

# STREET & INCIDENTAL STORM SEWER IMPROVEMENTS

to serve

## ANGEL FIRE ADDITION-PHASE 1

CITY OF WICHITA, KANSAS

Michael E. Lindebak, P.E. City Engineer

**LEONINE from the south line of the plat, north to the north line of Lot 18, Block C**  
**ANGEL from the east line of Leonine, east to the east line of the plat**  
**LEONINE COURT (Lots 1-5, Block C) from the west line of Leonine west to and including the cul-de-sac**  
**LEONINE COURT (Lots 4-10, Block A) from the south line of Leonine, south to and including the cul-de-sac**  
**LEONINE COURT (Lots 11-20, Block A) from the south line of Leonine, south to and including the cul-de-sac**

Project Number

**472-83292**

O.C.A. Number

**765664**

**Project Earthwork Totals**

Excavation = 1510 C.Y.  
 Loose Fill = 274 C.Y.  
 Compacted Fill = 42 C.Y.

\*NOTE: Project Earthwork Totals are for information only

**Total Project Length**  
 2090 L.F. = 0.40 Miles

Scale: 1" = 150'

*Drainage Booked  
 1-9-03  
 MEG  
 C-238*

### GENERAL NOTES:

- 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 262-0661  
 Kansas Gas Service 383-8600  
 K.G.E. 383-8600  
 Peoples Gas Company 1-800-303-0752  
 Southwestern Bell Telephone Company 1-800-344-7233  
 City of Wichita Water Department 268-4908  
 City of Wichita Traffic Engineering 268-4446
- Utility service lines, poles, valve boxes, meters, and etcetera 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.
- 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.
- All areas disturbed by construction shall be seeded at 300 lbs./acre with Ryegrass immediately following construction in that area. Contractor shall prepare ground per City specifications.
- Rubble from the removal of miscellaneous structures and excess excavation which is to be wasted shall be disposed of on sites to be provided by the Contractor. These sites shall be approved by the Engineer as to suitability, appearance and site location. Locations that, in the opinion of the Engineer, will leave an unsightly appearance will not be approved. All disposal sites must be approved by the Kansas Department of Health and Environment. Material either stockpiled or disposed of in a flood plain would require a Kansas State Board of Agriculture permit. Any material dumped in waters of the United States or wetlands is subject to U.S. Corps of Engineers permitting regulations. Any material buried or stockpiled beyond approved construction limits would require additional archaeological investigations unless buried in a previously approved borrow location.
- 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 law.
- A saw cut of at least one-half the depth of existing surface courses of one-fourth the depth of the existing total pavement thickness shall be provided at locations where proposed construction abuts an existing surface course or pavement for which partial removal of that surface or pavement is required. Sawn joint to facilitate removal within three (3) feet of existing joints will not be permitted and for such instances the limits of removal shall extend to the existing joint. Such saw cuts will not be paid for directly and this cost shall be considered as subsidiary to the removal of the surface or pavement.
- Mass grading will be completed prior to construction by separate project. Grades will be brought to within 0.2' of existing grade shown on cross sections. Contractor shall be responsible for excavation or filling necessary to obtain proper subgrade elevation. Any cost necessary to achieve this additional fine grading shall be incidental to S.Y. 5" A.C. Pavement. All Excess excavation shall be spread evenly over Lots 49-54, Block B.

### Sheet Index

Title Sheet	1
35' Pavement Detail	2
29' Pavement Detail	3
Sign Detail	4
Miscellaneous Details	5
Leonine	6-8
Leonine Ct. (Lots 4-10, Block A)	9
Leonine Ct. (Lots 11-20, Block A)	10
Leonine Ct. (Lots 1-5, Block C)	11
Angel	11
Line 1	12-13
Lines 2 & 2B	14
Line 2	15
Lines 2 & 2A	16
Single Type 1-A Inlet Detail	17
Special Yard Inlet Detail	18
Standard Manhole Detail	19
Ring & Cover Detail	20
Earthwork Cross Sections	21-27
Copy of Plat	28

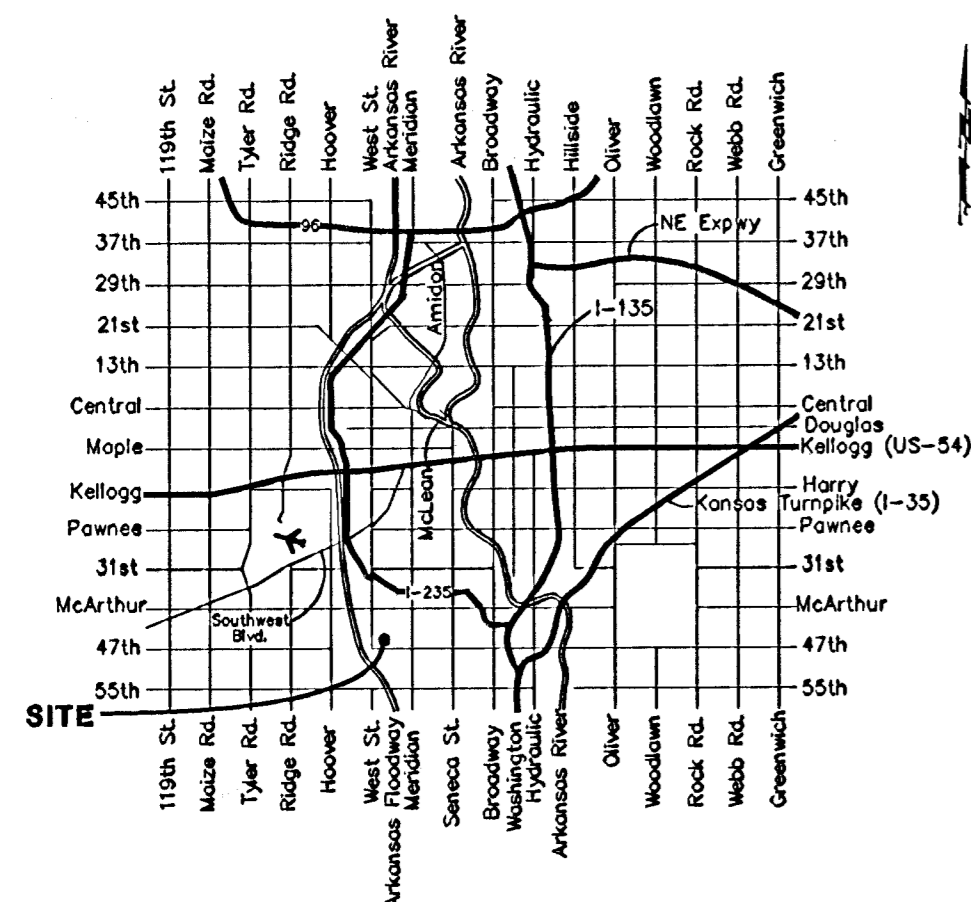
### Benchmark

Railroad Spike in Power Pole  
 Located 27' South and 402' East  
 of the Northwest Corner of the  
 NE 1/4, Section 24, TWP. 28-S, R-1-W.

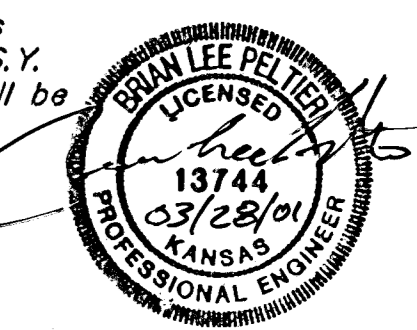
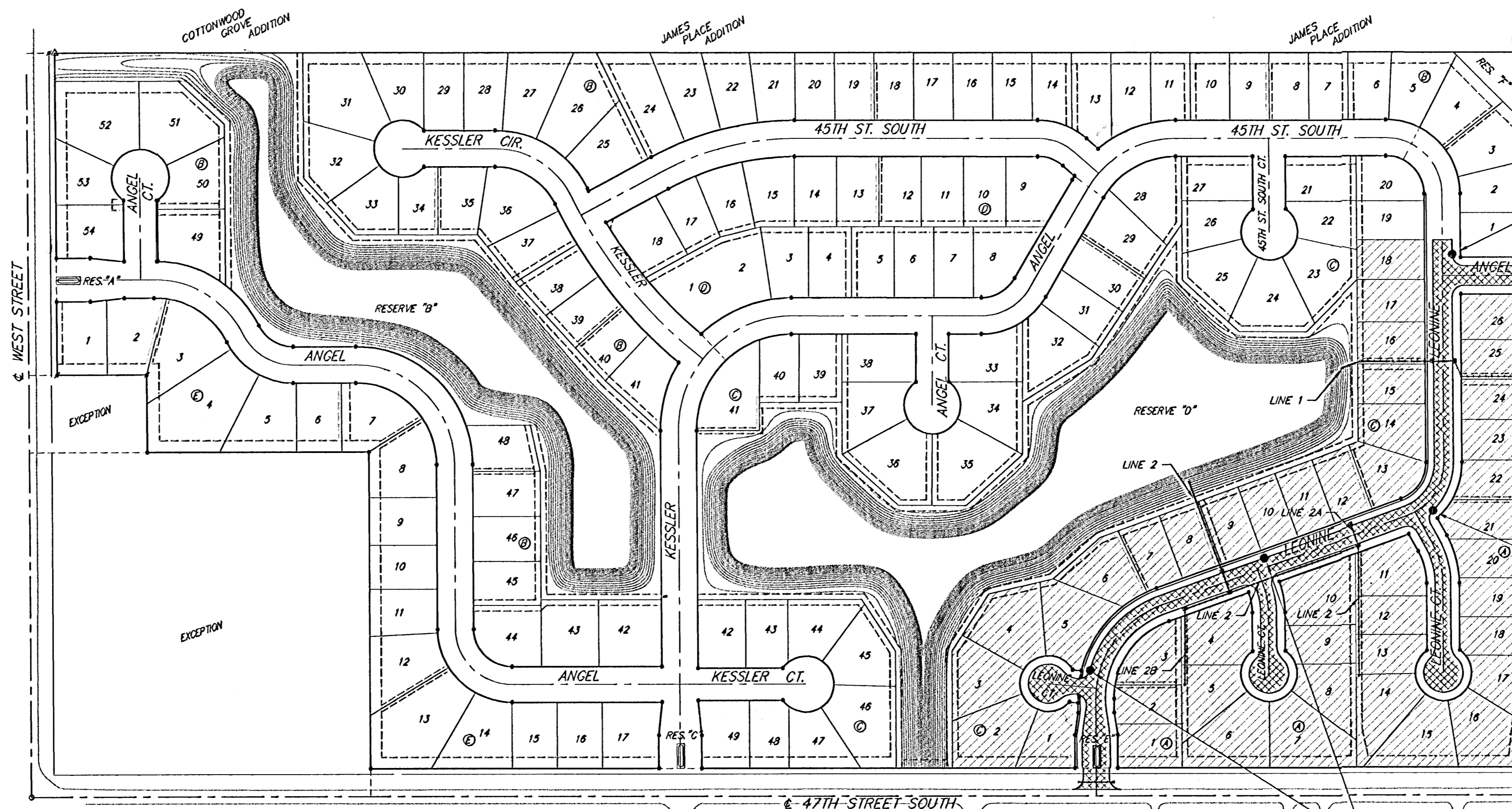
Elevation = 92.98 City Datum

City of Wichita Benchmark Disc SE Corner  
 of Intersection of 47th St. S. and West St.  
 42.10' E. of Centerline  
 51.00' S. of Centerline  
 99.80' E. of P.P. on SW Corner  
 23.80' S. of P.P.

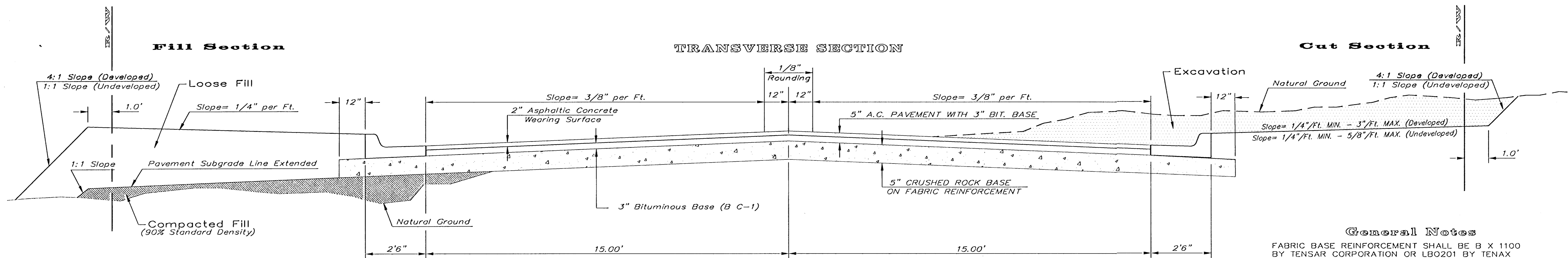
Elevation = 92.29 City Datum



Vicinity Map



# TYPICAL 35' B-B PAVEMENT DETAILS



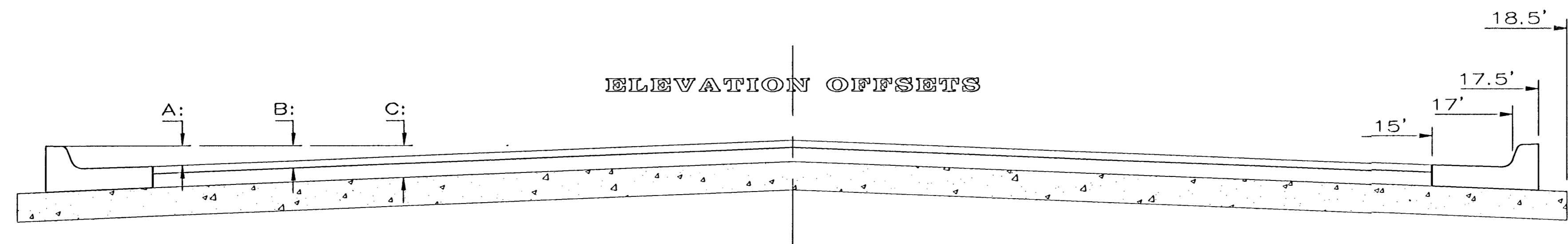
### CRUSHED ROCK GRADATION REQUIREMENTS

PERCENT OF AGGREGATE RETAINED

2-1/2"	0
3/4"	20 - 60
#4	50 - 80
#40	80 - 94
#200	90 - 98

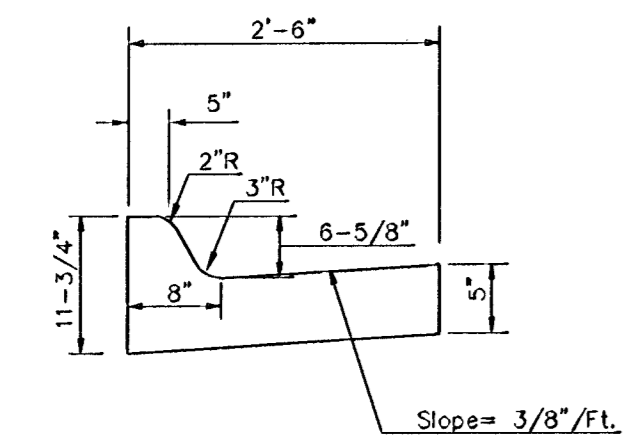
ROCK QUALITY SHALL CONFORM TO THE REQUIREMENTS SPECIFIED BY THE KDOT 1990 EDITION STANDARD SPECIFICATION SUBSECTION 1102 FOR DURABILITY CLASS I.

### ELEVATION OFFSETS

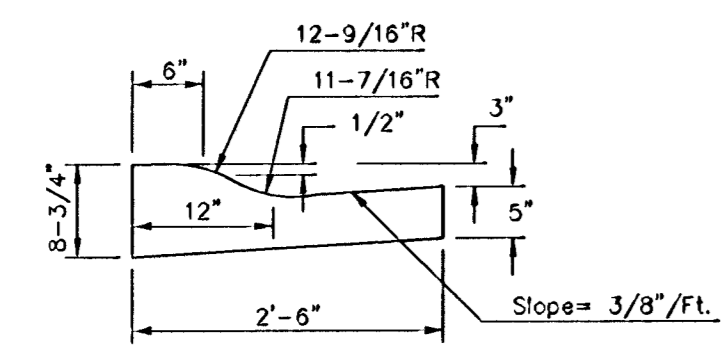


DISTANCE FROM CENTERLINE (L.T. & RT.)

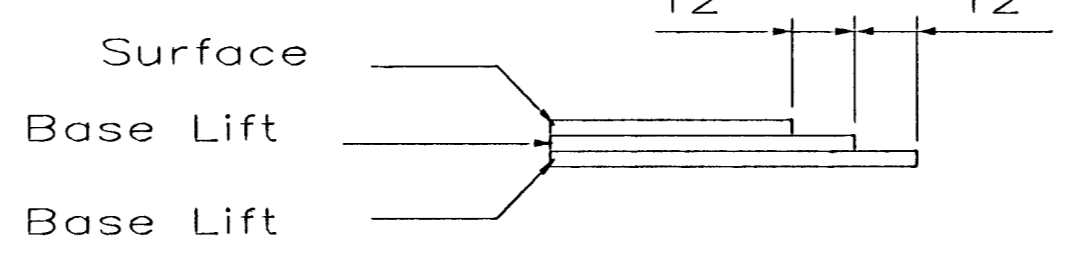
	0'	2'	4'	6'	8.5'	10'	12'	14'	15'	17'	17.5'	18.5'
A: Top of Curbs to Top of Surface Lift	0.04	0.08	0.14	0.21	0.29	0.33	0.39	0.46	0.49	-	-	-
B: Top of Curbs to Top of Upper Base Lift	0.21	0.25	0.31	0.37	0.45	0.50	0.56	0.62	0.65	-	-	-
C: Top of Curbs to Top of C. R. Subgrade	0.46	0.50	0.56	0.63	0.71	0.75	0.81	0.88	0.91	0.97	0.98	1.01



COMBINED CURB & GUTTER

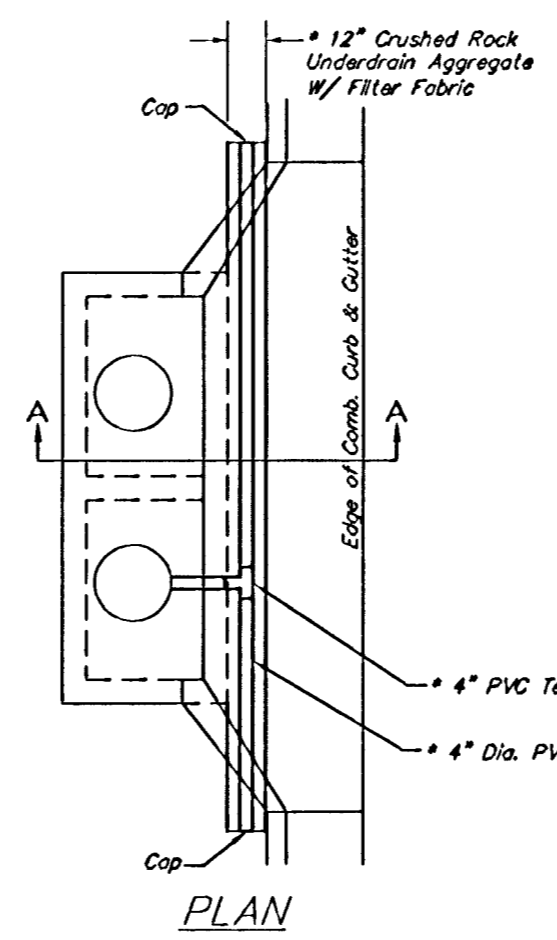


COMBINED ROLL TYPE CURB & GUTTER



TRANSVERSE CONSTRUCTION JOINTS

Transverse construction joints shall be constructed in flexible base pavements at locations where pavement joins existing flexible base pavement as shown by the detail. All costs associated with the construction of the transverse joint shall be included in the bid price for Square Yards 5" ASPHALTIC CONCRETE (3" BITUMINOUS BASE).



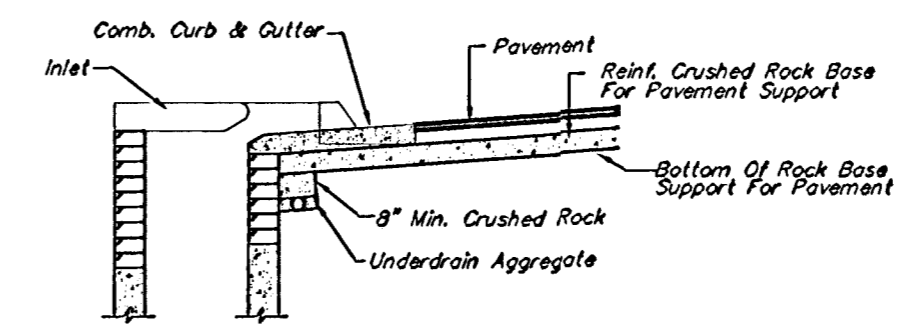
PAVEMENT UNDERDRAIN DETAIL NOT TO SCALE

\* UNDERDRAIN AGGREGATE Percent of Aggregate Retained

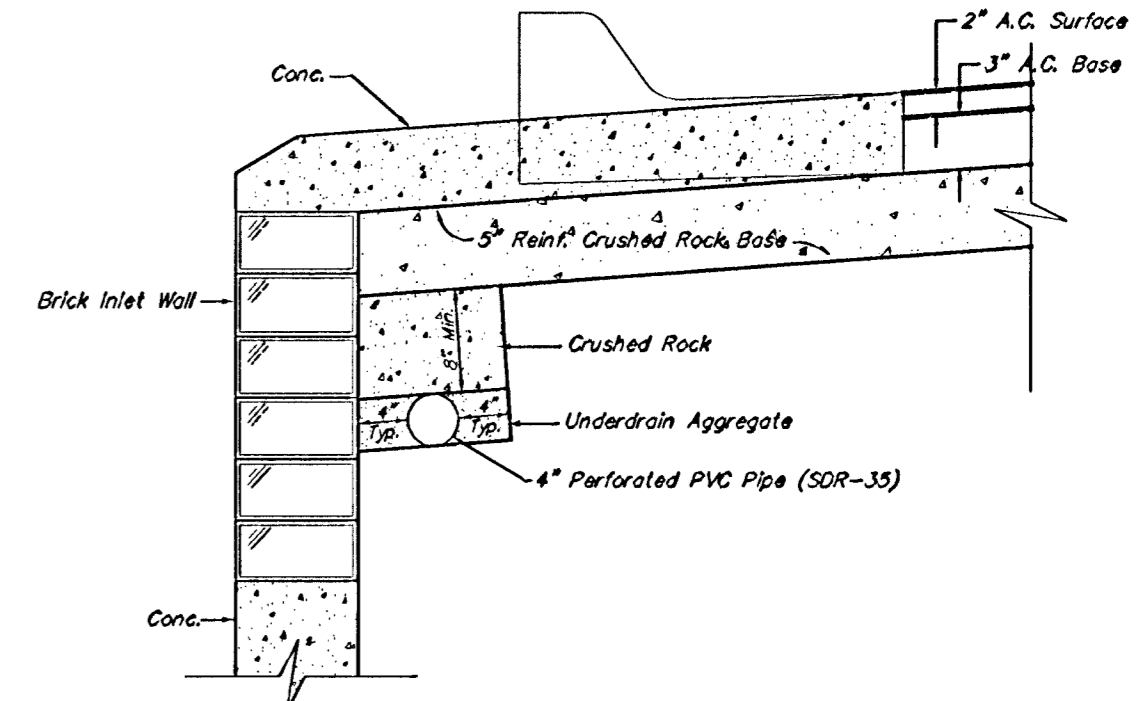
1"	0
3/4"	0 to 10
3/8"	45 to 80
#4	90 to 100
#8	95 to 100

Rock Quality Shall Conform To The Requirements Specified By K.D.O.T. 1990 Edition Standard Specification Subsection 1102 For Durability Class I.

NOTE: Place 4" PVC Perforated Pipe at all drainage sump locations. Cost of Underdrain System to be incidental to the Reinforced Crushed Rock Subgrade. Inlet Type May Vary From That Shown.



SECTION A-A



TRENCH DRAIN DETAIL FOR RES. STREETS NOT TO SCALE

### General Notes

FABRIC BASE REINFORCEMENT SHALL BE B X 1100 BY TENSAR CORPORATION OR LBO201 BY TENAX CORPORATION OR APPROVED EQUAL. FABRIC BASE REINFORCEMENT SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

ROCK BASE IS TO BE COMPACTED AND SMOOTHED WITH A STEEL FACED ROLLER PRIOR TO PLACEMENT OF ASPHALT. TACK COAT WILL NOT BE APPLIED TO ROCK BASE.

A TACK COAT OF EMULSIFIED ASPHALT (SC-1H OR CSS-1H) SHALL BE APPLIED AT AN APPROXIMATE RATE OF 0.05 GALLONS PER SQUARE YARD BETWEEN EACH LIFT OF ASPHALTIC MATERIAL.

BITUMINOUS BASE AND ASPHALTIC CONCRETE WEARING SURFACE SHALL BE PLACED WITH A LAYDOWN MACHINE HAVING AUTOMATIC CONTROLS FOR LINE AND GRADE.

CONSTRUCTION JOINTS IN EACH LIFT SHALL BE STAGGERED A MINIMUM DISTANCE OF ONE (1) FOOT FROM JOINTS IN PRECEDING LIFTS AND PLACED SO THAT A JOINT WILL BE CONSTRUCTED ON THE CENTERLINE OF THE TOP LIFT.

THE ASPHALTIC CONCRETE PAVEMENT BETWEEN THE COMBINED CURB AND GUTTER SHALL BE PAID AS SQUARE YARDS OF 5" ASPHALTIC CONCRETE (3" BITUMINOUS BASE).

5 INCH Residential Asphaltic Concrete Pavement w/Crushed Rock Base on Fabric Reinforcement  
City of Wichita, Kansas

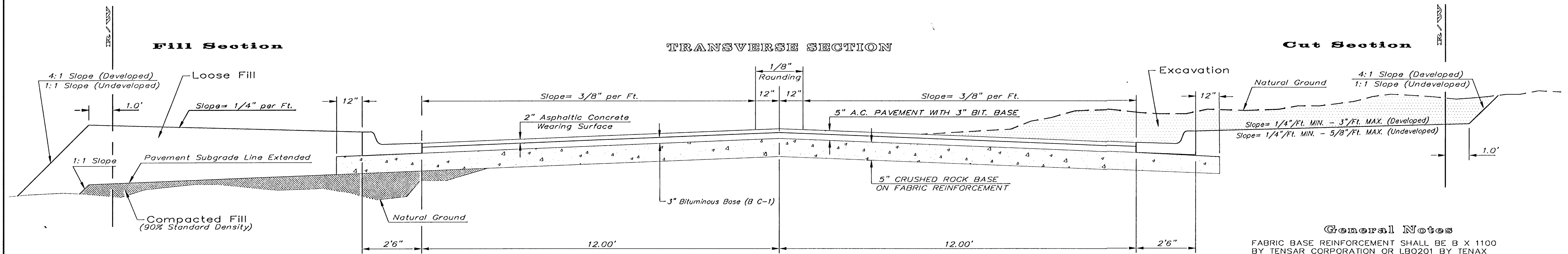
**BAUGHMAN COMPANY P.A.**  
ENGINEERING, SURVEYING, & PLANNING  
316-262-7271 • 315 ELLIS • WICHITA, KANSAS 67211

PROJECT NUMBER  
**472-89292**

SHEET  
**2**  
OF  
**28**

DESIGN: C.O.W. DRAWN: Staff APPROVED: DATE: SCALE: NONE

# TYPICAL 29' B-B PAVEMENT DETAILS



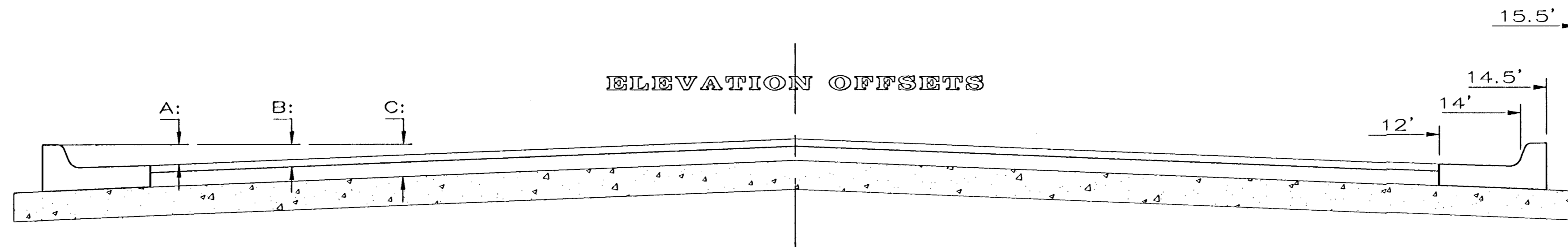
### CRUSHED ROCK GRADATION REQUIREMENTS

PERCENT OF AGGREGATE RETAINED

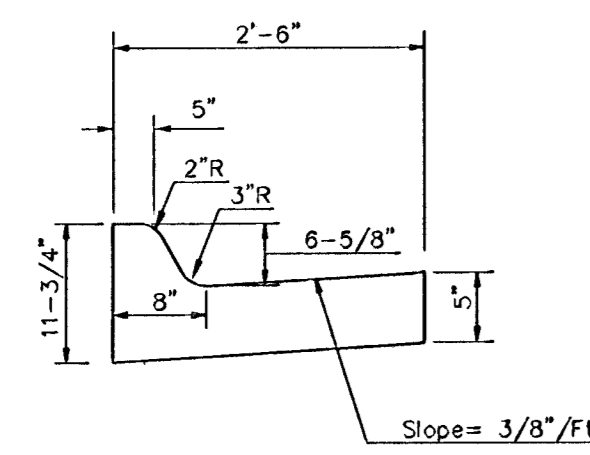
2-1/2"	0
3/4"	20 - 60
#4	50 - 80
#40	80 - 94
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ROCK QUALITY SHALL CONFORM TO THE REQUIREMENTS SPECIFIED BY THE KDOT 1990 EDITION STANDARD SPECIFICATION SUBSECTION 1102 FOR DURABILITY CLASS I.

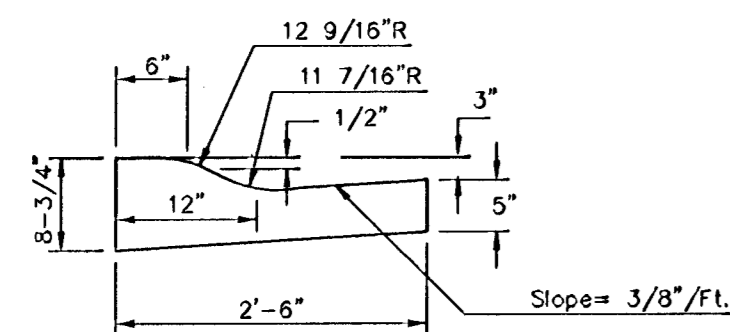
### ELEVATION OFFSETS



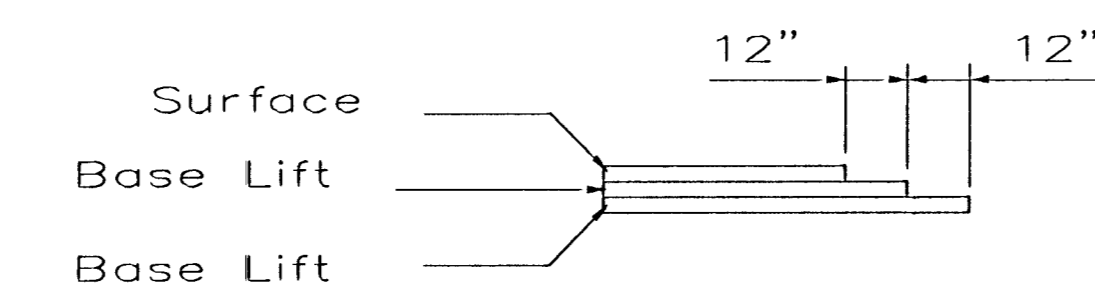
	DISTANCE FROM CENTERLINE (L.T. & R.T.)										
	0'	2'	4'	6'	7'	8'	10'	12'	14'	14.5'	15.5'
A: Top of Curbs to Top of Surface Lift	0.13	0.18	0.24	0.30	0.33	0.36	0.43	0.49	-	-	-
B: Top of Curbs to Top of Upper Base Lift	0.30	0.35	0.41	0.47	0.50	0.53	0.60	0.66	-	-	-
C: Top of Curbs to Top of C.R. Subgrade	0.55	0.60	0.66	0.72	0.75	0.78	0.85	0.91	0.97	0.98	1.01



### COMBINED CURB & GUTTER

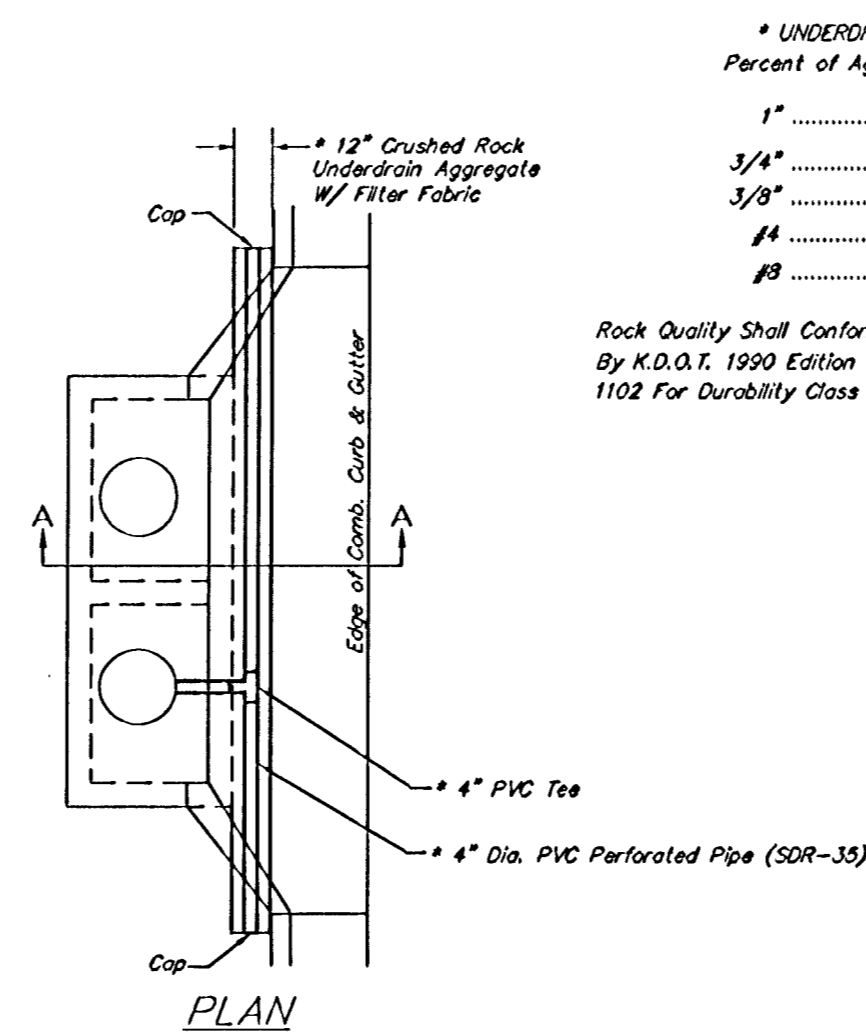


### COMBINED ROLL TYPE CURB & GUTTER



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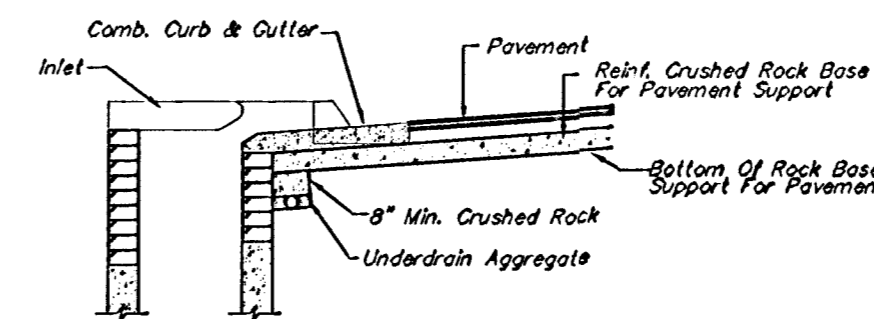


\* UNDERDRAIN AGGREGATE Percent of Aggregate Retained

1"	0
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NOTE: Place 4" PVC Perforated Pipe at all drainage sump locations. Cost of Underdrain System to be Incidental to the Reinforced Crushed Rock Subgrade. Inlet Type May Vary From That Shown.

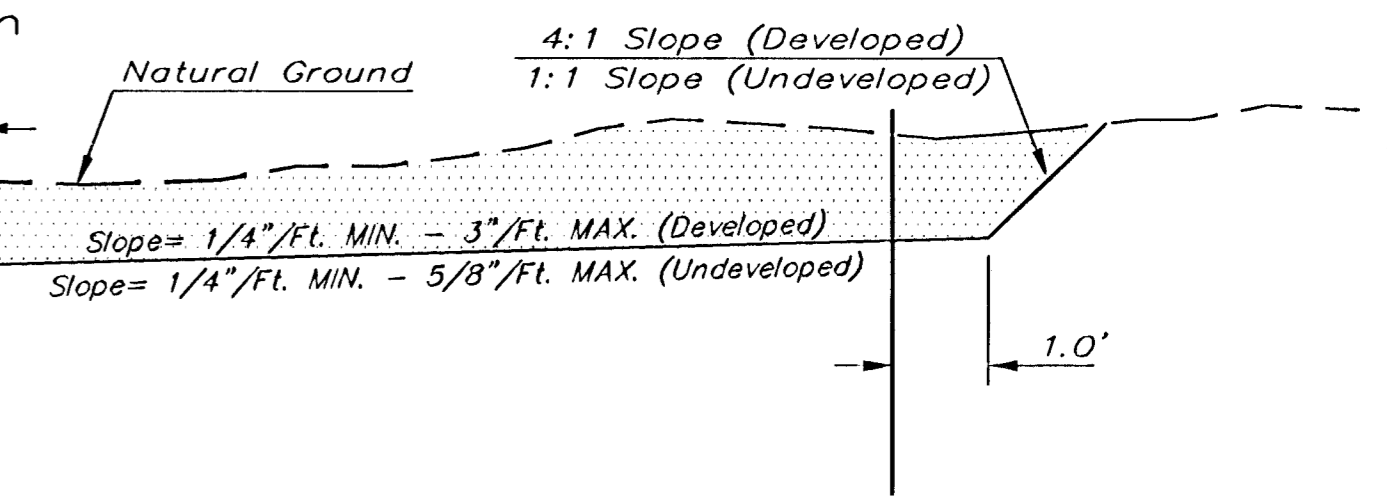


### SECTION A-A

### PAVEMENT UNDERDRAIN DETAIL

NOT TO SCALE

### Cut Section



### General Notes

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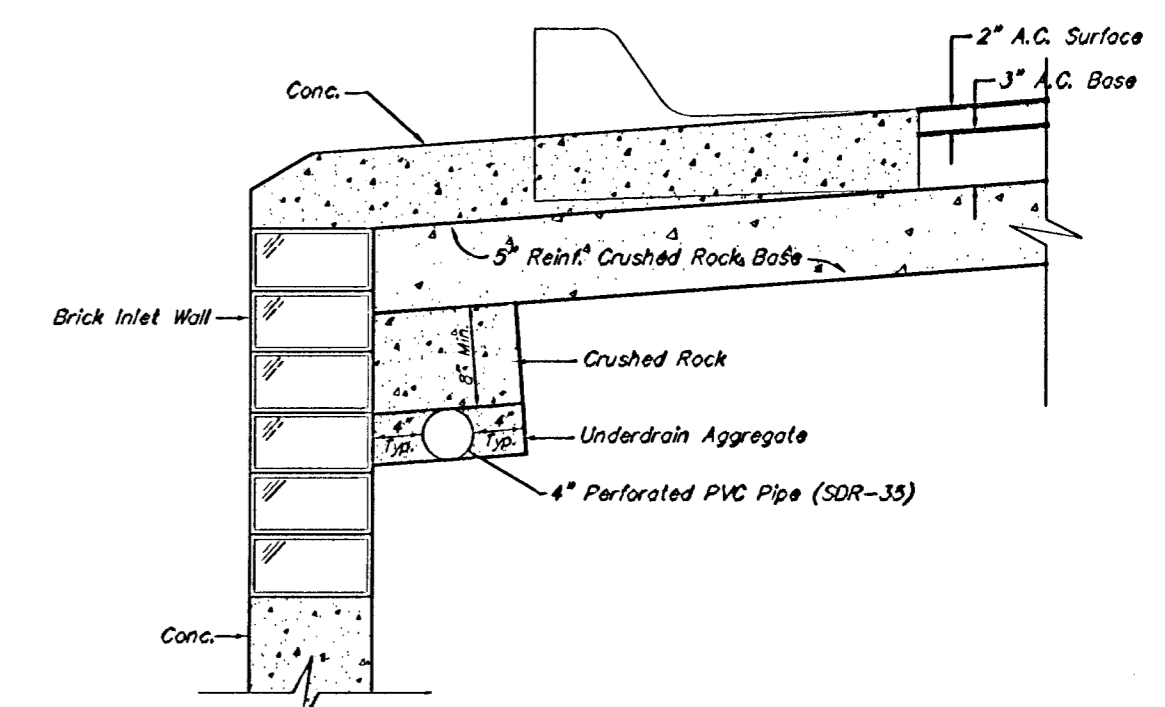
ROCK BASE IS TO BE COMPACTED AND SMOOTHED WITH A STEEL FACED ROLLER PRIOR TO PLACEMENT OF ASPHALT. TACK COAT WILL NOT BE APPLIED TO ROCK BASE.

A TACK COAT OF EMULSIFIED ASPHALT (SC-1H OR CSS-1H) SHALL BE APPLIED AT AN APPROXIMATE RATE OF 0.05 GALLONS PER SQUARE YARD BETWEEN EACH LIFT OF ASPHALTIC MATERIAL.

BITUMINOUS BASE AND ASPHALTIC CONCRETE WEARING SURFACE SHALL BE PLACED WITH A LAYDOWN MACHINE HAVING AUTOMATIC CONTROLS FOR LINE AND GRADE.

CONSTRUCTION JOINTS IN EACH LIFT SHALL BE STAGGERED A MINIMUM DISTANCE OF ONE (1) FOOT FROM JOINTS IN PRECEDING LIFTS AND PLACED SO THAT A JOINT WILL BE CONSTRUCTED ON THE CENTERLINE OF THE TOP LIFT.

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### TRENCH DRAIN DETAIL FOR RES. STREETS

NOT TO SCALE

5 INCH Residential Asphaltic Concrete Pavement w/Crushed Rock Base on Fabric Reinforcement  
City of Wichita, Kansas

**BAUGHMAN COMPANY P.A.**  
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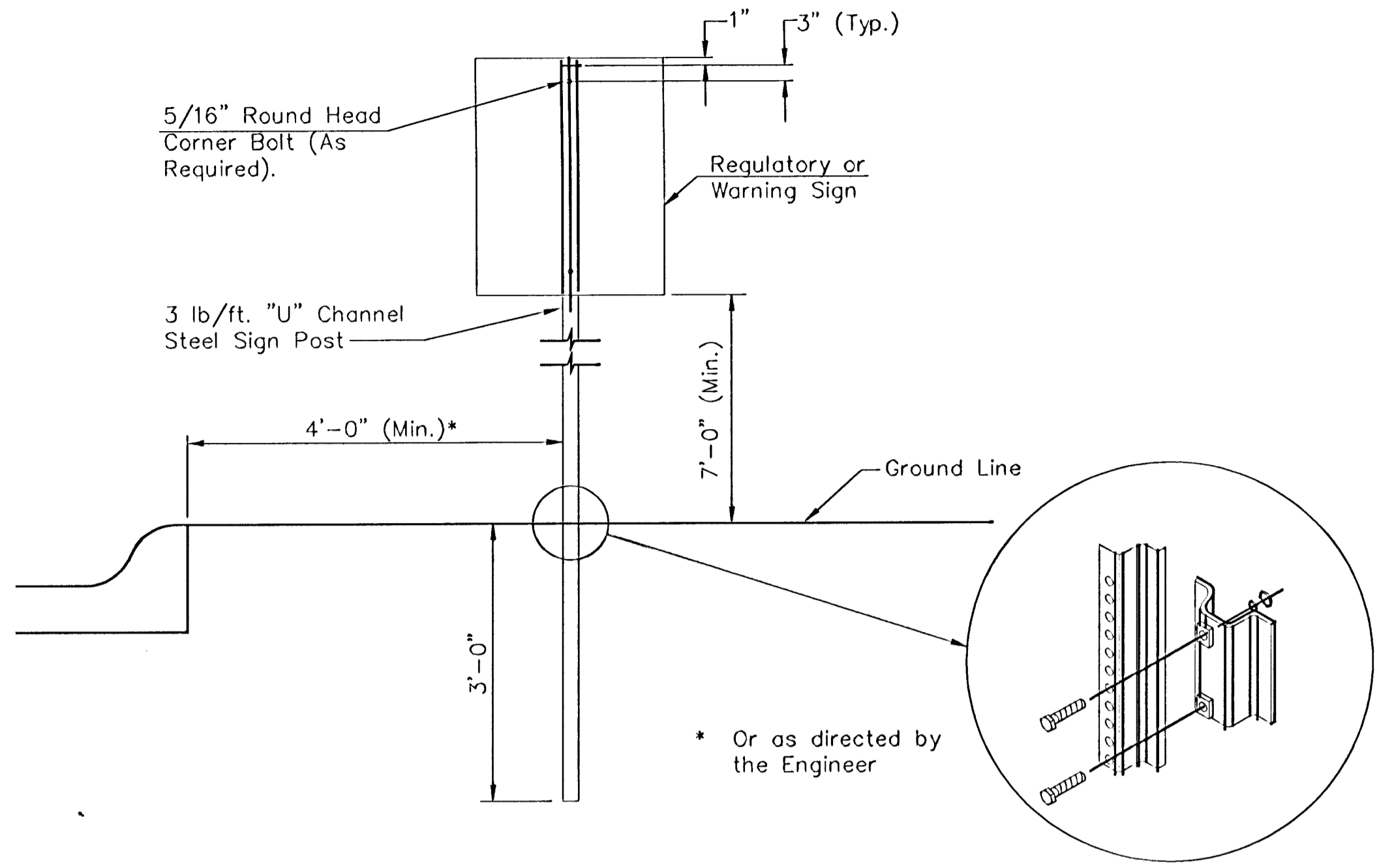
PROJECT NUMBER <b>472-83292</b>					SHEET <b>3</b> OF <b>28</b>
DESIGN C.O.W.	DRAWN Staff	APPROVED	DATE	SCALE	

Details 12/2006

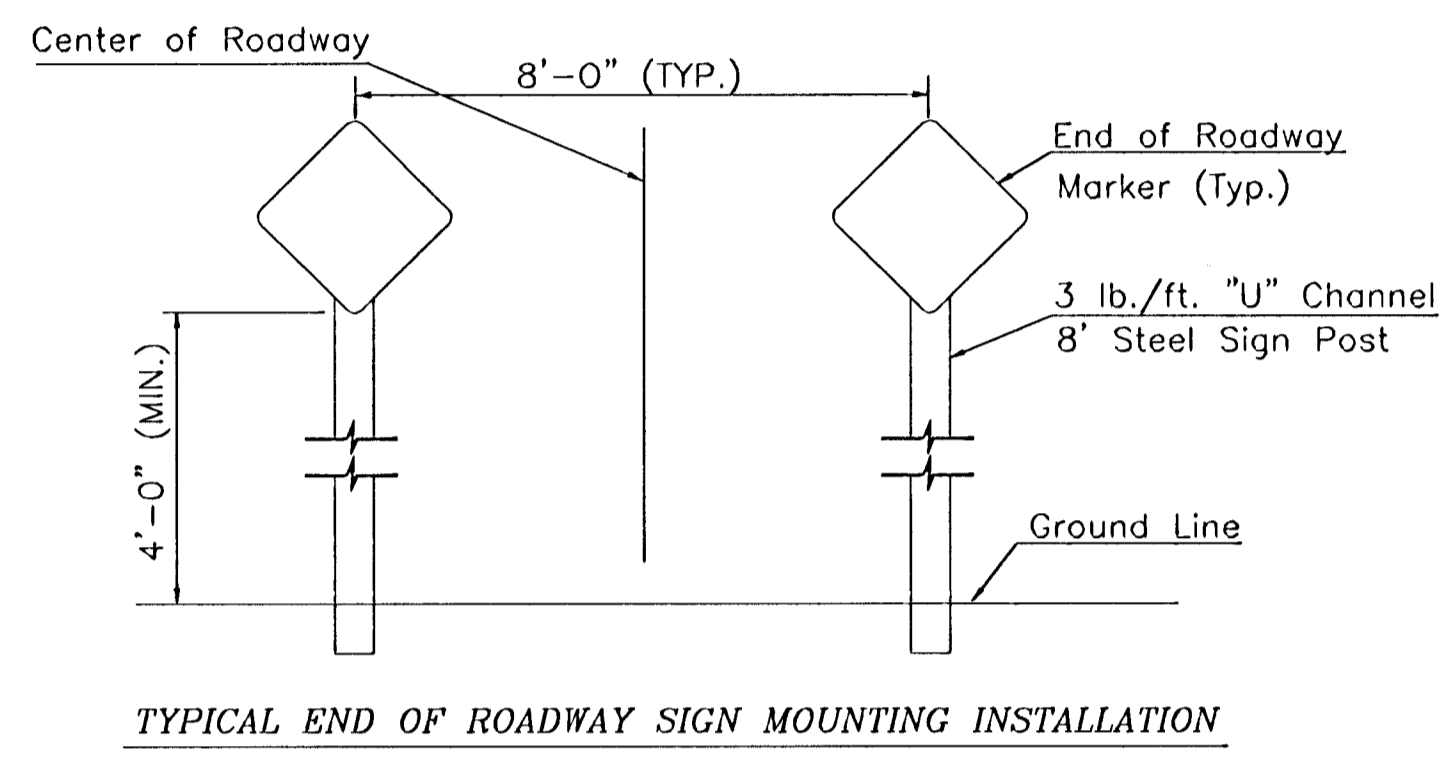
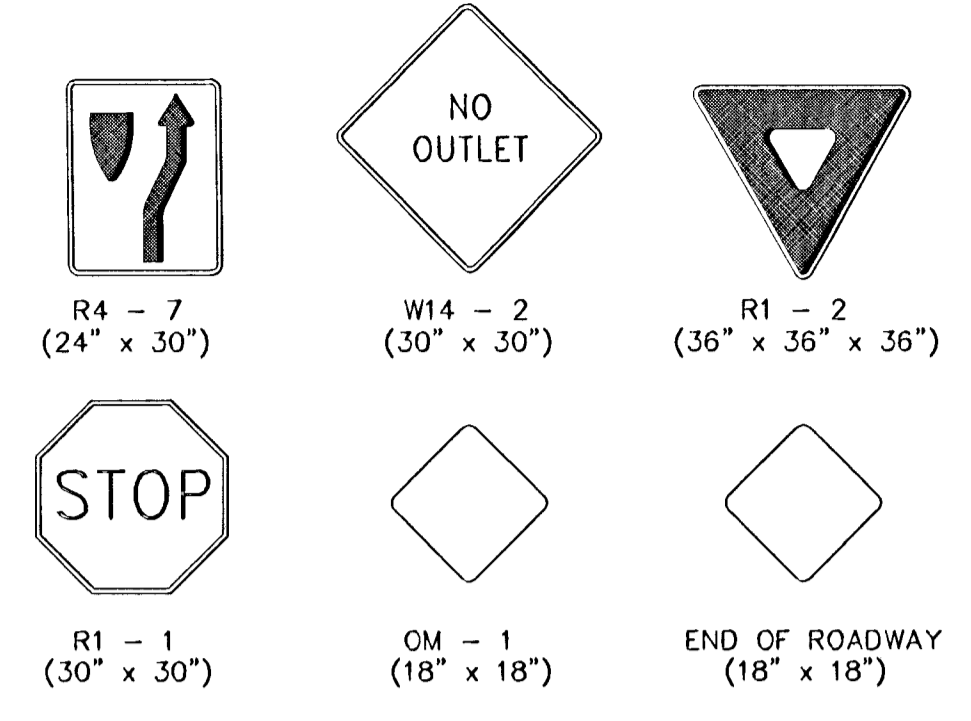
FHWA REG NO.	STATE	PROJECT NO.	YEAR	SHEET NO.	SHEETS
7	KANSAS	472-83292		4	28

NOTE: REFERENCES BELOW TO "STANDARD SPECIFICATIONS" DENOTE "STANDARD SPECIFICATION FOR STATE ROAD AND BRIDGE CONSTRUCTION EDITION 1990" BY THE KANSAS DEPARTMENT OF TRANSPORTATION.

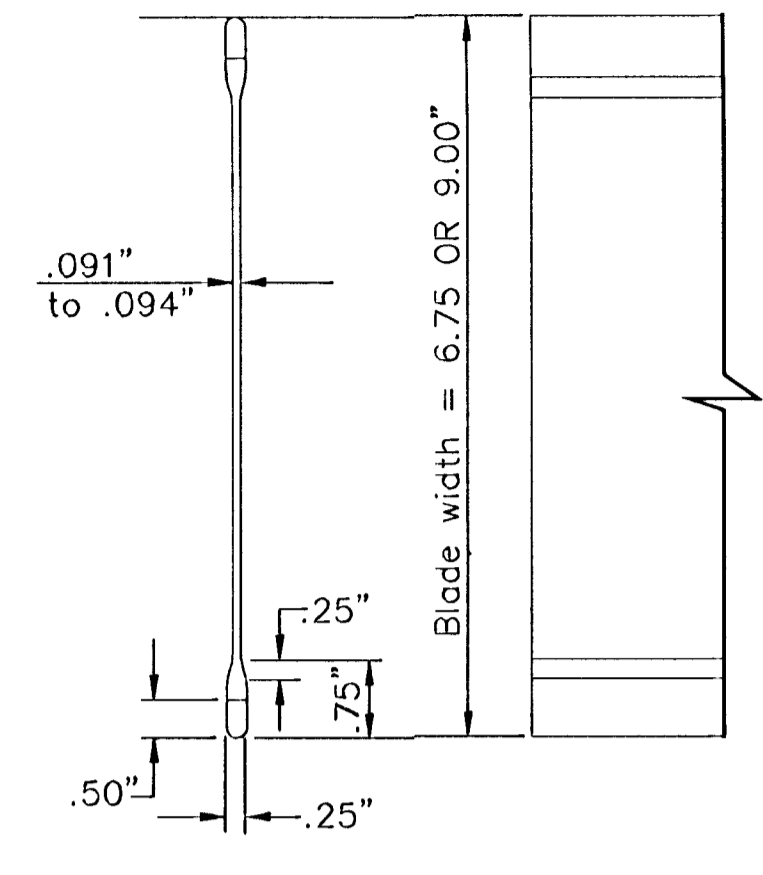
- POST ANCHORS: POSTS SHALL BE ANCHORED WITH A YIELDING BASE POST SUPPORT AS DETAILED.
- POSTS FOR TRAFFIC CONTROL SIGNS: POSTS SHALL CONFORM TO THE REQUIREMENTS OF SUBSECTION 1620 OF THE STANDARD SPECIFICATIONS EXCEPT THAT ALL POSTS SHALL WEIGH 3 LBS./FOOT MINIMUM.
- POSTS FOR STREET NAME SIGNS (SNS): POSTS SHALL BE 9 FEET LONG, CONSTRUCTED FROM 2 3/8" O.D. GALVANIZED STEEL PIPE WEIGHING A MINIMUM OF 3 LBS./FOOT. POSTS SHALL BE POSITIONED SO THAT THE BOTTOM BLADE IS 7 FEET ABOVE GRADE.
- POSTS FOR END OF ROADWAY SIGN TO BE 8' LONG AND INSTALLED A MINIMUM OF 4' FROM ROADWAY TO BOTTOM OF SIGN.
- SIGN BLANKS FOR TRAFFIC CONTROL SIGNS: SIGN BLANKS SHALL BE FABRICATED FROM 0.080" ALUMINUM ALLOY 6063-T6 CONFORMING TO THE REQUIREMENTS OF SUBSECTION 1626 OF THE STANDARD SPECIFICATIONS.
- SIGN BLADES FOR STREET NAME SIGNS: EXTRUDED ALUMINUM BLADES SHALL BE ALUMINUM ALLOY CONFORMING TO 6063-T6 OR 5052-H38 (ASTM SPECIFICATION B221, LATEST ISSUE). BLADES SHALL HAVE AN ALODINE OR PHOSPHATE ETCHED FINISH. BLADES SHALL HAVE SQUARE CORNERS AND NO HOLES.  
MINIMUM BLADE LENGTH SHALL BE 24". MAXIMUM BLADE LENGTH SHALL BE 48". LENGTH VARIES BY INCREMENTS OF 6".  
BLADES BEARING THE STREET NAMES SHALL BE FIRMLY ATTACHED TO THE MOUNTING BRACKETS USING ALLEN-TYPE SET SCREWS. THE BLADES SHALL BE ORIENTED PARALLEL TO THE STREET.
- MOUNTING BRACKETS FOR SIGNS: DIE-CAST ALUMINUM BRACKETS SHALL BE ALUMINUM ALLOY 360 HAVING A TENSILE STRENGTH OF 44,000 PSI. THE BRACKETS SHALL BE SMOOTHLY FINISHED FREE OF PITS, BURRS, AND FLAWS. EACH BRACKET SHALL BE TAPPED AND DRILLED FOR 5/16" ZINC-PLATED ALLEN-TYPE SET SCREWS HAVING SELF-LOCKING SAW-TOOTH ENDS.
- FASTENERS: ALL STEEL FASTENERS FOR TRAFFIC CONTROL SIGNS SHALL BE GALVANIZED AND SHALL CONFORM TO THE REQUIREMENTS OF SUBSECTION 1614 OF THE STANDARD SPECIFICATIONS.
- REFLECTIVE SHEETING: REFLECTIVE SHEETING SHALL BE TYPE II - HIGH PERFORMANCE CLASS HA IN ACCORDANCE WITH SUBSECTION 2201 OF THE STANDARD SPECIFICATIONS.
- PROCESS INK: ALL PROCESS INK SHALL CONFORM TO THE REQUIREMENTS OF SUBSECTION 2202 OF THE STANDARD SPECIFICATIONS.
- DETAILS: REGULATORY AND WARNING SIGNS SHALL CONFORM TO THE DETAILS IN "STANDARD HIGHWAY SIGNS", FHWA, 1979.
- DETAILS - SNS: THE REFLECTIVE SHEETING FOR THE 6 3/4" STANDARD SIZE SNS IS TO BE THE HIGHWAY GREEN BACKGROUND WITH SILVER-WHITE #2 COPY WITH 4" UPPER CASE AND LOWER CASE PRIMARY COPY AND SUFFIX COPY. BOTH SERIES "C". FACES TO TRIM TO A 6 1/4". (SEE DETAIL A.)  
THE REFLECTIVE SHEETING FOR THE 9" METRO SIZE SNS IS TO BE THE HIGHWAY GREEN BACKGROUND WITH SILVERWHITE #2 COPY WITH 5" UPPER CASE AND LOWER CASE PRIMARY COPY AND SUFFIX COPY, BOTH SERIES "C". THE CARDINAL DIRECTION CENTERED DIRECTLY BELOW THE BLOCK NUMBER SHALL BE AN UPPER CASE, 3" SERIES "C" LETTER. FACES TO TRIM TO A 8 1/2" WIDTH. (SEE DETAIL B.)  
FOR CUL-DE-SAC STREETS, A 9" METRO SIZE BLADE SHALL BE USED WITH THE HOUSE NUMBERS DISPLAYED BENEATH THE STREET NAME. LETTERING TO BE THE SAME AS FOR THE 6 3/4" SIZE BLADE, EXCEPT THAT THE HOUSE NUMBER INFORMATION SHALL BE 4" SERIES "C".  
SHOP DRAWINGS OF LAYOUT FOR SNS SHALL BE SUBMITTED TO THE TRAFFIC ENGINEERING DIVISION OF THE CITY OF WICHITA FOR APPROVAL PRIOR TO FABRICATION. THE FINISHED SIGNS AS SUPPLIED SHALL BE OF GOOD APPEARANCE, FREE FROM RAGGED EDGES, CRACKS SCALES OR BUSTERS AND SHALL BE CLEAN-CUT. SIGNS SHALL BE PACKED IN SUCH MANNER AS TO PREVENT DAMAGE OR DEFACEMENT DURING SHIPMENT OR STORAGE.
- PERMANENT TRAFFIC CONTROL AND SNS: PERMANENT TRAFFIC CONTROL AND SNS SHALL BE MEASURED AND PAID FOR AT THE LUMP SUM PRICE FOR SIGNING. THE PAYMENT AS SET FORTH ABOVE SHALL BE CONSIDERED FULL COMPENSATION FOR ALL EXCAVATION, BACKFILLING, POSTS, ANCHORS, FASTENERS, MATERIALS, LABOR, TOOLS AND INCIDENTALS NECESSARY TO COMPLETE THIS WORK.



TYPICAL TRAFFIC CONTROL SIGN MOUNTING INSTALLATION  
CURB AND GUTTER SECTION



TYPICAL END OF ROADWAY SIGN MOUNTING INSTALLATION

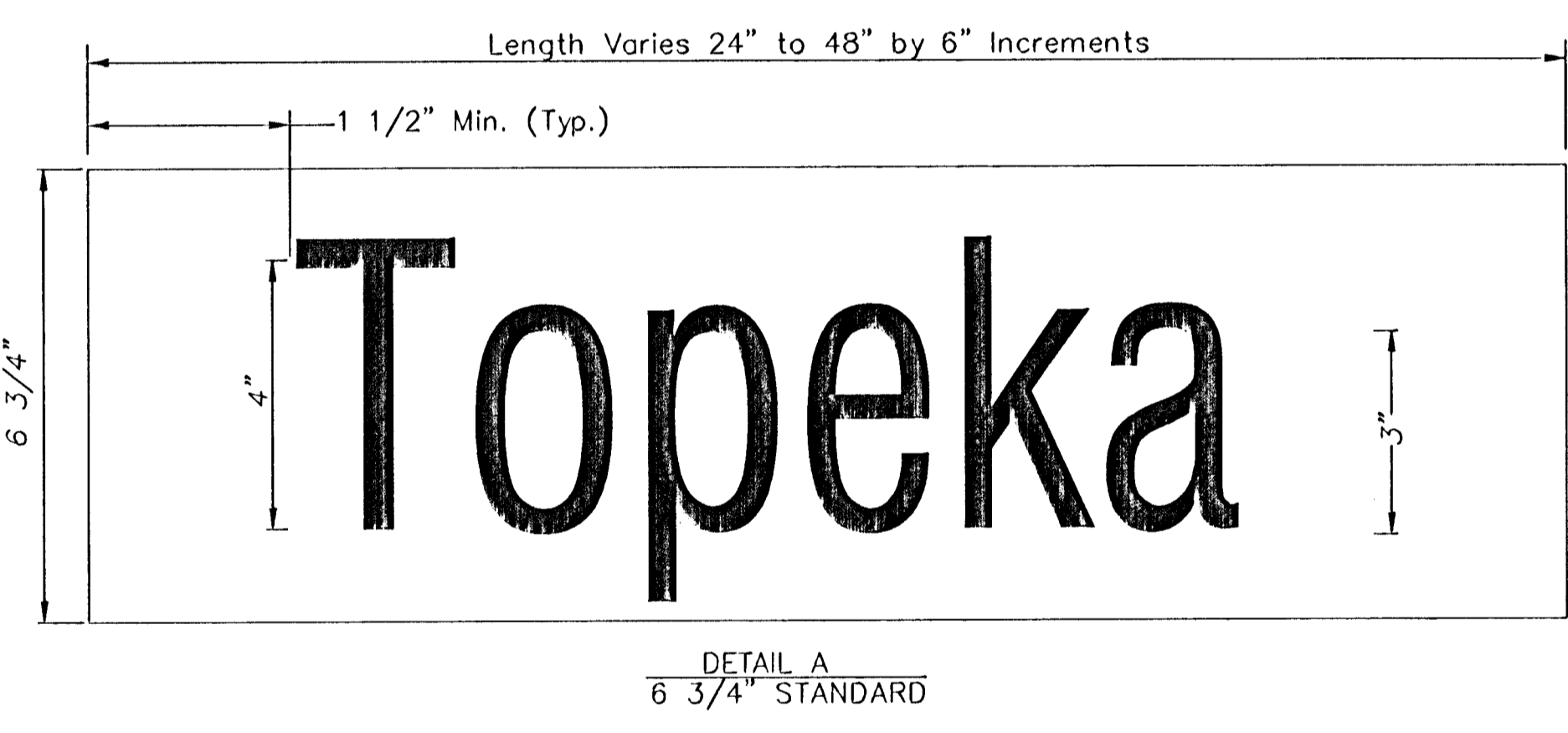


STREET NAME SIGN  
BLADE DETAILS

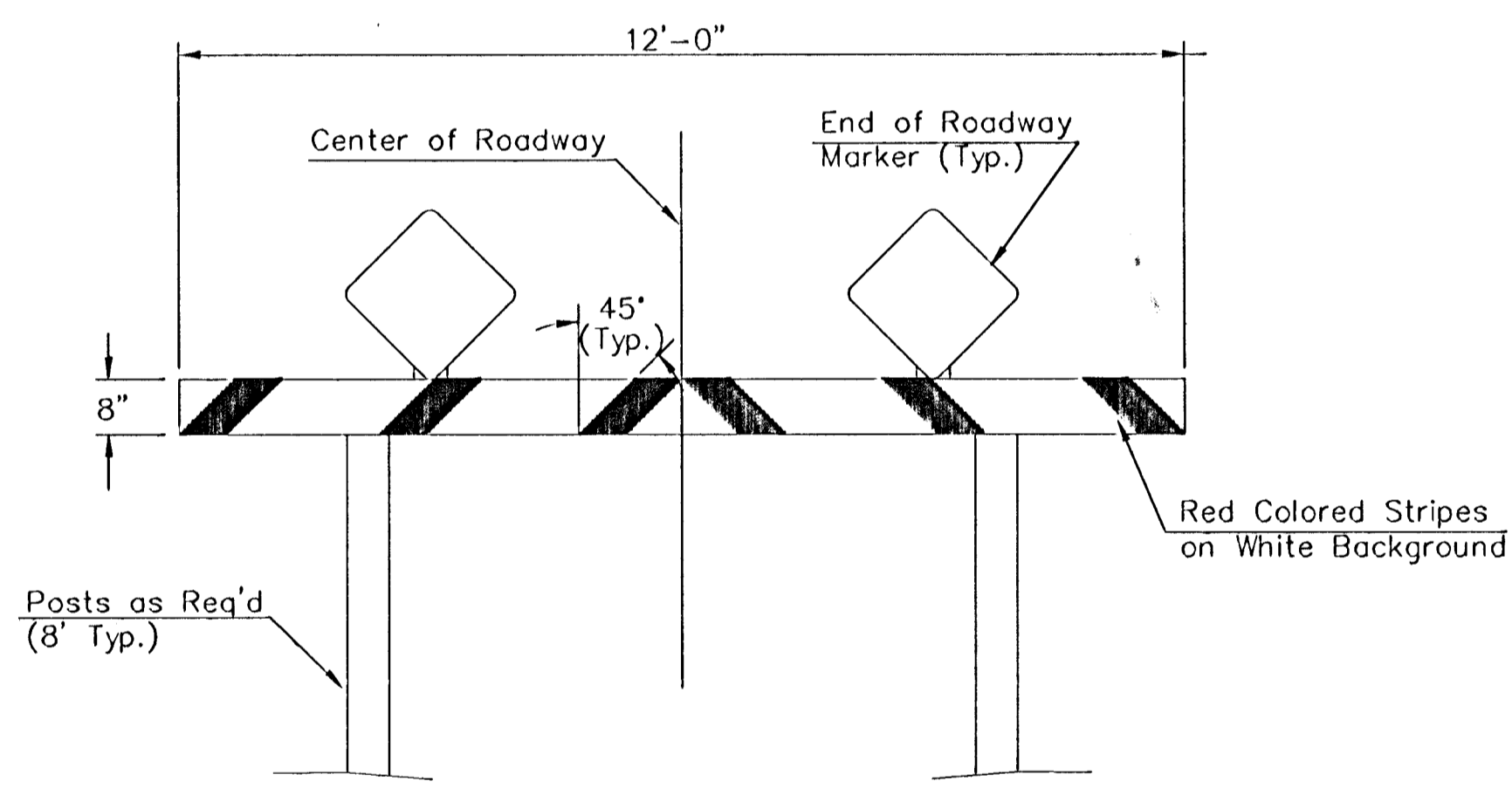
STATION	OFFSET	SIGN	QUANTITY*
0+50.00	32' RL	D3 (SNS)	1
0+50.00	30' LL	R1-1 (STOP)	1
0+55.25	1' RL	R4-7 & OM-1	1
0+86.00	1' RL	R4-7 & OM-1	1
2+17.24	23' LL	D3 (SNS)	1
5+41.17	23' RL	D3 (SNS)	1
8+44.53	23' RL	D3 (SNS)	1
12+68.46	23' RL	D3 (SNS)	1
TOTAL			

\* FOR INFORMATION ONLY

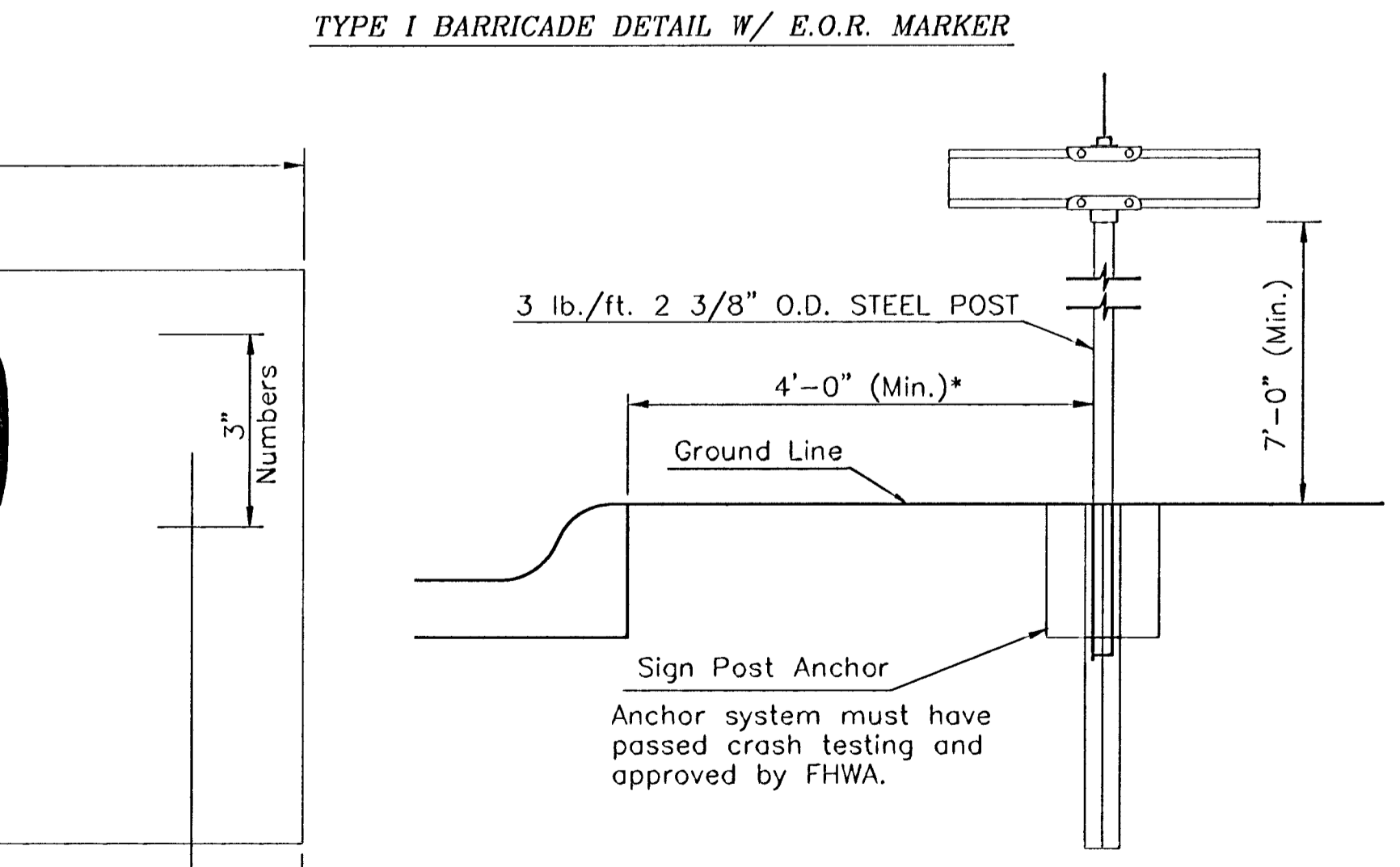
STREET NAME	NO. BLADES REQ'D	
	6 3/4" STD.	9" METRO
Leonine	4	
47th St 3400 W		1
Angel	1	
Leonine 4700 S		1
Leonine Ct		1
4710 - 4730		1
Leonine Ct		1
4718 - 4782		1
Leonine Ct		1
4685 - 4681		1



DETAIL A  
6 3/4" STANDARD

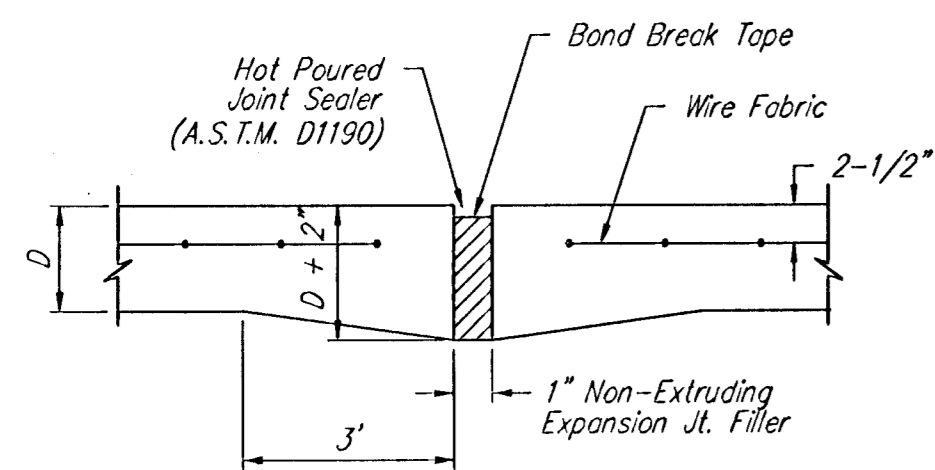


DETAIL B  
9" METRO



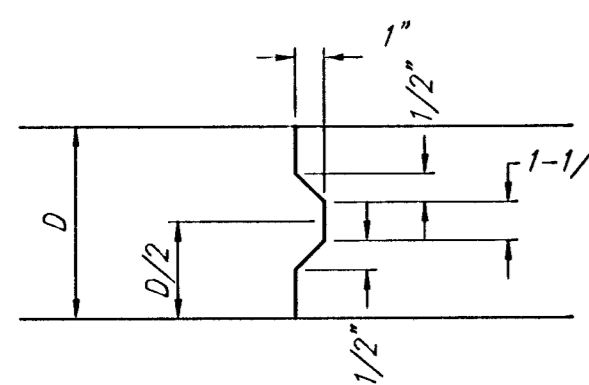
TYPICAL STREET NAME SIGN MOUNTING INSTALLATION  
CURB AND GUTTER SECTION

SIGNING DETAILS		
SCALE: NONE	APPROVED BY	DATE: JUNE '93
DRAWN BY: TM		REVISED: JUNE '97
CITY OF WICHITA DEPARTMENT OF PUBLIC WORKS TRAFFIC ENGINEERING SECTION		

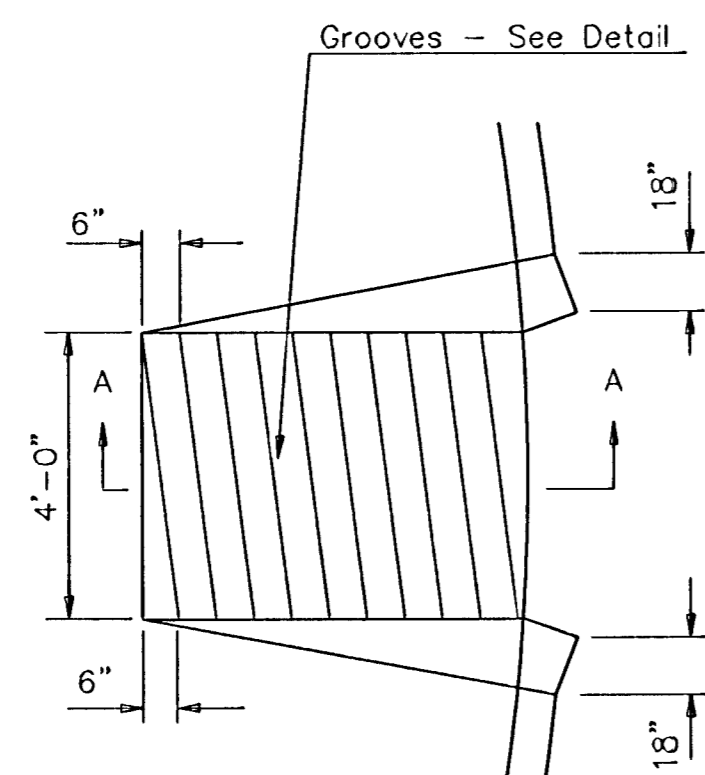


**EXPANSION JOINT**

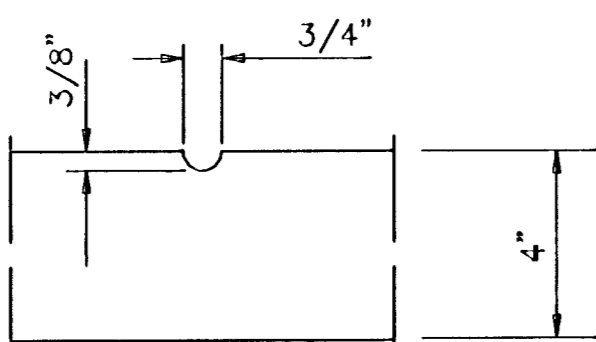
NOTE: Extra Thickness to be Subsidiary to Price of Square Yards Pavement



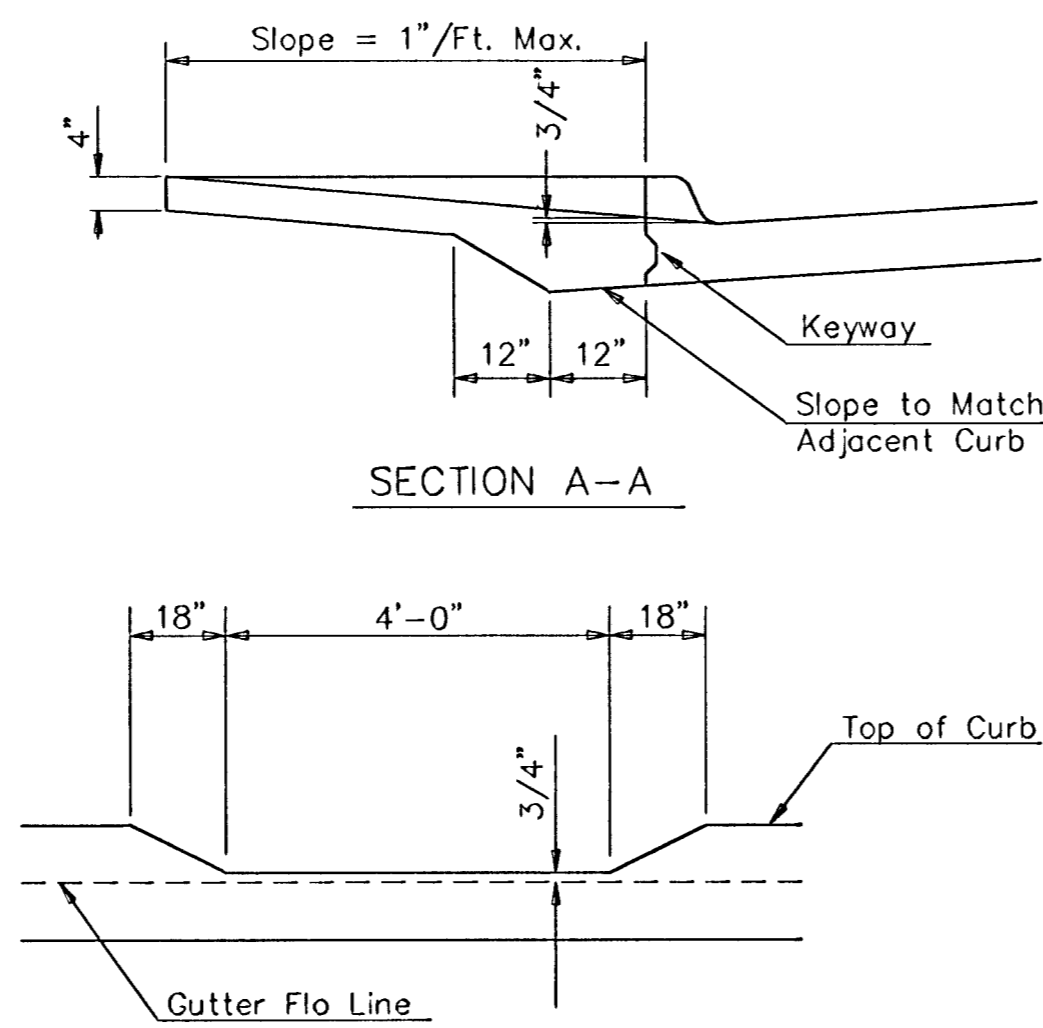
**KEYWAY DETAIL**



**WHEELCHAIR RAMP PLAN VIEW**

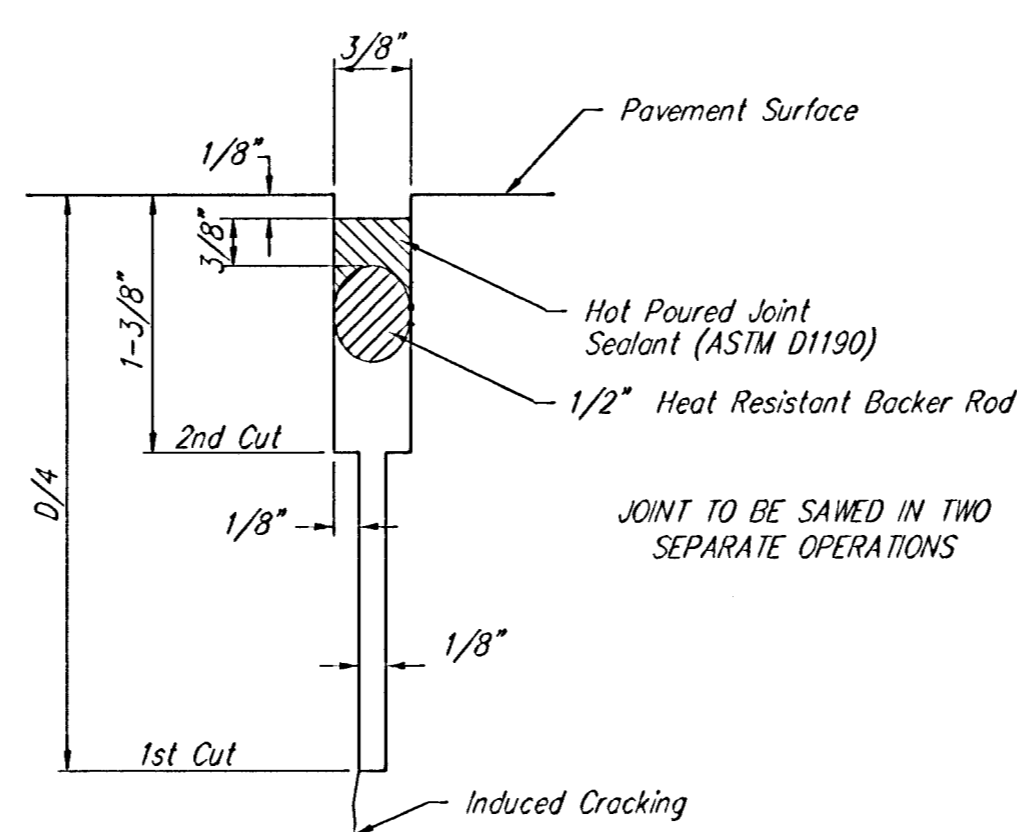


**GROOVE DETAIL**

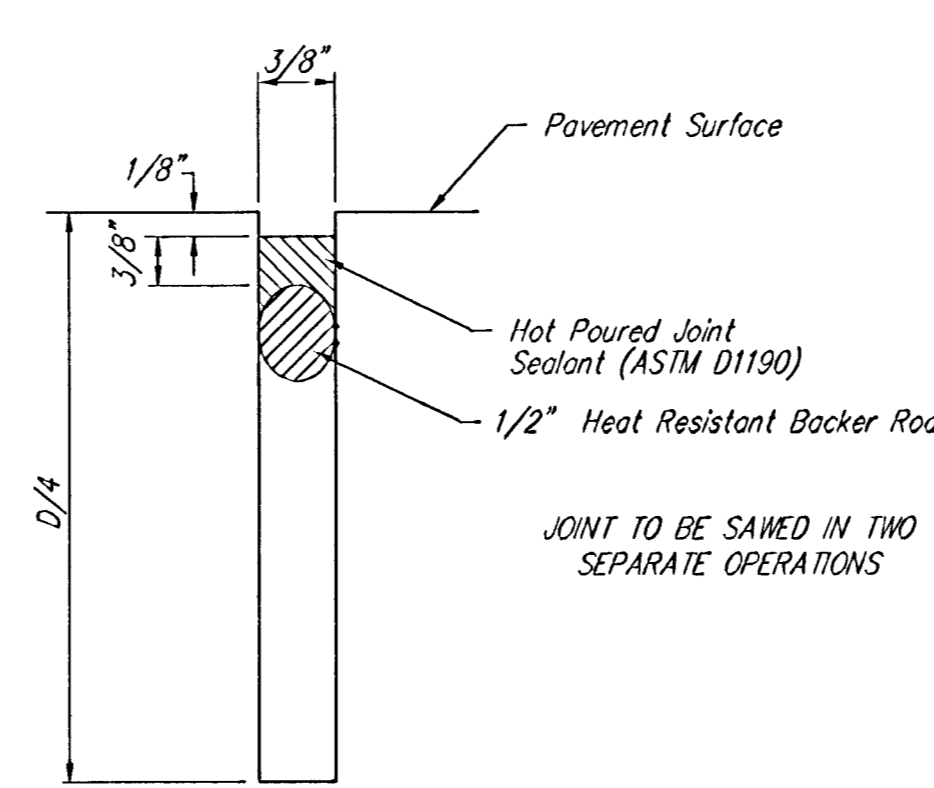


**SECTION A-A**

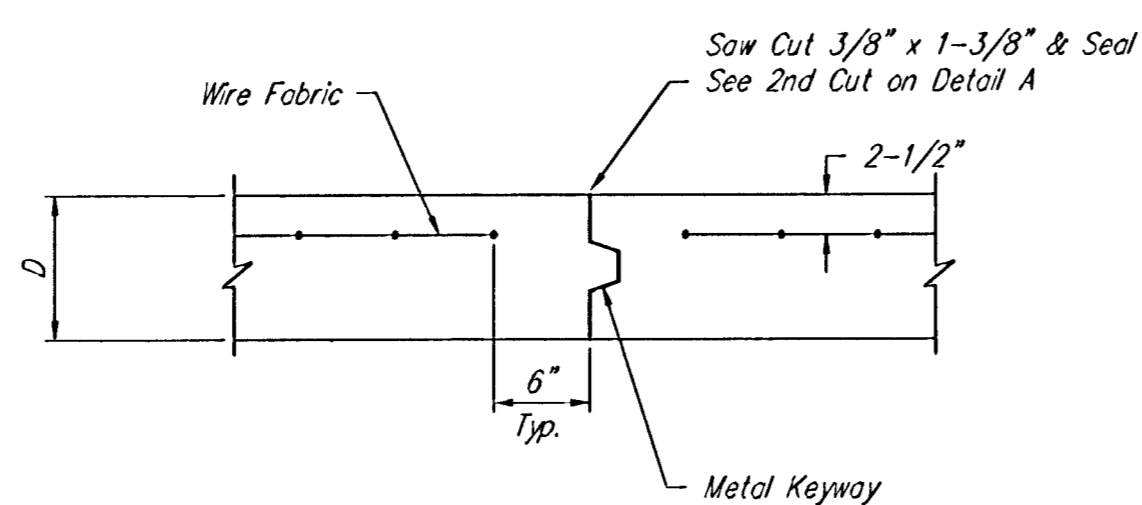
**DEPRESSED CURB DETAIL**



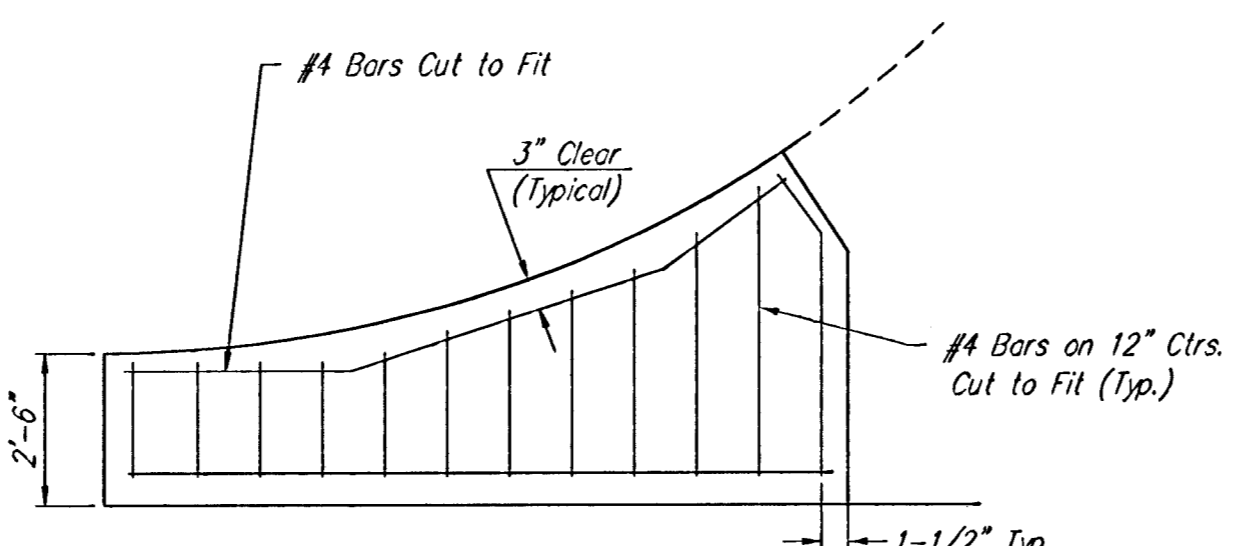
**SAW JOINT DETAIL "A"**



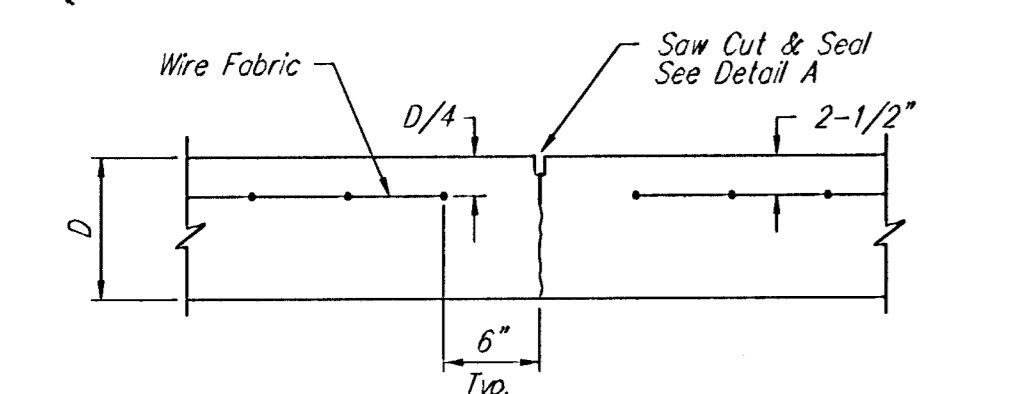
**SAW JOINT DETAIL "B"**



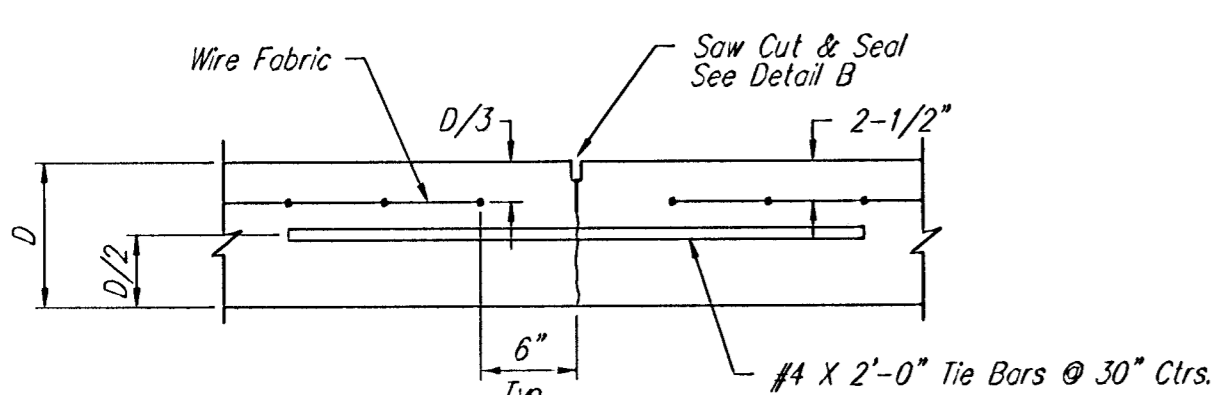
**OPTIONAL CONTRACTION JOINT (CONSTRUCTION JOINT)**



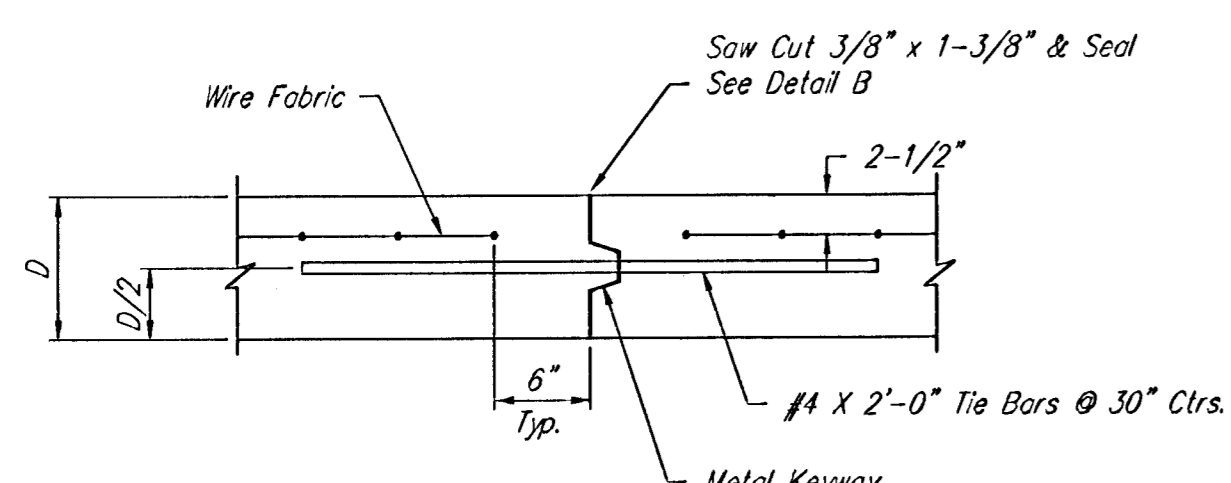
**WING REINFORCING DETAIL**



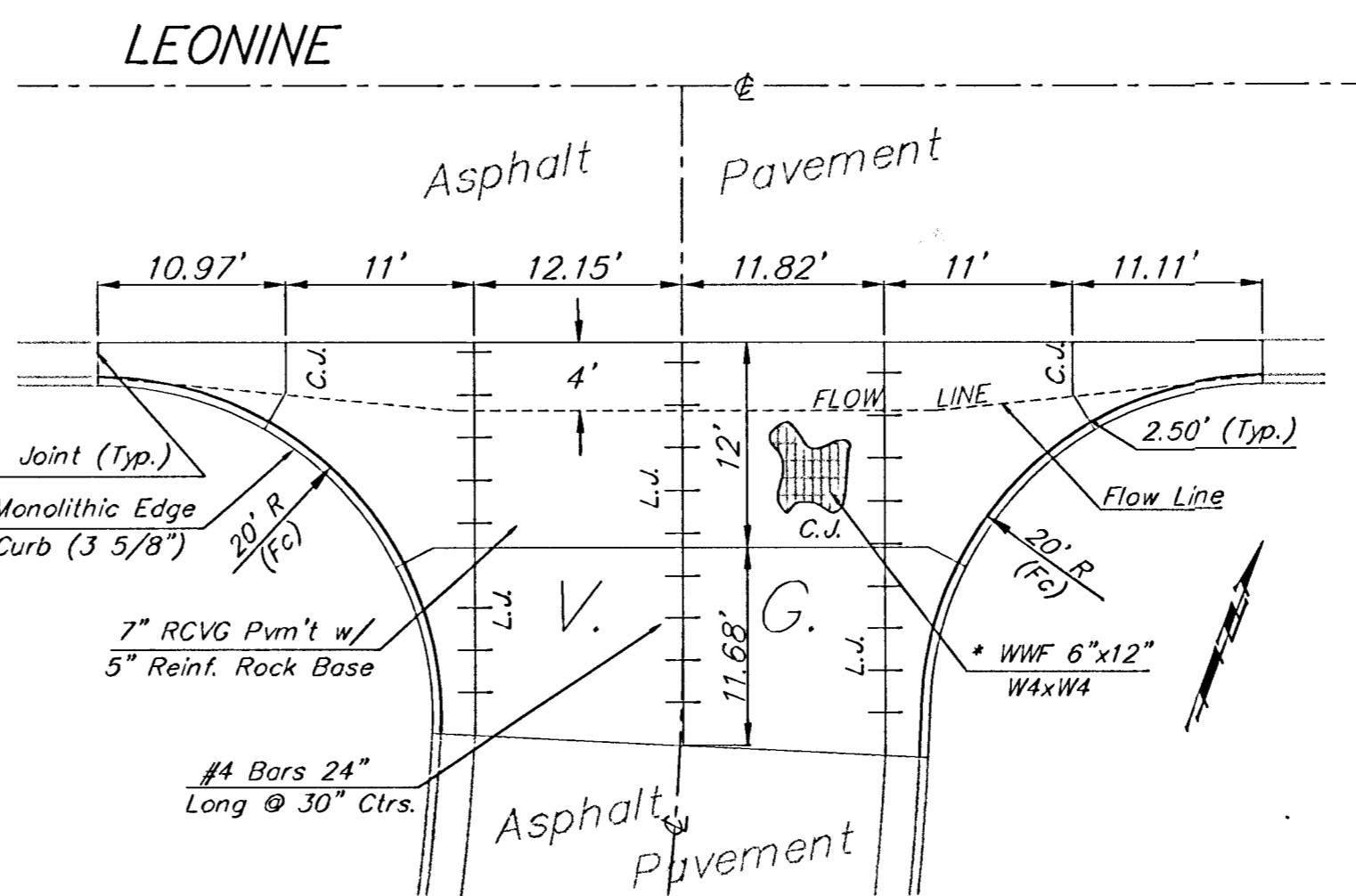
**CONTRACTION JOINT DETAIL (C.J.)**



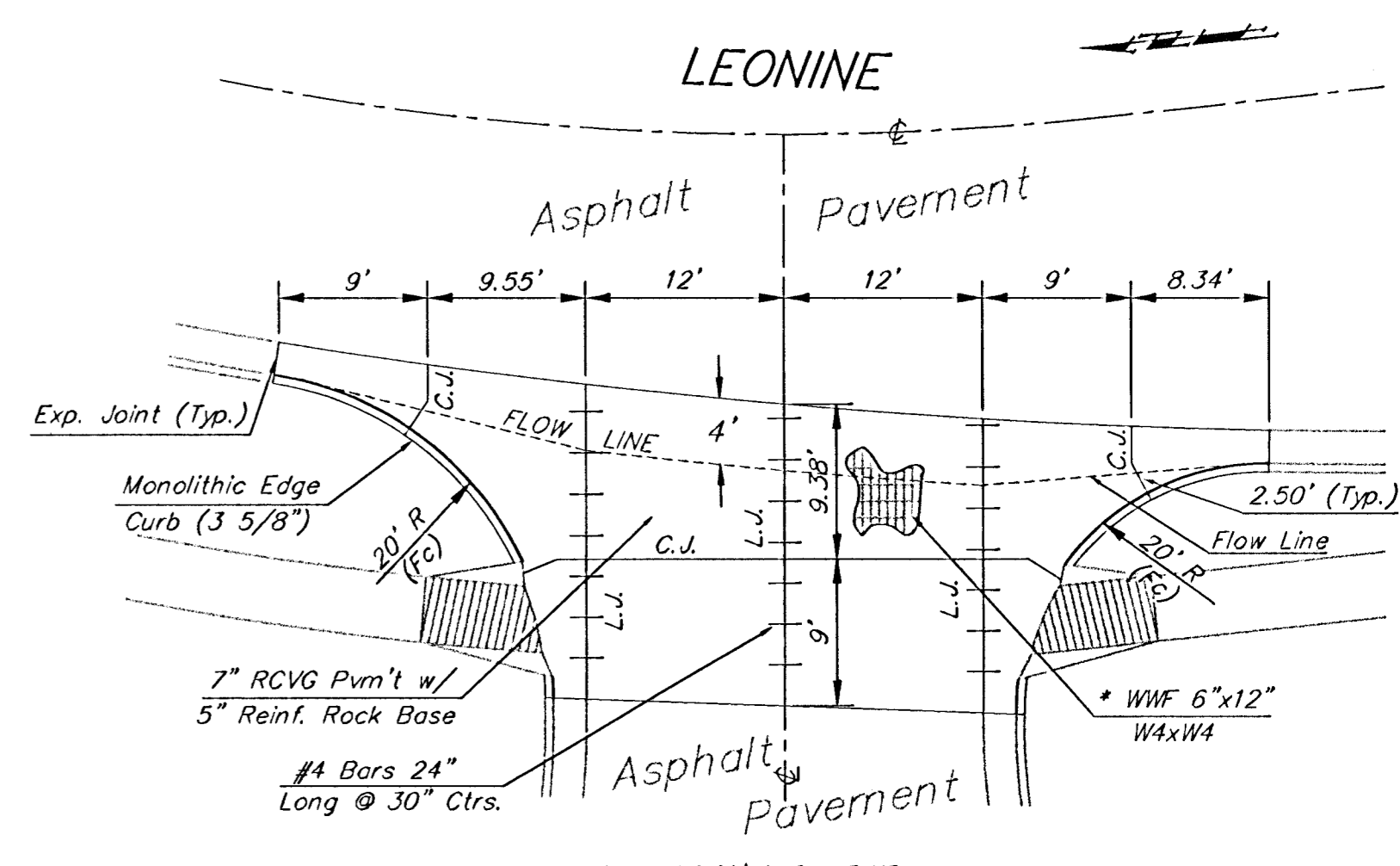
**LONGITUDINAL JOINT DETAIL (L.J.)**



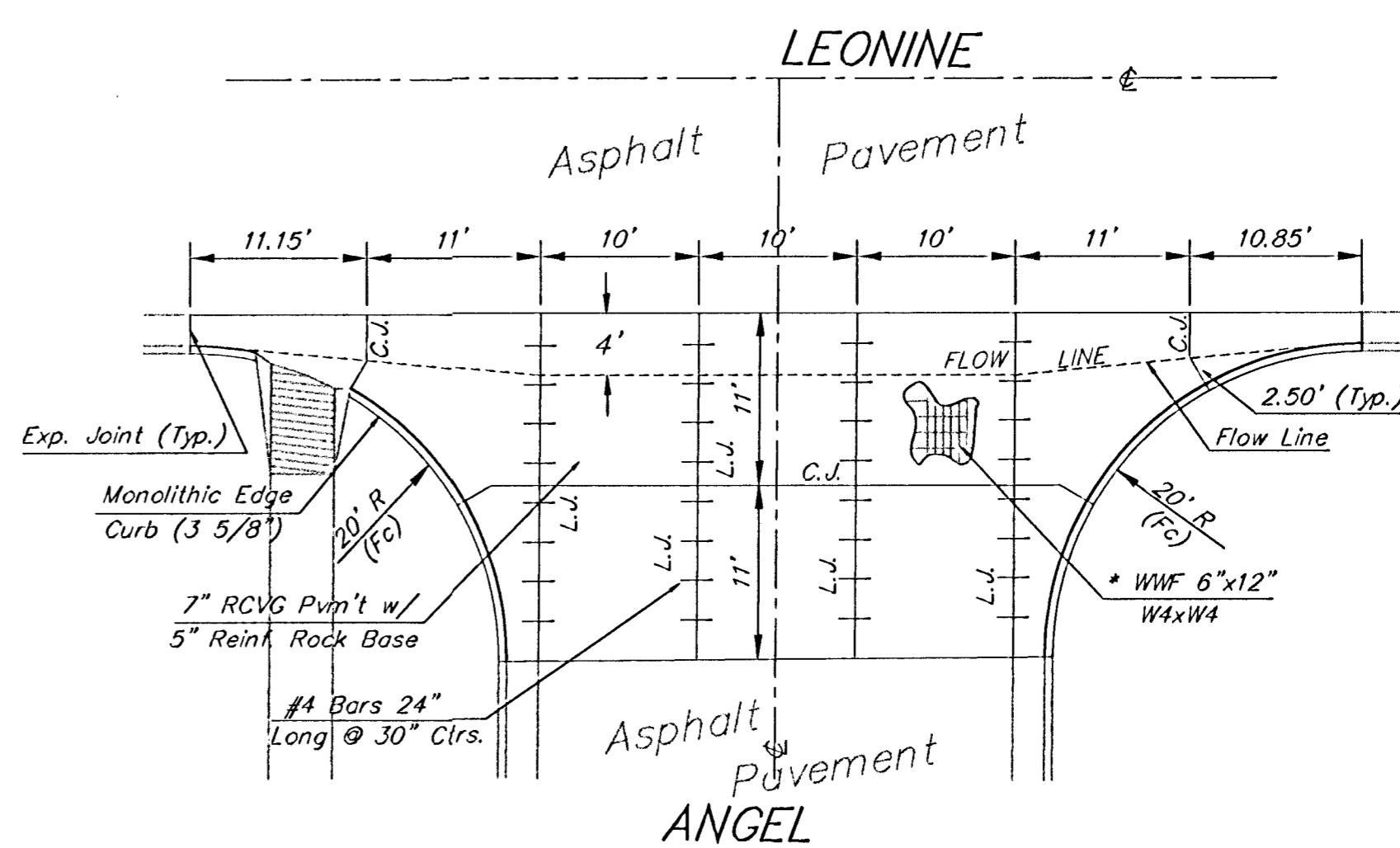
**OPTIONAL LONGITUDINAL JOINT DETAIL (L.J.) (CONSTRUCTION JOINT)**



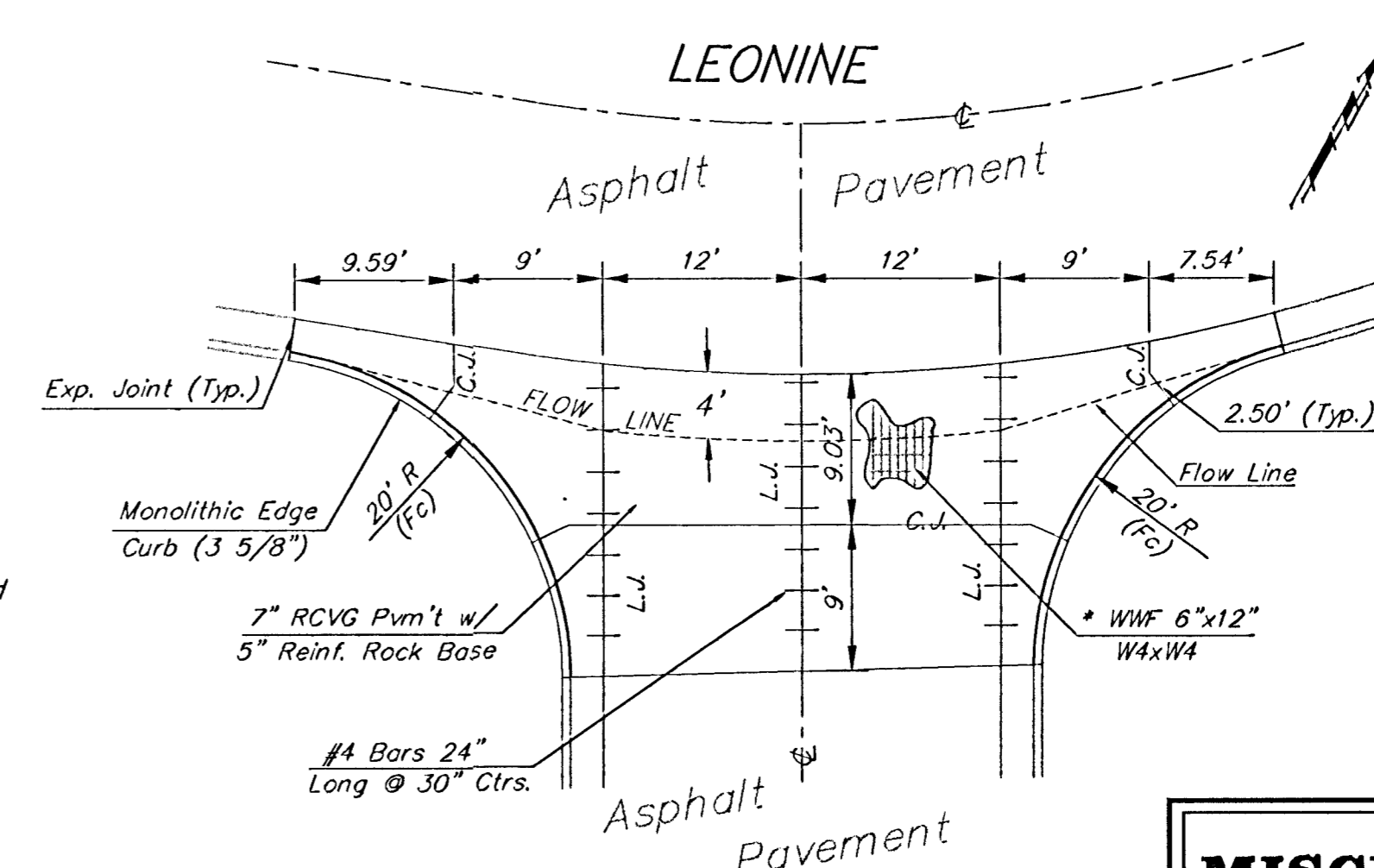
**LEONINE CT. (Lots 4-10)**



**LEONINE CT. (Lots 1-5)**



**ANGEL**



**LEONINE CT. (Lots 11-20)**

**VALLEY GUTTER DETAILS**

Scale: 1" = 10'

\*NOTE: 6" X 12" W4XW4 Wire Fabric Reinforcing Shall Be Placed So That The Wires With The 6" Spacing Will Run Parallel With The Longitudinal Joints.

**MISCELLANEOUS DETAILS**

**BAUGHMAN COMPANY P.A.**  
ENGINEERING, SURVEYING, & PLANNING  
316-282-7271 • 315 ELLIS • WICHITA, KANSAS 67211

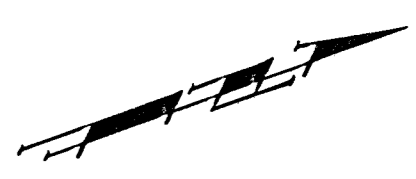
PROJECT NUMBER  
**472-83282**

DESIGN STAFF	DRAWN STAFF	APPROVED	DATE	SCALE NONE	SHEET 5 OF 28
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**BENCHMARKS:**

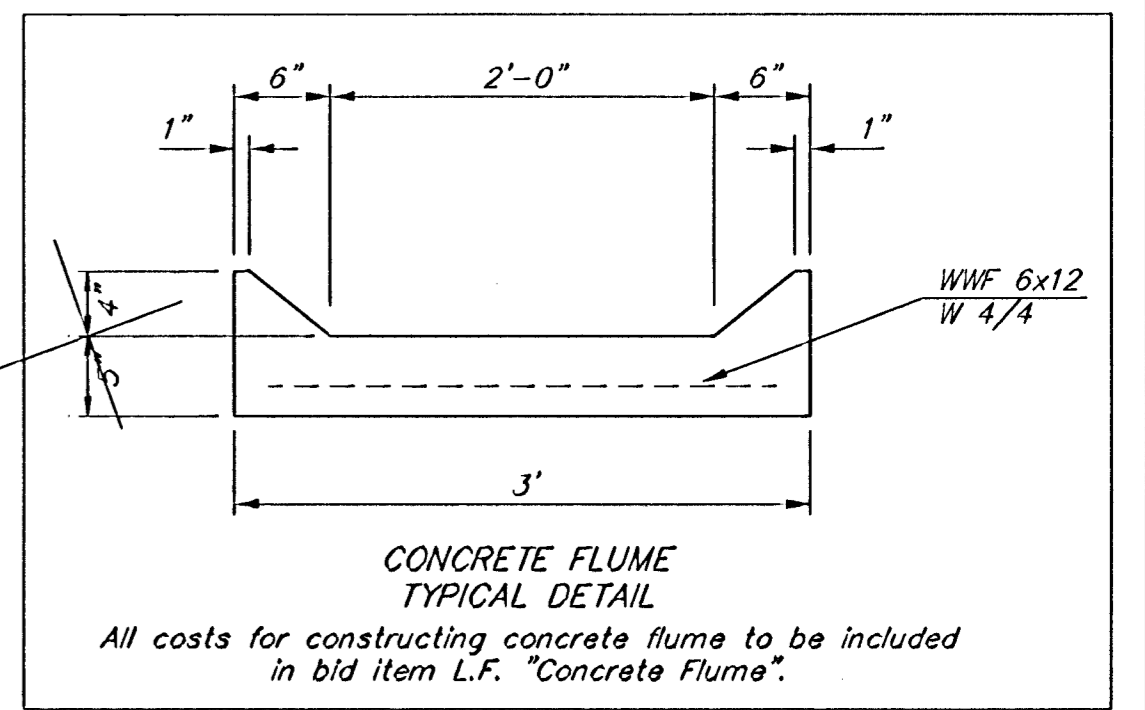
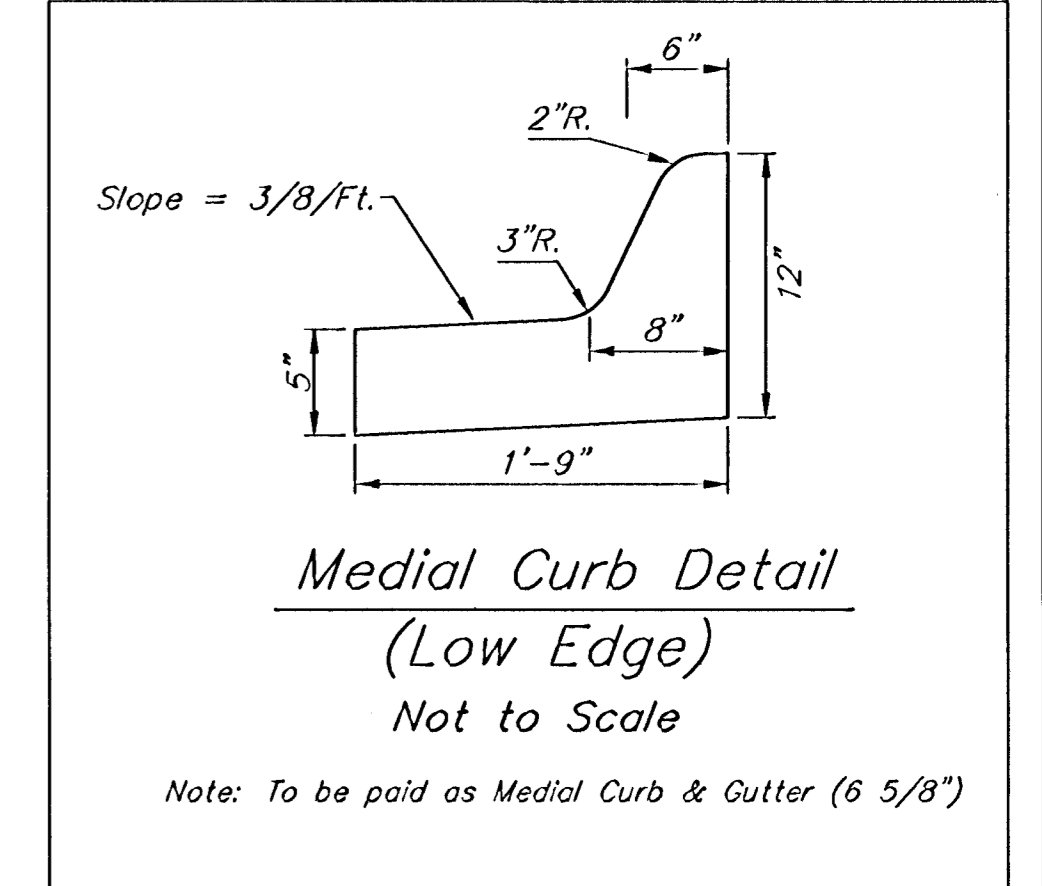
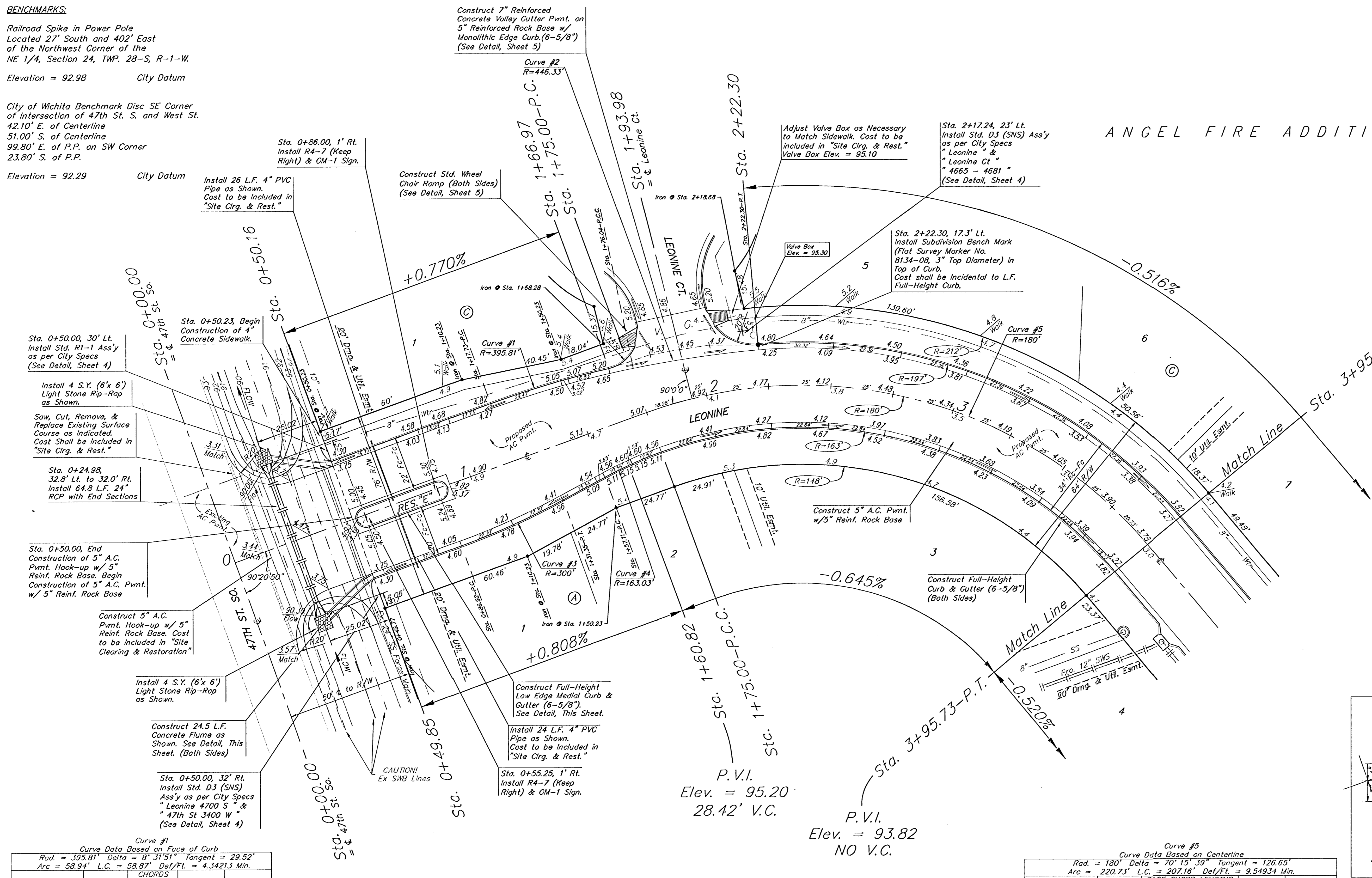
Railroad Spike in Power Pole  
Located 27' South and 402' East  
of the Northwest Corner of the  
NE 1/4, Section 24, TWP. 28-S, R-1-W.  
Elevation = 92.98 City Datum

City of Wichita Benchmark Disc SE Corner  
of Intersection of 47th St. S. and West St.  
42.10' E. of Centerline  
51.00' S. of Centerline  
99.80' E. of P.P. on SW Corner  
23.80' S. of P.P.  
Elevation = 92.29 City Datum



Scale:  
1" = 20'  
• = Iron

**ANGEL FIRE ADDITION**



Curve #1  
Curve Data Based on Face of Curb  
Rad. = 395.81' Delta = 8° 31' 51" Tangent = 29.52'  
Arc = 58.94' L.C. = 58.87' Def/Ft. = 4.34213 Min.

Station	Arc	CHORDS		
		8 Lt.	Def.	T. Def.
0+00	-	0'00"	0'00"	0'00"
0+29.47	29.47'	30.06'	2'07.58"	2'07.58"
0+58.94	29.47'	30.06'	2'07.58"	4'15.16"

Curve #2  
Curve Data Based on Face of Curb  
Rad. = 446.33' Delta = 6° 31' 30" Tangent = 25.44'  
Arc = 50.83' L.C. = 50.80' Def/Ft. = 3.85107 Min.

Station	Arc	CHORDS		
		8 Lt.	Def.	T. Def.
0+00	-	0'00"	0'00"	0'00"
0+25.42	25.42'	25.87'	1'37.54"	1'37.54"
0+50.83	25.41'	25.86'	1'37.51"	3'15.45"

Curve #3  
Curve Data Based on Face of Curb  
Rad. = 300' Delta = 8° 30' 59" Tangent = 22.34'  
Arc = 44.60' L.C. = 44.55' Def/Ft. = 5.72851 Min.

Station	Arc	CHORDS		
		8 Rt.	Def.	T. Def.
0+00	-	0'00"	0'00"	0'00"
0+22.30	22.30'	22.89'	2'07.45"	2'07.45"
0+44.60	22.30'	22.89'	2'07.45"	4'15.30"

Curve #4  
Curve Data Based on Face of Curb  
Rad. = 163.03' Delta = 8° 42' 19" Tangent = 12.41'  
Arc = 24.77' L.C. = 24.75' Def/Ft. = 10.54333 Min.

Station	Arc	CHORDS		
		8 Rt.	Def.	T. Def.
1+57.11	-	0'00"	0'00"	0'00"
1+60.82	10.56'	11.09'	1'51.20"	1'51.20"
1+62.40	1.59'	1.67'	0'16.46"	2'08.06"
1+75.00	12.62'	13.24'	2'13.03"	4'21.10"

Curve #5  
Curve Data Based on Centerline  
Rad. = 180' Delta = 70° 15' 39" Tangent = 126.65'  
Arc = 220.73' L.C. = 207.18' Def/Ft. = 9.54934 Min.

Station	Arc	FACE CHORD LENGTHS			Def.	T. Def.
		8 Lt.	8 Rt.	8 Rt.		
2+00.00	-	-	-	0'00.00"	0'00.00"	
1+93.98	18.98'	19.81'	18.13'	3'01.15"	3'01.15"	
2+00.00	6.02'	6.29'	5.75'	0'57.29"	3'58.44"	
2+22.30	22.30'	23.28'	21.30'	3'32.57"	7'31.41"	
2+25.00	2.70'	2.82'	2.58'	0'25.47"	7'57.28"	
2+50.00	25.00'	26.10'	23.88'	3'58.44"	11'56.12"	
2+75.00	25.00'	26.10'	23.88'	3'58.44"	15'54.56"	
3+00.00	25.00'	26.10'	23.88'	3'58.44"	19'53.40"	
3+25.00	25.00'	26.10'	23.88'	3'58.44"	23'52.24"	
3+50.00	25.00'	26.10'	23.88'	3'58.44"	27'51.08"	
3+75.00	25.00'	26.10'	23.88'	3'58.44"	31'49.52"	
3+95.73	20.73'	21.64'	19.80'	3'17.58"	35'07.50"	

**ANGEL FIRE ADDITION - PHASE 1**  
**LEONINE**  
STREET & INCIDENTAL STORM WATER SEWER

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

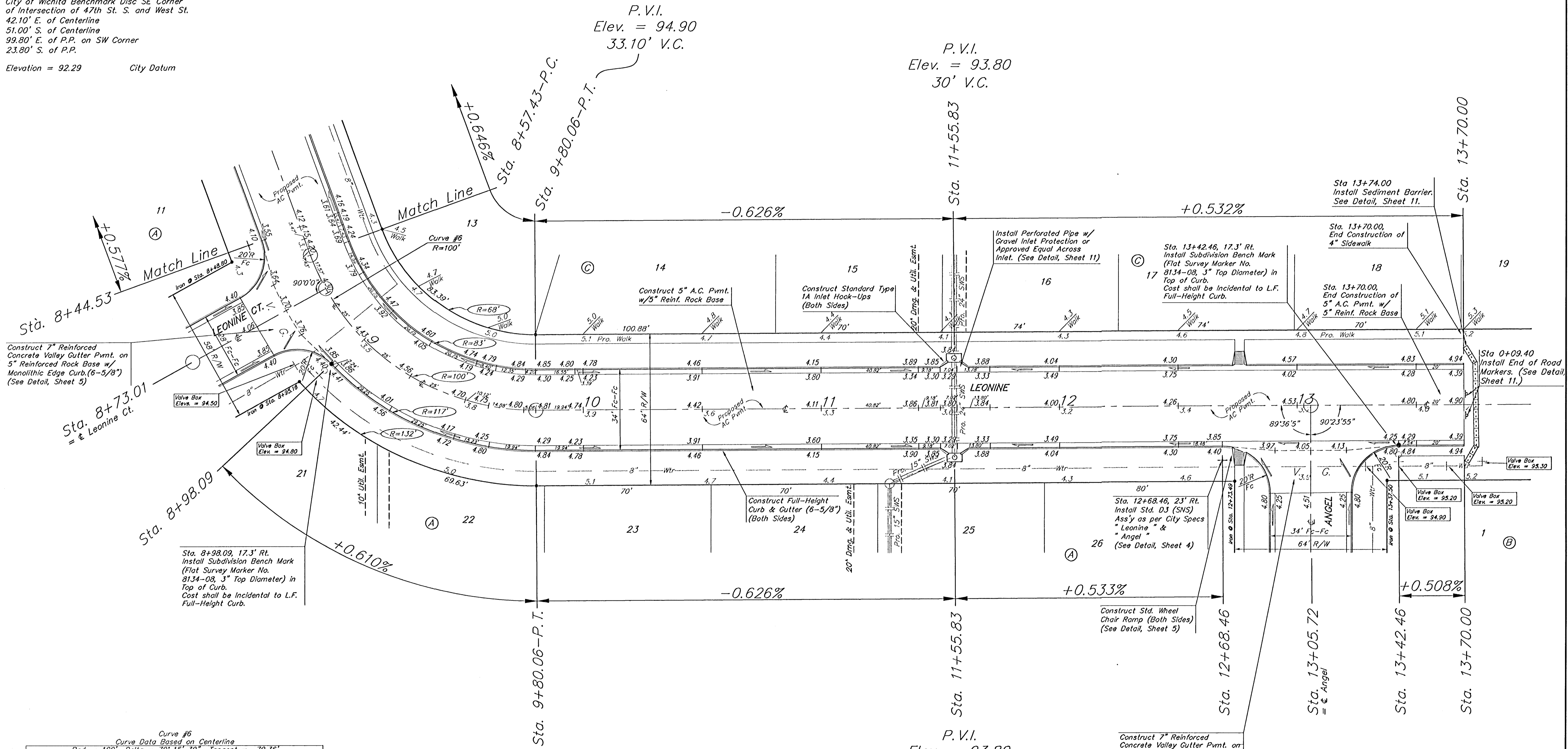
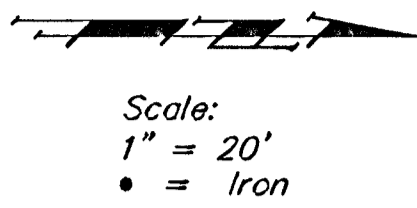
PROJECT NUMBER: 472-83292  
DATE: 3/28/01  
SCALE: NOTED

SHEET 6 OF 28



**BENCHMARKS:**  
 Railroad Spike in Power Pole  
 Located 27' South and 402' East  
 of the Northwest Corner of the  
 NE 1/4, Section 24, TWP. 28-S, R-1-W.  
 Elevation = 92.98 City Datum

City of Wichita Benchmark Disc SE Corner  
 of Intersection of 47th St. S. and West St.  
 42.10' E. of Centerline  
 51.00' S. of Centerline  
 99.80' E. of P.P. on SW Corner  
 23.80' S. of P.P.  
 Elevation = 92.29 City Datum



Curve #6  
 Curve Data Based on Centerline  
 Rad. = 100' Delta = 70° 15' 39" Tangent = 70.36'  
 Arc = 122.63' L.C. = 115.09' Del/Ft. = 17.18850 Min.

Station	Arc	8 Lt.	8 Rt.	Del.	T. Del.
8+57.43				0°00'00"	0°00'00"
8+73.01	15.58'	14.32'	16.81'	4°27'48"	4°27'48"
8+75.00	1.99'	1.83'	2.15'	0°34'12"	5°02'00"
8+98.09	23.09'	21.20'	24.88'	6°36'53"	11°38'53"
9+00.00	1.91'	1.76'	2.06'	0°32'50"	12°11'43"
9+25.00	25.00'	22.94'	24.93'	7°09'43"	19°21'26"
9+50.00	25.00'	22.94'	24.93'	7°09'42"	26°31'08"
9+75.00	25.00'	22.94'	24.93'	7°09'43"	33°40'51"
9+80.06	5.06'	4.66'	5.46'	1°26'59"	35°07'50"

P.V.I.  
 Elev. = 94.90  
 39.88' V.C.

P.V.I.  
 Elev. = 93.80  
 30' V.C.

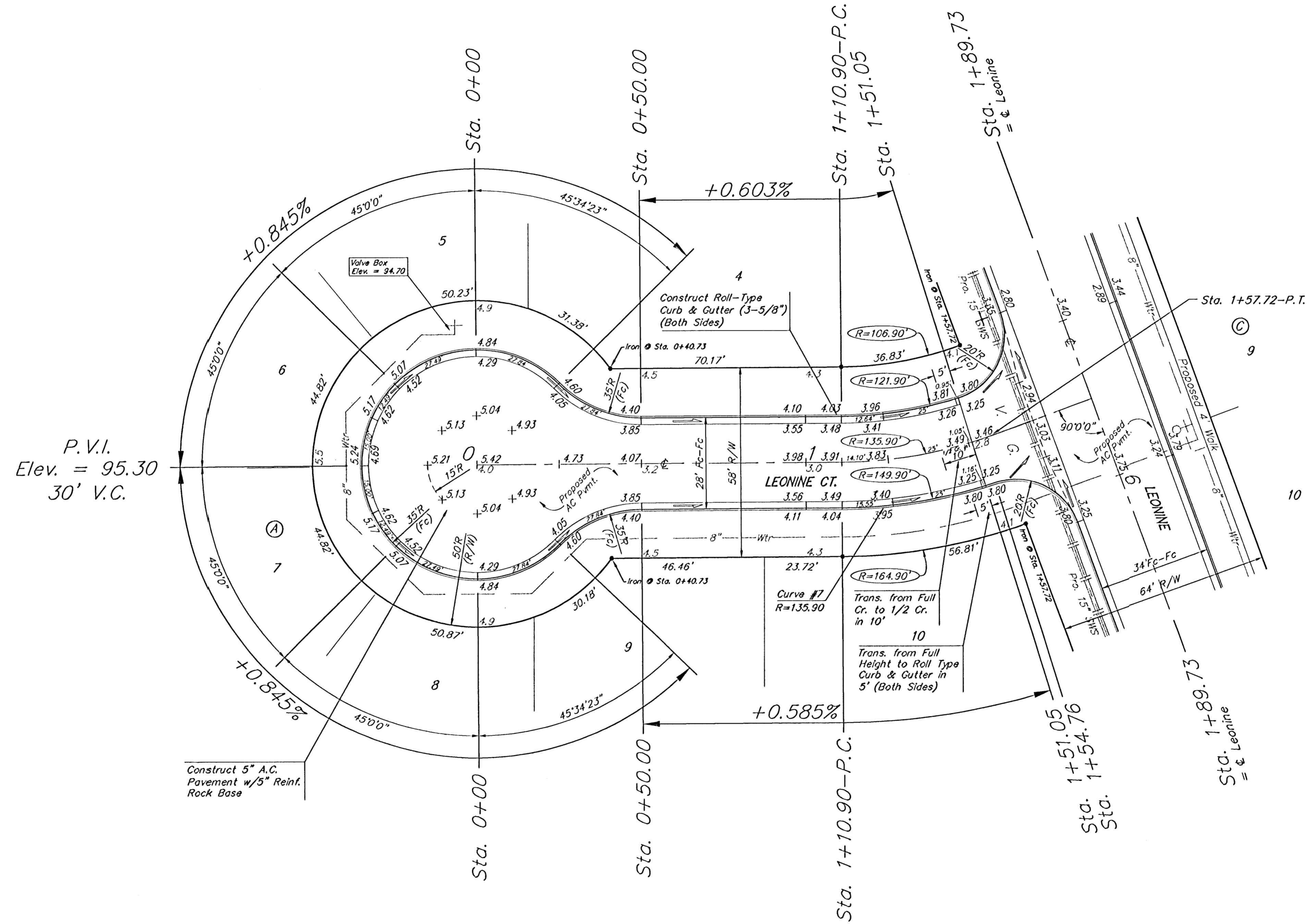
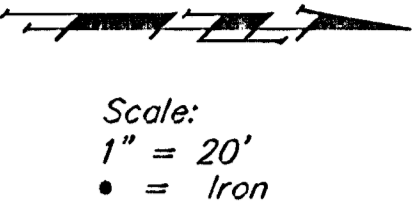
ANGEL FIRE ADDITION

ANGEL FIRE ADDITION - PHASE 1  
**LEONINE**  
 STREET & INCIDENTAL STORM SEWER IMPROVEMENTS  
**BAUGHMAN COMPANY P.A.**  
 ENGINEERING, SURVEYING, & PLANNING  
 316-262-7271 • 315 ELLIS • WICHITA, KANSAS 67211  
 PROJECT NUMBER  
**472-83292**  
 SHEET **8**  
 DESIGN BLP/AEG DRAWN AEG APPROVED DATE 3/28/01 SCALE NOTED

**BENCHMARKS:**

Railroad Spike in Power Pole  
 Located 27' South and 402' East  
 of the Northwest Corner of the  
 NE 1/4, Section 24, TWP. 28-S, R-1-W.  
 Elevation = 92.98 City Datum

City of Wichita Benchmark Disc SE Corner  
 of Intersection of 47th St. S. and West St.  
 42.10' E. of Centerline  
 51.00' S. of Centerline  
 99.80' E. of P.P. on SW Corner  
 23.80' S. of P.P.  
 Elevation = 92.29 City Datum



**ANGEL FIRE ADDITION**

Subdivision Bench Marks		
Street & Station	Location Description	Elevation
Leonine 2+22.30, 17.30' Lt.	Adjacent to Fire Hydrant at S. End of E. Curb Return of Leonine & Leonine Ct. (Lots 1-3, C)	
Leonine 5+23.92, 17.3' Lt.	Adjacent to Fire Hydrant between Lots 9-10, Block C at N. Side of Leonine & Leonine Ct. (Lots 4-10, A)	
Leonine 8+98.09, 17.3' Rt.	Adjacent to Fire Hydrant at N. End of E. Curb Return of Leonine & Leonine Ct. (Lots 11-21, A)	
Leonine 13+42.46, 17.3' Rt.	Adjacent to Fire Hydrant at N. End of N. Curb Return of Leonine & Angel	

Curve #7  
 Curve Data Based on Centerline  
 Rad. = 135.90' Delta = 19° 44' 21" Tangent = 23.64'  
 Arc = 46.82' L.C. = 46.59' Del/Ft. = 12.64791 Min.

Station	CHORD LENGTHS		Defl.	T. Defl.
	8 Lt.	8 Rt.		
1+10.90	-	-	0°00'00"	0°00'00"
1+25.00	14.10'	11.81'	16.37'	2°58'20"
1+50.00	25.00'	20.92'	29.01'	5°16'12"
1+57.72	7.72'	6.47'	8.97'	1°37'39"

Roll Type Curb & Gutter to be Constructed on the Pavement Shown on this Sheet. Top of Curb Elevations are Given for Full Height Curb.

ANGEL FIRE ADDITION - PHASE 1  
**LEONINE CT.**  
 STREET & INCIDENTAL STORM SEWER IMPROVEMENTS

**BAUGHMAN COMPANY P.A.**  
 ENGINEERING, SURVEYING, & PLANNING

318-202-7271 • 315 ELLIS • WICHITA, KANSAS 67211

PROJECT NUMBER: 472-83292

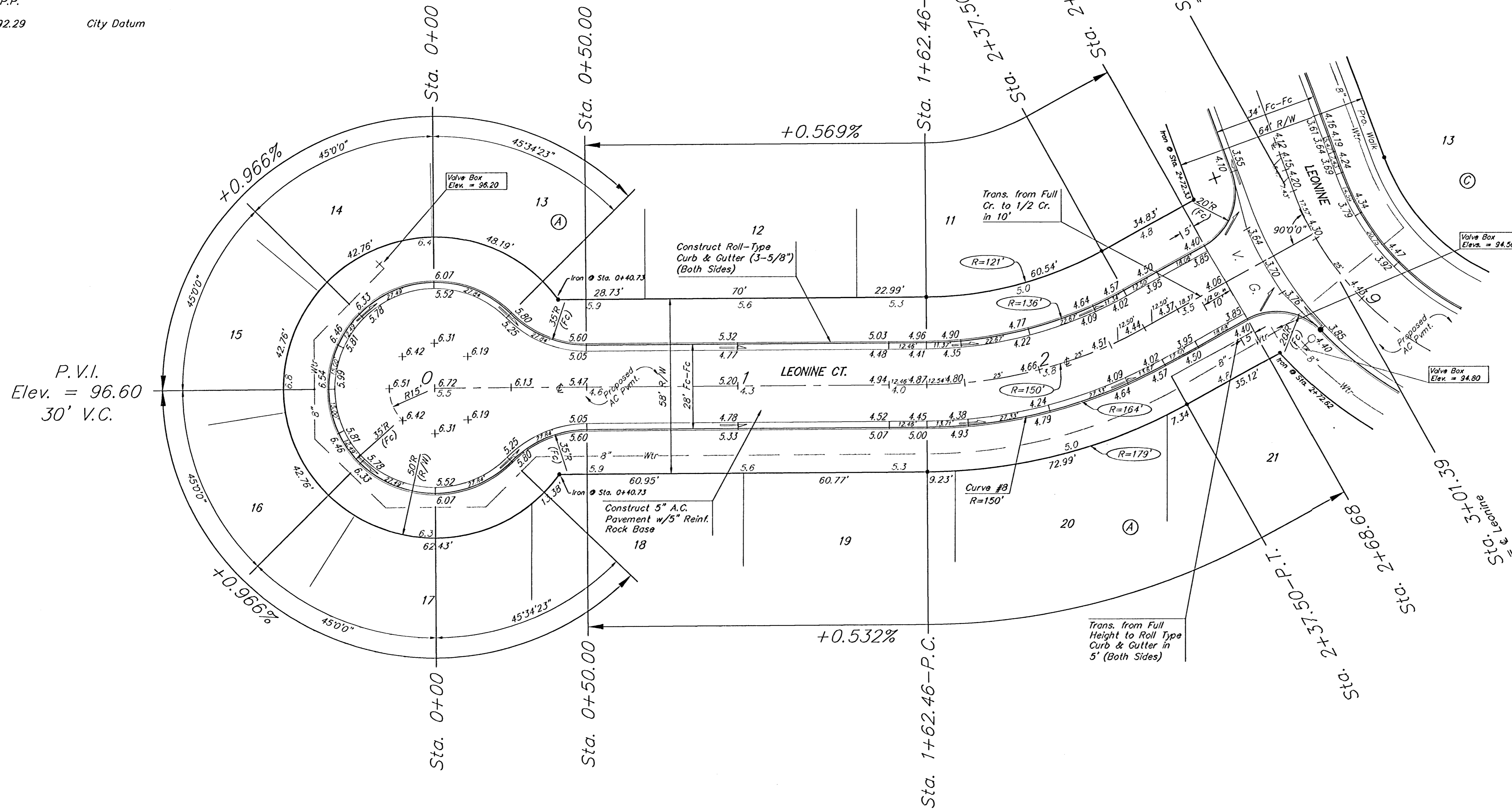
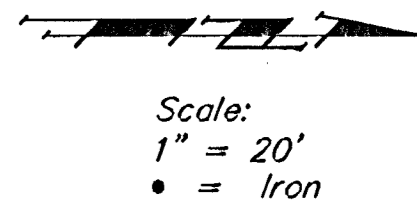
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SHEET 9 OF 28

**BENCHMARKS:**

Railroad Spike in Power Pole  
 Located 27' South and 402' East  
 of the Northwest Corner of the  
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 Elevation = 92.98 City Datum

City of Wichita Benchmark Disc SE Corner  
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 99.80' E. of P.P. on SW Corner  
 23.80' S. of P.P.  
 Elevation = 92.29 City Datum



P.V.I.  
 Elev. = 96.60  
 30' V.C.

ANGEL FIRE ADDITION

Curve #8  
 Curve Data Based on Centerline  
 Rad. = 150' Delta = 28° 39' 55" Tangent = 38.33'  
 Arc = 75.05' L.C. = 74.27' Def. Pt. = 11.45847 Min.

Station	Arc	CHORD LENGTHS		Dell.	T. Dell.
		B Lt.	B Rt.		
1+62.46	—	—	—	0'00"00"	0'00"00"
1+75.00	12.54'	10.70'	14.37'	2'23'41"	2'23'41"
2+00.00	25.00'	21.31'	28.63'	4'46'28"	7'10'09"
2+25.00	25.00'	21.31'	28.63'	4'46'28"	11'56'37"
2+37.50	12.50'	10.66'	14.33'	2'23'14"	14'19'51"

Roll Type Curb & Gutter to be  
 Constructed on the Pavement Shown  
 on this Sheet. Top of Curb Elevations  
 are Given for Full Height Curb.

ANGEL FIRE ADDITION - PHASE 1  
**LEONINE CT.**  
 STREET & INCIDENTAL STORM SEWER IMPROVEMENTS

**BAUGHMAN COMPANY P.A.**  
 ENGINEERING, SURVEYING, & PLANNING  
 318-282-7271 • 313 ELLIS • WICHITA, KANSAS 67211

PROJECT NUMBER  
**472-83292**

DESIGN: BLP/AEG DRAWN: AEG APPROVED: DATE: 3/28/01 SCALE: NOTED

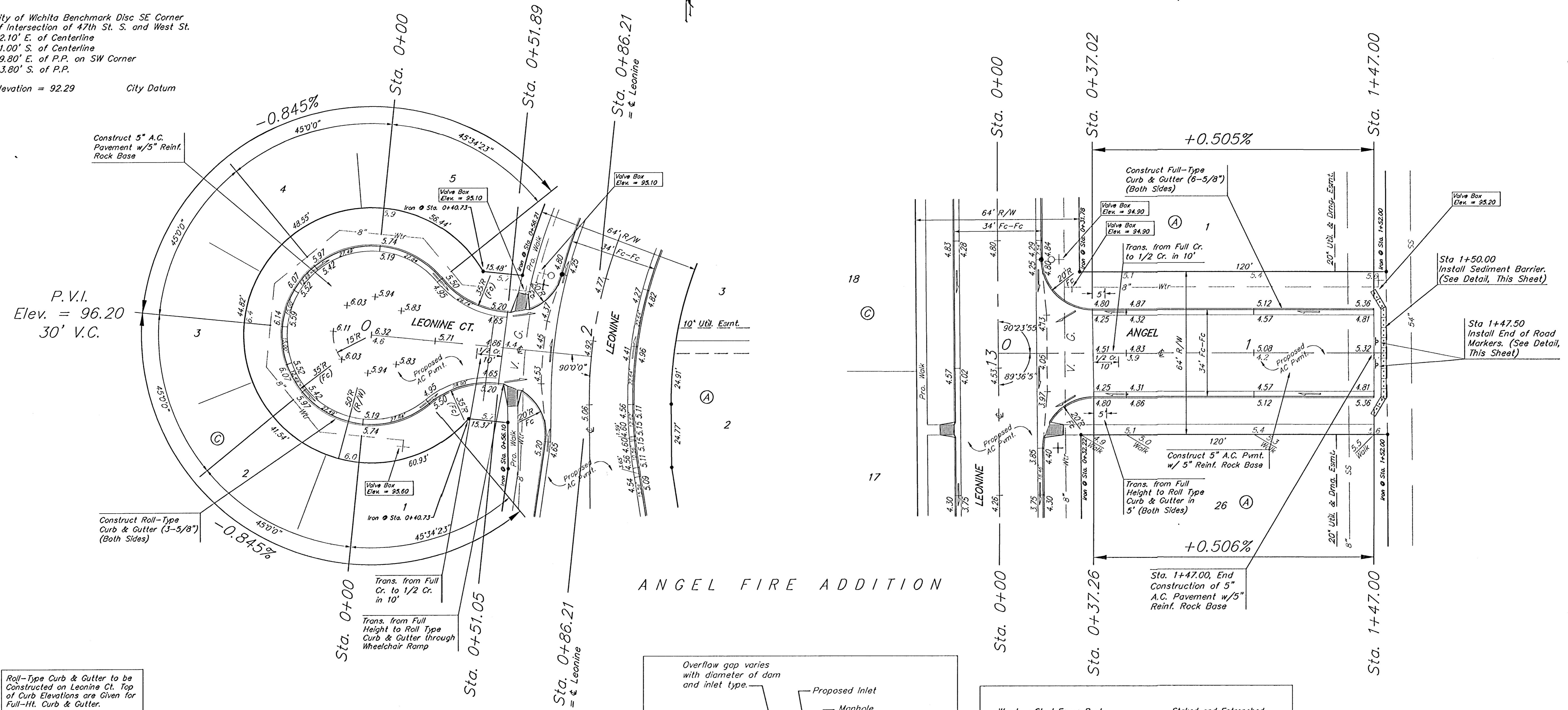
SHEET **10** OF **28**

**BENCHMARKS:**

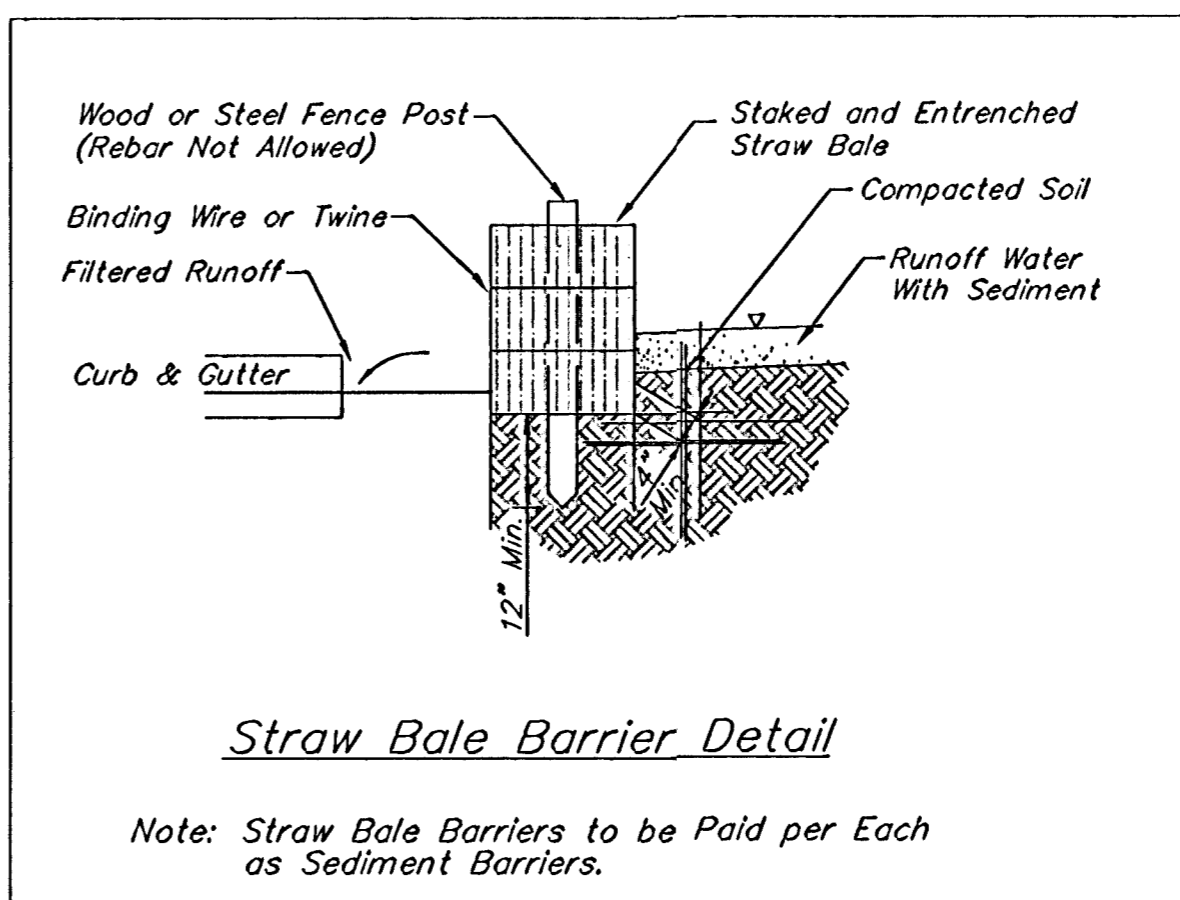
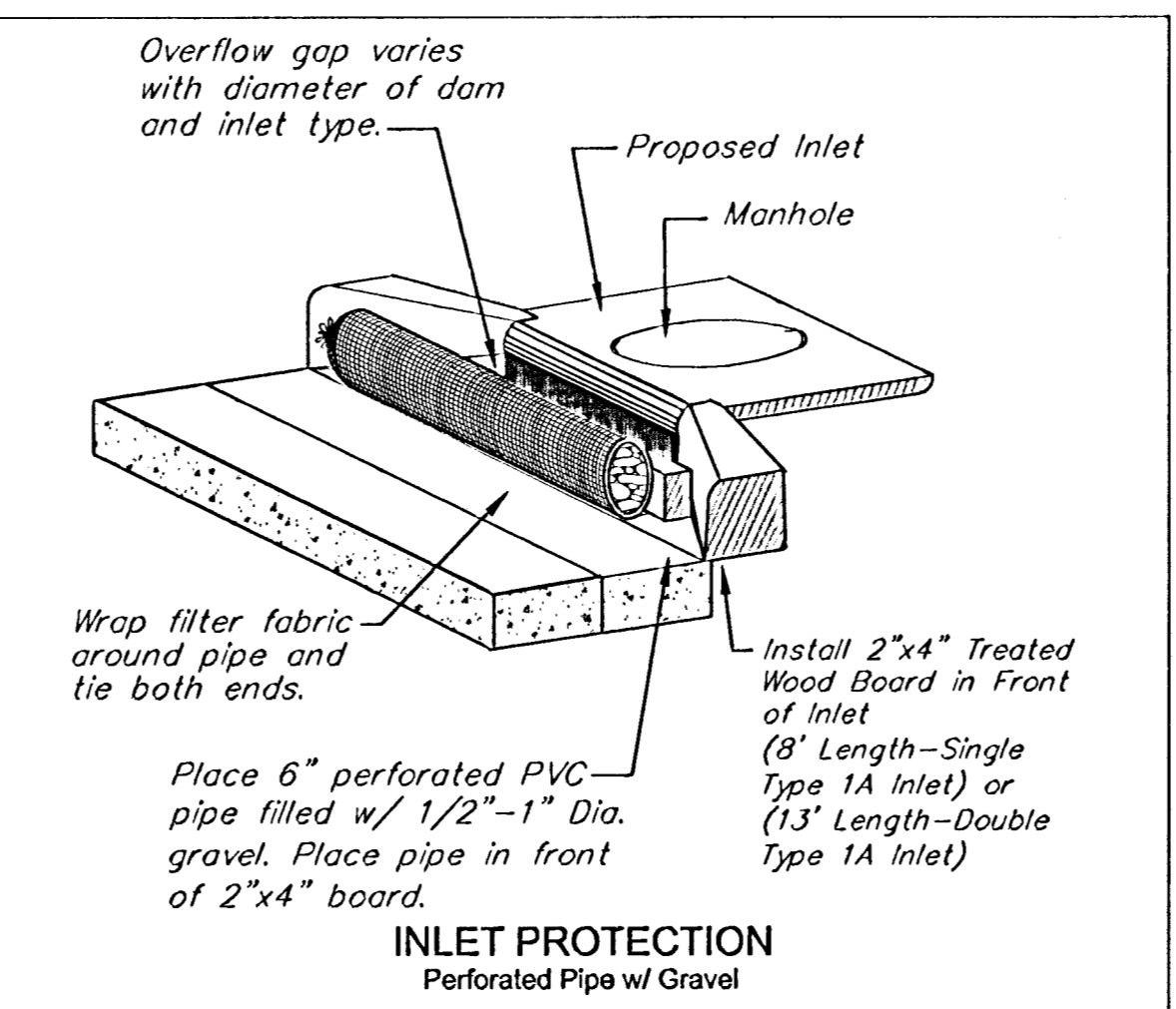
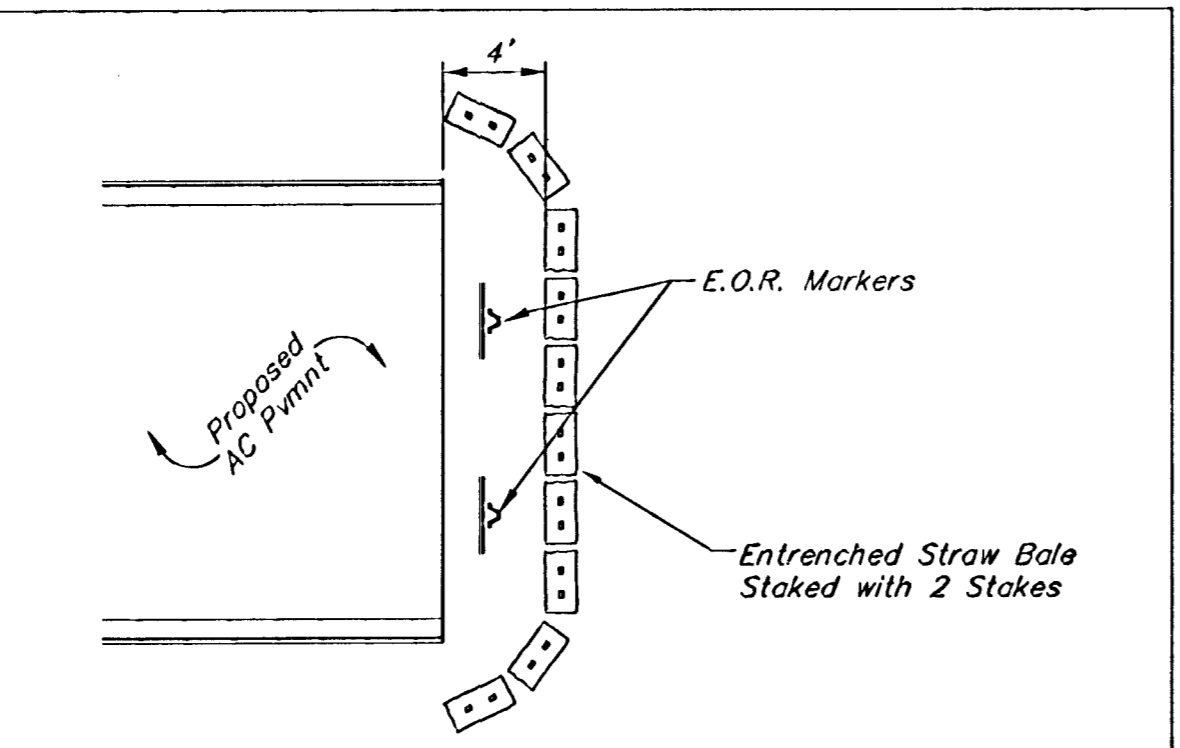
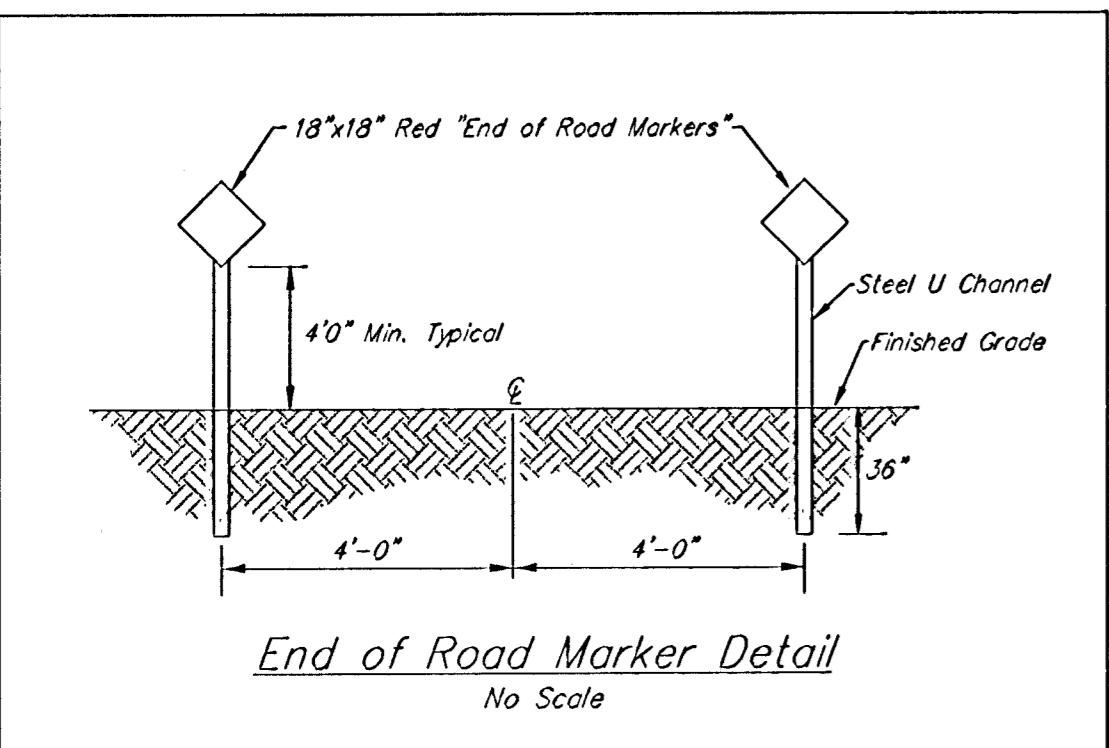
Railroad Spike in Power Pole  
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 Elevation = 92.98 City Datum

City of Wichita Benchmark Disc SE Corner  
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 51.00' S. of Centerline  
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 23.80' S. of P.P.  
 Elevation = 92.29 City Datum

Scale:  
 1" = 20'  
 • = Iron



Roll-Type Curb & Gutter to be  
 Constructed on Leonine Ct. Top  
 of Curb Elevations are Given for  
 Full-Ht. Curb & Gutter.



ANGEL FIRE ADDITION  
**ANGEL & LEONINE CT.**  
 STREET & INCIDENTAL STORM SEWER IMPROVEMENTS

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

PROJECT NUMBER  
**472-89292**

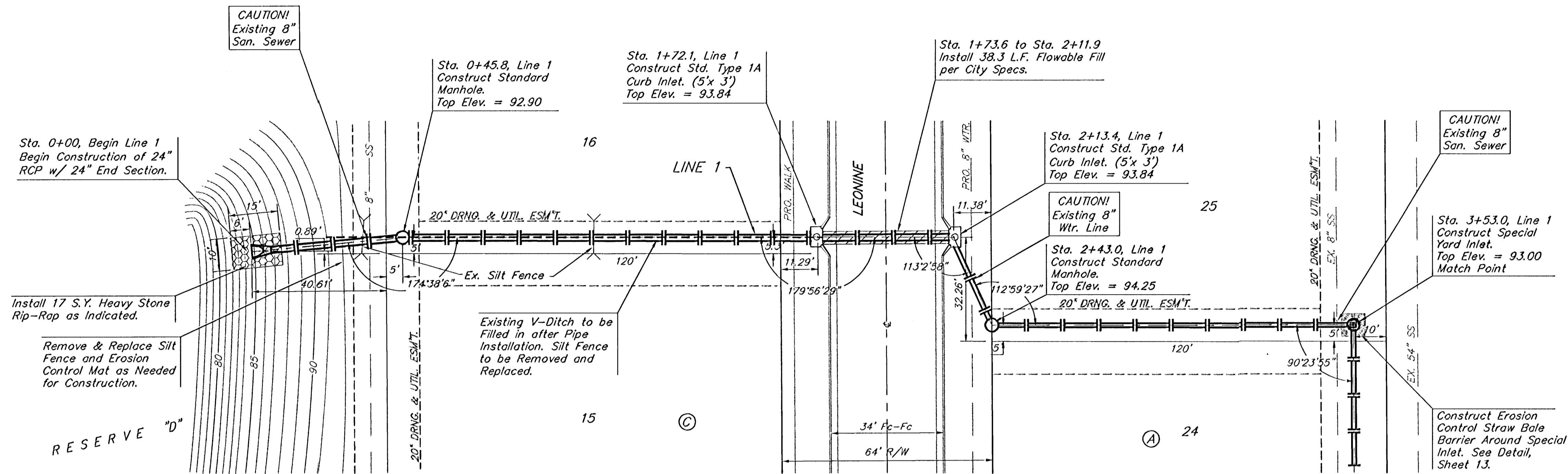
DESIGN/ AEG DRAWN/ AEG APPROVED/ DATE 3/28/01 SCALE/ NOTED

SHEET **11** OF **28**

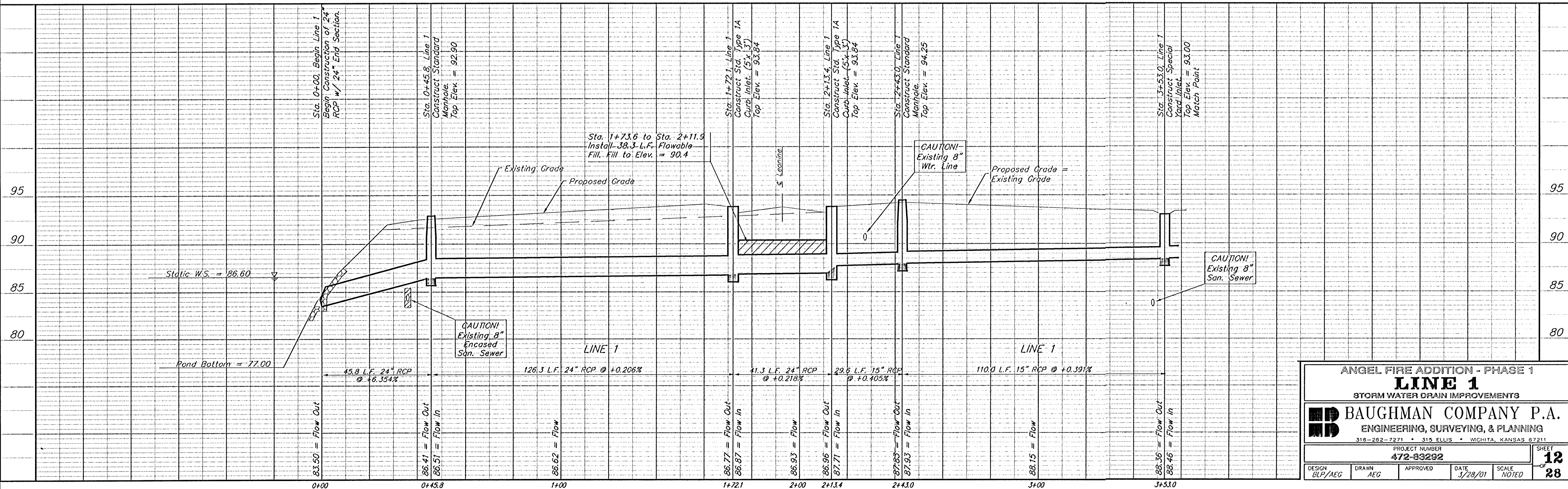
**BENCHMARKS**

Railroad Spike in Power Pole  
 Located 27' South and 402' East  
 of the Northwest Corner of the  
 NE 1/4, Section 24, TWP. 28-S, R-1-W.  
 Elevation = 92.98 City Datum

City of Wichita Benchmark Disc SE Corner  
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 51.00' S. of Centerline  
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 23.80' S. of P.P.  
 Elevation = 92.29 City Datum



**ANGEL FIRE ADDITION**



ANGEL FIRE ADDITION - PHASE 1  
**LINE 1**  
 STORM WATER DRAIN IMPROVEMENTS

**BAUGHMAN COMPANY P.A.**  
 ENGINEERING, SURVEYING, & PLANNING  
 316-262-7271 • 315 ELLIS • WICHITA, KANSAS 67211

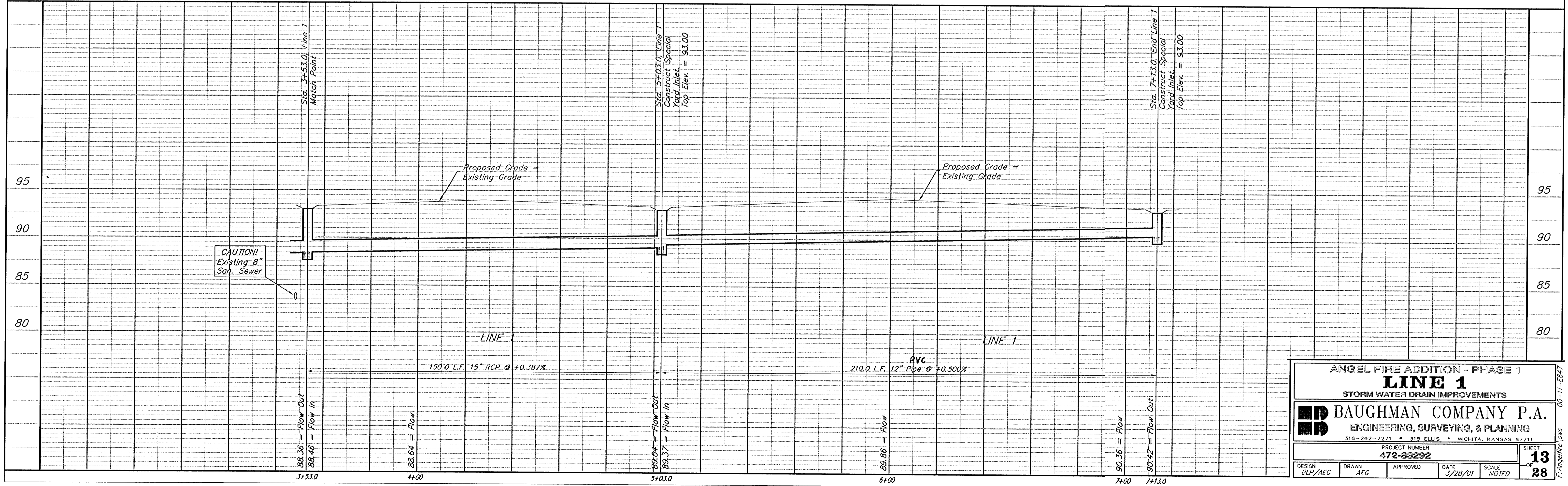
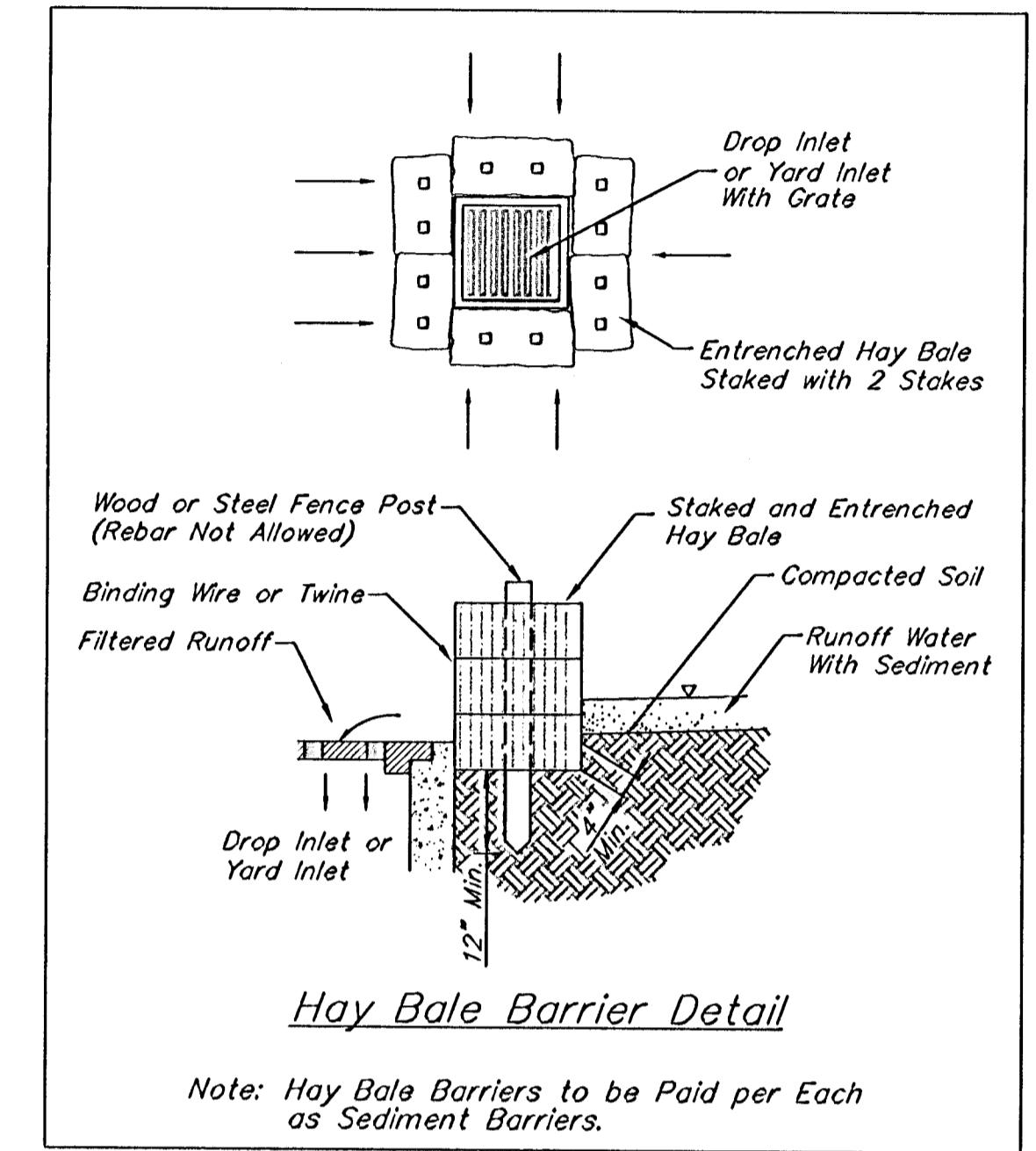
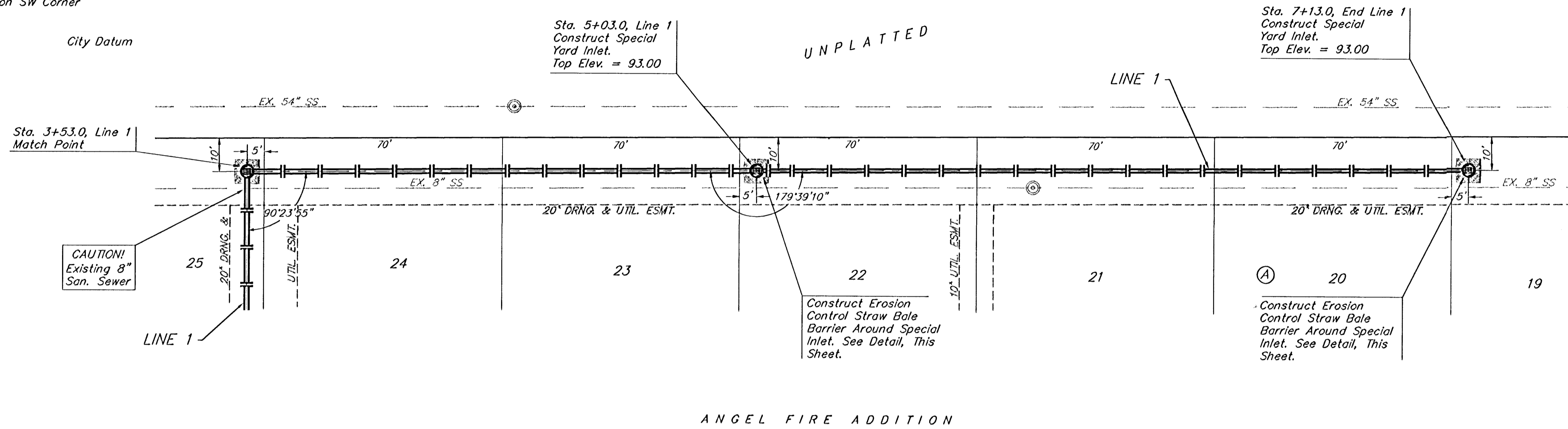
PROJECT NUMBER: 472-83292  
 SHEET: 12 OF 28

DESIGN: BLP/AEG DRAWN: AEG APPROVED: DATE: 3/28/01 SCALE: NOTED

**Benchmarks:**  
 Railroad Spike in Power Pole  
 Located 27' South and 402' East  
 of the Northwest Corner of the  
 NE 1/4, Section 24, TWP. 28-S, R-1-W.  
 Elevation = 92.98 City Datum

City of Wichita Benchmark Disc SE Corner  
 of Intersection of 47th St. S. and West St.  
 42.10' E. of Centerline  
 51.00' S. of Centerline  
 99.80' E. of P.P. on SW Corner  
 23.80' S. of P.P.  
 Elevation = 92.29 City Datum

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



ANGEL FIRE ADDITION - PHASE 1  
**LINE 1**  
 STORM WATER DRAIN IMPROVEMENTS

**BAUGHMAN COMPANY P.A.**  
 ENGINEERING, SURVEYING, & PLANNING  
 318-282-7271 • 315 ELLIS • WICHITA, KANSAS 67211

PROJECT NUMBER  
**472-83292**

DESIGN: BLP/AEG DRAWN: AEG APPROVED: DATE: 3/28/01 SCALE: NOTED

SHEET **13** OF **28**

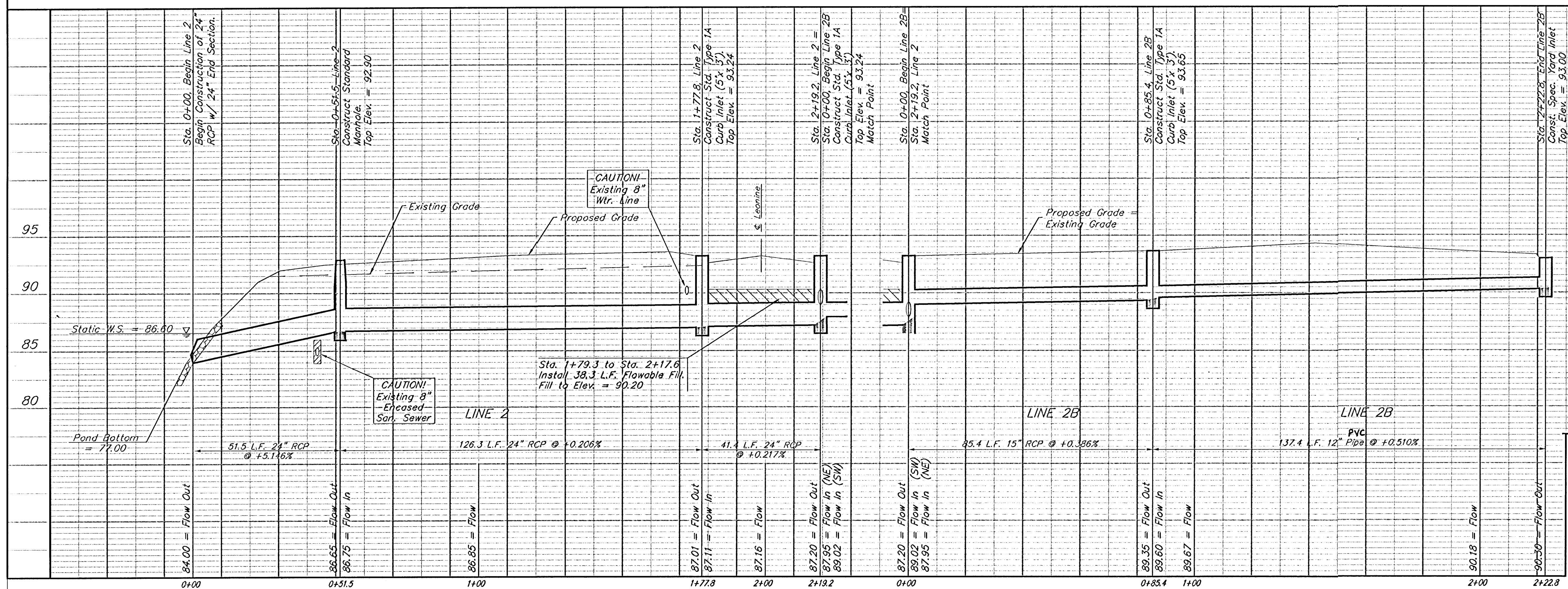
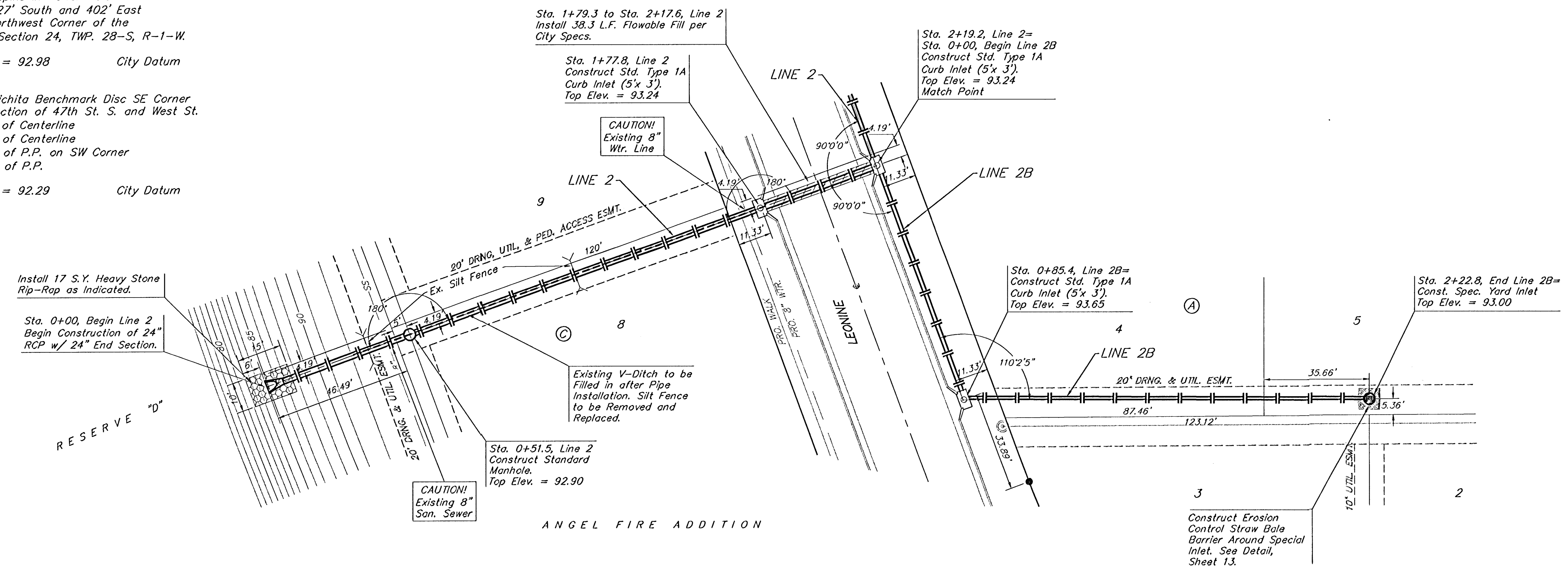
Railroad Spike in Power Pole  
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 • = Iron



ANGEL FIRE ADDITION - PHASE 1  
**LINES 2 & 2B**  
 STORM WATER DRAIN IMPROVEMENTS

**BAUGHMAN COMPANY P.A.**  
 ENGINEERING, SURVEYING, & PLANNING  
 316-282-7271 • 315 ELLIS • WICHITA, KANSAS 67211

PROJECT NUMBER: 472-83292

DESIGN: BLP/AEG DRAWN: AEG APPROVED: DATE: 3/28/01 SCALE: NOTED

SHEET 14 OF 28

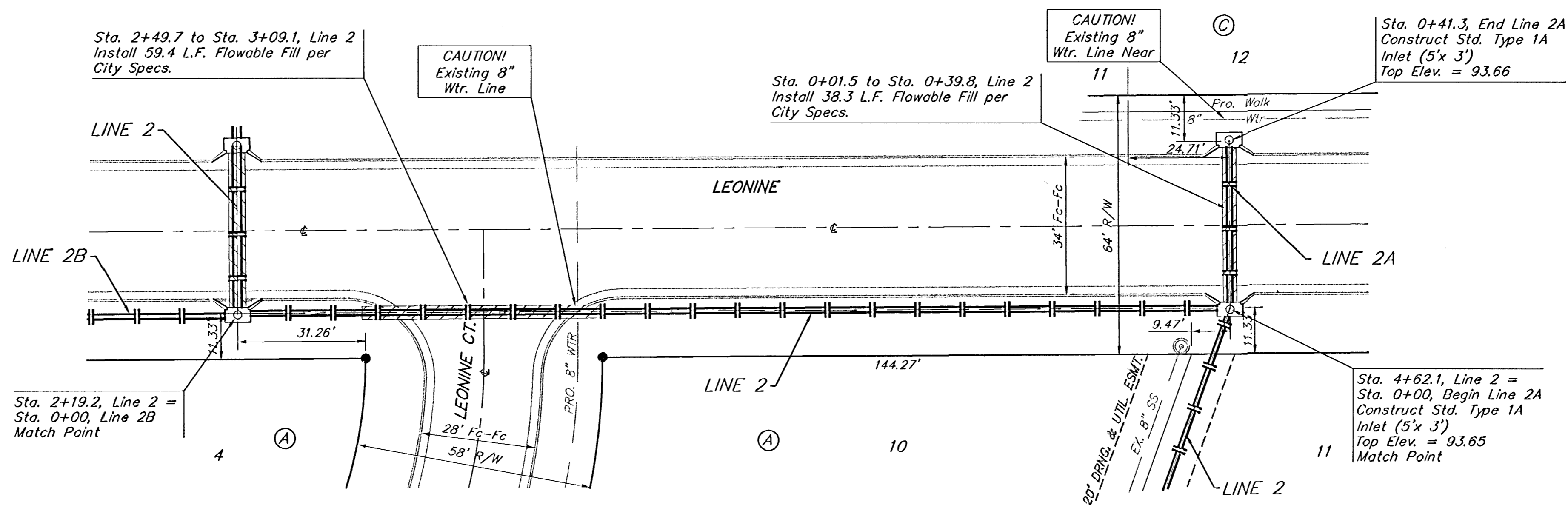
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Railroad Spike in Power Pole  
 Located 27' South and 402' East  
 of the Northwest Corner of the  
 NE 1/4, Section 24, TWP. 28-S, R-1-W.

Elevation = 92.98 City Datum

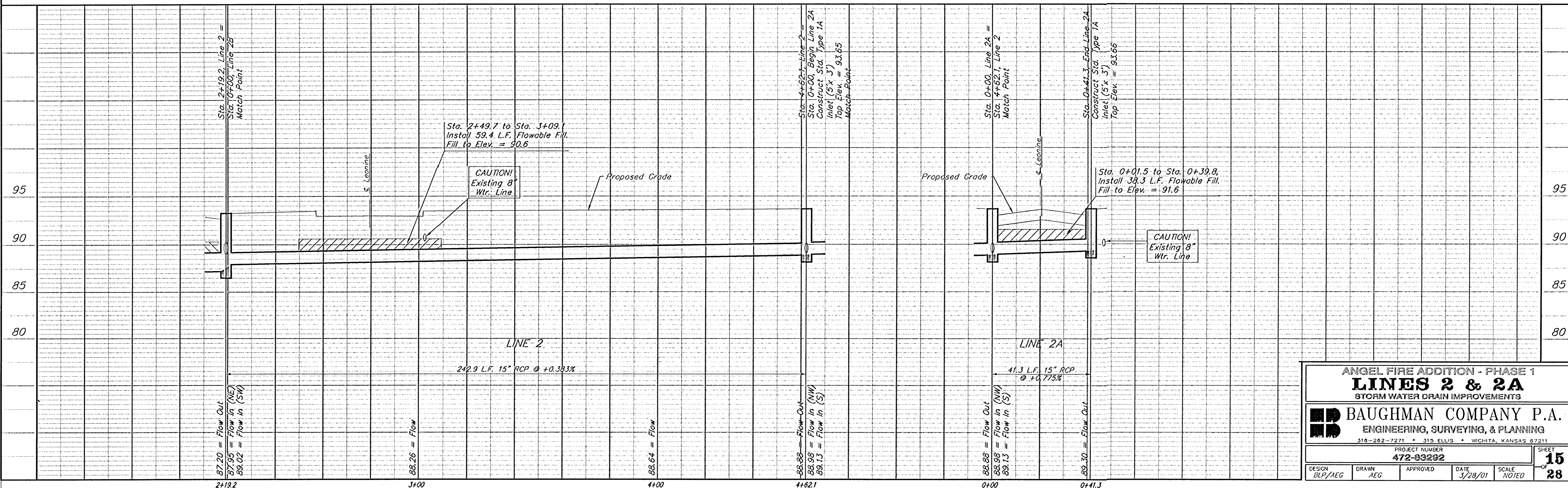
City of Wichita Benchmark Disc SE Corner  
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Elevation = 92.29 City Datum



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 1" = 5' Vertical  
 • = Iron

ANGEL FIRE ADDITION



ANGEL FIRE ADDITION - PHASE 1  
**LINES 2 & 2A**  
 STORM WATER DRAIN IMPROVEMENTS

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

PROJECT NUMBER  
**472-83292**

DESIGN: BLP/AEG DRAWN: AEG APPROVED: DATE: 3/28/01 SCALE: NOTED

SHEET **15** OF **28**

**Benchmark:**

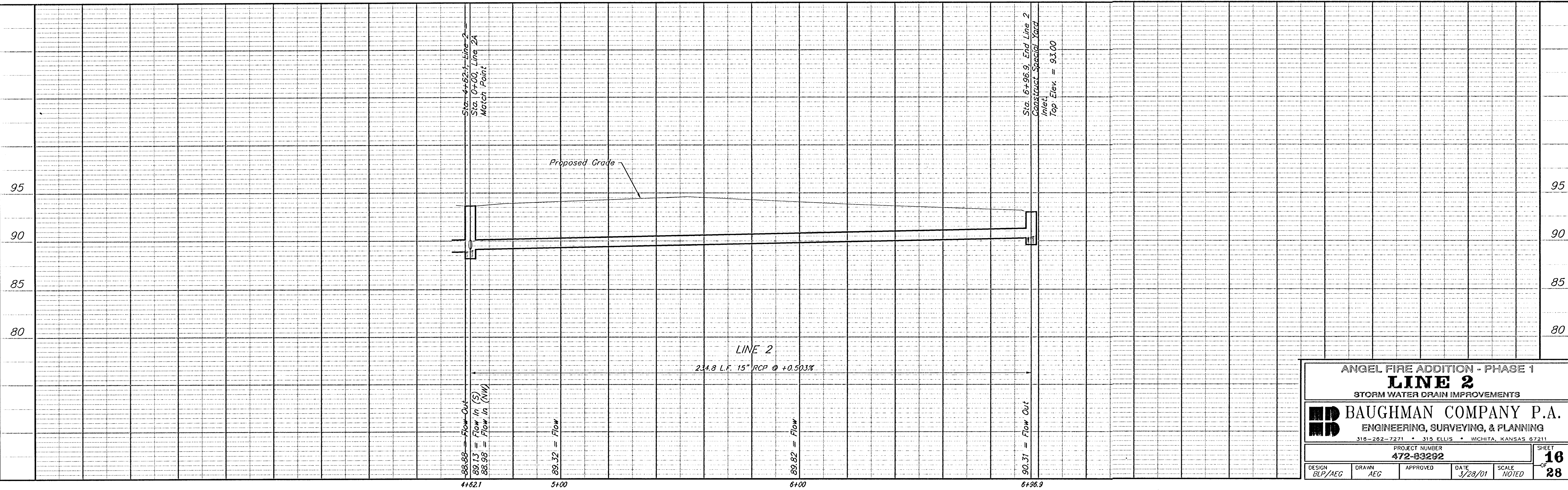
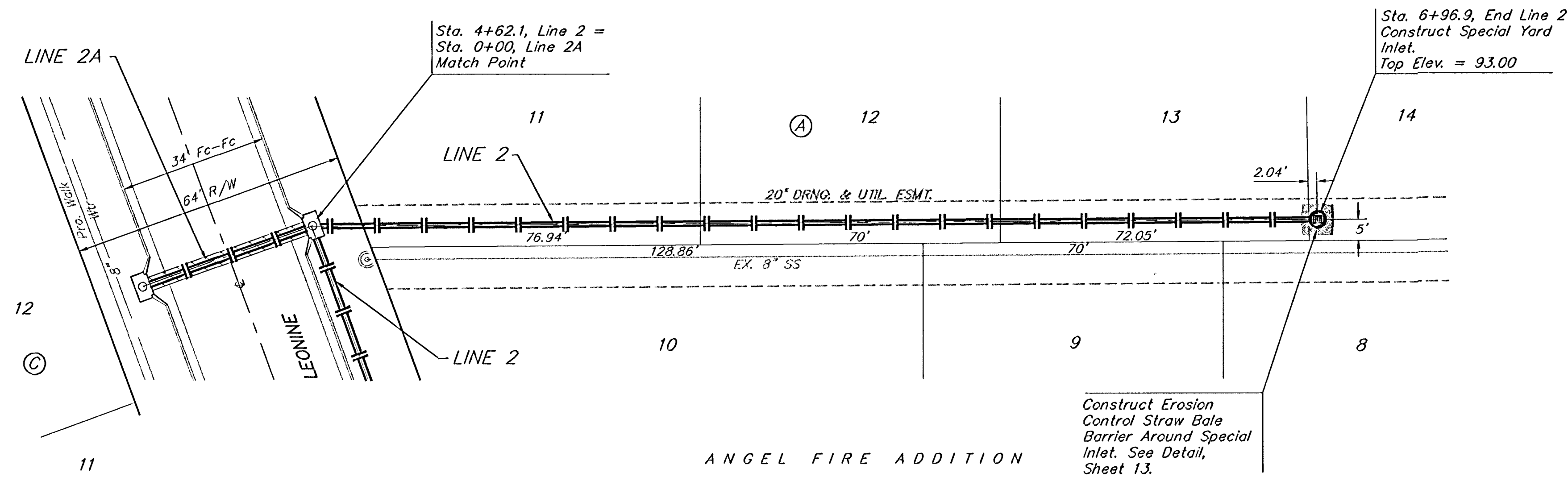
Railroad Spike in Power Pole  
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 of the Northwest Corner of the  
 NE 1/4, Section 24, TWP. 28-S, R-1-W.

Elevation = 92.98 City Datum

City of Wichita Benchmark Disc SE Corner  
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**ANGEL FIRE ADDITION - PHASE 1**  
**LINE 2**  
 STORM WATER DRAIN IMPROVEMENTS

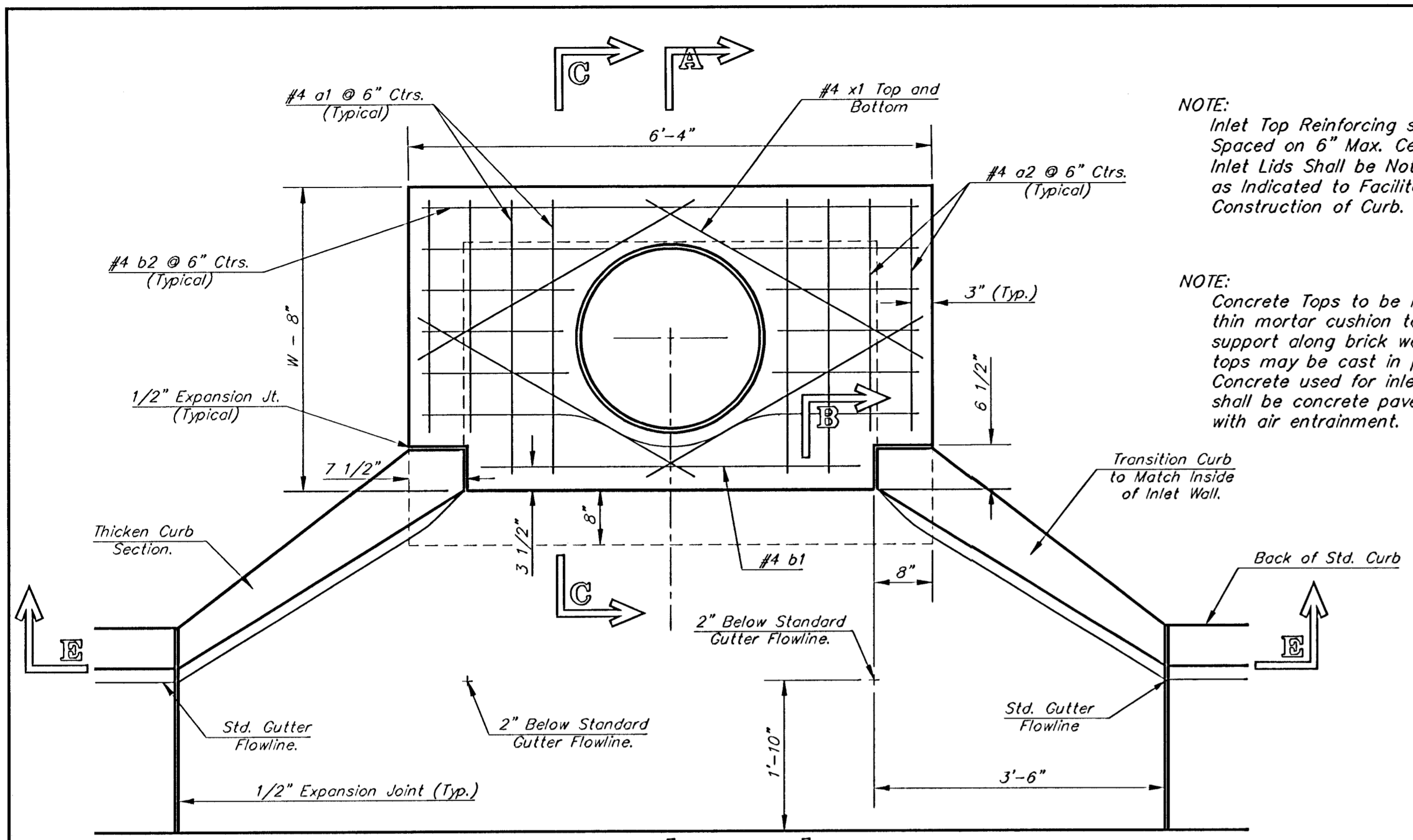
**BAUGHMAN COMPANY P.A.**  
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PROJECT NUMBER  
**472-83292**

DESIGN: BLP/AEG    DRAWN: AEG    APPROVED: \_\_\_\_\_    DATE: 3/28/01    SCALE: NOTED

SHEET **16** OF **28**

00-11-EG87  
 F. Angel Fire Issues

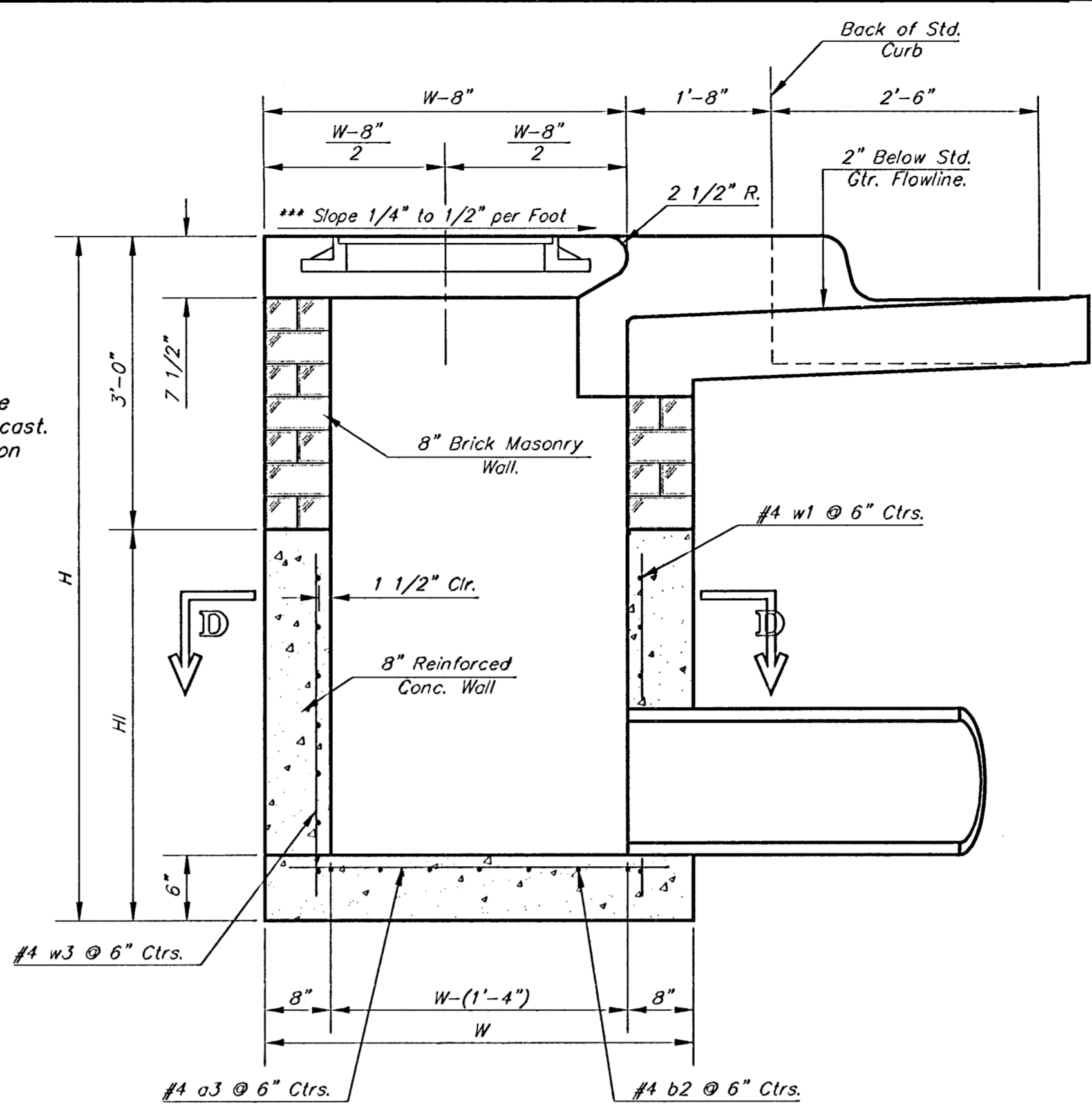


NOTE: Inlet Top Reinforcing shall be Spaced on 6" Max. Centers. Inlet Lids Shall be Notched Out as Indicated to Facilitate Construction of Curb.

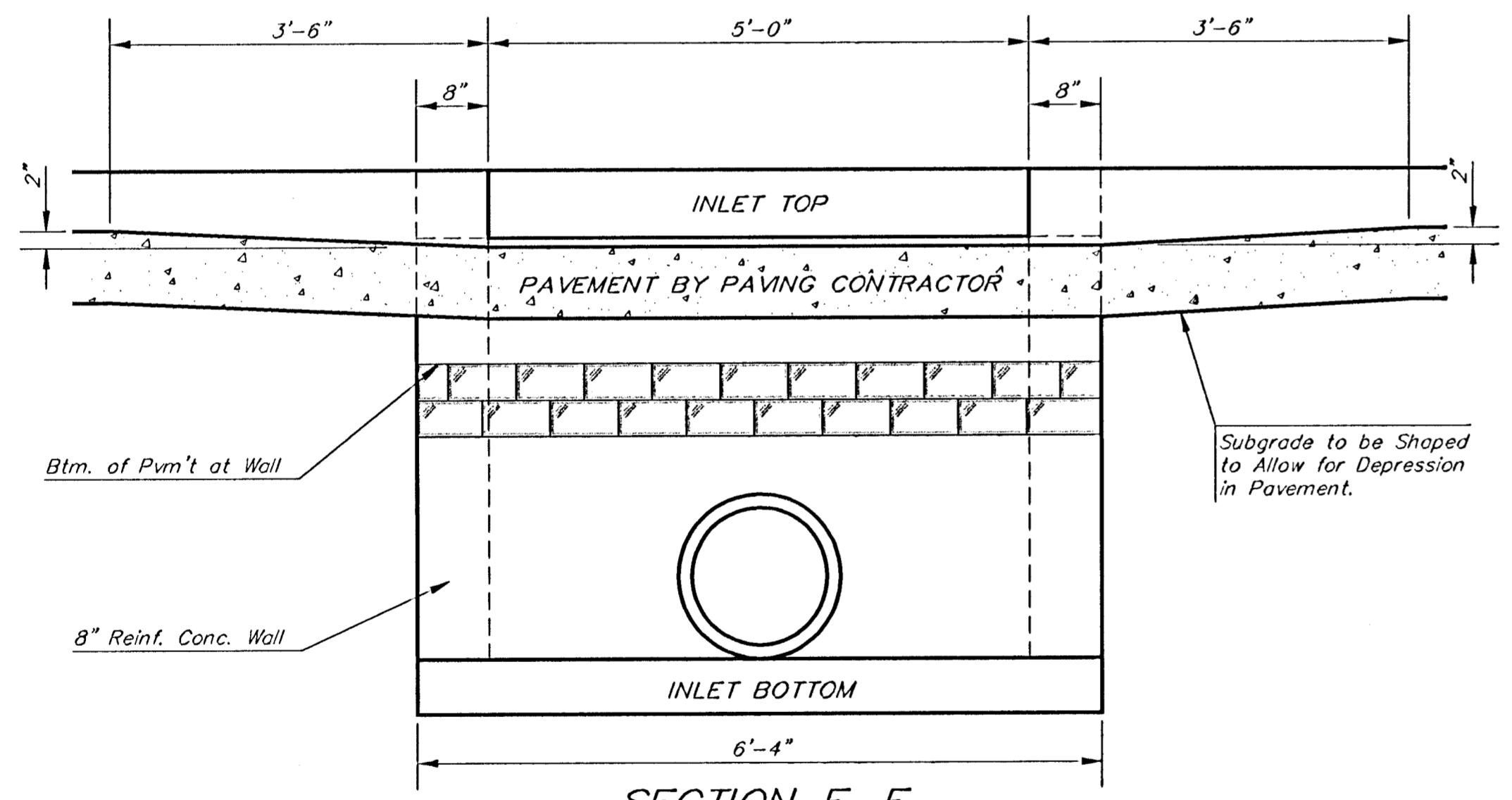
NOTE: Concrete Tops to be installed on thin mortar cushion to insure full support along brick walls. Concrete tops may be cast in place or precast. Concrete used for inlet construction shall be concrete pavement mix with air entrainment.

NOTE: Expansion Joint Only in Curb Area With Concrete Pavement.

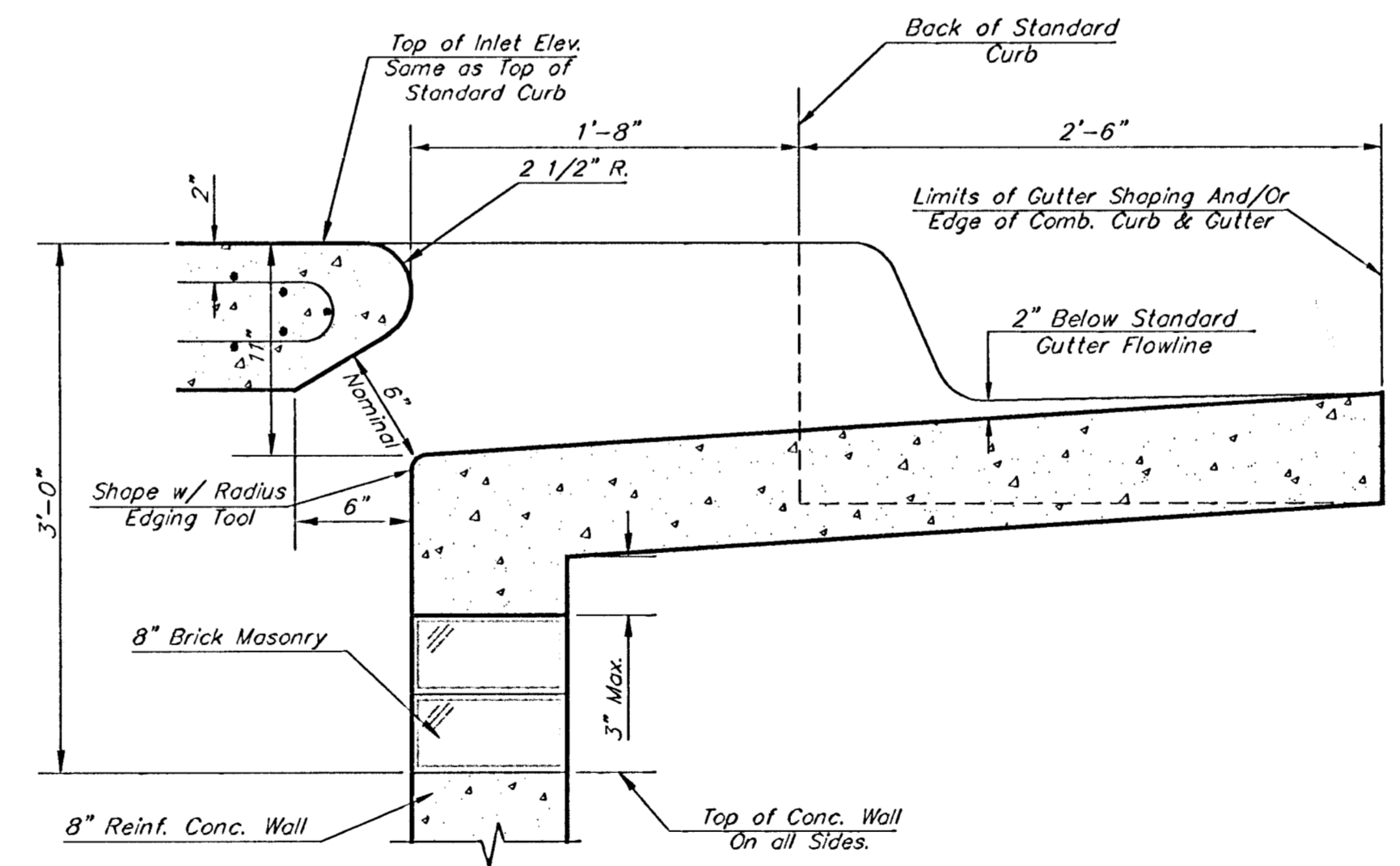
PLAN



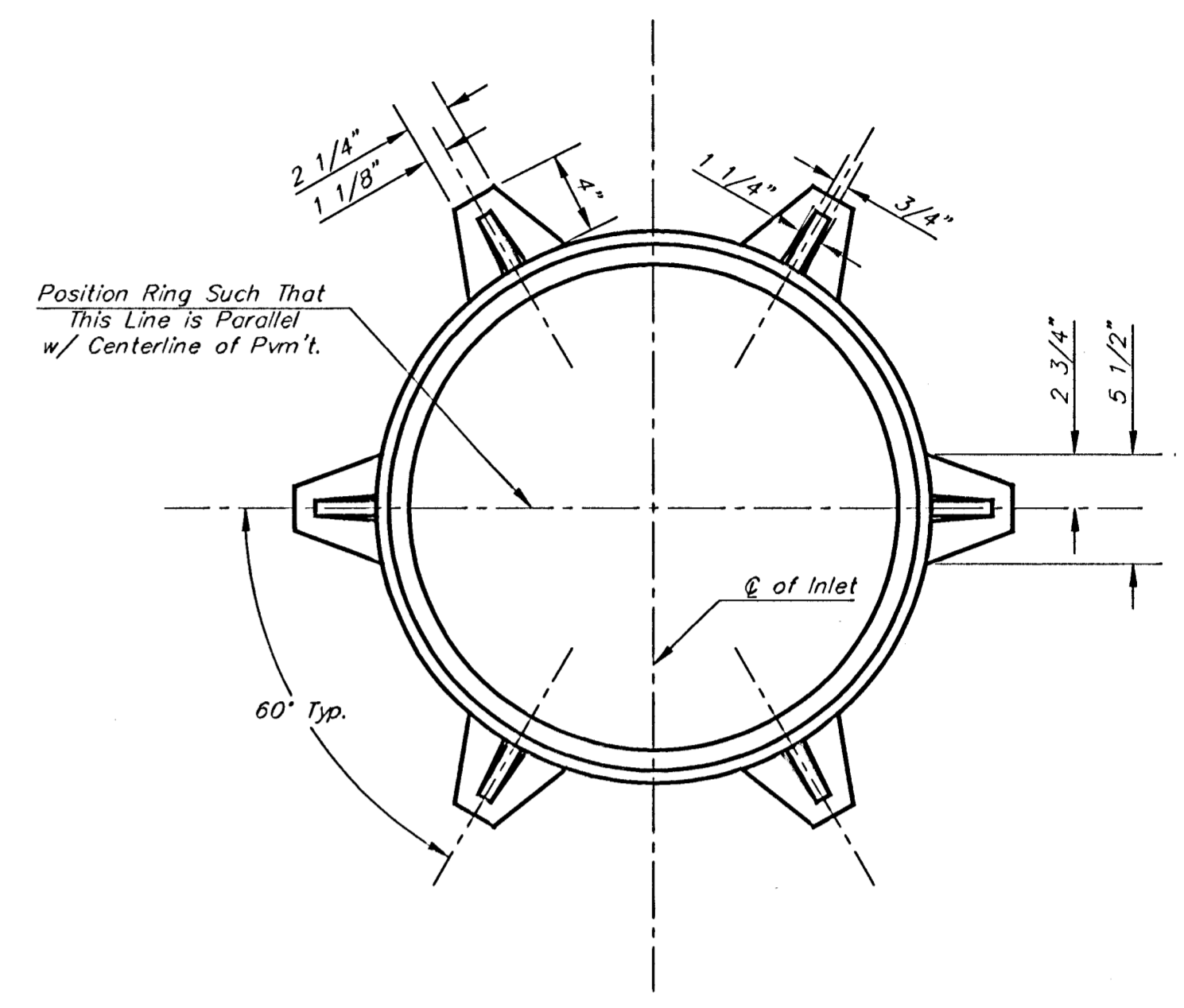
SECTION A-A  
\*\*\*NOTE: Slope of Inlet tops to Match Sidewalk or Parking Slopes within Limits Indicated.



SECTION E-E

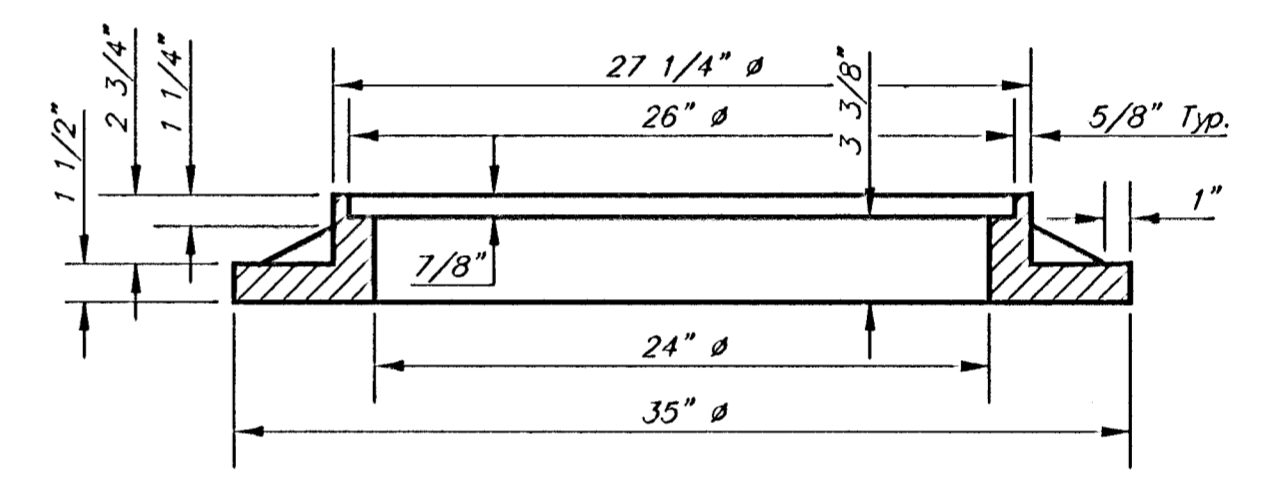


SECTION B-B

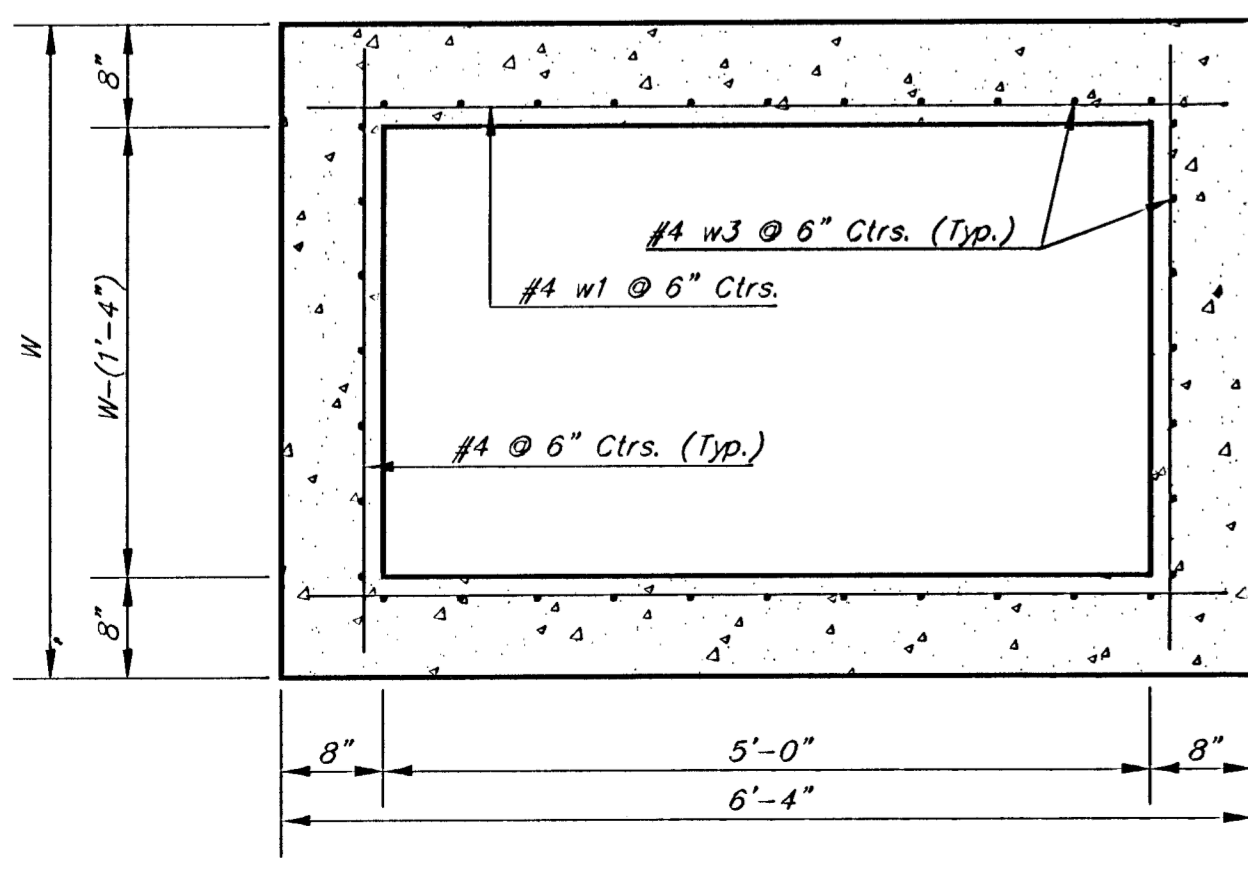


MANHOLE RING AND COVER

Weight = 180 Lbs.  
\*See City of Wichita Standard Manhole Ring and Cover Detail Sheet for Cover Details to Be Used With Inlet Frame.



SECTION C-C



SECTION D-D

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.

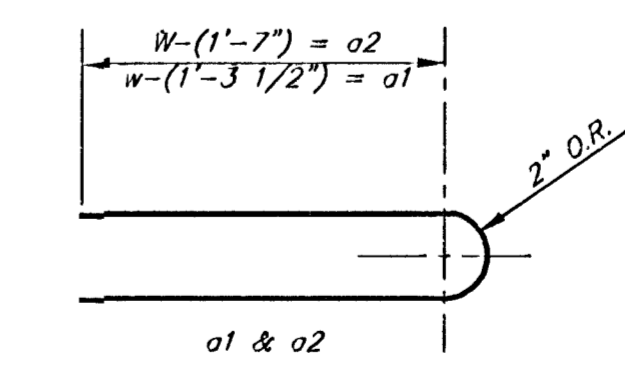
The ends of all pipes installed in inlets shall be cut off flush with the inside face of the inlet wall

PRECAST SLAB AND FLOOR REINFORCING											
		W = 4'-4"		W = 5'-4"		W = 6'-4"		W = 7'-4"		W = 8'-4"	
MARK	SIZE	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"
w3	#4	8	3'-10"	8	4'-2"	8	4'-2"	8	4'-10"	8	5'-2"

WALL REINFORCING											
		W = 4'-4"		W = 5'-4"		W = 6'-4"		W = 7'-4"		W = 8'-4"	
MARK	SIZE	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH
w1	#4	①	6'-1"	①	6'-1"	①	6'-1"	①	6'-1"	①	6'-1"
w2	#4	①	4'-1"	①	5'-1"	①	6'-1"	①	7'-1"	①	8'-1"
w3	#4	32	②	36	②	40	②	44	②	48	②

\* Field Bend or Cut Reinforcing as Required for Clearance.  
① 4 (H1 - 12") (H1 - 21") Rounded down to nearest 0.5'  
② H1 - 3"



BENDING DIAGRAM

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"

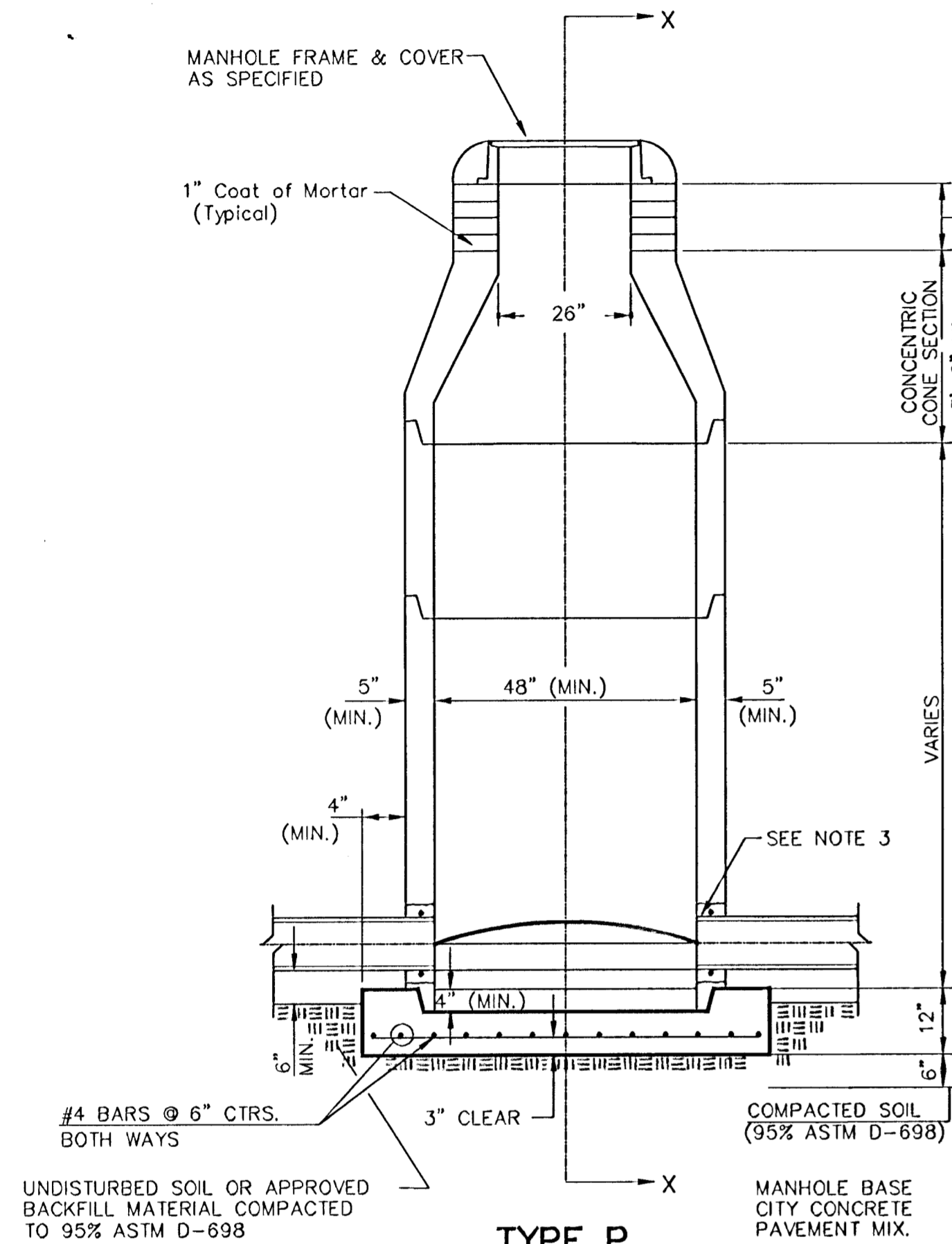
**BAUGHMAN COMPANY P.A.**  
ENGINEERING, SURVEYING, & PLANNING  
316-262-7271 • 315 ELLIS • WICHITA, KANSAS 67211

PROJECT NUMBER  
**472-83292**

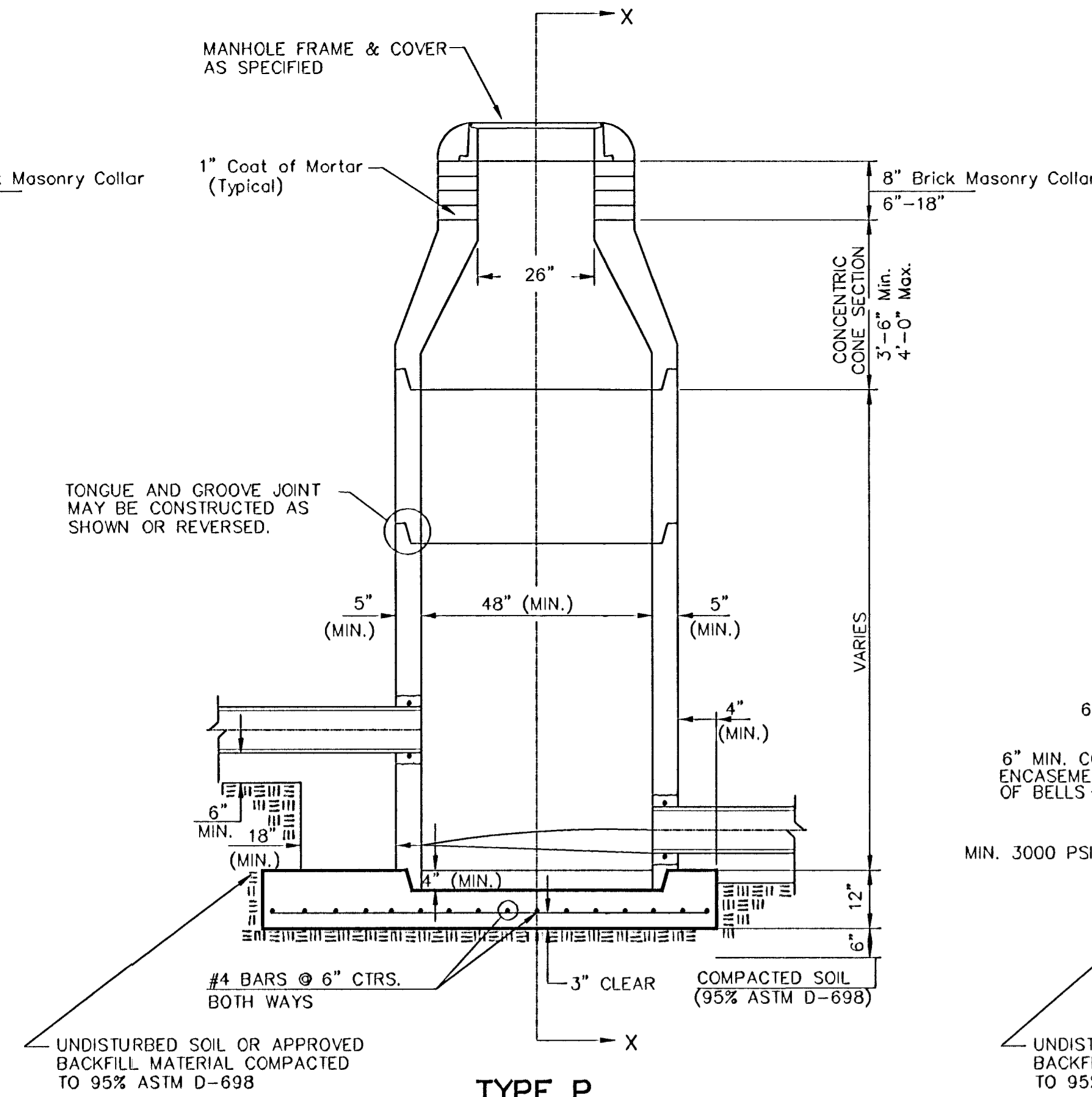
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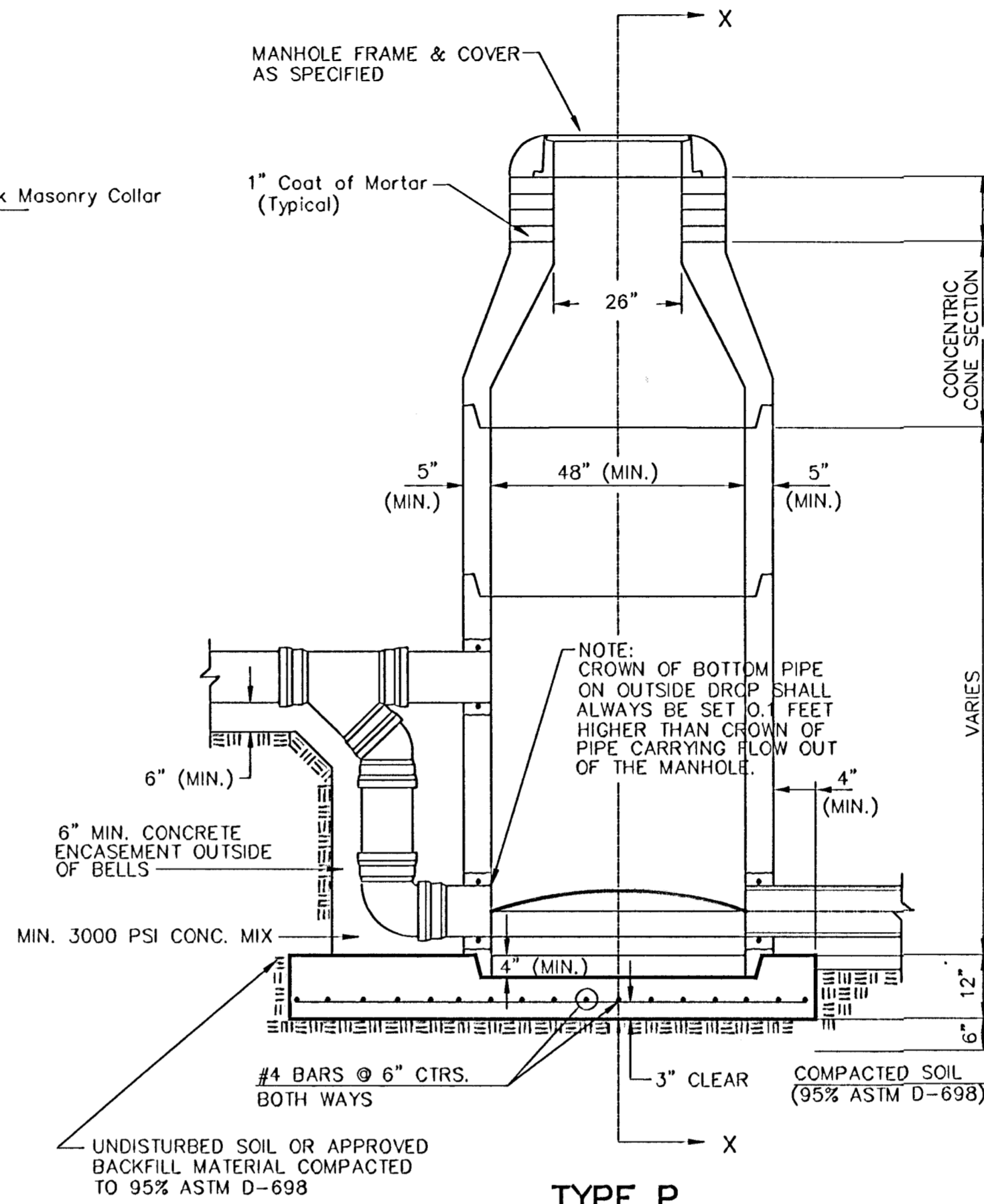
# SEWER APPURTENANCES DETAILS



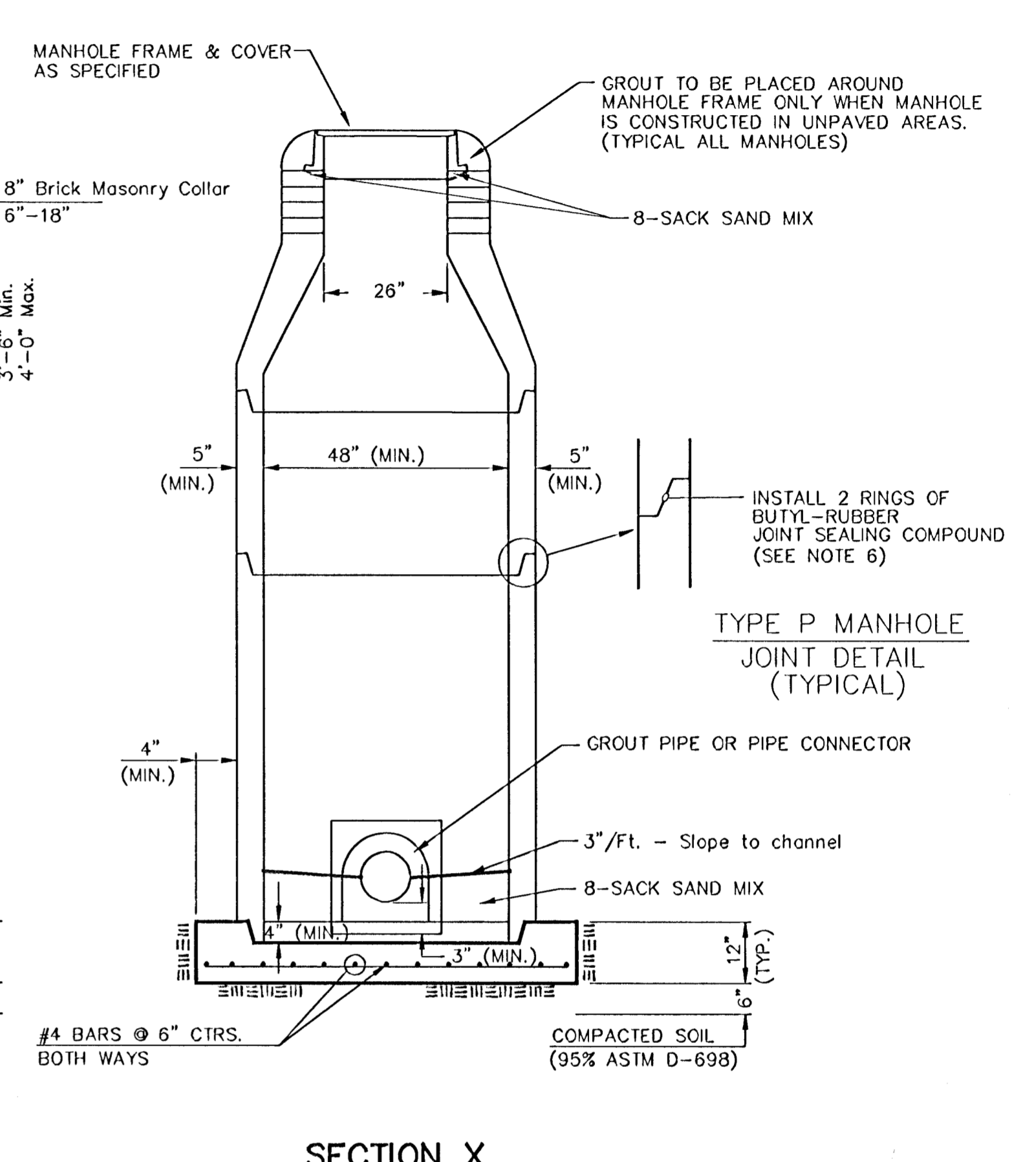
**TYPE P STANDARD MANHOLE**



**TYPE P INSIDE DROP MANHOLE**



**TYPE P OUTSIDE DROP MANHOLE**



**SECTION X (TYPICAL)**

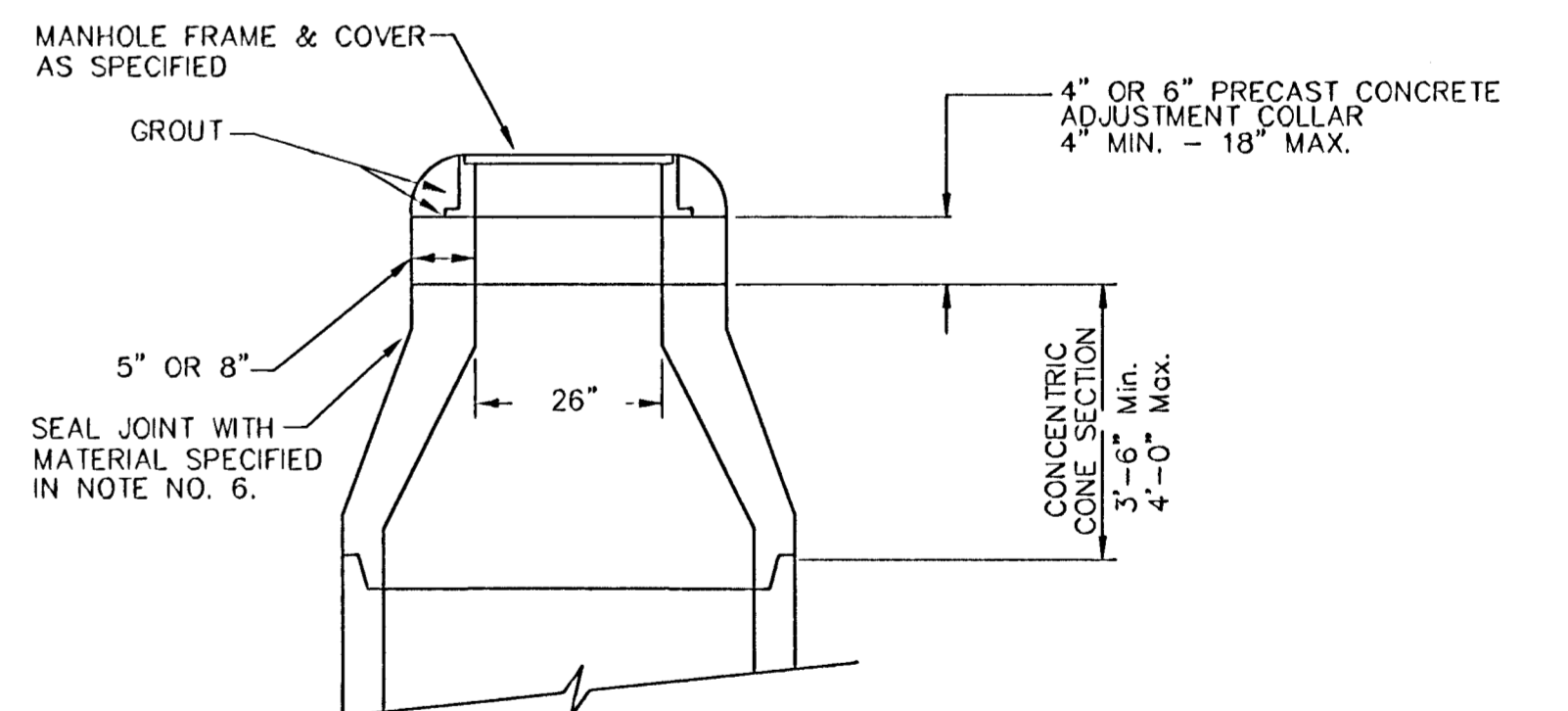
**GENERAL NOTES**

**PRECAST MANHOLE NOTES**

- ALL PRECAST CONCRETE MANHOLE SECTIONS SHALL CONFORM TO THE LATEST REVISIONS OF A.S.T.M. C478 AS MODIFIED BY THE SPECIFICATIONS.
- NON-SHRINK GROUT SHALL BE NON-METALLIC TYPE.
- APPROVED FLEXIBLE WATERSTOP GASKETS SHALL BE INSTALLED TO JOIN THE SEWER TO THE MANHOLE WALL WHEN A.B.S. COMPOSITE PIPE OR P.V.C. PIPE IS USED. FOR OTHER TYPES OF PIPE THE SEWER SHALL BE GROUTED IN PLACE WITH NON-SHRINK GROUT. THE SEWER PIPE SHALL BE SUPPORTED WITH CONCRETE ENCASEMENT A MINIMUM OF 3 FEET FROM THE MANHOLE WALL AND TO THE FIRST JOINT FOR V.C.P. SUCH THAT THE JOINT REMAINS FLEXIBLE.
- ALL INSIDE SURFACES OF THE CONCRETE MANHOLE WHICH WOULD BE EXPOSED TO SEWER GAS SHALL BE COATED WITH 2 COATS INEMEC SERIES 66 HI-BUILD EPOXOLINE, DRY THICKNESS OF 8 MILS (MIN.).
- EXTERIOR MANHOLE WALLS SHALL BE COATED WITH 1 COAT MOBILARMA 633 BITUMINOUS COATING.
- JOINT SEALING COMPOUND SHALL BE KENT SEAL NO. 2 OR APPROVED EQUAL.
- PRECAST MANHOLES SHALL BE SET AT LEAST 4 INCHES INTO THE MANHOLE BASE.
- TOP OF MANHOLE FLOOR SLAB SHALL BE AT LEAST 3 INCHES BELOW THE FLOW LINE OF THE OUTLET PIPE TO INSURE SUFFICIENT MINIMUM THICKNESS OF SHAPED INVERT.
- LIFTING HOLES SHALL BE FILLED WITH NON-SHRINK GROUT AND THE INTERIOR SURFACE COATED AS SPECIFIED.
- 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 PAVEMENT 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 AT LEAST 3" 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.
- OPENINGS SHALL BE CUT INTO THE MANHOLE WALL WHEN OUTSIDE DROPS ARE CONSTRUCTED ON EXISTING MANHOLES. SUCH OPENINGS CUT INTO EXISTING MANHOLES SHALL BE AS SMALL AS PRACTICAL TO FACILITATE INSTALLING AND GROUTING THE NEW PIPE IN PLACE. WATERSTOP GASKETS SHALL BE USED WITH P.V.C. AND A.B.S. COMPOSITE PIPE. THE NEW PIPE SHALL BE GROUTED INTO THE OPENING USING AN APPROVED NON-SHRINK GROUT FOR THE FULL MANHOLE WALL THICKNESS. THE EXTERIOR OF THE COMPLETED CONNECTION SHALL BE SEALED WITH AN APPROVED BITUMINOUS COATING SUCH THAT THE CONNECTION WILL BE WATER TIGHT. FLOOR OF MANHOLE SHALL BE MODIFIED TO FORM NEW FLOW CHANNEL FOR THE NEW CONNECTION AS INDICATED BY THE DRAWING. THIS WORK, INCLUDING MODIFICATION OF MANHOLE FLOOR, SHALL BE PAID FOR AT THE UNIT PRICE BID FOR OUTSIDE DROP STACK CONSTRUCTED ON EXISTING 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 EXCEPT FOR INSIDE DROP MANHOLES. FLOW CHANNELS FOR INSIDE DROP MANHOLES SHALL BE CONSTRUCTED AS INDICATED BY THE DRAWING. 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 DRAWING.
- THE VERTICAL DROP IN INSIDE DROP MANHOLES SHALL NOT EXCEED 2' FOR INFLOWING PIPES SIZED 12" OR SMALLER AND 2' FOR INFLOWING PIPES LARGER THAN 12". THE CROWNS OF INFLOWING PIPES SHALL NEVER BE SET LOWER THAN THE CROWN OF THE OUTFLOWING PIPE.
- STANDARD MANHOLES AND STANDARD INSIDE DROP MANHOLES SHALL BE BID AS STANDARD MANHOLES FOR THE TYPE AND DIAMETER INDICATED. OUTSIDE DROP MANHOLES SHALL BE BID AS STANDARD OUTSIDE DROP MANHOLES FOR THE TYPE AND DIAMETER INDICATED. ALL MANHOLE DIAMETERS WILL BE 4' UNLESS INDICATED OTHERWISE.
- A BRICK MASONRY COLLAR SHALL BE INSTALLED BETWEEN THE CAST IRON FRAME AND THE CONCENTRIC CONE. THE COLLAR WILL HAVE 8" WALLS AND A VERTICAL HEIGHT OF 6" MINIMUM AND 18" MAXIMUM. A 1" COAT OF MORTAR WILL BE PLASTERED ON THE OUTSIDE OF THE COLLAR. THE USE OF PRE-CAST CONCRETE SPACERS FOR MANHOLE TOP ADJUSTMENT IS ALSO ALLOWED.



**ALTERNATE CONSTRUCTION IN UNPAVED AREAS**

CITY OF WICHITA  
**STD. MANHOLE DETAILS**  
SEWER APPURTENANCES

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

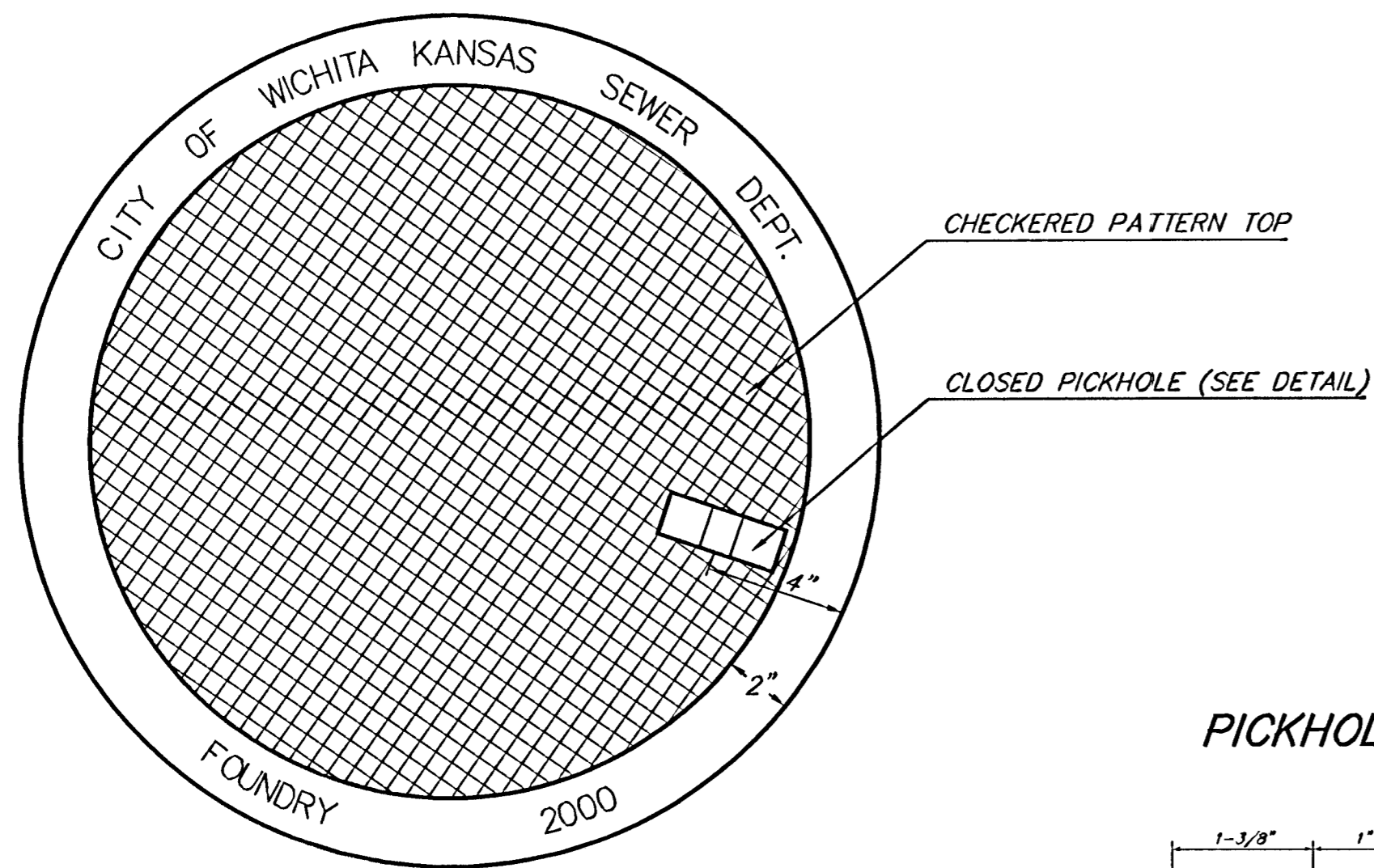
PROJECT NUMBER \_\_\_\_\_ SHEET **19** OF **28**

DESIGN STAFF	DRAWN STAFF	APPROVED	DATE	SCALE NONE
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MANHOLE COVER  
Weight = 180 Lbs.

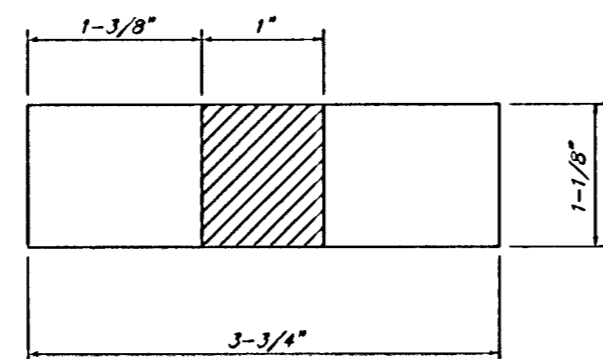
# MANHOLE FRAME AND COVER DETAIL

ADOPTED AS STANDARD DESIGN BY  
CITY OF WICHITA, KANSAS

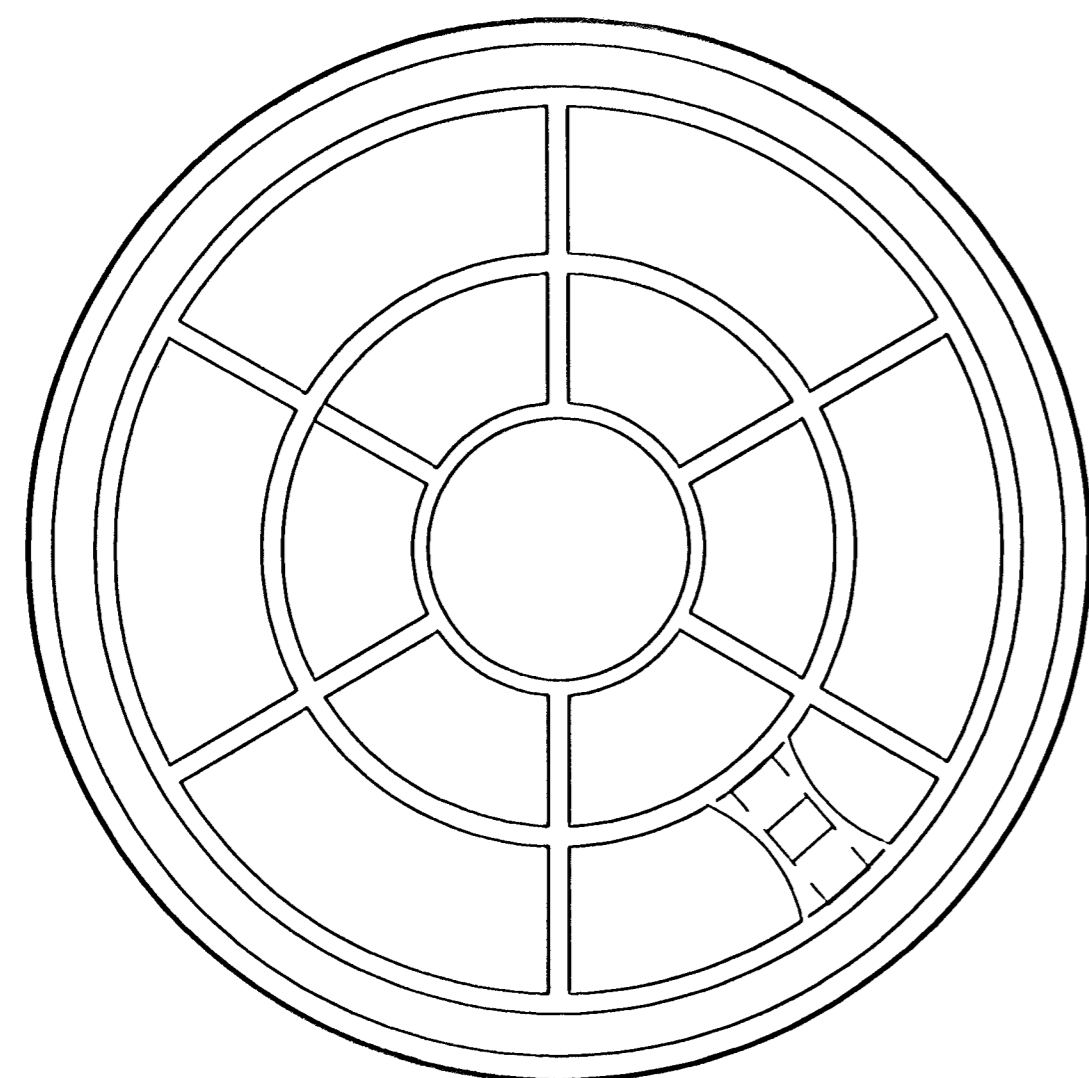


TOP VIEW

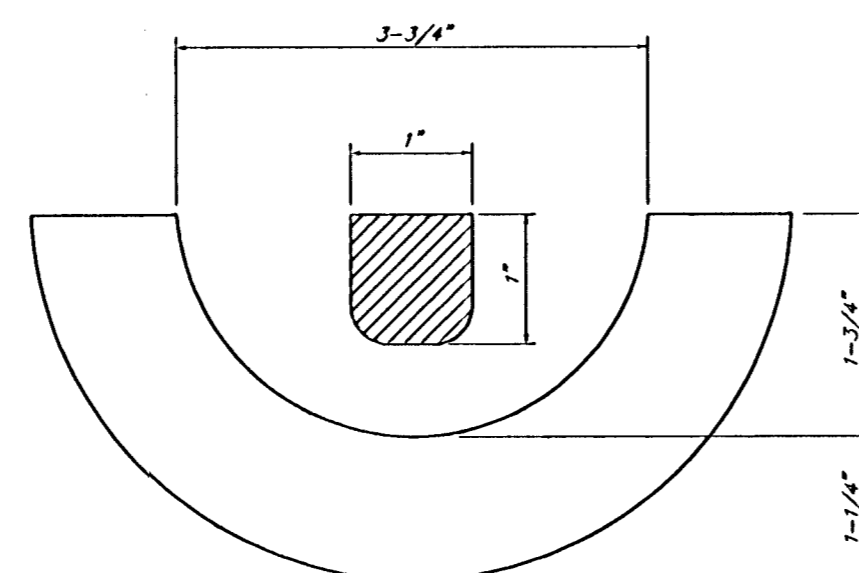
PICKHOLE DETAIL



TOP VIEW

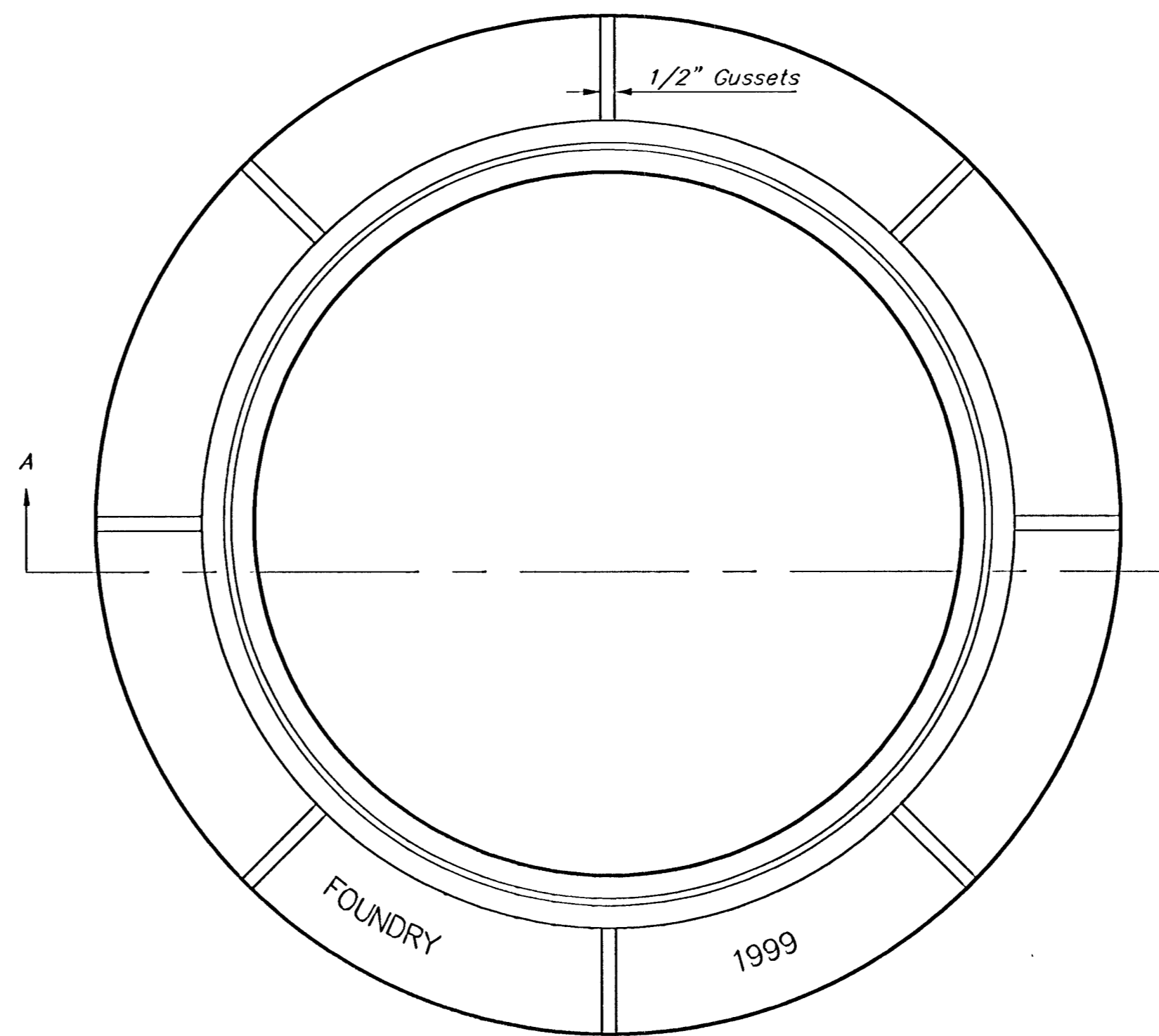


BOTTOM VIEW



SECTION VIEW

MANHOLE FRAME  
Weight = 145 Lbs.



TOP VIEW

## GENERAL NOTES

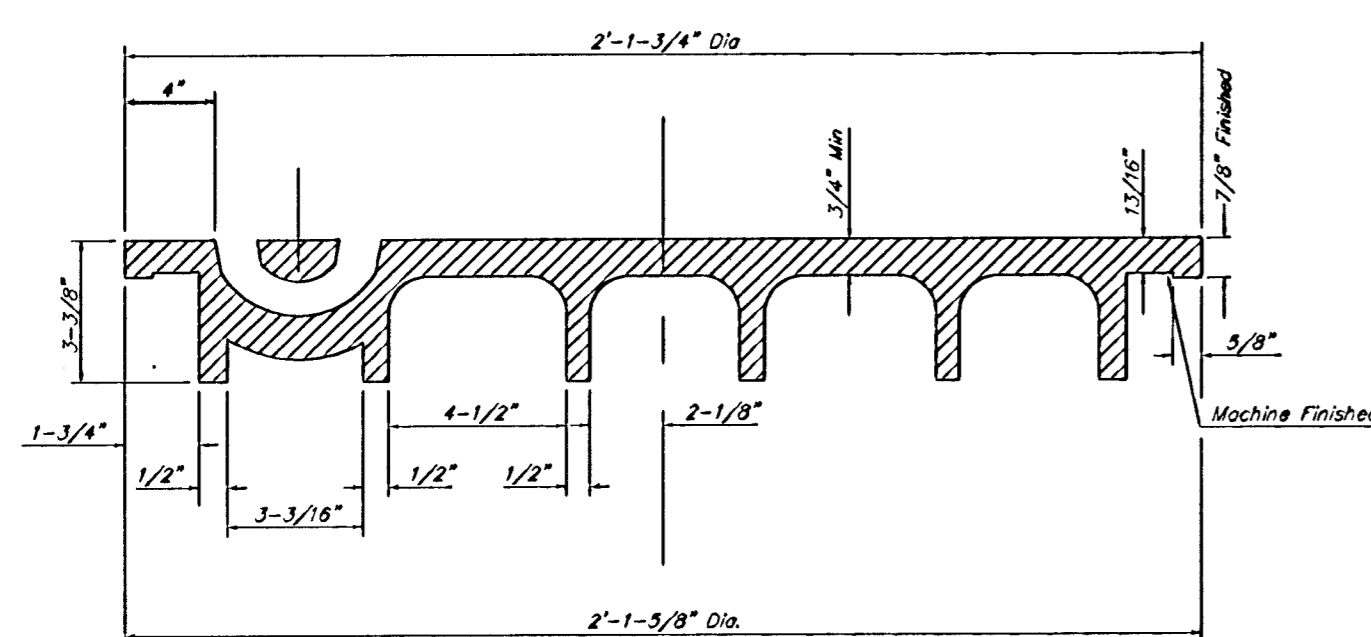
MANHOLE CASTINGS SHALL BE MANUFACTURED USING GOOD QUALITY GRAY IRON CONFORMING TO CLASS 30 OF A.S.T.M. DESIGNATION A-48. DIMENSIONS AND WEIGHTS SHOWN ON THE DETAILED DRAWINGS SHALL BE CONSIDERED AS MINIMUM REQUIREMENTS AND ANY DEVIATIONS FROM THE DIMENSIONS SHOWN MUST BE SPECIFICALLY APPROVED. THE FINISHED CASTINGS SHALL BE OF UNIFORM QUALITY, FREE FROM BLOWHOLES, POROSITY, HARD SPOTS, SHRINKAGE DISTORTIONS OR OTHER DEFECTS.

MANHOLE CASTINGS SHALL BE COATED WITH AN ASPHALT PAINT RESULTING IN A SMOOTH, TOUGH AND TENACIOUS COATING WHICH IS NOT BRITTLE OR TACKY.

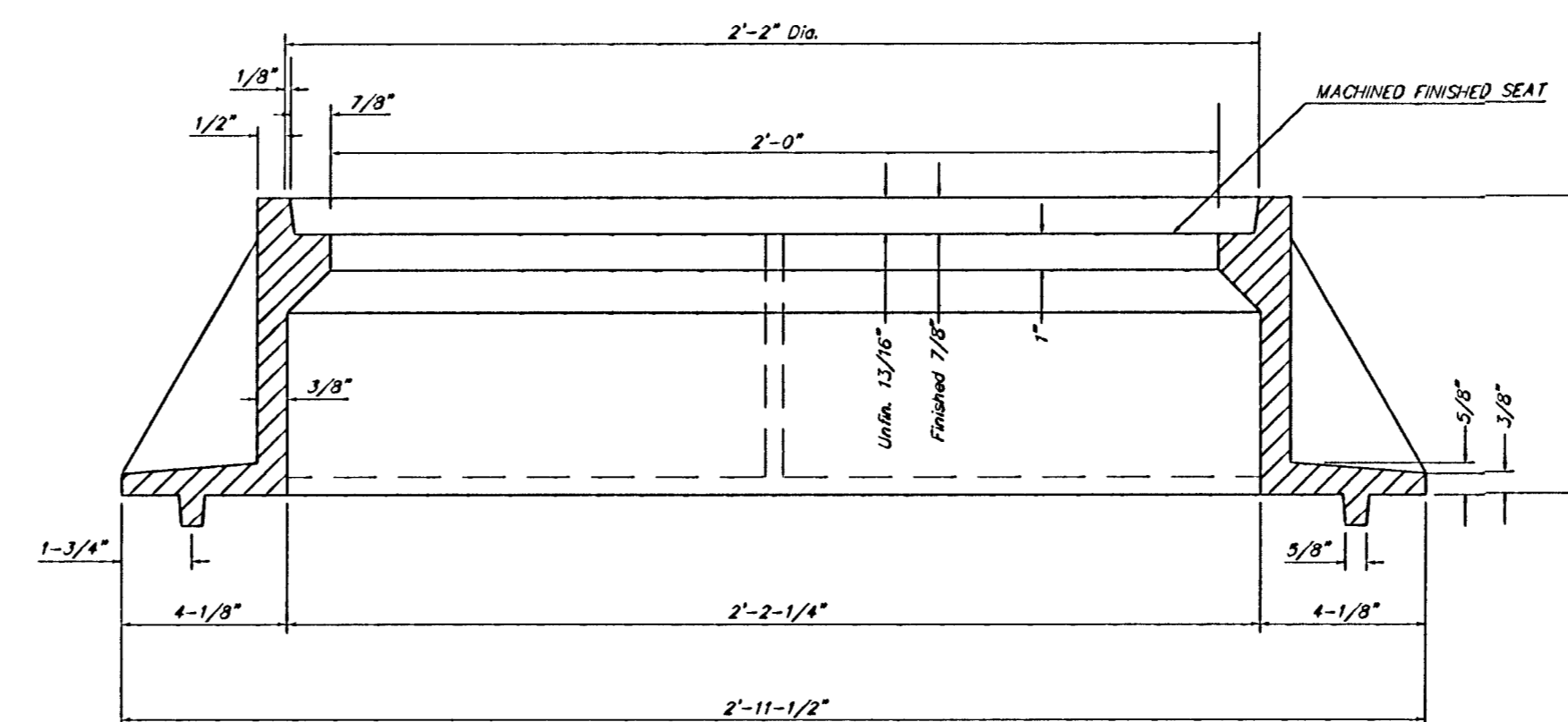
MANHOLE CASTINGS SHALL BE MANUFACTURED SUCH THAT A COVER MANUFACTURED BY ANY ONE FOUNDRY WILL FIT INTERCHANGEABLY INTO A FRAME MANUFACTURED BY ANOTHER FOUNDRY AND STILL MEET ALLOWABLE CLEARANCES AND NON-ROCKING REQUIREMENTS. THIS WILL REQUIRE MANUFACTURING OF THE MATCHING FACES ON THE COVER AND THE FRAME TO CLOSE TOLERANCES.

THE OUTSIDE CIRCUMFERENCE OF THE VERTICAL FACE OF THE COVER AND THE INSIDE CIRCUMFERENCE OF THE VERTICAL FACE IN THE FRAME RECESS SHALL BE MANUFACTURED TO TOLERANCES SUCH THAT THE CLEARANCE BETWEEN THE COVER AND FRAME WILL NOT EXCEED 1/8" AT ANY POINT AROUND THE CIRCUMFERENCE OF THE COVER. THE SEATING SURFACES BETWEEN THE COVER AND FRAME SHALL BE MACHINED SUCH AS THESE SURFACES SHALL MAKE FULL CONTACT FOR THEIR FULL CIRCUMFERENCE TO PRECLUDE THE COVER FROM ROCKING IN THE FRAME.

THE MANHOLE FRAME AND COVER SHALL BE MARKED WITH LETTERING INDICATING THE NAME OF THE MANUFACTURER AND THE YEAR WHEN THE COVER OR FRAME WAS CAST. THE COVER SHALL BE FURTHER IDENTIFIED WITH REGARDS TO OWNERSHIP USING LETTERS AT LEAST 1 INCH IN HEIGHT. THIS IDENTIFICATION SHALL BE "CITY OF WICHITA SEWER DEPARTMENT". THE WORD DEPARTMENT MAY BE ABBREVIATED. THE TEXTURE OF THE TOP SURFACE OF THE COVER SHALL BE MANUFACTURED IN A CHECKERED PATTERN DESIGN AS INDICATED ON THE DRAWINGS. SMOOTH BLOCKOUTS SHALL BE UTILIZED TO HIGHLIGHT THE LETTERING ON THE COVER SURFACE. THE TOTAL AREA OF SMOOTH SURFACE BLOCKOUT SHALL NOT EXCEED THE AREA AS INDICATED ON THE DRAWING. POSITIONING OF SMOOTH BLOCKOUTS AND LETTERING MAY VARY FROM THAT SHOWN ON THE DETAILED DRAWING.



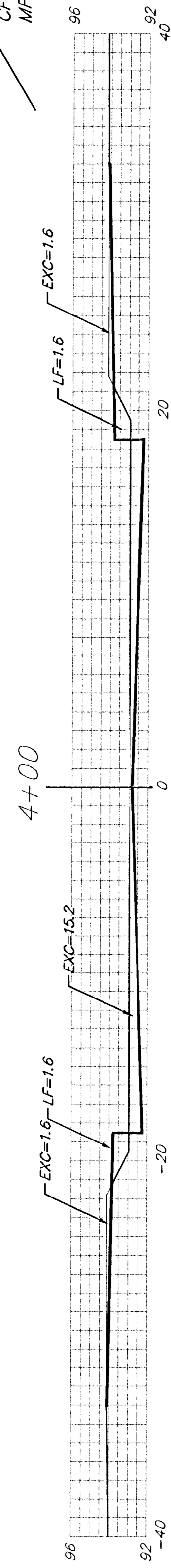
SECTION VIEW



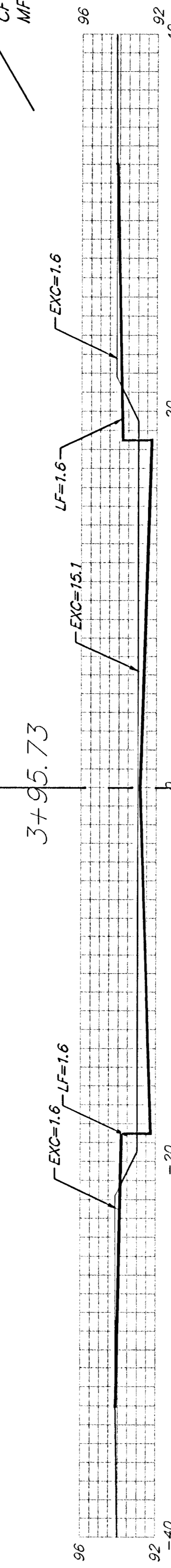
SECTION A-A

MANHOLE FRAME AND COVER DETAIL			
ADOPTED AS STANDARD DESIGN BY CITY OF WICHITA, KANSAS			
BAUGHMAN COMPANY P.A. ENGINEERING, SURVEYING, & PLANNING 318-262-7271 • 318 ELLIS • WICHITA, KANSAS 67211			
PROJECT NUMBER 472-63292		SHEET 20 OF 28	
DESIGN STAFF	DRAWN STAFF	APPROVED	DATE SCALE NONE

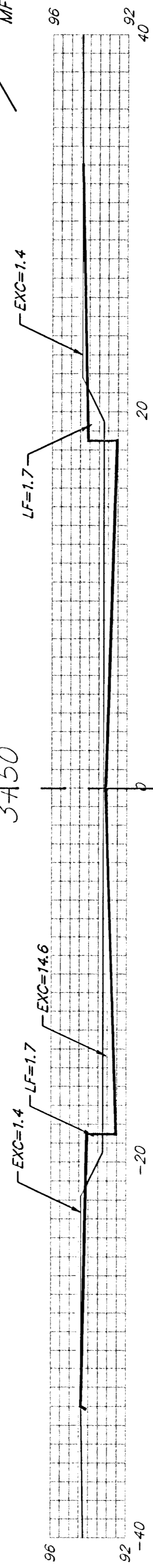
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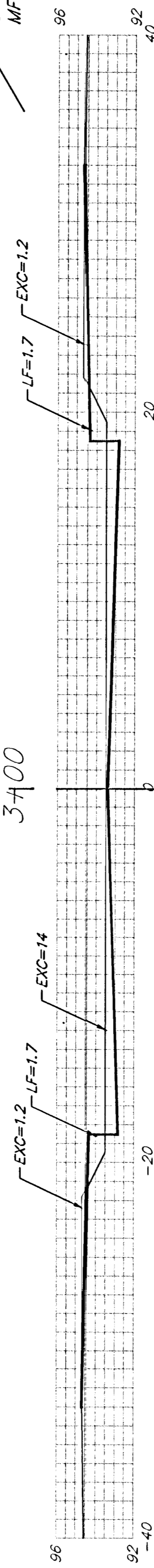
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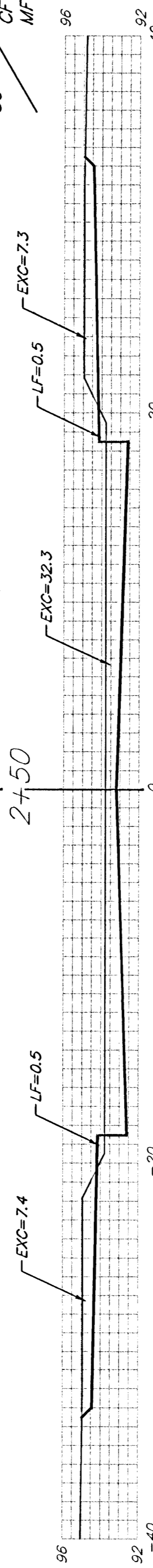
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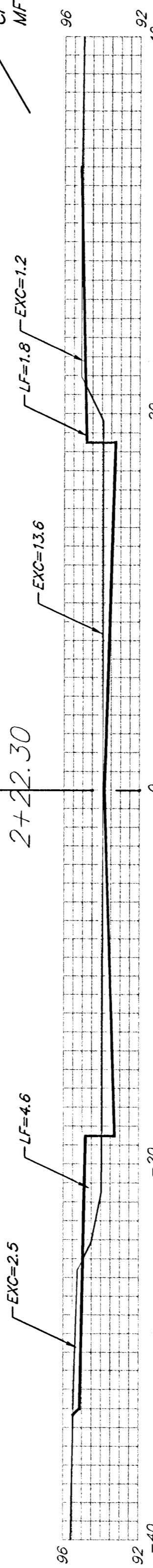
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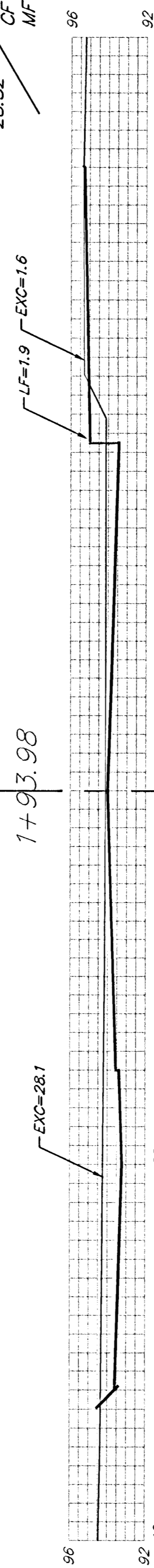
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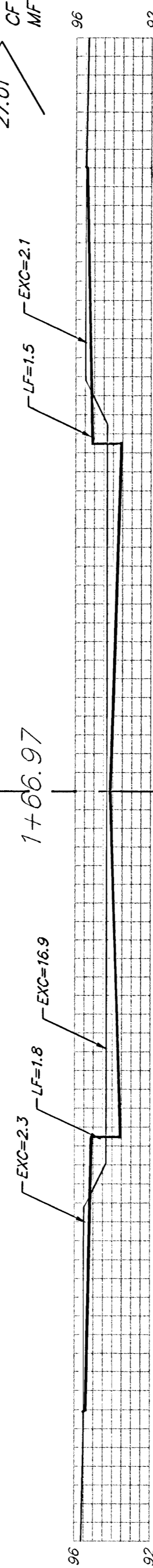
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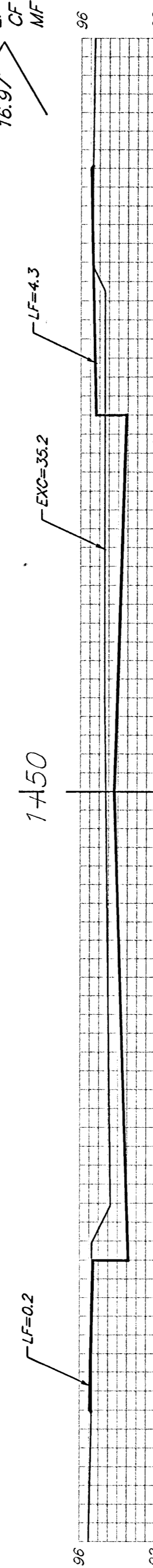
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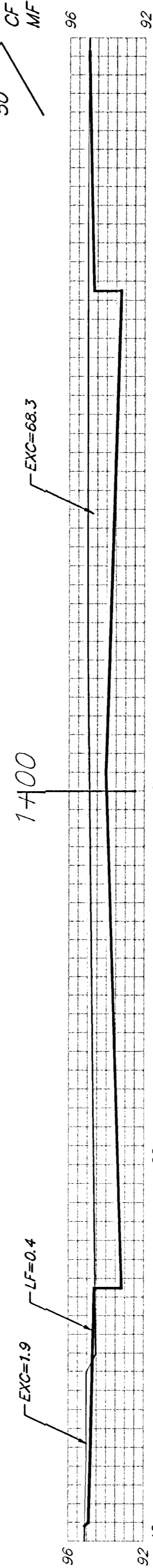
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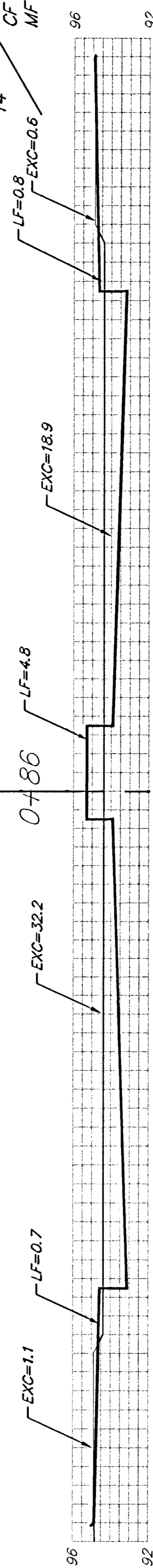
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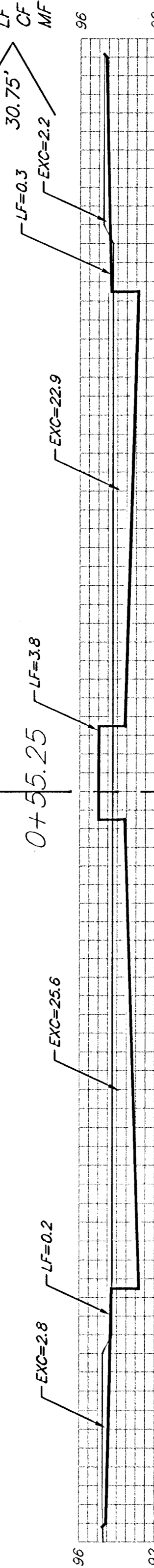
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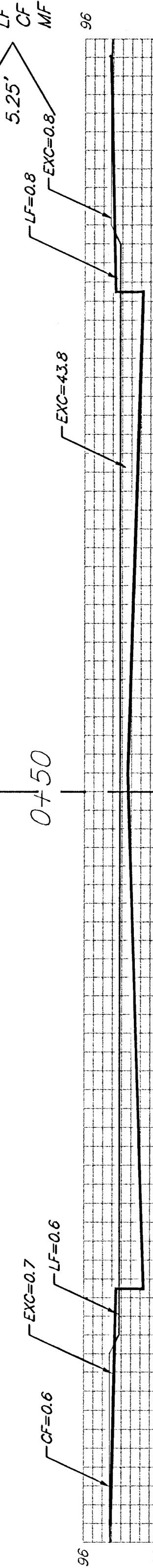
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EXC = 60.5  
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MF = 0



EXC = 9.6  
LF = 1.1  
CF = 0  
MF = 0



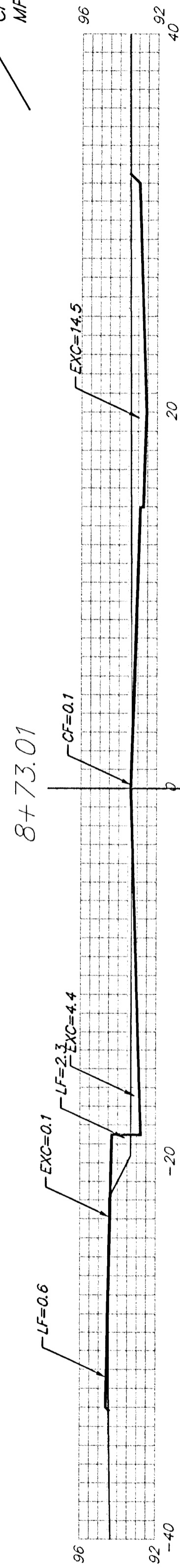
Sheet Totals  
Excavation = 456.6 C.Y.  
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**BAUGHMAN COMPANY, P. A.**  
ENGINEERING & SURVEYING  
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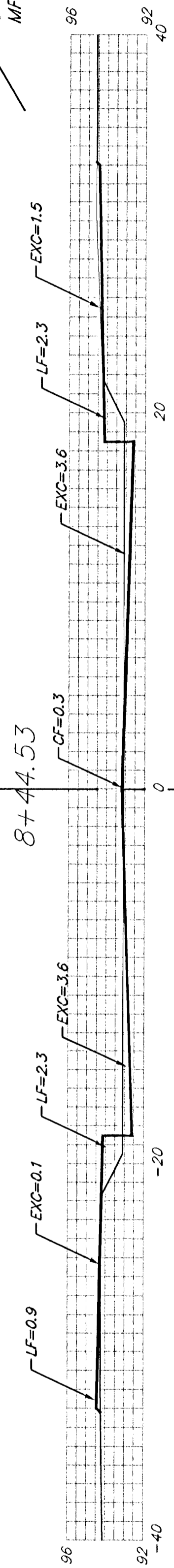
PROJECT NUMBER  
472-83292

LEONINE

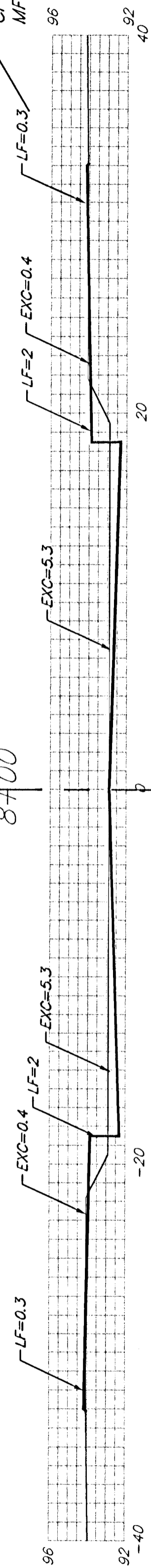
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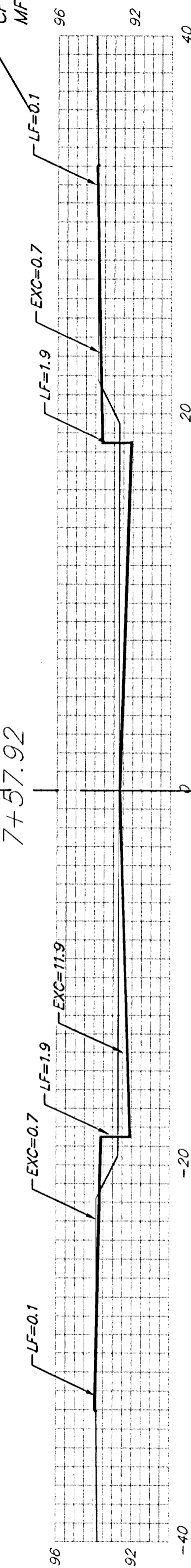
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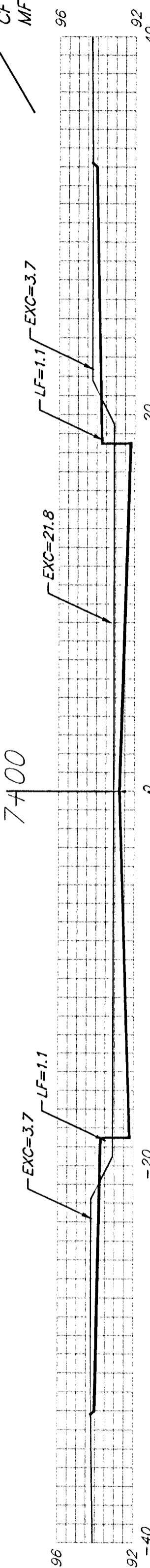
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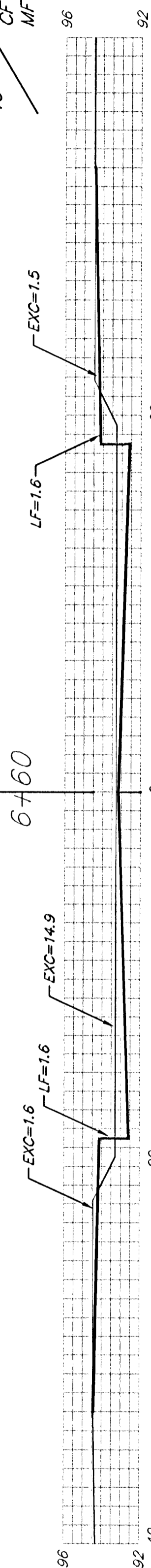
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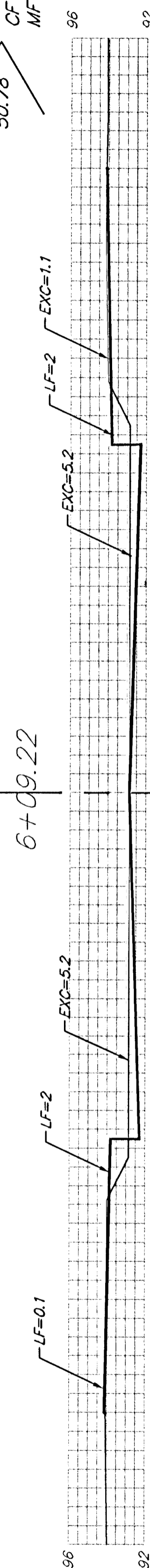
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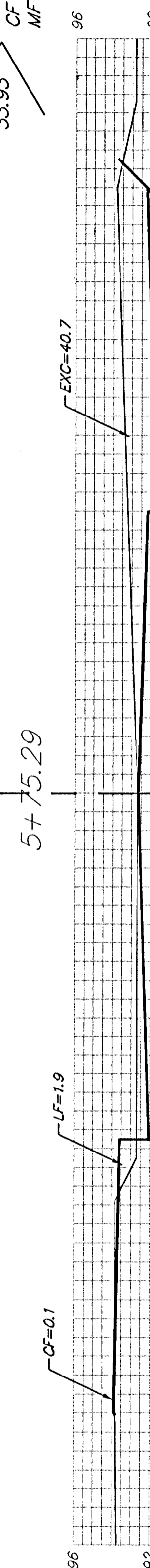
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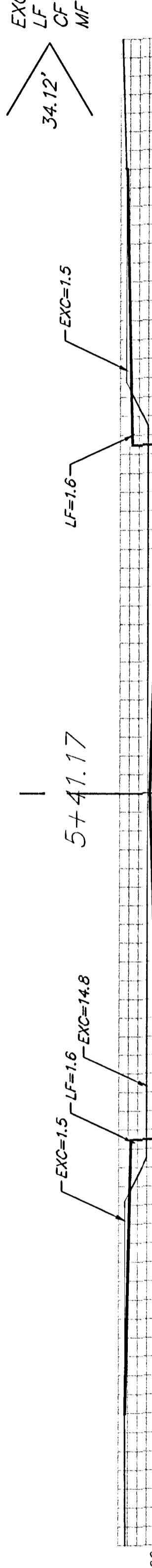
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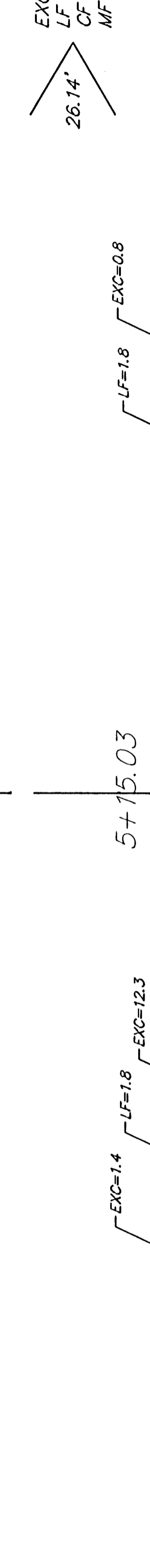
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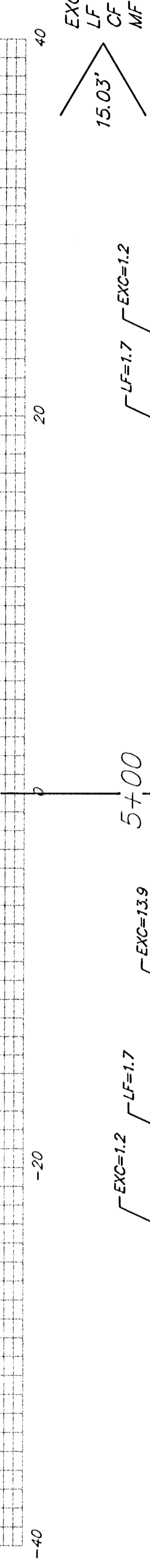
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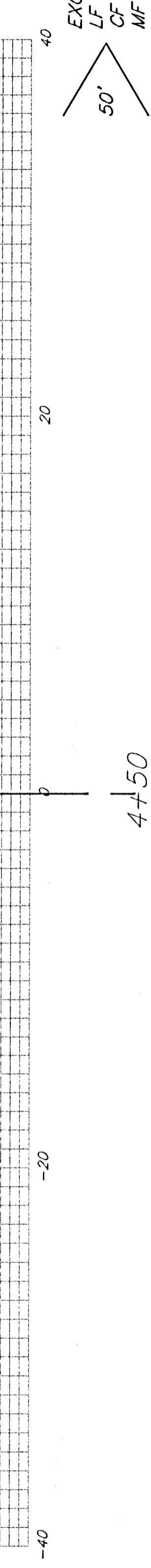
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EXC = 8.5  
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 CF = 0  
 MF = 0



EXC = 31.2  
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 CF = 0  
 MF = 0

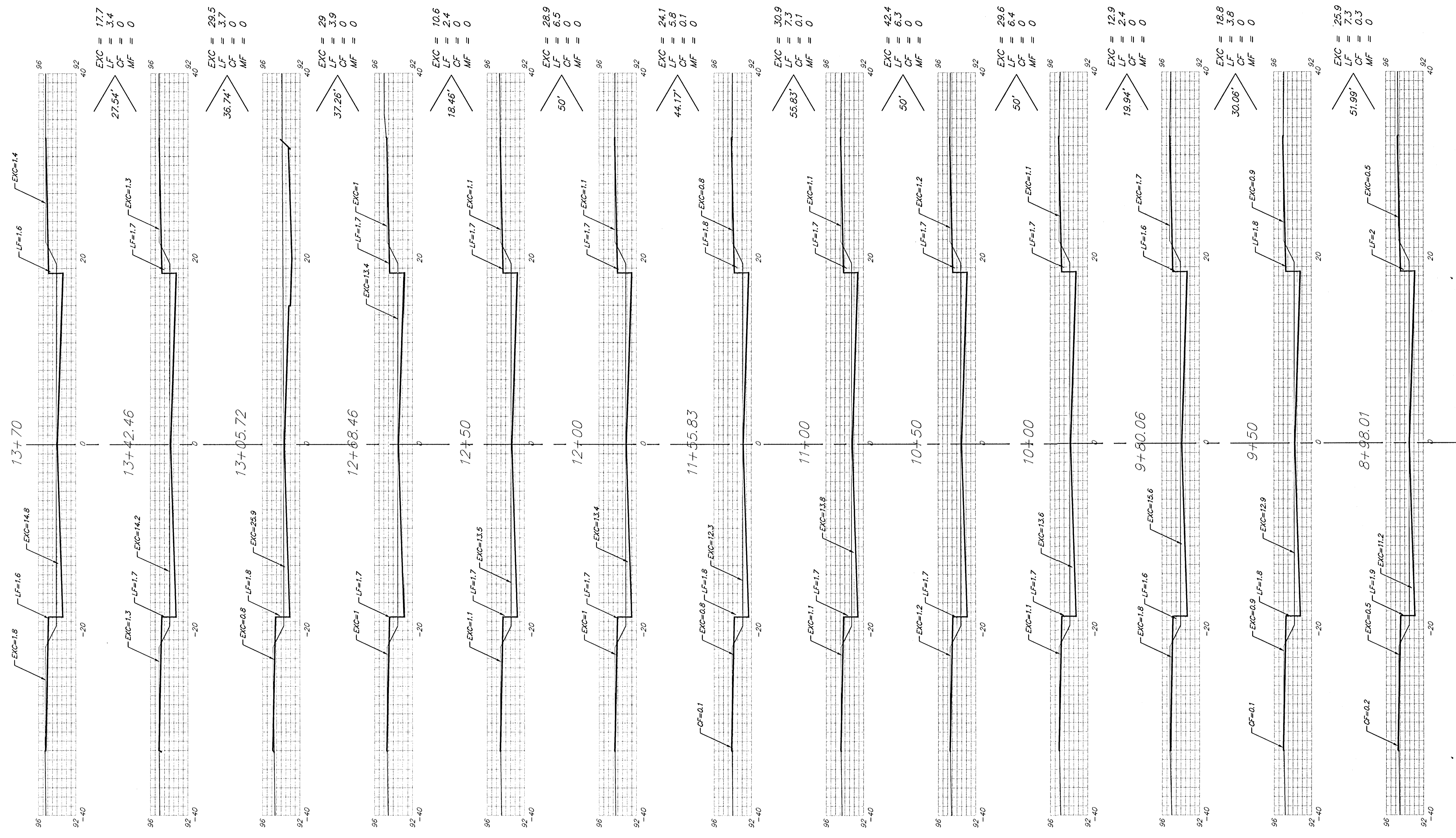


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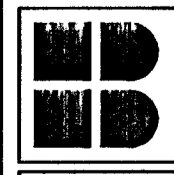
**BAUGHMAN COMPANY P. A.**  
 ENGINEERING & SURVEYING  
 316/262-7271 • 315 ELLIS • WICHITA, KANSAS 67211

PROJECT NUMBER  
 472-83292

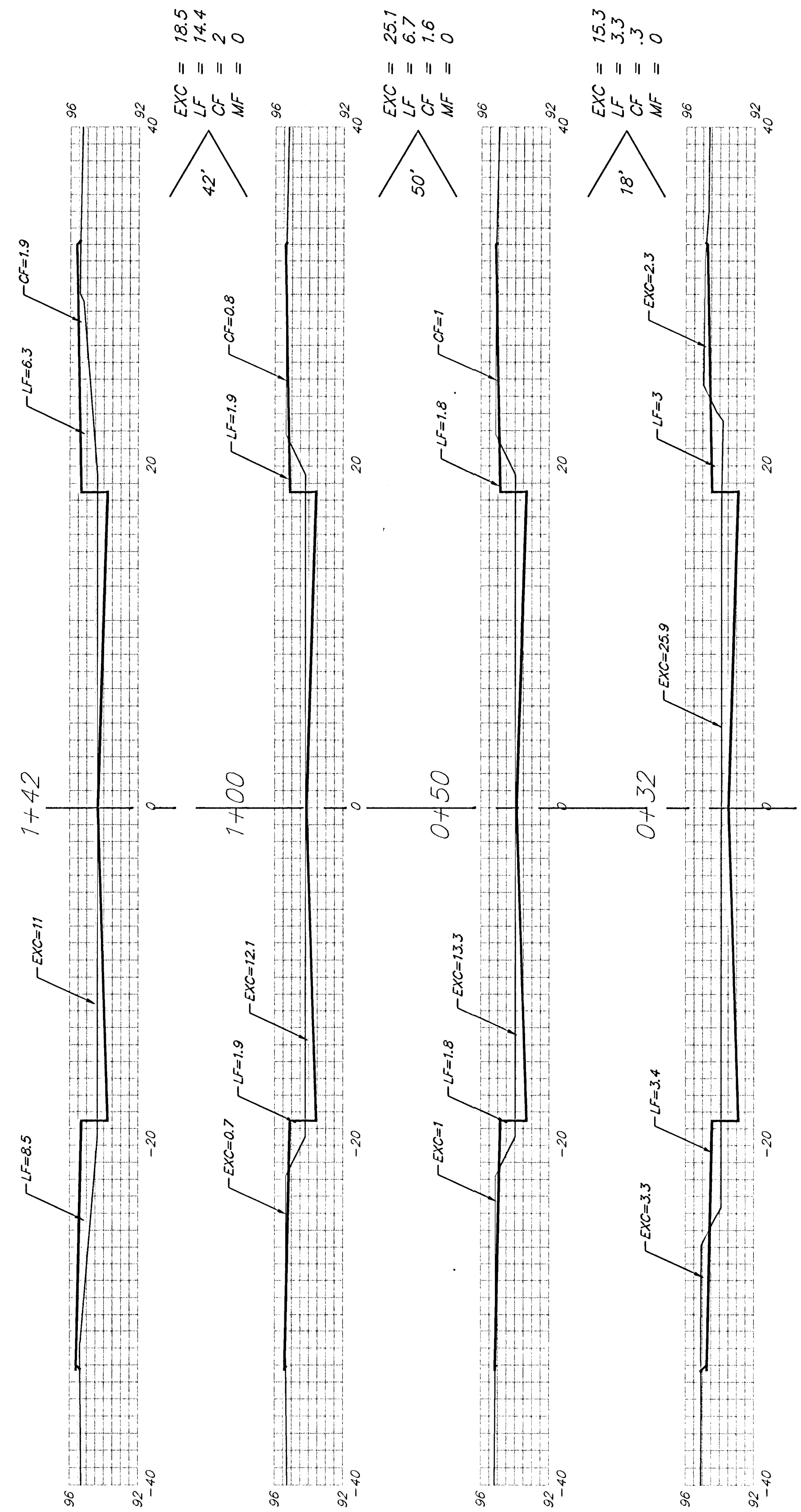
LEONINE



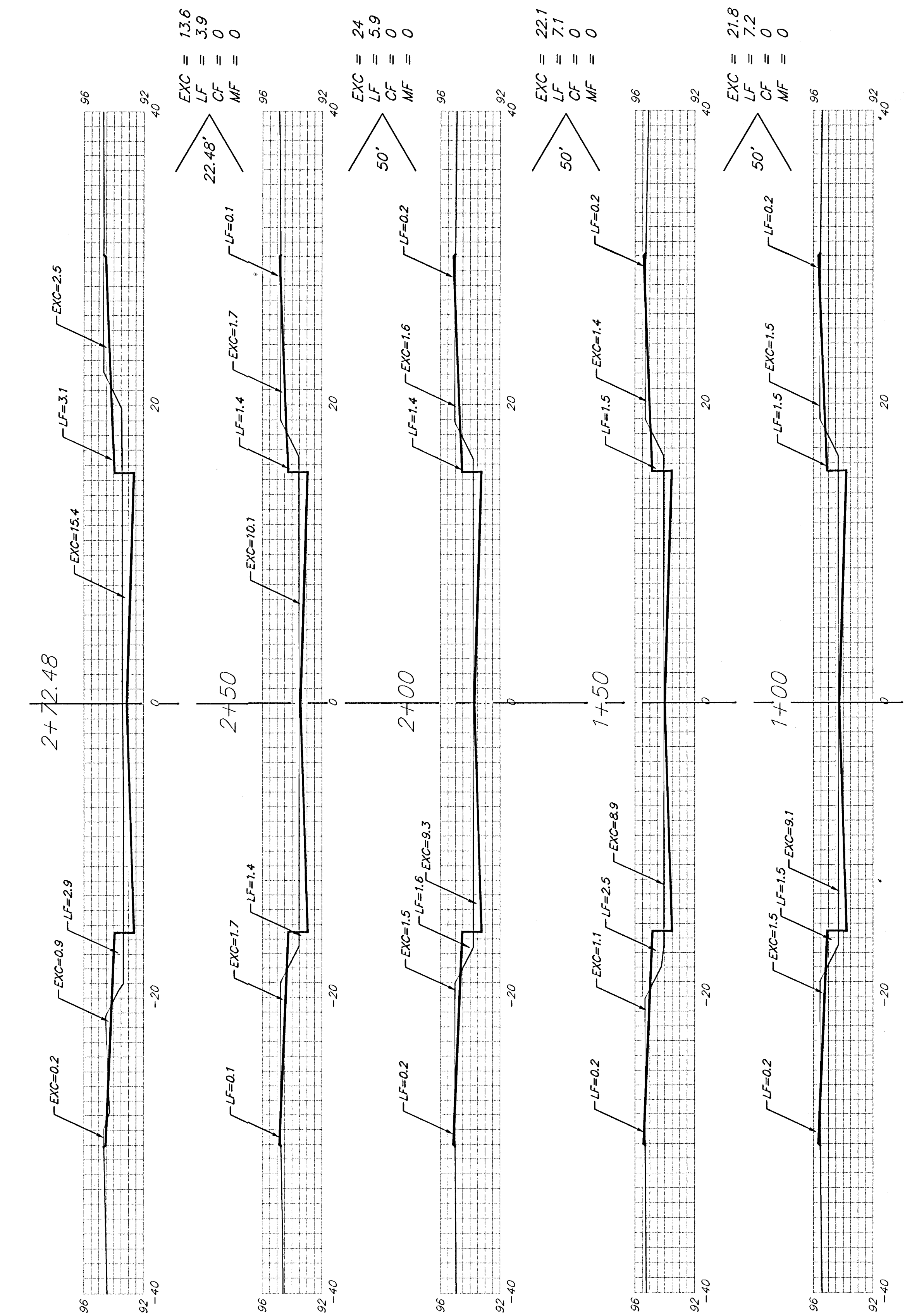
Sheet Totals  
Excavation = 300.3 C.Y.  
Loose Fill = 59.2 C.Y.  
Compacted Fill = 0.5 C.Y.

 <b>BAUGHMAN COMPANY P. A.</b> ENGINEERING & SURVEYING 316/262-7271 • 315 ELLIS • WICHITA, KANSAS 67211	REV.
	PROJECT NUMBER 472-83292
SHEET <b>23</b>	

LEONINE



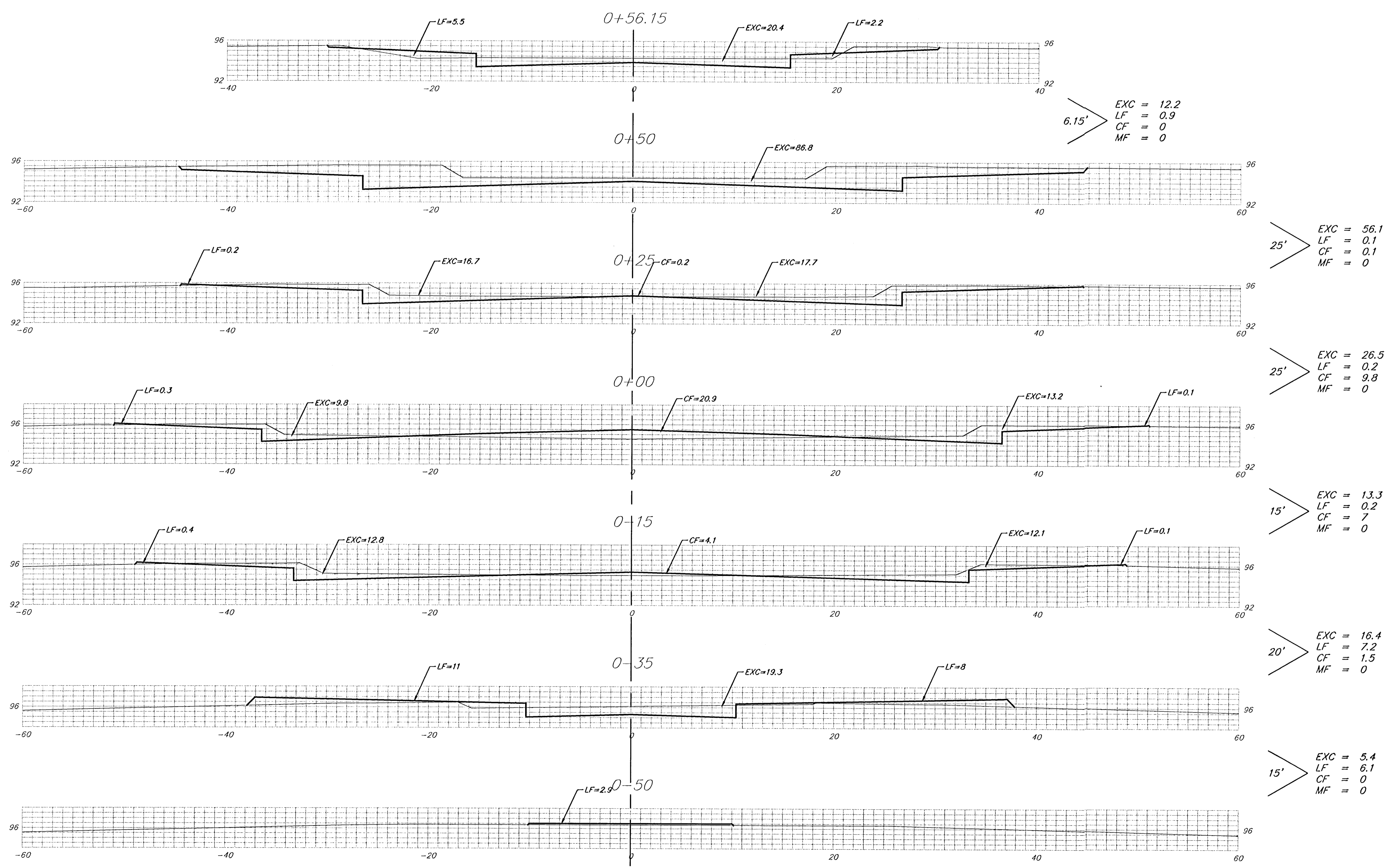
ANGEL



LEONINE CT. (Lots 11-20)

Sheet Totals  
 Excavation = 140.4 C.Y.  
 Loose Fill = 48.5 C.Y.  
 Compacted Fill = 3.9 C.Y.

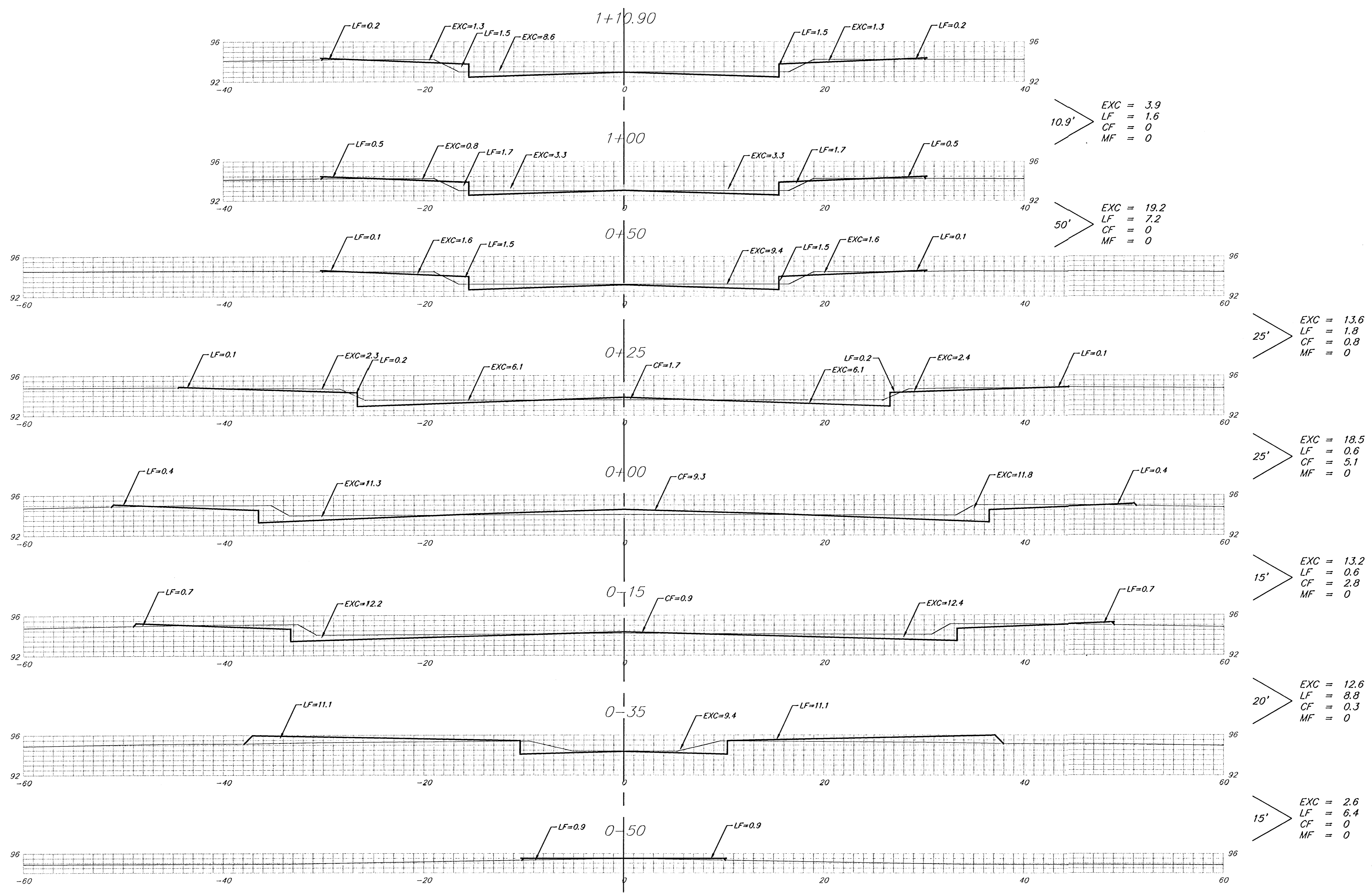
	<b>BAUGHMAN COMPANY P. A.</b> ENGINEERING & SURVEYING 316/262-7271 • 315 ELLIS • WICHITA, KANSAS 67211	REV.
	PROJECT NUMBER 472-83292	SHEET <b>24</b>



LEONINE CT. (Lots 1-5)

Sheet Totals  
 Excavation = 129.9 C.Y.  
 Loose Fill = 14.7 C.Y.  
 Compacted Fill = 18.4 C.Y.

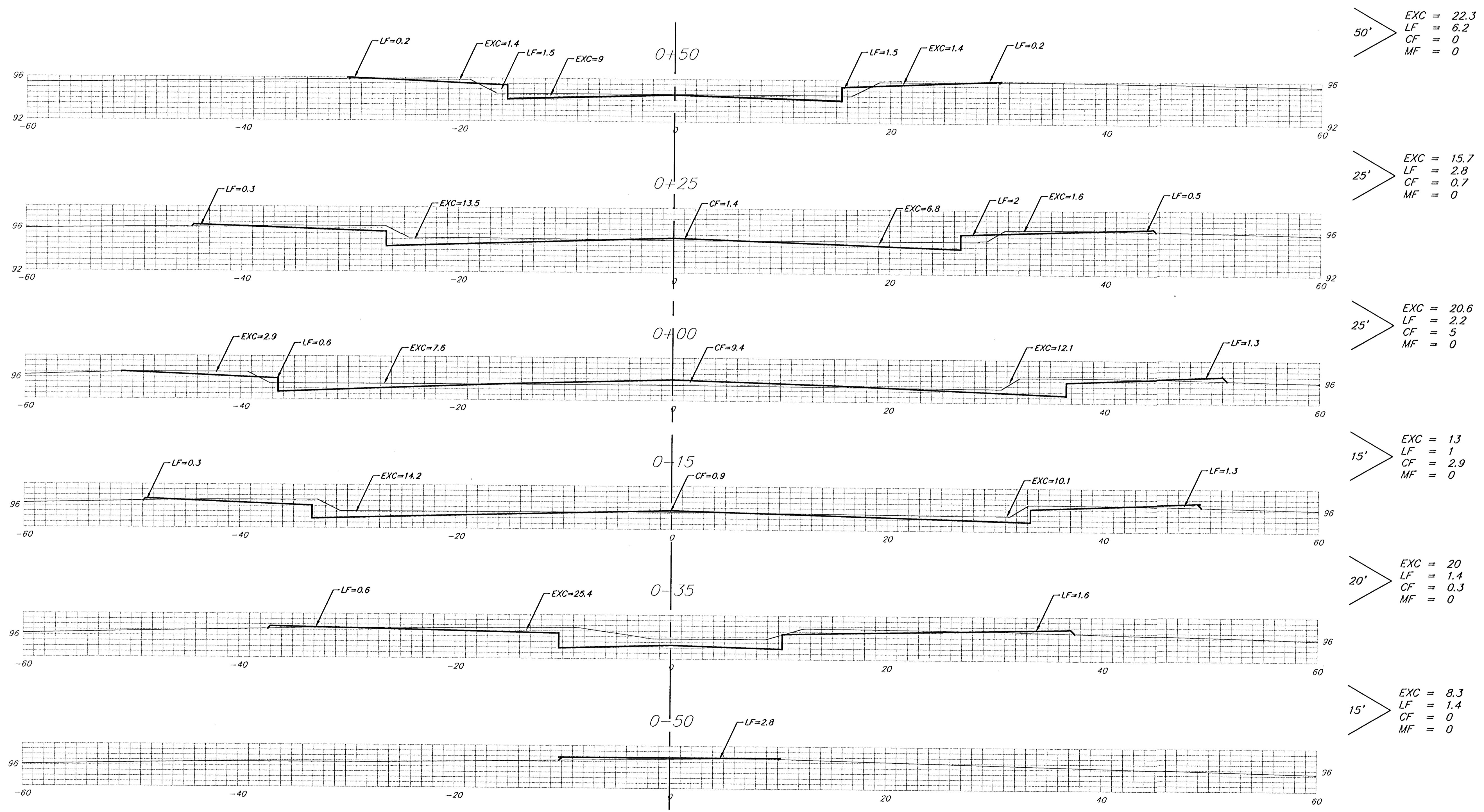
	<b>BAUGHMAN COMPANY P. A.</b> ENGINEERING, SURVEYING, & PLANNING <small>315-282-7271 • 315 ELLIS • WICHITA, KANSAS 67211</small>	REV.
	PROJECT NUMBER <b>472-83292</b>	SHEET <b>25</b>



LEONINE CT. (Lots 4-10)

Sheet Totals  
 Excavation = 83.6 C.Y.  
 Loose Fill = 27.0 C.Y.  
 Compacted Fill = 9.0 C.Y.

	<b>BAUGHMAN COMPANY P. A.</b> ENGINEERING, SURVEYING, & PLANNING <small>315-282-7271 • 315 ELLIS • WICHITA, KANSAS 67211</small>	REV.
	PROJECT NUMBER <b>472-83292</b>	SHEET <b>26</b>



LEONINE CT. (Lots 11-20)

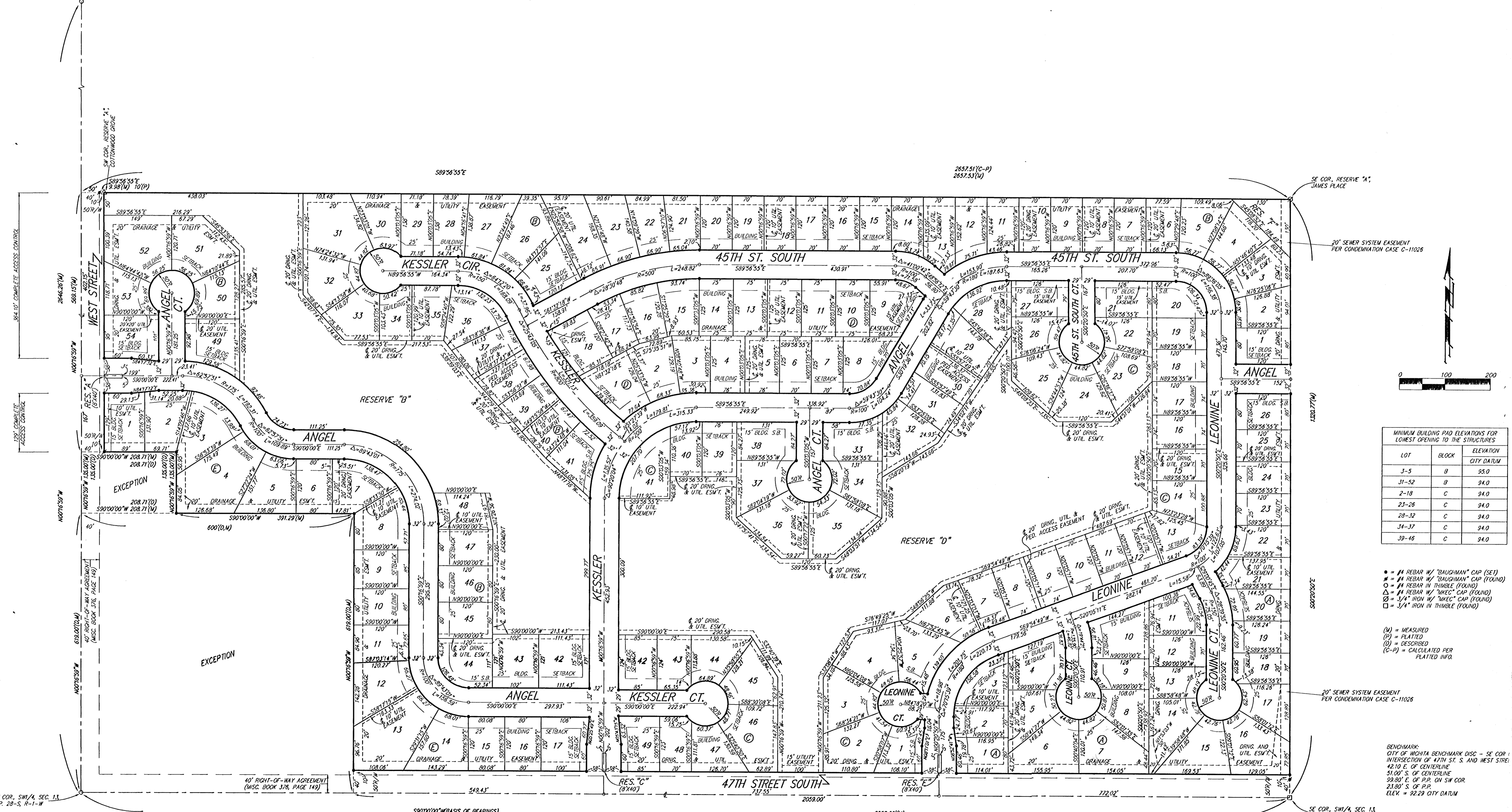
Sheet Totals  
 Excavation = 99.9 C.Y.  
 Loose Fill = 15.0 C.Y.  
 Compacted Fill = 8.9 C.Y.

	<b>BAUGHMAN COMPANY P. A.</b> ENGINEERING, SURVEYING, & PLANNING <small>316-262-7271 • 319 ELLIS • WICHITA, KANSAS 67211</small>	REV.
	PROJECT NUMBER <b>472-83292</b>	SHEET <b>27</b>

# ANGEL FIRE ADDITION

## WICHITA, SEDGWICK COUNTY, KANSAS

NW COR. SW 1/4, SEC. 13,  
TWP. 28-S, R-1-W



MINIMUM BUILDING PAD ELEVATIONS FOR LOWEST OPENING TO THE STRUCTURES

LOT	BLOCK	ELEVATION CITY DATUM
3-5	B	95.0
31-52	B	94.0
2-18	C	94.0
23-26	C	94.0
28-32	C	94.0
34-37	C	94.0
39-46	C	94.0

- = #4 REBAR W/ "BAUGHMAN" CAP (SET)
- = #4 REBAR W/ "BAUGHMAN" CAP (FOUND)
- = #4 REBAR IN THIMBLE (FOUND)
- △ = #4 REBAR W/ "WACK" CAP (FOUND)
- = 3/4" IRON W/ "WACK" CAP (FOUND)
- = 3/4" IRON IN THIMBLE (FOUND)

- (M) = MEASURED
- (P) = PLATTED
- (D) = DESCRIBED
- (C-P) = CALCULATED PER PLATTED INFO.

BENCHMARK:  
CITY OF WICHITA BENCHMARK DISC - SE COR. INTERSECTION OF 47TH ST. S. AND WEST ST. 42.10' E. OF CENTERLINE 51.00' S. OF CENTERLINE 39.80' E. OF P.P. ON SW COR. 23.80' S. OF P.P. ELEV. = 92.29 CITY DATUM