

FLOODWATER RETARDING DAM NO. II SANDERSON CANYON WATERSHED PROJECT

BREWSTER, PECOS AND TERRELL COUNTIES TEXAS

DRAINAGE AREA	9677	ACRES
TOTAL STORAGE	1718	AC.FT.
HEIGHT OF DAM	57	FEET
VOLUME OF FILL	1,510,920 1,591,180	CU. YDS.

SPONSORED BY
RIO GRANDE-PECOS RIVER, BIG BEND AND TRANS-PECOS SOIL AND WATER CONSERVATION DISTRICTS

TERRELL, PECOS AND BREWSTER COUNTY COMMISSIONERS COURTS

COOPERATING WITH
SOIL CONSERVATION SERVICE

OF THE
U.S. DEPARTMENT OF AGRICULTURE
1980

AS BUILT PLANS

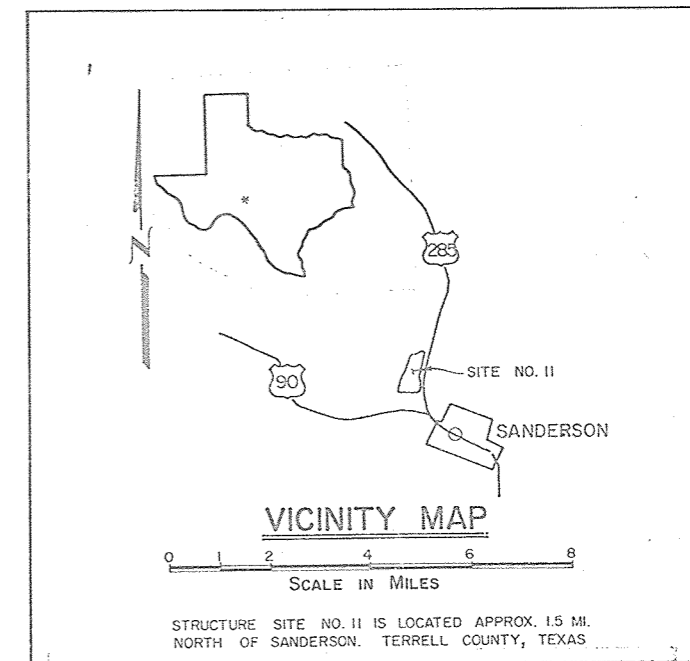
CONTRACT NO. 50-7442-3-2703
CONTRACTOR Boring & Tunneling Co. of America, Inc.
CONSTRUCTION COMMENCED 11/11/83
GOV. REPRESENTATIVE Billy J. Gunter
GOV. INSPECTOR Cyril W. Hamilton
BID PRICE \$3,804,098.50
FINAL PRICE \$3,867,004.63
CONSTRUCTION COMPLETED 5/20/86

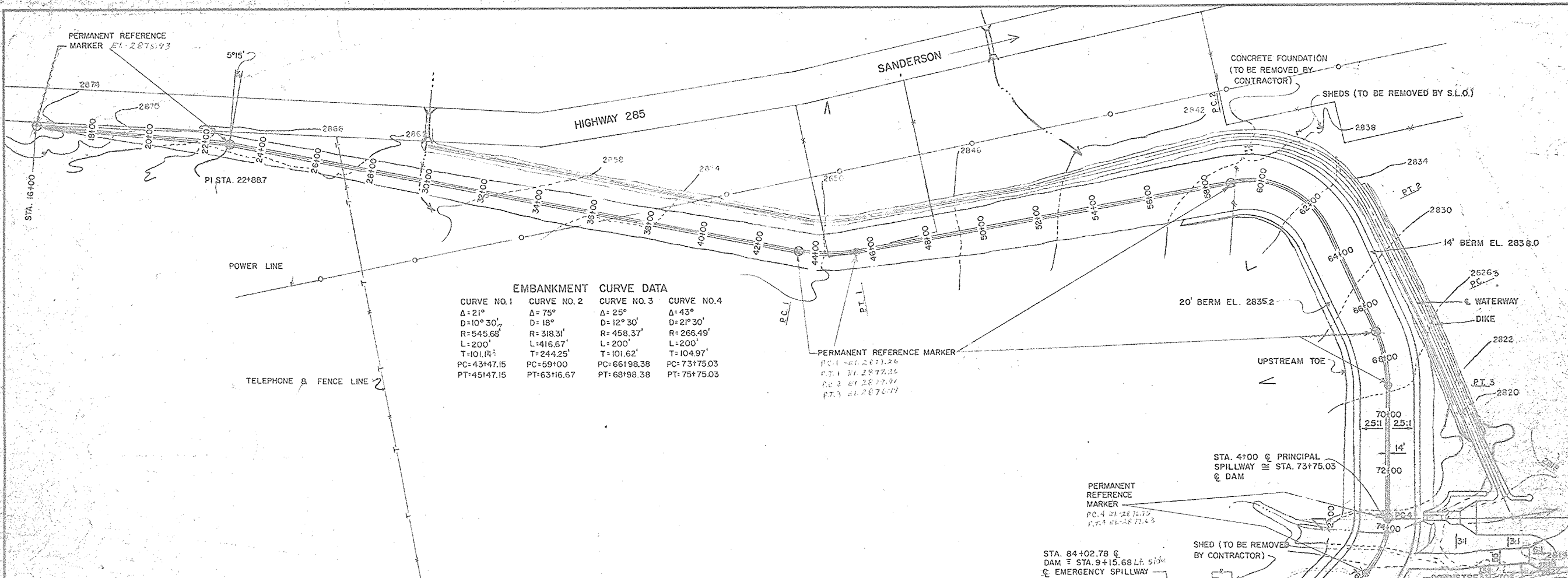
By Robert A. Frank, Jr.
Approved by latter dated 7-21-80
HEAD ENGINEERING STAFF SCS DATE
FT. WORTH, TEXAS

By Gust. Vittetoe (By SCS)
7-21-80
STATE CONSERVATION ENGINEER SCS DATE
TEMPLE TEXAS

By Peter W. Blom
7/21/80
BLOM ENGINEERING CORP. DATE
HOUSTON, TEXAS

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53-58	Plan and Profile for Geologic Investigation
42A	FENCE DETAILS





ELEVATION	SURFACE ACRES	CAPACITY	
		ACRE FEET	INCHES
2816	0	0	0.00
2820	1	7	0.00
2824	3	9	.01
2828	11	37	.05
2832	22	104	.13
2836	26	165	.23
2839	36	219	.27
2843.4	45	315	.39
2846	51	397	.49
2849.2	59	638	.79
2850	65	933	1.16
2852	100	1303	1.62
2855.8	112	1718	2.13
2860	128	2212	2.74
2866	166	3382	4.19
2872	183	4080	5.06
2874.2	190	4509	5.58
2876	196	4839	6.00
Drainage Area, Acres		9677	
Top of Dam (effective) El.		2874.2	
Emergency Spillway Crest El.		2855.8	
Principal Spillway Crest El.		2844.5	
Lowest Ungated Outlet El.		2835.2	
Sediment Capacity, Acre Feet		702	
Floodwater Capacity, Acre Feet		1016	
Maximum Emergency Spillway Capacity, cubic feet/second		50,877	
Principal Spillway Capacity, 0 El. 2855.8, cubic feet/second		11453	
1/ 60 yr. Flooded Sediment			
2/ 100 yr. Flooded Sediment			

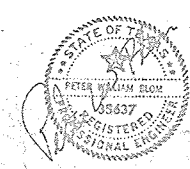
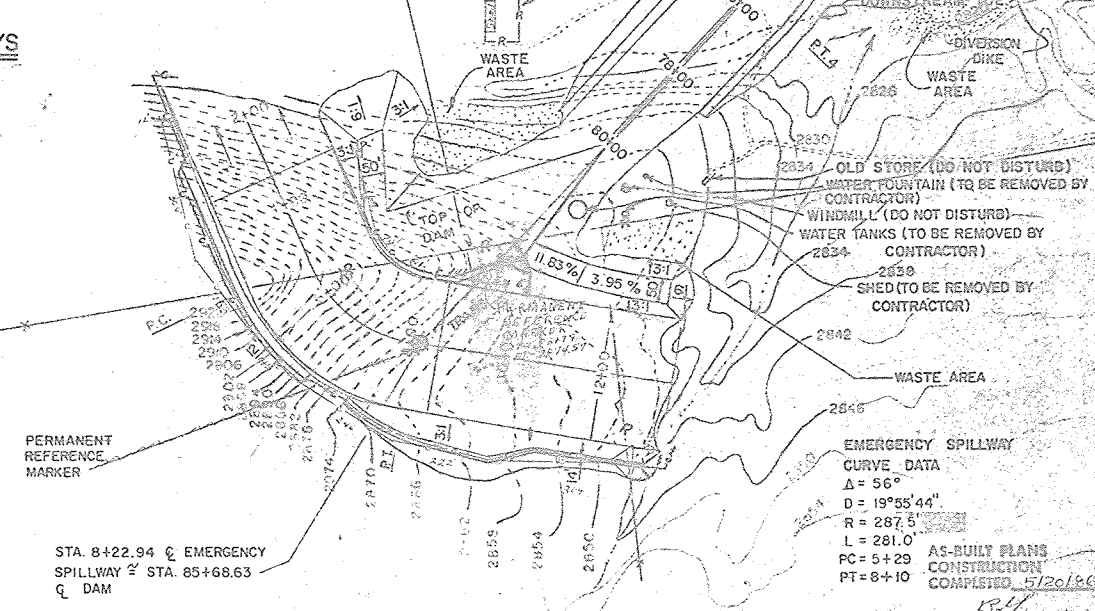
LEGEND

—X—X—X— EXISTING FENCE TO REMAIN

—R—R—R— FENCE TO BE REMOVED BY CONTRACTOR

—S.L.O.— S.P.O.

—C—C—C— FENCE TO BE CONSTRUCTED UNDER THIS CONTRACT

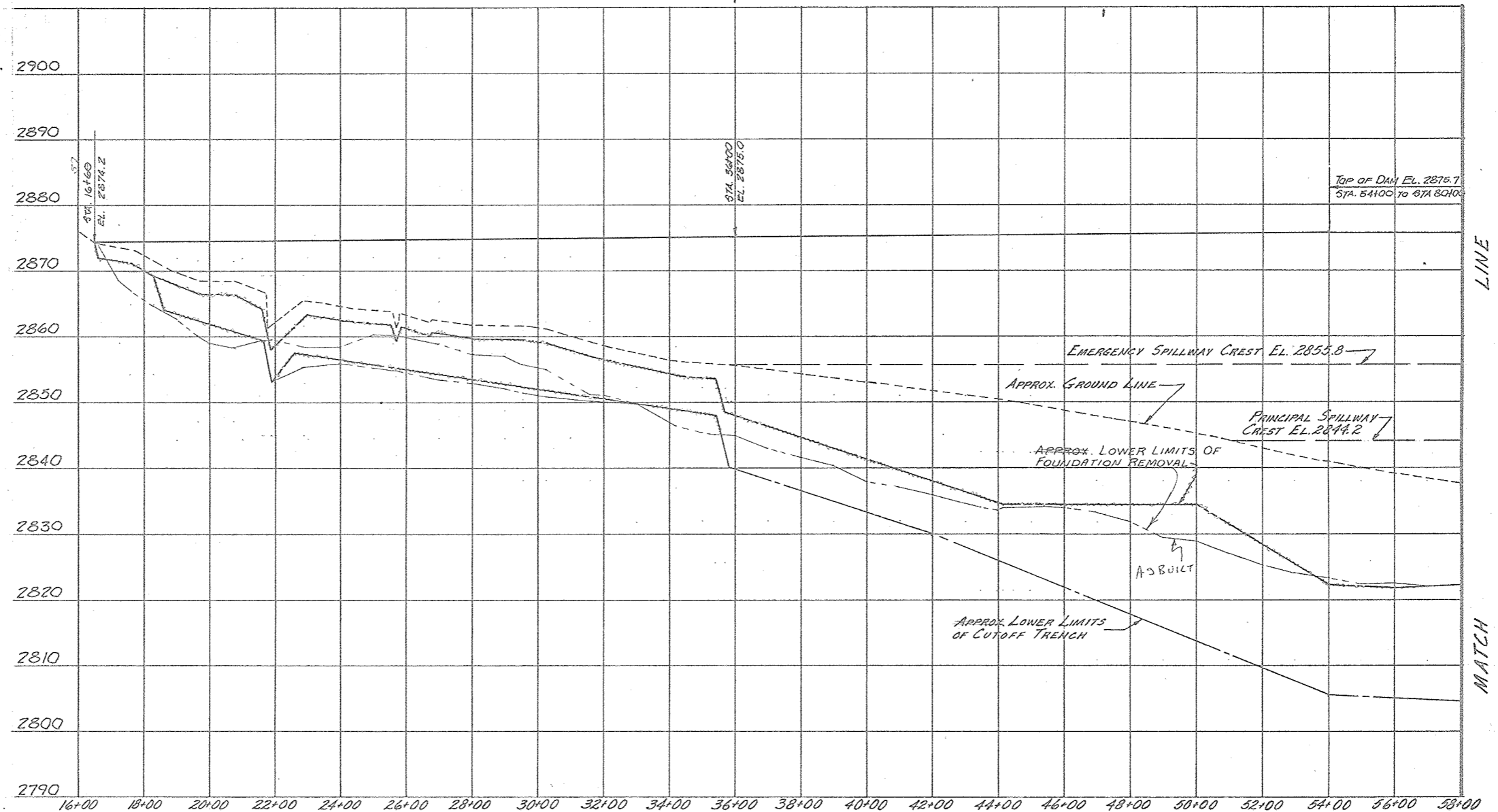


PLAN OF EMBANKMENT AND SPILLWAYS
FLOODWATER RETARDING STRUCTURE SITE NO. 11
SANDERSON CANYON WATERSHED
IN
BREWSTER, PECOS AND TERRELL COUNTIES, TEXAS

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

Designed by S. J. M. Date 8-80
Drawn by G. J. M. Date 8-80
Traced by C. A. N. Date 8-80
Checked by C. H. S. Date 8-80

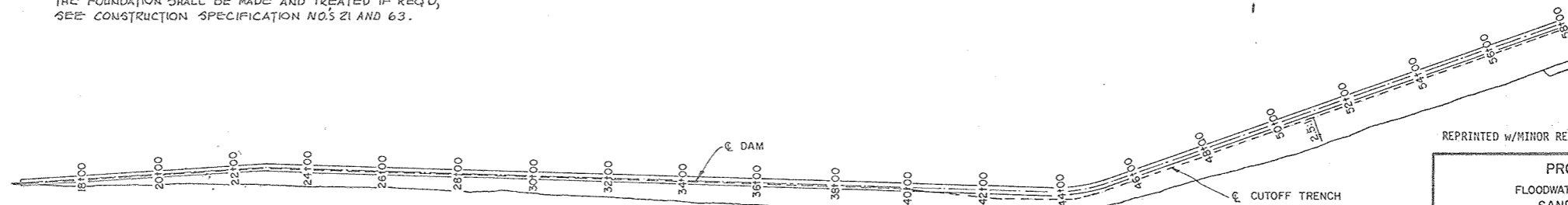
4-E-36,794



NOTE: THE CUTOFF TRENCH SHALL BE EXTENDED ALONG THE EMBANKMENT TO THE TOP OF DAM. AN INSPECTION OF THE FOUNDATION SHALL BE MADE AND TREATED IF REQ'D, SEE CONSTRUCTION SPECIFICATION NOS 21 AND 63.

PROFILE ON C OF DAM

AS-BUILT PLANS
CONSTRUCTION
COMPLETED 5/20/86



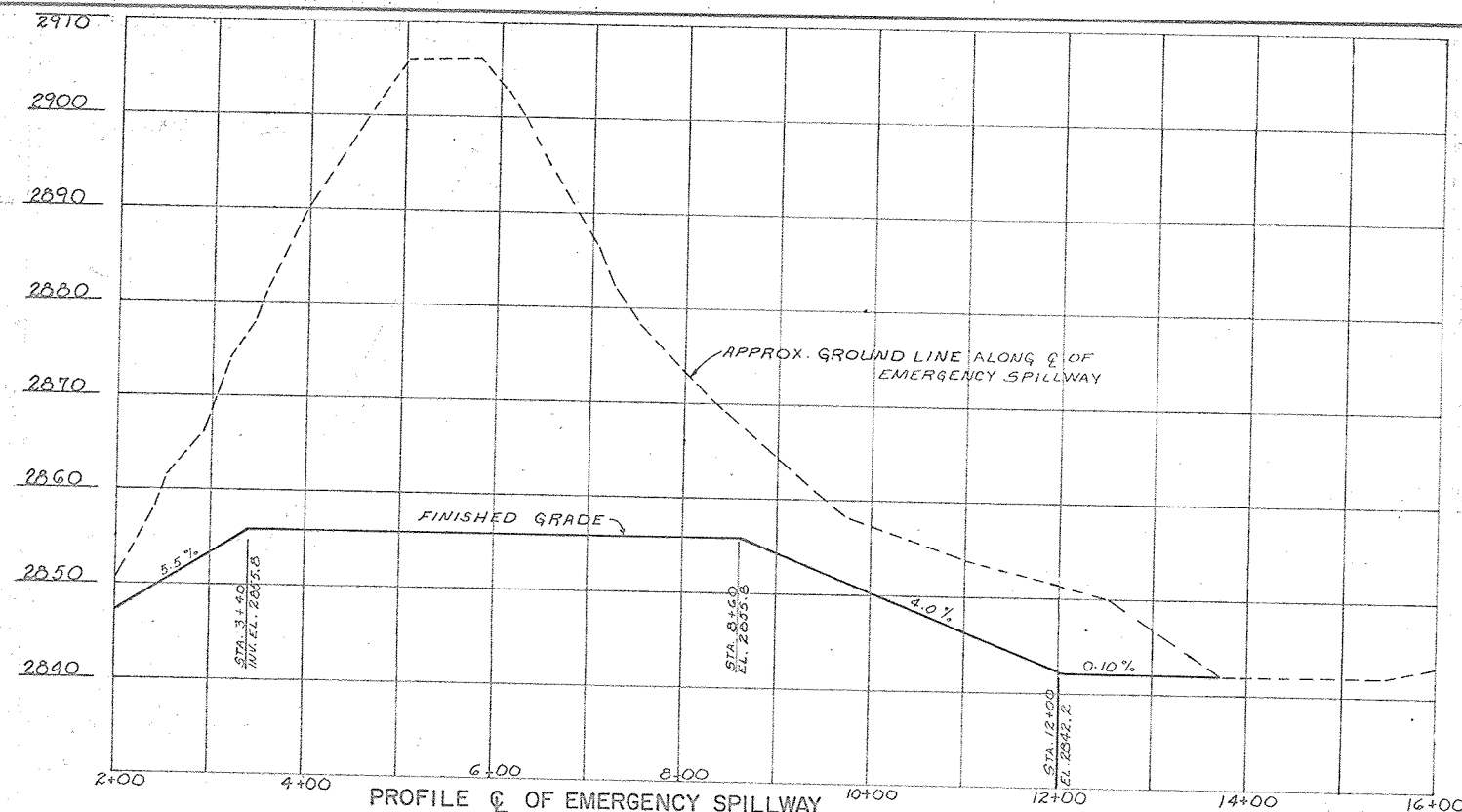
PLAN OF CUTOFF TRENCH

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PROFILE ON C OF DAM
FLOODWATER RETARDING STRUCTURE SITE NO. 11
SANDERSON CANYON WATERSHED
IN
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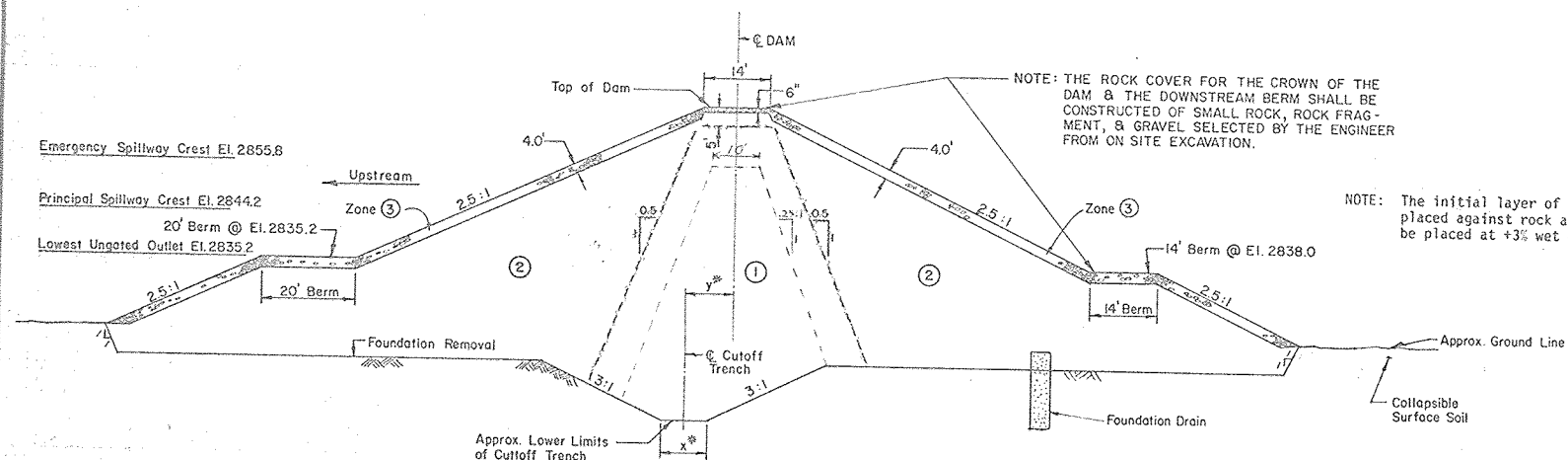
Designed	G.J.M.	Date	8-80	Approved by	PETER WILLIAM GLOM
Drawn	C.A.N.	Date	8-80	Title	ENGINEER, SCS
Traced	D.O.W.	Date	8-80	Title	ENGINEERING CORP.
Checked	C.H.S.	Date	8-80	Sheet	No. 3 of 58
				Drawing No.	4-E-36,794



PROFILE OF EMERGENCY SPILLWAY
See Sht. 6&7 For Typ. Cross Sections Of Spillway

- Zone Boundaries 1 & 2 shown in the typical section are approximate. They may be varied as permitted by the Engineer, to allow the use of all suitable and needed materials from the required excavations.
- Rock shall be reasonably well graded from a maximum particle size of 30" down to the 10" size with not less than 50% by weight larger than 15". Sizing of oversized rock materials from the required excavations to meet the specified gradation will be required.
Durable rock and rock fragments (max. dimension 30 in.) from rock excavation and separated from other required excavations, shall be placed in rockfill sections of the embankment.
The rock shall be spread in approximately horizontal layers not more than 4 ft. in thickness. The rock shall be placed so that the completed fill shall have the smaller rock fragments in the inner portion of the rock zones and the larger rock fragments on the outer slopes. The rock and rock fragments shall be placed in a manner that will produce a stable fill that contains no large unfilled spaces caused by bridging of the larger fractions. (See Construction Specification 25A.)
- Class "C" compaction shall be accomplished by a minimum of 4 complete passes per layer of tamping roller weighing not less than 1200 pounds per foot of roller width at a towing or traveling speed of 2 mph or greater.
- Less gravelly materials shall be used in Zone 1 or Zone 2. Only more gravelly materials shall be used in Zone 2.
The coarse gravelly materials shall be routed to the outer portion of Zone 2 and the finer gravelly materials to the inner portion of Zone 2.

ZONED EMBANKMENT DATA



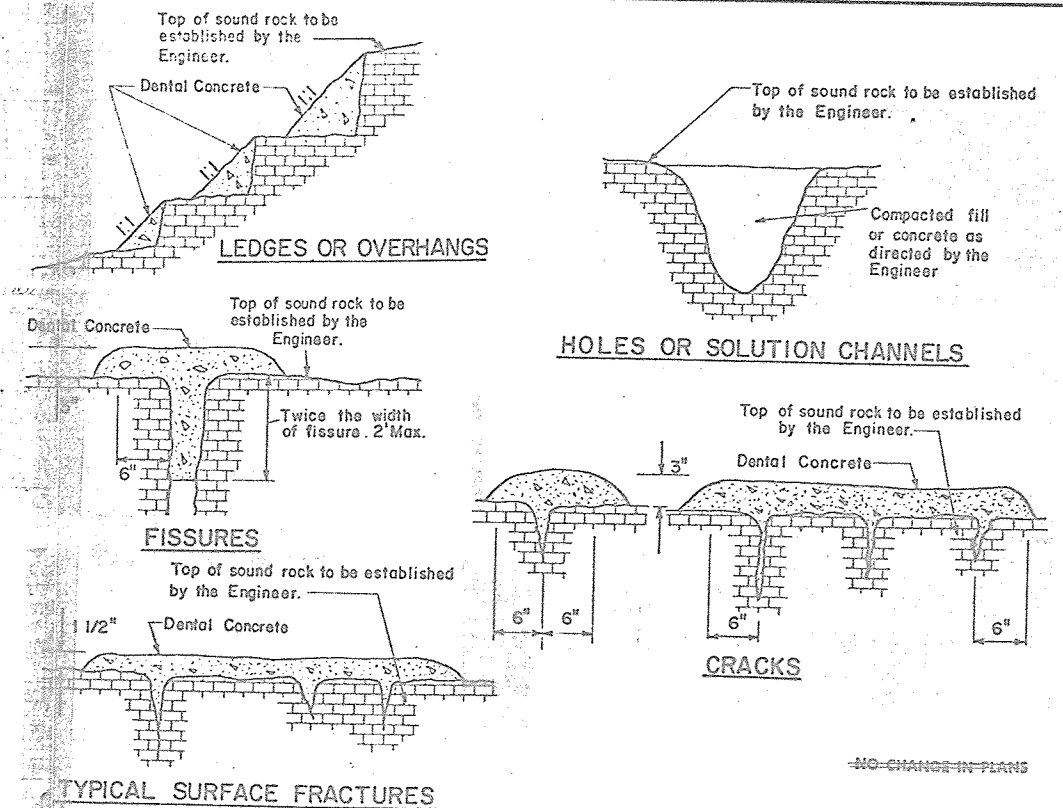
TYPICAL DAM SECTION
* For Dimensions See Table 1.

TABLE 1

Station	Dam E to E, Cutoff Trench	Cutoff Trench Width
18+50	0	12'
40+00	0	12'
42+70	13'	12'
72+75	13'	12'
73+75	13'	96'
74+75	13'	96'
75+75	13'	12'
79+50	13'	12'
80+70	13'	20'
91+00	0	20'
84+00	0	20'

NOTE: Trench widths and offsets vary uniformly between stations.

NOTE: Transitions in cutoff trench bottom width shall be staked by the Engineer.



TYPICAL TREATMENT OF ROCK SURFACE

(See Construction Specification 65 for Limits of Area to be Treated)

AS-BUILT PLANS CONSTRUCTION COMPLETED 5/20/86

MATERIAL PLACEMENT DATA									
Embankment Zone	Unified Classification and Type	ASTM Test		Max. Allowable Particle Size	Max. Uncompacted Layer Thickness	Specified Compaction Classification	Min. Dry Density Percent of Field Test Max. Dry Density	Moisture Limits Relative to Field Test Optimum	
		Number	Method					From	To
①	CL; clay, sandy clay, gravelly clay	D-698	C	6"	9"	A	95	-2	+2
①	SC; clayey sand, gravelly clayey sand	D-698	C	6"	9"	A	95	-2	+2
②	SC; clayey sand, gravelly clayey sand	D-698 Moisture Only	C	6"	9"	C ³	--	-2	+2
②	GC; clayey gravel, sandy clayey gravel	D-698 Moisture Only	C	6"	9"	C ³	--	-2	+2
③	Rockfill	---	-	2'	2'	*	--	--	--

* See Construction Specification 25A



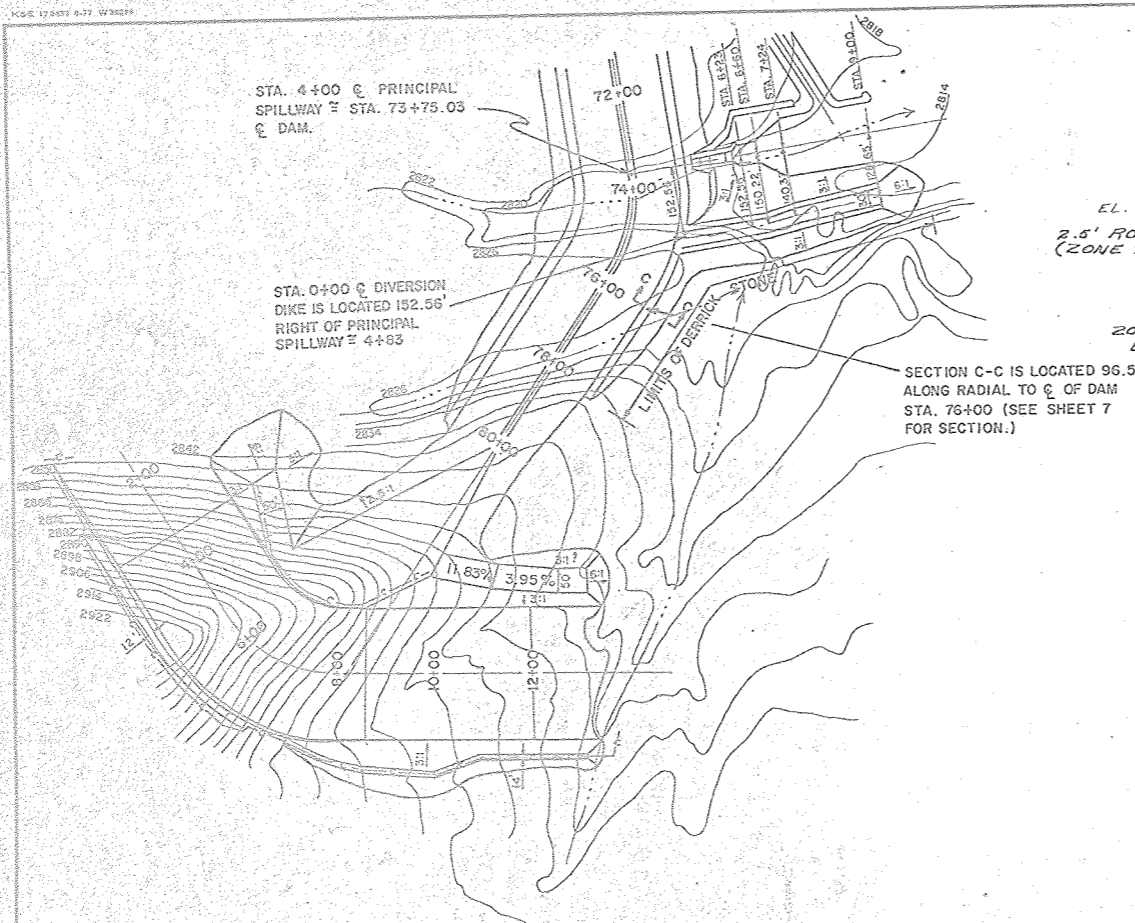
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PROFILE AND SECTIONS
FLOODWATER RETARDING STRUCTURE SITE NO. 11
SANDERSON CANYON WATERSHED
IN
BREWSTER, PECOS AND TERRELL COUNTIES, TEXAS

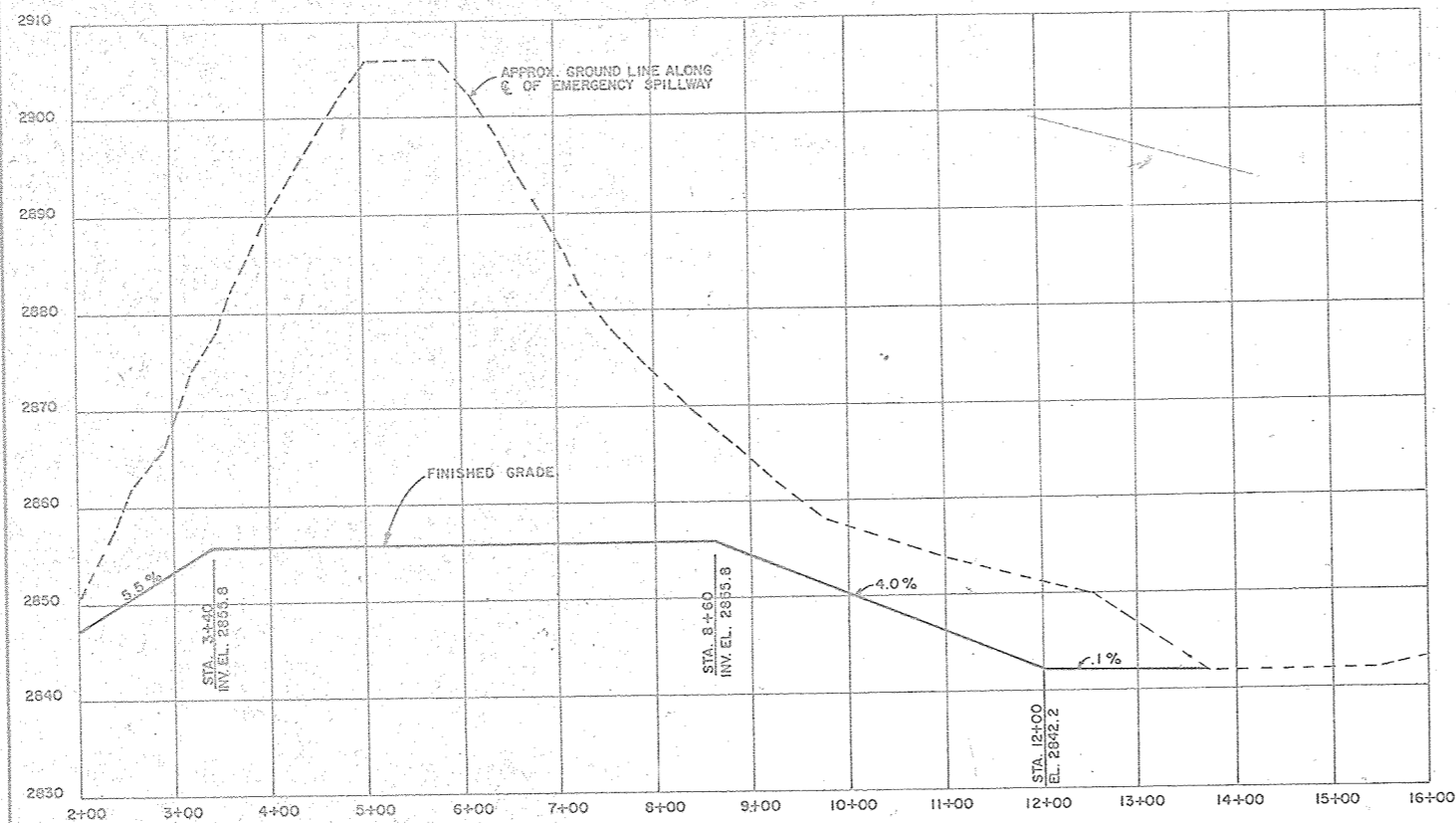
U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

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Drawn by C. A. N.	Date 8-80	This drawing is the property of the U.S. Department of Agriculture and is loaned to you for your use only. It is not to be reproduced or used in any way without the written consent of the U.S. Department of Agriculture.
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Checked by C. H. S.	Date 8-80	Sheet No. 5 of 58

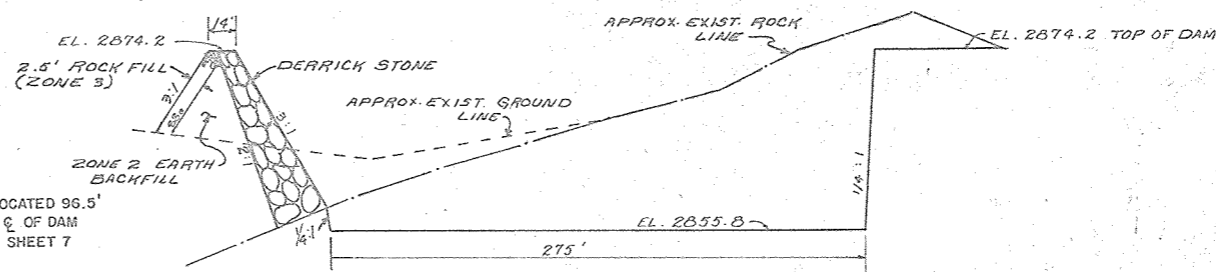
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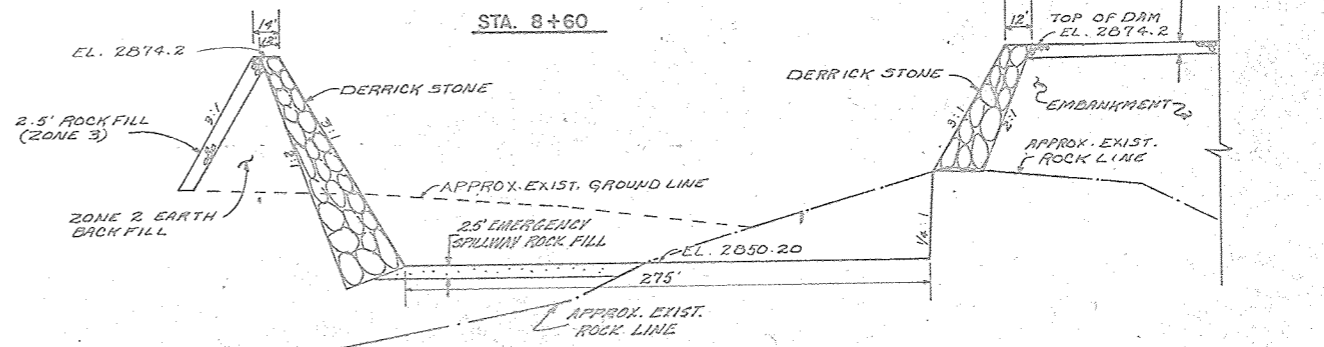
PLAN OF EMERGENCY SPILLWAY AND DIVERSION DIKE



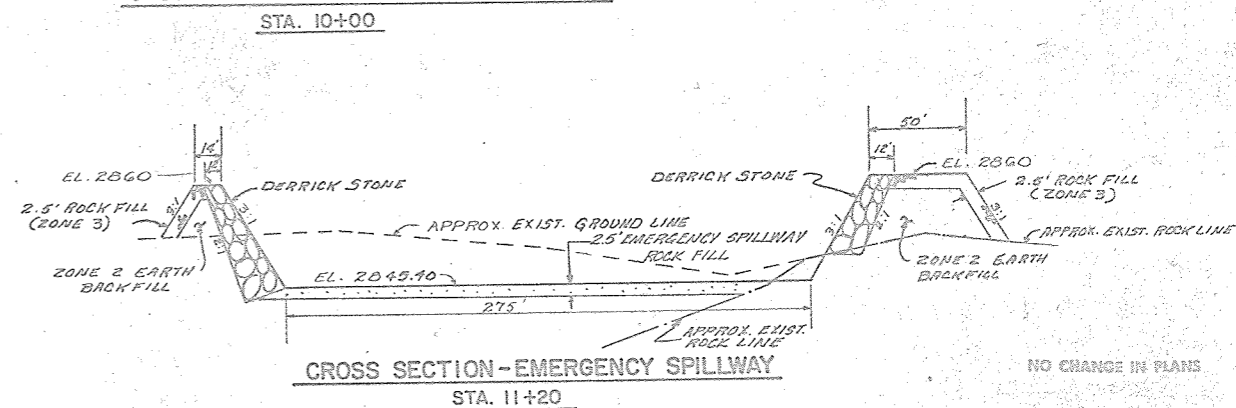
PROFILE ON C. OF EMERGENCY SPILLWAY



CROSS SECTION - EMERGENCY SPILLWAY



CROSS SECTION - EMERGENCY SPILLWAY



CROSS SECTION - EMERGENCY SPILLWAY

NOTES:

1. EMERGENCY SPILLWAY SECTION VIEWED LOOKING UPSTREAM.
2. ZONE 2 EARTH FILL TO BE PLACED AND PAID FOR AS "EMBANKMENT, EARTH FILL". SEE MATERIALS PLACEMENT DATA SHEET 5.
3. SEE SHEET 7 FOR DERRICK STONE GRADATIONS.
4. SEE SHEET 5 FOR ROCK FILL ZONE 3 GRADATION.
5. SEE SHEET 7 FOR EMERGENCY SPILLWAY ROCK FILL GRADATION.
6. APPROXIMATELY 1.0 FT. OF ROCK FILL, TO BE SELECTED BY THE ENGINEER, SHALL BE PLACED ON THE SURFACE OF ALL AREAS REQUIRING DERRICK STONE. (SEE CONSTRUCTION SPECIFICATIONS 25A and 61).

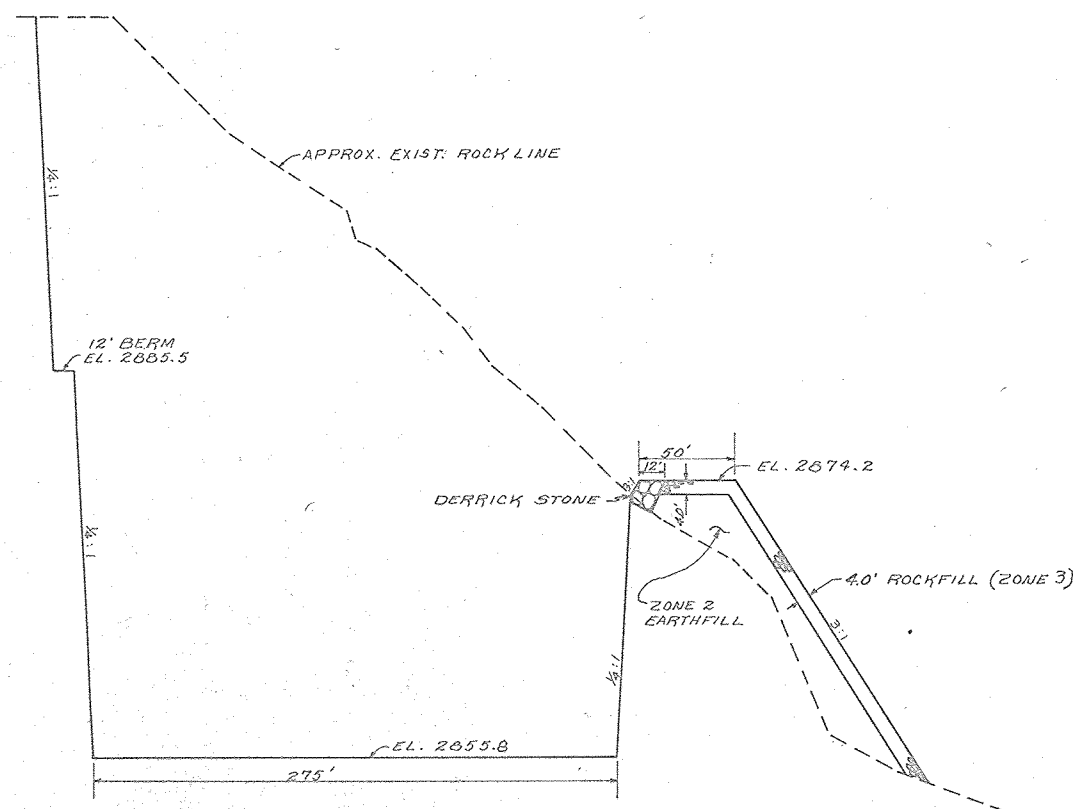
AS-BUILT PLANS
CONSTRUCTION
COMPLETED 5/20/86

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EMERGENCY SPILLWAY SECTIONS
FLOODWATER RETARDING STRUCTURE SITE NO. 11
SANDERSON CANYON WATERSHED
IN
BREWSTER, PECOS AND TERRELL COUNTIES, TEXAS

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

Designed.....G.J.M.	Date.....8-80	Approved by.....[Signature]
Drawn.....C.A.S.	Date.....8-80	Title.....[Signature]
Traced.....C.A.S.	Date.....8-80	Title.....[Signature]
Checked.....G.J.M.	Date.....8-80	Title.....[Signature]
	Sheet No. 6 of 53	Drawing No. 4-E-36,794



CROSS SECTION-EMERGENCY SPILLWAY
STA. 4+60

DERRICK STONE GRADATION:

THE ROCK USED FOR THE DERRICK STONE SHALL BE HARVESTED OR PRODUCED STONE THAT SHALL HAVE INDIVIDUAL STONE WEIGHTS RANGING FROM 2,000 TO 10,000 POUNDS. THE DERRICK STONE SHALL BE PLACED SO AS TO PRODUCE A REASONABLY DENSE FILL WITH A MINIMUM OF VOIDS.

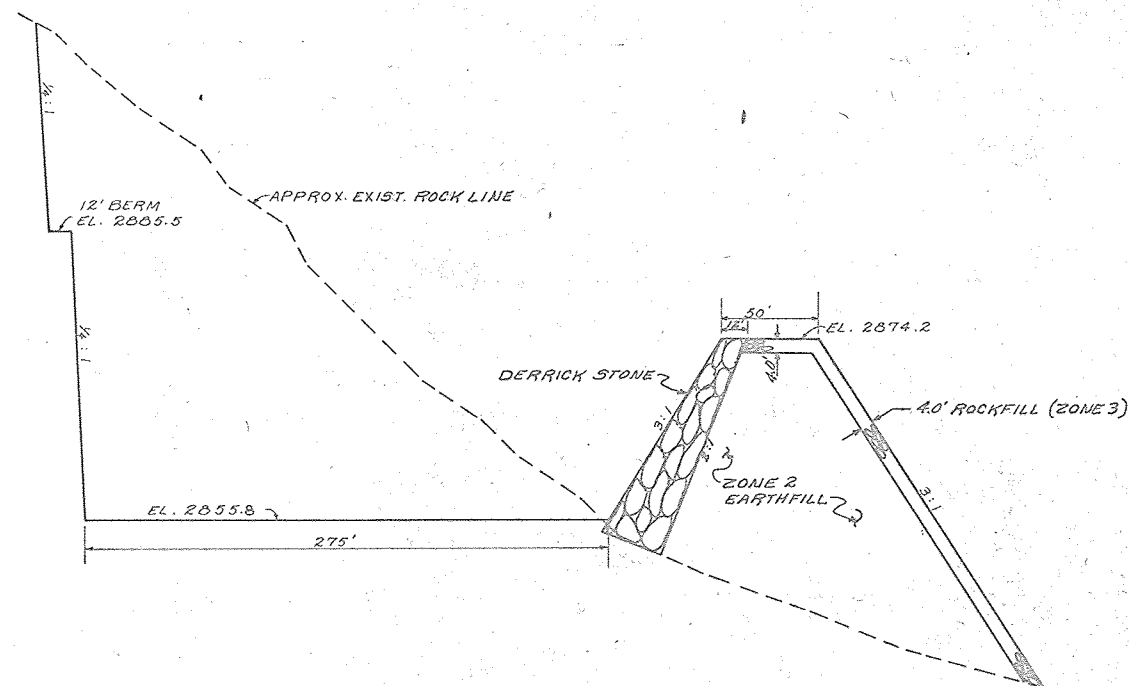
DERRICK STONE SHALL BE MEASURED AND PAID FOR AS "LOOSE ROCK RYPRAP" (SPECIFICATION 61). APPROXIMATELY 75% A.Y. DERRICK STONE REQUIRED FOR EMERGENCY SPILLWAY DIKES, EMBANKMENT BERM, AND DIVERSION DIKE.

EMERGENCY SPILLWAY ROCK FILL GRADATION:

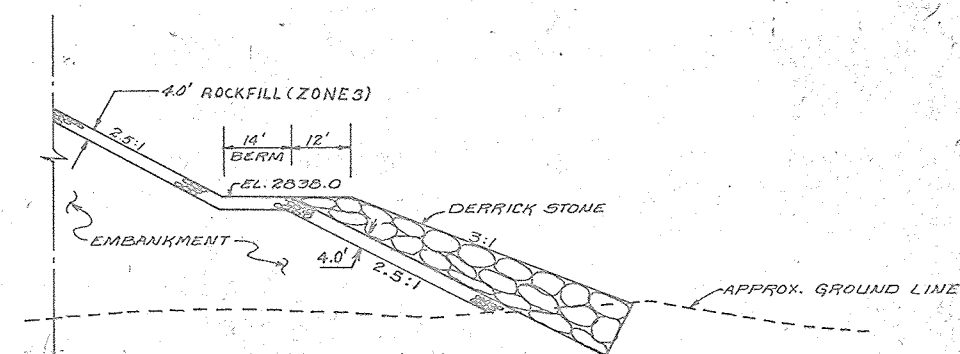
WHERE EARTH MATERIAL IS EXPOSED AT GRADE, THE EMERGENCY SPILLWAY SHALL BE OVEREXCAVATED 2' FT. OR TO ROCK, WHICHEVER IS LESS, AND BACKFILL WITH ROCK. THE ROCK SHALL BE REASONABLY WELL GRADED FROM A MAXIMUM PARTICLE SIZE OF 30" DOWN TO THE 10" SIZE WITH NOT MORE THAN 50% BY WEIGHT LARGER THAN 15". SIZING OF OVERSIZED ROCK FROM REQUIRED EXCAVATIONS TO MEET THE SPECIFIED GRADATION WILL BE REQUIRED. ROCK SHALL BE MEASURED AND PAID FOR AS "ROCKFILL, EMBANKMENT" (SEE CONSTRUCTION SPECIFICATION 45A.)

NOTES:

- 1) EMERGENCY SPILLWAY SECTIONS VIEWED LOOKING UPSTREAM.
- 2) SEE SHEET 5 FOR ROCKFILL ZONE 3 GRADATION AND ZONE 2 EARTH FILL REQUIREMENTS.



CROSS SECTION-EMERGENCY SPILLWAY
STA. 3+40



SECTION C-C
CROSS SECTION-EMBANKMENT PROTECTION
STA. 76+00

NO CHANGE IN PLANS

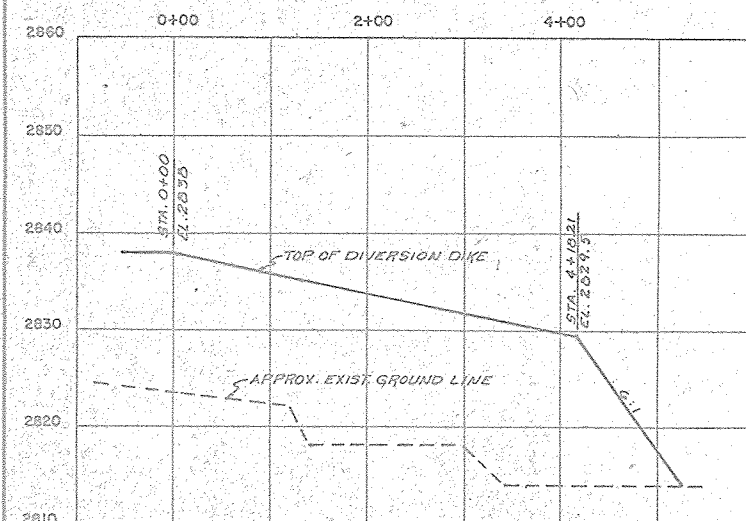
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CONSTRUCTION
COMPLETED 5/20/86

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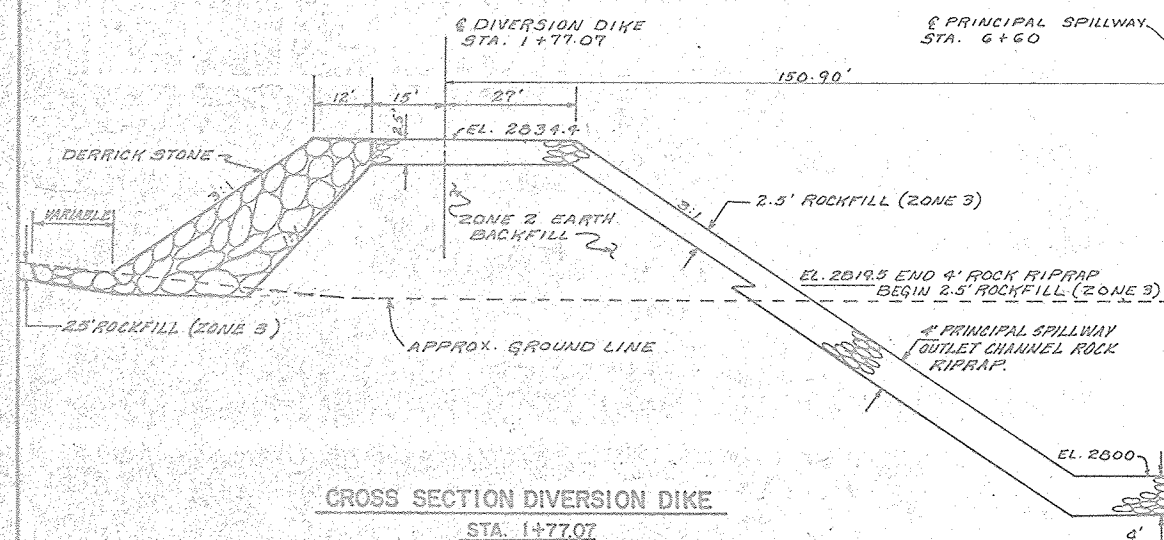
EMERGENCY SPILLWAY SECTIONS
FLOODWATER RETARDING STRUCTURE SITE NO. 11
SANDERSON CANYON WATERSHED
IN
BREWSTER, PECOS AND TERRELL COUNTIES, TEXAS

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

Designed	G. J. M.	Date	8-80	Approved	[Signature]
Drawn	C. A. S.	Date	8-80	Title	ENGINEER
Traced	C. A. S.	Date	8-80	Title	ENGINEER
Checked	G. J. M.	Date	8-80	Sheet	No. 7 of 58
				Drawing No.	4-E-36,794

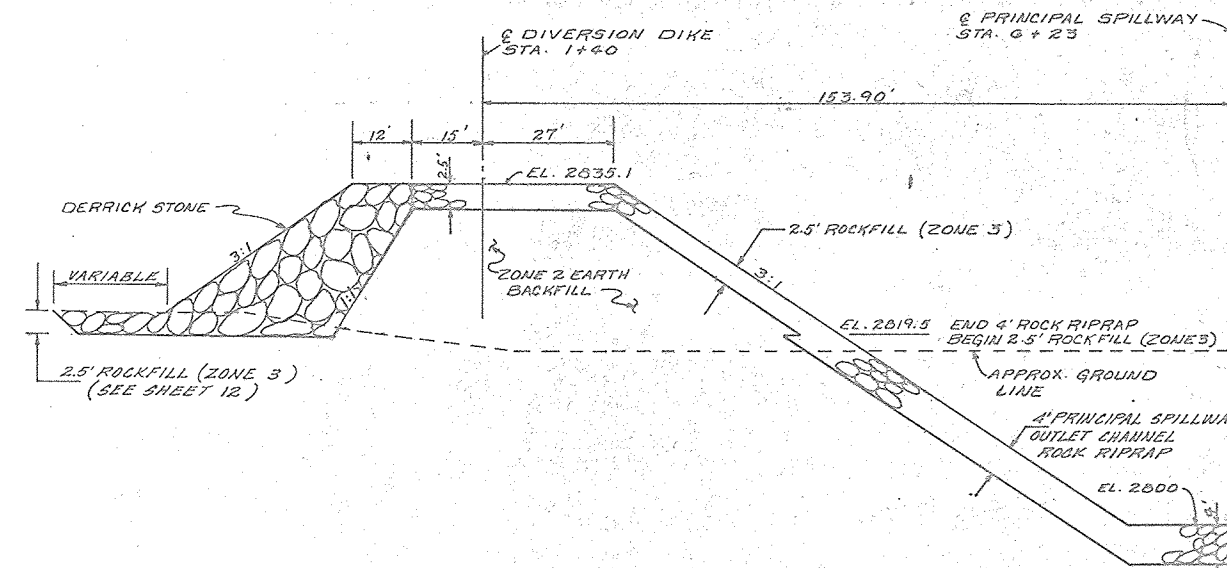


PROFILE ON C OF DIVERSION DIKE

CROSS SECTION DIVERSION DIKE
STA. 1+77.07

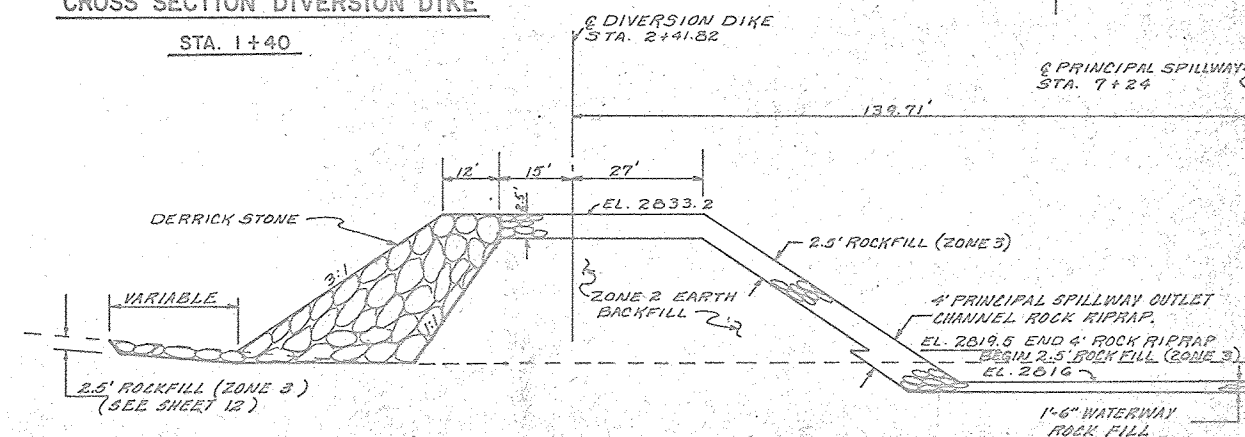
NOTES:

- 1) DIVERSION DIKE SECTIONS VIEW LOOKING UPSTREAM.
- 2) SEE SHEET 7 FOR DERRICK STONE GRADATION.
- 3) SEE SHEET 5 FOR ROCKFILL, ZONE 3 GRADATION AND ZONE 2 EARTH FILL GRADATION.
- 4) SEE SHEET 13 FOR PRINCIPAL SPILLWAY OUTLET CHANNEL ROCK RIPRAP GRADATION.
- 5) SEE SHEET 11 FOR WATERWAY ROCKFILL GRADATION.



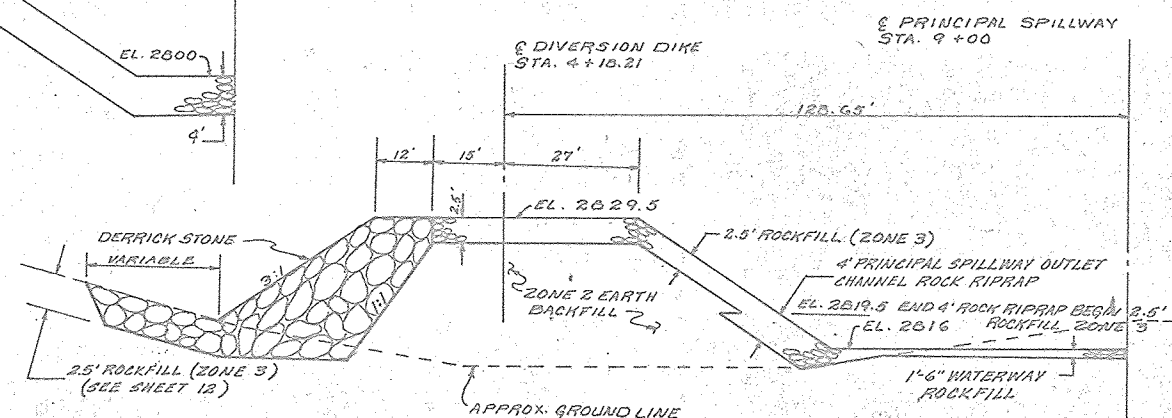
CROSS SECTION DIVERSION DIKE

STA. 1+40



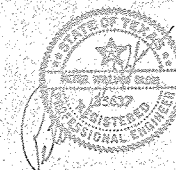
CROSS SECTION DIVERSION DIKE

STA. 2+41.82



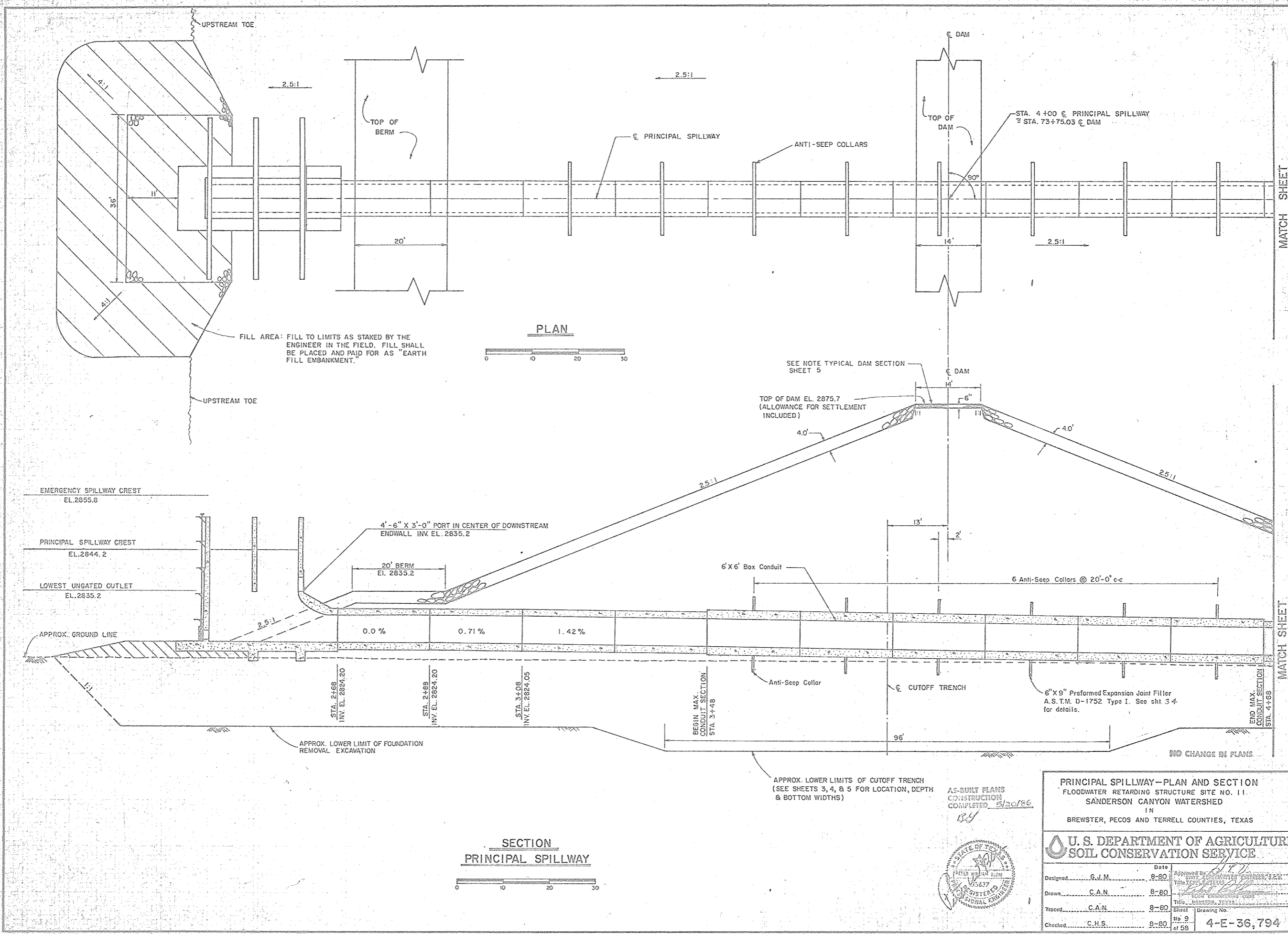
CROSS SECTION DIVERSION DIKE

STA. 4+18.21

AS-BUILT PLANS
CONSTRUCTION
COMPLETED 5/20/86

NO CHANGE IN PLANS

DIVERSION DIKE SECTION FLOODWATER RETARDING STRUCTURE SITE NO. 11 SANDERSON CANYON WATERSHED IN BREWSTER, PECOS AND TERRELL COUNTIES, TEXAS			
U. S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE			
Designed	G. J. M.	Date	8-80
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		Drawing No.	4-E-36,794



PRINCIPAL SPILLWAY—PLAN AND SECTION
FLOODWATER RETARDING STRUCTURE SITE NO. 11
SANDERSON CANYON WATERSHED
IN
BREWSTER, PECOS AND TERRELL COUNTIES, TEXAS

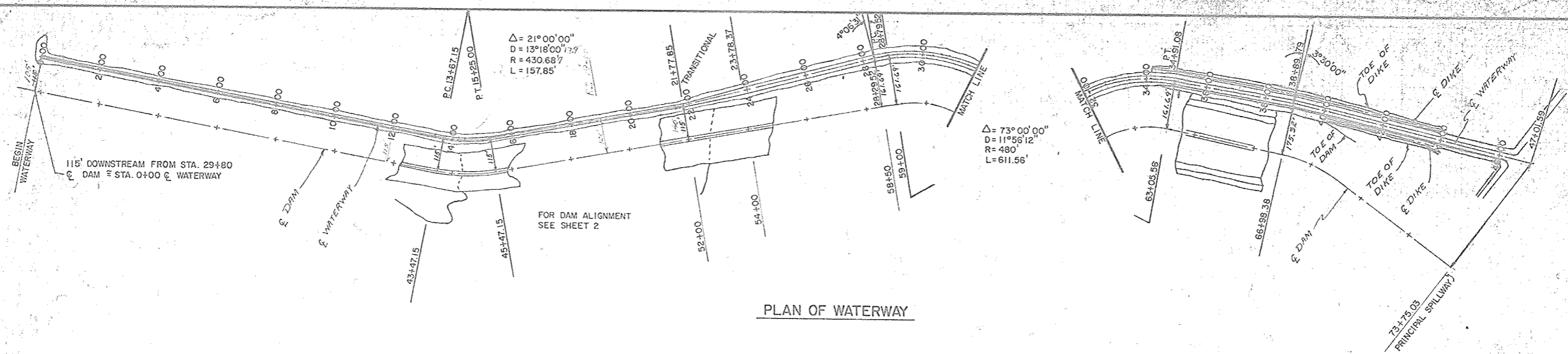
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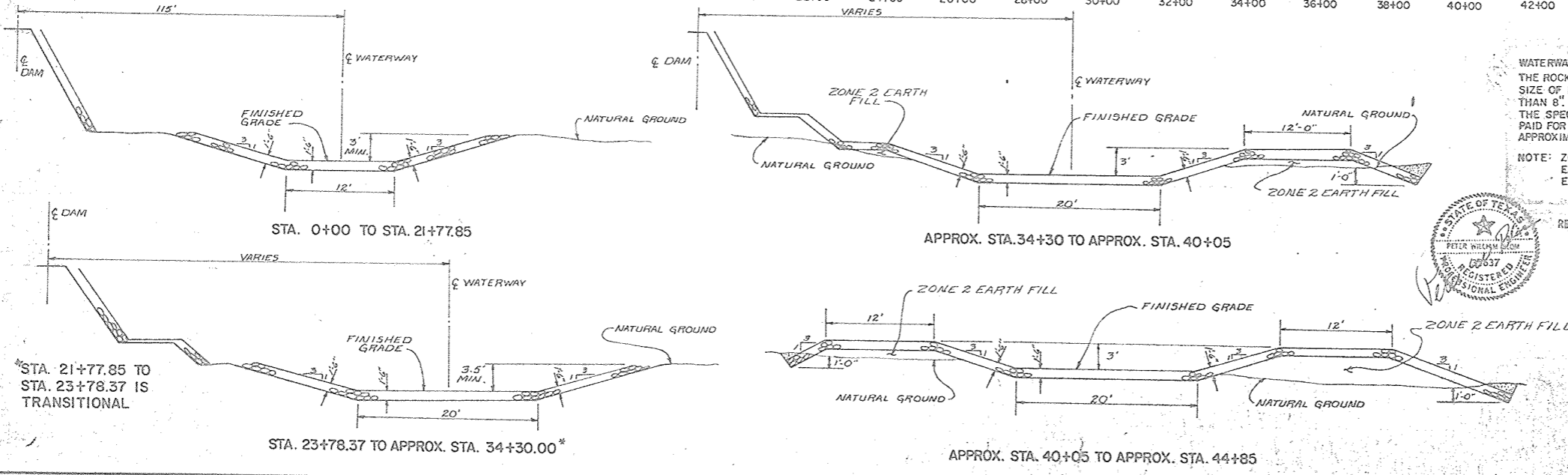
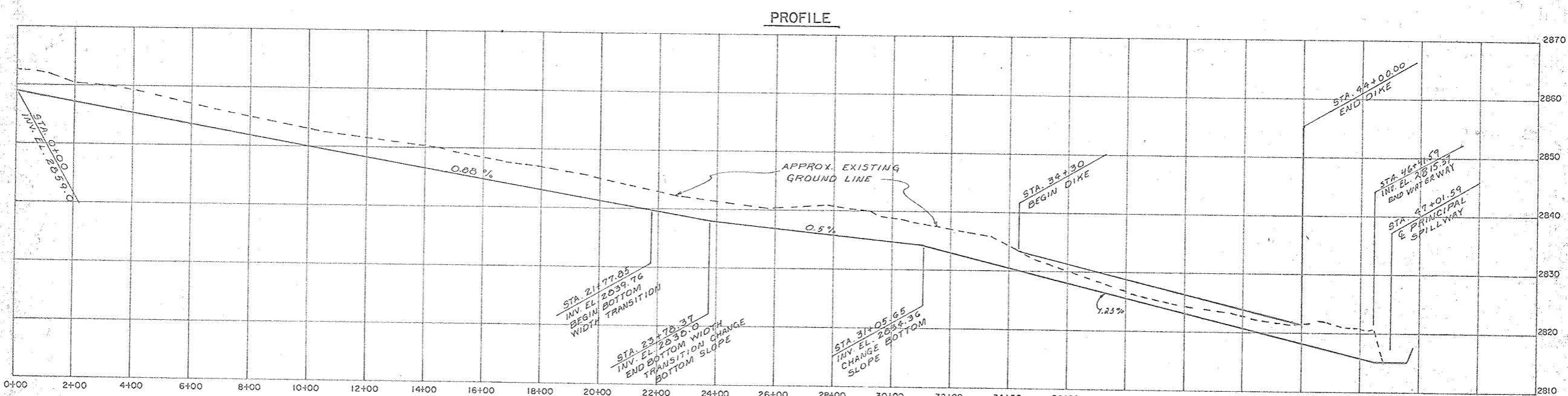
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Drawing No. 4-E-36,794

of 55



PLAN OF WATERWAY



WATERWAY ROCK FILL GRADATION:
 THE ROCK SHALL BE REASONABLY WELL GRADED FROM A MAXIMUM PARTICLE SIZE OF 16" DOWN TO 3" SIZE WITH NOT MORE THAN 50% BY WEIGHT LARGER THAN 8". SIZING OF OVERSIZED ROCK FROM REQUIRED EXCAVATIONS TO MEET THE SPECIFIED GRADATION WILL BE REQUIRED. ROCK SHALL BE MEASURED AND PAID FOR AS "ROCK FILL WATERWAY" (SEE CONSTRUCTION SPECIFICATION 22A) APPROXIMATELY 12,660 CY ROCK REQUIRED FOR THE WATERWAY ROCK FILL.

NOTE: ZONE 2 EARTH FILL TO BE PLACED AND PAID FOR AS "EMBANKMENT EARTH FILL". SEE MATERIALS PLACEMENT DATA SHEET 5 FOR EARTH FILL REQUIREMENTS.



AS-DUTY PLANS
 CONSTRUCTION
 COMPLETED 5/20/86

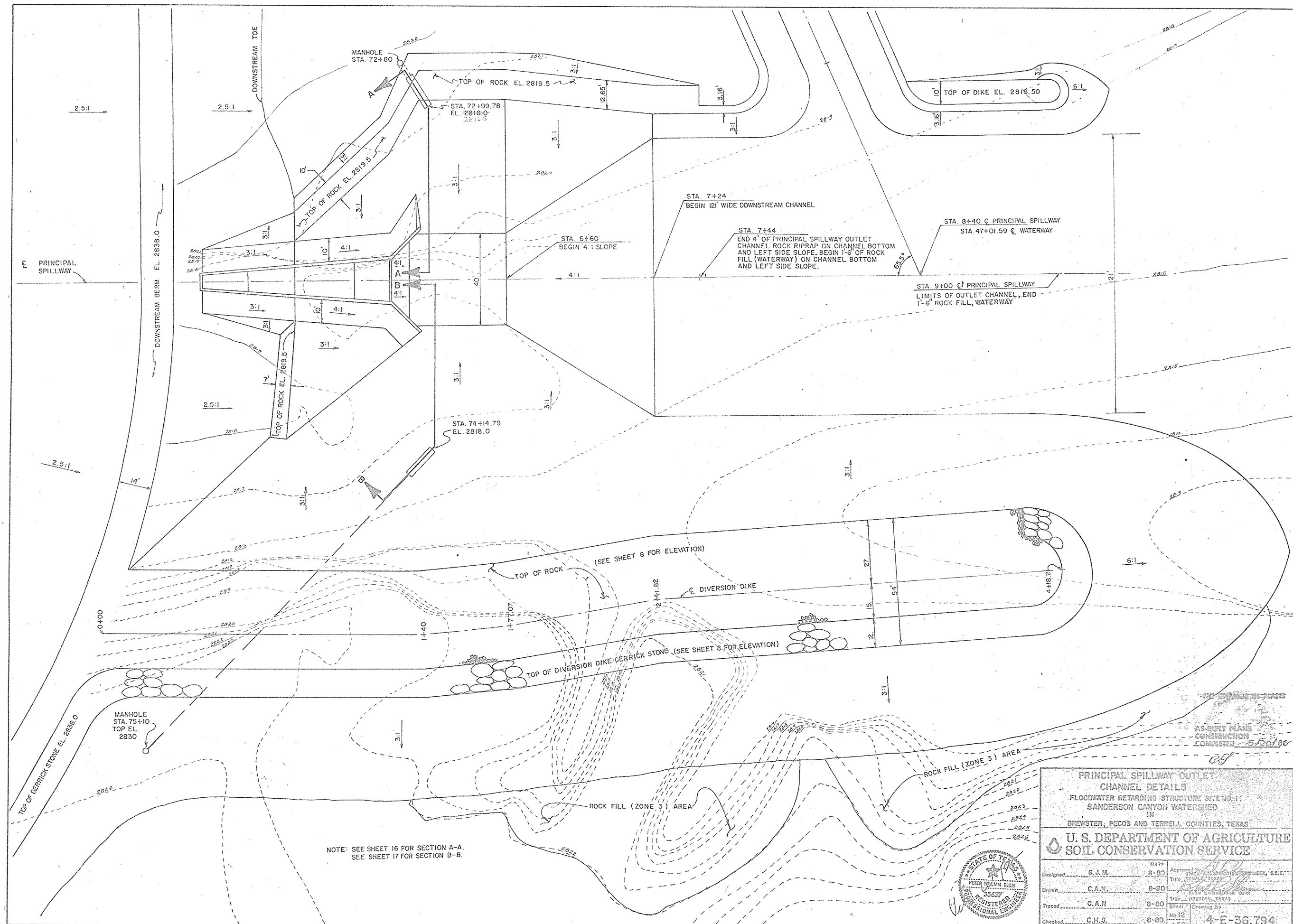
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WATERWAY PROFILE AND SECTIONS
 FLOODWATER RETARDING STRUCTURE SITE NO. 11
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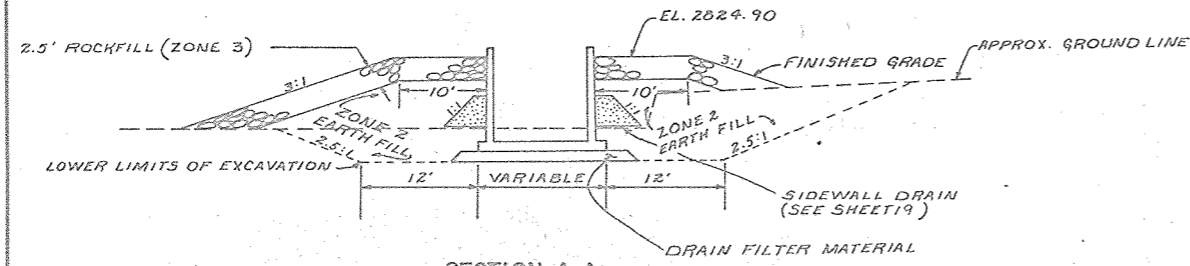
U. S. DEPARTMENT OF AGRICULTURE
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Designed by	C.H.S.	Date	8-80	Approved by	DATE
Drawn	C.A.N.	Date	8-80	Title	12/22/81
Traced	C.A.N.	Date	8-80	Title	12/22/81
Checked	G.J.M.	Date	8-80	Sheet	No. 11
				Drawing No.	4-E-36,794

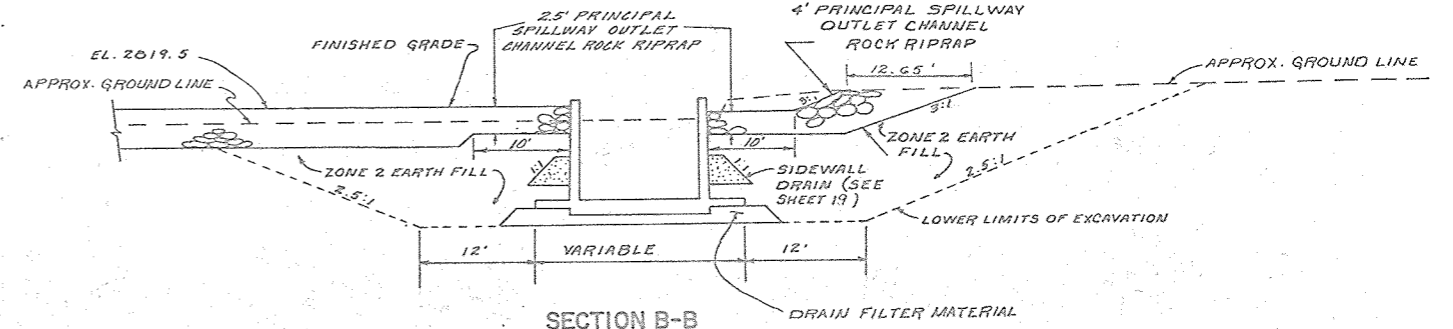
of 58



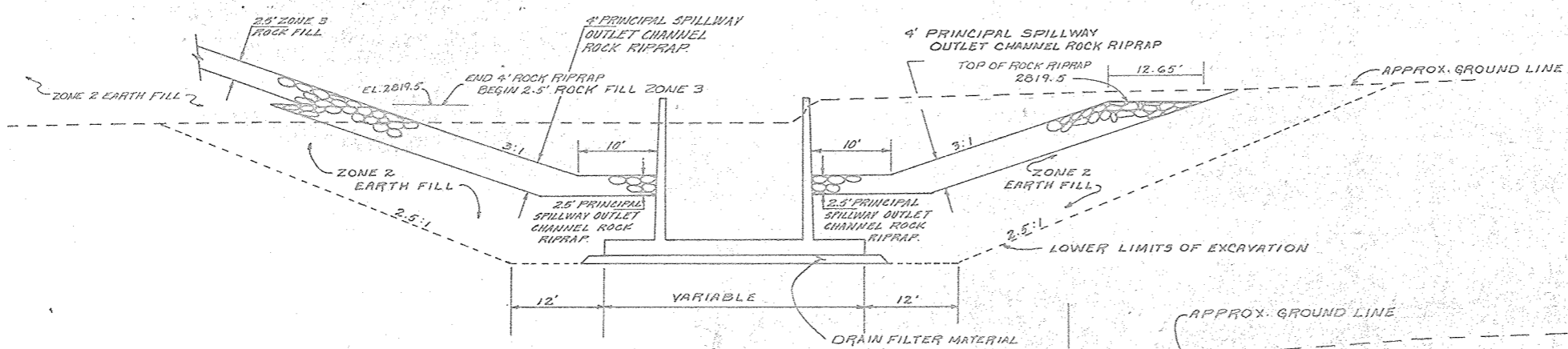
PRINCIPAL SPILLWAY OUTLET CHANNEL DETAILS			
FLOODWATER RETARDING STRUCTURE SITE NO. 11			
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Approved by		Approved by	
PETER WILCOX, R.E.		PETER WILCOX, R.E.	
REGISTERED PROFESSIONAL ENGINEER		REGISTERED PROFESSIONAL ENGINEER	
No. 35637		No. 35637	
State of Texas		State of Texas	
Drawing No.		Drawing No.	
4-E-36,794		4-E-36,794	



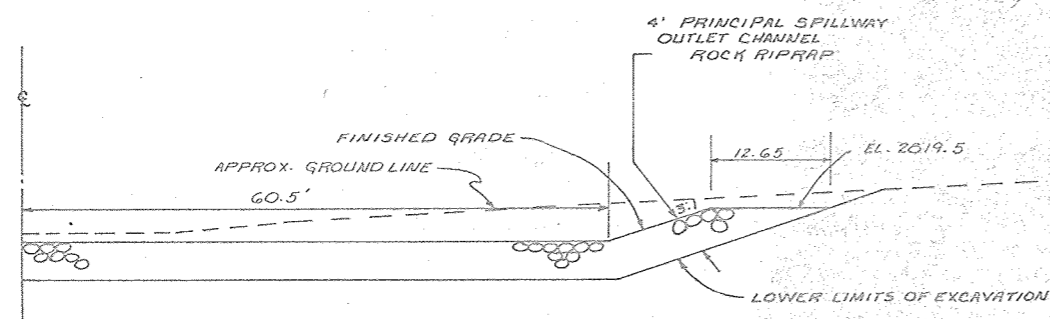
SECTION A-A
STA. 5+52



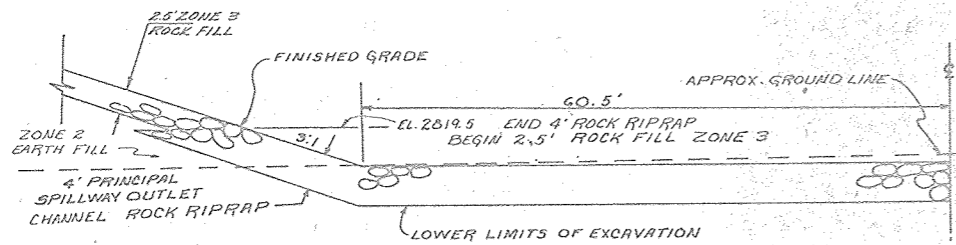
SECTION B-B
STA. 5+70



SECTION C-C
STA. 6+05



SECTION D-D
STA. 6+55



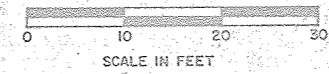
SECTION E-E
STA. 7+25

PRINCIPAL SPILLWAY OUTLET CHANNEL ROCK RIPRAP GRADATION

SIZE OF ROCK LBS.	% SMALLER BY WEIGHT
1350	100
700	75 - 90
400	50 - 75
120	25 - 55
6	0 - 15

APPROXIMATELY 5% BY WEIGHT SHALL BE SPALLS, FINES AND ROCK CHIPS. THE LEAST DIMENSION OF AN INDIVIDUAL ROCK FRAGMENT SHALL NOT BE LESS THAN ONE-THIRD OF THE GREATEST DIMENSION OF THE FRAGMENT. (SEE CONSTRUCTION SPECIFICATION 61.) APPROXIMATELY 3720 C.Y. ROCK RIPRAP REQUIRED FOR PRINCIPAL SPILLWAY OUTLET CHANNEL.

NOTES:
ZONE 2 EARTH FILL TO BE PLACED AND PAID FOR AS EMBANKMENT, EARTH FILL. SEE MATERIALS PLACEMENT DATA SHEET 8 FOR EARTH FILL REQUIREMENTS. SEE SHEET 18 FOR DRAIN FILL GRADATION. SEE SHEET 9 FOR ROCK FILL - ZONE 3 GRADATION.



NOTE: ALL SECTIONS LOOKING UPSTREAM.

NO CHANGE IN PLANS

AS-BUILT PLANS
CONSTRUCTION
COMPLETED 5/20/86

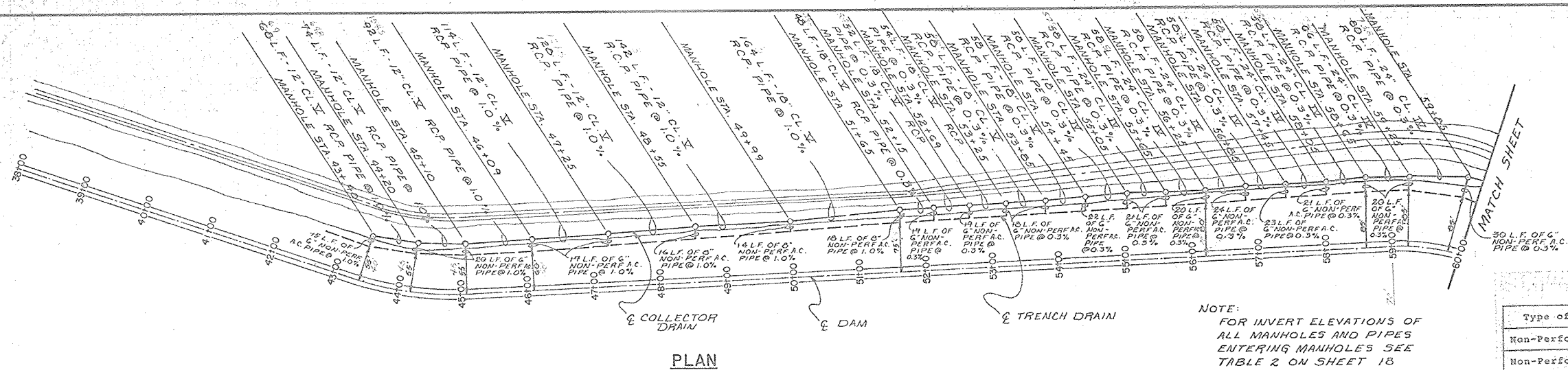


SECTIONS - STA. 5+52 TO STA. 7+25

FLOODWATER RETARDING STRUCTURE SITE NO. 11
SANDERSON CANYON WATERSHED
IN
BREWSTER, PECOS AND TERRELL COUNTIES, TEXAS

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

Designed	G. J. M.	Date	8-80	Approved by	STATE ENGINEER, TEXAS
Drawn	C. A. N.	Date	8-80	Checked	C. H. S.
Traced	C. A. N.	Date	8-80	Sheet	No. 13 of 58
Checked	C. H. S.	Date	8-80	Drawing No.	4-E-36,794



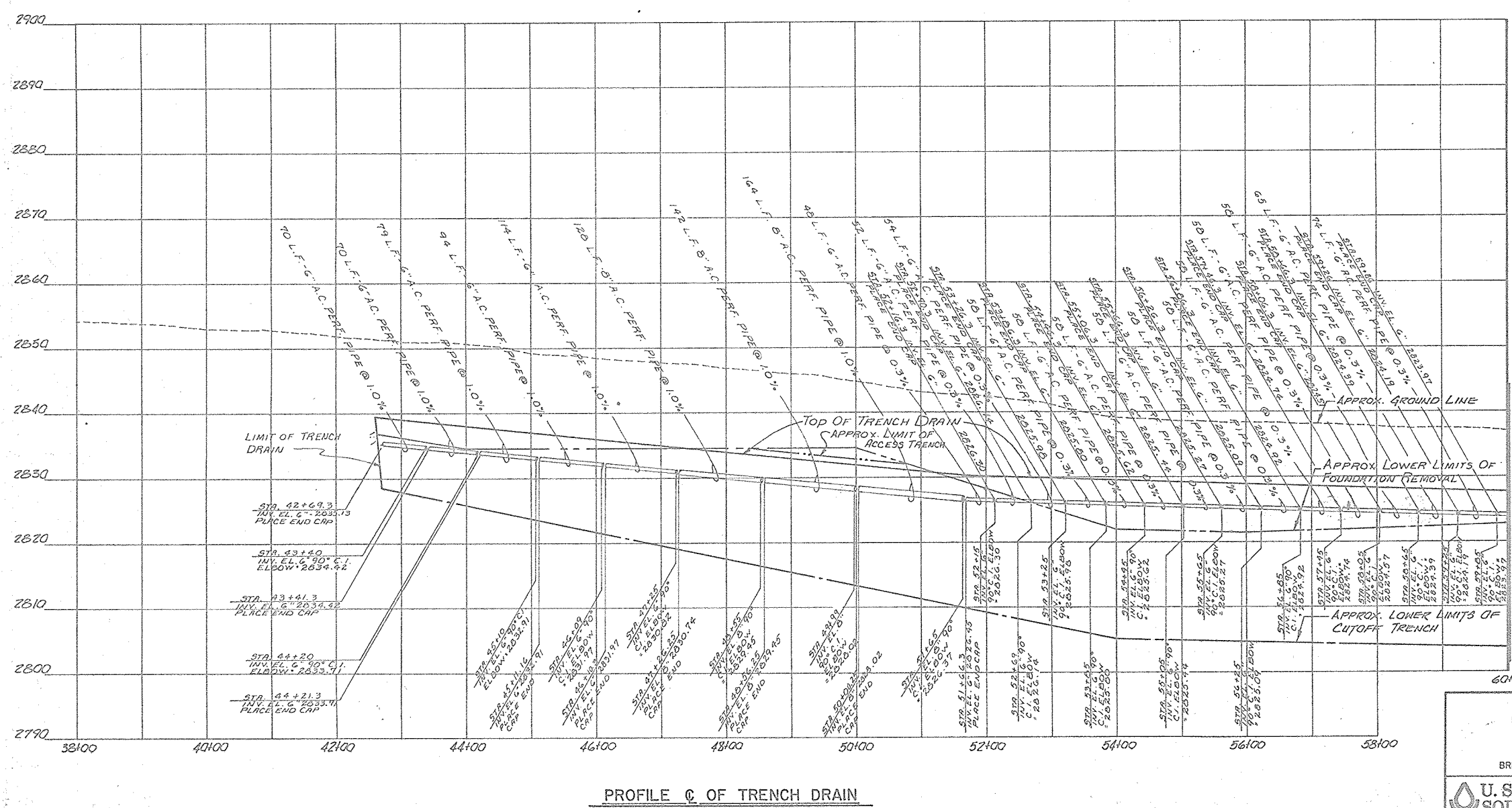
PLAN

NOTE:
FOR INVERT ELEVATIONS OF
ALL MANHOLES AND PIPES
ENTERING MANHOLES SEE
TABLE 2 ON SHEET 18

PIPE QUANTITY TABLE

Type of Pipe	Size	Lin. Ft.
Non-Perforated	6"	²⁰⁷⁶ 1792
Non-Perforated	8"	⁹³ 48
Perforated	6"	⁹ 3425
Perforated	8"	434
R.C.P. CL.V	12"	²⁰⁷⁶ 652
R.C.P. CL.IV	12"	52
R.C.P. CL.III	12"	⁴⁰⁷ 402
R.C.P. CL.V	18"	⁴³⁴ 434
R.C.P. CL.IV	18"	58
R.C.P. CL.IV	24"	655
R.C.P. CL.III	24"	⁸⁰ 1327
R.C.P. Manholes	36"	²²⁰ 64

Man Hole No.	Length of Lateral Pipe	Length of L Lateral Pipe
1	30.5	
2	34.5	
3	35.0	
4	32.0	
5	33.0	
6		31.5
7		29.0
8		32.5
9	32.2	
10	34.3	
11	32.5	
12	33.3	
13	37.0	
14	36.3	
15	36.2	
16	35.0	
17	38.5	
18	38.0	
19	36.0	
20	34.6	
21	34.8	
22	45.0	



PROFILE @ OF TRENCH DRAIN

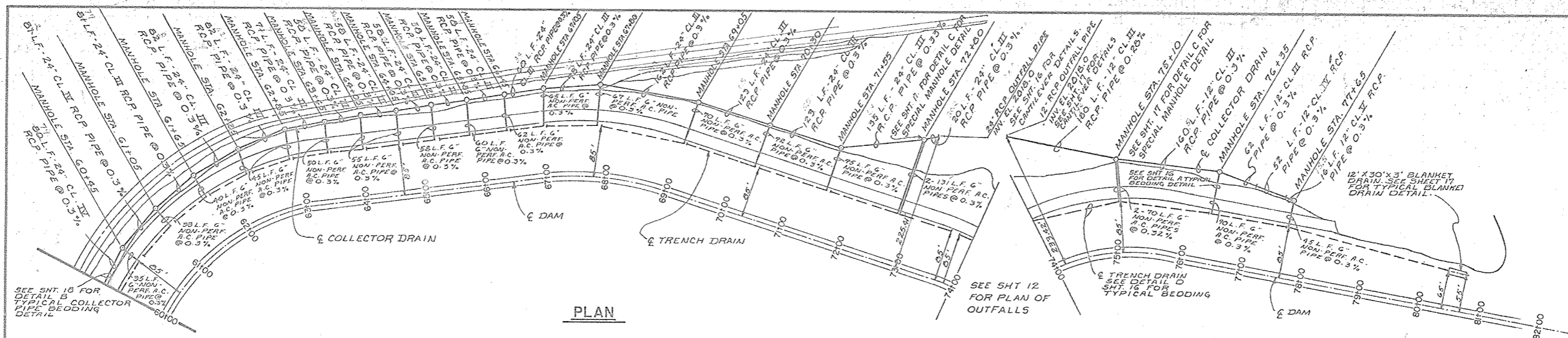
AS-BUILT PLANS
CONSTRUCTION
COMPLETED 5/20/86

EMBANKMENT FOUNDATION DRAIN
FLOODWATER RETARDING STRUCTURE SITE NO. II
SANDERSON CANYON WATERSHED
IN
BREWSTER, PECOS AND TERRELL COUNTIES, TEXAS

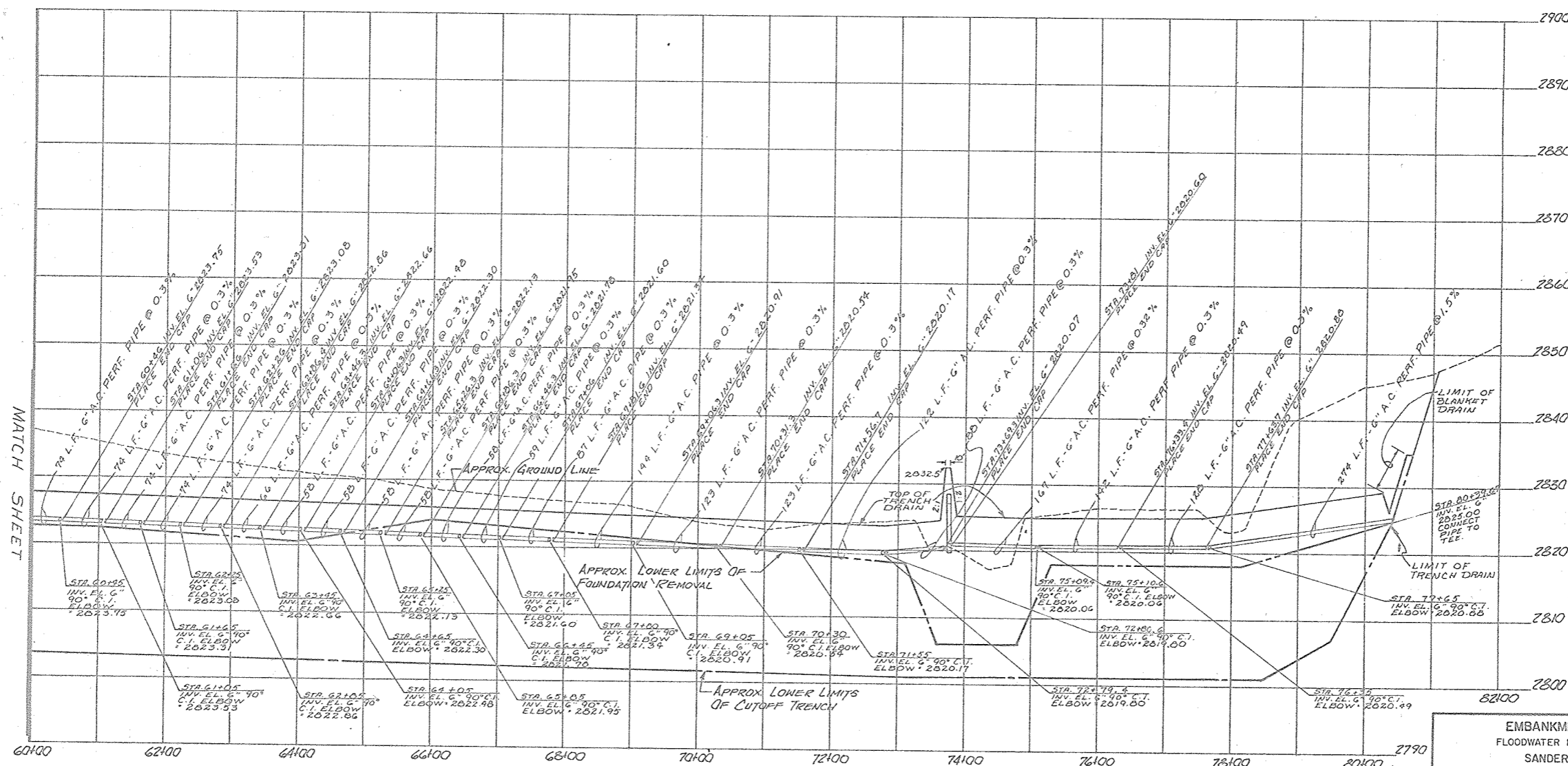


U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

Designed	C. H. S.	Date	8-80	Approved by	APR 1981
Drawn	D. O. W.		8-80	Reviewed by	APR 1981
Traced	C. A. N.		8-80	Title	MOUNTAIN - TEXAS
Checked	G. J. M.		8-80	Sheet	1 of 58
				Drawing No.	4-E-36.794



PLAN



PROFILE OF TRENCH DRAIN

Manhole No.	Length of Lateral Pipe	Length of RCP
23	35.0	
24	35.5	
25	40.2	
26	44.6	
27	44.7	
28	50.0	
29	55.0	
30	54.1	
31	56.4	
32	60.5	
33	61.5	
34	64.5	
35	67.0	
36	70.0	
37	72.2	
38	75.2	
39 A	134.0	
39 B	131.0	
40 A	70.0	
40 B	70.0	
41	70.5	
42	45.0	

AS-BUILT PLANS
CONSTRUCTION
COMPLETED 5/20/86
D.S.

STA. 80+39.67 TO 80+70
APPROX. LIMIT OF BLANKET
DRAIN. SEE SHT. 17 FOR
DETAILS E & F.

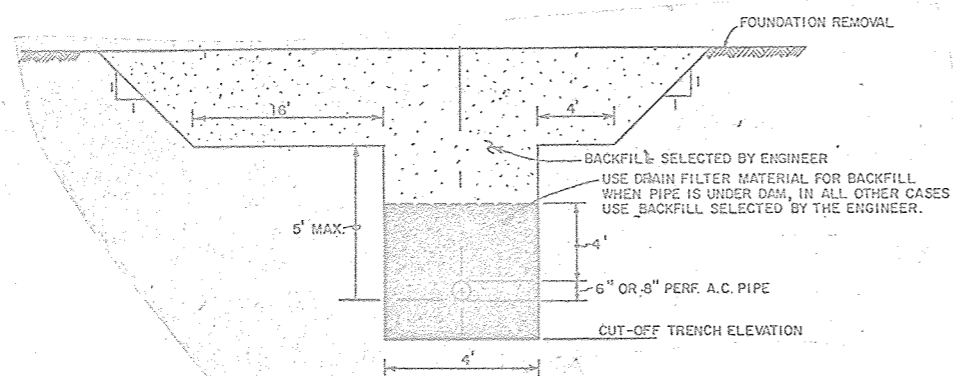


EMBANKMENT FOUNDATION DRAIN
FLOODWATER RETARDING STRUCTURE SITE NO. II
SANDERSON CANYON WATERSHED
IN
BREWSTER, PECOS AND TERRELL COUNTIES, TEXAS

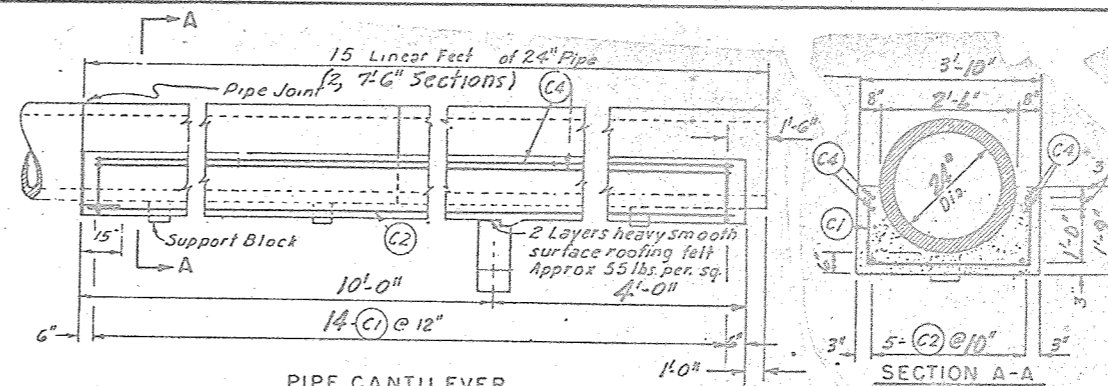
U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

Designed	C.H.S.	8-80	Approved	D.S.	8-80
Drawn	D.O.W.	8-80	Traced	C.A.N.	8-80
Checked	G.J.M.	8-80	Sheet	15	of 58
				Drawing No. 4-E-36,794	

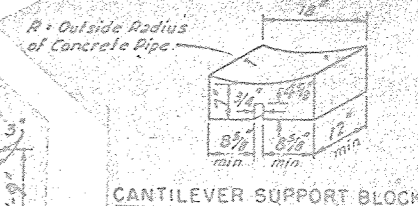
SEE SHEET 12 FOR LOCATION.



(DISTANCE FROM FOUNDATION REMOVAL
LINE TO INVERT OF DRAIN PIPE MORE
THAN 5')

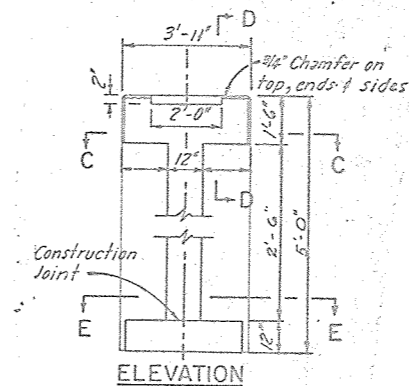


SECTION A-A

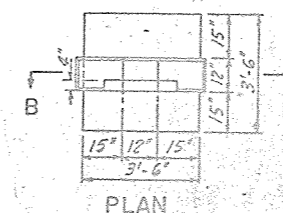


CANTILEVER SUPPORT BLOCK

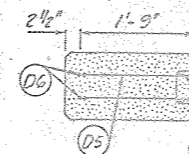
Note: Sides of Pipe Cantilever
to be formed with lumber or
metal.



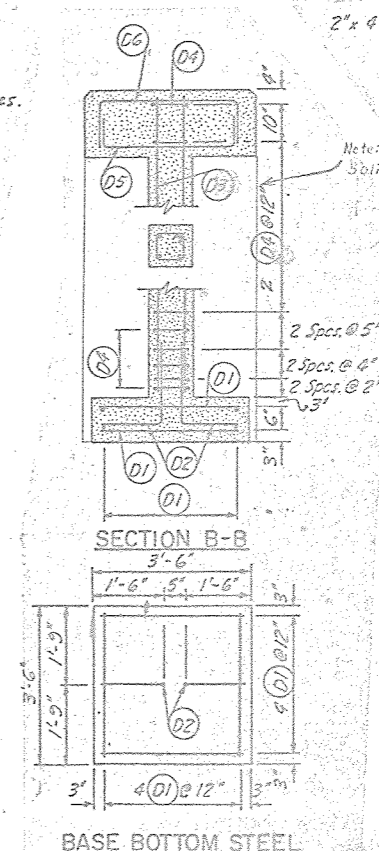
ELEVATION



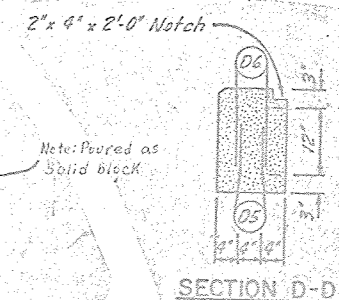
PLAN



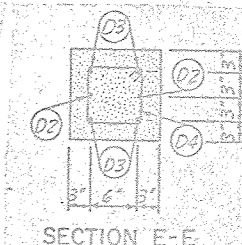
SECTION C-C



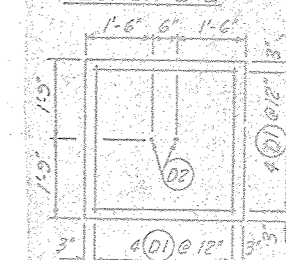
BASE BOTTOM STEEL



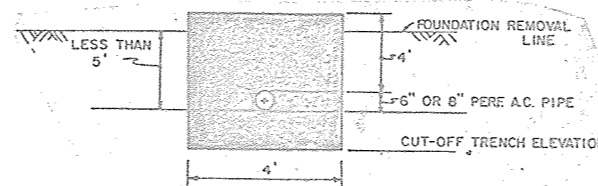
SECTION D-D



SECTION 7 - F



BASE TOP STIFFENING



TRENCH DRAIN DETAIL

(DISTANCE FROM FOUNDATION REMOVAL
LINE TO INVERT OF DRAIN PIPE LESS
THAN 5')

ALT. DETAIL D

No.	Location	Qty.	Lg th .	Total Length	Size	Type	A	B	C	D	E	F	G	H	J
C-1	Pipe Cantilever	16	6'-0"	84'-0"	4	S/D		1-4	3-4	1-A					
C-2	" "	5	13'-6"	67'-6"	5	Sfr.									
C-3	" "	0	5'-0"	0'-0"	5	Sfr.									
C-4	" "	4	13'-6"	54'-0"	7	Sfr.									
<u>Total Steel in Pipe Cantilever (Size 4) = 84'-0" = 56.11 lbs.</u>															
<u>Total Steel in Pipe Cantilever (Size 5) = 67'-6" = 70.40 lbs.</u>															
<u>Total Steel in Pipe Cantilever (Size 7) = 54'-0" = 110.32 lbs.</u>															
<u>Total Steel = 236.89 lbs.</u>															
<u>Total Reinforced Concrete in Pipe Cantilever = 2.20 cu. yds.</u>															
D-1	Cantilever Support	16	3'-1"	43'-4"	4	Sfr.									
D-2	" "	2	3'-3"	7'-6"	6	Z	2-6	1-3							
D-3	" "	4	13'-9"	15'-0"	6	Sfr.									
D-4	" "	18	3'-2"	25'-4"	3	T-1	0-4	0-7½	0-7½	0-7½				0-4'	
D-5	" "	2	4'-11"	9'-10"	4	Z	0-9	3-5						0-9'	
D-6	" "	2	5'-7"	11'-2"	6	Z	1-0	3-9						1-0'	
<u>Total Steel in Pipe Cantilever Support (Size No. 3) = 15'-0" = 5.64 lbs.</u>															
<u>Total Steel in Pipe Cantilever Support (Size No. 4) = 59'-2" = 33.52 lbs.</u>															
<u>Total Steel in Pipe Cantilever Support (Size No. 6) = 44'-4" = 66.60 lbs.</u>															
<u>Total Steel = 164.40 lbs.</u>															
<u>Total Reinforced Concrete in Pipe Cantilever Support = .77 cu. yds.</u>															

Pipe Notes:

1. Pipe supplied will be manufactured in accordance with the standards for ASTM C-7, Class I, Class IV, Class V, Wall B, having the respective D-load capacities of not less than 1350, 2000, 3000 lbs. at the .01" crack.
2. Elliptical reinforcement will not be permitted.
3. Pipe supplied with joint dimensions different from those shown shall be approved by the Engineer.

NOISE-REDUCING HEADPHONES

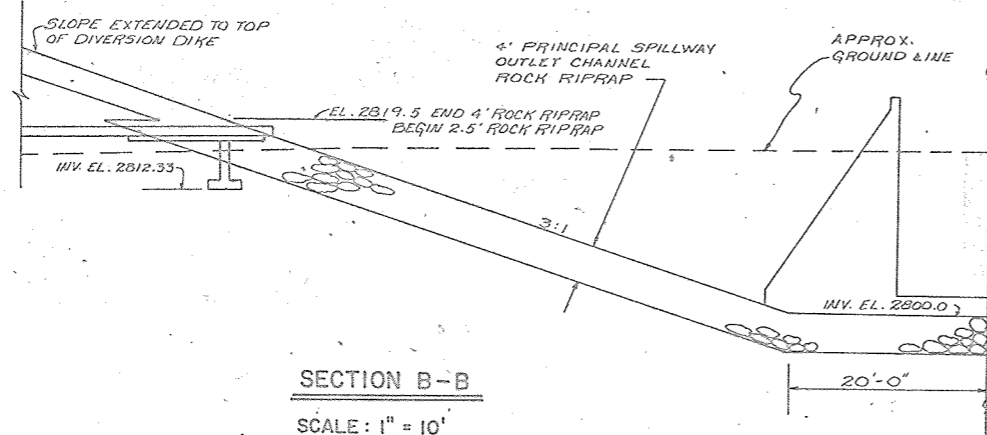
EMBANKMENT FOUNDATION DRAIN
FLOODWATER RETARDING STRUCTURE SITE NO. 11
SANDERSON CANYON WATERSHED
IN
BREWSTER, PECOS, AND TERRELL COUNTIES TEXAS



U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

Designed	C. H. S.	8-80	Date <u>5/27</u> Approved by <u>STATE CONSERVATION ENGINEER - C-2</u> Title <u>6-2011</u> <u>BLUM ENGINEERING CORP</u> <u>HOUSTON, TEXAS</u> Title _____ Sheet _____ Drawing No. _____
Drawn	C. H. S.	8-80	No. <u>16</u> <u>56</u> 4-E-36794
Traced	C. A. N.	8-80	
Checked	G. J. M.	8-80	

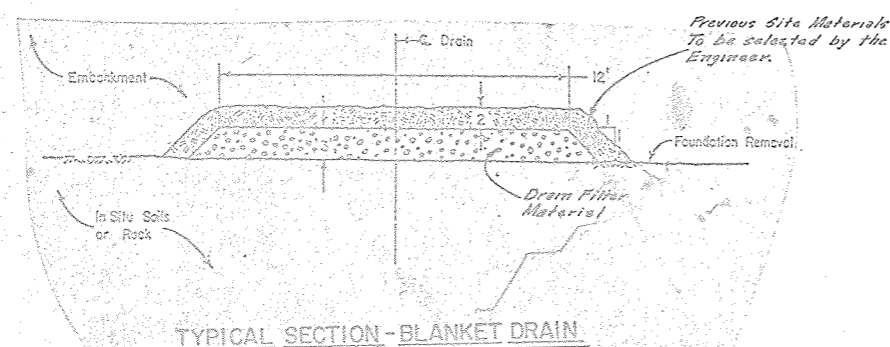
@ DAM STA. 74 + 14.79
12" Ø TYPE V TOE DRAIN OUTLET
INV. EL. 2818.0



SECTION B-B

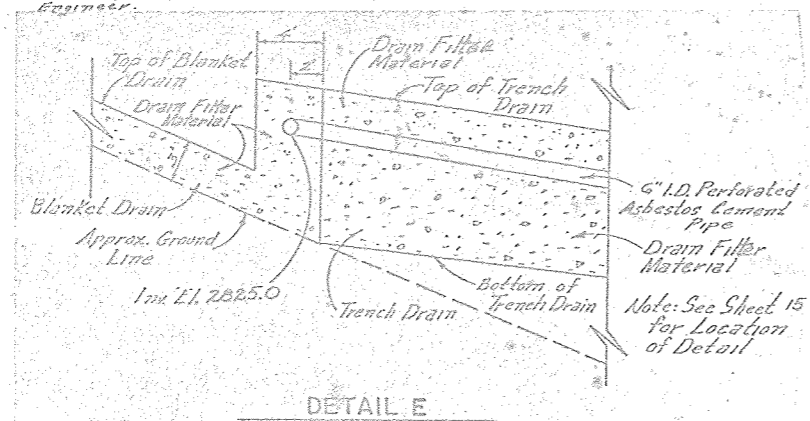
SCALE : 1" = 10'

SEE SHEET 12 FOR LOCATION.

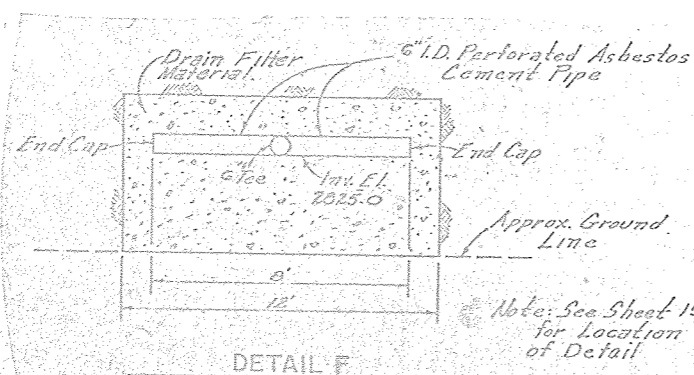


TYPICAL SECTION - BLANKET DRAIN

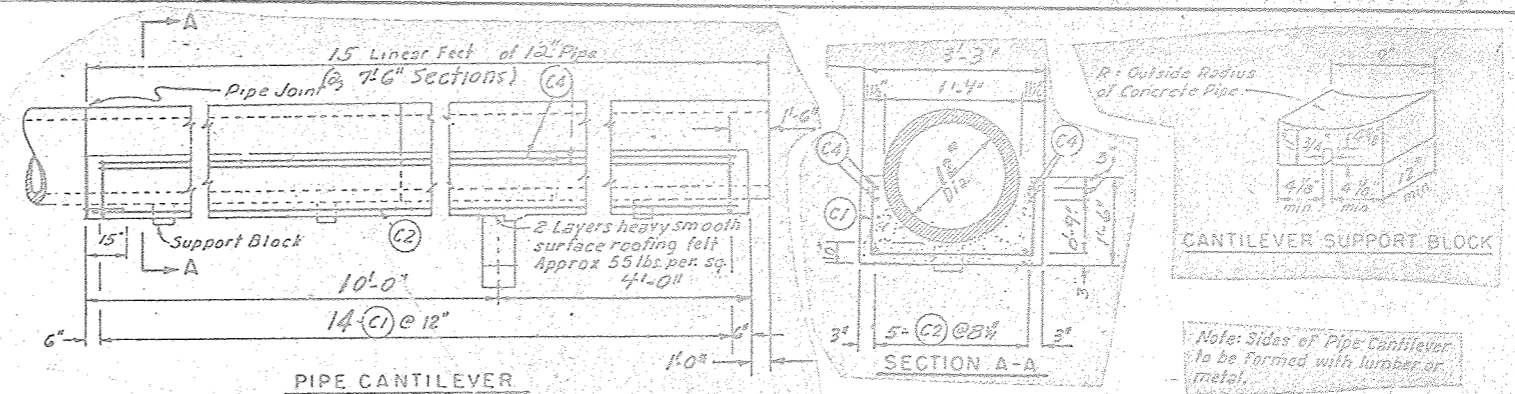
NOTE:
Place 2 Ft. of relatively pervious on-site materials,
on the drain filter material as directed by the
Engineer.



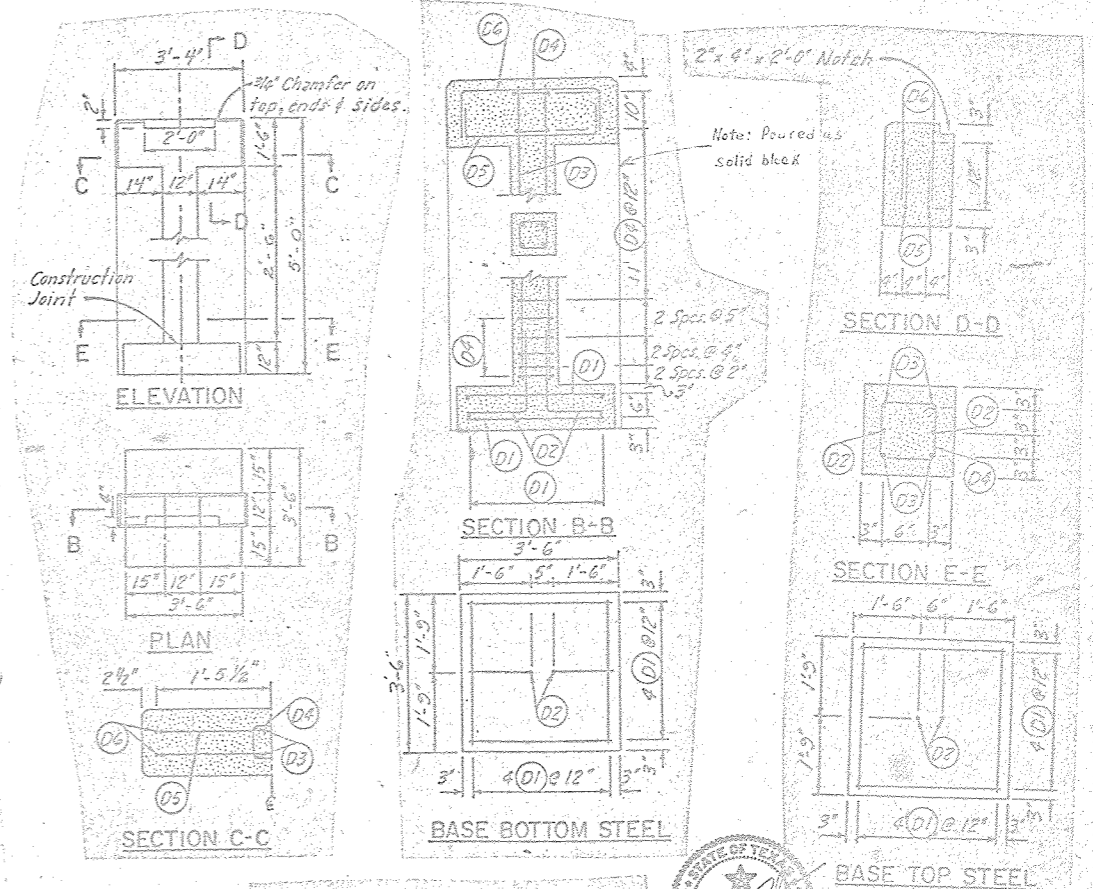
DETAILS



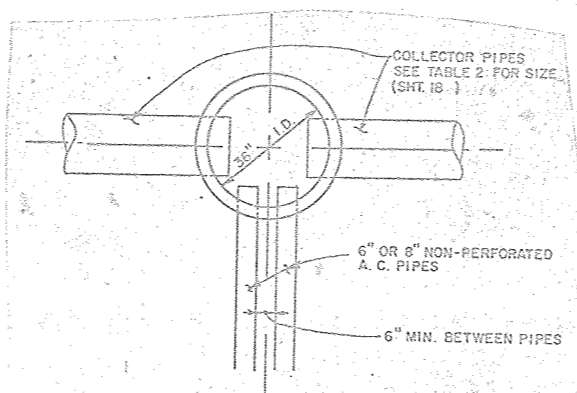
DETAILS



PIPE CANTILEVER



PIPE CANTILEVER SUPPORT



DETAIL C

[illegible]

Line Notes:

1. Pipe supplied will be manufactured in accordance with the standard for ASTM C-78, Class III, class IV, C150, V, Wall B having the respective D-load capacities of not less than 1350, 2000, 3000 lbs. at the .01" crack.
2. Elliptical reinforcement will not be permitted.
3. Pipe supplied with joint dimensions different from those shown shall be approved by the Engineer.

AT-BUILT PLANS
CONSTRUCTION
COMPLETED 5/20/86

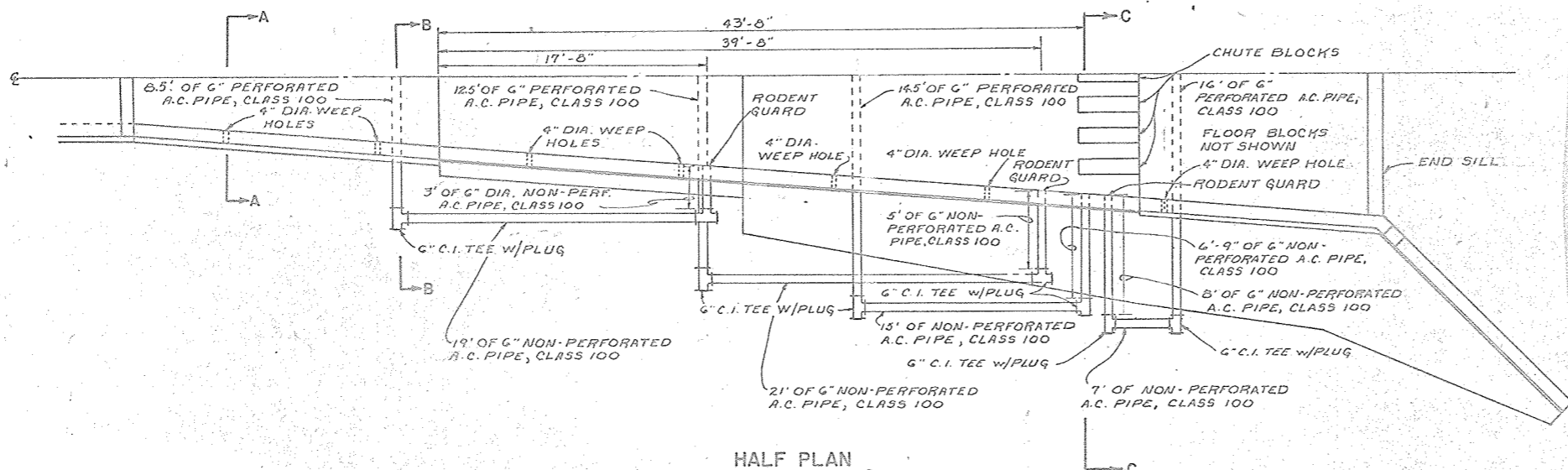
EMBANKMENT FOUNDATION DRAIN
FLOODWATER RETARDING STRUCTURE SITE NO 11
SANDERSON CANYON WATERSHED
IN
BREWSTER, PECOS, AND TERRELL COUNTIES TEXAS



U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

Design'd	C.H.S.	Date	8-90	Approved	<i>[Signature]</i>
Draw'n	C.H.S.	8-90	Title	4-E-36,794	
Trace'd	C.A.N.	8-90	Scale	AS BUILT	
Checked	E.J.M.	8-90	Sheet	1 of 1	
			No. 17	4-E-36,794	
			58		

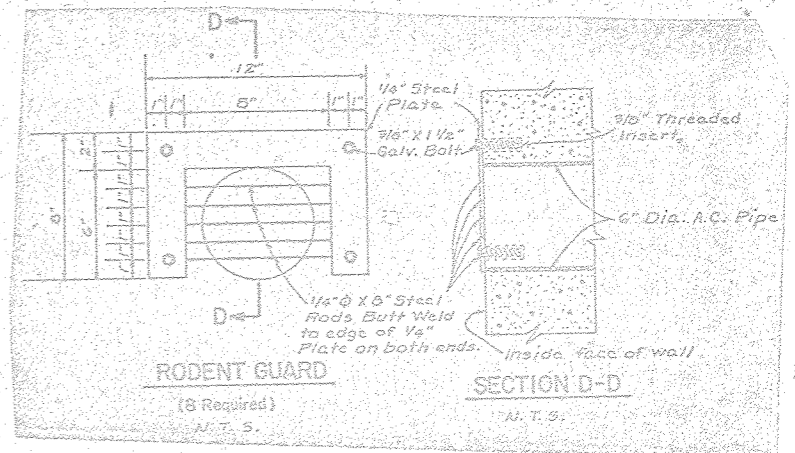




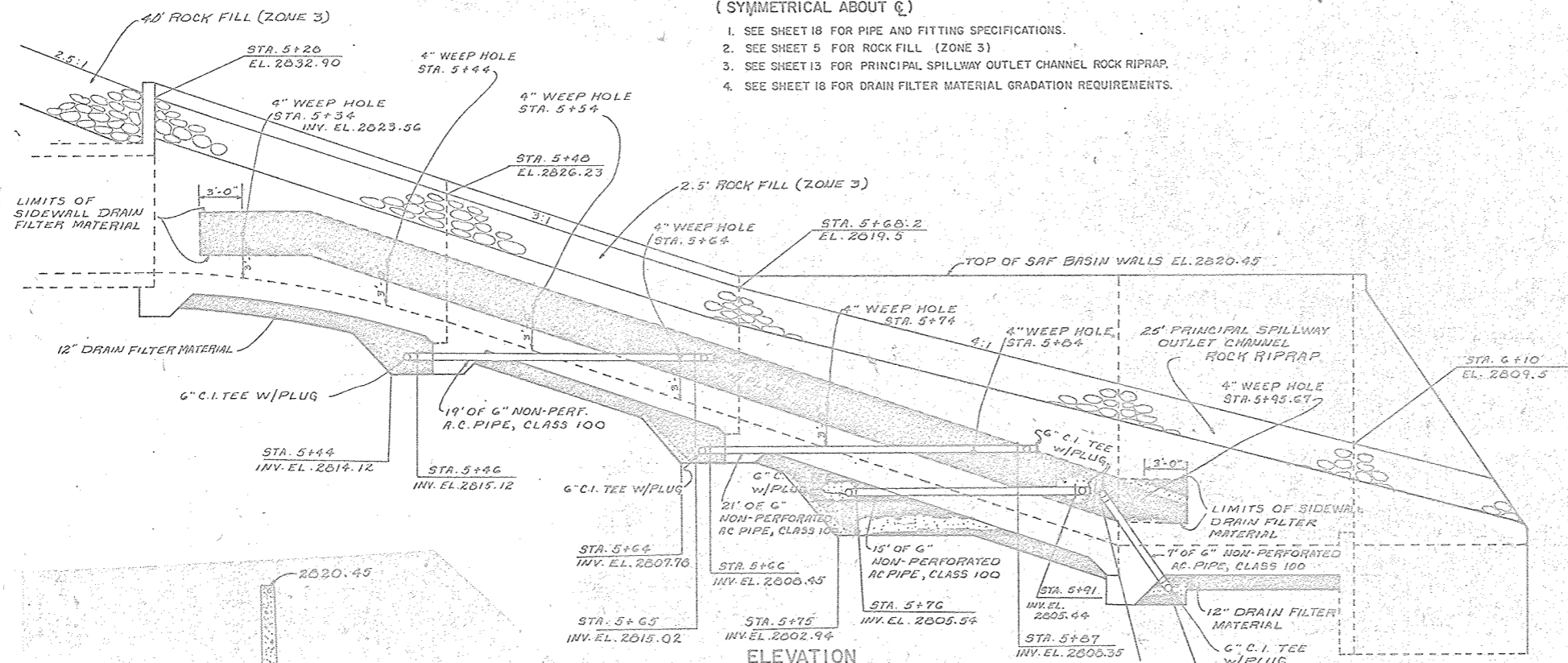
HALF PLAN

(SYMMETRICAL ABOUT C.)

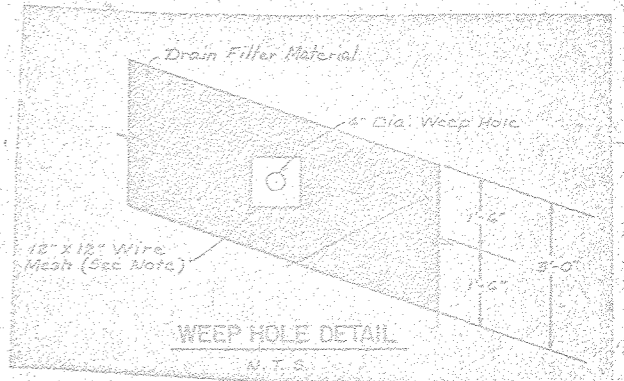
1. SEE SHEET 18 FOR PIPE AND FITTING SPECIFICATIONS.
2. SEE SHEET 5 FOR ROCK FILL (ZONE 3)
3. SEE SHEET 13 FOR PRINCIPAL SPILLWAY OUTLET CHANNEL ROCK RIPRAP.
4. SEE SHEET 18 FOR DRAIN FILTER MATERIAL GRADATION REQUIREMENTS.



NOTE: RODENT GUARD SHALL BE GALVANIZED AFTER FABRICATION.



ELEVATION

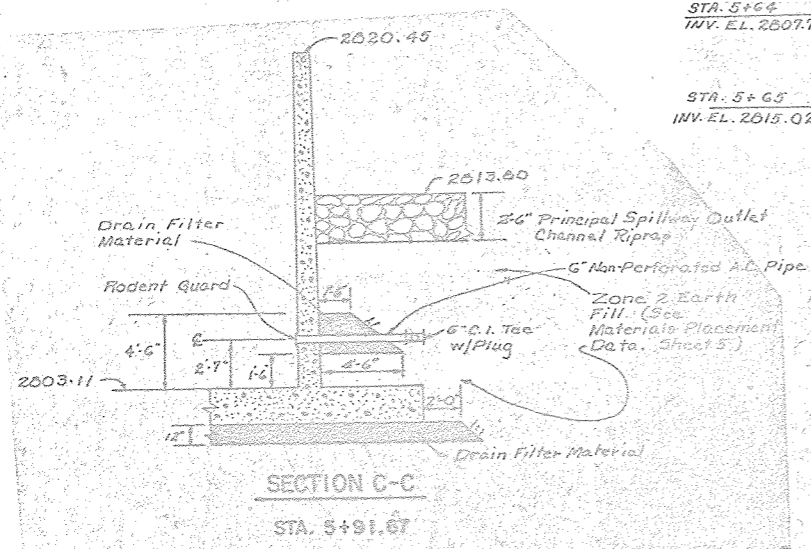


NOTE: A 12" X 12" NO. 4 MESH 12 GAGE COPPER WIRE CLOTH SCREEN SHALL BE PLACED BETWEEN THE DRAIN FILL AND THE WALL OF THE STRUCTURE AT EACH WEEP HOLE. SECURE THE SCREEN TO THE WALL WITH ASPHALTIC MASTIC PRIOR TO PLACING DRAIN FILL.

NO CHANGES IN PLANS

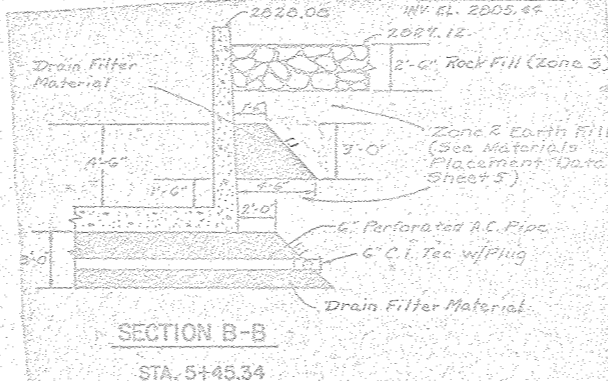
A3-BUILT PLANS
CONSTRUCTION
COMPLETED 5/20/86

0 1 2 3 4 5
SCALE IN FEET



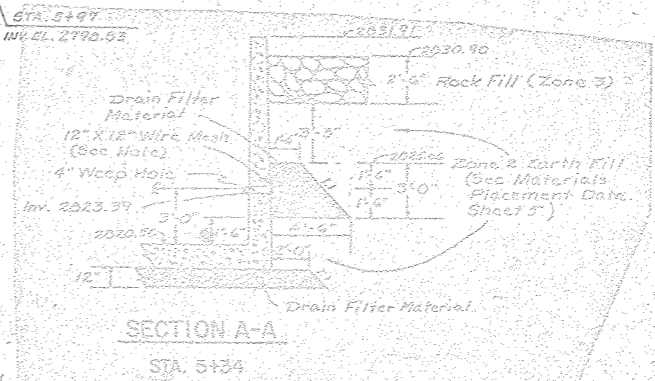
SECTION C-C

STA. 5+91.67



SECTION B-B

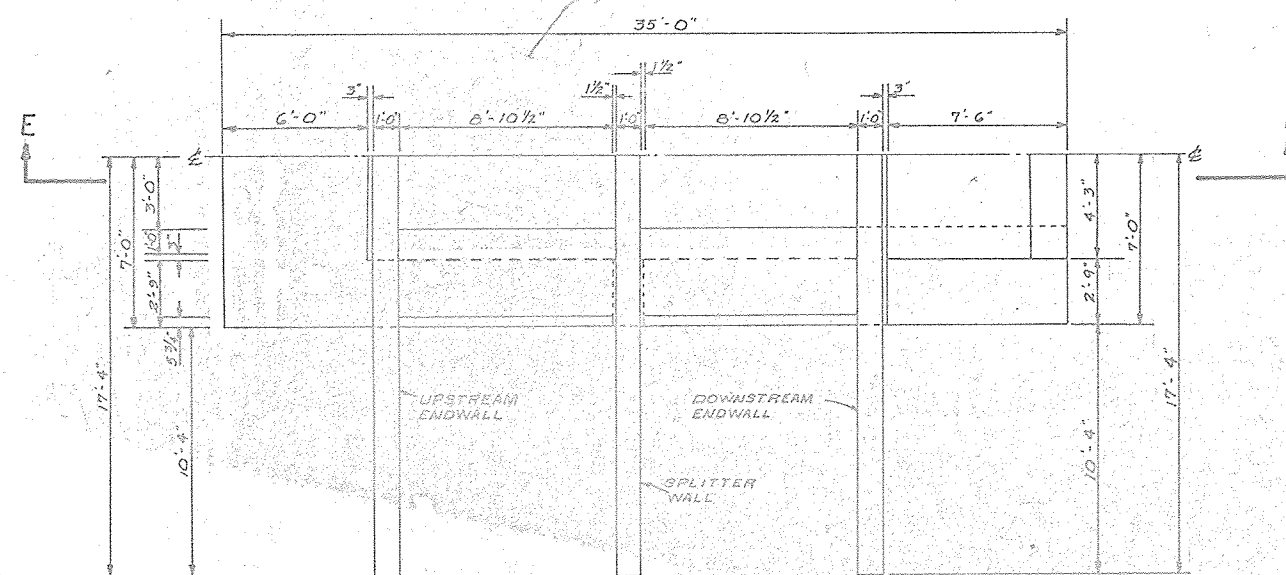
STA. 5+45.34



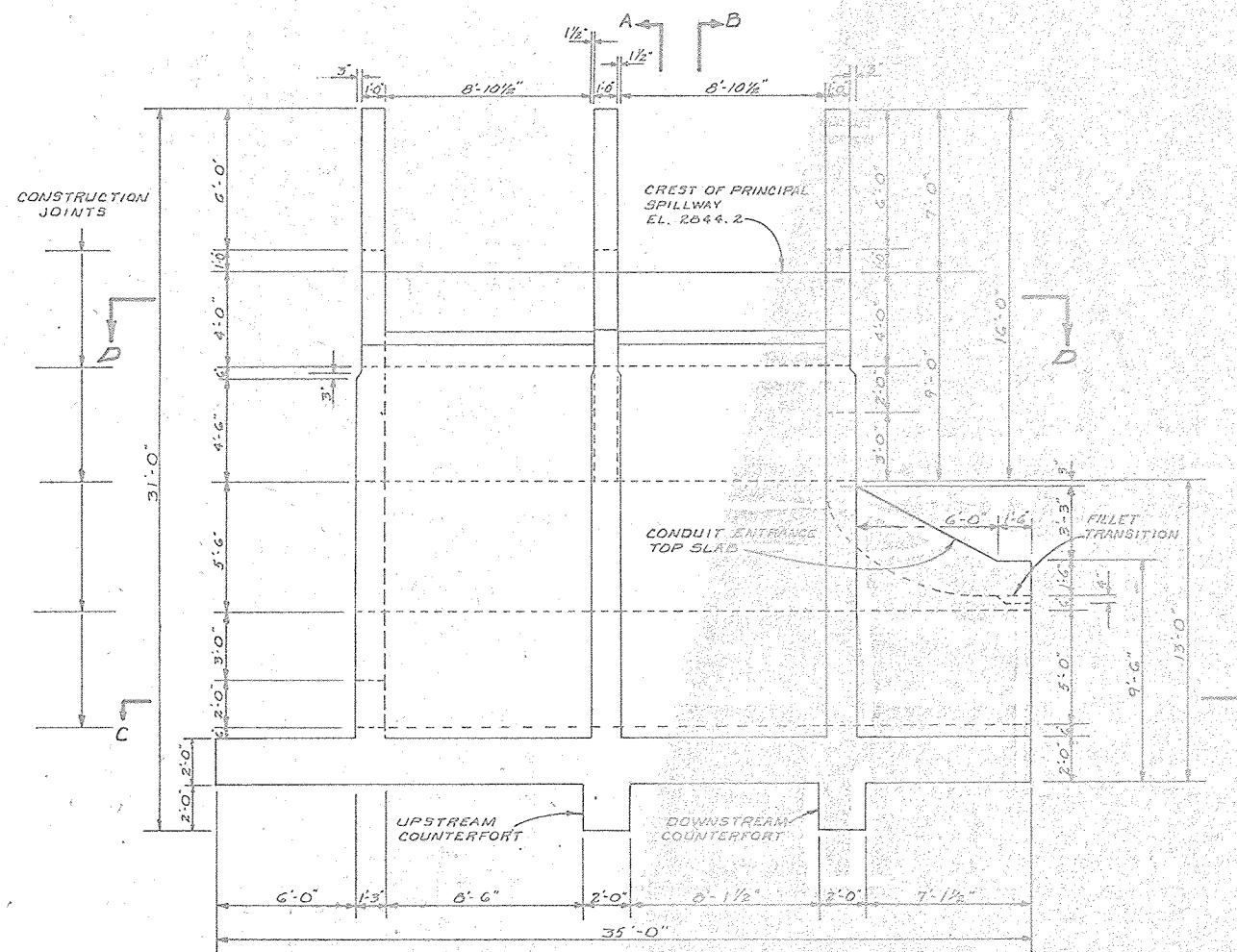
SECTION A-A

STA. 5+34

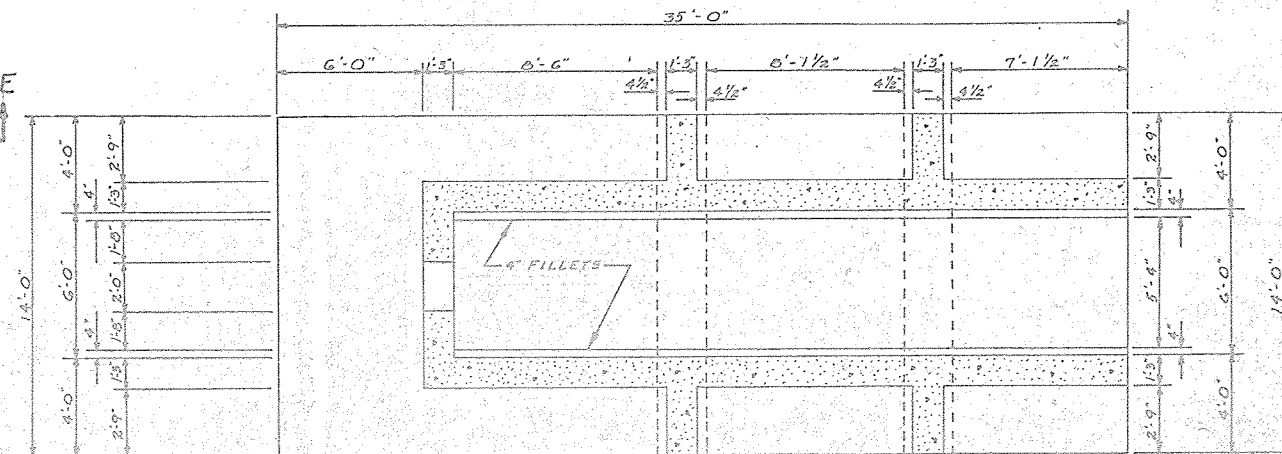
S.F. DRAIN DETAILS FLOODWATER RETARDING STRUCTURE SITE NO. 11 SANDERSON CANYON WATERSHED IN BREWSTER, PECOS AND TERRELL COUNTIES, TEXAS			
U. S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE			
Designed	G.J.M.	Date	8-80
Drawn	C.A.N.	Date	8-80
Traced	C.A.N.	Date	8-80
Checked	C.H.S.	Date	8-80
Title		No. 19 of 58	
Drawing No.		4-E-36,794	



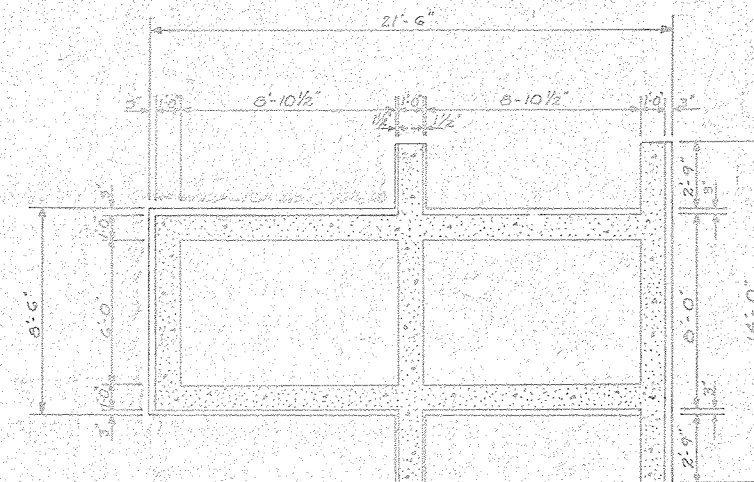
HALF PLAN TOP



SIDEWALL ELEVATION



SECTION C-C



SECTION D-D

NOTES: SEE SHEET 33 FOR CONSTRUCTION JOINT AND SHEAR PLATE DETAILS.
SEE SHEET 33 FOR TRASH RACK FORMING DETAILS.
FOR SECTION A-A, SECTION B-B & SECTION E-E SEE SHEET 21.
SEE SHEET 21 FOR CONDUIT ENTRANCE CURVE DATA.

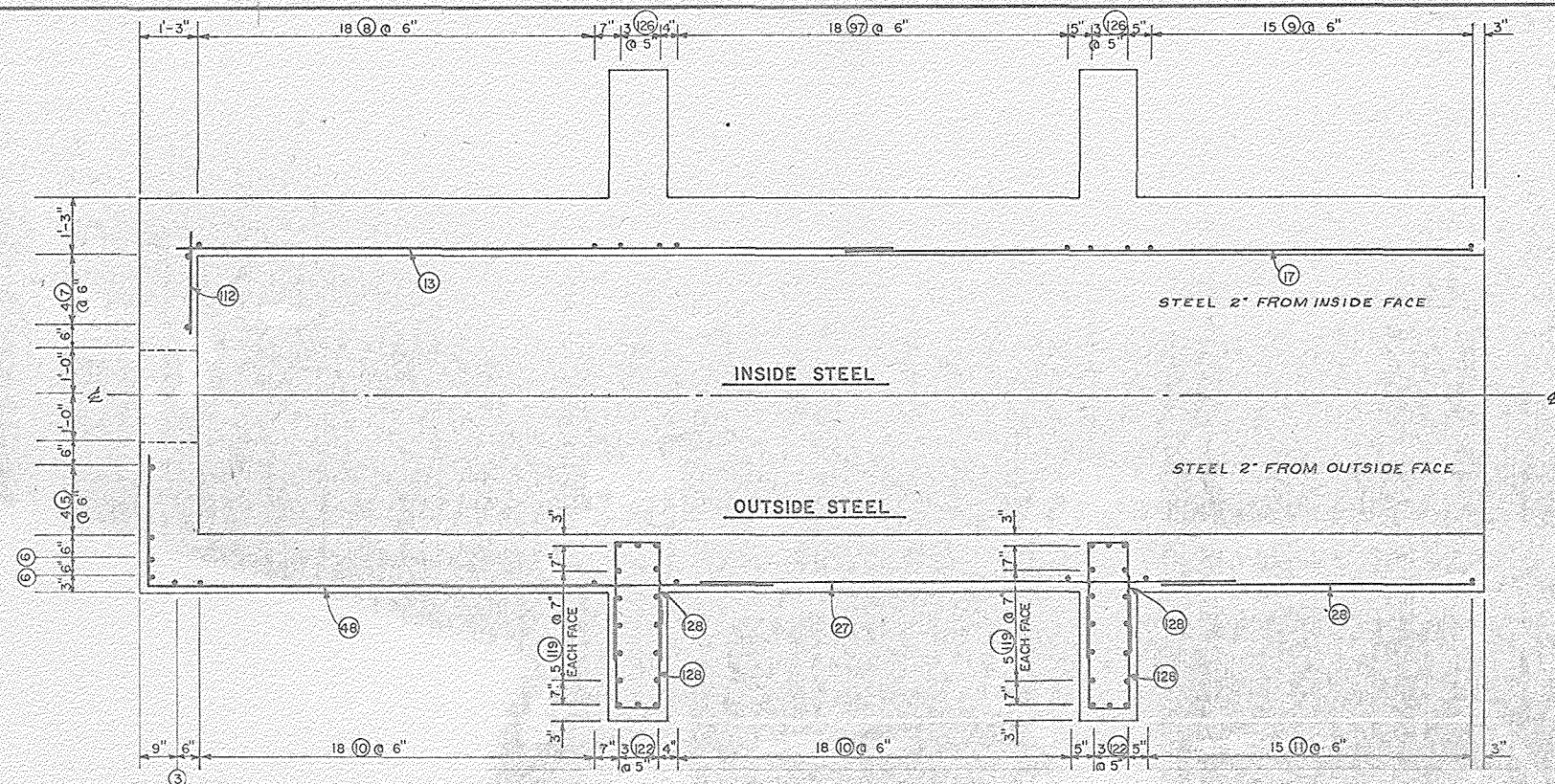
SCALE IN FEET
0 2 3 4 5

NO CHANGE IN PLANS

AS-BUILT PLANS
CONSTRUCTION
COMPLETED 5/20/86
B.H.

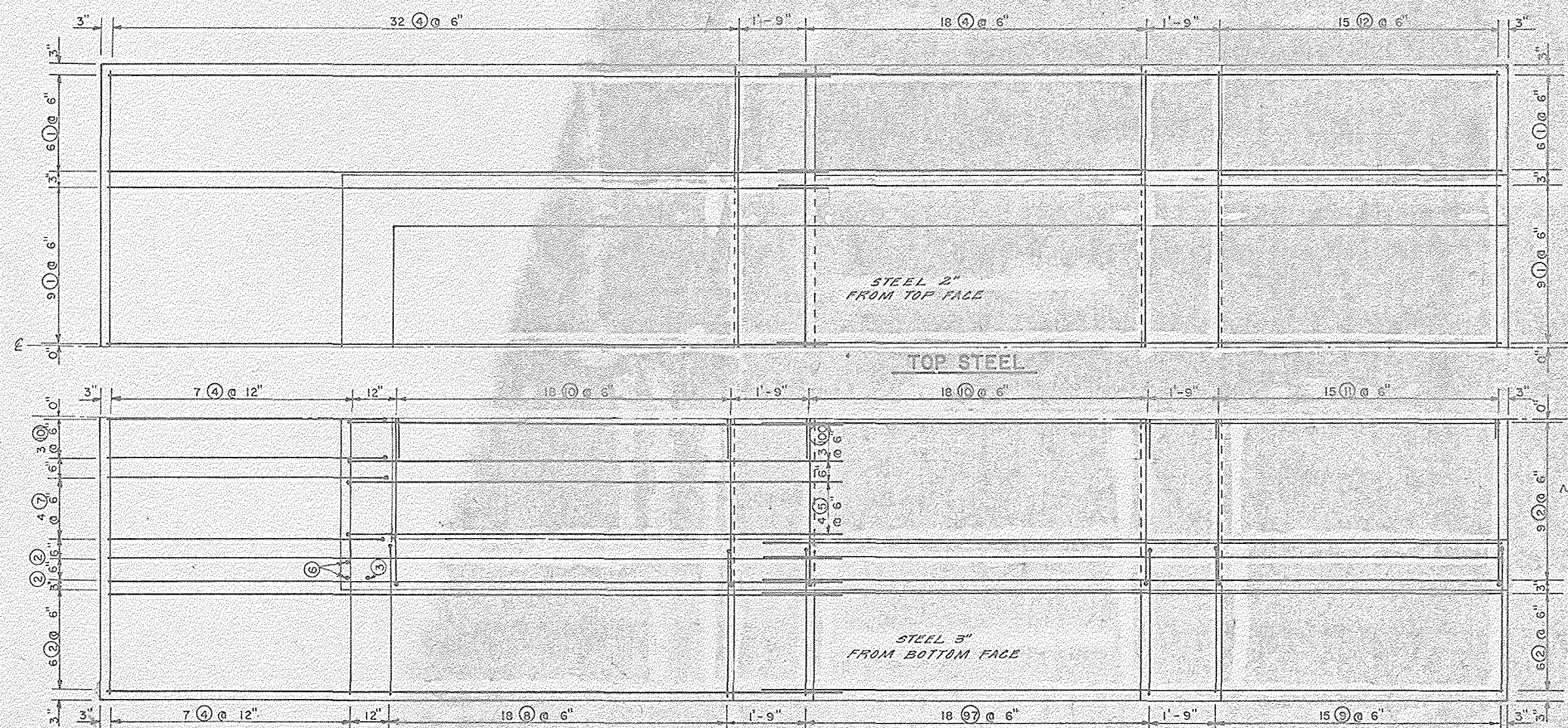


PRINCIPAL SPILLWAY INLET FLOODWATER RETARDING STRUCTURE (SITE NO. 21) SANDERSON CANYON WATERSHED IN BREWSTER, PECOS AND TERRELL COUNTIES, TEXAS			
U. S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE			
Designed	G.J.M.	Date	8-80
Drawn	C.A.N.	Date	8-80
Traced	C.A.N.	Date	8-80
Checked	C.H.S.	Date	8-80
Sheet No. 20 of 58		4-E-36,794	



SECTION A-A

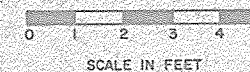
NOTE: SEE SHEET 23 & 24 FOR
LOCATION OF SECTION A-A



FLOOR SLAB PLAN

NOTE: SEE SHEET 23 FOR
STEEL PLACEMENT IN UPSTREAM
COUNTERFORT

NOTE: SEE SHEET 27 FOR
STEEL PLACEMENT IN DOWNSTREAM
COUNTERFORT



NOTE: STEEL SYMMETRICAL
ABOUT C

NO CHANGE IN PLANS

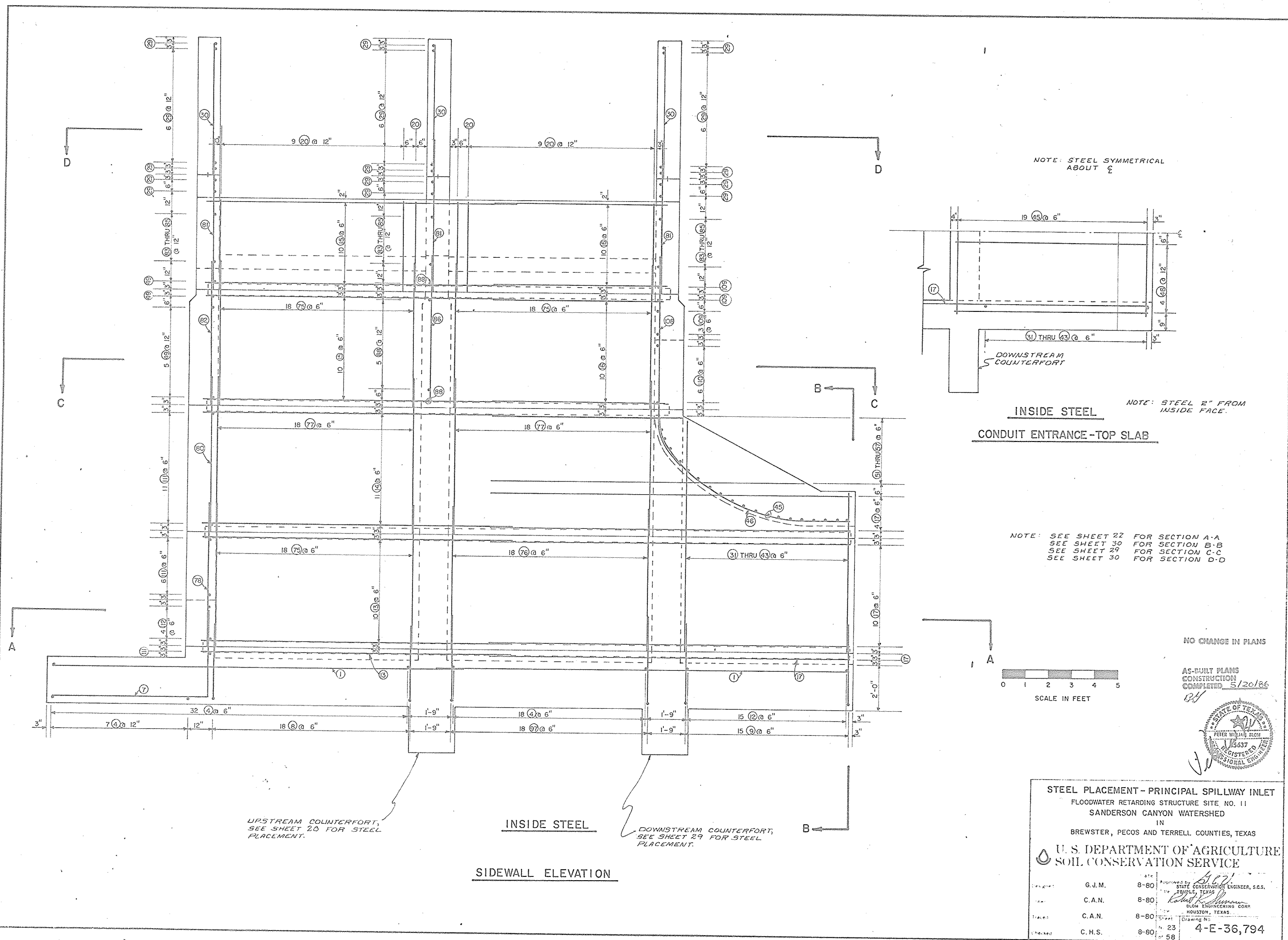
AS-BUILT PLANS
CONSTRUCTION
COMPLETED 5/20/86

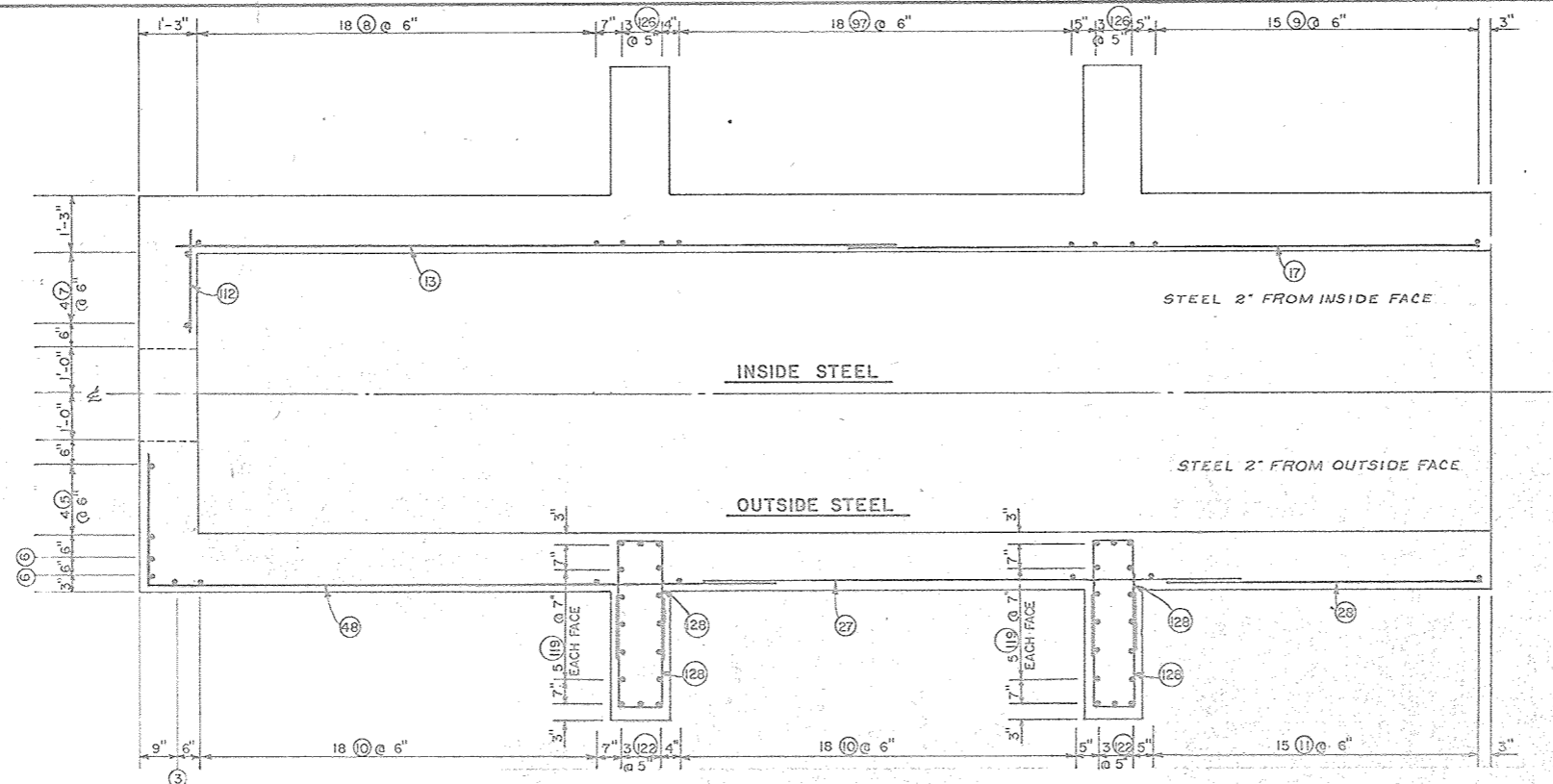


STEEL PLACEMENT - PRINCIPAL SPILLWAY INLET
FLOODWATER RETARDING STRUCTURE SITE NO. 11
SANDERSON CANYON WATERSHED
IN
BREWSTER, PECOS AND TERRELL COUNTIES, TEXAS

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

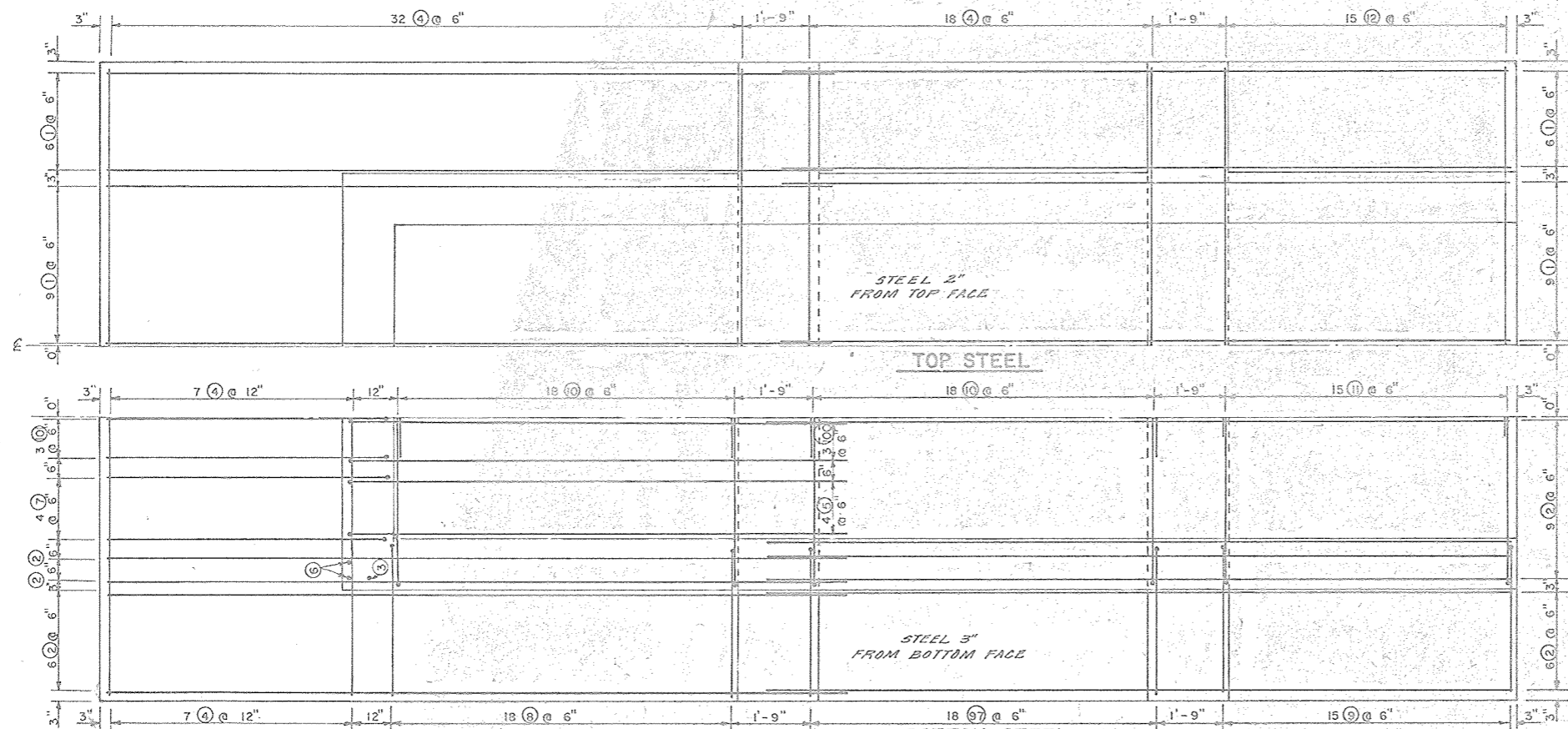
Designed	G. J. M.	Date	8-80	Approved by	[Signature]
Drawn	C. A. N.	Date	8-80	Title	SOIL CONSERVATION ENGINEER, S.C.S.
Traced	C. A. N.	Date	8-80	File	4001-2000000-0000
Checked	C. H. S.	Date	8-80	Sheet	No. 22 of 58
				Drawing No.	4-E-36,794





SECTION A-A

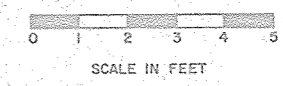
NOTE: SEE SHEET 23 & 24 FOR LOCATION OF SECTION A-A



TOP STEEL
BOTTOM STEEL
FLOOR SLAB PLAN

NOTE: SEE SHEET 28 FOR STEEL PLACEMENT IN UPSTREAM COUNTERFORT.

NOTE: SEE SHEET 29 FOR STEEL PLACEMENT IN DOWNSTREAM COUNTERFORT.

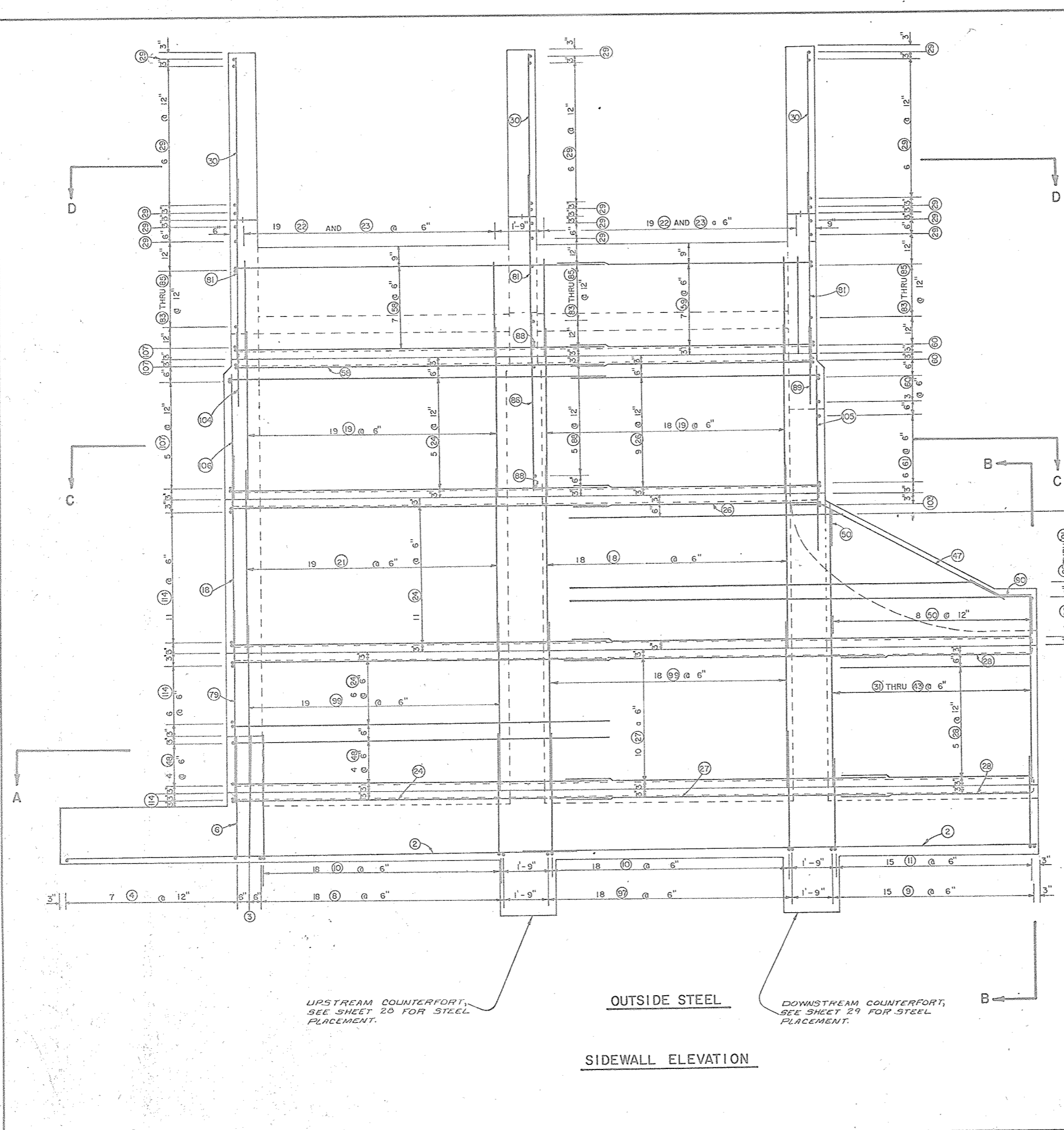


NOTE: STEEL SYMMETRICAL ABOUT C

NO CHANGE IN PLANS
AS-BUILT PLANS
CONSTRUCTION
COMPLETED 5/20/66
RU

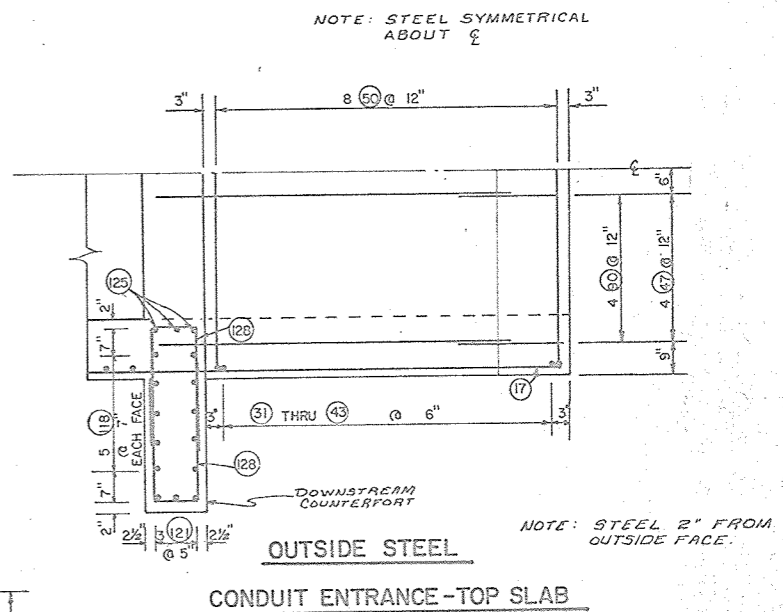


STEEL PLACEMENT - PRINCIPAL SPILLWAY INLET			
FLOODWATER RETARDING STRUCTURE SITE NO. 11			
SANDERSON CANYON WATERSHED			
IN			
BREWSTER, PECOS AND TERRELL COUNTIES, TEXAS			
U. S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE			
Designed.....	G. J. M.	Date	8-80
Drawn.....	C. A. N.	Approved by.....	8-80
Traced.....	C. A. N.	Checked.....	8-80
Checked.....	C. H. S.	Sheet	No. 22 of 58
Drawing No.			4-E-36,794

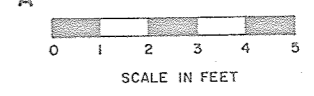


UPSTREAM COUNTERFORT, SEE SHEET 28 FOR STEEL PLACEMENT.

DOWNSTREAM COUNTERFORT, SEE SHEET 29 FOR STEEL PLACEMENT.



NOTE: SEE SHEET 22 FOR SECTION A-A
 SEE SHEET 30 FOR SECTION B-B
 SEE SHEET 29 FOR SECTION C-C
 SEE SHEET 30 FOR SECTION D-D



NO CHANGE IN PLANS

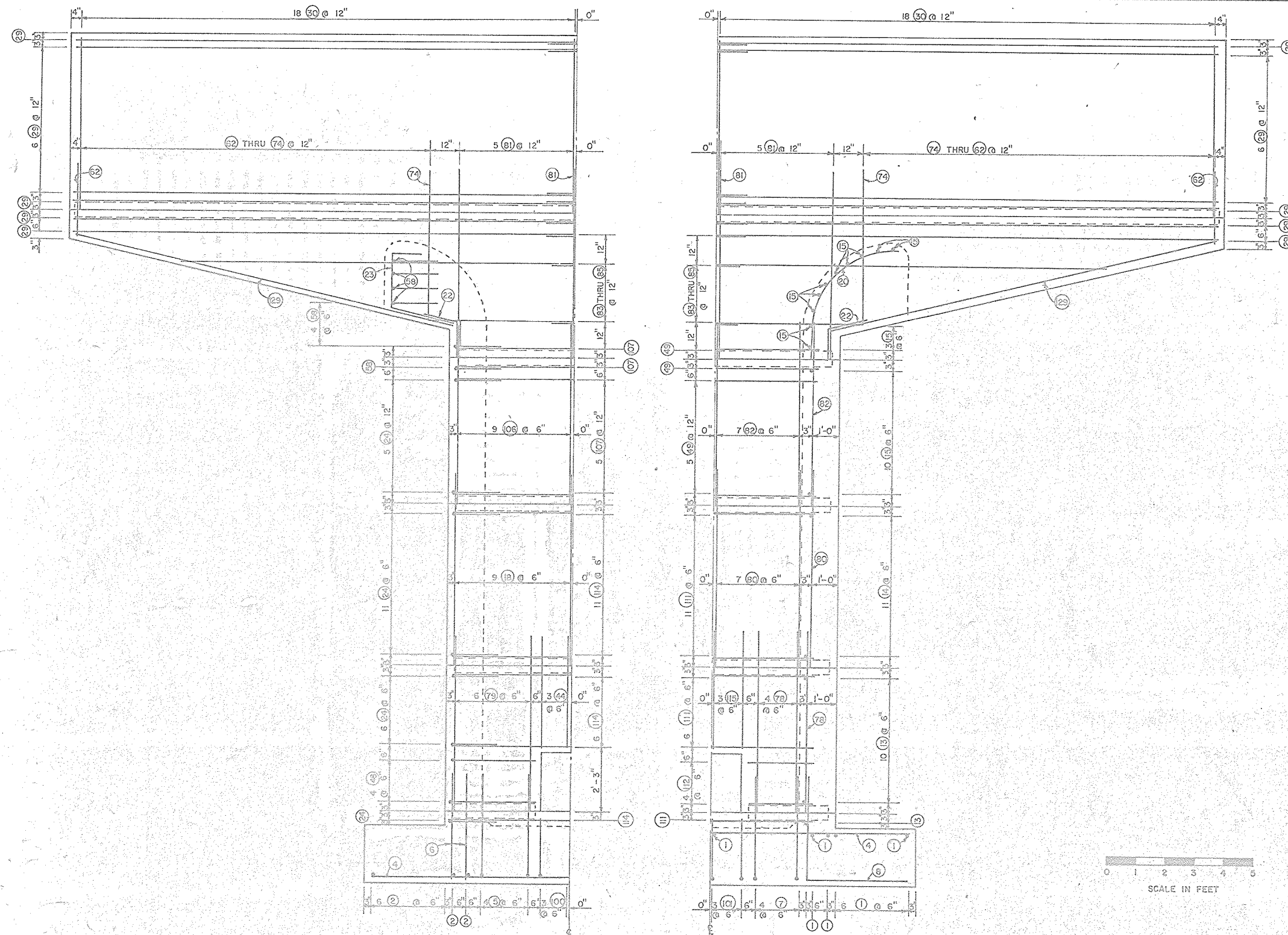
AS-BUILT PLANS
 CONSTRUCTION
 COMPLETED 5/20/86



STEEL PLACEMENT - PRINCIPAL SPILLWAY INLET
 FLOODWATER RETARDING STRUCTURE SITE NO. 11
 SANDERSON CANYON WATERSHED
 IN
 BREWSTER, PECOS AND TERRELL COUNTIES, TEXAS

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

Designed	G.J.M.	8-80	Approved by	State Conservation Engineer, S.C.S.
Drawn	C.A.N.	8-80	Checked	Blum Engineering Corp.
Traced	C.A.N.	8-80	Sheet	No. 24
Checked	C.H.S.	8-80	Drawing No.	4-E-36,794



OUTSIDE STEEL NOTE: STEEL SYMMETRICAL ABOUT C
STEEL 2" FROM OUTSIDE FACE
UPSTREAM ENDWALL

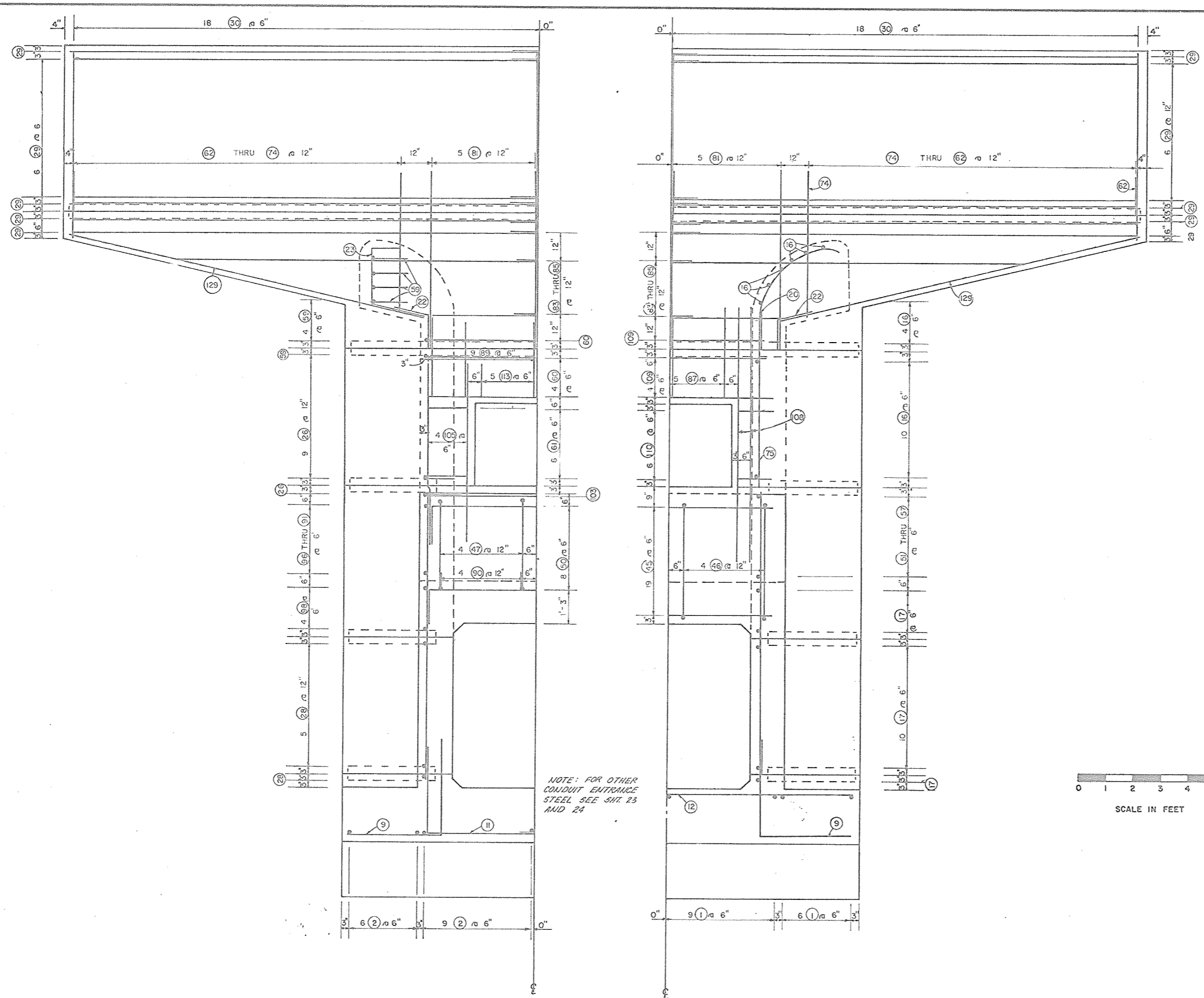
INSIDE STEEL
STEEL 2" FROM INSIDE FACE

NO CHANGE IN PLANS

AS-BUILT PLANS
CONSTRUCTION
COMPLETED 5/20/86



STEEL PLACEMENT - PRINCIPAL SPILLWAY INLET			
FLOODWATER RETARDING STRUCTURE SITE NO. 11			
SANDERSON CANYON WATERSHED			
IN			
BREWSTER, PECOS AND TERRELL COUNTIES, TEXAS			
U. S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE			
Designed	G. J. M.	Date	8-80
Drawn	C. A. N.	8-80	Approved by
Traced	C. A. N.	8-80	Checked
Checked	C. H. S.	8-80	Sheet
			Drawing No.
			4-E-36,794

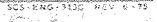


NO CHANGE IN PLANS

AS-BUILT PLANS
CONSTRUCTION
COMPLETED 5/20/86



STEEL PLACEMENT - PRINCIPAL SPILLWAY INLET FLOODWATER RETARDING STRUCTURE SITE NO. 11 SANDERSON CANYON WATERSHED IN BREWSTER, PECOS AND TERRELL COUNTIES, TEXAS			
U. S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE			
Designed.....	G. J. M.	Date.....	8-80
Drawn.....	C. A. N.	Date.....	8-80
Traced.....	C. A. N.	Date.....	8-80
Checked.....	C. H. S.	Date.....	8-80
Approved by.....		Title.....	
Peter William Bick		REGISTERED PROFESSIONAL ENGINEER	
Houston, Texas		No. 38637	
Drawing No.		Sheet No. 26 of 58	
4-E-36,794			

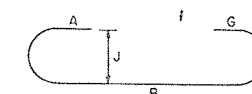




NO.	QTY.	LGTH	TOTAL LGTH.	SIZE	TYPE	A	B	C	D	G	H	J	K
1	58	18-3	1058-6	5	STR.								
2	45	18-3	821-3	6	STR.								
3	2	4-3	8-6	6	STR.								
4	57	13-6	769-6	4	STR.								
5	8	15-9	126-0	6	2		3-6	12-3					
6	4	3-6	14-0	5	STR.								
7	8	10-7	84-8	6	2		3-10	6-9					
8	36	7-1	255-0	4	2		3-6	3-7					
9	30	7-1	212-6	4	2		3-6	3-7					
10	72	9-4	672-0	6	2		4-3	5-1					
11	30	8-7	257-6	5	2		3-9	4-10					
12	15	13-6	202-6	8	STR.								
13	22	13-6	297-0	7	STR.								
14	22	13-6	297-0	6	STR.								
15	10	13-6	540-0	5	STR.								
16	40	7-6	300-0	4	STR.								
17	30	16-3	487-6	4	STR.								
18	53	6-6	344-6	4	STR.								
19	74	6-0	444-0	4	STR.								
20	40	5-7	223-4	5	11		1-0	4-7					
21	38	6-6	247-0	4	STR.								
22	76	3-11	297-8	5	7			1-3	1-1		0-5		1-2
23	76	8-3	622-0	5	12		1-0	2-0	2-4		0-8		2-3
24	46	15-1	693-10	5	2		1-7	13-6					
25													
26	20	10-3	205-0	4	2		1-3	9-0					
27	22	11-7	254-10	5	STR.								
28	14	6-9	94-6	5	STR.								
29	120	18-0	2160-0	6	STR.								
30	210	5-10	1225-0	5	STR.								
31	4	9-10	39-4	4	STR.								
32	4	9-7	38-4	4	STR.								
33	4	9-4	37-4	4	STR.								
34	4	9-1	36-4	4	STR.								
35	4	8-9	35-0	4	STR.								
36	4	8-6	34-0	4	STR.								
37	4	8-3	33-0	4	STR.								
38	4	7-11	31-8	4	STR.								
39	4	7-8	30-8	4	STR.								
40	4	7-5	28-8	4	STR.								
41	4	7-2	28-8	4	STR.								
42	4	6-11	27-8	4	STR.								
43	12	6-8	80-0	4	STR.								
44	5	3-9	18-9	5	STR.								
45	19	9-8	183-8	8	1		1-1	7-6		1-1		0-10	
46	8	10-9	86-0	6	11A			1-6					
47	8	8-10	70-8	5	7								
48	8	16-4	130-8	5	2		2-10	13-6			0-6		0-11
49	7	7-0	49-0	5	STR.								
50	8	10-7	84-8	5	S10			1-3	8-1	1-3			
51	2	13-10	27-8	4	STR.								
52	2	12-10	25-8	4	STR.								
53	2	11-10	23-8	4	STR.								
54	2	10-10	21-8	4	STR.								
55	2	9-10	19-8	4	STR.								
56	2	8-10	17-8	4	STR.								
57	2	8-3	16-6	4	STR.								
58	16	14-10	237-4	5	2		1-7	13-3					
59	16	10-0	160-0	4	2		1-3	8-9					
60	12	5-0	40-0	5	STR.								
61	12	1-6	18-0	5	STR.								
62	12	2-6	30-0	5	STR.								
63	12	2-9	33-0	5	STR.								
64	12	3-0	36-0	5	STR.								
65	12	3-3	39-0	5	STR.								
66	12	3-5	41-0	5	STR.								
67	12	3-7	43-0	5	STR.								
68	12	3-10	46-0	5	STR.								
69	12	4-1	49-0	5	STR.								
70	12	4-4	52-0	5	STR.								
71	12	4-7	55-0	5	STR.								
72	12	4-9	57-0	5	STR.								
73	12	5-0	60-0	5	STR.								
74	12	5-3	63-0	5	STR.								
75	108	6-3	675-0	4	STR.								
76	36	6-3	225-0	6	STR.								
77	72	6-9	486-0	4	STR.								

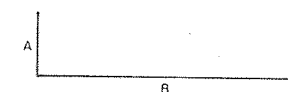
NO.	QTY.	LGTH.	TOTAL LGTH.	SIZE	TYPE	A	B	C	D	G	H	J	K
78	16	6-3	62-6	5	STR.								
79	12	6-0	72-0	5	STR.								
80	15	6-9	101-3	4	STR.								
81	54	6-6	351-0	5	STR.								
92	15	6-3	93-9	4	STR.								
93	12	5-10	76-0	5	STR.								
84	12	9-10	118-0	5	STR.								
85	12	13-11	167-0	5	STR.								
86	14	6-9	94-6	5	STR.								
87	9	3-0	27-0	4	STR.								
88	14	11-0	154-0	5	STR.								
89	17	3-2	46-9	4	STR.								
90	2	2-3	18-0	5				1-3	1-0				
91	2	9-6	19-0	4	STR.						0-6		0
92	2	10-6	21-0	4	STR.								
93	2	11-6	23-0	4	STR.								
94	2	12-6	25-0	4	STR.								
95	2	13-6	27-0	4	STR.								
96	2	14-6	29-0	4	STR.								
97	36	7-4	264-0	6		3-9	3-7						
98	8	16-6	132-0	4	STR.								
99	74	6-0	444-0	6	STR.								
100	5	14-3	71-3	6		2-0	12-3						
101	5	8-9	43-9	6		2-0	6-9						
102	6	3-6	21-0	4	STR.								
103	1	13-6	40-6	4	STR.								
104	17	2-5	46-9	4	STR.								
105	8	6-6	52-0	6	STR.								
106	17	6-3	106-3	4	STR.								
107	7	8-0	80-0	5	STR.								
108	4	8-9	35-0	6	11		6-9	2-0					
109	5	7-0	35-0	5	STR.								
110	12	1-3	15-0	5	STR.								
111	18	7-0	126-0	5	STR.								
112	8	2-3	18-0	5	STR.								
113	9	1-3	11-4	4	STR.								
114	18	8-0	144-0	5	STR.								
115	5	4-0	20-0	5	STR.								
116	40	6-2	246-8	4	STR.								
117	40	4-6	180-0	4	STR.								
118	40	6-9	270-0	4	STR.								
119	40	10-5	416-8	4	STR.								
120	8	7-7	60-8	11	STR.								
121	12	10-0	120-0	11	STR.								
122	12	12-9	153-0	11	STR.								
123	-	-	-	-	-								
124	8	7-3	58-0	10	STR.								
125	12	10-0	120-0	10	STR.								
126	12	12-5	204-0	10	STR.								

TOTAL SIZE NO. 4 STEEL	= 8702'-5"	= 5813.21	LBS.
TOTAL SIZE NO. 5 STEEL	= 8084'-3"	= 8431.87	LBS.
TOTAL SIZE NO. 6 STEEL	= 5714'-5"	= 8583.05	LBS.
TOTAL SIZE NO. 7 STEEL	= 297'-0"	= 607.07	LBS.
TOTAL SIZE NO. 8 STEEL	= 386'-2"	= 1031.07	LBS.
TOTAL SIZE NO. 10 STEEL	= 706'-0"	= 3037.92	LBS.
TOTAL SIZE NO. 11 STEEL	= 333'-8"	= 1772.77	LBS.
TOTAL STEEL	= 29,276.96		LBS.
TOTAL CONCRETE	= 142.56		CU. YDS.

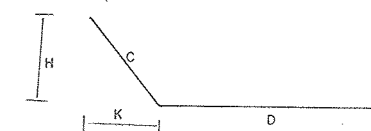


TYPE I

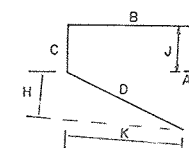
STR.



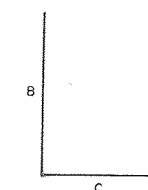
TYPE 2



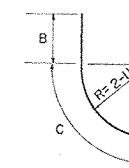
TYPE 7



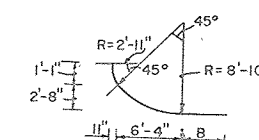
TYPE 12



TYPE S10



TYPE II



TYPE IIA

NO CHANGE IN PLANS

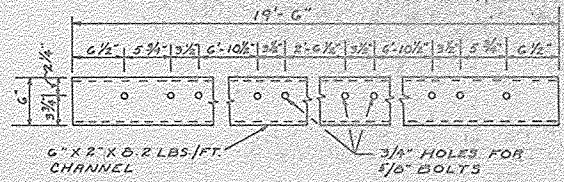
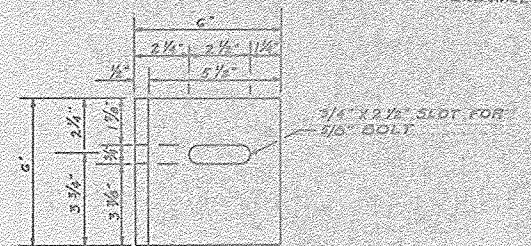
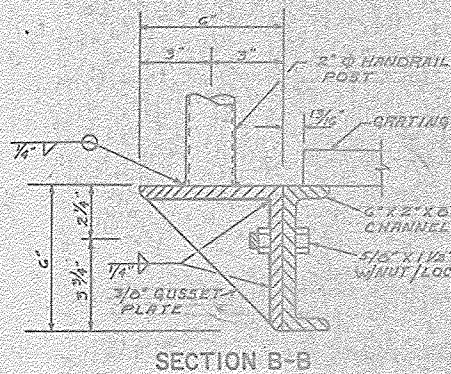
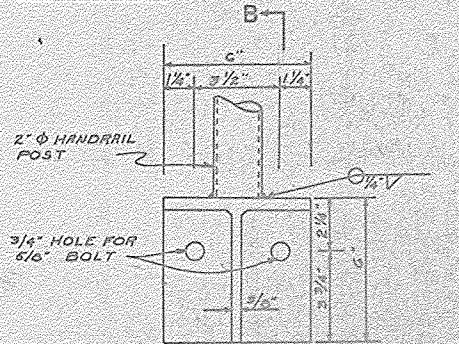
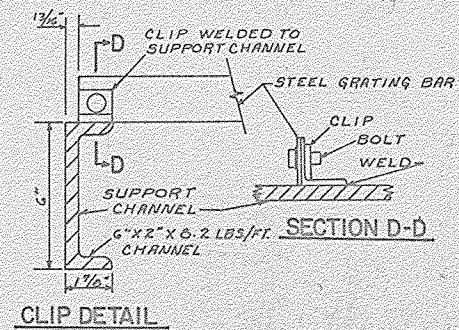
AS-BUILT PLANS
CONSTRUCTION
COMPLETED 5/20/84
124



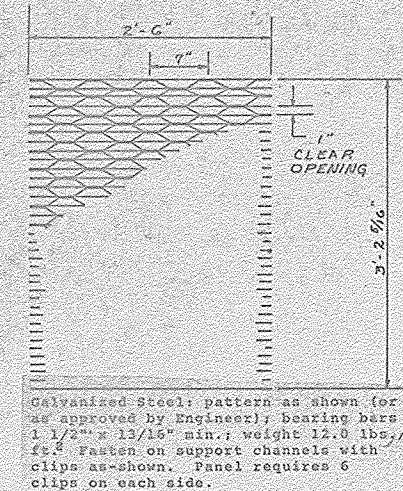
STEEL SCHEDULE - PRINCIPAL SPILLWAY INLET
FLOODWATER RETARDING STRUCTURE SITE NO. 11
SANDERSON CANYON WATERSHED
IN
BREWSTER, PECOS AND TERRELL COUNTIES, TEXAS

 U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

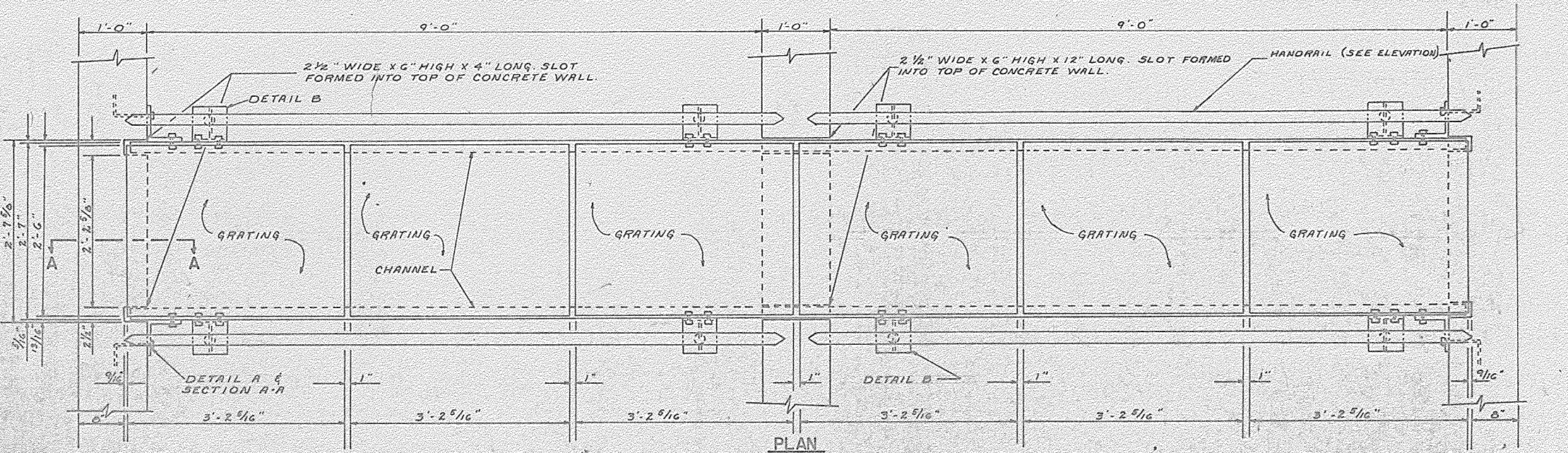
Designed	G. J. M.	8-80	Approved by	<i>W. C. P.</i> CONSULTING ENGINEER, S.E.C.
Drawn	C. A. N.	8-80	Title	TEMPLE, TEXAS
Traced	C. A. N.	8-80	Title	<i>W. C. P.</i> CONSULTING ENGINEER, CORP. HOUSTON, TEXAS
Checked	G. J. M.	8-80	Sheet	Drawing No
			No 31 of 58	4-E-36,794



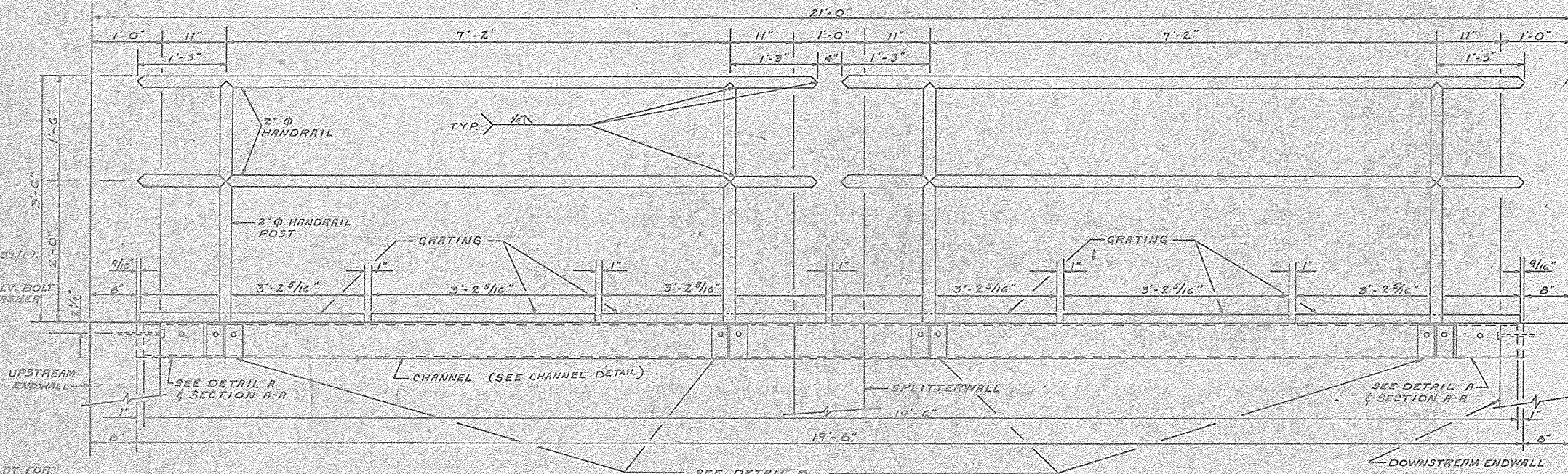
CHANNEL DETAIL



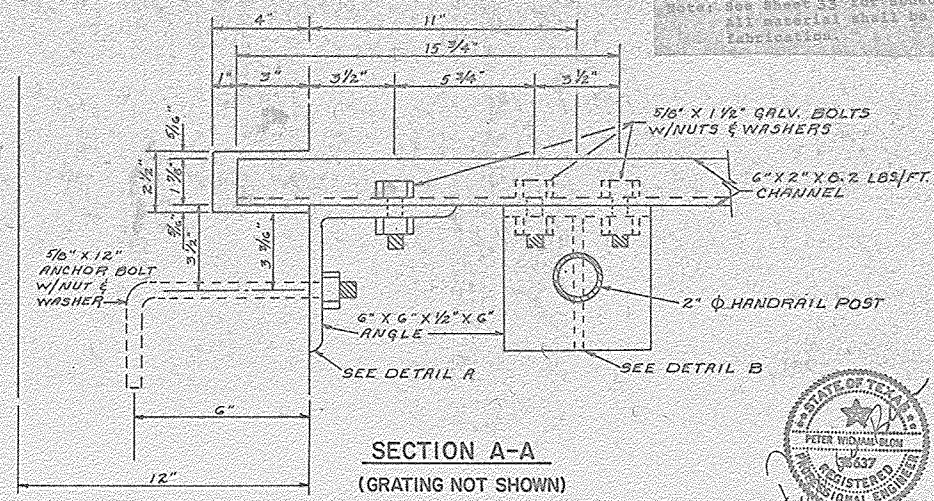
DETAIL - GRATING



PLAN



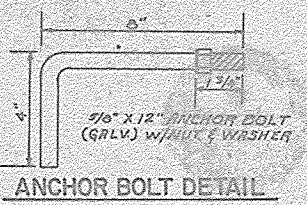
ELEVATION



SECTION A-A
(GRATING NOT SHOWN)

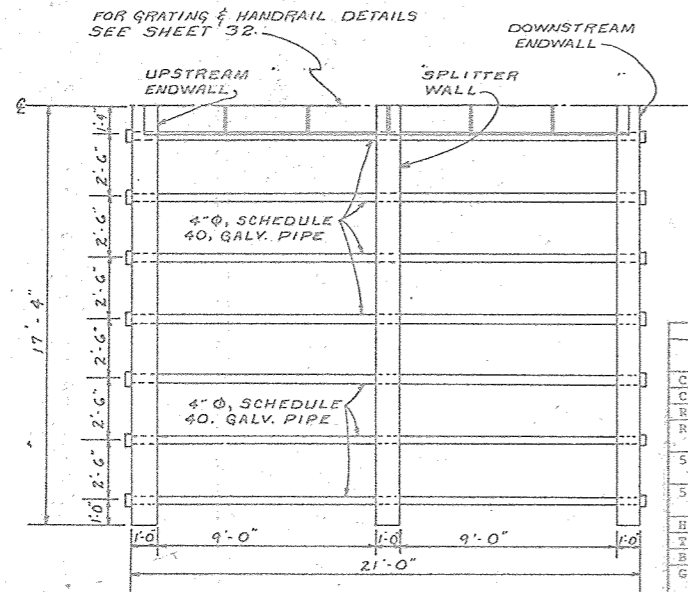
NO CHANGE IN PLANS

AS-BUILT PLANS
CONSTRUCTION
COMPLETED 5/20/86



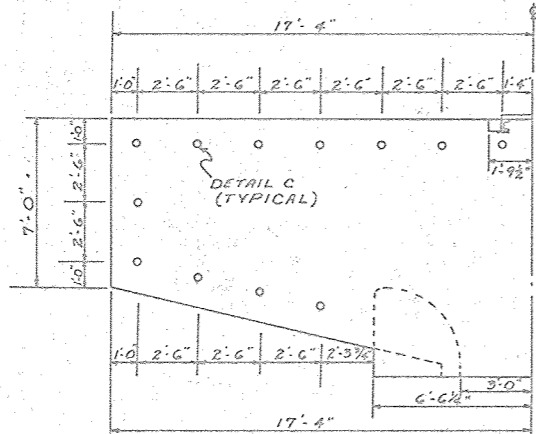
ANCHOR BOLT DETAIL

GRATING AND HANDRAIL DETAILS			
FLOODWATER RETARDING STRUCTURE SITE NO. 11			
SANDERSON CANYON WATERSHED			
IN			
BREWSTER, PECOS AND TERRELL COUNTIES, TEXAS			
U. S. DEPARTMENT OF AGRICULTURE			
SOIL CONSERVATION SERVICE			
Designed	G. J. M.	Date	8-80
Drawn	C. A. N.	Date	8-80
Traced	C. A. N.	Date	8-80
Checked	C. H. S.	Date	8-80
Approved by		Title	
[Signature]		CONSULTING ENGINEER, S.C.E.	
[Signature]		REGISTERED PROFESSIONAL ENGINEER	
[Signature]		No. 32	
[Signature]		Sheet	
[Signature]		Drawing No.	
[Signature]		4-E-36,794	



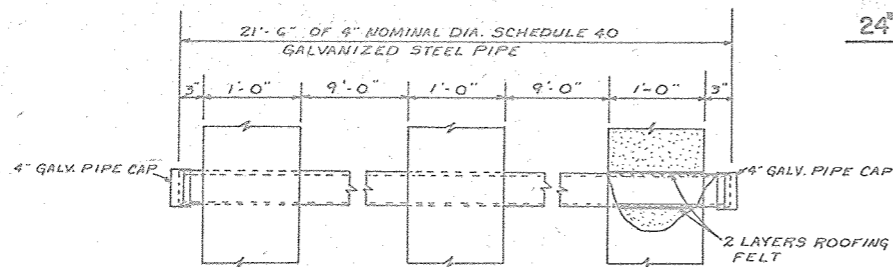
PARTIAL HALF PLAN

NOTE: TRASH RACK SYMMETRICAL ABOUT C.



HALF ELEVATION

SEE SHEETS 20 & 21 FOR RISER DETAIL



DETAIL C

NOTE: 4" Ø GALV. PIPE SHALL BE IN PLACE PRIOR TO PLACING CONCRETE.

TRASH RACK

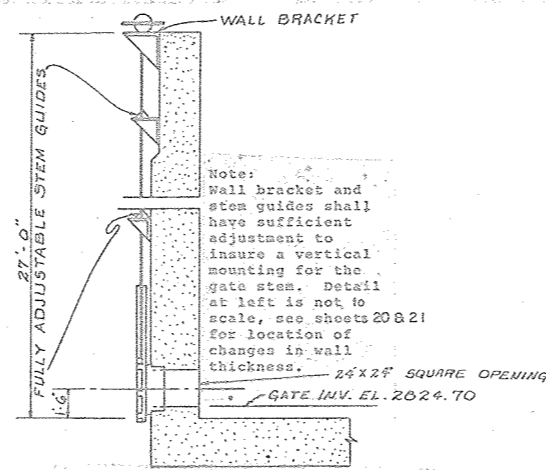
QUANTITY	ITEM	DESCRIPTION
4	Angle A	2 1/2"x2 1/2"x1/4"x3'-0" Cut and Weld
4	Angle B	2 1/2"x2 1/2"x1/4"x5'-0" Cut and Weld
2	Angle C	3"x3"x1/4"x5'-11 1/2" Weld
18	Angle D	1 1/2"x1 1/2"x1/4"x2'-11" Weld
11	Angle E	1 1/2"x1 1/2"x1/4"x6'-0" Weld
1	Angle F	3 1/2"x3 1/2"x1/4"x5'-6" Weld
2	Angle G	2 1/2"x2 1/2"x1/4"x6'-0" Weld
2	Bar A	1/4"x2"x4'-7" Weld
6	Bar B	1/4"x2"x3'-0" Weld
3	Bar C	1/4"x2"x4'-11 1/4" Weld
6	Bolt A	5/8" Ø Anchor Bolt, See Detail A
5	Bolt B	5/8" Ø, See Detail A
6	Bolt C	5/8" Ø Anchor Bolt, See Detail B
6	Clip	See Clip Details
17	Nuts, Flat & Lock Washers	See Detail A and Detail B (This Sheet)

NOTE: Angle C and Angle F shall have slots punched to allow Bolts A, B, and C to pass through.

ITEM	QUANTITY	LENGTH	TOTAL LENGTH	DESCRIPTION
Channel	2	19'-6"	39'-0"	6"x2"x8.2 Lbs. Per Ft.
Channel Support	4	6"	2'-0"	1/2"x6"x6"x6" Long Angle
Railing Support	8	6"	4'-0"	1/2"x6"x6"x6" Long Angle
Railing Support Gusset	8	5 1/2"	1'-10"	3/8"x5 1/2"x5 1/2" Plate (2 Gussets)
5/8"x12" Anchor Bolts w/Nut, Washer	4	12"		
5/8"x1 1/2" Bolt w/Nut & Washers	20	1 1/2"		
Handrail Post	8	3'-5"	27'-4"	2" Ø Schedule 40 Pipe
Top Handrail	4	9'-8"	38'-8"	2" Ø Schedule 40 Pipe
Bottom Handrail	4	9'-8"	38'-8"	2" Ø Schedule 40 Pipe
Grating	6	2'-6"	15'-0"	3'-2 5/16" Width, 2'-6" Span, 12 Lbs./ft. 2
Pipe	24	21'-6"	516'-0"	4" Ø Schedule 40, Galv. Pipe
Pipe Caps	48			Galv. Caps for 4" Ø Pipe

SEE DETAILS FOR HANDRAILS AND GRATING SHEET 32

NOTE: The port trash rack, along with all parts of the handrails, grating and port trash rack shall be galvanized after fabrication.



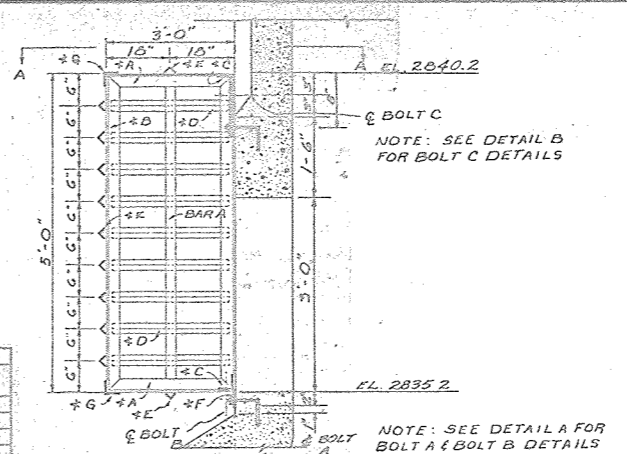
24" X 24" SLIDE GATE

The slide gate shall be centered in the upstream wall of the riser. See manufacturers data for details of gate frame, stem splices and anchor bolt layout.

1/2" min. x 6" Steel Plate to be continuous throughout construction joint. Where a splice is necessary, the ends shall be butt welded, lapped 3 inches and fillet welded, or lapped 3 inches and bolted.

NOTE: Shear plate shall be free from dirt, oil, grease, paint, mill scale, loose or thick rust, or other coating which might destroy or reduce its bond with concrete.

DETAIL OF SHEAR PLATE CONSTRUCTION JOINT



SECTION ON C

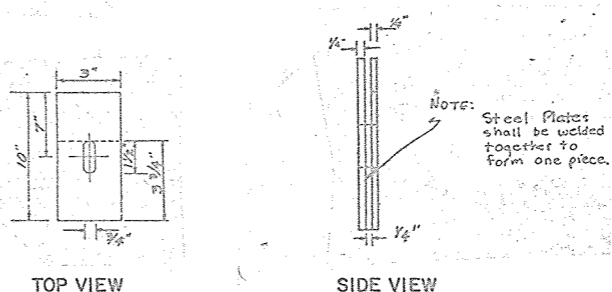
NOTE: HOLES PUNCHED IN ANGLE IRON FOR BOLTS MAY BE SLOTTED, 3/4" X 1 1/4"

BOLT B - 5/8" Ø, 2 1/4" LONG, STANDARD THREADS
ANGLE F
NUT, FLAT WASHER & LOCK WASHER
NUT, FLAT WASHER & LOCK WASHER

DETAIL A

BOLT C, ANCHOR BOLT 5/8" Ø, 12" LONG, BEND ON RADIUS OF 1", 2 1/4" STANDARD THREADS ON END. (6 REQUIRED EQUALLY SPACED.)

DETAIL B

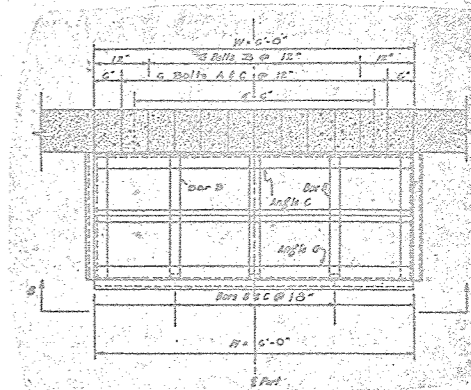


TOP VIEW

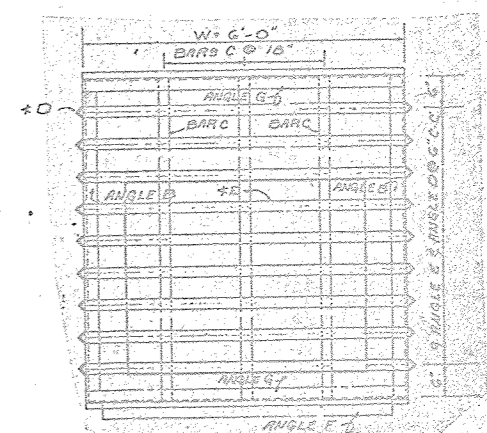
SIDE VIEW

CLIP DETAILS

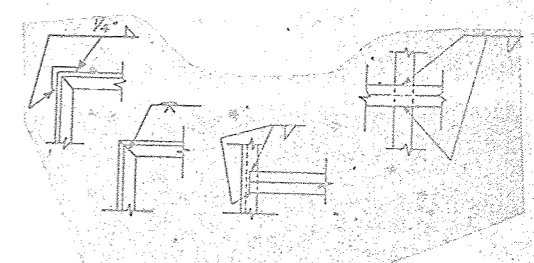
PORT TRASH RACK



SECTION A-A



SECTION B-B



WELDING DETAILS

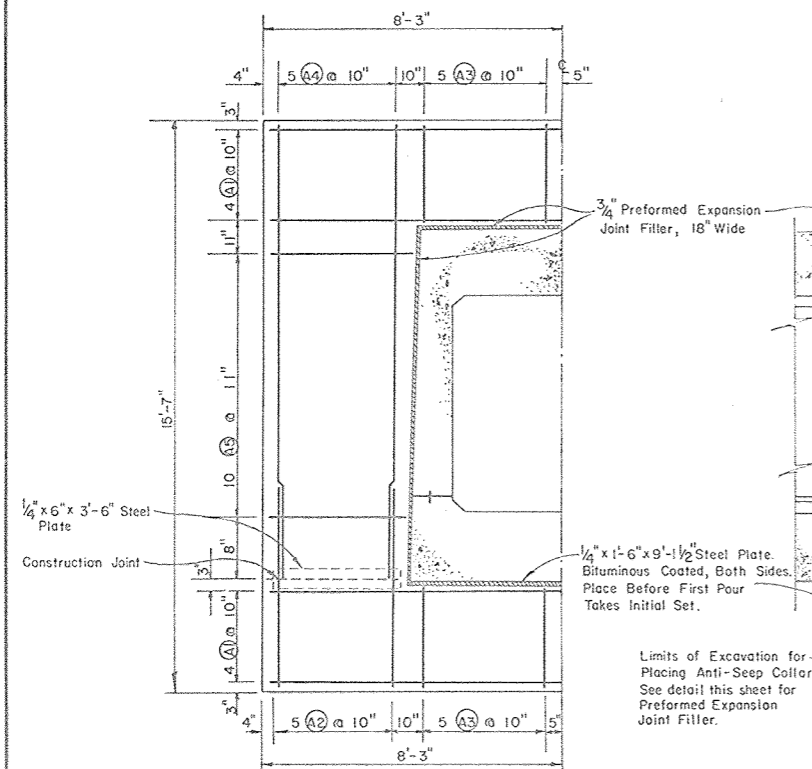
NOTE: WELD ALL BUTTING & CROSSING MEMBERS TOGETHER. NO CHANGE IN PLANS

AS-BUILT PLANS CONSTRUCTION COMPLETED 5/30/86

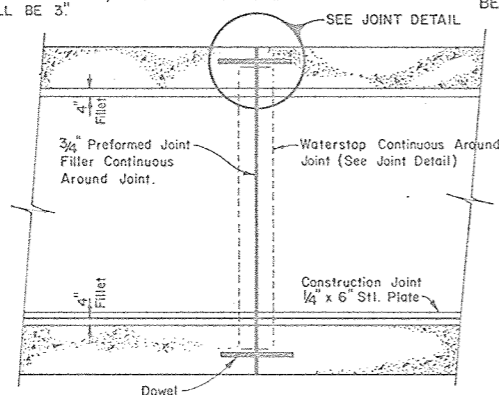
TRASH RACK AND SLIDE GATE DETAILS
FLOODWATER RETARDING STRUCTURE SITE NO. 11
SANDERSON CANYON WATERSHED
IN
BREWSTER, PECOS AND TERRELL COUNTIES, TEXAS

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

Designed	G.J.M.	Date	8-80	Approved by	PETER WELLS
Drawn	C.A.N.	Date	8-80	Title	ENGINEER
Traced	C.A.N.	Date	8-80	Title	ENGINEER
Checked	C.H.S.	Date	8-80	Sheet	14-E-36.794



NOTE: MINIMUM CONCRETE COVER OVER REINFORCING STEEL SHALL BE 2" EXCEPT WHERE CONC. IS POURED ON EARTH, THEN MINIMUM COVER SHALL BE 3".



TYPICAL JOINT

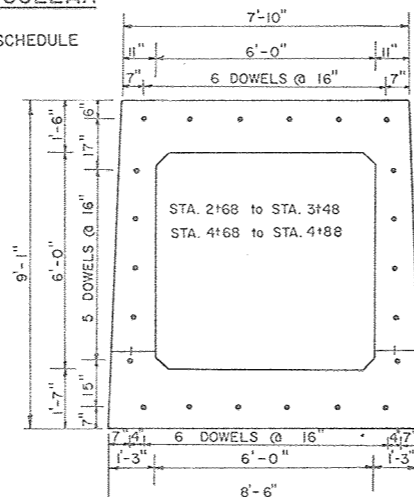
N.T.S.

Bar No.	Size	Type	Qty. Per Collar	Length	Total Quantity	Total Length
A1	4	STR.	8	16'-0"	48	768'-0"
A2	4	STR.	10	4'-0"	60	240'-0"
A3	4	STR.	20	2'-6"	120	300'-0"
A4	4	STR.	10	12'-5"	60	745'-0"
A5	4	STR.	20	3'-6"	120	420'-0"
Total Steel Req'd. per Collar = 412'-2" = 275.33						
Total Concrete Req'd. per Collar = 4.38 cu. yds.						
Total Concrete Req'd. for 6 Collars = 26.28 cu. yds.						
Total Steel Req'd. for 6 Collars = 2473'-0" = 1651.98 lbs.						

ANTI-SEEP COLLAR

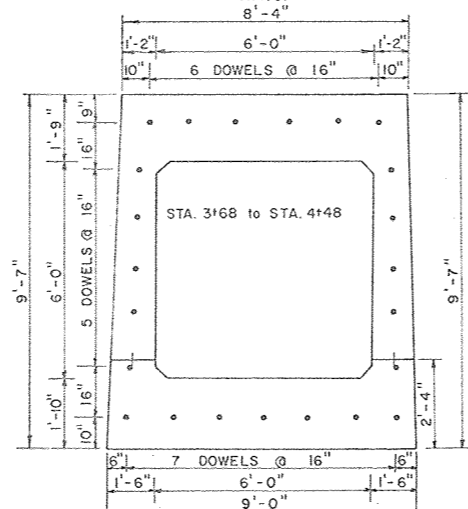
N.T.S.

NOTE: SEE STEEL SCHEDULE BELOW.



MINIMUM CONDUIT SECTION

N.T.S.



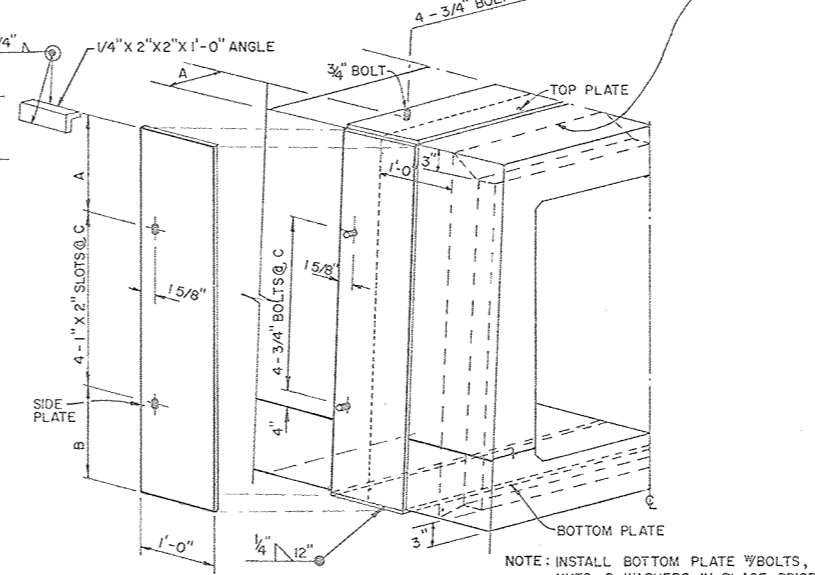
MAXIMUM CONDUIT SECTION

N.T.S.

DOWEL PLACEMENT DETAILS

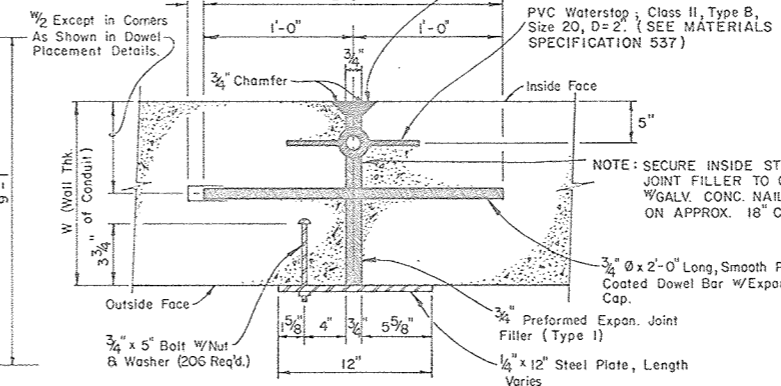
NOTE: AT STA. 3+48 & STA. 4+68, CONC. PADS WILL BE REQ'D. FOR INSTALLATION OF THE STEEL PLATE. THE PAD SHALL CONSIST OF THE CONC. REQ'D. TO INCREASE THE TOP, SIDE & BOTTOM DIMENSIONS OF THE MIN. SECTION TO CONFORM TO DIM. OF THE MAX. CONDUIT SECTION. THE PAD SHALL EXTEND 1'-0" FROM THE JOINT.

NOTE: TOP PLATE SYMMETRICAL ABOUT C.



ISOMETRIC VIEW

STA. 2+88 TO STA. 4+88

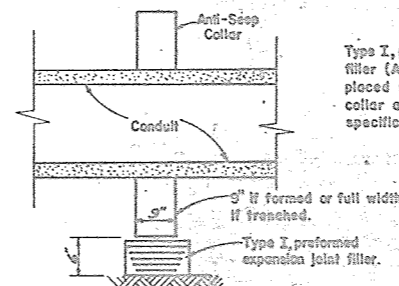


JOINT DETAIL

N.T.S.

(STA. 2+68 TO STA. 5+08)

NOTE: The joint between the Principal Spillway Inlet and the conduit shall be the same as the joints in the conduit. Concrete pads will be required to increase the sides and bottom dimensions of the minimum conduit section to conform to the dimensions of the conduit entrance section of the inlet. The pad dimensions shall be 4" thick on the sides at the top, 0" thick on the sides at the bottom, and 5" thick on the bottom. The pads shall extend 1 ft. from the joint, then shall transition on a 1:1 slope to the dimensions of the minimum conduit section. The top plate shall be 8'-6" in length (one required), the side plates (one shall be 7'-6" in length (two required), and the bottom plate shall be 9'-0" in length (one required). Each plate shall be secured to the conduit entrance section of the inlet with 4-3/4" bolts equally spaced. A 1/4"x2"x2"x1'-0" angle shall be welded to the top and side plates on each side. The side and bottom plates shall be welded together. Total concrete quantity required for the pads at sta. 2+68 is 0.25 cu. yds.



PREFORMED EXPANSION JOINT FILLER DETAIL

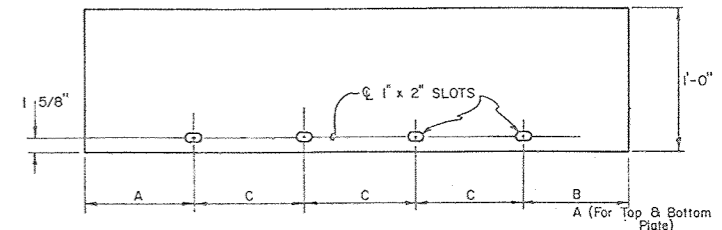


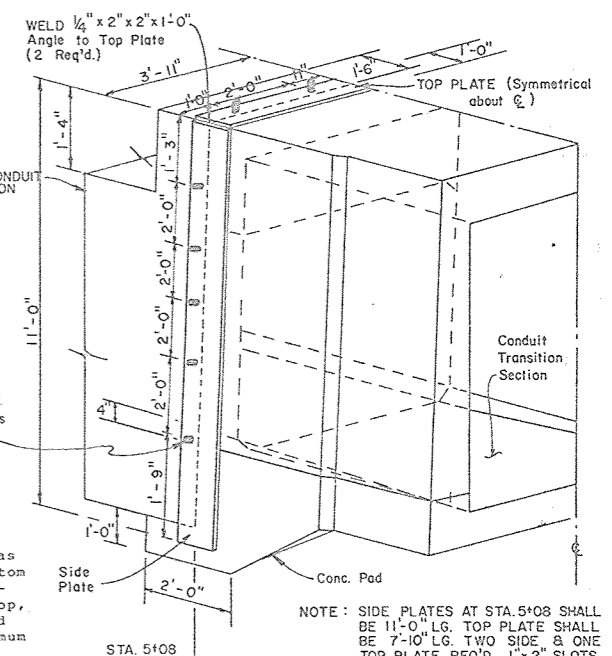
Plate Dimensions

No.	A	B	C	Total Length	Location (Sta.)
Top Plate					
4	0'-11"	-	2'-0"	7'-10"	2+88, 3+08, 3+28, 4+88
7	1'-2"	-	2'-0"	8'-4"	3+48 TO 4+68
Side Plate					
8	1'-3"	1'-10"	2'-0"	9'-1"	2+88, 3+08, 3+28, 4+88
14	1'-6"	2'-1"	2'-0"	9'-7"	3+48 TO 4+68
Bottom Plate					
4	1'-3"	-	2'-0"	8'-6"	2+88, 3+08, 3+28, 4+88
7	1'-6"	-	2'-0"	9'-0"	3+48 TO 4+68

NOTE: TOP, BOTTOM, & SIDE PLATES SHALL BE COMPLETELY COATED W/BITUMINOUS MATERIAL, 1/16" MIN. THICKNESS.

PLATE DETAILS

(STA. 2+88 TO STA. 4+88)



ISOMETRIC VIEW

(STA. 5+08)

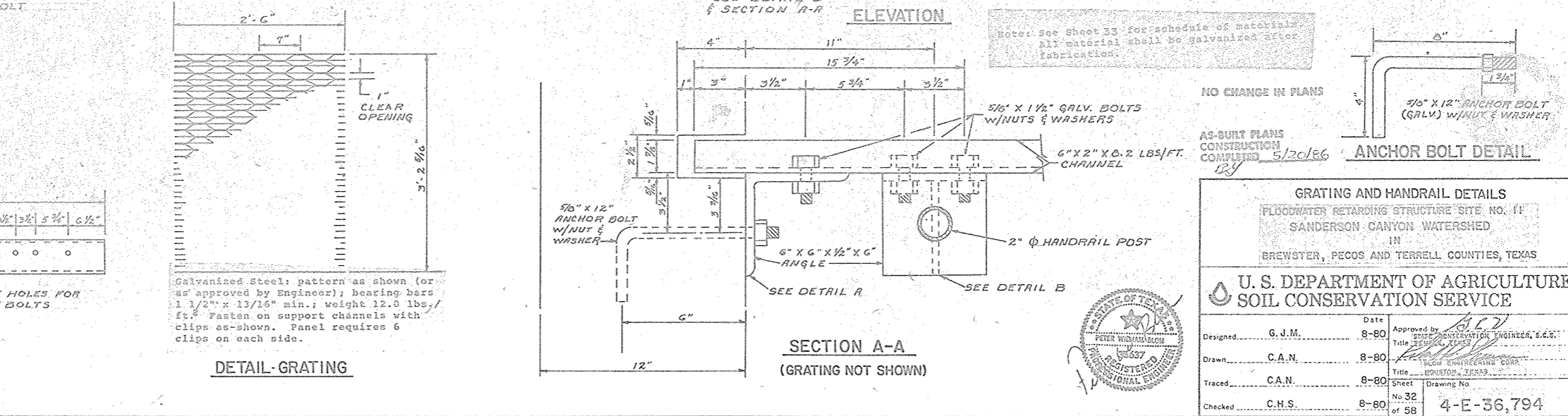
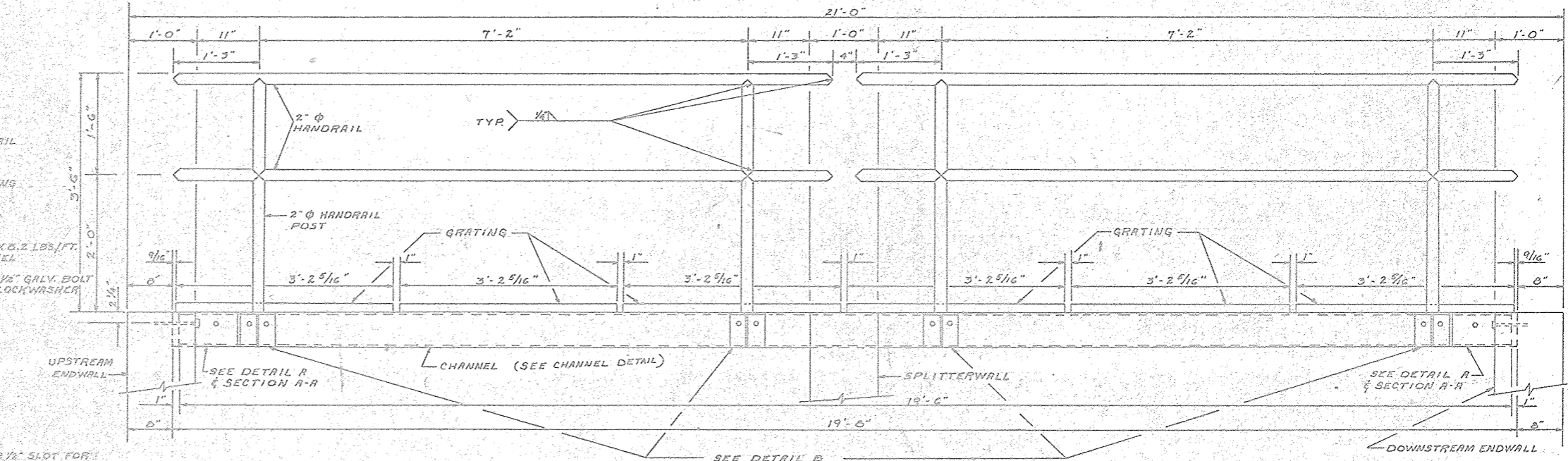
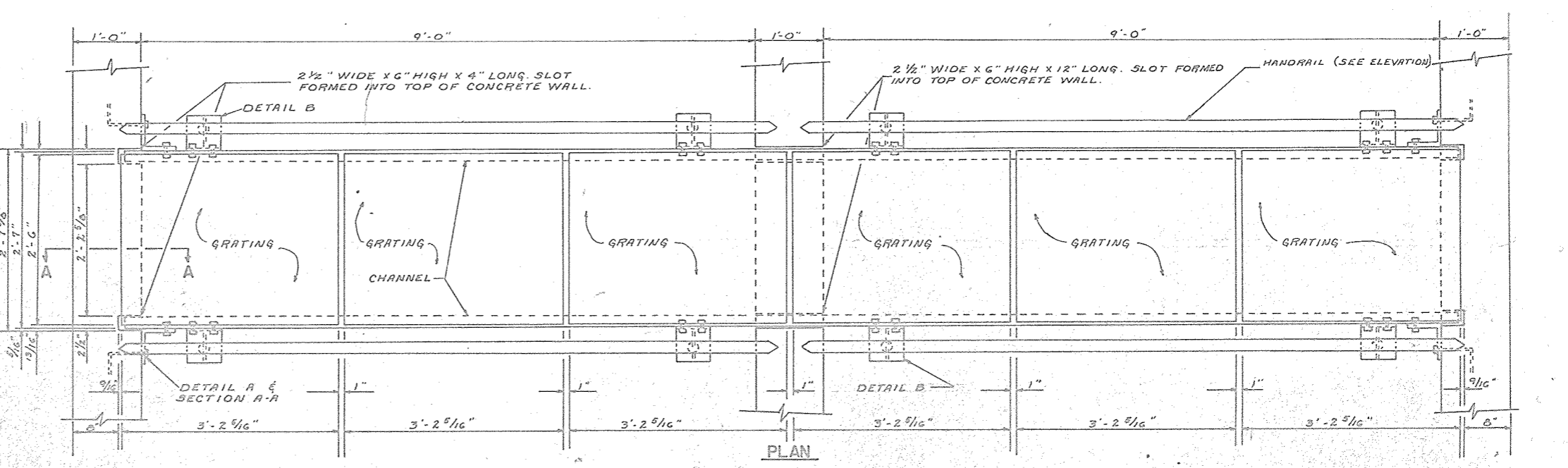
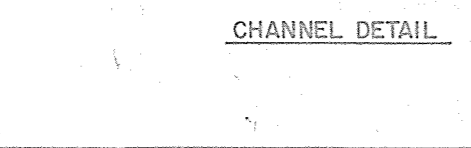
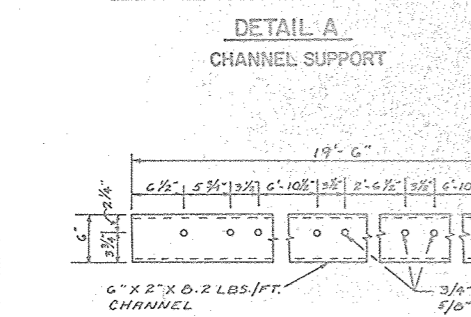
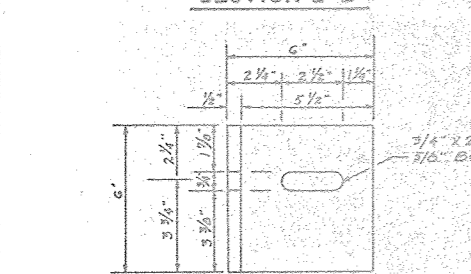
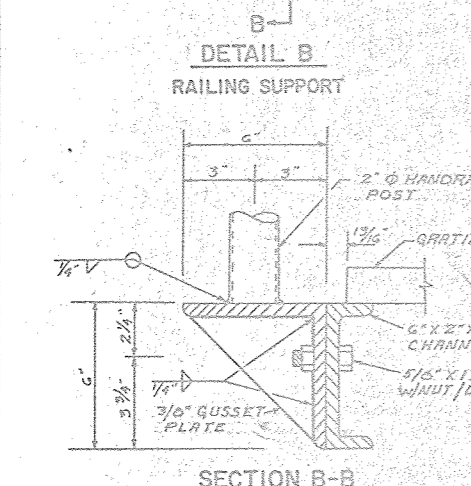
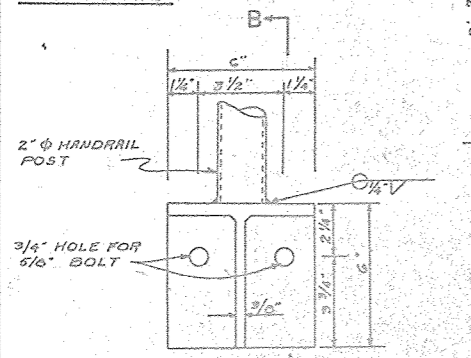
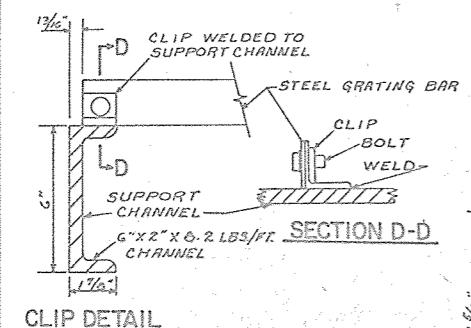
NO CHANGE IN PLANS

AS-BUILT PLANS
CONSTRUCTION
COMPLETED 5/20/86

CONDUIT DETAILS
FLOODWATER RETARDING STRUCTURE SITE NO. II
SANDERSON CANYON WATERSHED
IN
BREWSTER, PECOS, AND TERRELL COUNTIES TEXAS

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

Designed	G. J. M.	Date	8-80	Approved	8-80
Drawn	G. J. M.	Date	8-80	Checked	8-80
Traced	C. A. N.	Date	8-80	Sheet	34 of 58
Checked	C. H. S.	Date	8-80	Drawing No.	4-E-36,794

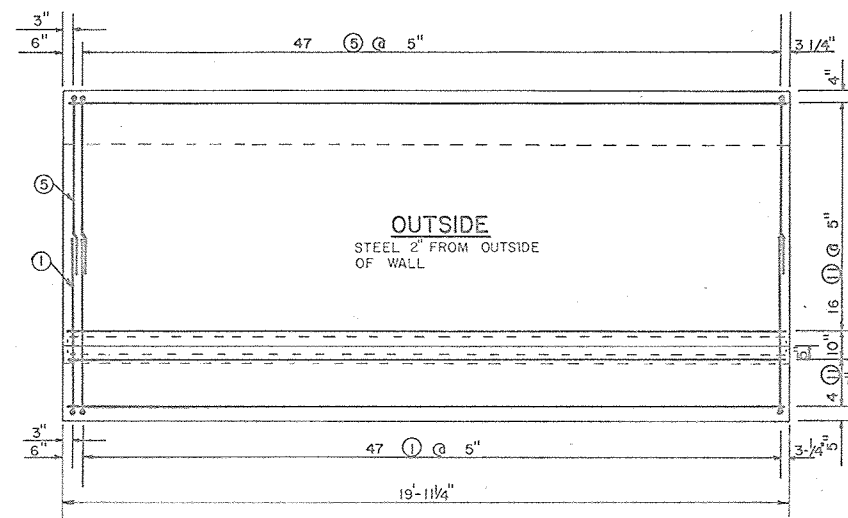
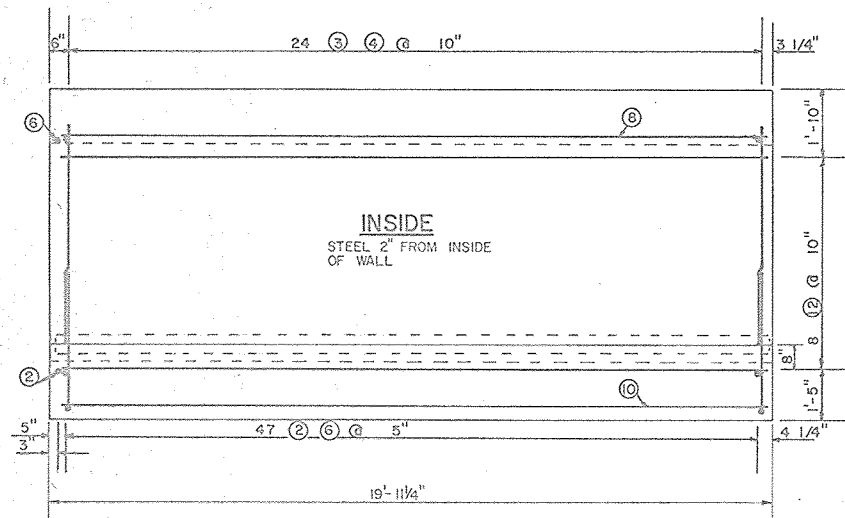


NO CHANGE IN PLANS

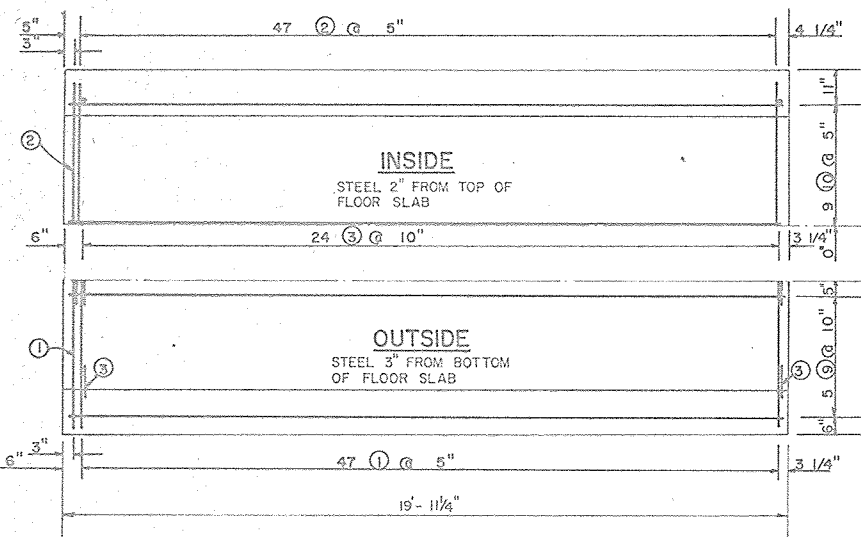
AS-BUILT PLANS
CONSTRUCTION
COMPLETED 5/20/86

ANCHOR BOLT DETAIL

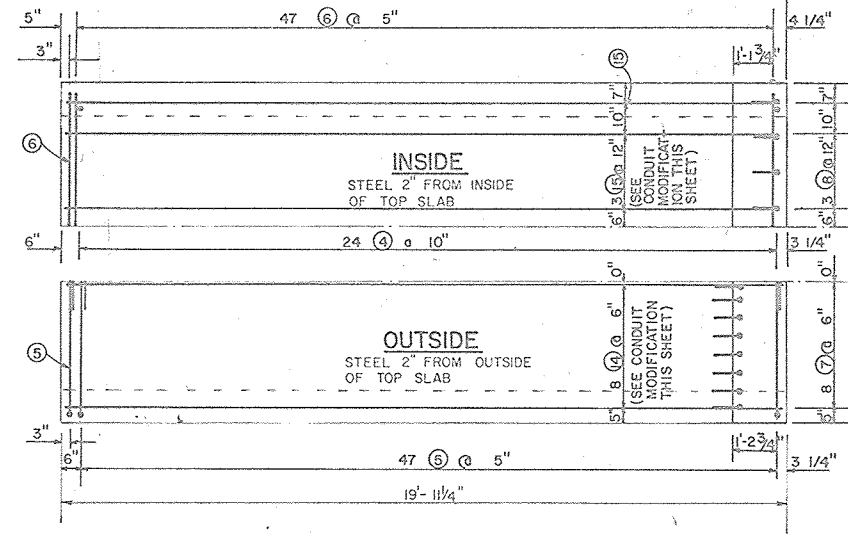
GRATING AND HANDRAIL DETAILS			
FLOODWATER RETARDING STRUCTURE SITE NO. 11			
SANDERSON CANYON WATERSHED			
IN			
BREWSTER, PECOS AND TERRELL COUNTIES, TEXAS			
U. S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE			
Designed	G. J. M.	Date	8-80
Drawn	C. A. N.	Date	8-80
Traced	C. A. N.	Date	8-80
Checked	C. H. S.	Date	8-80
Approved by		Title	
[Signature]		ENGINEER, S.C.S.	
[Signature]		REGISTERED PROFESSIONAL ENGINEER	
[Signature]		No. 32	
[Signature]		Drawing No.	
[Signature]		4-E-36,794	



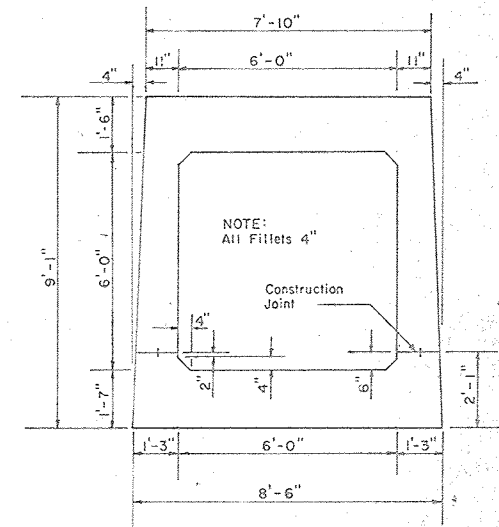
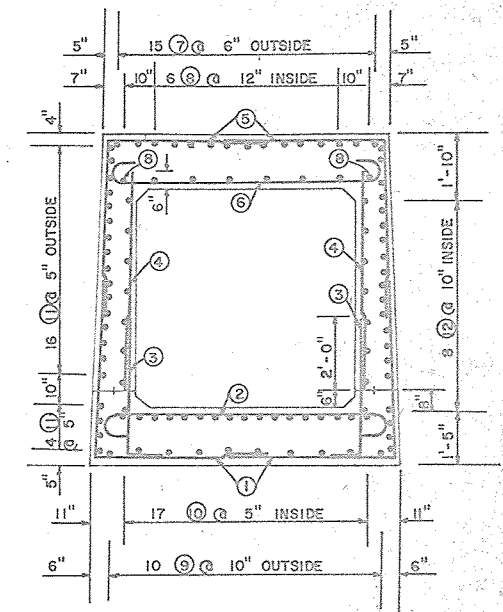
ELEVATION



FLOOR SLAB



TOP SLAB



TYPICAL SECTIONS

① SIX SECTIONS REQUIRED

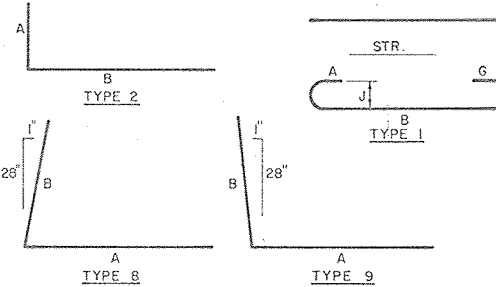
Steel Schedule For One 20' Minimum Conduit Section ①

No.	Qty.	Lgth.	Total Length	Size	Type	A	B	C	D	G	J	K
B-1	96	9'-6"	904'-0"	3	8	4'-7"	4'-10"					
B-2	48	9'-4"	448'-0"	7	1	0'-10"	7'-8"			0'-10"	0'-7"	
B-3	48	4'-9"	228'-0"	5	2	0'-11"	3'-10"					
B-4	48	6'-0"	288'-0"	5	STR.							
B-5	96	9'-1"	872'-0"	3	9	4'-3"	4'-10"					
B-6	48	8'-8"	416'-0"	7	1	0'-8"	7'-4"			0'-8"	0'-7"	
B-7	15	19'-6"	292'-6"	3	STR.							
B-8	8	19'-6"	156'-0"	6	STR.							
B-9	10	19'-6"	195'-0"	4	STR.							
B-10	17	19'-6"	331'-6"	4	STR.							
B-11	40	19'-6"	780'-0"	3	STR.							
B-12	16	19'-6"	312'-0"	5	STR.							

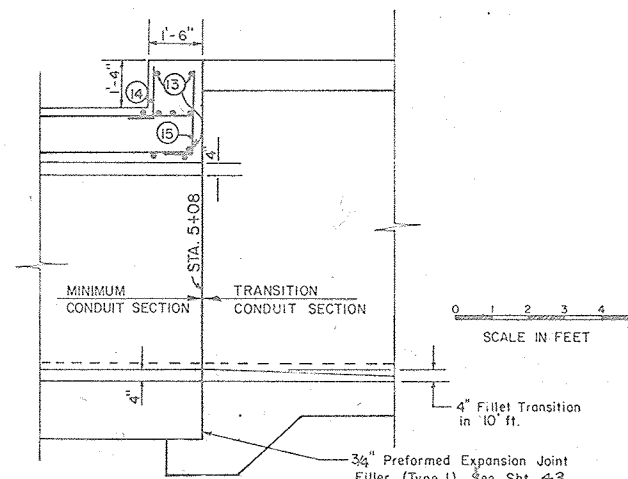
Total Size 3 Steel	=	2848'-6"	=	1071.04 lbs.
Total Size 4 Steel	=	526'-6"	=	351.70 lbs.
Total Size 5 Steel	=	828'-0"	=	863.60 lbs.
Total Size 6 Steel	=	156'-0"	=	234.31 lbs.
Total Size 7 Steel	=	864'-0"	=	1766.02 lbs.
Total Steel for One Minimum Conduit Section	=		=	4286.67 lbs.
Total Steel for 6 Minimum Conduit Section	=		=	25720.02 lbs.
Total Concrete for One Minimum Conduit Section	=		=	28.36 cu. yds.
Total Concrete for 6 Minimum Conduit Section	=		=	170.16 cu. yds.

Steel Schedule For Conduit Modification @ Sta. 5+08

② No.	Qty.	Lgth.	Total Length	Size	Type	A	B	C	D	H	J	K
B-13	3	7'-4"	22'-0"	4	Str.							
B-14	15	2'-1"	31'-3"	4	2	0'-9"	1'-4"					
B-15	8	3'-1"	24'-8"	4	2	0'-9"	2'-4"					
Total Steel for Conduit Modification						= 77'-11"		= 52.05lbs.				
Total Concrete for Conduit Modification						= .58 cu. yds.						



BAR TYPES



CONDUIT MODIFICATION (STA. 5+08)

NO CHANGE IN PLANS

AS-BUILT PLANS
CONSTRUCTION
COMPLETED 5/20/86

NOTES:

STEEL SYMMETRICAL ABOUT C.

② ALL BAR NUMBERS SHOWN ON THIS SHEET TO BE PREFIXED BY LETTER SYMBOL "B".

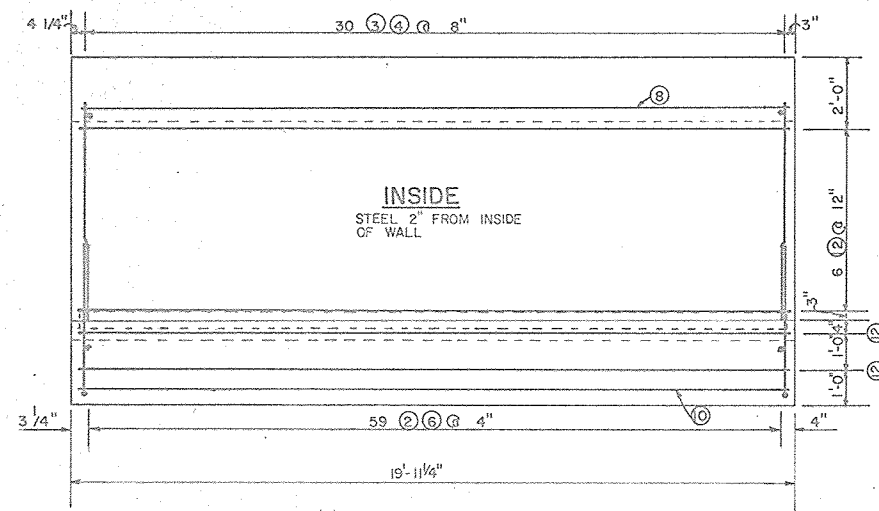
FOR DOWEL PLACEMENT AND JOINT DETAILS SEE SHT. 34

FOR SHEAR PLATE AND CONSTRUCTION JOINT DETAIL SEE SHT. 33. SHEAR PLATE SHALL END 2' FROM EACH END OF EACH CONDUIT SECTION.

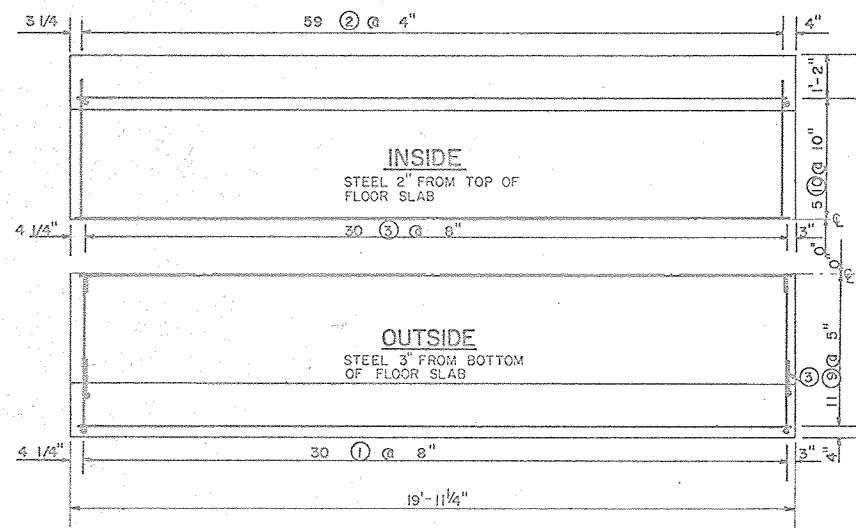
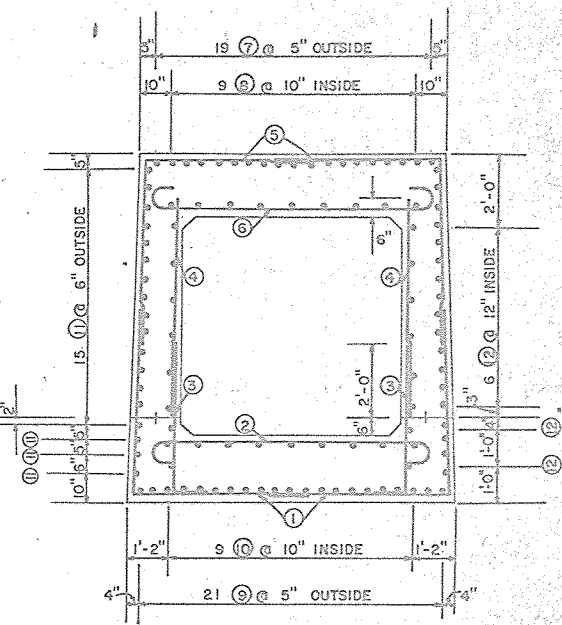
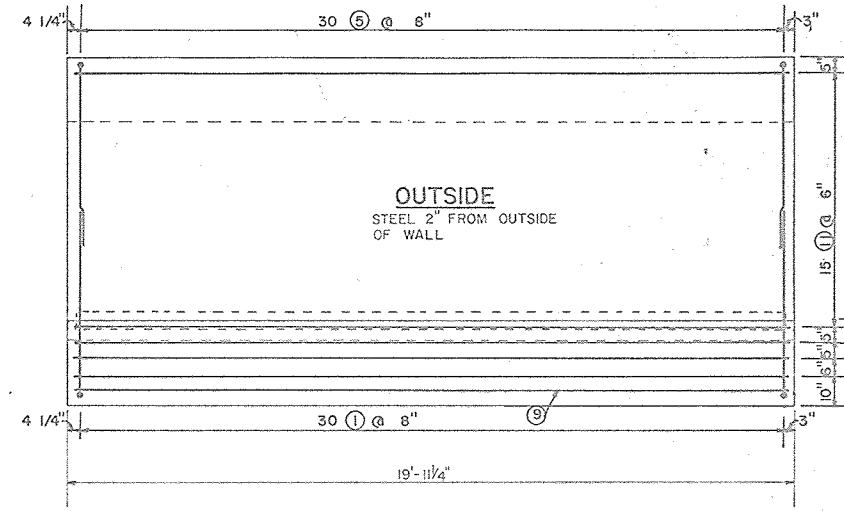
STEEL PLACEMENT - MINIMUM CONDUIT SECTION
FLOODWATER RETARDING STRUCTURE SITE NO. 11
SANDERSON CANYON WATERSHEDIN
BREWSTER, PECOS, AND TERRELL COUNTIES, TEXASU. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

Designed	G. J. M.	Date	8-80	Approved	Peter William Brown
Drawn	G. J. M.	Title	8-80	Checked	Robert J. Brown
Traced	C. A. N.	Sheet	8-80	Drawn	Robert J. Brown
Checked	C. H. S.	No. 35 of 58	8-80		

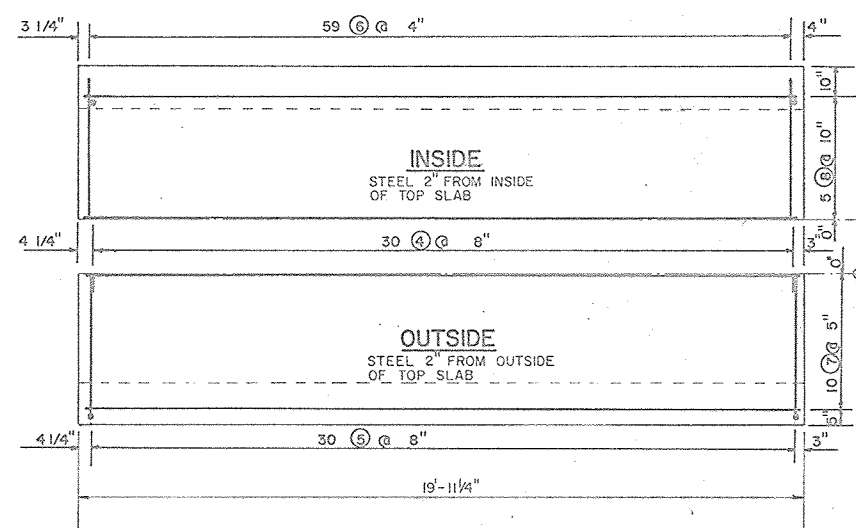
4-E-36,794



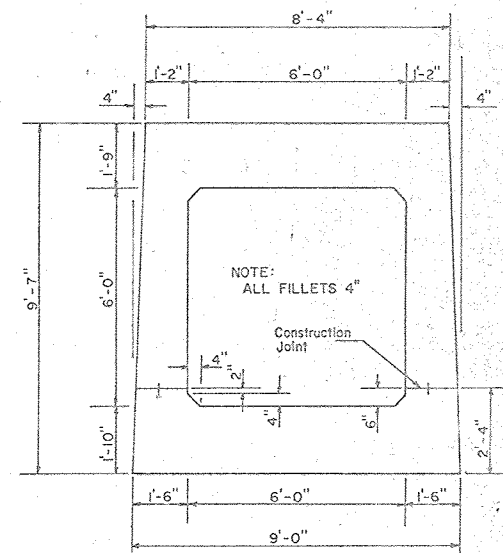
ELEVATION



FLOOR SLAB



TOP SLAB



TYPICAL SECTIONS

① SIX SECTIONS REQUIRED

Steel Schedule For One 20' Maximum Conduit Section ①

② No.	Qty.	Lgth	Total Length	Size	Type	A	B	C	D	G	J	K
C-1	60	9'-11"	595'-0"	4	8	4'-10"	5'-1"					
C-2	59	9'-4"	550'-8"	7	1	0'-10"	7'-8"			0'-10"	0'-7"	
C-3	60	5'-0"	300'-0"	5	2	0'-11"	4'-1"					
C-4	60	6'-0"	360'-0"	5	STR.							
C-5	60	9'-7"	575'-0"	4	9	4'-6"	5'-1"					
C-6	59	9'-4"	550'-8"	7	1	0'-10"	7'-8"				0'-7"	
C-7	19	19'-6"	370'-6"	3	STR.							
C-8	9	19'-6"	175'-6"	6	STR.							
C-9	21	19'-6"	409'-6"	3	STR.							
C-10	9	19'-6"	175'-6"	6	STR.							
C-11	36	19'-6"	702'-0"	3	STR.							
C-12	16	19'-6"	312'-0"	6	STR.							

Total Size 3 Steel = 1482'-0" = 557.23 lbs.

Total Size 4 Steel = 1170'-0" = 781.56 lbs.

Total Size 5 Steel = 660'-0" = 688.38 lbs.

Total Size 6 Steel = 663'-0" = 995.83 lbs.

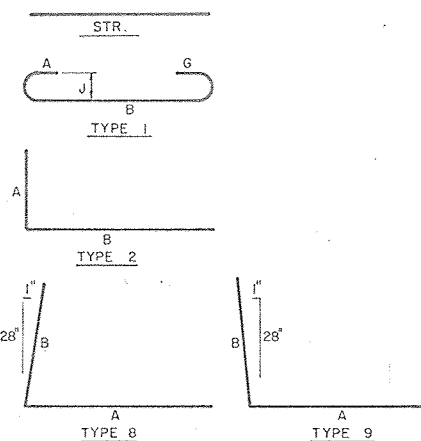
Total Size 7 Steel = 1101'-4" = 2251.13 lbs.

Total Steel for One Maximum Conduit Section = 5274.12 lbs.

Total Steel for 6 Maximum Conduit Sections = 31644.74 lbs.

Total Concrete for One Maximum Conduit Section = 34.91 cu.yd.

Total Concrete for 6 Maximum Conduit Sections = 209.47 cu.yd.



BAR TYPES

NOTES:

- STEEL SYMMETRICAL ABOUT C.
 ② ALL BAR NUMBERS SHOWN ON THIS SHEET TO BE PREFIXED BY LETTER SYMBOL "C".

FOR DOWEL PLACEMENT AND JOINT DETAILS SEE SHT. 34

FOR SHEAR PLATE AND CONSTRUCTION JOINT DETAIL SEE SHT. 33 SHEAR PLATE SHALL END 2" FROM EACH END OF EACH CONDUIT SECTION.

0 1 2 3 4 5
SCALE IN FEET.

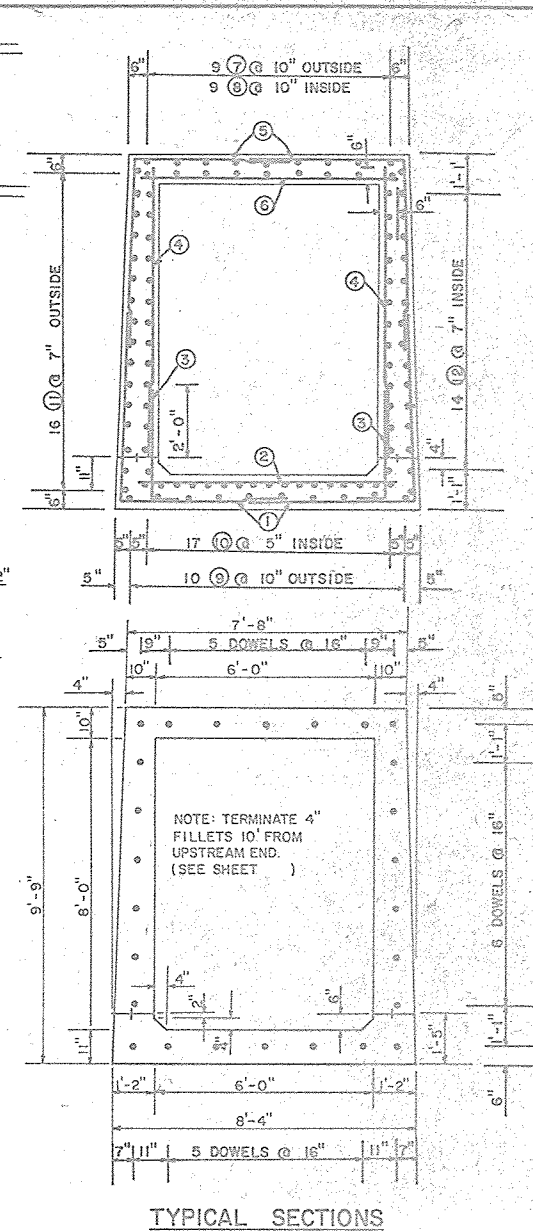
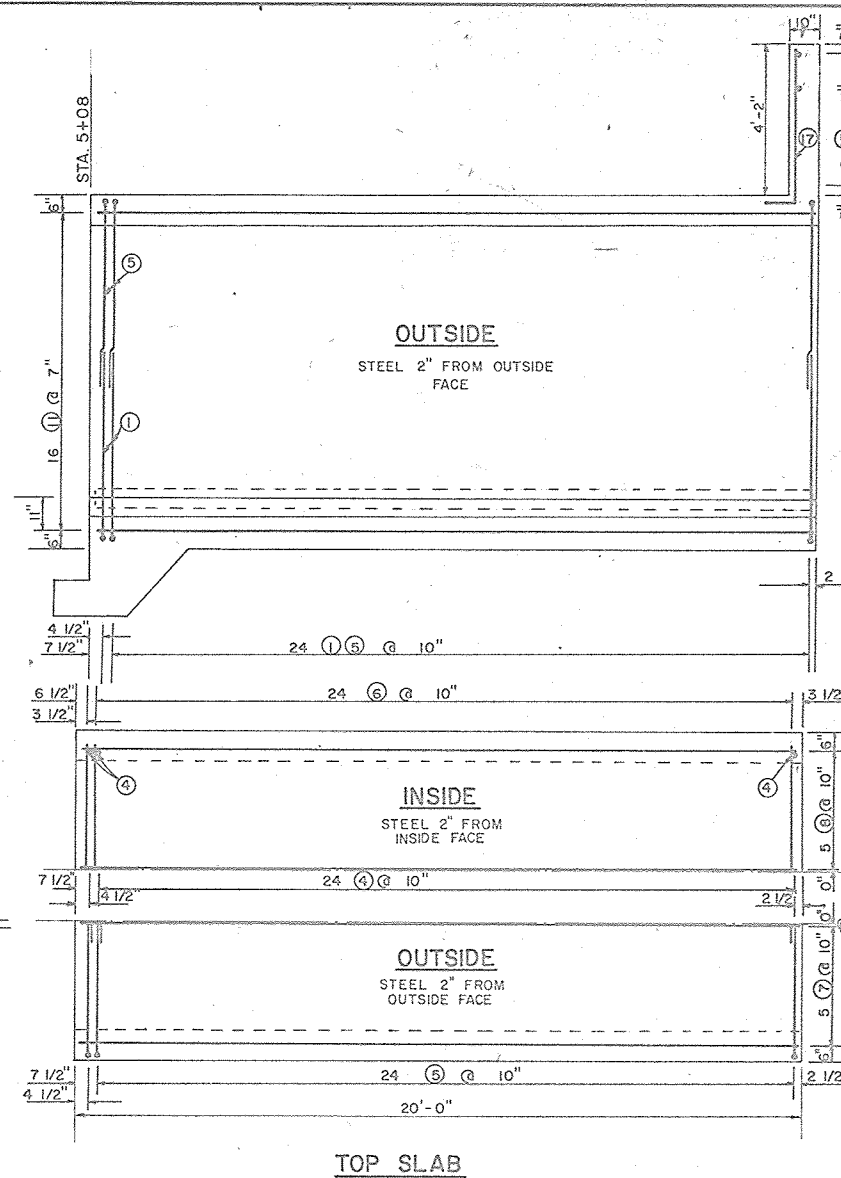
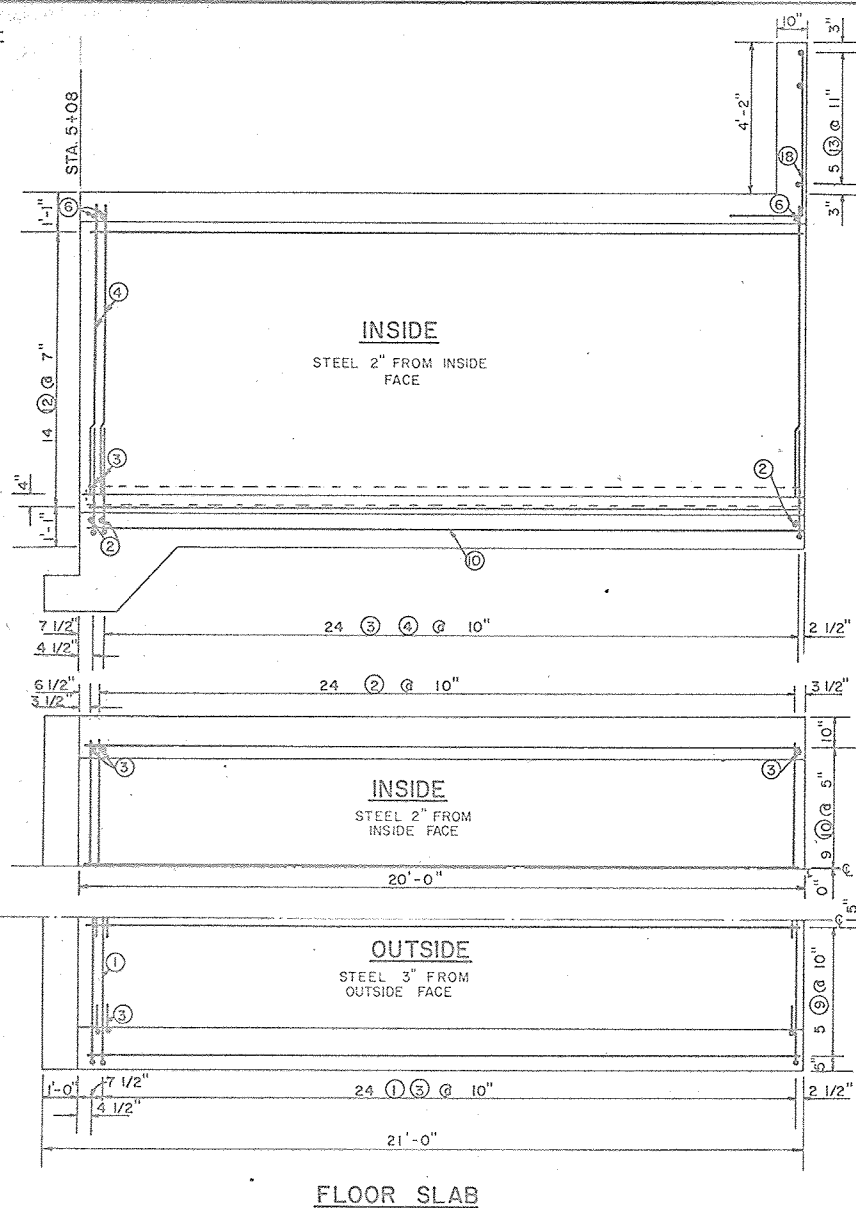
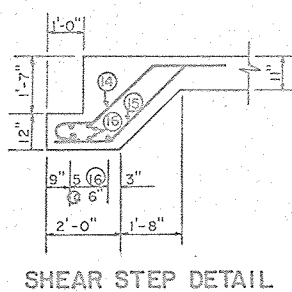
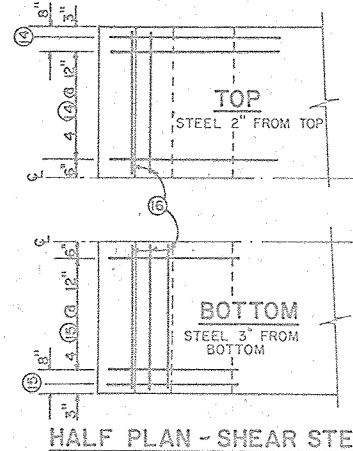
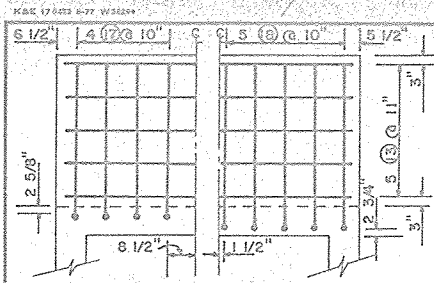
NO CHANGE IN PLANS

AS-BUILT PLANS
CONSTRUCTION
COMPLETED 5/20/86STEEL PLACEMENT - MAXIMUM CONDUIT SECTION
FLOODWATER RETARDING STRUCTURE - SITE NO. 11SANDERSON CANYON WATERSHED
IN

BREWSTER, PECOS, AND TERRELL COUNTIES TEXAS

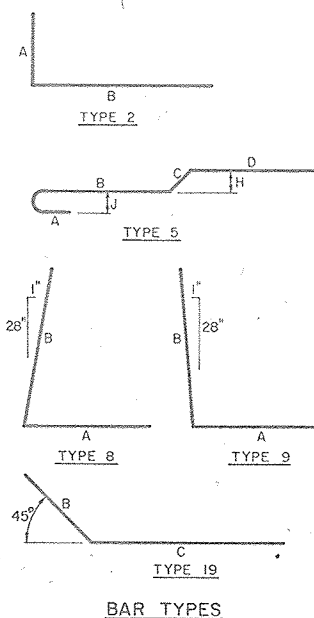
U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

Designed by G. J. M.	8-80	Date	8-80
Drawn by G. J. M.	8-80	Approved by [Signature]	8-80
Traced by C. A. N.	8-80	Title [Signature]	8-80
Checked by C. H. S.	8-80	Sheet No. 36	58
		Drawing No.	4-E-36,794



① CONC. QUANTITY INCLUDES SHEAR STEP, COVER LIP, & SIDEWALL PADS REQUIRED TO INSTALL PLATES AT STA. 5+08.

No.	Qty.	Lgth.	Total Length	Size	Type	A	B	C	D	H	J	K
D-1	50	10'-1"	504'-2"	6	STR.	4'-9"	5'-4"					
D-2	25	7'-0"	175'-0"	6	STR.	0'-9"	3'-2"					
D-3	50	3'-11"	195'-10"	5	STR.							
D-4	50	8'-0"	400'-0"	5	STR.							
D-5	50	9'-9"	487'-6"	5	STR.	4'-5"	5'-4"					
D-6	25	7'-0"	175'-0"	6	STR.							
D-7	9	19'-6"	175'-6"	3	STR.							
D-8	9	19'-6"	175'-6"	4	STR.							
D-9	10	19'-6"	195'-0"	3	STR.							
D-10	17	19'-6"	331'-6"	3	STR.							
D-11	32	19'-6"	624'-0"	3	STR.							
D-12	28	19'-6"	546'-0"	4	STR.							
D-13	10	7'-2"	71'-8"	5	STR.	0'-7"	1'-0"	2'-3"	2'-0"	1'-7"	0'-5"	
D-14	10	5'-10"	58'-4"	5	STR.	1'-6"	3'-0"					
D-15	10	4'-6"	45'-0"	5	STR.	0'-10"	4'-2"					
D-16	5	7'-10"	39'-2"	5	STR.							
D-17	9	5'-0"	45'-0"	6	STR.							
D-18	9	6'-6"	58'-6"	6	STR.							
Total Size 3 Steel			1326'-0"									
Total Size 4 Steel			721'-6"									
Total Size 5 Steel			1801'-8"									
Total Size 6 Steel			453'-6"									
Total Steel												
① Total Concrete												



NOTES:
STEEL SYMMETRICAL ABOUT C.
SEE SHEET 42 FOR LOCATION OF CHAIN LINK FENCE POST IN CONDUIT TRANSITION SECTION.
FOR SHEAR PLATE AND CONST. JOINT DETAIL SEE SHT. 33. SHEAR PLATE SHALL END 2" FROM EACH END OF THE CONDUIT TRANSITION SECTION.
FOR DOWEL PLACEMENT AND JOINT DETAILS SEE SHT. 34.
ALL BAR NUMBERS SHOWN ON THIS SHEET TO BE PREFIXED BY LETTER SYMBOL "D".

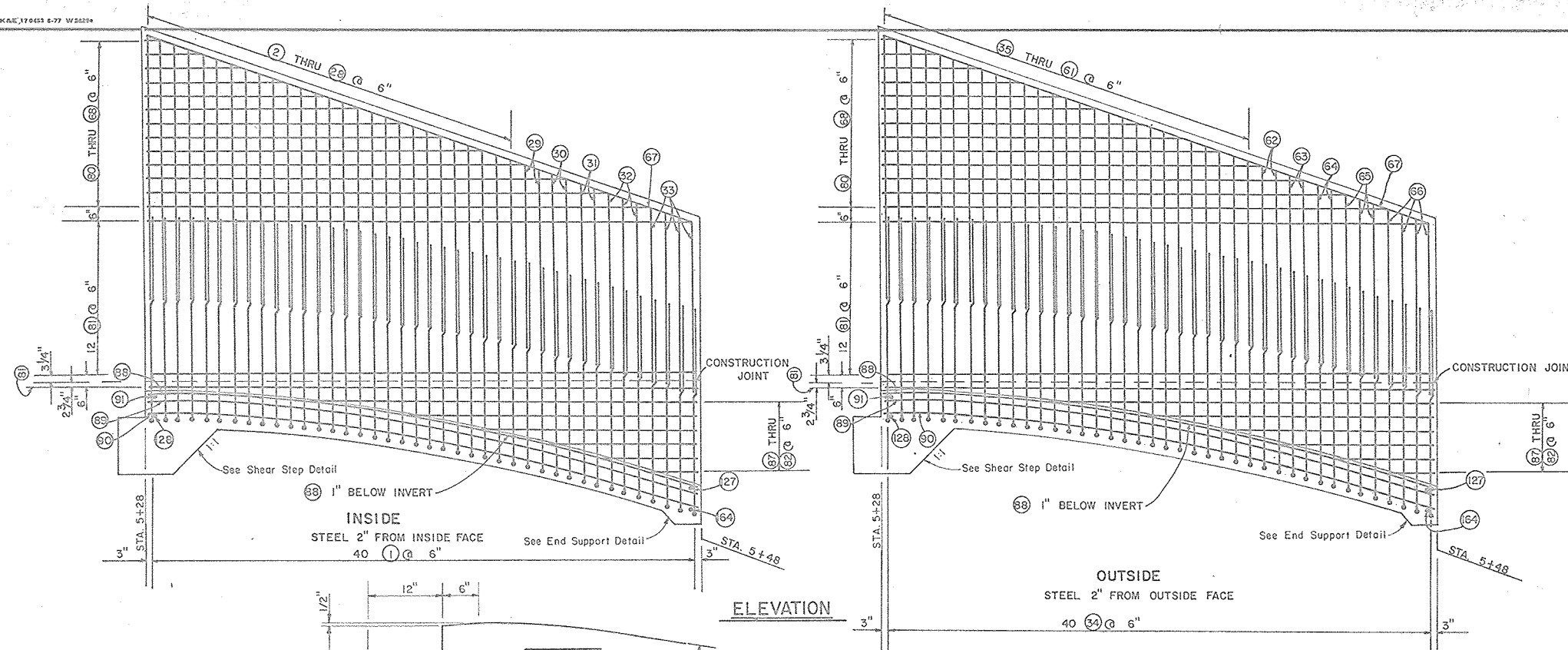
SCALE IN FEET

STEEL PLACEMENT - TRANSITION SECTION
FLOODWATER RETARDING STRUCTURE SITE NO. 11
SANDERSON CANYON WATERSHED
IN
BREWSTER, PECOS, AND TERRELL COUNTIES TEXAS

U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

Designed: G.J.M. Date: 8-80
Drawn: G.J.M. Date: 8-80
Traced: C.A.N. Date: 8-80
Checked: C.H.S. Date: 8-80

Approved: [Signature] Date: 8-80
Title: [Signature] Date: 8-80
Sheet: 37 of 58
Drawing No: 4-E-36,794

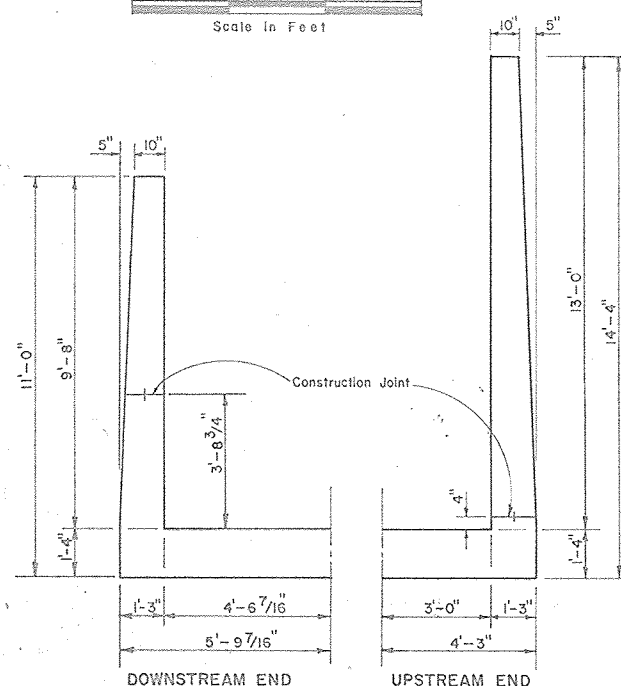


END SUPPORT DETAIL

SHEAR STEP DETAIL

Scale in Feet

0 1 2 3



PLAN-SHEAR STEP

NOTE: SEE SHT. 33 FOR SHEAR PLATE AND CONST. JOINT DETAIL. SHEAR PLATE SHALL END 2" FROM EACH END OF THE VERTICAL CURVE SECTION.

NOTE: SEE SHT. 10 FOR VERTICAL CURVE SECTION FLOOR SLAB CURVE DATA.

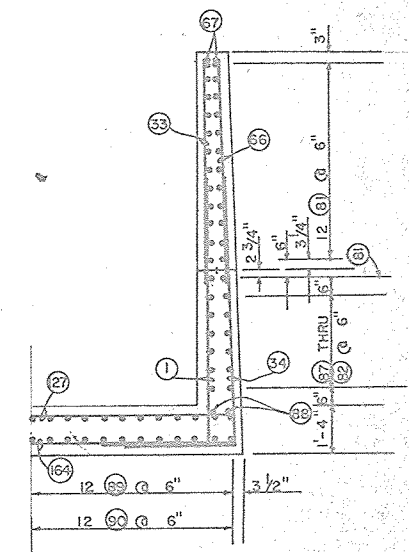
FLOOR SLAB

NOTE: STEEL SYMMETRICAL ABOUT C.

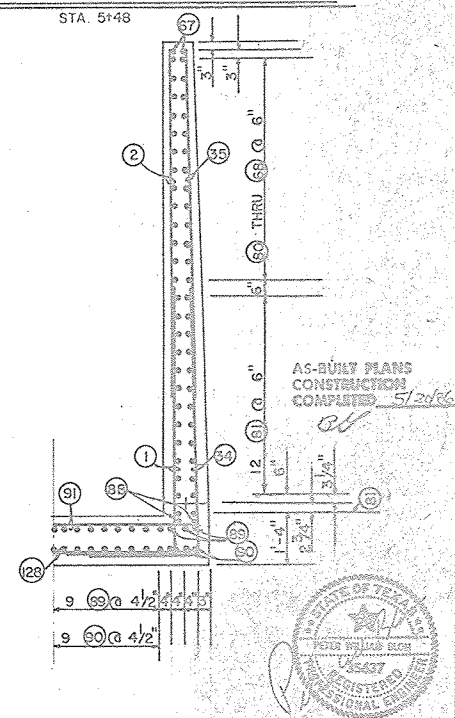
NOTE: ALL BAR NO. SHOWN ON THIS SHT. TO BE PREFIXED WITH THE LETTER SYMBOL "E".
SEE STEEL SCHEDULE, SHEET 39.

Scale in Feet

0 1 2 4 6 8



HALF SECTION - DOWNSTREAM END



HALF SECTION - UPSTREAM END

STEEL PLACEMENT - VERTICAL CURVE SECTION
FLOODWATER RETARDING STRUCTURE SITE NO. II
SANDERSON CANYON WATERSHED
IN
BREWSTER, PECOS AND TERRELL COUNTIES, TEXAS

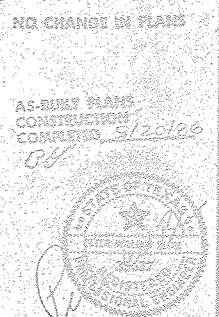
U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE


Designed... G. J. M.	Date... 8-80	Approved by... [Signature]
Drawn... G. J. M.	Date... 8-80	Title... [Signature]
Traced... J. E. G.	Date... 8-80	Title... HOUSTON, TEXAS
Checked... C. H. S.	Date... 8-80	Sheet No. 38 of 58

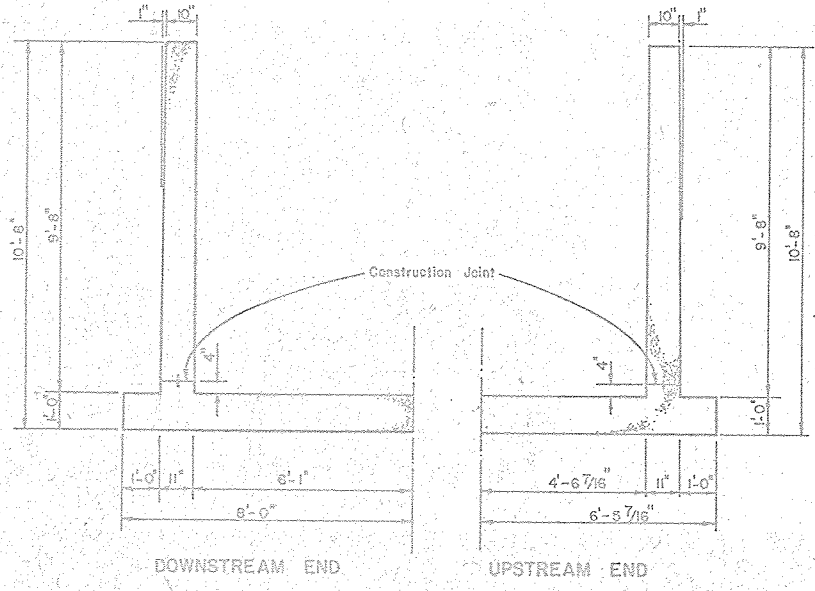
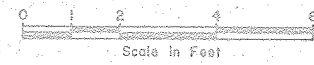
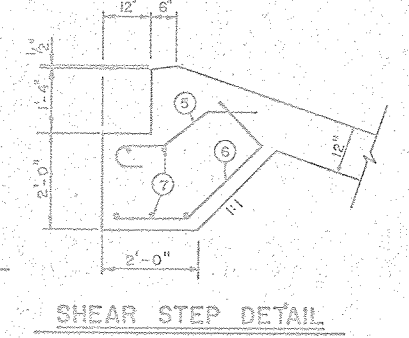
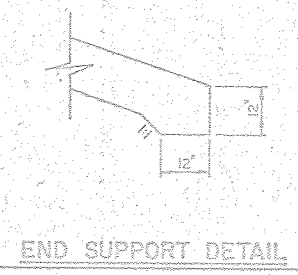
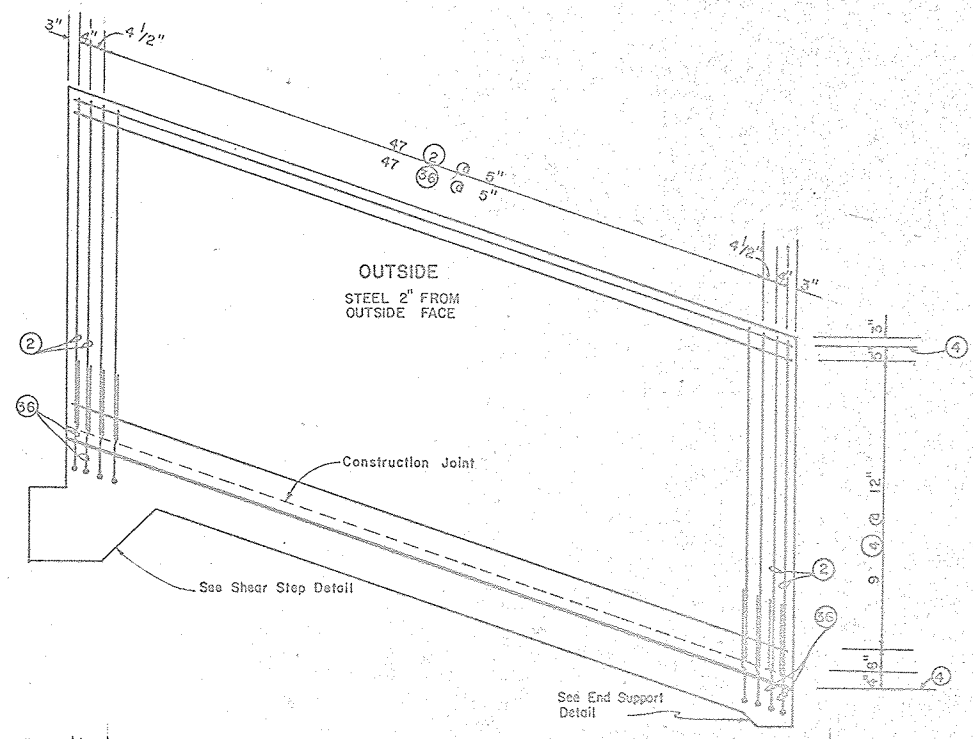
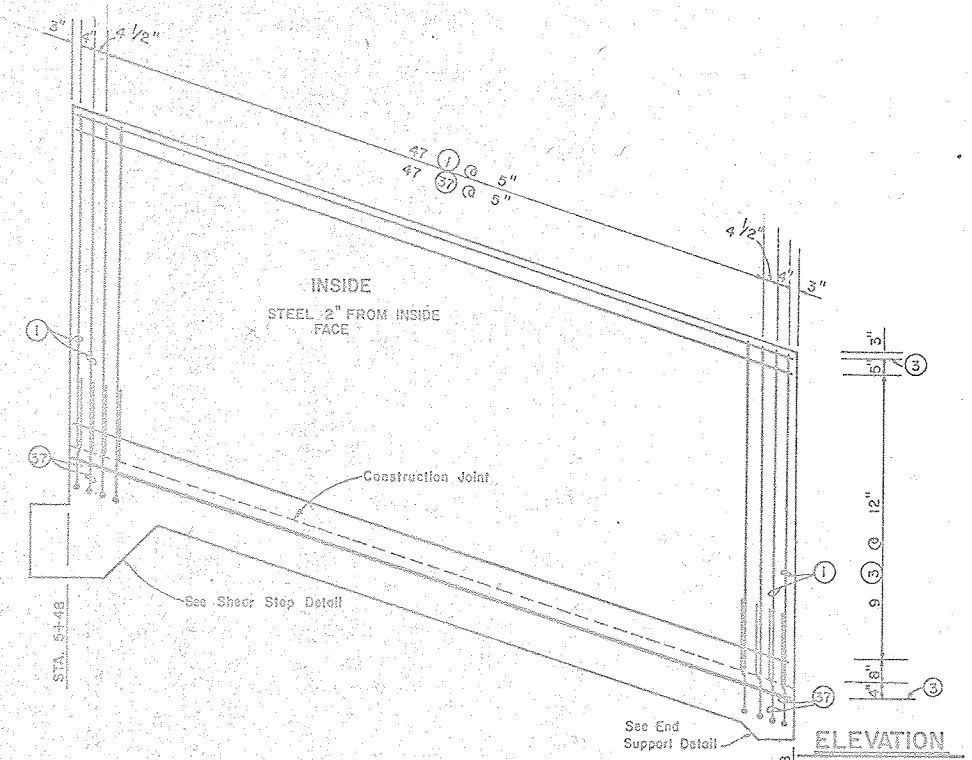
Drawing No. 4-E-36,794

[illegible]

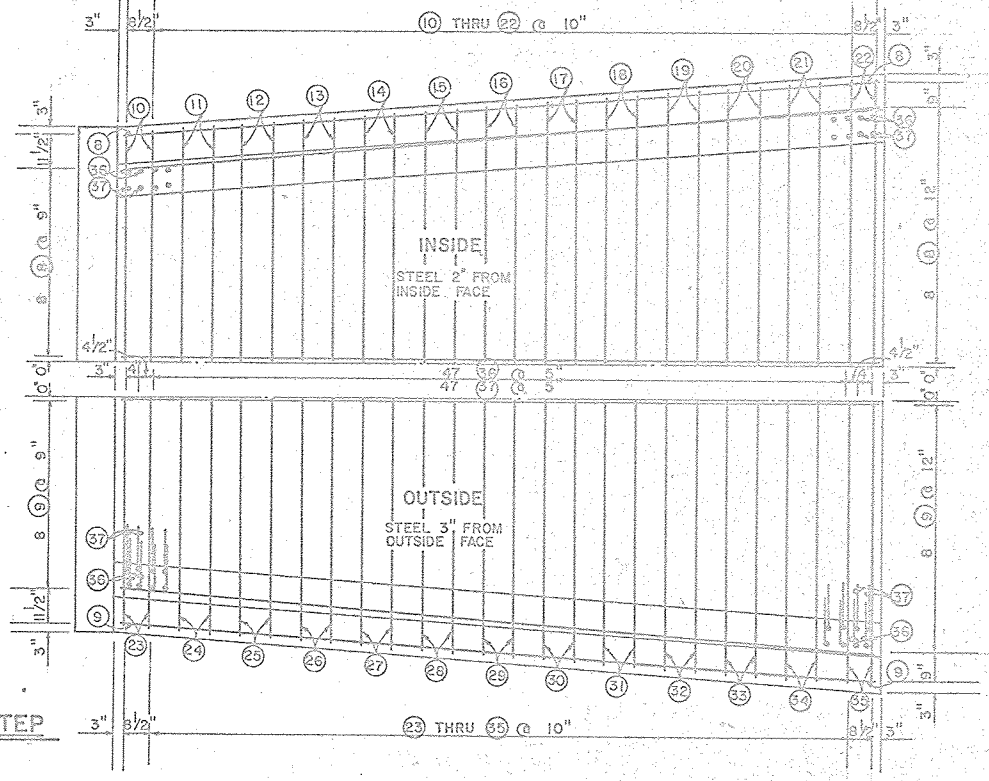
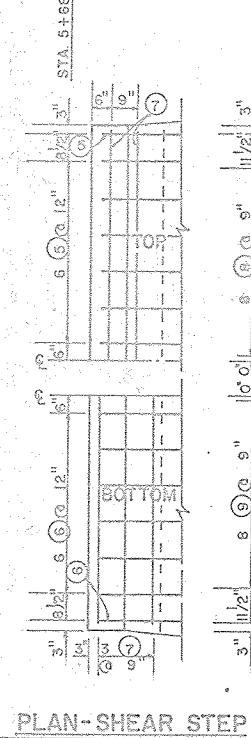
* CONCRETE QUANTITY INCLUDES PADS AT STA. 5+28



STEEL SCHEDULE - VERTICAL CURVE SECTION			
FLOODWAY RETARDING STRUCTURE SITE NO. 11			
SANDERSON CANYON WATERSHED			
IN			
BREWSTER, PECOS AND TERRELL COUNTIES, TEXAS			
 U. S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE			
Designed	G. J. M.	Date	8-80
Drawn	G. J. M.	Approved	8-80
Traced	C. A. N.	Title	STEEL SCHEDULE RETARDING STRUCTURE SITE NO. 11 SANDERSON CANYON WATERSHED BREWSTER, PECOS AND TERRELL COUNTIES, TEXAS
Checked	C. H. S.	Sheet	No. 39 of 68
		Graving No.	4-E-36,794

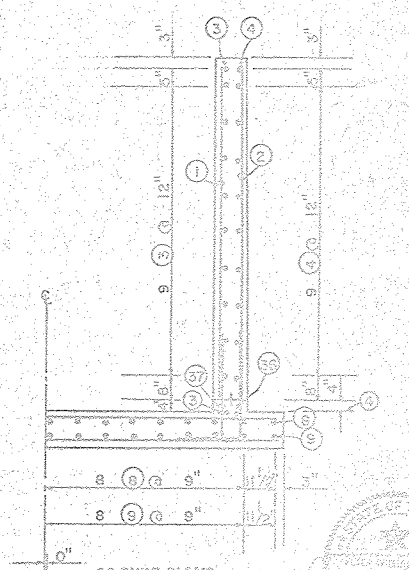
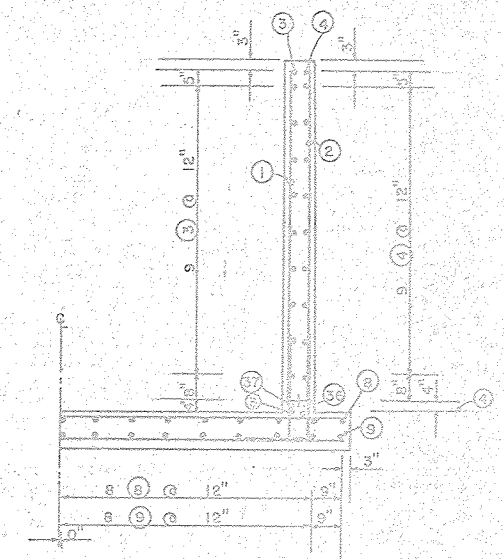
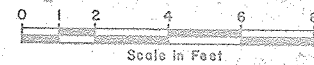


TYPICAL HALF SECTION



NOTE: ALL BAR NO. SHOWN ON THIS
SHT. TO BE PREFIXED WITH THE
LETTER SYMBOL "F". SEE STEEL
SCHEDULE, SHEET 41.

NOTE: SEE SHT. 33 FOR SHEAR PLATE
AND CONSTRUCTION JOINT DETAIL.
SHEAR PLATE SHALL END 2"
FROM EACH END OF THE OPEN
CHANNEL SECTION.



NO CHANGE IN PLANS

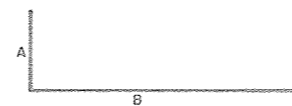
AS-BUILT PLANS
CONSTRUCTION
COMPLETED 5/20/86

STEEL PLACEMENT - OPEN CHANNEL SECTION FLOODWATER RETARDING STRUCTURE SITE NO. 11 SANDERSON CANYON WATERSHED IN BREWSTER, PECOS AND TERRELL COUNTIES, TEXAS			
U. S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE			
Designed	G. J. M.	8-80	Date
Drawn	G. J. M.	8-80	Appr'd
Traced	J. E. G.	8-80	Checked
Checked	C. H. S.	8-80	Drawn No.
			No. 40 of 88
			4-E-36,794

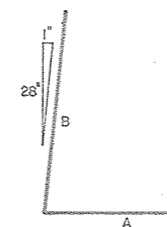
STEEL SCHEDULE - OPEN CHANNEL SECTION

NO.	Qty.	Lgth.	Total Length	Size	Type	A	B	C	D	E	F	G	H	J	K
F-1	102	9'-1"	926'-6"	3	STR.										
F-2	102	9'-1"	926'-6"	4	STR.										
F-3	22	20'-7"	452'-10"	5	STR.										
F-4	22	20'-7"	452'-10"	5	STR.										
F-5	14	3'-9"	52'-6"	5	5	0'-7"	1'-0"	1'-2"	1'-0"				0'-10"	0'-5"	
F-6	14	5'-0"	70'-0"	5	5		1'-6"	2'-2"	1'-4"						
F-7	5	12'-5"	62'-1"	5	STR.										
F-8	17	20'-7"	349'-11"	5	STR.										
F-9	17	20'-7"	349'-11"	5	STR.										
F-10	2	12'-6"	25'-0"	7	STR.										
F-11	2	12'-9"	25'-6"	7	STR.										
F-12	2	13'-0"	26'-0"	7	STR.										
F-13	2	13'-3"	26'-6"	7	STR.										
F-14	2	13'-6"	27'-0"	7	STR.										
F-15	2	13'-9"	27'-6"	7	STR.										
F-16	2	14'-0"	28'-0"	7	STR.										
F-17	2	14'-3"	28'-6"	7	STR.										
F-18	2	14'-6"	29'-0"	7	STR.										
F-19	2	14'-9"	29'-6"	7	STR.										
F-20	2	15'-0"	30'-0"	7	STR.										
F-21	2	15'-3"	30'-6"	7	STR.										
F-22	2	15'-6"	31'-0"	7	STR.										
F-23	2	12'-6"	25'-0"	7	STR.										
F-24	2	12'-9"	25'-6"	7	STR.										
F-25	2	13'-0"	26'-0"	7	STR.										
F-26	2	13'-3"	26'-6"	7	STR.										
F-27	2	13'-6"	27'-0"	7	STR.										
F-28	2	13'-9"	27'-6"	7	STR.										
F-29	2	14'-0"	28'-0"	7	STR.										
F-30	2	14'-3"	28'-6"	7	STR.										
F-31	2	14'-6"	29'-0"	7	STR.										
F-32	2	14'-9"	29'-6"	7	STR.										
F-33	2	15'-0"	30'-0"	7	STR.										
F-34	2	15'-3"	30'-6"	7	STR.										
F-35	2	15'-6"	31'-0"	7	STR.										
F-36	102	6'-0"	612'-0"	7	19	3'-0"	3'-0"								
F-37	102	4'-3"	433'-6"	3	2	1'-3"	3'-0"								
TOTAL SIZE 3 STEEL = 1360'-0" = 511.36 LBS.															
TOTAL SIZE 4 STEEL = 926'-6" = 618.90 LBS.															
TOTAL SIZE 5 STEEL = 1790'-1" = 1867.06 LBS.															
TOTAL SIZE 7 STEEL = 1340'-0" = 2738.96 LBS.															
TOTAL STEEL = 5736.28 LBS.															
*TOTAL CONCRETE = 27.66 CU. YDS.															

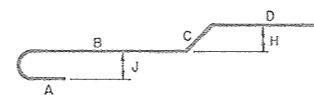
* CONCRETE QUANTITY INCLUDES SHEAR STEP AND SIDEWALL PADS AT STA. 5+48 AND STA. 5+68.



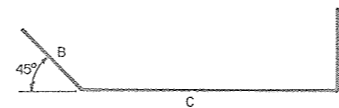
TYPE 2



TYPE 19



TYPE 5



TYPE 8

BAR TYPES

NO CHANGE IN PLANS

AS-BUILT PLANS
CONSTRUCTION
COMPLETED 5/20/86

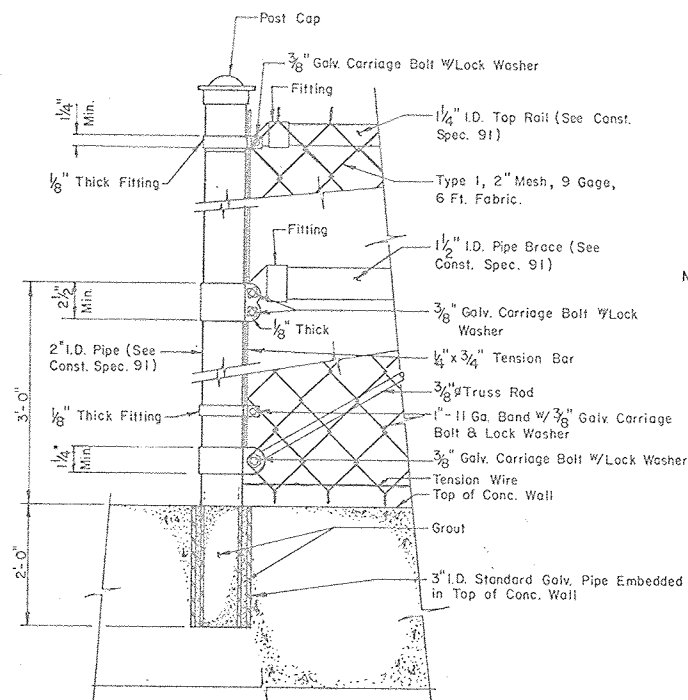
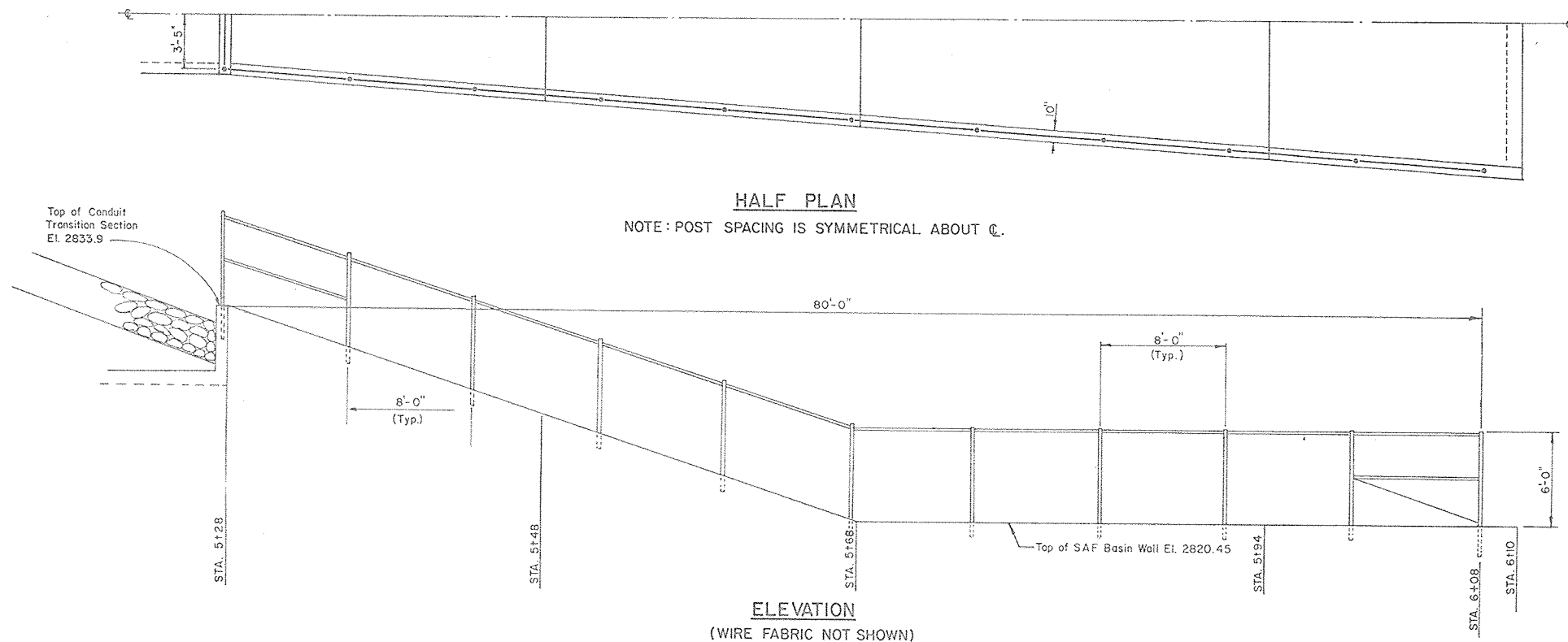


STEEL SCHEDULE - OPEN CHANNEL SECTION
FLOODWATER RETARDING STRUCTURE SITE NO. 11
SANDERSON CANYON WATERSHED
IN
BREWSTER, PECOS AND TERRELL COUNTIES, TEXAS

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

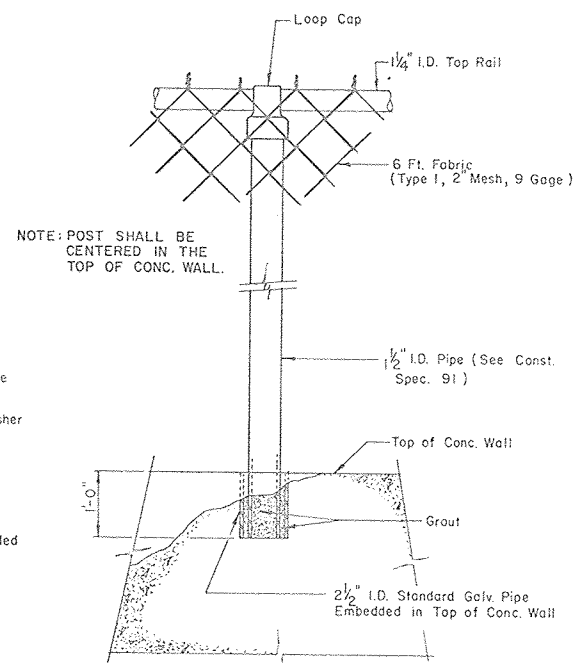
Drawn by	G. J. M.	8-80	Checked by	G. J. M.	8-80	Project No.	41
Drawn by	G. J. M.	8-80	Checked by	C. A. N.	8-80	Sheet No.	41
Drawn by	C. A. N.	8-80	Checked by	C. H. S.	8-80	Sheet No.	41
Drawn by	C. H. S.	8-80	Checked by			Sheet No.	41

4-E-36,794



POST DETAIL

(FOR GATE, END, AND PULL POST)



LINE POST DETAIL

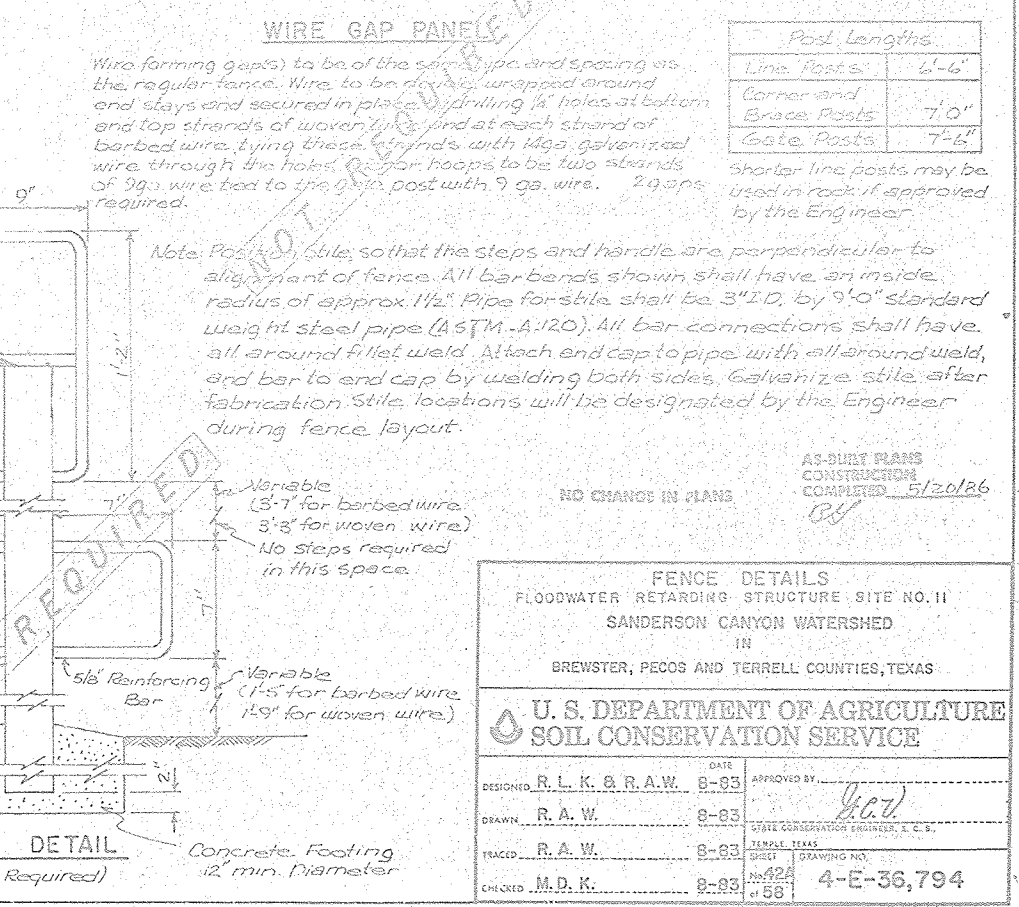
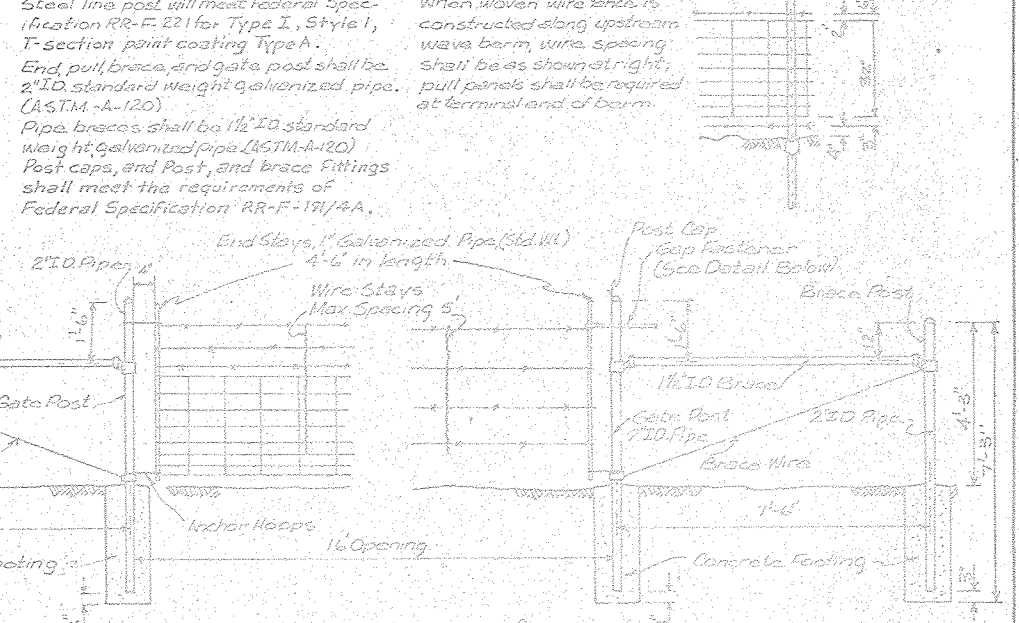
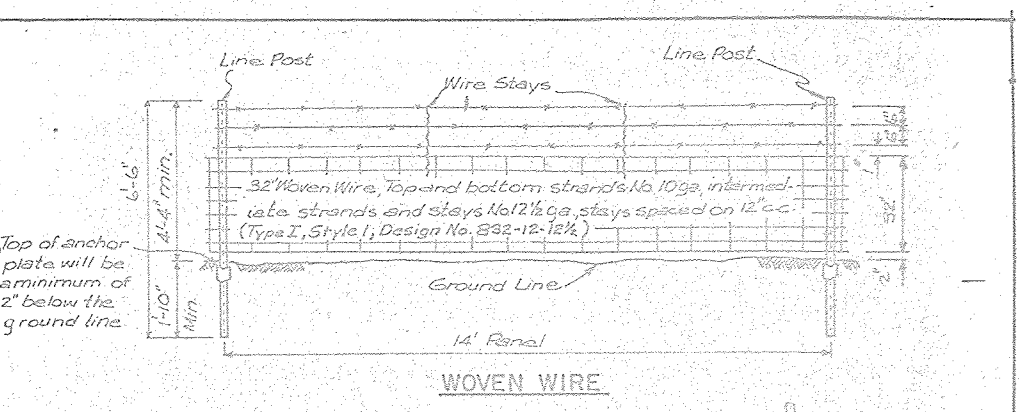
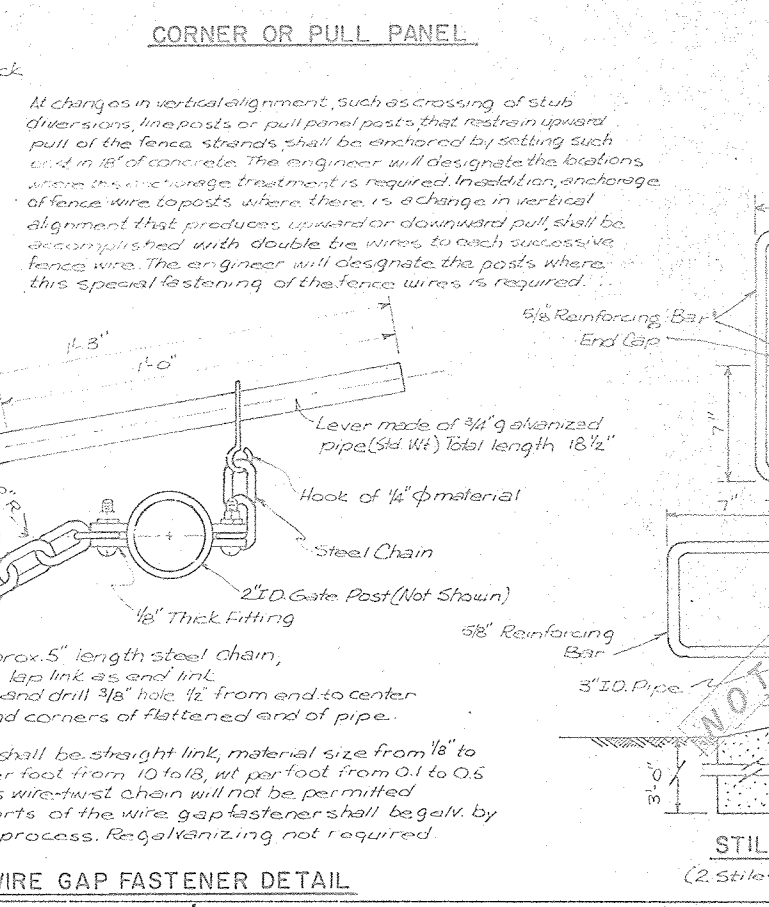
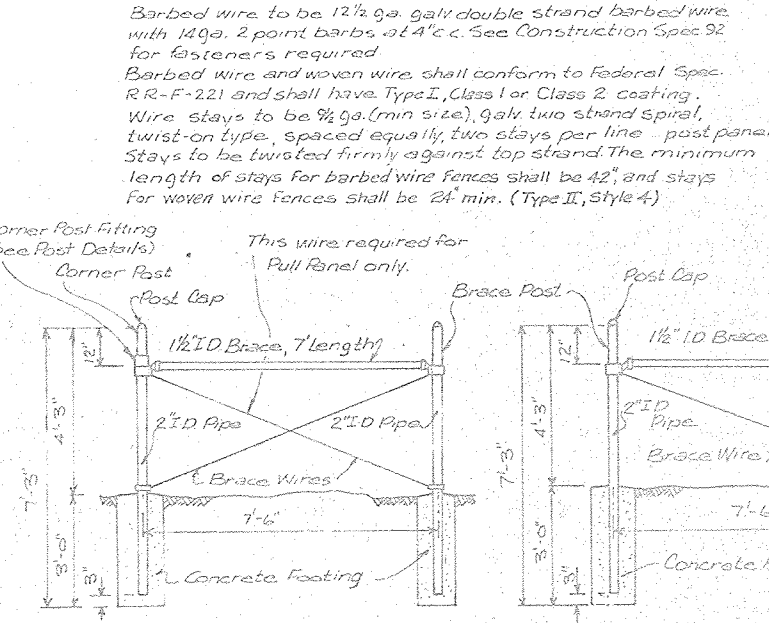
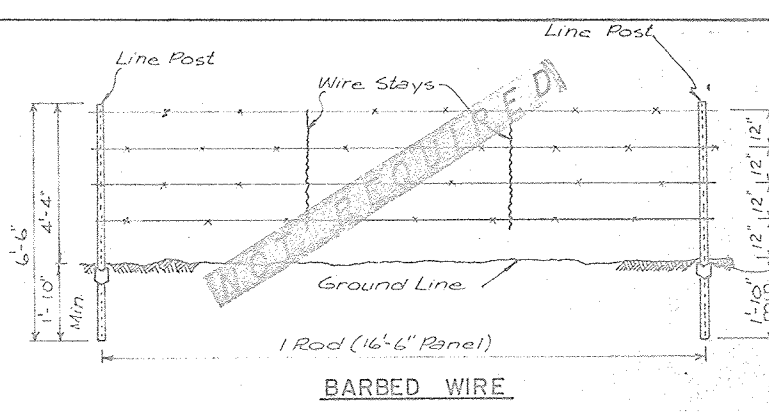
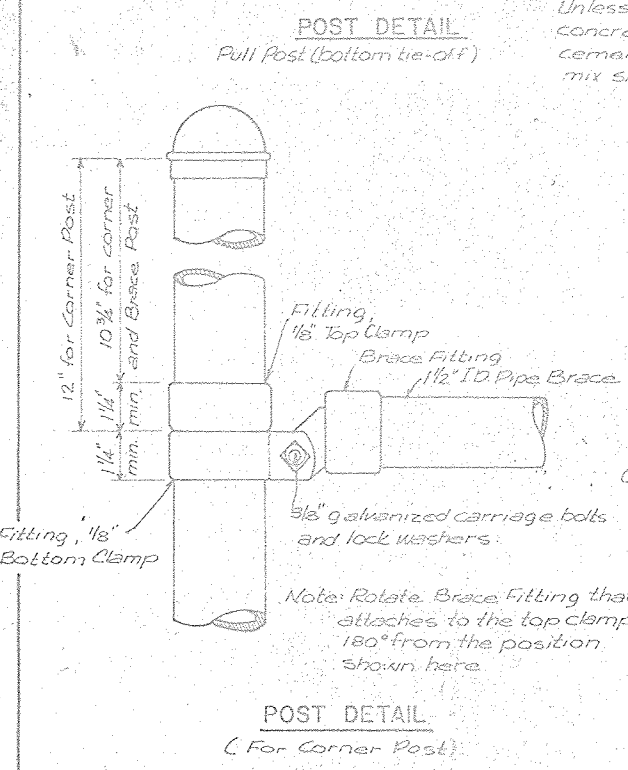
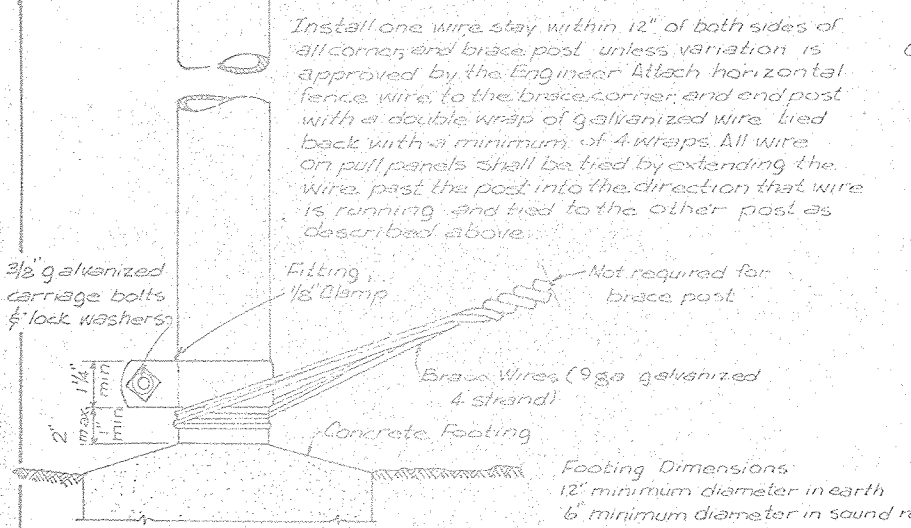
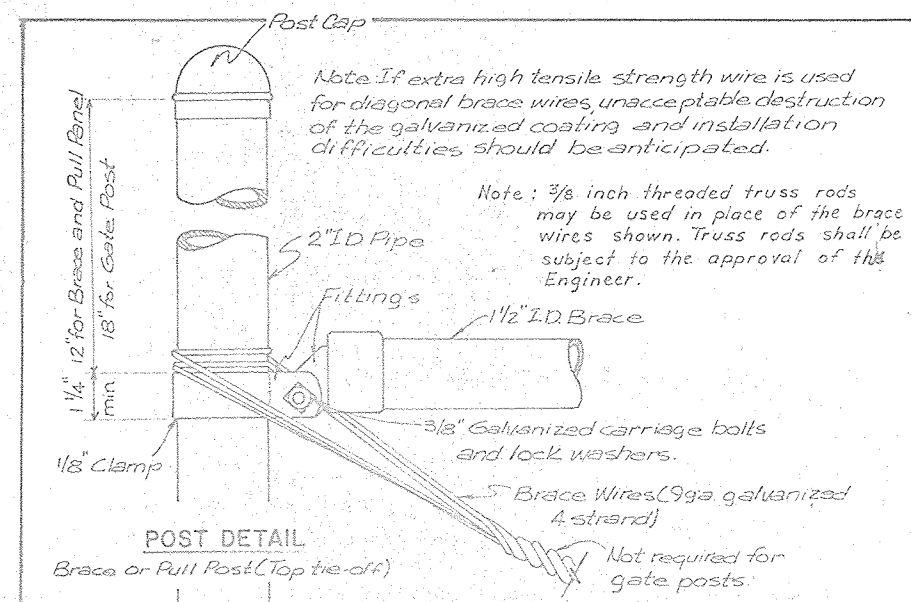
6 FT. CHAIN LINK FENCE

NO CHANGE IN PLANS

AS-BUILT PLANS
CONSTRUCTION
COMPLETED 5/30/86
124



6 FT. CHAIN LINK FENCE DETAIL FLOODWATER RETARDING STRUCTURE SITE NO. 11 SANDERSON CANYON WATERSHED IN BREWSTER, PECOS AND TERRELL COUNTIES, TEXAS			
U. S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE			
Designed	G.J.M.	Date	8-80
Drawn	G.J.M.	Date	8-80
Traced	C.A.N.	Date	8-80
Checked	C.H.S.	Date	8-80
Approved by Title State Construction Engineer, S.C.S. Title Registered Professional Engineer Title Houston, Texas		Sheet No. 42 of 58	
Drawing No. 4-E-36,794			



Post Lengths	
Line Posts	6'-6"
Corner and Brace Posts	7'-0"
Gate Posts	7'-6"

Shorter line posts may be used in rock if approved by the Engineer.

NO CHANGE IN PLANS

AT-BUILT PLANS CONSTRUCTION COMPLETED 5/20/26

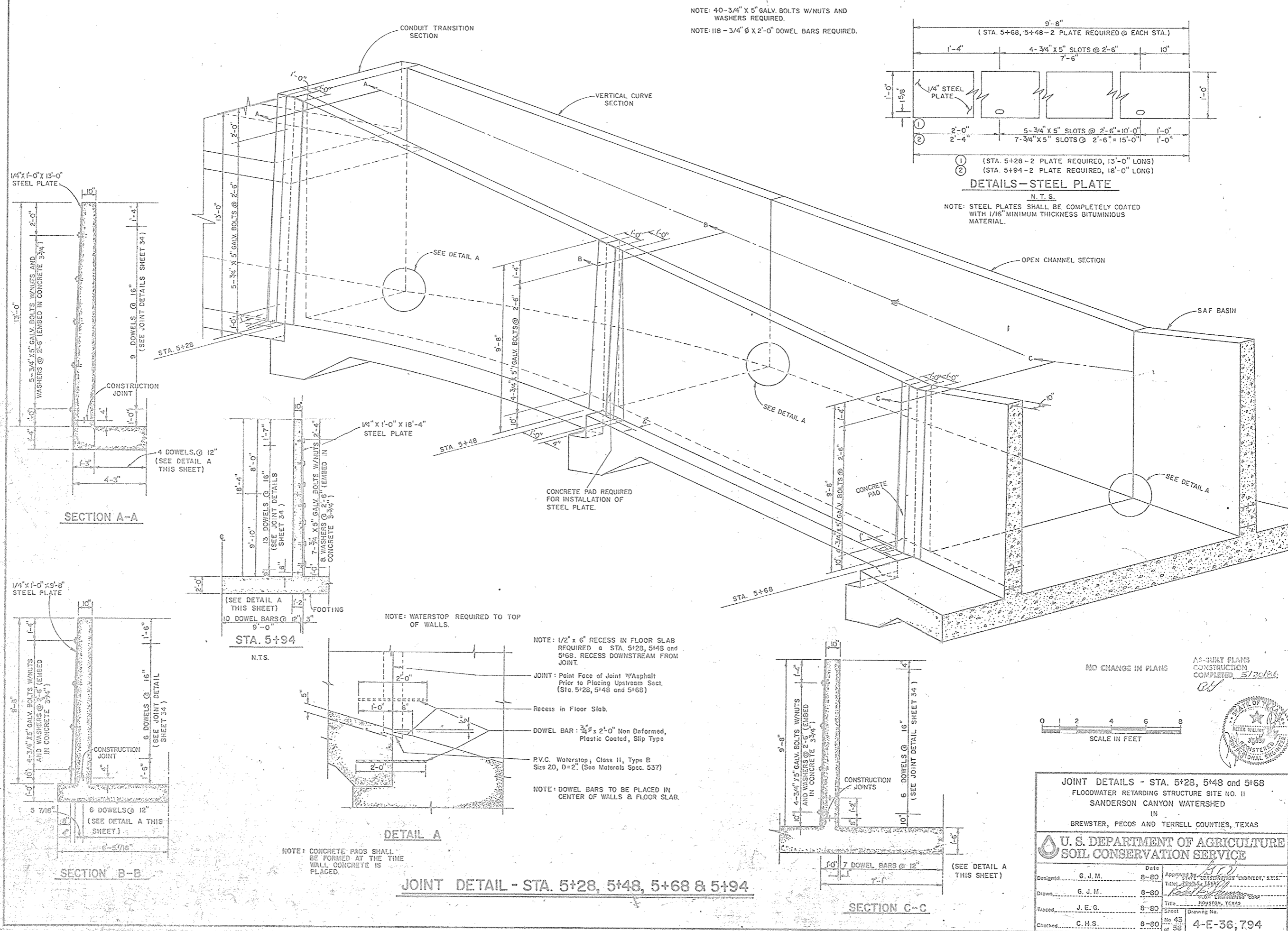
84

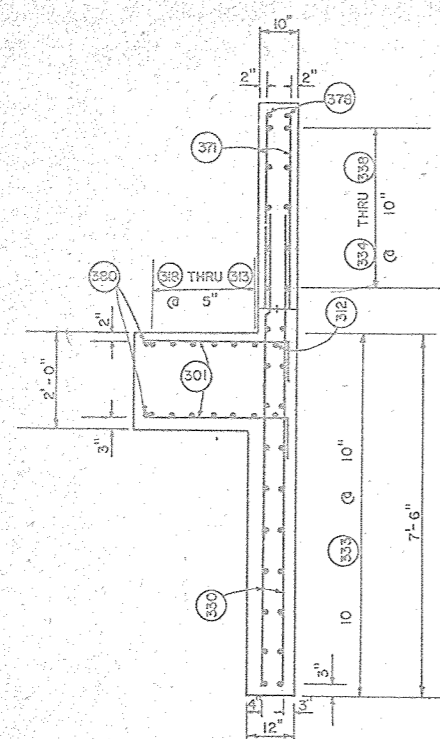
FENCE DETAILS
FLOODWATER RETARDING STRUCTURE SITE NO. 11
SANDERSON CANYON WATERSHED
IN
BREWSTER, PECOS AND TERRELL COUNTIES, TEXAS

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

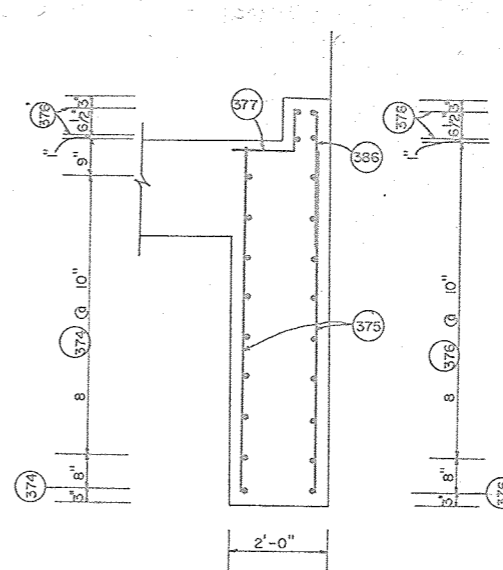
DESIGNED BY R. L. K. & R. A. W. 8-83
DRAWN BY R. A. W. 8-83
TRACED BY R. A. W. 8-83
CHECKED BY M. D. K. 8-83

DATE 8-83
APPROVED BY [Signature]
STATE CONSERVATION ENGINEER, E. C. S.
TEMPLE, TEXAS
DRAWING NO. 4-E-36,794

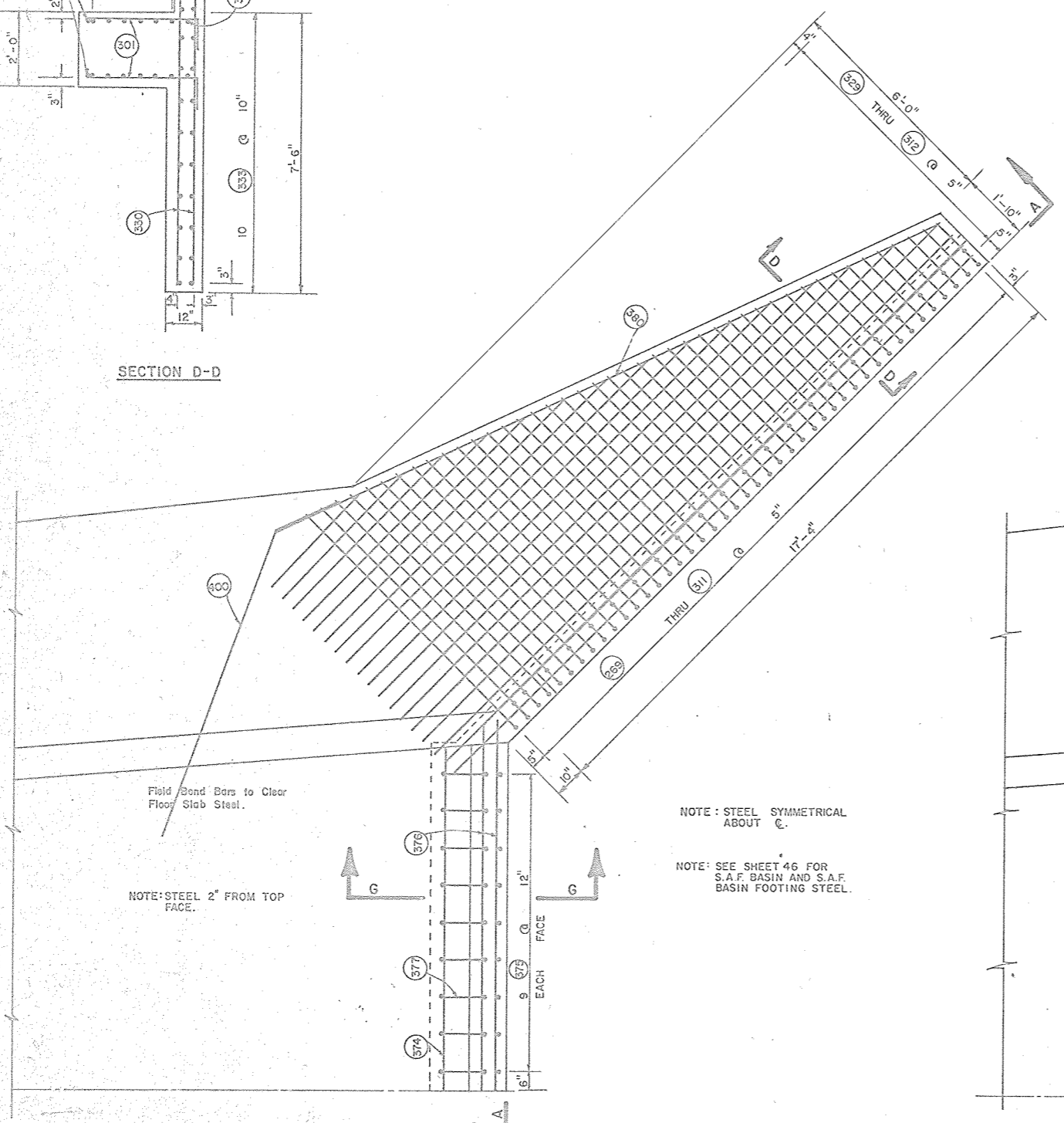




SECTION D-D



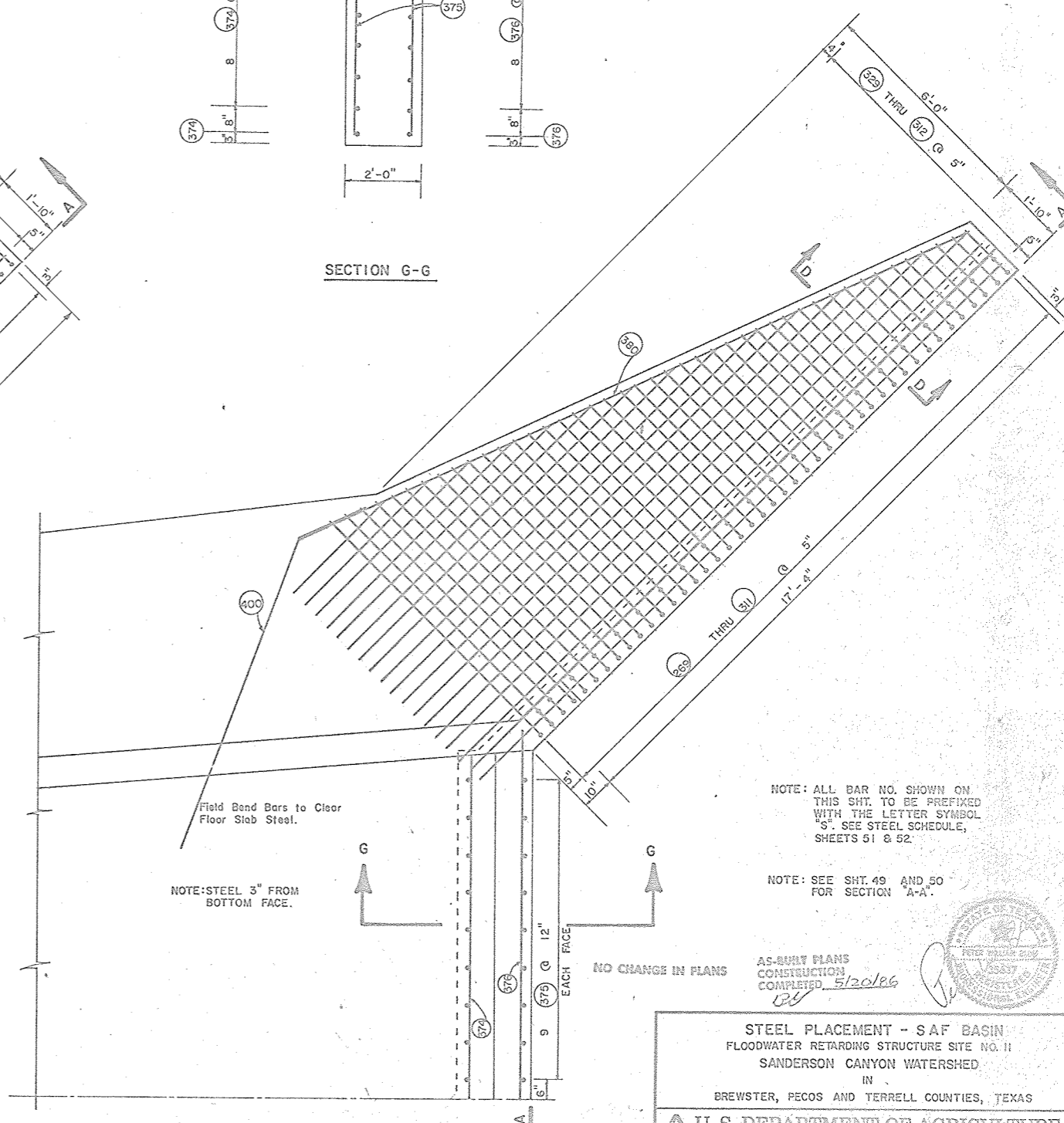
SECTION G-G



NOTE: STEEL 2" FROM TOP FACE.

NOTE: STEEL SYMMETRICAL ABOUT C.

NOTE: SEE SHEET 46 FOR S.A.F. BASIN AND S.A.F. BASIN FOOTING STEEL.



NOTE: STEEL 3" FROM BOTTOM FACE.

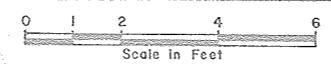
NOTE: ALL BAR NO. SHOWN ON THIS SHT. TO BE PREFIXED WITH THE LETTER SYMBOL "S". SEE STEEL SCHEDULE, SHEETS 51 & 52.

NOTE: SEE SHT. 49 AND 50 FOR SECTION "A-A".

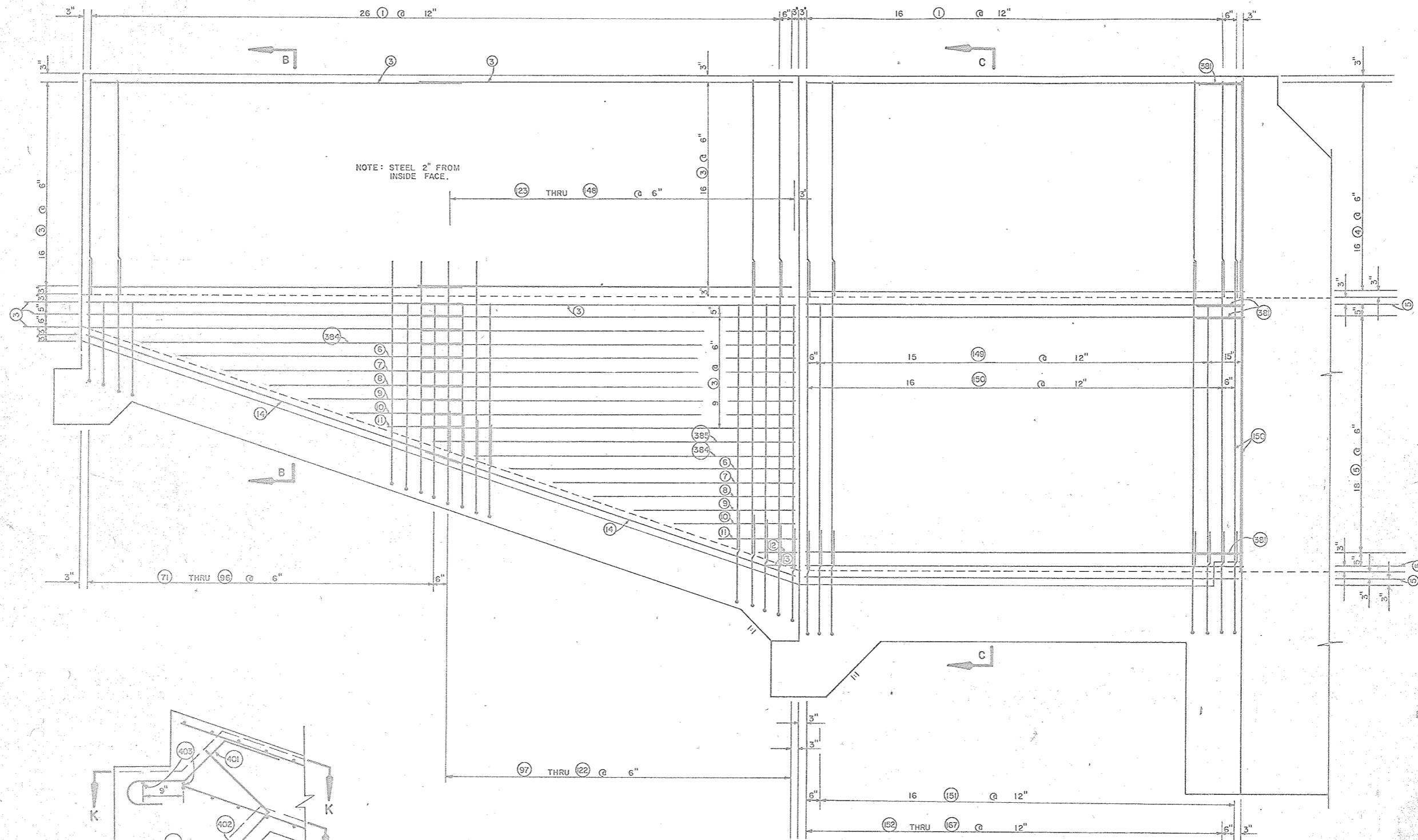
AS-BUILT PLANS
CONSTRUCTION
COMPLETED 5/20/86



HALF PLAN - WINGWALL FOOTING

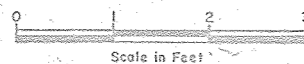


STEEL PLACEMENT - S.A.F. BASIN FLOODWATER RETARDING STRUCTURE SITE NO. II SANDERSON CANYON WATERSHED IN BREWSTER, PECOS AND TERRELL COUNTIES, TEXAS			
U. S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE			
Designed by	G. J. M.	Date	8-80
Drawn by	G. J. M.	Date	8-80
Traced by	J. E. G.	Date	8-80
Checked by	C. H. S.	Date	8-80
Title		Drawing No.	
No. 45 of 58		4-E-36,794	



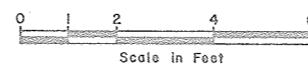
UP STREAM HEEL SECTION

(SEE SHT. 48 FOR SECTION J-J AND SECTION K-K)



INSIDE

SECTION ON CENTERLINE



NOTE: ALL BAR NUMBERS SHOWN ON THIS SHT. TO BE PREFIXED WITH THE LETTER SYMBOL "S". SEE STEEL SCH. SHT 51 & 52

NOTE: SEE SHT. 50 FOR SECTION B-B AND SECTION C-C.

NO CHANGE IN PLANS

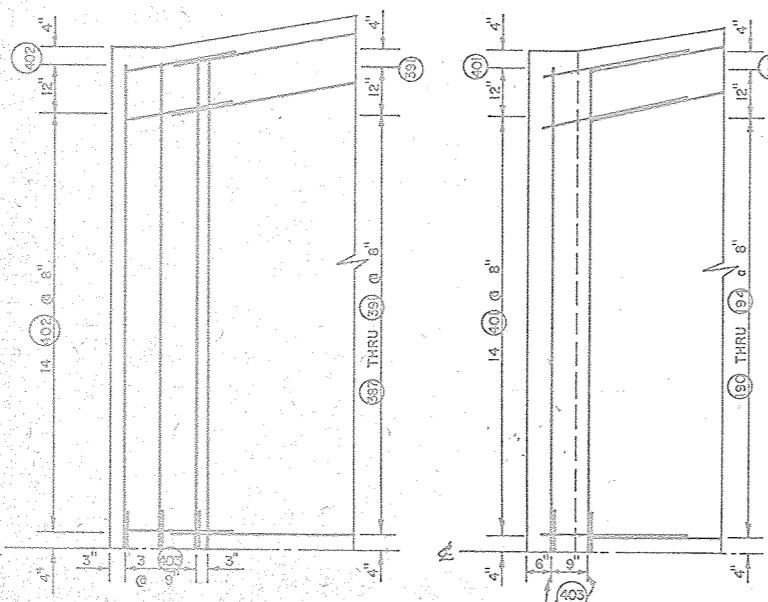
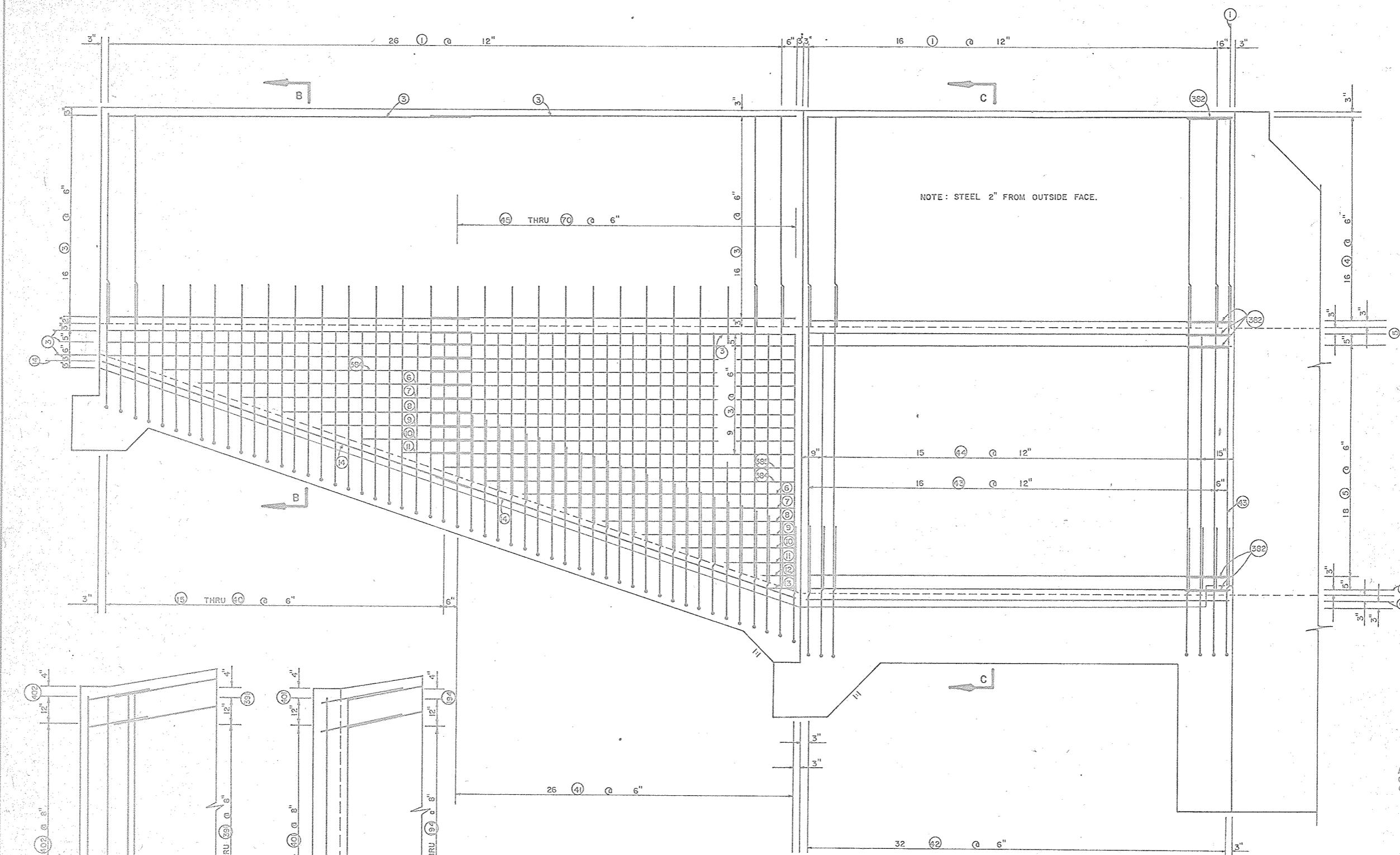
AS-BUILT PLANS
CONSTRUCTION
COMPLETED 5/20/86



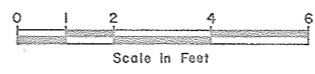
STEEL PLACEMENT - SAF BASIN
FLOODWATER RETARDING STRUCTURE SITE NO. 11
SANDERSON CANYON WATERSHED
IN
BREWSTER, PECOS AND TERRELL COUNTIES, TEXAS

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

Designed by	G. J. M.	Date	8-80	Approved by	J. E. G.
Drawn	G. J. M.	Date	8-80	This is a true and correct copy of the original as shown to me.	
Traced	J. E. G.	Date	8-80	Title	HOUSTON, TEXAS
Checked	C. H. S.	Date	8-80	Sheet	No. 47 of 58
					Drawing No.
					4-E-36,794



OUTSIDE
SECTION ON CENTERLINE



NOTE: ALL BAR NUMBERS SHOWN ON THIS
SHT. TO BE PREFIXED WITH THE
LETTER SYMBOL 'S'. SEE STEEL
SCH. SHT. 51 & 52.

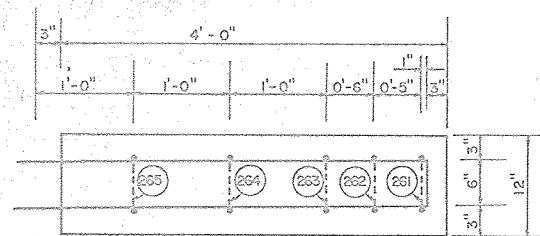
NOTE: SEE SHT. 50 FOR SECTION B-B AND
SECTION C-C.

NO CHANGE IN PLANS

AS-BUILT PLANS
CONSTRUCTION
COMPLETED 5/20/86

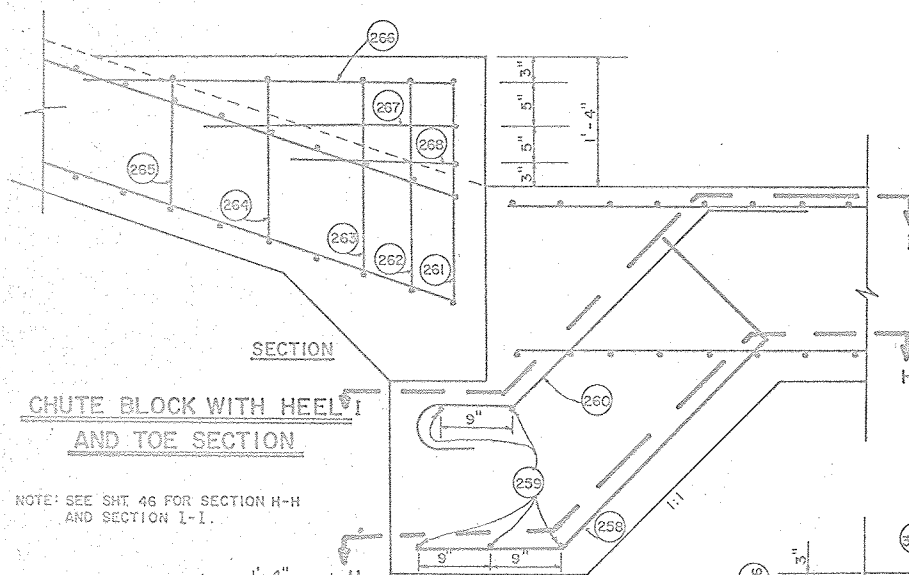
134

STEEL PLACEMENT - SAF BASIN FLOODWATER RETARDING STRUCTURE SITE NO. 11 SANDERSON CANYON WATERSHED IN BREWSTER, PECOS AND TERRELL COUNTIES, TEXAS			
U. S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE			
Designed	G. J. M.	Date	8-80
Drawn	G. J. M.	Sheet	48
Traced	J. E. G.	Sheet	48
Checked	C. H. S.	Sheet	48
		Drawing No.	4-E-36,794



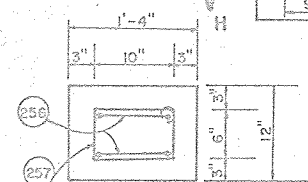
PLAN

NOTE: SEE SHT. 50 FOR SECTION E-E & SECTION F-F.

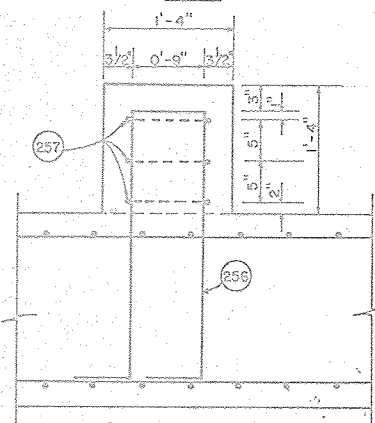


CHUTE BLOCK WITH HEEL AND TOE SECTION

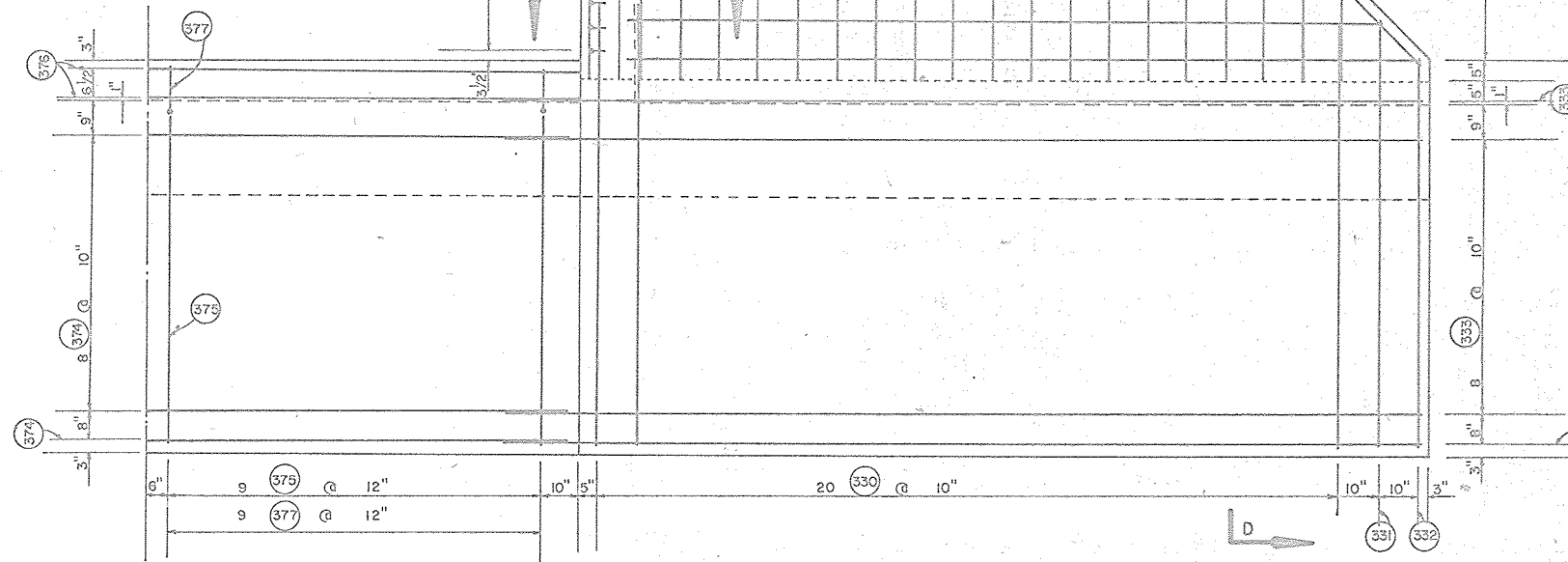
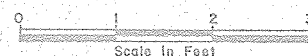
NOTE: SEE SHT. 46 FOR SECTION H-H AND SECTION I-I.



PLAN



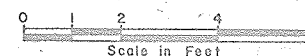
SECTION FLOOR BLOCKS



NOTE: STEEL SYMMETRICAL ABOUT C.

OUTSIDE SECTION A-A

NOTE: SEE SHT. 45 & 46 FOR LOCATION OF SECTION A-A.



NOTE: STEEL 2" FROM OUTSIDE FACE

NOTE: ALL BAR NUMBERS SHOWN ON THIS SHT. TO BE PREFIXED WITH THE LETTER SYMBOL "S" SEE STEEL SCH. SHT. 51 & 52.

NOTE: SEE SHT. 45 FOR SECTION D-D.

NO CHANGE IN PLANS

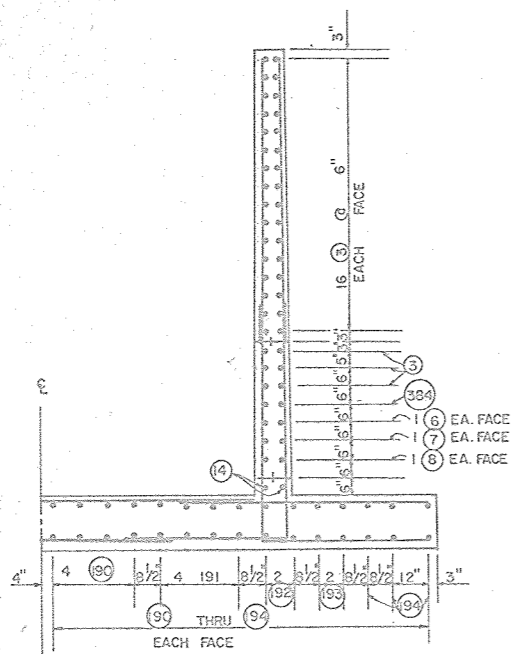
AS-BUILT PLANS CONSTRUCTION COMPLETED 5/20/86

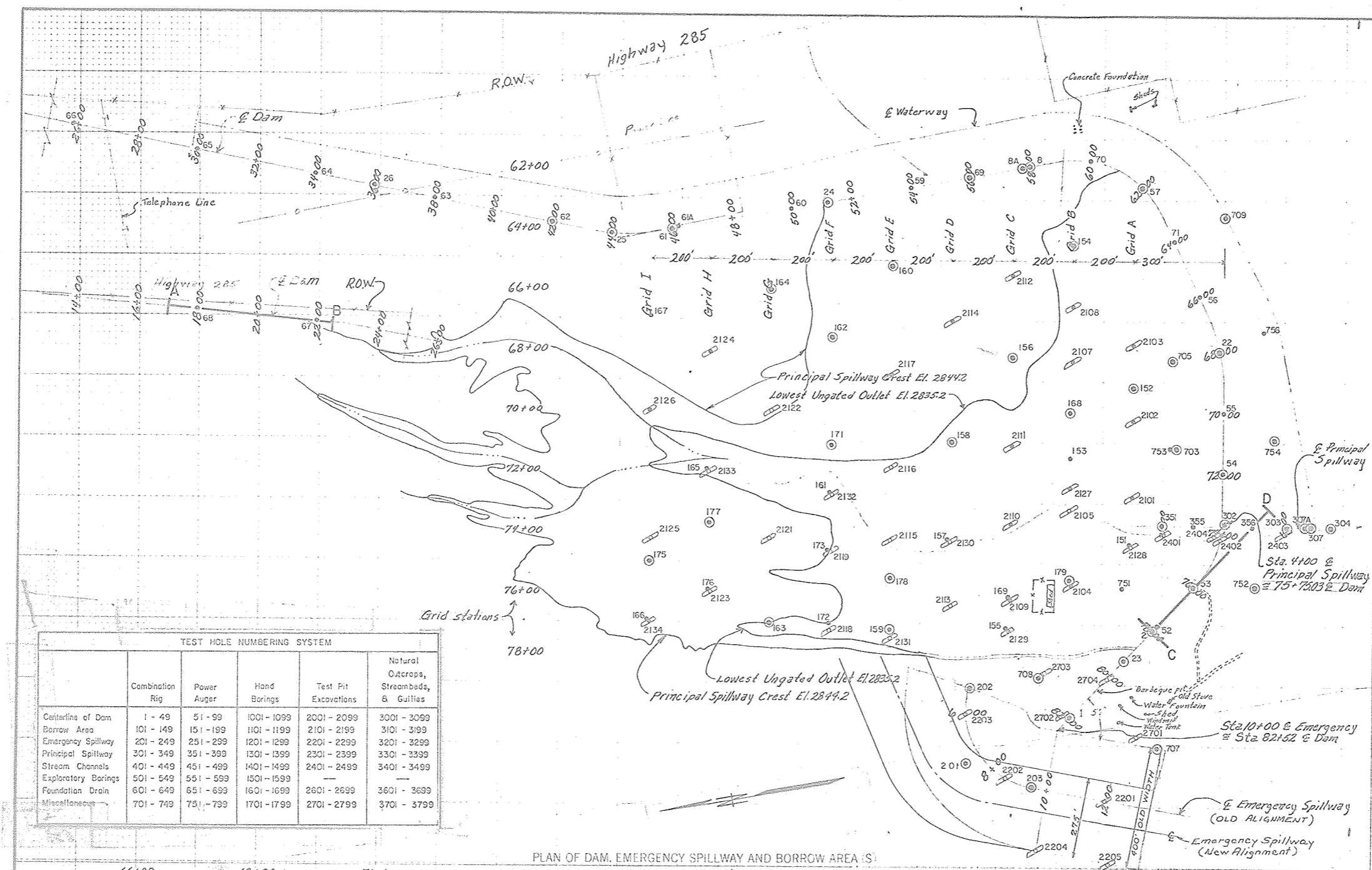


STEEL PLACEMENT - SAF BASIN
FLOODWATER RETARDING STRUCTURE SITE NO. 11
SANDERSON CANYON WATERSHED
IN
BREWSTER, PECOS AND TERRELL COUNTIES, TEXAS

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

Designed	G. J. M.	Date	8-80	Approved by	W. J. M.
Drawn	G. J. M.	Date	8-80	Checked by	W. J. M.
Traced	J. E. G.	Date	8-80	Sheet	No. 49 of 58
Checked	C. H. S.	Date	8-80	Drawing No.	4-E-36,794





TEST HOLE NUMBERING SYSTEM					
	Combination Rig	Power Auger	Hand Borings	Test Pit Excavations	Natural Outcrops, Streambeds, & Gullies
Centerline of Dam	1 - 49	51 - 99	1001 - 1099	2001 - 2099	3001 - 3099
Borrow Area	101 - 149	151 - 199	1101 - 1199	2101 - 2199	3101 - 3199
Emergency Spillway	201 - 249	251 - 299	1201 - 1299	2201 - 2299	3201 - 3299
Principal Spillway	301 - 349	351 - 399	1301 - 1399	2301 - 2399	3301 - 3399
Stream Channels	401 - 449	451 - 499	1401 - 1499	2401 - 2499	3401 - 3499
Exploratory Borings	501 - 549	551 - 599	1501 - 1599	—	—
Foundation Drain	601 - 649	651 - 699	1601 - 1699	2601 - 2699	3601 - 3699
Miscellaneous	701 - 749	751 - 799	1701 - 1799	2701 - 2799	3701 - 3799

LEGEND

SYMBOLS

UNCONSOLIDATED MATERIAL

gravel	sand	silt	clay	cobbles, boulders
gravel, sandy	sand, gravelly	silt, gravelly	clay, gravelly	peat or muck
gravel, silty	sand, silty	silt, sandy	clay, sandy	caliche
gravel, clayey	sand, clayey	silt, clayey	clay, silty	

CONSOLIDATED MATERIAL

Sedimentary Rocks

Conglomerate	shale	limestone	coal
breccia	siltstone	dolomite	gypsum
sandstone	marl	chalk	chert

Metamorphic Rocks

gneiss	schist	intrusive	extrusive
quartzite	slate	pyroclastic	
marble	soapstone	undifferentiated	

Igneous Rocks

pyroclastic	
serpentine	

Other Symbols

hole logged only	strike and dip	Pit logged only
hole sampled	pit or trench sampled	

ABBREVIATIONS

ang. angular	lam. laminated	G. gravel, gravelly
bld. boulders > 12"	lse. loose	S. sand, sandy
calc. calcareous	mas. massive	M. silt, silty
cal. caliche	med. medium	C. clay, clayey
cav. cavities	mic. micaceous	O. organic
cmst. cemented	mod. moderately	W. well graded
cse. coarse	n.r. no recovery	P. poorly graded
cbl. cobbles (3" - 12")	per. permeable	
cpt. compact	po. poorly	
con. concretions	rd. rounded	
cin. crystalline	slr. slightly	
gs. dense	sft. soft	
dip. dipping	s/ some	
d.s. downstream	slo. slowly	
fa. fine	stf. stiff	
fr. fractured	t.b. thin-bedded	
frg. fragments	tuff. tuffaceous	
fri. friable	u.s. upstream	
grn. grain	var. variable	
gyp. gypseous	v. very	
hd. hard	w. with	
h. highly	wea. weathered	
	w.l. water level	

UAD Unable to Auger Deeper
UED Unable to Excavate Deeper

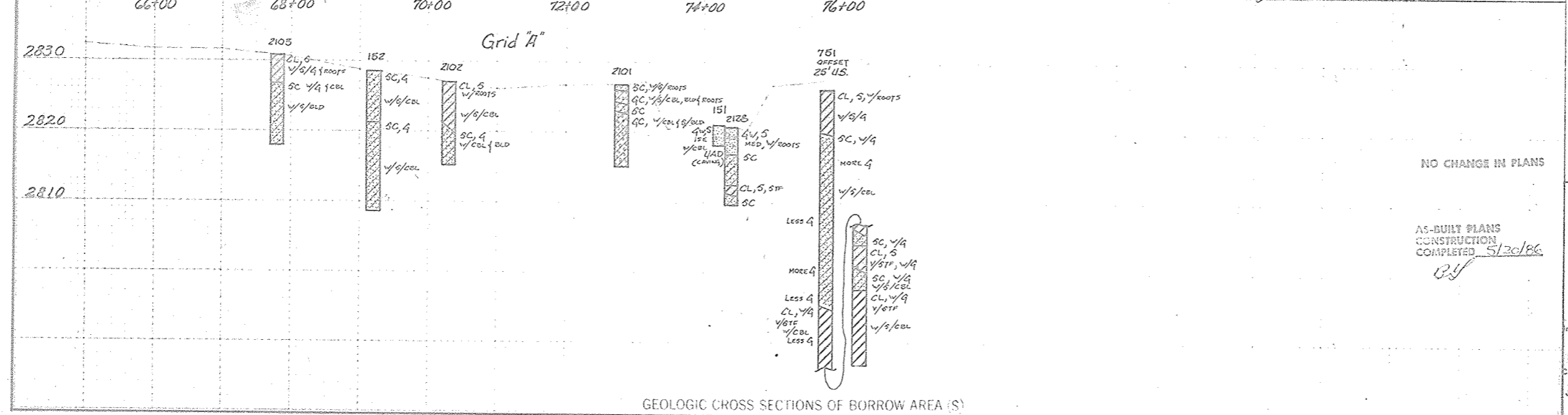
A B Seismic Refraction Line & Shot Point Location

NOTE: Borings 170, 174 & Test Pits 2105, 2120 Omitted

UNIFIED SOIL CLASSIFICATION SYSTEM SYMBOLS

GW	Well graded gravels; gravel-sand mixtures
GP	Poorly graded gravels
GM	Silty gravels; gravel-sand-silt mixtures
GC	Clayey gravels; gravel-sand-clay mixtures
SW	Well graded sands; sand-gravel mixtures
SP	Poorly graded sands
SM	Silty sand
SC	Clayey sands; sand-clay mixtures
ML	Silts with liquid limit of 50 or less
MH	Silts with liquid limit above 50
CL	Clays with liquid limit of 50 or less
CH	Clays with liquid limit above 50
OL	Organic silts and clays with liquid limit of 50 or less
OH	Organic silts and clays with liquid limit above 50

Revised February 1963



PLAN AND PROFILE FOR GEOLOGIC INVESTIGATION

FLOODWATER RETARDING STRUCTURE SITE No. II

SANDERSON CANYON WATERSHED

IN

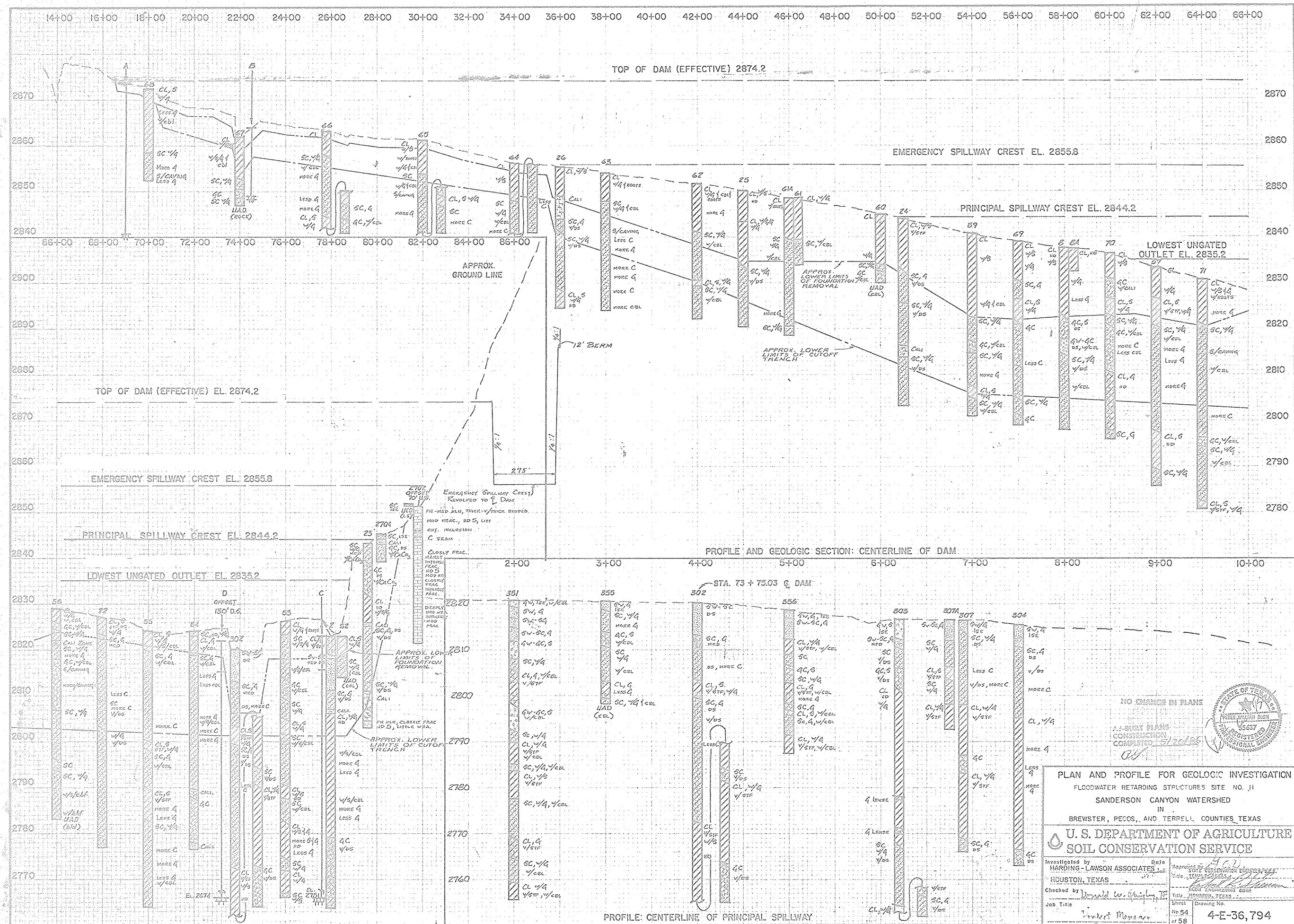
BREWSTER, PECOS, AND TERRELL COUNTIES TEXAS

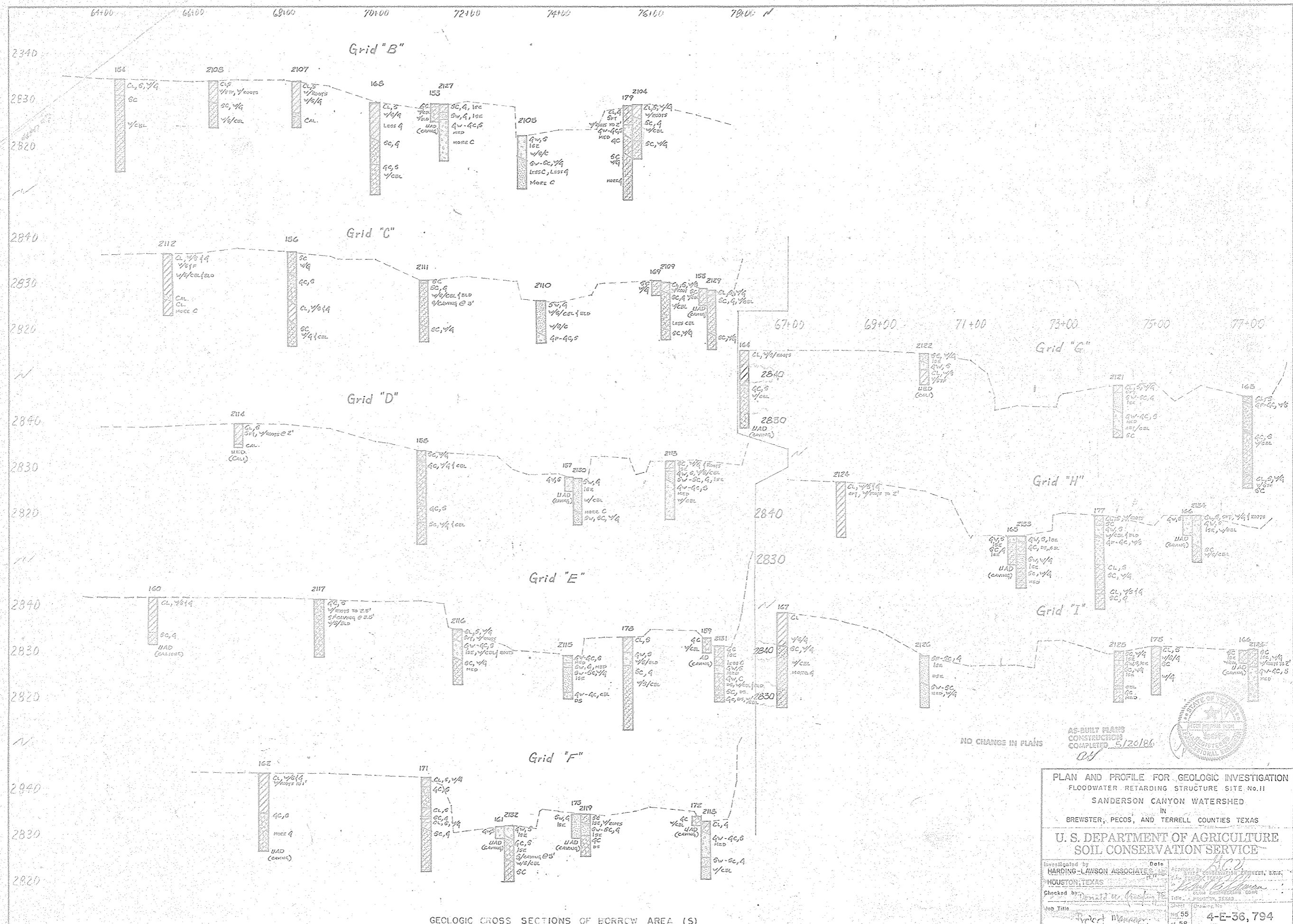
U. S. DEPARTMENT OF AGRICULTURE

SOIL CONSERVATION SERVICE

Investigated by HARDING-LAWSON ASSOCIATES HOUSTON, TEXAS	Date 5/20/86	State Conservation Engineer, S.C.S. HOUSTON, TEXAS
Checked by Robert M. ...	Sheet 53	Drawing No. 58
Job Title Project Manager	4-E-36, 794	

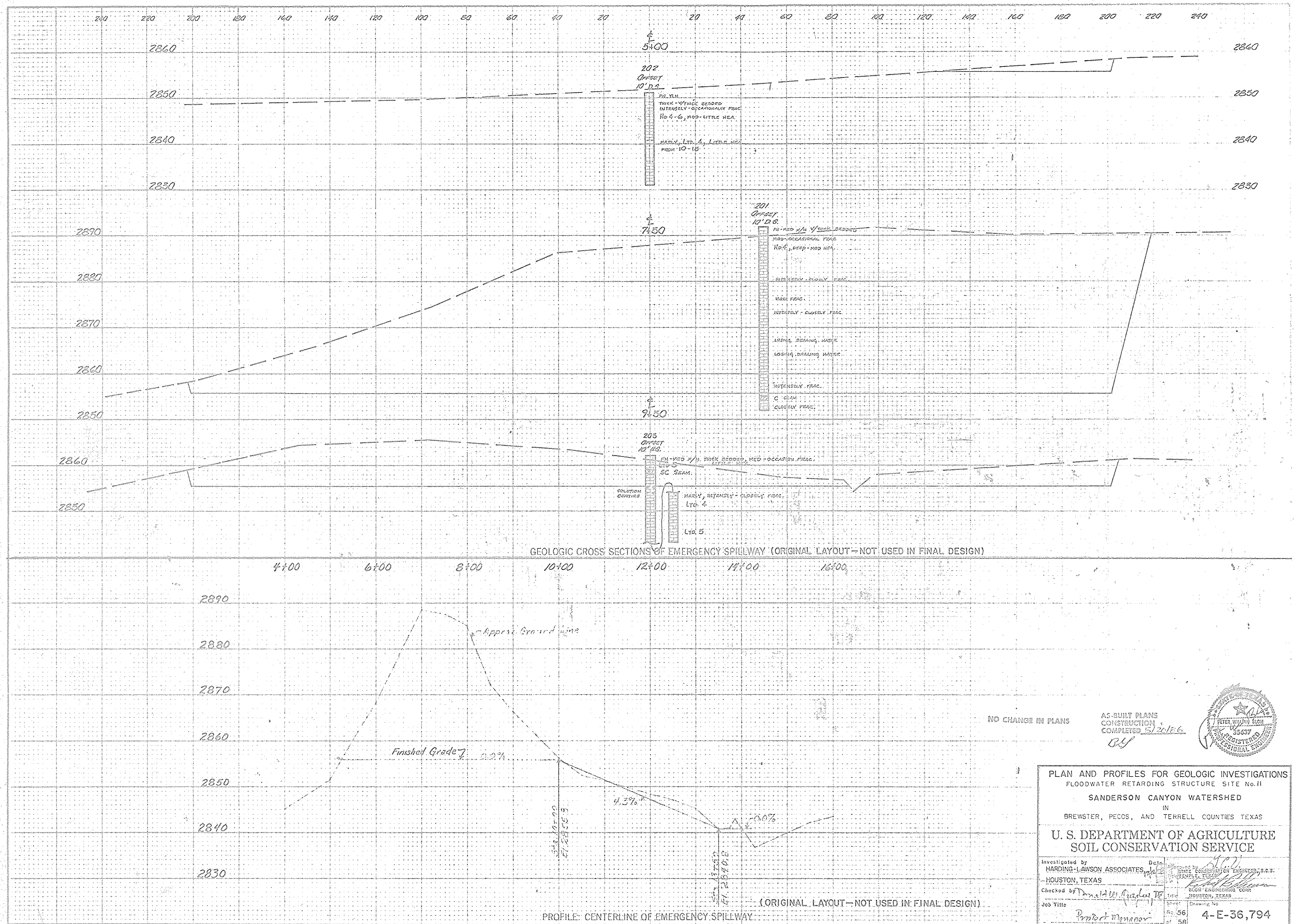
AS-BUILT PLANS
CONSTRUCTION
COMPLETED 5/20/86





GEOLGIC CROSS SECTIONS OF BORROW AREA (S)

PLAN AND PROFILE FOR GEOLOGIC INVESTIGATION FLOODWATER RETARDING STRUCTURE SITE No. II SANDERSON CANYON WATERSHED IN BREWSTER, PECOS, AND TERRELL COUNTIES TEXAS			
U. S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE			
Investigated by HARDING-LAWSON ASSOCIATES, INC. HOUSTON, TEXAS	Date 5/12/86	Approved by [Signature] District Engineer, Texas	Checked by [Signature] District Engineer, Texas
Job Title Project Manager		Sheet 58	Drawing No. 4-E-36, 794



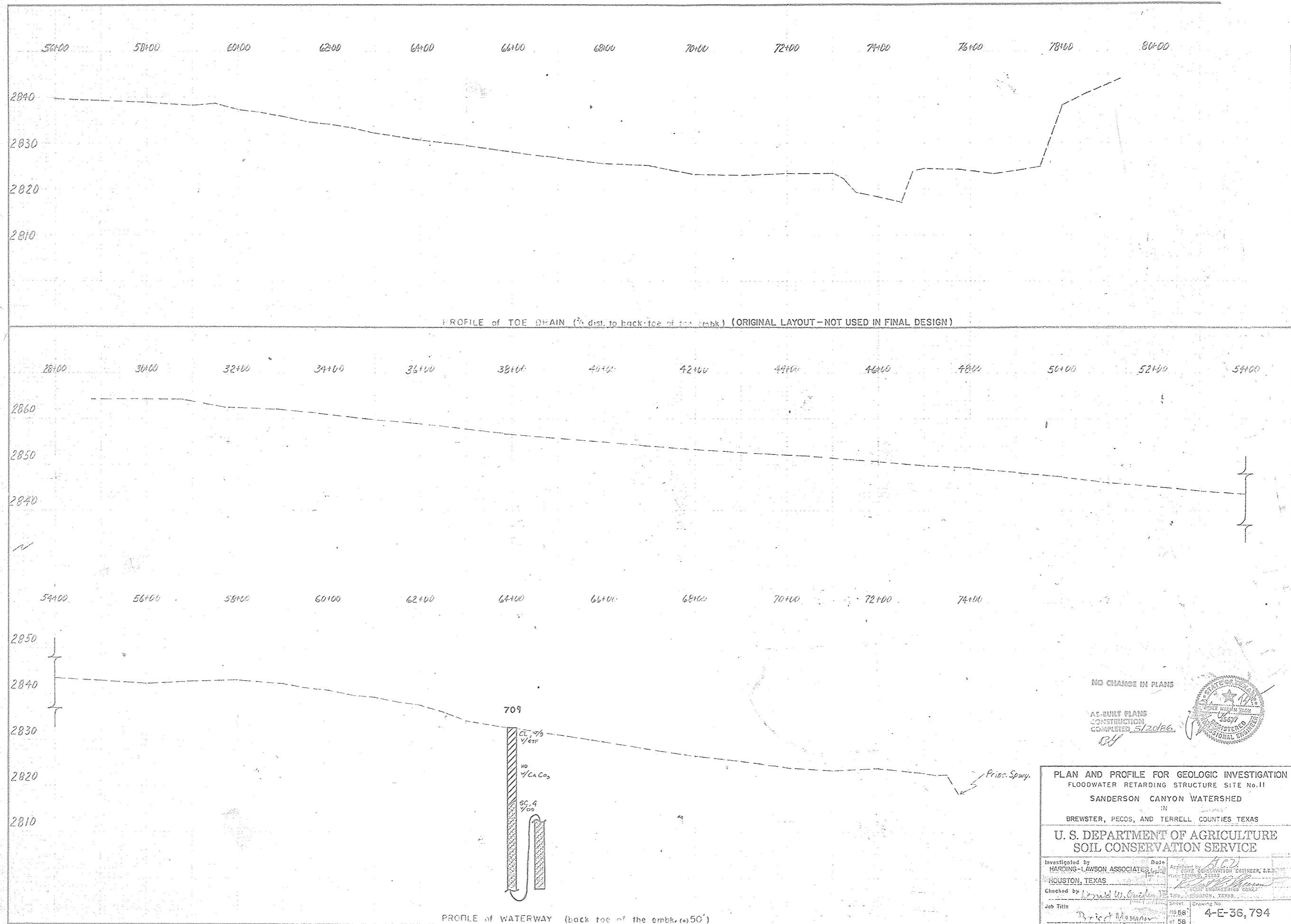
NO CHANGE IN PLANS

AS-BUILT PLANS
 CONSTRUCTION
 COMPLETED 5/20/66
 BY



PLAN AND PROFILES FOR GEOLOGIC INVESTIGATIONS
 FLOODWATER RETARDING STRUCTURE SITE No. II
 IN
 SANDERSON CANYON WATERSHED
 IN
 BREWSTER, PECOS, AND TERRELL COUNTIES TEXAS
 U. S. DEPARTMENT OF AGRICULTURE
 SOIL CONSERVATION SERVICE

Investigated by
 HARDING-LAWSON ASSOCIATES, INC.
 HOUSTON, TEXAS
 Checked by
 Donald W. Rader
 Job Title
 Project Manager
 Date
 5/20/66
 State Conservation Engineer, S.C.S.
 HOUSTON, TEXAS
 Sheet
 No. 56
 of 58
 Drawing No.
 4-E-36,794



PLAN AND PROFILE FOR GEOLOGIC INVESTIGATION
FLOODWATER RETARDING STRUCTURE SITE No. II
SANDERSON CANYON WATERSHED
IN
BREWSTER, PECOS, AND TERRELL COUNTIES TEXAS

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

Investigated by HARDING-LAWSON ASSOCIATES HOUSTON, TEXAS	Date 1/18/86	Approved by [Signature] [Title]
Checked by [Signature] [Title]	Sheet 58 of 58	Drawing No. 4-E-36,794