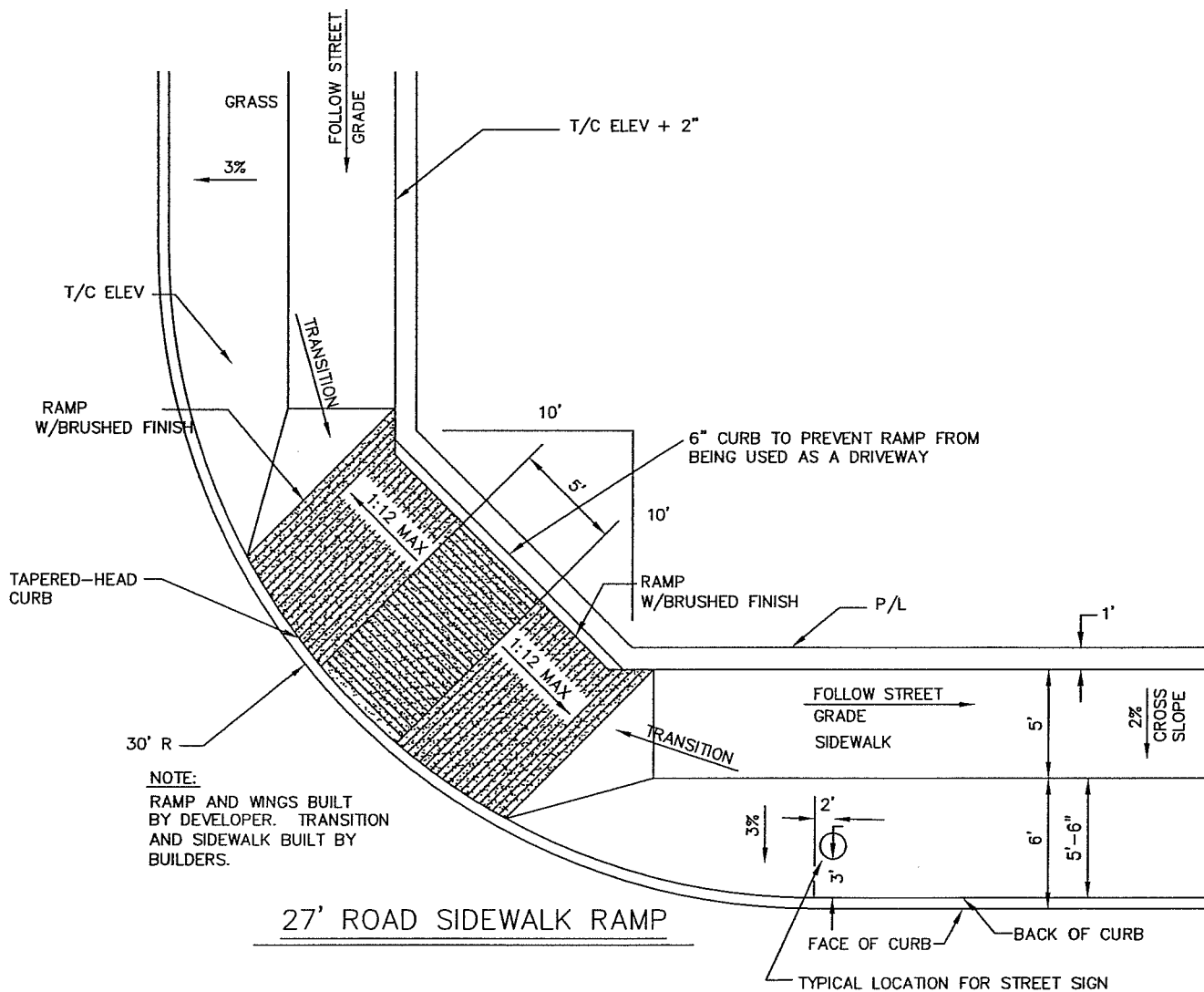
305.2

DATE

11/13/08

STANDARD DRAWING NO.

2170M



M* - CITY OF MELISSA REVISION

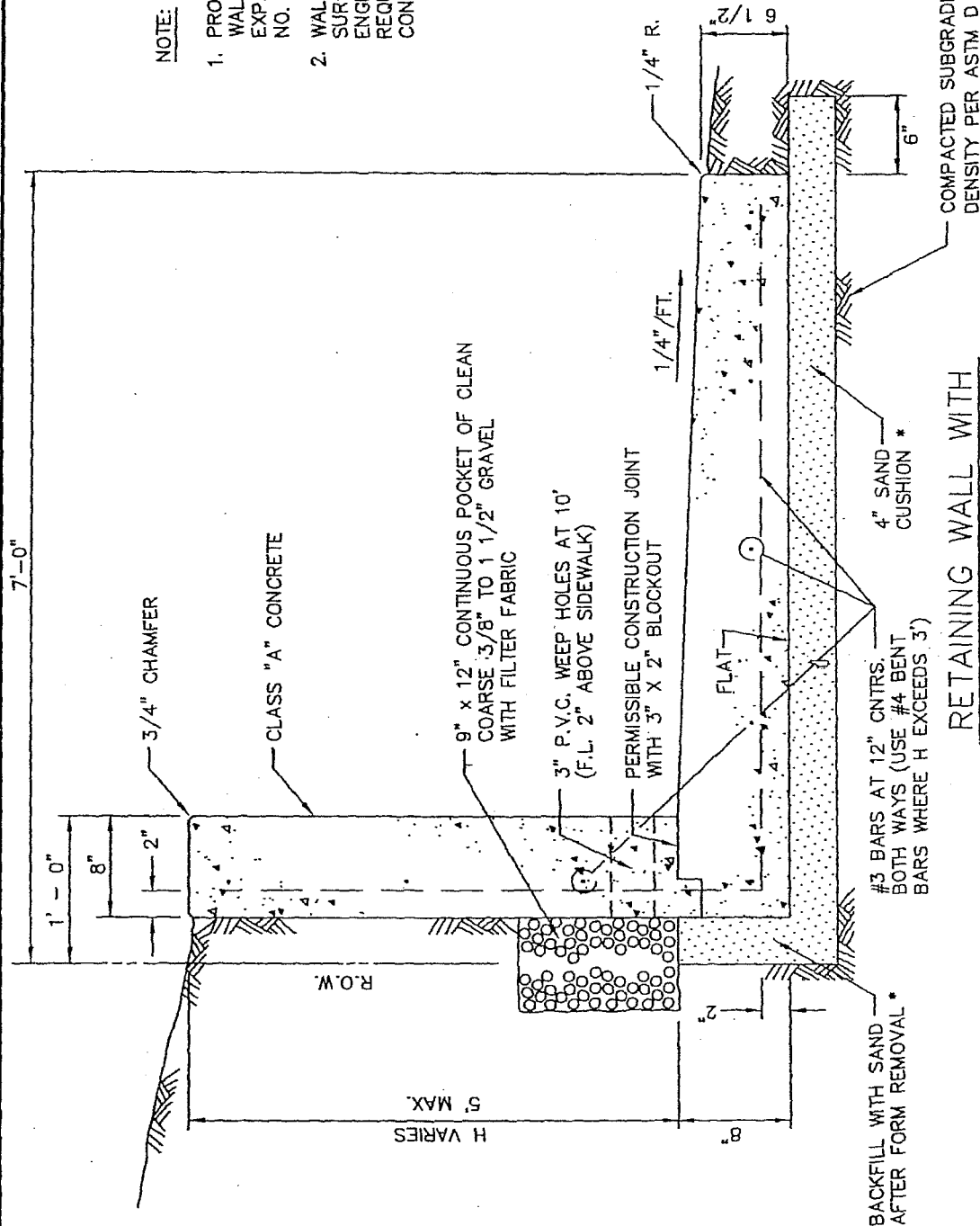
SIDEWALK DETAILS FOR 27' ROAD

NCTCOG STANDARD SPECIFICATION REFERENCE

CITY OF MELISSA

DATE
AUG 04

STANDARD DRAWING NO.
2175M*



NOTE:

1. PROVIDE VERTICAL EXPANSION IN WALL AT 25' MAX. SPACING (USE EXPANSION JOINT, STANDARD DRAWING NO. 2050, AND MODIFY AS REQUIRED)
2. WALL DESIGN ASSUMES NO SURCHARGE. A SPECIAL ENGINEERING ANALYSIS IS REQUIRED FOR OTHER CONDITIONS.

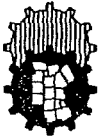
STANDARD DRAWING NO.
2180

* WHEN SPECIFIED
ON PLANS

REINFORCED CONCRETE RETAINING WALL

INTEGRAL WITH SIDEWALK

North Central Texas Council of Governments



STANDARD SPECIFICATION REFERENCE
802.2

DATE
OCT. '04

STANDARD DRAWING NO.
2180

GENERAL NOTES:

1. REINFORCED CONCRETE PAVEMENT:
 - A. ALL CURBS SHALL BE PLACED INTEGRAL WITH PAVEMENT UNLESS OTHERWISE APPROVED BY THE OWNER.
 - B. CURBS SHALL MEET THE SAME COMPRESSIVE STRENGTH AS SPECIFIED FOR THE PAVEMENT.
 - C. BAR LAPS SHALL BE 30 DIAMETERS.
 - D. REINFORCING BARS SHALL BE SUPPORTED BY CHAIRS OR OTHER DEVICES APPROVED BY THE OWNER.
2. SUBGRADE: (UNLESS OTHERWISE SPECIFIED BY OWNER)
 - A. SUBGRADE UNDER ALL PAVEMENTS SHALL BE STABILIZED TO A MINIMUM DEPTH OF 6" WITH HYDRATED LIME OR CEMENT WHEN THE P.I. OF THE INPLACE MATERIAL IS GREATER THAN 15. LABORATORY TESTS MUST BE PERFORMED TO DETERMINE THE AMOUNT OF LIME OR CEMENT REQUIRED TO LOWER THE P.I. TO 15 OR BELOW. SATURATION P.I. ($PH \geq 12.4$) WILL BE THE LIMIT WHEN A SOIL'S P.I. CANNOT BE BROUGHT TO 15 OR LOWER.
 - B. WHERE THE INPLACE MATERIAL HAS A P.I. OF LESS THAN 15, THE SUBGRADE SHALL BE SCARIFIED TO A MINIMUM DEPTH OF 6" AND RECOMPACTED.
3. IF THE ROADWAY IS A DESIGNATED BIKE ROUTE OR BIKE USAGE IS ANTICIPATED, REFER TO NCTCOG'S REGIONAL BICYCLE AND PEDESTRIAN FACILITIES DESIGN MANUAL FOR DESIGN GUIDANCE.

PAVEMENT SYSTEMS

GENERAL NOTES

North Central Texas Council of Governments



STANDARD SPECIFICATION REFERENCE

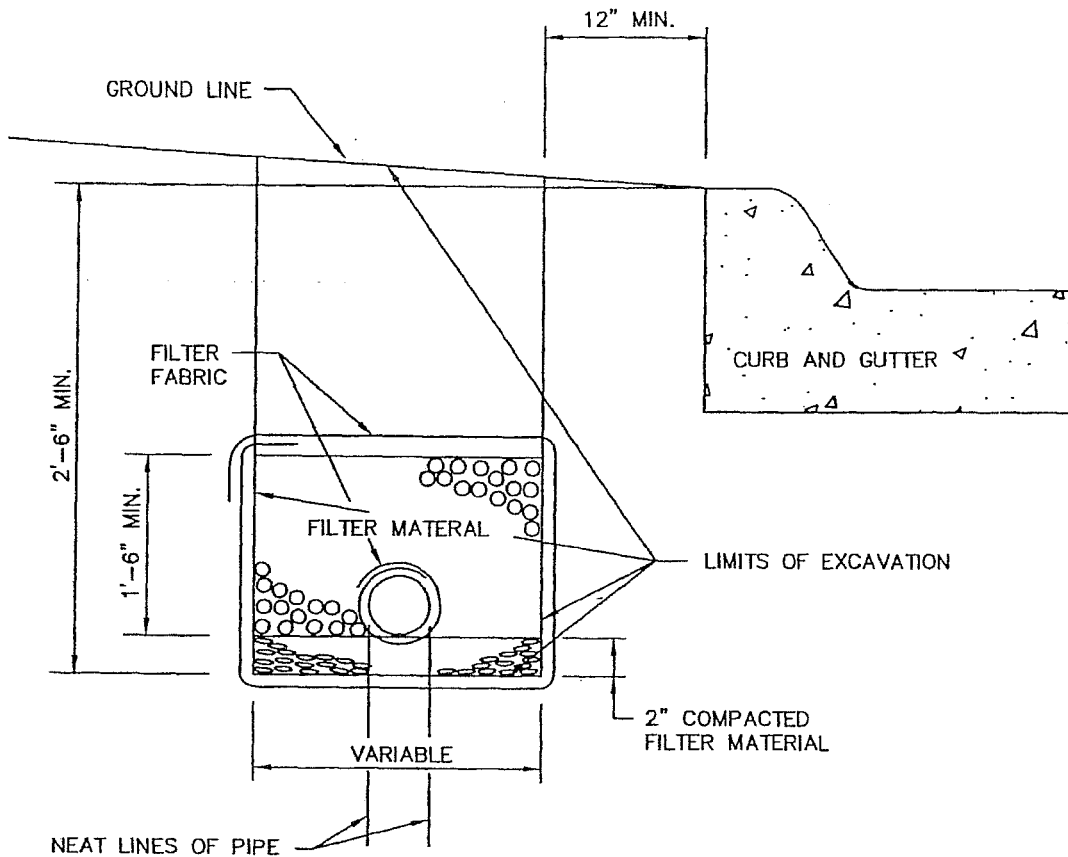
302,303

DATE

OCT. '04

STANDARD DRAWING NO.

2190



SECTION
N.T.S.

LIMITS OF EXCAVATION

DEPTH OF TRENCH (FT.)	DIST. IN FT. OUTSIDE NEAT LINES OF PIPE SUBDRAIN
0 TO 6	1.00
6 TO 10	1.50
10 TO 15	2.00
OVER 15	2.50

FILTER MATERIAL SPECIFICATIONS

SIEVE SIZE	PERCENTAGE RETAINED ON SIEVE	
	TYPE A	TYPE B
1 1/2	---	0 - 10
3/4	0 - 10	20 - 40
3/8	15 - 35	---
NO. 4	35 - 55	40 - 60

TYPES OF PIPE ACCEPTABLE FOR USE AS SUBDRAIN

1. PERFORATED CORRUGATED METAL PIPE.
2. PERFORATED PVC PIPE.
3. PERFORATED POLYETHYLENE PIPE.

MATERIAL FINER THAN NO. 4 SIEVE

4	---
20	35 - 65
50	75 - 100

SUBDRAINS

PAVEMENT SUBGRADE

North Central Texas Council of Governments



STANDARD SPECIFICATION REFERENCE

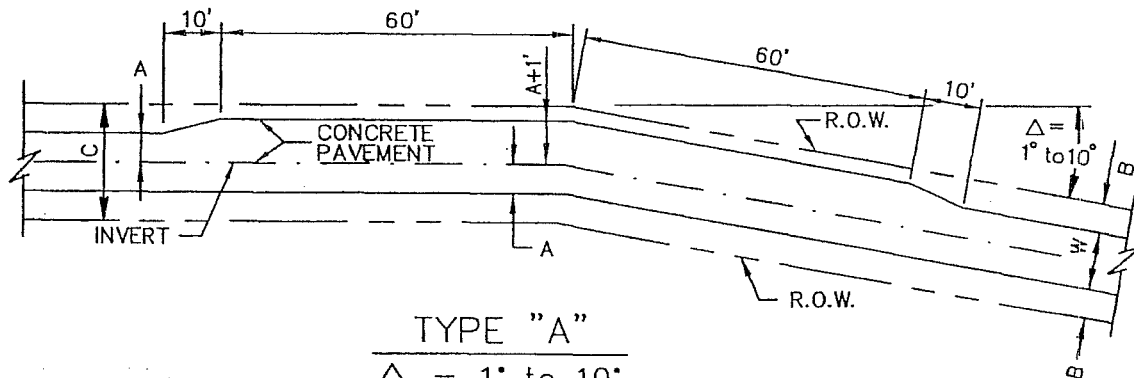
301

DATE

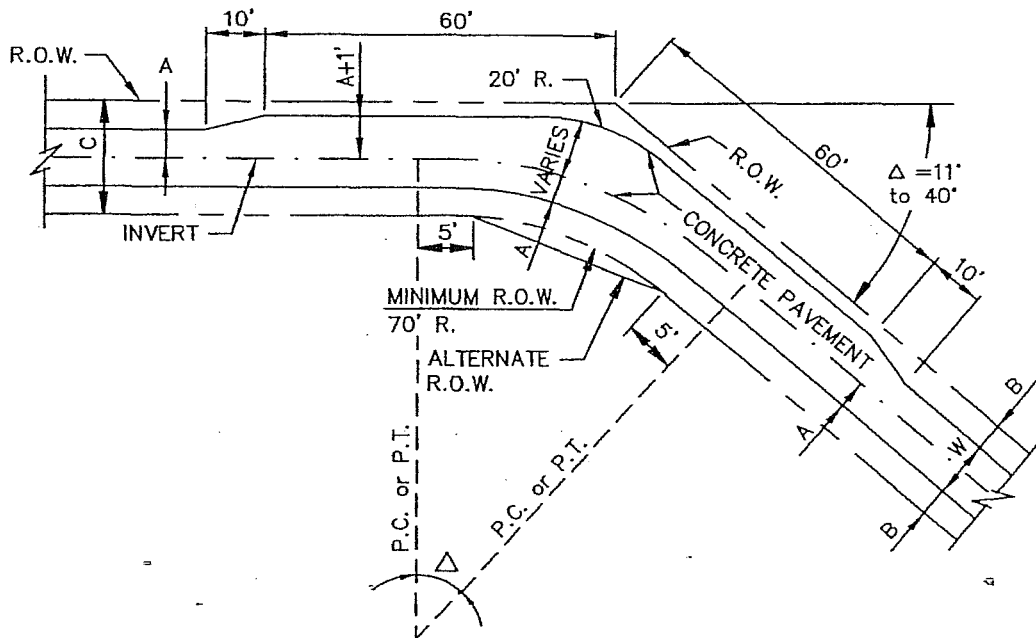
OCT. '04

STANDARD DRAWING NO.

2200



TYPE "A"
 $\Delta = 1^\circ \text{ to } 10^\circ$
 N.T.S.



TYPE "B"
 $\Delta = 11^\circ \text{ to } 40^\circ$
 N.T.S.

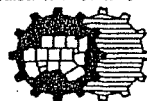
NOTES:

1. DIMENSIONS W, C, A, AND B SHALL BE SPECIFIED ON THE PLANS IN ACCORDANCE WITH STD. DWG. NO. 2040.

ALLEY GEOMETRICS

TYPE "A" & TYPE "B"

North Central Texas Council of Governments



STANDARD SPECIFICATION REFERENCE

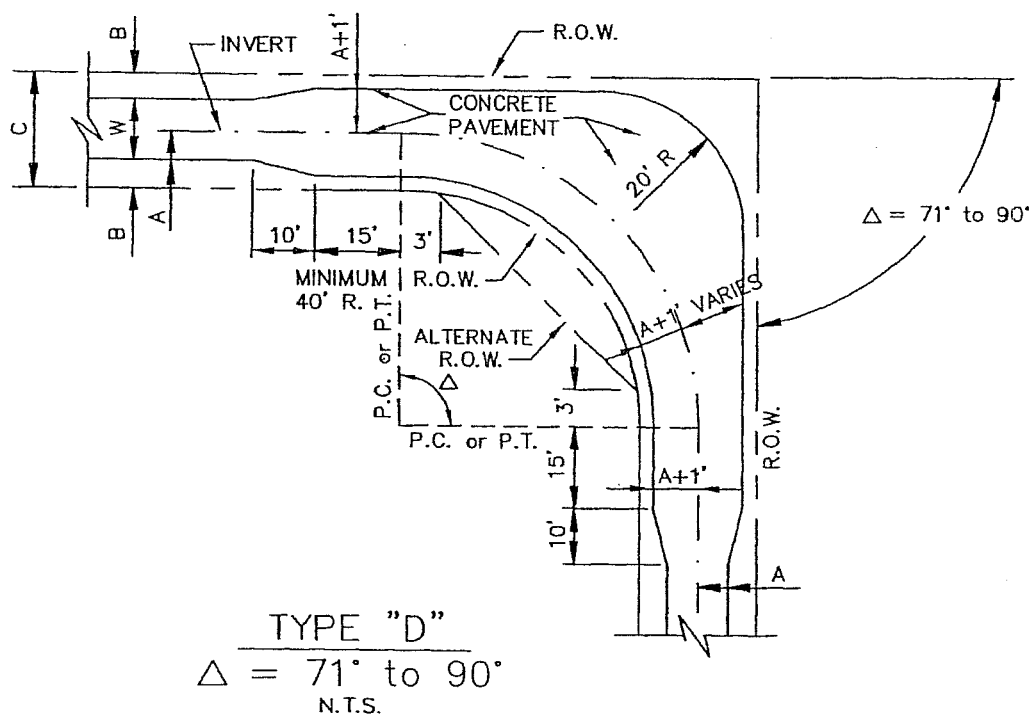
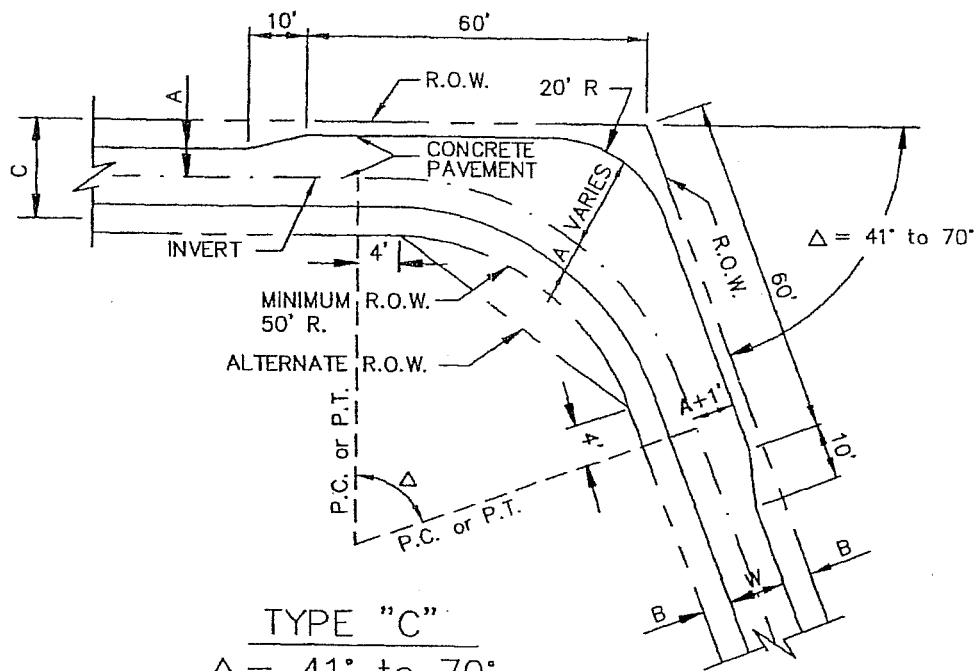
303.5

DATE

OCT. '04

STANDARD DRAWING NO.

2210



NOTES:

1. DIMENSIONS W, C, A, AND B SHALL BE SPECIFIED ON THE PLANS IN ACCORDANCE WITH STD. DWG. NO. 2040.

ALLEY GEOMETRICS

TYPE "C" & TYPE "D"

North Central Texas Council of Governments



STANDARD SPECIFICATION REFERENCE

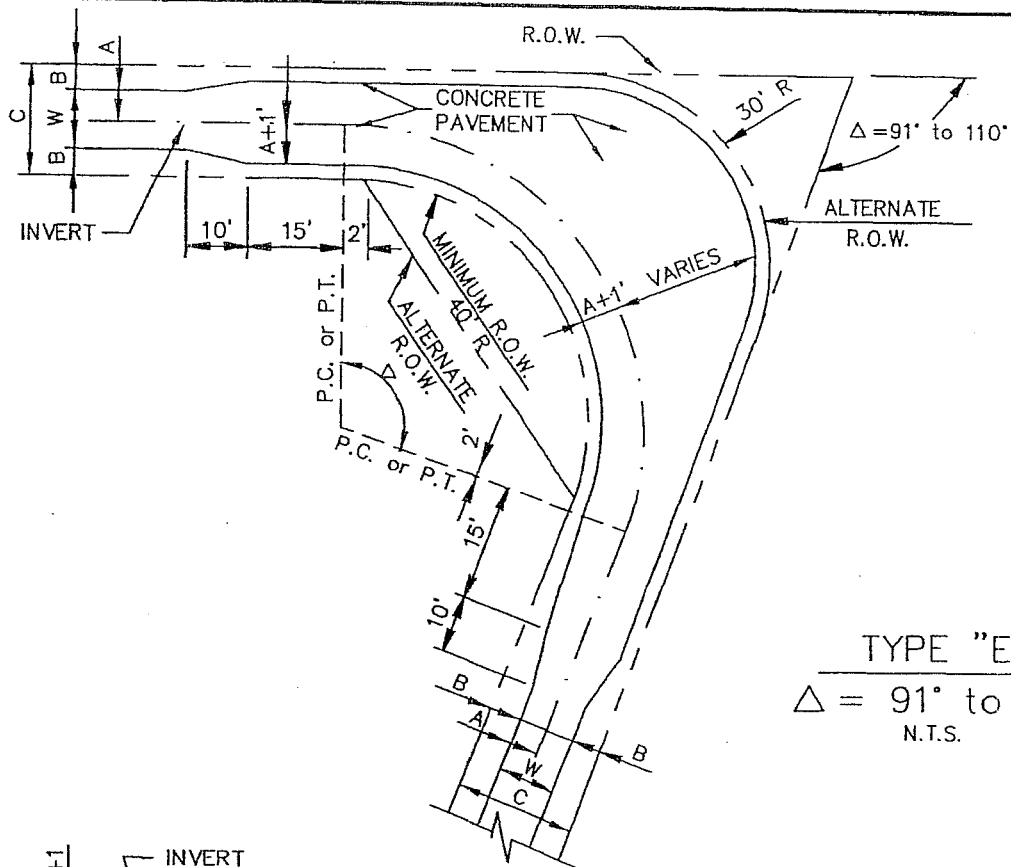
303.5

DATE

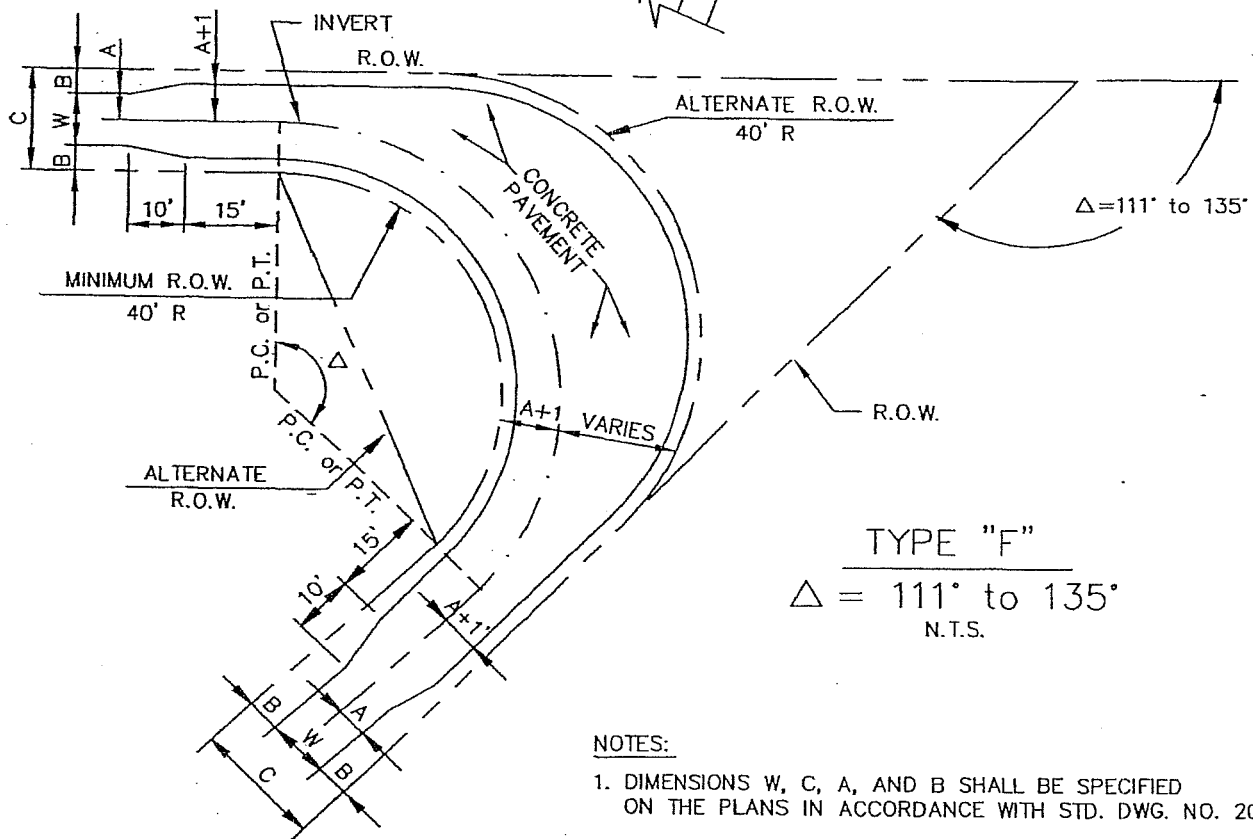
OCT. '04

STANDARD DRAWING NO.

2220



TYPE "E"
 $\Delta = 91^\circ$ to 110°
 N.T.S.



TYPE "F"
 $\Delta = 111^\circ$ to 135°
 N.T.S.

NOTES:

1. DIMENSIONS W, C, A, AND B SHALL BE SPECIFIED ON THE PLANS IN ACCORDANCE WITH STD. DWG. NO. 2040.

ALLEY GEOMETRICS
 TYPE "E" & TYPE "F"

North Central Texas Council of Governments



STANDARD SPECIFICATION REFERENCE

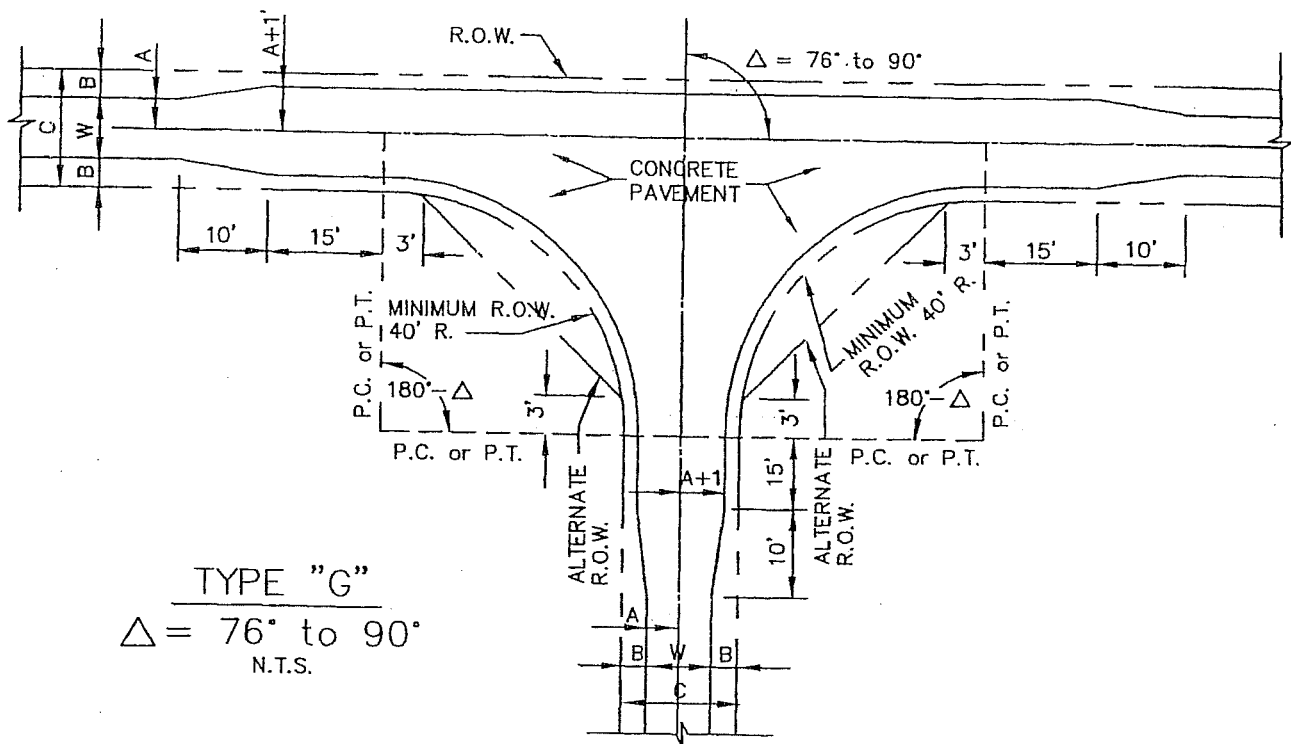
303.5

DATE

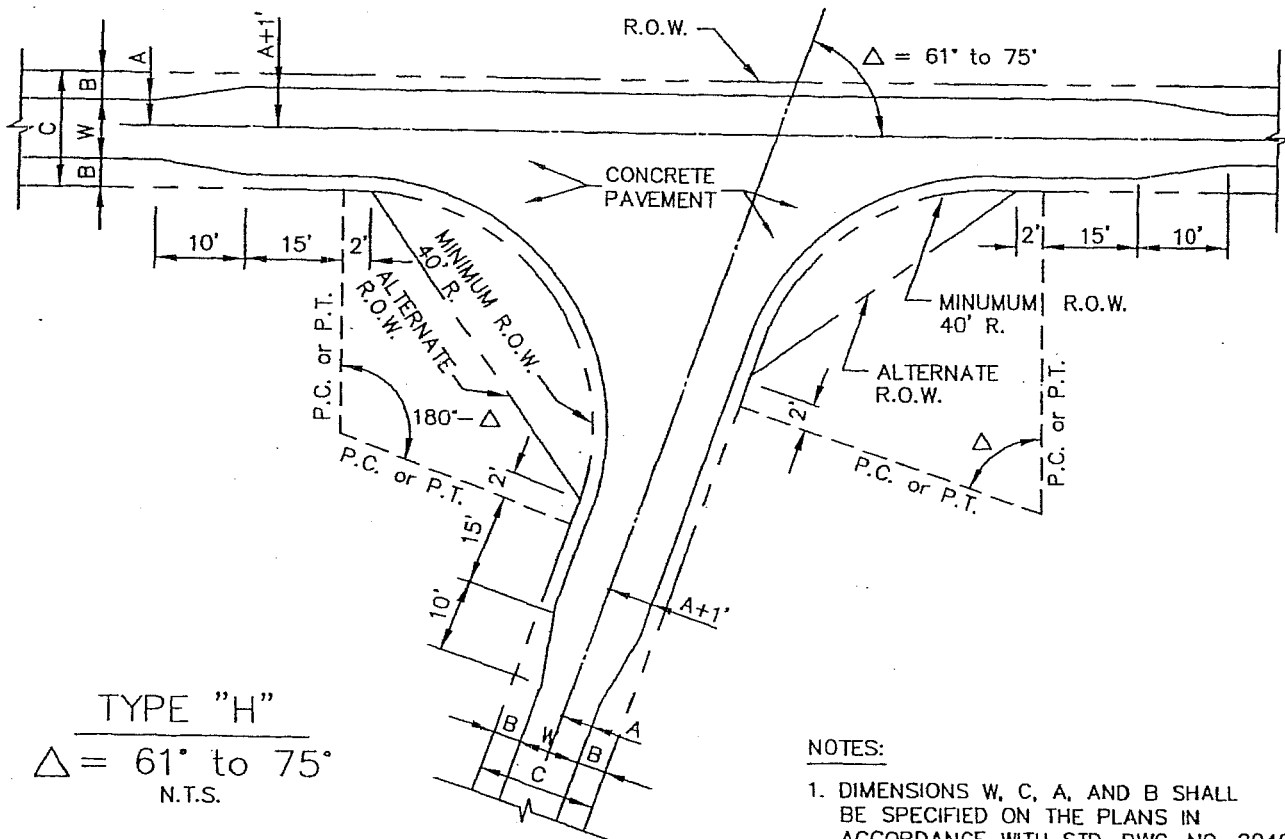
OCT. '04

STANDARD DRAWING NO.

2230



TYPE "G"
 $\Delta = 76^\circ \text{ to } 90^\circ$
 N.T.S.



TYPE "H"
 $\Delta = 61^\circ \text{ to } 75^\circ$
 N.T.S.

NOTES:

1. DIMENSIONS W, C, A, AND B SHALL BE SPECIFIED ON THE PLANS IN ACCORDANCE WITH STD. DWG. NO. 2040.

ALLEY GEOMETRICS

TYPE "G" & TYPE "H"

North Central Texas Council of Governments



STANDARD SPECIFICATION REFERENCE

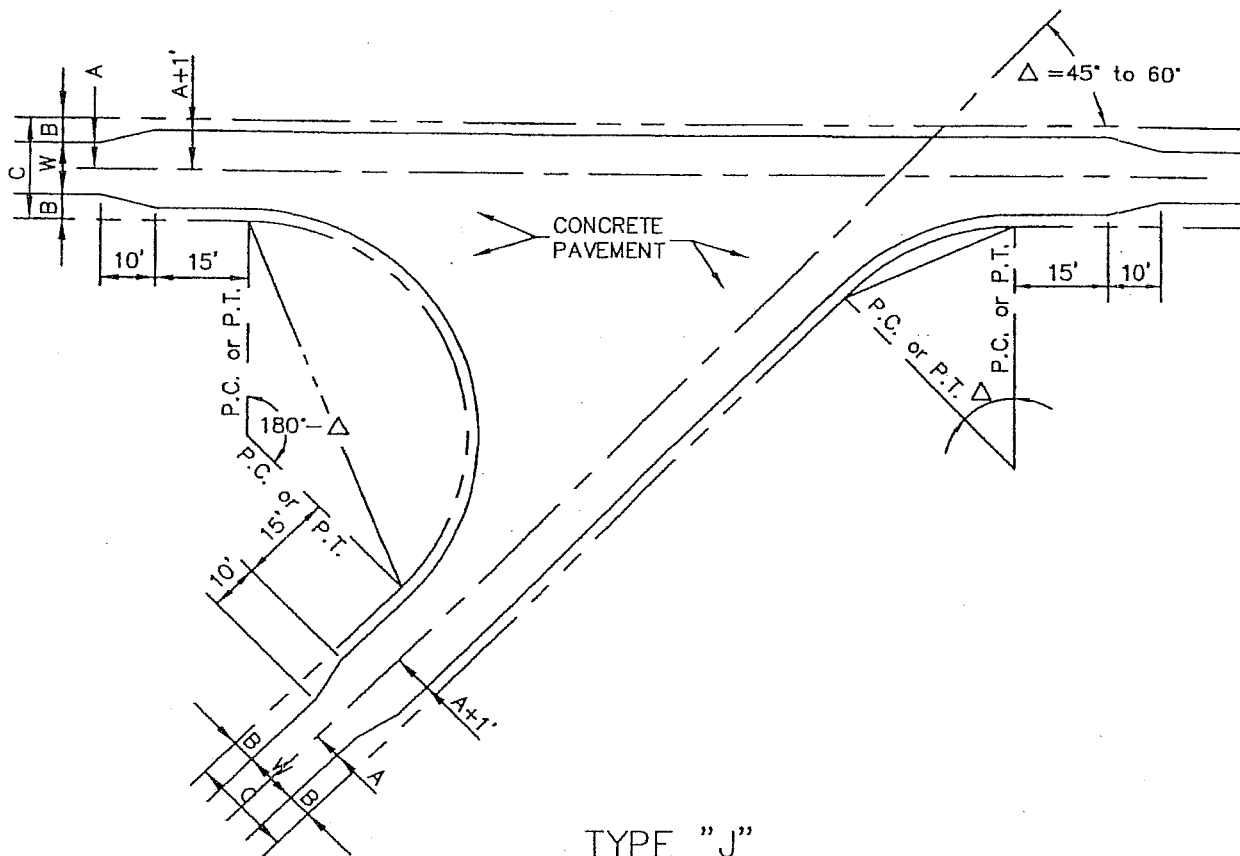
303.5

DATE

OCT. '04

STANDARD DRAWING NO.

2240



TYPE "J"
 $\Delta = 45^\circ \text{ to } 60^\circ$
 N.T.S.

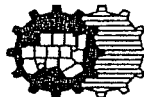
NOTES:

1. DIMENSIONS W, C, A, AND B SHALL BE SPECIFIED ON THE PLANS IN ACCORDANCE WITH STD. DWG. NO. 2040.

ALLEY GEOMETRICS

TYPE "J"

North Central Texas Council of Governments



STANDARD SPECIFICATION REFERENCE

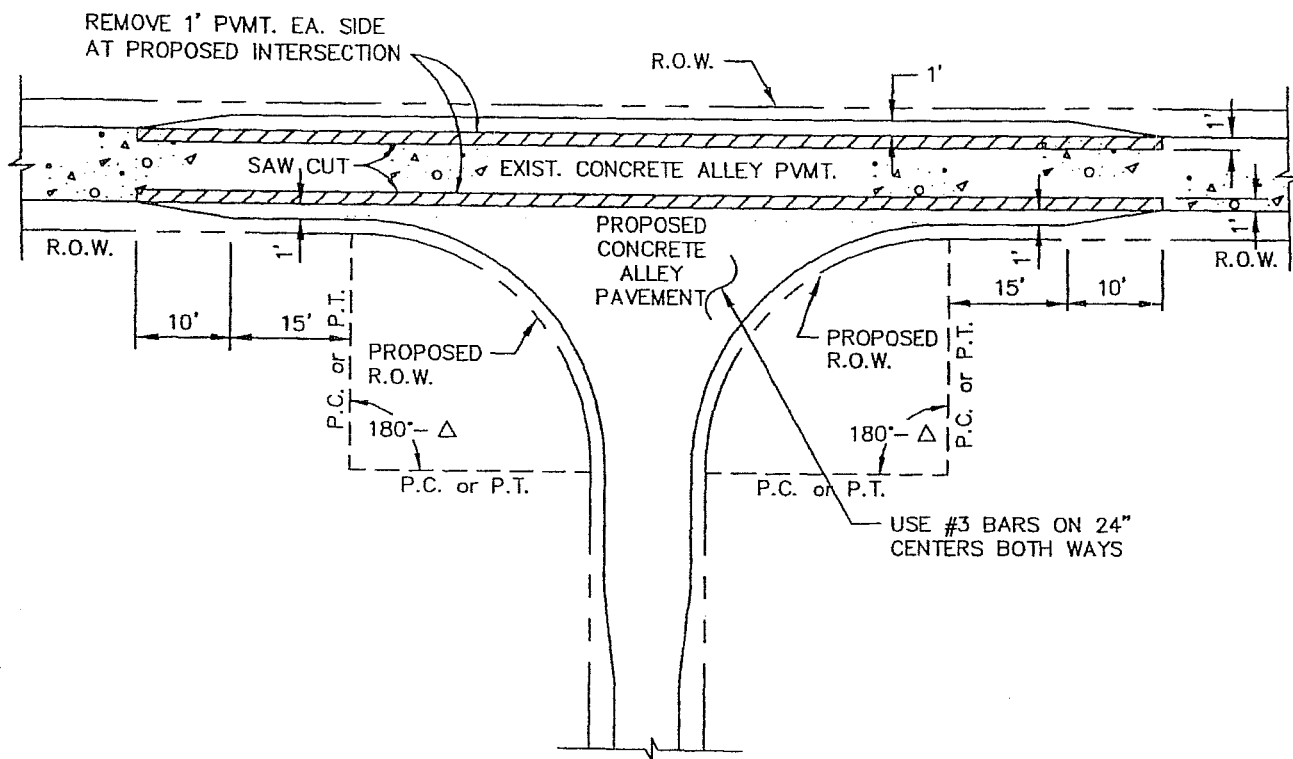
303.5

DATE

OCT. '04

STANDARD DRAWING NO.

2250



INTERSECTION OF PROPOSED ALLEY WITH EXISTING ALLEY PAVEMENT

N.T.S.

NOTE:

GEOMETRICS OF PROPOSED ALLEY SHALL
BE SHOWN ON THE PLANS IN ACCORDANCE
WITH TYPE "G", "H", OR "J".

ALLEY INTERSECTION

PROPOSED TO EXISTING

North Central Texas Council of Governments



STANDARD SPECIFICATION REFERENCE

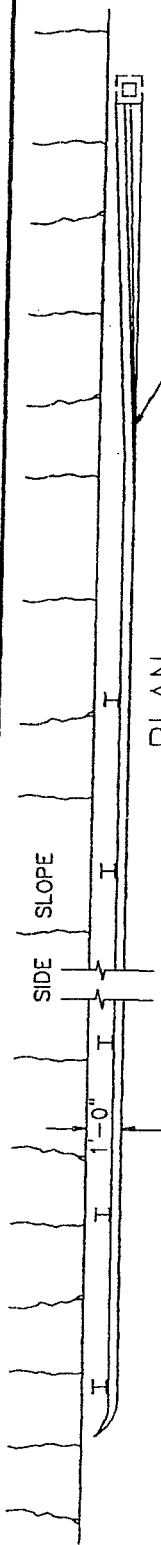
303.5

DATE

OCT. '04

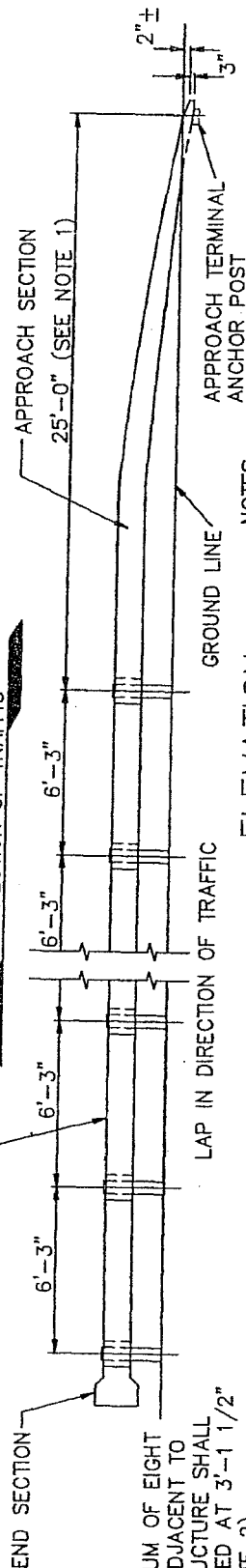
STANDARD DRAWING NO.

2260



PLAN
N.T.S.

THIS METAL BEAM ELEMENT IS TO BE
TWISTED THROUGH 90° IN THE FIELD.



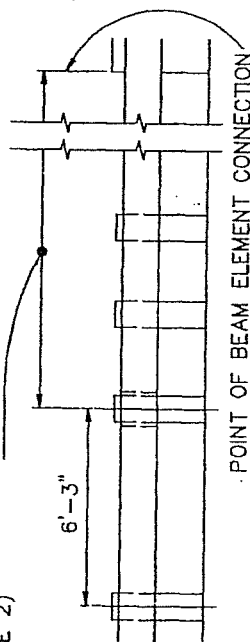
NOTES:

1. THIS DIMENSION MEASURED TO CENTER OF SPLICE
WHEN SPECIAL END SHOE IS USED.

2. VARIATIONS IN POST SPACING AND/OR THE USE OF
SPACER BLOCKS OR SHIMS, MAY BE REQUIRED BY
THE ENGINEER, IN ORDER TO ACCOMMODATE THE
REQUIRED BEAM ELEMENT CONNECTION TO STRUCTURES.

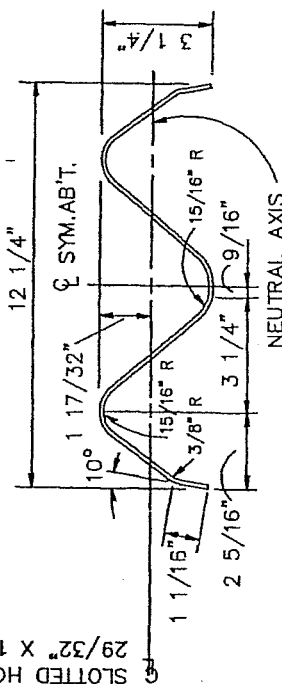
ELEVATION
N.T.S.

A MAXIMUM OF EIGHT
POSTS ADJACENT TO
THE STRUCTURE SHALL
BE SPACED AT 3'-1 1/2"
(SEE NOTE 2)



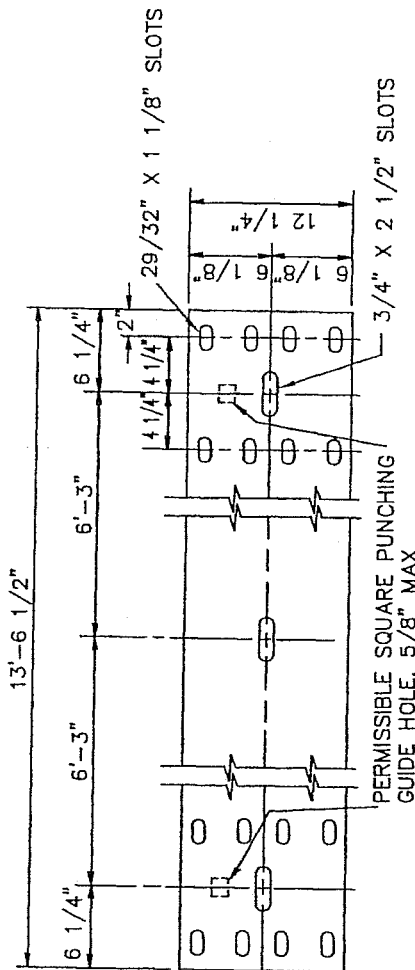
POST TREATMENT AT STRUCTURES
N.T.S.

29/32" X 1 1/8" SLOTTED HOLES



SECTION THRU METAL BEAM ELEMENT
N.T.S.

ACTUAL SECTION MAY BE
SLIGHTLY DIFFERENT DEPENDING
UPON THE MANUFACTURER



ELEVATION OF NOMINAL 12 1/2 FOOT
METAL BEAM ELEMENT N.T.S.

North Central Texas Council of Governments



METAL BEAM GUARD FENCE

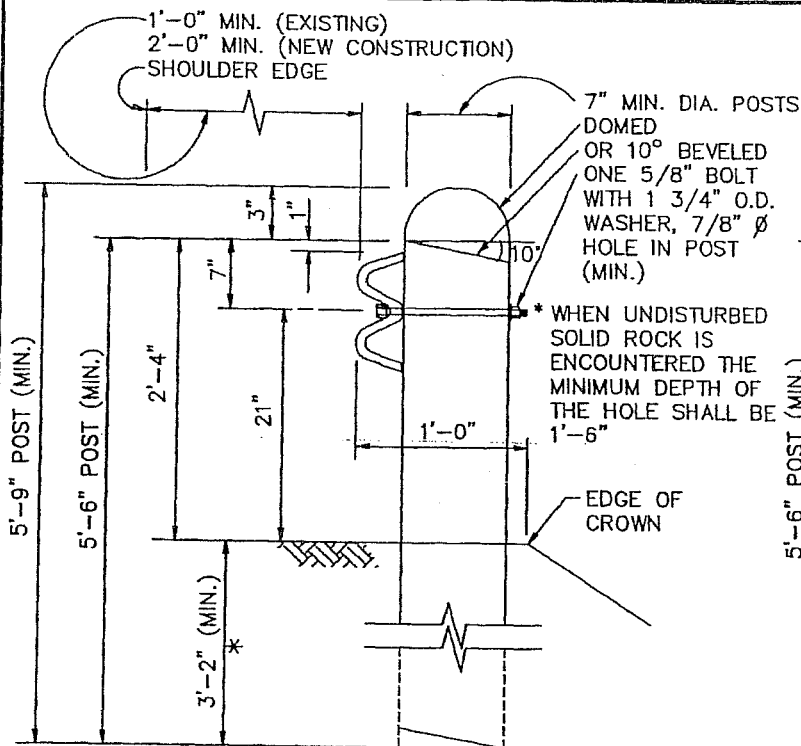
ROADSIDE PLACEMENT & BEAM ELEMENTS

STANDARD SPECIFICATION REFERENCE
801.2

DATE
OCT. '04

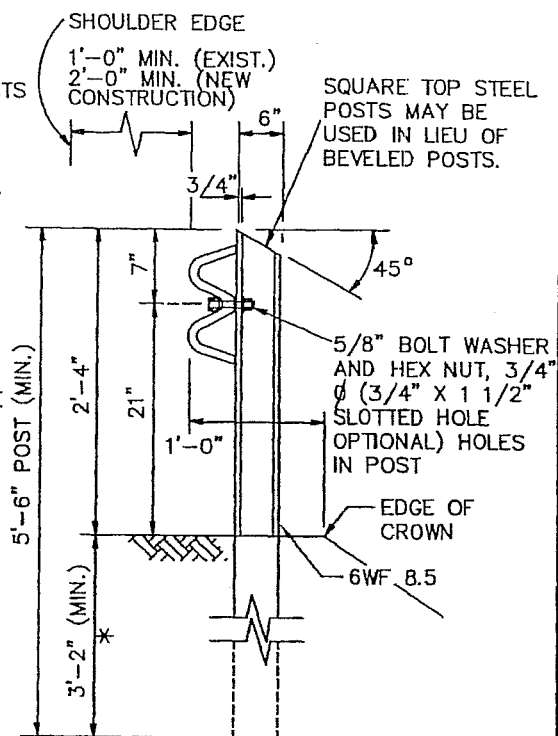
STANDARD DRAWING NO.
2270A

STANDARD DRAWING NO.
2270A



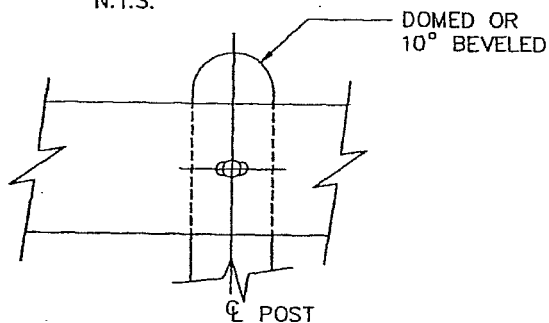
WOOD LINE POST

N.T.S.



STEEL LINE POST

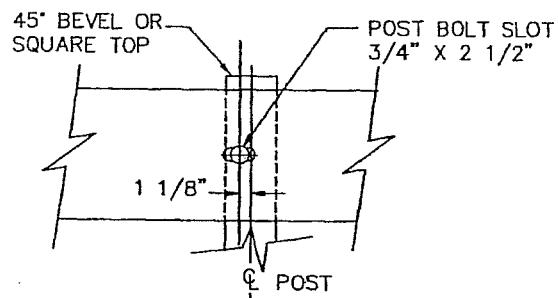
N.T.S.



WOOD POST CONNECTION

WOOD POST MAY BE DOMED OR BEVELED.

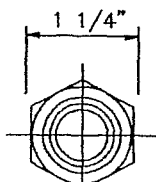
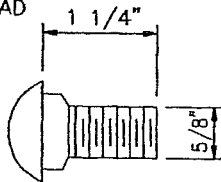
N.T.S.



STEEL POST CONNECTION

N.T.S.

OVAL SHOULDER
BUTTON HEAD

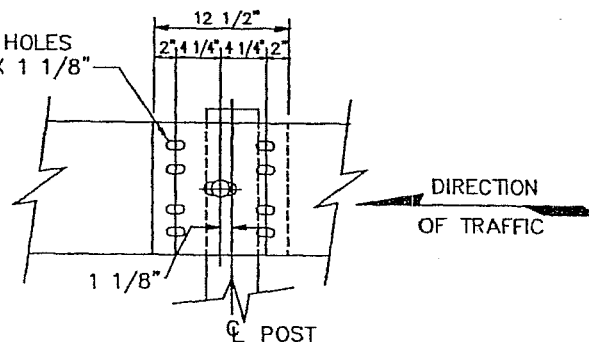


ANCHOR OR SPLICE BOLT 5/8" NUT
POST BOLT: SIMILAR EXCEPT LENGTH.

(7/8" HEX BOLTS REQUIRED FOR
SPECIAL END SHOE)

N.T.S.

SLOTTED HOLES
29/32" X 1 1/8"



BEAM ELEMENT SPLICE

N.T.S.

METAL BEAM GUARD FENCE

LINE POST & CONNECTIONS

North Central Texas Council of Governments



STANDARD SPECIFICATION REFERENCE

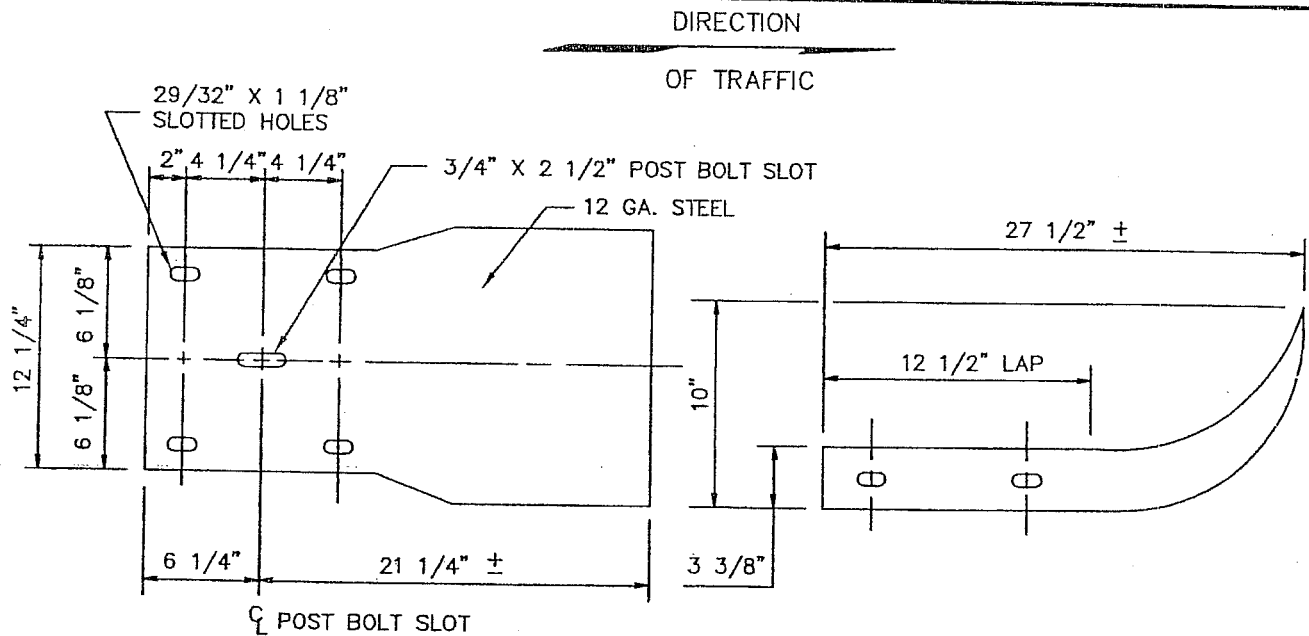
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OCT. '04

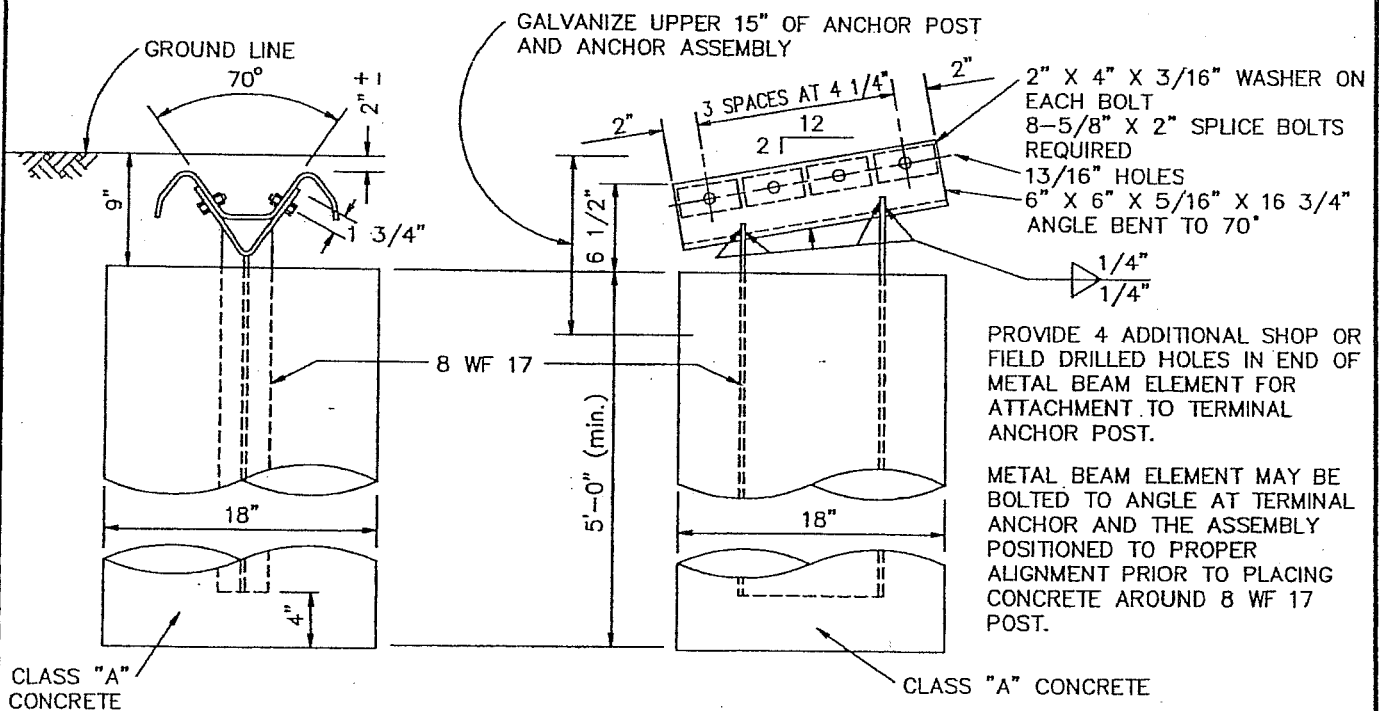
STANDARD DRAWING NO.

2270B



END SECTION — AWAY FROM DIRECTION OF TRAFFIC

N.T.S.



TERMINAL ANGLE ANCHOR POST

N.T.S.

METAL BEAM GUARD FENCE

END SECTION & ANGLE ANCHOR POST

North Central Texas Council of Governments



STANDARD SPECIFICATION REFERENCE

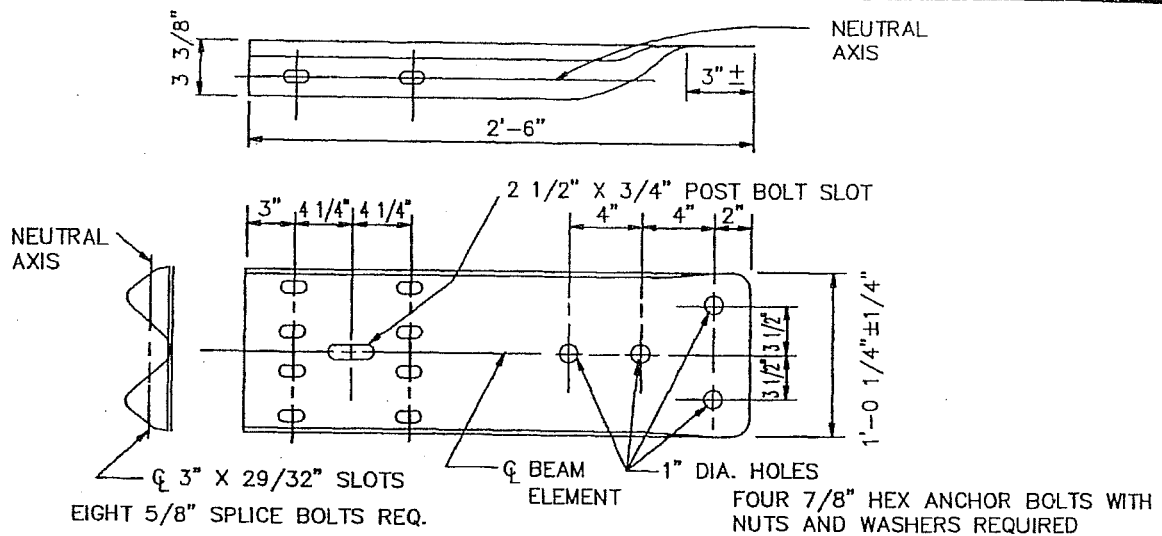
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OCT. '04

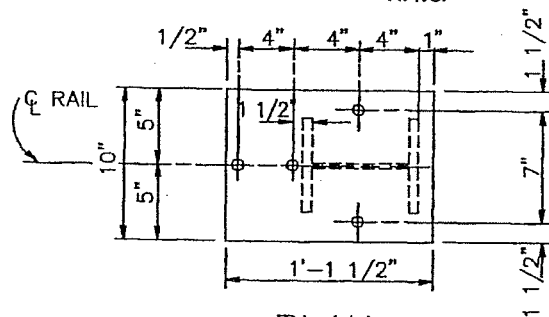
STANDARD DRAWING NO.

2270C



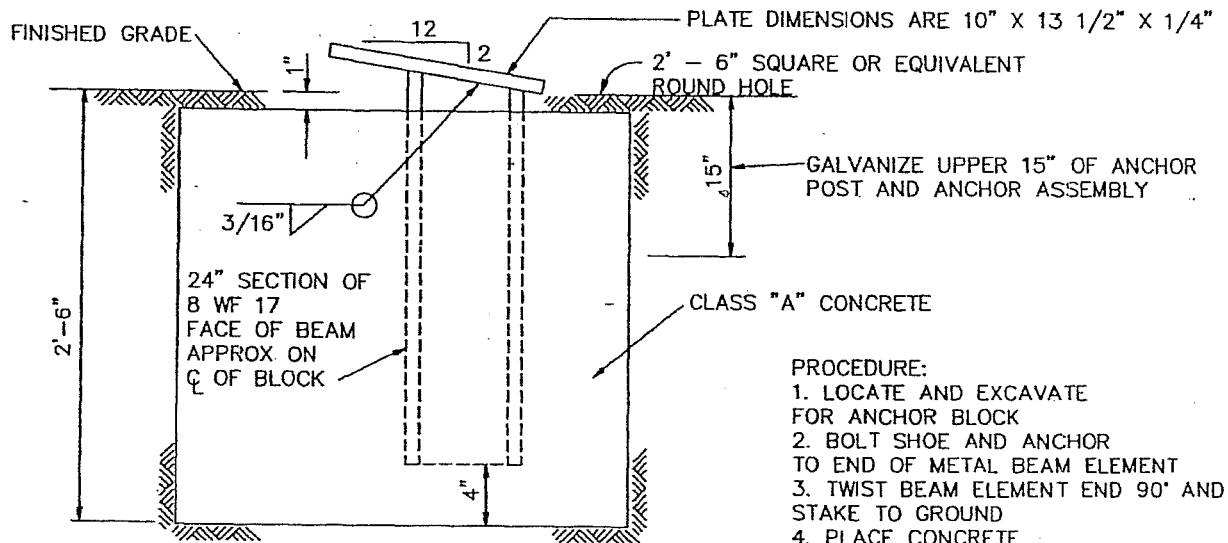
SPECIAL END SHOE

N.T.S.



PLAN

N.T.S.



ELEVATION

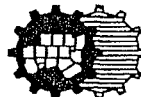
N.T.S.

SPECIAL END SHOE ANCHOR POST

METAL BEAM GUARD FENCE

SPECIAL END SHOE & ANCHOR POST

North Central Texas Council of Governments



STANDARD SPECIFICATION REFERENCE

801.2

DATE

OCT. '04

STANDARD DRAWING NO.

2270D

METAL BEAM GUARD FENCE

GENERAL NOTES

1. EXCEPT WHERE USED AT STRUCTURES THAT ARE NARROWER THAN CROWN WIDTH OR WHERE OTHERWISE INDICATED ON PLANS, THE FACE OF THE GUARD FENCE SHALL BE LOCATED A MINIMUM OF ONE FOOT FROM THE SHOULDER EDGE ON EXISTING ROADWAYS AND A MINIMUM OF TWO FEET FROM THE SHOULDER EDGE ON NEW CONSTRUCTION. THE EXACT POSITION SHALL BE AS SHOWN ELSEWHERE ON THE PLANS OR AS DIRECTED BY THE ENGINEER. BEAM ELEMENTS SHALL BE TRANSITIONED TO A SMOOTH CONNECTION WITH OTHER STRUCTURES OR BEAM ELEMENTS AS SHOWN ELSEWHERE ON PLANS.
2. AT THE OPTION OF THE CONTRACTOR THE METAL BEAM ELEMENTS FOR THE GUARD FENCE MAY BE FURNISHED IN EITHER 12 1/2 OR 25 FOOT NOMINAL LENGTHS. BEAM ELEMENTS SHALL BE FURNISHED WITH POST BOLT SLOTS FOR 5/8" DIAMETER BOLT CONNECTIONS TO POSTS.
3. BOLTS SHALL BE OF SUFFICIENT LENGTH TO EXTEND THROUGH THE FULL THICKNESS OF THE NUT AND NO MORE THAN 3/4" BEYOND IT.
4. THE TOP OF THE TERMINAL ANCHOR POST ASSEMBLY AND ALL STEEL FITTINGS THEREON SHALL BE GALVANIZED AS SHOWN.
5. WHERE ROCK IS ENCOUNTERED OR WHERE SHOWN ON THE PLANS, THE DIAMETER OF THE HOLES AND THE MATERIAL FOR BACKFILLING SHALL BE AS DIRECTED BY THE ENGINEER. TIMBER POSTS SHALL NOT BE SET IN CONCRETE.
6. THE TERMINAL ANCHOR POST SHALL BE SET IN CLASS "A" CONCRETE. CONCRETE SHALL BE SUBSIDIARY TO THE BID ITEM "METAL BEAM GUARD FENCE."
7. TIMBER POSTS MAY BE BEVELED AT APPROXIMATELY 10 DEGREES ON THE TOP OR BOTH ENDS WITH HIGH SIDE OF TOP OF POST PLACED TOWARD THE ROADWAY OR THEY MAY BE DOMED.
8. AN ANCHOR OTHER THAN TO A TERMINAL ANCHOR POST SHALL CONSIST OF A CONNECTION SIMILAR TO THE BEAM ELEMENT SPLICE OR SIMILAR TO THE SPECIAL END SHOE.
9. SPECIAL FABRICATION WILL BE REQUIRED IN INSTALLATIONS HAVING A CURVATURE OF LESS THAN 150' RADIUS.
10. WOOD POSTS MUST BE TREATED IN MANNER APPROVED BY THE ENGINEER.
11. THE SPECIAL END SHOE ANCHOR MAY BE USED WITH THE 18" X 5'-0" CONCRETE FOOTING OR THE ANGLE ANCHOR MAY BE USED WITH THE 2'-6" SQUARE OR EQUIVALENT CONCRETE FOOTING.
12. ALL METAL ELEMENTS WILL BE 12 GAUGE STEEL UNLESS STATED OTHERWISE ON PLANS.

METAL BEAM GUARD FENCE

GENERAL NOTES

North Central Texas Council of Governments



STANDARD SPECIFICATION REFERENCE

801.2

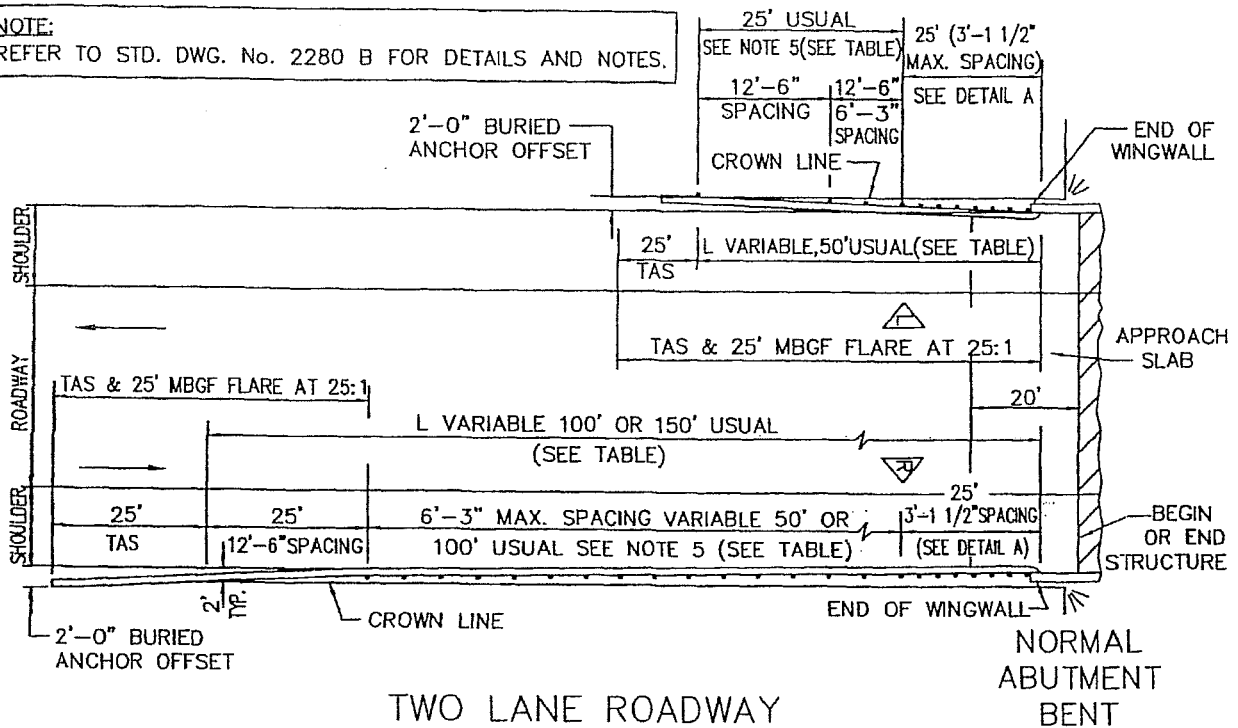
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OCT. '04

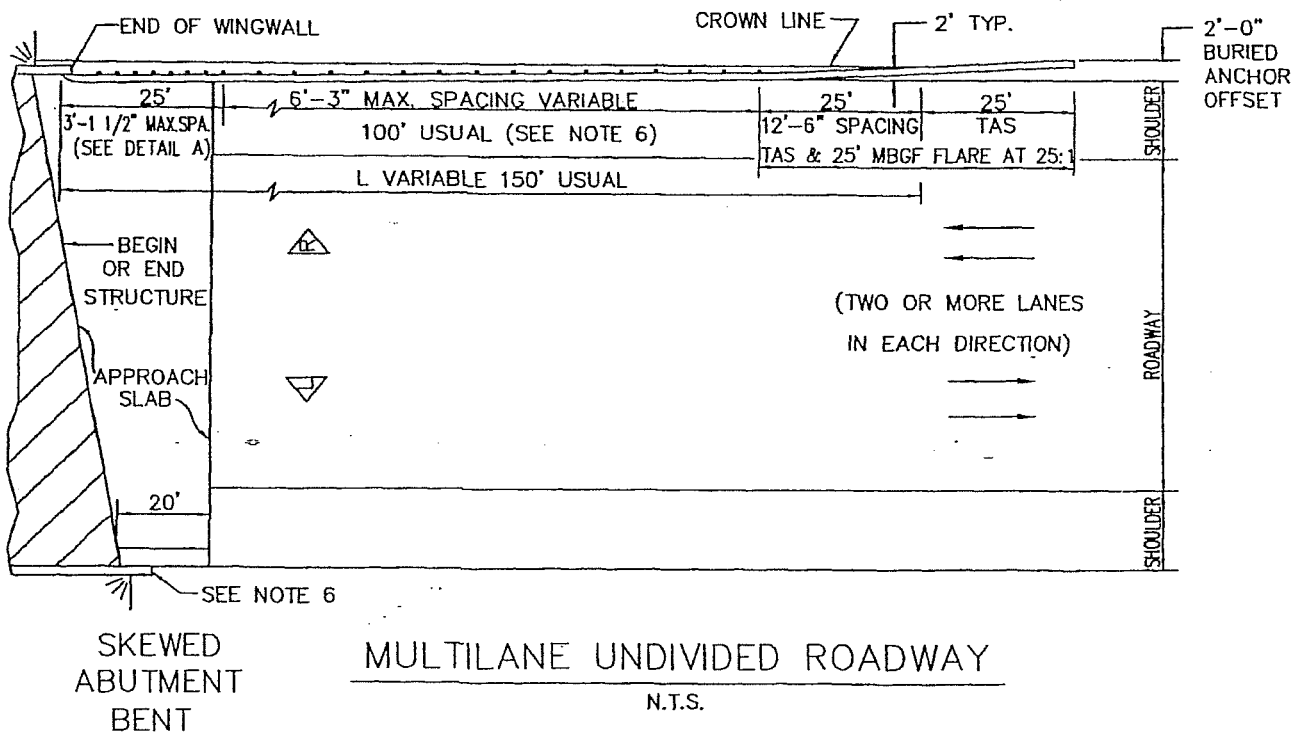
STANDARD DRAWING NO.

2270E

NOTE:
REFER TO STD. DWG. No. 2280 B FOR DETAILS AND NOTES.



TAS: TERMINAL ANCHOR SECTION



SKEWED
ABUTMENT
BENT

MULTILANE UNDIVIDED ROADWAY
N.T.S.

CROWN WIDTH BRIDGE
(SEE NOTE 7 FOR RESTRICTIVE WIDTH BRIDGE)

METAL BEAM GUARD FENCE
TWO-WAY TRAFFIC BRIDGE END

North Central Texas Council of Governments



STANDARD SPECIFICATION REFERENCE

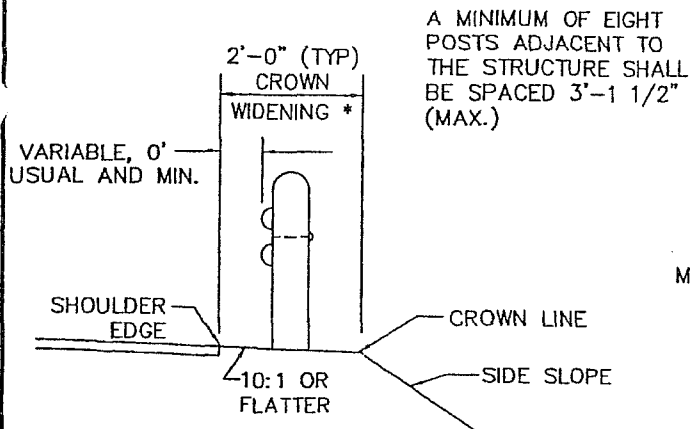
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DATE

OCT. '04

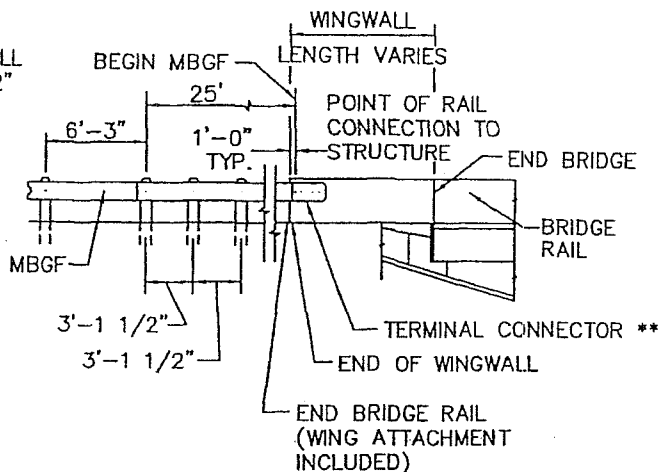
STANDARD DRAWING NO.

2280A



TYPICAL CROSS SECTION
N.T.S.

* APPLIES TO CONSTRUCTION ON NEW ALIGNMENT OR WHERE EXISTING ROADWAY CROSS SECTION IS TO BE WIDENED TO INCREASE ROADWAY WIDTH. DOES NOT APPLY TO REHABILITATION WORK WHERE EXISTING ROADWAY CROWN WIDTH IS TO BE RETAINED.



POST TREATMENT AT STRUCTURES
DETAIL A
N.T.S.

** TYPICAL CONNECTION—SEE BRIDGE RAIL OR OTHER PLAN SHEETS FOR DETAILS OF MBGF TO BRIDGE RAIL CONNECTION.

LENGTH [⊙] OF NEED, L, FT.

TWO LANE HIGHWAYS				MULTILANE UNDIVIDED HWYS.	
750 or less ADT		more than 750 ADT		all ADT's	
◀ side	▶ side	◀ side	▶ side	◀ side	▶ side
50 [⊙]	100	50 [⊙]	150	0	150

⊙ LENGTHS ARE FOR TYPICAL CROSS SECTIONAL & PLACEMENT CONDITIONS. FOR UNUSUAL CONDITIONS, A CUSTOM DESIGN SHOULD BE DEVELOPED.

◀ INDICATES LEFT SIDE OF TRAFFIC APPROACHING BRIDGE.

▶ INDICATES RIGHT SIDE OF TRAFFIC APPROACHING BRIDGE.

DESIGN NOTES:

1. THE T.A.S. AND TYPICALLY ADJACENT 25' MBGF SHOULD BE FLARED FROM THE SHOULDER EDGE AT 25:1 TO PROVIDE A 2' USUAL OFFSET TO BURIED ANCHOR.
2. WHERE LENGTH (L) OF MBGF IS 50 FEET, POST SPACING SHALL BE AS DETAILED HEREON (SEE PLAN LAYOUT FOR TWO LANE (RURAL) HIGHWAY), LEFT SIDE OF TRAFFIC APPROACHING BRIDGE. WHERE LENGTH (L) OF MBGF IS 75 FEET OR MORE, POST SPACING SHALL BE 3'-1 1/2" FOR THE 25' SECTION ADJACENT TO THE BRIDGE, 12'-6" FOR THE 25' SECTION ADJACENT TO THE T.A.S. AND 6'-3" FOR THE REMAINING INTERVENING LENGTH.
3. THE SLOPE BETWEEN THE CROWN LINE AND OUTSIDE EDGE OF SHOULDER SHOULD BE 10:1 OR FLATTER. THE CROWN SHOULD BE WIDENED TO ACCOMMODATE MBGF. TYPICALLY THE CROWN LINE SHOULD BE 2 FEET FROM THE OUTSIDE SHOULDER EDGE (SEE TYPICAL CROSS SECTION).
4. FOR RESTRICTIVE WIDTH BRIDGES, A 25 FOOT TANGENT SECTION OF MBGF SHOULD CONNECT TO THE WINGWALL. THE ADJOINING MBGF THAT LIES WITHIN THE ROADWAY (LANE & SHOULDER AREAS) CROWN SHOULD BE FLARED AT THE RATE OF 25:1 (LONGITUDINAL:LATERAL). LENGTH SHOULD BE GOVERNED BY TABULATED VALUES OR THE LENGTH NECESSARY TO LOCATE THE BURIED ANCHOR AT A 2-FOOT OFFSET FROM SHOULDER EDGE, WHICHEVER IS GREATER.
5. AVERAGE DAILY TRAFFIC (ADT) IS FOR THE CURRENT YEAR. WHERE SIGNIFICANT TRAFFIC VOLUME GROWTH IS ANTICIPATED ON LOW VOLUME (0-750 ADT) HIGHWAYS, USE LENGTHS SHOWN FOR HIGHER VOLUME CATEGORY.
6. PROVIDE MINIMUM 50 FT. MBGF PLUS T.A.S. FOR FOUR LANE UNDIVIDED HIGHWAYS. FOR FOUR LANE HIGHWAYS WITH A FLUSH MEDIAN OR FOR HIGHWAYS WITH SIX OR MORE LANES, MBGF IS NOT A REQUIRED BRIDGE END TREATMENT. HOWEVER, OTHER NEARBY HAZARDS MAY WARRANT SHIELDING WITH MBGF.

GENERAL NOTES:

1. FOR METAL BEAM GUARD FENCE DETAILS AND METHOD OF TERMINATION, SEE STD. DWGS. No. 2270A - 2270E.
2. VARIATIONS IN POST SPACINGS AND/OR THE USE OF SPACER BLOCKS OR SHIMS MAY BE REQUIRED BY THE ENGINEER IN ORDER TO ACCOMMODATE THE REQUIRED BEAM ELEMENT CONNECTION TO STRUCTURES.
3. QUANTITIES OF METAL BEAM GUARD FENCE (MBGF) AT INDIVIDUAL BRIDGE ENDS ARE SHOWN ELSEWHERE IN THE PLANS.

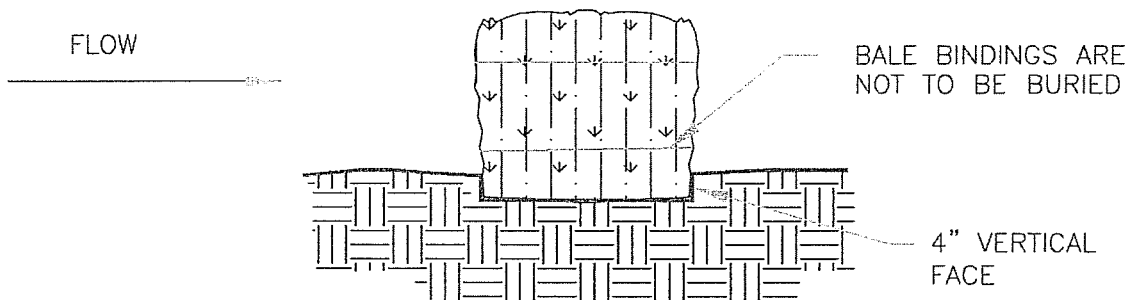
METAL BEAM GUARD FENCE
TWO-WAY TRAFFIC BRIDGE END

North Central Texas Council of Governments



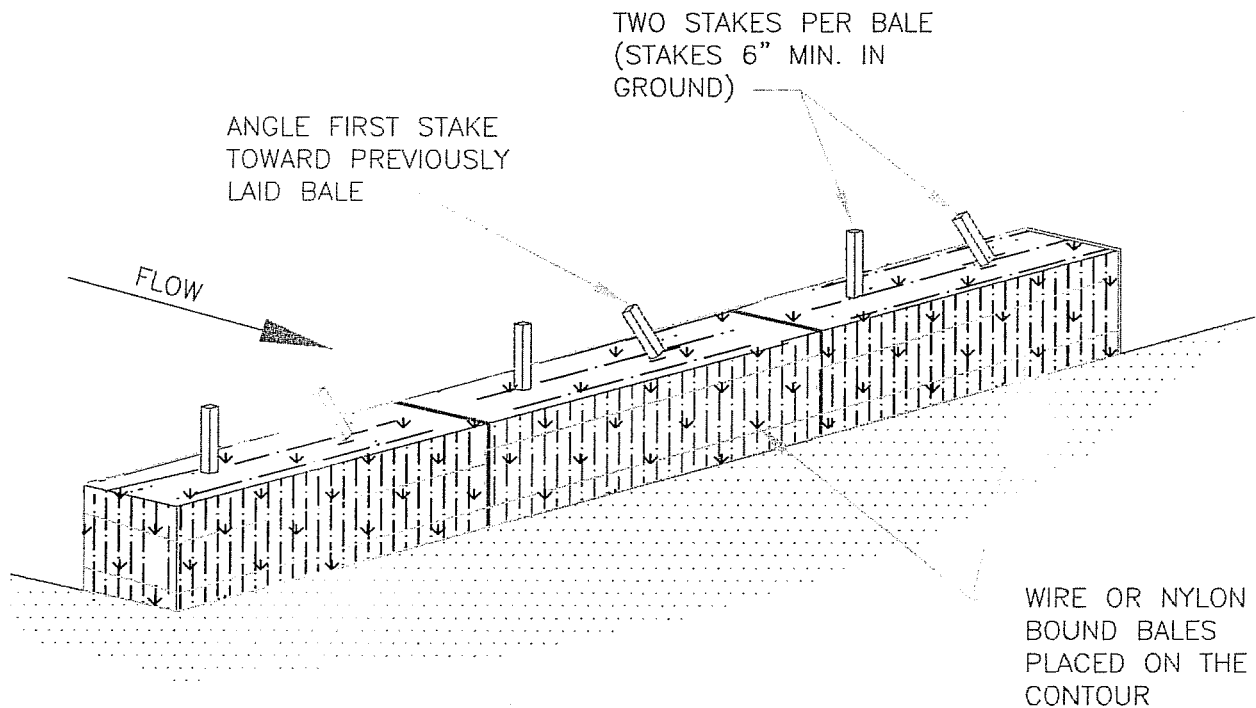
STANDARD SPECIFICATION REFERENCE
801.2

DATE
OCT. '04
STANDARD DRAWING NO.
2280B



EMBEDDING DETAIL

N.T.S.



ANCHORING DETAIL

N.T.S.

M* - CITY OF MELISSA REVISION

STRAW BALE DIKE
CITY OF MELISSA



NCTCOG STANDARD SPECIFICATION REFERENCE

201

DATE

11/13/08

STANDARD DRAWING NO.

1010AM*

STRAW BALE DIKE GENERAL NOTES:

1. EACH BALE SHALL BE EMBEDDED IN THE SOIL A MINIMUM OF FOUR INCHES.
2. BALES SHALL BE SECURELY ANCHORED IN PLACE BY 2" X 2" WOOD STAKES DRIVEN THROUGH THE BALES. THE FIRST STAKE IN EACH BALE SHALL BE ANGLED TOWARD THE PREVIOUSLY LAID BALE TO FORCE THE BALES TOGETHER.
3. INSPECTION SHALL BE MADE EVERY TWO WEEKS AND AFTER EACH 1/2" RAINFALL EVENT. REPAIR OR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED BY THE CONTRACTOR.
4. WHEN SILT REACHES A DEPTH OF 6 INCHES, IT SHALL BE REMOVED AND DISPOSED OF IN AN APPROVED MANNER.
5. AFTER THE DISTURBED AREAS OF THE SITE ARE COMPLETELY STABILIZED, THE BALES SHALL BE REMOVED AND DISPOSED OF AT AN APPROVED SPOIL DISPOSAL SITE.

M* - CITY OF MELISSA REVISION

STRAW BALE DIKE

CITY OF MELISSA



NCTCOG STANDARD SPECIFICATION REFERENCE

201

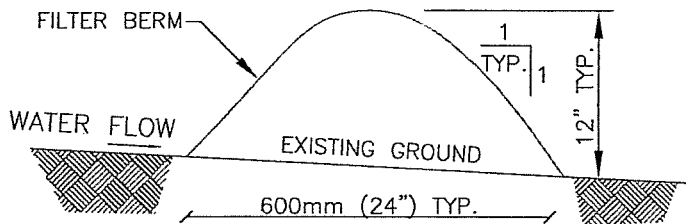
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11/13/08

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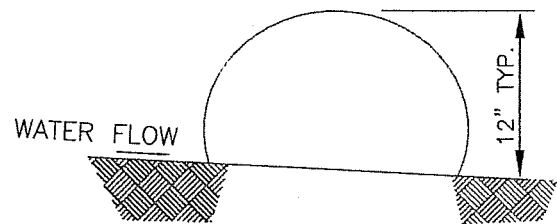
1010BM*

BERM OPTION:

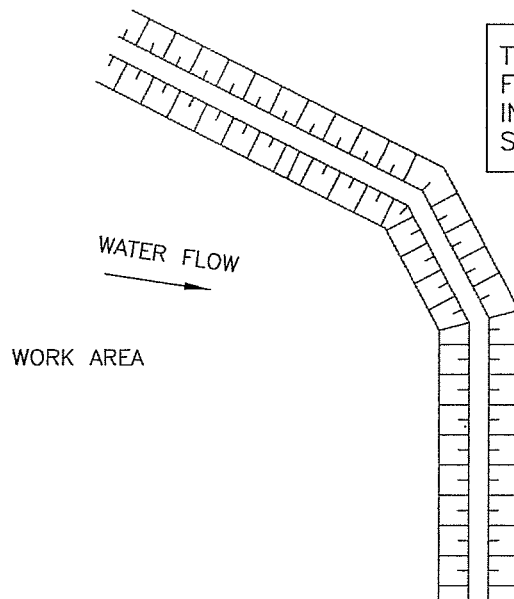


SOCK OPTION:

FILTER SOCK, SIZED TO SUIT CONDITIONS.
12" TO 18" (300mm TO 450mm) TYPICAL.



FILTER COMPOST MATERIAL
AS PER SPECIFICATIONS.



TYPICAL BERM FOR MINIMAL GRADES SHOWN.
FOR STEEPER GRADES, I.E. 2:1 SLOPES
INCREASE BERM SIZE AS DETERMINED ON
SITE BY ENGINEER.

NOTES:

1. ALL MATERIAL TO MEET MANUFACTURER'S SPECIFICATIONS.
2. THE CONTRACTOR SHALL MAINTAIN THE COMPOST FILTER BERM IN A FUNCTIONAL CONDITION AT ALL TIMES AND IT SHALL BE ROUTINELY INSPECTED.
3. WHERE THE BERM REQUIRES REPAIR, IT WILL BE ROUTINELY REPAIRED.
4. THE CONTRACTOR SHALL REMOVE SEDIMENTS COLLECTED AT THE BASE OF THE BERM WHEN THEY REACH 1/3 OF THE EXPOSED HEIGHT OF THE BERM, OR AS DIRECTED BY THE ENGINEER.
5. THE COMPOST FILTER BERM WILL BE DISPERSED ON SITE WHEN NO LONGER REQUIRED, AS DETERMINED BY THE ENGINEER.

M* - CITY OF MELISSA REVISION

EROSION CONTROL BERM

CITY OF MELISSA



NCTCOG STANDARD SPECIFICATION REFERENCE

201

DATE

11/17/08

STANDARD DRAWING NO.

1020AM*

SILT FENCE GENERAL NOTES:

1. POSTS WHICH SUPPORT THE SILT FENCE SHALL BE INSTALLED ON A SLIGHT ANGLE TOWARD THE ANTICIPATED RUNOFF SOURCE. POST MUST BE EMBEDDED A MINIMUM OF ONE FOOT.
2. THE TOE OF THE SILT FENCE SHALL BE TRENCHED IN WITH A SPADE OR MECHANICAL TRENCHER, SO THAT THE DOWNSLOPE FACE OF THE TRENCH IS FLAT AND PERPENDICULAR TO THE LINE OF FLOW. WHERE FENCE CANNOT BE TRENCHED IN (e.g. PAVEMENT), WEIGHT FABRIC FLAP WITH ROCK ON UPHILL SIDE TO PREVENT FLOW FROM SEEPING UNDER FENCE.
3. THE TRENCH MUST BE A MINIMUM OF 6 INCHES DEEP AND 6 INCHES WIDE TO ALLOW FOR THE SILT FENCE FABRIC TO BE LAID IN THE GROUND AND BACKFILLED WITH COMPACTED MATERIAL.
4. SILT FENCE SHOULD BE SECURELY FASTENED TO EACH SUPPORT POST OR TO WIRE BACKING, WHICH IN TURN IS ATTACHED TO THE FENCE POST. THERE SHALL BE A 3 FOOT OVERLAP, SECURELY FASTENED WHERE ENDS OF FABRIC MEET.
5. INSPECTION SHALL BE AS SPECIFIED IN THE SWPPP. REPAIR OR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED.
6. SILT FENCE SHALL BE REMOVED WHEN FINAL STABILIZATION IS ACHIEVED OR ANOTHER EROSION OR SEDIMENT CONTROL DEVICE IS EMPLOYED.
7. ACCUMULATED SILT SHALL BE REMOVED WHEN IT REACHES A DEPTH OF HALF THE HEIGHT OF THE FENCE. THE SILT SHALL BE DISPOSED OF AT AN APPROVED SITE AND IN SUCH A MANNER AS TO NOT CONTRIBUTE TO ADDITIONAL SILTATION.

SILT FENCE

North Central Texas Council of Governments



STANDARD SPECIFICATION REFERENCE

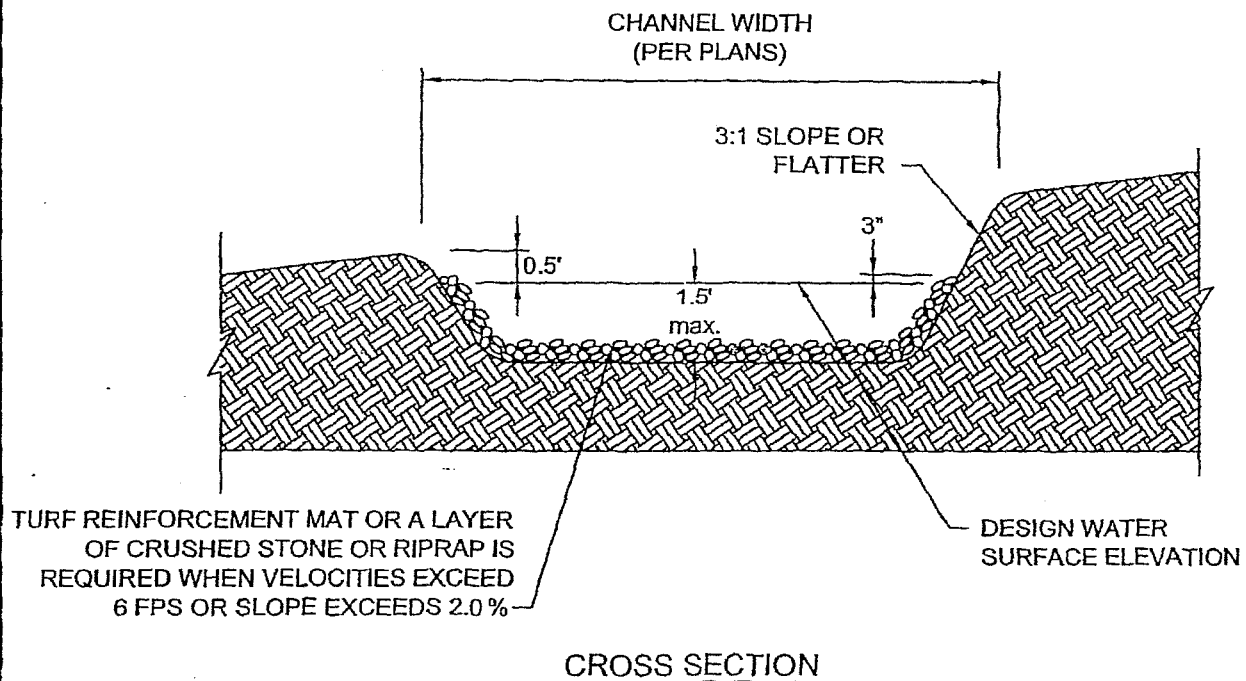
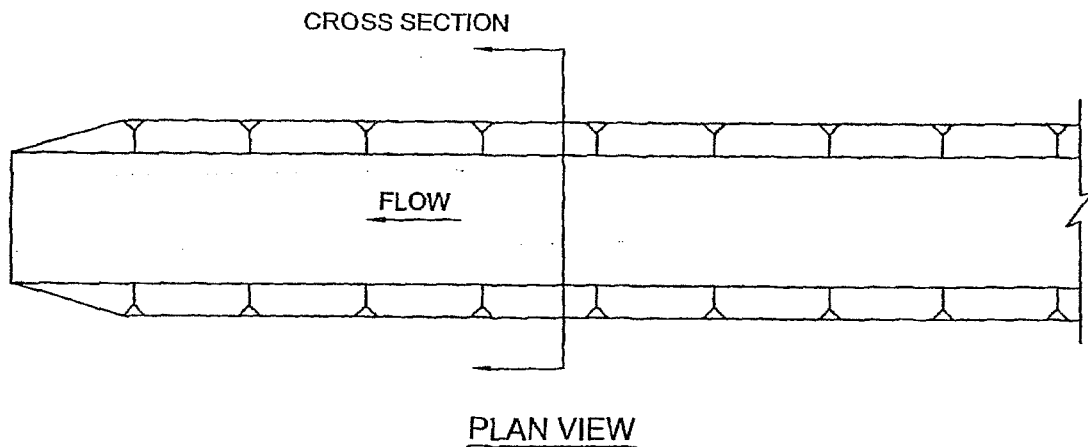
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DATE

OCT. '04

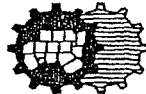
STANDARD DRAWING NO.

1020B



INTERCEPTOR SWALE

North Central Texas Council of Governments



STANDARD SPECIFICATION REFERENCE

201.6

DATE

OCT. '04

STANDARD DRAWING NO.

1030A

INTERCEPTOR SWALE GENERAL NOTES:

1. ALL TREES, BRUSH, STUMPS, OBSTUCTIONS AND OTHER MATERIAL SHALL BE REMOVED AND DISPOSED OF SO AS NOT TO INTERFERE WITH THE PROPER FUNCTIONING OF THE SWALE.
2. THE SWALE SHALL BE EXCAVATED OR SHAPED TO LINE, GRADE AND CROSS-SECTION AS REQUIRED TO MEET CRITERIA SPECIFIED HEREIN AND BE FREE OF BANK PROJECTIONS OR OTHER IRREGULARITIES WHICH WILL IMPEDE NORMAL FLOW.
3. ALL EARTH REMOVED AND NOT NEEDED IN CONSTRUCTION SHALL BE DISPOSED OF IN AN APPROVED SPOILS SITE SO THAT IT WILL NOT INTERFERE WITH THE FUNCTIONING OF THE SWALE.
4. DIVERTED RUNOFF FROM A DISTURBED OR EXPOSED UPLAND AREA SHALL BE CONVEYED TO A SEDIMENT TRAPPING DEVICE.
5. THE ON-SITE LOCATION MAY NEED TO BE ADJUSTED TO MEET FIELD CONDITIONS IN ORDER TO UTILIZE THE MOST SUITABLE OUTLET.
6. FOR GRADES LESS THAN 2 PERCENT AND VELOCITIES LESS THAN 6 FEET PER SECOND, THE MINIMUM REQUIRED CHANNEL STABILIZATION SHALL BE GRASS, EROSION CONTROL MATS OR MULCHING. FOR GRADES IN EXCESS OF 2 PERCENT OR VELOCITIES EXCEEDING 6 FEET PER SECOND, STABILIZATION IS REQUIRED IN THE FORM OF TURF REINFORCEMENT MATS (OR A LAYER OF CRUSHED STONE OR RIP-RAP WITH APPROPRIATE SIZE, GRADATION, AND THICKNESS AS SPECIFIED IN THE SWPPP).
7. MINIMUM COMPACTION FOR THE SWALE SHALL BE 90 PERCENT STANDARD PROCTOR.
8. INSPECTION SHALL BE AS SPECIFIED IN THE SWPPP.

INTERCEPTOR SWALE

North Central Texas Council of Governments



STANDARD SPECIFICATION REFERENCE

201.6

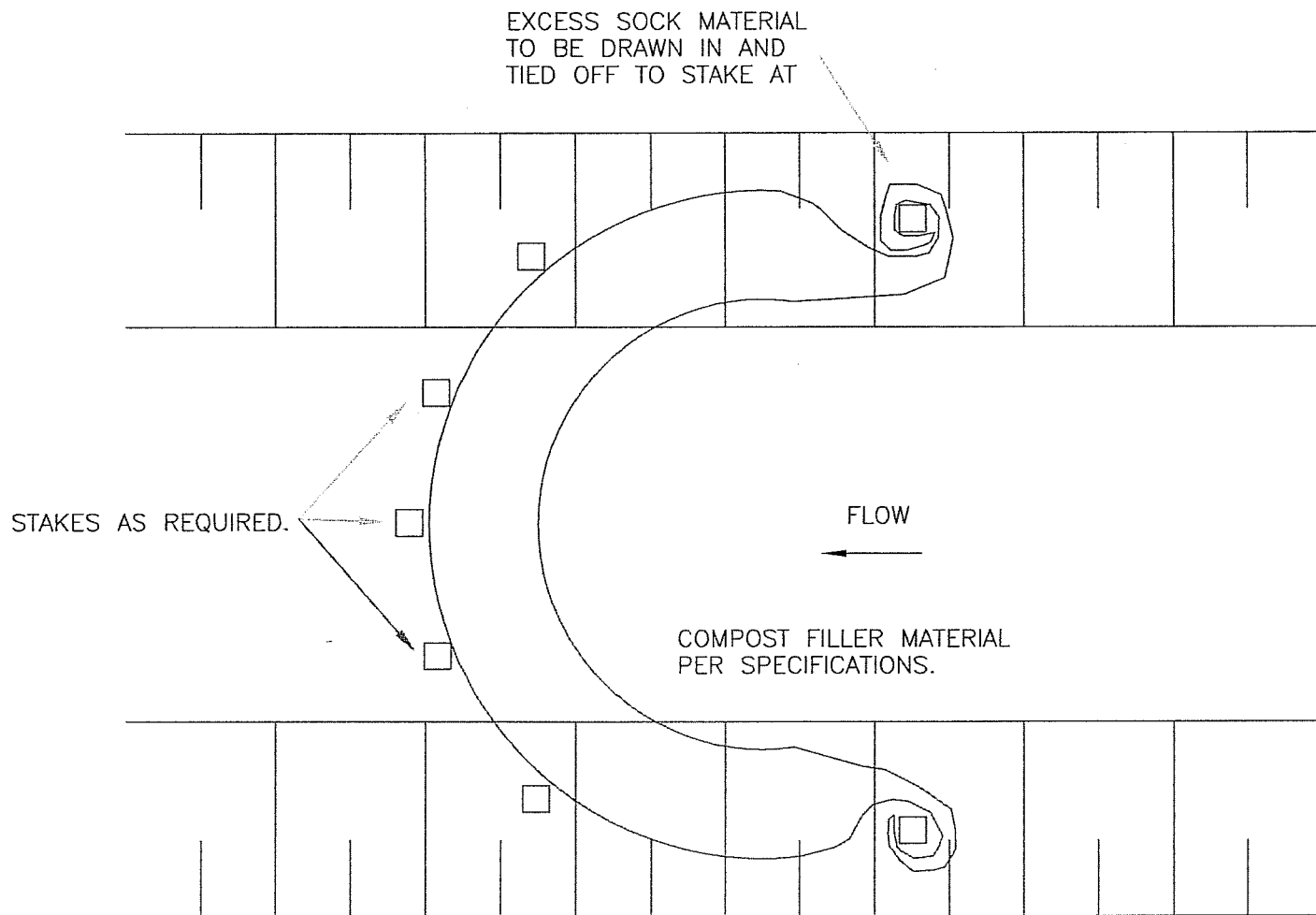
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OCT. '04

STANDARD DRAWING NO.

1030B

FLITER SOCK SIZING TO SUIT CONDITIONS,
(8" TO 18" TYPICAL)



NOTES:

1. ALL MATERIAL TO MEET CITY OF MELISSA SPECIFICATIONS.
2. COMPOST MATERIAL WILL BE DISPERSED ON SITE WHEN NO LONGER REQUIRED, AS DETERMINED BY THE CITY ENGINEER.

M* - CITY OF MELISSA REVISION

DITCH PROTECTION

CITY OF MELISSA



NCTCOG STANDARD SPECIFICATION REFERENCE

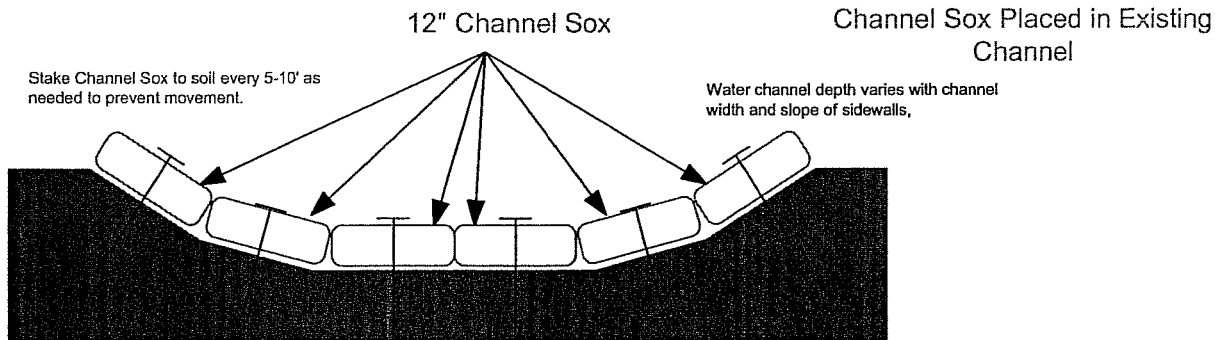
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11/13/08

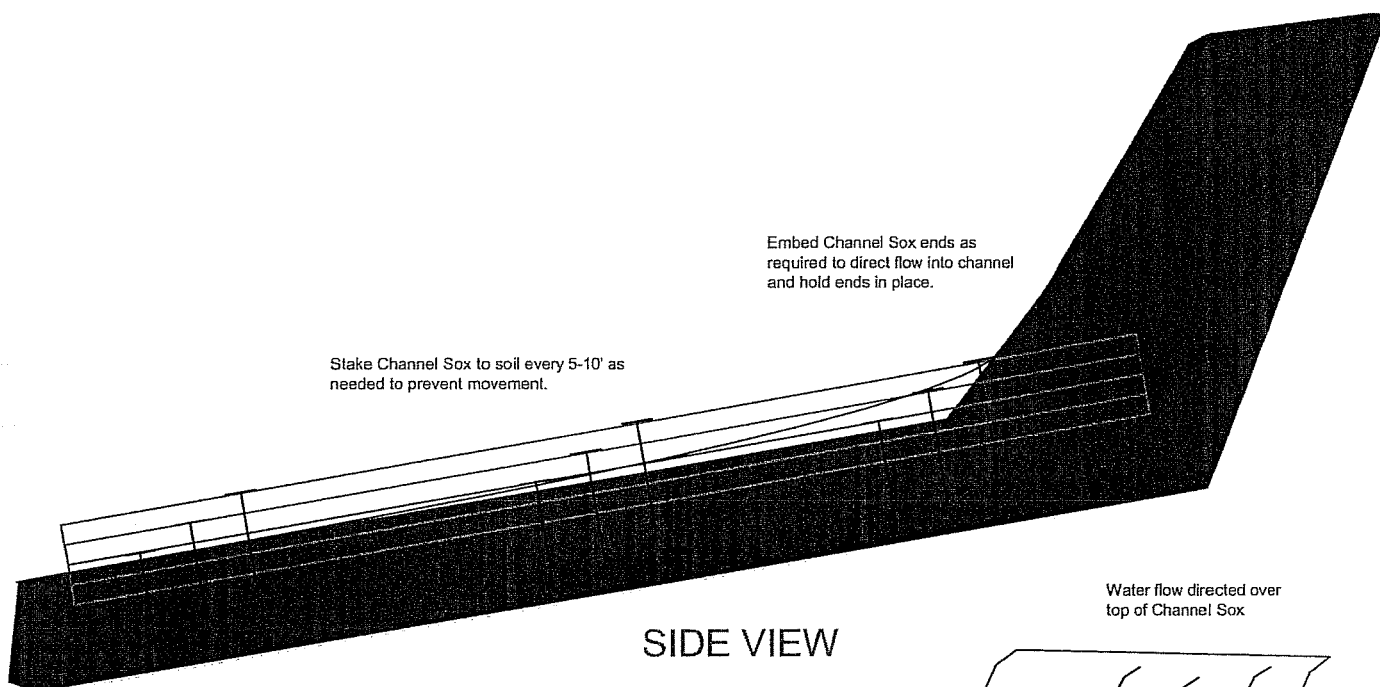
STANDARD DRAWING NO.

1040M*



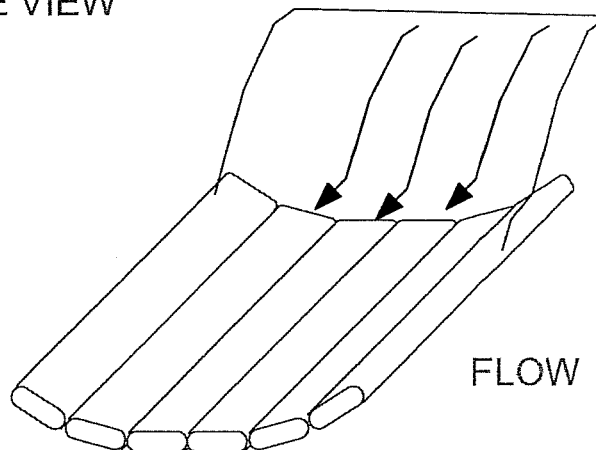
Use sufficient Channel Sox to completely line area of water flow

END VIEW



NOTES:

1. All material to meet City of Melissa specifications.
2. The contractor shall maintain the compost Filler Sox in functional condition at all times and it shall be routinely inspected.



M* - CITY OF MELISSA REVISION

CHANNEL EROSION CONTROL

CITY OF MELISSA



NCTCOG STANDARD SPECIFICATION REFERENCE

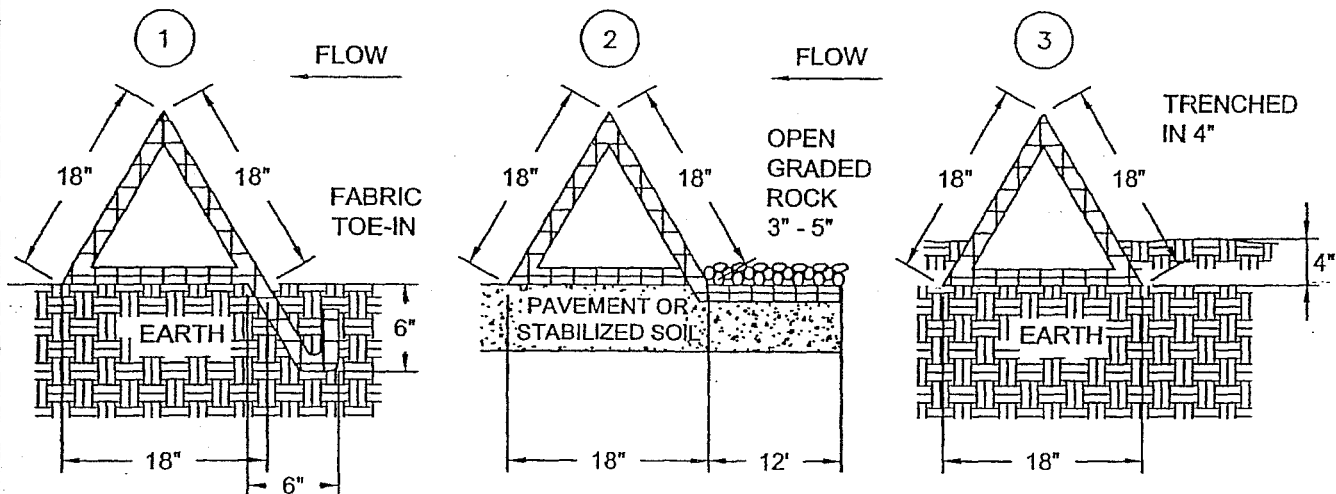
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DATE

11/17/22

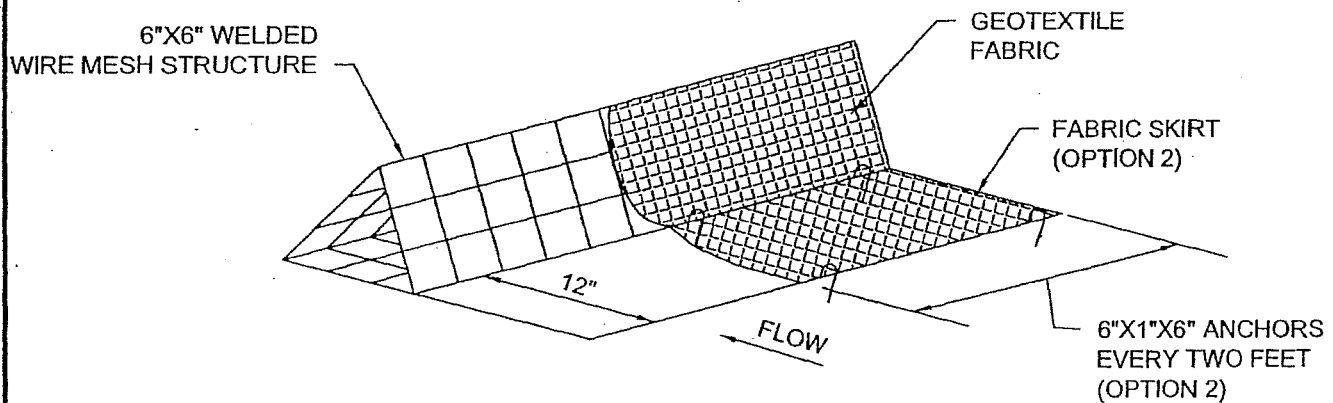
STANDARD DRAWING NO.

1040PM*



CROSS SECTION OF INSTALLATION OPTIONS

1. TOE-IN 6" MIN.
2. FABRIC SKIRT WEIGHTED WITH ROCK
3. TRENCHED IN 4"



ISOMETRIC PLAN VIEW

TRIANGULAR SEDIMENT FILTER DIKE

North Central Texas Council of Governments



STANDARD SPECIFICATION REFERENCE

201.8

DATE

OCT. '04

STANDARD DRAWING NO.

1050A

TRIANGULAR SEDIMENT FILTER DIKE GENERAL NOTES:

1. DIKES SHALL BE PLACED IN A ROW WITH ENDS TIGHTLY ABUTTING THE ADJACENT DIKE.
2. THE FABRIC COVER AND SKIRT SHALL BE A CONTINUOUS EXTENSION OF THE FABRIC ON THE UPSTREAM FACE, AND FABRIC SHALL BE OVERLAPPED A MINIMUM OF 12".
3. THE SKIRT SHALL BE WEIGHTED WITH A CONTINUOUS LAYER OF TYPE 'A' RIP RAP, OR TOED-IN 6" WITH MECHANICALLY COMPACTED MATERIAL. OTHERWISE, THE ENTIRE STRUCTURE SHALL BE TRENCHED TO A DEPTH OF 4 INCHES.
4. DIKES AND SKIRT SHALL BE SECURELY ANCHORED IN PLACE USING 6-INCH WIRE STAPLES ON 2-FOOT CENTERS ON BOTH EDGES AND SKIRTS.
5. FILTER MATERIAL SHALL BE LAPPED OVER ENDS 6" TO COVER DIKE TO DIKE JOINTS. JOINTS SHALL BE FASTENED WITH GALVANIZED SHOAT RINGS.
6. THE DIKE STRUCTURE SHALL BE 6 GA. 6" X 6" WIRE MESH, 18" ON A SIDE.
7. INSPECTION SHALL BE AS SPECIFIED IN THE SWPPP. REPAIR OR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED BY THE CONTRACTOR.
8. THE FILTER DIKE SHALL BE REMOVED WHEN FINAL STABILIZATION IS ACHIEVED OR ANOTHER EROSION OR SEDIMENT CONTROL DEVICE IS EMPLOYED.
9. ACCUMULATED SILT SHALL BE REMOVED WHEN IT REACHES APPROXIMATELY 6-INCHES IN DEPTH. THE SILT SHALL BE DISPOSED OF AT AN APPROVED SITE AND IN SUCH A MANNER AS TO NOT CONTRIBUTE TO ADDITIONAL SILTATION.

TRIANGULAR SEDIMENT FILTER DIKE

North Central Texas Council of Governments



STANDARD SPECIFICATION REFERENCE

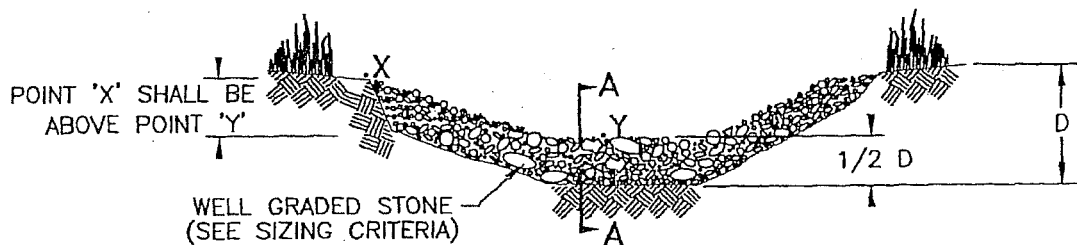
201.8

DATE

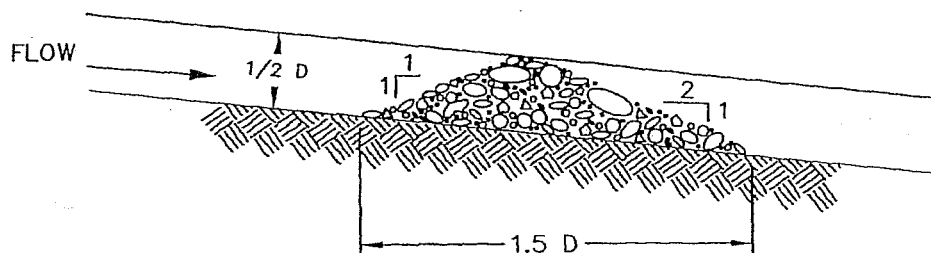
OCT. '04

STANDARD DRAWING NO.

1050B

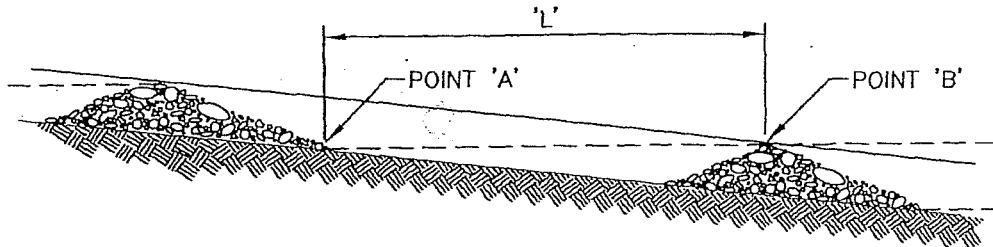


VIEW LOOKING UPSTREAM



SECTION A - A

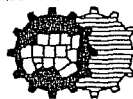
'L' = THE DISTANCE SUCH THAT POINTS 'A' AND 'B' ARE OF EQUAL ELEVATION.



SPACING BETWEEN CHECK DAMS

ROCK CHECK DAM

North Central Texas Council of Governments



STANDARD SPECIFICATION REFERENCE

201.9

DATE

OCT. '04

STANDARD DRAWING NO.

1060A

ROCK CHECK DAM GENERAL NOTES:

1. STONE SHALL BE WELL GRADED WITH SIZE RANGE FROM $1\frac{1}{2}$ TO $3\frac{1}{2}$ INCHES IN DIAMETER DEPENDING ON EXPECTED FLOWS.
2. THE CHECK DAM SHALL BE INSPECTED AS SPECIFIED IN THE SWPPP AND SHALL BE REPLACED WHEN THE STRUCTURE CEASES TO FUNCTION AS INTENDED DUE TO SILT ACCUMULATION AMONG THE ROCKS, WASHOUT, CONSTRUCTION TRAFFIC DAMAGE, ETC.
3. WHEN SILT REACHES A DEPTH EQUAL TO ONE-THIRD OF THE HEIGHT OF THE CHECK DAM OR ONE FOOT, WHICHEVER IS LESS, THE SILT SHALL BE REMOVED AND DISPOSED OF PROPERLY.
4. WHEN THE SITE HAS ACHIEVED FINAL STABILIZATION OR ANOTHER EROSION OR SEDIMENT CONTROL DEVICE IS EMPLOYED, THE CHECK DAM AND ACCUMULATED SILT SHALL BE REMOVED AND DISPOSED OF IN AN APPROVED MANNER.

ROCK CHECK DAM

North Central Texas Council of Governments



STANDARD SPECIFICATION REFERENCE

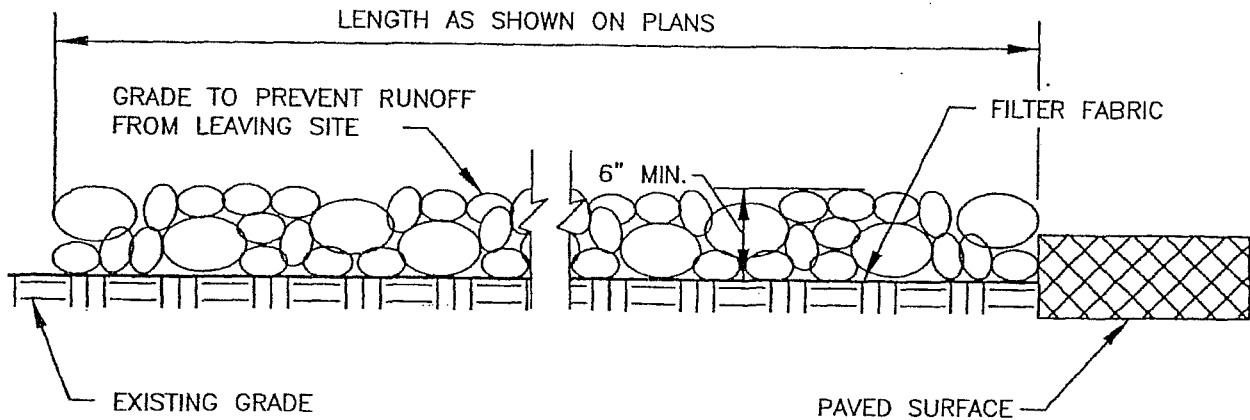
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DATE

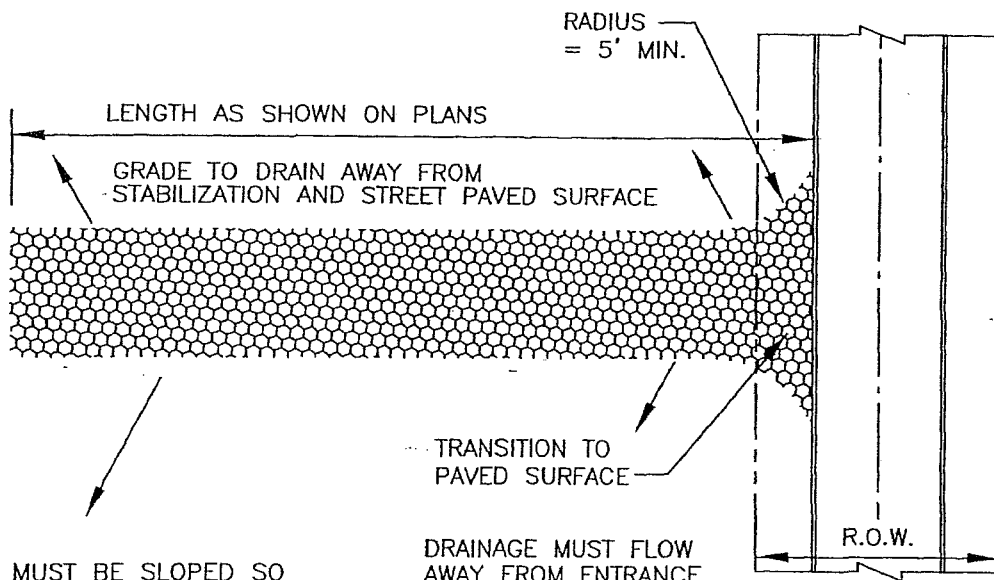
OCT. '04

STANDARD DRAWING NO.

1060B



PROFILE VIEW
N.T.S.



ENTRANCE MUST BE SLOPED SO THAT STORM WATER IS NOT ALLOWED TO LEAVE THE SITE AND ENTER ROADWAYS.

PLAN VIEW
N.T.S.

STABILIZED CONSTRUCTION
ENTRANCE

North Central Texas Council of Governments



STANDARD SPECIFICATION REFERENCE

201.10

DATE

OCT. '04

STANDARD DRAWING NO.

1070A

STABILIZED CONSTRUCTION ENTRANCE GENERAL NOTES:

1. STONE SHALL BE 3 TO 5 INCH DIAMETER COARSE AGGREGATE.
2. LENGTH SHALL BE AS SPECIFIED IN THE SWPPP.
3. THE THICKNESS SHALL NOT BE LESS THAN 12 INCHES.
4. THE WIDTH SHALL BE NO LESS THAN THE FULL WIDTH OF ALL POINTS OF INGRESS OR EGRESS.
5. WHEN NECESSARY, VEHICLES SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO A PUBLIC ROADWAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE WITH DRAINAGE FLOWING AWAY FROM BOTH THE STREET AND THE STABILIZED ENTRANCE. ALL SEDIMENT SHALL BE PREVENTED FROM ENTERING ANY STORM DRAIN, DITCH OR WATERCOURSE USING APPROVED METHODS.
6. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PAVED SURFACES. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND. ALL SEDIMENT SPILLED, DROPPED, WASHED, OR TRACKED ONTO PAVED SURFACES MUST BE REMOVED IMMEDIATELY.
7. THE ENTRANCE MUST BE PROPERLY GRADED OR INCORPORATE A DRAINAGE SWALE TO PREVENT RUNOFF FROM LEAVING THE CONSTRUCTION SITE.
8. PREVENT SHORTCUTTING OF THE FULL LENGTH OF THE CONSTRUCTION ENTRANCE BY INSTALLING BARRIERS AS NECESSARY.
9. INSPECTION SHALL BE AS SPECIFIED IN THE SWPPP.

STABILIZED CONSTRUCTION
ENTRANCE

North Central Texas Council of Governments



STANDARD SPECIFICATION REFERENCE

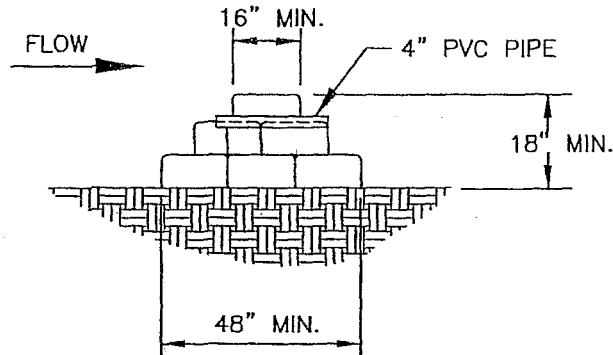
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DATE

OCT. '04

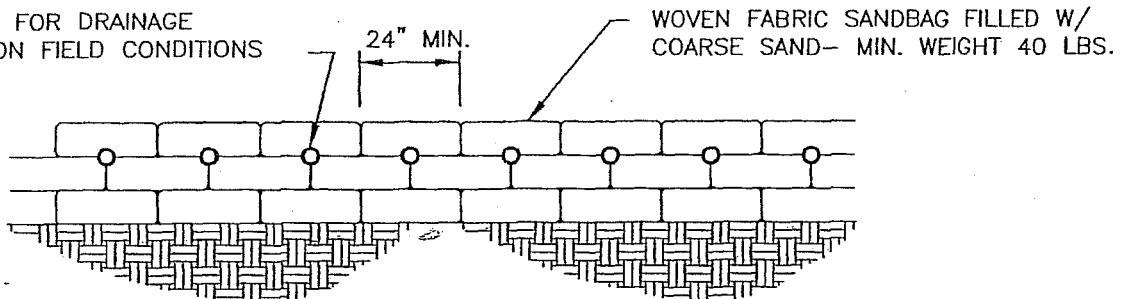
STANDARD DRAWING NO.

1070B



CROSS SECTION
N.T.S.

4" PVC PIPE FOR DRAINAGE
DEPENDING ON FIELD CONDITIONS



PROFILE VIEW
N.T.S.

NOTE: SAND BAG
CHECK DAM
CONSTRUCTION AND
PLACEMENT SHALL BE
IN ACCORDANCE WITH
THE SPACING,
CROSS-SECTION, AND
PROFILE VIEWS OF THE
ROCK CHECK DAM IN
DRAWING 1060A.

SAND BAG CHECK DAM

North Central Texas Council of Governments



STANDARD SPECIFICATION REFERENCE
201.10

DATE
OCT. '04

STANDARD DRAWING NO.
1080A

SAND BAG CHECK DAM GENERAL NOTES:

1. WHEN A SANDBAG IS FILLED WITH MATERIAL, THE OPEN END OF THE SANDBAG SHOULD BE STAPLED OR TIED WITH NYLON OR POLY CORD.
2. SANDBAGS SHOULD BE STACKED IN AT LEAST THREE ROWS ABUTTING EACH OTHER, AND IN STAGGERED ARRANGEMENT.
3. THE BASE OF THE CHECK DAM SHOULD HAVE AT LEAST 3 SANDBAGS. THESE CAN BE REDUCED TO 2 AND 1 BAG IN THE SECOND AND THIRD ROWS RESPECTIVELY.
4. FOR EACH ADDITIONAL 6" OF HEIGHT, AN ADDITIONAL SANDBAG MUST BE ADDED TO EACH ROW WIDTH.
5. THE SANDBAG CHECK DAM SHALL BE INSPECTED AS SPECIFIED IN THE SWPPP AND SHALL BE RESHAPED OR REPLACED AS NEEDED. REPAIRS SHALL BE MADE FOR WASHOUT, CONSTRUCTION TRAFFIC DAMAGE, ETC.
6. WHEN SILT REACHES A DEPTH EQUAL TO ONE-THIRD OF THE HEIGHT OF THE CHECK DAM OR ONE FOOT, WHICHEVER IS LESS, THE SILT SHALL BE REMOVED AND DISPOSED OF AT AN APPROVED SITE AND IN SUCH A MANNER AS TO NOT CREATE A SILTATION PROBLEM.
7. WHEN THE SITE HAS ACHIEVED FINAL STABILIZATION OR ANOTHER EROSION OR SEDIMENT CONTROL DEVICE IS EMPLOYED, THE CHECK DAM AND ACCUMULATED SILT SHALL BE REMOVED AND DISPOSED OF IN AN APPROVED MANNER.

SAND BAG CHECK DAM

North Central Texas Council of Governments



STANDARD SPECIFICATION REFERENCE

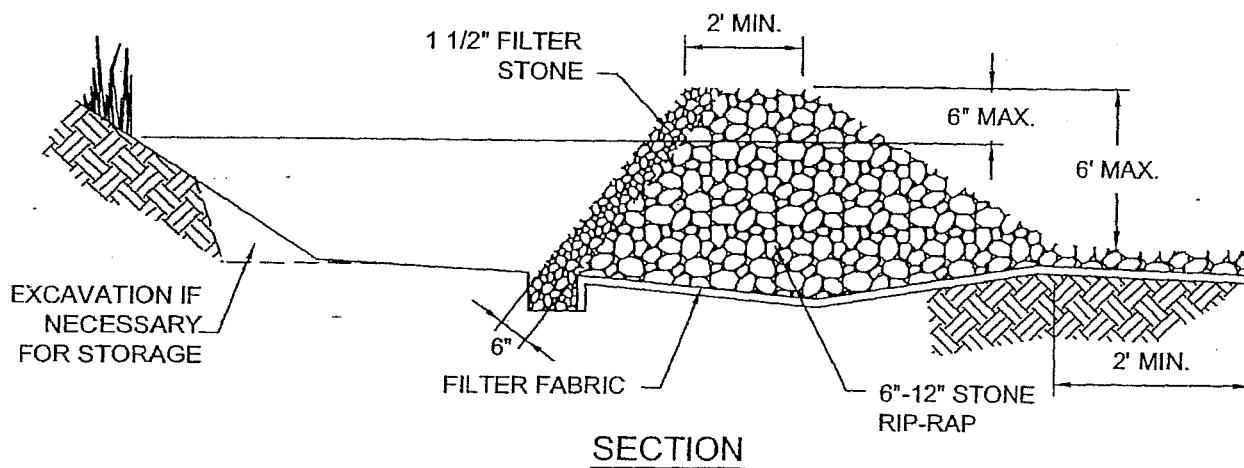
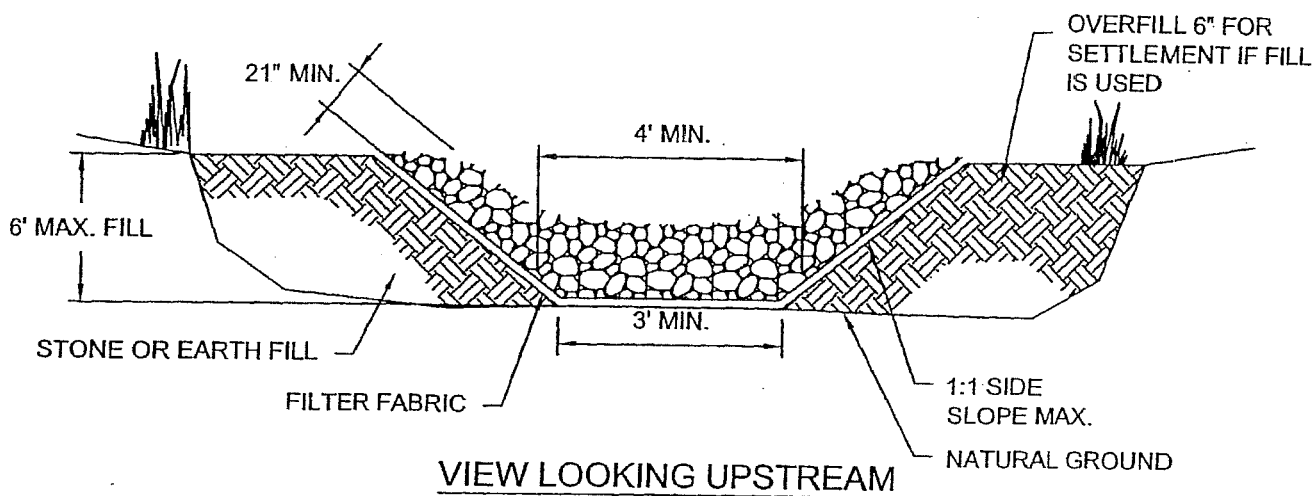
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DATE

OCT. '04

STANDARD DRAWING NO.

1080B



STONE OUTLET SEDIMENT TRAP

North Central Texas Council of Governments



STANDARD SPECIFICATION REFERENCE

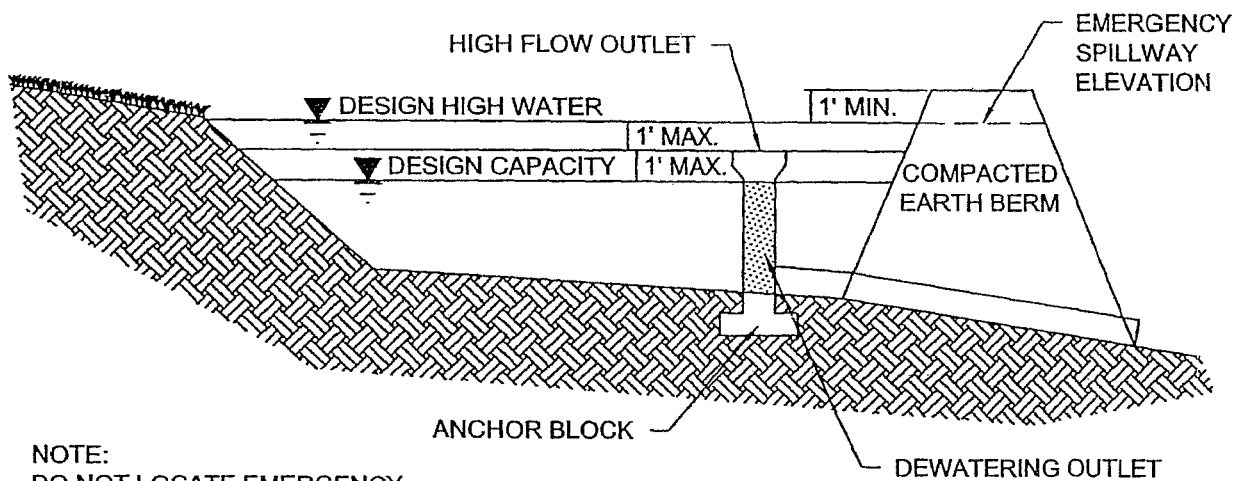
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DATE

OCT. '04

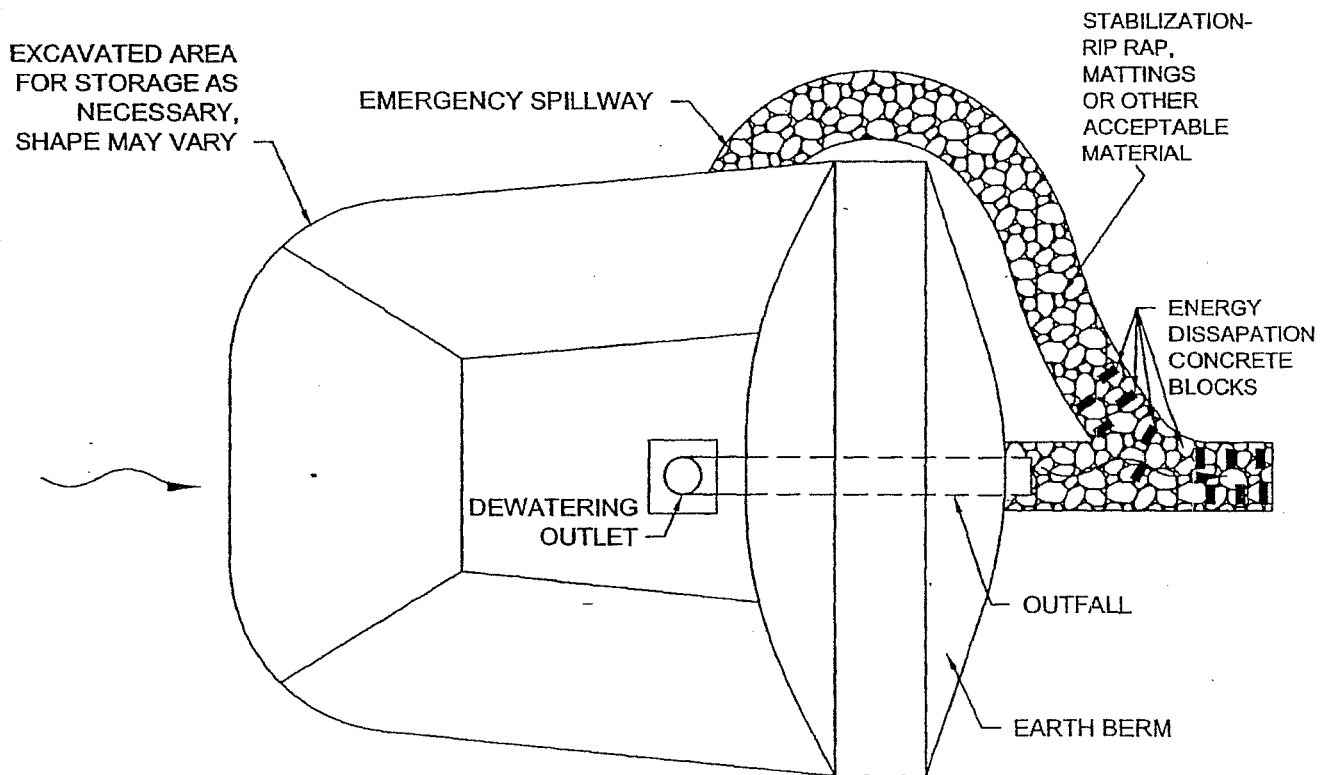
STANDARD DRAWING NO.

1090



NOTE:
DO NOT LOCATE EMERGENCY
SPILLWAY ON EARTH BERM

CROSS SECTION



PLAN VIEW

PIPE OUTLET SEDIMENT BASIN

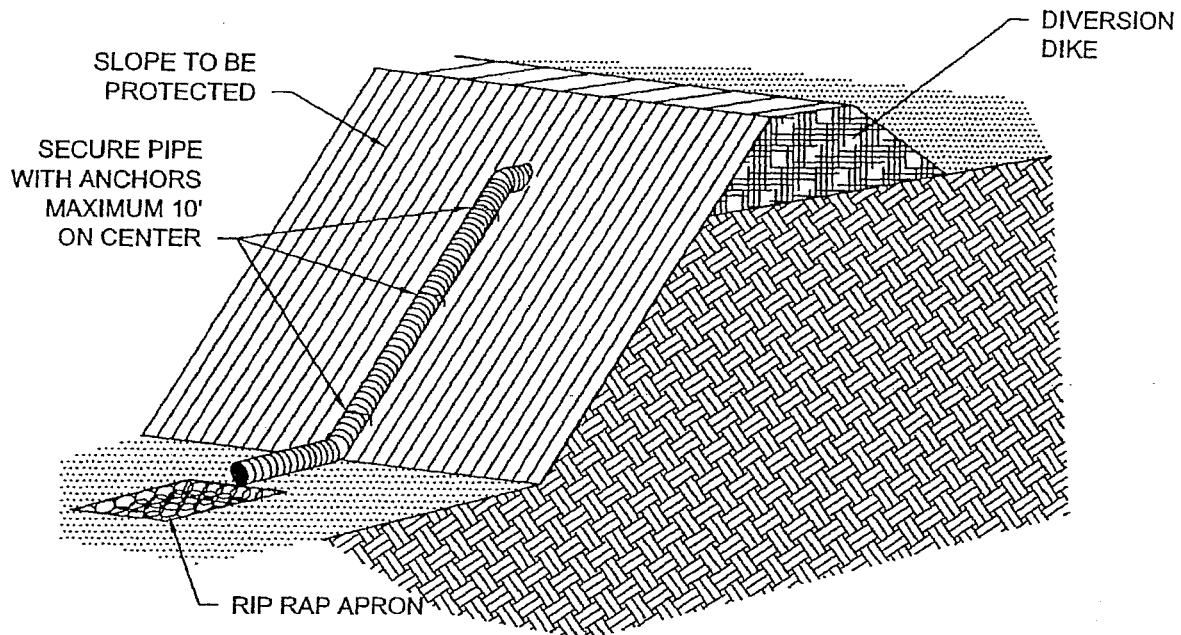
North Central Texas Council of Governments



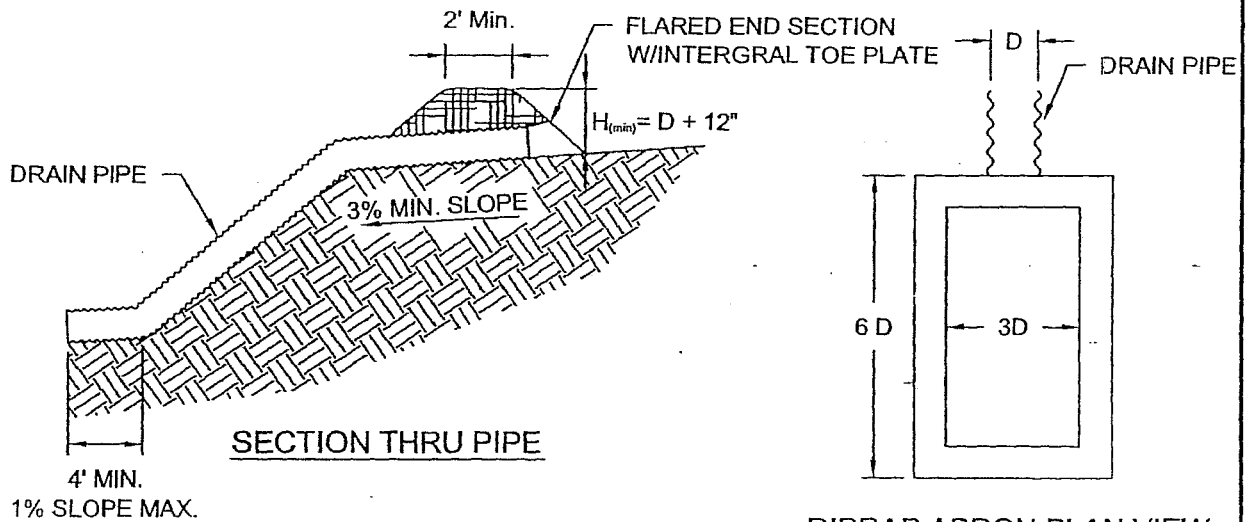
STANDARD SPECIFICATION REFERENCE

DATE
OCT. '04

STANDARD DRAWING NO.
1100



ISOMETRIC PLAN VIEW



RIPRAP APRON PLAN VIEW

RIPRAP SHALL CONSIST OF 50 TO 150 POUND STONES PLACED IN A LAYER OF NOT LESS THAN 12 INCHES. THE DEPTH OF THE APRON SHALL EQUAL THE PIPE DIAMETER BUT IN NO CASE SHALL IT BE LESS THAN 12 INCHES.

PIPE SLOPE DRAIN

North Central Texas Council of Governments



STANDARD SPECIFICATION REFERENCE

201.13

DATE

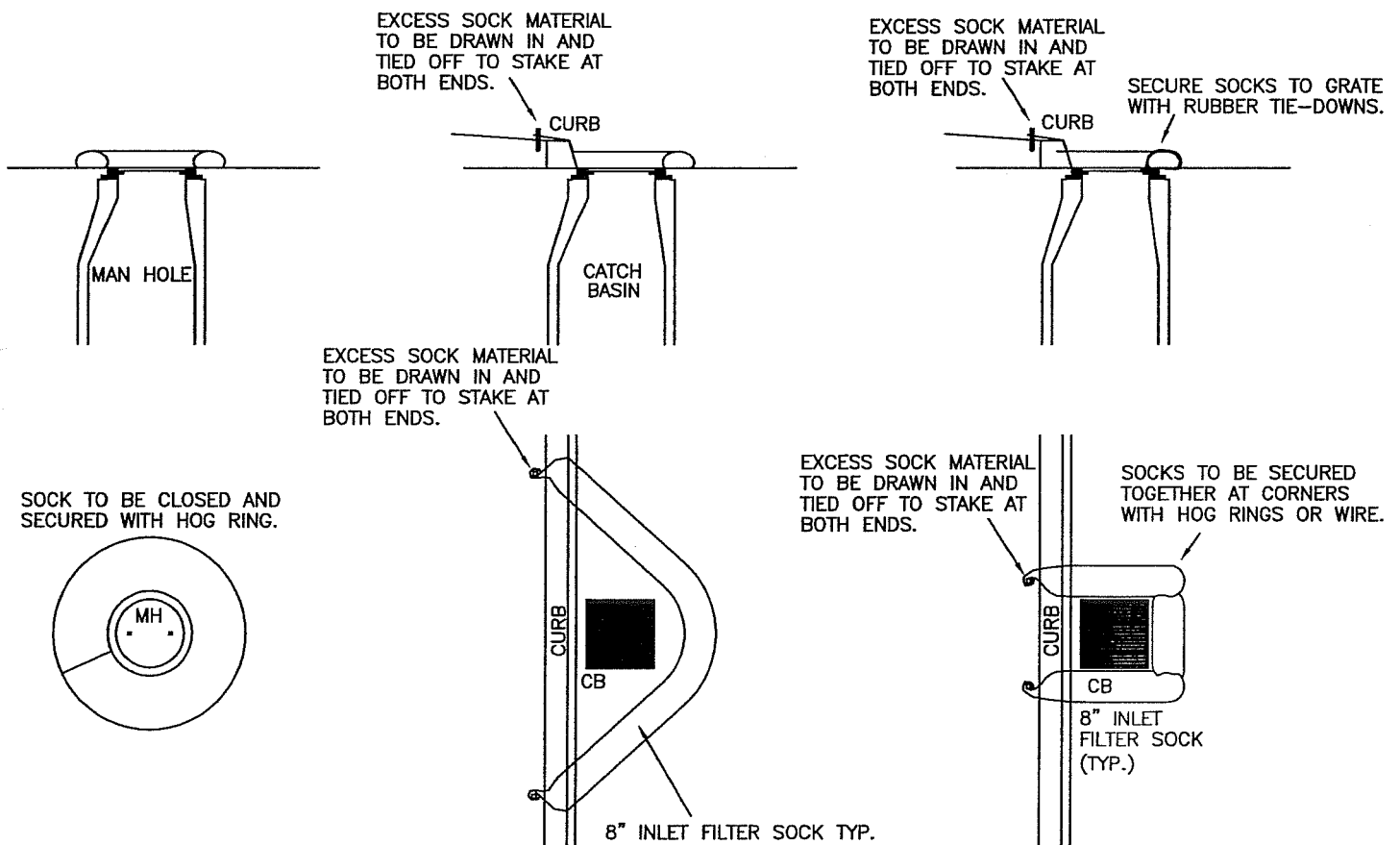
OCT. '04

STANDARD DRAWING NO.

1110

NOTES:

1. ALL MATERIAL TO MEET CITY OF MELISSA SPECIFICATIONS.
2. SECURE INLET FILTER SOCK TO GROUND AT EACH END.



MANHOLE

CATCH BASIN
(OPTION "A")

CATCH BASIN
(OPTION "B")

FOR USE IN TIGHTER AREAS,
NARROW ROADS ETC.

M* - CITY OF MELISSA REVISION

INLET PROTECTION FILTER BARIERS

CITY OF MELISSA



NCTCOG STANDARD SPECIFICATION REFERENCE

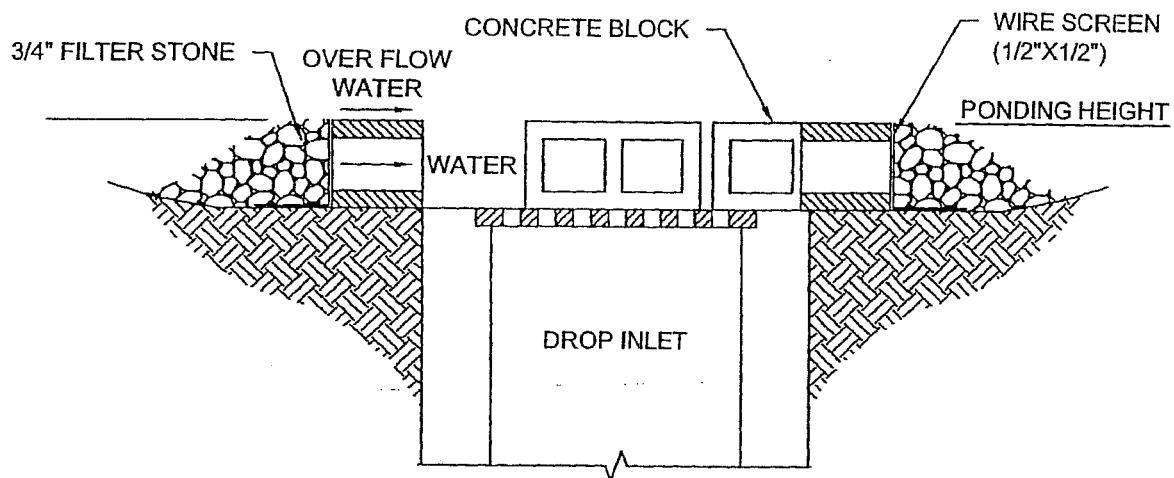
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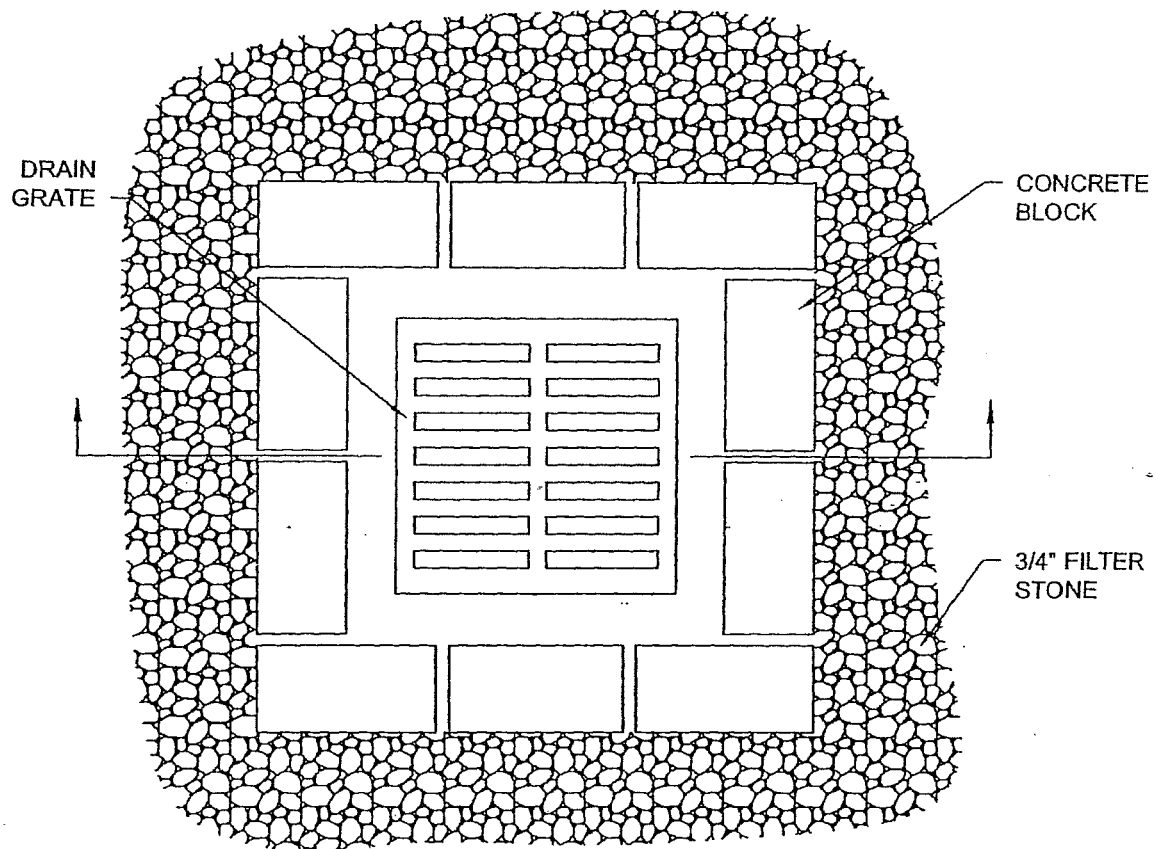
STANDARD DRAWING NO.

11/17/22

112011*



CROSS SECTION



PLAN VIEW

INLET PROTECTION-DROP
BLOCK AND GRAVEL

North Central Texas Council of Governments



STANDARD SPECIFICATION REFERENCE

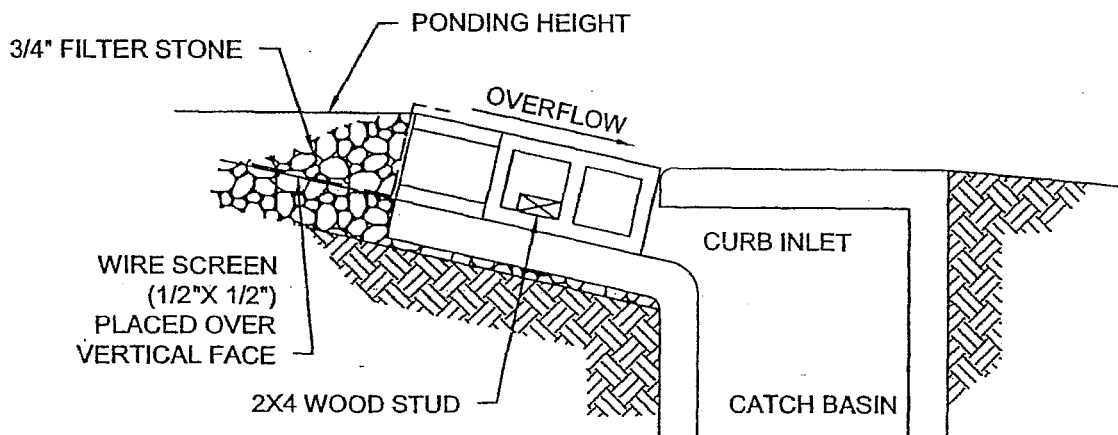
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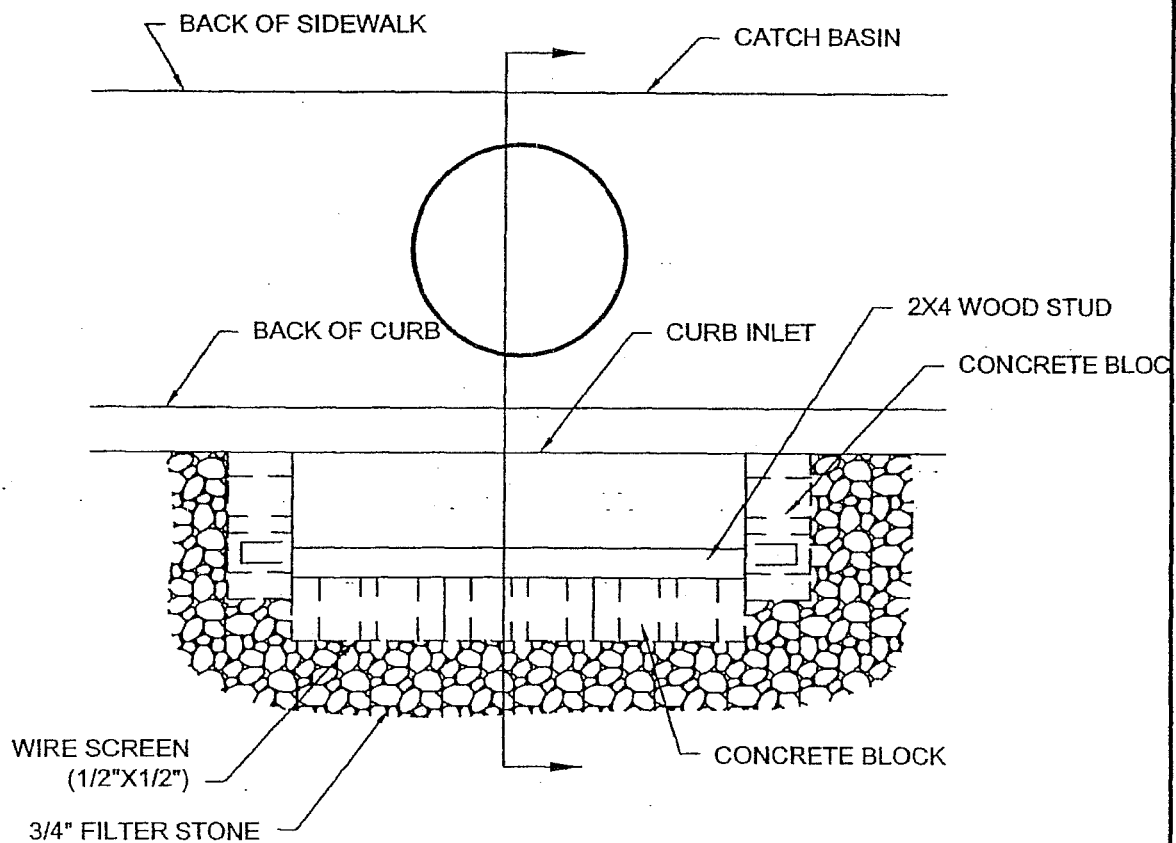
OCT. '04

STANDARD DRAWING NO.

1130



CROSS SECTION



PLAN VIEW

INLET PROTECTION—CURB
BLOCK AND GRAVEL

North Central Texas Council of Governments



STANDARD SPECIFICATION REFERENCE

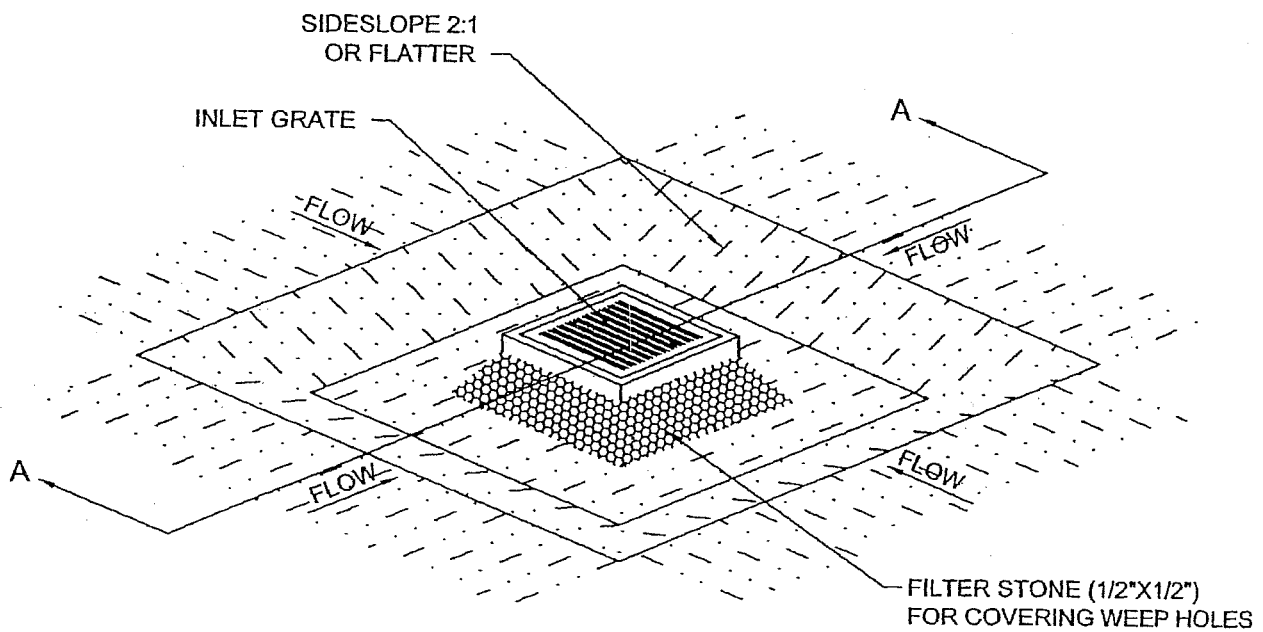
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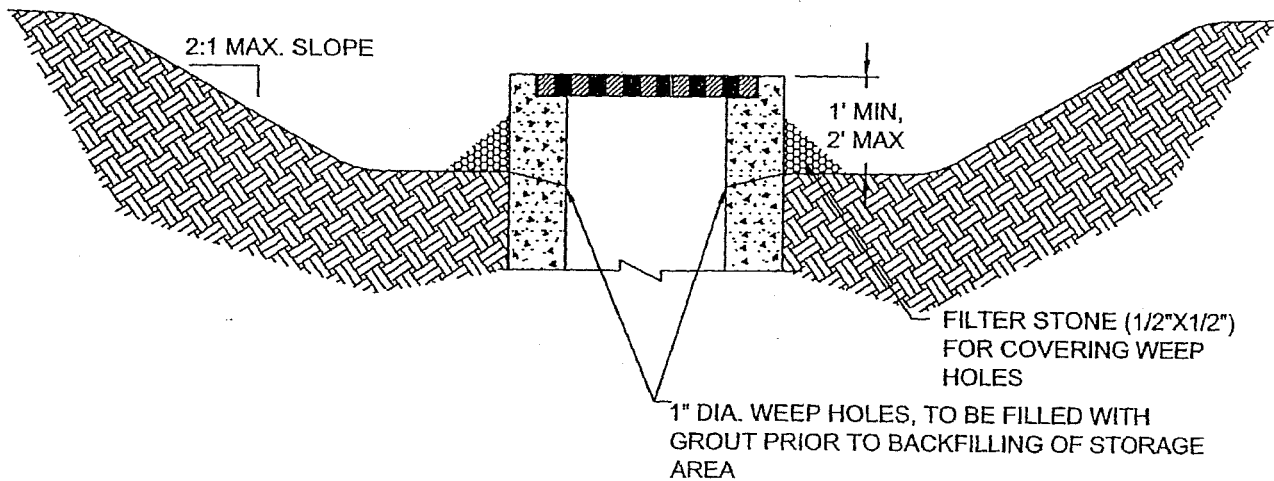
OCT. '04

STANDARD DRAWING NO.

1140



ISOMETRIC PLAN VIEW

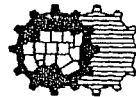


SECTION A-A

INLET PROTECTION

EXCAVATED IMPOUNDMENT

North Central Texas Council of Governments



STANDARD SPECIFICATION REFERENCE

201.14

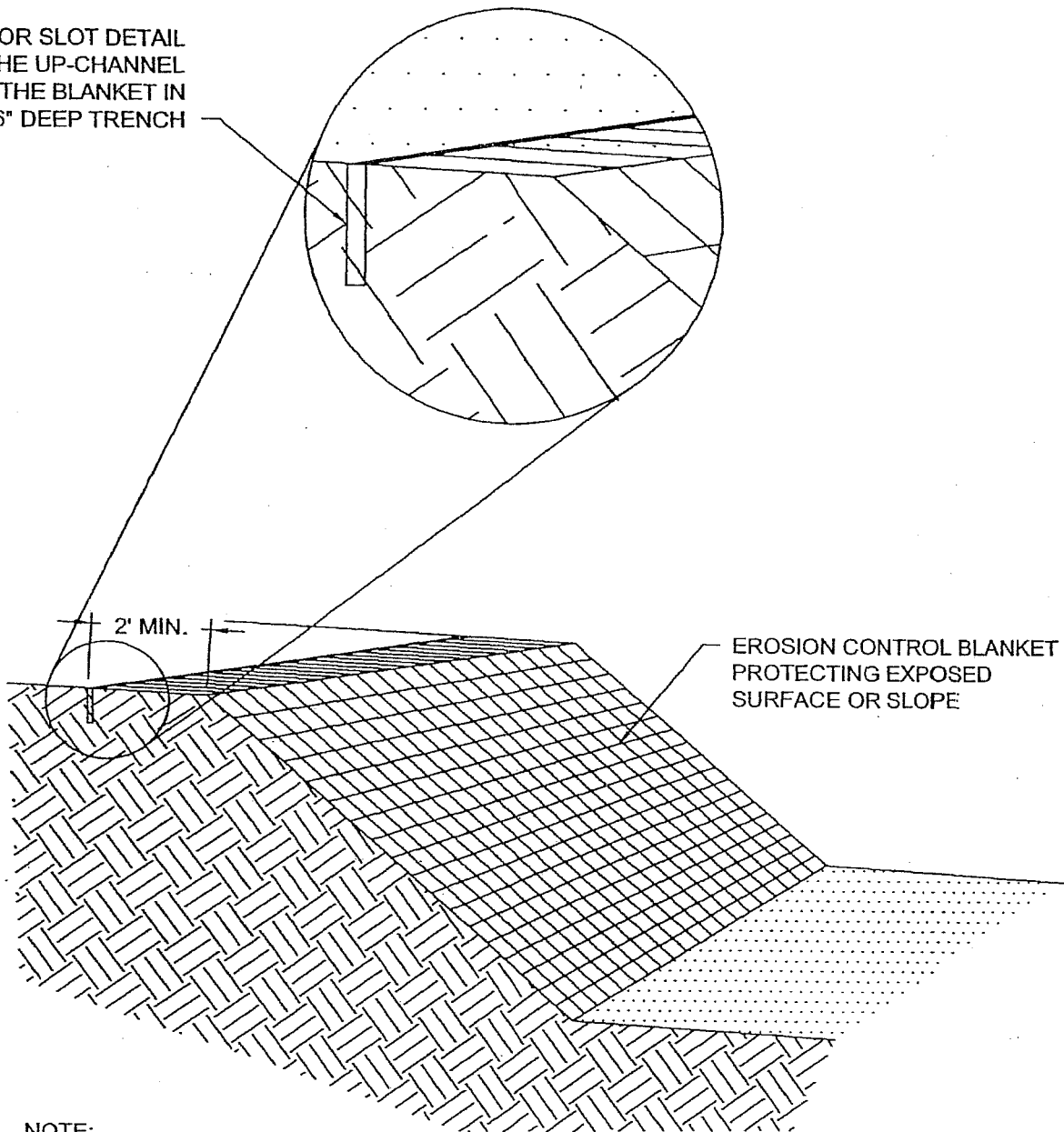
DATE

OCT. '04

STANDARD DRAWING NO.

1150

ANCHOR SLOT DETAIL
BURY THE UP-CHANNEL
END OF THE BLANKET IN
A 6" DEEP TRENCH



NOTE:
ANCHORING OF THE EROSION CONTROL BLANKETS SHALL BE
DONE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

EROSION CONTROL BLANKETS

North Central Texas Council of Governments



STANDARD SPECIFICATION REFERENCE

201.15

DATE

OCT. '04

STANDARD DRAWING NO.

1160A

EROSION CONTROL BLANKETS GENERAL NOTES:

1. PRIOR TO THE INSTALLATION OF ANY EROSION CONTROL BLANKETS, ALL ROCKS, DIRT CLODS, STUMPS, ROOTS, TRASH AND ANY OTHER OBSTRUCTIONS THAT WOULD PREVENT THE BLANKET FROM LYING IN DIRECT CONTACT WITH THE SOIL SHALL BE REMOVED. ANCHOR TRENCHING SHALL BE LOCATED ALONG THE ENTIRE PERIMETER OF THE INSTALLATION AREA, EXCEPT FOR SMALL AREAS WITH LESS THAN 2% SLOPE.
2. INSTALLATION AND ANCHORING SHALL CONFORM TO THE RECOMMENDATIONS SHOWN WITHIN THE MANUFACTURER'S PUBLISHED LITERATURE FOR THE APPROVED EROSION CONTROL BLANKET. PARTICULAR ATTENTION MUST BE PAID TO JOINTS AND OVERLAPPING MATERIAL.
3. AFTER APPROPRIATE INSTALLATION, THE BLANKETS SHOULD BE CHECKED FOR UNIFORM CONTACT WITH THE SOIL, SECURITY OF THE LAP JOINTS, AND FLUSHNESS OF THE STAPLES WITH THE GROUND.
4. INSPECTION SHALL BE AS SPECIFIED IN THE SWPPP.

EROSION CONTROL BLANKETS

North Central Texas Council of Governments



STANDARD SPECIFICATION REFERENCE

201.15

DATE

OCT. '04

STANDARD DRAWING NO.

1160B

1. THE CITY OF MELISSA SHALL MAKE PERIODIC INSPECTIONS OF THE CONSTRUCTION OF IMPROVEMENTS.
2. INSPECTION OF IMPROVEMENTS DOES NOT RELIEVE THE SUBDIVIDER, OR HIS CONTRACTOR, FROM ENSURING THAT THE IMPROVEMENTS ARE CONSTRUCTED IN ACCORDANCE WITH THE ACCEPTED PLANS AND SPECIFICATIONS.
3. THE SUBDIVIDER, OR HIS CONTRACTOR, SHALL MAINTAIN CONTACTS WITH THE CITY ENGINEER, OR HIS REPRESENTATIVE, DURING CONSTRUCTION OF IMPROVEMENTS.
4. SHOP SPECIFICATIONS INCLUDING A TRENCH SAFETY PLAN (IF APPLICABLE), SHALL BE SUBMITTED TO THE CITY ENGINEER OR A REPRESENTATIVE FOR APPROVAL PRIOR TO ANY INSTALLATION OF SUCH ITEM(S) ARE PREFORMED.
5. NO SANITARY SEWER, WATER, OR STORM SEWER PIPE SHALL BE COVERED WITHOUT APPROVAL OF THE CITY ENGINEER, OR HIS REPRESENTATIVE. NO FLEXIBLE BASE MATERIAL, SUBGRADE MATERIAL, OR STABILIZATION SHALL BE APPLIED TO THE STREET SUBGRADE WITHOUT SAID APPROVAL. NO CONCRETE SHALL BE POURED NOR ASPHALT SURFACE APPLIED WITHOUT SAID APPROVAL.
6. THE CITY ENGINEER MAY AT ANY TIME, CAUSE ANY CONSTRUCTION, INSTALLATION, MAINTENANCE, OR LOCATION OF IMPROVEMENTS TO CEASE WHEN, IN HIS JUDGMENT, THE REQUIREMENTS OF THE CITY OF MELISSA OR THE STANDARD AND SPECIFICATIONS HAVE BEEN VIOLATED, AND MAY REQUIRE SUCH RECONSTRUCTION OR OTHER WORK AS MAY BE NECESSARY TO CORRECT ANY SUCH VIOLATION.
7. THE CITY OF MELISSA WILL RETAIN A COMMERCIAL MATERIALS TESTING LABORATORY TO PERFORM TESTS NECESSARY TO VERIFY THAT SPECIFICATIONS ARE BEING MET FOR ALL PUBLIC IMPROVEMENTS.
8. THE COST FOR MATERIALS TESTING SHALL BE REIMBURSED TO THE CITY BY THE DEVELOPER.
9. CONTRACTOR SHALL COORDINATE WITH THE CITY ENGINEER TO ENSURE THAT ALL REQUIRED TESTING IS COMPLETED. FAILURE TO DO SO MAY RESULT IN DELAYS AND/OR REWORK, TO ACCEPT THE COMPLETED PROJECT.
10. MATERIALS AND WORKMANSHIP FOR ALL IMPROVEMENTS SHALL CONFORM TO THE LATEST EDITION OF STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION PUBLISHED BY THE NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS (NCTCOG), UNLESS OTHERWISE SPECIFIED BY THE CITY ENGINEER.
11. THE MAINTENANCE BOND PER DEVELOPMENT PERMIT APPROVAL WILL BE REQUIRED BEFORE THE COMPLETED PROJECT IS ACCEPTED BY THE CITY ENGINEER.
12. AS-BUILT PLANS AND AN ELECTRONIC FILE SHALL BE SUBMITTED TO THE CITY ENGINEER PRIOR TO APPROVAL OF THE COMPLETED PROJECT.

M* - CITY OF MELISSA REVISION

GENERAL CONSTRUCTION NOTES

CITY OF MELISSA



NCTCOG STANDARD SPECIFICATION REFERENCE

N/A

DATE

STANDARD DRAWING NO.

11/06/03

7001M*

SIGNATURE BLOCK:

DATE: PRINTED NAME COMPANY/PHONE # APPROVAL SIGNATURE

ENGINEERING				
FIRE PREVENTION				
WATER DEPARTMENT				
SEWER DEPARTMENT				
SANITATION DEPARTMENT				

NOTE: DEVELOPER SHALL SECURE SIGNATURES FROM THE FOLLOWING FRANCHISE UTILITIES PRIOR TO APPROVAL OF THE PLAT

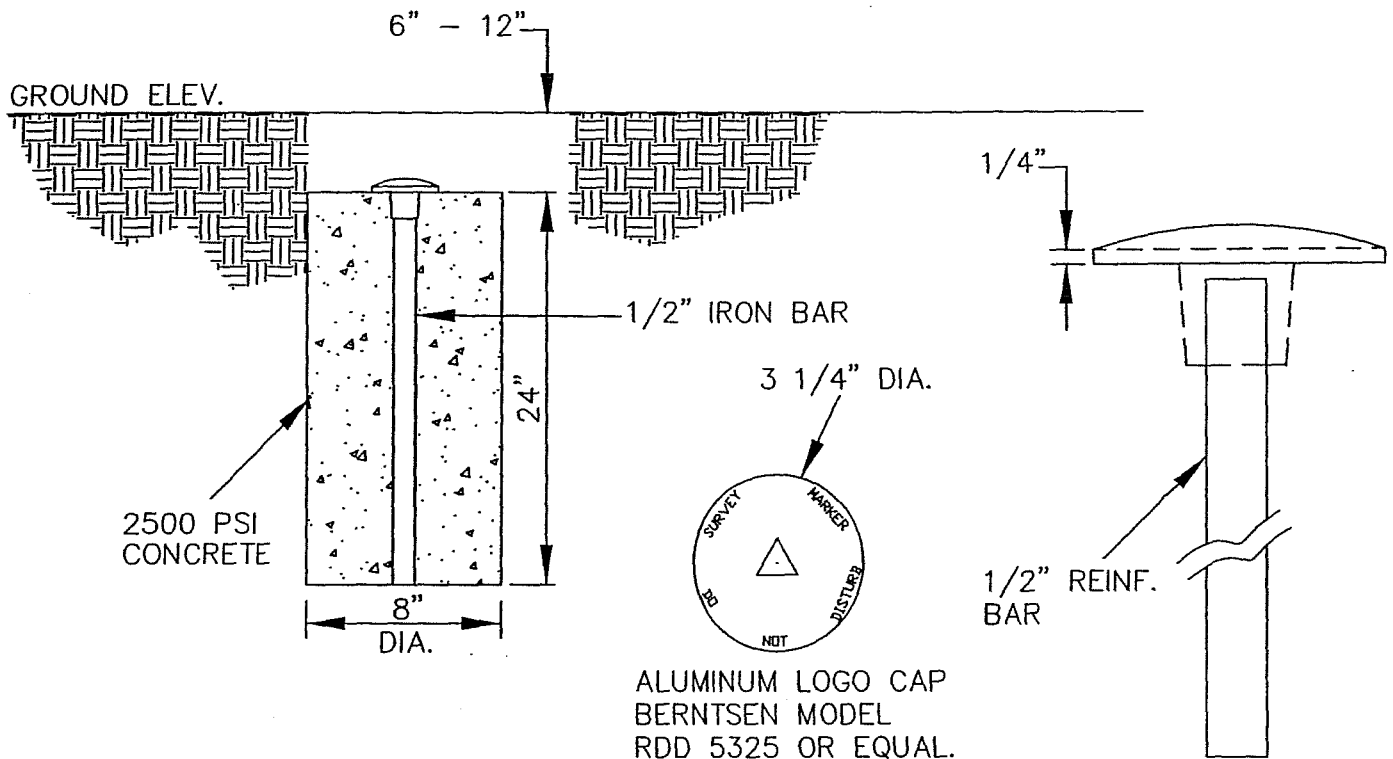
TXU / GCEC				
ONCOR				
SBC TELEPHONE				
CABLE TV FRANCHISE				



SIGNATURE BLOCK
CITY OF MELISSA

NOTE:

1. ALL LOT MARKERS SHALL BE ONE-HALF INCH (1/2") REINFORCING BAR, EIGHTEEN (18) INCHES LONG, OR APPROVED EQUAL, AND SHALL BE PLACED AT ALL LOT CORNERS FLUSH WITH THE GROUND OR AT SUCH AN ELEVATION THAT THEY WILL NOT BE DISTURBED DURING OR AFTER CONSTRUCTION AND THE TOP OF THE MONUMENT SHALL NOT BE MORE THAN TWELVE (12) INCHES BELOW THE FINISH GROUND ELEVATION.
2. CONCRETE MONUMENTS SHALL BE PLACE ON AT LEAST TWO (2) BLOCK CORNERS, BOUNDARY CORNERS OR ANGLE POINTS FOR EACH PLAT OR PHASE OF A MULTIPLATTED AREA OR SUBDIVISION.
3. CONCRETE MONUMENTS SHALL BE TIED INTO THE PLANE COORDINATES FOR THE LAMBERT CONFORMAL CONIC PROJECTION FOR TEXAS, NORTH CENTRAL ZONE. REFERENCE MAY BE MADE TO SPECIAL PUBLICATION NO. 252, PLANE COORDINATE PROJECTION TABLES FOR TEXAS, PUBLISHED AND PRINTED BY THE UNITED STATES DEPARTMENT OF COMMERCE, COAST AND GEODETIC SURVEY.
4. WHERE NO BENCH MARK IS ESTABLISHED OR CAN BE FOUND WITHIN THREE HUNDRED (300) FEET OF THE BOUNDARY OF THE SUBDIVISION, SUCH BENCH MARK SHALL BE ESTABLISHED AS A MONUMENT, AND SHALL BE READILY ACCESSIBLE AND IDENTIFIABLE ON THE GROUND AND SHALL BE RECORDED ON THE CITY OF MELISSA BENCH MARK DATUM.



CONCRETE MONUMENT
NTS

MONUMENTS & MARKERS
CITY OF MELISSA



M* - CITY OF MELISSA REVISION

NCTCOG STANDARD SPECIFICATION REFERENCE

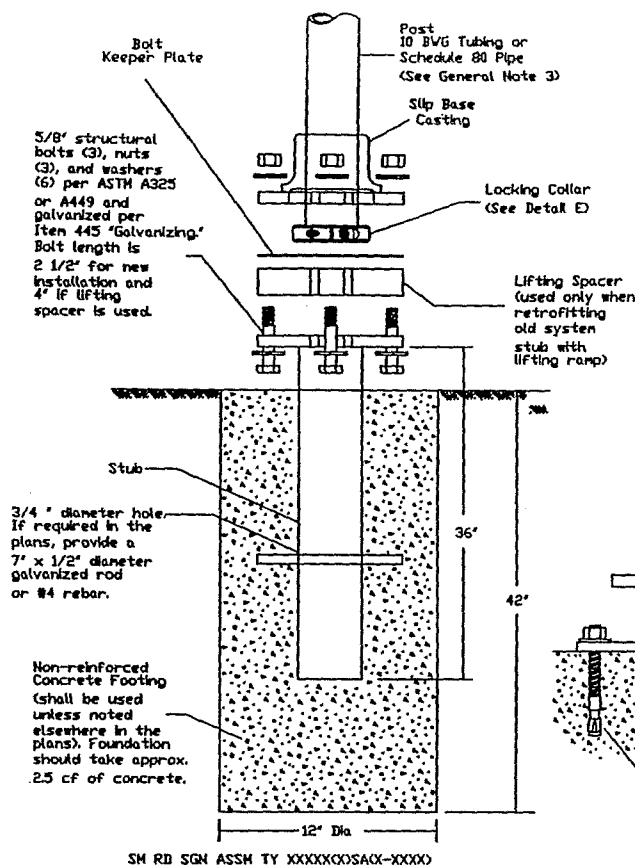
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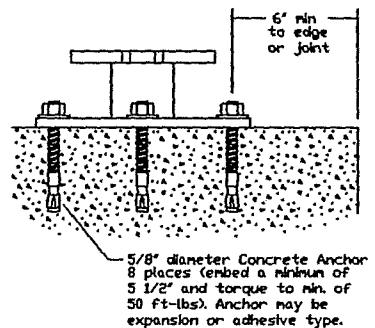
STANDARD DRAWING NO.

11/06/03

700.3M*

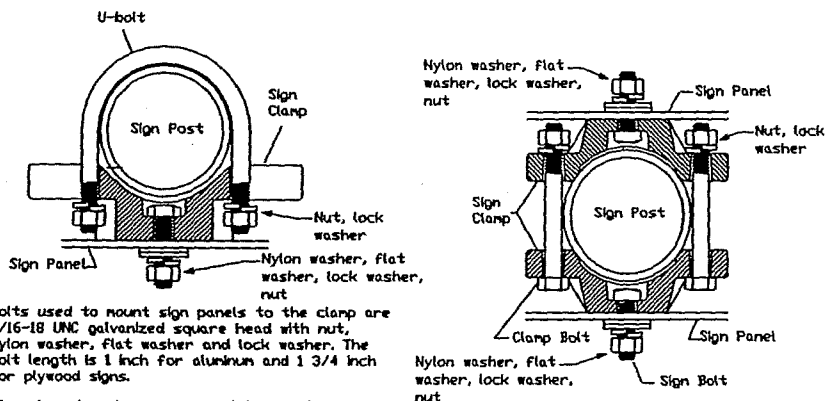


Concrete anchor consists of 5/8" diameter stud bolt with UNC series bolt threads on the upper end. Heavy hex nut per ASTM A563, and hardened washer per ASTM F436. The stud bolt shall have minimum yield and ultimate tensile strengths of 50 and 75 KSI, respectively. Nuts, bolts and washers shall be galvanized per Item 445, 'Galvanizing.' Top of bolt shall extend at least flush with top of the nut when installed. The anchor, when installed in 4000 psi normal-weight concrete with a 5 1/2" minimum embedment, shall have a minimum allowable tension and shear of 3900 and 3100 psi, respectively. Adhesive type anchors shall have stud bolts installed with Type III epoxy per DMS-6100, 'Epoxyes and Adhesives.' Adhesive anchors may be loaded after adequate epoxy cure time, per the manufacturer's recommendations.



TEXAS UNIVERSAL TRAINGLE SUBBASE SYSTEM

NTS



Bolts used to mount sign panels to the clamp are 5/16-18 UNC galvanized square head with nut, nylon washer, flat washer and lock washer. The bolt length is 1 inch for aluminum and 1 3/4 inch for plywood signs.

When two sign clamps are used to mount signs back-to-back, use a 5/16-18 UNC galvanized hex head per ASTM A307 with nut and helical-spring lock washer. The approximate bolt lengths for various post sizes and sign clamp types are given in the table at right. The bolt length may need to be adjusted depending upon field conditions.

Sign clamps may be either the specific size clamp or the universal clamp.

Pipe Diameter	Approximate Bolt Length	
	Specific Clamp	Universal Clamp
2" nominal	3"	3 or 3 1/2"
2 1/2" nominal	3 or 3 1/2"	3 1/2 or 4"
3" nominal	3 1/2 or 4"	4 1/2"

SIGN ATTACHMENT DETAIL

NTS

SIGN POST DETAIL
CITY OF MELISSA



M* - CITY OF MELISSA REVISION

NCTCOG STANDARD SPECIFICATION REFERENCE

N/A

DATE

STANDARD DRAWING NO.

11/06/03 700111

AS-BUILT DRAWINGS

DATE

THIS DOCUMENT IS SUBMITTED AS AN "AS-BUILT DRAWING" FOR RECORD PURPOSES ONLY.

I, _____ THE DEVELOPER OR ITS REPRESENTATIVE, DO HERBY CERTIFY THAT THIS DOCUMENT REPRESENTS IMPROVEMENTS AS CONSTRUCTED AND THAT IMPROVEMENTS WERE CONSTRUCTED IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS AS ACCEPTED BY THE CITY OF MELISSA, EXCEPT FOR CHANGES OR MODIFICATIONS REFLECTED HEREON.

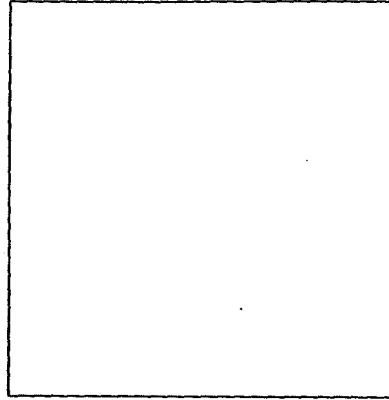
SIGNATURE

DATE

I, _____ P.E., DO HERBY CERTIFY THAT THIS DOCUMENT ACCURATELY REFLECTS AS-BUILT CONDITIONS AS REPORTED BY THE DEVELOPER, ITS REPRESENTATIVE, OR THE CONTRACTOR(S).

SIGNATURE

DATE



ENGINEERING SEAL

STANDARD DRAWING NO.
700511*

AS-BUILT SIGNATURE BLOCK

CITY OF MELISSA



M* - CITY OF MELISSA REVISION

NCTCOG STANDARD SPECIFICATION REFERENCE

N/A

DATE

12/03/02

STANDARD DRAWING NO.

700511*

Site Plan Summary

	Required	Proposed
Lot Area (sq. ft.)		
Minimum Lot Width (ft.)		
Minimum Lot Depth (ft.)		
Front Yard Setback (ft.)		
Side Yard Setback (ft.)/interior lot		
Side Yard Setback (ft.)/corner lot		
Rear Yard Setback (ft.)		
Maximum Height (stories or ft.)		
Maximum Lot Coverage (%)		
Minimum Dwelling Size (sq. ft.)*		
Maximum Density Per Acre		
Parking**		

*The minimum floor area of any dwelling shall be exclusive of garages, breezeways, and porches.

**Provide detailed parking calculations



Non-Residential Landscaping Summary

	Required	Proposed
Minimum Landscaping Area (% of pavement area on site)	10	
Landscaping Along Street ROW	-	-
Minimum Width of Landscape Edge (ft) ^a	10	
Minimum No. of Shade Trees Within Landscape Edge Per 500ft ² ^b	1	
OR Minimum Number of Approved Ornamental Trees per 500 ft ²	1	
Minimum No. of Shrubs per 500 ft ² of Landscaped Edge Where Parking Lots and Drives Abut the Landscaped Edge ^c	10	
Shrubs or Berms, If Parking Lot is Located More Than 50 ft. From Street ROW	No	
Interior Parking Lot Landscaping	-	-
Required For At Least 20 Parking Spaces	Yes	
Area of Interior Landscaping For Each 180 Square Foot Parking Space (ft ²)	8	
Minimum No. of Shade Trees For Every 20 Parking Spaces ^d	1	
OR Minimum No. of Approved Ornamental Trees For Every 20 Parking Spaces	1	
Landscaping For Corner Lots	-	-
Only Required For Intersection of Two Major or Larger Throughfares	Yes	
Minimum Width of Landscaped Edge Located Along Street ROW Beginning at the Corner and Extending 175 ft or to the Closest Driveway (ft) ^e	15	
Minimum Landscaped Edge Required at a Right-Turn Lane Location (ft)	7.5	
Minimum Area Located at the Intersection Corner of the Lot (ft ²) ^f	900	
Landscaping/Screening for Parking Lots Adjacent to Residential Areas	-	-
Continuous Screen of Shrubs (5 Gallons Min.) Required Where Parking is Within 50 ft of Residentially Zoned Property and is Not Screened From View By a Screening Wall	Yes	

^a may be reduced in C-1 district to minimum of 2 ft where lots are less than 2 acres. In such case, a minimum of 1 shade tree (3" caliper minimum) or an approved ornamental tree shall be planted for every 50 ft of frontage on any public street.

^b 3" caliper minimum

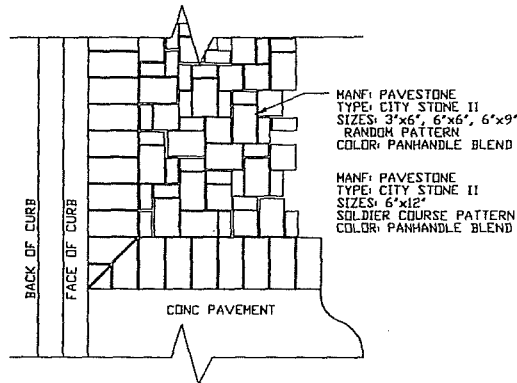
^c a berm may be placed within the landscaped edge in lieu of the required shrubs. The berm must be 42 in. above the average grade of the street and parking lot curbs. The slope of the berm shall not exceed a 3 to 1 grade.

^d 4" caliper minimum

^e beyond this point, the landscaped edge may be gradually reduced (over a distance of 25 feet) to 10 feet in width

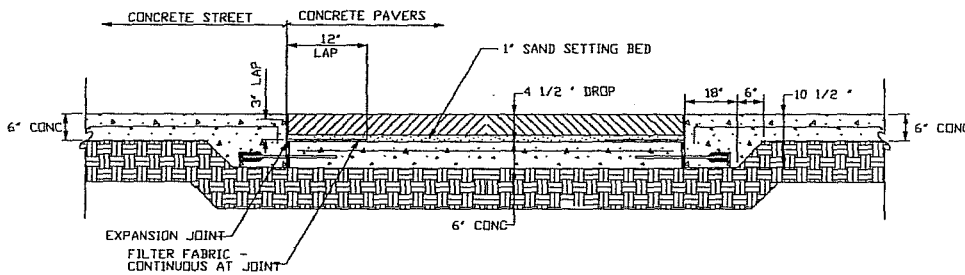
^f this landscaped area shall be provided within the area measured a minimum distance of 40 ft from the projected corner of the intersection on both sides of the lot. No trees should be planted in this area.





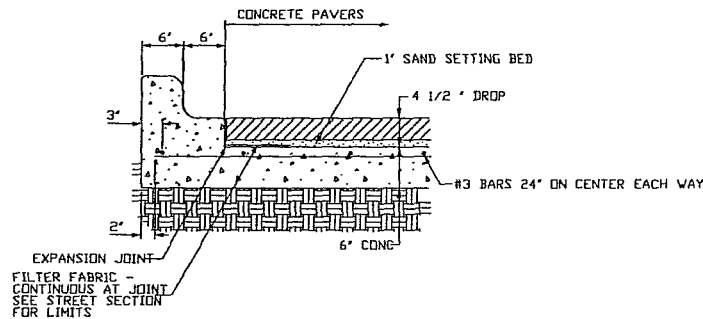
PATTERN DETAIL

NTS



STREET SECTION THROUGH CONCRETE PAVERS

NTS



PAVER DEPRESSION DETAIL

NTS

M* - CITY OF MELISSA REVISION

PAVE STONE DETAILS
CITY OF MELISSA



NCTCOG STANDARD SPECIFICATION REFERENCE

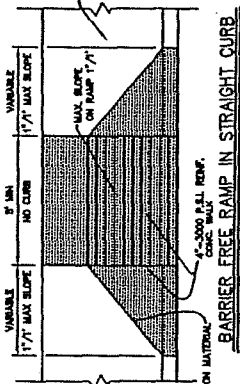
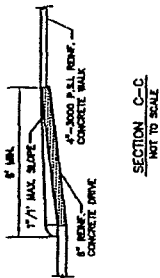
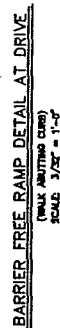
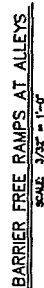
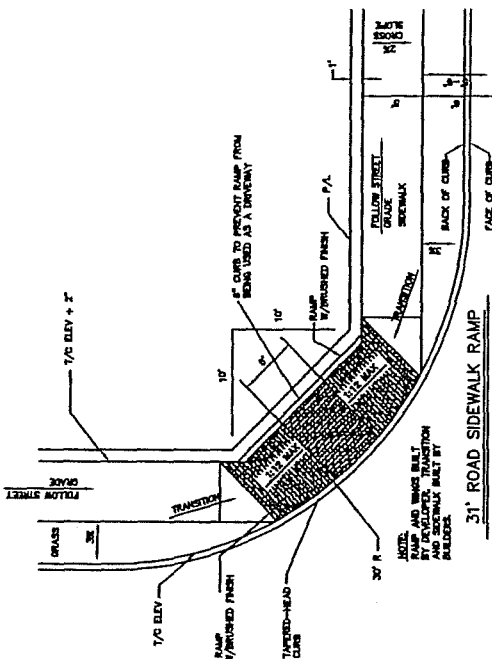
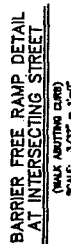
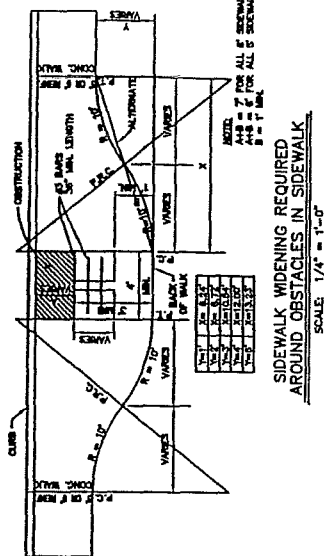
N/A

DATE

STANDARD DRAWING NO.

05/03/05

7008M*



1. CROSS RAMP SHALL INCLUDE DRAINAGE 1/4" x 1/4" SLOPE AT 3/4" x 1/4" INCHES AT A MAX. SPACING OF 3'.
2. MAXIMUM ALLOWABLE SLOPE FOR RAMP SHALL NOT EXCEED 1" PER FOOT IN ANY DIRECTION.
3. MAXIMUM SLOPE ON BARBER PUMP SHALL NOT BE GREATER THAN 6". MAXIMUMS MUST BE PROPORTIONATELY.
4. IF ANY MAXIMUMS MUST BE PROPORTIONATELY.
5. STREETS ON STEP GRADE WILL REQUIRE LONGER TRANSITION ON CROSSINGS.
6. LOCATION OF BARBER PUMP MAY BE SHIFTED TO CLEAR OBSTRUCTIONS.
7. GRADE OF ANY INTERSECTING DRIVE FROM ADJUTED LINE OF STREET TO CROSSING SHALL BE MAINTAINED.
8. OVERLAPPING CROSSING STEP DRIVEWAYS MUST HAVE AN CROSS-SLOPE BREAK IN DRIVE.
9. PUMP MUST BE STAINED TO MEET ALL REQUIREMENTS FOR VISIBILITY.
10. INSTALLATION OF ALL UNDERGROUND UTILITIES.

[illegible]