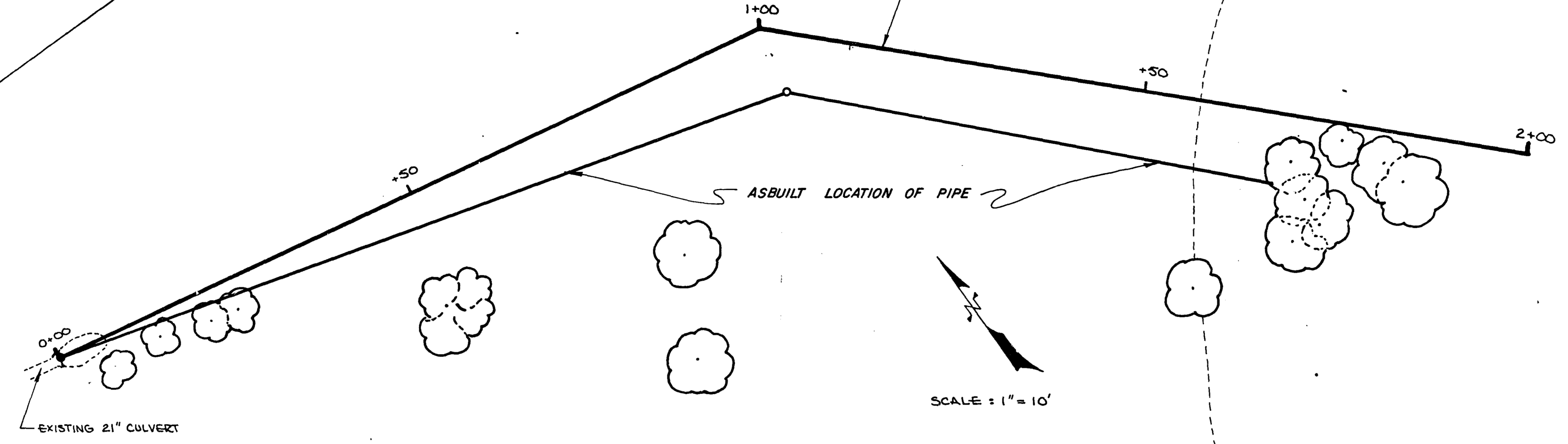


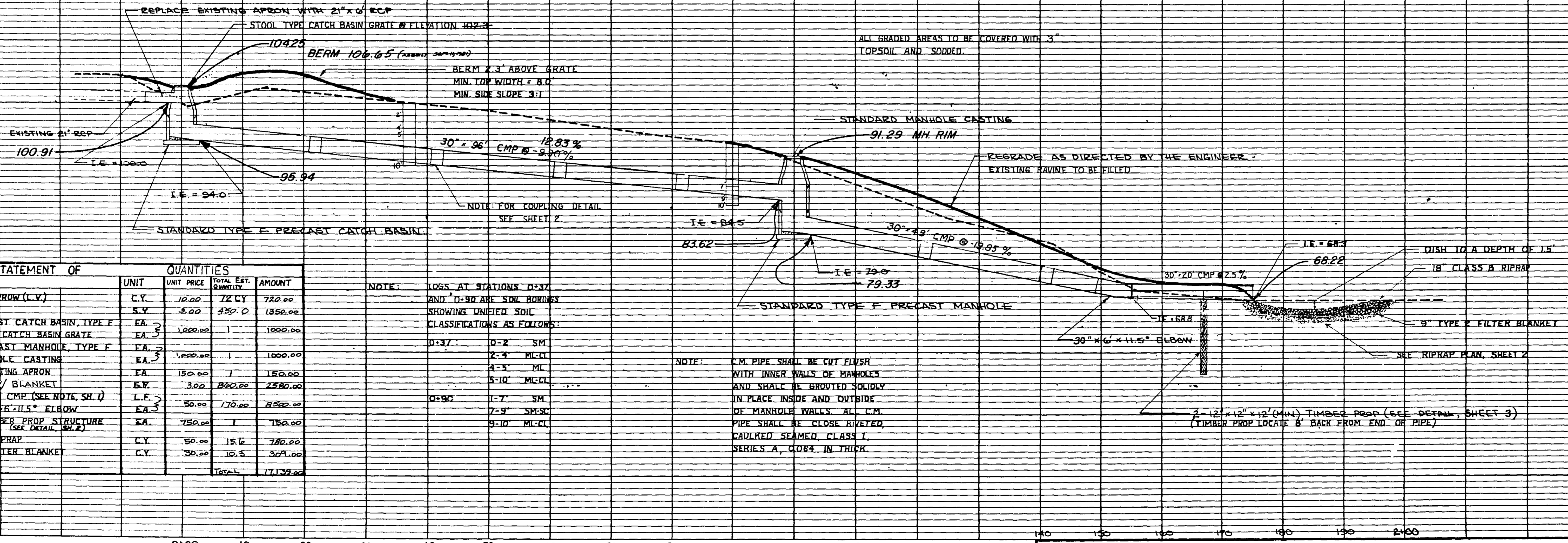
SNAIL LK. BLVD.



**ASBUILT PLAN**  
 CONFORMING TO  
 CONST. RECORDS  
 DONE BY: *D.S.H.*  
 DATE: 11-5-80

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.  
*Daniel J. Schacht*  
 Date 6-26-80 Reg. No. 11654

B.M. INVERT ELEVATION OF EXISTING 21" RCP AT STATION 0+06 ASSUMED TO BE 100.00 FT.

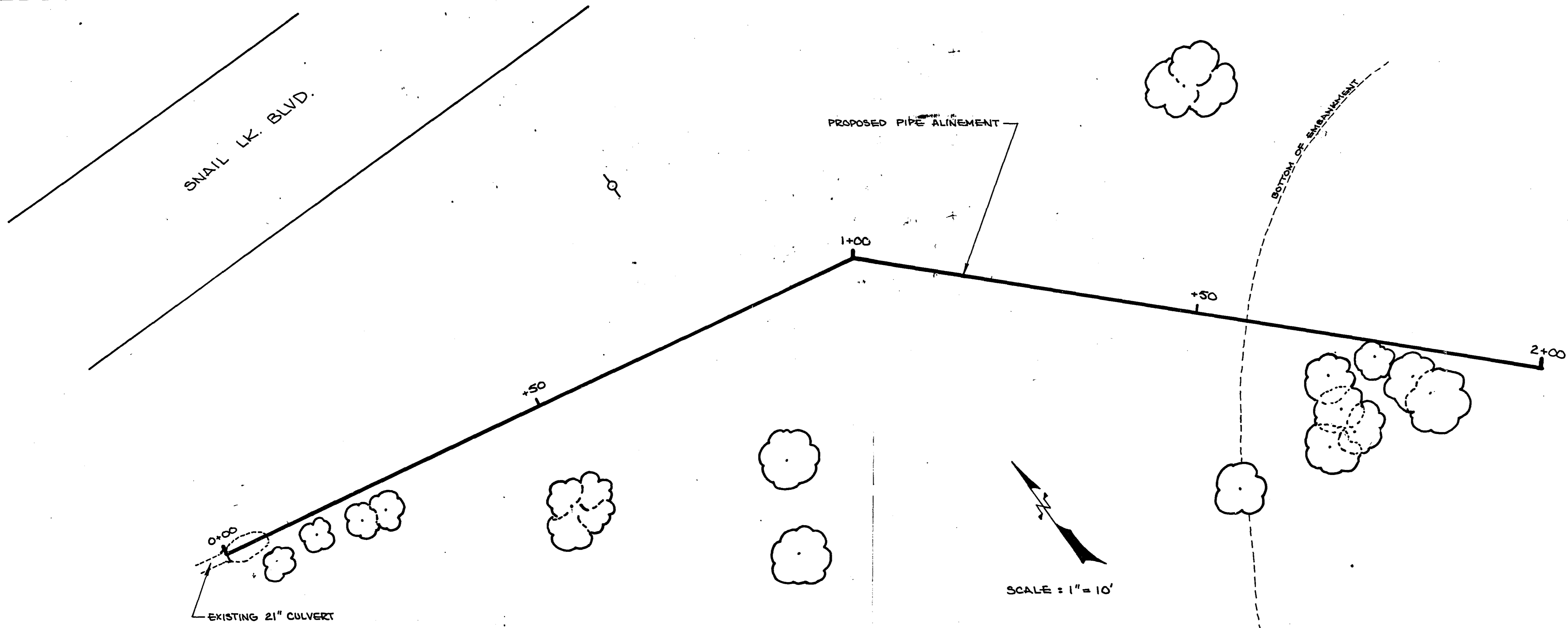


STATEMENT OF		QUANTITIES		
ITEM	UNIT	UNIT PRICE	PROV. EST. QUANTITY	AMOUNT
TOPSOIL BORROW (L.V.)	C.Y.	10.00	72 CY	720.00
SODDING	S.Y.	5.00	332.0	1660.00
STD. PRE-CAST CATCH BASIN, TYPE F	EA.	1000.00	1	1000.00
STOOD. TYPE CATCH BASIN GRATE	EA.	1000.00	1	1000.00
STD. PRE-CAST MANHOLE, TYPE F	EA.	1000.00	1	1000.00
STD. MANHOLE CASTING	EA.	150.00	1	150.00
REMOVE EXISTING APRON	E.V.	3.00	860.00	2580.00
SEE O. W/ BLANKET	L.F.	50.00	170.00	8500.00
INSTALL 30" x 11.5" ELBOW	EA.	750.00	1	750.00
INSTALL TIMBER PROP STRUCTURE (SEE DETAIL, SH. 2)	KA.	30.00	10.5	309.00
CLASS B RIPRAP	C.Y.	50.00	18.6	930.00
TYPE Z FILTER BLANKET	C.Y.	30.00	10.5	309.00
			<b>TOTAL</b>	<b>17139.00</b>

NOTE: LOSS AT STATIONS 0+37 AND 0+90 ARE SOIL BORROWS SHOWING UNIFIED SOIL CLASSIFICATIONS AS FOLLOWS:  
 0+37: 0-2 SM  
 2-4 MCL  
 4-5 MC  
 5-10 MCL  
 0+90: 1-7 SM  
 7-9 SM-S  
 9-10 MCL

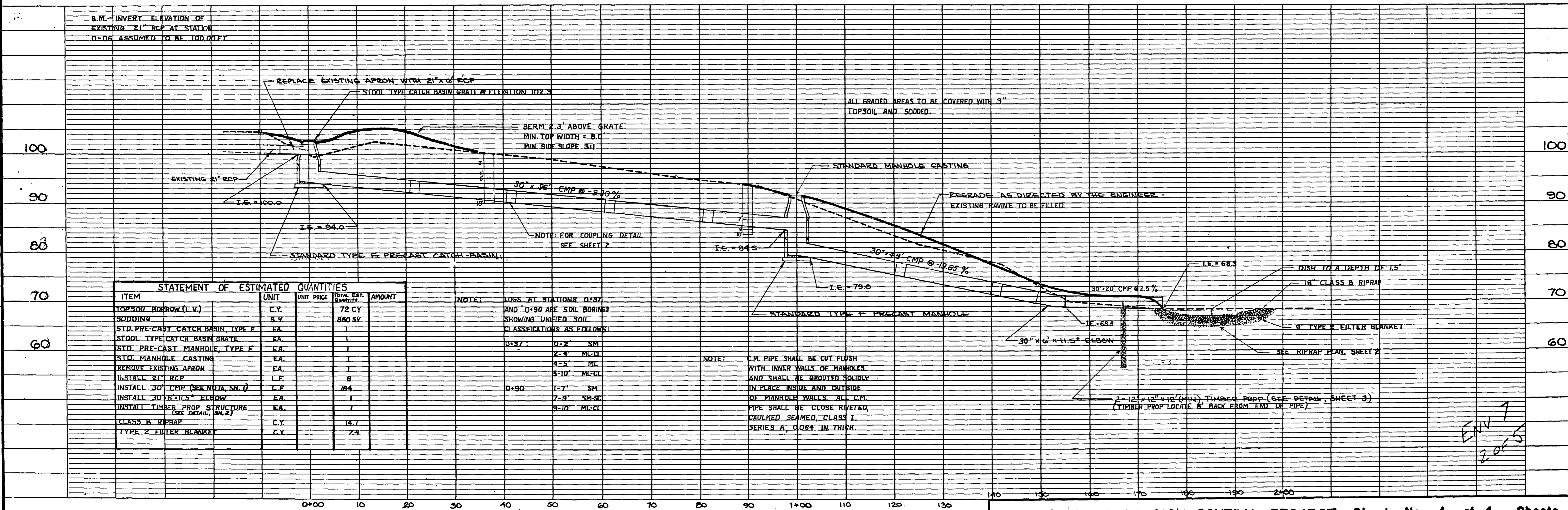
NOTE: C.M. PIPE SHALL BE CUT FLUSH WITH INNER WALLS OF MANHOLES AND SHALL BE GROUDED SOLIDLY IN PLACE INSIDE AND OUTSIDE OF MANHOLE WALLS. ALL C.M. PIPE SHALL BE CLOSE RIVETED, CAULKED SEAMED, CLASS I, SERIES A, CLASS IN THICK.

ENV 7  
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*Daniel J. Schacht*  
 Date 6-26-80 Reg. No. 11654



STATEMENT OF ESTIMATED QUANTITIES				
ITEM	UNIT	UNIT PRICE	TOTAL EST. QUANTITY	AMOUNT
TOPSOIL BORROW (L.V.)	C.Y.		72	
SODDING	S.Y.		880	
STD. PRE-CAST CATCH BASIN, TYPE F	EA.		1	
STOOD TYPE CATCH BASIN GRATE	EA.		1	
STD. PRE-CAST MANHOLE, TYPE F	EA.		1	
STD. MANHOLE CASTING	EA.		1	
REMOVE EXISTING APRON	EA.		1	
INSTALL 21" RCP	L.F.		6	
INSTALL 30" CMP (SEE NOTE, SH. 1)	L.F.		184	
INSTALL 30" x 48" x 11.5" ELBOW	EA.		1	
INSTALL TIMBER PROP STRUCTURE (SEE DETAIL, SH. 2)	KA.		1	
CLASS B RIPRAP	C.Y.		14.7	
TYPE 2 FILTER BLANKET	C.Y.		2.4	

NOTE: LOGS AT STATIONS 0+37 AND 0+90 ARE SOIL BORINGS SHOWING UNIFIED SOIL CLASSIFICATIONS AS FOLLOWS:

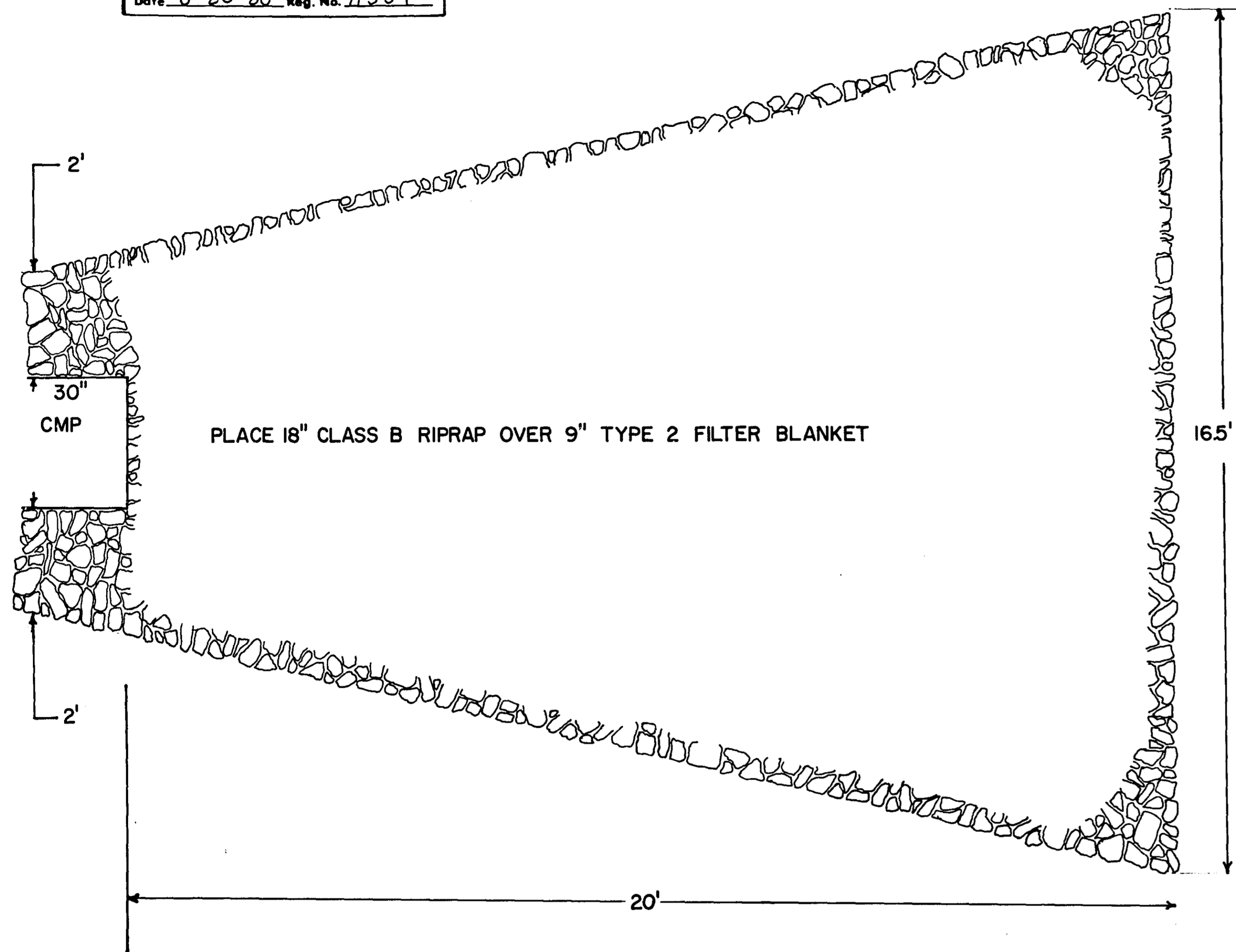
0+37: 0-2' SM  
 2-4' MCL  
 4-5' ML  
 5-10' MCL

0+90: 1-7' SM  
 7-9' SPSC  
 9-10' MCL

NOTE: C.M. PIPE SHALL BE CUT FLUSH WITH INNER WALLS OF MANHOLES AND SHALL BE GROUTED SOLIDLY IN PLACE INSIDE AND OUTSIDE OF MANHOLE WALLS. ALL C.M. PIPE SHALL BE CLOSE RIVETED, CAULKED SEAMED, CLASS I, SERIES A, 0.084 IN THICK.

ENV 7  
 2 OF 5

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*Daniel G. Schacht*  
 Date: 6-26-80 Reg. No. 11569



PLAN OF RIPRAP AT OUTLET

NOT

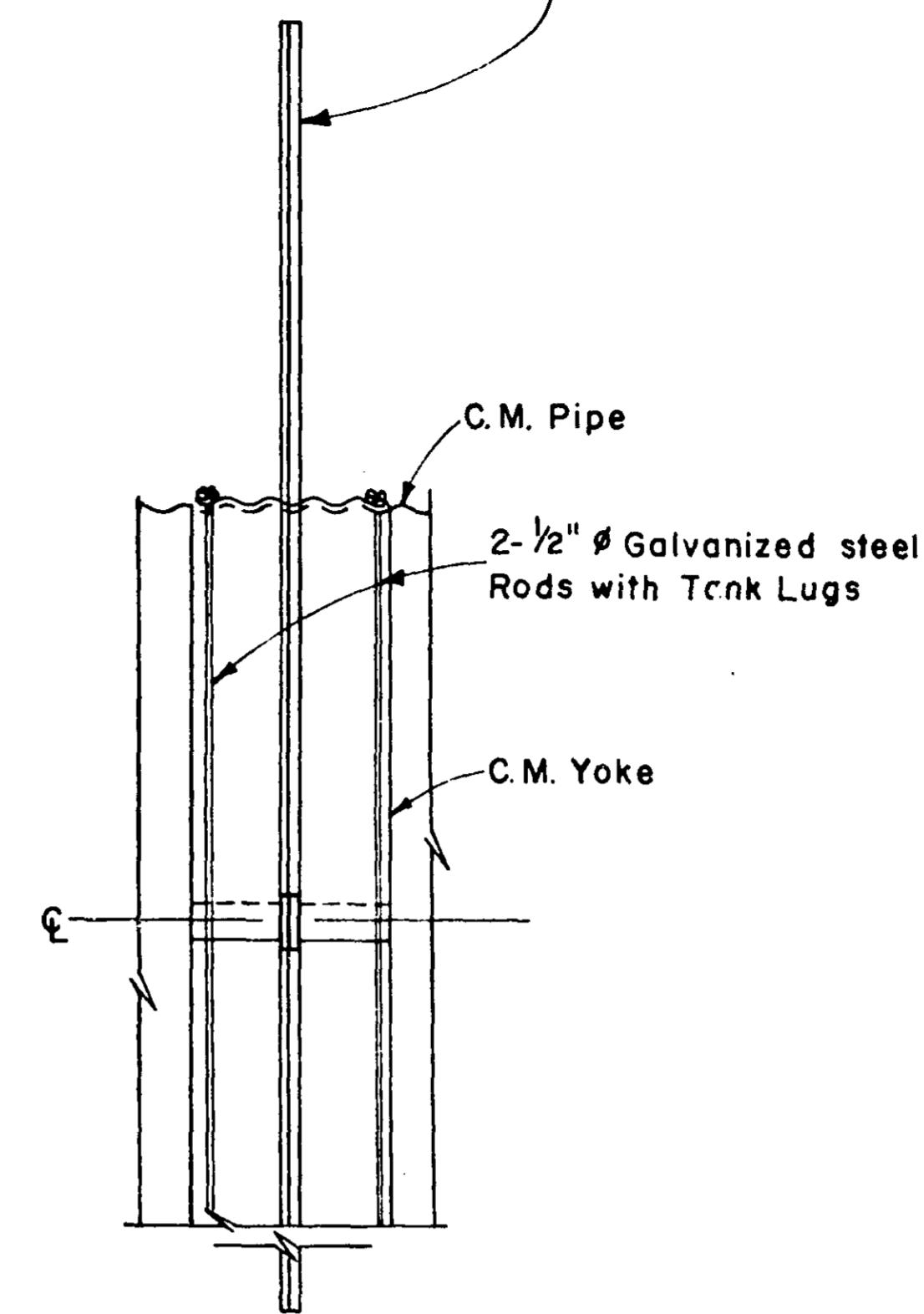
~~DETAILS OF DIAPHRAGM APPLICABLE~~

TABLE OF DIMENSIONS FOR DIAPHRAGMS

PIPE DIAMETER (inches)	8	10	12	15	18	21	24	30	36	42	48	54	60
DIAPHRAGM HEIGHT (feet)	4	4	4	6	6	6	7.5	7.5	7.5	7.5	9	9	9
DIAPHRAGM SIZE WIDTH (feet)	4	4	4	10	10	10.25	12	12	12	12.25	14	14	14
FLAT PLATE LENGTH (inches)	48	48	48	37 1/2	37 1/2	37 1/2	46 1/2	46 1/2	46 1/2	46 1/2	55 1/2	55 1/2	55 1/2
FLAT PLATE WIDTH (inches)	48	48	48	24	24	27	48	48	48	48	51	72	72
CORRUGATED METAL SHEETS NO. REQUIRED	0	0	0	8	8	8	8	8	8	8	8	8	8
CORRUGATED METAL SHEETS LENGTH (inches)	-	-	-	37 1/2	37 1/2	37 1/2	46 1/2	46 1/2	46 1/2	46 1/2	55 1/2	55 1/2	55 1/2
CORRUGATED METAL SHEETS GAGE	-	-	-	16	16	16	16	14	14	14	14	14	14

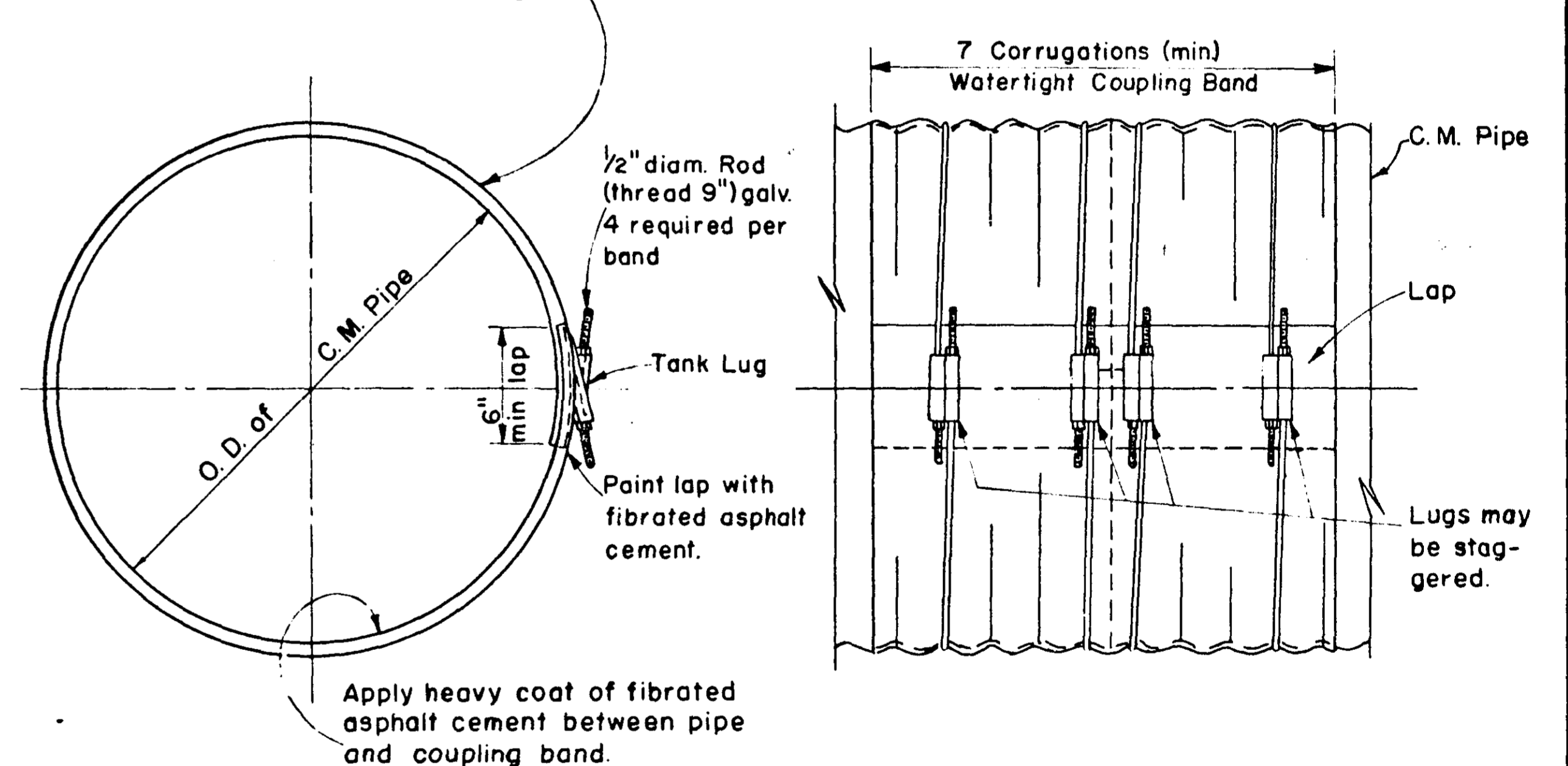
MINNESOTA ENGINEERING DESIGN UNIT	
ENGINEERING APPROVAL <i>Rose A. Hoffman</i>	CARTOGRAPHIC APPROVAL
DESIGNED BY D. H. Peterson	DRAWN BY R. Brown
CHECKED BY D. C. Ralston	STANDARD DWG. NO. 5-E-20,617
DATE: 6-64	

When required; C.M. sheets, 2'-1 1/2" wide, riveted or bolted. Install with corrugations vertical.



SIDE ELEVATION

Corrugated Metal Coupling Band to be fabricated from one sheet or two sheets with equal minimum lap lengths.



DETAIL OF WATERTIGHT COUPLING BAND

NOTES:

- See spillway general layout drawing for:
  - Location and spacing of diaphragms and watertight coupling bands.
  - Spillway pipe gage, metal treatment and coating.
- All nuts, bolts, rivets, and washers shall be galvanized, cadmium plated, or stainless steel.
- Rivets in longitudinal seams of C.M. Pipe under watertight coupling band shall be flat head or omitted and seams welded inside and outside with a continuous 1/8" fillet weld.
- Connection of each flat plate with the yoke piece and the connection of 2 corrugated sheets (when required) shall be shop fabricated.
- Connection of corrugated sheets with flat plate may be either shop fabricated using 3/8" x 3/4" rivets on 6" centers or field bolted using 3/8" x 1" bolts on 6" centers.
- After welding, damaged zinc coating shall be repaired as follows:
  - Thoroughly clean the damaged areas on both sides of the damaged metal with a wire brush.
  - Paint the cleaned areas with two coats of zinc oxide-zinc dust paint.

NOT TO SCALE

DIAPHRAGM AND WATERTIGHT COUPLING BAND FOR 8" TO 60" ANNULAR C.M. PIPE

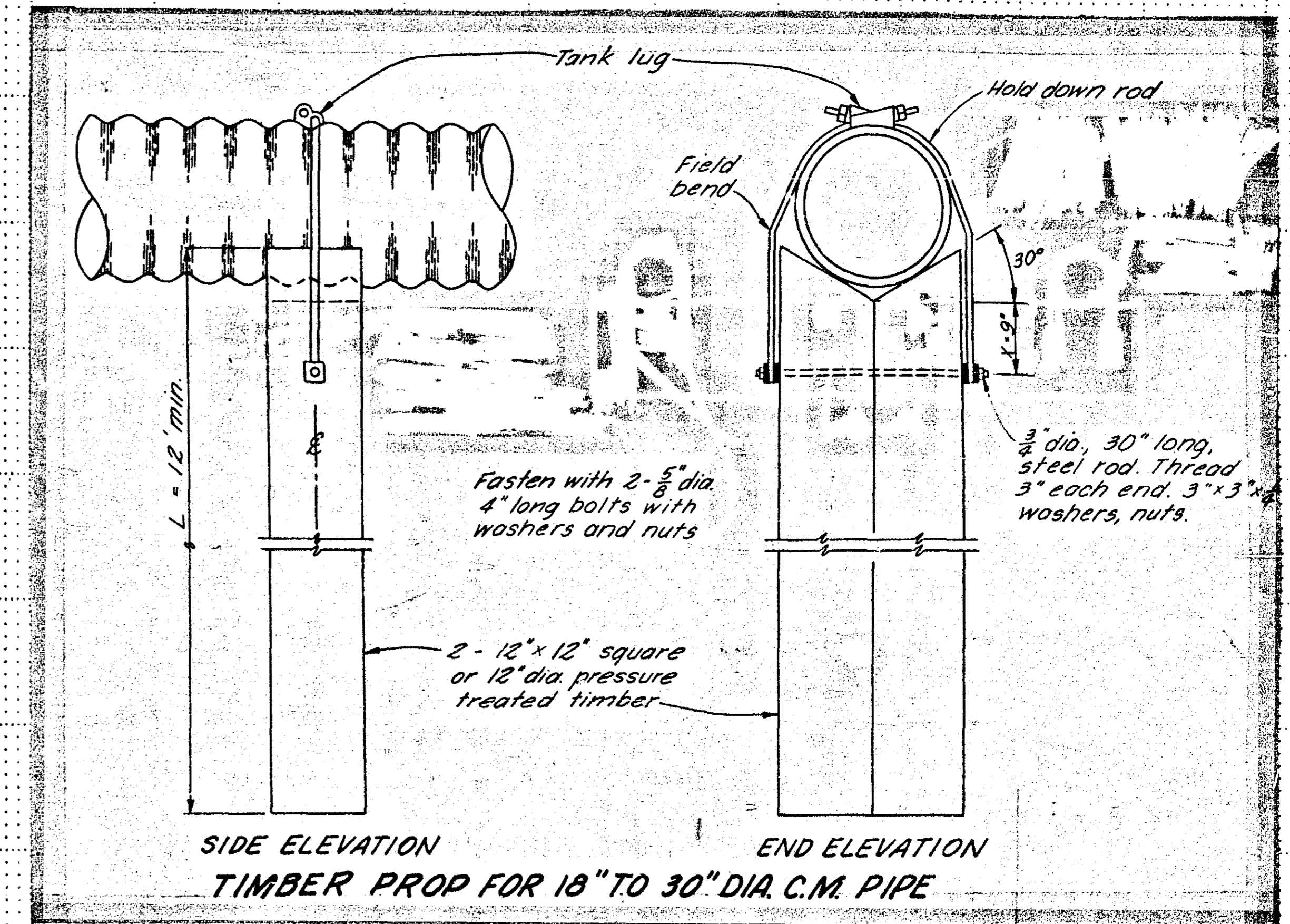
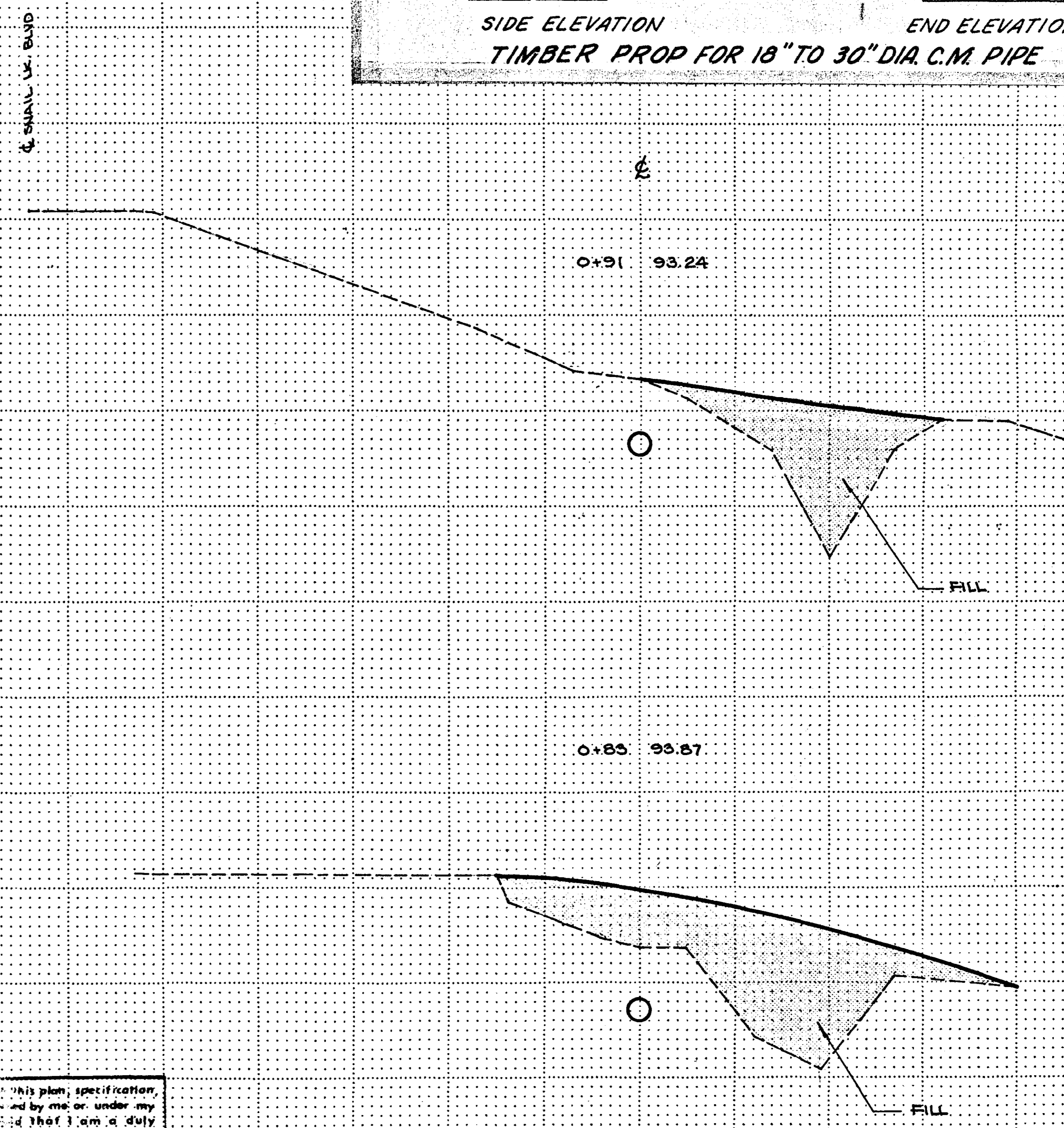
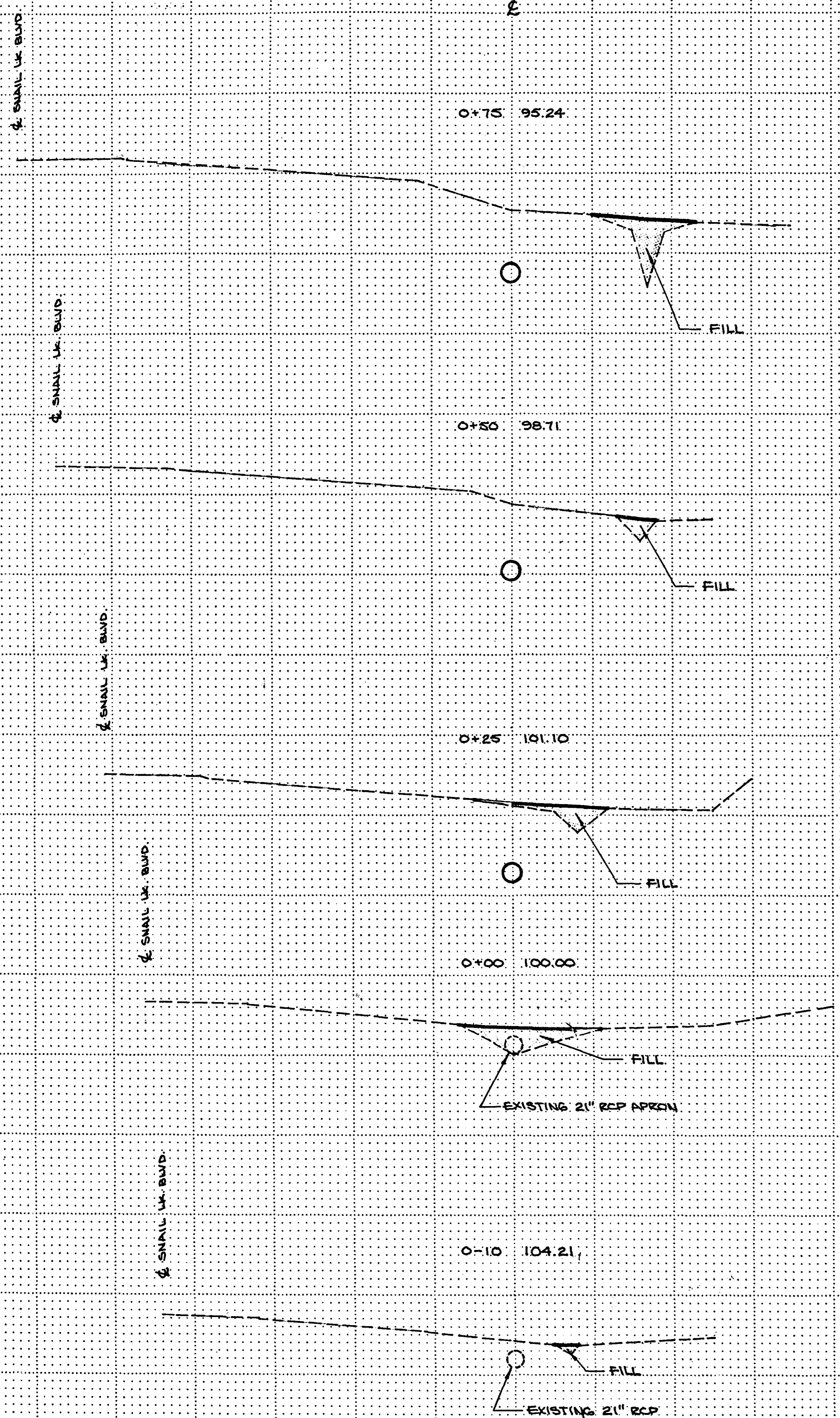
U. S. DEPARTMENT OF AGRICULTURE  
SOIL CONSERVATION SERVICE

Designed	Date	Approved by
Drawn		Title
Traced		Title
Checked		Sheet No.
		Drawing No.
		of

ENV 1  
3 of 5

HORIZONTAL SCALE: 1" = 10'  
 VERTICAL SCALE: 1" = 10'

Fed. Proj. No.

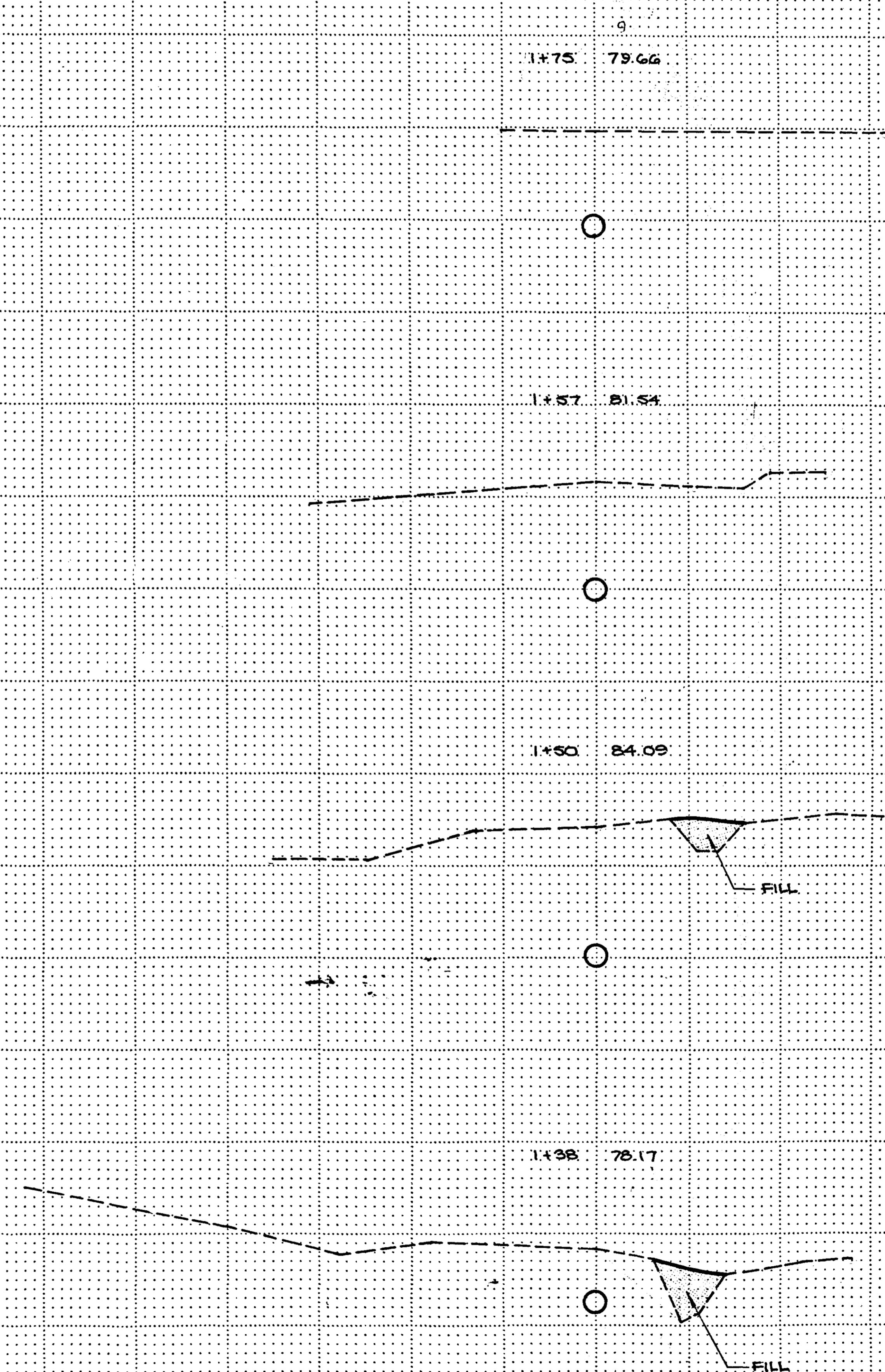
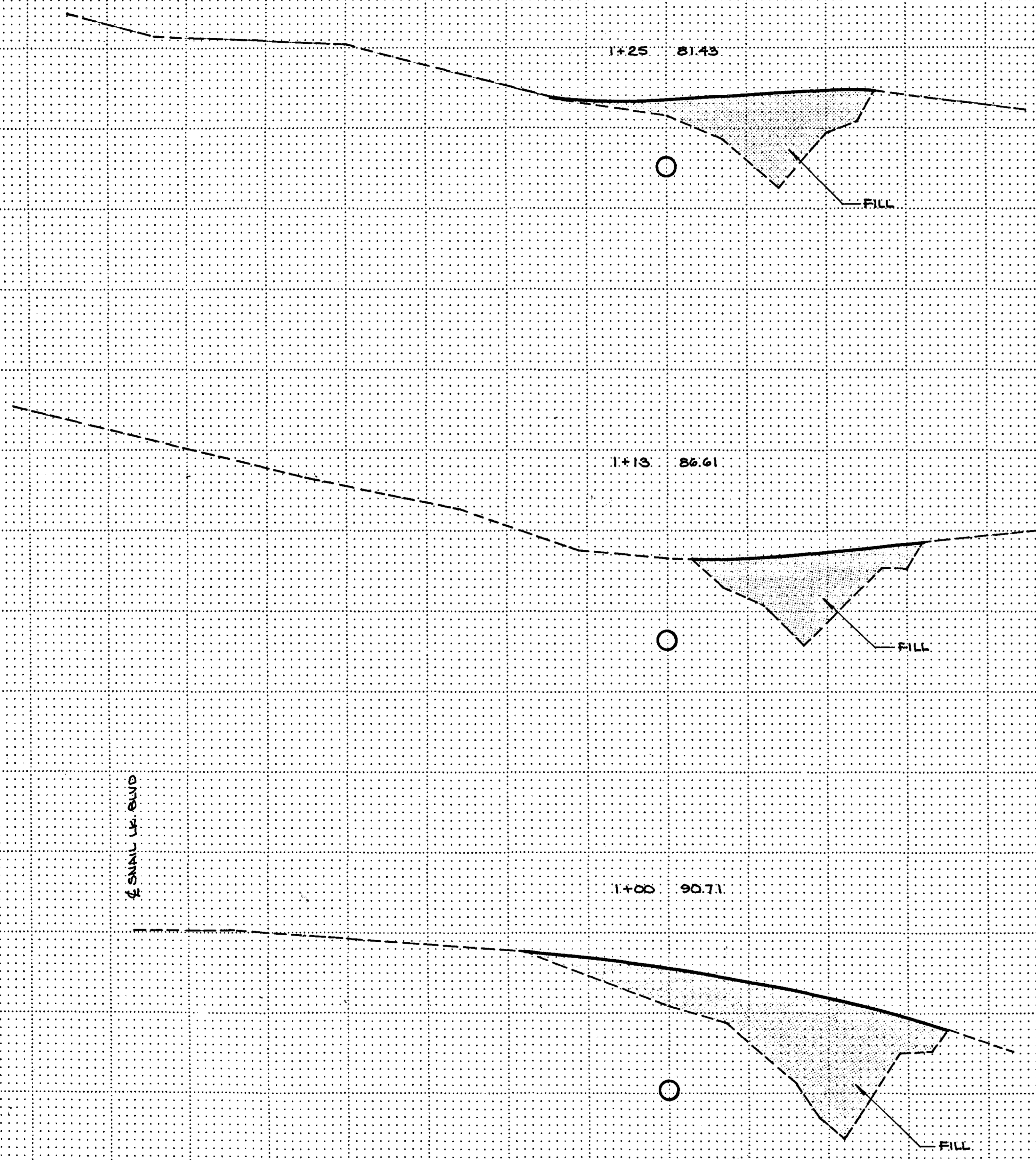


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Daniel J. Schmitt  
 Date 6-26-80 Reg. No. 11654

ENV 7  
 4 OF 5

HORIZONTAL SCALE: 1" = 10'  
VERTICAL SCALE: 1" = 10'

Fed. Proj. No.



SNAIL LAKE BLVD

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*Daniel J. Schadt*  
Date 6-26-80 Reg. No. 11659

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Copy Equipment Form 21