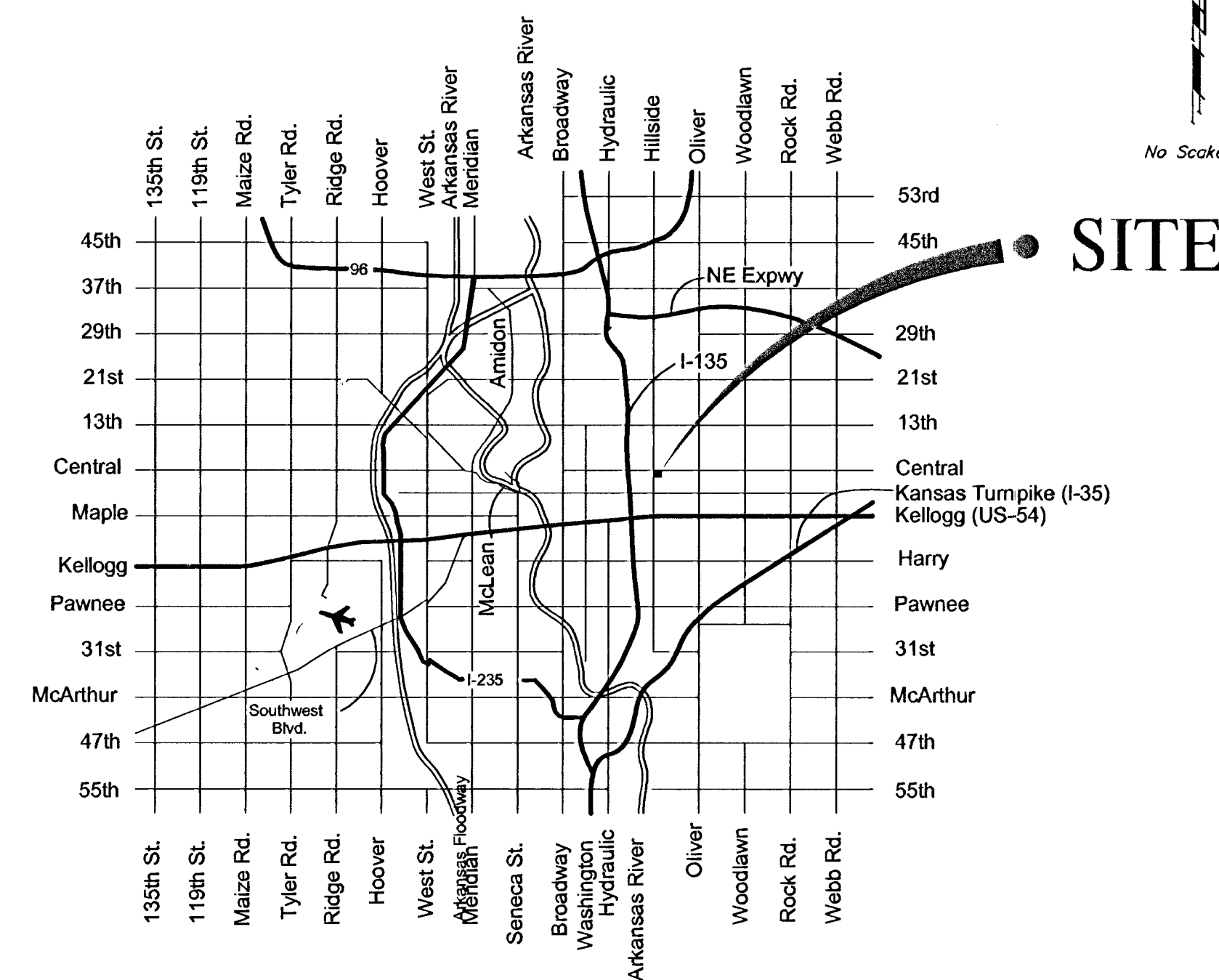


STORM WATER DRAINAGE IMPROVEMENTS and INCIDENTAL SANITARY SEWER RELOCATION to serve COLLEGE HILL SQUARE

Project No.
~~468-76-245-83393~~
83389

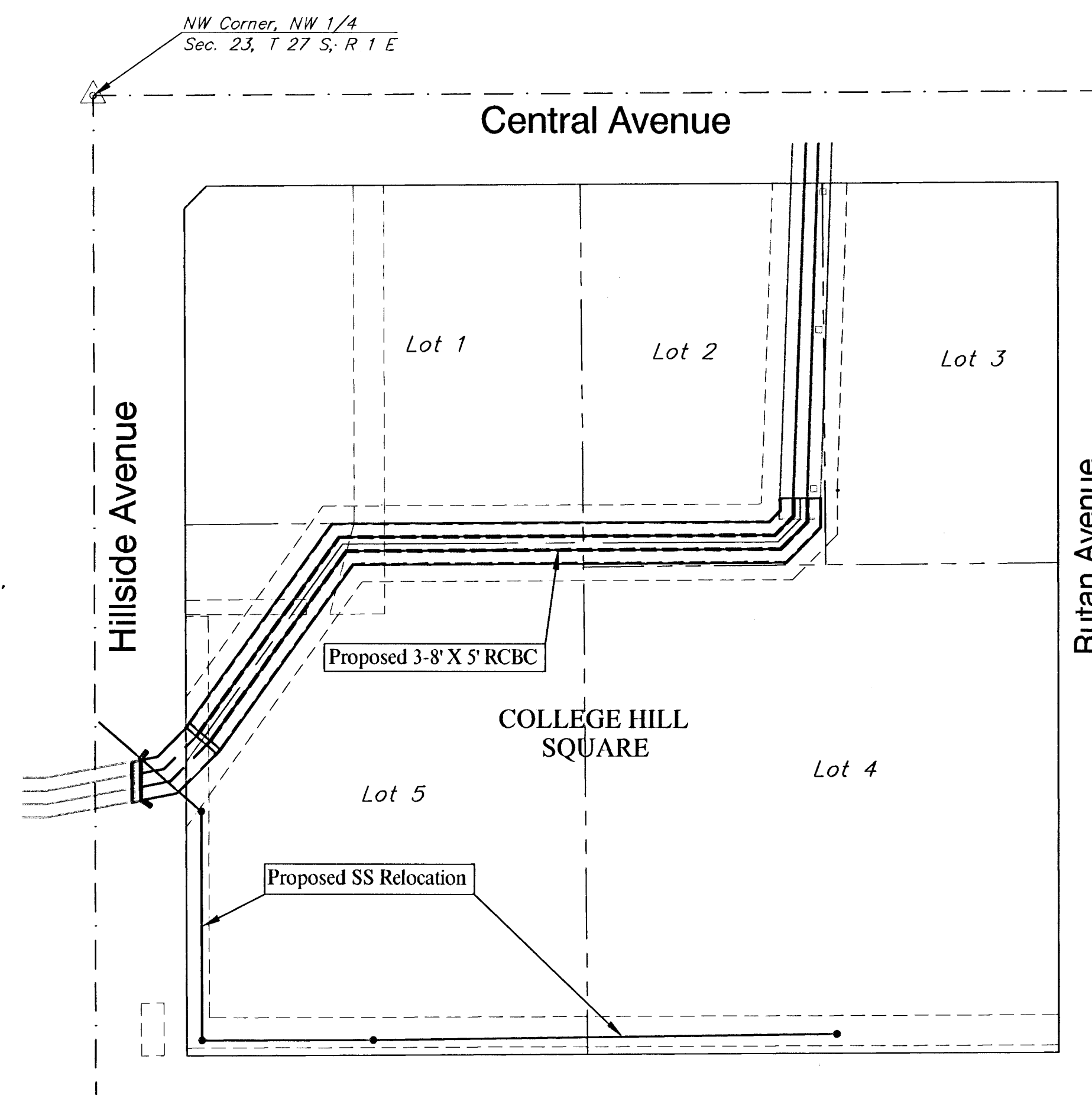
OCA No.
~~792367~~

VICINITY MAP



CITY OF WICHITA, KANSAS
Michael E. Lindebak, P.E. City Engineer

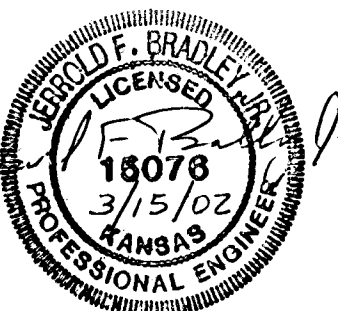
MARCH 2002



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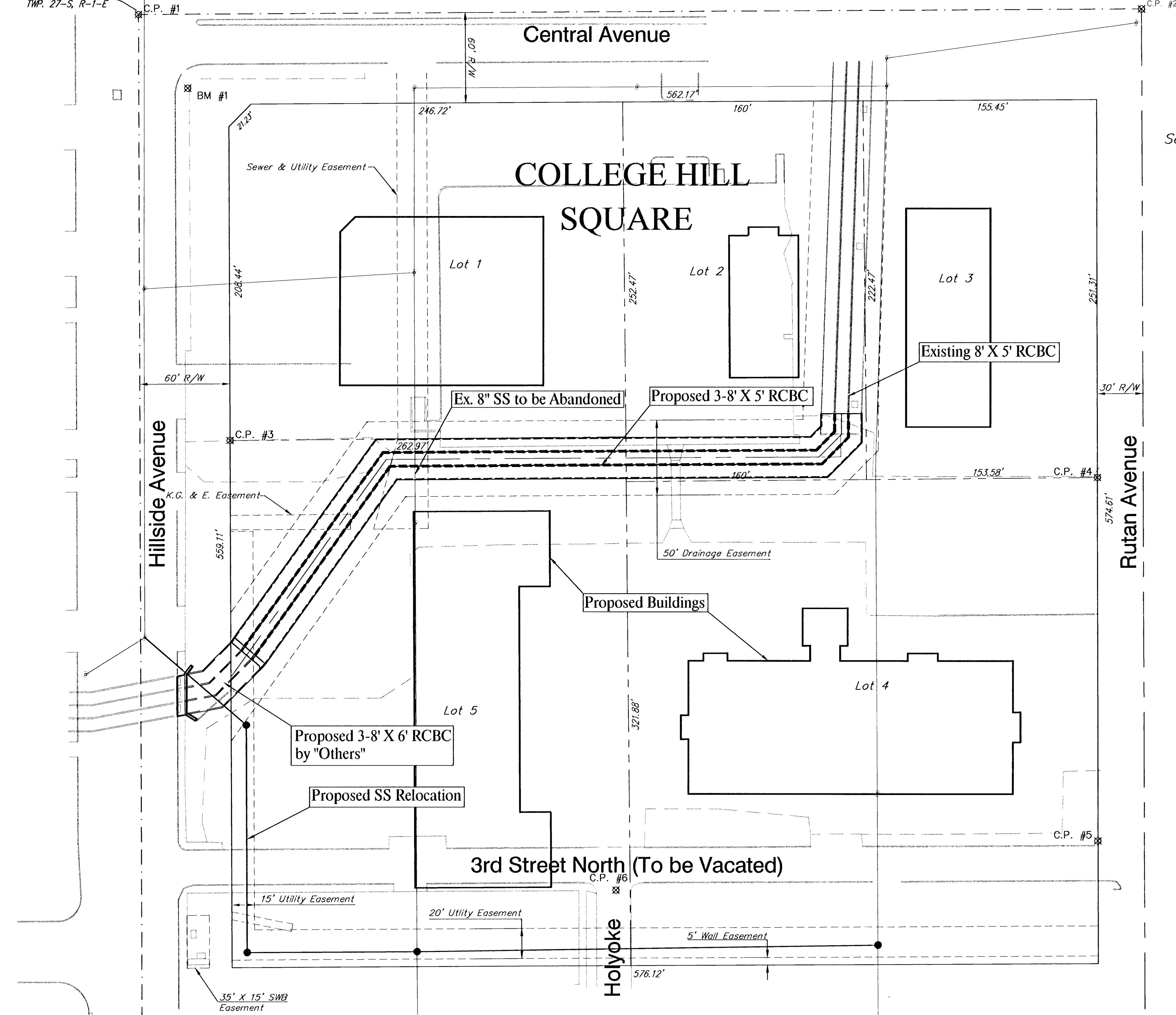
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As Built SS Relocate 7/02 KK
As Built SWS RCBC 8/02 KK



NW COR. SEC. 23,
TWP. 27-S, R-1-E

BM #3



Scale: 1" = 40'

CONTROL POINTS

- C.P. #1 N-7000.016, E-2999.956
1/4" Iron Pin in the Center of the Central and Hillside Intersection.
- C.P. #2 N-7004.055, E-3667.190
1/4" Iron Pin in the Center of the Central and Rutan Intersection.
- C.P. #3 N-6716.866, E-3061.185
PK Nail in the Asphalt Parking Lot in the SW Corner of Lot 1, College Hill Square.
284' South of the Centerline of Central.
60' East of the Centerline of Hillside.
- C.P. #4 N-7006.477, E-3631.987
1" Iron Pin in the SE Corner of Lot 3, College Hill Square.
312' South of the Centerline of Central.
30' West of the Centerline of Rutan.
- C.P. #5 N-6450.810, E-3638.504
#4 Rebar w/ SRB Cap
15.5' North of the Centerline of 3rd Street.
30' West of the Centerline of Rutan.
- C.P. #6 N-6417.692, E-3317.758
1/4" Iron Pin in Thimble in the Intersection of 3rd Street and Holyoke Avenue.

BENCHMARKS

- BM #1 - City of Wichita Bench Mark Disc on the Base of the Light Pole on the SE Corner of the Intersection of Central and Hillside
Elev. = 145.32 (City Datum)
- BM #2 - "□" on the NE Corner of First Step of 357 N. Hillside, on the SW Corner of Hillside and 3rd Street North
Elev. = 140.59 (City Datum)
- BM #3 - "□" on Top of Concrete Rail 510' E of the Centerline of Hillside on the North Side of Central
Elev. = 145.51 (City Datum)

BM #2

PROJECT NUMBER 488-70-245-83389		SHEET NAME Keysheet		ENGINEERING DIRECTORY F:\College Hill	
DESIGN TPV	DRAWN TPV	APPROVED JFB	DATE March 2002	SCALE Noted	BAUGHMAN NO 01-12-E182

COLLEGE HILL SQUARE

KEYSHEET

STORM WATER DRAINAGE IMPROVEMENTS AND INCIDENTAL SANITARY SEWER RELOCATION

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

SHEET
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GENERAL NOTES

1. The Contractor shall give all property owners and/or tenants of developed property abutting the project limits a minimum of ten (10) days advance notice prior to start of construction.
2. Contractor will be required to provide a minimum advance notice of forty-eight (48) hours to utility companies prior to excavation or working adjacent to utilities. Kansas One—Call 687—2470
3. Existing utilities and their locations, as shown on the plan, represent the best information obtainable for design. The Contractor shall be aware that construction will occur in close proximity to existing utilities, and any conflicts with such utilities shall be reported to the Engineer.
4. All project waste including any trees, milled asphalt, rubble from miscellaneous structures, abandoned pipes, excess excavation & etc. 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.
5. Prior to bidding the project, each bidder shall visit the site and satisfy himself of surface & subsurface conditions. Each bidder shall also fully inform himself as to the extent of the scope of work to be performed. Each bidder shall also be aware that no additional compensation will be awarded for extra work that should have been evaluated prior to bidding.
6. All Reinforced Concrete Box Culverts (RCBC) and manholes may be pre—cast, unless otherwise noted. The RCBC shall conform to ASTM C—789 Standards for loading. The bedding shall be 3/4” Dolese Stone conforming to ASTM C—33, Gradation No. 67. Contractor shall provide the Engineer with shop drawings of the structures for approval prior to construction.
7. Contractor shall be responsible for implementing erosion control methods during construction to prevent unnecessary silt/sediment discharge through downstream properties and/or storm sewer systems. Contractor shall install and maintain erosion controls as directed by the Engineer. These controls may include but not limited to: hay bales; silt fences, temporary mulching or other controls necessary to inhibit sediment runoff during construction.

8. The Contractor shall reseed all areas disturbed by construction with a mixture of Rye grass (applied at a rate of 200 lbs. per acre) and Buffalo grass (applied at a rate of 100 lbs. per acre). Pure Nitrogen fertilizer shall also be applied at a rate of 1.5 lbs per thousand square feet. The seed shall be watered with deep soaking every two (2) weeks during dry periods until a mature stand of grass is obtained. All costs for this work shall be INCIDENTAL to “Site Restoration.”
9. All paving brick on the Project shall be salvaged to City of Wichita and delivered to the City's West Maintenance Yard. The brick is to be relatively free of asphalt and other foreign material.
10. Sewer Service shall not be interrupted throughout the length of the Project. The Contractor shall be responsible for maintaining continuous sewage flows. Cost to be INCIDENTAL to other items in the Project.
11. The Contractor shall not start work on the Project until the Project Inspector is assigned and is present on site. Any work done without inspection will be required to be uncovered for inspection. Staking and inspection for this Project will be performed by Baughman Co.
12. The Project is subject to a current SWPP Plan. The Contractor shall comply with any unusual requirements necessary for the site to be in compliance during construction.
13. All fill materials on this project shall be compacted to a minimum of ninety—five percent (95%) for the site to be in compliance with Federal Floodplain requirements. Compaction testing shall be supplied by the Contractor. Cost of compaction efforts and testing shall be INCIDENTAL to other items in the Project.
14. The Contractor shall comply with all applicable safety regulations and City of Wichita Specifications and Standards.
15. The Project may be constructed concurrently with the Central and Hillside Intersection Improvements (Proj. No. 472—76—245—83039). The Contractor shall coordinate construction of this Project with the Intersection Project. Cost of Coordination shall be INCIDENTAL to other items in the Project.

TRAFFIC CONTROL
Interurban traffic generated outside the area and local business or residential traffic generated within the project area is to be carried through construction as further promulgated by project special provisions. The Contractor shall utilize barricades, signs, guards, and flagmen in accordance with the Manual on Uniform Traffic Control Devices. A minimum of one lane in each direction along Hillside Avenue shall remain open throughout the length of the Project.

The Add Alternate Bid Item: REMOVAL OF SEDIMENT IN EXISTING BOX, LUMP SUM shall require the Contractor to excavate, remove, and dispose of the sediment layer that has built up in the existing 3—cell concrete box structure from the tie—in headwall at Sta. 4+86.48 to approximately 250 feet North of this location (South line of Central Ave.). This layer is nominally (1) foot in thickness and exists in each of the three—cell structure. All safety precautions including those governing Confined Spaces shall be in effect and adhere to during the sediment removal process.

The Add Alternate Bid Item: REMOVAL OF METAL FORMWORK IN EXISTING BOX, LUMP SUM shall require the Contractor to cut off, strip, remove, and dispose of the decayed metal formwork used to form the ceiling of the existing 3—cell concrete box structure from the tie—in headwall at Sta. 4+68.48 to approximately 250 feet North of this location (South line of Central Avenue). This metal formwork is rusted, galvanized corrugated metal, (3/4” corrugations) that was left in place when the structure was put into service. The metal has sheared in places and has many ragged edges. All safety precautions including those governing Confined Spaces shall be in effect and adhered to during the metal formwork removal process.

LIST OF UTILITY COMPANIES

Contractor will be required to provide a minimum advance notice of seventy—two (72) hours to utility companies prior to excavation or working adjacent to utilities.

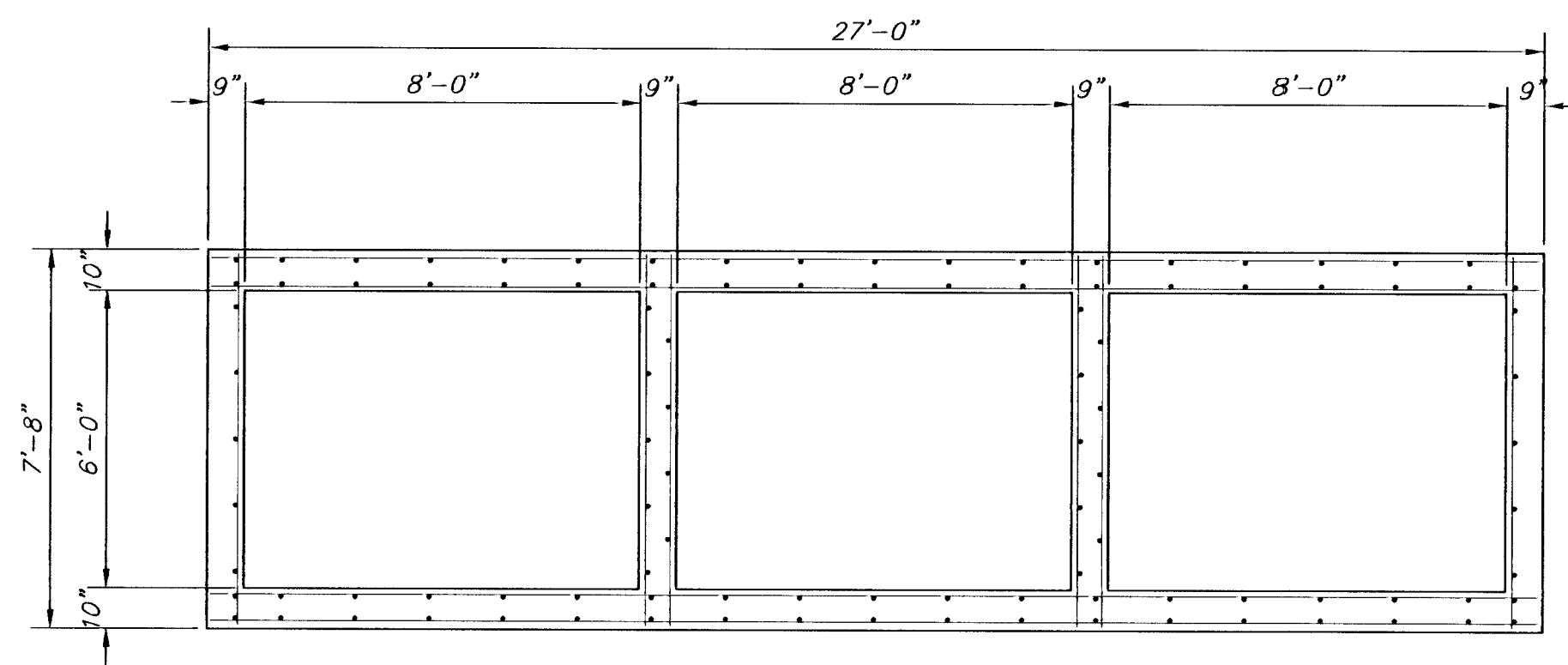
TYPE	OWNER	CONTACT	TELEPHONE	(ALT.)
Locator Service	Kansas One—Call		687—2470	800—344—7233
TV	Cox Communications (Cable)	Mark Anaya	262—4270	262—0661
Electric	Westar Energy	Steve Finley	261—6514	261—6774
Gas	Kansas Gas Service	Charlene Lawless	383—8600	832—3121
Telephone	Southwestern Bell Telephone	Bob Ally	268—2245	800—344—7233
Water	Wichita Water Department	Bill Perkins	268—4555	268—4514
Storm Water Sewer	Wichita SWS Maintenance	Mr. Channings	268—4095	
Sanitary Sewer	Wichita Sewer Maintenance	Calvin Fugit	268—4025	268—4071

PROJECT NUMBER		SHEET NAME	ENGINEERING DIRECTORY		
468-76-245-80000		NOTEPAGE	F:\College Hill		
DESIGN TPV	DRAWN TPV	APPROVED JFB	DATE March 2002	SCALE None	BAUGHMAN NO 01-12-E182

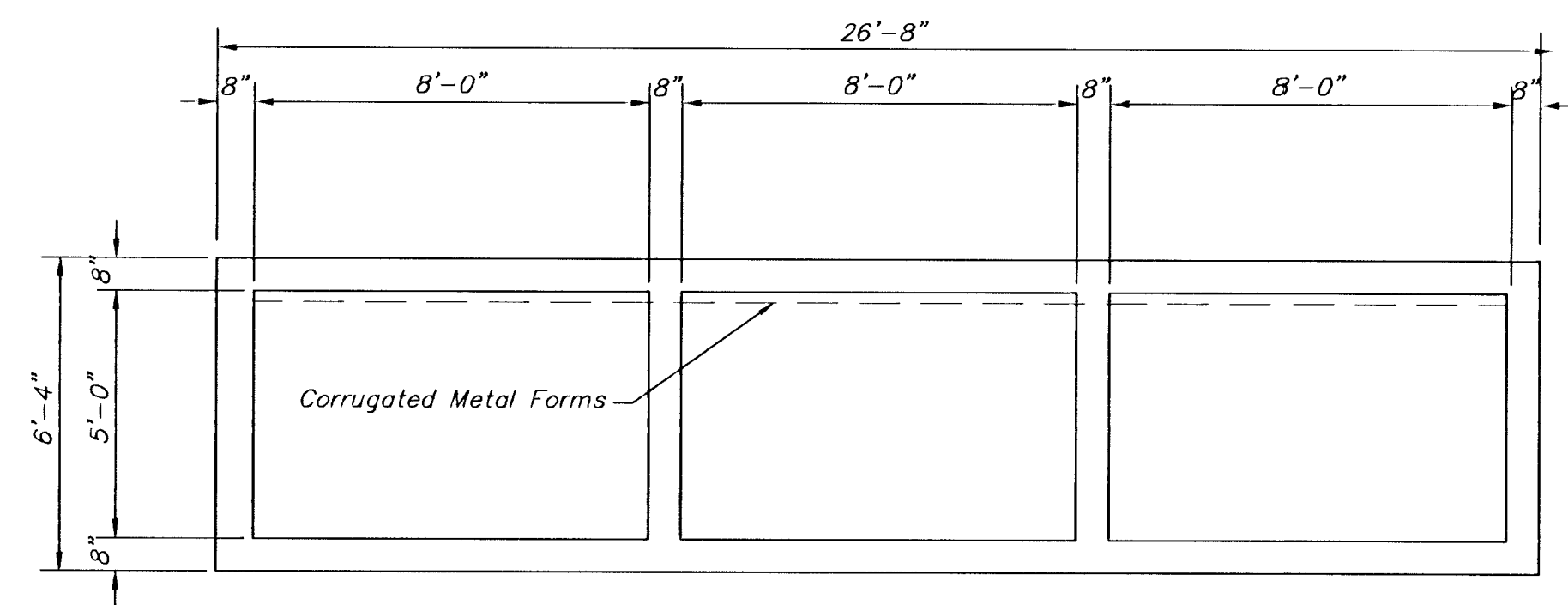
COLLEGE HILL SQUARE
GENERAL NOTES
STORM WATER DRAINAGE IMPROVEMENTS AND INCIDENTAL SANITARY SEWER RELOCATION

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

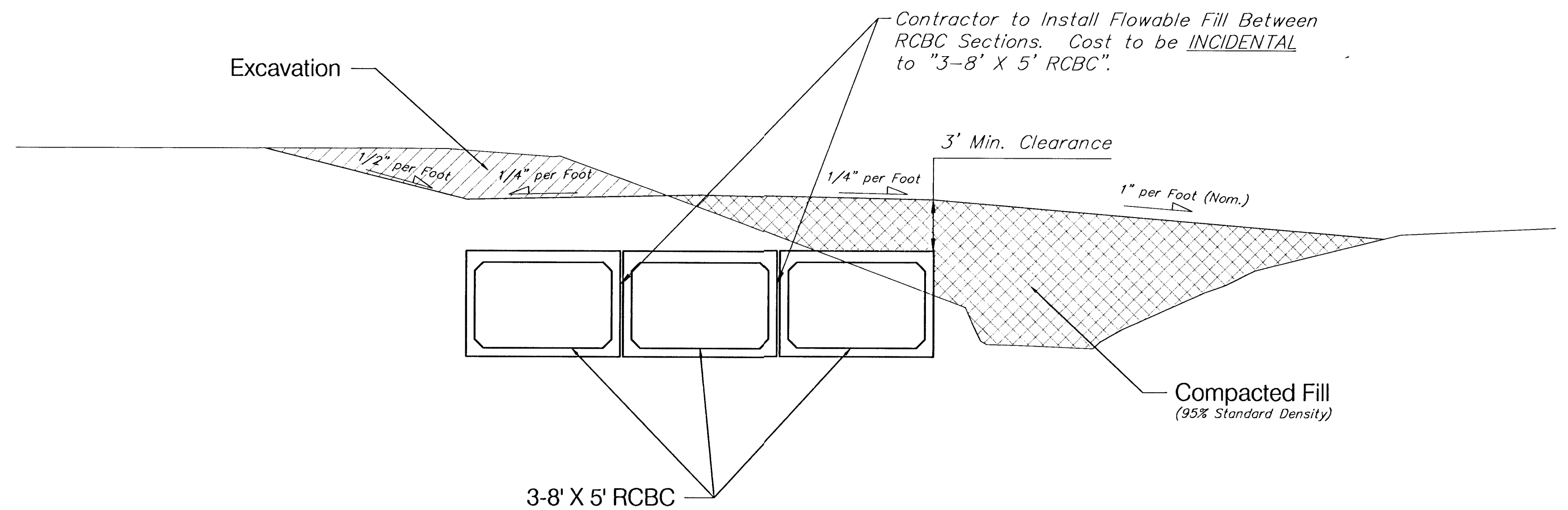
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Sta. 0+17.86
3-8' x 6' RCB EXTENSION TYPICAL SECTION
 Central & Hillside Intersection Improvements Project #472-83039



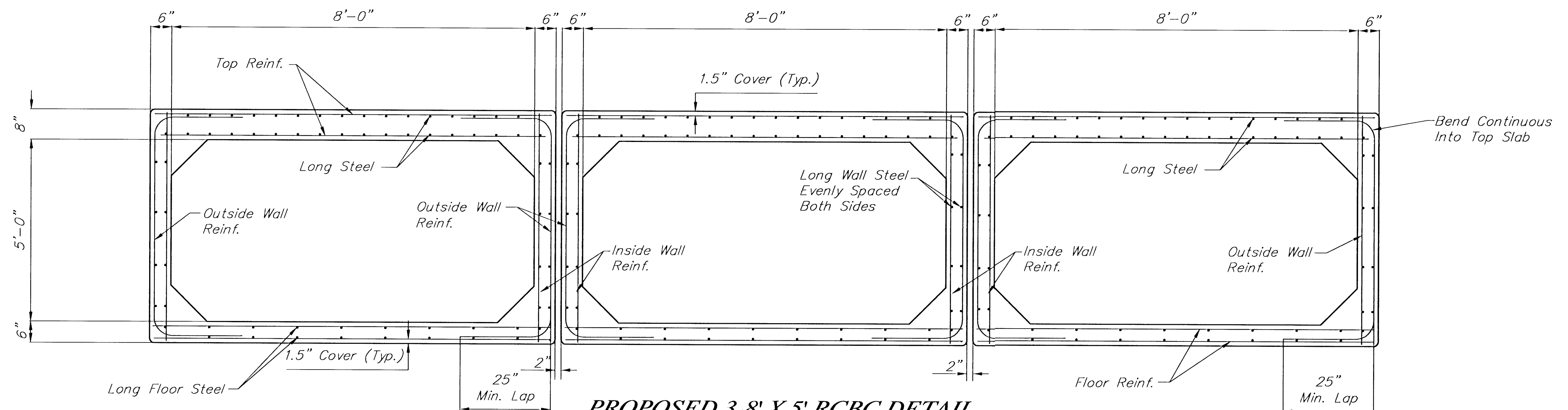
Sta. 5+00.42
Ex. 3-8' x 5' RCB TYPICAL SECTION
 Actual Dimensions May Vary



RCBC TYPICAL SECTION

Floor, Walls, & Top Dimensions are Based on Standard Precast Dimensions. RCBC Reinforcement Per Precast Manufacturer's Design.

Precast Manufacturer to Install Doweled Rebar at the Beginning and End of the RCBC Sections for Connection to Cast-In-Place Construction.



PROPOSED 3-8' X 5' RCBC DETAIL

The Ending of the Proposed 3-8' X 6' RCBC by "Others" Shown is Tentative. Contact the Engineer for Information on the Proposed Connection at the Time of Construction.

Cast-In-Place Collars

Brush off Existing Steel Reinforcement Extending from Proposed RCBC Extension. Tie Extended Steel Reinforcing to Proposed RCBC Reinforcement.

Longitudinal Steel Reinforcement

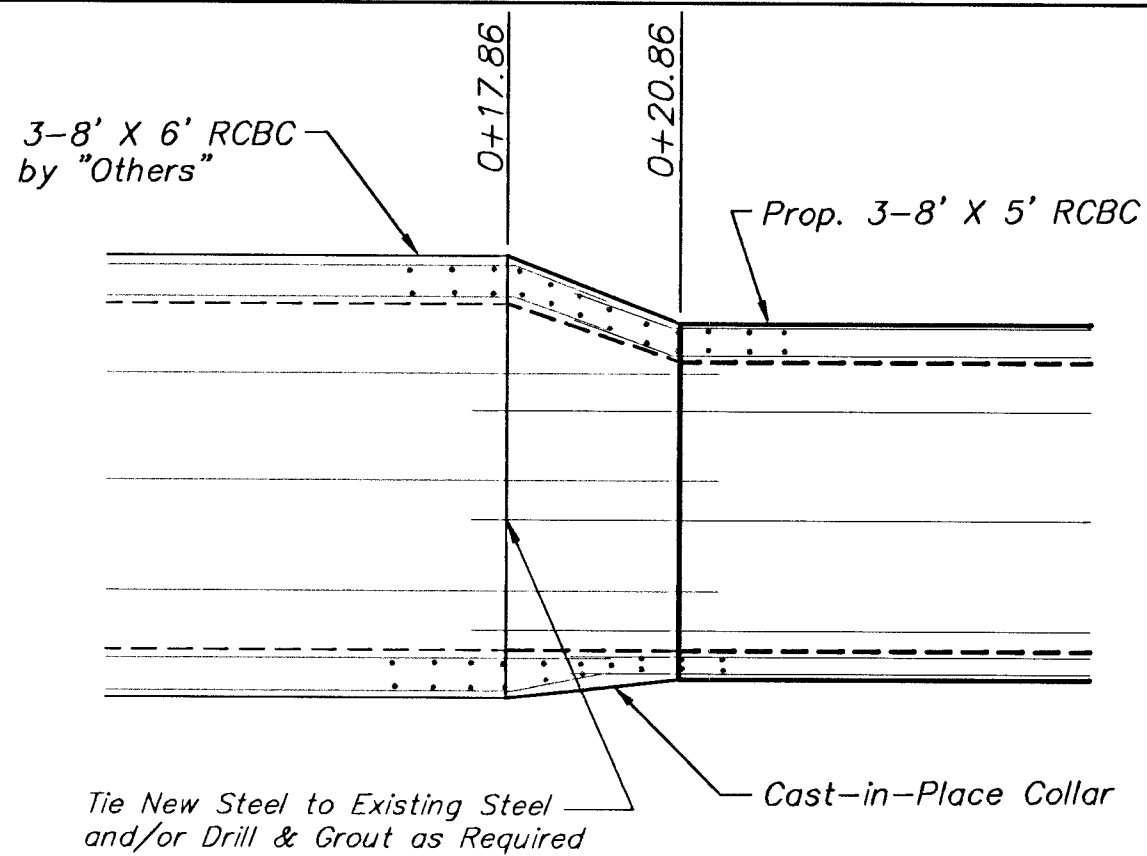
Lateral Steel Reinforcement

Lap Upstream Steel Over Downstream Steel. Reinforce and Tie at Intersections.

Begin L.F. 3-8' X 5' RCBC *0+22.86
End L.S. RCBC Connection
Begin L.S. RCBC Connection 0+17.86

Contractor to Contact Precast Manufacturer for Reinforcement Spacing.

Prop. 3-8' X 6' RCBC by "Others"



PROFILE VIEW

GENERAL NOTES

1. The Lump Sum Bid Item "RCBC Connections" Shall Include all Concrete, Reinforcement, Removal, Labor, Excavation, and all Other Incidentals Necessary to Connect the RCBC Sections.
2. All Existing Concrete Surfaces Adjacent to the Proposed Concrete Shall be Cleaned Thoroughly by Brushing, and Soaked with Water Immediately Prior to Placing New Concrete.
3. All Exposed Concrete Edges are to be beveled $\frac{3}{4}$ "
4. All Reinforcing Steel to Have Minimum $\frac{1}{2}$ " Cover.

Minimum Splice Length	
#4	16"
#5	20"
#6	24"

See Notepage for Descriptions of Add Alternates Bid Items Concerning the Ex. Box Culvert

* End of Precast Section and the Beginning of the Cast-in-Place Connection Shown is Tentative. No Additional Compensation is will be Awarded for Changes in the Lengths of the Connections.

Cast-In-Place Collars

Ex. 3-8' X 5' RCBC
Ex. Asphalt Parking Lot

Lap Upstream Steel Over Downstream Steel. Reinforce and Tie at Intersections.

Saw Line

Ex. Drop Inlet

Drill and Grout #4 Bars 12" (Min.) into Existing Concrete. Lap Upstream Steel Over Downstream Steel. Reinforce and Tie at Intersections.

Longitudinal Steel Reinforcement

5+00.42
End L.S. RCBC Connection
4+95.42*
Begin L.S. RCBC Connection
End L.F. 3-8' X 5' RCBC

Lateral Steel Reinforcement

Remove Ex. Concrete Headwall, Steel Guard Rail, and Concrete Flume as Shown.

Prop. 3-8' X 5' RCBC

Saw and Remove 13.9 L.F. Existing 3-8' X 5' RCB. Remove Ex. Asphalt Parking Lot as Necessary.

Ex. Conc. Flume

Ex. Concrete Headwall w/ Metal Guard Rail
Ex. 8" SS (To Be Abandoned)

Ex. Asphalt Parking Lot

SSMH
Rim = 142.08
Flow North = 1.33.48
Flow South = 1.33.53

Remove Ex. Power and Light Pole. Contact Westar Energy Prior to Removal.

Remove Ex. SS Manhole and Plug 8" SS (N & S)

Contractor to Contact Precast Manufacturer for Reinforcement Spacing.

PROJECT NUMBER 788-78-245-83388		SHEET NAME Connect		ENGINEERING DIRECTORY F:\College Hill\Details	
DESIGN TPV/JFB	DRAWN TPV	APPROVED JFB	DATE March 2002	SCALE None	BAUGHMAN NO 01-12-E182

COLLEGE HILL SQUARE
RCBC CONNECTION DETAILS
STORM WATER DRAINAGE IMPROVEMENTS AND INCIDENTAL SANITARY SEWER RELOCATION

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

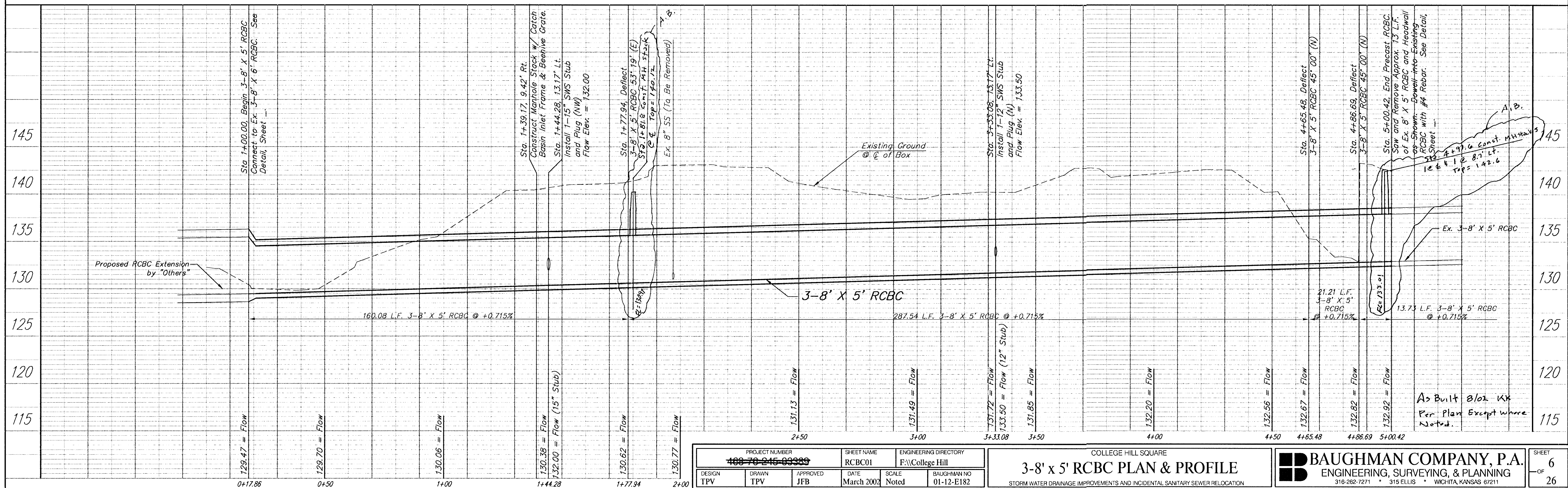
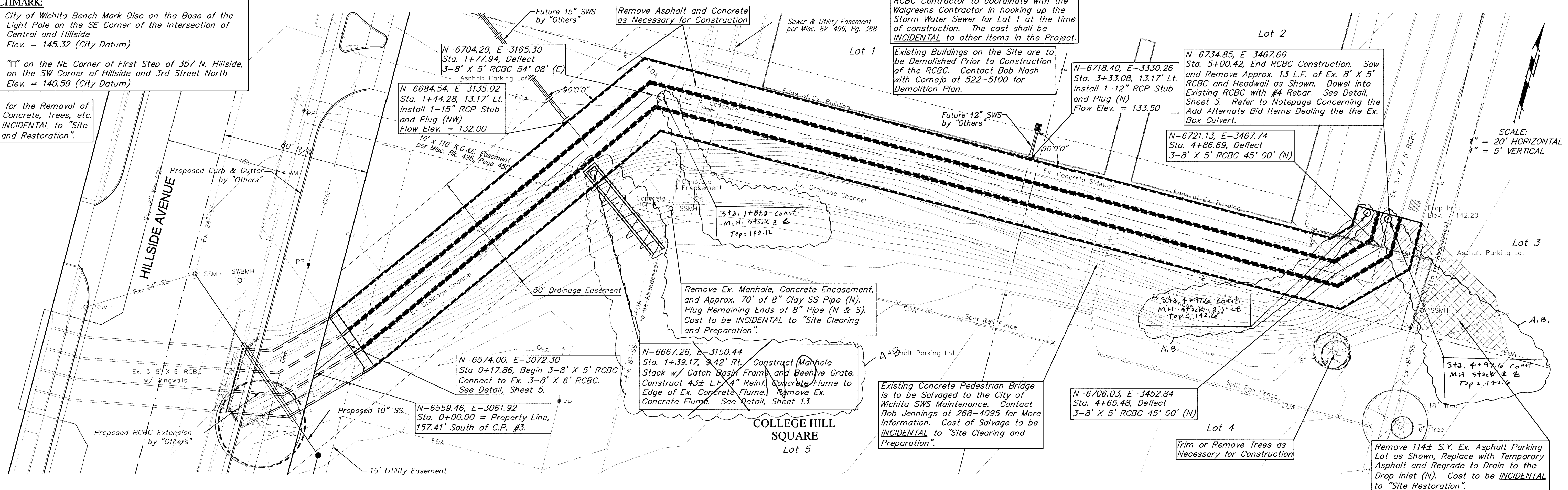
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BENCHMARK:

BM #1 - City of Wichita Bench Mark Disc on the Base of the Light Pole on the SE Corner of the Intersection of Central and Hillside
Elev. = 145.32 (City Datum)

BM #2 - "C" on the NE Corner of First Step of 357 N. Hillside, on the SW Corner of Hillside and 3rd Street North
Elev. = 140.59 (City Datum)

The Cost for the Removal of Asphalt, Concrete, Trees, etc. shall be **INCIDENTAL** to "Site Clearing and Restoration".



PROJECT NUMBER 488-70-245-89389		SHEET NAME RCBC01		ENGINEERING DIRECTORY F:\College Hill	
DESIGN TPV	DRAWN TPV	APPROVED JFB	DATE March 2002	SCALE Noted	BAUGHMAN NO 01-12-E182

COLLEGE HILL SQUARE
3-8' x 5' RCBC PLAN & PROFILE
STORM WATER DRAINAGE IMPROVEMENTS AND INCIDENTAL SANITARY SEWER RELOCATION

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

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BM #1 - City of Wichita Bench Mark Disc on the Base of the Light Pole on the SE Corner of the Intersection of Central and Hillside
Elev. = 145.32 (City Datum)

BM #2 - "□" on the NE Corner of First Step of 357 N. Hillside, on the SW Corner of Hillside and 3rd Street North
Elev. = 140.59 (City Datum)

N-6527.39 E-3072.06
S.S. Sta. 0+89.22
End 10" SS, Begin 8" SS
Construct Standard Type "P"
Manhole (4' Dia.)
Top Elev. = ~~137.91~~ 8.08

Remove 29± L.F. of Existing Curb, Sidewalk, and Brick Pavement as Necessary for Construction. Replace with Temporary Pavement Asphalt. Cost to be INCIDENTAL to "Site Restoration". See General Note 9 Concerning the Salvage of Brick Pavers.

SCALE:
1" = 20' HORIZONTAL
1" = 5' VERTICAL

BM #1 - City of Wichita Bench Mark Disc on the Base of the Light Pole on the SE Corner of the Intersection of Central and Hillside
Elev. = 145.32 (City Datum)

BM #2 - "Q" on the NE Corner of First Step of 357 N. Hillside, on the SW Corner of Hillside and 3rd Street North
Elev. = 140.59 (City Datum)

SCALE:
1" = 20' HORIZONTAL
1" = 5' VERTICAL

Elev. = 140.59 (City Datum)

HILLSIDE AVENUE

COLLEGE HILL SQUARE

3rd STREET NORTH (To Be Vacated)

Future Curb & Gutter by "Others"

Ex. Asphalt Parking Lot

SWBMH

60' R/W

TSign

OHE

Guy

EM

N-6376.82, E-3185.82
S.S. Sta. 3+53.44
Construct Standard Type "P"
Manhole (4' Dia.) Over Ex. 8" SS
Divert Ex. Flow (W)
Plug Ex. 8" SS (N)
Top Elev. = 142.60
Match Point 2+55

U/G SWB DUCT

U/G SWB

OHE

TSign

PP

Br

SWB VAULT

WSL

WM

EM

WSL

OHE

PP

U/G SWB

OHE

15' Utility Easement

Ex. 5' Concrete Sidewalk

U/G SWB

TSign

N-6376.23, E-3072.76
S.S. Sta. 2+40.38
Match Point

20' Utility Easement

Guy

24" Pine

12" Trees

10.00'

8" Tree

5' Wall Easement

15' X 35' SWB Easement

Trim or Remove Trees as Necessary for Construction

CAUTION!
Ex. O/H Elec
Ex. U/G SWB Crossing

Contractor to Coordinate Guy Removal and Pole Bracing with Westar Energy

NOTE:
Trees/Shrubs to be removed are marked with X's

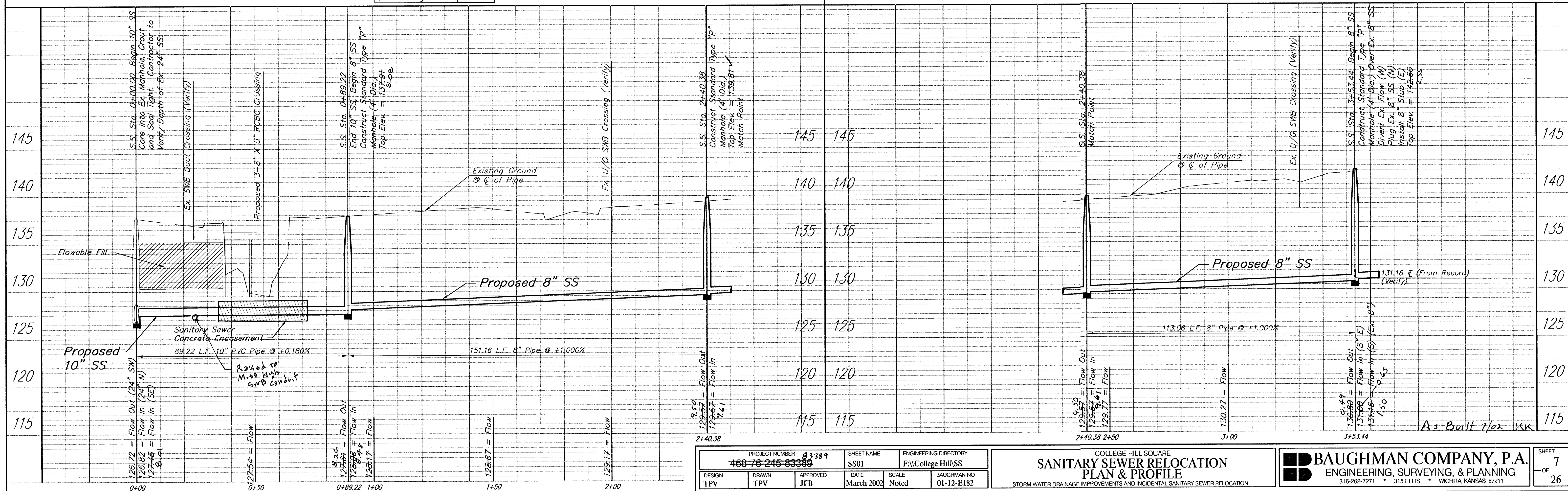
Cost to be INCIDENTAL
Site Clearing and Preparation

SCALE:
1" = 20' HORIZONTAL
1" = 5' VERTICAL

NOTE:
Trees/Shrubs to be removed are marked thus:

Cost to be INCIDENTAL to Site Clearing and Preparation".



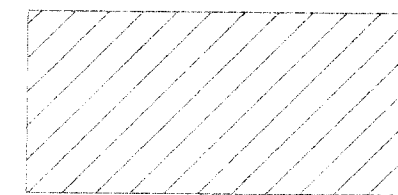
BENCHMARK:

BM #1 - City of Wichita Bench Mark Disc on the Base of the Light Pole on the SE Corner of the Intersection of Central and Hillside
Elev. = 145.32 (City Datum)

BM #2 - "□" on the NE Corner of First Step of 357 N. Hillside, on the SW Corner of Hillside and 3rd Street North
Elev. = 140.59 (City Datum)

HILLSIDE AVENUE

Note:
Pavement, Sidewalks, and Etc. To Be Removed Are



FLORAL ADDITION

347 N. Holyoke

HOLYOKE AVENUE
50' R/W

COLLEGE HILL SQUARE

3rd STREET NORTH
(To Be Vacated)

Lot 5

FLORAL ADDITION

CAUTION!
Ex. 2" PE Gas Line Dead Ends. Contractor to Verify Location and Depth to Avoid Conflict. Contact Kansas Gas Service for More Information.

CAUTION!
Ex. U/G SWB
Ex. O/H Elec Crossing

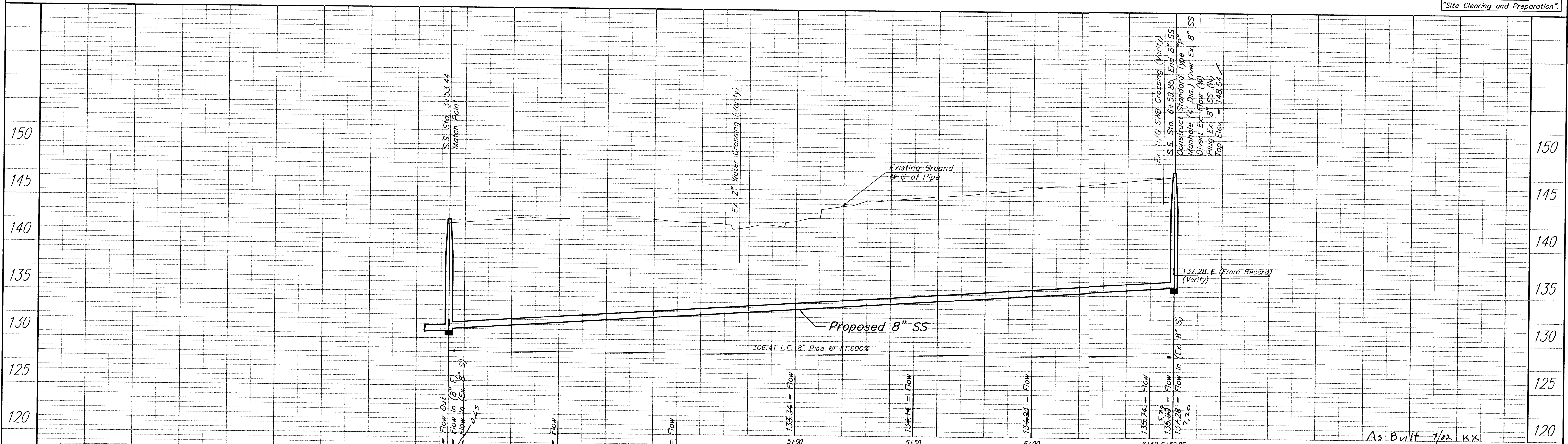
N-6381.35, E-3492.19
S.S. Sta. 6+59.85, End 8" SS
Construct Standard Type "P"
Manhole (4' Dia.) Over Ex. 8" SS
Divert Ex. Flow (W)
Plug Ex. 8" SS (N)
Top Elev. = 148.04

Contractor to Coordinate Guy Removal and Pole Bracing with Westar Energy

SCALE:
1" = 20' HORIZONTAL
1" = 5' VERTICAL

NOTE:
Trees/Shrubs to be removed are marked thus:

Cost to be INCIDENTAL to "Site Clearing and Preparation".



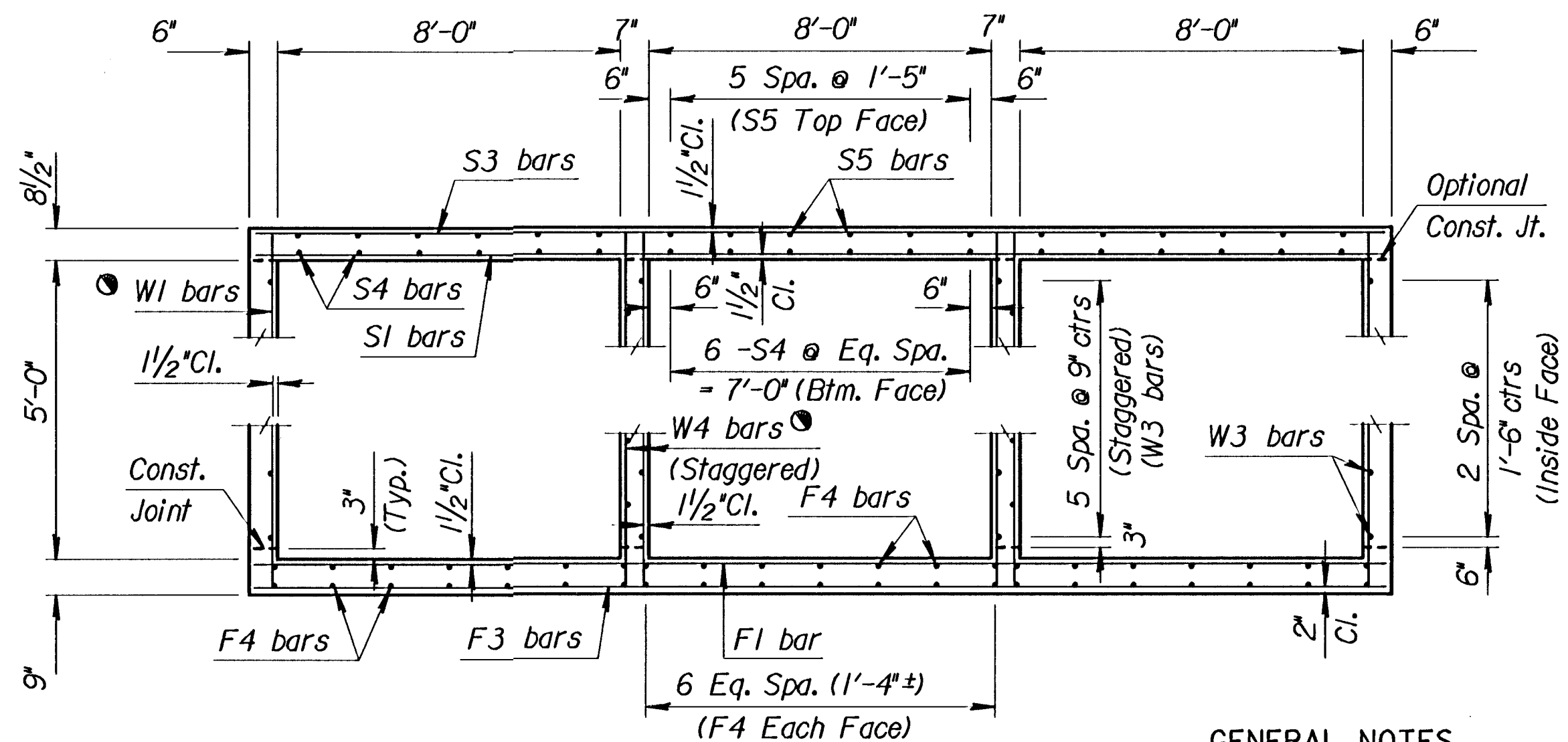
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DESIGN TPV	DRAWN TPV	APPROVED JFB	DATE March 2002	SCALE Noted	BAUGHMAN NO 01-12-E182
PROJECT NUMBER 468-76-245-83388			SHEET NAME SS02		
ENGINEERING DIRECTORY F:\College Hill\SS			PROJECT NUMBER 468-76-245-83388		
SHEET NAME SS02			ENGINEERING DIRECTORY F:\College Hill\SS		
DESIGN TPV			DRAFT TPV		
APPROVED JFB			DATE March 2002		
SCALE Noted			BAUGHMAN NO 01-12-E182		

COLLEGE HILL SQUARE
**SANITARY SEWER RELOCATION
PLAN & PROFILE**
STORM WATER DRAINAGE IMPROVEMENTS AND INCIDENTAL SANITARY SEWER RELOCATION

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

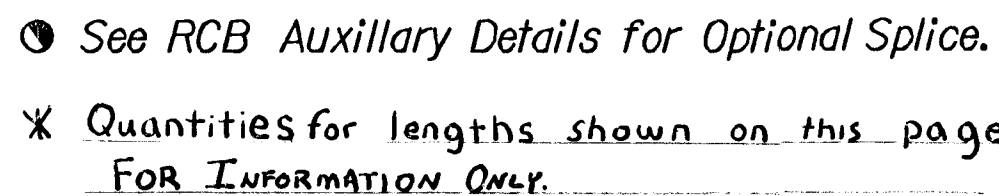
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GENERAL NOTES

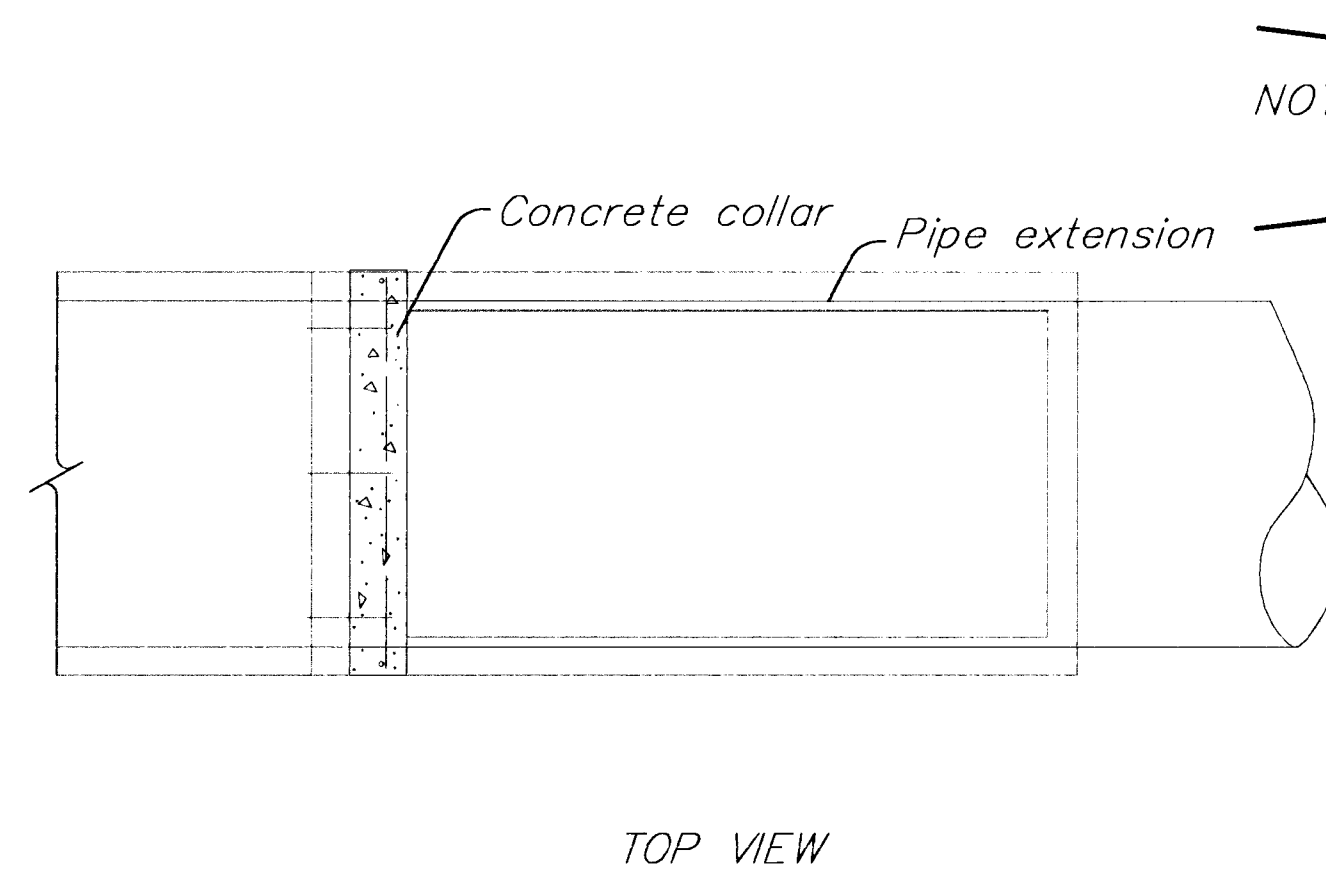
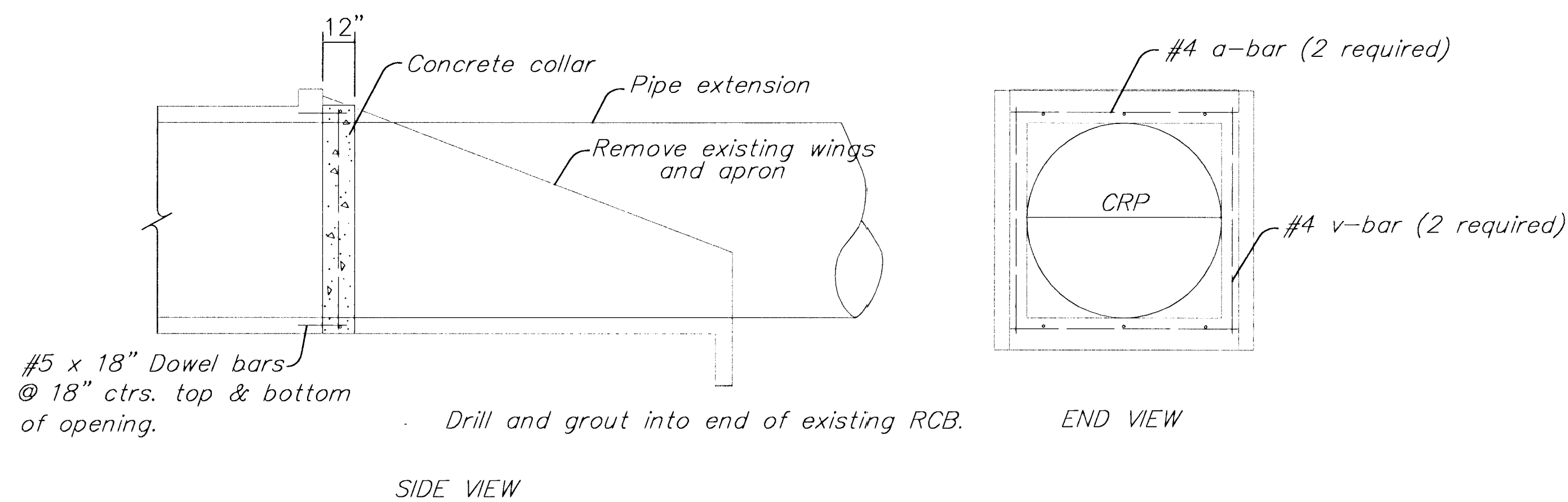
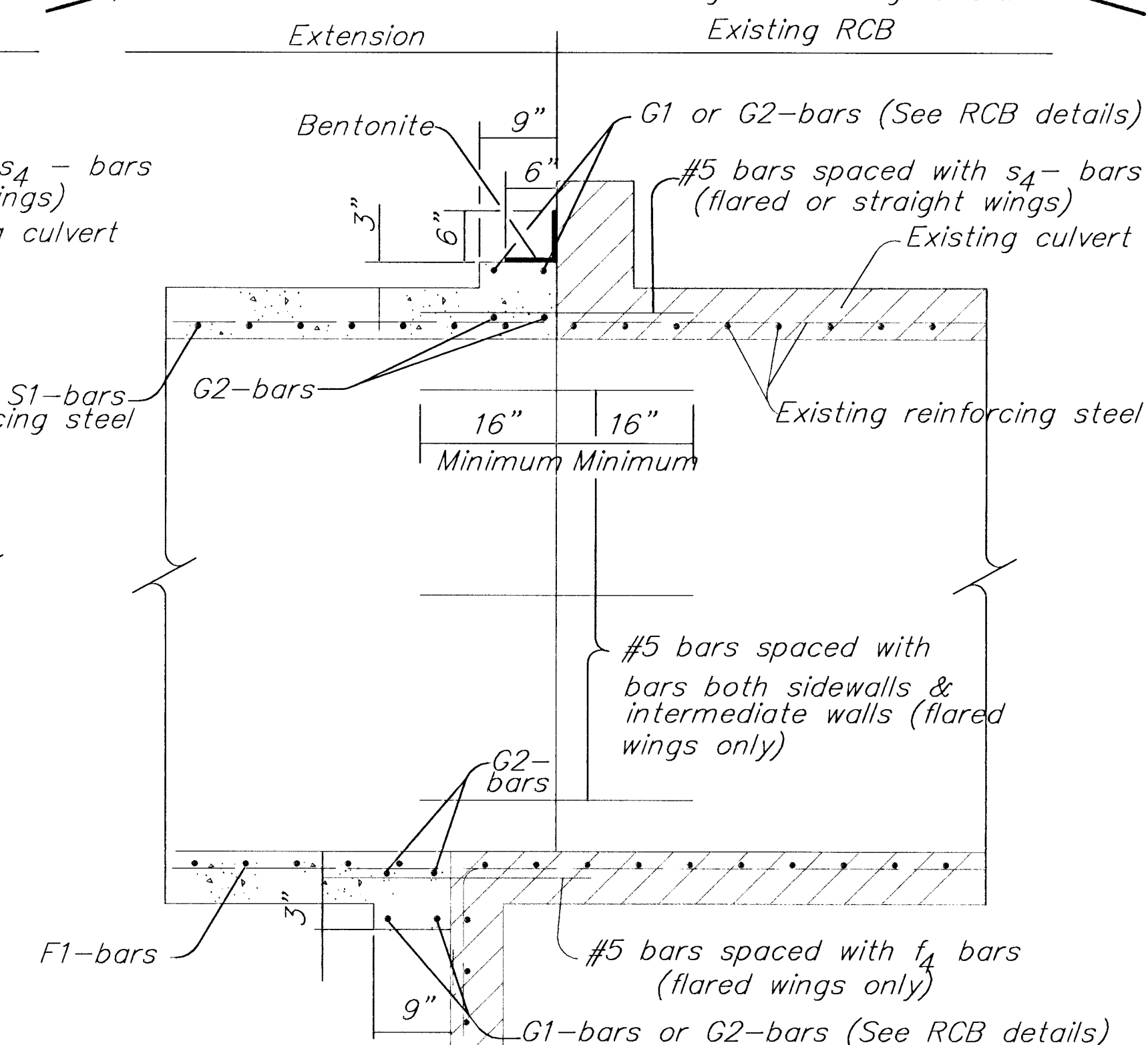
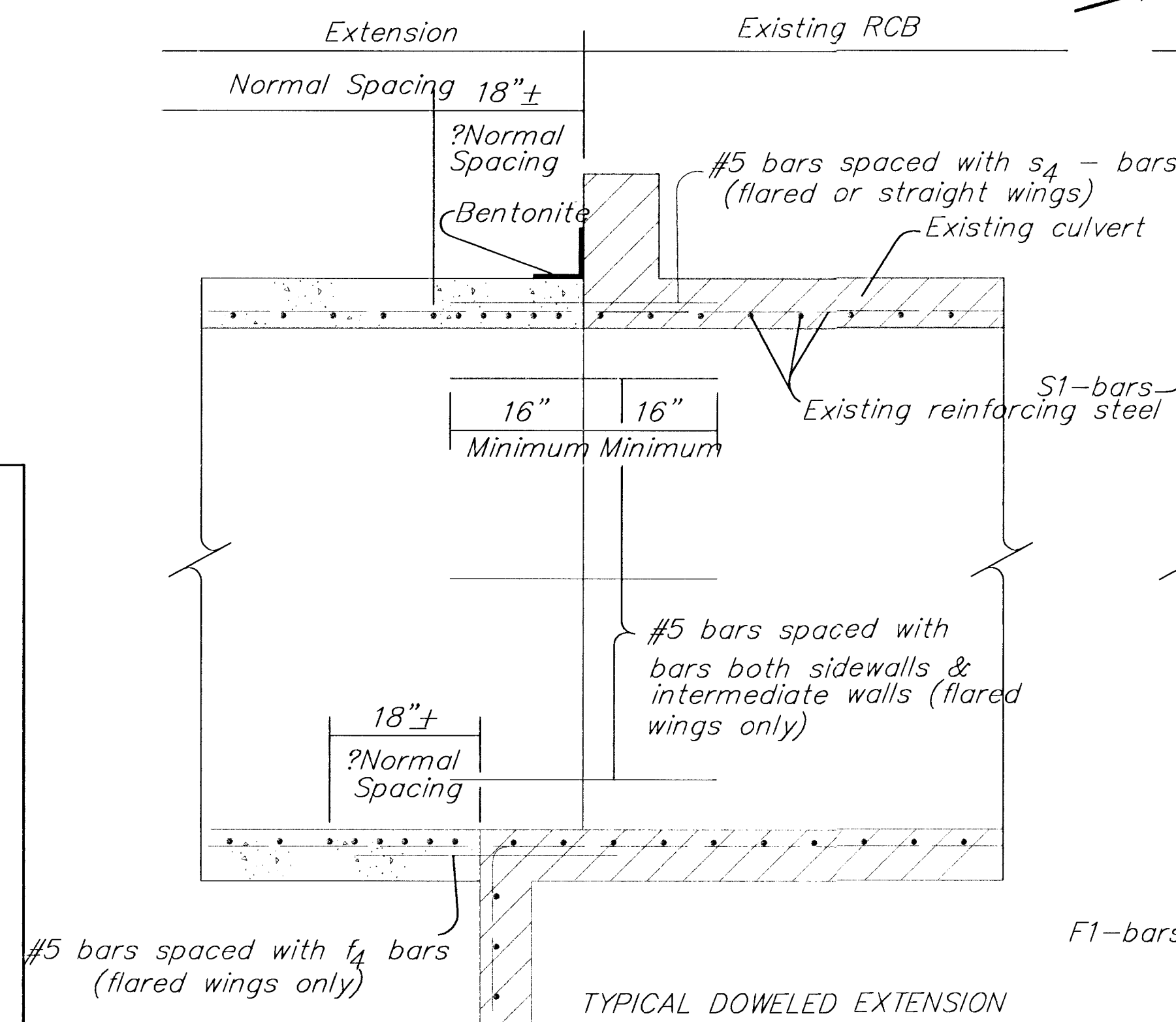
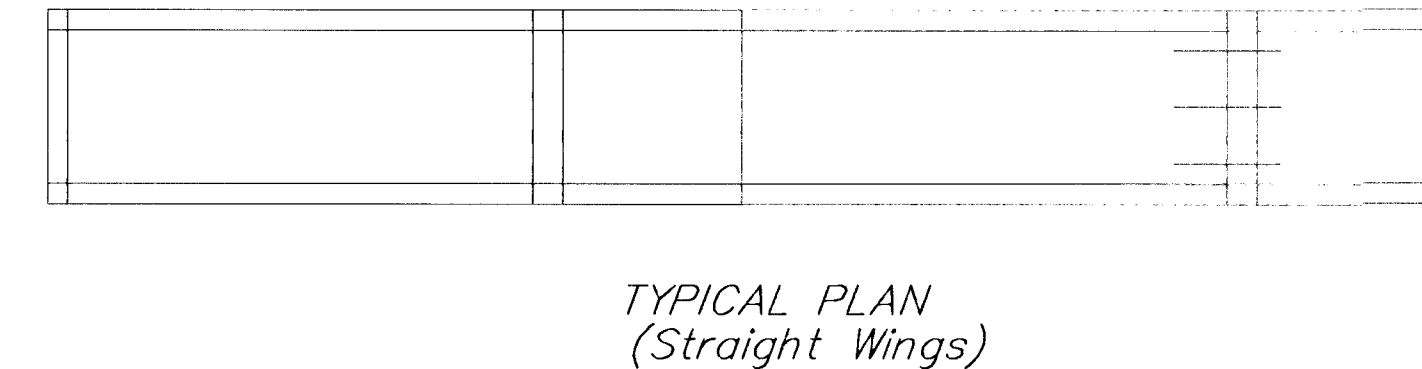
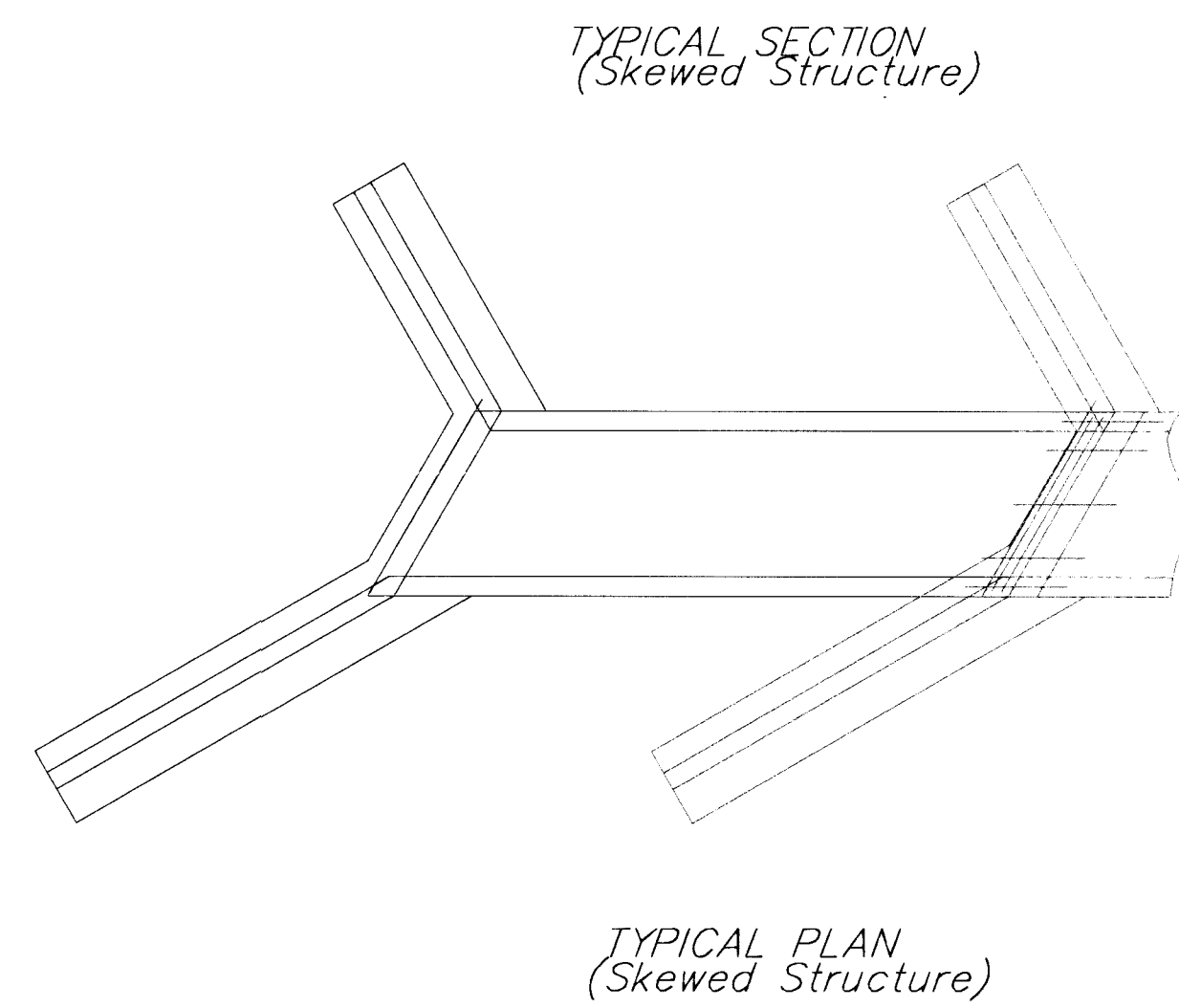
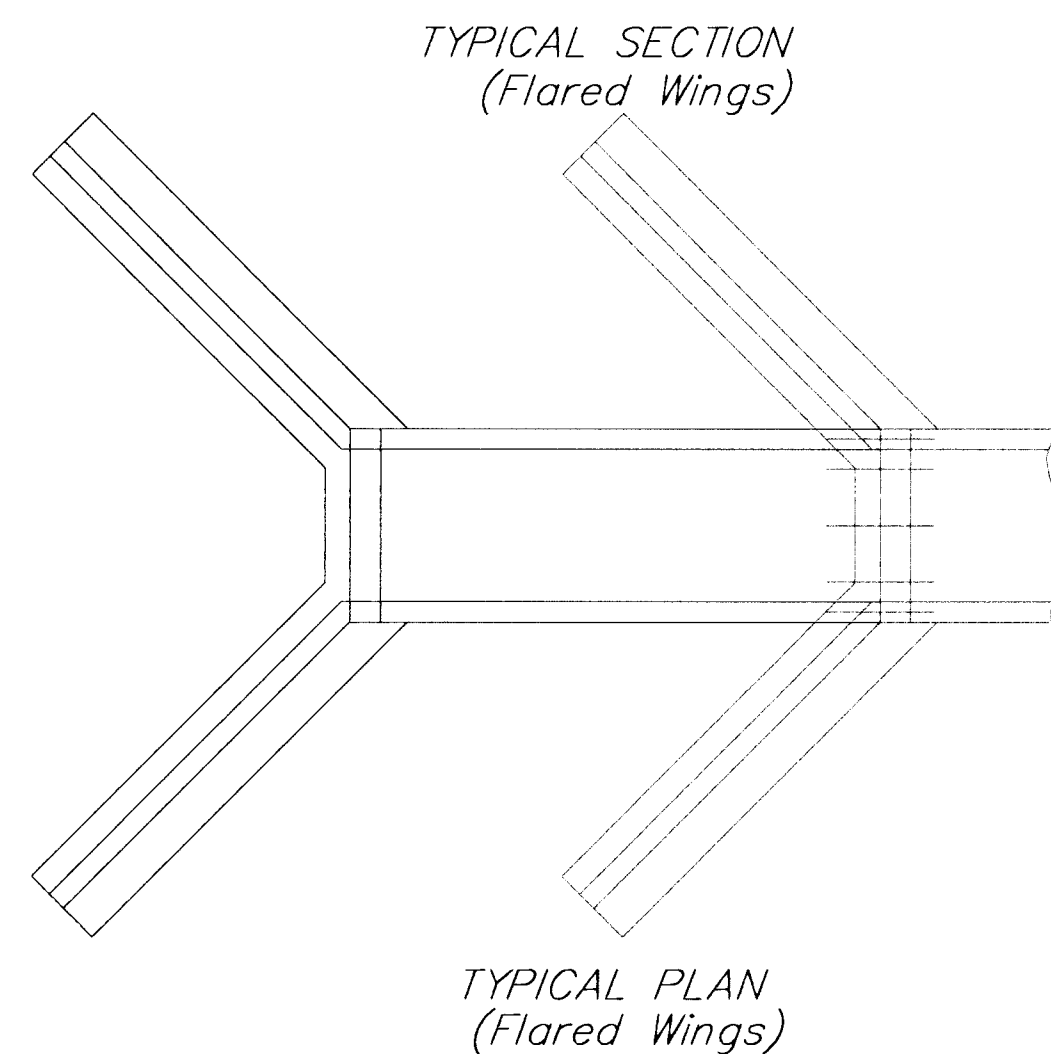
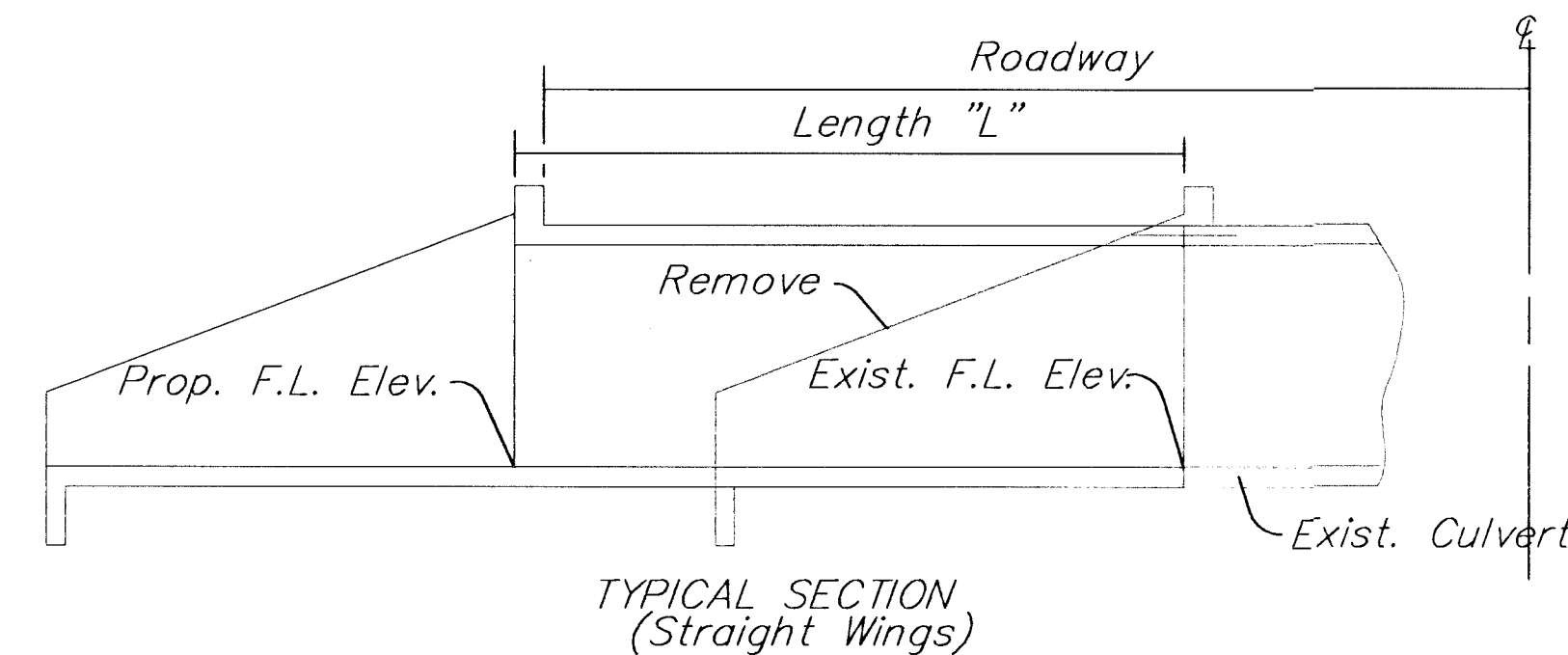
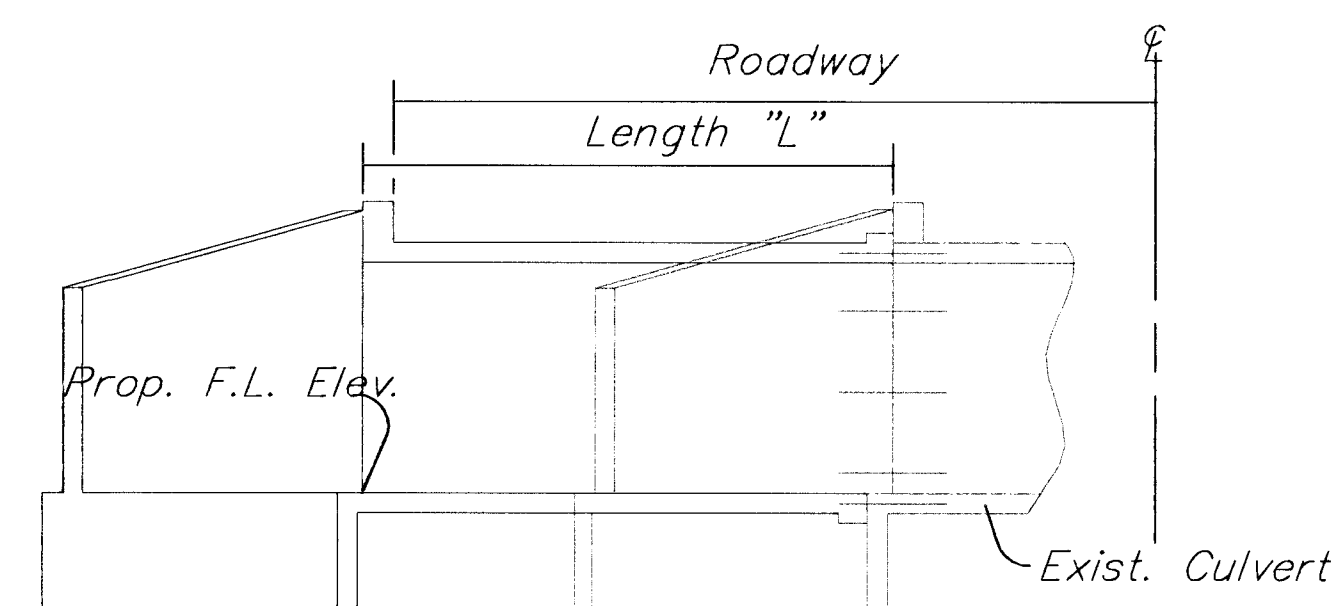
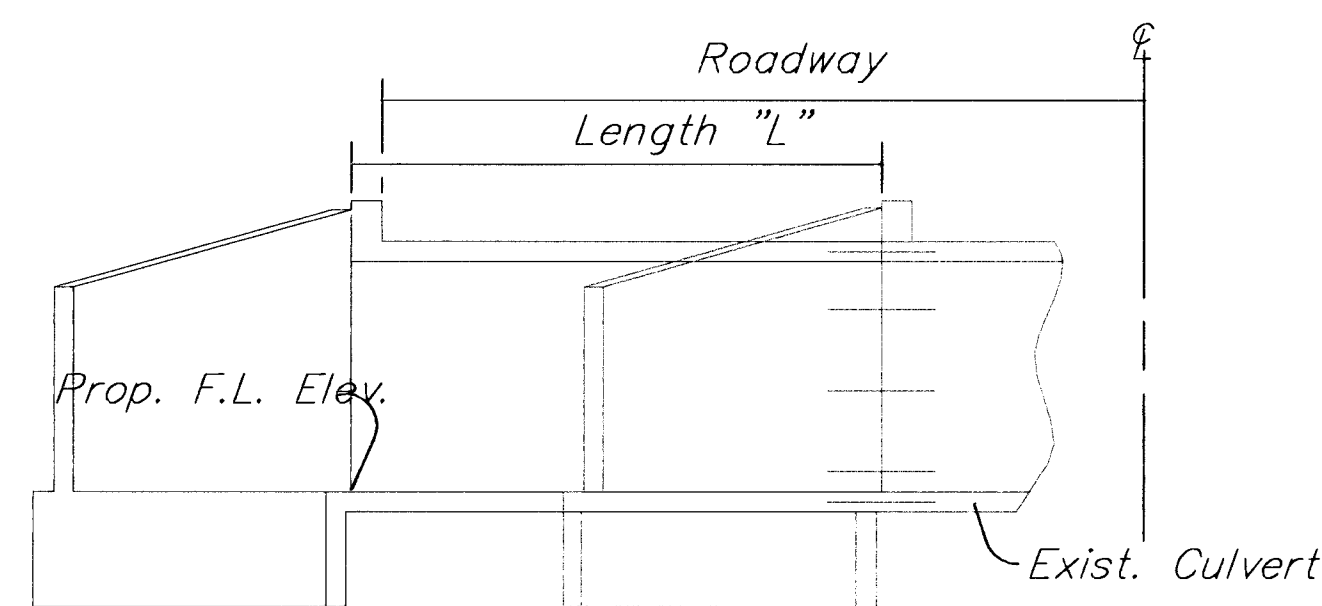
STRIKE LINE: Wingwalls and that portion of the RCB outside the Strike Line shall be constructed level. Footing for wingwalls shall be constructed with the culvert floor. See wingwall detail sheet.



Minimum	Splice Lengths
#4	1'-4"
#5	1'-8"
#6	2'-0"

NO.	DATE	REVISIONS	BY	APP'D
KANSAS DEPARTMENT OF TRANSPORTATION				
Sta.				
TRIPLE 8' x 5' RCB				
BR-3.08.05		SEDGWICK CO. 9/26		
FHWA APPROVAL DESIGNED DESIGN CK.	6-5-91 DETAILED DETAIL CK.	APP'D QUANTITIES QUAN.CK.	KENNETH F. HURST TRACED TRACE CK.	

FIWA REGION NO.	STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
7	KANSAS			10	26



CONSTRUCTION OF COLLAR

[illegible]

NOTE: The joint between the RCB extension and the existing structure shall be protected by a bentonite based system as shown when the following conditions exist:

1. Fill depth over the joint is 2 feet or less.
2. Lateral location of the joint is 20 feet or less from edge of pavement.
3. RCB span is equal to or greater than 8 feet.

The bentonite shall be placed on the exterior walls and top slab and shall conform with the requirements of the Special Provision for "Bridge Backwall Protection System". ~~All materials and labor required for this work shall be Subsidiary to the bid item "Class AAA Concrete".~~

[illegible]

5	12-30-97	Added bentonite system	R.J.S.	J.O.B.
4	12-28-93	Add collar construction note	R.J.S.	J.O.B.
3	12-21-92	Rev. Bar Spacing on Skewed Box	R.J.S.	J.O.B.
2	6-9-92	Added Skewed Box Details	R.J.S.	J.O.B.
1	5-13-91	Revised General Note	R.J.S.	J.O.B.
NO.	DATE	REVISIONS	BY	APP'D

KANSAS DEPARTMENT OF TRANSPORTATION

TYPICAL CULVERT EXTENSIONS

~~RD080~~

10/26

FHWA APPROVAL		2-2-98		APP'D James O. Brewer	
DESIGNED	DETAILED	QUANTITIES	TRACED	Bowser	
DESIGN CK.	DETAIL CK.	QUAN.CK.	TRACE CK.	Seitz	

FHWA REGION NO.	STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
7	KANSAS			12	26

GENERAL NOTES

PRECAST BOX CULVERTS: If precast boxes are specified, construct them at the locations shown in the plans and according to the requirement shown on this sheet. When approved by the Engineer, precast box culverts may be used in lieu of cast-in-place box culverts. If the Contractor chooses the precast option, use the cast-in-place quantities as the cost basis. This cost includes all labor equipment, material and incidentals necessary to complete the installation.

Unless otherwise approved by the Engineer, use cast-in-place collars at horizontal and vertical changes in RCB alignment. Use cast-in-place end sections and wingwalls except as noted on this sheet. The Engineer may require cast-in-place sections at junctions of drainage structures.

Cast-in-place concrete work shall conform to the requirements of the KDOT Specifications and KDOT's "Guidelines for Structural Design and Detail of Reinforced Concrete Box Culverts". Use Class AAA concrete and Grade 60 reinforcing steel conforming to ASTM A615M for cast-in-place construction.

SPECIFICATIONS: Single-cell Precast Concrete Box Culverts shall conform to the requirements of the following specifications except as noted in the KDOT Specifications. Design multiple-cell precast boxes in accordance with the criteria used to develop the single-cell precast boxes. (See Appendix of ASTM Specification C 1433, Table 2 and the latest AASHTO Specifications.)

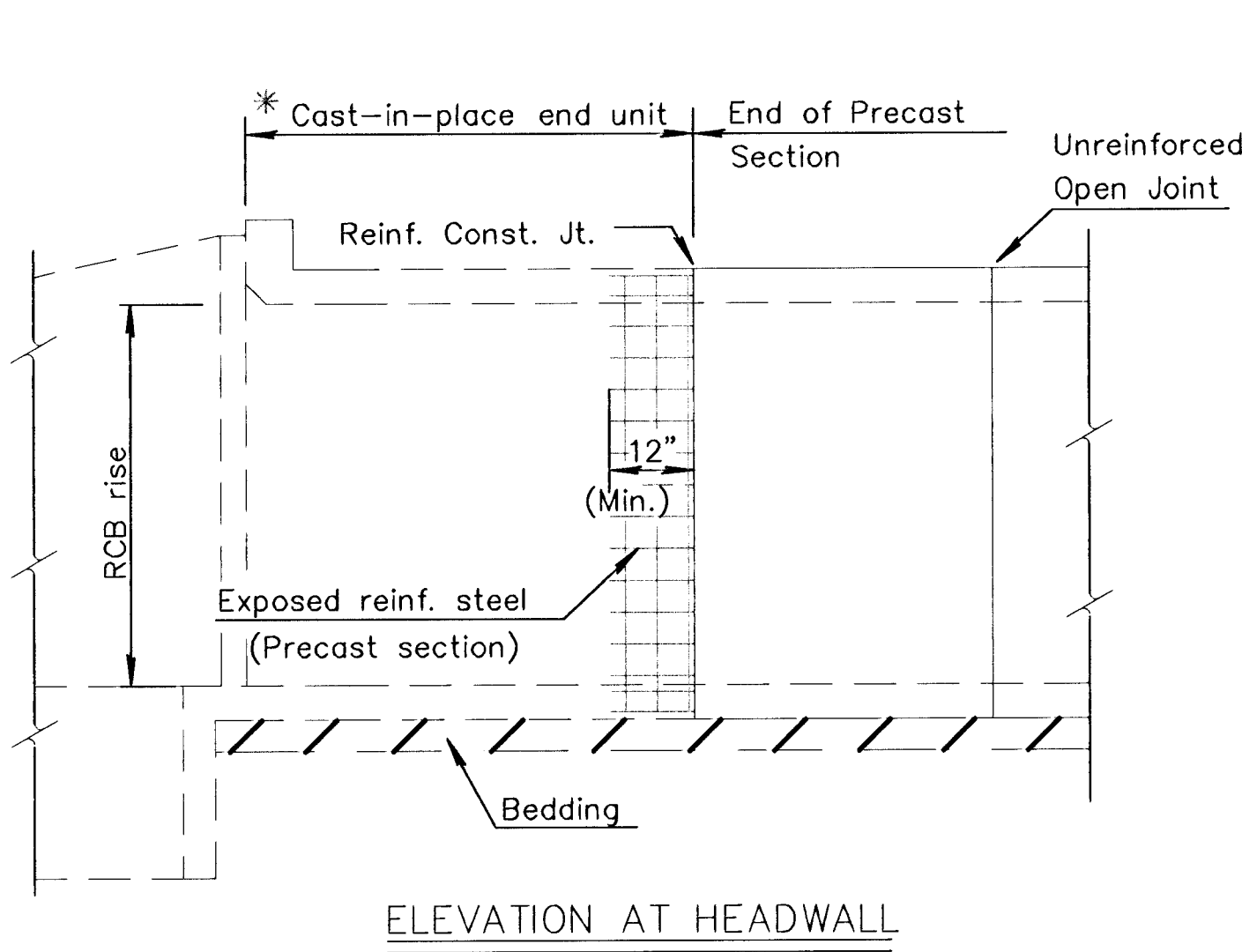
DISTRIBUTION SLAB: Fill heights less than 2 feet require a distribution slab. Precast distribution slabs may be used for fill heights over 1 foot, otherwise use cast-in-place.

NOTE: See "Bridge Excavation" sheet, (Std. No. BR100), for excavation details and basis of payment.

NOTE: Minimum length of precast section shall be 4'-0".

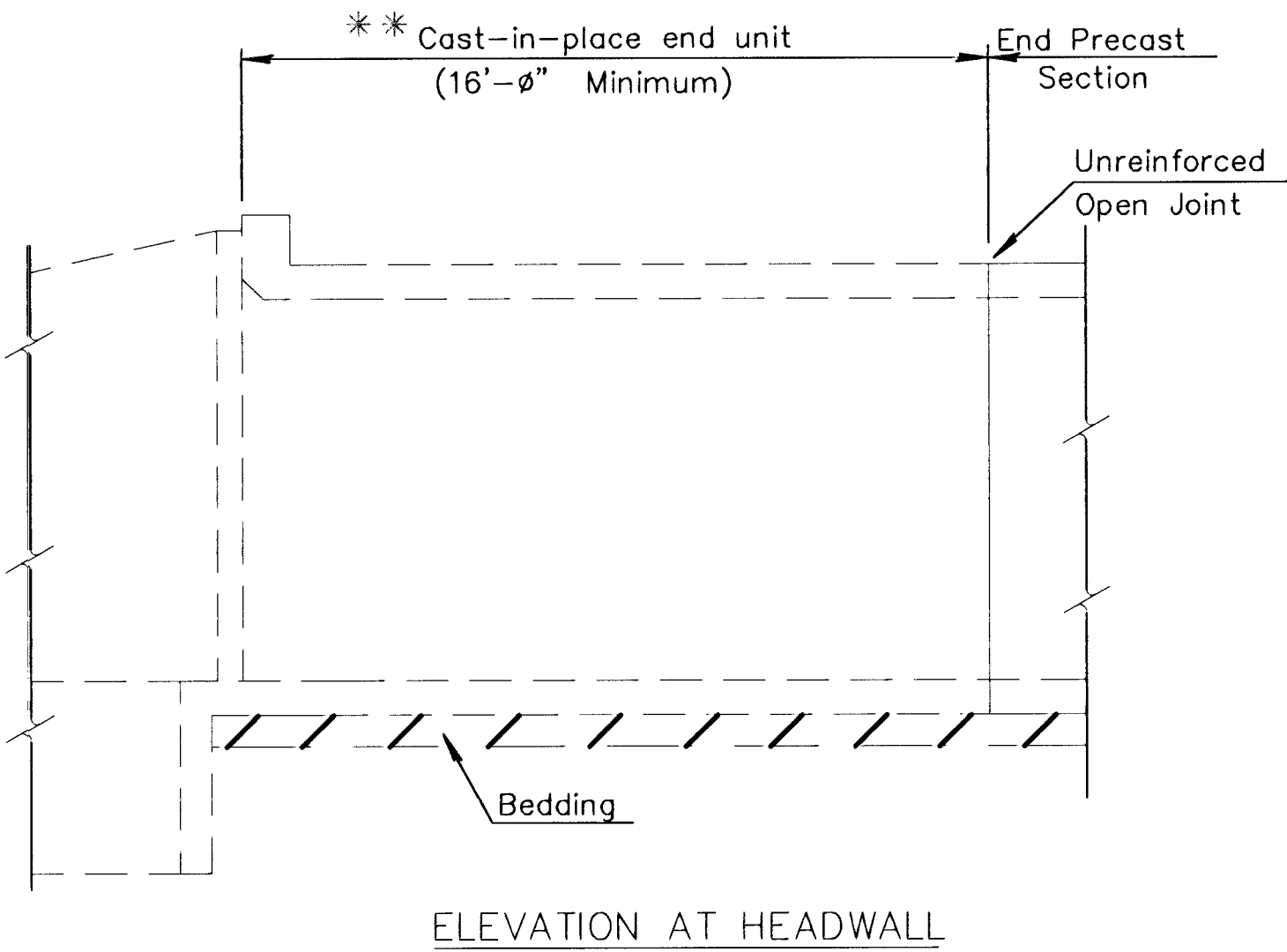
NOTE: A single cell box of equivalent area may be substituted for a double cell box with cell spans less than or equal to 6'-0". Two single cell boxes may be substituted for a double cell box, when approved by the Engineer.

NOTE: See respective RCB Standard Sheets for cast-in-place details.



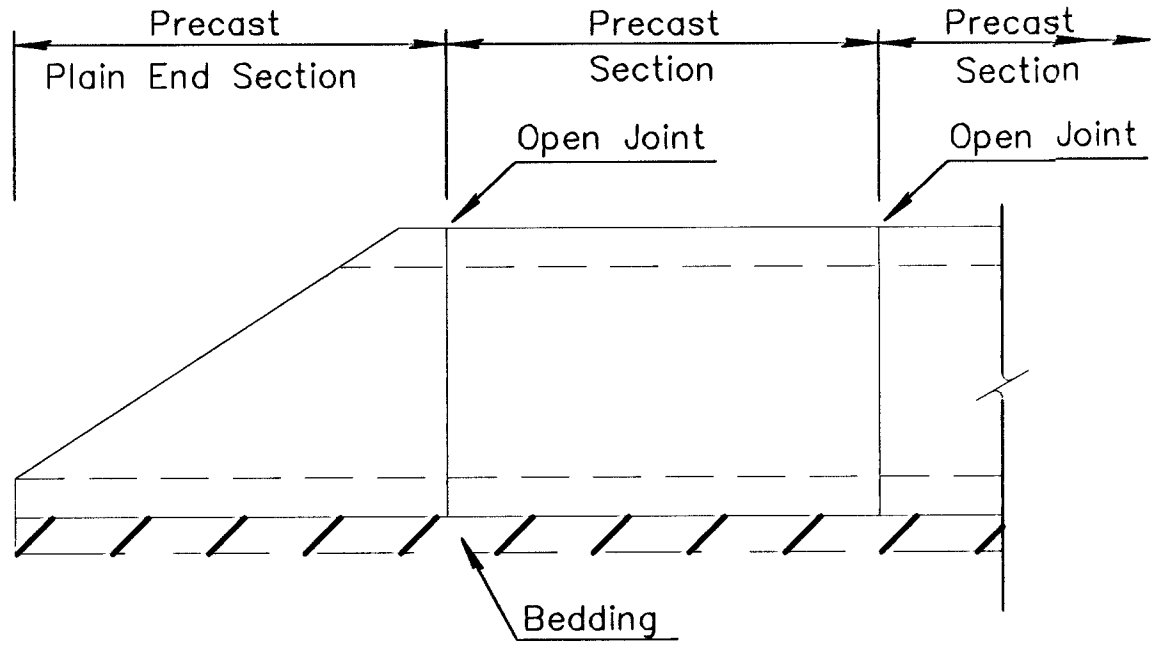
ELEVATION AT HEADWALL

* Minimum barrel length of cast-in-place end unit shall equal the RCB rise or 8'-0", whichever is less. This length can be used when the joint between the cast-in-place end unit and the precast section is reinforced as shown.



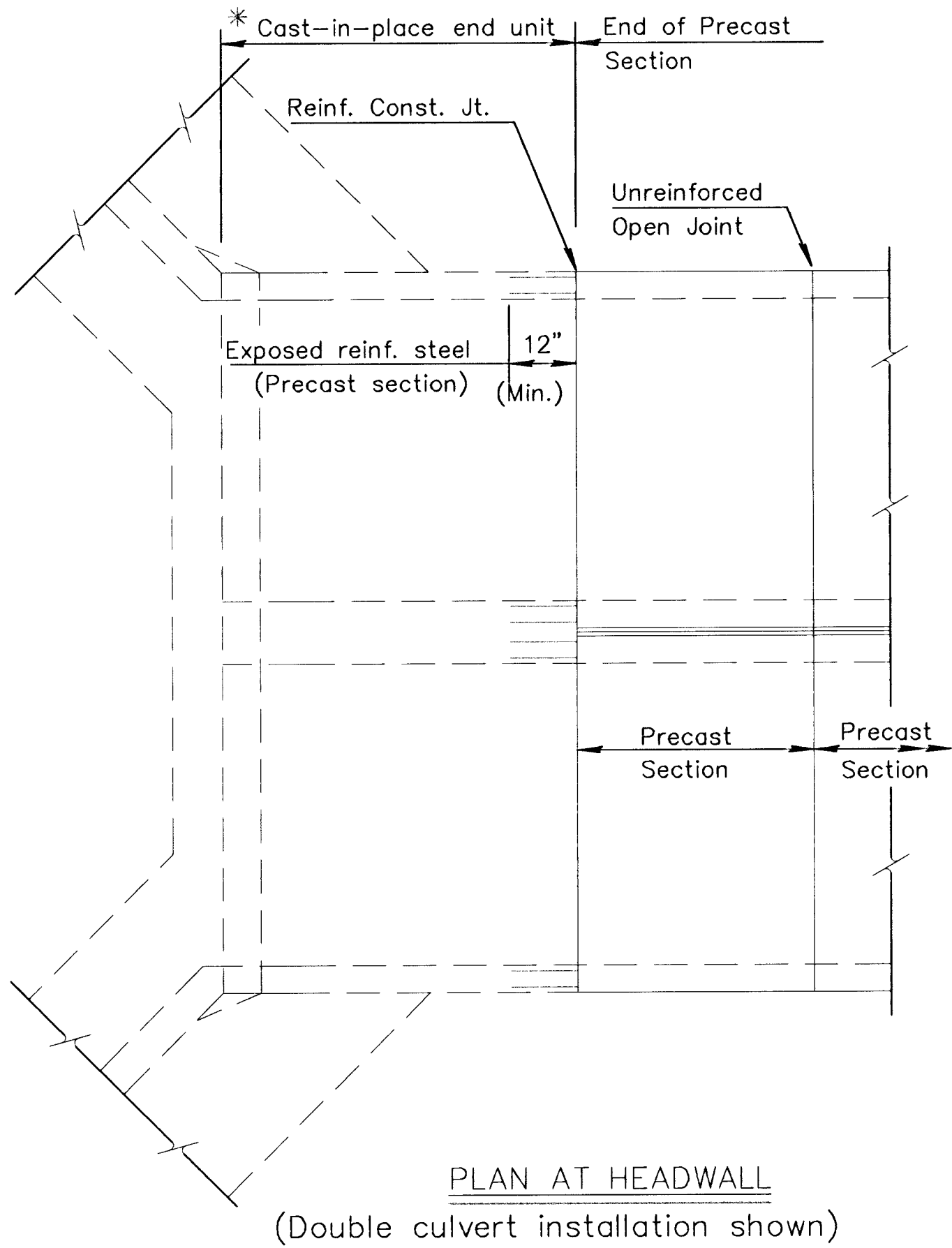
ELEVATION AT HEADWALL

** Minimum barrel length of cast-in-place end unit shall be 16'-0" when using an unreinforced open joint at the end of the precast section.



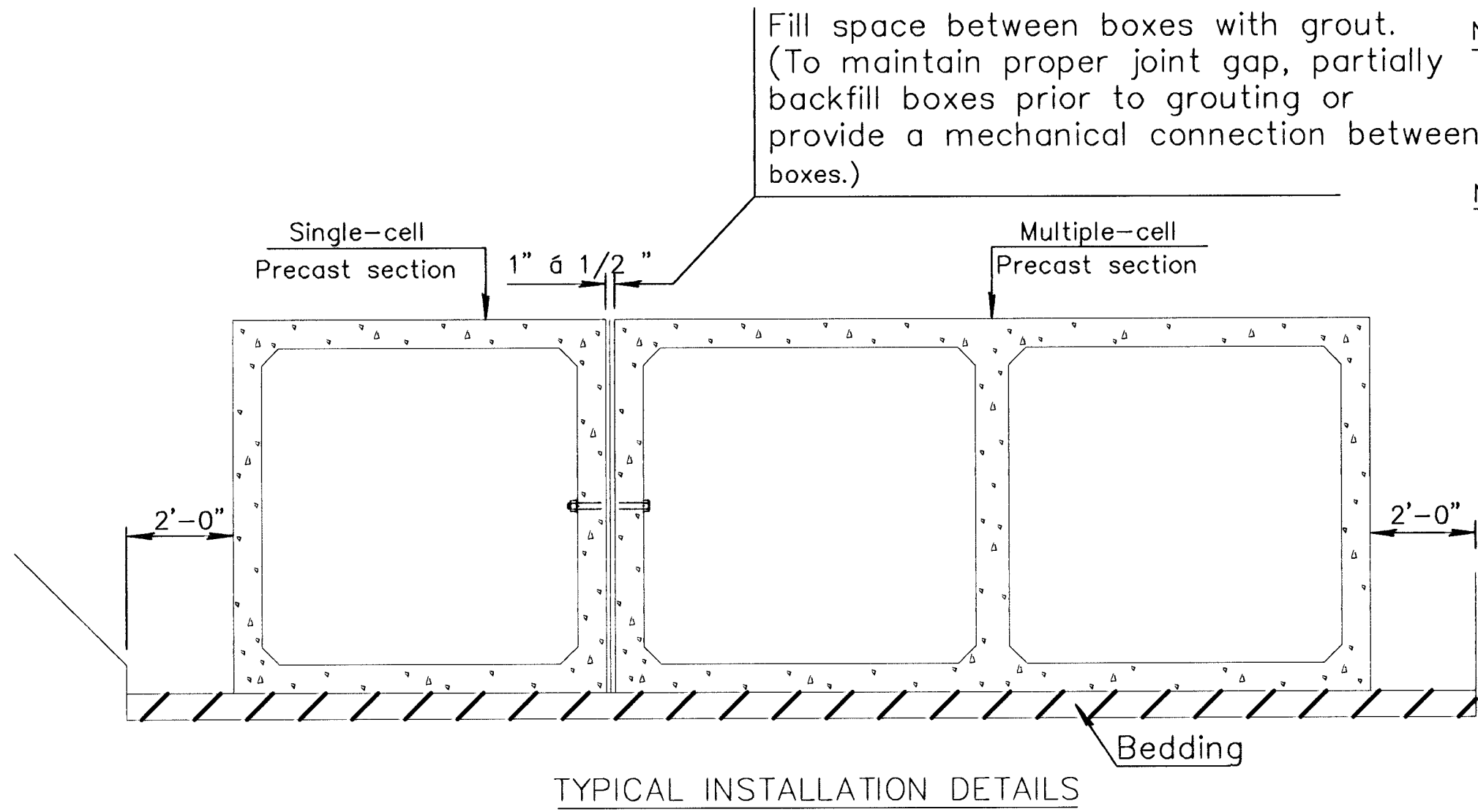
ELEVATION AT PRECAST END SECTION

(Precast End Sections are permitted where straight wings are shown in the plans or at the downstream end for single cell RCB with a rise of six feet or less.)

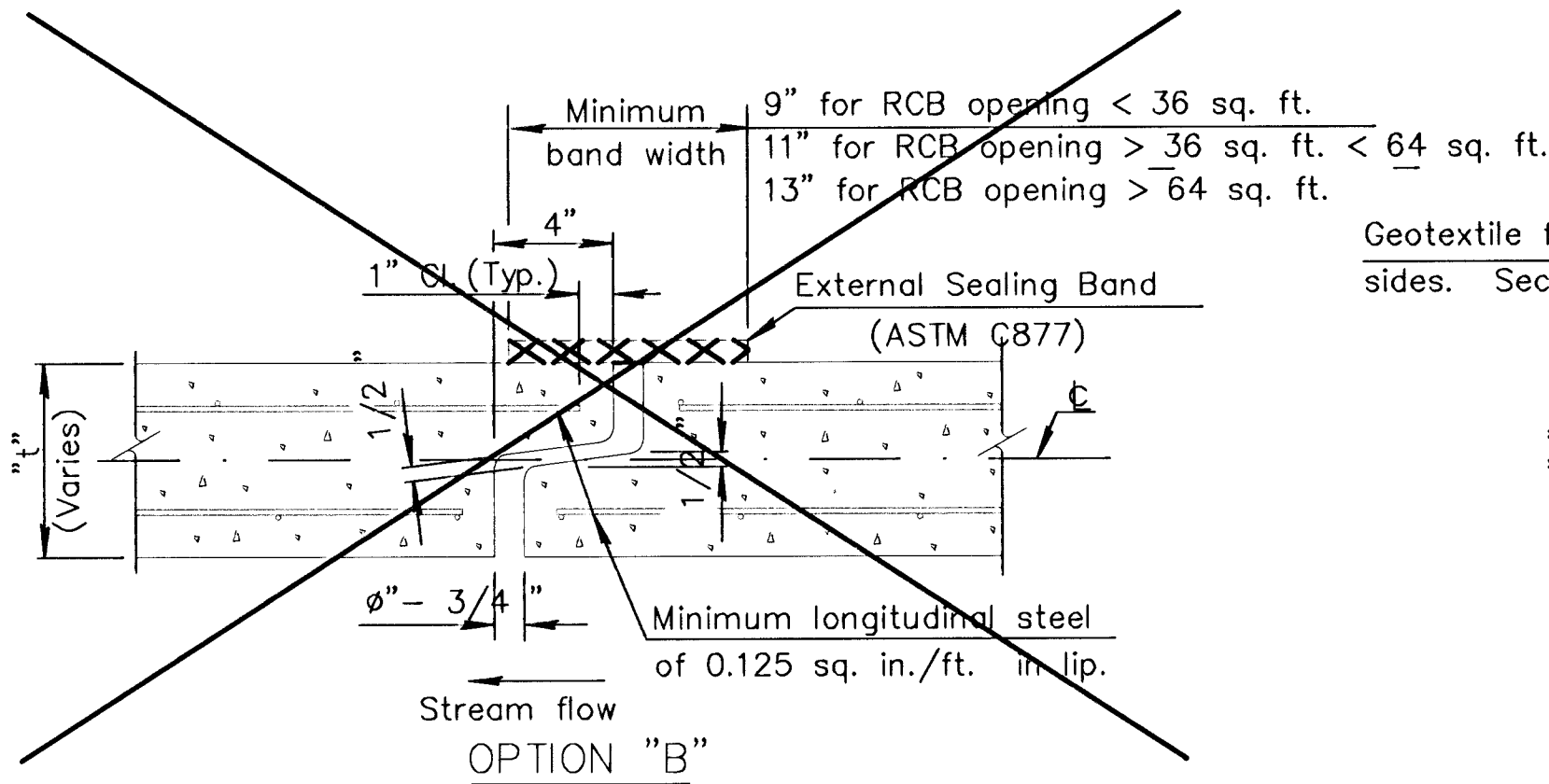


PLAN AT HEADWALL

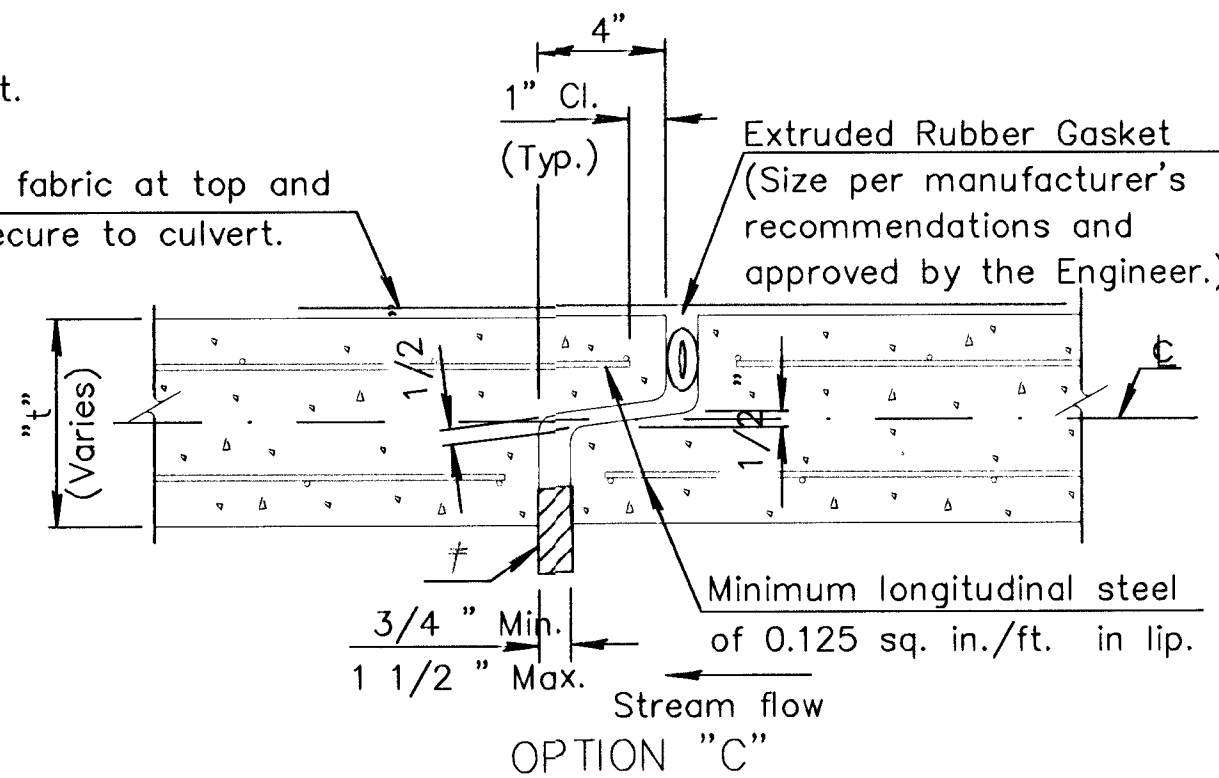
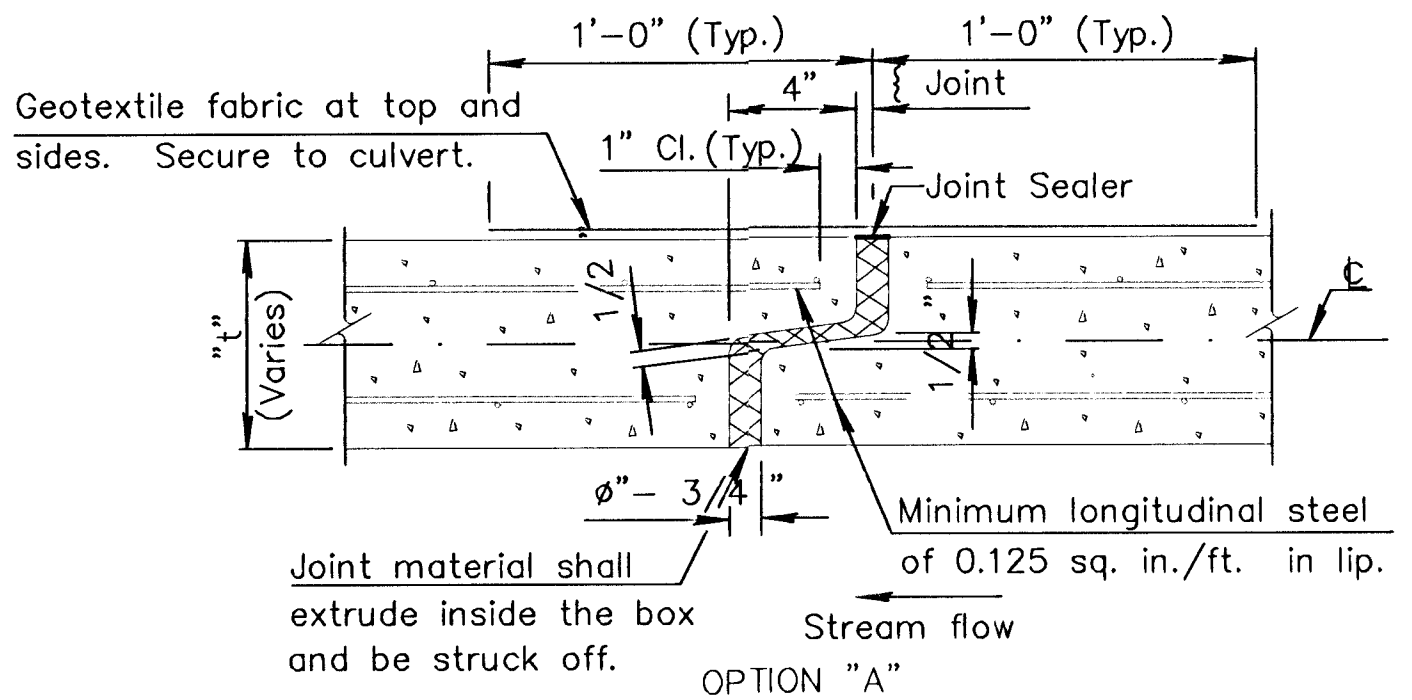
(Double culvert installation shown)



TYPICAL INSTALLATION DETAILS



OPEN JOINT DETAIL



Insert temporary, 3/4 "-1" wide, hardwood wedges to prevent over-compressing gasket.

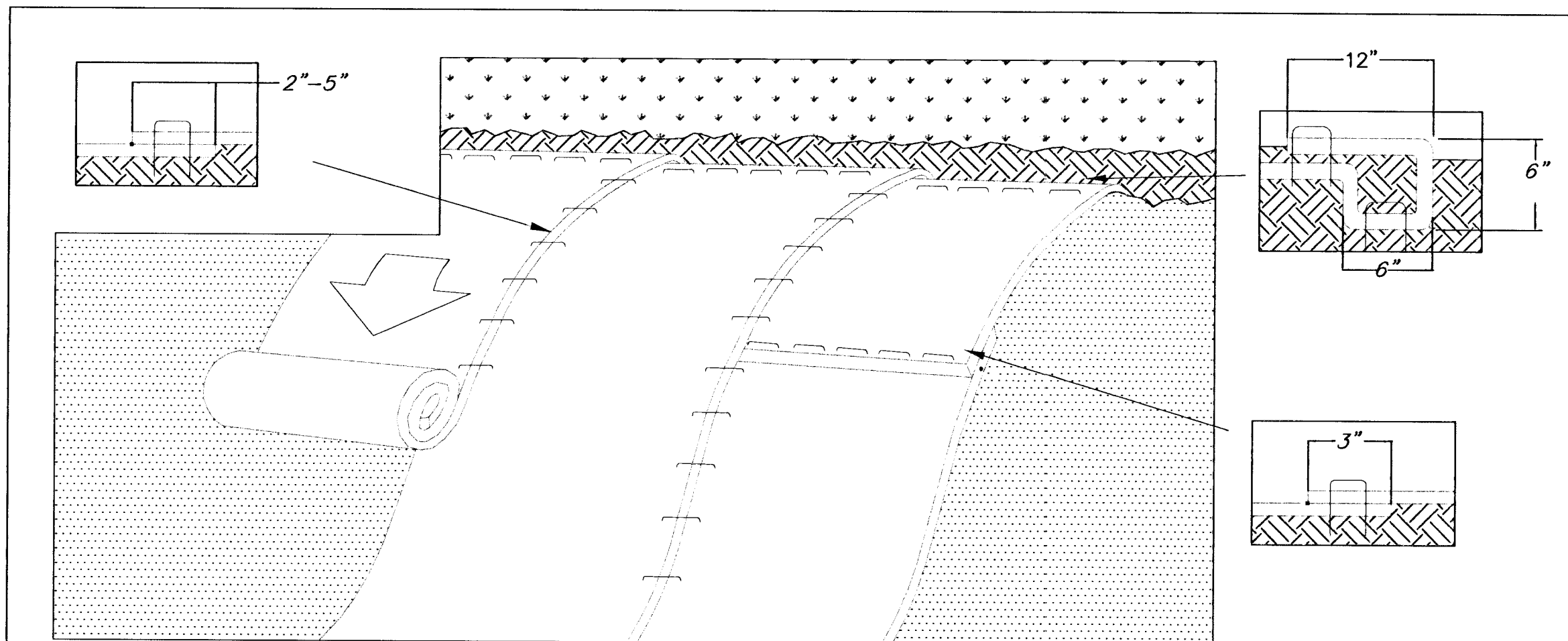
4	11-03-00	Revised ASTM / Added Note	RAM	KFH
3	12-20-96	Revised CIP end unit details.	RAM	KFH
2	1-17-95	Revised general notes	LRR	KFH
1	6-22-94	Added option 'C' & revised notes	RAM	KFH
NO.	DATE	REVISIONS	BY	APP'D

KANSAS DEPARTMENT OF TRANSPORTATION

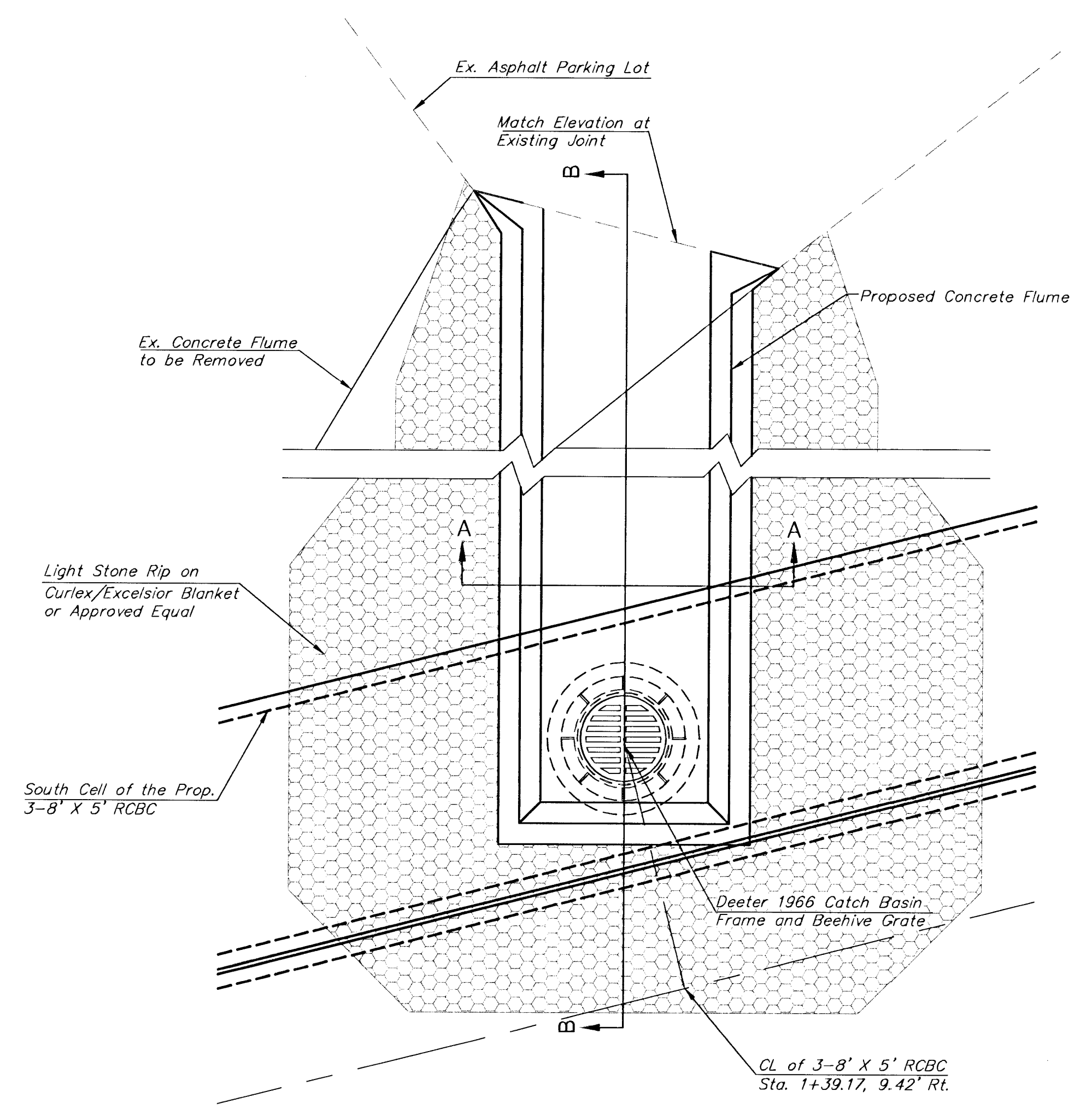
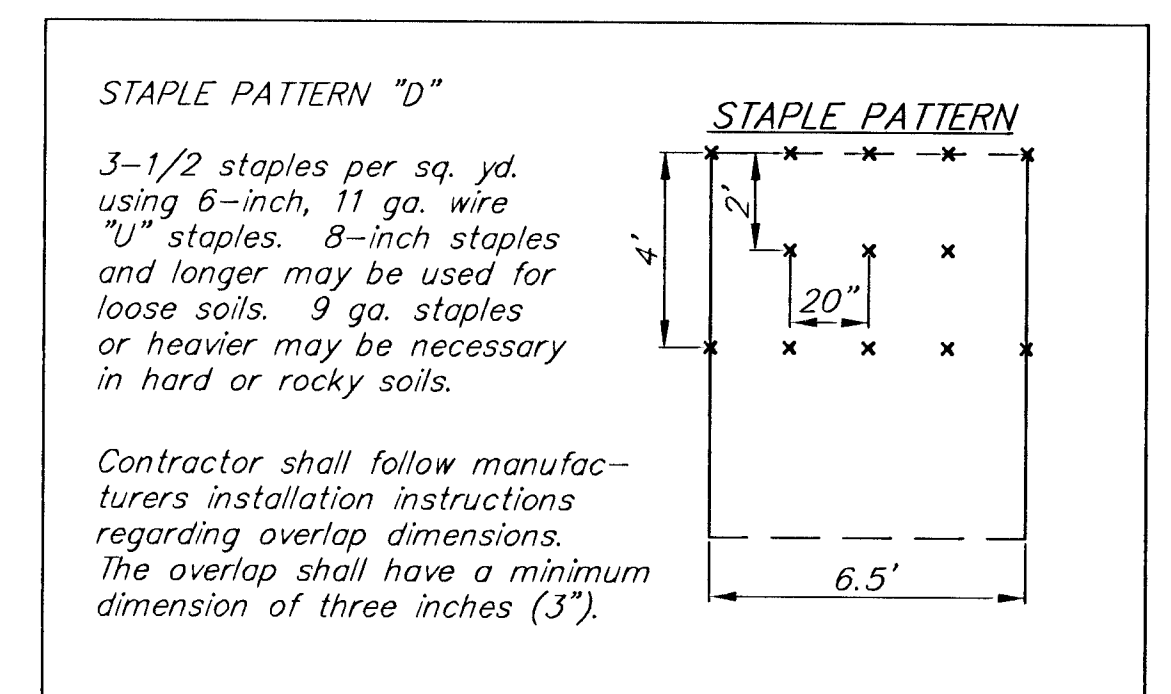
PRECAST CONCRETE BOX CULVERT DETAILS

BR034	11-27-00	APP'D	KENNETH F. HURST
DESIGNED	DETAILED	PF	QUANTITIES
DESIGN CK.	DETAIL CK.	RAM	QUAN. CK.

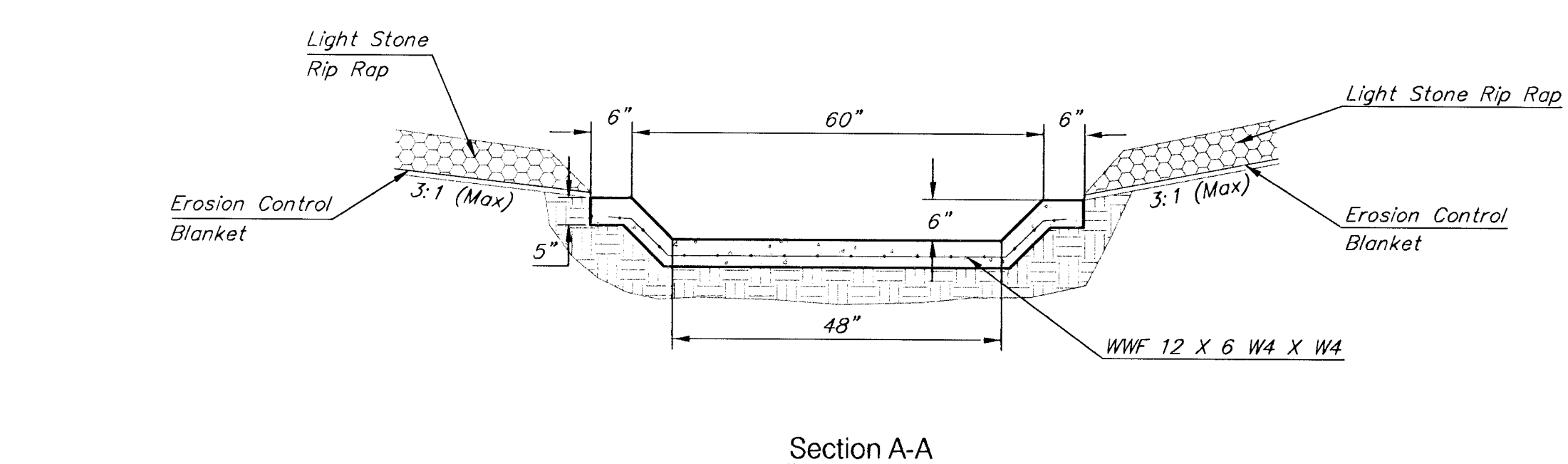
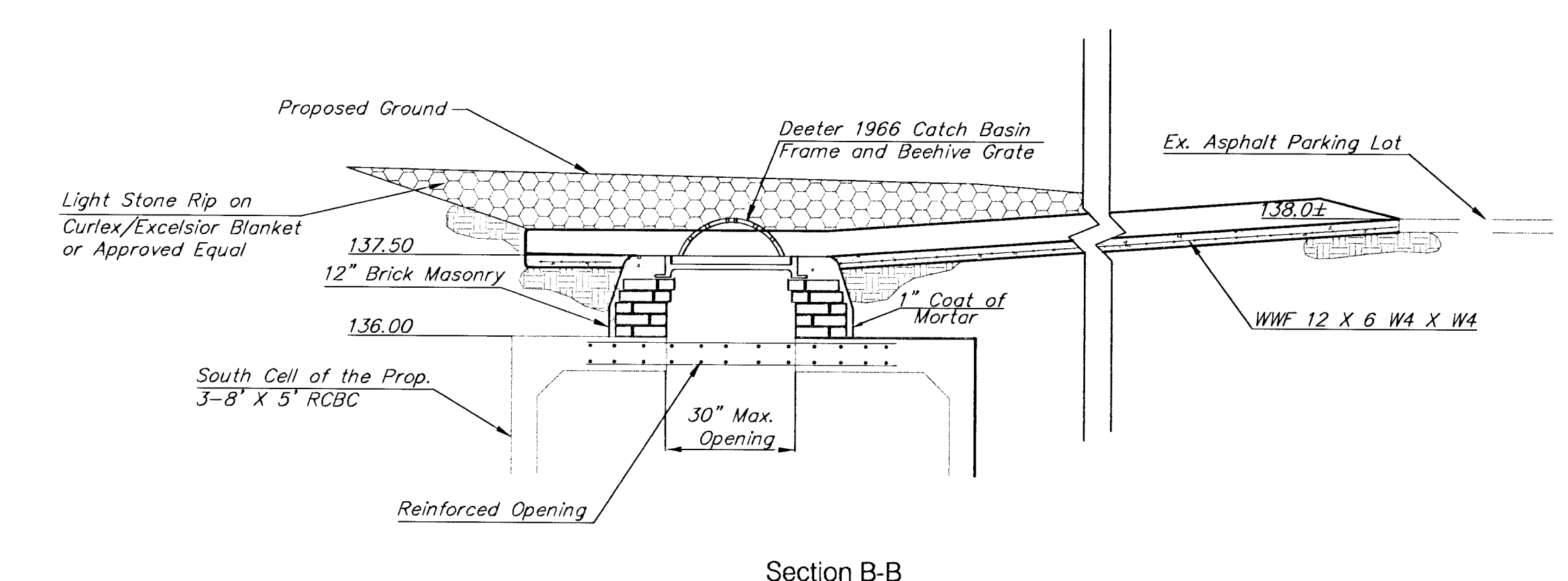
12/26



1. Prepare soil before installing blankets, including any necessary applications, i.e. fertilizer and seed.
2. Begin at the top of the slope by anchoring the blanket in a 6" deep x 6" wide trench with approx. 12" of blanket extended beyond the up-slope portion of the trench. Anchor the blanket with a row staples/stakes approx. 12" apart in the bottom of the trench. Backfill and compact the trench after stapling. Apply seed to compacted soil on fold remaining 12" portion of the blanket back over seed and compacted soil. Secure blanket over compacted soil with a row of staples/stakes spaced approx. 12" apart across the width of the blanket.
3. Roll the blankets down across the slope. Blankets will unroll with appropriate side against the soil surface. All blankets must be securely fastened to soil surface by placing staples/stakes in appropriate locations as shown in the staple pattern guide. When using Optional dot system, Staples/stakes should be placed through each of the colored dots corresponding to the appropriate staple pattern.
4. The edge of parallel blankets must be staple with approximately 2"-5" overlap depending on blanket type. To ensure proper seam alignment, place the edge of the overlapping blanket (blanket being installed on top) Even with the colored seam stitch on the previously installed blanket.
5. Consecutive blankets spliced down the slope must be placed end over end (shingle style) with an approximate 3" overlap. Staple through overlapped area, approximately 12" apart across entire blanket width.



5" CONCRETE FLUME DETAILS

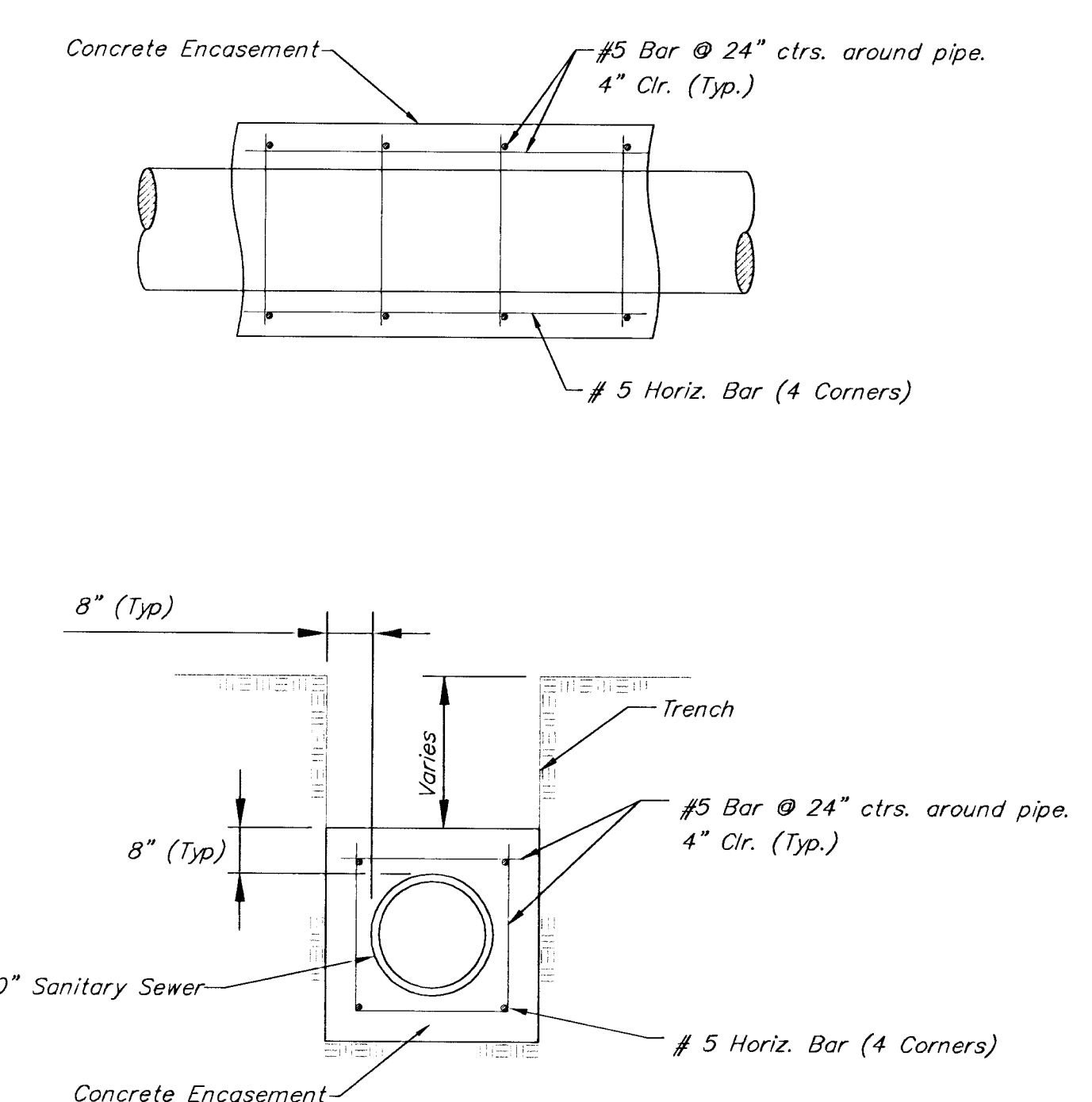


Quantities Required for Concrete Flume:

5" Reinf. Concrete Flume	43 L.F.
Manhole Stack & Frame w/ Beehive Grate	1
Light Stone Rip Rap	45 S.Y.
Erosion Control Blanket	45 S.Y.

For Information Only. Cost to be **INCIDENTAL** to the Lump Sum Bid Item "5" Concrete Flume".

The L.S. Bid Item "5" Concrete Flume" Shall Include All Materials, Labor, Earthwork, Removal, Reinforcement, and all Other Items Necessary.



SANITARY SEWER CONCRETE ENCASEMENT
S.S. Sta. 0+34.56 to S.S. Sta. 0+72.06

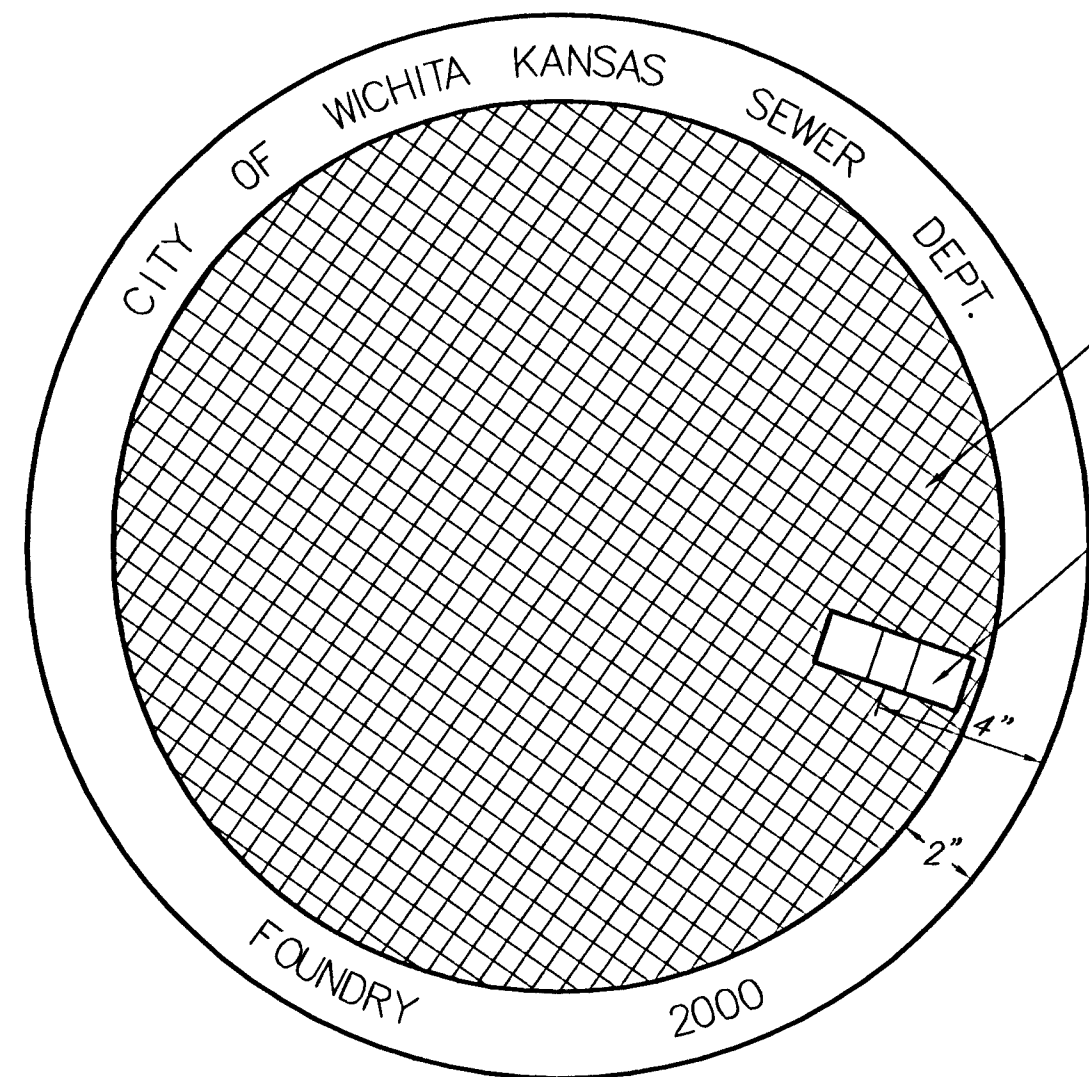
PROJECT NUMBER 468-76-245-03388		SHEET NAME Flume		ENGINEERING DIRECTORY F:\College Hill\Details	
DESIGN TPV	DRAWN TPV	APPROVED JFB	DATE March 2003	SCALE None	BAUGHMAN NO 01-12-E182

COLLEGE HILL SQUARE
CONCRETE FLUME, CONCRETE ENCASEMENT, & EROSION CONTROL BLANKET DETAILS
STORM WATER DRAINAGE IMPROVEMENTS AND INCIDENTAL SANITARY SEWER RELOCATION

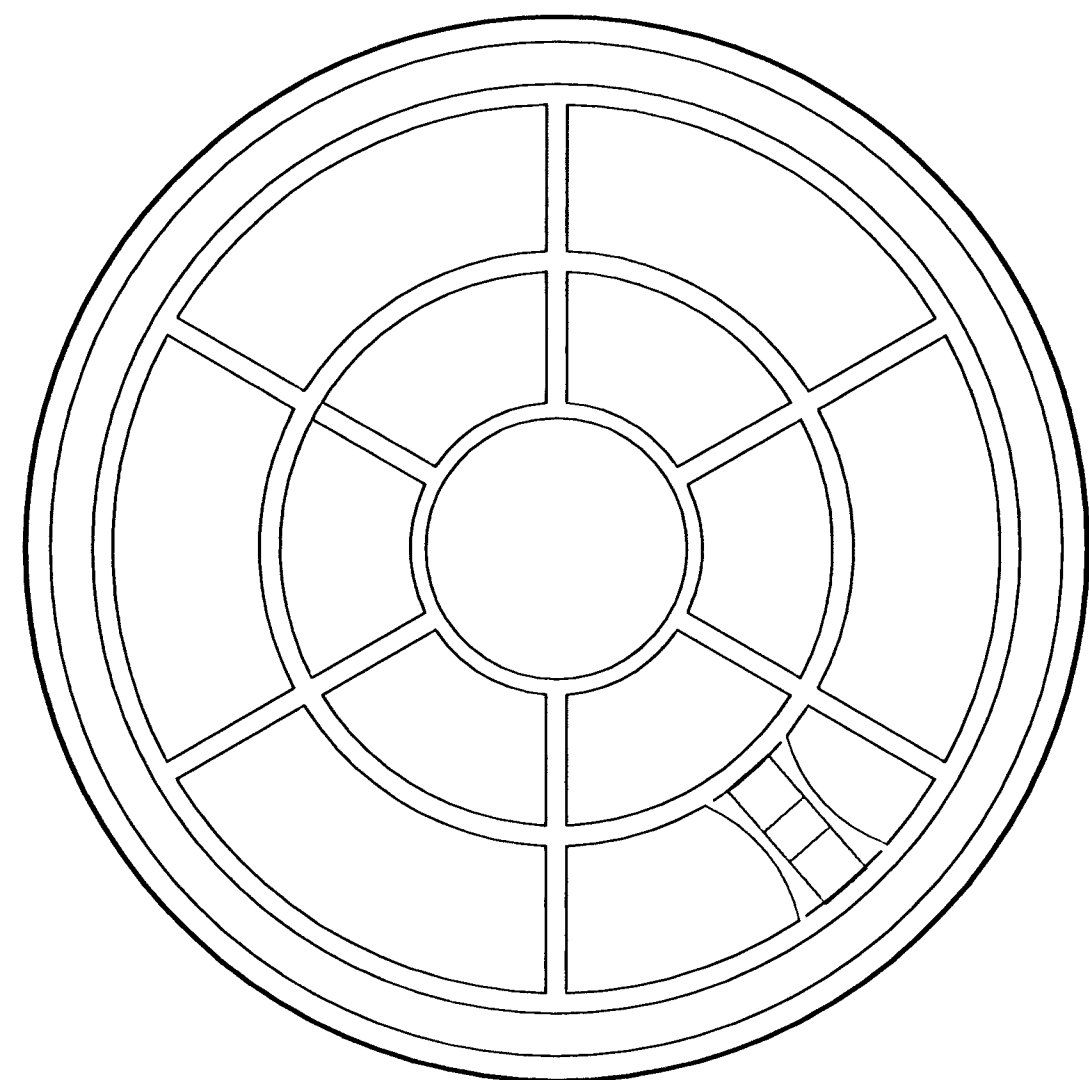
BAUGHMAN COMPANY, P.A.
ENGINEERING, SURVEYING, & PLANNING
316-262-7271 • 315 ELLIS • WICHITA, KANSAS 67211

MANHOLE COVER

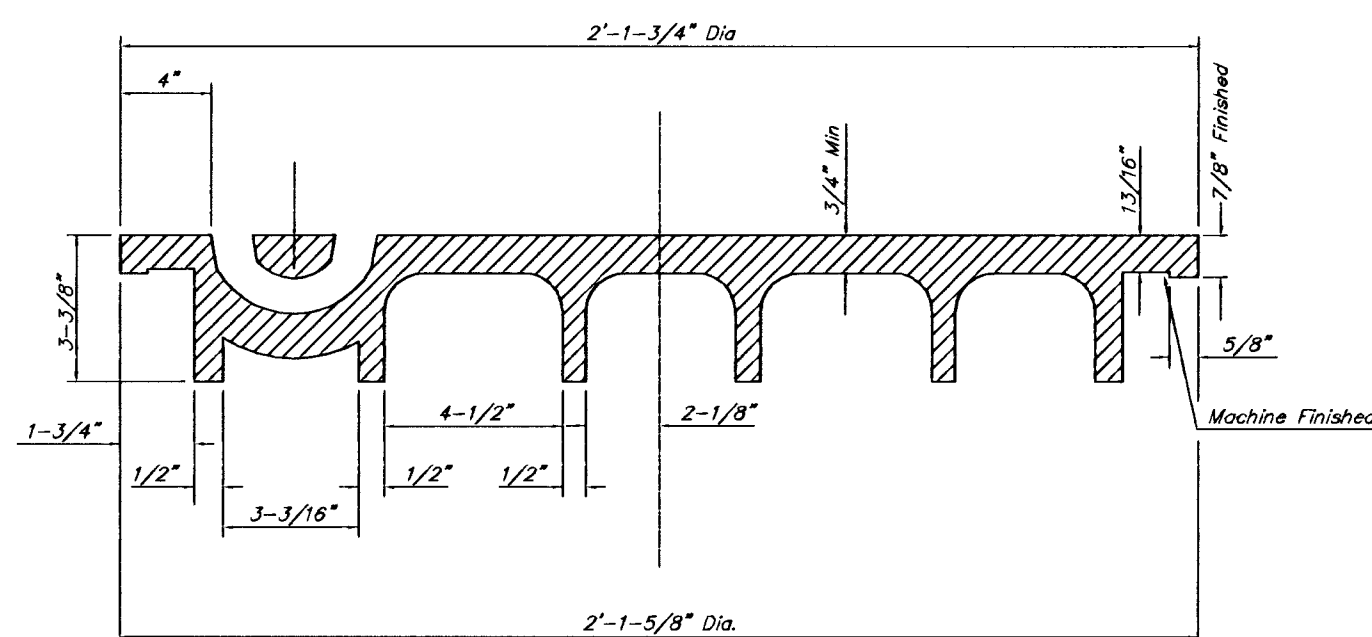
Weight = 180 Lbs.



TOP VIEW



BOTTOM VIEW

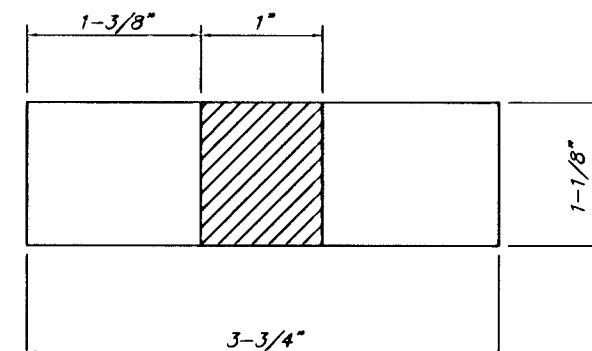


SECTION VIEW

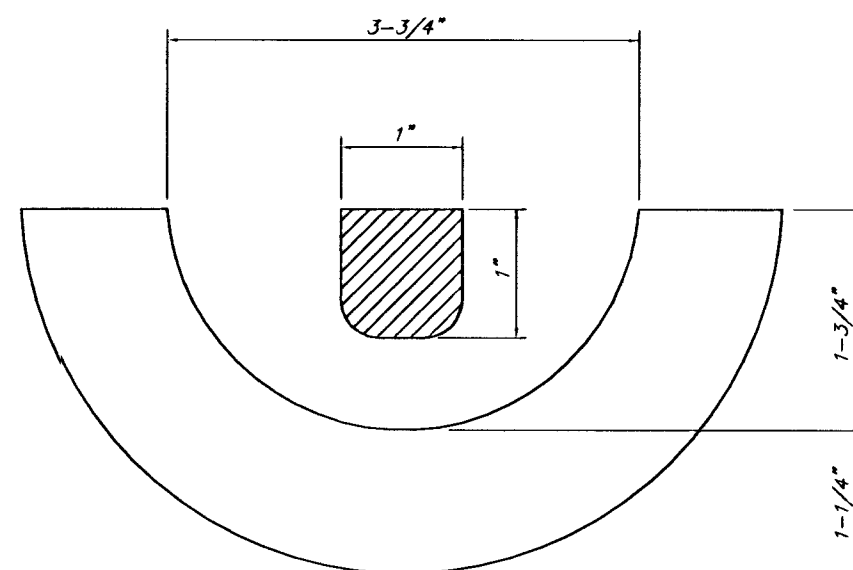
CHECKERED PATTERN TOP

CLOSED PICKHOLE (SEE DETAIL)

PICKHOLE DETAIL



TOP VIEW



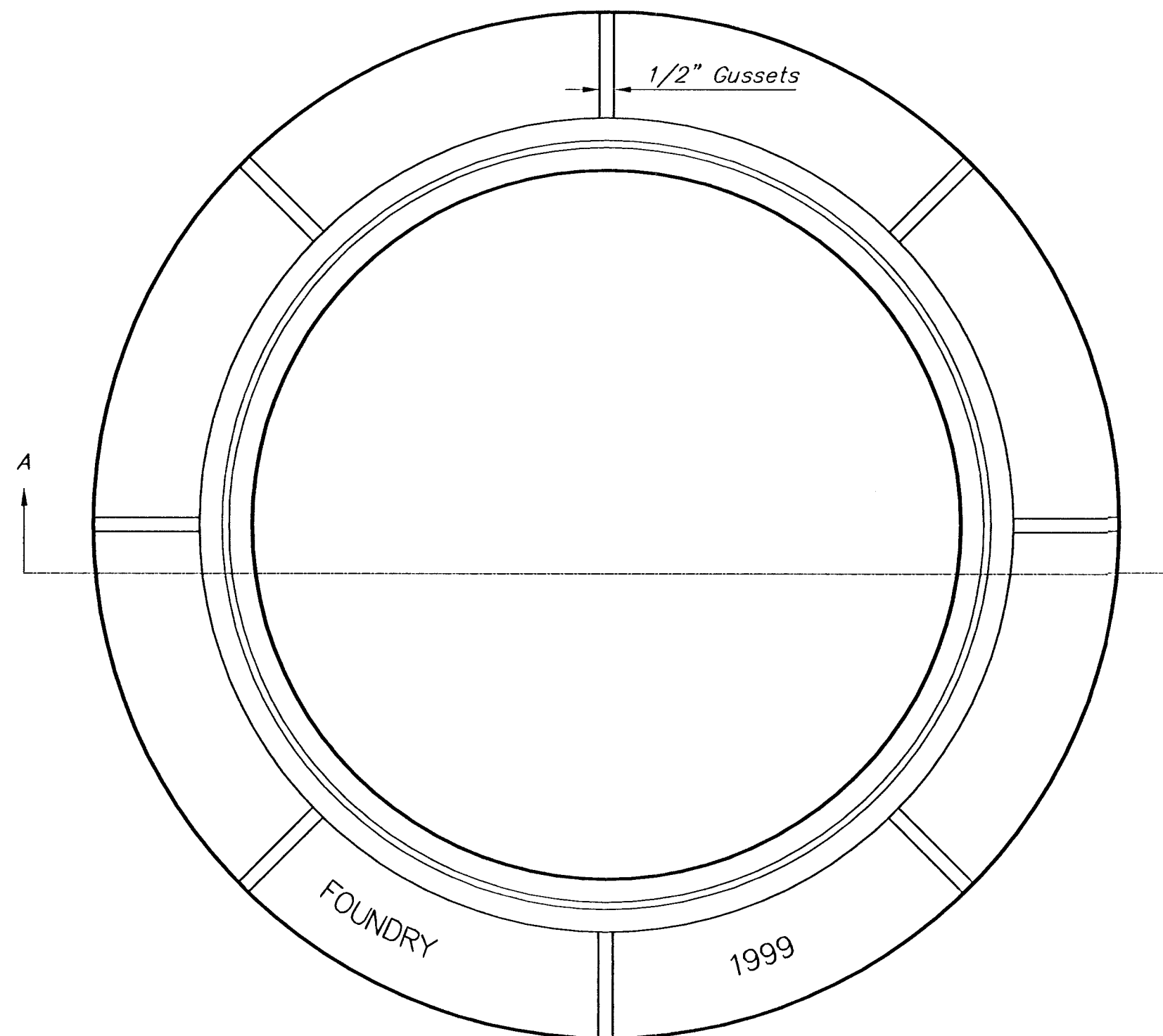
SECTION VIEW

MANHOLE FRAME AND COVER DETAIL

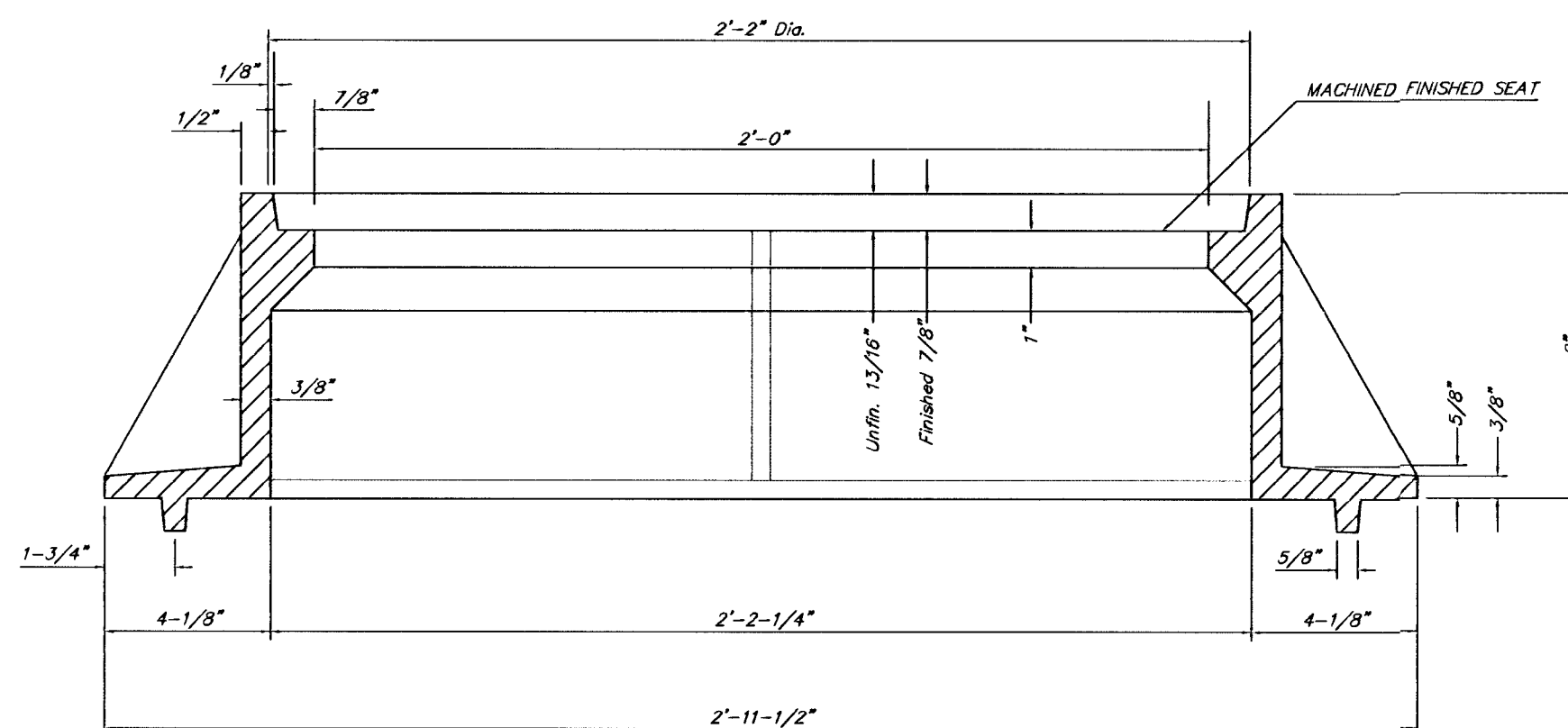
ADOPTED AS STANDARD DESIGN BY
CITY OF WICHITA, KANSAS

MANHOLE FRAME

Weight = 145 Lbs.



TOP VIEW



SECTION A-A

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.

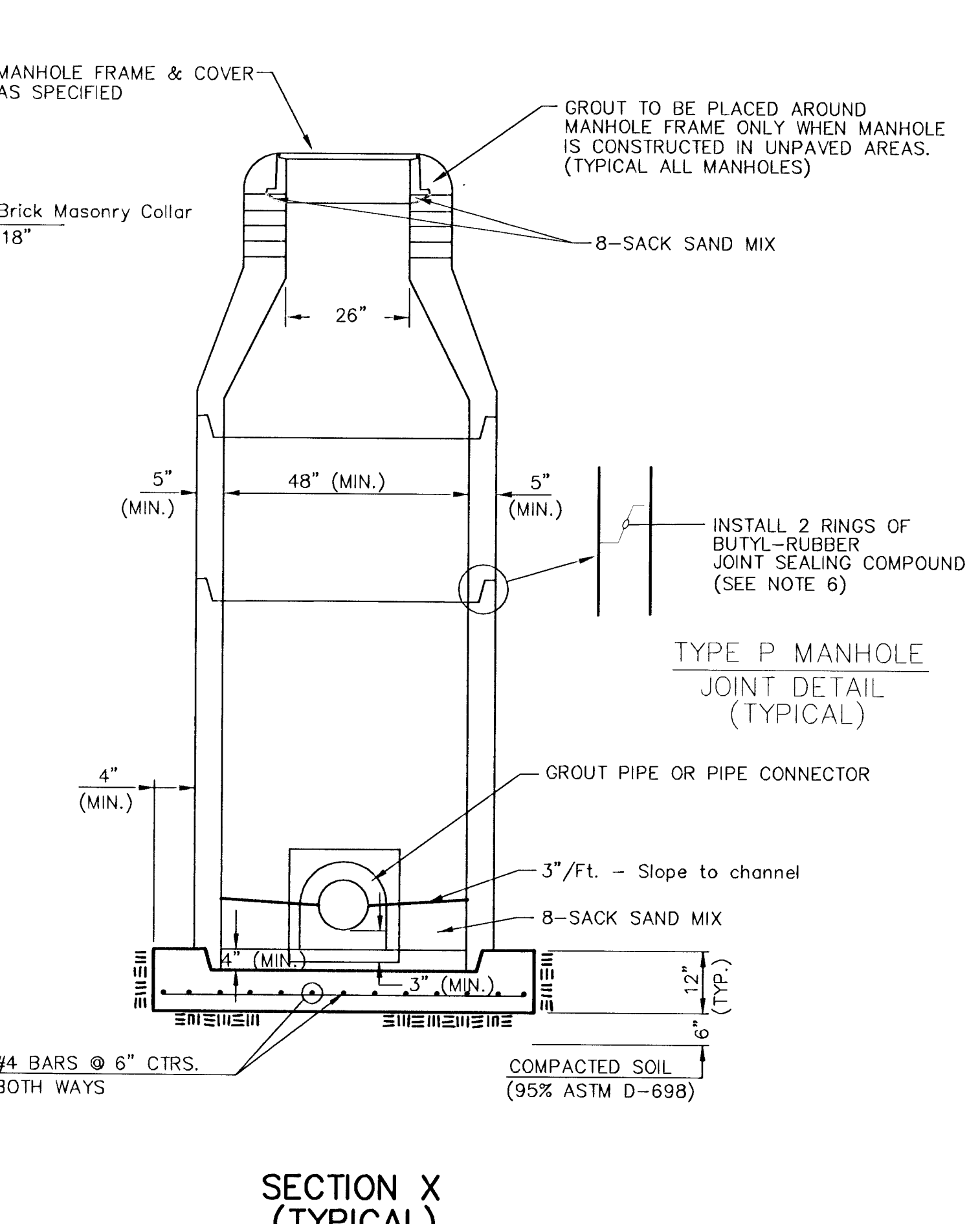
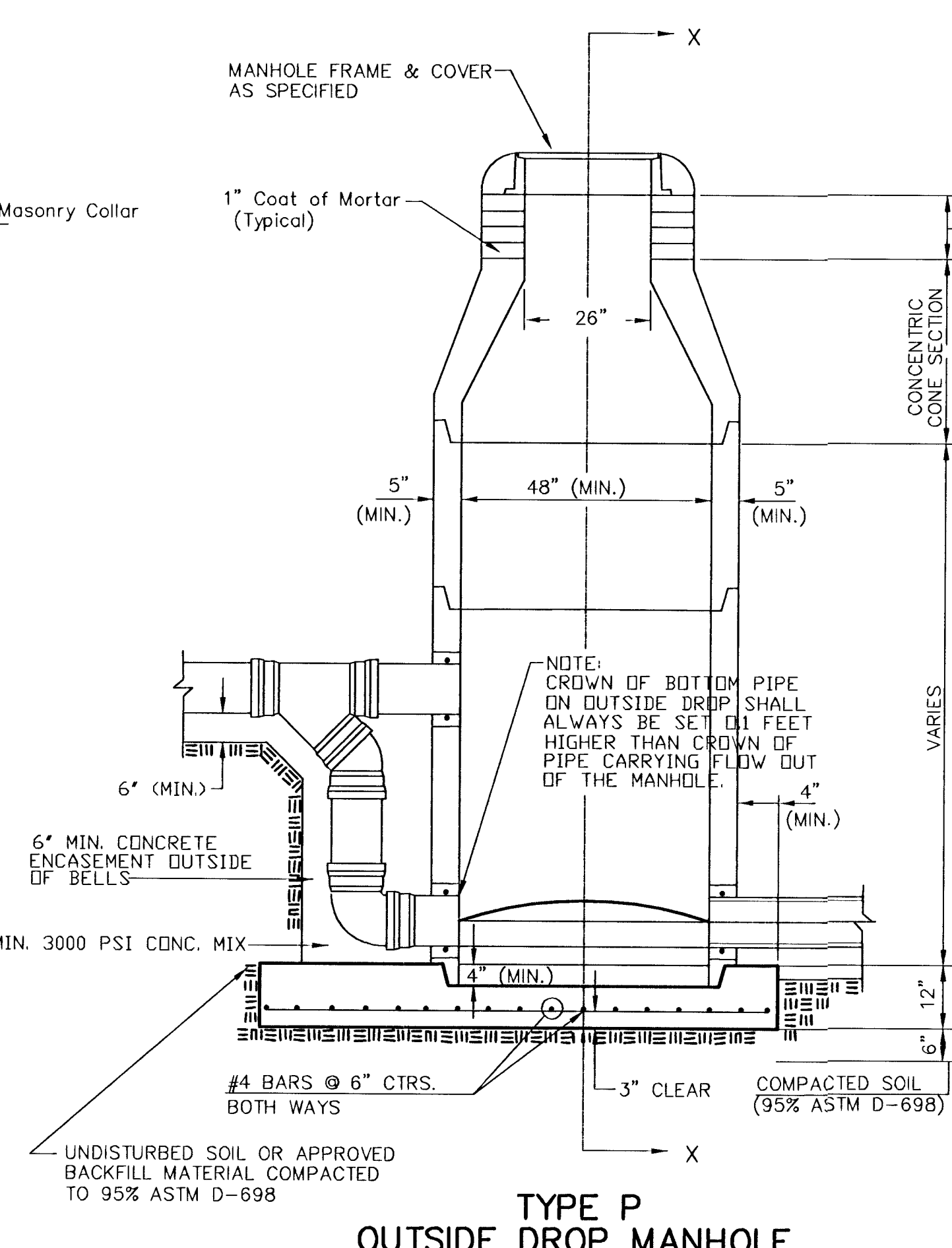
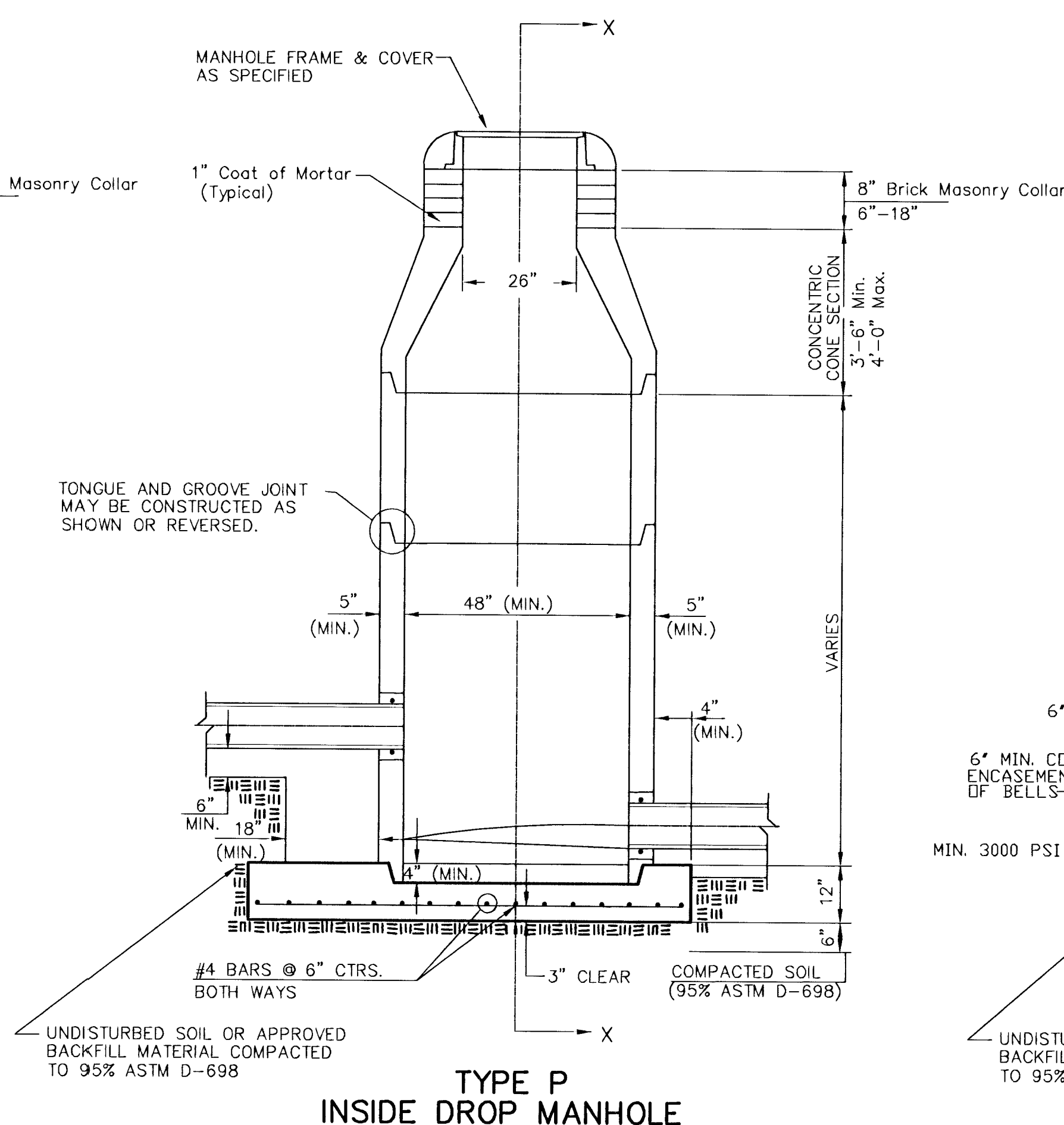
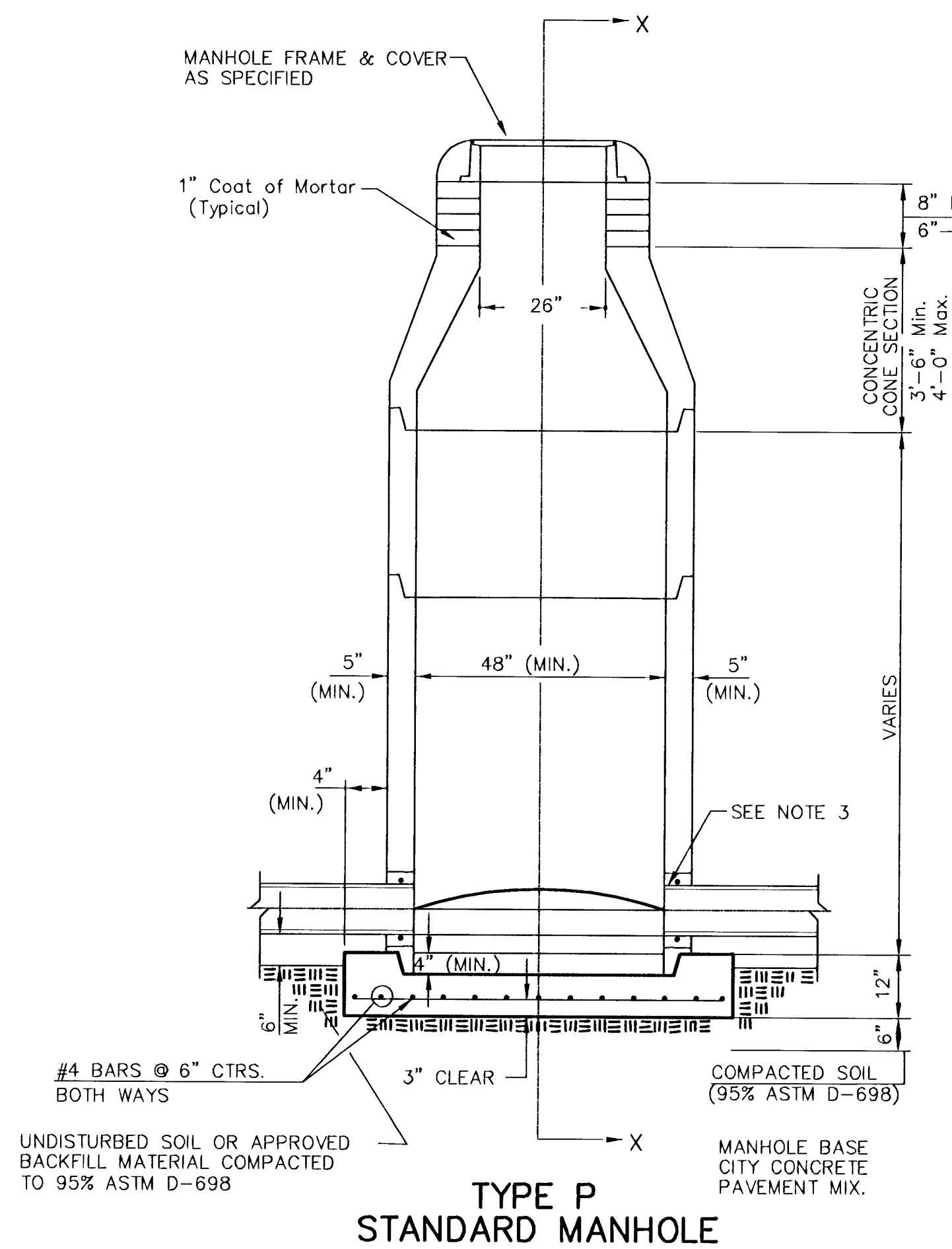
PROJECT NUMBER 488-76-245-83388		SHEET NAME MHRING	ENGINEERING DIRECTORY F:\College Hill\Details	
DESIGN C.O.W	DRAWN STAFF	APPROVED	DATE March 2002	SCALE NONE
		BAUGHMAN NO 01-12-E182		

COLLEGE HILL SQUARE
**STANDARD DETAILS for
MANHOLE RING AND COVER**
STORM WATER DRAINAGE IMPROVEMENTS AND INCIDENTAL SANITARY SEWER RELOCATION

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

SHEET
14
OF
26

SEWER APPURTENANCES DETAILS



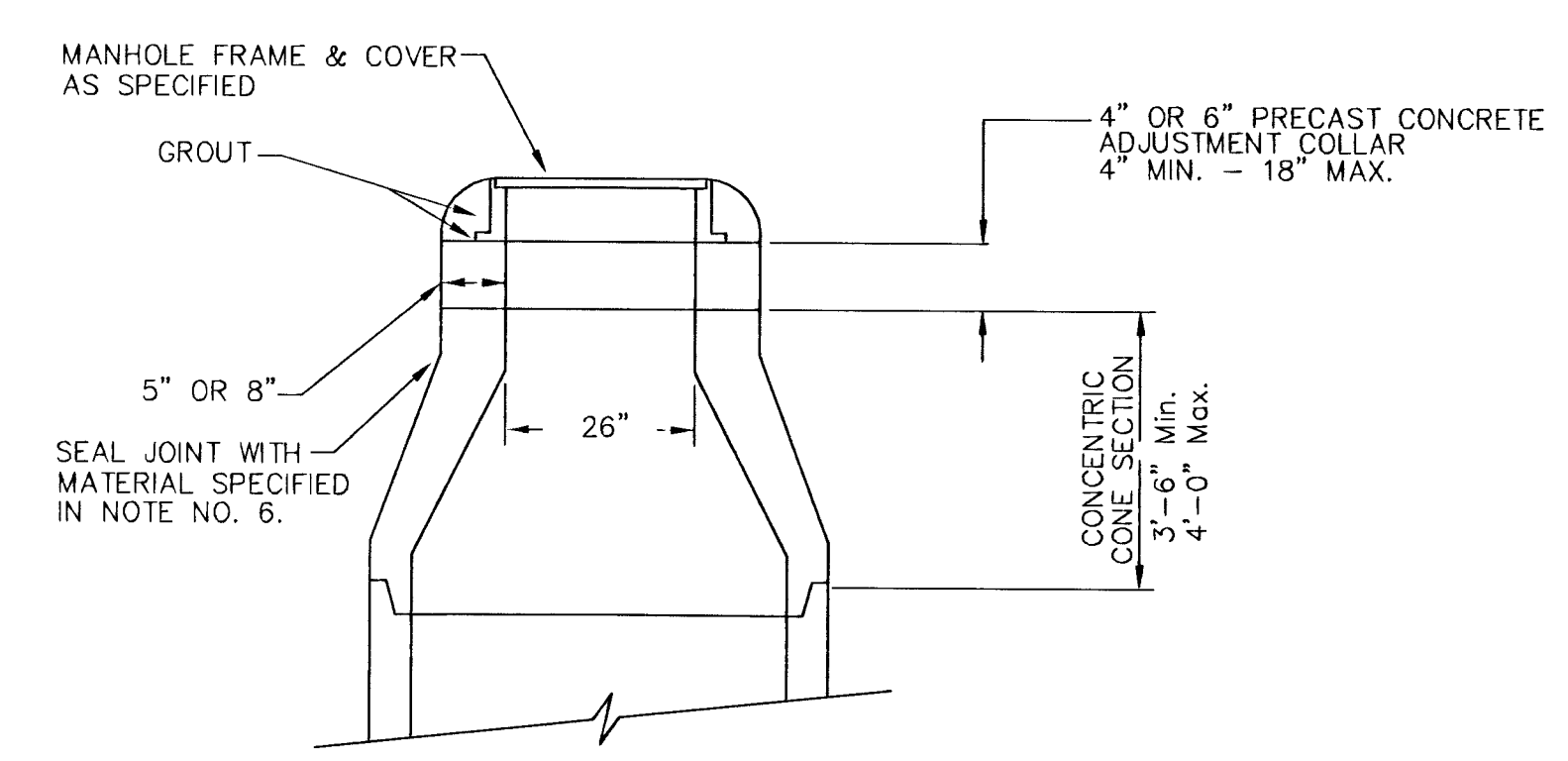
GENERAL NOTES

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 NIEMEC 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.

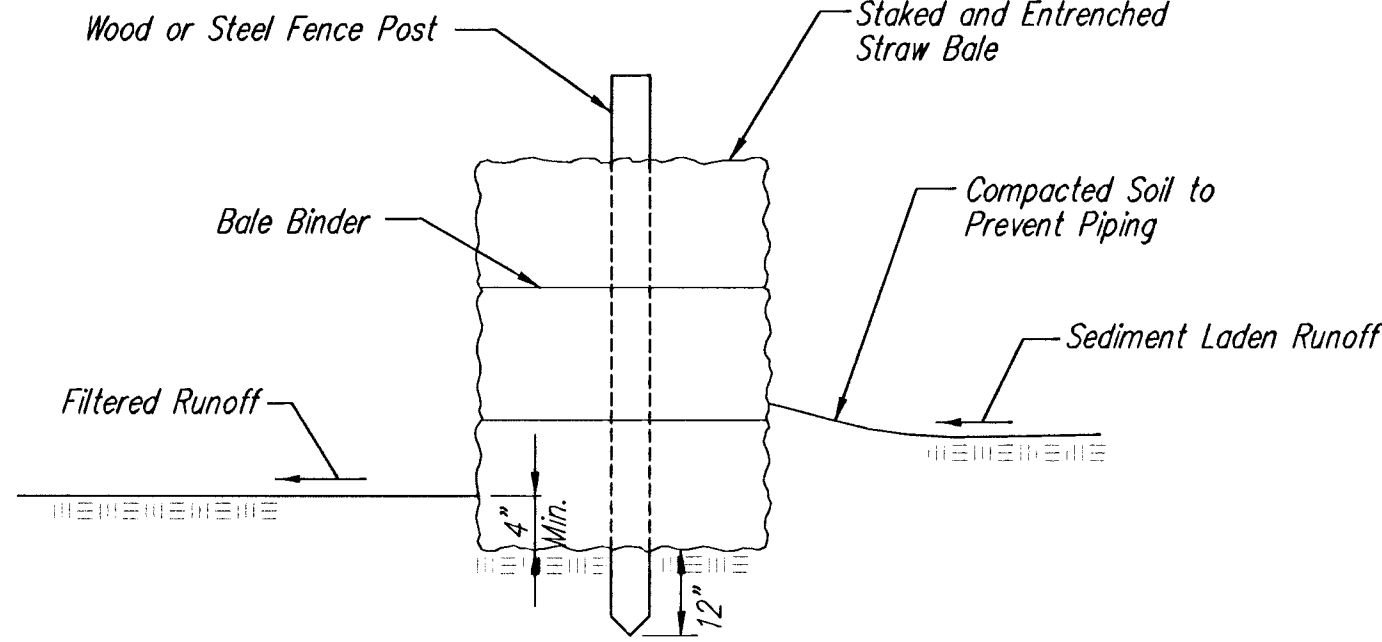
- MANHOLE COVER CASTINGS AND MANHOLE FRAME CASTINGS SHALL CONFORM TO THE REQUIREMENTS AS INDICATED IN THE STANDARD SPECIFICATIONS AND AS SHOWN IN THE STANDARD DETAIL DRAWING.
- THE VERTICAL DROP IN INSIDE DROP MANHOLES SHALL NOT EXCEED 2' FOR INFLOWING PIPES SIZED 12" OR SMALLER AND 2' FOR INFLOWING 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.



PROJECT NUMBER 468-76-245-83389			SHEET NAME PMH		ENGINEERING DIRECTORY F:\College Hill\Details	
DESIGN ENGINEER	DRAWN STAFF	APPROVED	DATE Feb 2002	SCALE NONE	BAUGHMAN NO 01-12.E182	

COLLEGE HILL SQUARE TYPE "P" MANHOLE DETAIL			STORM WATER DRAINAGE IMPROVEMENTS AND INCIDENTAL SANITARY SEWER RELOCATION		
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BAUGHMAN COMPANY, P.A. ENGINEERING, SURVEYING, & PLANNING 316-262-7271 • 315 ELLIS • WICHITA, KANSAS 67211			SHEET 15 OF 26
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STRAW BALE BARRIERS

Material Specification:

Bale slope barriers may 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:

A slope barrier should be used at the toe of a slope when a ditch does not exist. The slope barrier should be placed on nearly level ground 5' to 10' away from the toe of a slope. The barrier is placed away from the toe of the slope to provide adequate storage for settling out sediment. When practicable, bale slope barriers should be placed along contours to avoid a concentration of flow. Bale slope barriers can also be placed along right-of-way fence lines to keep sediment from crossing onto adjacent property. When placed in this manner, the slope barrier will not likely follow contours.

Proper installation method:

Excavate a trench the length of the planned slope barrier that is 4" deep and a bale's width wide. Make sure that the trench is excavated along a single contour. When practicable, slope barriers should be placed along contours to avoid a concentration of flow. Place the soil on the upslope side of the trench for later use. Place the bales in the trench, making sure that they are butted tightly. Two stakes should be driven through each bale along the centerline of the ditch check, 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 upslope side of the check and compact it. The compacted soil should be no more than 3" to 4" deep.

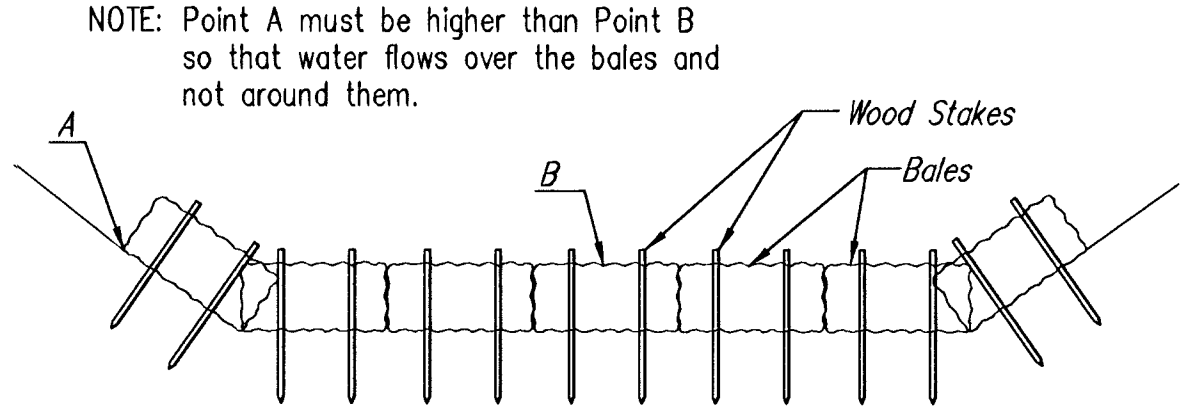
List of common placement/installation mistakes to avoid:

When practicable, do not place bale slope barriers across contours. Slope barriers should be placed along contours to avoid a concentration of flow. Concentrated flow over a slope barrier creates a scour hole on the downslope side of the barrier. The scour hole eventually undermines the bales and the barrier fails. Do not place bale slope barriers in areas with shallow soils underlain by rock. If the barrier is not anchored sufficiently, it will wash out. Bale slope 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 slope barriers should be inspected every 7 days and within 24 hours of a rainfall of 1/2" or more. The following is a list of questions that should be addressed during each inspection:

- Are there any points along the slope barrier where water is concentrating?
- Does water flow under the slope 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 slope barrier?



STRAW BALE DITCH CHECKS

Material Specification:

Bale ditch checks may 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. Optional: The downstream scour apron should be constructed of a double-netted straw erosion-control blanket at least 6' wide. Optional: The metal landscape staples used to anchor the erosion-control blanket should be at least 8" long.

Placement:

Bale ditch checks should be placed perpendicular to the flowline of the ditch. The ditch check should extend far enough so that the ground level at the ends of the check is higher than the top of the lowest center bale. This prevents water from flowing around the check. Checks should not be placed in ditches where high flows are expected. Rock checks should be used instead. Bales should be placed in ditches with slopes of 6% or less. For slopes steeper than 6%, rock checks should be used. The following table provides check spacing for a given ditch grade:

Ditch grade (%)	Check Spacing (feet)
0.5	200
1.0	200
2.0	100
3.0	65
4.0	50
5.0	40
6.0	30

Proper installation method:

Excavate a trench perpendicular to the ditch flowline that is 4" deep and a bale's width wide. Extend the trench in a straight line along the entire length of the proposed ditch check. Place the soil on the upstream side of the trench—it will be used later. Optional: On the downstream side of the trench, roll out a length of erosion-control blanket (scour apron) equal to the length of the trench. Place the upstream edge of the erosion-control blanket along the bottom upstream edge of the trench. The erosion control blanket should be anchored in the trench with one row of 8" landscape staples placed on 18" centers. The remainder of the erosion-control blanket (the portion that is not lying in the trench) will serve as the downstream scour apron. This section of the blanket should be anchored to the ground with 8" landscape staples placed around the perimeter of the blanket on 18" centers. The remainder of the blanket should be anchored using two evenly spaced rows of 8" landscape staples on 18" centers placed perpendicular to the flowline of the ditch. Place the bales in the trench, making sure that they are butted tightly. Two stakes should be driven through each bale along the centerline of the ditch check, 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 upstream side of the check and compact it. The compacted soil should be no more than 3" to 4" deep and extend upstream no more than 24".

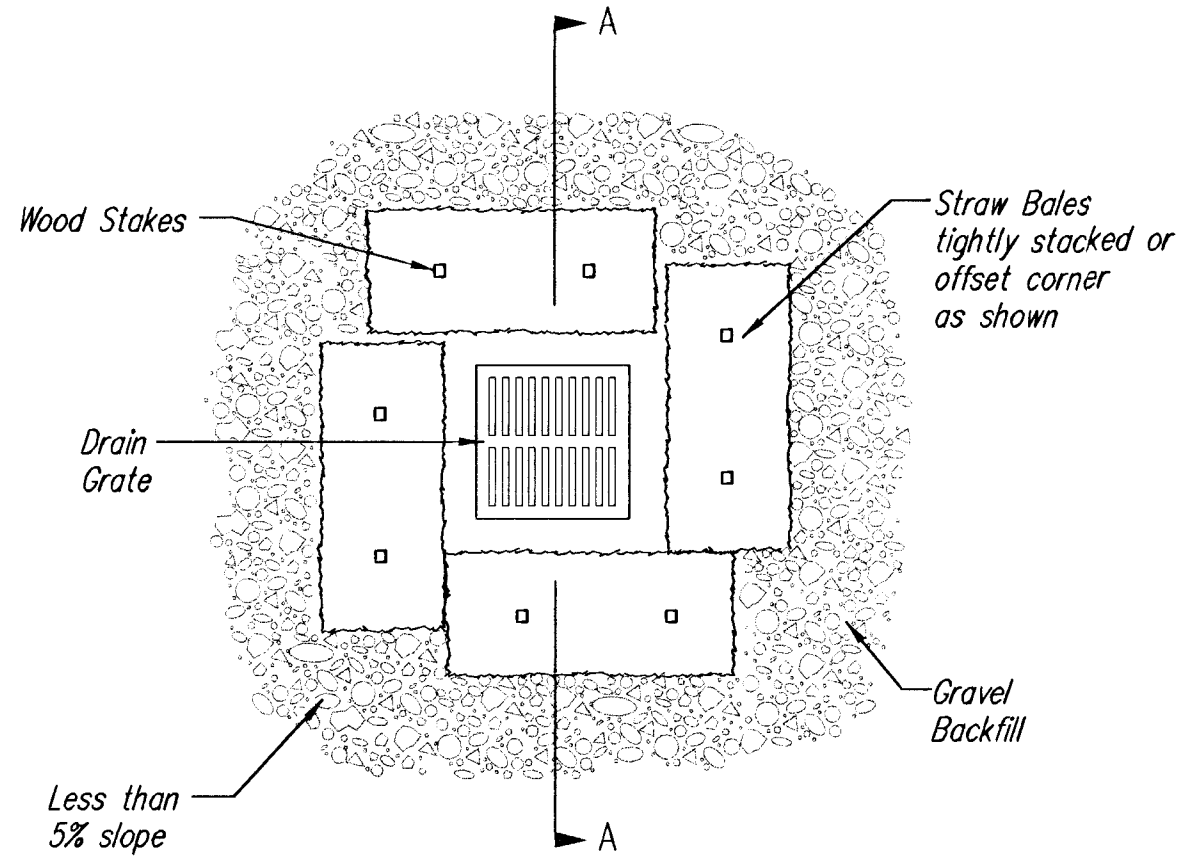
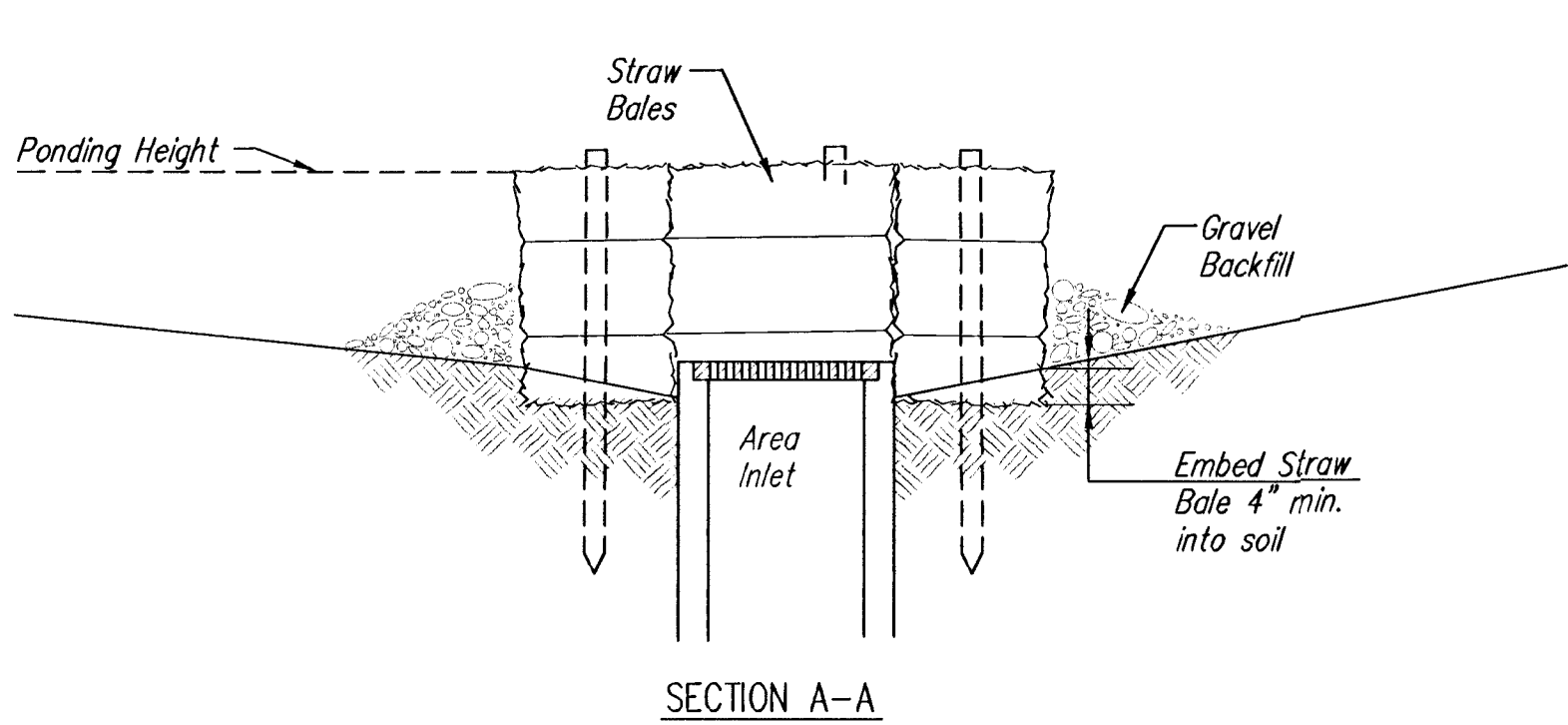
List of common placement/installation mistakes to avoid:

Do not place a bale ditch check directly in front of a culvert outlet. It will not stand up to the concentrated flow. Do not place bale ditch checks in ditches that will likely experience high flows. They will not stand up to concentrated flow. Follow prescribed ditch-check spacing guidelines. If spacing guidelines are exceeded, erosion will occur between the ditch checks. Do not allow water to flow around the ditch check. Make sure that the ditch check is long enough so that the ground level at the ends of the check is higher than the top of the lowest center bale. Do not place bale ditch checks in channels with shallow soils underlain by rock. If the check is not anchored sufficiently, it will wash out. Bale ditch checks must be dug into the ground. Bales at ground level do not work because they allow water to flow under the check.

Inspection and Maintenance:

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

- Does water flow around the ditch check?
- Does water flow under the ditch check?
- Does water flow through spaces between abutting bales?
- Are any bales and/or scour aprons (optional) dislodged?
- Are bales decomposing due to age and/or water damage?
- Does sediment need to be removed from behind the ditch check?



STRAW BALE BARRIERS FOR AREA INLETS
(INLET PROTECTION)

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.

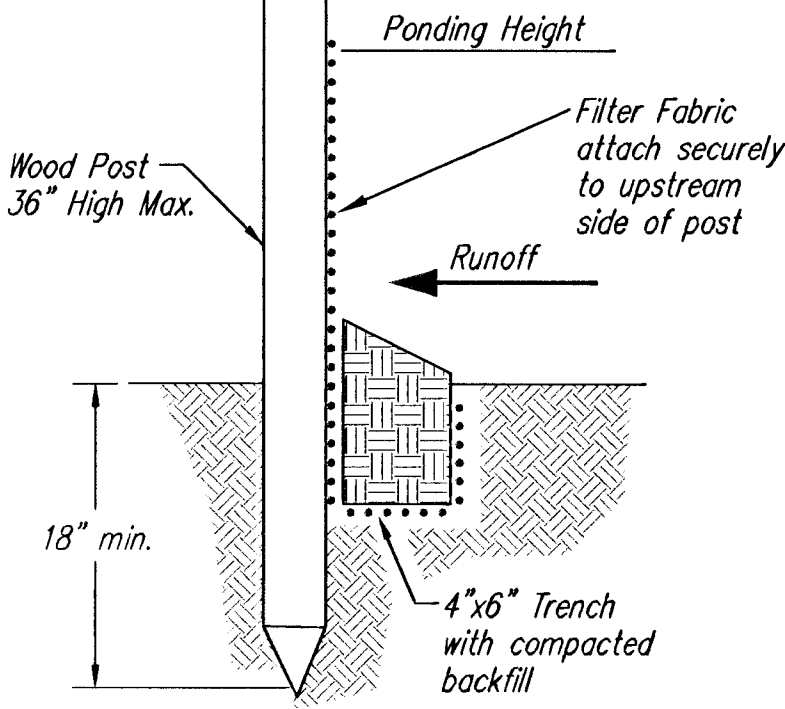
List of common placement installation mistakes to avoid:

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?



SILT FENCE BARRIERS

SILT FENCE BARRIERS

Material Specification:

Silt fence fabric should conform to the AASHTO M288 96 silt fence specification. The posts used to support the silt fence fabric should be a hardwood material with the following minimum dimensions: 2" square (nominal) by 4' long. Silt fence fabric should be attached to the wooden posts with staples, wire, zip ties, or nails.

Placement:

A slope barrier should be used at the toe of a slope when a ditch does not exist. The slope barrier should be placed on nearly level ground 5' to 10' away from the toe of a slope. The barrier is placed away from the toe of the slope to provide adequate storage for settling out sediment. When practicable, silt fence slope barriers should be placed along contours to avoid a concentration of flow. Silt fence slope barriers can also be placed along right-of-way fence lines to keep sediment from crossing onto adjacent property. When placed in this manner, the slope barrier will not likely follow contours.

Proper installation method:

Excavate a trench the length of the planned slope barrier that is 6" deep by 4" wide. Make sure that the trench is excavated along a single contour. When practicable, slope barriers should be placed along contours to avoid a concentration of flow. Place the soil on the upslope side of the trench for later use. Roll out a continuous length of silt fence fabric on the downslope side of the trench. Place the edge of the fabric in the trench starting at the top upslope edge. Line all three sides of the trench with the fabric. Backfill over the fabric in the trench with the excavated soil and compact. After filling the trench, approximately 24" to 36" of silt-fence fabric should remain exposed. Lay the exposed silt fence upslope of the trench to clear an area for driving in the posts. Just downslope of the trench, drive posts into the ground to a depth of at least 18". Place posts no more than 4' apart. Attach the silt fence to the anchored post with staples, wire, zip ties, or nails.

List of common placement/installation mistakes to avoid:

When practicable, do not place silt fence slope barriers across contours. Slope barriers should be placed along contours to avoid a concentration of flow. When the flow concentrates, it overtops the barrier and the silt fence slope barrier quickly deteriorates. Do not place silt-fence posts on the upslope side of the silt fence fabric. In this configuration, the force of the water is not restricted by the posts, but only by the staples (wire, zip ties, iiails, etc.). The silt fence will rip and fail. Do not place silt fence slope barriers in areas with shallow soils underlain by rock. If the barrier is not sufficiently anchored, it will wash out. Silt fence slope barriers must be dug into the ground—silt fence at ground level does not work because water will flow underneath.

Inspection and Maintenance:

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

- Are there any points along the slope barrier where water is concentrating?
- Does water flow under the slope barrier?
- Do the silt fences sag excessively?
- Has the silt fence torn or become detached from the posts?
- Does sediment need to be removed from behind the slope barrier?

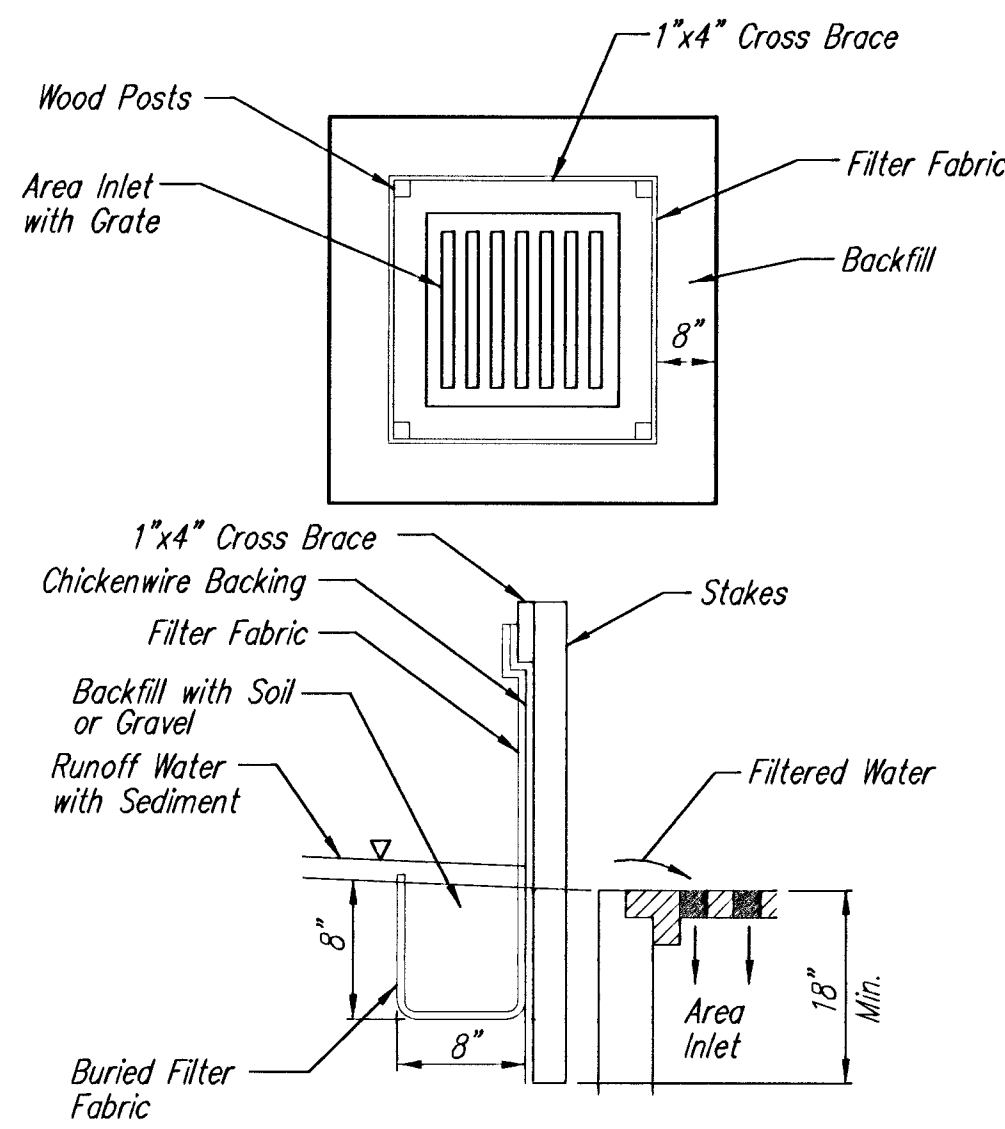


SOIL EROSION
BMP DETAILS

CHRISTOPHER M. CARRIER, P.E.
STORM WATER ENGINEER

PROJECT NUMBER	OCA NO.
468-93389	792367

DATE	SHEET 16 OF 26
March 2002	



SILT FENCE BARRIERS FOR AREA INLETS
(INLET PROTECTION)

Material Specification:

Silt fence fabric should conform to the AASHTO M288 96 silt fence specification. The wire or polymeric mesh backing used to help support the silt fence fabric should conform to the AASHTO M288 96 silt fence specification. The posts used to support the silt fence fabric should be a hardwood material with the following minimum dimensions: 2" square (nominal) by 4' long. The material used to frame the tops of the posts should be 1" by 4" boards. Silt fence fabric and support backing should be attached to the wooden posts and frame with staples, wire, zip ties, or nails.

Placement:

Place a silt fence drop inlet barrier in a location where it is unlikely to be overtopped. Water should flow through silt fence, not over it. Silt fence barriers for area inlets often fail when repeatedly overtopped. When used as a barrier for area inlets, silt fence fabric and posts must be supported at the top by a wooden frame. When a silt fence barrier for area inlets 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 8" deep by 8" wide. Drive posts to a depth of at least 18" around the perimeter of the area inlet. The distance between posts should be 4' or less. If the distance between two adjacent corner posts is more than 4', add another post(s) between them. Connect the tops of all the posts with a wooden frame made of 1" by 4" boards. Use nails or screws for fastening. Attach the wire or polymeric-mesh backing to the outside of the post/frame structure with staples, wire, zip ties, or nails. Roll out a continuous length of silt fence fabric long enough to wrap around the perimeter of the area inlet. Add more length for overlapping the fabric joint. Place the edge of the fabric in the trench, starting at the outside edge of the trench. Line all three sides of the trench with the fabric. Backfill over the fabric in the trench with the excavated soil and compact. After filling the trench, approximately 24" to 36" of silt fence fabric should remain exposed. Attach the silt fence to the outside of the post/frame structure with staples, wire, zip ties, or nails. The joint should be overlapped to the next post.

Note: When a silt fence barrier for area inlet 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.

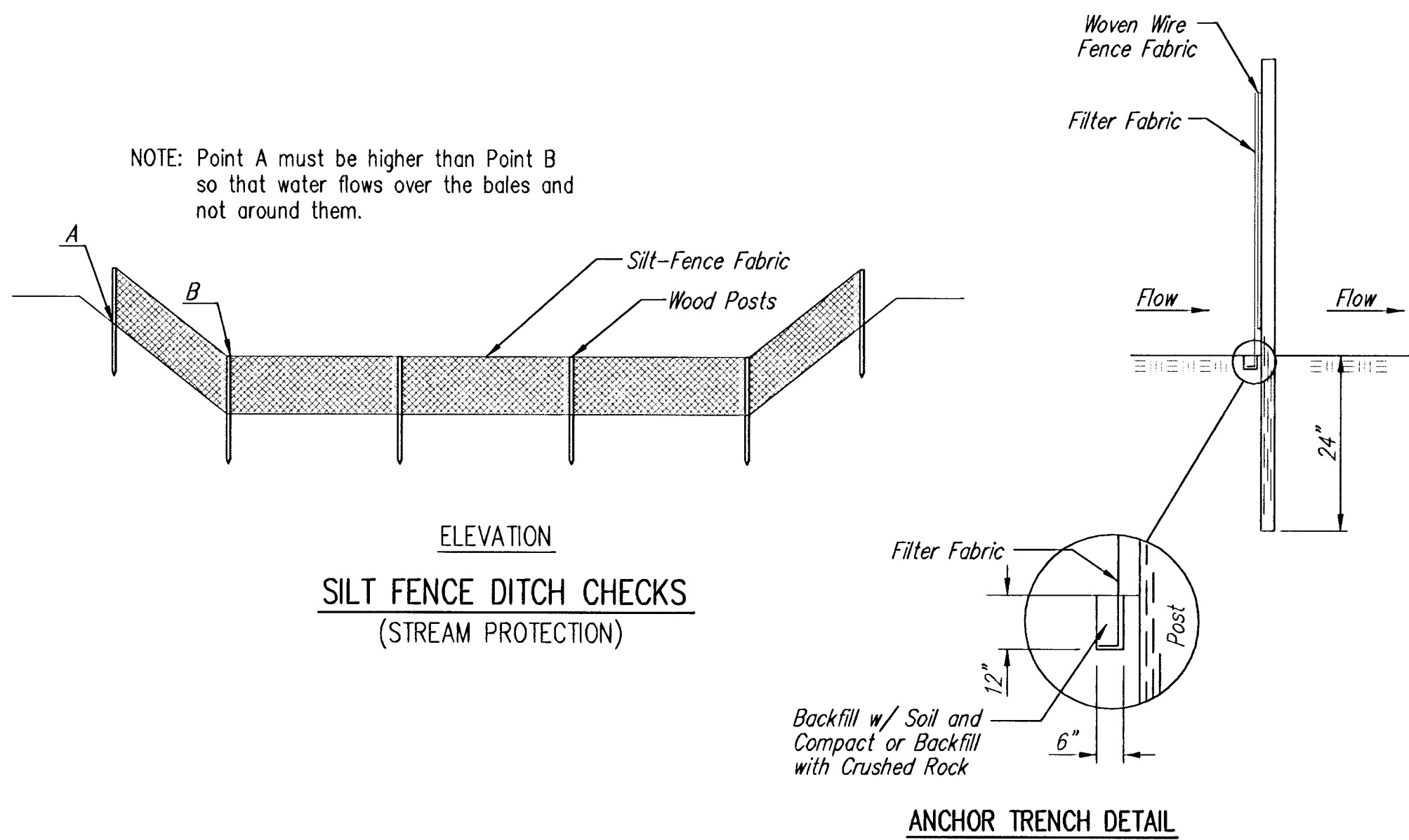
List of common placement/installation mistakes to avoid:

Water should flow through a silt fence barrier for area inlet-not over it. Place a silt fence barrier for area inlet in a location where it is unlikely to be overtopped. Silt fence barrier for area inlets often fail when repeatedly overtopped. Do not place posts on the outside of the silt fence barrier for area inlet. In this configuration, the force of the water is not resisted by the posts, but only by the staples (wire, zip-ties, nails, etc.). The silt fence will rip and fail. Do not install silt fence barrier for area inlets without framing the top of the posts. The corner posts around area inlets are stressed in two directions whereas a normal silt fence is only stressed in one direction. This added stress requires more support.

Inspection and Maintenance:

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

- Does water flow under the silt fence?
- Does the silt fence sag excessively?
- Has the silt fence torn or become detached from the posts?
- Does sediment need to be removed from behind the area inlet barrier?



Material Specification:

Silt fence fabric should conform to the AASHTO M288 96 silt fence specification. The posts used to support the silt fence fabric should be a hardwood material with the following minimum dimensions: 2" square (nominal) by 4' long. Silt fence fabric should be attached to the wooden posts with staples, wire, zip ties, or nails.

Placement:

Place silt fence in ditches where it is unlikely that it will be overtopped. Water should flow through a silt fence ditch check, not over it. Silt fence ditch checks often fail when overtopped. Silt fence ditch checks should be placed perpendicular to the flowline of the ditch. The silt fence should extend far enough so that the ground level at the ends of the fence is higher than the top of the low point of the fence. This prevents water from flowing around the check. Checks should not be placed in ditches where high flows are expected. Rock checks should be used instead. Silt fence should be placed in ditches with slopes of 6% or less. For slopes steeper than 6%, rock checks should be used.

The following table provides check spacing for a given ditch grade:

Ditch Check Ditch grade (%)	Spacing Check Spacing (feet)
0.5	200
1.0	200
2.0	100
3.0	65
4.0	50
5.0	40
6.0	30

Proper installation method:

Excavate a trench perpendicular to the ditch flowline that is at least 12" deep by 6" wide. Extend the trench in a straight line along the entire length of the proposed ditch check. Place the soil on the upstream side of the trench for later use. Roll out a continuous length of silt fence fabric on the downstream side of the trench. Place the edge of the fabric in the trench starting at the top upstream edge of the trench. Line two sides of the trench with the fabric as shown on detail. Backfill over the fabric in the trench with the excavated soil and compact. After filling the trench, approximately 24" to 36" of silt fence fabric should remain exposed. Lay the exposed silt fence on the upstream side of the trench to clear an area for driving in the posts. Just downstream of the trench, drive posts into the ground to a depth of at least 24". Place posts no more than 4' apart. Attach the silt fence to the anchored post with staples, wire, zip ties, or nails.

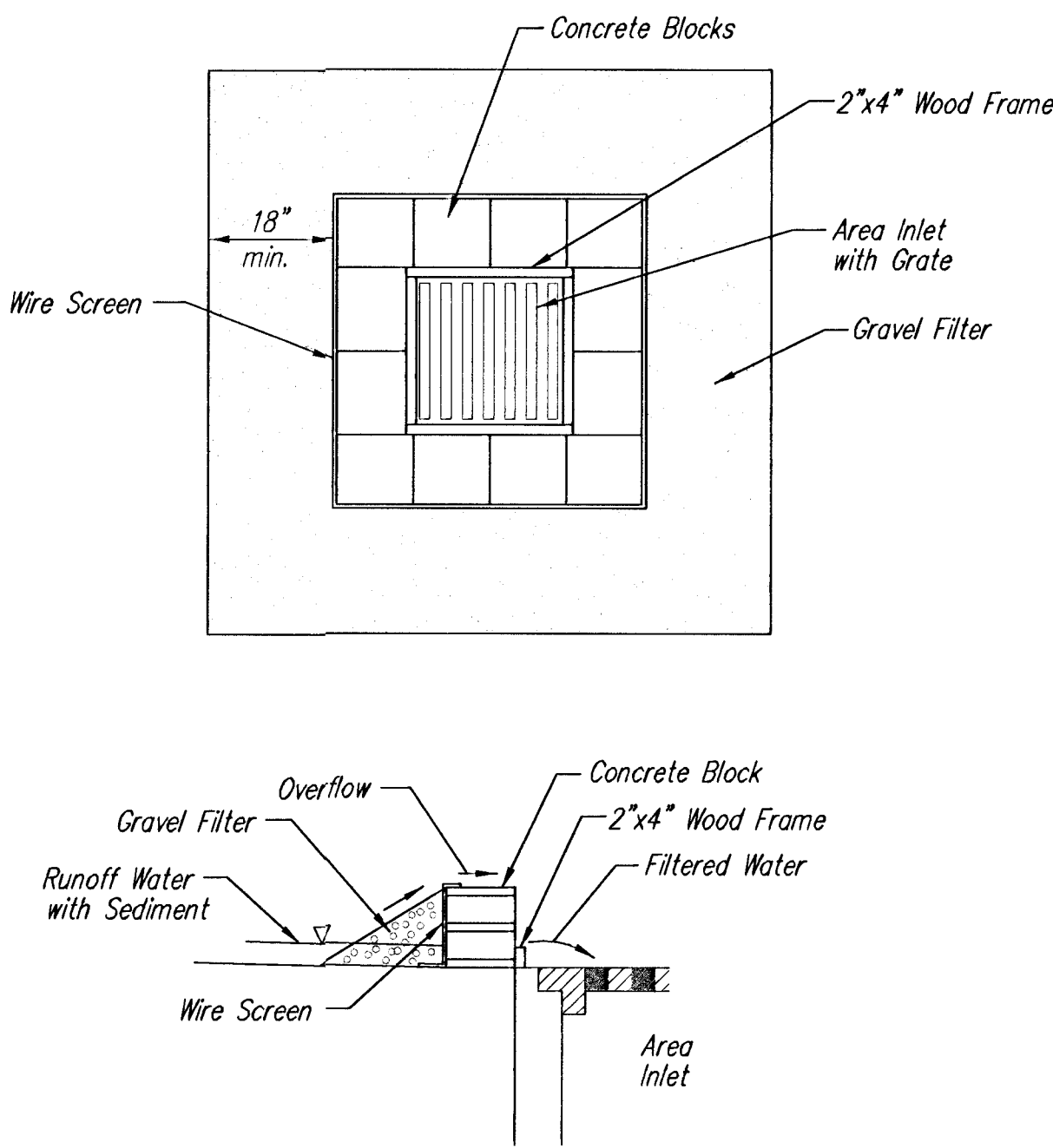
List of common placement/installation mistakes to avoid:

Water should flow through a silt fence ditch check-not over it. Place silt fence in ditches where it is unlikely that it will be overtopped. Silt fence installations quickly deteriorate when water overtops them. Do not place silt fence posts on the upstream side of the silt fence fabric. In this configuration, the force of the water is not restricted by the posts, but only by the staples (wire, zip ties, nails, etc.). The silt fence will rip and fail. Do not place a silt fence ditch check directly in front of a culvert outlet. It will not stand up to the concentrated flow. Do not place silt fence ditch checks in ditches that will likely experience high flows. They will not stand up to concentrated flow. Follow prescribed ditch check spacing guidelines. If spacing guidelines are exceeded, erosion will occur between the ditch checks. Do not allow water to flow around the ditch check. Make sure that the ditch check is long enough so that the ground level at the ends of the fence is higher than the low point on the top of the fence. Do not place silt fence ditch checks in channels with shallow soils underlain by rock. If the check is not anchored sufficiently, it will wash out.

Inspection and Maintenance:

Silt fence ditch checks should be inspected every 7 days and within 24 hours of a rainfall of 1/2" or more. The following is a list of questions that should be addressed during each inspection:

- Does water flow around the ditch check?
- Does water flow under the ditch check?
- Does the silt fence sag excessively?
- Has the silt fence torn or become detached from the posts?
- Does sediment need to be removed from behind the ditch check?



CONCRETE BLOCK FILTER FOR AREA DRAIN
(INLET PROTECTION)

Gravel barriers provide little filtering of large inflow waters. However, when installed correctly and maintained, they can effectively treat low runoff flows.

Placement of gravel filters around area drains must be completed in a manner that will not cause local flooding.

Gravel filters can be used if the immediate and adjacent area to the area drain consists of soil or pavement.

Only gravel filters are to be installed on top of the pavement.

Instructions for Installing:

- STEP 1: Place concrete blocks around the grate. The blocks can be stacked one or two high and should be supported by a 2"x4" board.
- STEP 2: Wrap 1/2" mesh wire screen around the concrete blocks.
- STEP 3: Place 1" to 1-1/2" diameter rock around the blocks and wire screen. Be sure the rock extends down from the top of the concrete block.
- STEP 4: To prevent damage to vehicles, signs warning drivers about the structures may be necessary.

An alternative method is use of gravel bags that are supported to prevent collapsing.

Use of rock having diameters smaller than 1" may result in clogging of pores and reduce the amount of water flowing into an inlet.

Maintenance:

All gravel filters installed around area drains should be inspected and repaired after each runoff event. Sediment should be removed when material is within 3" of the top of any block. Periodically, the gravel should be raked to increase infiltration and filtering of runoff waters. Accumulated sediment is to be removed immediately from roads and streets after every runoff event.



**SOIL EROSION
BMP DETAILS**

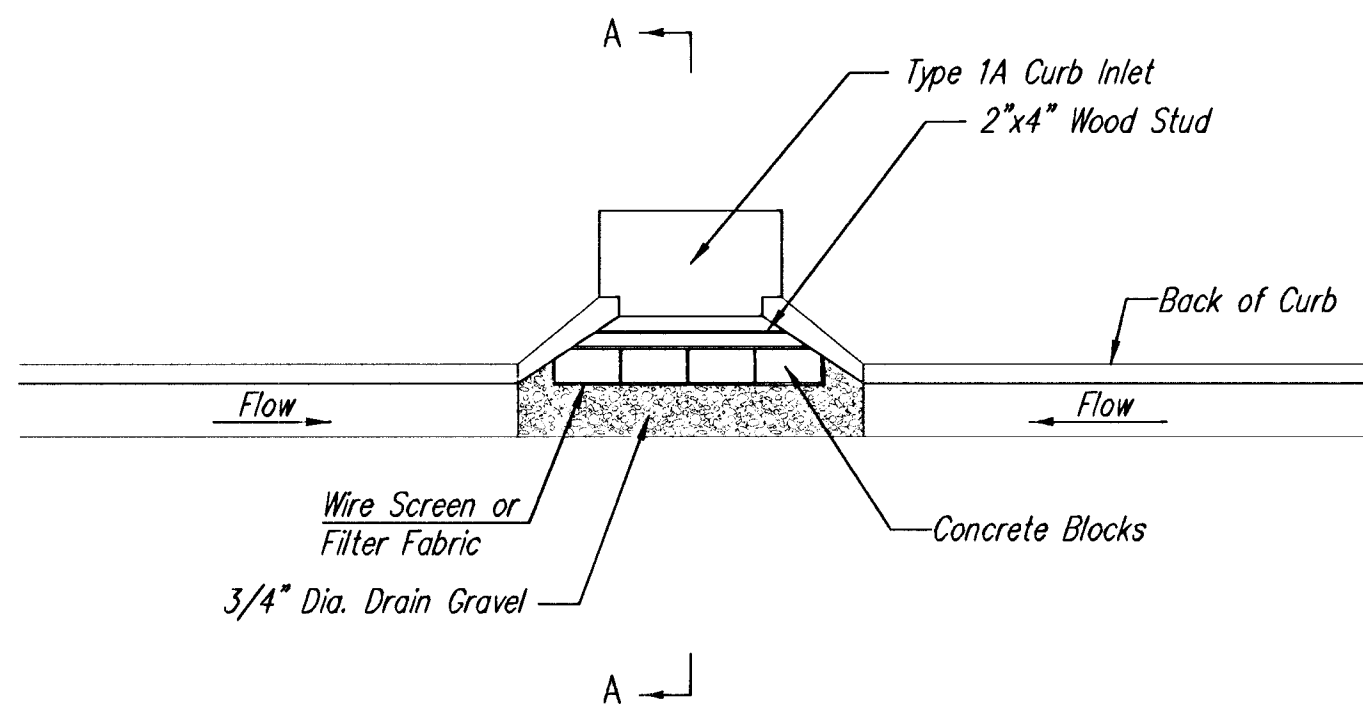
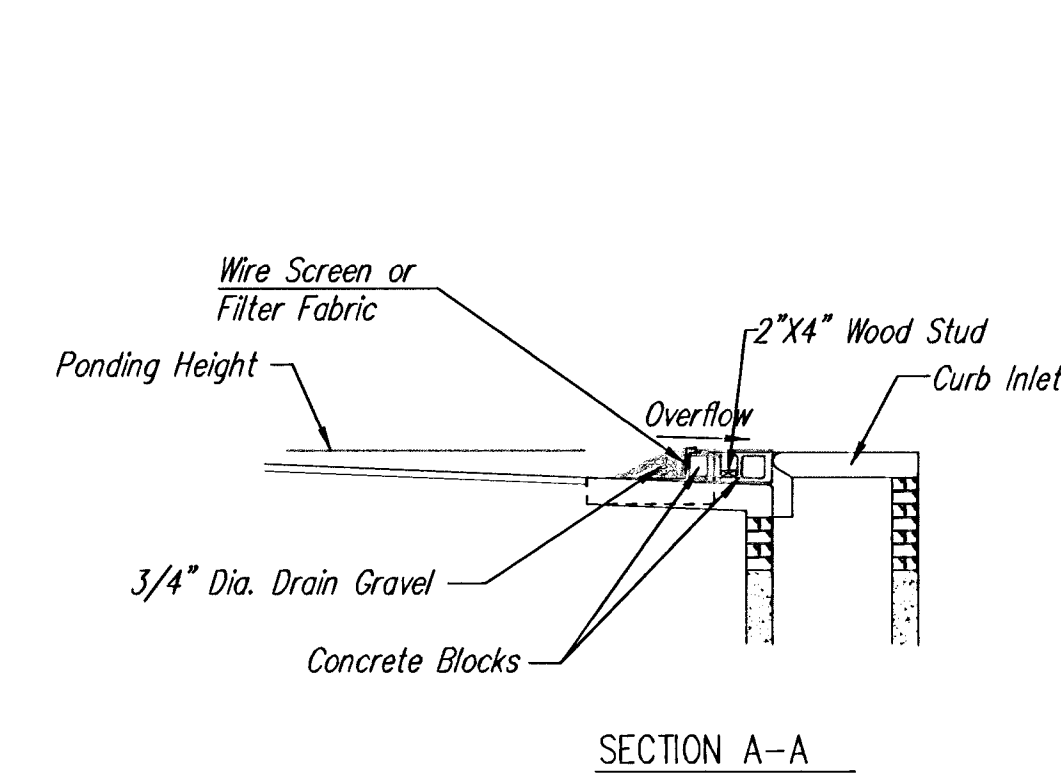
CHRISTOPHER M. CARRIER, P.E.
STORM WATER ENGINEER

PROJECT NUMBER
468-83389

OCA NO.
-792367

DATE
March 2002

SHEET 17 OF 26



CURB INLET GRAVEL FILTERS (INLET PROTECTION-RESIDENTIAL STREETS ONLY)

NOTE: Other types of curb inlet protection may be approved by the city so long as equal protection is provided.

A gravel inlet filter shall be installed at sump locations on residential streets. This type of protection is not to be used on arterial or collector streets at any time that it would pose an undue traffic hazard.

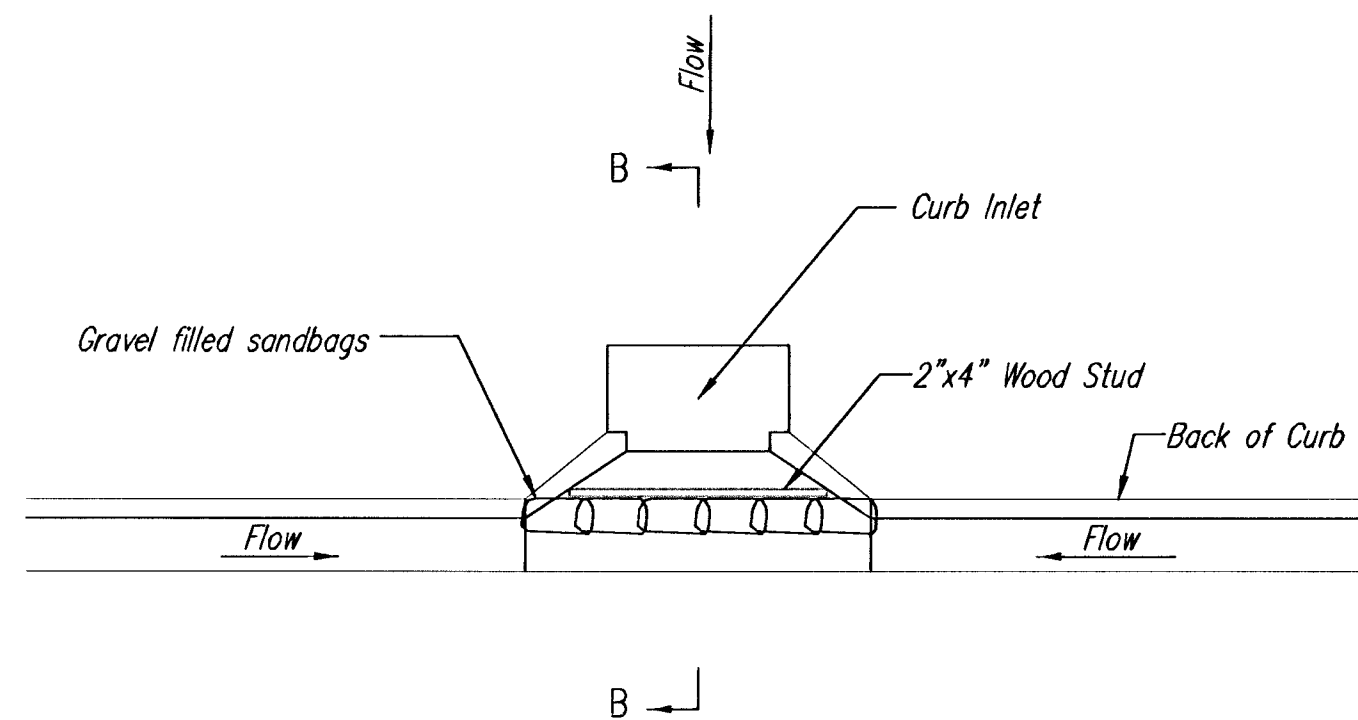
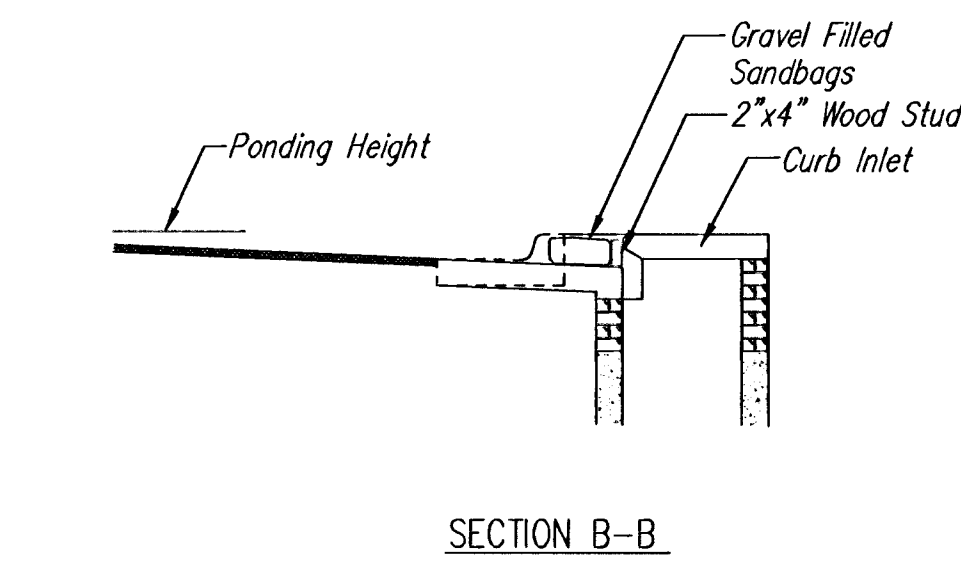
Instructions for Installing:

- STEP 1: Place concrete blocks around the inlet as shown on drawing. Insert 2x4 board as shown.
- STEP 2: Wrap 1/2" mesh wire screen around the concrete blocks.
- STEP 3: Place 1" to 1-1/2" diameter rock around the blocks and wire screen. Be sure the rock extends down from the top of the concrete block.
- STEP 4: To prevent damage to vehicles, signs warning drivers about the structures may be necessary. An alternative installation is the use of gravel bags supported by a 2"x4" board to prevent collapsing.

Use of rock with diameters smaller than 1" in the bag may result in clogging of pores and reduce the amount of water flowing into an inlet.

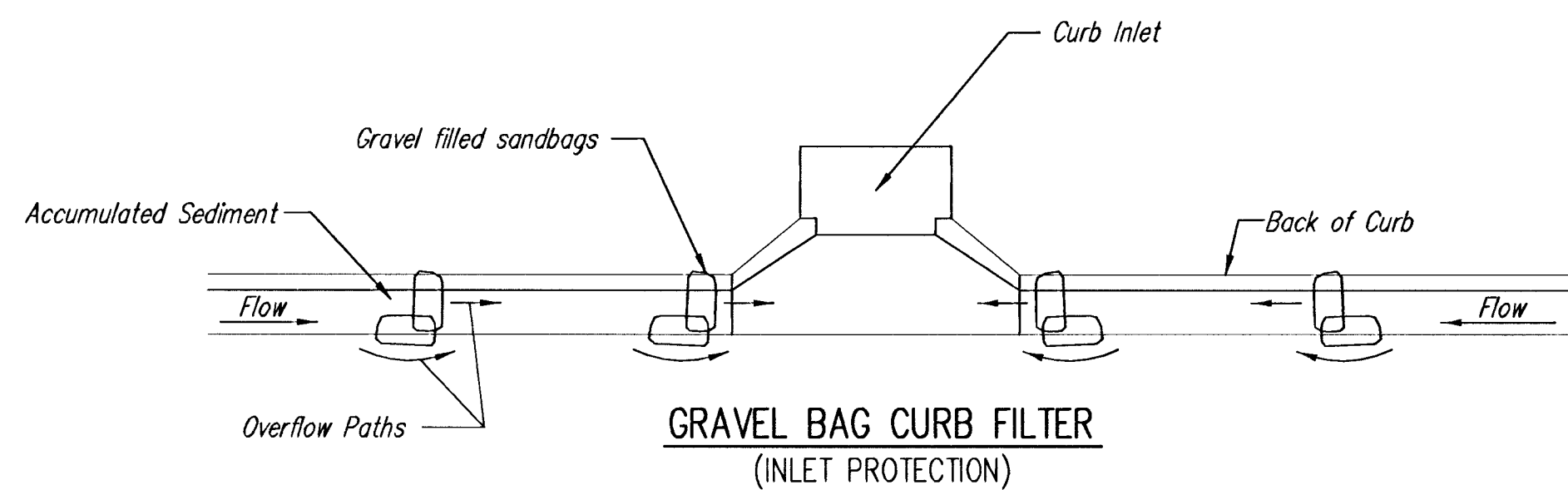
Maintenance:

All curb inlet gravel filters shall be inspected and repaired after each runoff event. Sediment deposits are to be removed once material is within 8 cm (3 inches) of the top of any block. Periodically, the gravel shall be raked to increase infiltration and filtering of runoff waters. Accumulated sediment is to be removed immediately from roads and streets.



CURB INLET SANDBAG FILTERS (INLET PROTECTION)

NOTE: Other types of curb inlet protection may be approved by the City so long as equal protection is provided.



NOTE: Place two or more sets of bags in a manner that results in maximum support. The flow line bag must be lower than top of curb.

CURB SEDIMENT TRAPS

When inlets are located on streets having a grade (i.e., sump conditions do not exist), installing gravel (or sand) bags in the gutter flow line to create small sediment traps can be considered. Gravel bags are recommended over sand bags to allow for drainage.

If the spacing between bags becomes too large, little sediment may be trapped. Spacing of bags should be completed using the table or graph that illustrates placement distances based upon street slope. When installed in the gutter, bag tops must be lower than the sidewalk.

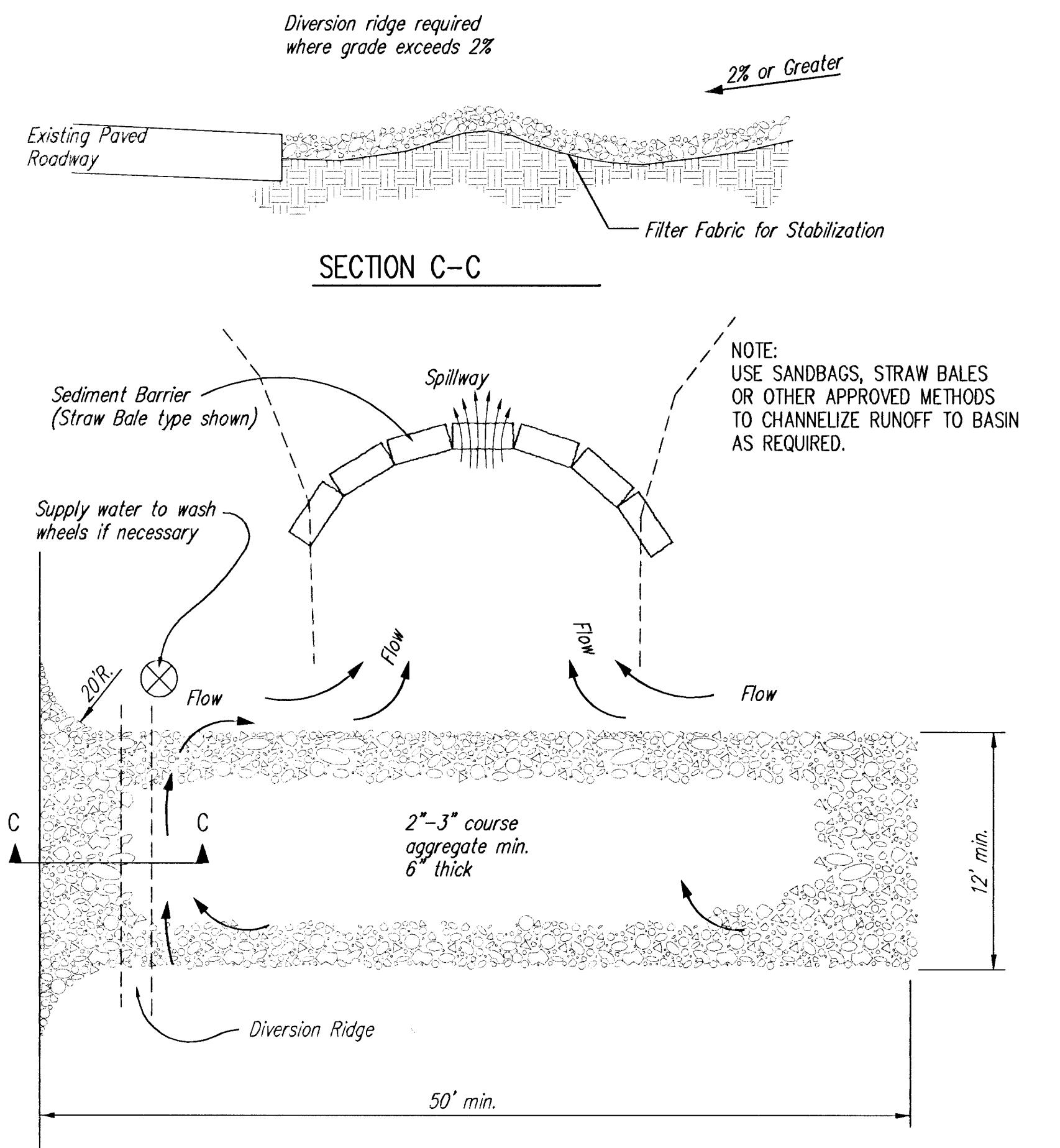
Spacing:

Gravel bags are to be placed according to street grades using the following table or graph that appears below.

GRADE (%)	SPACING (FEET)
0.5	75
1.0	45
2.0	18
3.0	12
4.0	9
5.0	6

Maintenance:

Collected sediment shall be removed after every runoff event. Bags that are destroyed by vehicular traffic or through natural deterioration are to be immediately replaced.



STABILIZED CONSTRUCTION ENTRANCE

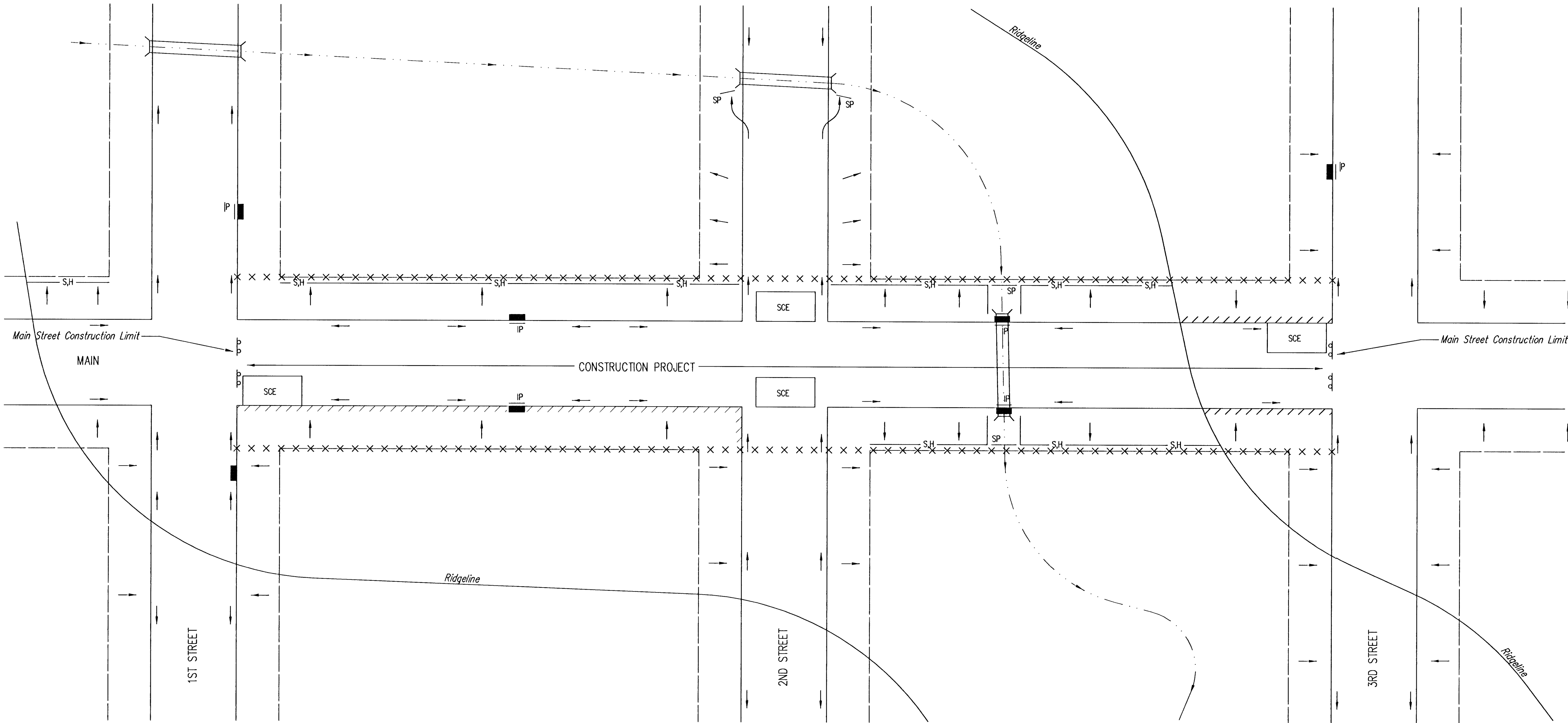
NOTES:

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	
	CHRISTOPHER M. CARRIER, P.E. STORM WATER ENGINEER	
	PROJECT NUMBER 468-83389	OCA NO. 792367
	DATE March 2002	SHEET 18 OF 26

GENERAL NOTES:

1. THIS SHEET IS INTENDED TO PROVIDE GUIDELINES AS TO WHAT TYPES OF BMP'S WILL BE INSTALLED DURING THE CONSTRUCTION PROCESS. CONTRACTORS ARE EXPECTED TO BID PROJECTS ACCORDINGLY.
2. BMP'S MUST BE MAINTAINED BY THE CONTRACTOR THROUGHOUT THE CONSTRUCTION PROCESS.
3. IF THE PROJECT WILL DISTURB 5 ACRES OR MORE, A FEDERAL/STATE NPDES STORMWATER PERMIT IS REQUIRED. A DETAILED STORMWATER POLLUTION PREVENTION PLAN, IS REQUIRED. THE BMP'S SHOWN ON THIS SHEET ARE CONSIDERED TO BE THE MINIMUM TO BE SHOWN IN THE POLLUTION PREVENTION PLAN.
4. FOR PROJECTS DISTURBING LESS THAN 5 ACRES, CONTRACTORS ARE ENCOURAGED TO PREPARE STORMWATER POLLUTION PREVENTION PLANS PRIOR TO CONSTRUCTION.
5. FAILURE TO USE AND MAINTAIN BMP'S IS A VIOLATION OF SECTION 16.32 OF THE CITY CODE AND WILL SUBJECT THE CONTRACTOR TO THE PENALTIES PROVIDED FOR THEREIN.
6. THE APPLICATION OF BMP'S SHOWN ON THIS SHEET IS FOR SITUATIONS NORMALLY ENCOUNTERED. FROM TIME TO TIME, SITUATIONS WILL ARISE THAT MAY REQUIRE A DIFFERENT BMP OTHER THAN THOSE SHOWN. BMP'S, OTHER THAN THOSE SHOWN, MAY BE UTILIZED AS LONG AS THEY ARE EFFECTIVE AND MAINTAINED.

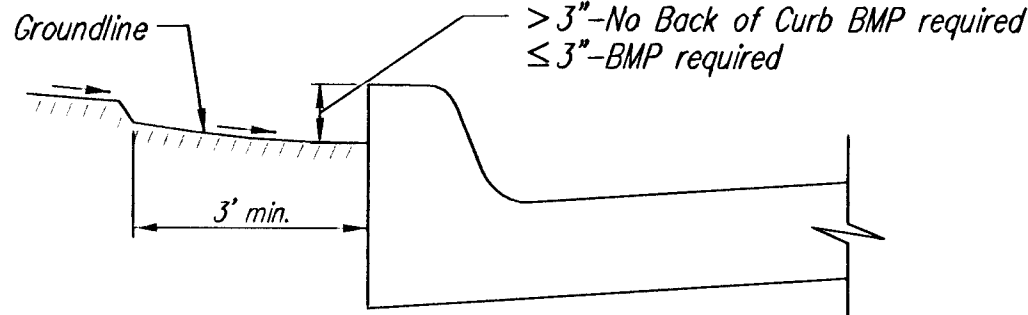


LEGEND

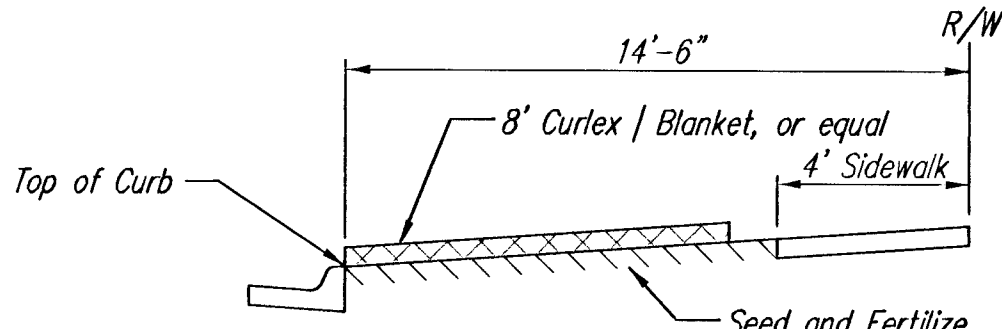
- R-O-W LIMITS
- > DRAINAGE FLOW PATH
- x x x x x R/W LIMIT WITHIN CONSTRUCTION LIMIT
- STORM WATER INLETS
- IP INLET PROTECTION
- SH SILT FENCE OR HAYBALE BMP
- SP STREAM PROTECTION
- SCE STABILIZED CONSTRUCTION ENTRANCE
- //// BACK OF CURB PROTECTION

NOTES:

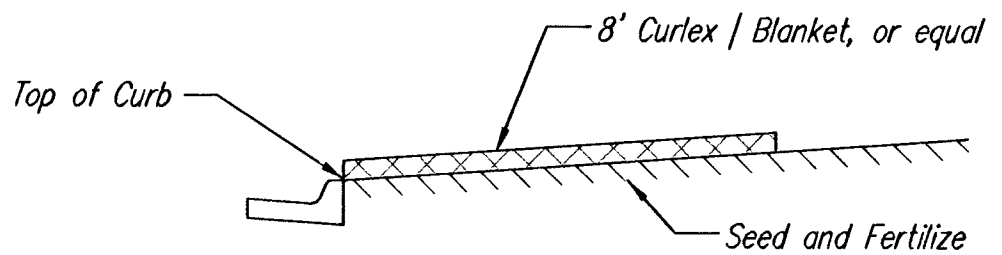
1. GENERAL BMP GOAL IS TO KEEP ALL SEDIMENT CONFINED TO THE CONSTRUCTION SITE, AND OUT OF ALL UNDERGROUND PIPES, DITCHES, AND OTHER DRAINAGE FACILITIES.
2. THE POINT OF COMPLIANCE IS GENERALLY THE RIGHT-OF-WAY LINES WITHIN THE LIMITS OF CONSTRUCTION.
3. BMP'S WILL BE REQUIRED AT ALL POINTS ALONG THE PROJECT WHERE DISTURBED EARTH CAN DRAIN ONTO PRIVATE PROPERTY.
4. INLET PROTECTION DEVICES WILL BE REQUIRED WHEREVER WATER CAN DRAIN OFF THE PROJECT SITE INTO AN INLET, INCLUDING ANY SIDE STREET INLETS.
5. BMP'S SHALL BE INSTALLED AT CREEK CROSSINGS SO AS TO PREVENT SEDIMENT FROM ENTERING THEREIN.
6. STABILIZED CONSTRUCTION ENTRANCES SHALL BE PROVIDED, AS NEEDED, TO PREVENT MUD FROM TRACKING ONTO STREETS NOT UNDER CONSTRUCTION AND ON STREETS WITHIN THE PROJECT LIMITS IF TRAFFIC IS BEING MAINTAINED THROUGH THE PROJECT.
7. ANY MUD TRACKED ONTO STREETS MUST BE REMOVED AT THE END OF EACH WORK DAY.
8. THE CONTACTOR WILL BE REQUIRED TO PLACE BMP'S BACK OF CURB, WHENEVER WATER CAN DRAIN OVER CURB, TO KEEP ERODED SOIL OUT OF THE GUTTERLINES, IN ACCORDANCE WITH THE FOLLOWING:
 - A. THE BMP REQUIRED WILL BE CURLEX | EXCELSIOR BLANKET, OR EQUAL. SAID BLANKET SHALL BE PLACED OVER THE APPROPRIATE SEED AND FERTILIZER, AS SPECIFIED IN THE PROJECT SPECIFICATIONS. (SEE BACK OF CURB PROTECTION DETAIL)
 - B. THIS BMP SHALL BE INSTALLED IMMEDIATELY WHENEVER THE CURB IS BACKFILLED TO WITHIN 3" OF THE TOP OF CURB. (SEE CURB BACKFILL DETAIL)
 - C. ADDITIONALLY, OTHER BMP'S (HAYBALES, SILT FENCE, ETC.) WILL BE INSTALLED AT LOCATIONS OF CONCENTRATED FLOW RESULTING IN SEDIMENT OVERRUNNING THE MAT.
 - D. SHOULD THE PROJECT PLANS SPECIFY THAT THE RIGHT-OF-WAY IS TO BE SODDED, THE EXCELSIOR MAT WILL NOT BE REQUIRED SO LONG AS THE SOD IS PLACED WITHIN 48 HOURS AFTER CURB BACKFILL REACHES A HEIGHT OF 3" OR LESS FROM TOP OF CURB. (SEE DETAIL)



CURB BACKFILL DETAIL

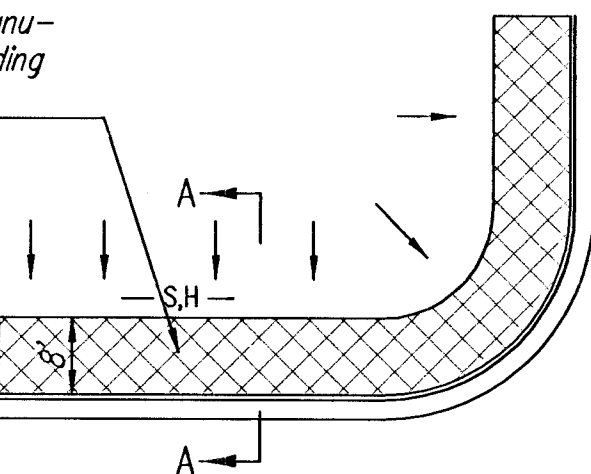


SECTION B-B



SECTION A-A

BMP-Install 8' wide Curlex | Excelsior Blanket, or equal, on prepared surface back of curb. Edge of blanket will be at back of curb. Install per manufacturer's recommendation, including staples.



SOUTH STREET

BMP-Install 8' wide Curlex | Excelsior Blanket, or equal, on prepared surface back of curb. Edge of blanket will be at back of curb. Install per manufacturer's recommendation, including staples.

BACK OF CURB PROTECTION DETAIL

NOTES:

1. EXCELSIOR MAT TO BE INSTALLED WHEN SOD IS NOT SPECIFIED ON PROJECT.
2. EXCELSIOR BLANKET TO BE INSTALLED OVER SEED AND FERTILIZER, AS SPECIFIED IN THE PROJECT SPECIFICATIONS.
3. AFTER INSTALLATION OF EXCELSIOR BLANKET, AT LOCATIONS WHERE CONCENTRATED FLOW CARRIES SEDIMENT OVER THE CURB AND INTO THE GUTTER, SUPPLEMENTAL BMP'S WILL BE INSTALLED BY THE CONTRACTOR AS NEEDED, TO FIX THE PROBLEM.



SOIL EROSION BMPS
STREET
IMPROVEMENT
PROJECTS

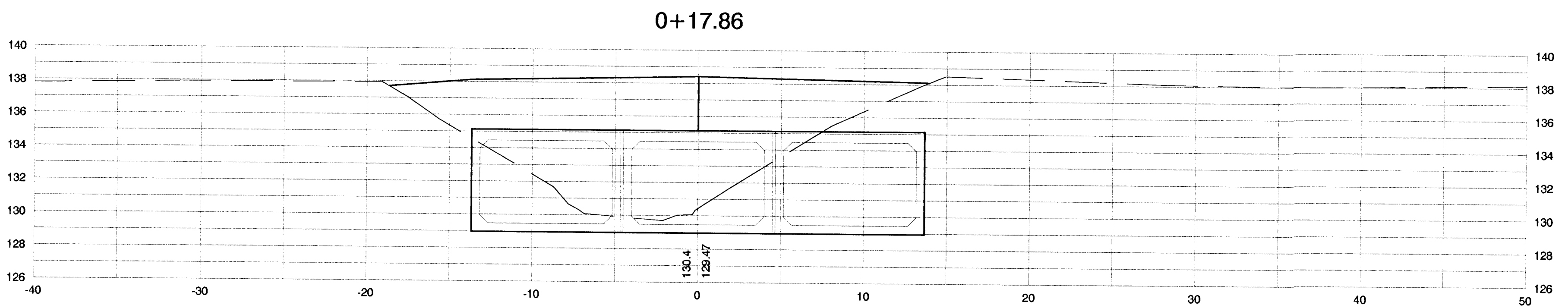
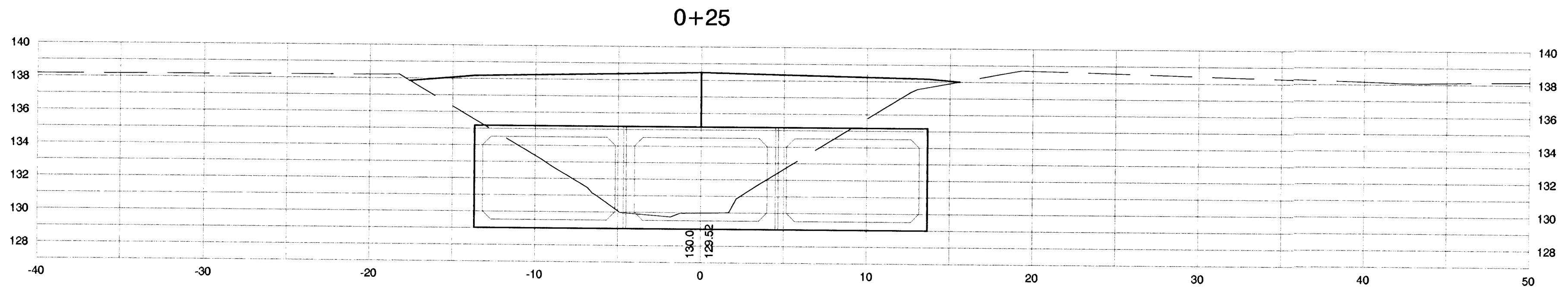
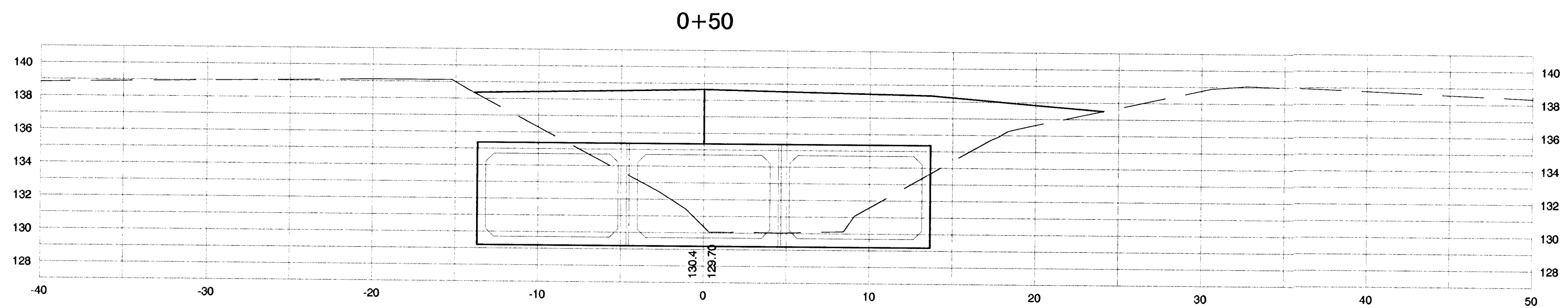
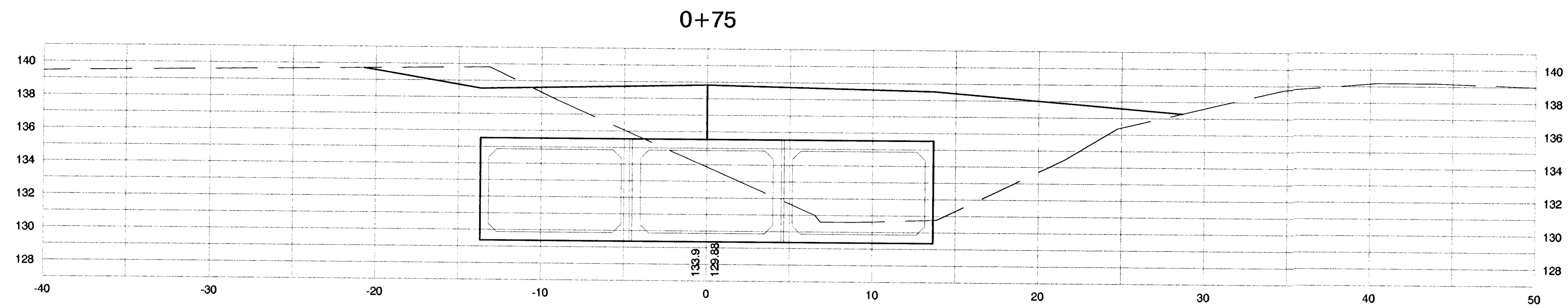
CHRISTOPHER M. CARRIER, P.E.
STORM WATER ENGINEER

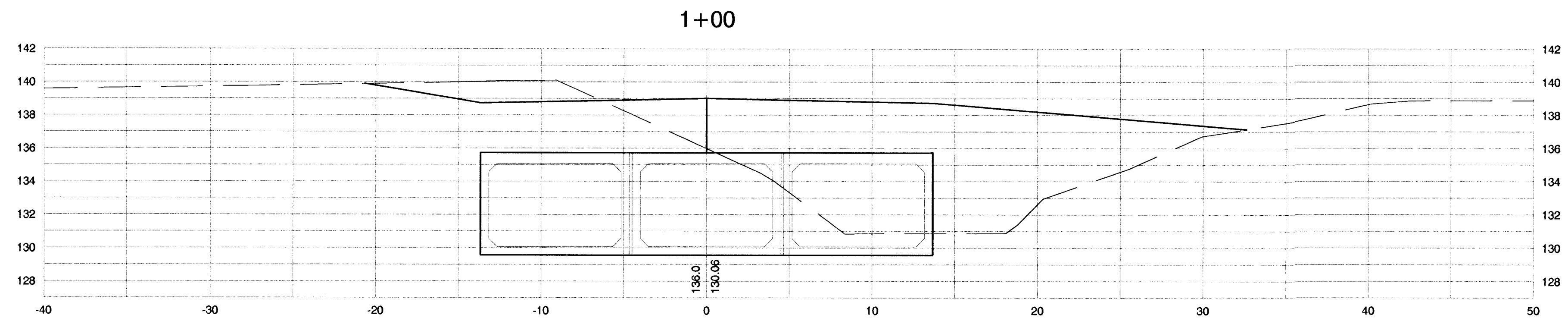
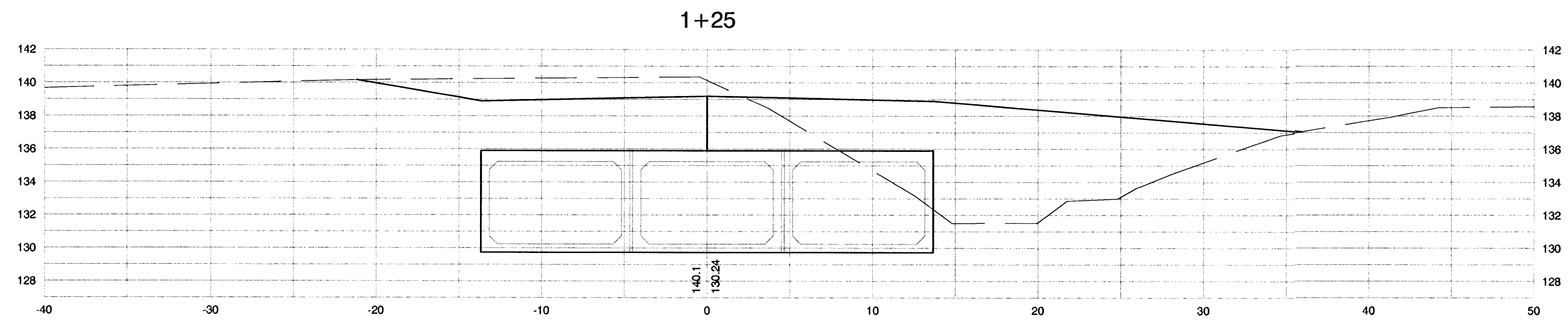
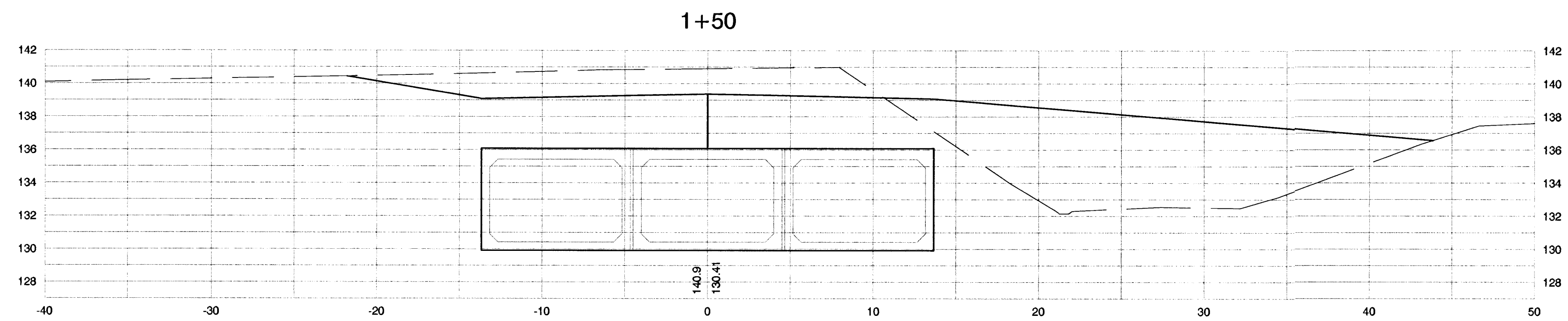
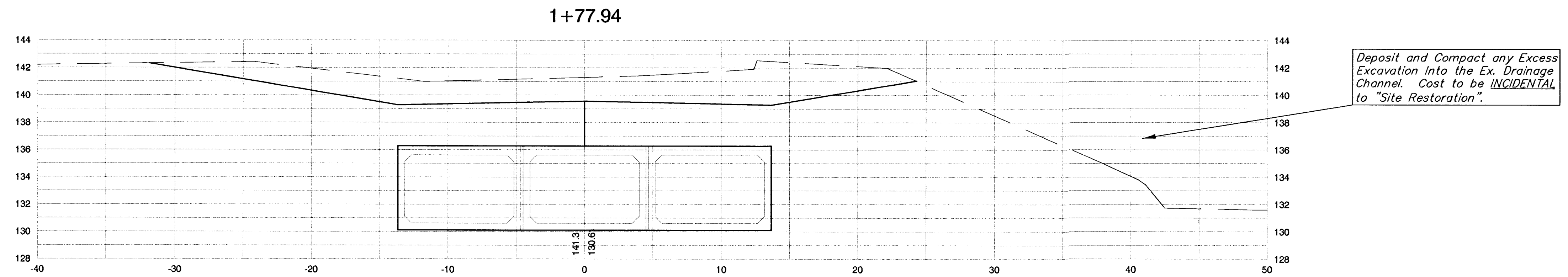
PROJECT NUMBER
468-83399

OCA NO.
792367

DATE
March 2002

SHEET 19 OF 26



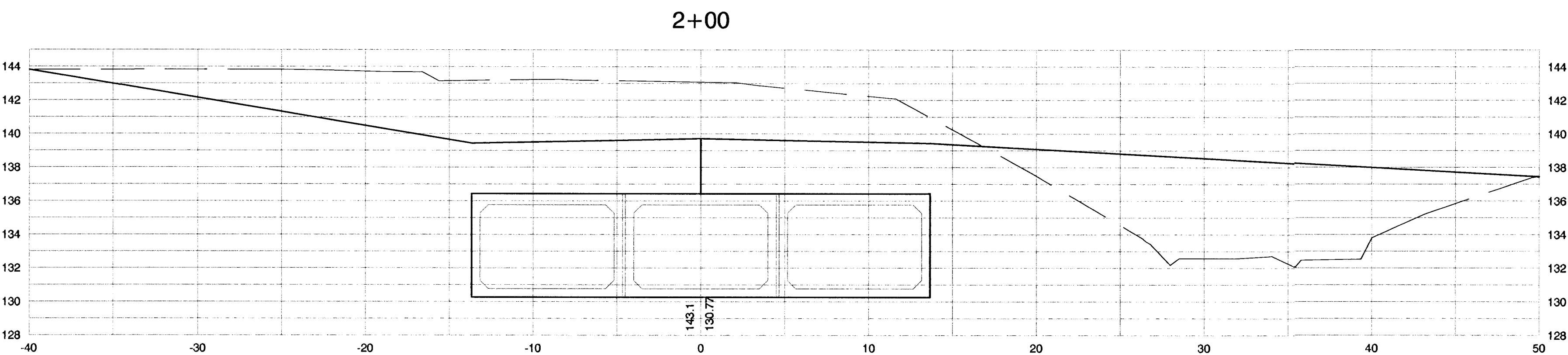
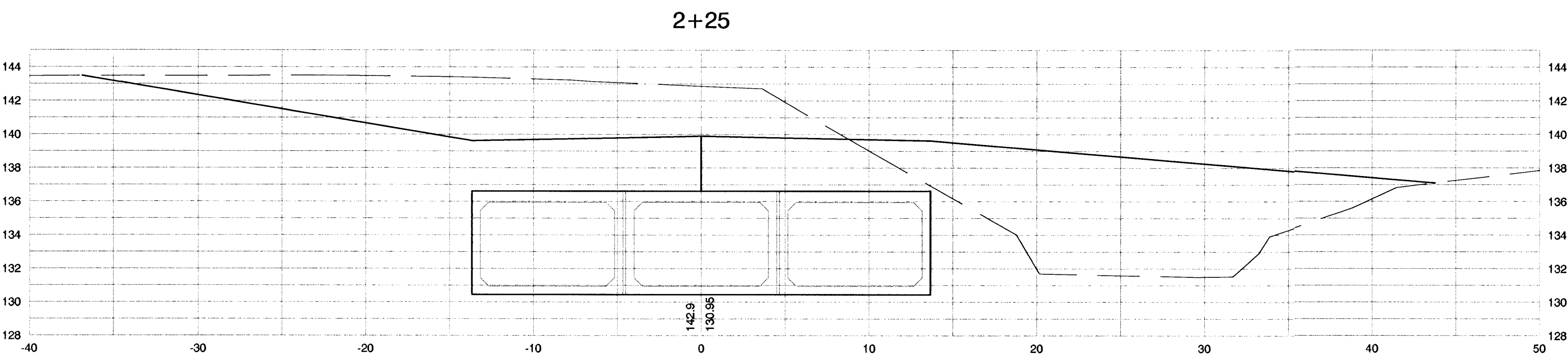
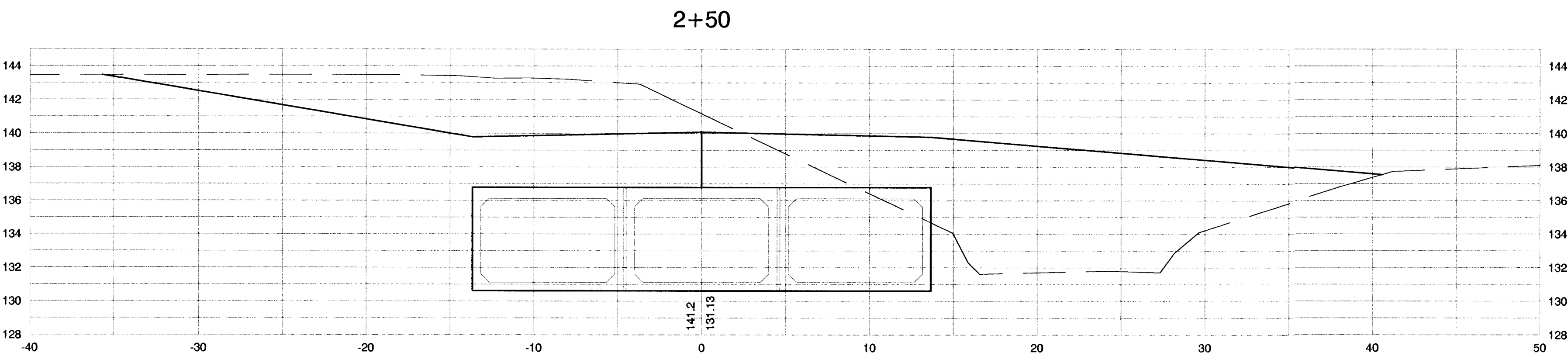
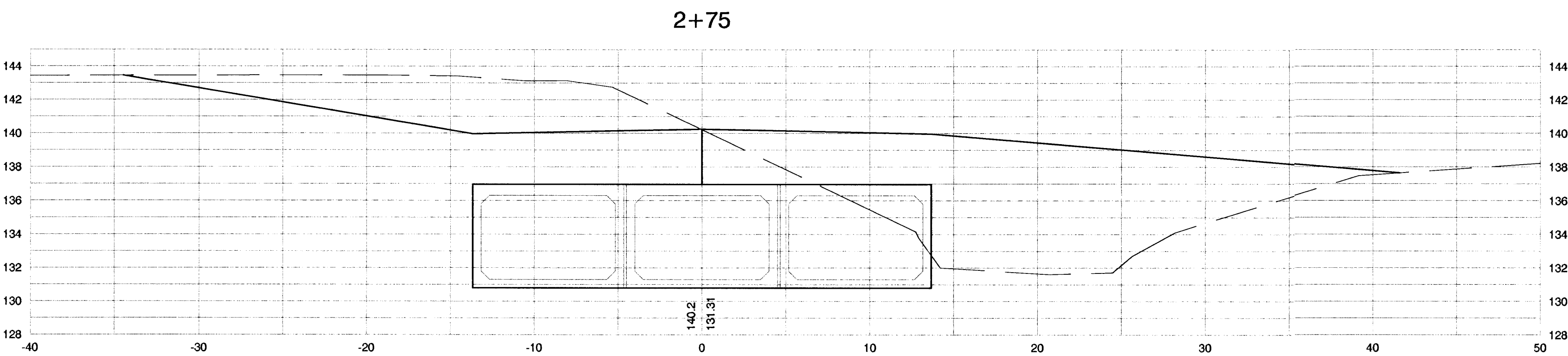


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DESIGN TPB	DRAWN TPV	APPROVED JFB	DATE March 2002	SCALE 1:5	BAUGHMAN NO 01-12-E182

COLLEGE HILL SQUARE
3-8' X 5' RCBC CROSS SECTIONS
STORM WATER DRAINAGE IMPROVEMENTS AND INCIDENTAL SANITARY SEWER RELOCATION

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

SHEET
21
OF
26



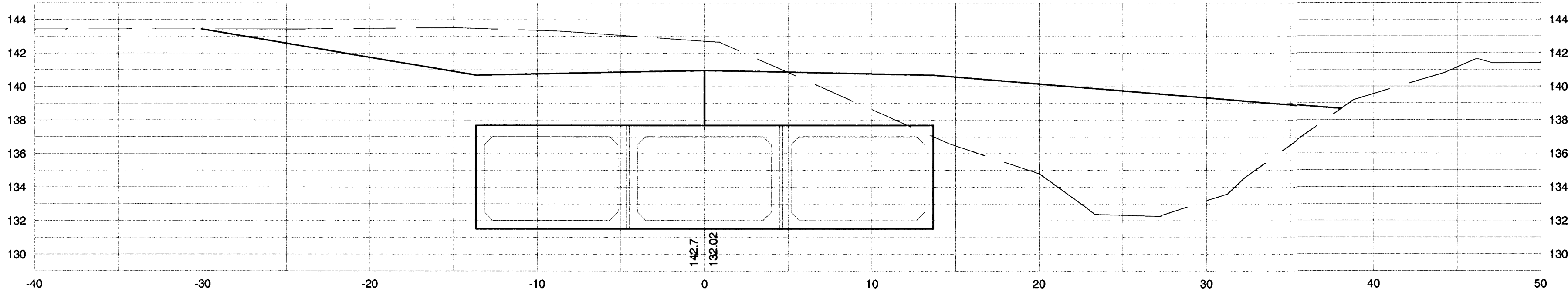
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COLLEGE HILL SQUARE
3-8' X5' RCBC CROSS SECTIONS
STORM WATER DRAINAGE IMPROVEMENTS AND INCIDENTAL SANITARY SEWER RELOCATION

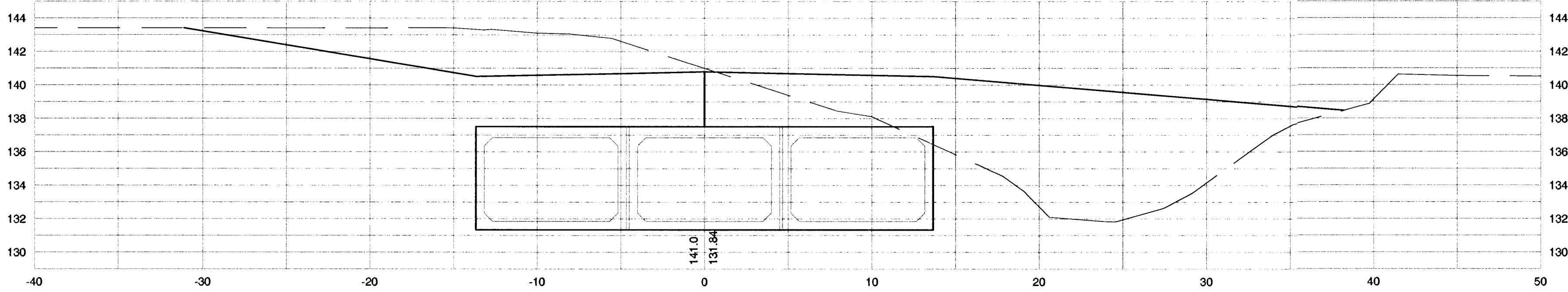
BAUGHMAN COMPANY, P.A.
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26

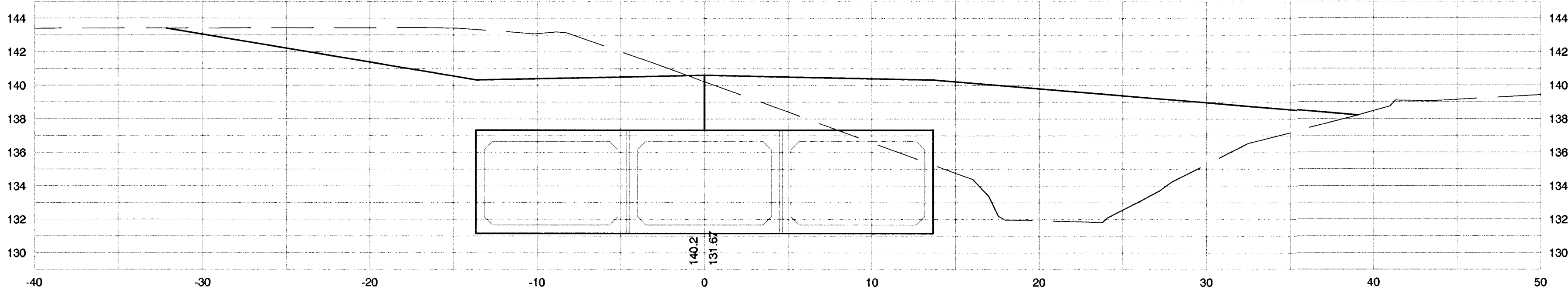
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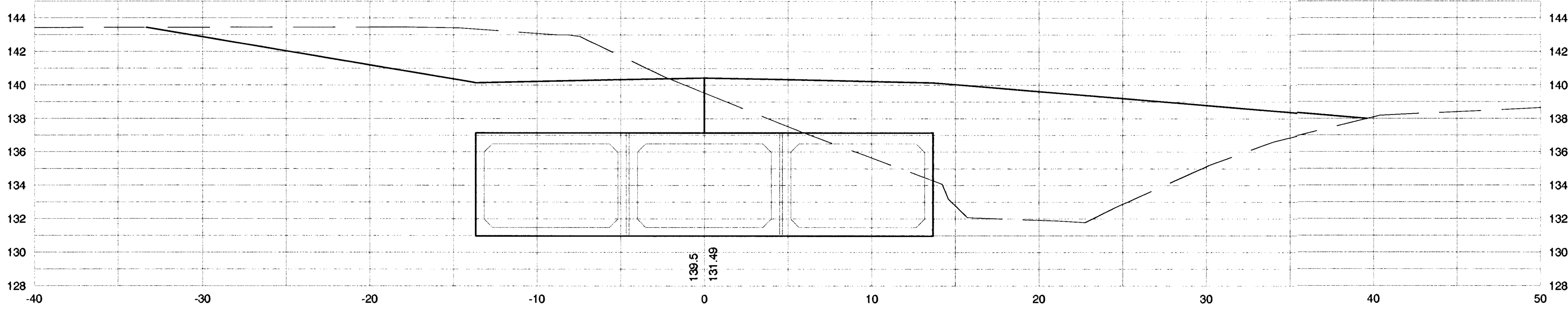
3+50



3+25



3+00



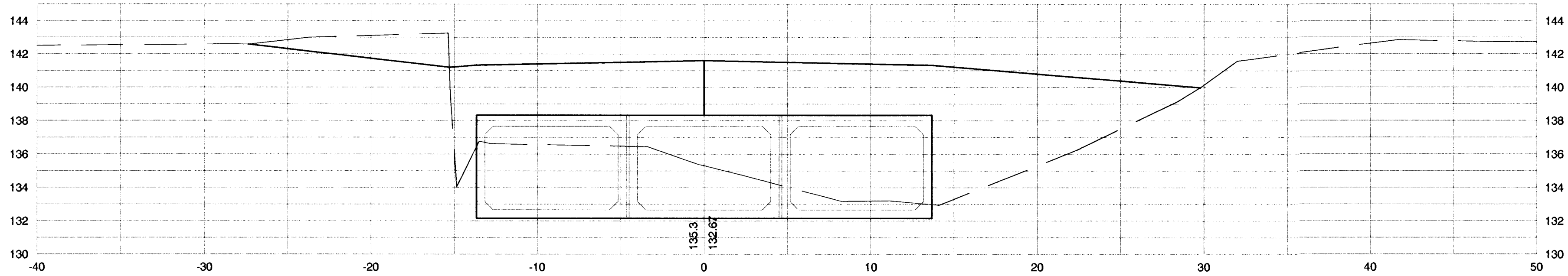
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COLLEGE HILL SQUARE
3-8' X5' RCBC CROSS SECTIONS
STORM WATER DRAINAGE IMPROVEMENTS AND INCIDENTAL SANITARY SEWER RELOCATION

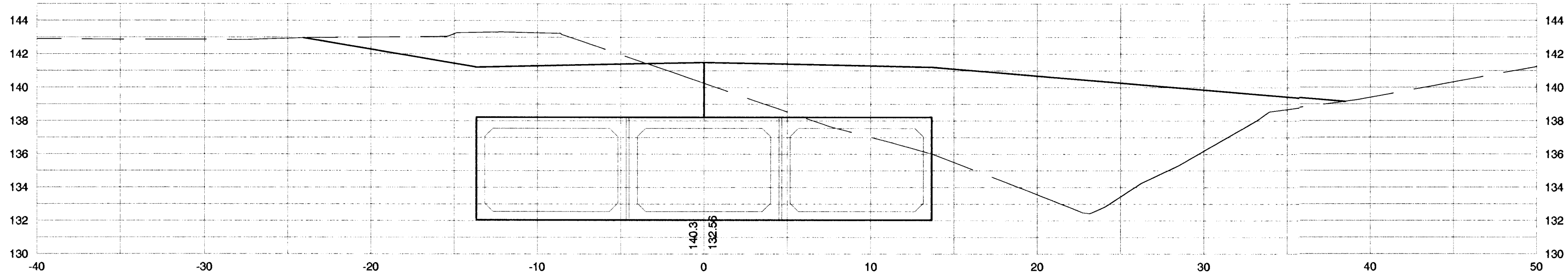
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23
OF
26

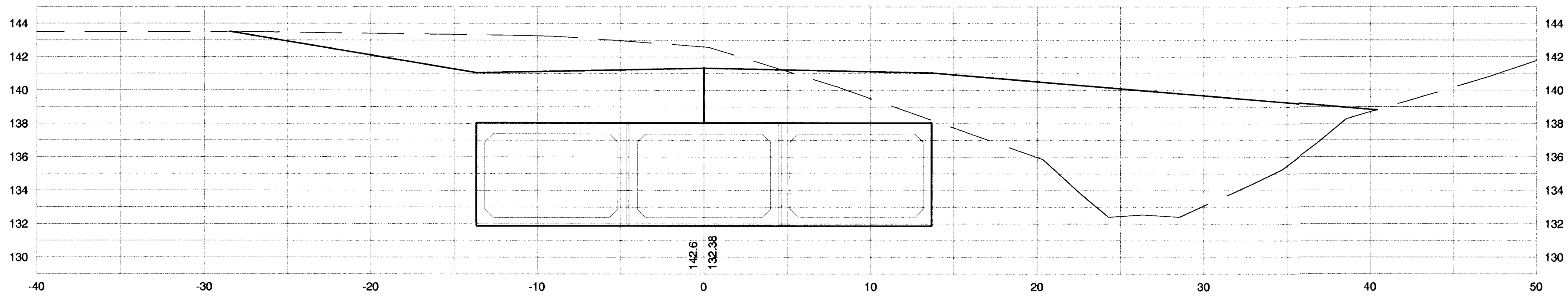
4+65.48



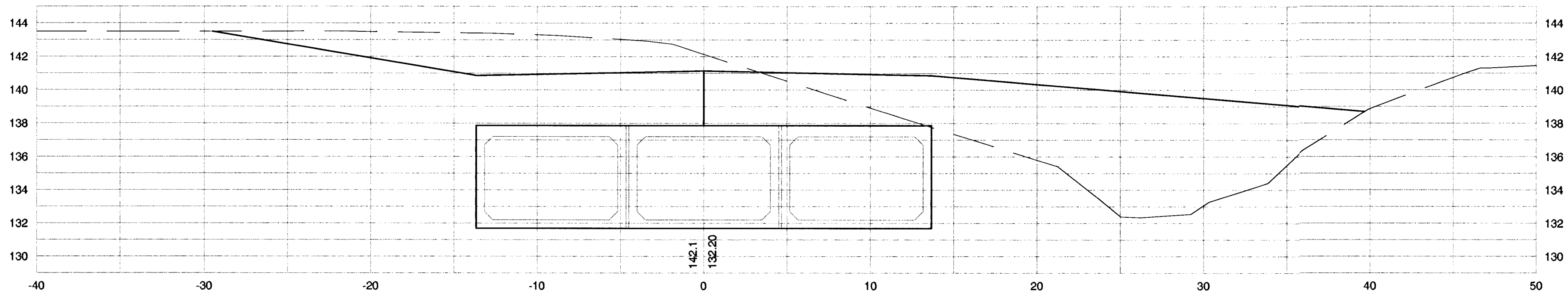
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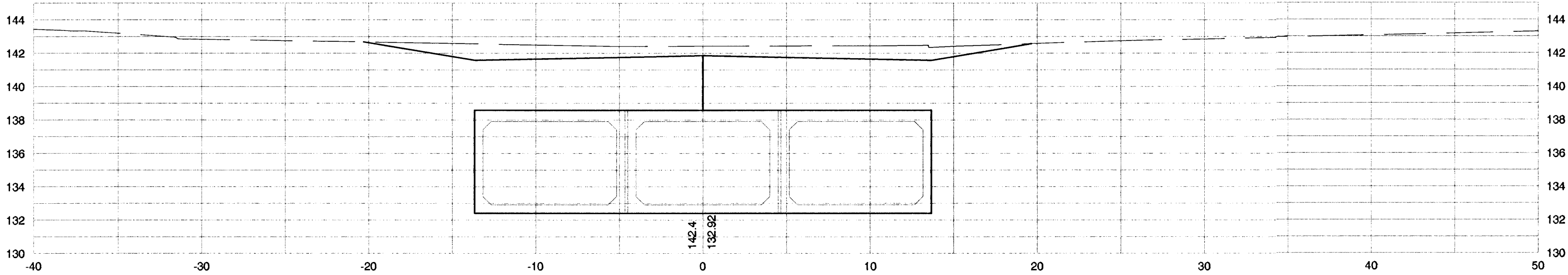
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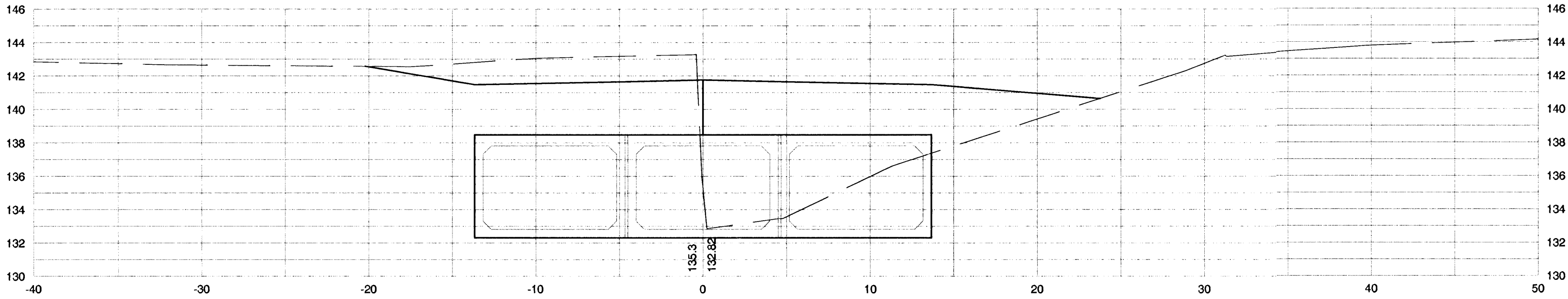
STATION	AREAS Square Feet		VOLUMES Cubic Yards		CUMULATIVE VOLUMES Cubic Yards	
	CUT	FILL	CUT	FILL	CUT	FILL
0+17.86	97.34	85.66				
0+25	96.37	85.20	25.61	22.59	25.61	22.59
0+50	88.69	97.87	85.68	84.75	111.29	107.35
0+75	116.97	120.99	95.21	101.32	206.50	208.67
1+00	137.98	131.01	118.03	116.67	324.53	325.34
1+25	181.77	122.19	148.03	117.22	472.57	442.56
1+50	211.76	125.68	182.19	114.75	654.76	557.31
1+77.94	265.39	0.00	246.88	65.03	901.64	622.34
2+00	315.44	121.33	237.28	49.57	1138.92	671.91
2+25	277.94	146.30	274.71	123.90	1413.63	795.81
2+50	245.91	157.88	242.52	140.82	1656.15	936.63
2+75	225.69	165.28	218.33	149.61	1874.49	1086.24
3+00	214.91	162.25	203.98	151.63	2078.47	1237.88
3+25	216.36	152.96	199.66	145.93	2278.13	1383.81
3+50	219.46	145.80	201.77	138.31	2479.90	1522.12
3+75	227.82	139.14	207.07	131.92	2686.97	1654.04
4+00	218.97	134.50	206.85	126.69	2893.82	1780.73
4+25	214.14	138.95	200.51	126.60	3094.33	1907.32
4+50	184.74	153.72	184.67	135.50	3279.00	2042.82
4+65.48	93.86	167.66	79.87	92.13	3358.87	2134.95
4+86.69	140.76	64.49	92.15	91.18	3451.02	2226.13
5+00.42	194.17	0.00	85.16	16.40	3536.18	2242.53
			0.00	0.00	3536.18	2242.53

Quantities in this Table have been figured by the Average End Area Method. The Quantities have not by adjusted by any fators.

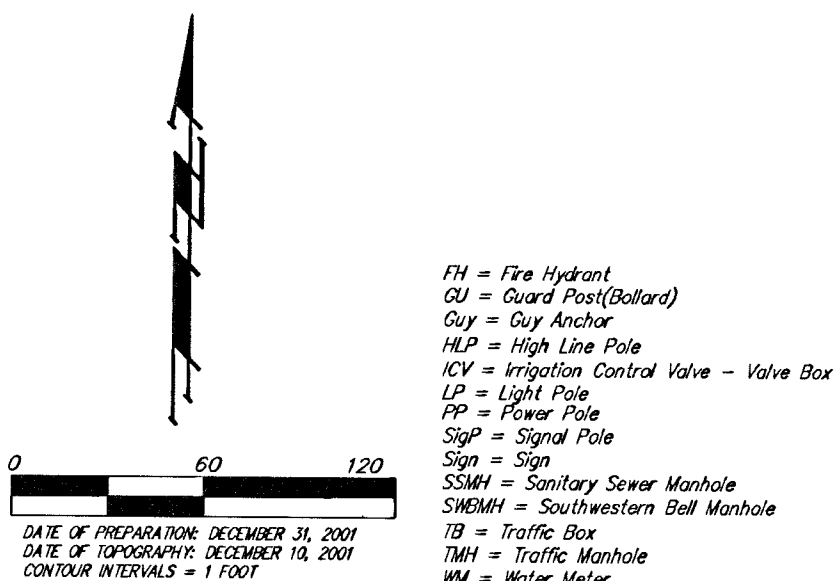
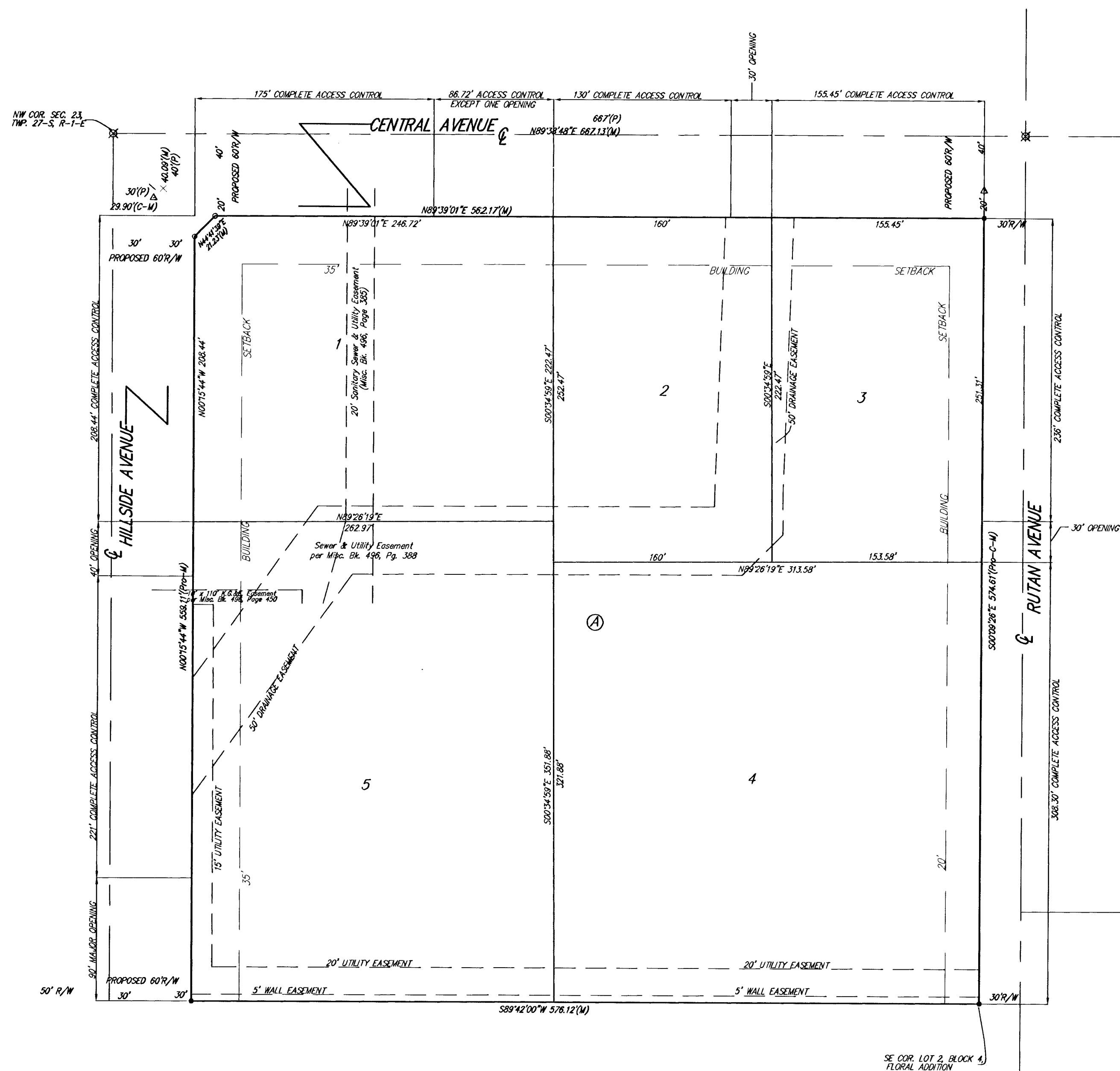
5+00.42



4+86.69



ONE-STEP FINAL
COLLEGE HILL SQUARE
WICHITA, SEDGWICK COUNTY, KANSAS



= #4 REBAR W/ "BAUGHMAN" CAP (FOUND)
= #4 REBAR W/ "BAUGHMAN" CAP (SET)
@ = #4 REBAR W/ "TILE" CAP (FOUND)
X = 3/4" IRON PIPE (FOUND)
O = P.K. NAIL (SET)
Q = CHISELED CROSS (SET)
X = CHISELED CROSS (FOUND)
Δ = CHISELED Y-NOTCH (FOUND)

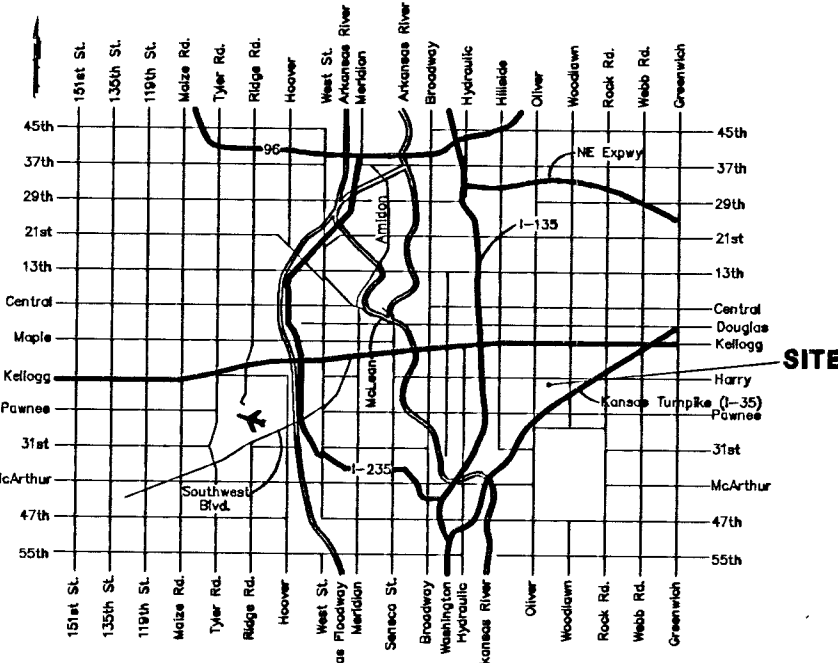
(M) = MEASURED
(D) = DISCOVERED
(P) = PLATTED
(C) = CALCULATED

ADDITIONAL BUILDING SETBACKS PER PLANNED UNIT DEVELOPMENT PUD2001-00002

LOT	BLOCK	ELEVATION	
		CITY DATUM	NGVD29
1-4	A	145.0	1332.40

Benchmark: City of Wichita Disc on the Box of Light Pole at the SE corner of the intersection of Central and Hillside
Elevation = 145.32 (City Datum)

PH = Fire Hydrant
GU = Guard Post (Ballard)
GUY = Guy Anchor
HLP = High Line Pole
ICV = Irrigation Control Valve - Valve Box
LP = Light Pole
PP = Power Pole
SPP = Signal Pole
SIGN = Sign
SSM = Sanitary Sewer Manhole
SSMAY = Sanitary Sewer Manhole
TM = Traffic Box
TMH = Traffic Manhole
WM = Water Meter
WV = Water Valve
WTR = Transformer



State of Kansas) SS
Sedgwick County) We, Baughman Company, P.A., Surveyors in aforesaid county and state do hereby certify that we have surveyed and platted "COLLEGE HILL SQUARE", Wichita, Sedgwick County, Kansas and that the accompanying plat is a true and correct exhibit of the property surveyed, described as Tracts of land lying in the NW 1/4 of Sec. 23, Twp. 27-S, R-1-E of the 6th P.M., Sedgwick County, Kansas described as follows: Lots 5-10, 12, 20 and 27, Howard's Addition to College Hill Addition in Sedgwick County, Kansas, except that part platted as First General Addition, Wichita, Sedgwick County, Kansas; together with Lot 1, First General Addition, Wichita, Sedgwick County, Kansas; together with Lots 1, 3, 5 and 7 on Hillside Avenue, Lots 2, 4, 6 and 8 on Holyoke Avenue (now vacated), and Lots 1, 3, 5, 7, 9 and 11 on Holyoke (now vacated) all in Floral Second Addition to Wichita, Kansas, Sedgwick County, Kansas; together with Lot 1 on Hillside Avenue, Lot 2 on Holyoke Avenue (formerly Floral Place), and Lot 2 on Rutan Avenue, all in Floral Addition to Wichita, Kansas, Sedgwick County, Kansas; together with that part of vacated Frances Avenue located between Hillside and Rutan (formerly Park Avenue); together with that part of vacated Holyoke Avenue located between vacated Frances Avenue and Third Street (formerly Howard Street); together with that part of Holyoke Avenue located between Third Street (formerly Howard Street) and a point 50 feet south of the south line of Third Street (formerly Howard Street); together with that part of Third Street (formerly Howard Street) located between Hillside and Rutan (formerly Park Avenue).

Existing public easements and dedications being vacated by virtue of K.S.A. 12-512(b).

Baughman Company, P.A.

Michael G. Conrey, Surveyor

Know all men by these presents that we, the undersigned, have caused the land in the surveyors certificate to be platted into Lots, a Block, and Streets, to be known as "COLLEGE HILL SQUARE", Wichita, Sedgwick County, Kansas. The utility easements are hereby granted as indicated for the construction and maintenance of all public utilities. The drainage easement is hereby granted as indicated for drainage purposes. The wall easements are hereby granted as indicated for the construction and maintenance of a private screening wall and utility main lines and service lines shall be allowed to cross these easements. The streets are hereby dedicated to and for the use of the public. All abutters rights of access shall be as depicted on the face of the plat and are hereby granted to the City of Wichita, Kansas. The permitted opening locations shall be as determined by the City Engineer of the City of Wichita, Kansas. The Minimum Building Pad Elevations for the lowest opening to the structures shall be as indicated on the face of the plat.

Starr Investments, L.L.C.

Steven R. Barrett, Managing Member

Starr Holdings Company, L.L.C.

Steven R. Barrett, Managing Member

State of Kansas) SS
Sedgwick County) The foregoing instrument acknowledged before me, this day of 2001, by Steven R. Barrett, Managing Member of Starr Investments, L.L.C., on behalf of the limited liability corporation.

Notary Public

My App't. Exp.

State of Kansas) SS
Sedgwick County) The foregoing instrument acknowledged before me, this day of 2001, by Steven R. Barrett, Managing Member of Starr Holdings Company, L.L.C., on behalf of the limited liability corporation.

Notary Public

My App't. Exp.

This plat of "COLLEGE HILL SQUARE", Wichita, Sedgwick County, Kansas has been submitted to and approved by the Wichita-Sedgwick County Metropolitan Area Planning Commission, Wichita, Kansas.

Dated this day of 2001.
Wichita-Sedgwick County Metropolitan Area Planning Commission

J.D. Michaelis, Chair

Marvin S. Krout, Secretary

This plat approved and all dedications shown herein accepted by the City Council of the City of Wichita, Kansas, this day of 2001.

At the Direction of the City Council

Chris Chermes, City Manager

Pat Burnett, City Clerk

Reviewed in accordance with K.S.A. 58-2005 on this day of 2001.

Tricia L. Robello, L.S. #1246
Deputy County Surveyor
Sedgwick County, Kansas

Entered on transfer record this day of 2001.

Don Broce, County Clerk

State of Kansas) SS
Sedgwick County) This is to certify that this plat has been filed for record in the office of the Register of Deeds, this day of 2001 at o'clock M, and is duly recorded.

Bill Meek, Register of Deeds

Linda Kizzire, Deputy

PROJECT NUMBER		SHEET NAME		ENGINEERING DIRECTORY	
468-76-245-XXXX		Plat		F:\College Hill	
DESIGN	DRAWN	APPROVED	DATE	SCALE	BAUGHMAN NO
	Staff		March 2002	Noted	01-12-E182

COLLEGE HILL SQUARE
COLLEGE HILL SQUARE PLAT
STORM WATER DRAINAGE AND INCIDENTAL SANITARY SEWER RELOCATION

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

DECEMBER 31, 2001

SHEET 26
OF 26

50-10-01-01