

GENERAL NOTES:

- Contractor will be required to provide notice to utility companies a minimum of Forty-Eight (48) hours prior to any excavation, as follows:

Kansas One-Call 687-2470

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

Cox Communications 262-4270
 Kansas Gas Service 1-888-482-4950
 Westar Energy 383-8650
 Aquila Energy 1-800-4303-0357
 AT&T 268-2245
 City of Wichita Water Dept. 268-4563
 City of Wichita Sewer Maint. 268-4024
 City of Wichita Storm Sewer Maint. 268-4090
 City of Wichita Traffic Maint. 268-4034

- 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.

- All excess material from channel excavation shall be stockpiled within 500 feet west or south of the extent of channel construction at a location to be determined by the engineer. Stockpile shall be seeded with Rye Grass at 5 lbs./1000 sq. ft. and surrounded with silt fencing (x3500 L.F.).

- 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.

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

- At conclusion of construction, an as-built survey will be completed by the engineer. The contractor will be required to finish and smooth grade all locations as necessary that are not within $\pm 0.3'$ of plan grade. The contractor shall include all costs associated with the regrading and/or remediation in the bid item "Channel Excavation."

- All existing and proposed erosion control measures including silt fencing, erosion control mat, straw bales, inlet barriers, and const. entrance shall be maintained throughout construction by the contractor and until project is accepted by the City of Wichita. The on-site engineer shall complete weekly reports of the status of erosion control measures. The contractor shall be required to comply with maintenance and/or replacement of erosion control measures as determined by the on-site engineer until project is accepted by City of Wichita.

- The Contractor shall protect traffic by use of proper and necessary flags, lights, signals, barricades or other warning devices as needed, all in accordance with the latest edition of the Manual On Uniform Traffic Control Devices, U.S. Department of Transportation, Federal Highway Administration. Cost to be included in lump sum bid item "Traffic Control."

- All areas disturbed during construction shall be seeded, mulched, and fertilized as follows (Permanent Seeding):

Seed: Kansas Premium Fescue Blend: 8 lbs./1000 sq. ft.

Annual Rye Grass: 2 lbs./1000 sq. ft.

Mulch: Prairie Hay, 2 tons/acre (no mulch required in areas where Erosion Control Matting is installed)

Fertilizer: 12-24-12: 850 lbs./acre

All costs associated with seeding, mulching, and fertilizing shall be included in bid item "Project Seeding." All seeding operations shall conform to City of Wichita Standard Specifications.

- Best available topsoil shall be stripped and stockpiled separately. Channel bottom and side slopes shall be overexcavated 9" and replaced with 9" of best available topsoil. Topsoil shall be compacted to a minimum of 90% Standard Proctor Density. Cost of overexcavation is incidental to Bid Item "Channel Excavation."

- Abandoned dewatering wells will be encountered during construction of the channel. Contractor shall cut or break well pipe at least 2 feet below proposed grade. All costs associated with cutting or breaking dewatering wells shall be included in "Site Clearing and Restoration."

- See Special Provisions for Required Construction Completion Date and related Incentives/Damages.

STORM WATER DRAIN #307

to serve

NORTHGATE ADDITION & UNPLATTED TRACT "B"

CITY OF WICHITA, KANSAS

James L. Armour, P.E. City Engineer

Project Number

468-84253

O.C.A. Number

751445

Sheet Index

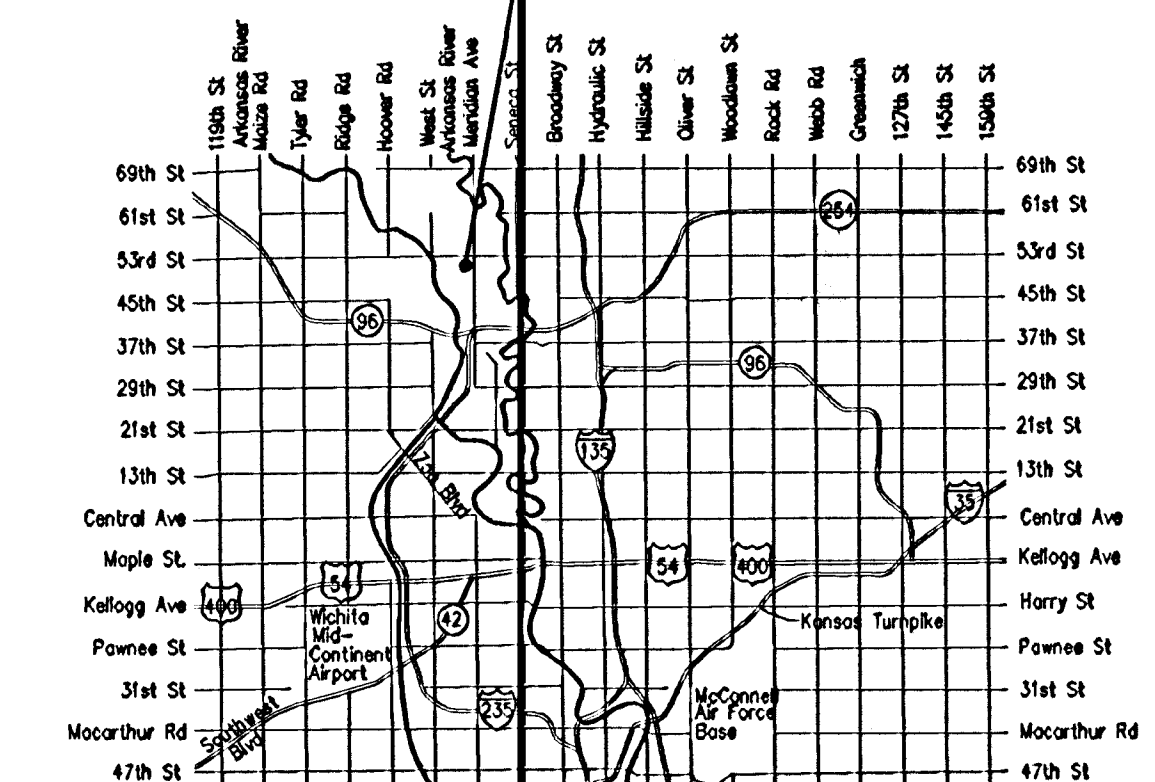
Title Sheet	1
Channel Plan	2-7
RCBC Plan	8
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RCBC Details	11-14
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Benchmark

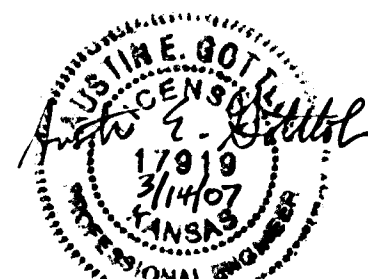
COW Benchmark at the Intersection of Meridian and 53rd St. N. NE Corner
 Top of Concrete Headwall.
 44' North of Centerline
 37' East of Centerline
 50.90' NE of Section Corner
 9' NE of and radial to curb
 26' East of Section Line
 Elev. = 1391.37 NGVD29

COW Benchmark at the Intersection of Meridian and Kaywest, NW Corner,
 59' West of Centerline
 32.3' North of Centerline
 11.8' North of N curb line of Kaywest
 4.8' NW of center of Power Pole
 Elev. = 1379.35 NGVD29

SITE



Vicinity Map

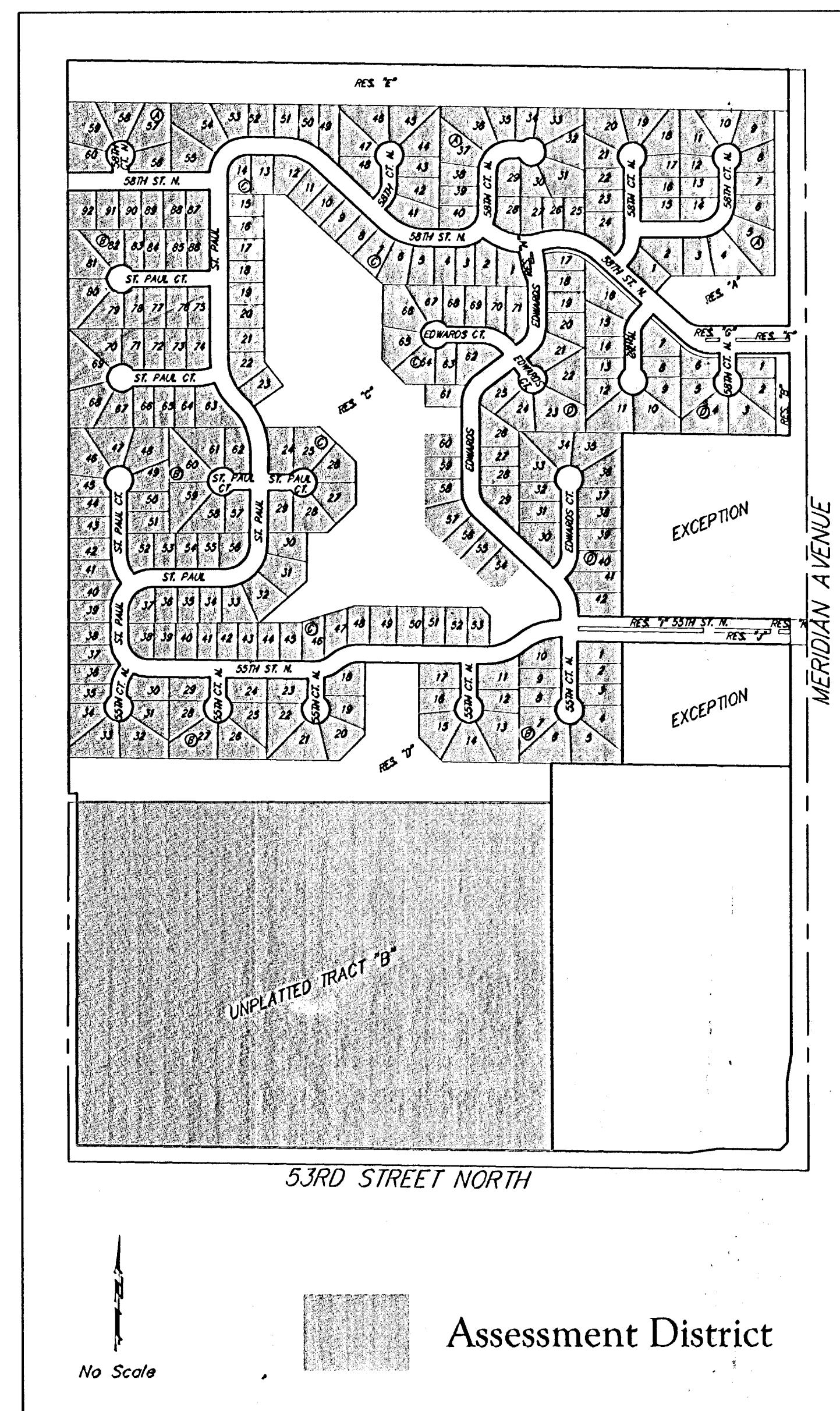


March 2007

As Bldg. 4/18/07 KK



Baughman Company, P.A. 315 Ellis St. Wichita, KS 67211 P 316-262-7271 F 316-262-0149
 ENGINEERING | SURVEYING | PLANNING | LANDSCAPE ARCHITECTURE



R & R Realty LLC
 Bldg. 1000
 8100 E 22nd St N
 Wichita, KS 67226-2310

Scale: 1" = 200'

RCBC

53RD STREET NORTH

South Greenwich LLC
 3049 N Rock Rd
 Wichita, KS 67226

Vineyard Christian Fellowship
 2020 Blake
 Wichita, KS 67211-5353

EARTH WORK TOTALS

	C.Y. Excavation	C.Y. Fill
Channel Grading	34,094	-

Earthwork quantities are unadjusted and are for reference only. All cost shall be incidental to "Channel Excavation."

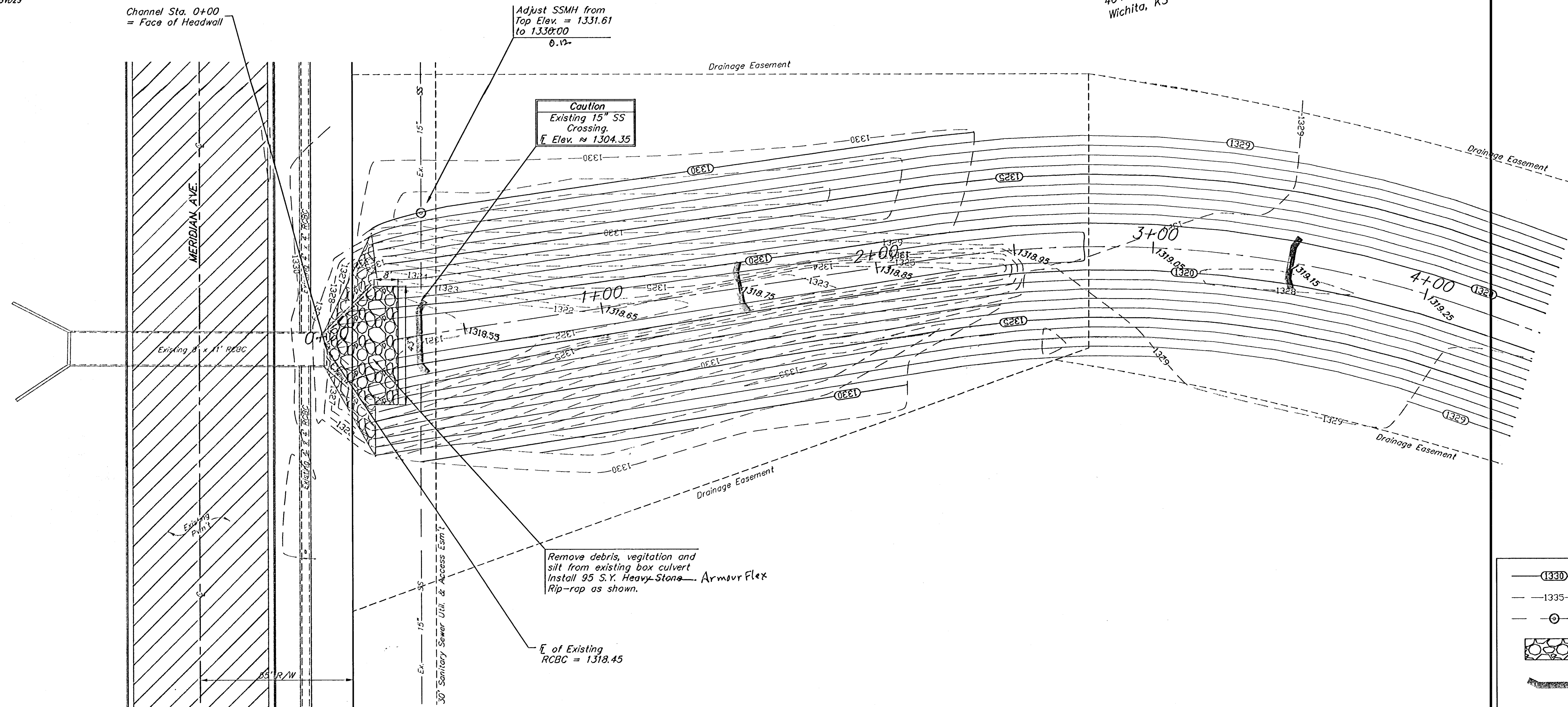
CBB Northlakes LLC
 4647 N Meridian
 Wichita, KS 67204-2401

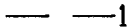
Assessment District

COW Benchmark at the intersection
of Meridian and Keywest, NW Corner,
59' West of Centerline
32.3' North of Centerline
11.8' North of N curb line of Keywest
4.8' NW of center of Power Pole
Elev. = 1329.36 NGVD29

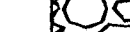
CBB Northlakes LLC
4647 N Meridian
Wichita, KS 67204-2401

Scale: 1" = 20'



- 
Proposed Contours

Existing Contours

Existing San. Sewer

Rip Rap to be installed

*Straw Bale Barriers
(This Project)*

*Dewatering Well
(Abandoned)*

As Built 6/18/07 KIC



Northgate Offsite Drainage
Channel Plan
Storm Water Drain #307

Baughman Company, P.A. 315 Ellis St. Wichita, KS 67211 P 316-262-7271 F 316-262-0149
ENGINEERING | SURVEYING | PLANNING | LANDSCAPE ARCHITECTURE

PROJECT NUMBER 468-84253	DESIGN RDM/AEG	DRAWN RDM
REVISIONS:	APPROVED AEG	DATE 3-14-07
	SCALE Noted	
	SHEET	

2 OF 22

Northgate\53rd St SWD\OFFSITE CHANNEL.dwg

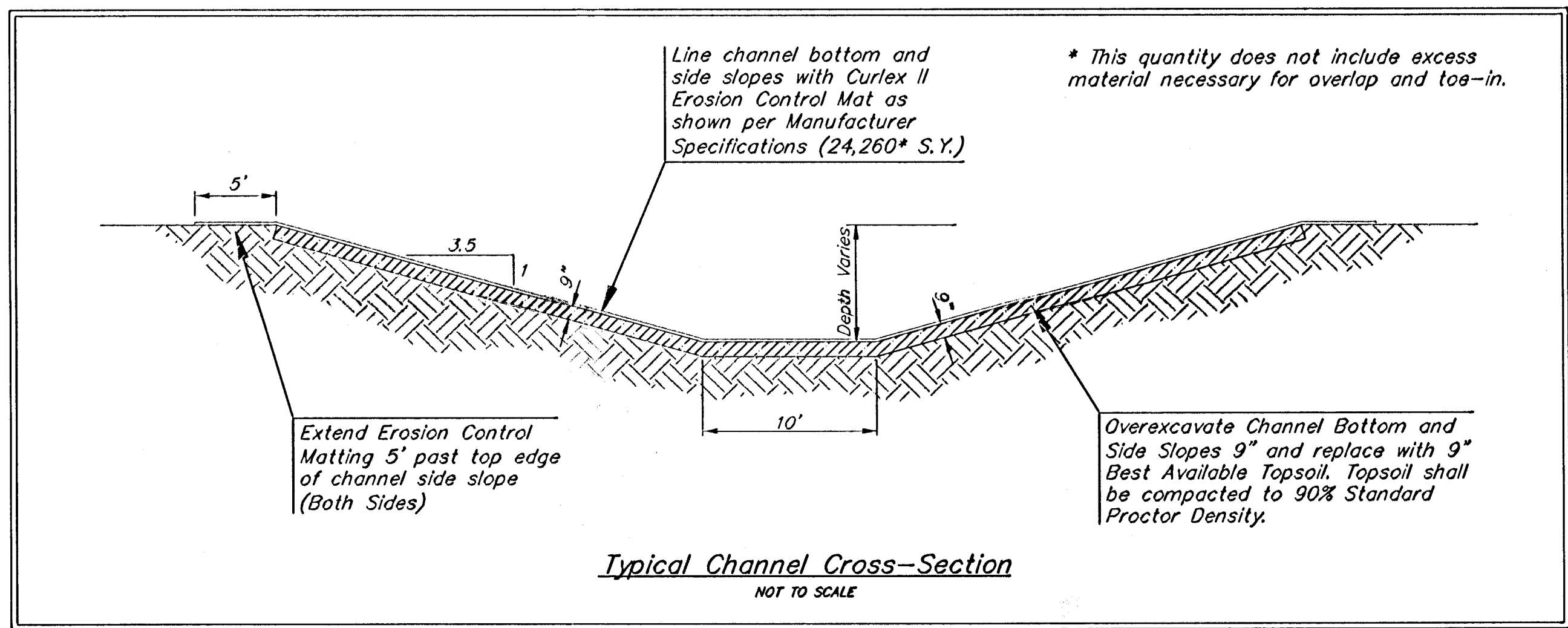
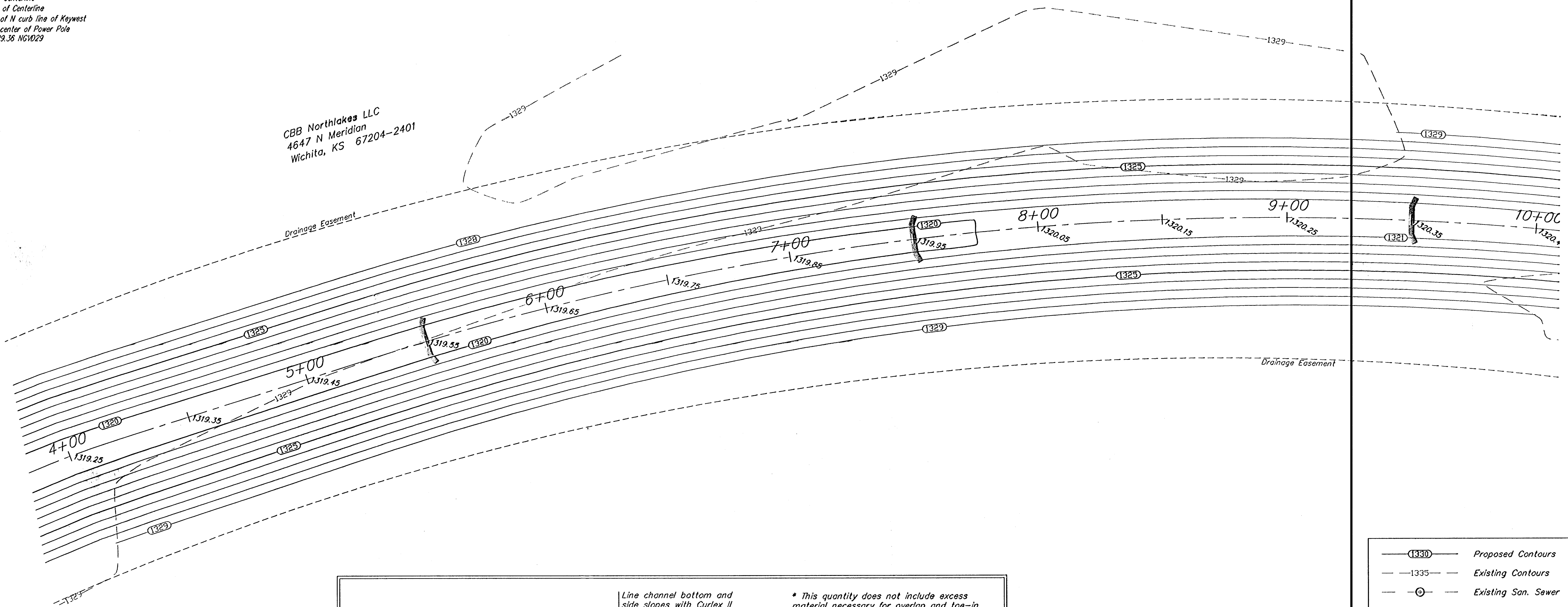
<i>EROSION CONTROL MEASURE</i>	<i>UNITS</i>	<i>QUANTITY</i>
INSTALL STRAW BALE BARRIER	EA	3
INSTALL HEAVY-STONE RIP RAP	SY	95
QUANTITIES ARE FOR INFORMATION ONLY! CONTRACTOR SHALL VERIFY QUANTITIES PER FINAL BID QUANTITY SHEET.		

COW Benchmark at the Intersection
of Meridian and 53rd St N, NE Corner,
Top of Concrete Headwall,
44' North of Centerline
37' East of Centerline
50.90' NE of Section Corner
9' NE of and radial to curb
26' East of Section Line
Elev. = 1331.37 NGVD29

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4.8' NW of center of Power Pole
Elev. = 1329.36 NGVD29

CBB Northlakes LLC
4647 N Meridian
Wichita, KS 67204-2401

Scale: 1" = 20'



EROSION CONTROL MEASURE	UNITS	QUANTITY
INSTALL STRAW BALE BARRIER	EA	3
INSTALL EROSION CONTROL MATTING	SY	24,260
QUANTITIES ARE FOR INFORMATION ONLY! CONTRACTOR SHALL VERIFY QUANTITIES PER FINAL BID QUANTITY SHEET.		

	Proposed Contours
	Existing Contours
	Existing San. Sewer
	Rip Rap to be installed
	Straw Bale Barriers to be installed (This Project)
	Dewatering Well (Abandoned)

As Built 6/18/07 KR

Baughman

Northgate Offsite Drainage
Channel Plan
Storm Water Drain #307

Baughman Company, P.A. 315 Ellis St. Wichita, KS 67211 P 316-263-7771 F 316-263-0149
ENGINEERING | SURVEYING | PLANNING | LANDSCAPE ARCHITECTURE

PROJECT NUMBER 468-04233	DESIGN RDM/AEO	DRAWN RDM
REVISIONS:	APPROVED AEO	DATE 3-14-07
	SCALE Noted	SHEET 3 OF 22

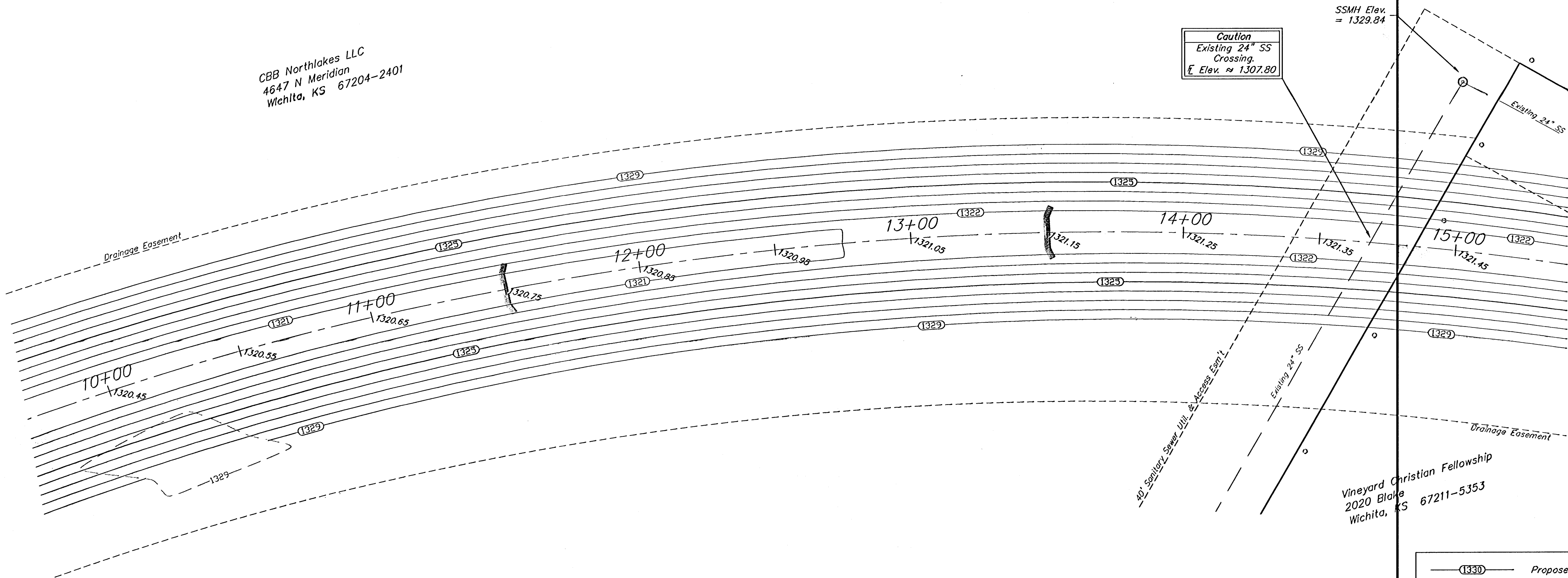
Northgate\OFFSITE CHANNEL.dwg

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Elev. = 1329.36 NGVD29

CBB Northlakes LLC
4647 N Meridian
Wichita, KS 67204-2401

Scale: 1" = 20'



Vineyard Christian Fellowship
2020 Blake
Wichita, KS 67211-5353

- (1330) — Proposed Contours
- (1335) — Existing Contours
- (S) — Existing San. Sewer
- Rip Rap to be installed
- Straw Bale Barriers to be installed (This Project)
- Dewatering Well (Abandoned)

As Built 6/18/05 KX

EROSION CONTROL MEASURE	UNITS	QUANTITY
INSTALL STRAW BALE BARRIER	EA	2
QUANTITIES ARE FOR INFORMATION ONLY! CONTRACTOR SHALL VERIFY QUANTITIES PER FINAL BID QUANTITY SHEET.		

Baughman
Baughman Company, P.A. 315 Elm St. Wichita, KS 67211 P 316-265-9711 F 316-265-0149
ENGINEERING | SURVEYING | PLANNING | LANDSCAPE ARCHITECTURE

Northgate Offsite Drainage
Channel Plan
Storm Water Drain #307

PROJECT NUMBER 468-54123	DESIGN RDM/AEG	DRAWN RDM
REVISIONS	APPROVED AEG	DATE 3-14-07
	SCALE Noted	SHEET 4 OF 22

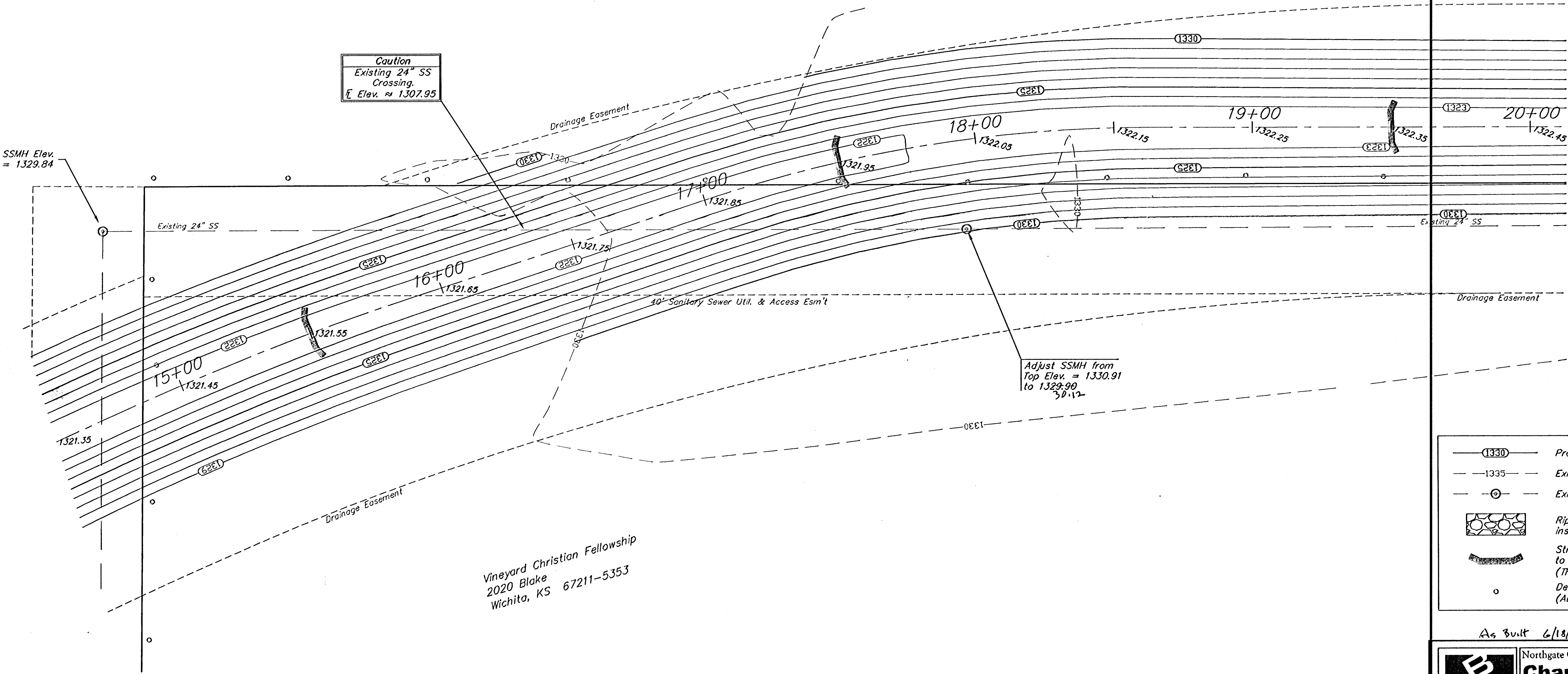
Northgate\OFFSITE CHANNEL.dwg

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Elev. = 1329.36 NGVD29

Scale: 1" = 20'

CBB Northlakes LLC
4647 N Meridian
Wichita, KS 67204-2401



Vineyard Christian Fellowship
2020 Blake
Wichita, KS 67211-5353

EROSION CONTROL MEASURE	UNITS	QUANTITY
INSTALL STRAW BALE BARRIER	EA	3
QUANTITIES ARE FOR INFORMATION ONLY! CONTRACTOR SHALL VERIFY QUANTITIES PER FINAL BID QUANTITY SHEET.		

1330

Proposed Contours

1335

Existing Contours

Existing San. Sewer

Rip Rap to be installed

Straw Bale Barriers to be installed (This Project)

Dewatering Well (Abandoned)

As Built 6/18/07 KK

Northgate Offsite Drainage
Channel Plan
Storm Water Drain #307

Baughman Company, P.A. 315 Ellis St. Wichita, KS 67211 P 316-263-7711 F 316-263-0149
ENGINEERING | SURVEYING | PLANNING | LANDSCAPE ARCHITECTURE

PROJECT NUMBER 468-94253	DESIGN RDM/AEG	DRAWN RDM
APPROVED AEG	DATE 3-14-07	

REVISIONS:

SCALE Noted	SHEET 5 OF 22
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Northgate\OFFSITE CHANNEL.dwg

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4.8' NW of center of Power Pole
Elev. = 1329.36 NGVD29

CBB Northlakes LLC
4647 N Meridian
Wichita, KS 67204-2401

Armour Flex

Install 70 S.Y. Heavy-Stone
Rip-rap on side slope of
channel as shown. See detail
this sheet.

*Regrade Area to drain to
Rip-Rap*

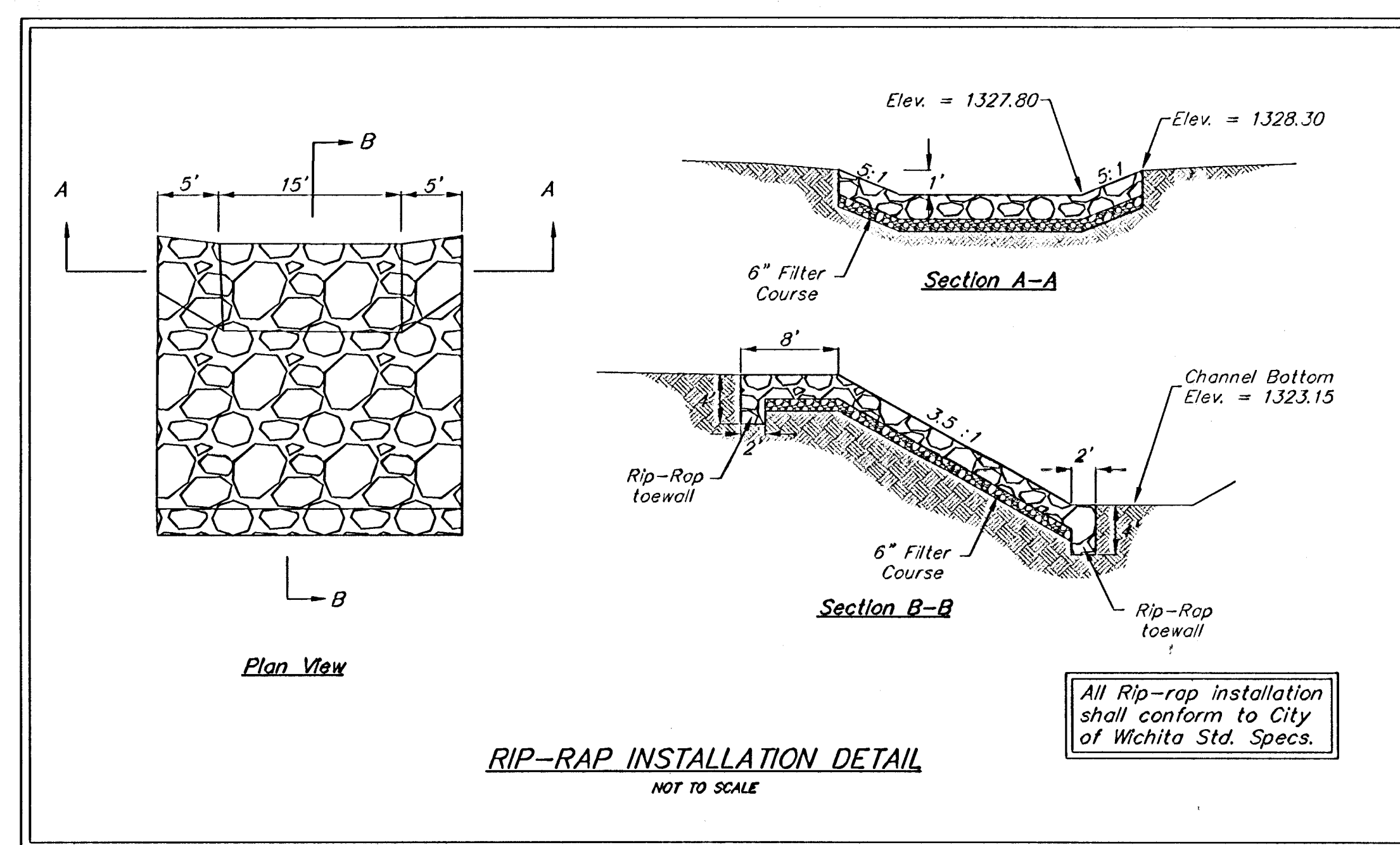
1328.23 +
Flow From Existing
4 - 4' x 2' RCBC

Remove Trees only as necessary for channel construction. All trees not in direct conflict with proposed channel shall remain and shall be protected from damage. Any trees that need trimmed shall be side trimmed with a chainsaw.

Scale: 1" = 20'

SSMH Elev.
= 1331.65

Vineyard Christian Fellowship
2020 Blake
Wichita, KS 67211-5353



EROSION CONTROL MEASURE	UNITS	QUANTITY
INSTALL STRAW BALE BARRIER	EA	2
INSTALL HEAVY-STONE RIP RAP	SY	70

QUANTITIES ARE FOR INFORMATION ONLY!
 CONTRACTOR SHALL VERIFY QUANTITIES PER
 FINAL BID QUANTITY SHEET.

As Built 6/18/07 Rv

 Baughman	Northgate Offsite Drainage Channel Plan Storm Water Drain #307													
	Baughman Company, P.A. 315 Ella St. Wilton, NJ 07151 P: 316-262-7711 F: 316-262-6149 ENGINEERING SURVEYING PLANNING LANDSCAPE ARCHITECTURE													
PROJECT NUMBER 468-84253	<table border="1"> <tr> <td>DESIGN</td> <td>DRAWN</td> </tr> <tr> <td>RDW/AEG</td> <td>RAM</td> </tr> <tr> <td>APPROVED</td> <td>DATE</td> </tr> <tr> <td>AEG</td> <td>3-14-07</td> </tr> <tr> <td colspan="2"> SCALES Noted </td> </tr> <tr> <td colspan="2"> SHEET </td> </tr> </table>		DESIGN	DRAWN	RDW/AEG	RAM	APPROVED	DATE	AEG	3-14-07	SCALES Noted		SHEET	
DESIGN	DRAWN													
RDW/AEG	RAM													
APPROVED	DATE													
AEG	3-14-07													
SCALES Noted														
SHEET														
REVISIONS:	6 OF 22													

Northgate OFFSITE CHANNEL.dwg

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Scale: 1" = 20'

Remove Trees only as necessary
for channel construction. All trees
not in direct conflict with proposed
channel shall remain and shall be
protected from damage. Any trees
that need trimmed shall be side
trimmed with a chainsaw.

CBB Northlakes LLC
4647 N Meridian
Wichita, KS 67204-2401

Contractor shall reconstruct ditches
after construction of RCBC and shall
re-establish preconstruction ditch
grades (Both Sides). Reconstructed
ditches shall be lined with Curlex II
Erosion Control Matting (Approx. 270
S.Y.).

E of Proposed
RCBC = 1324.00

Caution
Existing 24" SS
Crossing.
E Elev. = 1308.85

Contractor shall Construct and
Maintain one Construction Entrance
onto Existing Paved Roadway
(53rd St. N). Temporary 15" Pipe
shall be installed in ditch. Cost of
Pipe shall be incidental to Bid Item
"Construction Entrance Installed"

EROSION CONTROL MEASURE	UNITS	QUANTITY
INSTALL STRAW BALE BARRIER	EA	2
INSTALL EROSION CONTROL MATTING	SY	270

QUANTITIES ARE FOR INFORMATION ONLY!
CONTRACTOR SHALL VERIFY QUANTITIES PER
FINAL BID QUANTITY SHEET.

- Proposed Contours
- Existing Contours
- Existing San. Sewer
- Rip Rap to be installed
- Straw Bale Barriers to be installed (This Project)
- Dewatering Well (Abandoned)

As Built 5/18/07

**Baughman**

Notgate Offsite Drainage
Channel Plan
Storm Water Drain #307

Baughman Company, P.A. 315 Ellis St. Wichita, KS 67211 P 316.263.7271 F 316.263.0149
ENGINEERING | SURVEYING | PLANNING | LANDSCAPE ARCHITECTURE

PROJECT NUMBER 468-84253	DESIGN RDM/AEG	DRAWN RDM
REVISIONS:	APPROVED AEG	DATE 3-14-07
	SCALE Noted	SHEET 7 OF 22

Northgate\OFFSITE CHANNEL.dwg

COB Benchmark at the Intersection
of Meridian and 53rd St N, NE Corner,
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44' North of Centerline
37' East of Centerline
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Vineyard Christian Fellowship
2020 Blake
Wichita, KS 67211-5353

CBB Northlakes LLC
4647 N Meridian
Wichita, KS 67204-2401

R & R Realty LLC
Bldg 1000
8100 E 22nd St N
Wichita, KS 67226-2310

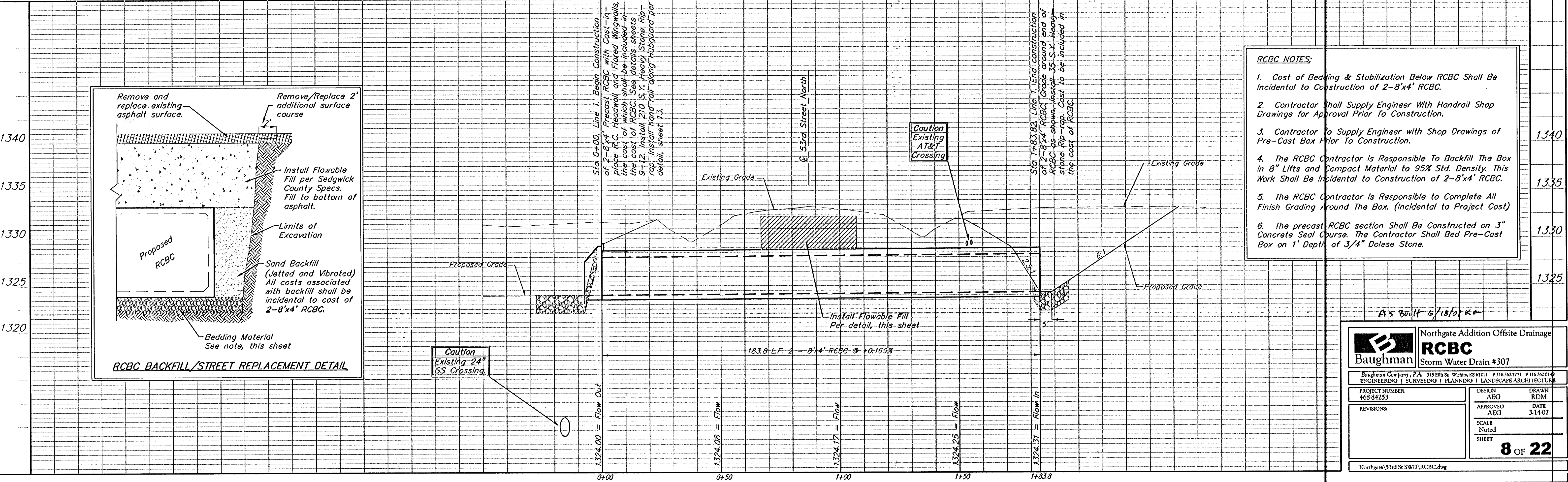
Note: Existing AT&T Lines have been
adjusted and encased prior to
construction. Special care shall be given
to reconstruct ditch backslope to
provide plenty of cover for AT&T Lines.
Contractor shall coordinate RCBC
construction around existing AT&T lines
with Jason Edwards 268-2759.

Sta 0+00, Line 1. Begin Construction
of 2-8'x4' Precast RCBC with Cast-in-
place R.C. Headwall and Flared Wingwalls,
the cost of which shall be included in
the cost of RCBC. See details, sheets
9-12. Install 220 S.Y. Heavy-Stone Rip-
rap. Install hand rail along Hubguard
per detail, sheet 15.

Install 41 L.F. Flowable Fill per Sedgwick County
Specifications. See Backfill/Street Replacement
Detail, this sheet. Extend Flowable Fill 2' beyond
edge of pavement, both sides.

Saw-cut, remove and replace A.C. Pavement
as necessary for construction of RCBC. All costs
associated with Removal and Replacement of A.C.
Pavement and Replacement of Permanent Striping
shall be included in "Site Clearing & Restoration"

Sta 1+83.8, Line 1. End construction
of 2-8'x4' RCBC. Grade around end of RCBC
as shown. Install 35 S.Y. Heavy-Stone Rip-
rap. Cost of excavation and grading in this
area to be included in the cost of RCBC.

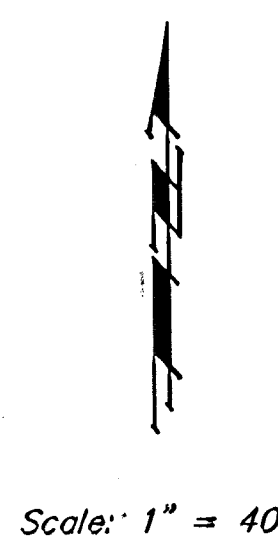
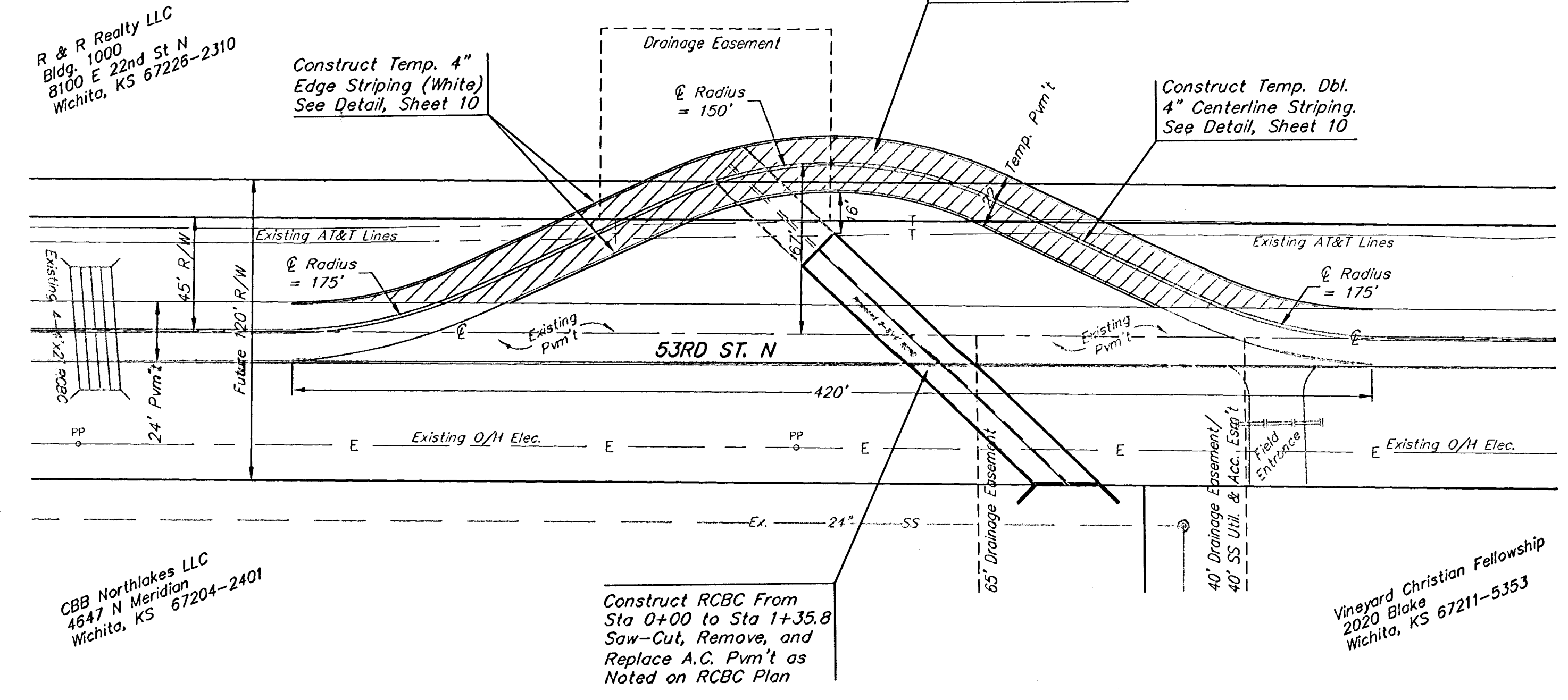


- RCBC NOTES:**
1. Cost of Bedding & Stabilization Below RCBC Shall Be Incidental to Construction of 2-8'x4' RCBC.
 2. Contractor Shall Supply Engineer With Handrail Shop Drawings for Approval Prior To Construction.
 3. Contractor To Supply Engineer with Shop Drawings of Pre-Cast Box Prior To Construction.
 4. The RCBC Contractor is Responsible To Backfill The Box in 8" Lifts and Compact Material to 95% Std. Density. This Work Shall Be Incidental to Construction of 2-8'x4' RCBC.
 5. The RCBC Contractor is Responsible to Complete All Finish Grading Around The Box. (Incidental to Project Cost)
 6. The precast RCBC section Shall Be Constructed on 3" Concrete Seal Course. The Contractor Shall Bed Pre-Cast Box on 1' Depth of 3/4" Dolese Stone.

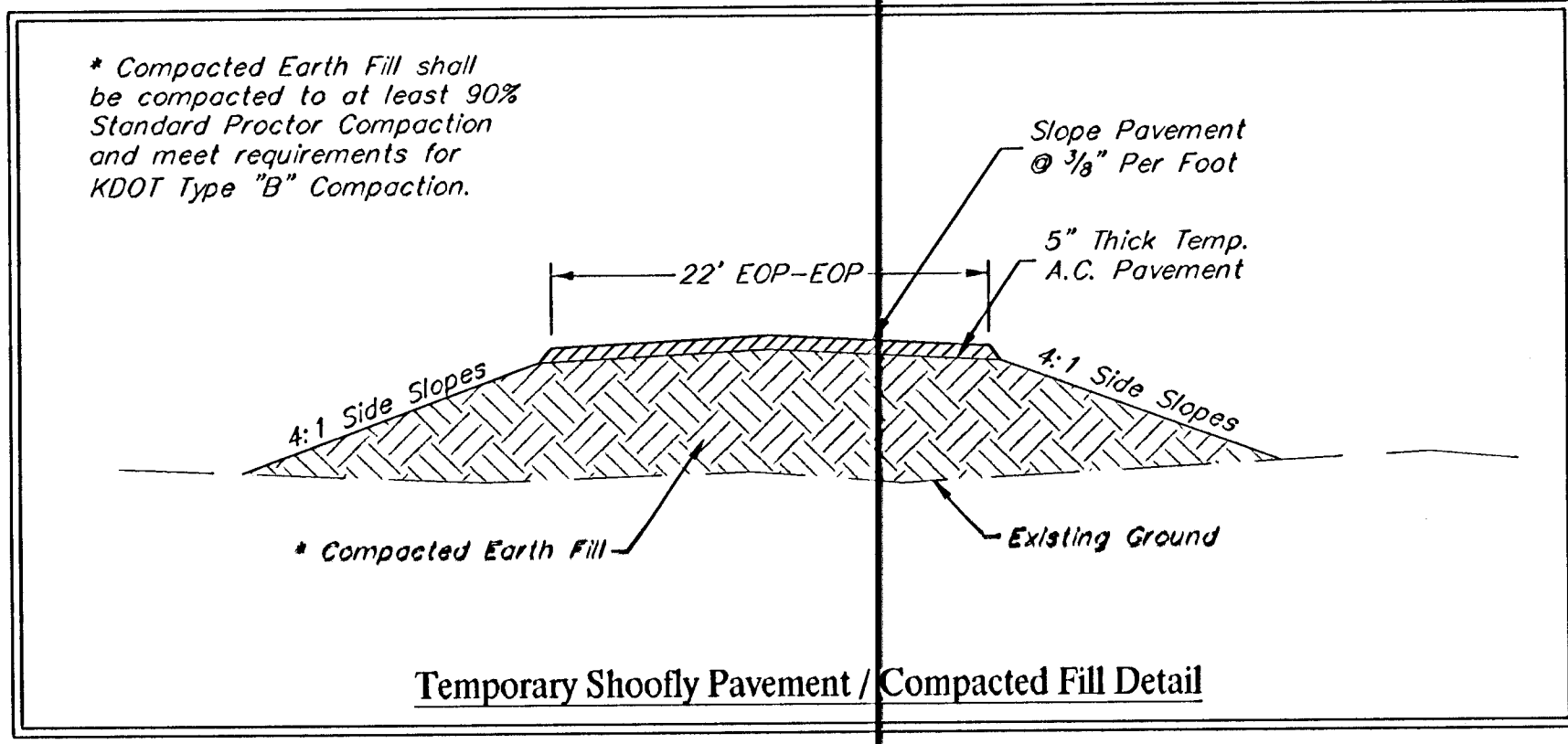
As Built 6/18/21 K+

Baughman		Northgate Addition Offsite Drainage	
RCBC		Storm Water Drain #307	
Baughman Company, P.A. 315 Ellis St. Wichita, KS 67211 F 3162637271 F 3162637010			
ENGINEERING SURVEYING PLANNING LANDSCAPE ARCHITECTURE			
PROJECT NUMBER 468-0423	DESIGN AEG	DRAWN RDM	DATE 3-14-07
REVISIONS	APPROVED AEG	SCALE Noted	SHEET 8 OF 22
Northgate 53rd St SWD/RCBC.dwg			

RCBC Construction
Phase 1



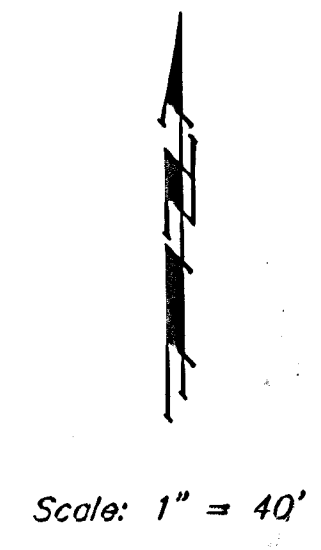
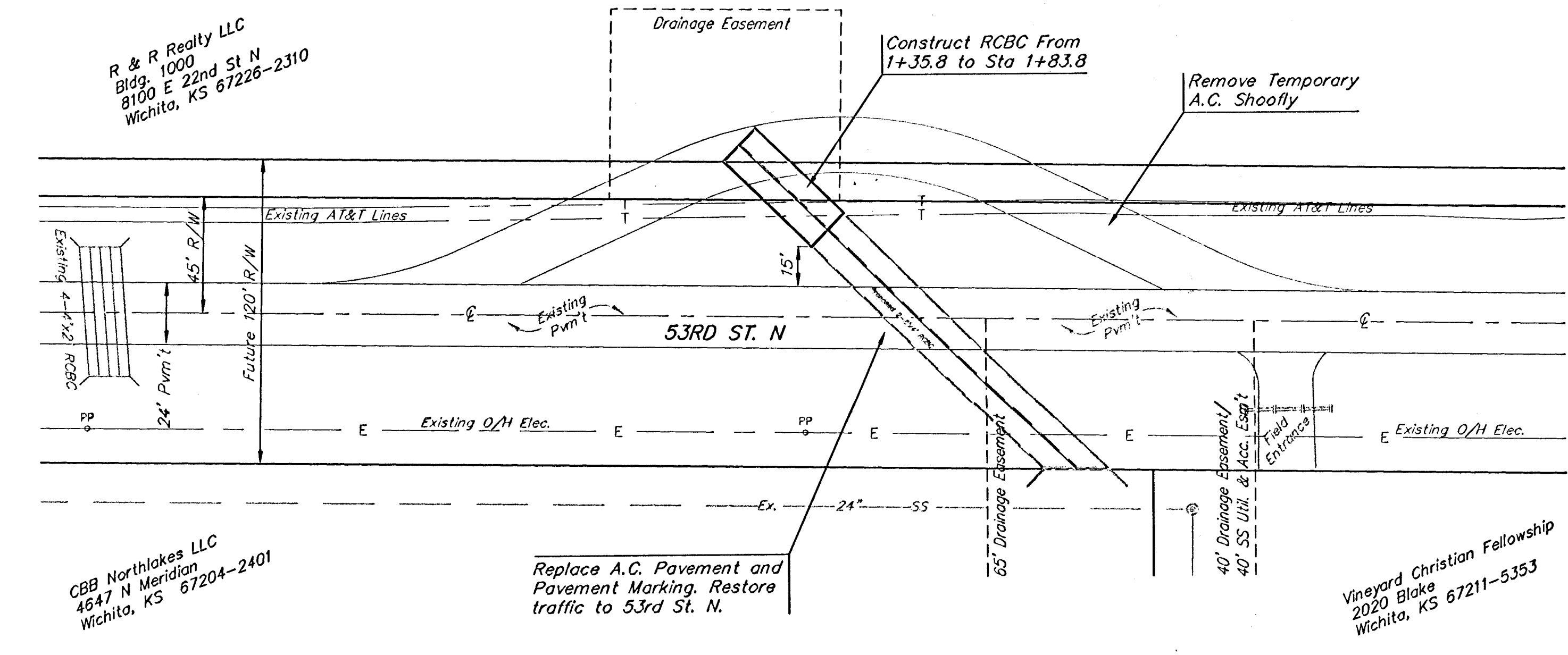
- NOTES:**
1. All cost associated with Construction and Removal of Temporary A.C. Shoofly shall be included in the lump sum bid item "Temporary Shoofly." This includes, but is not limited to the construction and removal of: Compacted Earth Fill, Temporary A.C. Pavement, Temporary Pavement Striping.
 2. Contractor shall maintain the condition of temporary pavement and temporary striping until it is no longer needed.



QUANTITIES FOR TEMPORARY SHOOFLY (FOR INFORMATION ONLY)

ITEM	UNITS	QUANTITY
5" A.C. PAVEMENT	S.Y.	820
4" CENTERLINE STRIPING (YELLOW)	L.F.	1,500
4" EDGE LINE STRIPING (WHITE)	L.F.	900

RCBC Construction
Phase 2



- NOTES:**
1. All disturbed areas within 53rd Street R/W shall be regraded and restored to pre-construction conditions. All costs associated with regrading and restoring site shall be incidental to the lump sum bid item "Site Clearing and Restoration."
 2. Any Pavement or Striping which is damaged during construction shall be repaired as necessary at the Contractor's Expense, with no additional cost to the project.
 3. Pavement replacement shall meet Sedgwick County Standards for BM-2 Type pavement mix.
 4. Final Permanent Striping shall be "Thermoplastic" Type and meet Sedgwick County Standards.

PROJECT BENCHMARKS:

COW Benchmark at the Intersection of Meridian and 53rd St N, NE Corner, Top of Concrete Headwall, 44' North of Centerline, 37' East of Centerline, 50.90' NE of Section Corner, 9' NE of and radial to curb, 26' East of Section Line, Elev. = 1331.37 NGVD29

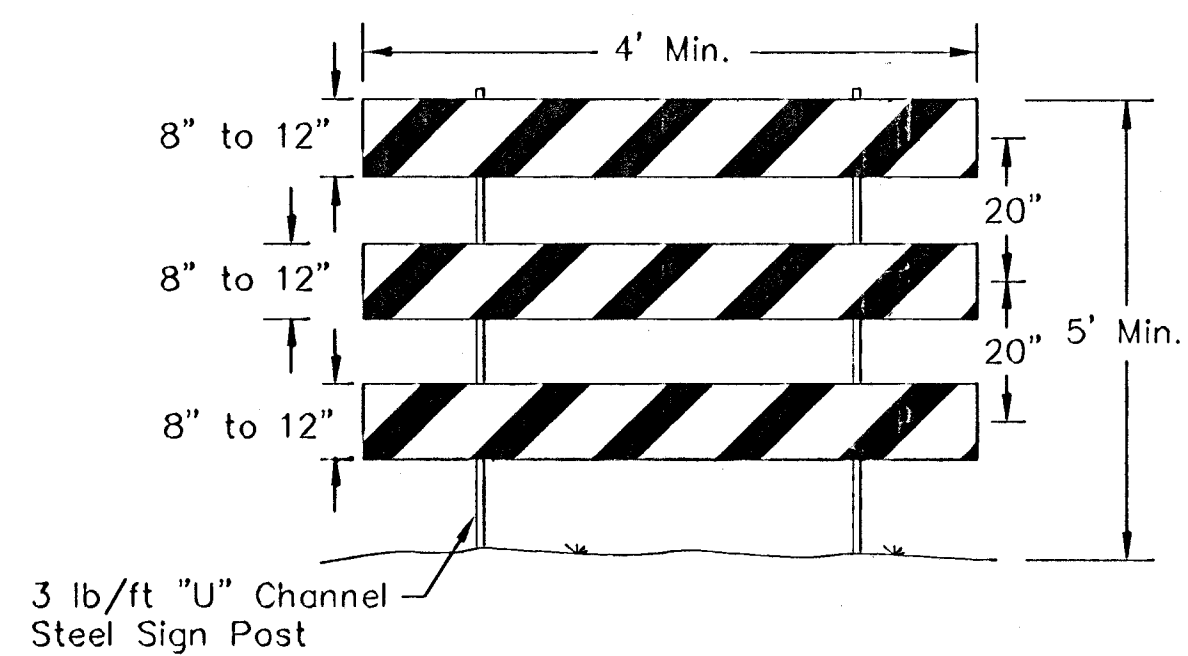
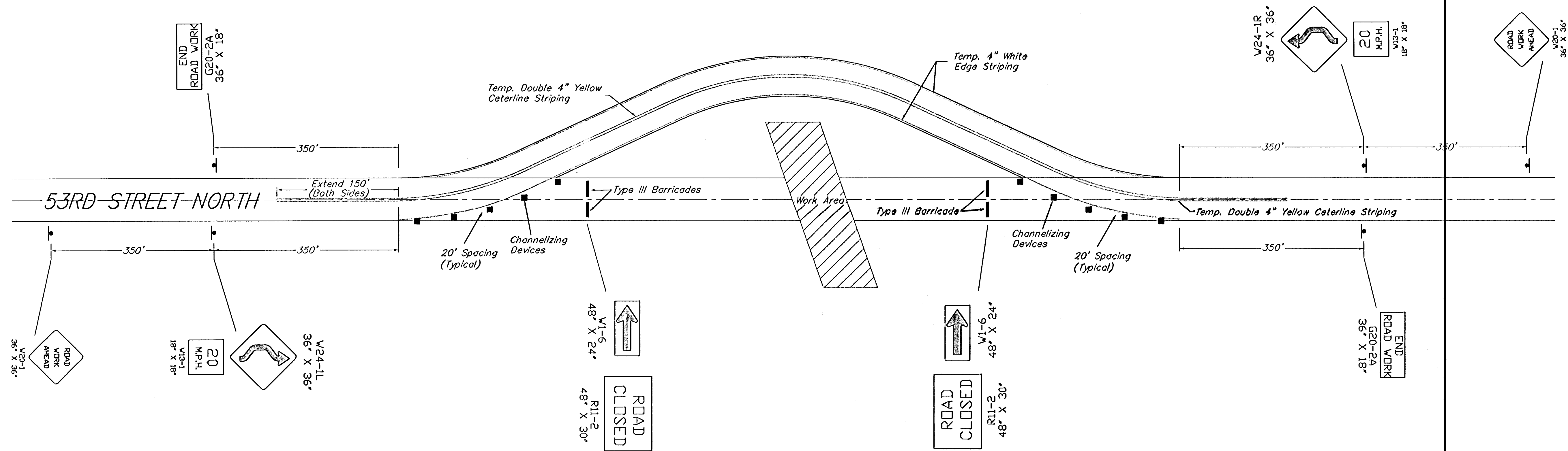
COW Benchmark at the Intersection of Meridian and Keywest, NW Corner, 59' West of Centerline, 32.3' North of Centerline, 11.8' North of N curb line of Keywest, 4.8' NW of center of Power Pole, Elev. = 1329.36 NGVD29

Baughman Northgate Offsite Drainage Construction Phasing & Temporary Shoofly Storm Water Drain #307

Baughman Company, P.A. 315 Ellis St. Wichita, KS 67211 P 316-263-9111 F 316-262-0149
ENGINEERING | SURVEYING | PLANNING | LANDSCAPE ARCHITECTURE

PROJECT NUMBER 468-24233	DESIGN RDM/AEG	DRAWN RDM
REVISIONS	APPROVED AEG	DATE 3-14-07
	SCALE Noted	SHEET 9 OF 22

No Scale



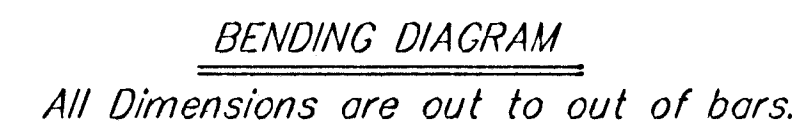
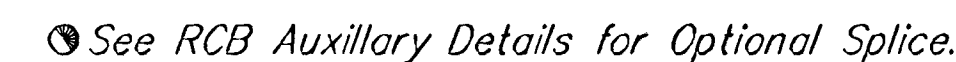
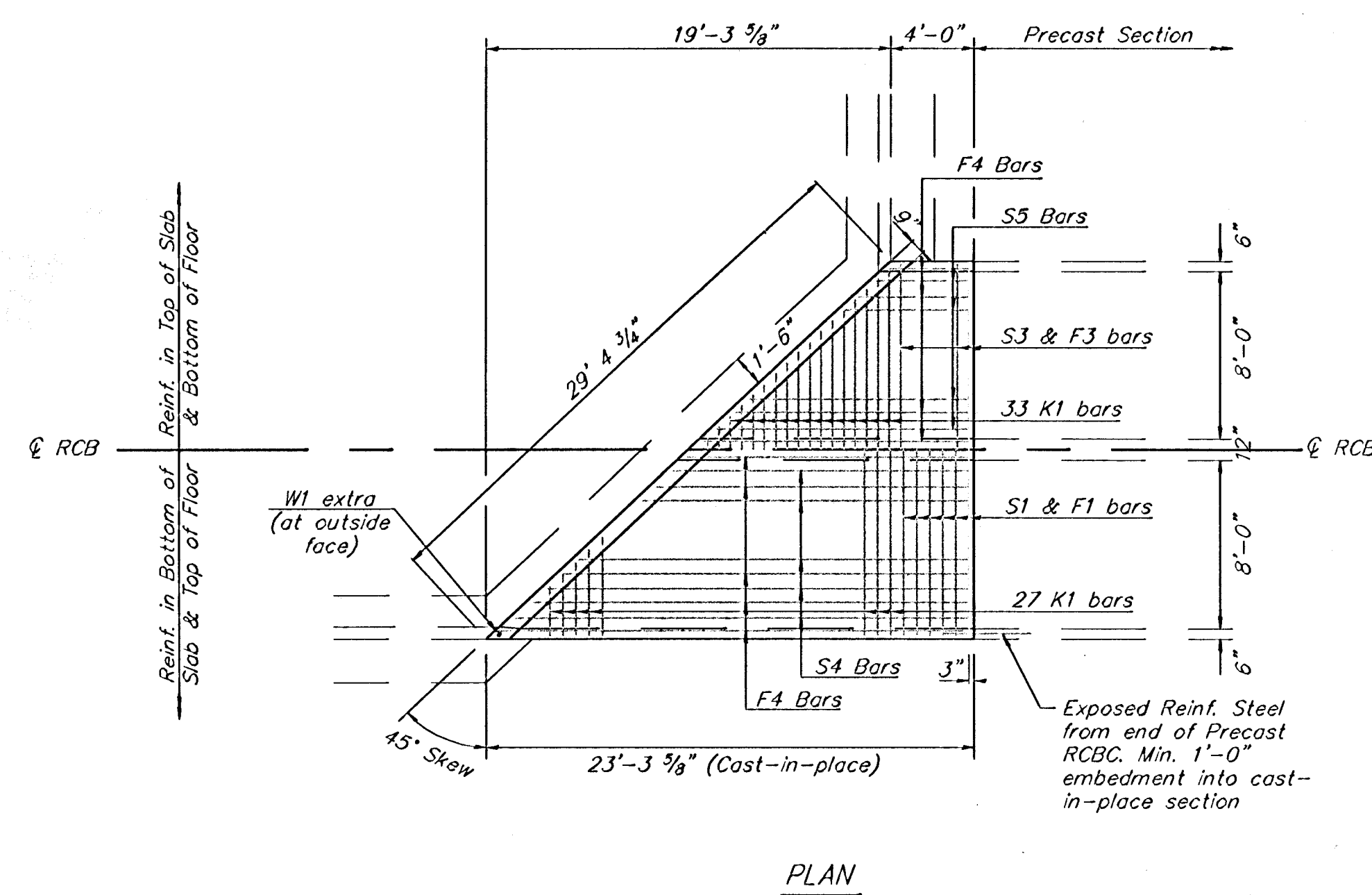
TYPE III BARRICADE

NOTES:

1. The Contractor shall protect traffic by use of proper and necessary flags, lights, signals, barricades or other warning devices as needed, all in accordance with the latest edition of the Manual On Uniform Traffic Control Devices (MUTCD).
2. Channelizing Devices shall be either "Reflectorized Drum" type at least 36" tall, or "Tubular Markers" at least 28" tall with retroreflectorized bands.
3. All cost associated with the Installation, Maintenance, and Removal of Traffic Control Devices shall be included in Lump Sum Bid Item "Traffic Control."

		Northgate Offsite Drainage Traffic Control & Sign Details Storm Water Drain #307	
Baughman Company, P.A. 315 Ellis St. Winton, KS 67121 F 316262-7271 F 316262-0149 ENGINEERING SURVEYING PLANNING LANDSCAPE ARCHITECTURE			
PROJECT NUMBER 468-84253		DESIGN RDM/AEG	DRAWN RDM
REVISIONS		APPROVED AEG	DATE 3-14-07
SCALE No Scale		SHEET 10 OF 22	

NO.	DATE		REVISIONS	BY	APPROV'D
 DOUBLE 8 ft x 4 ft RCB (47" SKEW LT.) BR 284 P Sedgwick Co. 					
DRAW APPROVAL			6-5-91	APP'D	KENNETH F. HURST
DESIGN	DETAILED		QUANTITIES	TRACED	
DESIGN CK.	DETAIL CK.		QUAN.CK.	TRACE CK.	



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

Minimum Splice Length	
Concrete (Grade 4.0)	11.7 C.Y.
Concrete (Grade 4.0) (AE)	6.3 C.Y.
Reinf. Steel (Gr. 60)	812 Lbs.
Reinf. Steel (Epoxy Coated)	1,244 Lbs.
Class III Excavation	C.Y.
Foundation Stabilization (Set)	1 C.Y.
Concrete for Seal Course (Set)	1 C.Y.
Granular Backfill (Winwalls) (Set)	1 C.Y.

LOADING: HS20-44 AASHTO Specifications, 1983 Edition.

UNIT STRESSES: Grade 4.0 Concrete; $f'_c = 4,000$ p.s.i.
Reinforcing Steel; $f_y = 60,000$ p.s.i.

FILL HEIGHT: Unless otherwise noted, the Design Fill Height is measured from the riding surface at the culvert and shall include the surfacing.

CONCRETE: Grade 4.0 Concrete shall be used throughout. Bevel all exposed edges with a 3/4 inch triangular moulding. Where Grade 4.0 Concrete (AE) is specified, it shall be placed in the top slab above the Construction Joint.

REINFORCING: All reinforcing shall conform to ASTM A615, Grade 60. All dimensions relative to reinforcing steel shall be to centerline of bar unless otherwise noted.

EXCAVATION: Excavation for culverts less than bridge length shall not be paid for directly but shall be subsidiary to Grade 4.0 Concrete. Excavation for RCB Bridges shall be paid for as Class III Excavation.

SEAL COURSE: A Seal Course may be required by the Engineer. The Seal Course shall be unreinforced Concrete (Commercial Grade) to a minimum depth of 3 inches or as determined by the Engineer. Concrete for the seal course shall be paid for at the unit price set for Concrete for Seal Course.

FOUNDATION STABILIZATION: Foundation Stabilization may be required as directed by the Engineer. The depth of Foundation Stabilization shall be determined by the Engineer. Foundation Stabilization shall be paid for at the determined Unit Price set for Foundation Stabilization. See Auxiliary Details.

QUANTITIES: The quantities shown in the Culvert Summary include apron and/or soffit sower quantities when their construction is required by the plans. Payment for additional quantities that result from including seal course and/or floating apron, as a change in original plans, shall be made at the Unit Price bid for the various items involved.

GRANULAR BACKFILL (WINGWALLS): Special backfill procedures may be required at the direction of the Engineer. See Auxiliary Details Sheet.

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.

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KS	468-84253	2007	12	22

GENERAL NOTES

UNIT STRESSES: Grade 4.0 Concrete; $f'_c = 4,000$ p.s.i.
Reinforcing Steel; $f_y = 60,000$ p.s.i.

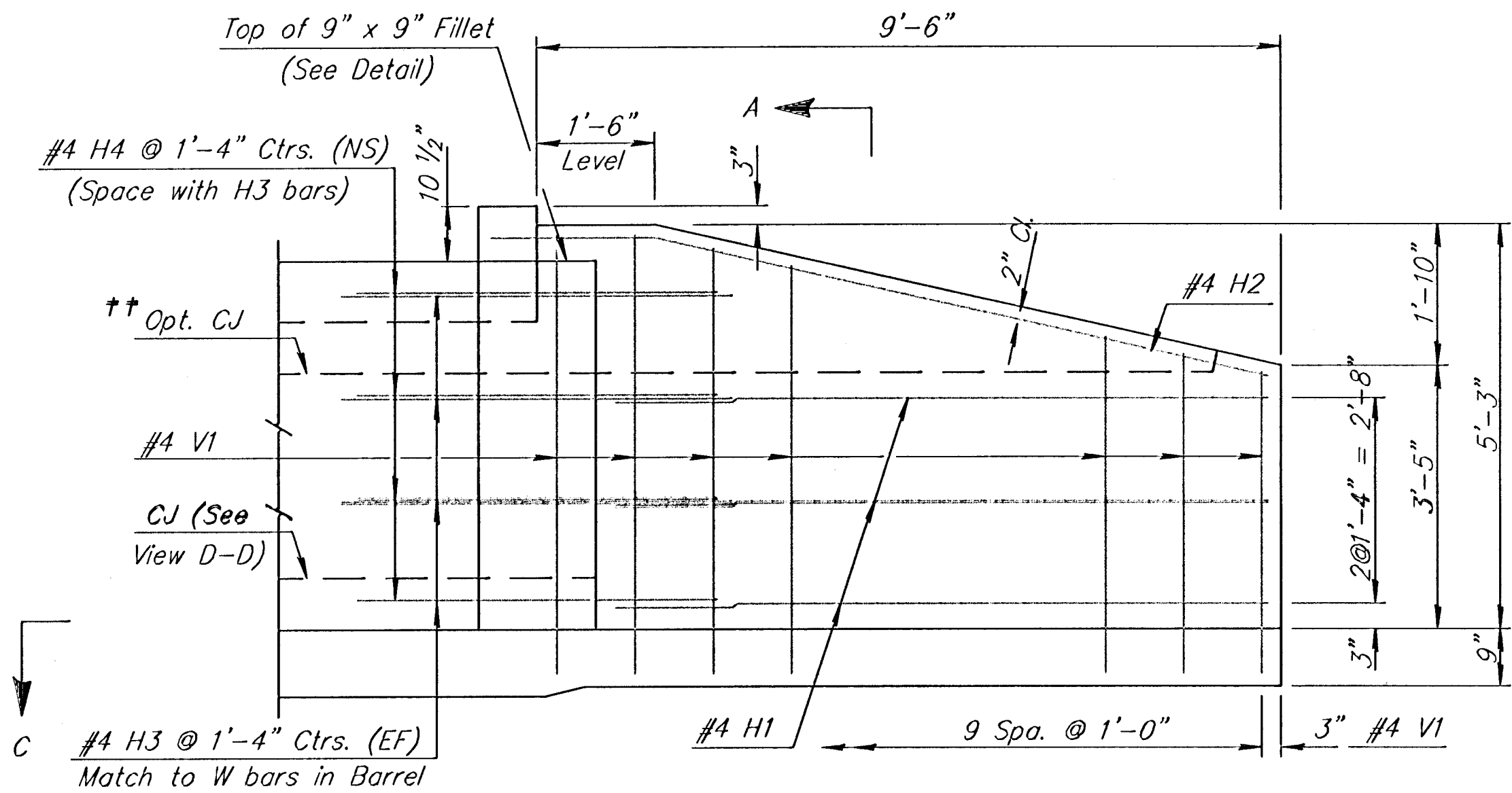
CONCRETE: Grade 4.0 Concrete shall be used throughout. Bevel all exposed edges with a $3/4$ inch triangular moulding.

REINFORCING: All reinforcing shall conform to ASTM A615, Grade 60. Welded Wire Fabric shall conform to ASTM A185. All dimensions relative to reinforcing steel shall be to center-line of bar unless otherwise noted.

QUANTITIES: Wingwall Quantities include all quantities outside the neat lines of the box, excluding the hubguard.

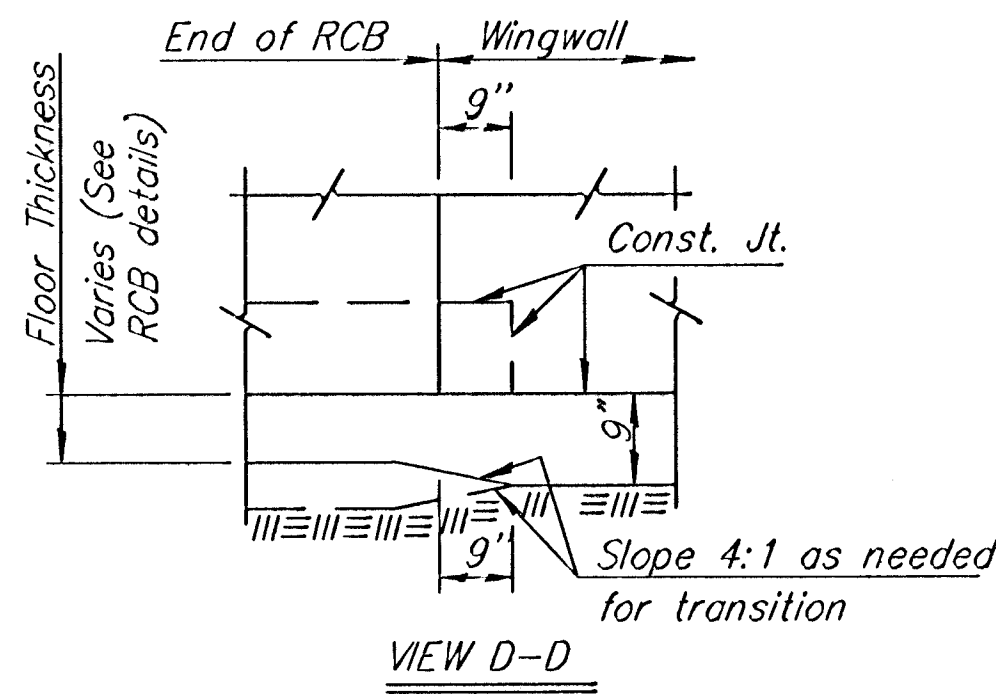
APRON: A 5" concrete slab shall be constructed between the downstream wings in locations subject to scour only when specified on the plans or by the Engineer. Wire Reinforcing mesh shall be electrically welded and shall be composed of 6 x 6-W1.4 x W1.4 welded wire fabric and shall be classified as pounds of reinforcing.

FOUNDATION AND BACKFILL MATERIAL: Soils judged as high plasticity clays, fat clays, expansive clays, or organic clays are unsuitable for foundation and/or backfill material for wingwalls and will not be used. Where these conditions exist, Foundation Stabilization and/or Granular Backfill (Wingwalls) shall be used as determined by the Engineer. See "RCB Auxiliary Details" sheet for additional details.

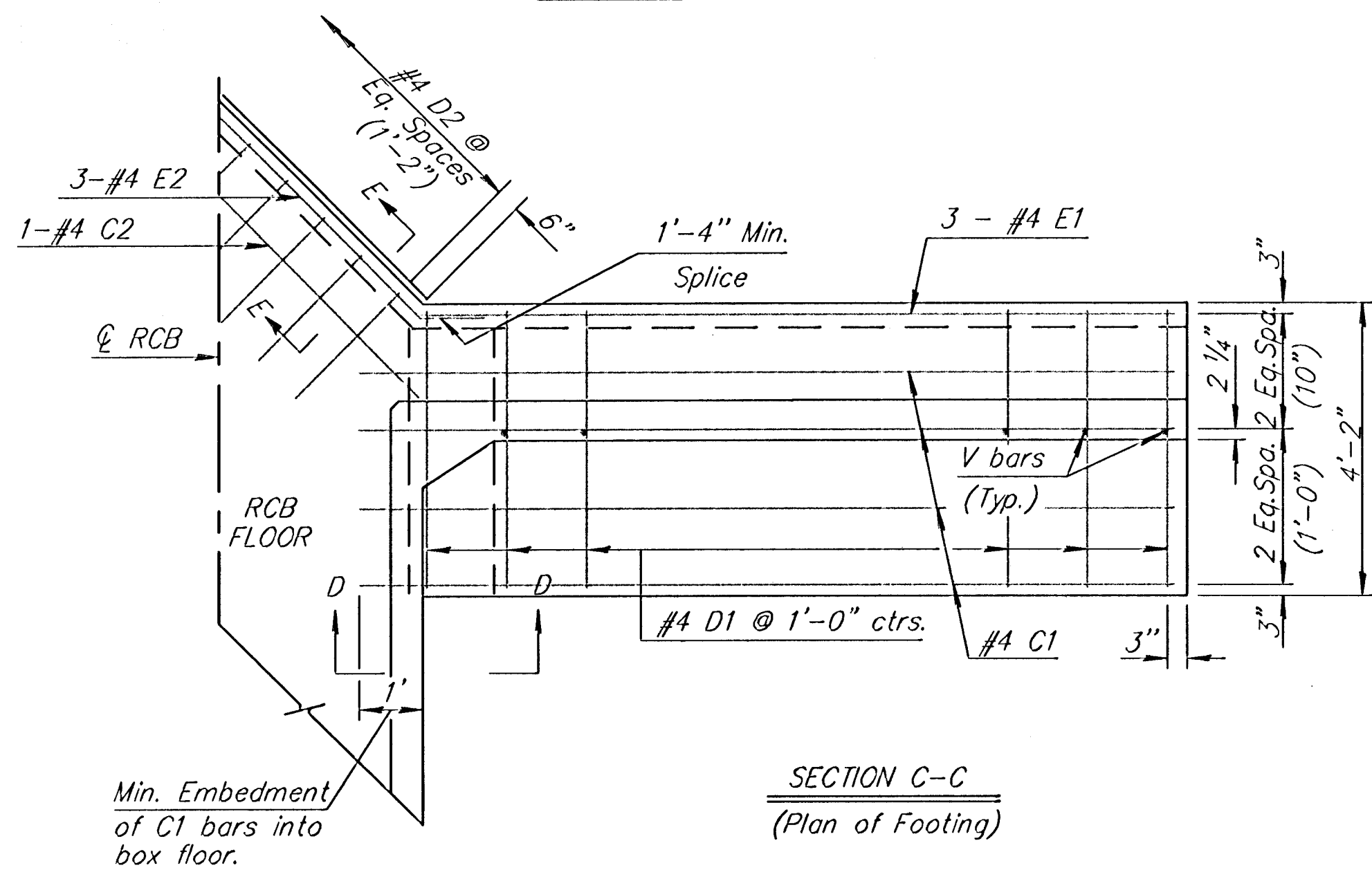


†† See RCB Details for location of construction joint.

ELEVATION OF WINGWALL
(Backface Shown)

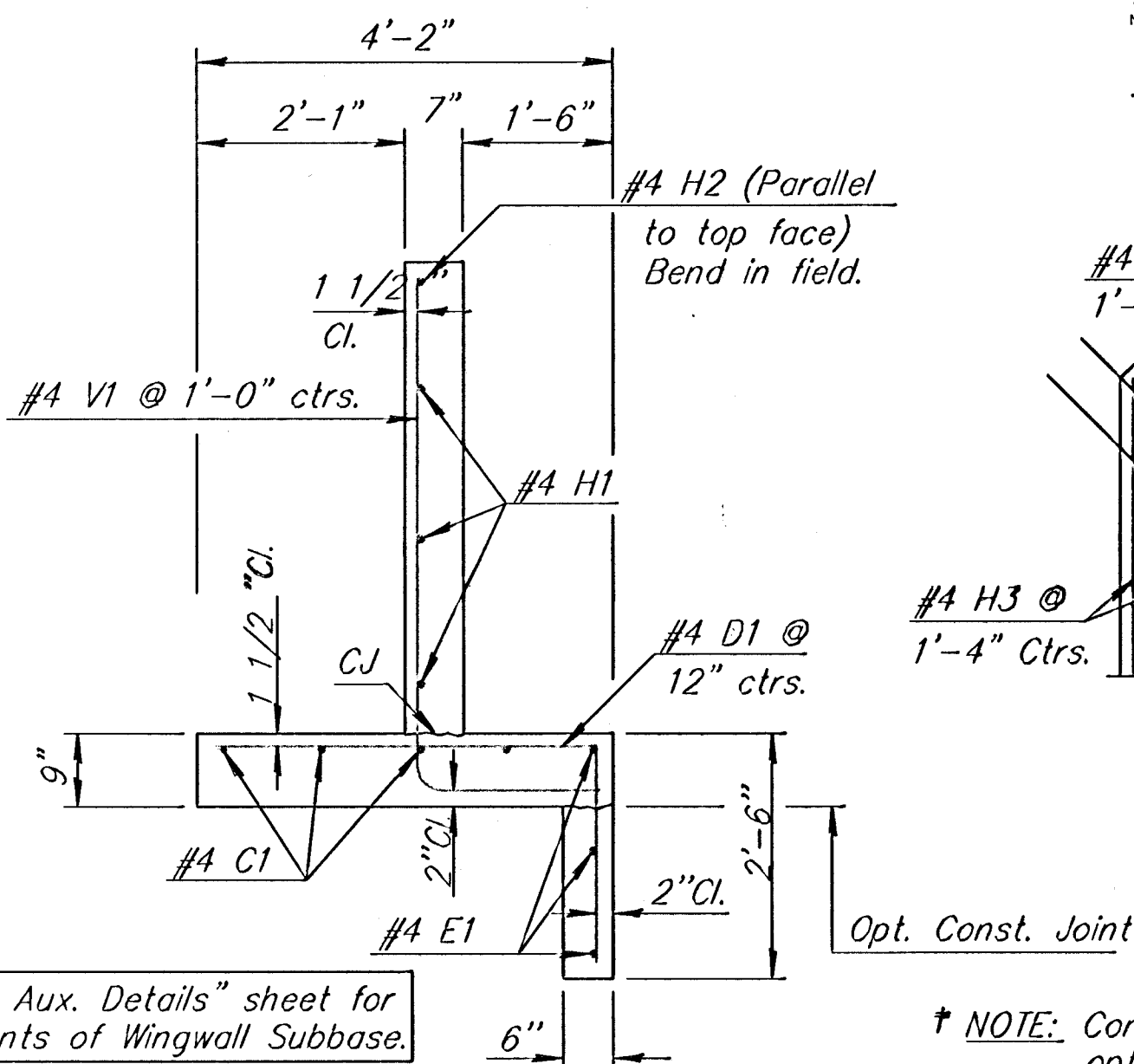


VIEW D-D



SECTION C-C
(Plan of Footing)

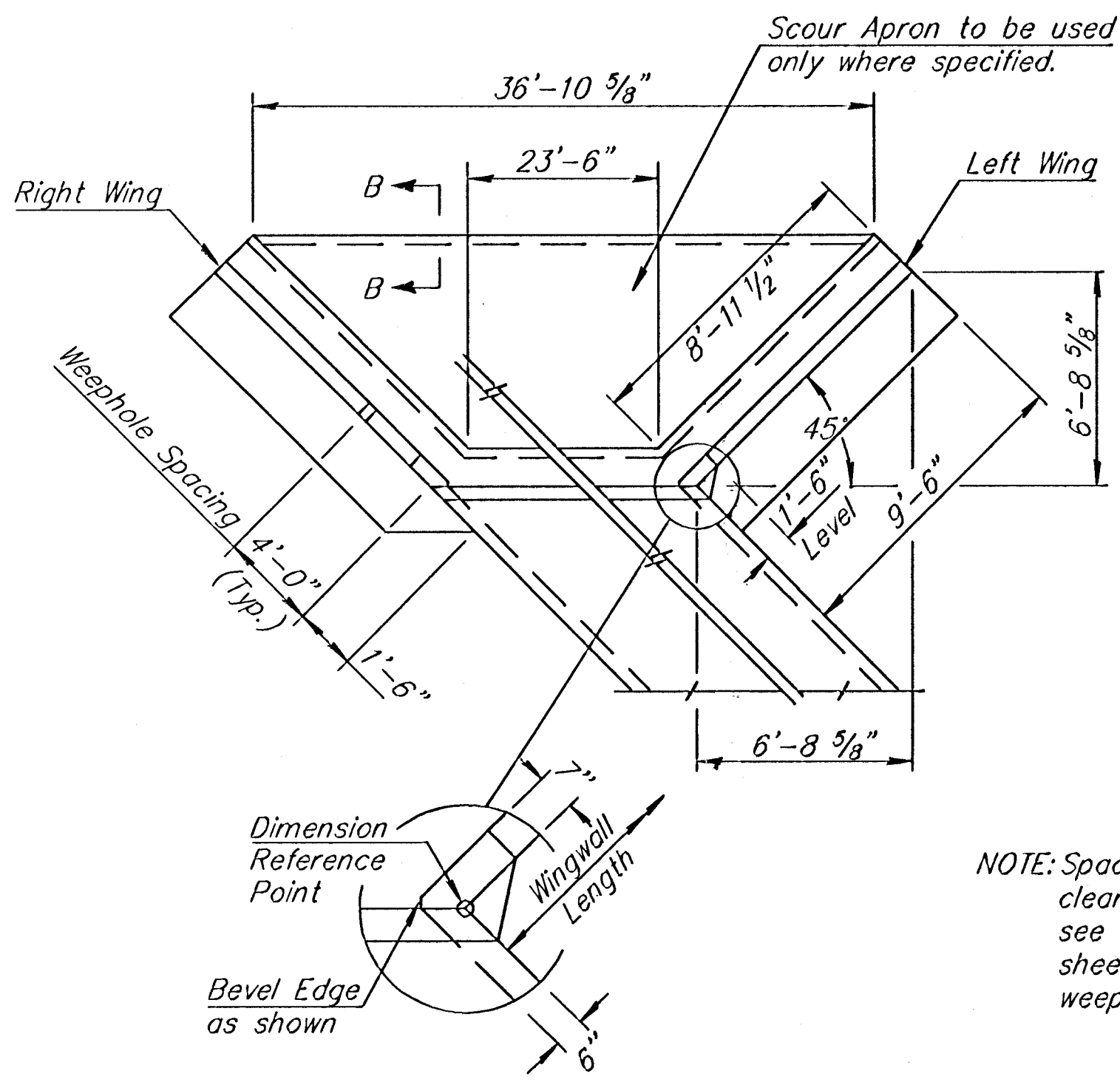
BAR SCHEDULE		*See bending diagram (all reinf. is #4)									
Bar Number	C1	D1	E1	C2	D2	E2	V1	H1	H3R	H4	
Length	10'-4"	6'-0"	8'-9"	25'-6"	5'-8"	26'-3"	*	8'-2"	5'-0"	2'-4"	



See "RCB Aux. Details" sheet for requirements of Wingwall Subbase.

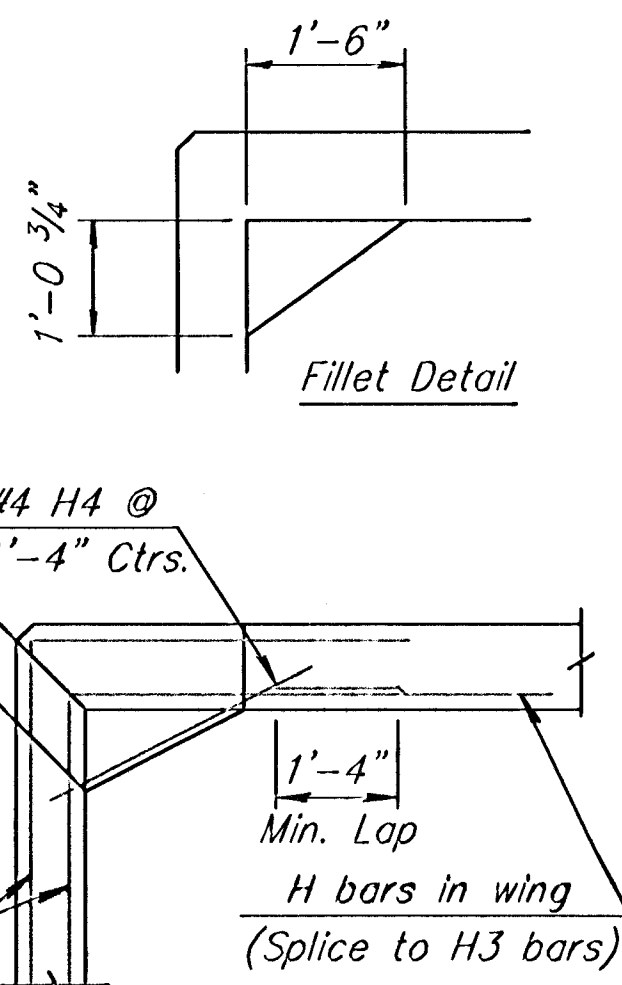
SECTION A-A

NOTE:
EF = Each Face
NS = Near Side
FS = Far Side
CJ = Const. Joint

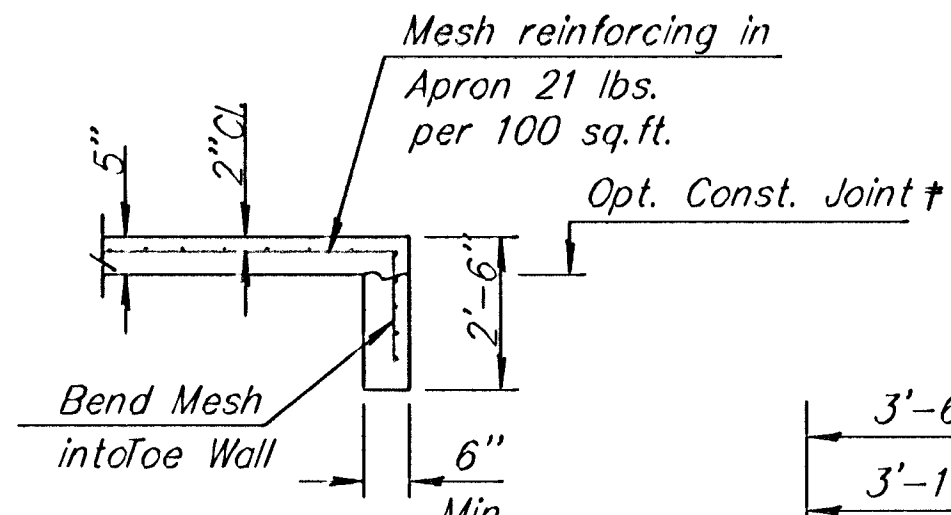


WING DIMENSIONS FOR 45° SKEWED BOX
(3 1/2 : 1 Embankment Slope)

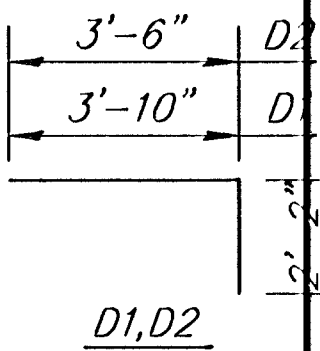
NOTE: Space weepholes to clear reinforcing steel. see "RCB Aux. Details" sheet for additional weephole details.



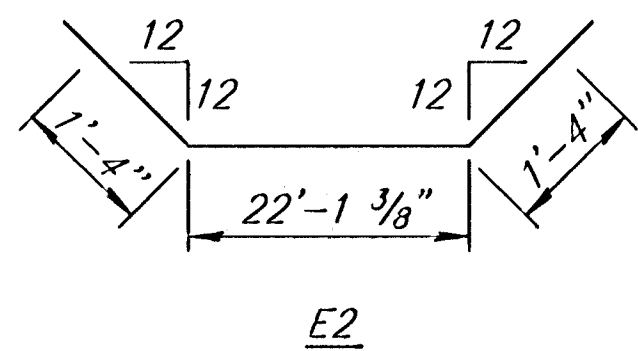
DETAIL OF 9" x 1'-6" FILLET
(Plan View)



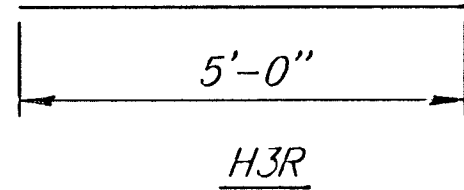
SECTION B-B



D1, D2



E2



H3R

H3L

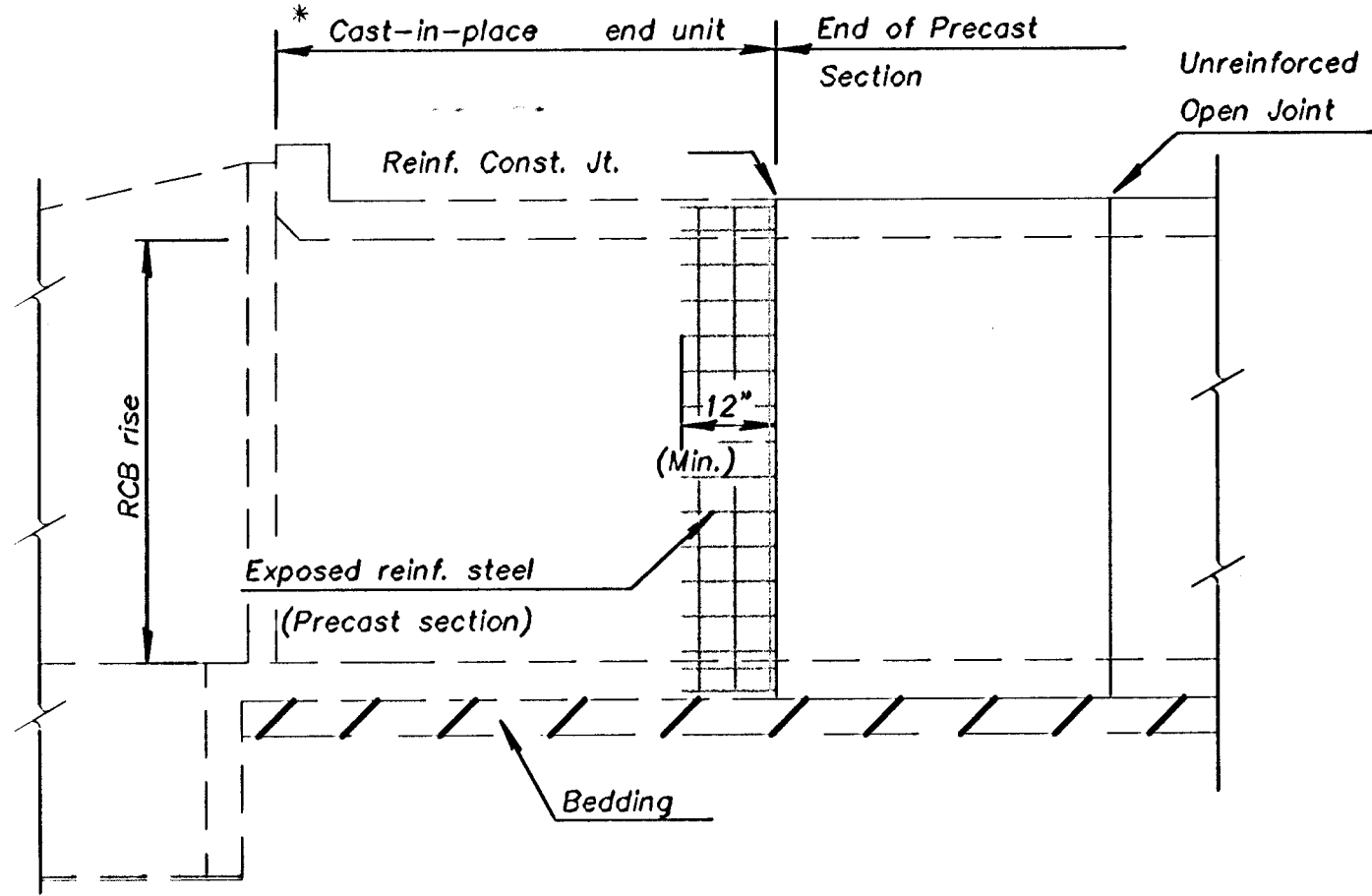
BENDING DIAGRAM

(All dimensions are out to out of bars.)

SUMMARY OF WING QUANTITIES	
Concrete (Grade 4.0)	4.6 C.Y.
Wingwalls	4.6 C.Y.
Apron	4.3 C.Y.
Reinf. Steel	463 Lb.
Welded Wire Fabric	55 Lb.

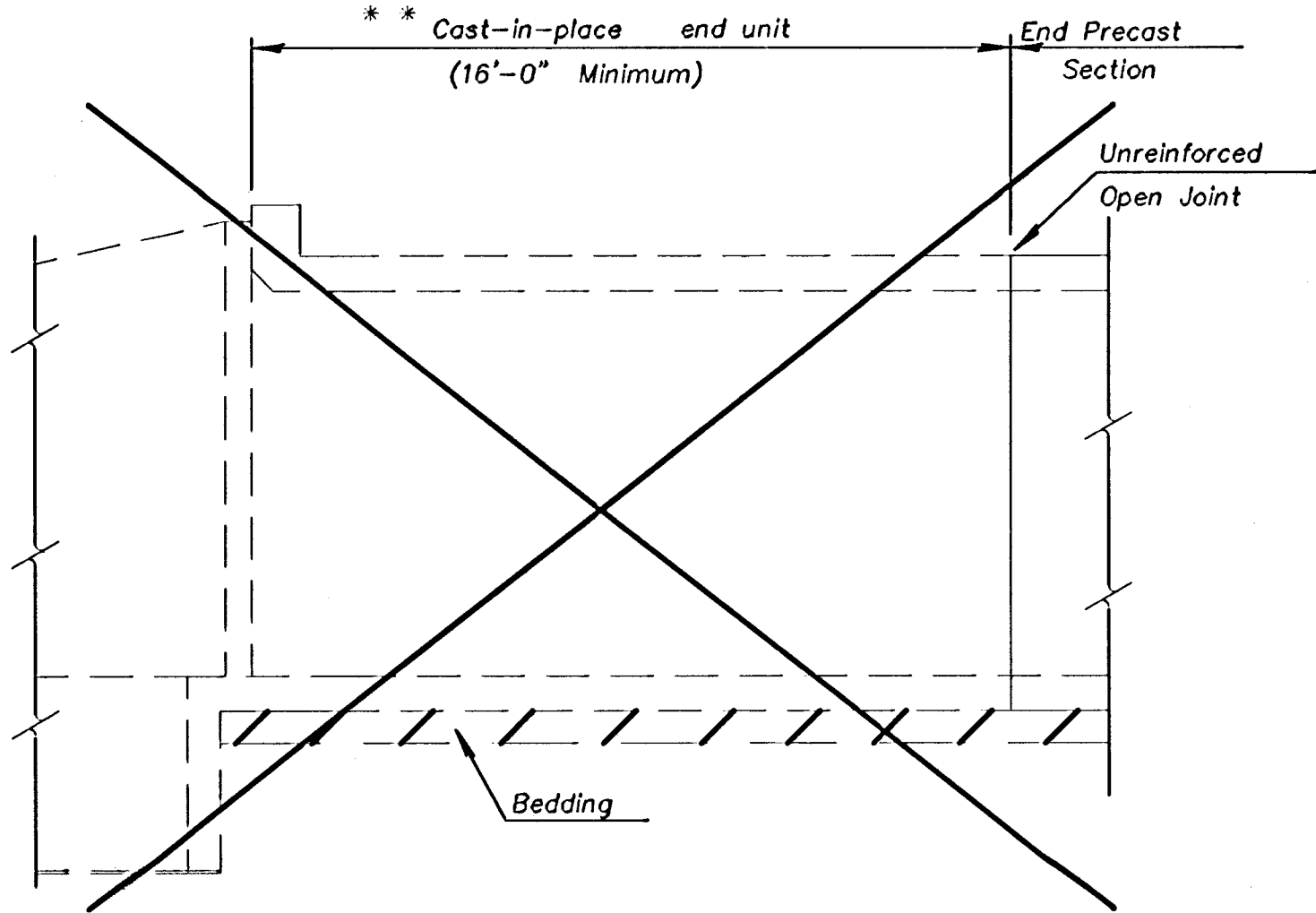
NO.	DATE	REVISIONS	BY	APP'D
KANSAS DEPARTMENT OF TRANSPORTATION				
Br. No. -87-.00(000) Sta. 1+00				
4 ft Rise (45° SKEW)				
BR 10.45.04 Sedgwick Co.				
DESIGNED	DETAIL	QUANTITIES	TRACED	TRACE
DESIGN CK.	DETAIL CK.	QUANT CK.	TRACE CK.	

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KS	468-84253	2006	14	22



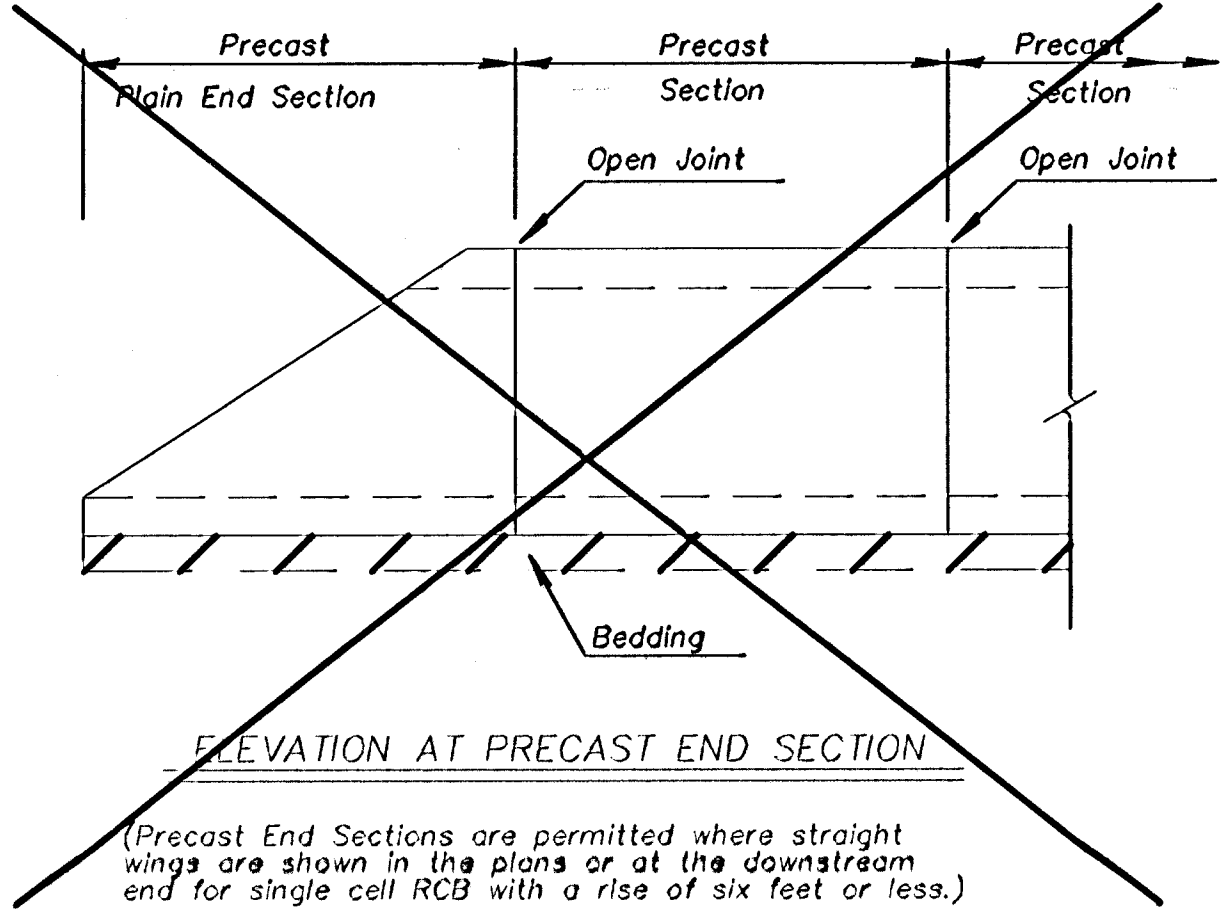
ELEVATION AT HEADWALL

* 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.)

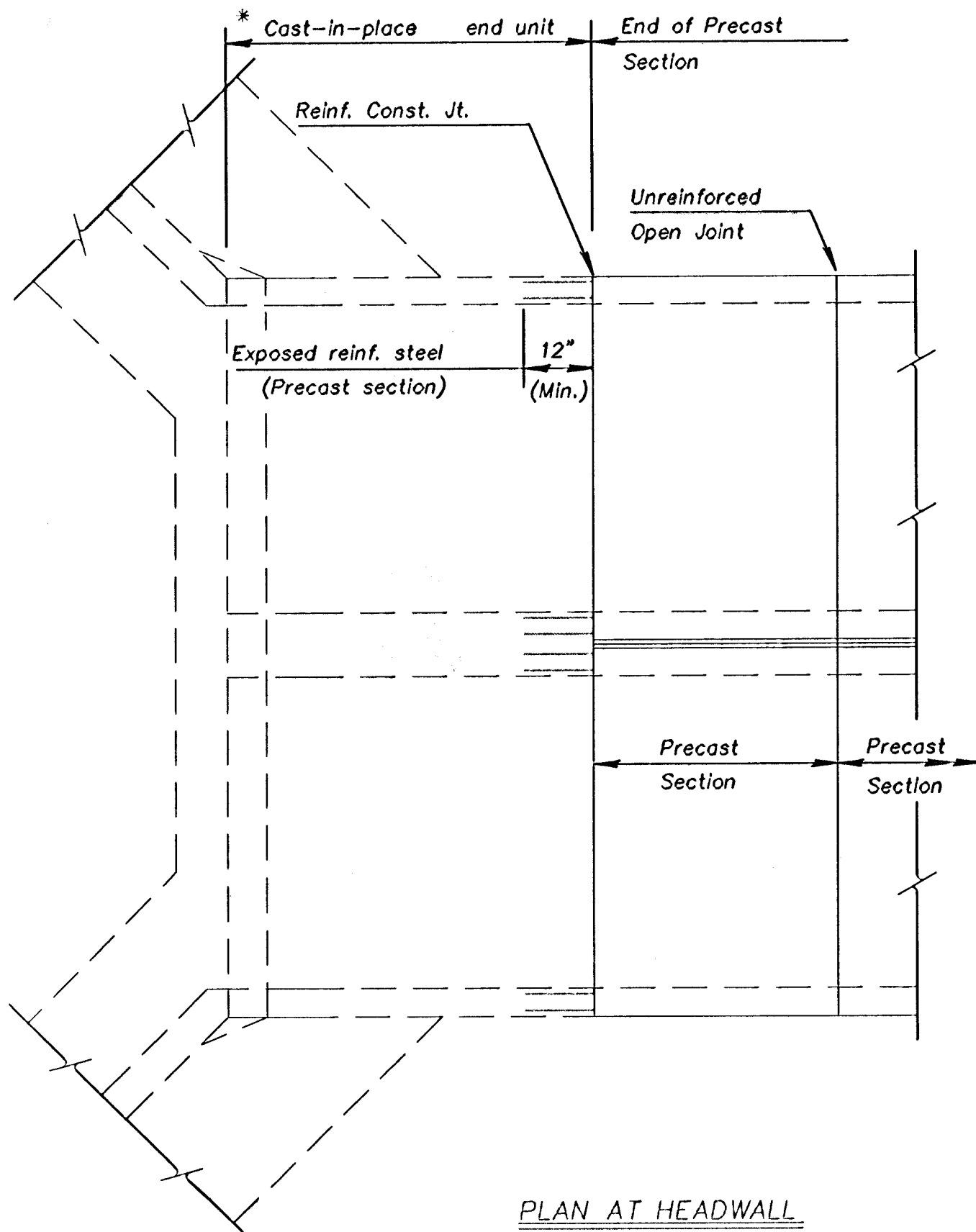
GENERAL NOTES

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.

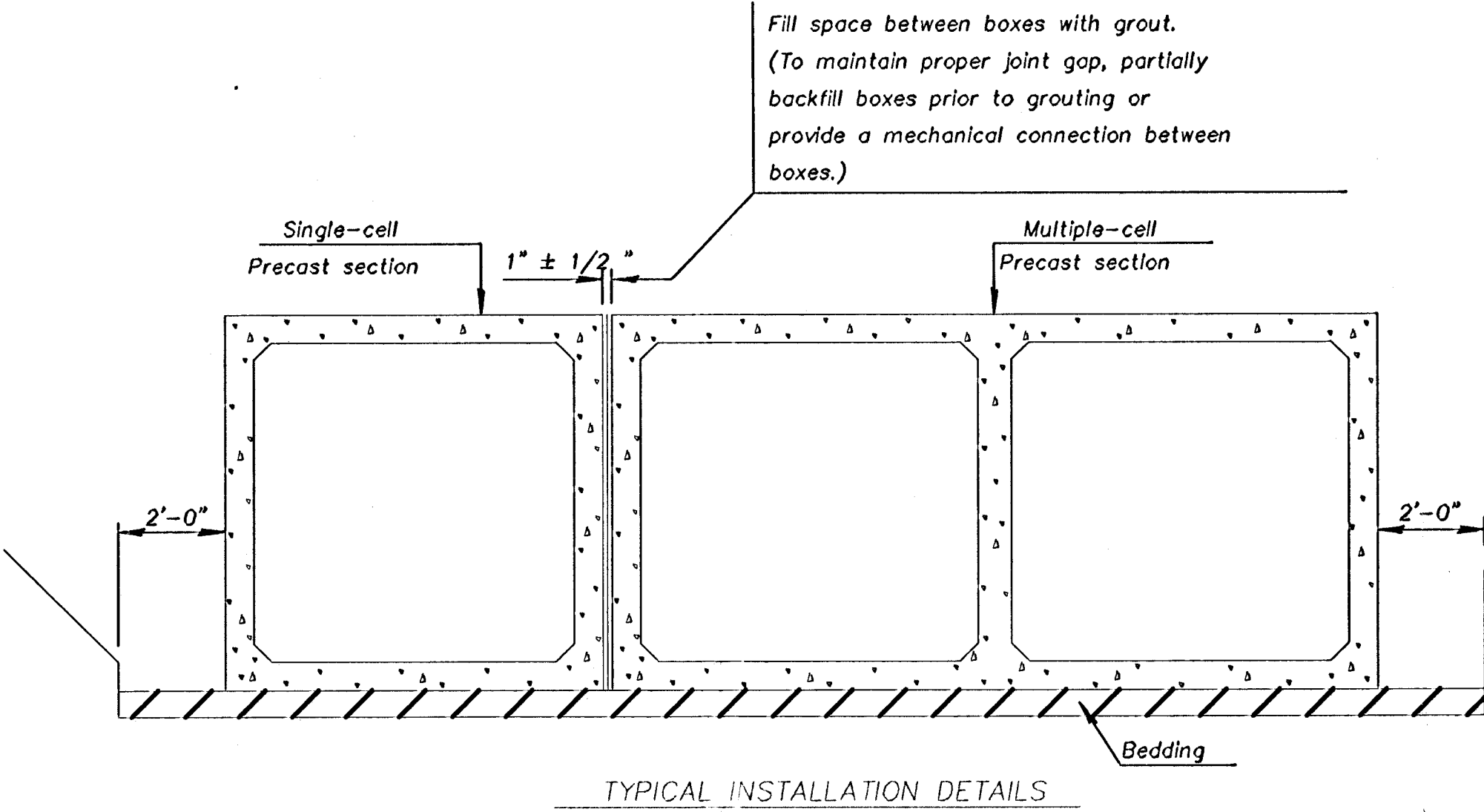
Cast-in-place concrete work shall conform to the requirements of the KDOT Specifications and KDOT's "Guidelines for Structural Design and Detail of Reinforced Concrete Box Culverts". Use Class AAA concrete and Grade 60 reinforcing steel conforming to ASTM A615M for cast-in-place construction.

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.

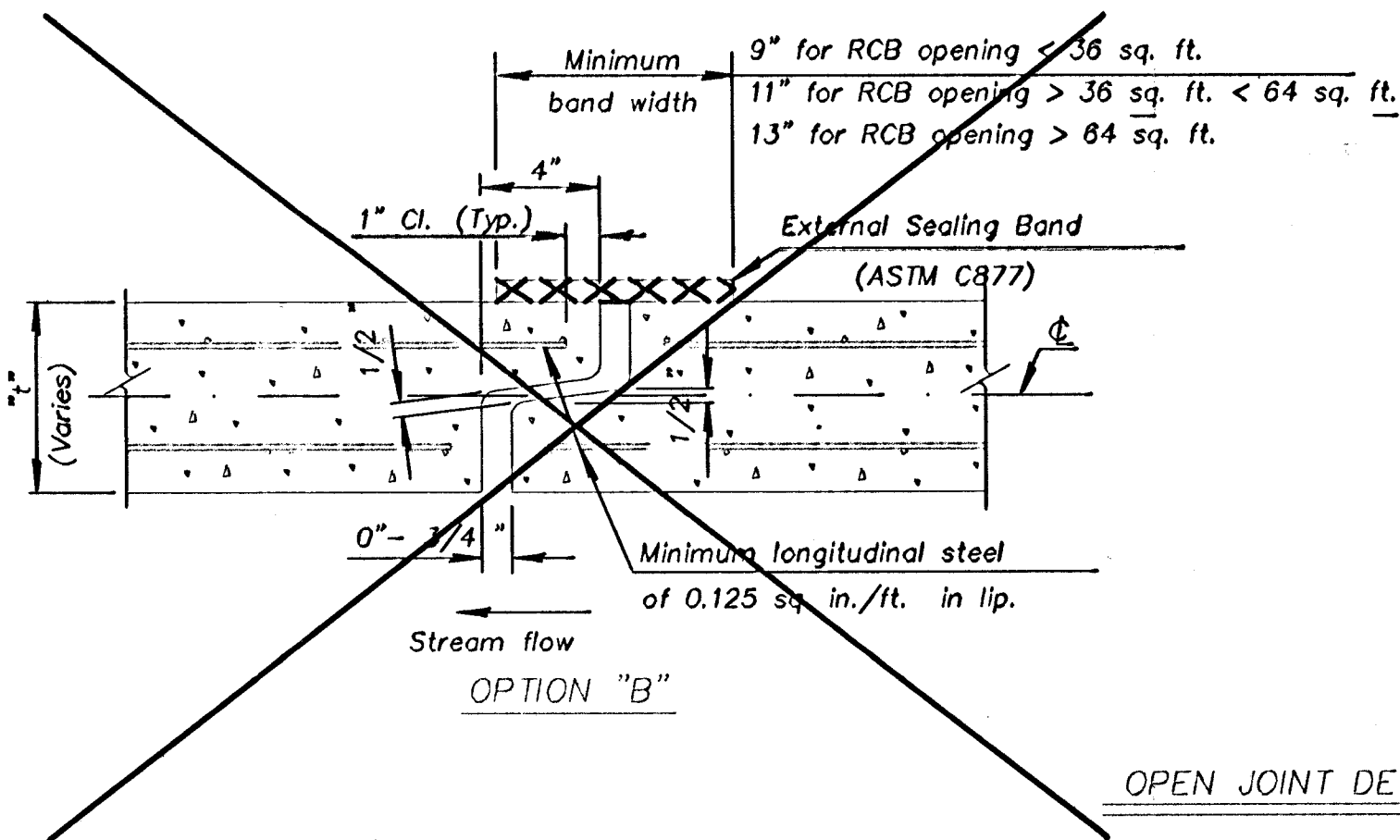


PLAN AT HEADWALL
(Double culvert installation shown)

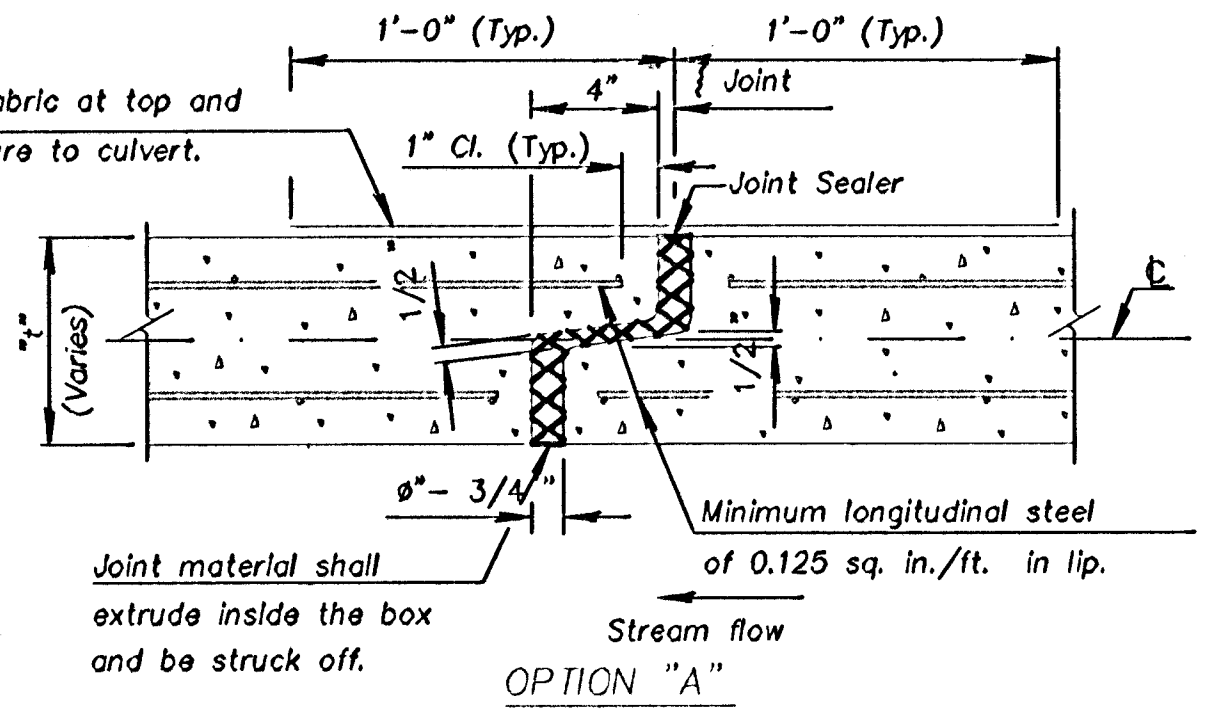


TYPICAL INSTALLATION DETAILS

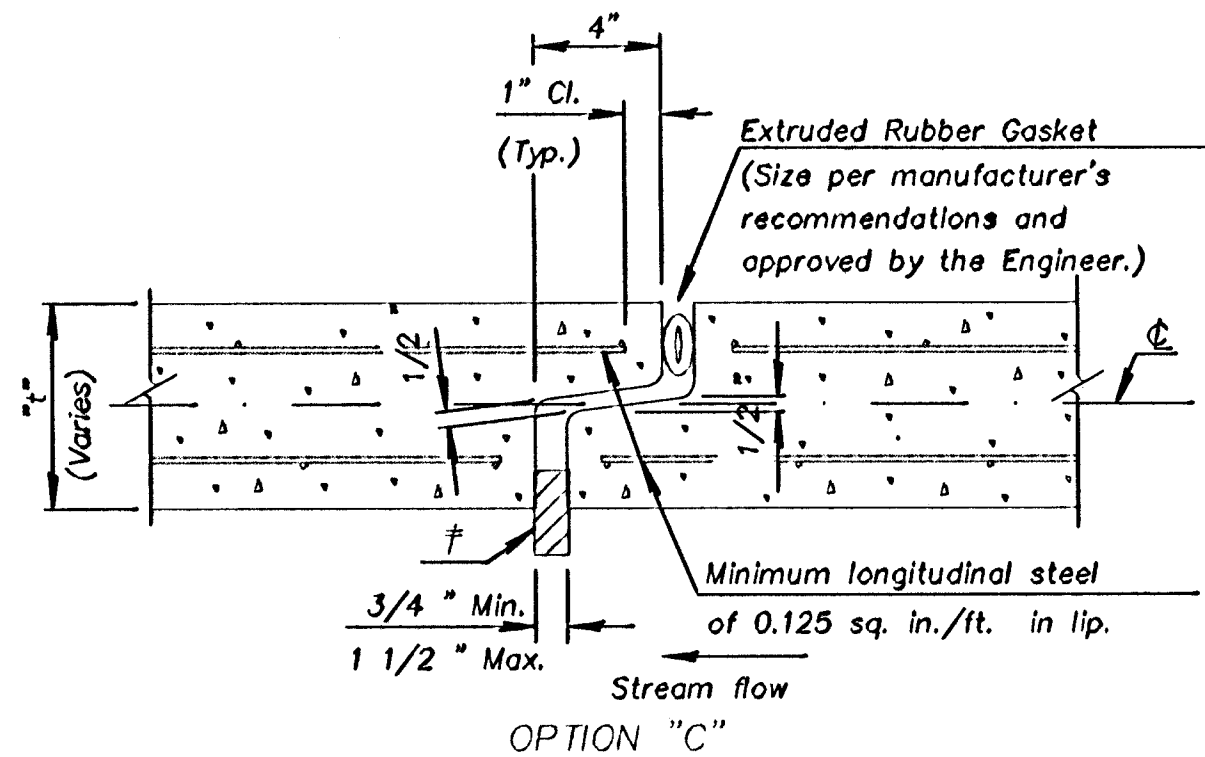
NOTE: Minimum length of precast section shall be 4'-0".



OPEN JOINT DETAIL



OPTION "A"



OPTION "B"

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

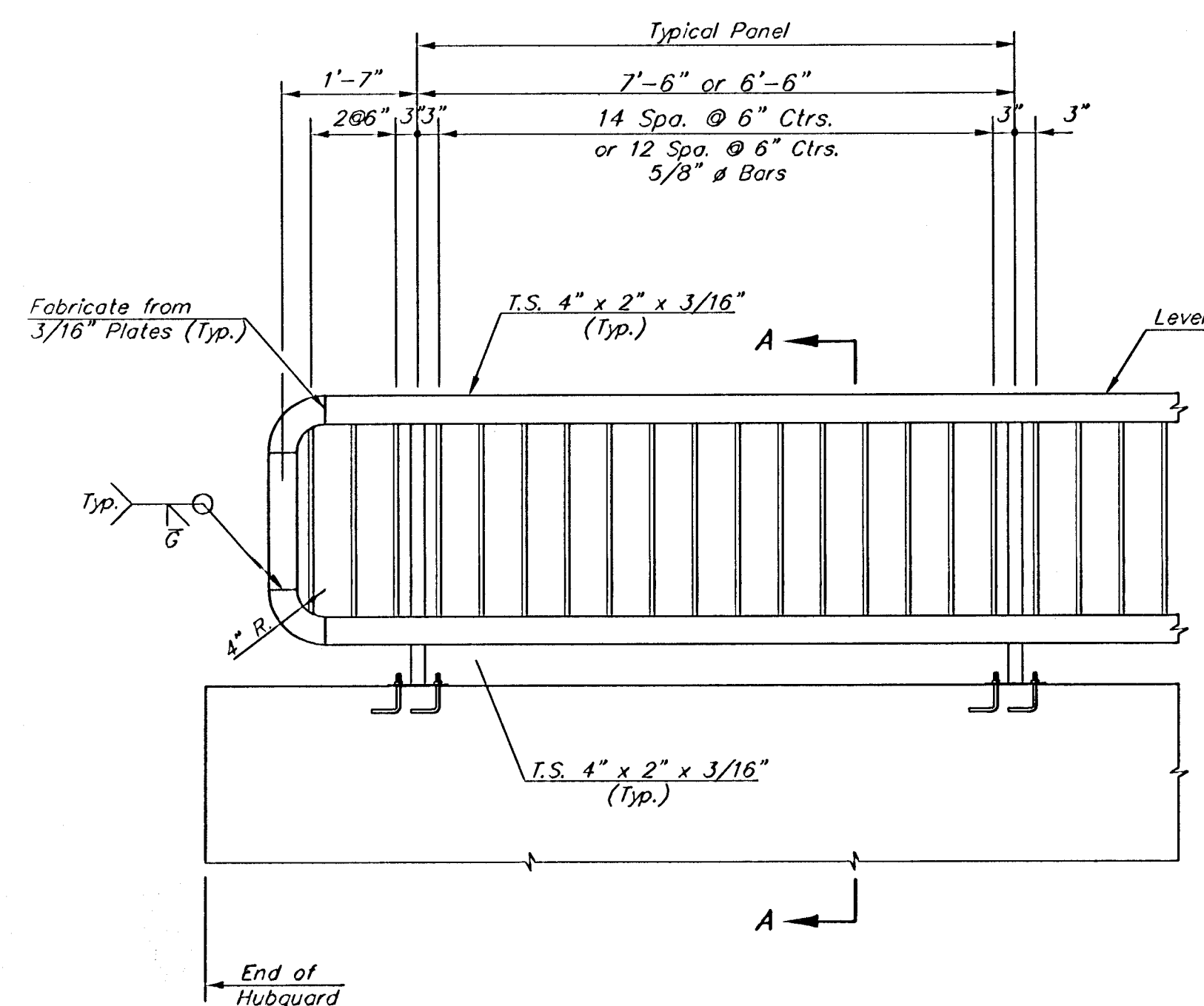
REVISED 10/09/01

NO.	DATE	REVISIONS	BY	APP'D
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

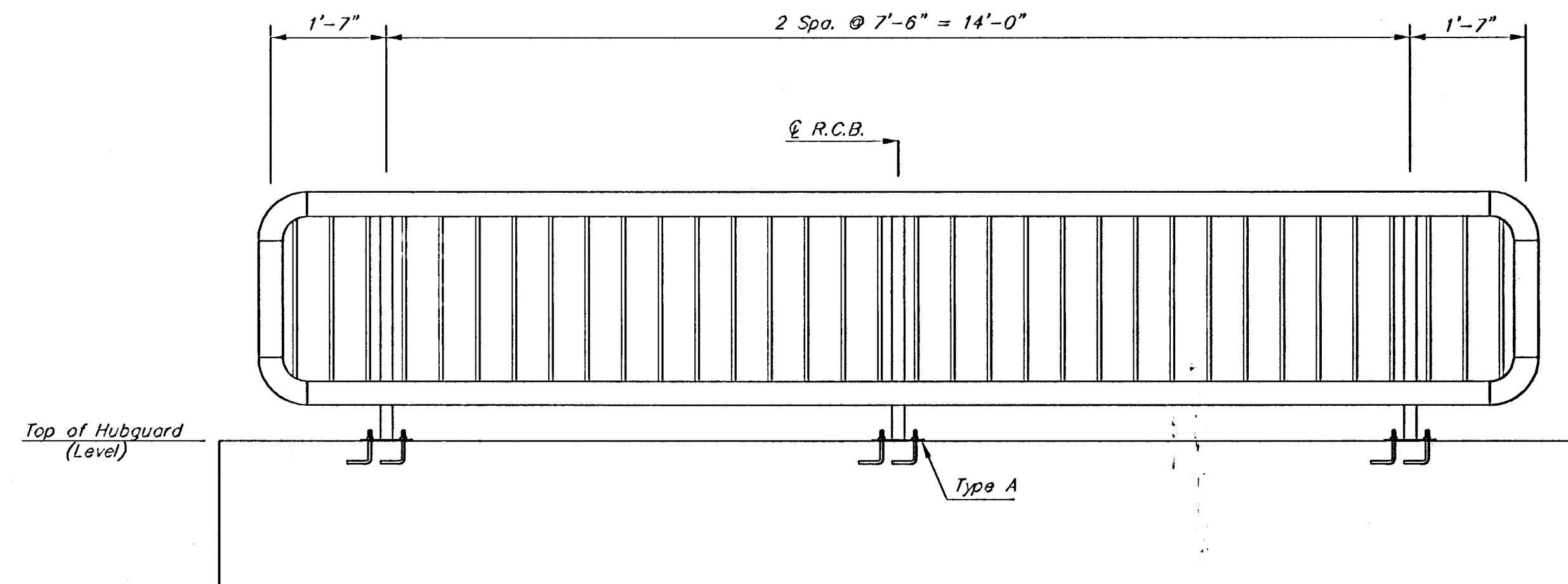
KANSAS DEPARTMENT OF TRANSPORTATION

PRECAST CONCRETE BOX CULVERT DETAILS

BRD31	11-27-00	APP'D	KENNETH F. HURS
DESIGNED	DETAIL	QUANTITIES	CADD
DESIGN CK.	DETAIL CK.	RAM	QUAN. CK.

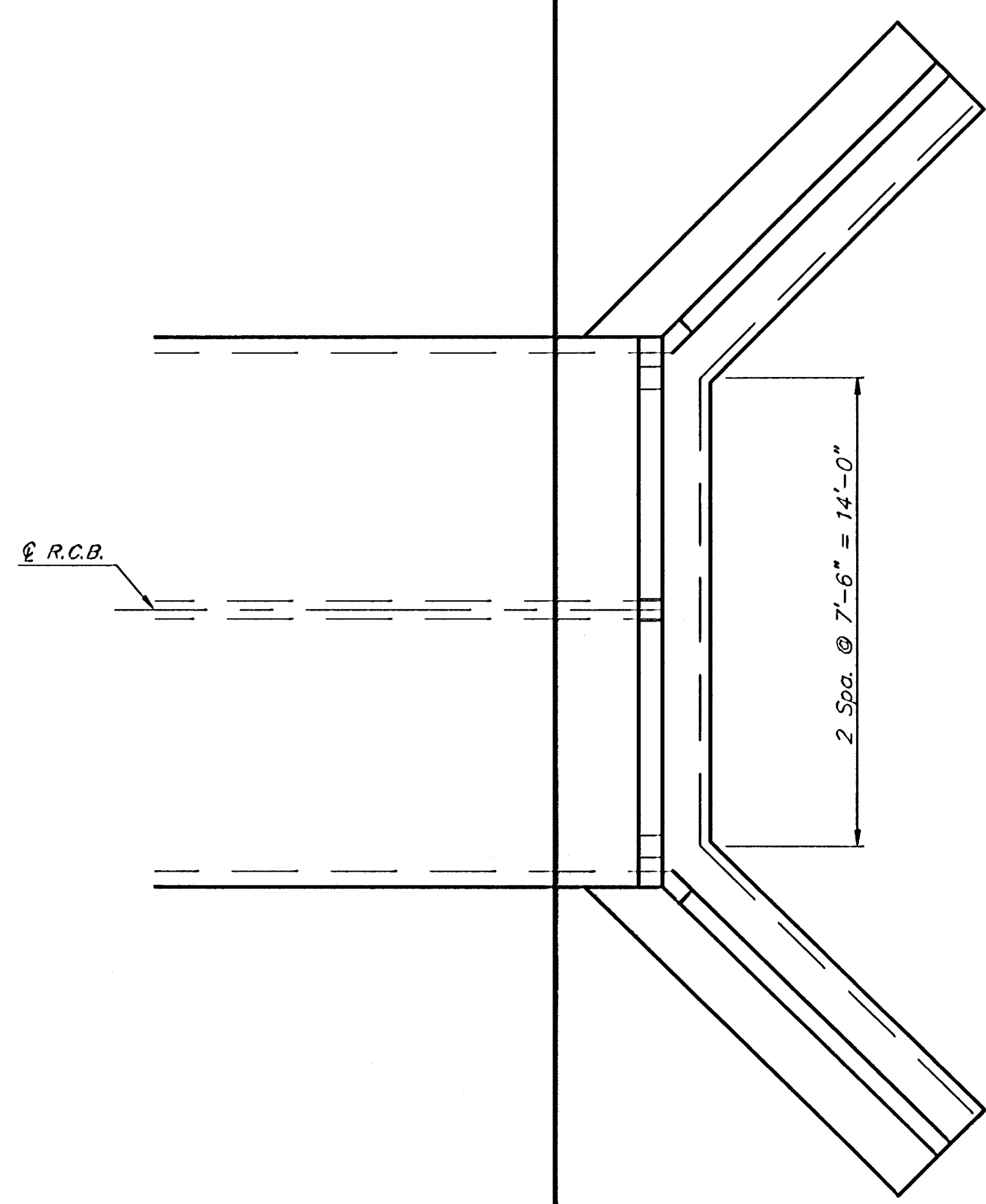


HANDRAIL ELEVATION

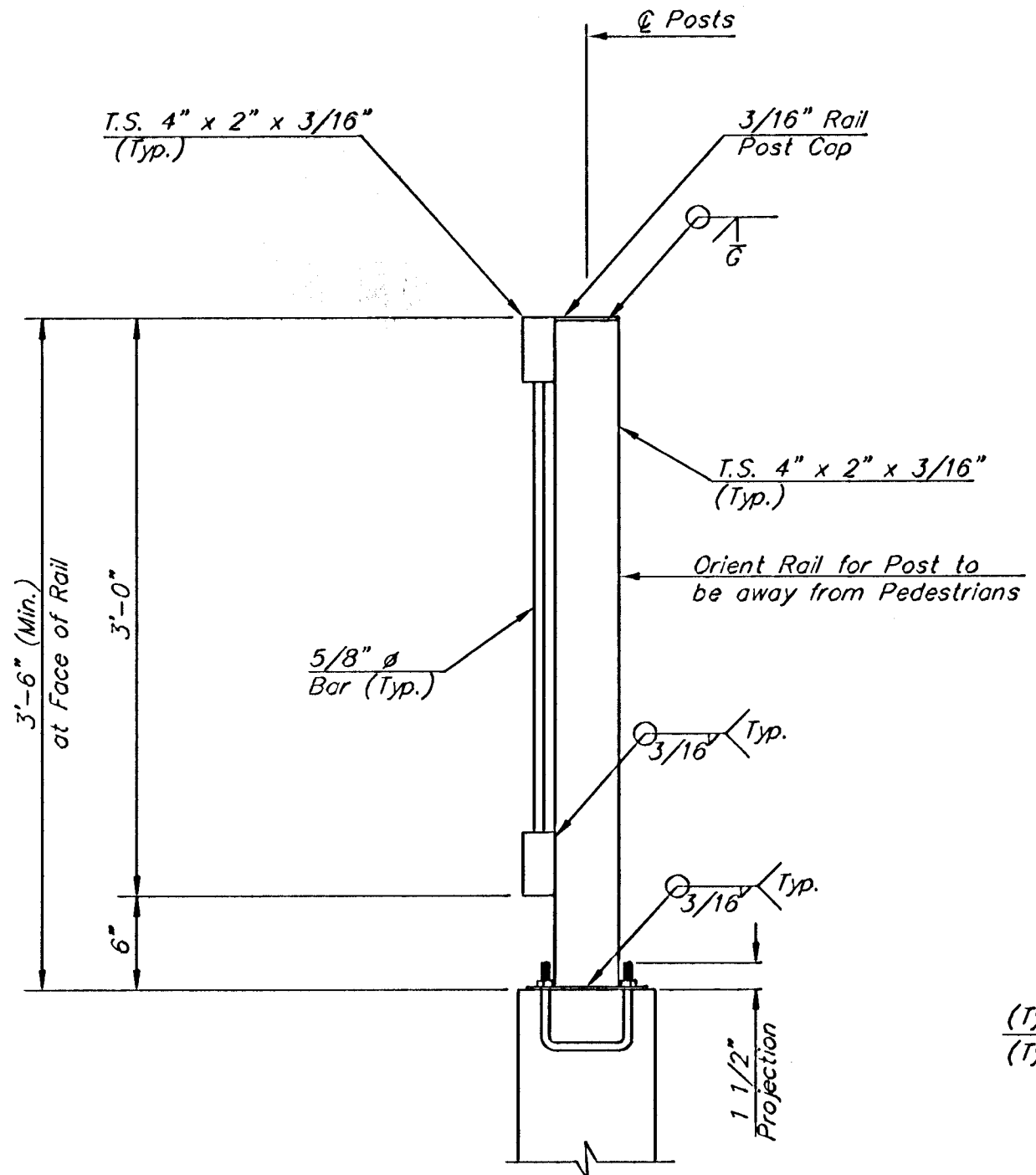


HUBGUARD SECTION

(2 Required)

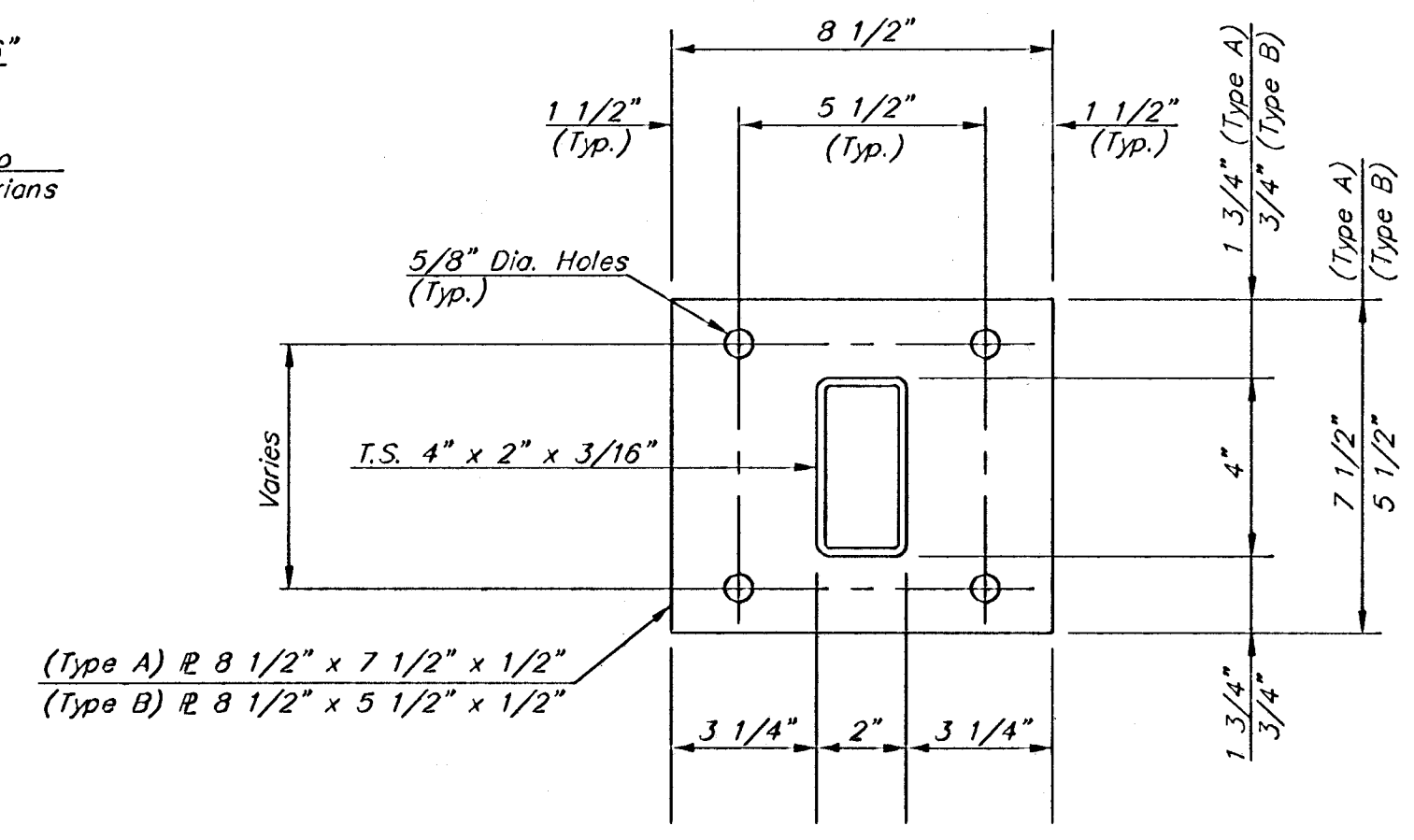


RAIL LOCATION PLAN



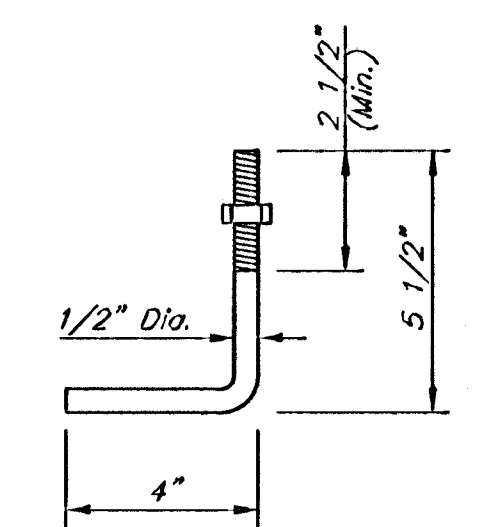
SECTION A-A

Note:
Rail Post on Hubguard shown,
Rail Posts on Wingwalls not shown
but similar controlling criteria.



BASE PLATE

5 Required (Type A)
8 Required (Type B)



ANCHOR BOLT

Orient to provide min. 2" edge
clearance to either hubguard
face or adjacent bolts

BASIS OF PAYMENT

All labor, Materials, Anchor Bolts, Fabrication, Installation, and Ect.
Necessary to Place the Handrails as shown shall be incidental to
Lump Sum Bid Item "RCBC."

GENERAL NOTES

The horizontal members of the rail and posts shall be hollow structural
tubing. All structural steel and tubing shall comply to A.S.T.M. Designation
A36 or A500 Grade B respectively.

Rail shall be fabricated in lengths as shown.

Posts and bars shall be set vertical and shimmed if required.

The paint system shall be provided by Carboline: 350 Hanley Industrial Ct.,
St. Louis, MO. The application will be in accordance with the manufacturers
recommendations. The paint procedure is as follows:

1. Abrasive blast to commercial finish SSPC-SP6 to obtain a surface profile
of 1-1/2 mils.
2. Apply 2 coats of Carboline GP 818 Primer (2 to 4 mils per coat).
3. Apply one topcoat of Subsail 30 HS (2 to 3 Mils) (Color: Carboline C900).
An approved substitution of the total paint system will be allowed with
the approval of the Engineer.

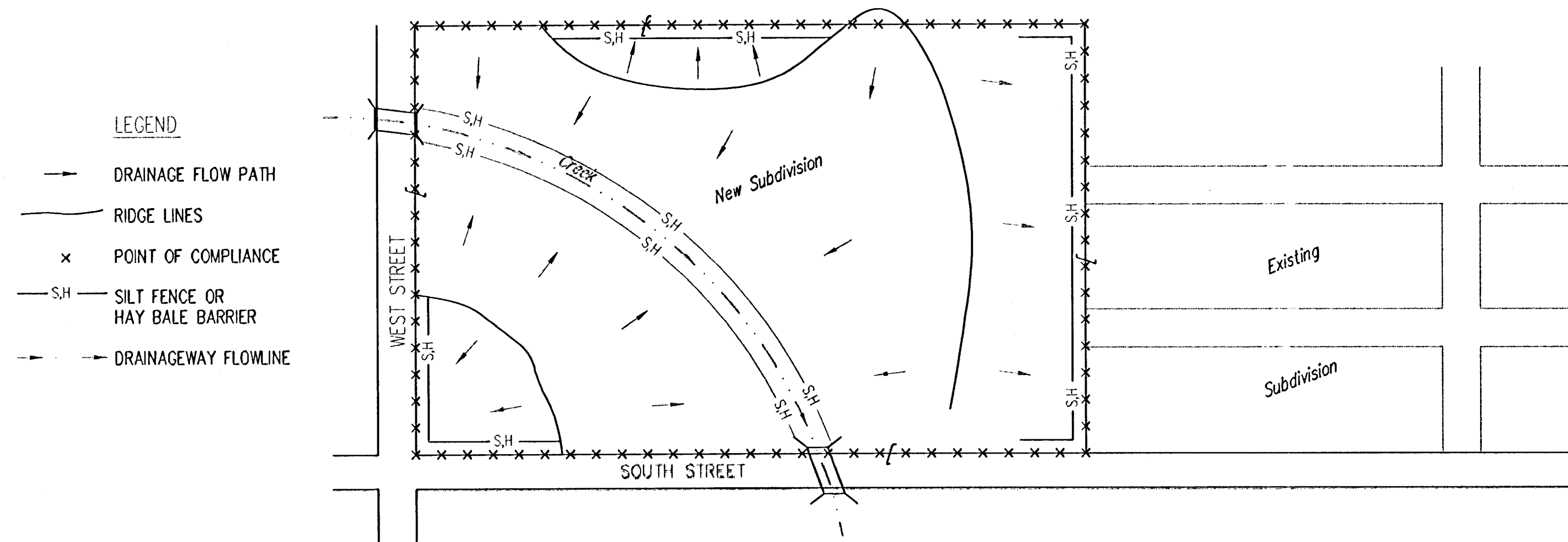
Material and construction shall conform to the Structural Welding
Code A.W.S. D1.1-00.

Shop details must be submitted and approved by the Engineer.

The Handrail Shall be Painted Black & a Test Piece Shall Be Supplied To
the Engineer Prior To Cons. For Its Approval.

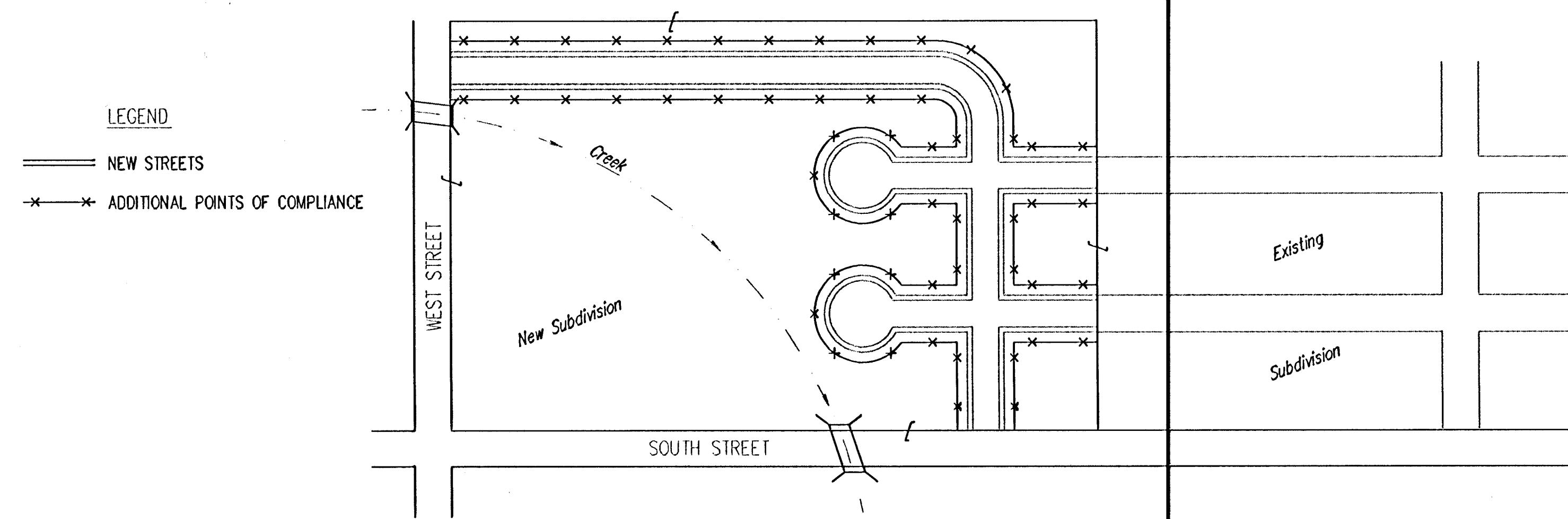
		Northgate Offsite Drainage Handrail Details Storm Water Drain #307	
PROJECT NUMBER 468-84233		DESIGN AEO	
REVISIONS		DRAWN RDM	
APPROVED AEO		DATE 3-14-07	
SCALE None		SHEET 15 OF 22	
Northgate\33rd St SWD\RCBC_Handrail.dwg			

PHASE 1 – INITIAL EARTHWORK AND UTILITIES (EXCEPT STORM SEWER)



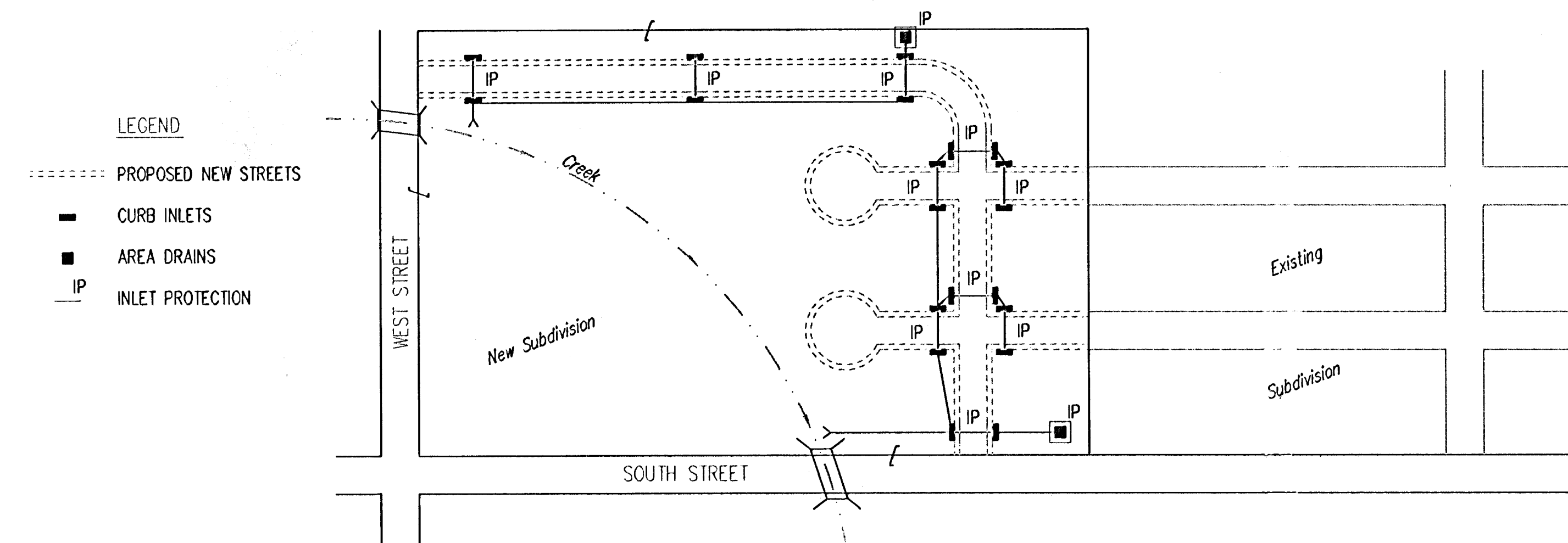
1. DURING THIS PHASE OF SUBDIVISION CONSTRUCTION, THE POINTS OF COMPLIANCE ARE THE PERIMETER BOUNDARIES AND ANY DRAINAGE WAYS OR STORM SEWERS DRAINING THROUGH OR FROM THE SITE. SHOULD LAKES BE CONSTRUCTED WITHIN THE SUBDIVISION THAT WILL DISCHARGE DURING STORMS, THEY ARE ALSO A POINT OF COMPLIANCE.
2. HAY BALES OR SILT FENCE MUST BE CONSTRUCTED ALONG THE PROPERTY LINE WHERE ON SITE WATER CAN DRAIN OFF THE PROPERTY. THESE EROSION CONTROL DEVICES WILL ALSO BE INSTALLED ALONG ANY DRAINAGE DITCH OR LAKE THAT CAN DISCHARGE.
3. SHOULD SILT OR SEDIMENT ENTER THE DITCHES OR STREETS ON THE ADJACENT BOUNDARY STREETS, APPROPRIATE EROSION CONTROL DEVICES WILL BE PLACED WITHIN THE SUBDIVISION TO PREVENT THIS.
4. ANY MUD TRACKED ONTO ADJACENT STREETS WILL BE REMOVED WITHIN 48 HOURS OR BY FRIDAY AT 6:00 PM, WHICHEVER IS EARLIER.
5. CONTRACTORS WORKING WITHIN THE SITE WILL NOT BE REQUIRED TO USE INDIVIDUAL EROSION CONTROL DEVICES AS LONG AS THOSE SPECIFIED ABOVE ARE IN PLACE AND EFFECTIVE. CONTRACTORS WORKING ON THE BOUNDARY LINE STREETS OR ON ADJACENT PROPERTIES TO EXTEND UTILITIES ARE EXPECTED TO USE EROSION CONTROL DEVICES AT THEIR WORK LOCATIONS, AS NEEDED.
6. UTILIZE STABILIZED CONSTRUCTION ENTRANCE AT ENTRANCE AND EXIT ONTO ANY EXISTING PUBLIC STREETS.
7. IF THE INITIAL EARTH WORK AND UTILITIES ARE DONE AS PART OF A PUBLIC IMPROVEMENT PROJECT, THESE EROSION CONTROL DEVICES WILL BE INSTALLED BY THE CONTRACTOR AS SPECIFIED IN THE INDIVIDUAL PROJECT CONTRACTS. THE CONTRACTOR WILL MAINTAIN THE DEVICES UNTIL COMPLETION OF THE CONTRACT, AT WHICH TIME THE DEVELOPER WILL ASSUME MAINTENANCE RESPONSIBILITIES. IF THESE CONTRACTS ARE NOT PUBLIC IMPROVEMENT PROJECTS, THE DEVELOPER WILL BE RESPONSIBLE FOR INSTALLING AND MAINTAINING THESE DEVICES.
8. WITHIN 14 DAYS OF COMPLETION OF EARTHWORK ACTIVITIES IN ANY GIVEN AREA, THAT AREA SHALL BE TEMPORARILY OR PERMANENTLY SEEDED AND MULCHED.

PHASE 3 - STREET CONSTRUCTION



- | | |
|---|--|
| <p>1. DURING THIS PHASE OF SUBDIVISION CONSTRUCTION, NEW STREETS ARE INSTALLED. ALL EROSION CONTROL DEVICES INSTALLED DURING PHASE 1 AND 2 MUST STILL BE MAINTAINED. THE POINT OF COMPLIANCE NOW SHIFTS TO THE BACK OF CURB ALONG EACH STREET.</p> <p>2. CURB OPENING INLET PROTECTION:</p> <p>A. SUMP AREAS – INLET PROTECTION SHALL BE PROVIDED WHEN STREET SUBGRADE WORK IS COMPLETED.</p> <p>B. NON-SUMP LOCATIONS – PROVIDE INLET PROTECTION AS SOON AS BASE COURSE ASPHALT IS INSTALLED, BEFORE THE SURFACE COURSE LIFT.</p> <p>3. EROSION CONTROL DEVICES WILL BE REQUIRED BACK OF CURB WHEREVER WATER CAN FLOW OVER THE CURB AND THE CURB HAS BEEN BACKFILLED TO WITHIN 3" OR LESS OF THE TOP OF CURB (SEE CURB BACKFILL DETAIL). FOR CURBS NOT YET ENTIRELY BACKFILLED (3" OR MORE BELOW TOP OF CURB), ADDITIONAL DEVICES WILL BE REQUIRED AT POINTS WHERE WATER BREAKS OVER CURB WHICH COULD RESULT IN THE PLACEMENT OF SEDIMENT IN THE GUTTER.</p> | <p>4. SEE DETAIL SHEET FOR BACK OF CURB PROTECTION.</p> <p>5. THE BACK OF CURB PROTECTION SPECIFIED ON THIS PLAN MAY HAVE TO BE SUPPLEMENTED WITH HAY BALE OR SILT FENCE EROSION CONTROL DEVICES AT LOCATIONS WHERE CONCENTRATED FLOW RESULTS IN SEDIMENT BEING CARRIED OVER THE EXCELSIOR MATS.</p> <p>6. THE STREET CONTRACTOR WILL BE RESPONSIBLE FOR INSTALLING BACK OF CURB EROSION CONTROL DEVICES.</p> <p>7. THE INDIVIDUAL LOT OWNERS WILL BE RESPONSIBLE FOR MAINTAINING THE BACK OF CURB EROSION CONTROL DEVICES IN FRONT OF THEIR LOTS UNTIL SUCH TIME AS ADJACENT DISTURBED EARTH IS STABILIZED WITH GRASS OR SOD.</p> |
|---|--|

PHASE 2 - INSTALLATION OF STORM SEWER

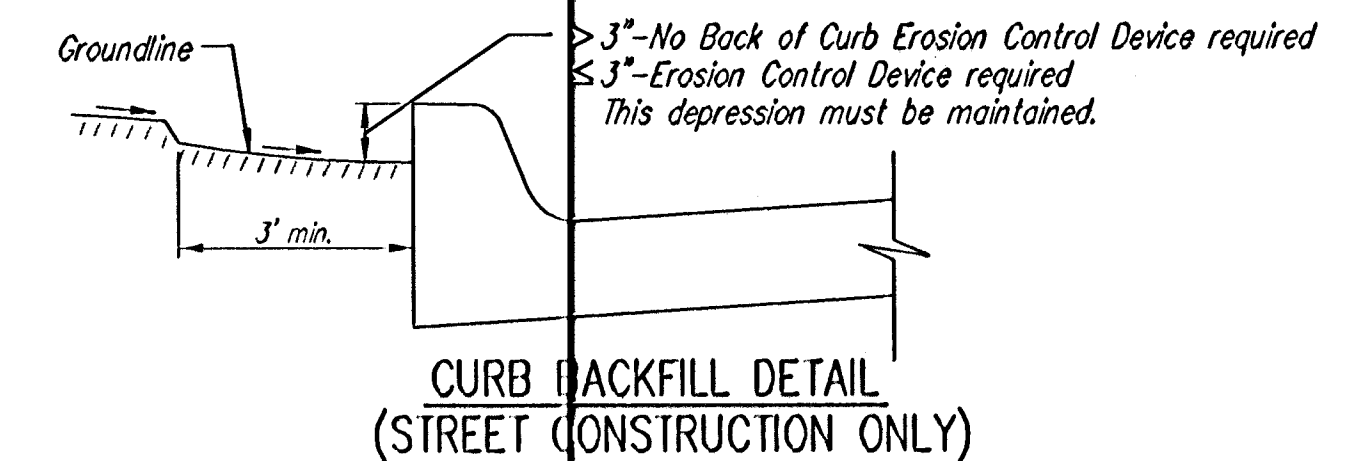


1. DURING THIS PHASE OF SUBDIVISION DEVELOPMENT, ALL EROSION CONTROL DEVICES REQUIRED IN PHASE 1 SHALL REMAIN IN PLACE AND BE MAINTAINED.
2. AS NEW STORM SEWERS, WITH INLETS, ARE INSTALLED, THE STORM SEWERS MUST NOW BE PROTECTED SO ALL NEW INLETS BECOME POINTS OF COMPLIANCE.
3. AREA DRAINS - AS SOON AS WATER CAN FLOW INTO THESE DRAINS, HAY BALE OR SILT FENCE PROTECTION WILL BE INSTALLED AROUND THEM.
4. CURB OPENING INLETS - AS SOON AS WATER CAN FLOW INTO THESE DRAINS, INLET PROTECTION DEVICES MUST BE INSTALLED. IF WATER CANNOT FLOW INTO CURB INLETS UNTIL STREET CONSTRUCTION IS COMPLETE, THEN STREET CONTRACTOR WILL INSTALL INLET PROTECTION. SEE PHASE 3 - STREET CONSTRUCTION.
5. THE STORM SEWER CONTRACTOR WILL BE RESPONSIBLE FOR INSTALLING THESE DEVICES.
6. THE SUBDIVISION DEVELOPER WILL MAINTAIN THESE EROSION CONTROL DEVICES ONCE INSTALLED.
7. ALL DISTURBED GROUND WILL BE FINAL GRADED AND TEMPORARILY OR PERMANENTLY SEEDED WITHIN 14 DAYS IF COMPLETION OF WORK IN ANY GIVEN PART OF THE SUBDIVISION.
8. ONCE ALL DISTURBED GROUND DRAINING TO AN INLET HAS BEEN RESTABILIZED WITH GRASS OR SOD, THE SUBDIVISION DEVELOPER WILL BE RESPONSIBLE FOR PERMANENTLY REMOVING THE INLET PROTECTION.

GENERAL NOTES:

1. THE INTENT OF ALL EROSION CONTROL DEVICES IS TO PREVENT ERODED SOIL FROM ENTERING DITCHES, STORM SEWERS, LAKES, STREETS OR ANY OTHER OTHER DRAINAGE FEATURE.
2. THIS SHEET IS INTENDED TO PROVIDE GUIDELINES AS TO WHAT TYPE OF EROSION CONTROL DEVICES WILL BE INSTALLED DURING THE CONSTRUCTION PROCESS. CONTRACTORS ARE EXPECTED TO BID PROJECTS ACCORDINGLY.
3. EROSION CONTROL DEVICES SHALL BE MAINTAINED DURING THE CONSTRUCTION PROCESS TO REMAIN EFFECTIVE. MAINTENANCE SHALL BE AS INDICATED ON SOIL EROSION BMP'S DETAIL SHEETS.
4. PERSONS DESTROYING EROSION CONTROL DEVICES SHALL BE RESPONSIBLE FOR IMMEDIATELY REPAIRING THEM OR INSTALLING SUITABLE REPLACEMENT DEVICES.
5. THE DEVELOPMENT OF ANY SUBDIVISION THAT DISTURBS 1 ACRE OR MORE WILL REQUIRE A FEDERAL/STATE NPDES STORMWATER PERMIT. THE PREPARATION OF A STORMWATER POLLUTION PREVENTION PLAN IS REQUIRED. EROSION CONTROL DEVICES ARE REQUIRED. THE DETAILS SHOWN ON THIS SHEET ARE THE MINIMUM STANDARDS TO BE SHOWN ON POLLUTION PREVENTION PLANS.
6. FOR SUBDIVISIONS SMALLER THAN 1 ACRE, SOIL EROSION DEVICES ARE REQUIRED. ALSO, DEVELOPERS AND CONTRACTORS ARE ENCOURAGED TO DEVELOP POLLUTION PREVENTION PLANS FOR EACH PROJECT PRIOR TO CONSTRUCTION.
7. FAILURE TO USE AND MAINTAIN SOIL EROSION DEVICES IS A VIOLATION OF SECTION 16.32 OF THE CITY CODE AND WILL SUBJECT THE SUBDIVISION DEVELOPER AND CONTRACTORS TO THE PENALTIES PROVIDED THEREIN.
8. THE APPLICATION OF EROSION CONTROL DEVICES SHOWN ON THIS SHEET IS FOR SITUATIONS NORMALLY ENCOUNTERED. FROM TIME TO TIME, SITUATIONS WILL ARISE THAT MAY REQUIRE DEVICES OTHER THAN THAT SHOWN. EROSION CONTROL DEVICES, OTHER THAN THOSE SHOWN, MAY BE UTILIZED SO LONG AS THEY ARE EFFECTIVE AND MAINTAINED.
9. A STABILIZED EARTH SURFACE IS DEFINED AS ONE THAT IS HARD SURFACED WITH CONCRETE, ASPHALT, OR THE LIKE, OR ONE ON WHICH 70% OF THE GRASS HAS GERMINATED ON THE ENTIRE SURFACE.

SEE DETAIL SHEET FOR
BACK OF CURB PROTECTION DETAIL



SOIL EROSION BMPs

SUBDIVISION
DEVELOPMENT
PROJECTS

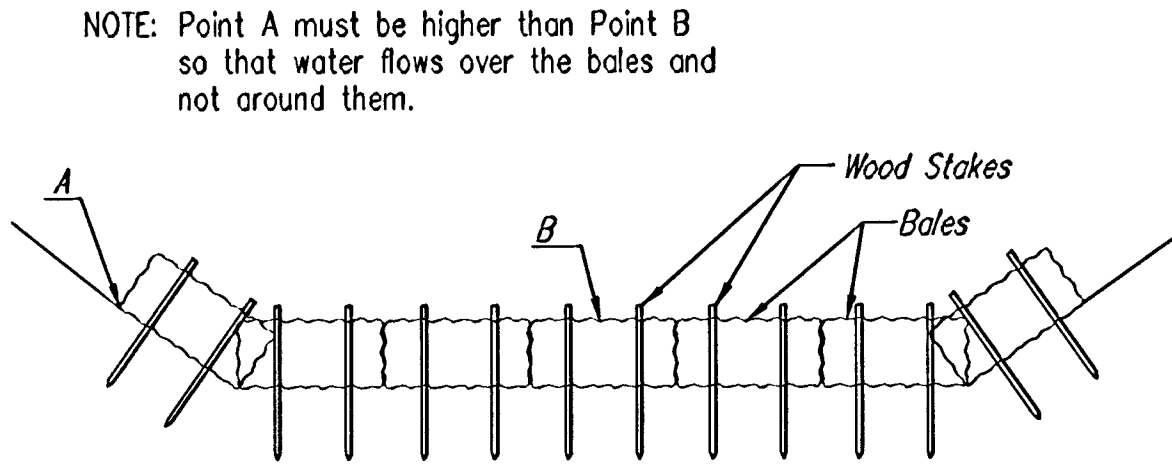
JIM ARMOUR, P.E.
CITY ENGINEER

PROJECT NUMBER

OCA NO.

DATE
3-14-07

SHEET 16 OF 22



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. Straw bale ditch 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".

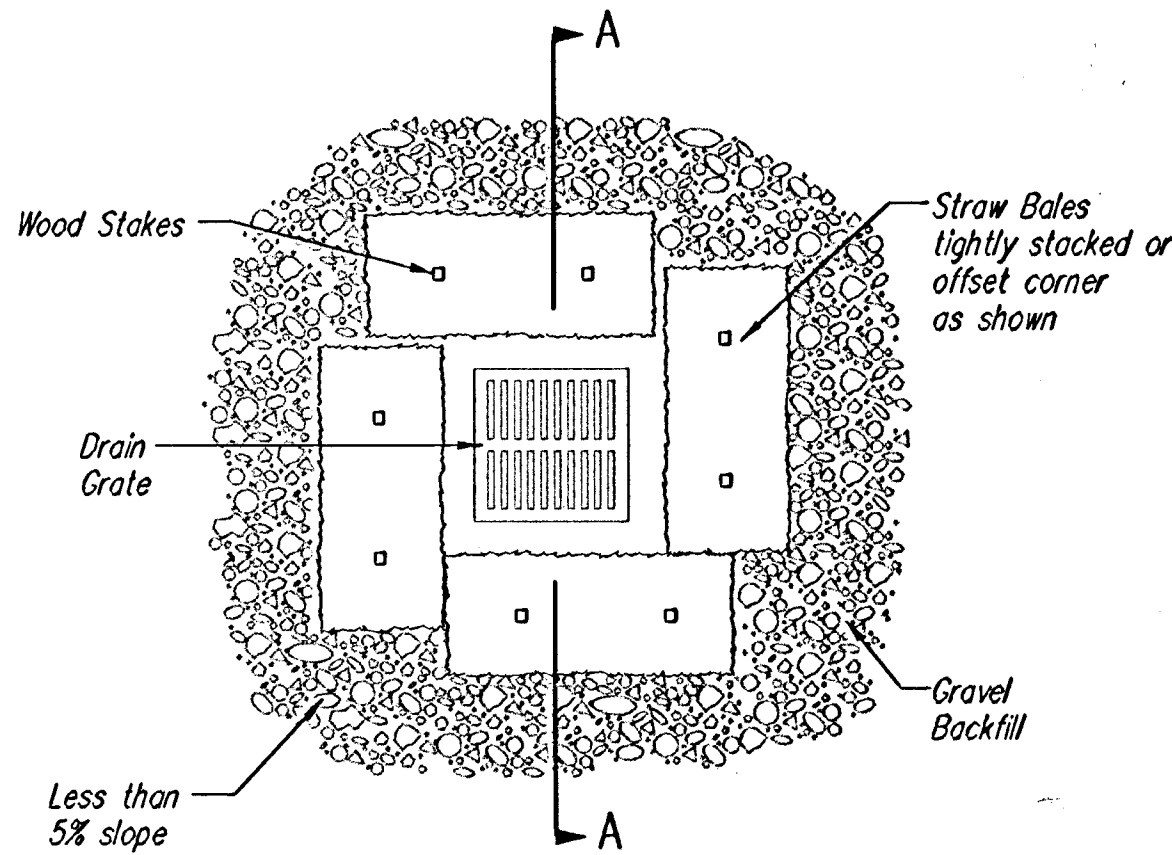
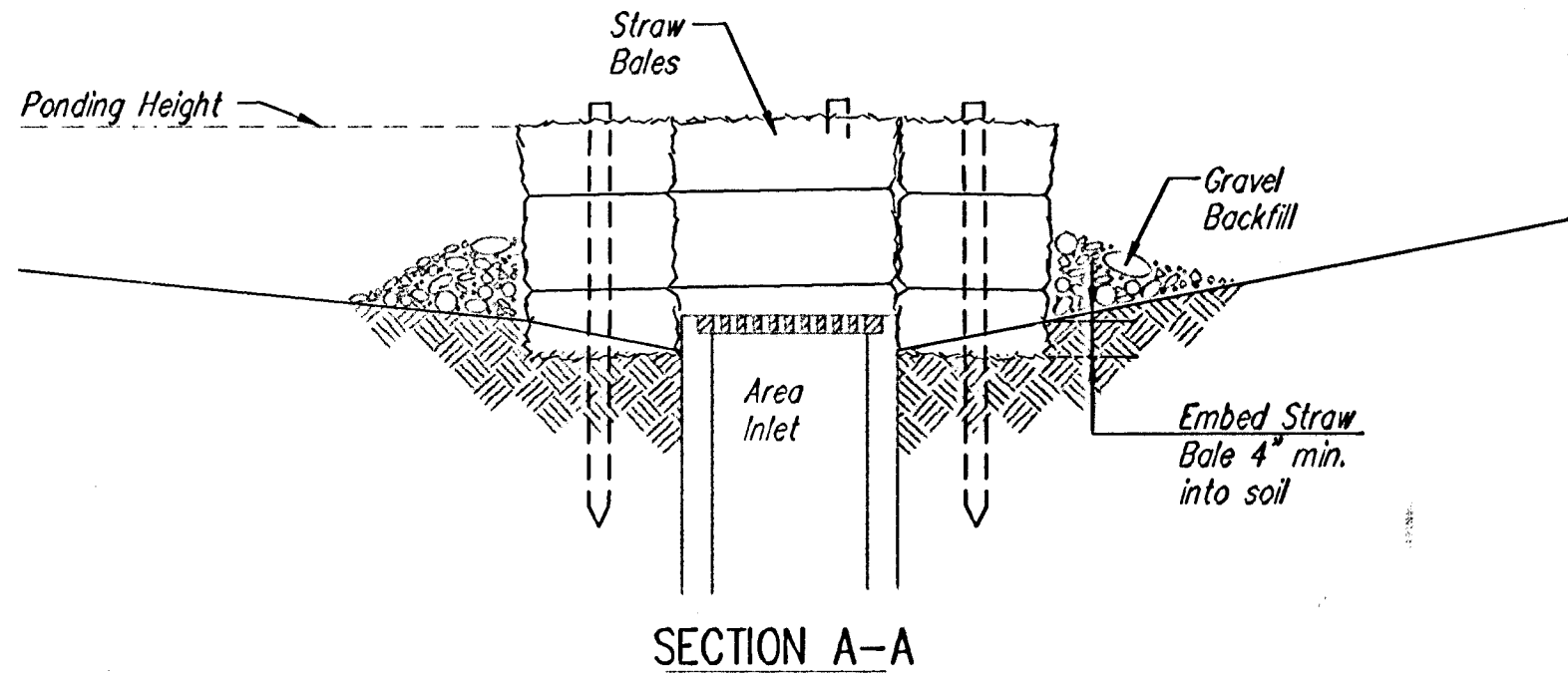
List of common placement/installation mistakes to avoid:

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. Twine should be used to bind bales. The use of wire binding is prohibited because it does not biodegrade readily.

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.

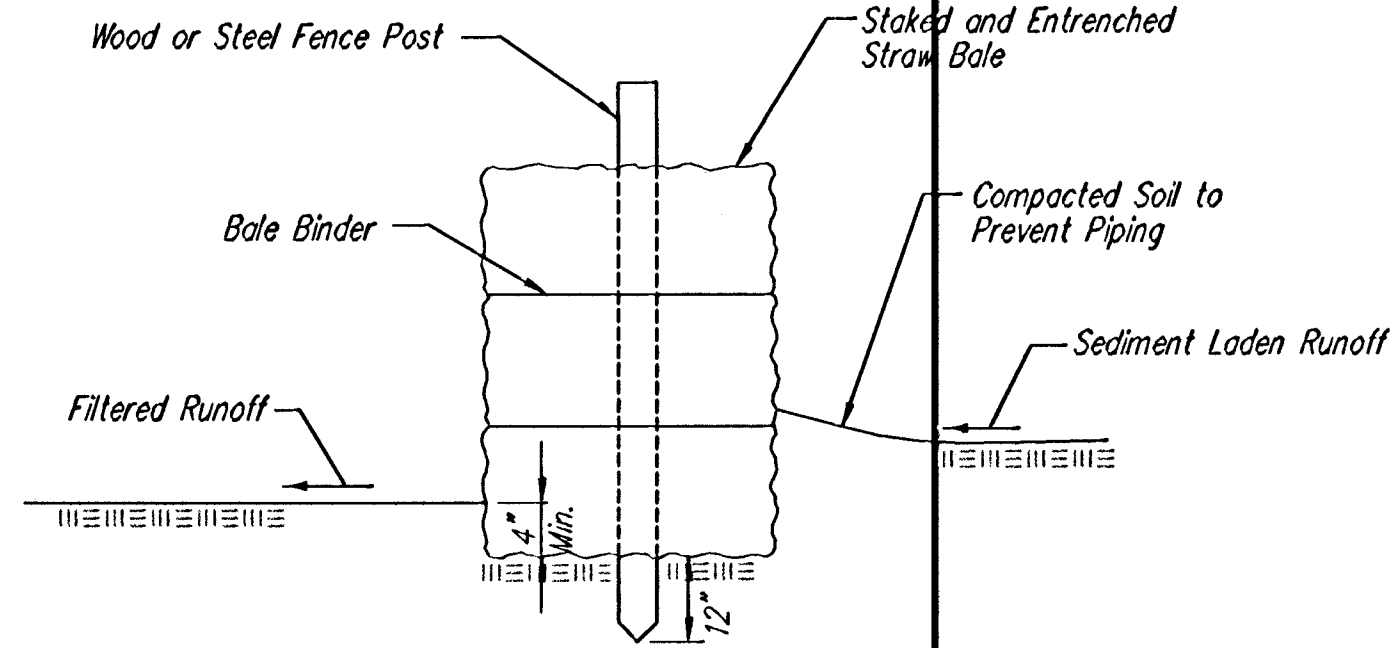
List of common placement installation mistakes to avoid:

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 of 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?



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. Twine should be used to bind bales. The use of wire binding is prohibited because it does not biodegrade readily.

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:

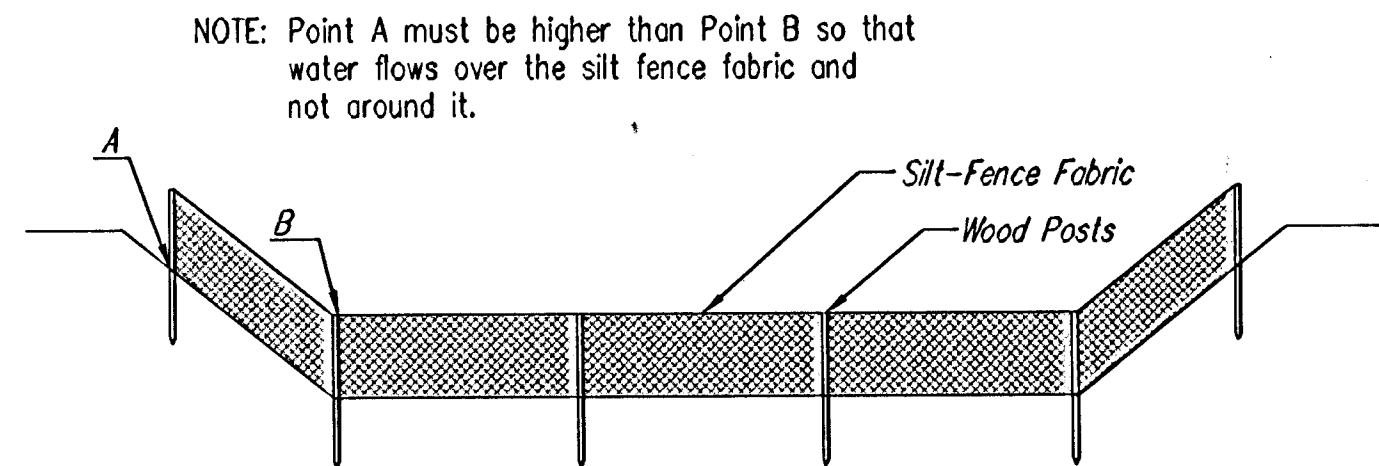
When practical, do not place bale slope barriers across contours. Slope barriers should be placed along contours to avoid a concentration of flow. Concentrated flow over a slope barrier creates a scour hole on the downslope side of the barrier. The scour hole eventually undermines the bales and the barrier 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?

	SOIL EROSION BMPs	
	STRAW BALE DITCH CHECK AND BARRIER DETAILS	
	JIM ARMOUR, P.E. CITY ENGINEER	
	PROJECT NUMBER 488-84253	OCA NO. 751445
DATE 3-14-07	SHEET 17 OF 22	



ELEVATION
SILT FENCE DITCH CHECKS
(STREAM PROTECTION)

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. Silt fence ditch 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 upslope 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.

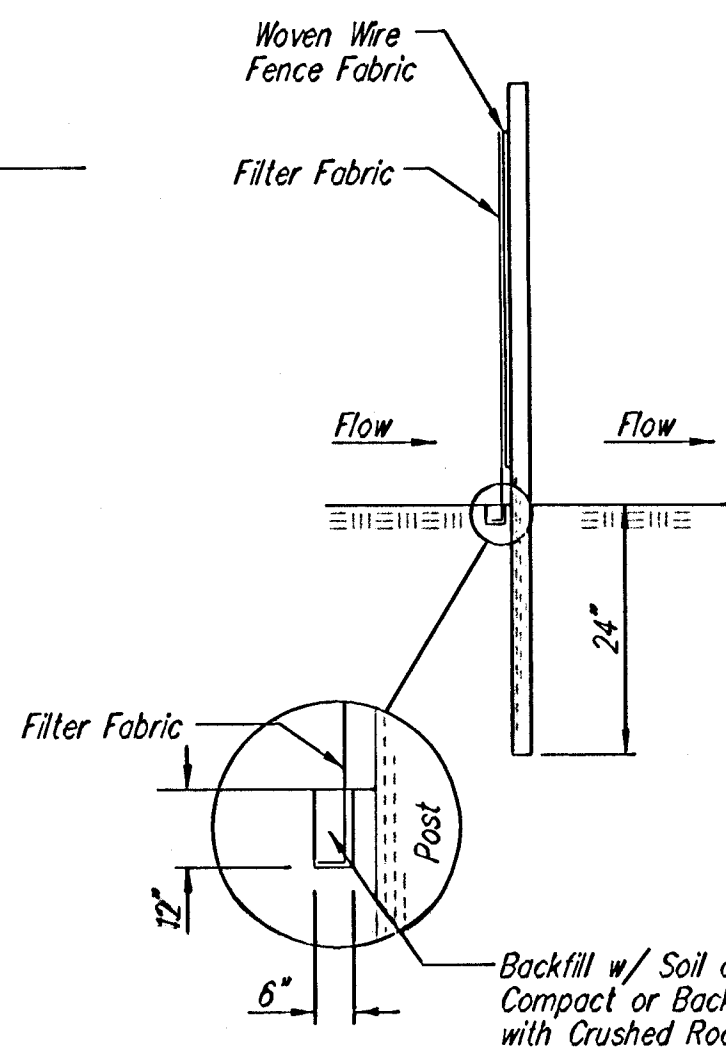
List of common placement/installation mistakes to avoid:

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.

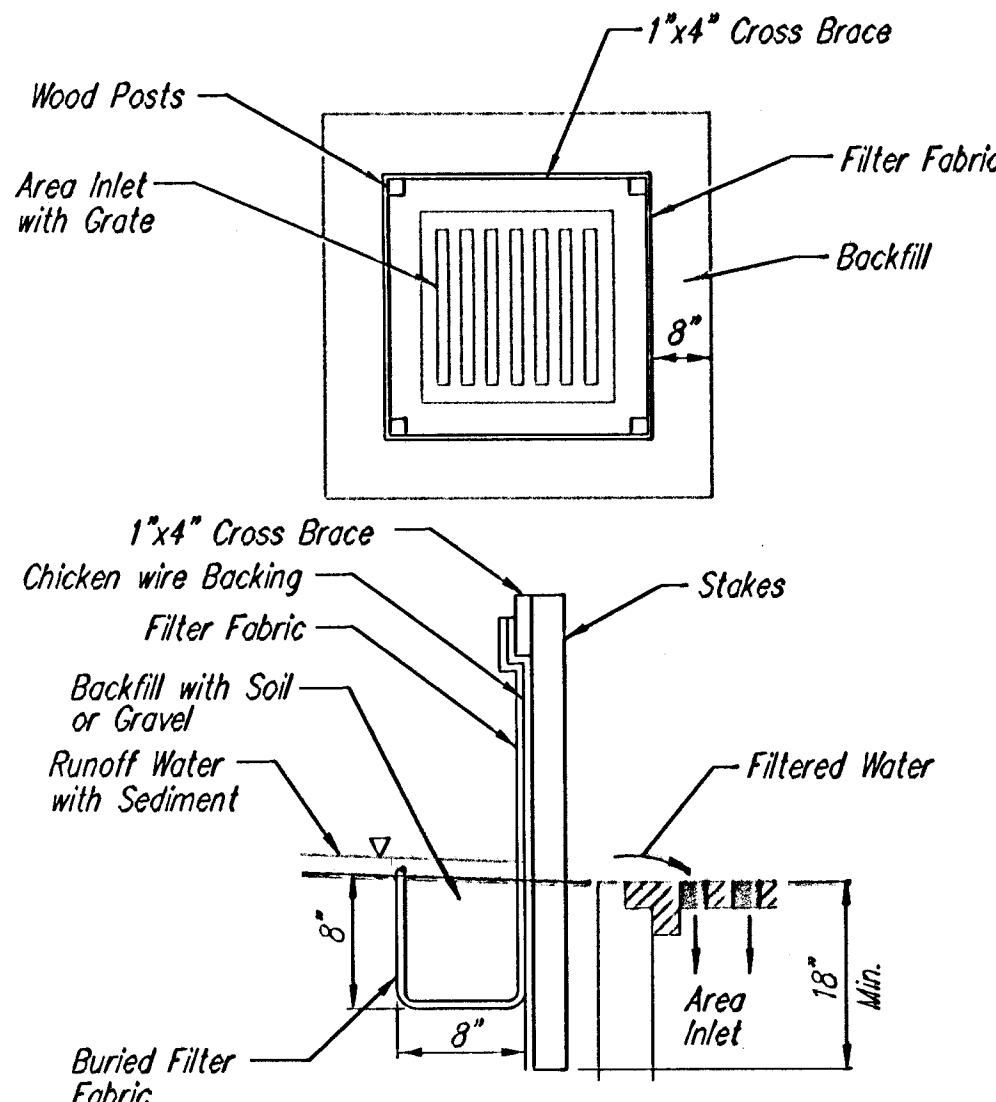
Inspection and Maintenance:

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?



ANCHOR TRENCH DETAIL



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.

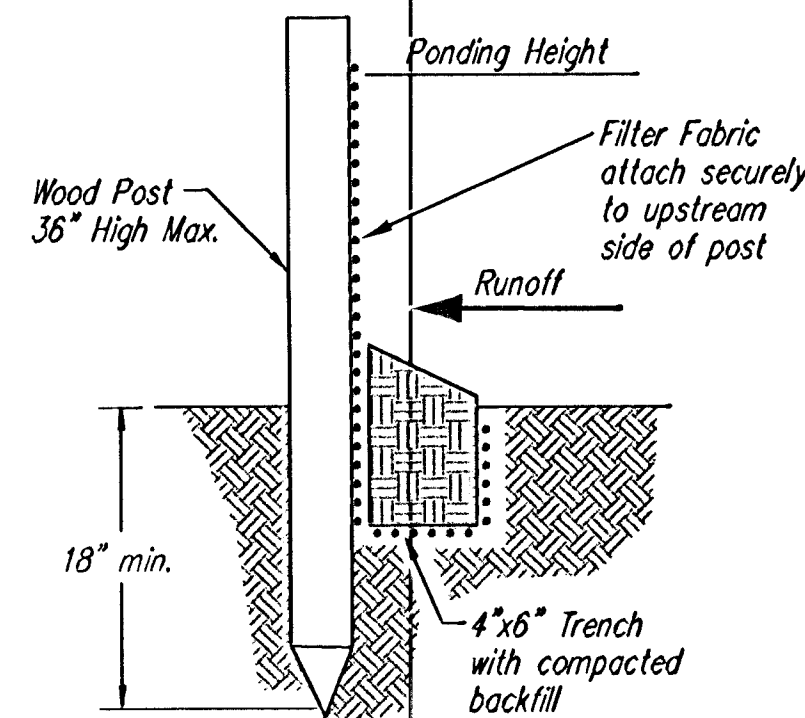
List of common placement/installation mistakes to avoid:

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?



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:

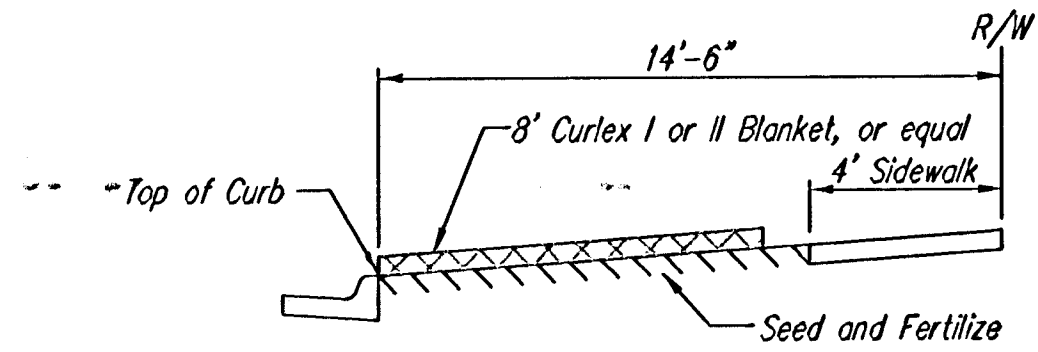
When practicable, do not place silt fence slope barriers across contours. Slope barriers should be placed along contours to avoid a concentration of flow. When the flow concentrates, it overtops the barrier and the silt fence slope barrier quickly deteriorates. Do not place silt-fence posts on the upslope 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, nails, 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:

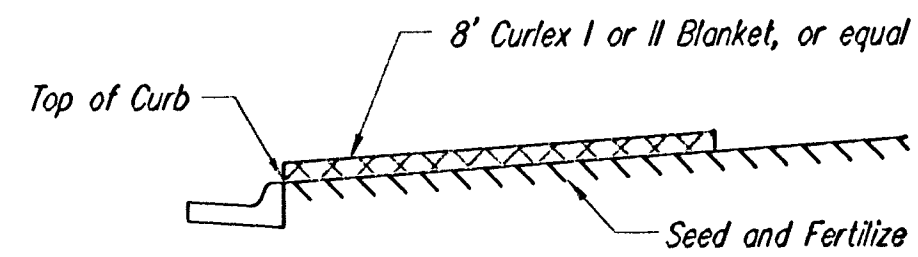
Silt fence slope barriers should be inspected every 7 days and within 24 hours of a rainfall of 1/2" or more. The following is a list of questions that should be addressed during each inspection:

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 BMPs	
	SILT FENCE DITCH CHECK AND BARRIER DETAILS	
	JIM ARMOUR, P.E. CITY ENGINEER	
	PROJECT NUMBER 468-84253	CCA NO. 751445
	DATE 3-14-07	SHEET 18 OF 22

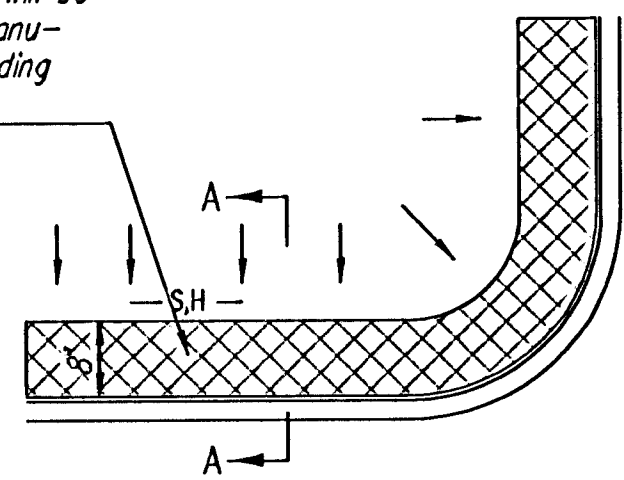


SECTION B-B

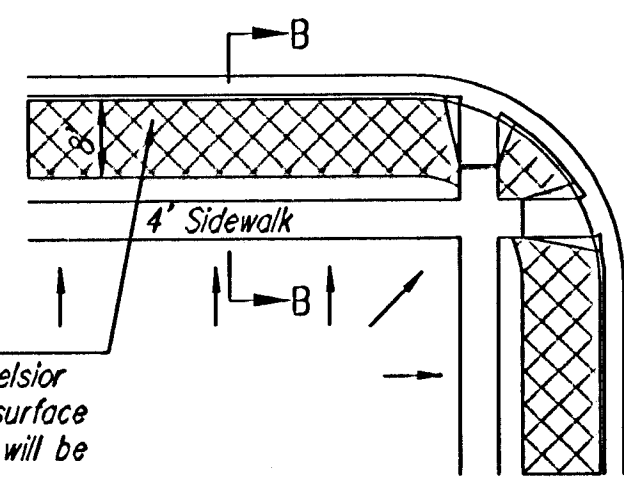


SECTION A-A

Install 8' wide Curlex I or II 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. (See detail)



SOUTH STREET

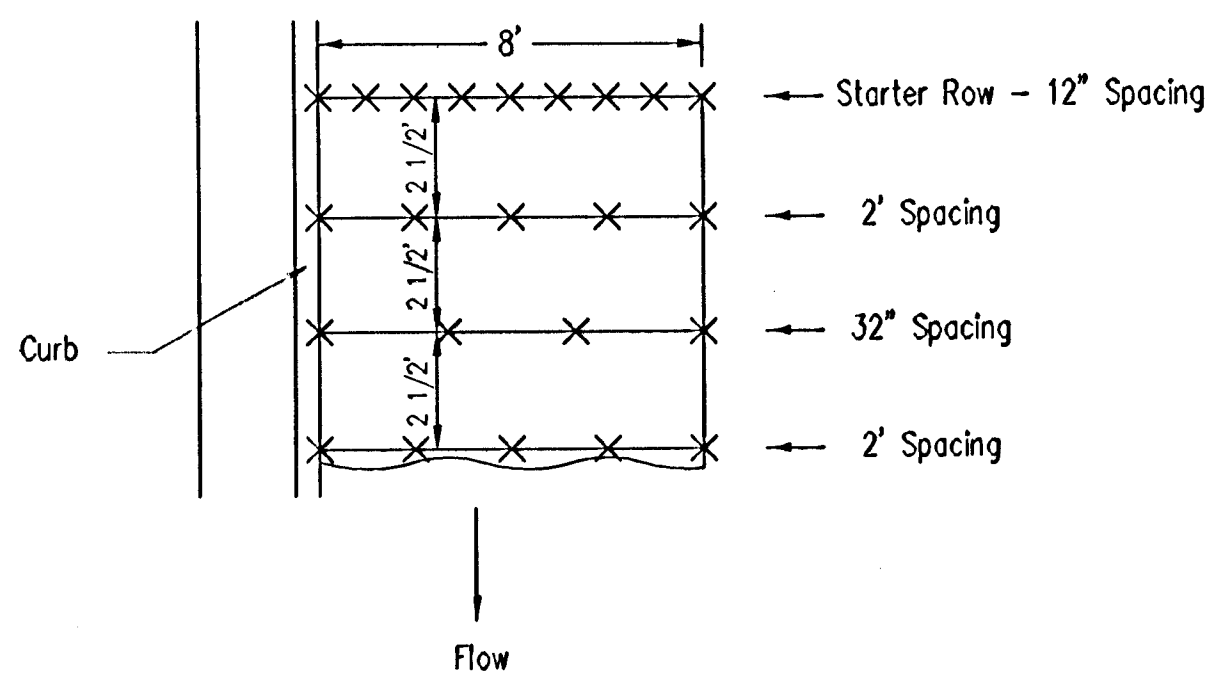


Install 8' wide Curlex I or II Excelsior Blanket, or equal, on prepared surface back of curb. Edge of blanket will be at back of curb. Install per manufacturer's recommendation, including staples. (See detail)

NOTES:

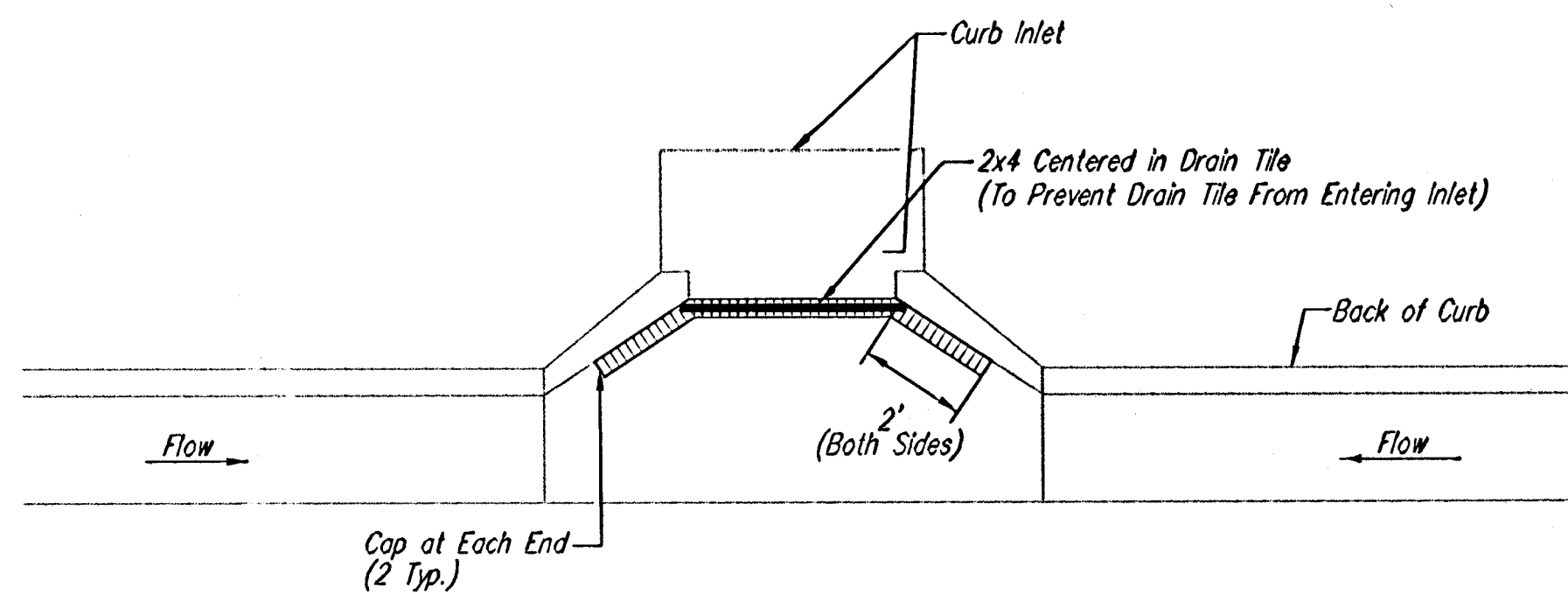
1. EXCELSIOR MAT TO BE INSTALLED WHEN SOD IS NOT SPECIFIED ON PROJECT.
2. EXCELSIOR BLANKET TO BE INSTALLED OVER SEED AND FERTILIZER, AS SPECIFIED IN THE PROJECT SPECIFICATIONS.
3. AFTER INSTALLATION OF EXCELSIOR BLANKET, AT LOCATIONS WHERE CONCENTRATED FLOW CARRIES SEDIMENT OVER THE CURB AND INTO THE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

BACK OF CURB PROTECTION DETAIL



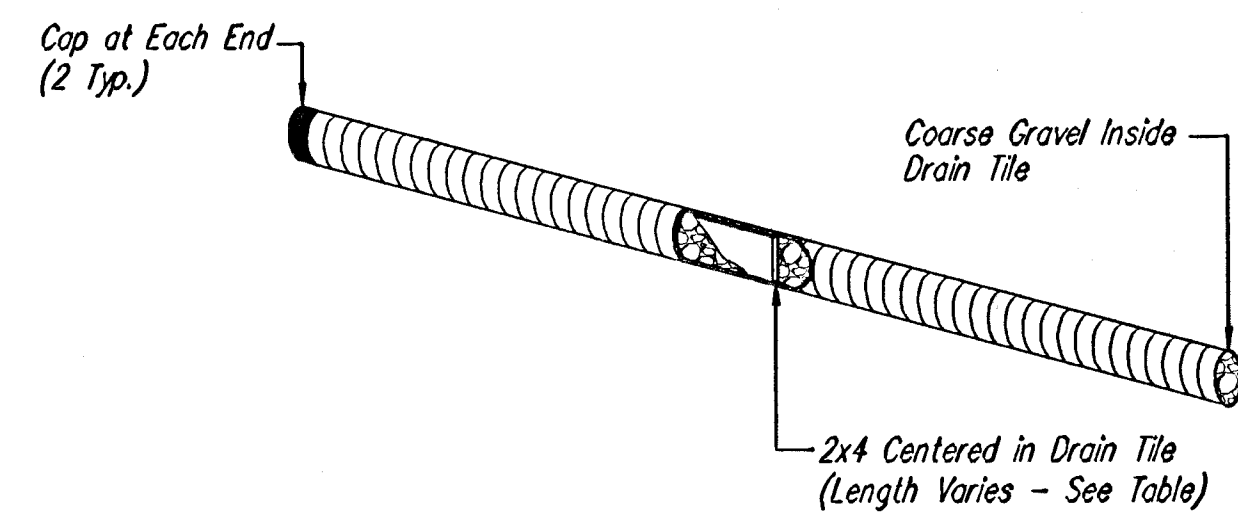
STAPLE PATTERN
NOTES: Use 6" seam overlap

DETAILS FOR CURLEX I OR II BLANKETS



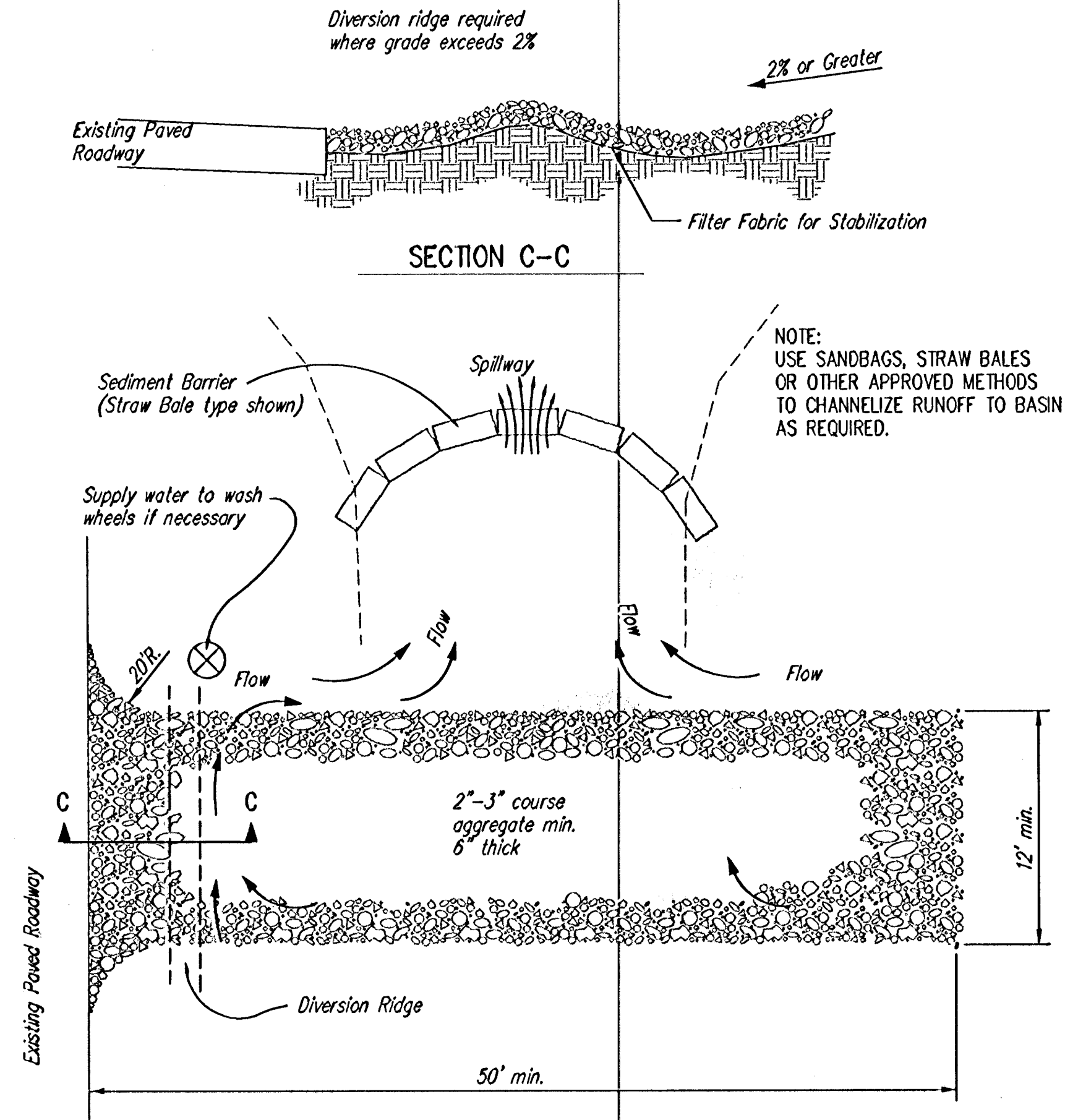
Note:
Place 4" perforated PVC pipe, filled with 1/2"-1" dia. gravel, in front of curb inlet as shown.

2X4 LENGTH	INLET TYPE	INLET OPENING
5'-6"	1-A	5'-0"
10'-6"	1-A	10'-0"
15'-6"	1-A	15'-0"



CURB INLET PROTECTION

4" PERFORATED PIPE W/ GRAVEL



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 BMPs

BACK OF CURB PROTECTION,
CURB INLET PROTECTION
AND
CONSTRUCTION ENTRANCE

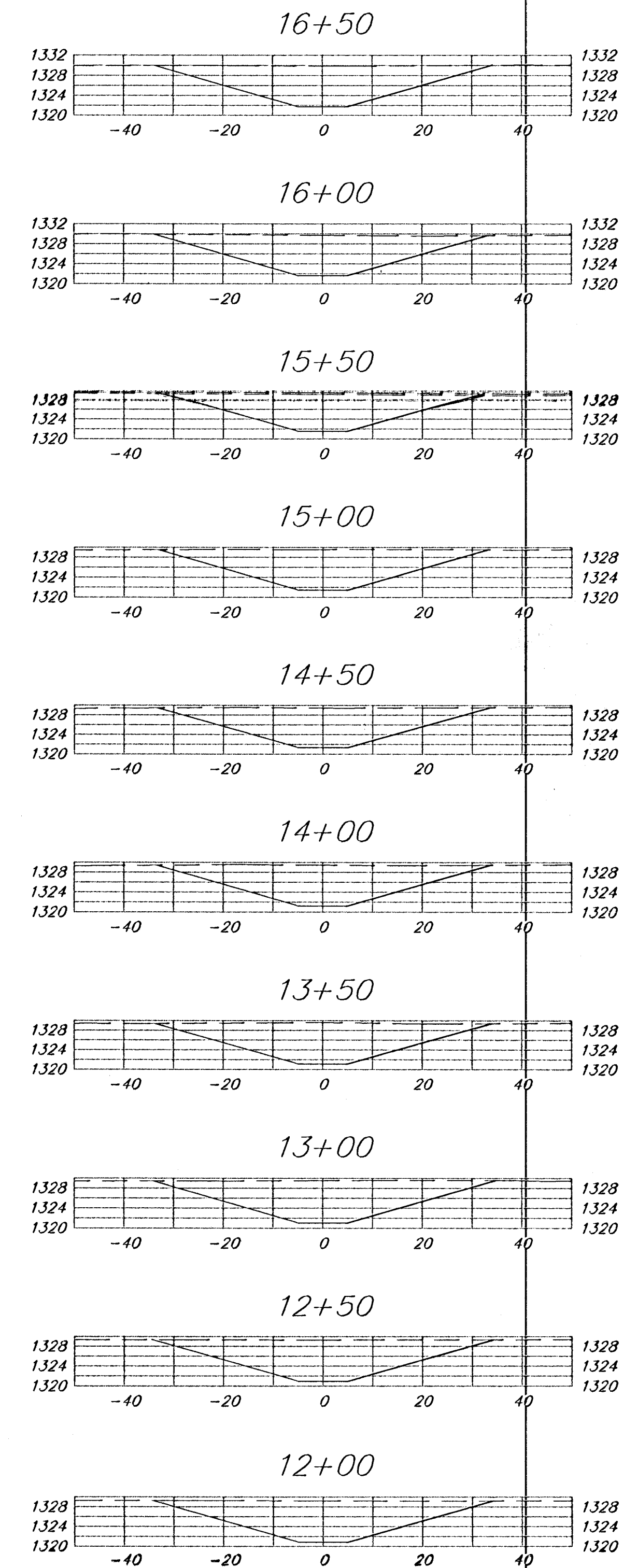
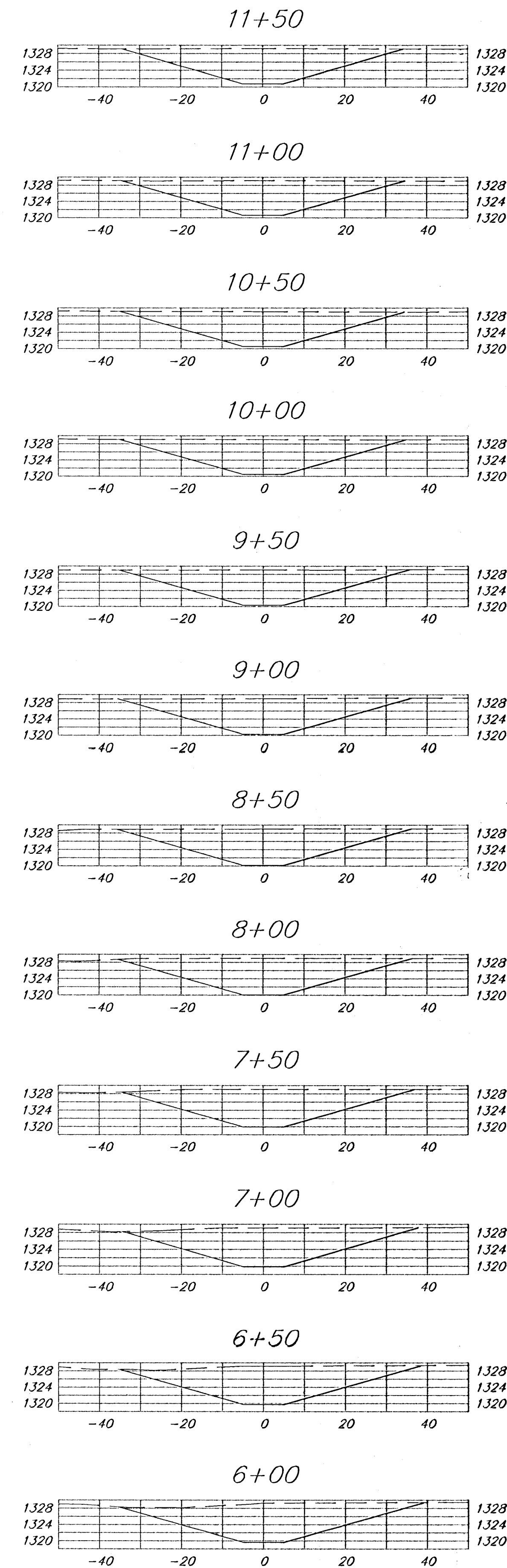
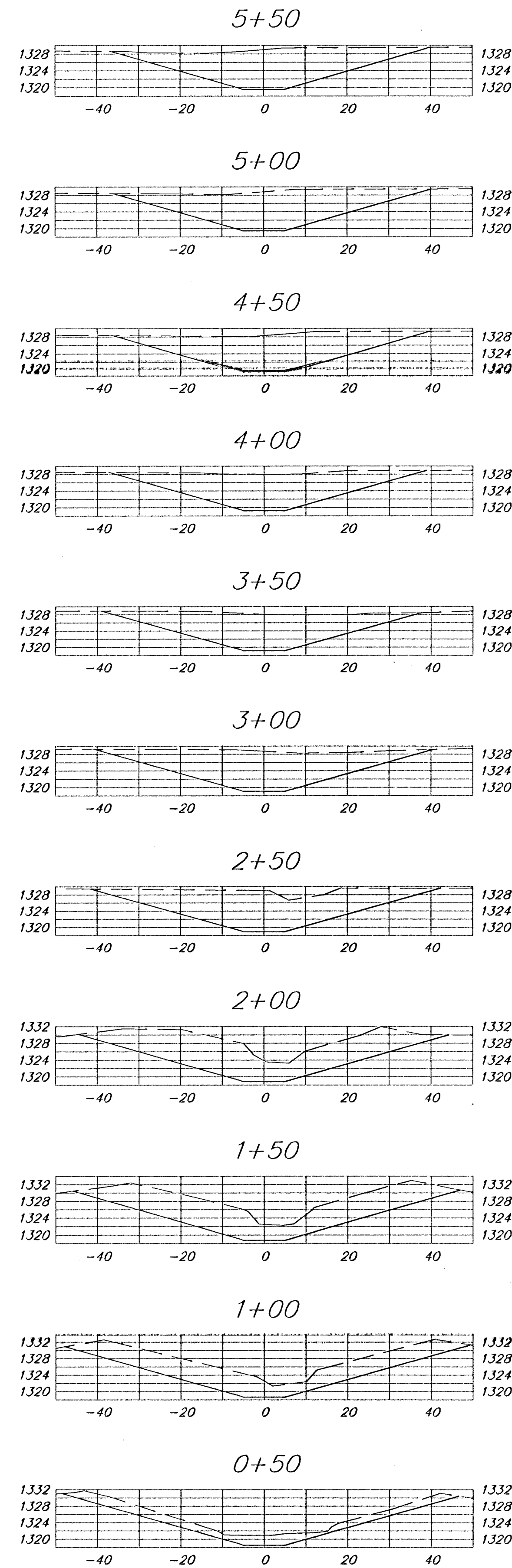
JIM ARMOUR, P.E.
CITY ENGINEER

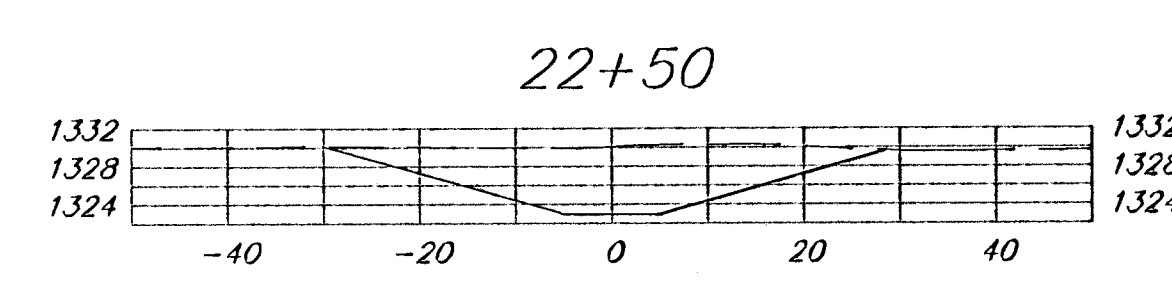
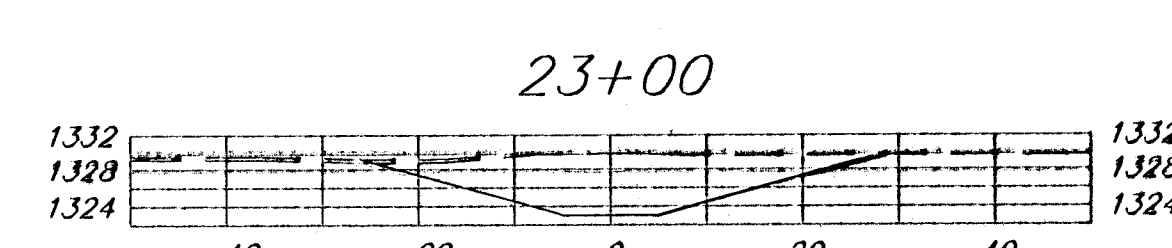
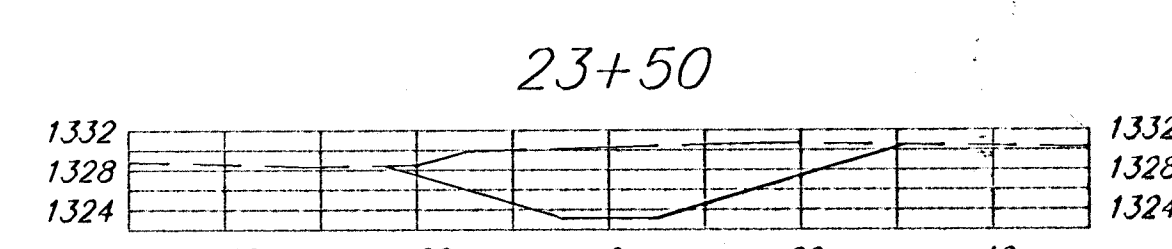
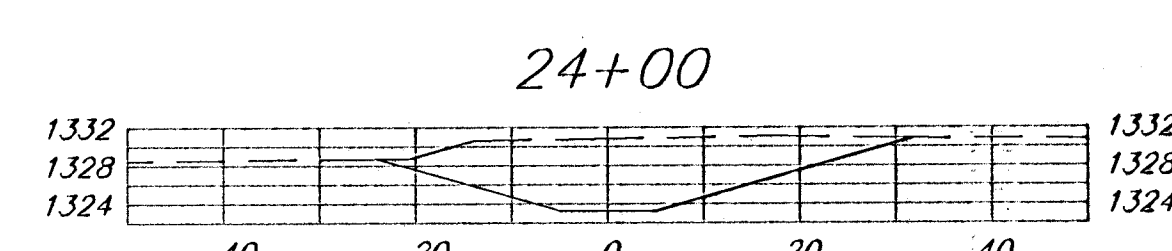
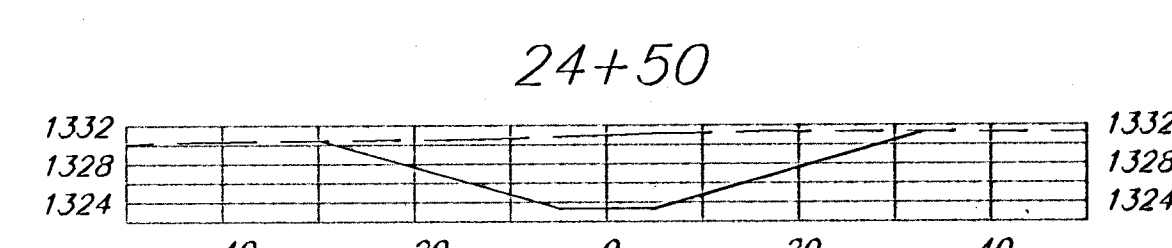
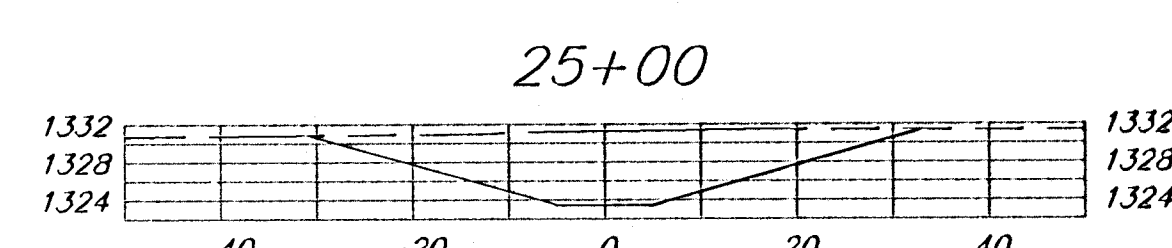
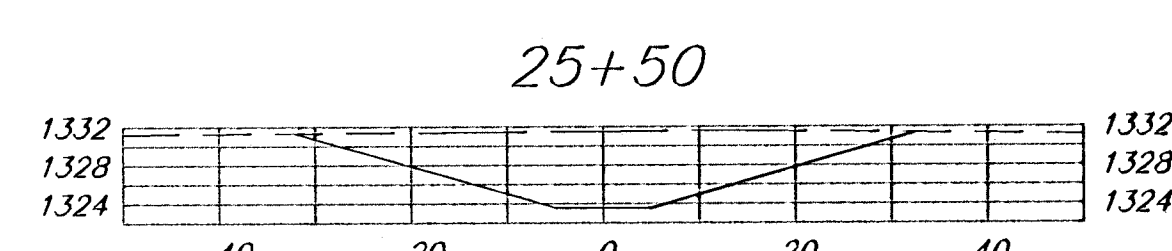
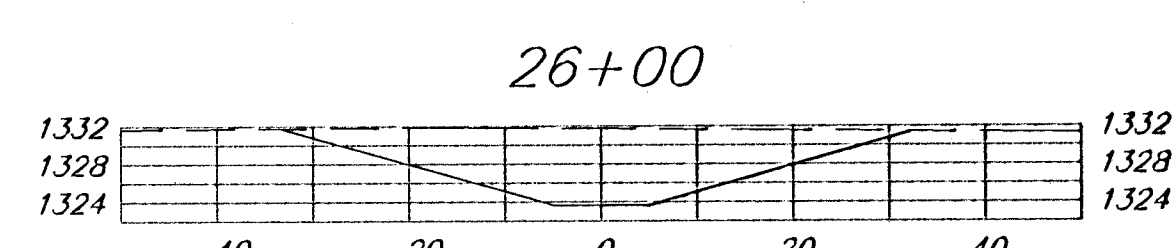
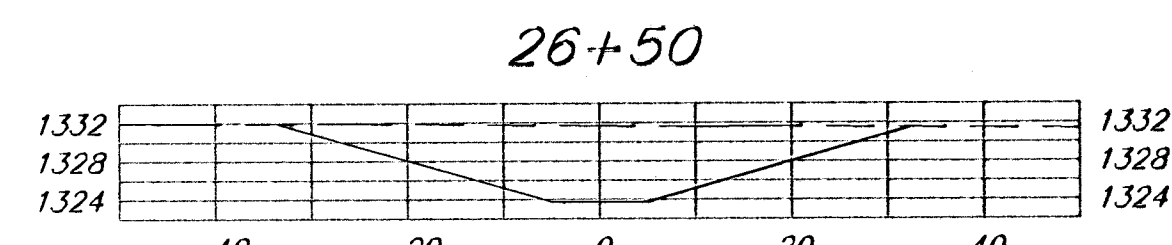
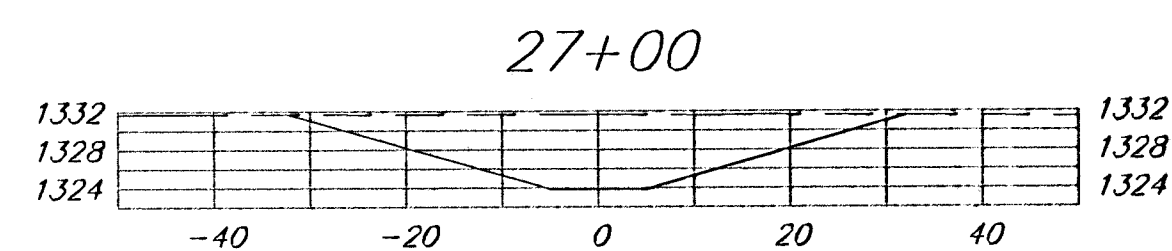
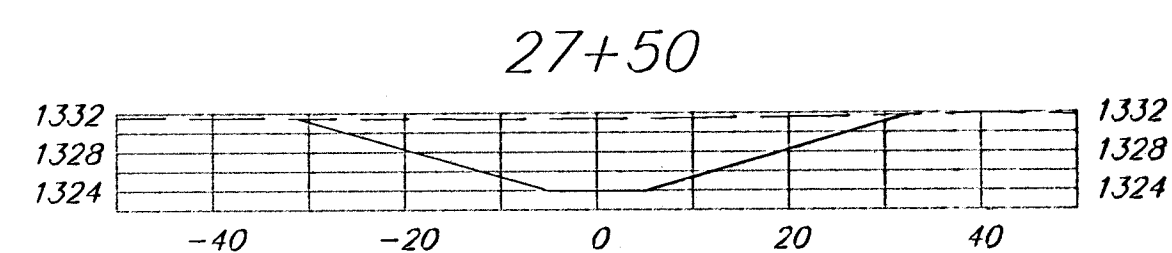
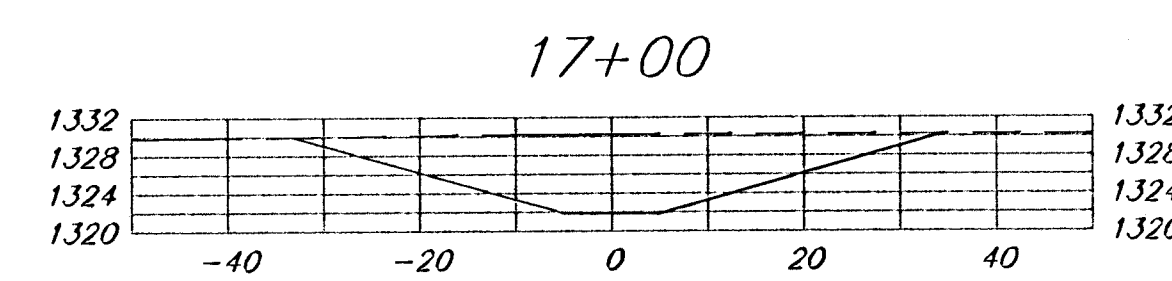
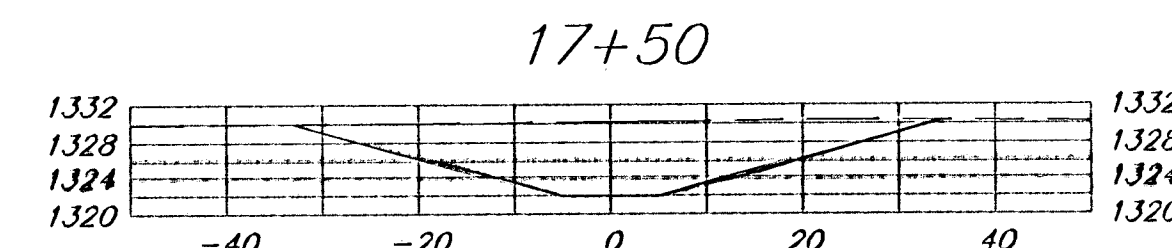
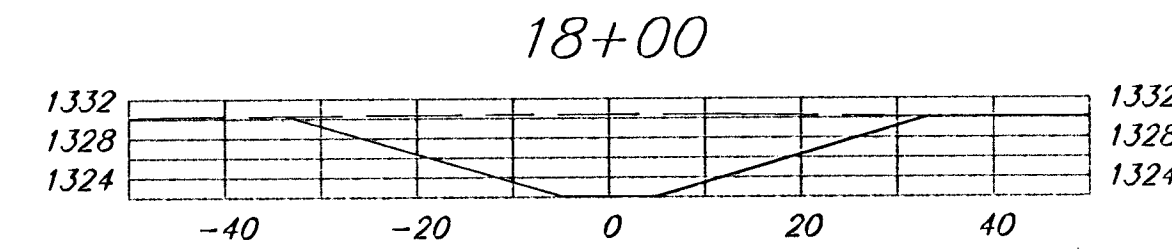
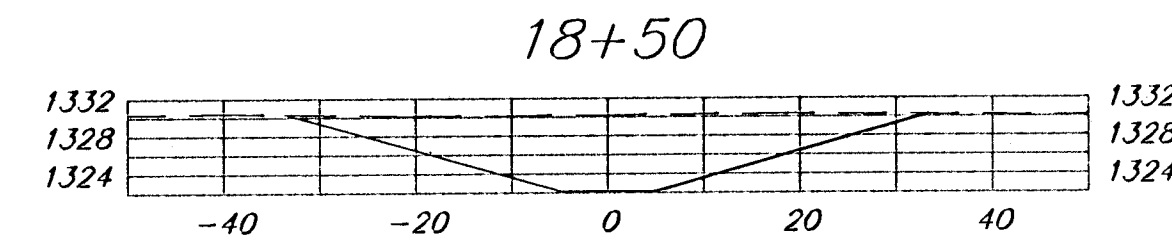
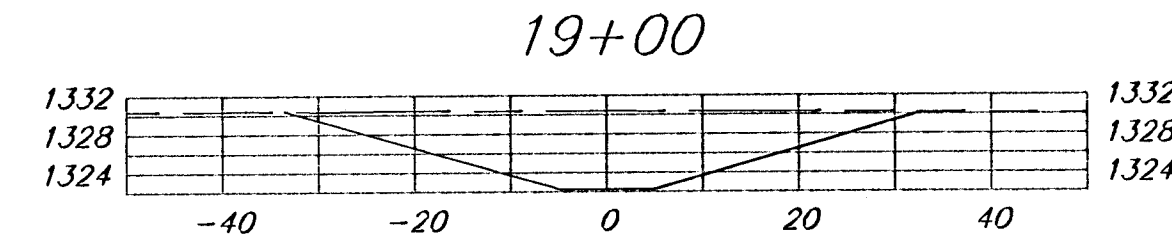
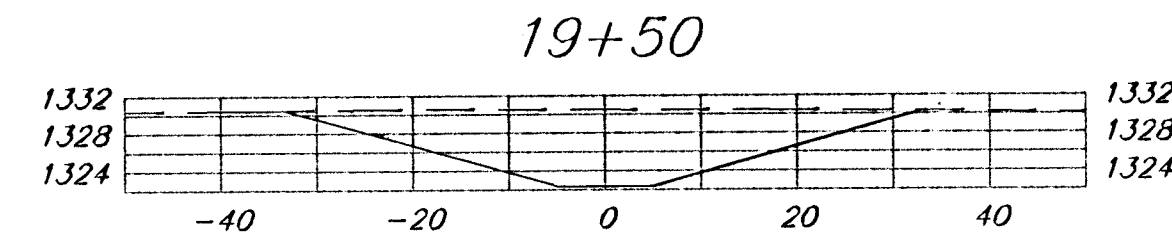
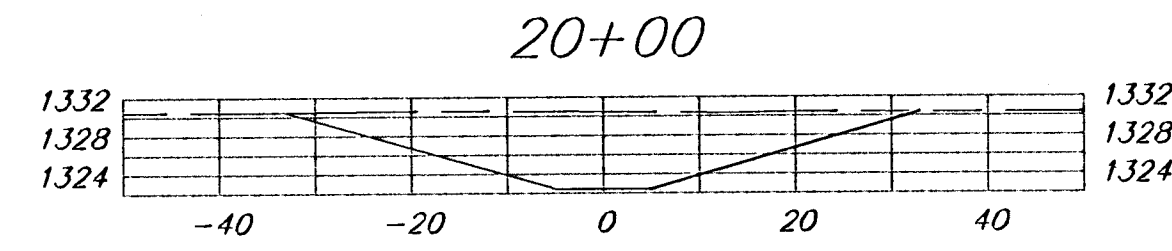
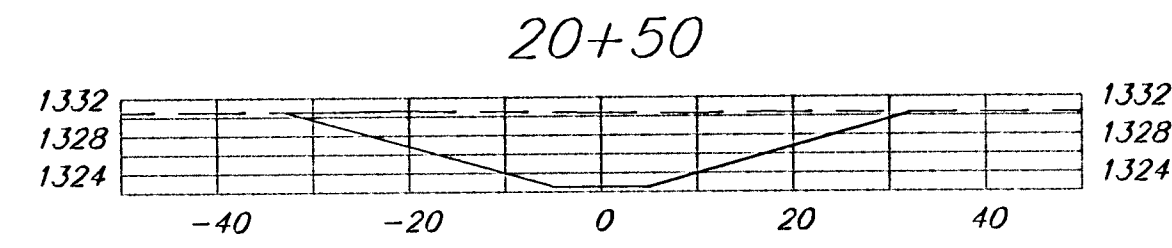
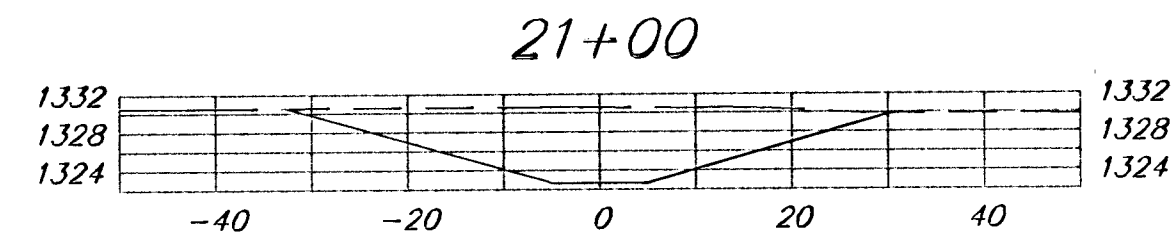
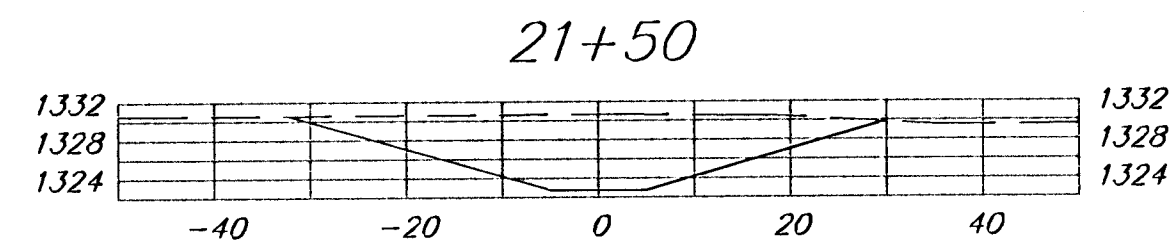
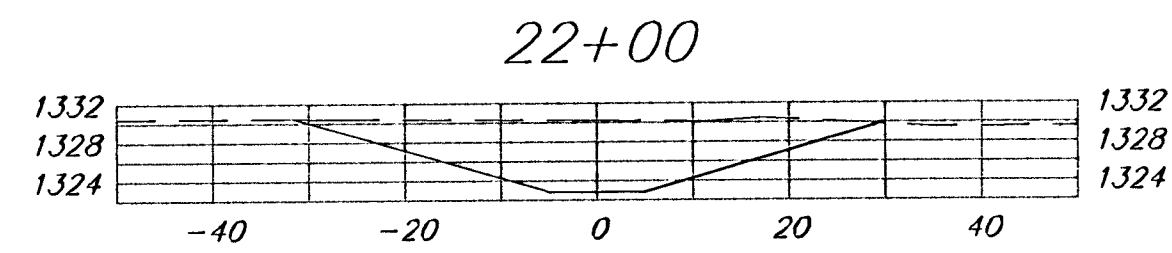
PROJECT NUMBER
488-84253

OCA NO.
751445

DATE
3-14-07

SHEET 19 OF 22





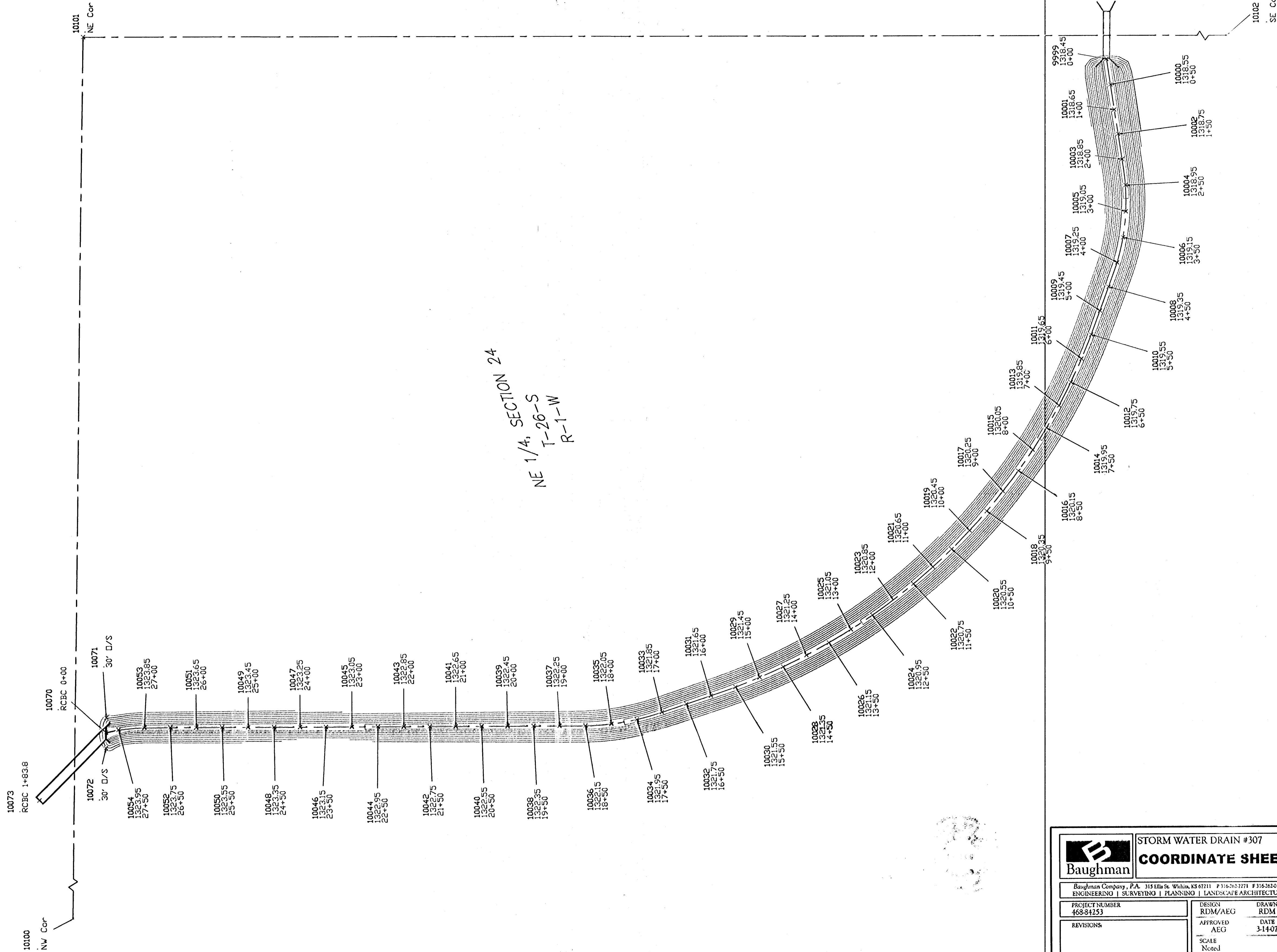
STATION	AREAS Square Feet		VOLUMES Cubic Yards		CUMULATIVE VOLUMES Cubic Yards	
	CUT	FILL	CUT	FILL	CUT	FILL
0+20	256.8193	0.0000	239.7765	0.0000	239.7765	0.0000
0+50	174.7785	0.0000	519.2537	0.0000	759.0302	0.0000
1+00	386.0155	0.0000	786.3319	0.0000	1545.3621	0.0000
1+50	463.2230	0.0000	872.6309	0.0000	2417.9930	0.0000
2+00	479.2184	0.0000	871.1841	0.0000	3289.1770	0.0000
2+50	481.6604	0.0000	834.3675	0.0000	4123.5445	0.0000
3+00	439.4564	0.0000	776.1121	0.0000	4899.6566	0.0000
3+50	398.7447	0.0000	728.2399	0.0000	5627.8966	0.0000
4+00	387.7545	0.0000	727.7840	0.0000	6355.6805	0.0000
4+50	398.2522	0.0000	745.9003	0.0000	7101.5809	0.0000
5+00	407.3201	0.0000	750.5741	0.0000	7852.1549	0.0000
5+50	403.2999	0.0000	739.7468	0.0000	8591.9017	0.0000
6+00	395.6267	0.0000	728.5048	0.0000	9320.4065	0.0000
6+50	391.1585	0.0000	717.8575	0.0000	10038.2640	0.0000
7+00	384.1276	0.0000	707.1335	0.0000	10745.3975	0.0000
7+50	379.5766	0.0000	697.3795	0.0000	11442.7770	0.0000
8+00	373.5933	0.0000	685.1034	0.0000	12127.8804	0.0000
8+50	366.3183	0.0000	673.1898	0.0000	12801.0703	0.0000
9+00	360.7267	0.0000	660.8426	0.0000	13461.9129	0.0000
9+50	352.9834	0.0000	646.2961	0.0000	14108.2090	0.0000
10+00	345.0165	0.0000	634.9228	0.0000	14743.1318	0.0000
10+50	340.7001	0.0000	628.1619	0.0000	15371.2936	0.0000
11+00	337.7147	0.0000	622.0149	0.0000	15993.3085	0.0000
11+50	334.0614	0.0000	615.4194	0.0000	16608.7279	0.0000
12+00	330.5916	0.0000	611.7282	0.0000	17220.4561	0.0000
12+50	330.0749	0.0000	617.0401	0.0000	17837.4962	0.0000
13+00	336.3284	0.0000	614.7229	0.0000	18452.2190	0.0000
13+50	327.5723	0.0000	599.2337	0.0000	19051.4527	0.0000
14+00	319.6001	0.0000	588.6277	0.0000	19640.0805	0.0000
14+50	316.1178	0.0000	582.5703	0.0000	20222.6507	0.0000
15+00	313.0581	0.0000	576.3511	0.0000	20799.0018	0.0000
15+50	309.4011	0.0000	574.9537	0.0000	21373.9554	0.0000
16+00	311.5489	0.0000	584.1361	0.0000	21958.0916	0.0000
16+50	319.3182	0.0000	599.9234	0.0000	22558.0150	0.0000
17+00	328.5991	0.0000	602.3809	0.0000	23160.3959	0.0000
17+50	321.9723	0.0000	597.8125	0.0000	23758.2084	0.0000
18+00	323.6652	0.0000	587.3846	0.0000	24345.5930	0.0000
18+50	310.7102	0.0000	576.4179	0.0000	24922.0110	0.0000
19+00	311.8212	0.0000	581.3470	0.0000	25503.3580	0.0000
19+50	316.0336	0.0000	578.3027	0.0000	26081.6606	0.0000
20+00	308.5333	0.0000	562.4788	0.0000	26644.1394	0.0000
20+50	298.9438	0.0000	549.2448	0.0000	27193.3842	0.0000
21+00	294.2407	0.0000	540.4324	0.0000	27733.8167	0.0000
21+50	289.4264	0.0000	515.6979	0.0000	28249.5145	0.0000
22+00	267.5273	0.0000	479.3451	0.0000	28728.8596	0.0000
22+50	250.1654	0.0000	437.8536	0.0000	29166.7133	0.0000
23+00	222.7166	0.0000	427.1879	0.0000	29593.9011	0.0000
23+50	238.6463	0.0000	459.8590	0.0000	30053.7601	0.0000
24+00	258.0014	0.0000	498.7017	0.0000	30552.4618	0.0000
24+50	280.5964	0.0000	529.2104	0.0000	31081.6722	0.0000
25+00	290.9509	0.0000	547.6780	0.0000	31629.3502	0.0000
25+50	300.5414	0.0000	566.3817	0.0000	32195.7320	0.0000
26+00	311.1509	0.0000	570.7860	0.0000	32766.5179	0.0000
26+50	305.2979	0.0000	582.7889	0.0000	33319.2818	0.0000
27+00	291.6903	0.0000	523.5678	0.0000	33842.8526	0.0000
27+50	273.7629	0.0000	250.9583	0.0000	34093.8109	0.0000
27+74.75	273.7629	0.0000	0.0000	0.0000	34093.8109	0.0000



Scale: 1" = 100'

POINT	NORTHING	EASTING	ELEV.	DESC.
9999	3028.02	4592.74	1318.45	0+00
10000	3020.56	4503.30	1318.95	0+50
10001	3013.14	4553.86	1318.65	1+00
10002	3005.72	4604.42	1318.35	1+50
10003	2998.30	4654.97	1318.05	2+00
10004	2990.85	4705.40	1318.95	2+50
10005	2983.43	4755.83	1319.05	3+00
10006	2976.01	4806.26	1319.15	3+50
10007	2968.59	4856.69	1319.25	4+00
10008	2961.17	4907.12	1319.35	4+50
10009	2953.75	4957.55	1319.45	5+00
10010	2946.33	5007.98	1319.55	5+50
10011	2938.91	5058.41	1319.65	6+00
10012	2931.49	5108.84	1319.75	6+50
10013	2924.07	5159.27	1319.85	7+00
10014	2916.65	5209.70	1319.95	7+50
10015	2909.23	5260.13	1320.05	8+00
10016	2901.81	5310.56	1320.15	8+50
10017	2894.39	5360.99	1320.25	9+00
10018	2886.97	5411.42	1320.35	9+50
10019	2879.55	5461.85	1320.45	10+00
10020	2872.13	5512.28	1320.55	10+50
10021	2864.71	5562.71	1320.65	11+00
10022	2857.29	5613.14	1320.75	11+50
10023	2849.87	5663.57	1320.85	12+00
10024	2842.45	5714.00	1320.95	12+50
10025	2835.03	5764.43	1321.05	13+00
10026	2827.61	5814.86	1321.15	13+50
10027	2820.19	5865.29	1321.25	14+00
10028	2812.77	5915.72	1321.35	14+50
10029	2805.35	5966.15	1321.45	15+00

POINT	NORTHING	EASTING	ELEV.	DESC.
10030	3747.05	3732.01	1321.55	15+50
10031	3742.22	3715.44	1321.65	16+00
10032	3737.39	3698.87	1321.75	16+50
10033	3732.56	3682.30	1321.85	17+00
10034	3727.73	3665.73	1321.95	17+50
10035	3722.90	3649.16	1322.05	18+00
10036	3718.07	3632.59	1322.15	18+50
10037	3713.24	3616.02	1322.25	19+00
10038	3708.41	3599.45	1322.35	19+50
10039	3703.58	3582.88	1322.45	20+00
10040	3698.75	3566.31	1322.55	20+50
10041	3693.92	3549.74	1322.65	21+00
10042	3689.09	3533.17	1322.75	21+50
10043	3684.26	3516.60	1322.85	22+00
10044	3679.43	3499.03	1322.95	22+50
10045	3674.60	3482.46	1323.05	23+00
10046	3669.77	3465.89	1323.15	23+50
10047	3664.94	3449.32	1323.25	24+00
10048	3660.11	3432.75	1323.35	24+50
10049	3655.28	3416.18	1323.45	25+00
10050	3650.45	3399.61	1323.55	25+50
10051	3645.62	3383.04	1323.65	26+00
10052	3640.79	3366.47	1323.75	26+50
10053	3635.96	3349.90	1323.85	27+00
10054	3631.13	3333.33	1323.95	27+50
10055	3626.30	3316.76	1324.05	28+00
10056	3621.47	3299.19	1324.15	28+50
10057	3616.64	3282.62	1324.25	29+00
10058	3611.81	3266.05	1324.35	29+50
10059	3606.98	3249.48	1324.45	30+00
10060	3602.15	3232.91	1324.55	30+50
10061	3597.32	3216.34	1324.65	31+00
10062	3592.49	3199.77	1324.75	31+50
10063	3587.66	3183.20	1324.85	32+00
10064	3582.83	3166.63	1324.95	32+50
10065	3578.00	3150.06	1325.05	33+00
10066	3573.17	3133.49	1325.15	33+50
10067	3568.34	3116.92	1325.25	34+00
10068	3563.51	3100.35	1325.35	34+50
10069	3558.68	3083.78	1325.45	35+00
10070	3553.85	3067.21	1325.55	35+50
10071	3549.02	3050.64	1325.65	36+00
10072	3544.19	3034.07	1325.75	36+50
10073	3539.36	3017.50	1325.85	37+00
10074	3534.53	3000.93	1325.95	37+50
10075	3529.70	2984.36	1326.05	38+00
10076	3524.87	2967.79	1326.15	38+50
10077	3520.04	2951.22	1326.25	39+00
10078	3515.21	2934.65	1326.35	39+50
10079	3510.38	2918.08	1326.45	40+00
10080	3505.55	2901.51	1326.55	40+50
10081	3500.72	2884.94	1326.65	41+00
10082	3495.89	2868.37	1326.75	41+50
10083	3491.06	2851.80	1326.85	42+00
10084	3486.23	2835.23	1326.95	42+50
10085	3481.40	2818.66	1327.05	43+00
10086	3476.57	2802.09	1327.15	43+50
10087	3471.74	2785.52	1327.25	44+00
10088	3466.91	2768.95	1327.35	44+50
10089	3462.08	2752.38	1327.45	45+00
10090	3457.25	2735.81	1327.55	45+50
10091	3452.42	2719.24	1327.65	46+00
10092	3447.59	2702.67	1327.75	46+50
10093	3442.76	2686.10	1327.85	47+00
10094	3437.93	2669.53	1327.95	47+50
10095	3433.10	2652.96	1328.05	48+00
10096	3428.27	2636.39	1328.15	48+50
10097	3423.44	2619.82	1328.25	49+00
10098	3418.61	2603.25	1328.35	49+50
10099	3413.78	2586.68	1328.45	50+00
10100	3408.95	2570.11	1328.55	50+50
10101	3404.12	2553.54	1328.65	51+00
10102	3399.29	2536.97	1328.75	51+50



Baughman		STORM WATER DRAIN #307	
COORDINATE SHEET			
Baughman Company, P.A. 31518a & W. 31518b, AS 9711 F316323171 F316323172			
ENGINEERING SURVEYING PLANNING LANDSCAPE ARCHITECTURE			
PROJECT NUMBER 469-81253	DESIGN RDM/AEG	DRAWN RDM	
APPROVED AEG	DATE 3-14-07		
REVISIONS:	SCALE Noted		
	SHEET		
22 OF 22			
Northgate\31RD St SWD\Coordinate Sheet.dwg			

98-13-03-09

4-18-07-02
V2 GR14 - 2ND 300' R/W R/W R/W R/W