

PLUM CREEK WATERSHED PROJECT

FLOODWATER RETARDING DAM NO. 12

DRAINAGE AREA	2,317 ACRES
TOTAL STORAGE	1,599 AC.FT.
WATER SURFACE AREA	55 ACRES
HEIGHT OF DAM	27 FEET
VOLUME OF FILL	105,870 CU.YDS.

BUILT UNDER THE WATERSHED PROTECTION
AND FLOOD PREVENTION ACT

BY

HAYS-CALDWELL - TRAVIS SOIL CONSERVATION DISTRICT

AND

PLUM CREEK CONSERVATION DISTRICT

WITH THE ASSISTANCE OF

SOIL CONSERVATION SERVICE

OF THE

U. S. DEPARTMENT OF AGRICULTURE

1962

*As Built Plans
Construction completed 6-7-63*

CONSTRUCTION DRAWINGS APPROVED

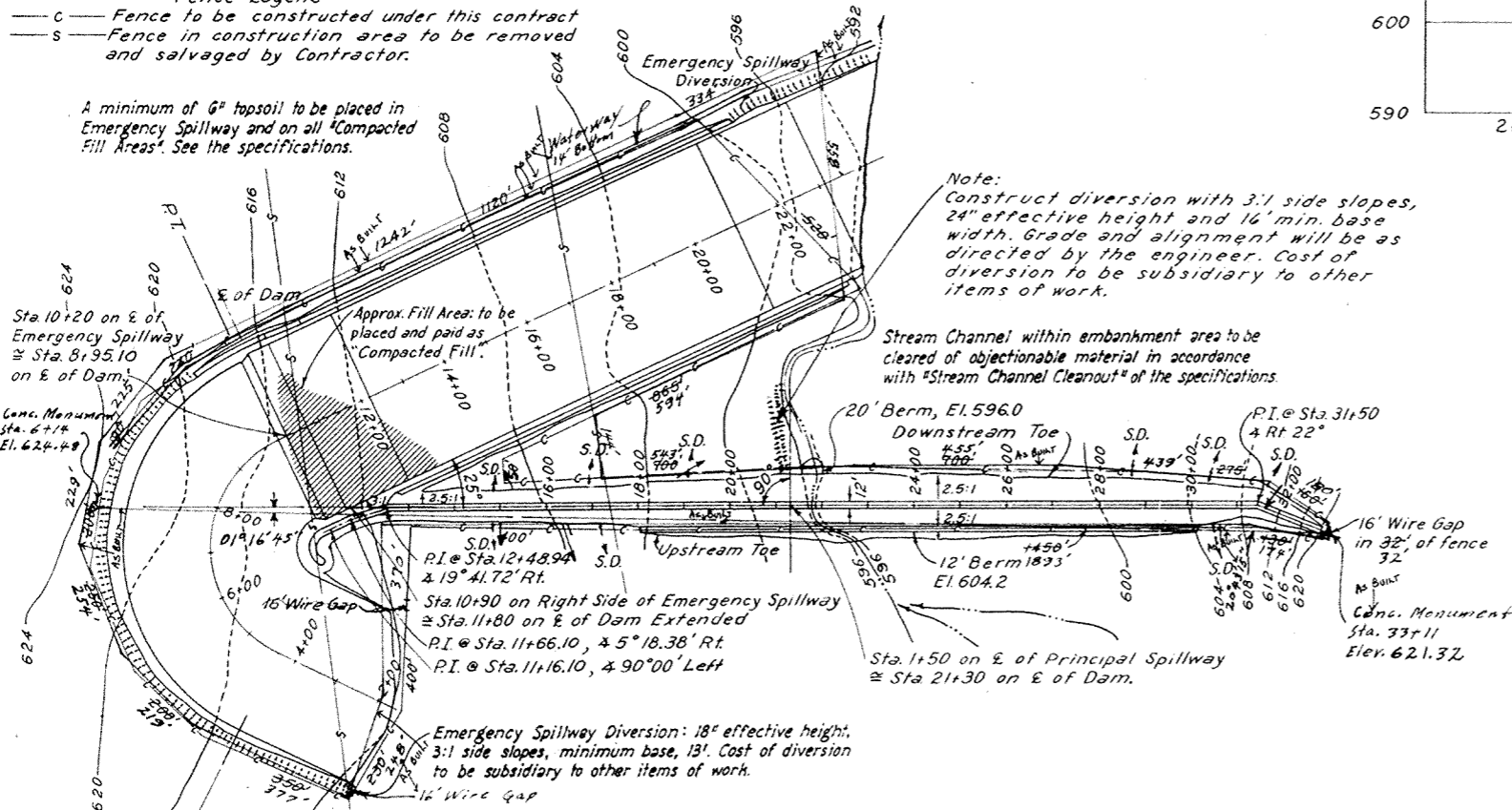
<i>Howard Matson</i>	<i>6/1/62</i>
<small>HEAD ENGINEER & REGISTERED PROFESSIONAL ENGINEER</small>	<small>DATE</small>
<i>Frank D. ...</i>	<i>6/1/62</i>
<small>REGISTERED PROFESSIONAL ENGINEER</small>	<small>DATE</small>

4E-16,771

JUL 2 1962

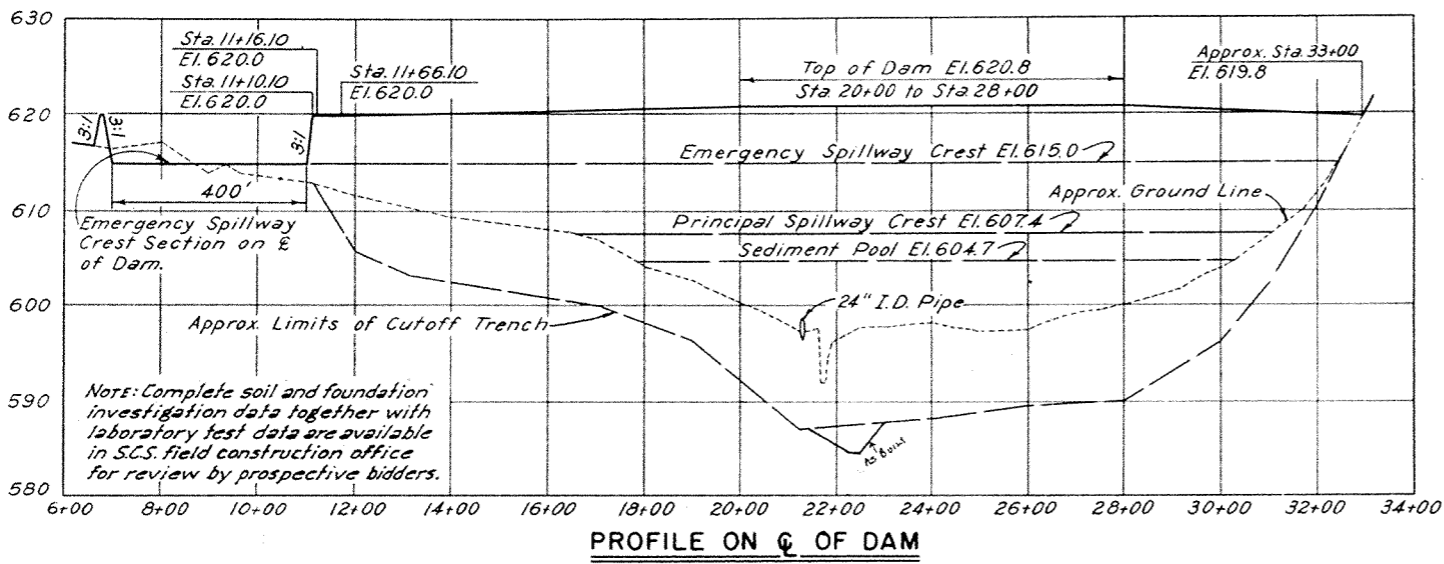
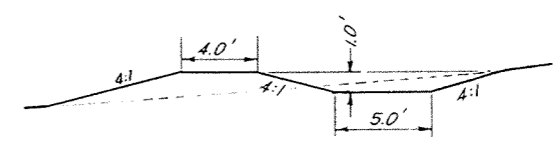
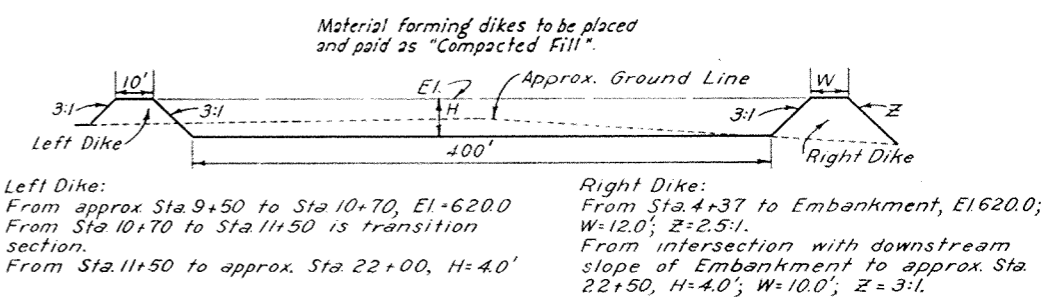
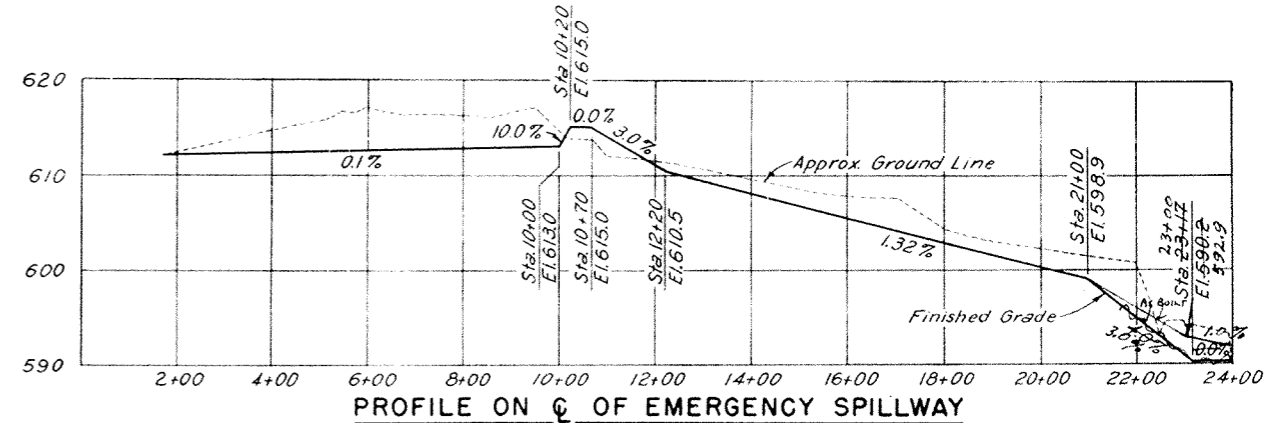
Fence Legend
 -c- Fence to be constructed under this contract
 -s- Fence in construction area to be removed and salvaged by Contractor.

A minimum of 6" topsoil to be placed in Emergency Spillway and on all Compacted Fill Areas. See the specifications.



EMERGENCY SPILLWAY CURVE DATA

Δ	129° 30'
D	23° 00'
R	250.79'
L	563.0'
P.C.	Sta. 4+37
P.T.	Sta. 10+00

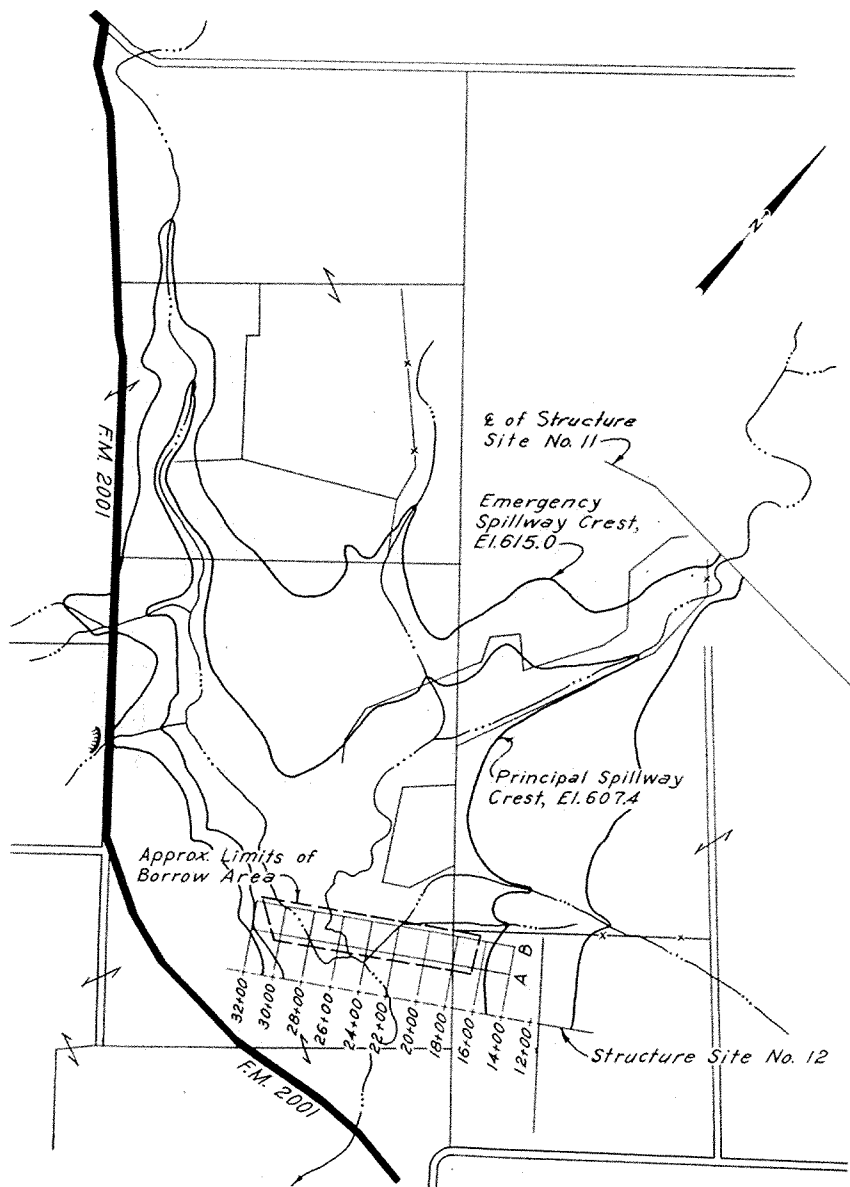


As Built Plans
 Construction Completed 6-7-63

EMBANKMENT PLAN AND PROFILE
 FLOODWATER RETARDING STRUCTURE SITE No. 12
 PLUM CREEK WATERSHED
 IN
 HAYS, CALDWELL AND TRAVIS COUNTIES, TEXAS

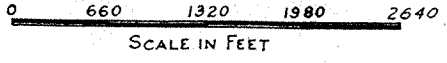
U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

Designed: M.D.K.	Date: 5-62	Approved by: [Signature]
Drawn: M.D.K. & J.J.M.	Date: 5-62	Checked: M.D.K. & G.W.T.
Traced: J.J.M.	Date: 5-62	Sheet: No. 2 of 8
Checked: M.D.K. & G.W.T.	Date: 6-62	Drawing No. 4-E-16,771



Structure located approximately 3 miles north and 6 miles east of Kyle, Hays County, Texas.

VICINITY MAP & GENERAL PLAN OF RESERVOIR



ELEVATION	SURFACE ACRES	STORAGE	
		ACRE FEET	INCHES
592.0	0	0	0
596.0	1.1	2.2	.01
600.0	16.0	36.4	.19
604.0	46.4	161.2	.83
604.7	55.0	196.6	1.02
607.4	88.0	389.6	2.02
608.0	95.1	444.2	2.30
612.0	177.8	990.0	5.13
615.0	228.0	1598.7	8.28
616.0	244.7	1835.0	9.50
620.0	334.6	2993.6	15.50
Top of Dam (Effective) Elev.		619.8	
Emergency Spillway Crest Elev.		615.0	
Principal Spillway Crest Elev.		607.4	
Sediment Pool Elev.		604.7	
Drainage Area, Acres		2317	
Sediment Storage, Acre Feet		444	
Floodwater Storage, Acre Feet		1155	
Max. Emergency Spillway Cap., c.f.s.		9060	

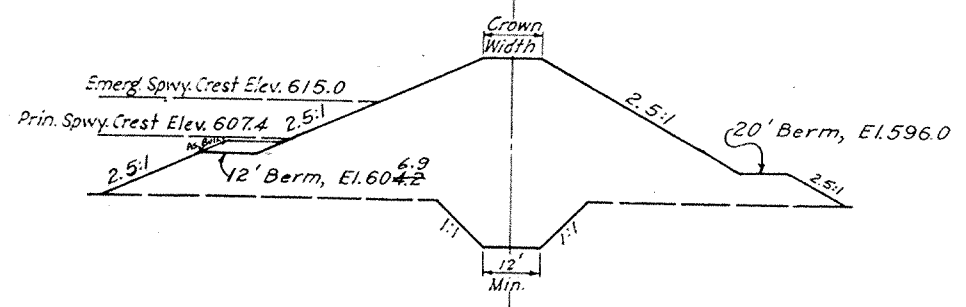
TABULATION - RECOMMENDED USE OF MATERIALS

Sec No	EMBANKMENT SECTION Description	SOURCE OF FILL MATERIAL Location		LAB. TEST		COMPACTION REQUIREMENTS				Lab. Curve No.	
				Ave. Depth Feet	Modified Standard #	Min. Dry Density Lbs Per Cu. Ft.	Moisture Range Percent		Lbs. Per Cu. Ft.		
							From	To			From
	Interior Sections	Borrow	Borrow	0	4	110.5	16.5	100	15	up	1*
				7	13	Like Curve No. 1					
				0	4	107.0	18.0	97	16	up	3*
	Outer Sections	Borrow	Emergency Spillway	0	4	107.0	18.0	97	16	up	3*
				7	13	Like Curve No. 3					
				4	7	109.0	16.5	104	15	up	2**
				4	7	105.0	18.5	100	16	up	4**

The Engineer will direct a selective placement of all fill materials in consideration of the preferred uses shown in the table above.

Maximum dry density, optimum moisture, minimum acceptable dry density and moisture range shown are for material particles passing the number 4 sieve. If the material being placed contains 1/4" or larger rock particles, the minimum acceptable dry density and moisture range will be corrected for the presence of rock.

No upward placement moisture limits are established. Upward limits of placement moisture will be determined during construction by the Engineer, based on the workability aspects of the materials and densities reached.



**TYPICAL SECTION
EMBANKMENT DATA**

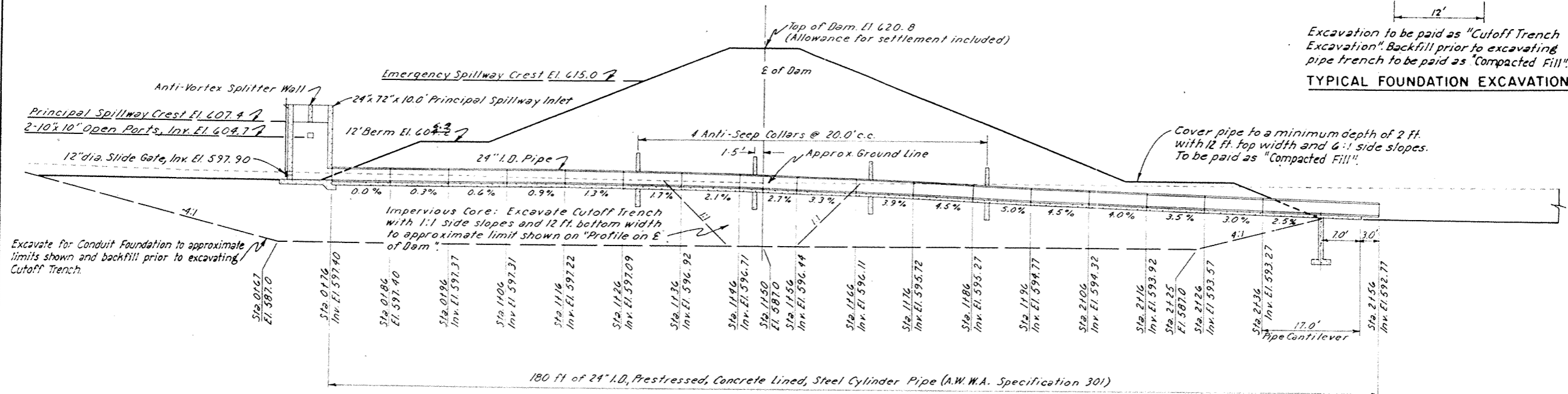
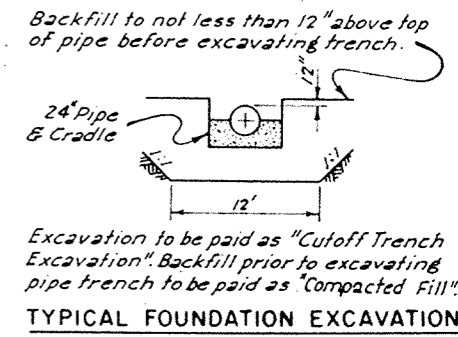
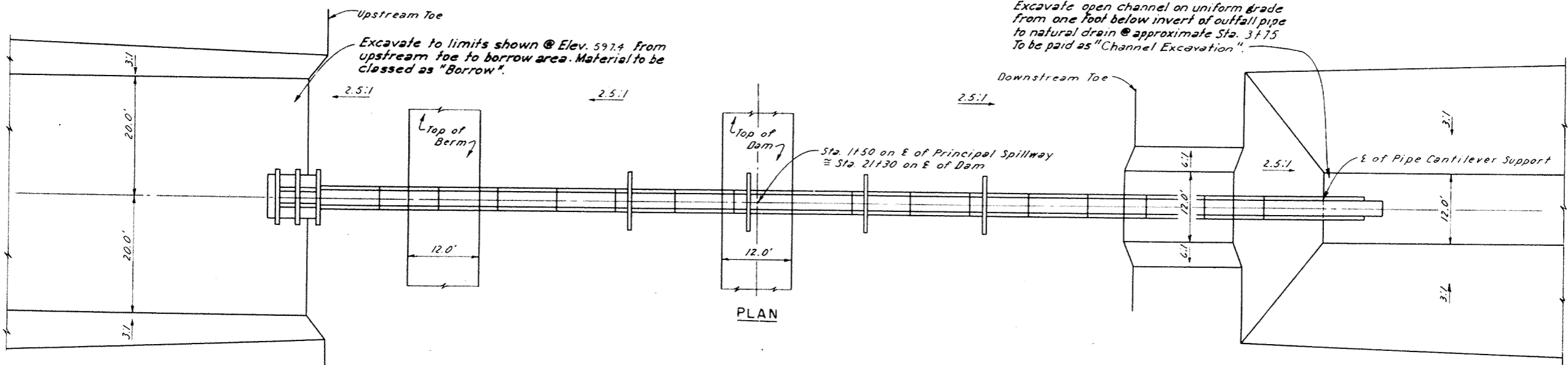
As Built Plans
Const. completed 6-7-63

**GENERAL PLAN OF RESERVOIR
FLOODWATER RETARDING STRUCTURE SITE No. 12
PLUM CREEK WATERSHED
IN
HAYS, CALDWELL AND TRAVIS COUNTIES, TEXAS**

**U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE**

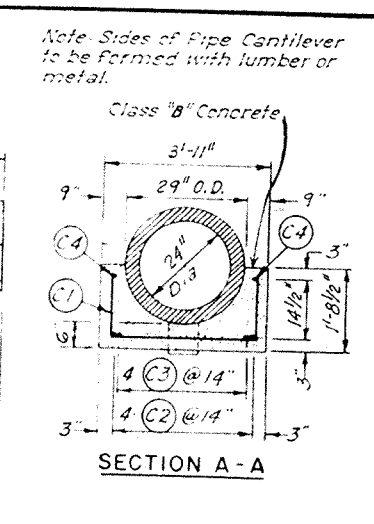
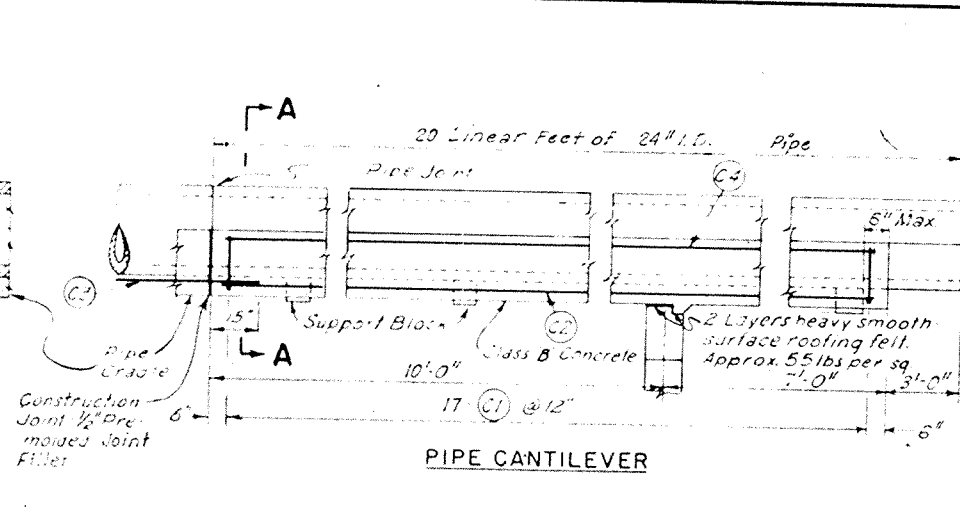
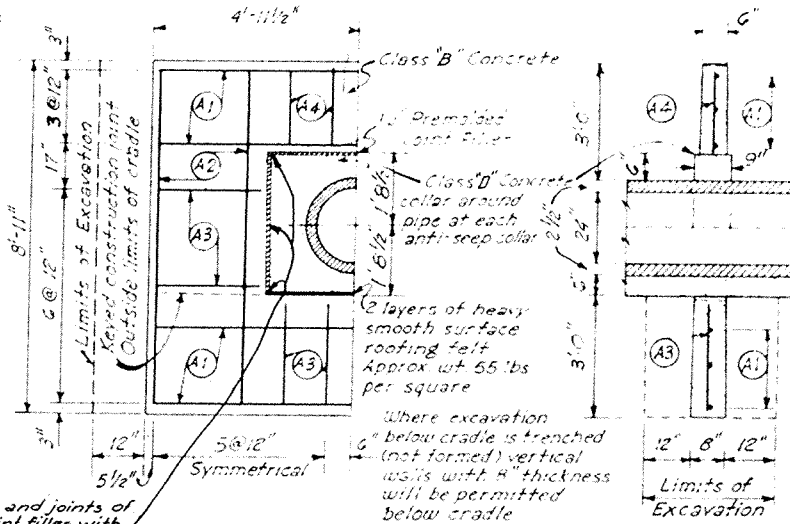
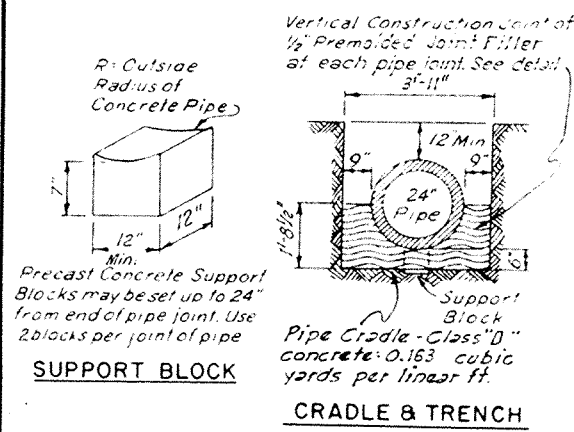
Designed M.D.K.	Date 5-62	Approved by <i>[Signature]</i>
Drawn M.D.K. & J.J.M.	Sheet 5-62	STATE CONSERVATION ENGINEER, T. E. T.
Traced J.J.M.	Sheet 5-62	No. 3
Checked M.D.K. & G.W.T.	Sheet 6-62	of 8

4-E-16,771

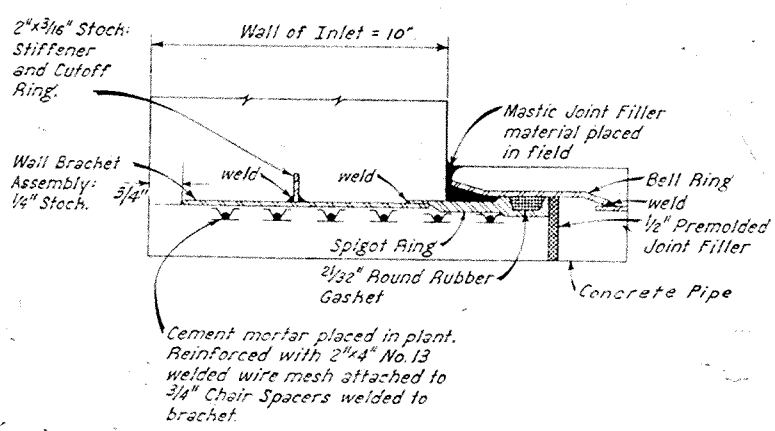


As Built Plans
Const. Comp. 6-7-63

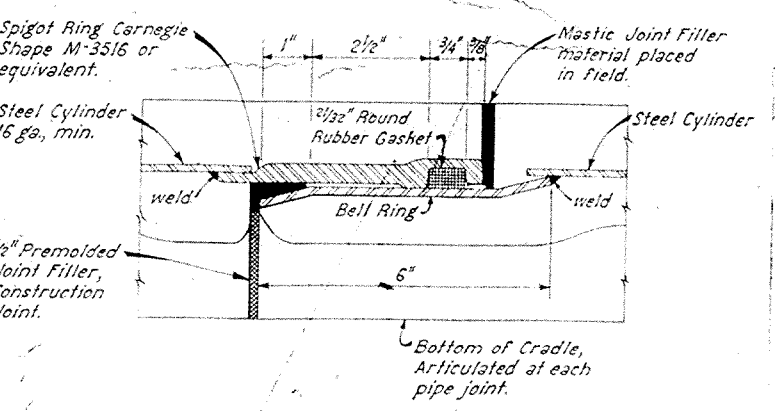
PRINCIPAL SPILLWAY—PLAN AND SECTION FLOODWATER RETARDING STRUCTURE SITE No. 12 PLUM CREEK WATERSHED IN HAYS, CALDWELL AND TRAVIS COUNTIES, TEXAS			
U. S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE			
Designed	M.D.K.	Date	5-62
Drawn	M.D.K. & F.C.S.	Approved by	[Signature]
Traced	F.C.S.	Checked	M.D.K. & G.W.T.
Sheet	6-62	Sheet	4-E-16,771
of	8	of	8



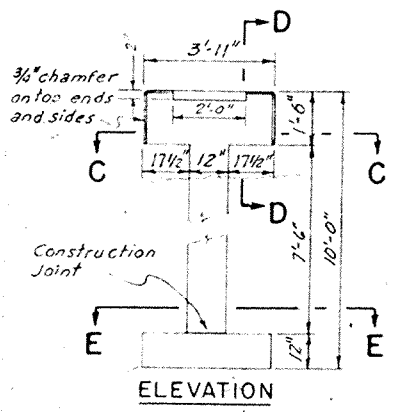
**ANTI-SEEP COLLAR
CONCRETE PIPE PLACEMENT DETAILS**



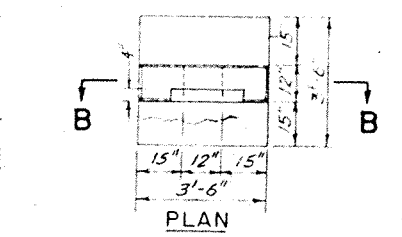
INLET CONNECTION



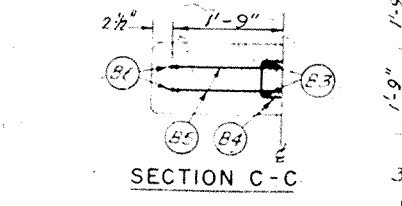
PIPE JOINT DETAILS



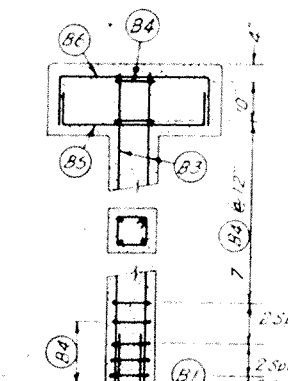
ELEVATION



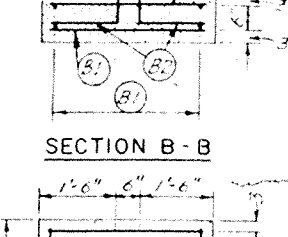
PLAN



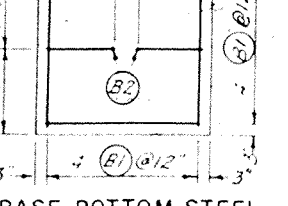
SECTION C-C



SECTION B-B



SECTION D-D



SECTION E-E

PIPE CANTILEVER SUPPORT

Note:
Premolded Joint Filler in principal spillway shall conform to either ASTM Spec. D1752-60T, Type I, II or III or ASTM Spec. D994, except that joint filler material conforming to ASTM Spec. D1751-60T, may be used to form the construction joints in the concrete cradle under the principal spillway conduit.

Note:
Pipe supplied will be manufactured in accordance with AWWA Specification C-301 and be prestressed concrete lined steel cylinder pipe, having a D-load capacity of not less than 3000 lbs. per linear foot at the 0.001 inch crack and an internal pressure head capacity equal to or greater than 50 feet.

FOR TYPICAL BAR TYPES REFER TO ACI STANDARD 315-48

Bar No.	Location	Qty.	Lgth.	Total Lgth.	Size	Type	A	B	C	D	E	F	G	H	J	O	
A1	Anti-Seep Collar	6	9-3	55-6	4	Str.											
A2	"	6	8-6	51-0	4	"											
A3	"	10	2-8	26-8	4	"											
A4	"	4	2-3	9-0	4	"											
Total Steel in One Anti-Seep Collar (Size 4) 142'-2" = 94.97 lbs.																	
Total Class B Concrete in One Anti-Seep Collar = 1.62 cu yds.																	
B1	Pipe Cantilever Support	16	3-0	48-0	4	Str.											
B2	"	2	3-9	7-6	6	2	2-6	1-3									
B3	"	4	8-9	35-0	6	Str.											
B4	"	13	3-2	41-2	3	T1	0-4	0-7 1/2	0-7 1/2	0-7 1/2	0-7 1/2			0-4			
B5	"	2	4-11	9-10	4	2	0-9	3-5							0-9		
B6	"	2	5-7	11-2	6	2	1-0	3-7							1-0		
Total Steel in Pipe Cantilever Support, Size # 3 41'-2" = 15.48 lbs.																	
Total Steel in Pipe Cantilever Support, Size # 4 57'-10" = 38.63 lbs.																	
Total Steel in Pipe Cantilever Support, Size # 6 80'-6" = 80.61 lbs.																	
Total Steel = 134.72 lbs.																	
Total Class B Concrete in Pipe Cantilever Support = 0.95 cu yds.																	
C1	Pipe Cantilever	17	5-11	100-7	4	S10		1-3	3-5	1-3							
C2	"	4	16-6	66-0	4	Str.											
C3	"	4	5-0	20-0	4	Str.											
C4	"	2	16-6	33-0	9	Str.											
Total Steel in Pipe Cantilever, Size # 4 186'-7" = 124.64 lbs.																	
Total Steel in Pipe Cantilever, Size # 9 33'-0" = 112.20 lbs.																	
Total Steel = 236.84 lbs.																	
Total Class B Concrete in Pipe Cantilever = 2.77 cu yds.																	
Class D Concrete in Pipe Cradle = 26.08 Cu. Yds																	
Class B Concrete in Anti-Seep Collars = 0.48																	
Total Class D & B Cu Yds.																	

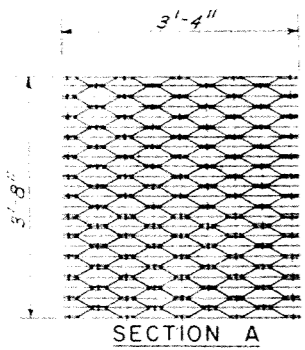
PIPE DETAILS

FLOODWATER RETARDING STRUCTURE SITE No.12
PLUM CREEK WATERSHED
IN
HAYS, CALDWELL AND TRAVIS COUNTIES, TEXAS

**U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE**

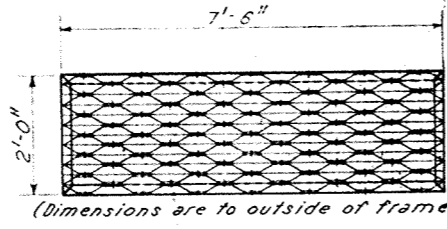
Designed **M.D.K.** Date **5-62**
Drawn **M.D.K.** Date **5-62**
Traced **F.C.S.** Date **5-62**
Checked **M.D.K. #G.W.T.** Date **6-62**

Approved by: *[Signature]*
STATE CONSERVATION ENGINEER, TEXAS
No. 5 of 8 Drawing No. **4-E-16,771**



SECTION A

2 Required
Fasten to supporting angles with 3 anchoring straps as shown in top view of inlet.



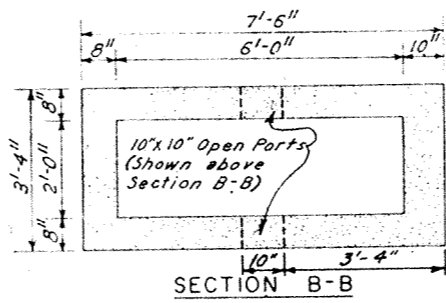
(Dimensions are to outside of frame)

Aluminum Grating, Borden Type A, Size No. 1 or equivalent. Bearing bars $3/4 \times 1/8$ " Frame Section B grating with $2 \times 2 \times 1/4$ " Angle; Weld mitered corners. Drill $3/4$ " holes for Bolt B and Bolt D.

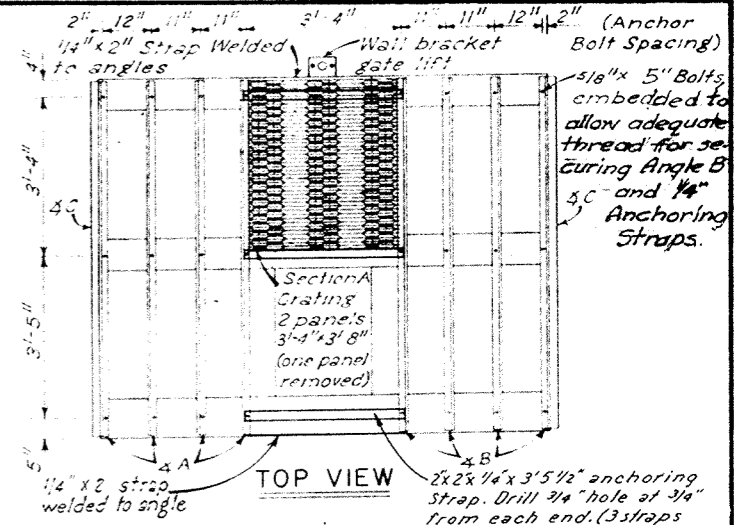
SECTION B

2 Required

GRATING



SECTION B-B

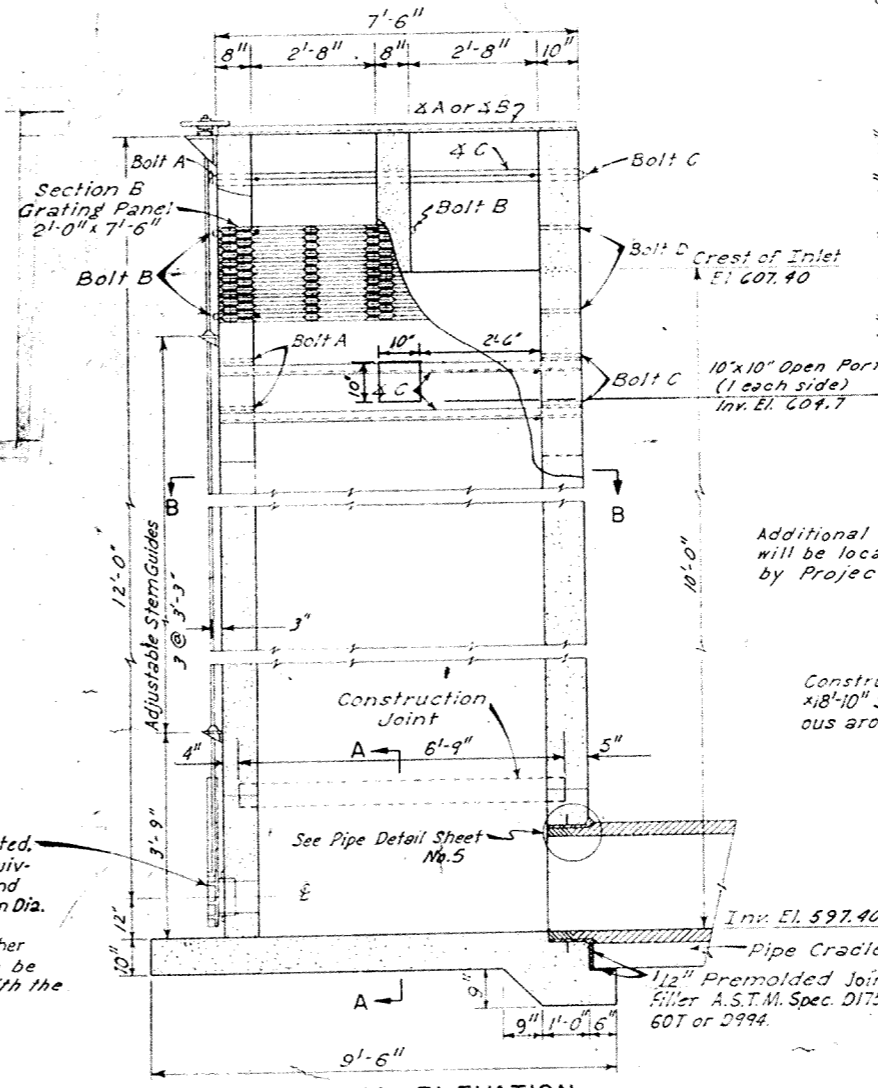


TOP VIEW

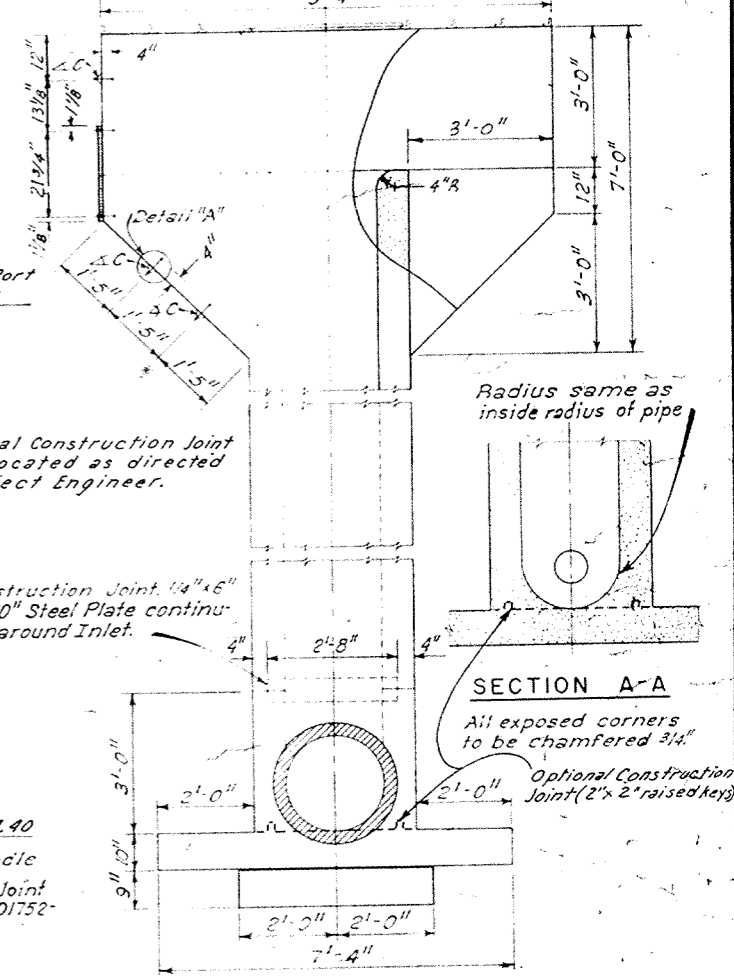
SCHEDULE OF QUANTITIES FOR TRASH GUARD

Quantity	Item	Description
4	4 A	$2 \times 2 \times 1/4 \times 7'-5"$
4	4 B	$2 \times 2 \times 1/4 \times 7'-5"$
6	4 C	$2 \times 2 \times 1/4 \times 7'-5"$
2	Steel Straps	$1/4 \times 2 \times 3'-6 1/4"$
10	Pipe Sleeves	$3/4 \times 10"$
12	Pipe Sleeves	$3/4 \times 8"$
6	Bolt A	$5/8"$ See Detail A
6	Bolt B	$5/8"$ " " " "
6	Bolt C	$5/8"$ " " " "
4	Bolt D	$5/8"$ " " " "
24	Bolts	$5/8 \times 5"$
76	Flat Washers	$5/8"$
76	Lock Washers	$5/8"$

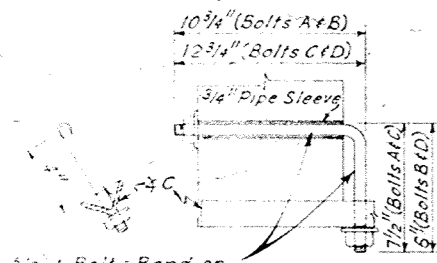
All pipe sleeves, bolts and washers are to be galvanized unless otherwise specified.



SECTIONAL ELEVATION

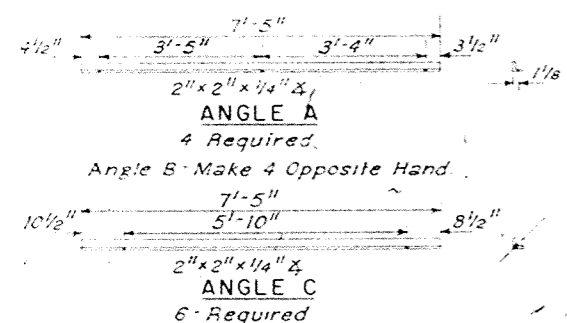


ELEVATION



DETAIL A

Bolt A - 6 Required
Bolt B - 6 Required
Bolt C - 6 Required
Bolt D - 4 Required

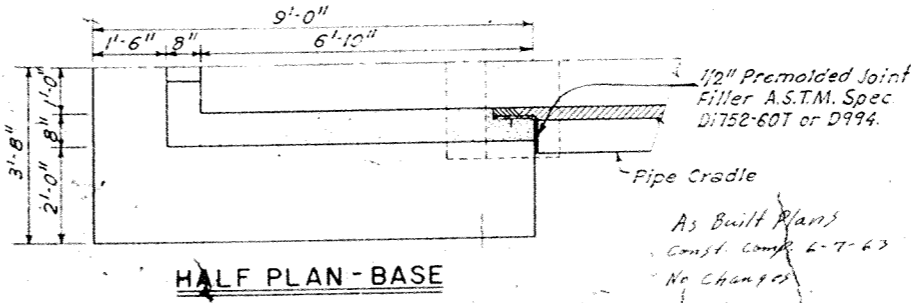


ANGLE A

ANGLE C

1/2" Dia. Slide Gate, bronze mounted, spigot back, Armco 50-10c or equivalent, with stem, stem guides and handwheel lift Type H-14, 1/8" Stem Dia.

NOTE: All exposed metal parts other than bronze and aluminum to be painted in accordance with the specifications.



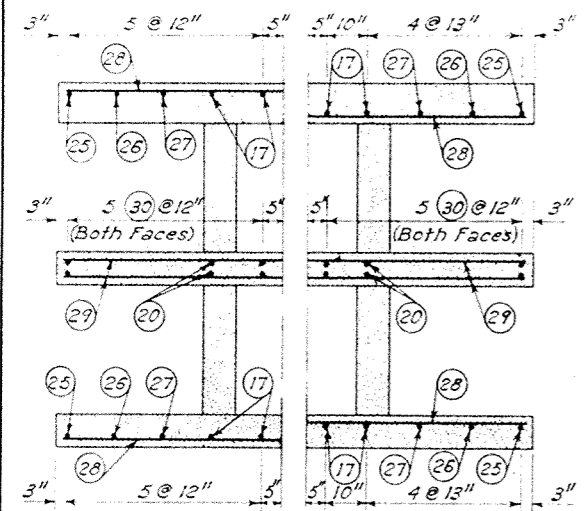
HALF PLAN - BASE

PRINCIPAL SPILLWAY — INLET
FLOODWATER RETARDING STRUCTURE SITE No. 12
PLUM CREEK WATERSHED
IN
HAYS, CALDWELL AND TRAVIS COUNTIES, TEXAS

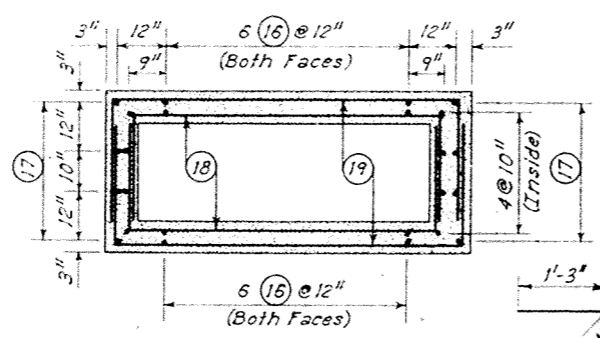
**U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE**

Designed	M.D.K.	Date	5-62	Approved By	[Signature]
Drawn	M.D.K.	Date	5-62	Checked	[Signature]
Traced	F.C.S.	Date	5-62	Scale	As Shown
Checked	M.D.K./G.W.T.	Date	6-62	Sheet	No. 6 of 8

4-E-16,771



OUTSIDE INSIDE
SECTION B-B



SECTION A-A

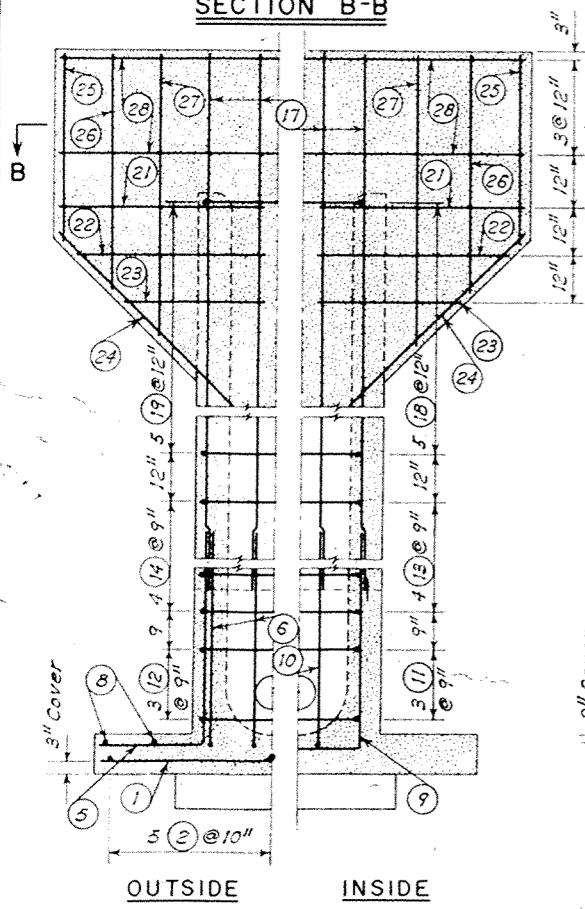
DETAIL BAR No. 3

FOR TYPICAL BAR TYPES REFER TO ACI STANDARD 315-48

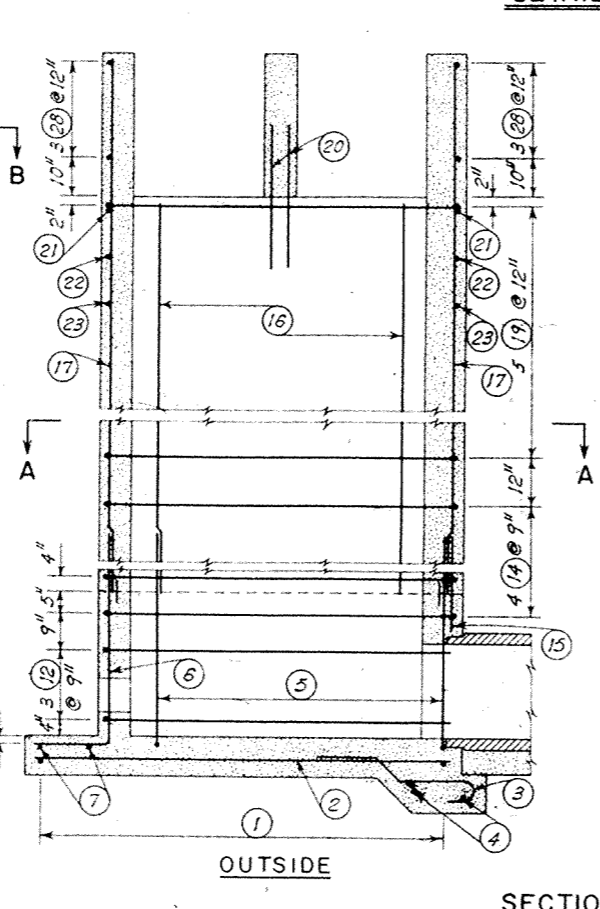
Nb.	Qty.	Lgth.	Total Length	Size	Type	A	B	C	D	E	F	G	H	J	No.	Qty.	Lgth.	Total Length	Size	Type	A	B	C	D	E	F	G	H	J
1	11	7-0	77-0	5	Str.										16	24	6-10	164-0	4	Str.									
2	9	8-6	76-6	5	Str.										17	16	9-10	157-4	4	Str.									
3	5	5-0	25-0	5	Str.										18	10	11-0	110-0	6	2	2-3	6-6							
4	2	3-6	7-0	5	Str.										19	10	12-0	120-0	6	2	2-6	7-0							
5	14	6-6	91-0	5	2	2-0	4-6								20	8	3-0	24-0	5	Str.									
6	4	6-0	24-0	5	2	1-6	4-6								21	8	4-0	32-0	4	Str.									
7	2	7-0	14-0	5	Str.										22	8	3-9	30-0	4	Str.									
8	4	8-6	34-0	5	Str.										23	8	2-9	22-0	4	Str.									
9	14	6-6	91-0	5	2	2-0	4-6								24	8	5-0	40-0	4	Str.									
10	2	11-3	22-6	5	2	6-9	4-6								25	8	3-9	30-0	4	Str.									
11	6	8-6	51-0	6	2	1-10	6-8								26	8	4-9	38-0	4	Str.									
12	6	9-3	55-6	6	2	2-3	7-0								27	8	5-9	46-0	4	Str.									
13	8	11-0	88-0	6	2	2-3	6-6								28	12	9-0	108-0	4	Str.									
14	8	12-0	96-0	6	2	2-6	7-0								29	8	9-0	72-0	4	Str.									
15	4	2-0	8-0	4	Str.										30	20	2-6	50-0	4	Str.									

Note: Horizontal Steel (both faces) in inlet walls, end walls, and splitter wall 2" from face. Cut or deflect steel to clear port openings. See Sheet No. 6 for location of open ports.

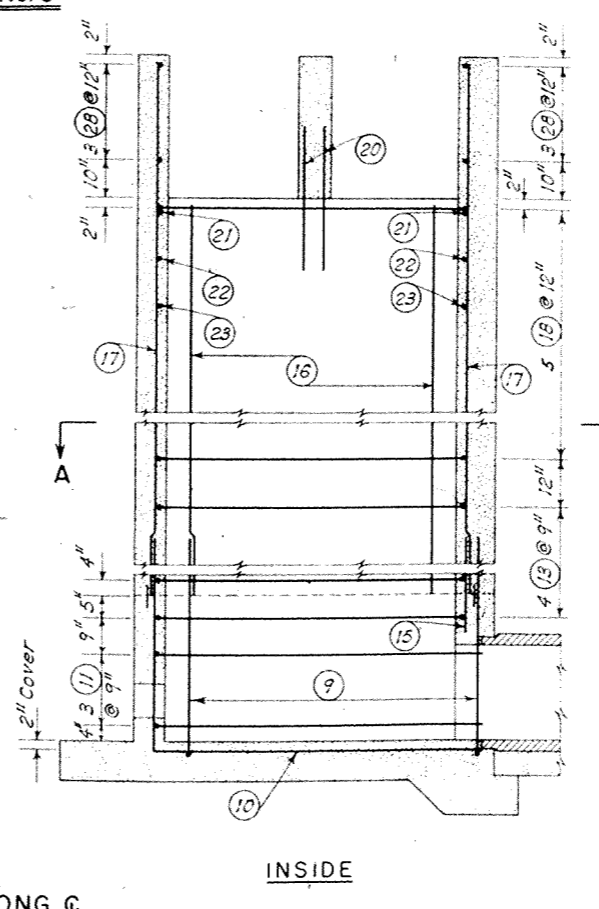
Total Size 4 Steel in Principal Spillway Inlet = 197'-4" = 532.62 lbs.
 " Size 5 " " " " " " " = 486'-0" = 506.90 lbs.
 " Size 6 " " " " " " " " = 520'-6" = 791.79 lbs.
 Total Steel in Principal Spillway Inlet = 1821.31 lbs.
 Total Class "B" Conc. in Principal Spillway Inlet = 10.08 cu yds.



HALF SECTIONS (UPSTREAM)

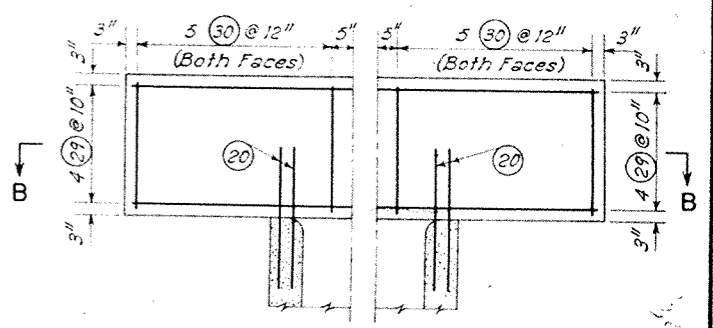


SECTION ALONG C-C

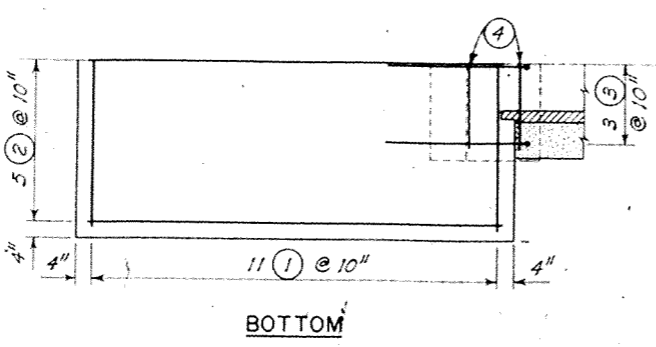


HALF SECTIONS (DOWNSTREAM)

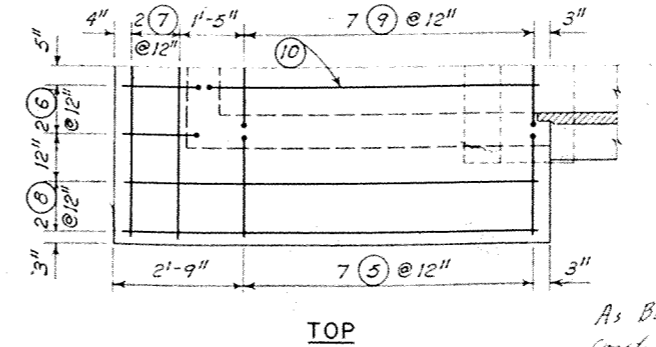
Note: Steel above construction joint same as upstream sections. Construction Joint 1/4" x 6" Steel Plate



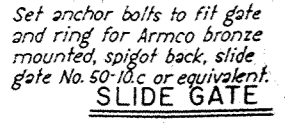
ELEVATION - SPLITTER WALL



FOUNDATION SLAB



TOP



SLIDE GATE

Set anchor bolts to fit gate and ring for Armco bronze mounted, spigot back, slide gate No. 50-10.c or equivalent.

As Built Plans
 Const. Comp. 6-7-63
 No change in const.

STEEL PLACEMENT-PRINCIPAL SPILLWAY INLET
 FLOODWATER RETARDING STRUCTURE SITE No. 12
 PLUM CREEK WATERSHED
 IN
 HAYS, CALDWELL AND TRAVIS COUNTIES, TEXAS

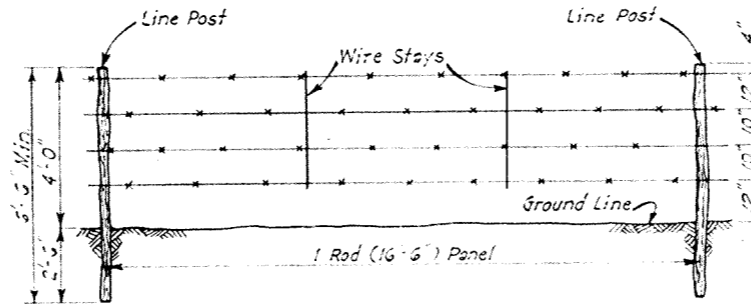
U. S. DEPARTMENT OF AGRICULTURE
 SOIL CONSERVATION SERVICE

Designed M.D.K. Date 5-62
 Drawn M.D.K. Date 5-62
 Traced F.C.S. Date 5-62
 Checked M.D.K./G.W.T. Date 6-62

Approved by [Signature] State Conservation Engineer
 No. 7 Drawing No. 4-E-16,771

24" Open Flow
 7'-0" min. height

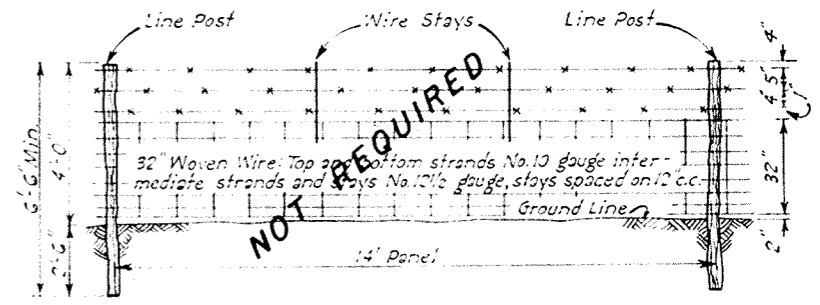
Note: Wire stays to be 10 ga. (min. size), galv. two strand spiral, twist-on type. Length to extend from top fence strand to 3" below bottom fence strand for barbed wire fences and from top strand to 3" below the second strand of the woven wire for woven wire fences. Wire stays to be spaced equally, two stays per line post panel. Stays to be twisted firmly against top strand.



BARBED WIRE

Barbed wire to be 12 1/2 ga. galv. double strand barbed wire with 14 ga. 2 point barbs at 4" oc. Staples to be 9 ga. galv. 1 1/2" minimum length for treated pine and cedar posts and 1" minimum length for bois d'arc.

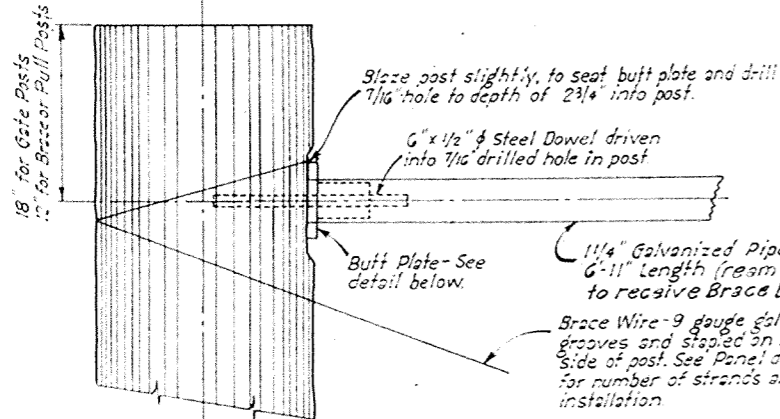
Note:
For Barbed Wire, Galvanizing shall conform to A.S.T.M. Specification A-121 Class 1 coating.
For Woven Wire, Galvanizing shall conform to A.S.T.M. Specification A-76, Class 1 coating.



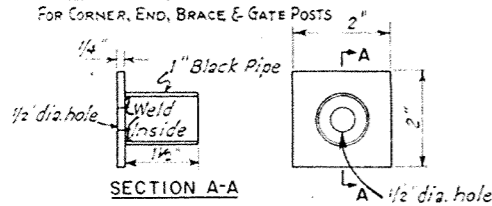
WOVEN WIRE

MINIMUM POST SIZE	
Corner & Brace	Cedar, 8" dia. Treated Pine, 6" dia. Bois d'arc, 6" dia.
Line Posts	Cedar, 4" dia. Treated Pine, 3" dia. Bois d'arc, 3" dia. Other, see specifications
Gate Posts	Treated Pine, 5" dia.

Note: Ash Juniper is considered as meeting the requirements of the specifications for cedar posts. Creosote-Cool Tar Solution will be used for treatment of pine posts. Steel posts not acceptable.

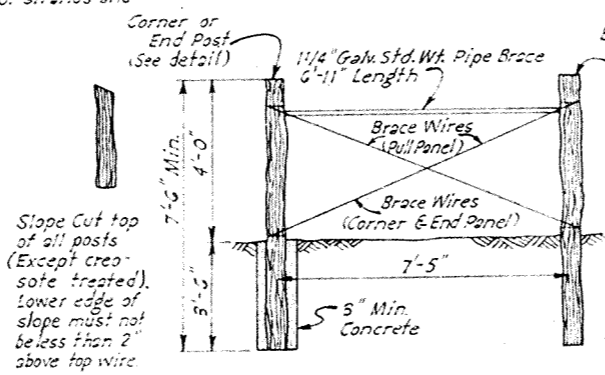


POST DETAIL



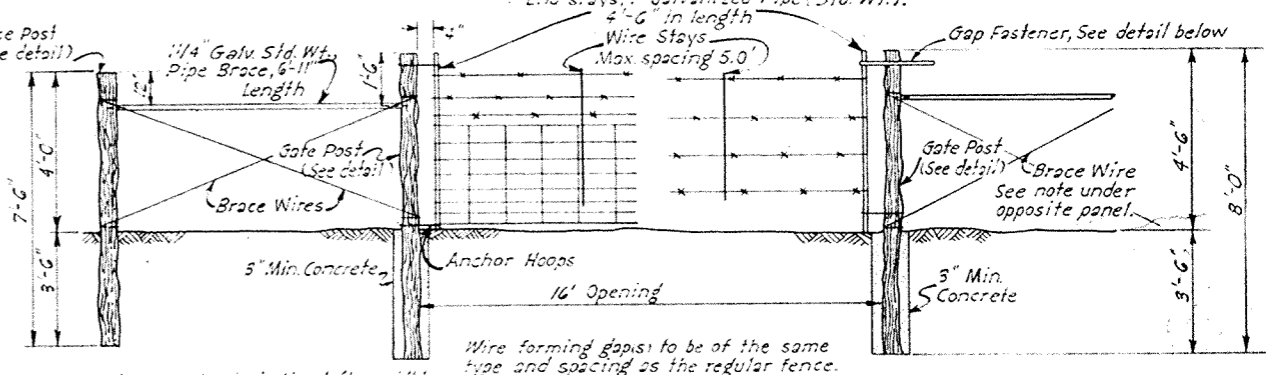
Brace Butt Plate of plate steel 2" x 2" x 1/4"; 1/2" dia. hole drilled in center, with thimble of 1" dia. black steel pipe, 1 1/2" long, welded to plate; weld to be inside of pipe with pipe concentric with the 1/2" drilled hole in the plate.

BRACE BUTT PLATE



CORNER, END, OR PULL PANEL

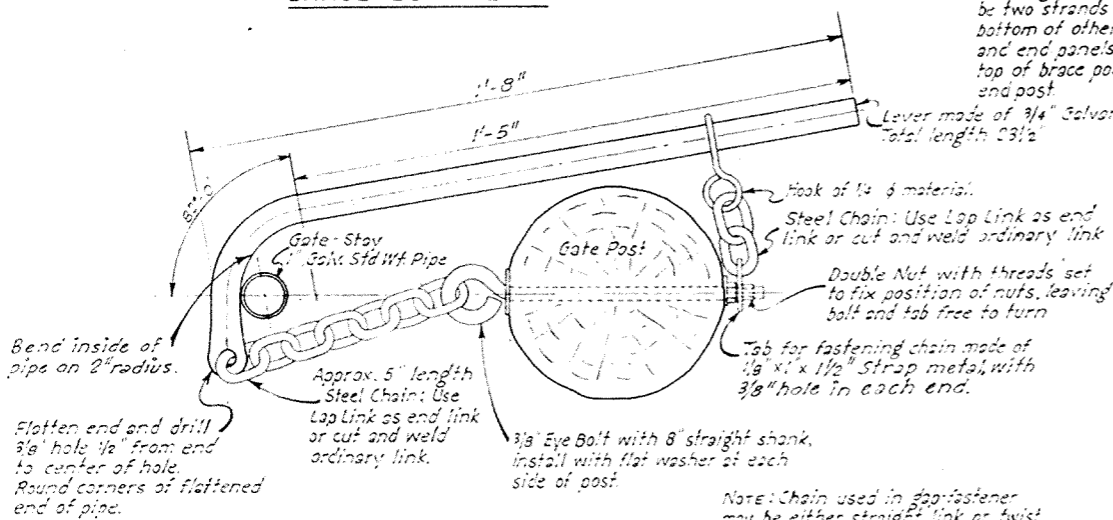
Pull panel does not require concrete setting. Brace wires for Pull Panel will be two strands from top of each post to bottom of other. Brace wires for corner and end panels will be four strands from top of brace post to bottom of corner or end post.



WIRE GAP PANEL

Where fence extends in line left or right of Gate Panel's Brace Wires for Gate Panel will be four strands from top of Gate Post to bottom of Gate Panel. Where there is no pull of line fence (that is, the Gate Panel's, at a corner), Brace Wires for the Gate Panel will be two strands from top of each post to bottom of other.

Wire forming gaps to be of the same type and spacing as the regular fence. Wire to be double wrapped around end stays and secured in place by drilling 1/4" holes at bottom and top strands of woven wire and at each strand of barbed wire, tying these strands with 14 gauge galvanized wire through the holes. Anchor hoops to be two strands of 9 gauge wire stapled at the back side of the gate post. 2 Gaps required.



WIRE GAP FASTENER DETAIL

Bend inside of pipe on 2" radius. Flatten end and drill 3/8" hole 1/2" from end to center of hole. Round corners of flattened end of pipe.

Note: Chain used in gap fastener may be either straight link or twist link chain; material size from 1/8" to 1/2", links per foot from 10 to 18, wt. per foot from 0.1 to 0.5 lbs. Weldless wire-twist chain will not be permitted.

NOTE:

At changes in vertical alignment, such as crossings of stub diversions, line posts or pull-panel posts that restrain upward pull of the fence strands shall be anchored by setting such posts in concrete, with a minimum 3" thickness of concrete at the ground surface and a minimum 6" at the bottom of the post hole, so as to provide a minimum 3-inch taper to the outside surface of the embedding concrete. The engineer will designate the post locations where this anchorage treatment is required. In addition, anchorage of fence wires to posts where there is change in vertical alignment that produces upward or downward pull, there shall be accomplished with a special tie-wire, in addition to stapling. A tie shall be a strand of No. 9 smooth galvanized wire shall be secured to the post wire of a strand of No. 9 smooth galvanized wire (where the pull is downward) with two wraps and tie 3" above the top fence wire (where the pull is upward) and shall be extended to each successive fence wire, securing each in position by two close drawn wraps. The engineer will designate the posts where this special fastening of the fence wires is required.

FENCE DETAILS

As Built Plans
Const. Comp. 6-7-63
No change in const.

FENCE DETAILS			
FLOODWATER RETARDING STRUCTURE SITE No. 12 PLUM CREEK WATERSHED IN HAYS, CALDWELL AND TRAVIS COUNTIES, TEXAS			
U. S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE			
Designed	M.D.K.	Date	5-62
Drawn	M.D.K.	Date	5-62
Traced	F.C.S.	Date	5-62
Checked	M.D.K. & G.W.T.	Date	6-62
Approved by		Date	
[Signature]		5-62	
STATE CONSERVATION ENGINEER, T. C. V.		TEMPLE, TEXAS	
Sheet No. 8 of 8		Drawing No. 4-E-16,771	