

HMA RESURFACING W/CIR  
STPN-6-5(18)--2J-79

POWESHIEK CO.

LETTING DATE  
Dec 15, 2015

MILEAGE SUMMARY			
			105-1 09-27-94
Div.	Location	Lin. Ft.	Miles
1	Urban - City of Grinnell Sta. 184+60 to Sta. 202+30	1770.00	
Division 1 Total		1770.00	0.335
2	Rural - DOT Sta. Sta. 202+30 to Sta. 504+03	30,173.00	
Equations:			
Sta. 454+38.83 (Back) =			
Sta. 454+38.97 (Ahead)		-0.14	
Sta. 480+18.78 (Back) =			
Sta. 480+18.82 (Ahead)		-0.04	
		6230.00	
Division 2 Total		30,172.82	5.714
Total Length of Project		31,942.82	6.049



## Highway Division

PLANS OF PROPOSED IMPROVEMENT ON THE

# PRIMARY ROAD SYSTEM

# POWESHIEK COUNTY

## HMA RESURF. W/COLD IN-PLACE RECYCLING

In the City of Grinnell from Penrose St. east to W. jct. with US 63

SCALES: As Noted

Refer to the Proposal Form for list of applicable specifications.

Value Engineering Saves. Refer to Article 1105.15 of the Specifications.



REVISIONS

TOTAL

xx

PROJECT IDENTIFICATION NUMBER

13-79-006-010

PROJECT NUMBER

STPN-6-5(18)--2J-79

R.O.W. PROJECT NUMBER

STPN-6-5(19)--2J-79

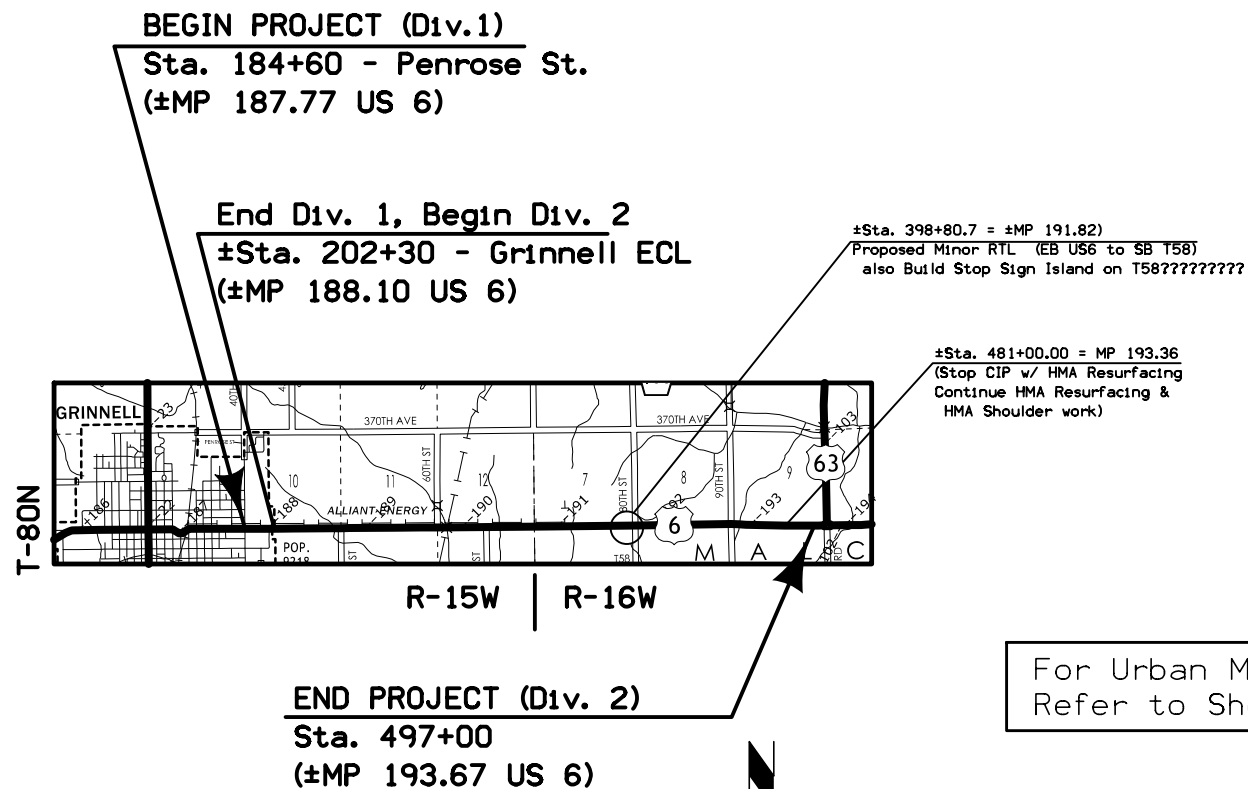
### INDEX OF SHEETS

105-3

10-18-05

No.	Description
A.1	Title Sheet
A.2	Urban Map - Part of the City of Grinnell
A.3	Legend Sheet
B.1 - B.6	Typical Cross Sections
B.7 - B.10	Selected As-Built Typicals and Plan Sheets
C.1 - C.X	Estimate of Quantities & Gen. Info. (Omitted for D.5 event)
D.1	Legend Sheet for Sheets D.2-D.4
D.2 - D.4	Plan and Profile Sheets - Sites 2-4
G.1 - G.3	Bench Mark and Reference Tie Information
J.1	Traffic Control Plan (Omitted for D5 event)

For Tabulation of Standard Road Plans  
Refer to Sheet No. C.x



For Urban Map  
Refer to Sheet A.2


D5 PLAN - Date: August 21, 2014

#### DESIGN DATA RURAL

2015 AADT	3500	V.P.D.
2035 AADT	4100	V.P.D.
2035 DHV	420	V.P.H.
TRUCKS	8.0	%
Total		
Design ESALs	635,100	

#### INDEX OF SEALS

SHEET NO.	NAME	TYPE
A.1	Tony J. Gustafson	Primary Signature Block



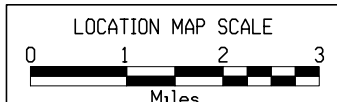
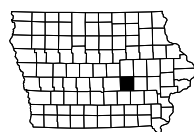
I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.

Signature: \_\_\_\_\_ Date: \_\_\_\_\_  
 Printed Name: Tony J. Gustafson

License renewal date is December 31, 20 15

Pages or sheets covered by this seal: A.1, B.1-B.5, C.1-C.3, J.1

NOT FOR CONSTRUCTION



FILE NO.

ENGLISH

DESIGN TEAM Gustafson/North

POWESHIEK COUNTY

PROJECT NUMBER

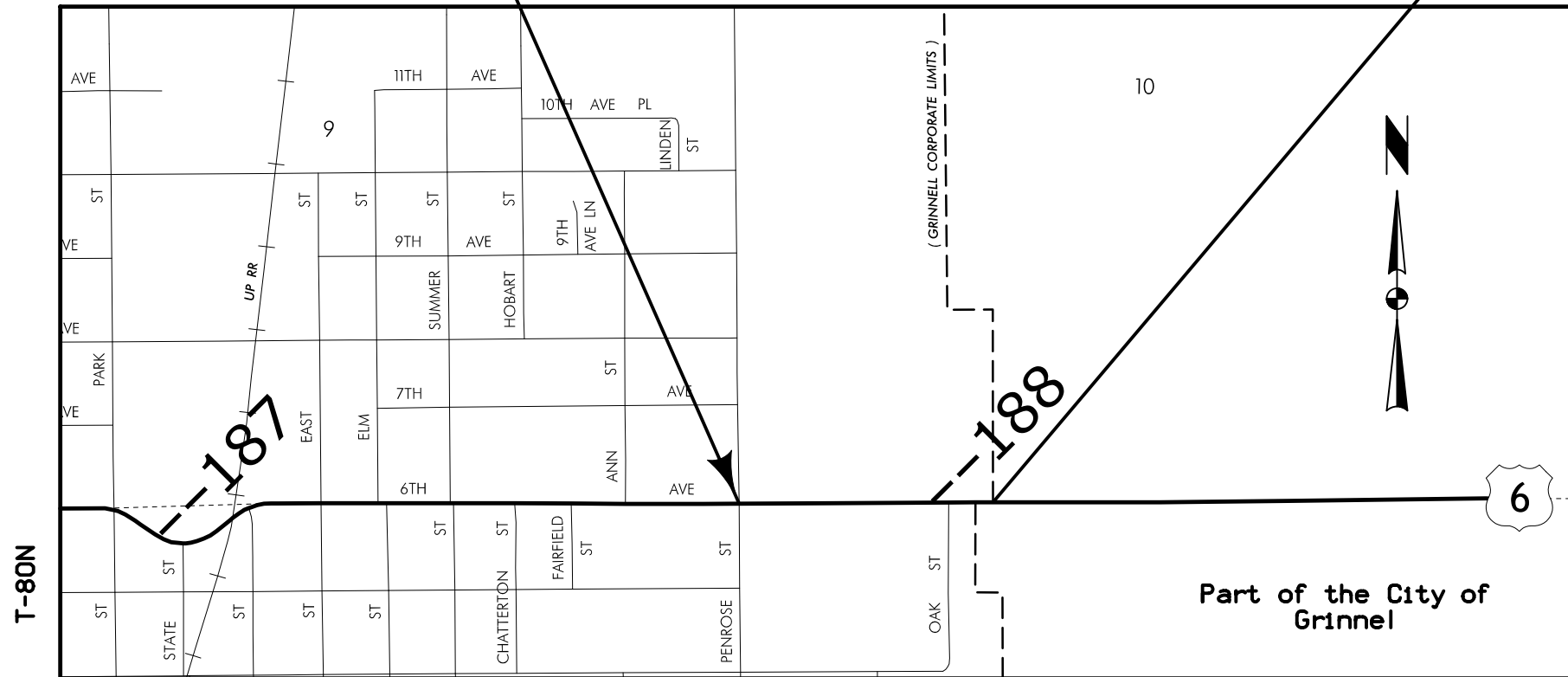
STPN-6-5(18)--2J-79

SHEET NUMBER

A.1

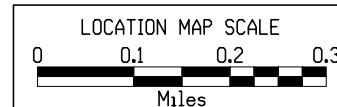
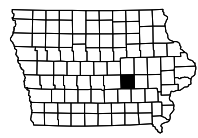
**BEGIN PROJECT (Div.1)**  
**Sta. 184+59.6 - Penrose St.**  
 (±MP 187.77 US 6)  
 (BOP is just east of sidewalk)

**End Div. 1, Begin Div. 2**  
**±Sta. 202+30 - Grinnell ECL**  
 (±MP 188.10 US 6)



T-80N

R-15W



### SURVEY SYMBOLS

	Interstate Highway Symbol		Septic Tank
	U.S. Highway Symbol		Cistern
	Iowa Highway Symbol		L.P. Gas Tank (No Footing)
	County Road Highway Symbol		Underground Storage Tank
	Evergreen Tree		Latrine
	Deciduous Tree		Luminaire
	Fruit Tree		Traffic Signal
	Shrub (Bushes)		Traffic Signal with Luminaire
	Timber		TP Telephone Pedestal
	Hedge		TVP Television Pedestal
	Stump		Telephone Pole
	Swamp		Telephone Pole (Second Company)
	Rock Outcrop		Telephone Pole (Third Company)
	Broken Concrete		Telephone Pole (Fourth Company)
	Revetment (Rip Rap)		Telephone Pole (Fifth Company)
	Cemetery		Power Pole
	Grave		Power Pole (Second Company)
	Cave		Power Pole (Third Company)
	Sink Hole		Power Pole (Fourth Company)
	Board Fence		Power Pole (Fifth Company)
	Chain Link or Security Fence		Electrical Highline Tower (Metal or Concrete)
	Wire Fence		Telephone Riser Pole
	Terrace		Power Riser Pole
	Earth Dam or Dike (Existing)		Telegraph Pole
	Earth Dam or Dike (Proposed)		Satellite TV Dish
	Tile Outlet		WHU Water Hook Up
	Edge of Water		RT Radio Tower
	Existing Drainage		TA Tower Anchor
	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		
	Water Hydrant (Rural)		

	Existing Water Line		Guardrail (Beam or Cable)
	Existing Water Line (Second Company)		Guard Post (one or two)
	Existing Sanitary Sewer Line		Guard Post (over two)
	Existing Telephone Line		FP Filler Pipe
	Existing Telephone Line (Second Company)		GV Gas Valve
	Existing Fiber Optics Telephone Line		WV Water Valve
	Existing Storm Sewer Line		SL Speed Limit Sign
	Existing Gas Line		MM Mile Marker Post
	Existing High Pressure Gas Line		SIGN Sign
	Existing Gas Line (Second Company)		TCB Traffic Signal Control Box
	Existing High Pressure Gas Line (Second Company)		RRB Rail Road Signal Control Box
	Existing Power Line		TSB Telephone Switch Box
	Existing Power Line (Second Company)		EB Electric Box
	Cable Television Line		

### UTILITY INFORMATION

(ASE) ALLIANT ENERGY  
 Contact Name: Jason Hogan  
 Contact Phone: 608-458-4871  
 Contact Email: jasonhogan@alliantenergy.com

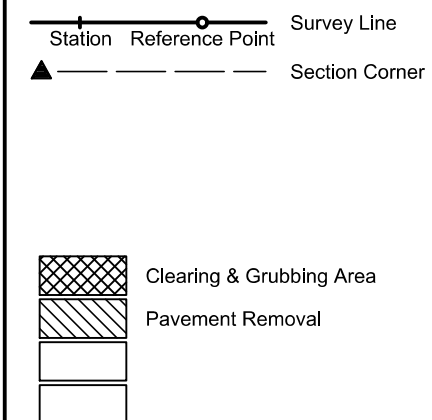
(G11) WINDSTREAM COMMUNICATIONS  
 Contact Name: Dale Graff  
 Contact Phone: 641-269-7725  
 Contact Email: Dale.A.Graff@Windstream.com

(INS) IOWA NETWORK SERVICES  
 Contact Name: Jeff Klocko  
 Contact Phone: 515-830-0445  
 Contact Email: jeff@netins.com

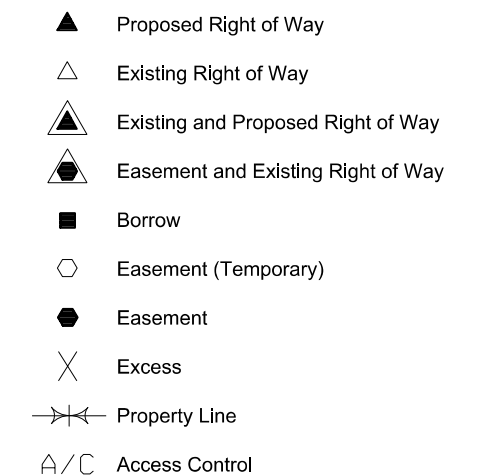
(PWA) POWESHIEK WATER ASSOCIATION  
 Contact Name: Chad Coburn  
 Contact Phone: 641-522-7416  
 Contact Email: chad@poweshiekwater.com

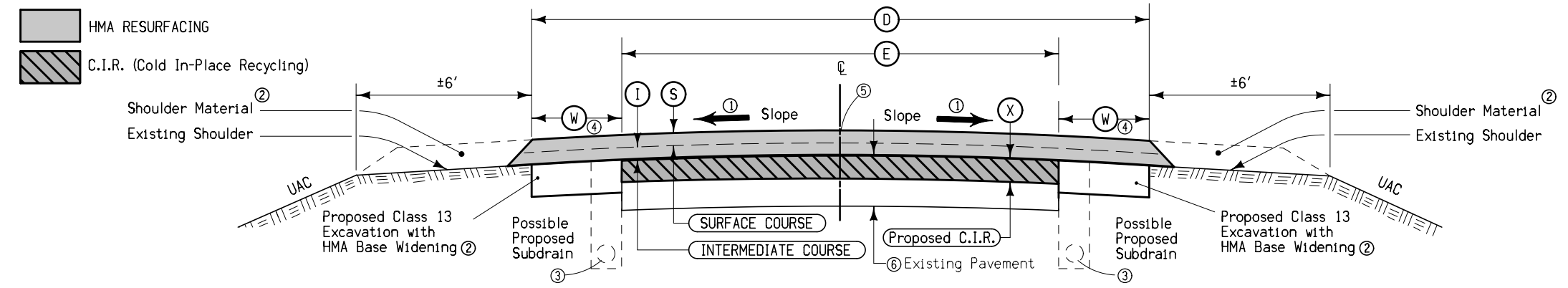
(TC7) MEDIACOM  
 Contact Name: Curt Hodges  
 Contact Phone: 515-669-3647  
 Contact Email: chodges@mediacomcc.com

### CONVENTIONAL SIGNS



### RIGHT OF WAY LEGEND



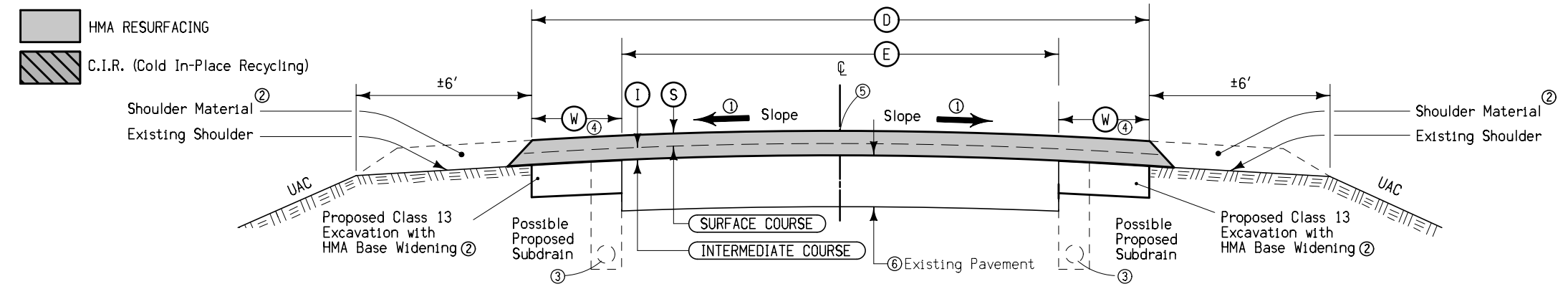


- Notes:
- ① Finished slope shall match existing pavement except that the maximum allowable slope is 3.0%, minimum allowable slope is 2.0%. Section may be Modified as directed by the engineer through areas of special shaping.
  - ② Shoulder material as specified elsewhere in these plans; refer to modified typical 7151 for "Retrofit Paved Shoulders".
  - ③ See tabulation 104-9 sheet ---.
  - ④ ⑤ Construct Milled Rumble strips per Standard Road Plans PV-12, PV-13; see tab. 112-10 sheet C.XX for locations.
  - ⑥ Refer to As-Built typicals on sheets B.6-9 and tabulation 102-5 sheet ---.

DESIGN RATES	
ITEM	RATE
Surface Course	145 lbs./cu. ft.
Intermediate Course	145 lbs./cu. ft.

LOCATION		(S)	(I)	(D)	(E)	(X)	(W)	C.I.R. AREA	STABILIZING AGENT	AREA TOTALS	ASPHALT BINDER	HOT MIX ASPHALT Tons	
ROAD IDENTIFICATION	STATION TO STATION	Inches	Inches	Feet	Feet	C.I.P. Inches	Feet	Sq. Yds.	Tons	Sq. Ft.	Tons	SURFACE	INTERMEDIATE
US 6 (Div. 1)	Sta. 184+95 Sta. 202+30	1.5	1.5	32	24	3	4	xxx	xxx	xxxx	xxx	xxx	xxx
US 6 (Div. 2)	Sta. 202+30 Sta. 481+00	1.5	1.5	32	24	3	4	xxx	xxx	xxxx	xxx	xxx	xxx
Bid Item Totals =								xxxx	xxxx		xxxx	xxxx	xxxx

**TYPICAL CROSS SECTION  
PROPOSED HOT MIX ASPHALT RESURFACING  
with COLD IN-PLACE RECYCLING  
and Retrofit Paved Shoulders**



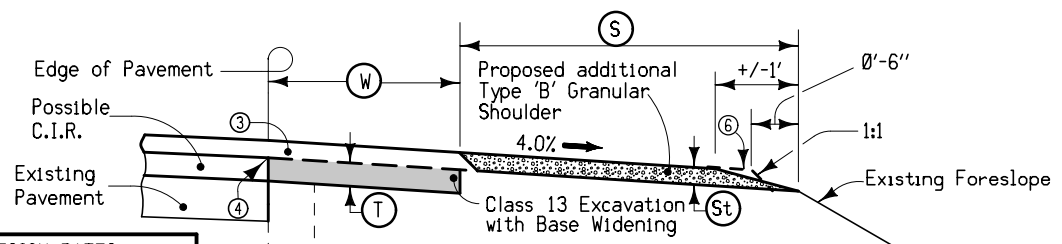
- Notes:
- ① Finished slope shall match existing pavement except that the maximum allowable slope is 3.0%, minimum allowable slope is 2.0%. Section may be Modified as directed by the engineer through areas of special shaping.
  - ② Shoulder material as specified elsewhere in these plans; refer to modified typical 7151 for "Retrofit Paved Shoulders".
  - ③ See tabulation 104-9 sheet ---.
  - ④ ⑤ Construct Milled Rumble strips per Standard Road Plans PV-12, PV-13; see tab. 112-10 sheet C.XX for locations.
  - ⑥ Refer to As-Built typicals on sheets B.6-9 and tabulation 102-5 sheet ---.

DESIGN RATES	
ITEM	RATE
Surface Course	145 lbs./cu. ft.
Intermediate Course	145 lbs./cu. ft.

LOCATION		(S)	(I)	(D)	(E)	(X)	(W)	AREA TOTALS	ASPHALT BINDER	HOT MIX ASPHALT Tons	
ROAD IDENTIFICATION	STATION TO STATION	Inches	Inches	Feet	Feet	C.I.P. Inches	Feet	Sq. Ft.	Tons	SURFACE	INTERMEDIATE
US 6 (Div. 2)	Sta 481+00 Sta 497+00	1.5	1.5	32	24	0	4	xxxx	xxx	xxx	xxx
Bid Item Totals =								xxxx	xxxx	xxxx	xxxx

**TYPICAL CROSS SECTION  
PROPOSED HOT MIX ASPHALT RESURFACING  
with Retrofit Paved Shoulders**

7151  
Modified



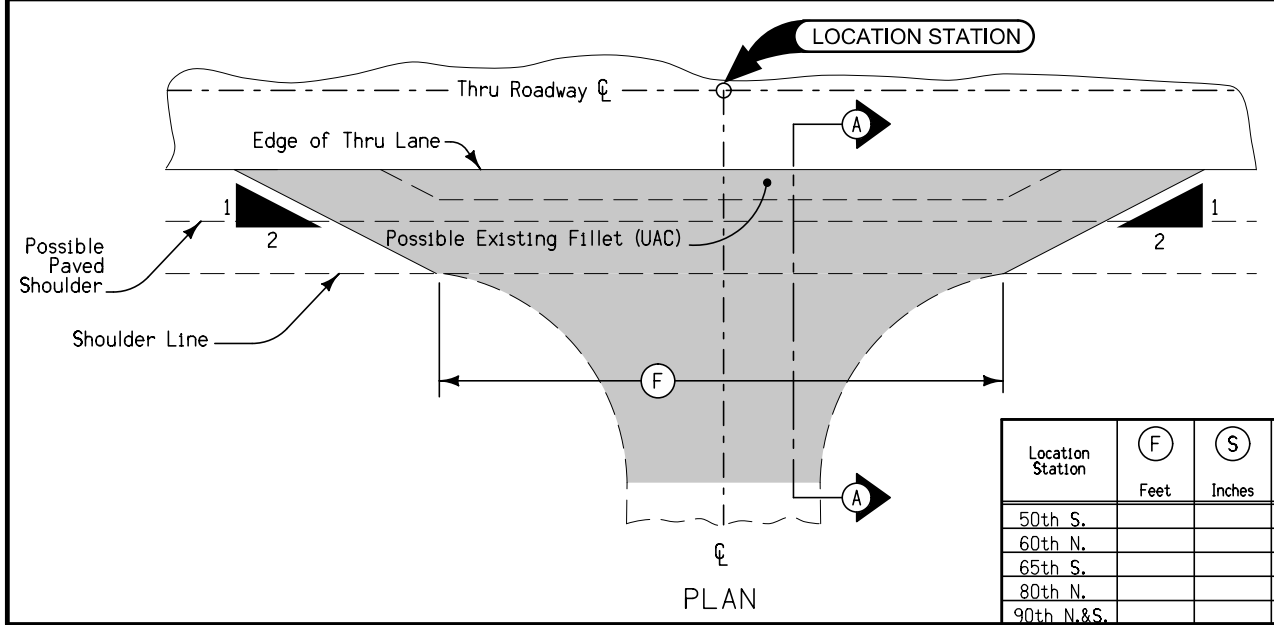
- Notes:
- ① Per location.
  - ② Bid Items.
  - ③ HMA and tack coat quantities above the HMA base are included with mainline quantities.
  - ④ Provide a vertical edge. Incidental to Class 13 Excavation.
  - ⑤ Includes 30% additional for cross slope correction of shoulders.
  - ⑥ Place and compact material to the dashed lines; then blade and shape to foreslope that portion above the solid line in the outer 1 to 2 ft. and roll with loaded truck tire.
  - ⑦ For HMA base widening only.

DESIGN RATES	
ITEM	RATE
HMA Base Widening	145 lbs./cu. ft.
Gran. Shoulder	140 lbs./cu. ft.

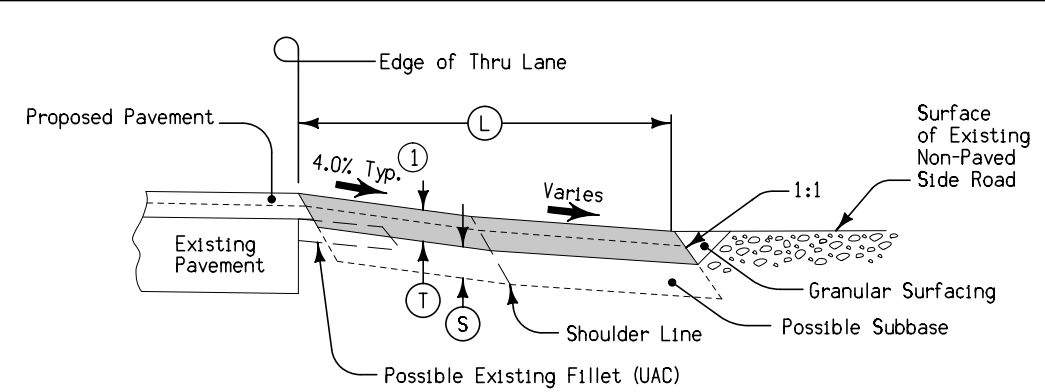
**TYPICAL SECTION RETROFIT PAVED SHOULDER**

Location		Quantities ① ②										
Roadway	Station To Station	Net Length-ft	Side	Feet	Inches	Feet	Inches	Class 13 Excavation Cu. Yds.	HMA Base Widening Tons	Asphalt Binder Tons	Granular Shoulder Tons	
US 6 (Div.1)	184+95	202+30	xxxx	Rt	4	3.0	6	3	xxx	xxx	xx	xx
US 6 (Div.1)	184+95	202+30	xxxx	Lt	4	3.0	6	3	xxx	xxx	xx	xx
US 6 (Div.2)	202+30	481+00	xxxx	Rt	4	3.0	6	3	xxx	xxx	xx	xx
US 6 (Div.2)	202+30	481+00	xxxx	Lt	4	3.0	6	3	xxx	xxx	xx	xx
Totals								xxxx	xxxx	xxx	xxxx	

**Additional Notes:**  
 The contractor shall pave proposed shoulders thru all unpaved side road and entrance intersections. At existing paved intersections, the proposed base widening shall be gapped at the existing pavement return radii.  
 Suitable Cl. 13 Excavation from this project may be used to supplement needed granular shoulder material.



Location Station	F	S	T	L	Remarks
	Feet	Inches	Inches	(50' min.) Feet	
50th S.					
60th N.					
65th S.					
80th N.					
90th N.&S.					



**SECTION A-A**

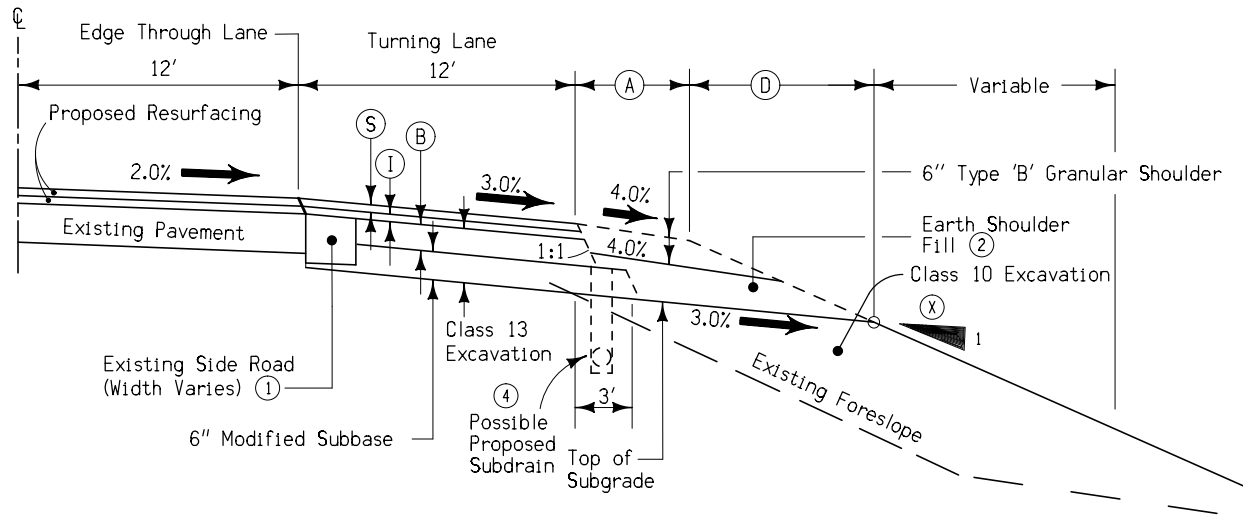
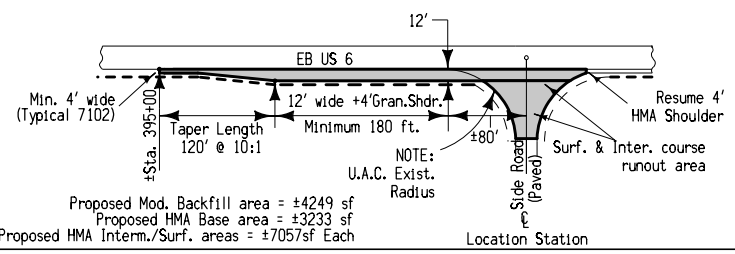
- Special shaping of existing surface prior to placement of fillet or fillet extension may be required by the Engineer and is incidental to other work on the project.  
 Pavement quantities included with mainline quantities.  
 ① Match existing slope.

Sent Email to Lyle B. on 2/27/14 & 3/6/14

**FILLET EXTENSION FOR NON-PAVED SIDE ROADS (Div. 3 work)**

7149  
04-15-14

**MINOR Right Turn @ T-58 RT #1**

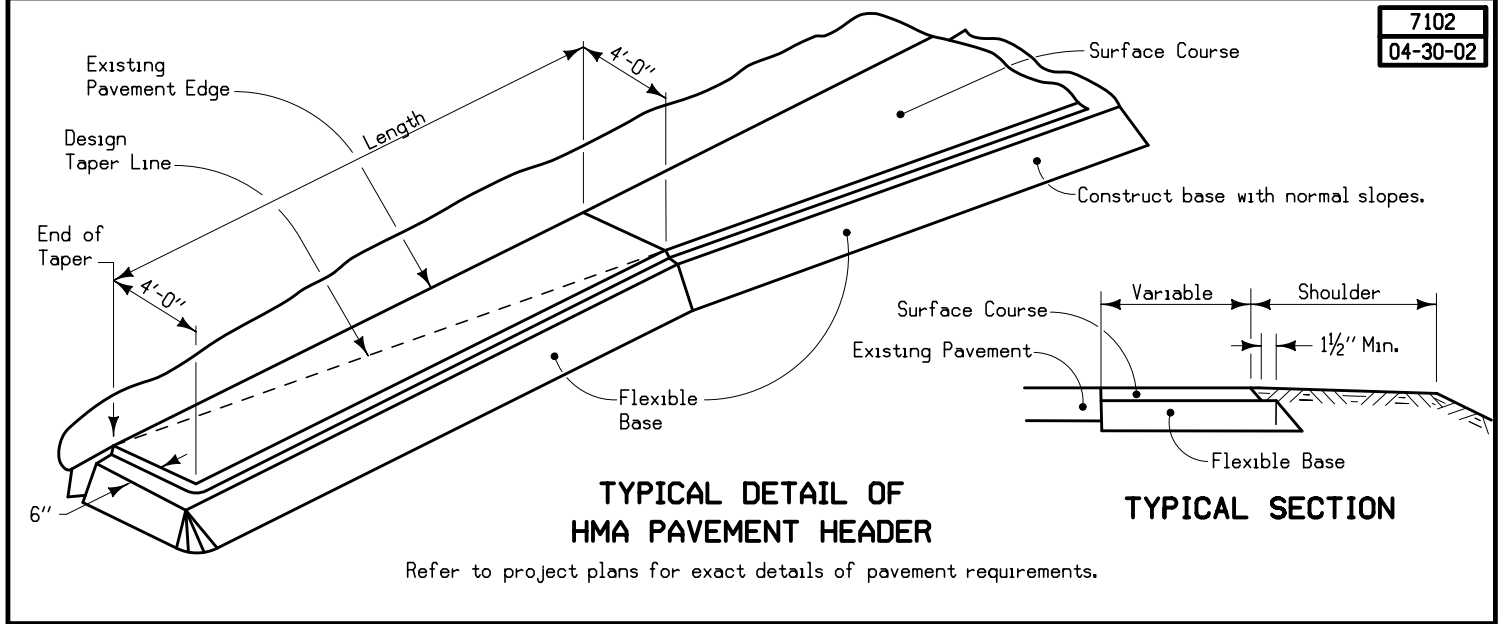
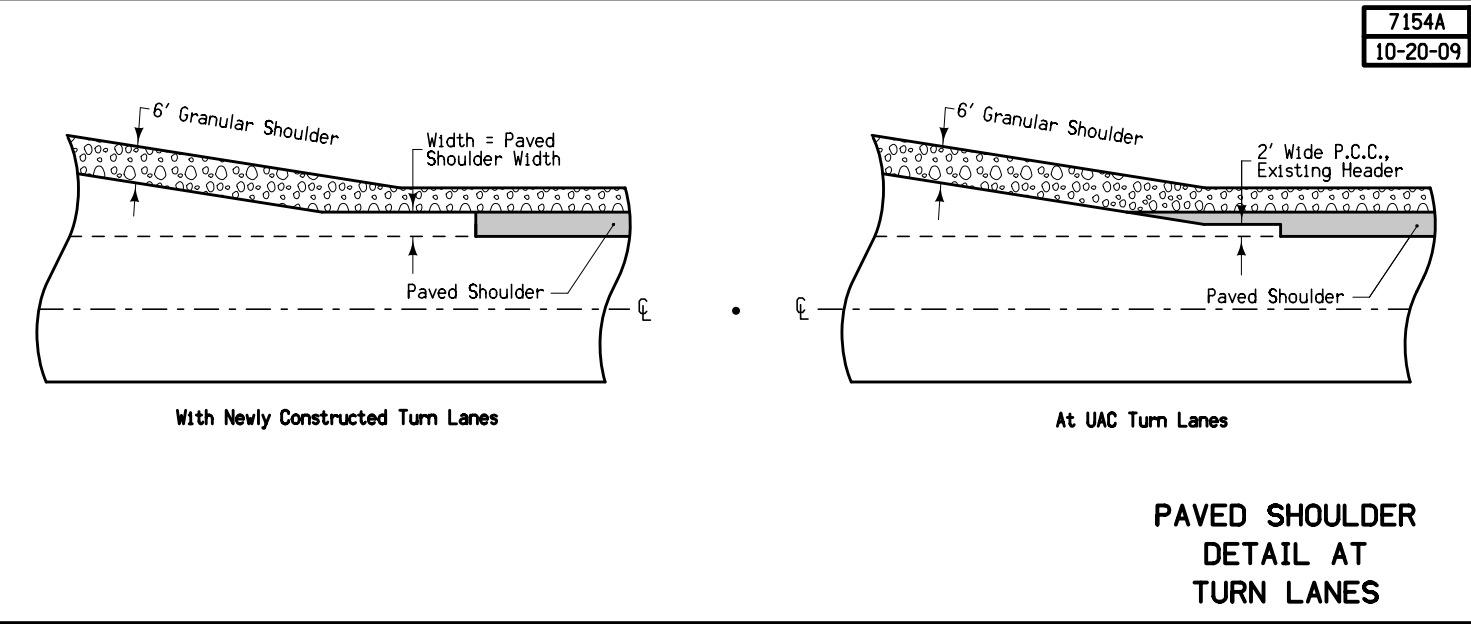


- Notes:  
Normal section shown may be Modified appropriately in areas of superelevated curves or other locations specifically designated by the engineer.
- ① To be used as constructed for Base Course.
  - ② Material to be included in the price bid for "Class 10 Roadway and Borrow" and shaping to be bid as "Earth Shoulder Finishing".
  - ③ HMA 1M (ESAL) Base Course (use Base Widening mix)
  - ④ Refer to tab. 104-9.
  - Ⓢ Surface Course
  - Ⓜ Intermediate Course
  - Ⓟ Base Course

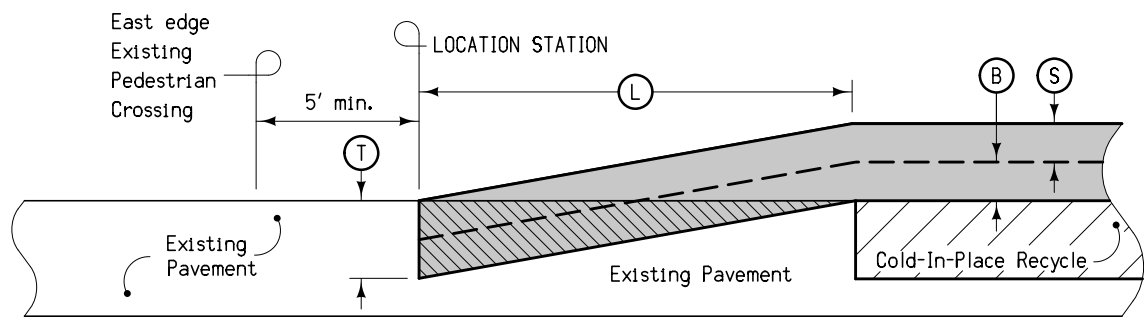
DESIGN RATES	
ITEM	RATE
Surface, Intermediate and Base Courses	145 lbs./cu. ft.
Binder Rate	6%
Mod. Subbase	140 lbs./cu. ft.

LOCATION	SIDE	TOTAL QUANTITIES PER LOCATION															
		Ⓢ Inches	Ⓜ Inches	Ⓟ Inches	Ⓐ Feet	Ⓓ Feet	ⓧ Feet	HOT MIX ASPHALT COURSES Tons			ASPHALT BINDER Tons	MODIFIED SUBBASE Cu.Yds.	CLASS 13 EXCAVATION Cu.Yds.	CLASS 10 EXCAVATION Cu.Yds.	SHOULDER FINISHING Stas.	GRANULAR SHOULDER Tons	
								SURFACE	INTERMEDIATE	BASE ③							
(RT #1) EB US 6 at T-58	Rt	1.5	1.5	5.0	4.0	3.73	3	64.0	64.0	97.7	13.5	79	128	266	3.5	56.0	

**TYPICAL HALF SECTION PROPOSED HMA RIGHT TURNING LANE (For US 6 at T-58)**



7308B  
Special



- (S) Surface Course
- (B) Intermediate Course
- (T) Milling

Posted Speed Limit (mph)	Runout Ratio (ft per inch)
45 or More	50
20 to 45	25
Under 20	10 *

\* Based on turning maneuvers at side roads and intersections.

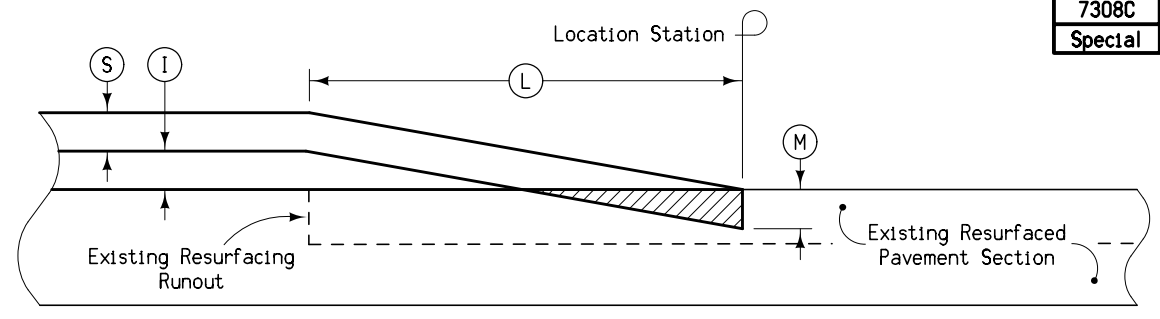
LOCATION STATION	LANE	(L) Feet	(S) Inches	(B) Inches	(T) Inches	REMARKS
184+95	---	150	1.5	1.5	3.0	BOP

**SURFACE - INTERMEDIATE NOTCH FOR DOUBLE COURSE RESURFACING**

7308C  
Special

Posted Speed Limit (mph)	Runout Ratio (ft per inch)
45 or More	50
20 to 45	25
Under 20	10 *

\* Based on turning maneuvers at side roads and intersections.

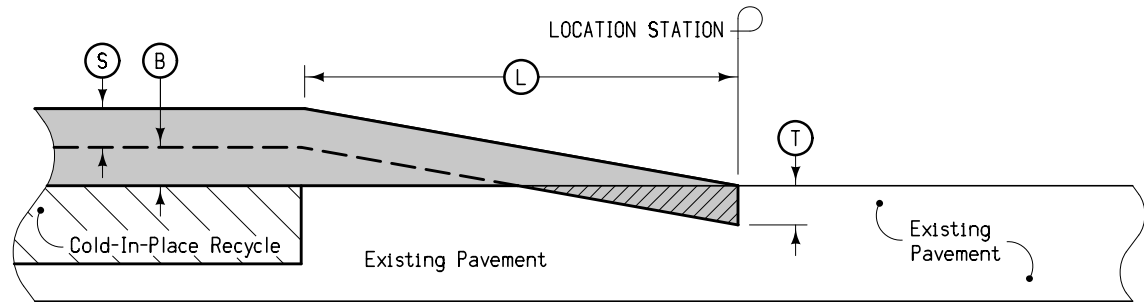


- (S) Surface Course
- (I) Intermediate Course
- (M) Milling

Location Station	(L) Feet	(S) Inches	(I) Inches	(M) Inches	Remarks
Sta. 498+50	150	1.5	1.5	1.5	EOP

**SURFACE NOTCH - INTERMEDIATE RUNOUT FOR DOUBLE COURSE RESURFACING**

7308A  
Special



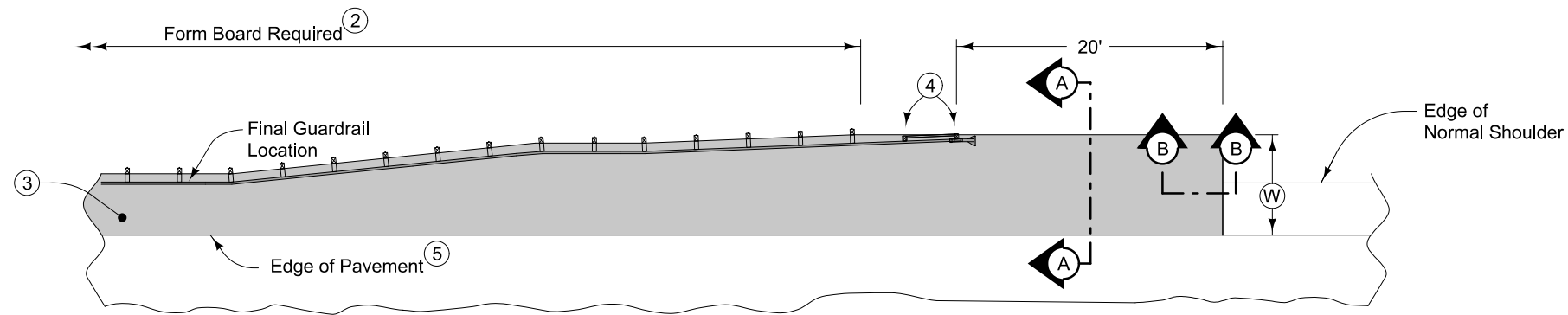
- (S) Surface Course
- (B) Intermediate Course
- (T) Milling

Posted Speed Limit (mph)	Runout Ratio (ft per inch)
45 or More	50
20 to 45	25
Under 20	10 *

\* Based on turning maneuvers at side roads and intersections.

LOCATION STATION	LANE	(L) Feet	(S) Inches	(B) Inches	(T) Inches	REMARKS
617+92 Rt. Monsanto??		10	1.5	1.5	1.5	Co. Rd. T12

**SURFACE - INTERMEDIATE NOTCH FOR DOUBLE COURSE RESURFACING at Paved Entrances???**

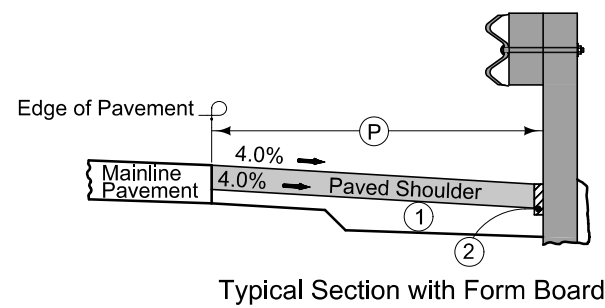


6" HMA Paved Shoulder at guardrail. 7" PCC may be substituted with the following jointing layout:

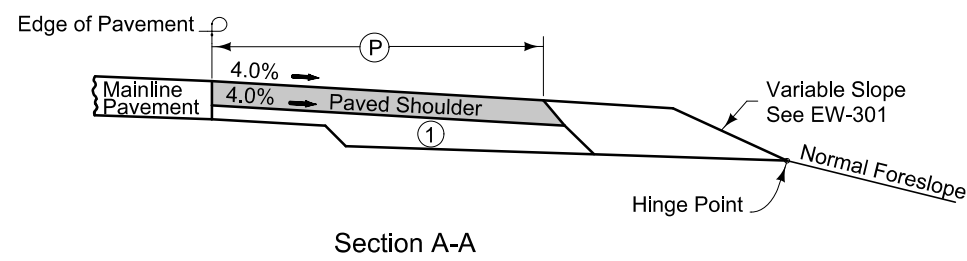
Match mainline pavement joint spacing. When mainline pavement is 8" or greater in thickness, place additional transverse 'C' joints in shoulder at mid-panel of the mainline pavement. Place longitudinal 'C' joint at W/2 from edge of mainline pavement when W is greater than 10' wide. Terminate longitudinal joint at transverse joint less than 10' in length.

Compaction of HMA is required to face of guardrail post. Hand compaction will be allowed under guardrail. Removal & reinstallation of guardrail will be allowed with no additional payment.

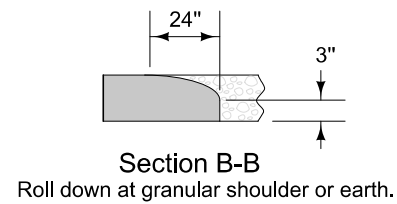
Refer to Shoulder tabulation (112-9) for quantities.



Typical Section with Form Board



Section A-A

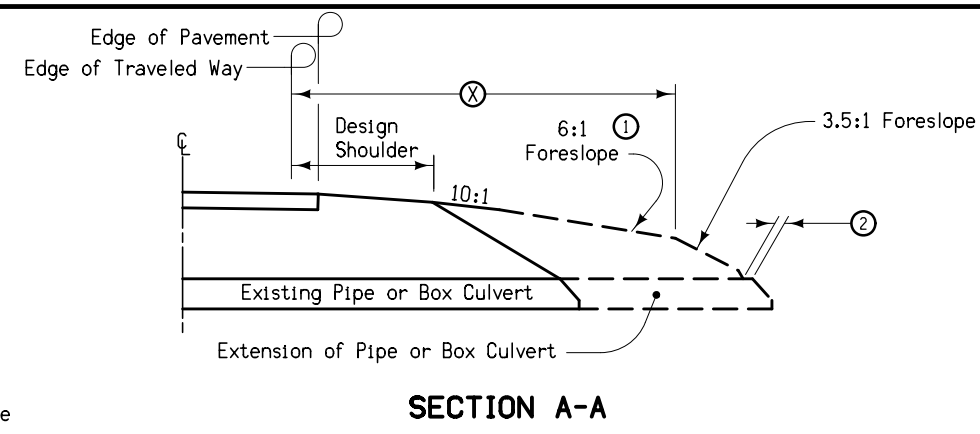
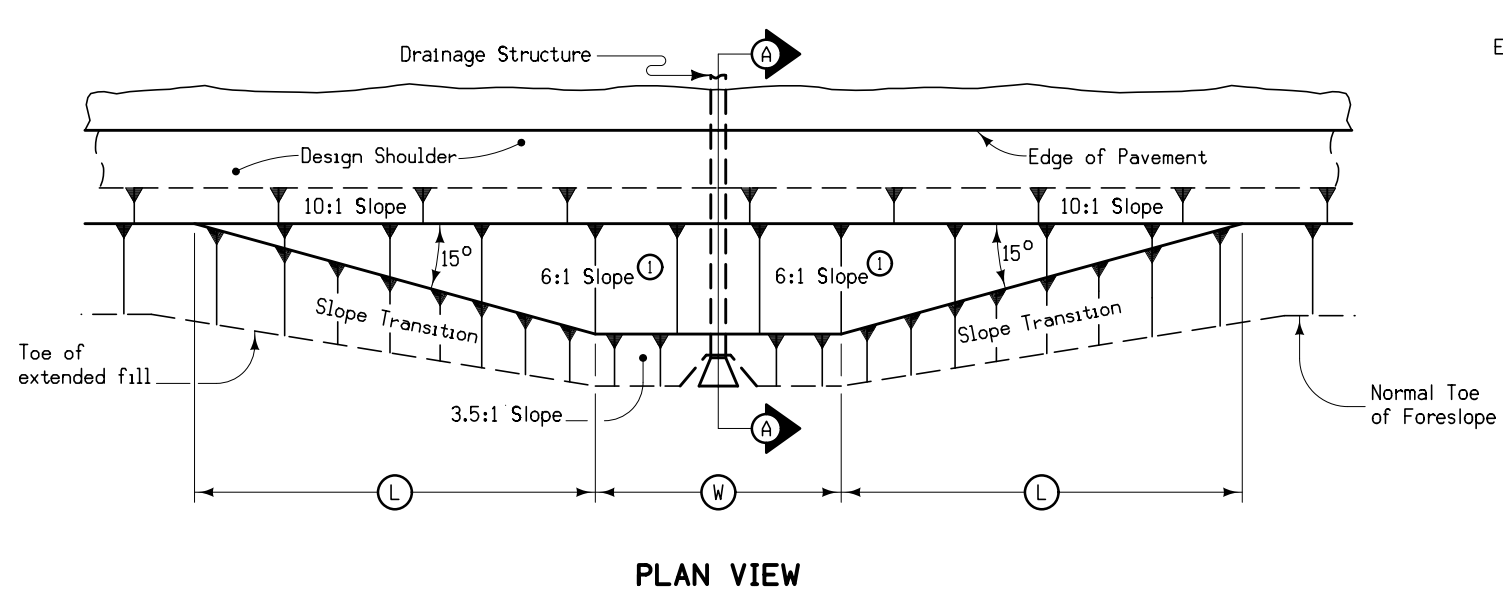


Section B-B

- ① 6" subgrade treatment.
- ② When guardrail posts are installed prior to construction of paved shoulder, nail 1" x 6" untreated form boards along the face of guardrail posts for the length shown. This board is to prevent shoulder material from contacting the sides of the posts and altering the function of the guardrail. Form board not required for final 2 posts.
- ③ Continue paved shoulder to existing paved shoulder or 20' beyond the end of guardrail.
- ④ Shoulder may be notched for final 2 posts or post sleeves may be installed through pavement.
- ⑤ 'KT-1' joint for PCC shoulder.  
'B' joint for HMA shoulder.

PAVED SHOULDER AT GUARDRAIL



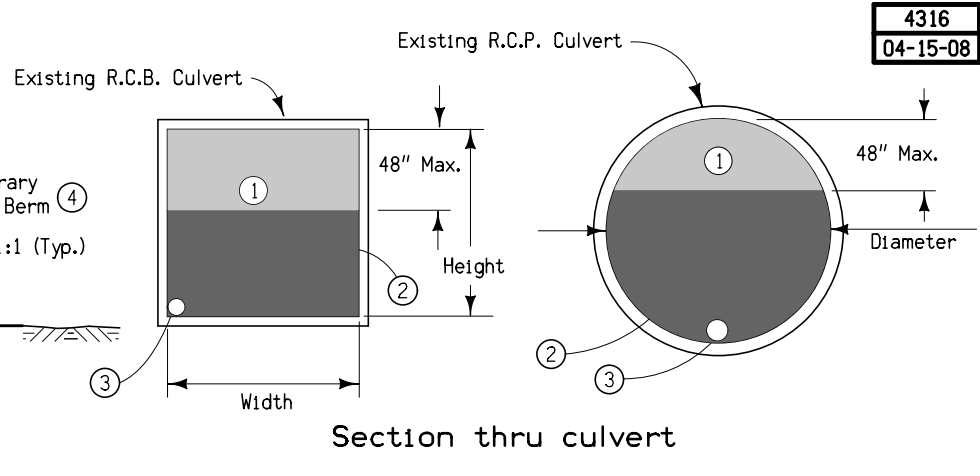
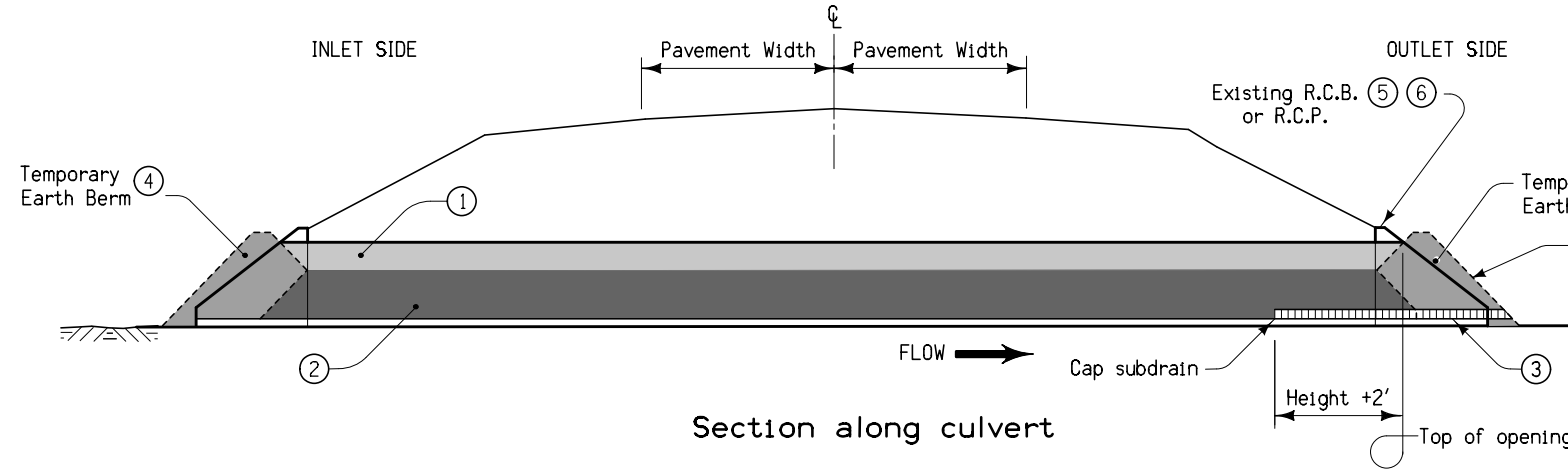
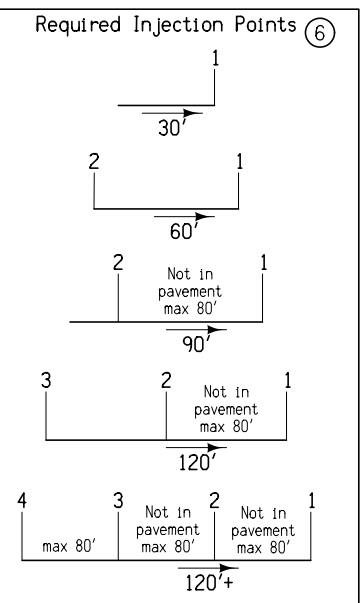


Notes:  
 At locations where an extended or newly constructed drainage structure extends beyond the normal foreslope cover, the foreslope shall be flattened as indicated so as to cover the structure. Minimum earth cover is 6".

① 6:1 Maximum - Slope may be flatter.  
 ② 6" Minimum for pipe installations or to top of headwall on R.C.B.  
 ③ = Pipe or R.C.B. width plus 20 feet each side.

STRUCTURE LOCATION		③	①	②
STATION	SIDE	Feet	Feet	Feet

**DETAILS OF BARNROOF FORESLOPE AT DRAINAGE STRUCTURE**

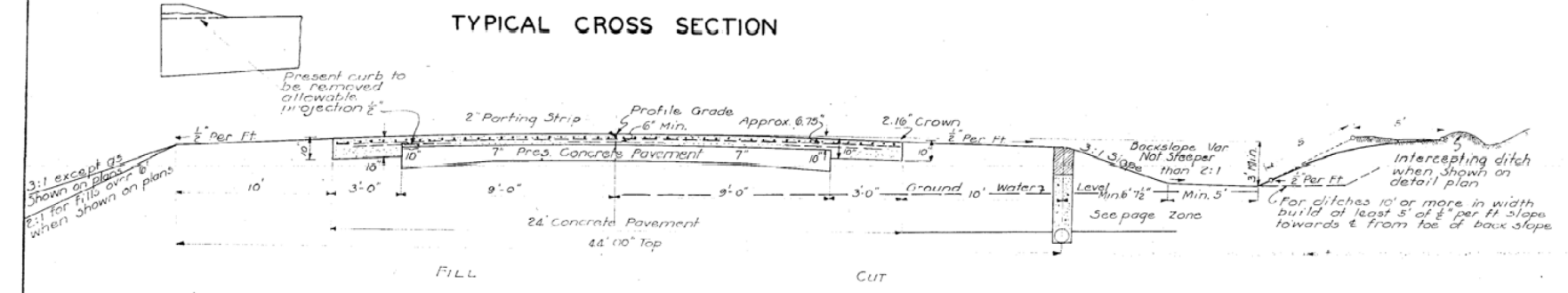


- ① Flowable Mortar, Minimum 2' thick.
- ② Granular Backfill.
- ③ 4" Subdrain at flowline elevation of culvert shall be extended into the culvert a distance of 2' plus the height of the culvert. Subdrain and granular backfill are incidental to flowable mortar.
- ④ Ends of culvert shall be plugged sufficiently to retain flowable mortar. Temporary earth berms are incidental to flowable mortar.
- ⑤ Removal of headwalls may be required.
- ⑥ Outlet shall be filled first. See injection point detail for more information.
- ⑦ Culvert may be considered a permit-required confined space, per OSHA 29 CFR.

**DETAILS OF CULVERT ABANDONMENT WITH FLOWABLE MORTAR (Rectangular structures at least 8' in both height and width. Circular structures 10' Dia. or larger)**

FED. ROAD DIST. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	IOWA	799		30	48

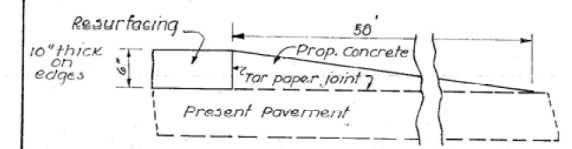
**TYPICAL CROSS SECTION**



FILL CUT

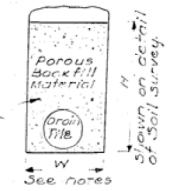
Station	To	Station
188+00		237+50
253+00		265+00
288+50		293+00
300+00		307+00
341+00		433+00
451+00		461+00

**DETAILS OF APPROACH RAMP AT EAST END OF PROJECT**



Place approx. same width of porous material on each side of pipe

Underdrain installation where noted on detail plans



Maximum quantity of porous backfill material laid for shall not be greater than that necessary to fill a trench eighteen inches wide for trenches six feet and less in depth or twenty-four inches wide for trenches over six feet in depth and to the depth specified.

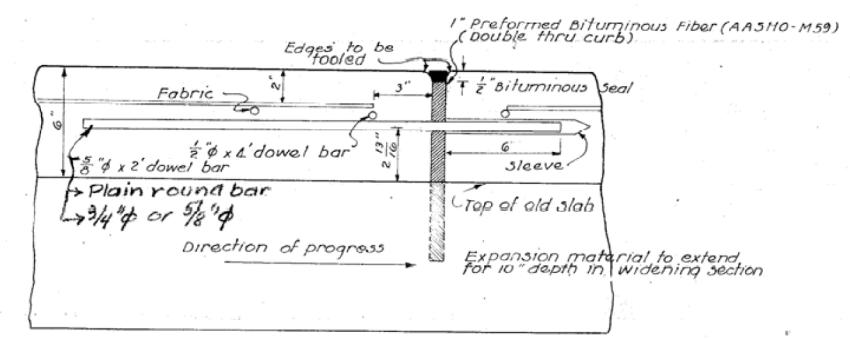
Welded wire mats to be supported on a bed of concrete struck off from the forms with a steel shed template and providing a minimum cover of two inches of concrete. The use of mesh supporting slabs or devices which require dumping concrete thru the mesh will not be permitted. Mats will have to be cut in the field to fit special areas. 2" x 16" longitudinal bar and 3/4" x 4" bar over edge of old pavement are to be placed in struck off concrete before placing and just below the welded mesh.

If 12" mats are not available because of shipping difficulties, two 6'0" mats may be substituted with a longitudinal lap of 6" (1 spacing). All laps (transverse or longitudinal) caused by irregular areas will require a minimum 12" lap.

The clearance between ends of welded wire mats is a total of 4 inches. It is imperative that the transverse joint material be kept near the center of the 4" area.

Serious damage to the paving will result if accurate installation of these joints is not accomplished. Welded wire mats and bars shall be accurately placed and maintained in proper position during the placing and finishing of concrete.

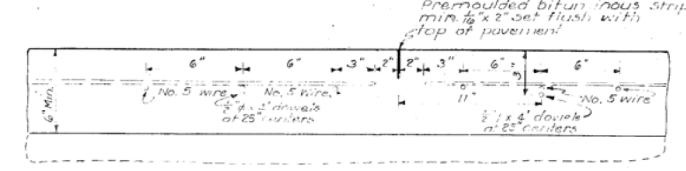
**DETAILS OF EXPANSION JOINT**



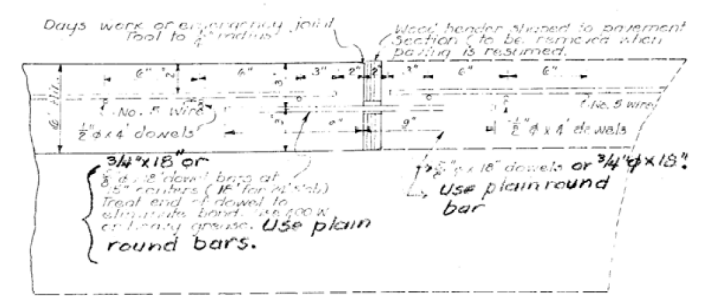
One inch preformed joint material to be shipped to fit crown of pavement and to be placed 1/2" below finished pavement surface. Dowel holes in joint material to accurately fit dowels of joint.

On proposed 10'-0" and 10'-6" sections the bituminous fiber material is to extend for full depth of the slab.

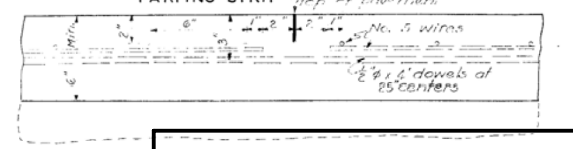
**CONTRACTION JOINT**



**DAYS WORK OR EMERGENCY JOINT**



**PARTING STRIP**

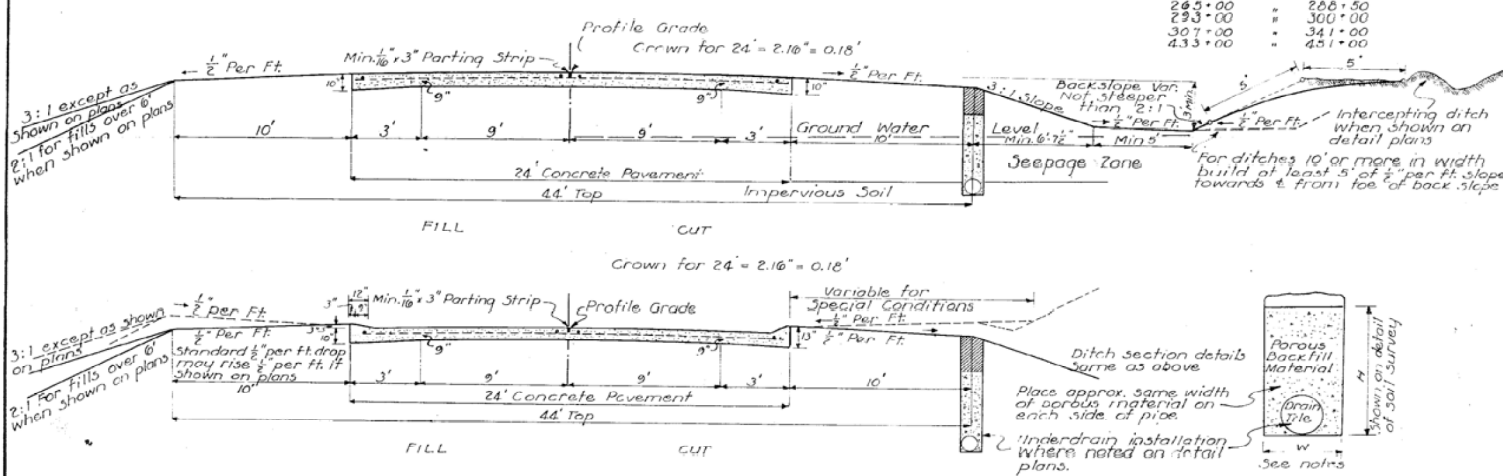


**This Sheet For Information Only**

FED. ROAD DIST. NO.	STATE	F.N. PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
10	IOWA	799	SC	48	

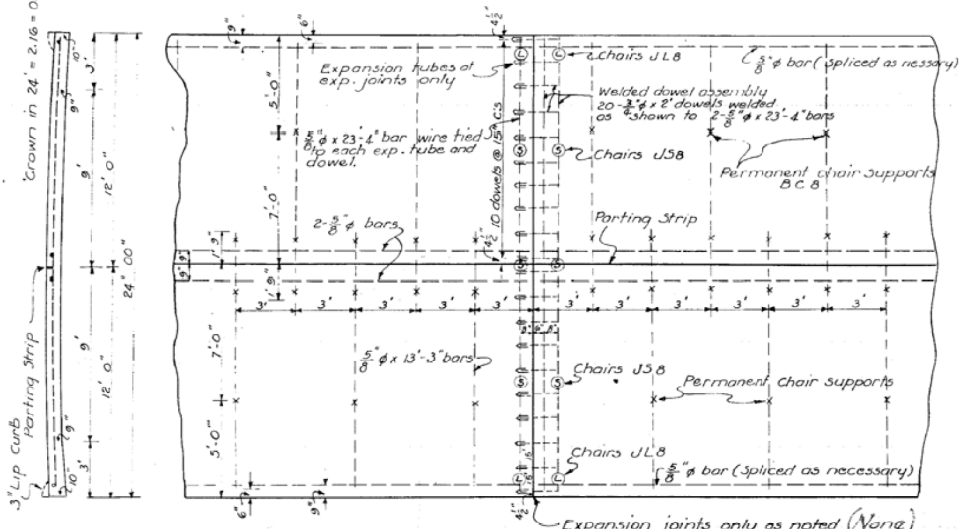
TYPICAL CROSS SECTION

Station	To	Station
184+59.6	=	188+00
237+50	=	253+00
265+00	=	286+50
293+00	=	300+00
307+00	=	341+00
433+00	=	451+00



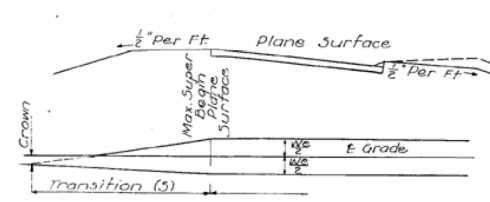
Reinforcing steel arranged to comply with print dated 6-3-1952 of file No. 10-9-10-9 for paving inter-vals on standard 10'-9\"/>

REINFORCING PLAN 24 FT. SLAB



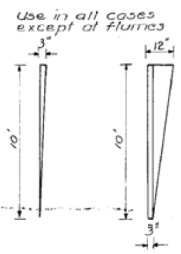
- General Requirements:
- See details for special bridge approach slab and interseritic areas.
  - See plans for location of expansion joints.
  - All pavement reinforcing to be held rigidly in correct position. See notes No 7 and 9.
  - Longitudinal 5/8\"/>

DETAILS FOR SUPERELEVATION OF CURVES

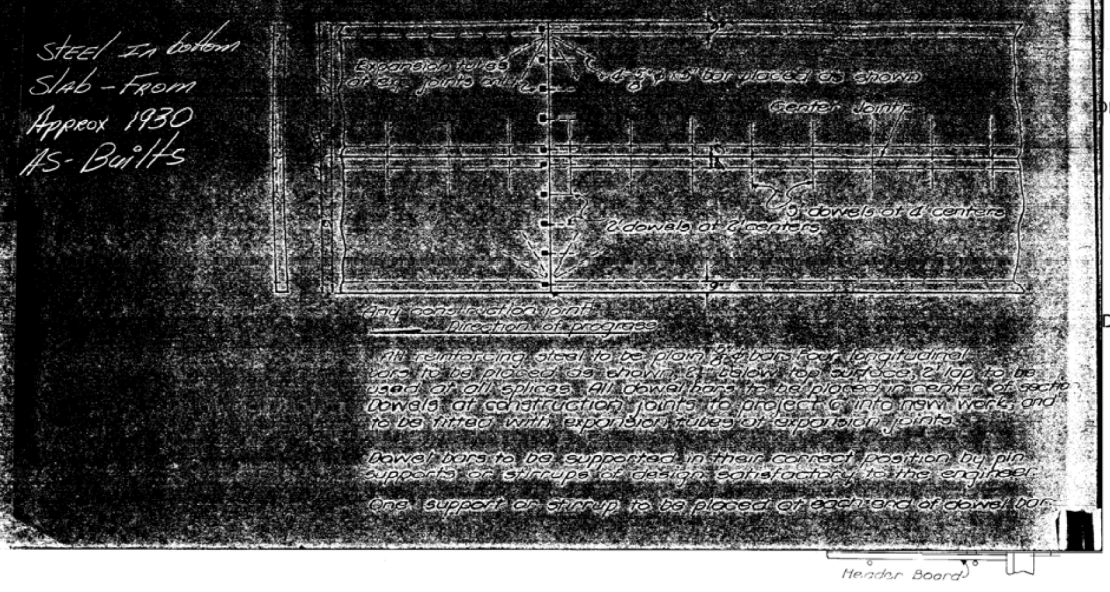


Superelevation begins at 0.30° curve with 0.0146 per ft. of width and increases uniformly to 0.0833 per ft. of width at 6° curve with no change in rate for curves sharper than 6°. Superelevated curves to be built to a plane section for their entire length with transition from standard crown section to fully superelevated plane section worked out uniformly in the transition length. Superelevated section to be tapered about 1/4\"/>

DETAILS FOR ENDING CURBS

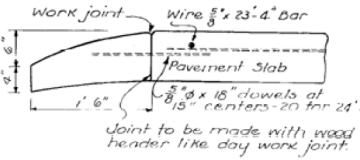


PAVEMENT REINFORCING PLAN

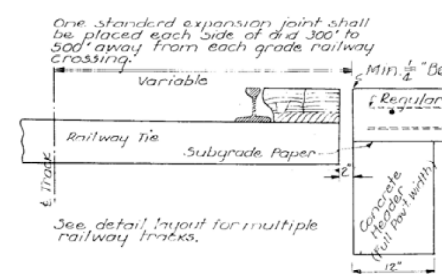


ELEVATION PLAN

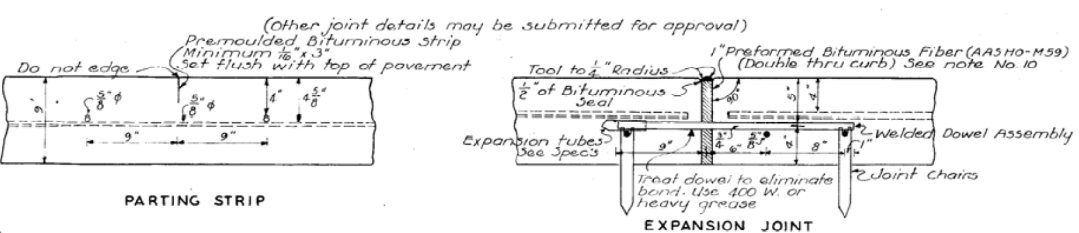
DETAILS OF CONCRETE HEADER



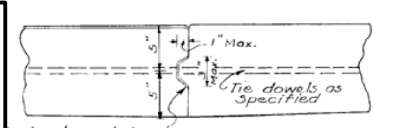
DETAILS OF RAILWAY GRADE CROSSING



JOINT DETAILS



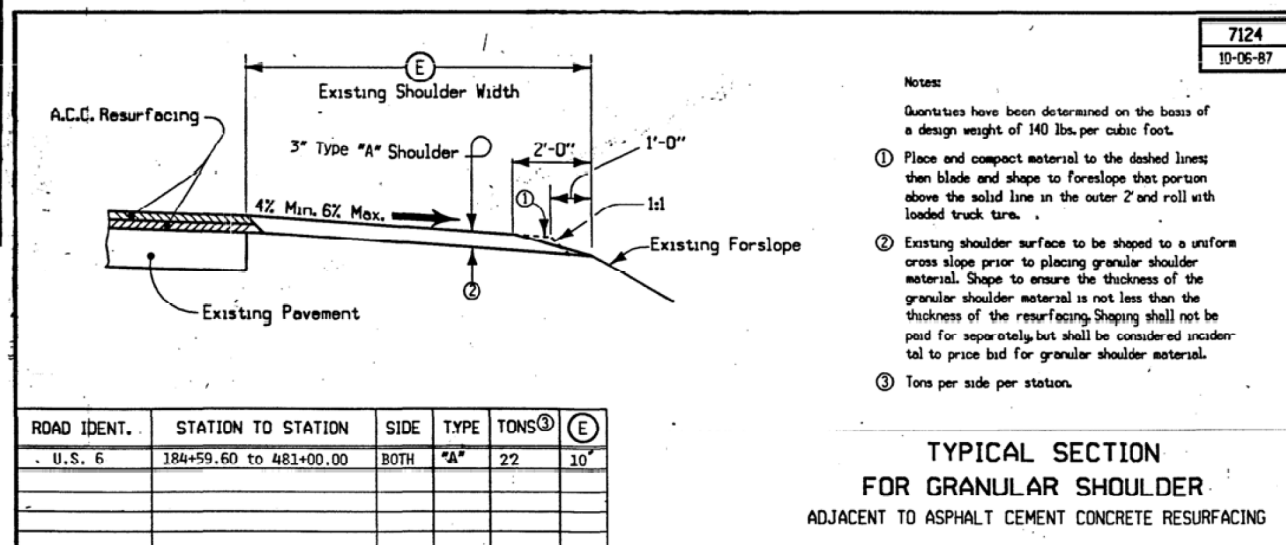
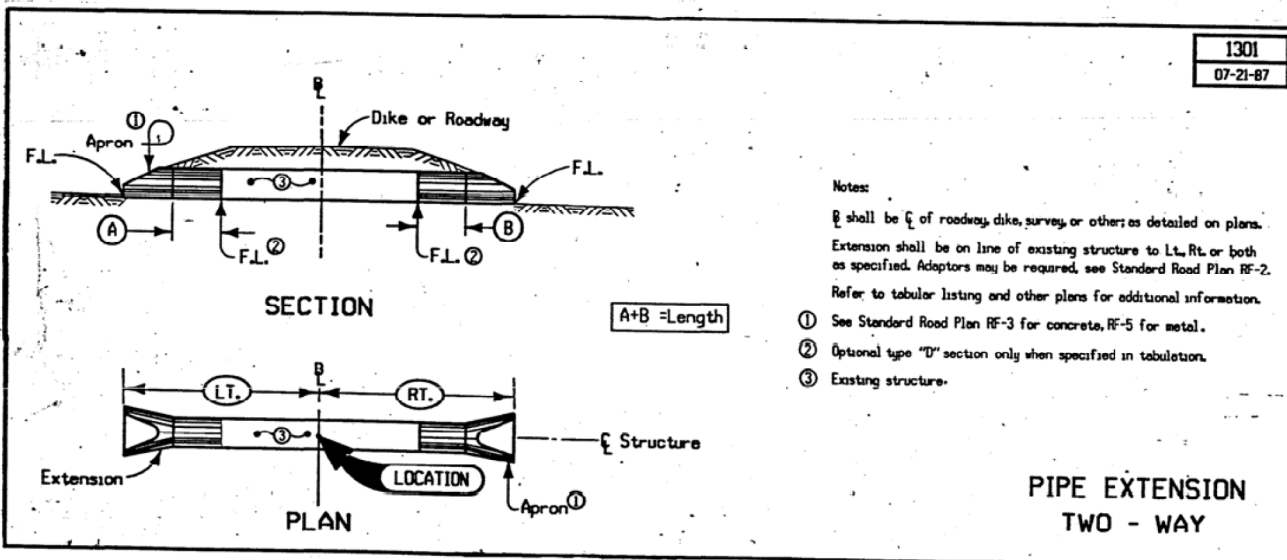
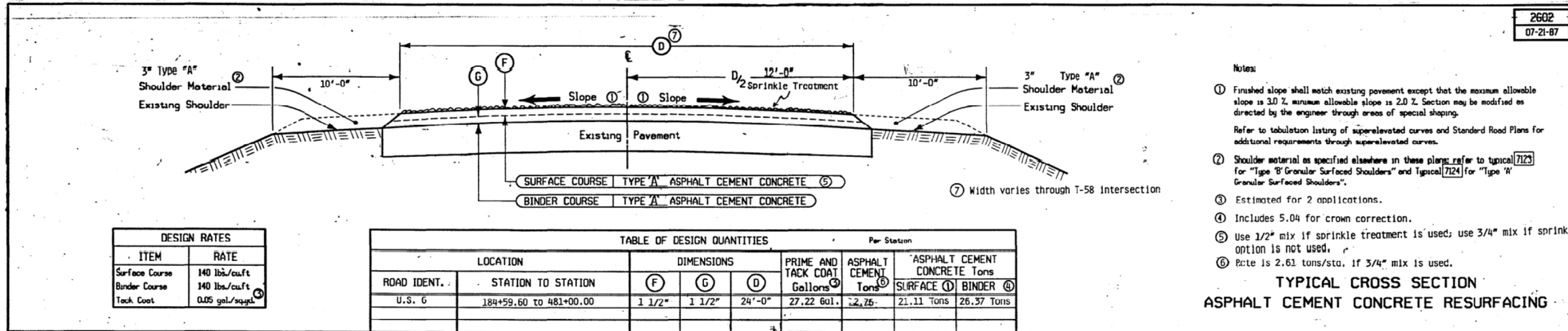
K D JOINT DETAILS



**THIS SHEET FOR INFORMATION ONLY**

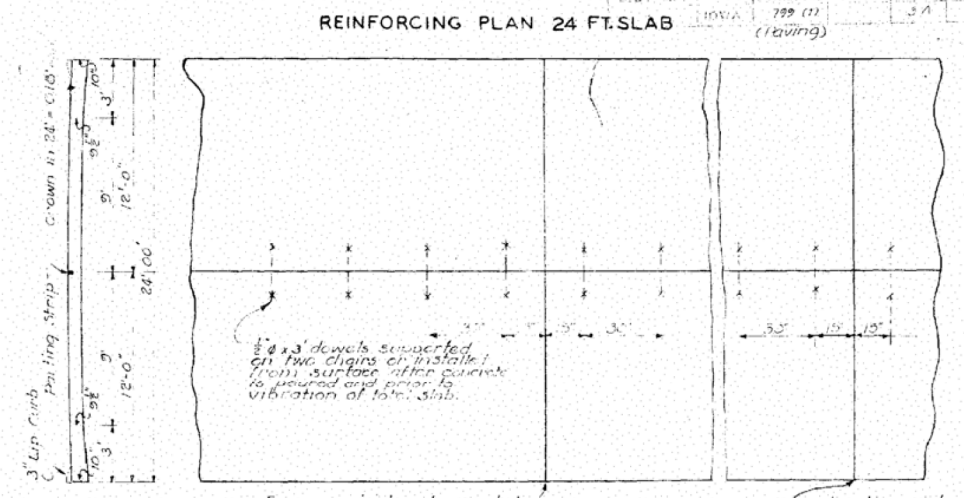
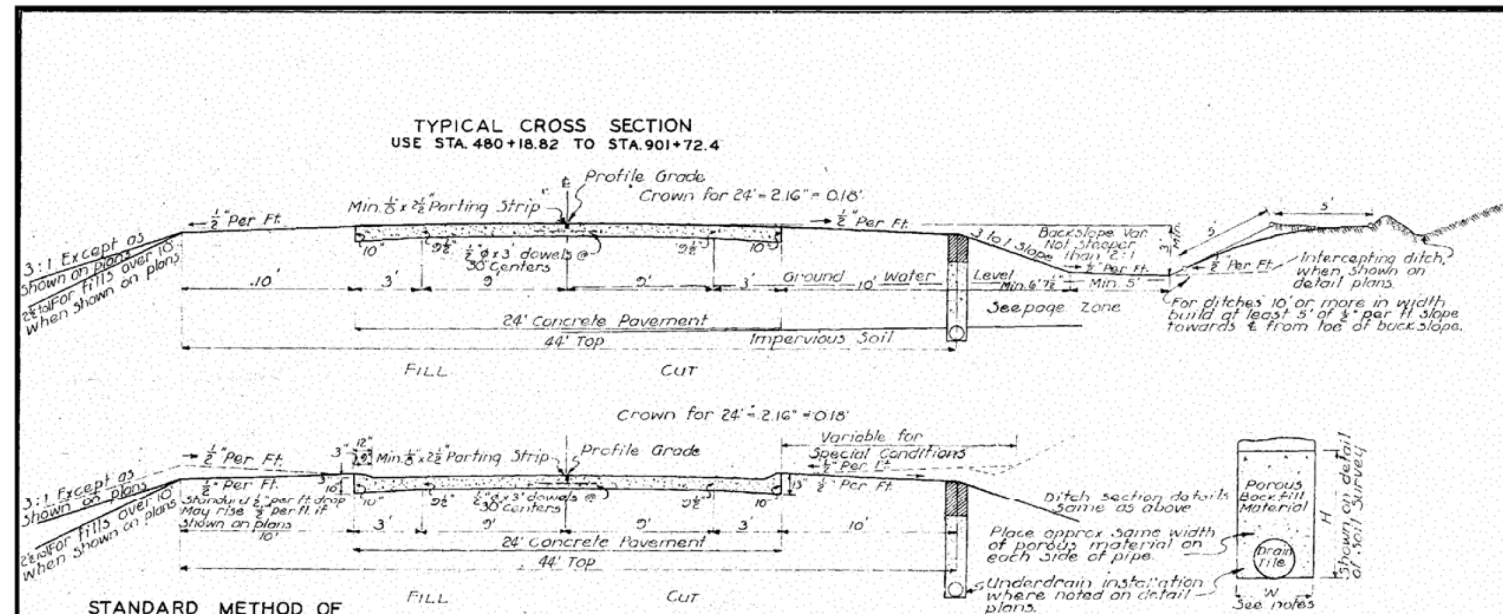
STANDARD 24 FT. PAVEMENT OCTOBER 1950

Poweshiek Co. F.N. Proj. # 799 Sheet # 3C



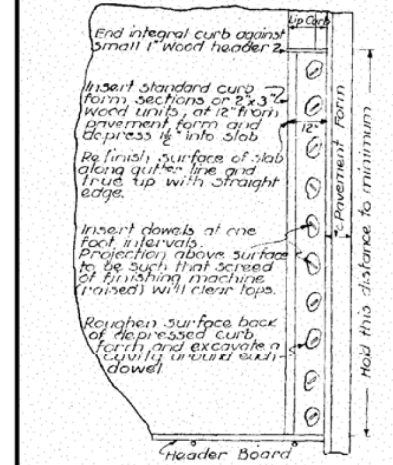
This Sheet For Information Only

FED. ROAD DIST. NO.	STATE	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	IOWA	1950	34	305
FED. ROAD DIST. NO.	STATE	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
100A	IOWA	1951	34	23



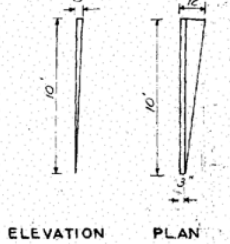
**STANDARD METHOD OF DOWELLING CURB TO PAVEMENT**

To be used in all cases where curb cannot be built integral with slab.

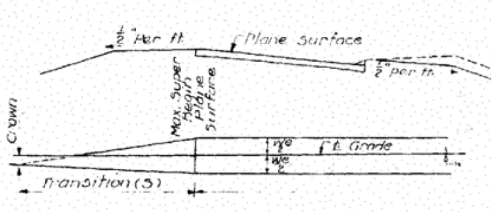


**DETAILS FOR ENDING CURBS**

Use in all cases except at curves.

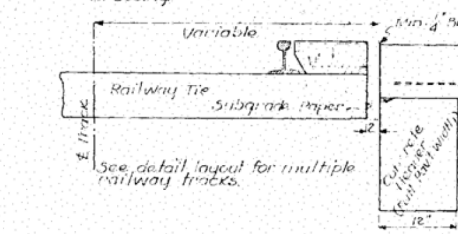


**DETAILS FOR SUPERELEVATION OF CURVES**



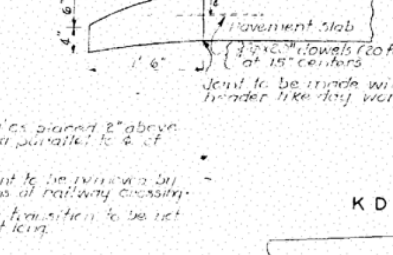
**DETAILS OF RAILWAY GRADE CROSSING**

One standard expansion joint shall be placed each side of and 300' to 500' away from each grade railway crossing.



**DETAILS OF CONCRETE HEADER**

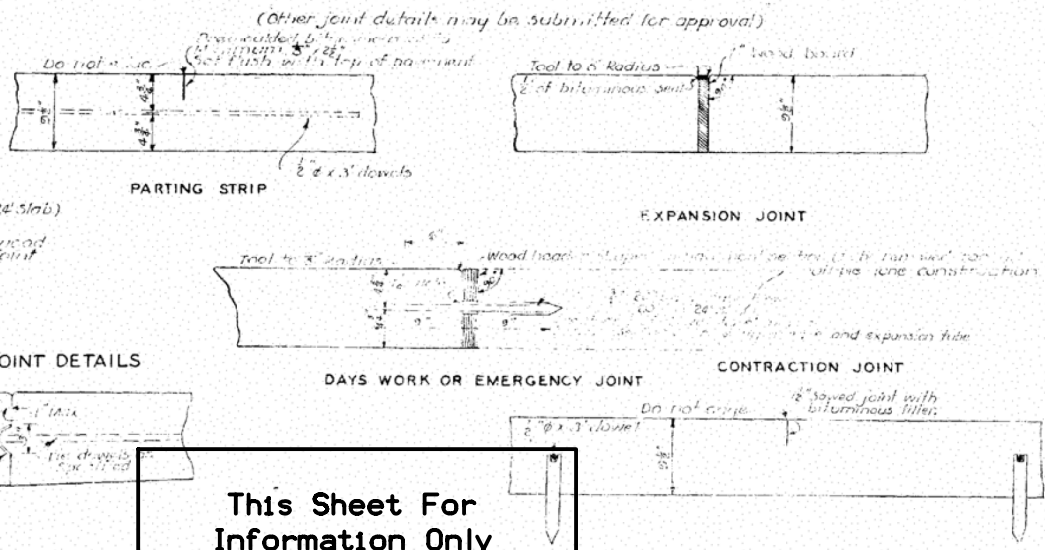
Work joint.



**EXPANSION JOINTS IN PAVEMENT**

STA	STA	STA	STA
817+70	874+25	126+75	102+51.9
821+70	878+30	131+40	505+09.31
822+30	878+90	132+00	610+73.1
822+60	879+20	132+30	612+47.
824+40	880+20	134+15	900+55.61
824+70	880+50	134+45	901+52.58
825+30	881+10	135+05	893+69.47
829+30	884+75	138+10	

**JOINT DETAILS**



**THIS SHEET FOR INFORMATION ONLY**

Revised Oct 13, 1953 - Eliminated welded dowel assembly of expansion joints and changed to wood board joint.  
Revised July 2, 1952 - Added reinforcing at railroad header.

**This Sheet For Information Only**

DESIGN TEAM	Tony Gustafson/Bob North	ENGLISH	IOWA DOT * OFFICE OF DESIGN	POWESHIEK COUNTY	PROJECT NUMBER	STPN-6-5(13)--2J-79	SHEET NUMBER	B.06
-------------	--------------------------	---------	-----------------------------	------------------	----------------	---------------------	--------------	------

Malcom TWP.  
T-80N R-15W  
SEC. 7

MONSANTO COMPANY

360 365 370

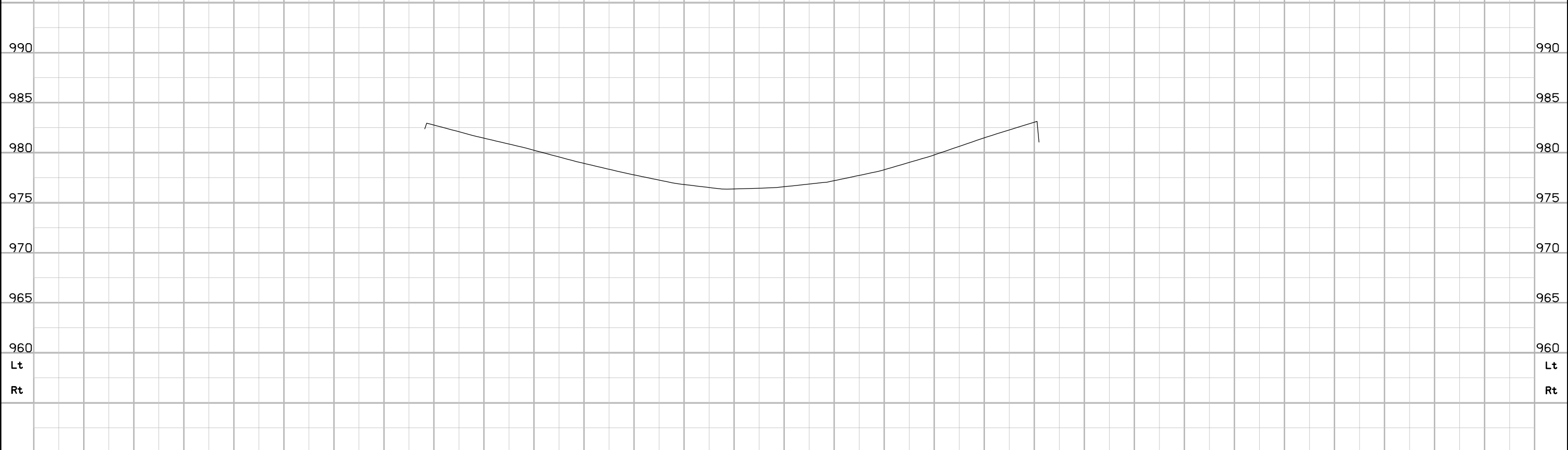
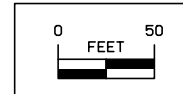
MARTH J. L. VOGT, ESTATE  
& KATHERINE BROCK

STA. 363+70  
Skew 0°  
Jack 54" x XX' RCP  
FL LT.= xxxxxxx  
RT.= xxxxxxx

Sta. 363+87.9  
Skew 1°30' Lt. Ahd.  
4' X 4' X 68.0' RCB  
D.A. = 124 Ac - R  
F.L. Left 967.11  
F.L. Right 964.16  
(PLUG & ABANDON)

Proposed Temp.  
Easement (for  
Proposed Pipe  
Jacking work)

Malcom TWP.  
T-80N R-15W  
SEC. 18



DUANE L. GRAHAM

Malcom TWP.  
T-80N R-15W  
SEC. 8

MAR VIC FARMS, INC.

Proposed Temp.  
Easement (for  
Proposed Pipe  
Jacking work)

Proposed Temp.  
Easement (for  
Proposed Pipe  
Jacking work)

±Exist. ROW

420

425

±Exist. ROW

430

±Exist. ROW

±Exist. ROW

Sta. 421+44.6  
Skew 36°12' Lt. Ahd.  
6' X 4' X 122.6' RCB  
D.A. = 51 Ac - VH  
F.L. Left 940.68  
F.L. Right 945.70  
(PLUG & ABANDON)

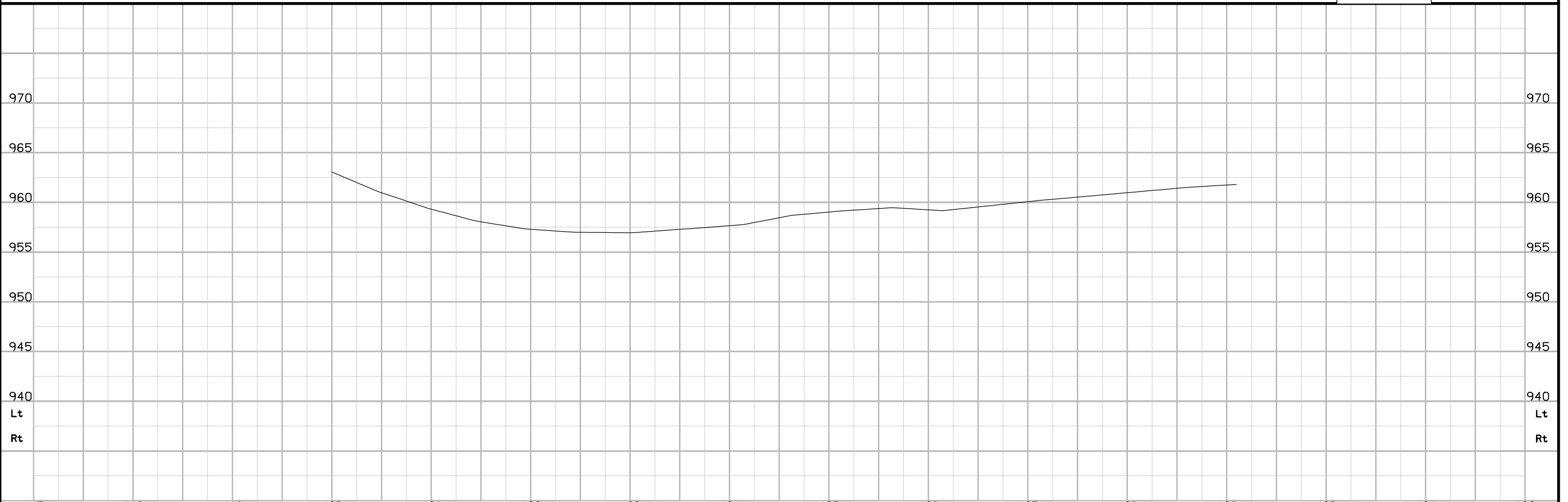
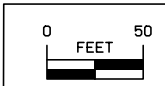
STA. 421+65  
Skew 36° Lt. Ahd.  
Jack 60" x XX' RCP  
FL LT.= xxxxxx  
RT.= xxxxxx

STA. 425+90  
Skew 0°  
Jack 42" x XX' RCP  
FL LT.= xxxxxx  
RT.= xxxxxx

Sta. 426+13.0  
Skew 1°30' Lt. Ahd.  
5' X 3.5' X 106.3' RCB  
D.A. = 16 Ac - VH  
F.L. Left 938.76  
F.L. Right 948.07  
(PLUG & ABANDON)

Malcom TWP.  
T-80N R-15W  
SEC. 17

HOSTENS FAMILY TRUST



Curve Data  
 $\Delta = 2^\circ 28' 25.39''$  (RT)  
 $T = 296.91$   
 $L = 593.74$   
 $R = 13,752.00$   
 $E = 3.20$



Proposed Temp.  
 Easement (for  
 Proposed Pipe  
 Jacking work)

Malcom TWP.  
 T-80N R-15W  
 SEC. 9

AUDREY M. OLTROGGE RES. TR. 1/2 INT.  
 & AUDREY M. OLTROGGE, 1/2 INT.

450

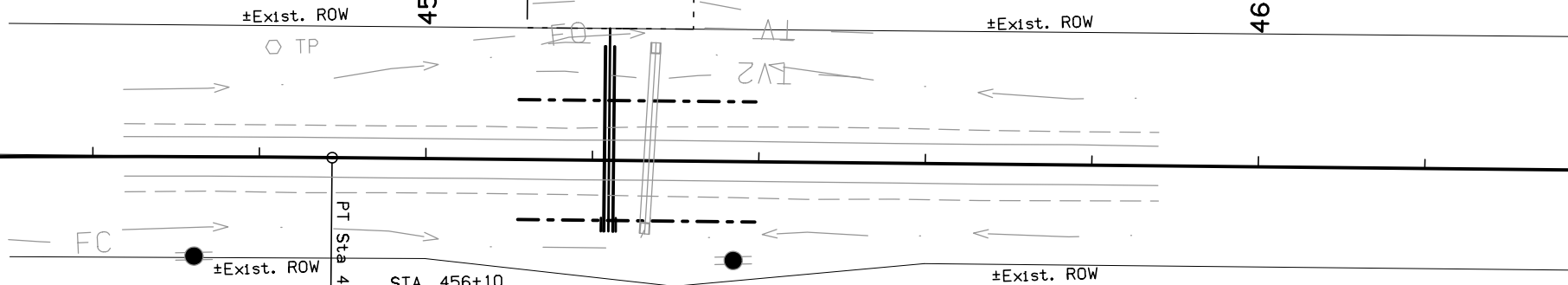
PI Sta 451+46.95

455

460

PC Sta 448+50.04

PT Sta 454+43.78

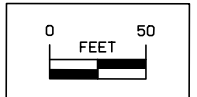


STA. 456+10  
 Jack 60" x XX' RCP  
 FL LT.= xxxxxx  
 RT.= xxxxxx

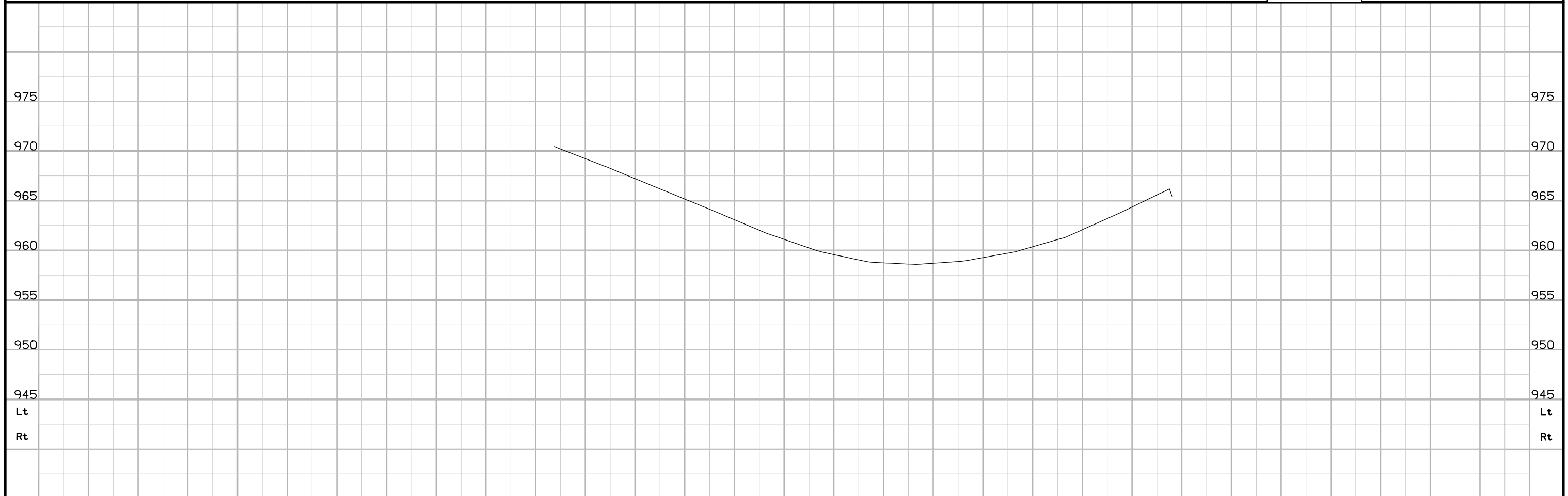
Sta. 456+34.1  
 Skew 3° Lt. Ahd.  
 4' X 3' X 102.4' RCB  
 D.A. = 128 Ac - R  
 F.L. Left 937.80  
 F.L. Right 946.80

???NEEDS REVIEW BY CULVERTS???  
 POSSIBLE JACKED REPLACEMENT???

Malcom TWP.  
 T-80N R-15W  
 SEC. 16



ARLENE M. MADILL





## Survey Information

### General Information

Measurement units for this survey are US survey feet. This survey is for the replacement of four box culverts on US 6 east of Grinnel.

### Vertical Control

Vertical datum for this survey is relative to NAVD88- computed using GPS RTK techniques via the Iowa Real Time Network, utilizing the Iowa State Plane North projection and Geoid 09. For redundancy, each Control Point was shot 5 times with a standard deviation less than 0.10'.

### Horizontal Control Information

Horizontal data collected for this survey was computed using GPS RTK techniques via the Iowa Real Time Network, utilizing the Iowa State Plane South projection and Geoid 09. For redundancy, each Control Point was shot 5 times with a standard deviation of less than 0.05'.

This field work for this survey was collected by the Marshalltown Construction Residence Survey Crew.

### Alignment Information

Site 1 Culvert at Sta. 227+07.5

The horizontal alignment for this survey is a retrace of the as-built centerline shown in the Project FN-799 Grading; PCC Paving plans. A hinge nail was found at as-built P.I. Sta. 211+00.8 (N 1/4 Cor. Sec. 15-80-16) and a hinge nail was found at as-built P.I. Sta. 237+34.20 (NE Cor. Sec. 15-80-16) Stationing was established at P.I. Sta. 237+34.20 and carried back through the project.

P.I. Sta. 211+00.81 this survey = P.I. Sta. 211+00.6 1952 Project No. FN-799  
P.I. Sta. 237+34.20 this survey = P.I. Sta. 237+34.2 1952 Project No. FN-799

Site 2 Culvert at Sta. 363+87.9

The horizontal alignment for this survey is a retrace of the as-built centerline shown in the Project FN-799 Grading; PCC Paving plans. A hinge nail was found at as-built P.I. Sta. 343+51.3 (NW Cor. Sec. 18-80-15) and a hinge nail was set at as-built P.I. Sta. 372+44.6 (N 1/4 Cor. Sec. 18-80-15) Stationing was established at P.I. Sta. 372+44.60 and carried back through the project.

P.I. Sta. 343+52.72 this survey = P.I. Sta. 343+51.3 1952 Project No. FN-799  
P.I. Sta. 372+44.60 this survey = P.I. Sta. 372+44.6 1952 Project No. FN-799

Site 3 and 4 Culverts at Sta. 426+13.0 and Sta. 456+34.1

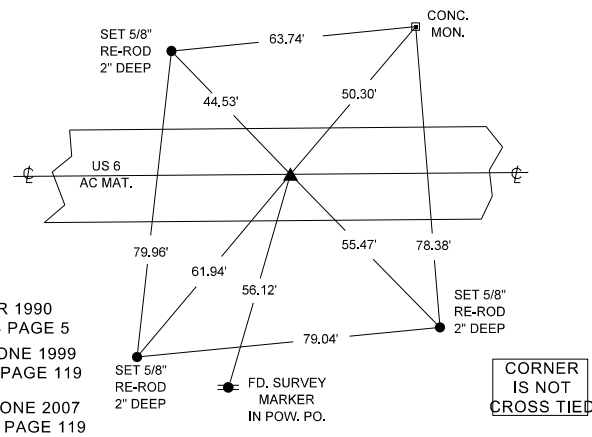
The horizontal alignment for this survey is a retrace of the as-built centerline shown in the Project FN-799 Grading; PCC Paving plans. A hinge nail was found at as-built P.I. Sta. 413+37.2, a hinge nail was set at as-built P.I. Sta. 425+17.4 (N 1/4 Cor. Sec. 17-80-15) a mag nail was found at as-built P.I. Sta. 451+46.9 (NE Cor. Sec. 17-80-15) and a mag nail was found at as-built P.I. Sta. 477+68.8 (N 1/4 Cor. Sec. 16-80-15) . Stationing was established at P.I. Sta. 425+17.40 and carried back and forward through the project without equation.

P.I. Sta. 413+37.59 this survey = P.I. Sta. 413+37.2 1952 Project No. FN-799  
P.I. Sta. 425+17.40 this survey = P.I. Sta. 425+17.4 1952 Project No. FN-799  
P.I. Sta. 451+46.95 this survey = P.I. Sta. 451+46.9 1952 Project No. FN-799  
P.I. Sta. 477+66.91 this survey = P.I. Sta. 477+68.8 1952 Project No. FN-799

## VERTICAL CONTROL

Point	North	East	Elevation	Station	Offset	Feature	Description
100	637,256.179	1,860,803.724	964.74	227+14.92	63.37' Lt.	CP	SET 5/8" RE-ROD 4" DEEP
12013	637,333.898	1,874,474.726	973.79	363+88.61	28.17' Lt.	BM	FD. IDOT brass plug in headwall
1314	637,350.176	1,880,700.395	953.92	426+14.07	37.11' Rt.	BM	FD. IDOT brass plug in headwall
13015	637,369.123	1,883,716.416	952.67	456+32.03	37.88' Rt.	BM	FD. IDOT brass plug in headwall

P.I. STA. 211+00.81  
 = P.I. STA. 211+00.8 (1952 PROJ. FN-799)  
 N 1/4 COR. SEC. 15-80-16  
 POINT NO. 10000 FOUND HINGE NAIL  
 N = 637,180.167 E = 1,859,190.157



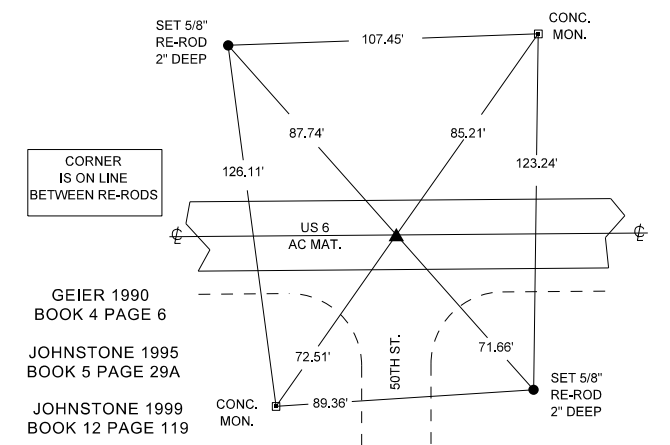
GEIER 1990  
 BOOK 4 PAGE 5  
 JOHNSTONE 1999  
 BOOK 12 PAGE 119  
 JOHNSTONE 2007  
 BOOK 12 PAGE 119

CORNER IS NOT  
 CROSS TIED

CP 63.37' LT. OF STA. 227+14.92  
 POINT NO. 100 SET 5/8" RE-ROD 4" DEEP  
 N = 637,256.179 E = 1,860,803.724

CP 59.42' RT. OF STA. 227+44.66  
 POINT NO. 100 SET 5/8" RE-ROD 4" DEEP  
 N = 637,256.179 E = 1,860,803.724

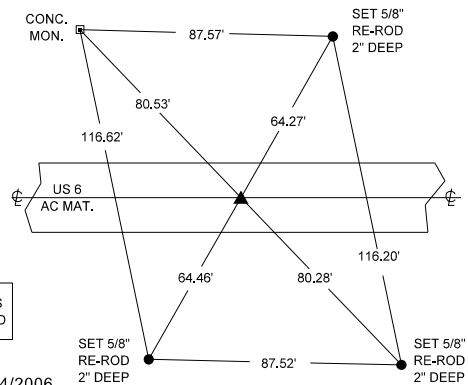
P.I. STA. 237+34.20  
 = P.I. STA. 237+34.2 (1952 PROJ. FN-799)  
 NE COR. SEC. 15-80-16  
 POINT NO. 10004 FOUND HINGE NAIL  
 N = 637,200.791 E = 1,861,823.466



CORNER IS ON LINE  
 BETWEEN RE-RODS

GEIER 1990  
 BOOK 4 PAGE 6  
 JOHNSTONE 1995  
 BOOK 5 PAGE 29A  
 JOHNSTONE 1999  
 BOOK 12 PAGE 119

P.I. STA. 263+82.5 (1952 PROJ. FN-799)  
 N 1/4 COR. SEC. 14-80-16  
 POINT NO. 10005 FOUND HINGE NAIL  
 N = 637,223.074 E = 1,864,470.991



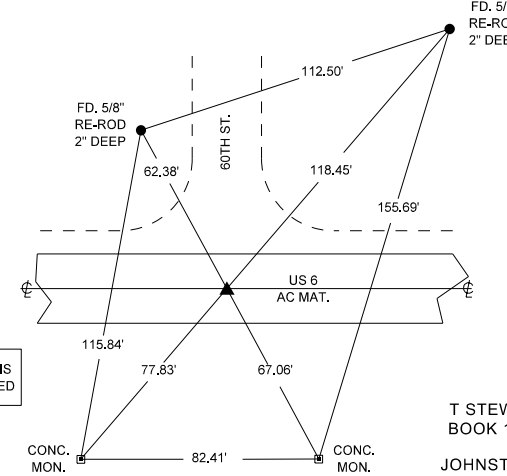
CORNER IS  
 CROSS TIED

T STEWART 4/2006  
 BOOK 11 PAGE 207  
 JOHNSTONE 9/2006  
 BOOK 11 PAGE 316

P.I. STA. 276+36.1 (1952 PROJ. FN-799)  
 POINT NO. 3505 SET HINGE NAIL  
 N = 637,230.569 E = 1,865,724.684

**SET AND REFERENCE  
 POINT 3505  
 AFTER OVERLAY PROJECT**

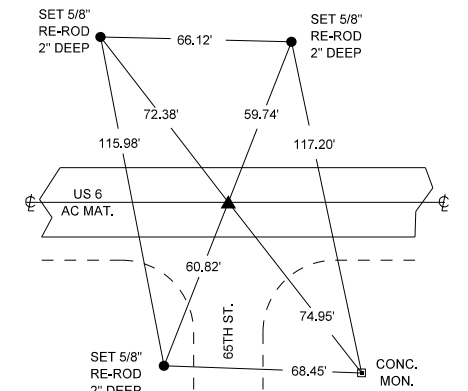
P.I. STA. 290+26.7 (1952 PROJ. FN-799)  
 NE COR. SEC. 14-80-16  
 POINT NO. 10006 FOUND HINGE NAIL  
 N = 637,232.710 E = 1,867,115.246



CORNER IS  
 CROSS TIED

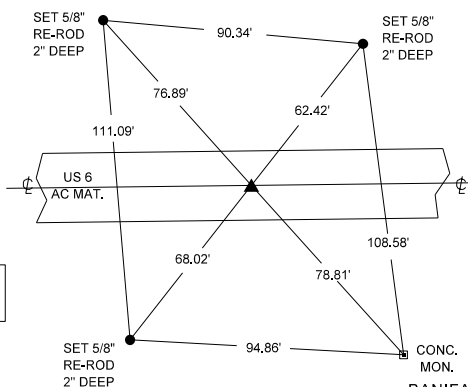
T STEWART 4/2006  
 BOOK 11 PAGE 207  
 JOHNSTONE 9/2006  
 BOOK 11 PAGE 316

P.I. STA. 316+87.0 (1952 PROJ. FN-799)  
 N 1/4 COR. SEC. 13-80-16  
 POINT NO. 10008 FOUND HINGE NAIL  
 N = 637,256.426 E = 1,869,775.077



CORNER IS  
 CROSS TIED

P.I. STA. 343+52.72  
 = P.I. STA. 343+51.3 (1952 PROJ. FN-799)  
 NW COR. SEC. 18-80-15  
 POINT NO. 10010 FOUND HINGE NAIL  
 N = 637,281.505 E = 1,872,438.918



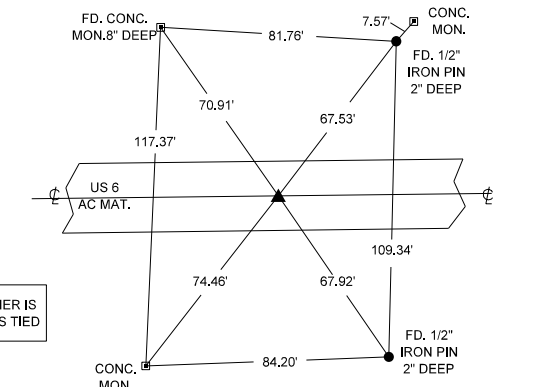
CORNER IS  
 CROSS TIED

BANIFAZI 2004  
 BOOK 10 PAGE 127

CP 59.12' RT. OF STA. 364+38.38  
 POINT NO. 102 SET 5/8" RE-ROD 4" DEEP  
 N = 637,247.243 E = 1,874,526.138

CP 71.82' LT. OF STA. 364+74.03  
 POINT NO. 103 SET 5/8" RE-ROD 4" DEEP  
 N = 637,377.400 E = 1,874,459.237

P.I. STA. 372+44.60  
 = P.I. STA. 372+44.6 (1952 PROJ. FN-799)  
 N 1/4 COR. SEC. 18-80-15  
 POINT NO. 3500 SET HINGE NAIL  
 N = 637,315.955 E = 1,875,330.596

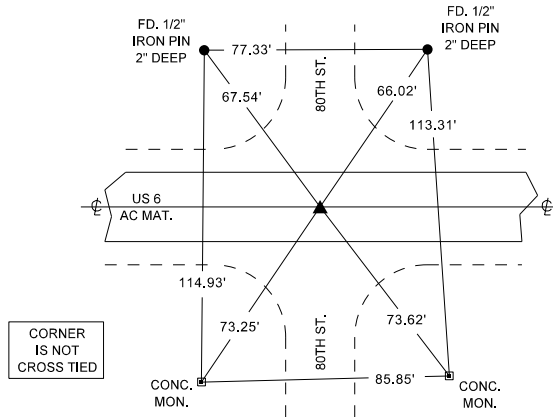


CORNER IS  
 CROSS TIED

BANIFAZI 2004  
 BOOK 10 PAGE 127

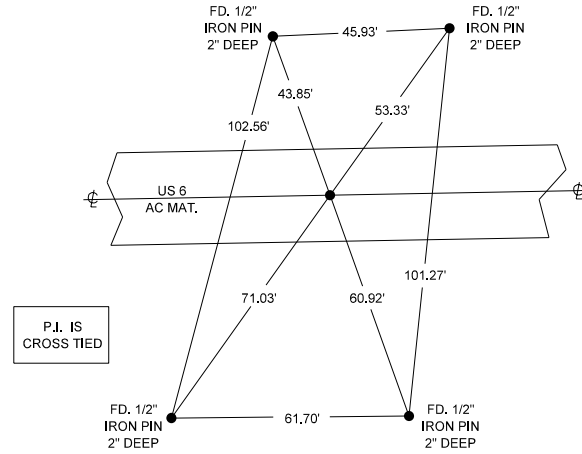
P.I. STA. 398+80.7 (1952 PROJ. FN-799)  
NE COR. SEC. 18-80-15

POINT NO. 10013 FOUND HINGE NAIL  
N = 637,346.826 E = 1,877,967.235



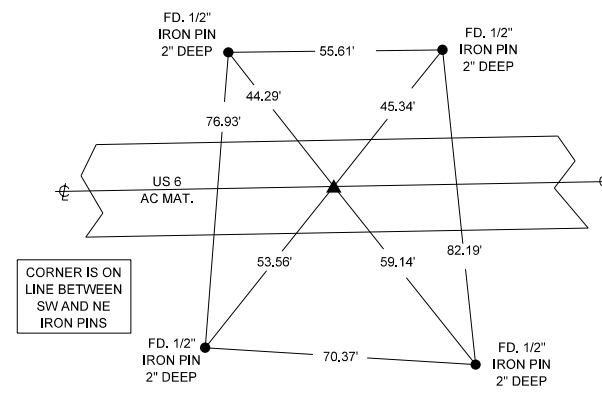
P.I. STA. 413+37.59  
= P.I. STA. 413+37.2 (1952 PROJ. FN-799)

POINT NO. 10014 FOUND HINGE NAIL  
N = 637,364.808 E = 1,879,423.621



P.I. STA. 425+17.40  
= P.I. STA. 425+17.4 (1952 PROJ. FN-799)

N 1/4 COR. SEC. 17-80-15  
POINT NO. 3501 SET HINGE NAIL  
N = 637,385.989 E = 1,880,603.242

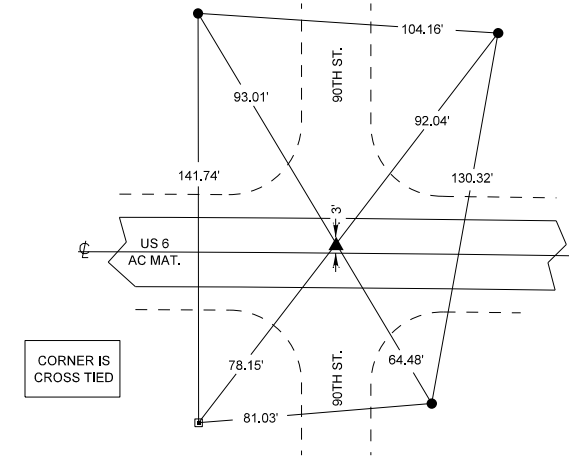


CP 75.17' LT. OF STA. 425+17.80  
POINT NO. 10019 FD. 5/8" RE-ROD 4" DEEP  
N = 637,461.160 E = 1,880,602.647

CP 79.14' RT. OF STA. 426+44.47  
POINT NO. 104 SET 5/8" RE-ROD 4" DEEP  
N = 637,308.542 E = 1,880,731.356

CP 71.65' LT. OF STA. 426+92.95  
POINT NO. 105 SET 5/8" RE-ROD 4" DEEP  
N = 637,459.965 E = 1,880,777.824

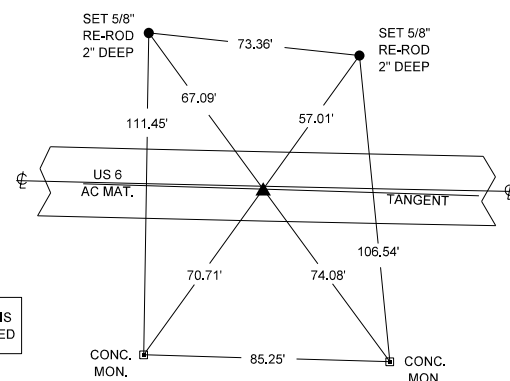
P.I. STA. 451+46.95  
= P.I. STA. 451+46.9 (1952 PROJ. FN-799)  
NE COR. SEC. 17-80-15  
POINT NO. 10036 FOUND MAG NAIL  
N = 637,420.893 E = 1,883,232.565



CP 61.09' RT. OF STA. 456+66.73  
POINT NO. 106 SET 5/8" RE-ROD 4" DEEP  
N = 637,344.286 E = 1,883,750.371

CP 59.07' LT. OF STA. 457+39.23  
POINT NO. 107 SET 5/8" RE-ROD 4" DEEP  
N = 637,462.227 E = 1,883,826.438

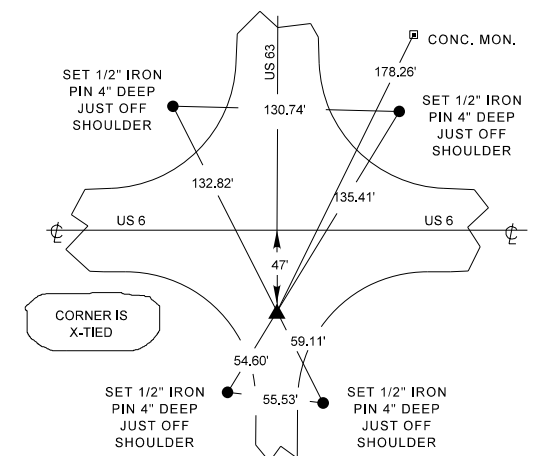
P.O.S.T. STA. 477+66.91  
= P.I. STA. 477+68.8 (1952 PROJ. FN-799)  
= P.O.S.T. STA. 477+68.8 (1955 PROJ. FN-799)  
N 1/4 COR. SEC. 16-80-15  
POINT NO. 10032 FOUND MAG NAIL  
N = 637,342.564 E = 1,885,851.445



P.I. STA. 481+32.62 (1955 PROJ. FN-799)  
POINT NO. 3504 SET HINGE NAIL  
N = 637,331.687 E = 1,886,215.102

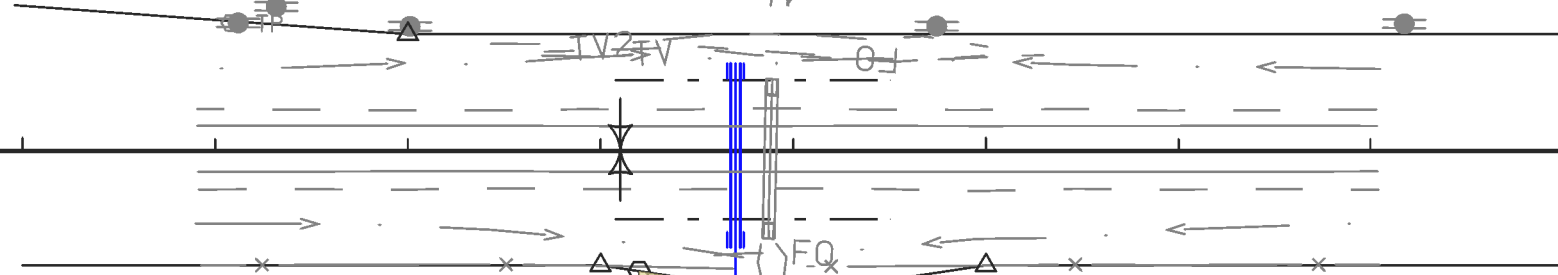
SET AND REFERENCE  
POINT 3504  
AFTER OVERLAY PROJECT

NE COR. SEC. 16-80-15  
POINT NO. 10024 FOUND MAG NAIL  
N = 637,306.055 E = 1,888,485.771



Malcom TWP.  
T-80N R-15W  
SEC. 7

360 365 370



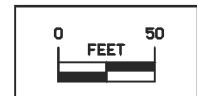
STA. 363+70  
Skew 0°  
Jack 54" x XX' RCP  
FL LT.= xxxxxx  
RT.= xxxxxx

Sta. 363+87.9  
Skew 1°30' Lt. Ahd.  
4' X 4' X 68.0' RCB  
D.A. = 124 Ac - R  
F.L. Left 967.11  
F.L. Right 964.16  
(PLUG & ABANDON)

363+20 364+20  
Ø130' Ø130'

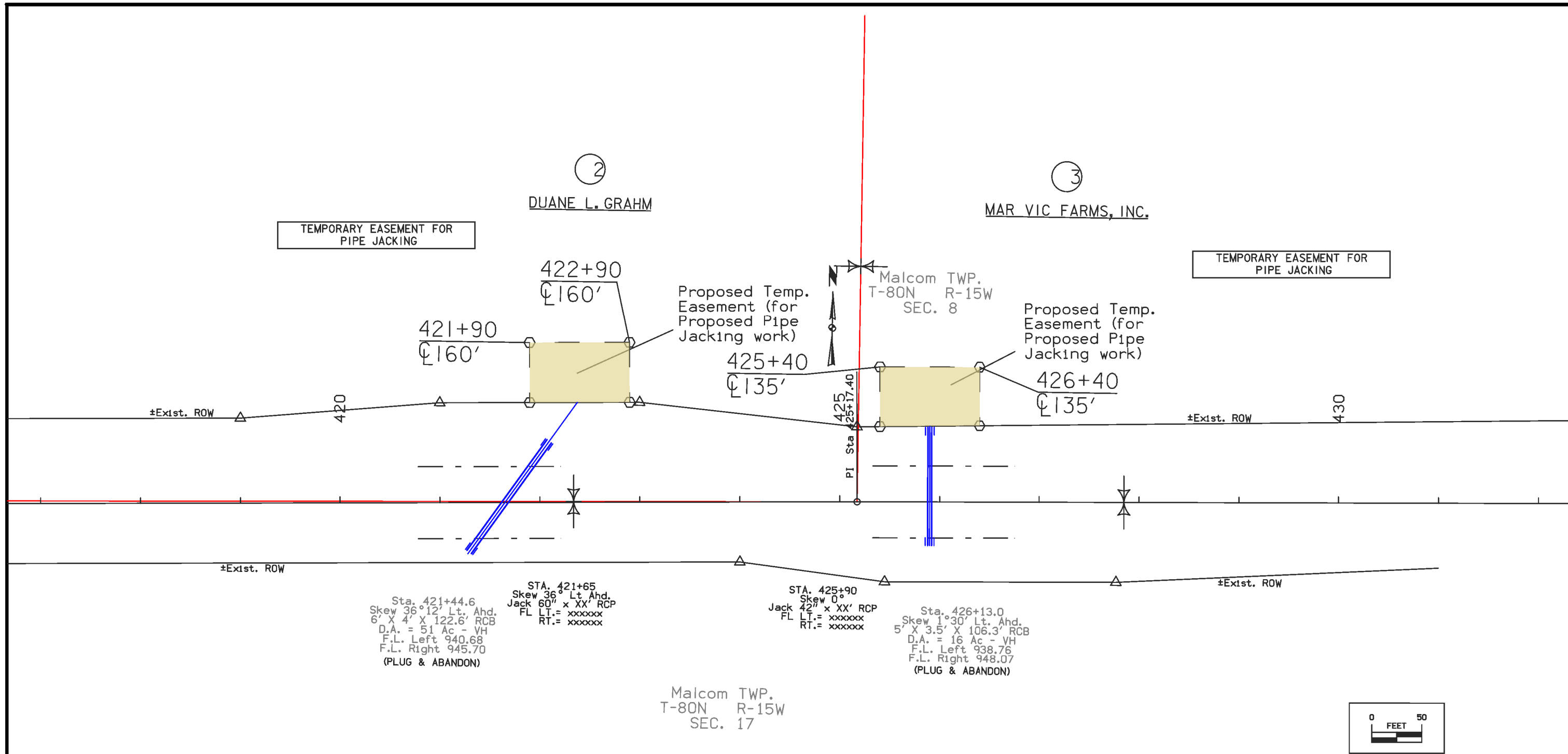
TEMPORARY EASEMENT FOR  
PIPE JACKING

Malcom TWP.  
T-80N R-15W  
SEC. 18



Ⓛ  
MARTHA J. VOGT ESTATE  
KATHERINE BROCK

<b>Right of Way Design Information</b>
<b>THIS SHEET INCLUDED FOR INFORMATION ONLY</b>
ROW Team: GETTINGS/CUVA/GROAT
ROW #: STPN-006-5(19)--2J-79
Plan Date: 10-01-14
Color Legend:
Property Lines
Temporary Easement
Permanent Acquisition



<b>Right of Way Design Information</b>	
<b>THIS SHEET INCLUDED FOR INFORMATION ONLY</b>	
ROW Team: GETTINGS/CUVA/GROAT	
ROW #: STPN-006-5(19)--2J-79	
Plan Date: 10-01-14	
Color Legend:	
	Property Lines
	Temporary Easement
	Permanent Acquisition

4

AUDREY M. OLTROGGE REVOCABLE TRUST

Curve Data  
Δ = 2° 28' 25.39" (RT)  
T = 296.91  
L = 593.74  
PI = 13,752.00  
E = 3.20



Malcom TWP.  
T-80N R-15W  
SEC. 9

TEMPORARY EASEMENT FOR  
PIPE JACKING

Proposed Temp.  
Easement (for  
Proposed Pipe  
Jacking work)

455+60  
±140'  
456+60  
±140'

450

PI Sta 451+46.95

±Exist. ROW

455

±Exist. ROW

460

TP

EQ

AV

LV2

FO

±Exist. ROW

PT Sta 454+43.78

±Exist. ROW

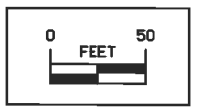
STA. 456+10  
Skew 0°  
Jack 60" x XX' RCP  
FL LT.= xxxxxx  
RT.= xxxxxx

Sta. 456+34.1  
Skew 3° Lt. Ahd.  
4' X 3' X 102.4' RCB  
D.A. = 128 Ac - R  
F.L. Left 937.80  
F.L. Right 946.80

???NEEDS REVIEW BY CULVERTS???  
POSSIBLE JACKED REPLACEMENT???

Concept said 60" RCP; F.Exam said review

Malcom TWP.  
T-80N R-15W  
SEC. 16



<b>Right of Way Design Information</b>	
<b>THIS SHEET INCLUDED FOR INFORMATION ONLY</b>	
ROW Team: GETTINGS/CUVA / GROAT	
ROW #: STPN-006-5(19)--2J-79	
Plan Date: 10-01-14	
Color Legend:	
	Property Lines
	Temporary Easement
	Permanent Acquisition

PARCEL CHECK LIST

Poweshiek ROW: STPN-006-5(19)--2J-79  
 Penrose St in Grinnell to US 63

PIN 13-79-006-010

PARCEL NO.	OWNER NAME	STATE		COUNTY		CITY		BORROW				OTHER HOUSE BUILDING(S)	A/C ONLY
		FEE	EASE	FEE	EASE	FEE	EASE	EXCESS	FEE	T.E.	MITIGATION		
1	Katherine Brock - Fee												
	Martha A. Vogt Life Estate - Fee												
2	Duane L. Grahm - Fee												
3	Mar Vic Farms, Inc. - Fee												
4	Audrey M. Oltrogge Revocable Trust - Fee												
4 Parcels	"TOTALS	0 AC	0 AC	0 AC	0 AC	0 AC	0 AC	0 AC	0 AC	0 AC	0 AC		
		0 SF	0 SF	0 SF	0 SF	0 SF	0 SF	0 SF	0 SF				