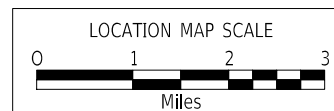
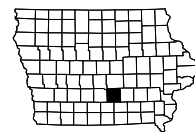
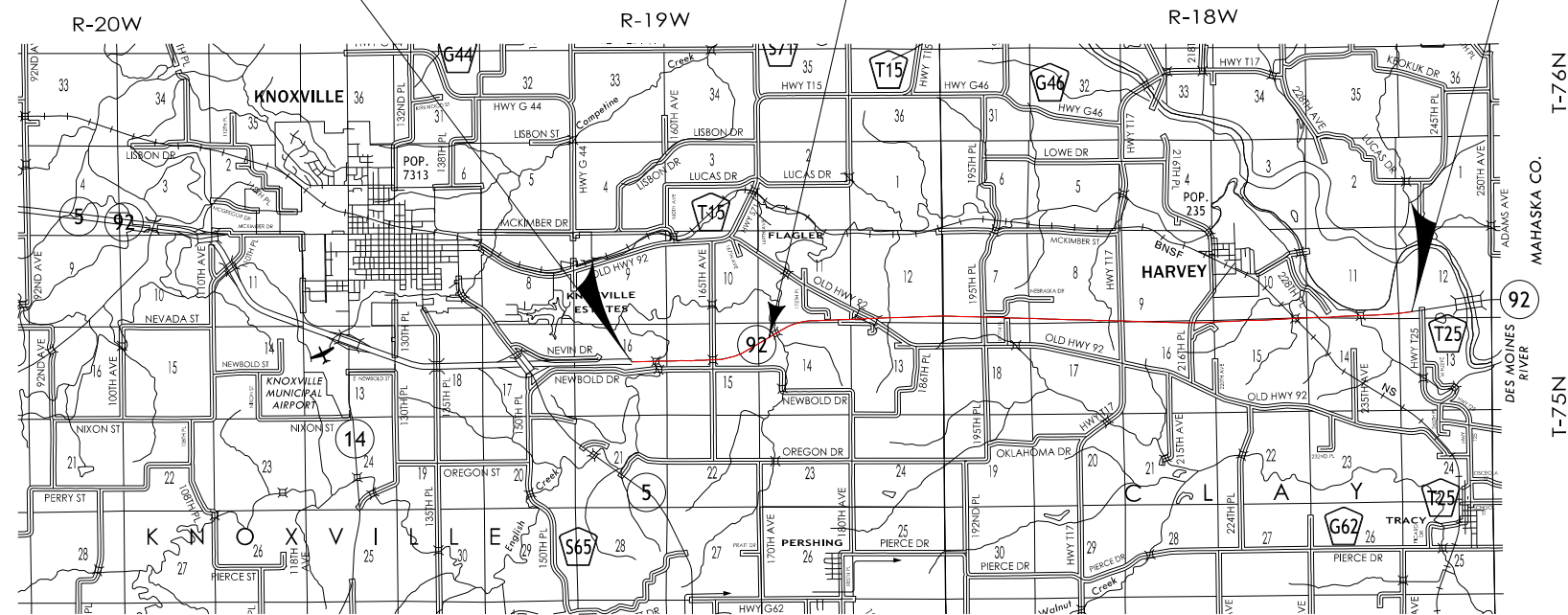


BEGIN PROJECT
 STA. 1035+00
 REF. LOC. 159.09

EQUATION
 STA 1151+67.60 (BK) =
 STA 110+73.00 (AH)

END PROJECT
 STA. 447+25
 REF. LOC. 167.66

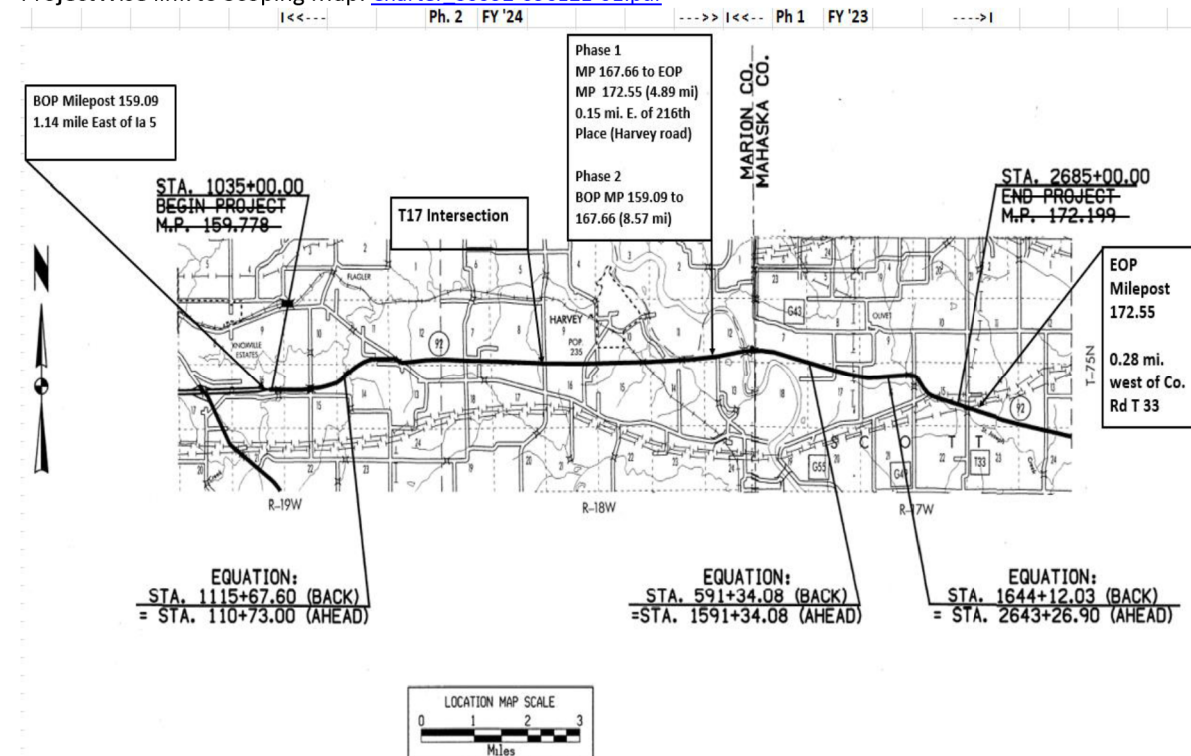




TO OFFICE: District 5
DATE: October 28, 2022
 Rev. 6/22/22 pg 9-10 bridge phase, 3R inflation, Marion Agmt
 Rev 10/28/22 pg. 7, Safety funding, HSIPX
ATTENTION: Robert Younie
COUNTY: Marion, Mahaska
PROJ. NO: Ph. 1: NHSX-092-6(39)- -3H-63
 Ph.2, FY 2024: NHSX-092-6(40)- -3H-63
 Ph.2, FY 2024: ROW NHSN-092-6(41)- -2R-63
 Ph 2, FY 2024: Safety HSIPX-092-6(042)- -3L-63
FROM: Jim Phillips
PIN: Ph. 1: 22-63-092-010
 Phase 2: 22-63-092-020
OFFICE: District 5 Design
FOLDER: [la 92 Marion Mahaska 3R Final Concept \(39\) \(40\)prot link - 06 22 22.docx](#)
SUBJECT: Phase 1 FY 2023 3R Concept Statement and Phase 2 FY 2024- Final

PROJECT LOCATION:

Iowa 92 from East of Knoxville to 3.5 miles east of the Marion/Mahaska Co line
Phase 1: 0.15 mi W. of Co. Rd T25 to 3.6 mi E. of the Mahaska Co Line
Phase 2: E. of Knoxville to 0.15 mi E of Co Rd T25
 ProjectWise link to Map: [la 92 Map 2 phases - Rev 10 24 21.xlsx](#)
 ProjectWise link to Scoping Map: [Charter_S0092-090121-01.pdf](#)



PROJECT DATA:
 ROUTE: Iowa 92
 LENGTH: 13.46 miles Phase 1 FY 2023, 4.887 miles, Phase 2 FY 2024, 8.573 miles
 PLANNING CLASSIFICATION: 3
 MAINTENANCE SERVICE LEVEL: B
 NHS ROUTE: Yes

TRAFFIC (Phase 1 and 2):
 Marion County Traffic

DESIGN DESIGNATION DATA SHEET		ESTIMATED 2023	2023 PERCENT TRUCKS	ESTIMATED 2043	ESTIMATED 2043	ESTIMATED 2043
COUNTY	ROUTE	SECTION LENGTH	ADT	ADT	DHV	PERCENT TRUCKS
MARION	92	1 IA 5/IA 964 to CO RD T17	6.17	4096	16%	5230
		2 CO RD T17 to W LINE OF MAHASKA CO	4.04	3335	13%	4252
TOTAL LENGTH APPROX. AVERAGE FOR THE TOTAL PROJECT		10.21	3800	15%	4800	500
PROJECT NUMBER	N/A	ESTIMATE NUMBER	3513			
DATE OF ESTIMATE	September 28, 2020					

Mahaska County Traffic

DESIGN DESIGNATION DATA SHEET		ESTIMATED 2023	2023 PERCENT TRUCKS	ESTIMATED 2043	ESTIMATED 2043	ESTIMATED 2043
COUNTY	ROUTE	SECTION LENGTH	ADT	ADT	DHV	PERCENT TRUCKS
MAHASKA	92	1 MAHASKA CO LINE to OLD HWY 92	3.42	3337	13%	4260
		2 OLD HWY 92 to W LIMITS OF OSKALOOSA	7.05	4050	11%	5162
TOTAL LENGTH APPROX. AVERAGE FOR THE TOTAL PROJECT		10.46	3800	12%	4900	500
PROJECT NUMBER	N/A	ESTIMATE NUMBER	3513			
DATE OF ESTIMATE	September 28, 2020					

ProjectWise link to Traffic Data: [3513a incl T17.xlsx](#)

PURPOSE AND NEED:

Iowa 92 was last resurfaced in the year 2001. the composite pavement of 5.5" HMA over 9" PCC also has existing 10 foot wide HMA paved shoulders with rumble strips. The HMA surface has locations showing signs of distress including oxidized asphalt, significant surface cracking. The highway needs resurfacing. Based upon intersection traffic counts, the Iowa 92 / County Road T17 intersection meets additional turn lane warrants. See existing conditions, pg. 7.

FEASIBLE ALTERNATIVES Phase 1 and 2:

2 alternates were considered:

1. \$ 6,536,900 including constructing the 2 inch milling, 3 inch (2 lift) HMA resurfacing, including 1 -1.5" HMA Interlayer, for both the mainline and shoulders, and including the W beam and cable rail updates, and including the intersection improvement at County Road T17. To supplement the project, a \$

800,000 application for TSIP funds was approved, for FY '24 construction. [FY2024 Dist 5 Ia 92 Marion Intersection_HSIP-CandidateProjectSubmissionForm.docx](#) See pg. 7

- \$ 6,036,900 including constructing the 2 inch milling, 3 inch (2 lift) HMA resurfacing for both the mainline and shoulders, and including the W beam and cable rail updates, and NOT including the Intersection improvement at County Road T17. An application for TSIP funds would have a timing of Aug. 2022 application, for FY '24 construction.

Pipe repairs, entrance foreslope flattening, patching, as well as Centerline rumble strips, and shoulder rumble strips are to be included in both alternates.

RECOMMENDATIONS:

Construct **Alternate 1** in separate construction seasons, Ph. 1 FY '23 and Ph 2 FY '24. (see map pg. 1)

Pipe repairs, entrance foreslope flattening, patching, as well as Centerline rumble strips, and shoulder rumble strips are to be included.

\$ 5,736,900 3R funds, including T17 intersection See below for Cost Estimate

800,000 Safety funds for T17 intersection, HSIP Ia 92 Marion (40) update FY '24 3R Concept Project numbers needed.msg pg. 7 HSIPX-092-6(042)- -3L-63

pending Marion and Mahaska County side road intersection paving, pg. 7,10

\$ 6,536,900 Total Phase 1 FY '23 and Phase 2 FY '24

Here are ProjectWise links:

Phase 1 and 2 combined, Cost Estimate (adjusted for inflation 6 22 2022): [Rev add cable rail Add T17 Mill and Overlay, FY 23, IA 92 E of Knoxville to E Co Line 05 25 21.xlsx](#)

iPDWeb has DO Estimate

Funds Programmed:

~~\$ 2,045,400~~ **3,068,094 Phase 1, FY 2023 of 3R funds.** See pg. 9 for more information.

~~\$ 4,491,500~~ **5,937,255 Phase 2, FY 2024 of 3R funds, and potential TSIP funds for the T17 intersection.**

800,000 Phase 2, FY 2024 TSIP funds for T17 intersection

~~\$ 6,536,900~~ **9,805,350**

- | | | |
|--------------------------------------------------|-------------------------|-------------------------|
| Cc: C. Purcell | M. J. Kennerly | K. D. Nicholson |
| S. J. Megivern | J. S. Nelson | B. Walls |
| M. Nop | M. A. Swenson | D. L. Newell |
| J. W. Laaser-Webb | W. A. Sorenson | D. E. Sprengeler |
| E. C. Wright | M. E. Ross | A. A. Welch |
| N. M. Miller | C. C. Poole | B. D. Hofer |
| B. E. Azeltine | H. Beach | T. D. Crouch |
| S. J. Gent | S. Anderson | K. Olson |
| B. Bradley | K. K. Patel | S. Godbold |
| D. R. Claman | C. Brakke | |
| F. Todey | E. Engle | M. Hobbs |
| J. Bartholomew | N. Cuva | K. Brink |
| D. L. Maifield | J. Vortherms | S. Nielsen |
| E. D. Gansen | T. Nicholson | Milly Ortiz-Pagan |
| J. Garton | J. Woodcock | S. McElmeel |
| C. Steffensmeier | B. Porter | M. Claeys |
| J. Webb | L. Finarty RCE Chariton | L. Giarmo RCE Fairfield |
| FHWA Program.Delivery-IA@dot.gov | B. Clancy | Supervisor Mike Kingery |
| H. Torres-cacho | J. Klein | H. Bibiano |
| Greg Cagle | Matt Buttz | D. Jones |

CONCEPT ANALYSIS & SUPPORTING DATA:

Date of Field Review: N/A

Participants: N/A

PAVEMENT:

Existing Conditions:

The PCI is 51-56 (desire 60-80), the wheel path rutting is .15-.25 inches (desire less than .15) which could contribute to hydroplaning, and the roughness, IRI is approx. 108-153 (upper threshold 253, desired 32-100).

Pavement History:

Last resurfaced in the year 2001, per Project STP-092-6(35)- -2C-63, the pavement is composite pavement. 5.5" HMA over 9" PCC. The 10 ft wide shoulders are HMA paved with rumble strips. Here is a ProjectWise link to pavement history: [la 92 pavement history.pdf](#)
 Rec. Dwg.: [2001 la 92 Marion from 1 mi E. of la 5 to Mahaska Co line STP-002-6\(35\)--2C-63.PDF](#)

PMIS Data:

See attached Quick Look sheet, [pg 14](#).

Pavement Recommendation, Phase 1 and 2:

Project:									
County:		Marion/Mahaska							
Road:		IA 92							
Location:		E. of Knoxville to 3.5 mi. E. of Co. line							
Estimate:		Marion/Mahaska, 92, Est# 3513, Dated 9/28/20							
Est. Location:		Mahaska Co Line to W Limits Oskaloosa							
Date:		10/07/20							
County & PD	MP	MP	DIR	TESTED	80% SR	AVG K (psi/in)	Interpolated Res. Mod. (psi)	20 Year Overlay (in)	PAVEMENT
Marion	159.10	159.78	B	04/28/2020	6.74	189	4,191	0.0	1978 PCC 9.5
	159.78	161.32	B	06/04/2019	4.89	183	4,094	0.3	1978 PCC 9.5, 2001 AAC 1.5 AAC 2.0 BAC 2.0
	161.32	165.20	B	06/04/2019	4.77	161	3,771	0.9	1978 PCC 9.0, 2001 AAC 1.5 AAC 2.0 BAC 2.0
	165.20	168.59	B	06/04/2019	5.13	180	4,049	0.0	1978 PCC 9.0, 2001 AAC 1.5 AAC 2.0 BAC 2.0
Mahaska	168.59	172.20	B	06/04/2019	4.94	163	3,799	0.2	1978 PCC 9.0, 2001 AAC 1.5 AAC 2.0 BAC 2.0
	172.20	172.55	B	06/04/2019	8.00	130	3,370	0.0	1965 PCC 9.0

dTIMS Treatment, Status Quo Report 2021 link: [la 92 Mahaska Quick look and dTIMS.docx](#)

PRI_THIN_SURF = Thin Surface Treatment on Primary system

PRI_CIR = Cold in Place Recycle on Primary system

FROM	TO	LANE_MIL	DESCRIPT	NYE	BUDGET_SCENARIO	PCI	CRACK_RAT	IRI	RU	FAULTAI	TREATMENT	ANCILLARY	COST
141.97936	145.77349	7.5	From Warren/Marion Co Line I		2019 Network - Status Quo	94.93	0	60	0	0.0535	PRI_CIR		\$ 1,996,315.88
158.5908	160.13301	3.0	From 1.8Mi E of JCT IA 92/IA 5		2024 Network - Status Quo	94.93	0	60	0	0	PRI_CIR		\$ 681,863.40
160.13301	164.00605	7.0	From 0.3 Mi W of JCT T15 E to		2027 Network - Status Quo	94.93	0	60	0	0	PRI_CIR		\$ 1,957,930.35
164.00605	167.39448	6.0	From 0.1 Mi W of Harvey Turn		2023 Network - Status Quo	94.93	0	60	0	0	PRI_CIR		\$ 1,436,349.30
164.00605	167.39448	6.0	From 0.1 Mi W of Harvey Turn		2030 Network - Status Quo	83.08	7.14	73.34	0.16	0	PRI_THIN_SURF		\$ 344,942.28
167.39448	170.98445	7.0	From Marion/Mahaska Co Line		2026 Network - Status Quo	94.93	0	60	0	0	PRI_CIR		\$ 1,735,816.01

Subdrains:

Per 2001 project STP-092-6(35)- -2C-63, 138,409 lf of subdrain exists, sometimes along both sides, which is approximately 97% of the overall project length (71,068 lf x 2 = 142,136 lf). The proposed improvement includes placing subdrains in current gaps such that there will be 100% subdrains. ProjectWise link to plans: [2001 la 92 Marion from 1 mi E. of la 5 to Mahaska Co line STP-002-6\(35\)--2C-63.PDF](#)

Patching/Curb Repairs:

Patch tab is pending data collection.

ADA/Sidewalk/Trails/Complete Streets analysis:

There is no need for ADA ramps along this project.

The existing paved shoulder width is 10 feet for the length of the project.

Per section 2.4 of the **Complete Streets Policy**, the project already complies with the Complete Streets Policy as the paved shoulders are 6' or greater. [RE Complete Streets request Marion Mahaska Counties IA 92_3R Project Number pending proj_scheduling.msg](#)

SAFETY:

3R Design Criteria:

Acceptable Values for 3R Roadway Features						Project Values
DESIGN ELEMENT	FREEWAY	NON-FREEWAY				
Regulatory Speed (mph)	65/55	55	45	35	25	55
Minimum Vertical Curve (mph)	65/55	35	25	15	5	n/a
Maximum Horizontal Curve (degrees)	3	6	8	14	28	n/a
Maximum Gradient	3%	6%	7%	10%	13%	n/a
Lane Width (feet)	12	12	11	11	11	12
Parking Lane Width (feet)	--	--	8	8	8	n/a
Shoulder Width (feet)	10/6	6	4	4	2	10, pg. 5
Foreslopes	3:1	3:1	3:1	--	--	n/a
Transverse Slopes	6:1	6:1	6:1	--	--	n/a
Horizontal Clearance (feet)						
Bridge Width	Approach Lanes + Shoulder Width		Approach Lanes + Offset			Note 1
Vertical Clearance - Over NHS (feet)	16.5	16.5	16.5	16.5	16.5	n/a
Vertical Clearance - Over Local (feet)	14.5	14.5	14.5	14.5	14.5	n/a

Note 1: See the list of Structures on pg. 8

SAFETY cont'd:

Crash Analysis:

Corridor Crash History:

Over the course of 5 years, 2016-2020, 96 crashes are reported including major causes of 64 animals, 6 Run off the road, 5 driver distractions, 4 following too close, 3 driving too fast for conditions, 3 failed to yield to the right of way, 2 ran a stop sign, among a few others. The severities are 1 Fatal, 3 Serious Major injury, 3 Minor injury, 8 Possible / Unknown and 81 Property Damage only. [96 Count Rural-Urban nofilter.pdf](#)

The fatality occurred Sunday January 12, Sunday 12-2 am, 2020 and was a single vehicle, slushy road surface, drug related, non-collision, exceeded authorized speed, rollover, which outside of the trafficway MP 159.2. ProjectWise link to fatality report: [la 92 MP 159.2 fatality.pdf](#)

A crash rate of 110 per HMVMT which is higher than the Rural Statewide average is 93 per HMVMT. Here is a ProjectWise link to the crash rate: [IA 92 Knoxville-to-E-of-Marion-Co-line CrashRates.xlsx](#)

T17 Intersection Crash History:

Over the course of 5 years, 2016-2020, 7 crashes. The severities are 0 Fatal, 1 Serious Major injury, 1 Minor injury, 1 Possible / Unknown injury and 4 Property Damage only. [7 count T17 nofilter.pdf](#)

T17 Intersection Analysis, Side Road:

Phase 2: The Iowa 92 / County Road T17 location: [la 92 and T17 location MP 164.5.docx](#)

The Iowa 92 / County Road T17 has existing minor right turn lanes:

- EB Rt turn lane and a WB Rt turn lane

Traffic data was collected and Turn Lane warrants were evaluated per design manual chapter 6A-1, at County Road T17. [Intersection IA 92 and T17 Concept Section Write-Up.docx](#) The following turn lane improvements are warranted:

- Minor EB right turn lane (existing)
- Major WB right turn lane (extend the existing right turn lane)
- EB left turn lane (new)**
- WB left turn lane, not warranted, but, may be practical to include due to the horizontal alignment needed for the EB left turn lane.**

The pavement widening improvement may be constructed, on the north side, within the existing right of way. Rec. dwg.: [T 17 IA 92 Record drawing.pdf](#)

Quarry trucks from the north, and Landfill trucks from the south, often utilize the IA 92 EB shoulder, East of the T17 intersection, as an acceleration lane into the IA 92 EB lane. EB shoulder deteriorates. The EB IA 92 shoulder strengthening is needed. The existing 10 ft. paved shoulder needs strengthening for a distance of approximately 1500 ft since SB to EB trucks from the nearby quarry often use the shoulder as an uphill acceleration lane instead of the thru lane: EB shoulder strengthening length: Sta 282+00 to Sta 297+00 (hill crest)

Survey and Design would be needed.

Estimated Cost: **\$ 800,000 HSIPX-092-6(042)—3L-63 PIN 22-63-092-020**

There are existing paved shoulders that were continued through [existing gravel side roads](#).

Marion and Mahaska County, pg. 10,11 may like to participate in a Preconstruction Agreement for the paving of gravel public side road intersections per Std detail 7149. [2022-C-103 MarionCoFinal Signed.pdf](#)

Railroads: n/a

Additional Safety & Operation Considerations:

n/a

STRUCTURES and DRAINAGE:

Maint. No.	FHWA No.	Size/Type	County	Over	On NHS	Year Built	Rail Retrofit Year	BDD/ Rehab Year	Bridge Rail Height	Vertical Clearance	Future Project
Phase 2											
6359.4S092	603530	205'-6" x 44'-0" PPCB Bridge	Marion	IA-92 over English River	Yes	1978	----	1978 - Bridge Deck Overlay, 2018 - Approach repair.	32"	----	----
6360.0S092	603550	157'-4" x 44'-0" PPCB Bridge	Marion	IA-92 over 165th Avenue	Yes	1978	----	1978 - Bridge Deck Overlay	32"	15'-05"	----
6360.8S092	603540	Twins 10'x12'x227' RCB Culvert	Marion	IA-92 over Drainage Ditch	Yes	1978	----	----	----	----	----
6361.8Q092	600770	575'-0" x 32'-0" Continuous Welded Girder Bridge	Marion	On Old Hwy IA-92 over IA-92	No	1978	----	2004 - Bridge Slope Protection, 2018 - HMA leveling adjacent to the Bridge.	39.75"	18'-04"	On schedule for Bridge Deck Overlay, letting date: 01/17/2024 under project# BRFM-092-6(38)--33-63.
6366.4S092	602670	220'-0" x 44'-0" Continuous I-Beam Bridge	Marion	IA-92 over BNSF RR	Yes	1978	2021 - Near guardrail replaced.	1978 - Bridge Deck Overlay, 2021 - Deck Joint Replacement @ approaches.	32"	----	----
6367.1S092	602660	193'-0" x 44'-0" PPCB Bridge	Marion	IA-92 over Old Dec Moines River Ch.	Yes	1978	----	1978 - Bridge Deck Overlay	32"	----	----
Phase 1											
6368.4S092	602650	567'-6" x 44'-0" PPCB Bridge	Marion	IA-92 over Dec Moines River	Yes	1978	----	1978 - Bridge Deck Overlay, 1994 - Rip Rap placement at abutments/roadway piers. 2017 - Abutment converted to semi-integral, pier joints replaced, first approach panel replaced each end.	32"	----	----
6271.5S092	603880	Twins 10'x10'x114' RCB Culvert	Mahaska	IA-92 over St Josephs Creek	Yes	1978	----	----	----	----	----

STRUCTURES and DRAINAGE cont'd:

Maint. No.	GR Trans.	GR End Terminal	GR Paved Shoulder	Rail Endpost Taper	Rail Endpost Height	Approaches	Notes	Recommendations
Phase 2								
6359.4S092	Not current	Not current	Not paved	Yes	32"	Both approaches are paved with PC concrete, and overlaid with HMA. Both approaches have settled and both have rough rides.	Open maintenance recommendations in SIMMS created in 2021 for repair pavement on both approaches.	Recommend to update guardrails to current standards, and pave guardrail shoulders out to guardrail. Recommend to address district maintenance personnel to schedule future repairs for undrained areas at far/near abutments. Recommend replacing both approaches.
6360.0S092	Only near right guardrail transition is current.	Only near right guardrail and terminal is current.	Not full-paved	Yes	32"	Both approaches are paved with PC concrete and overlaid with HMA asphalt. Approaches settled and HMA overlay deteriorated.	Open maintenance recommendations in SIMMS created in 2021 for shoulder repair at near approach & repair pavement on both approaches.	Recommend to update guardrails to current standards, and pave guardrail shoulders out to guardrail. Recommend to repair erosion damage at near left shoulder panel and undrained area. Recommend replacing both approaches.
6360.8S092	----	----	----	----	----	----	There is some cracks at exterior wing walls and leaching. The numbers of trees growing along the structure at inlet/outlet ends.	No recommendations.
6361.8O092	Not current	Not current	Not paved	----	Variable Height	Both approaches are paved with PC concrete.	The guardrails are out of the current standards. The wide they cracks at near approach panel#3. The abutment bearings have rust and peeling paint.	Fiscal year 2024 project time will address all of the noted items.
6366.4S092	Current	Current	Paved	Yes	32"	Both approaches are paved with PC concrete, and replaced in 2021.	Near guardrail system is up to the current standards. Both abutments have cracks and light leaching and staining.	Recommend to update far guardrail only to current standards.
6367.1S092	Not current	Not current	Not paved	Yes	32"	Both approaches are paved with PC concrete and overlaid with HMA asphalt. Both approaches have settled and have a rough ride. HMA overlay deteriorated.	Open maintenance recommendations in SIMMS created in 2021 for waterway remove flood debris at piers, recommendation in SIMMS created 2019 for erosion repair at far berm & close deck drains.	Recommend to update guardrails to current standards, and pave guardrail shoulders out to guardrail. Recommend to repair downstream bank cutting at far berm, and erosion damage at same location.
Phase 1								
6368.4S092	Not current	Not current	Not paved	Yes	32"	Both approaches are paved with PC concrete. First panels replaced in 2017. Second and third panels overlaid with HMA. HMA is cracked and deteriorated.	Open maintenance recommendations in SIMMS created in 2021 for removing trees & brush growing along & beneath the bridge. Multiple cracks on the top/bottom of the bridge deck. Both abutments have some cracks and stains. The pier#4 have a spalls with exposed rebar and efflorescence stains.	Recommend to update guardrails to current standards, and pave guardrail shoulders out to guardrail. Recommend replacing HMA overlay on second and third approaches panel at each end of bridge.
6271.5S092	----	----	----	----	----	----	There is leakage/staining at near wall joint at barrel#1. Approximately 4ft of silt/tree debris on waterway opening at barrel#2.	Recommend to remove silt/tree debris at barrel#2.

STRUCTURES and DRAINAGE cont'd:

1 **Phase 2:** MP 59.4, Br. 6359.4S092, Ia 92 over English River, Sufficiency rating 96.6, SIMMS report pg. 3 says to consider project with deck joints, approaches and guardrail updates. The approaches are HMA overlaid. Guardrail has old symmetrical thrie beam that should be unsymmetrical thrie beam. The end terminals are the prior RE-76 (75+ 62.5+75+82.5 = 295 lf). **Replace the guardrail. Replace both approaches and paving notches.** SIIMS report: [6359.4S092 report.pdf](#)

2 **Phase 2:** MP 60.0, Br. 6360.0S092, Ia 92 over 165th Ave, Sufficiency rating 99.3, SIMMS report pg. 3 says there is erosion at near left shoulder. The approaches are HMA overlaid. Guardrail has old symmetrical thrie beam that should be unsymmetrical thrie beam. The end terminals are the prior RE-76 (93.75 + 62.5 + 62.5 + 62.5 = 279.5 lf). **Replace the guardrail. Replace both approaches and paving notches.** SIIMS report: [6360.0S092 report.pdf](#)

3 **Phase 2:** MP 60.8, Br. 6360.8S092, Ia 92 over drainage ditch, Twin 10 x 12 RCB. Sufficiency rating 98.8, SIMMS report pg. 3 says the exterior wings have some cracks and some light to heavy leaching. UAC this site. SIIMS report: [6360.9S092report.pdf](#)

4 **Phase 2:** MP 61.8, Br. 6361.8S092, Old Hwy. 92 over IA 92, Sufficiency rating 90.9, SIMMS report pg. 9 says that the County is planning on replacing the pavement on both sides of the bridge. There is no existing guardrail on mainline IA 92 and no approaches. The vertical clearance is listed at: <https://iowadot.gov/mvd/motorcarriers/clearance.pdf> [Vertical Clearance maps.docx](#)

A deck overlay of the overhead bridge Project BRFN-092-6(38)—39-63 PIN 19-63-092-010 is planned to be let Jan. 2024, FY '24. An **Agreement with the County is needed** close old 92 during the deck overlay. SIIMS report: [6361.8S092 report.pdf](#)

5 **Phase 2:** MP 66.4, Br. 6366.4S092, Ia 92 over BNSF RR, Sufficiency rating 99.4, SIMMS report pg. 4 Deck joint repaired per 3/17/20 letting. The near and far approach EF joint is new in 2021. The approaches are HMA overlaid. Guardrail has old symmetrical thrie beam that should be unsymmetrical thrie beam. The end terminals are the prior RE-76 (82.5 + 82.5 + 68.75 + 68.75 = 302.5 lf). **Replace the guardrail.** SIIMS report: [6366.4 s092 report.pdf](#)

6 **Phase 2:** MP 67.1, Br. 6367.1S092, Ia 92 over old Des Moines river channel, Sufficiency rating 95.3, SIMMS report pg. 4 says flood debris needs to be removed around pier 2 to protect the far bank from erosion. Guardrail has old symmetrical thrie beam that should be unsymmetrical thrie beam. The end terminals are the prior RE-76 (68.75 + 62.5 + 62.5 + 62.5 = 256.25 lf). **Replace the guardrail.** SIIMS report: [6367.1S092 report.pdf](#)

7 **Phase 1:** MP 68.4, Br. 6368.4S092, Ia 92 over Des Moines river, Sufficiency rating 87.2, SIMMS report pg. 4 says the near and far approach have 20 ft of PCC the PC concrete with HMA overlay. Guardrail has old symmetrical thrie beam that should be unsymmetrical thrie beam. The end terminals are the prior RE-76 (68.75 + 68.75 + 68.75 + 68.75 = 275 lf). **Replace the guardrail.** First approach panels were replaced in 2017. **HMA overlay the second and third approach panels** at each end of the bridge. SIIMS report: [6368.4S092 report.pdf](#)

8 **Phase 1:** MP 71.5, Br. 6271.5 S092, Ia 92 over St. Josephs Creek. **Remove silt and tree debris in barrel 2.**

Culverts/Pipes:

Pending field data gathering.

Since Ia 92 is a NHS route, field review whether entrance / transverse slopes need to be flattened per Design Manual 3F-3.

ProjectWise link to sample culvert updates on NHS routes: [NHS Route Pipe Sample 2016 Sample Marion Co Ia 92 Culverts.docx](#)

ProjectWise link Bridge and Structures Bureau (BSB) Table:[NHXX-092-X\(XX\)--XX-63 BSB reviews edit for concept.xlsx](#)

FHWA No.	Maint. No.	Size/Type	Year Built	BDO/Rehab Year	Bridge Rail Height	End Post Type	Vertical Clearance	Future Projects
Phase 2								
603530	6359.4S092	208 x 44	1978		32"		n/a	Note 1
603550	6360.0S092	154 x 44	1978		32"		15 ft 5 in	Note 2
603540	6360.8S092	21 x 224	1978		n/a	n/a	n/a	Note 3
600770	6361.8O092	579 x 32	1978		39.75"	n/a	18 ft 4 in	Note 4
602670	6366.4S092	226 x 44	1978		32		n/a	Note 5
602660	676.1S092	196 x 44	1978		32		n/a	Note 6
Phase 1								
602650	6368.4S092	572 x 44	1978		32		n/a	Note 7
603880	6271.5S092	Twin10'x10	1979		n/a		n/a	Note 8

A B4 event for bridge approach pavement / paving notch could be added to the schedule.

STRUCTURES and DRAINAGE cont'd:

Guardrail:

See the above structure notes for existing guard rail at bridges to be replaced.

Also, near MP 66.4, replace 5148 lin. ft. cable rail with high tension cable rail per plans [1977 PCC Paving Mahaska co line E 3.8 mi F-592-3\(3\)--20-62.pdf](#) Here is the existing tabulation:

TABULATION OF CABLE GUARD RAIL INSTALLATIONS						
LOCATION		NORMAL INSTALLATION		END ANCHORAGE		
No.	Station	GUARD RAIL CABLE Lin. Feet	CABLE GUARD RAIL POSTS No.	TYPE	No.	REMARKS
1	509+00 517+36	836	56	RE 29A	2	RL
2	509+00 515+12	612	42	RE 29A	2	LI
3	523+00 539+52	1736	115	RE 29A	4	RL
4	528+00 536+04	804	54	RE 29A	2	LI
5	547+00 556+00	900	60	RE 29A	2	LI
6	550+00 559+96	996	66	RE 29A	2	RL

Drainage District:

n/a

PROJECT IMPACTS:

Impacts Map:

See the Project Prioritization / Scoping tool for all Office of Location and Environment Hotspots, Outstanding Iowa Waters, railroad crossings, bridge numbers, major utilities, etc.

Link: [Charter S0092-090121-01.pdf](#), [S0092-090121-01 Impacts.JPG](#), [S0092-090121-01 Prioritization.JPG](#)

Environmental:

See the above Project Prioritization / Scoping tool Ia 92 Charter summary link for wetlands, parks, historic/cultural resources, etc.

Clearing and Grubbing information is pending field data collection.

Pipe repairs are pending field data collection. See pg. 8

TSMO/Traffic Control:

Traffic to be maintained at all construction times with Traffic Control devices.

ROW:

Not likely that additional right of way is needed. See the Ia 92 / T17 intersection section.

Agreements/Notification Letters:

Marion and Mahaska County, pg. 7,11 may like to participate in a Preconstruction Agreement for the paving of gravel public side road intersections per Std detail 7149. [2022-C-103 MarionCoFinal Signed.pdf](#) Agreement with Marion County to temporarily close old, overhead Ia 92 bridge during construction.

See Note 4, pg. 8

Project Coordination:

See pg. 7, for potential Co. Rd. T17 survey and Traffic Safety fund application due Aug. 2022, pg. 7.

Previous Projects List:

See the 3R Construction History tab within the Project Wise link from the Project Prioritization Scoping tool download: [Project Scoping Scope Approved S0092-090121-01.msg](#)

Future Projects List:

None

FEASIBLE ALTERNATIVES & RECOMMENDATION:

Feasible Alternatives, Phase 1 and 2 (see Map pg 1):

Per pg. 5 both the specific Pavement Determination and the DTIMMS indicate a structural 1" +/- HMA overlay.

Since the Pavement determination is approximately 1 inch or less, and the existing surface is oxidized and cracking, this alternative consider constructing a 2 inch HMA scarification, and a 3 inch HMA overlay for both the existing 24 foot wide roadway and the existing 10 ft wide paved shoulders. (net profile change +1.0").

The project is to update that the existing guardrails to the current standards. See pg. 8

The project is to update the cable rail, to high tension cable rail. See pg. 9

HMA Resurfacing and guard rail updates

The intersection with County Road T17, pg. 7 is warranted for a left turn lane. \$ 800,000.

2 alternates were considered:

1. \$ 6,536,900 including constructing the 2 inch milling, 3 inch (2 lift) HMA resurfacing, including 1 -1.5" HMA Interlayer, for both the mainline and shoulders, and including the W beam and cable rail updates, and including the Intersection improvement at County Road T17. To supplement the project, a \$ 800,000 application for TSIP funds was approved, for FY '24 construction. [FY2024 Dist 5 Ia 92 Marion Intersection HSIP-CandidateProjectSubmissionForm.docx](#) See pg. 7
2. \$ 6,036,900 including constructing the 2 inch milling, 3 inch (2 lift) HMA resurfacing for both the mainline and shoulders, and including the W beam and cable rail updates, and NOT including the Intersection improvement at County Road T17. An application for TSIP funds would have a timing of Aug. 2022 application, for FY '24 construction.

Recommendation:

Construct **Alternate 1** in separate construction seasons, Ph. 1 FY '23 and Ph 2 FY '24. (see map pg. 1) Pipe repairs, entrance foreslope flattening, patching, as well as Centerline rumble strips, and shoulder rumble strips are to be included.

\$ 5,736,900 3R funds, including T17 intersection See below for Cost Estimate

800,000 Safety funds for T17 intersection, HSIP Ia 92 Marion (40) update FY '24 3R Concept Project numbers needed.msg pg. 7 HSIPX-092-6(042)- -3L-63

_____pending Marion and Mahaska County side road intersection paving, pg. 7,10

\$ 6,536,900 Total Phase 1 FY '23 and Phase 2 FY '24

Here are ProjectWise links:

Phase 1 and 2 combined, Cost Estimate (adjusted for inflation 6 22 2022): [Rev add cable rail Add T17 Mill and Overlay, FY 23, IA 92 E of Knoxville to E Co Line 05 25 21.xlsx](#)

iPDWeb has D0 Estimate

Funds Programmed:

\$ 2,045,400-3,068,094 Phase 1, FY 2023 of 3R funds. See pg. 9 for more information.

\$ 4,491,500 5,937,255 Phase 2, FY 2024 of 3R funds, and potential TSIP funds for the T17 intersection.

Roadway	IA 92		
PIN Number	22-63-092-020	Submittal Date	
Project Number	NHSX-092-6(040)--3H-63 / HSIPX-092-6(042)--3L-63		Approval Date
District	District 5	Assistant District Engineer	
County	MARION	or	
Route	IA 92	Office Director	
Location	E of Knoxville to 0.15 mi W of Co Rd T25		
Work Type	HMA Resurfacing with Milling		
Segment Manager	Jason Holst		
Designer	Jonathan Bahr/William McNamara		

[Design Manual Section 1C-1](#)
[Last Updated: 04-29-19](#)

Rural Two-Lane Highways (Rural Arterials)

Design Element	Preferred	Acceptable	Project Values
Design speed (mph)	60	50	60
Maximum superelevation rate (Refer to Section 2A-2)	6%	8%	8% (note 1)
Design lane width (ft)	12	12	12
Full depth paved width (ft)	12	12	12
Right turn lane (ft)	12	10	10
Climbing Lane (ft)	12	12	n/a
Left turn lane (ft)	12	10	12
Pavement cross-slope (on tangent sections)	Through lanes	1.5% minimum, 2% maximum	1.5-3.0% (note 2)
	Auxiliary and turn lanes	3% maximum	3%
	Crown break at centerline	4% maximum	4%
Shoulder cross-slope (on tangent sections)	4%	Shoulder cross-slope cannot be less than the adjacent lane, 6% max for paved or granular shoulders, 8% max for earth shoulders	4%
Curb type (Refer to Section 3C-2)	Design speed = 50 or 55 mph	6-inch sloped	n/a
	Design speed ≥ 60 mph	4-inch sloped	n/a
Foreslope (For fill areas greater than 40 ft, contact the Soils Design Section for assistance)	Adjacent to shoulder	10:1 for 4' then 6:1	6:1 (note 3)
	Beyond standard ditch depth and design clear zone	3.5:1	3:1 (note 3)
	Curbed roadways	2%	n/a
Backslope (For cut areas greater than 25 feet, contact the Soils Design Section for assistance with backslope benches.)	3:1	2.5:1	2.5:1 (note 3)
Transverse Slopes	w/ drainage structures	8:1	unknown
	w/o drainage structures	10:1	unknown
Ditches (Refer to Section 3G-1)	Outside ditch (depth x width) (ft)	5 x 10	unknown
Bridge width—new*	Bridge length ≤ 200 ft	design lane widths + effective shoulder widths	n/a
	Bridge length > 200 ft	design lane widths + effective shoulder widths	n/a
Bridge width—existing*		design lane widths + no less than 2 ft left and right	44' & 32' (note 4)
Vertical clearance (ft) (above lanes, shoulders and 25 feet left and right of the center of railroad tracks)	Over primary	16.5	18' 4" (note 5)
	Over non-primary	16.5 at interchange locations, 15 at all other locations	15' 5" (note 5)
	Over railroad	23.3	unknown
	Sign trusses and pedestrian bridges	17.5	n/a
Structural Capacity	Contact Office of Bridges and Structures	Contact Office of Bridges and Structures	n/a
Level of Service	B	B	B (note 5)

*FHWA notification via email is required if acceptable criteria is not met on the NHS system (No formal design exception is required)

Note 1: Record drawings (1978) indicate a maximum superelevation of 8% with a max cross over of 7% on the high side shoulder. Detail 2012 from 11-17-72.

Note 2: Record drawings (1978) indicate a traveled way slope of 1.5%. A later project (2001) of AAC Resurfacing shows a minimum sloped of 2.0% with a maximum of 3.0%.

Note 3: Record drawings (1978) indicate a FS of 3:1 and BS of 2:1 with a ditch depth of minimum 3' and 6' width on local roads and a FS of 6:1 and BS of 2.5:1 on IA 92 (Freeway No. 592, 1976 grading).

Note 4: Record drawings (1978) indicate mainline bridges of 44' width and an overhead local road (old IA 92) of 32' width over IA 92.

Note 5: Information provided from the project's concept.

Subject: NHSX-092-6(40)--3H-63 1/10/2023 D2 Questions for the District - with Response in GREEN Text

Date: 01/10/2023

Times: 1:00 pm to 3:00 pm Teams Meeting

Description: D2 Field Exam

Location: Microsoft Teams Meeting

Attendees (Teams Meeting):

Jason Holst (Ames Road Design)

Jonathan Bahr (Ames Road Design)

William McNamara (Ames Road Design)

James Phillips (District 5 Staff Engineer)

Jared Klein (District 5 Staff Engineer)

Darrick Bielser (District 5 Construction Engineer)

Michael "Walt" Kingery (District 5 Maintenance)

Bonnie Clancy (District 5 Utility Coordinator)

1. PROJECT LIMITS

- a. Beginning of the project is at the PCC to HMA and four lane to two lane transition at MP 159.09 just East of Knoxville. Please verify.

The median will be included in the resurfacing with the 1.5" Intermediate Course and the 1.5" Surface Course (see ROADWAY TREATMENT).

- b. End of the project is at MP 167.66 at 0.15 miles East of County Road T25. Note that the end of this project is also the beginning of NHSX-092-6(39)--3H-63 that is set to be let on 20 December 2022. Please verify. Project length is approximately 8.57 miles. Note that Masterworks location will need to be updated for (40). Propose: "E of Knoxville to 0.15 mi W of Co Rd T25".

The phase one beginning has the correct location of the end of phase two which is located at "0.15 mi W of Co Rd T25". Masterworks currently (20230113) shows "... to 0.15 mi E of Co Rd T25". Road design will contact Contracts to get the location correct. (Phase one project was let in December)

2. TYPE OF WORK

- a. The type of work is currently listed as HMA Resurfacing with Milling from (40). With the addition of (42) at the T17 intersection we also have HMA Pavement - Grade and New. Please confirm if we want to show both work types or just keep the overarching one from (40) of HMA Resurfacing with Milling?

Road design will check with Contracts for the preferred project description.

3. FUNDING

- a. Please specify the scope of work associated with the HSIPX project. Example: Is the cable guardrail part of the safety improvement or 3R funding (part 9 of questions)? Is the 1,500 foot of shoulder strengthening East of T17 on EB shoulder part of the safety improvement or 3R funding (Concept page 7; part 14 of questions)?

The EB lane for the shoulder strengthening would and the widening for the turn lanes qualify for the HSIPX. Cable guardrail (two spots, EB/WB) within the T17 project (proximity) could count as they are safety related however, if the \$800,000 safety funds are exhausted then cable guardrail should be kept within the 3R budget.

4. ROADWAY TREATMENT

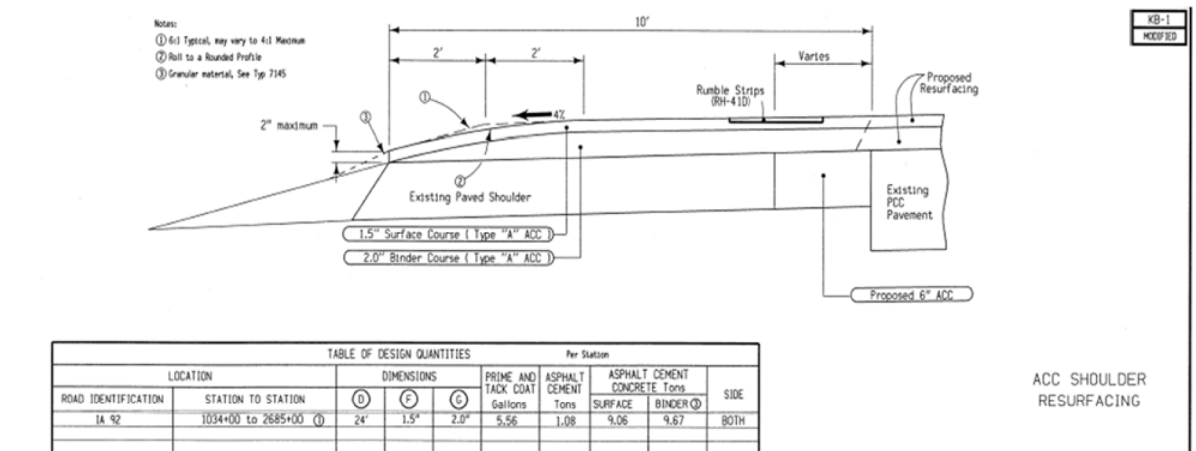
- a. The Concept recommends going with Alternative One which consists of 2-inches milling and 3-inches (2 lift) HMA Resurfacing resulting in 1-inch rise of roadway profile elevation. Part of the resurfacing is called out to be 1-1.5-inches of HMA Interlayer. Please confirm this is how the district wants to proceed? Based on the (39) project and previous discussions on the Interlayer would we want to proceed with 1.5" HMA Intermediate and 1.5" Surface course instead?

Follow the sample plans, (December letting phase one plans; NHSX-092-6(39)--3H-63, using 1.5" Intermediate and 1.5" Surface HMA courses) and do not use the interlayer as described in the Concept. See contingencies for HMA Pavement. See T17 intersection for new pavement composition. Road Design shall coordinate pavement design with Materials Bureau (Danny Zeimen).

5. SHOULDER TREATMENT

- a. The Concept recommends going with Alternative One which consists of 2-inches milling and 3-inches (2 lift) HMA Resurfacing to the shoulders. Part of the resurfacing is called out to be 1-1.5-inches of HMA Interlayer. Please confirm this is how the district wants to proceed? Would we want to proceed with 1.5" HMA Intermediate and 1.5" Surface course instead (based on the (39) project and previous discussions on the Interlayer)?

The shoulders shall use the same treatment for paving as the mainline. Regarding the granular fillet, the phase one plans (NHSX-092-6(39)--3H-63) show using the granular fillet along the shoulder as well. See contingencies for Granular Material. See T17 intersection for new pavement composition.



- b. Of note is the prior project in 2001 utilized KB-1 (as seen above) as a shoulder. In the design the shoulder edge is rounded out to a minimum of 2" maximum thickness. With this project we are milling down 2" and resurfacing with 3" which would leave an edge potential of 2.5". Do we want to approach this with a granular shoulder fillet (7145-M on B.5) or a different method?

Phase one (NHSX-092-6(39)--3H-63) used the granular shoulder fillet as well (see above green comments).

6. SHOULDER AND CENTERLINE RUMBLE

- a. This project meets complete streets policy of 6' or greater width paved shoulders. Noted in page 6 of the Concept. We will be providing both shoulder and centerline rumble strips with this project.

See response about the shoulder strengthening location in T17 INTERSECTION IMPROVEMENT HSIPX-092-6(42)--3L-63 SECTION for gap in shoulder rumble strips.

7. LONGITUDINAL SUBDRAINS

- a. The current roadway has approximately 97% longitudinal coverage from a previous project in 2001. With this project the Concept proposes 100% coverage by filling in the gaps from the previous project. Furthermore, we have new pavement going in at the T17 intersection. Please confirm that we would proceed with the additional 3% of subdrain coverage for 100%.

New subdrain shall be installed with the T17 Intersection at the outside edge of the 1500' EB shoulder strengthening. Subdrain may be a safety item (HSIPX) if the \$800,000 Safety Budget allows. The 3% gap in existing coverage is for unknown reasons (gapping may be occurring for the four bridges within the project limits). The "97% coverage" was a rough calculation and the project may be effectively fully covered when gaps are analyzed (see above comment regarding bridges). Road Design shall coordinate subdrain installation with Soils Bureau.

8. STRUCTURES

- a. See page 9 and 10 of the Concept for recommendations near various structures that includes: Replacement of approaches, updating guardrails, and paved shoulders for guardrail.
- b. (1978 Sta. 1050+50) FHWA 603530 Bridge 6359.4S092 Approach Replacement (prior RK-21?), paving notches, and guardrail. Approach replacement would consist of BR-203. SRP BR-203 includes the previous panels. Three of the guardrails would include BA-206 for attaching cable guardrail as existing. Traffic control for these bridges (603530 and 603550) will need two separate signals. District will be investigating the paving notches to see if the notches need to be included (Road Design will wait to hear back from the District before any changes regarding the B Dates should be made).
+District Maintenance to schedule future repairs to undermined areas at far/near abutments.
District tabulation will be provided if needed.
- c. (1978 Sta. 1083+03.9) FHWA 603550 Bridge 6360.0S092 Approach Replacement (prior RK-21?), paving notches, and guardrail. Approach replacement would consist of BR-203. SRP BR-203 includes the previous panels.
SW guardrail has been replaced and updated recently due to a recent vehicle impact.
+Erosion damage repair needed. Would this be a future maintenance project or something we take care of with this project?
- d. (1978 Sta. 1123+00) FHWA 603540 RCB 6360.8S092 USE AS CONSTRUCTED
- e. (1978 Sta. 136+12.1) FHWA 600770 Bridge 6361.8O092 indicates an Agreement with the county is needed to close old IA 92 during the deck overlay.
See part 19 for agreements and discussion on coordinated operations for the J Sheets.
- f. (1978 Sta. 381+94) FHWA 602670 Bridge 6366.4S092 (Over the RR) Guardrail replacement only. Concepts states (page 9) to update the far guardrail only. What quadrant(s) of the bridge needs to be updated?
District will be including this site in the field review.
- g. (1978 Sta. 419+50) FHWA 602660 Bridge 6367.1S092 Guardrail replacement, and paved shoulders for guardrail.

9. GUARDRAIL

- a. Steel Beam Guardrail updating required at several bridges (See STRUCTURES).
- i. 6359.4S092; 603530; IA 92 over English River:
Update and replace all existing guardrail to current standards including paved shoulder for guardrail. Will require BA-206 for cable guardrail attachment on both sides for EB Traffic and only the East side for WB Traffic. With the previous shortages on cable guardrail, is there anything we need to note? Any reusing of existing high tension cable guardrail? Would we remove and reinstall cable guardrail to a shorter length attaching it to BA-206?
Pending field information.
- ii. 6360.0S092; 603550; IA 92 over 165th Avenue:
Update and replace all existing guardrail to current standards including paved shoulder for guardrail.
SW guardrail has been replaced and updated recently due to a recent vehicle impact.
- iii. 6366.4S092; 602670; IA 92 over BNSF Railroad:
Update and replace all existing guardrail to current standards EXCLUDING paved shoulder for guardrail. West end will require two BA-206 for cable guardrail attachment.

For the bridge guardrail updates with cable guardrail, will new cable guardrail need to be placed or are we able to reuse current with remove and reinstall (lengths would be shorter as new steel beam likely to be longer in length potentially)?
Pending field information.
- iv. 6367.1S092; 602660; IA 92 over Old Des Moines River Channel:
Pending field information.
- b. Cable Guardrail replacement is needed at MP 66.4 (6184' from table on Concept page 11). New Cable guardrail will also be installed on the WB direction near T17 due to widening of the intersection for the left turn lane. Updated cable guardrails will be High Tension (page 12 of the Concept).
NOTE: "Contractor may reuse the existing cable" potentially after District Staff verifies that the existing cable guardrail can be reused.
- c. Other cable guardrail locations throughout the project. Due to the 1" raise in roadway profile elevation, will require a remove and reinstall or new? Also taking into consideration the Buy American Act and the material acceptance requirement?
There are several locations where the cable is not high tension and will need to be updated. District will inventory the cable guardrail. The intention here is to update all cable guardrail to high tension.
- d. Will any 2505-6000131 HIGH TENSION CABLE GUARDRAIL, SPARE PARTS KIT be needed for this project?
Yes, spare parts kit will be needed on this project. Use two for bid item quantity.
- e. As built indicated cable guardrail for the OLD IA 92 over IA 92 Bridge. Appears to be outside the acceptable range for clear zone. Wanted to confirm that cable guardrail is not needed at this location since it was once indicated as necessary.
Road Design will discuss the location with Roadside Safety (Daniel Harness).

10. CULVERTS/PIPES

- a. Page 10 of Concept indicates that culverts/pipes data is pending field gathering. Are there any specific locations that we should review during the site visit?
District is gathering field data.
- b. IA 92 in Marion County is an NHS Route, a field review of entrance transverse slopes is needed (Chapter 3F-3).
District is gathering field data.

11. ENTRANCES

- a. Are there any special details needed with the entrances? All appear to be granular. Exception is just East of T17 (from Google Earth), unable to tell if this is an entrance or an area someone uses (mainly grassy path visible).
The 'entrance' just East of T17 is an informal access point.

12. PATCHING

- a. Page 6 and 12 of the Concept mentions that patching is to be included with this project. Per page 6 of the Concept the patch tab is pending data collection. Are there any specific locations that we should review during?
District is gathering field data.
- b. 216th PI has two raised stop islands. Is there anything special that we are going to do around them?
Remove and patch the raised stop islands (PCC finish patch) and repaint. Maintenance shall place Traffic Barrels with Stop Signs. These traffic island locations should appear in the patch tab pending data collection.

13. CLEARING AND GRUBBING

- a. Page 11 of the Concept indicates that the clearing and grubbing information is pending field data collection.
District is requesting Grading need lines around T17 intersection so that the District can properly create the Clearing and Grubbing tab. However, we are missing survey at the NE quadrant of the T17 intersection; the Team was wondering what could be done to fill in the survey so we can properly delineate the need line at that quadrant. Jason Holst recommended utilizing the State's Photogrammetry LiDAR data instead of using Jared Klein's Drone LiDAR to fill in the gaps. The State's Photogrammetry LiDAR data should be able to be tied into the Survey that we currently have. If we need something else then we can contact the District.

14. T17 INTERSECTION IMPROVEMENT HSIPX-092-6(42)--3L-63

- a. Left turn lane warranted on EB (new), WB left turn lane added due to geometrics. WB offset right turn lane appears to not require ROW at a rough D0 approximation. Current modeling needs refined.
Road Design will work with Photo to get LiDAR files to get the additional survey terrain as needed to model the offset right turn lane.
- b. Paved shoulder for IA 92 EB Lane needs strengthening for ~1,500 feet (Concept statement, 282+00 to 297+00).
Consideration will need to be taken into the process of construction of the shoulder strengthening for the potential earth shoulder construction due to the depth of excavation.

1/12/2023 email from Jim Phillips suggests for the 1,500 feet of shoulder strengthening that the lane line not be moved and that the shoulder rumble strip not be placed. Reasoning for the shoulder rumble strips being that the shoulder is being used by EB trucks informally as a climbing lane.
- c. The shoulder material for the widening on North side will be bid with Tab. 100-25 as the base, intermediate, and surface courses will carry through the 10' shoulder. Road design will update the B sheets to show the different layers.

15. RIGHT OF WAY

- a. From page 11 of the Concept ROW will likely not be needed. ROW was purchased to accommodate a four-lane highway when the original corridor was constructed.
Jim Phillips said the County would like to see a Pavement Marking/Layout file because Jim needs to modify an Agreement and the Pavement Marking file will help them develop the Agreement. Jim mentioned that the sideroad won't be getting turn lanes and that only the RADII return would be developed. Road Design will put together pavement markings display to show the county what we currently have designed for the T17 intersection.

16. EXISTING DRAINAGE PROBLEMS

- a. Are there any other existing drainage issues that we might mitigate or address with this project?
No additional ones outside of possible RCP extension with T17 intersection improvement.

17. STOCKPILED MATERIALS

- a. Confirm that Maintenance would like the following Stockpiled Materials:
 - i. HMA Millings (See ROADWAY TREATMENT)
Maintenance would rather have Class A Stone than HMA Millings; discuss at a future date with potential quantities.
 - ii. Class 13 Excavation (See T17 INTERSECTION IMPROVEMENT)
No
 - iii. Cable Guardrail (See GUARDRAIL)
Yes, Maintenance will take the low tension cable guardrail
 - iv. Cable Guardrail Posts (See GUARDRAIL)
Yes
 - v. Steel Beam Guardrail (See GUARDRAIL)
Yes - Note in the tabulation that the W beam needs to be unbolted and stockpiled at the maintenance garage (not cut).
 - vi. Steel Beam Guardrail Posts (See GUARDRAIL)
No
- b. Verify the location of Stockpiled Materials (Primary/Secondary locations and preferred distribution of materials)
 - i. Primary Location: Knoxville Maintenance Garage.
 - ii. Secondary Location: No secondary location.
- c. Maintenance Contact Person and Phone Number:
Michael "Walt" Kingery 641-218-9422

18. LETTING DATE

- a. Current letting date is 19 December 2023

19. AGREEMENTS

- a. Page 11 of the Concept indicates that Marion County may like to participate in an Agreement for Standard Road Detail 7149 for paving of the gravel public side roads. (See page 10 of Concept). (Final Signed Agreement 2022-C-103). Consists of 50' of pavement outside of the DOT Paved Shoulders on Side Road 195th Place North and South.
Road Design shall implement the Agreement in the plans.
- b. *Agreement with the county is needed for the bridge deck overlay above IA-92 per the Project Concept. A Funding Agreement for the Bridge Deck Overlay work does not need to be included within this Project. Project Coordination Note will be needed with the J Sheets. Project number of the Bridge Deck Overlay Project is BRFN-092-6(38)--39-63.
- c. Are any additional Agreements expected for this project?
No additional Agreements are expected at this time.

20. SPECIAL FEATURES

- a. Are there any special features not shown on the plans that need to be taken into consideration, either design or Traffic Control-wise?
None as of D2 besides the traffic control for the bridge approach replacements.

21. SPECIAL EVENTS

- a. Are there any Special Events that need to be identified and if so, what are their schedules?
August/September "Labor Day Knoxville Nationals" (racetrack). See the Special Events on the (39) Project.

22. ADDITIONAL TOPICS TO BE RESOLVED AS THE PROJECT PROGRESSES

- a. Project Coordination
BRFN-092-6(38)--39-63
NHSX-092-6(39)--3H-63
- b. Tied Projects
To be determined following DM5 Event.
- c. Pavement Specifications
Road Design shall coordinate with Materials Bureau (Danny Zeimen).
- d. OLE Information
District Design Staff shall coordinate with Location and Environment Bureau.
- e. RCE Bid Items
Road Design shall coordinate "Bid Items for Plan Turn-In" and Project Management with District RCE.

23. TRAFFIC CONTROL

- a. Discussion may be needed about the traffic control around the two bridge approach sections and the T17 intersection improvements.
Road Design shall check with Traffic (Jeff Von Braun) for que lengths for Turn Lanes around T17.

24. CORRIDOR CRASH HISTORY

- a. Page 7 of the Project Concept indicates that there was 1 fatality in recent history (Sunday January 12, Sunday 12-2 AM, 2020) and that IA 92 has a crash rate of 110 per HMVMT which is higher than the Rural Statewide average of 93 per HMVMT. Are there any additional safety features that can be introduced to the project beyond the proposed paved shoulders and rumbles?
Safety Features included with this project to address Corridor Crash History are the paved shoulders and rumble strips (shoulder and centerline). No additional Safety Features are necessary.

25. RAILROAD COORDINATION

- a. (6366.4S092; 602670; IA 92 over BNSF Railroad) Road Design will coordinate with Railroad Bureau (Ed Engle and Tami Quam) for appropriate language for the plan set and special provisions if necessary. Tami Quam has recently filled Maria Hobbs' former position "Highway/Railroad Agreement Coordination".

26. CONTINGENCIES

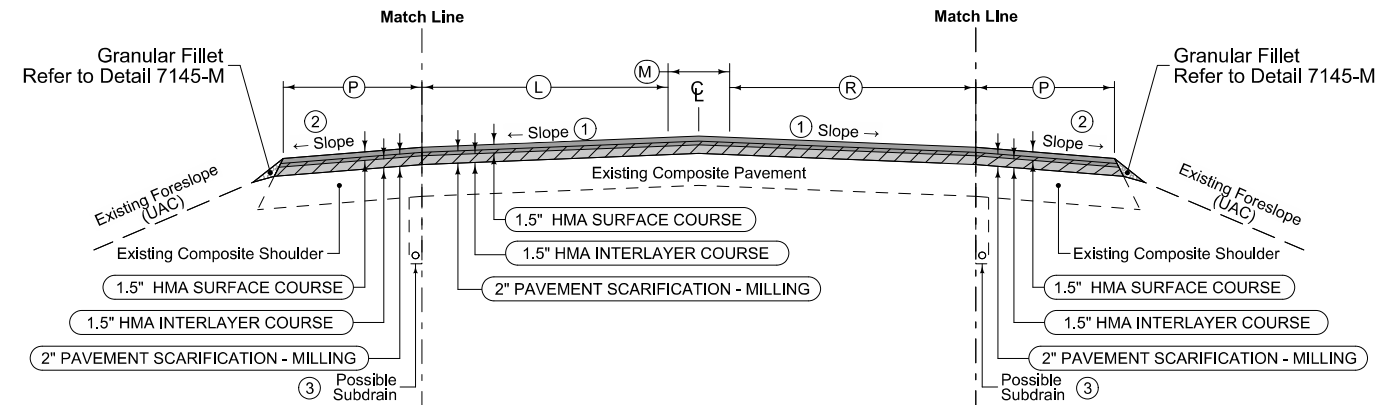
Email and response of 20230110 just after the D2 with Jim Phillips

- a. HMA Pavement: 5%
- b. Granular Shoulder: 5%
- c. Patches: 5%

**Paved Shoulder and Granular Fillet
NHSX-092-6(40)--3H-63**

3R_Shldr_P_Milling_ Modified			
STATION TO STATION		(P) Feet	Division
1035+00	1115+67.60 (E1)	10	1
110+73.00 (E1)	271+81.86	10	1
298+35.49	447+25	10	1

STATION EQUATION (E1) 1115+67.60 (BK) = 110+73.00 (AH)



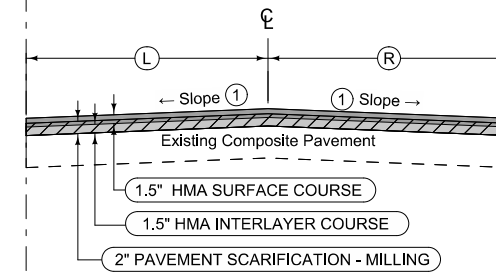
**Paved Shoulder and Granular Fillet
NHSX-092-6(40)--3H-63**

3R_Shldr_P_Milling_ Modified			
STATION TO STATION		(P) Feet	Division
1035+00	1115+67.60 (E1)	10	1
110+73.00 (E1)	271+81.86	10	1
298+35.49	447+25	10	1

STATION EQUATION (E1) 1115+67.60 (BK) = 110+73.00 (AH)

NHSX-092-6(40)--3H-63

3R_MillingOverlay_ Modified						
STATION TO STATION		(L) Feet	(M) Feet	(R) Feet	Division	Remarks
1035+00	1042+05	12	36-0	12	1	



NHSX-092-6(40)--3H-63

3R_MillingOverlay_ Modified					
STATION TO STATION		(L) Feet	(R) Feet	Division	Remarks
1042+05	1115+67.60 (E1)	12	12	1	
110+73.00 (E1)	271+81.86	12	12	1	
298+35.49	447+25	12	12	1	

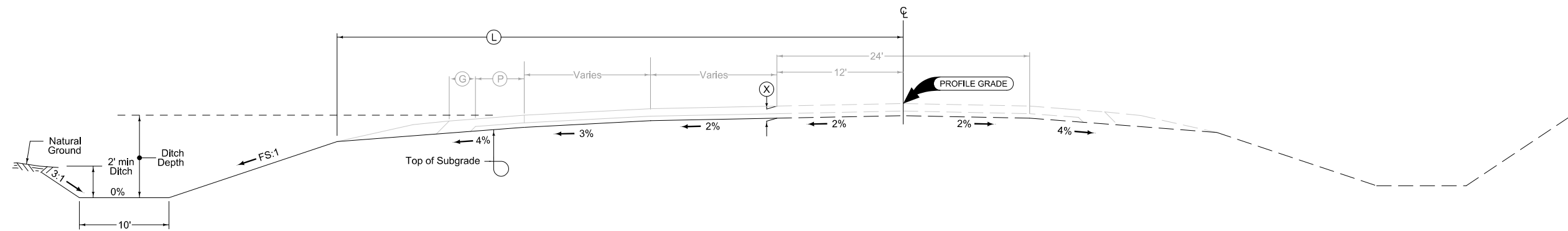
STATION EQUATION (E1) 1115+67.60 (BK) = 110+73.00 (AH)

- ① Finished slope over Thru Lanes shall match existing pavement except the minimum allowable slope is 2.0% and the maximum allowable slope is 3.0%. Section may be modified as directed by the Engineer through areas of special shaping.
- ② Finished slope over Shoulders shall match existing pavement except the minimum allowable slope is 4.0% and the maximum allowable slope is 6.0%. Section may be modified as directed by the Engineer through areas of special shaping.
- ③ UAC existing subdrain. All existing subdrain shall remain functional at all times (do not plug or crush). New subdrain shall be in contact with the granular material below the existing mainline pavement (see Tab 104-9 on CS sheets for proposed locations).

General Notes:

- 1. Stationing on typical sections does not include gapping for paved sideroads or paved entrances. Refer to Details.
- 2. See Tab 100-25 for Pavement quantities.
- 3. See Tab 112-9 for Granular Shoulder quantities.

**IA 92 HMA RESURFACING WITH MILLING
(Beginning of Project to Co Rd T17)
(Co Rd T17 to End of Project)**



Normal section shown may be modified appropriately in areas of superelevated curves or other locations specifically designated by the Engineer.

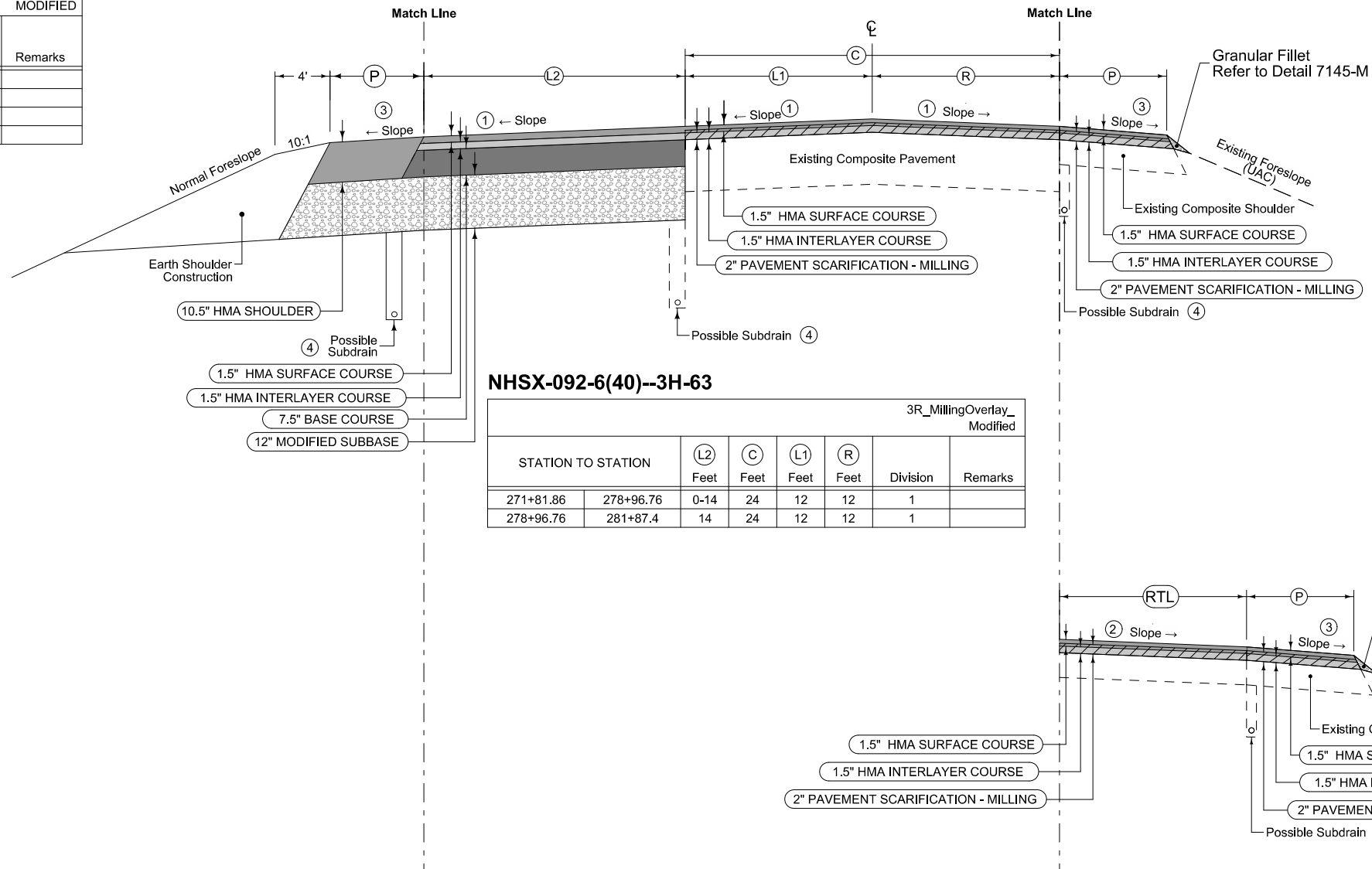
See plan & profile sheets and cross sections for additional details of ditches and backslopes.

2 LANE GRADING

LOCATION		DIMENSIONS		
ROAD IDENTIFICATION	STATION TO STATION	Ⓛ	Ⓧ	FS
		Feet	Inches	
IA 92	271+81.86 279+81.12	x	22.5	3:1
IA 92	282+63.91 298+35.49	x	22.5	3:1

Paved Shoulder
HSIPX-092-6(42)--3L-63

2_C MODIFIED				
STATION TO STATION	(P) Feet	Division	Remarks	
271+81.86	279+81.12	10	1	



NHSX-092-6(40)--3H-63

3R_MillingOverlay_ Modified						
STATION TO STATION	(L2) Feet	(C) Feet	(L1) Feet	(R) Feet	Division	Remarks
271+81.86	278+96.76	0-14	24	12	12	1
278+96.76	281+87.4	14	24	12	12	1

Paved Shoulder and Granular Fillet
NHSX-092-6(40)--3H-63

3R_Shldr_P_Milling_ Modified			
STATION TO STATION	(P) Feet	Division	
271+81.86	278+96.76	10	1

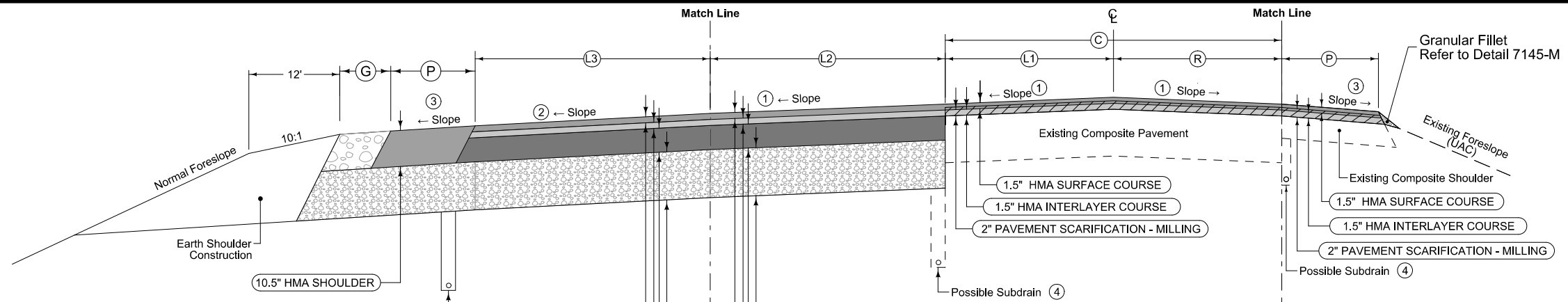
Paved Shoulder and Granular Fillet
NHSX-092-6(40)--3H-63

3R_Shldr_P_Milling_ Modified				
STATION TO STATION	(RTL) Feet	(P) Feet	Division	
278+96.76	279+81.12	0 - 10	10 - 0	1
279+81.12	281+30	10	0	1

- ① Finished slope over Thru Lanes shall match existing pavement except the maximum allowable slope is 3.0% and the minimum allowable slope is 2.0%. Section may be modified as directed by the Engineer through areas of special shaping.
- ② Finished slope of Turning Lanes shall match existing except the minimum allowable slope is 3% and the maximum allowable slope is 4%. Section may be modified as directed by the Engineer through areas of special shaping.
- ③ Finished slope of Shoulder shall have a minimum allowable slope of 4% and a maximum allowable slope of 6%. Section may be modified as directed by the Engineer through areas of special shaping.
- ④ UAC existing subdrain unless noted on CS Sheets. All existing subdrain shall remain functional at all times (do not plug or crush). New subdrain shall be located at the outside edge of the paved shoulder and shall be in contact with the granular subbase. Pavement removal is not required for the installation of new subdrain. See Tab 104-9 and Detail RLS-3 on CS Sheets for proposed locations.

- General Notes:
- 1. Stationing on typical sections does not include gapping for paved sideroads or paved entrances. Refer to Details.
 - 2. See Tab 100-25 for Pavement quantities.
 - 3. See Tab 112-9 for Granular Shoulder quantities.

**IA 92 HMA RESURFACING WITH MILLING
AND HMA TURNING LANE
(West of Co Rd T17)**



**Combination Shoulder with Turning Lane and Gore
HSIPX-092-6(42)--3L-63**

2_C MODIFIED					
STATION TO STATION	L3 Feet	P Feet	G Feet	Division	Remarks
282+63.91 - 289+40.59	34 - 12	4	2	1	
289+40.59 - 290+30.59	12 - 6	4	2	1	
290+30.59 - 290+60.79	6 - 4	4 - 6	2 - 0	1	

**Paved Shoulder Taper
HSIPX-092-6(42)--3L-63**

2_C MODIFIED				
STATION TO STATION	L3 Feet	P Feet	Division	Remarks
290+60.79 - 291+20.59	4-0	6-10	1	

**Paved Shoulder
HSIPX-092-6(42)--3L-63**

2_C MODIFIED			
STATION TO STATION	P Feet	Division	Remarks
291+20.59 - 293+35.49	10	1	

NHSX-092-6(40)--3H-63

3R_MillingOverlay_ Modified					
STATION TO STATION	C Feet	L1 Feet	R Feet	Division	Remarks
281+87.4 - 291+20.59	24	12	12	1	
291+20.59 - 298+35.49	24	12	12	1	

HSIPX-092-6(42)--3L-63

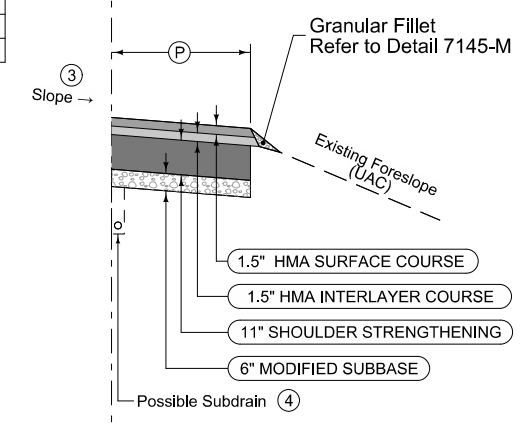
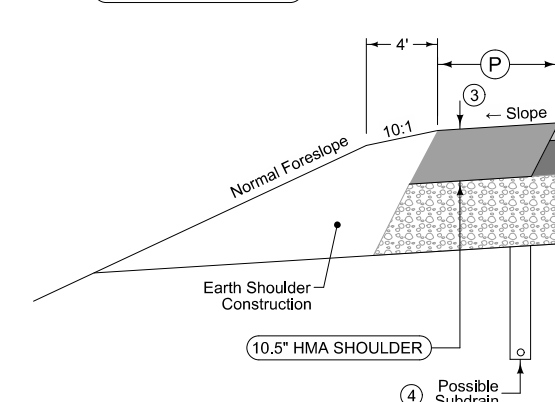
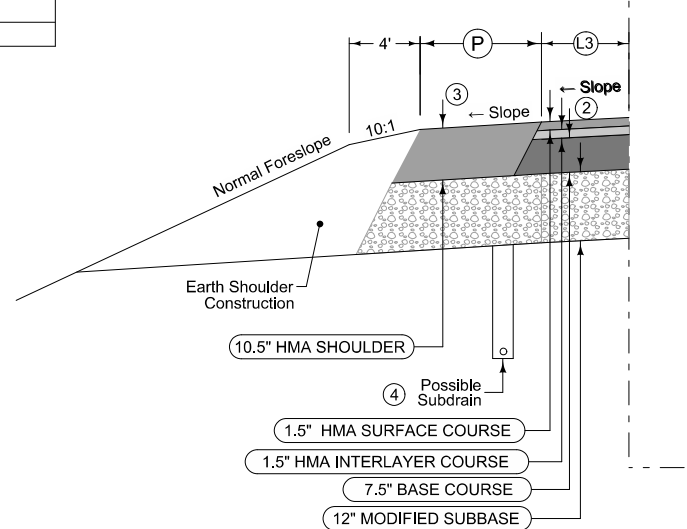
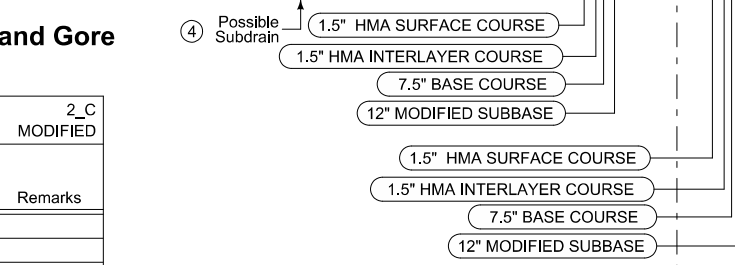
3R_MillingOverlay_ Modified			
STATION TO STATION	L2 Feet	Division	Remarks
281+87.4 - 291+20.59	14	1	
291+20.59 - 298+35.49	14-0	1	

**Paved Shoulder and Granular Fillet
NHSX-092-6(40)--3H-63**

3R_Shldr_P_Milling_ Modified			
STATION TO STATION	P Feet	Division	Remarks
289+58.90 - 298+35.49	10	1	

**Shoulder Strengthening
NHSX-092-6(40)--3H-63**

3R_Shldr_P_Milling_ Modified			
STATION TO STATION	P Feet	Division	Remarks
282+58.90 - 297+58.90	10	1	



- Finished slope over Thru Lanes shall match existing pavement except the maximum allowable slope is 3.0% and the minimum allowable slope is 2.0%. Section may be modified as directed by the Engineer through areas of special shaping.
- Finished slope of Turning Lanes shall match existing except the minimum allowable slope is 3% and the maximum allowable slope is 4%. Section may be modified as directed by the Engineer through areas of special shaping.
- Finished slope of Shoulder shall have a minimum allowable slope of 4% and a maximum allowable slope of 6%. Section may be modified as directed by the Engineer through areas of special shaping.
- UAC existing subdrain unless noted on CS Sheets. All existing subdrain shall remain functional at all times (do not plug or crush). New subdrain shall be located at the outside edge of the paved shoulder and shall be in contact with the granular subbase. Pavement removal is not required for the installation of new subdrain. See Tab 104-9 and Detail RLS-3 on CS Sheets for proposed locations.

General Notes:

- Stationing on typical sections does not include gapping for paved sideroads or paved entrances. Refer to Details.
- See Tab 100-25 for Pavement quantities.
- See Tab 112-9 for Granular Shoulder quantities.

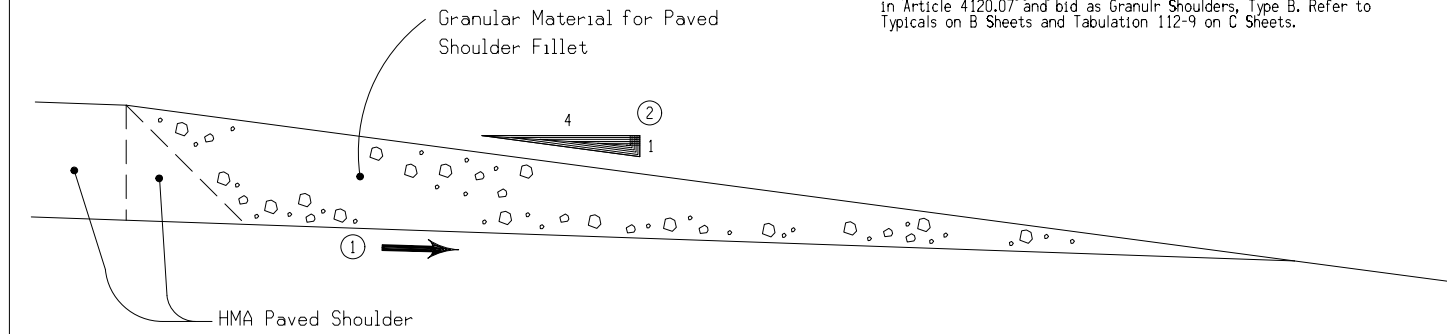
**IA 92 HMA RESURFACING WITH MILLING
AND HMA TURNING LANES
(East of Co Rd T17)**

7145-M
Modified

Notes:

This typical illustrates the construction requirements for a Granular Material fillet at the edge of a paved shoulder.

The aggregate used for the Granular Fillet shall meet the requirements of Aggregate for Paved Shoulder Fillet, as specified in Article 4120.07 and bid as Granular Shoulders, Type B. Refer to Typical on B Sheets and Tabulation 112-9 on C Sheets.



- ① Match slope of under side of shoulder pavement.
- ② A foreslope of 4:1 or flatter shall be provided.

GRANULAR MATERIAL
FOR PAVED
SHOULDER FILLET

Property Owners
 P-Gordon M. & Joan Arnott
 Q-Kenneth L. Bean
 R-Chester & Alice Brooks
 AA-Cemetery

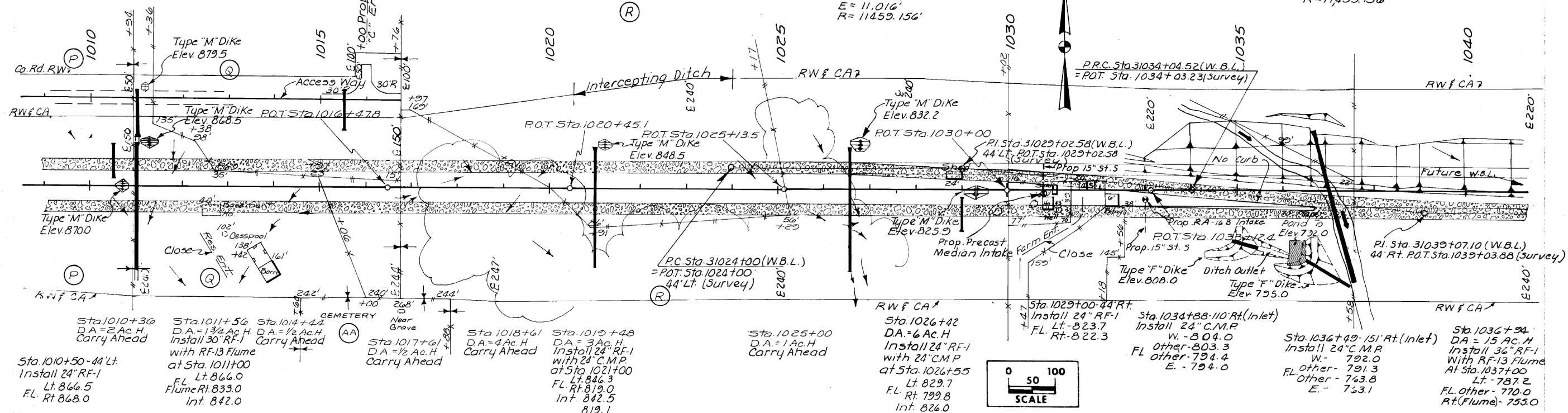
For Details of Access Way
 See Sheets 19 & 20

KNOXVILLE TWP
 T75N R10W
 SEC. 16

W. B. Lane
 $\Delta = 5^\circ 1' 21.28''$
 $D = 0^\circ 30' 00''$
 $T = 502.58'$
 $L = 1004.516'$
 $E = 11.016'$
 $R = 11459.156'$

For Details of 4 Lane
 To 2 Lanes
 See Sheet No. 13

W. B. Lane
 $\Delta = 5^\circ 1' 21.28''$
 $D = 0^\circ 30' 00''$
 $T = 502.58'$
 $L = 1004.516'$
 $E = 11.016'$
 $R = 11459.156'$



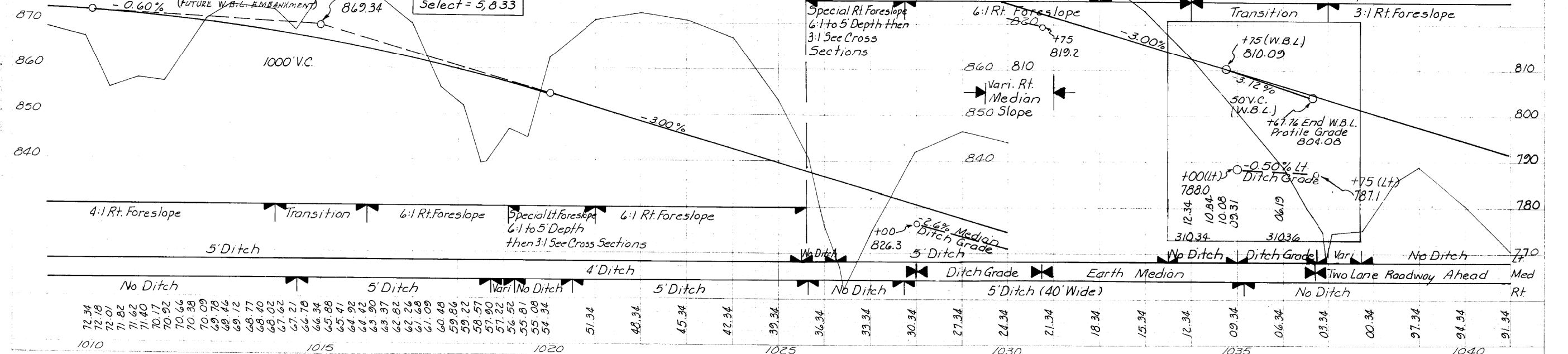
Sta. 1010+30 D.A. = 2 Ac.H. Carry Ahead	Sta. 1011+56 D.A. = 1 3/4 Ac.H. Install 30" R.F.-1 with R.F.-13 Flume at Sta. 1011+00 FL. Lt. 866.0 Flume Rt. 833.0 Int. 842.0	Sta. 1014+44 D.A. = 1/2 Ac.H. Carry Ahead	Sta. 1017+61 D.A. = 1/2 Ac.H. Carry Ahead	Sta. 1018+61 D.A. = 4 Ac.H. Carry Ahead	Sta. 1019+48 D.A. = 3 Ac.H. Install 24" R.F.-1 with 24" C.M.P. at Sta. 1021+00 FL. Lt. 846.3 Rt. 819.0 Int. 842.5 819.1	Sta. 1025+00 D.A. = 1 Ac.H. Carry Ahead	Sta. 1026+42 D.A. = 6 Ac.H. Install 24" R.F.-1 with 24" C.M.P. at Sta. 1026+55 Lt. 829.7 Rt. 799.8 Int. 826.0 800.0	Sta. 1029+00-44 Rt. Install 24" R.F.-1 Lt. 823.7 Rt. 822.3	Sta. 1034+88-110 Rt. (Inlet) Install 24" C.M.P. W. - 804.0 Other - 803.3 FL. Other - 794.4 E. - 794.0	Sta. 1036+49-151 Rt. (Inlet) Install 24" C.M.P. W. - 792.0 FL. Other - 791.3 Other - 763.8 E. - 763.1	Sta. 1036+94 D.A. = 15 Ac.H. Install 36" R.F.-1 with R.F.-13 Flume At Sta. 1037+00 Lt. - 787.2 FL. Other - 770.0 Rt. (Flume) - 755.0
-----------------------------------------------	-----------------------------------------------------------------------------------------------------------------------------------------------------	-------------------------------------------------	-------------------------------------------------	-----------------------------------------------	-------------------------------------------------------------------------------------------------------------------------------------------------	-----------------------------------------------	---------------------------------------------------------------------------------------------------------------------------------------------	---------------------------------------------------------------------	----------------------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------------------------------------------------------------

Waste = 26,273 Cu.Yds
 PLACE IN FUTURE W.B.L. EMBANKMENT
 Lt. of Sta. 1038+50±
 (FUTURE W.B.L. EMBANKMENT)

Select = 5,833

C Sand Stone From M.L. Sta. 1022± = 74,738
 Shale From M.L. Sta. 1024± = 46,336
 = 1,184
 = 122,258

F + 15% = 74,738
 Sandstone F = 46,336
 Shale F = 1,184
 = 122,258

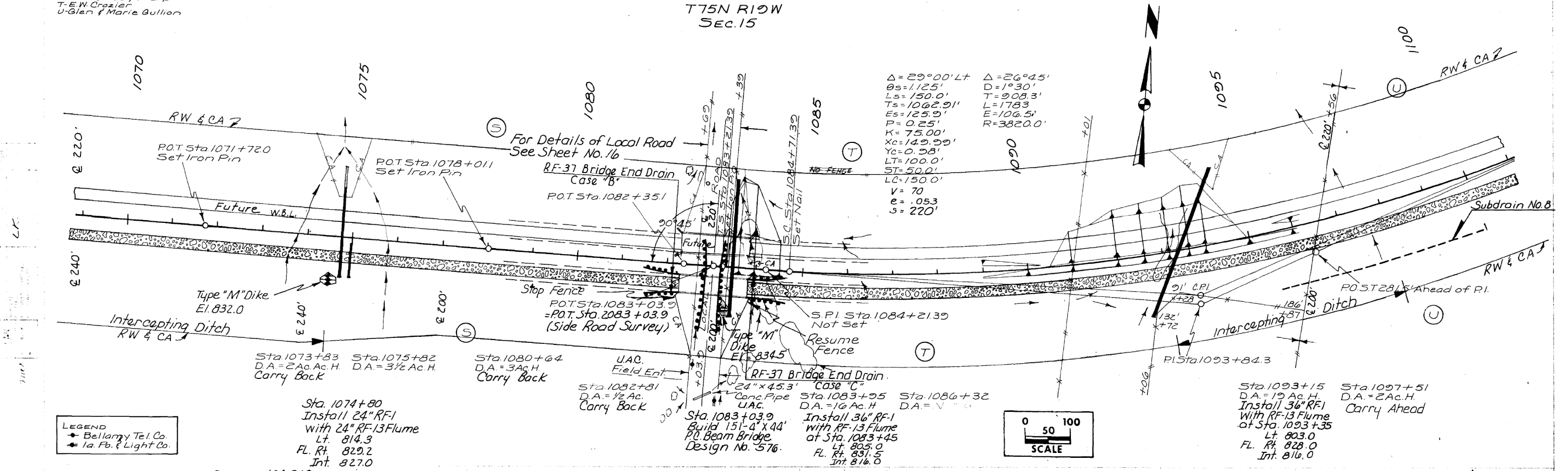


1010	1015	1020	1025	1030	1035	1040
72.34	72.01	71.82	71.62	71.40	70.92	70.66
70.38	70.09	69.78	69.46	69.12	68.77	68.40
68.02	67.62	67.21	66.78	66.34	65.88	65.41
64.92	64.42	63.90	63.37	62.82	62.26	61.69
61.09	59.86	59.22	58.57	57.90	57.22	56.52
55.81	55.08	54.34	51.34	48.34	45.34	42.34
39.34	36.34	33.34	30.34	27.34	24.34	21.34
18.34	15.34	12.34	09.34	06.34	03.34	00.34
97.34	94.34	91.34				

This Sheet
 For Information Only

Property Owners
 S. H.M. & Ruby Thorp
 T. E.W. Crozier
 U. Glen & Marie Bullion

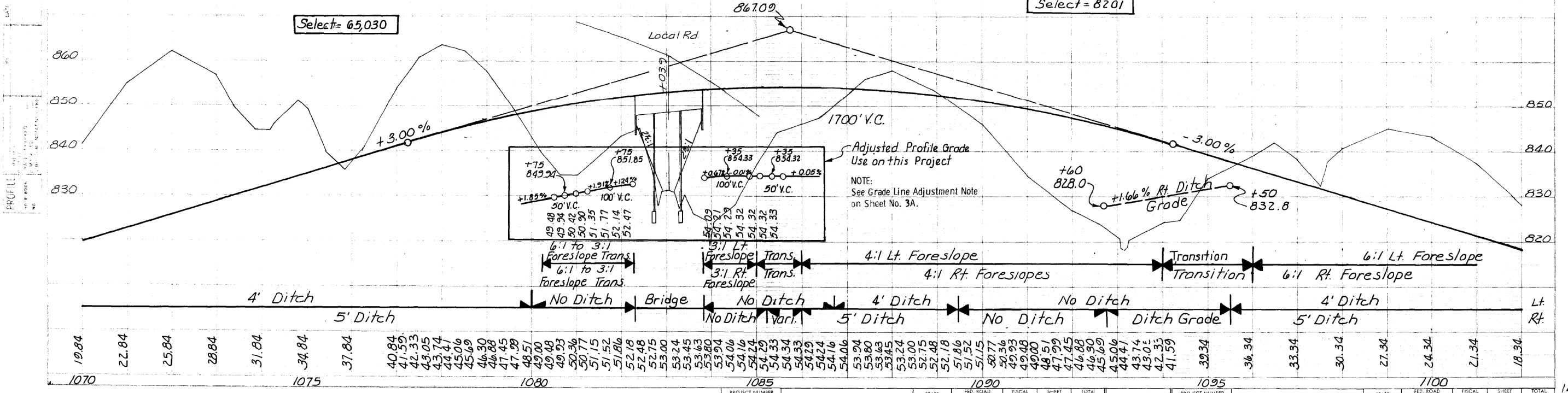
KNOXVILLE TWP.
 T75N R10W
 Sec. 15



LEGEND
 • Bellamy Tel. Co.
 • Ia. Pb. & Light Co.

C	= 104,310	F + 15%	= 2,830
Uns. C	= 2,761	Uns. F	= 2,761
Shale	= 3,460	To M.L. Sta. 1055±	= 101,480
	110,531	Shale to M.L. Sta. 1061±	= 3,460
			110,531

C = 62,396 F + 15% = 62,396



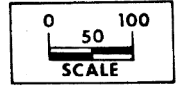
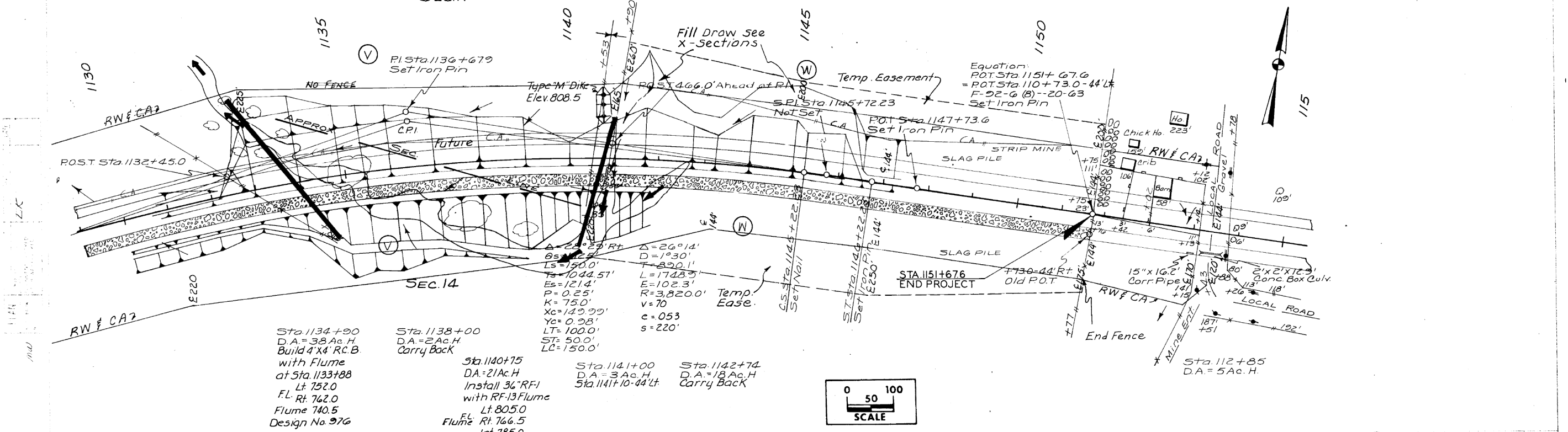
NOTE:
 See Grade Line Adjustment Note
 on Sheet No. 3A.

STATE	FED. ROAD DIST. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS	STATE	FED. ROAD DIST. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IOWA	5				IOWA	5		10	31

This Sheet
 For Information Only

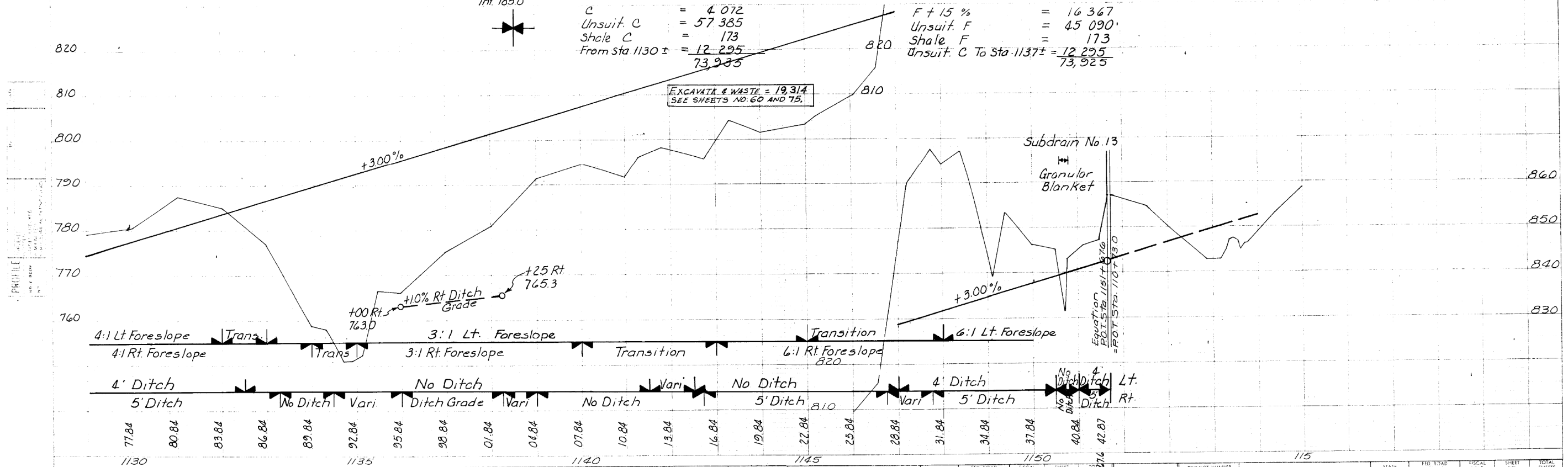
Property Owners
V-J Francis Christman
W-William & Hazel Ostrum

KNOXVILLE TWP
T75N R19W
SEC. 11



C	=	4 072	F + 15 %	=	16 367
Unsuit. C	=	57 385	Unsuit. F	=	45 090
Shale C	=	173	Shale F	=	173
From Sta. 1130 ±	=	12 295	Unsuit. C To Sta. 1137 ±	=	12 295
		73 935			73 925

EXCAVATE & WASTE = 19,314
SEE SHEETS NO. 60 AND 75.



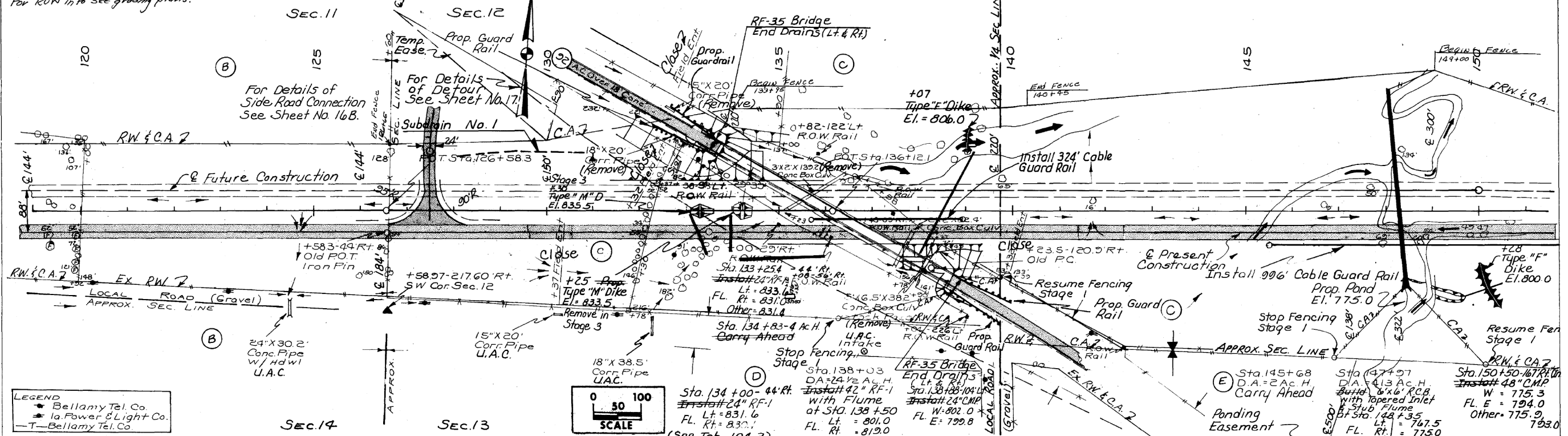
This Sheet
For Information Only

Property Owners
 B. William & Hazel Oastrum
 C. Edward J. Banks
 E.C.E. & Daisy Shawvet
 For ROW info see grading plans.

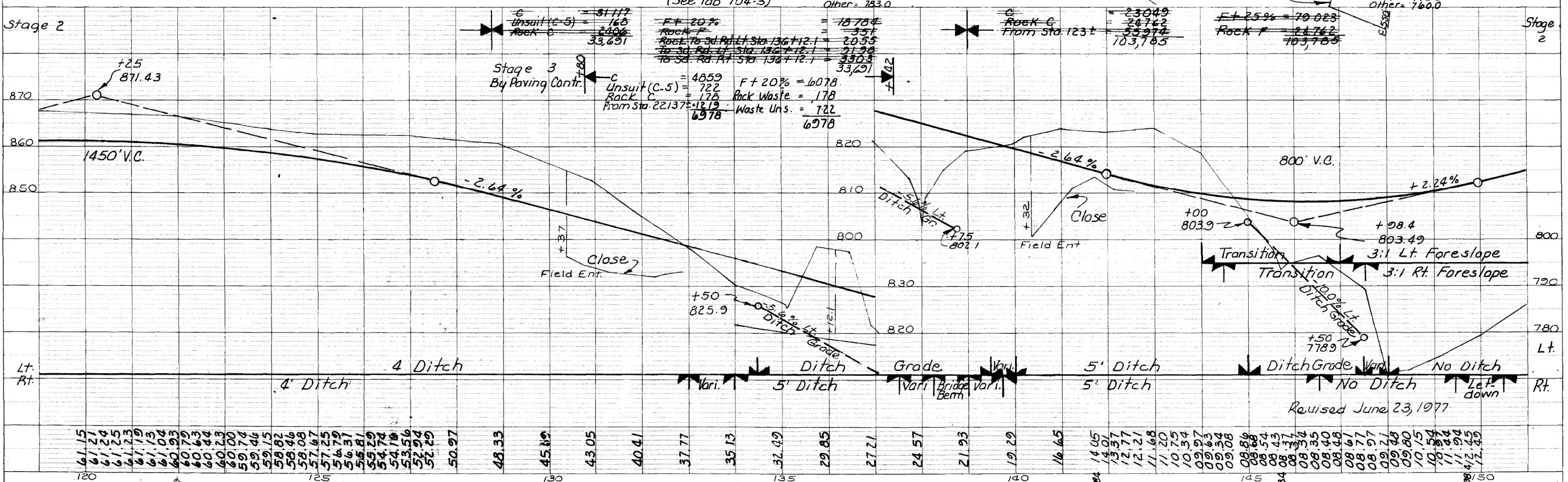
KNOXVILLE TWP
 T75N R15W

For Side Road Details
 See Sheet No. 12

DATE	
BY	
REVISION	
NO.	
PLAN	
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DATE	
BY	
REVISION	
NO.	
PROFILE	
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DATE	
BY	
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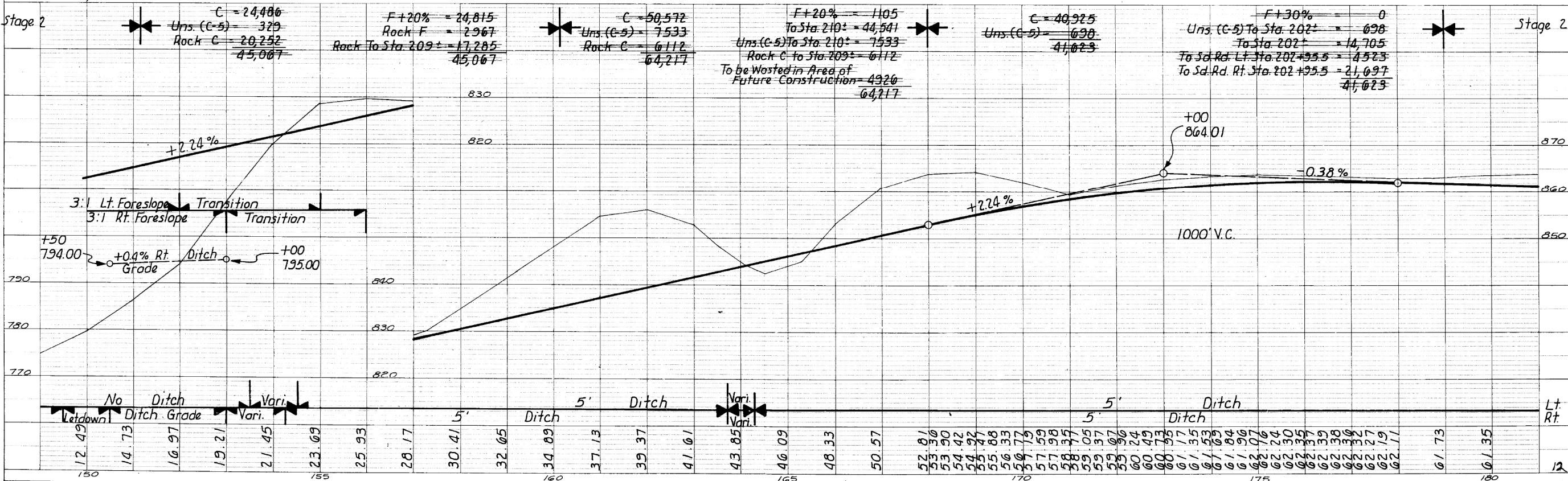
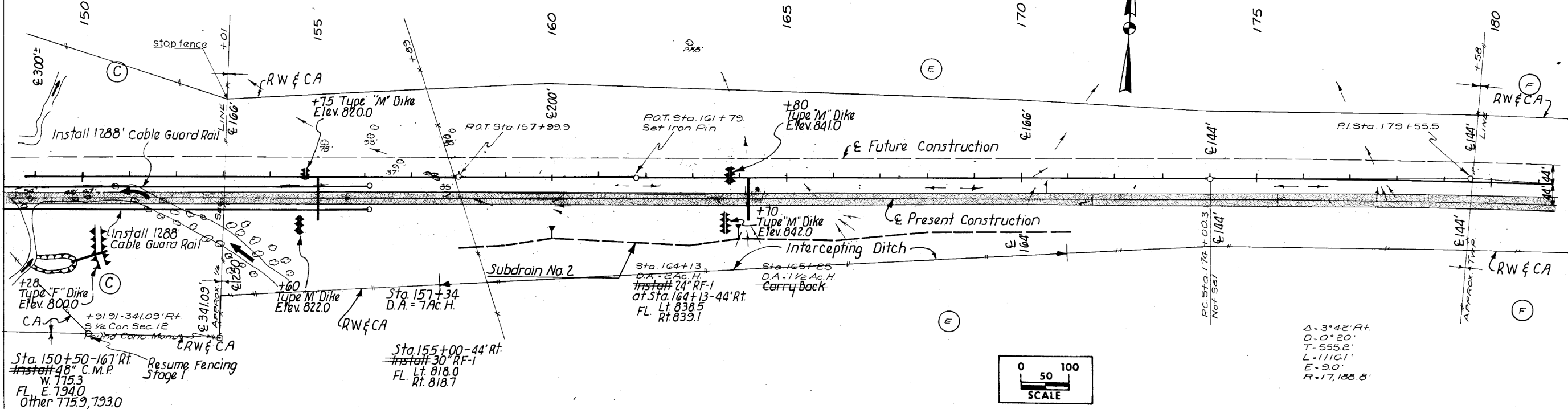
120	125	130	135	140	145	150
61.15	61.21	61.24	61.25	61.23	61.19	61.13
61.04	60.93	60.79	60.63	60.44	60.23	60.00
59.74	59.46	59.15	58.82	58.46	58.08	57.67
57.25	56.79	56.31	55.81	55.29	54.74	54.18
53.56	52.94	52.29	50.97	48.33	45.89	43.05
40.41	37.77	35.13	32.49	29.85	27.21	24.57
21.93	19.29	16.65	14.05	11.40	8.75	6.10
3.45	0.80	0.15	0.50	0.85	1.20	1.55
1.90	0.25	0.60	0.95	1.30	1.65	2.00
2.35	2.70	3.05	3.40	3.75	4.10	4.45
4.80	5.15	5.50	5.85	6.20	6.55	6.90
7.25	7.60	7.95	8.30	8.65	9.00	9.35
9.70	10.05	10.40	10.75	11.10	11.45	11.80
12.15	12.50	12.85	13.20	13.55	13.90	14.25
14.60	14.95	15.30	15.65	16.00	16.35	16.70
17.05	17.40	17.75	18.10	18.45	18.80	19.15
19.50	19.85	20.20	20.55	20.90	21.25	21.60
21.95	22.30	22.65	23.00	23.35	23.70	24.05
24.40	24.75	25.10	25.45	25.80	26.15	26.50
26.85	27.20	27.55	27.90	28.25	28.60	28.95
29.30	29.65	30.00	30.35	30.70	31.05	31.40
31.75	32.10	32.45	32.80	33.15	33.50	33.85
34.20	34.55	34.90	35.25	35.60	35.95	36.30
36.65	37.00	37.35	37.70	38.05	38.40	38.75
39.10	39.45	39.80	40.15	40.50	40.85	41.20
41.55	41.90	42.25	42.60	42.95	43.30	43.65
44.00	44.35	44.70	45.05	45.40	45.75	46.10
46.45	46.80	47.15	47.50	47.85	48.20	48.55
48.90	49.25	49.60	49.95	50.30	50.65	51.00
51.35	51.70	52.05	52.40	52.75	53.10	53.45
53.80	54.15	54.50	54.85	55.20	55.55	55.90
56.25	56.60	56.95	57.30	57.65	58.00	58.35
58.70	59.05	59.40	59.75	60.10	60.45	60.80
61.15	61.50	61.85	62.20	62.55	62.90	63.25
63.60	63.95	64.30	64.65	65.00	65.35	65.70
66.05	66.40	66.75	67.10	67.45	67.80	68.15
68.50	68.85	69.20	69.55	69.90	70.25	70.60
70.95	71.30	71.65	72.00	72.35	72.70	73.05
73.40	73.75	74.10	74.45	74.80	75.15	75.50
75.85	76.20	76.55	76.90	77.25	77.60	77.95
78.30	78.65	79.00	79.35	79.70	80.05	80.40
80.75	81.10	81.45	81.80	82.15	82.50	82.85
83.20	83.55	83.90	84.25	84.60	84.95	85.30
85.65	86.00	86.35	86.70	87.05	87.40	87.75
88.10	88.45	88.80	89.15	89.50	89.85	90.20
90.55	90.90	91.25	91.60	91.95	92.30	92.65
93.00	93.35	93.70	94.05	94.40	94.75	95.10
95.45	95.80	96.15	96.50	96.85	97.20	97.55
97.90	98.25	98.60	98.95	99.30	99.65	100.00

This Sheet
 For Information Only

Property Owners
 C. Edward J. Banks, et al.
 E. C. E. & Dary Shawver
 F. G. E. Harsin
 For ROW info see grading plans.

KNOXVILLE TWP T75N R19W SEC. 12
 CLAY TWP T75N R18W SEC. 7

DATE		
BY		
REVISIONS		
NO. 1	DATE	DESCRIPTION
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150	155	160	165	170	175	180
12.49	14.73	16.97	19.21	21.45	23.69	25.93
30.41	32.65	34.89	37.13	39.37	41.61	43.85
46.09	48.33	50.57	52.81	53.30	54.42	54.91
55.41	55.88	56.33	56.73	57.13	57.59	57.98
58.37	58.77	59.05	59.37	59.67	59.96	60.24
60.49	60.73	60.97	61.17	61.35	61.53	61.71
61.84	61.96	62.07	62.16	62.24	62.30	62.35
62.37	62.39	62.30	62.32	62.27	62.19	62.11
61.73	61.35					
12						

This Sheet For Information Only

KNOXVILLE TWP
T75N R10W
SEC.12

CLAY TWP
T75N R18W
SEC.7

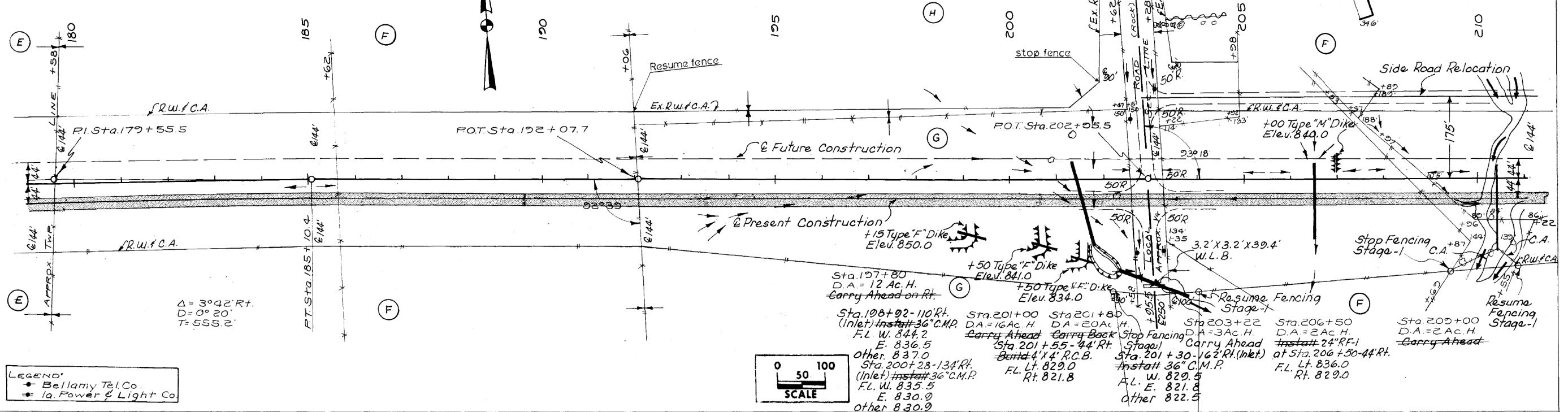
Property Owners
E.C.E. & Daisy Shawver
F.G.E. Harsin
G. Wallace L. & Freeda L. West
H. Faye Lucille Woody
For ROW info see grading plans.

Future Separation
Mainline Over Side Road

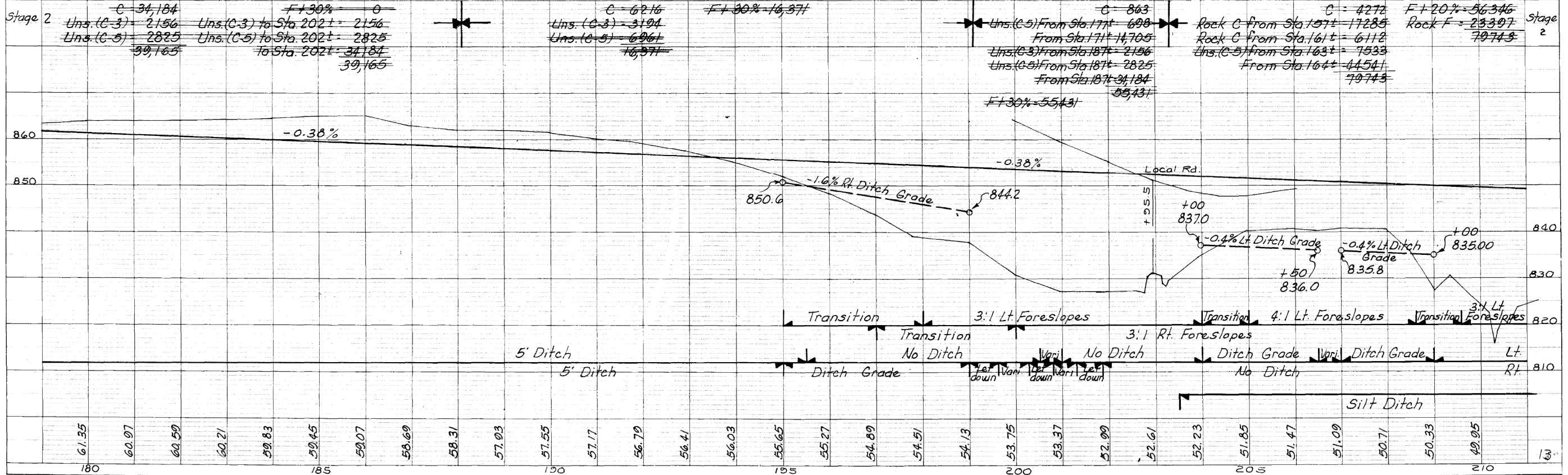
For Details of Side Road,
See Sheet No.14

For Details of Side Road
Relocation, See Sheet No.15

DATE	
BY	
REVISIONS	
NO.	
DATE	
BY	
DESCRIPTION	

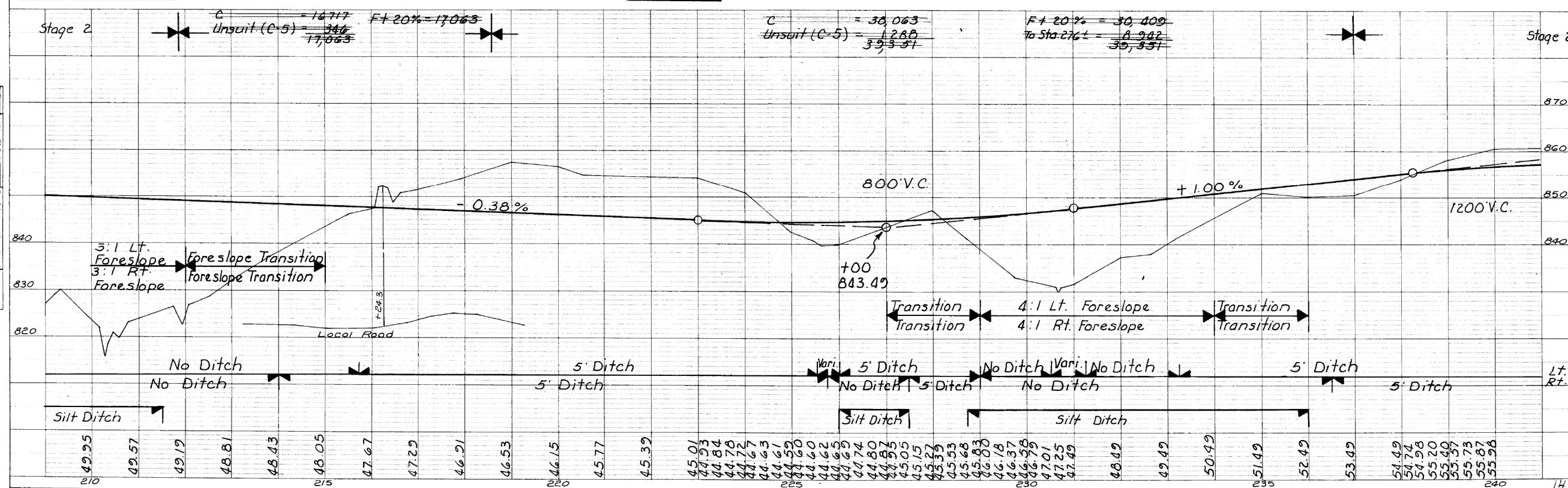
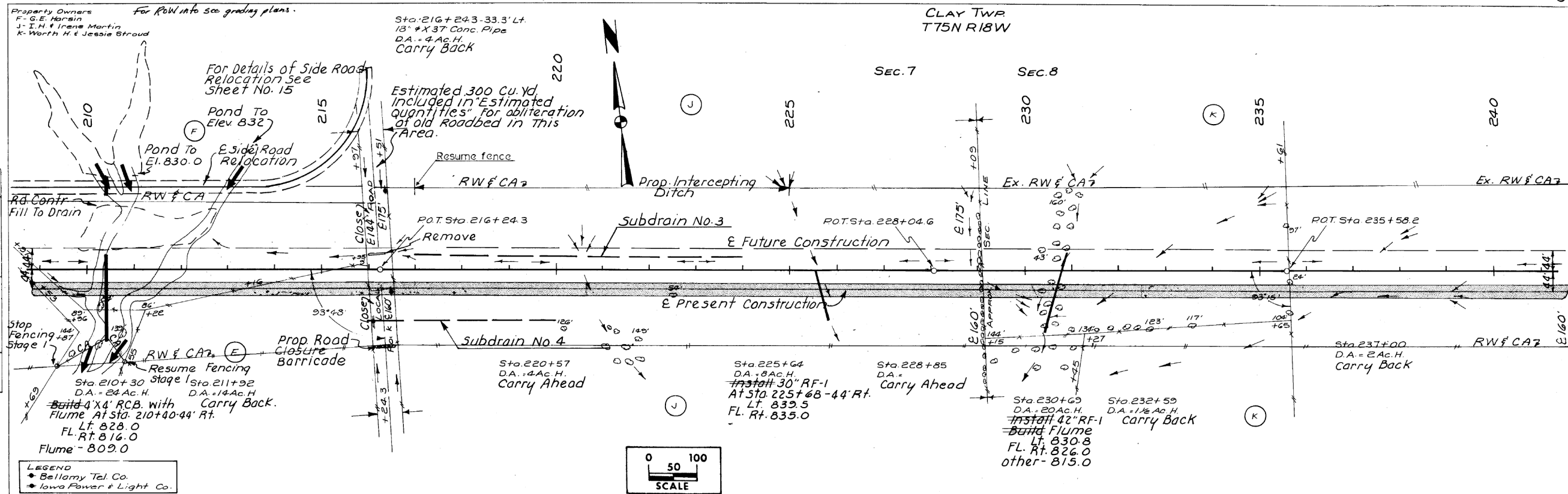


DATE	
BY	
REVISIONS	
NO.	
DATE	
BY	
DESCRIPTION	



STATE	IOWA	FED. ROAD DIST. NO.	5	SCALE YEAR		SHEET NO.		TOTAL SHEETS	
PROJECT NUMBER	MARION CO				PROJECT NUMBER	F-502-2(11)--20-63			
STATE	IOWA	FED. ROAD DIST. NO.	5	FISCAL YEAR		SHEET NO.	7	TOTAL SHEETS	64

This Sheet
For Information Only



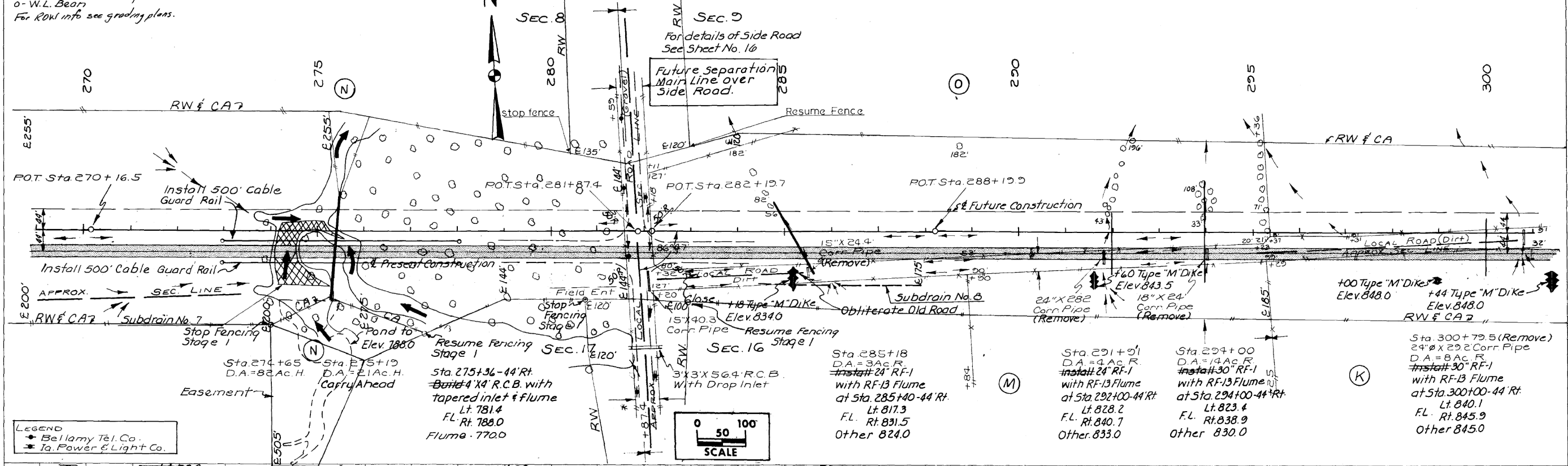
49.95	49.57	49.19	48.81	48.43	48.05	47.67	47.29	46.91	46.53	46.15	45.77	45.39	45.01	44.63	44.25	43.87	43.49	43.11	42.73	42.35	41.97	41.59	41.21	40.83	40.45	40.07	39.69	39.31	38.93	38.55	38.17	37.79	37.41	37.03	36.65	36.27	35.89	35.51	35.13	34.75	34.37	33.99	33.61	33.23	32.85	32.47	32.09	31.71	31.33	30.95	30.57	30.19	29.81	29.43	29.05	28.67	28.29	27.91	27.53	27.15	26.77	26.39	26.01	25.63	25.25	24.87	24.49	24.11	23.73	23.35	22.97	22.59	22.21	21.83	21.45	21.07	20.69	20.31	19.93	19.55	19.17	18.79	18.41	18.03	17.65	17.27	16.89	16.51	16.13	15.75	15.37	14.99	14.61	14.23	13.85	13.47	13.09	12.71	12.33	11.95	11.57	11.19	10.81	10.43	10.05	9.67	9.29	8.91	8.53	8.15	7.77	7.39	7.01	6.63	6.25	5.87	5.49	5.11	4.73	4.35	3.97	3.59	3.21	2.83	2.45	2.07	1.69	1.31	0.93	0.55	0.17	0.00
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MARION CO.	PROJECT NUMBER	STATE IOWA	FED. ROAD DIST. NO. 5	FISCAL YEAR	SHEET NO.	TOTAL SHEETS	PROJECT NUMBER	STATE IOWA	FED. ROAD DIST. NO. 5	FISCAL YEAR	SHEET NO. 8	TOTAL SHEETS 64
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This Sheet For Information Only

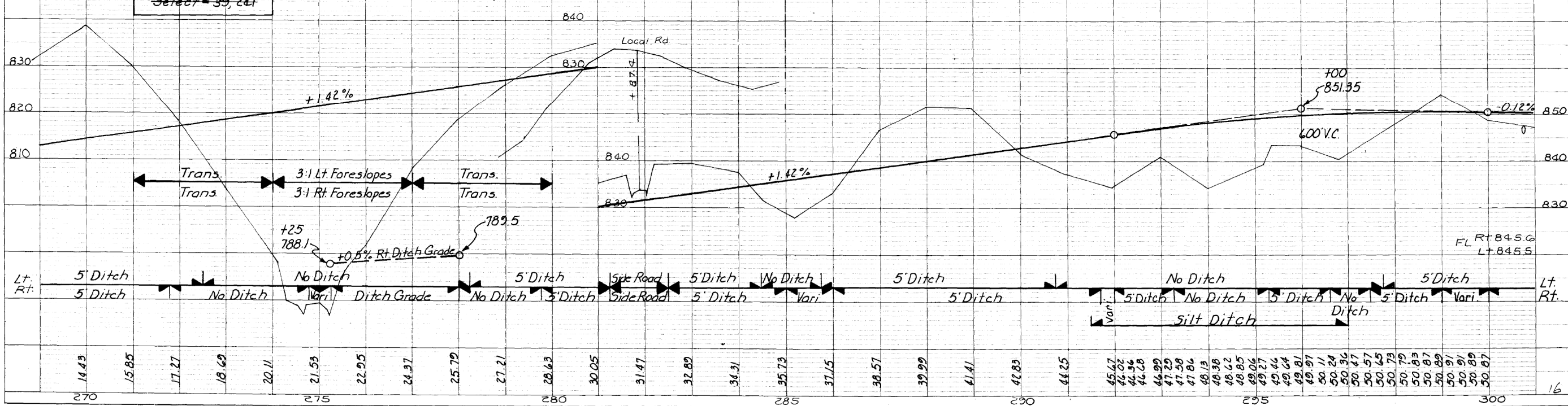
Property Owners
K-Worth H. & Jessie Stroud
M-Dorothy F. Lounachan
N-Everette P. Harrington
O-W.L. Bear
For ROW info see grading plans.

CLAY TWP
T75N R18W



Stage 2

Unsuit (C-3) = 14,730	F+15% = 43,454	Unsuit (C-3) = 7,428	F+20% = 50,860	Unsuit (C-3) = 36,351	F+20% = 17,794	Unsuit (C-3) = 18,601	F+20% = 18,794
From Sta. 307+ = 467		From Sta. 307+ = 31,549		From Sta. 281+87.4 = 1,085		From Sta. 281+87.4 = 103	
From Sta. 220+ = 8,942		From Sta. 220+ = 1,505		To 5d. Rd. Lt. Sta. 281+87.4 = 556		To 5d. Rd. Rt. Sta. 281+87.4 = 37,436	
From Sta. 235+ = 30,860							





Property Owners
 K-Worth H. & Jessie Stroud
 O-W.L. Bean
 P-Everett C. Harrington
 Q-Forest E. Harrington
 R-Versal & Constance Beebe

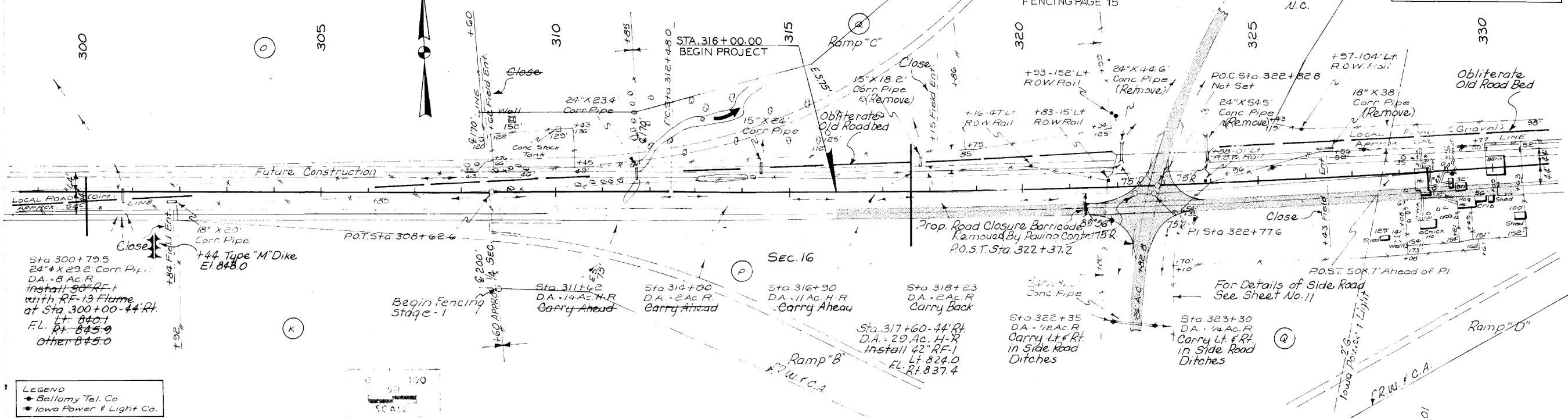
SEE GRADING PLANS FOR R.O.W.

CLAY TWP
 T75N R18W
 SEC. 9

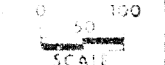
Future Interchange
 Main Line over Side
 Road.

Δ=4°07' Lt
 D=0°12'
 T=1039.6
 L=2058.4'
 E=18.5'
 R=28,647.5'
 N.C.

2" High Pressure gas line
 to be adjusted by others



LEGEND
 • Bellamy Tel. Co
 • Iowa Power & Light Co.

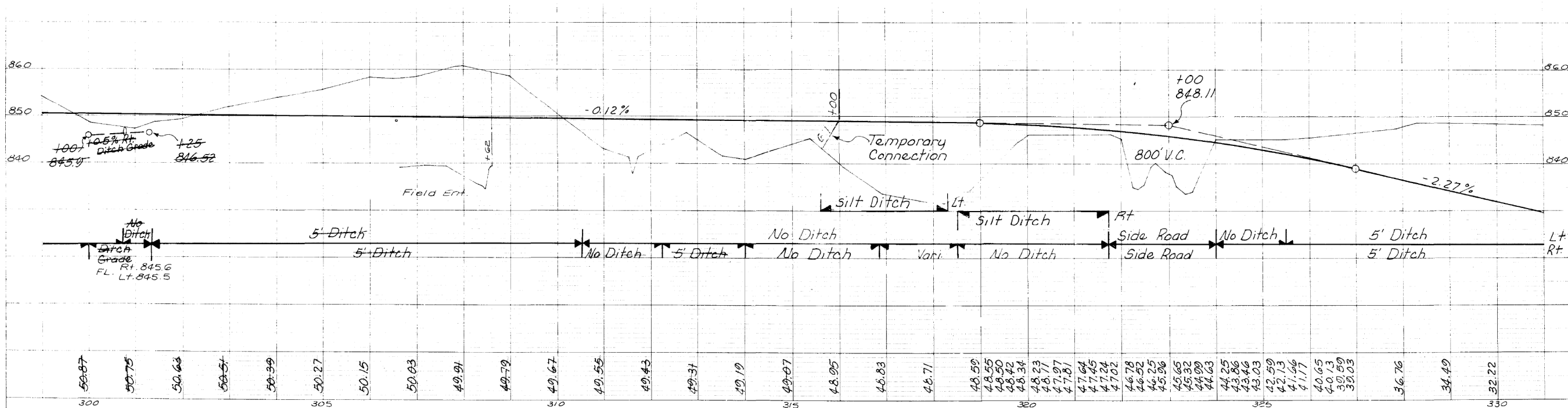


$$C = 26757$$

$$F+15\% = 21232$$

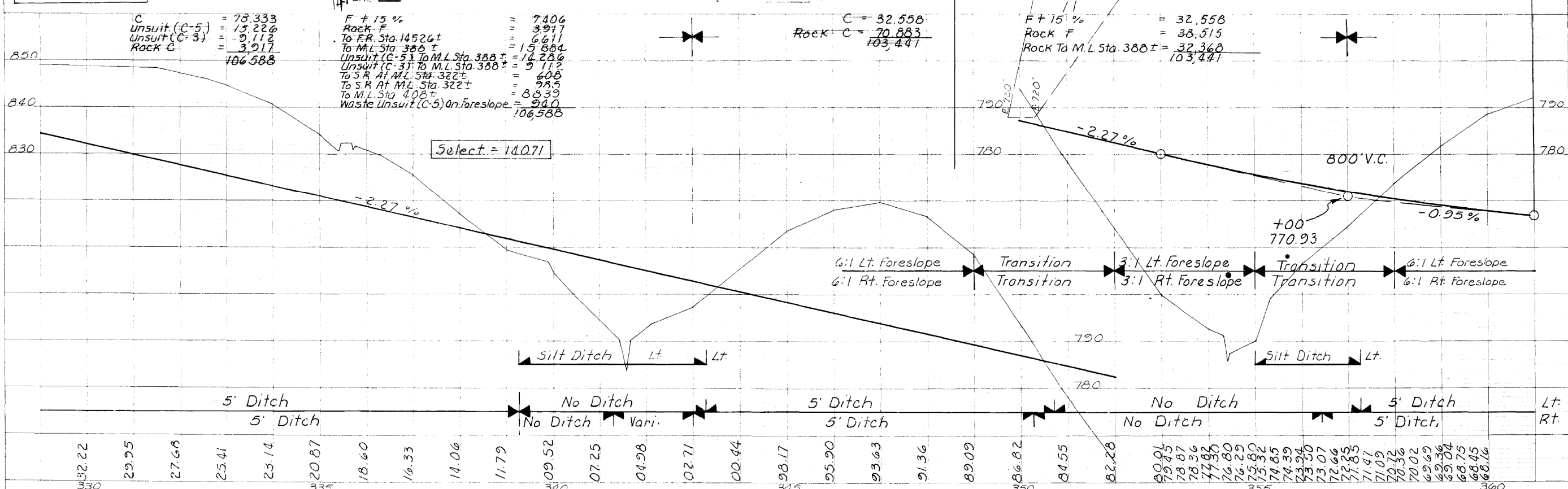
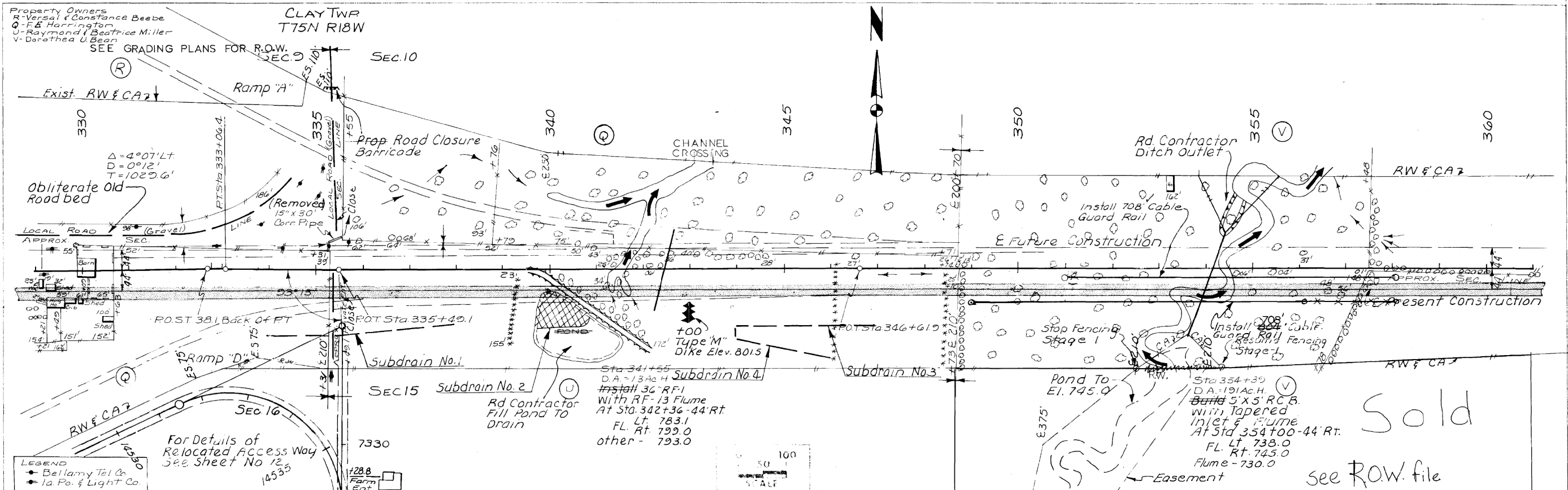
$$F+30\% = 5525$$

$$\frac{26757}{26757}$$



STATION	ELEVATION	STATION	ELEVATION	STATION	ELEVATION	STATION	ELEVATION
300	845.9	305	845.5	310	845.5	315	845.5
301	845.9	306	845.5	311	845.5	316	845.5
302	845.9	307	845.5	312	845.5	317	845.5
303	845.9	308	845.5	313	845.5	318	845.5
304	845.9	309	845.5	314	845.5	319	845.5
305	845.9	310	845.5	315	845.5	320	845.5
306	845.9	311	845.5	316	845.5	321	845.5
307	845.9	312	845.5	317	845.5	322	845.5
308	845.9	313	845.5	318	845.5	323	845.5
309	845.9	314	845.5	319	845.5	324	845.5
310	845.9	315	845.5	320	845.5	325	845.5
311	845.9	316	845.5	321	845.5	326	845.5
312	845.9	317	845.5	322	845.5	327	845.5
313	845.9	318	845.5	323	845.5	328	845.5
314	845.9	319	845.5	324	845.5	329	845.5
315	845.9	320	845.5	325	845.5	330	845.5
316	845.9	321	845.5	326	845.5	331	845.5
317	845.9	322	845.5	327	845.5	332	845.5
318	845.9	323	845.5	328	845.5	333	845.5
319	845.9	324	845.5	329	845.5		
320	845.9	325	845.5				
321	845.9	326	845.5				
322	845.9	327	845.5				
323	845.9	328	845.5				
324	845.9	329	845.5				
325	845.9	330	845.5				

This Sheet
 For Information Only



C = 78.333
 Unsuit (C-5) = 15.226
 Unsuit (C-3) = 9.112
 Rock C = 3.917
 106.588

F + 15% = 74.06
 Rock F = 3.917
 To F.R. Sta. 14526± = 6.611
 To M.L. Sta. 388± = 15.884
 Unsuit (C-5) To M.L. Sta. 388± = 14.286
 Unsuit (C-3) To M.L. Sta. 388± = 9.112
 To S.R. At M.L. Sta. 322± = 6.08
 To S.R. At M.L. Sta. 322± = 9.85
 To M.L. Sta. 408± = 8.339
 Waste Unsuit (C-5) On foreslope = 9.40
 106.588

C = 32.558
 Rock C = 70.883
 103.441

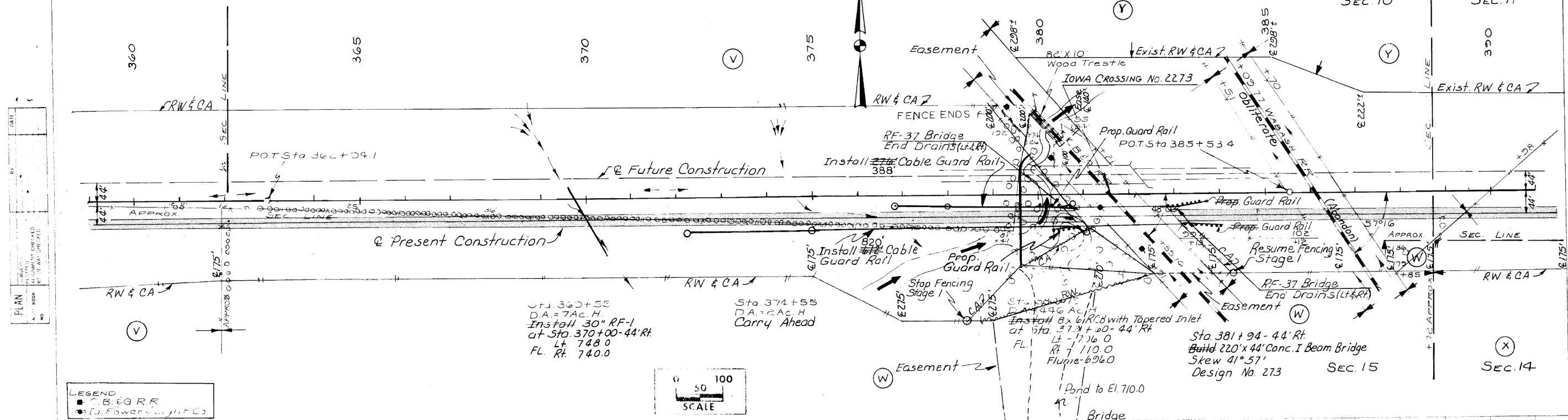
F + 15% = 32.558
 Rock F = 38.515
 Rock To M.L. Sta. 388± = 32.368
 103.441

PLAN
 DATE
 BY
 CHECKED
 APPROVED

PROFILE
 DATE
 BY
 CHECKED
 APPROVED

This Sheet For Information Only

Property Owners
V. Dorothea U. Bean
W. Glen L. & Betty Vander Schel
X. Donald F. Klein, Jessie M. Klein & Bonnie H. Smith
Y. Guy Morris
SEE GRADING PLANS FOR R.O.W.

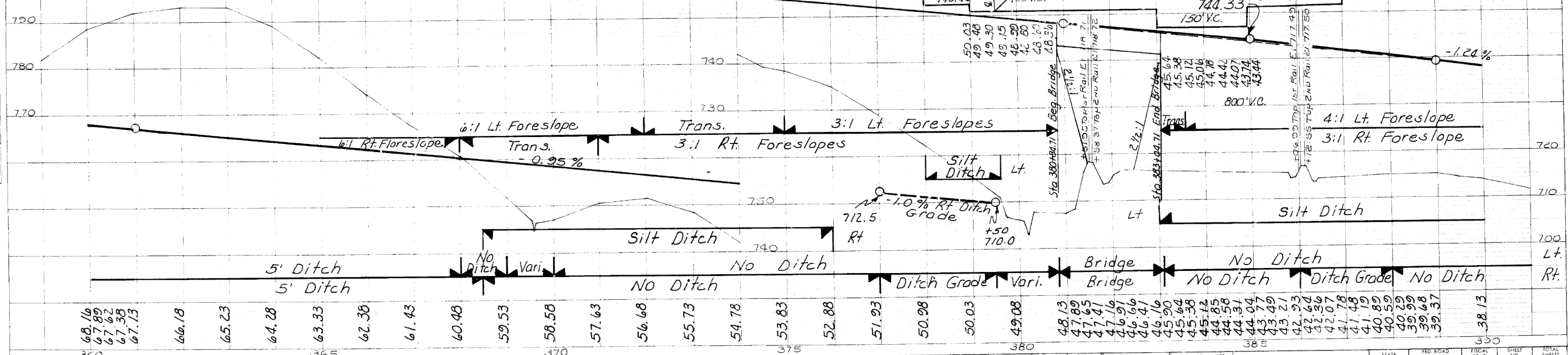


LEGEND
 ■ C.B.G.R.R.
 ● (L) Power Light Co.

C = 61,592	F+15% = 3,836
Rock C = 77,890	Rock to Sta: 373± = 69,244
139,482	To Sta: 373± = 55,560
	To Sta: 388± = 2,196
	139,482

Rock from Sta 362±	= 42,715
From Sta 362±	= 69,244
	= 55,560
	129,079

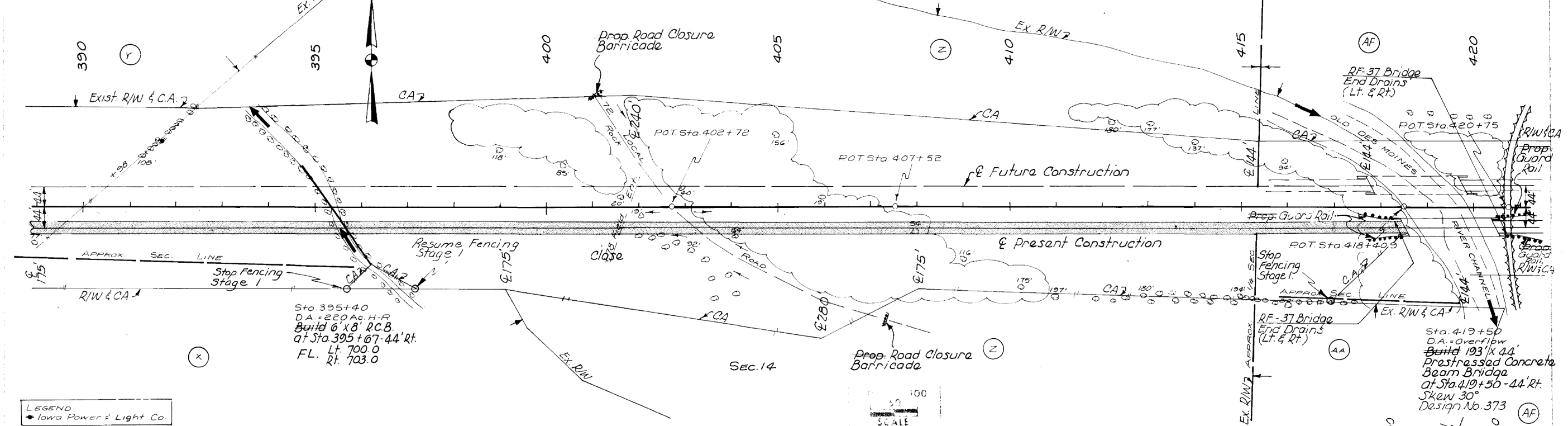
F+15% = 59,835
Rock F = 69,244
129,079



Property Owners
 x- Donald F. Klein & Bonnie H. Smith
 y- Guy Morris
 z- State of Iowa
 AA- L.E. & Myra NACE Brubaker
 AF- Lorin Harvey

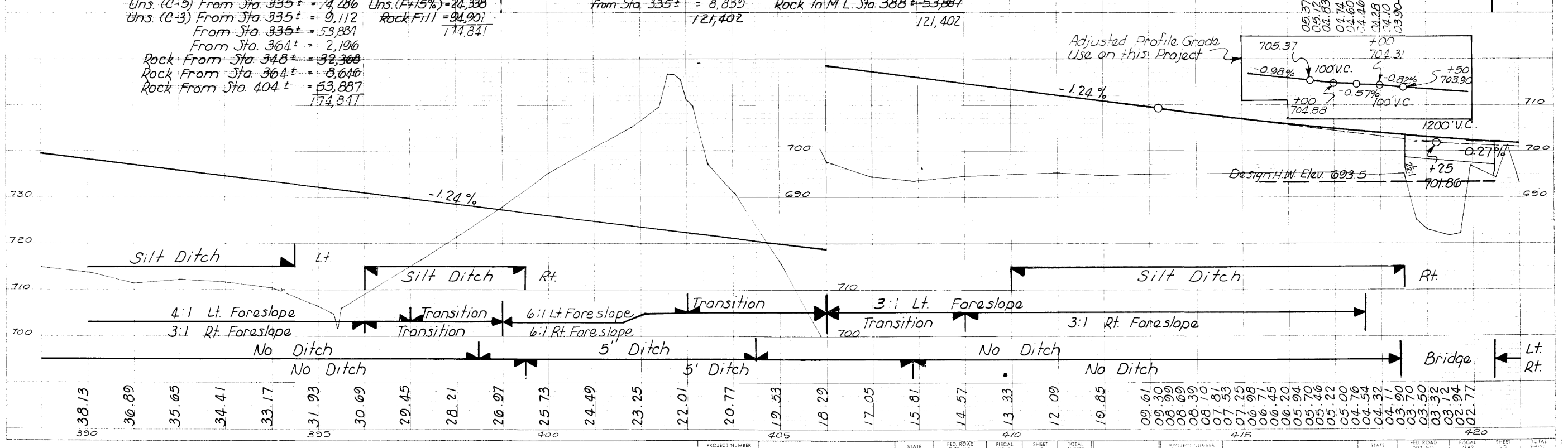
SEE GRADING PLANS
 FOR R.O.W.

CLAY TWP
 T 75N R18W
 Sec. 11



LEGEND
 • Iowa Power & Light Co

C = 402	F+15% = 55,602	C = 26,336	F+15% = 35,175
Uns. (C-5) From Sta. 335± = 14,286	Uns. (F+15%) = 24,338	Rock C = 86,227	Rock Fill = 32,340
Uns. (C-3) From Sta. 335± = 9,112	Rock Fill = 94,901	From Sta. 335± = 8,839	Rock To M.L. Sta. 388± = 53,887
From Sta. 335± = 53,834	174,841	121,402	121,402
From Sta. 364± = 2,196			
Rock From Sta. 348± = 32,368			
Rock From Sta. 364± = 8,646			
Rock From Sta. 404± = 53,887			
174,841			



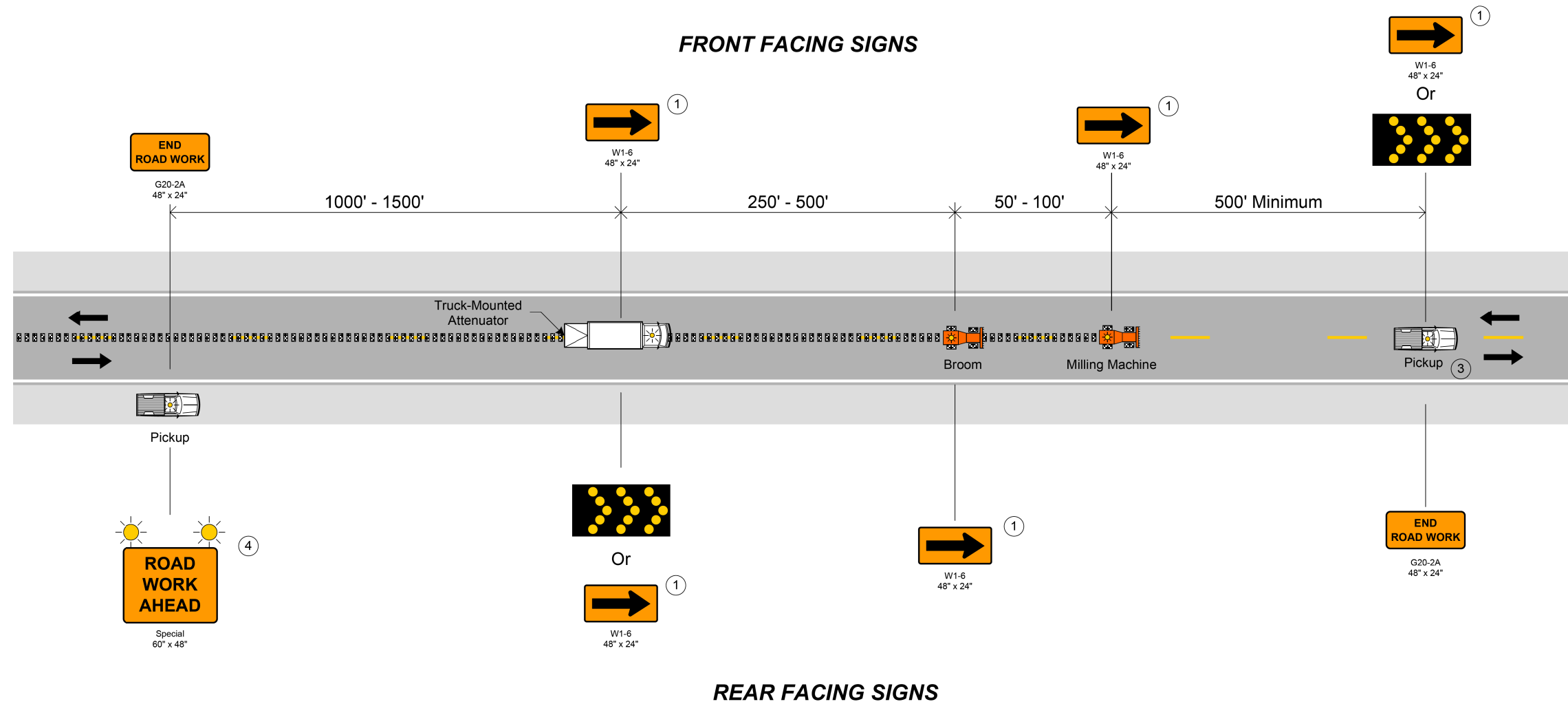
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TRAFFIC CONTROL PLAN	108-23A 08-01-08

COORDINATED OPERATIONS		111-01 04-17-12
Other work in progress during the same period of time will include the construction of the projects listed. Coordinate operations with those of other contractors working within the same area.		
Project	Type of Work	

511 TRAVEL RESTRICTIONS												108-25 10-21-14
Route	Direction	County	Location Description	Feature Crossed	Object Type	Maint. Bridge No., Structure ID, or FHWA No.	Type of Restriction	Existing Measurement	Construction Measurement	Construction Measurement as Signed	Projected As Built Measurement	Remarks

STAGING NOTES	108-26A 08-01-08



All vehicles shall be equipped with an amber revolving light or an amber strobe light.

- ① Optional SYG sign background
- ② This arrow display may be operated in a four-corner caution mode.
- ③ This vehicle should move to the shoulder to accommodate passing traffic.
- ④ A vehicle-mounted CMS may be used in lieu of this sign.

01-17-19

**CENTERLINE
RUMBLE STRIPS
TWO-LANE**