

STORM WATER SEWER NO. 581
to serve
COPPER GATE ESTATES - PHASE I
CITY OF WICHITA, KANSAS

Neil D. Cable, P.E. City Engineer

Project Number

468-83559

OCA Number

751327

BENCHMARKS:

City of Wichita benchmark at
the SE corner of intersection
of 135th Street West and 13th
Street North.
Elev. = 167.83 (City Datum)

BOOKED
1-2-04
MLG
C-256

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GENERAL NOTES:

1. Contractor will be required to provide notice to utility companies a minimum of twenty-four (24) hours prior to any excavation, as follows:

Kansas One-Call 687-2470

The Contractor must notify the following in case of an emergency:

Cox Communications	262-4270
Kansas Gas Service	1-888-482-4950
Westar Energy	383-8850
Aquila Energy	1-888-482-4950
Southwestern Bell	268-2245
City of Wichita Water Dept.	268-4563
City of Wichita Sewer Maint.	268-4024
City of Wichita Storm Sewer Maint.	268-4090
City of Wichita Traffic Maint.	268-4034

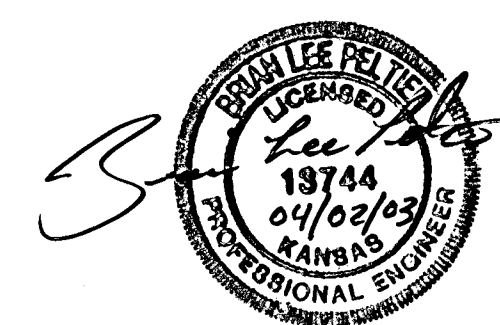
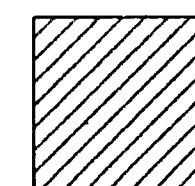
2. Underground utility service lines and overhead utility pole lines are to be adjusted as necessary by others prior to construction unless the plans specifically call for their adjustment by the Contractor or unless the plans specifically identify a utility to be adjusted by its owner during construction. Existing utilities and their location, as shown on the plans, represent the best information obtainable for design. The Contractor will be required to work around existing utilities within the right-of-way which do not conflict with proposed construction.

3. Trees and shrubs in public right-of-way which are in direct conflict with proposed new construction shall be removed by the Contractor with the Engineer's approval. Trees and shrubs which are not in direct conflict with proposed new construction shall be saved and protected from damage.

4. The Contractor shall give all property owners and/or tenants of developed property abutting the construction of this project a minimum of ten (10) days advance notice prior to start of construction.

5. The Contractor shall be responsible for preserving property irons. The Contractor will be required to re-establish any property irons which are damaged or destroyed by his construction operations. Such irons shall be re-established by a licensed land surveyor in accordance with state laws.

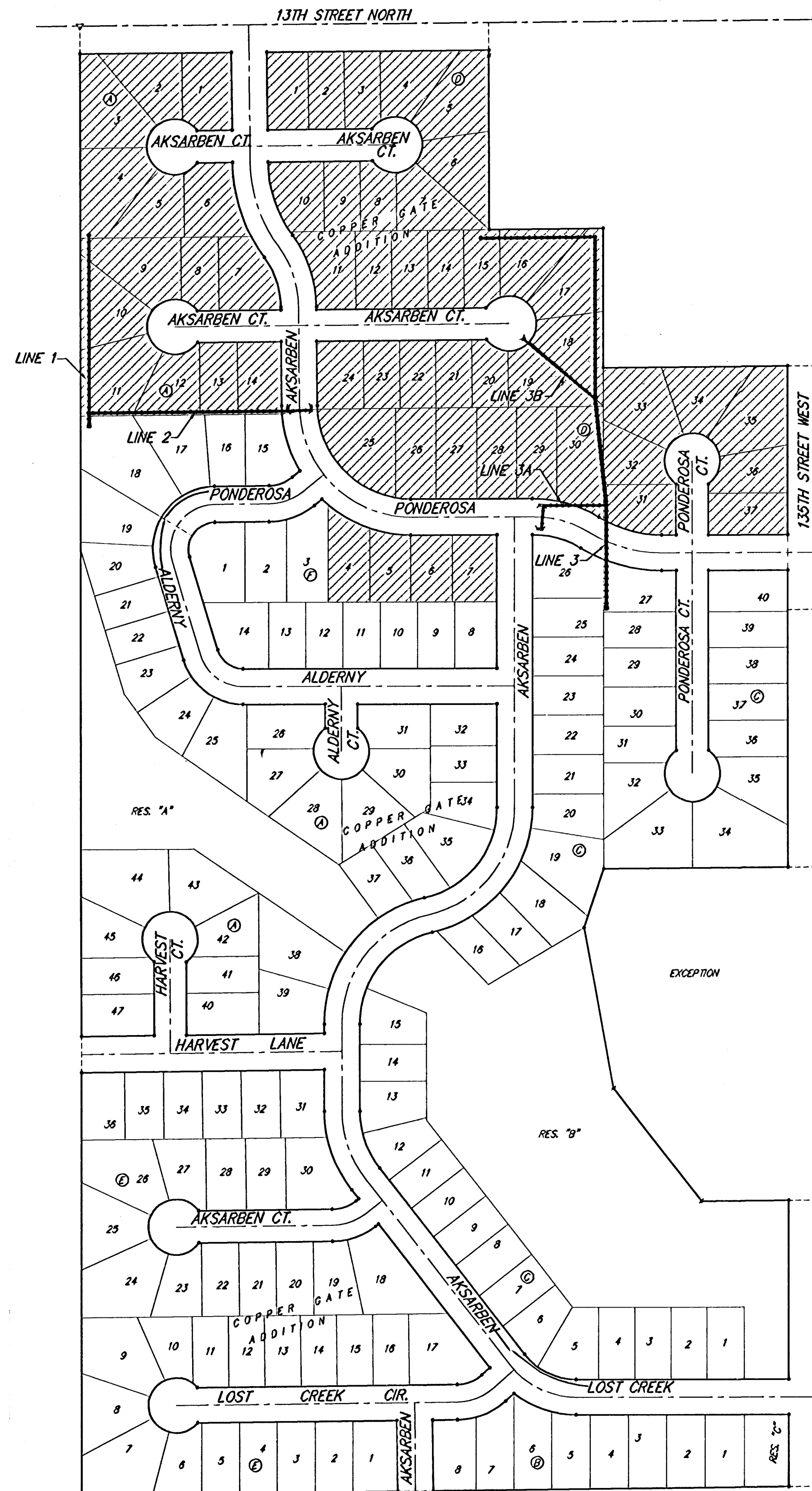
Benefit District



Vicinity Map

As Built per Plan Unless Noted Otherwise
7/03 KK

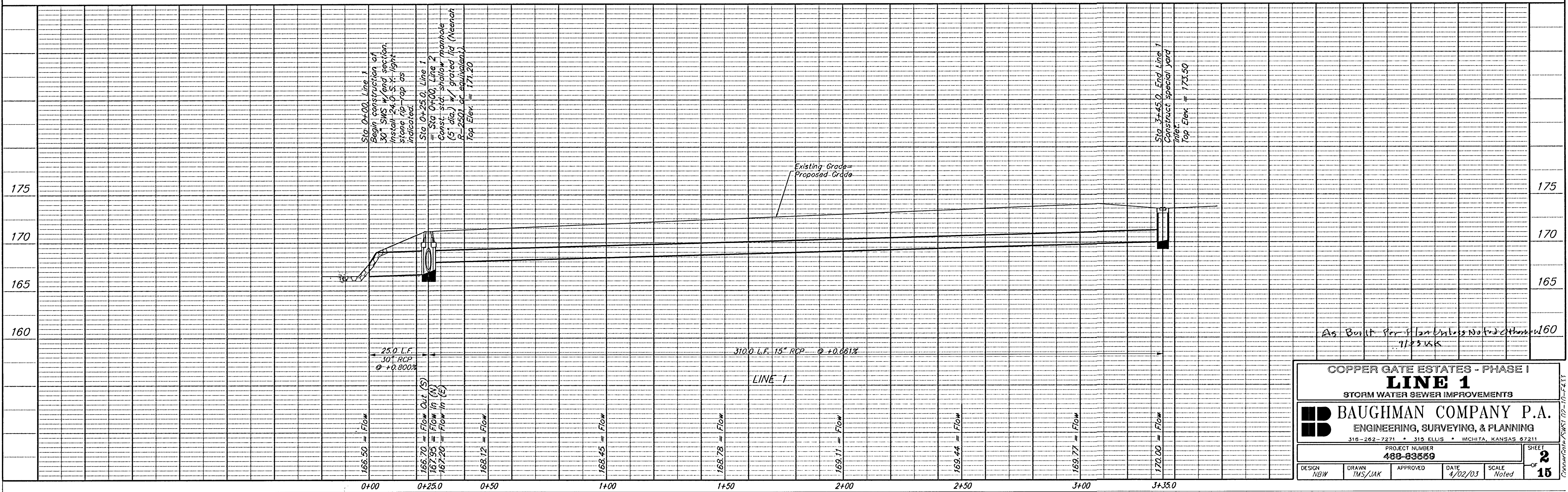
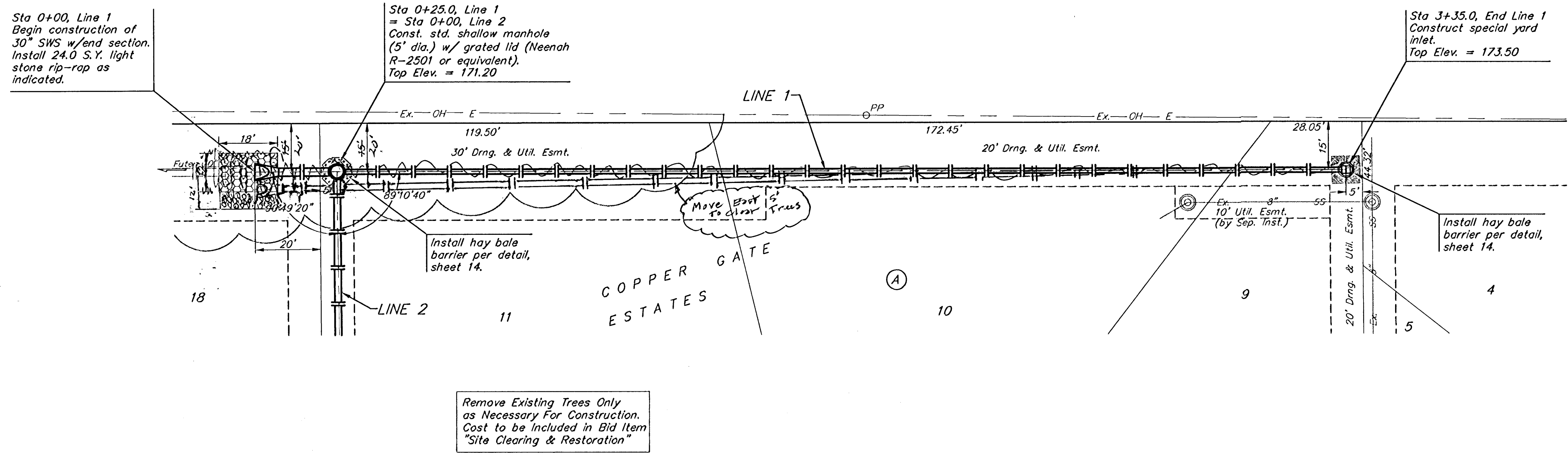
BAUGHMAN COMPANY P.A.
ENGINEERING, SURVEYING, & PLANNING
318-262-7271 • 315 ELLIS • WICHITA, KANSAS 67211



Scale: 1" = 150'

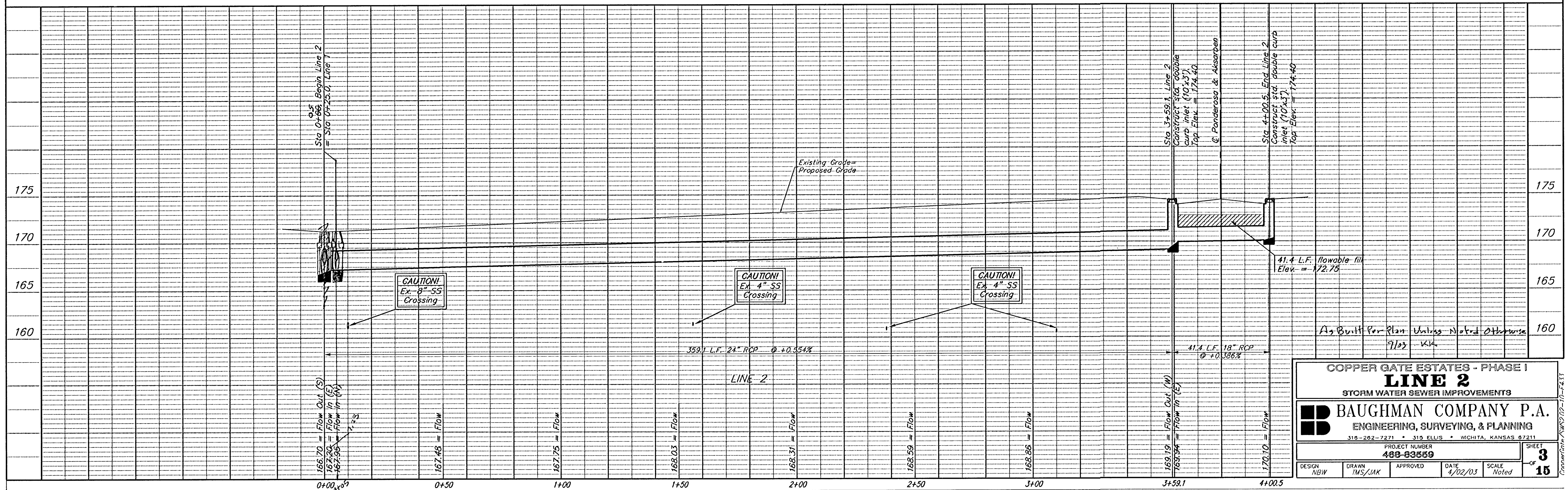
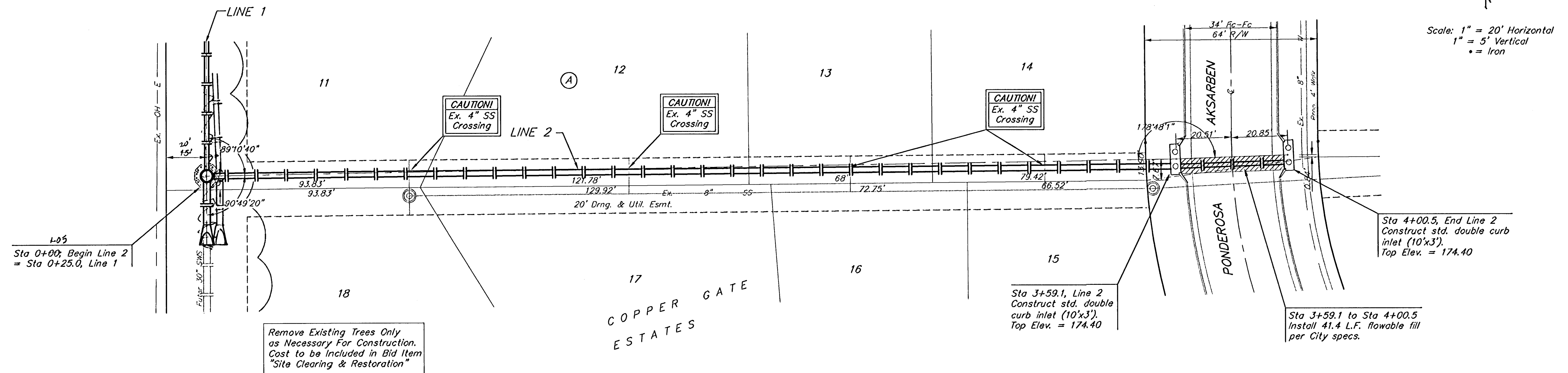
BENCHMARK:
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Scale: 1" = 20' Horizontal
1" = 5' Vertical
• = Iron



COPPER GATE ESTATES - PHASE I				
LINE 1				
STORM WATER SEWER IMPROVEMENTS				
BAUGHMAN COMPANY P.A.				
ENGINEERING, SURVEYING, & PLANNING				
316-262-7271 • 315 ELLIS • WICHITA, KANSAS 67211				
PROJECT NUMBER				
488-83559				
DESIGN	DRAWN	APPROVED	DATE	SCALE
NBW	TMS/JAK		4/02/03	Noted
SHEET				OF
2				15

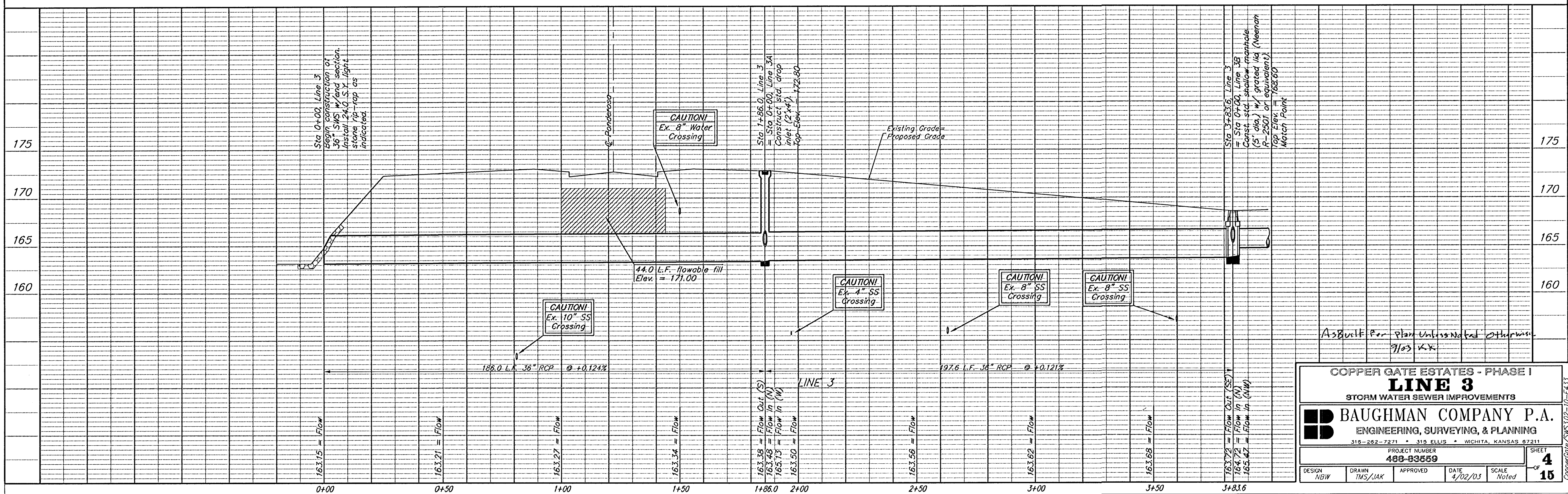
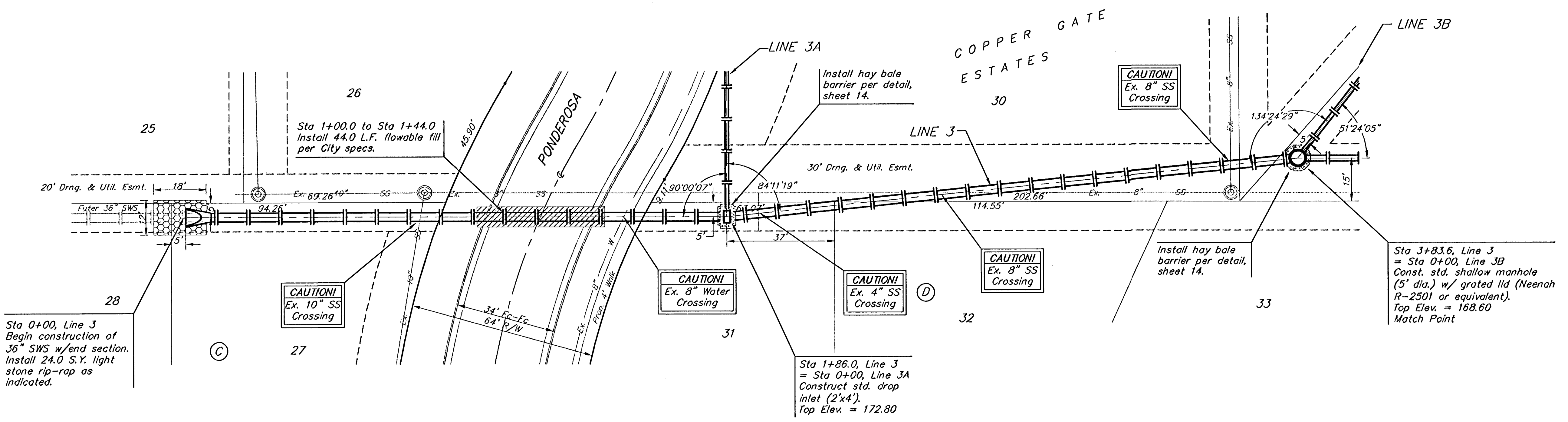
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COPPER GATE ESTATES - PHASE I				
LINE 2				
STORM WATER SEWER IMPROVEMENTS				
BAUGHMAN COMPANY P.A.				
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PROJECT NUMBER				
488-83559				
DESIGN	DRAWN	APPROVED	DATE	SCALE
NBW	IMS/JAK		4/02/03	Noted
SHEET				3
				OF 15

BENCHMARK:
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COPPER GATE ESTATES - PHASE I
LINE 3
STORM WATER SEWER IMPROVEMENTS

BAUGHMAN COMPANY P.A.
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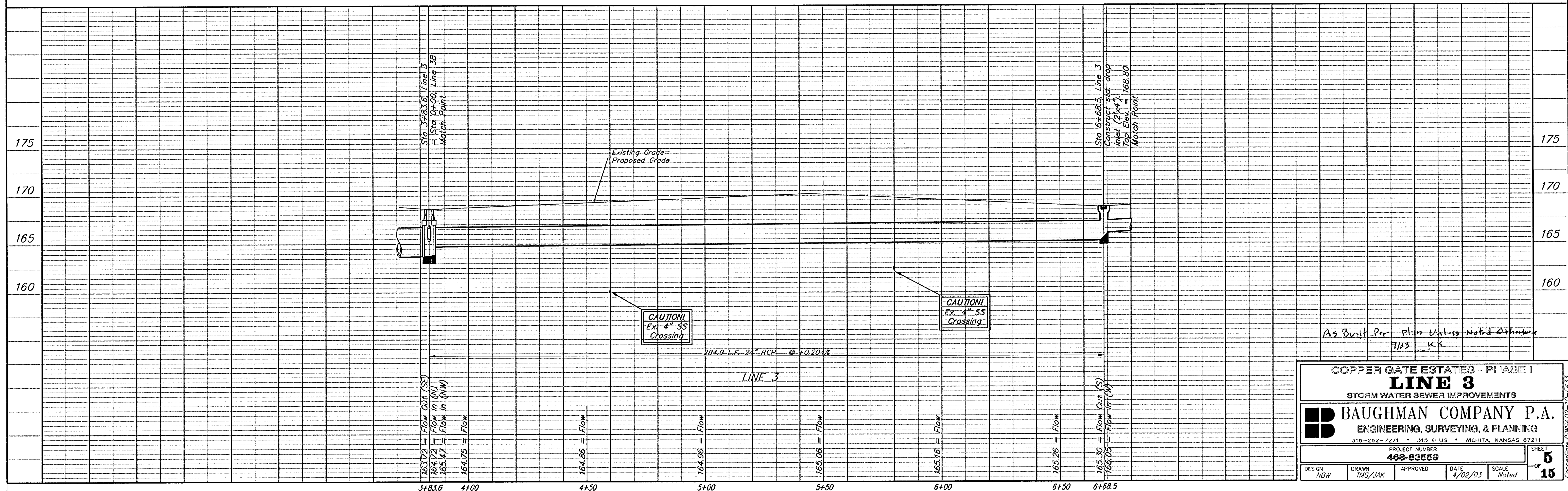
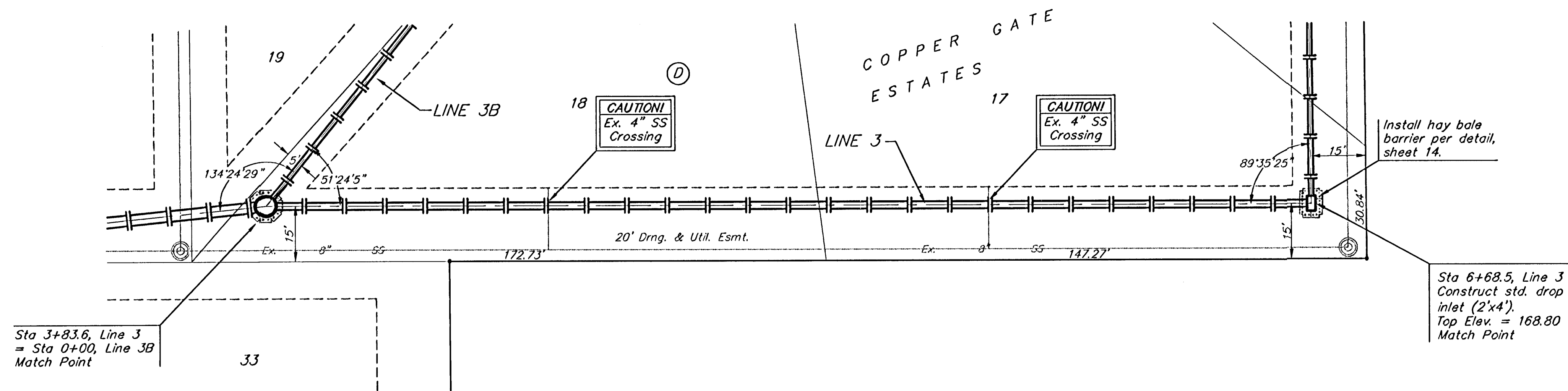
PROJECT NUMBER
488-83559

DESIGN: NBW DRAWN: IMS/JAK APPROVED: DATE: 4/02/03 SCALE: Noted

SHEET
OF
4
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BENCHMARK:
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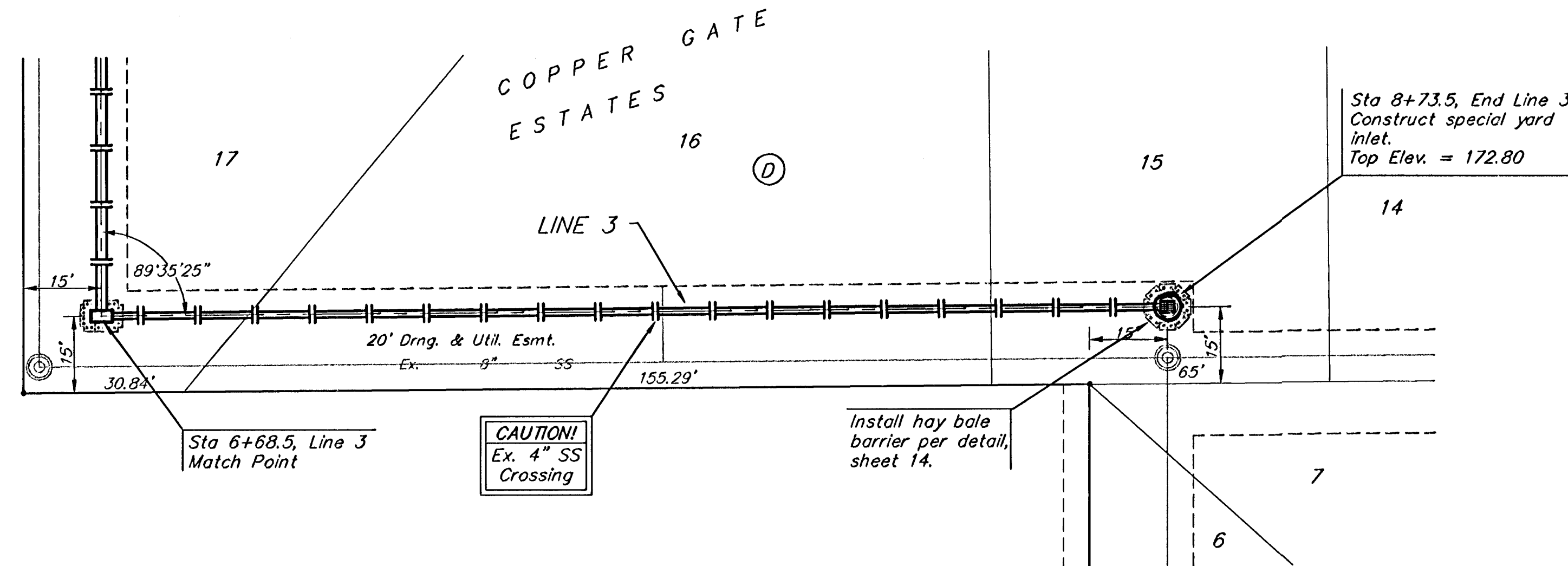
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• = Iron



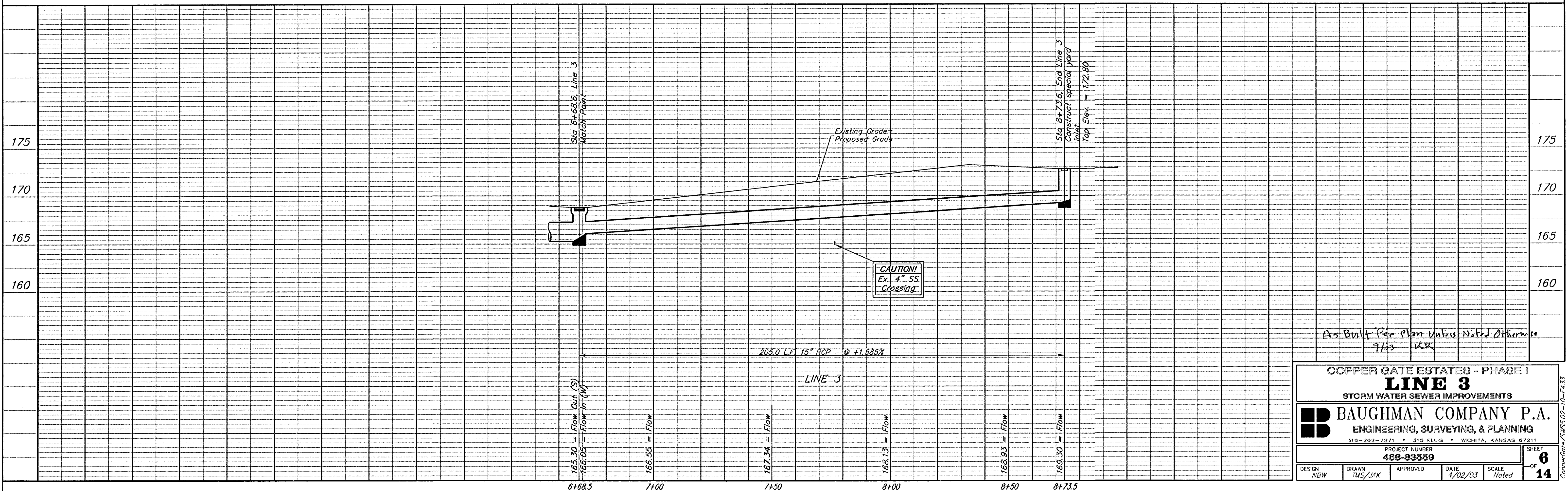
As Built Per Plan Unless Noted Otherwise
7/03 KK

COPPER GATE ESTATES - PHASE I			
LINE 3			
STORM WATER SEWER IMPROVEMENTS			
BAUGHMAN COMPANY P.A.			
ENGINEERING, SURVEYING, & PLANNING			
316-282-7271 • 315 ELLIS • WICHITA, KANSAS 67211			
PROJECT NUMBER 488-83559			
DESIGN NBW	DRAWN TMS/LAK	APPROVED	DATE 4/02/03
SCALE Noted		SHEET 5 OF 15	

BENCHMARK:
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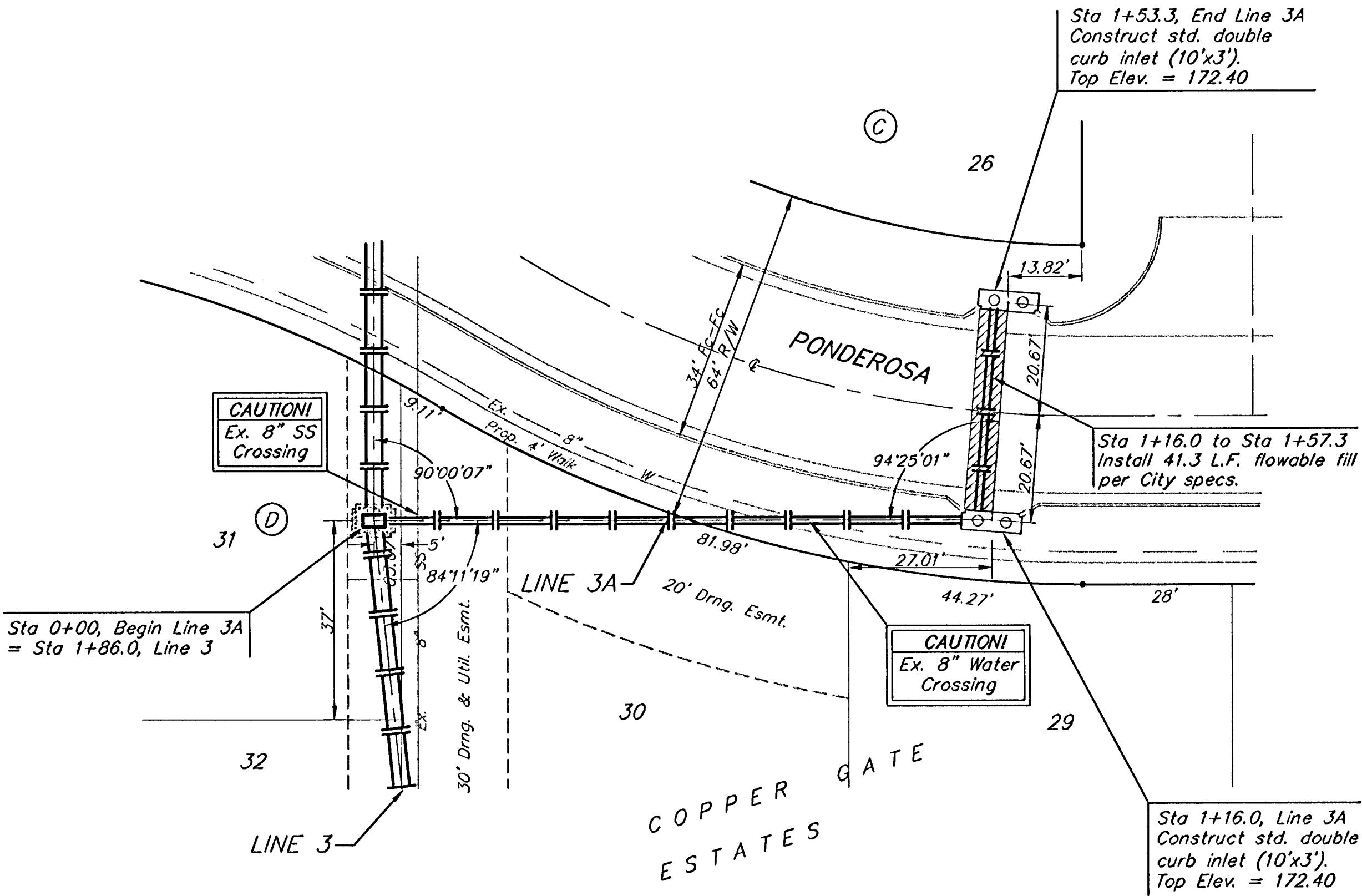


As Built Per Plan Unless Noted Otherwise
9/13 KKK

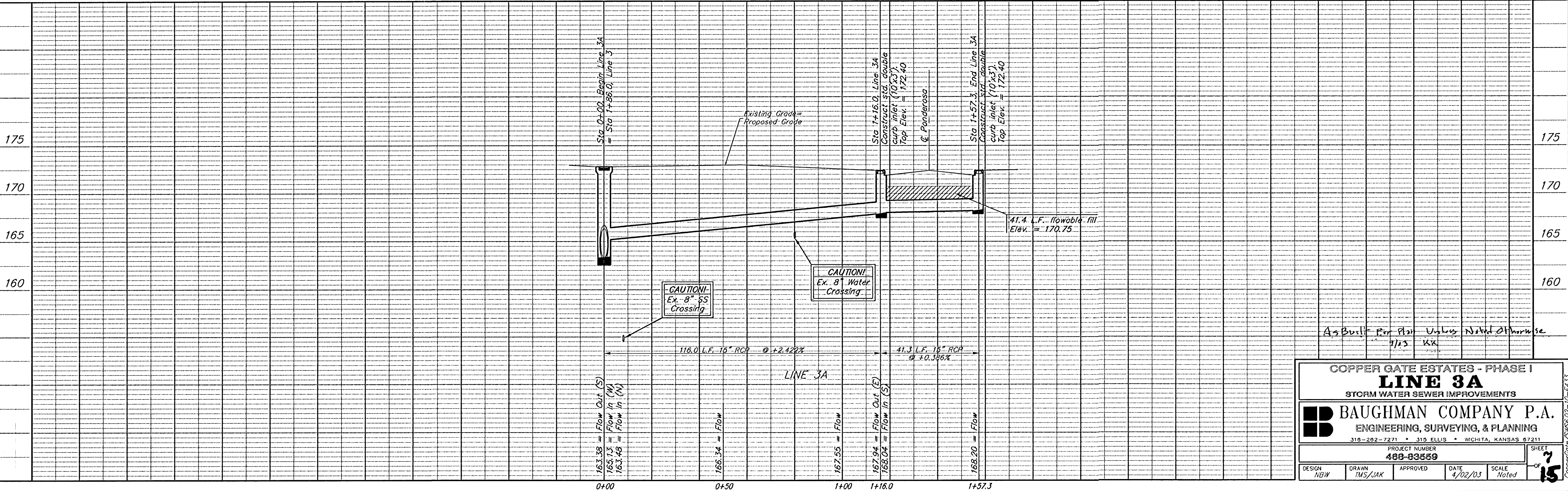
COPPER GATE ESTATES - PHASE I			
LINE 3			
STORM WATER SEWER IMPROVEMENTS			
BAUGHMAN COMPANY P.A.			
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488-83559			
DESIGN	DRAWN	APPROVED	DATE
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SCALE			SHEET
Noted			6
			14

CopperGate/SWS/02-10-F433

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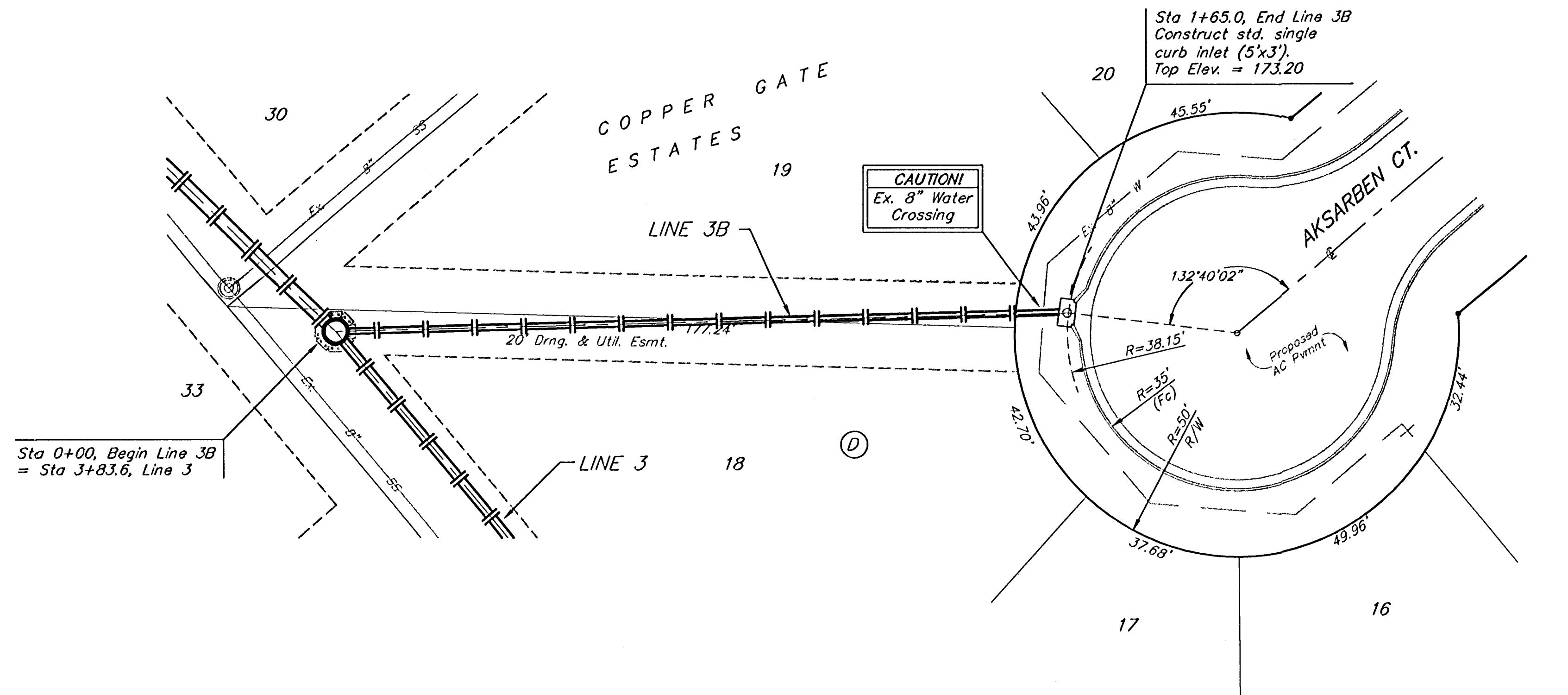


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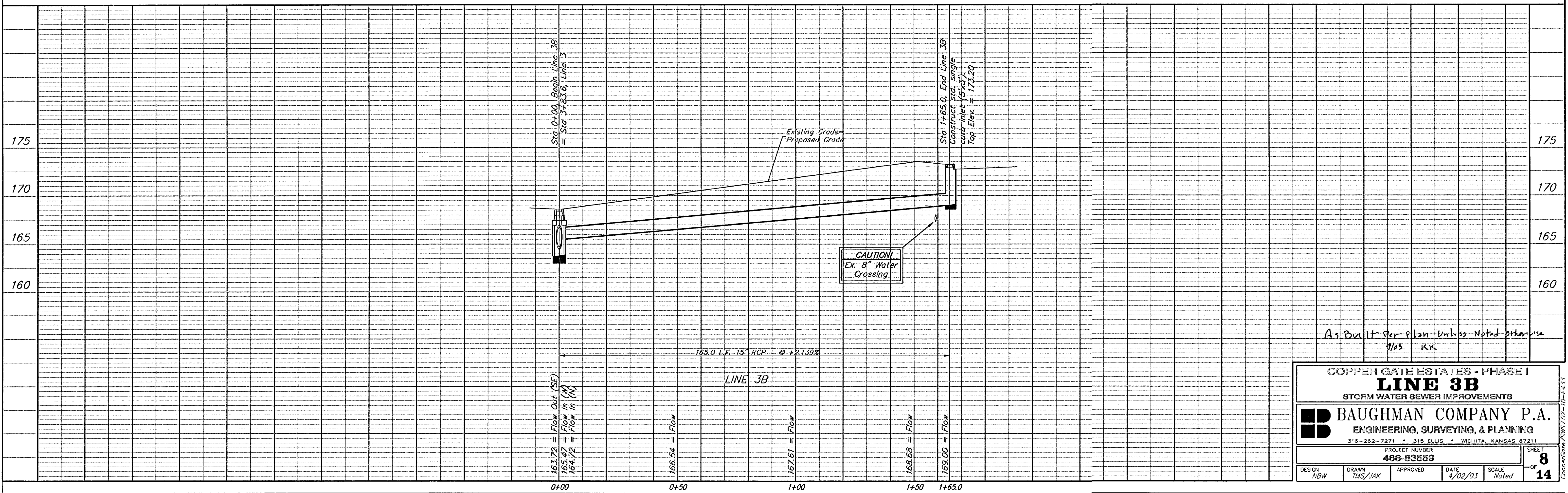


COPPER GATE ESTATES - PHASE I			
LINE 3A			
STORM WATER SEWER IMPROVEMENTS			
BAUGHMAN COMPANY P.A.			
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PROJECT NUMBER			
488-63659			
DESIGN	DRAWN	APPROVED	DATE
NBW	TMS/JAK		4/02/03
SCALE		NOTED	
		7 OF 15	

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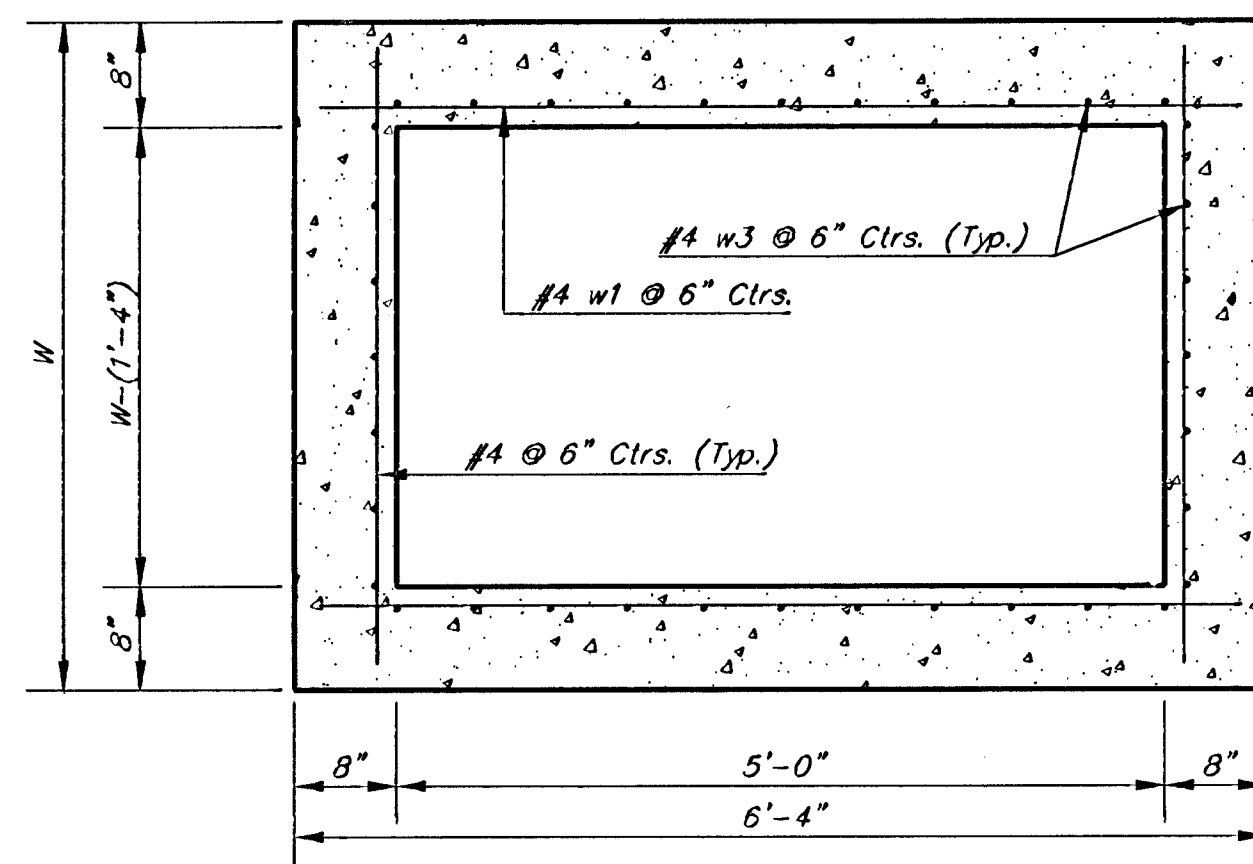
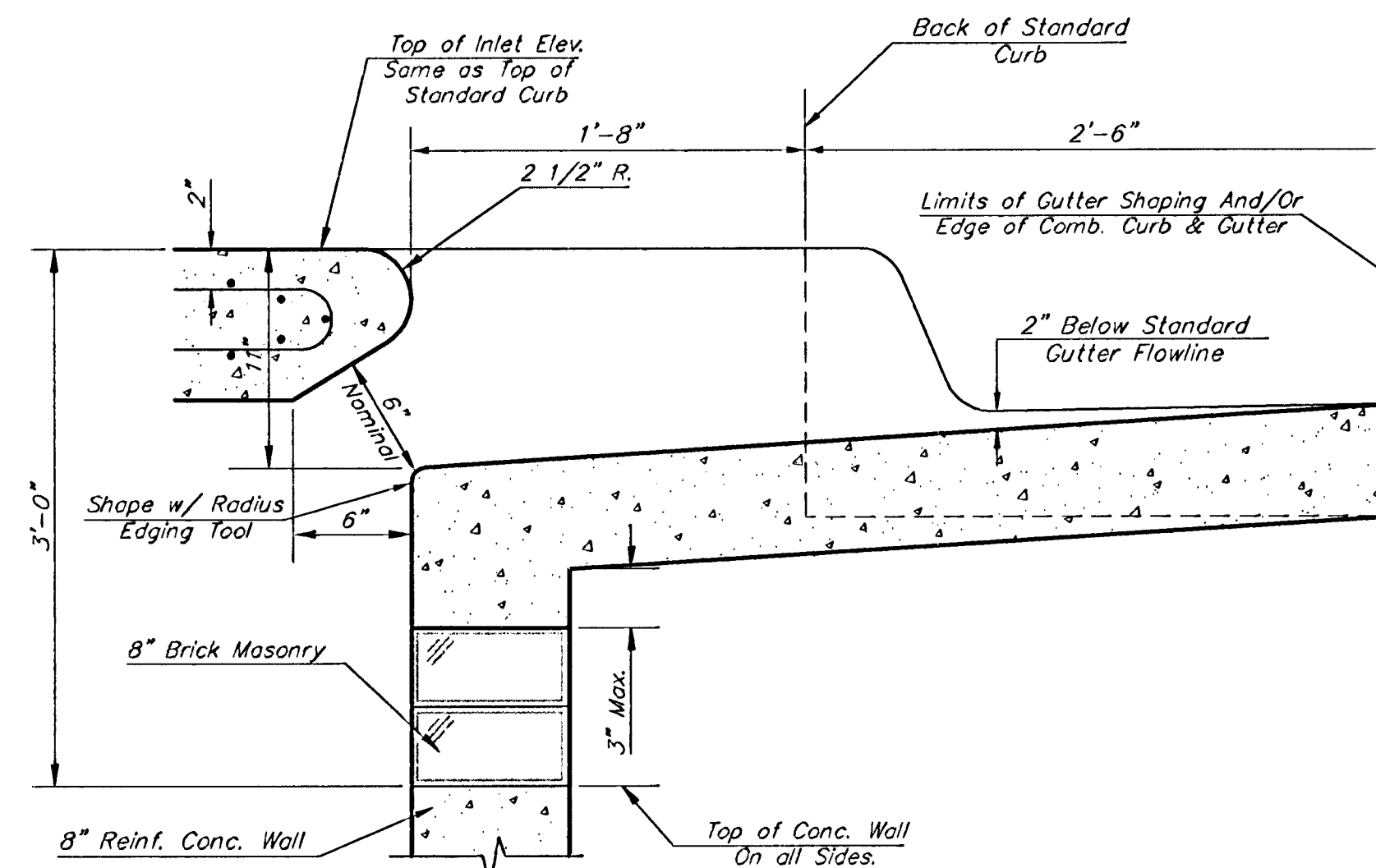
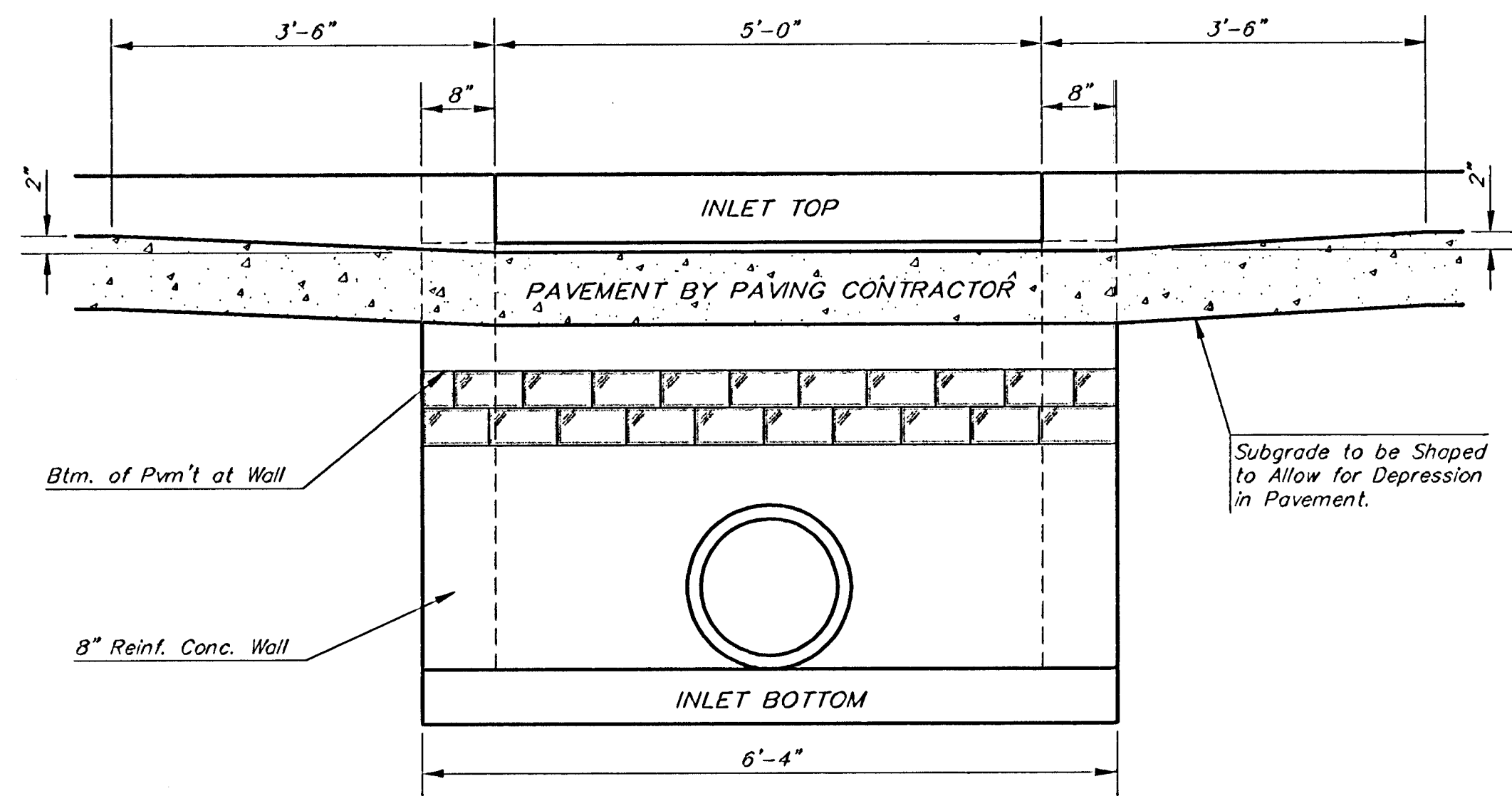
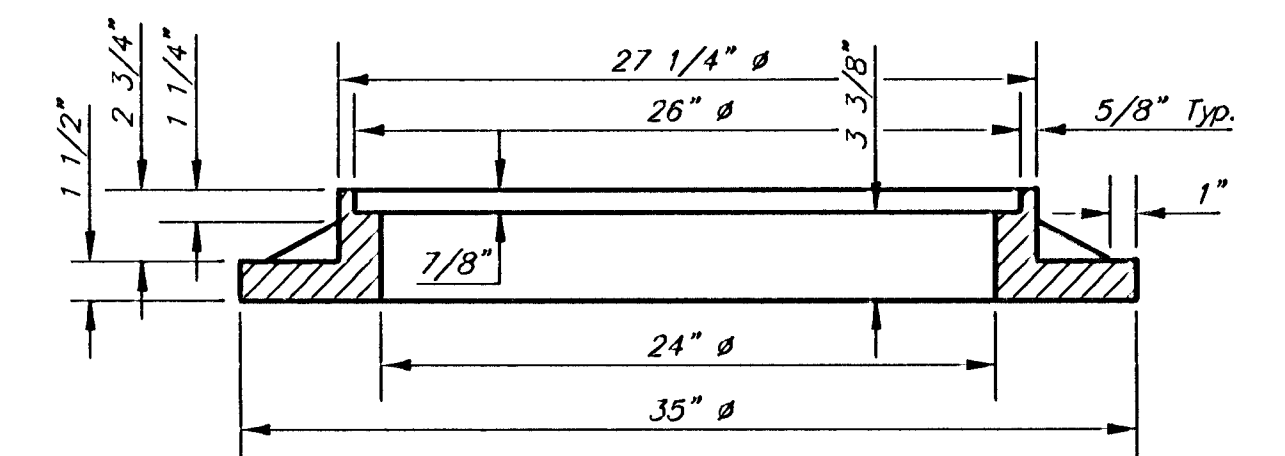
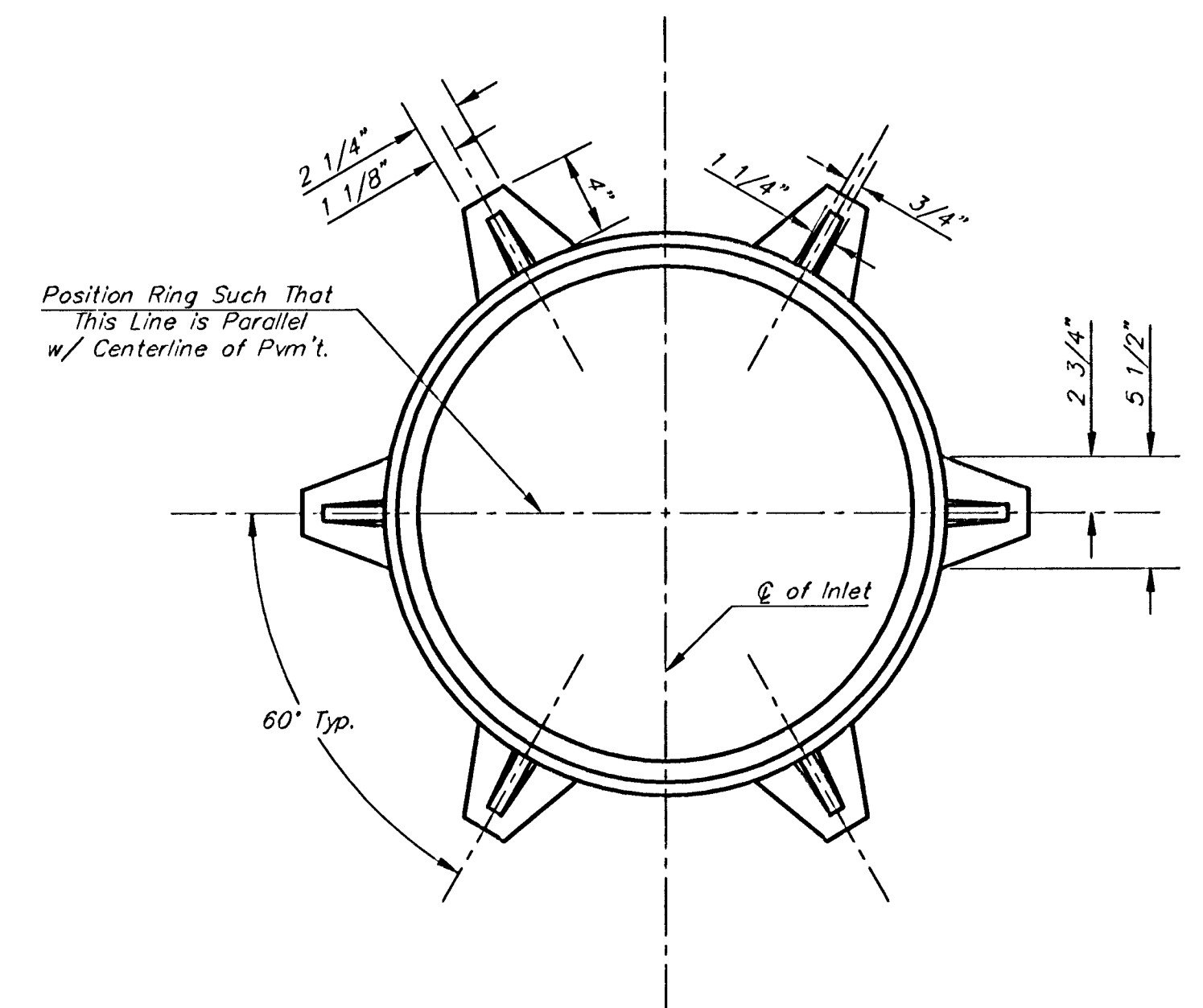
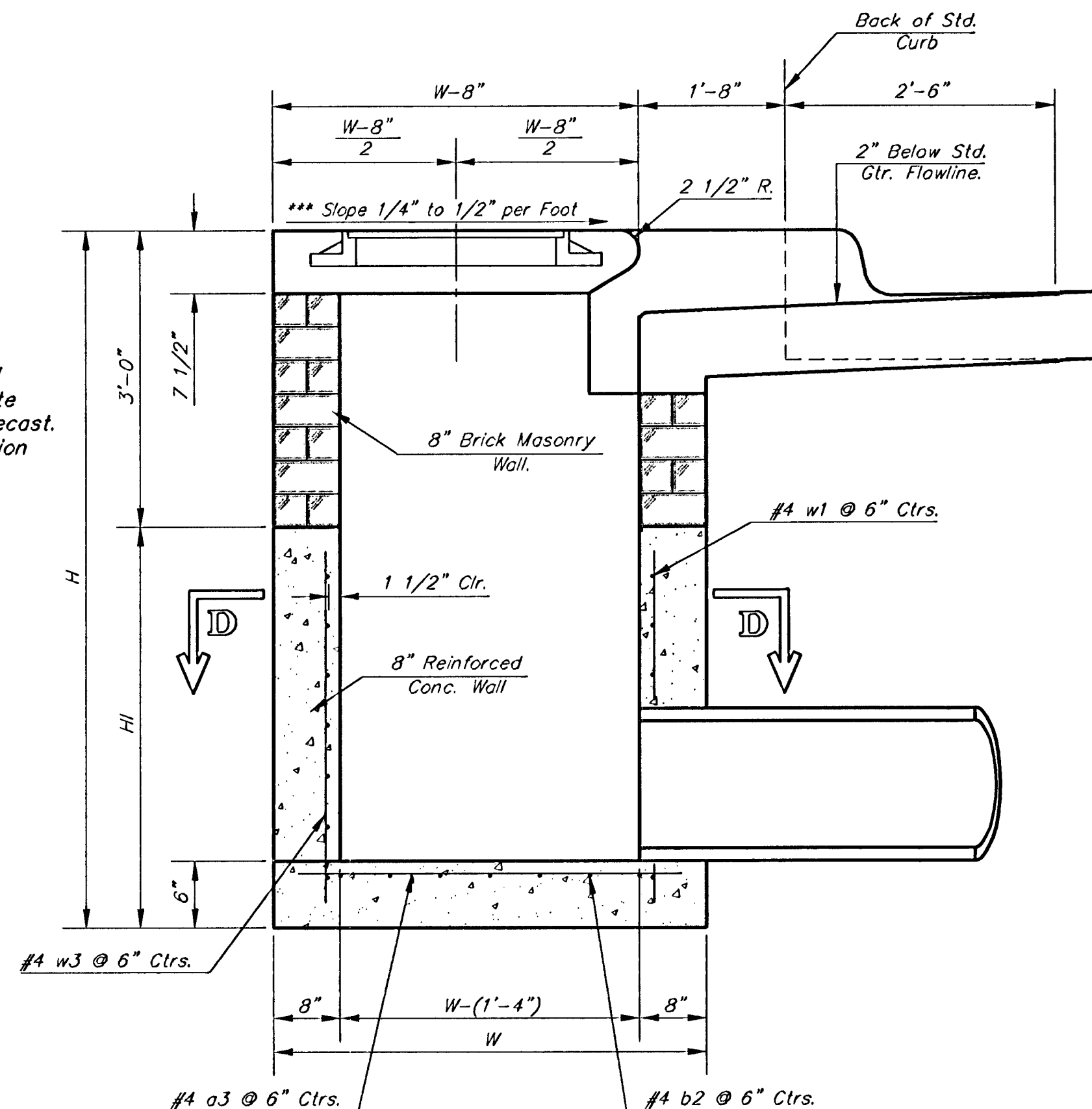
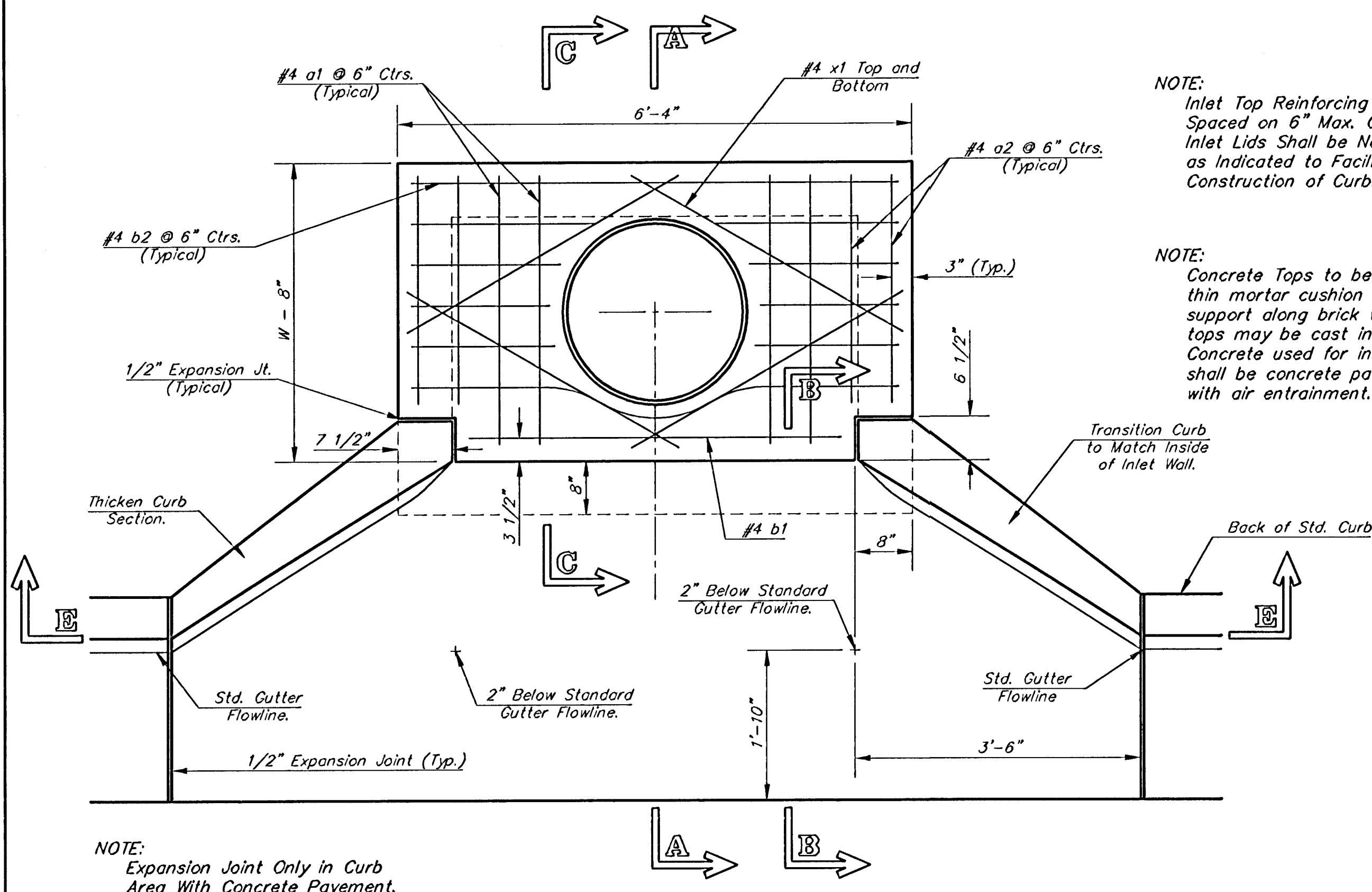


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COPPER GATE ESTATES - PHASE I			
LINE 3B			
STORM WATER SEWER IMPROVEMENTS			
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PROJECT NUMBER			
488-83659			
DESIGN	DRAWN	APPROVED	DATE
NBW	TMS/JAK		4/02/03
SCALE			Noted
SHEET			8
OF			14



NOTE: Contractor shall have the option of constructing 8" brick masonry walls between the concrete inlet base and top on this inlet when W=6'-4" and H=7'-0" or less.

Additional curb and gutter construction necessary to connect set-back inlet to pavement will be paid for at the unit price bid for each inlet hookup.

Inlet invert shall be shaped with 8 sack sand mix concrete to create flow channels and to increase hydraulic efficiency such that the inlet will be self-cleaning between all inlet and/or outlet pipes.

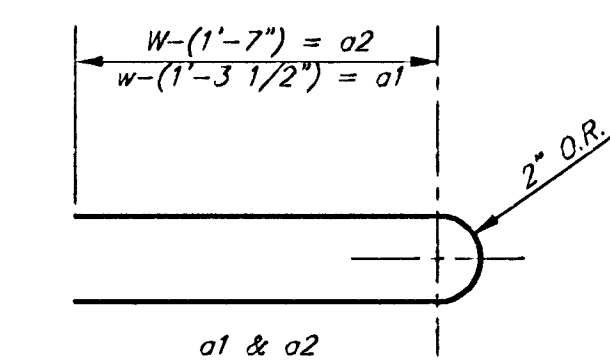
The ends of all pipes installed in inlets shall be cut off flush with the inside face of the inlet wall

PRECAST SLAB AND FLOOR REINFORCING											
MARK	SIZE	W = 4'-4"		W = 5'-4"		W = 6'-4"		W = 7'-4"		W = 8'-4"	
		NO.	LENGTH	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH
a1	#4	6	6'-7"	6	8'-7"	6	10'-7"	6	12'-7"	6	14'-7"
a2	#4	4	6'-0"	4	8'-0"	4	10'-0"	4	12'-0"	4	14'-0"
a3	#4	13	4'-1"	13	5'-1"	13	6'-1"	13	7'-1"	13	8'-1"
b1	#4	1	4'-9"	1	4'-9"	1	4'-9"	1	4'-9"	1	4'-9"
b2	#4	23	6'-1"	29	6'-1"	35	6'-1"	41	6'-1"	47	6'-1"
x1	#4	8	3'-10"	8	4'-2"	8	4'-6"	8	4'-10"	8	5'-2"

* Field Bend or Cut Reinforcing as Required for Clearance.

① 4 (H - 12") (H - 21") Rounded down to nearest 0.5"

② H - 3"



STANDARD CURB INLET PRECAST TOPS			
W	PRE-CAST TOP SIZE	PIPE SIZE	CU. YD. CONC.
4'-4"	3'-8" x 6'-4" x 7 1/2"	21" & SMALLER	0.38±
5'-4"	4'-8" x 6'-4" x 7 1/2"	24" & 30"	0.51±
6'-4"	5'-8" x 6'-4" x 7 1/2"	36" & 42"	0.64±
7'-4"	6'-8" x 6'-4" x 7 1/2"	48" & 54"	0.77±
8'-4"	7'-8" x 6'-4" x 7 1/2"	60" & 66"	0.90±

Revised - Feb. 16, 1989

CITY OF WICHITA STANDARD TYPE 1A

Curb Inlet Details

INLET OPENING = 6" X 5'-0"

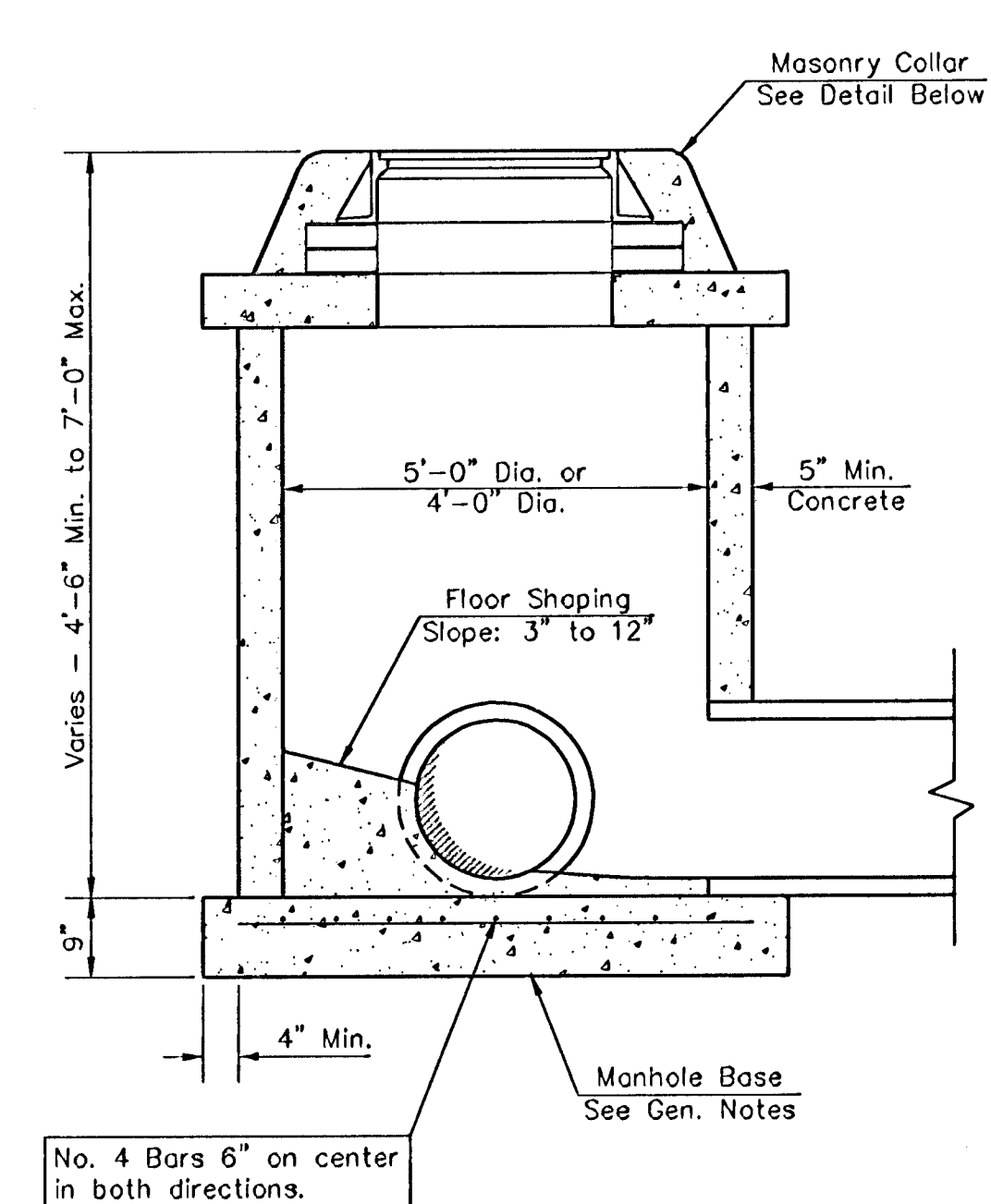
BAUGHMAN COMPANY P.A.

ENGINEERING, SURVEYING, & PLANNING

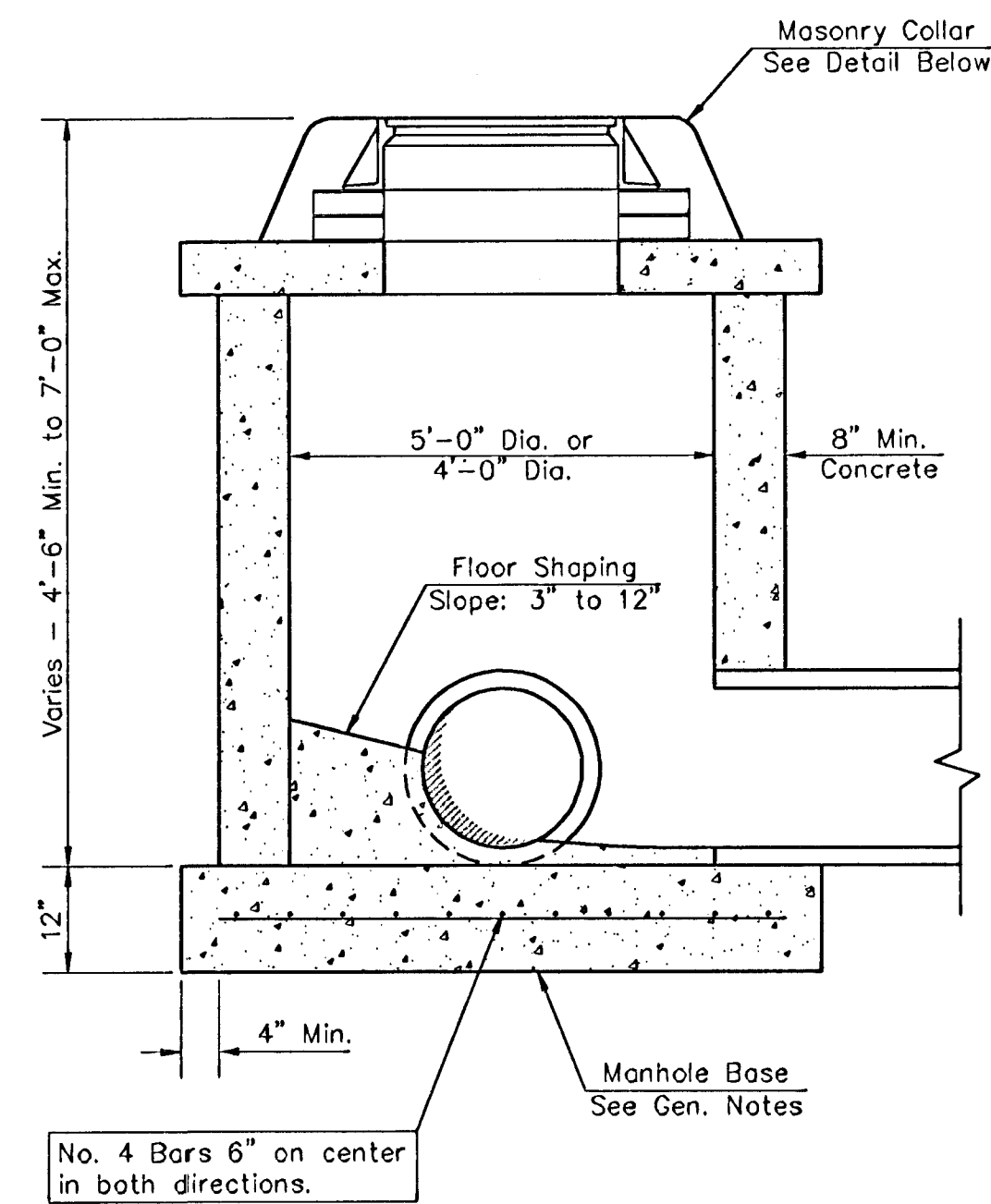
316-262-7271 • 315 ELLIS • WICHITA, KANSAS 67211

PROJECT NUMBER
488-63559

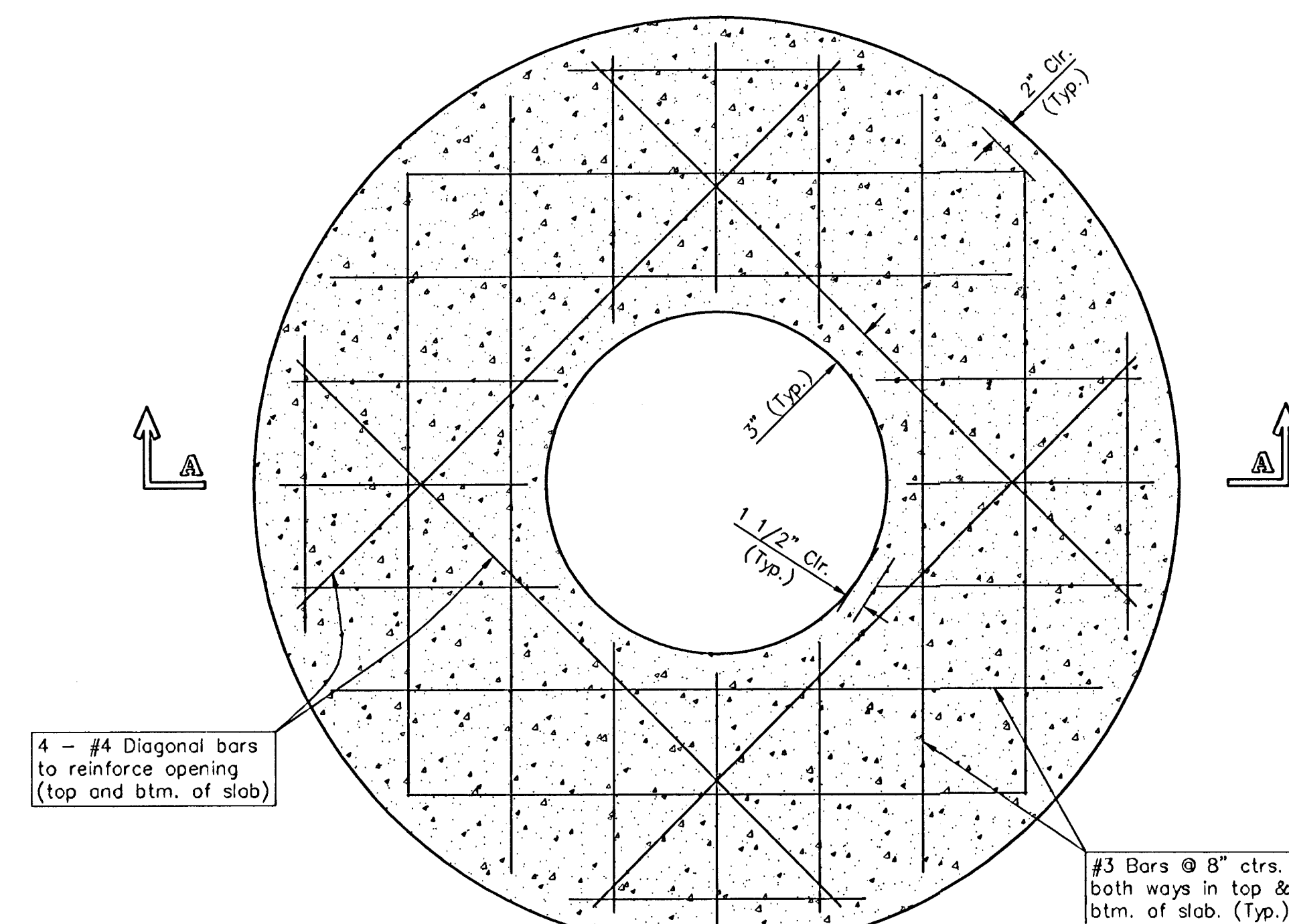
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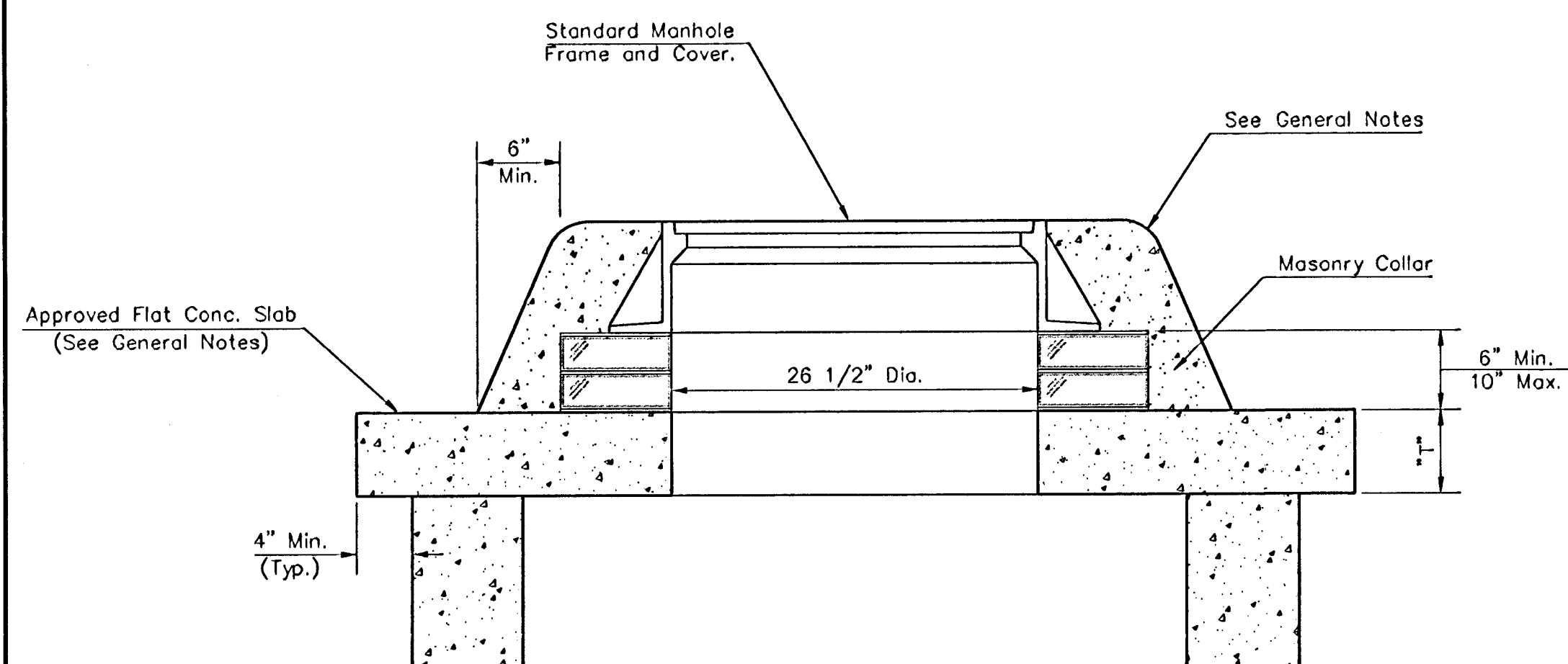
SHALLOW TYPE "P" MANHOLE



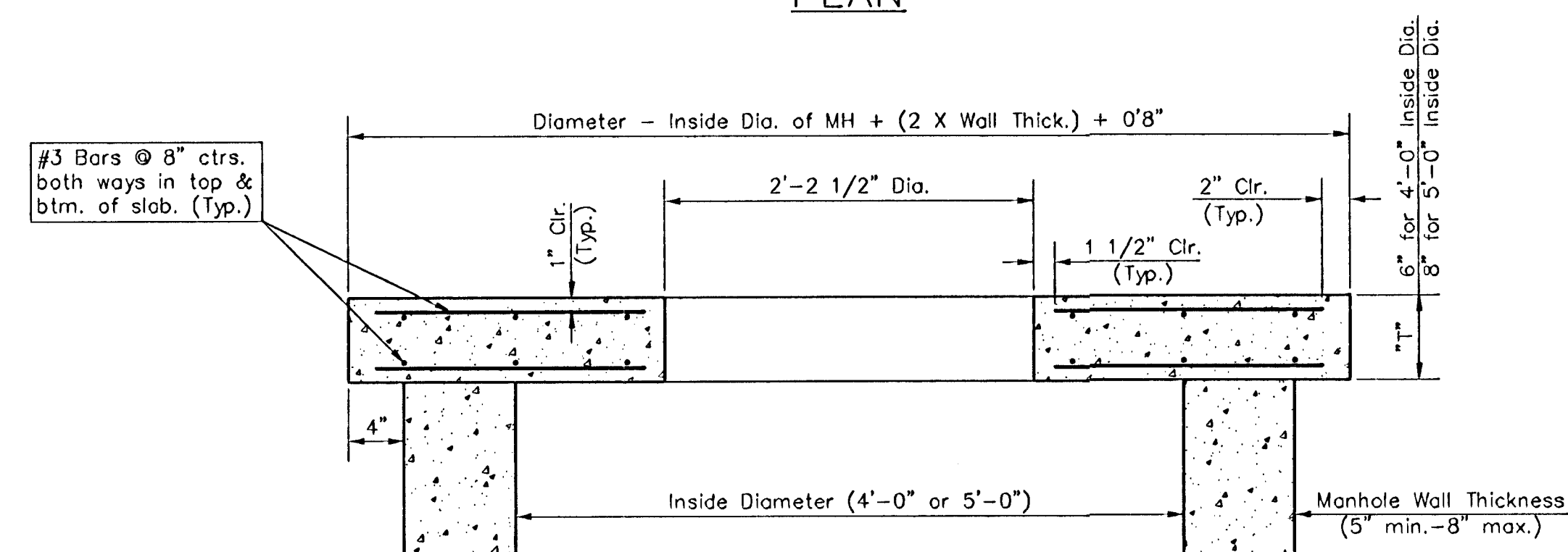
SHALLOW TYPE "C" MANHOLE



PLAN



MASONRY COLLAR DETAIL

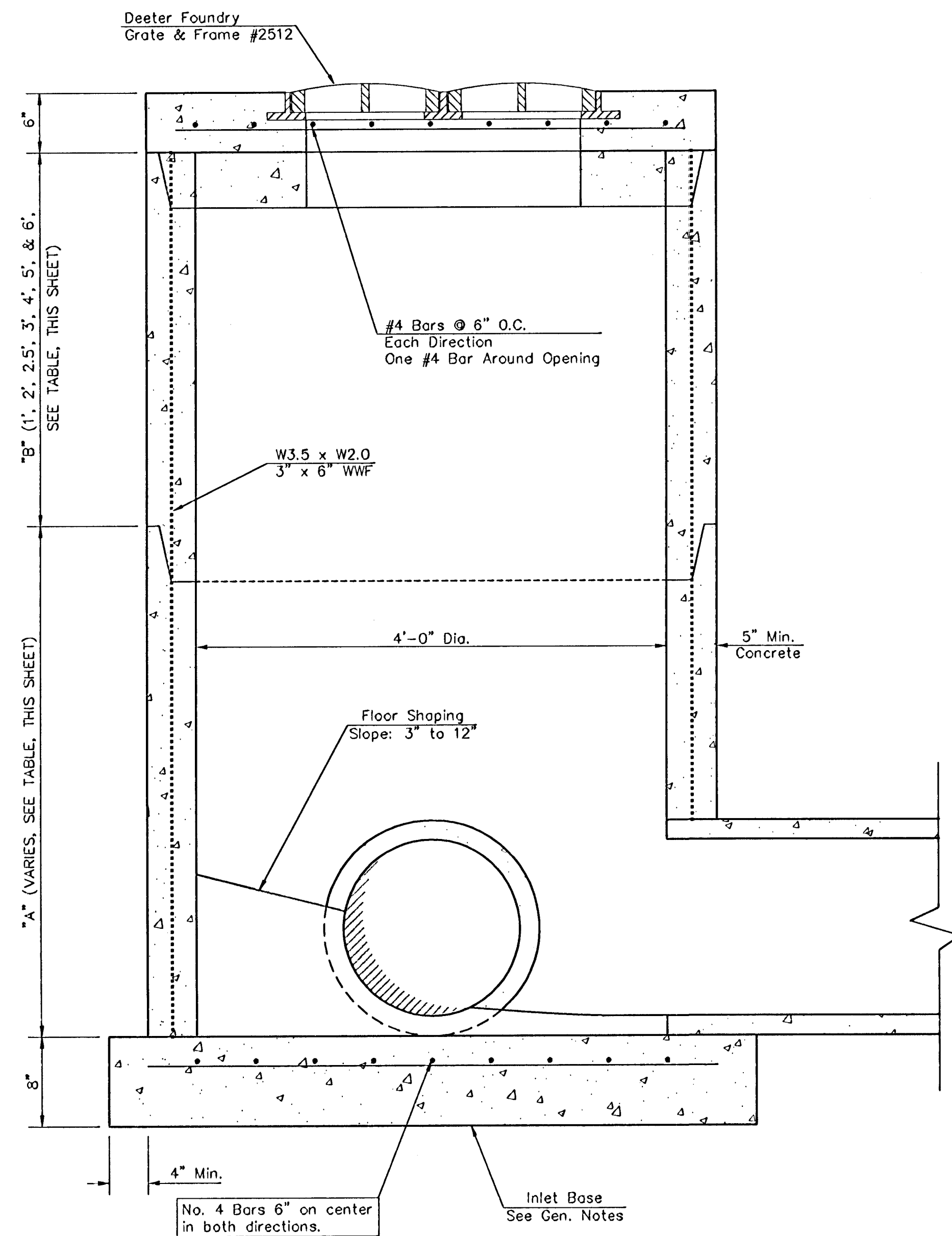


SECTION A-A

FLAT CONCRETE SLAB DETAILS

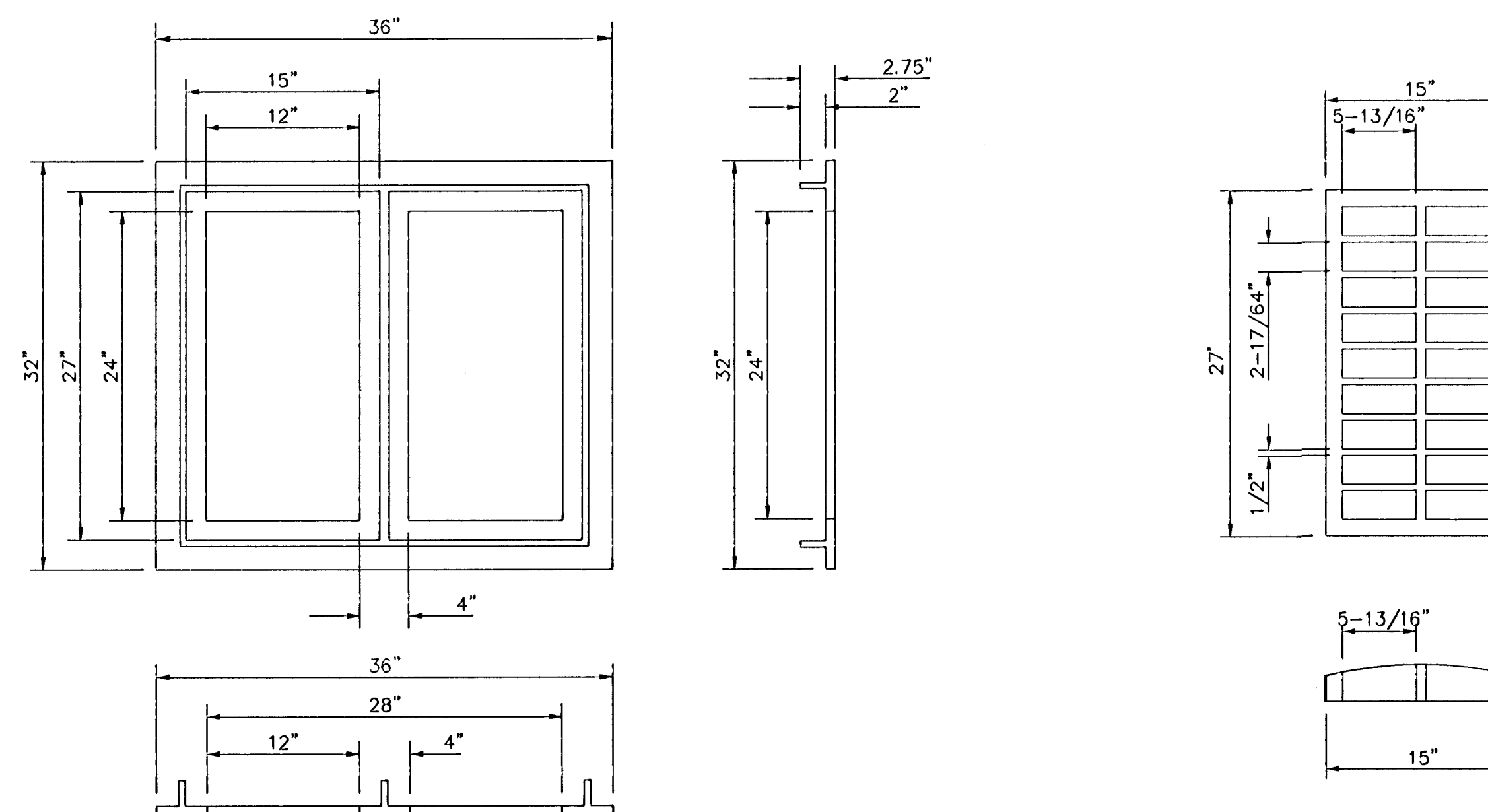
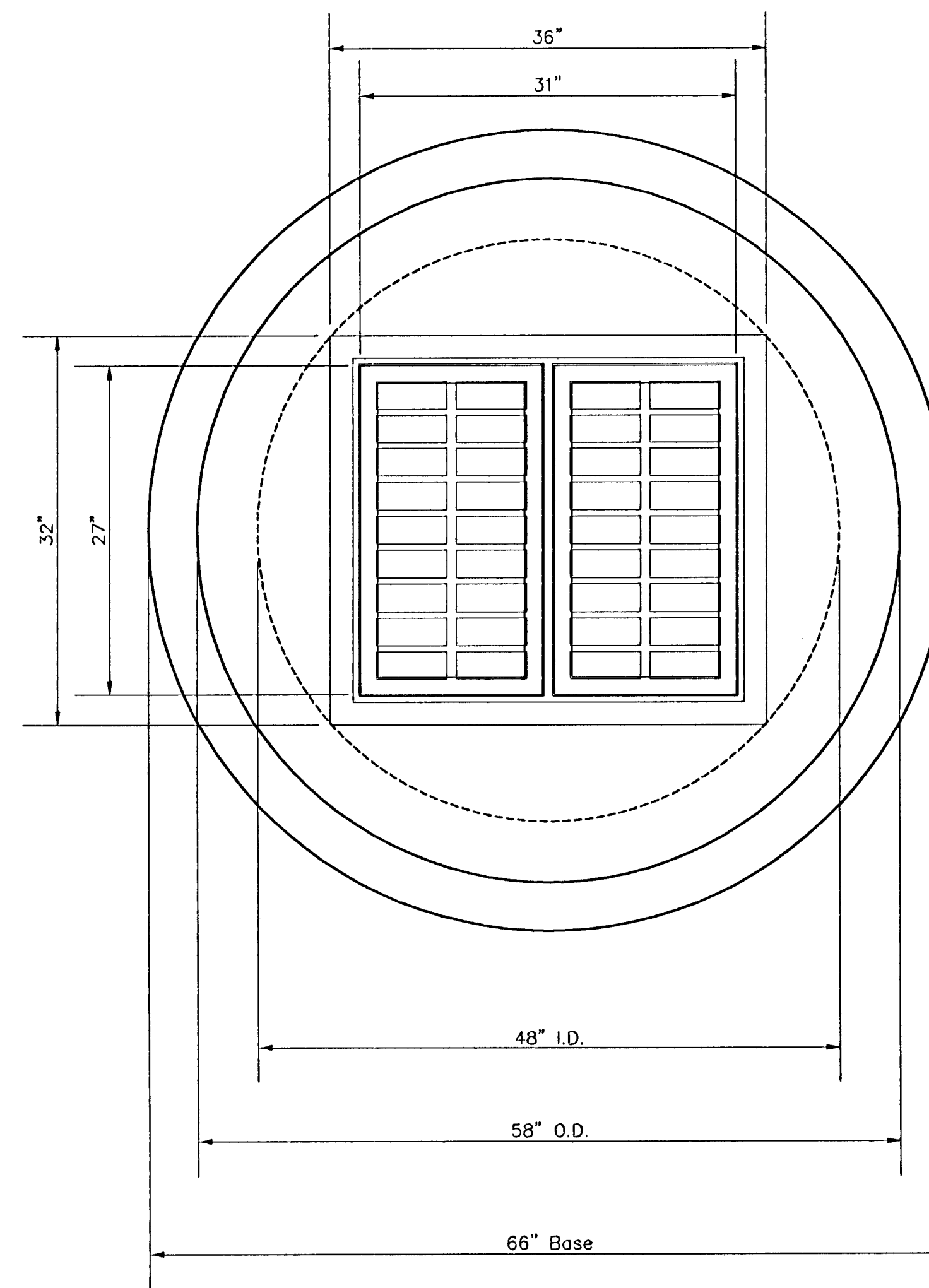
GENERAL NOTES

- Mortar used in masonry construction shall contain 8 sacks of cement per cubic yard. Concrete used in manhole bases shall conform to the requirements of concrete for concrete pavement construction as specified in the city standard paving specifications using city concrete cement mix without air entraining admixture. Mortar shall be placed around the manhole ring as shown on the drawings when manholes are constructed in unpaved areas. Manholes constructed where pipe sizes are smaller than 24" shall have an inside diameter of 4'. Manholes constructed where pipe sizes are 24" or larger shall have an inside diameter of 5'. Completed manhole shall be without leaks and water tight.
- Reinforcing steel shall be installed in the manhole bases and shall consist of no. 4 bars placed on 6" centers in both directions. The manhole base reinforcement shall be placed 6" above the bottom of the manhole base. All costs for furnishing and installing reinforcing steel shall be included in the unit price bid for the manhole.
- The floors of all manholes shall be shaped with flow channels such that the manholes will be self cleaning and free of areas where solids could be deposited as sewage flows through the manhole from all inlet pipes to the outlet pipe. Flow channels shall be formed to match the bottom halves of the inflowing pipes and the outflowing pipe as shown by the drawings. Manhole floors shall have slopes of 3 inches per foot in the areas outside of the flow channels sloped toward the flow channels. Pipes laid through manholes shall have the top half removed to neat lines for the full inside diameter of the manhole. Manhole floors shall then be shaped around the bottom half of the pipe which forms the flow channel.
- Pipes installed within the excavation made for the manhole shall be cradled with concrete to the limits of the manhole excavation. When clay pipe is used, the cradle shall extend to the first joint outside the manhole. The cradle shall be terminated at the clay pipe joint in a manner which will maintain the flexibility of the joint. Cost of cradle within manhole excavation or to clay pipe joints adjacent to manhole shall be included in the unit price bid for the manhole.
- Manhole cover castings and manhole frame castings shall conform to the requirements as indicated in the standard specifications and as shown in the standard detail drawings.
- The crowns of inflowing pipes shall never be set lower than the crown of the outflowing pipe.
- Standard shallow manholes type "P" and "C" shall be paid for at the unit price bid per each for the type and diameter indicated. All standard shallow manhole diameters will be 4' unless indicated otherwise.
- All brick used in manhole construction shall meet Grade SW of ASTM C652 or C62-87.



YARD INLET

LINE #	STA.	TOP OF INLET	INLET FLOW	"A"	"B"
1	3+35.0	173.50	170.00	2.30'	1.0'
3	8+73.5	172.80	169.30	2.30'	1.0'

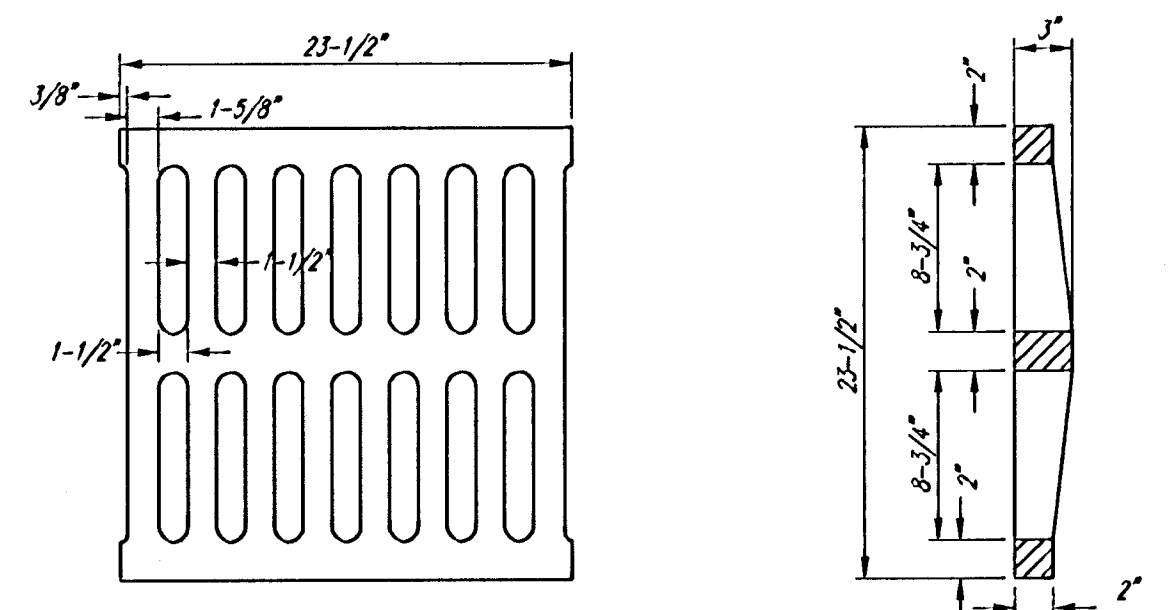
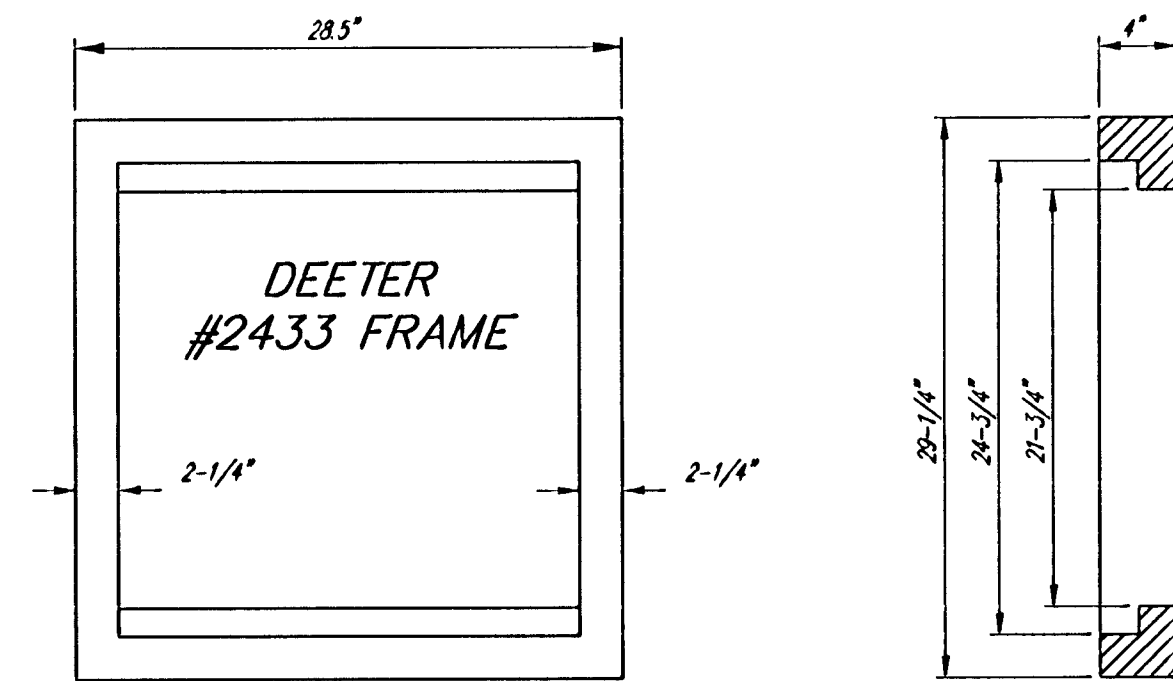


GENERAL NOTES

- Mortar used in masonry construction shall contain 8 sacks of cement per cubic yard. Concrete used in yard inlet bases shall conform to the requirements of concrete for concrete pavement construction as specified in the city standard paving specifications using city concrete cement mix without air entraining.
- Reinforcing steel shall be installed in the yard inlet bases and shall consist of no. 4 bars placed on 6" centers in both directions. The yard inlet base reinforcement shall be placed 6" above the bottom of the yard inlet base. All costs for furnishing and installing reinforcing steel shall be included in the unit price bid for the yard inlet.
- The floors of all yard inlet shall be shaped with flow channels such that the inlets will be self cleaning and free of areas where solids could be deposited. Flow channels shall be formed to match the bottom halves of the inflowing pipes and the outflowing pipe as shown by the drawings. Inlet floors shall have slopes of 3 inches per foot in the areas outside of the flow channels sloped toward the flow channels. Pipes laid through inlets shall have the top half removed to neat lines for the full inside diameter of the inlet. Inlet floors shall then be shaped around the bottom half of the pipe which forms the flow channel.
- Pipes installed within the excavation made for the inlet shall be cradled with concrete to the limits of the inlet excavation. When clay pipe is used, the cradle shall extend to the first joint outside the inlet. The cradle shall be terminated at the clay pipe joint in a manner which will maintain the flexibility of the joint. Cost of cradle within inlet excavation or to clay pipe joints adjacent to inlet shall be included in the unit price bid for the inlet.
- Inlet grate castings and inlet frame castings shall conform to the requirements as indicated in the standard specifications and as shown in the standard detail drawing.
- The crowns of inflowing pipes shall never be set lower than the crown of the outflowing pipe.
- Joints between inlet sections to be sealed with two wraps of extruded butyl rubber joint mastic meeting City of Wichita Type "P" Manhole Specifications.
- Special yard inlet shall be paid for at the unit price bid per each. All standard yard inlet diameters will be 4'.

DEETER #2512 CATCH BASIN INLET GRATE & FRAME

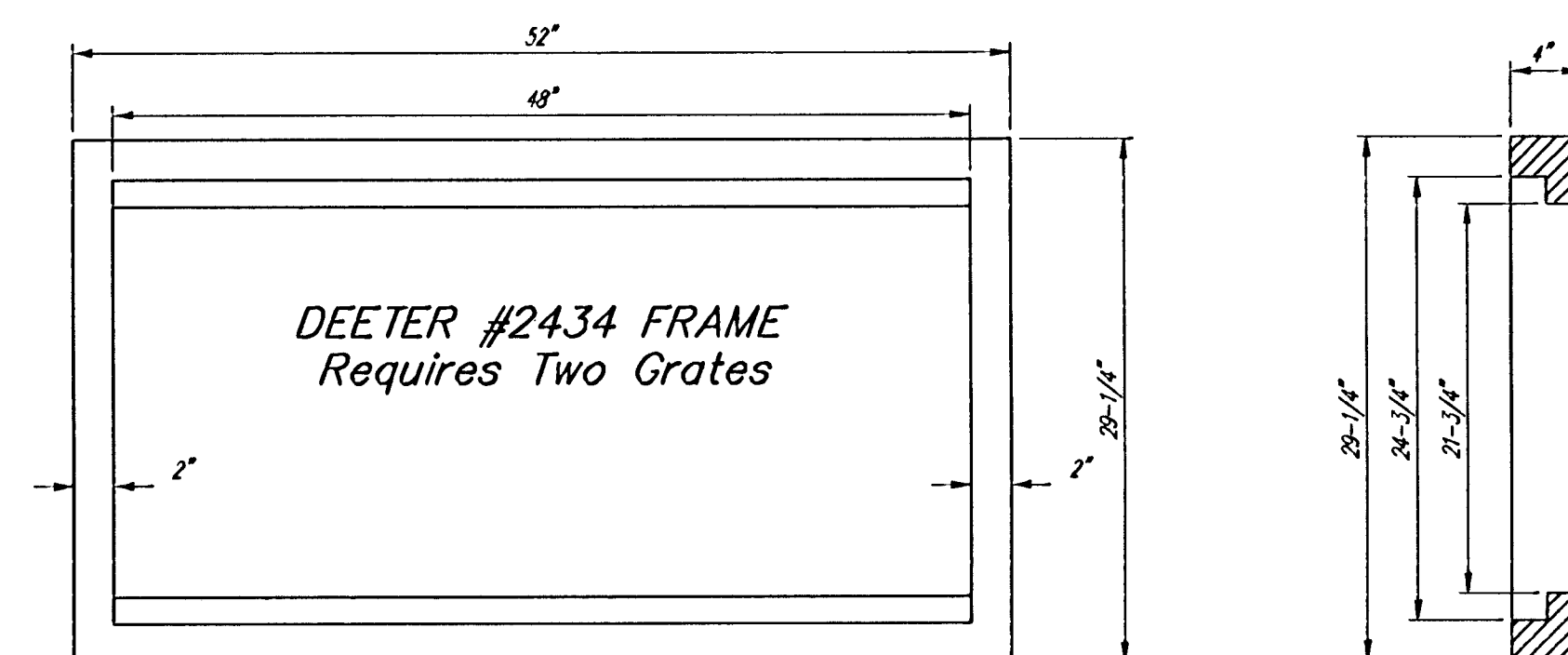
SPECIAL YARD INLET				
WICHITA, KANSAS				
BAUGHMAN COMPANY P.A.				
ENGINEERING, SURVEYING, & PLANNING				
316-262-7271 • 315 ELLIS • WICHITA, KANSAS 67211				
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			4/02/03	NONE
SHEET				OF
12				15



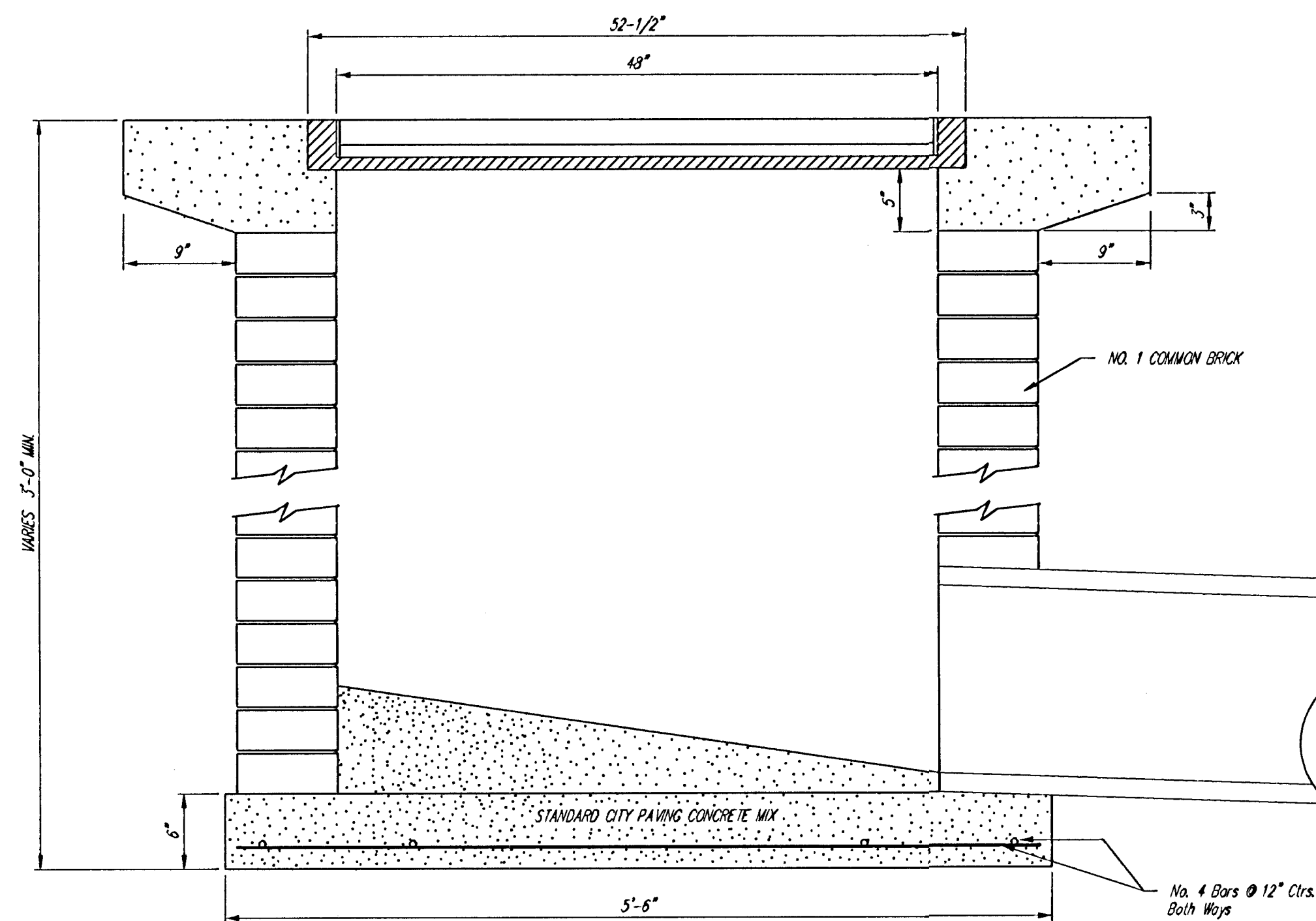
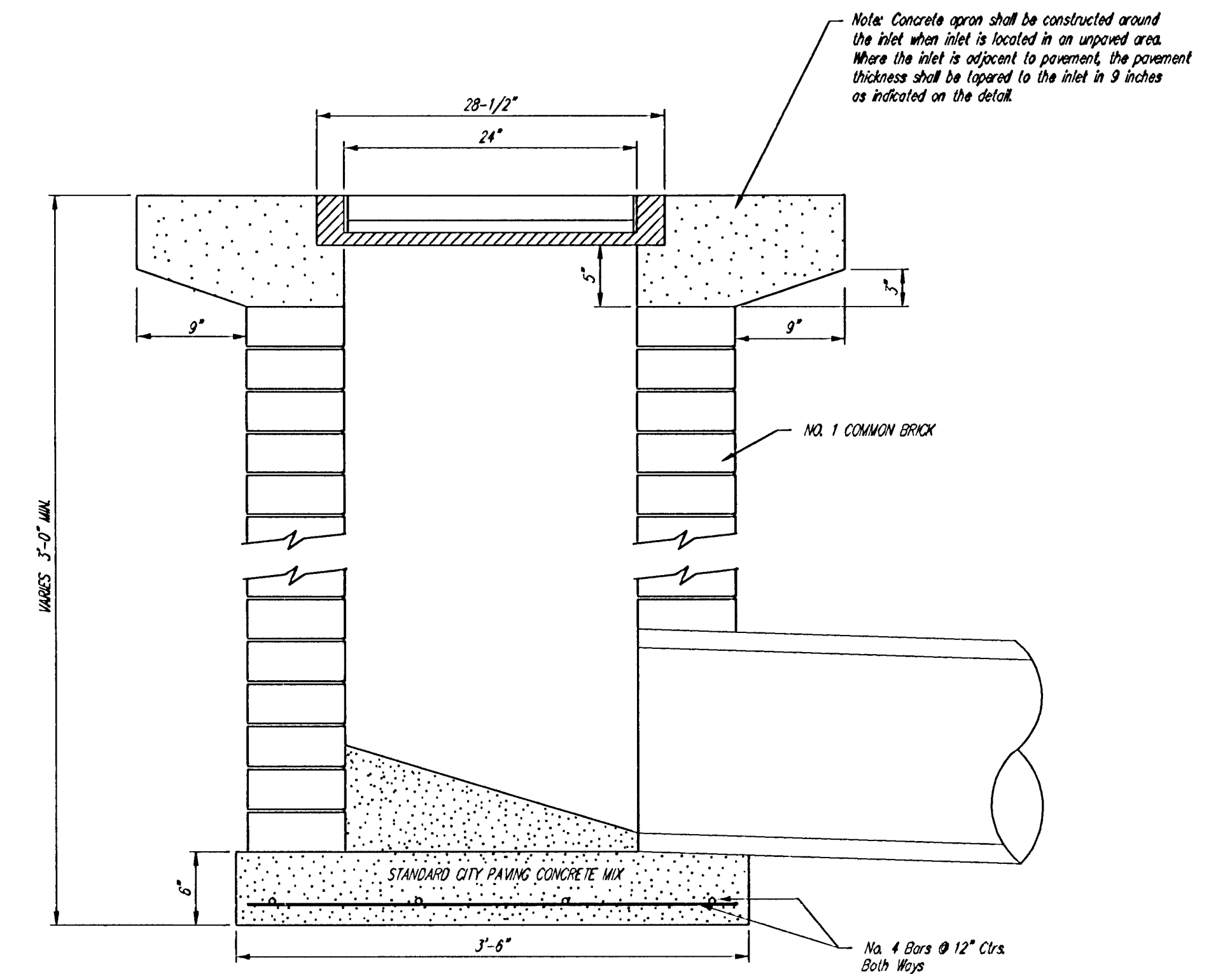
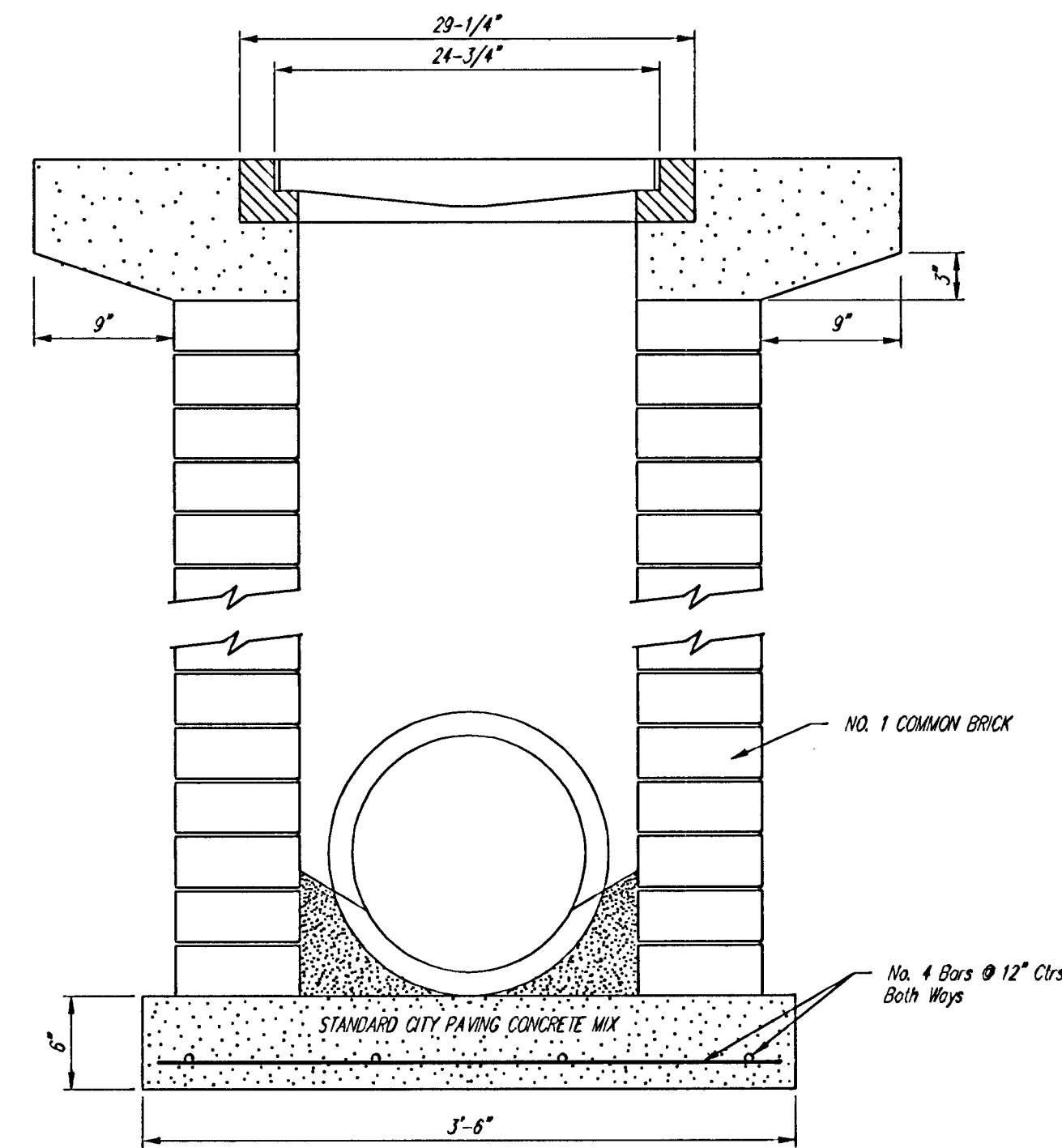
DEETER #2433 GRATE

24" x 24" Frame and Grate Detail

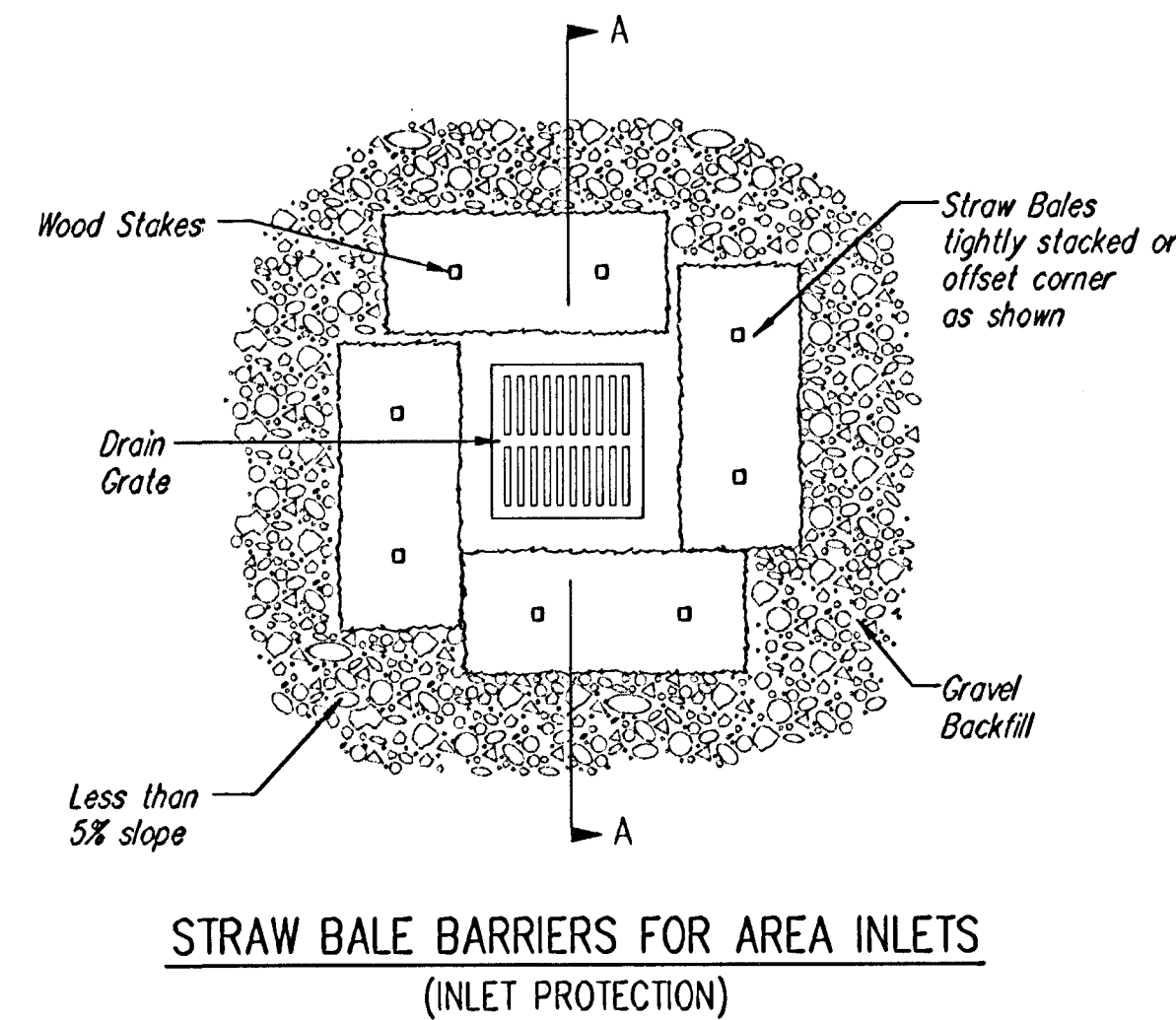
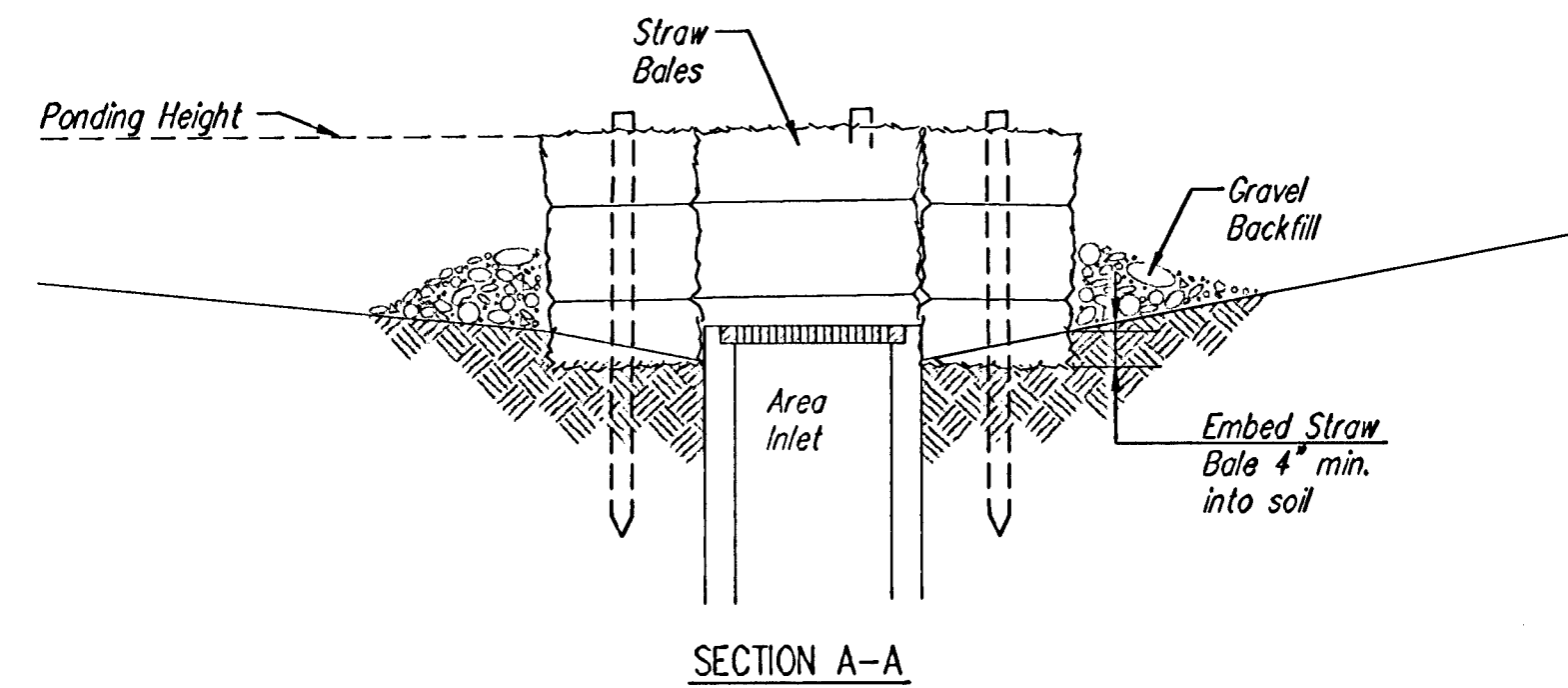
NOTE: Grates shall be imprinted on the top surface with "CITY OF WICHITA" using letters at least 1" in height. Other marking methods may be approved by the engineer.



Double 24" x 24" Frame Detail



City of Wichita Standard Drop Inlet					
BAUGHMAN COMPANY P.A. ENGINEERING, SURVEYING, & PLANNING 310-262-7271 • 315 ELLIS • WICHITA, KANSAS 67211					
PROJECT NUMBER 488-83559					
DESIGN C.O.W.	DRAWN Staff	APPROVED	DATE 4/02/03	SCALE NONE	SHEET 13 OF 15



Material Specification:

Bale area inlet barriers should be constructed of wheat straw, oat straw, prairie hay, or bromegrass hay that is free of weeds declared noxious by the Kansas State Board of Agriculture. The stakes used to anchor the bales should be a hardwood material with the following minimum dimensions: 2" square (nominal) by 4' long.

Placement:

Bale area inlet barriers should be placed directly around the perimeter of a drop inlet. When a bale area inlet barrier is located near an inlet that has steep approach slopes, the storage capacity behind the barrier is drastically reduced. Timely removal of sediment must occur for a barrier to operate properly in this location.

Proper Installation Method:

Excavate a trench around the perimeter of the area inlet that is at least 4" deep by a bale's width wide. Place the bales in the trench, making sure that they are butted tightly. Some bales may need to be shortened to fit into the trench around the area inlet. Two stakes should be driven through each bale, approximately 6" to 8" in from the bale ends. Stakes should be driven at least 12" into the ground. Once all the bales have been installed and anchored, place the excavated soil against the receiving side of the barrier and compact it. The compacted soil should be no more than 3" to 4" deep. Note: When a bale area inlet barrier is placed in a shallow median ditch, make sure that the top of the barrier is not higher than the paved road. In this configuration, water may spread onto the roadway causing a hazardous condition.

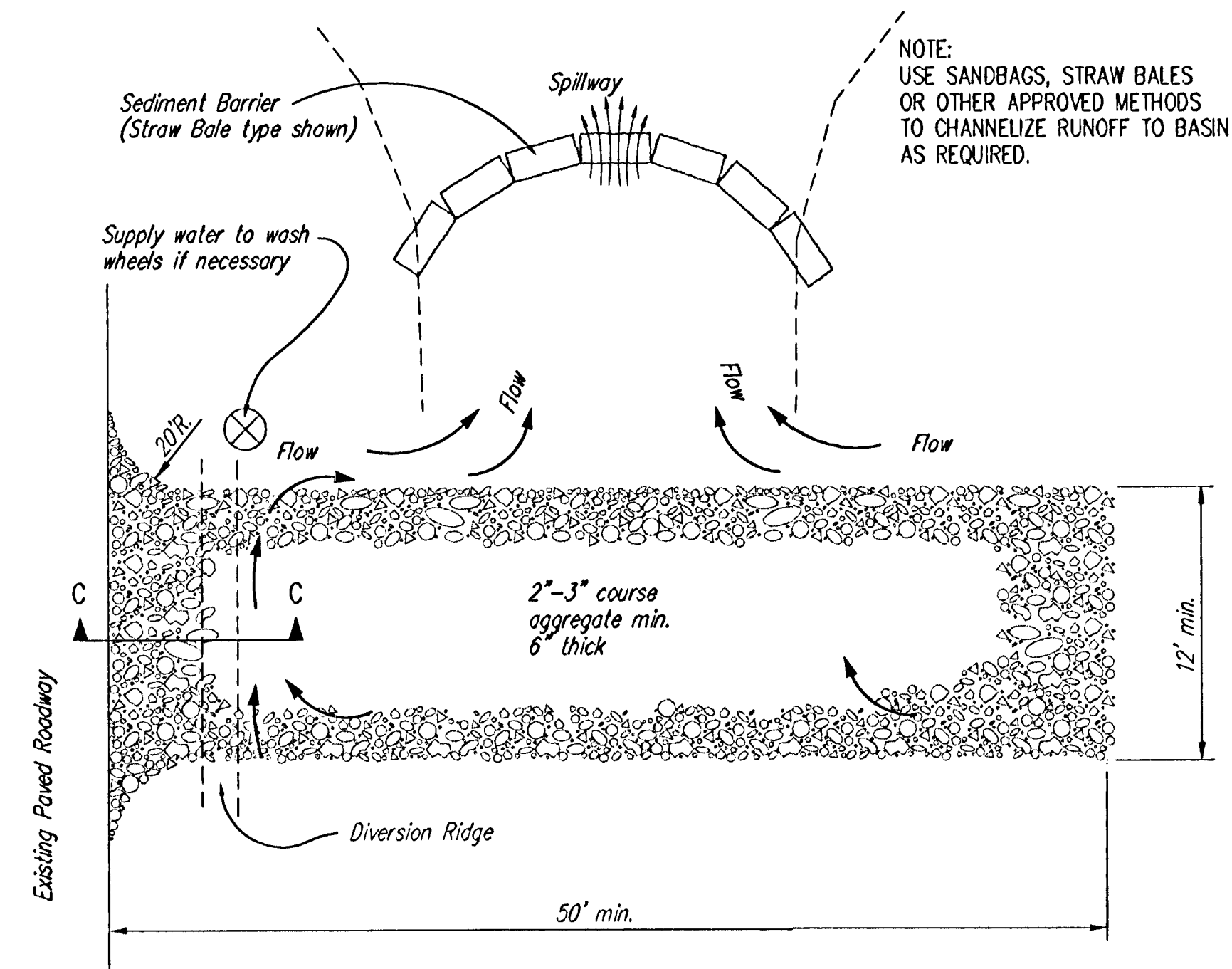
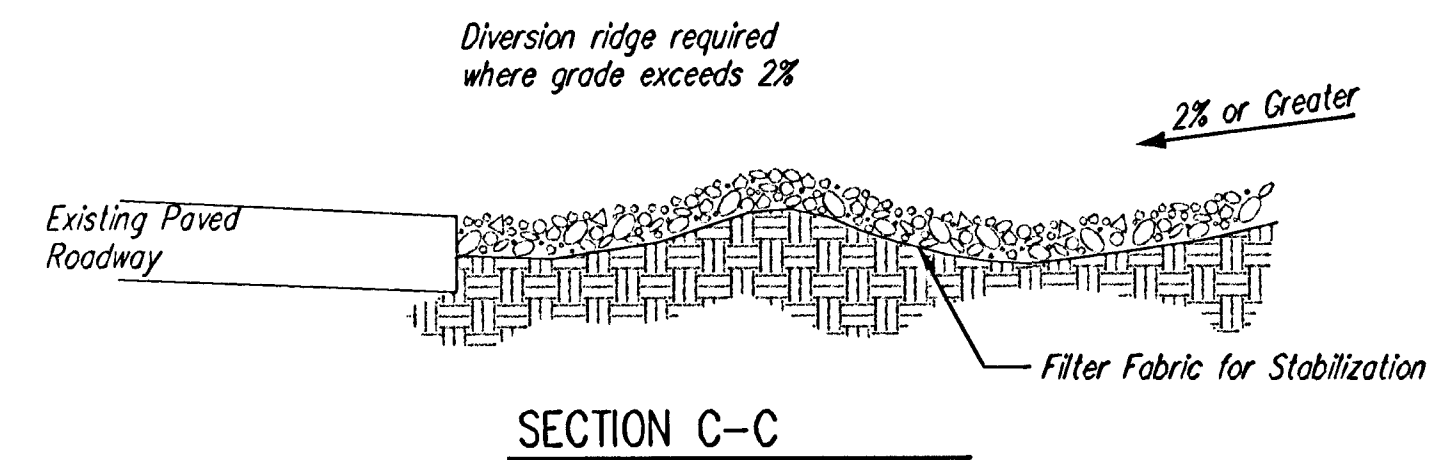
List of common placement installation mistakes to avoid:

Bales should be placed directly against the perimeter of the area inlet. This allows overtopping water to flow directly into the inlet instead of onto nearby soil causing scour. Bale area inlet barriers must be dug into the ground. Bales at ground level do not work because they allow water to flow under the barrier.

Inspection and Maintenance:

Bale area inlet barriers should be inspected every 7 days and within 24 hours of a rainfall 1/2" or more. The following is a list of questions that should be addressed during each inspection:

- Does water flow under the area inlet barrier?
- Does water flow through spaces between abutting bales?
- Are any bales dislodged?
- Are bales decomposing due to age and/or water damage?
- Does sediment need to be removed from behind the area inlet barrier?



NOTES:

1. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE TOP DRESSING, REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.
2. WHEN NECESSARY, WHEELS SHALL BE CLEANED PRIOR TO ENTRANCE ONTO PUBLIC RIGHT-OF-WAY.
3. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN, AS SHOWN ABOVE.
4. DRIVE ENTRANCES ONTO RESIDENTIAL LOTS WILL NOT BE REQUIRED TO HAVE THE SEDIMENT BARRIER SHOWN, BUT WHEEL WASHING MAY BE REQUIRED IF STABILIZED ENTRANCE IS NOT SUFFICIENT TO KEEP MUD FROM BEING TRACKED ONTO ADJACENT STREET. ENTRANCE SHALL EXTEND FROM BACK OF CURB TO DWELLING.



SOIL EROSION BMP DETAILS

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SHEET 14 OF 15

