Total Sheets = 145
PROJECT NUMBER
NHS-100-1(23)--19-57
R.O.W. PROJECT NUMBER
PROJECT IDENTIFICATION NUMBER
90-57010-3

IOWA
DEPARTMENT OF TRANSPORTATION
Project Development Division

PLANS OF PROPOSED IMPROVEMENTS ON THE

PRIMARY ROAD SYSTEM
LINN COUNTY
P.C.C. PAVING

MARION BY-PASS FROM FIRST AVENUE IN CEDAR RAPIDS
THRU MARION TO U.S. #151

SCALES: As Noted

Form 520003 12-97

I hereby certify that this project was constructed in accordance with the contract documents, the "as-built" plans were prepared under my supervision, and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.

Kenneth A. Yanna — July 13, 2004
Project Engineer — Date

My license renewal date is December 31, 2004

Year	Contractor	Project Inspector
1996	Fred Carlson, Inc	Mark Pollet

THIS AS BUILT PLAN INCLUDED

YEAR	WORK	CONTRACTOR	PROJ. INSPECTOR
1996	PCC Paving	Fred Carlson Co., Inc.	Mark Pollet
1997	Erosion	Olson Bros. Sodding & Landscaping	Mark Pollet

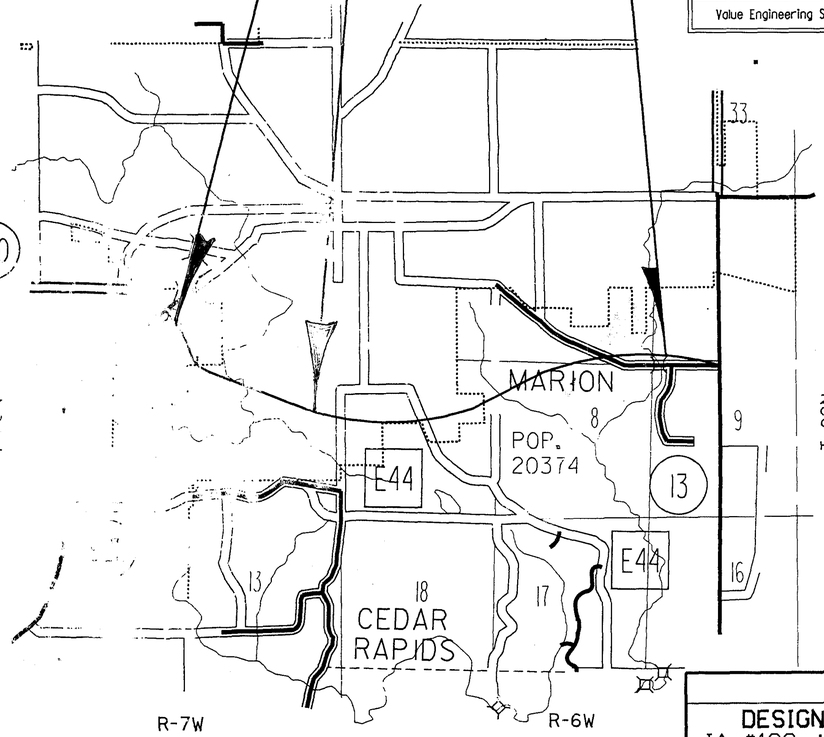
Equation:
P.O.T. Sta. 179+52.06 (O.R.) (Back)
P.O.T. Sta. 179+06.68 (Sur.) (Ahead)

Sta. 116+63.38 (O.R.)
Begin Project
Mile Post 4.085

Sta. 306+00.00 (O.R.)
End Project
Mile Post 7.798

The Iowa Department of Transportation Standard Specifications for Highway and Bridge Construction, series of 1992, plus current Supplemental Specifications and Special Provisions shall apply to construction work on this project.

Value Engineering Saves. Refer to Standard Notation 203-4 on Sheet C.05



LOCATION MAP SCALE
0 1 2 3
Miles

MILEAGE SUMMARY

105-1
03-15-94

DIV.	LOCATION	LIN. FT.	MILES
1.	URBAN :		
	Sta. 116+63.38 (O.R.) To Sta. 238+29.63 (Sur.)	12,166.25	2.304
	Sta. 260+32.14 (Sur.) To Sta. 285+63.44 (Sur.)	2,531.30	0.479
	EQUATION : P.O.T. Sta. 179+52.06 (O.R.) (Back) =P.O.T. Sta. 179+06.68 (Sur.) (Ahead) LENGTHENS LINE	45.38	0.009
	Deduct for Bridge @ Sta. 153+00.00 (O.R.)	506.00	0.096
	NET LENGTH OF ROADWAY- DIVISION #1	14,236.93	2.696
	NET LENGTH OF BRIDGES- DIVISION #1	506.00	0.096
	TOTAL LENGTH OF DIVISION #1	14,742.93	2.792
2.	RURAL :		
	Sta. 238+29.63 (Sur.) To Sta. 260+32.14 (Sur.)	2,202.51	0.417
	Sta. 285+63.44 (O.R.) To Sta. 306+00.00 (O.R.)	2,036.56	0.386
	NET LENGTH OF ROADWAY- DIVISION #2	4,239.07	0.803
	TOTAL LENGTH OF DIVISION #2	4,239.07	0.803
	NET LENGTH OF ROADWAY IN PROJECT	18,476.00	3.499
	NET LENGTH OF BRIDGES IN PROJECT	506.00	0.096
	TOTAL LENGTH OF PROJECT	18,982.00	3.595

101-7

DESIGN DATA
IA. #100 HIGHWAY

1995	AADT	11,900	V.P.D.
2015	AADT	15,900	V.P.D.
2015	DHV	1,600	V.P.H.
TRUCKS		5	%

175

DANIEL E. DUNAN
REGISTERED
10267
IOWA
PROFESSIONAL ENGINEER

INDEX OF SHEETS

NO.	DESCRIPTION
A.01	Title Sheet
A.02	Urban Map of the Cities of Cedar Rapids and Marion
A.03	Symbols and Information Sheet
B.01-B.07	Typical Sections
C.01-C.14	Estimate of Quantities and general information
D.01-D.09	Mainline Plan and Profile Sheets
E.01-E.08	Sideroad Plan and Profile Sheets
F.01-F.03	Detour Plan and Profile Sheets
G.01-G.06	Reference Ties and Bench Marks
J.01-J.16	Staging and Traffic Control Sheets
L.01-L.38	Intersection Geometrics, Staking, Edge Profiles and Jointing Sheets
M.01-M.10	Storm Sewer, Water Main and Sanitary Sewer Sheets
Q.01-Q.04	Soils Sheets
R.01	Borrow Sheets
S.01	Schematic Haul Diagram
T.01-T.03	Tabulation of Earthwork Quantities
U.01-U.14	500 Series Detail Sheets
V.01-V.04	Bridge and Culvert Situation Plans
53	BENCH MARKS

STANDARD ROAD PLANS

The following Standard Road Plans shall be considered applicable to construction work on this project.

NUMBER	DATE	NUMBER	DATE	NUMBER	DATE
RA-1	02-23-93	RA-8(1)	08-08-89	RA-8(2)	08-08-89
RA-8(3)	08-08-89	RA-13B	01-19-88	RA-27	01-19-88
		RB-6	11-10-92	RC-16	04-28-92
RE-2A	02-17-87	RE-2B	10-22-95	RE-7	04-28-92
RE-12A	10-11-88	RE-[illegible]	[illegible]	RE-47	11-10-87
RE-46A	06-15-93	RE-5[illegible]	[illegible]	RE-65	01-07-92
RE-68	08-08-89	RE-[illegible]	[illegible]	RF-1	09-03-76
RF-3	11-10-92	RF-5	[illegible]	RF-14	04-28-92
RF-19C	04-28-92	RF-[illegible]	[illegible]	RF-30A	03-28-95
RF-30B	03-28-95	RF-3[illegible]	[illegible]	RF-32	03-28-95
RH-22	11-10-92	RH-3[illegible]	[illegible]	[illegible]	08-29-92
RH-50	03-28-95	RH-51	[illegible]	[illegible]	08-07-94
RK-19A	09-29-92	RK-[illegible]	[illegible]	[illegible]	[illegible]
RL-7	07-16-91	RL-11	[illegible]	RS-2	
RS-3	02-[illegible]	RS-8	[illegible]	RS-15	

REVISIONS

Iowa Department of Transportation
Project Development
AUTHORIZED
Donald East
DESIGN ENGINEER
Iowa Registration No. [illegible]

I hereby certify that this plan was prepared under my supervision and that engineering decisions with regard to the design were made by me or by other duly Registered Professional Engineers under the laws of the State of Iowa.
Name Daniel E. Dunan
Iowa Registration No. 10267 Date [illegible]

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
APPROVED
FOR THE DIVISION [illegible]

P.C.C. PAVING
NHS-100-1(23)--19-57
LINN COUNTY
NHSX-100-1(23)--19-57 P C C PAVING
NHSX-100-1(22)--19-57 EROSION CONTROL

EROSION CONTROL
NHS-100-1(22)--19-57
LETTING DATE Oct 29 1996

LINN CO.

TOTAL
5

PROJECT NUMBER
NHS-100-1(22)--19-57
R.O.W. PROJECT NUMBER
PROJECT IDENTIFICATION NUMBER
90-57010-3

IOWA
DEPARTMENT OF TRANSPORTATION
Project Development Division

PLANS OF PROPOSED IMPROVEMENTS ON THE

PRIMARY ROAD SYSTEM
LINN COUNTY
EROSION CONTROL

MARION BY-PASS FROM FIRST AVE. IN CEDAR RAPIDS
THRU MARION TO U.S. 151

SCALES: As Noted

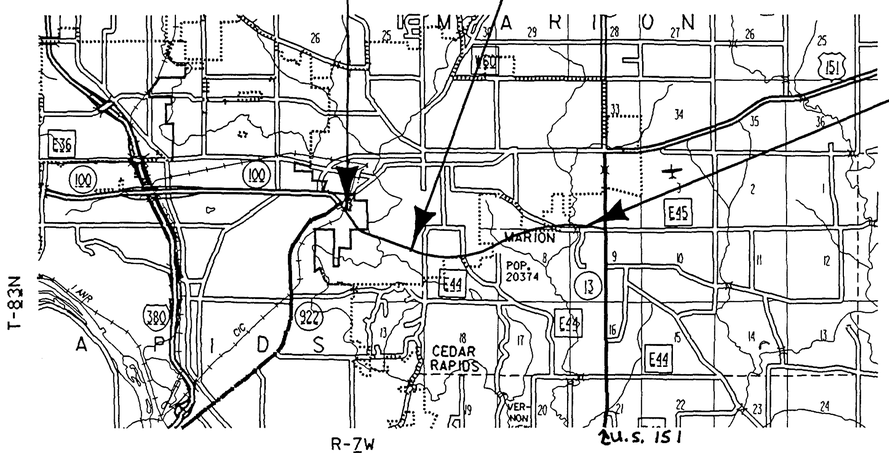
The Iowa Department of Transportation Standard Specifications for Highway and Bridge Construction, series of 1992, plus current Supplemental Specifications and Special Provisions shall apply to construction work on this project.

Value Engineering Saves. Refer to Standard Notation 203-4 on Sheet C.01

EQUATION:
STA. 179+52.06 OR BACK
= STA. 179+06.68 SUR AHD

STA. 166+63.38
BEGIN PROJECT
M.P.= 4.085

STA. 306+00.00
END PROJECT
M.P.= 7.798



LOCATION MAP SCALE
0 1 2 3
Miles

INDEX OF SHEETS	105-3 02-21-87
NO.	DESCRIPTION
A.01-A	TITLE SHEET
C.01-A	SUMMARY SHEET EROSION CONTROL WORK
C.01-A 2,3,4	GENERAL INFORMATION

STANDARD ROAD PLANS	105-4 06-12-77

The following Standard Road Plans shall be considered applicable to construction work on this project.

NUMBER	DATE	NUMBER	DATE	NUMBER	DATE
RC-5	9-23-86	RC-14	9-23-86	RS-72	6-7-94
RS-73	6-7-94				

REVISIONS

Iowa Department of Transportation
Project Development Division
AUTHORIZED FOR LETTING
Donald L. Eads
DESIGN ENGINEER
Iowa Registration No. 5545 Date 8/15/96

STATE OF IOWA
MARK D. MASTELLER
LANDSCAPE ARCHITECT NO. 269
REGISTERED LANDSCAPE ARCHITECT

I hereby certify that this plan was prepared under my supervision and that landscaping decisions with regard to the design were made by me or by other duly Registered Professional Landscape Architects under the Iowa of the State of Iowa.
Name Mark Masteller
Iowa Registration No. 269 Date 8-14-96

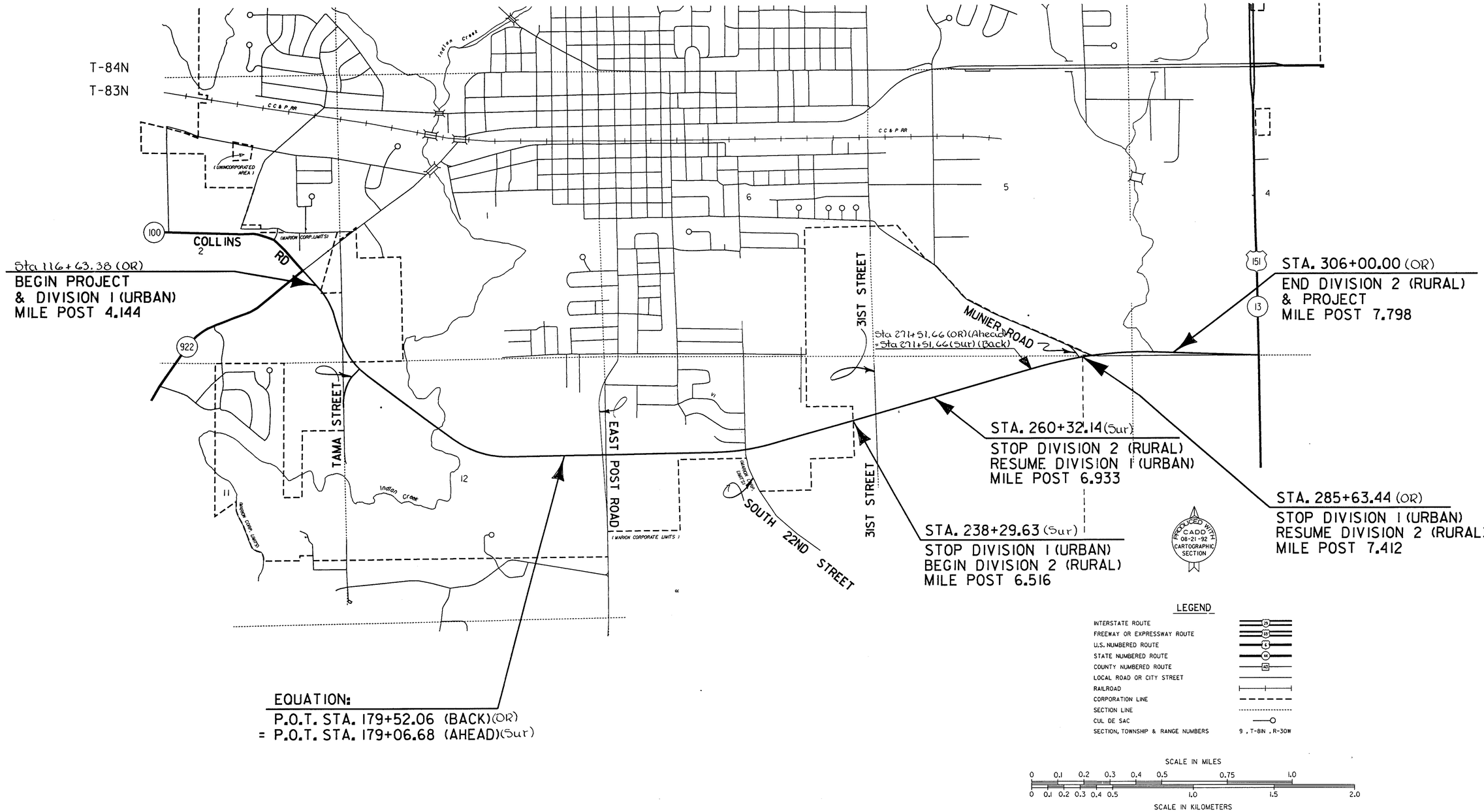
U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
APPROVED

FOR THE DIVISION ADMINISTRATOR DATE

* 80 *

307/SKR

P2



HIGHWAY AND STREET MAP
OF

CEDAR RAPIDS AND MARION
IOWA

ROAD DESIGN • CADD • PRODUCED	STATE OF IOWA	FHWA REGION 7	FISCAL YEAR	LINN COUNTY	PROJECT NUMBER	NHS-100-1(23)--19-57	SHEET NUMBER	A.02

P. 3 of 4

STANDARD SYMBOLS

- Interstate Highway Symbol
- U.S. Highway Symbol
- Iowa Highway Symbol
- County Road Highway Symbol
- Evergreen Tree
- Deciduous Tree
- Fruit Tree
- SB Shrub (Bushes)
- Timber
- Hedge
- Stump
- Swamp
- Rock Outcrop
- Broken Concrete
- Revetment (Rip Rap)
- Cemetery
- G Grave
- CV Cave
- SH Sink Hole
- Board Fence
- Chain Link Fence
- Barbwire Fence
- Security Fence
- Woven Fence
- Barbwire and Woven Fence
- Terrace
- Earth Dam or Dike (Existing)
- Earth Dam or Dike (Proposed)
- Tile Outlet
- Edge of Water
- Existing Drainage
- Proposed Drainage
- Right of Way Rail or Lot Corner
- Concrete Monument
- Well
- Windmill
- Beehive Intake
- Existing Intake
- Proposed Intake
- Existing Utility Access (Manhole)
- Proposed Utility Access (Manhole)
- Fire Hydrant
- WH Water Hydrant (Rural)
- ST Septic Tank
- C Cistern
- LP L.P. Gas Tank (No Footing)
- UST Underground Storage Tank
- L Latrine
- Luminaire
- Traffic Signal
- Traffic Signal with Luminaire
- TP Telephone Pedestal
- TVP Television Pedestal
- Telephone Pole
- Telephone Pole (Second Company)
- Telephone Pole (Third Company)
- Telephone Pole (Fourth Company)
- Telephone Pole (Fifth Company)
- Power Pole
- Power Pole (Second Company)
- Power Pole (Third Company)
- Power Pole (Fourth Company)
- Power Pole (Fifth Company)
- Electrical Highline Tower (Metal or Concrete)
- Telephone Riser Pole
- Power Riser Pole
- Telegraph Pole
- Satellite TV Dish
- W Existing Water Line
- WW Existing Water Line (Second Company)
- San. Existing Sanitary Sewer Line
- T Existing Telephone Line
- TT Existing Telephone Line (Second Company)
- FO Existing Fiber Optics Telephone Line
- St. S. Existing Storm Sewer Line
- G Existing Gas Line
- G-HP Existing High Pressure Gas Line
- GG Existing Gas Line (Second Company)
- GG-HP Existing High Pressure Gas Line (Second Company)
- E Existing Power Line
- EE Existing Power Line (Second Company)
- TV Cable Television Line
- Guardrail (Beam or Cable)
- GP Guard Post (one or two)
- Guard Post (over two)
- FP Filler Pipe
- GV Gas Valve
- WV Water Valve
- SL Speed Limit Sign
- MM Mile Marker Post
- SIGN Sign
- WHU Water Hook Up
- RT Radio Tower
- TA Tower Anchor
- EB Electric Box
- TCB Traffic Signal Control Box
- RRB Rail Road Signal Control Box
- TSB Telephone Switch Box

UTILITY LEGEND

- Iowa Electric Light & Power
- W City of Cedar Rapids Water
- S City of Cedar Rapids Sanitary Sewer
- T U.S. West Direct
- WW City of Marion Water
- SS City of Marion Sanitary Sewer
- G Iowa Electric Light & Power
- E Iowa Electric Light & Power
- GG Iowa Illinois Gas & Electric

RIGHT OF WAY LEGEND

- Proposed Right of Way
- Existing Right of Way
- Existing and Proposed Right of Way
- Easement and Existing Right of Way
- Borrow
- Easement (Temporary)
- Easement
- Excess
- Property Line
- A/C Access Control

UNIQUE SYMBOLS FOR THIS PROJECT

CONVENTIONAL SIGNS

- Station / Reference Point — Survey Line
- Section Corner
- Proposed Profile Grade
- Railroad
- Existing / Proposed — Field Tile
- Existing / Proposed — Culverts
- Stream

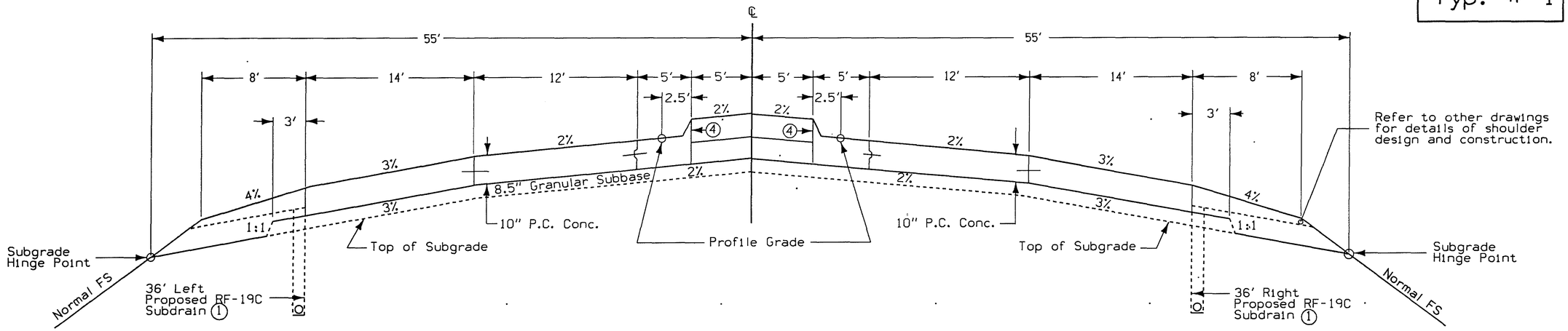
Legend And Symbol Information Sheet

(Symbols are Typical Only, actual size may vary)

ROAD DESIGN • CADD • PRODUCED	STATE OF IOWA	FHWA REGION 7	FISCAL YEAR	LINN	COUNTY	PROJECT NUMBER	NHS-100-1(23)--19-57	SHEET NUMBER	A.03

Typical Cross Section of 4 Lane P.C.C. Pavement With Curbed Median.

Spec. Typ. # 1



Note: Normal section shown may appropriately modified for areas specifically designed by the engineer such as intersections or superelevated curves.

Note: Refer to Typical Section 2205 (Modified) for P.C.C. Auxiliary Lane.

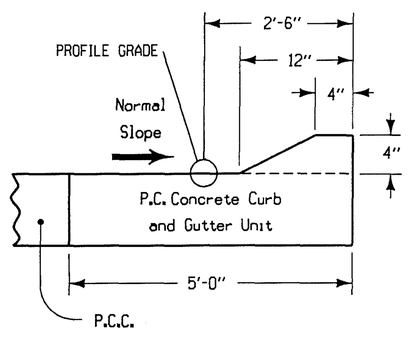
Note: Refer to appropriate cross sections thru areas of superelevation.

Ident.	Station	to Station	Shoulder	Remarks
Ia #100	116+63.38 (OR)	179+52.06 (OR)	6" Type "A"	4
Ia #100	179+06.68 (Sur)	306+00.00 (OR)	6" Type "A"	4
East Post Rd.	1174+00.00	1200+00.00 (OR)	6" Type "A"	2 3 4

Ia #100 Equations: Sta 179+52.06 (OR Back)
=Sta 179+06.68 (Survey Ahead)
P.C. Sta 271+51.66 (Survey Back)
=P.C. Sta 271+51.66 (OR Ahead)

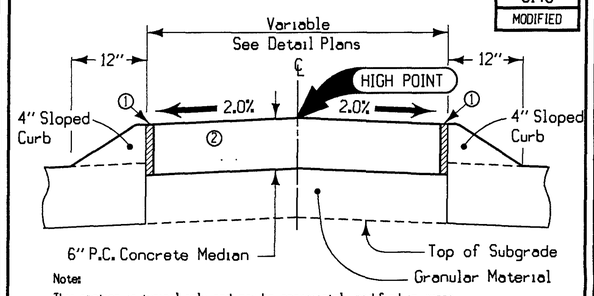
1. If subdrain is proposed refer to Standard Road Plan RF-19C.
2. 3'-0" Curb & Gutter Proposed for East Post Rd.
3. Refer to East Post Rd. Geometric Sheets for Variable Width Dimensions.
4. Refer to Typical Sections 6124 (Modified), 6125 (Modified), 6140 (Modified) and 6142 (Modified) for Additional Information.

6124 MODIFIED



DETAILS OF CURB & GUTTER UNIT
Adjacent to PCC

6140 MODIFIED

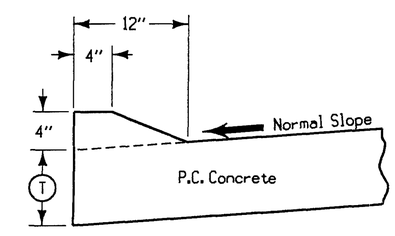


Note:
This section is typical only, and may be appropiately modified in areas specifically designated by the engineer. The furnishing and placing of granular material shall be incidental to the price bid for Portland Cement Concrete Median.

1. 'E' Joint, refer to Standard Road Plan RH-52 for details.
2. Construct 'C' Joints according to Standard Road Plan RH-50; match joints in adjacent pavement.

PAVED MEDIAN WITH SLOPED CURB

6125 MODIFIED



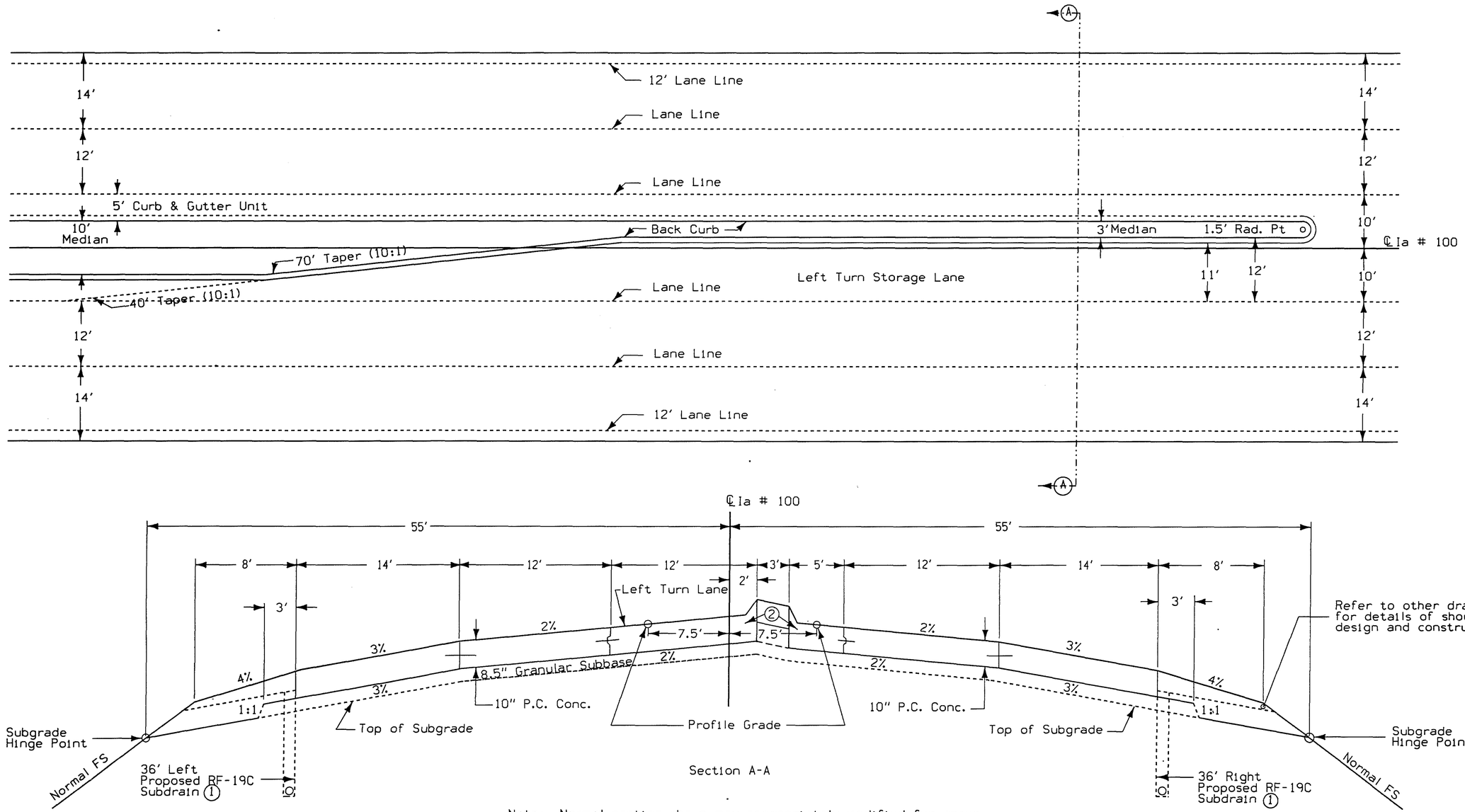
T is the thickness for pavement/shoulder

DETAILS OF 4" INTEGRAL CURB

OFFICE OF DESIGN • CADD • PRODUCED	STATE OF IOWA	FHWA REGION 7	FISCAL YEAR	LINN	COUNTY	PROJECT NUMBER	NHS-100-1(23)--19-57	SHEET NUMBER	B.01

Spec.
Typ. # 2

Typical Cross Section of 4 Lane P.C.C. Pavement With Left Turn Storage Lane and Curbed Median.



Note: Normal section shown may appropriately modified for areas specifically designed by the engineer such as intersections or superelevated curves.

Note: Refer to appropriate cross sections thru areas of superelevation.

(1) If subdrain is proposed refer to standard Road Plan RF-19C.

(2) Refer to Typical Sections 6124 (Modified), 6125 (Modified), 6140 (Modified) and 6142 (Modified) for Paved Median with 4" Sloped Curb.

OFFICE OF DESIGN • CADD • PRODUCED	STATE OF IOWA	FHWA REGION 7	FISCAL YEAR	LINN COUNTY	PROJECT NUMBER	NHS-100-1(23)--19-57	SHEET NUMBER	B.02

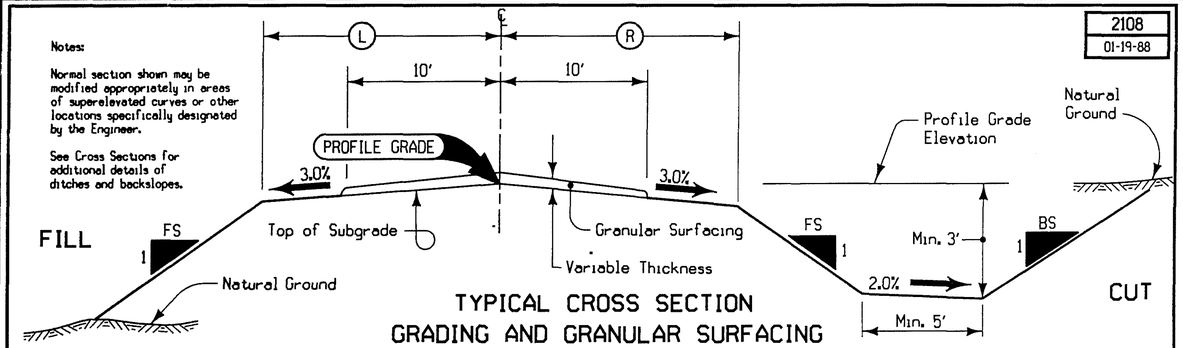
P 6

2108
01-19-88

Notes:

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

See Cross Sections for additional details of ditches and backslopes.



TYPICAL CROSS SECTION GRADING AND GRANULAR SURFACING

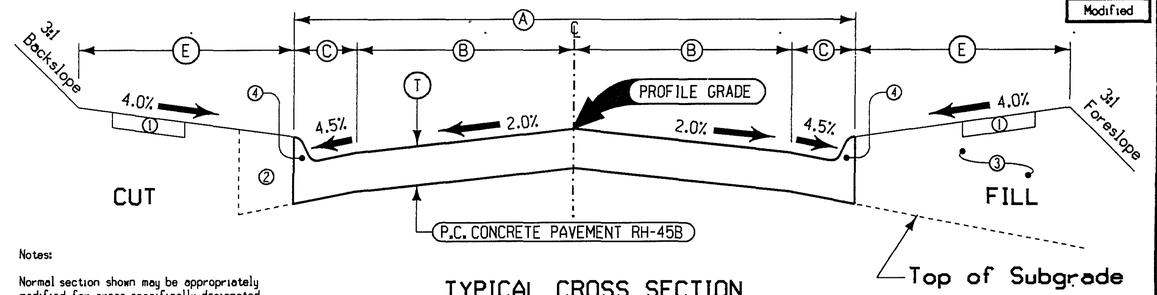
Granular Surfacing shall be placed as follows:

Stage 1 (Grading) Design application rate is tons per mile.

Stage 2 (Paving) Design application rate is tons per mile.

LOCATION			DIMENSIONS		SLOPES	
ROAD IDENTIFICATION	STATION TO STATION		(L)	(R)	FS	BS
31st. St. South	3240+61.23(OR)	3242+52.85(OR)	18'	18'	3:1	3:1
31st. St. North	3243+28.23(OR)	3250+00.00(OR)	18'	18'	3:1	2.5:1
Tama St. Detour	30+50	33+77	12'	12'	3:1	2.5:1

2209
Modified



Notes:

Normal section shown may be appropriately modified for areas specifically designated by the engineer such as intersections or superelevated curves.

Refer to other drawings for details of shoulder design and construction

(1) Refer to other drawings for details of shoulder and possible sidewalk construction

(2) Excavate and backfill 3.0'

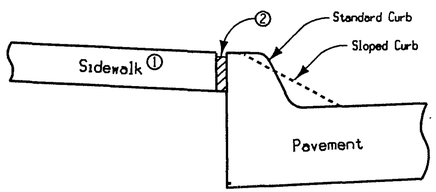
(3) Backfill

(4) 6" Standard Curb

TYPICAL CROSS SECTION 2 LANE ROADWAY With CURB SECTION

LOCATION			(T)	(E)	(A)	(B)	(C)
ROAD IDENTIFICATION	STATION TO STATION		Inches	Feet	Feet	Feet	Feet
Tama St. (OR)	1122+50.00	1129+95.41	8.5	10	31	12	3.5
East Post Rd. (OR)	1200+00.00	1202+80.75	10	Vari	42	19	2.0
22nd St. North	2215+85.86	2219+00.00	8.5	10	29	12	2.5
Meadow View Drive	2200+18.73	2201+75.00	8.5	Vari	27	11	2.5

6116
11-10-92



Notes:

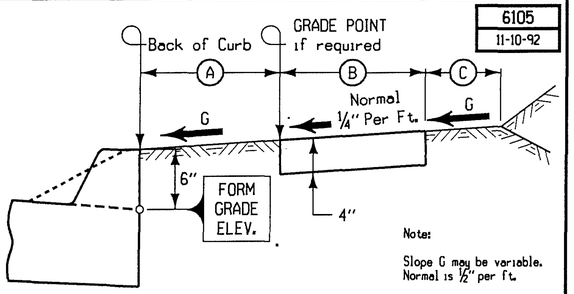
Details are similar where joint is required adjacent to paved drives, parking areas, paved medians, etc. Other jointing requirements shall conform to current specifications for sidewalks.

(1) or other concrete surface.

(2) 'E' Joint, see Standard Road Plan RH-52 for details.

DETAIL OF SIDEWALK EXPANSION JOINT

6105
11-10-92



Note:

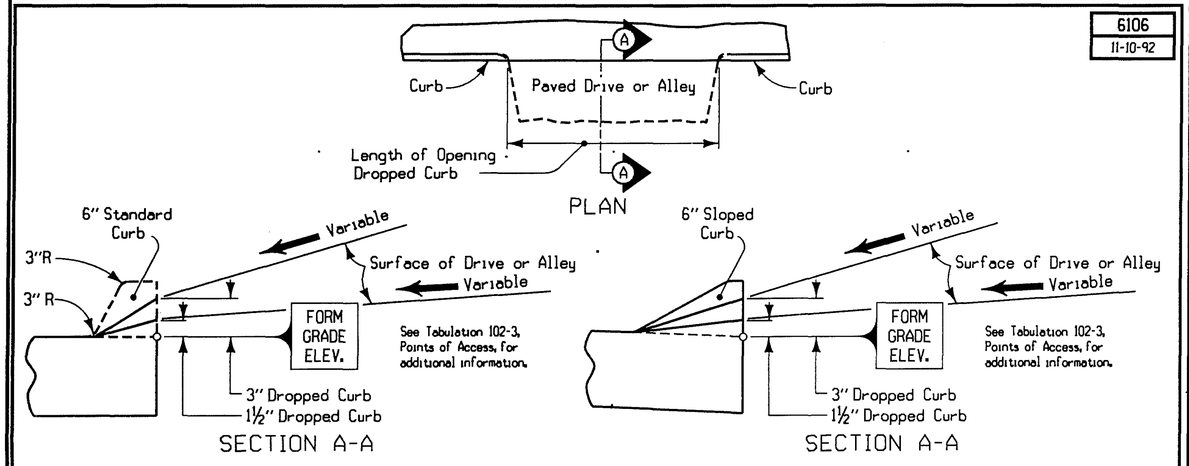
Slope G may be variable. Normal is 1/2" per ft.

TYPICAL SIDEWALK DETAILS

(New construction only as shown on detail plans)

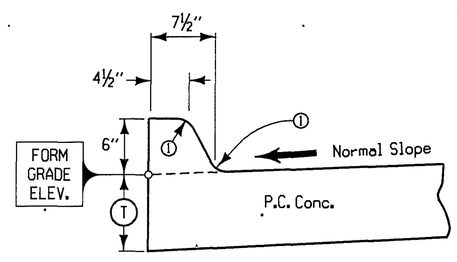
STATION TO STATION		SIDE	(A) Feet	(B) Feet	(C) Feet	NEW CONSTRUCTION Sq. Yds.
2200+70 (Back Curb Rt. 8')		Rt.	Vari	4	Vari	3.56
1202+00 (OR)	1202+69 (OR)	Rt.	Vari	4	Vari	30.67

6106
11-10-92



TYPICAL DROPPED CURB DETAILS

6127
11-10-92



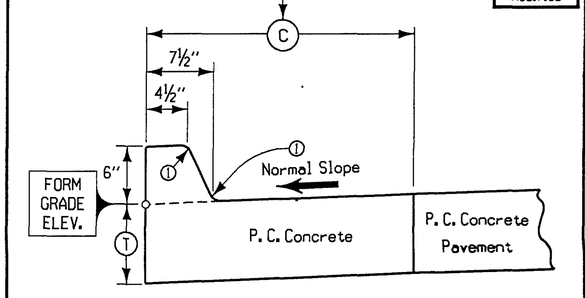
(T) is the thickness specified for pavement

(1) 3" radius

DETAILS OF INTEGRAL 6" STANDARD CURB

6131
Modified

Refer to Typical 2209 (Modified)



(T) Thickness specified for Pavement

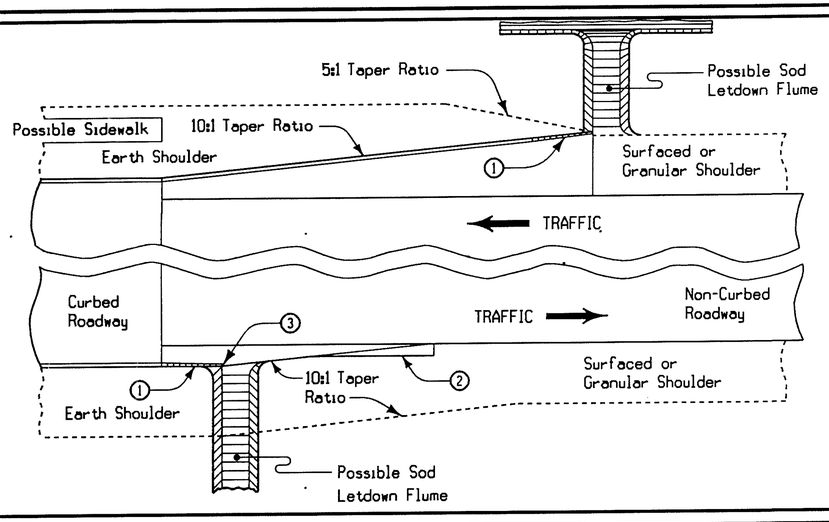
(1) 3" Radius

CURB AND GUTTER UNIT (STANDARD CURB - ADJACENT TO P.C.C.)

OFFICE OF DESIGN • CADD • PRODUCED	STATE OF IOWA	FHWA REGION 7	FISCAL YEAR	LINN COUNTY	PROJECT NUMBER	NHS-100-1(23)--19-57	SHEET NUMBER	B.03

P.7

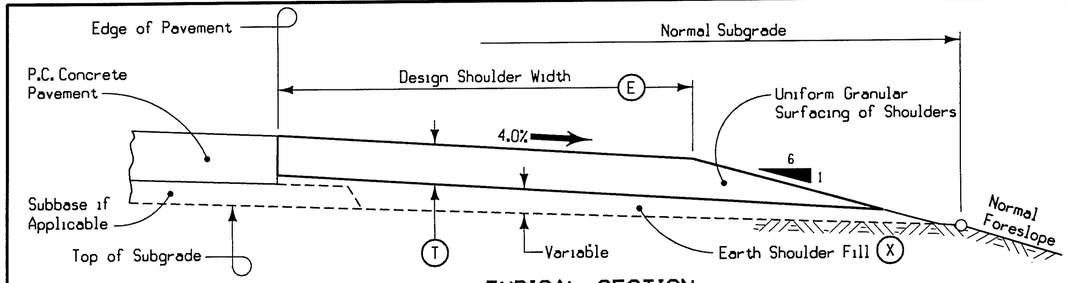
6147
11-10-92



1. Runout curb in 10.0'
2. End of Taper Details see Typical Detail 7101
3. End earth shoulder at the end of the curb transition when no flume is needed.

TRANSITION BETWEEN CURBED AND NON-CURBED ROADWAYS

7110
07-16-91



1. Refer to Typical 7127 for areas of proposed Paved Shoulders on left.

TYPICAL SECTION TYPE 'A' GRANULAR SHOULDER Adjacent to PCC Pavement

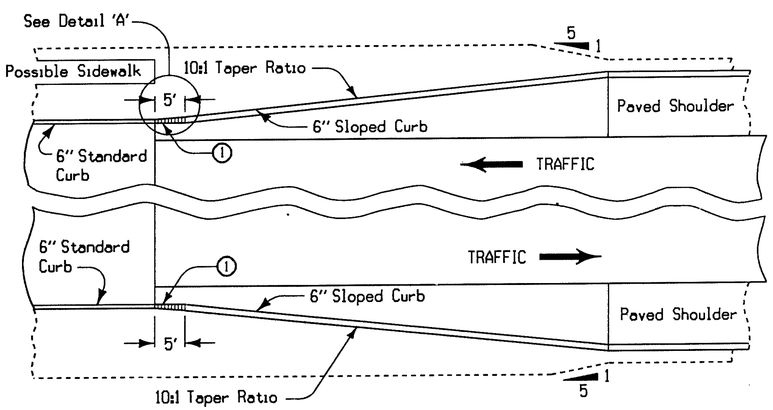
Note:

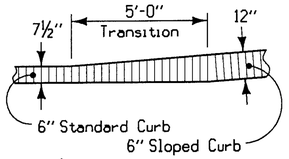
Earth Shoulder fill requires approximately X cubic yards of excavation, including 60% for shrinkage, per station.

LOCATION			E	T	SIDE	X
ROAD IDENTIFICATION	STATION TO STATION 1		Feet	Inches		Cu. Yds.
Ia# 100	116+63.38	306+00.00	8	6	Both	72.7
East Post Road	1174+00.00	1200+00.00	10	6	Both	80.1
Munier Road	4281+04.08	4287+00.00	6	6	Both	6.2
22nd St. South	2211+50.00	2215+11.91	6	6	Both	6.2

See Standard Road Plan RH-370 for construction requirements.

6148
11-10-92



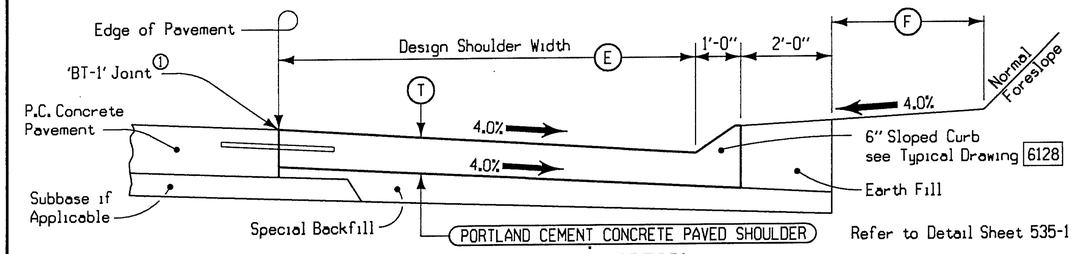


DETAIL 'A'

1. Transition to sloped curb in 5'.

TRANSITION BETWEEN STANDARD CURB AND SLOPED CURB ON SHOULDER

7127
06-07-94



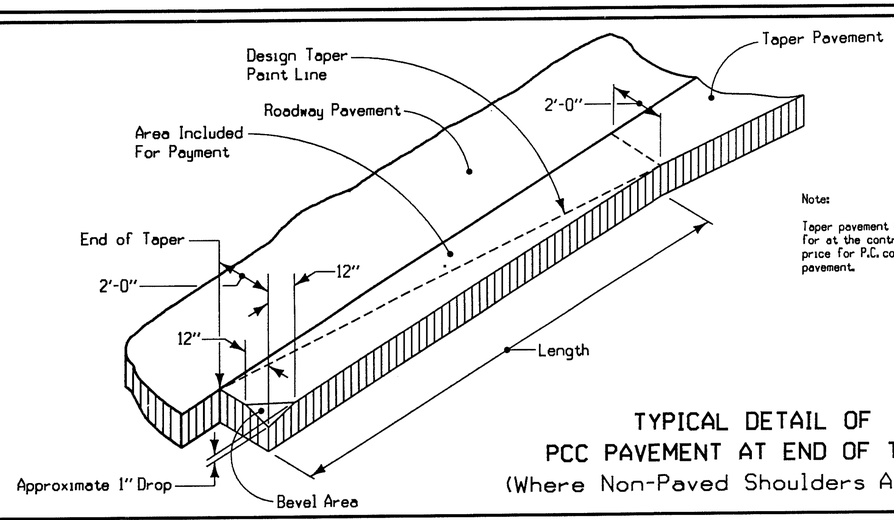
TYPICAL SECTION PCC PAVED SHOULDER WITH SLOPED CURB

LOCATION				DIMENSIONS			QUANTITIES 2		
ROAD IDENTIFICATION	STATION TO STATION		SIDE	T Inches	E Feet	F Feet	SURFACE 3 AREA Sq. Yds.	VOLUME Cu. Yds.	SPECIAL 3 BACKFILL Tons
Ia# 100	116+63.38	133+00.00	Lt.	7	8	10	100	20.495	53.64
Ia# 100	203+00.00	215+10.01	Lt.	7	8	10	100	20.495	53.64

Notes:

1. See Standard Road Plan RH-51.
2. Per Station Per Side.
3. Bid Items

7101
08-08-89

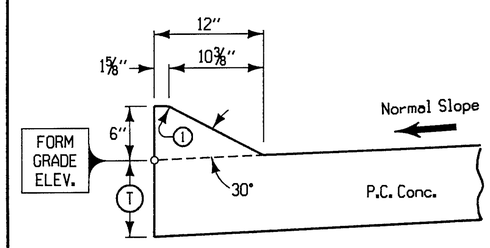


Note:

Taper pavement to be paid for at the contract unit price for P.C. concrete pavement.

TYPICAL DETAIL OF PCC PAVEMENT AT END OF TAPER (Where Non-Paved Shoulders Are Used)

6128
11-10-92



T is the thickness specified for pavement

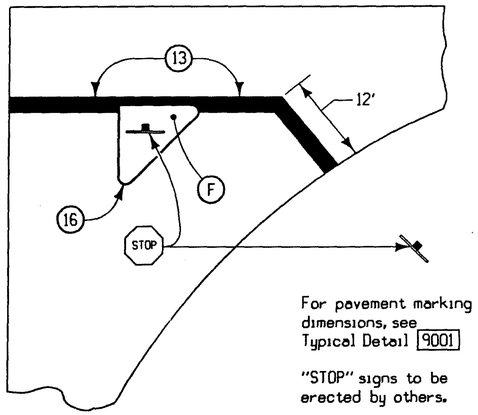
1. 2" radius

DETAILS OF INTEGRAL 6" SLOPED CURB

OFFICE OF DESIGN • CADD • PRODUCED	STATE OF IOWA	FHWA REGION 7	FISCAL YEAR	LINN COUNTY	PROJECT NUMBER	NHS-100-1(23)--19-57	SHEET NUMBER	B.04

P.8

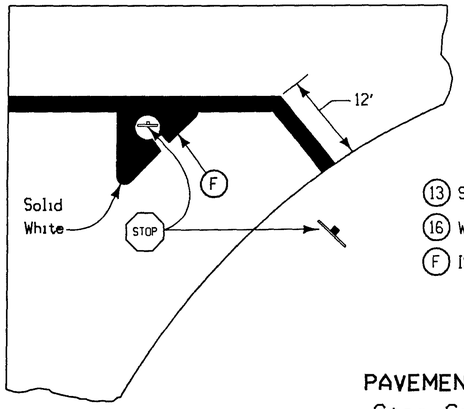
9501
10-08-91



For pavement marking dimensions, see Typical Detail 9001

"STOP" signs to be erected by others.

CURBED ISLAND

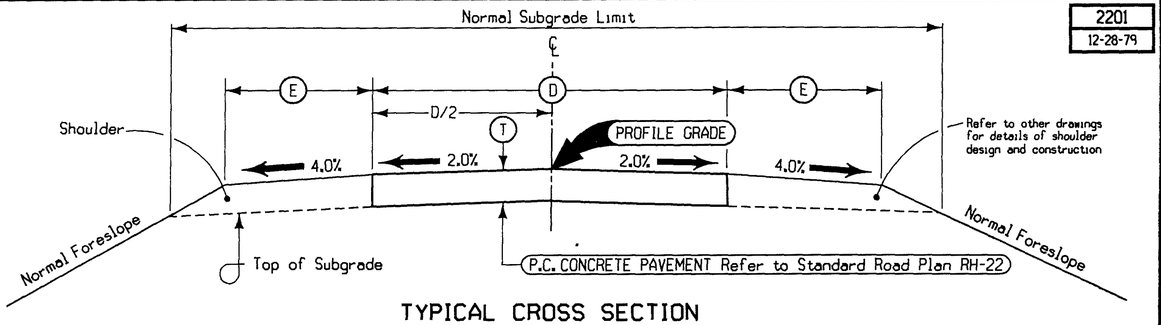


LOW RISE ISLAND

(13) STOP LINE (White)
(16) WHITE CURB
(F) ISLAND

PAVEMENT MARKINGS
Stop Sign Islands and Stop Lines

2201
12-28-79



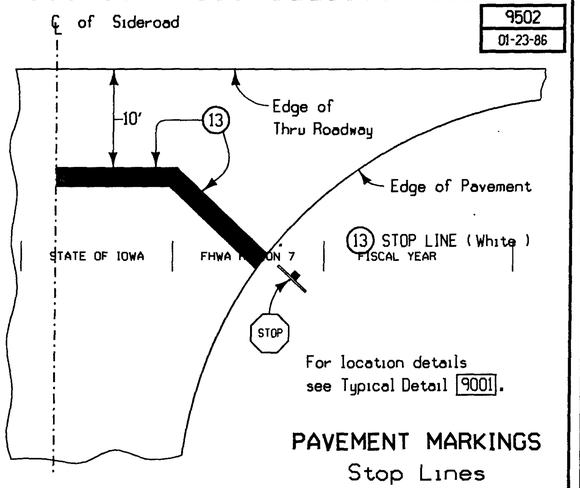
TYPICAL CROSS SECTION
2 LANE ROADWAY

Note:

Normal sections shown may be appropriately modified for areas specifically designated by the engineer such as intersections or superelevated curves.

LOCATION			(D) Feet	(T) Inches	(E) Feet	SHOULDER TYPE
ROAD IDENTIFICATION	STATION TO STATION					
Munier Road	4281+04.08	4287+00.00	24	8.5	6	Type A
22nd St. South	2211+50.00	2215+11.91	24	8.5	6	Type A

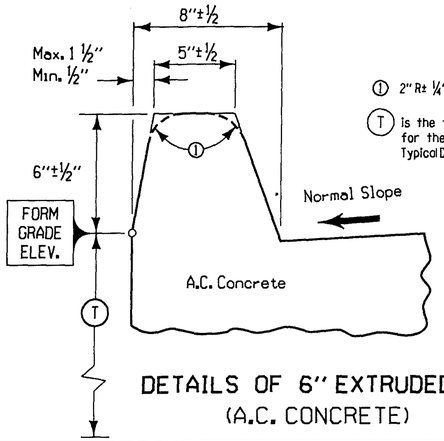
9502
01-23-86



For location details see Typical Detail 9001.

PAVEMENT MARKINGS
Stop Lines

6123
MODIFIED

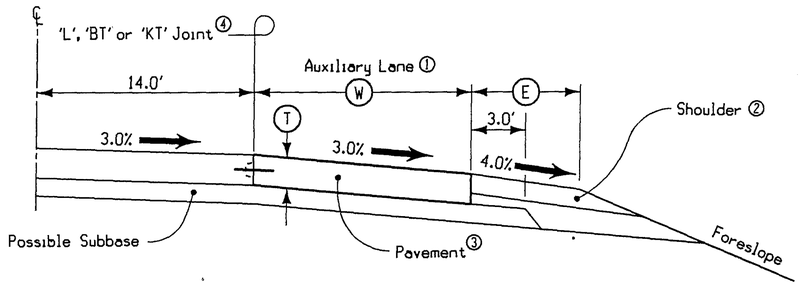


① 2" R± ¼"

(T) is the thickness specified for the pavement, see Typical Detail 2612

DETAILS OF 6" EXTRUDED CURB
(A.C. CONCRETE)

2205
MODIFIED



Notes:

① Details shall be similar for construction on either side (by stationing) of roadway.

② Refer to other drawings for details of shoulder design and construction.

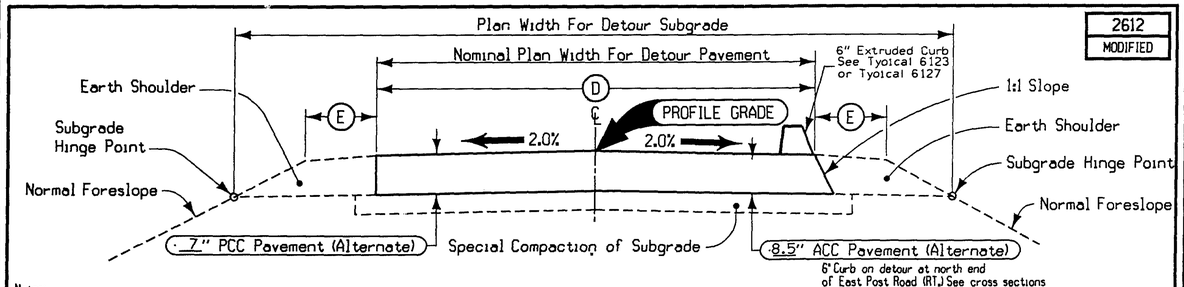
③ Pavement for auxiliary lane shall be constructed according to requirements specified for through roadway pavement.

④ For Joint details see Standard Road Plan RH-51.

LOCATION				(E) Feet	(W) Feet	(T) Inches
ROAD IDENTIFICATION	STATION TO STATION		SIDE			
Ia# 100	179+36.82	185+86.44	Rt.	10	10	10

TYPICAL HALF SECTION
PCC AUXILIARY LANE

2612
MODIFIED



TYPICAL CROSS SECTION
DETOUR PAVEMENT ALTERNATES

Notes:

Details indicated hereon illustrate the general requirements for the construction of a paved detour section where the pavement may be constructed as either of two types at the option of the contractor.

The P.C. Concrete option shall be constructed in conformance with current specifications for Class "A" P.C. Concrete Pavement. Transverse joints, center tie bars and sealing of the center longitudinal joint are not required.

Special compaction of subgrade is required and will be constructed and paid for in conformance with current specifications. (See Section 2109)

LOCATION		(D) Feet	(E) Feet	EARTH SHOULDER MATERIAL ① (Cu. Yds.) ②
STATION TO STATION				
72+12.52	78+55.04	24	3	16.34
9+76.49	13+93.30	24	3	57.36
③ 1171+90.7-LT	1181+25.0-LT	Var.	3	16.34

Notes:

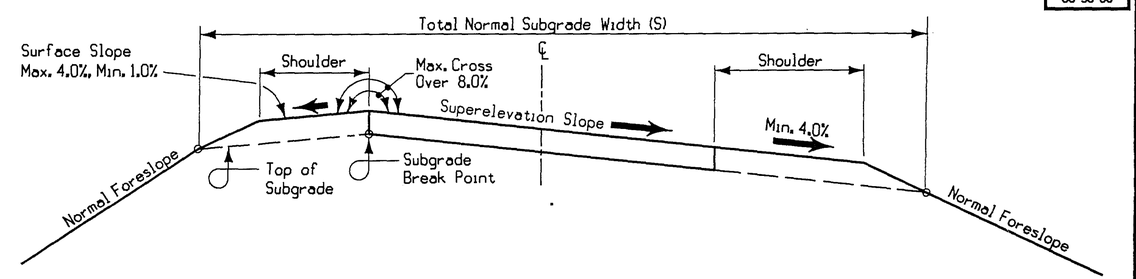
The Asphalt Cement Concrete option shall be constructed in conformance with current specifications for Type "B" Asphalt Cement Concrete Base (Class 1), on approved commercial mix or a mix of higher quality. The price bid for "Detour Pavement" in sq. yds. will be considered full compensation for building the detour pavement as detailed hereon.

① Per Shoulder Per Station

② Quantity Include 60 % for Shrinkage

③ Special Compaction of Subgrade Not Required.

2011
08-30-88



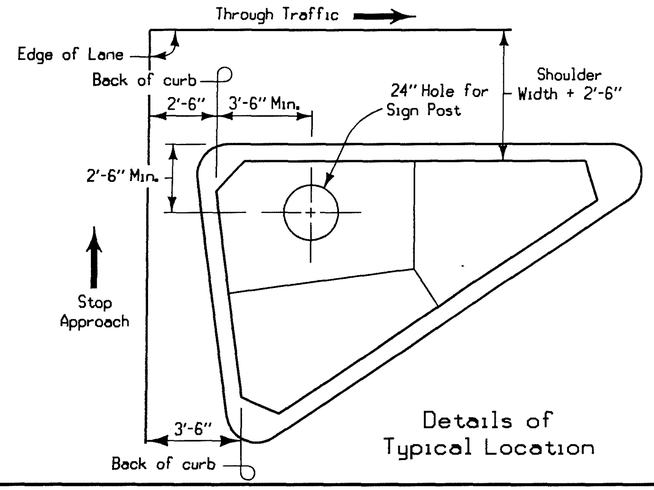
Notes:

High Side: The shoulder slope shall be maintained at the normal rate of 4.0% unless this slope produces a grade break with adjacent pavement of more than 8.0%. The shoulder slope shall then be determined by a 8.0% break with adjacent pavement. If superelevation slope exceeds 7.0%, use Typical 2014 for high side shoulder.

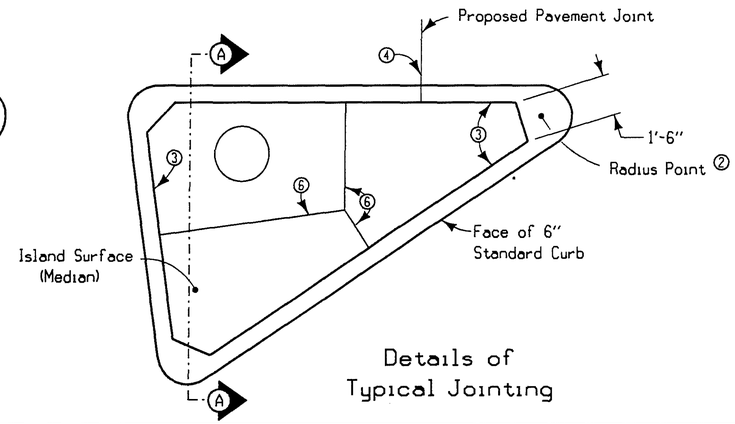
Low Side: The shoulder slope shall be maintained at normal rate of 4.0% unless the adjacent pavement slope is steeper, in which case the shoulder will slope at the same slope as adjacent pavement.

SUPERELEVATION (UP TO 7.0%)
TYPICAL CROSS SECTION
ALL NON-PAVED GRANULAR and EARTH SHOULDERS

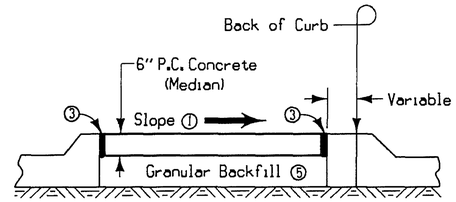
6143
10-22-93



Details of Typical Location



Details of Typical Jointing



Section A-A

Notes:

① Surface of island shall be shaped as necessary to drain.

② Radius point is determined by a 0.5' radius to back of curb line. Contractor shall pave across and between curbs on a straight line as indicated.

③ 'E' Joint, refer to Standard Road Plan RH-52 for details.

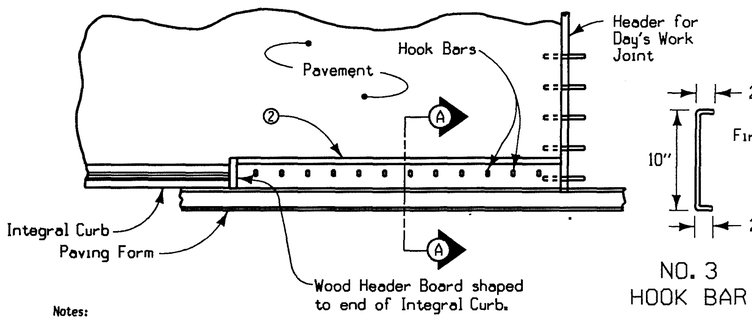
④ Construct 'C' Joint in Curb as needed to continue intersection pavement joints. See Standard Road Plan RH-50.

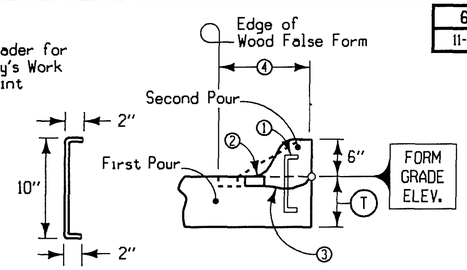
⑤ The furnishing and placing of granular backfill shall be incidental to the price bid for Portland Cement Concrete Median.

⑥ 'C' Joints as required. See Standard Road Plan RH-50.

TRAFFIC ISLAND WITH STANDARD CURB

6115
11-10-92





NO. 3 HOOK BAR

SECTION A-A

Notes:

① Install hook bar at 12" intervals with top projecting so as to clear the paving equipment and as near the false form board as possible to maintain 2" surface clearance.

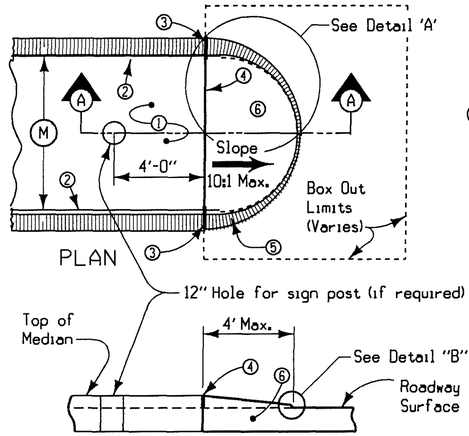
② 2" x 4" False Form.

③ Excavate a slight cavity in concrete around each bar.

④ 12" maximum for Standard 6" Curb. 16" maximum for Sloped 6" Curb.

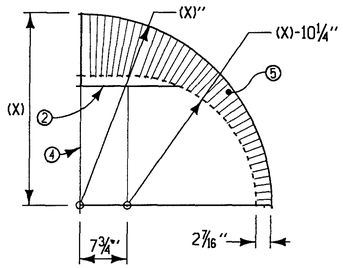
CONSTRUCTION WHERE CURB IS OMITTED AT END OF DAY'S RUN

6142
MODIFIED

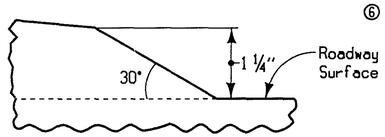


PLAN

SECTION A-A



DETAIL 'A'



DETAIL 'B'

Notes:

For (M) of 8 feet or less, a ramped median nose should be used. For (M) over 8 feet see other detail plan.

(X) = M/2 + 12"

① For details of paved median see Detail 6140

② Back of Curb

③ 'EE' Joint, see Standard Road Plan RH-52

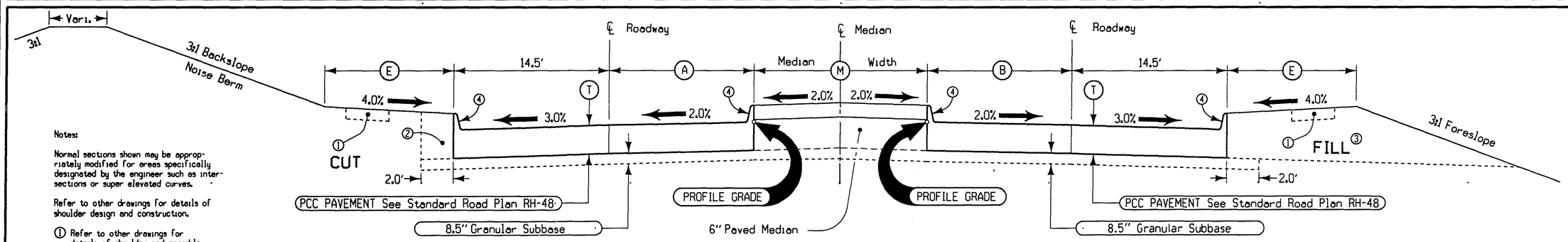
④ 'E' Joint, see Standard Road Plan RH-52

⑤ Special Shaping of Curb

⑥ Quantities for Ramped Median Nose area shall be included in the quantites for roadway pavement in sq. yds.

RAMPED MEDIAN NOSE (4" SLOPED CURB)

3207
MODIFIED



Notes:

Normal sections shown may be appropriately modified for areas specifically designated by the engineer such as intersections or super elevated curves.

Refer to other drawings for details of shoulder design and construction.

① Refer to other drawings for details of shoulder and possible sidewalk construction.

② Excavate and backfill 2.0'

③ Backfill

④ See Typical 6127 for details of 6" Integral Curb

LOCATION			(T)	(E)	(M)	(A)	(B)
ROAD IDENTIFICATION	STATION TO STATION		Inches	Feet	Feet	Feet	Feet
Ia. 100	116+20.50	116+63.38	10	*	10	17	17

Note: Begin 8.5" Granular Subbase @ Sta. 113+50.00

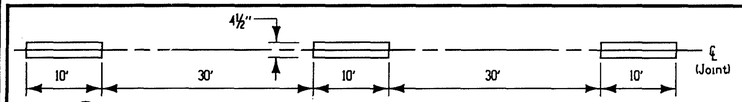
* 9' Paved Shoulder from Sta. 116+20.50 to Sta. 116+63.38, Left Side.

TYPICAL CROSS SECTION 4 LANE PCC PAVEMENT WITH CURBS

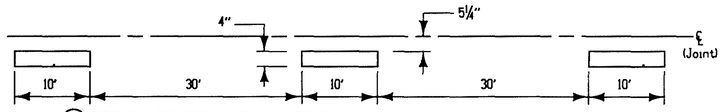
OFFICE OF DESIGN • CADD • PRODUCED	STATE OF IOWA	FHWA REGION 7	FISCAL YEAR	LINN COUNTY	PROJECT NUMBER	NHS-100-1(23)--19-57	SHEET NUMBER	B.06

P. 10

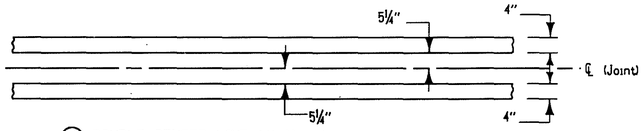
9001
11-10-92



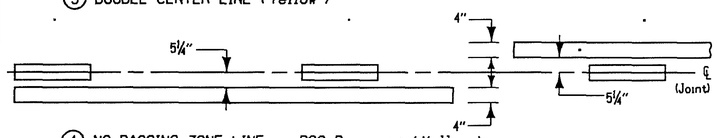
① BROKEN CENTER LINE on PCC Pavement (Yellow)



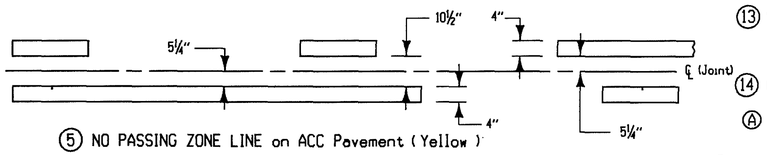
② BROKEN CENTER LINE on ACC Pavement (Yellow)



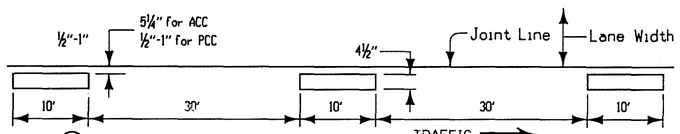
③ DOUBLE CENTER LINE (Yellow)



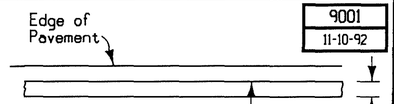
④ NO PASSING ZONE LINE on PCC Pavement (Yellow)



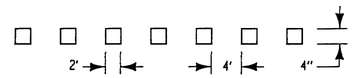
⑤ NO PASSING ZONE LINE on ACC Pavement (Yellow)



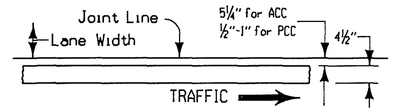
⑥ BROKEN LANE LINE (White)



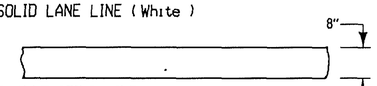
⑦ EDGE LINE RIGHT (White)
⑧ EDGE LINE LEFT (Yellow)



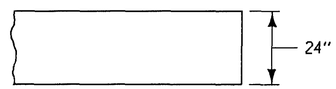
⑨ DOTTED LINE (White)



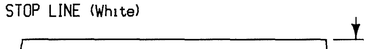
⑩ SOLID LANE LINE (White)



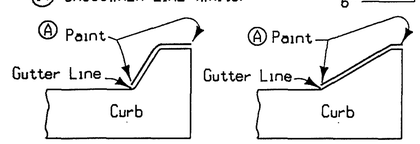
⑪ CHANNELIZING LINE (White)
⑫ CHANNELIZING LINE (Yellow)



⑬ STOP LINE (White)



⑭ CROSSWALK LINE (White)

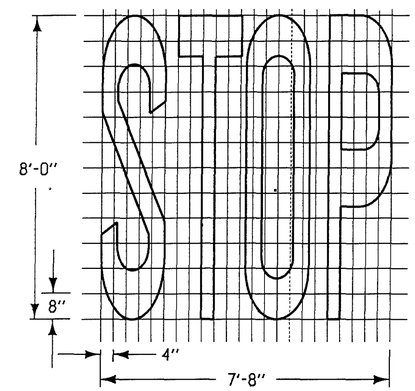


Ⓐ Paint 12" width for 6" Standard Curb,
Paint 14" width for 6" Sloped Curb.

⑮ YELLOW CURB ⑯ WHITE CURB

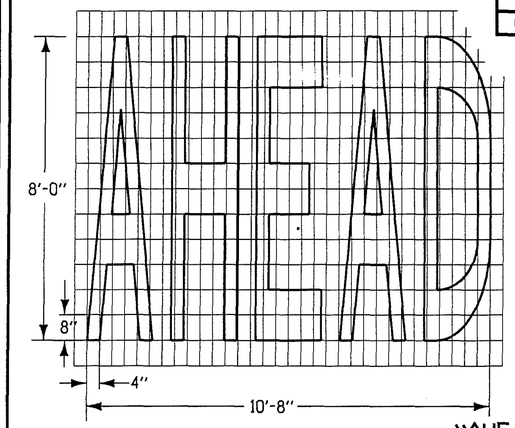
STANDARD TYPES OF PAVEMENT MARKINGS

9006
01-23-85



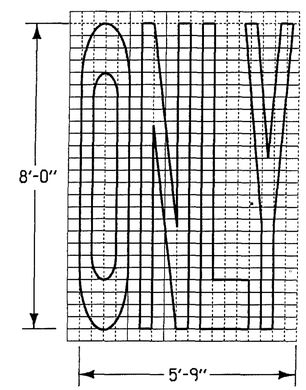
" STOP "
WORD 8'

9007
01-23-85



"AHEAD"
WORD 8'

9008
01-23-85

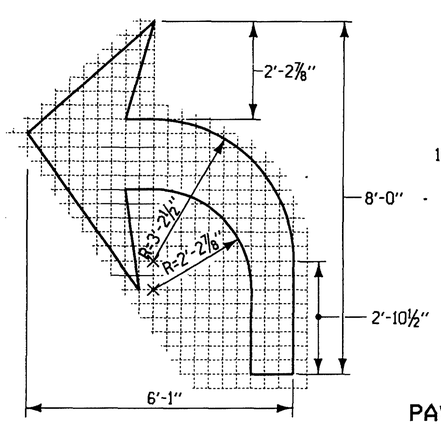


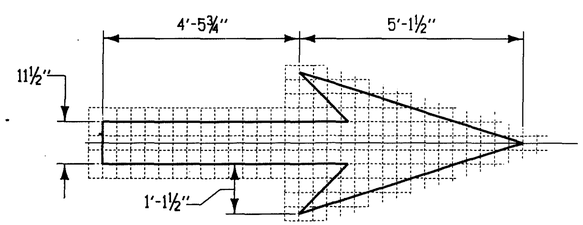
EACH UNIT = 3.84"

"ONLY"
WORD 8'

9002
01-23-85

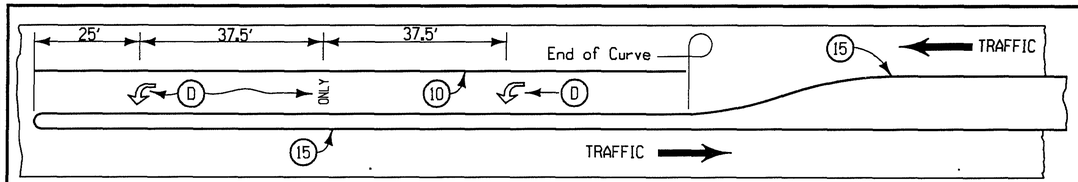
EACH UNIT = 3.84"



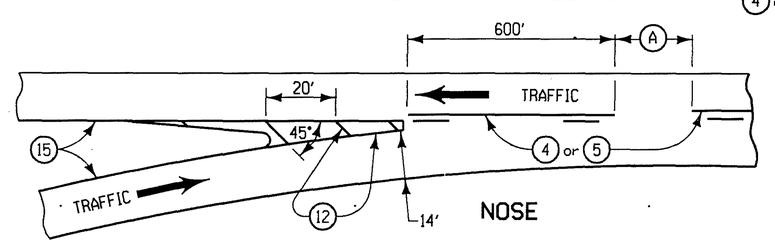


PAVEMENT MARKINGS STRAIGHT AND CURVE ARROWS

9401
08-08-89



LEFT TURN ISLAND



NOSE

For location details see Typical Detail 9001

④ or ⑤ NO PASSING ZONE LINE (Yellow)
⑩ SOLID LANE LINE (White)
⑫ CHANNELIZING LINE (Yellow)
⑮ YELLOW CURB
Ⓐ If less than 400' join the Yellow Lines.
Ⓓ Symbol, for size & shape refer to Typical Details 9002 and 9008

PAVEMENT MARKINGS
Curbed Channelized Island

OFFICE OF DESIGN • CADD • PRODUCED	STATE OF IOWA	FHWA REGION 7	FISCAL YEAR	LINN	COUNTY	PROJECT NUMBER	NHS-100-1(23)--19-57	SHEET NUMBER	B.07

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ESTIMATED PROJECT QUANTITIES

100-1C
03-29-94

CONSTRUCTION USE ONLY	ITEM CODE	ITEM	UNIT	QUANTITIES ESTIMATED DIVISION 1	ESTIMATED DIVISION 2	ESTIMATED DIVISION 3	ESTIMATED DIVISION 4	ESTIMATED DIVISION 5	ACTUAL TOTAL	AS BUILT ACTUAL DIVISION 1	AS BUILT ACTUAL DIVISION 2	AS BUILT DIVISION 3	AS BUILT DIVISION 4	AS BUILT DIVISION 5
	2102-0425048	SELECTED BACKFILL, SAND	CY	1 095	0				0	0	0			
	2102-0425050	SELECTED BACKFILL, SOIL	CY	7 887	0				9239	9126	113			
	2102-0425070	SPECIAL BACKFILL	TON	1 815	0				1883	1883	0			
	2102-2710070	EXCAVATION, CLASS 10, ROADWAY AND BORROW	CY	43 776	0				43319	43319	0			
	2105-8425011	TOPSOIL, SPREADING	CY	1 889	0				1 889	1889	0			
	2107-0875100	COMPACTION WITH MOISTURE CONTROL	CY	548	0				0	0	0			
	2108-5025000	OVERHAUL	ST-Y	28401	0				28401	28401	0			
	2109-8225100	SPECIAL COMPACTION OF SUBGRADE	STA.	6.78	0				0	0	0			
	2111-8174100	GRANULAR SUBBASE	SY	147 878	37 073				186460	186460	0			
	2121-7425010	GRANULAR SHOULDERS, TYPE A	TON	11 690	3 069				15407.38	15407.38	3467.88			
	2122-5190007	PAVED SHOULDER, P.C. CONCRETE, 7 IN.	SY	2 847	0				2850.20	2850.20	0			
	2123-7450000	SHOULDER CONSTRUCTION, EARTH	STA.	18.71	0				18.49	18.49	0			
	2123-7450020	SHOULDER FINISHING, EARTH	STA.	58.05	0				53.76	53.76	0			
	2213-6745500	REMOVAL OF CURB	STA.	0.74	0				0.74	0.74	0			
	2301-0685100	BRIDGE APPROACH SECTION	SY	1 036	0				1 036	1036	0			
	2301-4875006	MEDIAN, P.C. CONCRETE, 6 IN.	SY	16 442	4 253				20441.75	16318.30	4123.45			
	2301-5162310	PAVEMENT, STANDARD OR SLIP FORM P.C. CONCRETE, CLASS C, 10 IN.	SY	119 256	29 735				148889.67	119640.59	29249.08			
	2301-5163385	PAVEMENT, STANDARD OR SLIP FORM P.C. CONCRETE, CLASS C, 8.5 IN.	SY	8 088	0				8129.64	8129.64	0			
	2301-6911722	PORTLAND CEMENT CONCRETE PAVEMENT SAMPLES	LS	0.83	0.17				1	0.83	0.17			
	2312-8260051	GRANULAR SURFACING ON ROAD, CLASS A CRUSHED STONE	TON	82	66				873.98	653.65	220.33			
	2399-5145000	DETOUR PAVEMENT	SY	2 176	0				2123.99	2123.99	0			
	2402-2720100	EXCAVATION, CLASS 20, FOR ROADWAY PIPE CULVERT	CY	178	0				178	178	0			
	2416-0125024	APRONS, CONCRETE, INSTALL ONLY, 24 IN. DIA.	EACH	1	0				1	1	0			
	2416-1400024	CULVERT, INSTALL ONLY - CONCRETE ROADWAY PIPE, 24 IN. DIA.	LF	44	0				44	44	0			
	2422-0360024	APRONS, UNCLASSIFIED, 24 IN. DIA.	EACH	2	0				4	4	0			
	2422-1722024	CULVERT, UNCLASSIFIED ENTRANCE PIPE, 24 IN. DIA.	LF	78	0				122	122	0			
	2502-8212024	SUBDRAIN, LONGITUDINAL, (BACKSLOPE) 4 IN. DIA.	LF	407	0				417	417	0			
	2502-8212034	SUBDRAIN, LONGITUDINAL, (SHOULDER) 4 IN. DIA.	LF	40 719	9 810				45606	36318	9288			
	2502-8220196	SUBDRAIN OUTLET, RF-19E	EACH	149	40				174	133	41			
	2502-8220105	SUBDRAIN OUTLET, As Per Plan	EACH	23	0				39	39	0			
	2503-4400000	INTAKE, TOP ONLY, AS PER PLAN	EACH	3	0				3	3	0			
	2503-4450083	INTAKE, RA-8, TOP ONLY	EACH	25	0	4			29	25	0	4		
	2505-4020152	GUARDRAIL, END ANCHORAGE, BEAM, RE-52	EACH	4	0				4	4	0			
	2505-4020250	GUARDRAIL, FORMED STEEL BEAM	LF	150	0				150	150	0			
	2505-4020251	GUARDRAIL, FORMED STEEL THRIE BEAM	LF	125	0				125	125	0			
	2505-4020400	GUARDRAIL, POSTS, BEAM	EACH	48	0				48	48	0			
	2505-4021690	GUARDRAIL, END ANCHORAGE, BEAM, RE-69	EACH	4	0				4	4	0			
	2510-6745575	REMOVAL OF DETOUR	LS	0.83	0.17				1	1	0			
	2510-6745850	REMOVAL OF OLD PAVEMENT	SY	8 385	0				---	8529.30	0			
	2511-6745900	REMOVAL OF SIDEWALK	SY	40	0				40.85	40.85	0			
	2511-7526006	SIDEWALK, P.C. CONCRETE, 6 IN.	SY	34.23	0				38.70	38.70	0			
	2512-1725206	CURB AND GUTTER, P.C. CONCRETE, 2.0 FT.	LF	74	0				64	64	0			
	2515-2475006	DRIVES, P.C. CONCRETE, 6 IN.	SY	2 602	0				2659.71	2659.71	0			
	2515-6745600	REMOVAL OF DRIVES	SY	1 141	0				1043.08	1043.08	0			
	2518-6910000	SAFETY CLOSURE	EACH	4	0				33	29	4			
	2520-3350010	FIELD LABORATORY	EACH	0.83	0.17				0	0	0			
	2520-3350015	FIELD OFFICE	EACH	0.83	0.17				1	0.83	0.17			
	2524-9220030	OBJECT MARKER, TYPE 3	EACH	4	0				4	4	0			
	2525-2638030	SILT FENCE	LF	1 379	0				1266	1266	0			
	2525-2638031	SILT FENCE FOR DITCH CHECKS	LF	120	0				1962	1385	577			
	2526-8285000	CONSTRUCTION SURVEY	LS	0.83	0.17				1	0.83	0.17			
	2527-9263110	PAINTED PAVEMENT MARKING	STA.	1 215.48	200.86				1552.04	1129.61	422.43			
	2527-9263140	PAINTED SYMBOLS AND LEGEND	EACH	107	6				51	42	9			
	2527-9263180	PAVEMENT MARKING REMOVED	STA.	141.23	0				171.35	113.18	58.37			
	2528-8400051	TEMPORARY BARRIER RAIL, FURNISH ONLY	LF	470	0				430	430	0			
	2528-8400052	TEMPORARY BARRIER RAIL, PLACE ONLY	LF	670	0				690	690	0			
	2528-8400157	TEMPORARY FLOODLIGHTING LUMINAIRE	EACH	5	0				3	3	0			
	2528-8400256	TEMPORARY TRAFFIC SIGNALS	EACH	5	1				3	3	0			
	2528-8445110	TRAFFIC CONTROL	LS	0.83	0.17				1	0.83	0.17			
	2533-4980005	MOBILIZATION	LS	0.83	0.17				1	0.83	0.17			
	2599-8447010	TRAINEE REIMBURSEMENT	HOURS	863	177				0	0	0			
	2503-8460013	UTILITY ACCESS, RA-1, TOP ONLY	EACH	1	0	1			2	1	0	1		
	2599-8580000	WALL, NOISE BARRIER	SF	7080	0				7199.84	7199.84	0			
	2601-2632110	FERTILIZING	ACRE	8	2				0	0	0			
	2601-2634100	MULCHING	ACRE	8	2				0	0	0			
	2601-2642100	STABILIZING CROP - SEEDING AND FERTILIZING	ACRE	16	4				46.18	38.39	7.79			
	2601-2642120	STABILIZING CROP - SEEDING AND FERTILIZING (URBAN)	ACRE	2	0				1.62	1.62	0			
	2528-8445112	FLAGGERS	DAY	15	5				31	31	0			

NOTE: QUANTITIES LISTED IN DIVISION 3 ARE CITY OF MARION PARTICIPATION QUANTITIES.

OFFICE OF DESIGN • CADD • PRODUCED	STATE OF IOWA	FHWA REGION 7	FISCAL YEAR	LINN	COUNTY	PROJECT NUMBER	NHS-100-1(23)--19-57	SHEET NUMBER	C.01

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ESTIMATE REFERENCE INFORMATION

100-4
03-29-94

Data listed below is for informational purpose only and shall not constitute a basis for any extra work orders.

ITEM CODE	DESCRIPTION
2102-0425048	Backfill, Selected, Sand For use as treatment on Tama St. and is available from stockpile as designated by the engineer. Refer to Tab. Form 103-3 on Sheet C.09 for details.
2102-0425050	Backfill, Selected, Soil Refer to Tab. Form 103-3 on Sheet C.09 for details.
2102-0425070	Backfill, Special Refer to Tab. Form 103-3 on Sheet C.09 for details, required 288 tons of material for sand subgrade treatment and 1527 tons for paved shoulders (see Typical 7127 on Sheet B.04). Also requires 1114 tons for bridge approach section considered incidental to that item.
2102-2710070	Class 10 Excavation, Roadway & Borrow Includes 38,658 cu. yds. of material to be wasted by the contractor as per Standard Notation 213-1. No payment for overhaul of material to be wasted will be allowed. Includes 124 cu. yds. of material for grading at guardrail installations and 306 cu. yds. for "Earth Shoulder Construction" at detour at south end of East Post Road. Material is available from the borrow area or from material to be wasted as directed by the engineer. No payment for overhaul will be allowed.
2105-8425011	Topsoil, Spreading Refer to Tab. Form 103-4 for details. Material is available from the stockpile in the Tama St. vicinity as designated by the engineer.
2107-0875100	Compaction with Moisture Control Refer to Tab. Form 103-6 for details.
2108-5025000	Overhaul Includes 855 sta. yds. calculated from a mass diagram and 27546 sta. yds. by assuming a center of mass of the borrow area.

ESTIMATE REFERENCE INFORMATION

100-4
03-29-94

Data listed below is for informational purpose only and shall not constitute a basis for any extra work orders.

ITEM CODE	DESCRIPTION
2109-8225100	Special Compaction of Subgrade Refer to Typical 2612 on Sheet B.05 for details. Includes 4.28 Sta's for detour at south end of East Post Rd. & 2.50 Sta's at north end of East Post Rd.
2111-8174100	Granular Subbase Refer to "Spec. Typ. #1 on Sheet B.01 for details. For placement under Ia. #100 & East Post Road paving. Includes 63,520 tons in Div. 1 & 15,991 tons in Div. 2.
2213-6745500	Removal of Curb. For detour at north end of East Post Road. See Sheet F.03.
2121-7425010	Type A Granular Shoulders Includes 22,372 cu. yds. (Div. 1) & 6,164 cu. yds. (Div. 2) of earth shoulder fill which shall be considered incidental. Material is available from the borrow area or from material to be wasted as directed by the engineer. No payment for overhaul will be allowed.
2122-5190006	7" P.C. Conc. Paved Shoulders Refer to Typical 7127 for details. Requires 1527 tons of "Special Backfill". Rumble strips (RH-41D) will not be required.
2123-7450000	Earth Shoulder Construction For detours @ south end of East Post Road and requires 306 cu. yds. which is included in the Class 10. Refer to Typical 2612 for details.
2123-745020	Earth Shoulder Finishing For use in areas with curb and requires 3,240 cu. yds. of material which has a 60% shrinkage factor included and is available from the borrow area or from material to be wasted as directed by the engineer. No payment for overhaul will be allowed.

ESTIMATE REFERENCE INFORMATION

100-4
03-29-94

Data listed below is for informational purpose only and shall not constitute a basis for any extra work orders.

ITEM CODE	DESCRIPTION
2301-0685100	Bridge Approach Section Refer to Tab. Form 112-6 on Sheet C.07 for details.
2301-4875006	6" P.C. Median Concrete Requires 6929 tons of Granular Material in Div. 1 & 1795 tons of Granular Material in Div. 2 which shall be considered incidental to the bid item. Refer to Typical 6140 Modified for details. Also includes stop sign islands.
2301-5162310	10" Class 3 P.C. Conc., Stand. or Slip Form Requires skewed CD Joints and Class 3 aggregate durability. Ia. 100 mainline only will require Class 3I aggregate. Includes 130,507 sq. yds. of mainline pavement and 18,484 sq. yds. of sideroad paving (East Post Road).
2301-5163385	8.5" Class 3 P.C. Conc., Stand. or Slip Form. Requires skewed CD Joints and Class 3 aggregate durability.
2312-8260051	Class A Crushed Stone on Road Includes 94 tons for sideroads estimated @ the rate of 400 tons per mile and 54 tons estimated @ the rate of 10 tons per sta. length of entrance.
2399-5145000	Detour Pavement Refer to Typical 2612 Modified on Sheet B.05 for details. Includes 250' of 6" curb which shall be considered incidental to the bid item.
2402-2720100	Class 20 Excavation Refer to Tab Form 104-3 on Sheet C.08 for details.

ESTIMATE REFERENCE INFORMATION

100-4
03-29-94

Data listed below is for informational purpose only and shall not constitute a basis for any extra work orders.

ITEM CODE	DESCRIPTION
2416-1400024 2416-0125024	24" Conc. Roadway Pipe, Install Only & Apron Refer to Tab. Form 104-3 on Sheet C.08 for details.
2422-0360024	Aprons, Unclassified, 24". Refer to Tab. Form 102-3 on Sheet C.07 for details.
2422-1722024	Culvert, Unclassified Entrance Pipe, 24". Refer to Tab. Form 102-3 on Sheet C.07 for details.
2502-8212024	4" Longitudinal Backslope Subdrain. Requires 50 cu. yds. of porous backfill which shall be considered incidental to the bid item. Refer to Tab. Form 104-9 on Sheet C.09 for details.
2502-8212034	4" Longitudinal Shoulder Subdrain. Refer to Tab. Form 104-9 on Sheet C.10-C.13 for details. Requires 4419 cu. yds. of porous backfill and 106 cu. yds. of Class A Crushed Stone which shall be considered incidental to the bid item.
2502-8220196	RF-19E Subdrain Outlet. Refer to Tab. Form 104-9 on Sheet C.10-C.13 for details.
2502-8220105	Subdrain Outlet, As Per Plan Refer to Tab. Form 104-9 on Sheet C.09 for details.

ROADWAY DESIGN

I hereby certify that this plan was prepared under my supervision and that engineering decisions with regard to the design were made by me or by other duly Registered Professional Engineers under the laws of the State of Iowa.

Name Daniel E. Ohrman

Iowa Registration No. 10262 Date 4/28/95

OFFICE OF DESIGN • CADD • PRODUCED	STATE OF IOWA	FHWA REGION 7	FISCAL YEAR	LINN COUNTY	PROJECT NUMBER NHS-100-1(23)--19-57	SHEET NUMBER C.02

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ESTIMATE REFERENCE INFORMATION

100-4
03-29-94

Data listed below is for informational purpose only and shall not constitute a basis for any extra work orders.

ITEM CODE	DESCRIPTION
2503-4400000	Intake, Top Only, As Per Plan Refer to Tab. Form 104-5A on Sheet C.06 and Sheets U.01 and U.02 for details.
2503-4450083	RA-8 Intake, Top Only Refer to Tab. Form 104-5A on Sheet C.06 for details.
2505-4020152 2505-4020250 2505-4020251 2505-4020400 2505-4021690	Steel Beam Guardrail Items Refer to Tab. Form 108-8A on Sheet C.07 for details.
2510-6745575	Removal of Detour Refer to Typ. 2108 (Tama St. detour) on Sheet B.03 and Typ. 2612 Modified on Sheet B.05 for details. Refer to Standard Notation 213-1 & 213-7 on Sheet C.05 for additional information. Includes removal of 1141 sq. yds. of detour pavement at south end of East Post Rd. and 201 sq. yds. at north end.
2510-6745850	Removal of Pavement Refer to Tab. Form 102-5 and 110-1 on Sheet C.06 for details. Refer to Standard Notations 213-1 & 213-7 on Sheet C.05 for additional information. Includes 511 lin. ft. of full depth saw cut which shall be considered incidental to the bid item.
2511-6745900	Removal of Sidewalk Refer to Tab. Form 110-5 on Sheet C.06 for details. Includes 16 lin. ft. of incidental saw cut.

ESTIMATE REFERENCE INFORMATION

100-4
03-29-94

Data listed below is for informational purpose only and shall not constitute a basis for any extra work orders.

ITEM CODE	DESCRIPTION
2511-7526006	6" P.C. Concrete Sidewalk Refer to Typical 6105 on Sheet B.03 for details. Includes pedestrian curb ramp, see Standard Road Plan RB-6.
2512-1725206	Curb & Gutter, P.C. Concrete, 2.0' For placement at north end of East Post Road between Sta. 1202+58.8 and Sta. 1203+33.0 on right. Refer to Sheet F.03 for further details. Requires 16.5 Sq. yds. P.C. Concrete. Refer to Typical 6131 (Modified) for details.
2515-2475006	6" P.C. Concrete Drives Refer to Tab. Form 102-3 on Sheet C.07 for details.
2515-6745600	Removal of Drives Refer to Tab. Form 110-8 on Sheet C.06 for details. Includes 162 lin. ft. of saw cut which shall be considered incidental to the bid item.
2518-6910000	Safety Closure Refer to Tab. Form 108-13A on Sheet C.06 for details. Adjust in field as necessary as directed by the engineer.
2524-9220030	Type 3 Object Markers Refer to Tab. Form 108-17 on Sheet C.07 for details.
2525-2638030 2525-2638031	Silt Fence & Silt Fence for Ditch Checks Refer to Tab. Form 100-17 & 100-18 on Sheet C.06 for details.

ESTIMATE REFERENCE INFORMATION

100-4
03-29-94

Data listed below is for informational purpose only and shall not constitute a basis for any extra work orders.

ITEM CODE	DESCRIPTION
2527-9263110 2527-9263180	Pavement Marking Items Includes the following: (Permanent): 4.98 Sta's - Broken Center Line Yellow on P.C.C. 27.54 Sta's - Double Center Line Yellow 19.92 Sta's - No Passing Zone Line on P.C.C. (Yellow) 100.26 Sta's - Broken Lane Line (White) 433.15 Sta's - Edge Line Right (White) 369.68 Sta's - Edge Line Left (Yellow) 24.22 Sta's - Solid Lane Line (White) 35.58 Sta's - Channelizing Line (Yellow) 31.74 Sta's - Stop Line (White) 90.87 Sta's - Yellow Curb 3.48 Sta's - White Curb (Temporary and Removals) (Tape & Paint) White Edge Line 130.36 Sta's, includes 11.71 Sta's of tape to be removed and 38.95 Sta's of paint to be removed. Double Yellow Centerline 124.06 Sta's, includes 21.03 Sta's of tape to be removed and 44.27 Sta's of paint to be removed. No Passing Zone Line 20.50 Sta's, includes 3.20 Sta's of tape to be removed and 17.30 Sta's of paint to be removed. Requires 4.78 Sta's of existing paint removal.
2527-9263140	Painted symbols & Legend (Permanent) 17 Right turn arrows 57 Left turn arrows 39 "Only"
2528-8400051 2528-8400052	Temporary Barrier Rail, Furnish Only Temporary Barrier Rail, Place Only Refer to Detail Sheets J.01 thru J.16 for layout and other details. Includes 1 - 20' section of steel barrier rail (concrete filled).
2528-8400157	Temporary Floodlighting Luminaire For detours at north & south end of East Post Road. See Standard Road Plan RS-8 & Design Detail 570-2 for details.
2528-8400256	Temporary Traffic Signals Refer to Tab. Form 108-28 on Sheet C.07 for details.
2503-8460013	Utility Access, RA-1, Top Only Refer to Tab. Form 104-5A on Sheet C.06 for details.
2599-8580000	Wall, Noise Barrier Refer to Sheets U.11, U.12, and U.13 for details.

ESTIMATE REFERENCE INFORMATION

100-4
03-29-94

Data listed below is for informational purpose only and shall not constitute a basis for any extra work orders.

ITEM CODE	DESCRIPTION
2601-2632110 2601-2642100 2601-2642120	Fertilizing Fertilizer: Rate - 450 lbs. of 13-13-13 or equivalent chemically combined commercial fertilizer per acre
2601-2632110 2601-2634100	Mulching & Fertilizing Areas disturbed but not seeded with stabilizing crop by September 30 shall be scarified to a 3" depth, fertilized and mulched. All mulch to be consolidated into the soil with the mulch stabilizer.
2601-2634100	Mulch Rate: 1 1/2 tons of dry cereal straw per acre.
2601-2642100	Stabilizing Crop-Seeding & Fertilizing Included for all rural areas of the right of way, including borrow, as designated by the engineer. Seed Mixture (Rural) Spring -- March 1 - May 20 Oats = 2 bu. per acre Annual Ryegrass = 25 lbs. per acre Red Clover = 5 lbs. per acre Timothy = 5 lbs. per acre Summer -- May 21 - July 20 Oats = 3 bu. per acre Annual Ryegrass = 35 lbs. per acre Red Clover = 5 lbs. per acre Timothy = 5 lbs. per acre Fall -- July 21 - September 30 Oats = 2 bu. per acre Annual Ryegrass = 25 lbs. per acre Red Clover = 5 lbs. per acre Timothy = 5 lbs. per acre
2601-2642120	Stabilizing Crop-Seeding & Fertilizing (Urban) Included for all urban areas of the right of way as designated by the engineer. Seed Mixture (Urban) Spring -- March 1 - May 20 Annual Ryegrass = 25 lbs. per acre Bluegrass, Ky. (Park) = 15 lbs. per acre Perennial Ryegrass = 15 lbs. per acre Summer -- May 21 - July 20 Annual Ryegrass = 45 lbs. per acre Bluegrass, Ky. (Park) = 15 lbs. per acre Perennial Ryegrass = 15 lbs. per acre Fall -- July 21 - September 30 Annual Ryegrass = 25 lbs. per acre Bluegrass, Ky. (Park) = 15 lbs. per acre Perennial Ryegrass = 15 lbs. per acre

TRAFFIC CONTROL PLAN

108-23
04-04-89

1. Ia. #100 will be closed to traffic.
2. Traffic control on this project shall be in accordance with Standard Road Plan RS-2, RS-3, RS-8 and RS-15 and Detail Sheets 520-26, 540-1, 540-2, 540-10, 570-2 and 570-3 contained in the plans. For additional complimentary information, refer to the current Supplemental Specification for Traffic Controls.
3. Refer to Tab. Form 108-28 location of Temporary Traffic Signals as per Detail Sheet 570-3.
4. The contractor shall coordinate traffic control with other projects in the area.
5. Advance signing on streets which are closed to traffic shall consist of a "Road Closed" sign mounted on a Type III barricade with two Type "A" flashing warning lights placed at the limits of the work area. An orange plastic safety fence shall be placed behind the Type III barricade and stretched completely across the roadway. A "Road Closed Ahead" sign shall be erected at least 150 feet in advance of the road closure.
6. All traffic control devices shall be furnished, erected, maintained and removed by the contractor.
7. Article 2528.12 of the Standard Specifications requires maintenance of all traffic control devices, including maintenance of the devices during nonworking hours in order to assure proper operation.
8. When used for traffic control or protection of the work site, safety fence must be firmly supported in a vertical position. Related costs will be included in the traffic control bid item.
9. Where possible, all post mounted signs shall be placed at least two feet beyond the curb or edge of shoulder.
10. The location for storage of equipment by the contractor during nonworking hours shall be as approved by the engineer in charge of construction.
11. Proposed sign spacing may be modified, as approved by the engineer, to meet existing field conditions or to prevent obstruction of the motorist's view of permanent signing.
12. Permanent signing that conveys a message contrary to the message of the temporary signing and not applicable to the working conditions shall be covered by the contractor when directed by the engineer.
13. Proposed changes in the traffic control plan shall be reviewed with the Office of Construction before changes are made.
14. The bid item "Traffic Control" shall include the cost for all traffic control measures required of the contractor except for those which are separate bid items or are incidental to other items.

STAGING NOTES

108-26A
01-09-90

Contractor shall stage his operations so that local Tama St. traffic will have means of ingress & egress via proposed Tama St. & Ia #100 at all times.

Contractor shall pave Ia #100 mainline to final grade (full width) from Sta. 186+00 (OR) to Sta. 187+00 (OR) to coincide with Stage 2 paving on East Post Road & grade pave to final grade (full width) from Sta. 187+00 (OR) to Sta. 187+75 (OR) to coincoide with Stage 3 paving on East Post Road.

22nd St. to be closed during the paving operation and opened again as soon as possible.

31st St. to be closed for duration of paving operations.

Munier Road to be closed for duration of paving operations at Sta. 4187+00.

TAMA ST.

STAGE 1 (PAVING PLAN)
Grade from Sta. 1122+50 right of existing ℄ of Tama St. ahead to grading already completed by grading contractor while maintaining local traffic on left side of existing Tama St.
Upon completion of Stage 1 grading, pave right side of relocated Tama St. from Sta. 1122+50 to Sta. 1125+50 and pave full width from Sta. 1125+50 to mainline. Upon completion of paving of Tama St. (Stage 1) place local traffic south of Sta. 1125+00± on new paving while maintaining local traffic north of Sta. 1125+00± on existing Tama St. & detour.

STAGE 2
Grade & pave remainder of Tama St. including connection to left @ Sta. 1125+04± while maintaining local traffic on right.

STAGE 3
When Ia #100 mainline paving is sufficiently completed to allow travel by local Tama St. traffic, route local Tama St. traffic via new paving on Tama St. & Ia. #100 to First Ave. and remove detour.

EAST POST ROAD

STAGE 1
Install inlet end of 30" RF-1 and temporary detour pipe @ Sta. 1176+88(OR) as shown on cross-sections. Grade and pave detours at south and north end of East Post Road and place temporary barrier rail at north end as shown on Traffic Control Detail Sheet # J.01-J.16.
Place traffic on detour.

STAGE 2 (SOUTH of IA. #100)
Complete necessary grading from Sta. 1174+00 to Sta. 1179+00(OR) to enable paving of southbound lanes. Pave southbound lanes from Sta. 1174+00 to edge slab of Ia. #100. Do necessary grading and pave temporary widening from Sta. 1171+91.8 (Sur.) to Sta. 1181+25(OR) as shown on cross-sections and complete shoulder work.

Stage 2 North & South to be simultaneous.

STAGE 2 (NORTH of IA. #100)
Complete grading from Sta. 1200+00 (OR) to Sta. 1202+80.75 (OR) and pave southbound lanes from edge slab of IA. #100 to Sta. 1202+80.75 (OR) as shown on cross sections. Complete shoulder work on southbound lanes. Move temporary barrier rail to position as shown on Traffic Control Detail Sheet # J.01-J.16 for Stage 3. Place traffic on new East Post Road southbound lanes north & south of IA. #100. Contractor to provide temporary connection to new southbound lanes for existing entrance @ Sta. 1190± (Rt.) until such time proposed entrance @ Sta. 1193+36 (Rt) is sufficiently completed to allow access to proposed northbound grade as directed by the engineer. See Stage 3 notes.

STAGING NOTES

108-26A
01-09-90

STAGE 3 (SOUTH of IA. #100)
Grade proposed entrance on right @ Sta. 1180+05±. Remove detour and temporary detour pipe, grade and pave northbound lanes and pave proposed entrance. Complete northbound shoulder and close existing access to East Post Road on right @ Sta. 1185+88(OR). Remove temporary widening on southbound shoulder and complete southbound shoulder work.

Stage 3 North & South to be simultaneous.

STAGE 3 (NORTH OF IA. #100)
Close Meadow View Drive to East Post Road. Grade and pave northbound lanes of East Post Road and grade & pave Meadow View Drive and also proposed entrance right of Sta. 1193+36(OR). Remove and replace curb and gutter on right from Sta. 1202+58.81(Sur.) to Sta. 1203+33(Sur.) See cross-sections. complete shoulder work, remove temporary barrier rail.
Open Meadow View Drive and East Post Road to traffic.

Note: The contractor shall expedite the construction of the noise walls to minimize possible construction noise in the areas of the proposed noise walls.

EXTRA WORK ORDERS

NO.	DESCRIPTION	UNIT	TOTAL	Div 1	Div 2	Div 3
8001	Special Backfill	S.Y	1371.28	1371.28	0	0
8002	Special Backfill	S.Y	1746.44	1746.44	0	0
8003	Excavation, Cl. 12, Boulders	C.Y	22.66	22.66	0	0
8004	Silt Basin	Each	15	9	6	0
8005	Revetment, Cl. E., Rip Rap	Ton	190.56	190.56	0	0
8006	Erosion Stone	Ton	526.05	460.58	65.47	0
8007	Engineering Fabric	S.Y	199.87	1854.21	141.66	0
8008	Special Dt. Control, Wood Excel. Mat	Sq.	424.8	305.20	119.60	0
8009	Removal of Silt Fence	L.F.	1685	1285	400	0
8010	Additional Labor Costs to Construct Turn Lanes.	L.S.	9450	4754	0	4695.81
8011	Delineators, Double White	Each	21	21	0	
8012	Price Adjustment For Use of Slag	L.S.	2454.27	1276.22	1178.05	
8013	Furnish Topsoil	C.Y.	3816	3816	0	
8014	Price Adjustment For Non-Complying Air Content	L.S.	1813.18	1813.18	0	
8015	Paved Shoulder, PCC, 7 in	S.Y	30.10	30.10	0	
8016	Removal of Old Pavement	S.Y	28.90	28.90	0	
8017	Doweled 4 in. Sloped Curb	L.F.	105.00	105	0	
8018	Median, PCC. Concrete, 6 in	S.Y.	17	17	0	
8019	Drives, A.C. Concrete	S.Y.	238.888	238.88	0	
8020	Topsoil, Spreading	C.Y.	14408.80	14408.80	0	
8021	Incentive Payment for Pavement Thickness	L.S.	72522.86	60193.97	12328.89	
8022	Fuel Adjustment	L.S.	1224.62	1224.62	0	
8023	Removal of Abandoned Gas Pipe	L.F	650	650	0	
8024	Reshape Ditches & Eroded Slopes	L.S.	21518.75	21518.75	0	
8025	Locating Tile Lines	Sta.	1.75	1.75	0	
8026	Place Subdrain, CMP Coated, 10 in Dia	L.S	1925.	1925	0	
8027	Pavement Smoothness Incentive	L.S.	53500	44405	9095	
8028	Removable Marking Tape	Sta.	49.69	49.69	0	
8029	Below Grade Excavation	CY	2169	2169	0	

01-20-84 203-1

Plan and profile sheets included in the project are for the purpose of alignment, location and specific directions for the work to be performed under this contract. Irrelevant data on these sheets is not to be considered a part of this contract.

06-22-84 203-2

During construction of this project, the contractor will be required to coordinate his operations with those of other contractors working within the same area. Other work in progress during the same period of the time will include construction of the following projects:

Designer to List Projects

NHS-100-1(26)--19-57	NHS-151-3(95)--19-57
NHS-100-1(18)--19-57	
BRF-100-1(29)--38-57	

The contractor shall submit to the engineer a schedule for performance of work items, the completion of which is dependent on completion of prior work by other contractors, at the time work begins. This schedule will be coordinated with the schedules of others by the engineer to obtain a schedule that is mutually acceptable. The contractor shall then perform the work as to conform to the accepted schedule.

09-29-92 203-4

The contractor is encouraged to take full advantage of specification 1105.15 - Value Engineering Incentive Proposal. A pamphlet and conceptual proposal form will be available at the preconstruction conference.

01-20-84 204-2

All holes resulting from operations of the contractor, including removal of guardrail posts, fence posts, utility poles, or foundation studies, shall be filled and consolidated to finished grade as directed by the engineer to prevent future settlement. The voids shall be filled as soon as practical - preferably the day created and not later than the following day. Any portion of the right-of-way or project limits (including borrow areas and operation sites) disturbed by any such operations shall be restored to an acceptable condition. This operation shall be considered incidental to other bid items in project.

01-20-84 212-1

Sounding and test boring data shown on plans were accumulated for designing and estimating purposes. Their appearance on the plan does not constitute a guarantee that conditions other than those indicated will not be encountered.

04-04-89 213-1

It shall be the contractor's responsibility to provide waste areas or disposal sites for excess material (excavated material or broken concrete) which is not desirable to be incorporated into the work involved on this project. No payment for overhaul will be allowed for material hauled to these sites. No material shall be placed within the right-of-way, unless specifically stated in the plans or approved by the engineer.

06-22-84 213-3

All borrow areas, stockpile areas, haul roads and areas used for equipment on this project will require subsoil tillage to an average depth of 16 inches to 20 inches prior to placement of topsoil and/or stabilizing crop seeding. Such tillage shall be accomplished on maximum of three foot centers and at right angles to the finished slope of the borrow.

Equipment used to accomplish the tillage shall be equipped with an arrowhead-type shoe so as to provide lateral displacement and limit the movement of the subsoil to the surface. It shall be approved by the engineer for the use intended. This work will be considered incidental to other work on the project and no payment will be allowed.

It is intended that following subsoil tillage, the area remains in a "loosened" condition. Additional compaction or the operation of heavy equipment, other than required for topsoil placement and shaping shall not be allowed on areas which have received subsoil tillage.

09-27-94 213-7

Unless otherwise directed or authorized, all asphaltic cement concrete and other bituminous materials which are not specifically addressed or described in the plans shall become the property of the contractor.

The contractor, in accordance with current rules and regulations of the Iowa Department of Natural Resources, may:

1. With the approval of the Engineer, blend or otherwise process the material for use with shoulder or special backfill aggregate, for use on the project.
2. With the approval of the Engineer, place with material in areas designated by the Engineer as Soil Aggregate Subbase without extra charge.
3. Remove the material from the project and stockpile for the contractor's future use.

01-20-84 221-3

Estimated quantity for new concrete pavement includes all integral curb, all street returns and special areas of repairs to connecting pavements.

01-20-84 221-4

In order to avoid any unnecessary surface breaks or premature spalling, the contractor is cautioned to exercise extreme care when performing any of the necessary saw cutting operations for the proposed pavement removal.

01-20-84 222-1

Special care shall be taken when forming at intersections so that the profiles shown on the cross sections and the elevations shown the resident engineer's 10 or 20 scale are obtained. Short lengths of forms or flexible forms may be necessary at these locations.

01-20-84 222-2

To obtain the correct form grades at low points where intakes are located, the contractor must exercise extreme care when paving full width pavements. This may require pouring one half of the pavement at a time or other methods approved by the engineer.

01-20-84 232-5

The contractor shall not disturb desirable grass areas and desirable trees outside the construction limits. The contractor will not be permitted to park or service vehicles and equipment or use these areas for storage of materials. Storage, parking and service area(s) will be subject to the approval of the resident engineer.

01-09-90 232-6

Selective clearing will be required on this project. Any trees outside of the construction limits shall be removed only by the approval of the engineer.

06-07-94 232-8

The top six (6) inches of the disturbed areas shall be free of rock and debris and shall be suitable for the establishment of vegetation, subject to the approval of the Engineer.

01-20-84 241-1

Road contractor is to use due caution in working over and around all tile lines. Breaks in the tile line due to the contractor's carelessness are to be replaced at his expense without cost to the State of Iowa. Any tile lines broken or disturbed by our cut lines will be replaced as directed by the engineer in charge of construction and at the State of Iowa's expense.

01-20-84 241-2

Where indicated on the plans or when directed by the engineer, existing sewer and drainage pipes which are to be left in place shall be completely blocked with permanent bulkheads composed of either class X concrete or brick masonry. Salvaged brick may be used provided they are sound and meet the approval of the Engineer. This work shall be considered as incidental work and the cost of such removal, disposal and blocking of abandoned sewers and drainage pipes shall be considered to be included in the contract price for other items.

01-20-84 241-3

Removal of old intakes, other street items necessitating removal, and blocking abandoned sewers and drainage pipes in order to clear the new work shall be considered as incidental work. The cost of such removal, disposal and blocking of abandoned sewers and drainage pipes shall be considered to be included in the contract price for other items.

01-19-88 251-1

The contractor shall be responsible to maintain access to individual properties during construction.

Relocated access shall be completed to individual properties prior to removal of existing access.

If the permanent access cannot be completed prior to removal of the existing access, the contractor shall provide and maintain an alternate access. Temporary Granular Surfacing will be paid for as a contract item or by extra work.

06-22-84 251-2

The contractor is hereby notified that removal of any existing traffic markers, warning devices or guardrail barriers shall be scheduled subject to the approval of the Engineer. The contractor may be required to place temporary warning devices at certain locations where replacement features are not installed the same day during which any such removals take place.

06-22-84 251-3

A plan for stage construction of local accesses which are required to remain open to traffic during construction shall be submitted by the contractor for approval by the engineer.

05-10-88 251-5

On all new or reconstructed pavements, the location of "NO PASSING" zone lines shall be located in the field. The locations of the proposed "NO PASSING" zone lines shown on the pavement marking tabulation is for estimating quantities only.

01-09-90 252-1

Blading and shaping as well as any other incidental work in preparation for any maintenance of temporary crossing or detours shall be considered incidental to other work on the project. Additional surfacing needed for temporary crossings or detours during construction shall be furnished and spread at contract price.

01-20-84 261-2

Before performing earthwork, tiling, or excavation within three hundred feet of an existing pipeline, the contractor shall notify the pipeline company and the pipeline company shall mark the location of the pipeline as required by Section 479.47 of the Code of Iowa.

The contractor shall exercise all due caution when working in the vicinity of pipelines carrying combustible or toxic materials which are present on this project. Pipeline location shown on the plans represents the best information available at the time of plan preparation.

TABULATION OF SILT FENCES

100-17
11-10-83

STATION TO STATION		SIDE	LIN. FT.	REMARKS
1122+65 (OR)	1124+00 (OR)	Lt.	135	Tama St.
1124+30 (Sur)	1125+64 (Sur)	Lt.	134	Exist. Tama St
1122+25 (OR)	1125+50 (OR)	Rt.	325	Tama St.
1176+25	1178+00	Rt.	175	East Post Rd.
1181+90	1183+00	Rt.	110	East Post Rd.
1194+00	1199+00	Rt.	500	East Post Rd.

TABULATION OF SILT FENCES FOR DITCH CHECKS

100-18
11-10-83

LOCATION STATION	SIDE	LIN. FT.	REMARKS
1172+50	Rt	20'	East Post Rd.
1178+00	Rt	10'	East Post Rd.
1183+00	Rt	15'	East Post Rd.
1186+00	Rt	15'	East Post Rd.
1189+00	Rt	20'	East Post Rd.
1193+00	Rt	20'	East Post Rd.
1199+00	Rt	20'	East Post Rd.

TABULATION OF SAFETY CLOSURES

108-13A
09-29-92

Refer to Section 2518 of the St'd. Specifications

NO.	STATION	REMARKS
1	1122+25	Tama St.
2	1125+75	Existing Tama St.
3	1202+81 (OR)	East Post Road
4	2200+50	Meadow View Drive

LIST OF INTAKES AND UTILITY ACCESSES

104-5A
06-15-93

NUMBER	LOCATION	TYPE OR STANDARD ROAD PLAN	FORM GRADE Elev.	BOTTOM WELL Elev.	NOTE
1	113+40 - 65' Lt.	—	—	—	Done with grading project
2	114+00 - 36.5' Lt.	RA-8	47.75	②	Top only-8' curb opening
3	114+00 - 36.5' Rt.	RA-8	47.75	②	Top only-8' curb opening
4	117+10 - 68' Lt.	RA-16C	43.50	41.00	Done with grading project
5	118+00 - 45' Lt.	RA-8	45.71	41.00	Top only-8' curb opening
6	121+25 - 45' Lt.	RA-8	42.83	38.83	Top only-8' curb opening
7	124+50 - 45' Lt.	RA-8	37.18	33.18	Top only-8' curb opening
8	125+25 - 5' Rt.	RA-8	38.06	34.06	Top only-8' curb opening
9	128+00 - 45' Lt.	RA-8	31.93	27.93	Top only-8' curb opening
10	128+00 - 5' Rt.	RA-8	33.93	27.65	Top only-8' curb opening
11	130+70 - 5' Rt.	RA-8	29.88	24.12	Top only-8' curb opening
12	131+00 - 45' Lt.	RA-8	27.43	21.60	Top only-8' curb opening
13	133+44 - 2' Lt.	①	25.93	19.93	Top only
14	135+50 - 5' Rt.	①	22.68	18.68	Top only
15	159+00 - 5' Rt.	RA-8	86.61	82.61	Top only-8' curb opening
16	160+20 - 5' Rt.	RA-8	86.94	82.94	Top only-8' curb opening
17	161+60 - 5' Rt.	RA-8	87.40	83.40	Top only-8' curb opening
18	164+20 - 5' Rt.	RA-8	88.24	84.24	Top only-8' curb opening
19	167+20 - 5' Rt.	RA-8	89.13	85.13	Top only-8' curb opening
20	205+75 - 45' Lt.	RA-8	70.64	65.83	Top only-12' curb opening
21	208+75 - 45' Lt.	RA-8	64.37	60.37	Top only-12' curb opening
22	211+75 - 45' Lt.	RA-8	56.81	52.81	Top only-12' curb opening
23	212+73.5 - 47.25' Lt.	RA-1	54.40	49.78	Top only
24	212+73.5 - 5' Rt.	RA-8	55.25	51.25	Top only-12' curb opening
25	214+91 - 2' Lt.	①	50.06	46.06	Top only
26	215+06.5 - 45' Lt.	RA-8	48.59	42.59	Top only-10' curb opening
27	218+50 - 5' Rt.	RA-8	41.39	37.39	Top only-12' curb opening
28	219+50 - 5' Rt.	RA-8	39.27	35.27	Top only-12' curb opening
29	221+00 - 5' Rt.	RA-8	36.43	32.43	Top only-12' curb opening
30	222+25 - 5' Rt.	RA-8	34.37	30.37	Top only-12' curb opening
31	223+50 - 5' Rt.	RA-8	32.57	28.57	Top only-12' curb opening
32	224+75 - 5' Rt.	RA-8	30.82	26.82	Top only-12' curb opening
33	226+00 - 5' Rt.	RA-8	29.09	25.09	Top only-12' curb opening
34	1127+50 - 15.5' Lt.	RA-8	37.79	33.79	Top only-16' curb opening
35	1127+50 - 15.5' Rt.	RA-8	37.79	32.97	Top only-12' curb opening
36	1128+50 - 17.75' Rt.	RA-1	30.38	24.77	Top only
37	1129+38 - 15.5' Lt.	RA-8	26.09	22.09	Top only-8' curb opening
38	1129+38 - 15.5' Rt.	RA-8	26.09	20.01	Top only-8' curb opening

① See Sheet U.01 & U.02 ② By Others

REMOVAL OF PAVEMENT

110-1
07-21-87

STATION TO STATION		AREA Sq. Yds.	SAW CUT Lin. Ft.	REMARKS
1174+00.00 (Sur)	1202+80.75	843	66'	East Post Road
2200+54	2200+75	98	27'	Meadow View Dr.
1202+58.80 (Sur)	1203+33 (Sur)	47	74'	East Post Road Curb &Gutter on Rt.

REMOVAL OF CONCRETE DRIVES

110-8
04-18-80

LOCATION Station	Side	AREA Sq. Yds.	REMARKS
1122+51 (Tama St)	Lt.	142	Requires 12' of saw cut
1124+19 (Tama St)	Lt.	99	Requires 14' of saw cut
1125+04 (Tama St)	Rt.	116'	Requires 8' of saw cut
1185+88 (E Post Rd)	Rt.	69	Requires 10' of saw cut
1188+41 (E Post Rd)	Rt.	103	Requires 12' of saw cut
1190+36 (E Post Rd)	Rt.	310	Requires 16' of saw cut
1200+43.3 (E Post)	Lt.	170	Requires 43' of saw cut
1202+14.1 (E Post)	Lt.	92	Requires 23' of saw cut
1202+36.2 (E Post)	Rt.	40	Requires 24' of saw cut

TABULATION OF SIDEWALK REMOVAL

110-5
10-13-72

STATION TO STATION		AREA Sq. Yds.	REMARKS
1202+00	1202+69	31	East Post Road
2200+70-Backcurb Lt. 8'		4	Meadow View Drive
2200+56-27' Lt	2200+66-27' Lt	5	Meadow View Drive
1200+36	1200+45	5	East Post Rd.

TABULATION OF EXISTING PAVEMENT

102-5
02-23-93

NO.	LOCATION	EXISTING PAVEMENT Type	COARSE AGGREGATE TYPE GRAVEL	CRUSHED STONE	SOURCE	DURABILITY CLASS	PAVEMENT THICKNESS Inches	REINFORCEMENT Type	DETAIL TYPICAL
1	East Post Road	ACC	*	*	*	*	4"	Unknown*	*
		AC-PCC	*	*	*	*	4"AC-*	Unknown*	*
2	Meadow View Dr.	27'PCC	*	*	*	*	6"PCC	Unknown*	*

TABULATION OF PEDESTRIAN CURB RAMPS

112-4
09-23-86

LOCATION	SIDE	TYPE	Ⓦ
2200+70	Lt.	A	4'
Meadow View Drive			

TABULATION OF SPECIAL EVENTS

102-15
10-22-93

EVENT	LOCATION	DATE
Contact East Central Transportation Center		

Special Ditch Controls

Wood Excelsior Mat

Location	Side	Length	Width	Squares
140+00 to 145+00	Rt	500	16	80
145+25 to 148+00	Rt	275	16	44
139+00 to 139+80	Lt	80	8	6.4
139+80 to 140+40	Lt	60	16	9.6
142+60 to 144+40	Lt	180	4	7.2
142+80 to 144+05	Lt	125	8	10
282+20 to 284+10	Lt	190	20	38
284+10 to 284+75	Lt	65	36	23.4
284+75 to 285+63	Lt	88	32	28.2
4282+20 to 4285+20	Lt	300	8	24
4283+40 to 4286+27	Rt	287	12	34.4
285+63 to 286+30	Lt	67	32	21.4
286+30 to 287+55	Lt	125	24	30
287+55 to 288+55	Lt	100	28	28
288+55 to 289+00	Lt	45	24	10.8
288+95 to 291+40	Rt	245	12	29.4

Silt Basins

Locations	Side	Count
209+00	Rt	1
170+00	Lt	2
170+00	Rt	1
145+10	Lt	1
126+00	Rt	1
190+00	Rt	1
209+00	Rt	1
137+10	Lt	1
240+00	Rt	1
241+00	Rt	1
292+00	Rt	1
292+00	Lt	1
295+00	Rt	1
299+00	Rt	1

Silt Fence Removal

Location	Side	Length
135+50	Rt	20
137+00	Rt	20
138+00	Rt	20
140+00	Rt	25
141+00	Rt	25
142+50	Rt	25
144+50	Rt	20
146+00	Rt	20
147+50	Rt	20
139+50	Lt	25
141+00	Lt	25
142+50	Lt	25
144+00	Lt	25
224+00	Rt	20
153+00 to 161+60	Rt	890
208+25 to 209+00	Lt	80
287+00 to 289+50	Lt	240
289+55 TO 290+20	Lt	160

Rock Ditch checks and Flumes

Locations	Side	Engineering Fabric S. Y.	Erosion Stone Tons	Rip Rap Tons
172+00	Lt	179.17	15.55	
160+00	Lt	81.67	47.37	
165+00	Lt	48.33	31.46	
156+20	Lt	81.67	32.94	
158+40	Lt	81.67	32.05	
138+20	Rt	41.67		
141+20	Rt	41.67	46.41	
141+50	Lt	66.67	15.64	
143+20	Lt	66.67	14.41	
143+20	Rt	66.67		
147+30	Rt	66.67	40.01	
144+10	Lt	66.67	15.51	
126+10	Rt	41.67	15.3	
145+10	Lt	105		
148+00	Rt	166.67		
172+00	Lt	75		76.67
150+10	Rt	66.67		31.44
162+00	Lt	96.67		38.11
150+10	Rt	48.33		15.05
145+00	Lt	36.67		29.29
193+00	Rt	33.33	13.69	
191+10	Rt	33.33	13.67	
188+70	Rt	33.33	13.67	
216+20	Rt	81.67	30.68	
209+00	Rt	35	16.16	
221+00	Rt	71.67	49.78	
229+00	Rt	40	16.28	
245+00	Rt	41.67	30.97	
4283+40	Rt	33.33	11.5	
4284+25	Rt	33.33	11.5	
4284+90	Rt	33.33	11.5	

TABULATION OF TEMPORARY FLOODLIGHTS

108-27
08-30-88

NO.	LOCATION STATION	SIDE	REMARKS
1	72+32 (Detour)	Rt.	South end East Post Road
2	78+35 (Detour)	Rt.	South end East Post Road
3	1201+07 (OR)	Rt.	North end East Post Road
4	1203+42 (OR)	Lt.&Rt.	North end East Post Road

TABULATION OF TEMPORARY SIGNALS

108-28
08-30-88

NO.	LOCATION STATION	TYPE			REMARKS
		One Lane Traffic	Haul Road	Intersection	
1	187+42.31 (ML)		Yes		See RS-15
2	215+49.73 (ML)		Yes		See RS-15
3	127+50 (ML)		Yes		& Sheet U.05
4	128+75 (ML)		Yes		
5	285+00 (ML)		Yes		
6	286+50 (ML)		Yes		

POINTS OF ACCESS

102-3
09-29-92

① Refer to RB-3
② Refer to RL-7
③ When allowed, Polyethylene pipe may be used for these diameter pipes.

Refer to Cross Sections

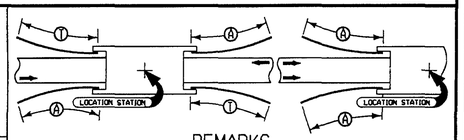
LOCATION			LENGTH OF OPENING ①			(W)	① ② (PR)	PIPE CULVERT RF-30A or RF-30B					Aprons	DRIVEWAY SURFACE AREA		DRIVEWAY SURFACING MATERIAL	REMARKS
								(H)	Size								
Station	Side	Type (A,B, or C)	Case (1,2, or 3)	1½" Dropped Curb Lineal Feet	3" Dropped Curb Lineal Feet				18"③ Lin.Ft.	24"③ Lin.Ft.	Lin. Ft.	Lin. Ft.	No.	A.C.C. Sq. Yds.	P.C.C. Sq. Yds.	Tons	
1124+19 (Tama St)	Lt	C	1	50'		14'	20'								159		
1125+04 (Tama St)	Rt	C	1	50'		10'	20'								30		
1180+05.8	Rt	Jt.C	1			24'	35'								391		East Post Road
1193+36	Rt	B	1			36'	35'	2.6'		78'			2		1727		East Post Road
1200+43.3	Lt	B	1			52'	10'								69		East Post Road
1202+14.1	Lt	B	1	58'		23'	15'								92		East Post Road
1202+36.2	Rt	B	2	35'		24'									39		East Post Road
134+00	Lt	B				45'										12	
1174+35	Rt	C				24'										4	East Post Road
1175+19	Lt	C				24'										5	East Post Road
1180+05.8	Lt	Jt.B				40'										14	East Post Road
1193+36	Lt	Jt.B				40'										8	East Post Road
4282+85	Rt	C				24'										11	Munier Road

TABULATION OF STEEL BEAM GUARDRAIL FOR STANDARD ROAD PLANS RE-63, RE-65

108-8A
01-07-92

✱ Includes 2 - 12.5' Thrie Beam Sections and 1 - 6.25' "W" to Thrie Beam Transition Section

LOCATION				FORMED STEEL BEAM GUARDRAIL							BEAM GUARDRAIL POSTS			POST & ADAPTOR	ANCHOR SYSTEM		REMARKS
				(A)		(H)	(T)				With 8"x 8" Spacer Blocks		Without Spacer Blocks				
NO.	STATION	STANDARD ROAD PLAN	CASE	"W" Beam	(STS) ✱ Thrie Beam 31.25'	Thrie Beam	(STS) ✱ Thrie Beam 31.25'	"W" Beam	TOTAL "W" BEAM	TOTAL THRIE BEAM	10"x10"x6'	8"x8"x6'	6"x8"x6'	RE-37	Type	No.	
				Lin. Ft.	Lin. Ft.	Lin. Ft.	Lin. Ft.	Lin. Ft.	Lin. Ft.	Lin. Ft.	No.	No.	No.	No.			
1	153+00	RE-65	U	150'					150'			28	8		RE-52	4	
					125'					125'	12				RE-69	4	



TABULATION OF GRADING FOR GUARDRAIL INSTALLATIONS

107-23
10-22-93

✱ Refer to Standard Road Plan RL-11, RL-12, or Typicals 4303 and 4306

LOCATION POINT		TYPE	✱ DIMENSIONS			CLASS 10 EXCAV.	EMBANK. IN PLACE	PIPE			REMARKS
No.	Station		(A)/(T)	(Y)	(Z)			Size	Type	Length	
			Lin. Ft.	Lin. Ft.	Lin. Ft.	Cu.Yds.	Cu.Yds.	Inches		Lin. Ft.	
1	149+73.2	1	56.25'	7.5	28	62					Lt & Rt
2	156+25.3	1	56.25'	7.5	28	62					Lt & Rt

TABULATION OF BRIDGE APPROACH SECTION

112-6
06-07-94

(Refer to Standard Road Plan RF-19D, RF-19E, RK-16, RK-19A, RK-19B, RK-19C, RK-19D, RK-19E, RK-19F, RK-19G, RK-19H, or RK-19J)

① Not a bid item

LOCATION		APPROACH PAVEMENT						SUBDRAIN					APPROACH SUBGRADE		REMARKS
Bridge Station	End	Case	(PN) for Case "2"	(T) Thickness	Non-Reinf. Pavement Area	Reinforced Pavement Area	Fixed or Movable Abutment	Perforated Subdrain ① 4"	Subdrain Outlet ①		Porous ① Backfill	Class 'A' Crushed Stone ① Backfill	Special Backfill ①	Engineering Fabric ①	
				Inches	Sq. Yds.	Sq. Yds.	F or M	Lin. Ft.	Station	Side	Cu. Yds.	Cu. Yds.	Tons	Sq. Yds.	
153+00	Both	1		10.5	689	347		244	149+77	L&R	7.4	0.8	1114	965	
									156+23	L&R					

TABULATION OF DELINEATORS AND OBJECT MARKERS

108-17
04-28-92

Refer to Standard Plan RE-48A-B✱ and RE-29C RE-7 ✱✱ Not a Bid Item

LOCATION		DELINEATOR	OBJECT MARKER				REMARKS
			Type 2	Type 3		Offset Brackets ✱✱	
Station	Type✱	Single White D-SW	OM2-3YV	OM-3L	OM-3R		
		Number	Number	Number	Number	Number	
153+00	RE-48B			2	2		
E. Post Road Detour		21					EWO 8011

OFFICE OF DESIGN • CADD • PRODUCED	STATE OF IOWA	FHWA REGION 7	FISCAL YEAR	LINN	COUNTY	PROJECT NUMBER	NHS-100-1(23)--19-57	SHEET NUMBER	C.07

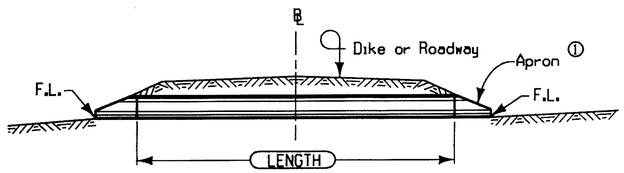
DRAINAGE STRUCTURE BY ROAD CONTRACTOR

104-3
01-07-92

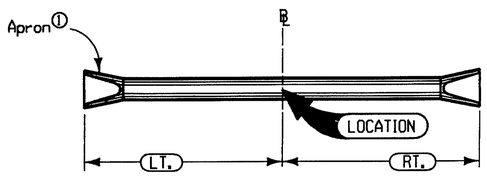
* Not a bid item

LOCATION	TYPE	SIZE Inches	KIND OF PIPE	LENGTH NEW CONST. Lin. Ft.	BEDDING CLASS	DESIGN COVER (H)	CAMBER Ft.	APRON NO. Inlet	APRON NO. Outlet	ADAPTORS * RF-2 Type	ADAPTORS * RF-2 No.	CONNECT PIPE JOINT * RF-14 Type	CONNECT PIPE JOINT * RF-14 No.	FLOW LINE ELEVATIONS Lt.	FLOW LINE ELEVATIONS Rt.	FLOW LINE ELEVATIONS Other	DIMENSIONS Lin. Ft. Total Lt.	DIMENSIONS Lin. Ft. Total Rt.	DIMENSIONS Lin. Ft. Extensions Lt.	DIMENSIONS Lin. Ft. Extensions Rt.	SKEW AHEAD Degrees Lt.	SKEW AHEAD Degrees Rt.	DIKE Rt. / Lt.	DIKE Location Station	DIKE Top Elevation	DIKE Type	CLASS 20 Cu. Yds.	EMBANKMENT IN PLACE Cu. Yds.	REMARKS
Sta. 1189+00 (OR)	1101	24"	2000D	44'	C	3		1				3	3		835.0			44'					Rt.	1190+00 (OR)	836.5	M	178		All materials are available from the stockpile designated by the engineer.

1101
07-21-87



SECTION



PLAN

Notes:

℄ shall be ℄ of roadway, dike, survey, or other; as detailed on plans.

Skew angle is the angle which one end of the pipe is ahead (by stationing) of line perpendicular to the ℄ (example skew Rt. ahead 30°).

Refer to tabular listing and other plans for additional information.

① See Standard Road Plan RF-3 For Conc. or RF-5 for Metal.

PIPE CULVERT

HYDRAULIC DESIGN

I hereby certify that this plan was prepared under my supervision and that engineering decisions with regard to the design were made by me or by other duly Registered Professional Engineers under the laws of the State of Iowa.

Name Bradley C. Barrett

Iowa Registration No. 11108 Date 4/26/95

OFFICE OF DESIGN • CADD • PRODUCED	STATE OF IOWA	FHWA REGION 7	FISCAL YEAR	LINN COUNTY	PROJECT NUMBER NHS-100-1(23)--19-57	SHEET NUMBER C.08

P.19

PROPOSED SUBGRADE TREATMENT

(For Additional Details see Soils Survey Sheet No. 0.01 to 0.04 .)

103-3
06-07-94

NO.	LOCATION Station to Station	DESCRIPTION Side	Depth	Width	TYPE Material + Shrink %	QUANTITY Cu. Yds.	Tons	POLYMER ~~GRID~~ Sq. Yds.	AVAILABLE FROM Quantity	Station to Station	REMARKS
1	1122+50 - 1125+50	Both	2'/	Trench	Loam F+15%	1095			7887	Borrow A	
2	186+00 - 187+91	Lt.	2'	Trench	Loam F+15%	512			7887	Borrow A	
3	186+00 - 187+91	Rt.	2'	Trench	Loam F+15%	512			7887	Borrow A	
4	1174+00 - 1186+90.62	Both	2'	Trench	Loam F+15%	4311			7887	Borrow A	
5	1187+01.22 - 1202+80.75	Both	2'	Trench	Loam F+15%	2552			7887	Borrow A	
6	1183+00 - 1185+40	Both	2	Trench	Loam F+15%	675			7887	Borrow A	
7	1187+98 - 1193+00	Both	2	Trench	Loam F+15%	460			7887	Borrow A	
8	255+30 - 258+29	Lt Turn Ln.	2	Trench	Loam F+15%	113			7887	Borrow A	
	1122+50 - 1125+50	Both	1	35	Special Backfill			1166.67		Crushed ACC	
	1125+50 - 1125+63	Both	1	29	Special Backfill			204.61		Crushed ACC	

① Refer to Standard Road Plan RF-19C.
② Refer to Soils Sheets

TABULATION OF LONGITUDINAL SUBDRAIN SHOULDER AND BACKSLOPE

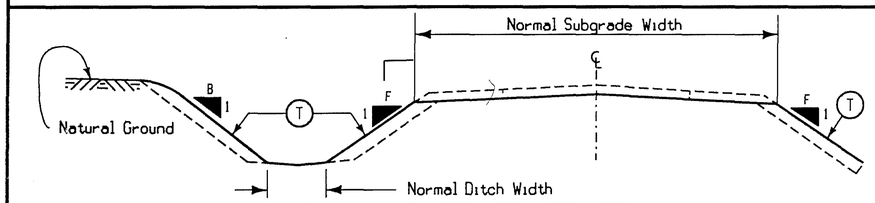
104-9
09-29-92

* Not a bid item

Line No.	LOCATION Road or Lane Ident.	Station to Station		Side	Depth (D) Inch.	LONGITUDINAL SUBDRAIN Shoulder ① Size	Lin. Ft.	Backslope ② Size	Lin. Ft.	CMP SUBDRAIN OUTLET RF-19E or RF-22 Station	Size	Type	POROUS * BACKFILL Cu. Yds.	Class 'A' * Crushed Stone Cu. Yds.	REMARKS
1	E POST	1188+86	1192+86	RT	66			4"	407'	1192+86	6"	A	50		RF-19C, Type 11 Installation

TABULATION OF SPREADING TOPSOIL

103-4
02-12-82



NOTE:
This work shall be done in accordance with current specifications for "Stripping, Salvaging, and Spreading Topsoil". Prior to placing of topsoil on any cohesive soil, the area to be covered shall be scarified to a minimum depth of 3".

Appropriate adjustments have been made in the template quantities to reflect the placement of topsoil on foreslope and backslope as detailed hereon.

PLACEMENT DESCRIPTION AREA No.	QUANTITY Cu. Yds.	LOCATION Station to Station		SIDE L. or R.	SLOPE B. or F.	(T) In.	TOPSOIL EXCAVATION AVAILABLE FROM Station to Station		REMARKS
1	1889	1122+50	1125+50	L & R	B & F	12"			Available from stockpile designated by the engineer
2	1HH08.8	Borrow "A"	231+75 to 241+65	Rt		12"			Extra work order 8020

EMBANKMENT WITH MOISTURE CONTROL

103-6
05-22-81

Moisture content shall be within the limits of minus 1 and plus * percentage points of optimum for maximum density within the area described and listed below.
* No Upper Limit

LOCATION Station to Station	Lane	DEPTH Feet	COMPACT Cu. Yds.	REMARKS
1122+50 to 1125+50	Both	1'	548	Tama St.

GEOTECHNICAL DESIGN

I hereby certify that this plan was prepared under my supervision and that geotechnical decisions with regard to the design were made by me or by other duly Qualified Professional Geologists under the laws of the State of Iowa.

Name [signature]
Date 4/27/95

OFFICE OF DESIGN • CADD • PRODUCED	STATE OF IOWA	FHWA REGION 7	FISCAL YEAR	LINN COUNTY	PROJECT NUMBER NHS-100-1(23)--19-57	SHEET NUMBER C.09

P.20

① Refer to Standard Road Plan RF-19C.
② Refer to Soils Sheets

TABULATION OF LONGITUDINAL SUBDRAIN SHOULDER AND BACKSLOPE

104-9
09-29-92

*Not a bid item

LOCATION						LONGITUDINAL SUBDRAIN				CMP SUBDRAIN OUTLET RF-19E or RF-22			POROUS * BACKFILL	Class 'A' * Crushed Stone	REMARKS
					Depth (D)	Shoulder ①		Backslope ②							
Line No.	Road or Lane Ident.	Station	to Station	Side	Inch.	Size	Lin. Ft.	Size	Lin. Ft.	Station	Size	Type	Cu. Yds.	Cu. Yds.	
2	EBL	116+69	120+00	RT	36	4"	370			116+	6"	E	42.4	0.5	
										120+00	6"	E		0.5	
3	EBL	120+00	123+00	RT	36	4"	348			120+00	6"	E	27.0	0.5	
										123+00	6"	E		0.5	
4	EBL	122+00	125+25	LT	24	4"	326			125+25	6"	C	17.4	0.5	INTO INTAKE, MEDIAN SIDE, CAP DRAIN @ 122+00.
5	EBL	125+25	128+00	LT	24	4"	260			125+25	6"	C	15.0	0.5	INTO INTAKES, MEDIAN SIDE.
										128+00	6"	E		0.5	
6	EBL	128+00	131+20	LT	24	4"	324			128+00	6"	C	14.8	0.5	INTO INTAKES, MEDIAN SIDE.
										131+20	6"	E		0.5	
7	EBL	131+20	133+44	LT	24	4"	224			131+20	6"	C	15.0	0.5	INTO INTAKES, MEDIAN SIDE.
										133+44	6"	E		0.5	
8	EBL	133+44	135+50	LT	24	4"	215			133+44	6"	C	11.9	0.5	INTO INTAKES, MEDIAN SIDE.
										135+50	6"	E		0.5	
9	EBL	135+50	136+65	LT	24	4"	151			135+50	6"	C	7.6	0.5	INTO INTAKES @ 135+50, MEDIAN SIDE
										136+65	6"	E		0.5	INSTALL 19-E OUTLET @ 136+65, MEDIAN SIDE.
10	EBL	136+85	142+00	RT	42	4"	566			136+85	6"	E	52.3	0.5	
										142+00	6"	E		0.5	
11	EBL	142+00	145+30	RT	42	4"	350			142+00	6"	E	32.4	0.5	
										145+30	6"	E		0.5	
12	EBL	145+30	149+70	RT	42	4"	497			145+30	6"	E	48.1	0.5	
										149+70	6"	E		0.5	
13	EBL	156+46	160+00	RT	42	4"	423			156+46	6"	E	41.7	0.5	
										160+00	6"	E		0.5	
14	EBL	159+00	164+20	LT	24	4"	513			159+00	6"	C	26.4	0.5	INTO INTAKES, MEDIAN SIDE.
										164+20	6"	E		0.5	
15	EBL	164+20	167+20	LT	24	4"	294			164+20	6"	C	16.2	0.5	INTO INTAKES, MEDIAN SIDE.
										167+20	6"	E		0.5	
16	EBL	166+00	171+00	RT	42	4"	563			166+00	6"	E	50.9	0.5	
										171+00	6"	E		0.5	
17	EBL	171+00	176+00	RT	42	4"	547			171+00	6"	E	50.9	0.5	
										176+00	6"	E		0.5	
18	EBL	176+00	181+00	RT	42	4"	587			176+00	6"	E	50.9	0.5	EQUATION
										181+00	6"	E		0.5	
19	EBL	181+00	185+67	RT	42	4"	527			181+00	6"	E	50.9	0.5	
										185+67	6"	E		0.5	
20	EBL	185+67	191+00	RT	42	4"	582			185+67	6"	E	50.9	0.5	
										191+00	6"	E		0.5	
21	EBL	191+00	196+00	RT	42	4"	550			191+00	6"	E	50.9	0.5	
										196+00	6"	E		0.5	
22	EBL	196+00	201+00	RT	42	4"	550			196+00	6"	E	50.9	0.5	
										201+00	6"	E		0.5	
23	EBL	201+00	206+00	RT	42	4"	548			201+00	6"	E	50.9	0.5	
										206+00	6"	E		0.5	
24	EBL	206+00	208+90	RT	42	4"	338			206+00	6"	E	31.5	0.5	
										208+90	6"	E		0.5	
25	EBL	209+10	213+00	RT	42	4"	438			209+10	6"	E	40.7	0.5	
										213+00	6"	E		0.5	
26	EBL	212+73	218+50	LT	24	4"	583			212+73	6"	C	29.0	0.5	INTO INTAKES, MEDIAN SIDE.
										218+50	6"	E		0.5	
27	EBL	218+50	223+50	LT	24	4"	505			218+50	6"	C	25.5	0.5	INTO INTAKES, MEDIAN SIDE.
										223+50	6"	E		0.5	
28	EBL	223+50	226+00	LT	24	4"	256			223+50	6"	C	13.9	0.5	INTO INTAKES, MEDIAN SIDE.
										226+00	6"	E		0.5	
29	EBL	225+00	230+00	RT	42	4"	554			225+00	6"	E	50.9	0.5	
										230+00	6"	E		0.5	
30	EBL	230+00	235+00	RT	42	4"	571			230+00	6"	E	50.9	0.5	
										235+00	6"	E		0.5	
31	EBL	235+00	240+00	RT	42	4"	550			235+00	6"	E	50.9	0.5	
										240+00	6"	E		0.5	
32	EBL	240+00	245+00	RT	42	4"	552			240+00	6"	E	50.9	0.5	
										245+00	6"	E		0.5	
33	EBL	245+00	250+00	RT	42	4"	552			245+00	6"	E	50.9	0.5	
										250+00	6"	E		0.5	
34	EBL	250+00	253+30	RT	42	4"	386			250+00	6"	E	35.2	0.5	
										253+30	6"	E		0.5	
35	EBL	253+60	258+00	RT	42	4"	480			253+60	6"	E	45.4	0.5	
										258+00	6"	E		0.5	
36	EBL	258+00	263+00	RT	42	4"	550			258+00	6"	E	50.9	0.5	
										263+00	6"	E		0.5	

P.21

① Refer to Standard Road Plan RF-19C.
② Refer to Soils Sheets

TABULATION OF LONGITUDINAL SUBDRAIN SHOULDER AND BACKSLOPE

104-9
09-29-92

* Not a bid item

LOCATION						LONGITUDINAL SUBDRAIN				CMP SUBDRAIN OUTLET RF-19E or RF-22			POROUS * BACKFILL	Class 'A' * Crushed Stone	REMARKS
					Depth	Shoulder ①		Backslope ②							
Line No.	Road or Lane Ident.	Station	to Station	Side	(D) Inch.	Size	Lin. Ft.	Size	Lin. Ft.	Station	Size	Type	Cu. Yds.	Cu. Yds.	
37	EBL	263+00	268+00	RT	42	4"	561			263+00	6"	E	50.9	0.5	
										268+00	6"	E		0.5	
38	EBL	268+00	273+00	RT	42	4"	564			268+00	6"	E	50.9	0.5	
										273+00	6"	E		0.5	
39	EBL	273+00	278+00	RT	42	4"	455			273+00	6"	E	50.9	0.5	
										278+00	6"	E		0.5	
40	EBL	278+00	283+00	RT	42	4"	550			278+00	6"	E	50.9	0.5	
										283+00	6"	E		0.5	
41	EBL	283+00	288+90	RT	42	4"	634			283+00	6"	E	59.3	0.5	
										288+90	6"	E		0.5	
42	EBL	289+10	294+00	RT	42	4"	530			289+10	6"	E	50.0	0.5	
										294+00	6"	E		0.5	
43	EBL	294+00	299+00	RT	42	4"	566			294+00	6"	E	50.9	0.5	
										299+00	6"	E		0.5	
44	EBL	299+00	304+00	RT	42	4"	555			299+00	6"	E	50.9	0.5	
										304+00	6"	E		0.5	
45	EBL	304+00	306+00	RT	42	4"	252			304+00	6"	E	23.1	0.5	
										306+00	6"	E		0.5	
47	WBL	116+69	118+00	LT	24	4"	144			116+69	6"	C	20.8	0.5	
										118+00	6"	E		0.5	
48	WBL	118+00	121+25	LT	24	4"	333			118+00	6"	C	17.4	0.5	INTO INTAKES.
										121+25	6"	E		0.5	
49	WBL	121+25	124+50	LT	24	4"	328			121+25	6"	C	17.4	0.5	INTO INTAKES.
										124+50	6"	E		0.5	
50	WBL	124+50	128+00	LT	24	4"	342			124+50	6"	C	18.5	0.5	INTO INTAKES.
										128+00	6"	E		0.5	
51	WBL	128+00	131+00	LT	24	4"	314			128+00	6"	C	16.2	0.5	INTO INTAKES.
										131+00	6"	E		0.5	
52	WBL	131+20	133+15	LT	24	4"	208			131+20	6"	C	12.3	0.5	INTO INTAKE @ 131+00.
										133+15	6"	E		0.5	INSTALL 19-E OUTLET @ 133+15.
53	WBL	133+35	136+65	LT	42	4"	385			133+35	6"	E	35.2	0.5	
										136+65	6"	E		0.5	
54	WBL	136+85	142+00	LT	42	4"	569			136+85	6"	E	52.3	0.5	
										142+00	6"	E		0.5	
55	WBL	142+00	147+00	LT	42	4"	548			142+00	6"	E	50.9	0.5	
										147+00	6"	E		0.5	
56	WBL	147+00	149+70	LT	42	4"	329			147+00	6"	E	32.4	0.5	
										149+70	6"	E		0.5	
57	WBL	156+46	161+00	LT	42	4"	520			156+46	6"	E	50.9	0.5	
										161+00	6"	E		0.5	
58	WBL	161+00	166+00	LT	42	4"	540			161+00	6"	E	50.9	0.5	
										166+00	6"	E		0.5	
59	WBL	166+00	170+90	LT	42	4"	530			166+00	6"	E	50.0	0.5	
										170+90	6"	E		0.5	
60	WBL	171+10	176+00	LT	42	4"	537			171+10	6"	E	50.0	0.5	
										176+00	6"	E		0.5	
61	WBL	176+00	181+00	LT	42	4"	597			176+00	6"	E	50.9	0.5	
										181+00	6"	E		0.5	
62	WBL	181+00	185+00	LT	42	4"	452			181+00	6"	E	46.3	0.5	
										185+00	6"	E		0.5	
63	WBL	185+00	190+00	LT	42	4"	540			185+00	6"	E	46.3	0.5	
										190+00	6"	E		0.5	
64	WBL	190+00	195+00	LT	42	4"	544			190+00	6"	E	50.9	0.5	
										195+00	6"	E		0.5	
65	WBL	195+00	200+00	LT	42	4"	557			195+00	6"	E	50.9	0.5	
										200+00	6"	E		0.5	
66	WBL	200+00	202+96	LT	42	4"	323			200+00	6"	E	27.8	0.5	
										202+96	6"	E		0.5	
67	WBL	202+50	205+75	LT	24	4"	325			202+50	6"	E	17.4	0.5	INSTALL 19-E OUTLET @ 202+50.
										205+75	6"	C		0.5	INTO INTAKE @ 205+75.
68	WBL	205+75	208+75	LT	24	4"	299			205+75	6"	E	16.2	0.5	INTO INTAKES.
										208+75	6"	E		0.5	
69	WBL	208+75	211+75	LT	24	4"	298			208+75	6"	C	16.2	0.5	INTO INTAKES.
										211+75	6"	E		0.5	
70	WBL	211+75	215+06	LT	24	4"	325			211+75	6"	C	17.6	0.5	INTO INTAKES.
										215+06	6"	E		0.5	
71	WBL	215+06	216+61	LT	24	4"	152			215+06	6"	C	25.2	0.5	INTO INTAKE @ 215+06.
										216+61	6"	E		0.5	INSTALL 19-E OUTLET @ 216+61

① Refer to Standard Road Plan RF-19C.
② Refer to Soils Sheets

TABULATION OF LONGITUDINAL SUBDRAIN SHOULDER AND BACKSLOPE

104-9
09-29-92

* Not a bid item

LOCATION						LONGITUDINAL SUBDRAIN				CMP SUBDRAIN OUTLET RF-19E or RF-22			POROUS * BACKFILL	Class 'A' * Crushed Stone	REMARKS
					Depth (D)	Shoulder ①		Backslope ②							
Line No.	Road or Lane Ident.	Station	to Station	Side	Inch.	Size	Lin. Ft.	Size	Lin. Ft.	Station	Size	Type	Cu. Yds.	Cu. Yds.	
72	WBL	221+14	222+23	LT	42	4"	151			221+14	6"	E	34.7	0.5	
										222+23	6"	E		0.5	
												E	46.8	0.5	
														0.5	
74	WBL	228+11	232+03	LT	42	4"	442			228+11	6"	E	50.9	0.5	
										232+03	6"	E		0.5	
75	WBL	232+36	238+00	LT	42	4"	613			232+36	6"	E	50.9	0.5	
										238+00	6"	E		0.5	
76	WBL	238+00	240+00	LT	42	4"	251			238+00	6"	E	41.7	0.5	
										240+00	6"	E		0.5	
77	WBL	240+00	245+00	LT	42	4"	552			240+00	6"	E	50.9	0.5	
										245+00	6"	E		0.5	
78	WBL	245+00	250+00	LT	42	4"	552			245+00	6"	E	50.9	0.5	
										250+00	6"	E		0.5	
79	WBL	250+00	253+30	LT	42	4"	386			250+00	6"	E	15.3	0.5	
										253+30	6"	E		0.5	
80	WBL	253+60	258+00	LT	42	4"	480			253+60	6"	E	47.7	0.5	
										258+00	6"	E		0.5	
81	WBL	258+00	263+00	LT	42	4"	549			258+00	6"	E	50.9	0.5	
										263+00	6"	E		0.5	
82	WBL	263+00	268+00	LT	42	4"	553			263+00	6"	E	50.9	0.5	
										268+00	6"	E		0.5	
83	WBL	268+00	273+00	LT	42	4"	553			268+00	6"	E	50.9	0.5	
										273+00	6"	E		0.5	
84	WBL	273+00	279+24	LT	42	4"	673			273+00	6"	E	50.9	0.5	
											6"	E		0.5	
											6"	E	50.9	0.5	
										283+00	6"	E		0.5	
86	WBL	283+00	288+90	LT	42	4"	625			283+00	6"	E	59.3	0.5	
										288+90	6"	E		0.5	
87	WBL	289+10	294+00	LT	42	4"	550			289+10	6"	E	50.0	0.5	
										294+00	6"	E		0.5	
88	WBL	294+00	299+00	LT	42	4"	566			294+00	6"	E	50.9	0.5	
										299+00	6"	E		0.5	
89	WBL	299+00	304+00	LT	42	4"	555			299+00	6"	E	50.9	0.5	
										304+00	6"	E		0.5	
90	WBL	304+00	306+00	LT	42	4"	252			304+00	6"	E	23.1	0.5	
										306+00	6"	E		0.5	
91	TAMA ST	1125+45	1129+38	RT	42	4"	393			1125+45	6"	E	37.0	0.5	
										1129+38	6"	E		0.5	
92	TAMA ST	1127+50	1129+38	LT	24	4"	186			1127+50	6"	C	11.0	0.5	INTO INTAKES.
										1129+38	6"	E		0.5	
93	E POST	1174+00	1176+80	LT	42	4"	318			1174.00	6"	E	50.9	0.5	
										1176+80	6"	E		0.5	
94	E POST	1177+05	1181+13	LT	42	4"	455			1177.05	6"	E	41.7	0.5	
										1181+13	6"	E		0.5	
95	E POST	1183+00	1185+85	LT	42	4"	327			1183.00	6"	E	40.7	0.5	
										1185+85	6"	E		0.5	
96	E POST	1174+00	1179+00	RT	42	4"	523			1174.00	6"	E	50.9	0.5	
										1179+00	6"	E		0.5	
97	E POST	1179+00	1183+00	RT	42	4"	427			1179.00	6"	E	41.7	0.5	
										1183+00	6"	E		0.5	
98	E POST	1183+00	1185+50	RT	42	4"	275			1183.00	6"	E	40.7	0.5	
										1185+50	6"	E		0.5	
99	E POST	1188+00	1192+75	RT	42	4"	506			1188.00	6"	E	50.9	0.5	
										1192+75	6"	E		0.5	
100	E POST	1193+90	1197+80	RT	42	4"	428			1193.90	6"	E	50.9	0.5	
										1197+80	6"	E		0.5	
102	E POST	1188+75	1192+75	LT	42	4"	433			1188.75	6"	E	50.9	0.5	
										1192+75	6"	E		0.5	
103	E POST	1192+75	1197+90	LT	42	4"	567			1192+75	6"	E	50.9	0.5	
										1197+90	6"	E		0.5	
106	OLD 94	4282+21	4284+00	LT	42	4"	180			4282+21	6"	E	30.4	0.5	
										4284+00	6"	E		0.5	

OFFICE OF DESIGN • CADD • PRODUCED	STATE OF IOWA	FHWA REGION 7	FISCAL YEAR	LINN	COUNTY	PROJECT NUMBER	NHS-100-1(23)--19-57	SHEET NUMBER	C.12

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① Refer to Standard Road Plan RF-19C.
② Refer to Soils Sheets

TABULATION OF LONGITUDINAL SUBDRAIN SHOULDER AND BACKSLOPE

104-9
09-29-92

* Not a bid item

LOCATION						LONGITUDINAL SUBDRAIN				CMP SUBDRAIN OUTLET RF-19E or RF-22			POROUS * BACKFILL	Class 'A' * Crushed Stone	REMARKS
					Depth (D)	Shoulder ①		Backslope ②							
Line No.	Road or Lane Ident.	Station	to Station	Side	Inch.	Size	Lin. Ft.	Size	Lin. Ft.	Station	Size	Type	Cu. Yds.	Cu. Yds.	
107	OLD 94	4284+00	4287+00	LT	42	4"	310			4284+00	6"	E	32.4	0.5	
										4287+00	6"	E		0.5	
	NOTE:	LONGITUDINAL SUBDRAINS NOS. 4 THRU 9,14,15, 26 THRU 28,46 THRU 52,													
		67 THRU 71 AND 92 ARE ALL TYPE 12 INSTALLATION. ALL OTHER LONGITUDINAL													
		SUBDRAINS ARE TO BE TYPE 7 INSTALLATION.													
	NOTE:	BAR GRAPHS ON THE SOIL SHEETS SHOWS LOCATIONS OF LONGITUDINAL SUBDRAINS.													
		THIS TABULATION IS FOR THE LENGTH AND OUTLETS OF THESE SUBDRAINS.													
71A	WBL	216+61	218+46	Lt	42"	4"	239			216+61	6"	E			
										218+46	6"	E			
71B	WBL	218+64	219+48	Lt	42"	4"	128			218+64	6"	E			
										219+48	6"	E			
71C	WBL	219+62	220+95	Lt	42"	4"	177			219+62	6"	E			
										220+95	6"	E			
72A	WBL	222+37	223+25	Lt	42"	4"	136			222+37	6"	E			
										223+25	6"	E			
73A	WBL	223+67	224+73	Lt	42"	4"	147			223+67	6"	E			
										224+73	6"	E			
73B	WBL	224+85	225+94	Lt	42"	4"	151			224+85	6"	E			
										225+94	6"	E			
73C	WBL	226+06	228+11	Lt	42"	4"	251			226+06	6"	E			
										228+11	6"	E			
94A	Lt	1181+25	1183+00	Lt	42"	4"	224			1181+25	6"	E			
										1183+00	6"	E			

OFFICE OF DESIGN • CADD • PRODUCED	STATE OF IOWA	FHWA REGION 7	FISCAL YEAR	LINN COUNTY	PROJECT NUMBER NHS-100-1(23)--19-57	SHEET NUMBER C.13

P.24

POLLUTION PREVENTION PLAN

110-12A
02-23-93

1. SITE DESCRIPTION

This project is for the construction of a 4-lane facility on IA 100 in Linn County from First Avenue in Cedar Rapids, through Marion to U.S. 151/IA 13.

This project covers approximately 200 acres with an estimated 165 acres being disturbed.

The project is located in an area of two soil associations, Dinsdale-Tama and Fayette. The estimated average SCS runoff curve number for this project after completion will be 77.

Refer to the grading plan (Linn County, NHS-100-1(18)--19-57) for locations of typical slopes, ditch grades, and major structural and non-structural controls. A copy of this plan will be on file at the project engineer's office. Runoff from this project will flow into various unnamed ditches and streams, Indian Creek and Squaw Creek which are tributaries of the Cedar River.

POTENTIAL SOURCES OF POLLUTION:
Site sources of pollution generated as a result of this project relate to silts and sediment which may be transported as a result of a storm event. However, this project provides conveyance for other (non-project related) operations. These other operations have storm water runoff, the regulation of which is beyond the control of this project. Potentially this runoff can contain various pollutants related to site-specific land uses. Examples are:

Rural Agricultural Activities:
Runoff from agricultural land use can potentially contain chemicals including herbicides, insecticides, and fungicides. In addition, fertilizers which contain nitrogen, phosphate, potash and various other trace elements.

Commercial and Industrial Activities:
Runoff from commercial, industrial, and commerce land use may contain constituents associated with the specific operation. Such operations are subject to potential leaks and spills which could be commingled with run-off from the facility. Pollutants associated with commercial and industrial activities are not readily available since they are typically proprietary.

2. CONTROLS

Silt fence will be placed by the grading contractor prior to beginning grading or clearing and grubbing operations along the perimeter of the project at locations in which runoff can move offsite. Vegetation in areas not needed for construction shall be preserved. As areas reach their final grade, additional silt fences, intercepting ditches, letdowns, bridge end drains, and earth dikes shall be installed as specified in the plans and/or as required by the project engineer. This will include using silt fence as ditch checks and to protect intakes. Temporary stabilizing seeding shall be completed as soon as practicable after completion of the final grading. If construction activity is not planned to occur in a disturbed area for at least 21 days, the area shall be stabilized by temporary seeding or mulching within 14 days. No more than 750,000 square feet of exposed erodible area is allowed in any one grading spread without permission of the project engineer.

As the project progresses, additional erosion control items shall be installed by the erosion control contractor as determined by the engineer after field investigation. The project will be completed by the establishment of permanent perennial vegetation of all disturbed areas by the erosion control contractor.

3. OTHER CONTROLS

Contractor disposal of unused construction materials and construction material wastes shall comply with applicable state and local waste disposal, sanitary sewer, or septic system regulations. In the event of a conflict with other governmental laws, rules and regulations, the more restrictive laws, rules or regulations shall apply.

APPROVED STATE OR LOCAL PLANS:
During the course of this project, it is possible that situations will arise where unknown materials will be encountered. When such situations are encountered, they will be handled according to all federal, state, and local regulations in effect at the time.

POLLUTION PREVENTION PLAN

110-12A
02-23-93

4. MAINTENANCE

The contractor is required to maintain all temporary erosion control measures in proper working order, including cleaning, repairing, or replacing them throughout the contract period. Cleaning of silt control devices shall begin when the features have lost 50% of their capacity.

5. INSPECTIONS

The project will be inspected by department personnel every seven calendar days and after each rain event that is 1/2" or greater. The findings of this inspection shall be recorded in the project diary. This plan may be revised based on the findings of the inspection. The contractor shall implement all revisions.

6. NON-STORM DISCHARGES

This includes subsurface drains (i.e. longitudinal and standard subdrains), slope drains and bridge end drains. The velocity of the discharge from these features may be controlled by the use of patio blocks, Class A stone or erosion control stone.

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SUMMARY SHEET EROSION CONTROL WORK

TRAFFIC CONTROL PLAN

108-23
11-10-83

1. Traffic control on this project shall be in accordance with Standard Road Plans RS-72, and RS-73. For additional complementary information, refer to current supplemental specifications for traffic controls.
2. Traffic control for erosion control work adjacent to the traveled way shall be in accordance with Standard Road Plan RS-73.
3. Traffic control for erosion control work more than 12 feet from the traveled way shall be in accordance with Standard Road Plan RS-72.
4. When work is in progress within or near an interchange, additional "Road Construction Ahead" signs shall be placed on the ramps at a minimum distance of 300 feet in advance of the work area.
5. All traffic control devices shall be furnished, erected, maintained and removed by the contractor.
6. Section 2528.12 of the Standard Specifications requires maintenance of all traffic control devices, including maintenance of the devices during nonworking hours in order to be assured of proper operation. Costs of maintenance will be included in the traffic control bid item.
7. The location for storage of equipment by the contractor during non-working hours will be as approved by the engineer in charge of construction. Parking of unattended equipment within the median or storage of equipment within 50 feet of the edge of pavement will not be allowed.
8. Proposed sign spacing may be modified, as approved by the engineer, to meet existing field restrictions or to prevent obstruction of the motorist's view of permanent signing.
9. Proposed changes in the Traffic Control Plan shall be reviewed with the Office of Construction before changes are made.
10. The bid item "Traffic Control" shall include the cost for all traffic control measures required of the contractor except for those which are separate bid items or are incidental to other bid items.

    "The contractor may use either "ROAD CONSTRUCTION AHEAD" signs or "ROAD WORK AHEAD" signs where "ROAD CONSTRUCTION AHEAD" signs or "ROAD WORK AHEAD" signs are called for in the contract documents. "ROAD CONSTRUCTION AHEAD" signs and "ROAD WORK AHEAD" signs shall not be used together on the same project.

This project is intented to be seeded during Spring, 1997 with the initial fertilizer to be applied during March - May.

The second application of fertilizer shall be applied following the final mowing in 1997.

Crawler type or dual wheel tractor equipment shall be required to facilitate construction.

Four wheel drive power equipment without duals may be approved if performance is satisfactory.

The contractor shall provide the necessary equipment and guidance essential to insure the application of seed and fertilizer on all areas.

09-29-92 203-4

The contractor is encouraged to take full advantage of specification 1105.15 - Value Engineering Incentive Proposal. A pamphlet and conceptual proposal form will be available at the preconstruction conference.

ESTIMATE REFERENCE INFORMATION

100-4
01-23-85

Data listed below is for informational purpose only and shall not constitute a basis for any extra work orders.

ITEM NO. DESCRIPTION

2102-2710070

Included for excavation, hauling and shaping of material for filling silt basins, eroded ditches and eroded slopes at locations as designated by the engineer. Material for filling silt basins and eroded ditches and slopes shall be furnished by the contractor and shall be free of rocks and debris and suitable for the establishment of vegetation.

2125-2225050

Includes reshaping of ditches to improve drainage. Silt shall be removed and disposed of off project by the contractor, est. 50 cu. yd. Wet conditions will require appropriate equipment to expedite the work.

2507-3250005

Engineering fabric shall be material as specified for embankment erosion control, Article 4196.01C. Material shall be measured in sq. yds. of actual area covered. Refer to details.

2507-8029000

For construction of rock ditch checks and splash basins at various locations. Material shall be nominal 6 in. (-3"+4") well graded stone as approved by the engineer. All necessary excavation and shaping to provide a uniform flowline in the center of the ditch shall be incidental to this work. No additional compensation will be allowed. Location as directed by the engineer. Refer to details and tab.

2525-2638030

Included for installing and maintaining new and existing silt fence as designated by the engineer.

2525-6745930

Includes removal of existing silt fence, ditch checks and posts. All material shall become the property of the contractor. Disturbed areas shall be seeded with Fescue, Ky. 31 Rate: 2 lbs. per 1,000 sq. ft. and fertilized--Rate: 10 lbs. of 6-24-24 per 1,000 sq. ft. Seed and fertilizer shall be incidental to this item. Silt fence shall be cut off at the ground line.

2528-8445110

Refer to traffic control plans.

2601-2633100

Estimate based on four mowings of all seeded areas and as designated by the engineer. The initial mowing shall be made prior to the seeding with the remainder of the mowings to be designated by the engineer. Areas inaccessible to field equipment shall be cut with appropriate hand equipment. All trimming work shall be kept current with the mowing of adjacent areas.

2601-2634100

Included for areas requiring reshaping and seedbed preparation as designated by the engineer.

2601-2634500

Included for overseeding areas that can't be drilled. Refer to sht. C.02 for respective seed mixtures. Seed and fertilizer for the item "Overseeding and Fertilizing" shall be applied with ground driven equipment. Two passes required.

2601-2636015

Included for seeding all rural areas outside 15' adj to shoulders. See sheet C.02 for respective seed mixtures and fertilizer. All seed for "Seeding, Native Grass" shall be applied with ground driven equip. Seed for areas not requiring seedbed preparation shall be applied with a native grass drill with no-till attachment. Includes areas requiring seedbed preparation including reshaping of foreslopes and backslopes that are extensively eroded at various locations and as designated by the engineer. (Est. 3 ac.) Two passes will be required when drilling. The second pass shall be offset from the first pass.

ACTUAL PROJECT QUANTITIES

100-1A
10-01-93

CONSTRUCTION USE ONLY	ITEM CODE	ITEM	UNIT	TOTAL	AS BUILT QUAN.
	2102-2710070	Excavation, Class 10, Roadway & Borrow	CY	1723.000	
	2125-2225050	Ditch Reshaping	Sta	21.100	
	2507-3250005	Fabric Engineering	SY	2008.300	
	2507-8029000	Stone, Erosion	Ton	701.820	
	2525-2638030	Silt Fence	LF	920.000	
	2525-6745930	Removal of Silt Fence	LF	13270.000	
	2528-8445110	Traffic Control	LS	600.000	
	2533-4980005	Mobilization	LS	4000.000	
	2601-2633100	Mowing	Acre	329.320	
	2601-2634100	Mulching	Acre	7.940	
	2601-2634500	Overseeding & Fertilizing	Acre	0.000	
	2601-2636015	Seeding, Native Grass	Acre	87.450	
	2601-2636043	Seeding & Fertilizing (Rural)	Acre	17.170	
	2601-2636044	Seeding & Fertilizing (Urban)	Acre	3.790	
	2601-2636054	Seeding, Wildflower	Acre	5.900	
	2601-2638350	Slope Protection, Wood Excelsior Mat	SQ	5299.200	
	2601-2640350	Special Ditch Control, Wood Excelsior Mat	SQ	1770.100	
	2601-2643110	Watering, For Special Ditch Control and Slope Protection	MGal	237.640	

ESTIMATE REFERENCE INFORMATION

100-4
01-23-85

Data listed below is for informational purpose only and shall not constitute a basis for any extra work orders.

ITEM NO. DESCRIPTION

2601-2636043, 2601-2636044

Included for seeding and two applications of fertilizer for area 15' adj. to shoulders and as directed by the engineer. See sht. C.02 for respective seed mixtures and fertilizer. All seed and fertilizer for "Seeding and Fertilizing (Rural)" & (Urban) shall be applied with ground driven equipment. Seed for areas not requiring seedbed preparation shall be applied with a native grass drill with no-till attachment. Includes areas requiring seedbed preparation including reshaping of foreslopes that are extensively eroded at various locations and urban areas and as designated by the engineer. (Est. 6 ac.) Two passes will be required when drilling. The second pass shall be offset from the first pass.

2601-2636054

Includes seeding of wildflower on areas as designated by the engineer. Refer to sheet C.02 for seed mixture. The contractor shall furnish and apply to the existing vegetation (Glyphosate) a broad spectrum, non-selective systemic herbicide A waiting period following the herbicide application of 10 days will be required before applying the seed. Any regrowth of vegetation shall be retreated before seeding and at the contractor's expense. Application rate: 3 qt. per acre - (glyphosate) herbicide shall be in accordance with the manufacturer's recommendation. Apply to foilage when plants are actively growing. The contractor shall apply the seed with a native grass drill with a no till attatchment.

Two passes will be required when drilling. The second pass shall be offset from the first pass.

The herbicide shall be applied by a certified pesticide applicator.

Sequence of operations for wildflower seeding.
A. Apply herbicide (glyphosate) 10 days prior to seeding.
B. Mow 1 day prior to seeding.
C. Apply seed with native grass drill May 1 - June 30, 1997.
D. Mow as directed to control weed growth.

The furnishing and application of the (glyphosate) herbicide shall be incidental to seeding and no add. compensation will be allowed.

Approximate locations: As designated by the engineer.

ESTIMATE REFERENCE INFORMATION

100-4
01-23-85

Data listed below is for informational purpose only and shall not constitute a basis for any extra work orders.

ITEM NO. DESCRIPTION

2601-2638350

Locations to be designated by the engineer. Shaping of eroded slopes will be incidental to this item.

2601-2640350

Locations to be designated by the engineer. Shaping of eroded ditches and silt basins will be incidental to this item. The seed mixture under the wood excelsior mat shall be the seed mixture "E".

2601-2643110

Estimate based on one watering of the special ditch control and slope protection. Rate: 1 gal. per sq. ft. Article 2601.19 shall apply. Additional waterings (3) may be required at the discretion of the engineer subject to local weather conditions and paid by extra work order.

NOTE: DURING CONSTRUCTION OF THIS PROJECT, THE CONTRACTOR WILL BE REQUIRED TO COORDINATE HIS OPERATIONS WITH THOSE OF OTHER CONTRACTORS WORKING WITHIN THE SAME AREAS.

OFFICE OF DESIGN • CADD • PRODUCED	STATE OF IOWA	FHWA REGION 7	FISCAL YEAR	LINN COUNTY	PROJECT NUMBER NHS-100-1(22)--19-57	SHEET NUMBER C.01-A

20-AUG-1996 07:59 oskaar E:\ord\rsd\MASTΔA8I.RSD

p 26

MAST ~ A8I.m(427.road(6b) oskaar@road6b. Tue Aug 20 07:55:37 CDT 1996

Seed mixtures for this project:

Seed mixture "A" for for "Seeding & Fertilizing (Rural)": (Est. 11 acres to be drilled and 2 acres with seedbed preparation.)
(For area 15' adj. to shoulders.) (Two fertilizer applications)

Fescue, 'Ky. 31', or Fawn (Festuca arundinacea)	45 lbs. per acre
Ryegrass, Perennial (Pennfine, Derby, Manhatten, or equivalent) (Lolium perenne)	35 lbs. per acre
Birdsfoot Trefoil (Empire) (Lotus corniculatus)	5 lbs. per acre

Seed mixture "B" for "Seeding and Fertilizing (Urban)". Seeding rate: 3 lbs. per 1,000 square feet (Est. 4.1 acres)
(Two fertilizer applications)

Bluegrass, Kentucky (Ram-1, Park, or equiv.) (Poa pratensis)	70%
Fescue, Creeping Red (Festuca rubra)	20%
Ryegrass, Perennial (Pennfine, Derby, Manhatten, or equivalent) (Lolium perenne)	10%

Seed Mixture "C" for "Seeding, Native Grass" and "Overseeding and Fertilizing" (Est. 2 acre to be overseeded, 67 acres to be drilled, and 3 acres with seedbed preparation.) (One fertilizer application)

Annual Ryegrass (Lolium perenne,var. italicum)	35 lbs. per acre
Fescue, 'Ky. 31', or Fawn (Festuca arundinacea)	25 lbs. per acre
Switchgrass (Blackwell, NE. 28, Pathfinder, or Cave-in-Rock) (Panicum virgatum)	2 lbs. PLS per acre
*Big Bluestem (Kaw, Roundtree, or Champ) (Andropogon geradi)	5 lbs. PLS per acre
*Indiangrass (NE. 54, Otto, or Holt) (Sorghastrum nutans)	8 lbs. PLS per acre
*Little Bluestem (Blaze, Aldous, or Camper) (Andropogon scoparius)	5 lbs. PLS per acre
Sideoats Grama (Butte, or Trailway) (Bouteloua curtipendula)	10 lbs. PLS per acre
Purple Prairieclover (Petalostemum purpureum)	4 oz. PLS per acre
Blackeyed Susan (Rudbeckia hirta)	4 oz. PLS per acre
Prairie Blazing Star (Liatris pycnostachya)	4 oz. PLS per acre
Purple Coneflower (Echinacea purpurea)	4 oz. PLS per acre
Plains Coreopsis (Coreopsis tinctoria)	4 oz. PLS per acre
Grayhead Prairie Coneflower (Ratibida pinnata)	4 oz. PLS per acre

*Note: Big Bluestem, Indiangrass, and Little Bluestem shall be debearded or equal to facilitate the application.

Seed mixture "D" for "Seeding, Wildflower". (est. 5 acre) (No fertilizer required)

Grayhead Prairie Coneflower (Ratibida pinnata)	8 oz. PLS per acre
Purple Coneflower (Echinacea purpurea)	8 oz. PLS per acre
Plains Coreopsis (Coreopsis tinctoria)	8 oz. PLS per acre
Pale Purple Coneflower (Echinacea pallida)	4 oz. PLS per acre
Blackeyed Susan (Rudbeckia hirta)	8 oz. PLS per acre
Butterfly Milkweed (Asclepias tuberosa)	2 oz. PLS per acre
New England Aster (Aster novae-angliae)	2 oz. PLS per acre
Mexican Red-Hat (Ratibida columnaris)	4 oz. PLS per acre
Purple Prairieclover (Petalostemum purpureum)	4 oz. PLS per acre
Prairie Blazing Star (Liatris pycnostachya)	4 oz. PLS per acre
Leadplant (Amorpha canescens)	4 oz. PLS per acre
Sideoats Grama (Butte or Trailway) (Bouteloua curtipendula)	8 lbs. PLS per acre
*Little Bluestem (Blaze, Aldous, or Camper) (Andropogon scoparius)	5 lbs. PLS per acre

*Note: Little Bluestem shall be debearded or equal to facilitate the application.

Seed mixture "E" for seeding area under "Special Ditch Control (Wood Excelsior Mat)" (Two fertilizer applications (Est. 5 acres)

Fescue, 'Ky. 31', or Fawn (Festuca arundinacea)	35 lbs. per acre
Ryegrass, Perennial (Pennfine, Derby, Manhatten, or equivalent) (Lolium perenne)	25 lbs. per acre
Switchgrass (Blackwell, NE. 28, Pathfinder, or Cave-in-Rock) (Panicum virgatum)	4 lbs. PLS per acre
Birdsfoot Trefoil (Empire) (Lotus corniculatus)	2 lbs. per acre

Fertilizer--Two applications required for the item "Seeding and Fertilizing (Rural)", "Seeding and Fertilizing (Urban)", and seeding under "Special Ditch Contol (Wood Excelsior Mat) Seed Mixtures "A", "B" and "E".

Fertilizer--One application required for the item "Overseeding and Fertilizing" & "Seeding, Native Grass, Seed Mixture "C".

Initial application--To be applied in April or May, 1997. Chemically combined commercial fertilizer shall be used at the following rate per acre: 600 lbs. of 6-24-24 or equivalent.

Second application of fertilizer--To be applied following the Fall mowing in 1997. Chemically combined commercial fertilizer shall be used at the following rate per acre: 400 lbs. of 6-24-24 or equivalent.

All fertilizer shall be chemically combined and applied in the dry form as a top-dress application.

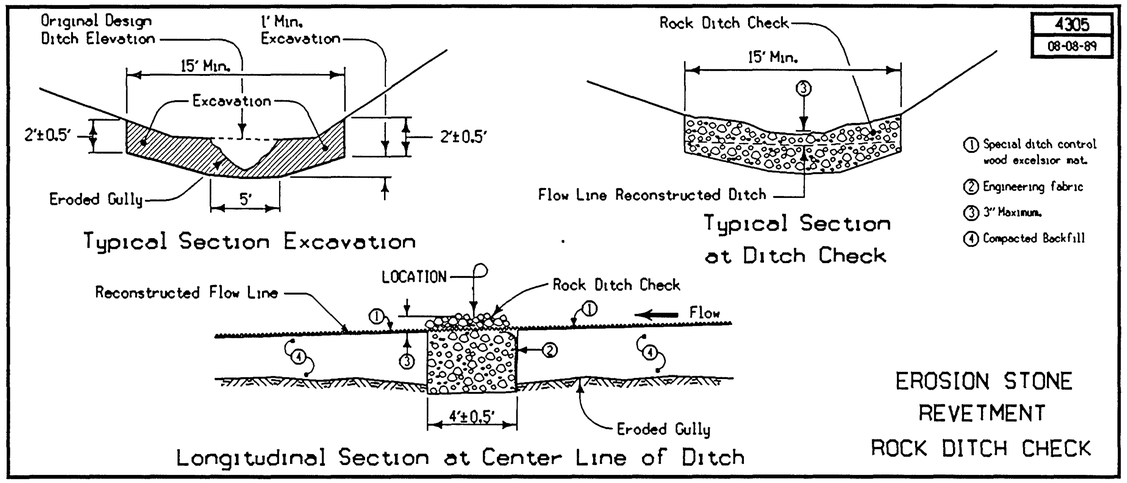
Mulch: Rate: 1½ tons of dry cereal straw per acre. All mulch to be consolidated into the soil with the mulch stabilizer.

Form 520004
12-88

EXTRA WORK ORDERS

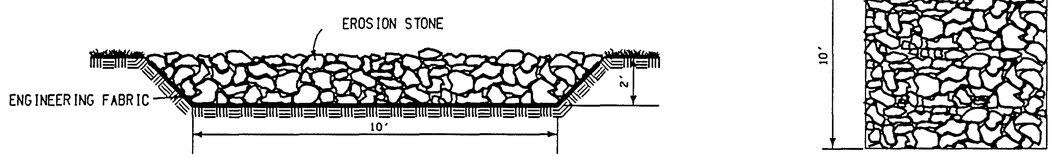
NO.	DESCRIPTION	UNIT	TOTAL
8001	Revetment, Cl. D., Rip Rap	Tons	237.640
8002	Bridge End Drain	Each	2.000
8003	Native Grass Seeding	Acres	3.900

4305
08-08-89



EROSION STONE
REVETMENT
ROCK DITCH CHECK

DETAILS OF ROCK SPLASH BASIN



CROSS SECTION OF SPLASH BASIN

TOP VIEW

ROCK DITCH CHECKS/ROCK FLUMES

LOCATION	STATION	LT. / RT.	CHECK / FLUME	EROSION STONE / RIP RAP	TONS	FABRIC SQ. YD.
MAINLINE	188+50	RT.	ROCK CHECK	EROSION STONE	7	4
MAINLINE	189+50	RT.	ROCK CHECK	EROSION STONE	7	4
MAINLINE	263+25	RT.	SPLASH BASIN	EROSION STONE	11	12
MAINLINE	267+00	RT.	SPLASH BASIN	EROSION STONE	11	12
MAINLINE	269+50	RT.	SPLASH BASIN	EROSION STONE	11	12

SPECIAL DITCH CONTROL & SLOPE PROTECTION

STATION TO STATION	WIDTH	NO. SQUARES	REMARKS
116+00 RT.	12'	18	SLOPE PROT. ADJ SD.RD. RET.
117+00 - 131+00 LT.	12'	168	SLOPE PROT. ADJ. CURB
120+00 - 129+50 RT.	12'	114	DITCH
125+50 - 130+50 LT.	12'	60	DITCH - BACK SIDE OF BERM
131+00 - 133+50 RT.	12'	30	DITCH
1122+50 - 1124+00 LT.&RT.	12'	36	SLOPE PROT. ADJ. CURB
1125+00 - 1129+50 LT.&RT.	20'	160	SLOPE PROT. ADJ. CURB
134+00 RT.	20'	30	SLOPE PROT. ADJ SD.RD. RET.
134+50 - 148+75 RT.	12'	171	DITCH
138+00 - 145+00 LT.	12'	84	DITCH
138+00 - 185+00 LT.	12'	564	SLOPE PROT. ADJ SHLDR.
138+00 - 160+00 RT.	12'	264	SLOPE PROT. ADJ SHLDR.
155+00 - 162+00 LT.	20'	183	DITCH
165+00 - 185+00 LT.	12'	240	DITCH
168+00 - 185+00 RT.	12'	204	SLOPE PROT. ADJ SHLDR.
169+75 - 185+00 RT.	12'	183	DITCH
186+90 LT.&RT.	12'	36	SLOPE PROT. ADJ SD.RD. RET.
188+00 - 277+00 LT.	12'	1068	SLOPE PROT. ADJ SHLDR.
188+00 - 211+00 RT.	12'	276	SLOPE PROT. ADJ SHLDR.
1173+25 - 1179+50 LT.	4'&12'	40	SD. RD. DITCH
1188+50 - 1193+00 RT.	40'	190	SLOPE PROT. SD.RD. BACKSLOPE
188+00 - 194+00 LT.	12'	72	DITCH
188+00 - 198+00 RT.	12'	120	DITCH
203+00 - 215+25 LT.	16'	196	SLOPE PROT. ADJ. CURB
204+00 - 215+00 RT.	12'	132	DITCH
215+50 RT.	12'	9	SLOPE PROT. ADJ SD.RD. RET.
216+50 - 231+75 RT.	12'	183	DITCH
224+00 - 232+25 LT.	12'	99	DITCH
226+00 - 306+00 RT.	12'	960	SLOPE PROT. ADJ SHLDR.
235+00 - 242+00 LT.	12'	84	DITCH
239+00 - 242+00 RT.	12'	36	DITCH
242+93 RT.	12'	18	SLOPE PROT. ADJ SD.RD. RET.
3244+00 - 3246+00 LT.&RT.	12'	80	SLOPE PROT. ADJ SHLDR.
270+00 - 279+00 LT.	12'	108	DITCH
280+70 LT.	12'	24	SLOPE PROT. ADJ SD.RD. RET.
281+50 - 296+50 LT.	12'	180	DITCH
295+00 - 302+00 RT.	12'	84	DITCH
300+00 - 306+00 LT.	12'	72	SLOPE PROT. ADJ SHLDR.
300+50 - 307+00 LT.	12'	78	DITCH
307+18 RT.	12'	24	DITCH

POLLUTION PREVENTION PLAN

110-12A
02-23-93

1. SITE DESCRIPTION

This project is for the construction of a 4-lane facility on IA 100 in Linn County from First Avenue in Cedar Rapids, through Marion to
U.S. 151/IA 13.

This project covers approximately 200 acres with an estimated 165 acres being disturbed.

The project is located in an area of two soil associations, Dinsdale-Tama and Fayette. The estimated average SCS runoff curve number for this project after completion will be 77.

Refer to the grading plan (Linn County, NHS-100-1(18)--19-57) for locations of typical slopes, ditch grades, and major structural and non-structural controls. A copy of this plan will be on file at the project engineer's office. Runoff from this project will flow into various unnamed ditches and streams, Indian Creek and Squaw Creek which are tributaries of the Cedar River.

POTENTIAL SOURCES OF POLLUTION:
Site sources of pollution generated as a result of this project relate to silts and sediment which may be transported as a result of a storm event. However, this project provides conveyance for other (non-project related) operations. These other operations have storm water runoff, the regulation of which is beyond the control of this project. Potentially this runoff can contain various pollutants related to site-specific land uses. Examples are:

Rural Agricultural Activities:
Runoff from agricultural land use can potentially contain chemicals including herbicides, insecticides, and fungicides. In addition, fertilizers which contain nitrogen, phosphate, potash and various other trace elements.

Commercial and Industrial Activities:
Runoff from commercial, industrial, and commerce land use may contain constituents associated with the specific operation. Such operations are subject to potential leaks and spills which could be commingled with run-off from the facility. Pollutants associated with commercial and industrial activities are not readily available since they are typically proprietary.

2. CONTROLS

Silt fence will be placed by the grading contractor prior to beginning grading or clearing and grubbing operations along the perimeter of the project at locations in which runoff can move offsite. Vegetation in areas not needed for construction shall be preserved. As areas reach their final grade, additional silt fences, intercepting ditches, letdowns, bridge end drains, and earth dikes shall be installed as specified in the plans and/or as required by the project engineer. This will include using silt fence as ditch checks and to protect intakes. Temporary stabilizing seeding shall be completed as soon as practicable after completion of the final grading. If construction activity is not planned to occur in a disturbed area for at least 21 days, the area shall be stabilized by temporary seeding or mulching within 14 days. No more than 750,000 square feet of exposed erodible area is allowed in any one grading spread without permission of the project engineer.

As the project progresses, additional erosion control items shall be installed by the erosion control contractor as determined by the engineer after field investigation. The project will be completed by the establishment of permanent perennial vegetation of all disturbed areas by the erosion control contractor.

3. OTHER CONTROLS

Contractor disposal of unused construction materials and construction material wastes shall comply with applicable state and local waste disposal, sanitary sewer, or septic system regulations. In the event of a conflict with other governmental laws, rules and regulations, the more restrictive laws, rules or regulations shall apply.

APPROVED STATE OR LOCAL PLANS:
During the course of this project, it is possible that situations will arise where unknown materials will be encountered. When such situations are encountered, they will be handled according to all federal, state, and local regulations in effect at the time.

POLLUTION PREVENTION PLAN

110-12A
02-23-93

4. MAINTENANCE

The contractor is required to maintain all temporary erosion control measures in proper working order, including cleaning, repairing, or replacing them throughout the contract period. Cleaning of silt control devices shall begin when the features have lost 50% of their capacity.

5. INSPECTIONS

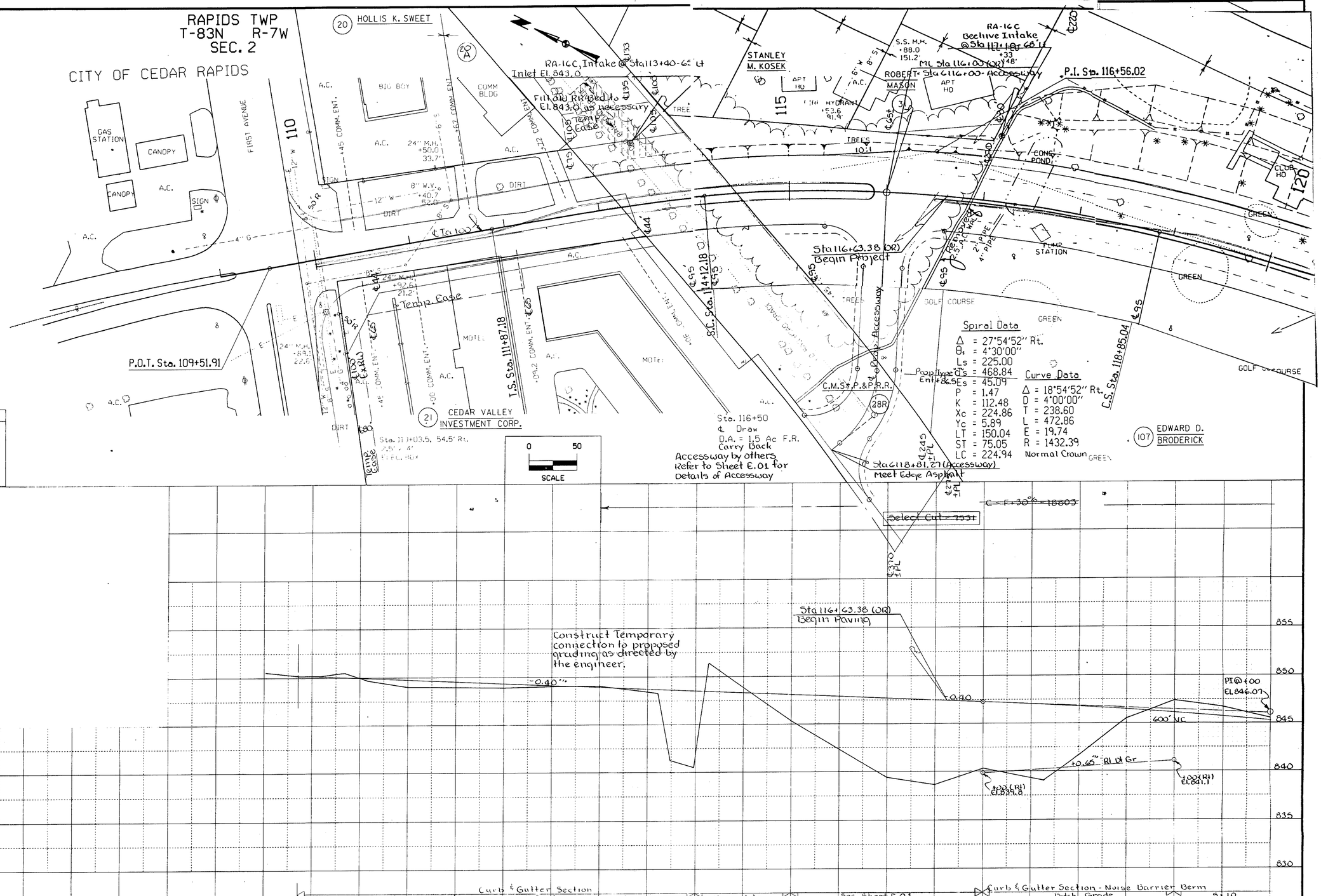
The project will be inspected by department personnel every seven calendar days and after each rain event that is 1/2" or greater. The findings of this inspection shall be recorded in the project diary. This plan may be revised based on the findings of the inspection. The contractor shall implement all revisions.

6. NON-STORM DISCHARGES

This includes subsurface drains (i.e. longitudinal and standard subdrains), slope drains and bridge end drains. The velocity of the discharge from these features may be controlled by the use of patio blocks, Class A stone or erosion control stone.

[redacted]

(20) Hollis K. Sweet
(20A) Hollis K. Sweet (Fee) R.L. & L.J. Sweet (CP)
(21) Cedar Valley Invest. Corp.
(28R) C.M. St. & P. R.R.
(31) Robert Mason
(107) Edward D. Broderick



ROAD DESIGN • CADD • PRODUCED	STATE OF IOWA	FHWA REGION 7	FISCAL YEAR	LINN	COUNTY	PROJECT NUMBER	NHS-100-1(23)--19-57	SHEET NUMBER	D.01

P. 30 D4

Spiral Data-Survey
Δ = 56°51'52" Lt.
θs = 4°30'00"
Ls = 225.00
Ts = 872.70
Es = 190.54
P = 1.47
K = 112.48
Xc = 224.86
Yc = 5.89
LT = 150.04
ST = 75.05
C = 224.94

Curve Data-Survey
Δ = 46°51'52" Lt.
D = 4°00'00"
T = 620.81
L = 1171.61
E = 128.75
R = 1432.39

Spiral Data-O.R. (33) LEO BRODERICK
Δ = 51° 21' 52" Lt.
θs = 4° 30' 00"
Ls = 225.00
Ts = 802.00
Es = 158.65
P = 1.47
K = 112.48
Xc = 224.86
Yc = 5.89
LT = 150.05
ST = 75.04
LC = 224.94

Curve Data-O.R.
Δ = 42° 21' 52" Lt.
D = 4° 00' 00"
T = 555.08
L = 1059.11
E = 103.79
R = 1432.39
L = 225'
X = 110.42'
E = .057

RAPIDS TWP
T-83N R-7W
SEC. 1

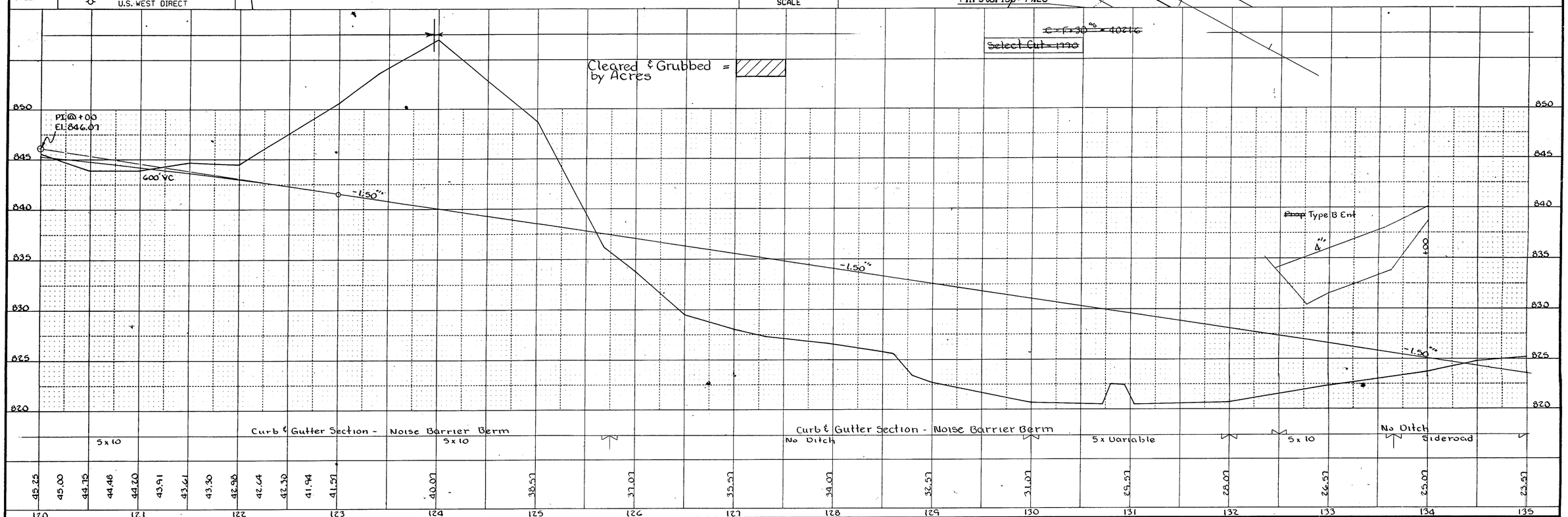
RAPIDS TWP
T-83N R-7W
SEC. 12

RAPIDS TWP
T-83N R-7W
SEC. 2

CITY OF CEDAR RAPIDS

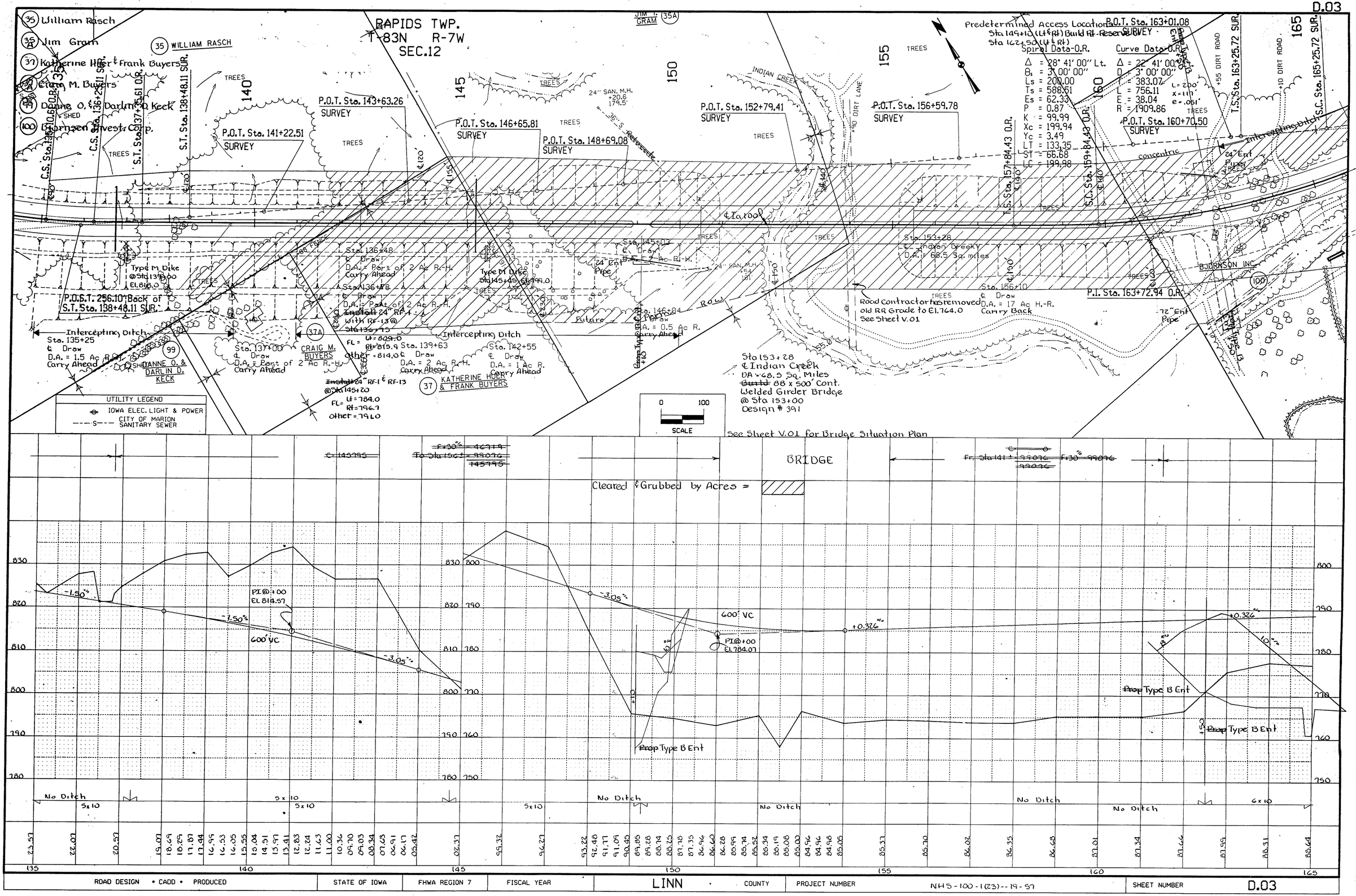
Existing Seal Coat
Approx. Sec. Line
S.C. Sta. 124+51.50
S.T. Sta. 122+26.50
S.T. Sta. 121+10.04
Existing Lot Cor's
Seal Coat
Approximat By-Pass Reservation Line
P.O.C. Sta. 130+31
Predetermined Access Location
Sta 134+00 (Type B Ent Lt - Tama St. Rt)
Connect Prop Type B Ent to Existing Ent.
Prop. 24" Conc. Pipe
Temp Ease
P.O.C. Sta. 134+00.00 M.L.
~~P.I. Sta. 1130+39.35 S.R. O.R.~~
= PI Sta. 130+28.50 (SR OR)
P.O.C. Sta. 131+62.12 M.L.
= P.O.T. Sta. 1131+62.12 S.R.
~~P.O.T. Sta. 1130+20.23 SR. OR.~~ =
Sta 1130+12.29 (OR)(SR)
P.O.T. 463.85 Ahead of
PI Sta 130+28.50 (OR)
79° 33' 07.7" TAN TO TAN
P.T. Sta. 1131+14.70
Sta. 121+00
℄ Draw
D.A. = 0.5 Ac R.
(107) Edward D. Broderick
(33) Leo Broderick
(34) Joan B. & Harriet Turner
(35) William Rasch
(107) EDWARD D. BRODERICK
(34) JOAN B. & HARRIET Y. TURNER
(35) WILLIAM RASCH See Sheet E.02 for Sideroad Details
Sta. 133+66
℄ Draw
Carry Back
D.A. = 1.5 Ac R.H.
Sta. 134+33
℄ Draw
D.A. = 0.5 Ac R.H.
Carry Back
Sta 133+25 (OR)
DA = 1.5 Ac R.H.
~~Install~~ 24" RF-1
U = 818.5
FL = 821.2
P.O.S.T. 130.05' Ahead of
P.I. Sta. 130+99.20 M.L.
= P.O.T. 80.18 Ahead of
P.I. Sta. 1129+76.31 S.R.
Sta. 129+85
DA = 22 Ac R
~~Install~~ 42" RF-1
U = 819.0
FL = 824.5
Skew 32° Lt Ahd
See Sheet F.01 for Tama St. Detour
Type M Dike @ Sta 130+28 El. 829.0
NE COR. SEC. 11
49.60' Left of
P.O.S.T. Sta. 130+30.30
P.I. Sta. 130+28.50 O.R.
P.I. Sta. 130+99.20
Sta. 127+32
℄ Side ditch
D.A. = 1 Ac R.
Carry Ahead
Sta. 131+04
℄ Side ditch
D.A. = 1 Ac H.
Carry Ahead
0 50
SCALE
GREEN
WELL
ELEC. BOX
WATER HYDRANT
TREES
GOLF COURSE
TEL PED
ELEC BOX
CONC. BASE
122°03'44"
TAMA ST.
Approx. Sec. Line

UTILITY LEGEND
IOWA ELEC. LIGHT & POWER
IOWA ELEC. LIGHT & POWER
IOWA ELEC. LIGHT & POWER
U.S. WEST DIRECT
U.S. WEST DIRECT



ROAD DESIGN • CADD • PRODUCED	STATE OF IOWA	FHWA REGION 7	FISCAL YEAR	LINN	COUNTY	PROJECT NUMBER	NHS-100-1(23)--19-57	SHEET NUMBER	D.02

P31 D4



ROAD DESIGN • CADD • PRODUCED	STATE OF IOWA	FHWA REGION 7	FISCAL YEAR	LINN • COUNTY	PROJECT NUMBER NHS-100-1(23)--19-57	SHEET NUMBER D.03

D.32 04

(103) Bjornson Invest Corp
(104) Grace Baptist Church
(42) Elza R. Potter (Estate) Harry Potter (Exec)
(48) Charles W. Ensley
(103) State of Iowa

Curve Data-Survey
Δ = 18°11'00" Lt.
D = 3°00'00"
T = 305.63
L = 606.11
E = 24.30
R = 1909.86
Void

Spiral Data-Survey
Δ = 24°11'00" Lt.
θs = 3°00'00"
Ls = 200.00
Ts = 509.33
Es = 44.23
P = 0.87
K = 99.99
Xc = 199.95
Yc = 3.49
LT = 133.35
ST = 66.69
LC = 199.98
Void

RAPIDS TWP
T-83N R-7W
SEC. 12

MARION TWP
T-83N R-6W
SEC. 7

See Sheet E.03A & E.03B for Sideroad Details

Sta. 187+14.8, 52.5' Lt. 6" GAS VALVE
Sta. 186+98.0, 54.0' Lt. GAS REGULATOR

P.O.T. Sta. 186+90.88 M.L.
= P.O.T. Sta. 1187+45.46 S.R.- O.R.

P.O.T. Sta. 187+42.31 M.L.
= P.O.T. Sta. 1187+42.31 S.R.-SUR.

P.O.T. Sta. 175+42.22 SURVEY

EQUATION
P.O.T. Sta. 179+52.06 BACK (OR)
= P.O.T. Sta. 179+06.68 AHEAD (Sur)

P.O.T. Sta. 182+04.52

P.O.T. Sta. 192+01.76

P.I. Sta. 168+35.05 SURVEY

P.O.S.T. Sta. 166+15.73 SURVEY

Predetermined Access Locations
(104) GRACE BAPTIST CHURCH
Sta 173+50 (OR) Lt & Rt
Sta 186+90.88 (OR) East Post Road

Intercepting Ditch
Type M Dike El. 793.0 @ Sta 170+50
24" Ent Pipe
Type F Dike El. 785.0 @ Sta 169+50
Type B Ent
Sta. 165+95 ℄ Draw D.A. = .5 Ac H. Carry Back
Sta. 165+63 ℄ Draw D.A. = .5 Ac H. Carry Back
Sta. 166+40 ℄ Draw D.A. = 3 Ac R.-H. Carry Back
Sta. 166+88 ℄ Draw D.A. = 0.5 Ac H. Carry Back
Sta. 167+17 ℄ Draw D.A. = 0.5 Ac H. Carry Back
Sta. 169+75 (OR) 100' Rt ~~Install~~ 42" CMP Letdown DA = 25 Ac H FL = Lt = 780.0, Rt = 768.5, Other = 779.3, Other = 769.2, Skew 65° Lt Ahd.
Sta. 170+12 ℄ Draw D.A. = 22 Ac H. ~~Install~~ 42" RF-1 @ Sta 170+50 (OR) FL = Lt = 788.5, Rt = 780.0, Skew 35° Lt Ahd
Sta. 185+56 ℄ Draw D.A. = 1 Ac F. Carry Back
Sta. 186+14.9, 08.0' Rt. WELL
Sta. 186+25.7, 41.2 Rt. SEPTIC TANK
Sta. 187+09 ℄ Side ditch D.A. = Side ditch only
Sta. 187+69 ℄ Side ditch D.A. = Side ditch only
Sta. 188+28 ℄ Draw D.A. = 2 Ac H. Carry Back
Sta. 193+65 ℄ Draw D.A. = 0.5 Ac H. Carry Back

(100) BJORNSON INC.
(48) CHARLES W. ENSLEY

UTILITY LEGEND
IOWA ELEC. LIGHT & POWER
IOWA ELEC. LIGHT & POWER
U.S. WEST DIRECT

SCALE 0 100

EAST POST RD = APPROX. SEC. LINE

~~C = 21069~~
~~Fr. Sta 180 L = 47032~~
~~68901~~
~~Fr30" = 68901~~
~~C = 47462~~
~~Fr30" = 430~~
~~To Sta 165 L = 47032~~
~~47462~~
~~C = 65152~~
~~Select Cut = 2939~~

Cleared & Grubbed by Acres =

C = 1460
Fr30" = 468
Waste = 992
1460

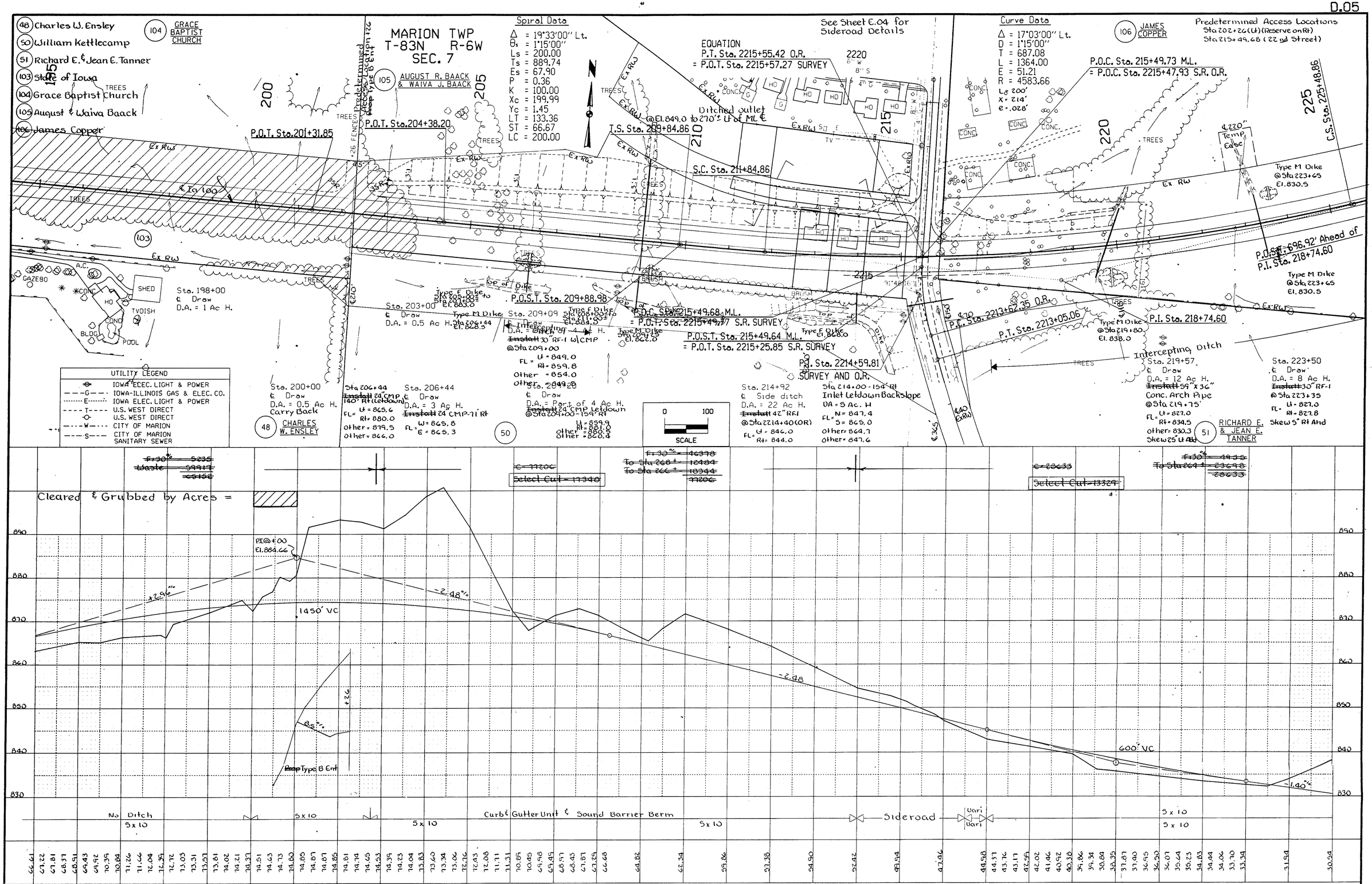
Equation:
Sta 179+52.06 (OR) Back =
Sta 179+06.68 (Sur) Ahead
El. 819.74

400' VC
PI @ +00 El. 809.32
600' VC
PI @ +00 El. 784.94
+00 (Rt) El. 791.0
+50 (Rt) El. 791.0
0.0% Rt of Gr
Prop Type B Ent
Prop Type B Ent
+00 (Lt) El. 829.3
+56 (Lt) El. 831.5
1.0% Lt of Gr

6 x 10 Ditch Grade
Vari
5 x 10 No Ditch
5 x Variable
5 x 10
5 x 10 No Ditch
5 x 10
5 x 10
Ditch Grade No Ditch
Sideroad
5 x 10
No Ditch

ROAD DESIGN • CADD • PRODUCED	STATE OF IOWA	FHWA REGION 7	FISCAL YEAR	LINN COUNTY	PROJECT NUMBER NHS-100-1(23)--19-57	SHEET NUMBER D.04

P.33 D4


MARION TWP
T-83N R-6W
SEC. 7
Spiral Data
Δ = 19°33'00" Lt.
θs = 1°15'00"
Ls = 200.00
Ts = 89.74
Es = 67.90
P = 0.36
K = 100.00
Xc = 199.99
Yc = 1.45
LT = 133.36
ST = 66.67
LC = 200.00
Curve Data
Δ = 17°03'00" Lt.
D = 1°15'00"
T = 687.08
L = 1364.00
E = 51.21
R = 4583.66
Ls 200'
X = 214'
e = .028'
EQUATION
P.T. Sta. 2215+55.42 O.R.
= P.O.T. Sta. 2215+57.27 SURVEY
See Sheet E.04 for Sideroad Details
Predetermined Access Locations
Sta 202+26 (Lt) (Reserve on Rt)
Sta 215+49.68 (22nd Street)
P.O.C. Sta. 215+49.73 M.L.
= P.O.C. Sta. 215+47.93 S.R. O.R.
P.O.T. Sta. 201+31.85
P.O.T. Sta. 204+38.20
T.S. Sta. 209+84.86
S.C. Sta. 211+84.86
P.O.S.T. Sta. 209+88.98
P.O.C. Sta. 215+49.68 M.L.
= P.O.T. Sta. 215+49.77 S.R. SURVEY
P.O.S.T. Sta. 215+49.64 M.L.
= P.O.T. Sta. 2215+25.85 S.R. SURVEY
P.O.T. Sta. 2214+59.81 SURVEY AND O.R.
P.O.T. 696.92' Ahead of P.I. Sta. 218+74.60
P.I. Sta. 218+74.60
P.O.C. Sta. 2213+62.35 O.R.
P.T. Sta. 2213+05.06
C.S. Sta. 225+48.86
Ditched outlet @El.849.0 to 270'± Lt of ML ℄
Type M Dike @Sta 223+65 El.830.5
Type M Dike @Sta 219+80 El.838.0
Intercepting Ditch
Sta. 219+57
℄ Draw
D.A. = 12 Ac. H.
~~Install~~ 59"x36" Conc. Arch Pipe
@Sta 219+75'
FL = U = 827.0
R = 834.5
other = 830.3
Skew 25° Lt Ahd
Sta. 223+50
℄ Draw
D.A. = 8 Ac. H.
~~Install~~ 30" RF-1
@Sta 223+35
FL = U = 827.0
R = 827.8
Skew 5° Rt Ahd
Sta. 198+00
℄ Draw
D.A. = 1 Ac. H.
Sta. 200+00
℄ Draw
D.A. = 0.5 Ac. H.
Carry Back
Sta. 203+00
℄ Draw
D.A. = 0.5 Ac. H.
Type M Dike Sta. 209+09
Sta 206+44 El. 828.5
Type E Dike Sta 205+83 to Sta 211+03 El. 883.0
Type E Dike Sta 208+00 to Sta 211+03 El. 884.5
Type E Dike El. 868.0
Type M Dike Sta 209+25 El. 822.0
℄ Intercepting Ditch
D.A. = Part of 4 Ac. H.
~~Install~~ 30" RF-1 w/CMP @Sta 209+00
FL = U = 849.0
R = 859.8
Other = 854.0
Other = 849.5
Sta. 206+44
℄ Draw
D.A. = 3 Ac. H.
~~Install~~ 24" CMP-71 Rt
FL = W = 865.8
E = 865.3
Sta 206+44
~~Install~~ 24" CMP
140' Rt Letdown
FL = U = 865.6
R = 880.0
other = 879.5
other = 866.0
Sta. 209+28
℄ Draw
D.A. = Part of 4 Ac. H.
~~Install~~ 24" CMP Letdown @Sta 209+00-154' Rt
U = 859.9
R = 881.0
other = 880.5
other = 860.4
Sta. 214+92
℄ Side ditch
D.A. = 22 Ac. H.
~~Install~~ 42" RF-1
@Sta 2214+40 (OR)
FL = U = 846.0
R = 844.0
Sta 214+00-154' Rt
Inlet Letdown Backslope
DA = 5 Ac. H
FL = N = 847.4
S = 865.0
other = 864.7
other = 847.6
UTILITY LEGEND
IOWA ELEC. LIGHT & POWER
IOWA-ILLINOIS GAS & ELEC. CO.
IOWA ELEC. LIGHT & POWER
U.S. WEST DIRECT
U.S. WEST DIRECT
CITY OF MARION
CITY OF MARION SANITARY SEWER
(48) Charles W. Ensley
(50) William Kettlecamp
(51) Richard E. & Jean E. Tanner
(103) State of Iowa
(104) Grace Baptist Church
(105) August & Waiva Baack
(106) James Copper
(104) GRACE BAPTIST CHURCH
(105) AUGUST R. BAACK & WAIVA J. BAACK
(106) JAMES COPPER
(48) CHARLES W. ENSLEY
(50)
(51) RICHARD E. & JEAN E. TANNER
(103)
Ex RW
℄ Ia 100
TREES
GAZEBO
SHED
TVDISH
BLDG.
POOL
CONC.
HO
A.C.
Top of Dike
BRUSH
Type M Dike @Sta 223+65 El.830.5
0 100
SCALE
~~Fr 30% = 5235~~
~~Waste = 59917~~
~~C = 65152~~
~~C = 11206~~
~~Select Cut = 11340~~
~~Fr 30% = 46378~~
~~To Sta 268+ = 18484~~
~~To Sta 266+ = 18344~~
~~11206~~
~~C = 28633~~
~~Select Cut = 13329~~
~~Fr 30% = 49395~~
~~To Sta 264+ = 23598~~
~~28633~~
Cleared & Grubbed by Acres =
PI @ +00
El. 884.66
1450' VC
600' VC
-2.98%
-1.40%
Type B Cnt
No Ditch
5x10
Curb & Gutter Unit & Sound Barrier Berm
Sideroad
Vari
195
200
205
210
215
220
225
ROAD DESIGN • CADD • PRODUCED
STATE OF IOWA
FHWA REGION 7
FISCAL YEAR
LINN
COUNTY
PROJECT NUMBER
NHS-100-1123---19-57
SHEET NUMBER
D.05

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(51) Richard E. & Jean E. Turner
(52) Thedore C. Munier
(53) James R. Klein
(54) Linn Co. Conservation
(103) State of Iowa
(106) James Copper

MARION TWP
T-83N R-6W
SEC. 7

(106) JAMES COPPER

C.S. Sta. 225+43.86
S.T. Sta. 227+48.86

225 230 235 240 245 250 255

Ex RW

℄ Ia 100

2' Ahead of
74.60

P.O.S.T. 696.92' Ahead of
P.I. Sta. 218+74.60

(103)

TREES

Type M Dike
@Sta 232+00 El. 818.5

Sta. 232+00
℄ Drw
D.A. = 14 Ac H.
~~Install~~ 36" RF-1
Lt = 814.0
Rt = 815.8
Other = 814.7
Skew 20 Lt Ahd

Intercepting Ditch

Ex RW

(51) RICHARD E. & JEAN E. TANNER

Ex RW

~~Select Cut = 9861~~

P.O.T. Sta. 238+24.78

(53)

Ex RW

(52) THEODORE C. MUNIER

24" SANS. S. M.H. 238

TREES

P.O.T. Sta. 242+92.77 M.L.
= P.O.T. Sta. 3242+92.77 S.R.

P.O.T. Sta 242+85.42 (ML)
= P.O.T. Sta 3242+90.54 (SR-OR)

3240 (OR)

24" SANS. S. M.H. 237

UTILITY LEGEND
IOWA ELEC. LIGHT & POWER
CITY OF MARION SANITARY SEWER

0 100
SCALE

(54) LINN CO. CONSERVATION

~~Select Cut = 17517~~

See Sheet E.05 for Sideroad Details

MARION TWP
T-83N R-6W
SEC. 8

~~Prop.~~ 10" C.I.P. San. Sew. Extension
See Sheet M.02 for Details

3245 (OR)

8" R.C.P. C.M.P. Remove

24" S.S. M.H. 33

75' R

15' R

TREES AND BRUSH

Intercepting Ditch

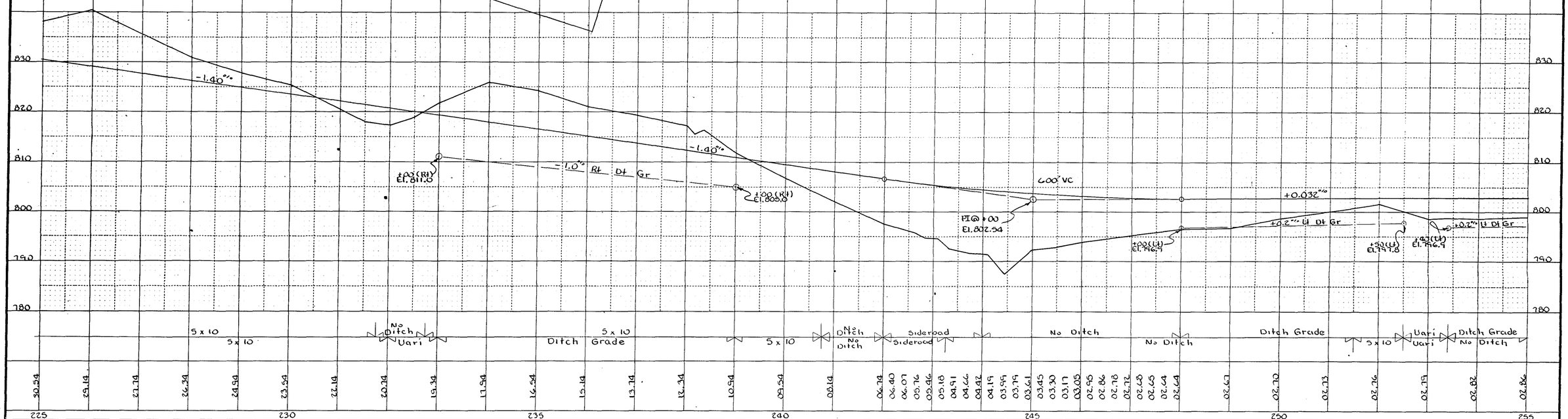
Type M Dike
@Sta 252+00
El. 800.0

Predetermined Access Location
Sta 242+85.42 (31st Street)

(52) THEODORE C. MUNIER

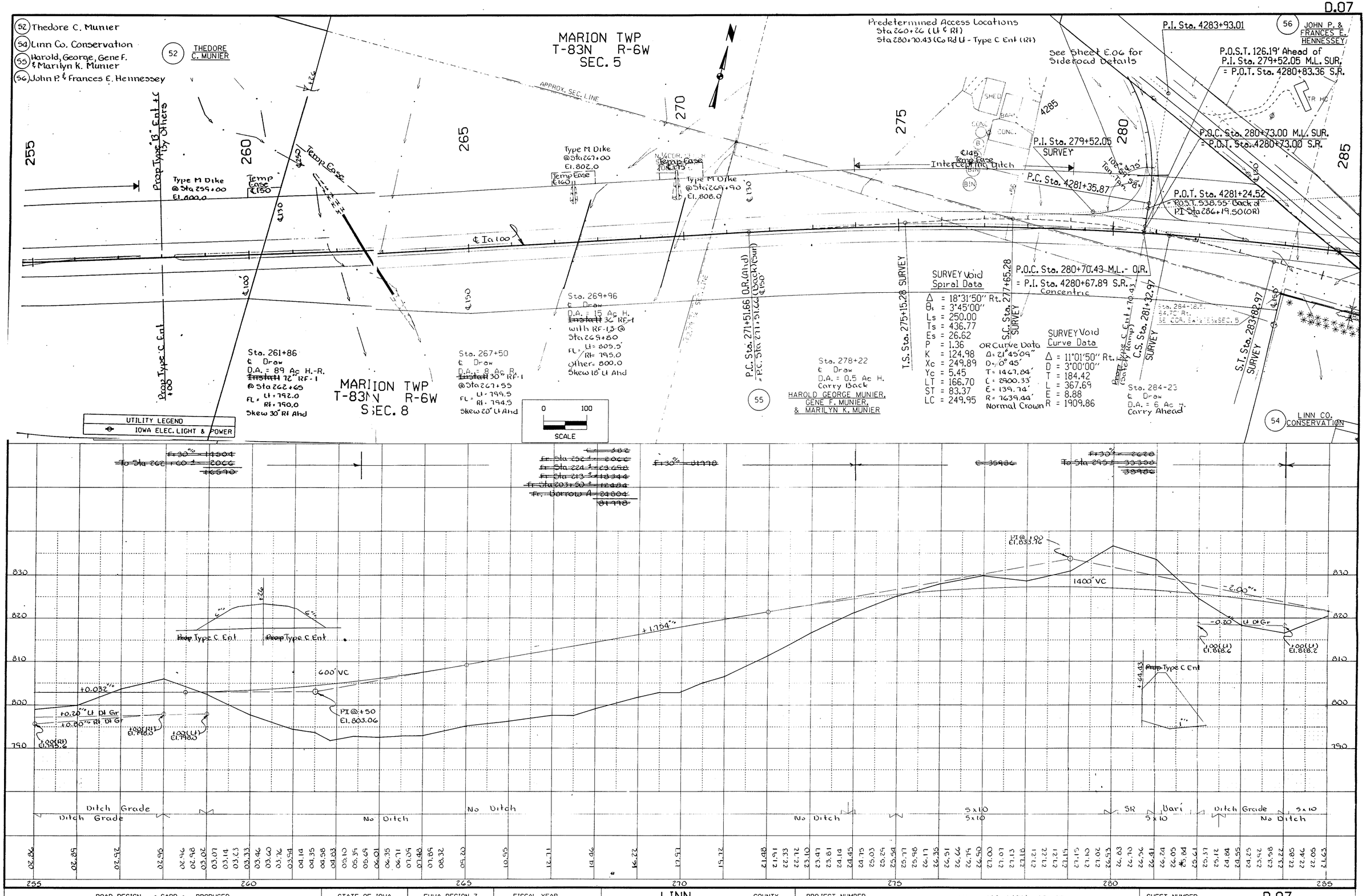
Sta. 252+96
℄ Drw
D.A. = 9 Ac R.
~~Install~~ 30" RF-1
@Sta 253+25
Lt = 796.9
Rt = 795.0
~~Skew 30' Rt Ahd~~

Sta. 244+46
℄ Drw
D.A. = 439 Ac R.-H.
~~Build~~ 10'x8'x52' RCB
@Sta 245+25
Lt = 789.5
Rt = 786.0
Skew 15° Rt Ahd
Design



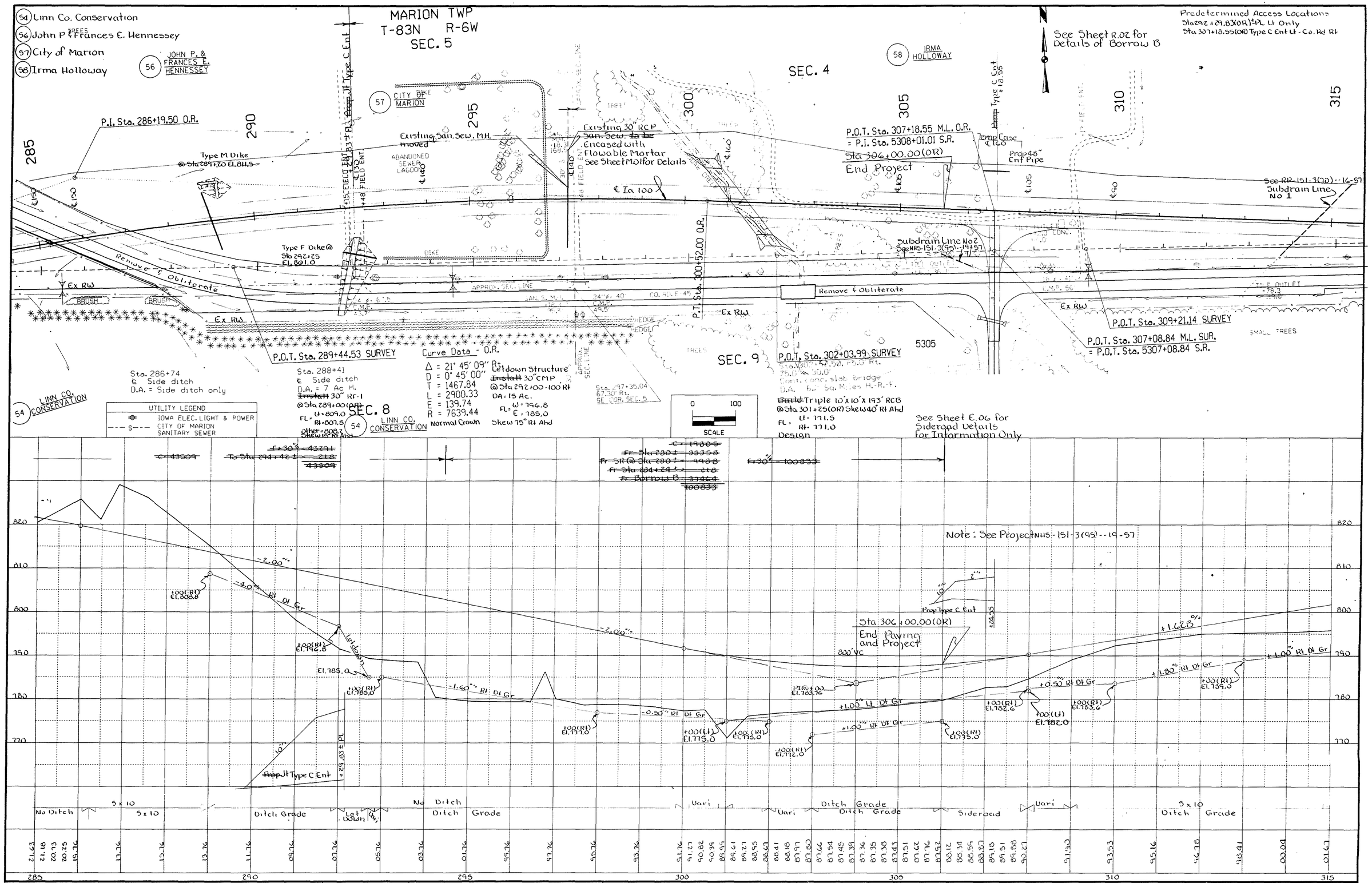
ROAD DESIGN • CADD • PRODUCED	STATE OF IOWA	FHWA REGION 7	FISCAL YEAR	LINN	COUNTY	PROJECT NUMBER	NHS-100-1(23)--19-57	SHEET NUMBER	D.06

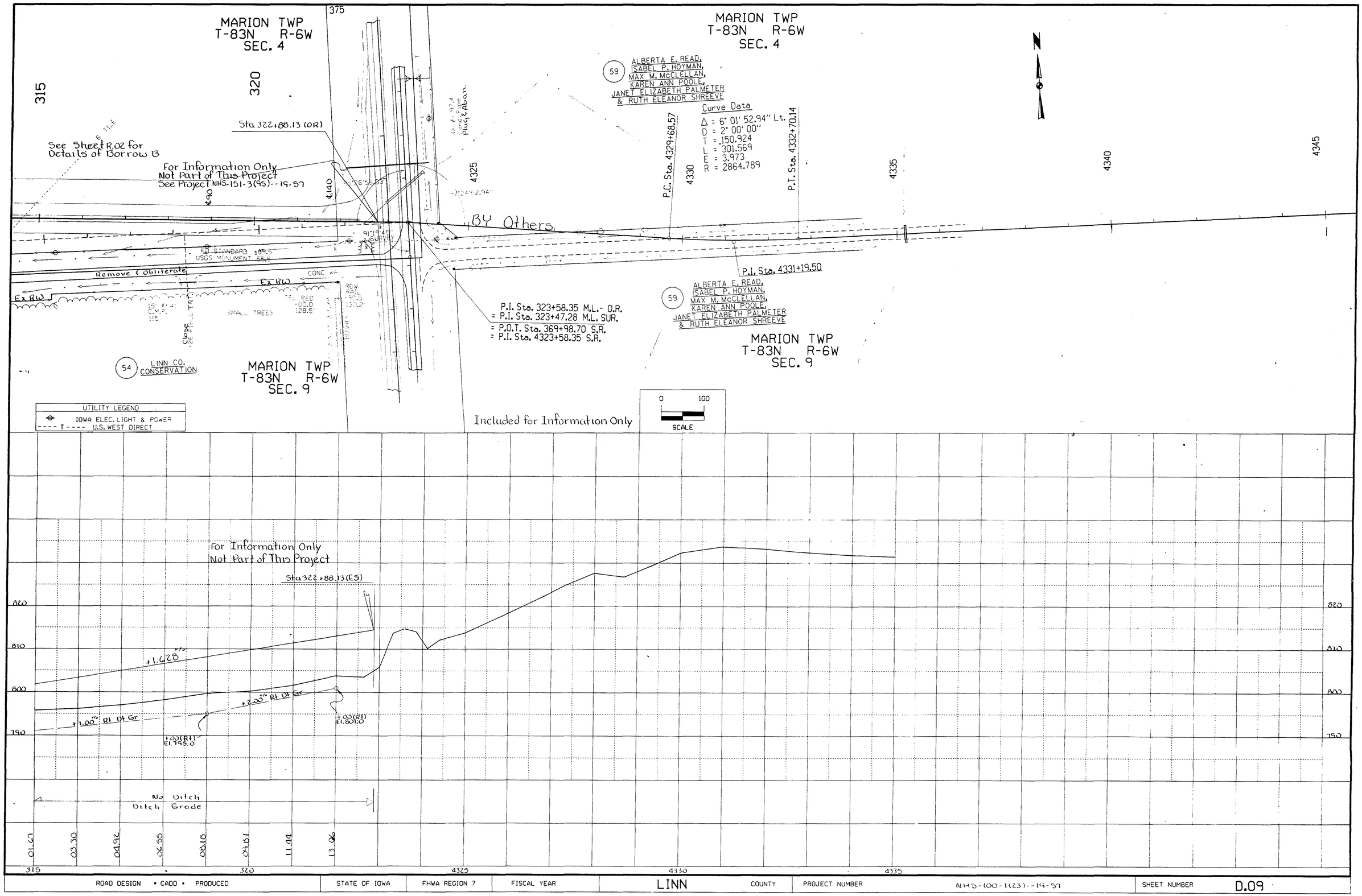
P. 35 of



ROAD DESIGN • CADD • PRODUCED	STATE OF IOWA	FHWA REGION 7	FISCAL YEAR	LINN	COUNTY	PROJECT NUMBER	NHS-100-1(63)--19-57	SHEET NUMBER	D.07

P.36 D4


54 Linn Co. Conservation
56 John P & Frances E. Hennessey
57 City of Marion
58 Irma Holloway
MARION TWP
T-83N R-6W
SEC. 5
SEC. 4
SEC. 9
SEC. 8
Predetermined Access Locations
Sta 292+29.83(OR) ± PL Lt Only
Sta 307+18.55(OR) Type C Ent Lt - Co. Rd Rt
See Sheet R.02 for Details of Borrow B
P.I. Sta. 286+19.50 O.R.
Type M Dike
@ Sta 289+20 El. 811.5
Type F Dike @ Sta 292+25 El. 801.0
Remove & Obliterate
Existing San. Sew. M.H. moved
ABANDONED SEWER LAGOON
Existing 30" RCP San. Sew. to be Encased with Flowable Mortar See Sheet M01 for Details
℄ Ia 100
P.O.T. Sta. 307+18.55 M.L. O.R.
= P.I. Sta. 5308+01.01 S.R.
Sta 306+00.00(OR)
End Project
Temp Case
Prop 48" Ent Pipe
See RP-151-3(70)--16-57
Subdrain Line No 1
Subdrain Line No 2
See NHS-151-3(95)--19-57
P.T. Sta. 300+52.00 O.R.
Ex RW
BRUSH
APPROX. SEC. LINE
CO. RD. E 45
P.O.T. Sta. 289+44.53 SURVEY
P.O.T. Sta. 302+03.99 SURVEY
P.O.T. Sta. 309+21.14 SURVEY
P.O.T. Sta. 307+08.84 M.L. SUR.
= P.O.T. Sta. 5307+08.84 S.R.
Sta. 286+74
℄ Side ditch
D.A. = Side ditch only
Sta. 288+41
℄ Side ditch
D.A. = 7 Ac H.
~~Install~~ 30" RF-1
@ Sta 289+00(OR)
FL = Lt 809.0
Rt 807.5
Other 808.7
Skew 15° Rt Ahd
Curve Data - O.R.
Δ = 21° 45' 09" Rt
D = 0° 45' 00"
T = 1467.84
L = 2900.33
E = 139.74
R = 7639.44
Normal Crown
Let down Structure
~~Install~~ 30" CMP
@ Sta 292+00 - 100' Rt
DA = 15 Ac.
FL = W = 796.8
E = 785.0
Skew 75° Rt Ahd
Sta. 297+35.04
67.30' Rt.
SE. COR. SEC. 5
Sta. 297+50. +5.0' Rt.
75.0' x 30.0'
Cont. conc. slab bridge
D.A. 6.2 Sq. Miles H.-R.-F.
~~Build~~ Triple 10'x10'x193' RCB
@ Sta 301+25(OR) Skew 40° Rt Ahd
FL = Lt = 771.5
Rt = 771.0
Design
See Sheet E.06 for Sideroad Details for Information Only
UTILITY LEGEND
IOWA ELEC. LIGHT & POWER
CITY OF MARION SANITARY SEWER
0 100
SCALE
Note: See Project NHS-151-3(95)--19-57
Prop Type C Ent
Sta 306+00.00(OR)
End Paving and Project
800' VC
PVI @ 300
El. 783.76
+1.628%
+1.00% Rt Dt Gr
+1.80% Rt Dt Gr
+0.50% Rt Dt Gr
+1.00% Lt Dt Gr
-2.00% Rt Dt Gr
-4.0% Rt Dt Gr
-1.60% Rt Dt Gr
-0.50% Rt Dt Gr
+1.00% Rt Dt Gr
+00(Rt) El. 808.8
+00(Rt) El. 796.8
+00(Rt) El. 785.0
+00(Rt) El. 777.0
+00(Lt) El. 775.0
+00(Rt) El. 775.0
+00(Rt) El. 772.0
+00(Rt) El. 775.0
+00(Rt) El. 782.6
+00(Lt) El. 782.0
+00(Rt) El. 783.6
+00(Rt) El. 789.0
No Ditch
5 x 10
Ditch Grade
Let Down
Vari
Sideroad
ROAD DESIGN • CADD • PRODUCED
STATE OF IOWA
FHWA REGION 7
FISCAL YEAR
LINN
COUNTY
PROJECT NUMBER
NHS-100-1(63)--19-57
SHEET NUMBER
D.08



ROAD DESIGN • CADD • PRODUCED	STATE OF IOWA	FHWA REGION 7	FISCAL YEAR	LINN	COUNTY	PROJECT NUMBER	NHS-100-1(23)--19-57	SHEET NUMBER	D.09

D4

P.T. Sta. 6118+69.93 ℄ (Accessway)

P.O.T. Sta. 6118+81.27 ℄ (Accessway)

P.O.T. Sta. 6116+00.00 ℄ (Accessway)
= P.O.C. Sta. 116+00.00 ℄ (Sur)

P.I. Sta. 6118+29.50

P.C. Sta. 6117+83.44 ℄ (Accessway)

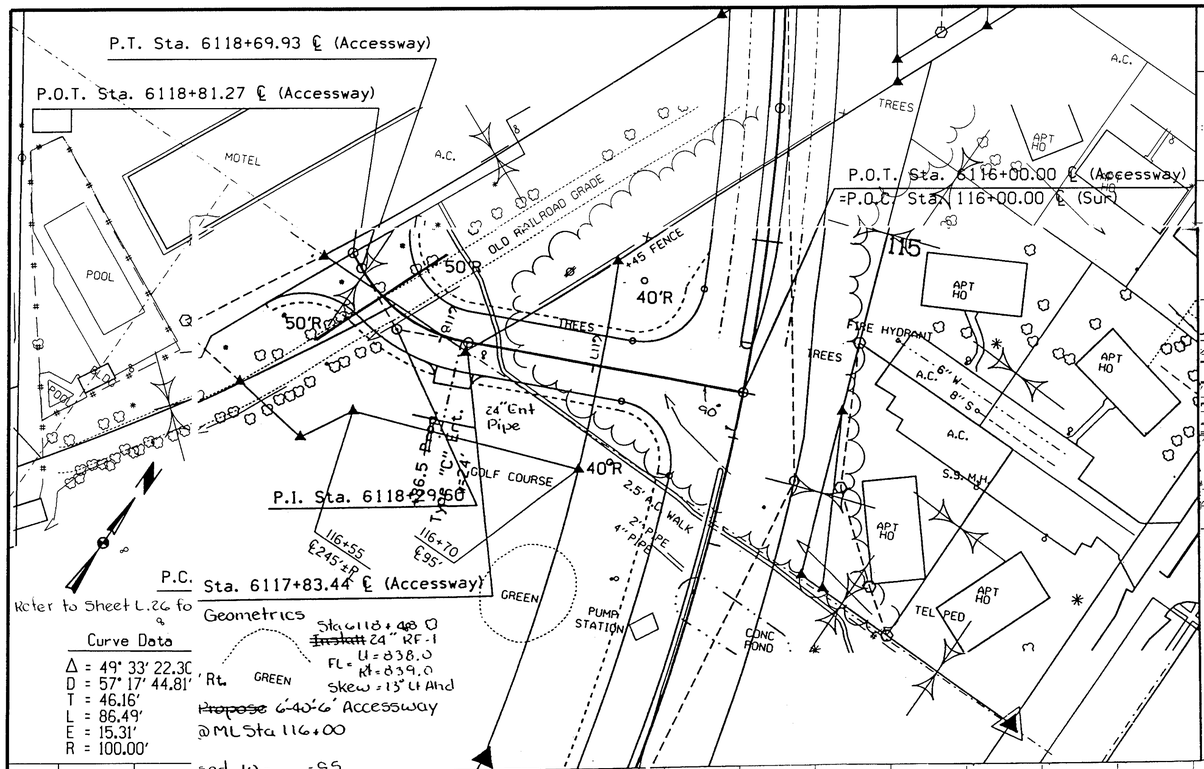
Refer to Sheet L.26 for Geometrics

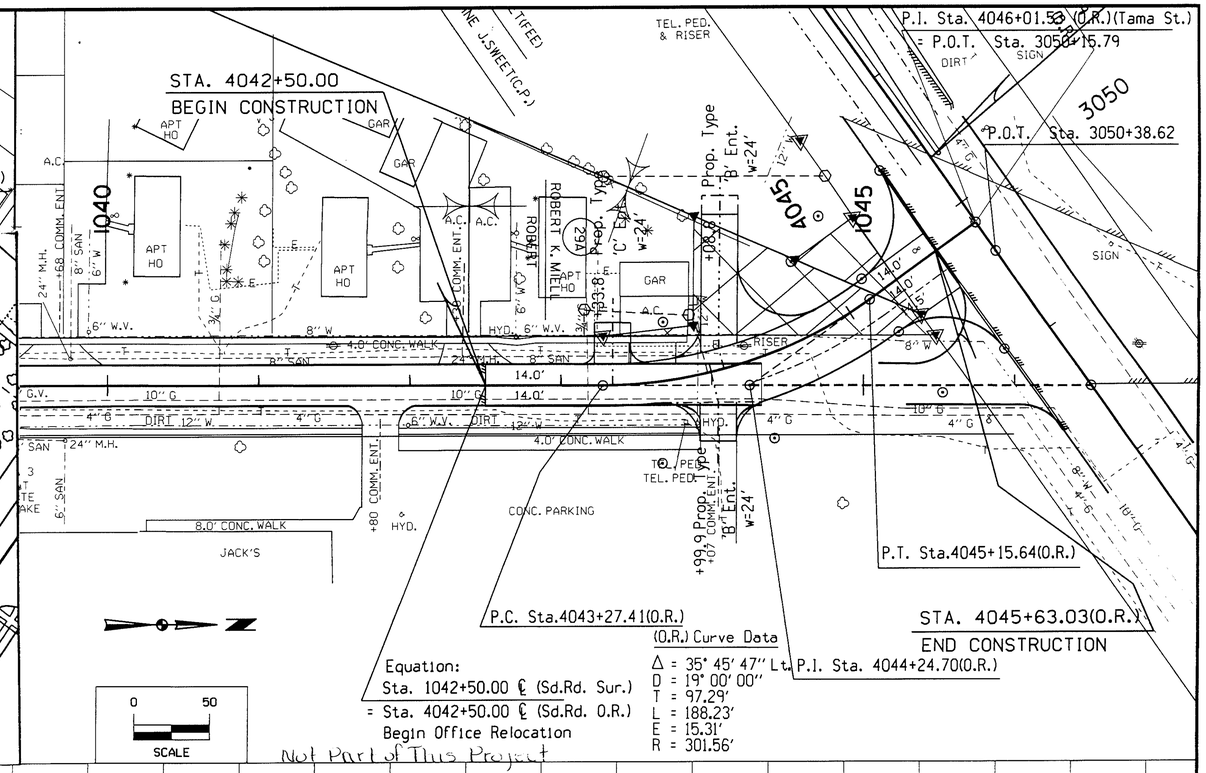
Sta. 6118+48 ~~Install~~ 24" RF-1
LT = 838.0
RT = 839.0
Skew = 13° Lt Ahd

~~Propose~~ 6'-40'-6' Accessway @ ML Sta 116+00

Curve Data
Δ = 49° 33' 22.30" Rt.
D = 57° 17' 44.81"
T = 46.16'
L = 86.49'
E = 15.31'
R = 100.00'

Sed 10- -95

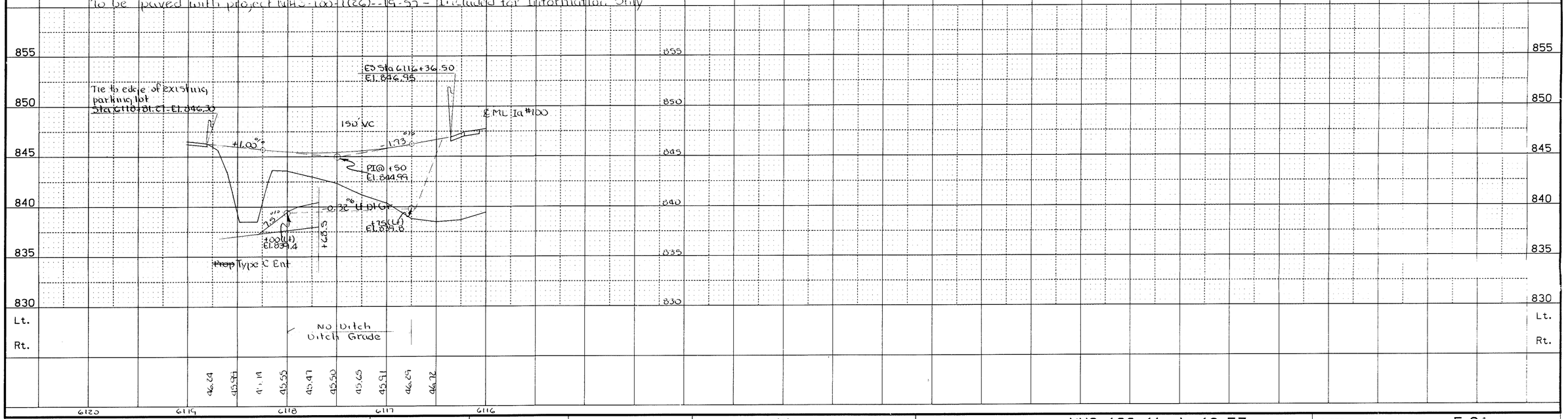




Not Part of This Project

~~℄ 340~~ ~~Fr. 30' = 3301~~ ~~Fr. St. Sta 116+4 = 2953~~ ~~3301~~

To be paved with project NHS-100-1(26)--19-57 - Included for Information Only



ROAD DESIGN • CADD • PRODUCED	STATE OF IOWA	FHWA REGION 7	FISCAL YEAR	LINN COUNTY	PROJECT NUMBER NHS-100-1(23)--19-57	SHEET NUMBER E.01

33 Leo Broderick
35 William Rasch
99 Danne & Darlin Keck

RAPIDS TWP
T-83N R-7W
SEC. 11

RAPIDS TWP
T-83N R-7W
SEC. 2

RAPIDS TWP
T-83N R-7W
SEC. 12

RAPIDS TWP
T-83N R-7W

SEC. 1

P.I. Sta. 1125+21.95 O.R.
P.O.T. STA. 1124+52.34
See Sheet L.04 for Geometrics of Reloc. Tama to Exist. Tama St. Conn.
P.I. Sta. 1129+76.31
P.O.T. 80.18 Ahead of P.I. Sta. 1129+76.31 S.R. = P.O.S.T. 130.05' Ahead of P.I. Sta. 130+99.20 M.L.
P.I. Sta. 130+99.20
P.I. Sta. 130+99.20
Road Closure (Barricade RE-3B)
Prop Type M Dike @ +25 El. 829.0
SR Sta 1122+50.00 Begin Construction
P.C. Sta. 1123+41.37 O.R.
Void
Sta. 1124+60 18" ø x 51' V.I.T. & C.M.P. D.A. = 2.8 Ac. H.
P.C. Sta. 1128+08.14
See Sheet F.01 for Tama Street Detour Information
RA-8 Int
WILLIAM RASCH
℄ Tama St
P.T. Sta. 1126+86.65 O.R.
Void
P.T. Sta. 1131+14.70
P.O.C. Sta. 130+31
P.O.T. Sta. 1131+62.12 S.R. = P.O.C. Sta. 131+62.12 M.L.
Sta 1130+12.29(OR)(SR) P.O.S.T. 423.85 Ahead of P.I. Sta 130+28.50(OR)(ML)
SR/PI Sta 1130+31.42(OR) = ML POC Sta 134+00.00
LEO BRODERICK
WILLIAM
Prop Type C Cut
Prop Type E Cut
Temp Ent
Replace Inland
Replace Culvert
Close
Exist Ent
UAC
Ex RW
APPROX. SECTION LINE

Void
Curve Data
Δ = 41° 26' 02.29" RT.
D = 12° 00' 00"
T = 180.581
L = 345.283
E = 33.008
R = 477.465

Office Relocation Δ = 41° 26' 02.29" Rt
D = 8° 00'
T = 270.37'
L = 517.92'
E = 49.51'
R = 716.197'

Curve Data
Δ = 58° 32' 54" Rt.
D = 19° 05' 55"
T = 168.47
L = 306.38
E = 43.92
R = 300.00

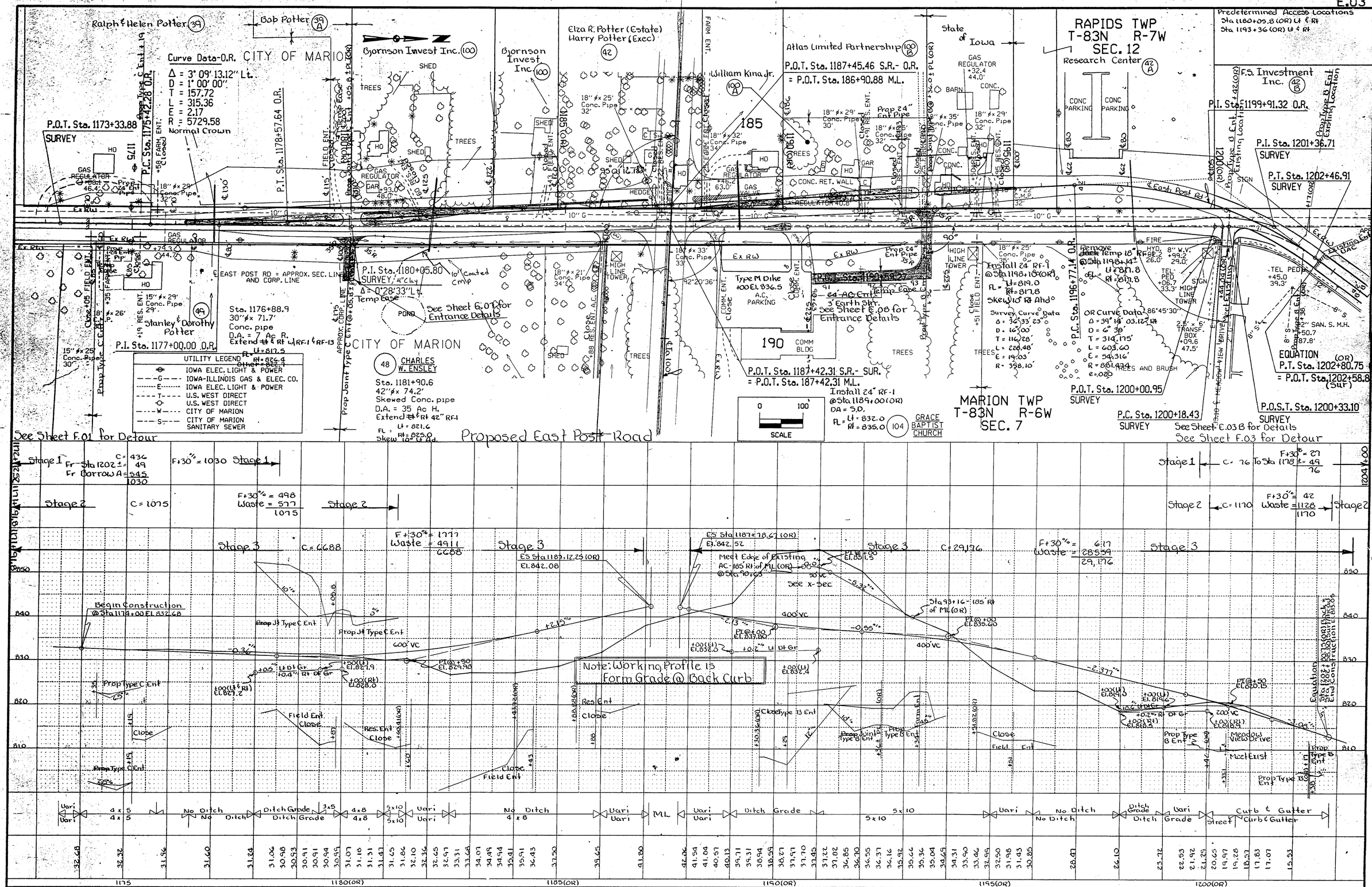
UTILITY LEGEND
IOWA ELEC. LIGHT & POWER
IOWA ELEC. LIGHT & POWER
IOWA ELEC. LIGHT & POWER
U.S. WEST DIRECT
U.S. WEST DIRECT

0 50
SCALE

Prop. Tama Street 31' B-B

Stage 1 C = 2104 F+30% = 111 Waste = 1993 / 2104
Stage 1
PI @ +50 El. 854.15
~~C = 27544 To Det. Sta 331 F+30% = 126 To Ret. Wy Sta 6117 1990 Waste = 25553 / 27544~~
Stage 2 C = 616 F+30% = 118 Waste = 498 / 616
Stage 2
PI @ +00 El. 843.33
+4.33%
250' VC
100' VC
+9.50%
Sta 1122+50.00 Begin Construction
-8.00%
10%
+1.9'
Prop. Type C Cut
+0.4
Prop. Type E Cut
4:1
100' VC
+0.43%
PI @ +00 El. 826.17
SR PS Sta 1129+97.41 (OR) El. 826.59
850
845
840
835
830
825
820
31' B-B with 3.5' Curb & Gutter Unit
31' B-B with 3.5' Curb & Gutter Unit
38.50 40.14 42.68 44.25 45.50 47.66 48.74 49.67 50.29 50.60 50.60 50.30 49.68 48.76 47.53 46.00 44.15 42.16 38.16 34.16 30.17 28.43 27.22 26.54 26.34
1121 1122 1123 1124 1125 1126 1127 1128 1129 1130

ROAD DESIGN • CADD • PRODUCED	STATE OF IOWA	FHWA REGION 7	FISCAL YEAR	Linn COUNTY	PROJECT NUMBER	NHS-100-1(23)--19-57	SHEET NUMBER	E.02


Ralph & Helen Potter (39)
Bob Potter (39A)
Curve Data-O.R.
Δ = 3° 09' 13.12" Lt.
D = 1° 00' 00"
T = 157.72
L = 315.36
E = 2.17
R = 5729.58
Normal Crown
CITY OF MARION
P.O.T. Sta. 1173+33.88
SURVEY
P.C. Sta. 1175+42.28 O.R.
P.I. Sta. 1178+57.64 O.R.
Bjornson Invest Inc. (100)
Elza R. Potter (Estate)
Harry Potter (Exec)
(42)
Atlas Limited Partnership (100B)
P.O.T. Sta. 1187+45.46 S.R.- O.R.
= P.O.T. Sta. 186+90.88 M.L.
William Kina Jr. (100A)
185
State of Iowa
RAPIDS TWP
T-83N R-7W
SEC. 12
Research Center (42A)
Predetermined Access Locations
Sta 1180+05.8 (OR) Lt & Rt
Sta 1193+36 (OR) Lt & Rt
F.S. Investment Inc. (42B)
P.I. Sta. 1199+91.32 O.R.
P.I. Sta. 1201+36.71
SURVEY
P.T. Sta. 1202+46.91
SURVEY
Stanley & Dorothy Potter (49)
P.I. Sta. 1177+00.00 O.R.
Sta. 1176+88.9
30" ø x 71.7'
Conc. pipe
D.A. = 7 Ac R.
Extend ~~Lt~~ & Rt w/RF-1 & RF-13
FL = Lt = 817.5
Rt = 826.4
Other = 822.1
P.I. Sta. 1180+05.80
SURVEY, 4" Clay
Δ = 0°28'33" Lt.
Temp Case
See Sheet E.07 for Entrance Details
EAST POST RD = APPROX. SEC. LINE AND CORP. LINE
CITY OF MARION
(48) CHARLES W. ENSLEY
Sta. 1181+90.6
42" ø x 74.2'
Skewed Conc. pipe
D.A. = 35 Ac H.
Extend ~~Lt~~ & Rt 42" RF-1
FL = Lt = 821.6
Rt = 825.0
Skew 10° Lt Ad.
Type M Dike
100 Lt. 836.5
A.C. PARKING
190 COMM BLDG
P.O.T. Sta. 1190+92.7
= P.O.T. Sta. 189+58.7
64' AC Cnt
3' Earth Shlr.
See Sheet E.08 for Entrance Details
P.O.T. Sta. 1187+42.31 S.R.- SUR.
= P.O.T. Sta. 187+42.31 M.L.
Install 24" RF-1
@ Sta 1189+00 (OR)
DA = 5.0
FL = Lt = 832.0
Rt = 835.0
(104) GRACE BAPTIST CHURCH
Install 24" RF-1
@ Sta 1198+10 (OR)
Lt = 819.0
FL = Rt = 817.8
Skew 10° Rt Ahd
Survey Curve Data
Δ = 32°33'23"
D = 16°00'
T = 116.28'
L = 228.48'
E = 19.03'
R = 358.10'
P.C. Sta. 1196+77.14 O.R.
OR Curve Data
Δ = 39°14'03.12" Rt
D = 6°30'
T = 314.115'
L = 603.60'
E = 54.316'
R = 881.434
e = .080
P.O.T. Sta. 1200+00.95
SURVEY
P.C. Sta. 1200+18.43
SURVEY
MARION TWP
T-83N R-6W
SEC. 7
EQUATION (OR)
P.T. Sta. 1202+80.75
= P.O.T. Sta. 1202+58.8 (Sur)
P.O.S.T. Sta. 1200+33.10
SURVEY
See Sheet E.03B for Details
See Sheet E.03 for Detour
See Sheet F.01 for Detour
Proposed East Post Road
UTILITY LEGEND
IOWA ELEC. LIGHT & POWER
IOWA-ILLINOIS GAS & ELEC. CO.
IOWA ELEC. LIGHT & POWER
U.S. WEST DIRECT
U.S. WEST DIRECT
CITY OF MARION
CITY OF MARION SANITARY SEWER
SCALE
0 100
Stage 1
Stage 2
Stage 3
Begin Construction
@ Sta 1174+00 El. 832.68
Note: Working Profile is Form Grade @ Back Curb
Meet Edge of Existing AC-185' Rt of ML (OR)
@ Sta 1190+65
See X-Sec
Sta 93+16-185' Rt of ML (OR)
Meadow View Drive
Meet Exist
Curb & Gutter
Street
ROAD DESIGN • CADD • PRODUCED
STATE OF IOWA
FHWA REGION 7
FISCAL YEAR
LINN
COUNTY
PROJECT NUMBER
NHS-100-1(23)--19-57
SHEET NUMBER
E.03A

P. 41

P.I. Sta. 1199+91.32 O.R.

This Contract will Stop Grading @ Sta 1200+00(OR)
Grade and Pave Ahead with Paving Plan.

℄ East Post Rd OR ℄

P.O.S.T. Sta 1200+33.15(Sur)
= PI Sta 2200+32.83(Meadow View Dr.)

P.O.C. Sta 1200+44.69(OR)
= P.O.T. Sta 2199+96.62
OR Meadow View Drive

PI Sta 10+71.48(Det)
= P.O.T. Sta 1200+71.48(Sur)

P.I. Sta. 1201+36.71
SURVEY

P.T. Sta. 1202+46.91
SURVEY

Sta 1200+17.85(OR) 21' Rt
Beg. 25' Rad.

Survey ℄

Sta 2200+32.90 13.5' Rt
End 25' Rad.

Detour ℄

Begin Detour
P.C. Sta 9+76.49(Det.)
= P.O.T. Sta 1199+76.49(Sur)

P.O.T. Sta. 1200+00.95
SURVEY

Survey Curve Data
Δ = 36° 33' 23"
D = 16° 00'
T = 118.28'
L = 228.46'
E = 19.03'
R = 358.10'

Detour Curve Data
Δ = 29° 42' 49.02"
D = 16° 00'
T = 94.99'
L = 185.71'
E = 12.39'
R = 358.10'

P.C. Sta. 1200+18.43
SURVEY

Remove

Remove & Replace

Sta 1201+03.82(OR) 21' Rt
End 25' Rad

Sta 2200+59.44 13.5' Lt
Begin 25' Rad.

P.O.S.T. Sta. 1200+33.10
SURVEY

P.O.C. Sta 1200+33.14(Sur)
= P.O.T. Sta 2200+33.14
Meadow View Drive

P.T. Sta 11+62.20 (Det)
= Sta 1201+65.62 (Sur)

Remove & Replace Sidwalk
Sta 1202+00(OR) to Sta 1202+69(OR)

Curve Data-O.R.
Δ = 39° 14' 3.12" Rt.
D = 6° 30' 00"
T = 314.17
L = 603.60
E = 54.32
R = 881.47

EQUATION
P.T. Sta. 1202+80.75 O.R. BACK
= P.C.T. Sta. 1202+58.80 SURVEY AHEAD
End Construction

End Detour
Sta 13+93.30 (Det)
= Sta 1204+00.00 (Sur)

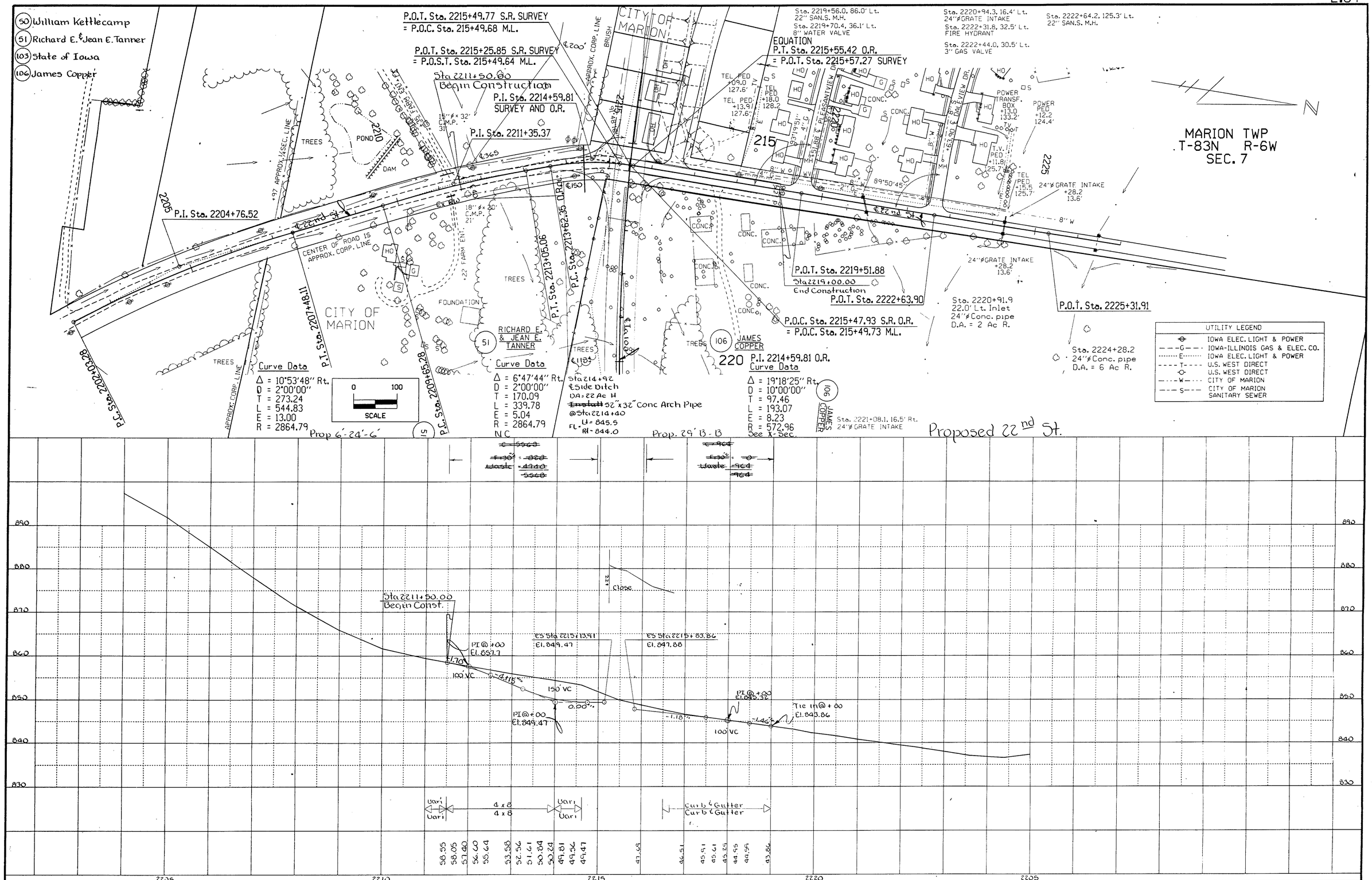
Blow-Up of North End of East Post Road.
Scale 1" = 20'

See Sheet E.03A for Details of East Post Rd
See Sheet F.03 for Details of Detour

TREES AND BRUSH

ROAD DESIGN • CADD • PRODUCED	STATE OF IOWA	FHWA REGION 7	FISCAL YEAR	Linn COUNTY	PROJECT NUMBER NHS-100-1(23)--19-57	SHEET NUMBER E.03 B

P.42 of


(50) William Kettlecamp
(51) Richard E. & Jean E. Tanner
(103) State of Iowa
(106) James Copper
P.O.T. Sta. 2215+49.77 S.R. SURVEY
= P.O.C. Sta. 215+49.68 M.L.
P.O.T. Sta. 2215+25.85 S.R. SURVEY
= P.O.S.T. Sta. 215+49.64 M.L.
Sta 2211+50.00
Begin Construction
P.I. Sta. 2214+59.81
SURVEY AND O.R.
P.I. Sta. 2211+35.37
P.I. Sta. 2204+76.52
CITY OF MARION
EQUATION
P.T. Sta. 2215+55.42 O.R.
= P.O.T. Sta. 2215+57.27 SURVEY
Sta. 2219+56.0, 86.0' Lt.
22" SAN.S. M.H.
Sta. 2219+70.4, 36.1' Lt.
8" WATER VALVE
Sta. 2220+94.3, 16.4' Lt.
24"ø GRATE INTAKE
Sta. 2222+31.8, 32.5' Lt.
FIRE HYDRANT
Sta. 2222+44.0, 30.5' Lt.
3" GAS VALVE
Sta. 2222+64.2, 125.3' Lt.
22" SAN.S. M.H.
MARION TWP
T-83N R-6W
SEC. 7
P.O.T. Sta. 2219+51.88
Sta 2219+00.00
End Construction
P.O.T. Sta. 2222+63.90
P.O.C. Sta. 2215+47.93 S.R. O.R.
= P.O.C. Sta. 215+49.73 M.L.
Sta. 2220+91.9
22.0' Lt. Inlet
24"ø Conc. pipe
D.A. = 2 Ac R.
P.O.T. Sta. 2225+31.91
Sta. 2224+28.2
24"ø Conc. pipe
D.A. = 6 Ac R.
UTILITY LEGEND
IOWA ELEC. LIGHT & POWER
IOWA-ILLINOIS GAS & ELEC. CO.
IOWA ELEC. LIGHT & POWER
U.S. WEST DIRECT
U.S. WEST DIRECT
CITY OF MARION
CITY OF MARION SANITARY SEWER
Curve Data
Δ = 10°53'48" Rt.
D = 2°00'00"
T = 273.24
L = 544.83
E = 13.00
R = 2864.79
Prop 6'-24'-6'
Curve Data
Δ = 6°47'44" Rt.
D = 2°00'00"
T = 170.09
L = 339.78
E = 5.04
R = 2864.79
NC
Sta 2214+92
℄ Side Ditch
DA = 22 Ac H.
~~Install~~ 32"x32" Conc Arch Pipe
@ Sta 2214+40
U = 845.5
FL - RI - 844.0
Prop. 29' B - B
P.I. 2214+59.81 O.R.
Curve Data
Δ = 19°18'25" Rt.
D = 10°00'00"
T = 97.46
L = 193.07
E = 8.23
R = 572.96
See X-Sec.
Sta. 2221+08.1, 16.5' Rt.
24"ø GRATE INTAKE
Proposed 22nd St.
Sta 2211+50.00
Begin Const.
PI @ +00
El. 851.7
100' VC
150' VC
PI @ +00
El. 849.47
ES Sta 2215+13.91
El. 849.47
ES Sta 2215+83.86
El. 847.88
PI @ +00
El. 845.36
Tie In @ +00
El. 843.86
100' VC
Vari
4 x 8
Curb & Gutter
58.55 58.05 57.40 56.60 55.64 53.58 52.56 51.61 50.84 50.24 49.81 49.56 49.47 47.69 46.51 45.91 45.61 45.29 44.95 44.59 43.86
2205 2210 2215 2220 2225
ROAD DESIGN • CADD • PRODUCED
STATE OF IOWA
FHWA REGION 7
FISCAL YEAR
LINN COUNTY
PROJECT NUMBER
NHS-100-1(23)--19-57
SHEET NUMBER
E.04

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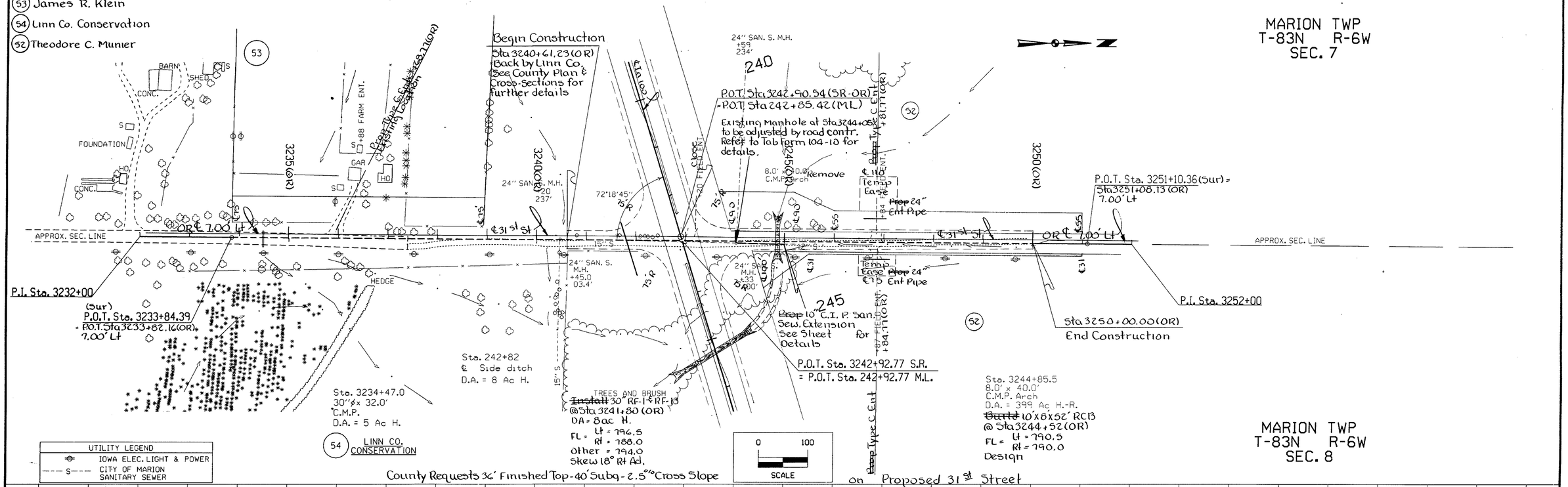
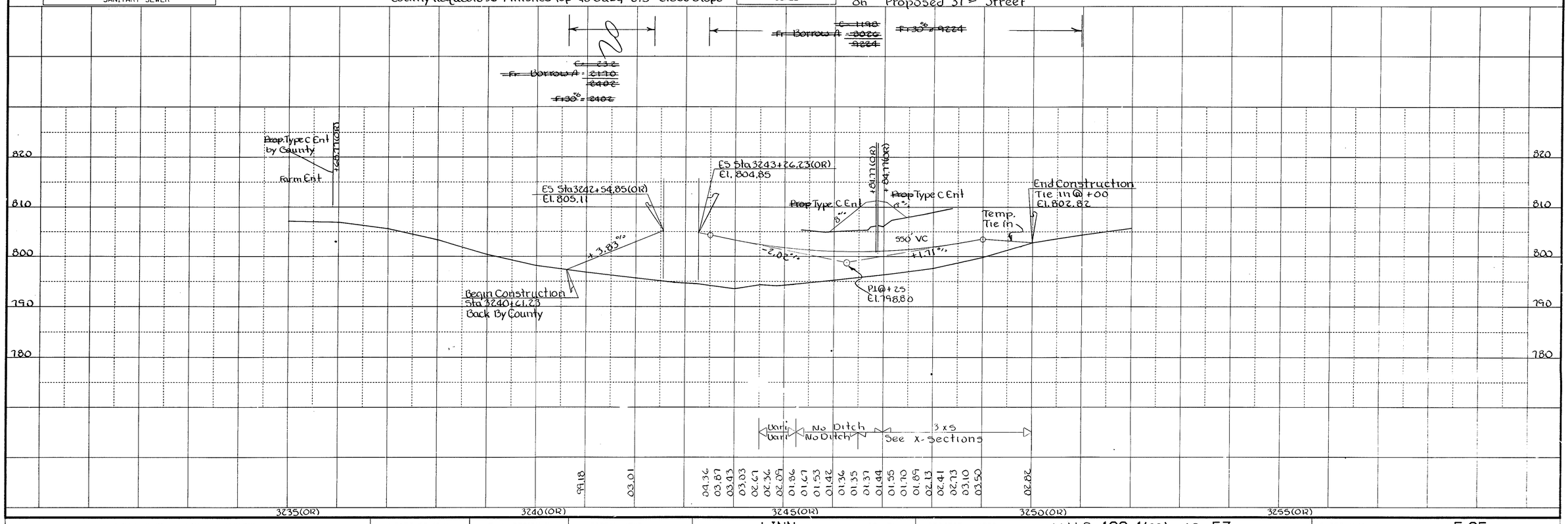
(53) James R. Klein
(54) Linn Co. Conservation
(52) Theodore C. Munier

MARION TWP
T-83N R-6W
SEC. 7



MARION TWP
T-83N R-6W
SEC. 8

County Requests 36' Finished Top - 40' Subg - 2.5% Cross Slope on Proposed 31st Street



ROAD DESIGN • CADD • PRODUCED	STATE OF IOWA	FHWA REGION 7	FISCAL YEAR	LINN COUNTY	PROJECT NUMBER NHS-100-1(23)--19-57	SHEET NUMBER E.05

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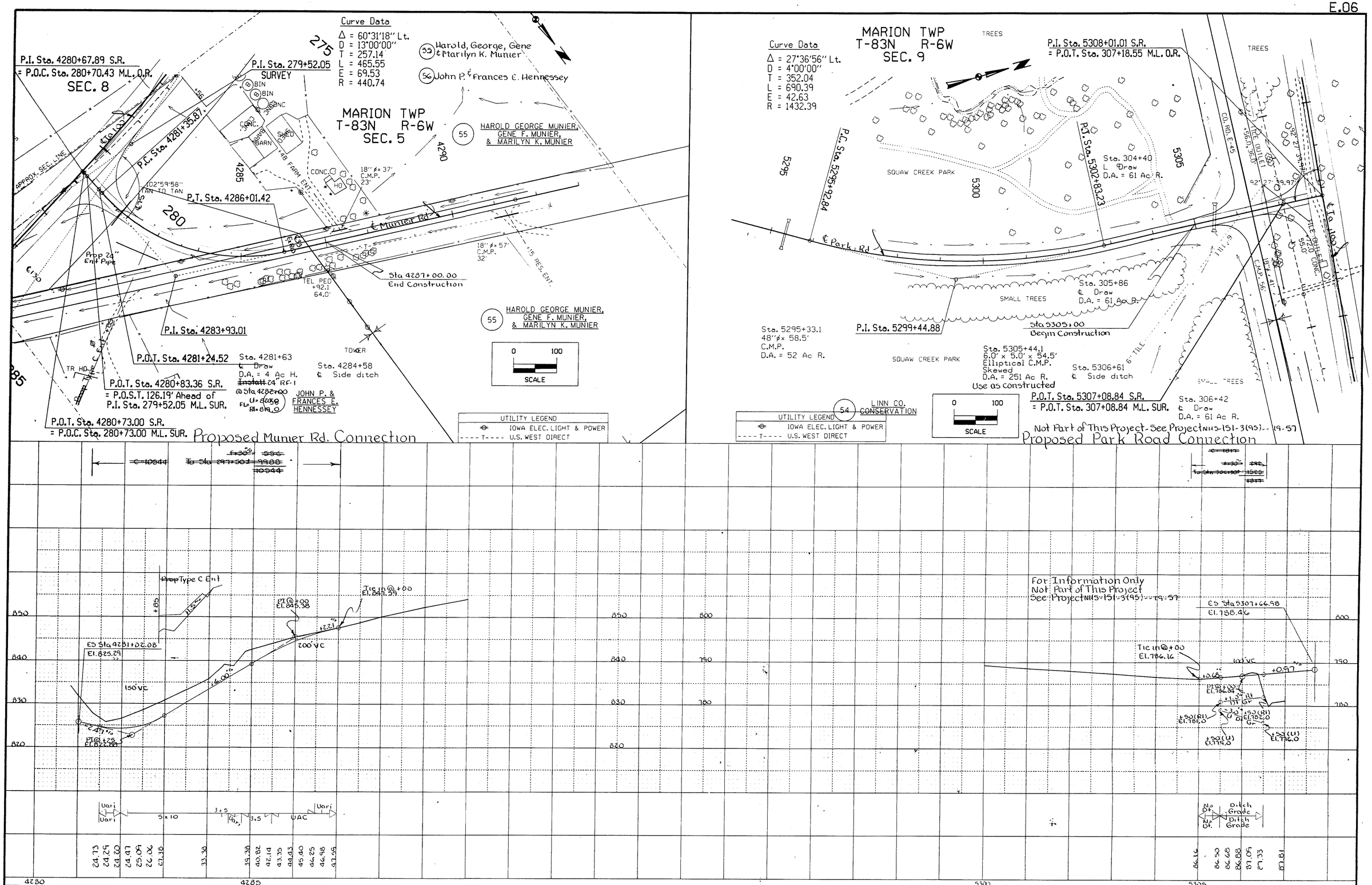
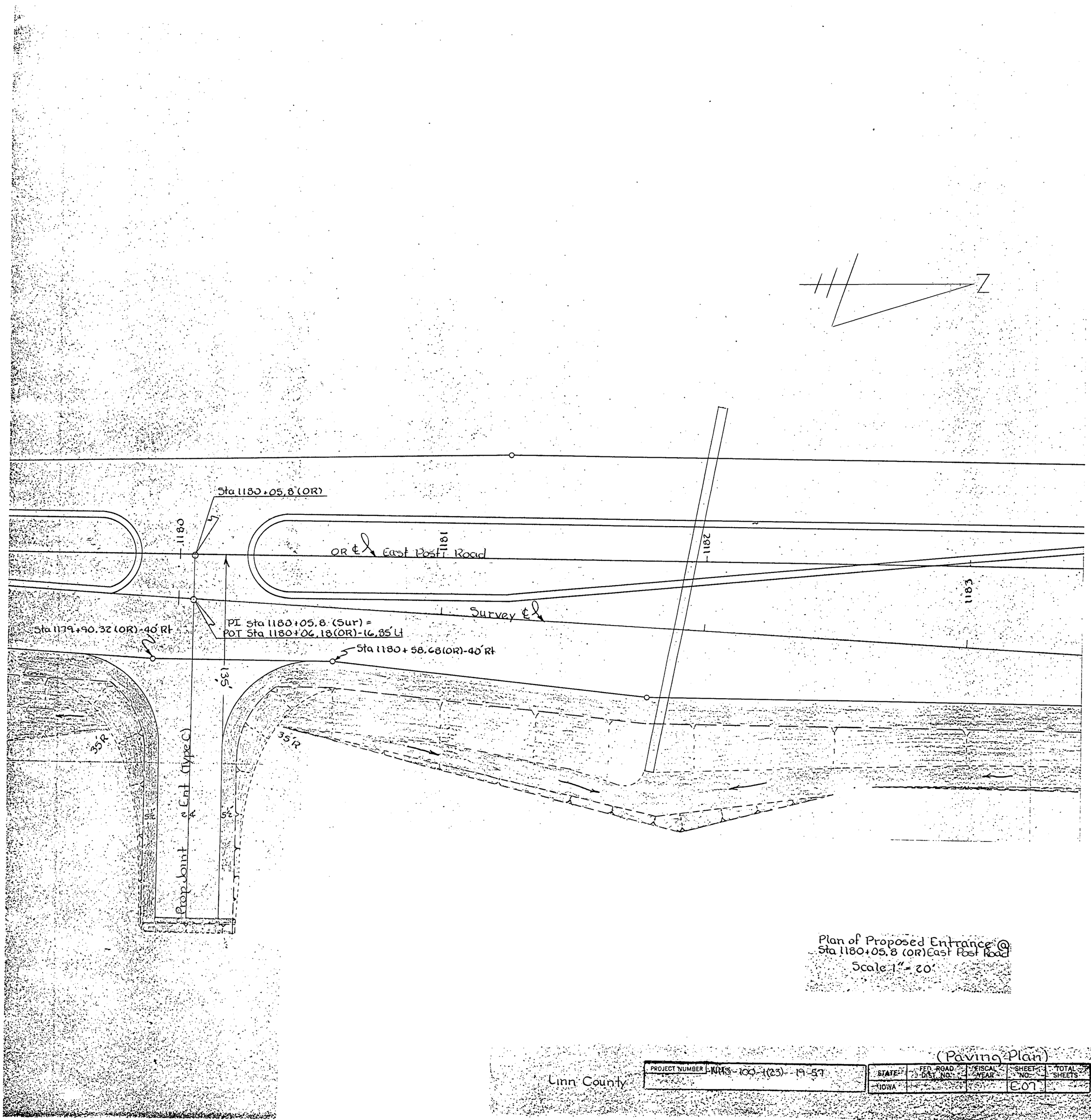

Curve Data
Δ = 60°31'18" Lt.
D = 13°00'00"
T = 257.14
L = 465.55
E = 69.53
R = 440.74
P.I. Sta. 4280+67.89 S.R.
= P.O.C. Sta. 280+70.43 M.L. O.R.
SEC. 8
P.I. Sta. 279+52.05
SURVEY
Harold, George, Gene & Marilyn K. Munier
John P. & Frances E. Hennessey
MARION TWP
T-83N R-6W
SEC. 5
HAROLD GEORGE MUNIER, GENE F. MUNIER, & MARILYN K. MUNIER
P.C. Sta. 4281+35.87
102°59'58" TAN TO TAN
P.T. Sta. 4286+01.42
℄ Munier Rd.
Prop 24" End Pipe
Sta 4287+00.00
End Construction
P.I. Sta. 4283+93.01
P.O.T. Sta. 4281+24.52
Sta. 4281+63
℄ Draw
D.A. = 4 Ac. R.
Sta. 4284+58
℄ Side ditch
P.O.T. Sta. 4280+83.36 S.R.
= P.O.S.T. 126.19' Ahead of
P.I. Sta. 279+52.05 M.L. SUR.
JOHN P. & FRANCES E. HENNESSEY
P.O.T. Sta. 4280+73.00 S.R.
= P.O.C. Sta. 280+73.00 M.L. SUR.
Proposed Munier Rd. Connection
UTILITY LEGEND
IOWA ELEC. LIGHT & POWER
U.S. WEST DIRECT
SCALE
MARION TWP
T-83N R-6W
SEC. 9
Curve Data
Δ = 27°36'56" Lt.
D = 4°00'00"
T = 352.04
L = 690.39
E = 42.63
R = 1432.39
P.I. Sta. 5308+01.01 S.R.
= P.O.T. Sta. 307+18.55 M.L. O.R.
TREES
SQUAW CREEK PARK
P.C. Sta. 5295+92.84
P.T. Sta. 5302+83.23
Sta. 304+40
L Draw
D.A. = 61 Ac. R.
℄ Park Rd.
Sta. 305+86
℄ Draw
D.A. = 61 Ac. R.
SMALL TREES
Sta. 5295+33.1
48"ø x 58.5'
C.M.P.
D.A. = 52 Ac. R.
P.I. Sta. 5299+44.88
Sta 5305+00
Begin Construction
Sta. 5305+44.1
6.0' x 5.0' x 54.5'
Elliptical C.M.P.
Skewed
D.A. = 251 Ac. R.
Use as Constructed
Sta. 5306+61
℄ Side ditch
P.O.T. Sta. 5307+08.84 S.R.
= P.O.T. Sta. 307+08.84 M.L. SUR.
Sta. 306+42
℄ Draw
D.A. = 61 Ac. R.
LINN CO. CONSERVATION
Not Part of This Project - See Project NHS-151-3(95)--19-57
Proposed Park Road Connection
For Information Only
Not Part of This Project
See Project NHS-151-3(95)--19-57
Type C Ent
PT @ +00
El. 845.38
Tie in @ +00
El. 847.35
ES Sta 4281+02.08
El. 825.29
200' VC
150' VC
PT @ +25
El. 822.88
ES Sta 5307+66.98
El. 788.46
Tie in @ +00
El. 786.16
100' VC
PT @ +00
El. 786.84
+50 (RI)
El. 781.0
+50 (LI)
El. 779.0
+50 (RI)
El. 785.0
+50 (LI)
El. 776.0
Vari
5x10
3x5
UAC
No Dt.
Ditch Grade
4280
4285
5300
5305
ROAD DESIGN • CADD • PRODUCED
STATE OF IOWA
FHWA REGION 7
FISCAL YEAR
LINN
COUNTY
PROJECT NUMBER
NHS-100-1(23)--19-57
SHEET NUMBER
E.06

P.45



Plan of Proposed Entrance @
Sta 1180+05.8 (OR) East Post Road
Scale 1" = 20'

(Paving Plan)

Linn County

PROJECT NUMBER	STATE	FED. ROAD DIST. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
RPMS-100-1(23)--19-57	IOWA			E.07	

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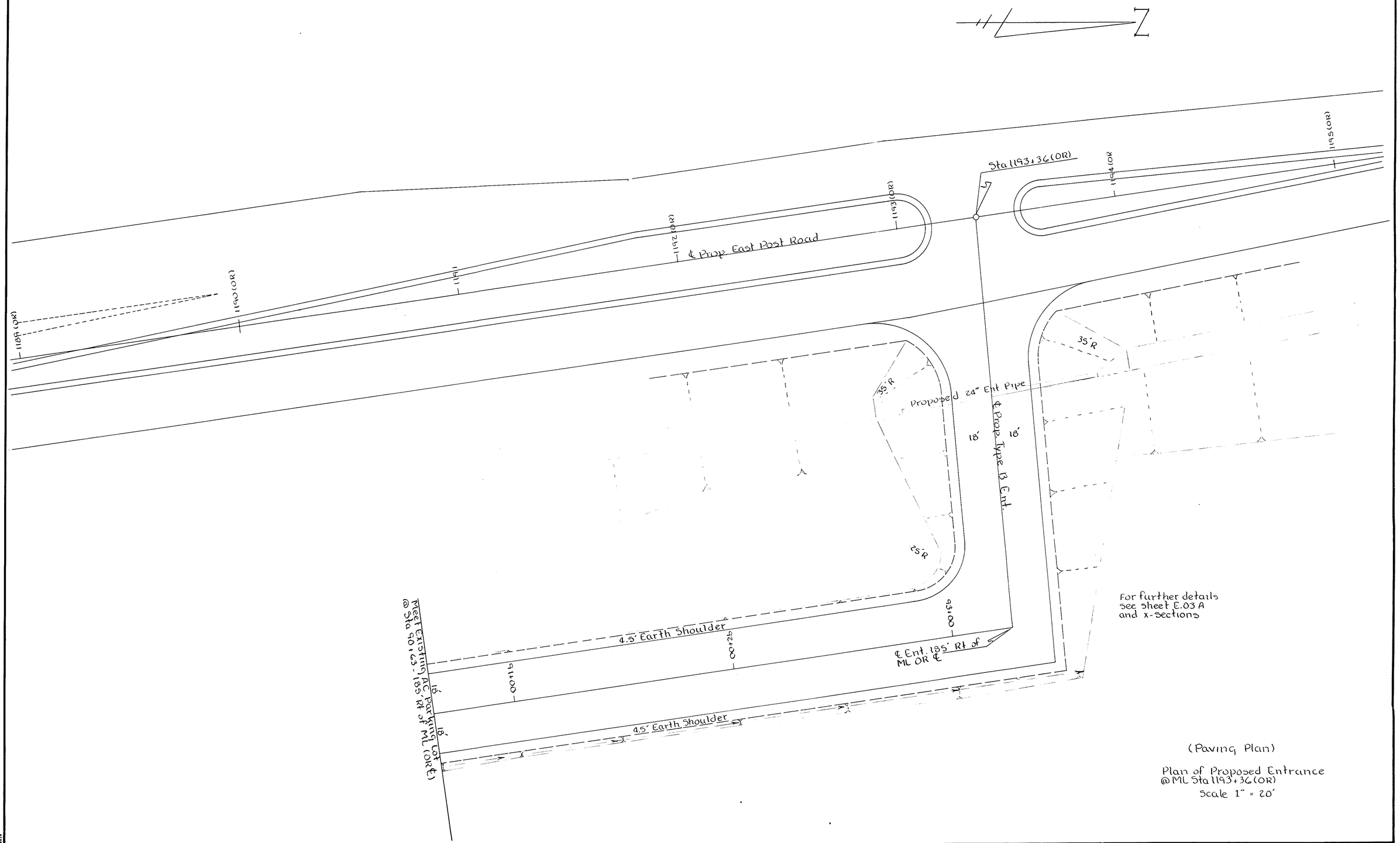


For further details
see sheet E.03 A
and x-Sections

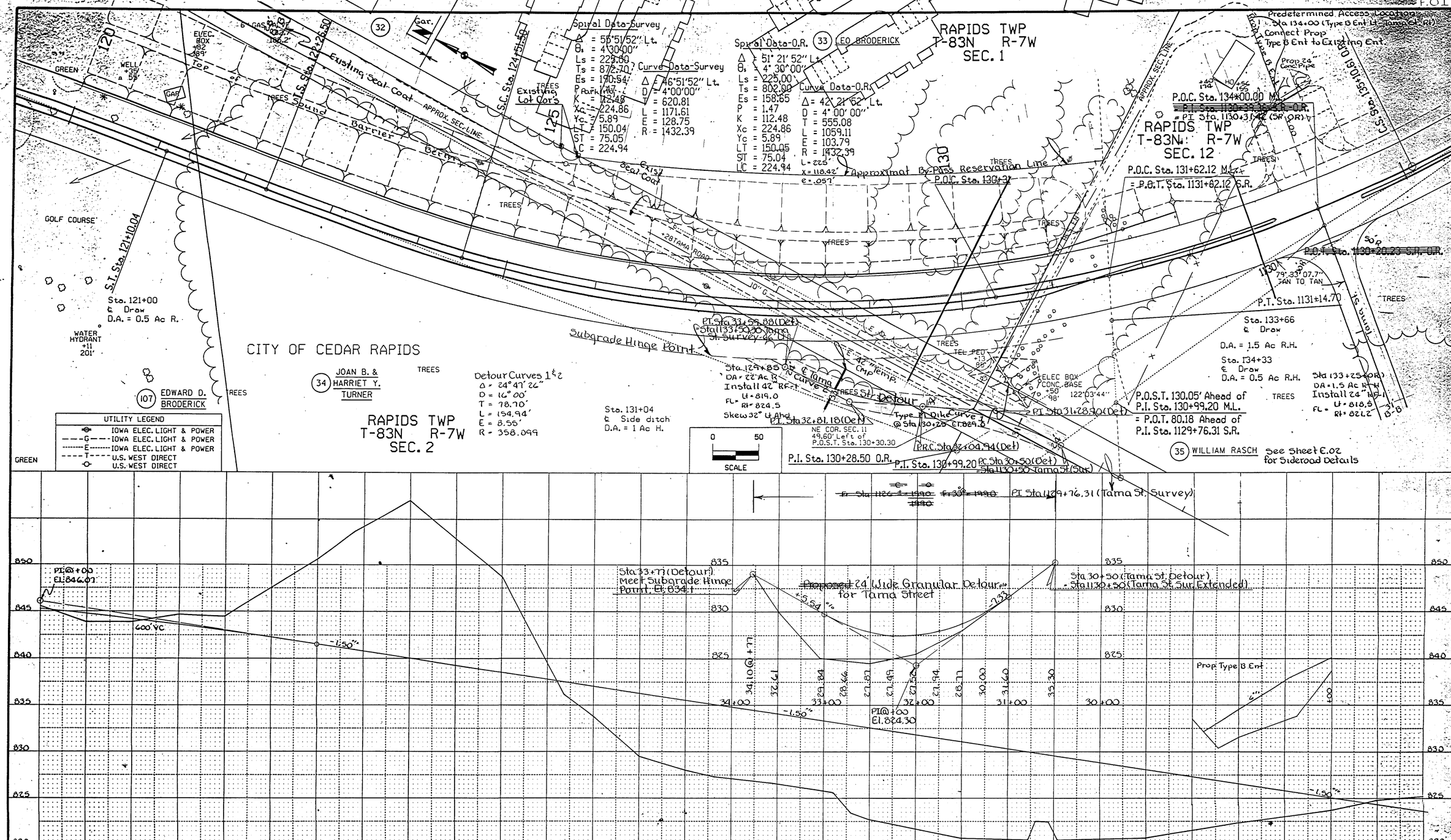
(Paving Plan)

Plan of Proposed Entrance
@ ML Sta 1193+36 (OR)
Scale 1" = 20'

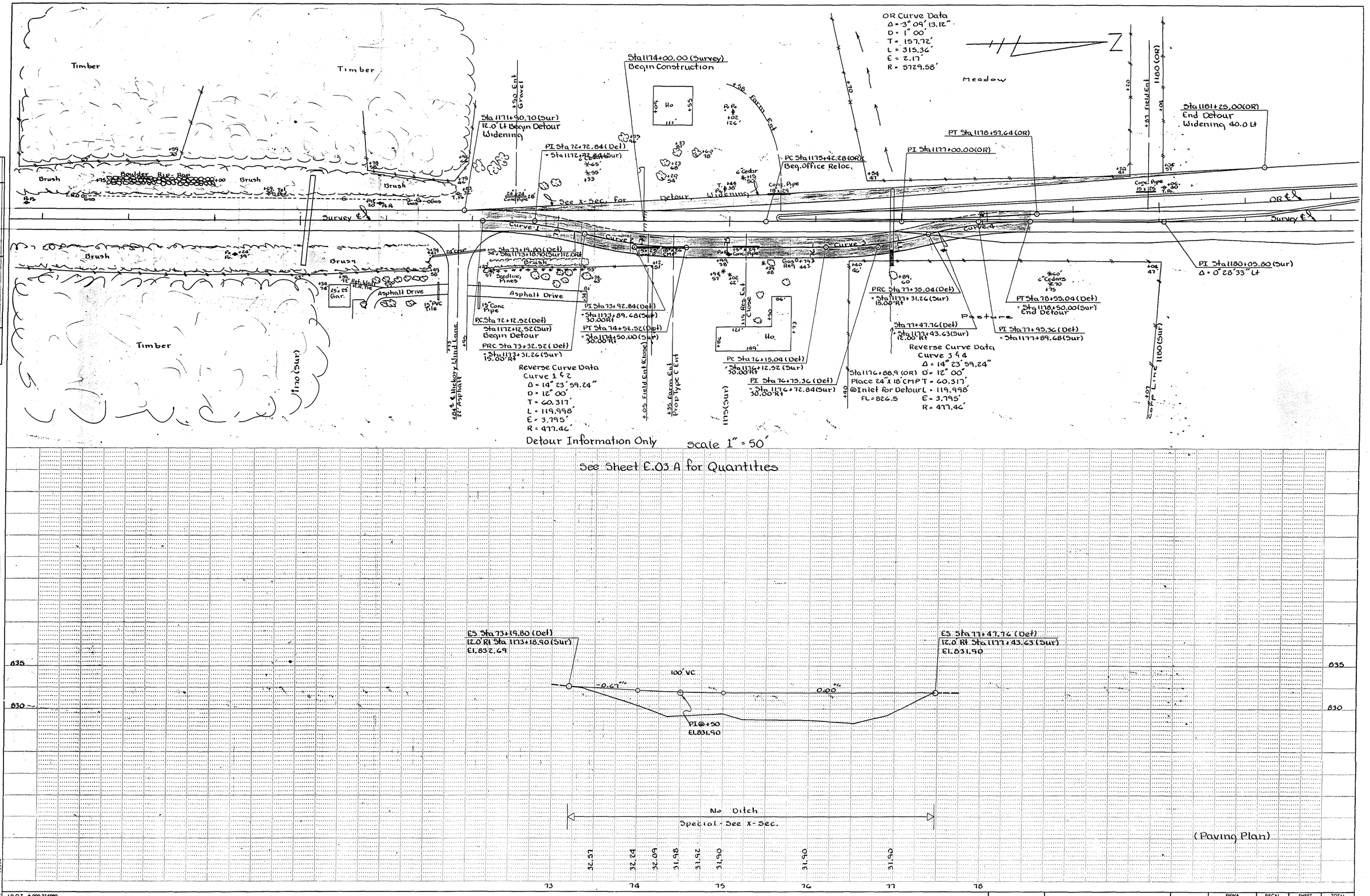
IDOT #000-316920	Linn COUNTY	PROJECT NUMBER	STATE	FHWA Region	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
		NHS-100-1(23)--19-57	IOWA	7		E.08	

D4

P.42



ROAD DESIGN • CADD • PRODUCED	STATE OF IOWA	FHWA REGION 7	FISCAL YEAR	LINN COUNTY	PROJECT NUMBER NHS-100-1(23)--19-57	SHEET NUMBER F.01



PLAN — SURVEYED, PLOTTED, ALIGNMENT CHECKED, RT. OF WAY CHECKED, NOTE BOOK NO., BY, DATE

PROFILE — SURVEYED, PLOTTED, GRADES CHECKED, GRADES NOTED, STRUCTURE NOTAT'NS CH'KD, NOTE BOOK NO., BY, DATE

65300 BRUNING

I.D.O.T. # 000-316980

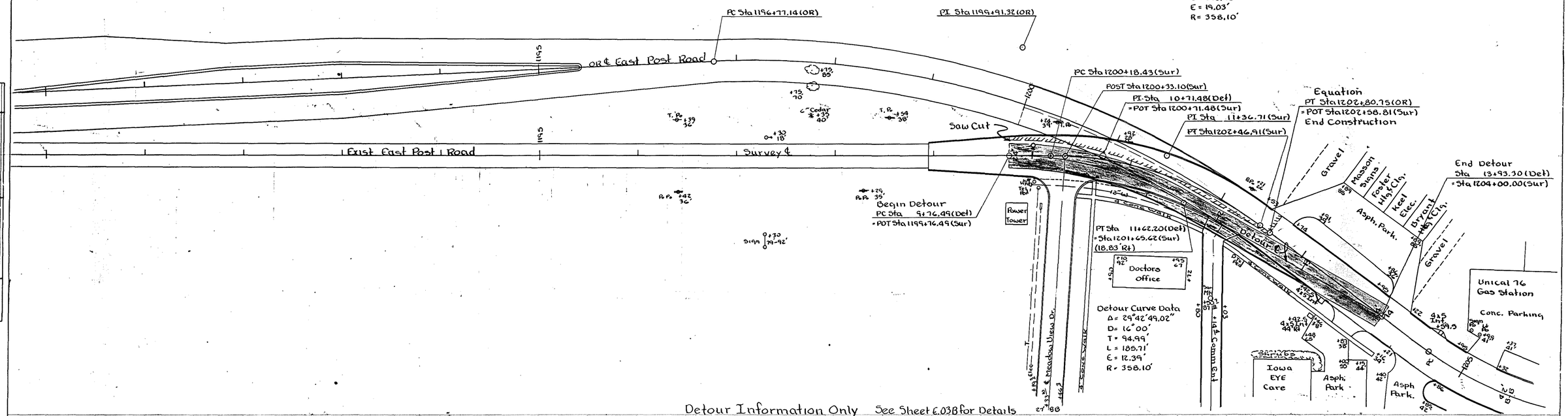
Linn COUNTY

PROJECT NUMBER	STATE	FHWA Region	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
NHS-100-1(23)--19-57	IOWA	7		F.02	

P.49

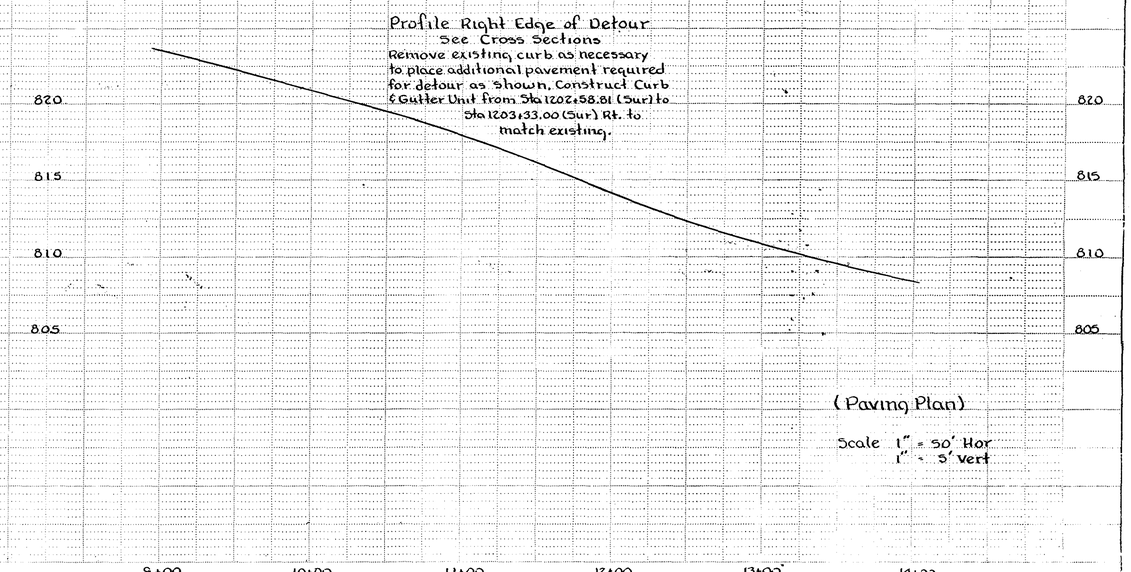
OR Curve Data
Δ = 39° 14' 03.12"
D = 6° 30'
T = 314.175'
L = 603.60'
E = 54.316'
R = 881.474'
e = 0.20

Survey Curve Data
Δ = 36° 33' 23"
D = 16° 00'
T = 118.28'
L = 228.48'
E = 19.03'
R = 358.10'



Detour Information Only See Sheet E.03B for Details

See Sheet E.03A for Quantities



(Paving Plan)

Scale 1" = 50' Hor
1" = 5' Vert

PLAN	DATE	BY
SURVEYED		
PLOTTED		
ALIGNMENT CHECKED		
RT. OF WAY CHECKED		
NOTE BOOK NO.		

PROFILE	DATE	BY
SURVEYED		
PLOTTED		
GRADES CHECKED		
RT. OF WAY CHECKED		
STRUCTURE NOTAT'NS CH'KD		
NOTE BOOK NO.		

BRUNING 65-500

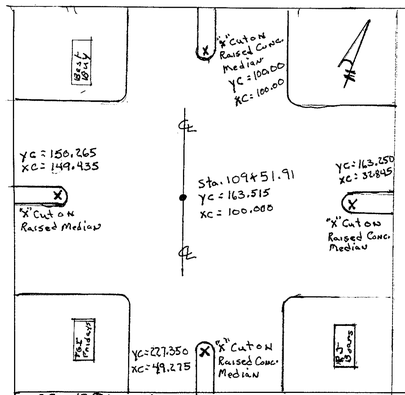
I.D.O.T. # 000-316980

Linn COUNTY

PROJECT NUMBER	STATE	FHWA Region	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
NHS-100-1(23)--19-57	IOWA	7		F.03	

P.50 D4

POT 109+51.91 Nail in ACC.



T.S. Sta. 111+87.18
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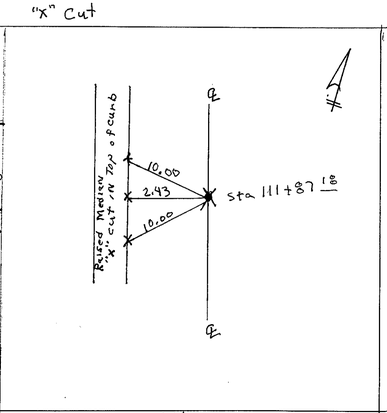

S.C. 114+12.18
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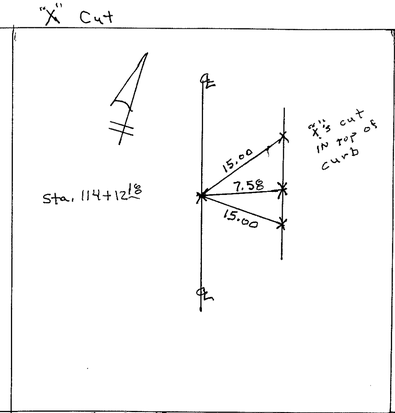
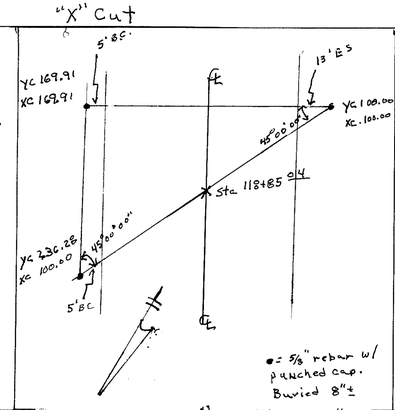
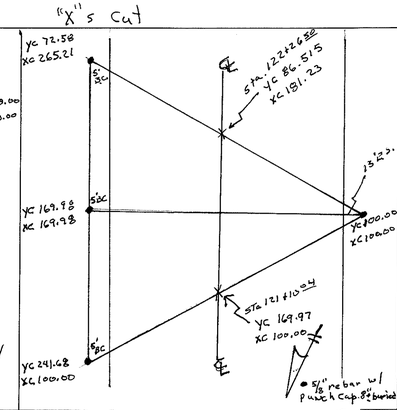


C.S. 118+85.04
"X" Cut



ST 121+10.04 & TS 122+26.50
"X"s Cut



S.C. 124+51.50
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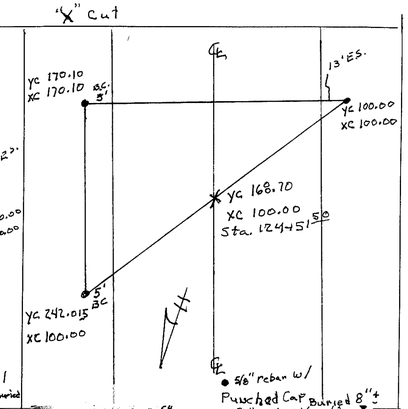
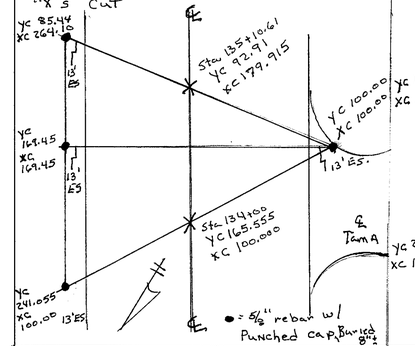


C.S. 135+10.61
POC 134+00 = PI 1130+31.42 SR. O.R.
"X"s Cut



S.T. 137+35.61
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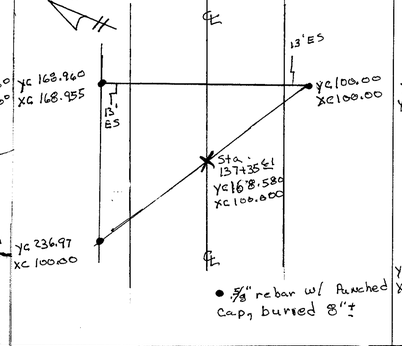
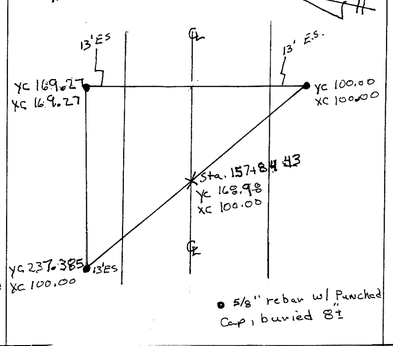
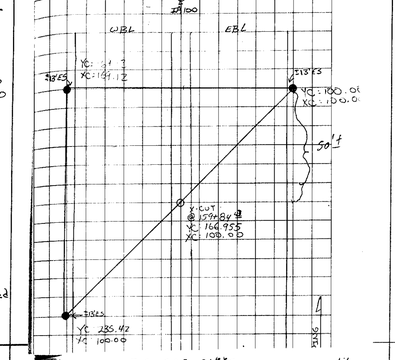


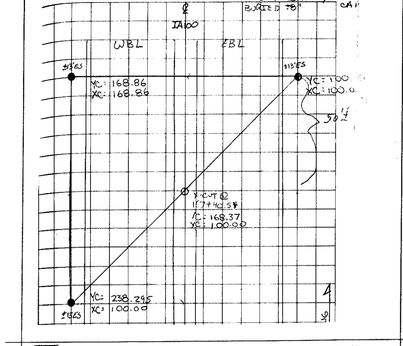
T.S. 157+84.43
"X" Cut



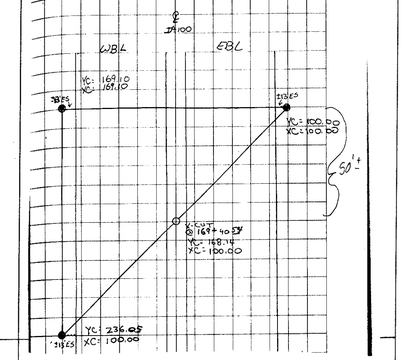
S.C. 159+84.43



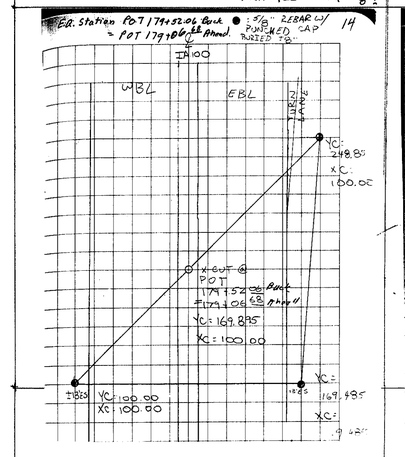
C.S. 167+40.54



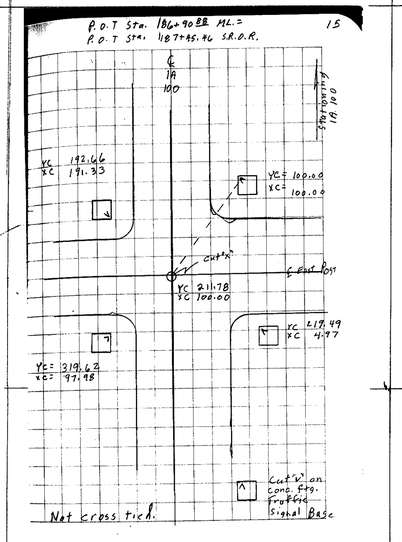
S.T. 169+40.54



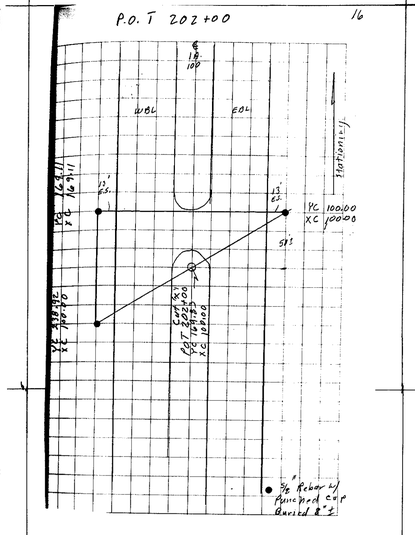
ER. Station POT 179+52.06 Rock = POT 179+86.68 Pavement



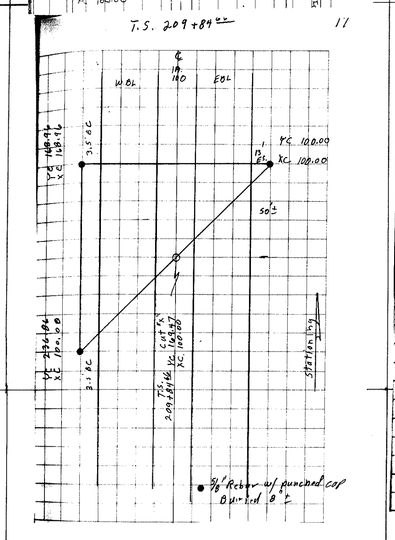
P.O.T Sta. 186+90.88 M.L. =
P.O.T Sta. 187+45.46 S.R.O.R.



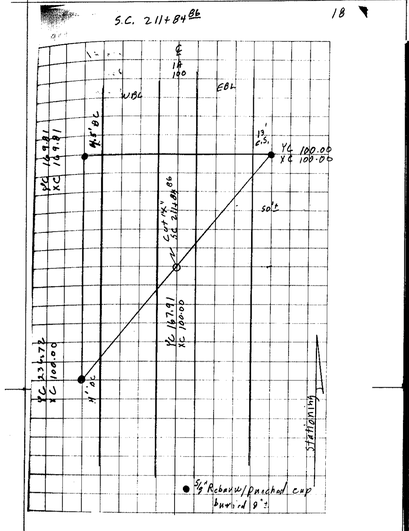
P.O.T 202+00



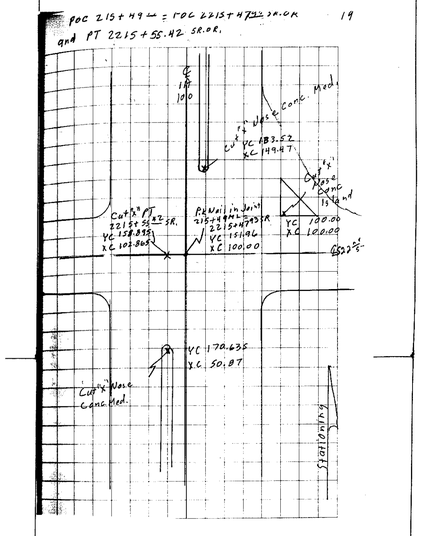
T.S. 209+84.00



S.C. 211+84.86

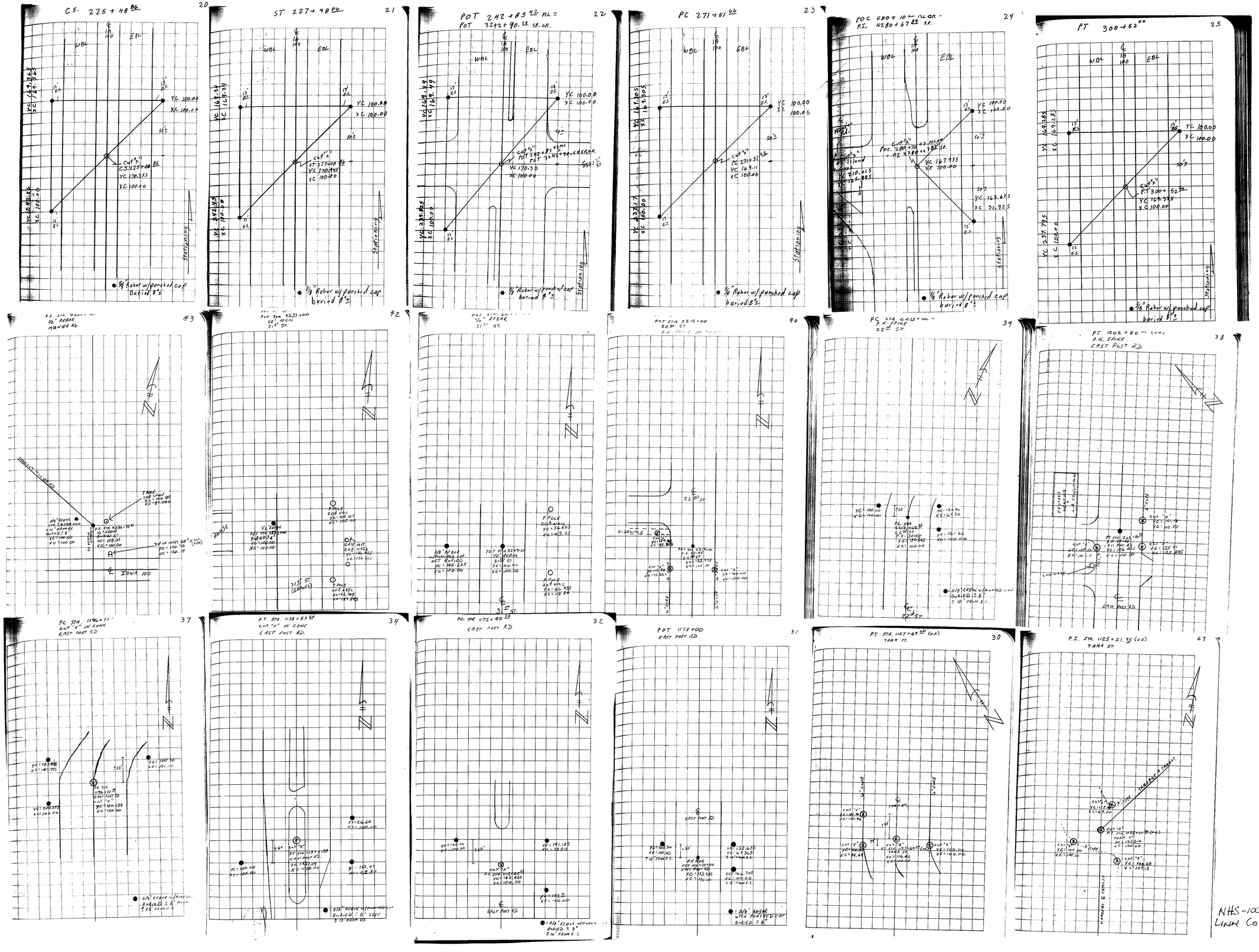


POC 215+49.00 = POC 2215+47.22 S.R.O.R.
and PT 2215+55.42 S.R.O.R.



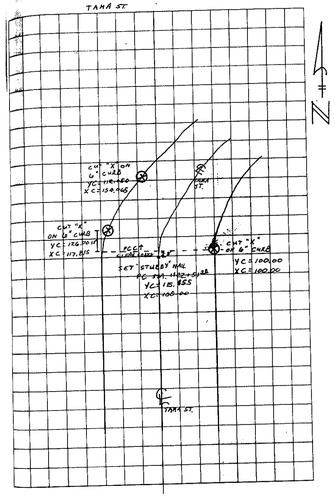
G.01

P-51

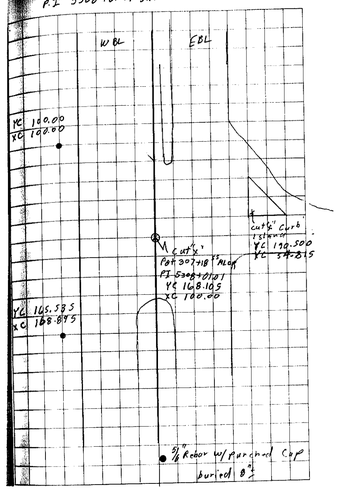


NHS-100-1(23)-1957 G.02
LINN COUNTY P.52

PC STA 1122 + 51.08 (OR).
POT STA 1122 + 51.88 (SW)



POT 307+18.55 ML OR =
P.I 5308+01.01 SR.



804.10	362+95.9 Hwy 151 100' RT Iowa DOT Brass Plug Top Center Hdwl RCB
812.05	370+75± Hwy 151 RT RR Spike Power Pole N.E. Quadrant intersection
791.94	310+00 90' LT RR SPIKE PP.
783.59	301+00 75' LT Iowa DOT brass plug Center N. Hdwl RCB
815.11	284+15± 104' RT 60± spike in No. side corner Post
811.61	271+51.66 130' LT Top ROW Pin
795.66	260+78.88 130' LT Top ROW pin
799.95	245+26± 75'± LT Iowa DOT Brass plug Top Center Hdwl RCB
815.56	232+60± 125'± LT 60± Spike 12" ⌀ tree
830.61	222+25± 60'± LT "□" cut top 15" Conc. Apron
874.02	213+00± 150'± RT Cut "X" Top Conc. ftg. Steel Power Pole
889.20	207+25± 150'± RT Cut "X" Top Conc. ftg. Steel Power Pole
895.03	201+50± 135'± RT Cut "X" Top Conc. ftg. Steel power Pole
878.42	195+42 133.48 RT. Cut "X" Top Conc. ftg Steel Power Pole.
850.31	1190+64± 141.98 RT. SE. bolt Fire Hyd. East Side East Post Rd. Pattern Flange.
839.51	186+05± 66± LT. Cut "□" N.W. Corner Hwy 100 + East Post Rd. on So. side Conc. ftg. for Signals

807.75	168+73± 147.6 RT Iron Pin w/ Fence Post on ROW line.
787.60	156+63.8 45± RT Iowa DOT Brass Plug Top NE Wing Wall Bridge
789.57	152+34± 44± RT Iowa DOT Brass Plug Top SW Wing Wall Bridge
812.02	143+85± 106± LT RR Spike So. Side 12" ⌀ Maple Tree.
826.78	129+60± 135± RT 60± Spike Power Pole West side Tama St.
851.13	143+47± 56.5' RT "X" cut Top Conc. Light Base S.E. Corner TCI's parking Lot.

DATUM INFORMATION:

1989 Survey
The datum plane for this survey is the same as that of U.S.C.&G.S. Datum and also the same as:
Project No.: F-151-3(900)--20-57 (1980-1981 Survey)
Project No.: F-151-3(18)--20-57 (1982 Survey)

1980 - 1981 Survey
The datum plane for this survey is identical with U.S.C.&G.S. Datum.

Equations were made to all other datum planes falling within the bounds of this survey and as follows.

Datum:	
U.S.C.&G.S. B.M. Marion,1934 (This Survey)	Elev. = 850.658=
U.S.C.&G.S. B.M. Marion,1934	Elev. = 850.658=
City of Marion Datum	Elev. = 850.66
B.M.#1 This Survey	Elev. = 805.140=
T.B.M.#3 U-151-1(18)--40-57 Linn Co., July, 1976 Photo Control	Elev. = 805.140=
City of Cedar Rapids Datum	Elev. = 177.720
B.M.#29 This Survey	Elev. = 796.920=
B.M.#2 City of Marion Sanitary Sewer Datum	Elev. = 797.04
B.M.#37 This Survey	Elev. = 797.062=
B.M.#7 L-N-19 Linn Co. As-Built Plans	Elev. = 796.95=
U.S.C.&G.S. B.M.#57-690	Elev. = 796.95
B.M.#38 This Survey	Elev. = 813.217=
B.M.#31 F-13-1(23)--20-57 Linn Co., Aug.-Nov. 1973 Survey by J.E. Feller	Elev. = 813.217=
U.S.C.&G.S. Datum	Elev. = 813.217

VOI

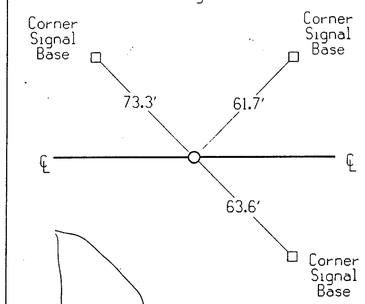
JUNE - JULY, 1989 SURVEY

BENCH MARKS	LOCATION	DESCRIPTION	ELEVATIONS
No. 122	Sta. 109+87~147' Rt.	Found (X) on S. Bolt Top Hydrant	851.53
No. 120	Sta. 119+59~174' Lt.	Found R.R. Spike N. Side Power Pole	847.99
No. 302	Sta. 129+70~117' Rt.	Found R.R. Spike in S.E. Side Power Pole	827.21
No. 303	Sta. 137+66~53' Lt.	Set R.R. Spike in S. Side Power Pole	818.36
No. 304	Sta. 146+91~29' Rt.	Set R.R. Spike in E. Side 24" Basswood	795.50
No. 305	Sta. 152+50~112' Lt.	Set R.R. Spike in W. Side 24" Locust	766.16
No. 306	Sta. 164+40~26' Lt.	Set R.R. Spike in S. Side 15" Elm Lt.	800.42
No. 307	Sta. 174+03~184' Lt.	Found R.R. Spike in Fence Brace Post Lt.	801.49
No. 19	Sta. 182+72~47' Lt.	Found R.R. Spike N. Side Power Pole	838.66
No. 400	Sta. 1125+10~29' Rt.	Cut (X) on S.W. Corner Concrete Electric Base	851.21
No. 402	Sta. 1140+89~24' Lt.	Cut (X) on E. Corner End 4.0' Concrete Walk Lt.	824.05
No. 403	Sta. 1147+83.5~174' Lt.	Cut (X) S.W. Bolt on Hydrant N.W. Corner Armor Drive and Kerry Lane	841.57

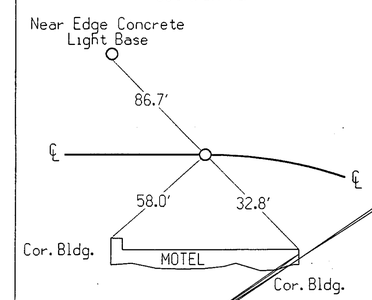
NOV., 1980 TO MARCH, 1981 SURVEY

BENCH MARKS	LOCATION	DESCRIPTION	ELEVATIONS
No. 1	Sta. 6+98.7~37.5' Lt.	Found 'X' on S.W. Bolt Fire Hyd. @ 28 Th. St. S.E. & 1 St. Ave. S.E.	805.140
No. 2	Sta. 10+11~50' Lt.	Cut 'X' on S.W. Bolt Fire Hyd. @ 29 Th. St. S.E. & 1 St. Ave. S.E.	803.495
No. 3	----	Cut 'X' on S.W. Bolt Fire Hyd. @ 30 Th. St. S.E. & 1 St. Ave. S.E.	802.550
No. 4	----	Cut 'X' on N.E. Cor. Abut. of R.R. Overpass Between 30 Th. & 31 St.	810.646
No. 5	----	Cut 'X' on S.W. Bolt Fire Hyd. @ 32 Nd. St. S.E. & 1 St. Ave. S.E.	813.882
No. 6	----	Cut 'X' on S.W. Bolt Fire Hyd. in Front of Julian Machinery Sales	793.866
No. 7	----	Set R.R. Spike in 24" Oak	787.886
No. 8	----	Set R.R. Spike in North Side Power Pole	777.199
No. 9	Sta. 11+35~4' Rt.	Set R.R. Spike in North Side 30" Cottonwood	759.689
No. 10	Sta. 113+60~91' Lt.	Set R.R. Spike in S.W. Side 36" Oak	756.606
No. 11	Sta. 120+21~2' Lt.	Set R.R. Spike in South Side Power Pole	775.999
No. 12	Sta. 133+30~8' Rt.	Found R.R. Spike in North Side Power Pole	769.689
No. 13	Sta. 136+07~160' Lt.	Set R.R. Spike in S.W. Side 24" Oak	760.959
No. 14	Sta. 149+51~79' Rt.	Set R.R. Spike in North Side Power Pole	772.644
No. 15	Sta. 157+19~35' Rt.	Set R.R. Spike in North Side 18" Willow	764.055
No. 16	Sta. 158+92~33' Lt.	Set R.R. Spike in South Side 36" Locust	766.075
No. 17	Sta. 168+68~75' Rt.	Set R.R. Spike in N.E. Side 36" Triple Locust	778.632
No. 18	Sta. 174+12~193' Lt.	Set R.R. Spike in West Side Brace Post	801.532
No. 19	Sta. 182+72~47' Lt.	Set R.R. Spike in North Side Power Pole	838.659
No. 20	Sta. 187+77~90' Rt.	Set R.R. Spike in South Side Power Pole on East Post Road	847.526
No. 21	Sta. 195+21~129' Rt.	Set R.R. Spike in N.E. Side of North Power Pole	875.663
No. 22	Sta. 202+23~104' Rt.	Set R.R. Spike in North Side of North Power Pole	901.050
No. 23	Sta. 208+54~110' Rt.	Set R.R. Spike in South Side of North Power Pole	882.783
No. 24	Sta. 215+36~63' Lt.	Set R.R. Spike in South Side Power Pole	851.011
No. 25	Sta. 2222+31.8~32.5 Lt.	Cut 'X' on N.W. Bolt of Fire Hydrant	841.744
No. 26	Sta. 220+74~77' Lt.	Set R.R. Spike N.W. Side Brace Post	834.568
No. 27	Sta. 231+56~22' Rt.	Set R.R. Spike in North Side 36" Triple Tree	820.903
No. 28	Sta. 238+38~32' Lt.	Set R.R. Spike in South Side 8" Cottonwood	817.003
No. 29	Sta. 243+44~59' Lt.	Found 40d Spike in West Side Power Pole	796.920
No. 30	Sta. 248+32~423' Rt.	Set R.R. Spike North Side Brace Post	792.001
No. 31	Sta. 271+25~180' Lt.	Set R.R. Spike In West Side Corner Post(B.M. Gone)	813.471
No. 32	Sta. 278+02~168' Lt.	Set R.R. Spike in West Side Fence Post(B.M. Gone)	843.129
No. 33	Sta. 285+18~66' Lt.	Found R.R. Spike in S.E. Side Power Pole	825.390
No. 34	Sta. 291+83~28' Rt.	Set R.R. Spike in South Side Power Pole	806.170
No. 35	Sta. 302+15~100' Rt.	Found Linn County Brass Plug #1001 in S.W. Cor. Wheel Guard of Bridge	785.613
No. 36	Sta. 311+77~43' Rt.	Set R.R. Spike in North Side Power Pole	792.233
No. 37	Sta. 319+89.5~55.5' Rt.	Found U.S.C.&G.S. 57-690	797.062
No. 38	Sta. 369+55~66' Rt. Iowa #13 Stationing	Found R.R. Spike in East Side Power Pole	813.217

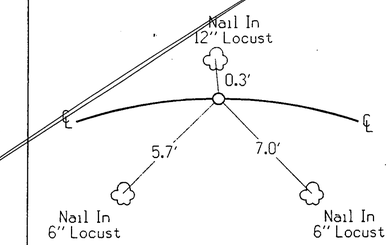
P.O.T. STA. 109+51.91
June - July, 1989 Survey
Set Hinge Nail



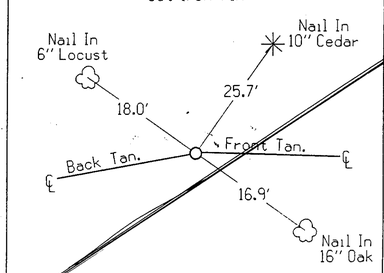
T.S. STA. 111+87.18
June - July, 1989 Survey
Set Iron Pin



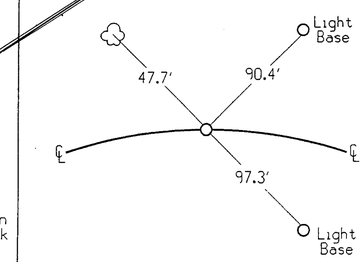
S.C. STA. 114+12.18
June - July, 1989 Survey
Set Iron Pin



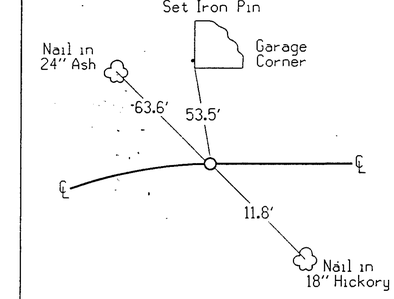
P.I. STA. 116+56.02
June - July, 1989 Survey
Set Iron Pin



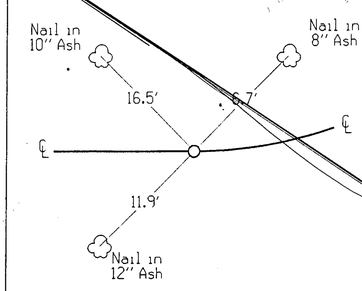
C.S. STA. 118+85.04
June - July, 1989 Survey
Set Iron Pin



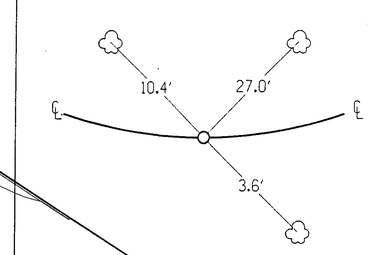
S.T. STA. 121+10.04
June - July, 1989 Survey
Set Iron Pin



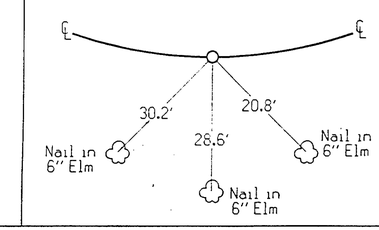
T.S. STA. 122+26.50
June - July, 1989 Survey
Set Iron Pin



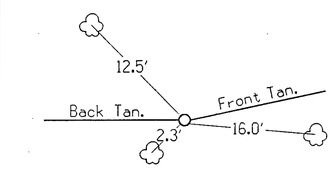
S.C. STA. 124+51.50
June - July, 1989 Survey
Set Iron Pin



P.O.C. STA. 130+37.31
June - July, 1989 Survey
Set Iron Pin



P.I. STA. 130+99.20
June - July, 1989 Survey
Set Iron Pin

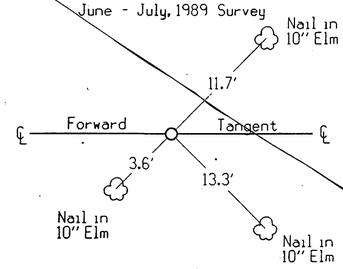


DETAILS OF REFERENCE INFORMATION

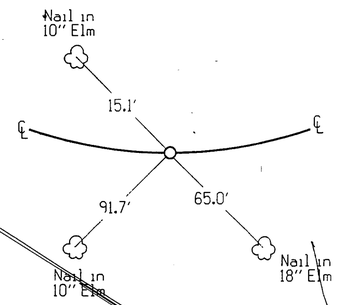
All References Plumb Distances
(unless otherwise noted)

ROAD DESIGN • CADD • PRODUCED	STATE OF IOWA	FHWA REGION 7	FISCAL YEAR	LINN	COUNTY	PROJECT NUMBER	NHS-100-1(23)--19-57	SHEET NUMBER

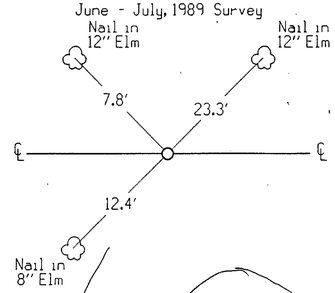
P.O.S.T. 130.05' AHEAD OF P.I. STA. 130+99.20
P.O.S.T. 80.18' AHEAD OF P.I. STA. 1129+76.31
June - July, 1989 Survey



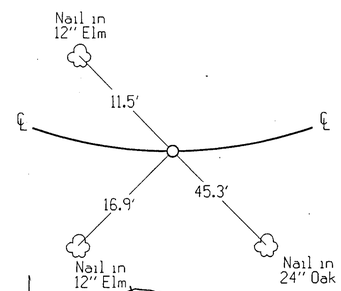
P.O.C. STA. 131+62.12
June - July, 1989 Survey



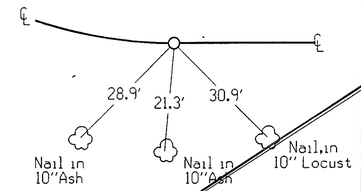
P.O.S.T. 256.1' BACK OF S.T. STA. 138+48.11
Set Iron Pin
June - July, 1989 Survey



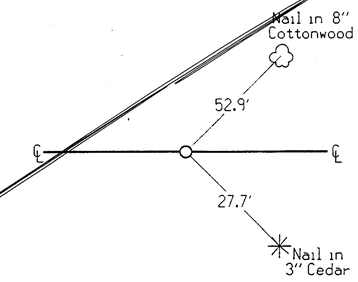
C.S. STA. 136+23.11
June - July, 1989 Survey
Set Iron Pin



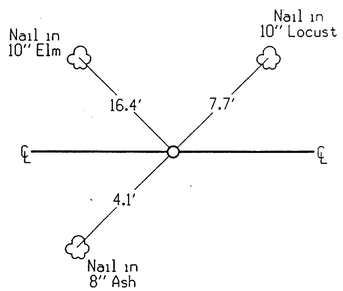
S.T. STA. 138+48.11
June - July, 1989 Survey
Set Iron Pin



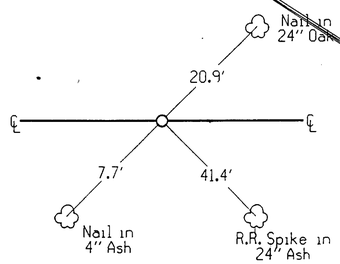
P.O.T. STA. 141+22.51
June - July, 1989 Survey
Set Iron Pin



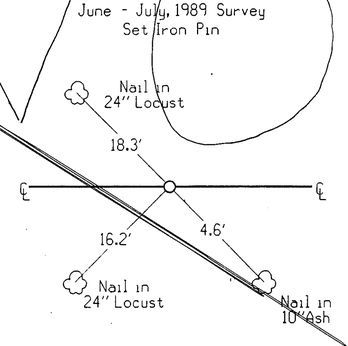
P.O.T. STA. 143+63.26
June - July, 1989 Survey
Set Iron Pin



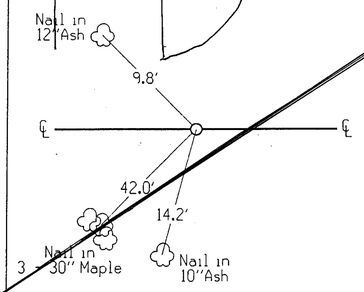
P.O.T. STA. 146+65.81
June - July, 1989 Survey
Set Iron Pin



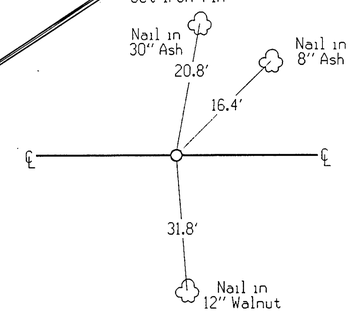
P.O.T. STA. 148+69.08
June - July, 1989 Survey
Set Iron Pin



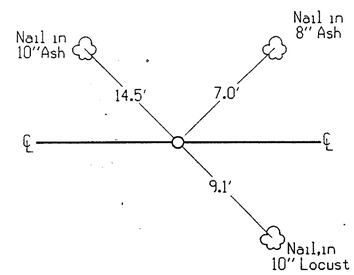
P.O.T. STA. 152+79.41
June - July, 1989 Survey
Set Iron Pin



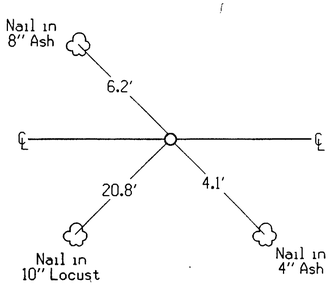
P.O.T. STA. 156+59.78
June - July, 1989 Survey
Set Iron Pin



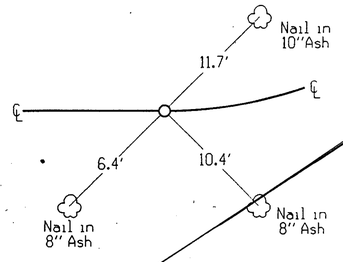
P.O.T. STA. 160+70.50
June - July, 1989 Survey
Set Iron Pin



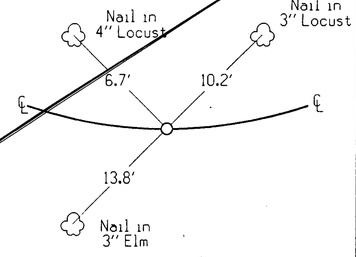
P.O.T. STA. 163+01.08
June - July, 1989 Survey
Set Iron Pin



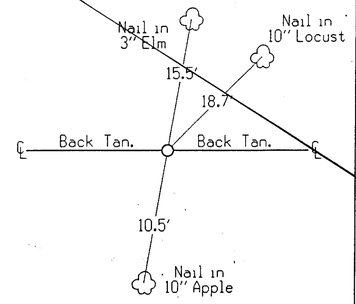
T.S. STA. 163+25.72
June - July, 1989 Survey
Set Iron Pin



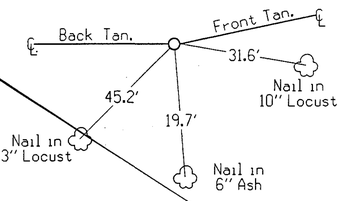
S.C. STA. 165+25.72
June - July, 1989 Survey
Set Iron Pin



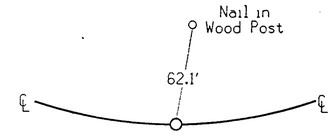
P.O.S.T. STA. 166+15.73
June - July, 1989 Survey
Set Iron Pin



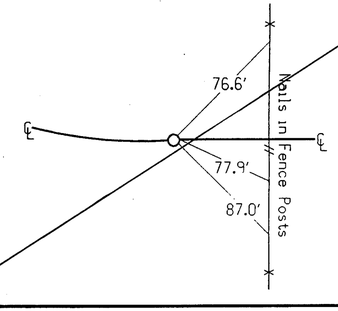
P.I. STA. 168+35.05
June - July, 1989 Survey
Set Iron Pin



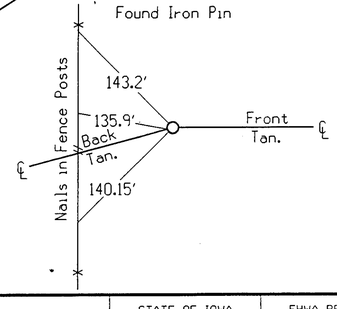
C.S. STA. 171+31.83
June - July, 1989 Survey
Set Iron Pin



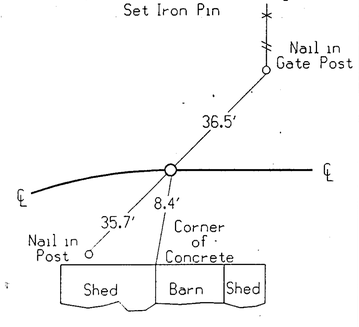
S.T. STA. 173+31.83
June - July, 1989 Survey
Set Iron Pin



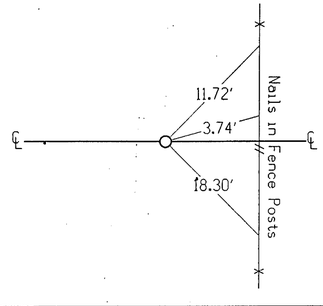
P.O.T. STA. 175+42.22, 1989 SURVEY= P.I. STA. 175+42.47, 1980-1981 SURVEY
Found Iron Pin



P.T. STA. 179+06.68
Nov.,1980 To March,1981 Survey
Set Iron Pin



P.O.T. STA. 182+04.52
Nov.,1980 To March,1981 Survey
Set Iron Pin



DETAILS OF REFERENCE INFORMATION

All References Plumb Distances
(unless otherwise noted)

ROAD DESIGN • CADD • PRODUCED	STATE OF IOWA	FHWA REGION 7	FISCAL YEAR	LINN	COUNTY	PROJECT NUMBER	NHS-100-1(23)--19-57	SHEET NUMBER

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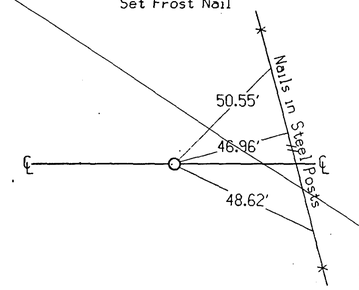
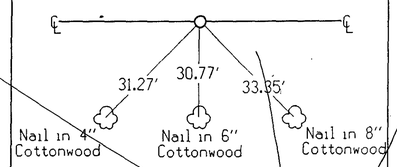
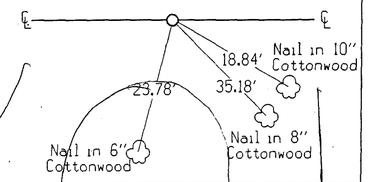
P.O.T. STA. 187+42.31
Nov.,1980 To March,1981 Survey
Set Frost Nail



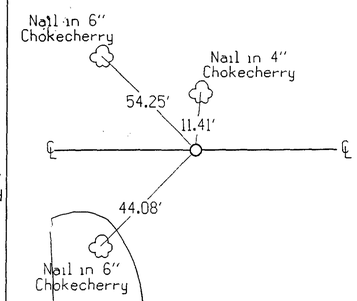
P.O.T. STA. 192+01.76
Nov.,1980 To March,1981 Survey
Set Iron Pin



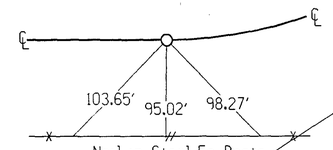
P.O.T. STA. 201+31.85
Nov.,1980 To March,1981 Survey
Set Iron Pin



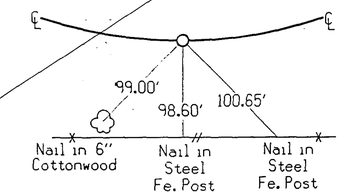
P.O.T. STA. 204+38.20
Nov.,1980 To March,1981 Survey
Set Iron Pin



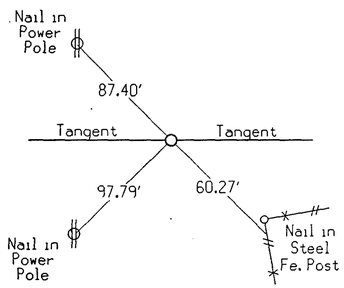
T.S. STA. 209+84.86
Nov.,1980 To March,1981 Survey
Set Iron Pin



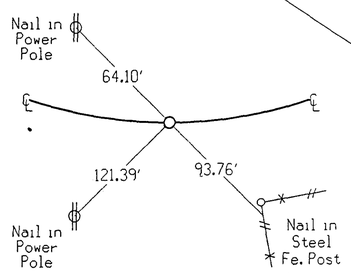
S.C. STA. 211+84.86
Nov.,1980 To March,1981 Survey
Set Iron Pin



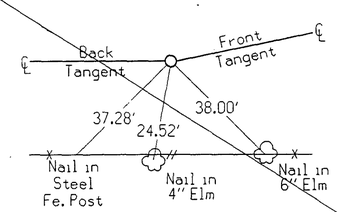
P.O.S.T. STA. 215+49.64
Nov.,1980 To March,1981 Survey
Set Iron Pin



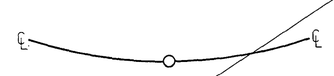
P.O.C. STA. 215+49.68
Nov.,1980 To March,1981 Survey
Cut "X" in Pav't.



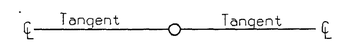
P.I. STA. 218+74.60
Nov.,1980 To March,1981 Survey
Set Iron Pin



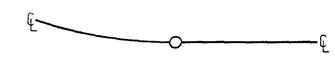
C.S. STA. 225+48.86
No References Available
Set Iron Pin
Nov.,1980 To March,1981 Survey



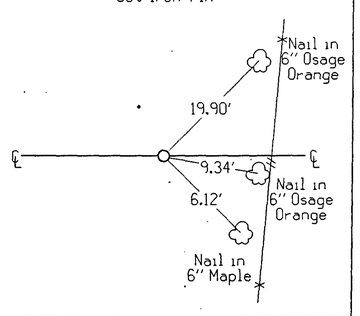
P.O.S.T. 698.92' AHEAD OF P.I. STA. 218+74.60
No References Available
Set Iron Pin
Nov.,1980 To March,1981 Survey



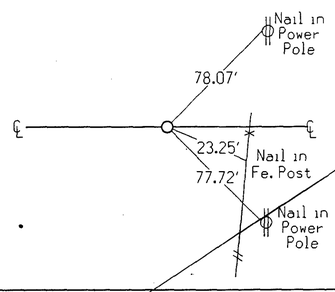
S.T. STA. 227+48.86
No References Available
Set Iron Pin
Nov.,1980 To March,1981 Survey



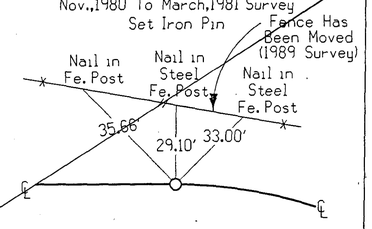
P.O.T. STA. 238+24.78
Nov.,1980 To March,1981 Survey
Set Iron Pin



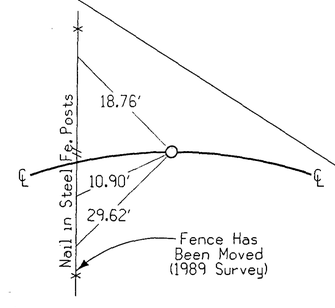
P.O.T. STA. 242+92.77
Nov.,1980 To March,1981 Survey
Set Iron Pin



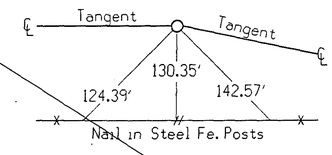
T.S. STA. 275+15.28
Nov.,1980 To March,1981 Survey
Set Iron Pin



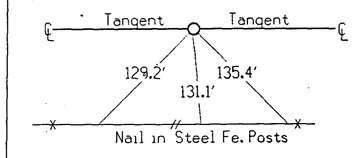
S.C. STA. 277+65.28
Nov.,1980 To March,1981 Survey
Set Iron Pin



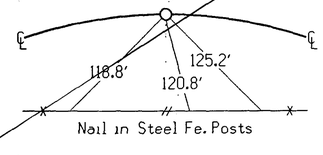
P.I. STA. 279+52.05
Nov.,1980 To March,1981 Survey
Set Iron Pin



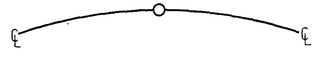
P.O.S.T. 126.19' AHEAD OF P.I. STA. 279+52.05
Set Iron Pin
Nov.,1980 To March,1981 Survey



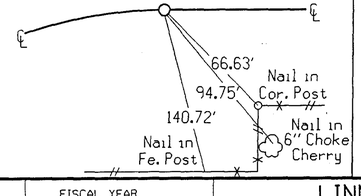
P.O.C. STA. 280+73.00
Nov.,1980 To March,1981 Survey
Set Iron Pin



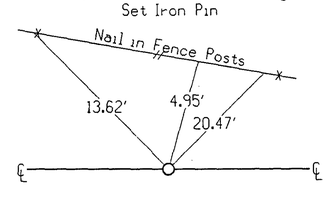
C.S. STA. 281+32.97
No References Available
Set Iron Pin
Nov.,1980 To March,1981 Survey



S.T. STA. 283+82.97
Nov.,1980 To March,1981 Survey
Set Iron Pin



P.O.T. STA. 289+44.53
Nov.,1980 To March,1981 Survey
Set Iron Pin



DETAILS OF REFERENCE INFORMATION

All References Plumb Distances
(unless otherwise noted)

ROAD DESIGN • CADD • PRODUCED	STATE OF IOWA	FHWA REGION 7	FISCAL YEAR	LINN COUNTY	PROJECT NUMBER	NHS-100-1(23)--19-57	SHEET NUMBER

D4

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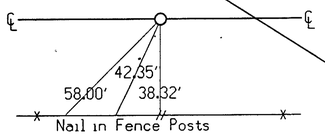
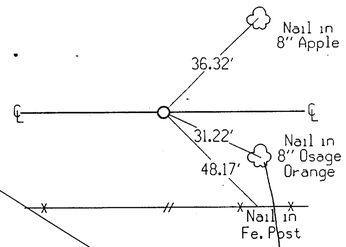
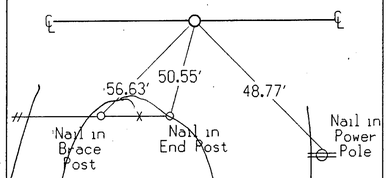
P.O.T. STA. 302+03.99
Nov.,1980 To March,1981 Survey
Set Iron Pin



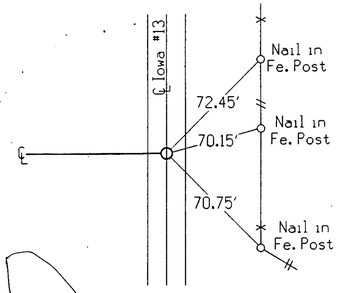
P.O.T. STA. 307+08.84
Nov.,1980 To March,1981 Survey
Set Iron Pin



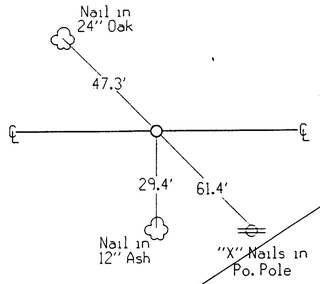
P.O.T. STA. 309+21.14
Nov.,1980 To March,1981 Survey
Set Iron Pin



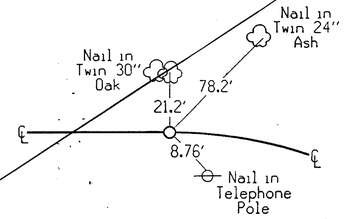
P.I. STA. 323+47.28
Nov.,1980 To March,1981 Survey
Cut "X"



P.O.T. STA. 1124+52.34
June-July 1989 Survey
Set Iron Pin



P.C. STA. 1128+08.14
June-July 1989 Survey
Set Iron Pin



P.T. STA. 1131+14.70
June-July 1989 Survey
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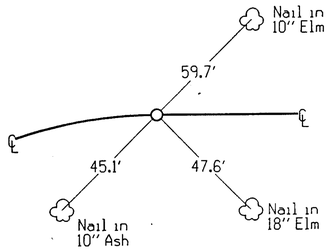
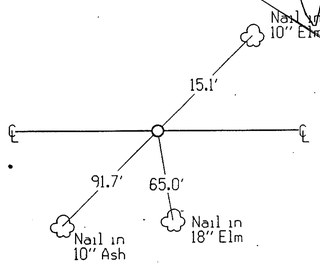
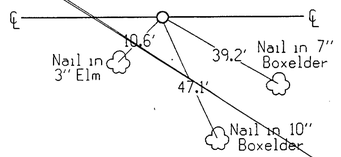


P.O.T. STA. 1131+62.12
=P.O.C. STA. 131+62.12
June-July 1989 Survey
Set Iron Pin



P.O.T. STA. 1135+44.53
June-July 1989 Survey



P.C. STA. 1138+01.37
June-July 1989 Survey
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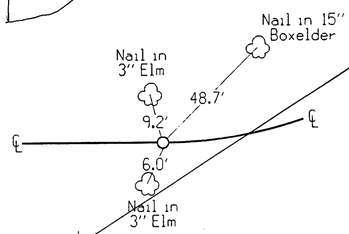
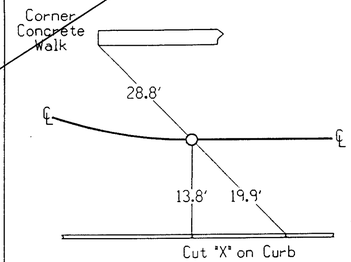
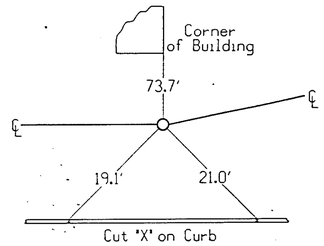


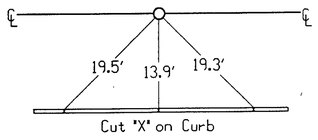
P.T. STA. 1141+05.97
June-July 1989 Survey



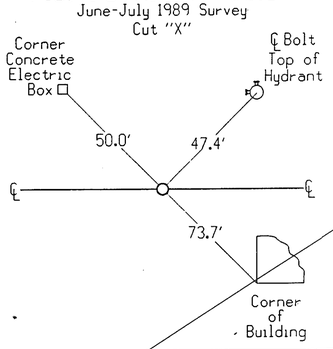
P.I. STA. 1142+65.57
June-July 1989 Survey
Set Hinge Nail



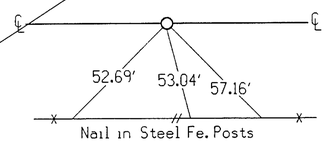
P.O.T. STA. 1145+23.62
June-July 1989 Survey
Set Hinge Nail



P.O.T. STA. 1147+58.54
June-July 1989 Survey
Cut "X"



P.O.T. STA. 1173+33.88
Nov.,1980 To March,1981 Survey
Set Frost Nail



P.I. STA. 1180+05.80
Nov.,1980 To March,1981 Survey
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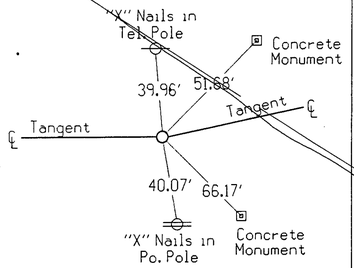
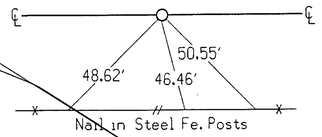
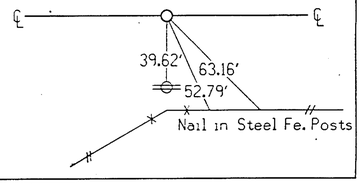


P.O.T. STA. 1187+42.31
Nov.,1980 To March,1981 Survey
Set Frost Nail



P.O.T. STA. 1190+59.27
Nov.,1980 To March,1981 Survey
Set Frost Nail



P.O.T. STA. 1200+00.95
Nov.,1980 To March,1981 Survey
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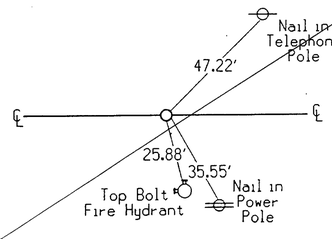
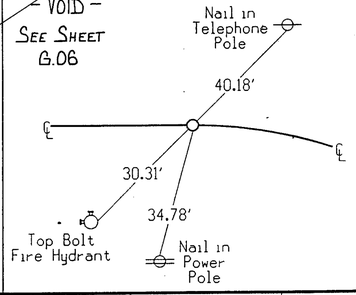


P.C. STA. 1200+18.43
Nov.,1980 To March,1981 Survey
Cut "X" in Pav't.

-VOID-
SEE SHEET G.06



P.O.S.T. STA. 1200+33.10
Nov.,1980 To March,1981 Survey
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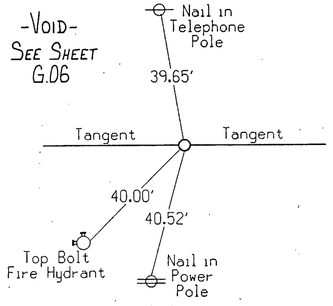
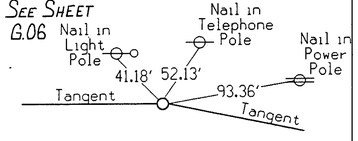
SEE SHEET G.06



P.I. STA. 1201+36.71
Nov.,1980 To March,1981 Survey
Cut "X" in Pav't.

-VOID-
SEE SHEET G.06



DETAILS OF REFERENCE INFORMATION

All References Plumb Distances
(unless otherwise noted)

ROAD DESIGN • CADD • PRODUCED	STATE OF IOWA	FHWA REGION 7	FISCAL YEAR	LINN	PROJECT NUMBER	NHS-100-1(23)--19-57	SHEET NUMBER

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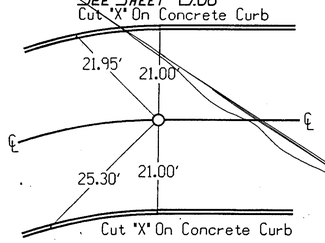
P.T. STA. 1202+46.91
Nov.,1980-March,1981 Survey
Cut "X" in Pav't.

-VOID- SEE SHEET G.06



P.C. STA. 2202+03.28
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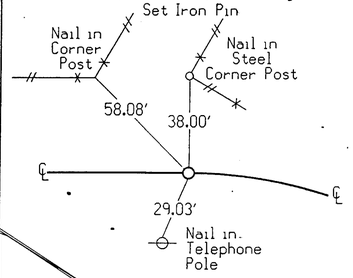

P.I. STA. 2204+76.52
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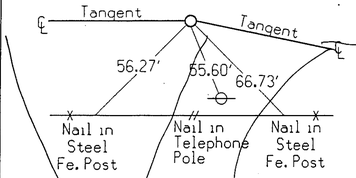
Set Iron Pin



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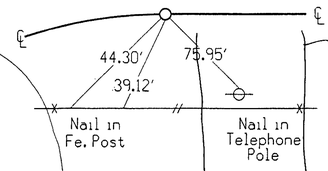

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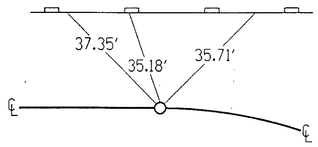

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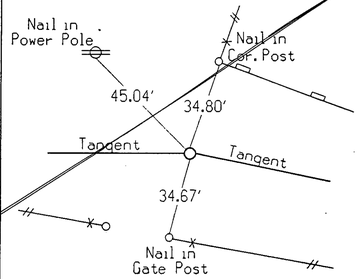
Nov.,1980-March,1981 Survey
Set Iron Pin



P.T. STA. 2213+05.06
Nov.,1980-March,1981 Survey
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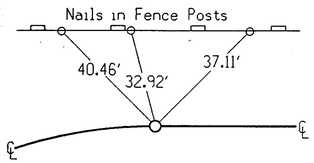

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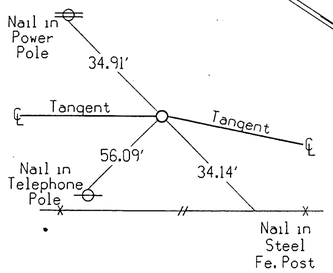
Nov.,1980-March,1981 Survey
Set Iron Pin



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Nov.,1980-March,1981 Survey
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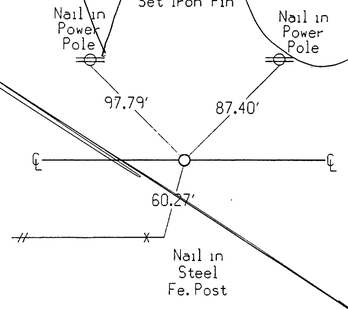

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Nov.,1980-March,1981 Survey
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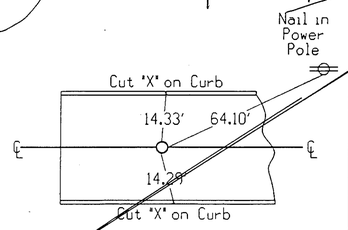

P.O.T. STA. 2219+51.88
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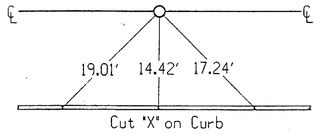

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Nov.,1980-March,1981 Survey
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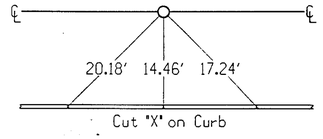

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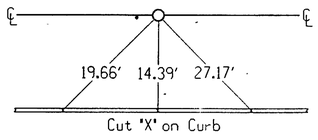

P.O.T. STA. 3233+84.39
Nov.,1980-March,1981 Survey
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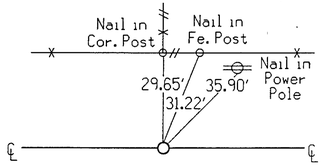

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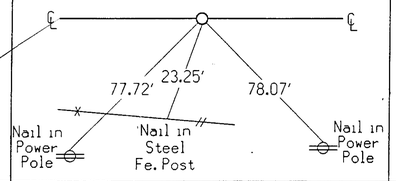

P.O.T. STA. 3251+10.36
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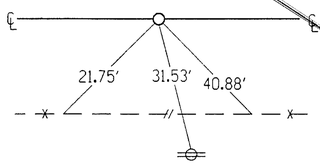

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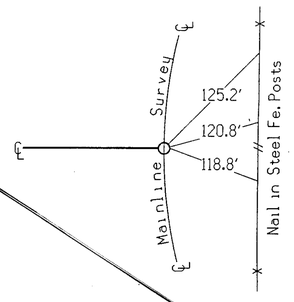

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Nov.,1980-March,1981 Survey
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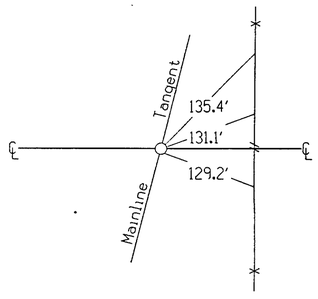

P.C. STA. 4281+35.87
Nov.,1980-March,1981 Survey
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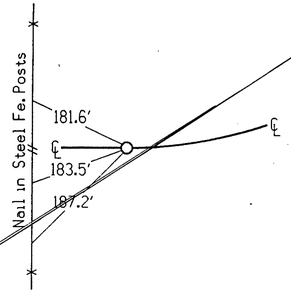

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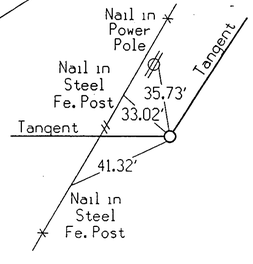

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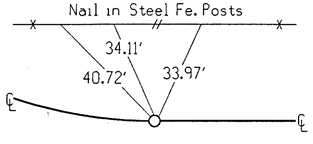

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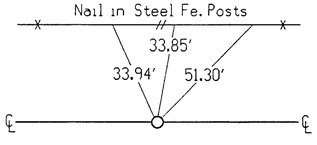


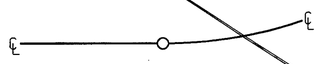
DETAILS OF REFERENCE INFORMATION

All References Plumb Distances
(unless otherwise noted)

ROAD DESIGN • CADD • PRODUCED	STATE OF IOWA	FHWA REGION 7	FISCAL YEAR	LINN	COUNTY	PROJECT NUMBER	NHS-100-1(23)--19-57	SHEET NUMBER

P. 58 D4

P.C. STA. 5295+92.84
Nov.,1980-March,1981 Survey
Set Iron Pin
No References Available



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Nov.,1980-March,1981 Survey
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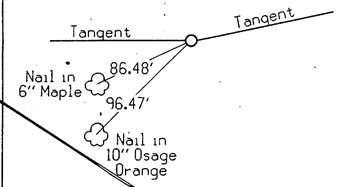

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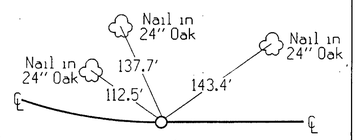

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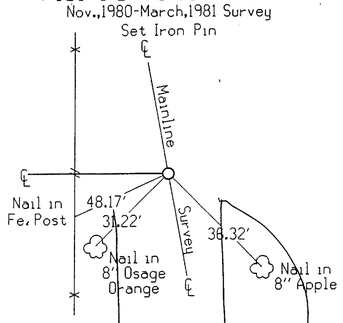
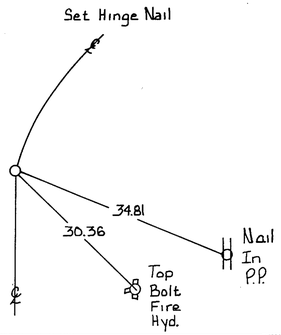
P.O.T. STA. 307+08.84
Nov.,1980-March,1981 Survey
Set Iron Pin



P.C. STA. 1200+18.43
Set Hinge Nail



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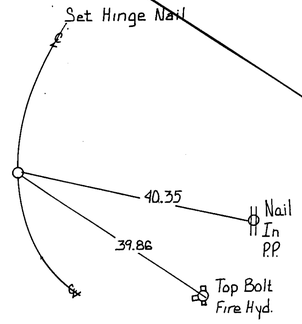
Set Hinge Nail



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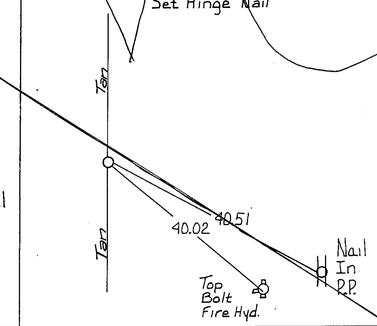

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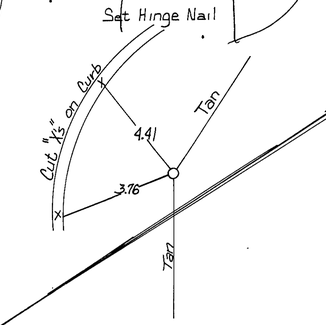
Set Hinge Nail



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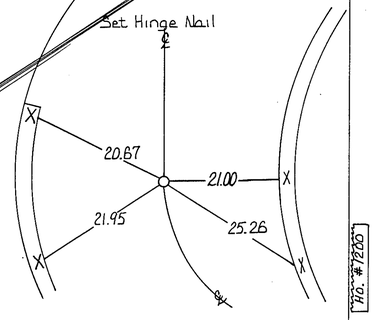

P.O.T. STA. 2203+97.104
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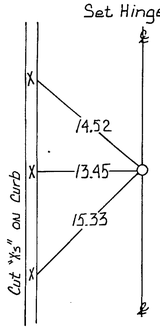
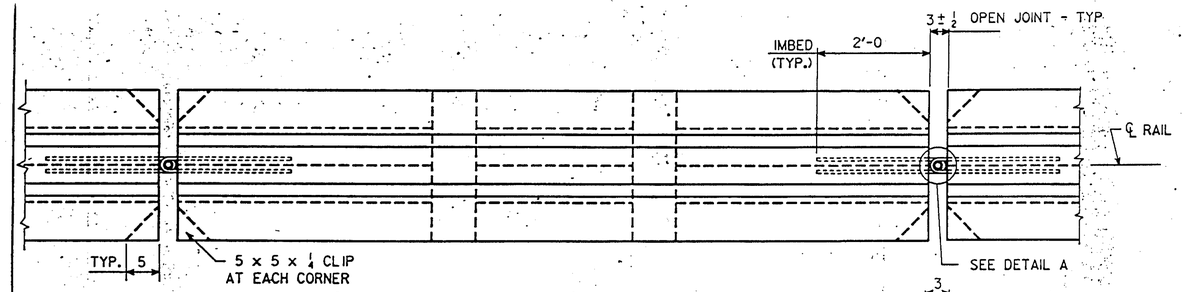


H.O. #1200

DETAILS OF REFERENCE INFORMATION

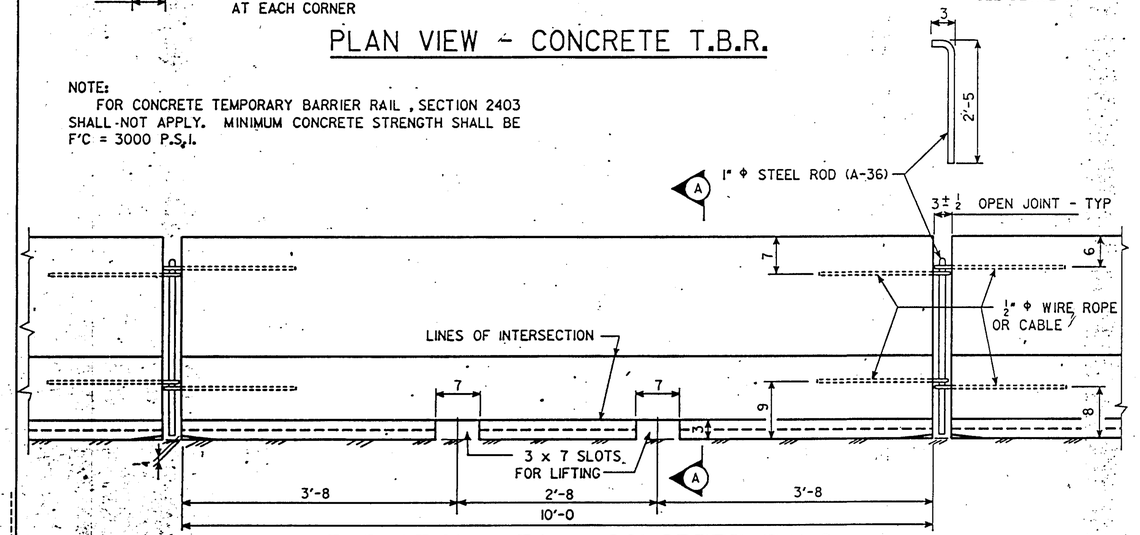
All References Plumb Distances
(unless otherwise noted)

ROAD DESIGN • CADD • PRODUCED	STATE OF IOWA	FHWA REGION 7	FISCAL YEAR	LINN COUNTY	PROJECT NUMBER	NHS-100-1(23)--19-57	SHEET NUMBER

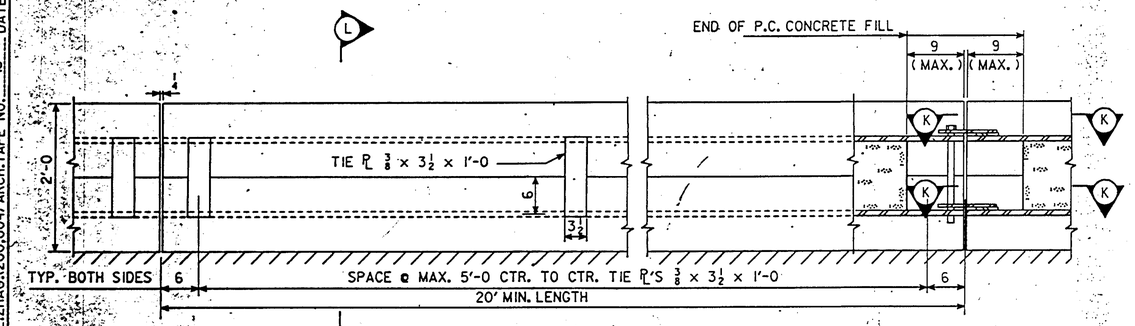


PLAN VIEW - CONCRETE T.B.R.

NOTE:
FOR CONCRETE TEMPORARY BARRIER RAIL, SECTION 2403 SHALL NOT APPLY. MINIMUM CONCRETE STRENGTH SHALL BE F'C = 3000 P.S.I.

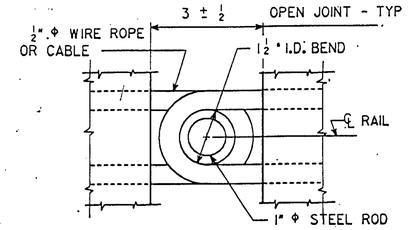


ELEVATION VIEW - CONCRETE T.B.R.



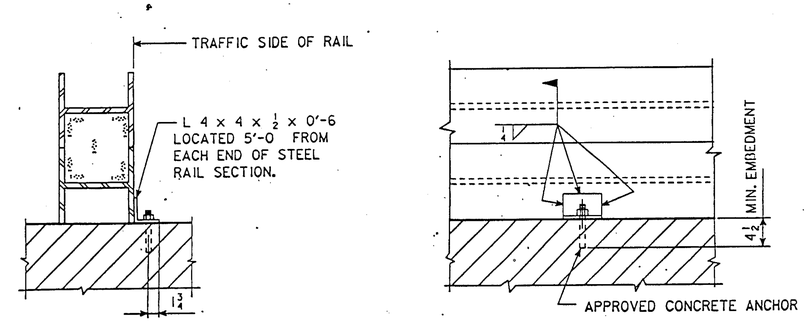
ELEVATION VIEW - STEEL T.B.R.

NOTE FOR STEEL TEMPORARY BARRIER RAIL:
HP12x53 SECTIONS ARE TO BE JOINED BEFORE P.C. CONCRETE FILL IS PLACED. HP SECTIONS MAY BE JOINED BY TIE PLATES AS DETAILED OR BY OTHER MEANS APPROVED BY THE ENGINEER. HP SECTIONS SHALL BE FREE FROM EXCESSIVE SWEEP AND CAMBER; STRAIGHTENING MAY BE REQUIRED BY THE ENGINEER IN ORDER TO PRODUCE A STABLE BARRIER.
CONCRETE MIX FOR THE P.C. FILL MAY BE ANY HIGHWAY DIVISION SPECIFICATION MIX OR MAY BE A COMMERCIAL READY - MIX WITH A MINIMUM F'C = 2500 P.S.I. THE FILL MAY BE DEPOSITED BY A METHOD ACCEPTABLE TO THE ENGINEER. JOINTS ARE TO BE REASONABLY MORTAR TIGHT, AND MORTAR EXTRUSIONS SHALL BE CLEANED FLUSH WITH THE OUTSIDE OF THE BARRIER. LIMITS OF FILL SHOWN ARE APPROXIMATE AND MAY BE ROUGH OR SLUMPED DEPENDING ON THE METHOD OF BULK HEADING.
CARE SHALL BE TAKEN IN MOVING THE BARRIER FOR STAGE 2 CONSTRUCTION SO THAT THE NEW CONCRETE OF STAGE I WILL NOT BE DAMAGED. ANY DAMAGE SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
SEE STANDARD SHEET 1 OF 2 FOR ADDITIONAL NOTES.



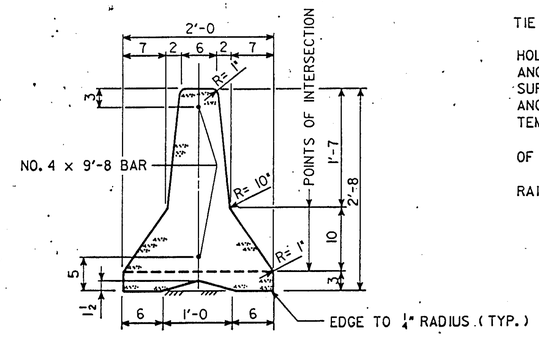
DETAIL A

WIRE ROPE OR CABLE TO BE 1/2" Φ, WITH A MINIMUM BREAKING STRENGTH OF 20,000 POUNDS.



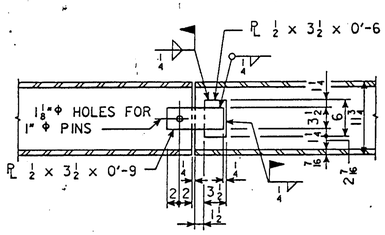
TEMPORARY BARRIER RAIL TIE - DOWN DETAILS

TIE DOWN NOTES:
TIE-DOWNS ARE REQUIRED ONLY WHERE THE TEMPORARY BARRIER RAIL IS ADJACENT TO A DROP-OFF. HOLES FOR CONCRETE ANCHORS MAY BE DRILLED AFTER POSITIONING TEMPORARY BARRIER RAIL. CONCRETE ANCHORS ARE TO BE SET SO THAT THE ANCHORS CAN BE REMOVED AT LEAST 1 1/2" BELOW THE CONCRETE SURFACE AND THE REMAINING HOLE FILLED WITH A NEAT MIXTURE OF SAND-CEMENT GROUT. CONCRETE ANCHORS ARE TO BE REMOVED, WITHOUT DAMAGING THE SURROUNDING CONCRETE, ONLY AFTER THE TEMPORARY BARRIER RAIL IS NO LONGER NEEDED AT THE PARTICULAR LOCATION.
CONCRETE ANCHORS ARE TO BE A MINIMUM OF 3/4"Φ AND AS OTHERWISE SPECIFIED IN CURRENT OFFICE OF MATERIALS I.M. 453.09 WITH A PULL-OUT STRENGTH OF 16,000 LBS. BASED ON 4,000 P.S.I. CONCRETE.
ALL COSTS FOR TIE DOWNS SHALL BE INCLUDED IN THE PRICE BID FOR "TEMPORARY BARRIER RAIL, PLACE ONLY".

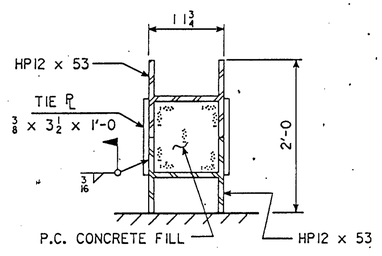


SECTION A-A

CONTRACTOR MAY ADD EXTRA REINFORCING BARS TO INCREASE THE SERVICE LIFE OF THE CONCRETE RAIL SECTIONS.



SECTION K-K



SECTION L-L

QUANTITIES	
ITEM	AMOUNT
TEMPORARY BARRIER RAIL, FURNISH ONLY	430 L.F.
TEMPORARY BARRIER RAIL, PLACE ONLY	690 L.F.

ITEM REFERENCE:
TEMPORARY BARRIER RAIL SHALL BE A COMBINATION OF NOMINAL 20' LONG STEEL UNITS AND NOMINAL 10' LONG CONCRETE UNITS. REFER TO LAYOUT FOR NUMBER OF EACH.

TEMPORARY BARRIER RAIL - COMBINATION

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

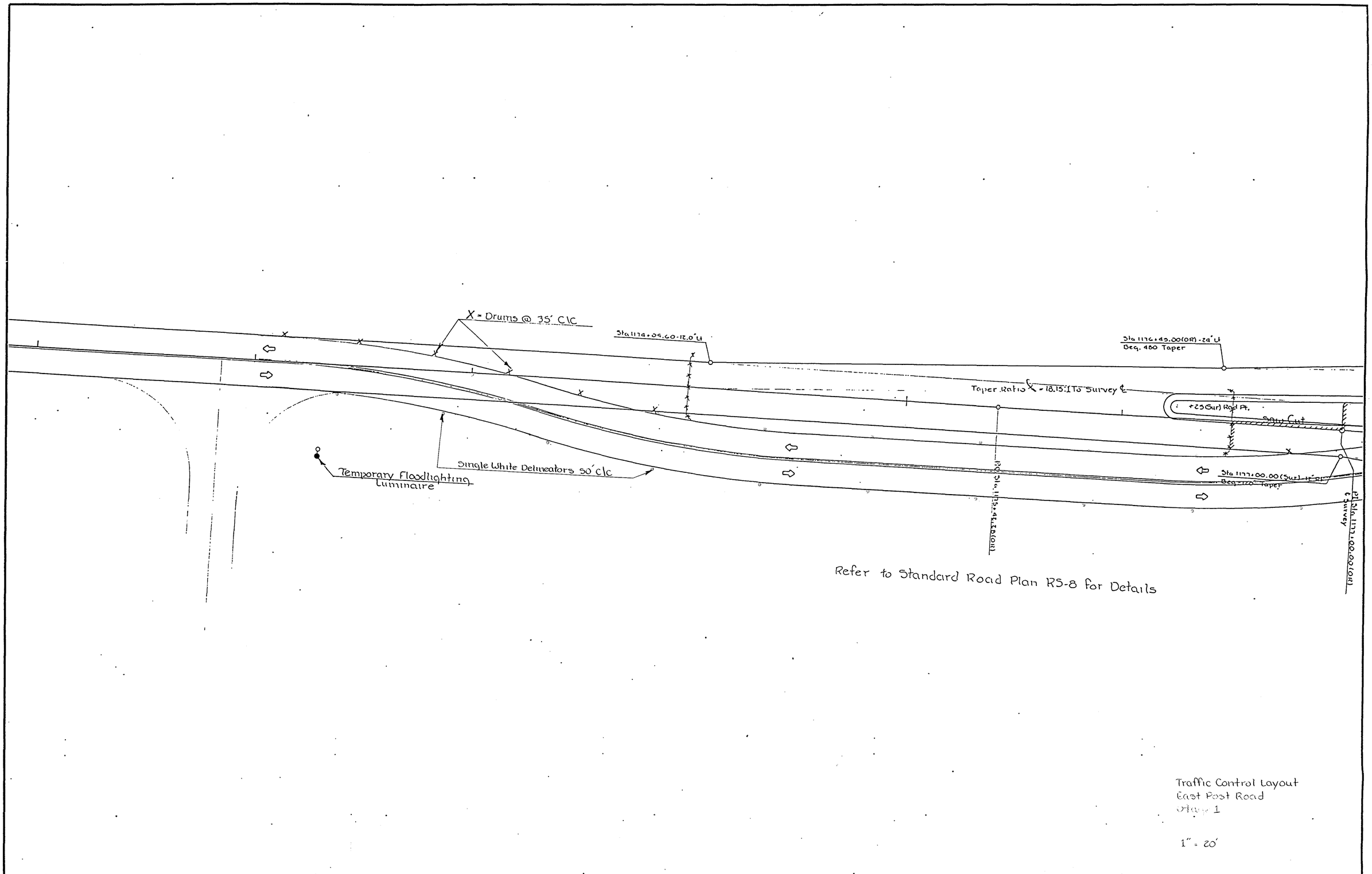
DESIGN SHEET NO. ___ OF ___ FILE NO. ___ DESIGN NO. ___

DESIGNED BY	TRACED BY	TEMPORARY BARRIER RAIL - COMBINATION WITH TIE DOWNS	(2 OF 2)	STANDARD 1034A	Linn COUNTY	PROJECT NUMBER NHS-100-1(23)--19-57	STATE IOWA	FHWA REGION 7	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
DETAILED BY	CHECKED BY										

HSTD1034A.S01--LEP; THIS SHEET REDRAWN, DEVICE:ZHA9:(200,004) ARCH.TAPE NO. 15 DATE 9-8-88

P.60

57070332.m(3121.road1a) 1b@road1a. Fri Nov 18 07:24:43 CST 1994



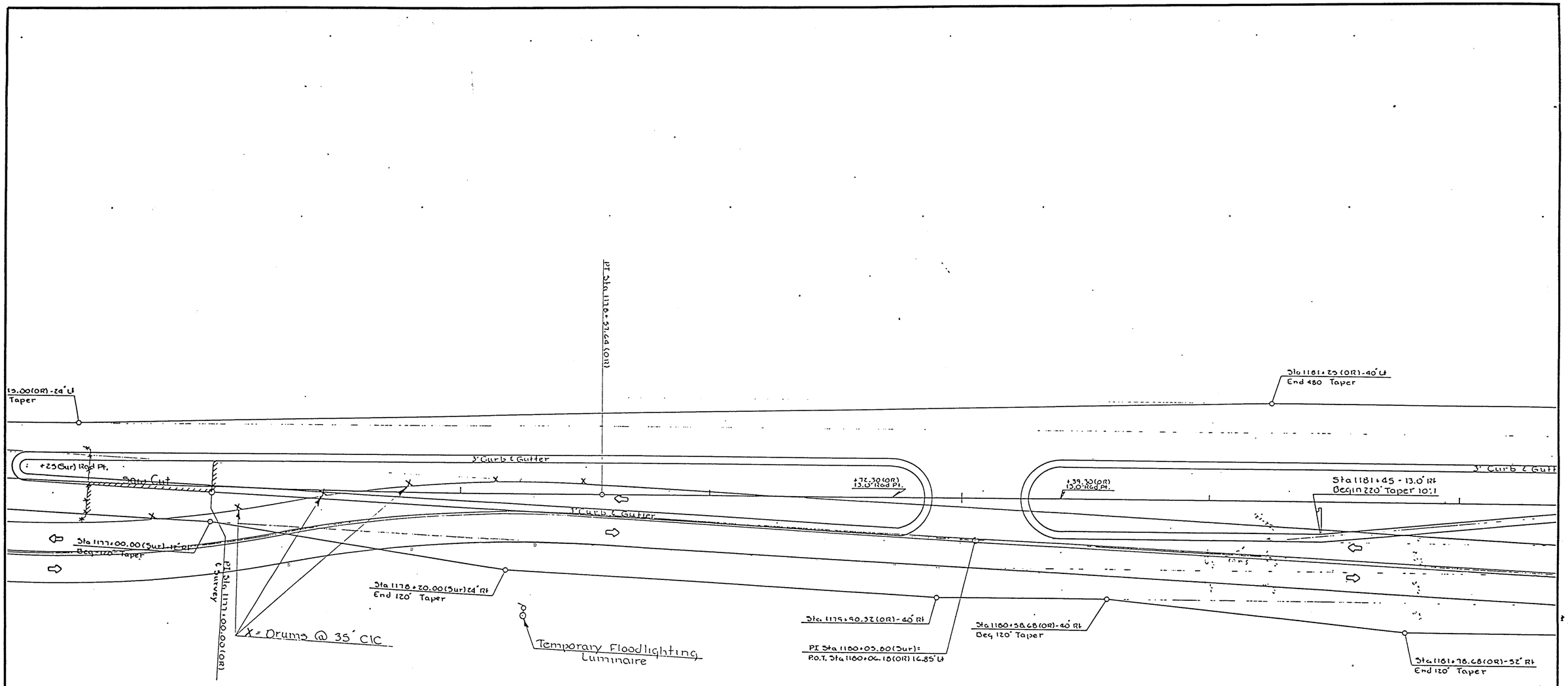
Traffic Control Layout
East Post Road
Stage 1

1" = 20'

OFFICE OF DESIGN • CADD • PRODUCED	STATE OF IOWA	FHWA REGION 7	FISCAL YEAR	LINN COUNTY	PROJECT NUMBER	NHS-100-1(23)--19-57	SHEET NUMBER	J.02

P 61

57070332.m(3121.road1a) 1b@road1a. Fri Nov 18 07:24:43 CST 1994



Traffic Control Layout
East Post Road
Stage 1

1" = 20'

OFFICE OF DESIGN • CADD • PRODUCED	STATE OF IOWA	FHWA REGION 7	FISCAL YEAR	LINN	COUNTY	PROJECT NUMBER	NHS-100-1(23)--19-57	SHEET NUMBER	J.03

P. 62

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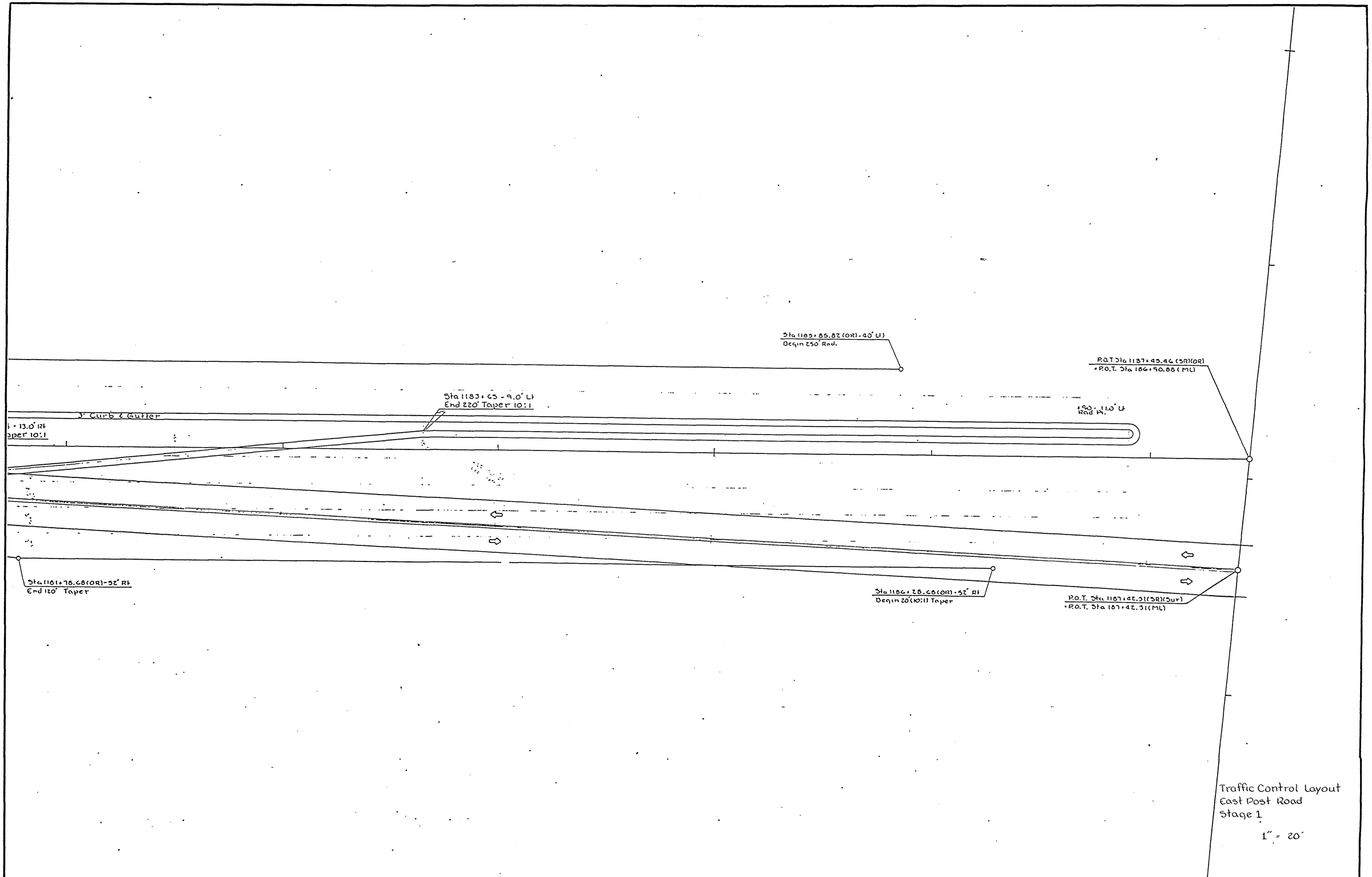

OFFICE OF DESIGN • CADD • PRODUCED	STATE OF IOWA	FHWA REGION 7	FISCAL YEAR	LINN	COUNTY	PROJECT NUMBER	NHS-100-1(23)--19-57	SHEET NUMBER	J.04

P.63

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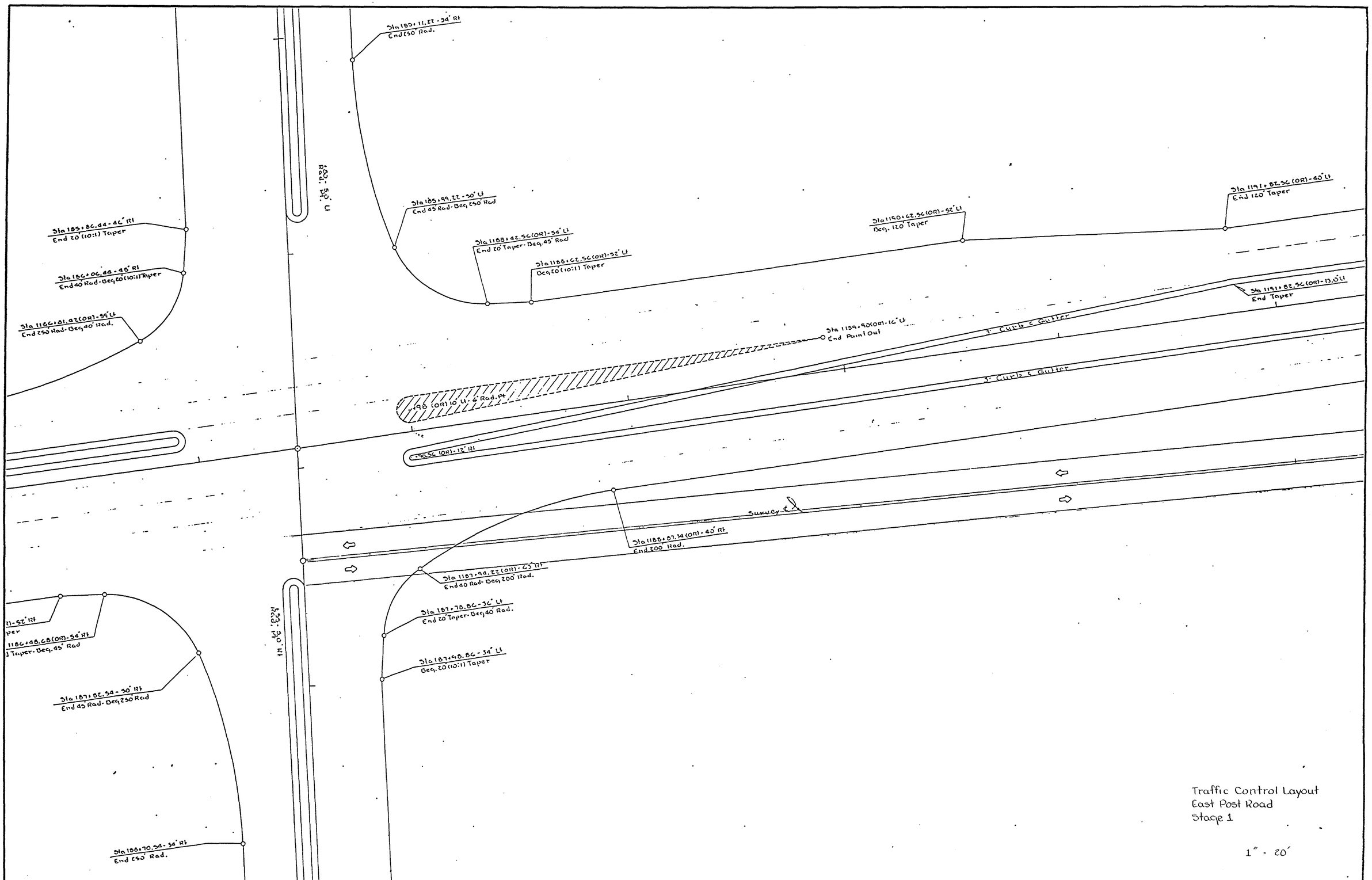

Traffic Control Layout
East Post Road
Stage 1

1" = 20'

OFFICE OF DESIGN • CADD • PRODUCED	STATE OF IOWA	FHWA REGION 7	FISCAL YEAR	LINN COUNTY	PROJECT NUMBER NHS-100-1(23)--19-57	SHEET NUMBER J.05

P.64

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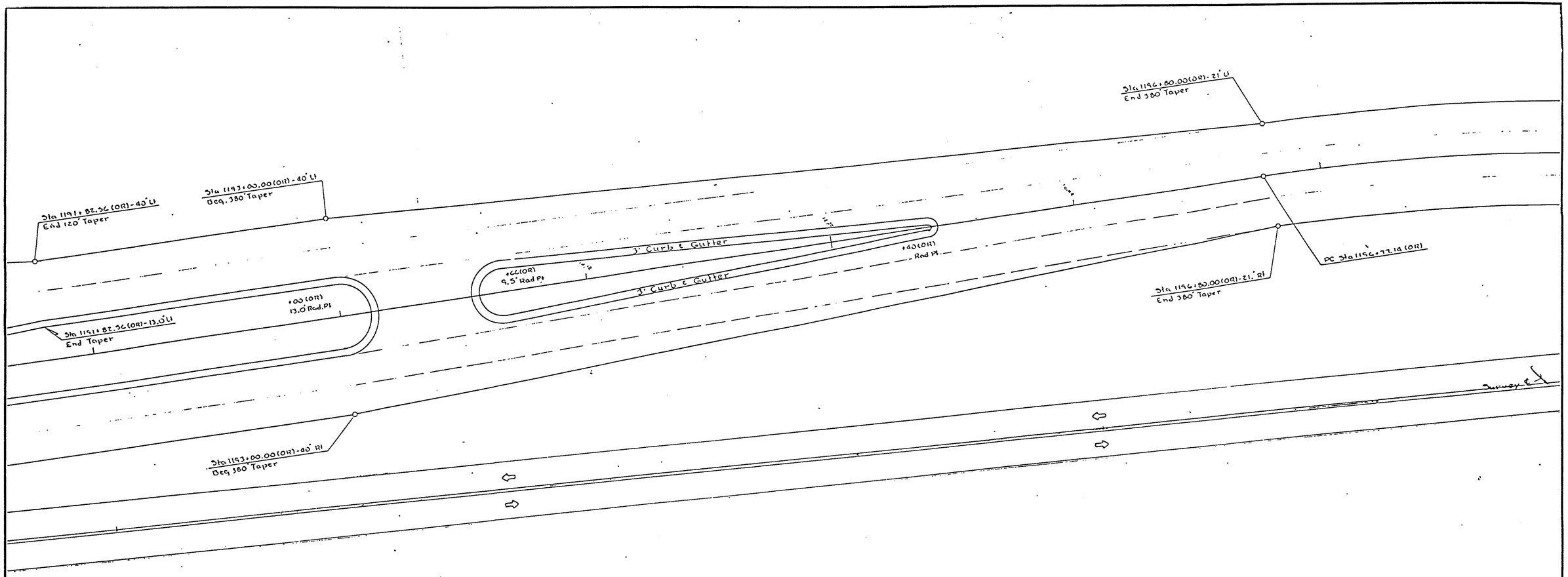

Traffic Control Layout
East Post Road
Stage 1

1" = 20'

OFFICE OF DESIGN • CADD • PRODUCED	STATE OF IOWA	FHWA REGION 7	FISCAL YEAR	LINN COUNTY	PROJECT NUMBER	NHS-100-1(23)--19-57	SHEET NUMBER	J.06

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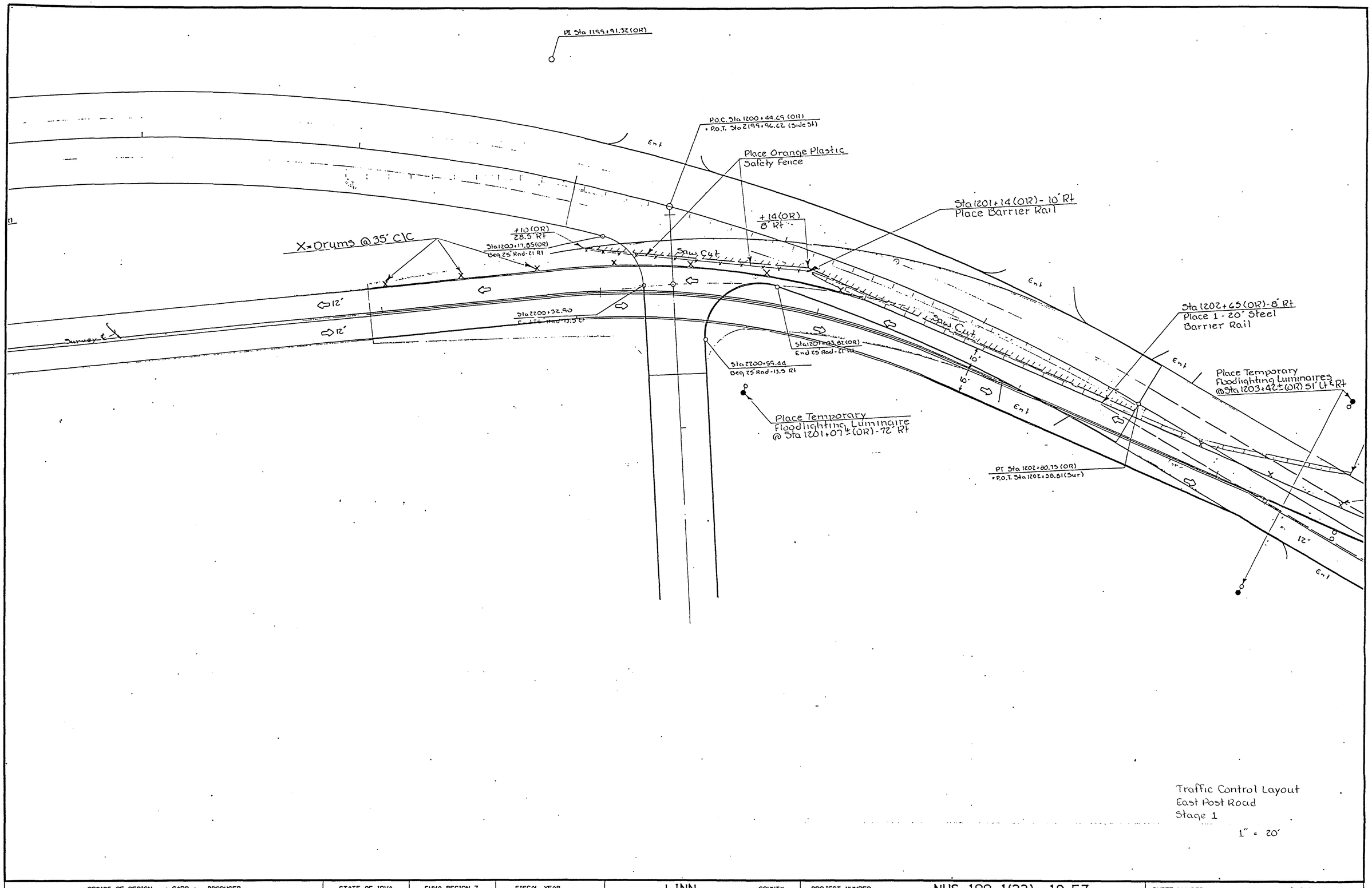

Traffic Control Layout
East Post Road
Stage 1

1" = 20'

OFFICE OF DESIGN • CADD • PRODUCED	STATE OF IOWA	FHWA REGION 7	FISCAL YEAR	LINN COUNTY	PROJECT NUMBER	NHS-100-1(23)--19-57	SHEET NUMBER	J.07

P. 606

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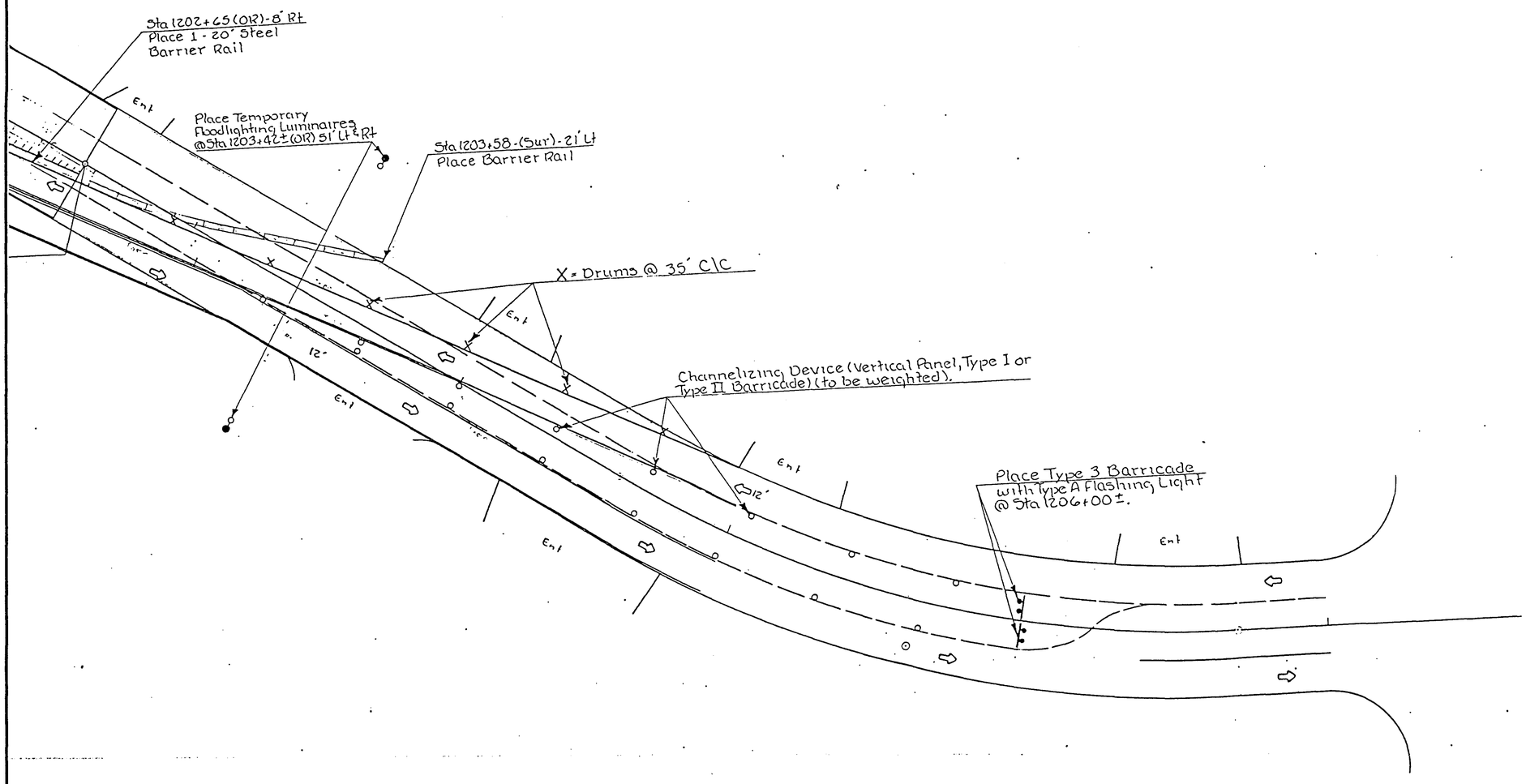
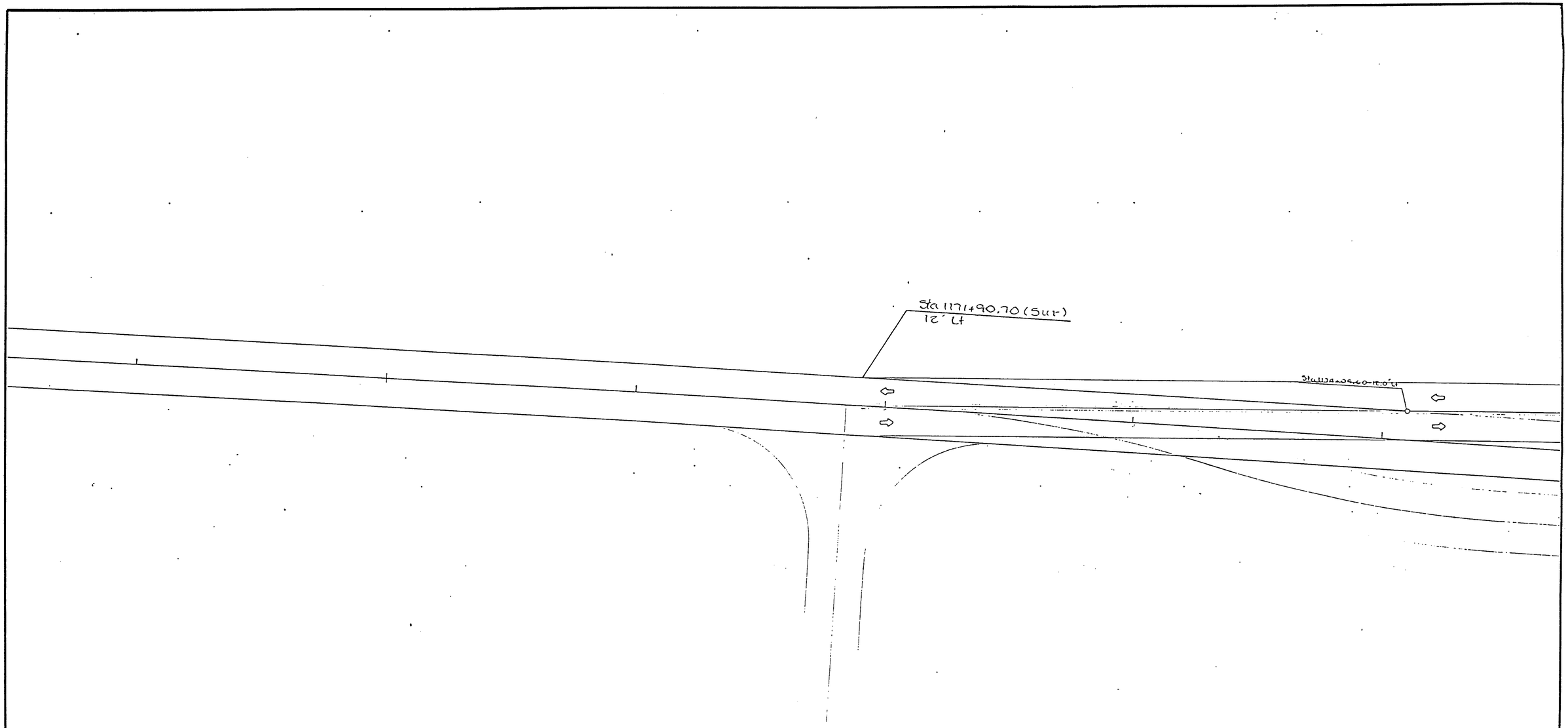


Traffic Control Layout
East Post Road
Stage 1

1" = 20'

OFFICE OF DESIGN • CADD • PRODUCED	STATE OF IOWA	FHWA REGION 7	FISCAL YEAR	LINN COUNTY	PROJECT NUMBER NHS-100-1(23)--19-57	SHEET NUMBER J.08

P.67



Traffic Control Layout
East Post Road
Stage 2
1" = 20'

OFFICE OF DESIGN • CADD • PRODUCED	STATE OF IOWA	FHWA REGION 7	FISCAL YEAR	LINN COUNTY	PROJECT NUMBER	NHS-100-1(23)--19-57	SHEET NUMBER	J.09

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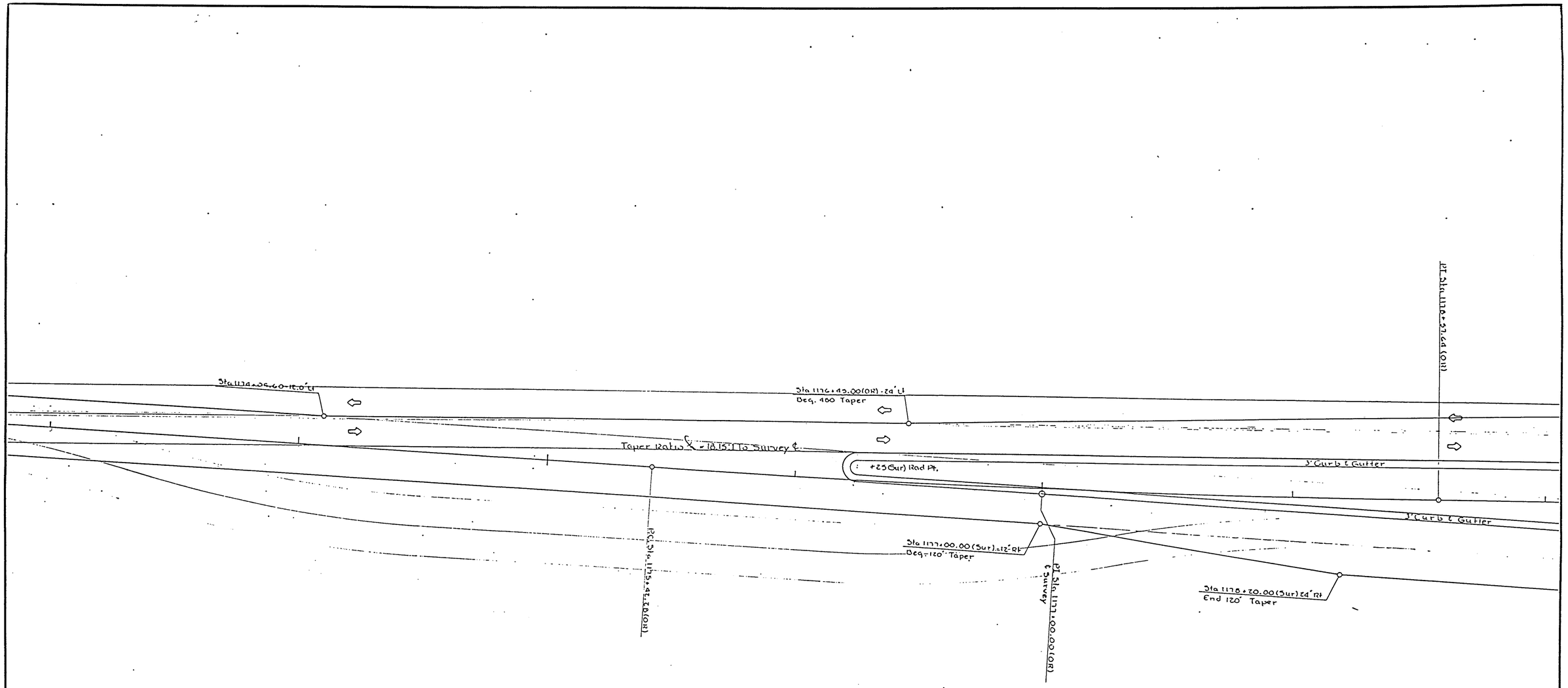


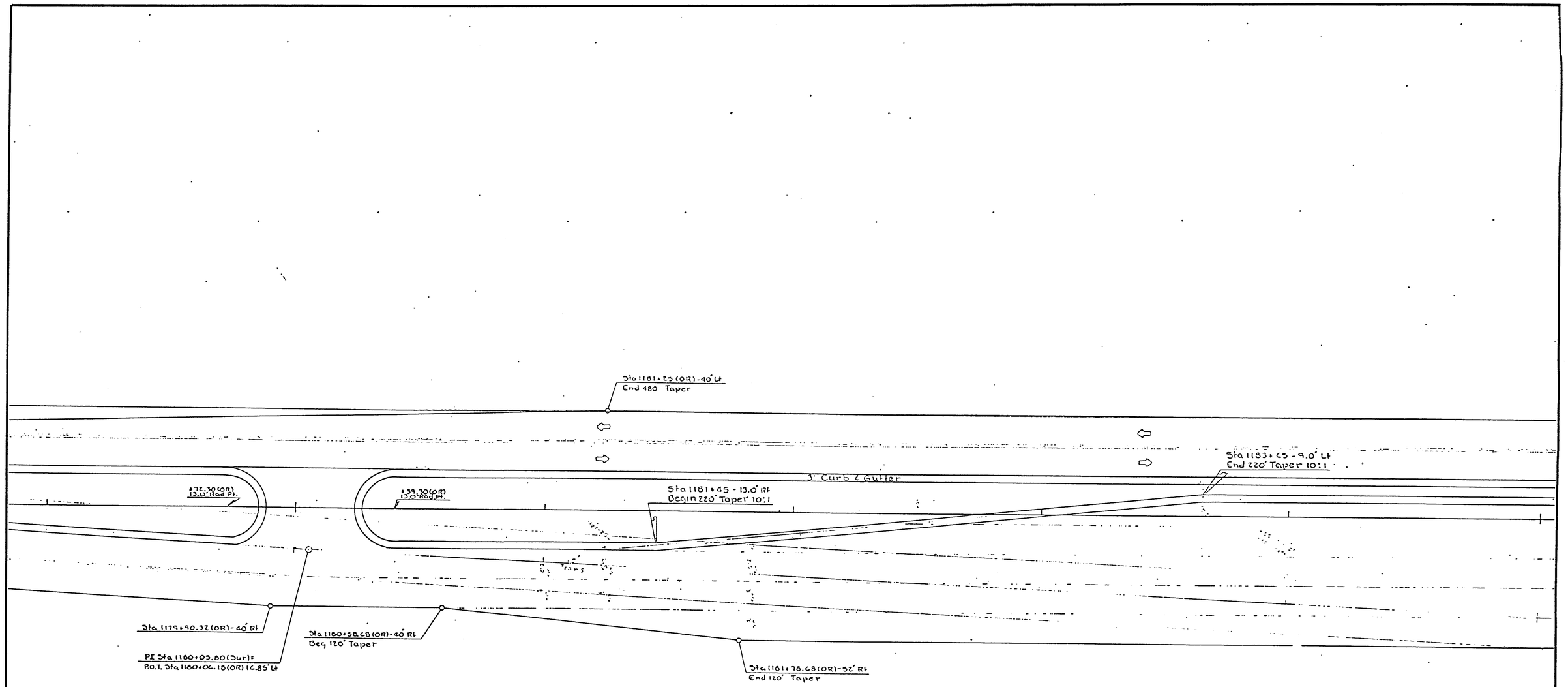
Traffic Control Layout
East Post Road
Stage 2

1" = 20'

OFFICE OF DESIGN • CADD • PRODUCED	STATE OF IOWA	FHWA REGION 7	FISCAL YEAR	LINN COUNTY	PROJECT NUMBER NHS-100-1(23)--19-57	SHEET NUMBER J.10

P. 69

57070332.m(3121.road1a) 1b@road1a. Fri Nov 18 07:24:43 CST 1994



Traffic Control Layout
East Post Road
Stage 2

1" = 20'

OFFICE OF DESIGN • CADD • PRODUCED	STATE OF IOWA	FHWA REGION 7	FISCAL YEAR	LINN COUNTY	PROJECT NUMBER	NHS-100-1(23)--19-57	SHEET NUMBER	J.11

P 70

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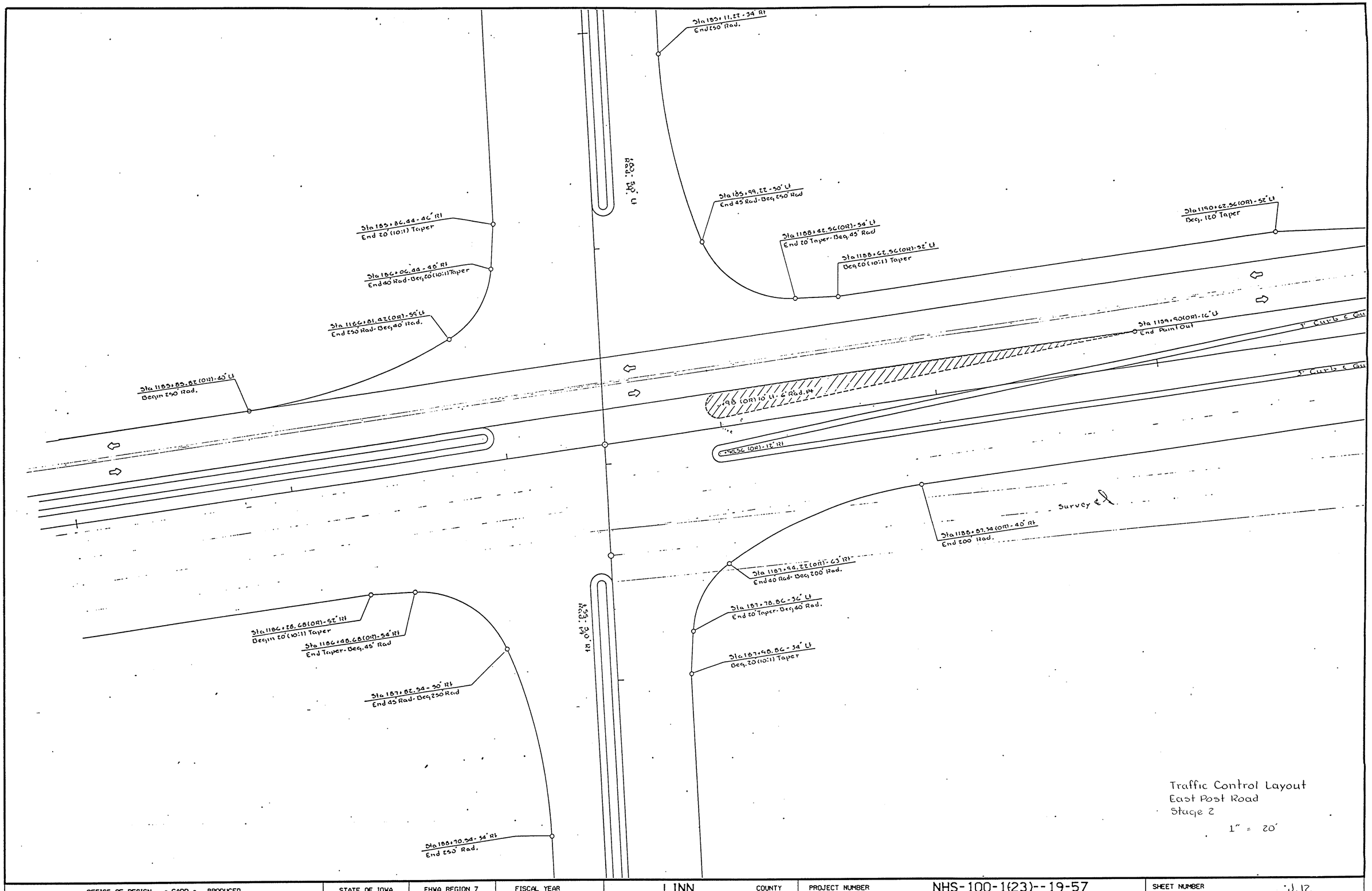
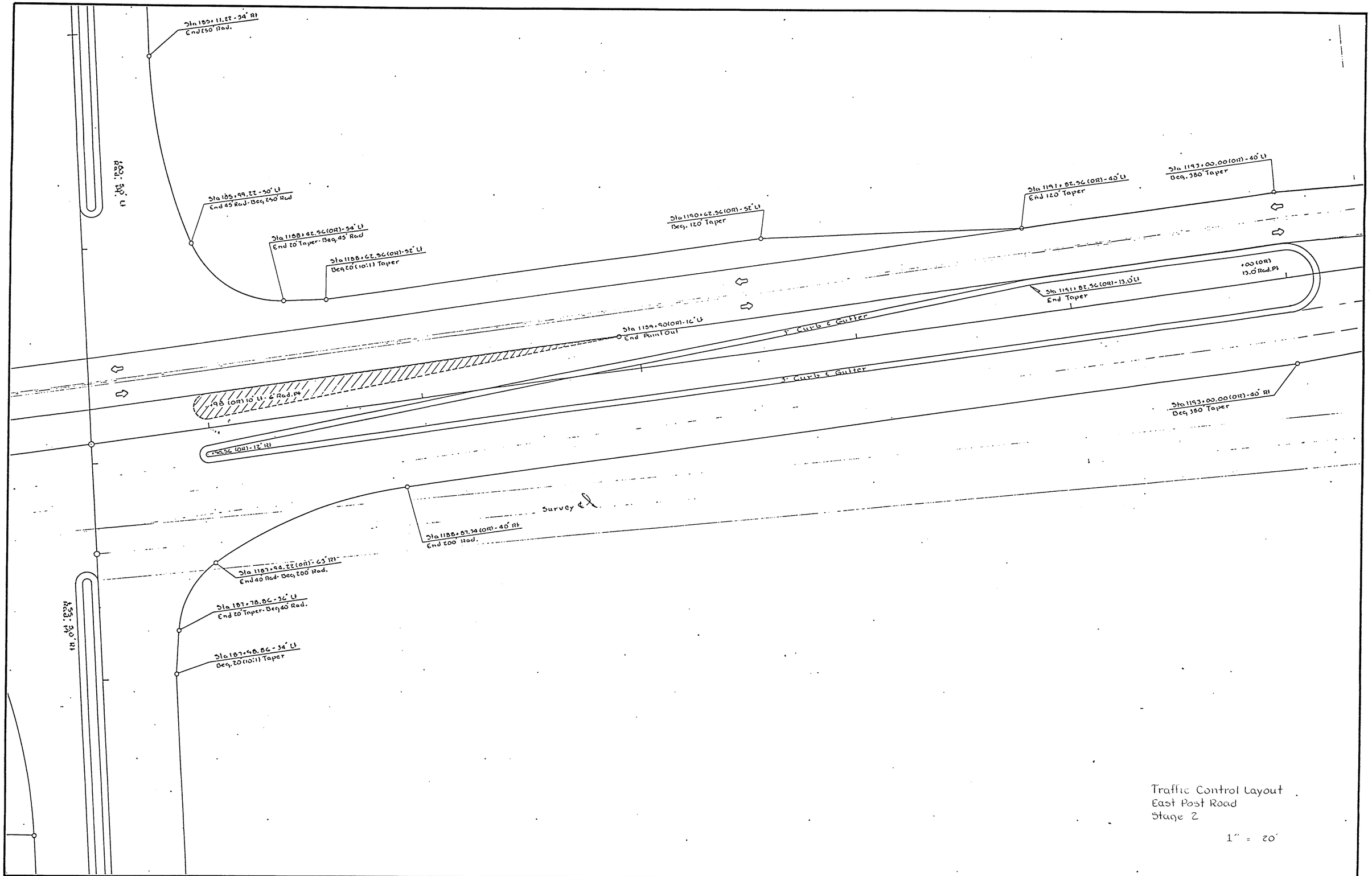


Traffic Control Layout
East Post Road
Stage 2
1" = 20'

OFFICE OF DESIGN • CADD • PRODUCED	STATE OF IOWA	FHWA REGION 7	FISCAL YEAR	LINN	COUNTY	PROJECT NUMBER	NHS-100-1(23)--19-57	SHEET NUMBER	J.12



Traffic Control Layout
East Post Road
Stage 2

1" = 20'

OFFICE OF DESIGN • CADD • PRODUCED	STATE OF IOWA	FHWA REGION 7	FISCAL YEAR	LINN COUNTY	PROJECT NUMBER NHS-100-1(23)--19-57	SHEET NUMBER J.13

P.72

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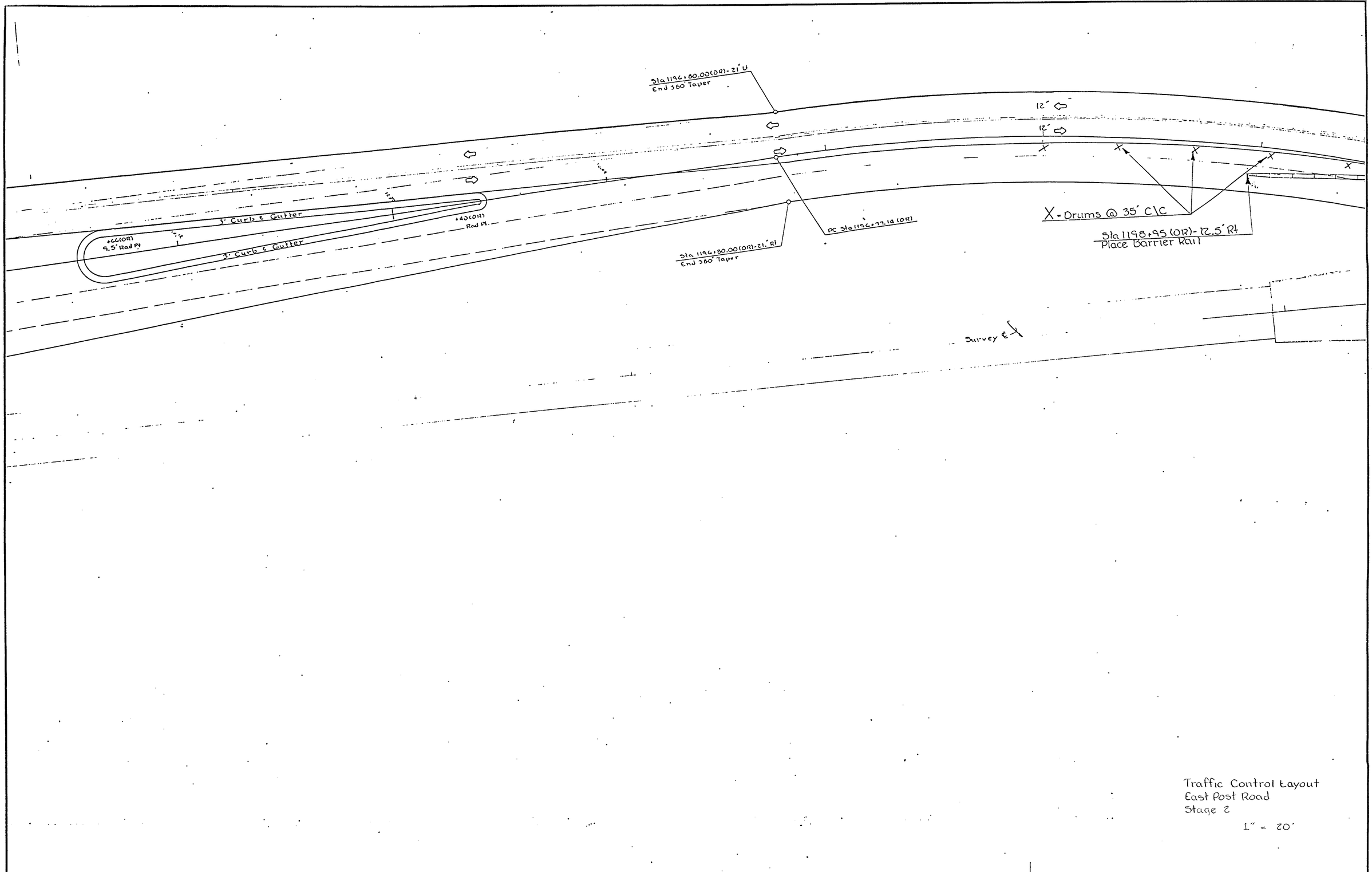

Traffic Control Layout
East Post Road
Stage 2

1" = 20'

OFFICE OF DESIGN • CADD • PRODUCED	STATE OF IOWA	FHWA REGION 7	FISCAL YEAR	LINN COUNTY	PROJECT NUMBER	NHS-100-1(23)--19-57	SHEET NUMBER	J.14

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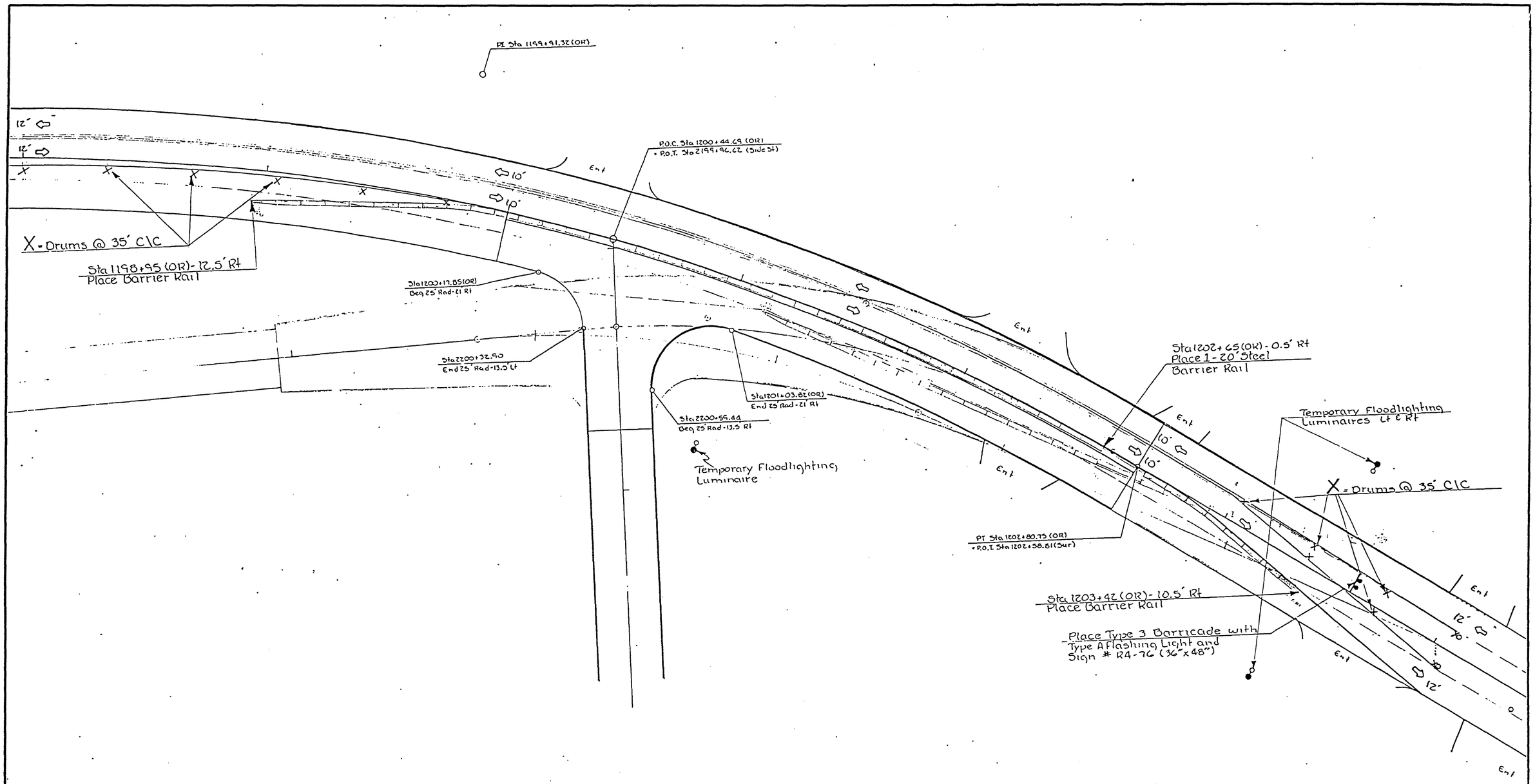


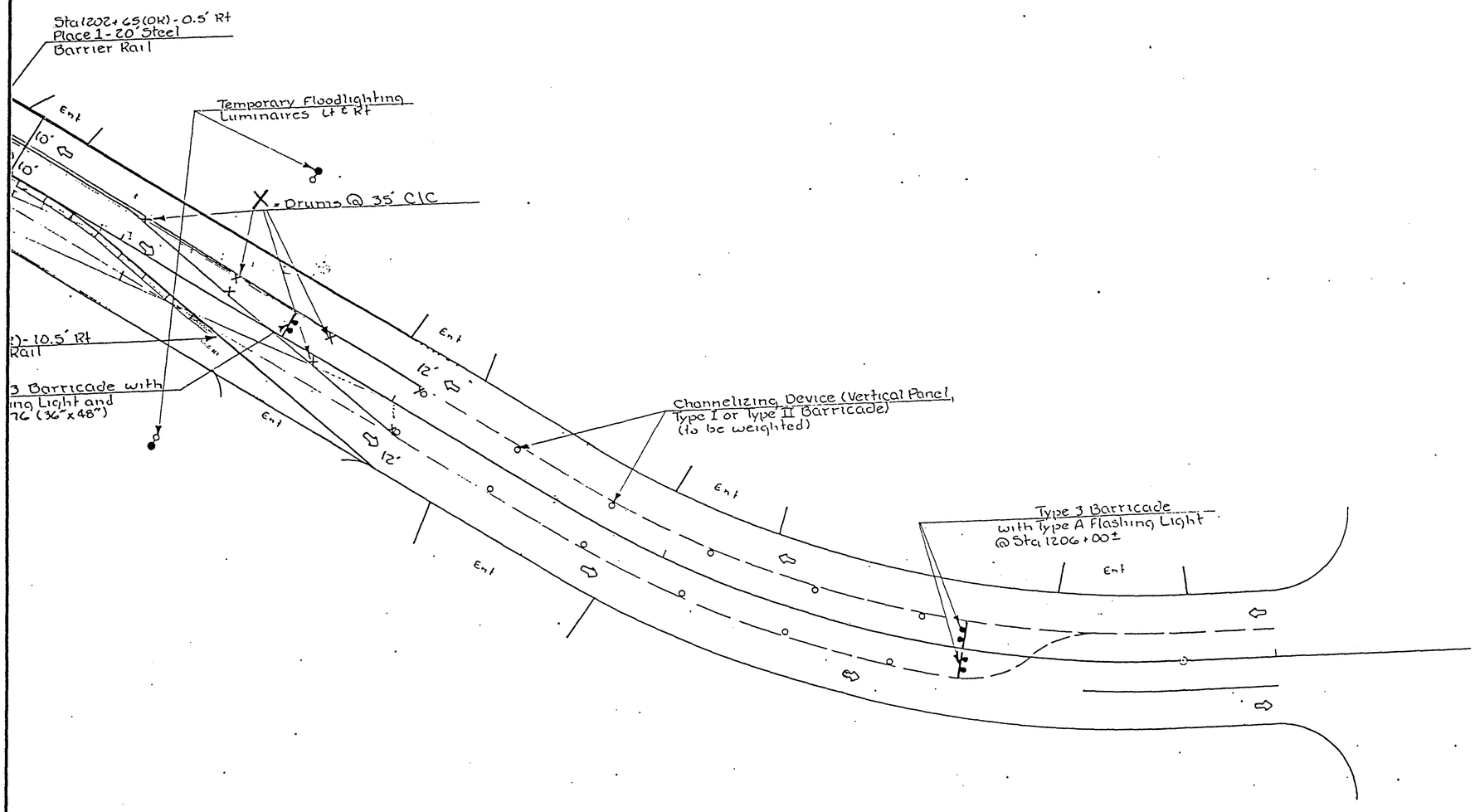
Traffic Control Layout
East Post Road
Stage 2

1" = 20'

OFFICE OF DESIGN • CADD • PRODUCED	STATE OF IOWA	FHWA REGION 7	FISCAL YEAR	LINN COUNTY	PROJECT NUMBER	NHS-100-1(23)--19-57	SHEET NUMBER	J.15

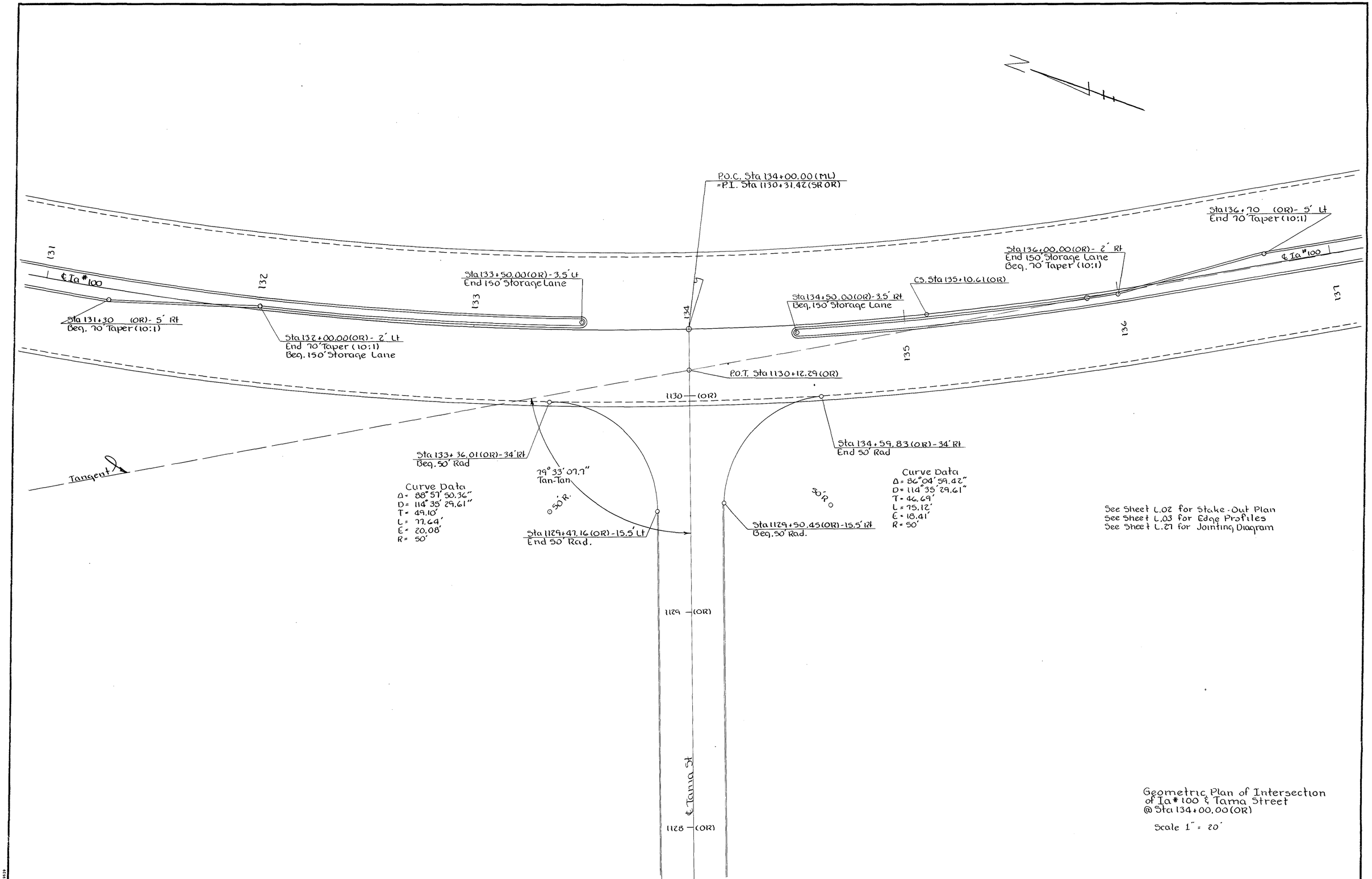
P.74

k57070332.m(3121.road1a) 1b@road1a. Fri Nov 18 07:24:43 CST 1994



Traffic Control Layout
East Post Road
Stage 2
1" = 20'

OFFICE OF DESIGN • CADD • PRODUCED	STATE OF IOWA	FHWA REGION 7	FISCAL YEAR	LINN COUNTY	PROJECT NUMBER	NHS-100-1(23)--19-57	SHEET NUMBER	J.16



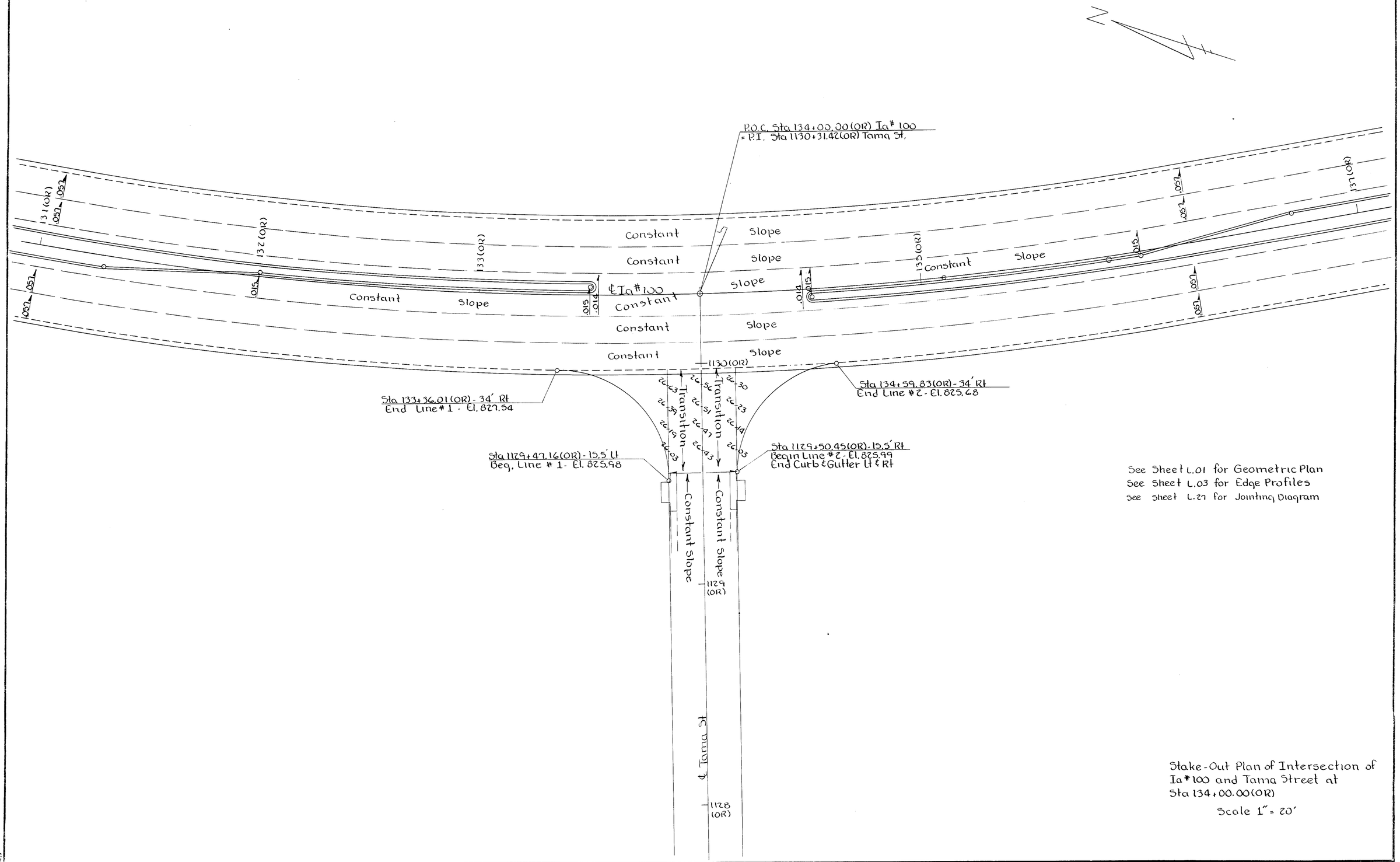
See Sheet L.02 for Stake-Out Plan
See Sheet L.03 for Edge Profiles
See Sheet L.27 for Jointing Diagram

Geometric Plan of Intersection
of Ia #100 & Tama Street
@ Sta 134+00.00 (OR)

Scale 1" = 20'

I.D.O.T. #000-316920	Linn COUNTY	PROJECT NUMBER	STATE	FHWA Region	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
		NHS-100-1(23)--19-57	IOWA	7		L.01	

P.76



See Sheet L.01 for Geometric Plan
See Sheet L.03 for Edge Profiles
See Sheet L.27 for Jointing Diagram

Stake-Out Plan of Intersection of
Ia#100 and Tama Street at
Sta 134+00.00(OR)

Scale 1" = 20'

I.D.O.T. #000-316920	Linn COUNTY	PROJECT NUMBER	STATE	FHWA Region	FISCAL YEAR	SHEET NO	TOTAL SHEETS
		NHS-100-1(23)--19-57	IOWA	7		L.02	

P.77

PLAN		BY	DATE
NOTE BOOK NO.	SURVEYED PLOTTED ALIGNMENT CHECKED RT OF WAY CHECKED		

PROFILE		BY	DATE
NOTE BOOK NO.	SURVEYED PLOTTED GRADES CHECKED B.M. NOTED STRUCTURE NOTAT'NS CH'KD		

See Sheet L.01 for Geometric Plan
See Sheet L.02 for Stake-Out Plan
See Sheet L.27 for Jointing Diagram

Edge Profiles of Intersection of
Ia #100 and Tama Street
at Sta 134+00.00 (OR)

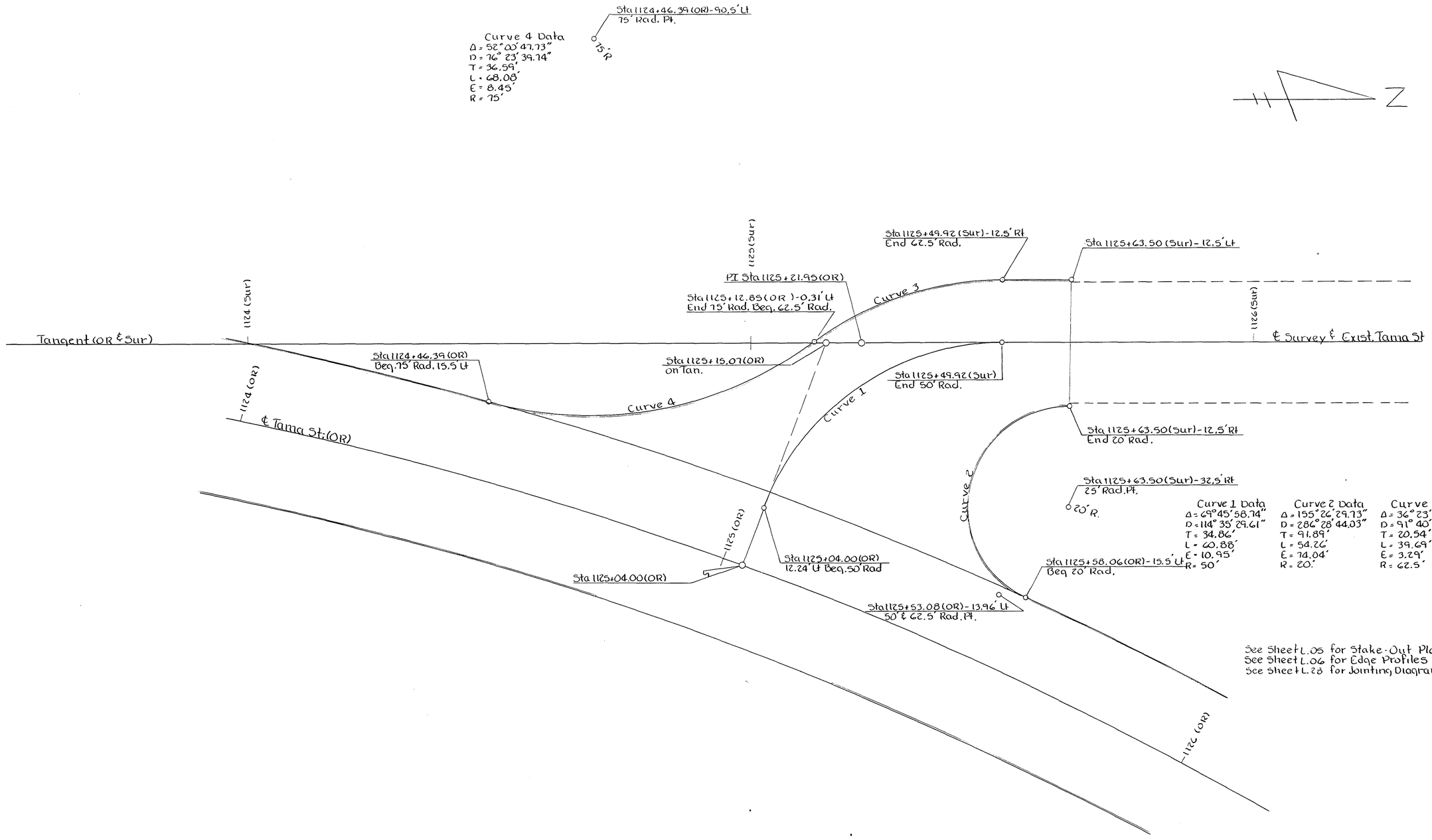
Scale 1" = 1' Hor
1" = 10' Vert

IDOT 317000 N-672

Linn COUNTY

PROJECT NUMBER	STATE	FHWA Region	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
NHS-100-1(23)--19-57	IOWA	7		L.03	

P.78

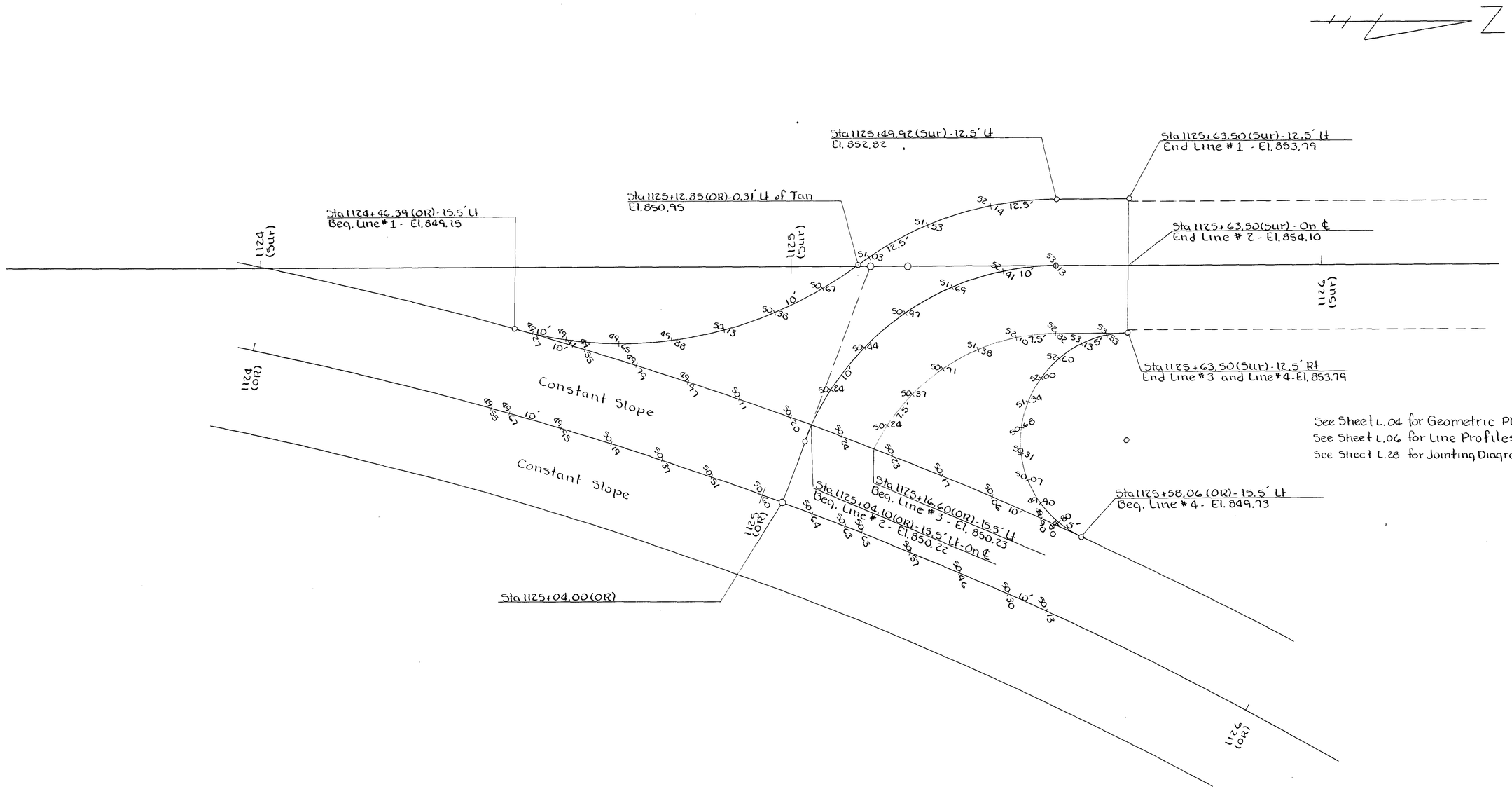


See Sheet L.05 for Stake-Out Plan
See Sheet L.06 for Edge Profiles
See Sheet L.28 for Jointing Diagram

Geometric Plan of Intersection
of Prop. Tama St. & Exist. Tama St
@ Sta 1125+04.00 (OR) Tama St.
Scale 1" = 10'

I.D.O.T #000-316920	Linn COUNTY	PROJECT NUMBER	STATE	FHWA Region	FISCAL YEAR	SHEET NO	TOTAL SHEETS
		NHS-100-1(23)--19-57	IOWA	7		L.04	

P. 79



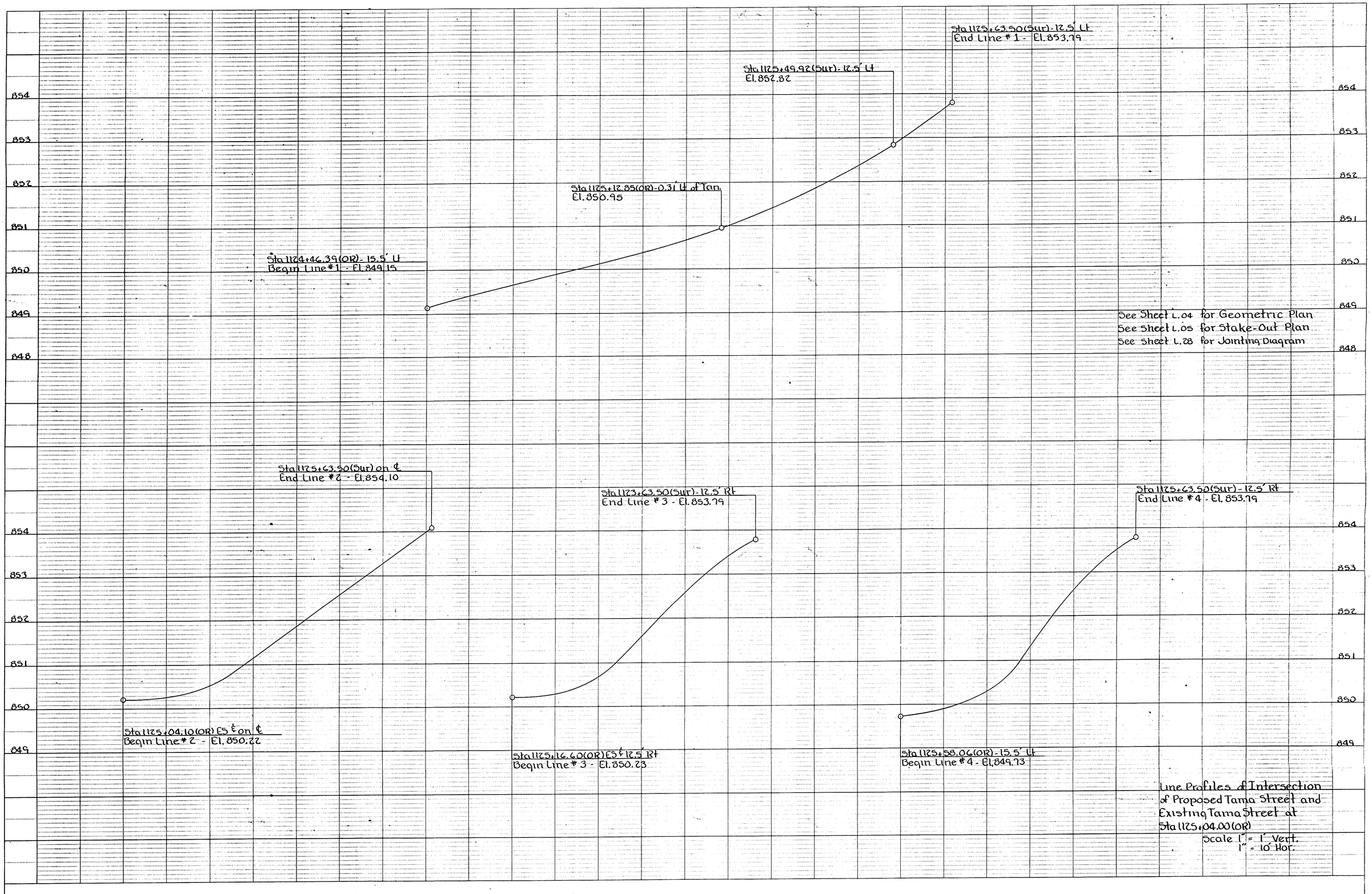
See Sheet L.04 for Geometric Plan
See Sheet L.06 for Line Profiles
See Sheet L.28 for Jointing Diagram

Stake-Out Plan of Intersection of
Proposed Tama St. & Existing Tama St.
at Sta 1125+04.00 (OR)

Scale = 1" = 10'

IDOT #000-316920	Linn COUNTY	PROJECT NUMBER	STATE	FHWA Region	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
		NHS-100-1(23)--19-57	IOWA	7		L.05	

P. 80



Line Profiles of Intersection of Proposed Tama Street and Existing Tama Street at Sta 1125+04.00(OR)

Scale 1" = 1' Vert.
1" = 10' Hor.

PLAN
SURVEYED
PLOTTED
ALIGNMENT CHECKED
RT OF WAY CHECKED
NOTE BOOK
NO.
BY
DATE

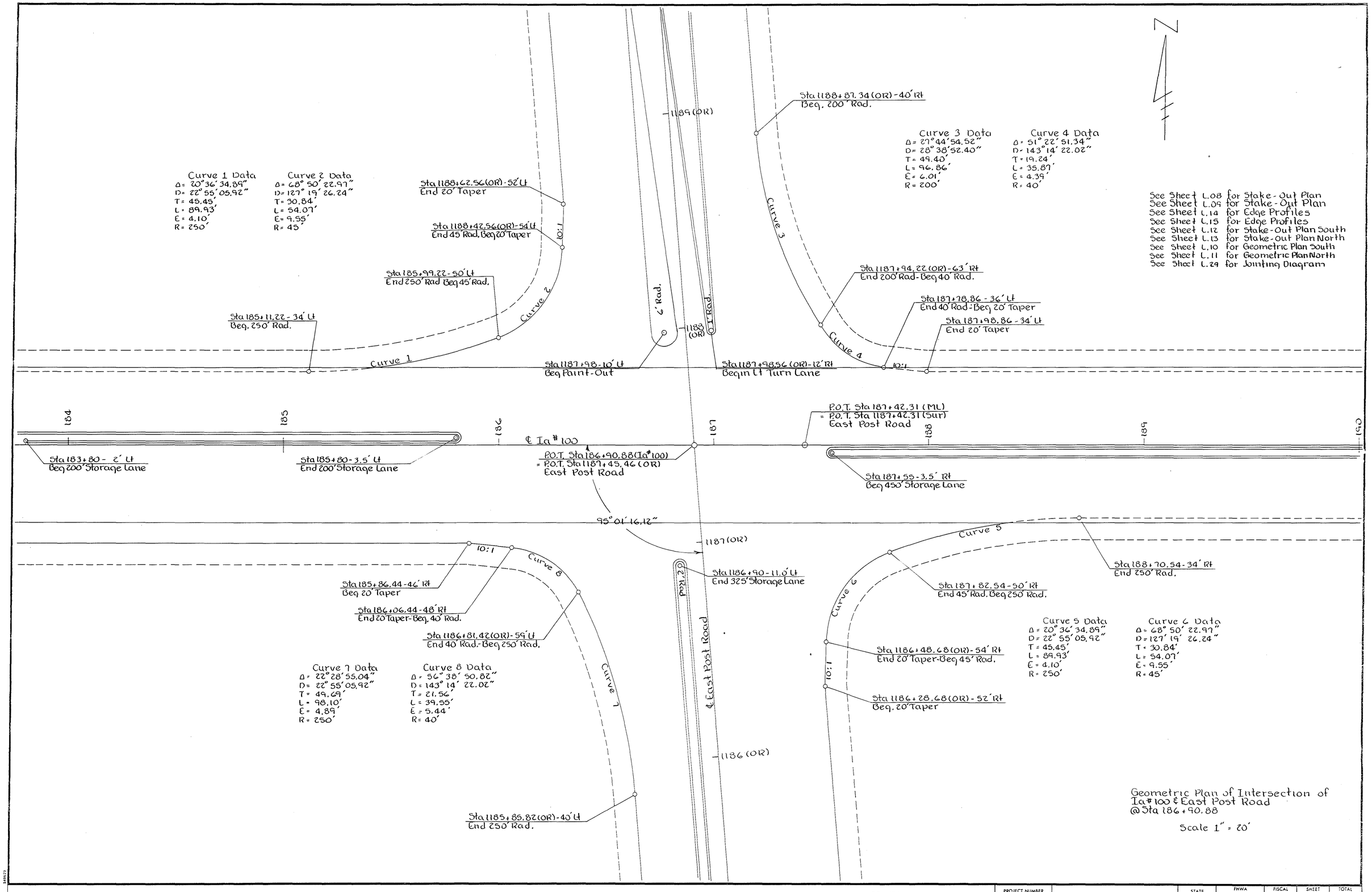
PROFILE
SURVEYED
PLOTTED
GRADES CHECKED
B.M. NOTED
STRUCTURE NOTAT'NS CH'KD
NOTE BOOK
NO.
BY
DATE

IDOT 317000 H-672

Linn COUNTY

PROJECT NUMBER	STATE	FHWA Region	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
NHS-100-1(23)--19-57	IOWA	7		L.06	

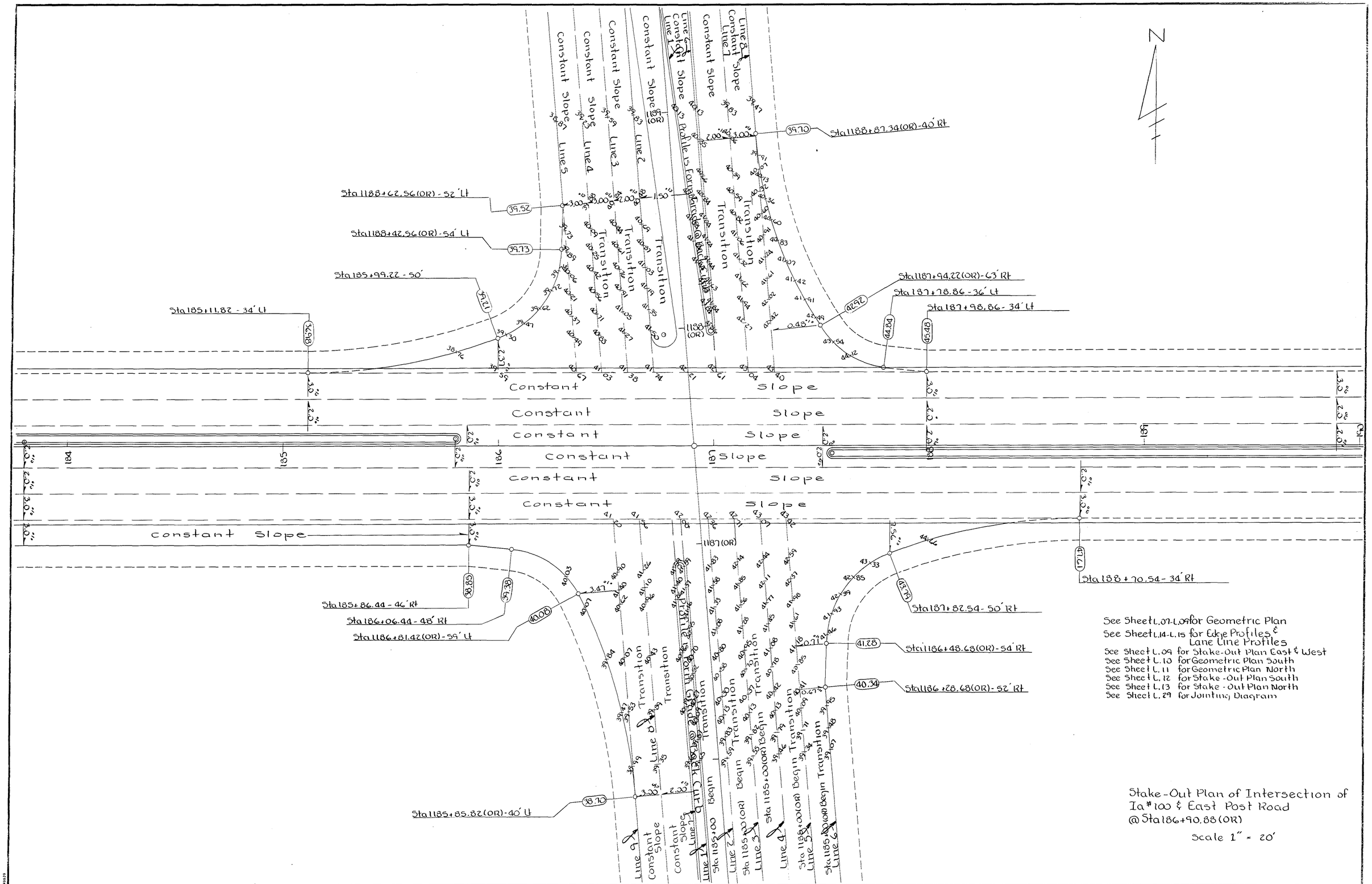
P. 81



IDOT #000-316920	Linn COUNTY	PROJECT NUMBER	STATE	FHWA Region	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
		NHS-100-1(23)--19-57	IOWA	7		L.07	

D4

P. 82



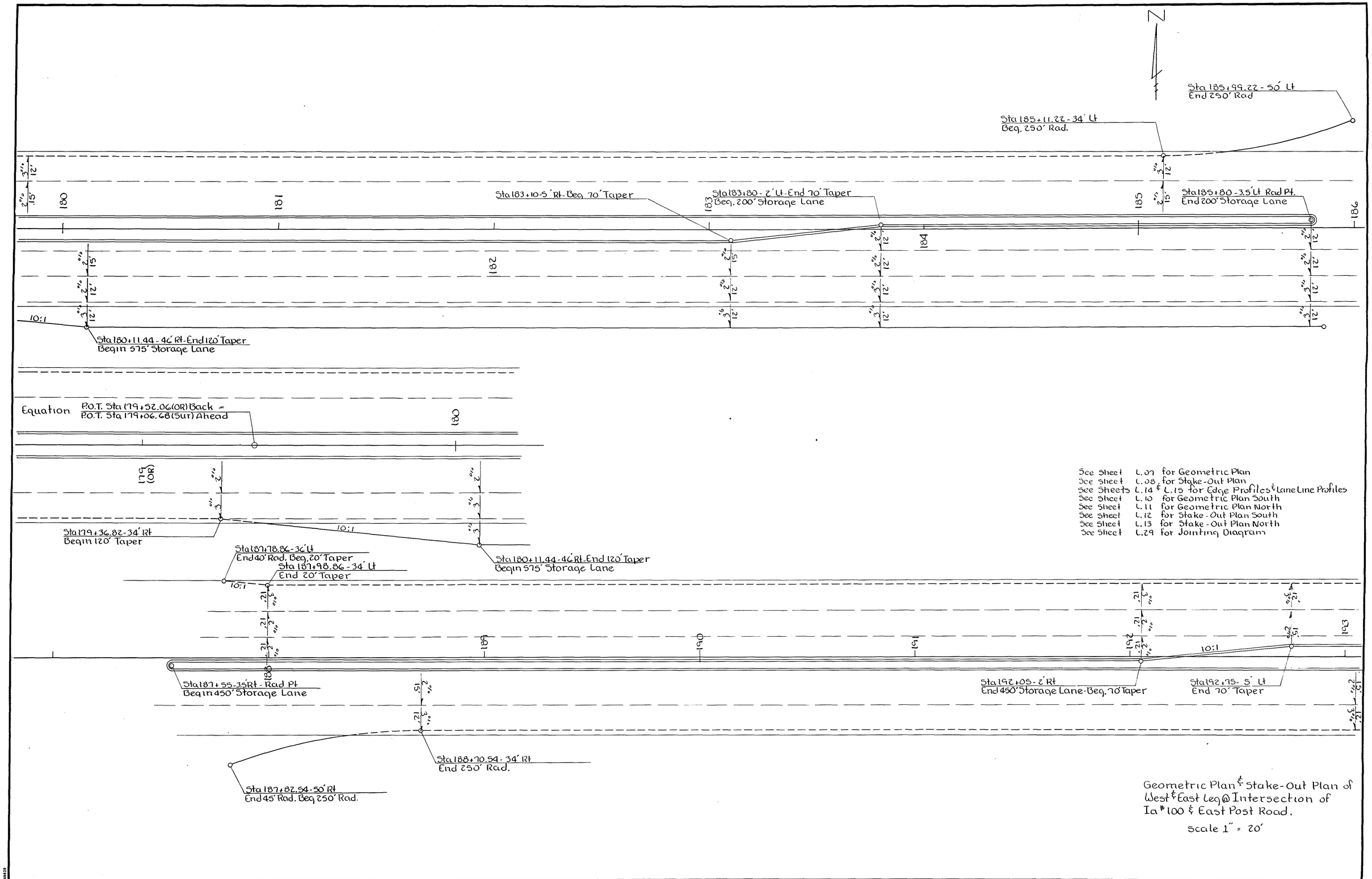
See Sheet L.07-L.09 for Geometric Plan
See Sheet L.14-L.15 for Edge Profiles & Lane Line Profiles
See Sheet L.09 for Stake-Out Plan East & West
See Sheet L.10 for Geometric Plan South
See Sheet L.11 for Geometric Plan North
See Sheet L.12 for Stake-Out Plan South
See Sheet L.13 for Stake-Out Plan North
See Sheet L.29 for Jointing Diagram

Stake-Out Plan of Intersection of Ia #100 & East Post Road @ Sta 186+90.88 (OR)

Scale 1" = 20'

D4

P.83



See Sheet L.07 for Geometric Plan
See Sheet L.08 for Stake-Out Plan
See Sheets L.14 & L.15 for Edge Profiles & Lane Line Profiles
See Sheet L.10 for Geometric Plan South
See Sheet L.11 for Geometric Plan North
See Sheet L.12 for Stake-Out Plan South
See Sheet L.13 for Stake-Out Plan North
See Sheet L.29 for Jointing Diagram

Geometric Plan & Stake-Out Plan of West & East Leg @ Intersection of Ia #100 & East Post Road.

Scale 1" = 20'

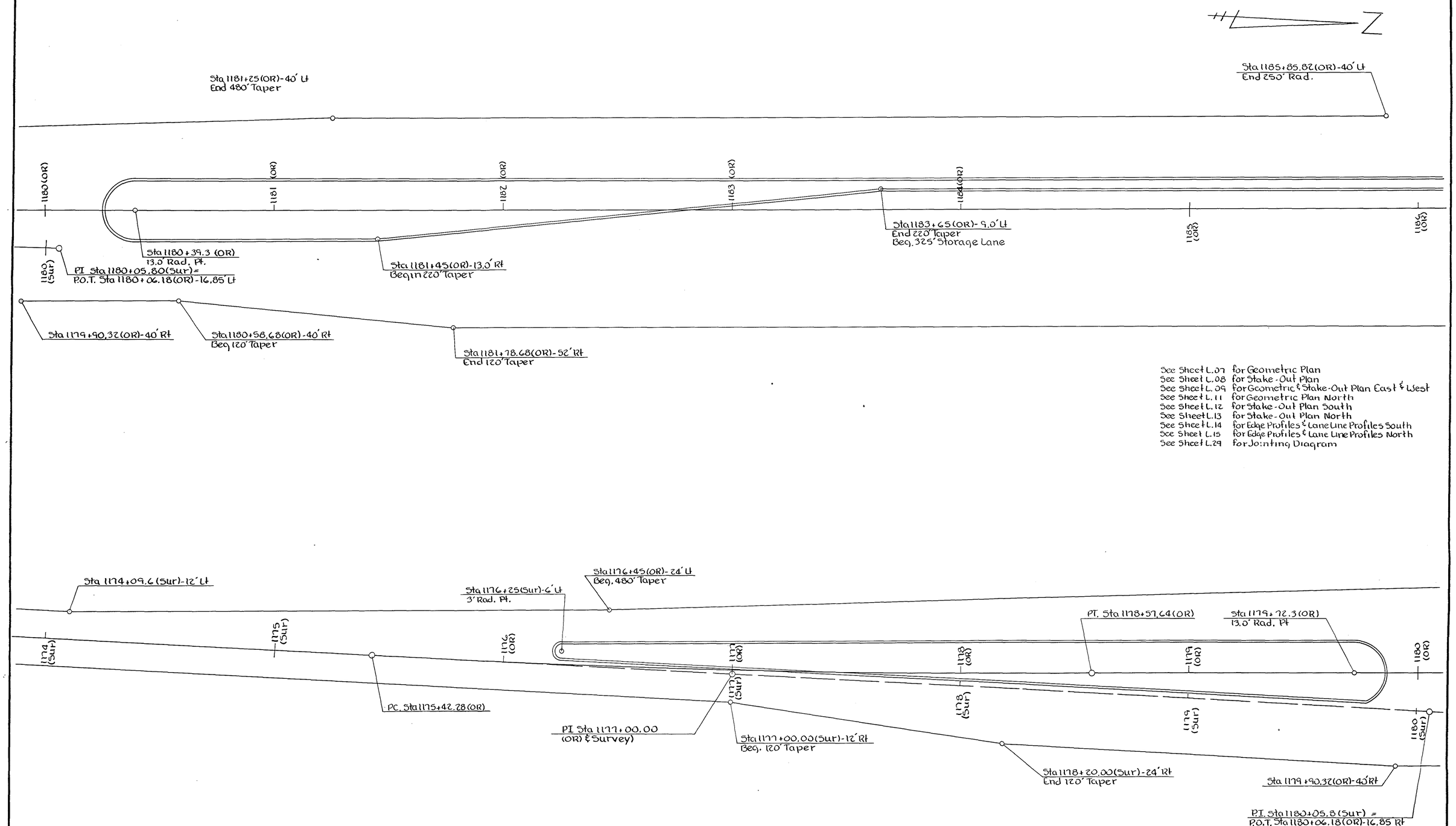
I.D.O.T. #000-316920

Linn COUNTY

PROJECT NUMBER	STATE	FHWA Region	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
NHS-100-1(23)--19-57	IOWA	7		L.09	

P. 84

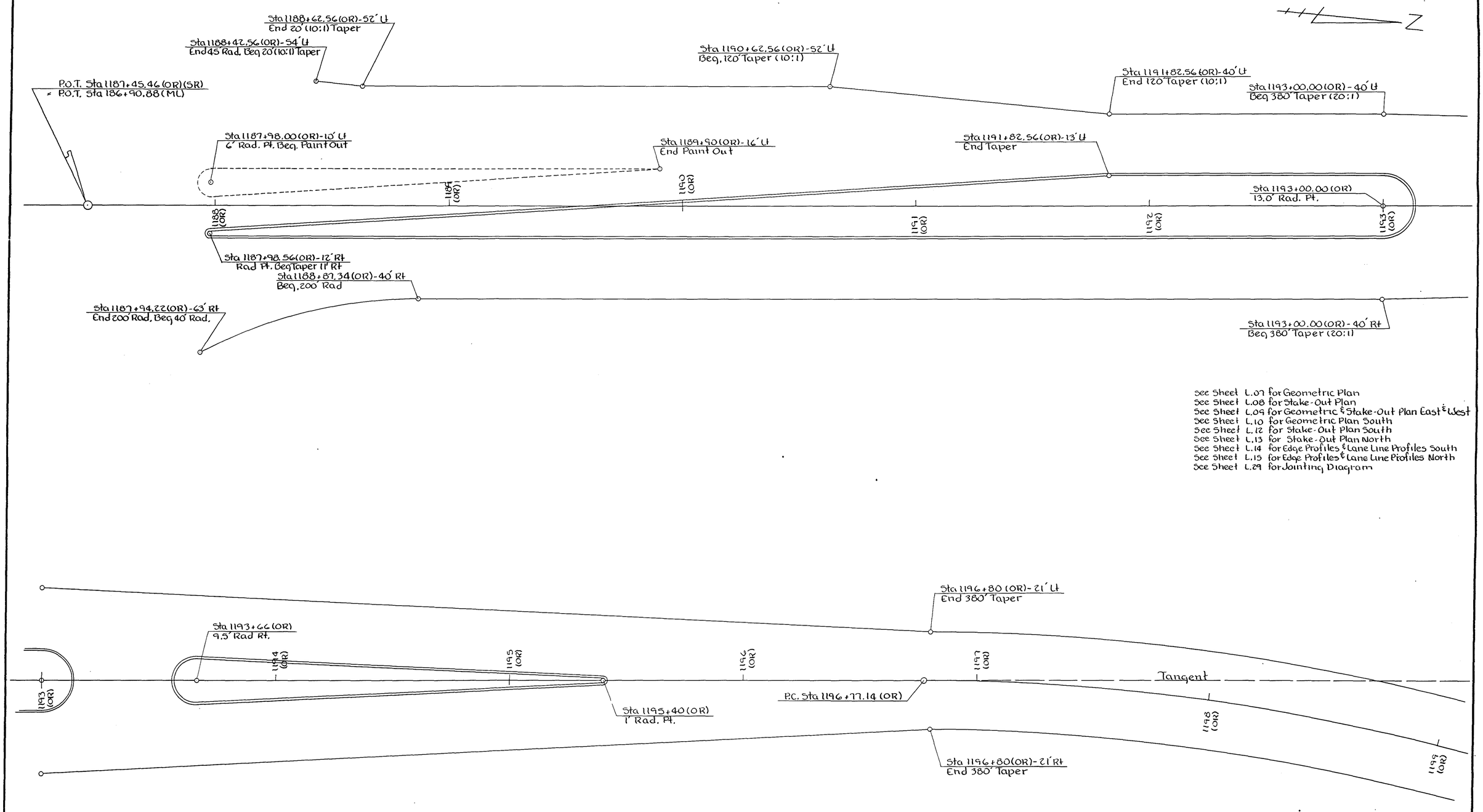
04



Geometric Plan of East Post Road
South of Ia # 100 ML,
Scale 1" = 20'

I.D.O.T. #000-316920	Linn COUNTY	PROJECT NUMBER	STATE	FHWA Region	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
		NHS-100-1(23)--19-57	IOWA	7		L.10	

P. 85



See Sheet L.07 for Geometric Plan
See Sheet L.08 for Stake-Out Plan
See Sheet L.09 for Geometric & Stake-Out Plan East & West
See Sheet L.10 for Geometric Plan South
See Sheet L.12 for Stake-Out Plan South
See Sheet L.13 for Stake-Out Plan North
See Sheet L.14 for Edge Profiles & Lane Line Profiles South
See Sheet L.15 for Edge Profiles & Lane Line Profiles North
See Sheet L.29 for Jointing Diagram

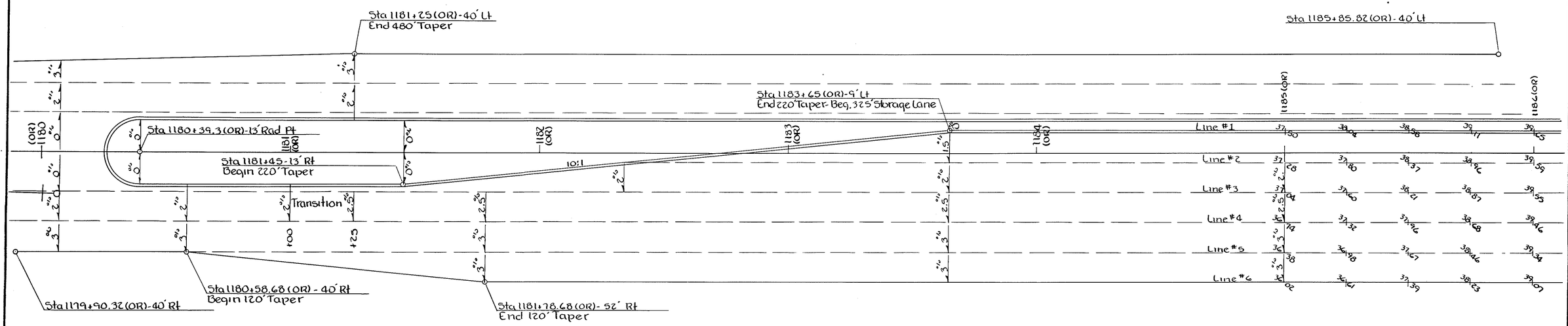
Geometric Plan of East Post Road
North of Ia #100 ML
Scale 1" = 20'

I.D.O.T. #000-316920

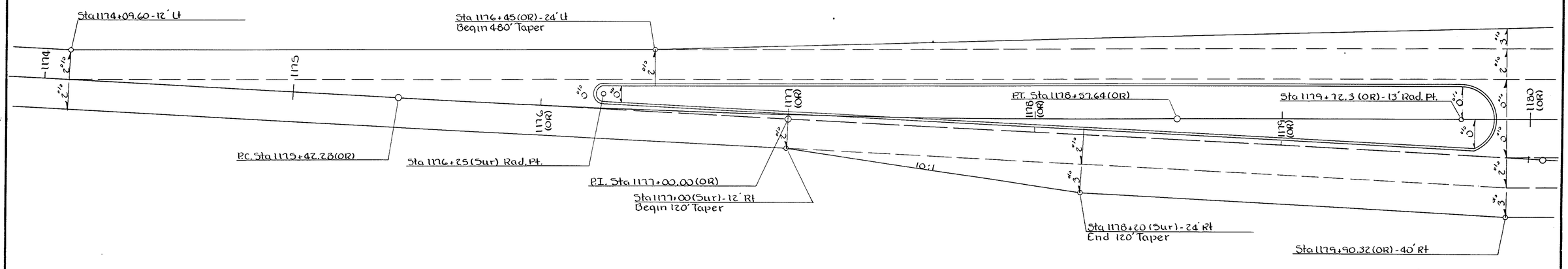
Linn COUNTY

PROJECT NUMBER	STATE	FHWA Region	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
NHS-100-1(23)--19-57	IOWA	7		L.11	

P.86



See Sheet L.07 for Geometric Plan
See Sheet L.08 for Stake-Out Plan
See Sheet L.09 for Geometric & Stake-Out Plan East & West
See Sheet L.10 for Geometric Plan South
See Sheet L.11 for Geometric Plan North
See Sheet L.13 for Stake-Out Plan North
See Sheet L.14 for Edge Profiles & Lane Line Profiles South
See Sheet L.15 for Edge Profiles & Lane Line Profiles North
See Sheet L.29 for Jointing Diagram

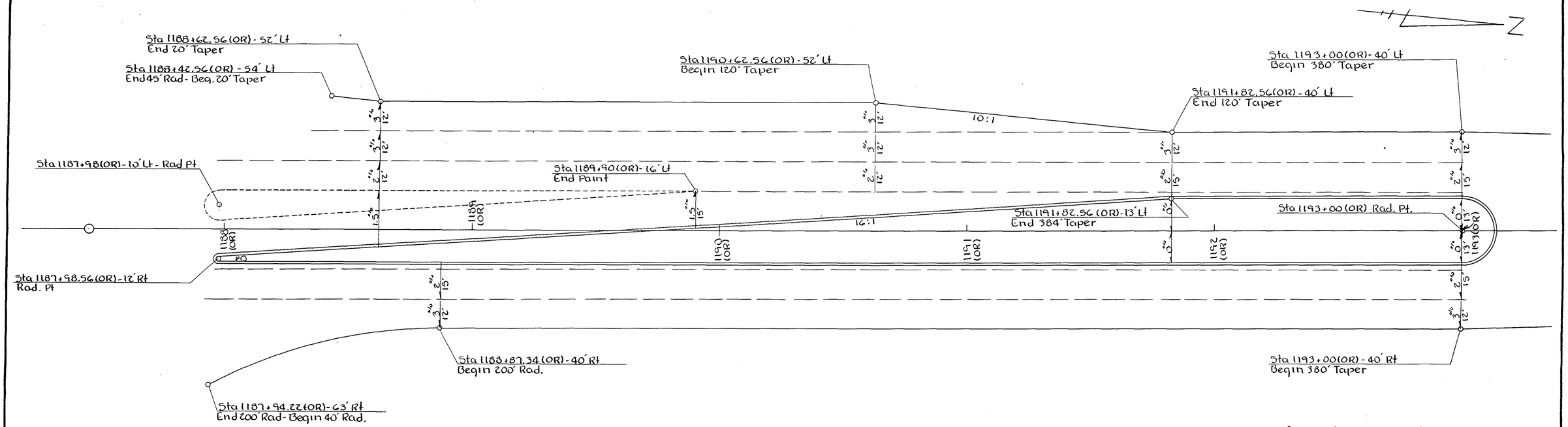


Stake-Out Plan of Intersection of South Leg of East Post Road

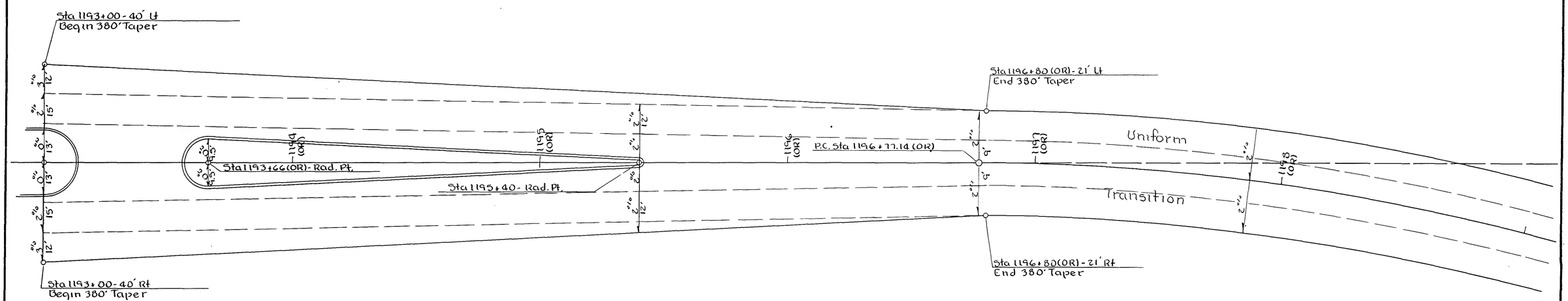
Scale 1" = 20'

I.D.O.T. #000-316920	Linn COUNTY	PROJECT NUMBER	STATE	FHWA Region	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
		NHS-100-1(23)--19-57	IOWA	7		L.12	

P.87 04



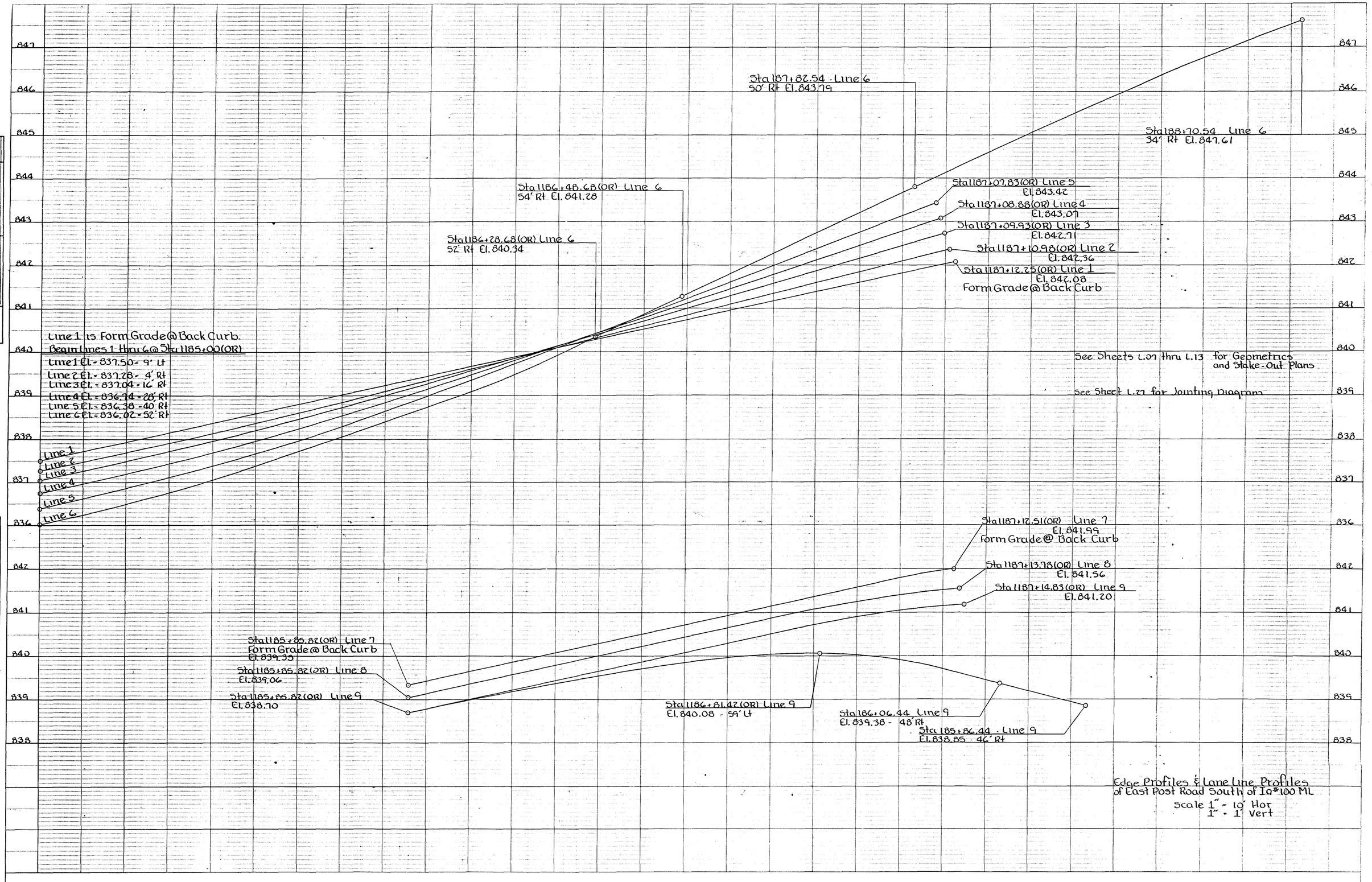
See Sheet L.07 for Geometric Plan
See Sheet L.08 for Stake-Out Plan
See Sheet L.09 for Geometric & Stake-Out Plan East & West
See Sheet L.10 for Geometric Plan South
See Sheet L.11 for Geometric Plan North
See Sheet L.12 for Stake-Out Plan South
See Sheet L.14 for Edge Profiles & Lane Line Profiles South
See Sheet L.15 for Edge Profiles & Lane Line Profiles North
See Sheet L.29 for Jointing Details



Stake-Out Plan of Intersection of
North Leg of East Post Road

Scale 1" = 20'

I.D.O.T. #000-316920	Linn COUNTY	PROJECT NUMBER	STATE	FHWA Region	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
		NHS-100-1(23)--19-57	IOWA	7		L.13	



Edge Profiles & Lane Line Profiles
of East Post Road South of Ia*100 ML
Scale 1" = 10' Hor
1" = 1' Vert

PLAN
NOTE BOOK NO
SURVEY SKETCH (LETTER)
ALIGNMENT CHECKED
RIT OF WAY CHECKED
BY
DATE

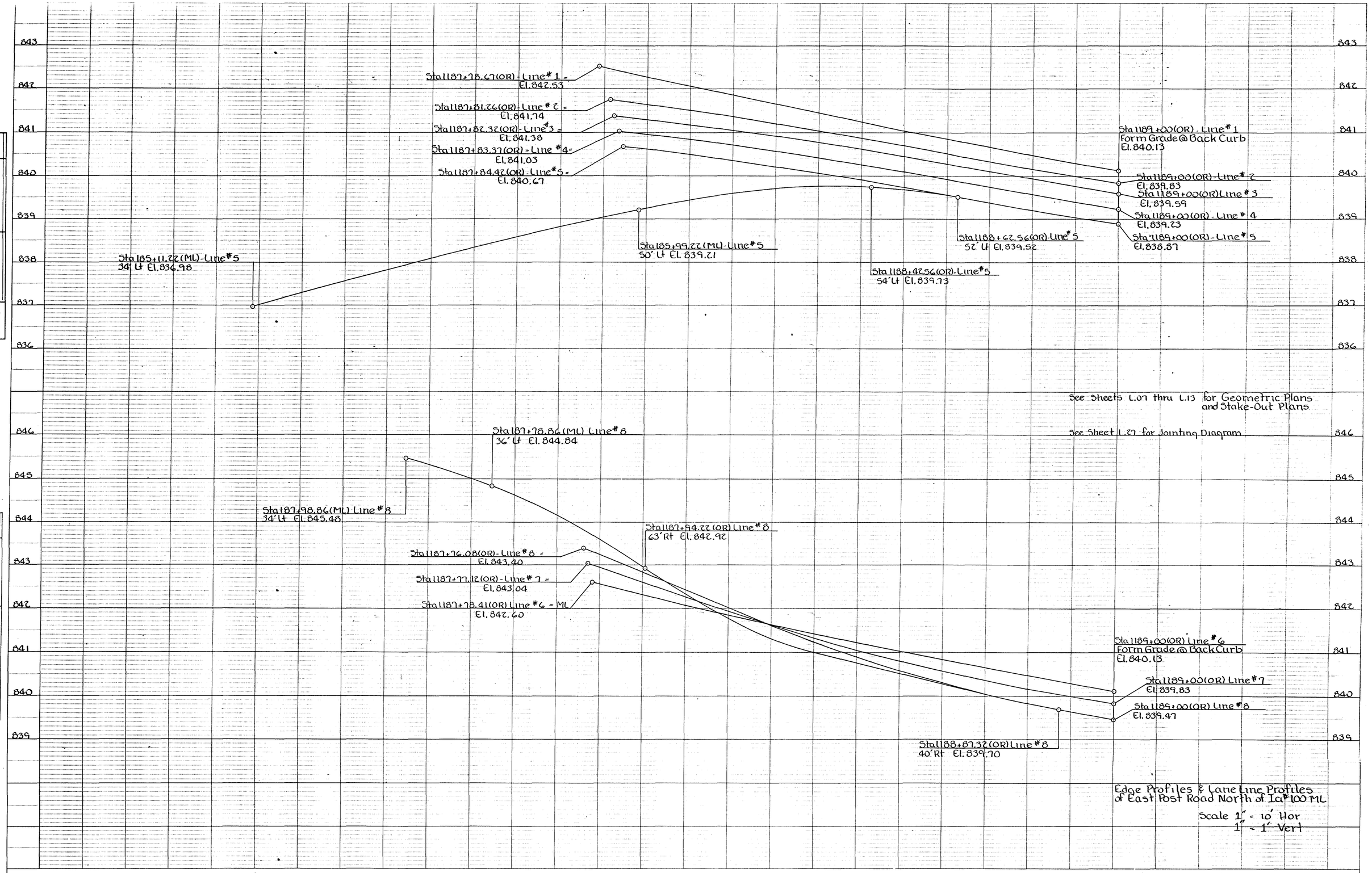
PROFILE
NOTE BOOK NO
SURVEYED
PLOTTED
GRADES CHECKED
B.M. NOTED
STRUCTURE NOTAT'NS CH'KD
BY
DATE

IDOT 317000 (4-87)

Linn COUNTY

PROJECT NUMBER	STATE	FHWA Region	FISCAL YEAR	SHEET NO	TOTAL SHEETS
NHS-100-1(23)--19-57	IOWA	7		L.14	

P.89



PLAN
SURVEYED
PLOTTED
ALIGNMENT CHECKED
RT OF WAY CHECKED
NOTE BOOK
NO.
BY
DATE

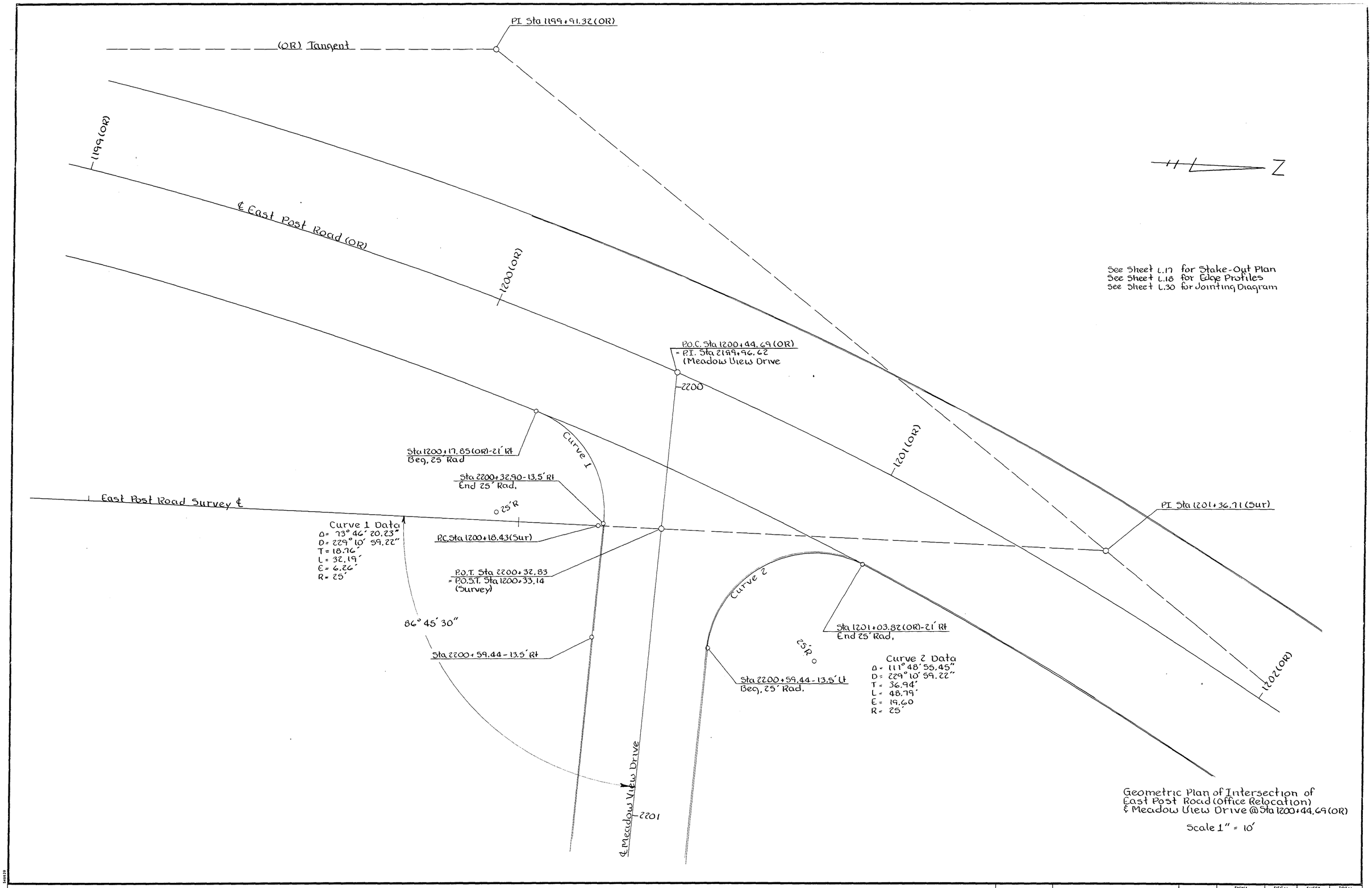
PROFILE
SURVEYED
PLOTTED
GRADES CHECKED
B.M. NOTED
STRUCTURE NOTATNS CHKD
NOTE BOOK
NO.
BY
DATE

IDOT 317000 H672

Linn COUNTY

PROJECT NUMBER	STATE	FHWA Region	FISCAL YEAR	SHEET NO	TOTAL SHEETS
NHS-100-1(23)--19-57	IOWA	7		L.15	

P.90 D4



Geometric Plan of Intersection of
East Post Road (Office Relocation)
& Meadow View Drive @ Sta 1200+44.69 (OR)

Scale 1" = 10'

549639

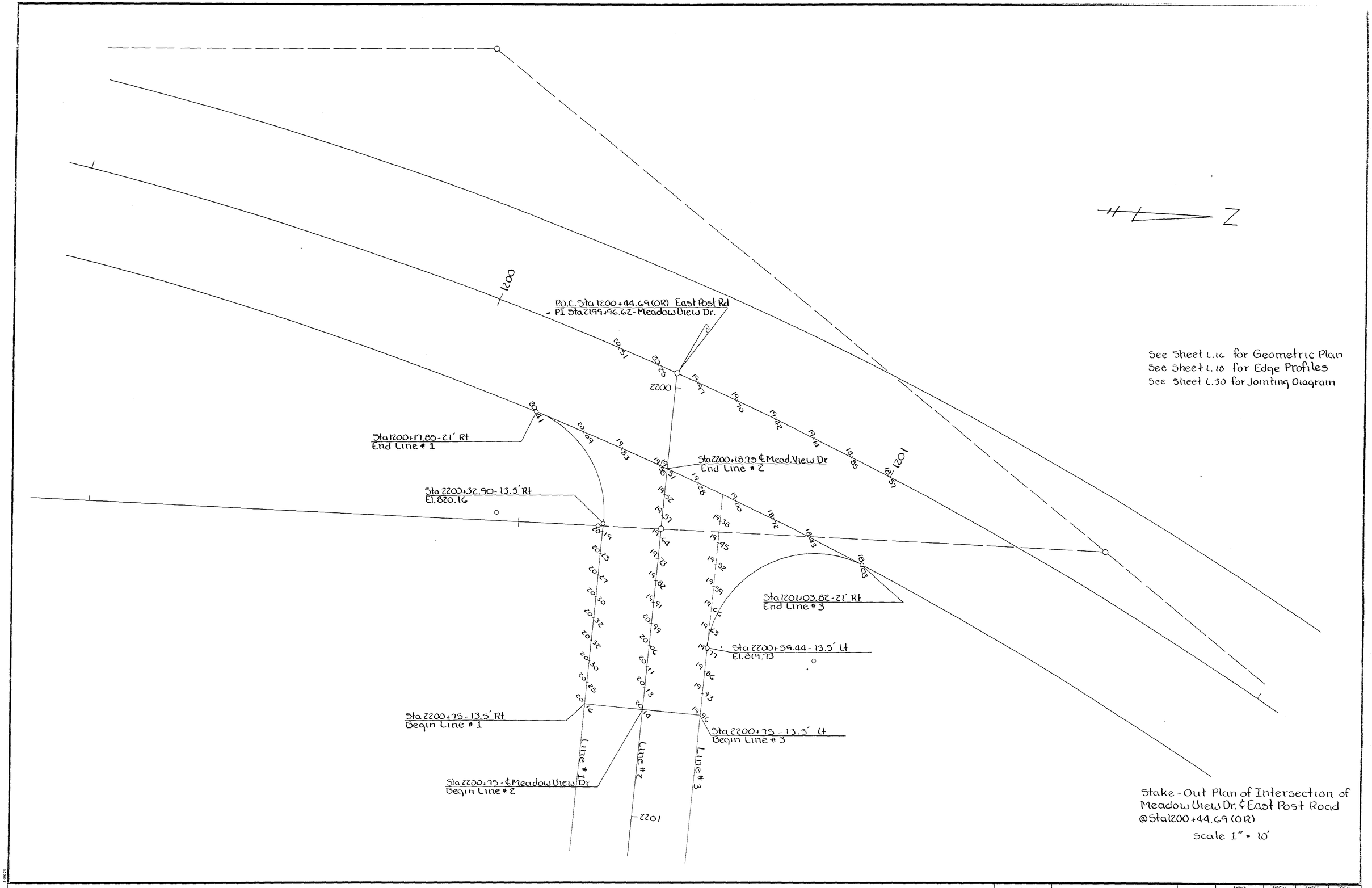
I.C.O.T. #000-316920

Linn COUNTY

PROJECT NUMBER	STATE	FHWA Region	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
NHS-100-1(23)--19-57	IOWA	7		L.16	

D4

P. 91



Stake-Out Plan of Intersection of Meadow View Dr. & East Post Road @ Sta 1200+44.69 (OR)

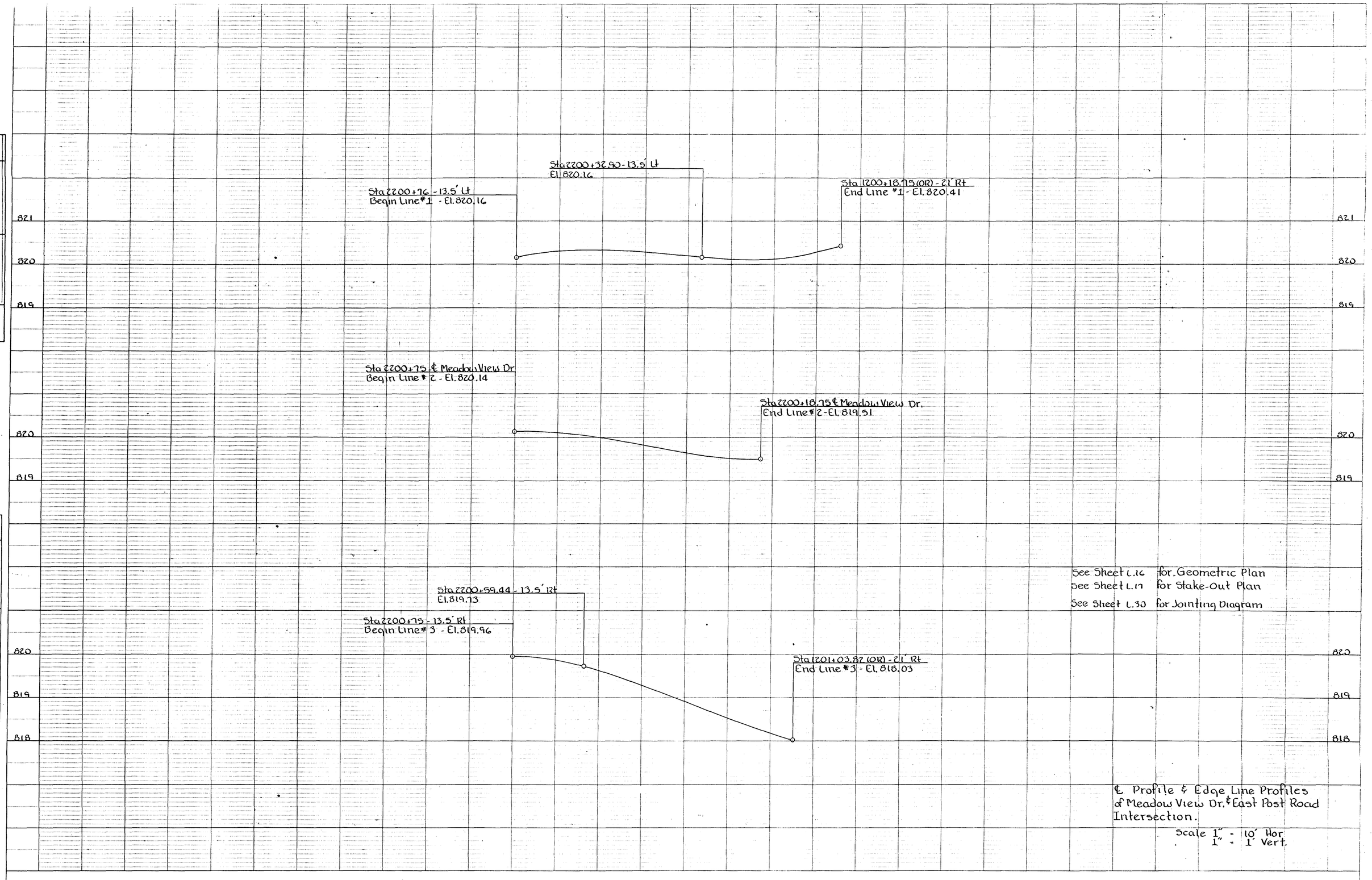
Scale 1" = 10'

IDOT #000-316920	Linn COUNTY	PROJECT NUMBER	STATE	FHWA Region	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
		NH5-100-1(23)--19-57	IOWA	7		L.17	

P. 92

PLAN		BY	DATE
NOTE BOOK NO.	SURVEYED PLOTTED ALIGNMENT CHECKED RT OF WAY CHECKED		

PROFILE		BY	DATE
NOTE BOOK NO.	SURVEYED PLOTTED GRADES CHECKED B.M. NOTED STRUCTURE NOTATIONS CHKD		



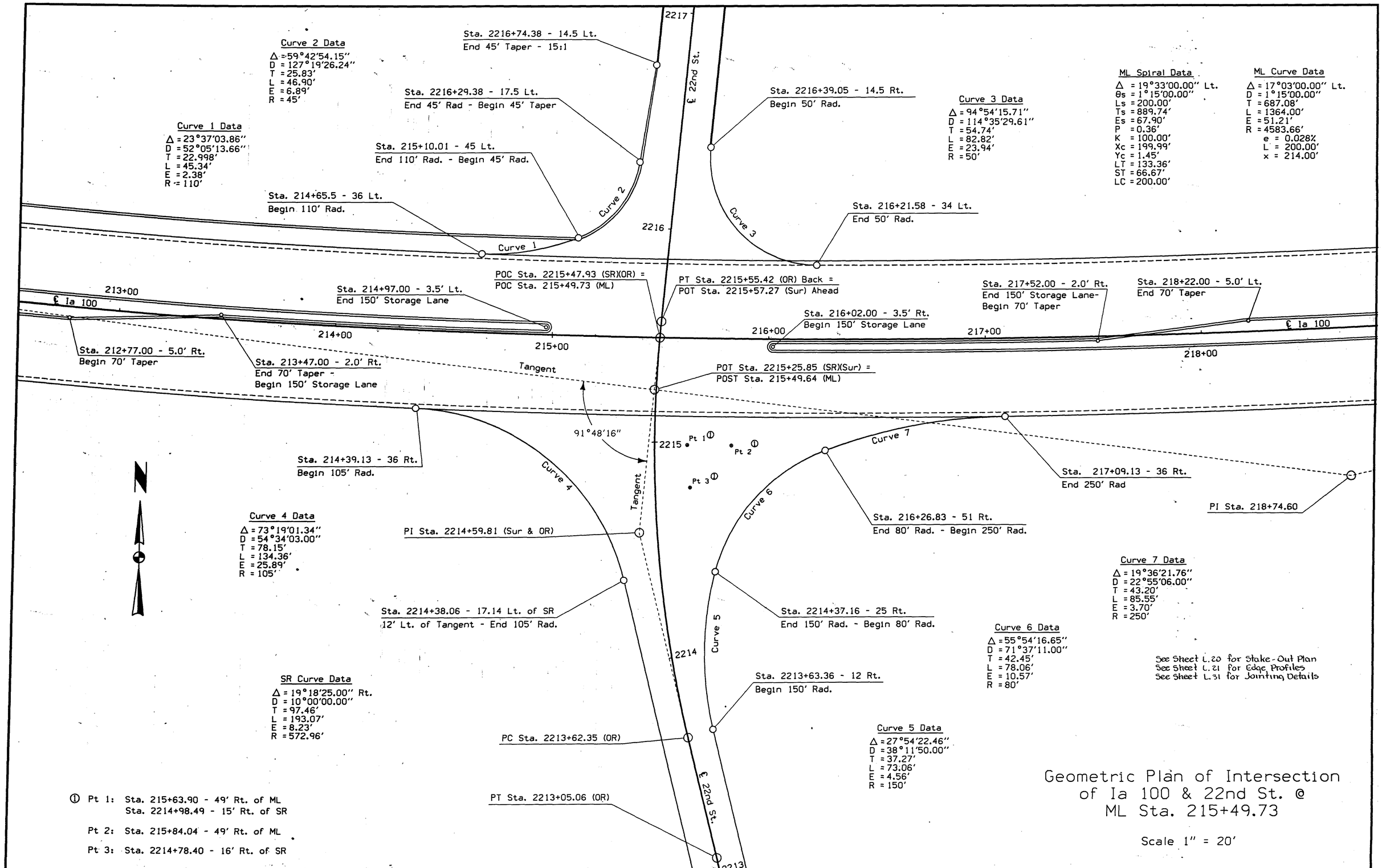
IDOT 317000 H472

Linn COUNTY

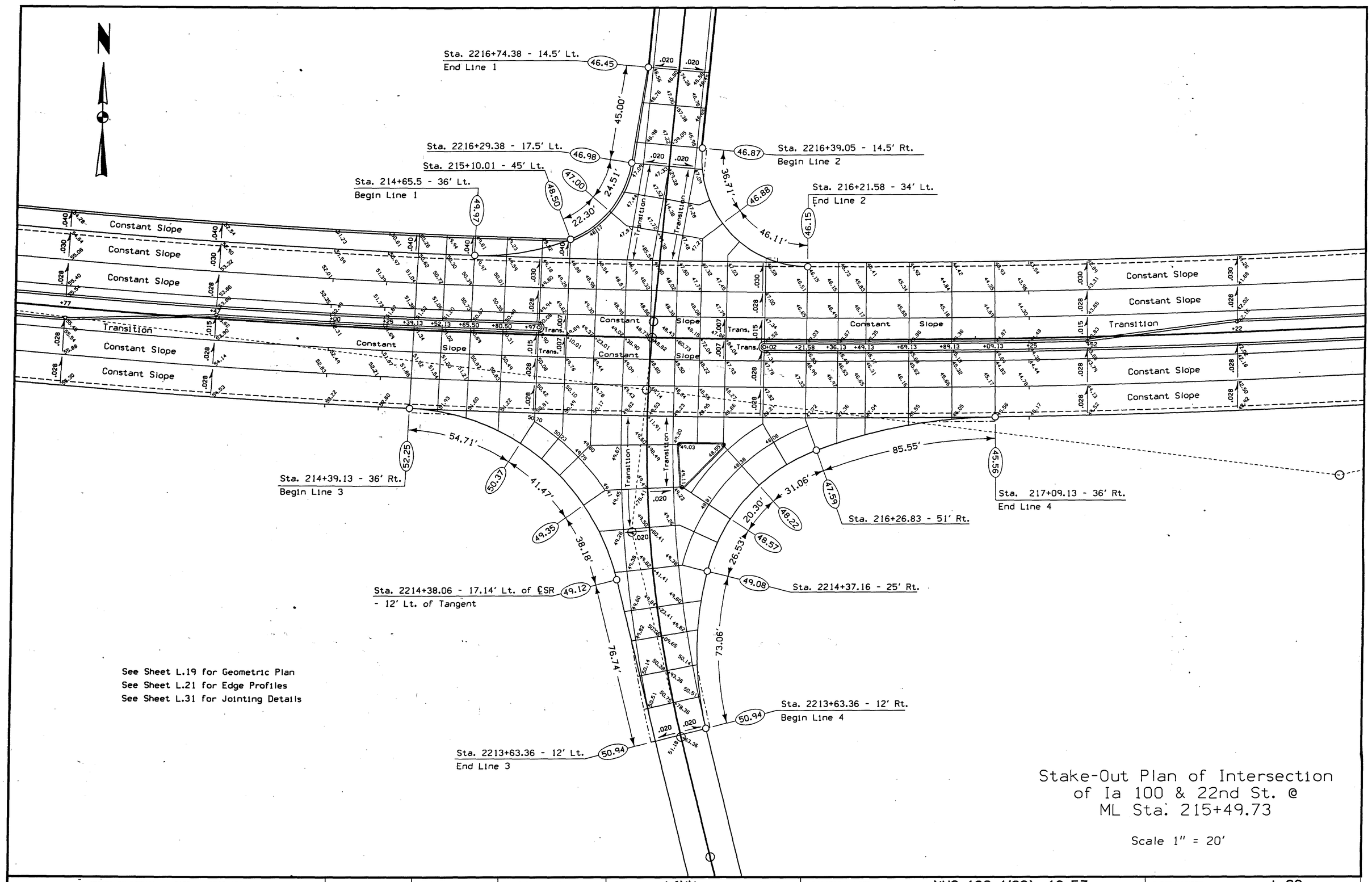
PROJECT NUMBER	STATE	FHWA Region	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
NHS-100-1(23)--19-57	IOWA	7		L.18	

P93

D4



OFFICE OF DESIGN • CADD • PRODUCED	STATE OF IOWA	FHWA REGION 7	FISCAL YEAR	LINN	COUNTY	PROJECT NUMBER	NHS-100-1(23)--19-57	SHEET NUMBER	L.19

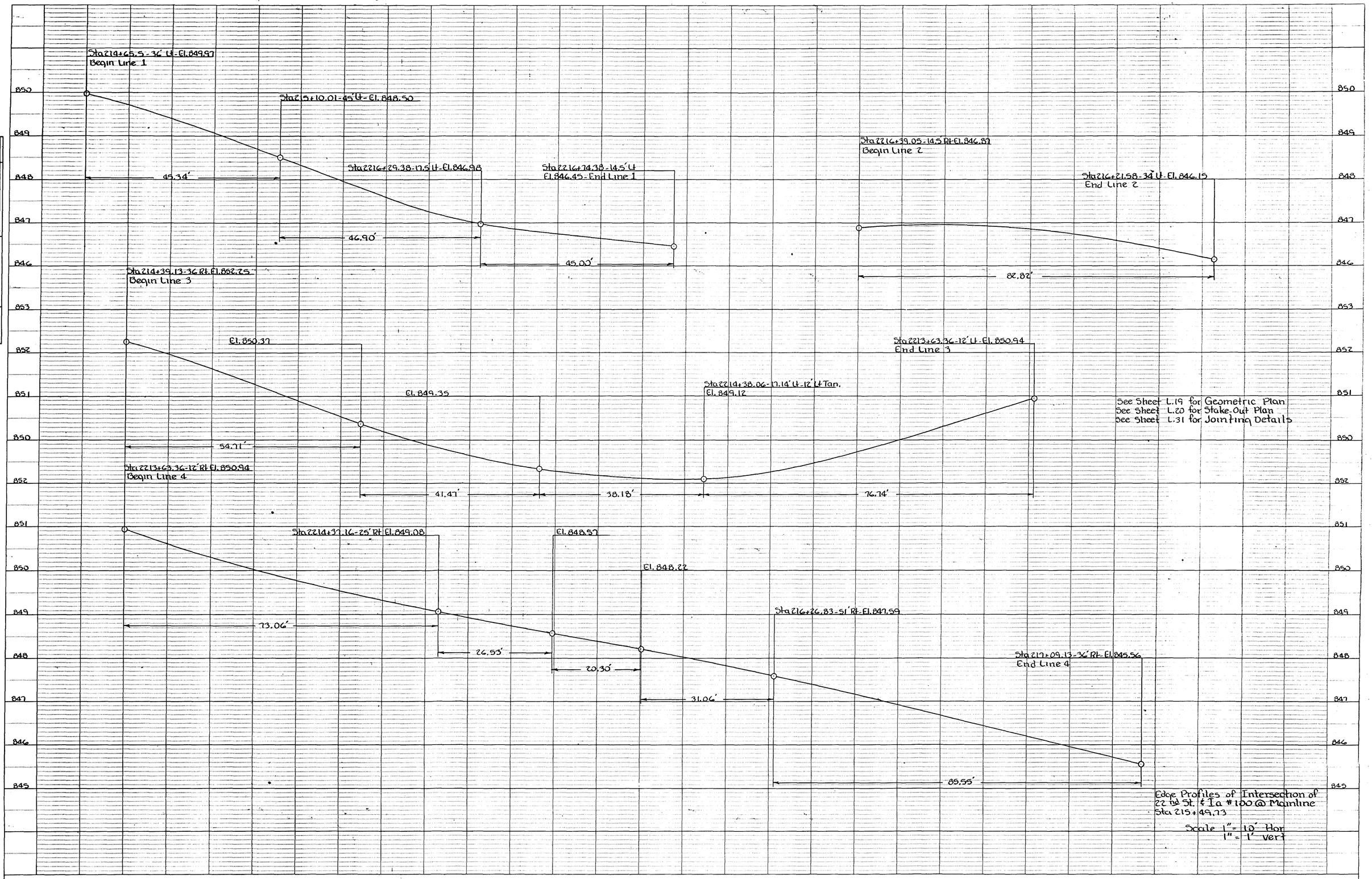


See Sheet L.19 for Geometric Plan
See Sheet L.21 for Edge Profiles
See Sheet L.31 for Jointing Details

Stake-Out Plan of Intersection
of Ia 100 & 22nd St. @
ML Sta. 215+49.73

Scale 1" = 20'

OFFICE OF DESIGN • CADD • PRODUCED	STATE OF IOWA	FHWA REGION 7	FISCAL YEAR	LINN	COUNTY	PROJECT NUMBER	NHS-100-1(23)--19-57	SHEET NUMBER	L.20



Edge Profiles of Intersection of 22nd St. & Ia #100 @ Mainline
Sta 215+49.73

Scale 1" = 10' Hor
1" = 1' Vert

PLAN
SURVEYED
PLOTTED
ALIGNMENT CHECKED
RT OF WAY CHECKED
NOTE BOOK
NO.
BY
DATE

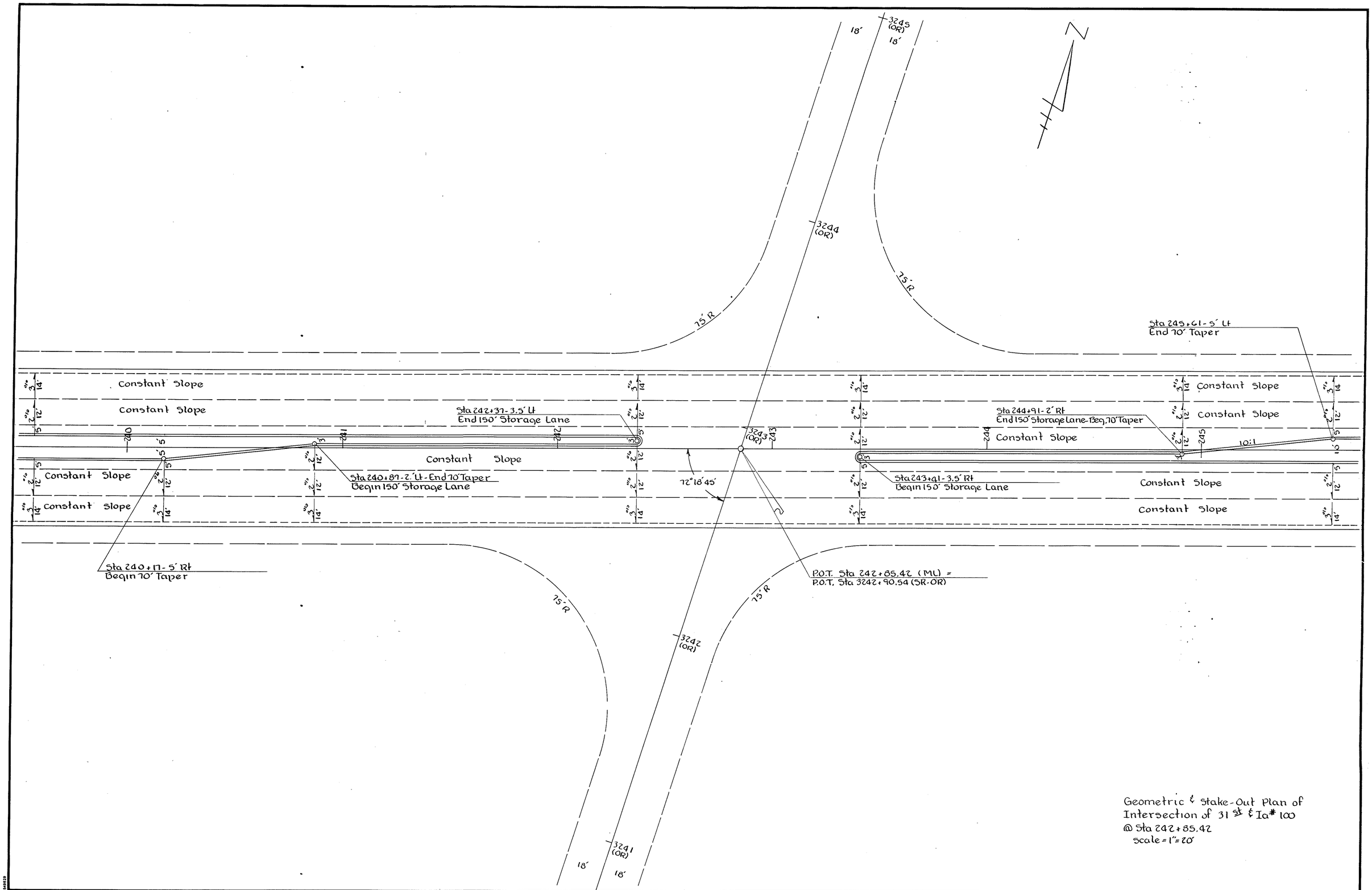
PROFILE
SURVEYED
PLOTTED
GRADES CHECKED
B.M. NOTED
STRUCTURE NOTATNS CHKD
NOTE BOOK
NO.
BY
DATE

IDOT 317000 H-672

Linn COUNTY

PROJECT NUMBER	STATE	FHWA Region	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
NHS-100-1(23)--19-57	IOWA	7		L.21	

P. 96

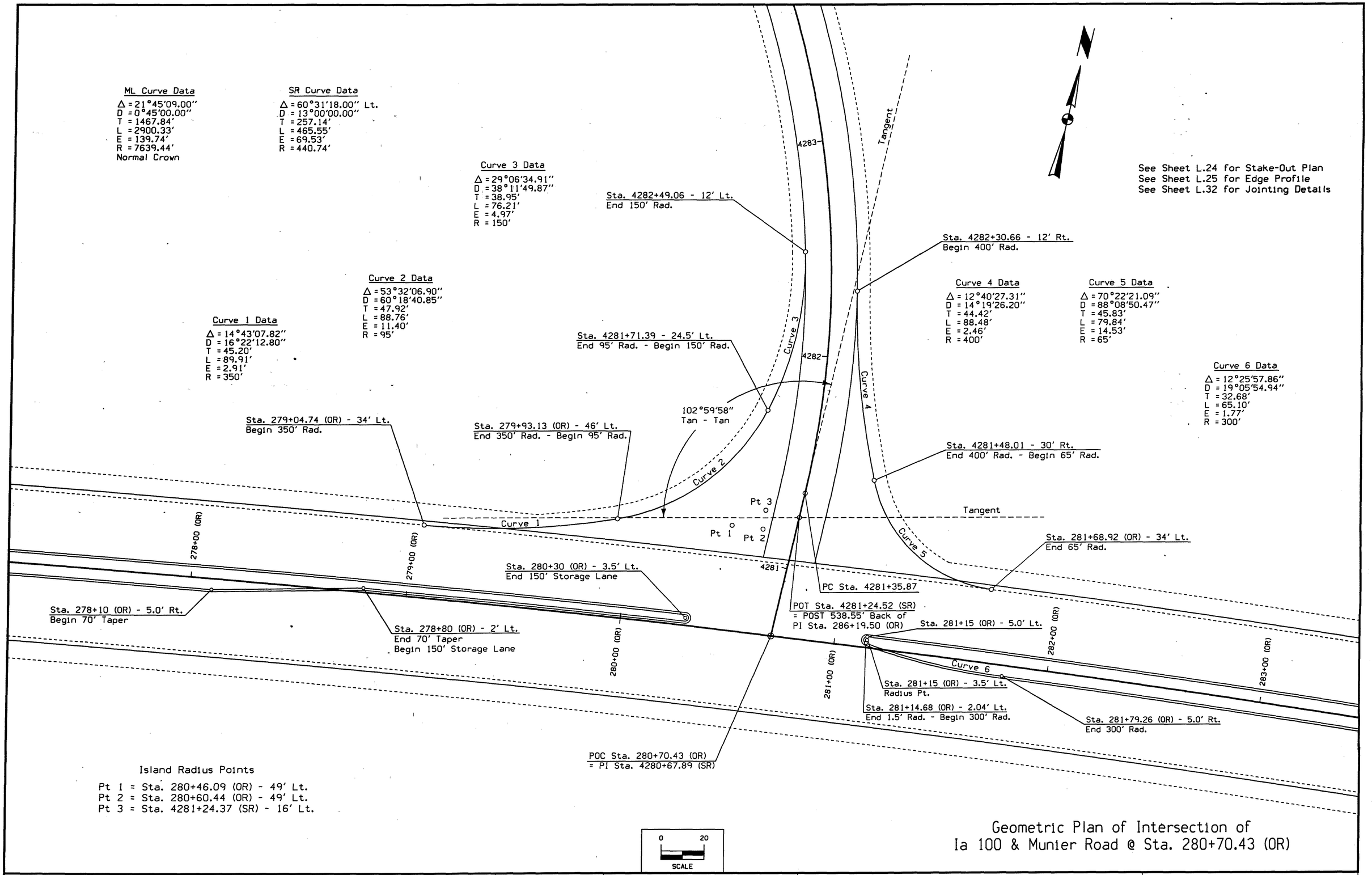


Geometric & Stake-Out Plan of
Intersection of 31st & Ia# 100
@ Sta 242+85.42
Scale = 1" = 20'

I.D.O.T. #000-316920	Linn COUNTY	PROJECT NUMBER	STATE	FHWA Region	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
		NHS-100-1(23)--19-57	IOWA	7		L.22	

P. 97

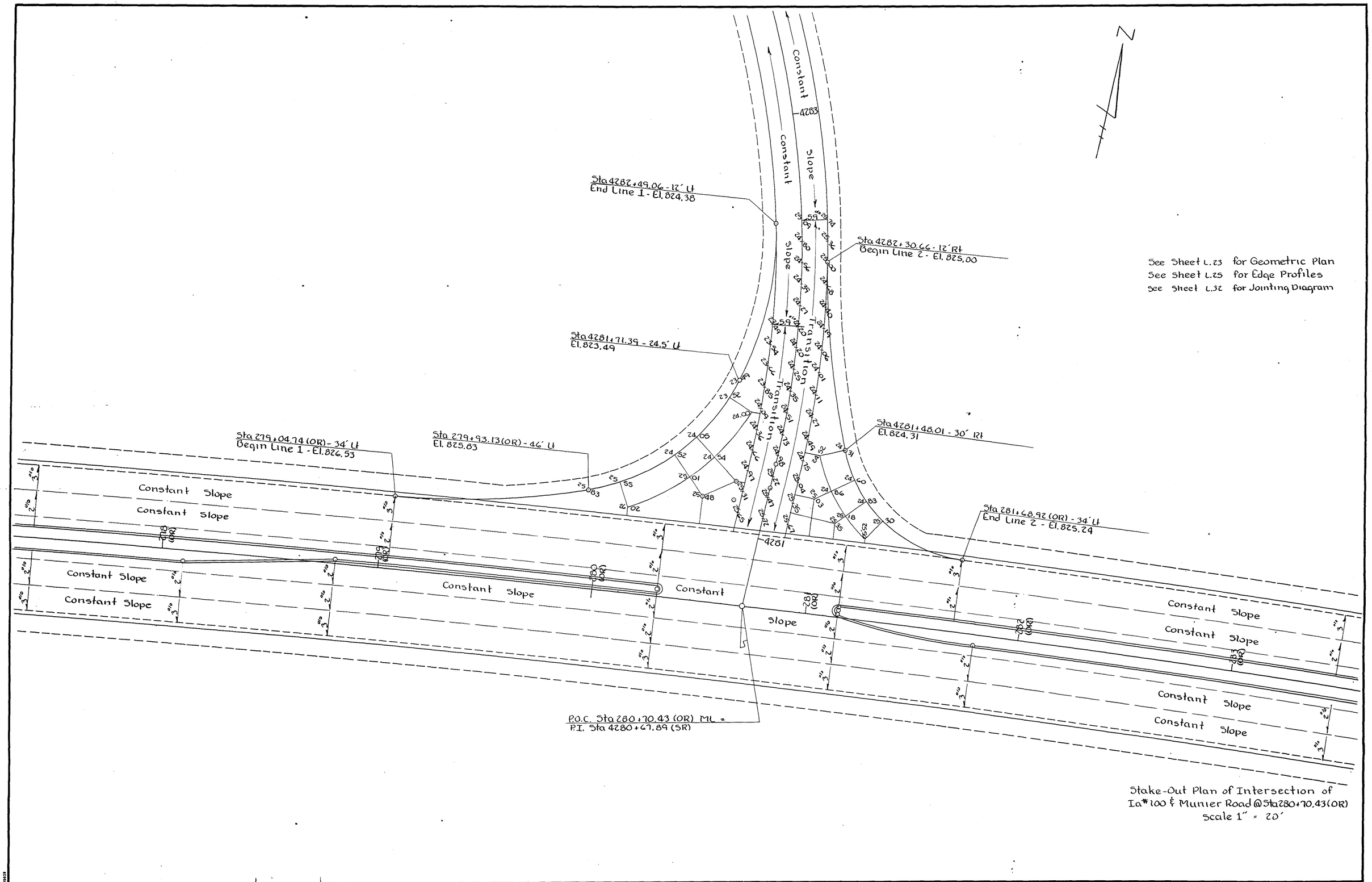
04



Geometric Plan of Intersection of
Ia 100 & Munier Road @ Sta. 280+70.43 (OR)

OFFICE OF DESIGN • CADD • PRODUCED	STATE OF IOWA	FHWA REGION 7	FISCAL YEAR	LINN	COUNTY	PROJECT NUMBER	NHS-100-1(23)--19-57	SHEET NUMBER	L.23

P. 98



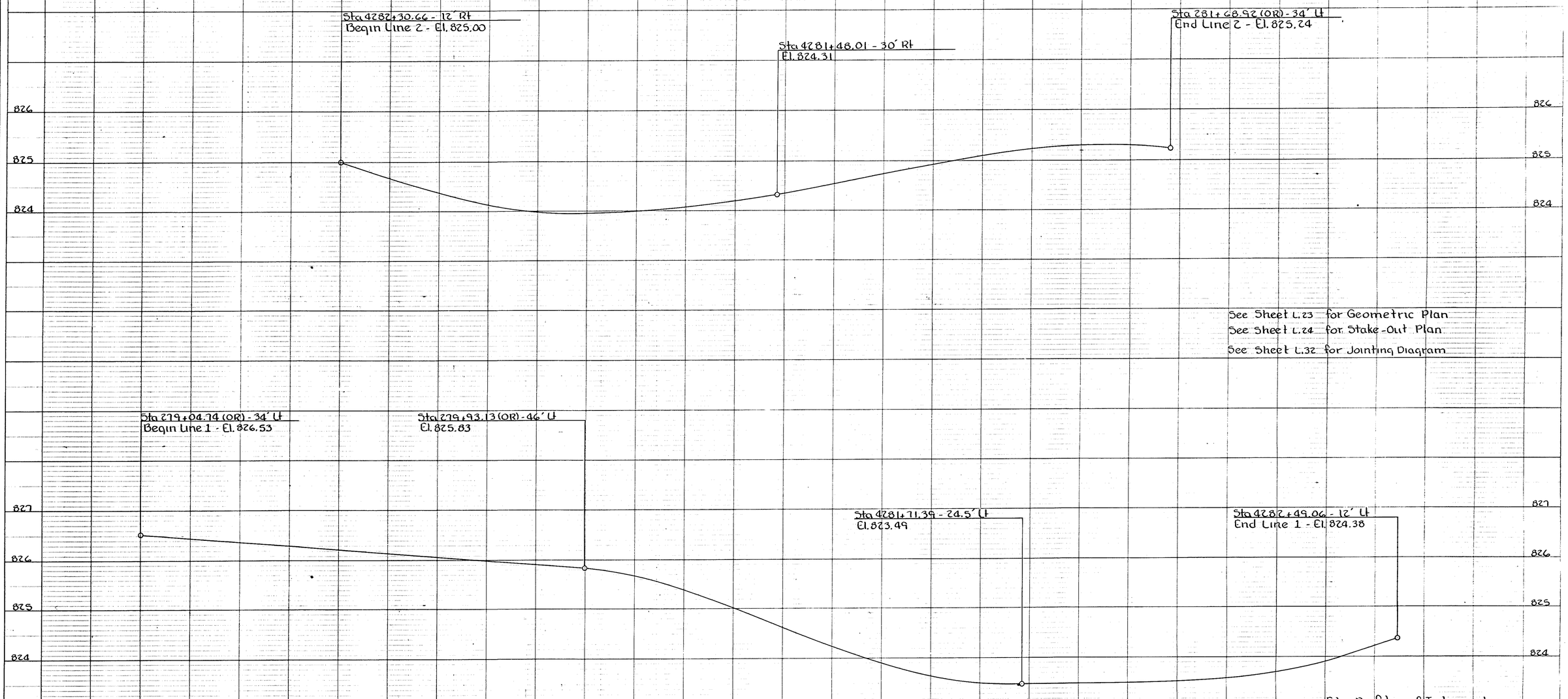
See Sheet L.23 for Geometric Plan
See Sheet L.25 for Edge Profiles
See Sheet L.32 for Jointing Diagram

Stake-Out Plan of Intersection of
Ia*100 & Munier Road @ Sta 280+70.43 (OR)
Scale 1" = 20'

L.O.O.T. #000-316920	Linn COUNTY	PROJECT NUMBER	STATE	FHWA Region	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
		NHS-100-1(23)--19-57	IOWA	7		L.24	

P.99

PLAN
NOTE BOOK
NO
SURVEYED
PLOTTED
ALIGNMENT CHECKED
RT OF WAY CHECKED
BY
DATE



PROFILE
NOTE BOOK
NO
SURVEYED
PLOTTED
CROSS CHECKED
B.M. NOTED
STRUCTURE NOTATNS CHKD
BY
DATE

IDOT 317000 H472

Linn COUNTY

PROJECT NUMBER	STATE	FHWA Region	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
NHS-100-1(23)--19-57	IOWA	7		L.25	

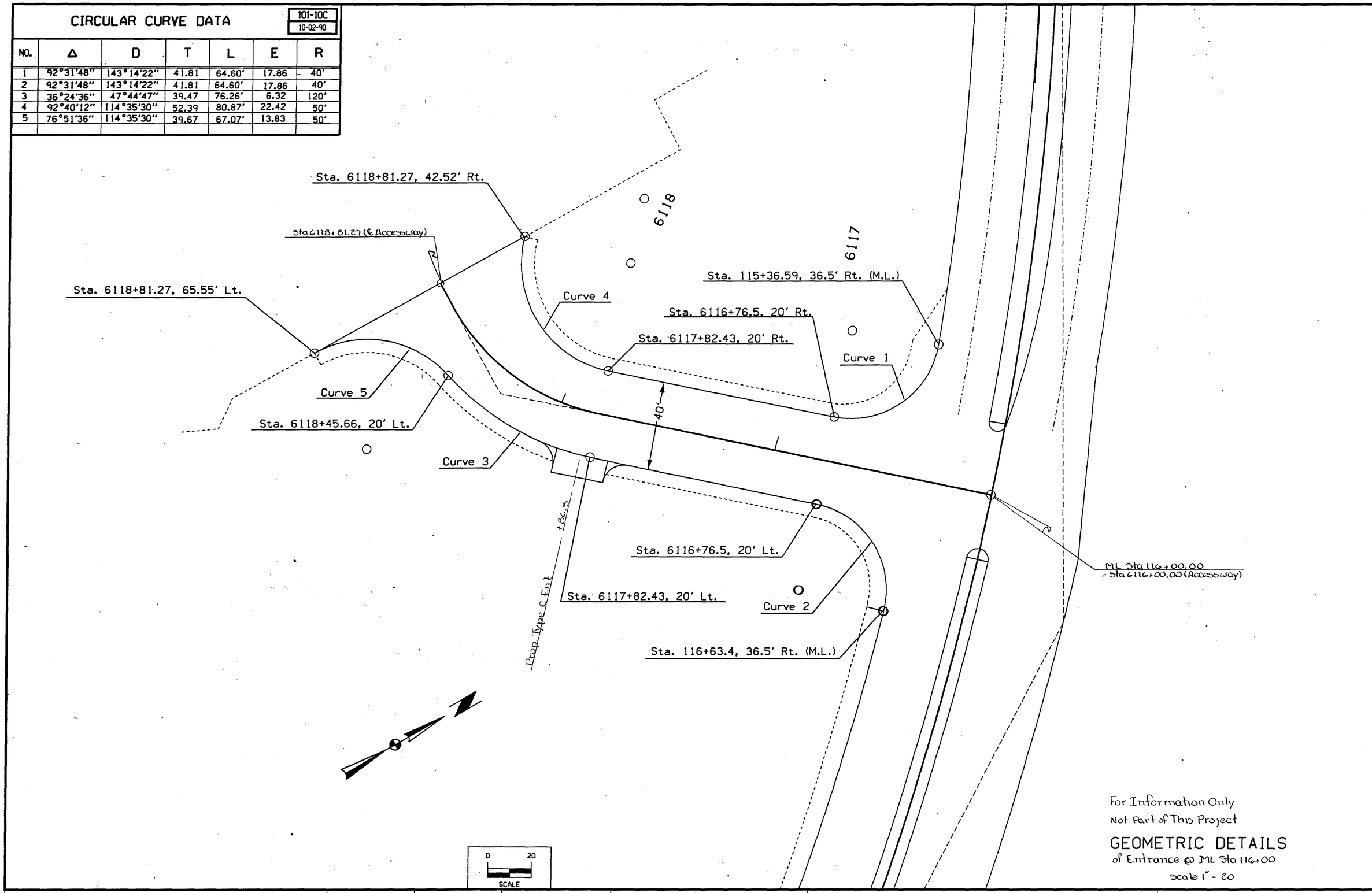
D4

P. 100

CIRCULAR CURVE DATA

101-10C
10-02-90

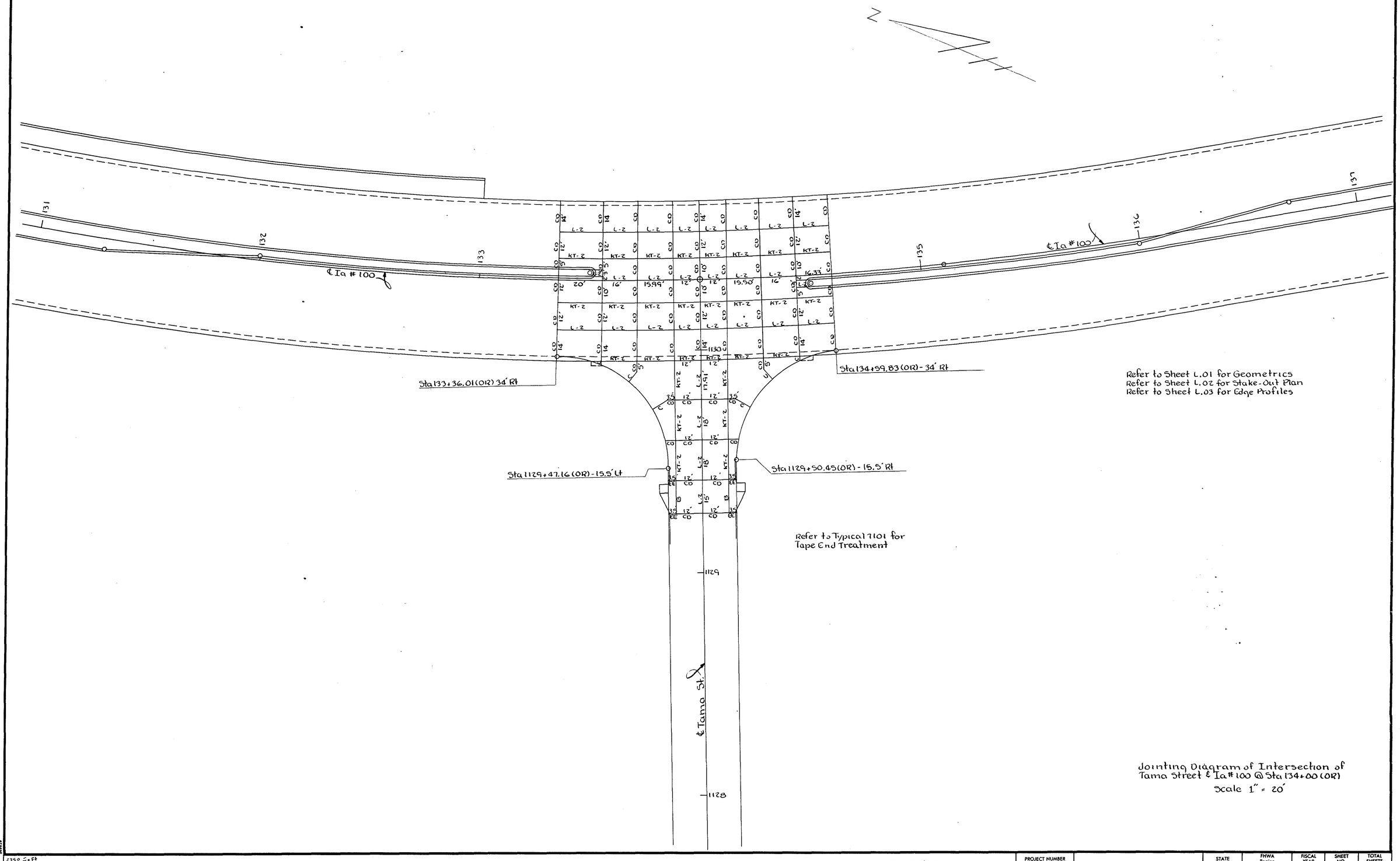
NO.	Δ	D	T	L	E	R
1	92°31'48"	143°14'22"	41.81	64.60'	17.86	40'
2	92°31'48"	143°14'22"	41.81	64.60'	17.86	40'
3	36°24'36"	47°44'47"	39.47	76.26'	6.32	120'
4	92°40'12"	114°35'30"	52.39	80.87'	22.42	50'
5	76°51'36"	114°35'30"	39.67	67.07'	13.83	50'



For Information Only
Not Part of This Project

GEOMETRIC DETAILS
of Entrance @ ML Sta 116+00
Scale 1" - 20

OFFICE OF DESIGN • CADD • PRODUCED	STATE OF IOWA	FHWA REGION 7	FISCAL YEAR	LINN	COUNTY	PROJECT NUMBER	NHS-100-1(23)--19-57	SHEET NUMBER	L.26



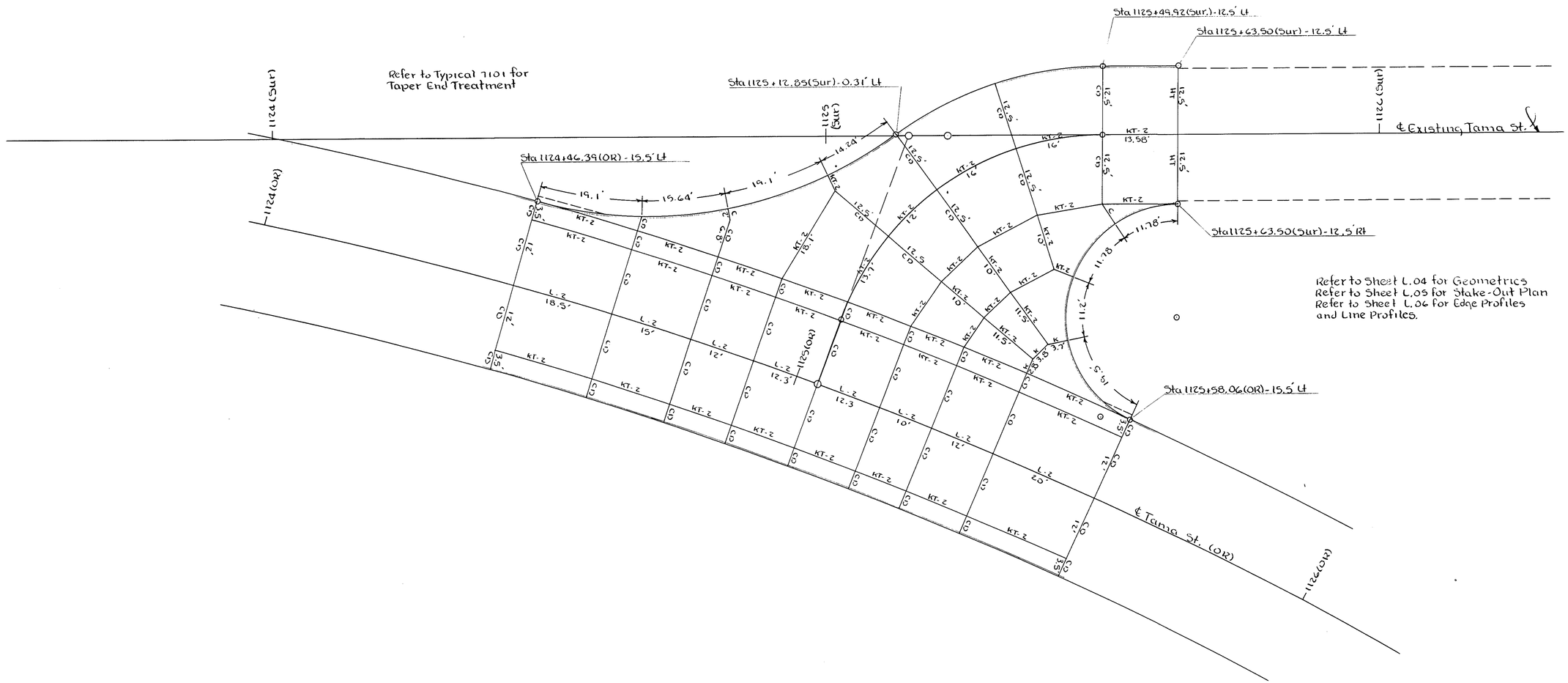
Jointing Diagram of Intersection of Tama Street & Ia #100 @ Sta 134+00 (OR)
Scale 1" = 20'

2350 Sq ft
I.D.O.T. #000-316920

COUNTY Linn

PROJECT NUMBER	STATE	FHWA Region	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
NHS-100-1(23)--19-57	IOWA	7			L.27

P.102



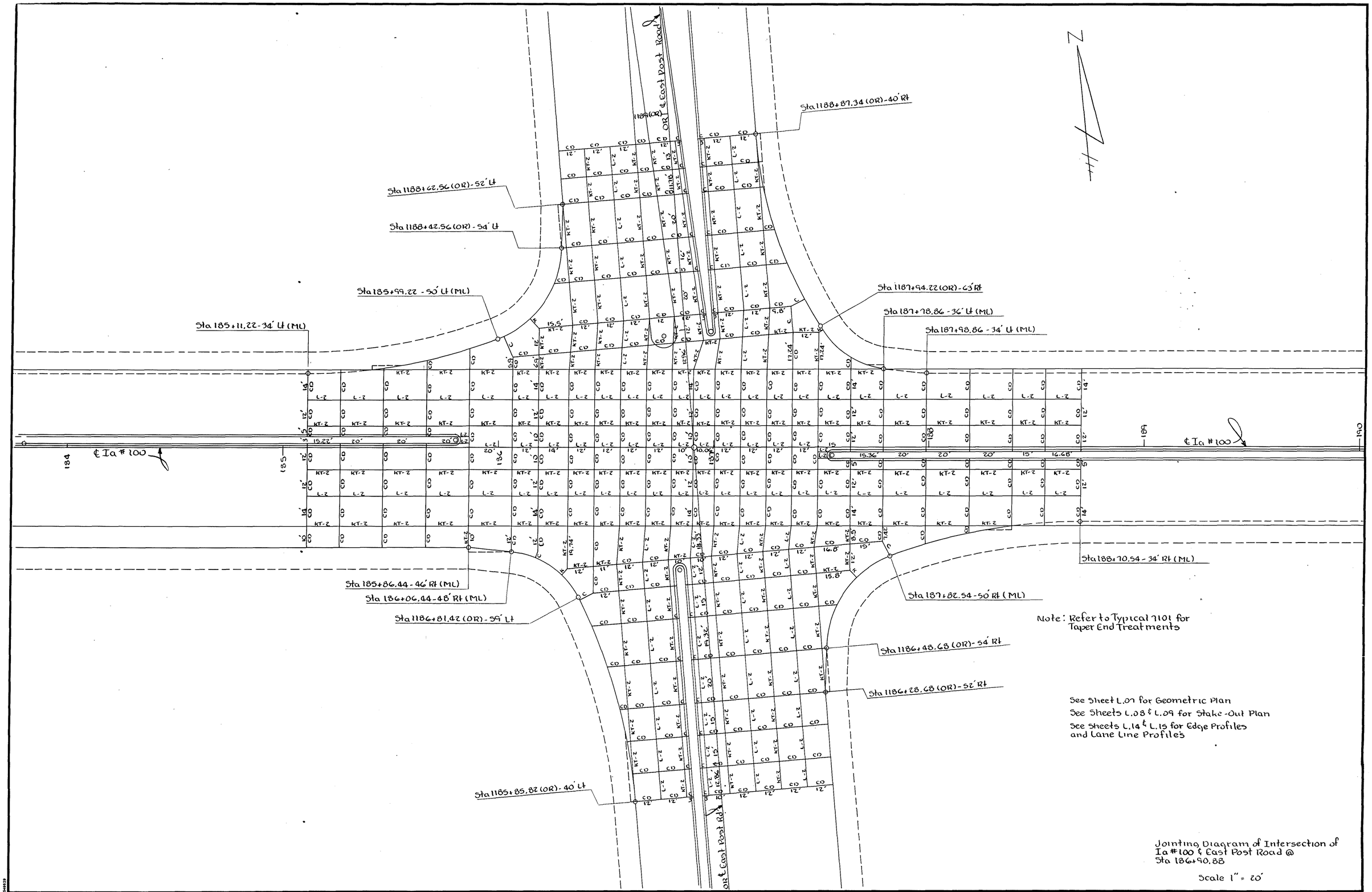
Jointing Diagram of Intersection of
Proposed Tama St. & Existing Tama St
@ Sta 1125+04.00 (OR).

Scale 1" = 10'

2761 Sq Ft
I.D.O.T. #000-316920

COUNTY	PROJECT NUMBER	STATE	FHWA Region	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
Linn	NHS-100-1(83)--19-57	IOWA	7			L.28

P. 103



Note: Refer to Typical 7101 for Taper End Treatments

See Sheet L.07 for Geometric Plan
See Sheets L.08 & L.09 for Stake-Out Plan
See Sheets L.14 & L.15 for Edge Profiles and Lane Line Profiles

Jointing Diagram of Intersection of Ia #100 & East Post Road @ Sta 186+90.88

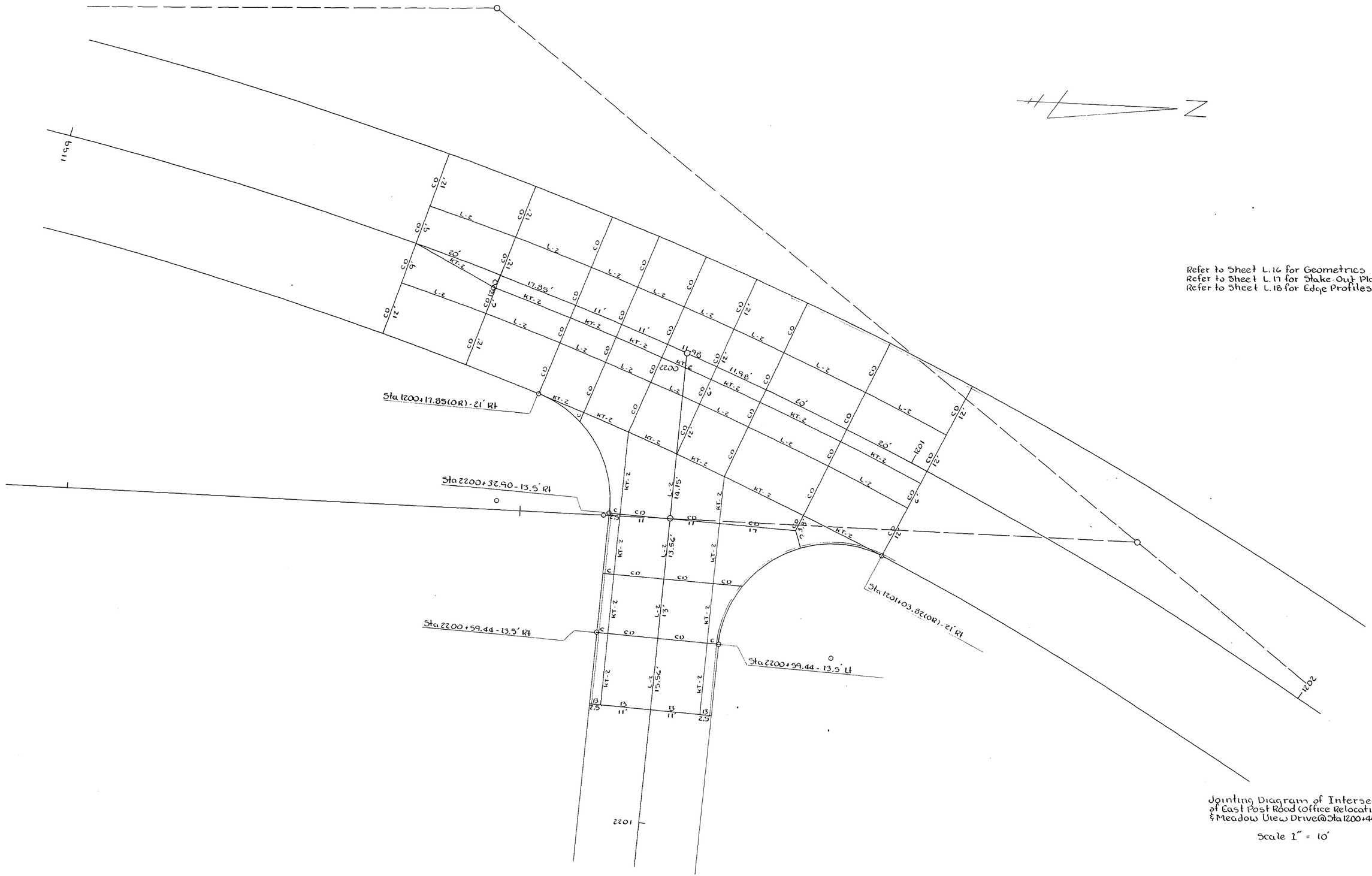
Scale 1" = 20'

14,670 Sq Ft South - 12,350 Sq Ft North
I.D.O.T. #000-316920

COUNTY Linn

PROJECT NUMBER	STATE	FHWA Region	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
NHS-100-1(23)--19-57	IOWA	7			L.29

P. 104



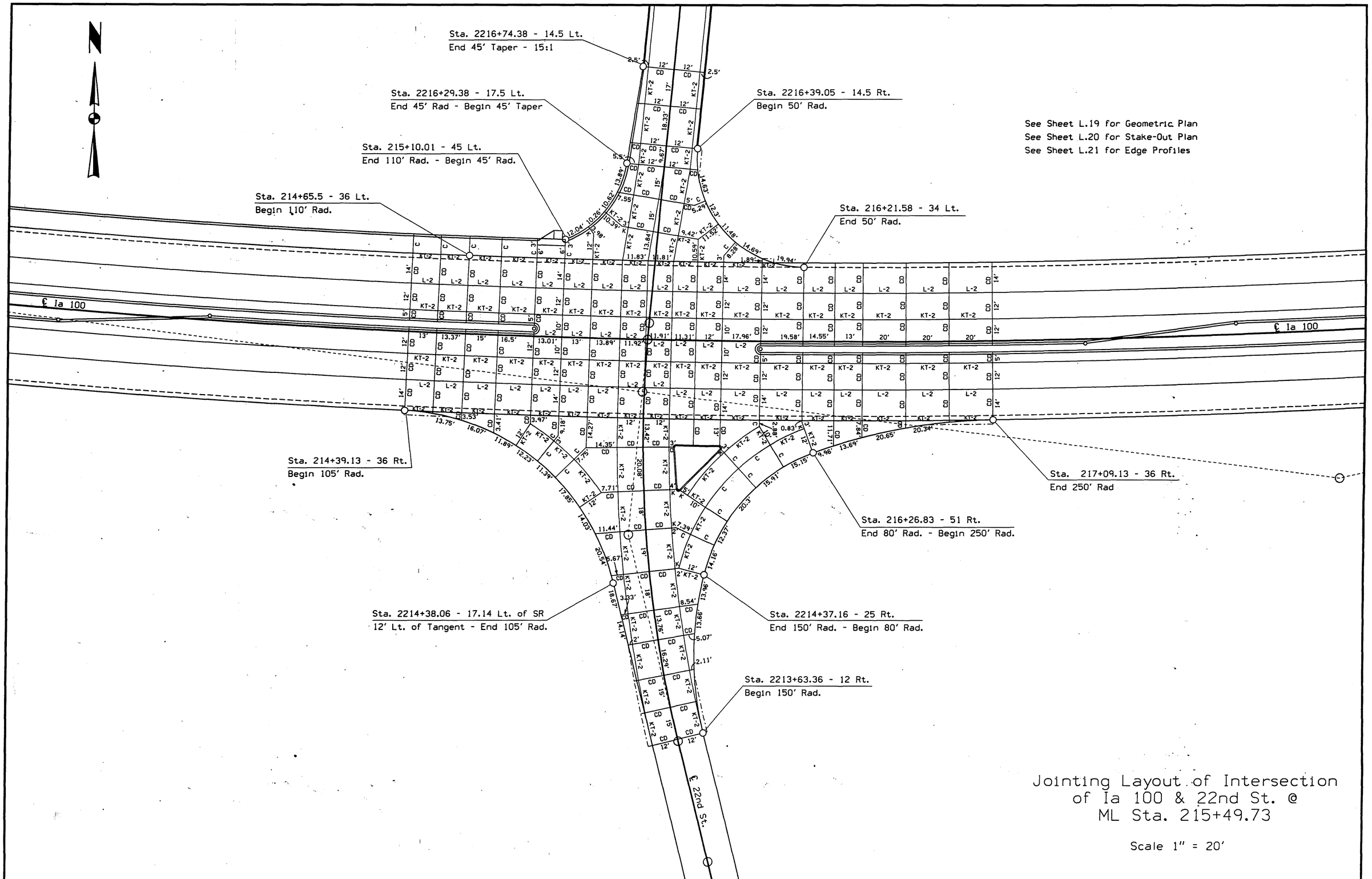
Refer to Sheet L.16 for Geometrics
Refer to Sheet L.17 for Stake-Out Plan
Refer to Sheet L.18 for Edge Profiles

Jointing Diagram of Intersection
of East Post Road (Office Relocation)
& Meadow View Drive @ Sta 1200+44.69(OR)

Scale 1" = 10'

1992 Spec. I.D.O.T. #000-316920	COUNTY Linn	PROJECT NUMBER NHS-100-1(23)--19-57	STATE IOWA	FHWA Region 7	FISCAL YEAR	SHEET NO.	TOTAL SHEETS L.30

P. 105

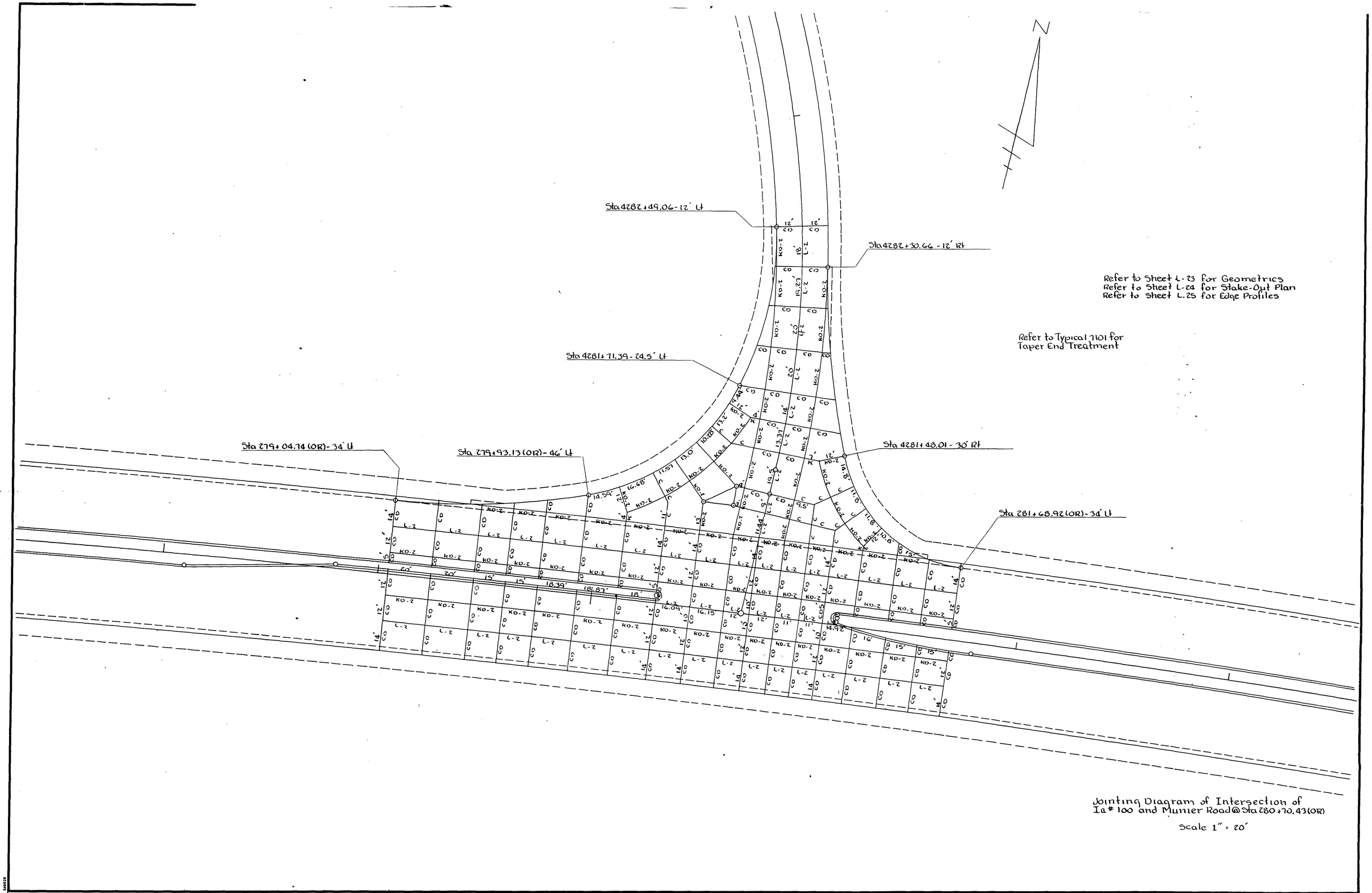


Jointing Layout of Intersection
of Ia 100 & 22nd St. @
ML Sta. 215+49.73

Scale 1" = 20'

OFFICE OF DESIGN • CADD • PRODUCED	STATE OF IOWA	FHWA REGION 7	FISCAL YEAR	LINN	COUNTY	PROJECT NUMBER	NHS-100-1(23)--19-57	SHEET NUMBER	L.31

P. 106



Jointing Diagram of Intersection of
Ia # 100 and Munier Road @ Sta 280+70.43 (OR)

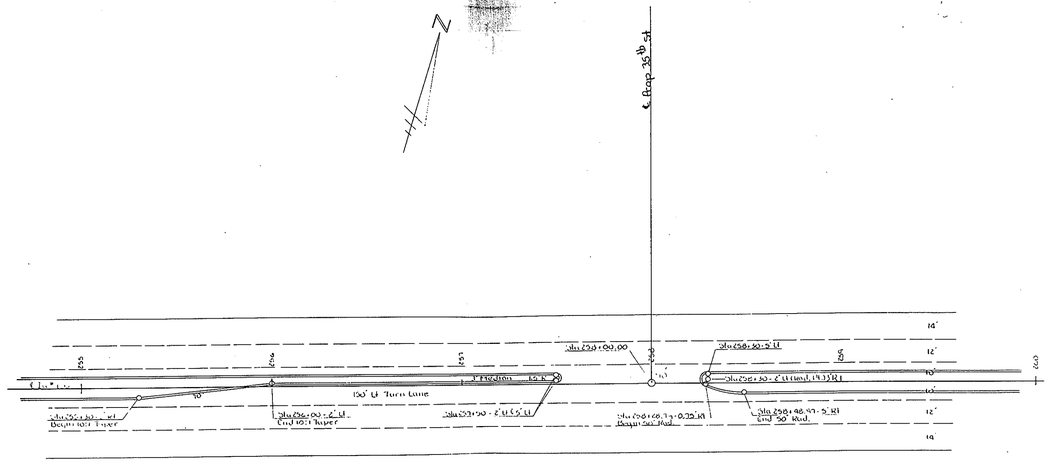
Scale 1" = 20'

8519 Sq Ft - 74 = 8445 Sq Ft
I.D.O.T. #000-316920
Estimated 74 Sq Ft

COUNTY Linn

PROJECT NUMBER	STATE	FHWA Region	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
NHS-100-1(23)--19-57	IOWA	7			L.32

P 107

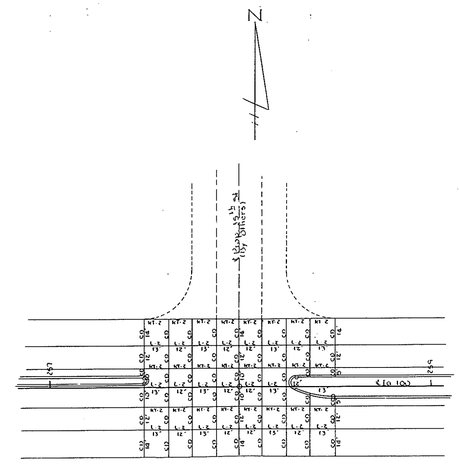


Geometric Plan for Proposed
Left Turn Lane @ Sta 258+00 (to ℄ 100)

Scale 1" = 20'

Linn COUNTY

PROJECT NUMBER	STATE	FEDERAL Region	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
NHS-100-1(23)--19-57	IOWA	7		L.34	



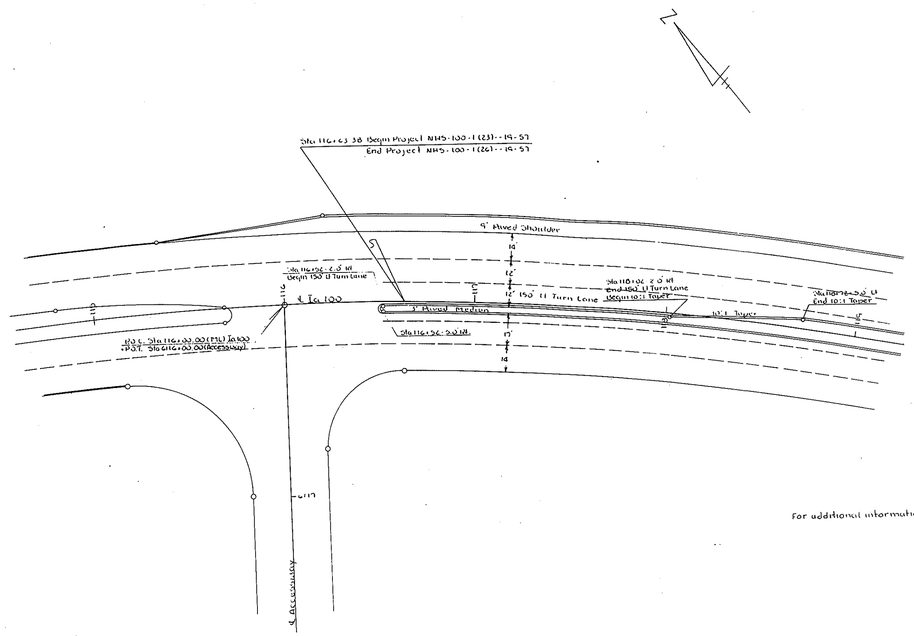
Refer to Sheet L.34 for Geometrics

Jointing Diagram of Intersection
of future 35th St. @ Sta 258+00

Scale 1" = 20'

Linn COUNTY

PROJECT NUMBER	STATE	FEDERAL Region	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
NHS-100-1(23)--19-57	IOWA	7		J5	



For additional information see Project NHS-100-1(26)--19-57

Geometric Plan for Proposed
Left Turn Lane @ Sta 116+06 (to 100)

Scale 1" = 20'

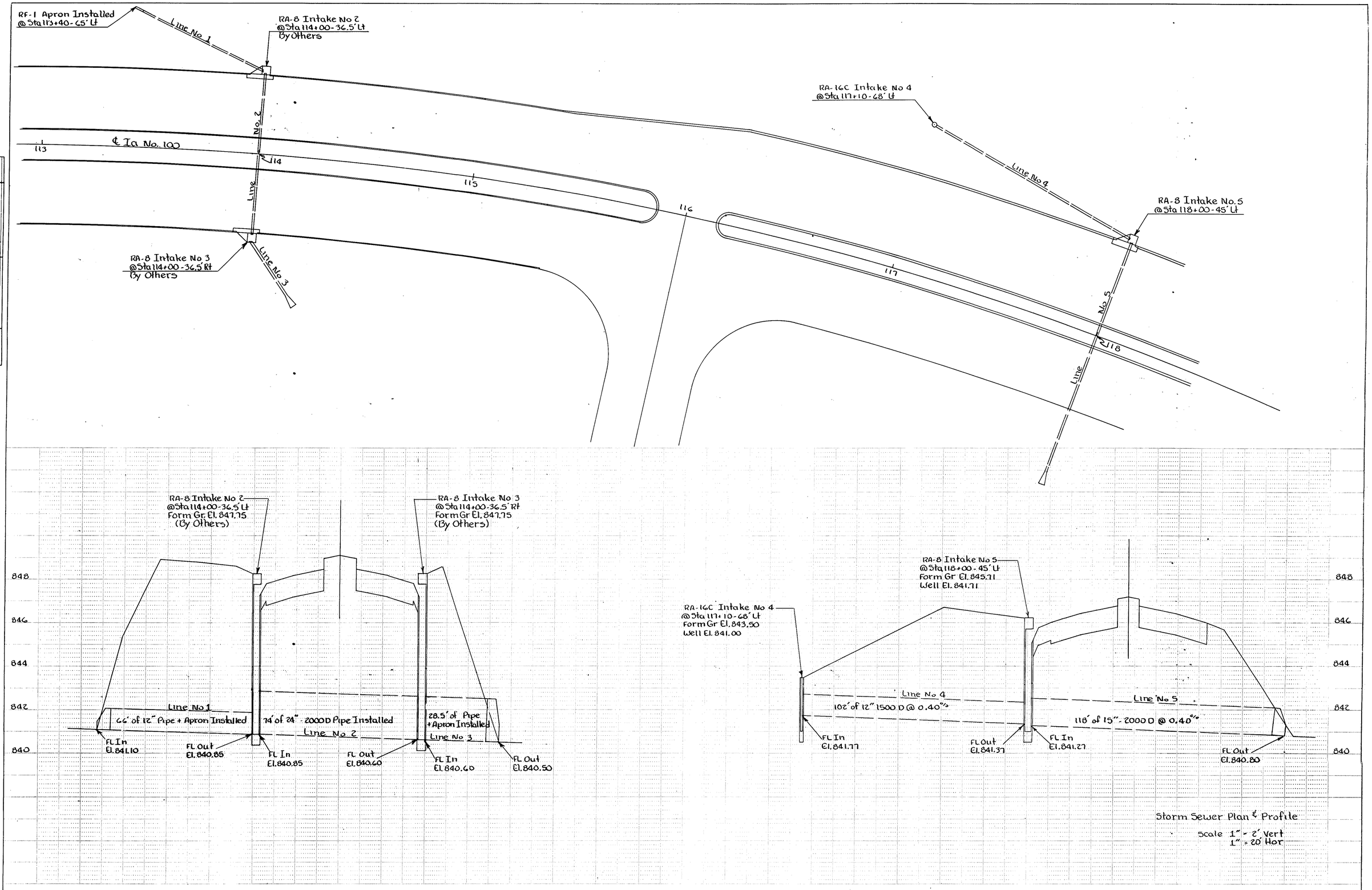
Linn COUNTY

PROJECT NUMBER	STATE	FEDERAL Region	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
NHS-100-1(23)--19-57	IOWA	7		L.33	

LINN COUNTY NHS-100-1(23)--19-57

L.33

P. 108



Storm Sewer Plan & Profile

Scale 1" = 2' Vert
1" = 20' Hor

PLAN		BY	DATE
NOTE BOOK	SURVEYED		
NO.	PLOTTED		
	ALIGNMENT CHECKED		
	RT. OF WAY CHECKED		

PROFILE		BY	DATE
NOTE BOOK	SURVEYED		
NO.	PLOTTED		
	GRADES CHECKED		
	BRIDGE NOTE		
	STRUCTURE NOTATNS CHKD		

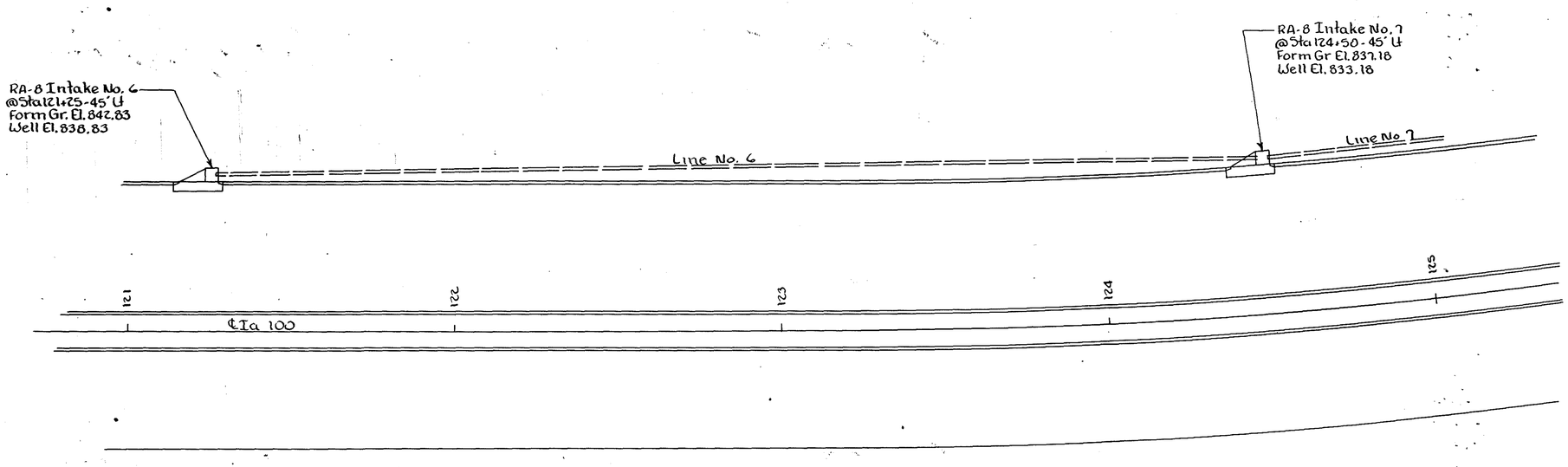
I.D.O.T. # 000-316980

Linn COUNTY

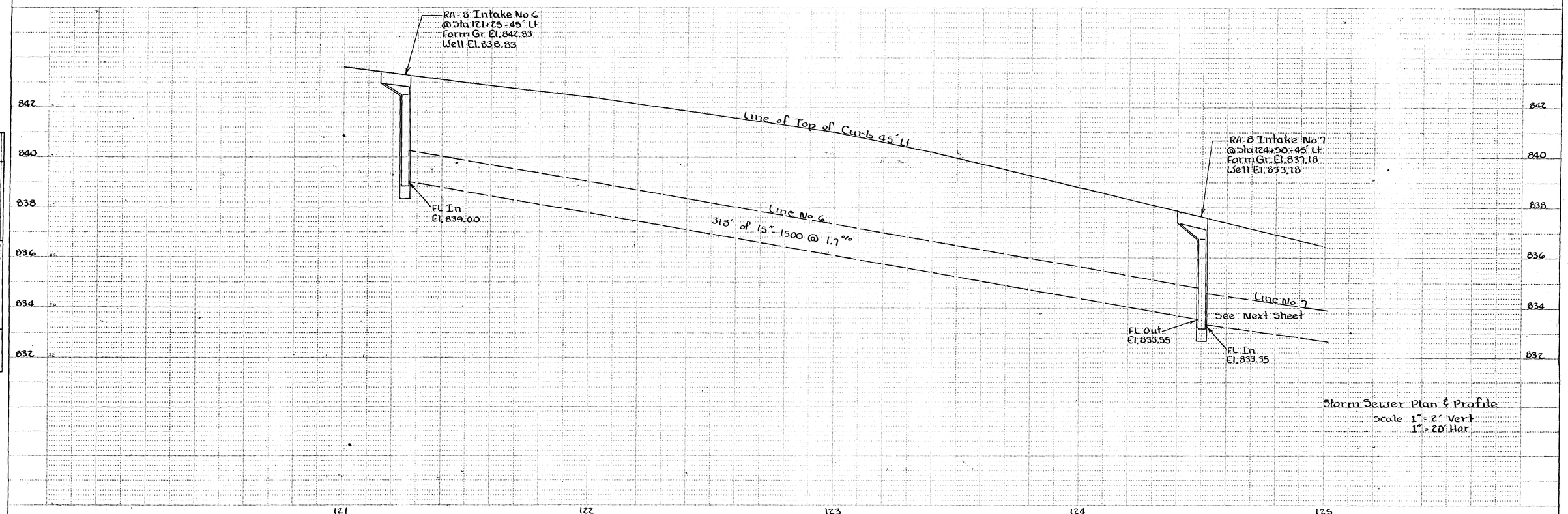
PROJECT NUMBER	STATE	FHWA Region	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
NHS-100-1(23)--19-57	IOWA	7		M.01	

P. 109

04



PLAN		BY	DATE
NOTE BOOK NO.	SURVEYED PLOTTED ALIGNMENT CHECKED RT OF WAY CHECKED		



Storm Sewer Plan & Profile
Scale 1" = 2' Vert
1" = 20' Hor

PROFILE		BY	DATE
NOTE BOOK NO.	SURVEYED PLOTTED GRADES CHECKED BRIDGE STRUCTURE NOTATNS CHKD		

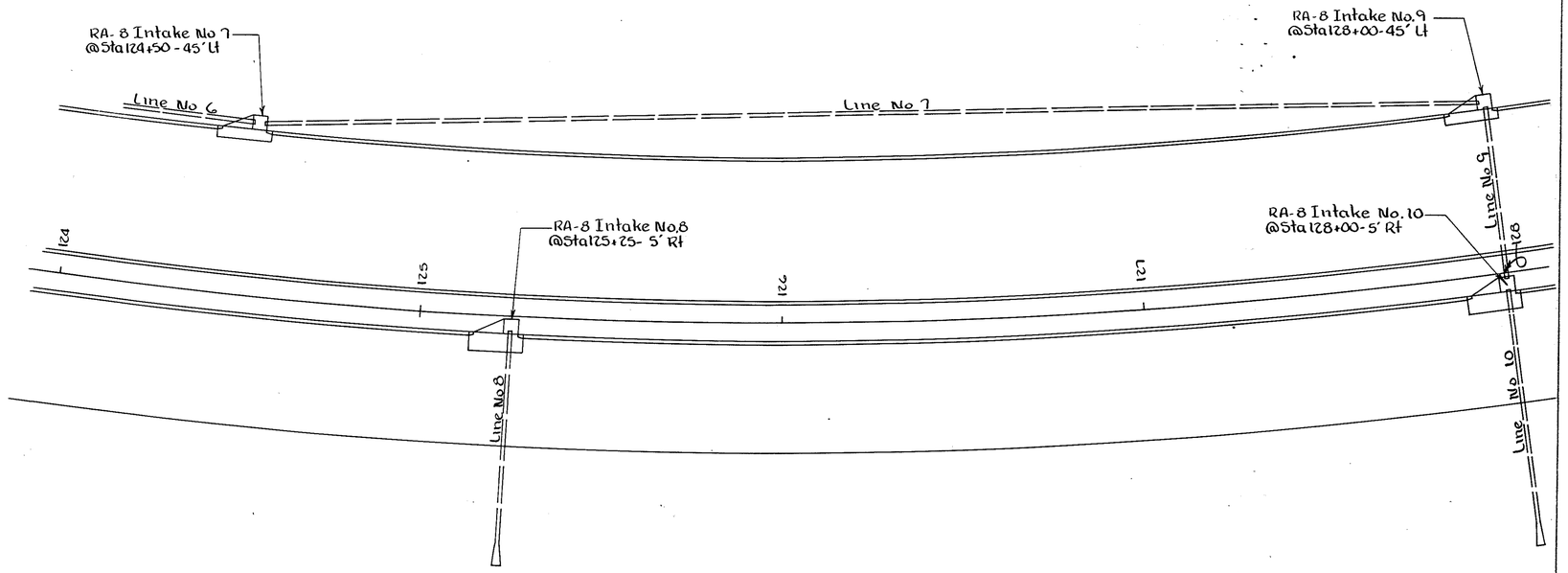
I.D.O.T. # 000-316980

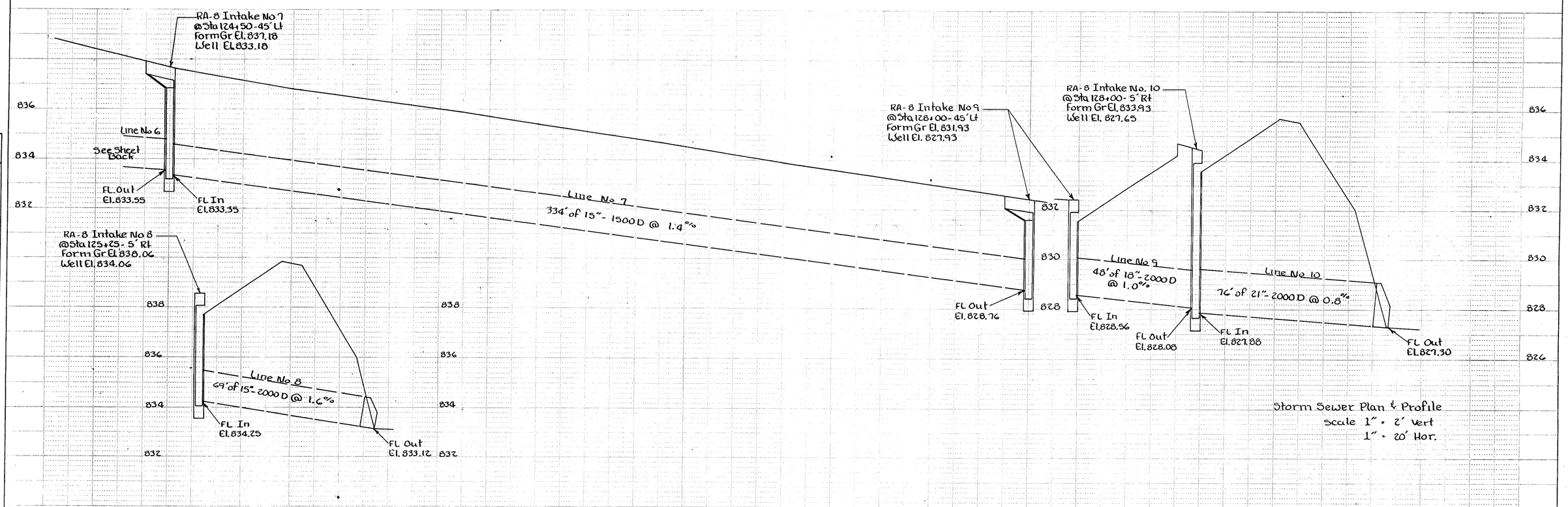
Linn COUNTY

PROJECT NUMBER	STATE	FHWA Region	FISCAL YEAR	SHEET NO	TOTAL SHEETS
NHS-100-1(23)--19-57	IOWA	7		M.02	

PLAN		BY	DATE
NOTE BOOK NO.	SURVEYED PLOTTED ALIGNMENT CHECKED RT OF WAY CHECKED		

PROFILE		BY	DATE
NOTE BOOK NO.	SURVEYED PLOTTED GRADES CHECKED B.M. NOTED STRUCTURE NOTATNS CHKD		





Storm Sewer Plan & Profile
Scale 1" = 2' Vert
1" = 20' Hor.

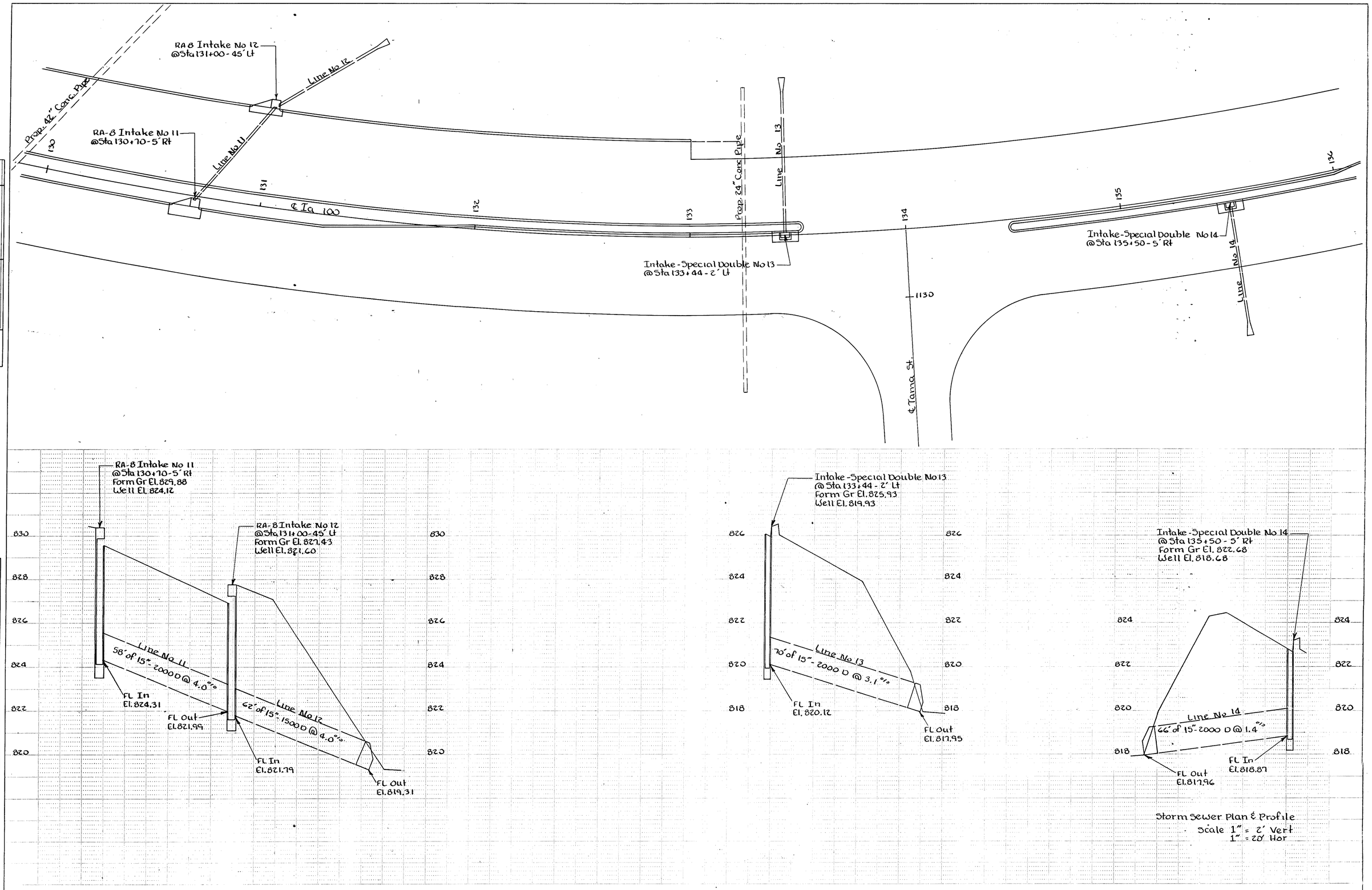
I.D.O.T. # 000-316980

Linn COUNTY

PROJECT NUMBER	STATE	FHWA Region	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
NHS-100-1(23)--19-57	IOWA	7		M.03	

P 111

04



Storm Sewer Plan & Profile
Scale 1" = 2' Vert
1" = 20' Hor

PLAN
SURVEYED
PLOTTED
ALIGNMENT CHECKED
RT. OF WAY CHECKED
NOTE BOOK
NO.
BY
DATE

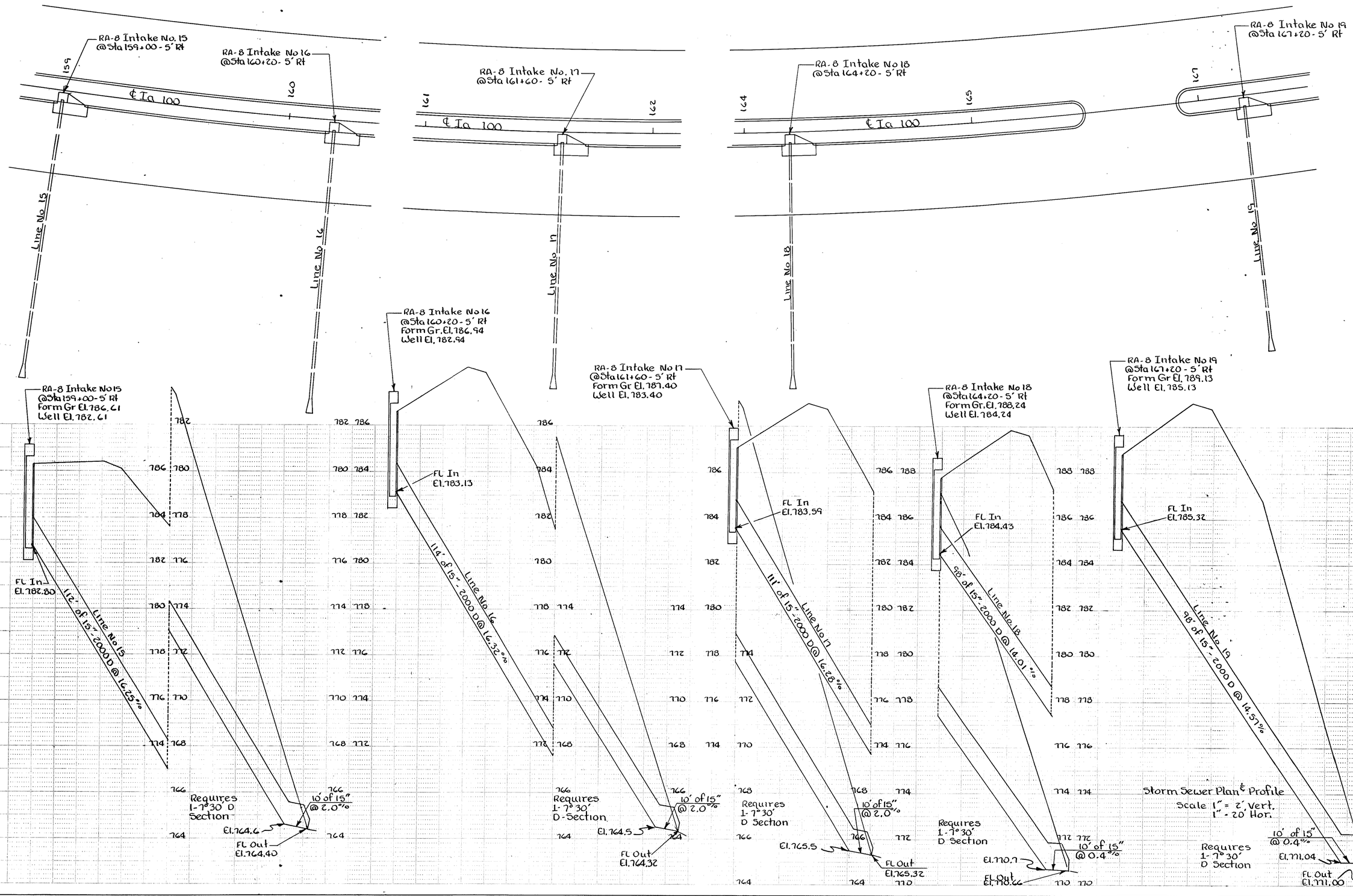
PROFILE
SURVEYED
PLOTTED
GRADES CHECKED
B.M. NOTED
STRUCTURE NOTATNS CHKD
NOTE BOOK
NO.
BY
DATE

I.D.O.T. # 000-316980

Linn COUNTY

PROJECT NUMBER	STATE	FHWA Region	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
NHS - 100 - 1(23) -- 19 - 57	IOWA	7		M.04	

P. 112



PLAN

NOTE BOOK NO.	SURVEYED	BY	DATE
	PLOTTED		
	ALIGNMENT CHECKED		
	RT. OF WAY CHECKED		

PROFILE

NOTE BOOK NO.	SURVEYED	BY	DATE
	PLOTTED		
	GRADES CHECKED		
	ALIGNMENT		
	STRUCTURE NOTATNS CHKD		

I.D.O.T. # 000-316980

Linn COUNTY

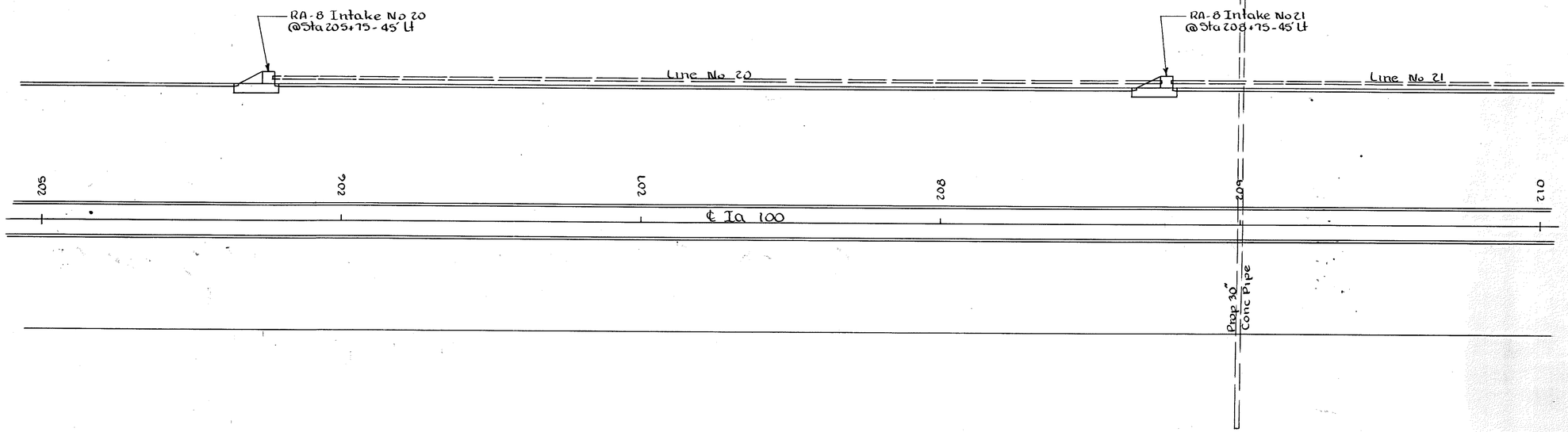
PROJECT NUMBER	STATE	FHWA Region	FISCAL YEAR	SHEET NO	TOTAL SHEETS
NH5-100-1(23)--19-57	IOWA	7		M.05	

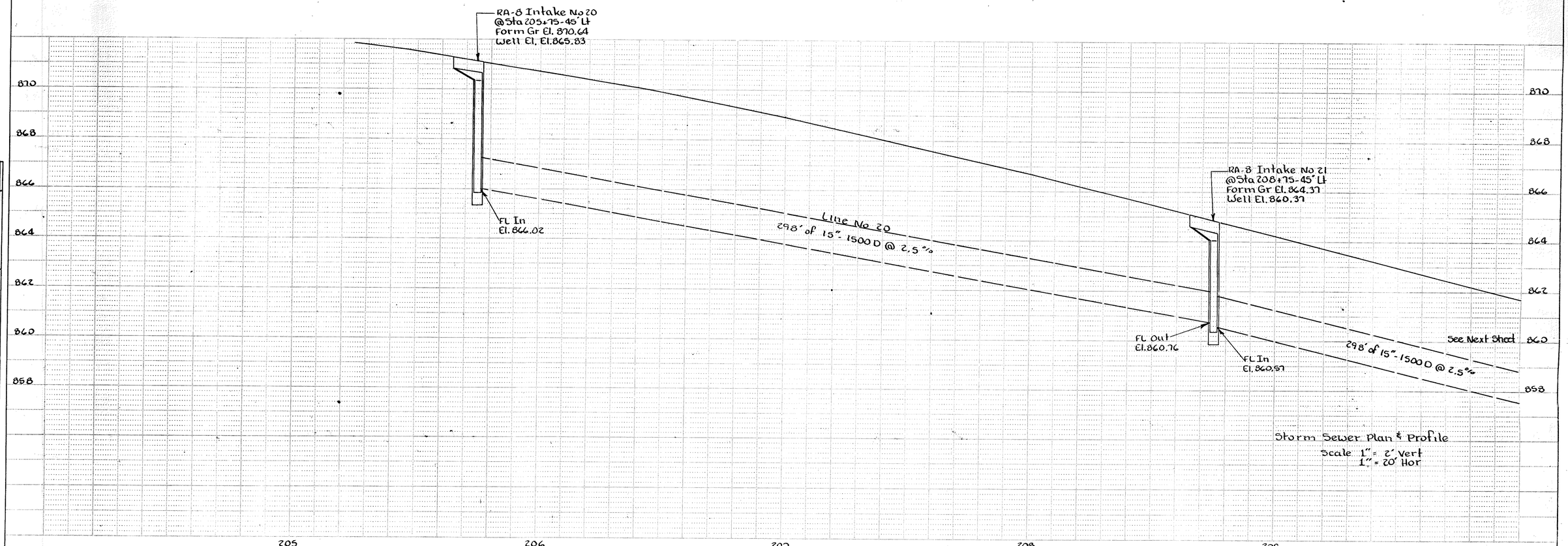
P. 113

04

PLAN			
NOTE BOOK NO.	SURVEYED	BY	DATE
	PLOTTED		
	ALIGNMENT CHECKED		
	RT. OF WAY CHECKED		

PROFILE			
NOTE BOOK NO.	SURVEYED	BY	DATE
	PLOTTED		
	GRADES CHECKED		
	R.M. NOTED		
	STRUCTURE NOTAT'NS CPMD		





Storm Sewer Plan & Profile
Scale 1" = 2' Vert
1" = 20' Hor

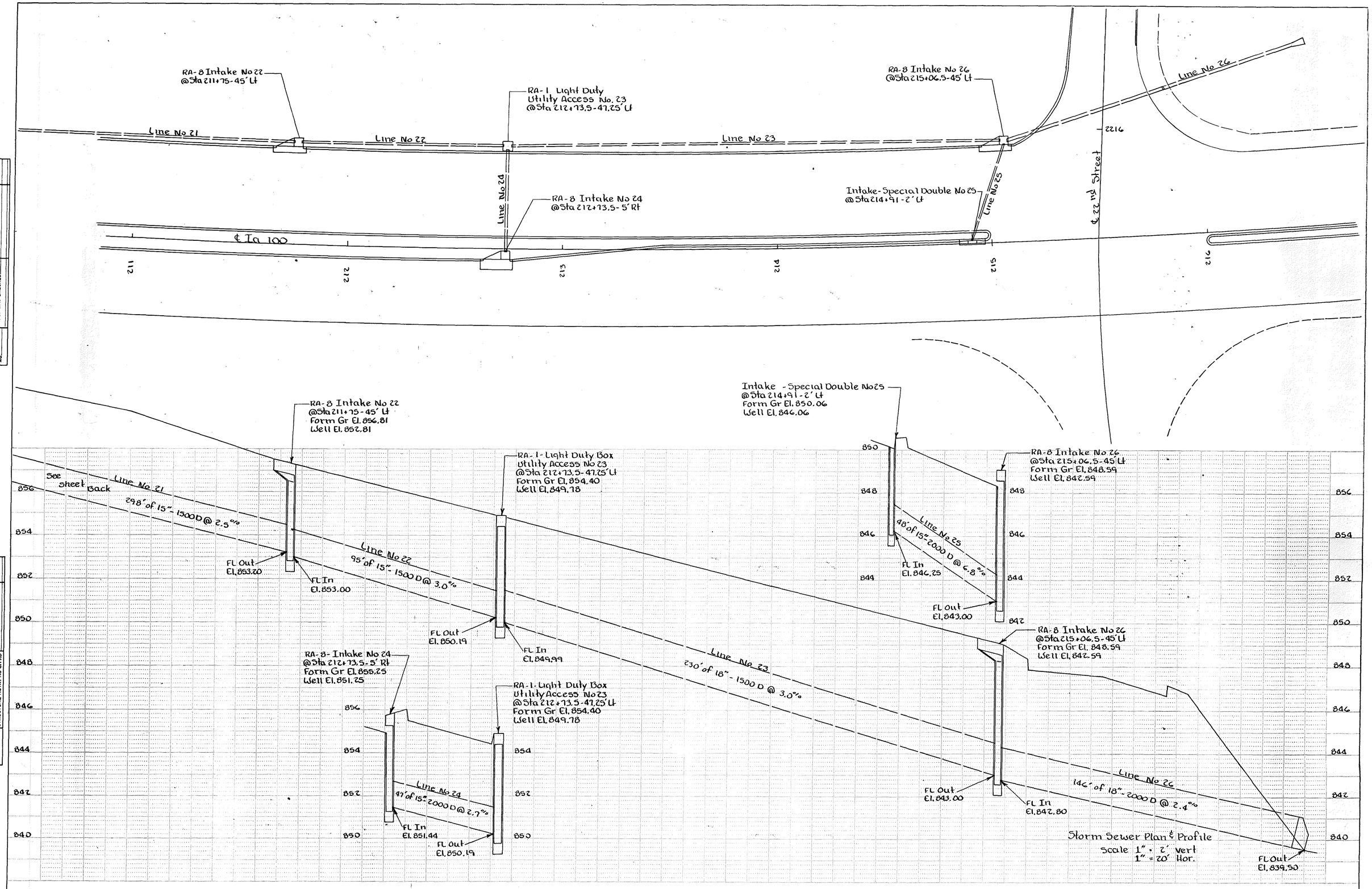
I.D.O.T. # 000-316980

Linn COUNTY

PROJECT NUMBER	STATE	FHWA Region	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
NHS-100-1(23)--19-57	IOWA	7		M.06	

P. 114

D4



PLAN
SURVEYED
PLOTTED
ALIGNMENT CHECKED
RT. OF WAY CHECKED
NOTE BOOK NO.
BY
DATE

PROFILE
SURVEYED
PLOTTED
GRADES CHECKED
B.M. NOTED
STRUCTURE NOTAT'NS CHK'D
NOTE BOOK NO.
BY
DATE

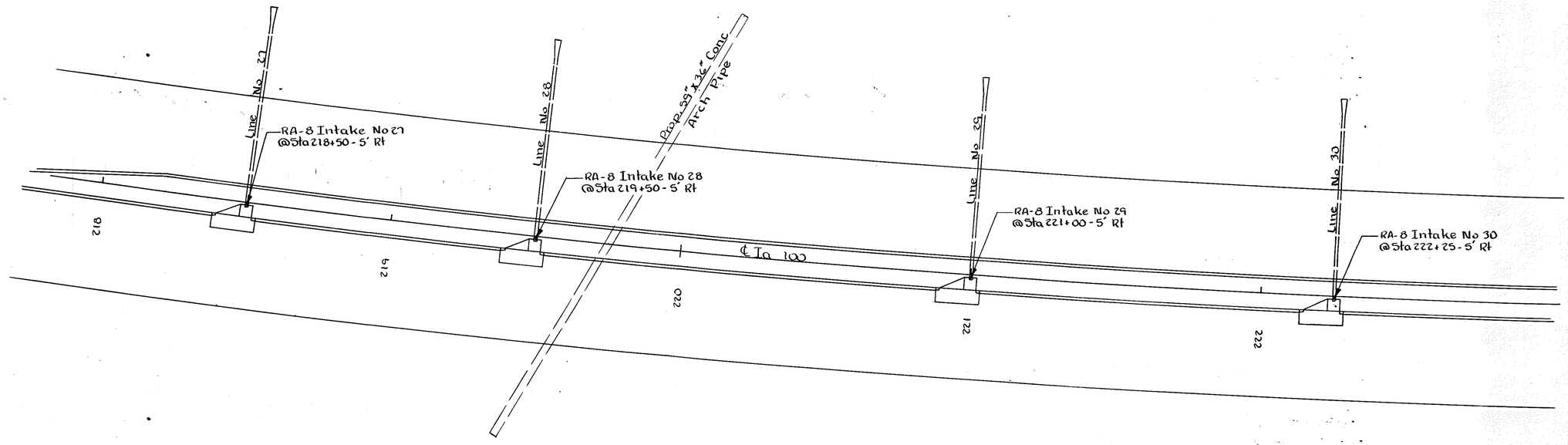
I.D.O.T. # 000-316980

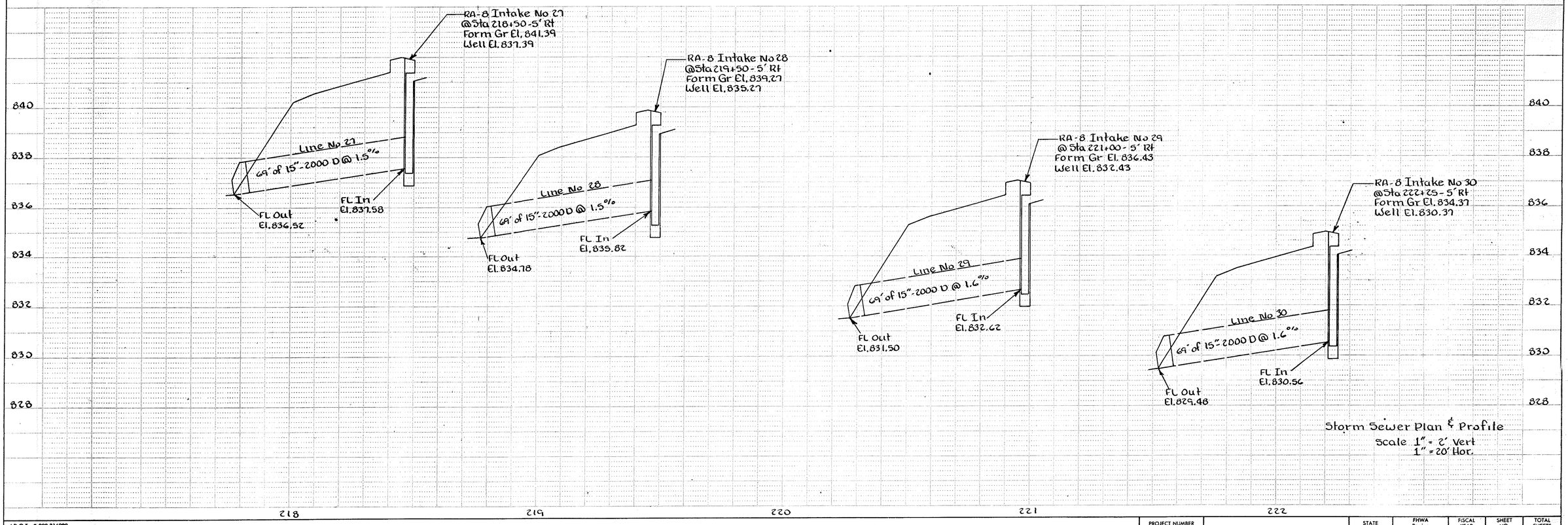
Linn COUNTY

PROJECT NUMBER	STATE	FHWA Region	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
NHS-100-1(23)--19-57	IOWA	7		M.07	

D4

P. 115





Storm Sewer Plan & Profile

Scale 1" = 2' Vert
1" = 20' Hor.

PLAN		BY	DATE
NOTE BOOK NO.	SURVEYED		
	PLOTTED		
	ALIGNMENT CHECKED		
	RT OF WAY CHECKED		

PROFILE		BY	DATE
NOTE BOOK NO.	SURVEYED		
	PLOTTED		
	GRADES CHECKED		
	B. M. NOTED		
	STRUCTURE NOTAT'NS CK'KD		

I.D.O.T. # 000-316980

Linn COUNTY

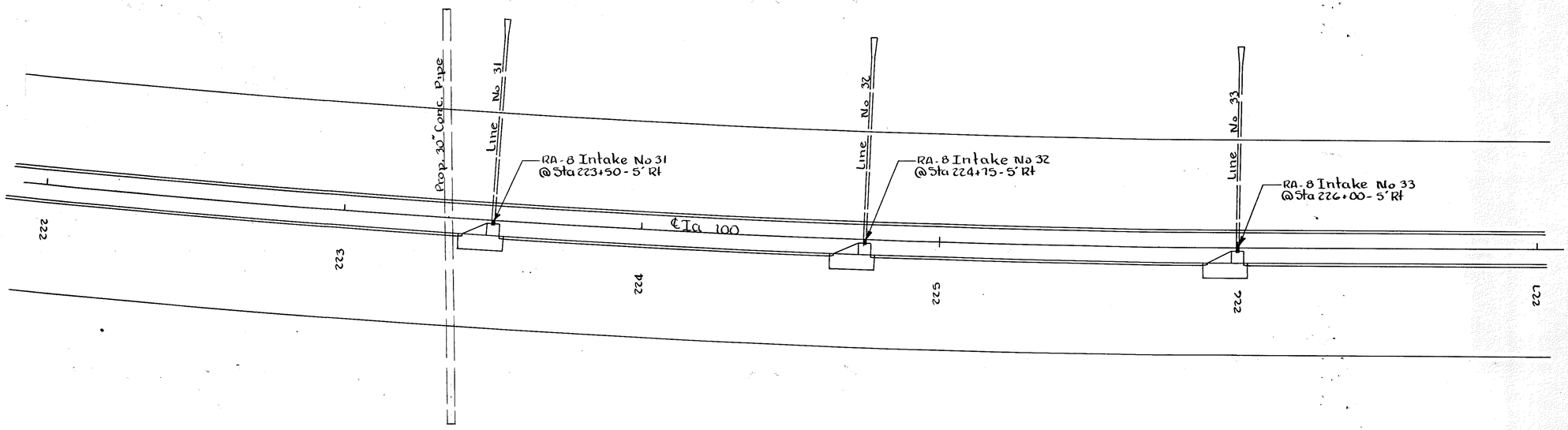
PROJECT NUMBER	STATE	FHWA Region	FISCAL YEAR	SHEET NO	TOTAL SHEETS
NH5-100-1(23)--19-57	IOWA	7		M.08	

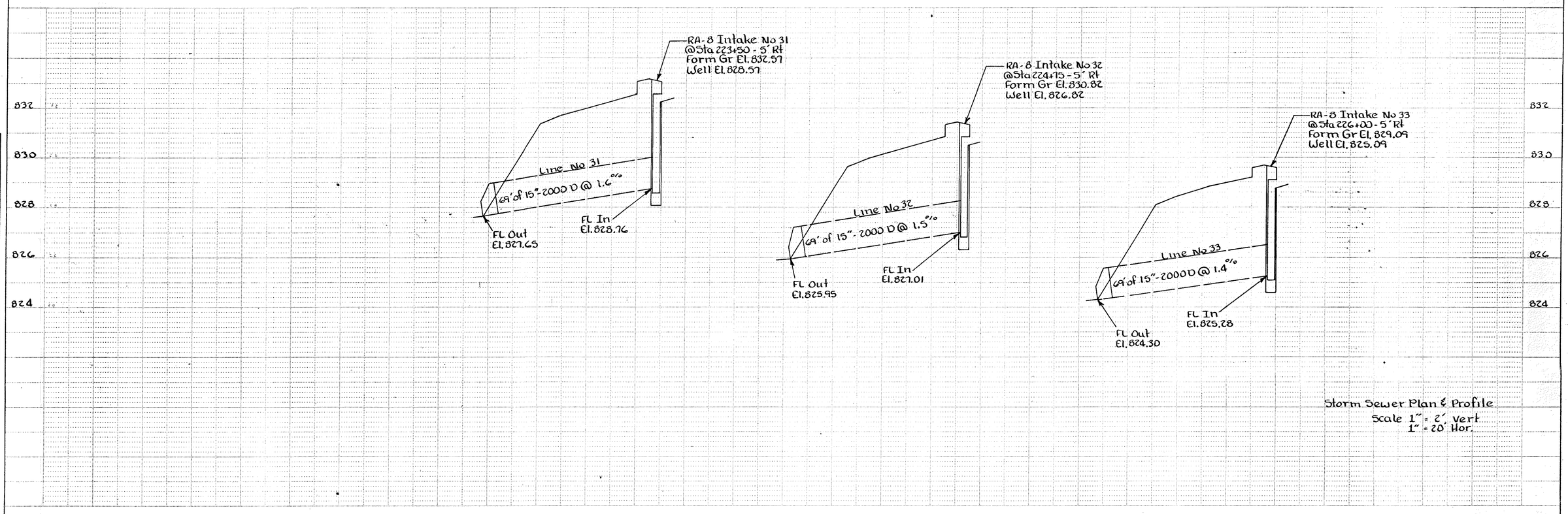
D4

P. 116

PLAN		BY	DATE
NOTE BOOK NO.	SURVEYED PLOTTED ALIGNMENT CHECKED RT. OF WAY CHECKED		

PROFILE		BY	DATE
NOTE BOOK NO.	SURVEYED PLOTTED GRADES CHECKED B.M. NOTED STRUCTURE NOTAT'NS CH'KD		





Storm Sewer Plan & Profile
Scale 1" = 2' Vert
1" = 20' Hor.

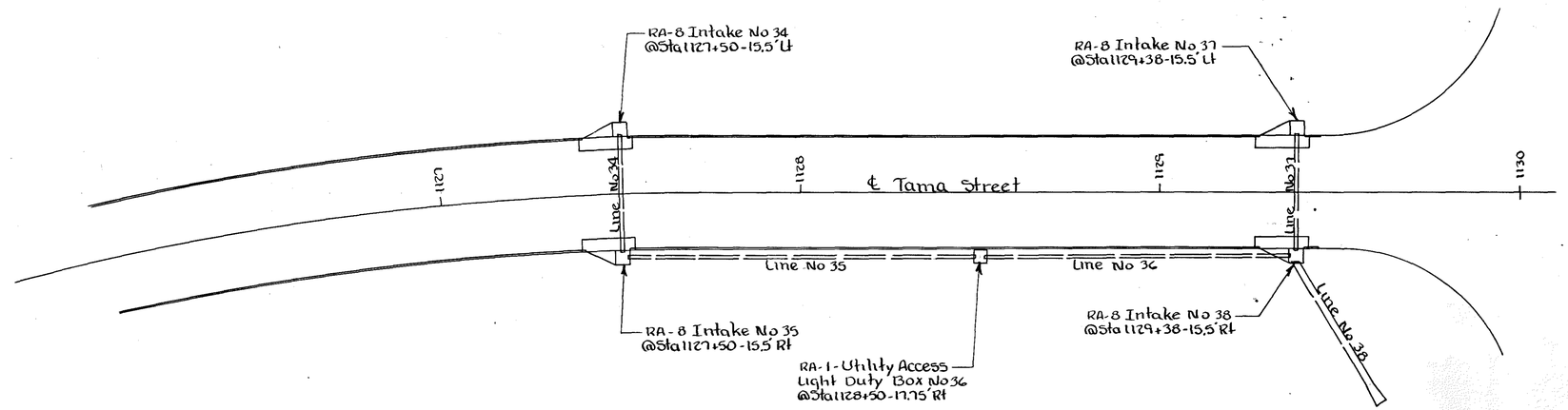
I.D.O.T. # 000-316980

Linn COUNTY

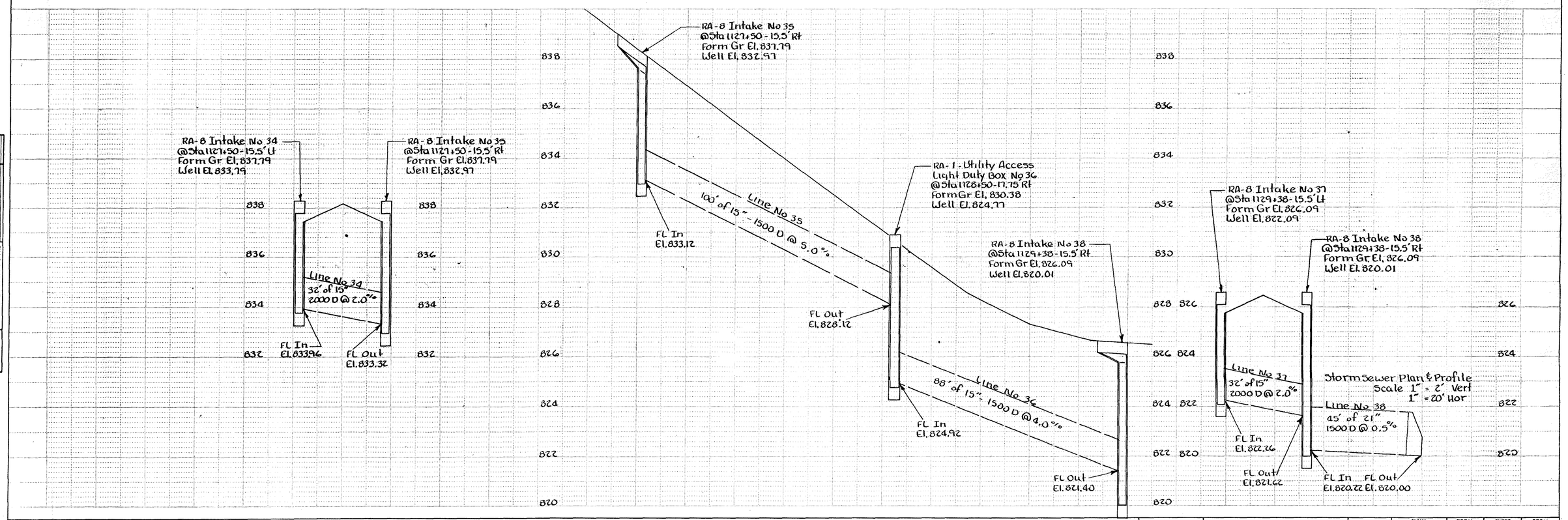
PROJECT NUMBER	STATE	FHWA Region	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
NHS-100-1(23)--19-57	IOWA	7		M.09	

P. 117

PLAN		BY	DATE
NOTE BOOK NO.	SURVEYED PLOTTED ALIGNMENT CHECKED RT. OF WAY CHECKED		



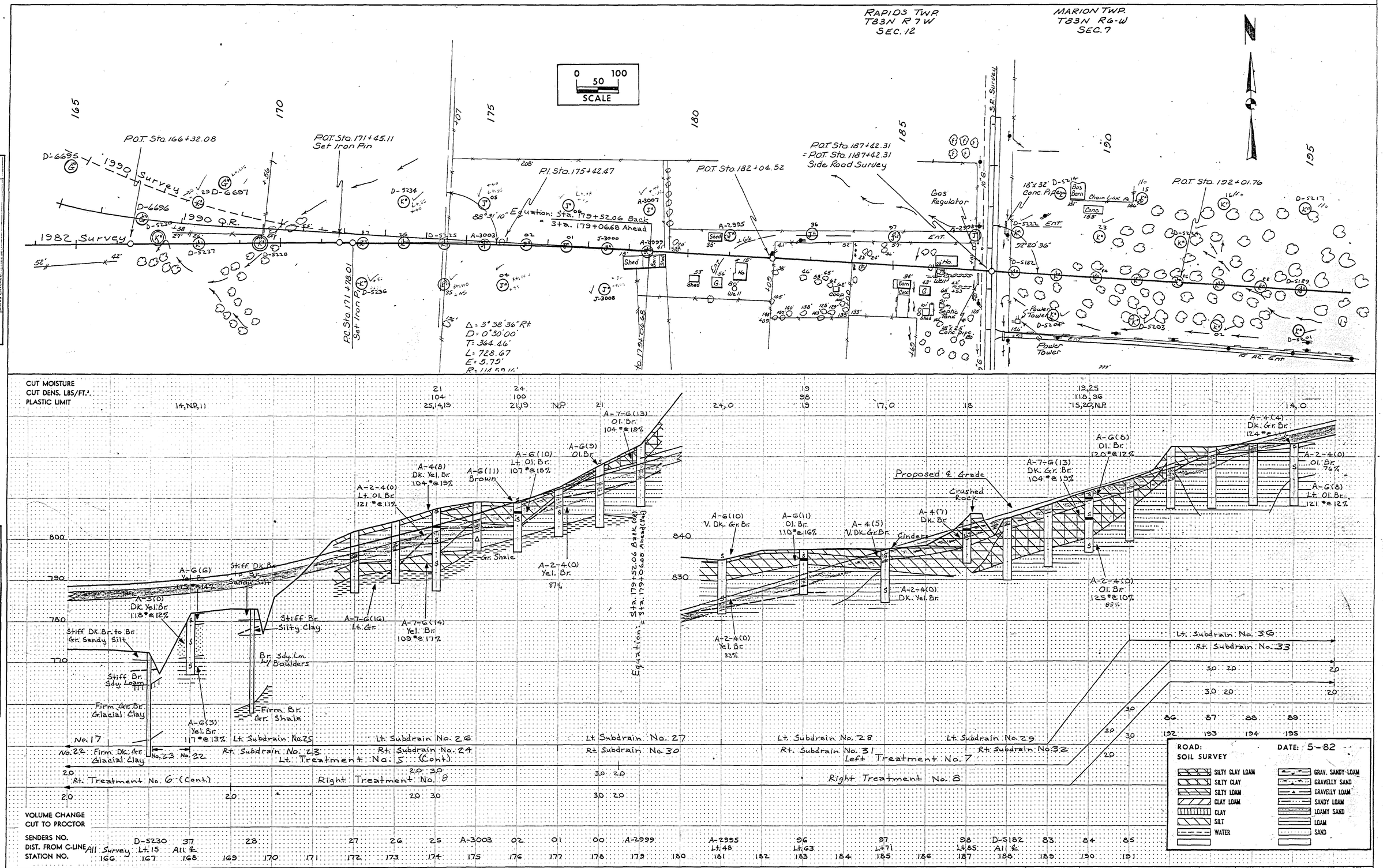
PROFILE		BY	DATE
NOTE BOOK NO.	SURVEYED PLOTTED GRADES CHECKED B.M.'s NOTED STRUCTURE NOTAT'NS CH'KD		



I.D.O.T. # 000-316980

Linn COUNTY

PROJECT NUMBER	STATE	FHWA Region	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
NHS-100-1(23)--19-57	IOWA	7		M.10	



FINAL SURVEY — SURVEYED / PLOTTED / TEMPLATE / AREAS / AREAS CHECKED — NOTE BOOK NO. — BY — DATE

ORIGINAL SURVEY — SURVEYED / PLOTTED / TEMPLATE / AREAS / AREAS CHECKED — NOTE BOOK NO. 1-K — BY K. Hayes, G. Rasyan, G. Bishop — DATE 7/63, 7/63

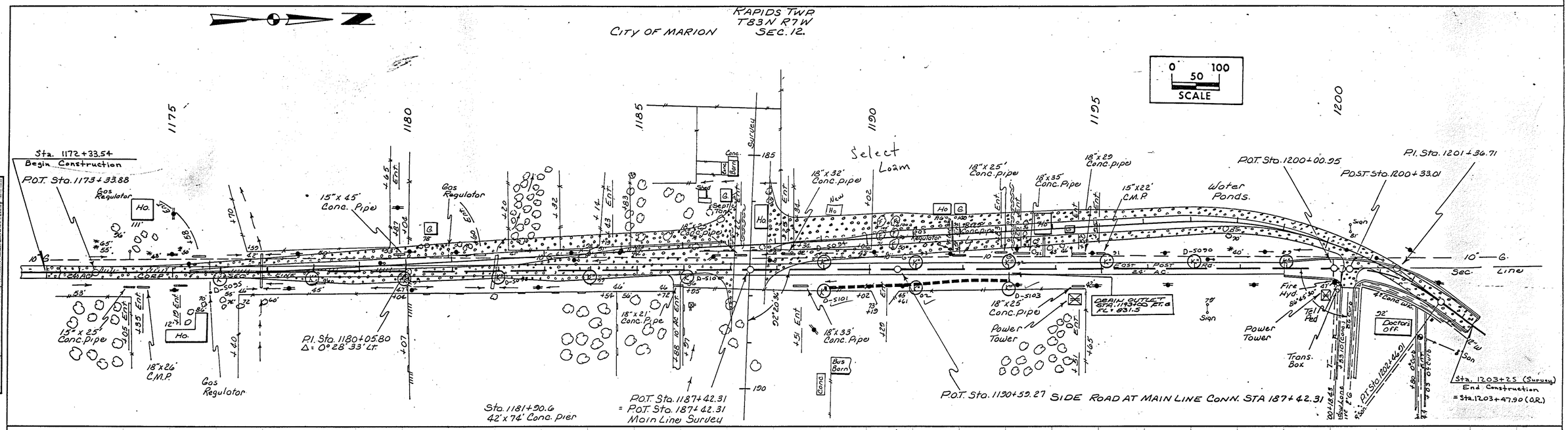
H'WY. CROSS SECTION 3/7/62

SOILS DESIGN — LINN COUNTY

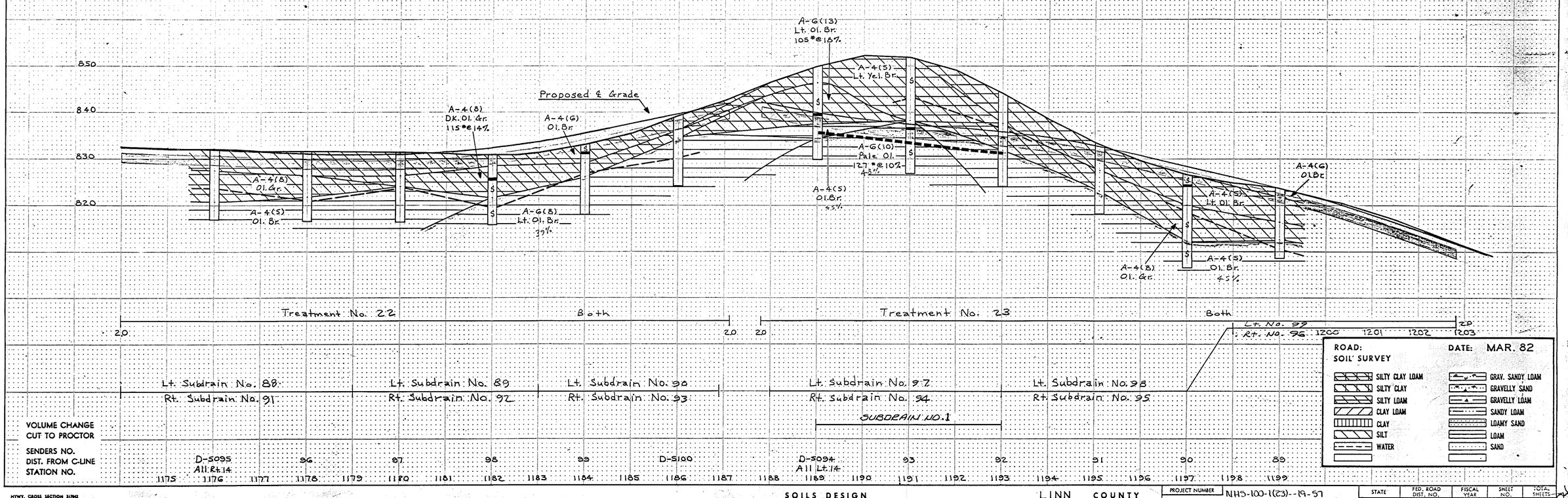
PROJECT NUMBER	STATE	FED. ROAD DIST. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
NHS-100-1(23)--19-57	IOWA	5			Q.01

D4

P 119



CUT MOISTURE	19	16	26	15	14	
CUT DENS. LBS/FT.³	100	109	97	112	114	
PLASTIC LIMIT	18,15	15	18	15,14		



SOILS DESIGN LINN COUNTY

PROJECT NUMBER	STATE	FED. ROAD DIST. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
NHS-100-1(23)--19-57	IOWA	5		902	

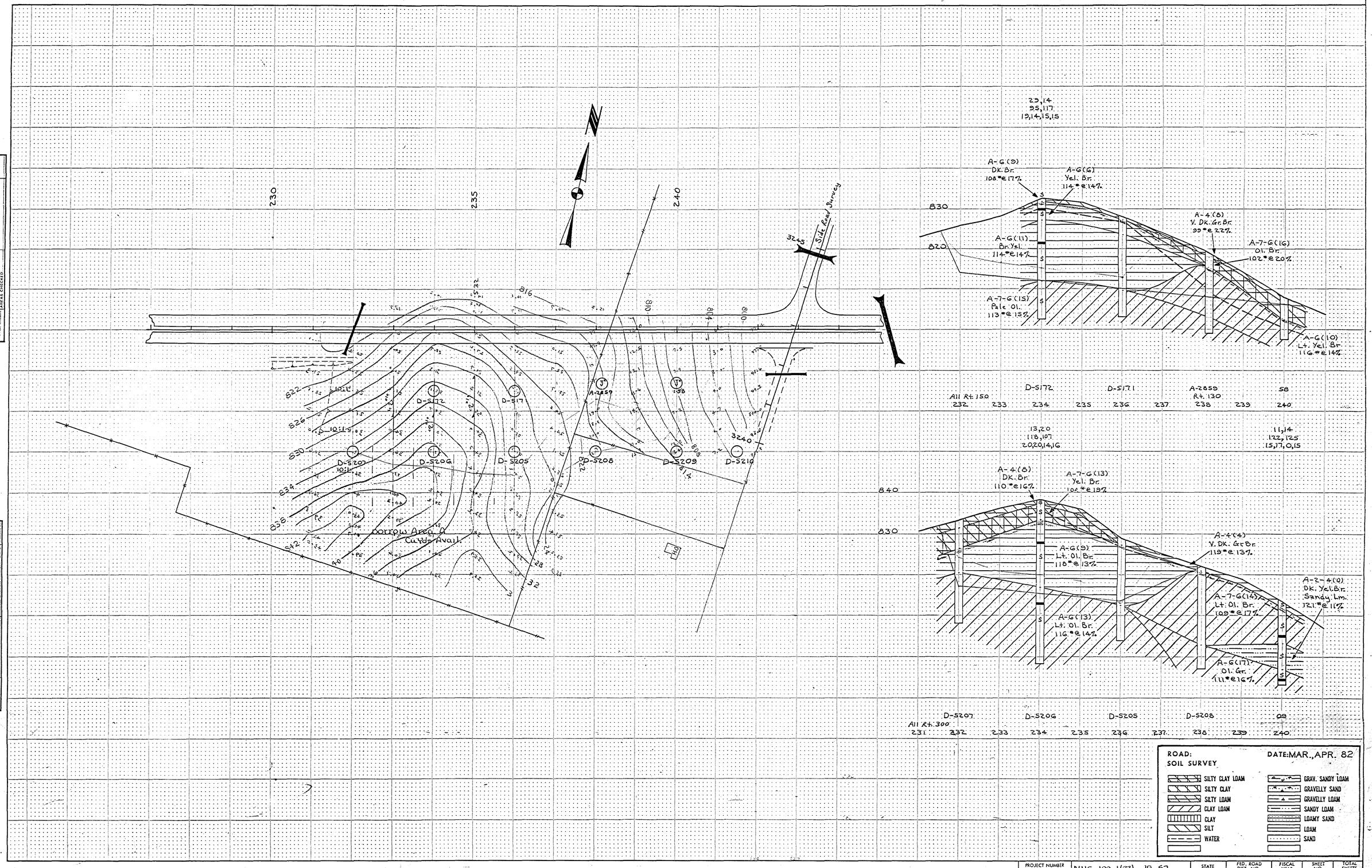
FINAL SURVEY — SURVEYED, PLOTTED, TEMPLATE, AREAS, AREAS CHECKED, NOTE BOOK, NO.

ORIGINAL SURVEY — SURVEYED, PLOTTED, TEMPLATE, AREAS, AREAS CHECKED, NOTE BOOK, NO. K

DATE 9/22 8/83

HTWT. CROSS SECTION 3/78

P 120



FINAL SURVEY — SURVEYED, PLOTTED, TEMPLATE, AREAS, AREAS CHECKED, NOTE BOOK NO. — DATE — BY

ORIGINAL SURVEY — SURVEYED, PLOTTED, TEMPLATE, AREAS, AREAS CHECKED, NOTE BOOK NO. 7 K — DATE 5/25/56 — BY J. Ryan, G. Ryan, B. Bishop

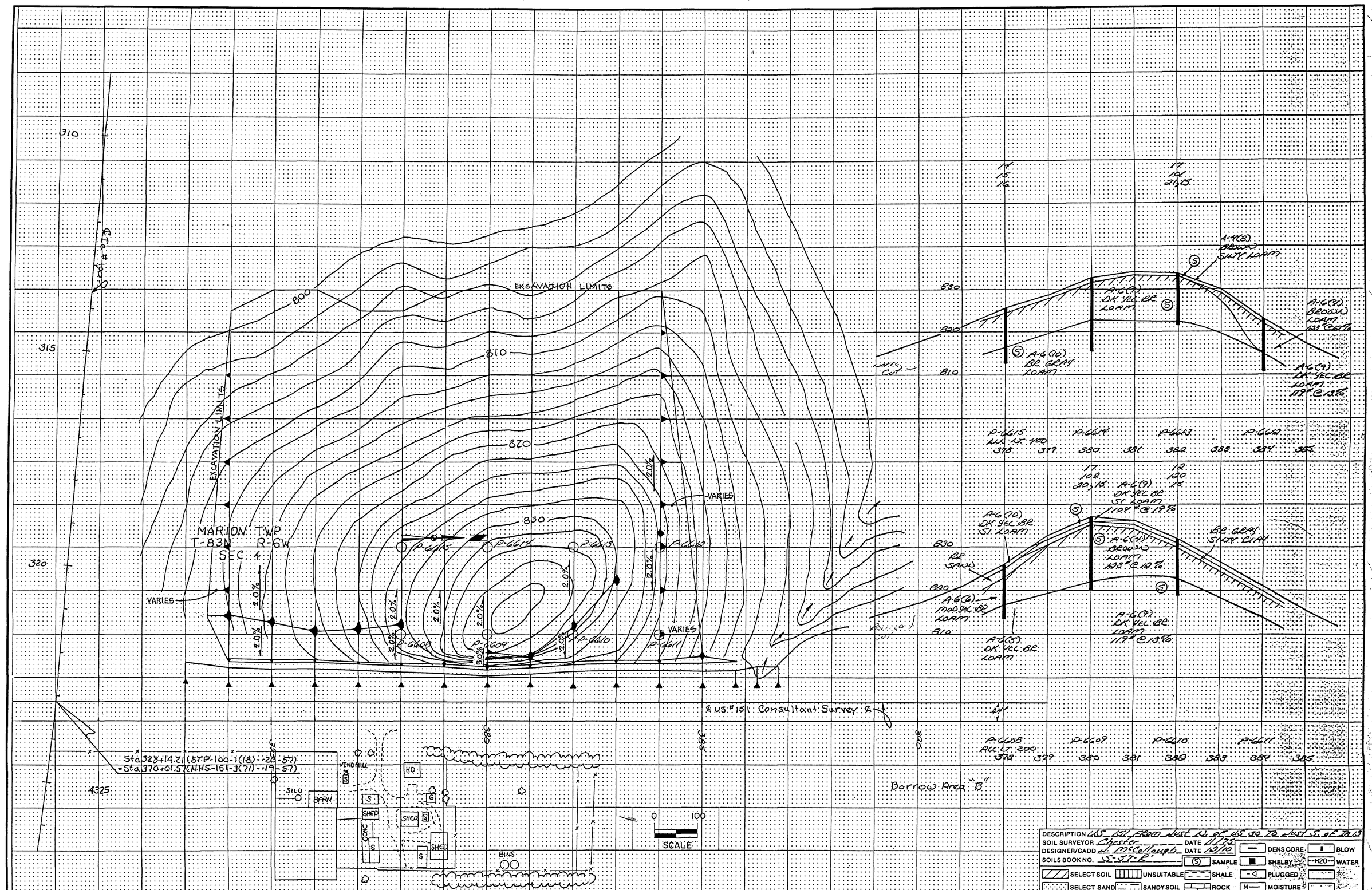
HYWY. CROSS SECTION 317040

SOILS DESIGN

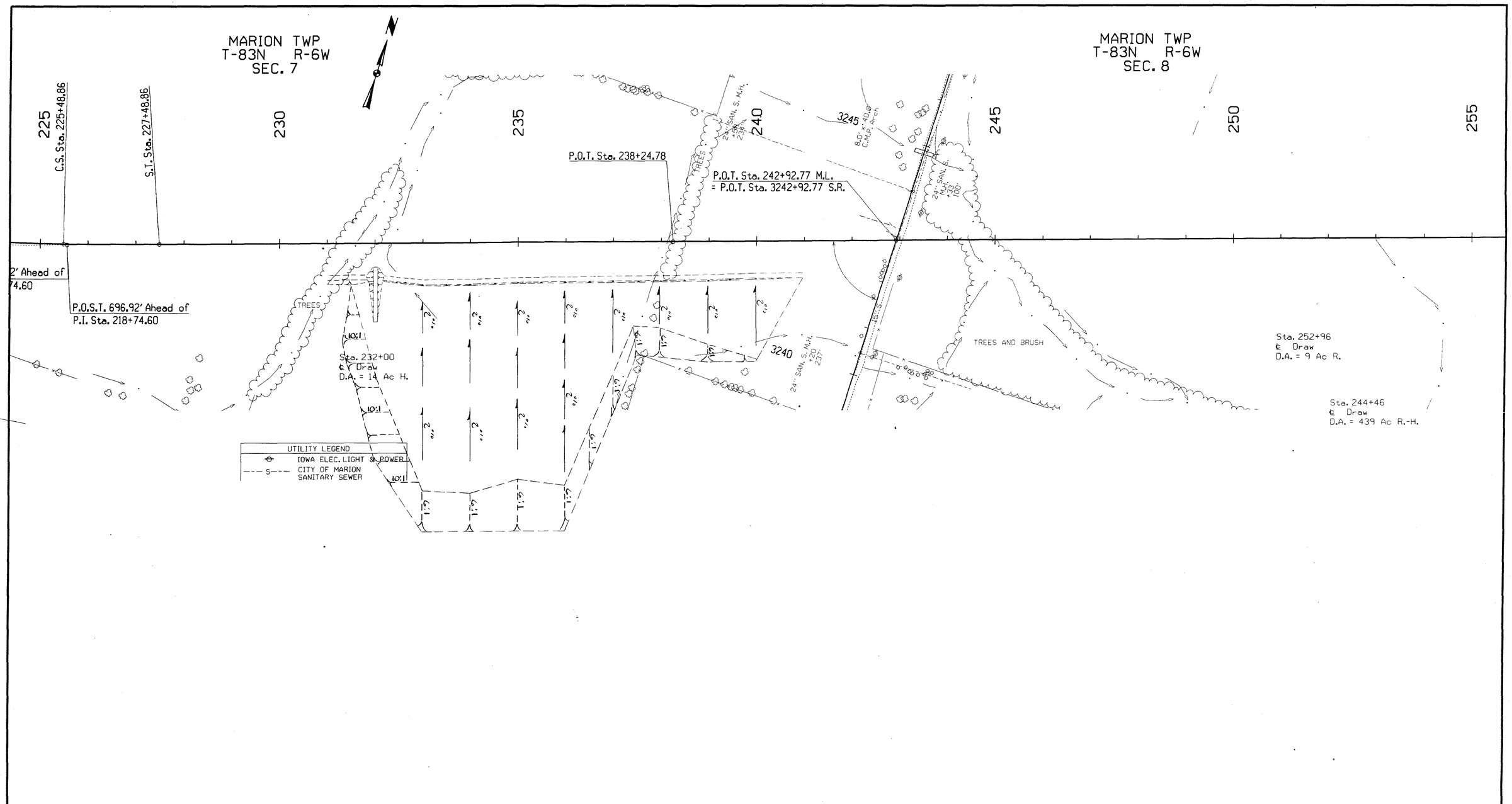
LINN COUNTY

PROJECT NUMBER	STATE	FED. ROAD DIST. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
NHS-100-1(23)--19-57	IOWA	5		003	004

P. 121


EXCAVATION LIMITS
MARION TWP
T-83N R-6W
SEC. 4
VARIES
2.0%
3.0%
P-6608
P-6609
P-6610
P-6611
P-6612
P-6613
P-6614
P-6615
Borrow Area "B"
Sta 323+14.21 (STP-100-1(18)--28--57)
=Sta 370+01.57 (NHS-151-3(71)--19--57)
VINDMILL
HO
SILO
BARN
SHED
CONC
BINS
0 100
SCALE
DESCRIPTION US. 151 FROM WEST JCT. OF US. 30 TO WEST JCT. OF TR. 13
SOIL SURVEYOR Chester DATE 1/73
DESIGNER/CADD L. McCollough DATE 10/10
SOILS BOOK NO. S-37-E
SAMPLE
DENS CORE
BLOW
SELECT SOIL
UNSUITABLE
SHALE
SHELBY
WATER
PLUGGED
SELECT SAND
SANDY SOIL
ROCK
MOISTURE
ROAD DESIGN • CADD • PRODUCED
STATE OF IOWA
FHWA REGION 7
FISCAL YEAR
LINN
COUNTY
PROJECT NUMBER
NHS-100-1(23)--19-57
SHEET NUMBER Q.04

P 122



Borrow Area "A"

150,244 Cu Yds Avail.
68,144 Cu Yds Select Avail. & Required
11,484 Cu Yds Topsoil Avail. & Required
36,760 Cu Yds Class 10 Avail. & Required
33,856 Cu Yds Cushion

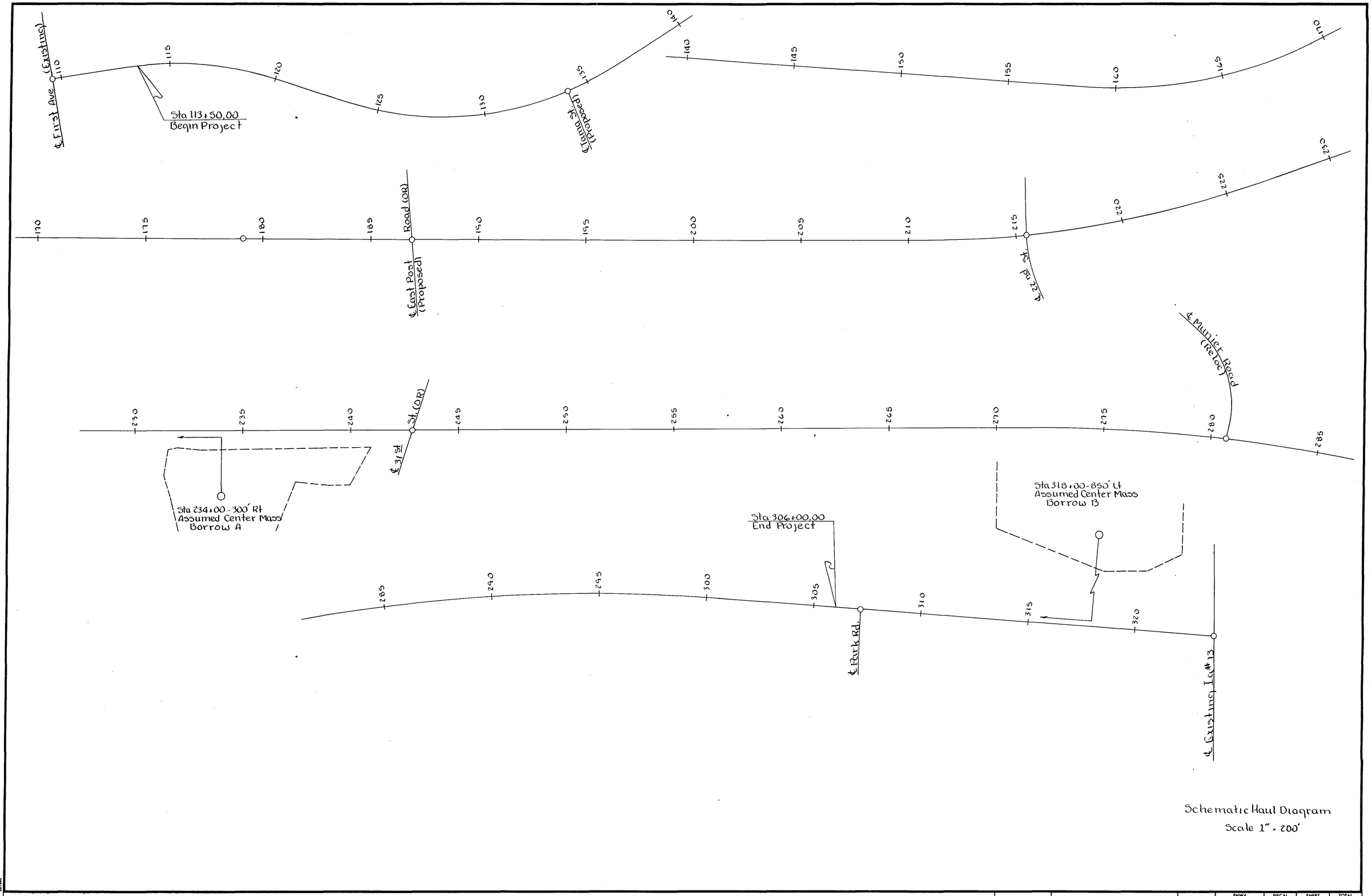
Note: The 11,484 cu yds of topsoil is for replacement within the borrow area upon completion of the project.

Included for Information Only
Scale 1" = 100'

ROAD DESIGN • CADD • PRODUCED	STATE OF IOWA	FHWA REGION 7	FISCAL YEAR	LINN COUNTY	PROJECT NUMBER	NHS-100-1(23)--19-57	SHEET NUMBER R.01

P.123

D4



Schematic Haul Diagram
Scale 1" = 200'

I.D.O.T. #000-316920	Linn COUNTY	PROJECT NUMBER	STATE	FHWA Region	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
		NHS - 100-1(23)--19-57	IOWA	7		5.01	

P.124

TABULATION OF TEMPLATE QUANTITIES AND ADJUSTMENTS

Refer to Standard Road Plan RL-1

107-28
01-09-90

STATION Ia #100 ML	TEMPLATE CUT	ADDITIONAL QUANTITY +C	SUBGRADE TREATMENT +C	MOISTURE AND DENSITY +C	FORESLOPE DRESSING +C		SELECT SOIL -C	PAVEMENT REMOVAL -C	ROCK -C		ADJUSTED EARTH CUT	UNSUITABLE C - 3	UNSUITABLE C - 5	ROCK CUT	ADDITIONAL ROCK CUT +C		PERCENT SWELL	ADJUSTED ROCK + SWELL	TEMPLATE FILL	ADDITIONAL QUANTITY +F	MOISTURE AND DENSITY +F	PAVEMENT REMOVAL +F	FORESLOPE DRESSING -F		SUBTRACT QUANTITY -F	SUBGRADE TREATMENT -F	ROCK FILL -F		ADJUSTED FILL	UNSUITABLE FILL	PERCENT SHRINK	ADJUSTED FILL + SHRINK	UNSUITABLE FILL + SHRINK	BALANCE AND OVERHAUL
186+00																																			
186+68	87		371								458								416							182			234		30	304			
187+04	1		96								97								242							196			46		30	60			
187+09	1		10								11								34							31			3		30	4			
187+24	60		100								160								53							22			31		30	40		NO OVERHAUL	
187+59	202		276								478								8							8			0		30	0			
187+69	19		38								57								48							37			11		30	14			
187+91	122		77								199								113							78			35		30	46			
Tama St.																																			
Paving Contr. Stage 1																																			
1122+00	215		0		0						215								0							0			0		30	0			
1122+50	430		65		27						522								0							0			0		30	0			
1123+00.04	461		103		55						619								0							0			0		30	0			
1123+79.84	87		130		9						226								62							22			40		30	52		NO OVERHAUL	
1124+38.45	0		21		0						21								54							30			24		30	31			
1124+58	31	Ent Rt	77		0						108								68							48			20		30	26			
1124+96.51	236	15	142		0						393								3							2			1		30	2			
1125+50																																			
Paving Contr. Stage 2																																			
1122+00	64		0		0						64								0										0		30	0			
1122+50	128		65		7						200								0										0		30	0			
1123+00.04	124		103		11						238								0	Ent Lt									0		30	0			
1123+79.84	17		0		0						17								18	46									64		30	83		NO OVERHAUL	
1124+38.45	0		0		0						0								9										9		30	12			
1124+58	7		17		0						24								11										11		30	14			
1124+96.51	10		63		0						73								7										7		30	9			
1125+50																																			

ROAD DESIGN • CADD • PRODUCED	STATE OF IOWA	FHWA REGION 7	FISCAL YEAR	LINN	COUNTY	PROJECT NUMBER	NHS-100-1(23)--19-57	SHEET NUMBER	T.01

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TABULATION OF TEMPLATE QUANTITIES AND ADJUSTMENTS

Refer to Standard Road Plan RL-1

107-28
01-09-90

STATION	TEMPLATE CUT	ADDITIONAL QUANTITY +C	SUBGRADE TREATMENT +C	MOISTURE AND DENSITY +C			SELECT SOIL -C	PAVEMENT REMOVAL -C	ROCK -C		ADJUSTED EARTH CUT	UNSUITABLE C - 3	UNSUITABLE C - 5	ROCK CUT	ADDITIONAL ROCK CUT +C		PERCENT SWELL	ADJUSTED ROCK + SWELL	TEMPLATE FILL	ADDITIONAL QUANTITY +F	MOISTURE AND DENSITY +F	PAVEMENT REMOVAL +F			SUBTRACT QUANTITY -F	SUBGRADE TREATMENT -F	ROCK FILL -F		ADJUSTED FILL	UNSUITABLE FILL	PERCENT SHRINK	ADJUSTED FILL + SHRINK	UNSUITABLE FILL + SHRINK	BALANCE AND OVERHAUL
Paving Plan																																		
Stage 1																																		
1172+12.52	1										1								1										1		30	2		
1172+50	3										3								15										15		30	19		
1173+00	3										3								25										25		30	32		
1173+33.88	94										94								46	Ent Rt									46		30	60		OVERHAUL =
1174+00	194										194								48	133									181		30	235		
1175+00	105										105								89										89		30	116		27,546
1176+00	24										24								106										106		30	138		Sta. Yds.
1176+50	0										0								78										78		30	101		
1176+88	1										1								35										35		30	46		
1177+00	9										9								202										202		30	263		
1178+00	2										2								14										14		30	18		
1178+50																																		
Paving Plan																																		
Stage 2																																		
1171+91.80	1										1								0										0		30	0		
1172+00	3										3								0										0		30	0		
1172+50	4										4								8										8		30	10		
1173+00	3										3								13										13		30	17		
1173+33.88	53		0					0			53								27										27		30	35		
1174+00	148		174					30			292								48										48		30	62		
1175+00	163		159					30			292								54										54		30	70		
1176+00	90		80					15			155								25										25		30	33		NO OVERHAUL
1176+50.01	58		54					10			102								18										18		30	23		
1176+88.01	14		12					2			24								5										5		30	7		
1177+00.02	76		68					11			133								44										44		30	57		
1178+00.09	13		0					0			13								44										44		30	57		
1179+00.22	0										0								22										22		30	29		
1179+50.30	0										0								26										26		30	34		
1180+06.18	0										0								44										44		30	57		
1181+00.35	0										0								5										5		30	7		
1181+25																																		
Paving Plan																																		
Stage 1																																		
1199+76.49	0										0								0										0		30	0		
1200+00	0										0								0										0		30	0		
1200+33.13	0										0								0										0		30	0		
1200+68.70	2										2								2										2		30	3		OVERHAUL =
1201+00	14										14								5										5		30	6		
1201+50	21										21								4										4		30	5		855
1202+00	21										21								3										3		30	4		Sta. Yds.
1202+46.90	1										1								1										1		30	2		
1202+50	13										13								4										4		30	5		
1203+00	4										4								2										2		30	2		
1203+50	0										0								0										0		30	0		
1204+00																																		
Paving Plan																																		
Stage 2																																		
1200+00																																		
1200+44.04	147		55					18			184								5										5		30	7		
1200+84.51	134		86					20			200								5										5		30	6		
1201+18.66	106		72					13			165								4										4		30	5		
1201+71.11	145		110					33			222								6										6		30	8		
1202+21.89	138		108					41			205								5										5		30	7		NO OVERHAUL
1202+68.84	104		97					40			161								4										4		30	5		
1202+71.94	5		6					3			8								1										1		30	2		
1202+80.75	14		18					7			25								1										1		30	2		

ROAD DESIGN • CADD • PRODUCED	STATE OF IOWA	FHWA REGION 7	FISCAL YEAR	LINN	COUNTY	PROJECT NUMBER	NHS-100-1(23)--19-57	SHEET NUMBER	T.02

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TABULATION OF TEMPLATE QUANTITIES AND ADJUSTMENTS

Refer to Standard Road Plan RL-1

107-28
01-09-90

STATION	TEMPLATE CUT	ADDITIONAL QUANTITY +C	SUBGRADE TREATMENT +C	MOISTURE AND DENSITY +C			SELECT SOIL -C	PAVEMENT REMOVAL -C	ROCK -C		ADJUSTED EARTH CUT	UNSUITABLE C - 3	UNSUITABLE C - 5	ROCK CUT	ADDITIONAL ROCK CUT +C		PERCENT SWELL	ADJUSTED ROCK + SWELL	TEMPLATE FILL	ADDITIONAL QUANTITY +F	MOISTURE AND DENSITY +F	PAVEMENT REMOVAL +F			SUBTRACT QUANTITY -F	SUBGRADE TREATMENT -F	ROCK FILL -F		ADJUSTED FILL	UNSUITABLE FILL	PERCENT SHRINK	ADJUSTED FILL + SHRINK	UNSUITABLE FILL + SHRINK	BALANCE AND OVERHAUL
Paving Plan																																			
Stage 3																																			
1171+91.80																						0													
1172+00	0										0								0			1							1		30	2			
1172+50	2										2								0			2							2		30	3			
1173+00	23										23								0			6							6		30	8			
1173+33.88	38										38								0			6							6		30	8			
1174+00	115		0								115								0			18							18		30	23			
1175+00	220		74								294								0			0							0		30	0			
1176+00	261		76								337								0										0		30	0			
1176+50.01	157		40					0			197								0										0		30	0			
1176+88.90	137		40					3			174								0										0		30	0			
1177+00.02	38		14					1			51								0						0				0		30	0			
1178+00.09	350		170					26			494								19						11				8		30	10			NO OVERHAUL
1179+00.22	593		233					30			796								19						11				8		30	10			
1179+50.30	346		126					15			457								1						0				1		30	2			
1180+06.18	252	Ent Rt	139					17			374								7	Ent Rt					2				5		30	7			
1181+00.35	275	3	244					28			494								49	141					7				183		30	238			
1181+50.40	114		139					15			238								70	35					12				93		30	121			
1182+50.51	423		311					30			704								172	14					48				138		30	179			
1183+00.57	40		153					15			178								30	95					16				109		30	142			
1184+00.68	124		287					30			381								13	105					13				105		30	137			
1185+00.78	159		261					30			390								20	239					19				240		30	312			
1186+00.89	244		248					30			462								17	289					11				295		30	384			
1186+90.62	285		231					27			489								7	140					0				147		30	191			
1188+00.62																																			
1189+01.22	3305		338					30			3613								0										0		30	0			
1190+01.33	4182		252					30			4404								0										0		30	0			
1191+01.44	4989	Ent Rt	252					30			5211								5	Ent Rt									5		30	7			
1192+01.55	4375	39	243					30			4627								5	4									9		30	12			
1193+01.66	3048	105	159					30			3282								0	4									4		30	5			
1194+01.77	1845	55	48					30			1918								0	316									316		30	411			
1195+01.88	1241		0					30			1211								0										0		30	0			
1196+01.99	917		0					30			887								0										0		30	0			
1197+02.08	789		0					30			759								0										0		30	0			
1198+02.21	1013		0					30			983								0										0		30	0			
1198+52.60	629		0					15			614								0										0		30	0			
1199+03.44	498		0					20			478								0										0		30	0			
1199+54.91	283		0					38			245								0			7							7		30	9			NO OVERHAUL
1200+00	193		23					33			183								0			7							7		30	9			
1200+44.04	174		45					66			153								0			2							2		30	3			
1200+84.51	110		49					49			110								3			13							16		30	21			
1201+18.66	69		46					17			98								4			18							22		30	29			
1201+71.11	91		68					19			140								13			11							24		30	31			
1201+21.89	73		65					13			125								15			14							29		30	38			
1202+68.84	61		63					15			109								12			9							21		30	27			
1202+71.94	4		4					1			7								1			1							2		30	3			
1202+80.75	10		12					3			19								1			2							3		30	4			
1202+58.81											0																								
1203+00	6							6			0								0			3							3		30	4			
1203+33	4							4			0								0			3							3		30	4			

ROAD DESIGN • CADD • PRODUCED	STATE OF IOWA	FHWA REGION 7	FISCAL YEAR	LINN	COUNTY	PROJECT NUMBER	NHS-100-1(23)--19-57	SHEET NUMBER	T.03

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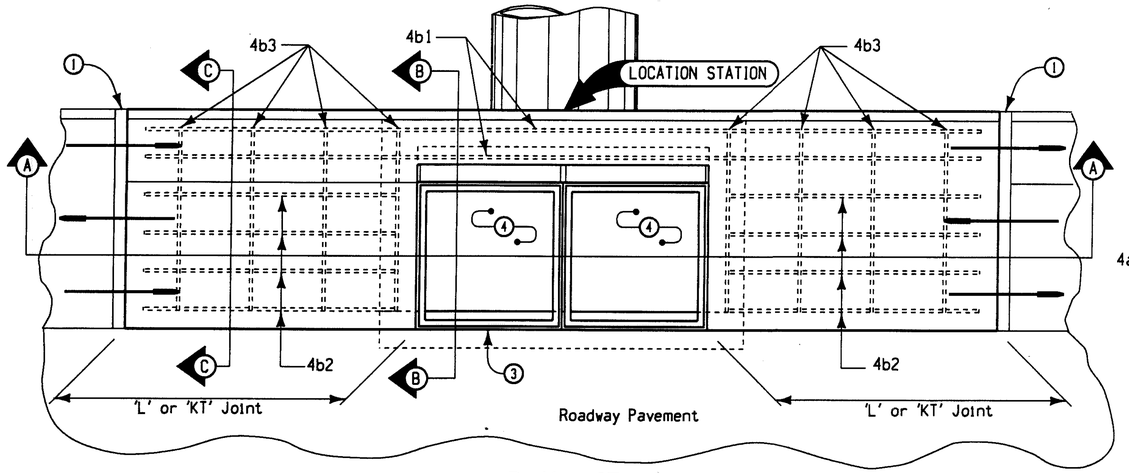
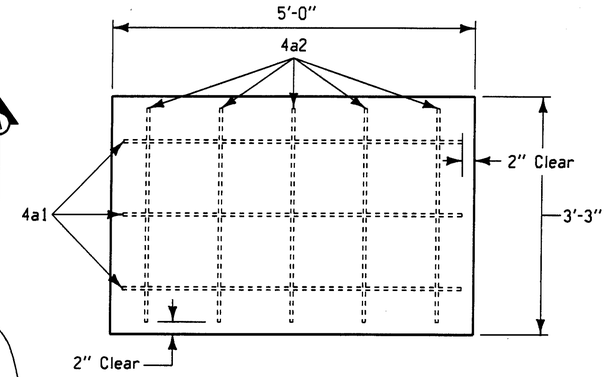
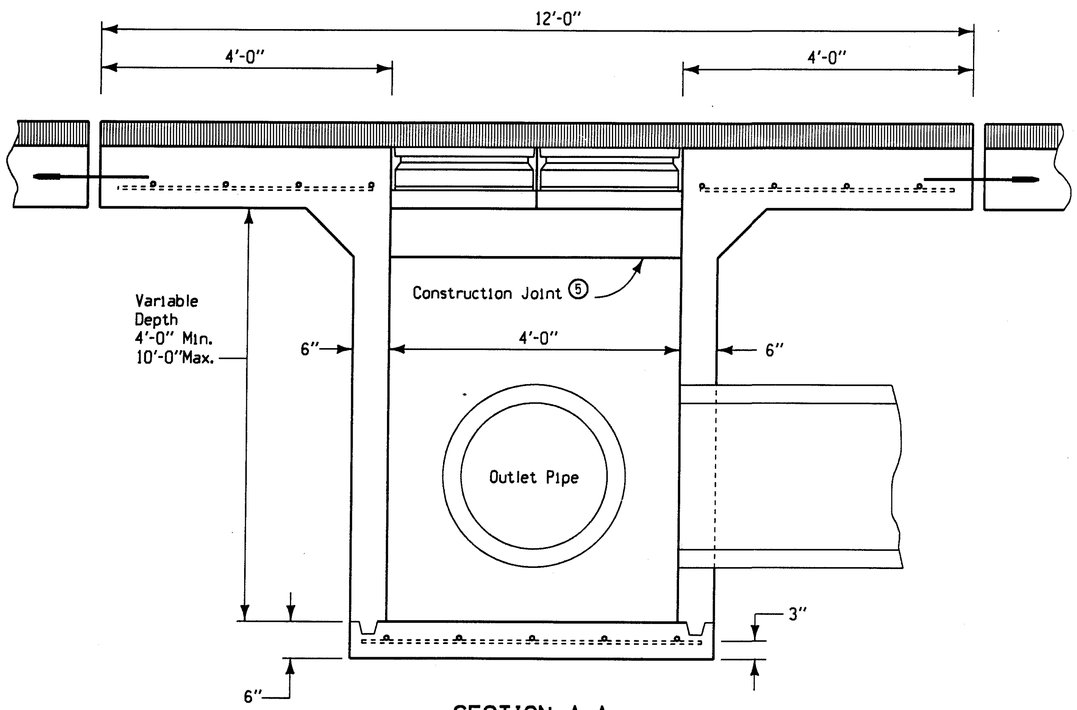


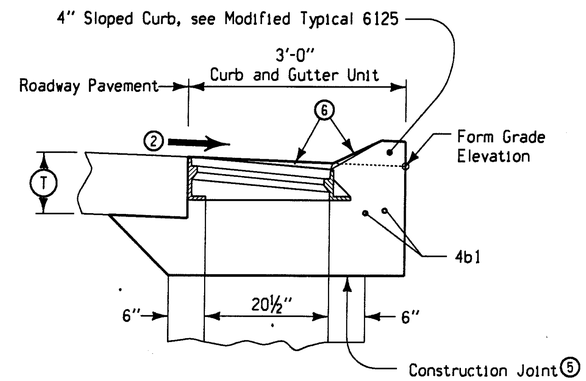
PLAN VIEW



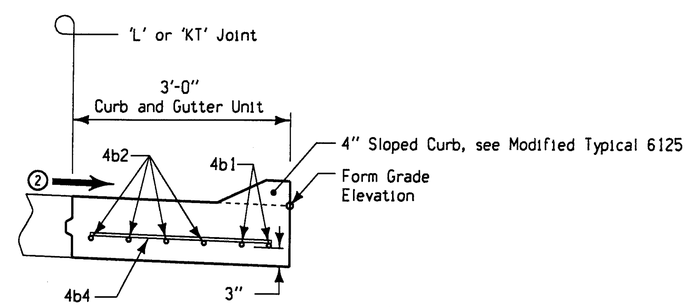
PLAN OF BASE



SECTION A-A



SECTION B-B



SECTION C-C

GENERAL NOTES:

This plan illustrates the details for the construction of a concrete intake for a high capacity grate to be used at the curb line of a superelevated roadway. Details shown on this sheet are typical. Alternate details may be submitted to the Engineer for his approval.

Materials and methods of construction shall be in accordance with current Standard and Supplemental Specifications.

Sidewalls shalll be constructed as indicated with openings for storm sewer smoothly shaped and no pipe projecting unnecessarily beyond the inside face of the sidewall. Storm sewer pipe shall be installed before sidewall construction.

Storm sewer pipe location shown hereon is typical. Refer to detail project plans for additional data.

Joints in pavement, adjacent to intake, shall be as shown on Standard Road Plan RH-52. Any transverse pavement joints shall stop at the edge of the insert area. Joint locations shall be as indicated heron, except where specifically modified by other drawings or by the Enginner.

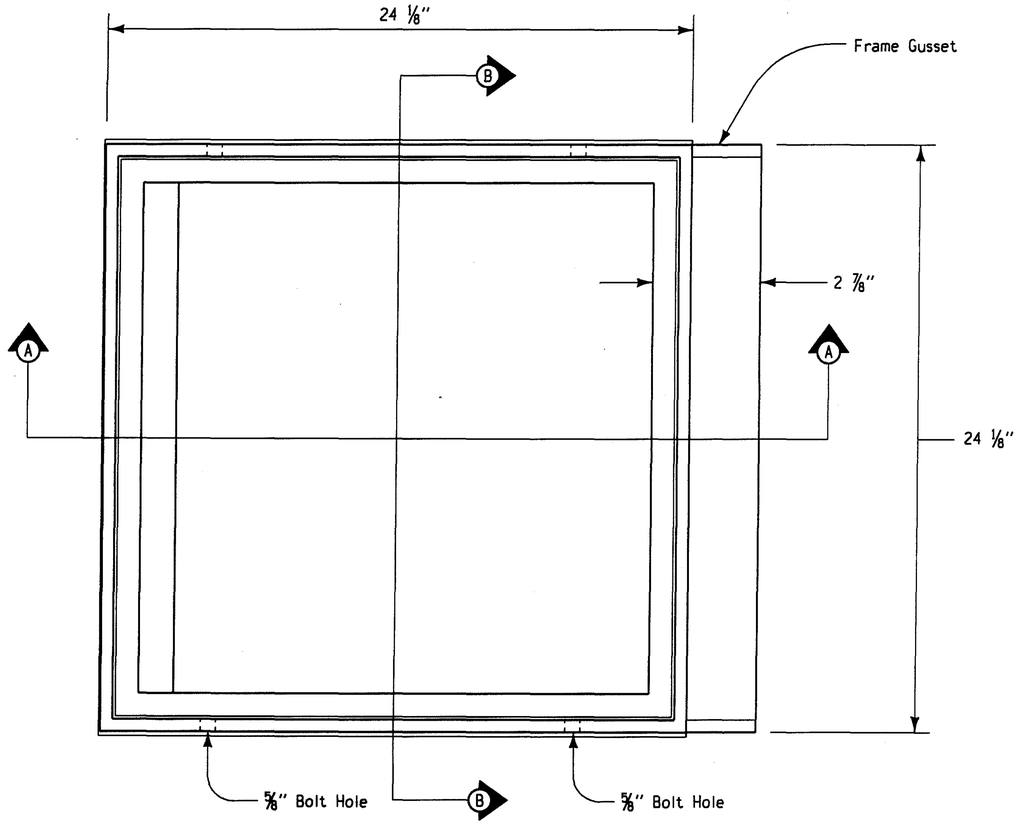
Price bid for "Intake Top Only, as Per Plan" shall be considered full compensation for furnishing all work and materials necessary to construct the intake and insert area above the construction joint.

1. 'EE' Joint, refer to Standard Road Plan RH-52 for details.
2. Superelevation may vary from 3% to 8%.
3. See Detail Sheet of "Gutter Inlet Frame for Inlets on Superelevated Curves."
4. See Standard Road Plan RA-13B for details of grate.
5. Construction joint shall be a minimum of 16" below Form Grade Elevation. Install 'bond breaker.'
6. Special shaping of curb and gutter unit to ensure drainage.

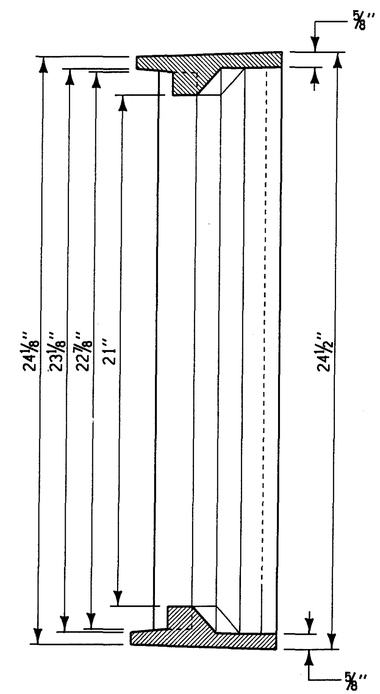
REINFORCING BAR LIST

BAR	LOCATION	SHAPE	NO.	LENGTH	LIN. FT.	WEIGHT	SPACING
4a1	Base	——	3	4'-8"	14	9.4	12"
4a2	Base	——	5	2'-11"	14.6	9.8	12"
4b1	Top	——	2	11'-6"	23	15.4	See Detail
4b2	Top	——	8	3'-6"	28	18.7	6.25"
4b3	Top	——	8	2'-6"	20	13.4	12"
					Total	66.7	

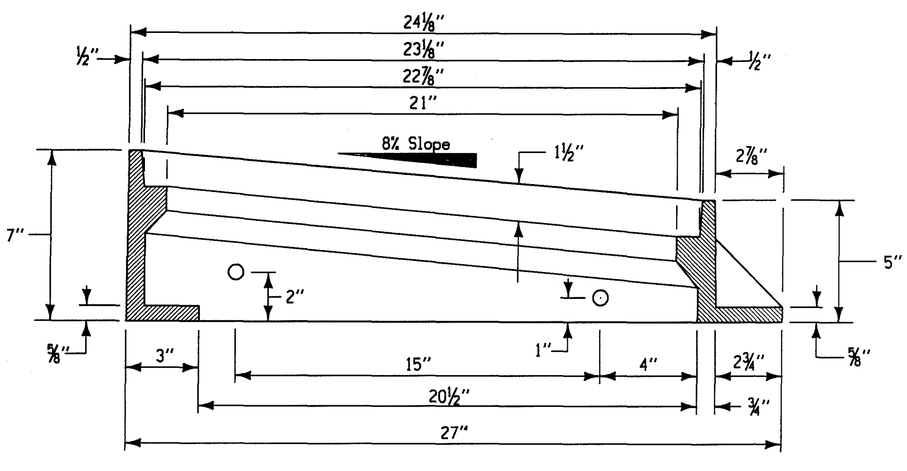
MODIFIED DETAIL SHEET 500-11
INTAKE ON
SUPERELEVATED CURVE
(DOUBLE GRATE)



PLAN



SECTION B-B



SECTION A-A

GENERAL NOTES:

The casting illustrated hereon is typical, alternate designs for similar situations may be submitter to the Engineer for approval. Minimum dimensions and weight requirements must be met unless specific authorazation is received for any such deviation. All castings subject to roadway traffic shall machine–ground bearing surfaces to prevent rattling, and shall be matchmarked before delivery. The use of grinding pads is allowed provided all dimensional requirements are met.

Materials and methods of construction shall be in accordance with current Standard and Supplemental Specifications.

All castings shall be Class 30 or better gray iron casting, and the finish of the casting shall be smooth and free of defects as provided for in Article 4153.04 of the current Standard Specifications. Painting of castings is not required, however, if painted, the paint shall be evenly applied and neither sticky nor brittle when dry.

All component parts of the castings shall fit smoothly together without forcing, and the finished product shall have a satis–factory appearance.

An identifiable trade name or mark may be imprinted on the casting by the casting foundry.

Unless specified otherwise as a part of project plans, the cast iron frame described hearon shall not be paid for separately but shall be included with and considered incidental to the intake where required.

MINIMUM WEIGHTS	
GRATE	90 lbs.
FRAME	130 lbs.

For Information Only

GUTTER INLET FRAME FOR
INLETS ON SUPERELEVATED CURVES

ROAD DESIGN • CADD • PRODUCED	STATE OF IOWA	FHWA REGION 7	FISCAL YEAR	Linn COUNTY	PROJECT NUMBER NHS-100-1(23)--19-57	SHEET NUMBER U.02

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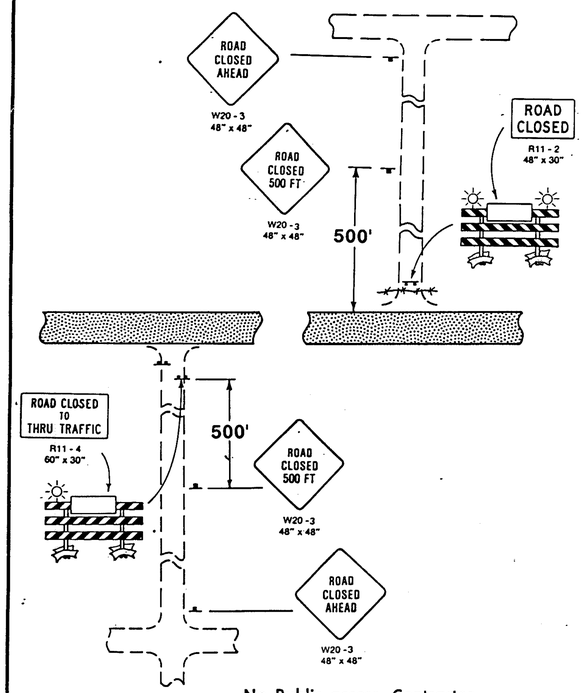
SITUATION 2

No Access to project.

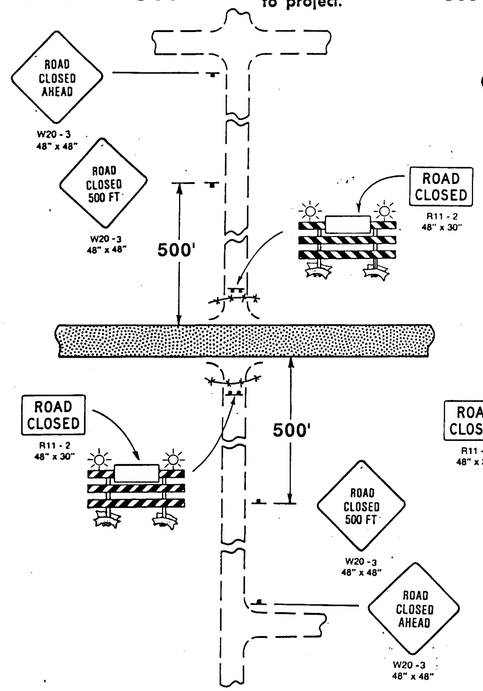


SITUATION 3

No Public access. Contractor and resident access only.

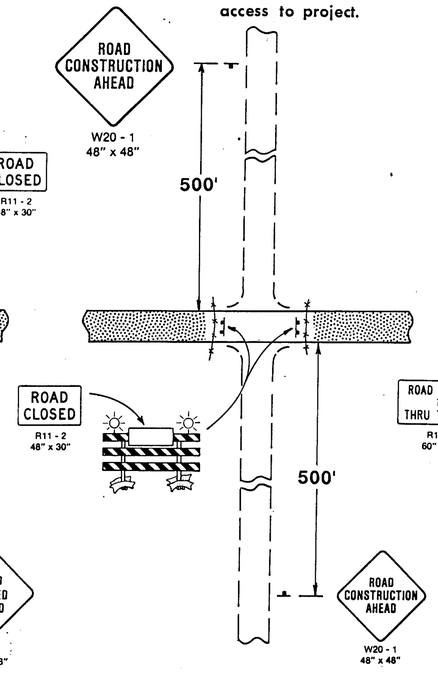
SITUATION 4

No Access to project.



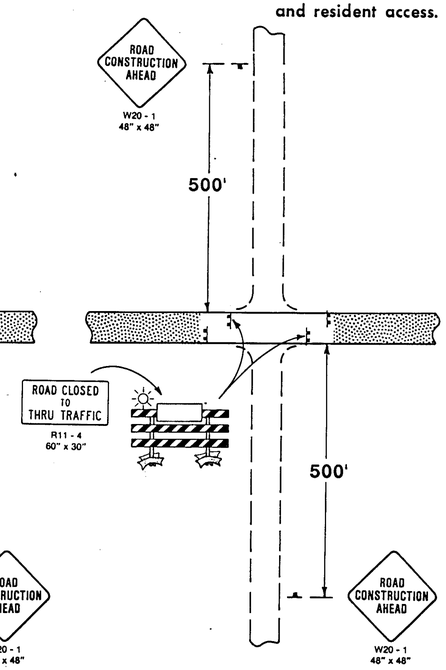
SITUATION 5

Public cross-traffic maintained. No access to project.



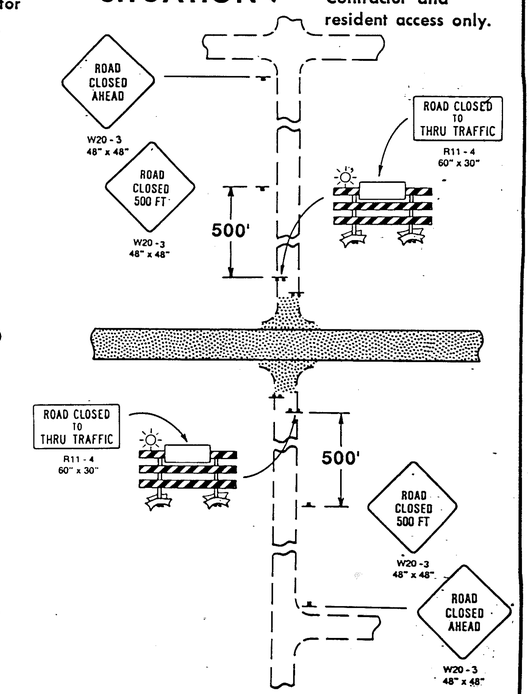
SITUATION 6

Public cross-traffic maintained. Contractor and resident access.



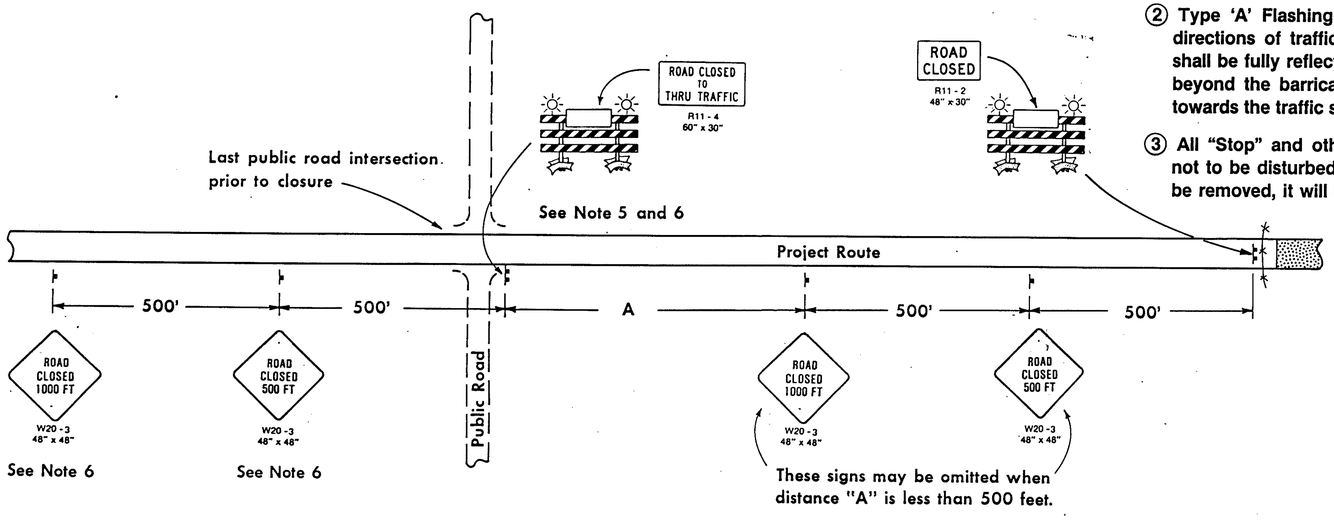
SITUATION 7

No Public access. Contractor and resident access only.



SITUATION 1

Project Route closure.



GENERAL NOTES:

1. Situation 1 illustrates traffic control necessary to close the project route. SITUATION 2 through 7 are for signing of sideroads based on existing agreements and field conditions and will be selected by the engineer in charge of construction.
2. Type 'A' Flashing Warning Lights shall be visible to both directions of traffic. The backside of the type III barricades shall be fully reflectorized unless there is no access permitted beyond the barricade. Strips shall be properly sloped down towards the traffic side.
3. All "Stop" and other regulatory signs on the sideroads are not to be disturbed. If a "Stop" or other regulatory sign must be removed, it will be relocated by the Contracting Authority.
4. This layout does not include safety closures as may be required by Section 2518 of the Standard Specifications.
5. In Situation 1, when distance "A" is less than 500 feet, the barricade should be placed in the middle of the traffic lane approaching the work area. In this case, Note 2 shall apply. The barricade may be omitted if the distance to the work area is less than 250 feet.
6. In Situation 1, if the intersection is the point of detour these two signs and barricade will become the responsibility of the contracting authority and may be modified by the contracting authority to fit detour signing.

LEGEND

- Traffic Sign
- Type III Barricade (Type "A" Low Intensity Flashing Warning Light Required for Nighttime Use)
- Type "A" Low Intensity Flashing Warning Light
- Work Area
- Slat Fence Barricade or Orange Plastic Safety Fence

Iowa Department of Transportation
Highway Division

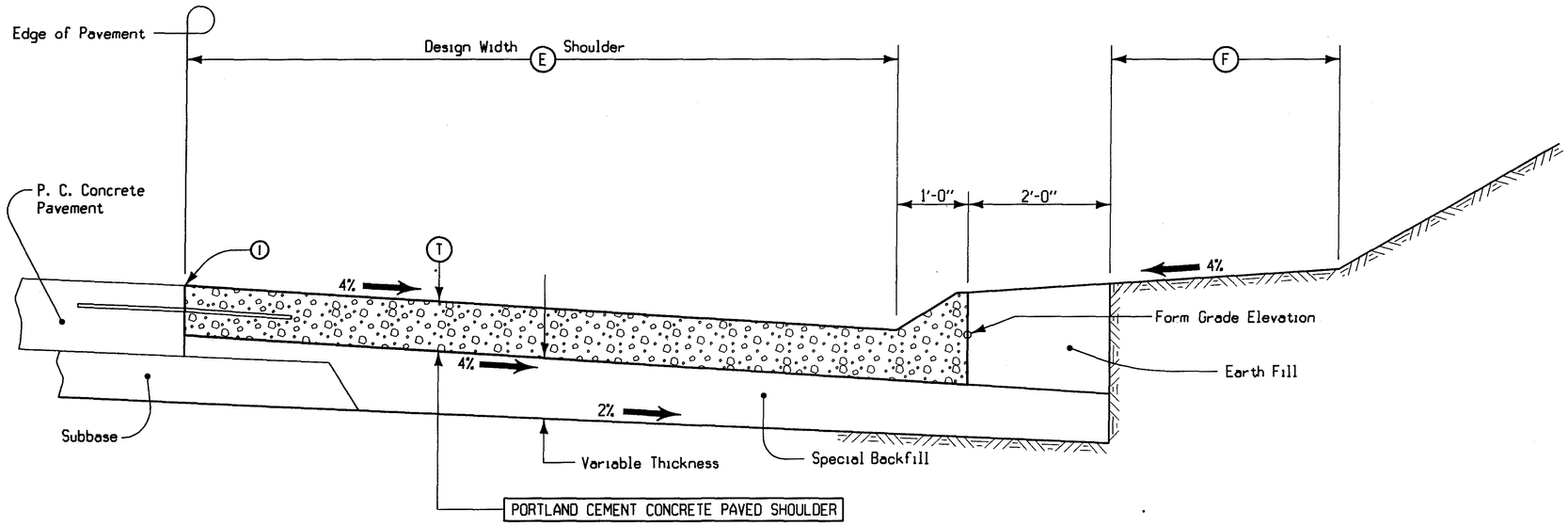
NO.	DATE	DETAIL SHEET	520-26
3	06-15-93		

REVISION: Revise note 4. Change barricades to safety closure.

SIGNING FOR TEMPORARY ROAD CLOSURES IN RURAL AREAS (PROJECT ROUTE CLOSED TO TRAFFIC)

STATE OF IOWA	FHWA REGION 7	FISCAL YEAR		Linn COUNTY	PROJECT NUMBER NHS-100-1(23)--19-57	SHEET NUMBER U.03	TOTAL SHEETS

P.130



TYPICAL SECTION
P.C. CONCRETE PAVED SHOULDER

GENERAL NOTES:

Details indicated hereon illustrate the general requirements for construction of a paved shoulder consisting of PCC Base except all joints shall be sealed as specified for "Portland Cement Concrete Pavement" in the current Standard Specifications. Unless otherwise specified, Class A Concrete shall be used.

Materials and methods of construction shall be in accordance with current Standard and Supplemental Specifications.

Slopes, dimensions, and quantities indicated hereon are for a normal section as shown and are for design purposes. Shoulder construction details may be modified through superelevated curves or other areas specifically designated by the Engineer. Refer to Typical Cross Sections and Standard Road Plans for superelevation.

Any special shaping of subgrade necessary, prior to construction of paved shoulders, shall be accomplished as directed by the Engineer. Any material removed due to this special shaping shall be disposed of at the direction of the Engineer.

The subgrade beneath Paved Shoulders shall be constructed in conformance with specifications for Natural Subgrade. "Special Backfill" material shall be paid for as specified in Article 2102.14, Paragraph D. Payment shall be based on a nominal 6 inch thickness. The thickness may be exceeded at the Contractor's option. However the contractor will not be compensated for any additional material.

For roughness pattern details see Standard Road Plan RH-41D.

The price bid for "Portland Cement Concrete Paved Shoulder" thickness as specified, in sq. yds. and "Special Backfill" in tons, shall be considered full compensation for the construction of shoulder as detailed hereon. Roughness pattern, joint construction, special shaping and earth fill shall be considered incidental to the price bid for 'Portland Cement Concrete Paved Shoulder."

(1) "L-2", "KT-2" or modified "BT-3" Joint. Modified "BT-3" requires a keyway. Contractor option to pour either the tongue or groove of the keyway with the mainline pavement. Refer to Standard Road Plan RH-51.

(2) Quantities indicated are for design purposes and may be adjusted at time of construction if so directed by the engineer. Quantities listed are for one shoulder per station including the curb.

DESIGN QUANTITY TABLE (2)

	(E) =4'		(E) =6'		(E) =8'		(E) =8.5'		(E) =10'	
(T)	Area Sq. Yds.	Volume Cu. Yds.	Area Sq. Yds.	Volume Cu. Yds.	Area Sq. Yds.	Volume Cu. Yds.	Area Sq. Yds.	Volume Cu. Yds.	Area Sq. Yds.	Volume Cu. Yds.
7.0"	55.56	11.853	77.78	16.174	100.00	20.495	105.56	21.575	122.22	24.816
7.5"	55.56	12.626	77.78	17.255	100.00	21.885	105.56	23.042	122.22	26.514
8.0"	55.56	13.398	77.78	18.336	100.00	23.275	105.56	24.509	122.22	28.213
8.5"	55.56	14.168	77.78	19.415	100.00	24.661	105.56	25.973	122.22	29.908
9.0"	55.56	14.940	77.78	20.496	100.00	26.051	105.56	27.440	122.22	31.607
9.5"	55.56	15.713	77.78	21.577	100.00	27.442	105.56	28.908	122.22	33.306
10.0"	55.56	16.483	77.78	22.656	100.00	28.828	105.56	30.371	122.22	35.001
10.5"	55.56	17.255	77.78	23.737	100.00	30.218	105.56	31.839	122.22	36.700
11.0"	55.56	18.027	77.78	24.818	100.00	31.608	105.56	33.306	122.22	38.398
11.5"	55.56	18.798	77.78	25.896	100.00	32.995	105.56	34.769	122.22	40.093
12.0"	55.56	19.570	77.78	26.977	100.00	34.385	105.56	36.237	122.22	41.792

Iowa Department of Transportation
Highway Division

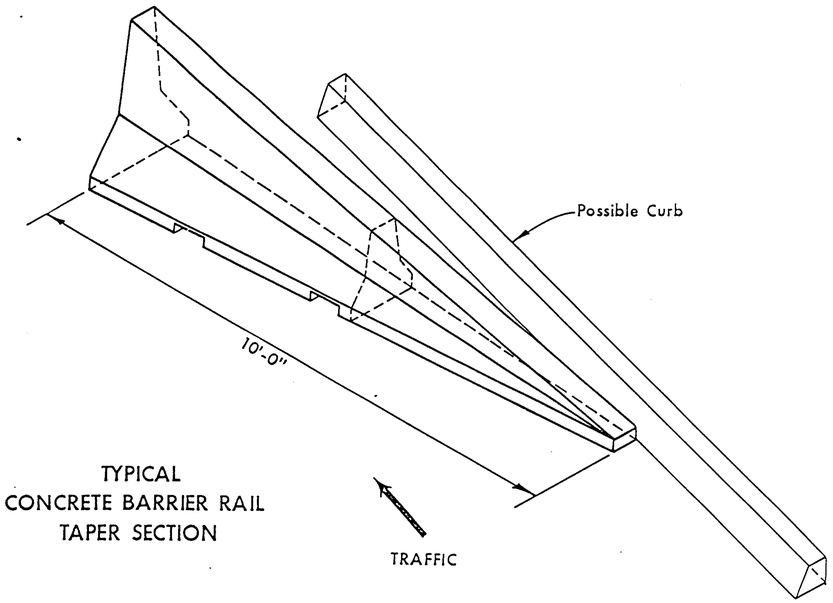
NO.	DATE	DETAIL SHEET	535-1
5	06-07-94		

REVISION: Change Special Backfill "square yards" to "tons"

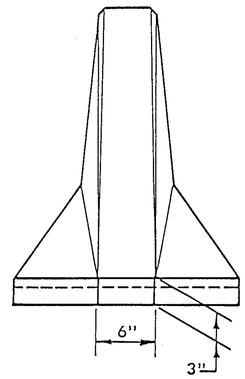
PAVED SHOULDER
WITH 6 INCH SLOPED CURB
(PORTLAND CEMENT CONCRETE)

OFFICE OF DESIGN • CADD • PRODUCED	STATE OF IOWA	FHWA REGION 7	FISCAL YEAR	Linn COUNTY	PROJECT NUMBER	NHS-100-1(23)--19-57	SHEET NUMBER	U.04

P. 131



TYPICAL
CONCRETE BARRIER RAIL
TAPER SECTION

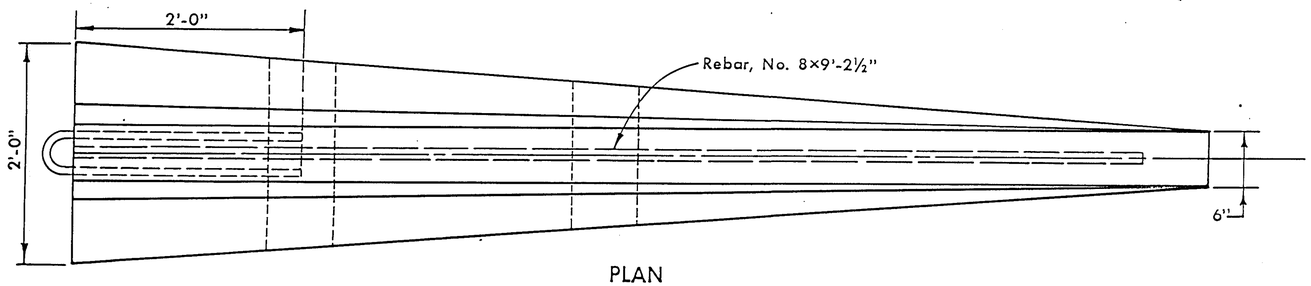


FRONT ELEVATION

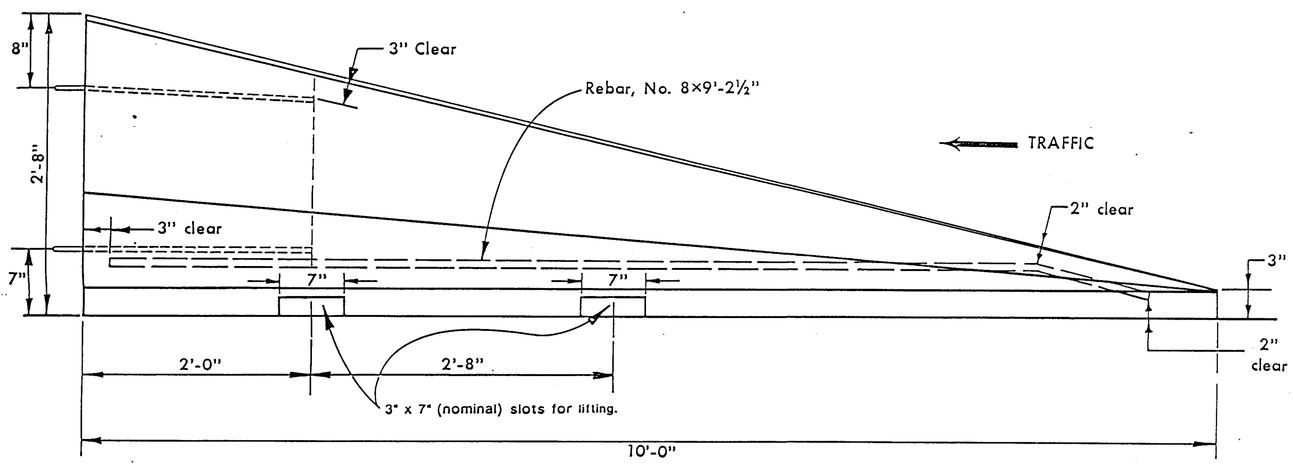
GENERAL NOTES:

Details shown hereon are for the construction of a precast concrete barrier rail taper section. Alternate design details may be submitted to the engineer for approval prior to construction.

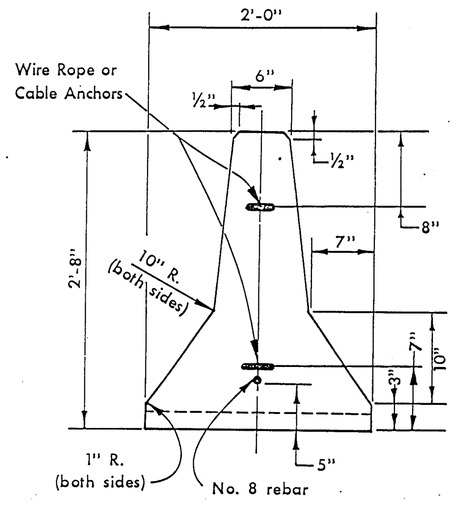
Barrier shall be constructed as specified in Section 2513 of the current specifications. Estimated quantity for one taper section is 0.486 cu. yds. of concrete.



PLAN



SIDE ELEVATION



FULL SECTION

Iowa Department of Transportation
Highway Division

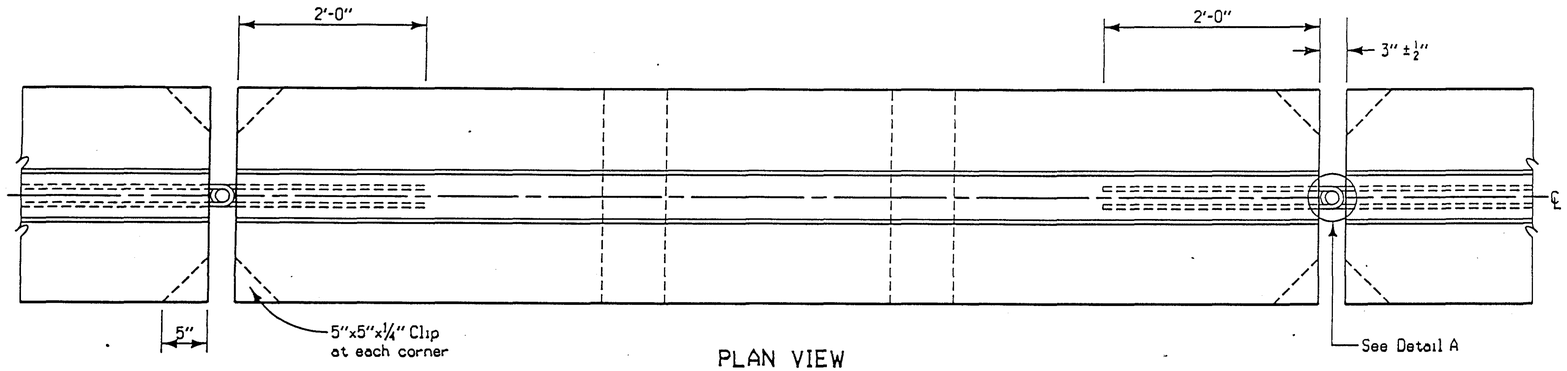
NO.	DATE	DETAIL SHEET	540-1
	11-10-92		

REVISION: Change in the Specifications.

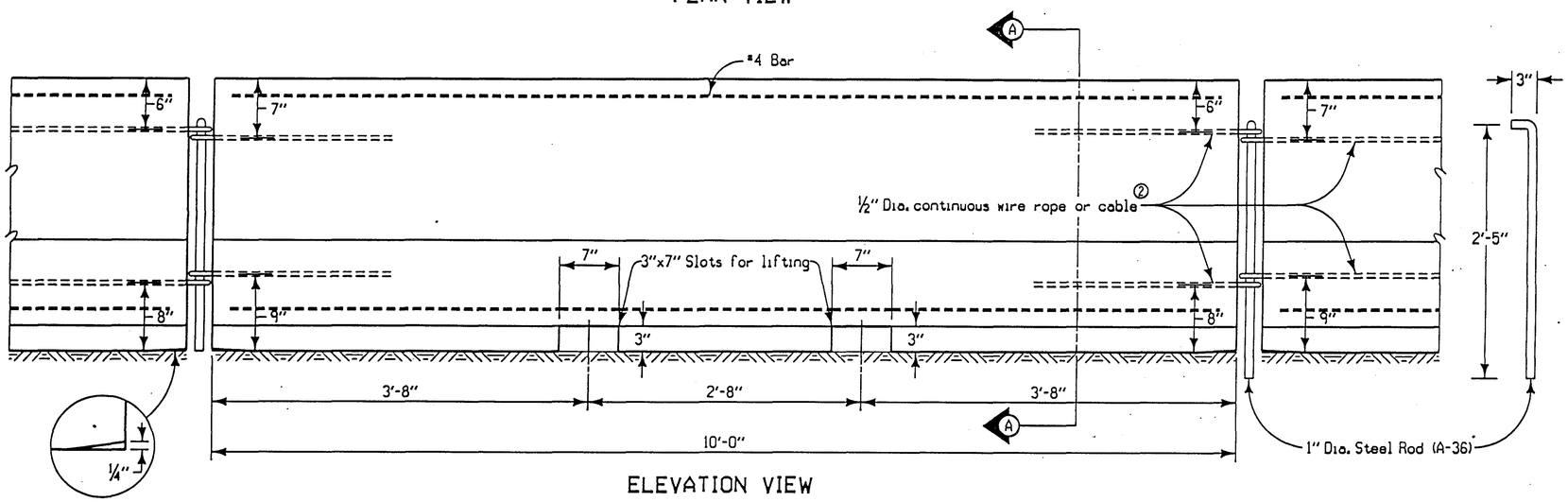
TEMPORARY CONCRETE
BARRIER RAIL TAPER SECTION
(PRE-CAST)

STATE OF IOWA	FHWA REGION 7	FISCAL YEAR		Linn COUNTY	PROJECT NUMBER NHS-100-1(23)--19-57	SHEET NUMBER	TOTAL SHEETS 0.05

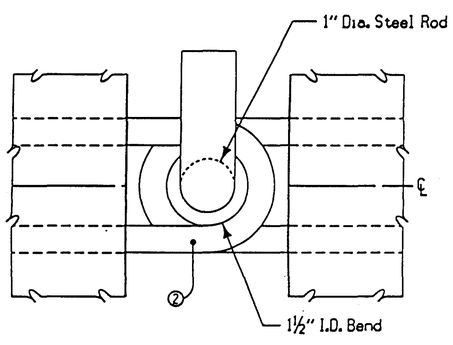
P. 132



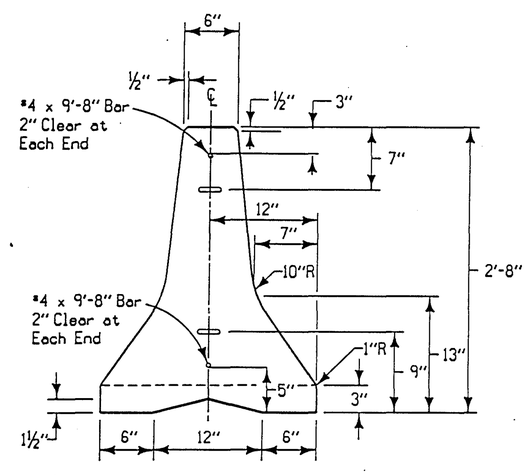
PLAN VIEW



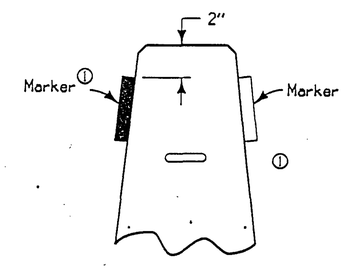
ELEVATION VIEW



DETAIL A



SECTION A-A



MARKER PLACEMENT DETAIL

GENERAL NOTES:

These details are for the fabrication and installation of temporary concrete barrier rail. Barrier shall be constructed as specified in Section 2513 of the current specifications.

Materials and methods of construction shall be in accordance with current Standard and Supplemental Specifications.

Details shown are typical. Alternate design details may be submitted to the Engineer for approval.

The contractor shall provide for an approved monitoring schedule with a person on call and available 24 hours a day, each day of the week, to realign barrier rail which has been struck. Initiation of service shall be within one hour of notification of need.

Markers shall be furnished and installed by the contractor. Markers shall be placed on the barrier as recommended by the manufacturer, and as shown in the Marker Placement Detail or as directed by the Engineer. The markers shall be installed at 10 foot spacing and face oncoming traffic. Refer to Details of Barrier Placement. The contractor shall maintain the markers and promptly repair or replace any damaged or missing units. All costs for furnishing, installing and maintaining markers shall be included in the price bid for the temporary barrier rail.

Unless stated otherwise in the plans, the barrier rail sections shall remain the property of the contractor and at the completion of the work shall be removed from the site by him.

When Temporary Barrier Rail is installed within 2 feet of a drop-off, tie downs as described and shown on Detail Sheet 540-10 shall be required.

The price bid for "Temporary Barrier Rail, Furnish Only" in linear feet shall be full compensation for furnishing temporary barrier rail as detailed and measured on this sheet.

The price bid for "Temporary Barrier Rail, Place Only" in linear feet of Barrier Rail shall be full compensation for placing temporary barrier rail as detailed on this sheet and elsewhere in the plan.

Contractor may add extra reinforcing bars to increase the service life of the rail sections.

① Color same as adjacent edgeline.

② Wire rope or cable to be 1/2" diameter, with a minimum breaking strength of 20,000 pounds.

Iowa Department of Transportation
Highway Division

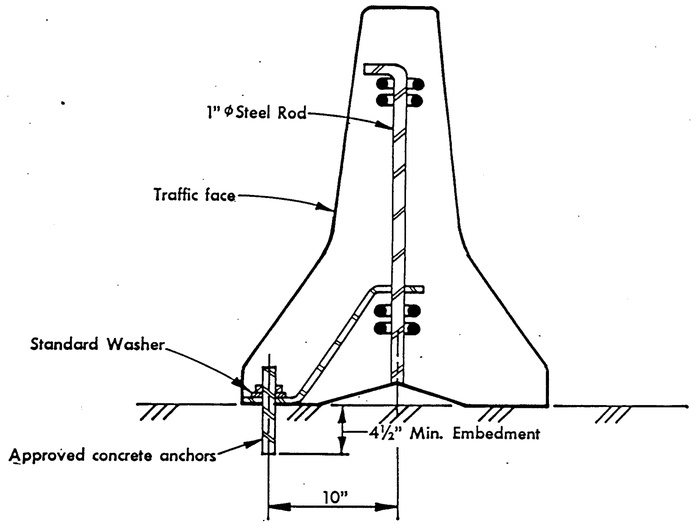
NO.	DATE	DETAIL SHEET	540-2
4	11-10-92		

REVISION: Change in the specifications.

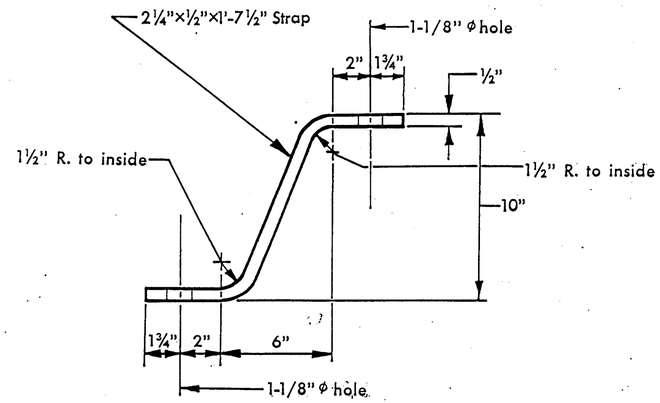
TEMPORARY CONCRETE BARRIER RAIL
(PRECAST)

ROAD DESIGN • CADD • PRODUCED	STATE OF IOWA	FHWA REGION 7	FISCAL YEAR	Linn COUNTY	PROJECT NUMBER NHS-100-1(23)--19-57	SHEET NUMBER 4.06

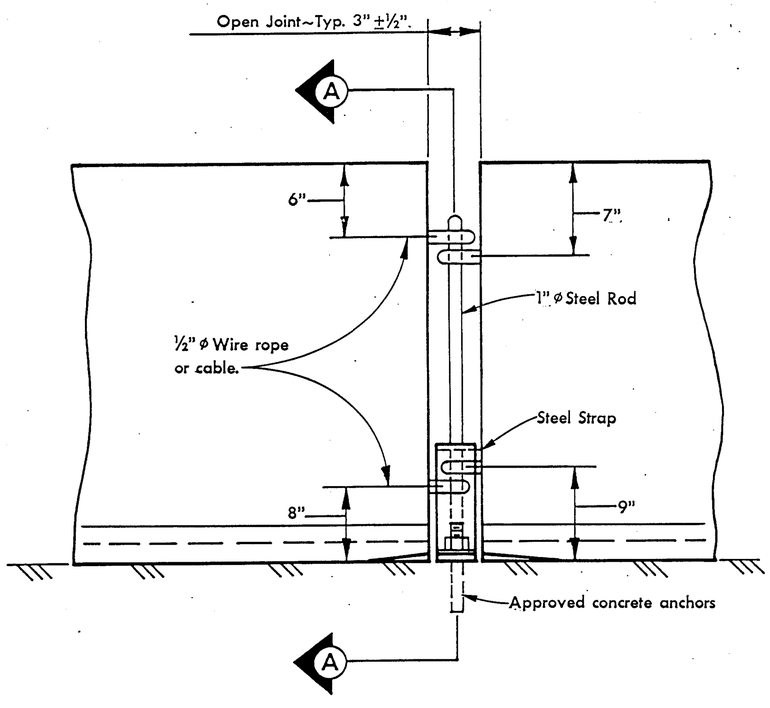
P. 133



SECTION A-A



STRAP DETAIL



SIDE VIEW

GENERAL NOTES:

Tie-downs are required only where the Temporary Barrier Rail is adjacent to a drop-off. Holes for concrete anchors may be drilled after positioning the Temporary Barrier Rail. The concrete anchors are to be set so that the anchors can be removed at least 1½ inches below the concrete surface and the remaining hole filled with a neat mixture of sand-cement grout. The concrete anchors are to be removed, without damaging the surrounding concrete, only after the Temporary Barrier Rail is no longer needed at the particular location.

Concrete anchors are to be a minimum of ¾" Ø and as otherwise specified in the current Office of Materials I.M. 453.09 with a pull-out strength of 16,000 lbs. based 4,000 p.s.i. concrete.

Temporary barrier rail tie downs are considered incidental to concrete barrier rail.

Iowa Department of Transportation
Highway Division

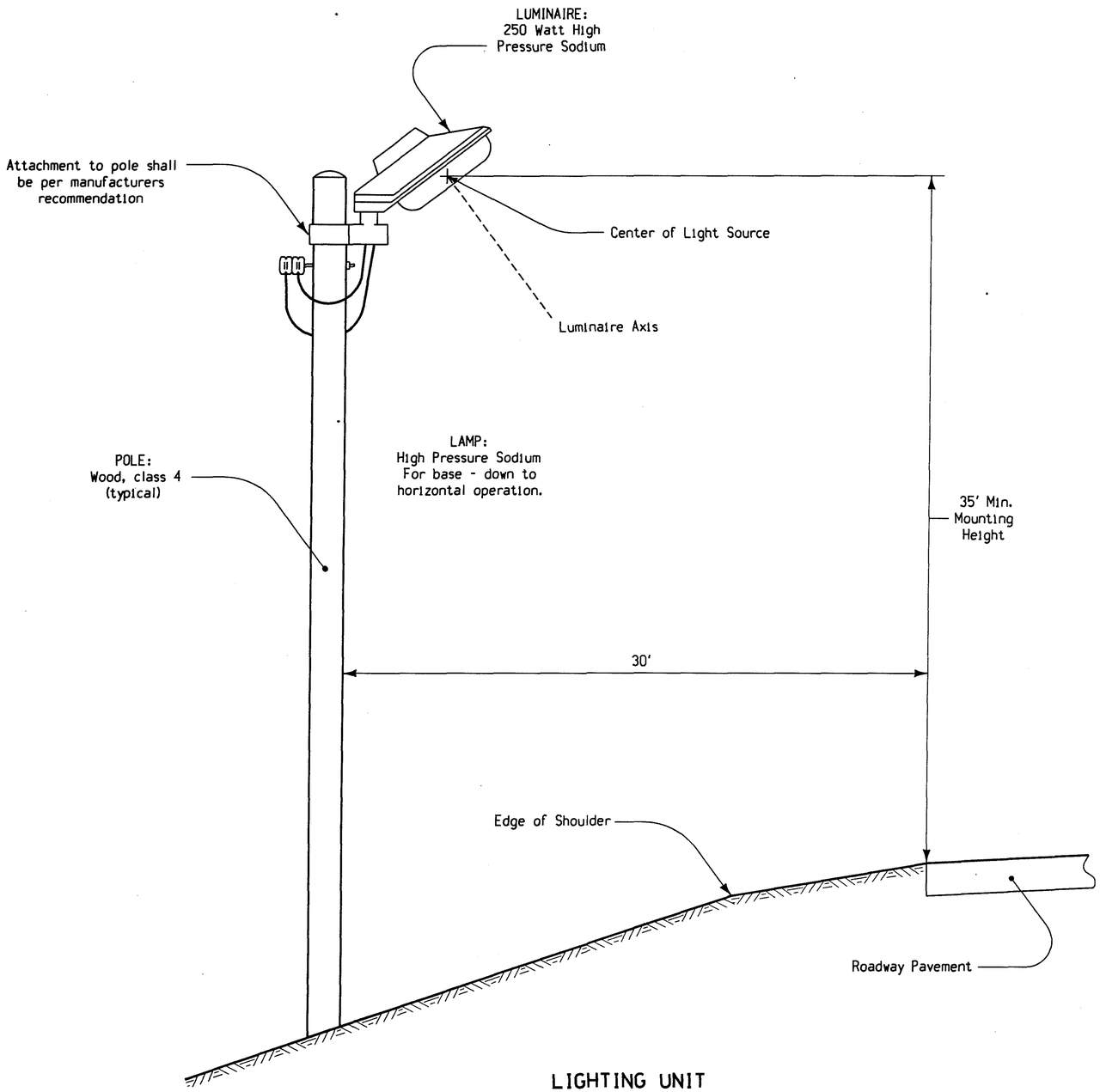
NO.	DATE	DETAIL SHEET	540-10
New	06-22-84		

TEMPORARY CONCRETE
BARRIER RAIL TIE DOWNS

REVISION:

STATE OF IOWA	FHWA REGION 7	FISCAL YEAR		Linn COUNTY	PROJECT NUMBER	NHS-100-1(23)--19-57	SHEET NUMBER	TOTAL SHEETS U.07

P. 134



LIGHTING UNIT
INSTALLATION DETAILS

GENERAL NOTES:

Temporary floodlighting will be required on this project. The lighting shall conform to current Standard and Supplemental Specifications for floodlighting, Articles 2528.08 and 2528.12 paragraph A (5) except as modified hereon.

Temporary floodlighting shall consist of either a pole mounted luminaire as illustrated hereon or a luminaire mounted on portable type equipment. Location of the temporary floodlighting shall be as shown in the Traffic Control Plan or as determined by the Engineer The contractor shall determine pole length by field measurement to obtain specified mounting height. Luminaire axis shall be directed to within the limits of the near traffic lane unless specified otherwise.

Proposals for alternatives to the class 4 wood pole used to mount luminaire may be submitted to the Engineer for approval.

The luminaire shall be designed to operate without a mastarm. The "Vector" and "Expressway" luminaire by the Holophane Company, Inc. or the "Interstate" luminaire by the Amerion Electric Division of I.T.T. are the approved luminaires.

Aerial lighting circuits shall be aluminum or A.C.S.R. triplex. Underground lighting circuits shall be type U.S.E. or U.F. All circuit design and materials shall be approved by the engineer before installation commences.

Price bid for "Temporary Floodlighting Luminaire" shall include all cost for furnishing, installing, maintaining and servicing the Temporary Floodlighting Units, all costs for electrical energy, and the cost of removing all lighting materials from the construction site.

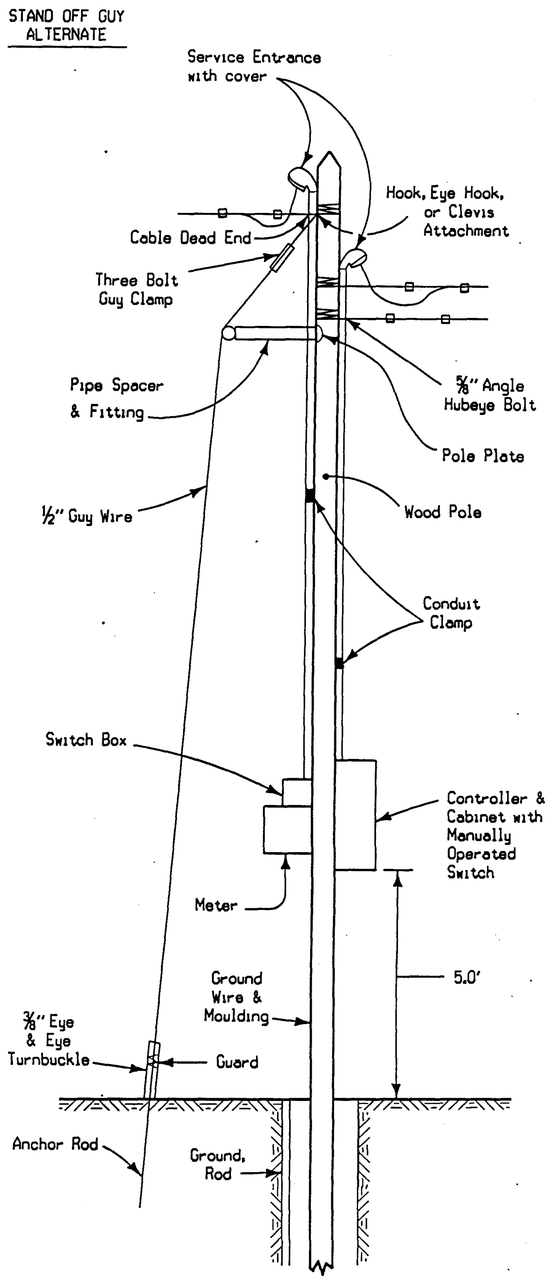
Iowa Department of Transportation
Highway Division

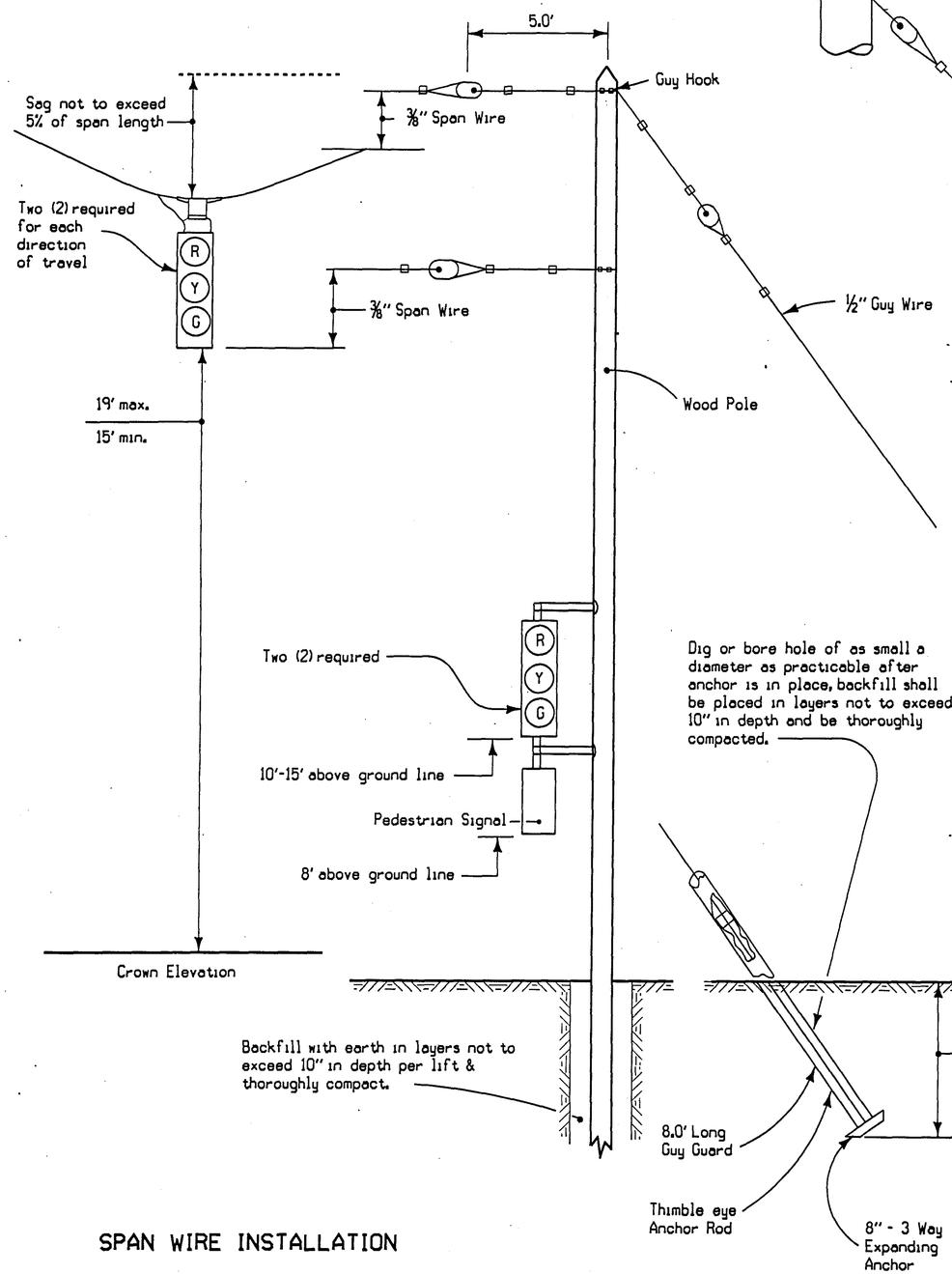
NO.	DATE	DETAIL SHEET	570-2
8	06-15-93		

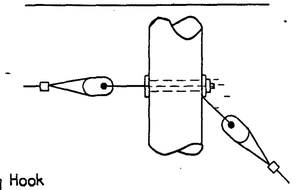
REVISION: Change bid item.

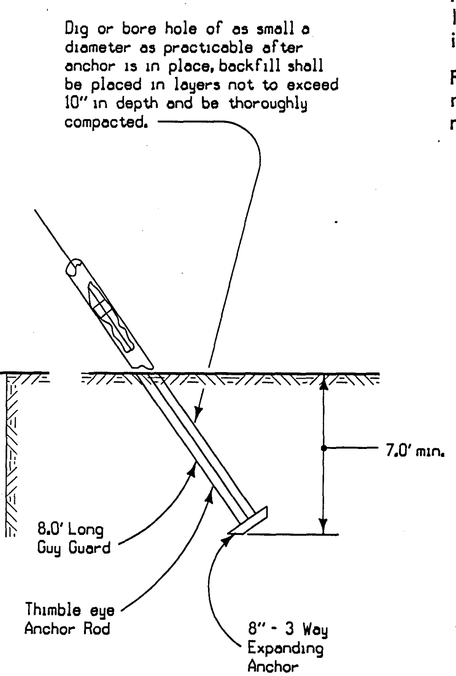
TEMPORARY FLOODLIGHTING
(OFFSET)

OFFICE OF DESIGN • CADD • PRODUCED	STATE OF IOWA	FHWA REGION 7	FISCAL YEAR	Linn COUNTY	PROJECT NUMBER	NHS-100-1(23)--19-57	SHEET NUMBER	U.08









SPAN WIRE INSTALLATION

GENERAL NOTES:

The Engineer in charge of construction shall stake all locations for traffic signal poles to be installed. Final postions and pointing of signal faces to be determined in the field.

All traffic signal heads, brackets and controller cabinet to be painted traffic yellow, door and visor of signal heads to be painted flat black.

All wiring installed shall conform to the National Electrical Code and local ordinances and requirements.

All cable for intersection signal circuits shall be multi-conductor cable for operation of 600v max, and suitable for use at conductor temperatures not exceeding 75° C. Material, construction and tests shall be in accordance with the applicable requirements of I.P.C.E.A. S-19-81, I.P.C.E.A. S-16 402, I.M.S.A. 19, I.M.S.A. 20 or equivalent.

All signal cable and feeder runs to be carried overhead on span wire across roadways.

The operation and maintenance of the signal systems shall be the responsibility of the contractor.

All signal indications, clearances and sequences shall be in accordance with the current Manual on Uniform Traffic Control Devices.

The contractor shall be responsible for contacting utility companies for the location of any underground utilities.

The contractor will be responsible for contacting the local utility company to determine the location of the power connection. The contractor shall erect a maximum of two class 4 wood poles to help carry the aerial secondary cable to the controller. The pole locations will be determined by the utility company and the Engineer.

Pole heights for secondary power service shall provide a 30' mounting height and maintain a minimum clearance across roadway of 18'.

Iowa Department of Transportation
Highway Division

NO.	DATE	DETAIL SHEET	570-3
1	06-15-93		

REVISION: Delete paragraph of general notes.

TEMPORARY TRAFFIC SIGNALS
SPAN WIRE INSTALLATIONS

ROAD DESIGN • CADD • PRODUCED	STATE OF IOWA	FHWA REGION 7	FISCAL YEAR	Linn COUNTY	PROJECT NUMBER	NHS-100-1(23)--19-57	SHEET NUMBER	U.09

P. 136

HD-8
MODIFIED
2-5-91

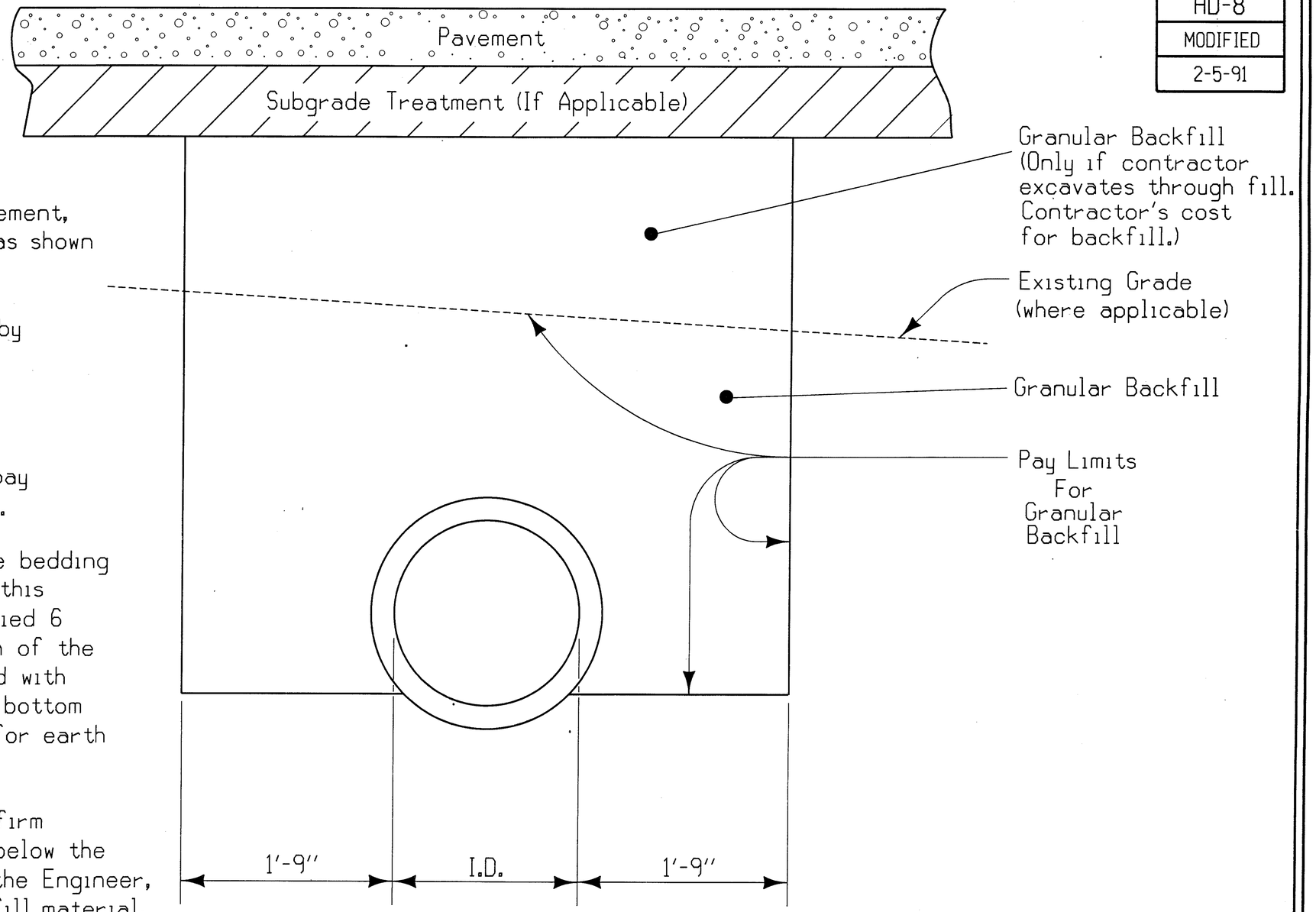
NOTES:

1. For pipe placed under roadway pavement, granular backfill will be required as shown in the adjoining detail.

2. Granular backfill will be measured by the ton. The tonnage so measured will be computed using pay limits shown on this detail, based on 140 lbs. per cubic foot. Excavation and granular backfill outside the pay limits will be considered incidental.

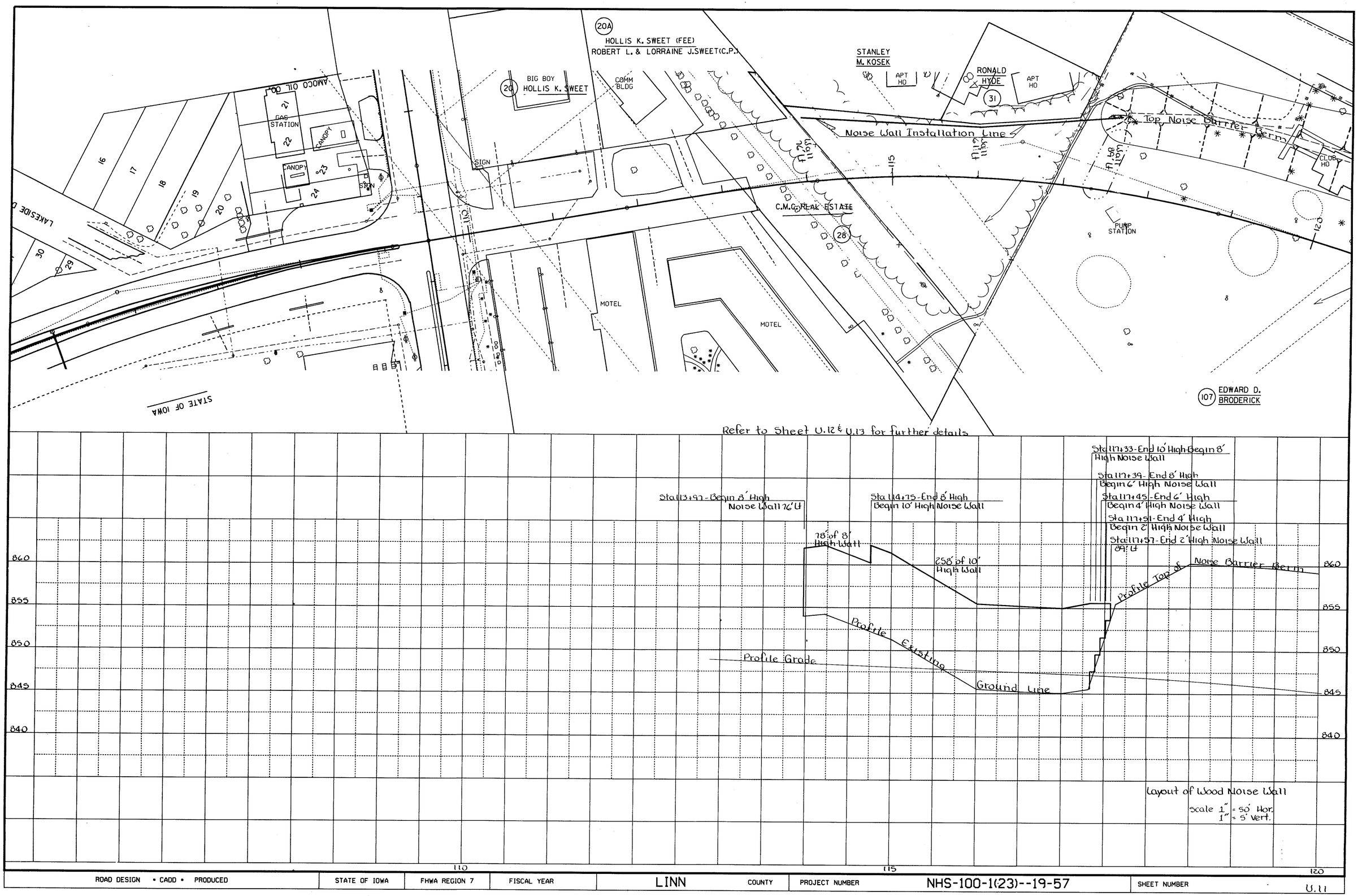
3. If solid rock is encountered at the bedding elevation or within 6 inches below this elevation, excavation shall be carried 6 inches below the required elevation of the outside of the pipe, then backfilled with granular backfill material, and the bottom of the trench shaped as required for earth excavation.

4. If the pipe can not be bedded in firm earth, excavation shall be carried below the required elevation as directed by the Engineer, then backfilled with granular backfill material.



DETAILS FOR GRANULAR BACKFILL ABOVE CROSS ROAD PIPE (Drainage, Storm & Sanitary) WHEN UNDER ROADWAY PAVEMENT

ROAD DESIGN • CADD • PRODUCED	STATE OF IOWA	FHWA REGION 7	FISCAL YEAR	Linn COUNTY	PROJECT NUMBER	NHS-100-1(23)--19-57	SHEET NUMBER	U.10



ROAD DESIGN • CADD • PRODUCED	STATE OF IOWA	FHWA REGION 7	FISCAL YEAR	LINN COUNTY	PROJECT NUMBER NHS-100-1(23)--19-57	SHEET NUMBER U.11

P. 138

Spiral Data-Survey
Δ = 55°51'52" Lt.
θs = 4°30'00"
Ls = 225.00
Ts = 872.70
Es = 190.54
P = 1.47
K = 112.48
Xc = 224.86
Yc = 5.89
LT = 150.04
ST = 75.05
LC = 224.94

Curve Data-Survey
Δ = 46°51'52" Lt.
D = 4°00'00"
T = 620.81
L = 1171.61
E = 128.75
R = 1432.39

Spiral Data-O.R.
Δ = 51° 21' 52" Lt.
θs = 4° 30' 00"
Ls = 225.00
Ts = 802.00
Es = 158.65
P = 1.47
K = 112.48
Xc = 224.86
Yc = 5.89
LT = 150.05
ST = 75.04
LC = 224.94

Curve Data-O.R.
Δ = 42° 21' 52" Lt.
D = 4° 00' 00"
T = 555.08
L = 1059.11
E = 103.79
R = 1432.39

RAPIDS TWP
T-83N R-7W
SEC. 1

RAPIDS TWP
T-83N R-7W
SEC. 12

RAPIDS TWP
T-83N R-7W
SEC. 2

CITY OF CEDAR RAPIDS

Top of Noise Barrier Berm

Noise Wall Installation Line

P.O.C. Sta. 134+00.00 M.L.
= P.I. Sta. 1130+39.36 S.R.-O.R.

P.O.C. Sta. 130+31

P.O.C. Sta. 131+62.12 M.L.
= P.O.T. Sta. 1131+62.12 S.R.

P.O.T. Sta. 1130+20.23 S.R.-O.R.

P.O.G.T. 130.05' Ahead of
P.I. Sta. 130+99.20 M.L.
= P.O.T. 80.18 Ahead of
P.I. Sta. 1129+76.31 S.R.

P.I. Sta. 130+28.50 O.R.

P.I. Sta. 130+99.20

NE COR. SEC. 11
49.60' Left of
P.O.S.T. Sta. 130+30.30

Sta. 121+00
℄ Draw
D.A. = 0.5 Ac R.

Sta. 127+32
℄ Side ditch
D.A. = 1 Ac R.

Sta. 131+04
℄ Side ditch
D.A. = 1 Ac H.

Sta. 133+66
℄ Draw
D.A. = 1.5 Ac R.H.

Sta. 134+33
℄ Draw
D.A. = 0.5 Ac R.H.

S.I. Sta. 121+10.04

S.C. Sta. 124+51.50

S.C. Sta. 135+10.41 O.R.

79° 33' 07.7"
TAN TO TAN

122°03'44"

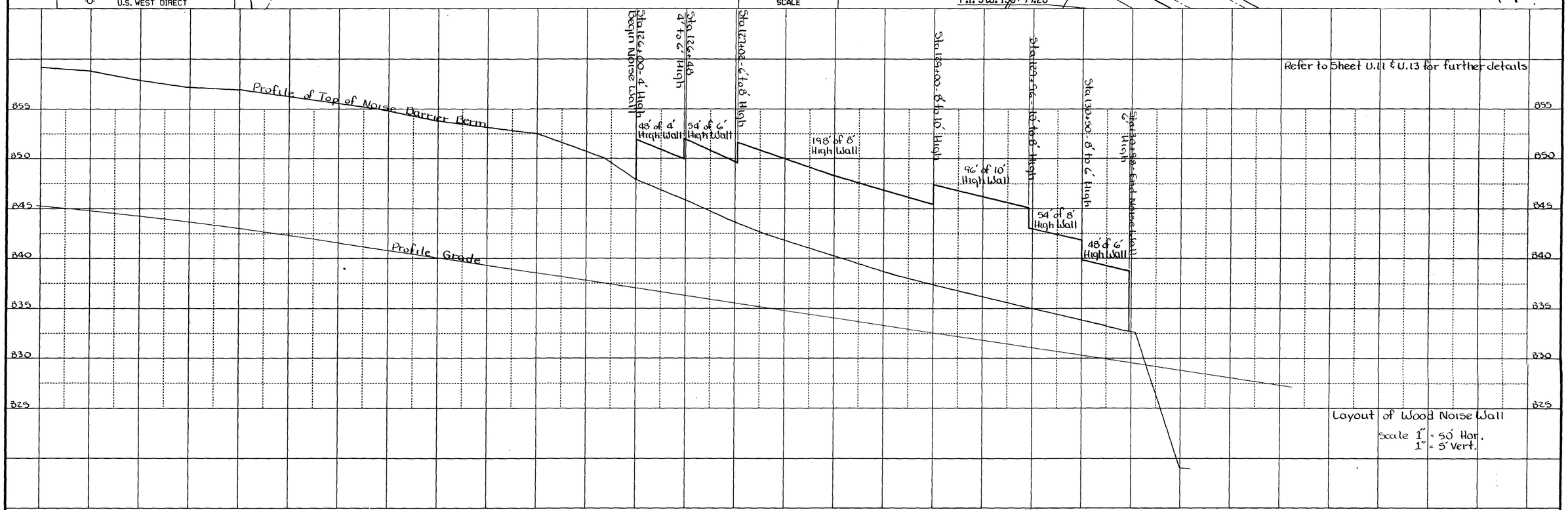
107 EDWARD D. BRODERICK

34 JOAN B. & HARRIET Y. TURNER

UTILITY LEGEND	
G	IOWA ELEC. LIGHT & POWER
G	IOWA ELEC. LIGHT & POWER
E	IOWA ELEC. LIGHT & POWER
T	U.S. WEST DIRECT
	U.S. WEST DIRECT

0 50
SCALE

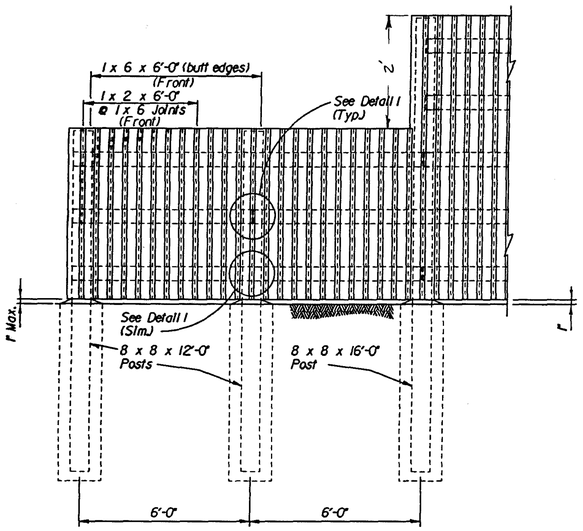
Refer to Sheet U.11 & U.13 for further details

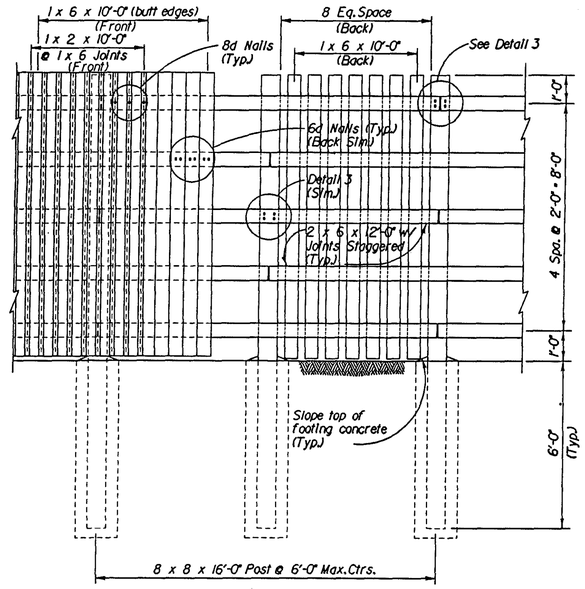


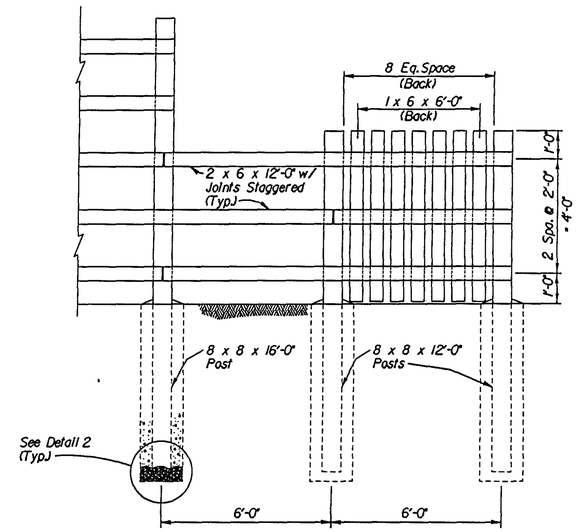
Layout of Wood Noise Wall
Scale 1" = 50' Hor.
1" = 5' Vert.

ROAD DESIGN • CADD • PRODUCED	STATE OF IOWA	FHWA REGION 7	FISCAL YEAR	LINN COUNTY	PROJECT NUMBER NHS-100-1(23)--19-57	SHEET NUMBER U.12

P. 139

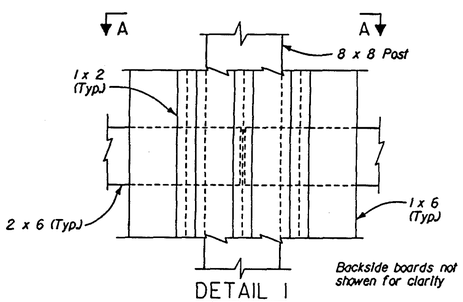






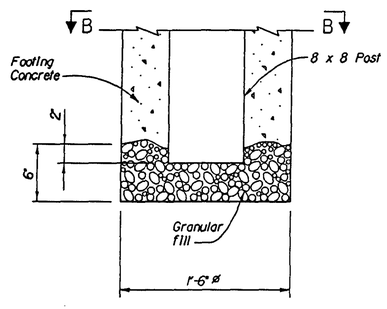
WOOD NOISE BARRIER WALL

SCALE: 3/8"=1'-0" (Roadway Side Shown)



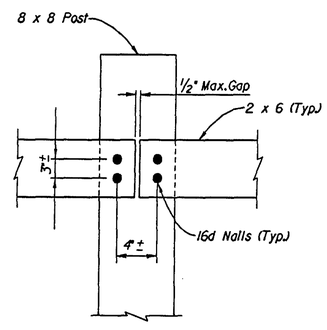
DETAIL 1

SCALE: 1 1/2"=1'-0"



DETAIL 2

SCALE: 1 1/2"=1'-0"



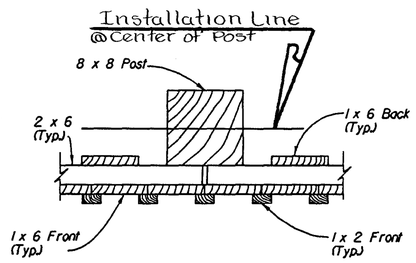
DETAIL 3

SCALE: 1 1/2"=1'-0"

NOTES:

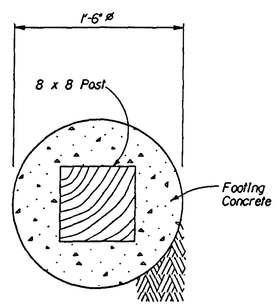
1. Boards (1" nominal) shall be No. 3 common grade, surfaced four sides (S4S).
2. Lumber (2" nominal) shall be No. 2 or better grade, surfaced four sides (S4S).
3. Posts (8" nominal) shall be No. 2 or better SR grade, roughsawn.
4. Boards, lumber and posts shall be southern yellow pine, and shall be pressure treated with CCA preservative in accordance with materials section 4161 in the standard specification.
5. Manually driven nails shall be double hot dip galvanized box nails. Pneumatically driven nails shall be aluminum box nails.
6. In order to maintain integrity of CCA preservative treatment, the ends of 8x8 posts shall not be cut.
7. Granular backfill material shall be in accordance with materials section 4133 in the standard specification.
8. Footing concrete shall be type C and in accordance with section 2403 in the standard specification.
9. Top of noise wall shall follow the slope of the ground.
10. Each end of noise wall shall be stepped as shown.
11. A post is required at locations of wall angle points and at wall termination points.

Refer to Sheet U.11 & U.12 for Layout



SECTION A

SCALE: 1 1/2"=1'-0"



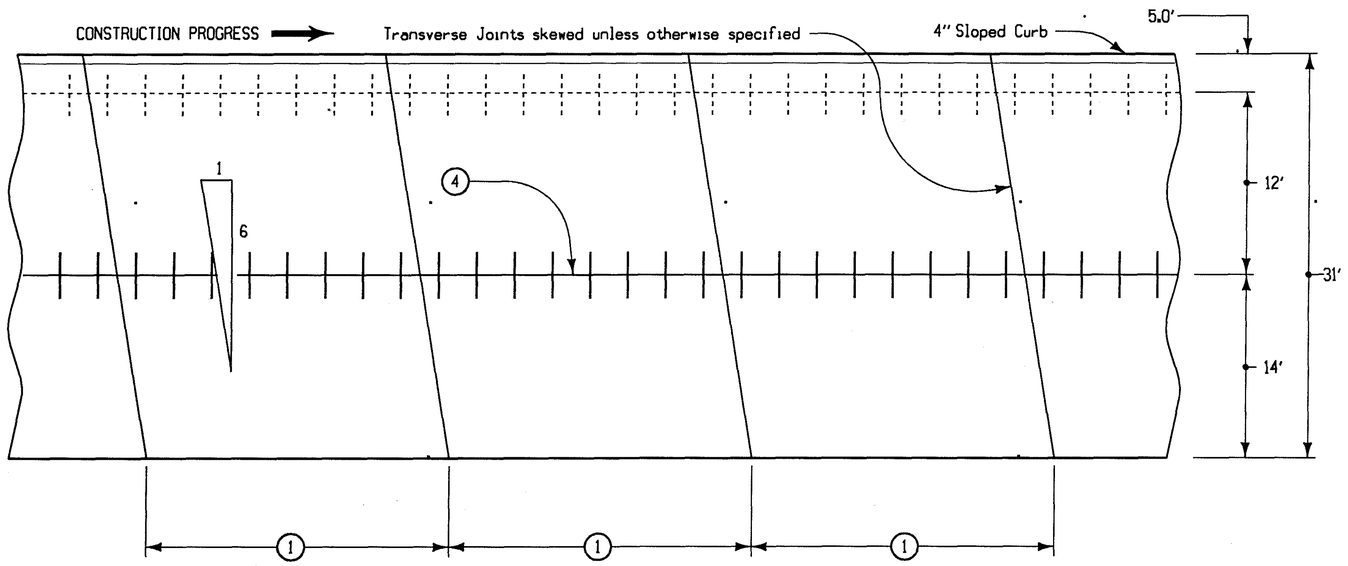
SECTION B

SCALE: 1 1/2"=1'-0"

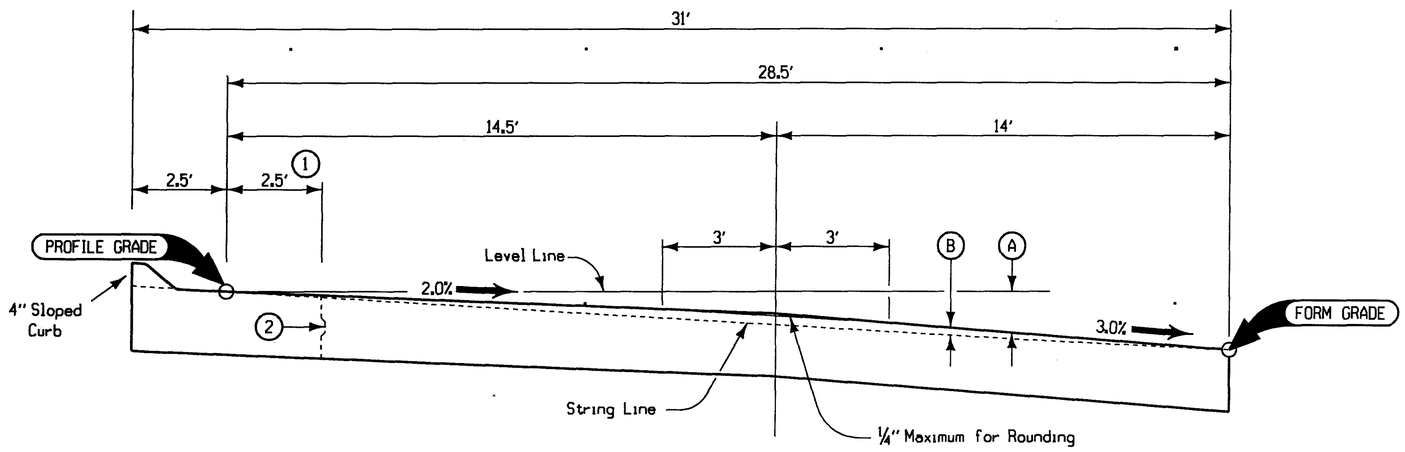
WOOD NOISE WALL DETAILS

STATE OF IOWA	FHWA REGION 7	FISCAL YEAR		Linn COUNTY	PROJECT NUMBER	NHS-100-1(23)--19-57	SHEET NUMBER	U.13

FILE: d:\idotus20\dgn\hwellu08.dgn
DATE: 5-Oct-94 07:38



TYPICAL PAVEMENT PLAN



TYPICAL CROSS SECTION

GENERAL NOTES:

Details indicated on this plan are intended to illustrate the general requirements for Two-lane P.C. Concrete Pavements 28.5' in width. Unless specifically authorized otherwise the methods and materials used in the construction of this pavement shall be in conformance with current specifications for Portland Cement Concrete Pavement. Refer to individual project plans for specific dimensional requirements and other details of pavement construction.

Refer to Standard Road Plans RH-50, 51 and 52 for details of construction of joints in pavement. Joint layout shall be skewed as shown, 6:1 right ahead except at pavement intersection areas and other locations specifically designated by the engineer. End of day's work joint and joint at bridge approach section shall be constructed perpendicular to center line. Transverse Joints will be 'CD' except when 'C' joints are specifically required as a part of detail project plans or when T is less than 8".

Normal crown shall be a straight line sloped from the profile grade for the distance and rate indicated. This crown may be varied through superelevated curves and intersection areas where special shaping is required or other areas specifically authorized by the engineer.

The dimensions shown are for the purpose of defining the surface of the proposed pavement. This surface may be tilted with respect to a level line. Refer to typical section and/or Resident Construction Engineer's large scale layout for specific details and form grade elevations.

The price bid for "Standard or Slip-Form PCC pavement" class and thickness as specified, in sq. yds. Including all required joints, shall be considered full compensation for the construction of pavement as detailed hereon.

1. Transverse joint spacing (normal) 20' for 'CD' joint (no dowels in outside 2.5' of pavement). 15' for 'C' joint.
2. Optional: 'BT-1' Joint if pavement is less than 8". 'KT-2' Joint, if pavement thickness is 8" or greater.
3. Quantities include 4" sloped curb.
4. Joints will be:
   'L-1' or 'BT-1' for T less than 8".
   'L-2' or 'KT-2' for T greater or equal to 8".

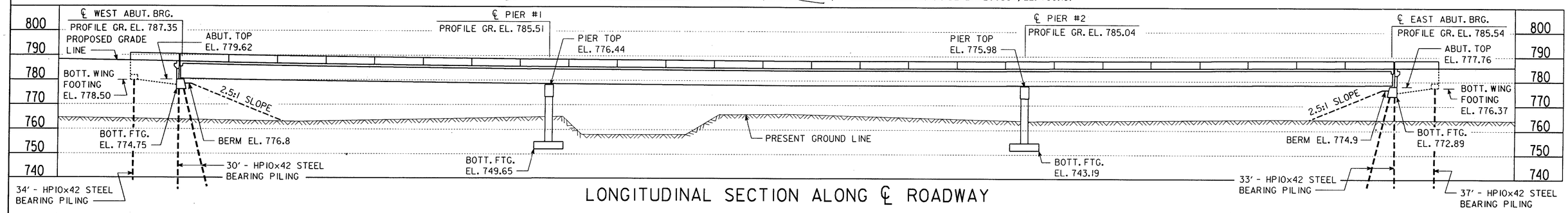
PER STATION DESIGN VALUES FOR (28.5' B-B) PAVEMENT SECTION (3)			
	ITEM	UNIT	T=10"
REFER TO SPEC. TYPICAL #1	Section Area	Sq. Ft.	25.888
(ON SHEET B.01)	Concrete Volume	Cu. Yds.	96.451
	Surface Area	Sq. Yds.	344.444

Distance From Profile Grade		OFFSETS FOR 28.5' PAVEMENT WITH 4" SLOPED CURBS																											
		0.5'	1.5'	2.5'	3.5'	4.5'	5.5'	6.5'	7.5'	8.5'	9.5'	10.5'	11.5'	12.5'	13.5'	14.5'	15.5'	16.5'	17.5'	18.5'	19.5'	20.5'	21.5'	22.5'	23.5'	24.5'	25.5'	26.5'	27.5'	28.5'
(A)	Inches	1/8	3/8	5/8	13/16	1 1/16	1 5/16	1 9/16	1 13/16	2 1/16	2 1/4	2 1/2	2 3/4	3	3 1/4	3 1/2	3 13/16	4 3/16	4 9/16	4 15/16	5 1/4	5 5/8	6	6 3/8	6 3/4	7 1/16	7 7/16	7 13/16	8 3/16	8 1/2
	Feet	0.01	0.03	0.05	0.07	0.09	0.11	0.13	0.15	0.17	0.19	0.21	0.23	0.25	0.27	0.29	0.32	0.35	0.38	0.41	0.44	0.47	0.50	0.53	0.56	0.59	0.62	0.65	0.68	0.71
(B)	Inches	—	1/16	1/8	3/16	1/4	5/16	3/8	7/16	1/2	9/16	5/8	11/16	3/4	13/16	7/8	13/16	3/4	11/16	5/8	9/16	1/2	7/16	3/8	5/16	1/4	3/16	1/8	1/16	0
	Feet	0.002	0.007	0.012	0.017	0.022	0.027	0.032	0.037	0.042	0.047	0.052	0.056	0.061	0.066	0.071	0.066	0.061	0.056	0.051	0.046	0.041	0.037	0.031	0.025	0.020	0.015	0.010	0.005	0.000

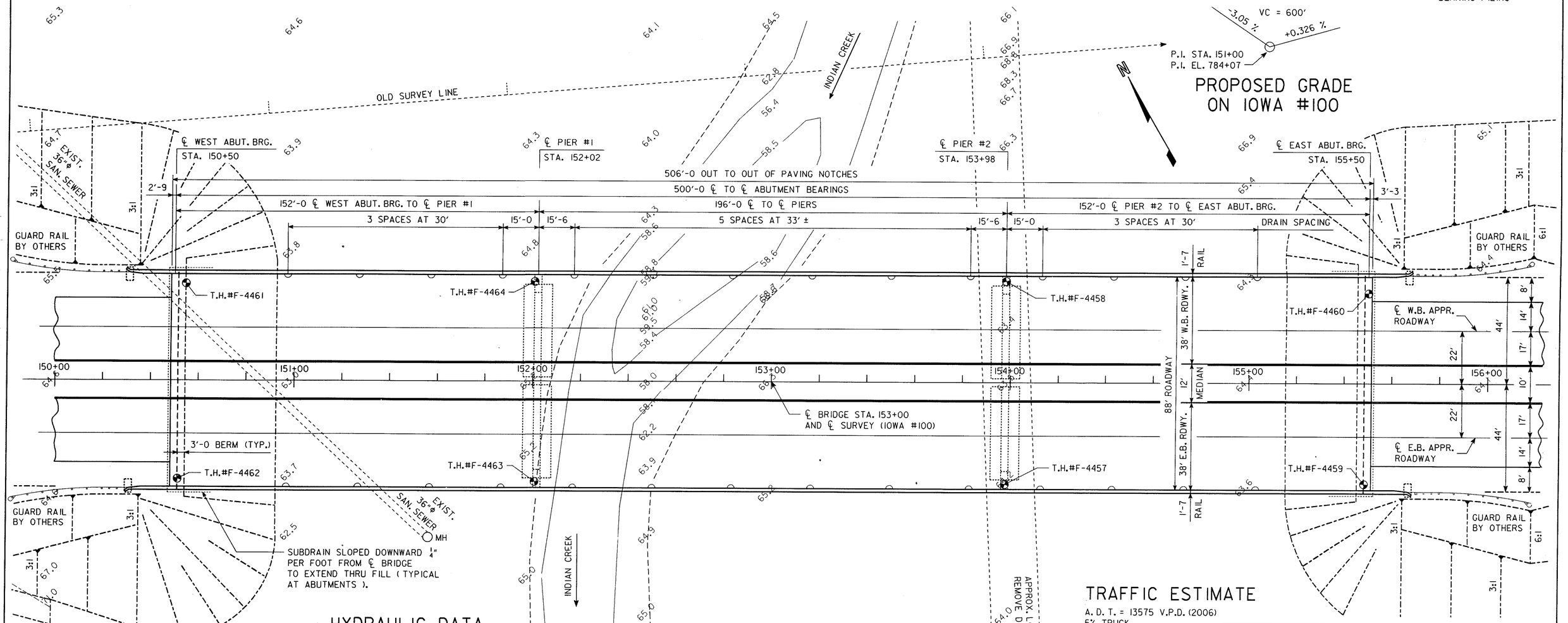
NON-REINFORCED FOUR LANE
28.5' P. C. CONCRETE PAVEMENT
DIVIDED ROADWAY

ROAD DESIGN • CADD • PRODUCED	STATE OF IOWA	FHWA REGION 7	FISCAL YEAR	LINN COUNTY	PROJECT NUMBER NHS-100-1(23)--19-57	SHEET NUMBER U.14

~~BENCH MARK NO. 305, STA. 152+50 - 112' LT. (JUNE, 1989 SURVEY), SET R.R. SPK. IN N.W. SIDE 24" LOCUST, EL. 766.15.~~



LONGITUDINAL SECTION ALONG ℄ ROADWAY



HYDRAULIC DATA

DRAINAGE AREA = 68.5
STREAM SLOPE = 5.63 FT./MI.

Q_{50} = 9010 CFS
NATURAL STAGE = 770.9

Q_{100} = 10900 CFS
NATURAL STAGE = 771.85

Q_{500} = 15870 CFS
STAGE W/BACKWATER = 773.93

SITUATION PLAN

TRAFFIC ESTIMATE

A. D. T. = 13575 V.P.D. (2006)
5% TRUCK

LOCATION

IOWA #100 OVER
INDIAN CREEK
T-83N, R-7W
SECTION 12
RAPIDS TWP.
LINN COUNTY

DESIGN FOR A 0° SKEW

500'-0 x 88' CONTINUOUS WELDED GIRDER BRIDGE

152'-0 END SPANS — 196'-0 INTERIOR SPAN

SITUATION PLAN

STATION 153+00 — NOVEMBER, 1993

LINN COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 2 OF ____ FILE NO. 26609 DESIGN NO. 391

DESIGNED BY ____ TRACED BY ____
DETAILED BY THAYNE SORENSON CHECKED BY ____

H570391.S02

LINN COUNTY

PROJECT NUMBER	STATE	FHWA REGION	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
NHS-100-1(23)--19-57	IOWA	7			V.01

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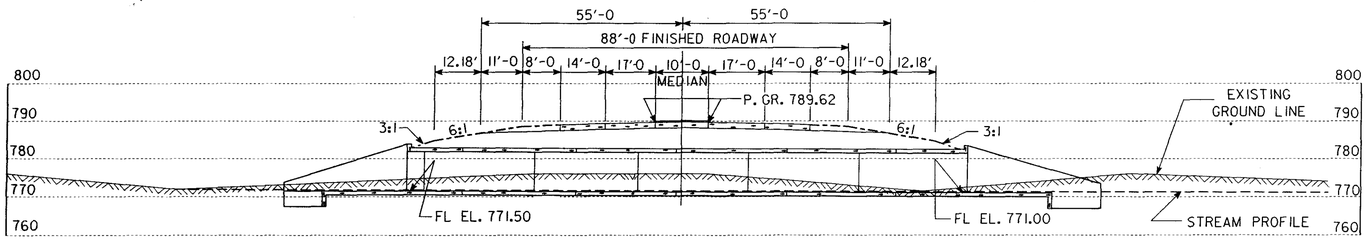
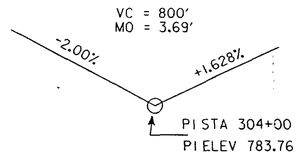
BM #35 STA 302+15--100'RT FD LINN CO BRASS PLUG #1001 IN SW COR SLAB BRIDGE--ELEV 785.61

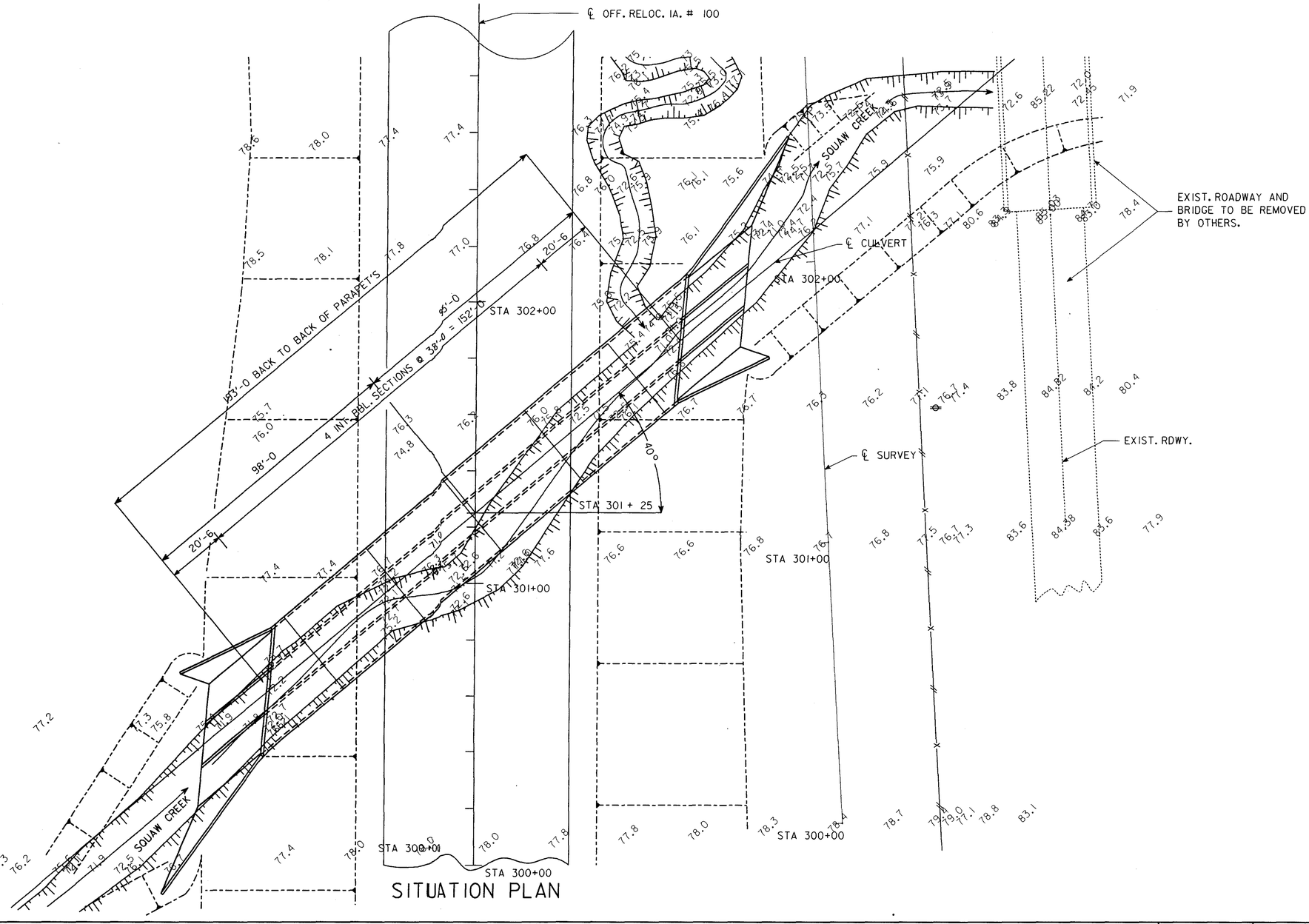


LONGITUDINAL SECTION ALONG ℄ CULVERT

ANTICIPATED SETTLEMENT : NEGLIGIBLE



PROPOSED GRADE IOWA NO. 100



SITUATION PLAN

HYDRAULIC DATA

DRAINAGE AREA= 6.2 SQ MILES
STREAM SLOPE= 6.0 FT./MI.

Q_{50}= 2380 CFS
INLET CONTROL= 781.5

Q_{100} = 2860 CFS
INLET CONTROL= 782.7

Q_{500}= 3570 CFS
INLET CONTROL= 784.4

TRAFFIC ESTIMATE

1986: 9257 VPD
2006: 13575 VPD
5% TRUCKS

N

LOCATION:

IA. # 100
OVER SQUAW CREEK
T- 83N R - 6W
SECTION 4
MARION TWP.
LINN COUNTY

For Information Only

DESIGN. FOR 40° SKEW (RT. AHEAD)

TRIPLE 10' x 10' x 193'-0 REINF. CONCRETE BOX CULVERT

SITUATION PLAN

STATION: 301 + 25 (O.R.) MARCH, 1994

LINN COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 2 OF 12 FILE NO. 26609 DESIGN NO. 794

DESIGNED BY ____ TRACED BY HM
DETAILED BY HM CHECKED BY J. Niederhiser

H570794.S02

LINN COUNTY

PROJECT NUMBER	STATE	FHWA REGION	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
NHS-100-1(23)--19-57	IOWA	7			V.02

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GENERAL NOTES

IT IS THE INTENT OF THIS DESIGN TO BUILD A NEW 10'x8'x144'-0 REINFORCED CONCRETE BOX CULVERT.

THE PROPOSED CULVERT IS DESIGNED FOR HS20-44 LIVE LOAD AND EARTH FILL OF 7'. FOR VERTICAL LOADS THE WEIGHT OF EARTH IS ASSUMED AS 140 pcf. Z=170 FOR CRACK CONTROL. LATERAL EARTH LOADS EQUIVALENT FLUID PRESSURE IS ASSUMED AS 36 psf/FT.

UTILITY COMPANIES, WHOSE FACILITIES ARE KNOWN TO BE WITHIN THE CONSTRUCTION LIMITS, SHALL BE NOTIFIED BY THE CONTRACTOR OF THE CONSTRUCTION STARTING DATE.

WHEN DE-WATERING PRESENTS A PROBLEM FOR PLACING THE CURTAIN WALLS AS DETAILED, ALTERNATE METHODS SUCH AS STEEL SHEET PILE AND PRECAST CONCRETE WALLS MAY BE APPROVED BUT AT NO ADDITIONAL COST. THE CULVERT CONTRACTOR IS TO SUBMIT TO THE ENGINEER FOR APPROVAL COMPLETE DRAWINGS OF THE PROPOSED CURTAIN WALL ALTERNATE BEFORE BEGINNING CONSTRUCTION.

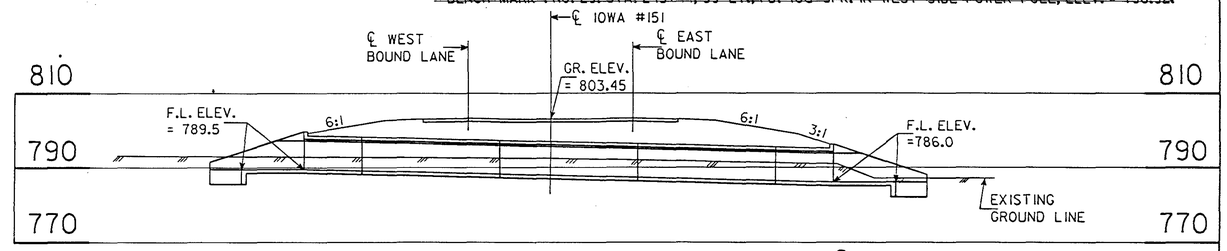
THE CONTRACTOR IS ENCOURAGED TO TAKE FULL ADVANTAGE OF SPECIFICATION 1105.15--VALUE ENGINEERING INCENTIVE PROPOSAL. A PAMPHLET AND CONCEPTUAL FORM WILL BE AVAILABLE AT THE PRECONSTRUCTION CONFERENCE.

THE CULVERT CONTRACTOR MAY USE PRECAST BOX SECTIONS INSTEAD OF THE CAST-IN-PLACE SECTIONS SHOWN ON THE PLANS. CAST-IN-PLACE HEADWALLS AS SPECIFIED ON THE PLANS WOULD STILL BE REQUIRED. BEFORE BEGINNING CONSTRUCTION THE CONTRACTOR SHALL SUBMIT DETAILS OF THE PROPOSED PRE-CAST BOX SECTIONS AND HEADWALL TO BOX CONNECTION TO THE ENGINEER FOR APPROVAL. THE CONTRACTOR SHALL ALLOW 10 WORKING DAYS FOR THE ENGINEER'S REVIEW. THE BASIS OF PAYMENT FOR THE PRE-CAST BOX SECTION ALTERNATE WILL BE FOR CONTRACT QUANTITIES AT THE UNIT PRICE BID FOR STRUCTURAL CONCRETE AND REINFORCING STEEL.

TRAFFIC CONTROL PLAN

THE ROADWAY WILL BE CLOSED TO TRAFFIC DURING CONSTRUCTION. TRAFFIC CONTROL FOR ROAD CLOSURE SHALL BE THE RESPONSIBILITY OF THE ROAD CONTRACTOR.

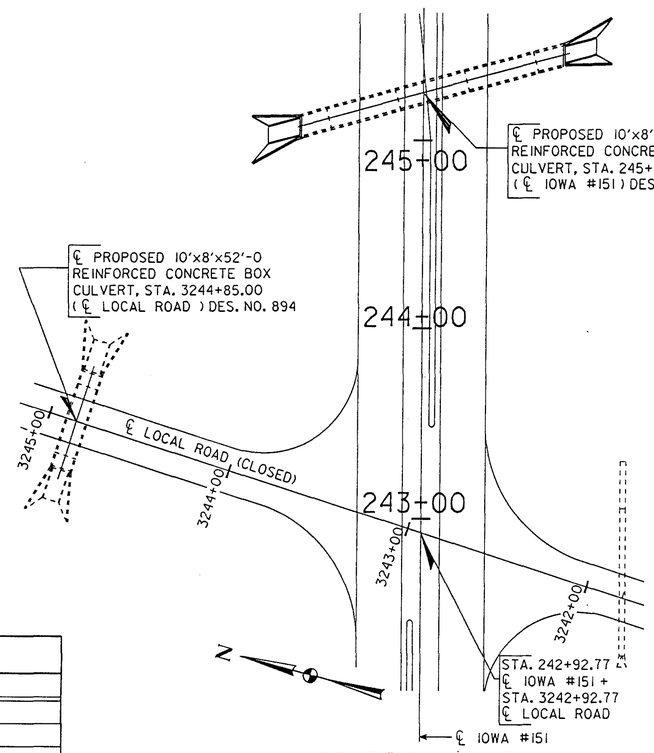
~~BENCH MARK : NO. 29: STA. 243+44, 59' LT., FD. 40d SPK. IN WEST SIDE POWER POLE, ELEV. = 796.92.~~



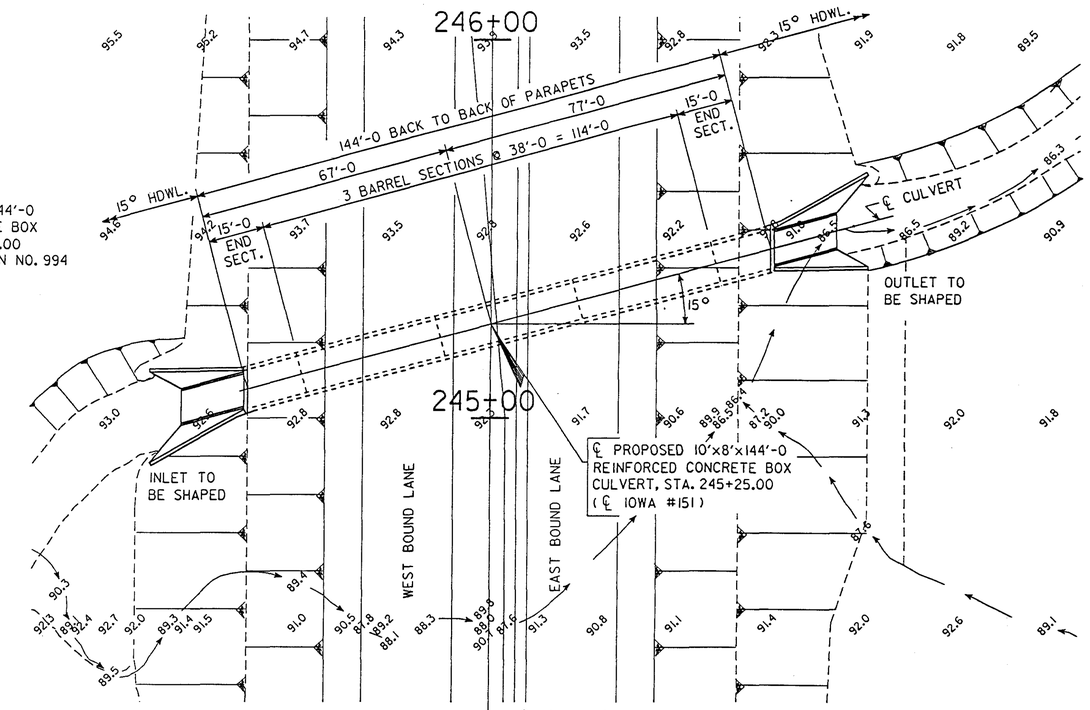
LONGITUDINAL SECTION ALONG ℄ CULVERT

HYDRAULIC DATA :

DRAINAGE AREA : 439 ACRES R-H
Q50 = 800 cfs



GENERAL PLAN



SITUATION PLAN

UTILITY LEGEND
- IOWA ELECTRIC LIGHT & POWER
- --S-- CITY OF MARION SANITARY SEWER

SUMMARY OF REINFORCING STEEL

LOCATION	QUANTITY	TOTAL
2-10'x8' HDWL'S. 15° SKEW	2 @ 3985	7970
3 - 38'-0 BARREL SECTIONS	3 @ 8218	24,654
2 - 15'-0 END SECTIONS	2 @ 3244	6488
4 - SETS OF 5ri BARS	4 @ 40	160
TOTAL (LBS.)		39,272

CONCRETE PLACEMENT QUANTITIES

LOCATION	SLAB	WALLS	FOOTING	TOTAL
2-10'x8' HDWL'S. 15° SKEW	*2 @ 1.6=3.2	2 @ 9.6=19.2	2 @ 21.3=42.6	65.0
3 - 38'-0 BARREL SECTIONS	3 @ 12.0=36.0	3 @ 16.1=48.3	3 @ 16.2=48.6	132.9
2 - 15'-0 END SECTIONS	2 @ 4.7=9.4	2 @ 6.3=12.6	2 @ 6.4=12.8	34.8
TOTAL - CU.YDS.	48.6	80.1	104.0	232.7

* PARAPET AND TOP OF WINGWALL

ESTIMATED CULVERT QUANTITIES

ITEM NO.	ITEM	UNITS	QUANTITY
1	STRUCTURAL CONCRETE	CU.YDS.	232.7
2	REINFORCING STEEL	LBS.	39,272
3	CLASS 20 EXCAVATION	CU.YDS.	800
4	MOBILIZATION	LS	LUMP SUM

ITEM NO. ESTIMATE REFERENCE INFORMATION :
1 ALL STRUCTURAL CONCRETE TO BE CLASS "C".

FOR HEADWALL AND STANDARD BOX DETAILS AND NOTES NOT SHOWN REFER TO THE FOLLOWING IOWA D.O.T.-HIGHWAY STANDARDS :

STANDARDS :	LATEST REVISION DATE
RCB-G1-87	10-89
RCB 10-1-87	8-89
FWH 15-1-87	8-89
FWH 15-4-87	———
FWH 15-5-87	———
FWH 15-6-87	———

LOCATION

IOWA 151 OVER STREAM
SECTION 8
T 83 N R 6 W
MARION TWP.
LINN COUNTY

TRAFFIC ESTIMATE

1994: 750 VPD
2014: 800 VPD
14% TRUCKS

For Information Only

DESIGN FOR 15° SKEW (R.A.)

10'x8'x144'-0 REINFORCED CONCRETE BOX CULVERT

SITUATION PLAN

STATION : 245+25.00 (℄ IOWA 151) FEBRUARY, 1994

LINN COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 1 OF 1 FILE NO. 26609 DESIGN NO. 994

DESIGNED BY ____ TRACED BY ____
DETAILED BY R.RYSAVY CHECKED BY ____
SECTION LEADER ____ LINN COUNTY

PROJECT NUMBER	STATE	FHWA REGION	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
NHS-100-1(23)--19-57	IOWA	7		V.03	

H570994.S01

04

P. 144

~~BENCH MARK : NO. 29. STA. 243+44, 59' LT., FD. 40d SPK. IN WEST SIDE POWER POLE, ELEV. = 796.92.~~

GENERAL NOTES

IT IS THE INTENT OF THIS DESIGN TO REPLACE THE EXISTING 8'x40' ARCH WITH CMP APRON, WITH A 10'x8'x52'-0 REINFORCED CONCRETE BOX CULVERT.

THE PROPOSED CULVERT IS DESIGNED FOR HS20-44 LIVE LOAD AND EARTH FILL OF 3'. FOR VERTICAL LOADS THE WEIGHT OF EARTH IS ASSUMED AS 140 pcf. Z=170 FOR CRACK CONTROL. LATERAL EARTH LOADS EQUIVALENT FLUID PRESSURE IS ASSUMED AS 36 psf/FT.

UTILITY COMPANIES, WHOSE FACILITIES ARE KNOWN TO BE WITHIN THE CONSTRUCTION LIMITS, SHALL BE NOTIFIED BY THE CONTRACTOR OF THE CONSTRUCTION STARTING DATE.

THE LUMP SUM BID ITEM "REMOVAL OF EXISTING STRUCTURES" SHALL INCLUDE THE REMOVAL AND DISPOSAL OF THE EXISTING 8'x40' ARCH AT STATION 3244+85.50. THE STRUCTURE SHALL BE REMOVED IN ACCORDANCE WITH SECTION 2401 OF THE STANDARD SPECIFICATIONS. ALL MATERIAL REMOVED SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE HAULED FROM THE SITE TO A WASTE AREA OR DISPOSAL SITE BY HIM. NO PAYMENT FOR OVERHAUL WILL BE ALLOWED FOR MATERIAL HAULED TO THESE SITES.

WHEN DE-WATERING PRESENTS A PROBLEM FOR PLACING THE CURTAIN WALLS AS DETAILED, ALTERNATE METHODS SUCH AS STEEL SHEET PILE AND PRECAST CONCRETE WALLS MAY BE APPROVED BUT AT NO ADDITIONAL COST. THE CULVERT CONTRACTOR IS TO SUBMIT TO THE ENGINEER FOR APPROVAL COMPLETE DRAWINGS OF THE PROPOSED CURTAIN WALL ALTERNATE BEFORE BEGINNING CONSTRUCTION.

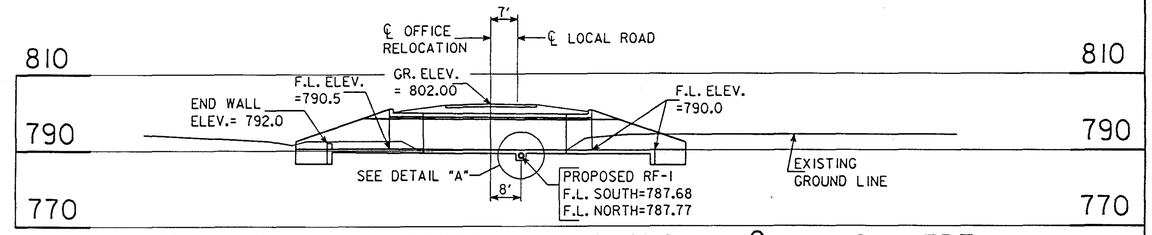
THE CONTRACTOR IS ENCOURAGED TO TAKE FULL ADVANTAGE OF SPECIFICATION 1105.15--VALUE ENGINEERING INCENTIVE PROPOSAL. A PAMPHLET AND CONCEPTUAL FORM WILL BE AVAILABLE AT THE PRECONSTRUCTION CONFERENCE.

THE CULVERT CONTRACTOR MAY USE PRECAST BOX SECTIONS INSTEAD OF THE CAST-IN-PLACE SECTIONS SHOWN ON THE PLANS. CAST-IN-PLACE HEADWALLS AS SPECIFIED ON THE PLANS WOULD STILL BE REQUIRED. BEFORE BEGINNING CONSTRUCTION THE CONTRACTOR SHALL SUBMIT DETAILS OF THE PROPOSED PRE-CAST BOX SECTIONS AND HEADWALL TO BOX CONNECTION TO THE ENGINEER FOR APPROVAL. THE CONTRACTOR SHALL ALLOW 10 WORKING DAYS FOR THE ENGINEER'S REVIEW. THE BASIS OF PAYMENT FOR THE PRE-CAST BOX SECTION ALTERNATE WILL BE FOR CONTRACT QUANTITIES AT THE UNIT PRICE BID FOR STRUCTURAL CONCRETE AND REINFORCING STEEL.

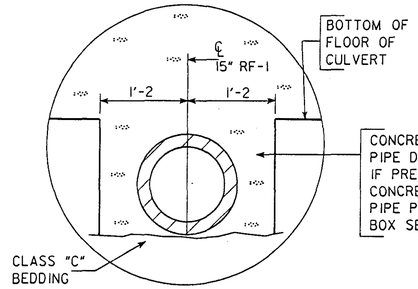
IT SHOULD BE NOTED THE CULVERT CONTRACTOR IS TO PLACE A 12' SECTION OF 15" CONCRETE ROADWAY PIPE (2000 D) RF-1 UNDER THE CULVERT. THE PIPE IS TO BE PLACED 8' RIGHT OF ℄ OFFICE RELOCATION AND TO THE FLOW LINES NOTED AND SHOWN.

TRAFFIC CONTROL PLAN

THE ROADWAY WILL BE CLOSED TO TRAFFIC DURING CONSTRUCTION. TRAFFIC CONTROL FOR ROAD CLOSURE SHALL BE THE RESPONSIBILITY OF THE ROAD CONTRACTOR.



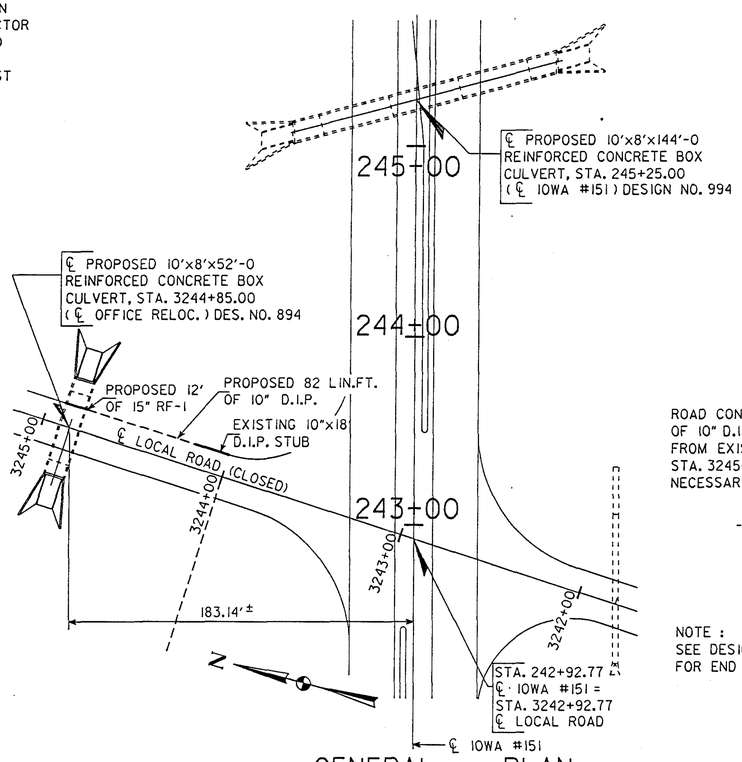
LONGITUDINAL SECTION ALONG ℄ CULVERT



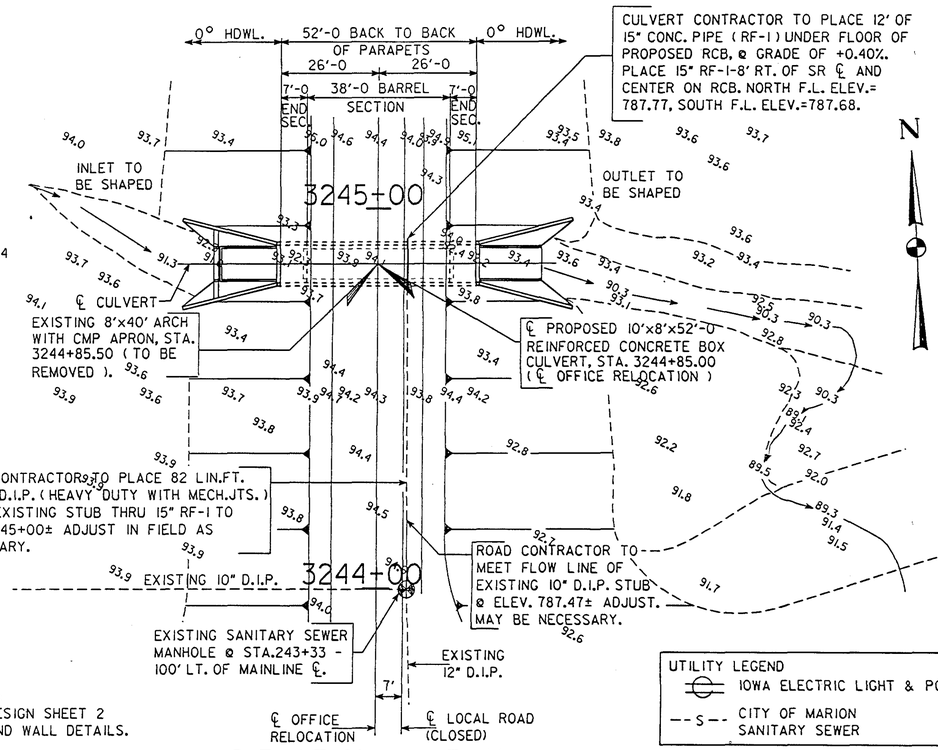
DETAIL "A"

HYDRAULIC DATA :

DRAINAGE AREA : 399 ACRES R-H
Q50 = 800 cfs



GENERAL PLAN



NOTE :
SEE DESIGN SHEET 2 FOR END WALL DETAILS.

SITUATION PLAN

UTILITY LEGEND
IOWA ELECTRIC LIGHT & POWER
--S-- CITY OF MARION SANITARY SEWER

SUMMARY OF REINFORCING STEEL

LOCATION	QUANTITY	TOTAL
2-10'x8' HDWL'S. 0° SKEW	2 @ 3953	7906
1 - 38'-0 BARREL SECTION	6768	6768
2 - 7'-0 END SECTIONS	2 @ 1247	2494
END WALL (INLET HDWL.)	231	231
2 - SETS OF 5r1 BARS	2 @ 40	80
TOTAL (LBS.)		17,479

CONCRETE PLACEMENT QUANTITIES

LOCATION	SLAB	WALLS	FOOTING	TOTAL
2-10'x8' HDWL'S. 0° SKEW	*2 @ 1.5=3.0	2 @ 9.1=18.2	2 @ 20.3=40.6	61.8
1 - 38'-0 BARREL SECTION	12.0	16.1	Δ 16.5	44.6
2 - 7'-0 END SECTIONS	2 @ 2.2=4.4	2 @ 3.0=6.0	2 @ 2.9=5.8	16.2
END WALL (INLET HDWL.)	———	0.9	———	0.9
TOTAL - CU.YDS.	19.4	41.2	62.9	123.5

* PARAPET AND TOP OF WINGWALL

Δ INCLUDES 1.0 CU.YDS. FOR CONCRETE AROUND ROADWAY PIPE UNDER CULVERT.

ESTIMATED CULVERT QUANTITIES

ITEM NO.	ITEM	UNITS	QUANTITY
1	STRUCTURAL CONCRETE	CU.YDS.	123.5
2	REINFORCING STEEL	LBS.	17,479
3	CLASS 20 EXCAVATION	CU.YDS.	300
4	CONCRETE ROADWAY PIPE CULVERT, 12 IN. DIA.	LIN.FT.	12.0
5	REMOVAL OF EXISTING STRUCTURES	LS	LUMP SUM
6	MOBILIZATION	LS	LUMP SUM

ITEM NO. ESTIMATE REFERENCE INFORMATION :
1 ALL STRUCTURAL CONCRETE TO BE CLASS "C".
4 CONCRETE ROADWAY PIPE TO BE 2000D.

FOR HEADWALL AND STANDARD BOX DETAILS AND NOTES NOT SHOWN REFER TO THE FOLLOWING IOWA D.O.T.-HIGHWAY STANDARDS :

STANDARDS :	LATEST REVISION DATE
RCB-G1-87	10-89
RCB 10-1-87	8-89
FWH 0-1-87	8-89
FWH 0-3-87	8-89
FWH 0-4-87	8-89
FWH 0-5-87	

ADDITIONAL STANDARDS REQUIRED FOR CONCRETE PIPE :
RF-1

LOCATION

LOCAL ROAD OVER STREAM
SECTIONS 7 & 8
T 83 N R 6 W
MARION TWP.
LINN COUNTY

TRAFFIC ESTIMATE

For Information Only

DESIGN FOR 0° SKEW

10'x8'x52'-0 REINFORCED CONCRETE BOX CULVERT SITUATION PLAN

STATION : 3244+85.00 (℄ OFFICE RELOC. 183.14' LT. IOWA #151)

FEBRUARY, 1994

LINN COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 1 OF 2 FILE NO. 26609 DESIGN NO. 894

DESIGNED BY ____ TRACED BY ____
DETAILED BY R.RYSAVY CHECKED BY ____
SECTION LEADER ____

LINN COUNTY

PROJECT NUMBER	STATE	FHWA REGION	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
NHS-100-1(23)--19-57	IOWA	7		V.04	

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