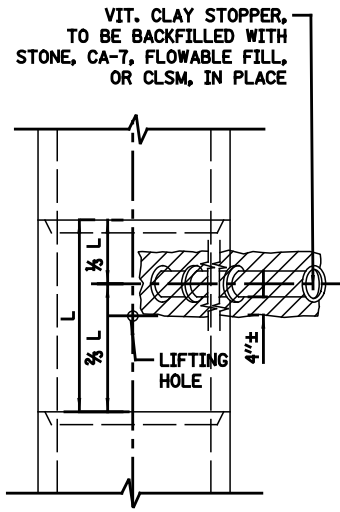
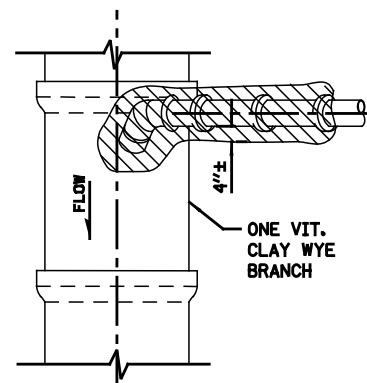


PLAN

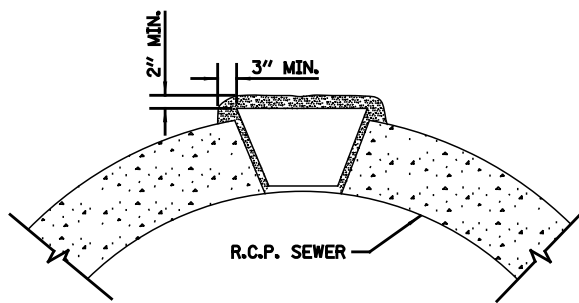


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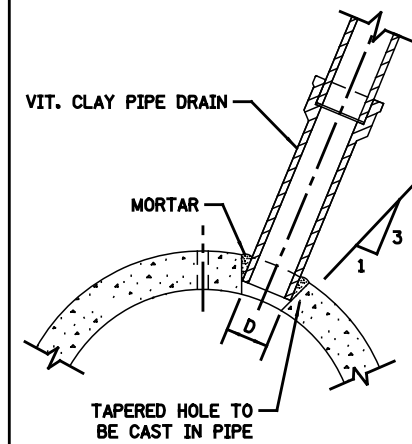
PLAN

NOTE:
PLUG TO BE COATED WITH MORTAR AND DRIVEN INTO PLACE WITH A WOODEN Mallet AND THEN SEALED WITH MORTAR.



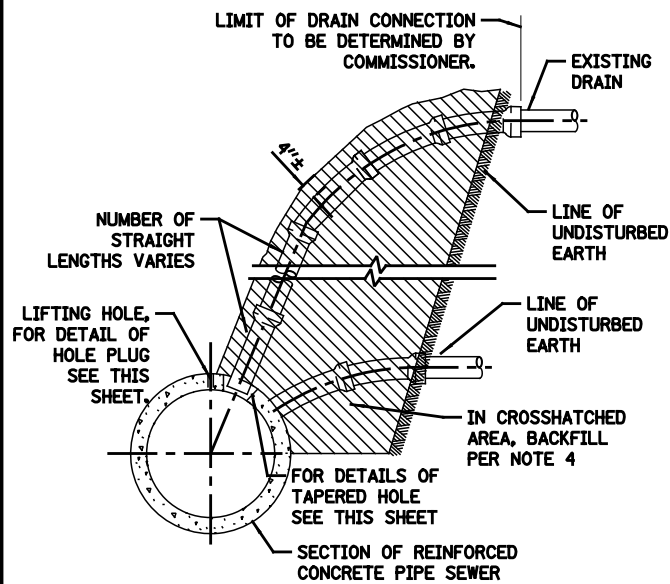
LIFTING HOLE PLUG DETAIL FOR CONCRETE PIPE

NOTE:
1. ALL PLUG MATERIALS MUST COMPLY WITH 1042.16 OF THE IDOT SSRBC.
2. LIFT HOLES ON COMBINED SEWERS ARE PROHIBITED WHEN THE WATER TABLE IS WITHIN 2 FEET OF THE PIPE INVERT.

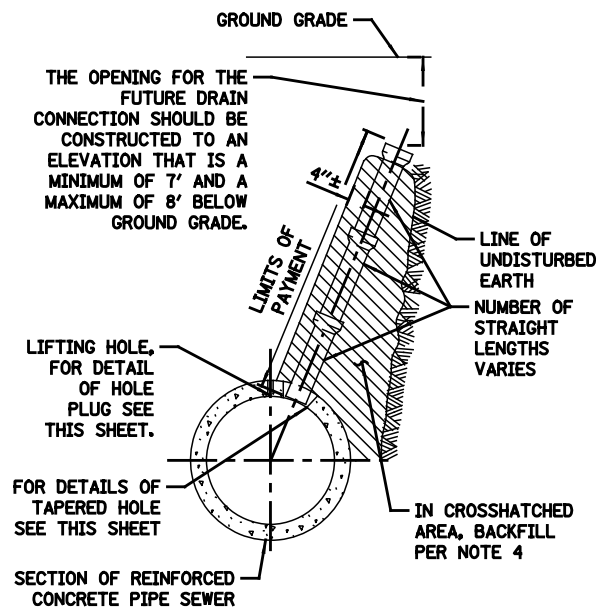


DETAIL OF TAPERED HOLE

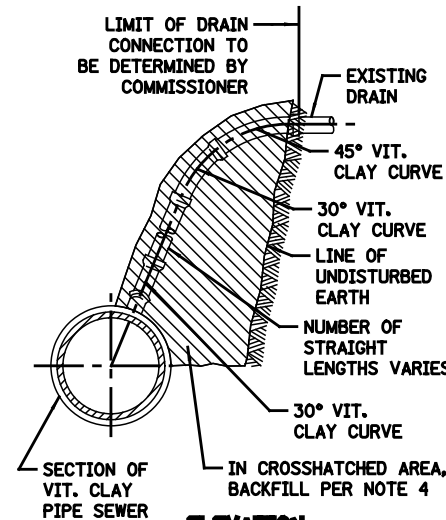
SIZE OF DRAIN	"D"
6"	6 7/8"
8"	9 1/8"
10"	11 1/8"
12"	13 1/2"
15"	17"
18"	20 1/4"
21"	23 3/8"



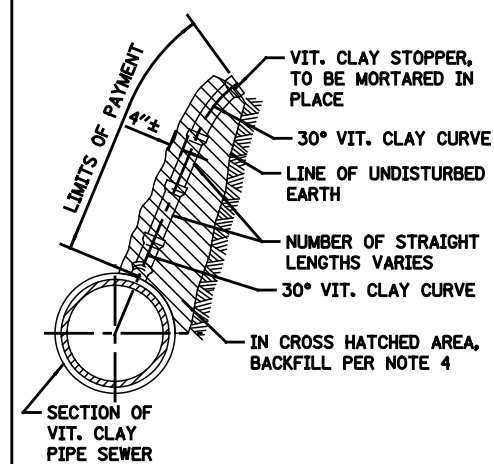
TYPICAL DRAIN CONNECTIONS FOR EXISTING DRAINS



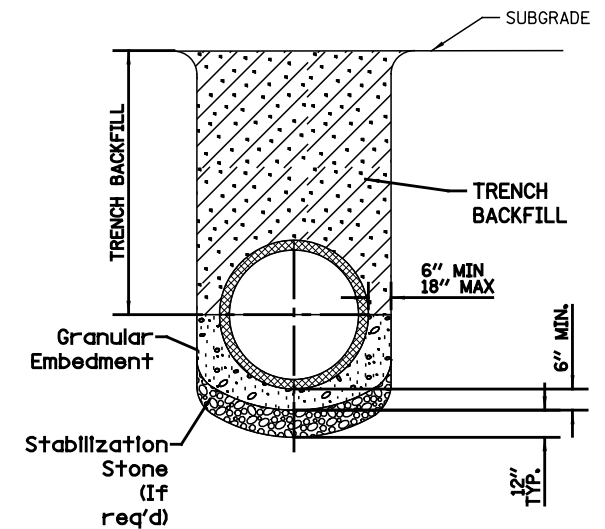
TYPICAL DRAIN STACKS FOR FUTURE USE



TYPICAL DRAIN CONNECTIONS FOR EXISTING DRAINS



TYPICAL DRAIN STACKS FOR FUTURE USE



NOTE:
1. FOR TRENCH BACKFILL, REFER TO IDOT SSRBC, ARTICLE 1003.04.
2. FOR GRANULAR EMBEDMENT, USE CA-11, CRUSHED GRAVEL, CRUSHED STONE, OR CRUSHED CONCRETE.
3. FOR STABILIZATION STONE, 12" OF CA-1 STONE IS ONLY REQUIRED WHEN UNSTABLE MATERIAL IS ENCOUNTERED AT TRENCH BOTTOM.
4. AGGREGATE PLACED FOR TEMPORARY SURFACE RESTORATION WILL NOT BE PAID SEPARATELY AND SHALL BE INCIDENTAL TO THE CONTRACT.

SEWER TRENCH DETAIL

NOTES:
1. ALL DRAIN CONNECTION JOINTS MUST BE MADE AS SPECIFIED IN SPECIFICATIONS..
2. FOR DUCTILE IRON PIPE DRAIN CONNECTIONS SEE SHEET NO. A.2.
3. FOR BACKFILL OF HATCHED SUPPORT AREAS, USE CONCRETE. CA-11, FLOWABLE FILL, OR CLSM.

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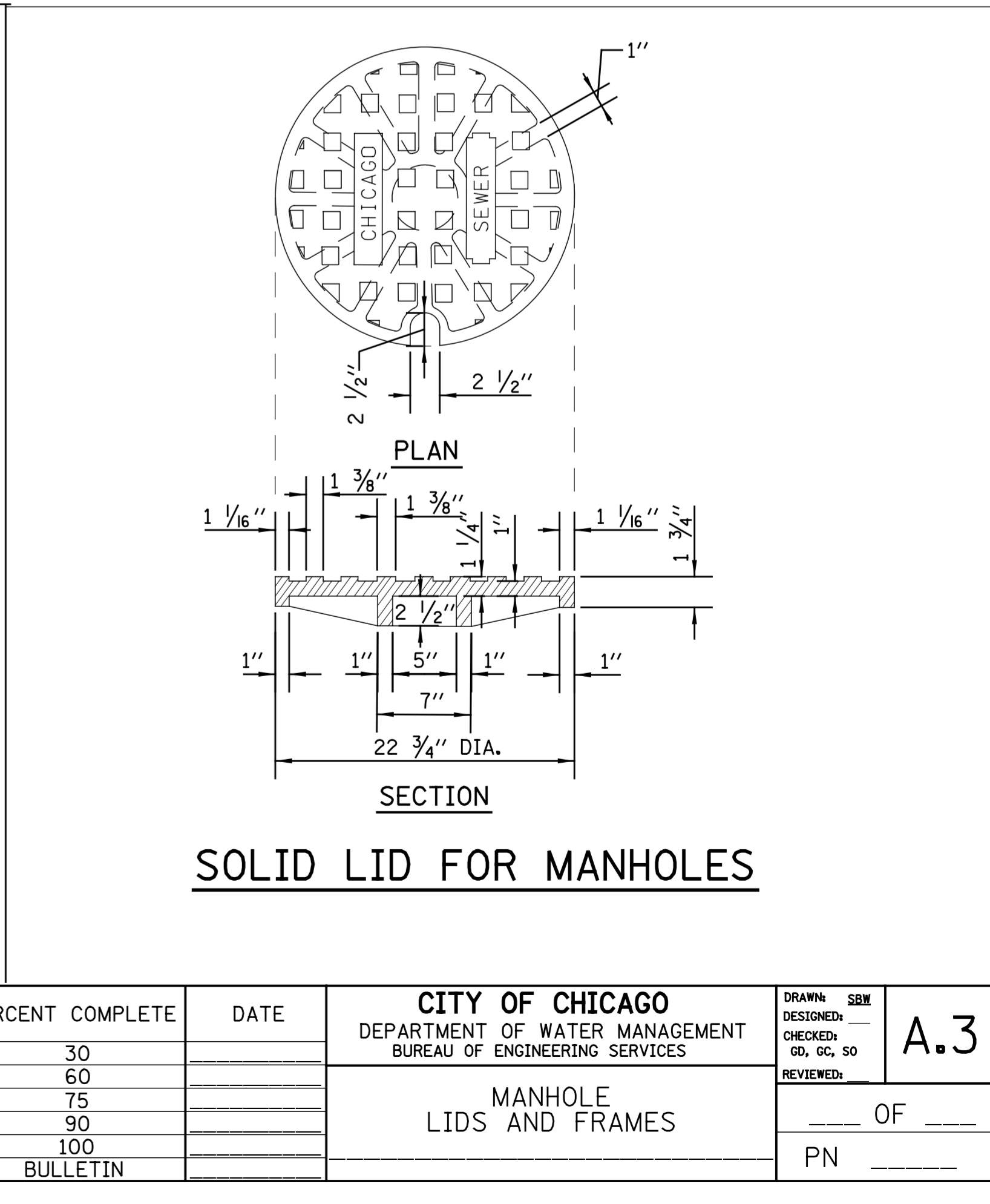
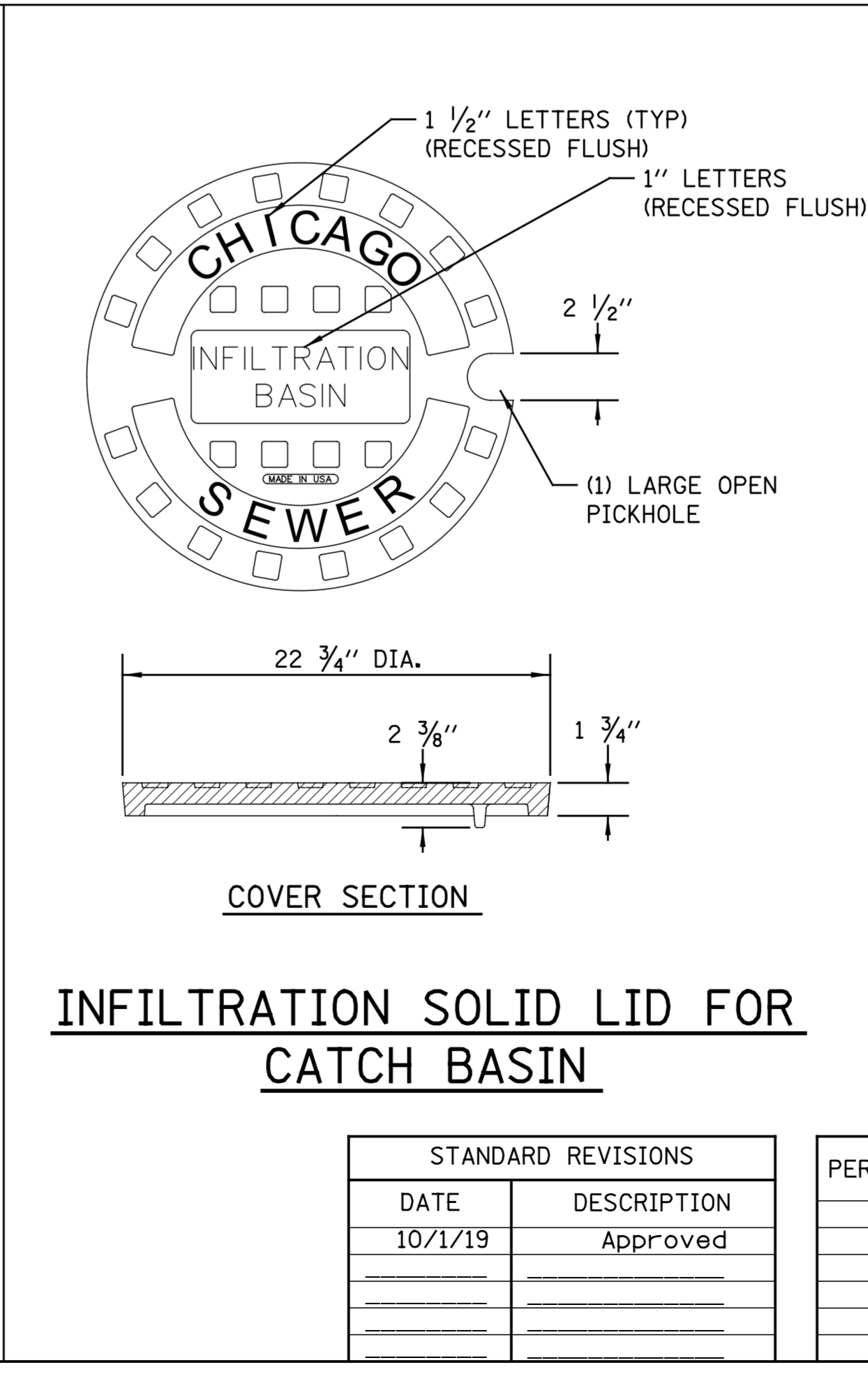
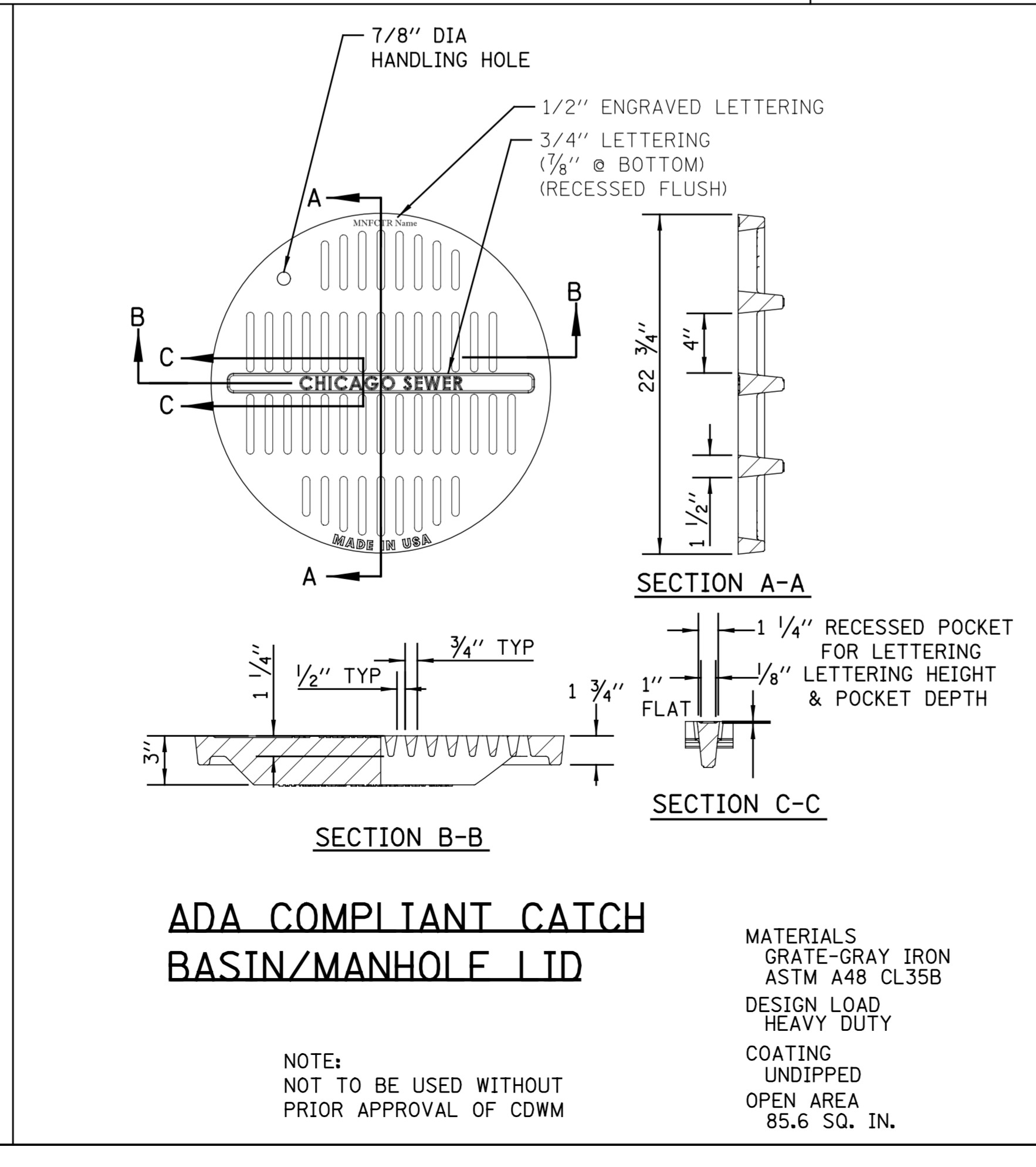
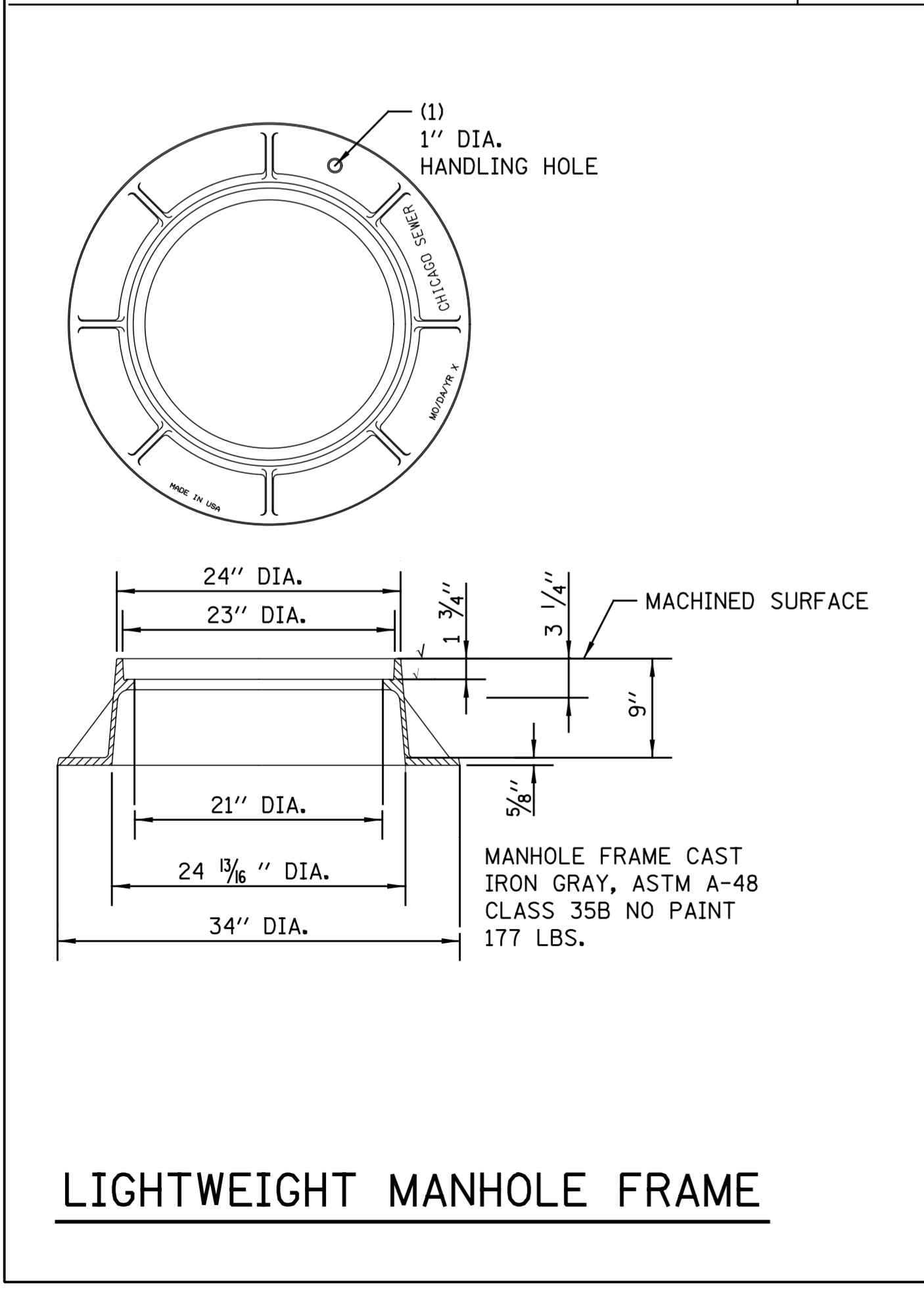
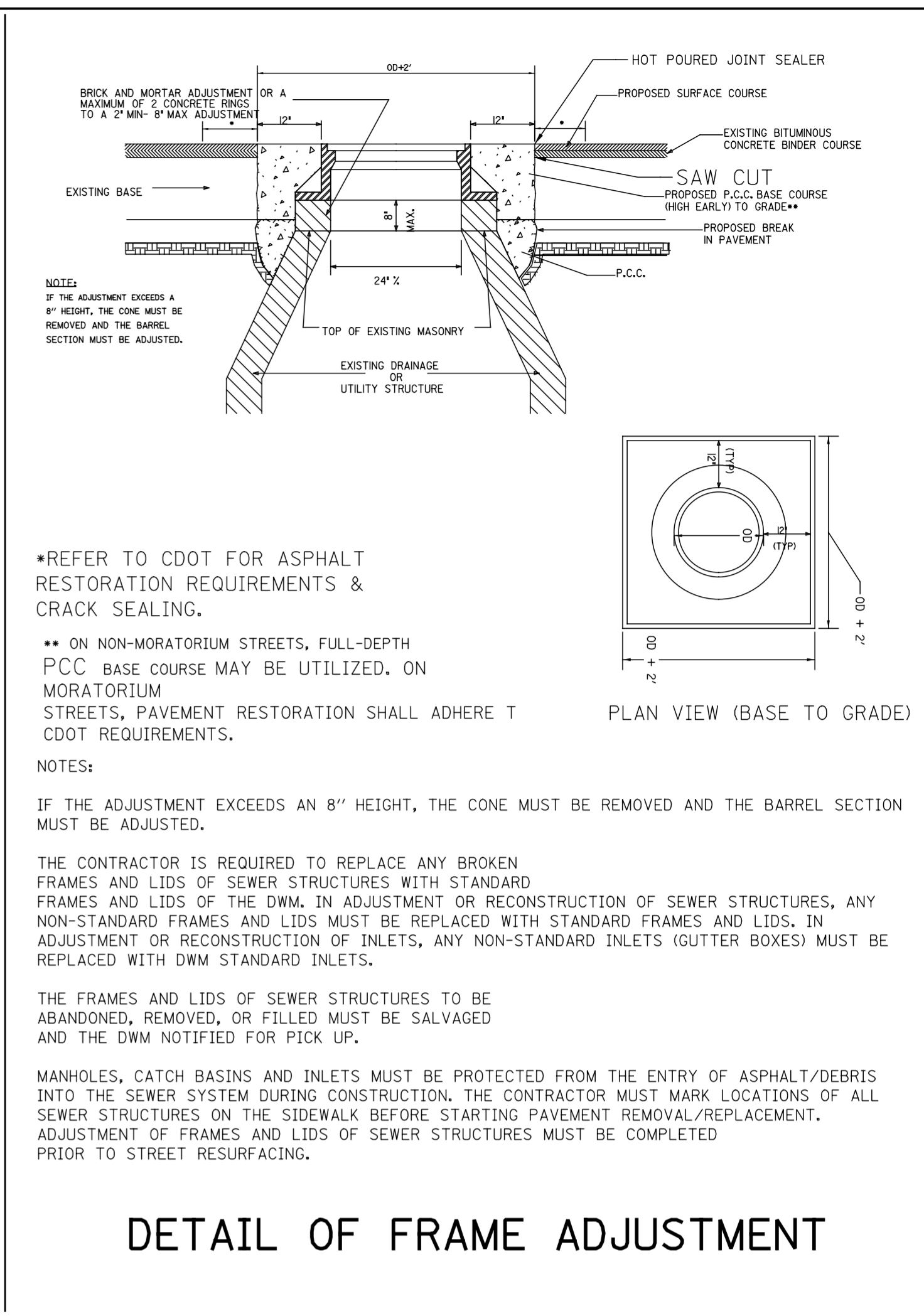
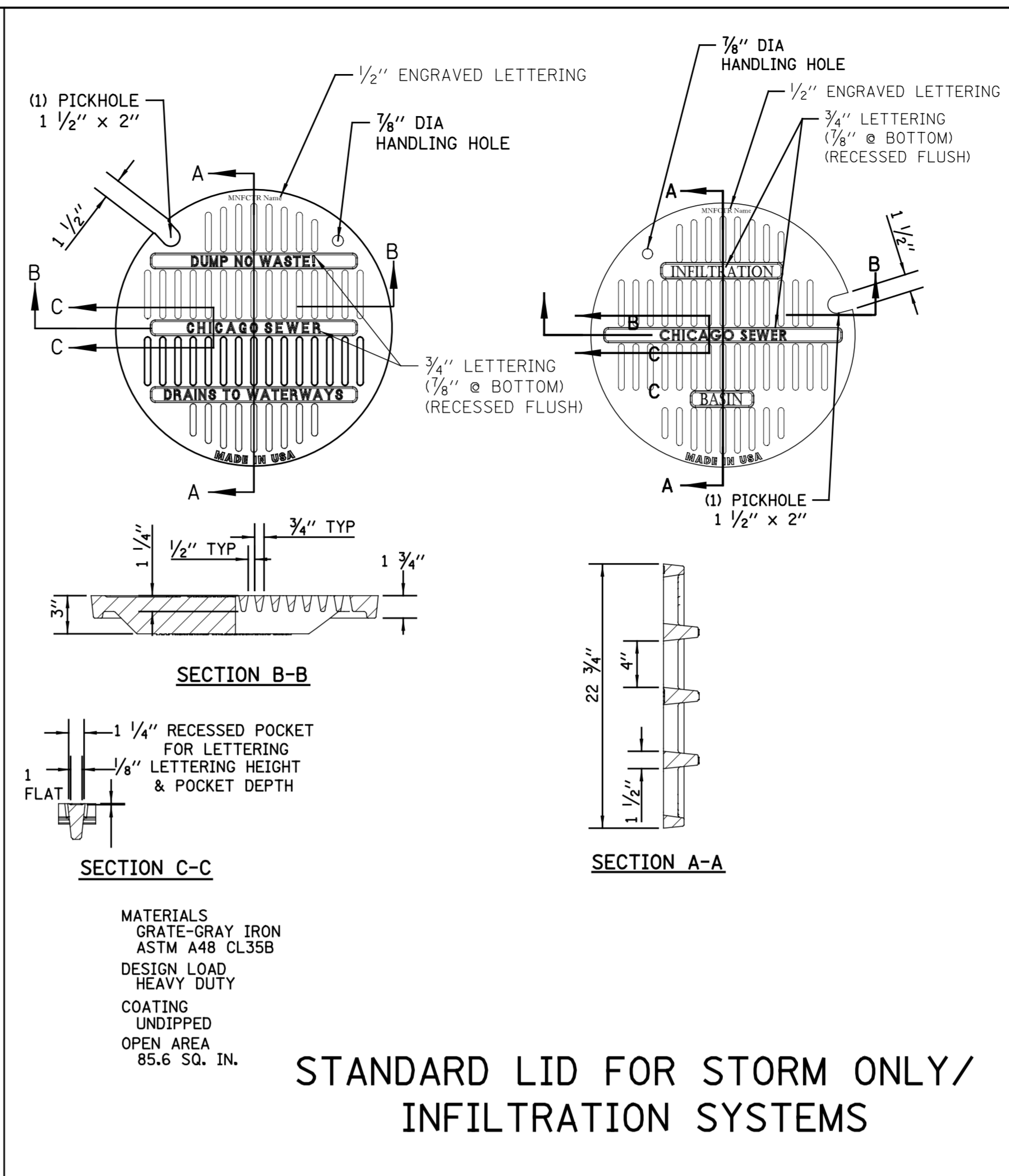
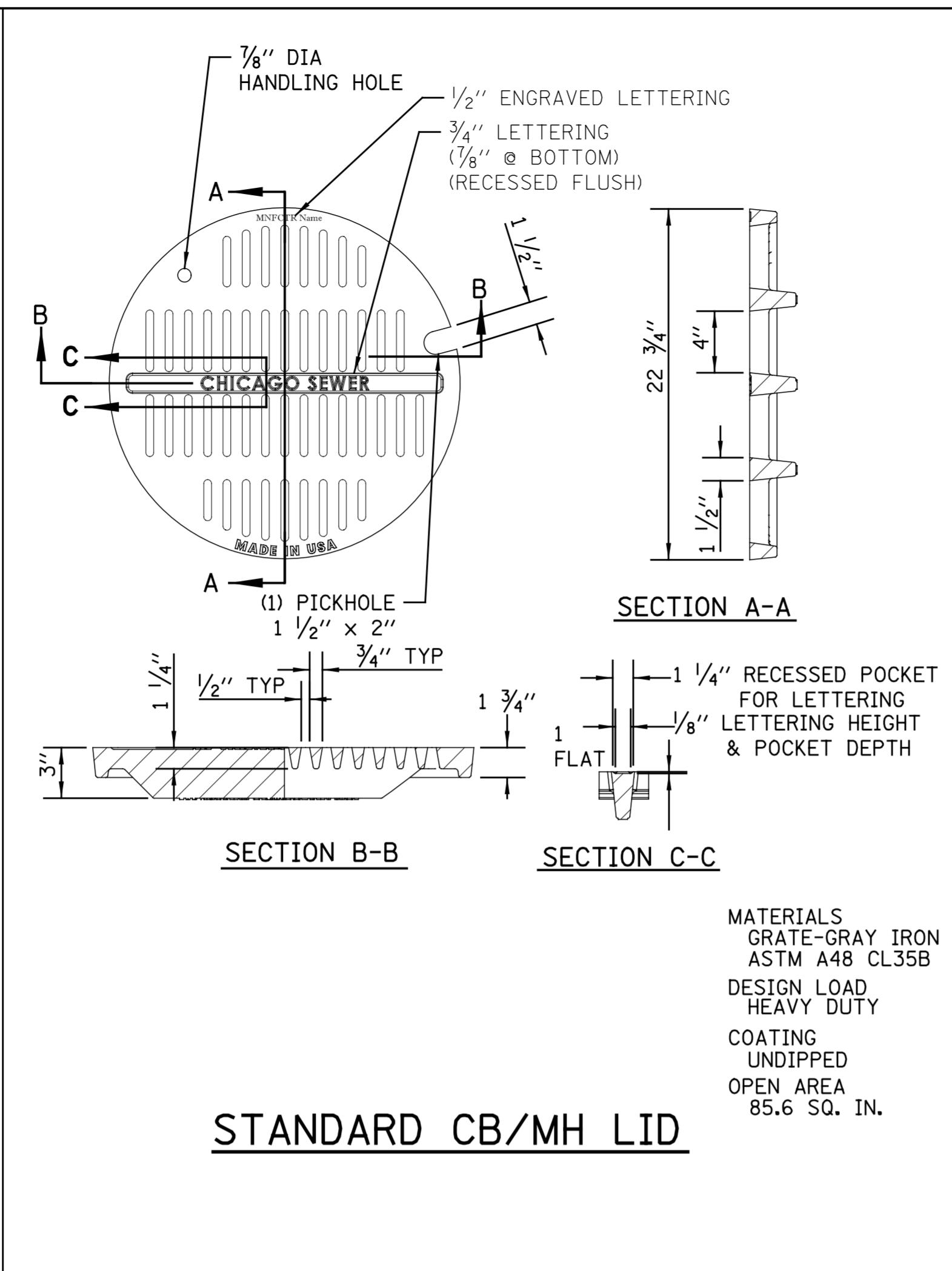
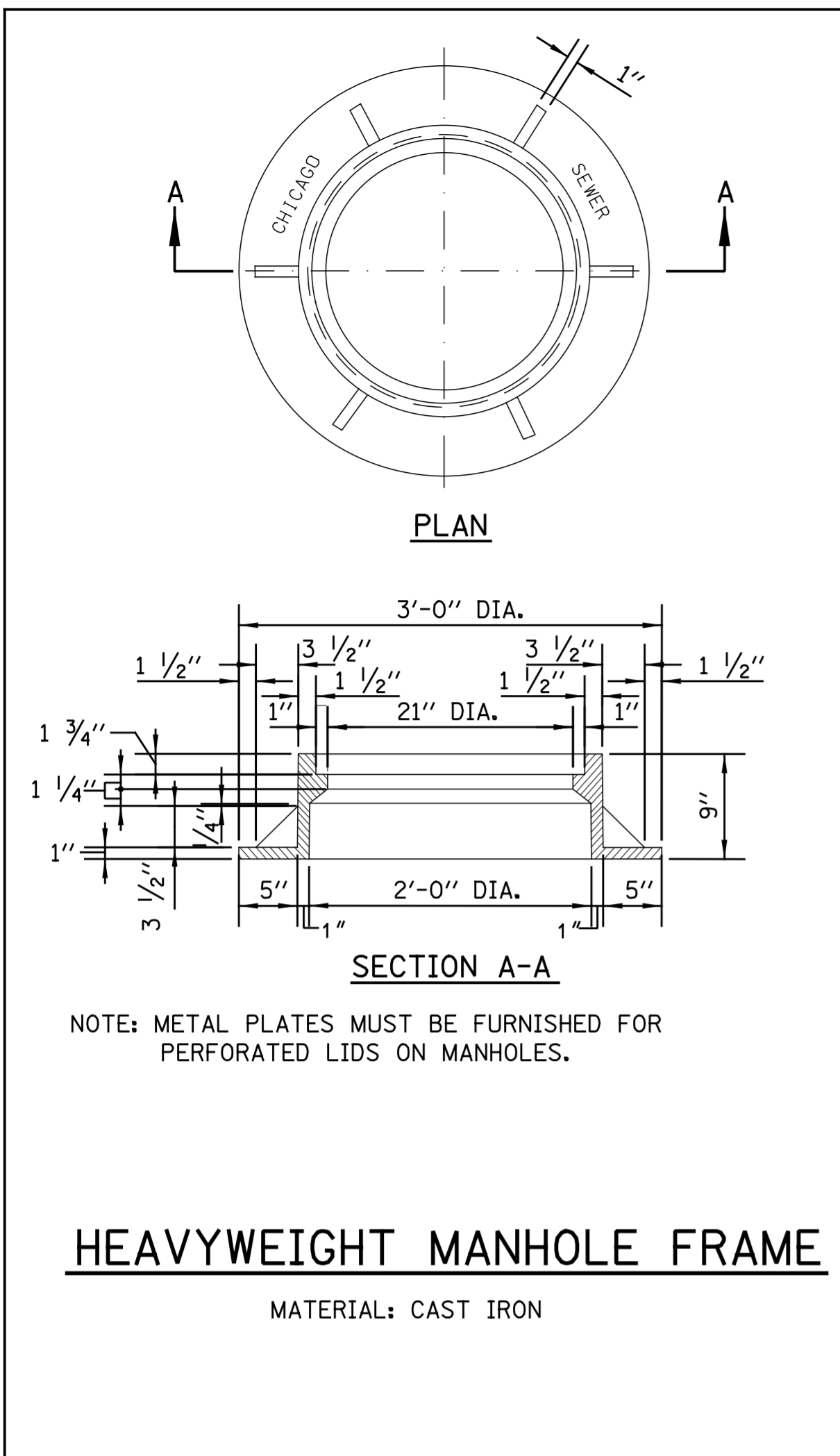
VITRIFIED CLAY PIPE DRAIN CONNECTIONS AND SEWER TRENCH DETAIL

Drawn: []
Designed: []
Checked: []
Reviewed: []

A.1

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\$FILE\$
\$DATE\$



STANDARD REVISIONS	
DATE	DESCRIPTION
10/1/19	Approved

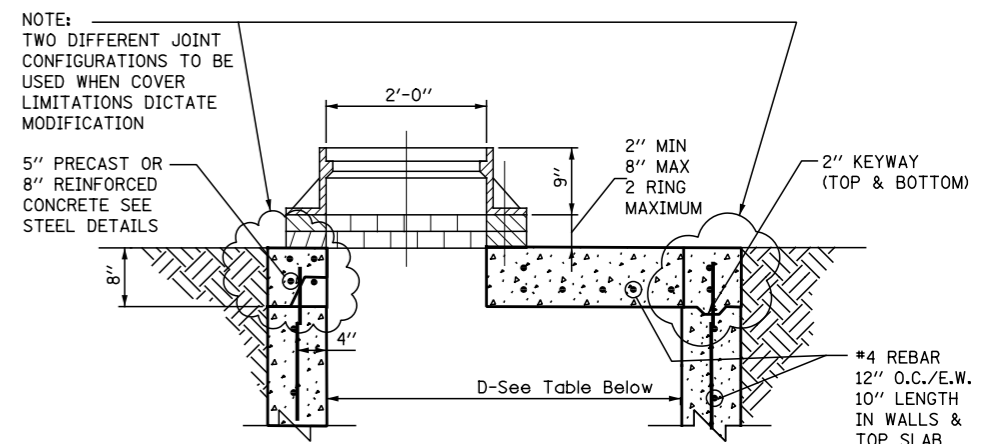
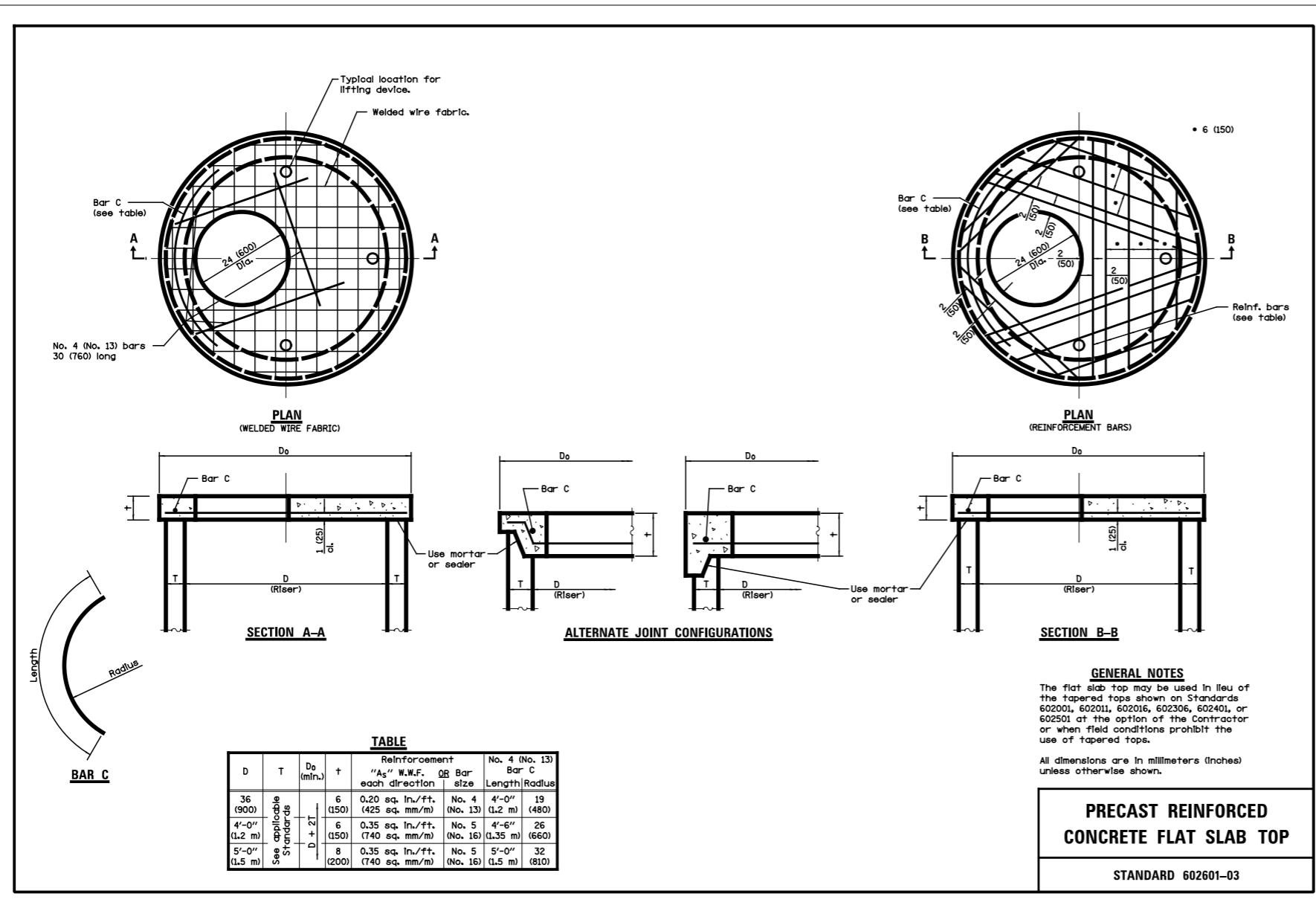
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CITY OF CHICAGO DEPARTMENT OF WATER MANAGEMENT BUREAU OF ENGINEERING SERVICES	
MANHOLE LIDS AND FRAMES	

DRAWN: SBH	A.3
DESIGNED: _____	
CHECKED: GD, GC, SO	
REVIEWED: _____	OF _____
PN _____	

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SPECIAL DRAINAGE STRUCTURES FOR PUBLIC STREETS AND ALLEYS



STANDARD FLAT TOP SLAB FOR CATCH BASINS

NOTES:
FLAT TOP SLAB APPLICATION CAN ONLY BE USED WITH WRITTEN PERMISSION FROM CDWM.
USE LATEST IDOT DETAIL, #602601

FILE \$
DATE \$

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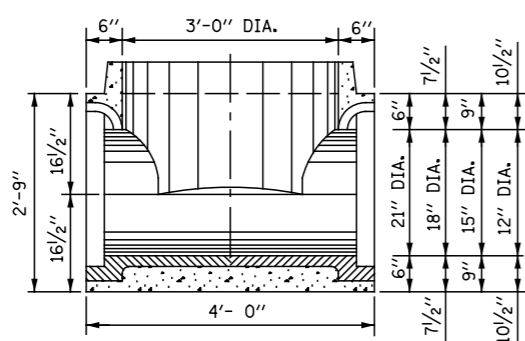
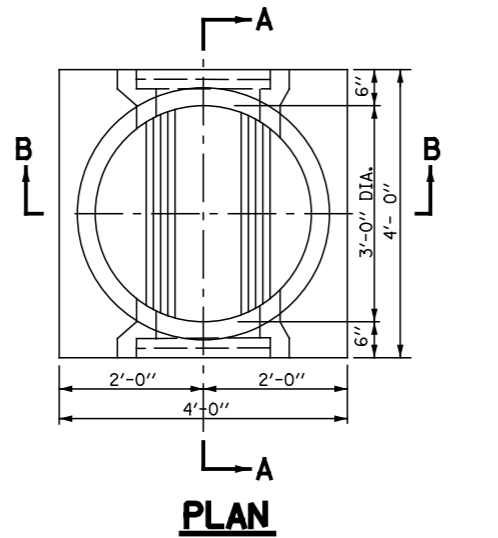
CITY OF CHICAGO
DEPARTMENT OF WATER MANAGEMENT
BUREAU OF ENGINEERING SERVICES

FLAT TOP SLAB DETAILS

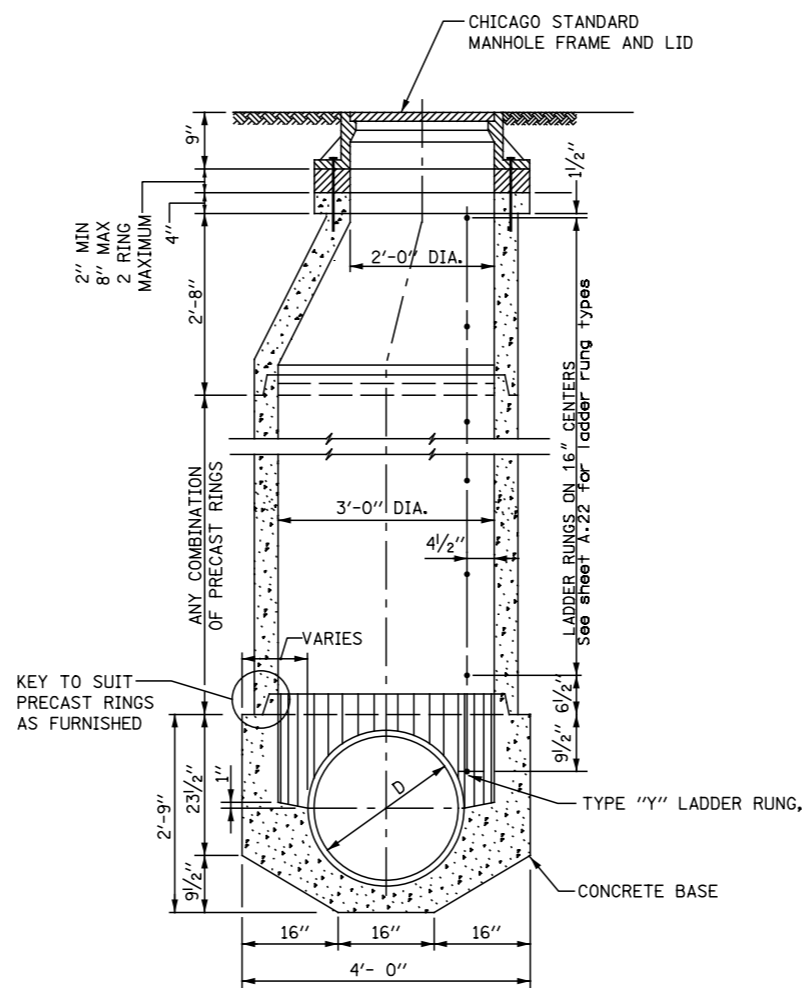
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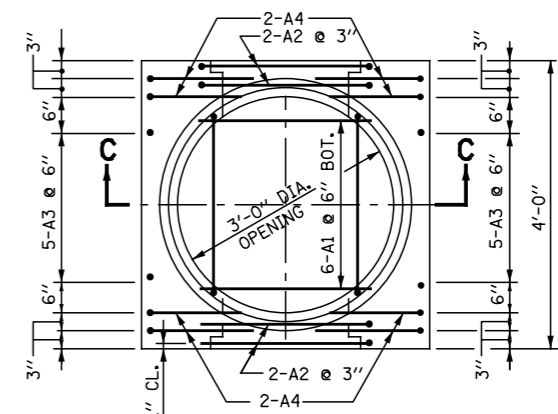
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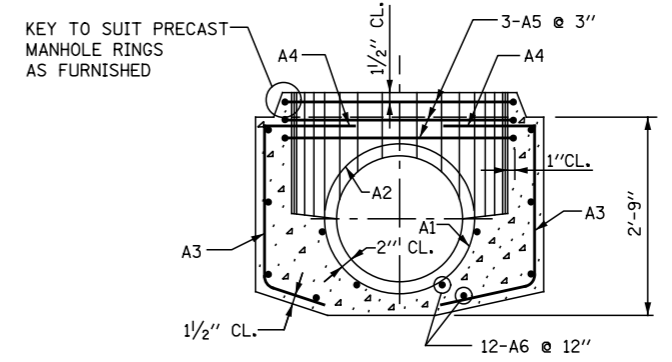
SECTION A-A



SECTION B-B



**PLAN
PRECAST BASE**



SECTION C-C

NOTE:
6" MINIMUM GRANULAR EMBEDMENT
UNDER ALL PRECAST MANHOLE BASES

SCHEDULE OF REINFORCEMENT

STRUCTURE	REINFORCEMENT BAR						BENDING DIMENSIONS															
	MARK	SIZE NO.	TYPE	LENGTH	NO. REED.	WEIGHT - LBS EACH	TOTAL	A	B	C	D	E	F	G	H	J	K	O	R			
21" DIA.	21A1	6	9	3'-1"	6	4.63	28		3'-1"									11 1/4"		2'-1"	12 3/4"	
	21A2	6	T3	8'-8"	4	13.02	52													2'-0"	2'-1 1/2"	
	21A3	5	12	3'-3"	10	3.39	34			22"	17"									14 1/2"	8 3/4"	
	21A4	5	12	4'-6"	8	4.69	38		15"	22"	17"									14 1/2"	8 3/4"	
	21A5	5	T3	11'-11"	3	12.43	37													20"	3'-3 3/4"	
	21A6	4	STR	3'-8"	12	2.45	30															
	TOTAL						219															
18" DIA.	18A1	6	9	2'-8 1/2"	6	4.07	24		2'-8 1/2"											9 3/4"	22"	11 1/4"
	18A2	6	T3	7'-10 1/2"	4	11.83	47													2'-0"	22 1/2"	
	18A3	5	12	3'-3"	10	3.39	34			22"	17"									14 1/2"	8 3/4"	
	18A4	5	12	4'-6"	8	4.69	38		15"	22"	17"									14 1/2"	8 3/4"	
	18A5	5	T3	11'-11"	3	12.43	37													2'-0"	3'-3 3/4"	
	18A6	4	STR	3'-8"	12	2.45	30															
	TOTAL						202															
15" DIA.	15A1	6	9	2'-3 1/2"	6	3.44	21		23 1/2"											19"	9 3/4"	
	15A2	6	T3	7'-1"	4	10.64	42													2'-0"	19 1/2"	
	15A3	5	12	3'-3"	10	3.39	34			22"	17"									8 3/4"		
	15A4	5	12	4'-6"	8	4.69	38		15"	22"	17"									14 1/2"	8 3/4"	
	15A5	5	T3	11'-11"	3	12.43	37													20"	3'-3 3/4"	
	15A6	4	STR	3'-8"	12	2.45	30															
	TOTAL						202															
12" DIA.	12A1	6	9	1'-11"	6	2.88	17		23"											6 3/4"	16"	8 1/4"
	12A2	6	T3	6'-1"	4	9.14	37													2'-0"	16 1/2"	
	12A3	5	12	3'-3"	10	3.39	34			22"	17"									14 1/2"	8 3/4"	
	12A4	5	12	4'-6"	8	4.69	38			22"	17"									14 1/2"	8 3/4"	
	12A5	5	T3	11'-11"	3	12.43	37													20"	3'-3 3/4"	
	12A6	4	STR	3'-8"	12	2.45	30															
	TOTAL						193															

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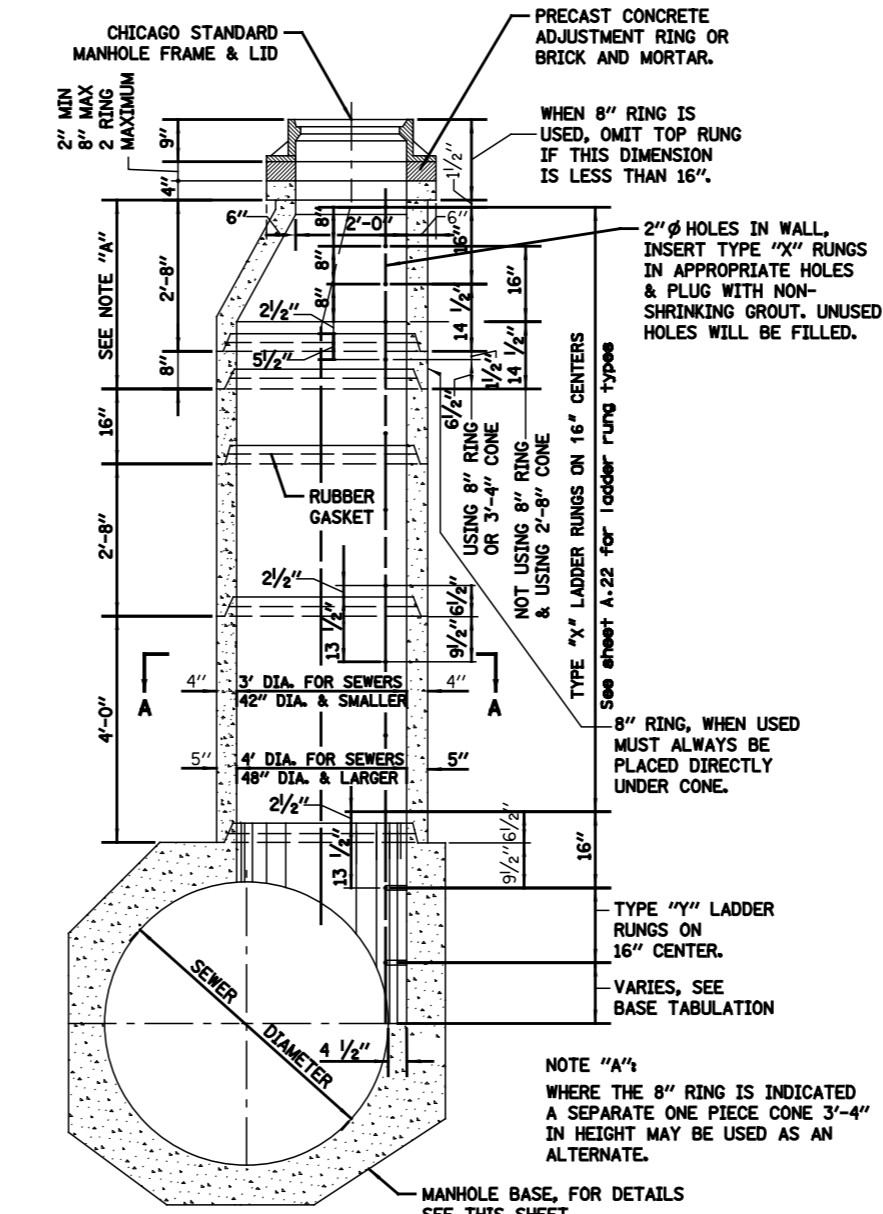
TYPE "A" PRECAST
MANHOLE FOR SEWERS
21" DIA. AND SMALLER

DATE DESIGNED: _____
CHECKED: _____
REVIEWED: _____

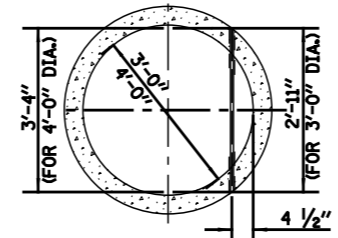
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NUMBER OF PRECAST RINGS REQUIRED FOR MANHOLES OF VARIOUS HEIGHTS																										
TOTAL HEIGHT "H"	9" FRAME +2'-0" CORBEL +3'-5"				PRECAST RINGS				BRICK AND/OR MORTAR				TOTAL HEIGHT "H"	9" FRAME +2'-0" CORBEL +3'-5"				PRECAST RINGS				BRICK AND/OR MORTAR				
	4'-0"	2'-8"	1'-4"	0'-4"	4'-0"	2'-8"	1'-4"	0'-4"	4'-0"	2'-8"	1'-4"	0'-4"		4'-0"	2'-8"	1'-4"	0'-4"	4'-0"	2'-8"	1'-4"	0'-4"	4'-0"	2'-8"	1'-4"	0'-4"	
5'-0"	1																									
6'-0"	1																									
7'-0"	1																									
8'-0"	1																									
9'-0"	1																									
10'-0"	1																									
11'-0"	1																									
12'-0"	1																									
13'-0"	1																									
14'-0"	1																									
15'-0"	1																									
16'-0"	1																									
17'-0"	1																									
18'-0"	1																									
19'-0"	1																									
20'-0"	1																									
21'-0"	1																									
22'-0"	1																									
23'-0"	1																									
24'-0"	1																									
25'-0"	1																									



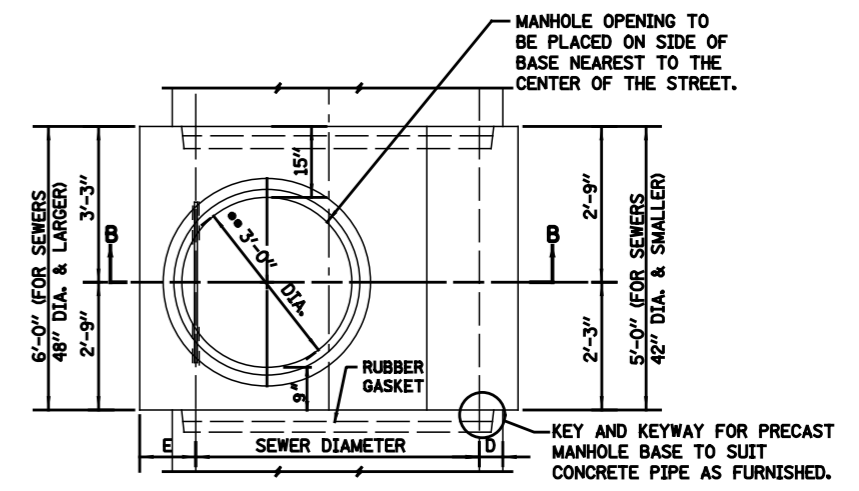
DETAIL OF PRECAST RINGS



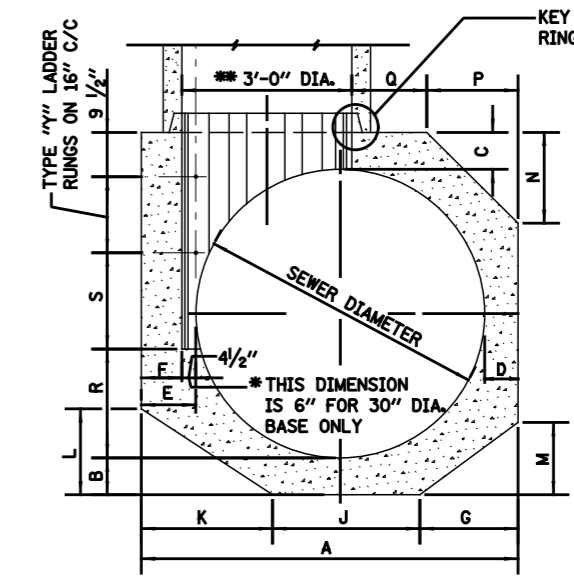
1"Ø LADDER RUNG, TYPE "X", LENGTH 2'-11" OR 3'-4" INSERTED INTO 2"Ø HOLE IN WALL & PLUGGED BY MANUFACTURER WITH NON-SHRINKING GROUT.

SECTION A-A

NOTES:
 PRECAST CONCRETE RINGS MUST CONFORM TO A.S.T.M. DESIGNATION C76 FOR "REINFORCED CONCRETE CULVERT, STORM DRAIN, AND SEWER PIPE", CLASS II, WALL B.
 STANDARD LENGTHS OF RINGS ARE: 4'-0", 2'-8", 1'-4", 0'-8" AND 0'-4" COLLAR.
 ALL REINFORCEMENT STEEL REQUIRED FOR PRECAST RINGS MUST BE INCLUDED IN THE PRICE BID FOR ALL MANHOLE ITEMS.
 ALL PIPE AND FITTINGS 24 INCHES IN DIAMETER AND LARGER MUST BE CLASS III, IV AND V REINFORCED CONCRETE PIPE AS SPECIFIED IN THE SPECIFICATIONS FOR "REINFORCED CONCRETE CULVERT STORM DRAIN, AND SEWER PIPE," A.S.T.M. DESIGNATION C76, TABLE III, IV AND V, WALL B OR WALL C WITH CIRCULAR OR ELLIPTICAL REINFORCEMENT



PLAN •• 3'-0" DIA. FOR SEWERS 42" DIA. & SMALLER
 4'-0" DIA. FOR SEWERS 48" DIA. & LARGER



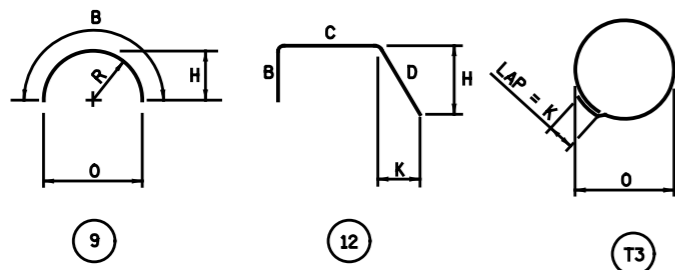
DETAIL OF PRECAST BASE

SEWER DIA.	DIMENSIONS OF PRECAST MANHOLE BASE														# "Y" RUNGS			
	A	B	C	D	E	F	G	J	K	L	M	N	P	Q		R	S	
36"	4'-4 1/2"	6"	6"	6"	10 1/2"	6"	16"	16"	20 1/2"	12 1/2"	9 1/2"	6"	6"	6"	10 1/2"	18"	14 1/2"	1
30"	4'-0"	6"	6"	6"	12"	6"	14"	14"	20"	12"	8 1/2"	6"	6"	6"	6"	15"	11 1/2"	1
24"	4'-0"	6"	6"	12"	12"	6"	16"	16"	16"	9 1/2"	9 1/2"	6"	6"	6"	6"	12"	8 1/2"	1

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MARK NO.	SIZE	TYPE	LENGTH	NO. REQS.	WEIGHT - LBS		BENDING DIMENSIONS												
					EACH	TOTAL	A	B	C	D	E	F	G	H	J	K	L	R	
36" DIA.																			
36A1	8	T3	12'-7"	6	16.90	113													
36A2	8	9	8'-0"	4	6.26	25													
36A3	8	12	4'-0"	4	4.89	19													
36A4	8	12	8'-0"	5	5.22	26													
36A5	8	12	8'-0"	5	5.00	20													
36A6	8	T3	11'-11"	3	12.49	37													
36A7	8	T3	8'-0"	5	5.91	30													
36A8	4	STR	4'-0"	18	3.12	96													
TOTAL						326													
30" DIA.																			
30A1	8	T3	11'-1"	6	16.65	100													
30A2	8	9	4'-0"	4	4.52	18													
30A3	8	12	4'-0"	4	4.17	17													
30A4	8	12	3'-10"	5	4.00	20													
30A5	8	12	3'-0"	5	3.48	17													
30A6	8	T3	11'-11"	3	12.49	37													
30A7	8	12	15'-1"	5	5.30	26													
30A8	4	STR	4'-0"	18	3.12	97													
TOTAL						292													
24" DIA.																			
24A1	8	9	3'-8"	6	5.13	31													
24A2	8	T3	9'-4"	7	14.02	98													
24A3	8	12	3'-4"	10	3.66	37													
24A4	8	12	2'-9"	10	2.99	30													
24A5	8	T3	11'-11"	3	12.49	37													
24A6	4	STR	4'-0"	12	3.12	37													
TOTAL						280													



NOTES:
 ALL DIMENSIONS ARE OUT TO OUT OF BAR.
 BENDING RADII "R" TO OUTSIDE OF BAR.
 NUMBERS IN CIRCLES DENOTE BAR TYPE.

PLACING OF CONCRETE- CONCRETE MUST BE PLACED IN ACCORDANCE WITH THE METHOD OUTLINED IN THE CITY OF CHICAGO STANDARD SPECIFICATIONS.
 CONSTRUCTION JOINTS - JOINTS NOT INDICATED ON THE DRAWINGS MUST BE SO MADE AND LOCATED AS NOT TO IMPAIR THE STRENGTH OF THE STRUCTURE AND MUST BE APPROVED BY THE COMMISSIONER. JOINTS MUST BE CONSTRUCTED IN ACCORDANCE WITH THE METHOD OUTLINED IN THE SPECIFICATIONS.

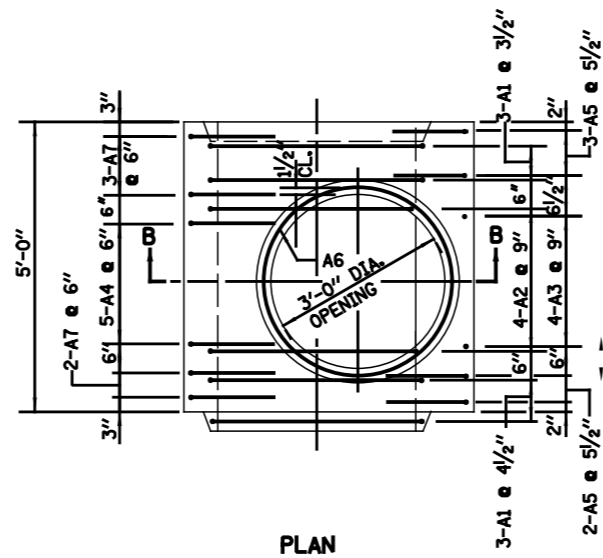
CONCRETE PROTECTION FOR REINFORCEMENT- ALL REINFORCING STEEL MUST HAVE CLEAR CONCRETE COVERING AS FOLLOWS (UNLESS OTHERWISE NOTED) :
 3" AT EXTERIOR SURFACES WHERE CONCRETE IS DEPOSITED AGAINST THE GROUND;
 2.5" AT SURFACES WHERE CONCRETE IS FORMED BUT SUBSEQUENTLY WILL BE IN CONTACT WITH SEWAGE; 2" AT ALL OTHER SURFACES.

REINFORCING STEEL- ALL REINFORCING BARS MUST BE ACCURATELY PLACED AND SECURELY SUPPORTED BY BAR SUPPORTS, SPACERS OR HIGH CHAIRS.
 ALL LAPS IN REINFORCING STEEL MUST BE BASED UPON THE 1989, ACI BUILDING CODE.
 UNLESS OTHERWISE NOTED, HOOKS AND BENDS ON BARS MUST CONFORM TO RECOMMENDED DETAILS AS GIVEN IN THE "MANUAL OF STANDARD PRACTICE", C.R.S.I. 1990.

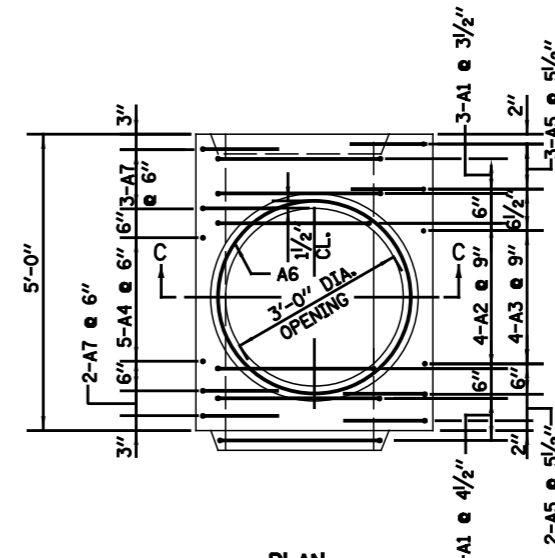
THE FOLLOWING ABBREVIATIONS ARE USED TO INDICATE THE LOCATION OF REINFORCING BARS:

T.	DENOTES	TOP	N.F.	DENOTES	NEAR FACE
BOT.	DENOTES	BOTTOM	F.F.	DENOTES	FAR FACE
I.F.	DENOTES	INSIDE FACE	E.F.	DENOTES	EACH FACE
O.F.	DENOTES	OUTSIDE FACE	E.W.	DENOTES	EACH WAY

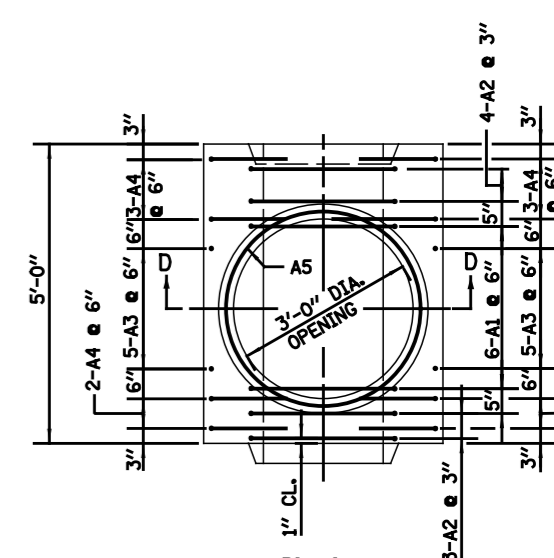
PLACING BAR SUPPORTS- ALL REINFORCING BARS MUST BE SUPPORTED, ANCHORED AND TIED AND MUST CONFORM TO THE "RECOMMENDED PRACTICE FOR PLACING REINFORCING BARS", 1986, PREPARED BY THE CONCRETE REINFORCING STEEL INSTITUTE.



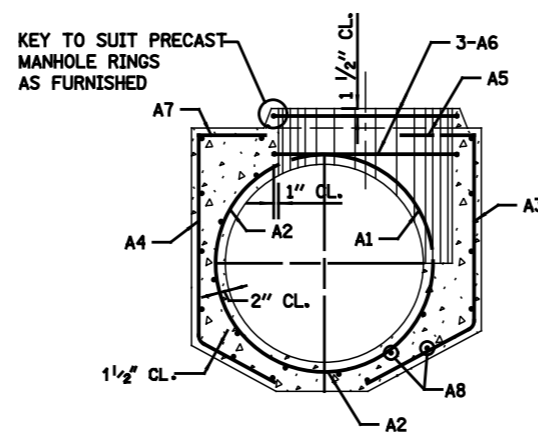
PLAN



PLAN

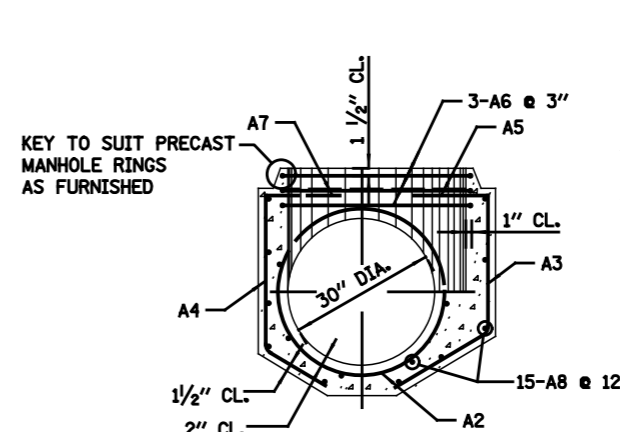


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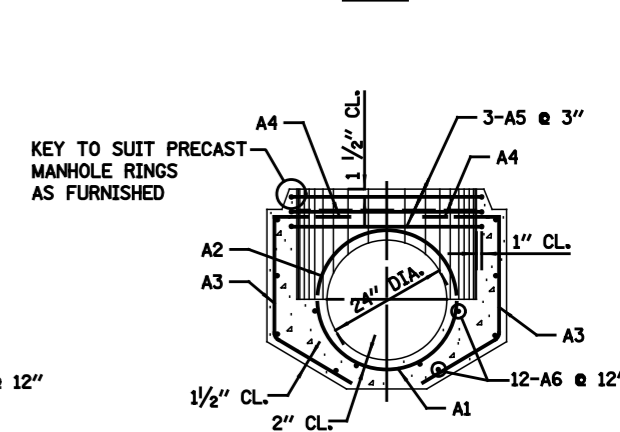
SECTION B-B

**MANHOLE BASE FOR SEWERS
36" DIA.**



SECTION C-C

**MANHOLE BASE
FOR 30" DIA. SEWERS**



SECTION D-D

**MANHOLE BASE
FOR 24" DIA. SEWERS**

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BULLETIN	

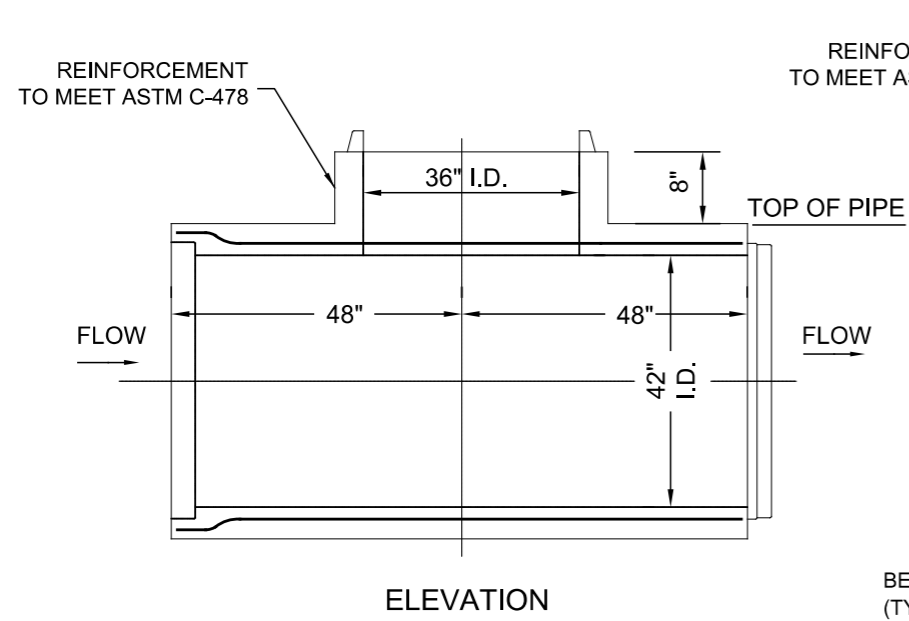
CITY OF CHICAGO
 DEPARTMENT OF WATER MANAGEMENT
 BUREAU OF ENGINEERING SERVICES

REINFORCEMENT FOR TYPE "A"
 PRECAST BASES AND RINGS
 24" TO 36"

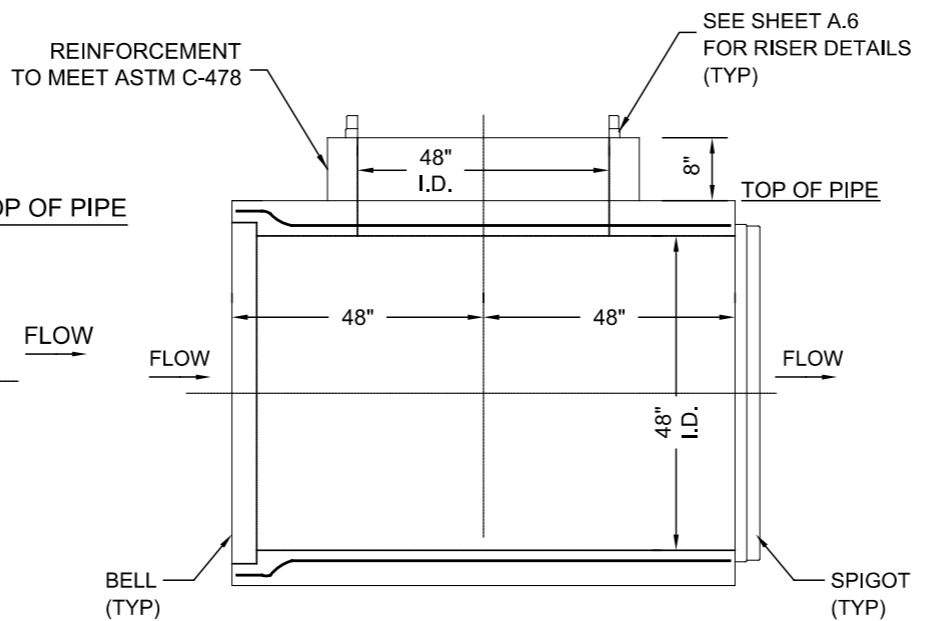
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 REVISIONS: []

A.7

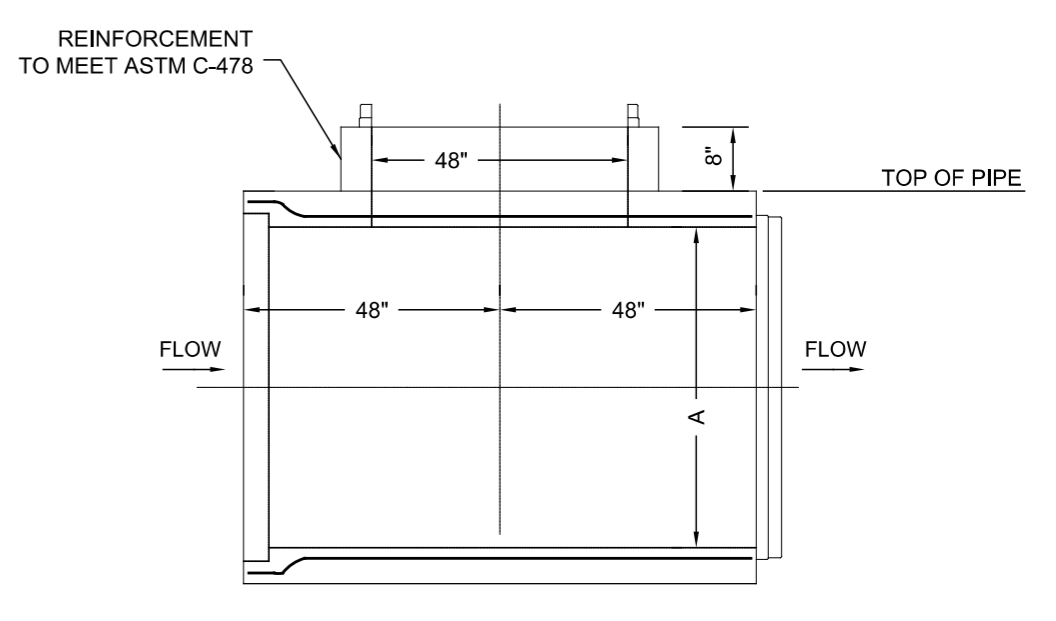
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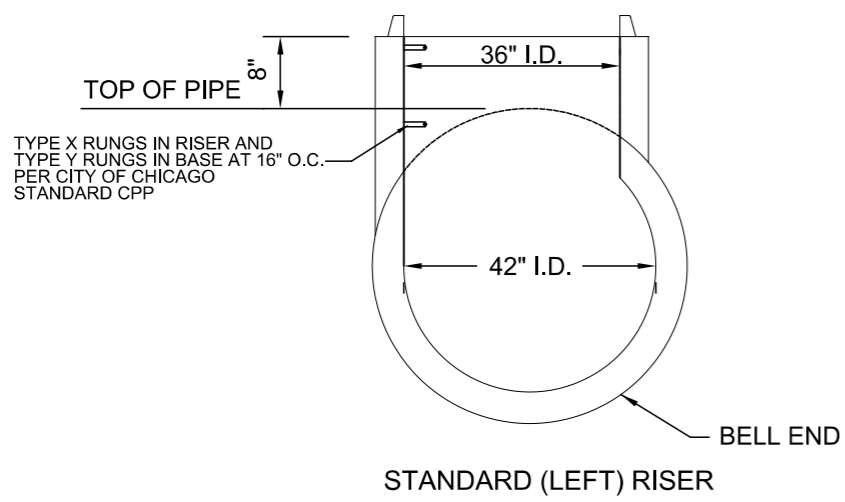
ELEVATION



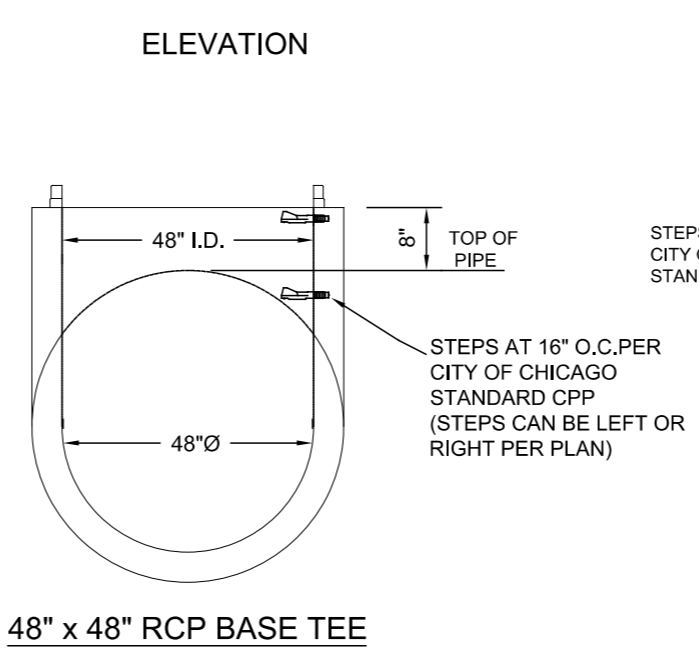
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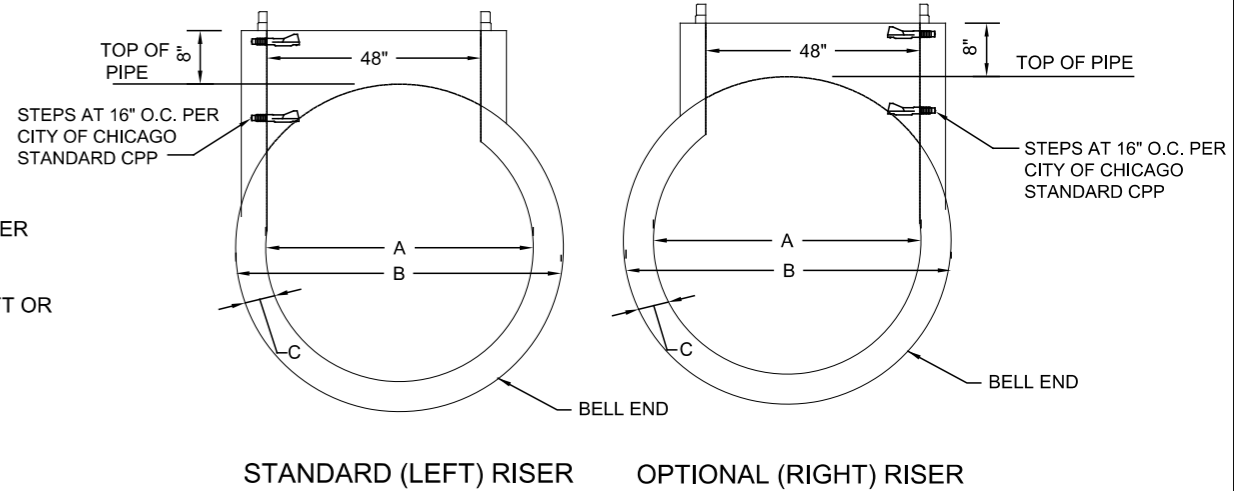
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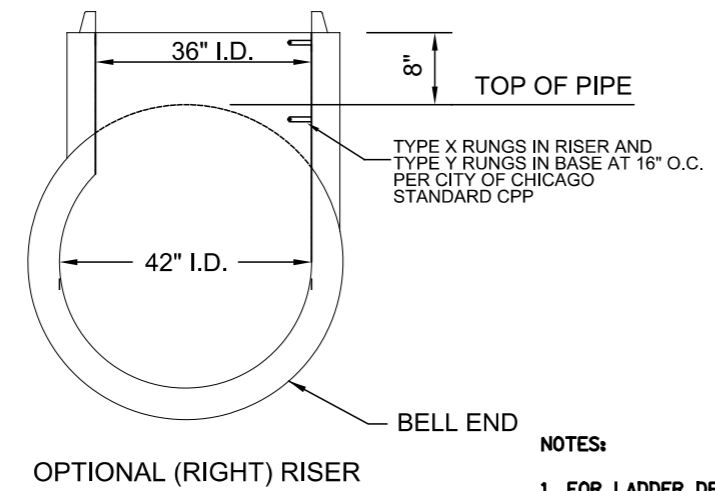
STANDARD (LEFT) RISER



48" x 48" RCP BASE TEE



STANDARD (LEFT) RISER OPTIONAL (RIGHT) RISER



OPTIONAL (RIGHT) RISER

42" x 36" RCP BASE TEE

> 54" x 48" RCP BASE TEE

DIMENSIONS OF PRECAST MANHOLE BASE			
A	B	C	RUNGS
120"	142"	11"	6
108"	128"	10"	6
96"	114"	9"	5
84"	101 1/2"	8 3/4"	4
78"	94 1/2"	8 1/4"	4
72"	87 1/2"	7 3/4"	4
66"	80 1/2"	7 1/4"	3
60"	73 1/2"	6 3/4"	3
54"	66 1/2"	6 1/4"	3
48"	59 1/2"	5 3/4"	3
42"	52 1/2"	5 1/4"	3

NOTES:

1. FOR LADDER DETAILS, SEE DETAIL SHEET A.22
2. FOR RISER DETAILS, SEE DETAIL SHEET A.6
3. ALL BASE TEES SHALL BE ASTM C76 CLASS V.
4. THE BASE TEE MUST BE COMPATIBLE WITH THE ADJOINING PIPE, AND GASKET JOINTS COMPLYING WITH ASTM C-76 AND C-443, RESPECTIVELY.
5. ALL PIPE AND FITTINGS 24 INCHES IN DIAMETER AND LARGER MUST BE CLASS III, IV AND V REINFORCED CONCRETE PIPE AS SPECIFIED IN THE SPECIFICATIONS FOR "REINFORCED CONCRETE CULVERT STORM DRAIN, AND SEWER PIPE." A.S.T.M. DESIGNATION C76, TABLE III, IV AND V, WALL B OR WALL C WITH CIRCULAR OR ELLIPTICAL REINFORCEMENT

STANDARD REVISIONS	
DATE	DESCRIPTION
4/4/19	APPROVED FINAL

PERCENT COMPLETE	DATE
30	
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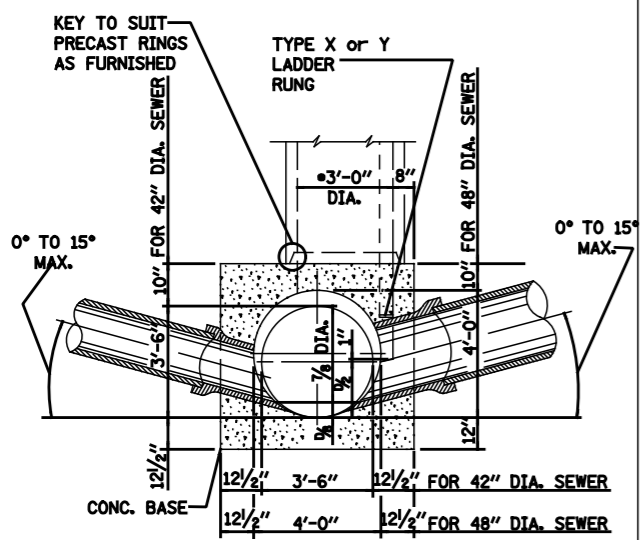
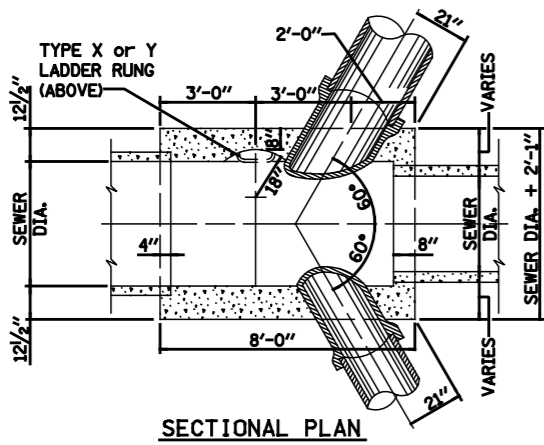
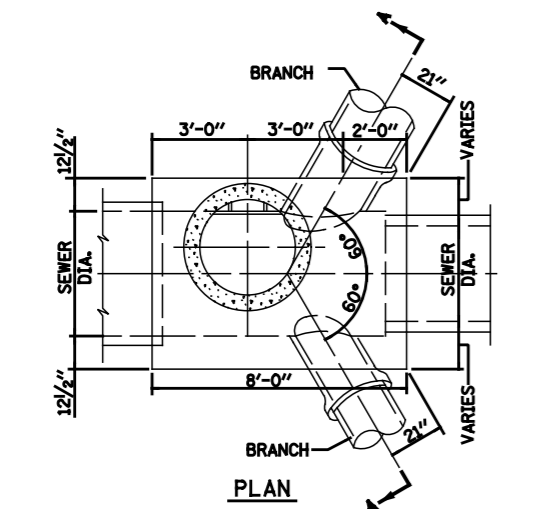
TYPE "A" BASE TEE
MANHOLE BASES
42" AND LARGER

DRAWN: []
DESIGNED: []
CHECKED: []
REVIEWED: []

A.8

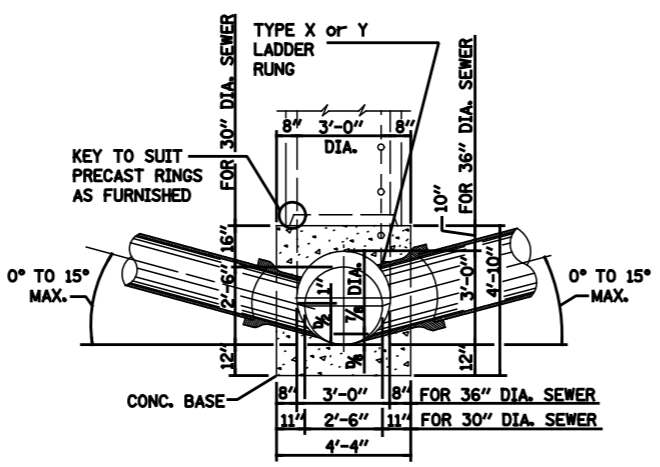
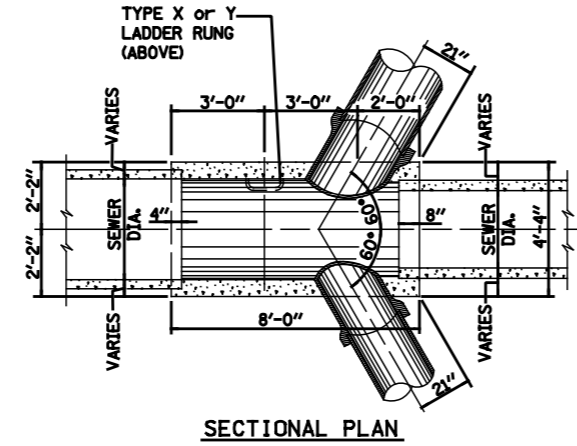
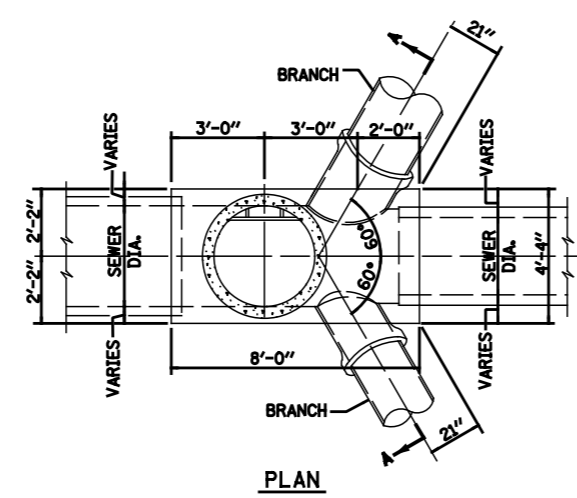
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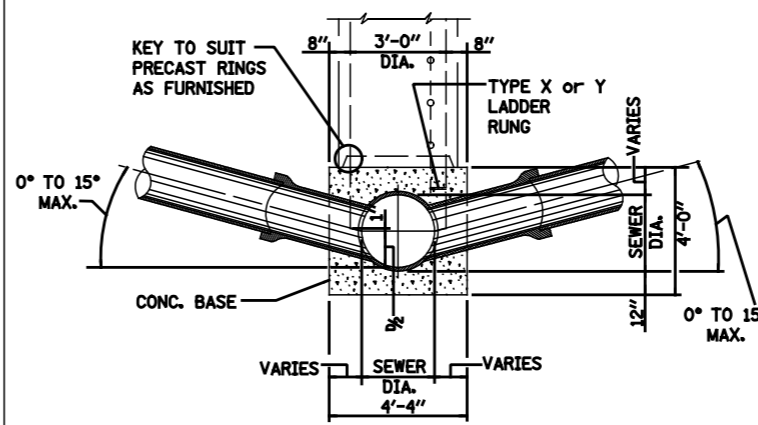
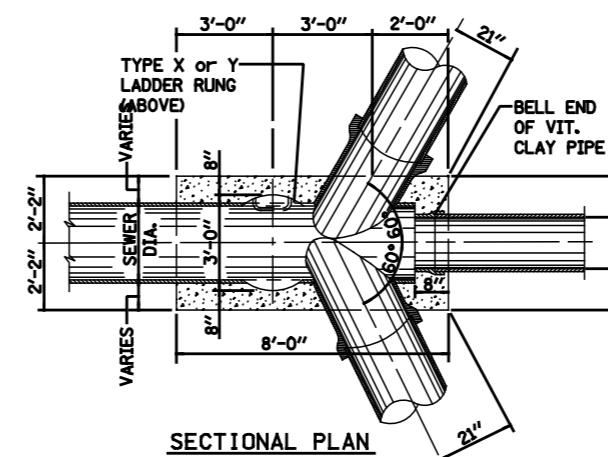
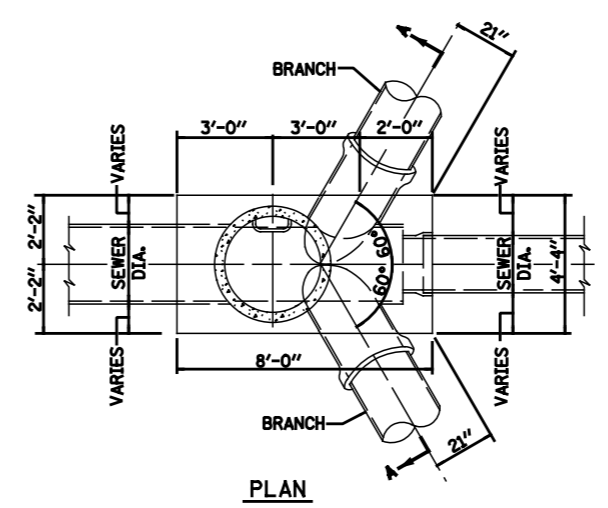
TYPE "B" MANHOLE FOR SEWERS 48" DIA. & 42" DIA.

Not To Scale



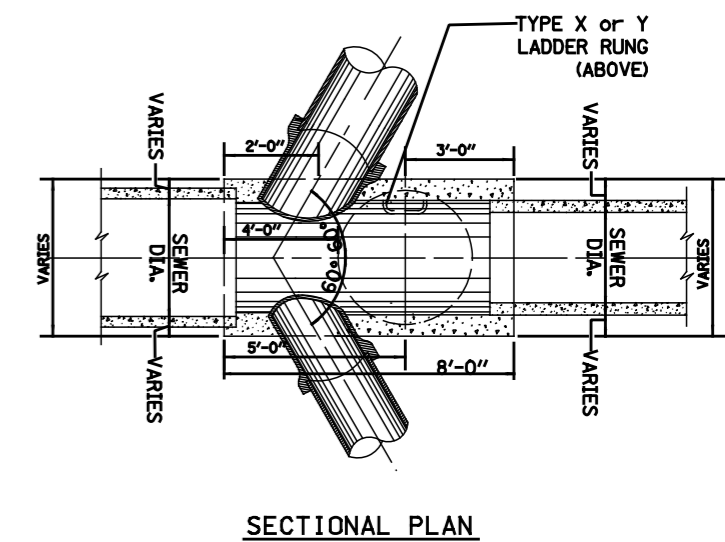
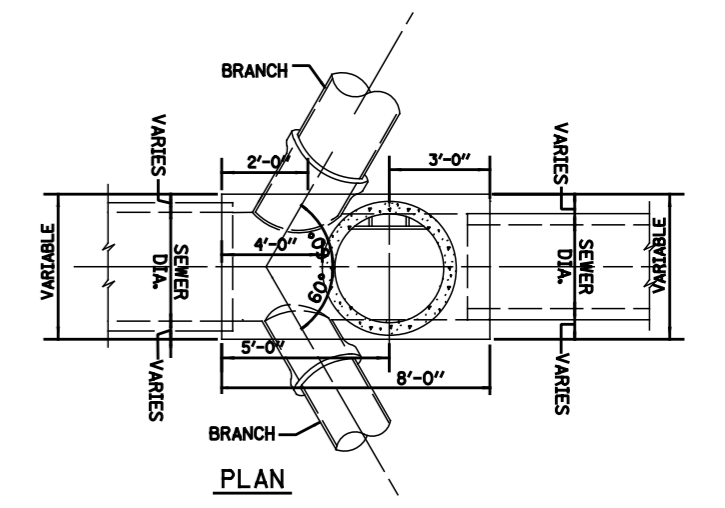
TYPE "B" MANHOLE FOR SEWERS 36" DIA. & 30" DIA.

Not To Scale



TYPE "B" MANHOLE FOR SEWERS 24" DIA. & SMALLER

Not To Scale



TYPICAL REVERSE TYPE "B" MANHOLE

Not To Scale

- NOTES:
1. CONTRACTOR MUST SUBMIT SHOP DRAWINGS OF ALL PROPOSED MANHOLE CONFIGURATIONS FOR APPROVAL PRIOR TO SUBMISSION OF MATERIAL ORDERS.
 2. CONNECTION BELLS MAY BE INSTALLED AT MANUFACTURER'S SITE, OR MORTARED IN PLACE IN THE FIELD. SEE SHEET A.11 FOR FURTHER CONFIGURATION DETAILS.
 3. BASES MUST BE PRECAST WITH THE CORRECT NUMBER OF PIPE OPENINGS, CORRESPONDING TO THE REPRESENTATION IN THE PLAN AND PROFILE SHEETS.
 4. PATCHING, BRICKING, OR OTHER MATERIAL METHODS OF CLOSING UNUSED HOLES WILL NOT BE ACCEPTED.
 5. 6" MINIMUM GRANULAR EMBEDMENT UNDER ALL PRECAST MANHOLE BASES
 6. ALL PIPE AND FITTINGS 24 INCHES IN DIAMETER AND LARGER MUST BE CLASS III, IV AND V REINFORCED CONCRETE PIPE AS SPECIFIED IN THE SPECIFICATIONS FOR "REINFORCED CONCRETE CULVERT STORM DRAIN, AND SEWER PIPE" A.S.T.M. DESIGNATION C76, TABLE III, IV AND V, WALL B OR WALL C WITH CIRCULAR OR ELLIPTICAL REINFORCEMENT

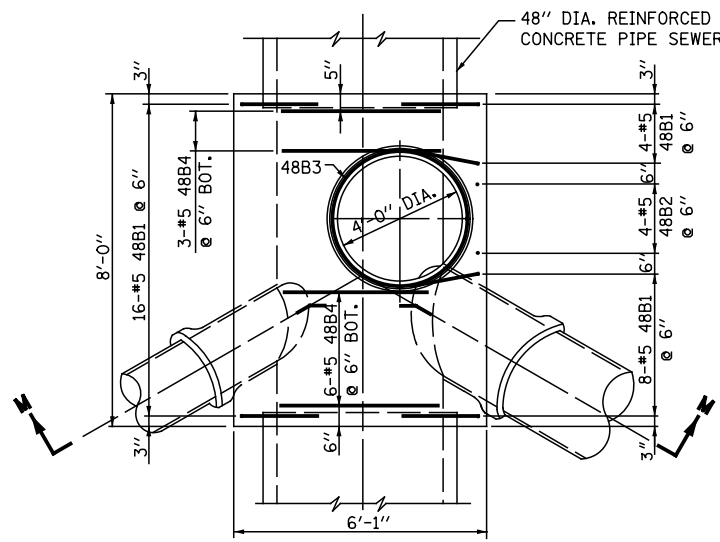
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DATE	DESCRIPTION
9/19/17	APPROVED PLAN

PERCENT COMPLETE	DATE
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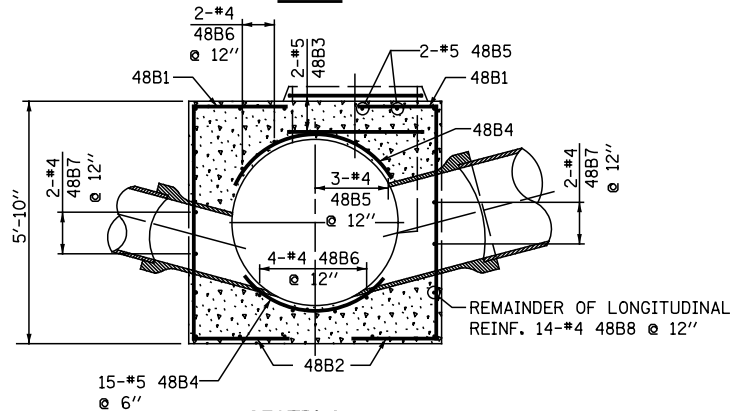
CITY OF CHICAGO DEPARTMENT OF WATER MANAGEMENT BUREAU OF ENGINEERING SERVICES		DRAWN	DESIGNED	CHECKED	REVIEWED	DATE
TYPE "B" MANHOLE						

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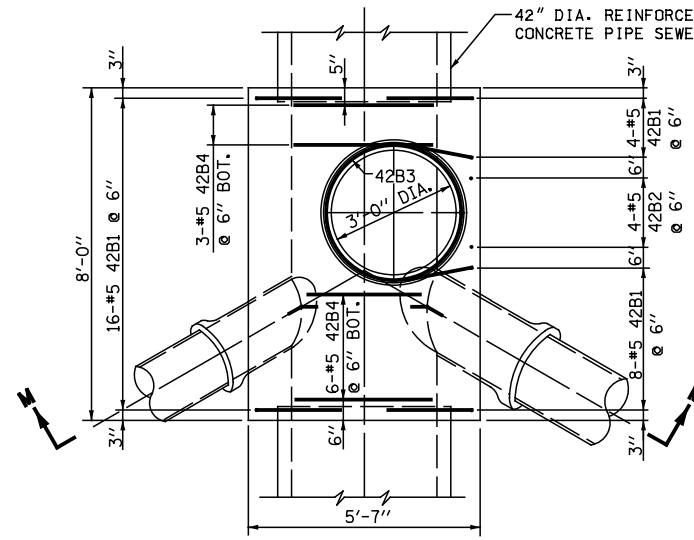


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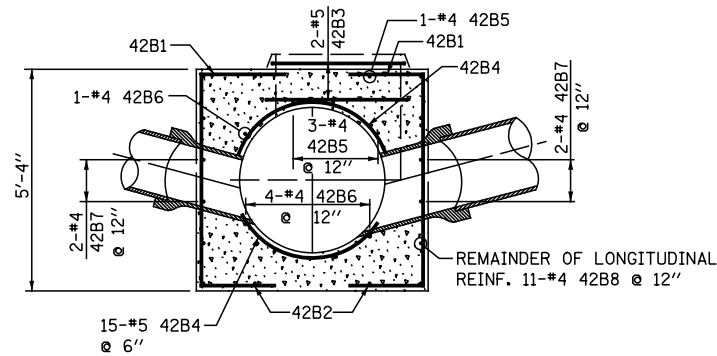


SECTION M-M

48" DIA. SEWER

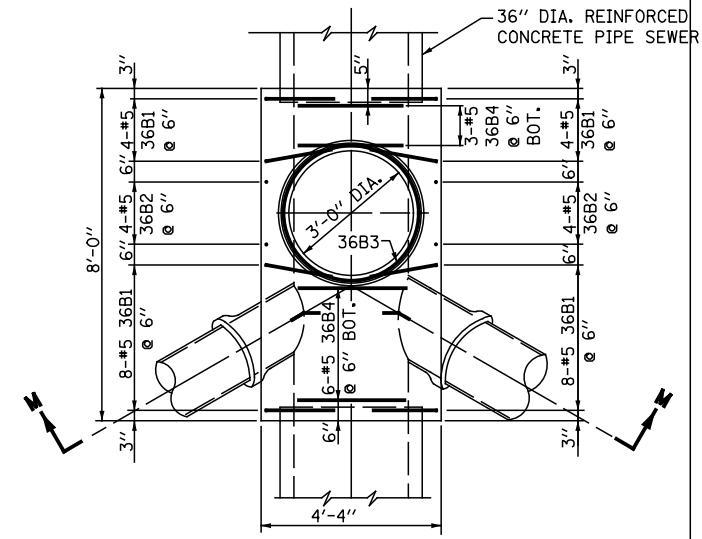


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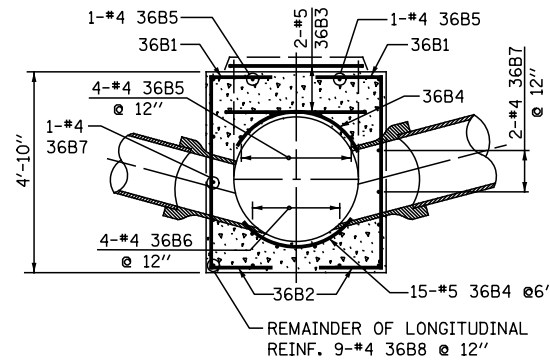


SECTION M-M

42" DIA. SEWER

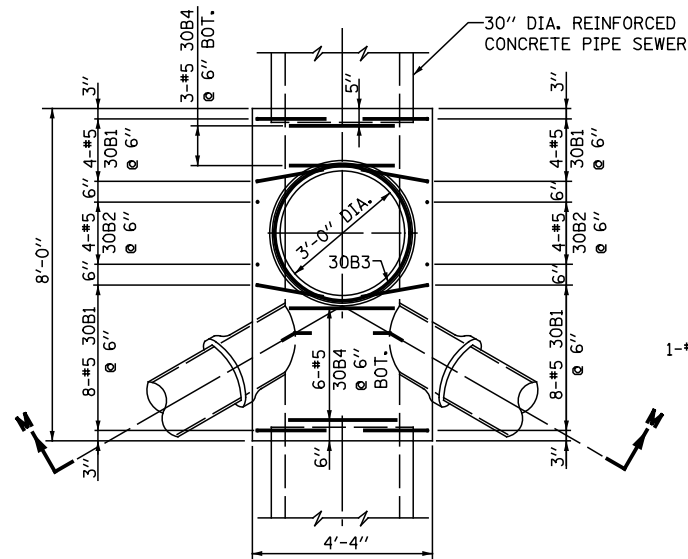


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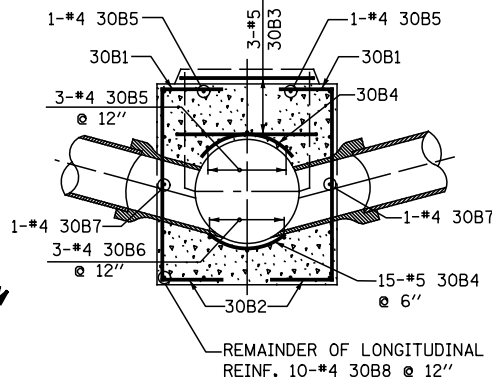


SECTION M-M

36" DIA. SEWER

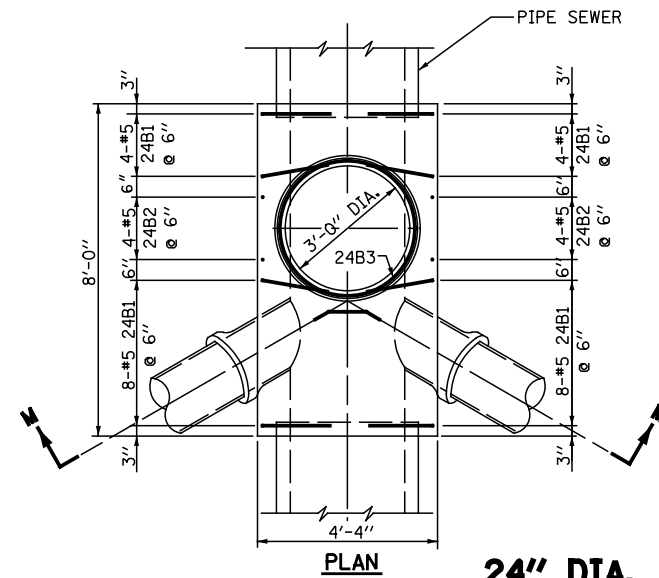


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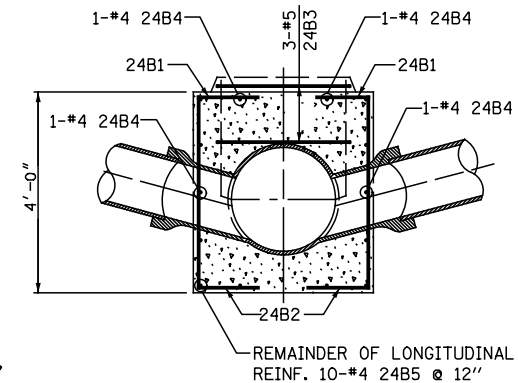


SECTION M-M

30" DIA. SEWER



PLAN



SECTION M-M

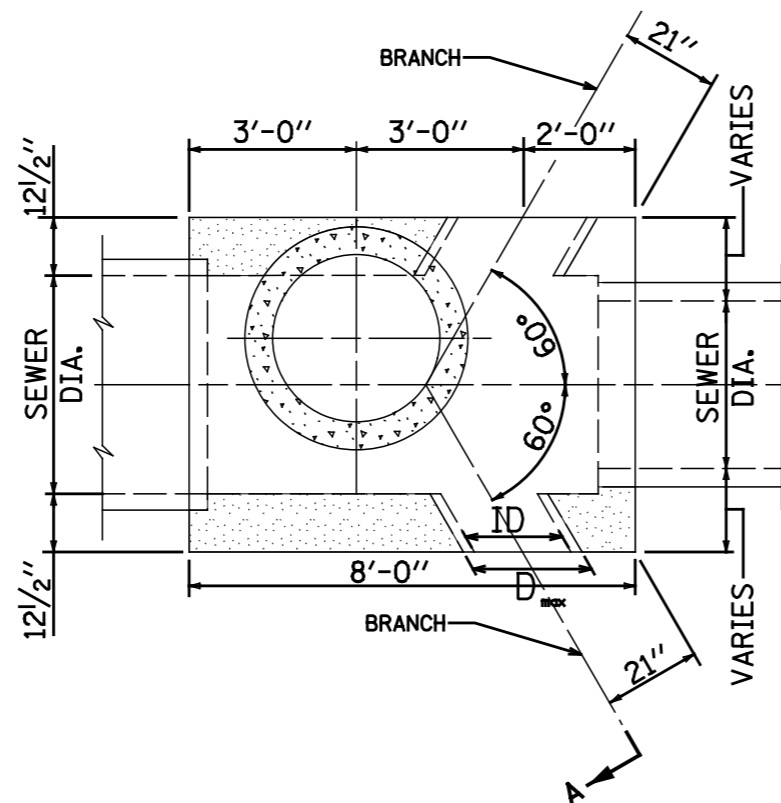
24" DIA. SEWERS & SMALLER

- NOTES:
1. CONTRACTOR MUST SUBMIT SHOP DRAWINGS OF ALL PROPOSED MANHOLE CONFIGURATIONS FOR APPROVAL PRIOR TO SUBMISSION OF MATERIAL ORDERS.
 2. CONNECTION BELLS MAY BE INSTALLED AT MANUFACTURER'S SITE, OR MORTARED IN PLACE IN THE FIELD. SEE SHEET A.11 FOR FURTHER CONFIGURATION DETAILS.
 3. BASES MUST BE PRECAST WITH THE CORRECT NUMBER OF PIPE OPENINGS, CORRESPONDING TO THE REPRESENTATION IN THE PLAN AND PROFILE SHEETS.
 4. PATCHING, BRICKING, OR OTHER MATERIAL METHODS OF CLOSING UNUSED HOLES WILL NOT BE ACCEPTED.
 5. ALL PIPE AND FITTINGS 24 INCHES IN DIAMETER AND LARGER MUST BE CLASS III, IV AND V REINFORCED CONCRETE PIPE AS SPECIFIED IN THE SPECIFICATIONS FOR "REINFORCED CONCRETE CULVERT STORM DRAIN, AND SEWER PIPE," A.S.T.M. DESIGNATION C76, TABLE III, IV AND V, WALL B OR WALL C WITH CIRCULAR OR ELLIPTICAL REINFORCEMENT

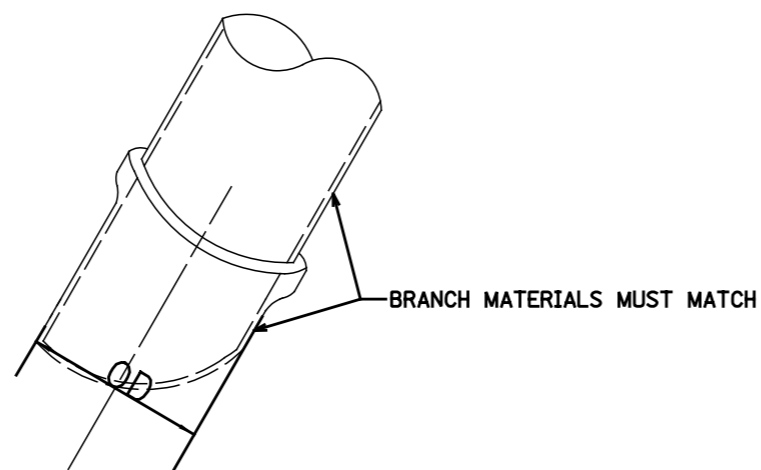
STANDARD REVISIONS	
DATE	DESCRIPTION
9/19/17	revision

PERCENT COMPLETE	DATE
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BULLETIN	

CITY OF CHICAGO DEPARTMENT OF WATER MANAGEMENT BUREAU OF ENGINEERING SERVICES		DRAWN BY CHECKED BY REVISIONS	A.10 OF PN
		REINFORCEMENT FOR TYPE "B" MANHOLE BASES	



TYPICAL 4 OPENING TYPE B MANHOLE



NOTES:

1. CONTRACTOR MUST SUBMIT SHOP DRAWINGS OF ALL PROPOSED MANHOLE CONFIGURATIONS FOR APPROVAL PRIOR TO SUBMISSION OF MATERIAL ORDERS.
2. CONNECTION BELLS MAY BE INSTALLED AT MANUFACTURER'S SITE, OR MORTARED IN PLACE IN THE FIELD.
3. BASES MUST BE PRECAST WITH THE CORRECT NUMBER OF PIPE OPENINGS, CORRESPONDING TO THE REPRESENTATION IN THE PLAN AND PROFILE SHEETS.
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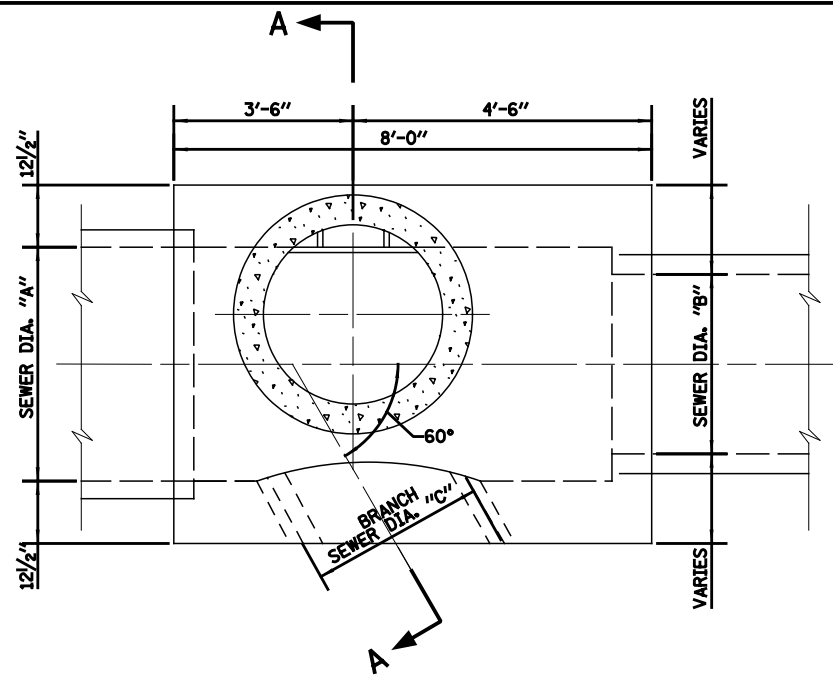
BRANCH SIZING CHART

ID PIPE (in.)	MATERIAL	OD PIPE (in.)	D _{max} * (in.)
12	VCP	14.36	18.36
15	VCP	17.8	21.8
18	VCP	21.48	25.48
21	VCP	25.54	31.54
8	DIP	9.05	13.05
10	DIP	11.1	15.1
12	DIP	13.2	17.2
14	DIP	15.3	19.3
16	DIP	17.4	21.4
18	DIP	19.5	23.5
20	DIP	21.6	25.6
24	DIP	25.8	29.8
24	RCP III (Wall B)	30	34
27	RCP III (Wall B)	33.5	37.5
30	RCP III (Wall B)	37	41
33	RCP III (Wall B)	40.5	44.5
36	RCP III (Wall B)	44	48
42	RCP III (Wall B)	51	55
48	RCP III (Wall B)	58	62

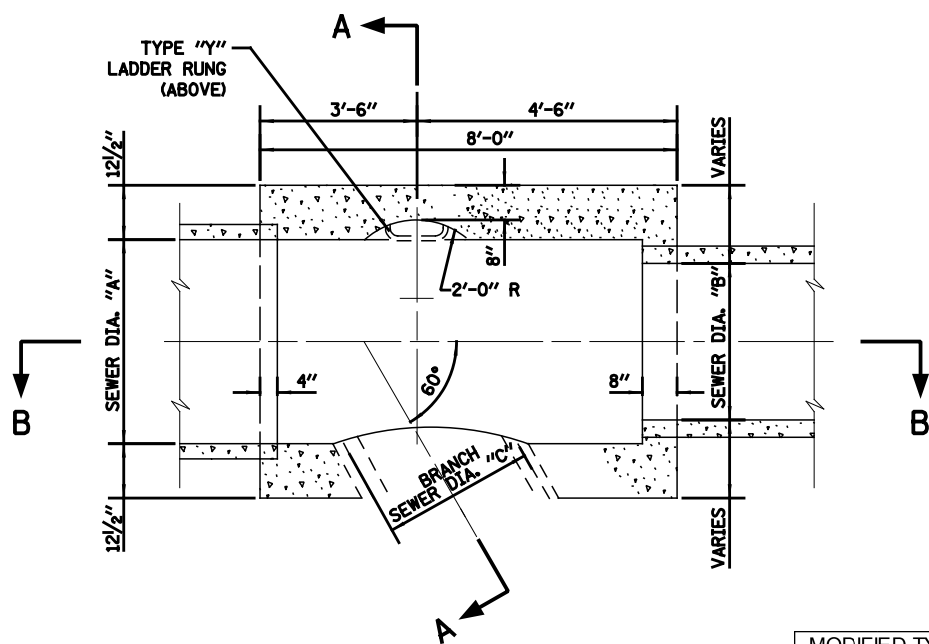
Notes:

1. If the pipe class and wall size is not shown on this table, then D_{max} = OD pipe + 4"
- *2. D_{max} indicates the maximum size of branch opening to be cast or cut into structure.

STANDARD REVISIONS		PERCENT COMPLETE	DATE	CITY OF CHICAGO DEPARTMENT OF WATER MANAGEMENT BUREAU OF ENGINEERING SERVICES	DRAWN BY DESIGNED BY CHECKED BY REVIEWED BY
DATE	DESCRIPTION				
9/19/17	APPROVED PLAN	30		TYPE "B" MANHOLE CONFIGURATIONS	A.11 OF PN
		60			
		75			
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		100			
		BULLETIN			

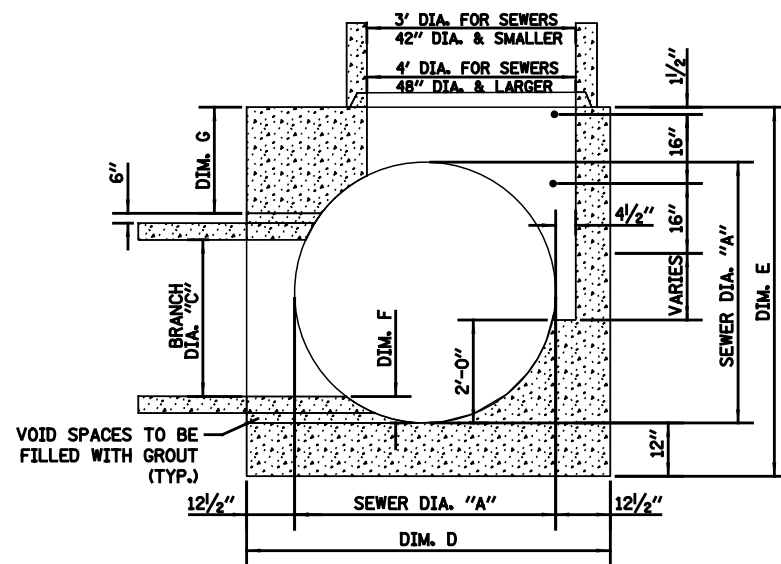


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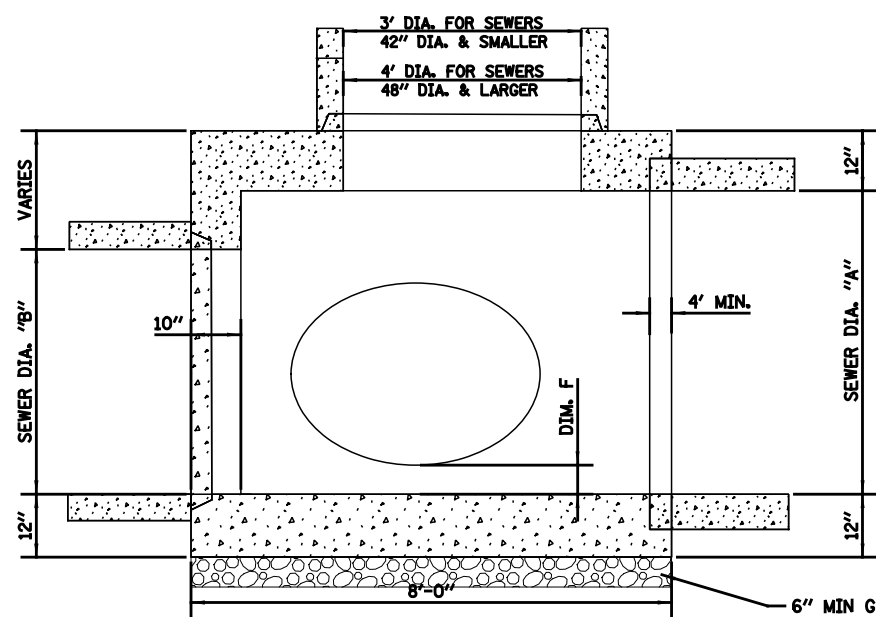


SECTIONAL PLAN

- NOTES:**
- CONTRACTOR MUST SUBMIT SHOP DRAWINGS OF ALL PROPOSED MANHOLE CONFIGURATIONS FOR APPROVAL PRIOR TO SUBMISSION OF MATERIAL ORDERS.
 - CONNECTION BELLS MAY BE INSTALLED AT MANUFACTURER'S SITE, OR MORTARED IN PLACE IN THE FIELD. SEE SHEET A.11 FOR FURTHER CONFIGURATION DETAILS.
 - BASES MUST BE PRECAST WITH THE CORRECT NUMBER OF PIPE OPENINGS, CORRESPONDING TO THE REPRESENTATION IN THE PLAN AND PROFILE SHEETS.
 - PATCHING, BRICKING, OR OTHER MATERIAL METHODS OF CLOSING UNUSED HOLES WILL NOT BE ACCEPTED.
 - 6" MINIMUM GRANULAR EMBEDMENT UNDER ALL PRECAST MANHOLE BASES
 - ALL PIPE AND FITTINGS 24 INCHES IN DIAMETER AND LARGER MUST BE CLASS III, IV AND V REINFORCED CONCRETE PIPE AS SPECIFIED IN THE SPECIFICATIONS FOR "REINFORCED CONCRETE CULVERT STORM DRAIN, AND SEWER PIPE." A.S.T.M. DESIGNATION C76, TABLE III, IV AND V, WALL B OR WALL C WITH CIRCULAR OR ELLIPTICAL REINFORCEMENT



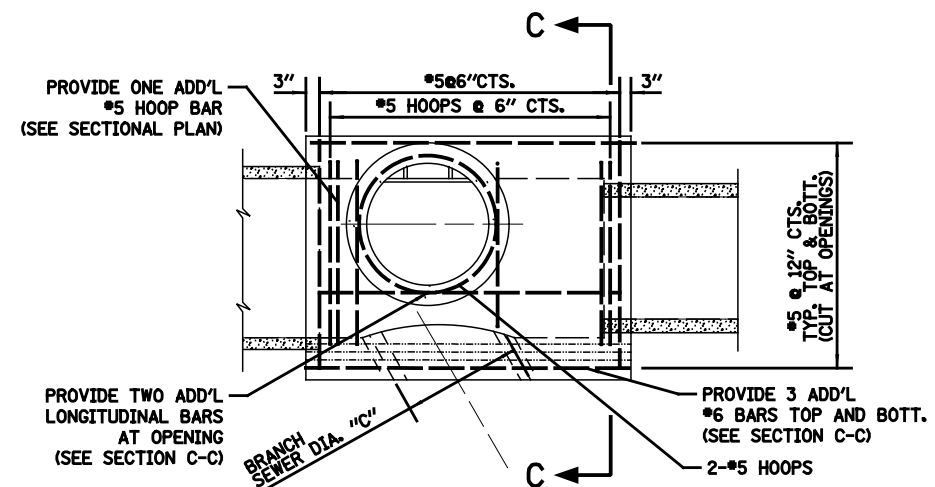
SECTION A-A



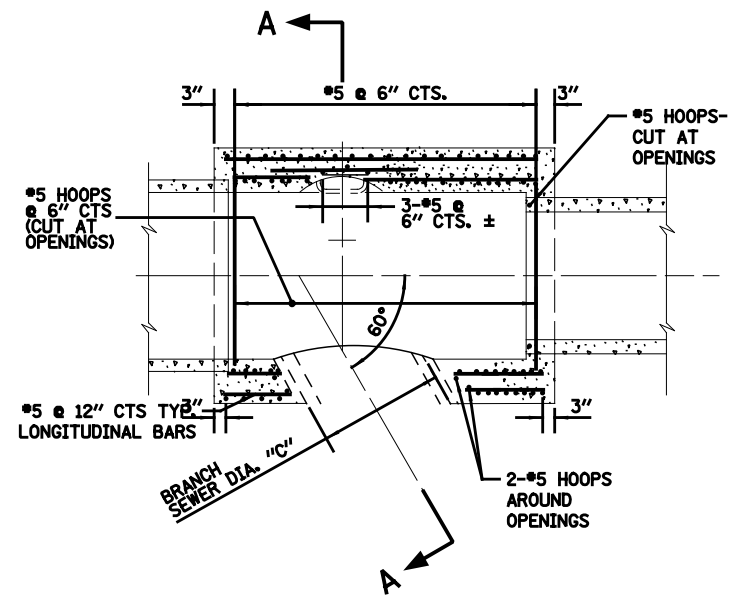
SECTION B-B

MODIFIED TYPE B MANHOLES		FOR 42", 36", & 30" BRANCHES				
SEWER SIZE	BRANCH SIZE	DIMENSION				
A	B	C	D	E	F	G
60	60	42	85	84	6	18
60	60	36	85	84	6	24
60	60	30	85	84	6	30
54	54	42	79	78	6	12
54	54	36	79	78	6	18
54	54	30	79	78	6	24
48	48	42	73	78	6	12
48	48	36	73	72	6	12
48	48	30	73	72	6	18
42	42	36	67	72	6	12
42	42	30	67	66	6	12
36	36	36	58	66	6	12
36	36	30	58	66	6	12
30	30	30	55	66	6	12

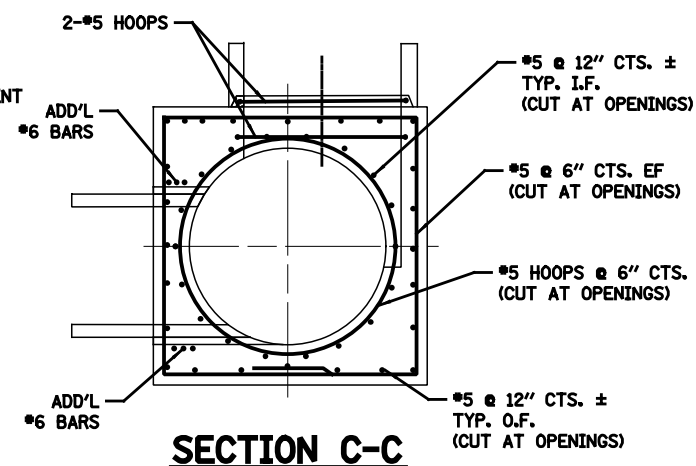
ALL MEASUREMENTS ARE IN INCHES
 NOTE: WHEN B IS SMALLER THAN A, GAP SHALL BE FILLED WITH CONCRETE DURING CASTING.
 SIMILAR REBAR DESIGN SHALL BE USE.



PLAN



SECTIONAL PLAN



SECTION C-C

STANDARD REVISIONS	
DATE	DESCRIPTION
3/7/19	REVISED

PERCENT COMPLETE	DATE
30	
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BULLETIN	

CITY OF CHICAGO	
DEPARTMENT OF WATER MANAGEMENT	
BUREAU OF ENGINEERING SERVICES	
MODIFIED TYPE "B" MANHOLE	

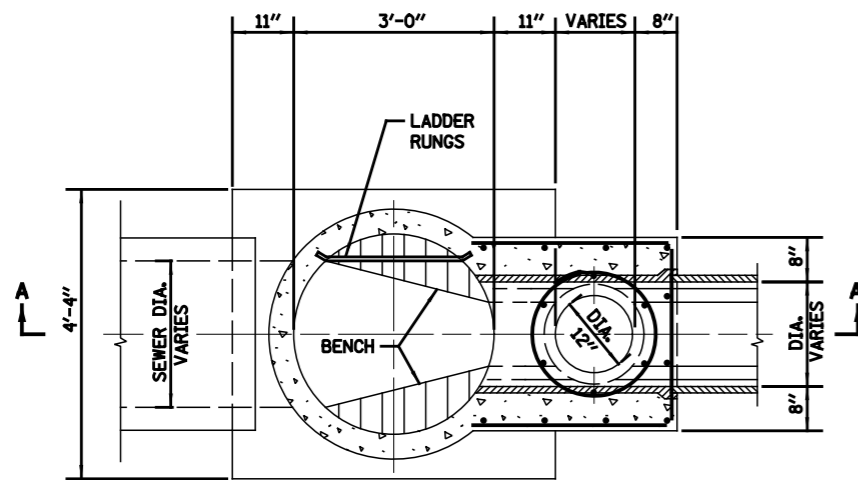
DATE	DESIGNED	CHECKED	IN CHARGE	REVISIONS

A.12

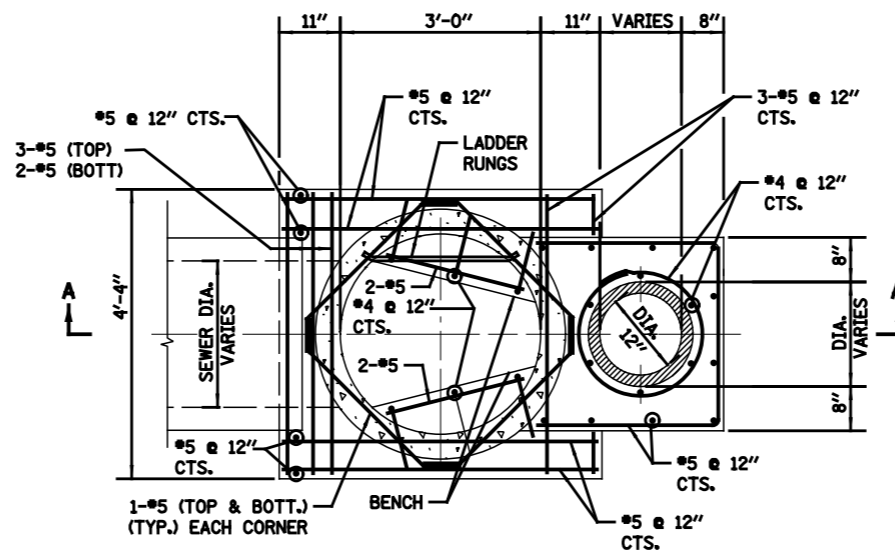
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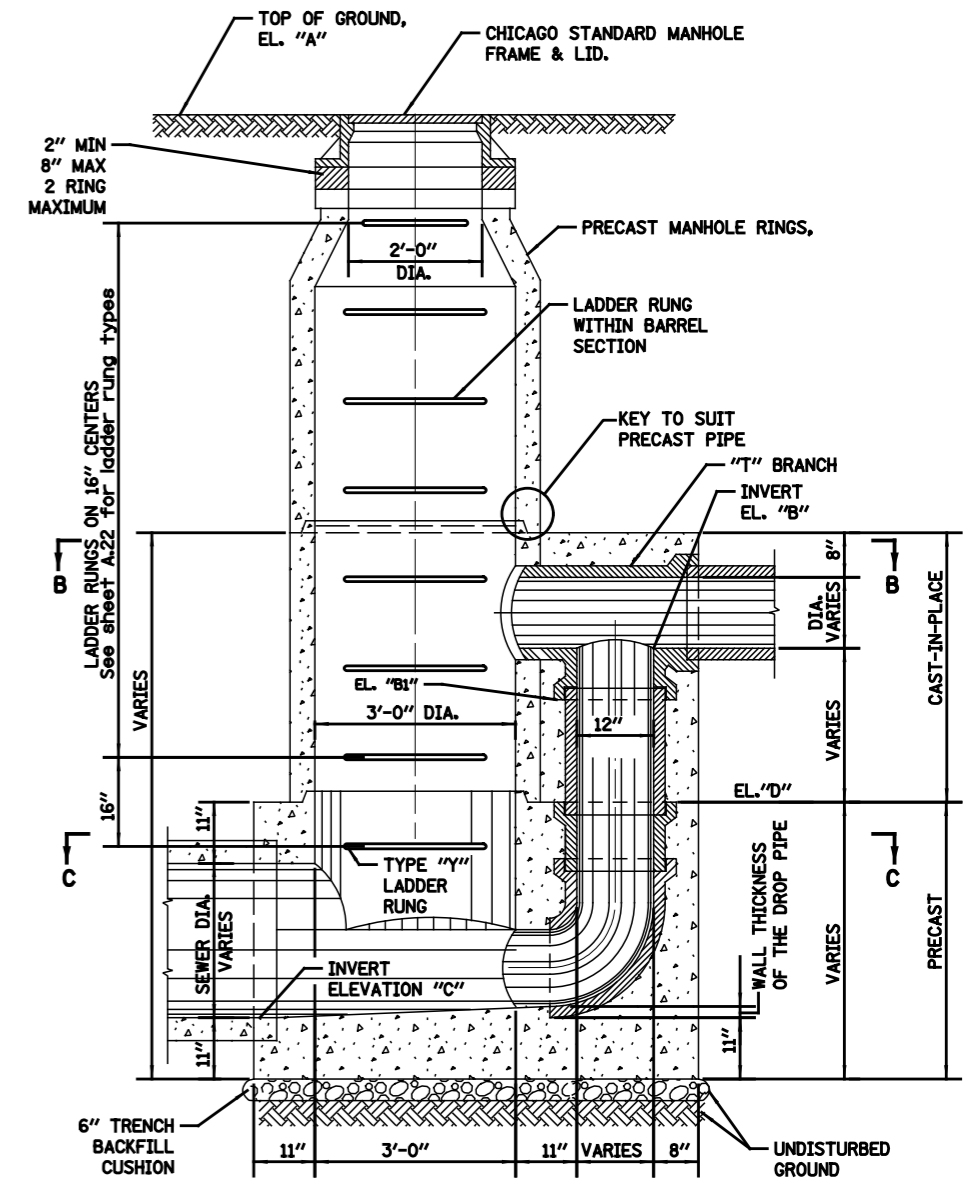
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\$DATE\$



SECTIONAL PLAN-B



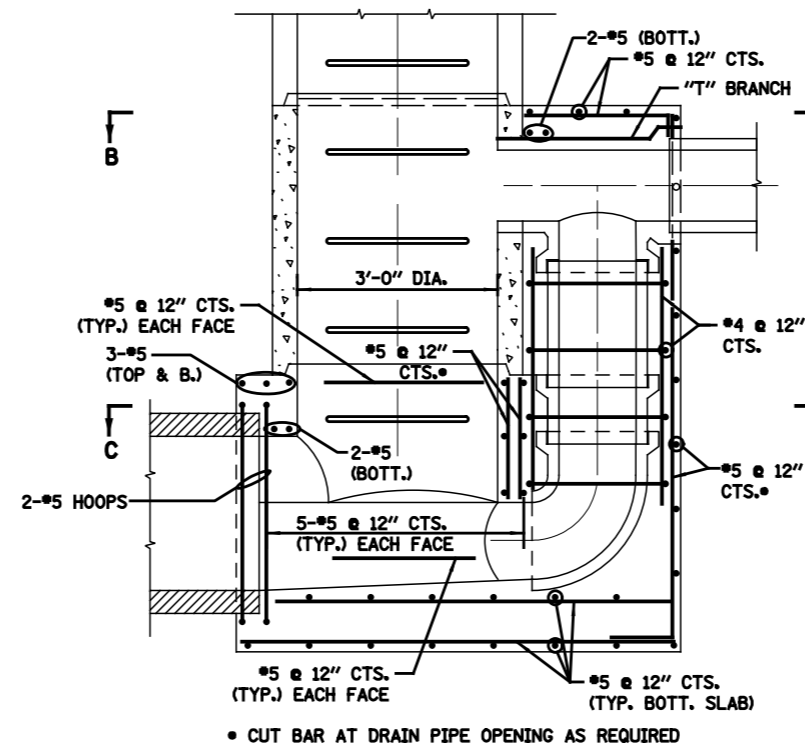
SECTIONAL PLAN-C



SECTION A-A

LOCATION	SHEET NO.	ELEVATION				
		"A"	"B"	"B1"	"C"	"D"

NOTE: Elevation B1 >= Elevation D



SECTION A-A

NOTE:
1. UNLESS OTHERWISE NOTED ALL PIPE AND FITTINGS 21" AND UNDER ARE STANDARD STRENGTH VCP.

2. FOR DESIGN ONLY- USE 12" DROP PIPE FOR THE FOLLOWING DEPTHS OF DWF:
6" DWF-42" LATERAL
7" DWF-36" LATERAL
8" DWF-24" LATERAL

3. ALL PIPE AND FITTINGS 24 INCHES IN DIAMETER AND LARGER MUST BE CLASS III, IV AND V REINFORCED CONCRETE PIPE AS SPECIFIED IN THE SPECIFICATIONS FOR "REINFORCED CONCRETE CULVERT STORM DRAIN, AND SEWER PIPE," A.S.T.M. DESIGNATION C76, TABLE III, IV AND V, WALL B OR WALL C WITH CIRCULAR OR ELLIPTICAL REINFORCEMENT

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\$DATE\$

STANDARD REVISIONS	
DATE	DESCRIPTION
9/19/17	APPROVED

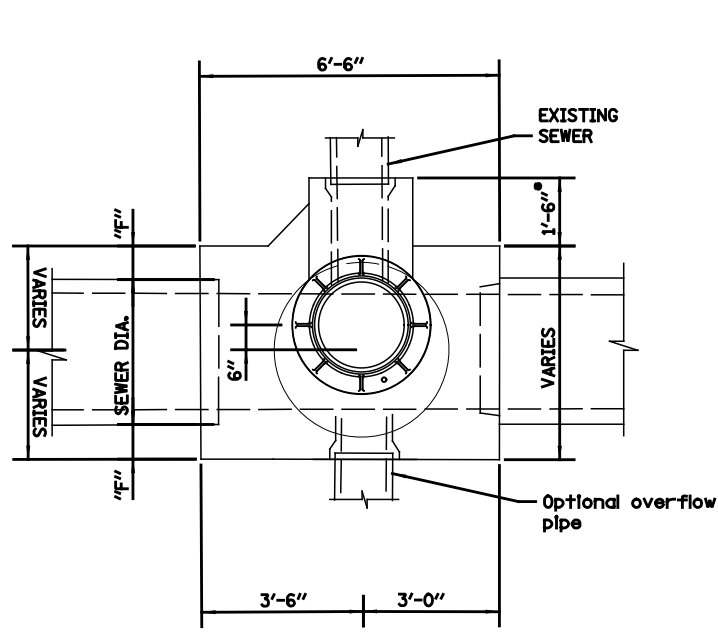
PERCENT COMPLETE	DATE
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BULLETIN	

CITY OF CHICAGO	
DEPARTMENT OF WATER MANAGEMENT	
BUREAU OF ENGINEERING SERVICES	
TYPE C	
SINGLE DROP MANHOLE	

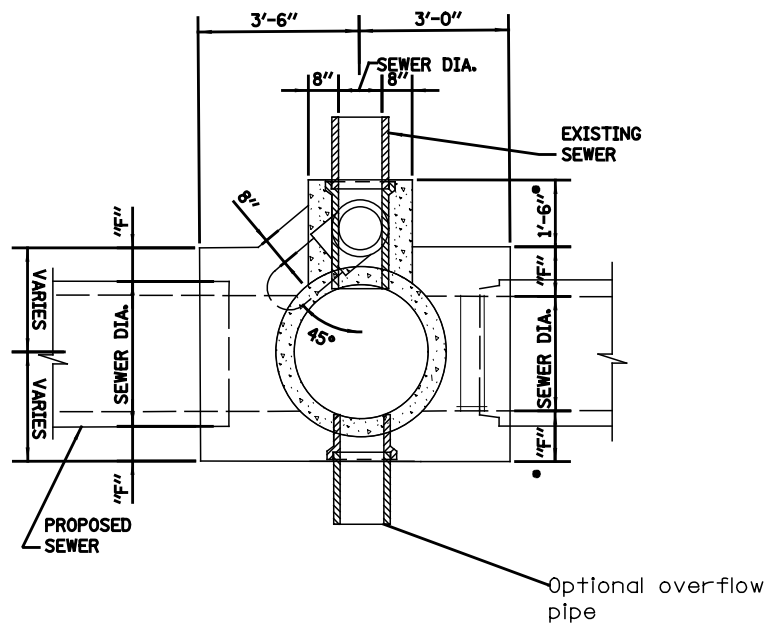
DRAWN	DESIGNED	CHECKED	REVIEWED

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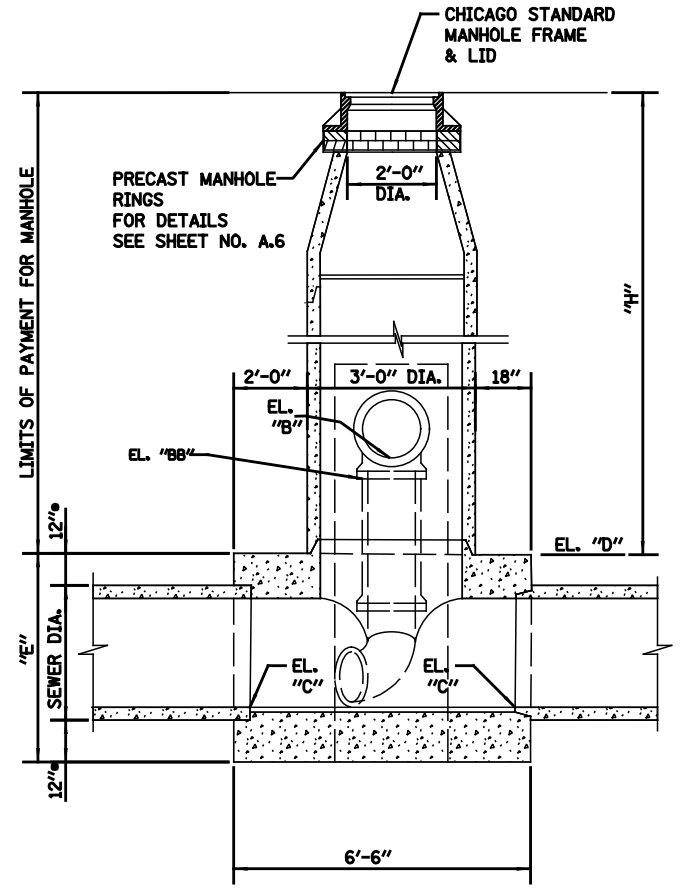


PLAN

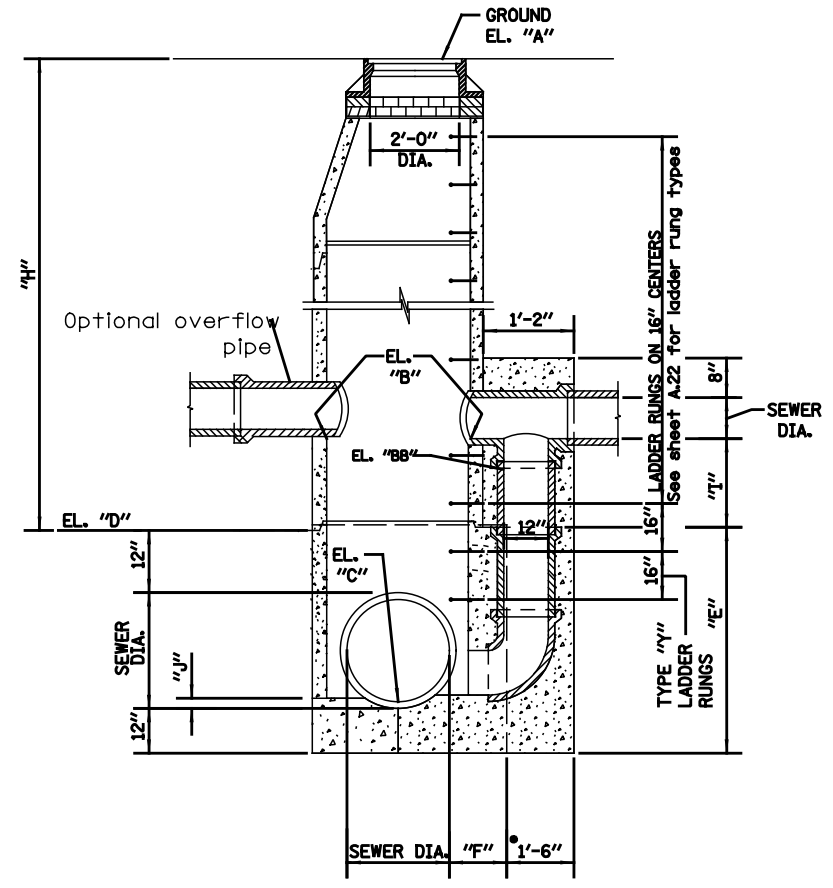


SECTIONAL PLAN

• 1'-8" FOR 24" DIA. SEWERS



SECTION A-A



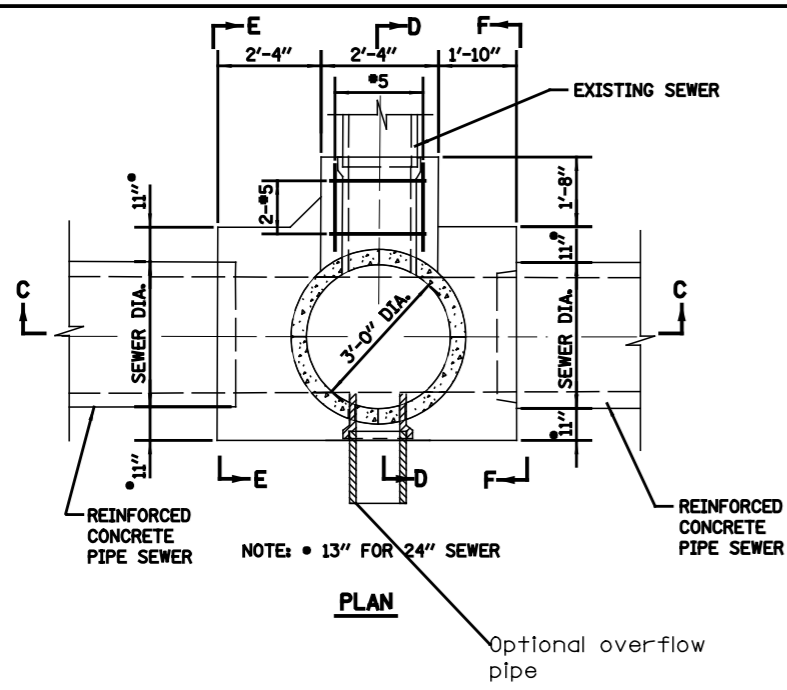
SECTION B-B

- NOTE:
- UNLESS OTHERWISE NOTED ALL PIPE AND FITTINGS 21" AND UNDER ARE STANDARD STRENGTH VCP.
 - FOR DESIGN ONLY- USE 12" DROP PIPE FOR THE FOLLOWING DEPTHS OF DWF:
 - 6" DWF-42" LATERAL
 - 7" DWF-36" LATERAL
 - 8" DWF-< 24" LATERAL
 - ALL PIPE AND FITTINGS 24 INCHES IN DIAMETER AND LARGER MUST BE CLASS III, IV AND V REINFORCED CONCRETE PIPE AS SPECIFIED IN THE SPECIFICATIONS FOR "REINFORCED CONCRETE CULVERT STORM DRAIN, AND SEWER PIPE," A.S.T.M. DESIGNATION C76, TABLE III, IV AND V, WALL B OR WALL C WITH CIRCULAR OR ELLIPTICAL REINFORCEMENT

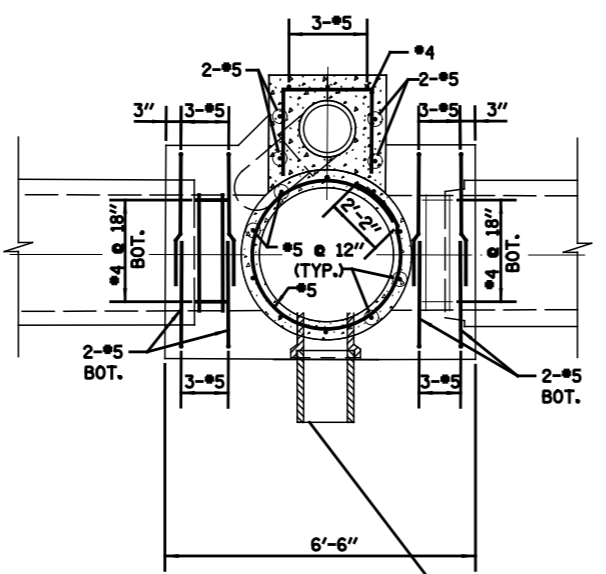
LOCATION	SHEET NO.	ELEVATION				
		"A"	"B"	"BB"	"C"	"D"

NOTE: Elevation BB >= Elevation D

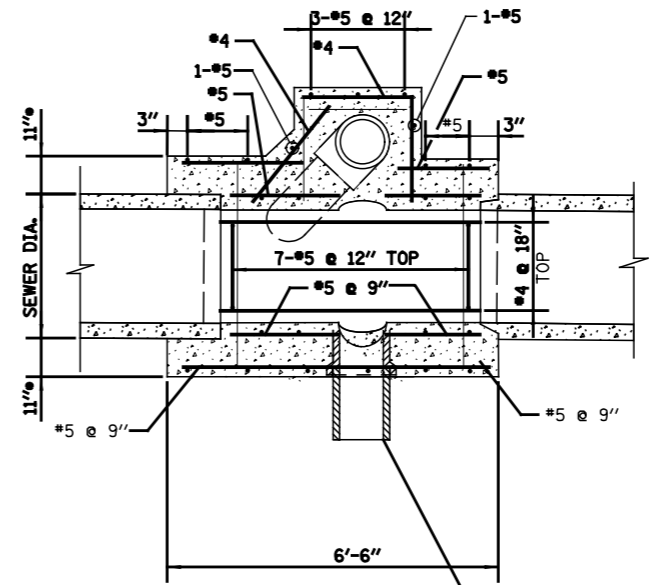
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DATE	DESCRIPTION					
9/19/17	APPROVED	30		TYPE C SINGLE DROP MANHOLE	OF	PN
		60				
		75				
		90				
		100				
		BULLETIN				



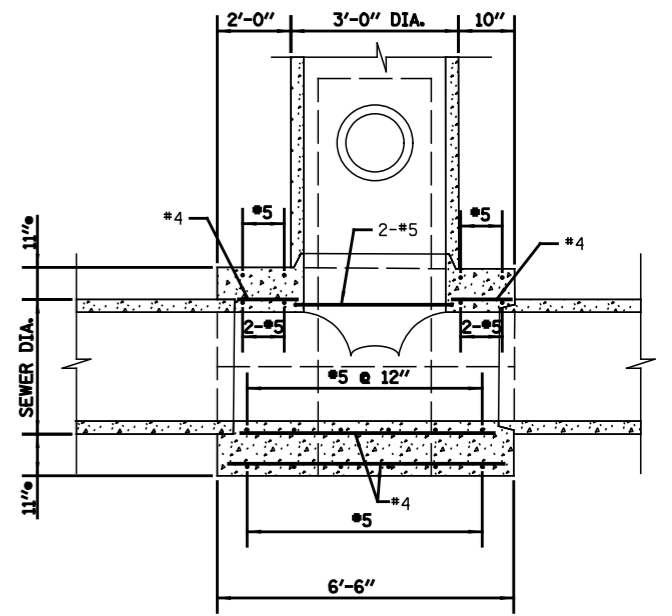
PLAN



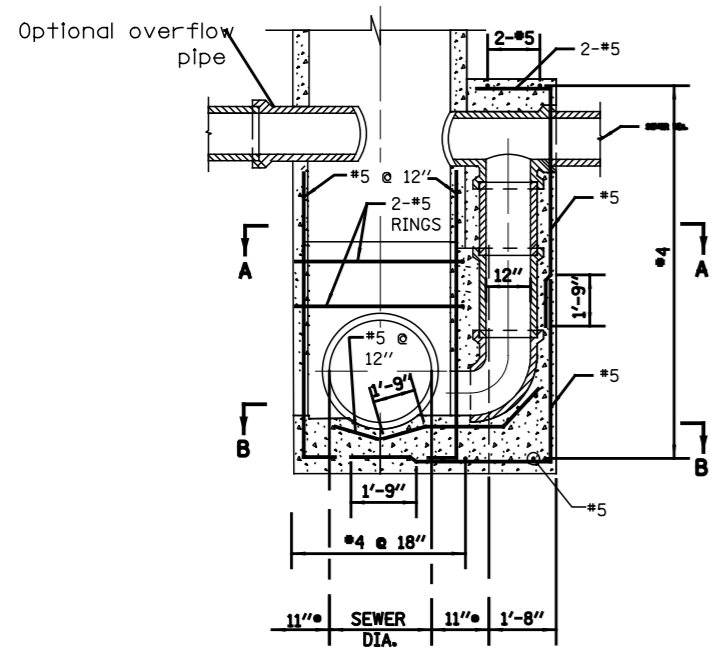
SECTION A-A



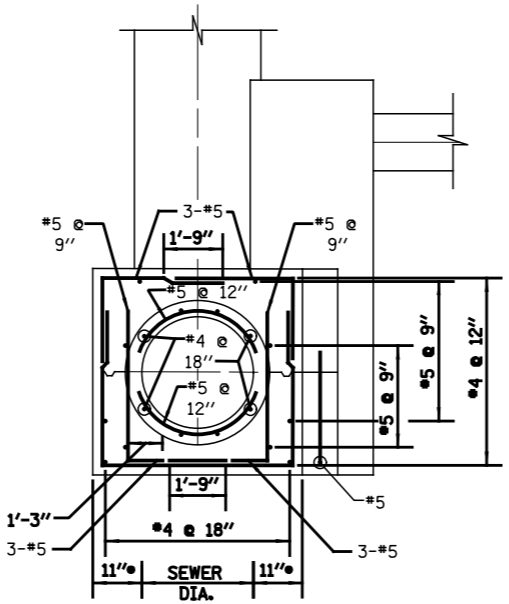
SECTION B-B



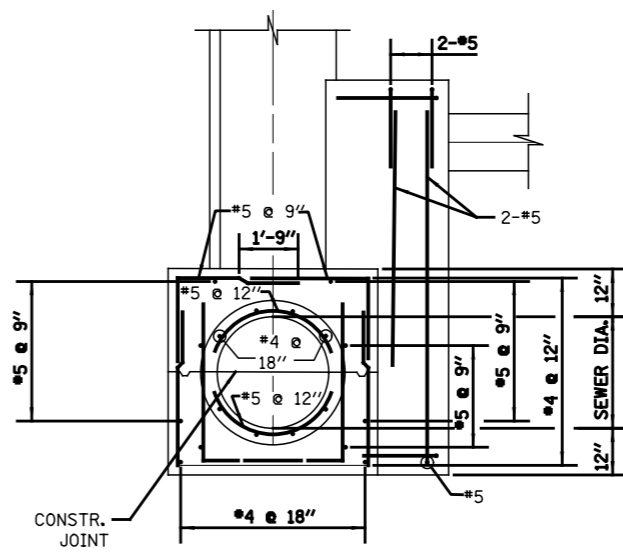
SECTION C-C



SECTION D-D



ELEVATION E-E



ELEVATION F-F

**FOR CONCRETE PIPE SEWERS
24" DIA. TO 48" DIA.**

Note: For Design only- Use 12" Drop pipe for the following depths of DWF:
6" DWF-42" lateral
7" DWF-36" lateral
8" DWF-24" lateral

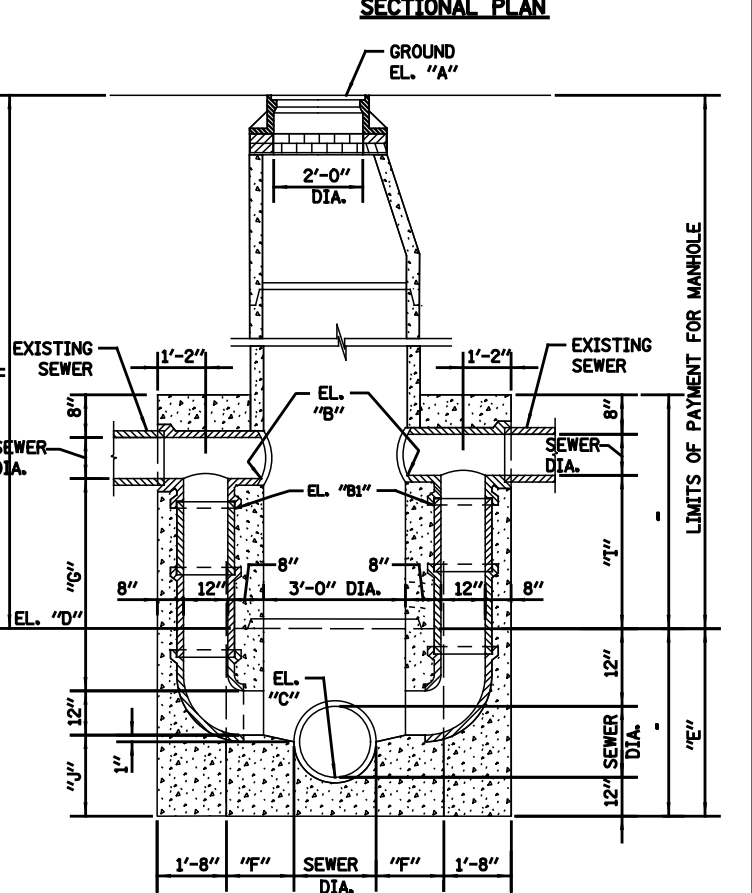
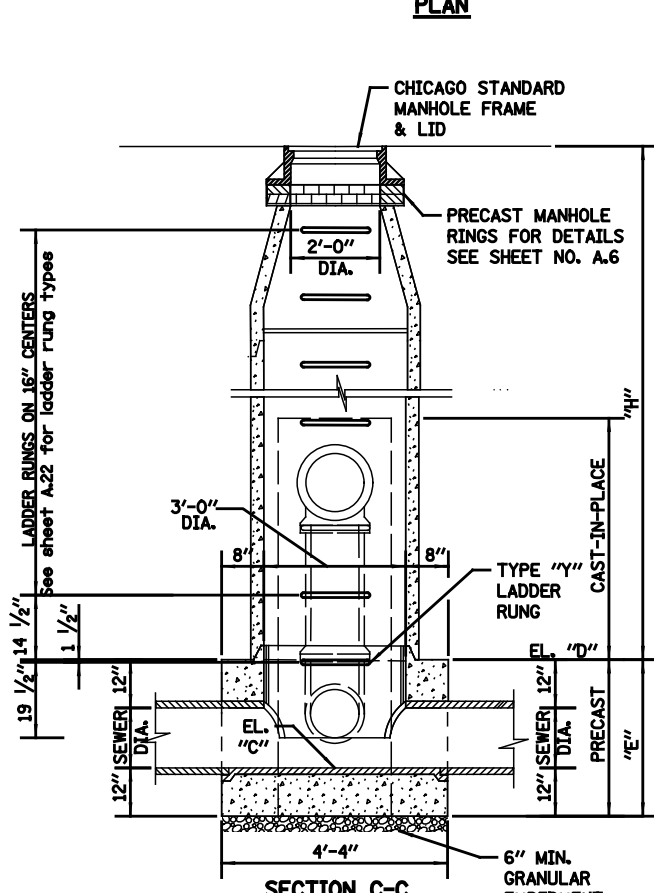
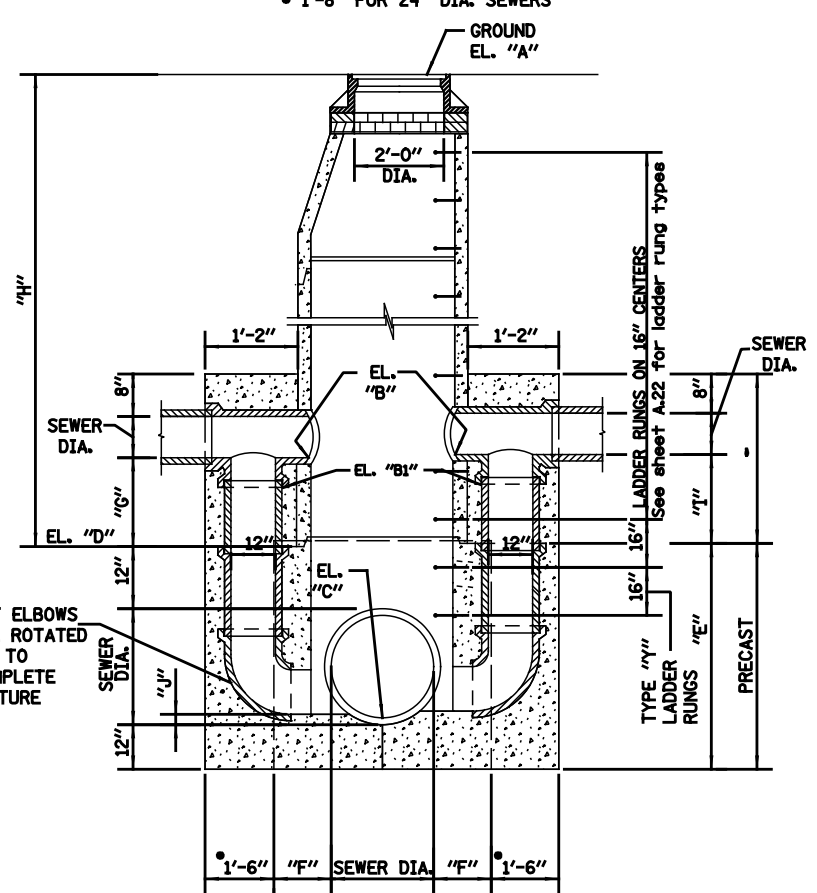
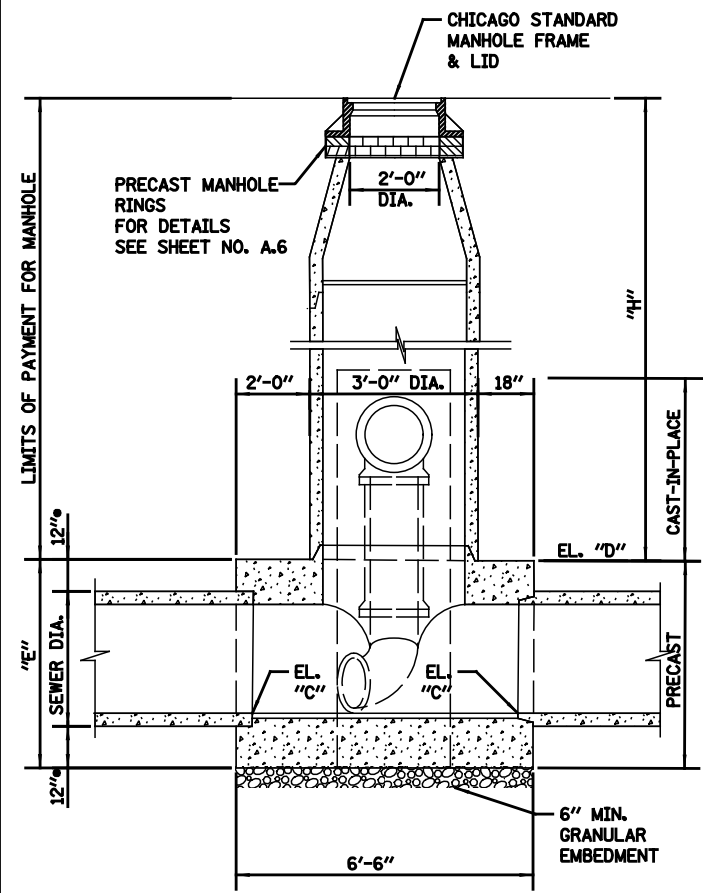
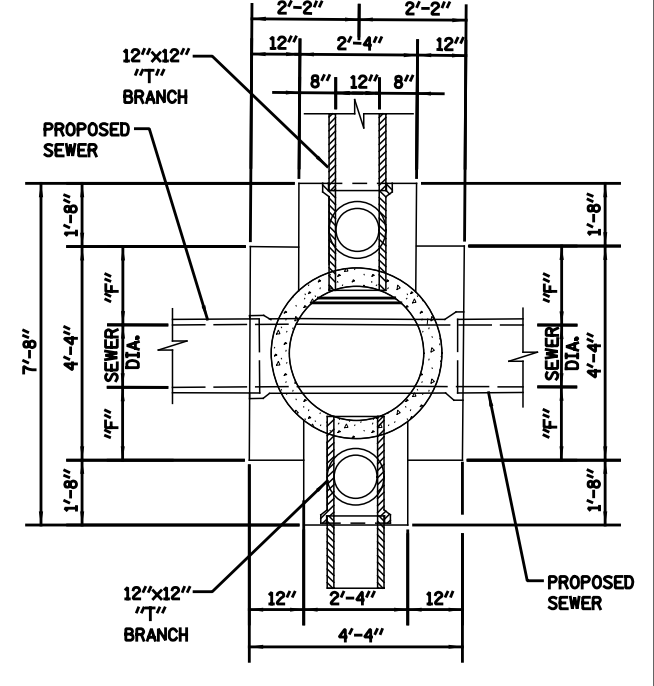
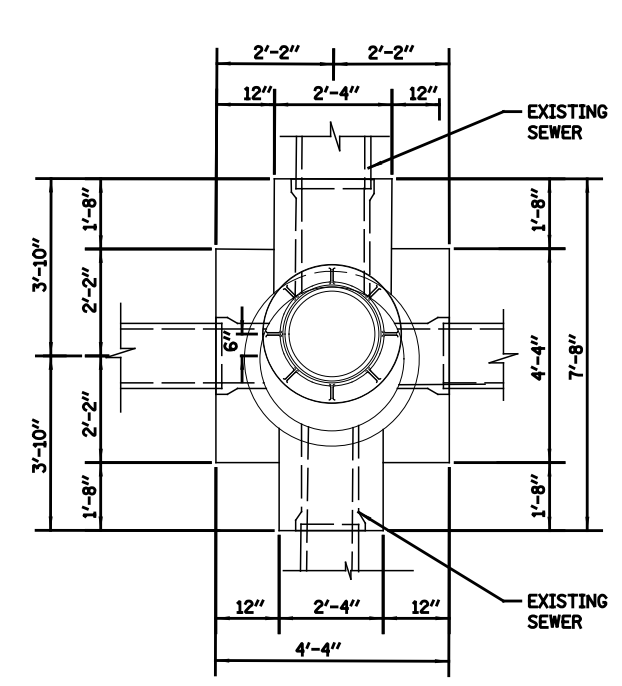
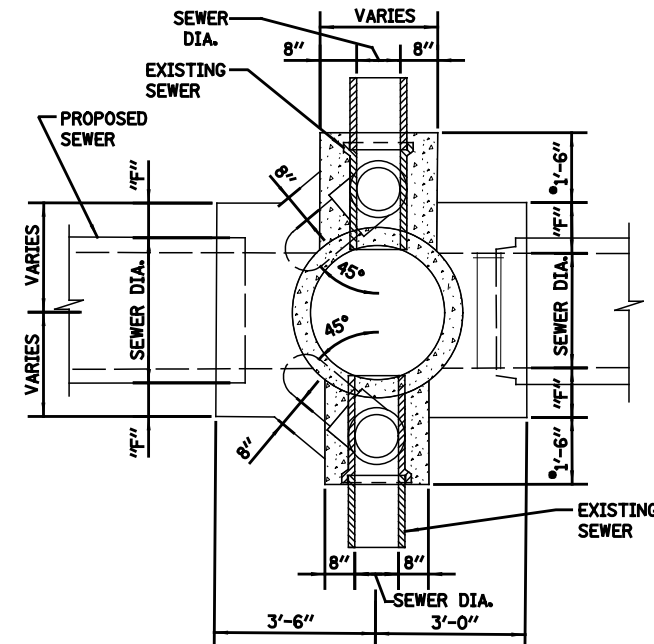
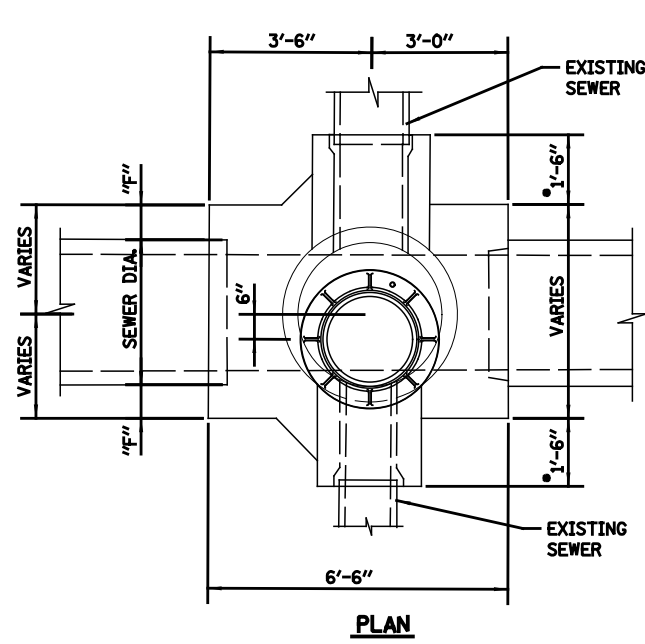
STANDARD REVISIONS	
DATE	DESCRIPTION
10/21/16	APPROVED

PERCENT COMPLETE	DATE
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BULLETIN	

CITY OF CHICAGO
DEPARTMENT OF WATER MANAGEMENT
BUREAU OF ENGINEERING SERVICES
**BASES FOR TYPE C
SINGLE DROP MANHOLE**

DRAWN:
DESIGNED:
CHECKED:
REVIEWED:
A.15
OF
PN

\$FILE\$
\$DATE\$



**FOR CONCRETE PIPE SEWERS
24" DIA. TO 48" DIA.**

**FOR VITRIFIED CLAY PIPE SEWERS
21" DIA. & SMALLER**

NOTE: Elevation B1 >= Elevation D

- NOTE:
1. UNLESS OTHERWISE NOTED ALL PIPE AND FITTINGS 21" AND UNDER ARE STANDARD STRENGTH VCP.
2. FOR DESIGN ONLY- USE 12" DROP PIPE FOR THE FOLLOWING DEPTHS OF DMF:
6" DMF-42" LATERAL
7" DMF-36" LATERAL
8" DMF-24" LATERAL
3. ALL PIPE AND FITTINGS 24 INCHES IN DIAMETER AND LARGER MUST BE CLASS III, IV AND V REINFORCED CONCRETE PIPE AS SPECIFIED IN THE SPECIFICATIONS FOR "REINFORCED CONCRETE CULVERT STORM DRAIN, AND SEWER PIPE." A.S.T.M. DESIGNATION C76, TABLE III, IV AND V, WALL B OR WALL C WITH CIRCULAR OR ELLIPTICAL REINFORCEMENT

LOCATION	SHEET NO.	ITEM NO.	ELEVATION					DIMENSIONS										
			"A"	"B"	"B1"	"C"	"D"	"E"	"F"	"G"	"H"	"I"	"J"					

STANDARD REVISIONS	
DATE	DESCRIPTION
9/19/17	APPROVED

PERCENT COMPLETE	DATE
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BULLETIN	

CITY OF CHICAGO
DEPARTMENT OF WATER MANAGEMENT
BUREAU OF ENGINEERING SERVICES

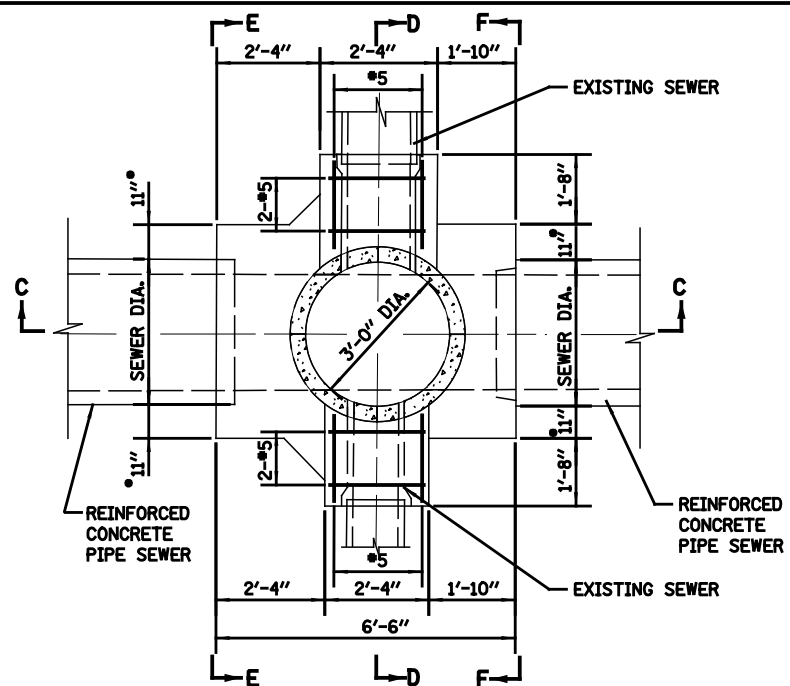
**TYPE C
DOUBLE DROP MANHOLE**

DRAWN:
DESIGNED:
CHECKED:
REVIEWED:

A.16

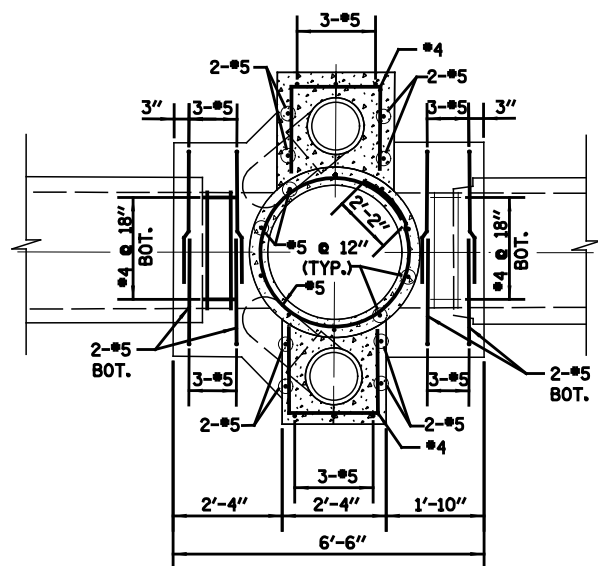
OF _____
PN _____

\$FILES\$
\$DATE\$

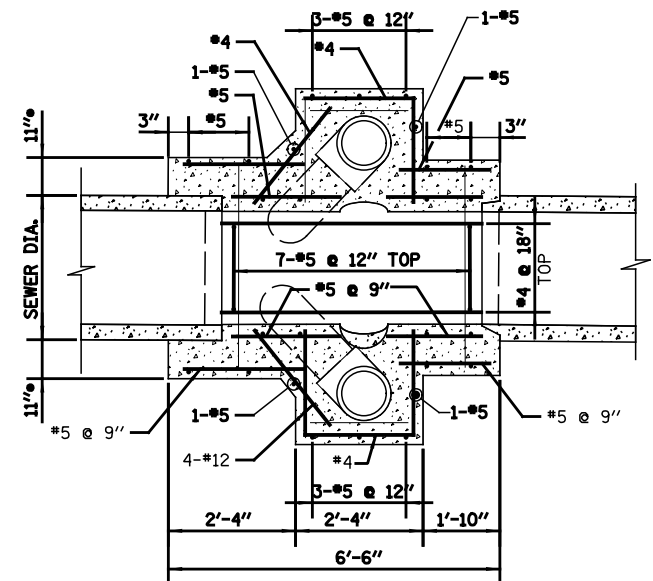


NOTE: # 13" FOR 24" SEWER

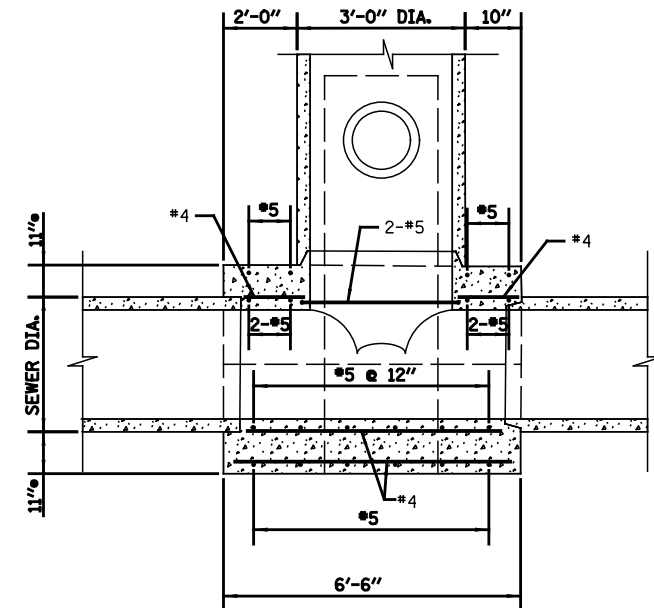
PLAN



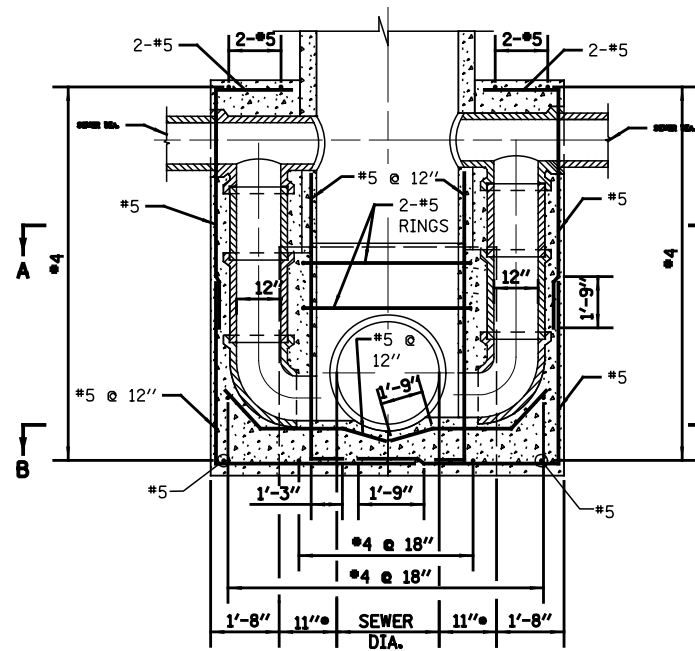
SECTION A-A



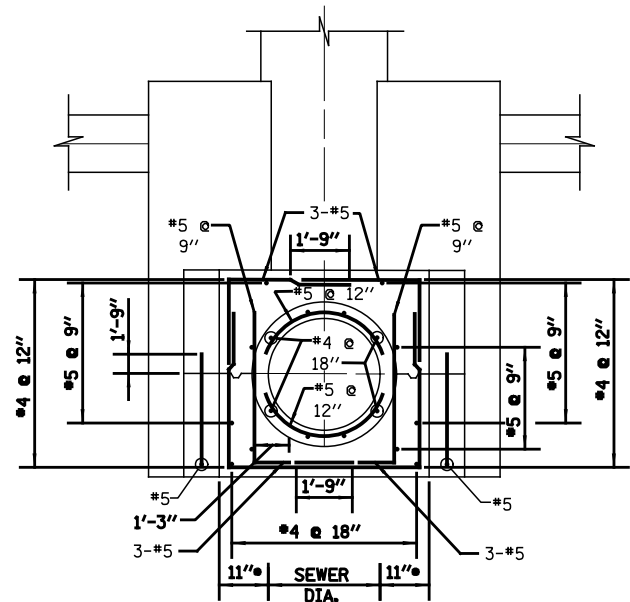
SECTION B-B



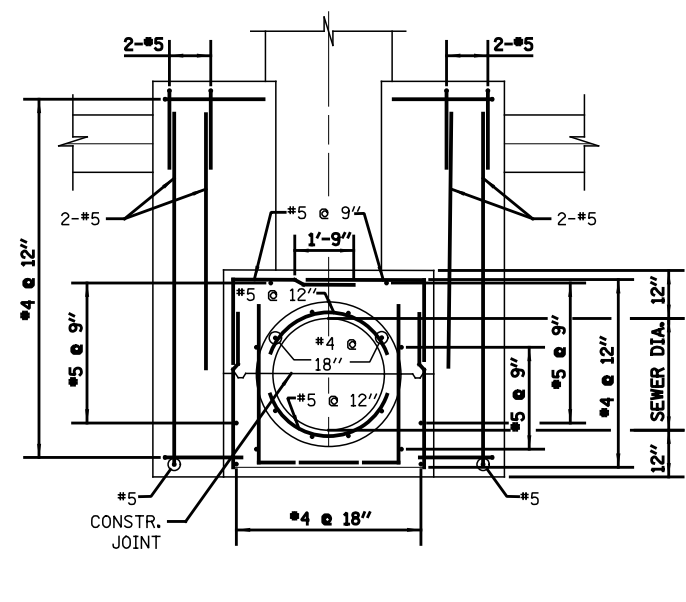
SECTION C-C



SECTION D-D



ELEVATION E-E



ELEVATION F-F

**FOR CONCRETE PIPE SEWERS
24" DIA. TO 48" DIA.**

NOTE: FOR DESIGN ONLY- USE 12" DROP PIPE
FOR THE FOLLOWING DEPTHS OF DWF:
6" DWF-42" LATERAL
7" DWF-36" LATERAL
8" DWF-< 24" LATERAL

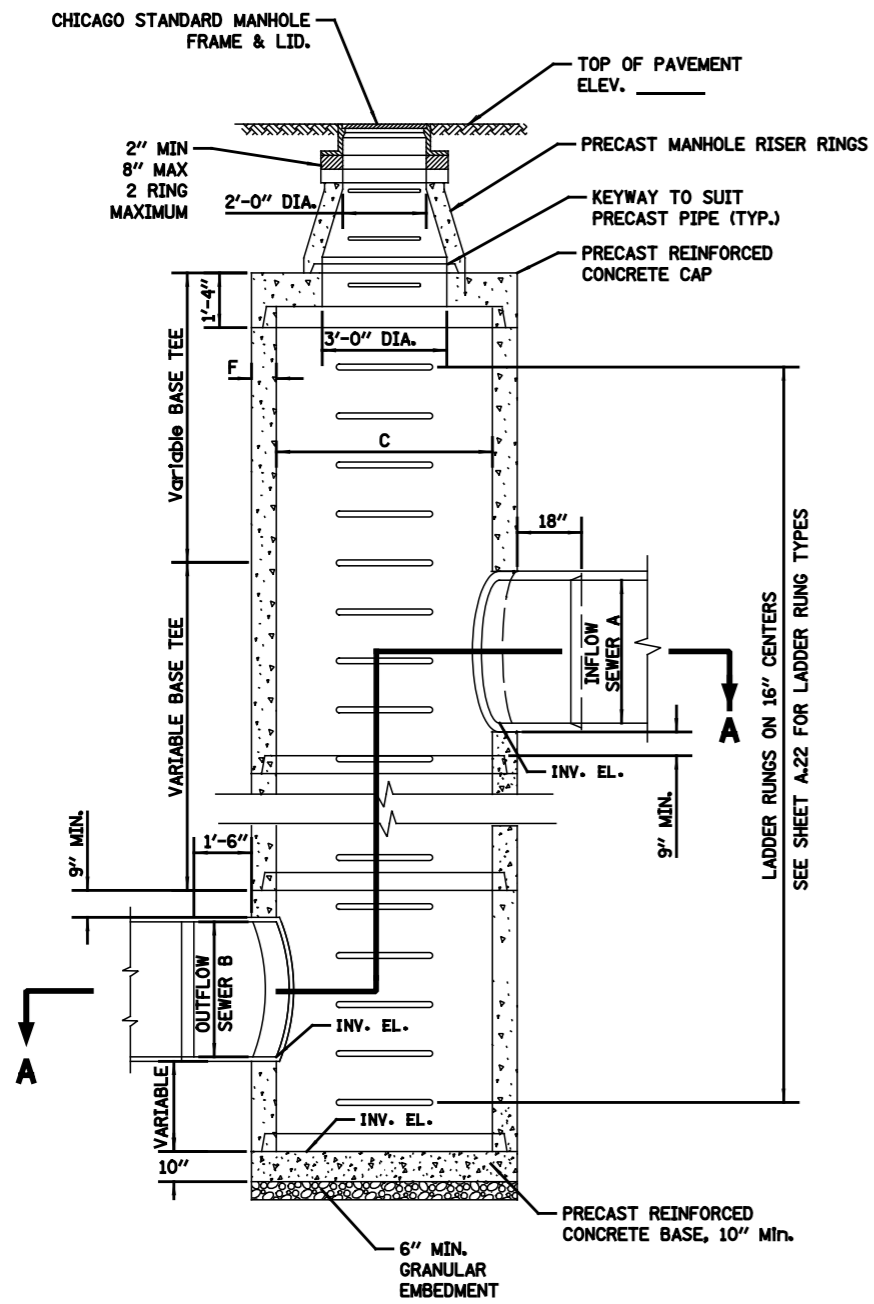
STANDARD REVISIONS	
DATE	DESCRIPTION
9/19/17	APPROVED

PERCENT COMPLETE	DATE
30	
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75	
90	
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BULLETIN	

CITY OF CHICAGO
DEPARTMENT OF WATER MANAGEMENT
BUREAU OF ENGINEERING SERVICES

BASES FOR TYPE C
DOUBLE DROP MANHOLE

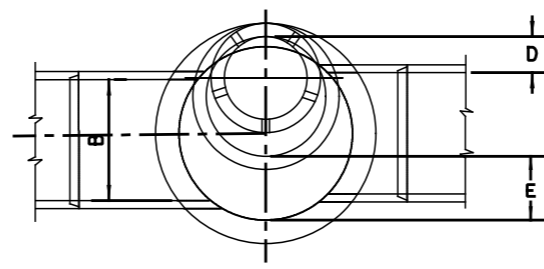
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DESIGNED BY:
CHECKED BY:
REVIEWED BY:
DATE:
OF
PN



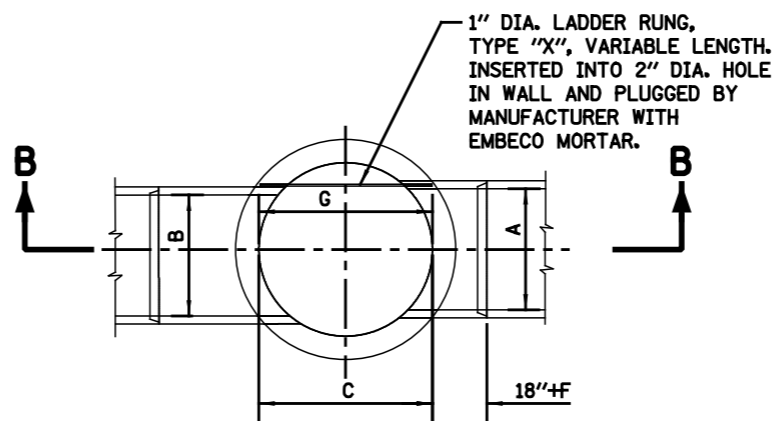
SECTION B-B
SCALE: N.T.S.

PRECAST COMPONENT TABLE							
BASE TEE				WALL THICKNESS	CAP & BASE		LADDER RUNG LENGTH
A	B	C*	D	F	C	E	G
60	60	84	12	8	84	48	48.5
54	54	84	12	7 1/2	78	42	46.5
48	48	72	12	7	72	36	44
42	42	60	9	6	60	24	40
36	36	60	12	6	60	24	40
30	30	48	9	5	48	12	35
24	24	48	12	5	48	12	35

NOTE: ALL MEASUREMENTS ARE IN INCHES
*DIAMETERS >84" UP TO 144" ARE AVAILABLE IN 1' INCREMENTS



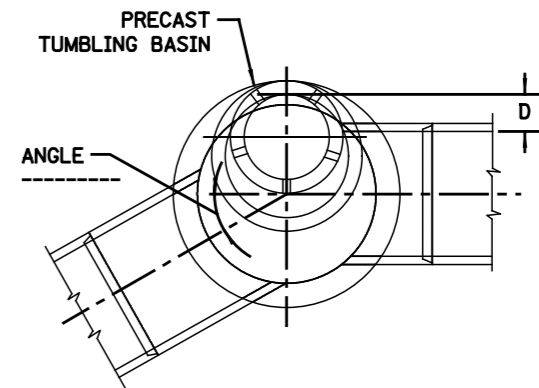
PLAN



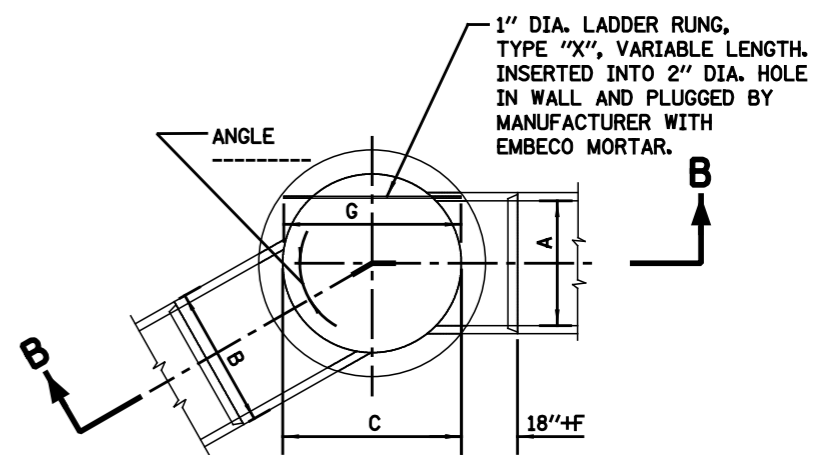
SECTIONAL PLAN A-A

OPTION: W/O BEND

SCALE: N.T.S.



PLAN



SECTIONAL PLAN A-A

OPTION: WITH BEND

SCALE: N.T.S.

NOTES:

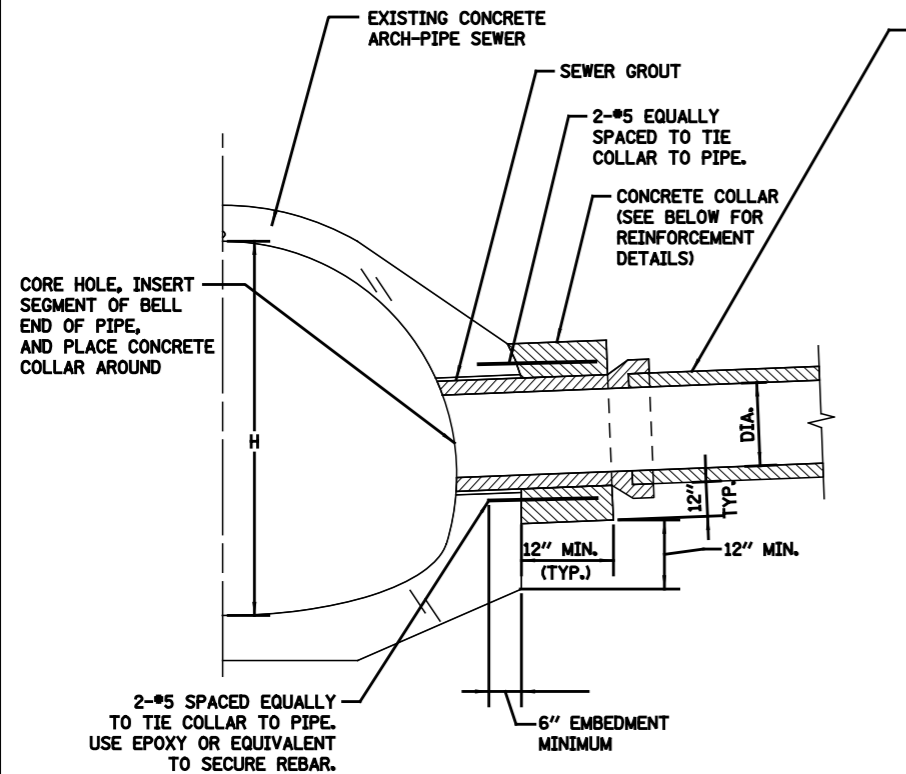
- FOR CONTRACTOR'S RESPONSIBILITY REGARDING STRUCTURAL DRAWING, SEE SPECIFICATIONS, BOOK 3.
- ALL PIPE AND FITTINGS 24 INCHES IN DIAMETER AND LARGER MUST BE CLASS III, IV AND V REINFORCED CONCRETE PIPE AS SPECIFIED IN THE SPECIFICATIONS FOR "REINFORCED CONCRETE CULVERT STORM DRAIN, AND SEWER PIPE," A.S.T.M. DESIGNATION C76, TABLE III, IV AND V, WALL B OR WALL C WITH CIRCULAR OR ELLIPTICAL REINFORCEMENT;
- FOR ADDITIONAL INFORMATION, SEE SPECIFICATIONS, BOOK 3.

STANDARD REVISIONS	
DATE	DESCRIPTION
9/19/17	Approved Plan

PERCENT COMPLETE	DATE
30	
60	
75	
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BULLETIN	

CITY OF CHICAGO DEPARTMENT OF WATER MANAGEMENT BUREAU OF ENGINEERING SERVICES	
PRECAST TUMBLING BASIN DETAILS	

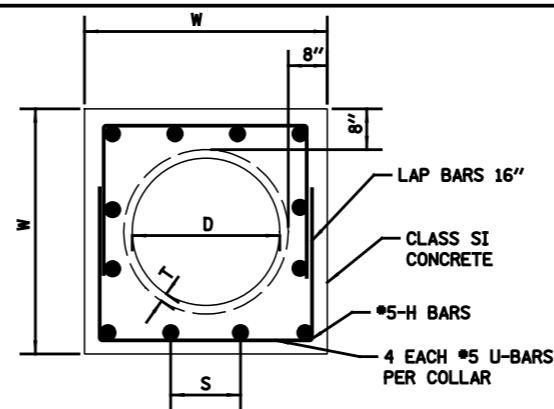
DRAWN BY		A.18
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REVIEWED BY		OF
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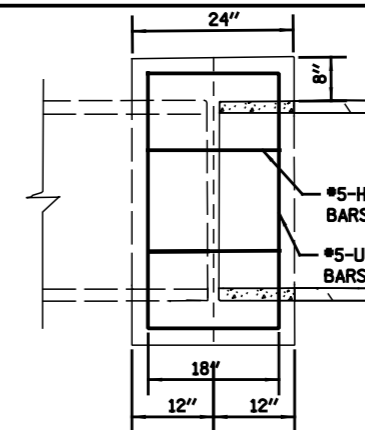
EXAMPLE TYPICAL CONNECTION DETAIL
(NOT TO SCALE)

DIAMETER OF THE CONNECTION SHALL BE EQUAL TO OR LESS THAN H/3. IF DIAMETER IS MORE THAN H/3, A SPECIAL DESIGN APPROVAL IS REQUIRED BY A STRUCTURAL ENGINEER, LICENSED IN THE STATE OF ILLINOIS.

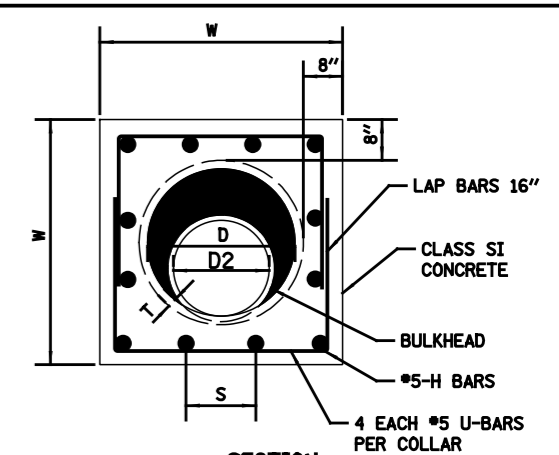
CENTER TO CENTER SPACING OF LATERAL CONNECTIONS TO ARCH PIPES SHALL BE NO LESS THAN 6 TIMES THE DIAMETER OF THE CONNECTION SIZE.



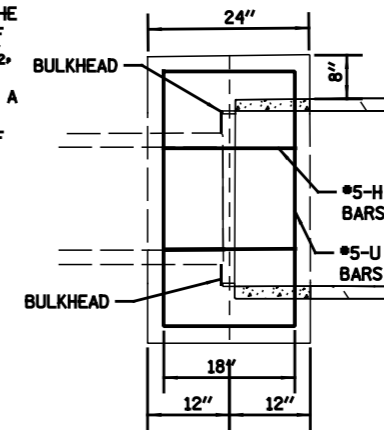
SECTION (SAME DIAMETERS)



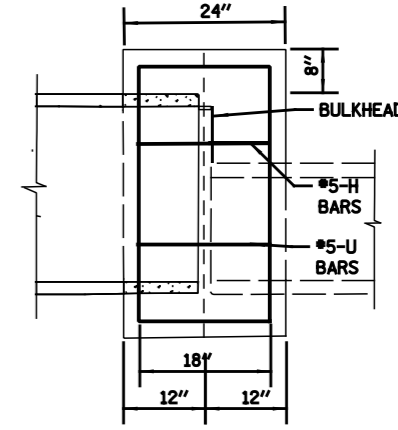
PLAN (SAME DIAMETERS)



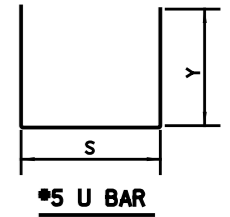
SECTION (DIFFERENT DIAMETERS)



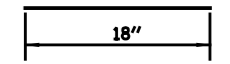
PLAN (DIFFERENT DIAMETERS)



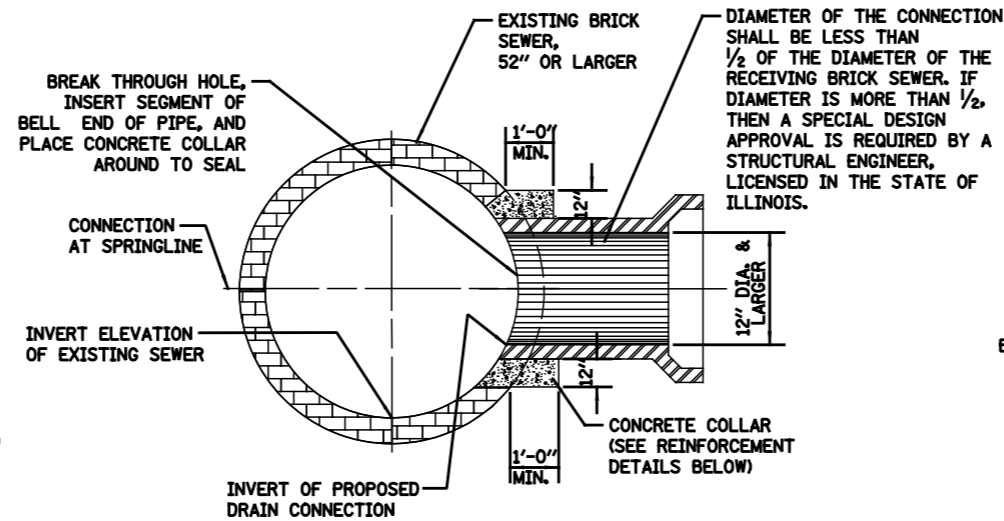
PROFILE (DIFFERENT DIAMETERS)



#5 U BAR



#5 H BAR



EXAMPLE TYPICAL BRICK SEWER CONNECTION FOR CONNECTING PIPE SIZES GREATER THAN 12\"/>

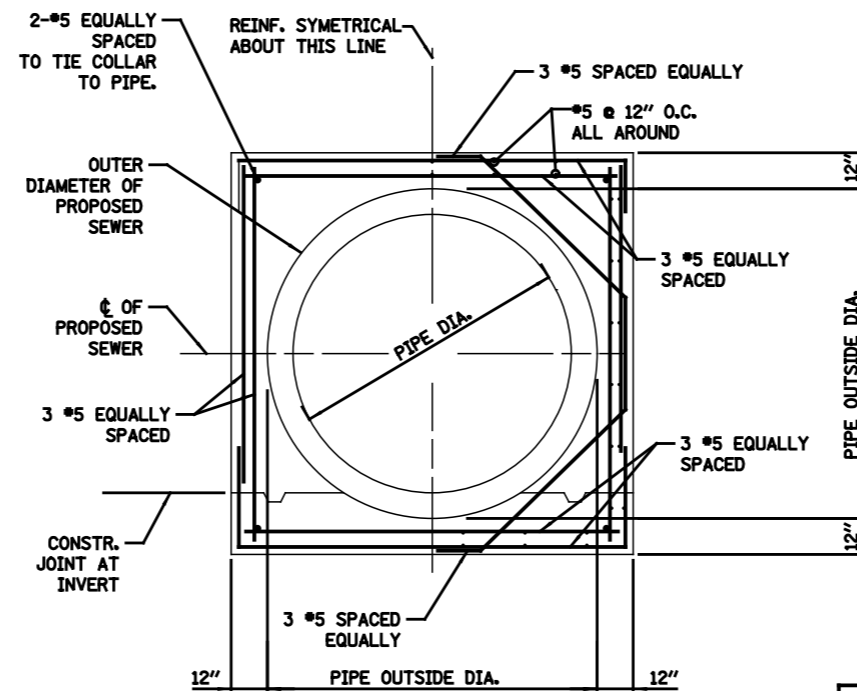
DIAMETER OF THE CONNECTION SHALL BE LESS THAN 1/2 OF THE DIAMETER OF THE RECEIVING BRICK SEWER. IF DIAMETER IS MORE THAN 1/2, THEN A SPECIAL DESIGN APPROVAL IS REQUIRED BY A STRUCTURAL ENGINEER, LICENSED IN THE STATE OF ILLINOIS.

CONCRETE COLLAR NOTES:

1. ALL ITEMS AND MATERIALS SHALL CONFORM TO THE LATEST IDOT SSRBC SPECIFICATIONS, UNLESS OTHERWISE NOTED IN SUPPLEMENTAL SPECIFICATIONS FOR THE SPECIFIC PROJECT BEING CONSTRUCTED.
2. ALL CONCRETE SHALL CONFORM TO IDOT SSRBC ARTICLE 1020.04, CLASS SI, WITH A COMPRESSIVE STRENGTH OF 3500 PSI.
3. ALL EPOXY COATED REINFORCEMENT BARS SHALL CONFORM TO IDOT SSRBC SECTION 508, AND ARTICLE 1006.10.
4. UNLESS OTHERWISE SHOWN, THE COVER FOR REINFORCING STEEL SHALL BE AS FOLLOWS: A.) CONCRETE CAST AGAINST PERMANENTLY EXPOSED EARTH: 3\"/>

NOTES

1. IF DIFFERENT PIPE SIZES ARE BEING CONNECTED, STEEL REINFORCEMENT BARS SHALL BE SUPPLIED AS GIVEN IN TABLE BELOW FOR THE LARGER DIAMETER PIPE.
2. CONTRACTOR SHALL PROVIDE BULKHEAD TO KEEP CONCRETE FROM SPILLING INTO LARGER PIPE. BULKHEAD MUST BE REMOVED, OR LEFT IN PLACE, ONLY AS APPROVED BY THE COMMISSIONER.



EXAMPLE CONCRETE COLLAR REINFORCEMENT - SECTION
(NOT TO SCALE)

PIPE TO PIPE REINFORCED CONCRETE COLLAR DETAIL
SCALE: N.T.S.

D	T	W	U BAR				H BAR				CLASS SI CONCRETE	#5 EPOXY REBAR
			X	Y	QTY	LENGTH	S	QTY	LENGTH			
24	3.00	46.0	40.00	28.00	4	32.0	9 5/8	16.0	24.0	0.72	58.4	
27	3.25	49.5	43.50	29.75	4	34.3	10 1/2	16.0	24.0	0.81	60.8	
30	3.50	53.0	47.00	31.50	4	36.7	11 3/8	16.0	24.0	0.89	63.3	
33	3.75	56.5	50.50	33.25	4	39.0	9 4/5	20.0	30.0	0.98	72.0	
36	4.00	60.0	54.00	35.00	4	41.3	10 1/2	20.0	30.0	1.07	74.4	
42	4.50	67.0	61.00	38.50	4	46.0	9 7/8	24.0	36.0	1.26	85.5	
48	5.00	74.0	68.00	42.00	4	50.7	11 1/8	24.0	36.0	1.46	90.4	

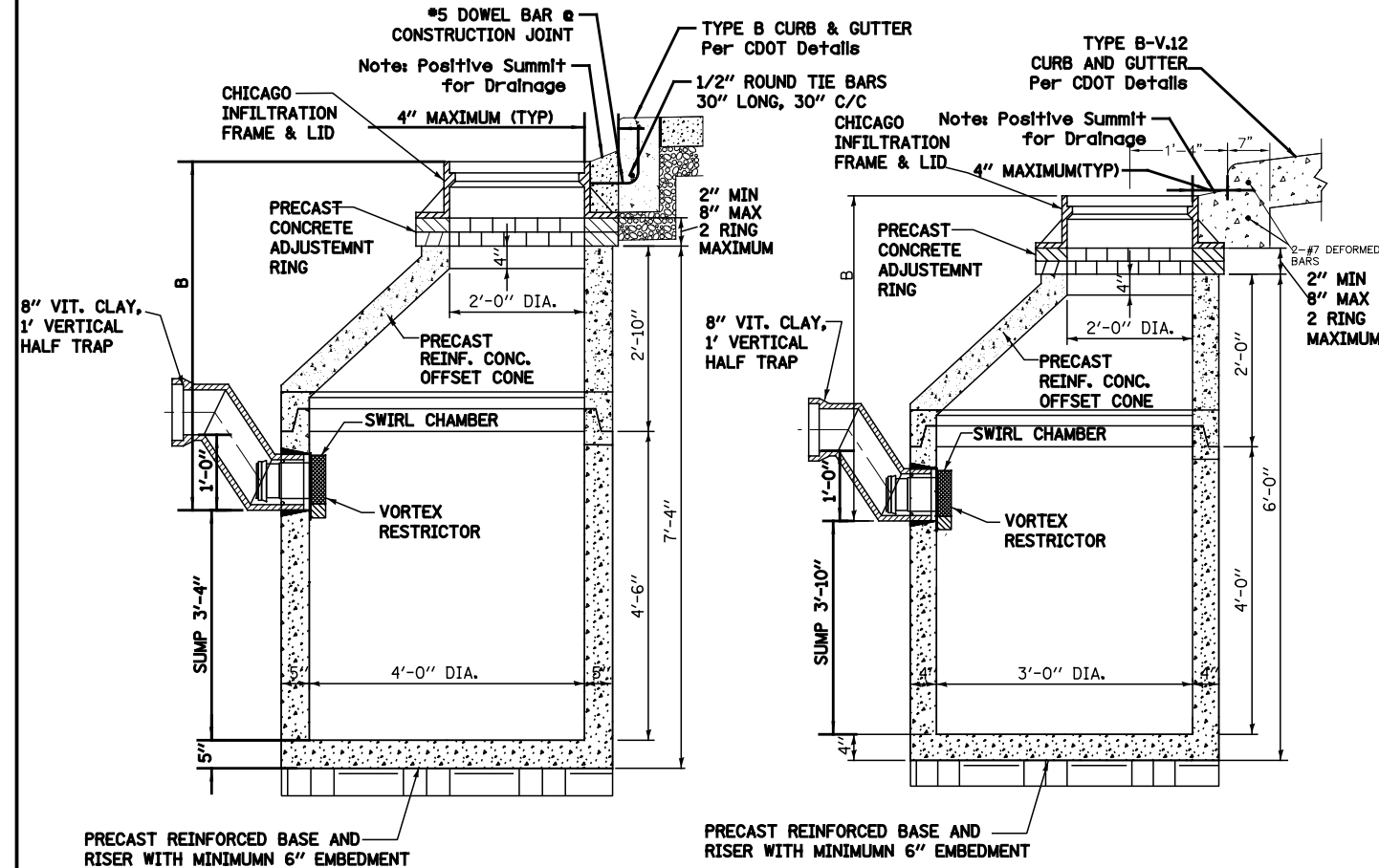
STANDARD REVISIONS	
DATE	DESCRIPTION
7/3/2018	APPROVED PLAN

PERCENT COMPLETE	DATE
30	
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CITY OF CHICAGO DEPARTMENT OF WATER MANAGEMENT BUREAU OF ENGINEERING SERVICES	
CONCRETE COLLAR / CONNECTION DETAILS	

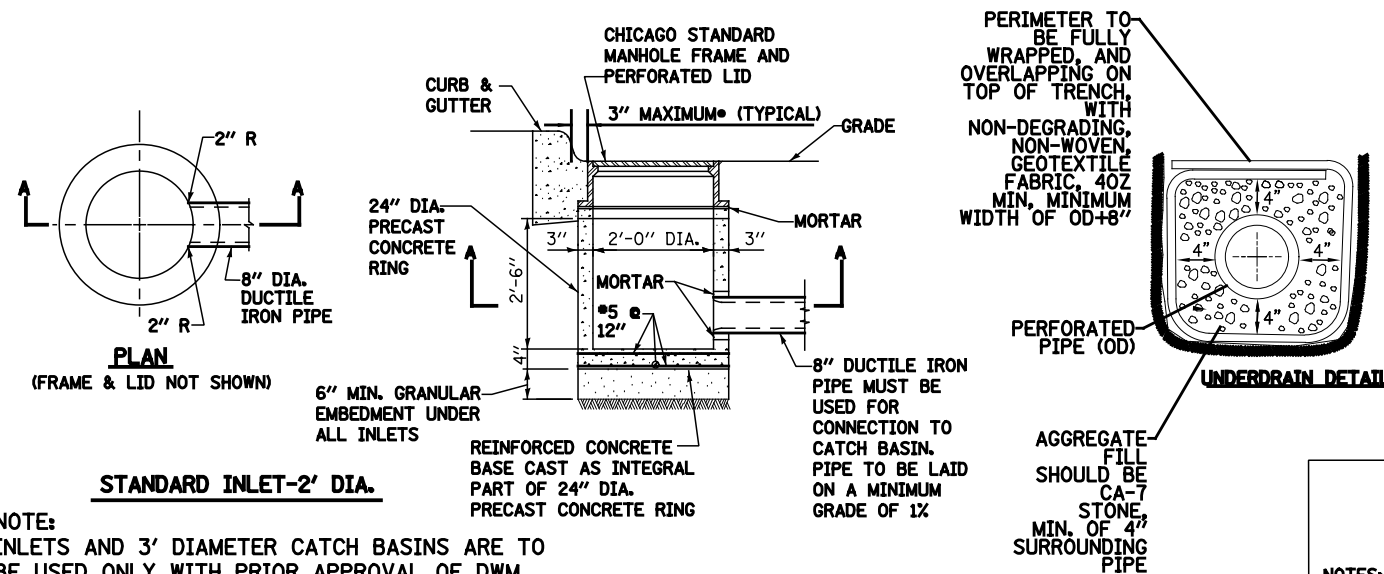
DESIGNED: _____	A.19
CHECKED: _____	
REVISED: _____	OF _____
PN _____	

STANDARD DRAINAGE STRUCTURES FOR PUBLIC STREETS



STANDARD CATCH BASIN-4' DIA.

STANDARD CATCH BASIN-3' DIA.



STANDARD INLET-2' DIA.

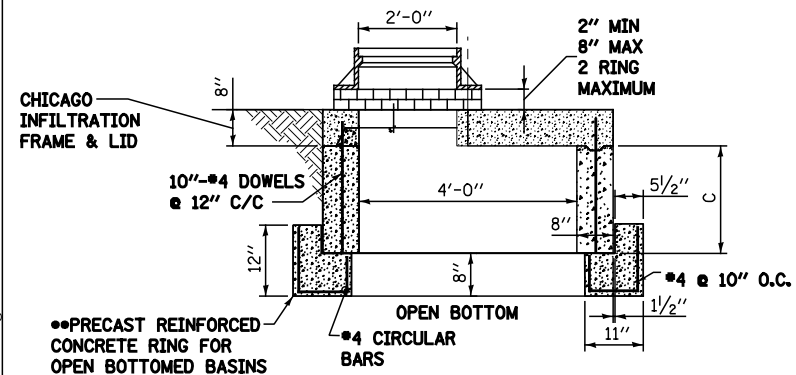
UNDERDRAIN DETAIL

NOTE:
INLETS AND 3' DIAMETER CATCH BASINS ARE TO BE USED ONLY WITH PRIOR APPROVAL OF DWM SEWER ENGINEER OR FIELD INSPECTOR.

1. FOR TRENCH BACKFILL, REFER TO IDOT SSRBC, ARTICLE 1003.04.
2. FOR GRANULAR EMBEDMENT, USE CA-11, CRUSHED GRAVEL, CRUSHED STONE, OR CRUSHED CONCRETE.
3. FOR STABILIZATION STONE, 12" OF CA-1 STONE IS ONLY REQUIRED WHEN UNSTABLE MATERIAL IS ENCOUNTERED AT TRENCH BOTTOM.

• OUTER EDGE OF FRAME TO FACE OF CURB

STANDARD DRAINAGE STRUCTURES FOR PUBLIC ALLEYS

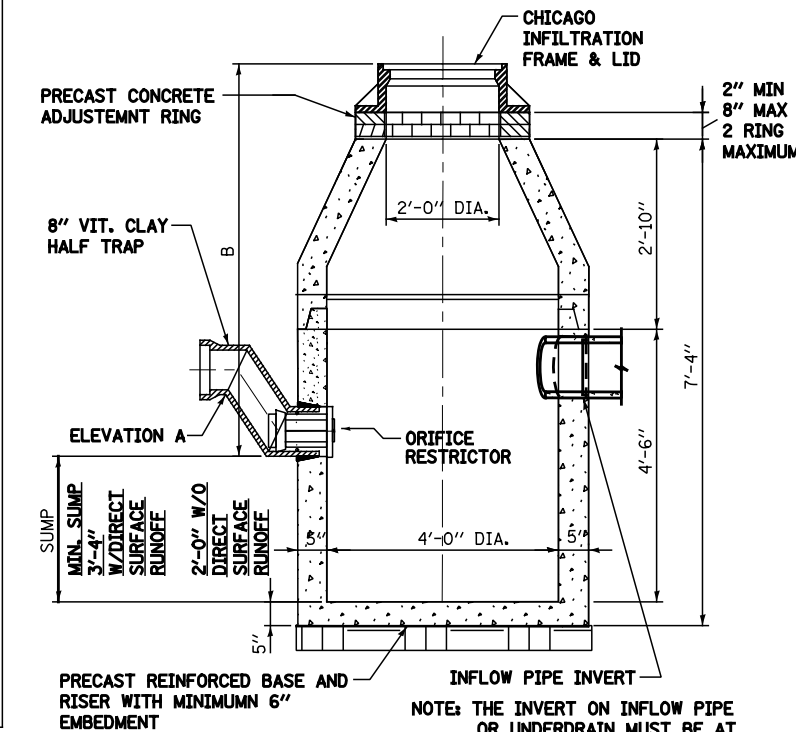


GREEN ALLEY OPEN BOTTOM CATCH BASIN

TO BE USED IF STANDARD CONE WITH REQUIRED SUMP DEPTH INSTALLATION IS IMPOSSIBLE.

• IF FLAT TOP SLAB CATCH BASIN IS USED IN AN OPEN BOTTOM APPLICATION, THE FOLLOWING CRITERIA MUST BE FOLLOWED:

- "C" MUST BE A MINIMUM OF 3 FEET.
- PROVIDE A MINIMUM AGGREGATE BASE OF 1.0 FEET BELOW PRECAST REINFORCED CONCRETE RING.
- GEOTECH FABRIC MUST BE PLACED ON SIDES AND BOTTOM OF AGGREGATE SURROUNDING BASIN.
- AGGREGATE BASE MUST PROVIDE ADEQUATE STORMWATER STORAGE CAPACITY PER THE APPROVED/PERMITTED PLANS.

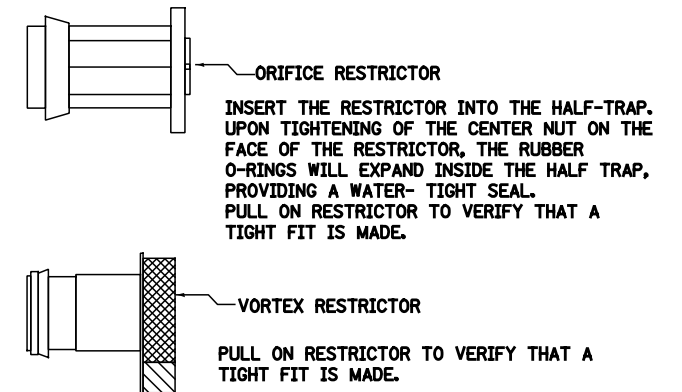


CATCH BASIN-ORIFICE RESTRICTOR

N.T.S.

- NOTES:
1. FOR ANY DRAIN TILE CONNECTION, THE WATER TABLE MUST BE AT LEAST 3.5 FEET BELOW ELEVATION A.
 2. PVC UNDERDRAINS MUST BE 4" MINIMUM DIAMETER, (6" RECOMMENDED) AND MUST BE WRAPPED IN GEOTECH FABRIC.

DRAINAGE STRUCTURES RESTRICTORS



GENERAL NOTES:

1. CATCH BASIN TO CATCH BASIN CONNECTIONS ARE ALLOWED IN PRIVATE SITES & ALLEYS. ONLY THE DOWNSTREAM CATCH BASIN IS REQUIRED TO HAVE A HALF-TRAP.
2. IF B < 4 FEET, THEN USE A DUCTILE IRON PIPE HALF TRAP AND FLAT TOP SLAB CATCH BASIN AS NECESSARY.
3. INLETS AND 3' DIAMETER CATCH BASINS ARE TO BE USED ONLY WITH PRIOR APPROVAL OF DWM FIELD INSPECTOR.

RESTRICTOR NOTES:

THE DWM'S RAIN BLOCKER RESTRICTOR PROGRAM MUST BE MAINTAINED WITH ANY ROADWAY IMPROVEMENT.

THE DESIGN OF ANY ROADWAY IMPROVEMENT MUST CONSIDER LIMITING THE NUMBER OF CATCH BASINS TO THE EXTENT PRACTICAL. THE NUMBER OF EXISTING STRUCTURES SHOULD NOT BE INCREASED.

THE RESTRICTORS CAN BE OBTAINED FROM DWM CENTRAL DISTRICT AT 3901 S. ASHLAND AVE. THE CONTRACTOR SHOULD ARRANGE FOR PICK UP BY CONTACTING 312-747-8736 (7AM TO 3PM, M-F). CONTRACTOR MUST CALL 48 HOURS IN ADVANCE OF PICK UP DATE AND TIME.

FLOW RESTRICTORS MUST BE INSTALLED IN ALL CATCH BASINS OUTSIDE OF THE CENTRAL BUSINESS DISTRICT. RESTRICTORS MUST NOT BE INSTALLED IN CATCH BASINS IN CLOSE PROXIMITY TO VIADUCT AREAS, BUS STOPS, OR EMERGENCY ENTRANCES. THE DWM MUST APPROVE THE NON-INSTALLATION OR REMOVAL OF ANY RESTRICTOR. REQUIREMENTS FOR RESTRICTOR INSTALLATION ARE AS FOLLOWS:

- ARTERIAL STREETS: 3-INCH ORIFICE RESTRICTOR
- BUS ROUTES: 3-INCH ORIFICE RESTRICTOR
- RESIDENTIAL STREETS: 3-INCH VORTEX RESTRICTOR
- ALLEYS: 3-INCH ORIFICE RESTRICTOR IN THE LAST CB.
- CLOSED LIDS ARE REQUIRED ON ALL MANHOLES EXCEPT AT INTERSECTIONS WHERE A PERFORATED LID SHALL BE USED.

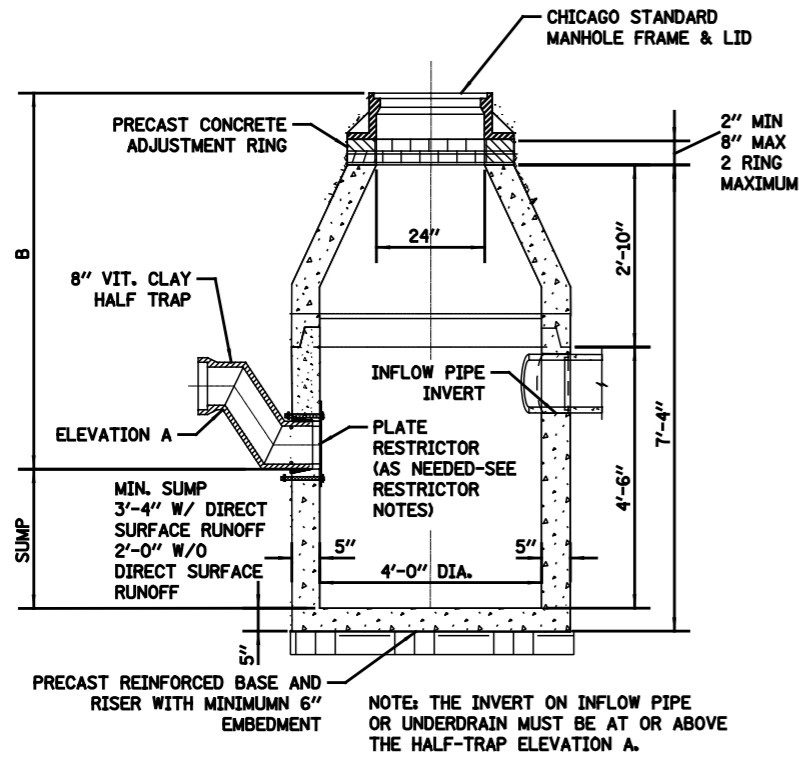
STANDARD REVISIONS	
DATE	DESCRIPTION
10/27/17	APPROVED

PERCENT COMPLETE	DATE
30	
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BULLETIN	

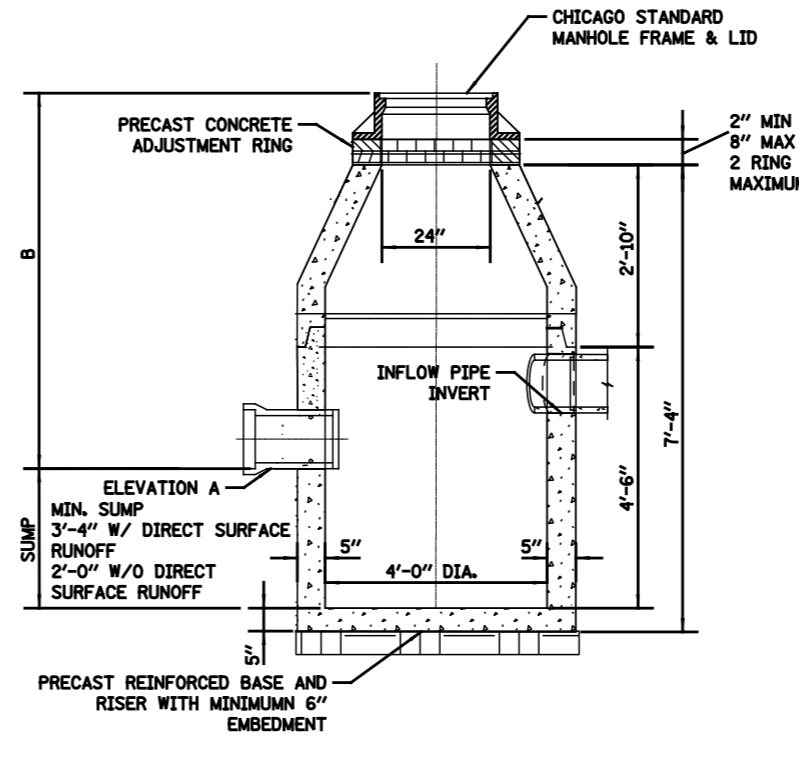
CITY OF CHICAGO DEPARTMENT OF WATER MANAGEMENT BUREAU OF ENGINEERING SERVICES	
DRAWN: SBW	
CHECKED:	
REVIEWED:	
DRAINAGE STRUCTURE DETAILS	

A.20
OF
PN

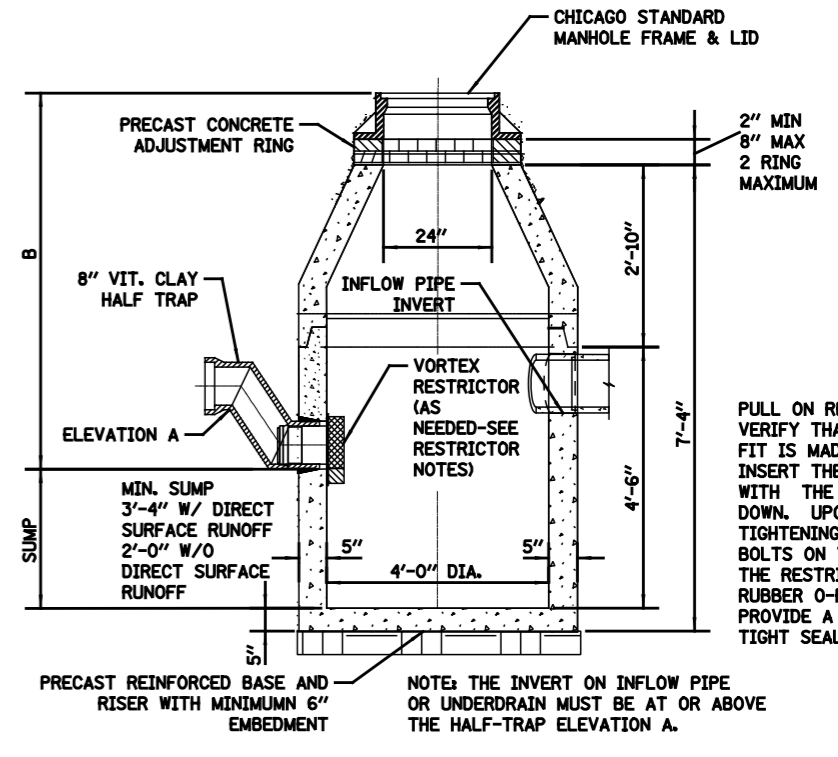
STANDARD DRAINAGE STRUCTURES FOR PRIVATE DEVELOPMENT



**PLATE RESTRICTOR CATCH BASIN
CONICAL SECTION
N.T.S.**



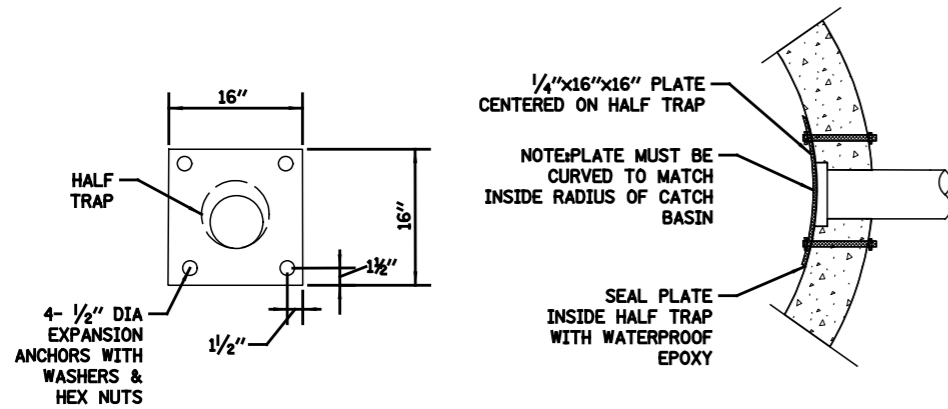
**STANDARD CATCH BASIN
CONICAL SECTION
N.T.S.**



**VORTEX RESTRICTOR CATCH BASIN
CONICAL SECTION
N.T.S.**

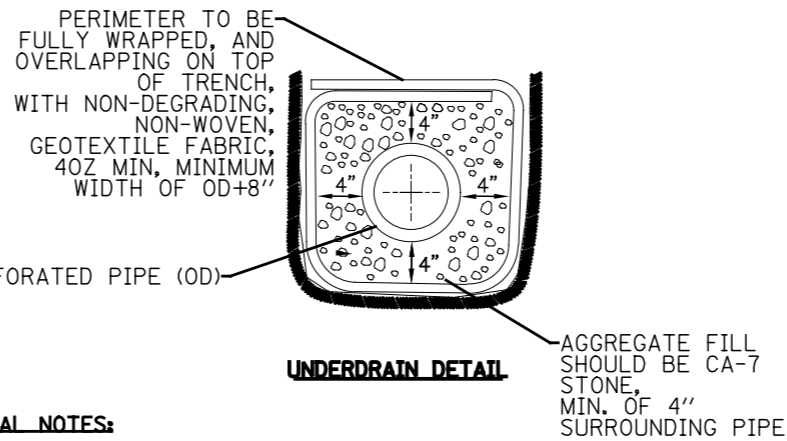
PULL ON RESTRICTOR TO VERIFY THAT A TIGHT FIT IS MADE. INSERT THE RESTRICTOR WITH THE OPENING DOWN. UPON TIGHTENING OF THE 2 BOLTS ON THE FACE OF THE RESTRICTOR, THE RUBBER O-RINGS WILL PROVIDE A WATER-TIGHT SEAL.

NOTE: THE INVERT ON INFLOW PIPE OR UNDERDRAIN MUST BE AT OR ABOVE THE HALF-TRAP ELEVATION A.



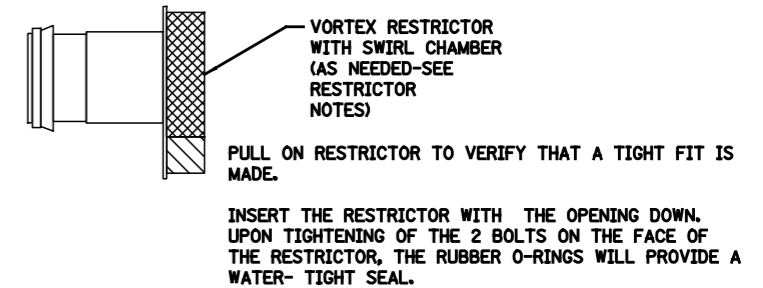
NOTES:

1. THE RESTRICTOR MUST BE INSTALLED IN CATCH BASINS OR MANHOLES WITH 2' MIN. SUMPS.
2. PLATE AND FASTENERS MUST BE FABRICATED IN STAINLESS STEEL, DUCTILE IRON, OR EQUIVALENT WATERPROOF/WEATHER PROOF MATERIALS.
3. MIN. ORIFICE SIZE= 2.5" DIA.
4. IF B < 4 FEET, THEN USE A FLAT TOP SLAB CATCH BASIN AS NECESSARY.



GENERAL NOTES:

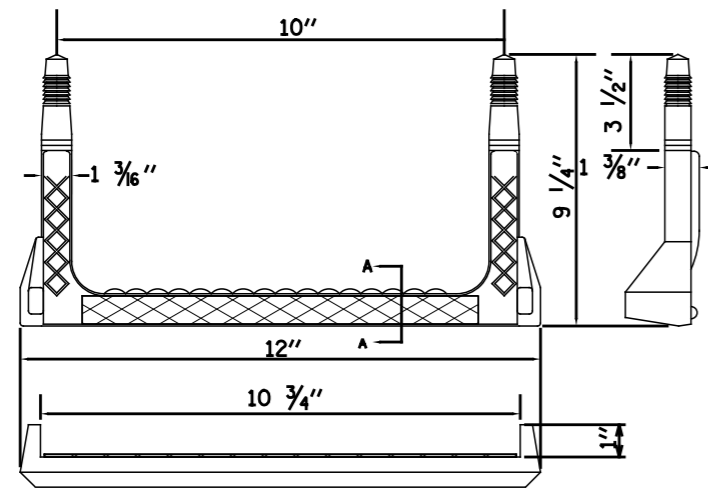
1. CATCH BASIN TO CATCH BASIN CONNECTIONS ARE ALLOWED IN PRIVATE SITES & ALLEYS. ONLY THE DOWNSTREAM CATCH BASIN IS REQUIRED TO HAVE A HALF-TRAP.
2. IF B < 4 FEET, THEN USE A FLAT TOP SLAB CATCH BASIN AS NECESSARY.
3. FOR TRENCH BACKFILL, REFER TO IDOT SSRBC, ARTICLE 1003.04.
4. FOR GRANULAR EMBEDMENT, USE CA-11, CRUSHED GRAVEL, CRUSHED STONE, OR CRUSHED CONCRETE.
5. FOR STABILIZATION STONE, 12" OF CA-1 STONE IS ONLY REQUIRED WHEN UNSTABLE MATERIAL IS ENCOUNTERED AT TRENCH BOTTOM.
6. INLETS AND 3' DIAMETER CATCH BASINS ARE TO BE USED ONLY WITH PRIOR APPROVAL OF THE DEPT OF WATER MANAGEMENT- ENGINEERING SERVICES, SEWER SECTION, AND THE DEPT. OF BUILDINGS STORMWATER REVIEWER.



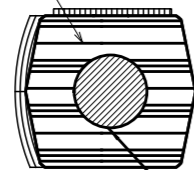
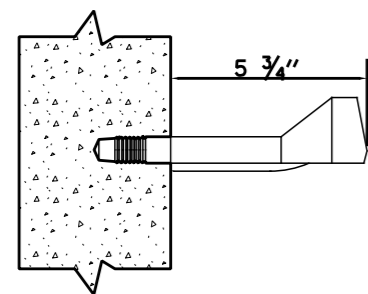
NOTES:

1. IF B < 4 FEET, THEN USE A FLAT TOP SLAB CATCH BASIN AS NECESSARY.
2. THE RESTRICTORS CAN BE OBTAINED FROM DWM CENTRAL DISTRICT AT 3901 S. ASHLAND AVE. THE CONTRACTOR SHOULD ARRANGE FOR PICK UP BY CONTACTING 312-747-8736 (7AM TO 3PM, M-F). CONTRACTOR MUST CALL 48 HOURS IN ADVANCE OF PICK UP DATE AND TIME.

STANDARD REVISIONS		PERCENT COMPLETE	DATE	CITY OF CHICAGO DEPARTMENT OF WATER MANAGEMENT BUREAU OF ENGINEERING SERVICES	DRAWN	DATE
DATE	DESCRIPTION					
10/27/17	APPROVED PLAN	30		DRAINAGE STRUCTURE DETAILS PRIVATE DEVELOPMENT	CHECKED	A.21 OF PN
		60			REVIEWED	
		75				
		90				
		100				
		BULLETIN				



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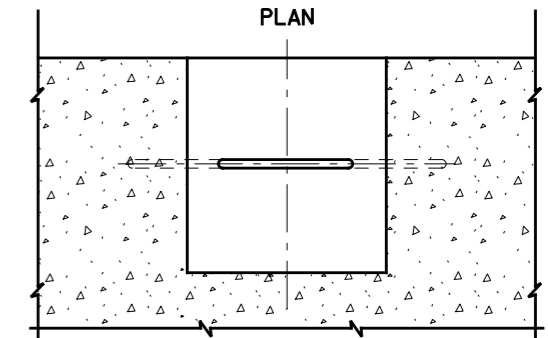
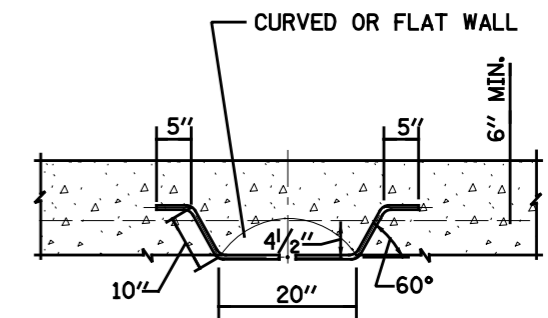
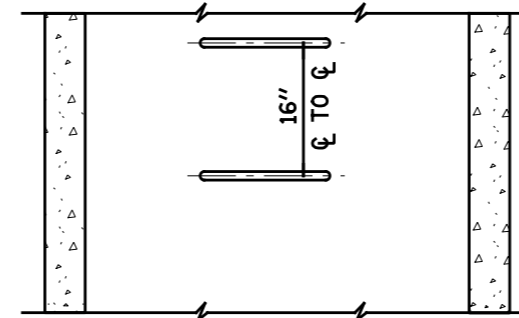
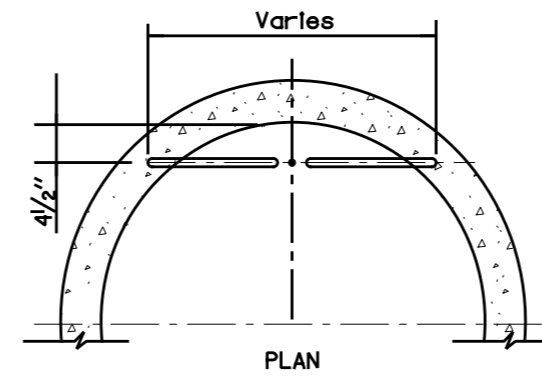


3/16" SOLID ALUMINUM
BAR REINFORCEMENT

SECTION-A

RECTANGULAR STEP LADDER RUNG

FOR USE ONLY IN 48" DIAMETER
AND LARGER MANHOLES.



ELEVATION
TYPE Y
BASE

NOTES:

1. VERTICAL SPACING = 16" O.C., ON VERTICAL WALL ONLY.
2. STEPS SHALL MEET THE REQUIREMENTS OF ASTM C478 IN ADDITION TO A HORIZONTAL PULL-OUT LOAD OF 1000 LBS. WHEN INSTALLED.
3. ALL STEPS SHALL BE VERTICALLY ALIGNED IN A STRAIGHT LINE.
4. MINIMUM CONCRETE STRENGTH MUST BE 3000 PSI
5. HOLES- PREFORMED/DRILLED
 - A. HOLES MUST BE PARALLEL
 - B. HOLES MUST BE 10" CENTERED, 1" DIAMETER
 - C. MINIMUM DEPTH- 3 1/2" TO 3 3/4"

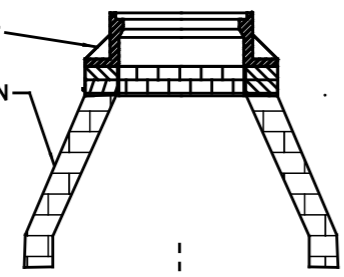
STANDARD REVISIONS	
DATE	DESCRIPTION
5/8/17	APPROVED PLAN

PERCENT COMPLETE	DATE
30	
60	
75	
90	
100	
BULLETIN	

CITY OF CHICAGO DEPARTMENT OF WATER MANAGEMENT BUREAU OF ENGINEERING SERVICES	
LADDER RUNGS	

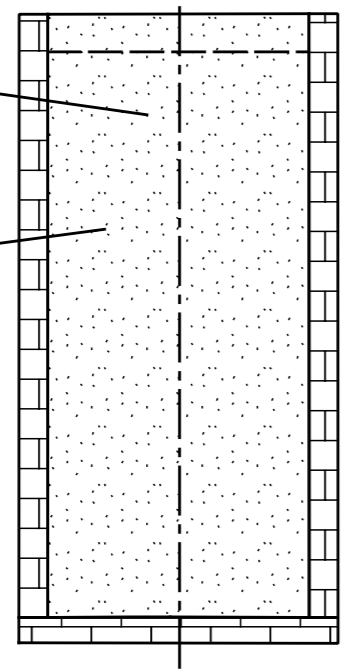
DESIGNED: _____	DATE: _____	A.22
CHECKED: _____	DATE: _____	
REVISED: _____	DATE: _____	OF _____
		PN _____

REMOVE FRAME, LID AND
ADJUSTING RINGS
REMOVE CONE SECTION



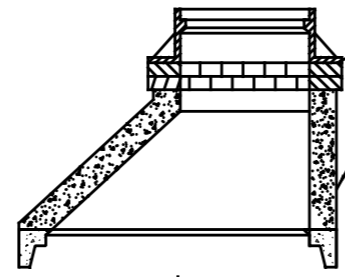
FILL WITH SAND OR
CLSM/FLOWABLE FILL

SEAL ALL OPENINGS
WITH BRICK
AND MORTAR



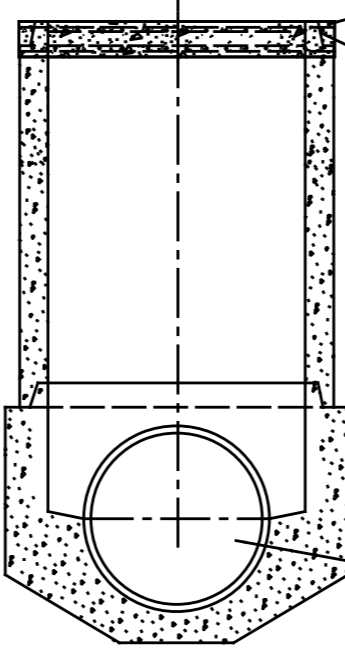
ABANDON CATCH BASIN

REMOVE FRAME, LID AND
ADJUSTING RINGS
REMOVE CONE SECTION



REINFORCED FLAT
TOP SLAB (SEE NOTE BELOW)

USE MORTAR
OR SEALER

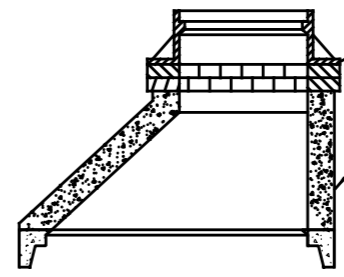


MAINTAIN FLOW
IF PIPE IS NOT
ABANDONED

ABANDON MANHOLES

REMOVE FRAME, LID AND
ADJUSTING RINGS

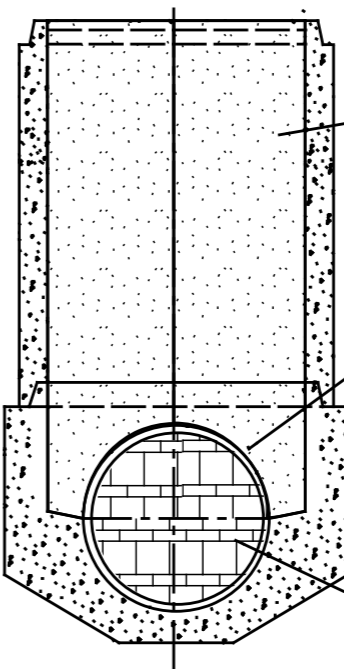
REMOVE CONE SECTION



FILL WITH SAND OR
CLSM/FLOWABLE FILL

FILL WITH CLSM/FLOWABLE
FILL TO 6" ABOVE
SEWER CROWN

SEAL ALL OPENINGS WITH BRICK
AND MORTAR IF PIPE TO BE ABANDONED
IS LESS THAN 24"



HMA SURFACE COURSE
MIX "D", 1 1/2",
TYPE TO MEET
STREET CLASSIFICATION

P.C. CONCRETE BASE COURSE,
DEPTH BASE TO GRADE

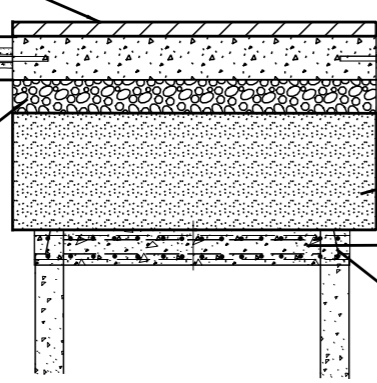
SUB-BASE GRANULAR MATERIAL,
TYPE B, 6" MIN.

#5 TIE BARS, 18" LONG,
DRILLED AND GROUTED
INTO EXISTING BASE, 30"
C/C AS REQUIRED (TYP.)

TRENCH BACKFILL

REINFORCED FLAT
TOP SLAB

USE MORTAR
OR SEALER



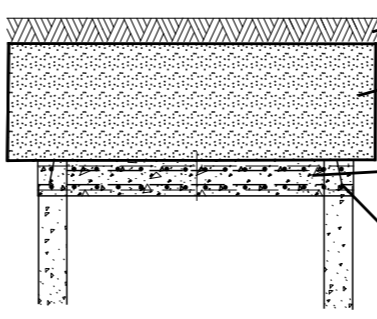
IN PAVEMENT AREA

4" TOPSOIL

TRENCH BACKFILL

REINFORCED FLAT
TOP SLAB

USE MORTAR
OR SEALER



IN LANDSCAPE AREA

NOTE
REINFORCED FLAT TOP SLAB.
SEE IDOT STD. 602601-03 OR CURRENT
MODIFIED WITH NO ACCESS HOLE

STANDARD REVISIONS	
DATE	DESCRIPTION
10/15/15	APPROVED PLAN

PERCENT COMPLETE	DATE
30	
60	
75	
90	
100	
BULLETIN	

CITY OF CHICAGO	
DEPARTMENT OF WATER MANAGEMENT BUREAU OF ENGINEERING SERVICES	
ABANDONED SEWER STRUCTURE DETAILS	

DATE	
DESIGNED	
CHECKED	
REVIEWED	

A.23

OF
PN