

PLUM CREEK WATERSHED PROJECT

FLOODWATER RETARDING DAM NO. 2

DRAINAGE AREA	1,798 ACRES
TOTAL STORAGE	1,034 AC FT
WATER SURFACE AREA	37 ACRES
HEIGHT OF DAM	38 FEET
VOLUME OF FILL	128,030 CUYDS

BUILT UNDER THE WATERSHED PROTECTION
AND FLOOD PREVENTION ACT

BY

HAYS-CALDWELL-TRAVIS SOIL AND WATER CONSERVATION DISTRICT

PLUM CREEK CONSERVATION DISTRICT

WITH THE ASSISTANCE OF
SOIL CONSERVATION SERVICE
OF THE
U. S. DEPARTMENT OF AGRICULTURE
1968

INDEX OF DRAWINGS

SHEET NO.	TITLE
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3	PROFILES AND SECTION
4	GENERAL PLAN OF RESERVOIR
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9	STEEL PLACEMENT-PRINCIPLE SPILLWAY INLET
10	FENCE DETAILS
11-13	PLAN AND PROFILES FOR GEOLOGIC INVESTIGATIONS

CONSTRUCTION DRAWINGS APPROVED

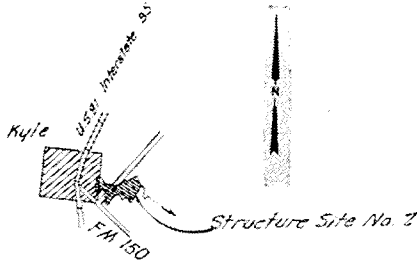
Don Price (Lura) 9-18-67
DATE

A. B. GALE PLANS
CONSTRUCTION
COMPLETED 5-29-69

REVISIONS APPROVED

Don Price (Lura) 5-15-68
DATE

4-E-24,550



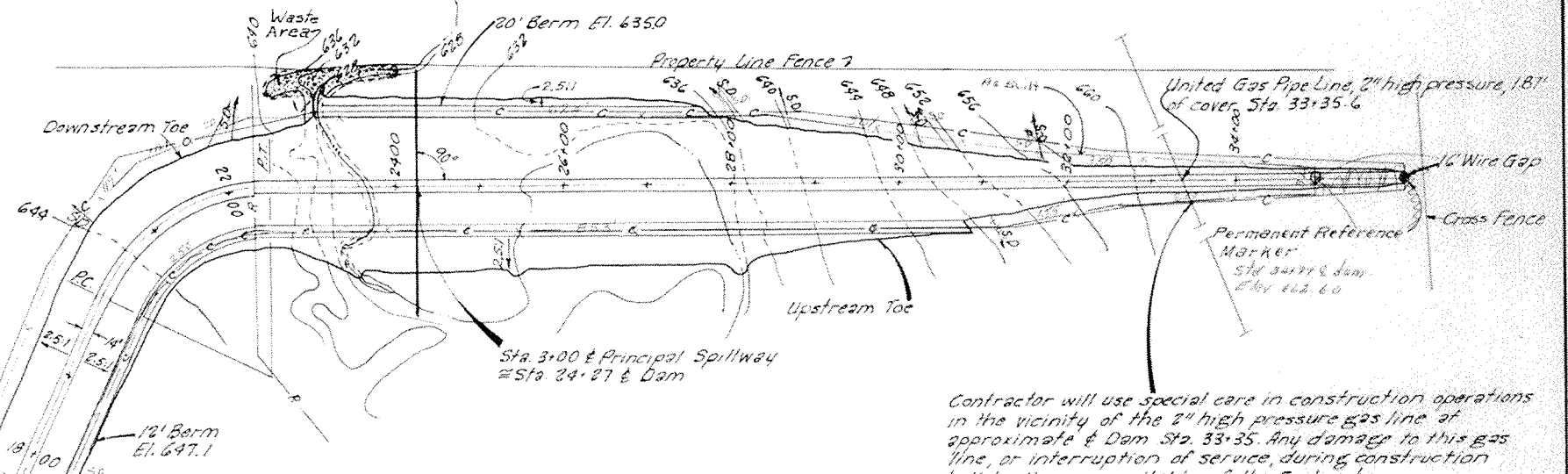
Structure is located 1 mile east of Kyle, Hays County, Texas

VICINITY MAP



Fence Legend

- - - Fence to be Constructed under this Contract.
- - - Fence in construction area to be removed and salvaged by the Contractor.
- - - Fence in construction area to be removed by the Contractor. Salvage not required.



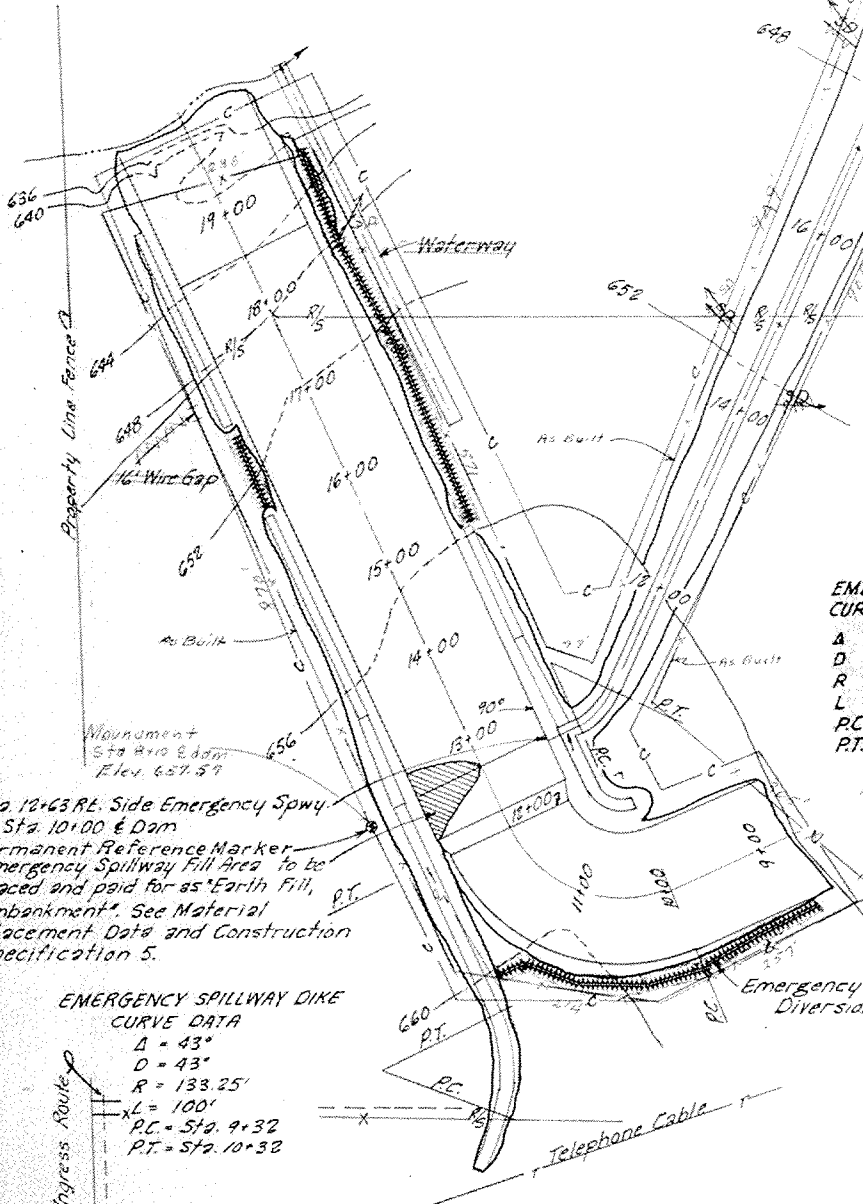
EMBANKMENT CURVE DATA
 $\Delta = 65^\circ$
 $D = 26^\circ$
 $R = 220.37'$
 $L = 250'$
 $P.C. = \text{Sta. } 20+00$
 $P.T. = \text{Sta. } 22+50$

PLAN OF EMBANKMENT AND SPILLWAYS



- Note**
- 1 Pull panels shall be set at P.C. and P.T. of the fence on the upstream berm. Intermediate posts in the curved section of the fence shall be set in concrete.
 - 2 Emergency Spillway Diversions and Stub Diversions (S.D.) shall have 13 ft. minimum base width; 3:1 side slopes; and 10' effective height. Effective height may be secured by grading a channel across high points to reduce the height of fill required in low areas. Where a channel section is required, the minimum bottom width of channel shall be 12 ft.
 - 3 A minimum of 6" topsoil shall be placed in the Emergency Spillway, Waterway and on all Earth Fill Areas. (See Construction Specification 20c.)

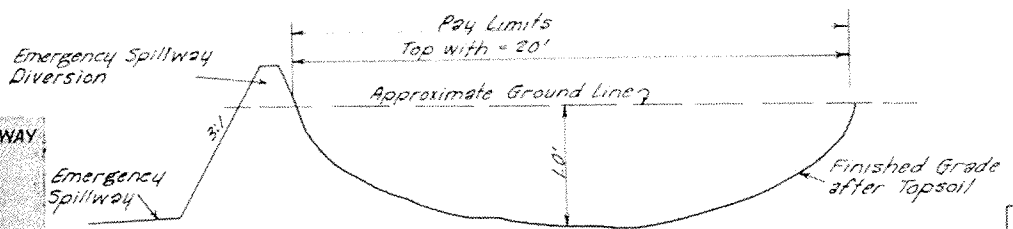
Contractor will use special care in construction operations in the vicinity of the 2" high pressure gas line at approximate Sta. 33+35. Any damage to this gas line, or interruption of service, during construction shall be the responsibility of the Contractor.



EMBANKMENT CURVE DATA
 $\Delta = 40^\circ$
 $D = 80^\circ$
 $R = 71.62'$
 $L = 50'$
 $P.C. = \text{Sta. } 10+35$
 $P.T. = \text{Sta. } 10+85$

EMERGENCY SPILLWAY CURVE DATA
 $\Delta = 88^\circ$
 $D = 44^\circ$
 $R = 180.21'$
 $L = 200'$
 $P.C. = \text{Sta. } 10+00$
 $P.T. = \text{Sta. } 12+00$

EMERGENCY SPILLWAY DIKE CURVE DATA
 $\Delta = 43^\circ$
 $D = 43^\circ$
 $R = 133.25'$
 $L = 100'$
 $P.C. = \text{Sta. } 9+32$
 $P.T. = \text{Sta. } 10+32$



Waterway will be constructed to the dimensions shown and at the approximate locations shown on the plan. Final alignment and grade will be established in the field by the Engineer.

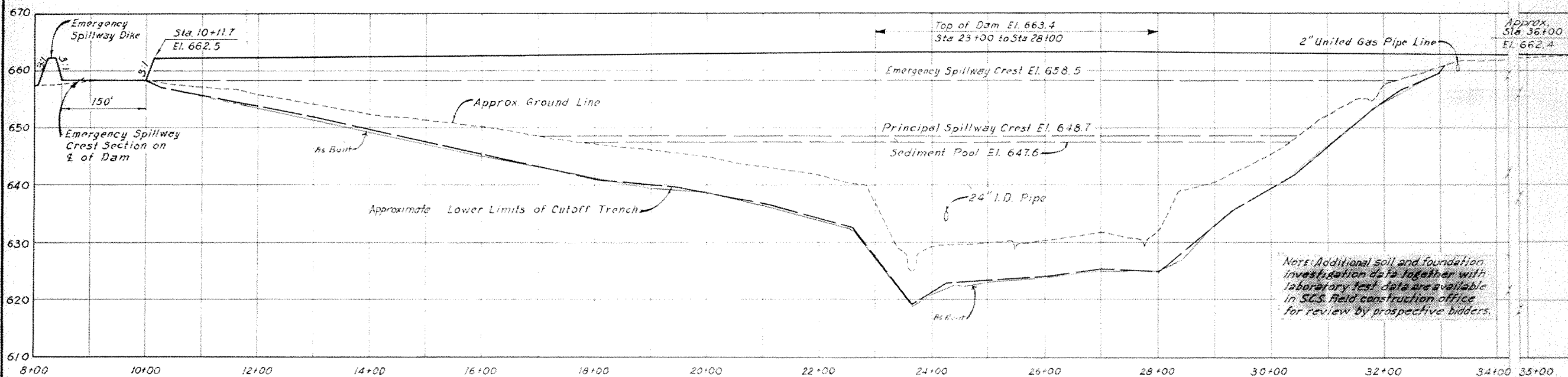
TYPICAL SECTION - WATERWAY

AS-BUILT PLANS
 CONSTRUCTION
 COMPLETED 5-28-67

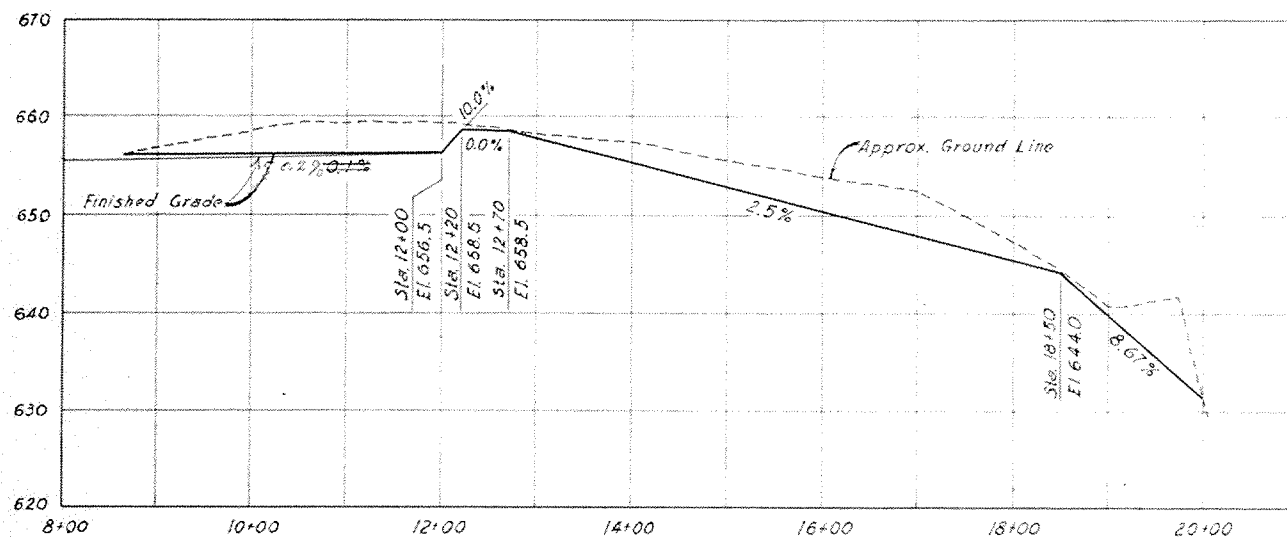
EMBANKMENT PLAN AND PROFILE
 FLOODWATER RETARDING STRUCTURE SITE No. 2
 PLUM CREEK WATERSHED
 IN
 HAYS, CALDWELL AND TRAVIS COUNTIES, TEXAS

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

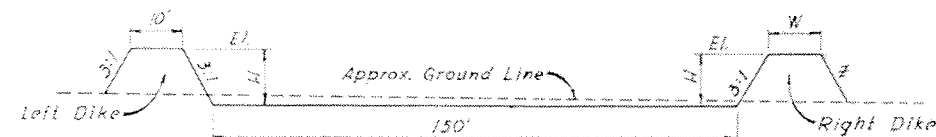
Designed	L.L.	8/67
Drawn	L.L.	8/67
Traced	J.E.S.	8/67
Checked	G.C.S. & G.W.T.	8/67



PROFILE ON $\frac{1}{2}$ OF DAM



PROFILE ON $\frac{1}{2}$ OF EMERGENCY SPILLWAY



Left Dike
 From El. 662.5 approx. 300' to left of $\frac{1}{2}$ at Sta. 11+00 to Sta. 12+70 - El. = 662.5
 Sta. 12+70 to Sta. 13+70 - Transition Section
 Sta. 13+70 to approx. Sta. 16+00 - H = 3.0'
 Approx. Sta. 17+00 to approx. 19+00 - H = 3.0'

Right Dike
 Sta. 10+00 to Embankment, El. = 662.5, W = 14 ft Z = 2.5:1
 Embankment to Sta. 13+70 - Transition Section
 Sta. 13+70 to approx. Sta. 15+00 - H = 3.0', W = 10', Z = 3:1

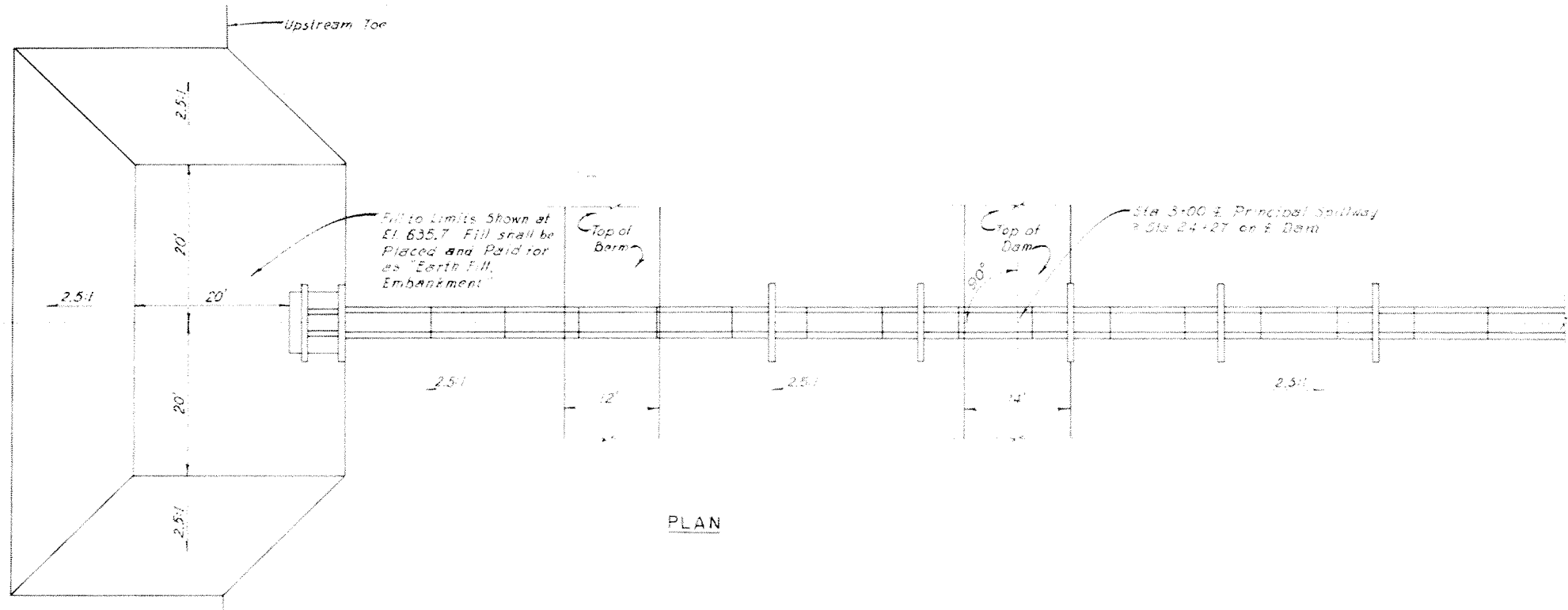
Material forming dikes, including 50 ft transition sections from Emergency Spillway Diversion to Dike and from Dike to Diversion, shall be placed and paid for as "Earth Fill Embankment". See Materials Placement Data and Construction Specification 5.

TYPICAL SECTION - EMERGENCY SPILLWAY

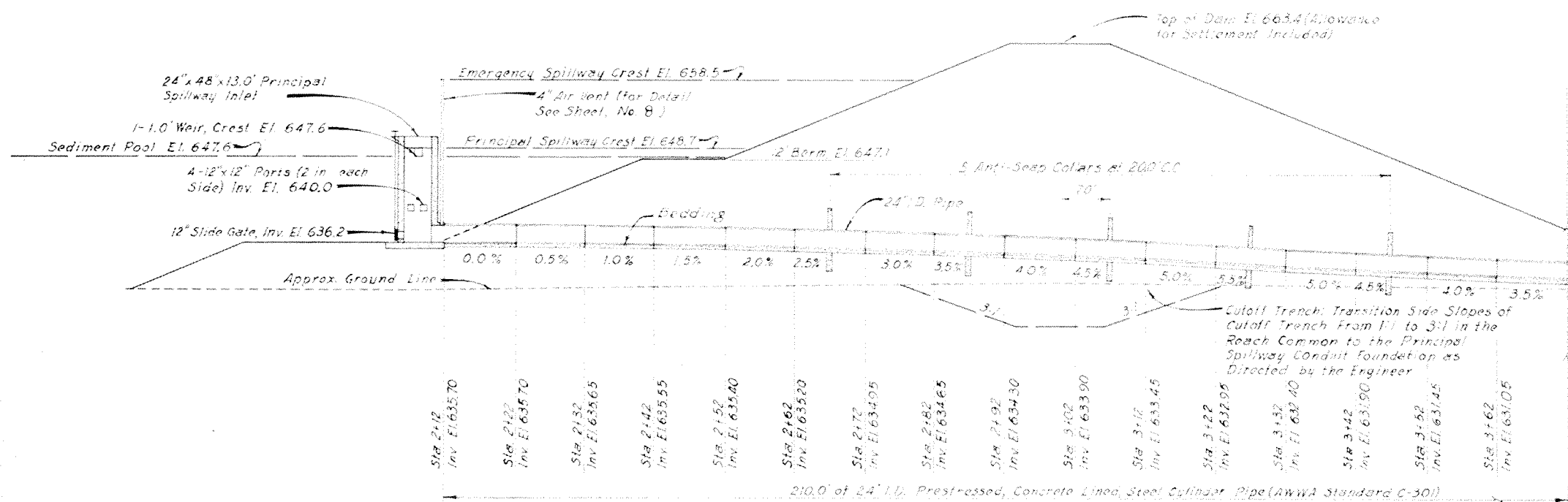
AS-BUILT PLANS
 CONSTRUCTION
 COMPLETED 5-28-67

PROFILES AND SECTION FLOODWATER RETARDING STRUCTURE SITE No. 2 PLUM CREEK WATERSHED IN HAYS, CALDWELL AND TRAVIS COUNTIES, TEXAS U. S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE			
Designed	L.L.	Date	7-67
Drawn	L.L.	Approved by	[Signature]
Traced	I.D.S.	Checked	G.C.S. & G.M.T.
Checked	G.C.S. & G.M.T.	Drawing No.	4-E-24,550

Revised 4-68



PLAN

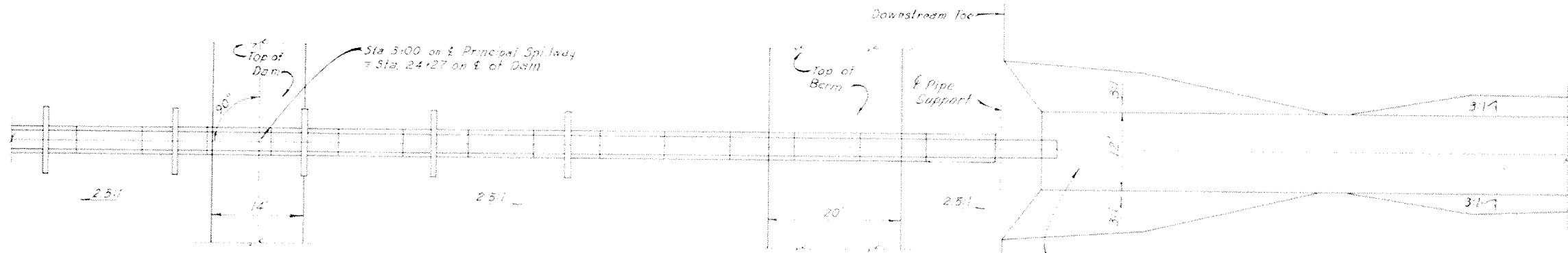


SECTION
PRINCIPAL SPILLWAY

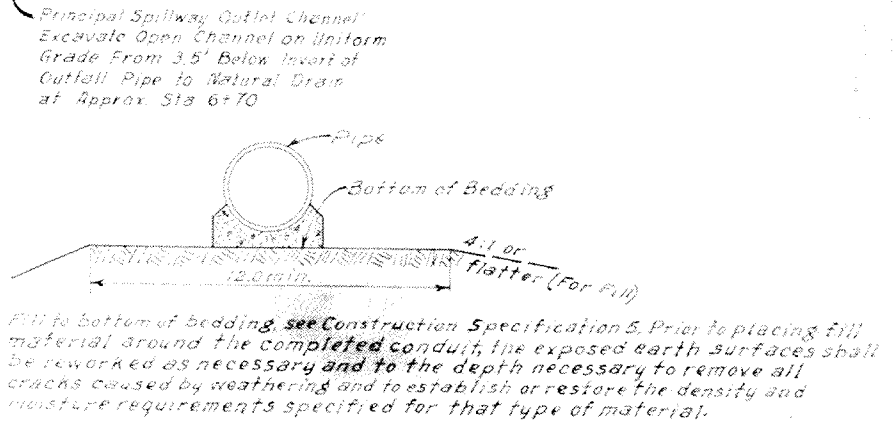
NO CHANGES IN PLANS

PRINCIPAL SPILLWAY—PLAN AND SECTION FLOODWATER RETARDING STRUCTURE SITE No. 2 PLUM CREEK WATERSHED IN HAYS, CALDWELL AND TRAVIS COUNTIES, TEXAS U. S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE			
Designed	L. L.	Date	7-67
Drawn	L. L.	Date	7-67
Traced	T. D. S.	Date	8-67
Checked	G. S. F. G. T.	Date	8-67
			4-E-24,550

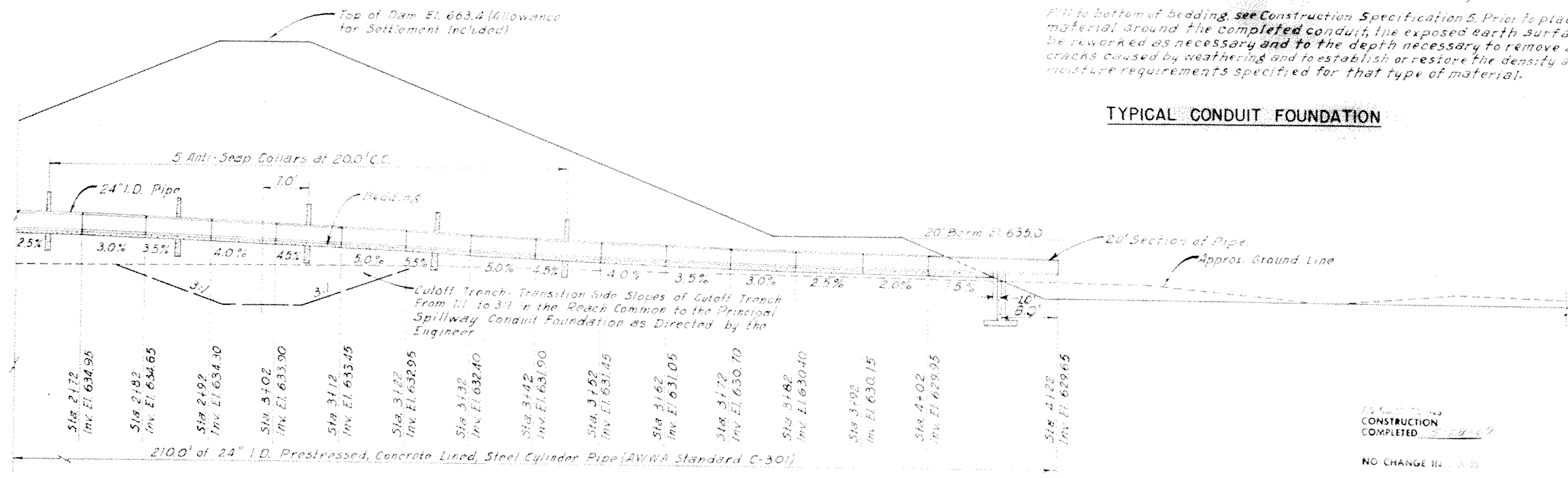
Revised 4-68



PLAN



TYPICAL CONDUIT FOUNDATION



SECTION
PRINCIPAL SPILLWAY

AS SHOWN ON THIS
CONSTRUCTION
COMPLETED 5-28-67
NO CHANGE IN ...

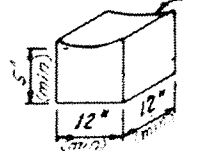
PRINCIPAL SPILLWAY—PLAN AND SECTION
FLOODWATER RETARDING STRUCTURE SITE No. 2
PLUM CREEK WATERSHED
IN
NAYS, CALDWELL AND TRAVIS COUNTIES, TEXAS
U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

Designed	L.L.	Date	7-67
Drawn	L.L.	Date	7-67
Traced	T.D.S.	Date	8-67
Checked	G.A. S. & G.M.T.	Date	8-67

Revised 4-68

4-E-24,550

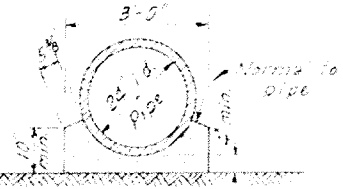
R = Outside Radius of Concrete Pipe



Precast Concrete Support Blocks may be set up to 24" from end of pipe joint. Use 2 or more blocks per joint. Use SUPPORT BLOCK

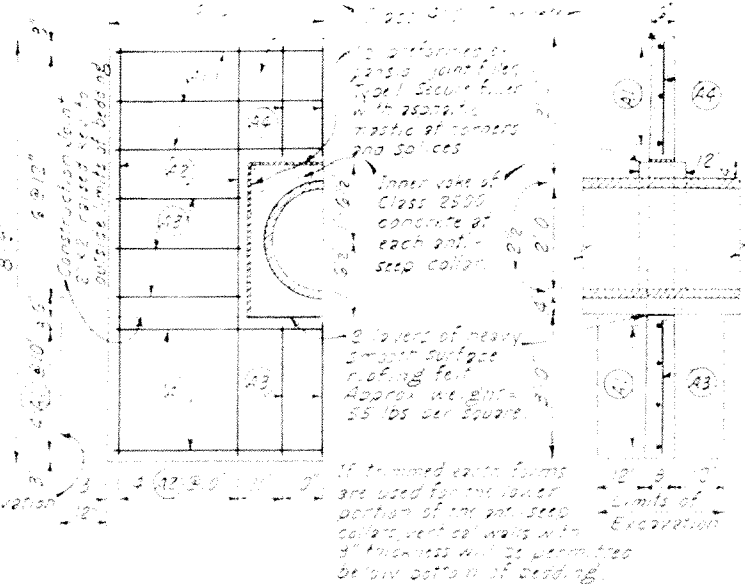
Note: Opposed concrete wedge blocks are an acceptable alternate to 12" above support block.

Vertical construction joint of 2 or formed expansion joint filler. Type 1 of each pipe joint (see details). Vertical sides of bedding may be formed with wood, metal or earthen forms.



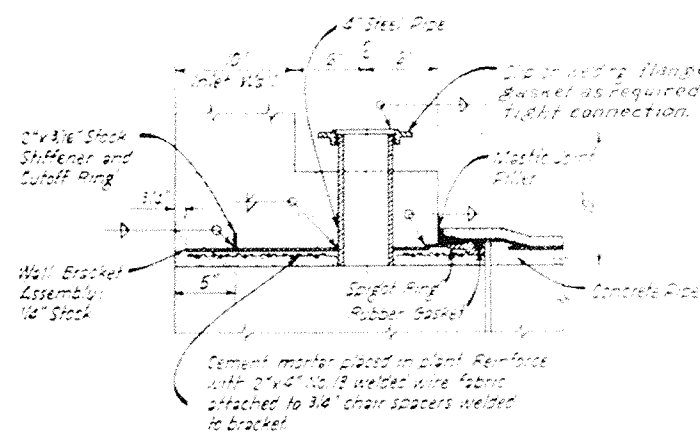
Pipe Bedding: Class 2500 Concrete 0.071 cu. yds. per linear foot of pipe.

BEDDING

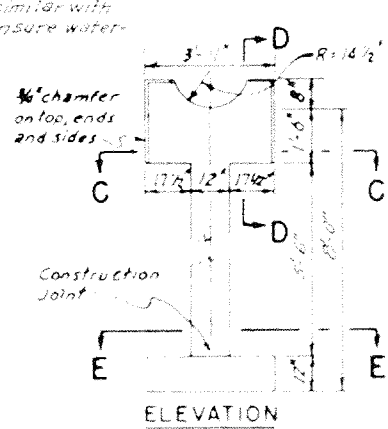


ANTI-SEEP COLLAR CONCRETE PIPE PLACEMENT DETAILS

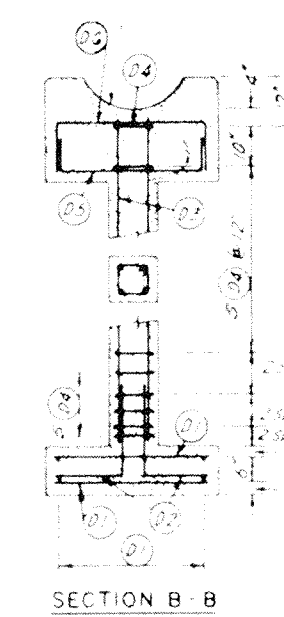
Note: Place 2 layers of heavy smooth surface roofing felt between pipe and pipe support.



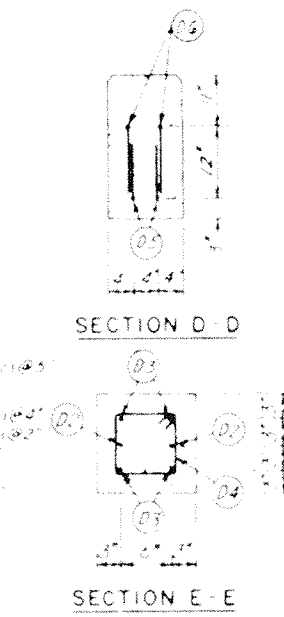
VENTED WALL FITTING



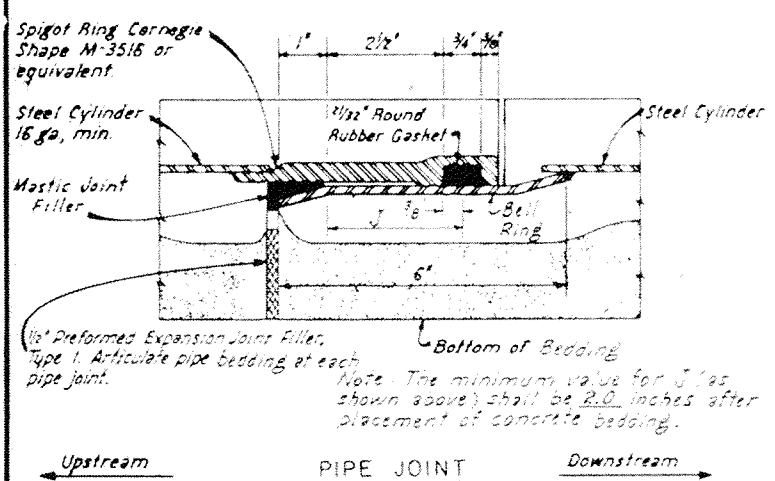
ELEVATION



SECTION B-B

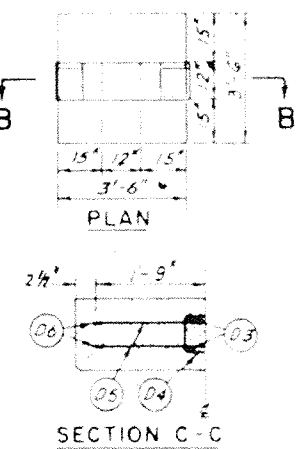


SECTION E-E

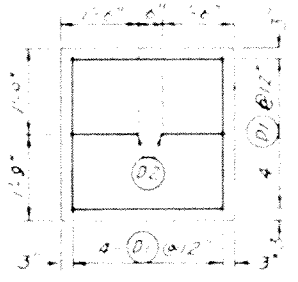


PIPE JOINT DETAILS

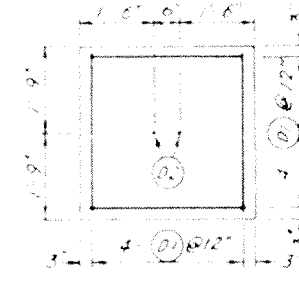
Pipe supplied shall have a minimum permissible deflection angle of 1°0'.



PLAN



SECTION C-C



SECTION D-D

BASE BOTTOM STEEL PIPE SUPPORT

BASE TOP STEEL

FOR TYPICAL BAR TYPES REFER TO ACI STANDARD 318

Bar No	Location	Qty	Lgth	Total Length	Size	Type	A	B	C	D	E	F	G	H	J	K	
A1	Anti-Seep Collar	7	8'-8"	60'-8"	4	Str											
A2		8	8'-5"	67'-4"	4												
A3		9	8'-8"	74'-0"	4												
A4		3	2'-2"	6'-6"	4												
Total Steel in One Anti-Seep Collar (Size 4) = 158'-6" = 16,588 lbs																	
Total Class 4000 Concrete in One Anti-Seep Collar = 1.50 cu yds																	
D1	Pipe Support	16	3'-0"	48'-0"	4	Str											
D2		2	3'-9"	7'-6"	6	2	2'-6"	1-3									
D3		4	6'-9"	27'-0"	6	Str											
D4		11	3'-2"	34'-10"	3	7-1	0-4	0-7 1/2	0-7 1/2	0-7 1/2	0-7 1/2						0-4
D5		2	4'-7"	9'-10"	4	2	0-9	3-5									0-9
D6		2	5'-7"	11'-2"	6	2	1-0	3-7									1-0
Total Steel in Pipe Support (Size No 3) = 94'-10" = 13,110 lbs																	
Total Steel in Pipe Support (Size No 4) = 57'-10" = 38,63 lbs																	
Total Steel in Pipe Support (Size No 6) = 45'-8" = 60,60 lbs																	
Total Class 4000 Concrete in Pipe Support = 0.94 cu yds.																	
Class 2500 Concrete in Pipe Bedding = 14.82 cu yds																	
Class 2500 Concrete in Inner Side of Anti-Seep Collar = 0.55 cu yds.																	
Total Class 2500 Concrete = 14.82 cu yds																	

AS BUILT PLANS CONSTRUCTION COMPLETED 5-18-67

NO CHANGE IN PLANS

PIPE DETAILS
 PLUM CREEK WATERSHED
 HAYS, CALDWELL AND TRAVIS COUNTIES, TEXAS

U. S. DEPARTMENT OF AGRICULTURE
 SOIL CONSERVATION SERVICE

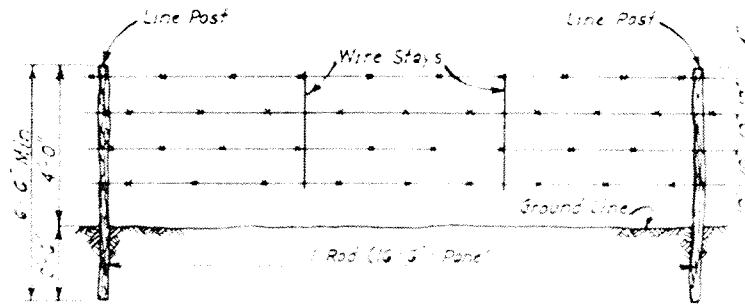
Designed: L.L. Date: 8-67
 Drawn: L.S. Date: 8-67
 Title: U.G.S. Date: 8-67
 Checked: O.C.S. & G.O.T. Date: 8-67

Approved By: [Signature]
 Date: [Date]

Project No: 4-E-24,550

Revised 4-25-68

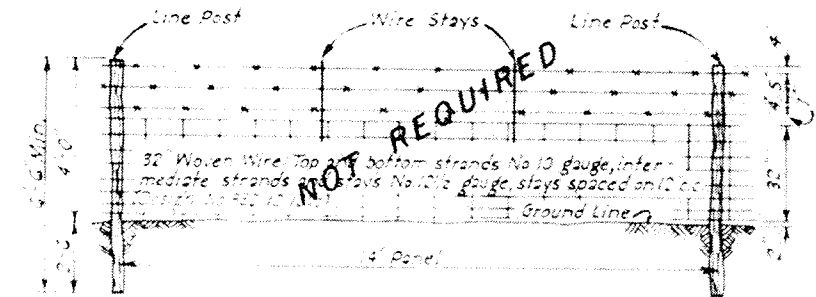
Note: Wire stays to be 10 ga (min size), galv two strand spiral, twist on top, spaced equally, two stays per line post panel. Stays to be twisted firmly against top strand. The minimum length for barbed wire fences shall be 34' and for woven wire fences shall be 24'.



BARBED WIRE

Barbed wire to be 10 1/2 ga galv, double strand barbed wire with 4 ga 2 strand barbs at 4 in. staples to be 3 ga galv, 11 1/2' minimum length for treated pine and cedar posts and 8' minimum length for box cist.

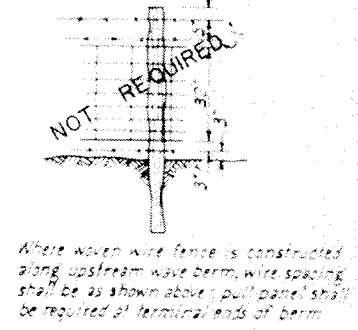
Note: Barbed wire and woven wire shall conform to Texas State Engineering Board specifications for posts and bracing.



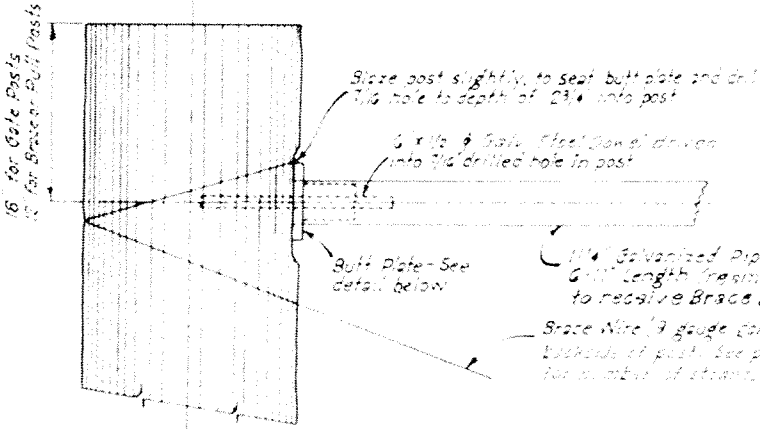
WOVEN WIRE

Acceptable Post Type & Minimum Size	
Corner, Brace & Gate Posts	Cedar 6 dia Treated Pine 5 dia Bals 6 dia, 6 dia
Line Posts	Cedar 4 dia Treated Pine 5 dia Bals 5 dia, 5 dia Steel (See specifications)

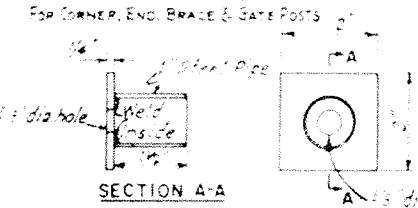
Note: Ash Lumber is considered as meeting the requirements of the specifications for cedar posts for treatment of pine posts, either Creosote, Coal Tar Solution, THT-550 or Pentachlorophenol, THT-570, shall be used.



Where woven wire fence is constructed along upstream wave berm, wire spacing shall be as shown above; pull panel shall be required at terminal ends of berm.

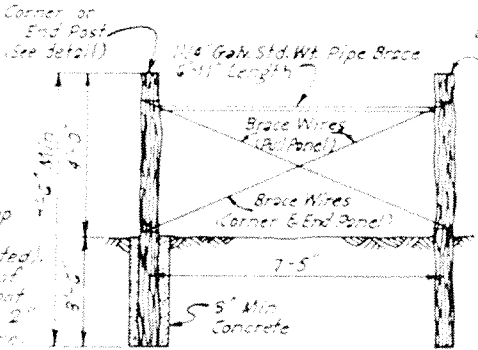


POST DETAIL



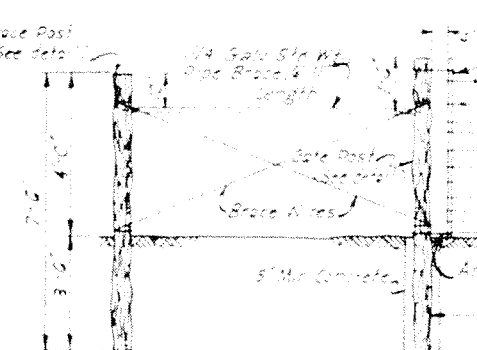
Brace Butt Plate of plate steel 2 x 3 x 1/4", 1 1/2" dia hole drilled in center, with 1/2" diameter steel pipe, 11 1/2" long, welded to plate; weld to be inside of pipe with pipe concentrically centered with the 1 1/2" drilled hole in the plate base narrower diameter than top section.

BRACE BUTT PLATE

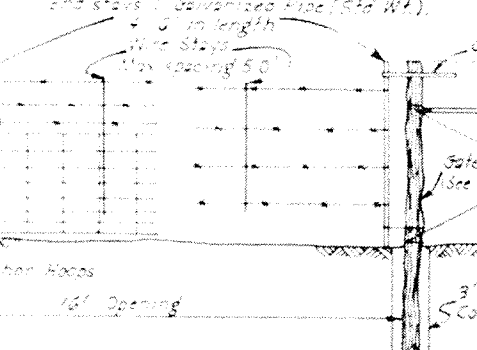


CORNER, END, OR PULL PANEL

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

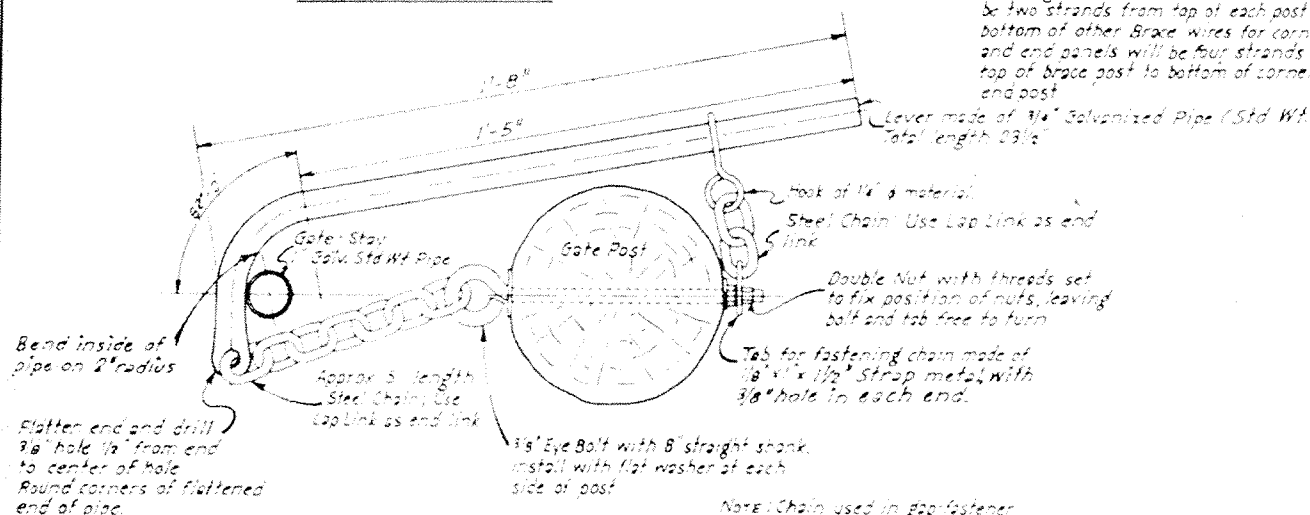


Where fence extends more than 10' from Gate Panel, Gate Panel will be four strands from top of Gate Post to bottom of Gate Post. Where there is no pull of line fence (that is the Gate Panel) of a corner, Brace Wires for the Gate Panel will be two strands from top of each post to bottom of other.



WIRE GAP PANEL

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



WIRE GAP FASTENER DETAIL

2 1/2" length portion of wire gap fastener shall be galv brace to the hot dip process.

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

FENCE DETAILS

At changes in vertical alignment, such as crossings of stub diversions, line posts or pull panel posts that restrain upward pull of the fence strands shall be anchored by setting such posts in concrete, with a minimum 3" thickness of concrete at the ground surface and a minimum 2" at the bottom of the post hole, so as to provide a minimum 3 inch taper to the outside surface of embedding concrete. The engineer will designate the post locations where this anchorage treatment is required. In addition, anchorage of fence wires to posts where there is a change in vertical alignment that produces upward or downward pull, shall be accomplished with a special tie wire, in addition to stapling. A tie wire of a strand of No. 12 smooth galvanized wire shall be secured to the post with two wraps and tie 8" above the top fence wire (where the pull is downward) or at the bottom fence wire (where the pull is upward) and shall be extended to each successive fence wire, securing each in position by two close drawn wraps. The engineer will designate the posts where this special fastening of the fence wires is required.

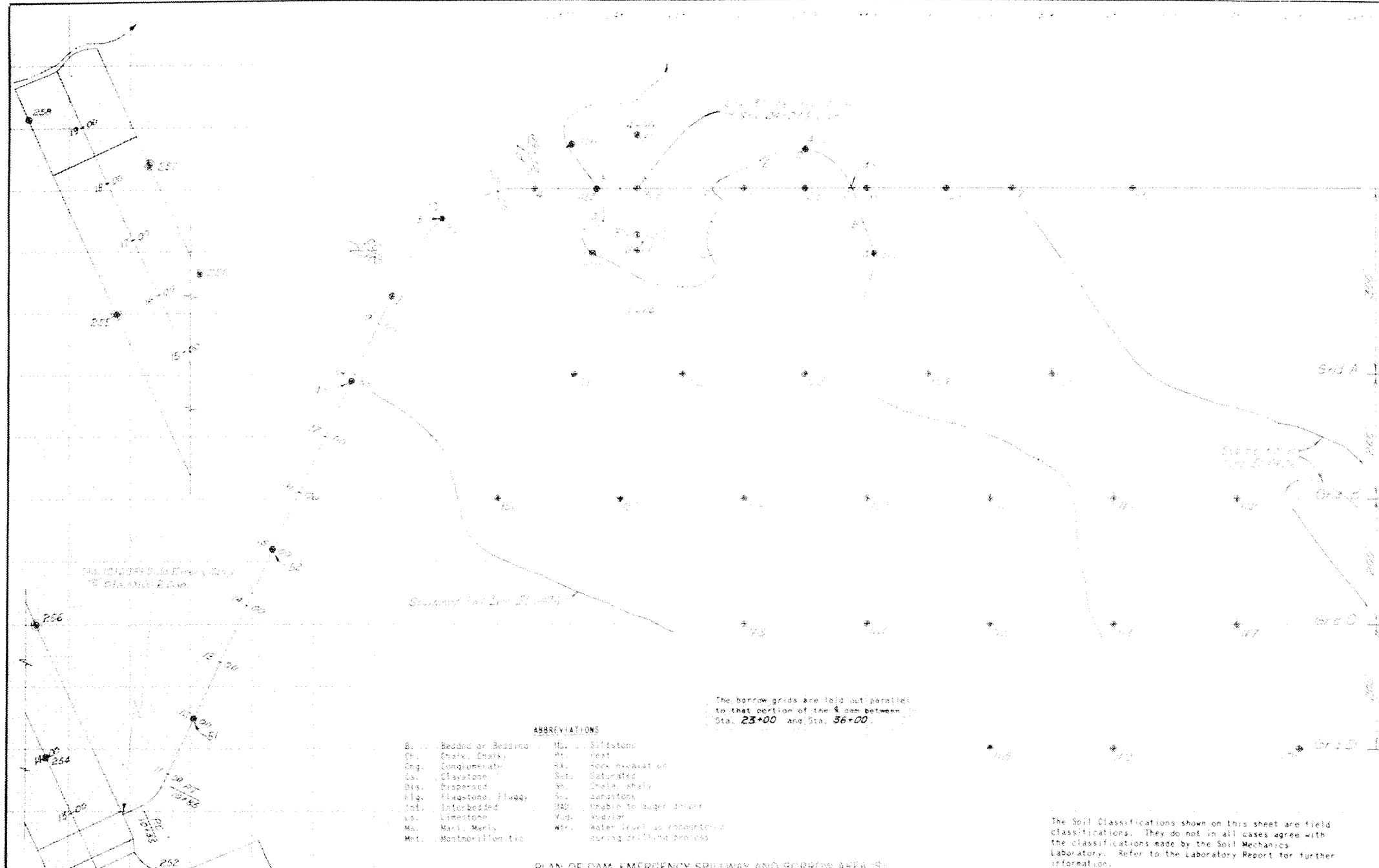
AS BUILT PLANS
CONSTRUCTION
COMPLETED 5-28-67

NO CHANGE BY PLANS

FENCE DETAILS			
FLOODWATER RETARDING STRUCTURE SITE No. 2			
PLUM CREEK WATERSHED			
IN HAYS, CALDWELL AND TRAVIS COUNTIES, TEXAS			
U. S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE			
Designed	LL	DATE	7-67
Drawn	LL	APPROVED BY	[Signature]
Trace	LL	STATE CONSERVATION ENGINEER	[Signature]
Checked	G.C.S. & G.W.T.	DATE	8-67
		Sheet	10
		Drawing No.	4-E-24,550

Revised 4-68

Texas only



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, silty	Clay, silty	
Gravel, clayey	Sand, clayey	Silt, clayey	Clay, silty	

CONSOLIDATED MATERIAL

Sedimentary Rocks

Quartzite	Granite	Limestone	Shale					
Sandstone	Siltstone	Gneiss	Schist					
Metamorphic Rocks <table border="1"> <tr> <td>Quartzite</td> <td>Schist</td> <td>Intrusive</td> <td>Extrusive</td> </tr> <tr> <td>Quartzite</td> <td>Schist</td> <td>Synclastic</td> <td>Undifferentiated</td> </tr> </table> <p>Tree Symbol</p> <ul style="list-style-type: none"> ● tree logged only ○ tree sampled ✕ strike and dip — pt. of bench 	Quartzite	Schist	Intrusive	Extrusive	Quartzite	Schist	Synclastic	Undifferentiated
Quartzite	Schist	Intrusive	Extrusive					
Quartzite	Schist	Synclastic	Undifferentiated					

ABBREVIATIONS

ang	angular	lat	laminated	G	gravel, gravelly
bd	blocky	lv	loose	S	sand, sandy
bl	blocky	mb	massive	M	silt, silty
br	blocky	md	medium	C	clay, clayey
br	blocky	ms	massive	O	organic
br	blocky	ms	massive	W	well graded
br	blocky	ms	massive	P	poorly graded

TEST HOLE NUMBERING SYSTEM

Centerline of dam	101-199	Stream channel	401-499
Borrow area	201-299	Relief well	601-699
Emergency spillway	301-399	Principal spillway	701-799
Centerline of spillway	401-499		

UNIFIED SOIL CLASSIFICATION SYSTEM SYMBOLS

GW	Well-graded gravel, coarse sand mixtures
GM	Medium-graded gravel
GM	SD, gravel, graded sand-silt mixtures
GC	Clayey gravel, gravel-silt mixtures
GW	Well-graded sand, sand-gravel mixtures
GP	Poorly graded sand
SW	Silt sand
SC	Clayey silt, sand-silt mixtures
ML	Silt with liquid limit of 50 or less
MH	Silt with liquid limit above 50
CL	Clay with liquid limit of 50 or less
CH	Clay with liquid limit above 50
OL	Organic silt and clay with liquid limit of 50 or less
OH	Organic clay with liquid limit above 50

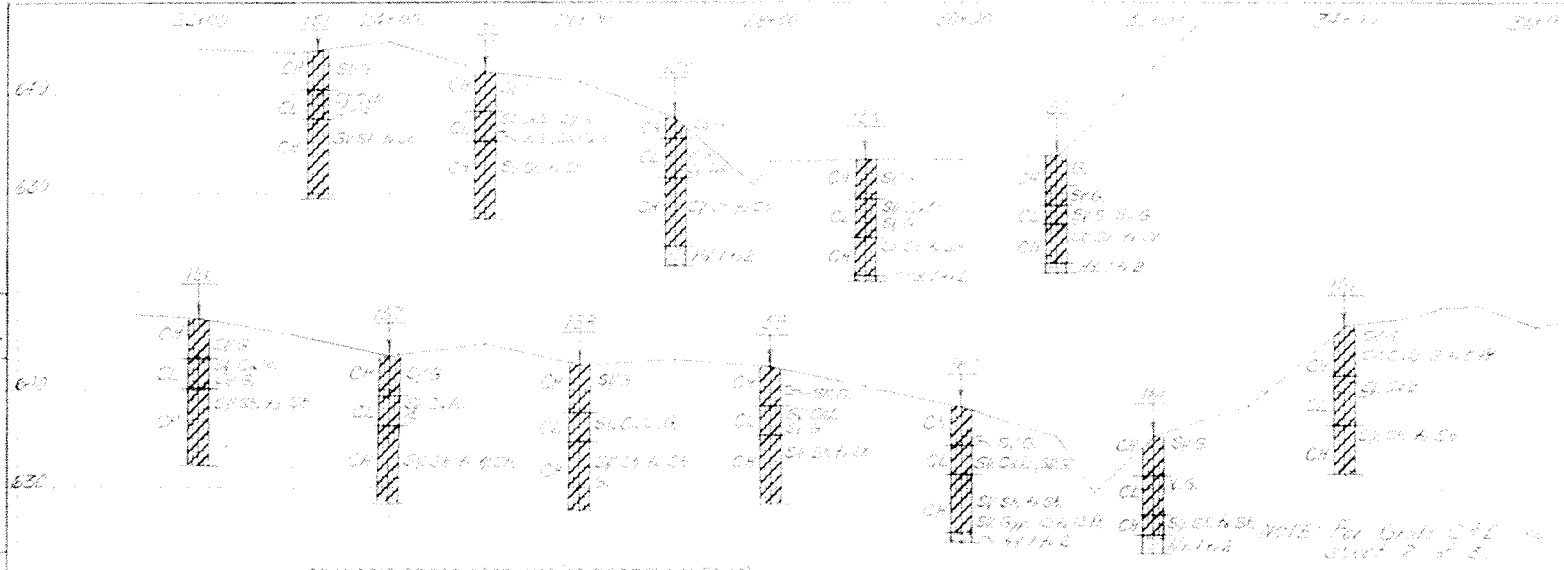
ABBREVIATIONS

B.	Bedded or Bedding	Ms.	Siltstone
Ch.	Chalk, Chalky	Pl.	Peat
Conq.	Conglomerate	RK.	Rock excavation
Cl.	Claystone	Sat.	Saturated
Dis.	Dispersed	Sh.	Shale, shaly
Flg.	Flagstone, Flaggy	Ss.	Sandstone
Inf.	Interbedded	SHAB.	Shale to hard shale
Ls.	Limestone	Vug.	Vugular
Ma.	Marl, Marly	Wtr.	Water level as encountered during drilling process
Mt.	Metamorphic		

The borrow grids are laid out parallel to that portion of the dam between Sta. 23+00 and Sta. 36+00.

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PLAN OF DAM, EMERGENCY SPILLWAY AND BORROW AREA'S



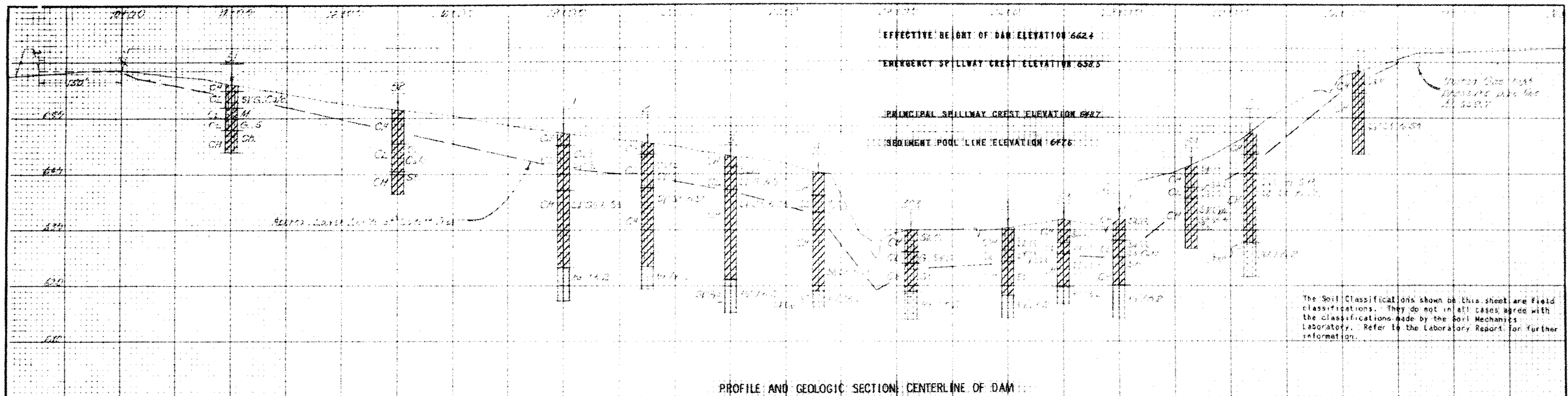
GEOLOGIC CROSS SECTIONS OF BORROW AREA'S

TEST HOLE NUMBERING SYSTEM

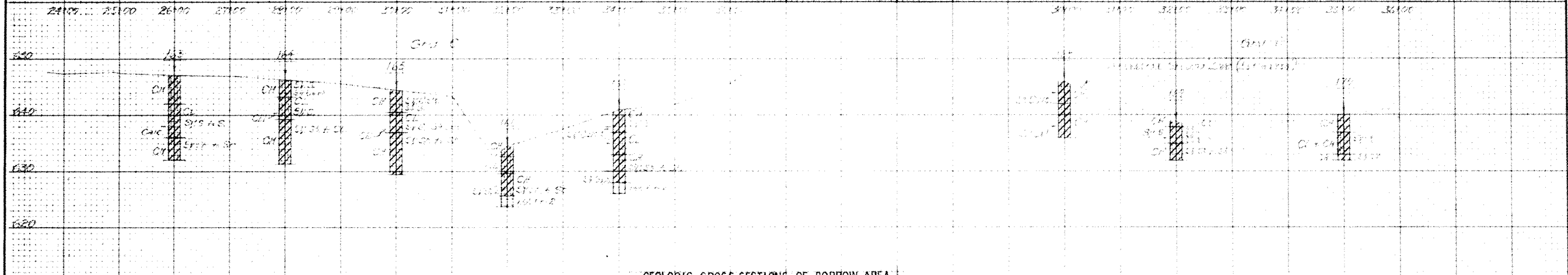
	Combina-tion Rig	Power Auger	Hand Borings	Trench or Pit Excava-tions	Natural Outcrops, Streambanks, and Quirres
Centerline of Dam	1-49	51-99	100-1099	2001-2099	3001-3099
Borrow Area	101-199	151-199	1101-1199	2101-2199	3101-3199
Emergency Spillway	201-249	251-299	1201-1299	2201-2299	3201-3299
Principal Spillway	301-349	351-399	1301-1399	2301-2399	3301-3399
Stream Channels	401-449	451-499	1401-1499	2401-2499	3401-3499
Relief Well	501-549	551-599	1501-1599		
Exploratory Borings					
Foundation Drain Borings	601-649	651-699	1601-1699	2601-2699	3601-3699
Sediment Pool Drain Pipe Borings	701-749	751-799	1701-1799	2701-2799	3701-3799
Miscellaneous	801-849	851-899	1801-1899	2801-2899	3801-3899

Plotted by EK 6-19-67
 Checked by JC 6-20-67
 Revised A-68

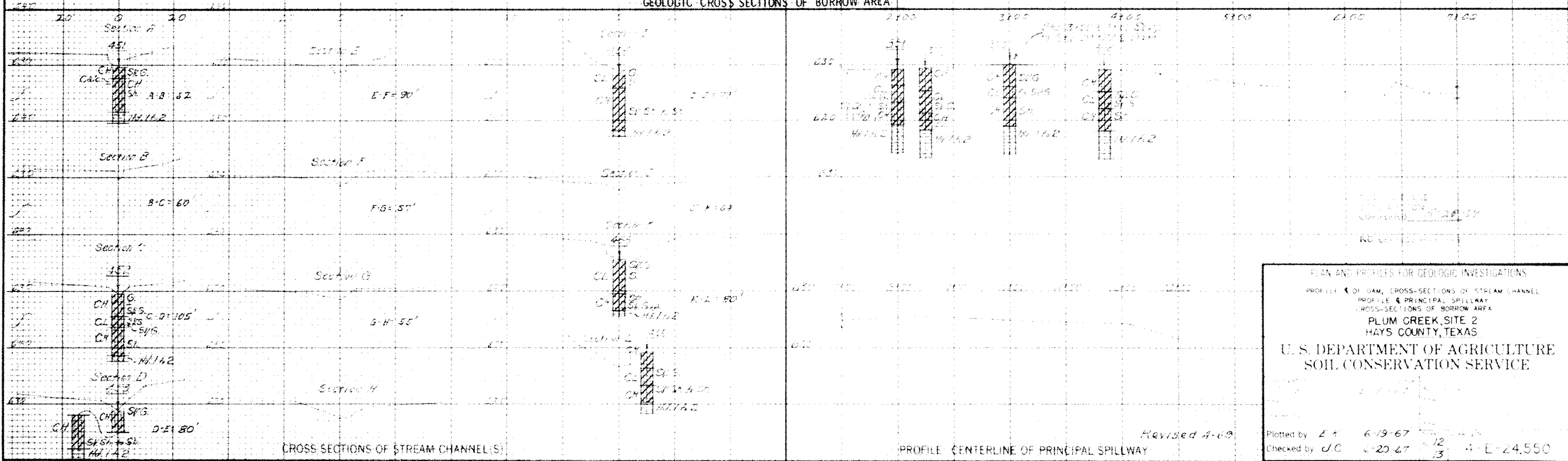
PLUM CREEK, SITE 2
 HAYS COUNTY, TEXAS
 U.S. DEPARTMENT OF AGRICULTURE
 SOIL CONSERVATION SERVICE



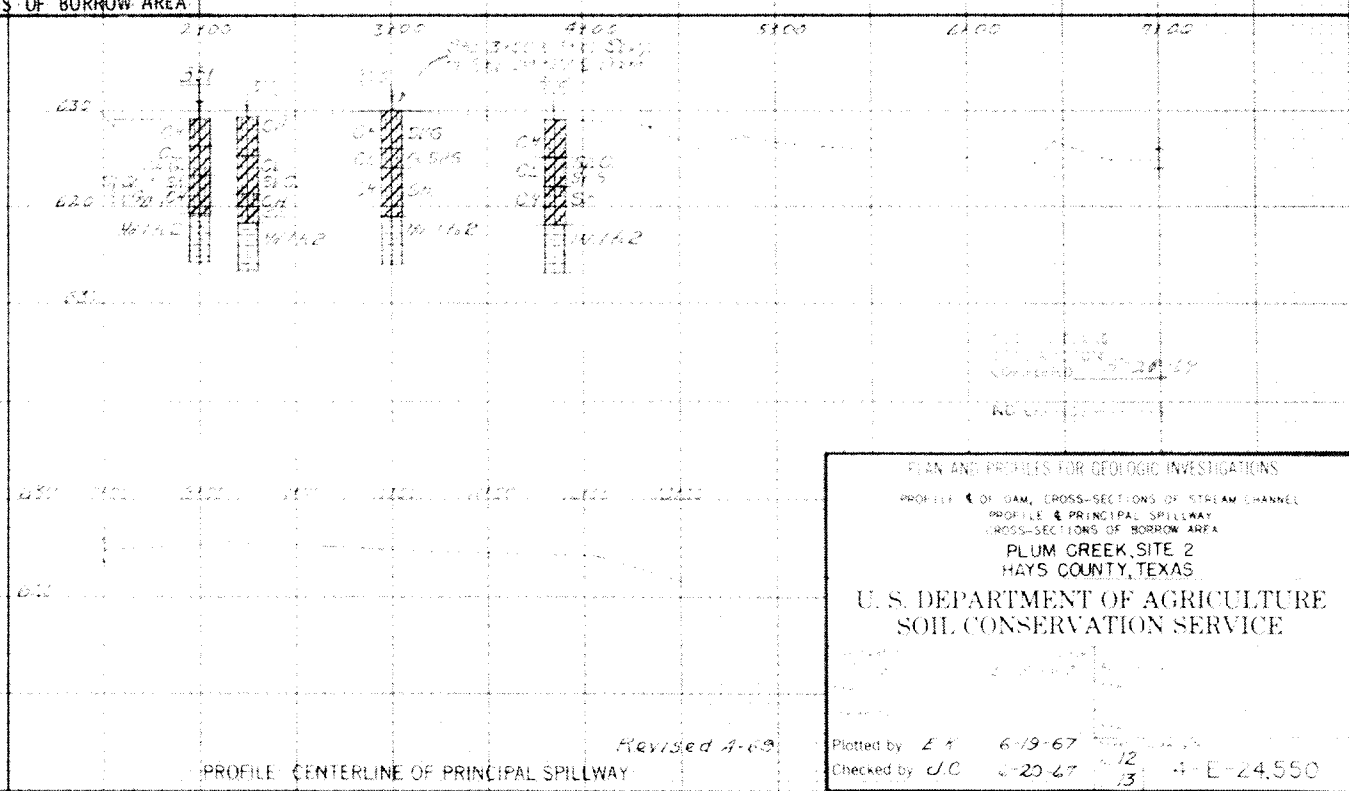
PROFILE AND GEOLOGIC SECTION, CENTERLINE OF DAM



GEOLOGIC CROSS SECTIONS OF BORROW AREA



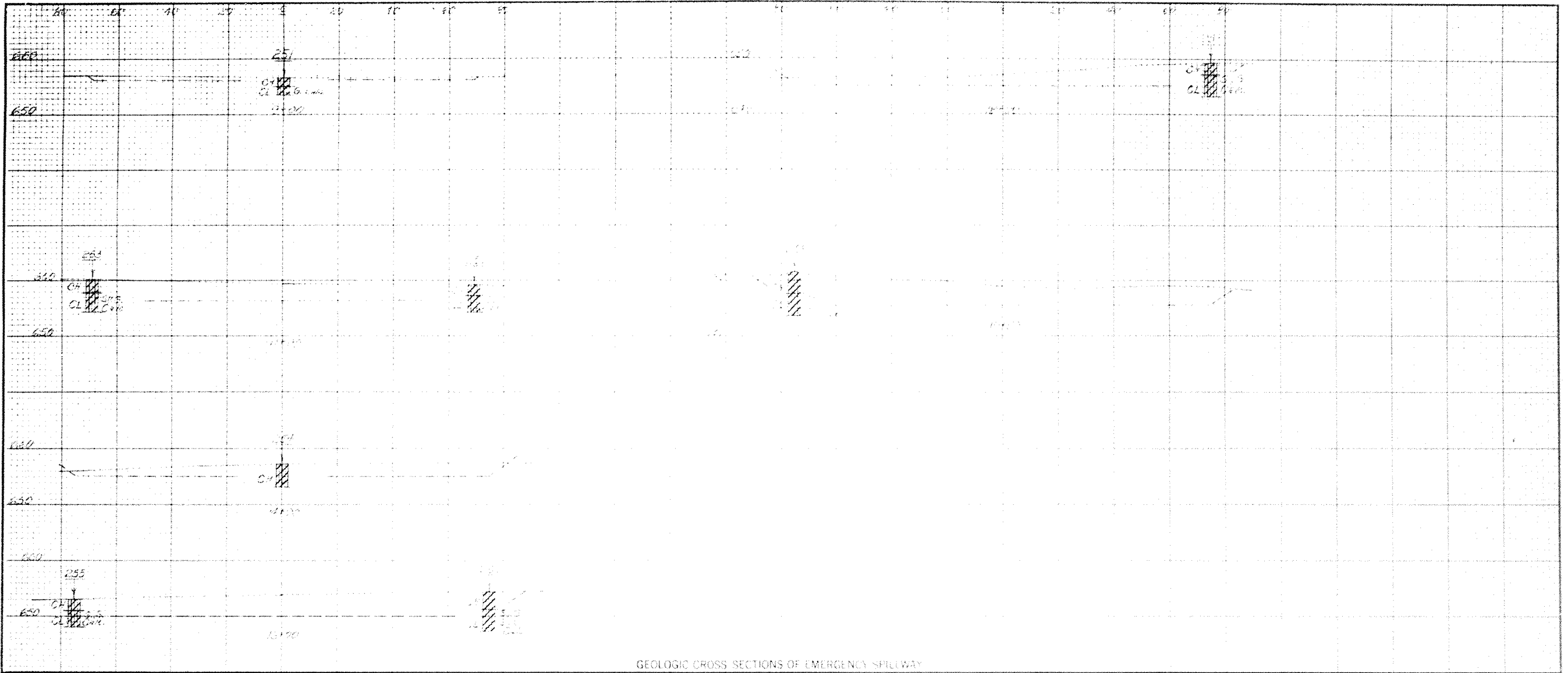
CROSS SECTIONS OF STREAM CHANNEL(S)



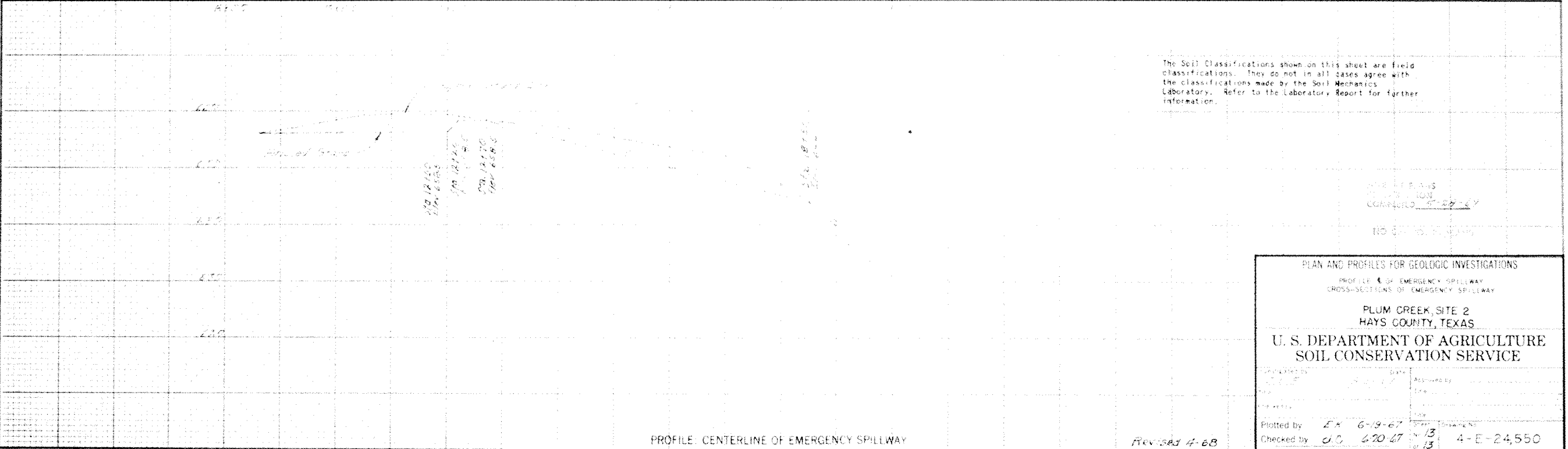
PROFILE - CENTERLINE OF PRINCIPAL SPILLWAY

PLAN AND PROFILES FOR GEOLOGIC INVESTIGATIONS
 PROFILE OF DAM, CROSS-SECTIONS OF STREAM CHANNEL
 PROFILE & PRINCIPAL SPILLWAY
 CROSS-SECTIONS OF BORROW AREA
 PLUM CREEK, SITE 2
 HAYS COUNTY, TEXAS
 U. S. DEPARTMENT OF AGRICULTURE
 SOIL CONSERVATION SERVICE

Revised 4-69
 Plotted by E.K. 6-19-67
 Checked by J.C. 6-20-67



GEOLOGIC CROSS SECTIONS OF EMERGENCY SPILLWAY



PROFILE. CENTERLINE OF EMERGENCY SPILLWAY

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DATE OF FIELD CLASSIFICATION
 5-28-67

NO. OF FIELD CLASSIFICATIONS

PLAN AND PROFILES FOR GEOLOGIC INVESTIGATIONS			
PROFILE 6 OF EMERGENCY SPILLWAY CROSS-SECTIONS OF EMERGENCY SPILLWAY			
PLUM CREEK, SITE 2 HAYS COUNTY, TEXAS			
U. S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE			
Designed by	Date	Checked by	Date
Plotted by	6-19-67	Checked by	6-20-67
Sheet No.	13	Sheet No.	13
Project No.	4-E-24,550	Project No.	4-E-24,550

Revised 4-68