

LETTING DATE
03-19-2019

HMA RESURFACING/
HOT-IN-PLACE RECYCLING
STP-149-1(84)--2C-54

KEOKUK CO.



Highway Division

PLANS OF PROPOSED IMPROVEMENT ON THE

PRIMARY ROAD SYSTEM

KEOKUK COUNTY

HMA RESURFACING/HOT-IN-PLACE RECYCLING

IA 92 TO IA 22 IN WEBSTER

REVISIONS

TOTAL

PROJECT IDENTIFICATION NUMBER

17-54-149-010

PROJECT NUMBER

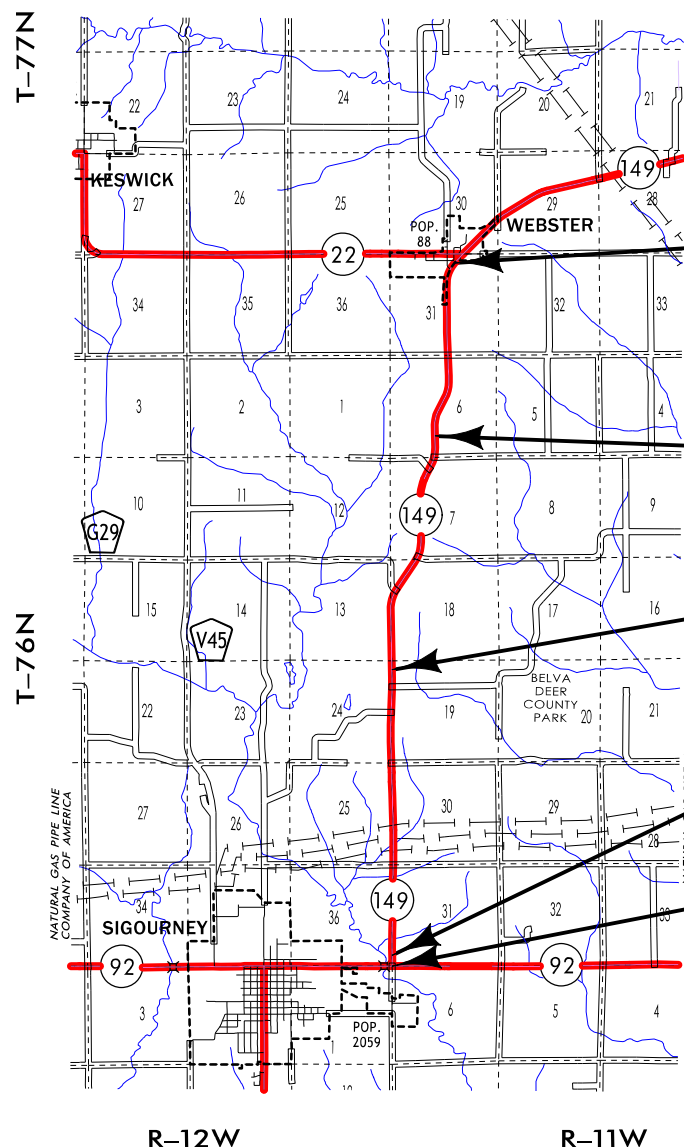
STP-149-1(84)--2C-54

R.O.W. PROJECT NUMBER

SCALES: As Noted

Refer to the Proposal Form for list of applicable specifications.

Value Engineering Saves. Refer to Article 1105.14 of the Specifications.



STA. 375+00.00

END HMA HOT-IN-PLACE
RECYCLING & RESURFACING
END PROJECT
REF. LOC. 41.89

EQUATION:

STA. 278+38.91 (AHEAD)
= STA. 278+13.53 (BACK)

EQUATION:

STA. 154+00.35 (AHEAD)
= STA. 154+01.62 (BACK)

STA. 12+00.00

BEGIN HMA HOT-IN-PLACE
RECYCLING & RESURFACING

STA. 1+36.90

BEGIN PROJECT
BEGIN PATCHING
REF. LOC. 34.80

Project Event Dates:
DM5 11-27-2018
D7 1-1-2019

DESIGN DATA RURAL

2019 AADT	1,100	V.P.D.
2039 AADT	1,100	V.P.D.
2039 DHV	120	V.P.H.
TRUCKS	6	%
Total Design ESALs	189,800	

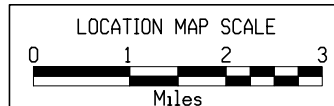
INDEX OF SEALS

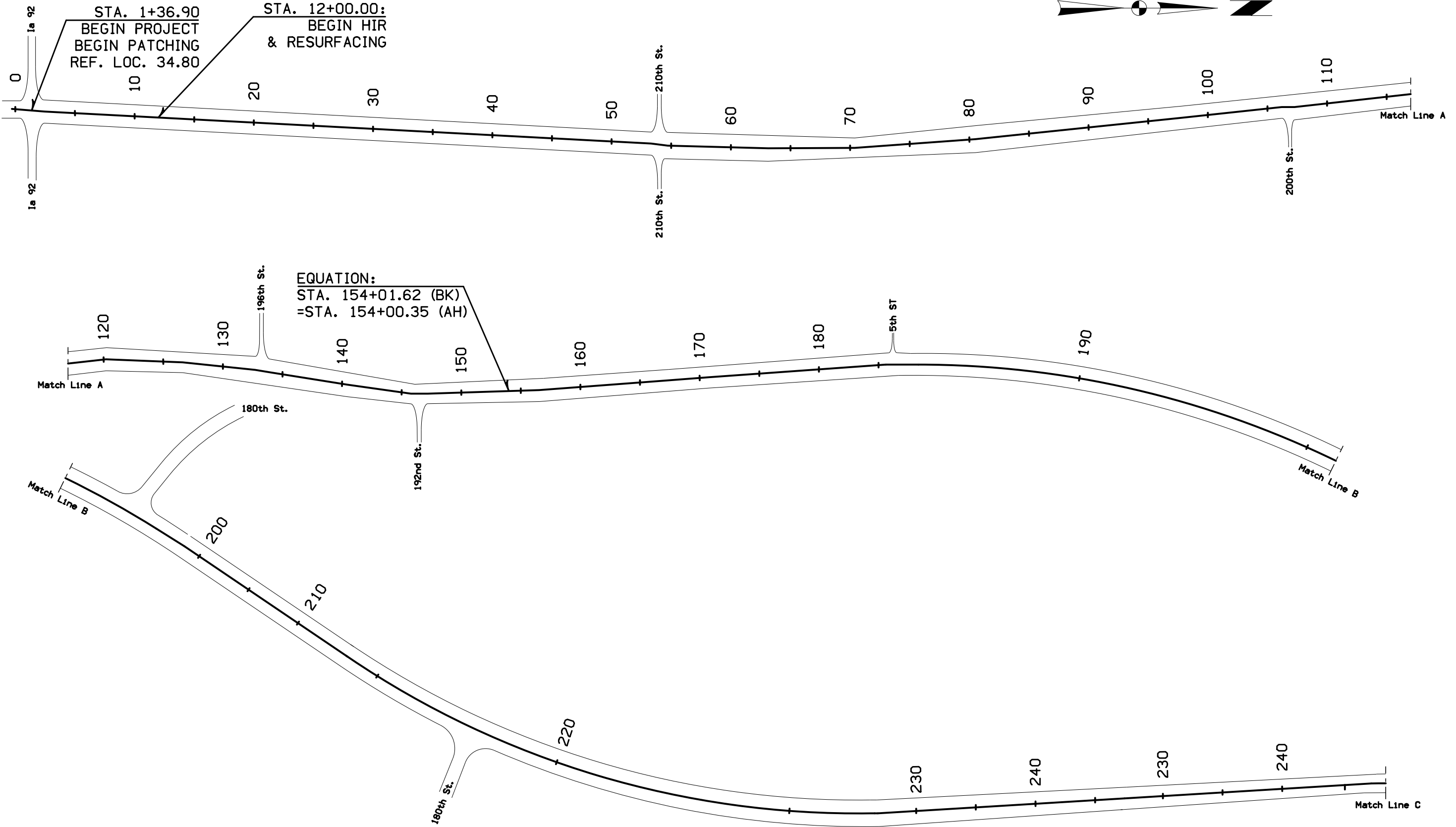
SHEET NO.	NAME	TYPE
A.1	Jason M. Holst	Primary Signature Block

PRELIMINARY PLANS

Subject to change by final design.

D2 PLAN - Date: Sept. 11, 2018



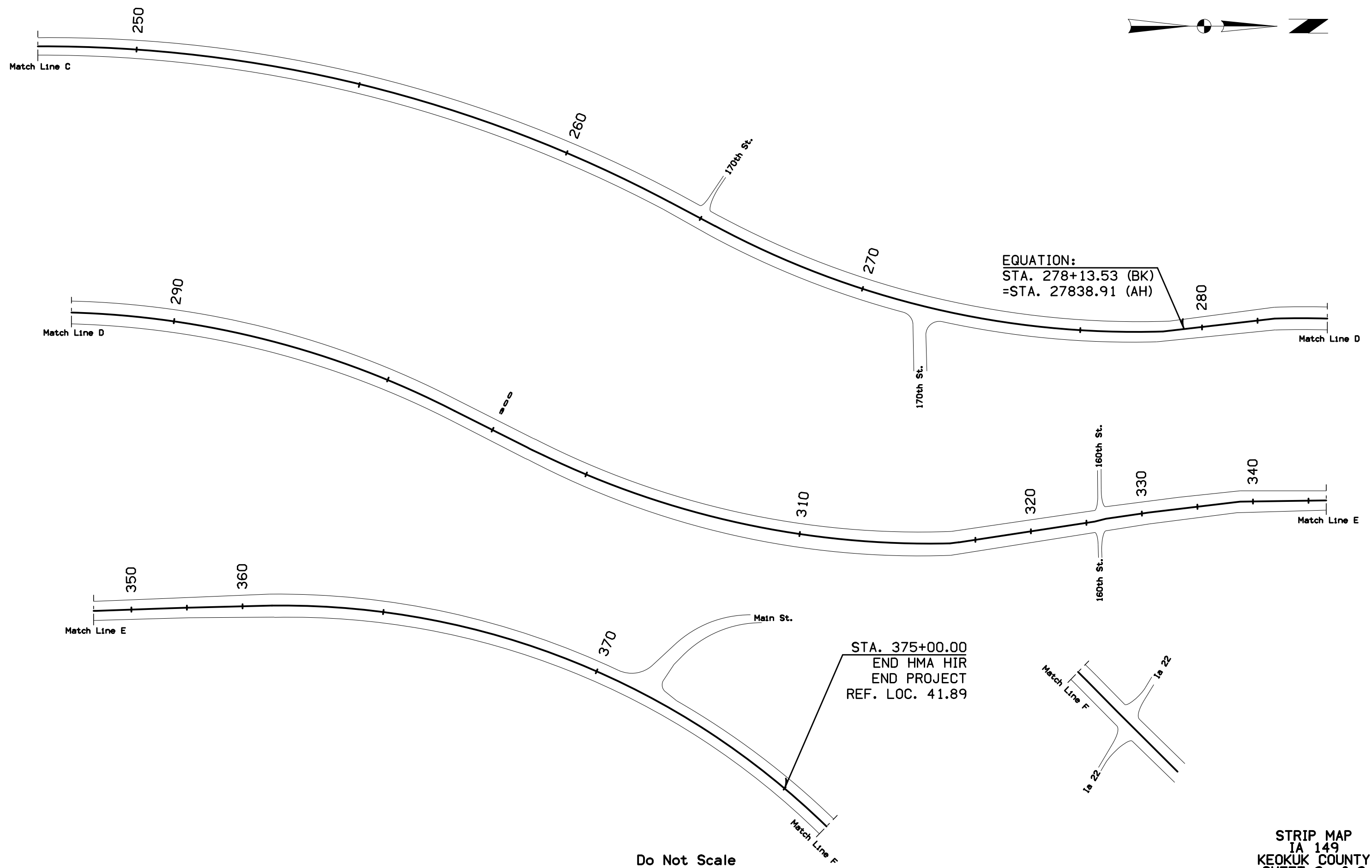


EQUATION:
 STA. 154+01.62 (BK)
 = STA. 154+00.35 (AH)

Do Not Scale

STRIP MAP
 IA 149
 KEOKUK COUNTY
 SHEET 1 of 2

FILE NO.	ENGLISH	DESIGN TEAM HOLST \ BAHR \ BOZORGZAD	KEOKUK COUNTY	PROJECT NUMBER STP-149-1(84)--2C-54	SHEET NUMBER A.2
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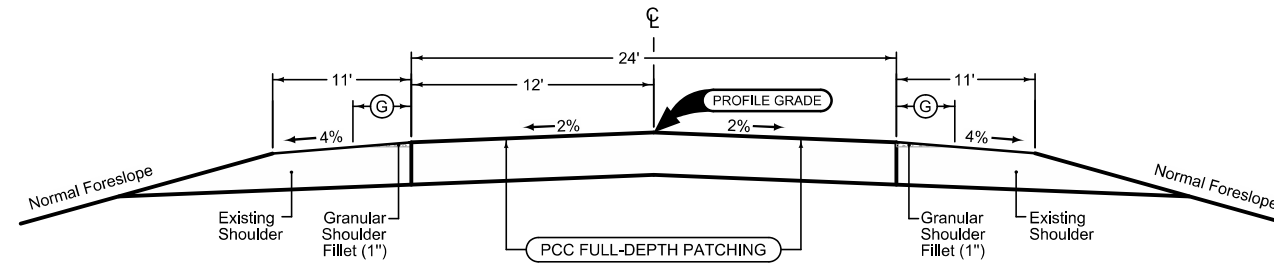
Do Not Scale

STRIP MAP
IA 149
KEOKUK COUNTY
SHEET 2 of 2

FILE NO.	ENGLISH	DESIGN TEAM HOLST \ BAHR \ BOZORGZAD	KEOKUK COUNTY	PROJECT NUMBER STP-149-1(84)--2C-54	SHEET NUMBER A.3
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Granular Shoulder Fillet
Refer to Typ. 7135

STATION TO STATION		2_G_ Modified Ⓞ Feet
1+36.90	12+00.00	3.0



Granular Shoulder Fillet
Refer to Typ. 7135

STATION TO STATION		2_G_ Modified Ⓞ Feet
1+36.90	12+00.00	3.0

STATION TO STATION		2H_ 10-19-10
1+36.90	12+00.00	

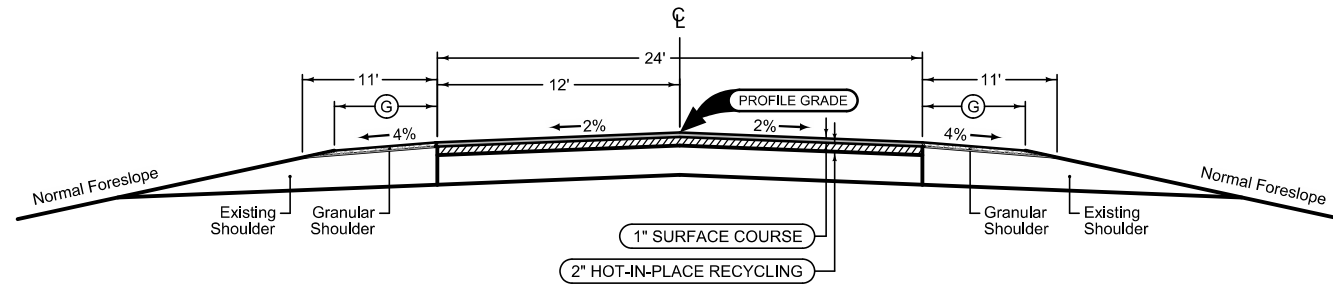
See Patching Tabulations on C Sheets.
See Tab 112-9 for shoulder quantities.

IA 149 PATCHING

Granular Shoulder with Tapered Fillet

Refer to Typ. 7135

STATION TO STATION		2_G_ Modified Ⓞ Feet
12+00.00	151+01.62*	8.0
154+00.35*	278+13.53**	8.0
278+38.91**	375+00.00	8.0



Granular Shoulder with Tapered Fillet

Refer to Typ. 7135

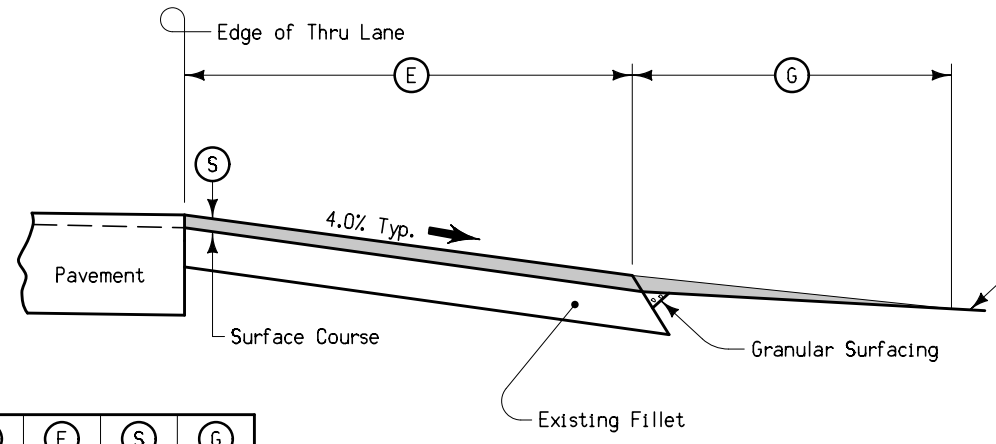
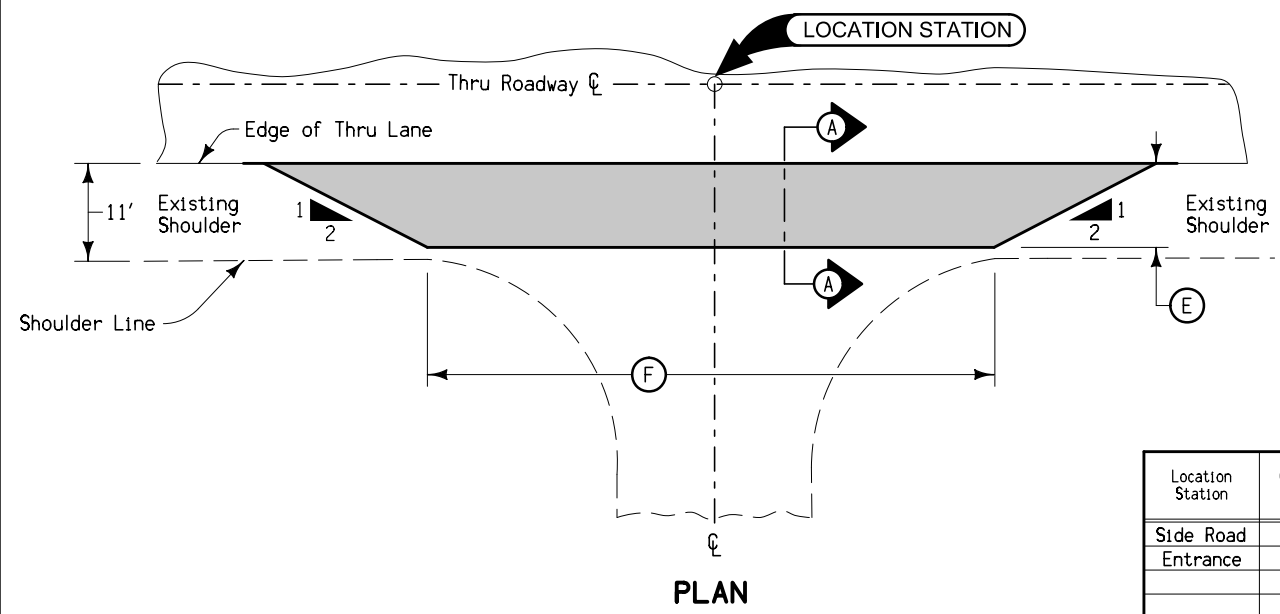
STATION TO STATION		2_G_ Modified Ⓞ Feet
12+00.00	151+01.62*	8.0
154+00.35*	278+13.53**	8.0
278+38.91**	375+00.00	8.0

STATION TO STATION		2H_ Modified
12+00.00	151+01.62*	
154+00.35*	278+13.53**	
278+38.91**	375+00.00	

*Sta 154+01.62 (BK) = Sta 154+01.62 (AHD)
 **Sta 278+13.53 (BK) = Sta 278+38.91 (AHD)

Notes:
 Section may be modified as directed by the Engineer in areas of special shaping and through intersections.
 See Tab 100-25 for pavement quantities.
 See Tab 112-9 for shoulder quantities.
 See Tab 102-16 for HMA Runouts at Side Roads.

IA 149 HMA RESURFACING



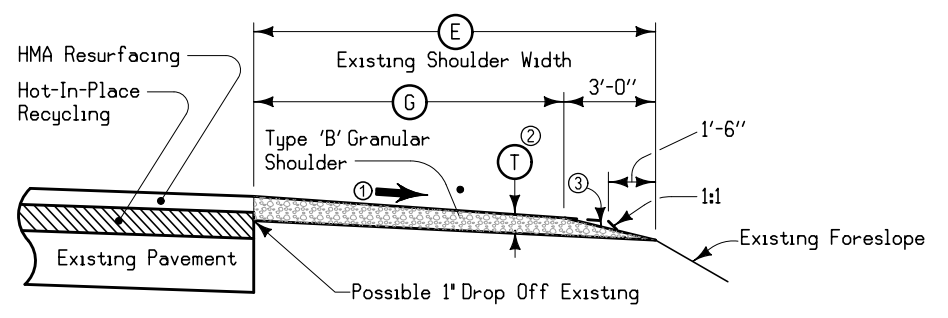
Cleaning of existing surface prior to resurfacing of fillet may be required by the Engineer and is incidental to other work on the project.
Quantities included with mainline quantities.

Location Station	E Feet	F Feet	S Inches	G Feet
Side Road	10.0	100	1.0	10
Entrance	10.0	40	1.0	10

SECTION A-A

RESURFACING OF PAVED FILLETS AT SIDE ROADS AND ENTRANCES

- Notes:
- ① Minimum allowable slope is 4.0%.
Desirable slope is 4.0%.
Section may be modified as directed by the engineer through areas of special shaping.
 - ② Place additional shoulder material to correct for the degraded cross slope and the low existing shoulder due to edge rutting.
Thickness is approximate.
 - ③ Place and compact material to the dashed lines; then blade and shape to foreslope that portion above the solid line in the outer 3' and roll with loaded truck tire.



ROAD IDENTIFICATION	LOCATION		SIDE	②			REMARKS
	STATION TO STATION			T	E	G	
	Inches	Feet		Feet			
Ia. 149	1+36.90	12+00.00	Both	1.0	11.0	3.0	See Sheet B.1
"	12+00.00	151+01.62*	Both	2.0	11.0	8.0	See Sheet B.2
"	154+00.35*	278+13.53**	Both	2.0	11.0	8.0	See Sheet B.2
"	278+38.91**	375+00.00	Both	2.0	11.0	8.0	See Sheet B.2

**TYPICAL SECTION
FOR TYPE 'B'
GRANULAR SHOULDER**


*Sta 154+01.62 (BK) = Sta 154+01.62 (AHD)
**Sta 278+13.53 (BK) = Sta 278+38.91 (AHD)

SLIDE REPAIR

Site No.	Location		Side	Boulders Cl. 12 Exc. CY	Class 10			Class "E" Revetment Tons	Engineering Fabric SY	Erosion Stone Tons	Gra. Material Blankets & Subdrain Tons	Macadam Stone SY	Top Soil		Remarks
	Begin Sta.	End Sta.			Contractor Provided CY	Excavation & Waste CY	Roadway & Borrow CY						Furnish & Spread CY	Strip, Slavage & Spread CY	
1	58+10.00	60+10.00	Rt.					1111	912		911				

GEOTECHNICAL DESIGN

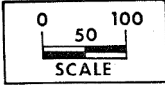
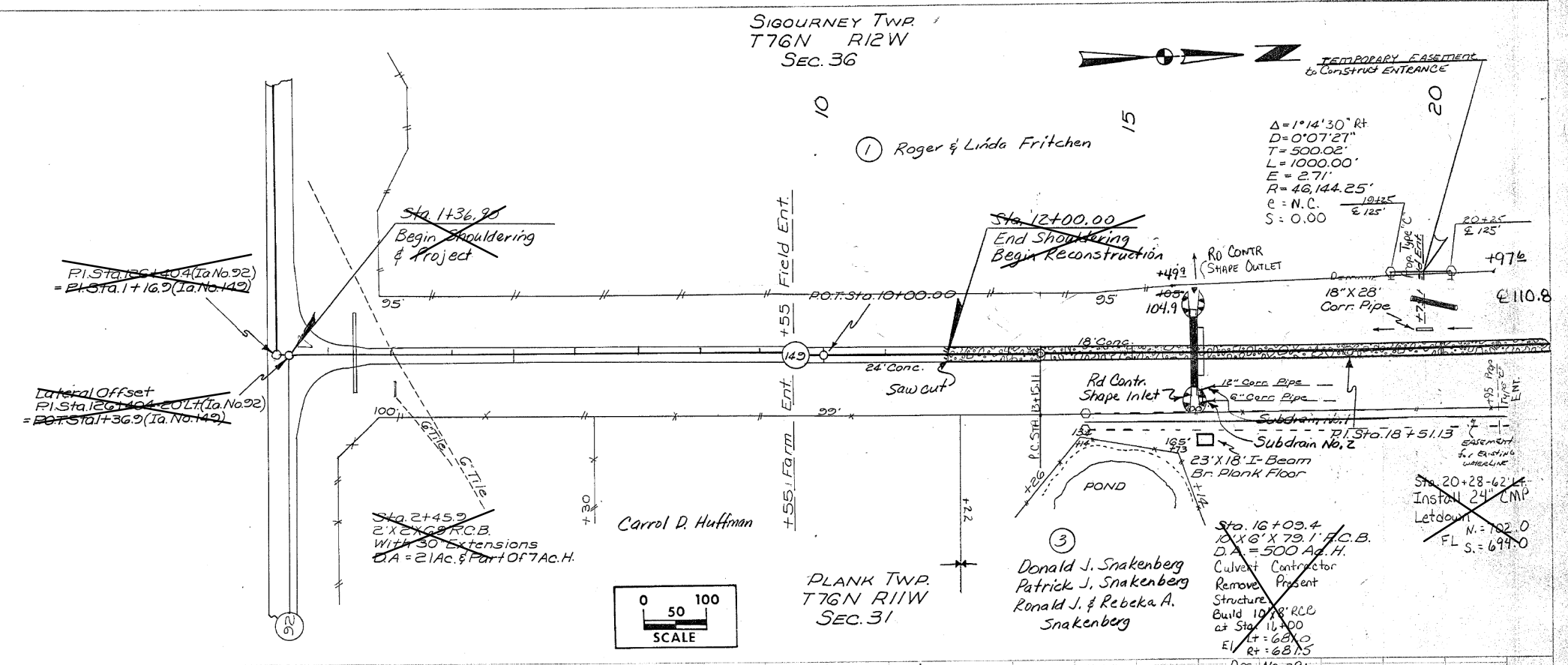
I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.

	<p style="font-size: small;">Signature</p> <p style="font-size: small;">Date</p>
<p style="font-size: small;">Printed or Typed Name</p> <p style="font-size: small;">My license renewal date is December 31, 20</p>	<p style="font-size: small;">Signature</p> <p style="font-size: small;">Date</p>

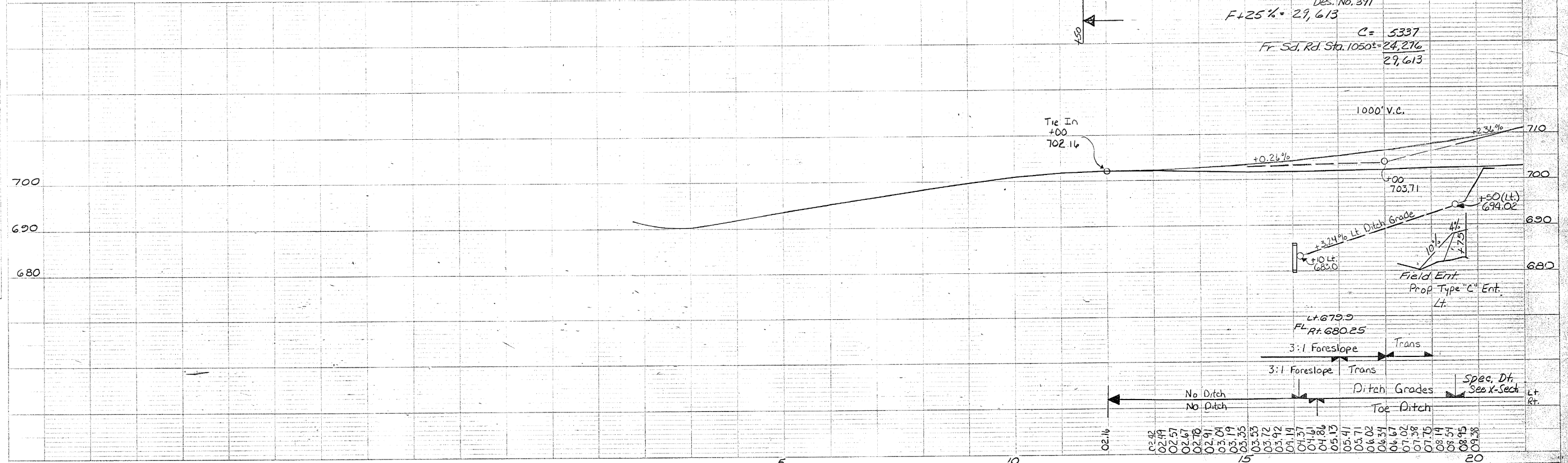
Pages or sheets covered by this seal: CS.1, Q.1

DATE	BY	REVISION

DATE	BY	REVISION



Des. No. 391
 $F+25\% = 29,613$
 $C = 5337$
 Fr. Sd. Rd. Sta. 1050 = 24,276
 29,613



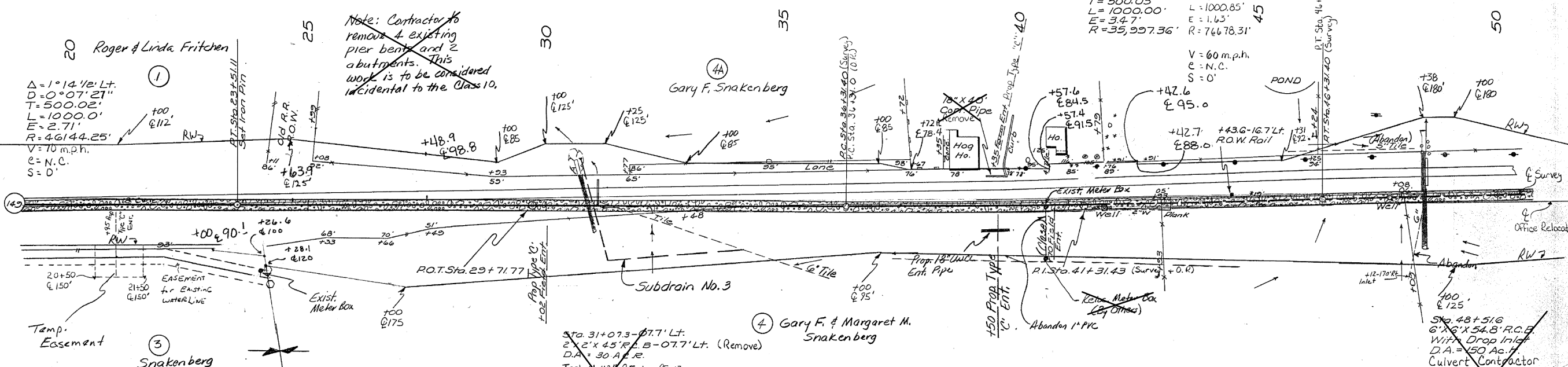
Keokuk County

STATE	FED. ROAD DIST. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS	PROJECT NUMBER	STATE	FED. ROAD DIST. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IOWA	5				STP-149-1(45)--2C-54	IOWA	5			

This Sheet For Information Only

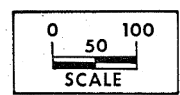
SIGOURNEY TWP
T76N R12W
SEC. 36

Office Relocation
 $\Delta = 0^\circ 44' 52.29''$ Lt.
 $O = 0^\circ 4' 29''$
 $T = 500.43'$
 $L = 1000.85'$
 $E = 1.63'$
 $R = 76678.31'$

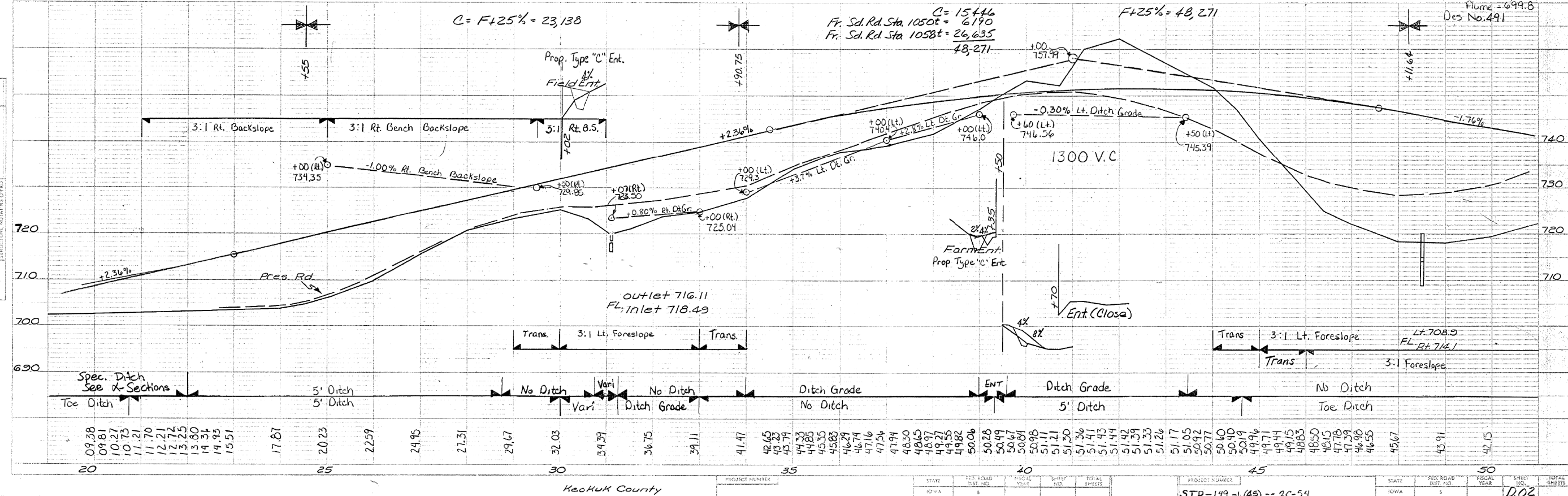


LEGEND
 • General Tel. Co.
 • Ia. Southern Utilities

PLANK TWP.
T76N R11W
SEC. 31



Sta. 48+51.6
 6'x6'x54.8' R.C.B.
 With Drop Inlet
 D.A. = 150 Ac. Ft.
 Culvert Contractor
 Remove Present Structure
 Build 6'x6' RCB with
 6'x6' Flume Outlet + Drop
 Inlet at Sta. 48+46 (O.R.)
 Lt: 710.0
 Rt: 714.0
 Flume = 699.8
 Des No. 491

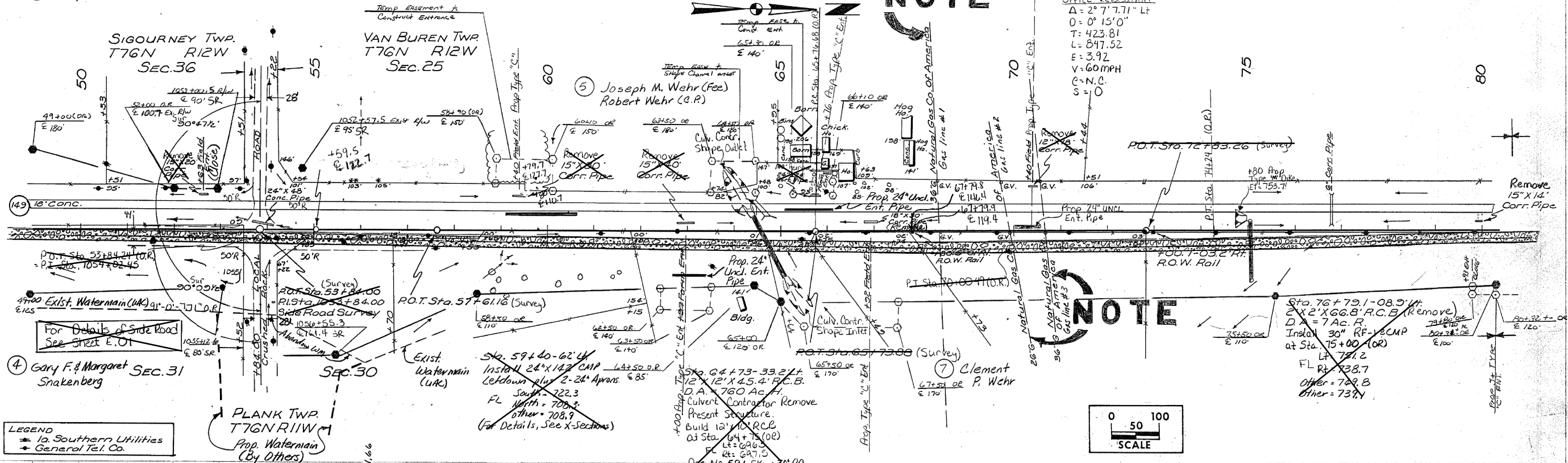


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For Information Only

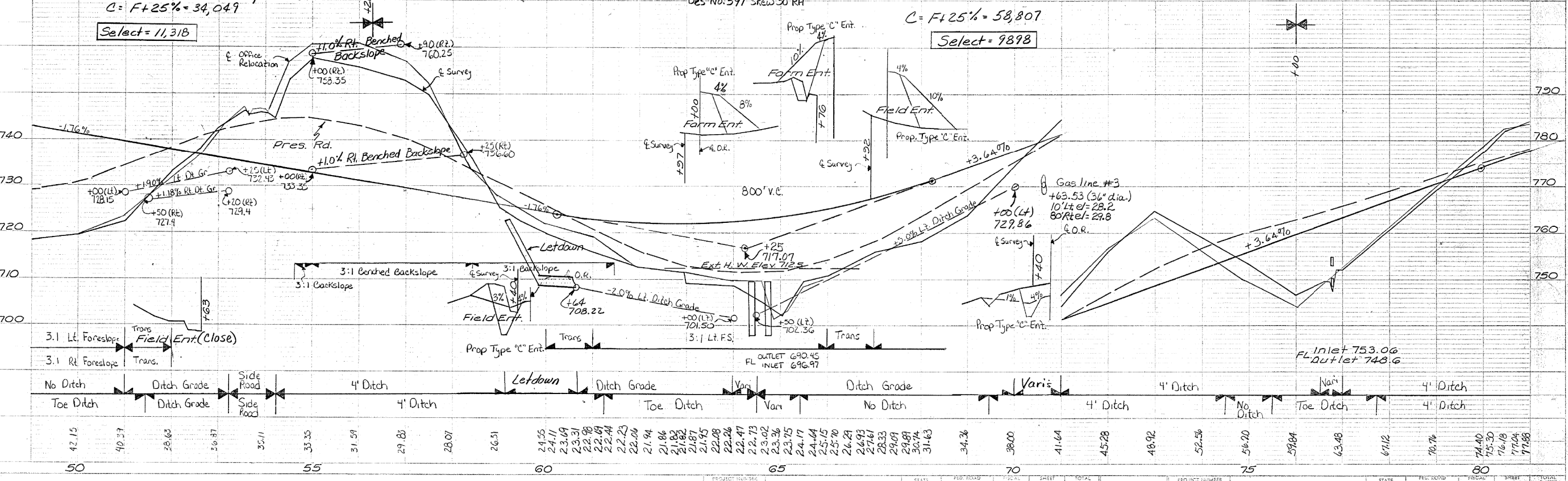
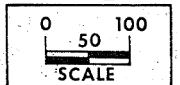
4A Gary F. Snakenberg

NOTE

Office Relocation
 $\Delta = 2^{\circ} 7' 7.71''$ Lt
 $D = 0^{\circ} 15' 0''$
 $T = 423.81$
 $L = 847.52$
 $E = 3.92$
 $V = 60$ MPH
 $C = N.C.$
 $S = 0$

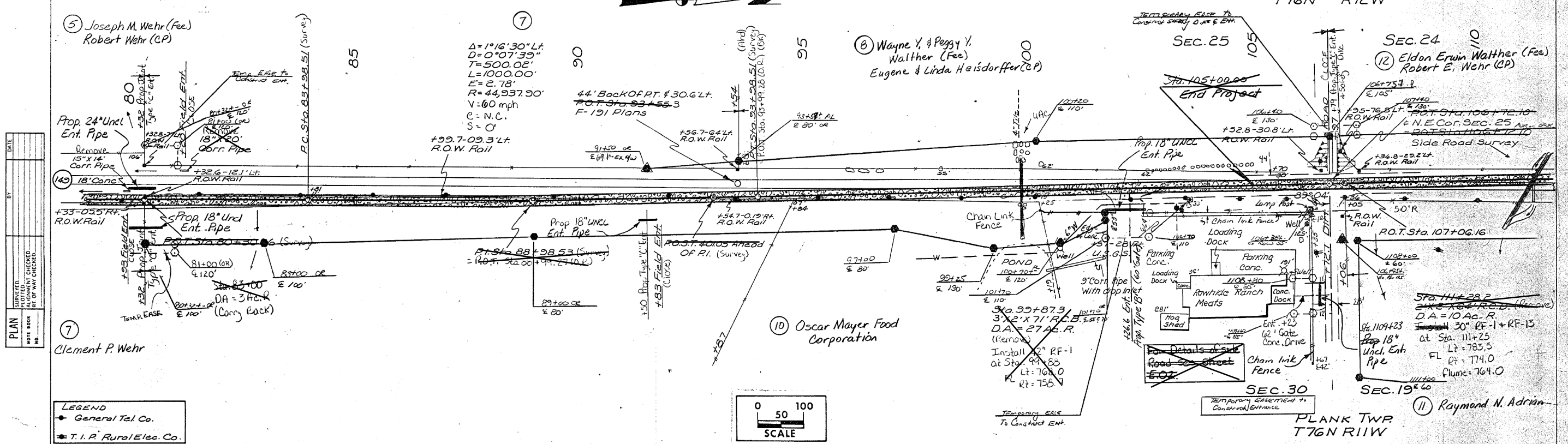


NOTE



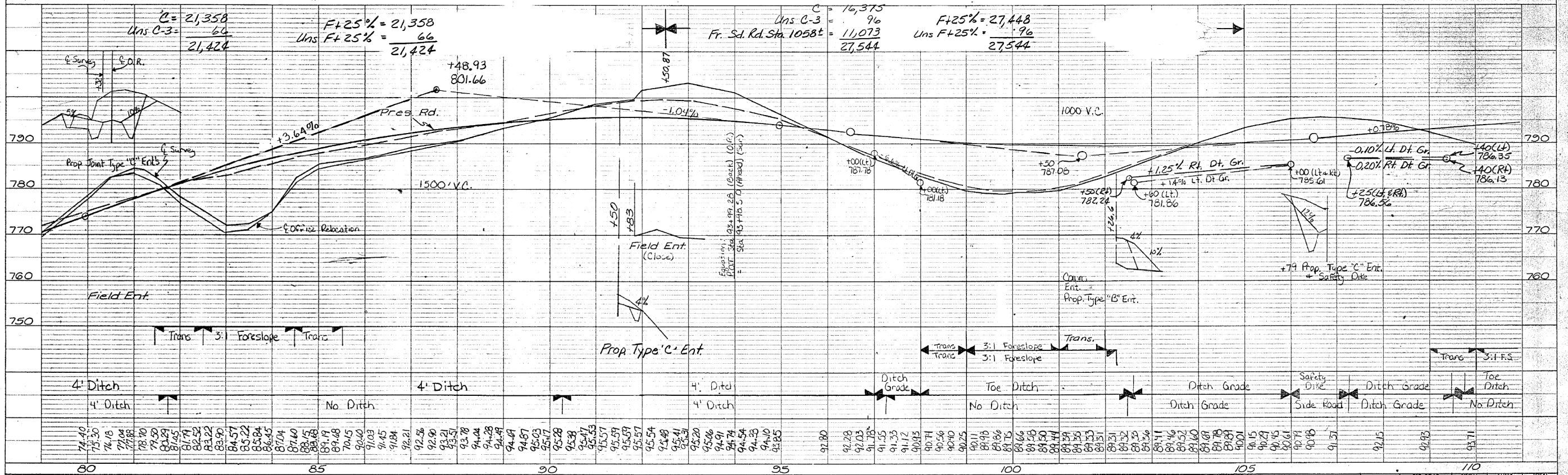
This Sheet For Information Only

VAN BUREN TWP
T76N R12W



PLAN	DATE
BY	
CHECKED	
DATE	

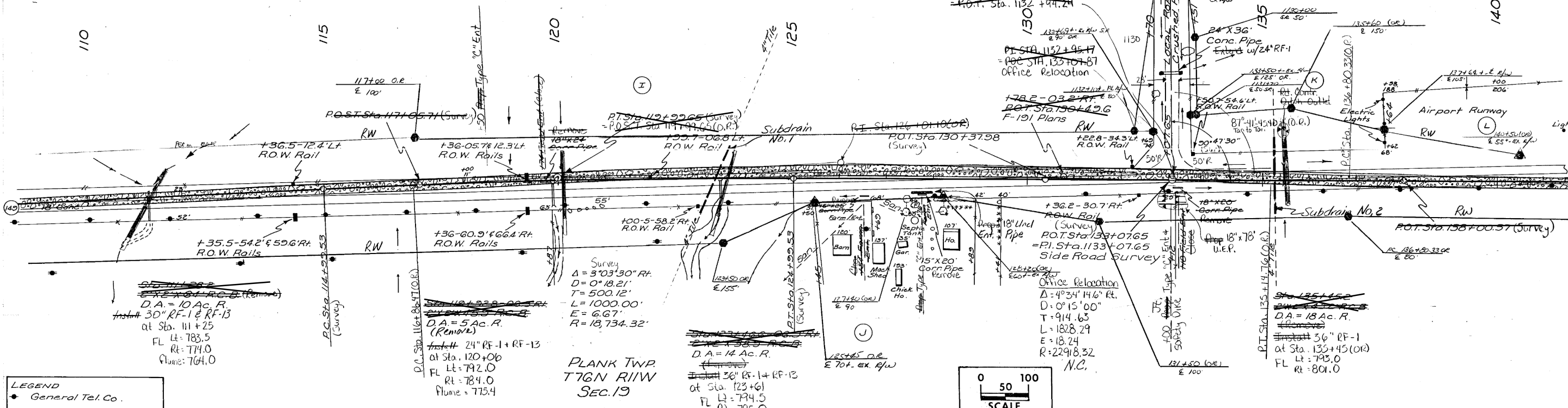
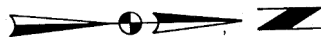
PROFILE	DATE
BY	
CHECKED	
DATE	



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For Information Only

Property Owners
 I- Eldon Edwin Walther
 J- Raymond H. Adman
 K- W.E. & Helen H. Connor
 Signor Inc.

VAN BUREN TWP.
 T76N R12W
 SEC. 24



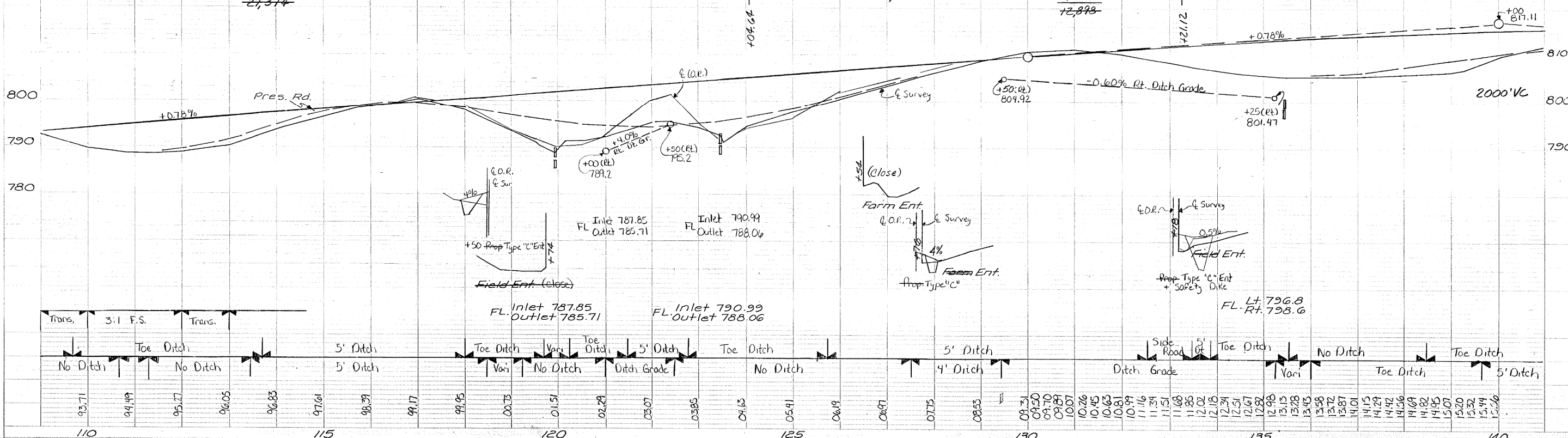
LEGEND
 • General Tel. Co.
 * T. I. P. Rural Elec. Co-op

$C = 16,002$
 Uns. C.S. = 7,666
 From Sid. Rd. Sta. 110+00 = 1,706
 27,374

$F = 130\% = 17,700$
 Uns. C.S. $F = 30\% = 7,666$
 27,374

$C = 8667$
 Uns. C.S. = 4,331
 12,898

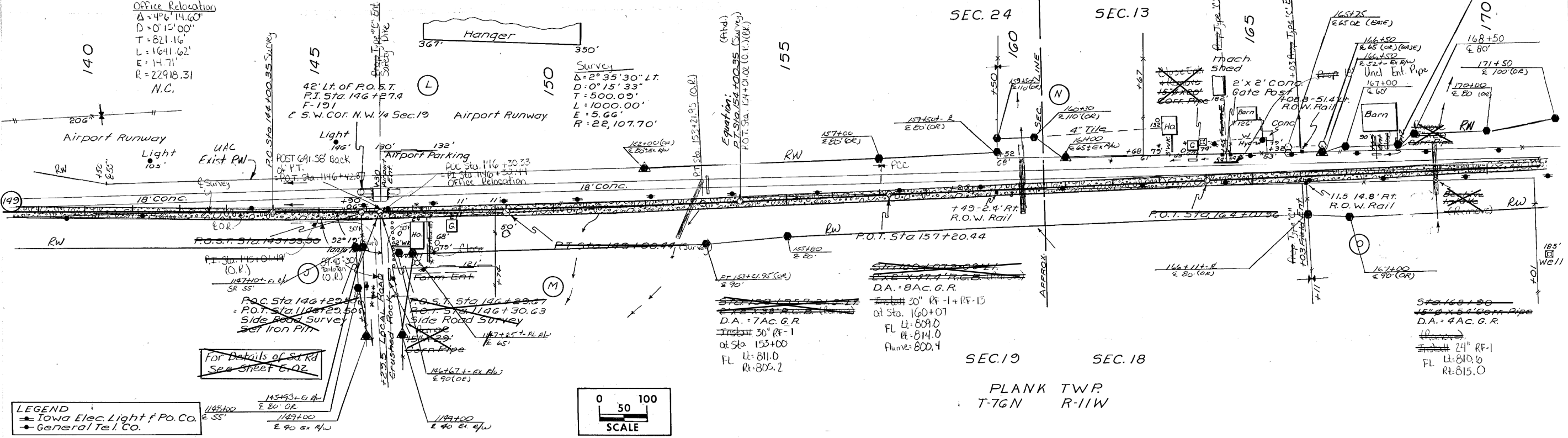
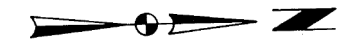
$F = 130\% = 6,671$
 to Sid. Rd. Sta. 113+00 = 1,896
 Uns. to ML Sta. 143+00 = 4,331
 12,898



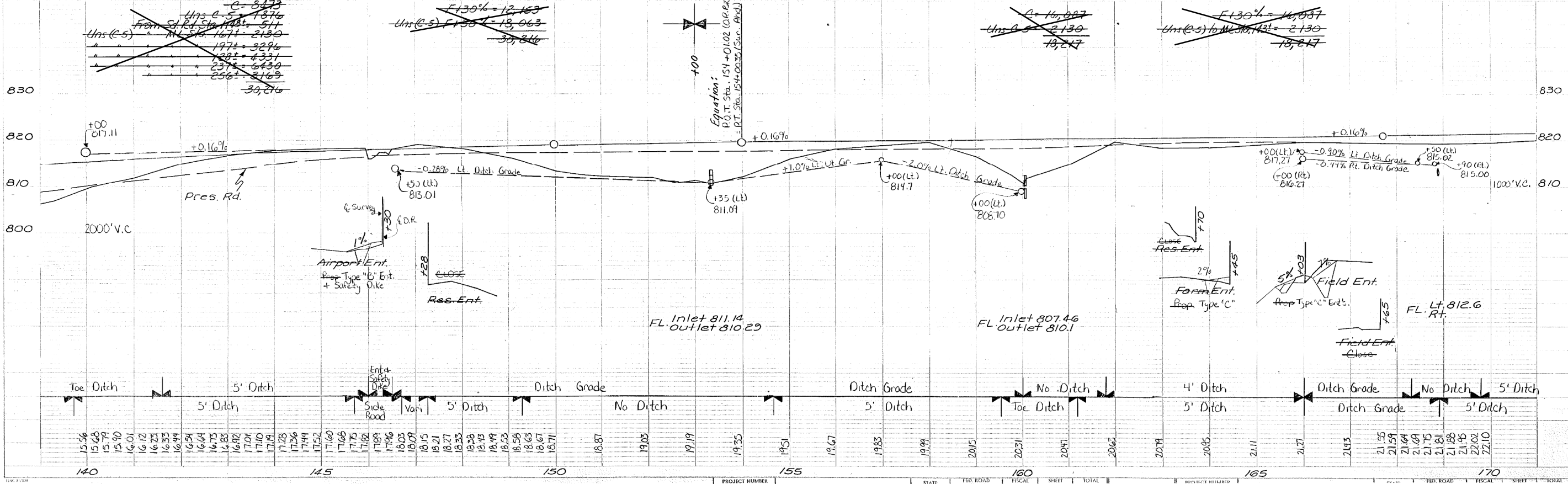
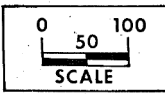
This Sheet
 For Information Only

Property Owners
 J. Raymond N. Adgorn
 L. Signor Inc.
 M. Conroy Brothers Const. Co.
 N. S. Yates & William Yates & Elucil Yates & Wint.
 O. Willie Herman

Office Relocation
 $\Delta = 4^{\circ}14'14.60"$
 $D = 0^{\circ}15'00"$
 $T = 821.16'$
 $L = 1641.62'$
 $E = 14.71'$
 $R = 22918.31$
 N.C.



LEGEND
 ● Iowa Elec. Light & Po. Co.
 ● General Tel. Co.

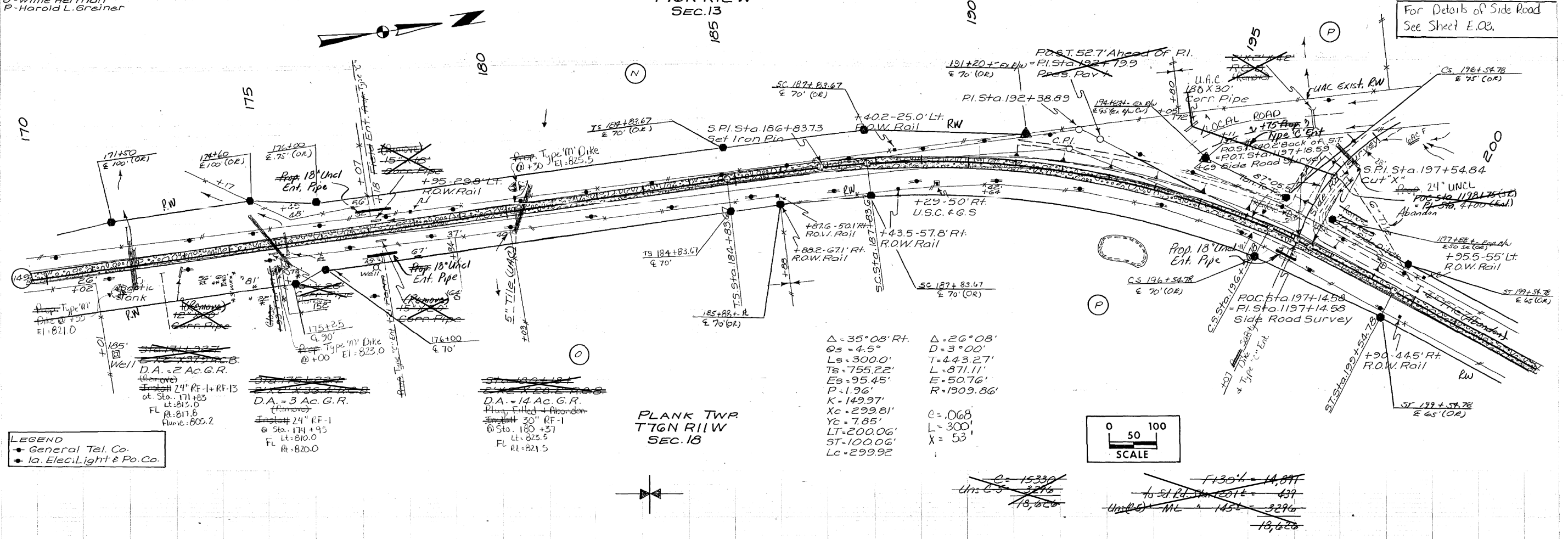


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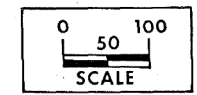
Property Owners
 N-St. Yates E.O.
 O-Willie Herman
 P-Harold L. Greiner

VAN BUREN TWP
 T76N R12 W
 SEC. 13

For Details of Side Road
 See Sheet E.02.

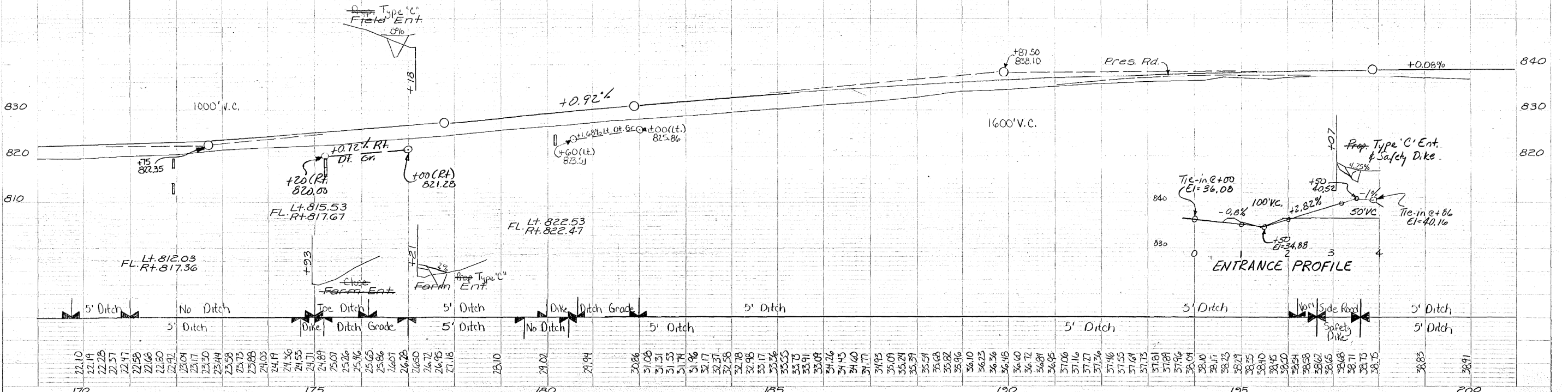


LEGEND
 • General Tel. Co.
 • Ia. Elec. Light & Po. Co.



PLANK TWP
 T76N R11 W
 SEC. 18

Δ = 35° 08' Rt.
 Qs = 4.5'
 Ls = 300.0'
 Ts = 755.22'
 Es = 95.45'
 P = 1.96'
 K = 149.97'
 Xc = 299.81'
 Yc = 7.85'
 LT = 200.06'
 ST = 100.06'
 Lc = 299.92'



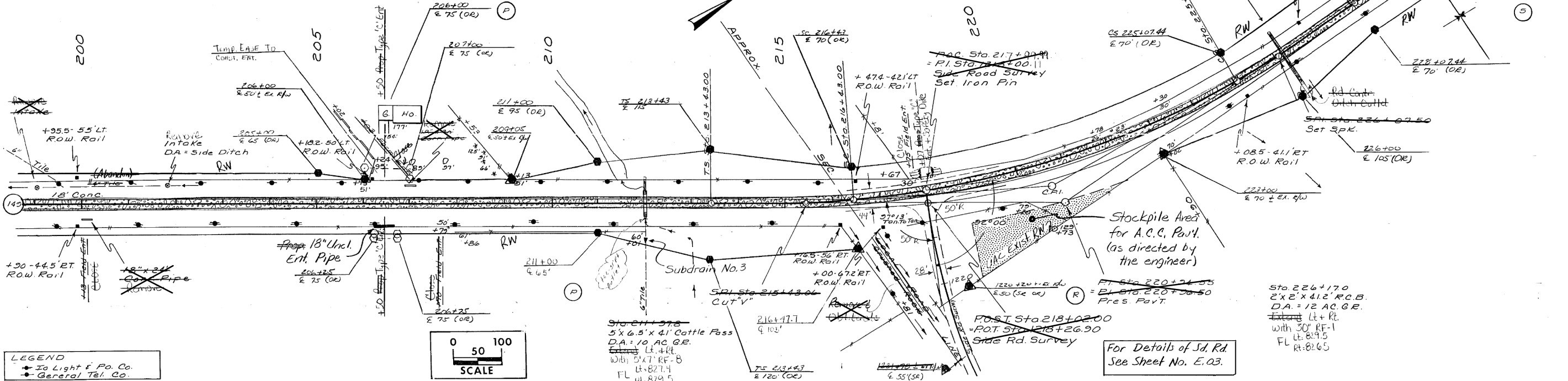
PROJECT NUMBER	STATE	FED. ROAD DIST. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS	PROJECT NUMBER	STATE	FED. ROAD DIST. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	IA	6				F-149-1(84)--20-54	IA	6		D.04	

This Sheet For Information Only

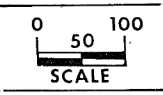
Property Owners:
 P. Harold L. Greiner
 R. M.R. Greiner
 S. Raymond J. Herman

PLANK TWP
 T76 N R11 W
 SEC. 18 SEC. 7

$\Delta = 34^{\circ}56'47''$
 $\Delta = 25^{\circ}56'$
 $\Delta S = 4.5'$
 $\Delta D = 3^{\circ}00'$
 $LS = 300.00'$
 $T = 439.76'$
 $TS = 751.95'$
 $L = 864.44'$
 $ES = 34.34'$
 $E = 45.37'$
 $P = 1.76'$
 $R = 1203.86'$
 $K = 145.97'$
 $XC = 279.81'$
 $YC = 7.85'$
 $LT = 200.06'$
 $ST = 100.06'$
 $LC = 279.92'$



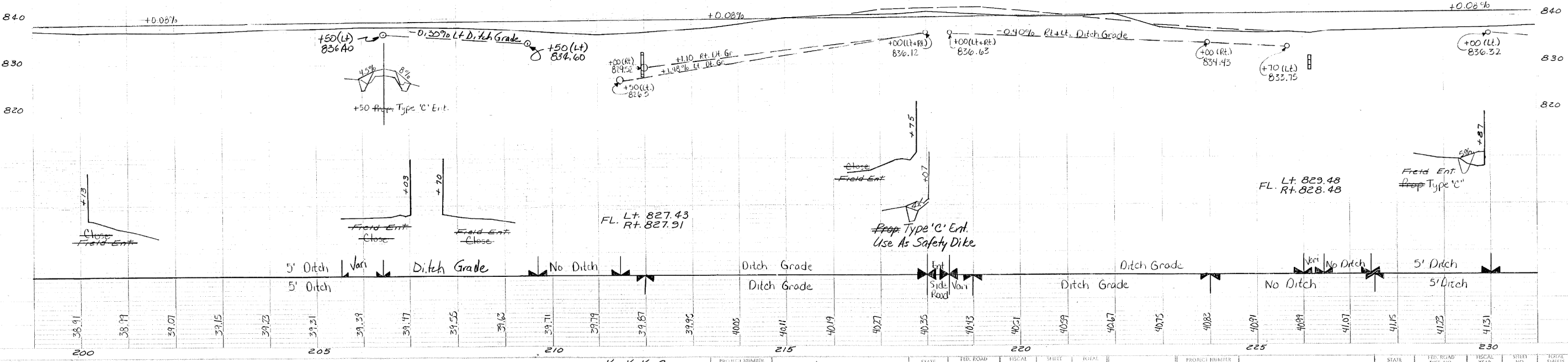
LEGEND
 • To Light f' Po. Co.
 • General Tel. Co.



Sta. 211+97.8
 5' x 6.5' x 41' Cattle Pass
 DA = 10 AC. G.E.
 Lt. 4.4'
 With 5' x 7' RF-8
 Lt. 827.4
 Rt. 829.5

For Details of Sd. Rd.
 See Sheet No. E.03.

Sta. 226+170
 2' x 2' x 41.2' R.C.B.
 DA = 12 AC. G.E.
 Lt + Rt.
 with 30' RF-1
 Lt. 829.5
 Rt. 826.5



Keokuk Co.

STATE	FED. ROAD DIST. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS	PROJECT NUMBER	STATE	FED. ROAD DIST. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
ROWA	5				F-149-1(44)-20-54	ROWA	5			D.05

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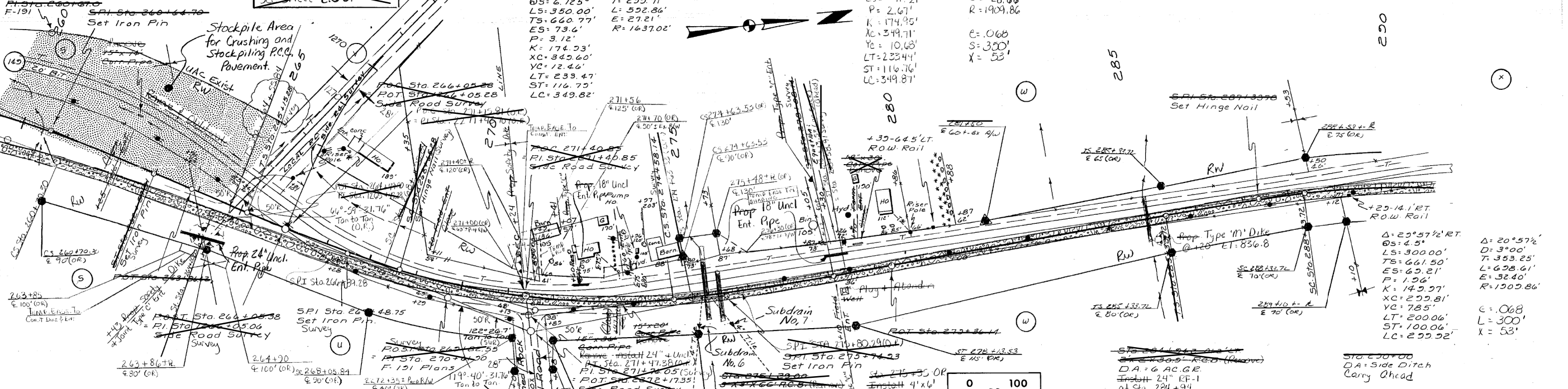
Property Owners:
 S- Raymond J. Harman
 U- Carl J. Gerner
 V- E. Harter
 W- Margaret Melvin Mable Herrick
 F- Fred Bair
 X- Ralph V. Opal Glider.

PLANK TWP
 T76N R11W

For Details of Side Road
 See Sheet E.03.

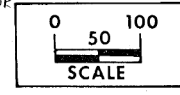
SEC. 6
 Survey $\Delta = 20^\circ 45'$
 $\Delta = 33^\circ 00' LT$ $D = 3^\circ 30'$
 $\theta = 5^\circ 6' 12.5"$ $T = 299.71'$
 $LS = 350.00'$ $L = 592.86'$
 $TS = 660.77'$ $E = 272.1'$
 $ES = 73.6'$ $R = 1637.02'$
 $P = 3.12'$
 $K = 174.93'$
 $XC = 349.60'$
 $YC = 12.46'$
 $LT = 239.47'$
 $ST = 114.75'$
 $LC = 349.82'$

(Office Relocation)
 $\Delta = 50^\circ 13' 49.89"$ $D = 19^\circ 43' 49.89"$
 $\theta = 5^\circ 25'$ $D = 3^\circ 00' 00"$
 $LS = 550.00'$ $T = 332.13'$
 $TS = 691.54'$ $L = 657.68'$
 $ES = 71.21'$ $E = 28.66'$
 $P = 2.67'$ $R = 1909.86'$
 $K = 174.95'$
 $XC = 349.71'$
 $YC = 10.68'$
 $LT = 233.44'$
 $ST = 116.76'$
 $LC = 349.87'$
 $C = .068$
 $S = 300'$
 $X = 53'$

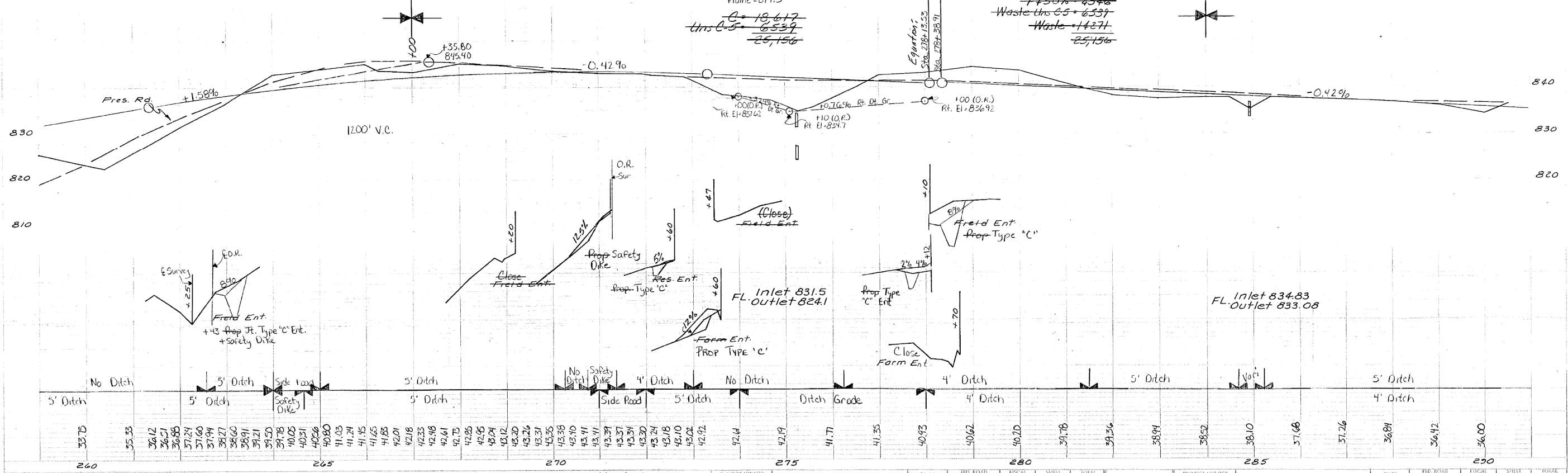


LEGEND
 * Ia Elec Light & Po Co.
 - Modern Co-op Tel. Co.

For Details of Side Road
 See Sheet E.04.



F+30% = 4346
 Waste ths C5 = 6539
 Waste = 1271
 25,156



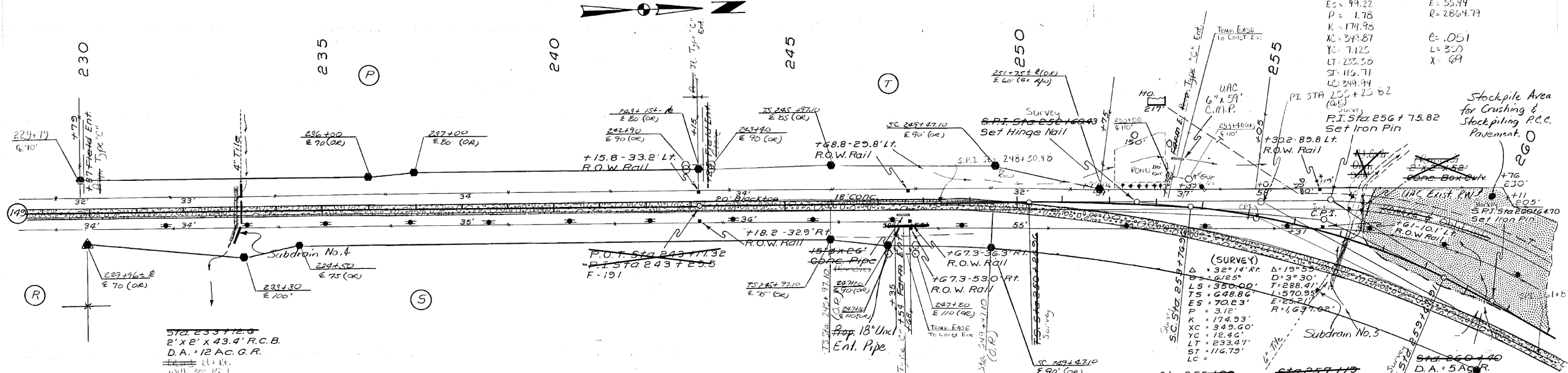
This Sheet
 For Information Only

STATE NOVA	FISCAL YEAR 5	SHEET NO. 5	TOTAL SHEETS 5	PROJECT NUMBER F-149-1(44)-20-54	STATE IOWA	FISCAL YEAR 5	SHEET NO. D.07	TOTAL SHEETS
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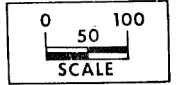
Property Owners
 P - Harold L. Grainer
 R - M.R. Grainer
 S - Raymond S. Herman
 T - Donald W. Hank's

PLANK TWP.
 T7GN RIW
 SEC. 7

(Office Relocation)
 $\Delta = 29^{\circ} 27' 49.89''$ $\Delta = 22^{\circ} 27' 49.89''$
 $\theta = 3.5^{\circ}$ $D = 2^{\circ} 0' 0''$
 $LS = 350.00'$ $T = 568.90$
 $TS = 928.72$ $L = 1123.17$
 $ES = 99.22$ $E = 55.94$
 $P = 1.78$ $R = 2864.79$
 $K = 174.98$ $e = .051$
 $XC = 349.87$ $L = 320$
 $YC = 7.125$ $X = 69$
 $LT = 232.38$
 $ST = 116.71$
 $LC = 249.94$



LEGEND
 - Iowa Elec. Light & Po.
 - Modern Co-op Tel. Co.

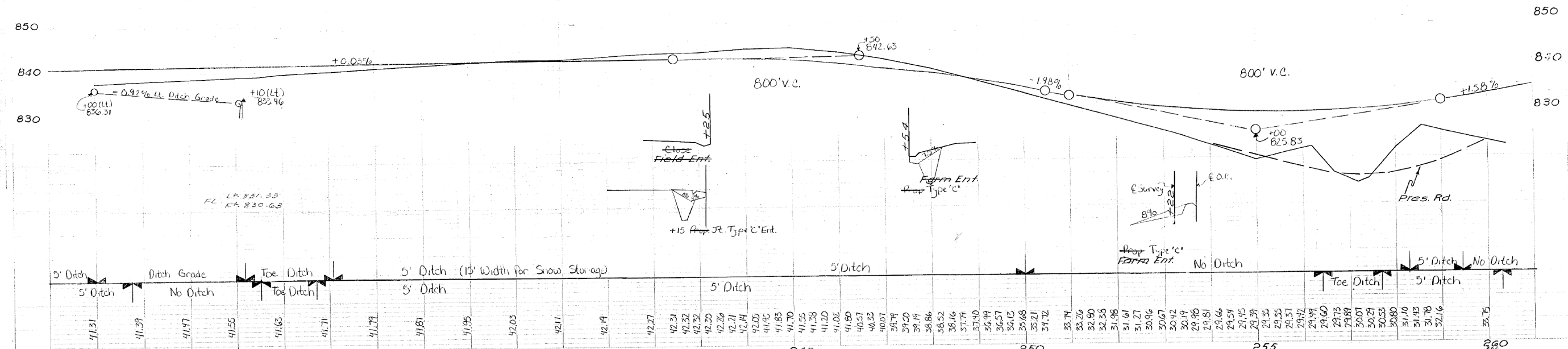


$C = 8407$
 Uns C-3 = 4420
 " C-5 = 6430
 19,257

$F+30\% = 8407$
 Waste Uns C-3 = 4420
 Uns (C-5) to ML Sta. 143± = 6430
 19,257

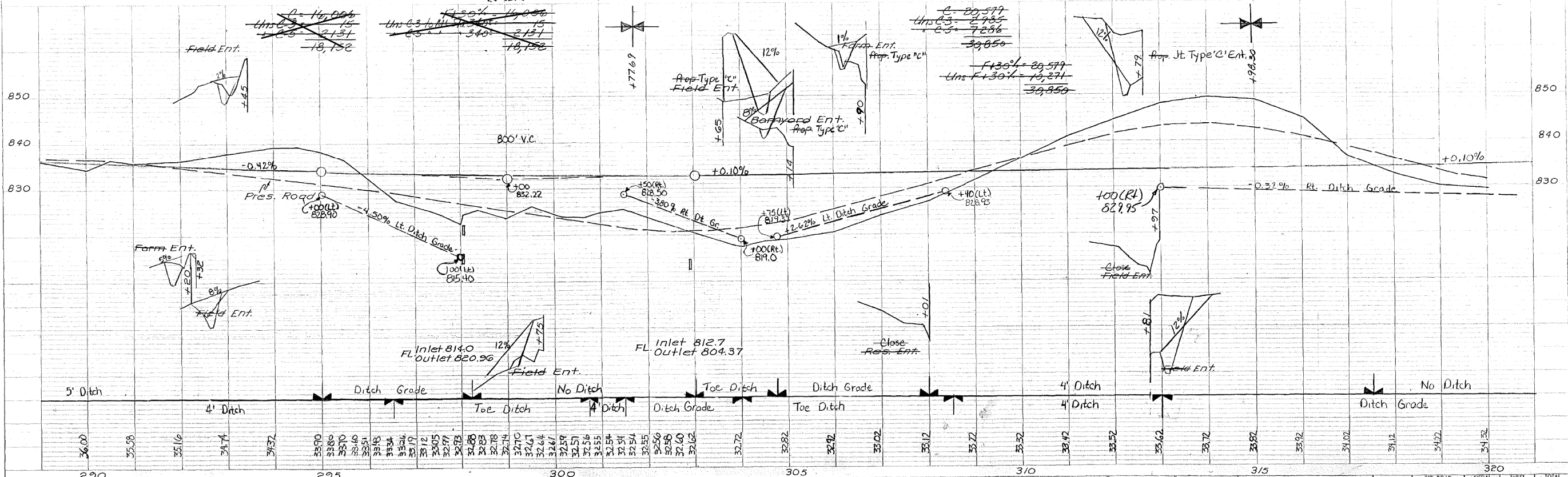
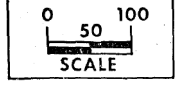
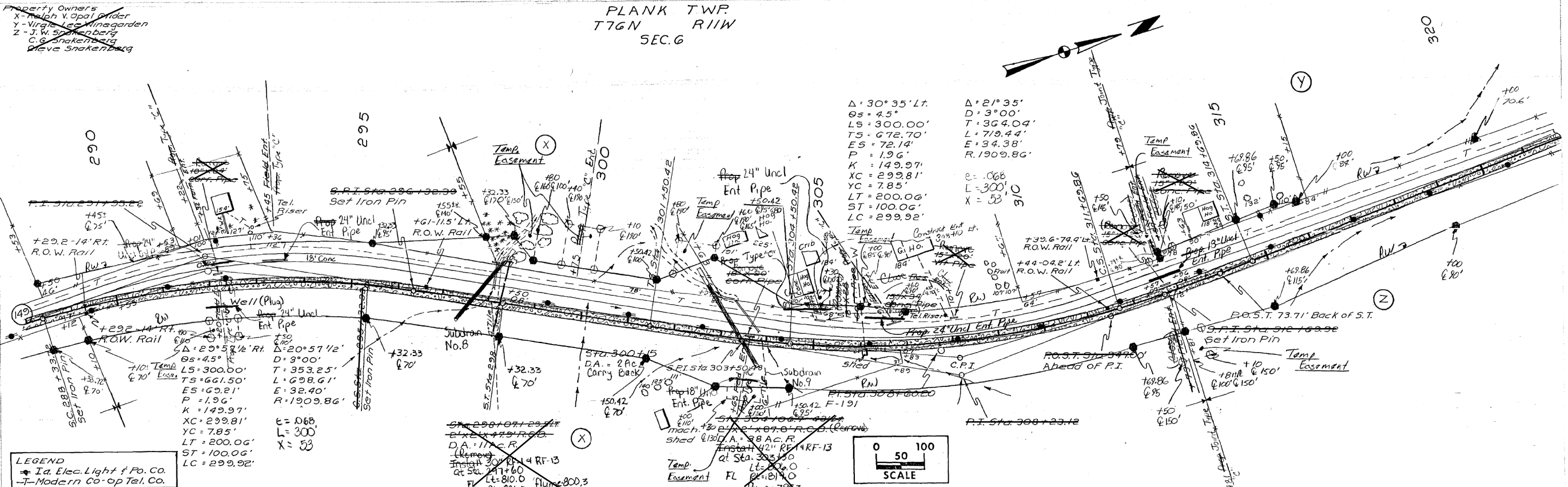
$C = 24,970$
 Uns C-3 = 282
 " C-5 = 5618
 30,870

$F+30\% = 12910$
 to ML Sta. 143± = 3169
 Waste = 8891
 Waste Uns C-3 = 282
 " C-5 = 5618
 30,870



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PLANK TWP
T76N R11W
SEC. 6



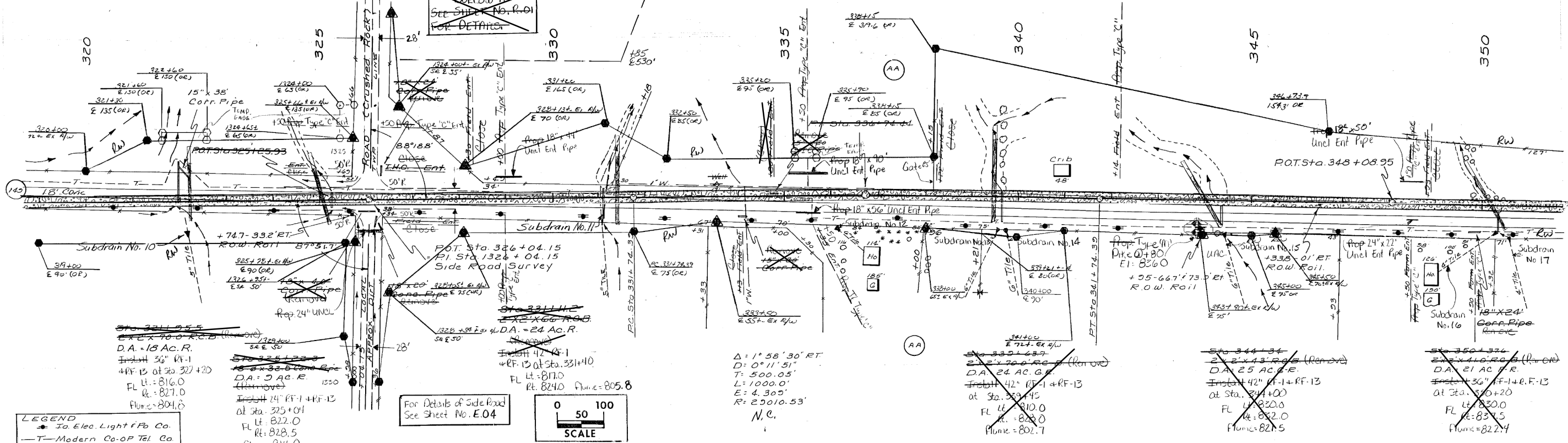
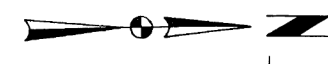
290	295	300	305	310	315	320
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For Information Only

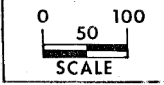
Property Owners
AA-Dan & Josephine Alkaseh

PLANK TWP T 76N R 11 W SEC. 6
ENGLISH RIVER TWP T 77N R 11 W SEC. 31

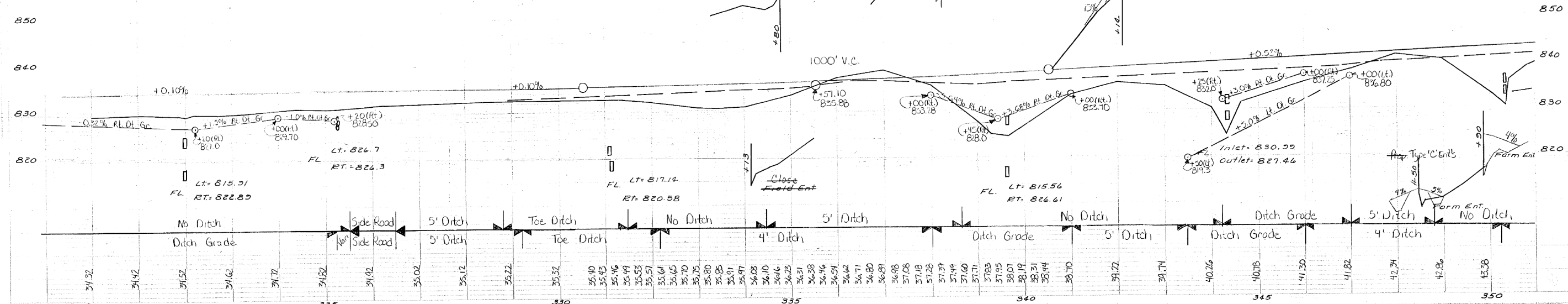
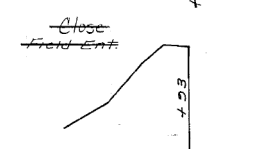
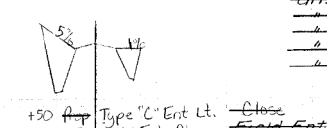
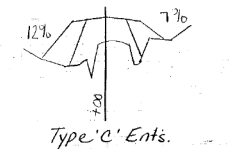
~~Proposed
Site Plan No. R-01
FOR DETAILS~~



LEGEND
- Io Elec. Light & Po Co.
- T-Modern Co-OP Tel. Co.



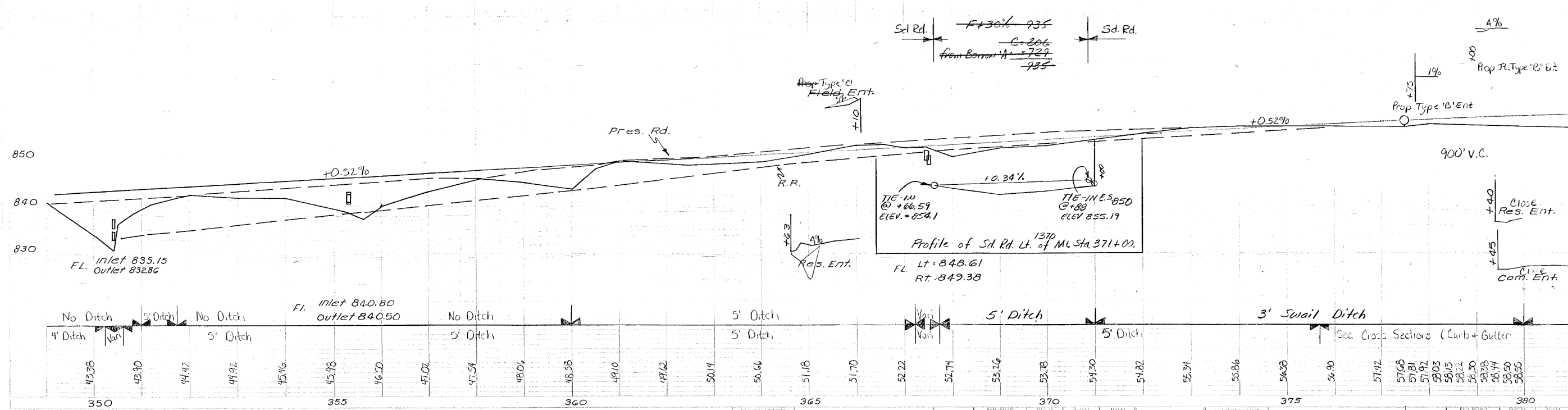
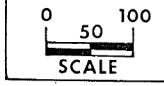
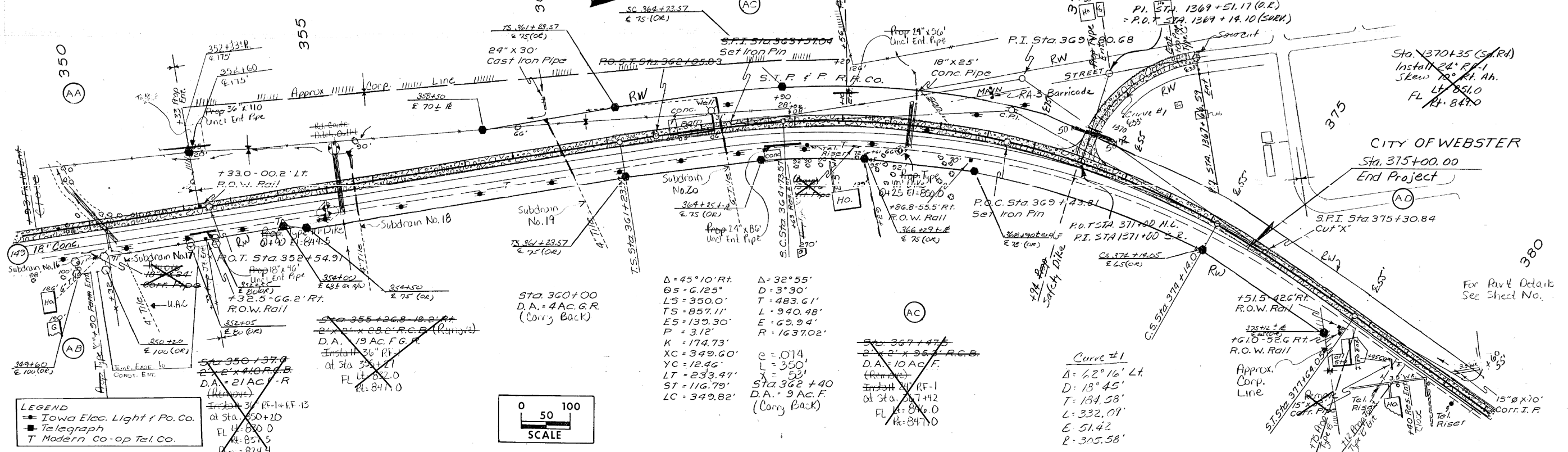
~~C=11,726
Uns C-3=1,352
19,484~~
~~F130% = 11726
Uns C-3) to 11726
1386
19,484~~
~~C=8334
Uns C-3= 558
C-5= 1040
Uns C-3) from 11726 to 1386
(1.5) 3234.559
5635-2777
(1.2) 4-2625-15
(1.5) 272-2751
From Barrow 41=7420
30,035~~
~~F130% = 15754
Uns C-3) = 14,281
30,035~~



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For Information Only

Property Owners
 AA - Dale E. & Josephine Mikesell
 AB - Gary W. & Martha E. Mikesell
 AC - Lois Smith
 AD - City of Webster

ENGLISH RIVER TWP.
 T77N R11W
 SEC. 31



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Slide Repair - IA 149, MP 36.05

From approximate Station 58+10 to Station 60+10 on the east side of IA 149, bench and rebuild the backslope to a 3:1 slope using Erosion Stone underlain by Engineering Fabric.

The Contractor shall exercise caution so as to avoid slope repair activities causing any instability of the existing utility pole.

The repair shall start at the toe of the existing backslope and then extend up-slope to the existing ridge.

Benches shall extend a minimum of 6 feet into the undisturbed backslope.

Benching is recommended to progress at maximum 50-foot increments.

Backfilling shall occur immediately after cutting the benches and placing the Engineering Fabric.

The Erosion Stone shall be capped with a 1-foot thick layer of Macadam Stone Base Material.

Actual limits of the repair will depend on conditions at the time of construction.

Clean and reshape the roadside ditch to allow for proper drainage.

Typical not to scale

Macadam Stone Base Material
(gradation No. 13 no choke stone course)

3:1

Erosion Stone underlain
with Engineering Fabric

1:1

Benches shall extend a minimum of 6 feet
into the undisturbed backslope