

LOWER PLUM CREEK WATERSHED PROJECT

FLOODWATER RETARDING DAM NO. 28

DRAINAGE AREA	4,691 ACRES
TOTAL STORAGE	3,283 AC. FT.
WATER SURFACE AREA	69 ACRES
HEIGHT OF DAM	28 FEET
VOLUME OF FILL	237,600 CU.YDS.

BUILT UNDER THE WATERSHED PROTECTION
AND FLOOD PREVENTION ACT

BY

HAYS - CALDWELL - TRAVIS SOIL CONSERVATION DISTRICT
PLUM CREEK CONSERVATION DISTRICT

WITH THE ASSISTANCE OF
SOIL CONSERVATION SERVICE
OF THE
U. S. DEPARTMENT OF AGRICULTURE

1962

*As Built Plans
Construction Completed 7-12-63*

CONSTRUCTION DRAWINGS APPROVED

<i>Howard Matson</i>	<i>5/22/62</i>
<small>HEAD ENGINEERING & WATERSHED PLANNING UNIT FOR THE YEAR</small>	<small>DATE</small>
<i>C. M. Price</i>	<i>5/22/62</i>
<small>STATE CONSULTING ENGINEER</small>	<small>DATE</small>

No. /
of // **4-E-16,622**

JUN 21 1963

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

Emergency Spillway Diversion: 18" effective height, 3:1 side slopes, minimum base, 19'. Cost of diversion to be subsidiary to other items of work.

Stream Channel within embankment area to be cleared of objectionable material in accordance with "Stream Channel Cleanout" of the specifications.

This 175' Berm to be graded on .3% grade from approx. Sta. 21+80, El. 452.5 to approx. Sta. 18+40

Right Spillway
 Curve Data
 $\Delta = 103^\circ 30'$
 $D = 23^\circ 00'$
 $R = 250.79'$
 $L = 450.0'$
 P.C. Sta. 7+50
 P.T. Sta. 12+00

Left Spillway
 Curve Data
 $\Delta = 120^\circ 00'$
 $D = 60^\circ 00'$
 $R = 100.0'$
 $L = 200.0'$
 P.C. = Sta. 8+00
 P.T. = Sta. 10+00

Located about 0.4 Miles N. and 0.3 Miles E. of McMahan, Caldwell County, Texas.

VICINITY MAP

SCALE IN MILES
 1 2 3 4 5 6 7 8

SCALE IN FEET
 0 200 400 600 800 1000

PLAN OF EMBANKMENT AND SPILLWAYS

SCALE IN FEET

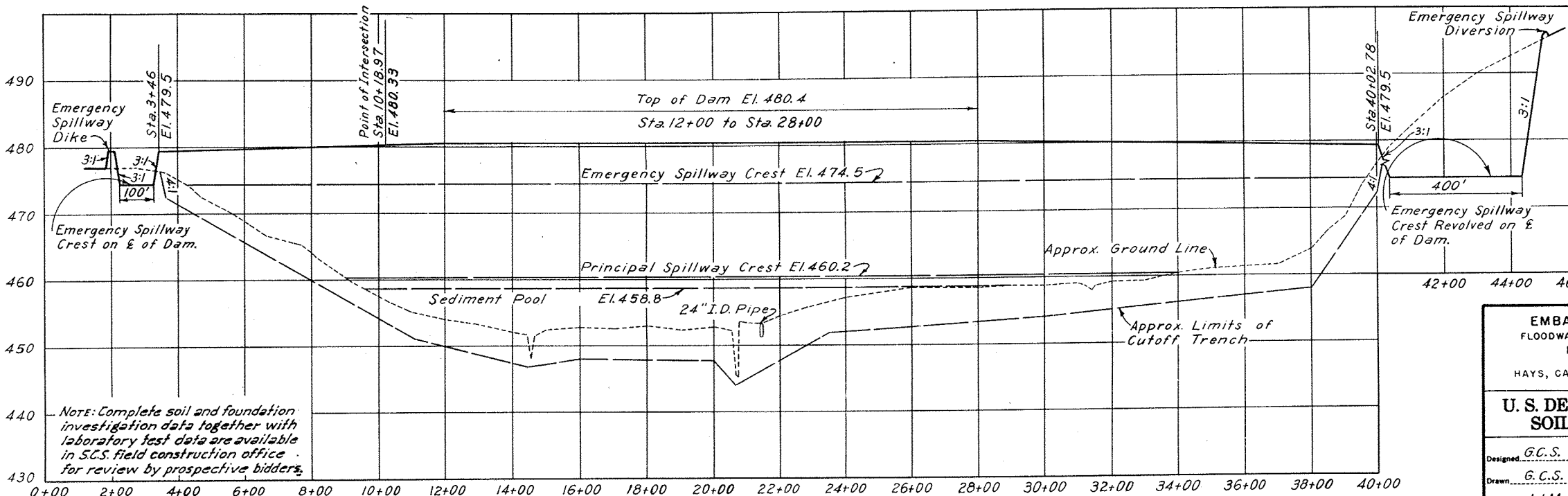
A minimum of 6" topsoil to be placed in Emergency Spillway and on all "Compacted Fill Areas". See the specifications.

Note: Well located near $\frac{1}{4}$ of dam at approx. Sta. 14+50 and well located near left edge of the right emergency spillway at approx. Sta. 15+50, shall have all above ground well curbing destroyed and wells shall be filled with earth fill material. Fill material shall be placed reasonably dense and the upper 5 ft. of fill placed and compacted in layers. Entire filling operation, methods, material selection and compactive effort shall be subject to

the approval of the Engineer. The contractor shall perform this work as a subsidiary performance to other items of work.

Stub Diversions (S.D.) shall be constructed to the minimum section as show above. Final location, grade, and number will be established by the Engineer. Stub Diversions shall be placed as "Semi-Compacted Fill" and paid by the linear-foot. (See "Bid Schedule".)

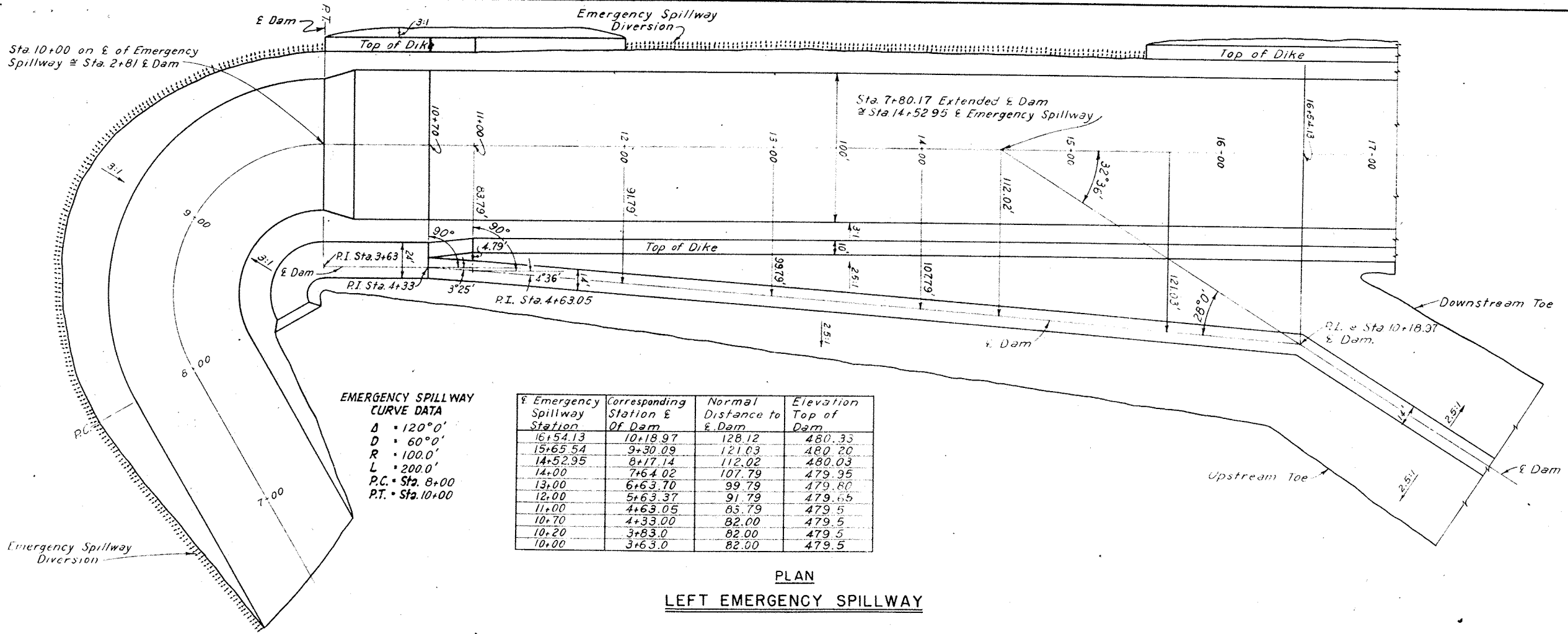
TYPICAL SECTION OF STUB DIVERSIONS



As built plans
 Construction completed
 4-12-63

EMBANKMENT PLAN AND PROFILE FLOODWATER RETARDING STRUCTURE SITE No.28 LOWER PLUM CREEK WATERSHED IN HAYS, CALDWELL AND TRAVIS COUNTIES, TEXAS			
U. S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE			
Designed: G.C.S.	Date: 4-62	Approved by: [Signature]	HEAD, ENGINEERING & WATERBED PLANNING UNIT, FORT WORTH, TEXAS
Drawn: G.C.S. & J.J.M.	4-62	STATE CONSERVATION ENGINEER, E. C. S.	
Traced: J.J.M.	4-62	Sheet: No. 2	Drawing No. 4-E-16,622
Checked: G.C.S. & G.W.T.	5-62	of 11	

Revised 5/29/62

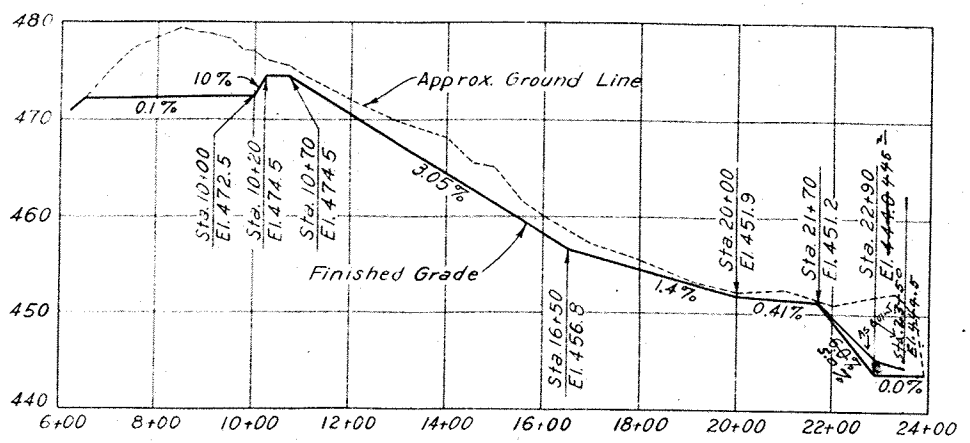


EMERGENCY SPILLWAY CURVE DATA

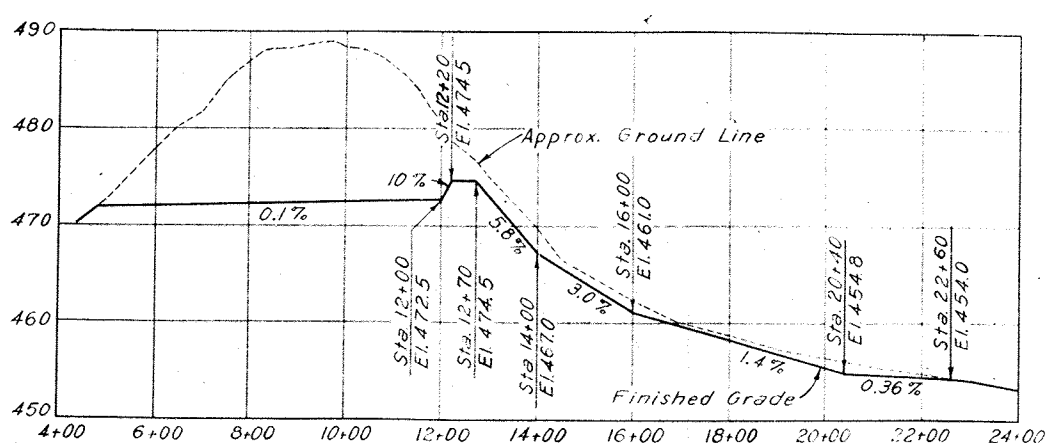
$\Delta = 120^\circ 0'$
 $D = 60^\circ 0'$
 $R = 100.0'$
 $L = 200.0'$
 P.C. = Sta. 8+00
 P.T. = Sta. 10+00

Emergency Spillway Station	Corresponding Station E Of Dam	Normal Distance to E. Dam	Elevation Top of Dam
16+54.13	10+18.97	128.12	480.33
15+65.54	9+30.09	121.03	480.20
14+52.95	8+17.14	112.02	480.03
14+00	7+64.02	107.79	479.95
13+00	6+63.70	99.79	479.80
12+00	5+63.37	91.79	479.65
11+00	4+63.05	83.79	479.5
10+70	4+33.00	82.00	479.5
10+20	3+83.0	82.00	479.5
10+00	3+63.0	82.00	479.5

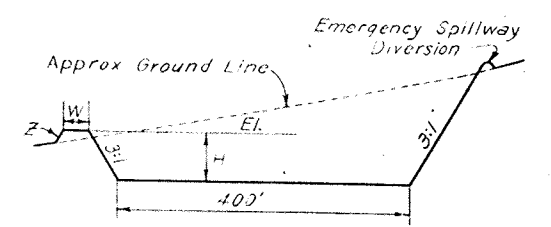
PLAN LEFT EMERGENCY SPILLWAY



PROFILE OF EMERGENCY SPILLWAY-LEFT



PROFILE OF EMERGENCY SPILLWAY-RIGHT

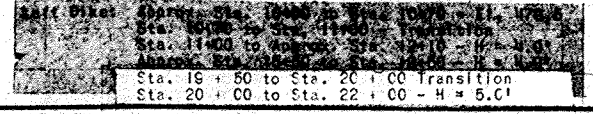


Left Dike:
 Sta. 7+50 to Embankment E1.479.5 W=14.0' Z=2.5:1
 Embankment to Sta. 13+50 Transition
 Sta. 13+50 to Sta. 22+60 - H=5.0' W=10.0' Z=3:1

Right Dike:
 Approx. Sta. 15+00 to Sta. 27+00 - H=5.0'

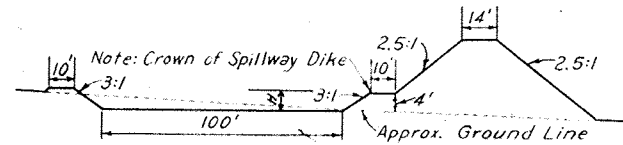
TYPICAL SECTION RIGHT EMERGENCY SPILLWAY

LEFT EMERGENCY SPILLWAY: DIKE & EMBANKMENT
 Approx. Stations 8+00 to 10+70



Material forming dikes to be placed and paid as "Compacted Fill."

LEFT EMERGENCY SPILLWAY: DIKES & EMBANKMENT
 Approx. Stations 11+00 to 16+60



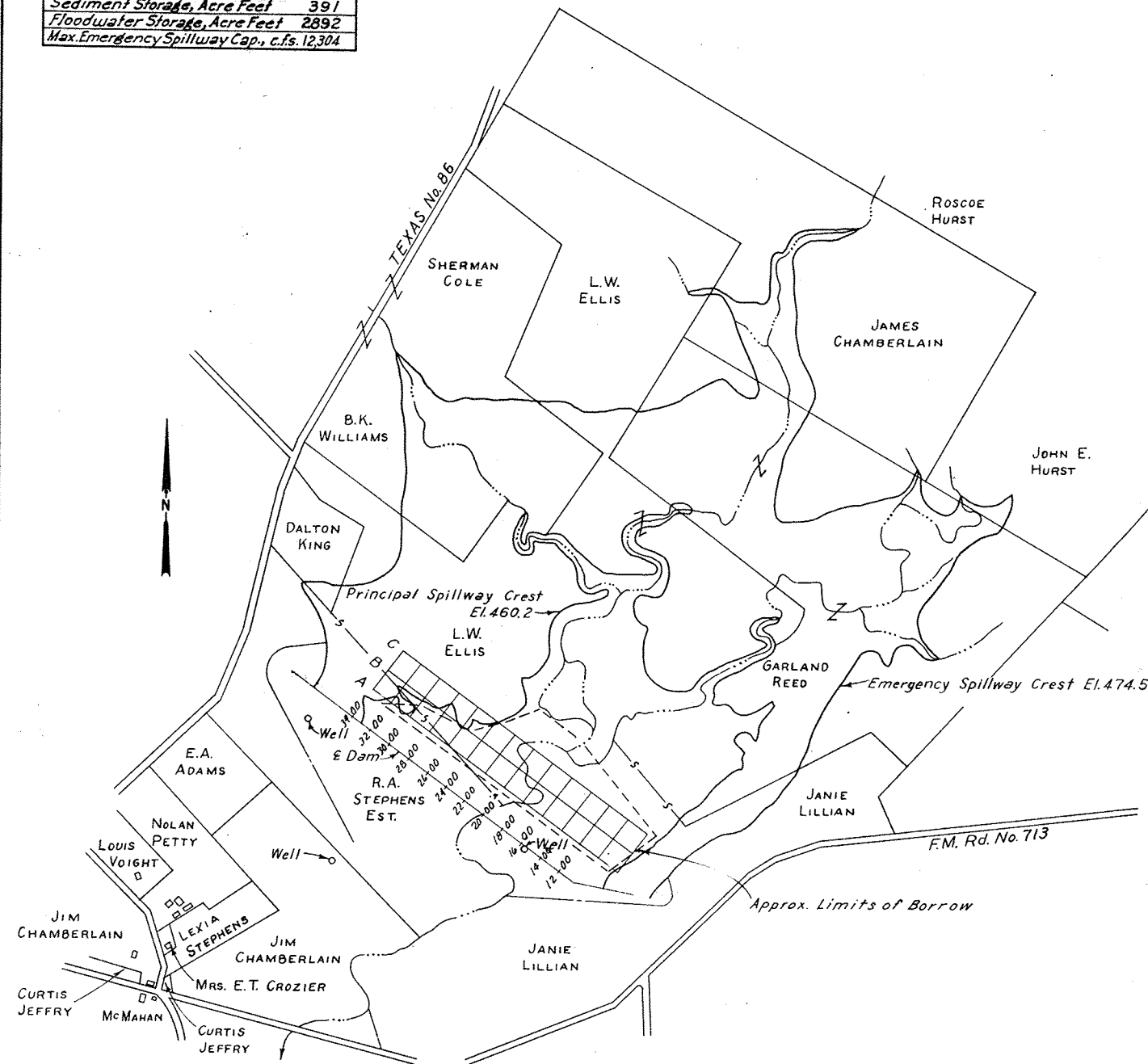
Right Dike: Sta. 8+00 to Sta. 10+70 - W=24.0' (Dike & Embankment) E1.470.5
 Sta. 10+70 to Sta. 11+00 - Transition
 Sta. 11+00 to Sta. 19+50 - W=10.0' - H=4.0'
 Sta. 19+50 to Sta. 20+00 - Transition
 Sta. 20+00 to Sta. 22+00 - W=10.0' - H=5.0'

TYPICAL SECTIONS

Material used in forming dikes shall be placed and paid as "Compacted Fill".
 As Built Plans
 Const. Compl. 4-12-63

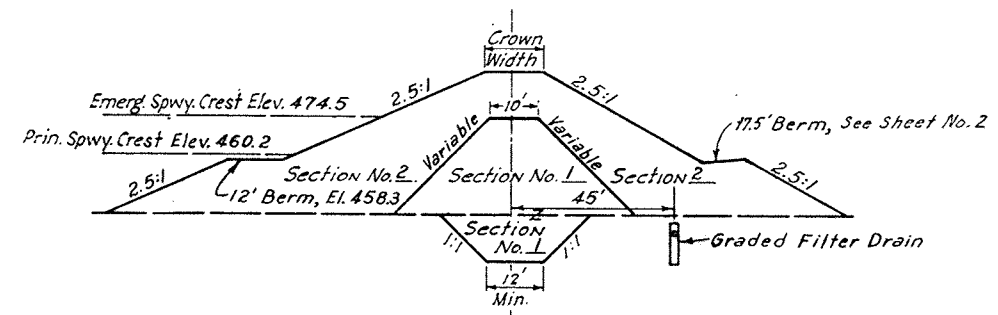
EMERGENCY SPILLWAY-PLAN & PROFILES FLOODWATER RETARDING STRUCTURE SITE No.28 LOWER PLUM CREEK WATERSHED IN HAYS, CALDWELL AND TRAVIS COUNTIES, TEXAS	
U. S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	
Designed G.C.S. Drawn G.C.S. & J.J.M. Traced J.J.M. Checked G.C.S. & G.W.T.	Date 4-62 Approved by [Signature] HEAD ENGINEERING & PLANNING UNIT FORT WORTH TEXAS STATE CONSERVATION ENGINEER, S. C. S. SHEET 3 No. 3 of 11 4-E-16,622

ELEVATION	SURFACE ACRES	STORAGE	
		ACRE FEET	INCHES
452	0.0	0.	0.0
456	30.5	61	.16
458.8	69	199	.51
460	84.7	291	.74
460.2	88	312	.80
461.1	100	391	1.00
464	140	741	1.90
468	217.1	1455	3.72
472	307	2503	6.40
474.5	365	3283	8.40
476	399.2	3916	10.02
480	476.2	5666	14.49
Top of Dam (Effective) Elev.		479.4	
Emergency Spillway Crest Elev.		474.5	
Principal Spillway Crest Elev.		460.2	
Sediment Pool Elev.		458.8	
Drainage Area, Acres		4691	
Sediment Storage, Acre Feet		391	
Floodwater Storage, Acre Feet		2892	
Max. Emergency Spillway Cap., c.f.s.		12,304	



GENERAL PLAN OF RESERVOIR
 0 660 1320 1980 2640
 SCALE IN FEET

Sec. No.	Description	Location	Ave. Depth Feet		LAB. TEST		COMPACTION REQUIREMENTS			Lab. Curve No.
			From	To	Modified	Min. Dry Density	Moisture Range			
					Max. Dry Den.	Opt. Moist.	Lbs. Per Cu. Ft.	From	To	
1/8	Cutoff & Outer Section	Cutoff	0	Grade	Same as Curves 3 & 7					
1	Center Section	Borrow	0	7	119.0	13.5	107	12	17	6
1	"	Right Emerg. Spwy.	0	4	120.5	12.5	108	11	17	3
1	"	Left Emerg. Spwy.	3	12	114.0	16.5	103	15	20	2
1	"	Borrow	8	13	122.0	11.0	110	10	15	12
1	"	Right Emerg. Spwy.	3	24	120.0	13.5	108	12	18	5
1	"	Borrow	4	13	123.5	11.0	111	10	15	9
2	Outer Section	Borrow	0	7	124.5	11.0	112	10	15	7
2	"	Borrow	0	12	123.0	11.5	111	10	15	8
2	"	Left Emerg. Spwy.	0	8	124.0	11.5	112	10	14	1
2	"	Borrow	0	6	121.0	12.0	109	10	15	10
2	"	Right Emerg. Spwy.	3	13	122.5	11.5	110	10	15	4
2	"	Borrow	5	10	128.0	9.5	115	9	13	11
2	"	Borrow	4	11	133.0	8.5	120	7	10	13



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.

The Engineer will direct a selection & placement of all fill materials to produce a zoned embankment in agreement with the illustrated sections shown above.

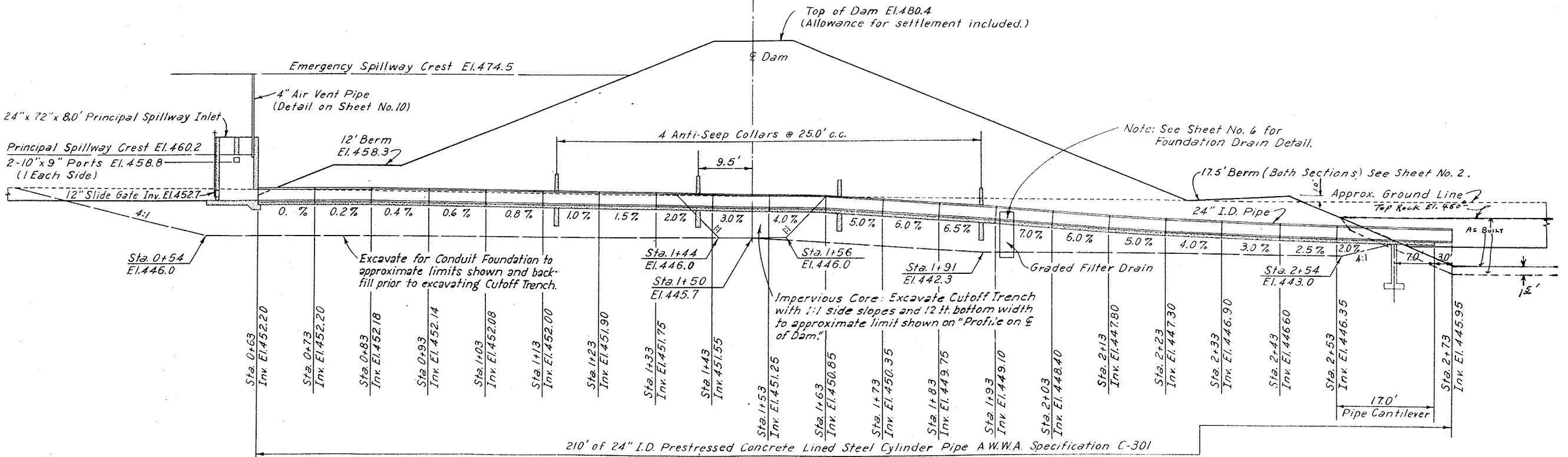
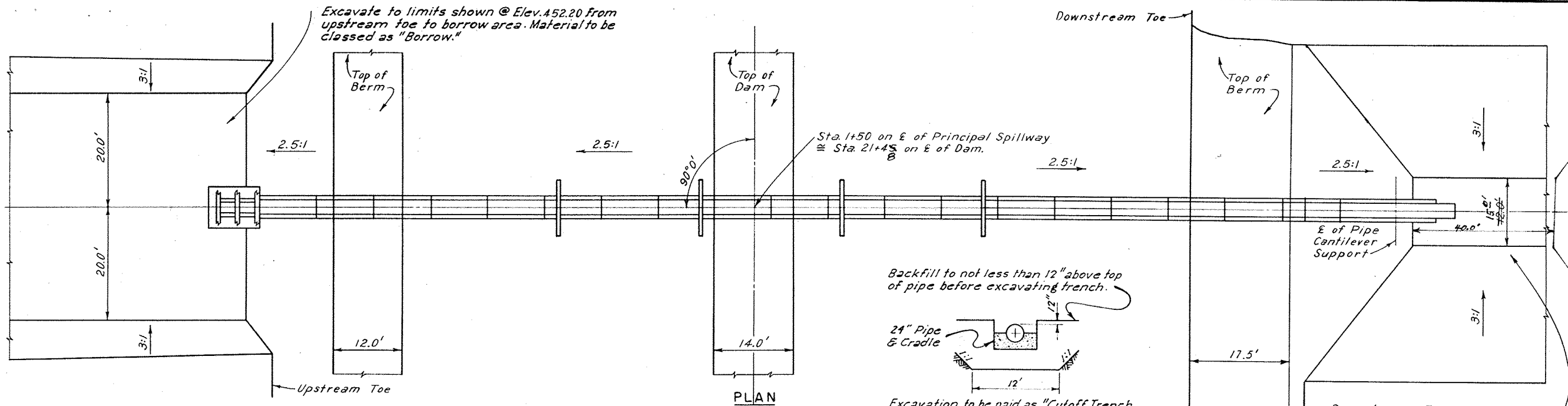
TYPICAL SECTION - ZONED EMBANKMENT
ZONED EMBANKMENT DATA

As Built Plans
 Const. Comp. 4-12-63
 No Changes

GENERAL PLAN OF RESERVOIR
 FLOODWATER RETARDING STRUCTURE SITE No. 28
 LOWER PLUM CREEK WATERSHED
 IN
 HAYS, CALDWELL AND TRAVIS COUNTIES, TEXAS

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

Designed: G.C.S. Date: 4-62 Approved by: J.M.
 HEAD, ENGINEERING & WATERSHED PLANNING UNIT, FORT WORTH, TEXAS
 Drawn: G.C.S. & J.J.M. 4-62 STATE CONSERVATION ENGINEER, E. C. T.
 Traced: J.J.M. 4-62 SHEET No. 4
 Checked: G.C.S. & G.M.T. 5-62 of 11 Drawing No. 4-E-16,622



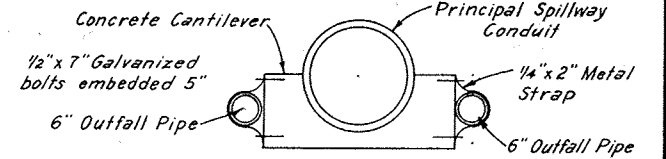
PRINCIPAL SPILLWAY—PLAN AND SECTION FLOODWATER RETARDING STRUCTURE SITE No. 28 LOWER PLUM CREEK WATERSHED IN HAYS, CALDWELL AND TRAVIS COUNTIES, TEXAS			
U. S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE			
Designed <i>G.C.S.</i> Drawn <i>G.C.S. & J.J.M.</i> Traced <i>J.J.M.</i> Checked <i>G.C.S. & G.M.T.</i>	Date <i>4-62</i> Sheet <i>4-62</i> No. <i>5</i> Date <i>5-62</i>	Approved by <i>[Signature]</i> HEAD, ENGINEERING & WATERSHED PLANNING UNIT, FORT WORTH, TEXAS STATE CONSERVATION ENGINEER, U. S. S. TEXAS	Drawing No. 4-E-16,622

As Built Plans
 Const. Comp. 10-12-63

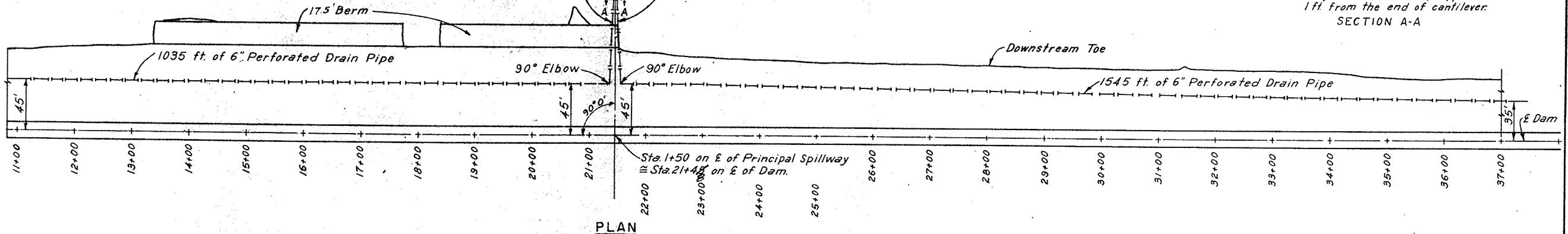
Note: Excavation of access trench for placement of foundation drain, to top of drain, trench shall be made with 1:1 side slopes and 12.0' bottom width. This excavation shall be classified as "Cutoff Trench Excavation" and paid as such. Access Trench Fill to be placed and paid as "Compacted Fill".

Excavation for the Foundation Drain Trench shall have vertical side slopes and be of the width specified for the filter trench. Filter pits are to be located as shown. These are not pay items. Cost of this trench and pit excavation is to be included in price bid for placement of graded filter and perforated pipe.

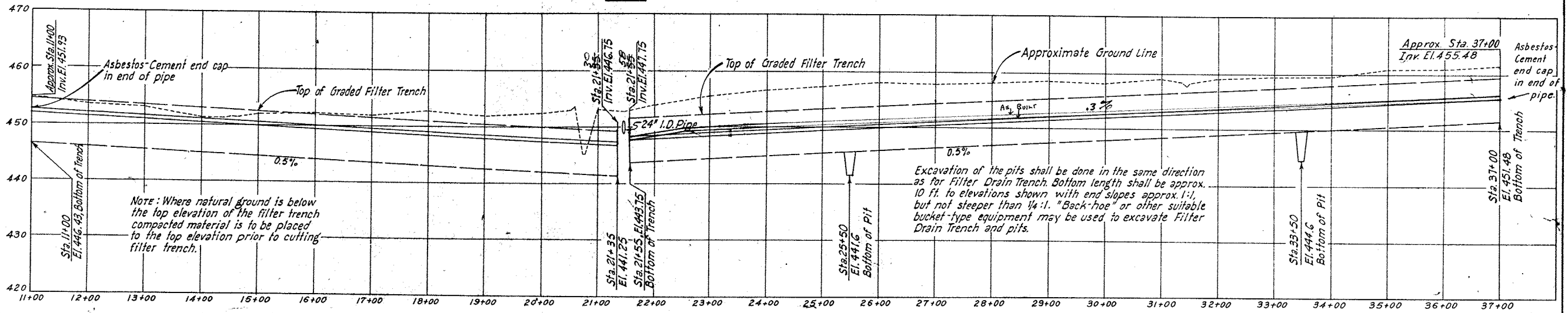
40' of 6" Perforated Wall, Asbestos-Cement Pipe enclosed in 2.5' x 3.5' Graded Filter Trench and 38' of 6" Solid Wall Asbestos-Cement Pipe from Elbow to Outlet at end of Principal Spillway. Invert El. 445.95 @ Outlet Each Side.



4- 1/4" x 2" x 24" Metal Straps Required, (2 each on the last section of each outfall line). Place last strap approx. 1 ft. from the end of cantilever.
SECTION A-A



PLAN



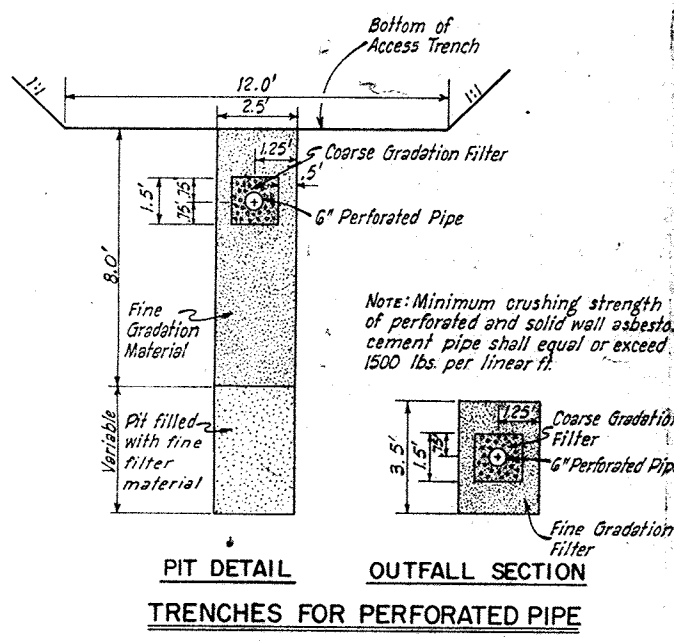
PROFILE

Note: Where natural ground is below the top elevation of the filter trench compacted material is to be placed to the top elevation prior to cutting filter trench.

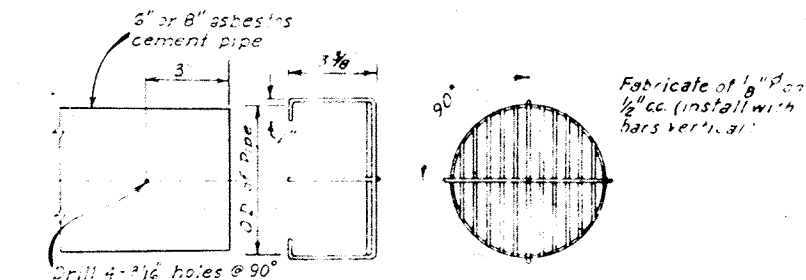
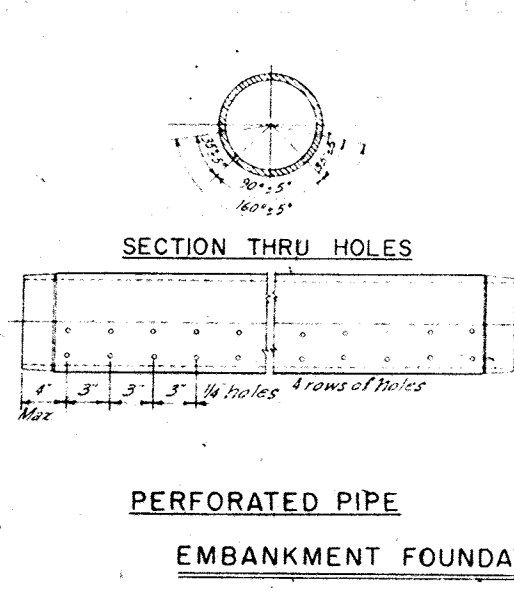
Excavation of the pits shall be done in the same direction as for Filter Drain Trench. Bottom length shall be approx. 10 ft. to elevations shown with end slopes approx. 1:1, but not steeper than 1/4:1. "Back-hoe" or other suitable bucket-type equipment may be used to excavate Filter Drain Trench and pits.

Fine FILTER GRADATION		Coarse FILTER GRADATION	
Screen Size	Percentage	Screen Size	Percentage
# 4	100	3"	100
# 10	84-100	1"	85-100
# 16	70-86	3/4"	78-100
# 20	58-76	1/2"	63-92
# 30	46-63	3/8"	52-85
# 40	30-51	# 4	15-63
# 50	15-39	# 10	0-25
# 100	0-20	# 20	0-8
# 200	< 5	# 30	< 5

As Built Plans
Const. Comp. 4-12-63



Note: Minimum crushing strength of perforated and solid wall asbestos-cement pipe shall equal or exceed 1500 lbs. per linear ft.

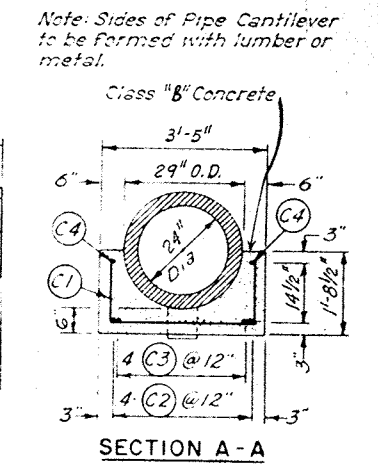
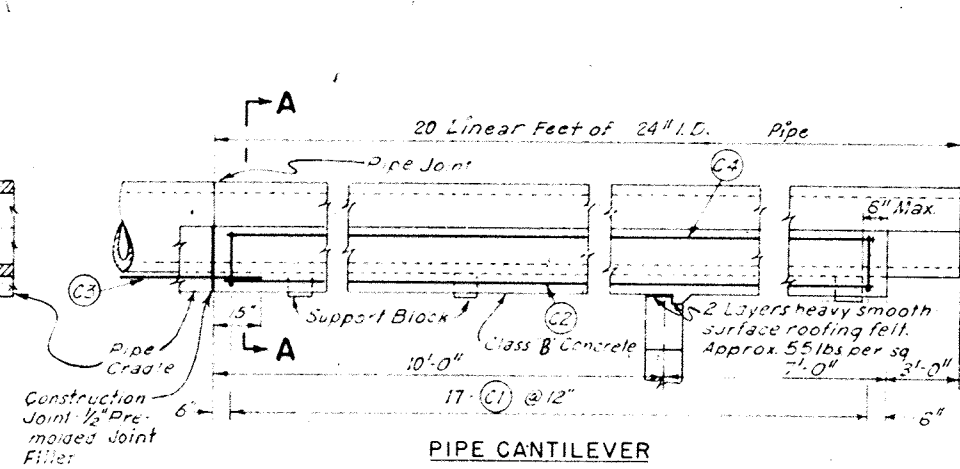
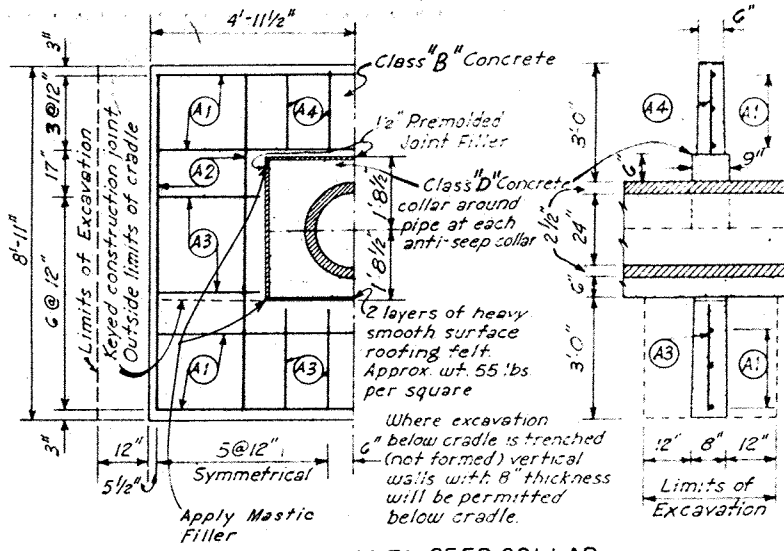
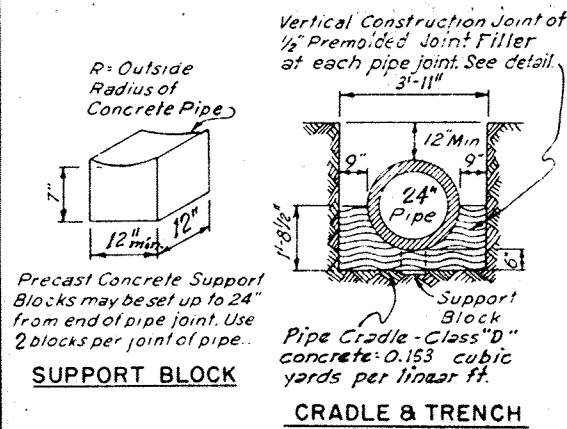


Note: Minimum crushing strength of perforated and solid wall asbestos-cement pipe shall equal or exceed 1500 lbs./lin. ft.

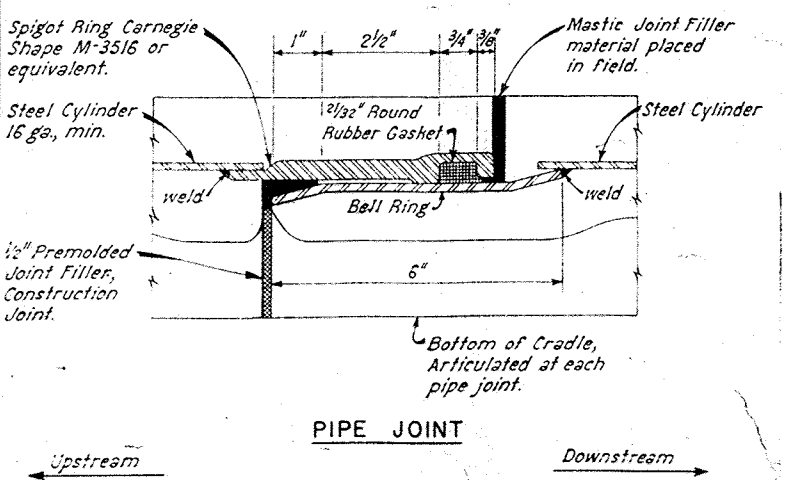
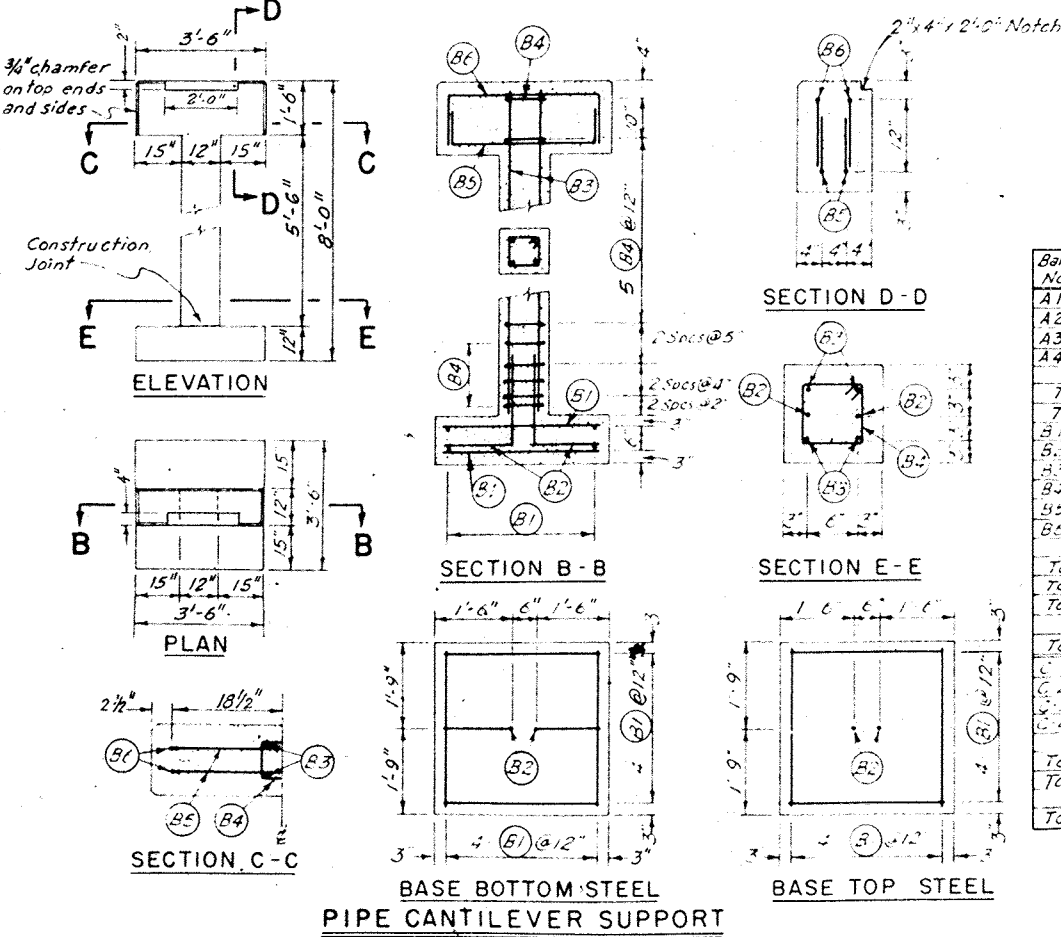
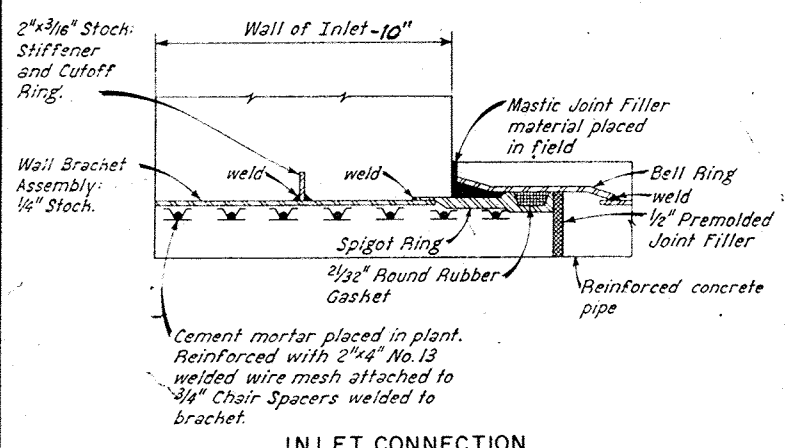
EMBANKMENT FOUNDATION DRAIN
FLOODWATER RETARDING STRUCTURE SITE No 28
LOWER PLUM CREEK WATERSHED
IN
HAYS, CALDWELL AND TRAVIS COUNTIES, TEXAS

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

Designed	G.C.S.	Date	4-62	Approved by	J.M.
Drawn	G.C.S. & J.J.M.	Date	4-62	Checked	P.M.P.
Traced	J.J.M.	Date	4-62	STATE CONSERVATION ENGINEER'S OFFICE	
Checked	G.C.S. & G.M.T.	Date	5-62	Sheet	6 of 11
				Drawing No.	4-E-16,622



Note: Sides of Pipe Cantilever to be formed with lumber or metal.



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" 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 Length	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	6	51-0	4											
A3		10	2-8	26-8	4											
A4		4	2-3	9-0	3											
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	6-9	27-0	6	Str.										
B4		11	3-2	34-10	3	T1	0-4	0-7	0-7	0-7	0-7	0-7	0-7	0-7	0-7	0-7
B5		2	4-5	8-10	4	2	0-9	2-11								
B6		2	5-1	10-2	6	2	1-0	3-1								
Total Steel in Pipe Cantilever Support (Size # 3) = 34'-10" = 13.10 lbs.																
Total Steel in Pipe Cantilever Support (Size # 4) = 56'-10" = 37.96 lbs.																
Total Steel in Pipe Cantilever Support (Size # 6) = 44'-8" = 67.09 lbs.																
Total Steel = 118.15 lbs.																
Total Class "B" Concrete in Pipe Cantilever Support = 0.85 Cubic Yards																
C1	Pipe Cantilever	17	5-5	92-1	4	S10			1-3	2-11	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) = 178'-1" = 118.96 lbs.																
Total Steel in Pipe Cantilever (Size # 9) = 33'-0" = 112.20 lbs.																
Total Steel = 231.16 lbs.																
Total Class "B" Concrete in Pipe Cantilever = 2.23 cu yds																
Class "D" Concrete in Pipe Cradle = 30.97 Cu. Yds																
Class "D" Concrete in Anti-Seep Collars = 4.8																
Total Class "D" = 31.45 Cu. Yds.																

PIPE DETAILS

FLOODWATER RETARDING STRUCTURE SITE No. 28

LOWER PLUM CREEK WATERSHED

IN

HAYS, CALDWELL, AND TRAVIS COUNTIES, TEXAS

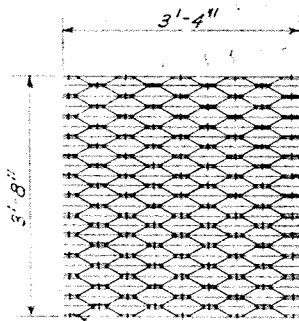
U. S. DEPARTMENT OF AGRICULTURE

SOIL CONSERVATION SERVICE

Designed	G.C.S.	Date	4-62	Approved by	A.H.
Drawn	G.C.S. & A.H.	Date	4-62	Checked by	G.M.P.
Traced	A.H.	Date	4-62	Spec.	
Checked	G.C.S. & G.W.T.	Date	4-62	No.	7
				of	11
				Drawing No.	4-E-16,622

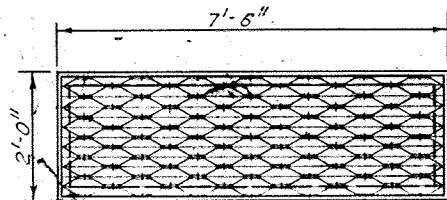
JUN 21

As Built Plans
Const. Comp. 4-12-62
No change in plans



SECTION A

2 Required
Fasten to supporting angles with Type F-3 clips. Not less than 3 clips on each side of each panel. (See detail)



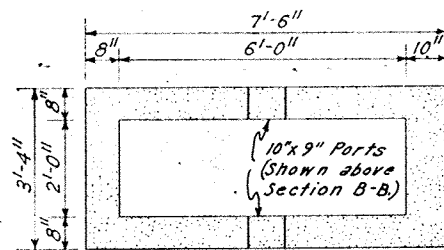
Dimensions are to outside of frame

Aluminum Grating, Borden Type A, Size No. 1 or equivalent, Bearing bars 3/4" x 1/8"
Frame Grating with 2x2x1/4" Angle, welded at mitered corners. Drill 3/4" holes for Bolt B.

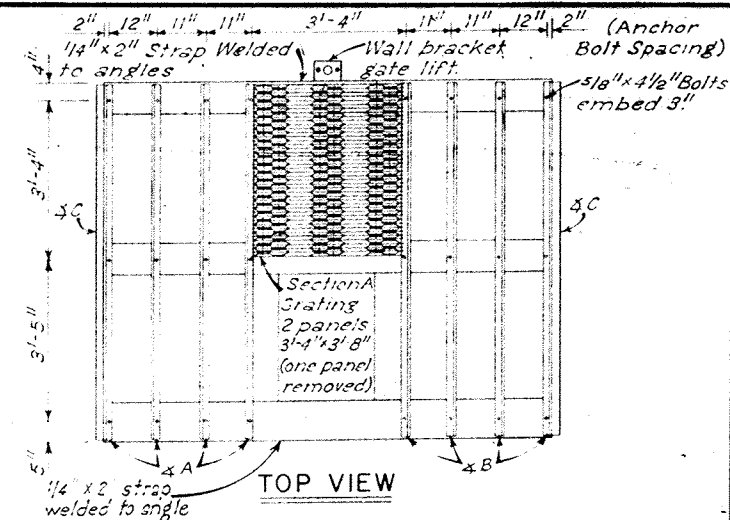
SECTION B

2 Required

GRATING



SECTION B-B

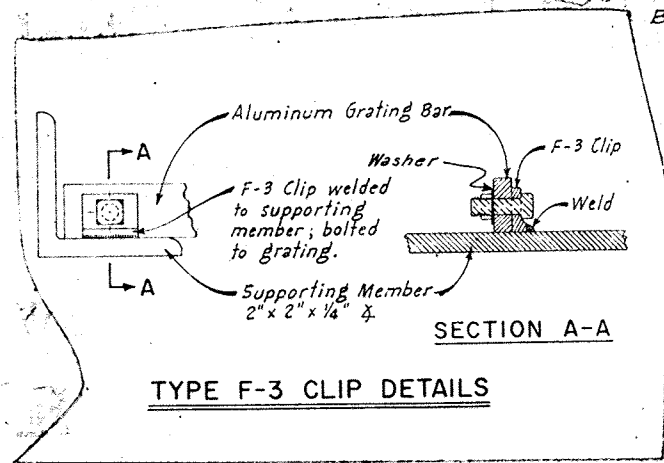


TOP VIEW

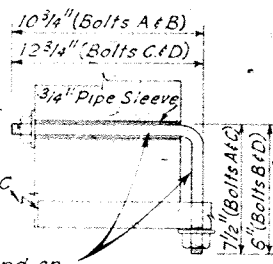
SCHEDULE OF QUANTITIES FOR TRASH GUARD

Quantity	Item	Description
4	4 A	2" x 2" x 1/4" x 7'-5"
4	4 B	2" x 2" x 1/4" x 7'-5"
6	4 C	2" x 2" x 1/4" x 7'-5"
2	Steel Straps	1/4" x 2" x 3'-6"
12	Pipe Sleeves	3/4" x 10"
14	Pipe Sleeves	3/4" x 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" x 1 1/2"
76	Flat Washers	5/8"
76	Lock Washers	5/8"

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

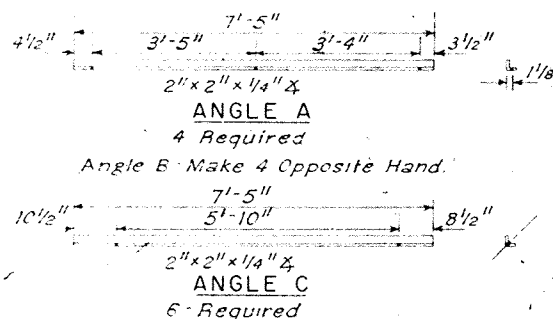


TYPE F-3 CLIP DETAILS



DETAIL A

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



ANGLE A

4 Required

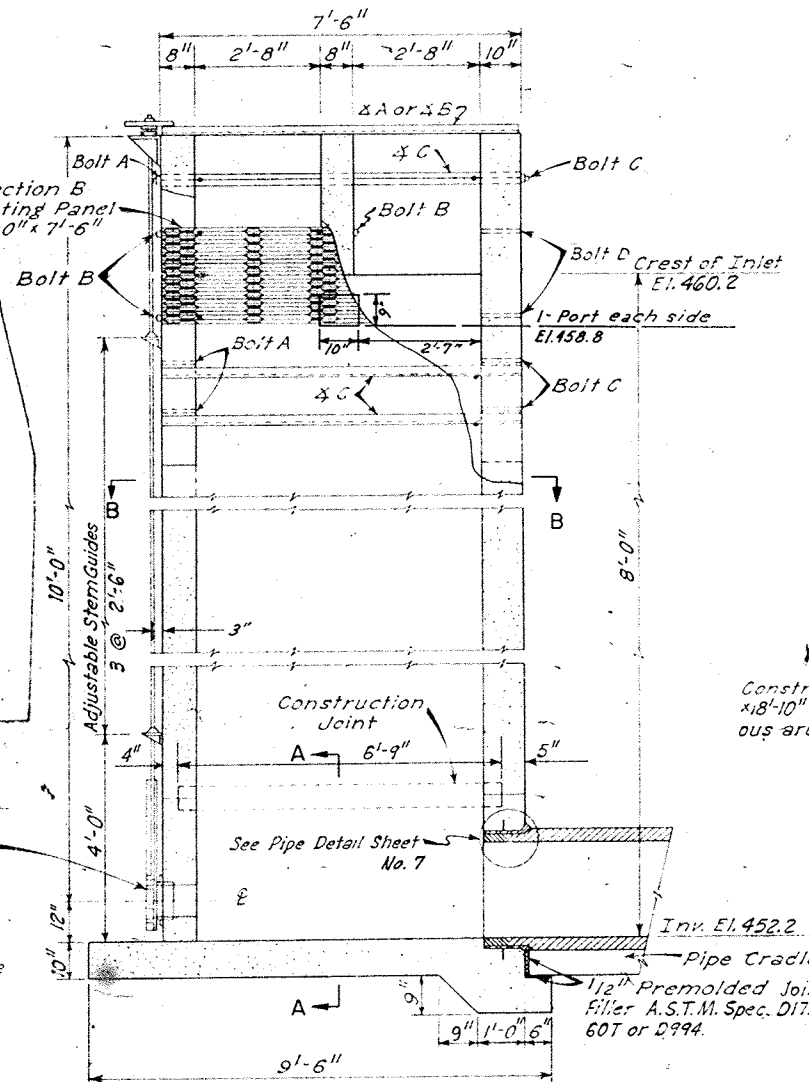
Angle B - Make 4 Opposite Hand.

ANGLE C

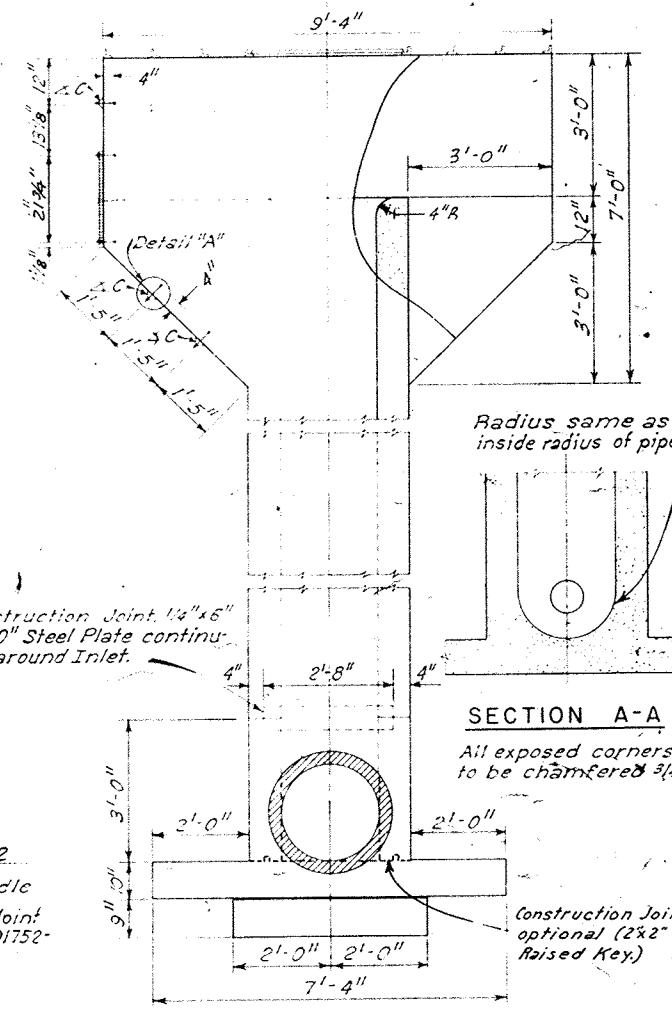
6 Required

12" 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.

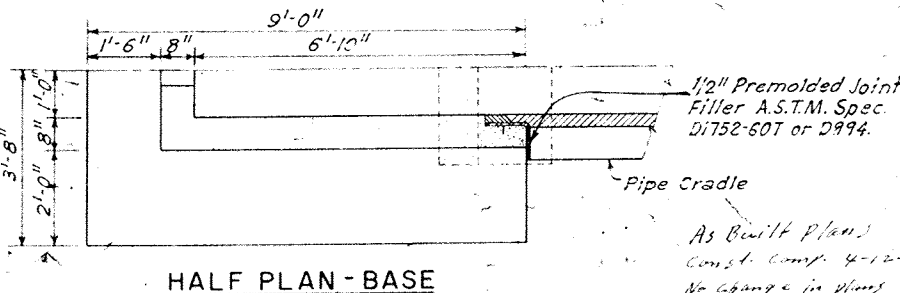
NOTE: All exposed metal parts other than bronze, to be painted in accordance with the specifications



SECTIONAL ELEVATION



ELEVATION



HALF PLAN - BASE

As Built Plans
Const. Comp. 4-12-63
No Change in Plans

PRINCIPAL SPILLWAY - INLET
FLOODWATER RETARDING STRUCTURE SITE No. 28
LOWER PLUM CREEK WATERSHED
IN
HAYS, CALDWELL, AND TRAVIS COUNTIES, TEXAS

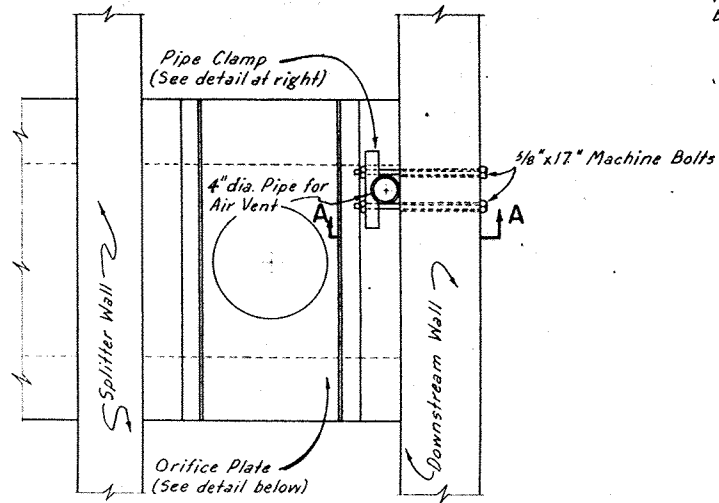
U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

Designed	G.C.S.	4-62	Approved by	[Signature]
Drawn	G.C.S. & A.H.	4-62	Checked	[Signature]
Insp.	A.H.	4-62	Date	5-62
Checked	G.C.S. & G.M.T.	5-62	Project No.	8
			Sheet No.	11

4-E-16,622

JUN 21 1962

24" S/G



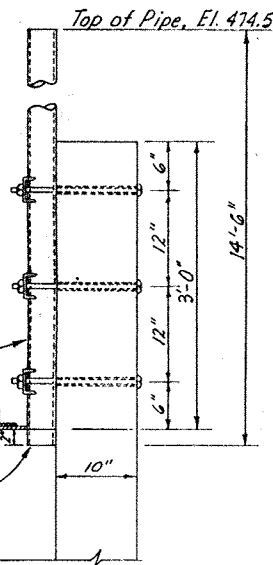
PLAN

AIR VENT DETAIL

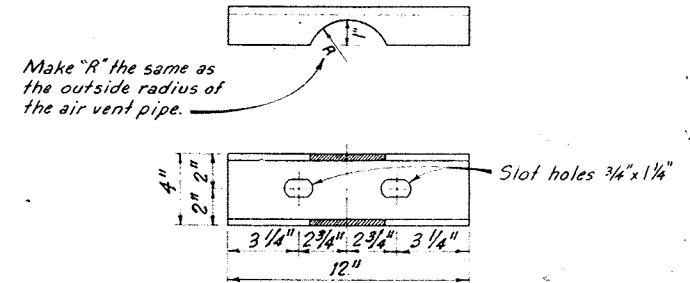
After air vent assembly is complete, weld pipe clamps to pipe with 1/4" fillet weld. Paint weld as specified below.

Pipe for air vent shall be 4" i.d., galvanized standard weight steel pipe.

Air vent pipe shall extend below orifice a minimum of 2", as shown.



SECTION A-A



PIPE CLAMP DETAIL

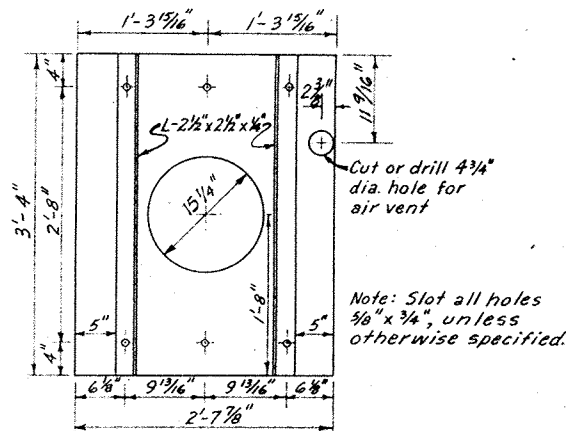
Pipe clamps shall be fabricated of 4 U 7.25 Cut both flanges to fit outside of pipe and slot holes in web for 3/8" machine bolts, as shown. 3 pipe clamps required.

SCHEDULE OF QUANTITIES FOR ORIFICE PLATES		
QUANTITY	ITEM	DESCRIPTION
4	Angles	2 1/2" x 2 1/2" x 1/4"; Punch as shown, weld to plates.
2	Plates	1/4" x 3'-4" x 2'-7 7/8" Punch as shown.
12	Bolts	1/2" x 5 1/2" Machine, with nuts and washers.

SCHEDULE OF QUANTITIES FOR AIR VENT		
QUANTITY	ITEM	DESCRIPTION
14'-6"	Vent Pipe	4" i.d. Standard Weight Steel Pipe, not threaded.
6	Pipe Sleeves	3/4" i.d. x 10" Std. Weight Steel Pipe, not threaded.
6	Bolts	3/8" x 17" Machine, with nuts and washers.
3	Pipe Clamp	4" Channel @ 7.25 lb./linear ft.; cut and punch as shown.

GENERAL NOTES

1. Air vent pipe is to extend through the orifice plate and one panel of Section A Grating. Do not weld the air vent pipe to the orifice plate or to the grating.
2. All bolts, nuts, washers, pipe and pipe sleeves are to be galvanized unless otherwise specified.
3. Place a flat washer between head of bolt and concrete. Place a flat washer and a lock washer between nut and steel.
4. Orifice plates and pipe clamps shall be painted in accordance with Construction Materials Specification 121-60T.

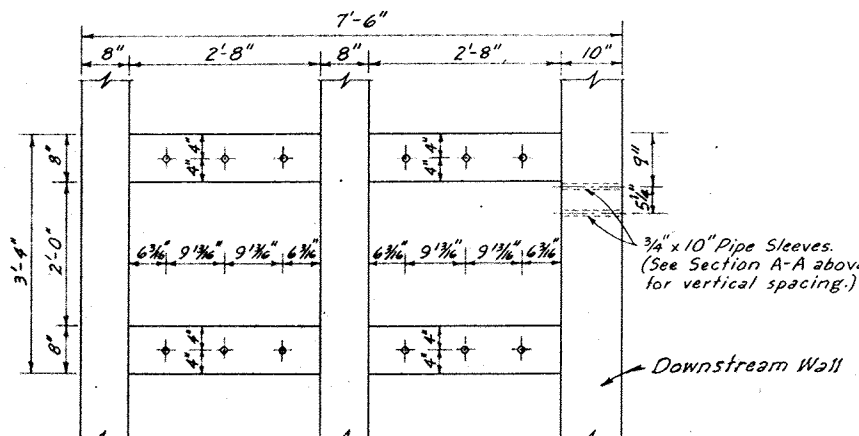


Weld angles to plate with continuous 1/4" fillet weld on each side of angle.

1/4" x 3'-4" x 2'-7 7/8" Steel Plate
2 required: one as shown and one without hole for air vent, and orifice.

ORIFICE PLATE DETAIL

Note: Cut 15 1/4" hole in blank Orifice Plate if Ports are closed in the future for any reason.



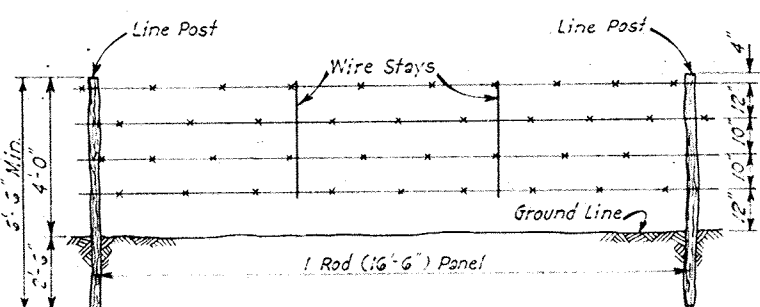
1/2" x 5 1/2" machine bolts shall be set as shown above for bolting orifice plates in position. Embed bolts 4" in the concrete.

BOLT AND PIPE SLEEVE PLACEMENT
(ORIFICE PLATE AND AIR VENT)

As Built Plans
Const. Comp. 4-12-63
No change in plans

ORIFICE PLATE AND AIR VENT DETAILS	
FLOODWATER, RETARDING STRUCTURE SITE No. 28	
LOWER PLUM CREEK WATERSHED	
IN	
HAYS, CALDWELL, AND TRAVIS COUNTIES, TEXAS	
U. S. DEPARTMENT OF AGRICULTURE	
SOIL CONSERVATION SERVICE	
Designed	G.C.S. 462
Drawn	G.C.S. & A.H. 462
Traced	A.H. 462
Checked	G.C.S. & G.W.T. 5-62
4-E-16,622	

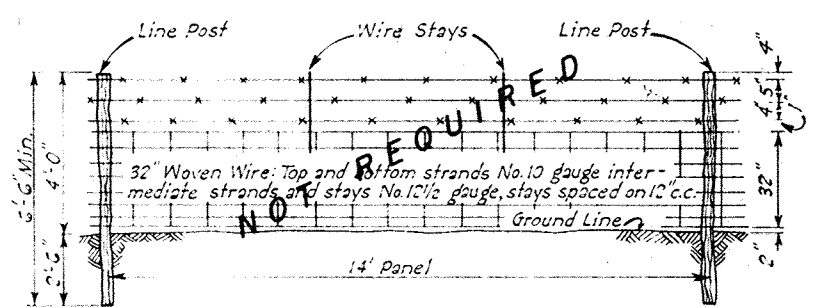
Note: Wire stays to be 10 ga. (min. size), galv. two strand spiral, twist-on type. Length to extend from top fence strand to 3" below bottom fence strand for barbed wire fences and from top strand to 3" below the second strand of the woven wire for woven wire fences. Wire stays to be spaced equally,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

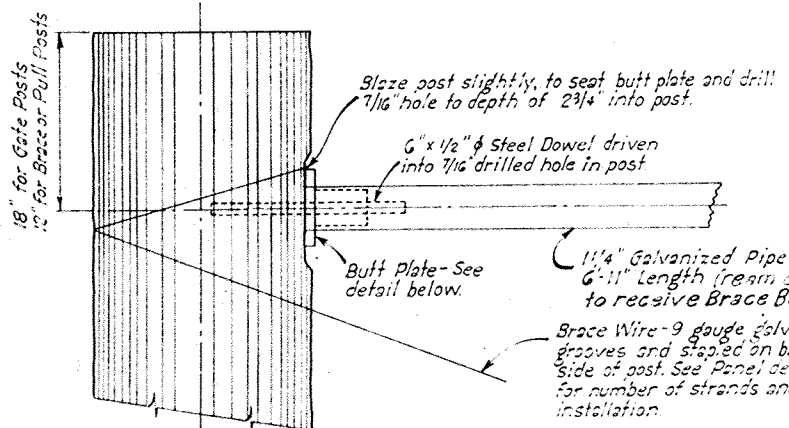
Note:
For Barbed Wire, Galvanizing shall conform to A.S.T.M. Specification A-121 Class 1 coating.
For Woven Wire, Galvanizing shall conform to A.S.T.M. Specification A-116, Class 1 coating.



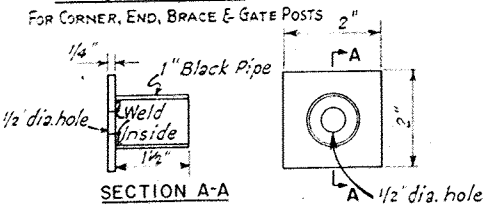
WOVEN WIRE

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, 5" 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-Jol for Solution will be used for treatment of pine posts. Steel Post not acceptable

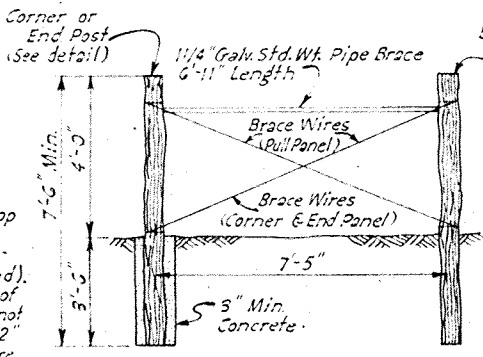


POST DETAIL



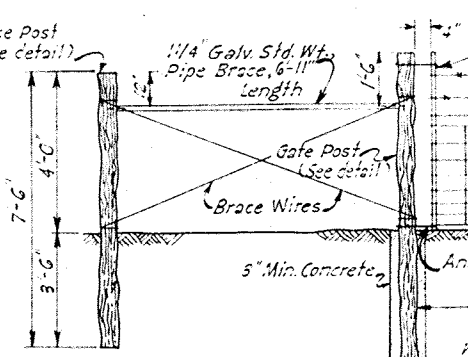
Brace Butt Plate of plate steel 2" x 2" x 1/4"; 1/4" dia. hole drilled in center, with thimble of 1" dia. black steel pipe, 1 1/2" long, welded to plate; weld to be inside of pipe with pipe concentrically centered with the 1/2" drilled hole in the plate.

BRACE BUTT PLATE

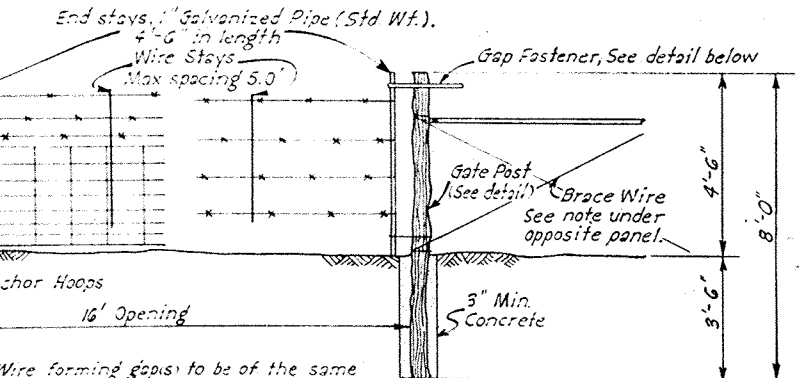


CORNER, END, OR PULL PANEL

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.



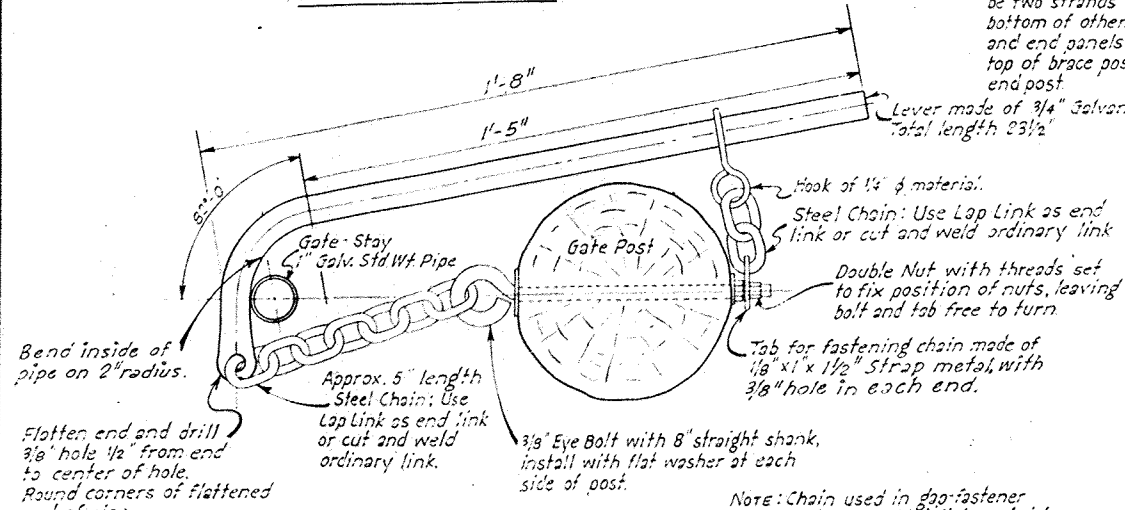
Where fence extends in line left or right of Gate Panel, Brace Wires for Gate Panel will be four strands from top of Brace Post to bottom of Gate Post. Where there is no pull of line fence (that is, the Gate Panel is at a corner), Brace Wires for the Gate Panel will be two strands from top of each post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



WIRE GAP PANEL

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 barbed wire and at each strand of woven 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.

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, shall be accomplished with a special tie-wire, in addition to stapling. A tie-wire of a strand of No. 9 smooth galvanized wire shall be secured to the post with two wraps and tie 3" above the top fence wire (where the pull is downward) or 6" below the bottom fence wire (where the pull is upward) and shall be extended to each successive fence wire, securing each in position by two close fastened wraps. The engineer will designate the posts where this special fastening of the fence wires is required.



WIRE GAP FASTENER DETAIL

Note: Chain used in gap fastener may be either straight link or twist link chain; material size from 1/8" to 1/32", 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.

FENCE DETAILS

As Built Plans
Const. Comp. 4-12-63
No change in plans

FENCE DETAILS			
FLOODWATER RETARDING STRUCTURE SITE No. 28			
LOWER PLUM CREEK WATERSHED			
IN			
HAYS, CALDWELL, AND TRAVIS COUNTIES, TEXAS			
U. S. DEPARTMENT OF AGRICULTURE			
SOIL CONSERVATION SERVICE			
Designed	G.C.S.	Date	4-62
Drawn	G.C.S. & A.H.	Approved by	STATE ENGINEER'S WATERWAYS PLANNING UNIT FORT WORTH TEXAS P.M.G.
Traced	A.H.	STATE CONSERVATION ENGINEER'S OFFICE	
Checked	G.C.S. & G.W.T.	TEMPLE TEXAS	
		Sheet	No. 11
		Drawing No.	4-E-16,622