

INDEX OF SHEETS

1	TITLE SHEET
2	TYPICAL SECTIONS
3	STRUCTURE SUMMARY
4	Grading Summary
5	Gen. Notes & Spec. Data
6	Estimate Summary
7-47	Plan-Profile
48	Haul Diagram
49	CSH-15 Headwalls
50	MC-5-1
51	MCW-F-1
52	M.C. 6-1-45°
53	MCW-F1-45°
54	FSP-1
55	M-47
56	SWC-39
57-58	BW-54(1 & 2)

TEXAS HIGHWAY DEPARTMENT ATASCOSA COUNTY F.M. HIGHWAY NO. 140

FEDERAL AID PROJECT NO. S 1455(1) PLANS OF PROPOSED GRADING, STRUCTURES, BASE & SURFACING

FROM 3.7 MI. S. OF CHARLOTTE, SE. TO JCT. S.H. 173 & F.M. 140

LENGTH: Roadway-Rural 52011.85' = 9.850 Miles
Bridges - Rural 37.48' = 0.007 Mile
NET LENGTH 52049.33' = 9.857 Miles

FED. RD. DIV. NO.	STATE	FEDERAL PROJECT NO.				SHEET NO.
6	TEXAS	S 1455(1)				
STATE DIST. NO.	COUNTY	CONT.	SECT.	JOB	HIGHWAY NO.	
15	Atascosa	748	5	3	F.M. 140	

DETOUR NOTE:

See Special Provisions "Detours, Barricades, Warning Signs etc." for requirements for handling traffic etc.

Field Change Request No. 1.
Increase Stripping quantity to obtain necessary Foundation Course Material.

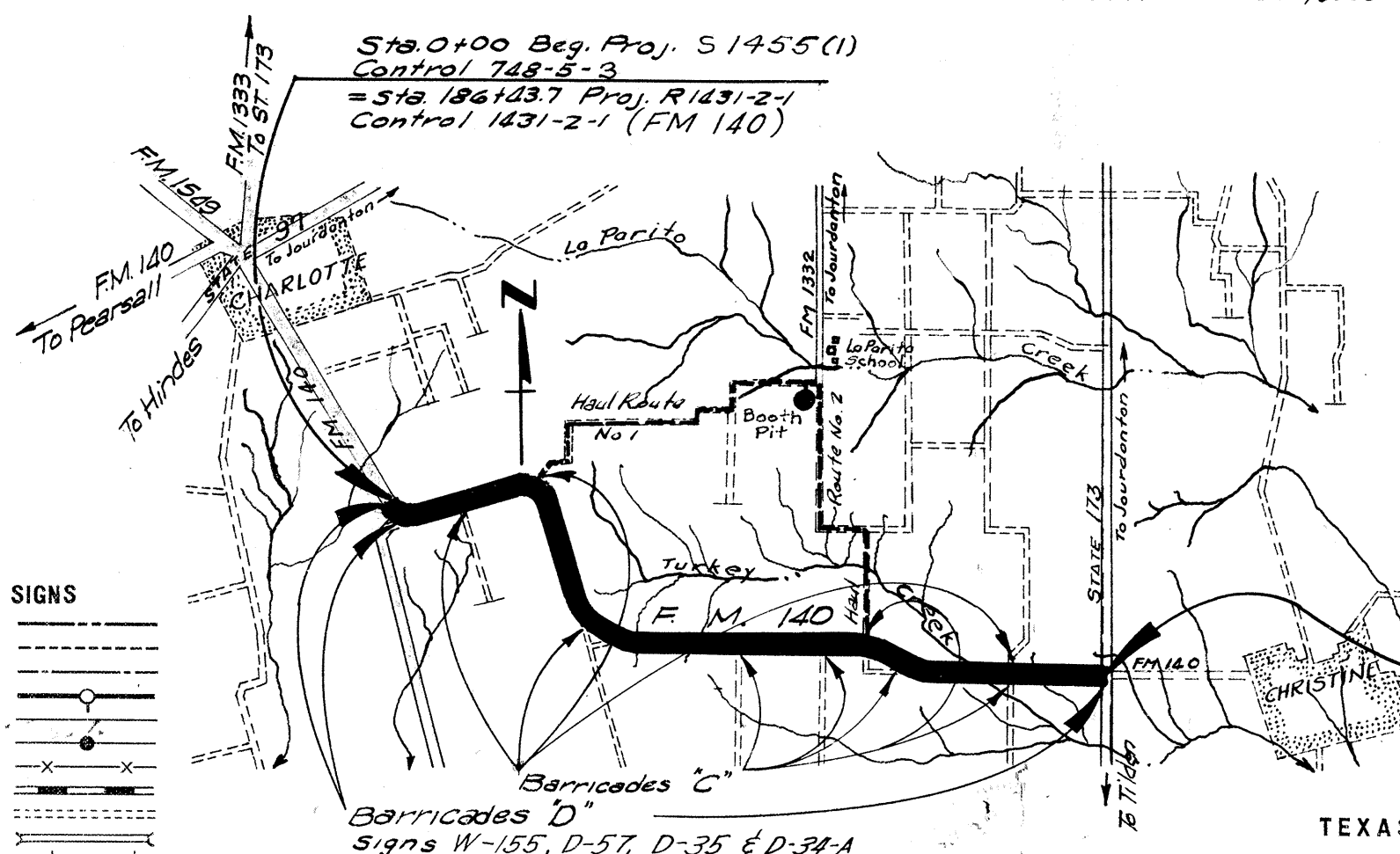
DELIVERY POINT FOR MATERIALS		
DELIVERY POINT	RR.	DIST. FROM PROJ.
Jourdanton	SALFG.	10 Mi. to Sta. 520+14.3
Charlotte	SALFG.	3.7 Mi. to Sta. 0+00

FINAL PLANS

I hereby certify that this project was constructed in accordance with these plans as corrected.

Emil E. Seewald 5/11/55
Resident Engineer

Sta. 520+14.26 End Proj. S 1455(1)
Control 748-5-3
= 10' Lt. Sta. 509+01.0 Proj. L 517-1-3 (ST 173)
Control 517-1-3 & 0-10 Proj. 5251(1)
Control 748-5-1 (FM 477)



CONVENTIONAL SIGNS	
STATE OR NATIONAL LINE	---
CITY OR VILLAGE LINE	- - - -
COUNTY LINE	- - - -
BASE OR SURVEY LINE	—○—
RIGHT OF WAY LINE	—●—
RIGHT OF WAY MARKERS	—x—
FENCE LINE	—x—
RAILROAD	—+—+—
TRAVELLED WAY	—+—+—
CULVERT OR BRIDGE	—+—+—
POWER LINE	—○—
TELEGRAPH OR TELEPHONE	—○—

FEDERAL PROJECT MARKERS OF APPROVED DESIGN WILL BE ERECTED AT EACH END OF PROJECT PRIOR TO COMPLETION.

SPECIFICATIONS ADOPTED BY THE STATE HIGHWAY DEPARTMENT OF TEXAS, JANUARY 2, 1951 AND APPROVED BY THE BUREAU OF PUBLIC ROADS, JULY 25, 1951 AND SPECIFICATION ITEMS LISTED AND DATED AS FOLLOWS SHALL GOVERN ON THIS PROJECT.

Required Contract Provisions for Federal-aid Projects
Approved April 8, 1954.

NO R.R. CROSSINGS
NO EXCEPTIONS
TWO EQUATIONS

Sta 218+90.15 Bk. = Sta. 218+53.33 Ahd. = 36.82' (+)
Sta 48+59.0 Bk. = Sta 48+60.75 Ahd. = 1.75' (-)

SCALE: 0 10,560'

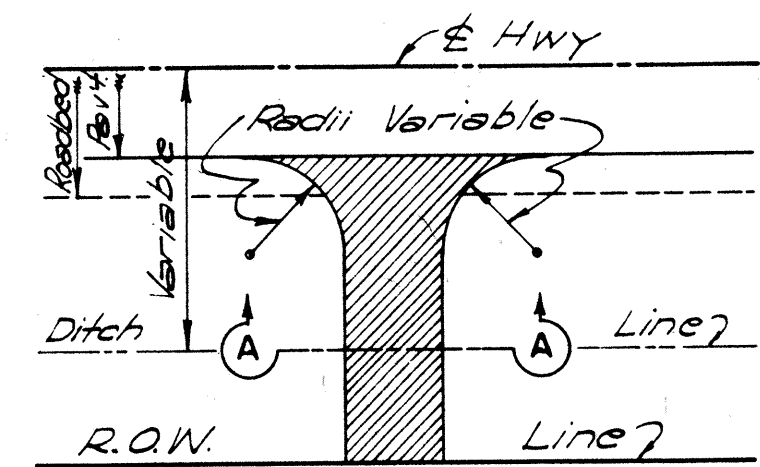
CORRECT: 7-6-54
H. A. Hill
RESIDENT ENGINEER

RECOMMENDED FOR APPROVAL: July 15, 1954
J. M. Davis
DISTRICT ENGINEER

APPROVED
ENGINEER LAND SERVICE ROADS

APPROVED
DISTRICT ENGINEER
BUREAU OF PUBLIC ROADS
DEPARTMENT OF COMMERCE

TYPICAL ROAD APPROACH DETAILS

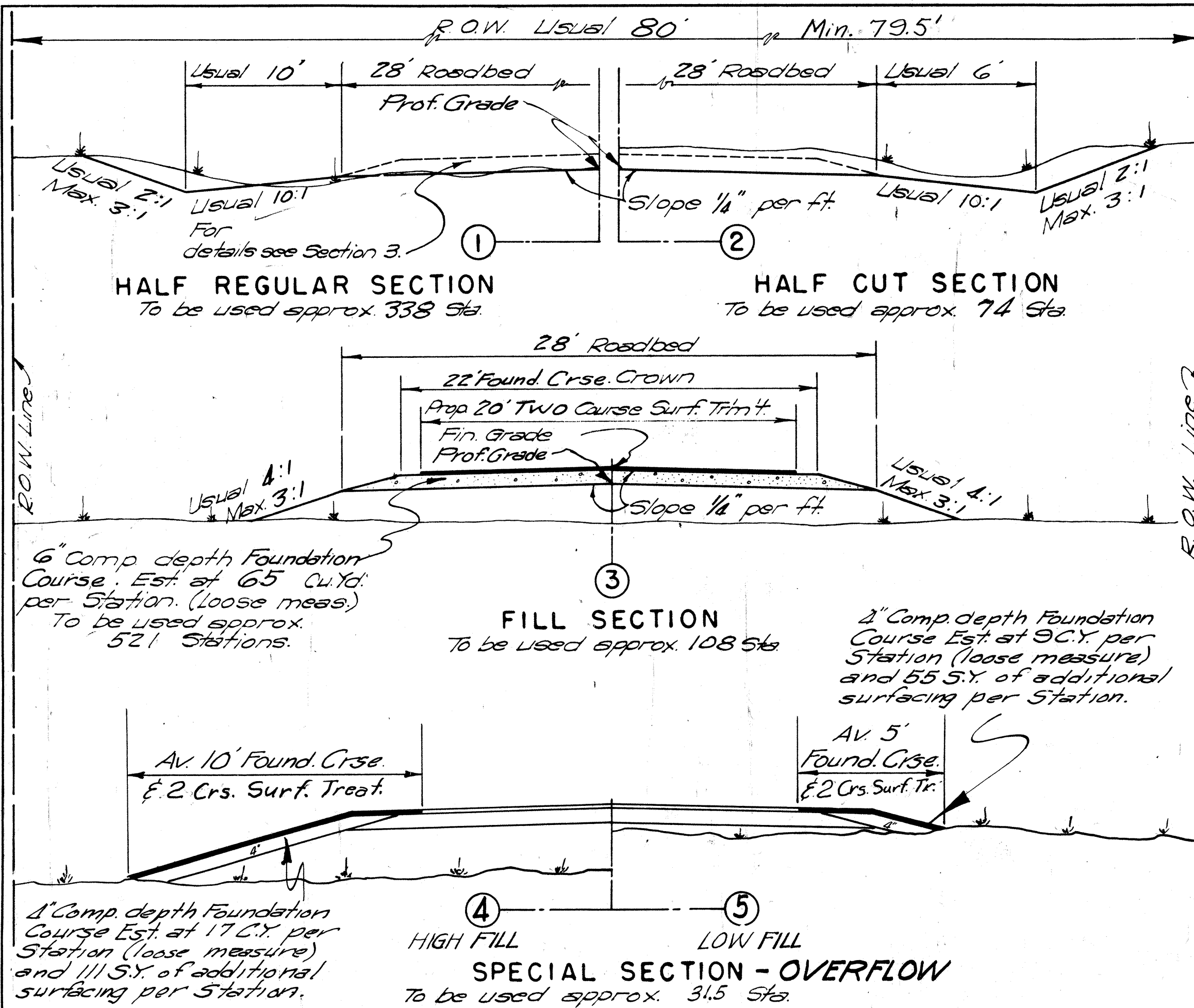


TYPICAL PLAN

For location & quantities see Plan - Profile Sheets

SECTION A-A

NOTE: Excavation below finished ditch grade will be paid for under item of "Road Grader Work." Where plans indicate a culvert in the ditch line Sect. A-A will be modified to provide a fill over the culvert. Embankment placement and compensation shall conform to governing specifications.



TYPICAL SECTIONS

SPECIFICATION DATA		
<i>Foundation Course (Sand-Clay & Caliche Gravel)</i>		
Grading requirements:		The material passing the 40 mesh sieve shall be known as "Soil Binder", and shall meet the following requirements:
Retained on 4" screen	_____ %	
Retained on 3 1/2" screen	_____ %	
Retained on 3" screen	<u>0</u> %	
Retained on 2 1/2" screen	_____ %	The liquid limit shall not exceed <u>40</u>
Retained on 2" screen	_____ %	The plasticity index shall not exceed <u>15</u>
Retained on 1 1/2" screen	_____ %	The linear shrinkage shall not exceed <u>8.5</u>
Retained on 1" screen	_____ %	(Note: The linear shrinkage shall be calculated from the volumetric shrinkage at the liquid limit.)
Retained on 3/4" screen	_____ %	
Retained on 1/2" screen	_____ %	Note: Crushing & Screening will not be required.
Retained on 1/4" screen	_____ %	
Retained on 40 mesh sieve	_____ %	

SPECIFICATION DATA			
<i>Two Course Surface Treatment</i>			
Item	Application		
	First	Second	Third
Asphalt, Type	MC-3	OA-135 *	
Asphalt, Rate (Gal/sy)	.25	.40	*
Aggregate, Type	A	A	
Aggregate, Grade	4	4	
Aggregate, Rate (cy/sy)	1:90	1:110	
Rolling 203 (Hrs/Mi)	5	5	
Rolling 203B (Hrs/Mi)	5	5	

Surface Treatment Area = 124,953 Sq. Yds.

SPECIFICATION DATA	
Mineral Aggregate For Soil Asphalt or Soil Cement Base	
The liquid limit shall not exceed _____	
The plasticity index shall be:	
Not less than _____ nor more than _____.	
The linear shrinkage shall not exceed _____	
(Note: The linear shrinkage shall be calculated from the volumetric shrinkage at the liquid limit.)	

BASIS OF ESTIMATE			
Item	Description	Rate	Est. Quantity
202	Sprinkling - Rd. Grader Wk.	3 M.G. / Sta.	1562
202	" - Embankment	40 Gal. / C.Y.	792
202	" - Found. Course	80 Gal. / C.Y.	2851
203	Rolling - Found. Course	0.5 Hr. / Sta.	260
203	" - Surf. 1 st	5.0 Hr. / Mile	50
203	" - Surf. 2 nd	5.0 Hr. / Mile	50
203A	Rolling - Rd. Grader Wk.	0.25 Hr. / Sta.	130
203A	" - Embankment	1 Hr. / 100 C.Y.	198
203B	Rolling - Found. Course	1.0 Hr. / 130 C.Y.	274
203B	" - Rd. Grader Wk.	0.5 Hr. / Sta.	260
203B	" - Surf. 1 st	5.0 Hr. / Mile	50
203B	" - Surf. 2 nd	5.0 Hr. / Mile	50

All curves shall be superelevated and widened in accordance with SWC-39, Table 2, except that RC-2 shall be substituted for the maximum superelevation shall not exceed 0.04 ft., and widening is omitted.

* During the closed asphalt season, surface treatment. Application rate shown for second course is for RC-2. Rate for OA-135 shall be 0.35 Gal. per S.Y.

All obstructions within limits of right of way to be removed by the County unless otherwise noted.

In those instances where fixed features require the governing slopes indicated herein may be varied from between the limits and to the extent determined by the engineer.

Concrete structures shall receive a Type 2 Finish.

Grading shall be done under the item of Road Grader Work, and the items of Scraper Work and Bulldozer Work on the hourly basis bid are to be used where and as directed by the Engineer within the limits of Road Grader Work where the work involved cannot be accomplished with the equipment specified for Road Grader Work, and the construction of road approaches and channels.

Right-of-Way Markers shall be installed so that the top of Marker projects 1'-0" above ground line.

GENERAL NOTES
AND
SPECIFICATION DATA

ESTIMATE SUMMARY

GENERAL NOTES:

ITEM NO.	DESCRIPTION	QUANTITIES						GRAND		UNIT
				Roadway		Bridges		TOTALS		
				EST.	FINAL	EST.	FINAL	EST.	FINAL	
100	Clearing & Grubbing			20.06	20.06			20.06	20.06	Ac.
104	Unclass. Struct. Excav.			357	357	40	40	397	397	C.Y.
108	Road Grader Work			520.6	520.6			520.6	520.6	Sta.
109	Stripping			1000	11650			1000	11650	C.Y.
113	Scraper Work			396	465			396	465	Hr.
114	Bulldozer Work			48	39			48	39	Hr.
202	Sprinkling			5205	3732.8			5205	3732.8	M.G.
203	Rolling			360	249			360	249	Hr.
203A	Rolling			328	373.5			328	373.5	Hr.
203B	Rolling			634	662			634	662	Hr.
218	Foundation Course			35640	35011			35640	35011	C.Y.
218	Add'l. Qtr. Mile Haul			743200	730764			743200	730764	C.Y.
305	Asphalt (MC-3)			31235	35880			31238	35880	Gal.
305	Asphalt (OA-135 or RC-2)			49981	42500			49981	42500	Gal.
305	Aggregate (Type A- Grade 4)			2504	2510			2504	2510	C.Y.
305	Aggregate (Stockpiled)			20	20			20	20	C.Y.
403	Class A Concrete			21.38	21.38	66.15	66.15	87.53	87.53	C.Y.
405&Spl.	Reinforcing Steel			3597	3583	9632	9635	13229	13218	Lb.
412&Spl.	18" S. R.C. Pipe			130	132			130	132	L.F.
412&Spl.	24" S. R.C. Pipe			454	484			454	484	L.F.
412&Spl.	30" S. R.C. Pipe			48	48			48	48	L.F.
412&Spl.	36" S. R.C. Pipe			156	156			156	156	L.F.
412&Spl.	42" S. R.C. Pipe			68	68			68	68	L.F.
412&Spl.	48" S. R.C. Pipe			20	20			20	20	L.F.
414	Relay. Culvert Pipe (over 18" dia.)			54.3	24.3			54.3	24.3	L.F.
415	Class "A" Conc. for Ext. Structs.			8.38	8.38			8.38	8.38	C.Y.
533	Cement Stabilized Riprap			31.03	31.03			31.03	31.03	C.Y.
500	Remov. Old Structures			1	2			1	2	Ea.
514	R.O.W. Markers- Type 1			88	88			88	88	Ea.
413	18" C.G.M. Pipe			130				130		L.F.
413	24" C.G.M. Pipe			454				454		L.F.
413	30" C.G.M. Pipe			48				48		L.F.
413	36" C.G.M. Pipe			156				156		L.F.
413	42" C.G.M. Pipe			68				68		L.F.
413	48" C.G.M. Pipe			20				20		L.F.

† Non-Part. in Fed. Aid.

ESTIMATE SUMMARY

* ALTERNATE

STA. 0+00 BEG. S1455(1)

CONTROL 748-5-3

= 186+43.7 ON OLD

CONTROL 1431-2-1 (F.M. 140)

Sta. 0+88

Existing 2-5'x3'x26'

MC-5-1 & MCW-F1 To be extended

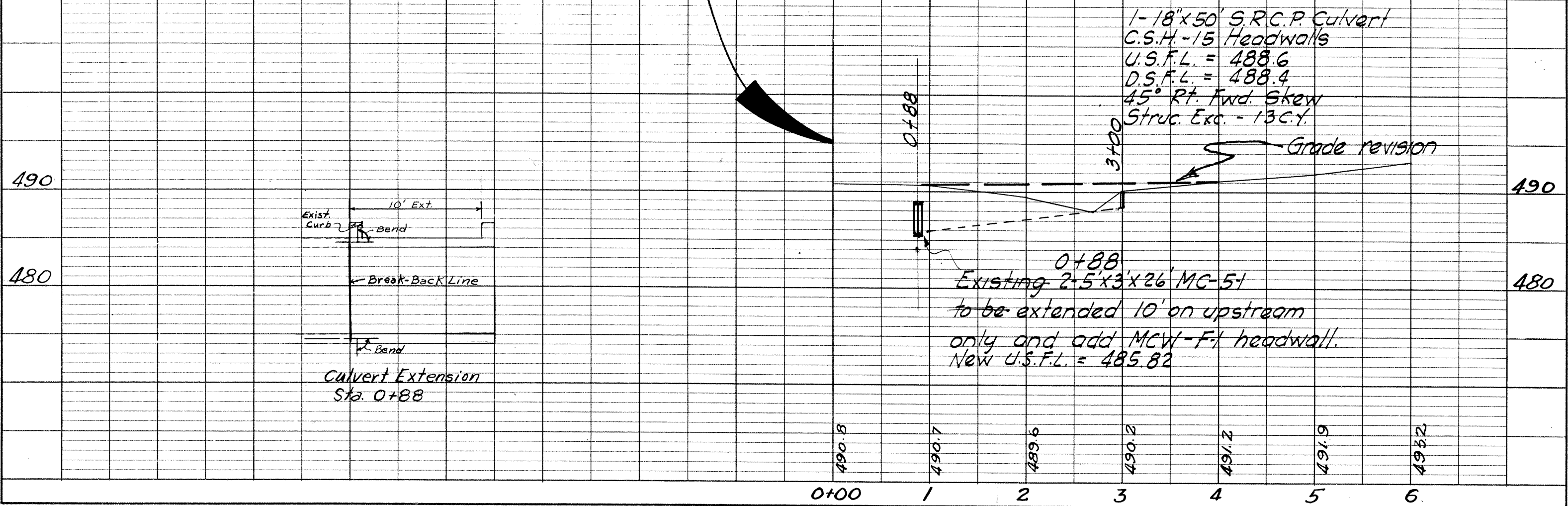
U.S.F.L. = 485.75 D.A. = 250 Ac.

D.S.F.L. = 485.50 C = 0.45 W.W. = 28"

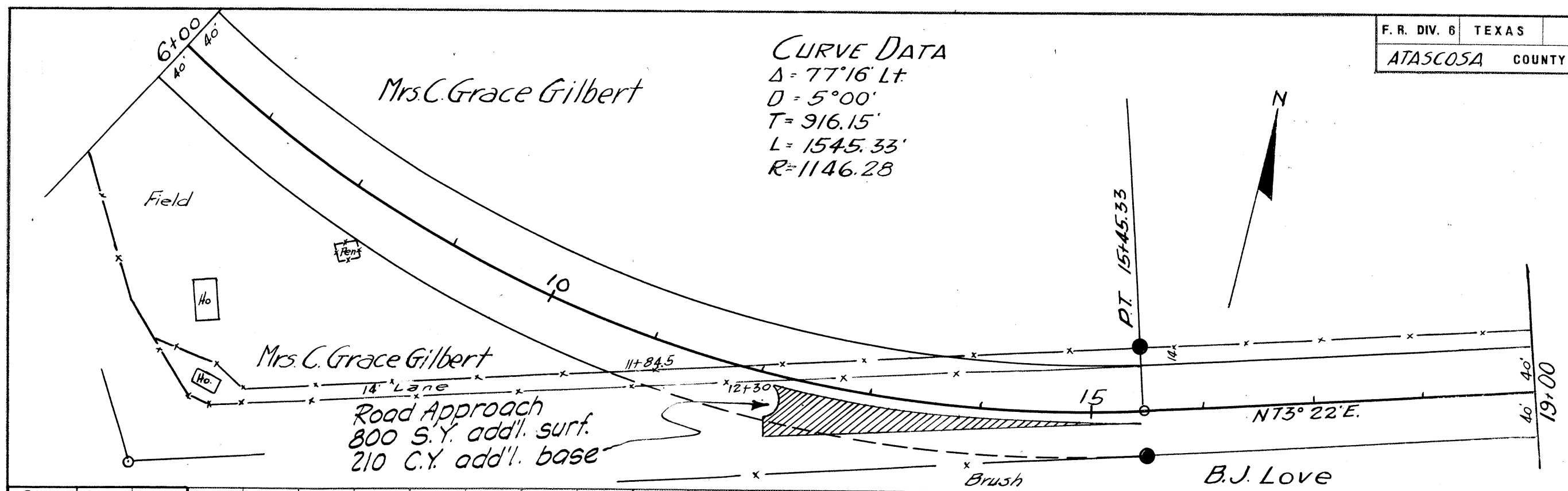
Q = 224 c.f.s.

SHEET TOTAL		
Est.	Final	Unit
0	0	Ac.
6	6	Sta
1	0	Hr.
7	8	Hr.
2	2	Ea.

Clear & Grub	
Rd. Grader Wk.	
Bulldozer Wk.	
Scraper Wk.	
R.O.W. Marker	

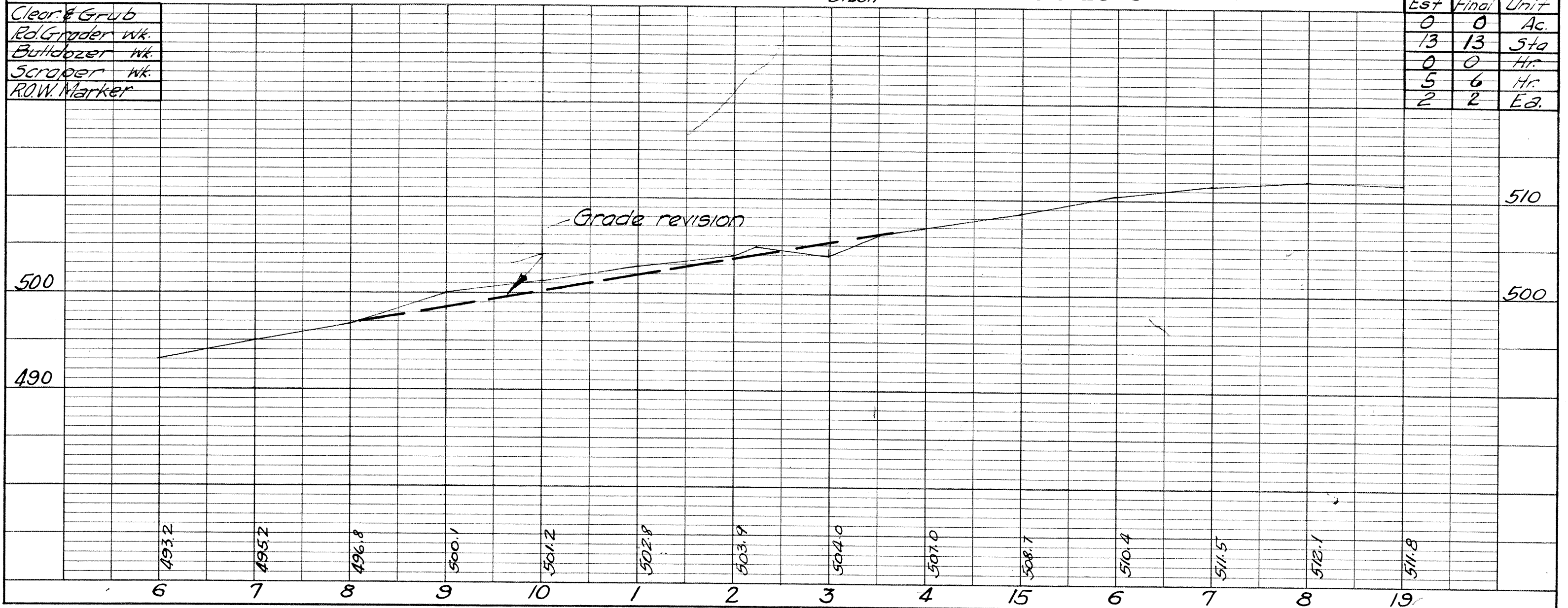


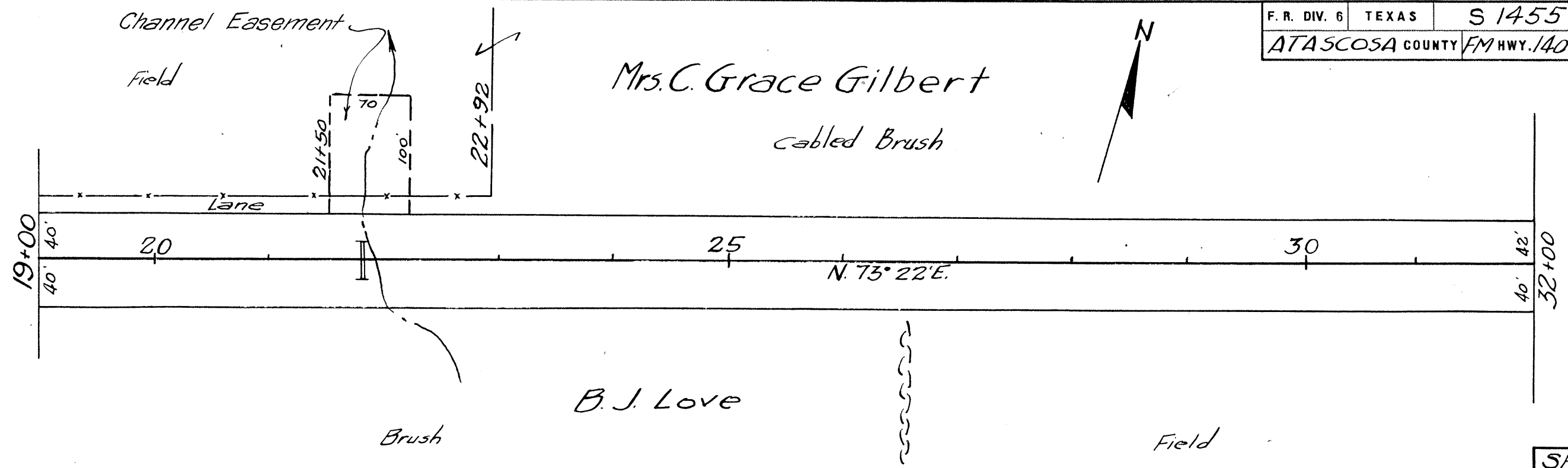
CURVE DATA
 $\Delta = 77^{\circ}16' \text{ Lt.}$
 $D = 5^{\circ}00'$
 $T = 916.15'$
 $L = 1545.33'$
 $R = 1146.28'$



Clear & Grub
Rd Grader Wk.
Bulldozer Wk.
Scraper Wk.
ROW Marker

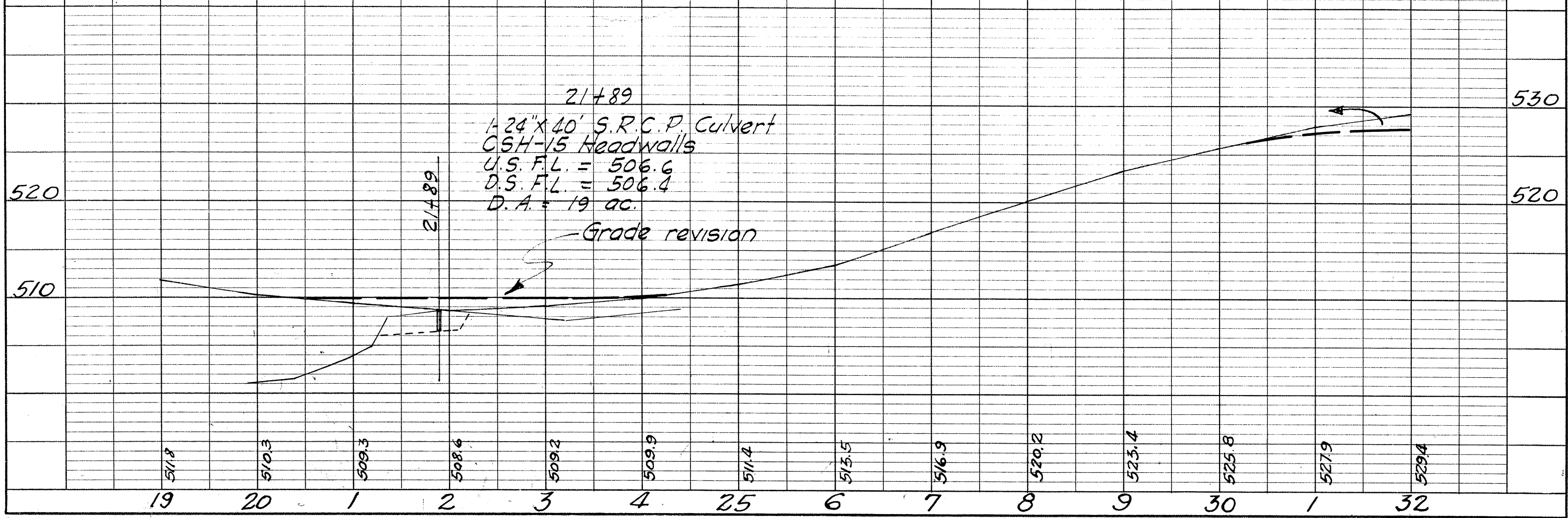
SHEET TOTAL		
Est	Final	Unit
0	0	Ac.
13	13	Sta
0	0	Hr.
5	6	Hr.
2	2	Ed.

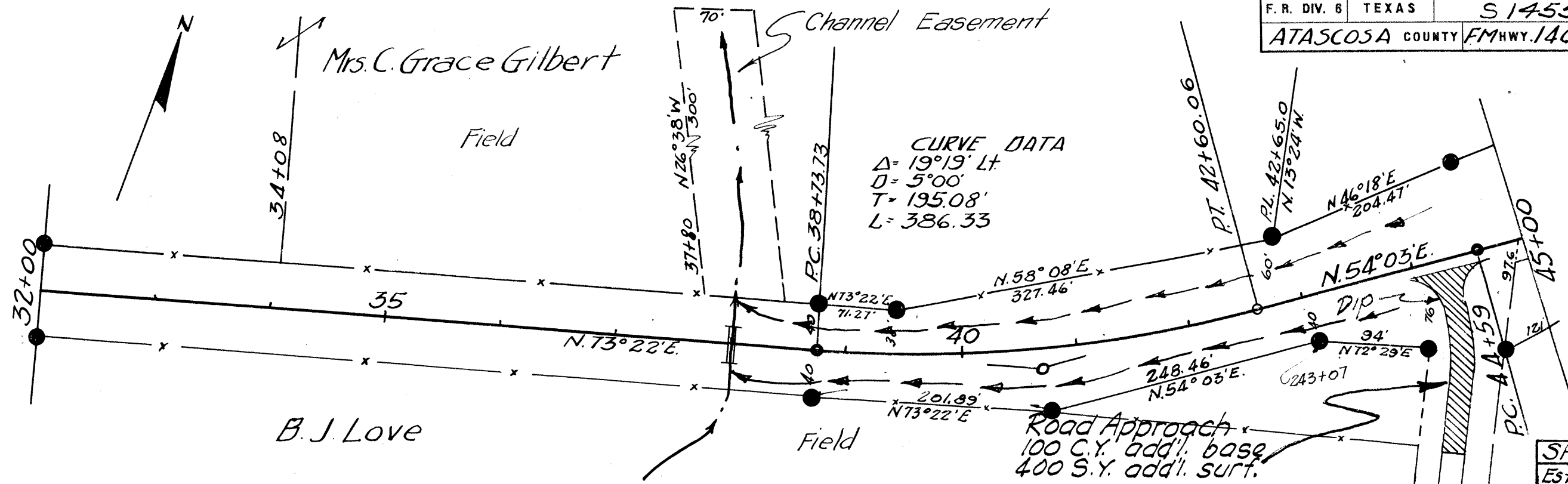




Clear & Grub
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Bulldozer Wk.
Scraper Wk.

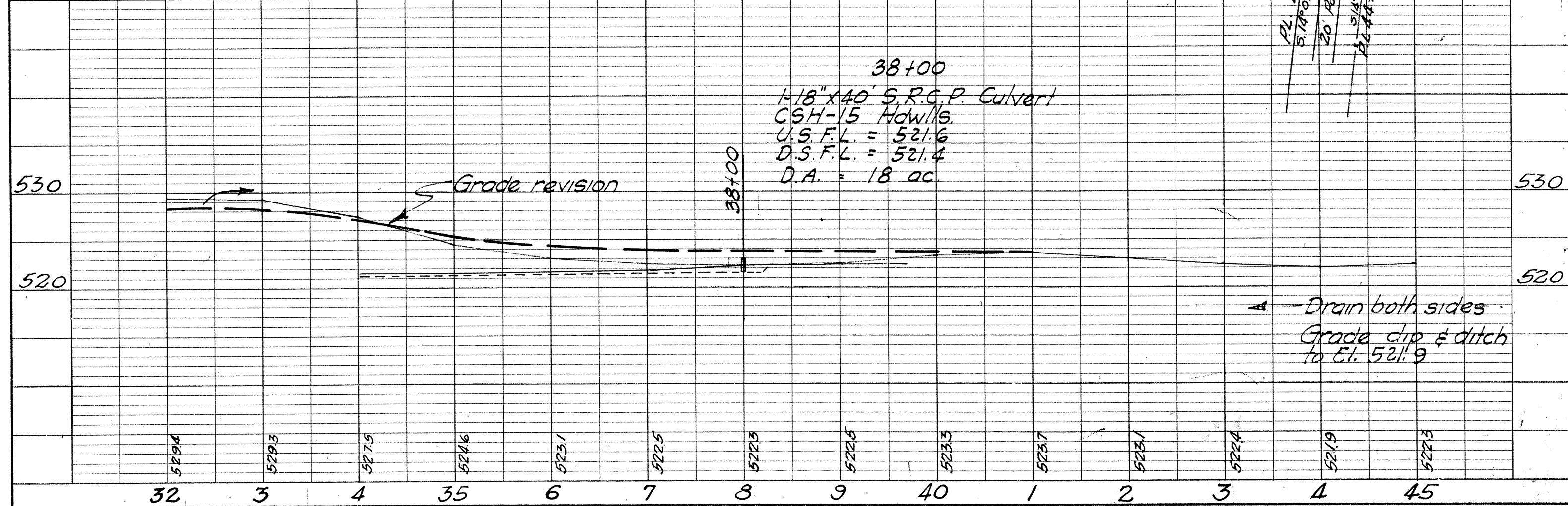
SHEET TOTAL		
Est	Final	Unit
0	0	Ac
13	13	Sta.
1	1	Hr.
17	20	Hr.

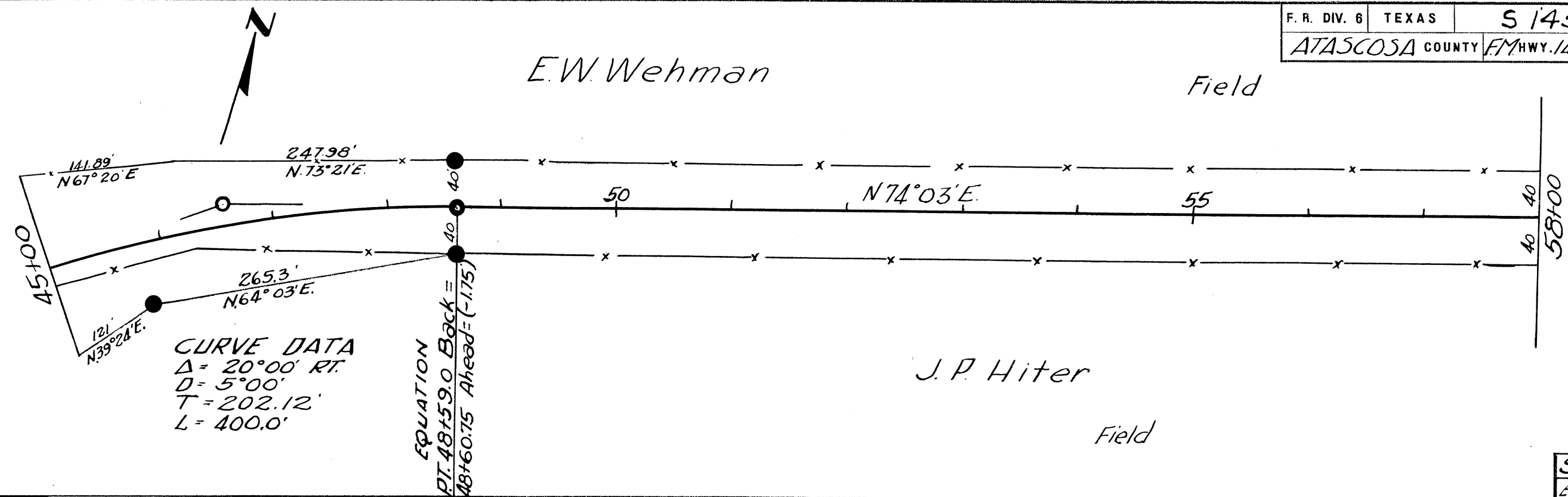




Clear & Grub	
Rd. Grader Wk.	
Bulldozer Wk.	
Scraper Wk.	
R.O.W. Marker	

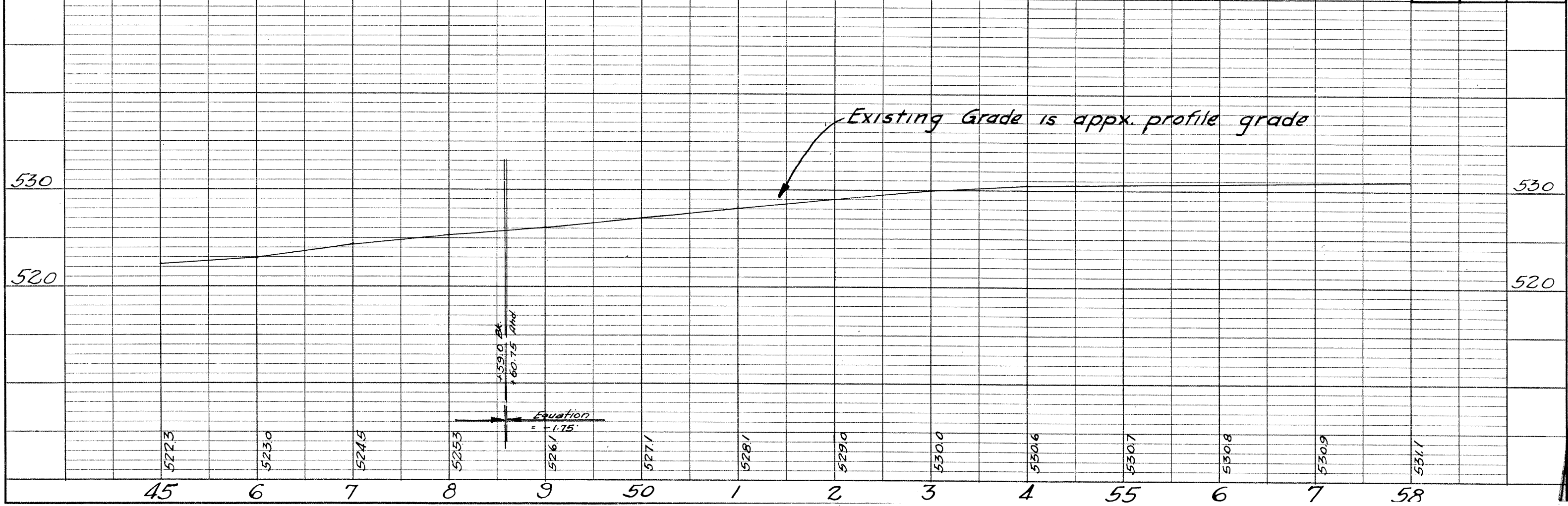
SHEET TOTAL		
Est.	Final	Unit
0	0	Ac.
13	13	Sta.
2	2	Hr.
25	29	Hr.
11	11	Eq.

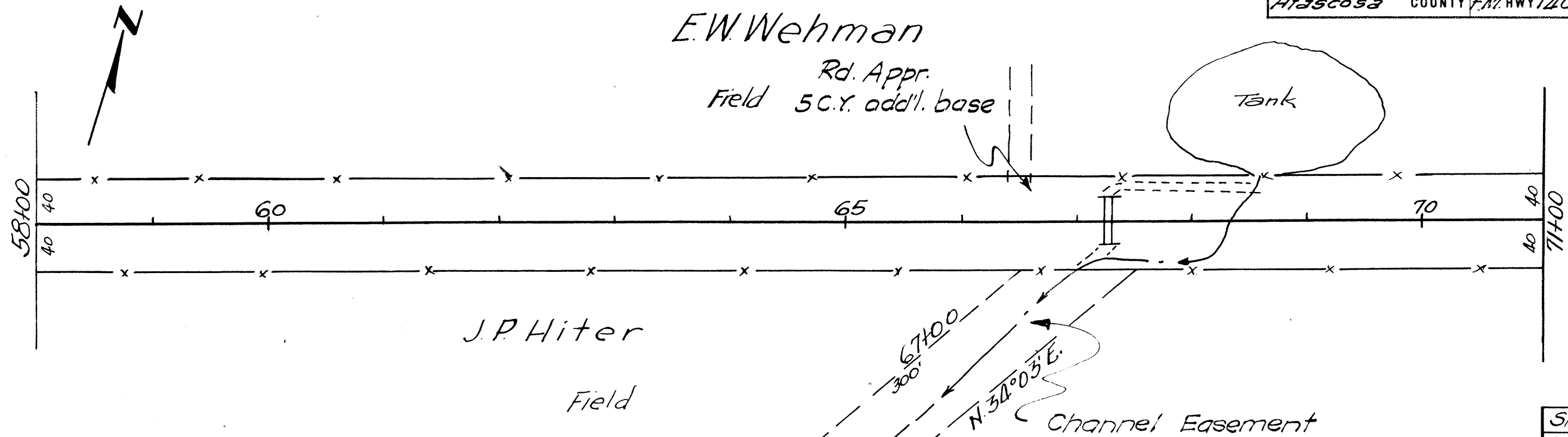




Clean & Grub	
Rd. Grader Wk.	
Bulldozer Wk.	
Scraper Wk.	
R.O.W. Marker	

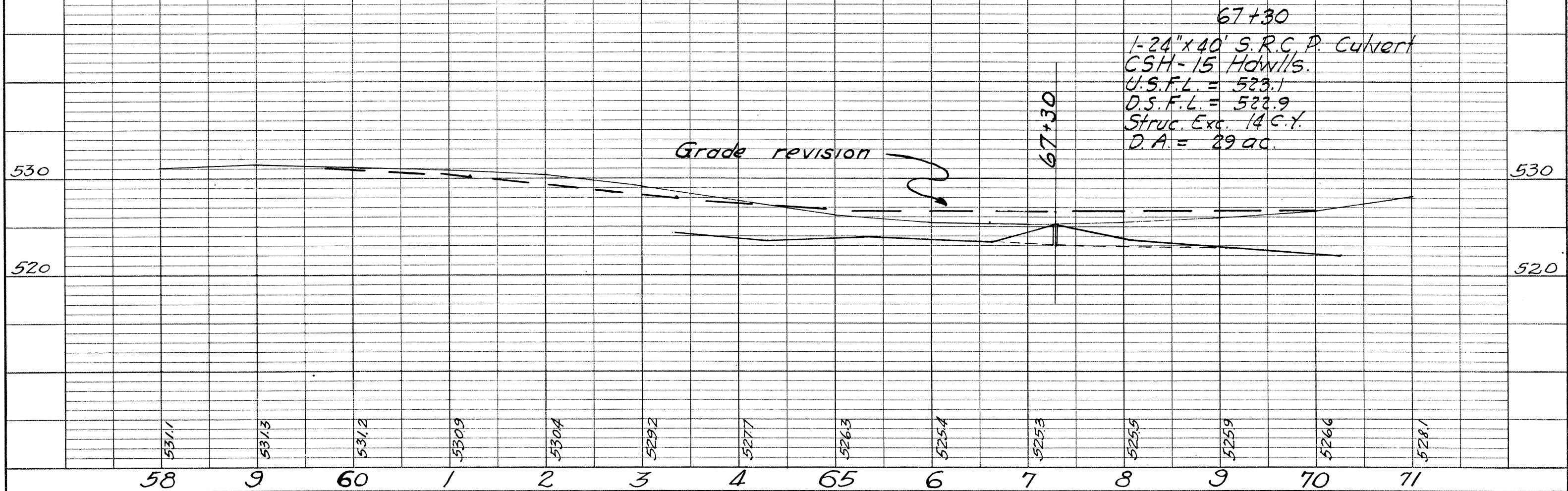
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Est.	Final	Unit
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13	13	Sta.
0	0	Hr.
0	0	Hr.
3	3	Eq.



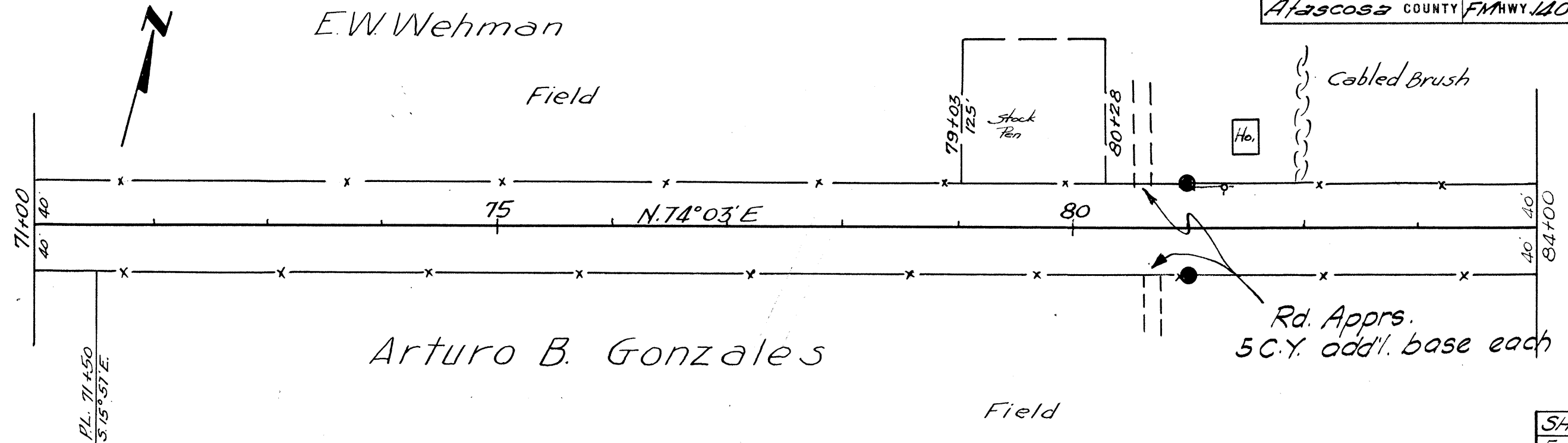


Clean & Grub	
Rd. Grader Wk.	
Bulldozer Wk.	
Scraper Wk.	

SHEET TOTAL		
Est.	Final	Unit
0	0	Ac.
13	13	Sta.
1	1	Hr.
17	19	Hr.

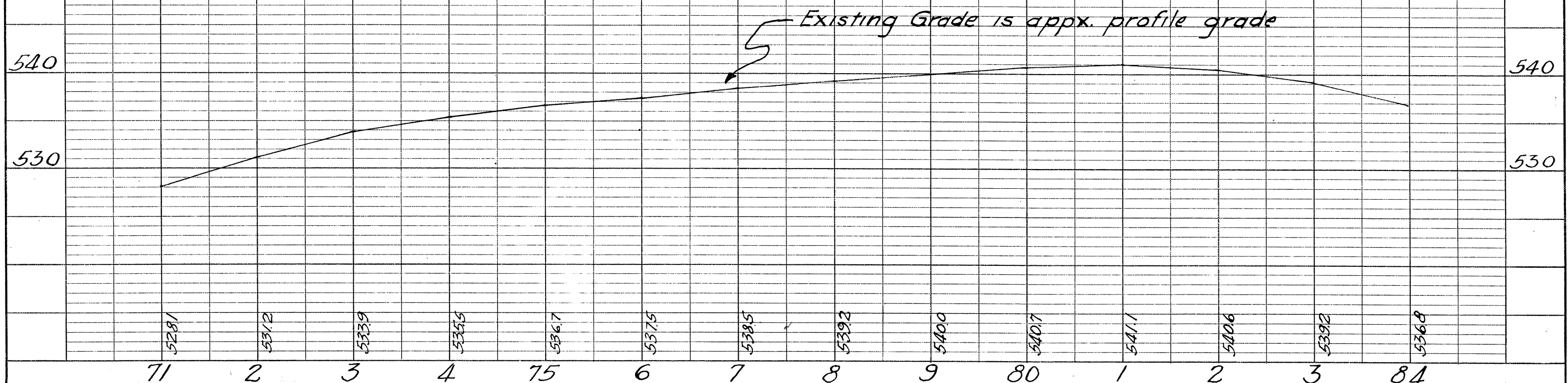


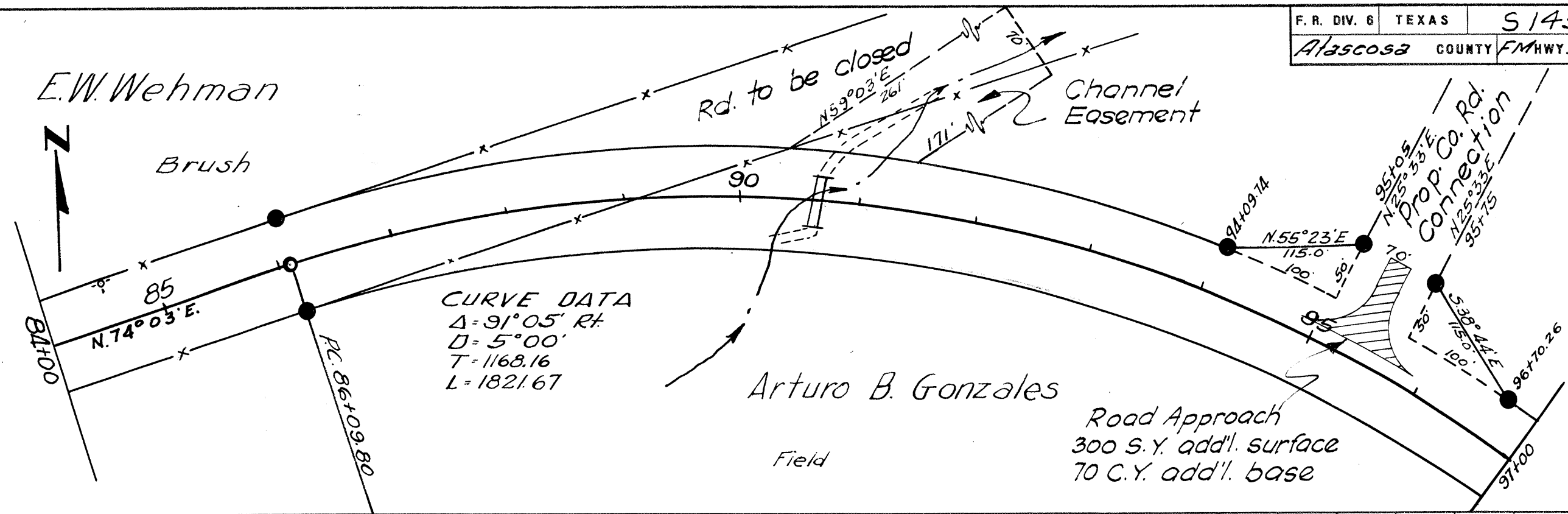
67+30
1-24"x40' S.R.C. P. Culvert
CSH-15 Hdwlls.
U.S.F.L. = 523.1
D.S.F.L. = 522.9
Struc. Exc. 14 C.Y.
D.A. = 29 ac.



Clear & Grub
 Rd. Grader Wk.
 Bulldozer Wk.
 Scraper Wk.
 R.O.W. Marker

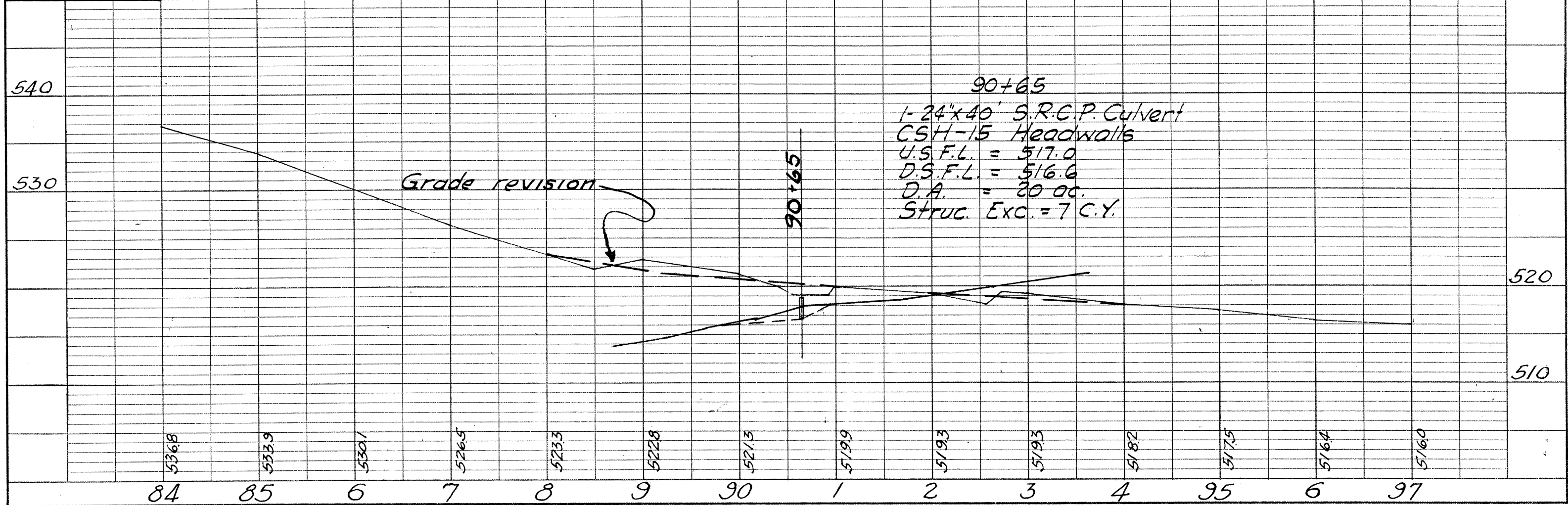
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Est.	Final	Unit
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13	13	Sta.
0	0	Hr.
0	0	Hr.
2	2	Eq.



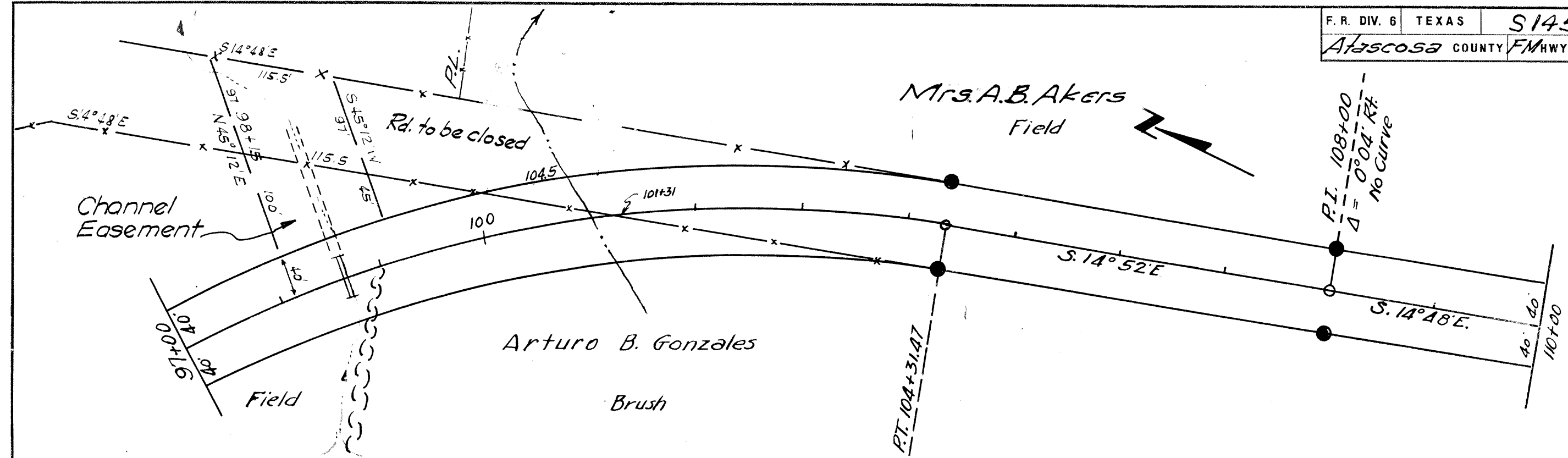


Clean & Grub
Ed. Grader Wk.
Bulldozer Wk.
Scraper Wk.
R.O.W. Marker

SHEET TOTAL		
Est.	Final	Unit
0	0	Ac.
13	13	Sta.
1	0	Hr.
8	9	Hr.
6	6	Eq.



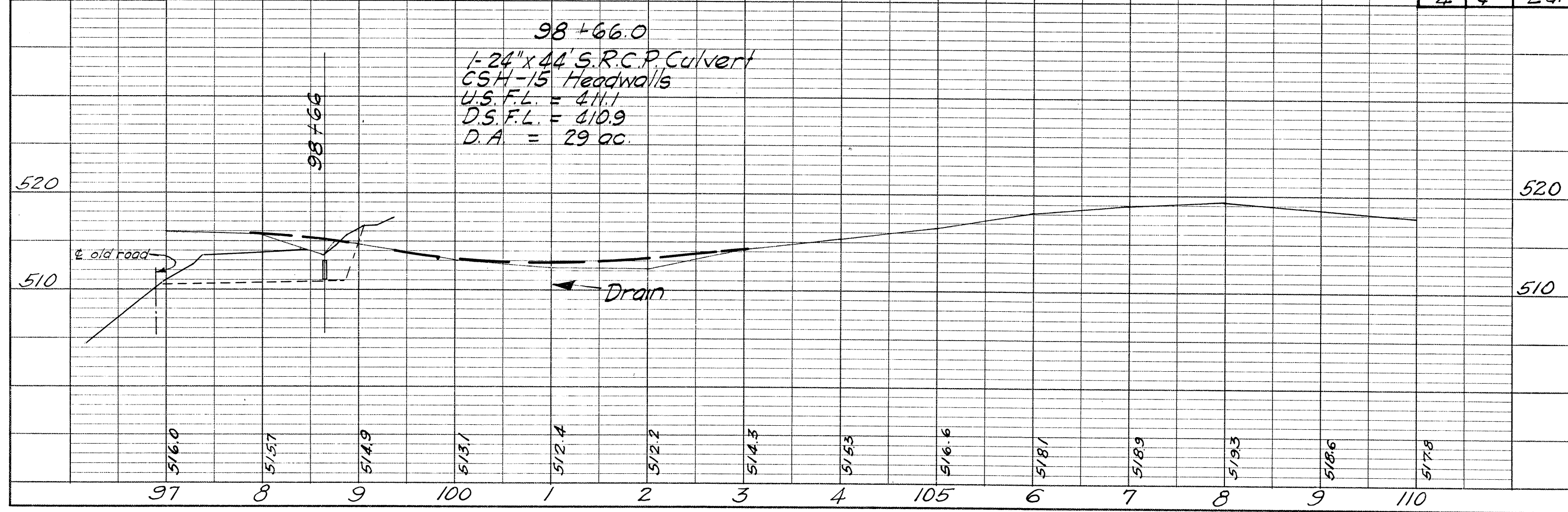
536.8	533.9	530.1	526.5	523.3	522.8	521.3	519.9	519.3	519.3	518.2	517.5	516.4	516.0
84	85	86	87	88	89	90	91	92	93	94	95	96	97

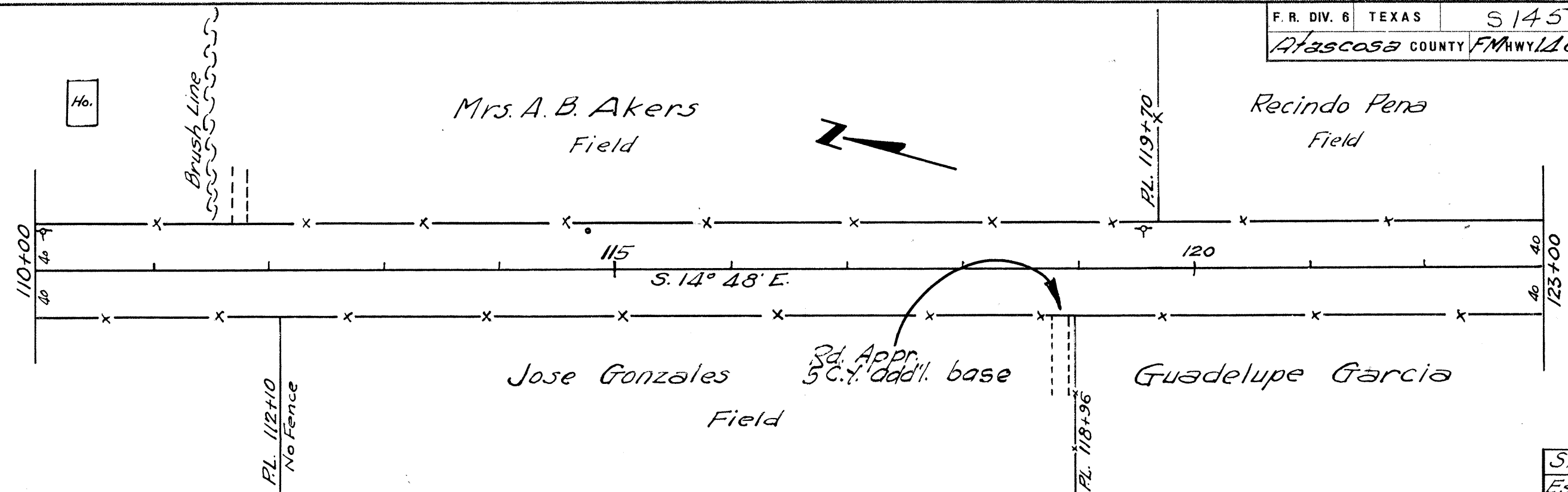


Clear & Grub	
Rd. Grader Wk.	
Bulldozer Wk.	
Scraper Wk.	
R.O.W. Marker	

99 to 102 x 80' = 0.55 ac.

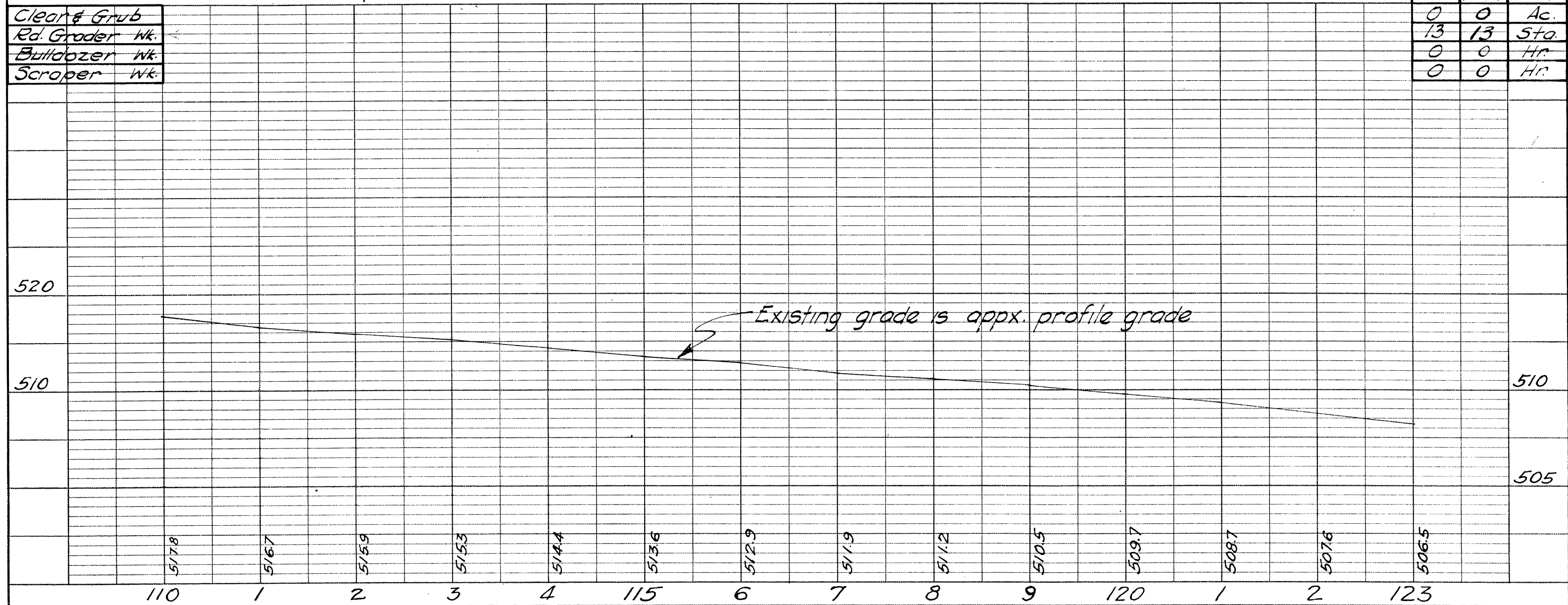
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9	11	Hr.
4	4	Eq.

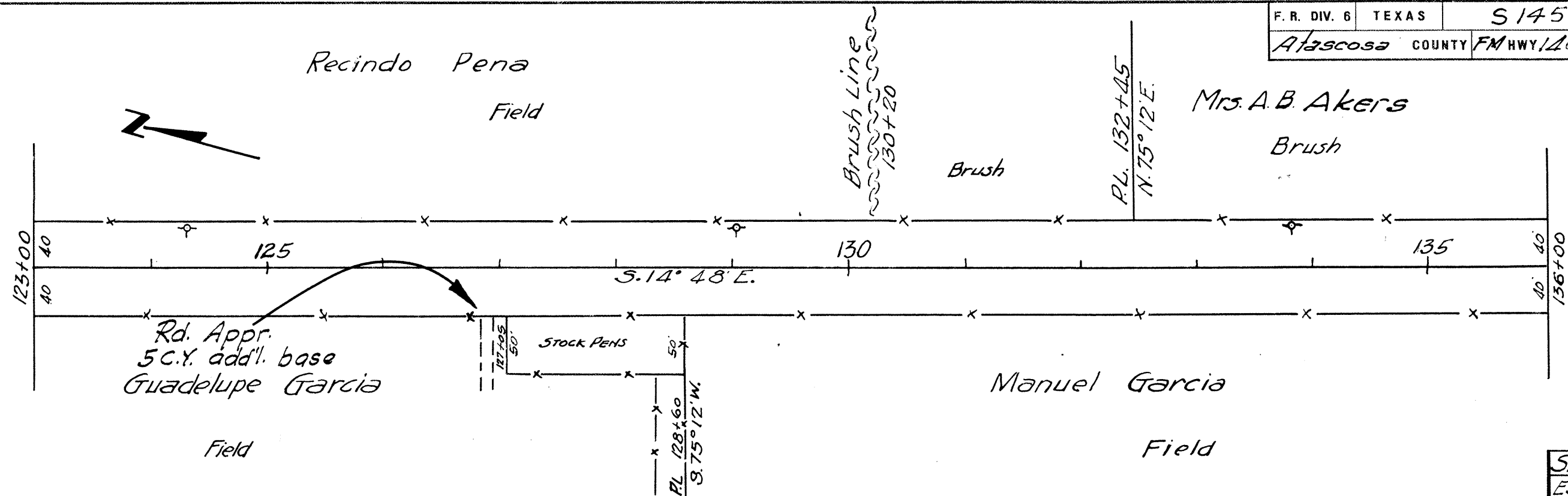




Clear & Grub	
Rd. Grader Wk.	
Bulldozer Wk.	
Scroper Wk.	

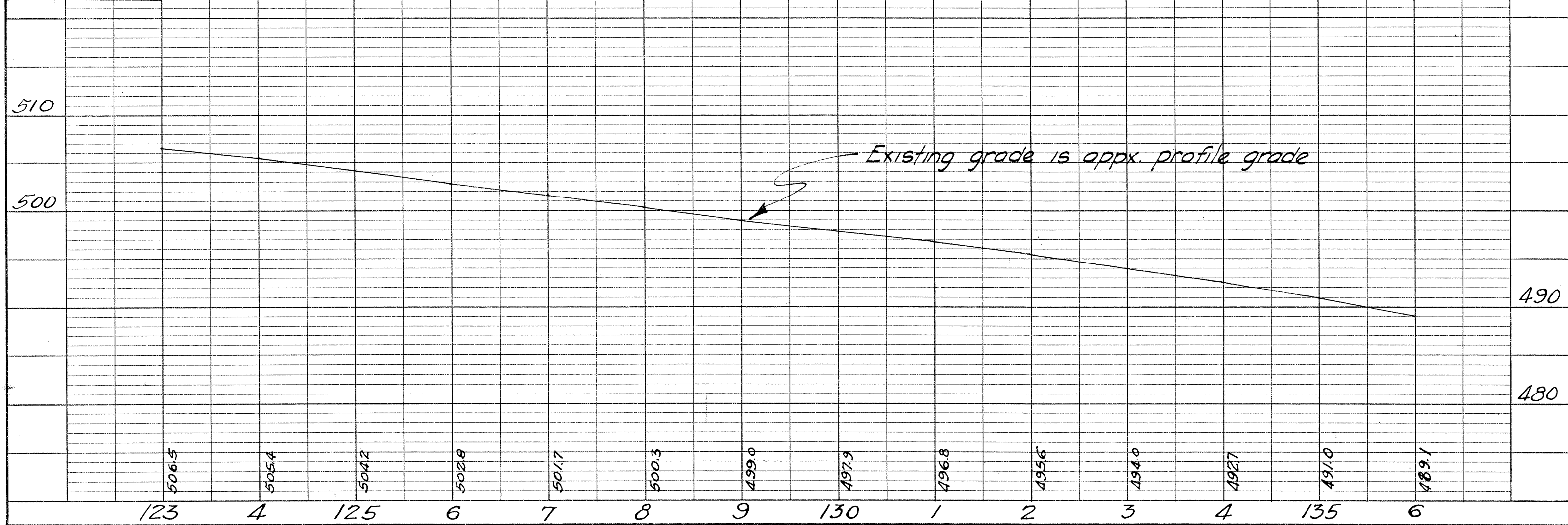
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Est.	Final	Unit
0	0	Ac.
13	13	Sta.
0	0	Hr.
0	0	Hr.

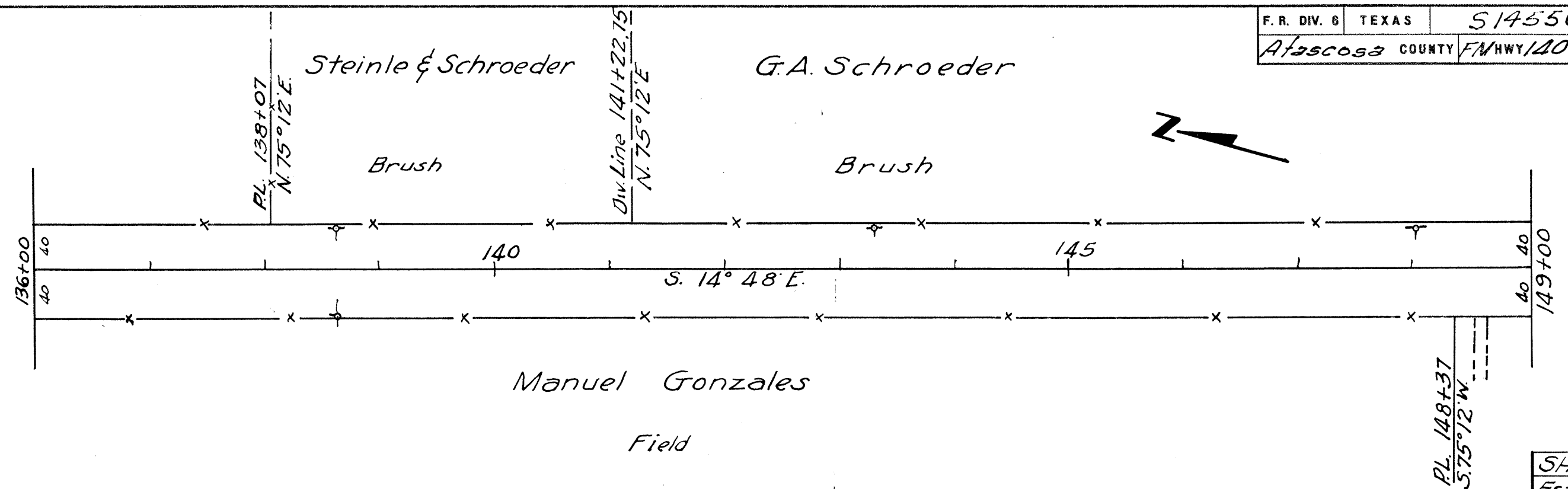




Clear & Grub	
Rd. Grader Wk.	
Bulldozer Wk.	
Scraper Wk.	

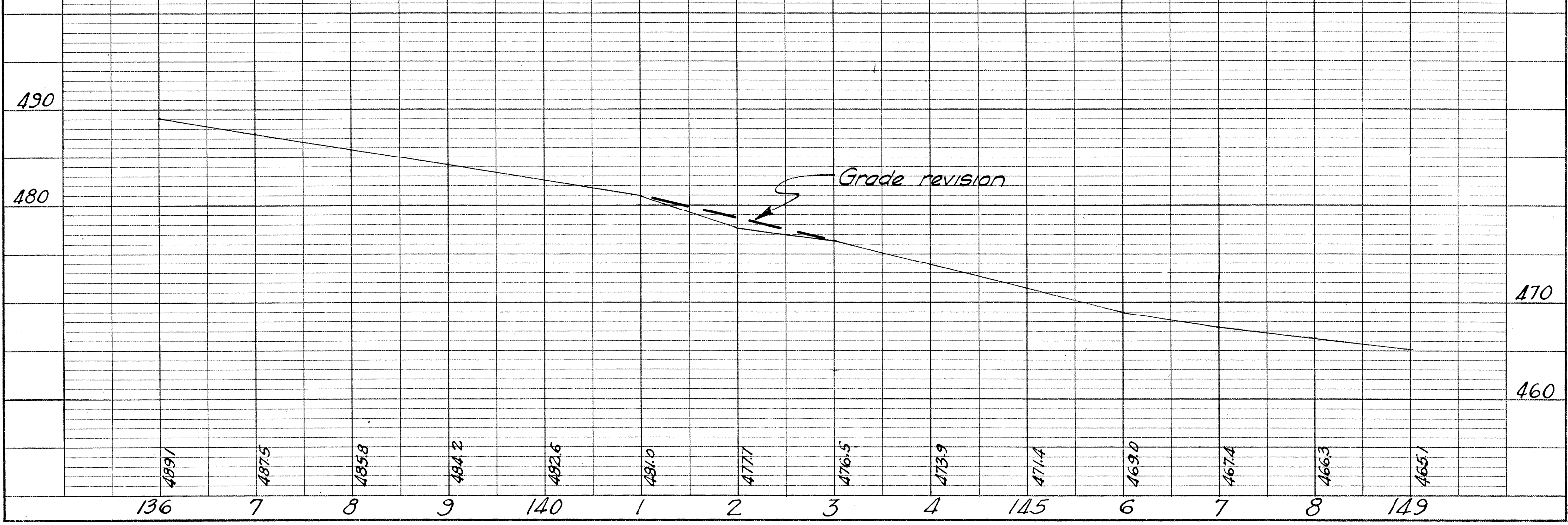
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Est	Final	Unit
0	0	Ac.
13	13	Sto.
0	0	Hr.
0	0	Hr.

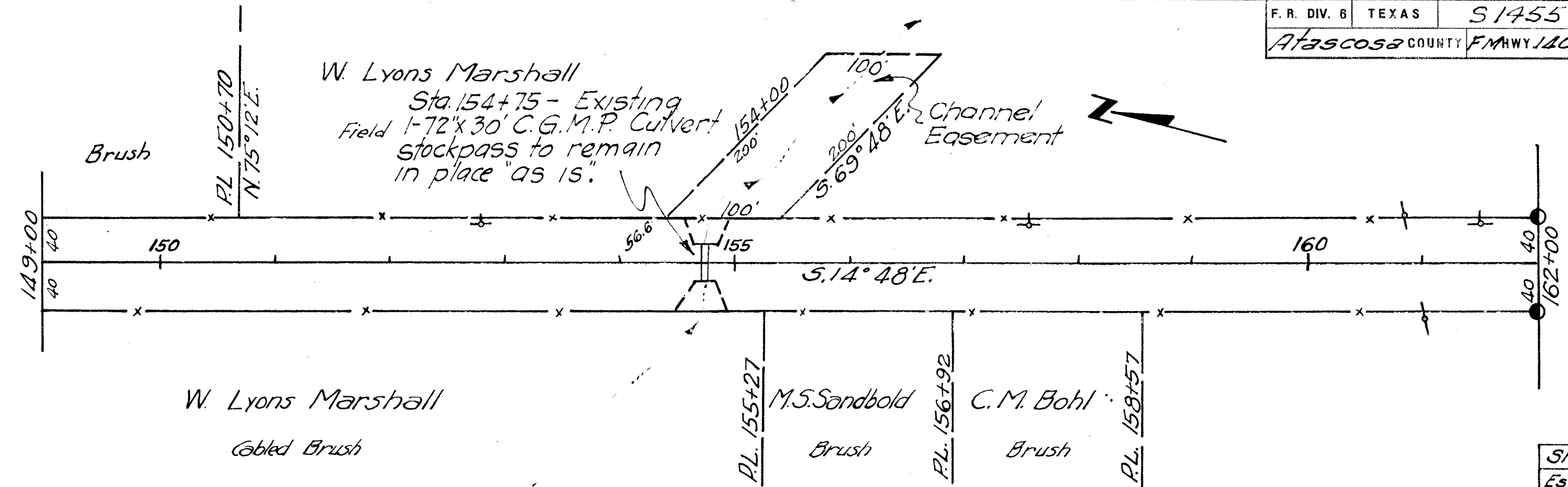




Clean & Grub	
Rd. Grader	Wk.
Bulldozer	Wk.
Scraper	Wk.

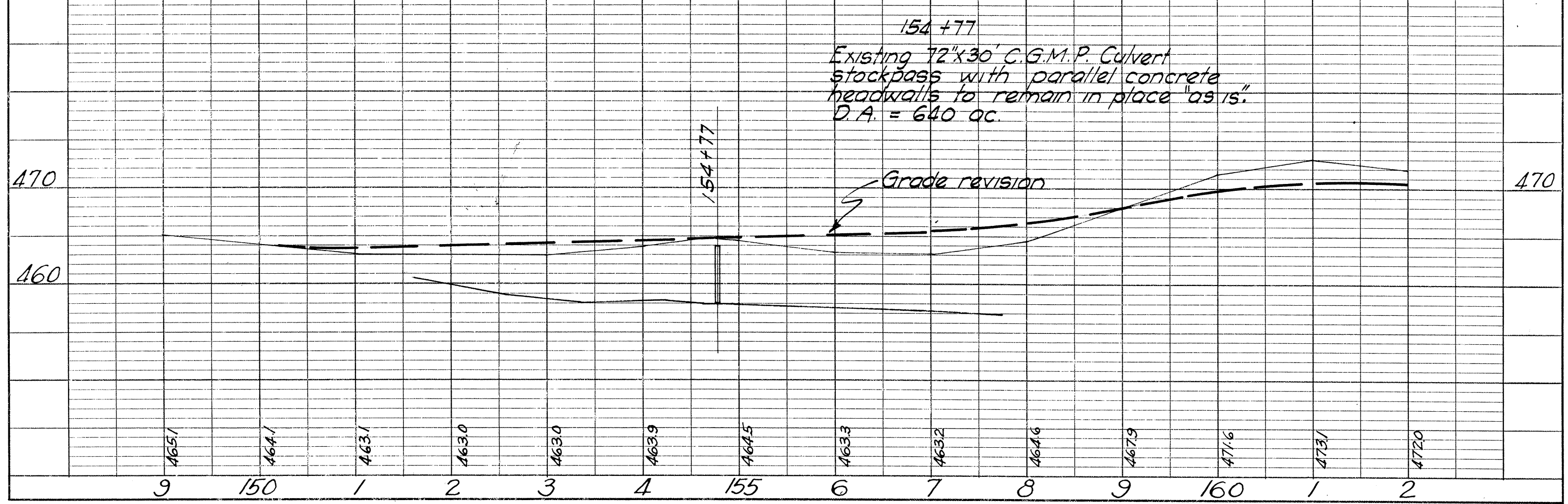
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Est.	Final	Unit
0	0	Ac.
13	13	Sta.
0	0	Hr.
2	2	Hr.

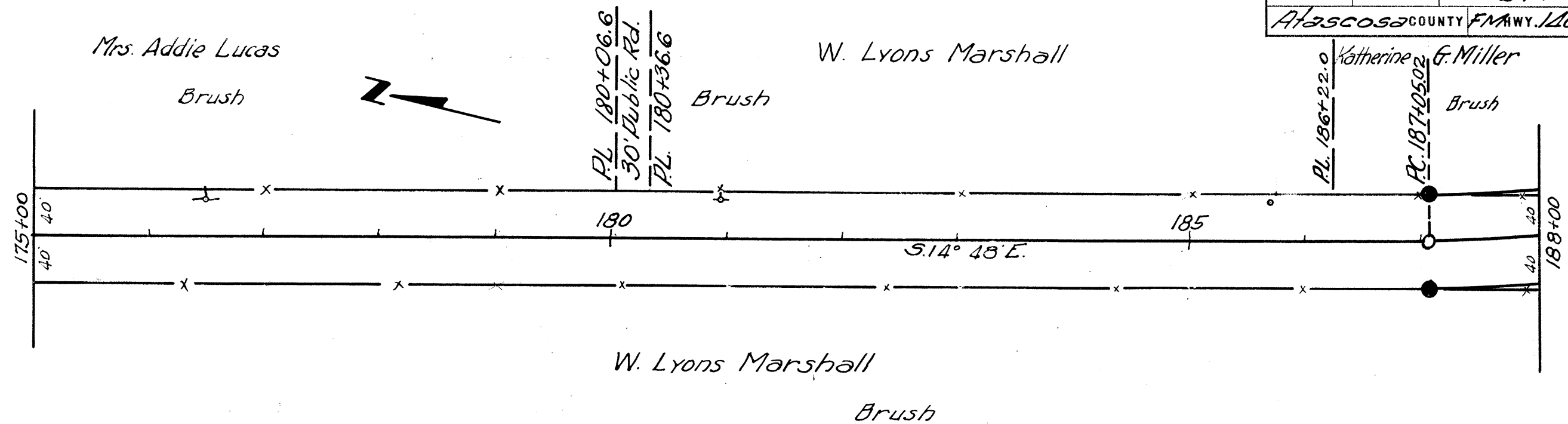




Clear & Grub
Rd. Grader Wk.
Bulldozer Wk.
Scraper Wk.
R.O.W. Marker

SHEET TOTAL		
Est	Final	Unit
0	0	Ac
13	13	Sta
1	1	Hr.
33	39	Hr.
2	2	Eq.

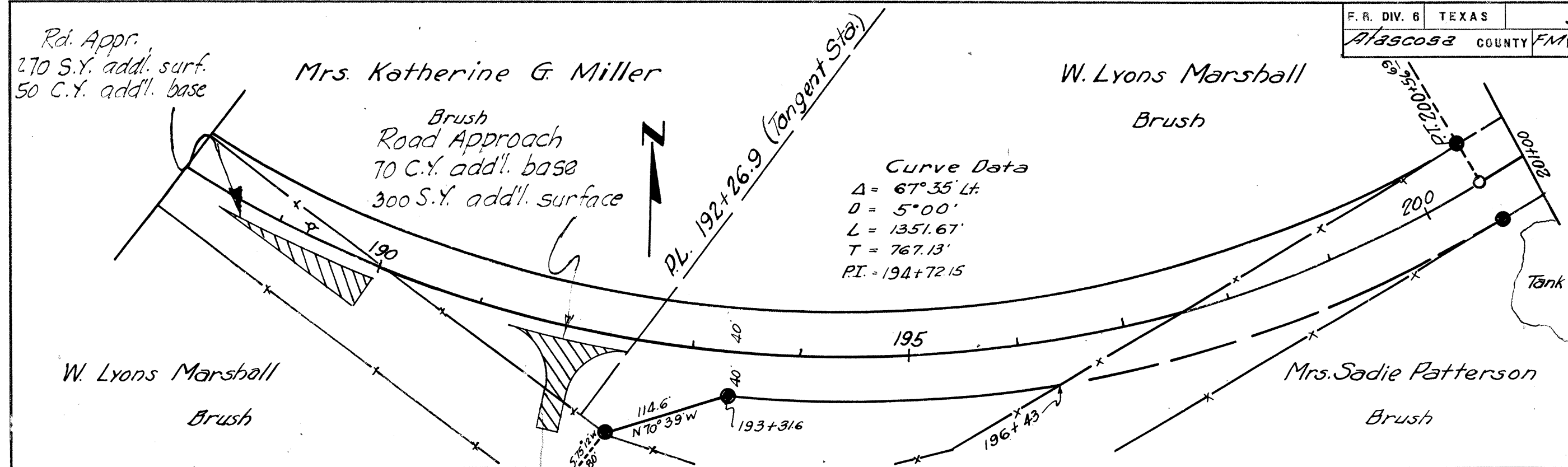




Clear & Grub
Rd. Grader Wk.
Bulldozer Wk.
Scraper Wk.
R.O.W. Marker

SHEET TOTAL		
Est.	Final	Unit
0	0	Ac
13	13	Sta.
0	0	Hr.
0	0	Hr.
2	2	Eq.

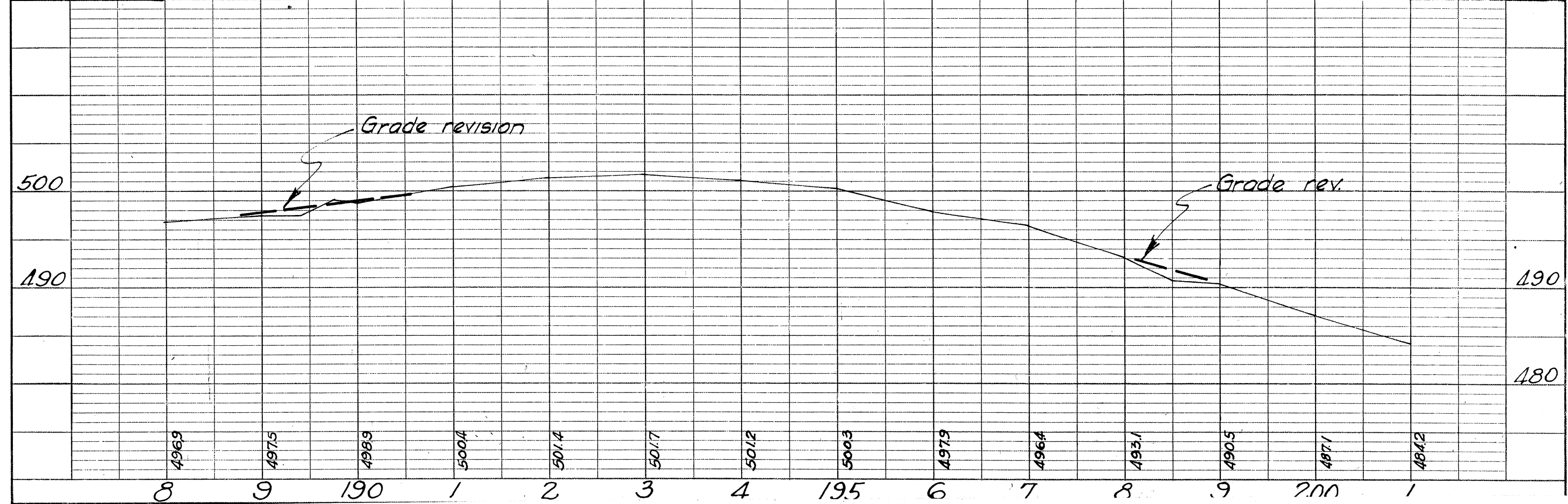


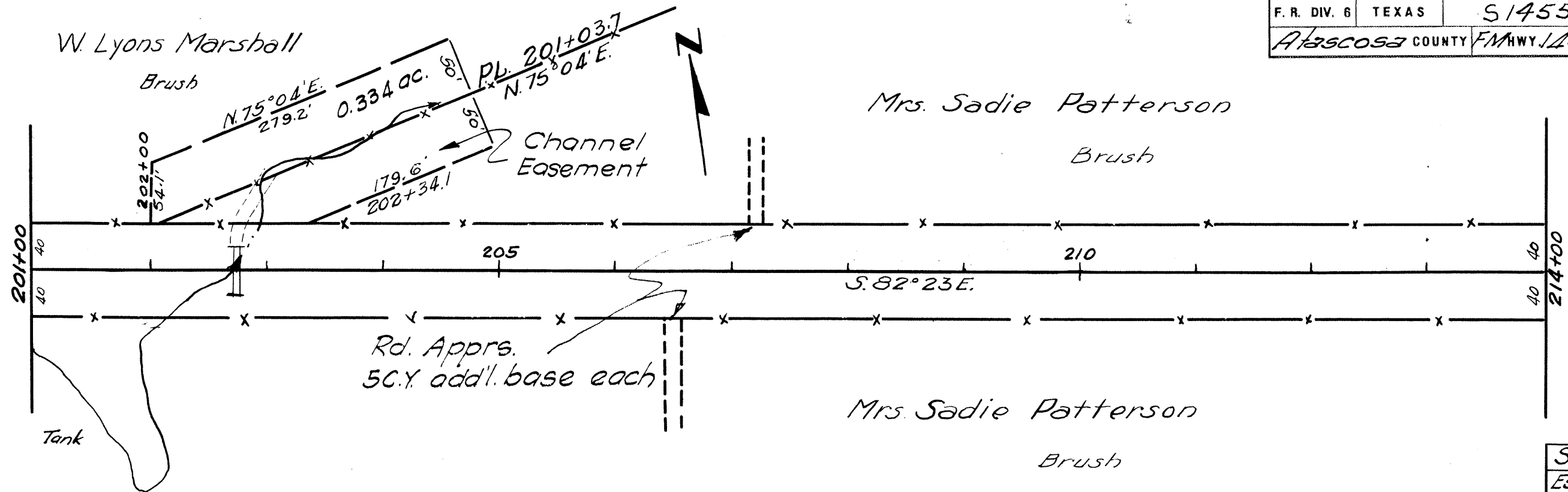


Clear & Grub
Rd. Grader wk.
Bulldozer wk.
Scraper wk.
R.O.W. Marker

190 to 197+50 x 80' = 1.56 ac.

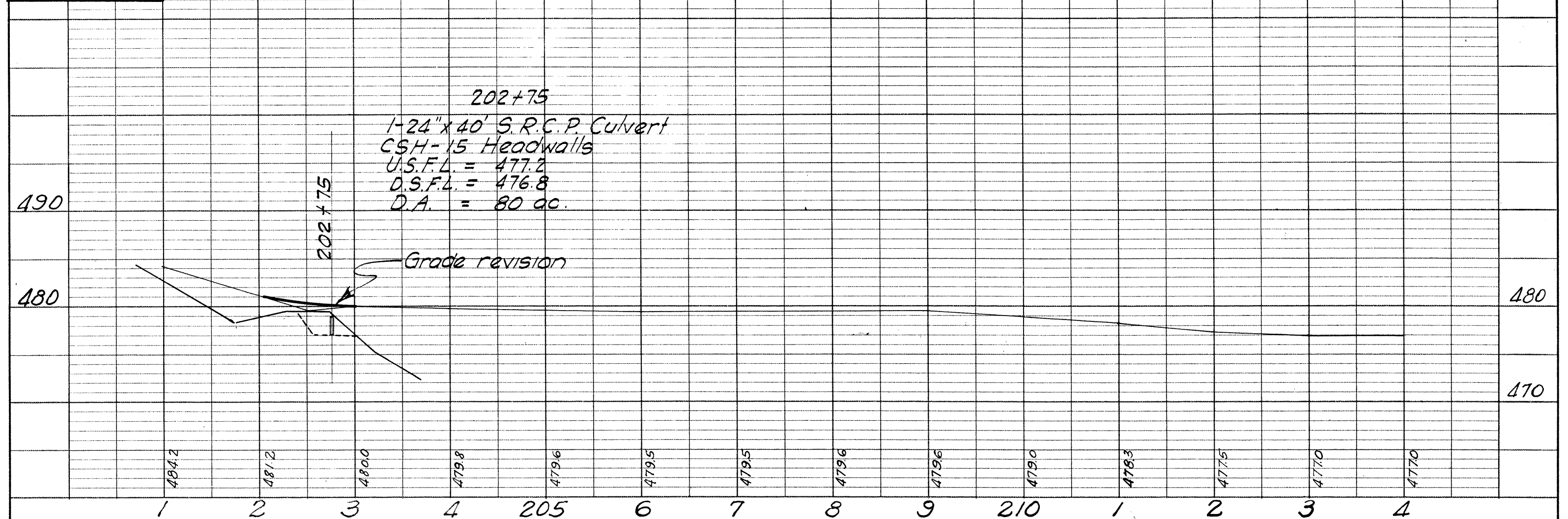
SHEET TOTAL		
Est	Final	Unit
1.56	1.56	Ac.
13	13	Sta.
0	0	Hr.
2	2	Hr.
4	4	Eq.

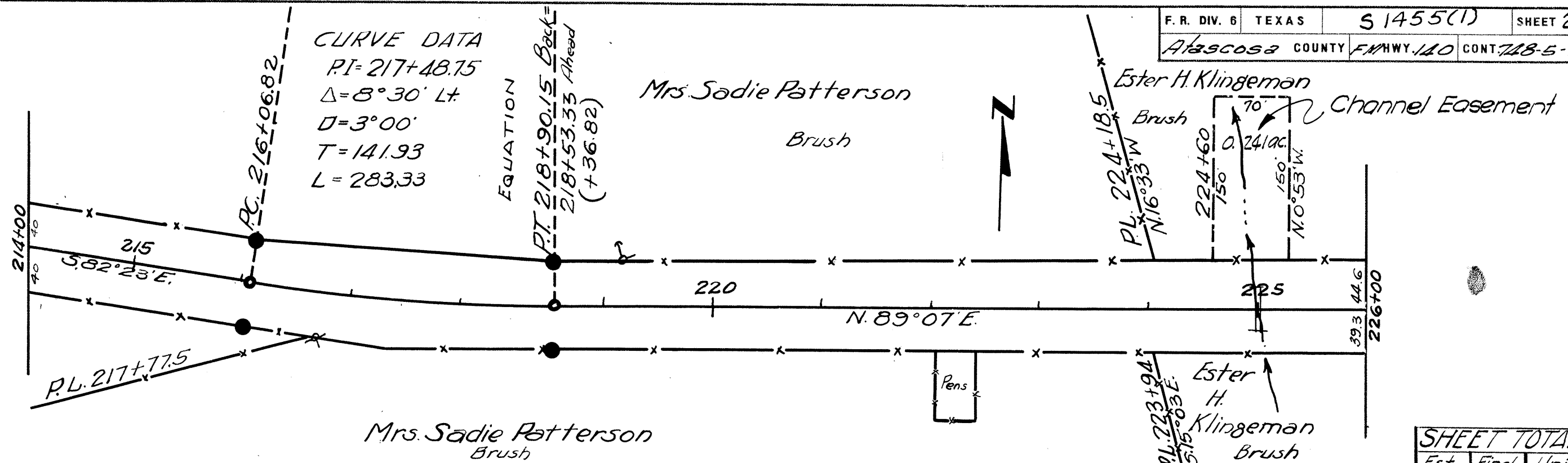




Clear & Grub	
Rd Grader Wk.	
Bulldozer Wk.	
Scroper Wk.	

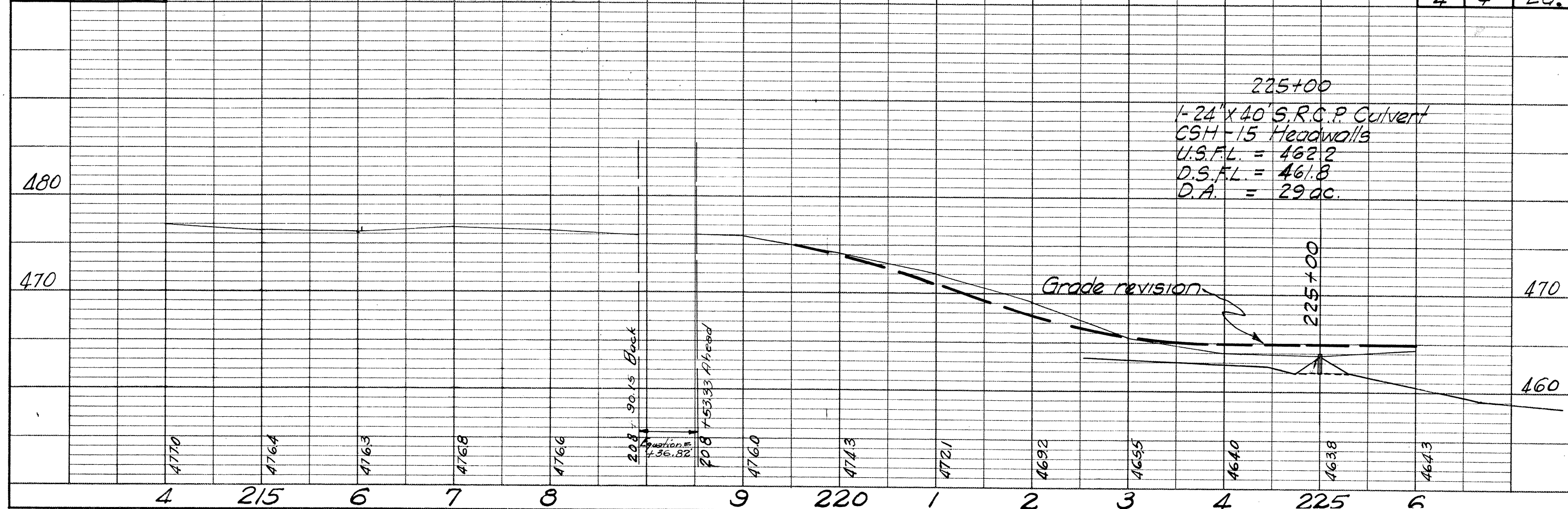
SHEET TOTAL		
Est.	Final	Unit
0.33	0.33	Ac.
13	13	Sta.
1	1	Hr.
4	5	Hr.

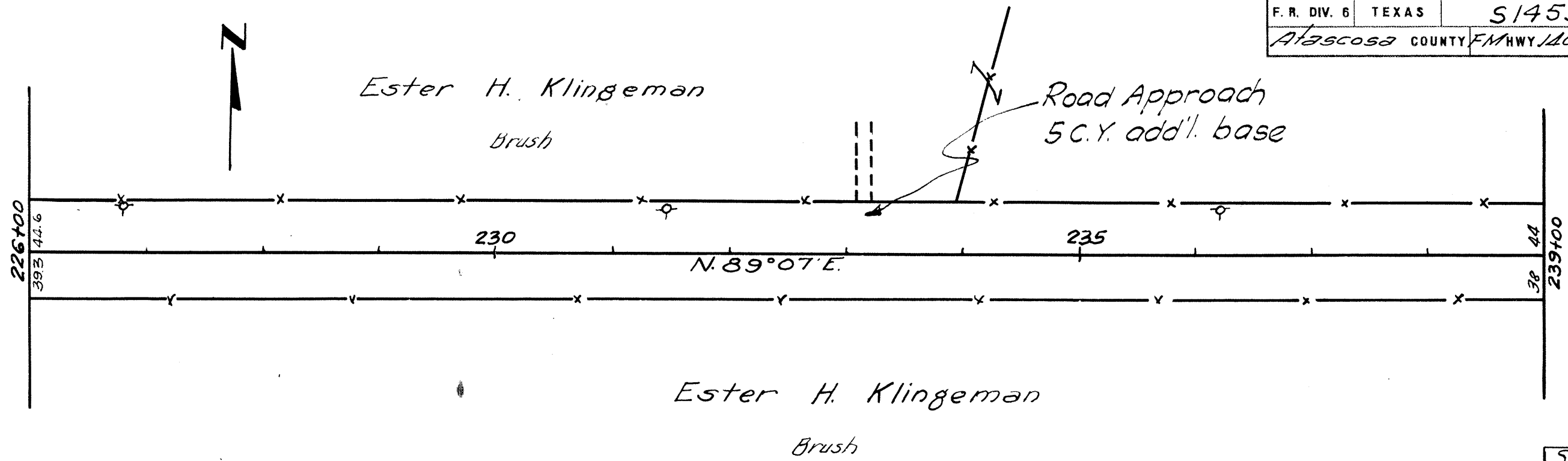




Clear & Grub
Rd. Grader Wk.
Bulldozer Wk.
Scraper Wk.
R.O.W. Marker

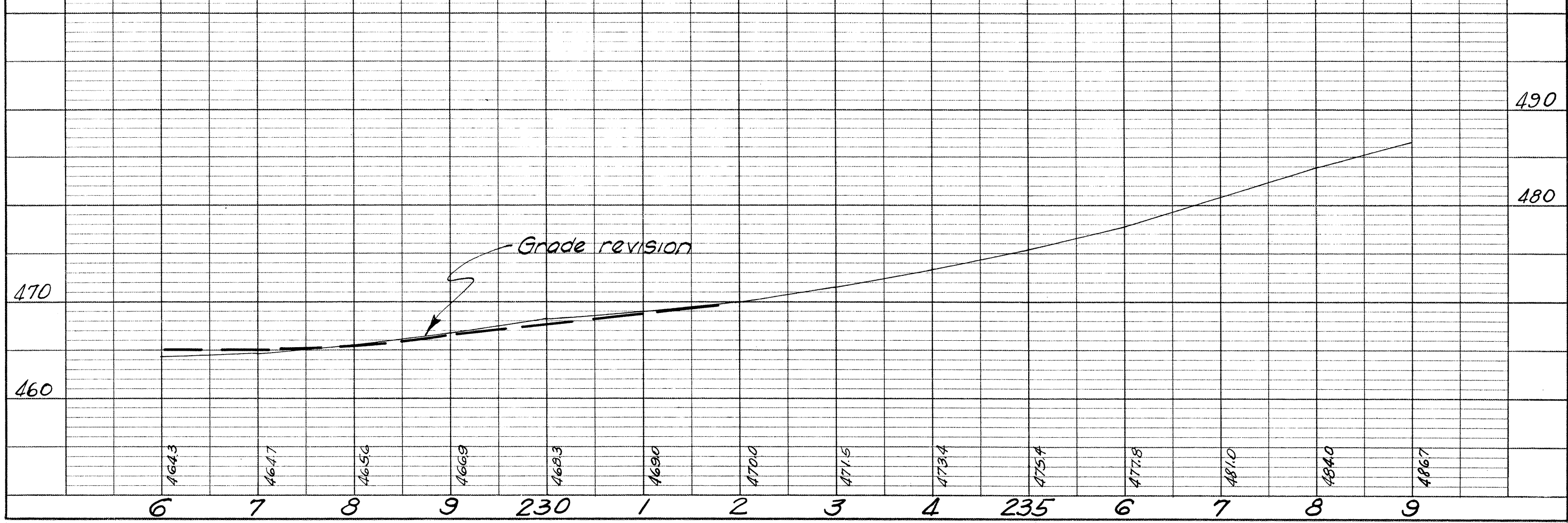
SHEET TOTAL		
Est.	Final	Unit
0.24	0.24	Ac.
12.4	12.4	Sta.
1	1	Hr.
12	14	Hr.
4	4	Eq.

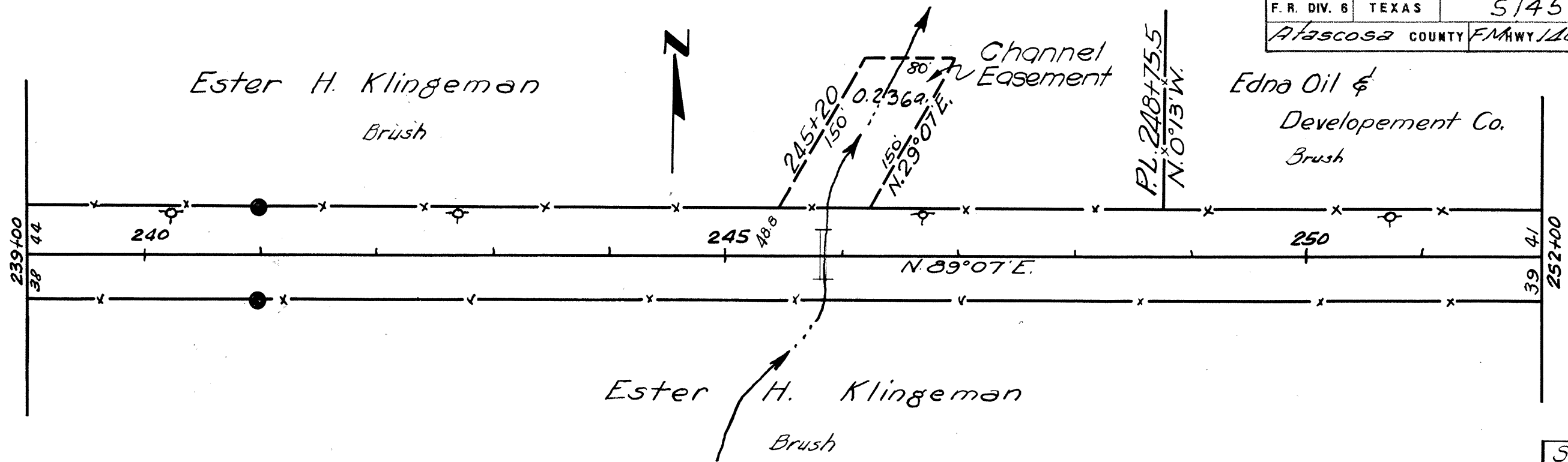




Clear & Grub.	
Rd Grader Wk.	
Bulldozer Wk.	
Scraper Wk.	

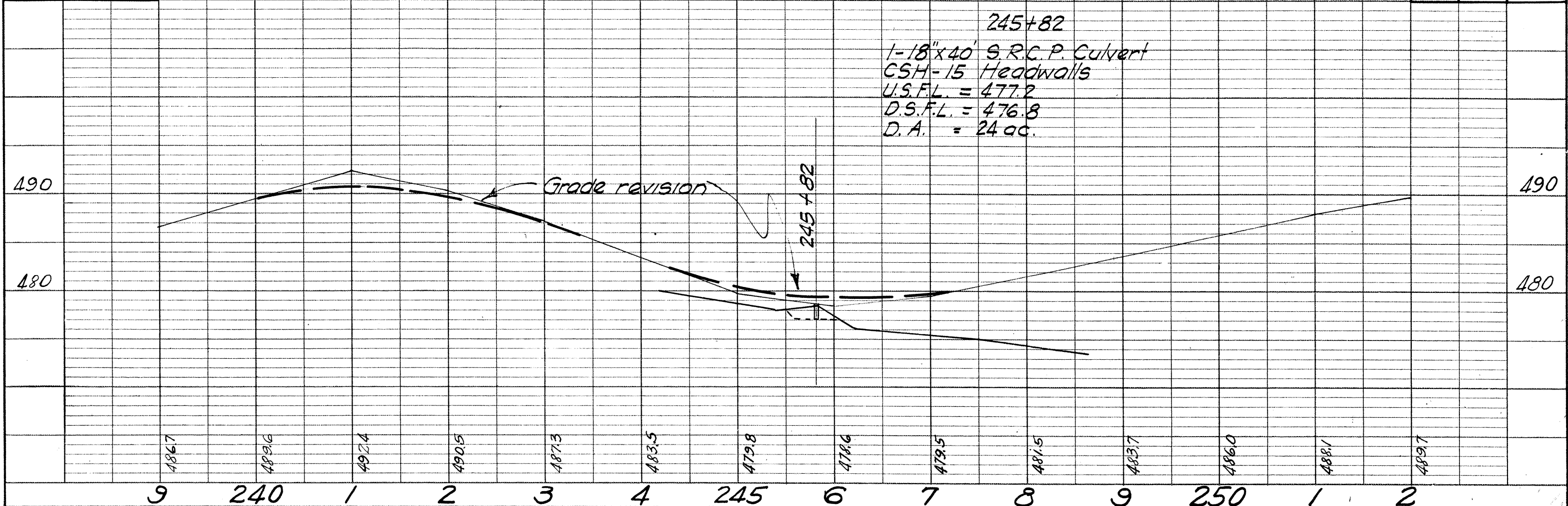
SHEET TOTAL		
Est.	Final	Unit
0	0	Ac.
13	13	Sta.
0	0	Hr.
8	9	Hr.

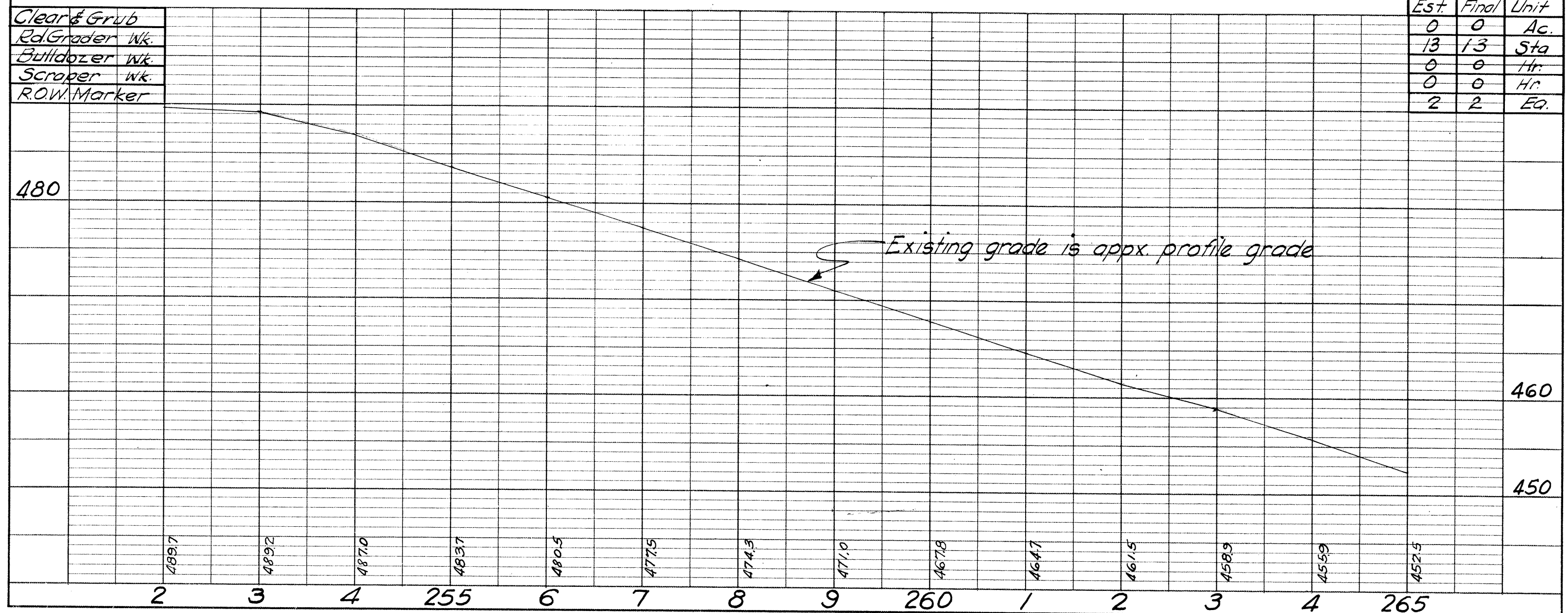
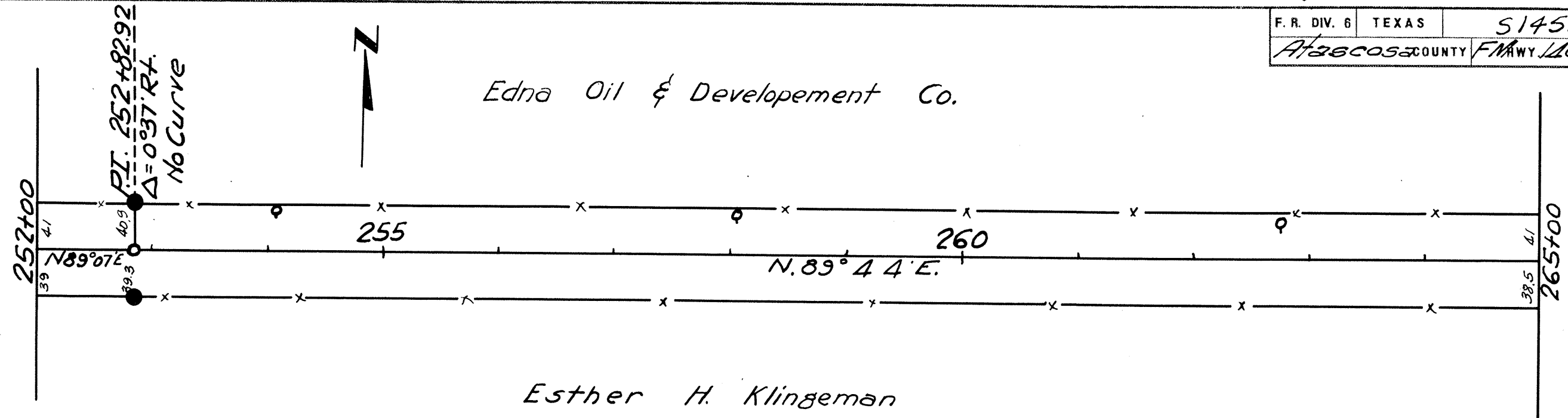


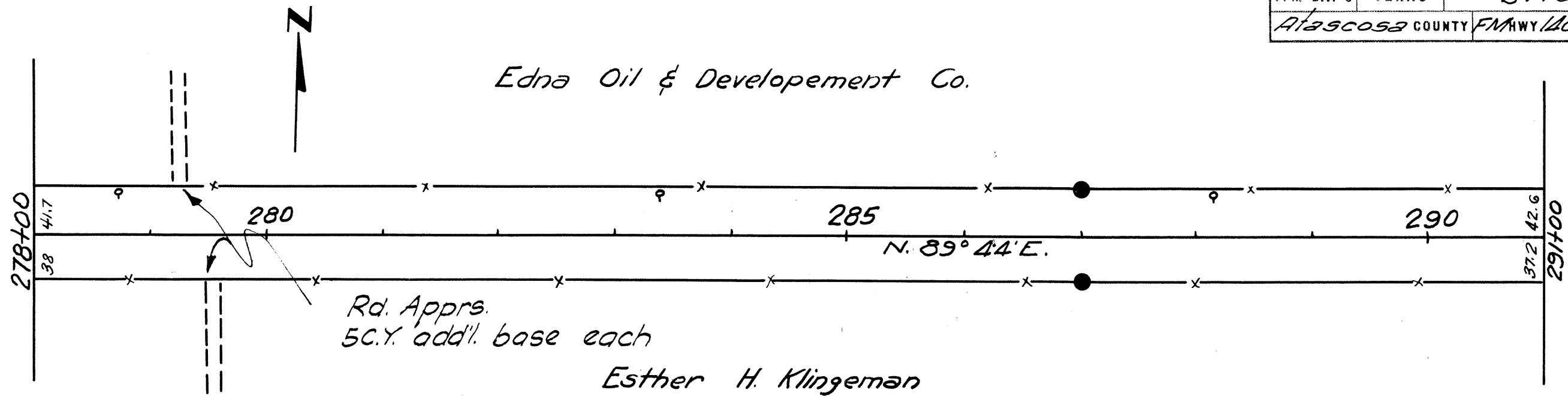


Clear & Grub
Rd. Grader Wk.
Bulldozer Wk.
Scraper Wk.
R.O.W Marker

SHEET TOTAL		
Est.	Final	Unit
0.24	0.24	Ac.
13	13	Sta.
1	1	Hr.
26	30	Hr.
2	2	Eq.

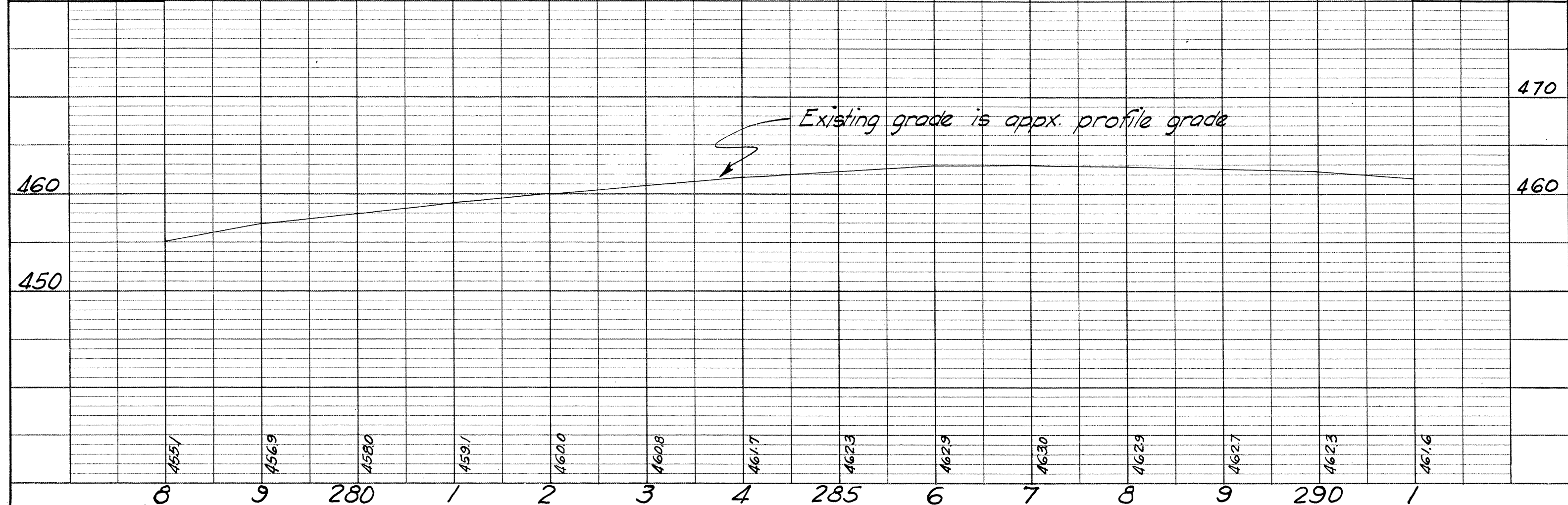


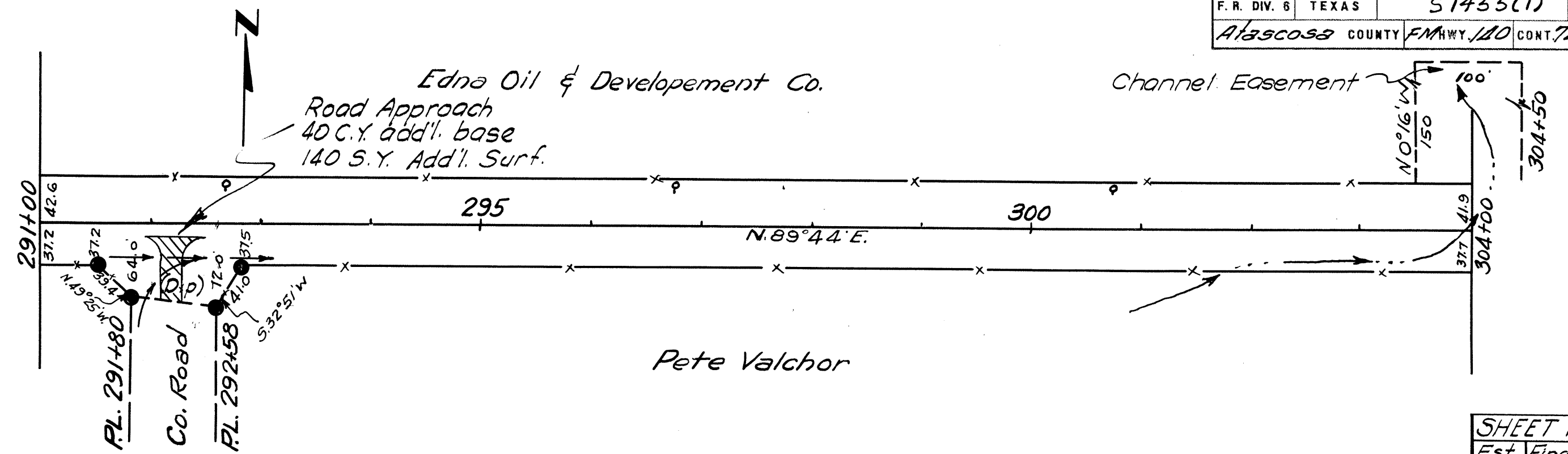




Clear & Grub	
Rd. Grader Wk.	
Bulldozer Wk.	
Scraper Wk.	
R.O.W. Marker	

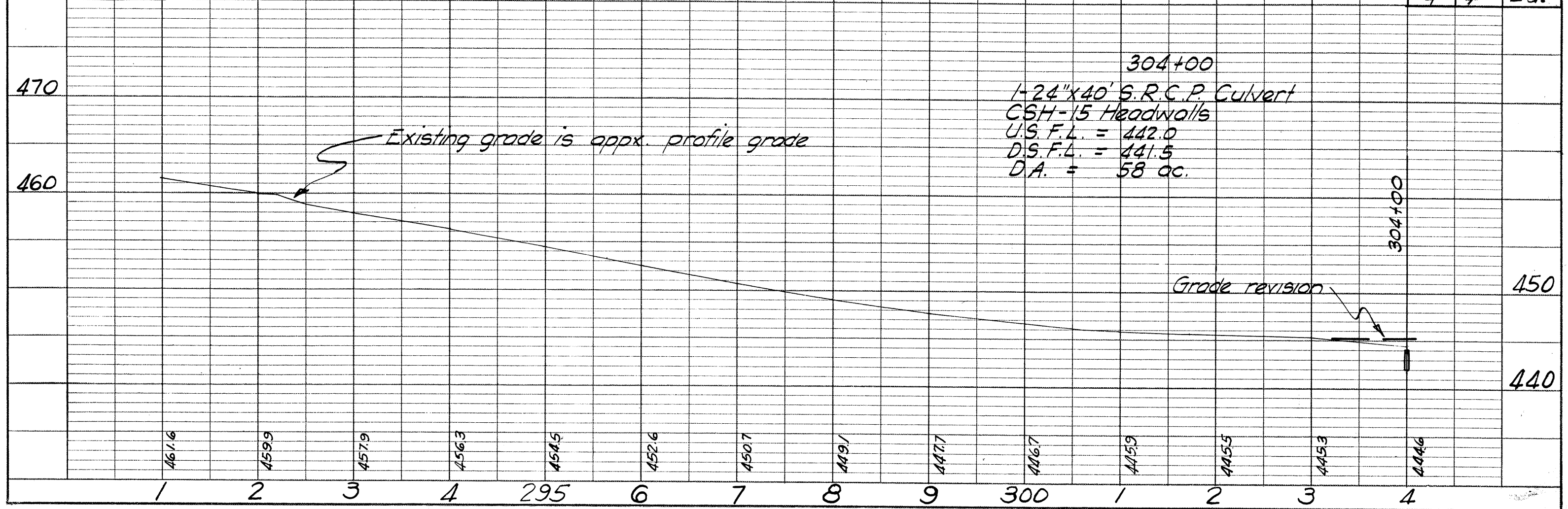
SHEET TOTAL		
Est	Final	Unit
0	0	Ac.
13	13	Sta
0	0	Hr.
0	0	Hr.
2	2	Eq.

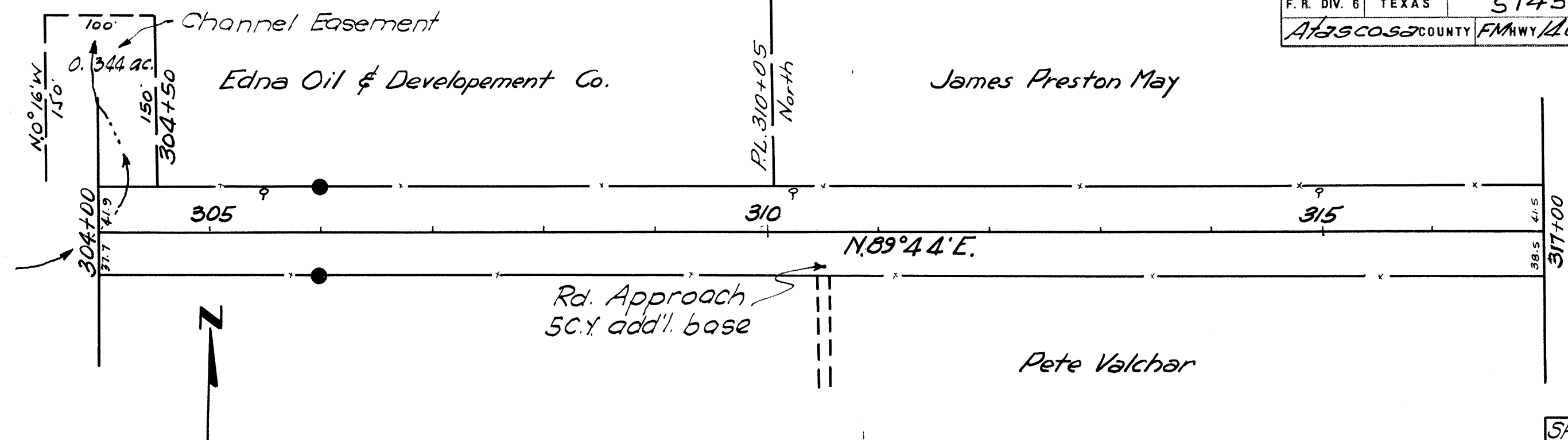




Clear & Grub.
Ed. Grader Wk.
Bulldozer Wk.
Scraper Wk.
R.O.W. Marker

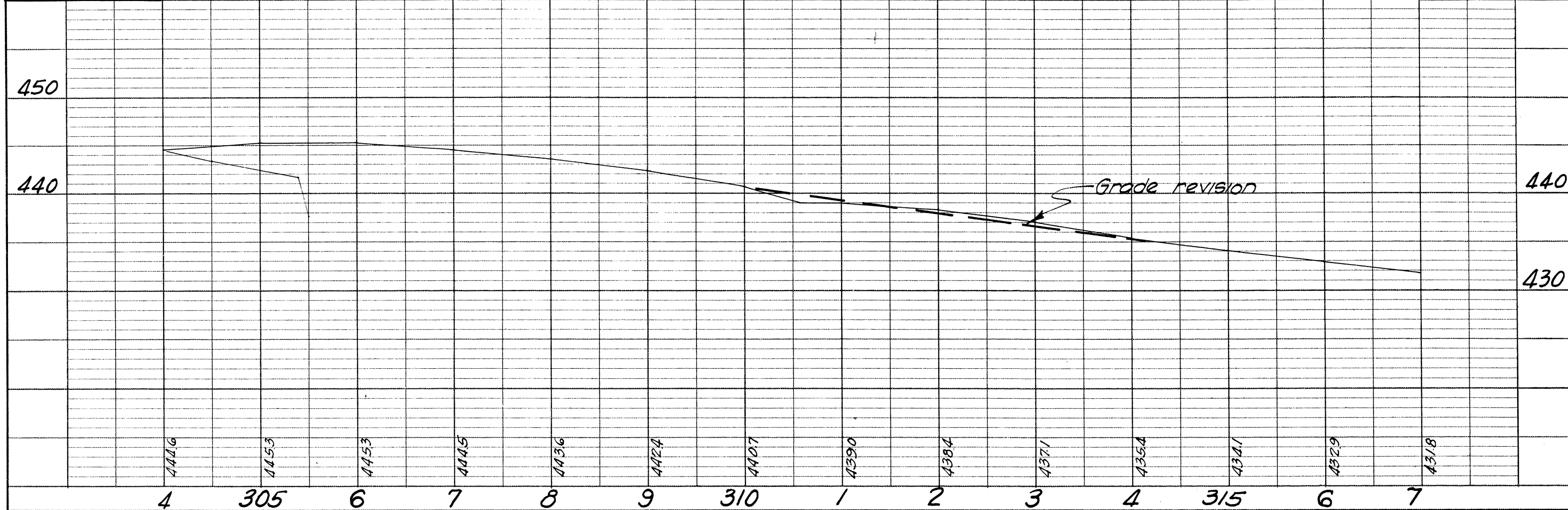
SHEET TOTAL		
Est.	Final	Unit
0	0	Ac.
13	13	Sta.
1	1	Hr.
2	2	Hr.
4	4	Eq.

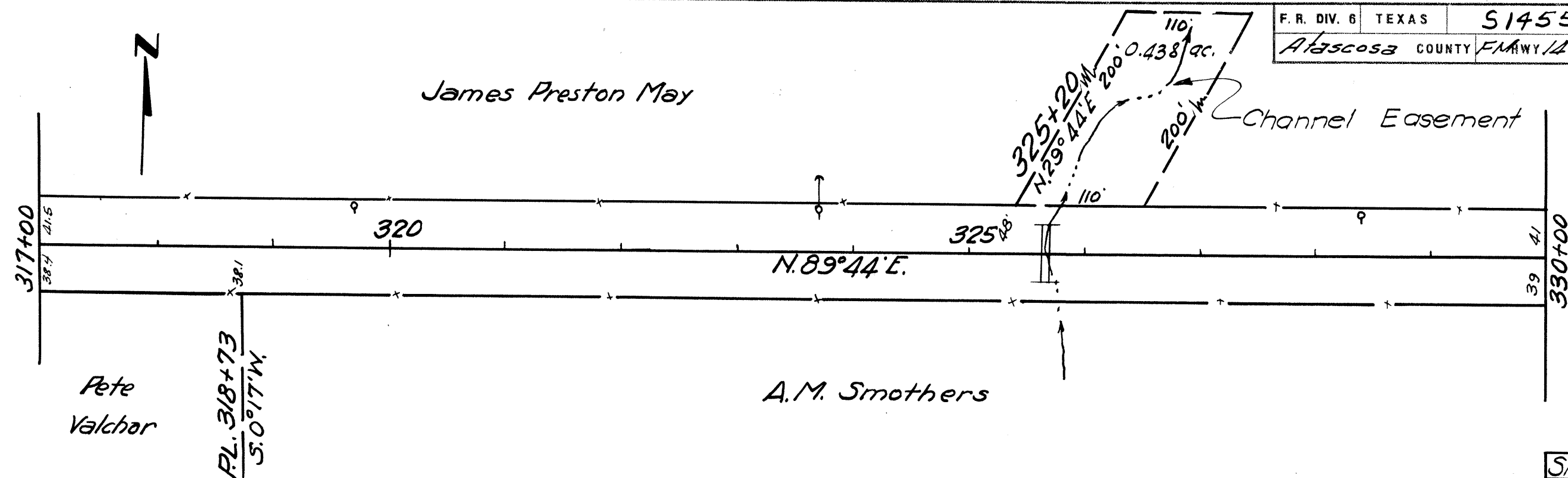




Clean & Grub.
Rd. Grader Wk.
Bulldozer Wk.
Scraper Wk.
R.O.W. Marker

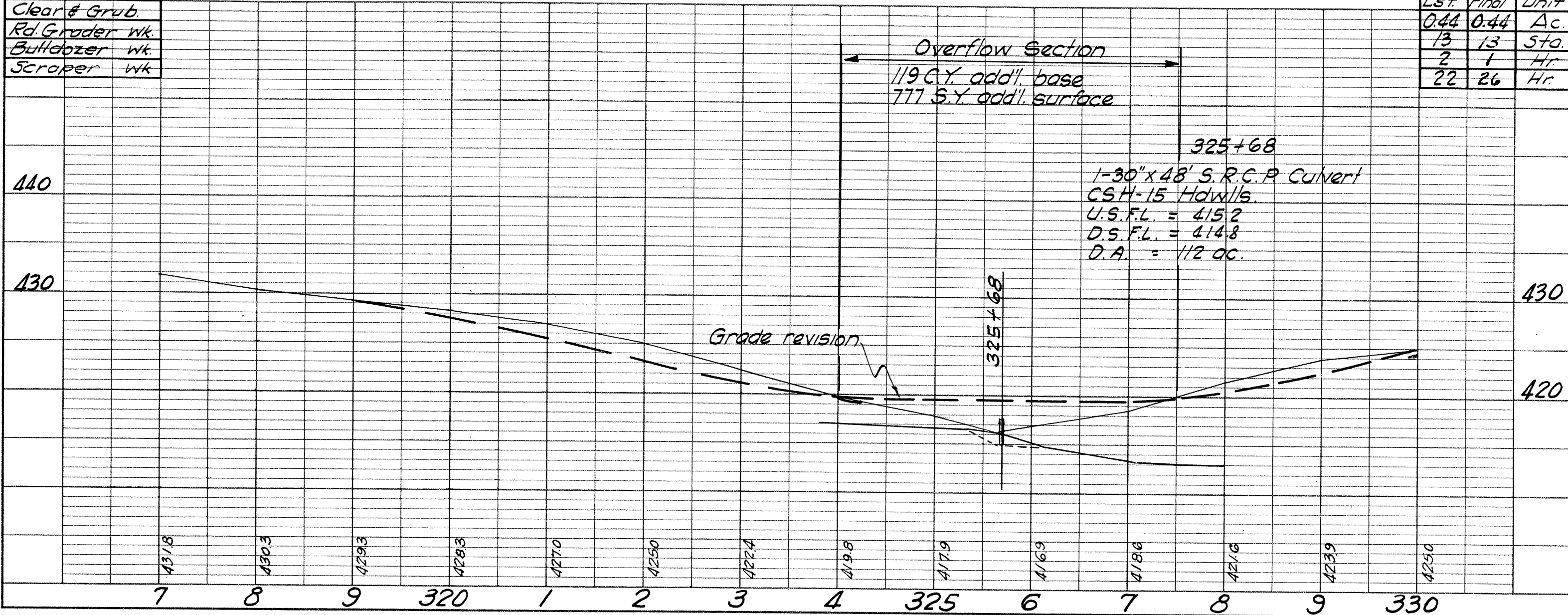
SHEET TOTAL		
Est	Final	Unit
0.34	0.34	Ac.
13	13	Sta.
0	0	Hr.
4	5	Hr.
2	2	Eq.

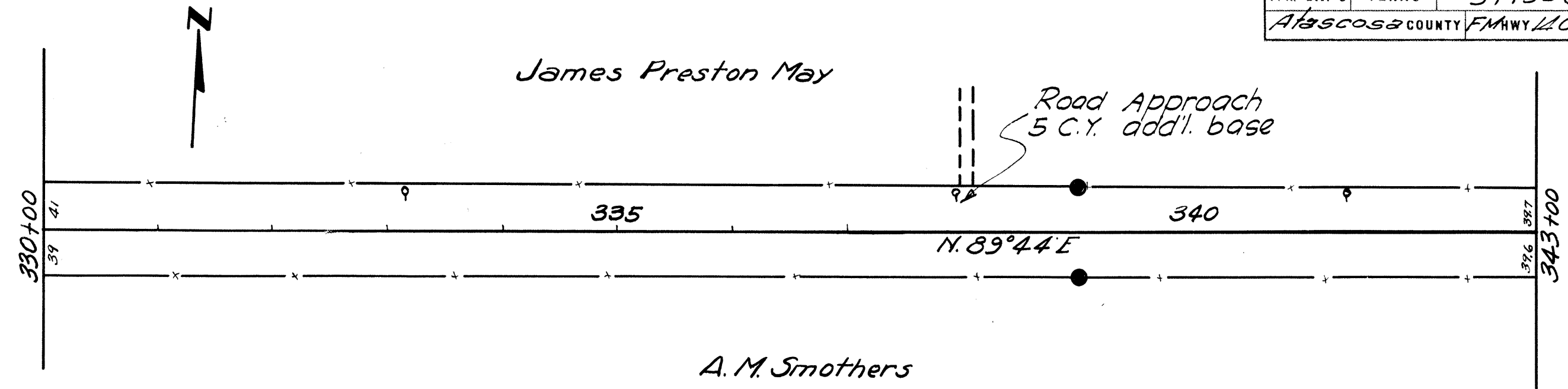




Clear & Grub.	
Rd. Grader wk.	
Bulldozer wk.	
Scraper wk.	

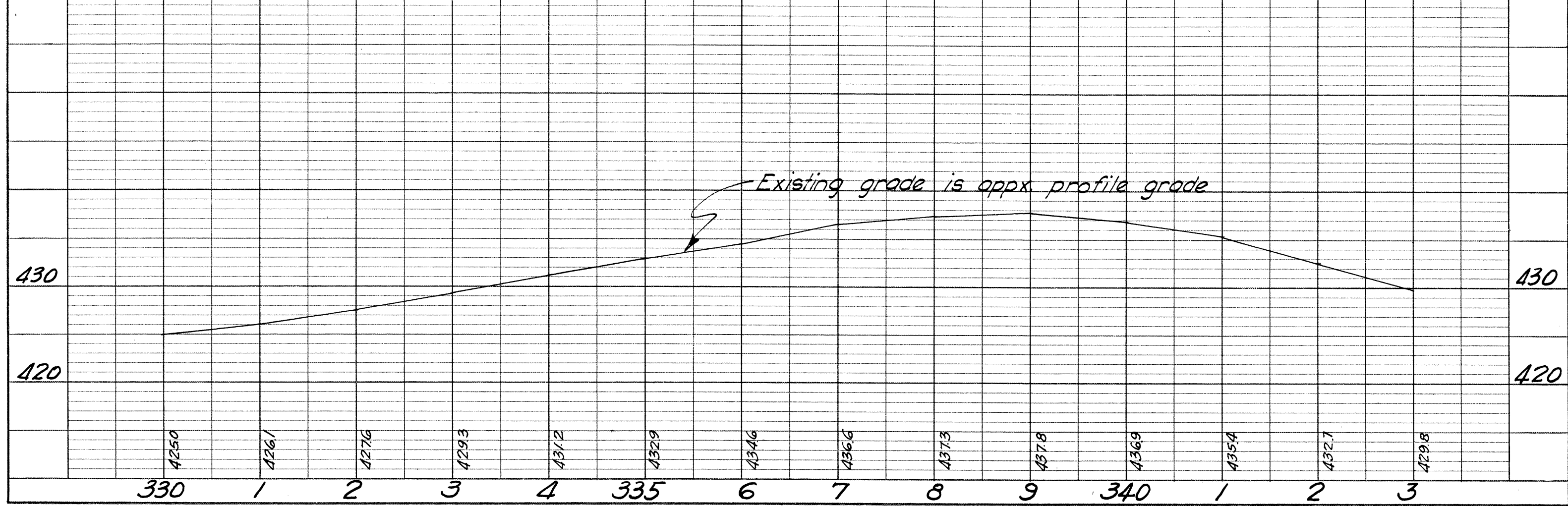
SHEET TOTAL		
Est.	Final	Unit
0.44	0.44	Ac.
13	13	Sta.
2	1	Hr.
22	26	Hr.

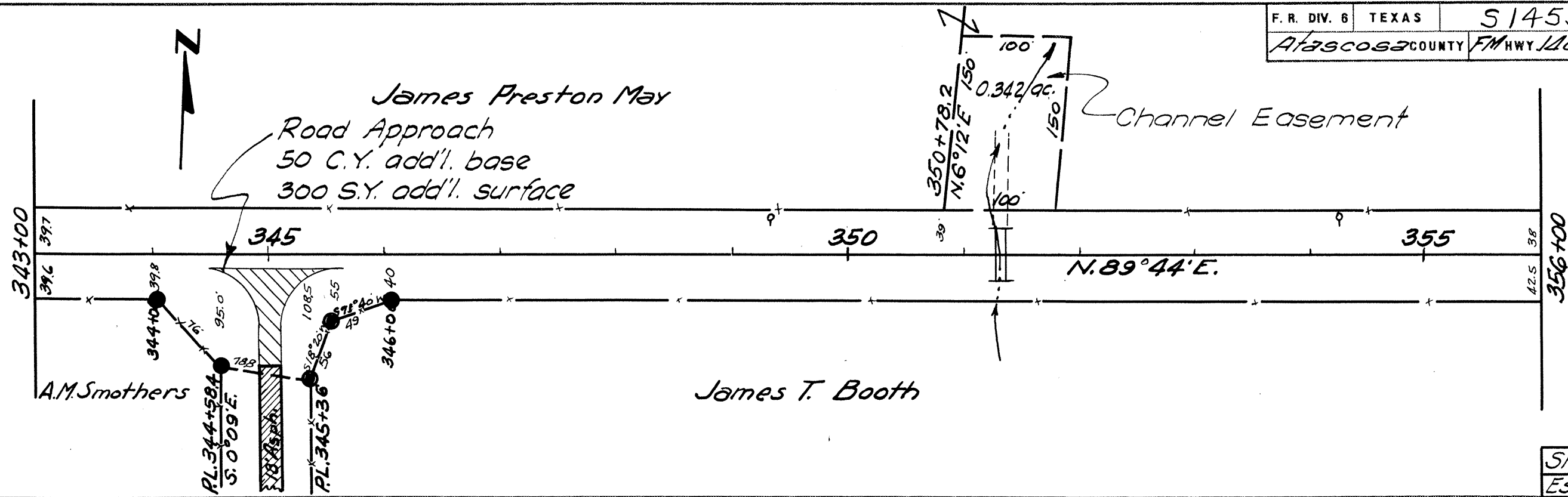




Clear & Grub.	
Rd. Grader Wk.	
Bulldozer Wk.	
Scraper Wk.	
R.O.W Marker	

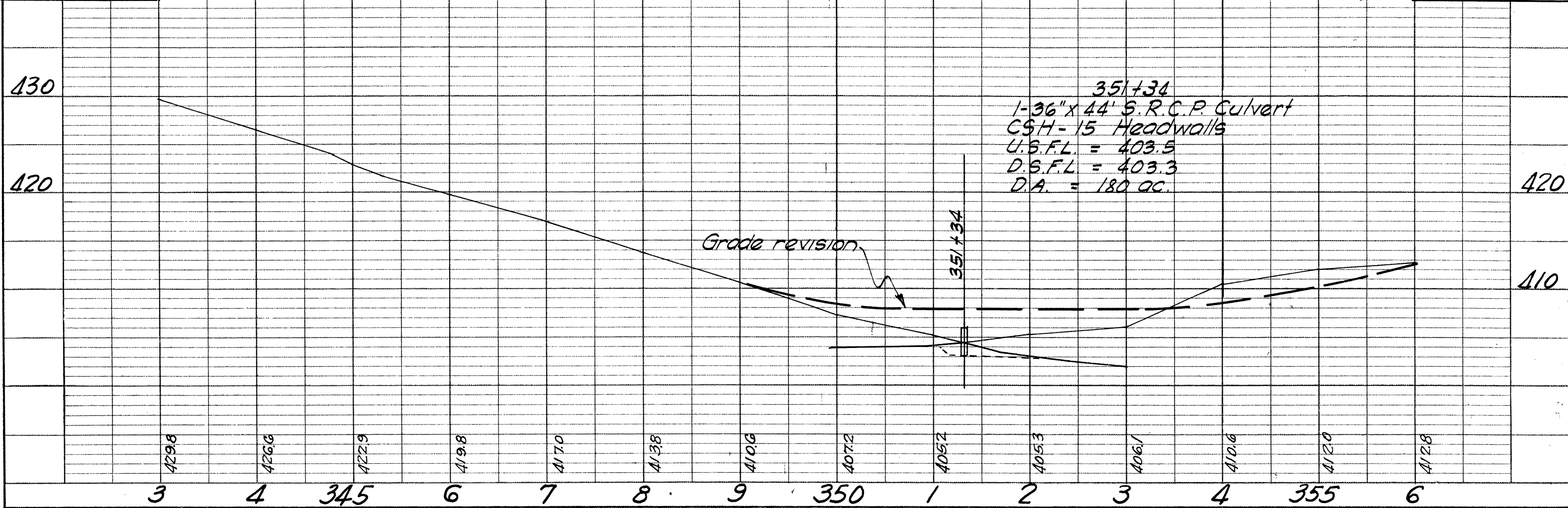
SHEET TOTAL		
Est.	Final	Unit
0	0	Ac.
13	13	Sta.
0	0	Hr.
0	0	Hr.
2	2	Eq.

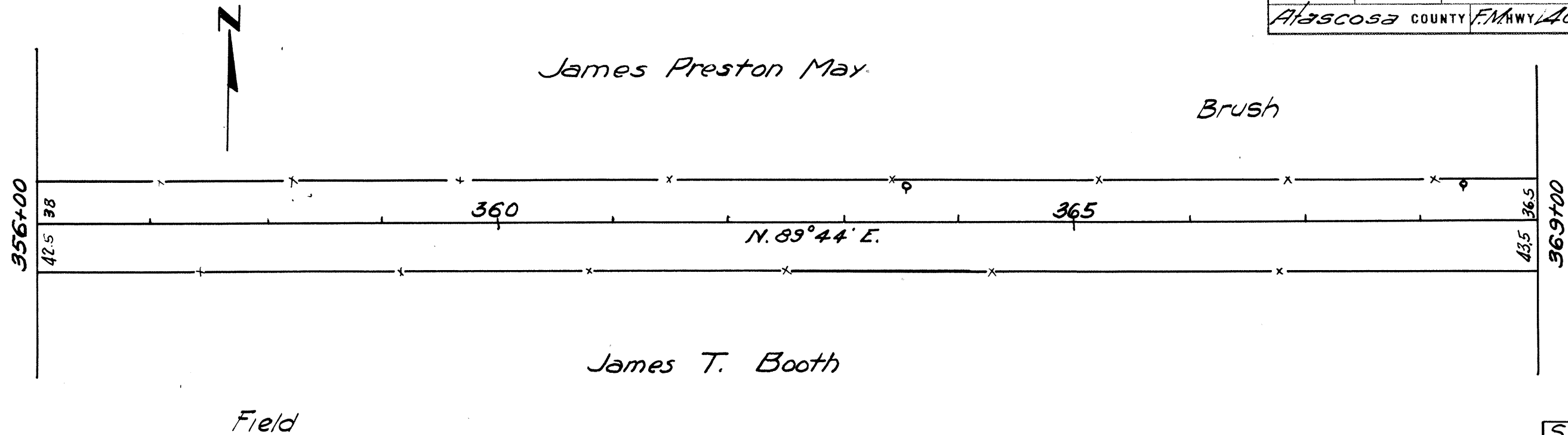




Clear & Grub.
Rd. Grader Wk.
Bulldozer Wk.
Scraper Wk.
R.O.W. Marker

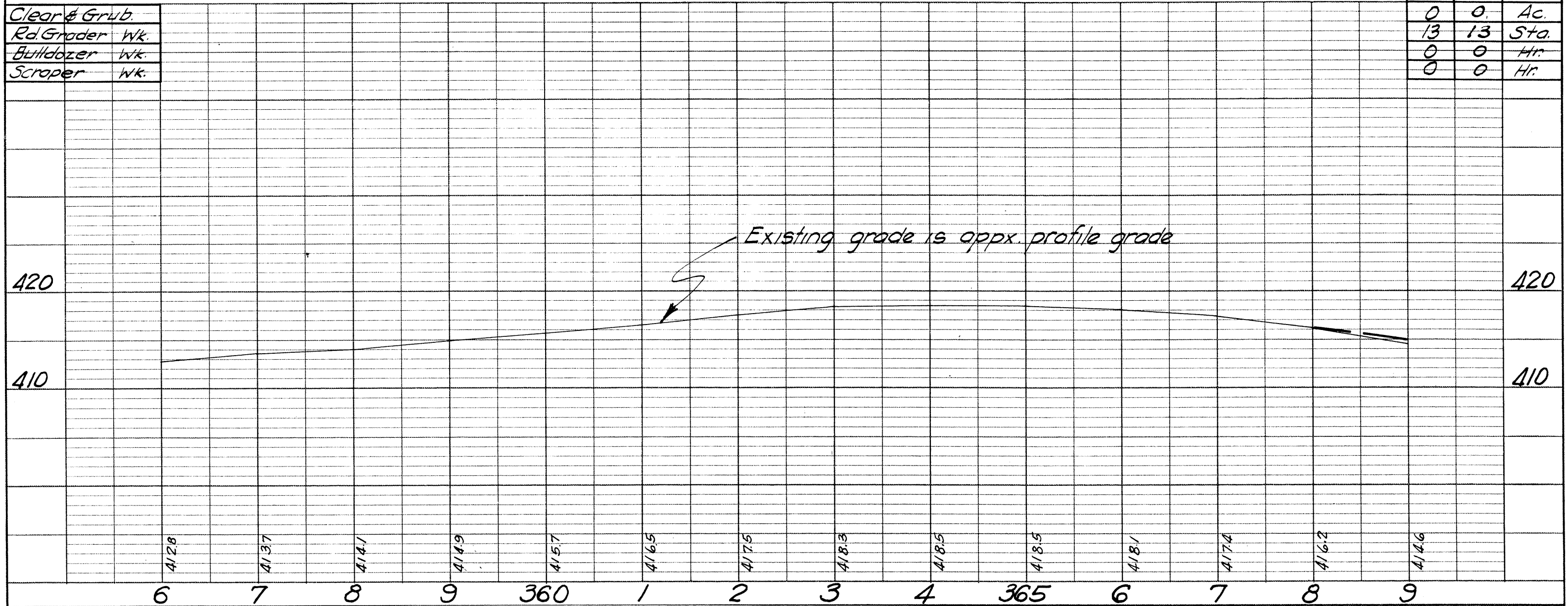
SHEET TOTAL		
Est.	Final	Unit
0.34	0.34	Ac.
13	13	Sto.
10	8	Hr.
28	34	Hr.
5	5	Eq.

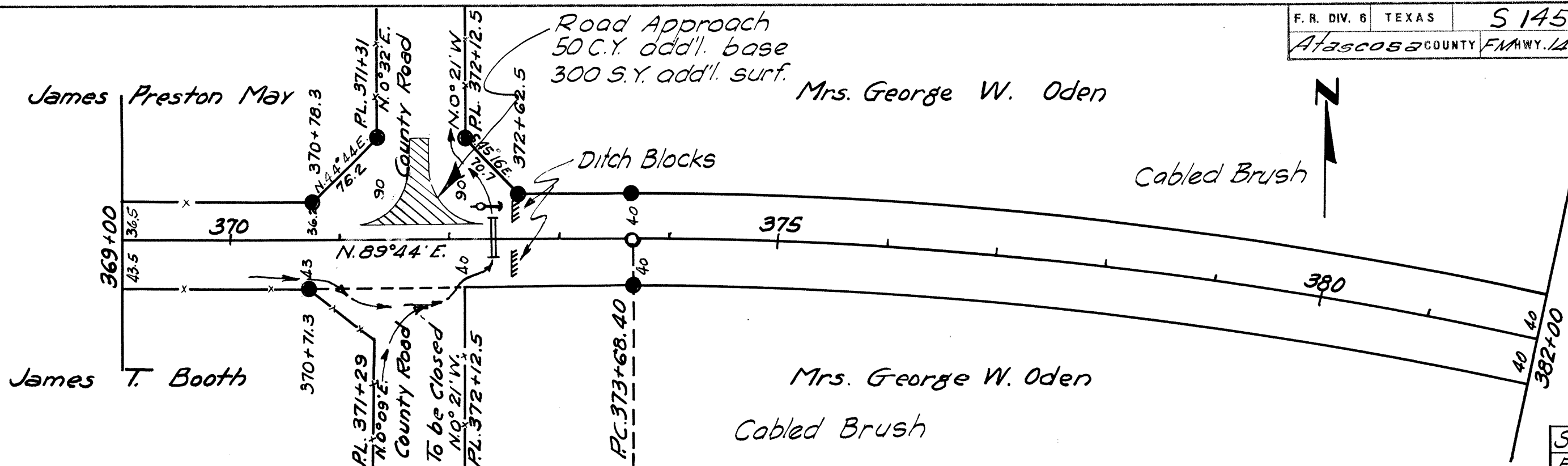




Clear & Grub.	
Rd. Grader	Wk.
Bulldozer	Wk.
Scraper	Wk.

SHEET TOTAL		
Est.	Final	Unit
0	0	Ac.
13	13	Sta.
0	0	Hr.
0	0	Hr.

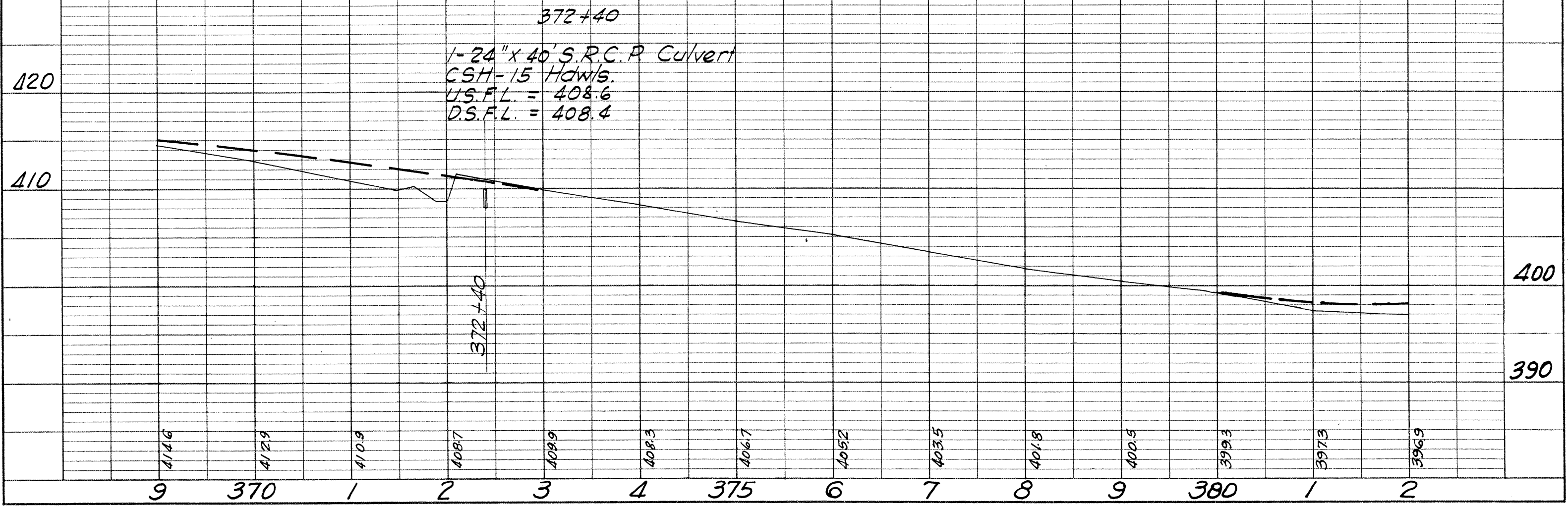




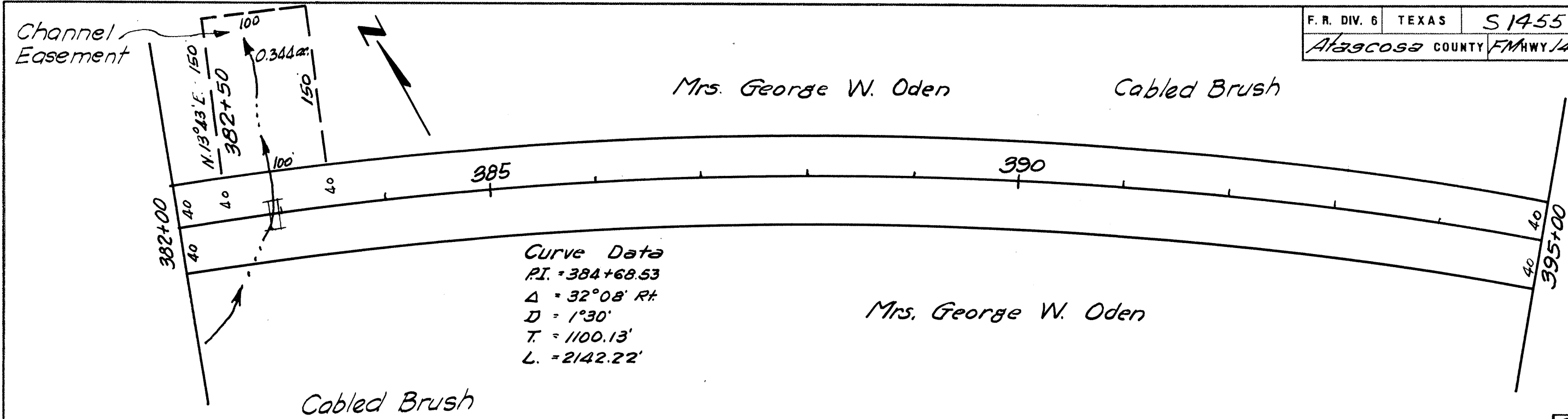
Clear & Grub
Rd. Grader Wk.
Bulldozer Wk.
Scraper Wk.
R.O.W. Marker

372 to 382 x 80' = 1.83 ac.

SHEET TOTAL		
Est.	Final	Unit
1.83	1.83	Ac.
13	13	Sta.
2	2	Hr.
10	12	Hr.
7	7	Eq.



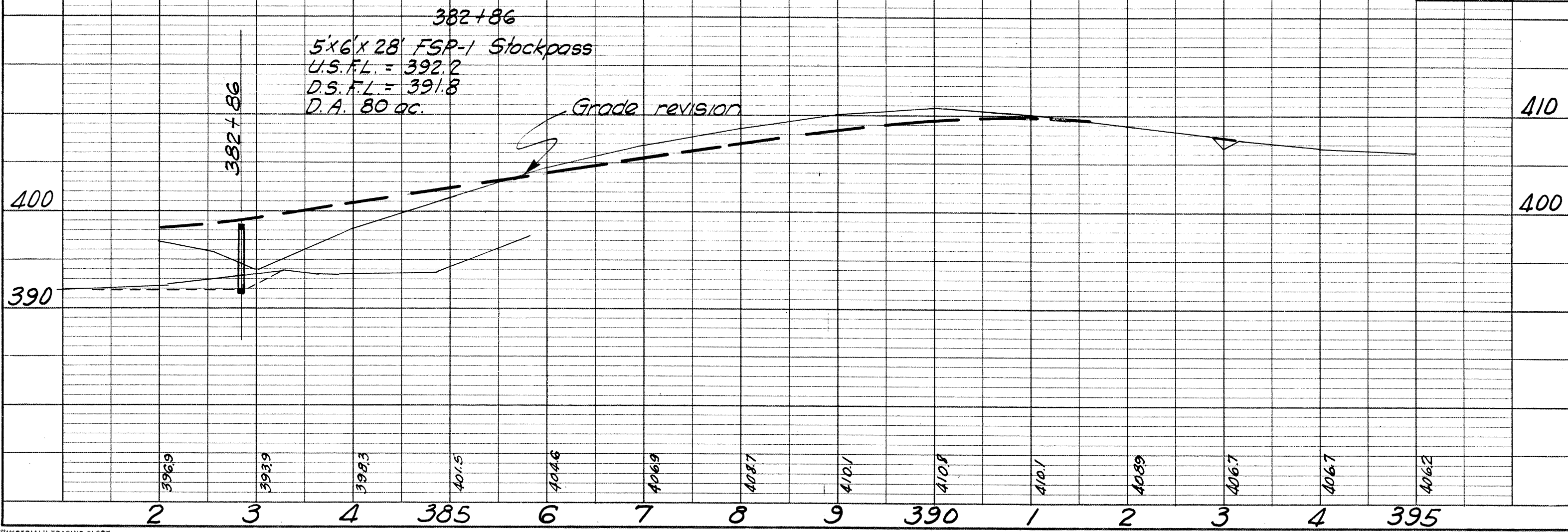
372+40
 1-24" x 40' S.R.C.P. Culvert
 CSH-15 Hdws.
 U.S.F.L. = 408.6
 D.S.F.L. = 408.4

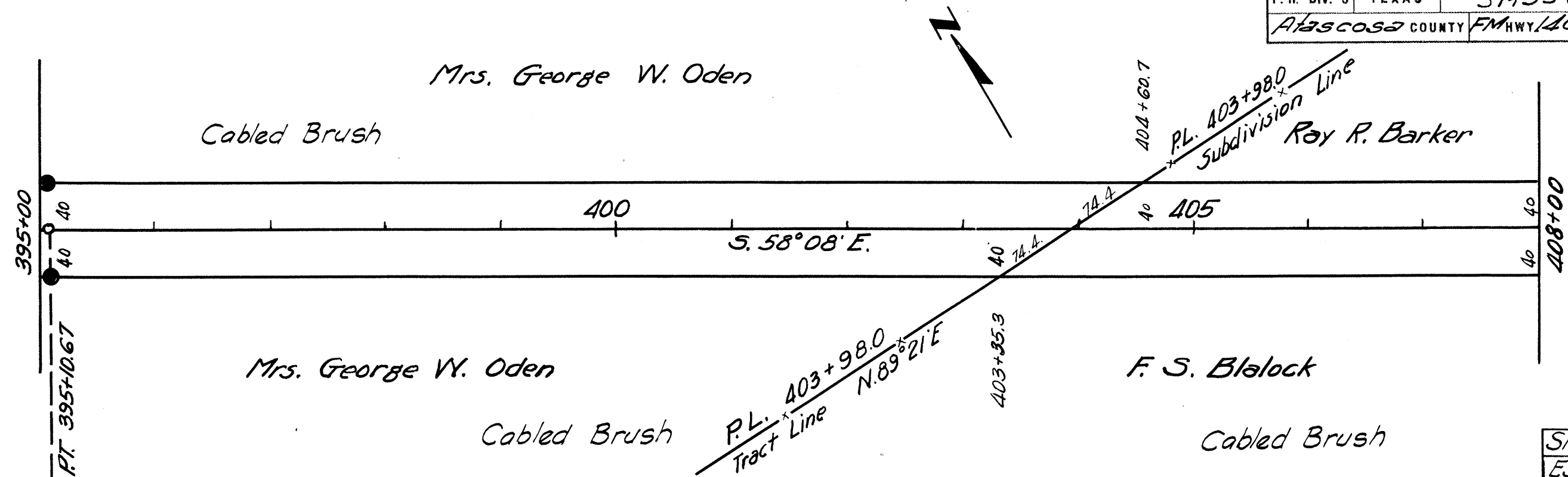


Clean & Grub	
Rd. Grader	Wk.
Bulldozer	Wk.
Scraper	Wk.

382 to 395 x 80' = 2.38 ac.

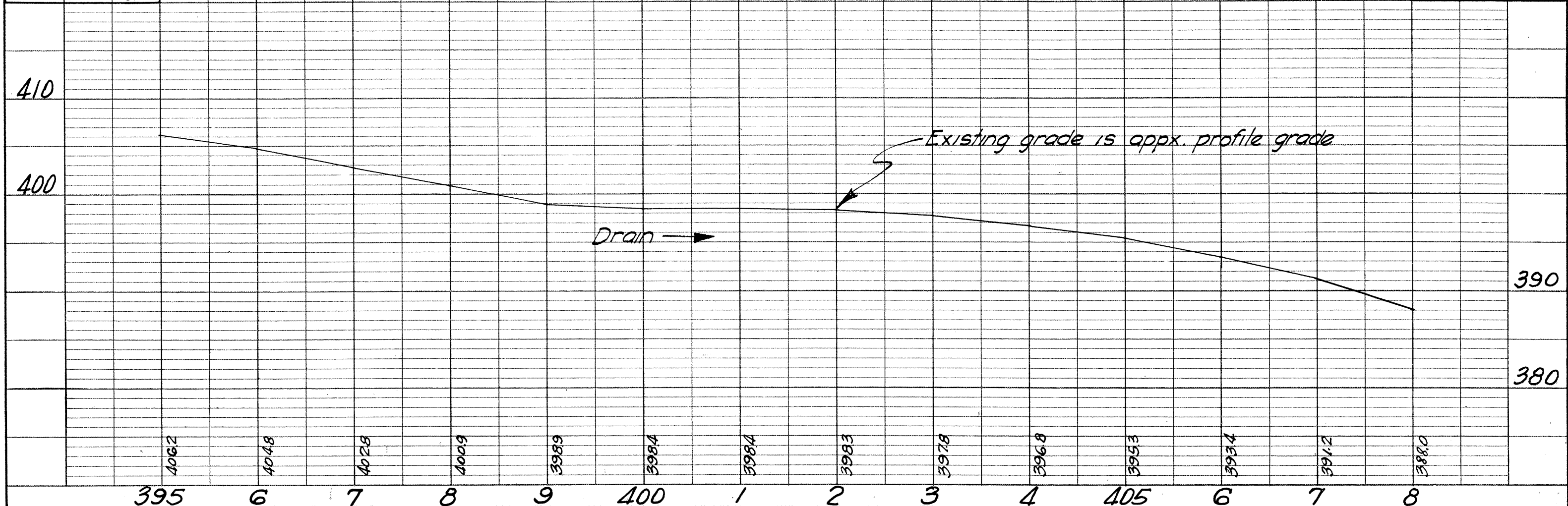
SHEET TOTAL		
Est.	Final	Unit
2.72	2.72	Ac.
13	13	Sta.
2	2	Hr.
23	28	Hr.



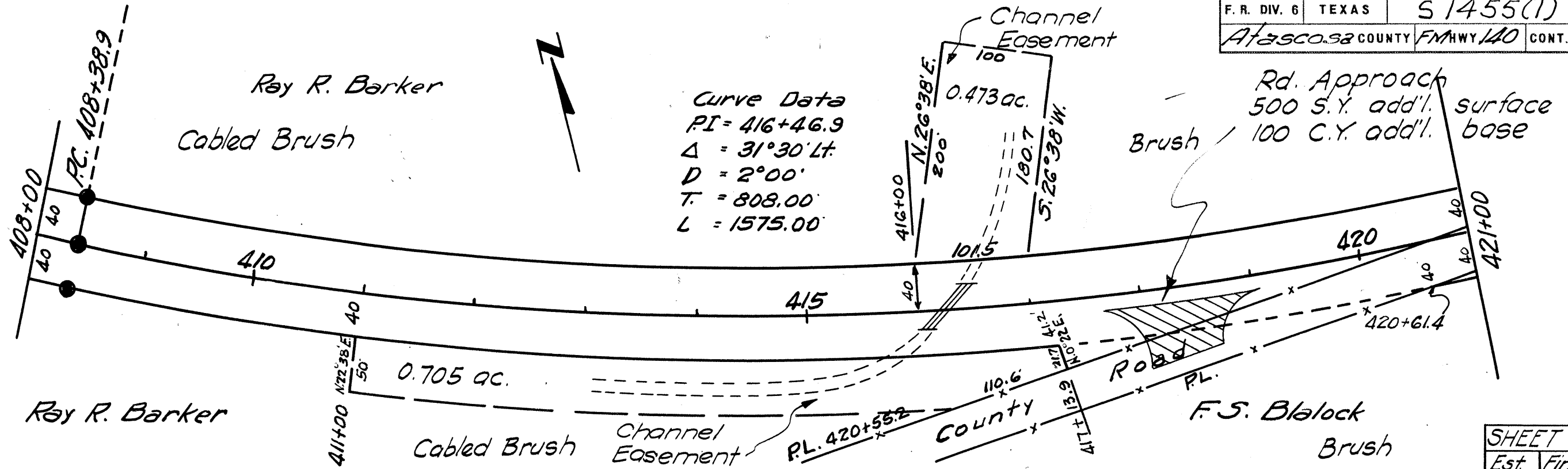


Clean & Grub	395 to 408 x 80' = 2.38 ac.
Rd. Grader Wk.	
Bulldozer Wk.	
Scraper Wk.	
R.O.W. Marker	

SHEET TOTAL		
Est.	Final	Unit
2.38	2.38	Ac.
13	13	Sta.
0	0	Hr.
0	0	Hr.
2	2	Eq.



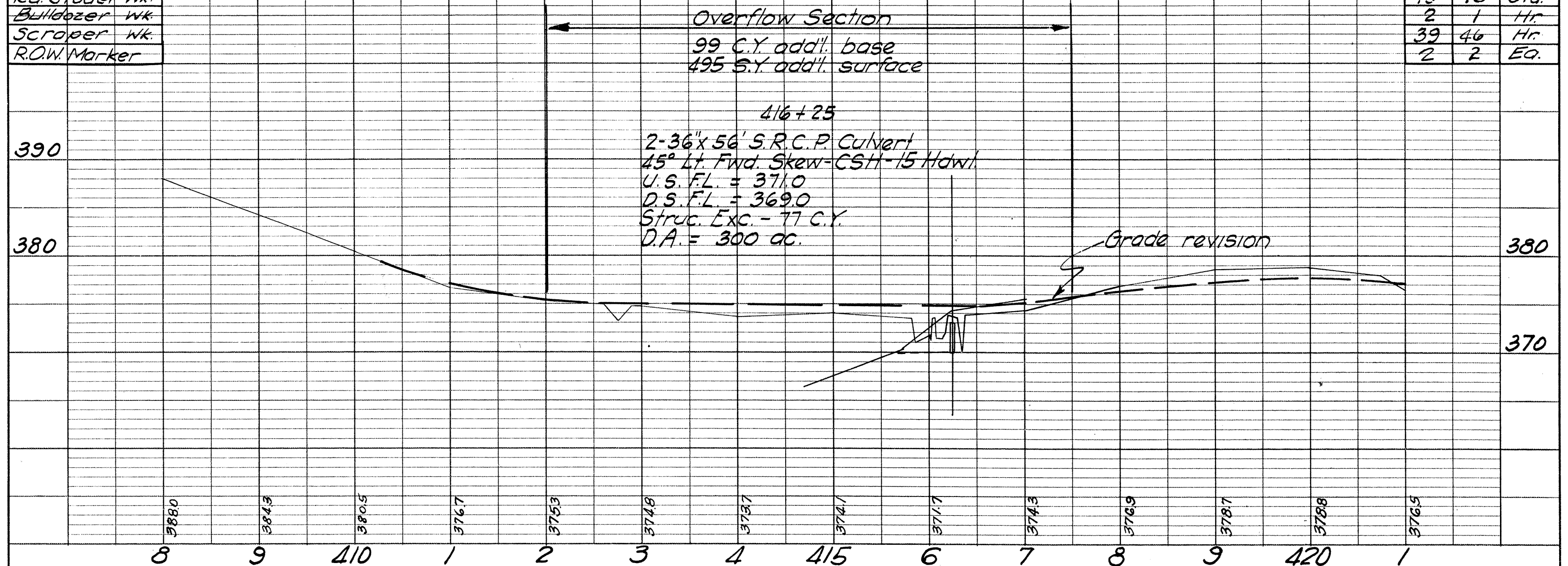
395 6 7 8 9 400 1 2 3 4 405 6 7 8

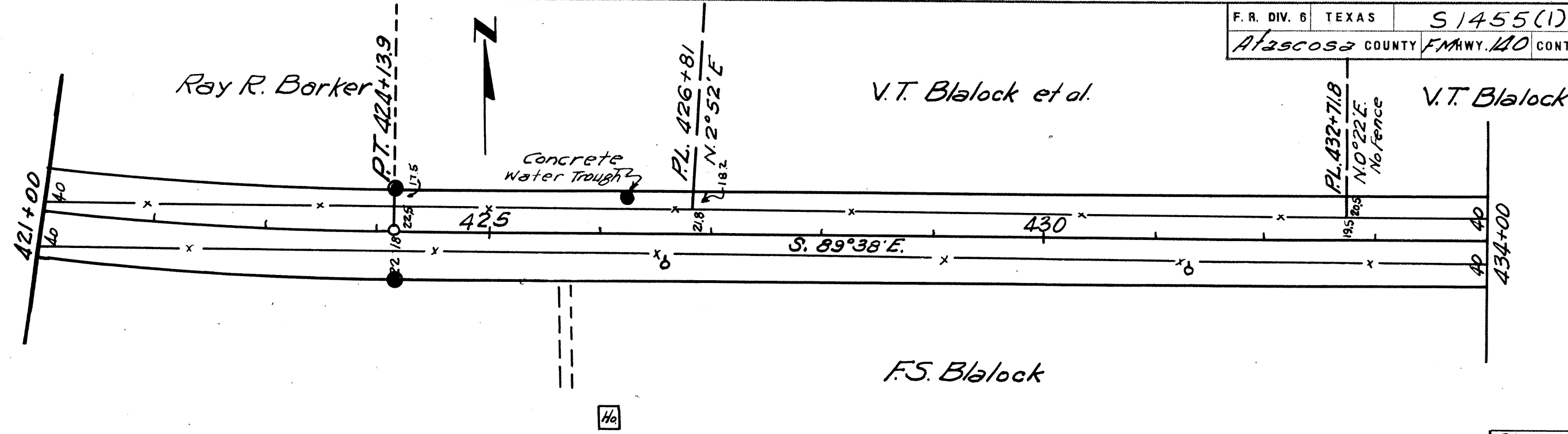


Clear & Grub
Rd. Grader Wk.
Bulldozer Wk.
Scraper Wk.
R.O.W. Marker

408 to 421 x 80 = 2.38 ac.

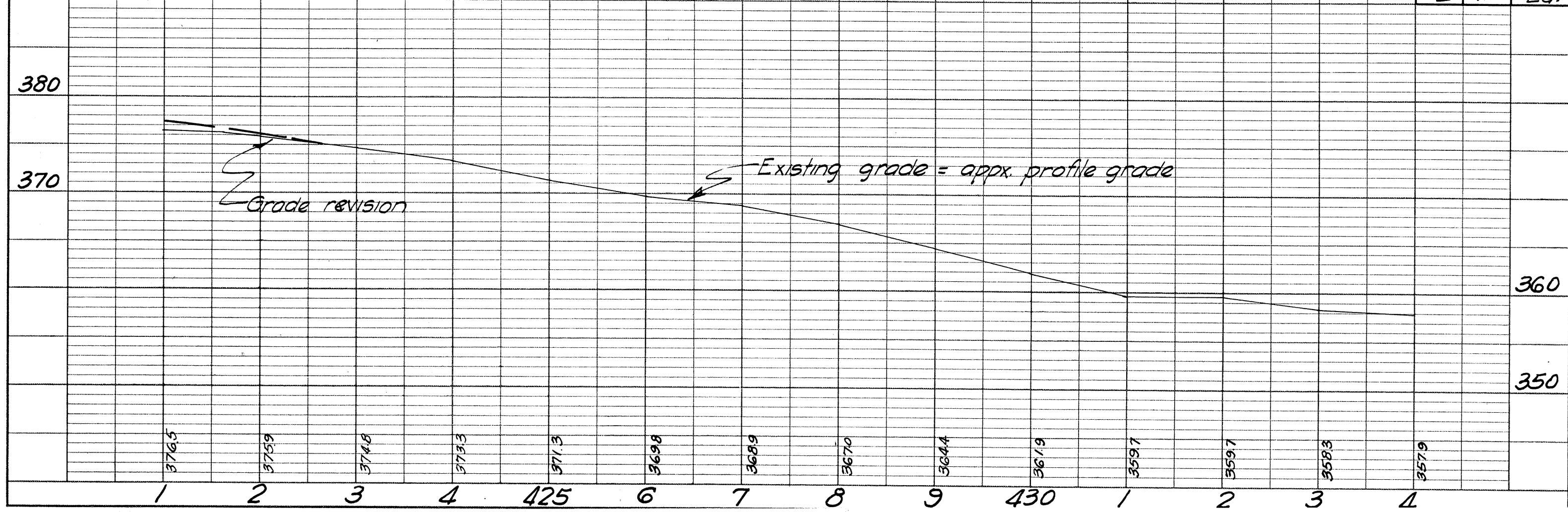
SHEET TOTAL		
Est.	Final	Unit
3.55	3.55	Ac
13'	13	Sta.
2	1	Hr.
39	46	Hr.
2	2	Eq.



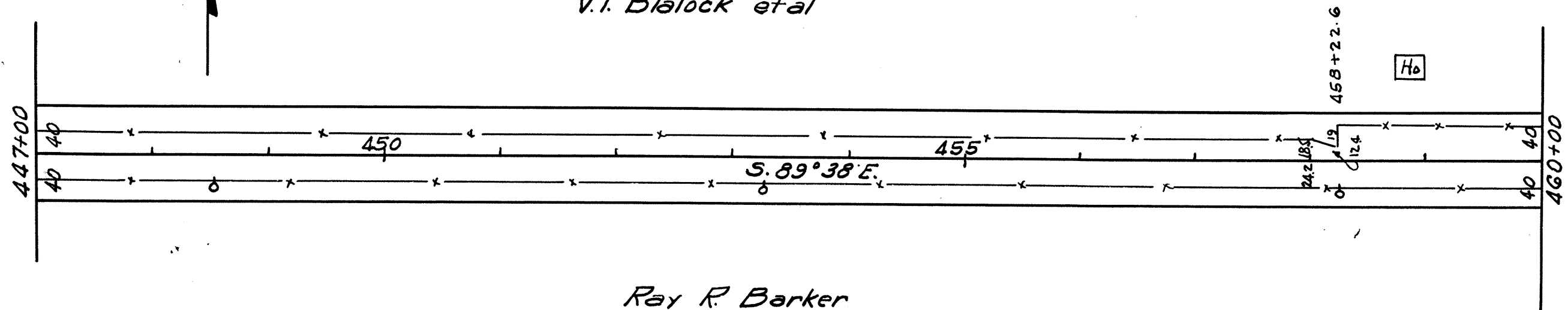


Clear & Grub	Rt. 421 to 425 x 5' = 0.04 ac.	Lt. 421 to 434 x 5' = 0.04 ac.
Rd. Grader Wk.		
Bulldozer Wk.		
Scraper Wk.		
R.O.W. Marker		

SHEET TOTAL		
Est	Final	Unit
0.08	0.08	Ac.
13	13	Sto.
0	0	Hr.
1	1	Hr.
2	2	Eq.



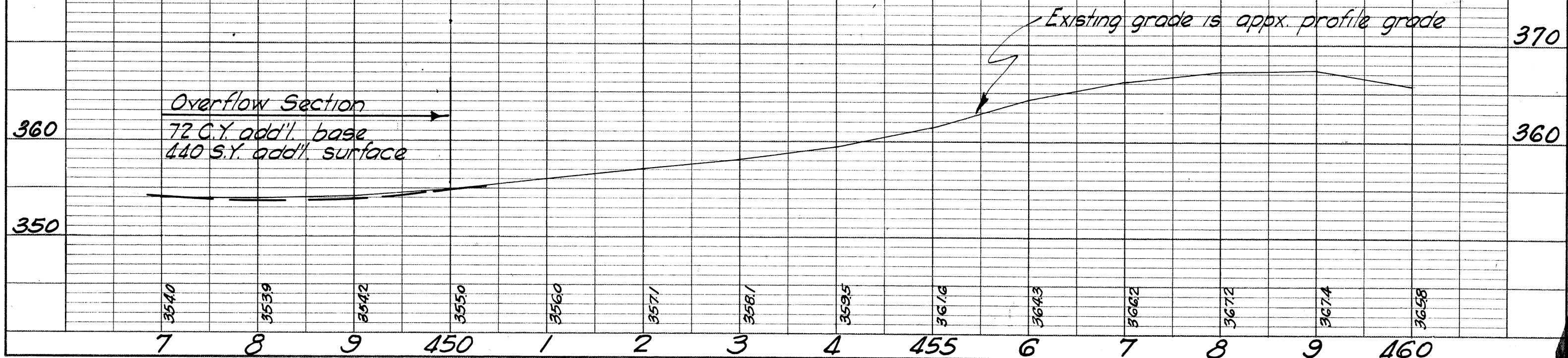
V.T. Blalock et al

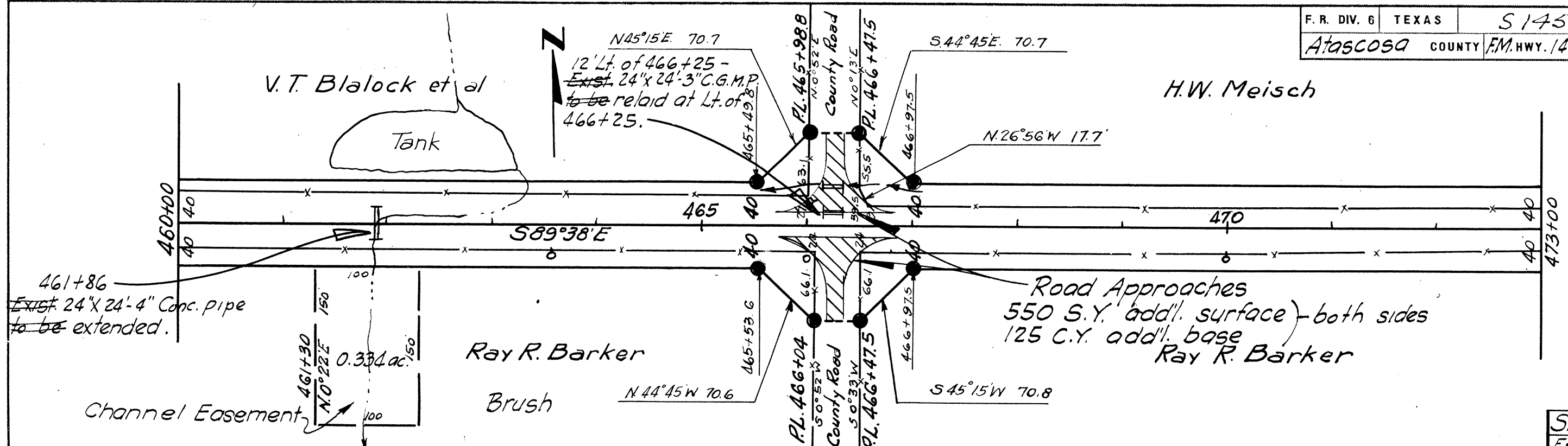


Ray R. Barker

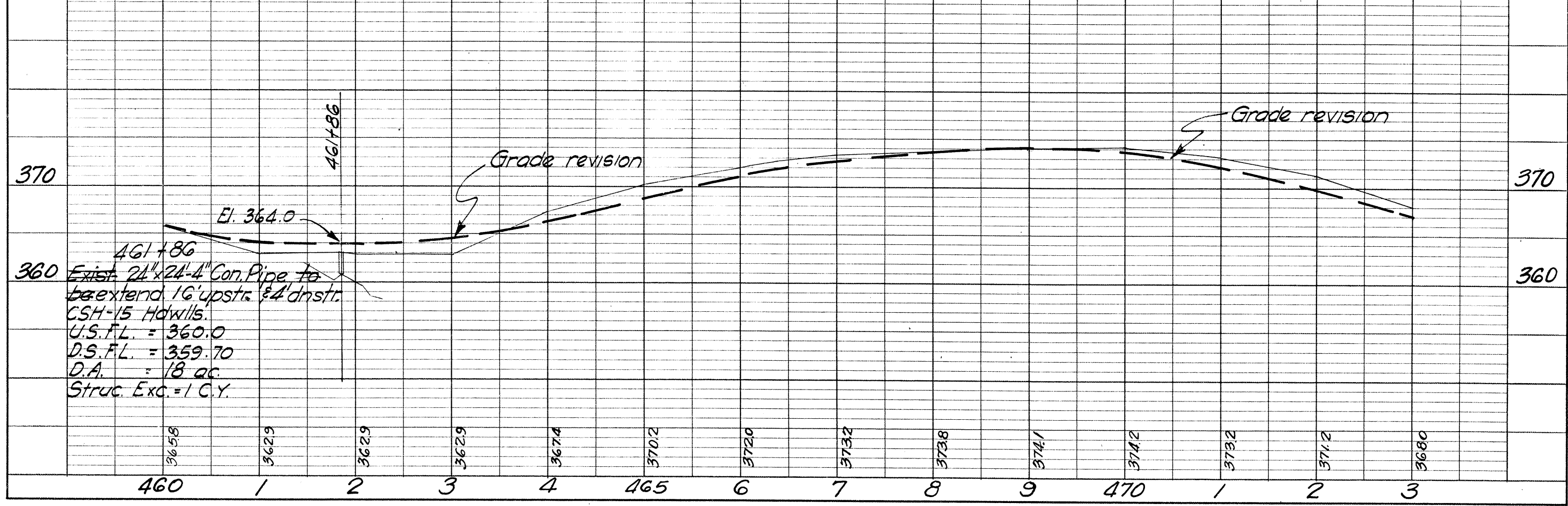
Clear & Grub	Lt. 447 to 460 x 5' = 0.15 ac.	Rt. 447 to 460 x 5' = 0.15 ac.
Rd. Grader Wk.		
Bulldozer Wk.		
Scroper Wk.		

SHEET TOTAL		
Est.	Final	Unit
0.30	0.30	Ac.
13	13	Sta.
0	0	Hr.
0	0	Hr.

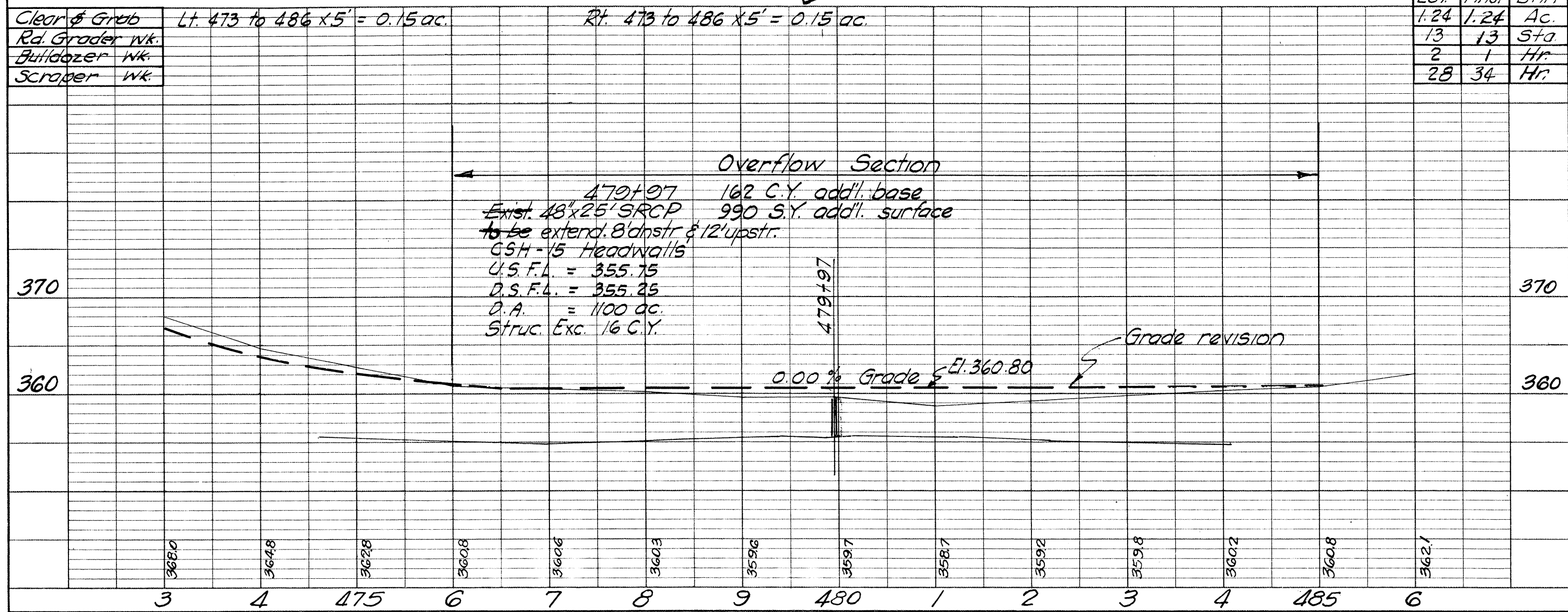
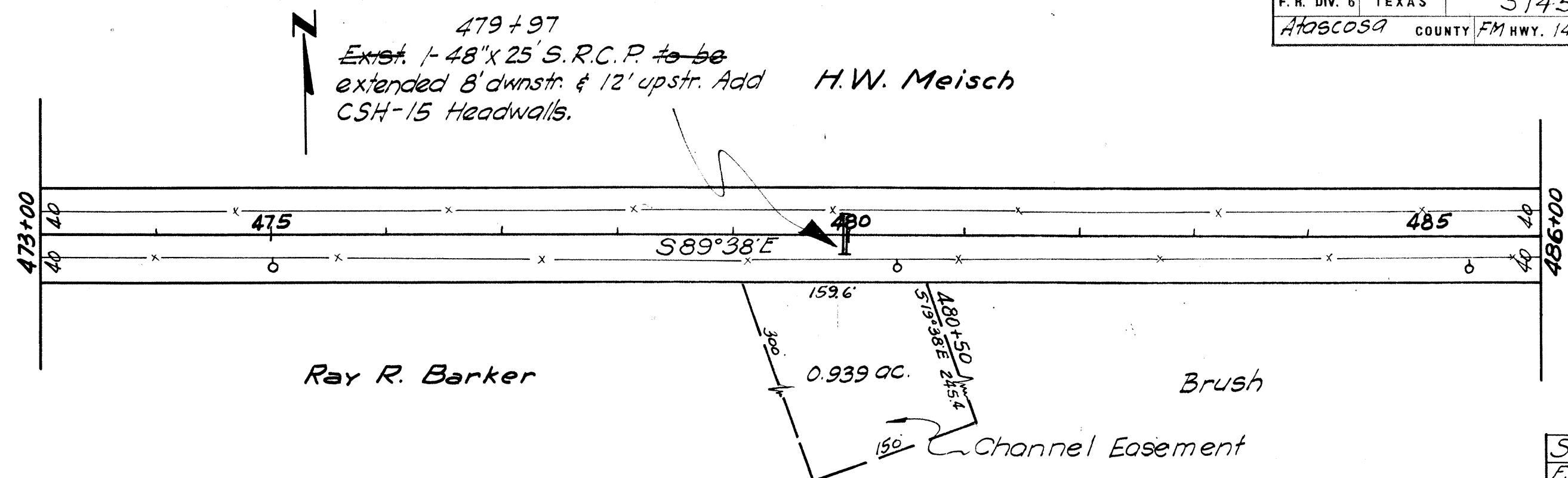


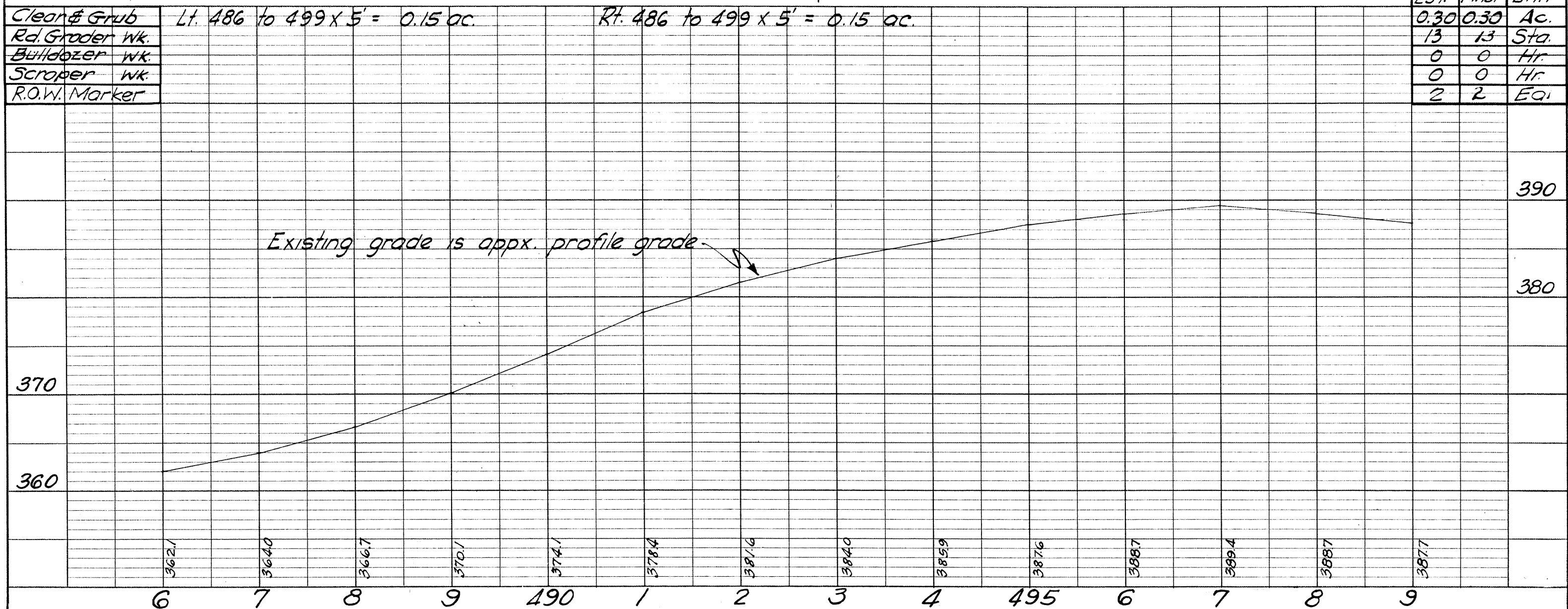
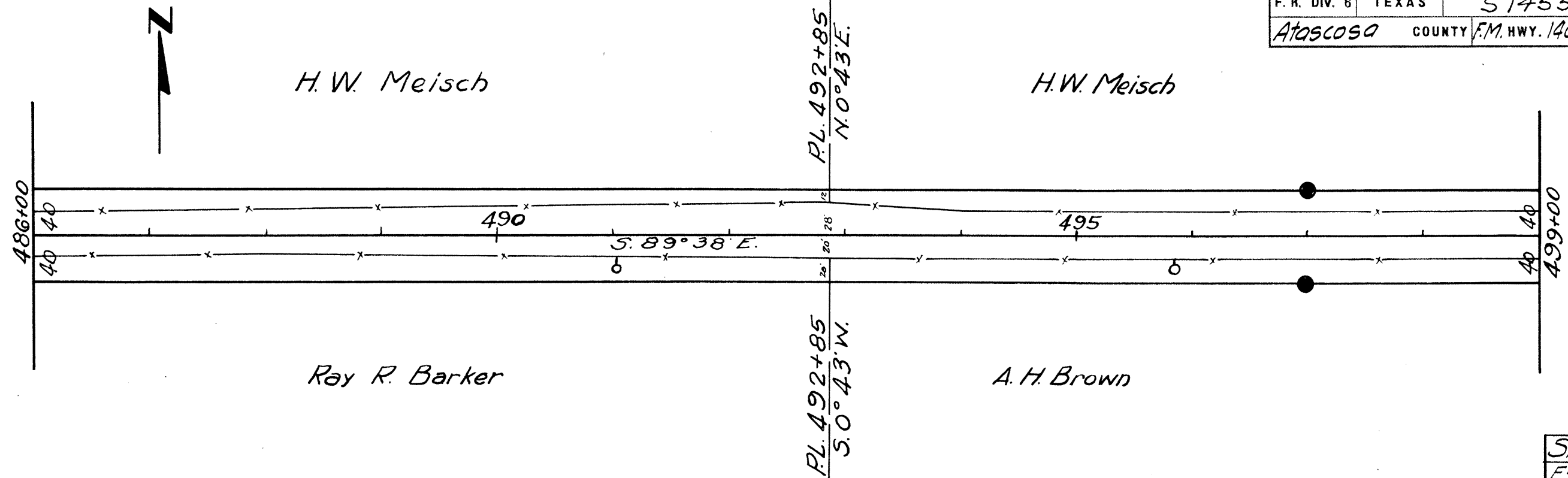


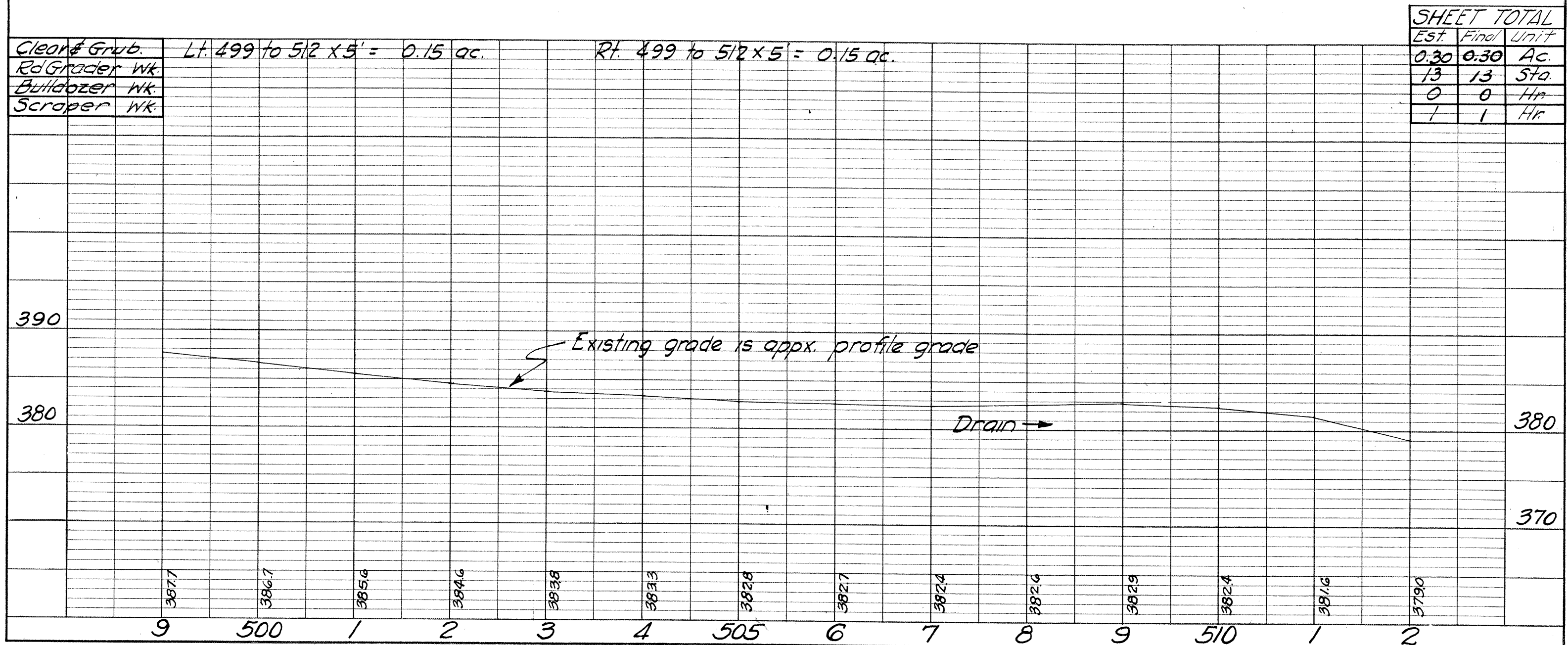
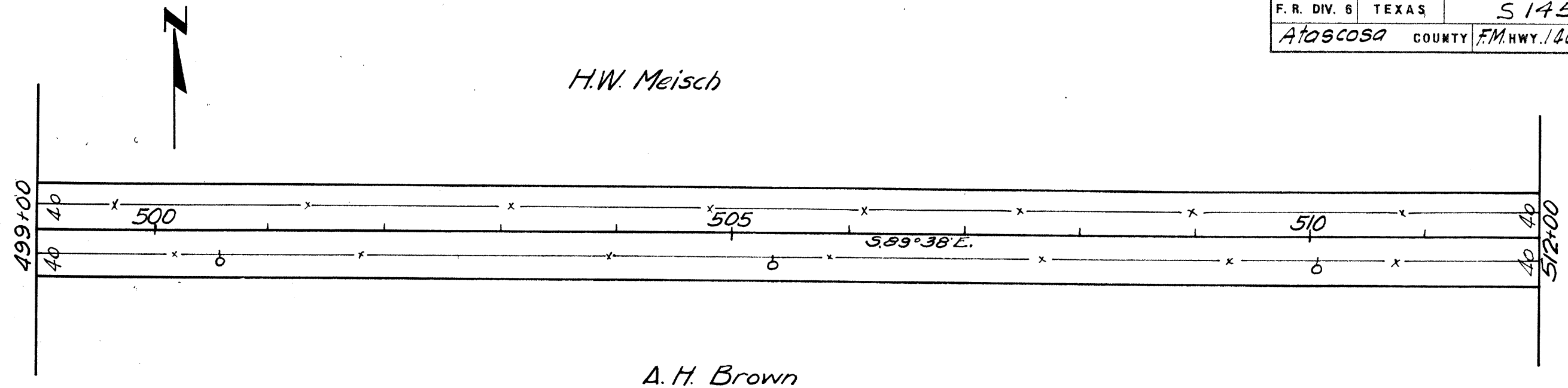
		SHEET TOTAL	
		Est.	Final Unit
Clear & Grub	Lt. 460 to 473 x 5' = 0.15 ac.	0.63	0.63 Ac.
Rd. Grader Wk.	Rt. 460 to 473 x 5' = 0.15 ac.	13	13 Sts.
Bulldozer Wk.		2	2 Hr.
Scraper Wk.		14	16 Hr.
R.O.W. Marker		8	8 Eo.

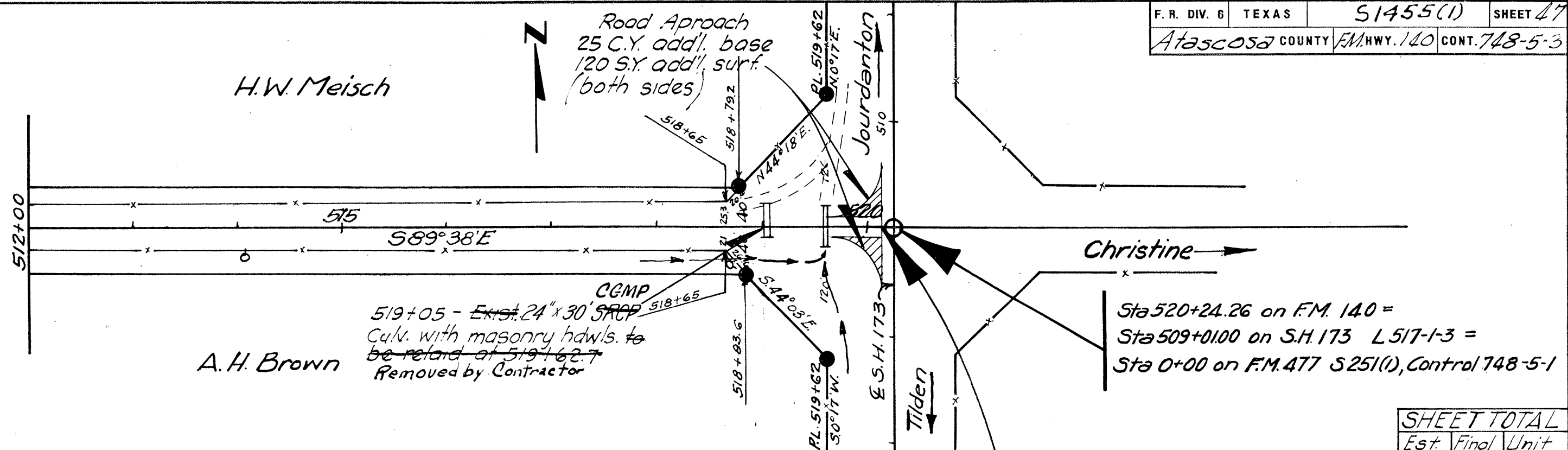


461+86
 Exist. 24" x 24" Con. Pipe to
 be extended 16' upstr. & 4' dnstr.
 CSH-15 Hd w/ls.
 U.S. F.L. = 360.0
 D.S. F.L. = 359.70
 D.A. = 18 ac.
 Struc. Exc. = 1 C.Y.







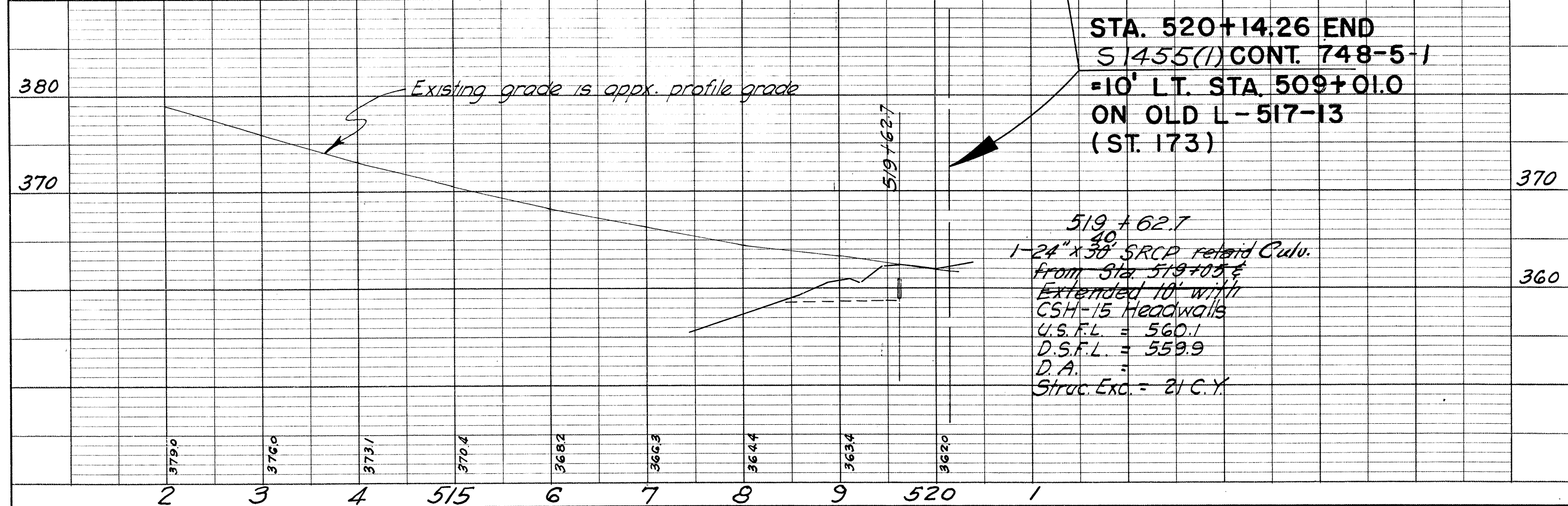


Sta 520+24.26 on F.M. 140 =
 Sta 509+01.00 on S.H. 173 L 517-1-3 =
 Sta 0+00 on F.M. 477 S 251(1), Control 748-5-1

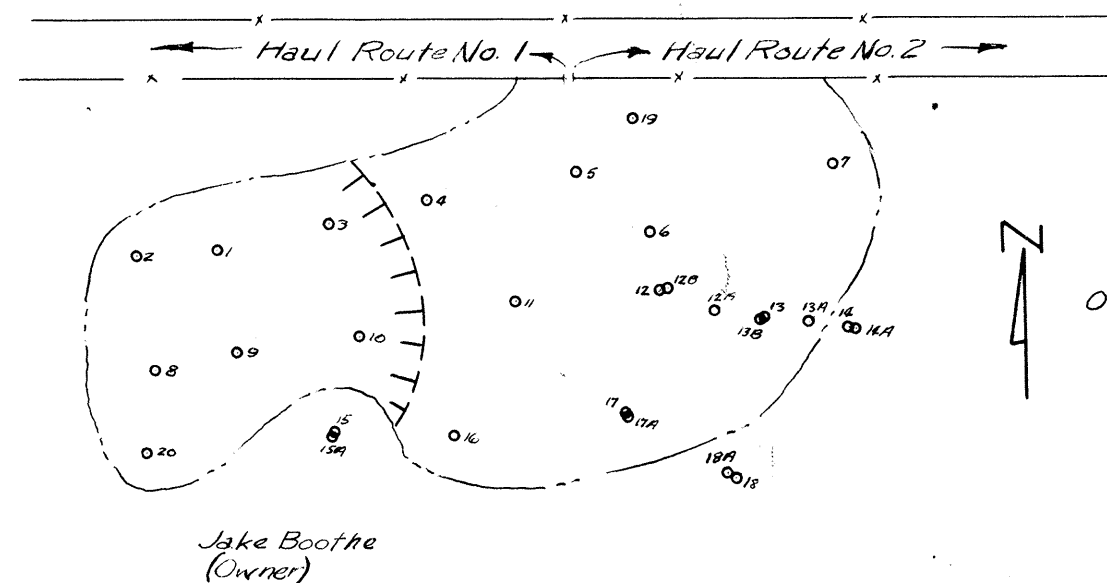
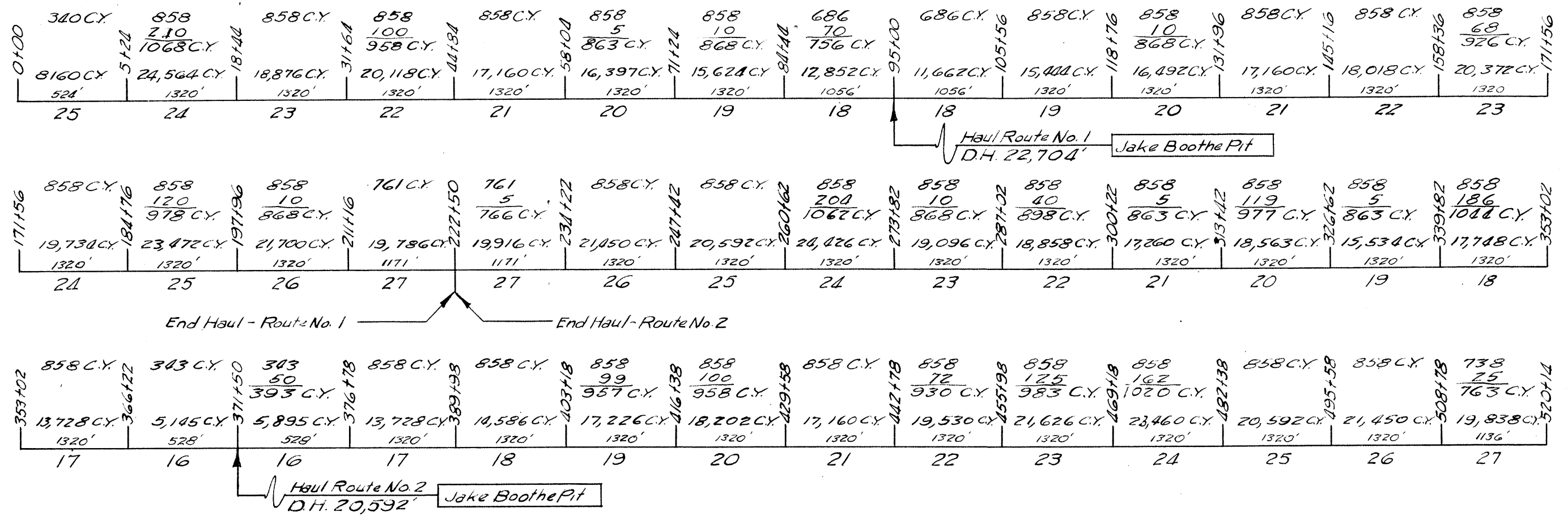
SHEET TOTAL		
Est.	Final	Unit
0.14	0.14	Ac.
8.2	8.2	Sta.
1	1	Hr.
1	1	Hr.
4	4	Ea.

Clear & Grub Lt. 512 to 518+20 X 5' = .07 ac. Rt. 512 to 518+20 X 5' = .07 ac.

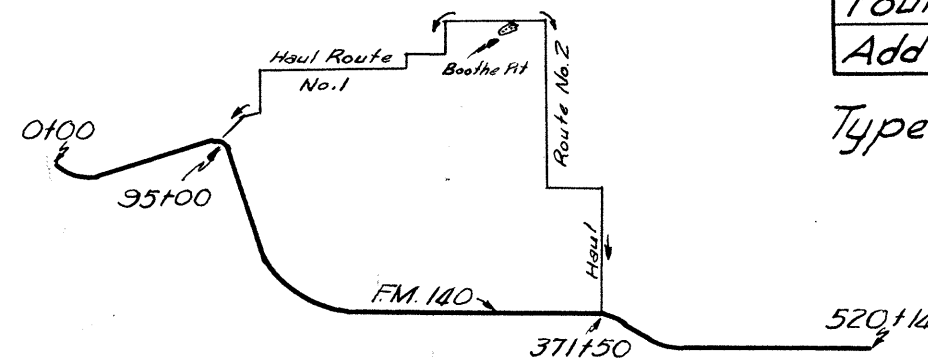
Rd. Grader Wk.
 Bulldozer Wk.
 Scraper Wk.
 R.O.W. Marker



519+62.7
 1-24" x 30" SRCP relaid Culv.
 from Sta 519+05.6
 Extended 10' with
 CSH-15 Headwalls
 U.S.F.L. = 560.1
 D.S.F.L. = 559.9
 D.A. =
 Struc. Exc. = 21 C.Y.



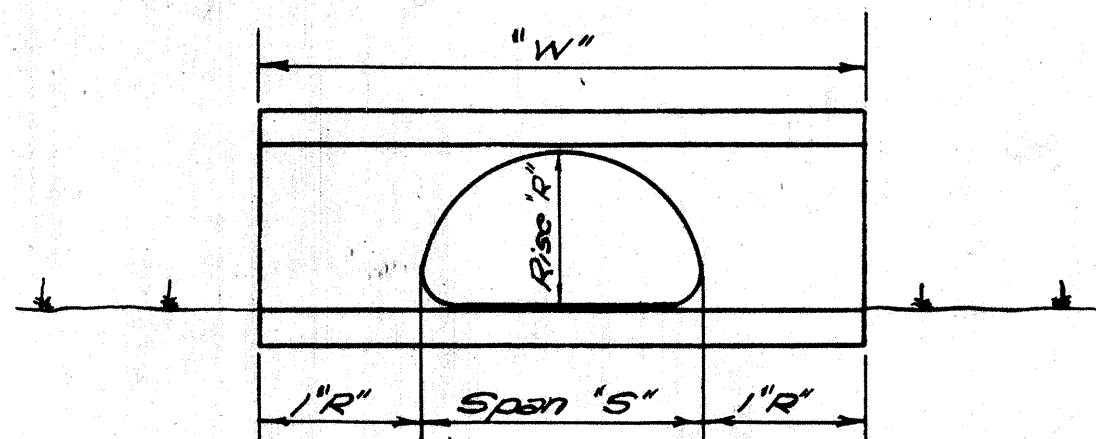
SKETCH SHOWING
JAKE BOOTHE PIT
ATASCOSA CO.
Scale: 1"=200'



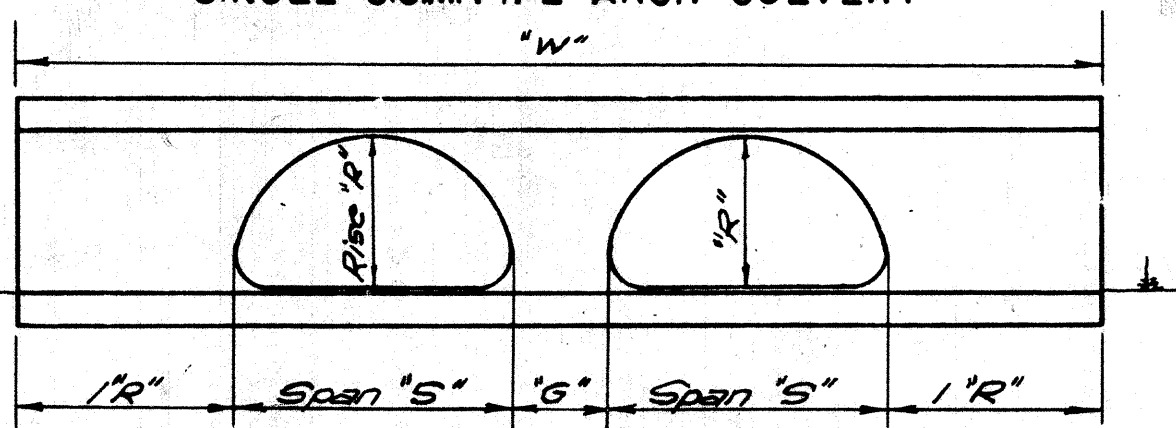
ESTIMATED QUANTITIES		
Description	Totals	Unit
Clearing & Grubbing	0	Ac.
Stripping	1,000	C.Y.
Foundation Course	35,640	C.Y.
Add'l. Qtr. Mi. Haul	743,200	C.Y.

Type "D" Field Lab. Building Required.

HAUL DIAGRAM



SINGLE C.G.M. PIPE ARCH CULVERT



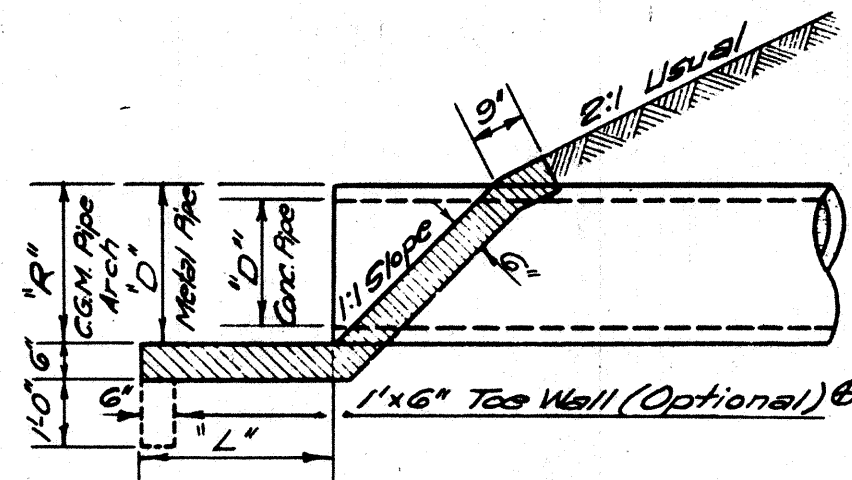
MULTIPLE C.G.M. PIPE ARCH CULVERT

GENERAL NOTE:

Materials and Construction of Headwalls shall be in accordance with Item 533 "Cement Stabilized Riprap." Headwalls will be measured and paid for by the cubic yard of materials in place. Quantities shown hereon are for two headwalls. Dimensions and quantities shown hereon may be varied by the Engineer to suit local conditions.

DIMENSIONS & QUANTITIES FOR C.G.M. PIPE ARCH CULVERTS

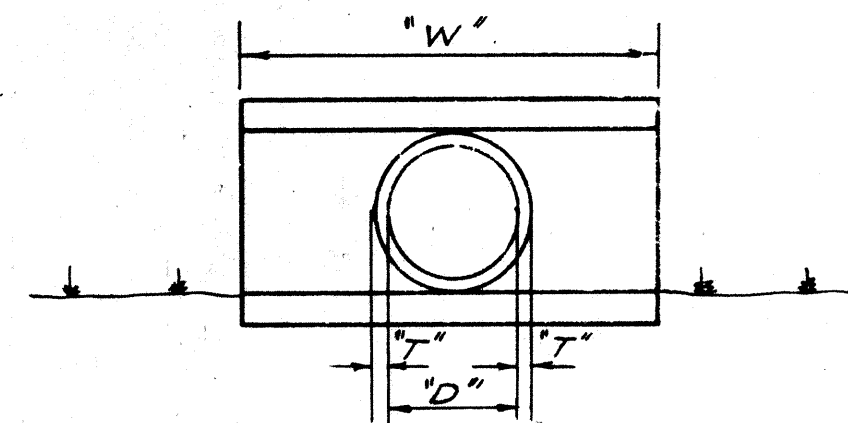
DESIGN SIZE	APPROX. ARCH DIMENSIONS		"L"	SINGLE		DOUBLE			TRIPLE		
	SPAN	RISE		CEM. STAB. RIPRAP CU. YD.	"W"	CEM. STAB. RIPRAP CU. YD.	"W"	"G"	CEM. STAB. RIPRAP CU. YD.	"W"	"G"
1	18"	11"	2'-0"	0.44	3'-4"	0.75	5'-10"	1'-0"	1.06	8'-4"	1'-0"
2	22"	13"		0.54	4'-0"	0.89	6'-10"	1'-0"	1.25	9'-8"	1'-0"
3	30"	17"		0.78	5'-4"	1.23	8'-10"	1'-0"	1.68	12'-4"	1'-0"
4	37"	21"		1.02	6'-7"	1.56	10'-9"	1'-1"	2.11	14'-11"	1'-1"
5	44"	25"		1.28	7'-10"	1.95	12'-9"	1'-3"	2.61	17'-8"	1'-3"
6	52"	30"	3'-0"	2.02	9'-4"	3.07	15'-1"	1'-5"	4.12	20'-0"	1'-5"
7	58"	36"		2.55	10'-10"	3.78	17'-3"	1'-7"	5.02	23'-8"	1'-7"
8	65"	40"	4'-0"	3.39	12'-1"	5.13	19'-5"	1'-11"	6.86	26'-9"	1'-11"
9	72"	44"		3.88	13'-4"	5.80	21'-4"	2'-0"	7.72	29'-4"	2'-0"



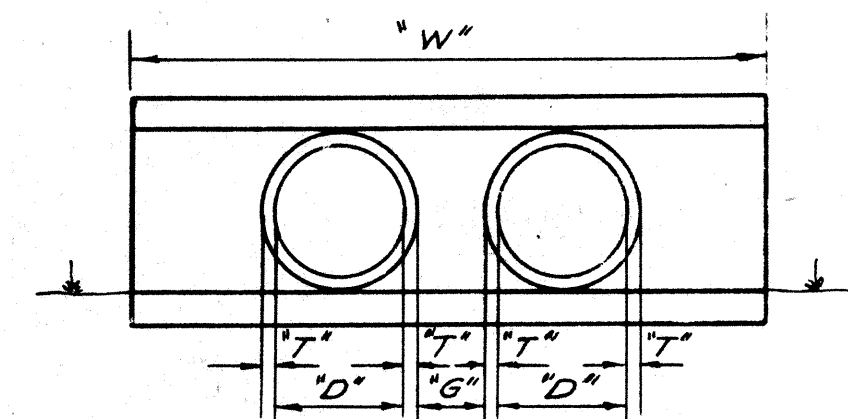
LONGITUDINAL SECTION FOR CIRCULAR & ARCH PIPES

TOE WALL NOTE:

Quantity of Cement Stabilized Riprap used for Toe Walls in cubic yards = 0.037 x width of headwall.



SINGLE CIRCULAR PIPE CULVERT



MULTIPLE CIRCULAR PIPE CULVERT

NOTE: Dimension "T" Variable - Concrete Pipe Shell.

DIMENSIONS & QUANTITIES FOR CIRCULAR PIPE CULVERTS

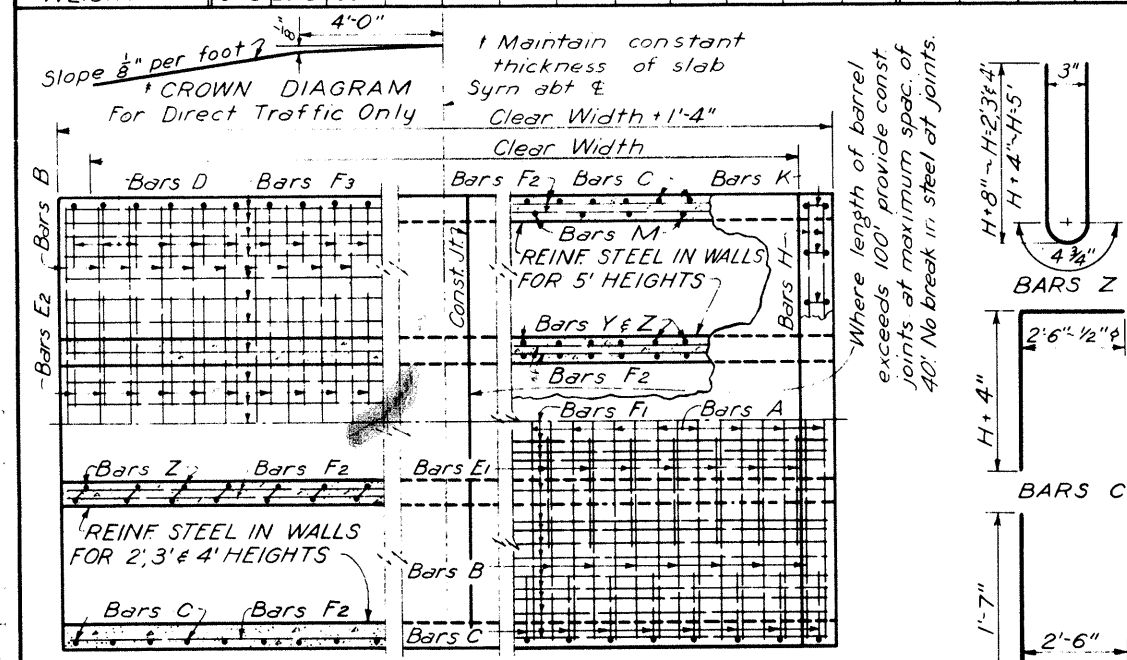
DIAM. OF PIPE	"L"	SINGLE			DOUBLE				TRIPLE			
		CEMENT STAB. RIPRAP		"W"	CEMENT STAB. RIPRAP		"G"	"W"	CEMENT STAB. RIPRAP		"G"	"W"
		C.G.M. PIPE CU. YD.	CONC. PIPE CU. YD.		C.G.M. PIPE CU. YD.	CONC. PIPE CU. YD.			C.G.M. PIPE CU. YD.	CONC. PIPE CU. YD.		
18"	2'-0"	0.72	0.76	4'-6"	1.03	1.06	9'	6'-9"	1.35	1.37	9'	9'-0"
24"		1.08	1.13	6'-0"	1.51	1.56	11"	8'-11"	1.95	1.98	11"	11'-10"
30"	3'-0"	1.77	1.85	7'-6"	2.48	2.54	1'-1"	11'-1"	3.19	3.24	1'-1"	14'-8"
36"		2.30	2.43	9'-0"	3.18	3.28	1'-3"	13'-3"	4.07	4.13	1'-3"	17'-6"
42"	4'-0"	3.27	3.44	10'-6"	4.53	4.66	1'-5"	15'-5"	5.80	5.87	1'-5"	20'-4"
48"		3.97	4.19	12'-0"	5.46	5.63	1'-7"	17'-7"	6.96	7.07	1'-7"	23'-2"
54"	5'-0"	5.23	5.50	13'-6"	7.27	7.49	1'-11"	19'-11"	9.32	9.47	1'-11"	26'-4"
60"		6.09	6.43	15'-0"	8.39	8.64	2'-0"	22'-0"	10.68	10.85	2'-0"	29'-0"

CEMENT STABILIZED HEADWALLS FOR PIPE CULVERTS

CSH-15

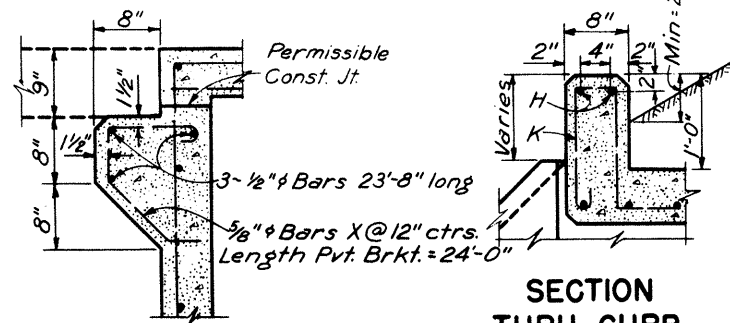
BILLS OF REINFORCING STEEL - FOR 44' CLEAR WIDTH - BARRELS ONLY

	2 SPANS ~ 5' x 2'												2 SPANS ~ 5' x 3'												2 SPANS ~ 5' x 4'												2 SPANS ~ 5' x 5'													
MARK	A	B	C	D	E ₁	E ₂	F ₁	F ₂	F ₃	Z	H	K	A	B	C	D	E ₁	E ₂	F ₁	F ₂	F ₃	Z	H	K	A	B	C	D	E ₁	E ₂	F ₁	F ₂	F ₃	Z	H	K	A	B	C	D	E ₁	E ₂	F ₁	F ₂	F ₃	Z	Y	M	H	K
NUMBER	46	91	122	122	45	78	38	16	26	46	4	24	46	91	122	122	45	78	38	16	26	46	4	24	46	91	122	122	45	78	38	24	26	46	4	24	46	91	122	122	45	78	38	48	26	46	46	62	4	24
SIZE	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	
SPACING	12"	12"	9"	9"	12"	7"	~	~	12"	~	12"	~	12"	12"	9"	9"	12"	7"	~	~	12"	~	12"	~	12"	12"	9"	9"	12"	7"	~	~	12"	~	12"	12"	9"	9"	12"	7"	~	~	12"	12"	18"	~	12"	~	12"	
LENGTH	11'-4"	11'-2"	4'-10"	4'-1"	4'-8"	4'-8"	23'-2"	23'-2"	23'-2"	5'-6"	11'-2"	3'-11"	11'-4"	11'-2"	5'-10"	4'-1"	4'-8"	4'-8"	23'-2"	23'-2"	23'-2"	7'-6"	11'-2"	3'-11"	11'-4"	11'-2"	6'-10"	4'-1"	4'-8"	4'-8"	23'-2"	23'-2"	23'-2"	9'-6"	11'-2"	3'-11"	11'-7"	11'-5"	7'-10"	4'-1"	4'-8"	4'-8"	23'-2"	23'-2"	23'-2"	10'-10"	3'-4"	4'-11"	11'-5"	3'-11"
WEIGHT	348	679	394	333	140	243	588	248	402	169	30	63	348	679	475	333	140	243	588	248	402	230	30	63	348	679	557	333	140	243	588	371	402	292	30	63	356	694	638	333	140	243	588	743	402	333	102	204	31	63
	3 SPANS ~ 5' x 2'												3 SPANS ~ 5' x 3'												3 SPANS ~ 5' x 4'												3 SPANS ~ 5' x 5'													
NUMBER	46	91	122	122	90	156	58	24	38	92	4	36	46	91	122	122	90	156	58	24	38	92	4	36	46	91	122	122	90	156	58	36	38	92	4	36	46	91	122	122	90	156	58	64	38	92	62	4	36	
SIZE	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ		
SPACING	12"	12"	9"	9"	12"	7"	~	~	12"	~	12"	~	12"	12"	9"	9"	12"	7"	~	~	12"	~	12"	~	12"	12"	9"	9"	12"	7"	~	~	12"	~	12"	12"	9"	9"	12"	7"	~	~	12"	12"	18"	~	12"	~	12"	
LENGTH	17'-0"	16'-8"	4'-10"	4'-1"	4'-8"	4'-8"	23'-2"	23'-2"	23'-2"	5'-6"	16'-8"	3'-11"	17'-0"	16'-8"	5'-10"	4'-1"	4'-8"	4'-8"	23'-2"	23'-2"	23'-2"	7'-6"	16'-8"	3'-11"	17'-0"	16'-8"	6'-10"	4'-1"	4'-8"	4'-8"	23'-2"	23'-2"	23'-2"	9'-6"	16'-8"	3'-11"	17'-4"	17'-0"	7'-10"	4'-1"	4'-8"	4'-8"	23'-2"	23'-2"	23'-2"	10'-10"	3'-4"	4'-11"	17'-0"	3'-11"
WEIGHT	522	1013	394	333	281	487	898	371	588	338	45	94	522	1013	475	333	281	487	898	371	588	461	45	94	522	1013	557	333	281	487	898	557	588	584	45	94	533	1033	638	333	281	487	898	991	588	666	205	204	45	94
	4 SPANS ~ 5' x 2'												4 SPANS ~ 5' x 3'												4 SPANS ~ 5' x 4'												4 SPANS ~ 5' x 5'													
NUMBER	46	91	122	122	135	234	78	32	50	138	4	46	46	91	122	122	135	234	78	32	50	138	4	46	46	91	122	122	135	234	78	48	50	138	4	46	46	91	122	122	135	234	78	80	50	138	138	62	4	46
SIZE	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ		
SPACING	12"	12"	9"	9"	12"	7"	~	~	~	12"	~	12"	12"	12"	9"	9"	12"	7"	~	~	~	12"	~	12"	~	12"	12"	9"	9"	12"	7"	~	~	12"	~	12"	12"	9"	9"	12"	7"	~	~	12"	12"	18"	~	12"	~	12"
LENGTH	22'-8"	22'-2"	4'-10"	4'-1"	4'-8"	4'-8"	23'-2"	23'-2"	23'-2"	5'-6"	22'-2"	3'-11"	22'-8"	22'-2"	5'-10"	4'-1"	4'-8"	4'-8"	23'-2"	23'-2"	23'-2"	7'-6"	22'-2"	3'-11"	22'-8"	22'-2"	6'-10"	4'-1"	4'-8"	4'-8"	23'-2"	23'-2"	23'-2"	9'-6"	22'-2"	3'-11"	23'-1"	22'-7"	7'-10"	4'-1"	4'-8"	4'-8"	23'-2"	23'-2"	23'-2"	10'-10"	3'-4"	4'-11"	22'-7"	3'-11"
WEIGHT	697	1347	394	333	421	730	1207	495	774	507	59	120	697	1347	475	333	421	730	1207	495	774	691	59	120	697	1347	557	333	421	730	1207	743	774	876	59	120	709	1373	638	333	421	730	1207	1238	774	998	307	204	60	120
	5 SPANS ~ 5' x 2'												5 SPANS ~ 5' x 3'												5 SPANS ~ 5' x 4'												5 SPANS ~ 5' x 5'													
NUMBER	46	91	122	122	180	312	98	40	62	184	4	58	46	91	122	122	180	312	98	40	62	184	4	58	46	91	122	122	180	312	98	60	62	184	4	58	46	91	122	122	180	312	98	96	62	184	184	62	4	58
SIZE	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ		
SPACING	12"	12"	9"	9"	12"	7"	~	~	~	12"	~	12"	12"	12"	9"	9"	12"	7"	~	~	~	12"	~	12"	~	12"	12"	9"	9"	12"	7"	~	~	12"	~	12"	12"	9"	9"	12"	7"	~	~	12"	12"	18"	~	12"	~	12"
LENGTH	28'-4"	27'-8"	4'-10"	4'-1"	4'-8"	4'-8"	23'-2"	23'-2"	23'-2"	5'-6"	27'-8"	3'-11"	28'-4"	27'-8"	5'-10"	4'-1"	4'-8"	4'-8"	23'-2"	23'-2"	23'-2"	7'-6"	27'-8"	3'-11"	28'-4"	27'-8"	6'-10"	4'-1"	4'-8"	4'-8"	23'-2"	23'-2"	23'-2"	9'-6"	27'-8"	3'-11"	28'-10"	28'-2"	7'-10"	4'-1"	4'-8"	4'-8"	23'-2"	23'-2"	23'-2"	10'-10"	3'-4"	4'-11"	28'-2"	3'-11"
WEIGHT	871	1682	394	333	562	973	1517	619	960	676	74	152	871	1682	475	333	562	973	1517	619	960	922	74	152	871	1682	557	333	562	973	1517	929	960	1168	74	152	886	1712	638	333	562	973	1517	1486	960	1331	409	204	75	152
	6 SPANS ~ 5' x 2'												6 SPANS ~ 5' x 3'												6 SPANS ~ 5' x 4'												6 SPANS ~ 5' x 5'													
NUMBER	46	91	122	122	225	390	118	48	74	230	4	68	46	91	122	122	225	390	118	48	74	230	4	68	46	91	122	122	225	390	118	72	74	230	4	68	46	91	122	122	225	390	118	112	74	230	230	62	4	70
SIZE	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	
SPACING	12"	12"	9"	9"	12"	7"	~	~	~	12"	~	12"	12"	12"	9"	9"	12"	7"	~	~	~	12"	~	12"	~	12"	12"	9"	9"	12"	7"	~	~	12"	~	12"	12"	9"	9"	12"	7"	~	~	12"	12"	18"	~	12"	~	12"
LENGTH	34'-0"	33'-2"	4'-10"	4'-1"	4'-8"	4'-8"	23'-2"	23'-2"	23'-2"	5'-6"	33'-2"	3'-11"	34'-0"	33'-2"	5'-10"	4'-1"	4'-8"	4'-8"	23'-2"	23'-2"	23'-2"	7'-6"	33'-2"	3'-11"	34'-0"	33'-2"	6'-10"	4'-1"	4'-8"	4'-8"	23'-2"	23'-2"	23'-2"	9'-6"	33'-2"	3'-11"	34'-7"	33'-9"	7'-10"	4'-1"	4'-8"	4'-8"	23'-2"	23'-2"	23'-2"	10'-10"	3'-4"	4'-11"	33'-9"	3'-11"
WEIGHT	1045	2016	394	333	702	1217	1826	743	1145	845	89	178	1045	2016	475	333	702	1217	1826	743	1145	1152	89	178	1045	2016	557	333	702	1217	1826	1114	1145	1460	89	178	1063	2052	638	333	702	1217	1826	1734	1145	1664	512	204	90	183



PART PLANS

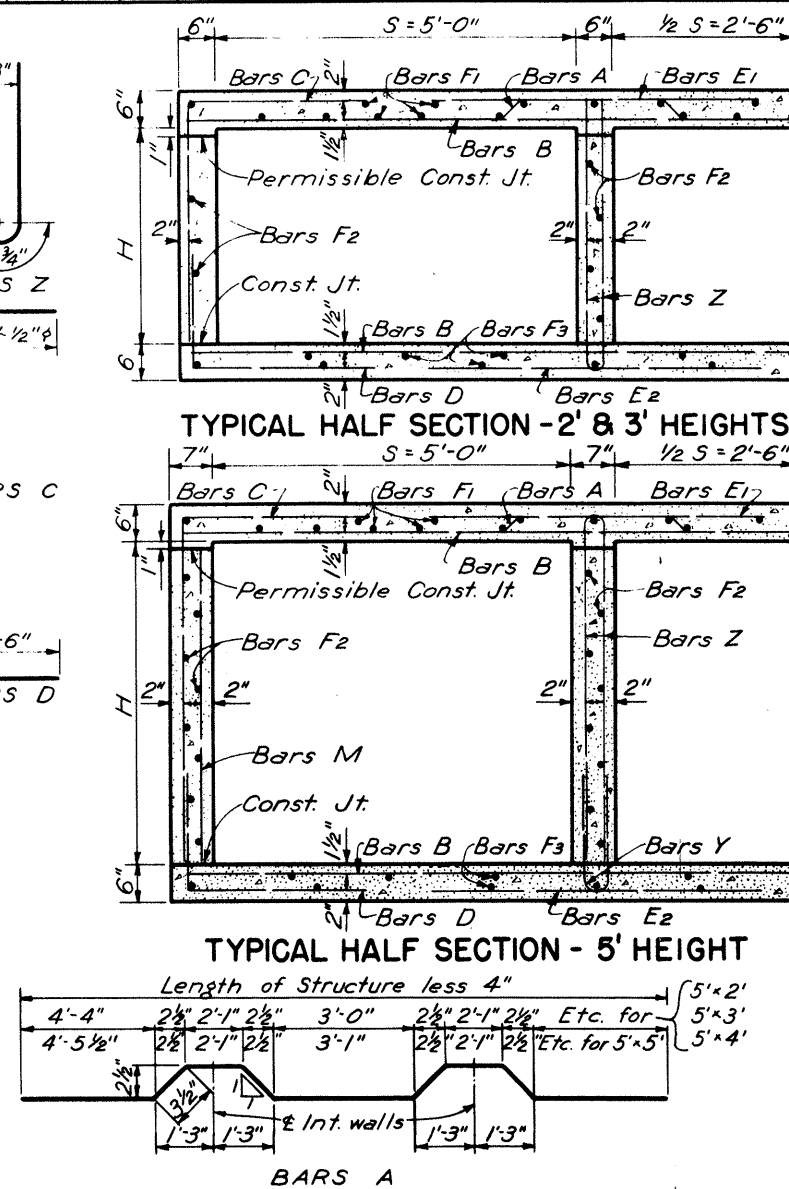
BOTTOM SLAB **TOP SLAB**
 NOTE: TOP & BOTTOM SLAB REINFORCING STEEL
 SIMILAR FOR CULVERT SIZES SHOWN ON THIS SHEET.



SECTION
THRU CURB

PAVEMENT BRACKET

To be used only when called for on plans.



TYPICAL HALF SECTION - 5' HEIGHT

Length of Structure less 4"

4'-4" 2 1/2" 2'-1" 2 1/2" 3'-0" 2 1/2" 2'-1" 2 1/2" Etc. for 5'x2

4'-5 1/2" 2 1/2" 2'-1" 2 1/2" 3'-1" 2 1/2" 2'-1" 2 1/2" Etc. for 5'x5'

2 1/2" 1'-3" 1'-3" 1'-3" 1'-3"

Int. walls

BARS A

BARREL QUANTITIES FOR 44' CLEAR WIDTH							
CULVERT SIZE		NO. OF SPANS	LENGTH OF STRUCT.	*BARREL QUANTITIES		QUANTITIES P.L.F. BBL.	
S	H			CONC.	STEEL	CONC.	STEEL
				CU.YDS.	LBS	CU.YDS	LBS
5' x 2'		2	11'-6"	24.91	3637	0.537	7723
		3	17'-0"	36.10	5364	0.778	113.86
		4	22'-6"	47.31	7084	1.019	150.49
		5	28'-0"	58.46	8813	1.259	187.11
		6	33'-6"	69.65	10,533	1.500	223.75
5' x 3'		2	11'-6"	27.45	3779	0.593	80.34
		3	17'-0"	39.48	5568	0.852	118.34
		4	22'-6"	51.48	7349	1.111	156.28
		5	28'-0"	63.49	9140	1.370	194.24
		6	33'-6"	75.55	10921	1.630	232.20
5' x 4'		2	11'-6"	29.94	4046	0.648	86.13
		3	17'-0"	42.82	5959	0.926	126.77
		4	22'-6"	55.69	7863	1.204	167.41
		5	28'-0"	68.52	9778	1.481	208.04
		6	33'-6"	81.40	11682	1.759	248.78
5' x 5'		2	11'-9"	34.99	4870	0.759	103.93
		3	17'-4"	49.55	6996	1.074	149.18
		4	22'-11"	64.10	9109	1.389	194.44
		5	28'-6"	78.66	11238	1.704	239.69
		6	34'-1"	93.21	13363	2.019	284.95

BARREL QUANTITIES FOR 44' CLEAR WIDTH

*These quantities do not include paving brackets, toe walls or wings.

V.T. BRKT. QUANTITIES	
2- PV.T. BRACKETS	
24'-0" LONG	
CONCRETE	STEEL
Cu. Yd	Lb
1.19	264

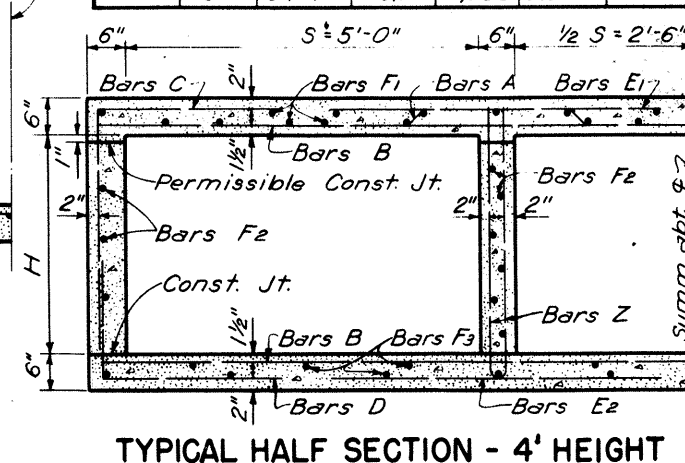
GENERAL NOTES :-

Design Loading: H20-44 or H20 S16-44 in accordance with A.A.S.H.O. 1949 Standard Specifications and T.H.D. Supplement No. 1.

All concrete shall be Class A. Chamfer exposed corners $\frac{3}{4}$ ".
All dimensions relating to reinforcing steel are to centers of bars.

Quantities of reinforcing steel shown hereon are for 44'-0" clear width between headwalls and include one 30 diameter lap for all bars exceeding 40 feet in length. Barrels having a length of over 80 feet shall have quantities recalculated to include an additional 30 diameter lap for all longitudinal bars.

Construction Joint shown at flow line may be raised a maximum of 6" at the option of the contractor. Adjust length of vertical steel as required.





TYPICAL HALF SECTION - 4' HEIGHT

TEXAS HIGHWAY DEPARTMENT
MULTIPLE BOX CULVERTS
 SIZES 5'x2', 5'x3', 5'x4', 5'x5'
 DIRECT TRAFFIC TO 4'-0" FILL

MC5-1

D.N. - W H	DRAWING	DATE	FED. ROAD DIST. NO.	STATE	SECTION AND PROJECT NO.	SHEET
CR. DR. - RMM	Original	July 1949	5	TEXAS	51455(1)	60
DW. - MDA			STATE			
CR. DW. - KMA			6			
TR. - AOB			COUNTY		CONTROL SECTION NO.	JOB NO.
CR. TR. - MDA			15	APSCOSA	74A 5	3
						190

1865 A.   corners $\frac{1}{4}$ " unless specified

to reinforcing steel are to

and wing walls shall be omitted

ended on solid rock.

HWAY DEPARTMENT

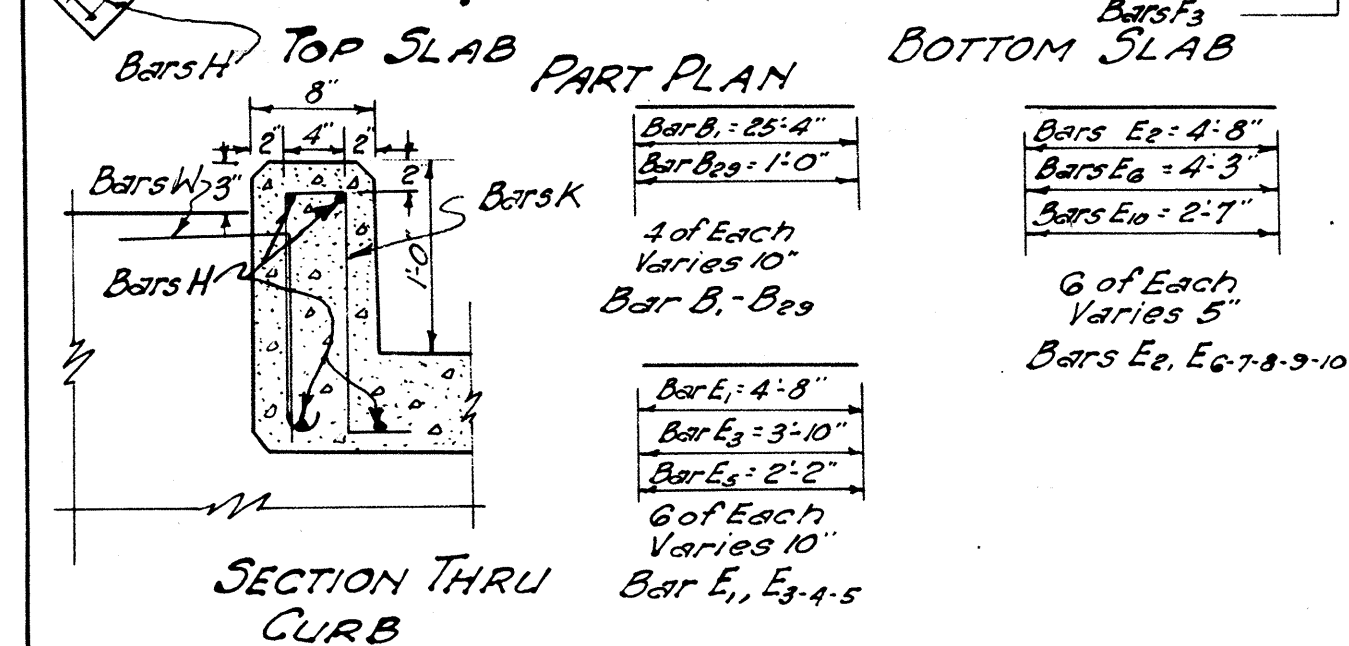
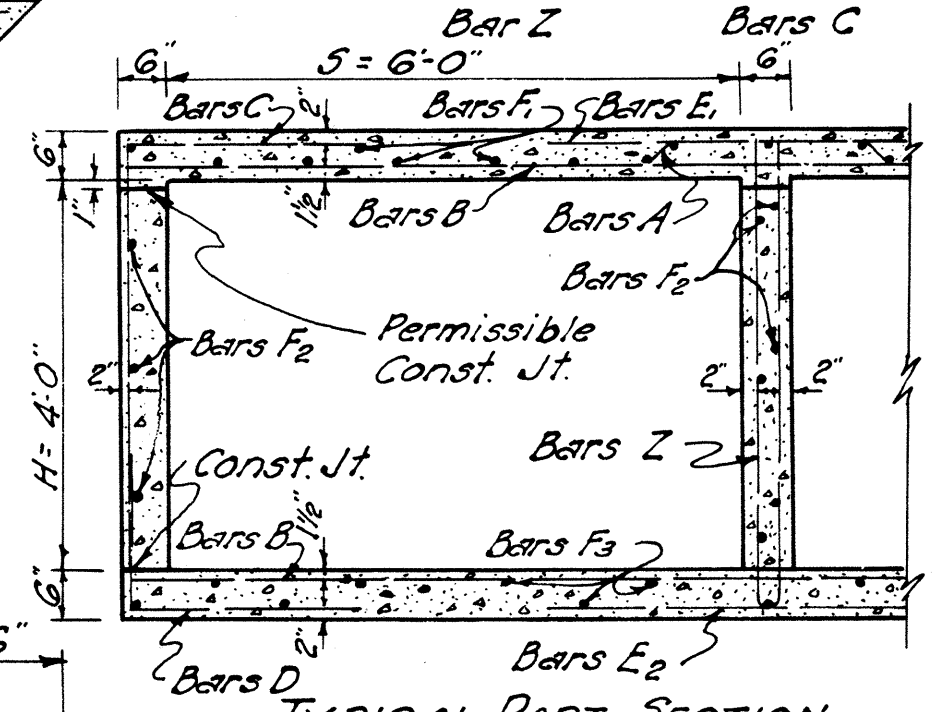
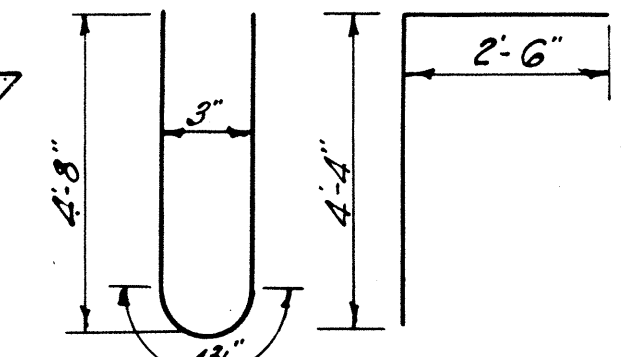
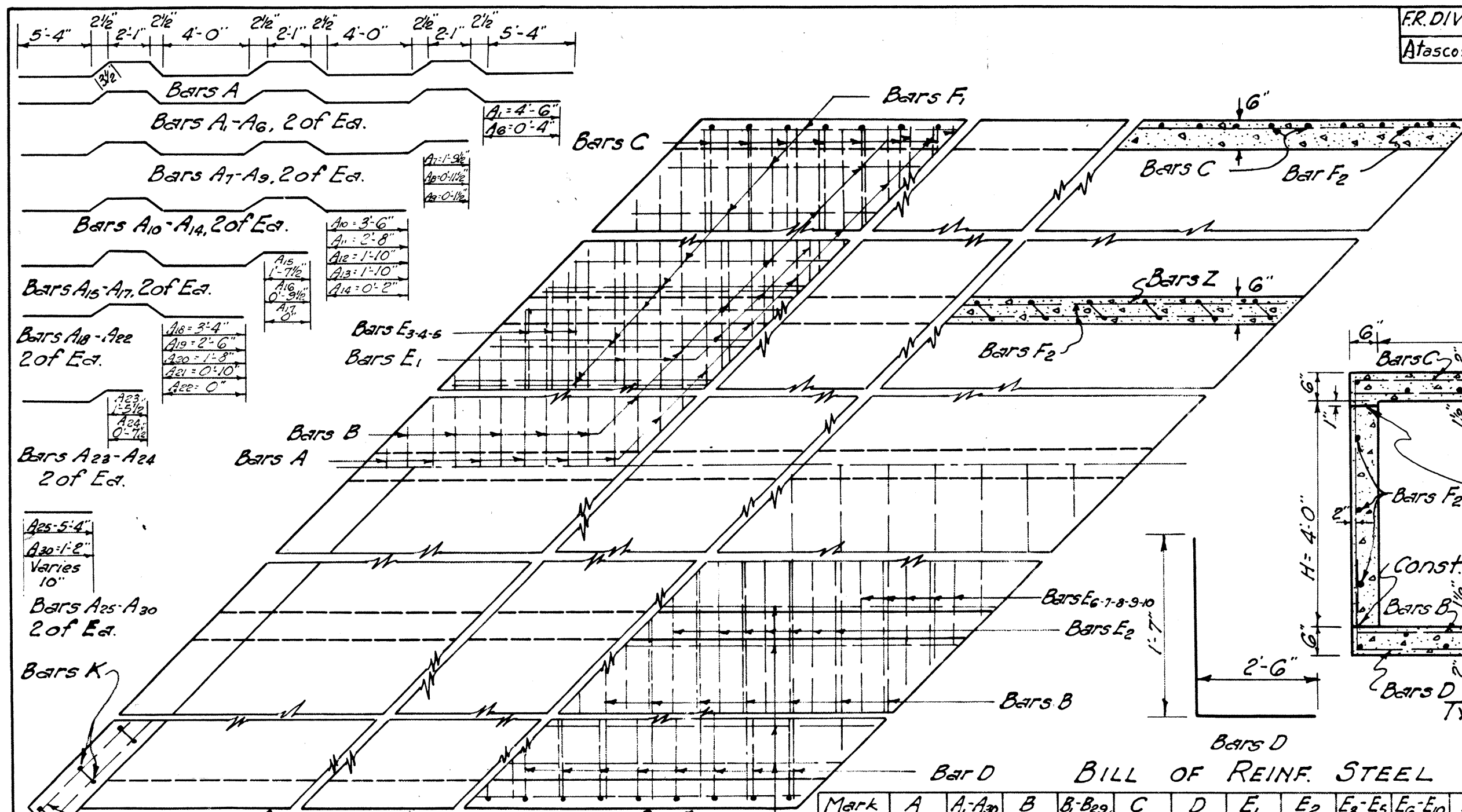
WINGWALLS

IPLE CULVERTS

TO 6'-0" INCL.

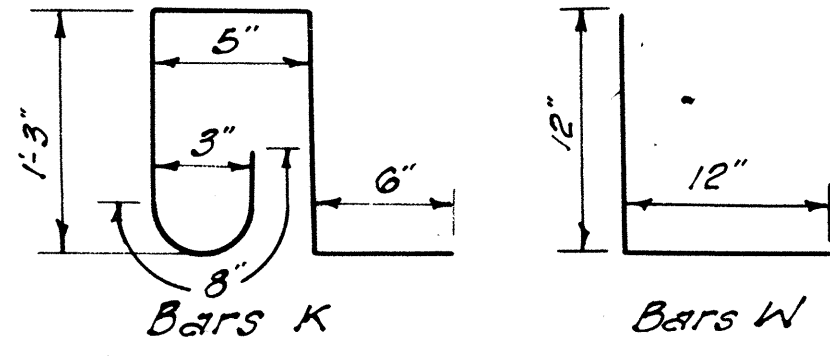
MCW-FI

5	FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJECT NO.	ROUTE NO.
6	TEXAS	51455(1)	151	
STATE DIST. NO.	COUNTY	CONTRACT NO.	SECTION NO.	BRIDGE NO.
15	Atascosa	748	5-3	140

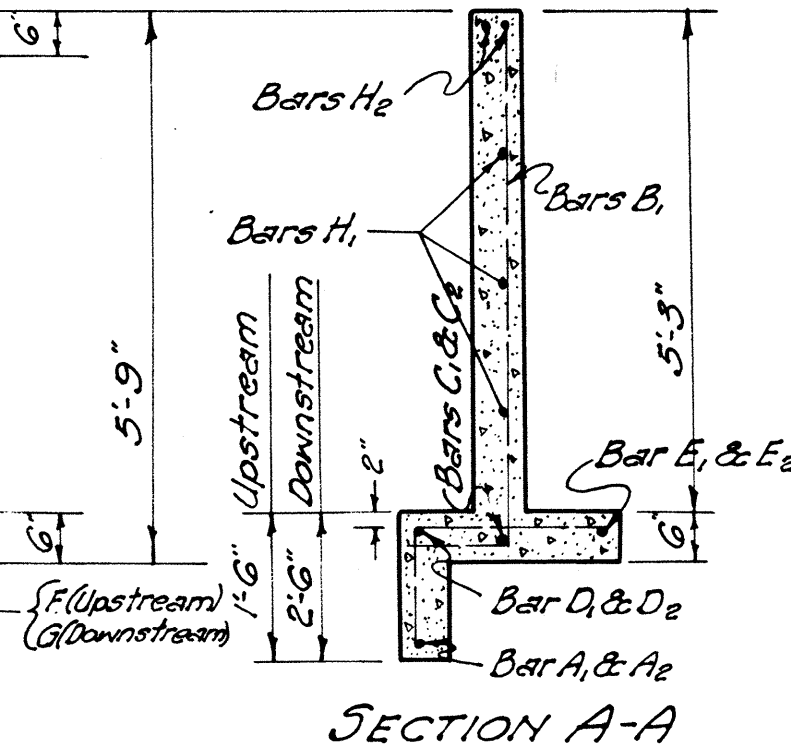
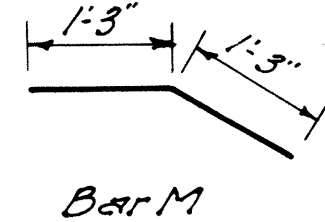
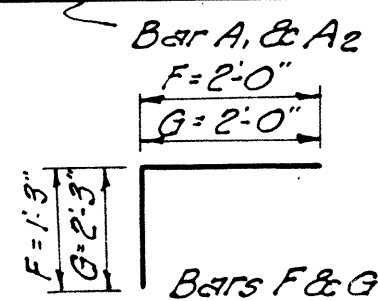
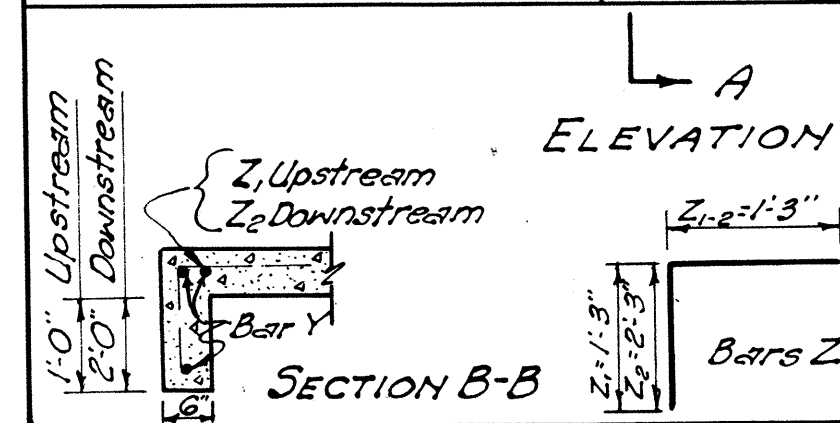
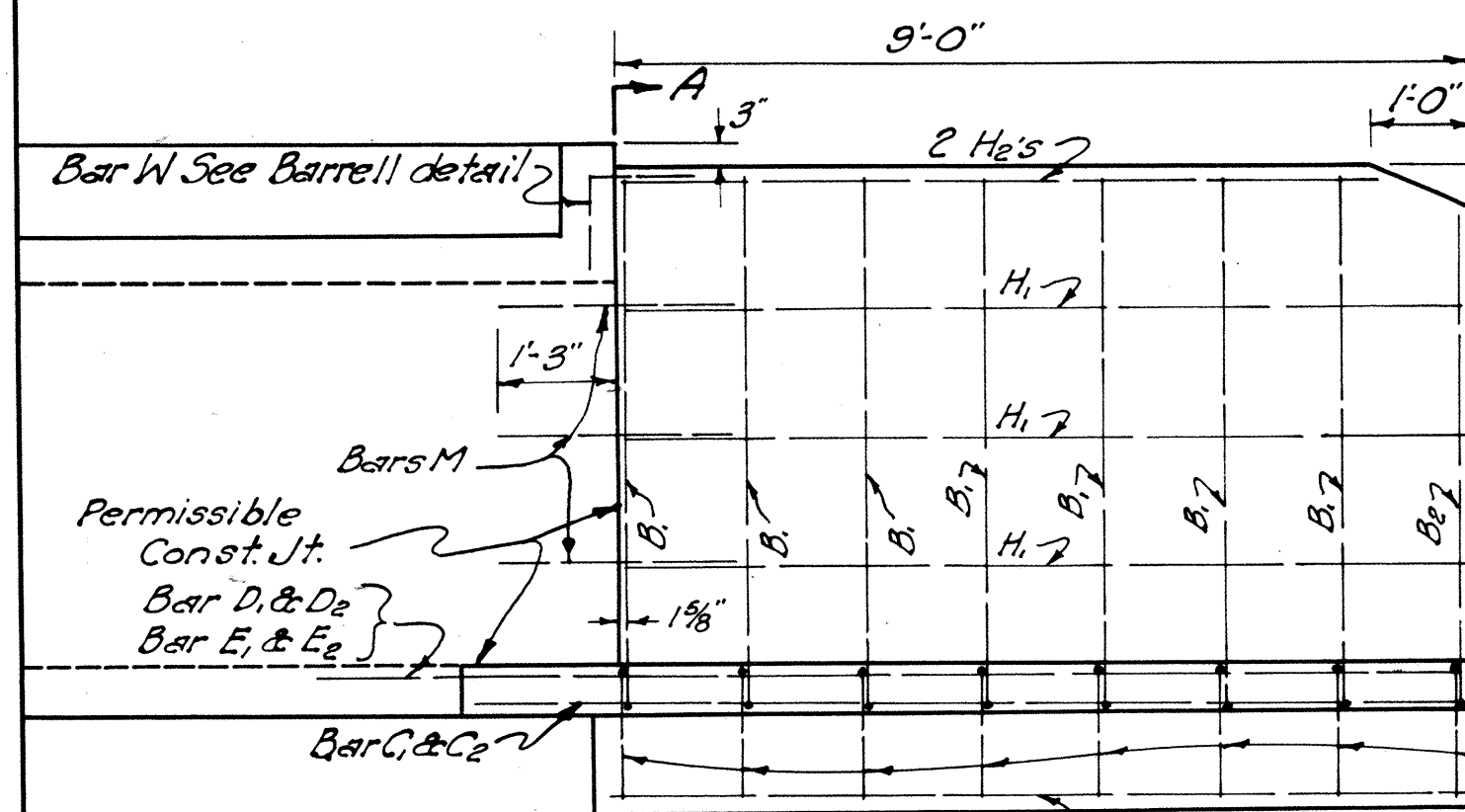
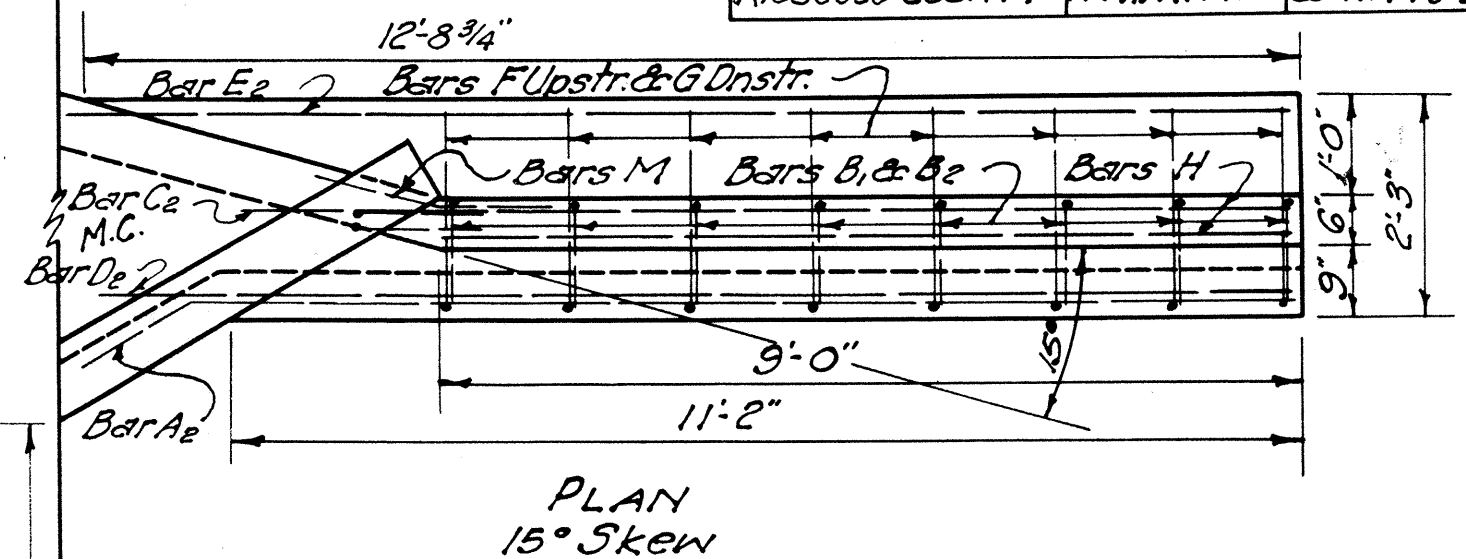
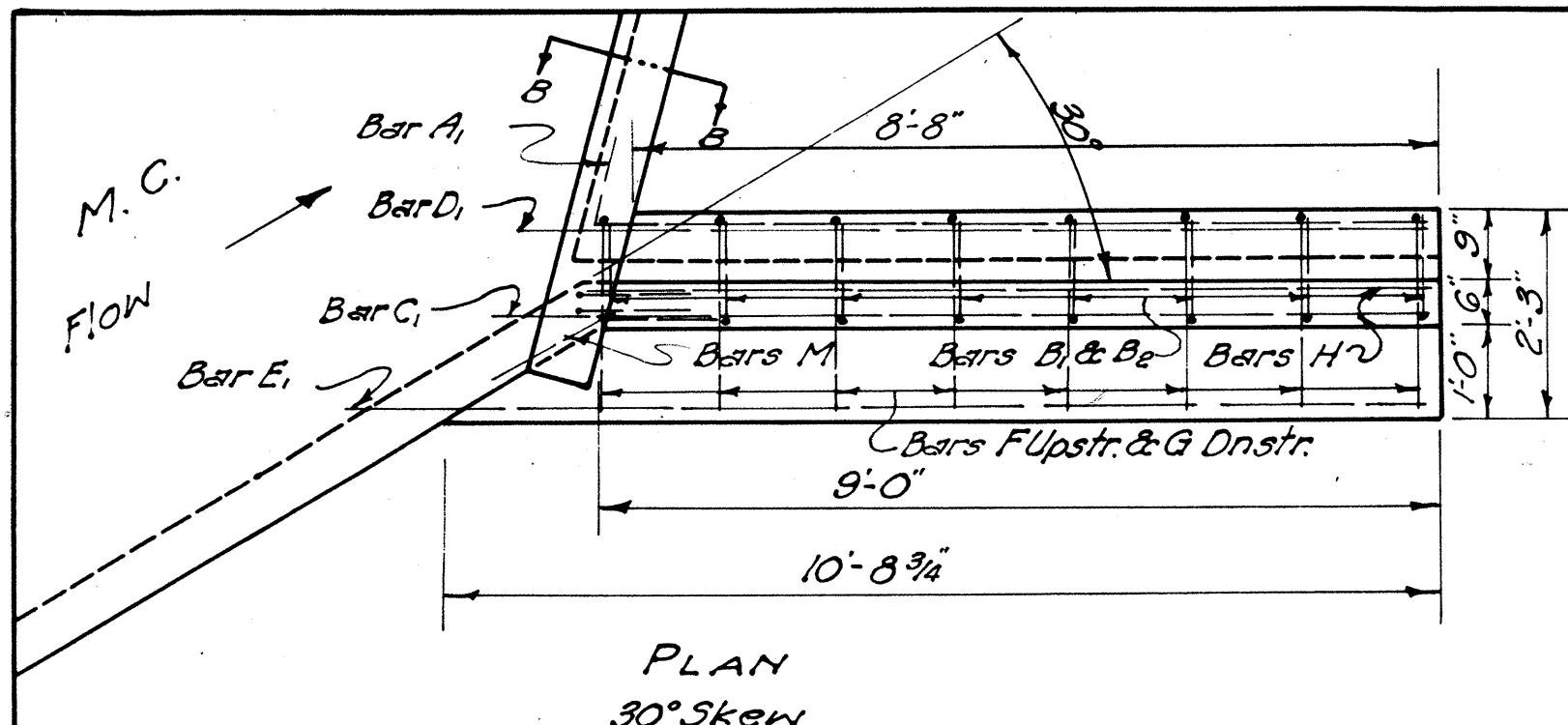


BILL OF REINF. STEEL

Mark	A	A-A20	B	B ₁ -B ₂₉	C	D	E ₁	E ₂	E ₃ -E ₅	E ₆ -E ₁₀	F ₁	F ₂	F ₃	H	K	W	Z
No.	18	60	36	120	128	128	132	267	18	30	86	48	58	8	76	8	126
Size	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	1/2"φ	5/8"φ	1/2"φ	1/2"φ	1/2"φ
Sps.	10"	10"	10"	10"	8"	8"	10"	5"	10"	5"	∞	16"	∞	∞	12"	∞	12"
Lqth.	26'-8"	13'-4"	26'-2"	13'-11"	6'-10"	4'-1"	4'-8"	4'-8"	3'-6"Av.	3'-6"Av.	21'-2"	21'-2"	21'-2"	37'-10"	3'-11"	2'-0"	9'-6"
Wt.	321	534	629	1,049	584	349	412	835	42	70	1,216	679	820	316	199	11	800
Tot. Weight																	8,866



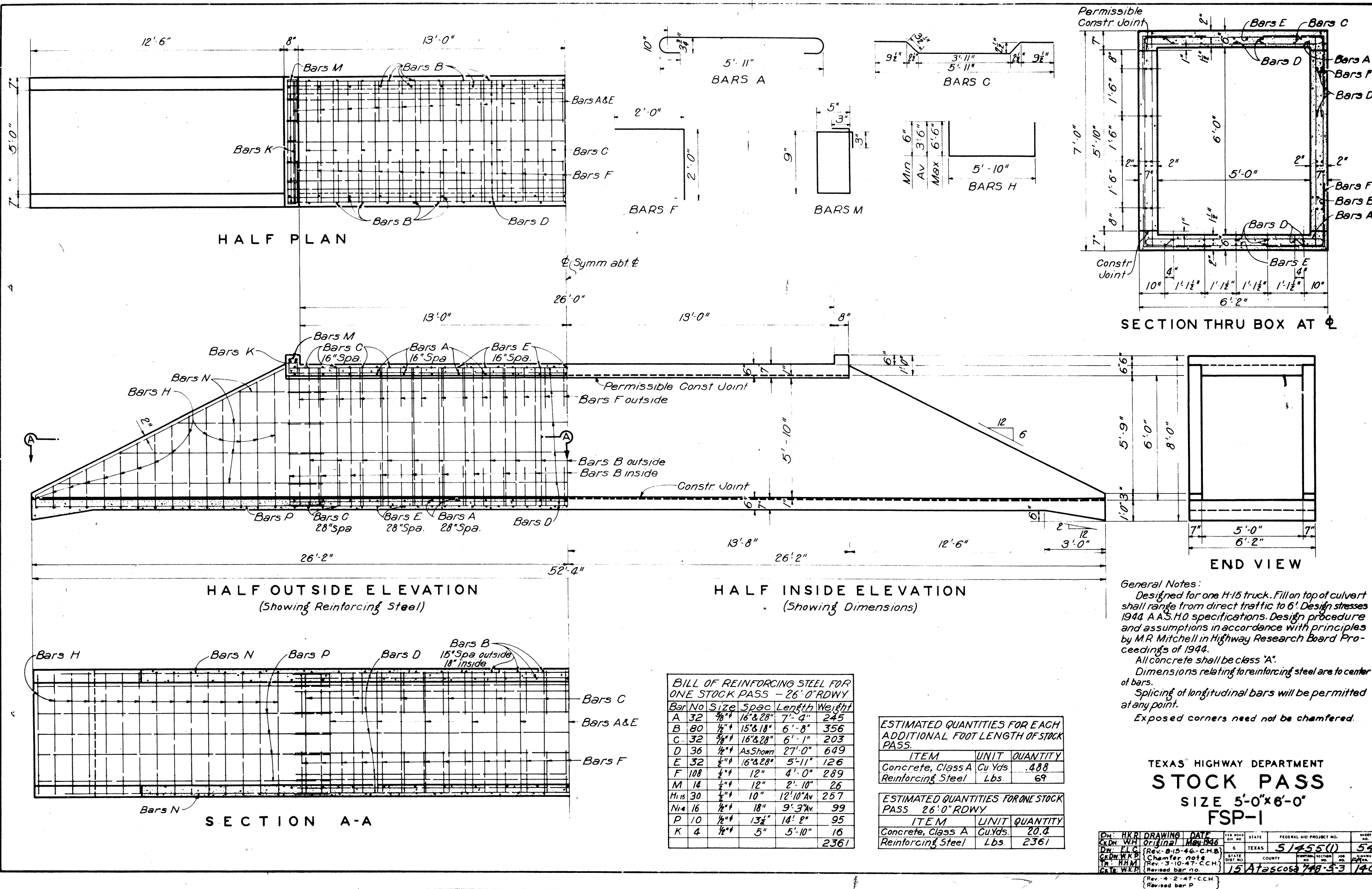
57.96 Cu. Yds. Class "A" Conc.
 NOTE: For General Notes see MC5-1, Sheet No. 17.
 MC6-1-28 45° Rt. FWD. SKEW
 FOR
 4'-6"x4'-28" MULT. BOX CULV.T.



ESTIMATED QUANTITIES
FOR FOUR WINGWALLS AND TWO TOEWALLS

Bar	No.	Size	Sp.	Lqth.	Wt.
A ₁	2	1/2" φ	∞	10'-10"	14.5
A ₂	2	1/2" φ	∞	12'-6"	16.7
B ₁	28	1/2" φ	15"	6'-6"	121.6
B ₂	4	1/2" φ	∞	6'-0"	16.0
C ₁	2	1/2" φ	∞	10'-3"	13.7
C ₂	2	1/2" φ	∞	11'-5"	15.3
D ₁	2	1/2" φ	∞	11'-10"	15.8
D ₂	2	1/2" φ	∞	12'-5"	16.6
E ₁	2	5/8" φ	∞	11'-11"	24.9
E ₂	2	5/8" φ	∞	13'-11"	29.0
F	16	1/2" φ	15"	3'-3"	34.7
G	16	1/2" φ	15"	4'-3"	45.4
H ₁	12	1/2" φ	16"	8'-8"	69.5
H ₂	8	5/8" φ	∞	7'-8"	64.0
M	12	1/2" φ	15"	2'-6"	20.0
Y	6	1/2" φ	∞	34'-0"	136.3
Z ₁	28	1/2" φ	18"	2'-6"	46.8
Z ₂	28	1/2" φ	18"	3'-6"	65.5
Total Weight					766.3

8.19 Cu. Yds. Class "A" Conc.
All concrete shall be Class "A".
Chamfer all exposed corners 3/4" unless specified otherwise.
MCW-F1 - 45° SKEW
FLARED WINGWALLS
FOR
4-6'x4' MULTIPLE BOX CULVERT



PROFILE
NOTE BOOK
NO.

DR: H.R.R.	DRAWING DATE	FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
CDN: W.H.	Original May 1946	6	TEXAS	51455(1)	54
DR: F.L.C.	(Rev. 8-15-46 - C.H.B.)				
CDN: W.K.P.	(Chamfer note)				
TR: H.H.M.	(Rev. 3-10-47 - C.C.H.)				
CDN: W.K.P.	(Revised bar no.)				
	(Rev. 4-2-47 - C.C.H.)				
	(Revised bar P)				

15 Atascosa 748-5-3 140