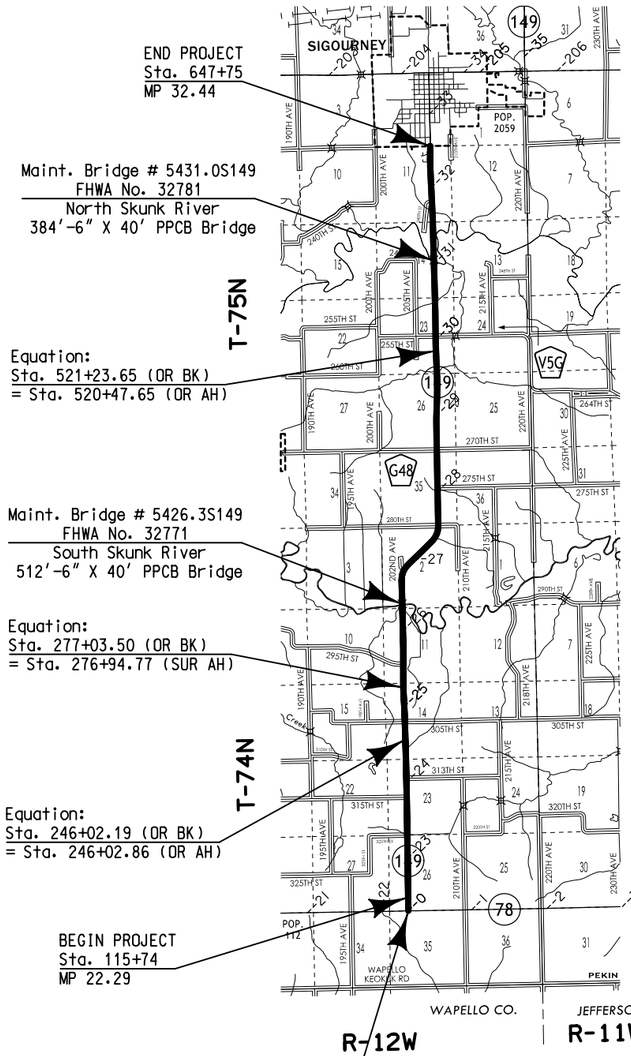
KEOKUK Co.

HMA RESURFACING WITH MILLING

STPN-149-1(79)--2J-54

LETTING DATE Dec. 19, 2017



IOWA DOT

Highway Division

PLANS OF PROPOSED IMPROVEMENT ON THE

PRIMARY ROAD SYSTEM

KEOKUK COUNTY

HMA RESURFACING WITH MILLING

IA 78 to 0.25 mi S of W Kelly St in Sigourney
(Various Locations)

SCALES: As Noted

Refer to the Proposal Form for list of applicable specifications.

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

IOWA ONE CALL
1-800-292-8989
www.iowaonecall.com
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REVISIONS

	TOTAL 14
PROJECT IDENTIFICATION NUMBER	
16-54-149-010	
PROJECT NUMBER	
STPN-149-1(79)--2J-54	
R.O.W. PROJECT NUMBER	

INDEX OF SHEETS

DESIGN DATA RURAL

2018 AADT	1,163	V.P.D.
2038 AADT	1,499	V.P.D.
20-- DHV	--	V.P.H.
TRUCKS	13	%
Total Design ESALs	--	

INDEX OF SEALS

SHEET NO.	NAME	TYPE
A.1	James R. Phillips	Primary Signature Block

LICENSED PROFESSIONAL ENGINEER
James R. Phillips
12177
IOWA

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 James R. Phillips Date

Printed or Typed Name

My license renewal date is December 31, 20 18

Pages or sheets covered by this seal: ALL SHEETS

FILE NO.	ENGLISH	DESIGN TEAM Van Dyke \ Phillips \ Fiedler	KEOKUK COUNTY	PROJECT NUMBER STPN-149-1(79)--2J-54	SHEET NUMBER A.1

10:01:21 AM 8/8/2017 rfiedle pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5414901016\DistrictDesign\STPN-149-1(79)--2J-54\54-1491-079_A01.dgn

2618
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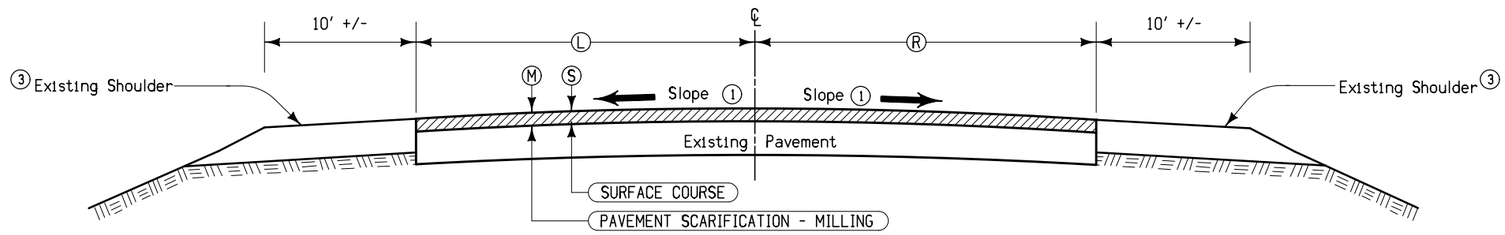

DESIGN RATES	
ITEM	RATE
Surface Course	147 lbs/cu ft
Asphalt Binder	6% Content
Scarification	135 lbs/cu ft
Tack Coat *	0.05 gal/sq yd

* Not a bid item

Notes:

Section shown in the direction of travel

(1) Match finished slope to 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.

Refer to tabulation listing of superelevated curves and Standard Road Plans for additional requirements through superelevated curves.

(2) Quantity estimated for 1 course.

(3) See Detail 7135 Modified, Typical Section, Type B Granular Shoulder for addtional information and quantities. Nominal Shoulder width of 10' varies.

(4) See Tab 102-16 for Runouts.

TABLE OF DESIGN QUANTITIES

LOCATION			(L)	(R)	(S)	(M)	TACK COAT	ASPHALT BINDER	HMA RESURFACING SURFACE	SCARIFICATION	REMARKS
ROAD IDENTIFICATION	STATION TO STATION (4)		Feet	Feet	Inches	Inches	Gallons (2)	Tons	Tons	Sq. Yds.	
IA 149	121+40.00	123+55.00		12.0	2.0	2.0	14.33	1.896	31.605	286.67	Northbound lane Only
IA 149	143+30.00	153+05.00	12.0	12.0	2.0	2.0	130.00	17.199	286.650	2600.00	Both lanes
IA 149	203+25.00	203+75.00	12.0	12.0	2.5	Var.	6.67	1.103	18.375	133.33	Both lanes, Culvert dip location field verify - Milling depth varies
IA 149	324+30.00	325+14.00	12.0	12.0	2.0	2.0	11.20	1.482	24.696	224.00	Both lanes, South Skunk River bridge approach (See note below)
IA 149	330+30.00	331+50.00	12.0	12.0	2.0	2.0	16.00	2.117	35.280	320.00	Both lanes, South Skunk River bridge approach (See note below)
IA 149	339+70.00	342+00.00	12.0	12.0	2.0	2.0	30.67	4.057	67.620	613.33	Both lanes
IA 149	398+30.00	401+75.00	12.0	12.0	2.0	2.0	46.00	6.086	101.430	920.00	Both lanes
IA 149	472+10.00	473+50.00	12.0	12.0	2.0	2.0	18.67	2.470	41.160	373.33	Both lanes
IA 149	498+65.00	499+15.00	12.0	12.0	2.5	Var.	6.67	1.103	18.375	133.33	Both lanes, Culvert dip location field verify - Milling depth varies
IA 149	545+45.00	545+95.00	12.0	12.0	2.5	Var.	6.67	1.103	18.375	133.33	Both lanes, Culvert dip location field verify - Milling depth varies
IA 149	553+45.00	553+95.00	12.0	12.0	2.5	Var.	6.67	1.103	18.375	133.33	Both lanes, Culvert dip location field verify - Milling depth varies
IA 149	587+50.00	594+20.00	12.0	12.0	2.0	2.0	89.33	11.819	196.980	1786.67	Both lanes
IA 149	646+20.00	647+35.00	12.0	12.0	2.0	2.0	15.33	2.029	33.810	306.67	Both lanes
IA 149	647+35.00	647+75.00	15.0	15.0	2.0	2.0	6.67	0.882	14.700	133.33	Both lanes, Quantities and width include 3 ft for paved shlds.
Totals							404.87	54.446	907.431	8097.33	*Field verify actual butt joint locations at South Skunk River approaches

TYPICAL CROSS SECTION HMA RESURFACING & PAVEMENT SCARIFICATION AT VARIOUS SPOT LOCATIONS

7135
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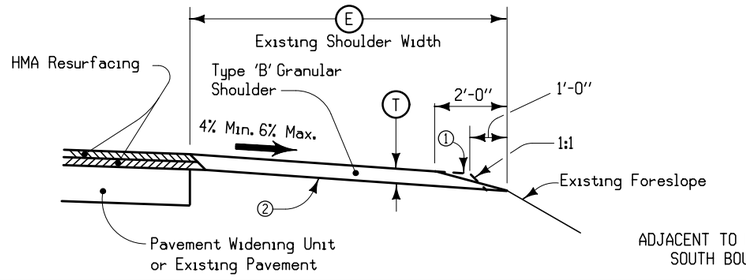

TYPICAL SECTION FOR TYPE 'B' GRANULAR SHOULDER

(1) Place and compact material to the dashed lines; then blade and shape to foreslope that portion above the solid line in the outer 2' and roll with loaded truck tire.

(2) Existing shoulder surface to be shaped to a uniform cross slope prior to placing granular shoulder material. Shape to ensure the thickness of the granular shoulder material is not less than the thickness of the HMA Overlay.

Existing cross-slope varies from 5% to 8%. Approx. average thickness of 2" used for calculations.

ADJACENT TO HMA OVERLAY
SOUTH BOUND LANE

LOCATION				LENGTH	(T)	(E)	TONS/ SIDE/ STA.	TONS
ROAD IDENTIFICATION	STATION TO STATION		SIDE	Feet	Inches	Feet		
IA 149 SB	143+30.00	153+05.00	LT	975.00	2.0	10.0	11.667	113.750
IA 149 SB	203+25.00	203+75.00	LT	50.00	2.0	10.0	11.667	5.833
IA 149 SB	324+30.00	325+14.00	LT	84.00	2.0	10.0	11.667	9.800
IA 149 SB	330+30.00	331+50.00	LT	120.00	2.0	10.0	11.667	14.000
IA 149 SB	339+70.00	342+00.00	LT	230.00	2.0	10.0	11.667	26.833
IA 149 SB	398+30.00	401+75.00	LT	345.00	2.0	10.0	11.667	40.250
IA 149 SB	472+10.00	473+50.00	LT	140.00	2.0	10.0	11.667	16.333
IA 149 SB	498+65.00	499+15.00	LT	50.00	2.0	10.0	11.667	5.833
IA 149 SB	545+45.00	545+95.00	LT	50.00	2.0	10.0	11.667	5.833
IA 149 SB	553+45.00	553+95.00	LT	50.00	2.0	10.0	11.667	5.833
IA 149 SB	587+50.00	594+20.00	LT	670.00	2.0	10.0	11.667	78.167
IA 149 SB	646+20.00	647+35.00	LT	115.00	2.0	10.0	11.667	13.417
IA 149 SB	647+35.00	647+75.00	LT	40.00	2.0	7.0	8.167	3.267
Totals				2879.00				335.883

DESIGN RATE	
ITEM	RATE
Granular Shoulder	140 lbs/cu ft

TOTAL QUANTITY	
ITEM	TONS
Granular Shoulder	730.9

ADJACENT TO HMA OVERLAY
NORTH BOUND LANE

LOCATION				LENGTH	(T)	(E)	TONS/ SIDE/ STA.	TONS
ROAD IDENTIFICATION	STATION TO STATION		SIDE	Feet	Inches	Feet		
IA 149 NB	121+40.00	123+55.00	RT	215.00	2.0	10.0	11.667	25.083
IA 149 NB	143+30.00	153+05.00	RT	975.00	2.0	10.0	11.667	113.750
IA 149 NB	203+25.00	203+75.00	RT	50.00	2.0	10.0	11.667	5.833
IA 149 NB	324+30.00	325+14.00	RT	84.00	2.0	10.0	11.667	9.800
IA 149 NB	330+30.00	331+50.00	RT	120.00	2.0	10.0	11.667	14.000
IA 149 NB	339+70.00	342+00.00	RT	230.00	2.0	10.0	11.667	26.833
IA 149 NB	398+30.00	401+75.00	RT	345.00	2.0	10.0	11.667	40.250
IA 149 NB	472+10.00	473+50.00	RT	140.00	2.0	10.0	11.667	16.333
IA 149 NB	498+65.00	499+15.00	RT	50.00	2.0	10.0	11.667	5.833
IA 149 NB	545+45.00	545+95.00	RT	50.00	2.0	10.0	11.667	5.833
IA 149 NB	553+45.00	553+95.00	RT	50.00	2.0	10.0	11.667	5.833
IA 149 NB	587+50.00	594+20.00	RT	670.00	2.0	10.0	11.667	78.167
IA 149 NB	646+20.00	647+35.00	RT	115.00	2.0	10.0	11.667	13.417
IA 149 NB	647+35.00	647+75.00	RT	40.00	2.0	7.0	8.167	3.267
Totals				3134.00				364.233

2308M
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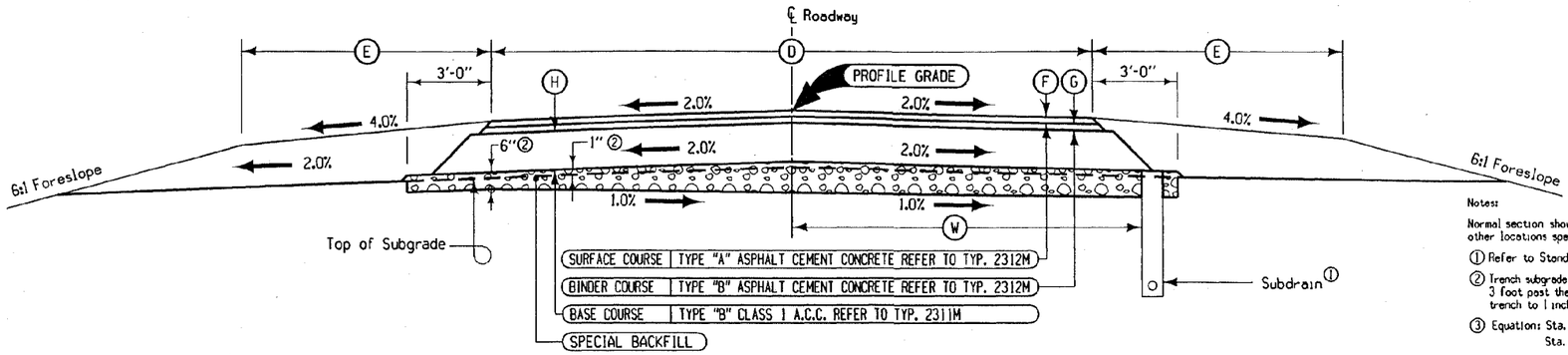

Notes:

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

① Refer to Standard Road Plan RF-19C and Tab. 104-9.

② Trench subgrade 5 inches deep at left edge of pavement and slope 1% right and 2% left to 3 foot past the outside edge of pavement (left and right). Place Special Backfill into trench to 1 inches above the top of existing subgrade.

③ Equation: Sta. 277+03.50 (OR BCK.) = Sta. 276+94.77 (OR AHD.)
Sta. 521+23.65 (OR BCK.) = Sta. 520+47.65 (OR AHD.)

DESIGN RATES	
ITEM	RATE
Surface Course	145 lbs./cu.ft
Binder Course	145 lbs./cu.ft
Tack Coat	0.05 gal./sq.yd.
Base (Class 1)	145 lbs./cu.ft
Special Backfill	140 lbs./cu.ft

TABLE OF DESIGN QUANTITIES (Per Station)

LOCATION			F	G	H	D	E	W	TACK COAT	ASPHALT CEMENT	ASPHALT CEMENT CONCRETE Tons			SPECIAL BACKFILL	CLASS 10 EXCAVATION
ROAD IDENTIFICATION	STATION TO STATION		Inches	Inches	Inches	Feet	Feet	Feet	Gallons ③	Tons	SURFACE	BINDER	BASE	Tons	Cu. Yds.
IA. 149	153+00.00 (OR)	220+00.00 (OR)	1.5"	1.5"	8"	24'	8'	12.87'	55.37	9.95	21.86	22.09	122.85	150.05	70.13
IA. 149	③ 246+02.86 (OR)	324+00.00 (OR)	1.5"	1.5"	8"	24'	8'	12.87'	55.37	9.95	21.86	22.09	122.85	150.05	70.13
IA. 149	③ 331+50.00 (OR)	570+02.25 (OR)	1.5"	1.5"	8"	24'	8'	12.87'	55.37	9.95	21.86	22.09	122.85	150.05	70.13
CO. RD. G48	1118+50.00	1125+23.85	1.5"	1.5"	8"	24'	6'	12.87'	55.37	9.95	21.86	22.09	122.85	150.05	70.13
CO. RD. V5G	1522+51.14	1526+50.00	1.5"	1.5"	8"	24'	6'	12.87'	55.37	9.95	21.86	22.09	122.85	150.05	70.13

TYPICAL CROSS SECTION 2-LANE ACC PAVING

2602M-1
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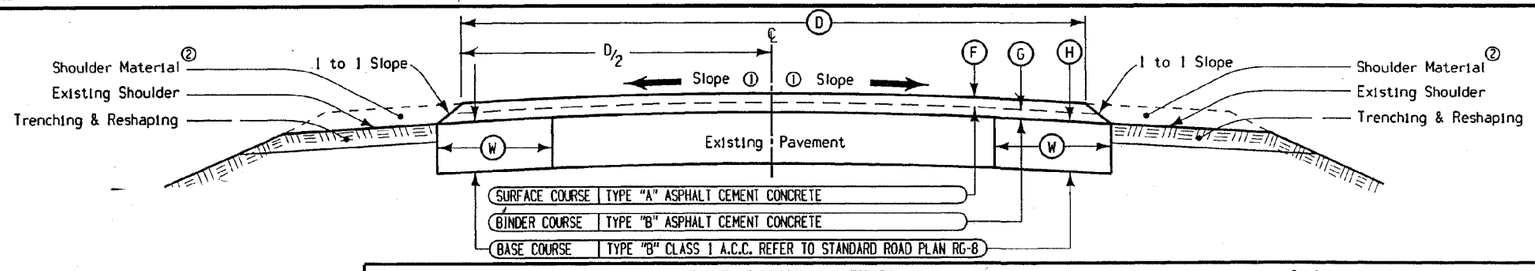

Notes:

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.

Refer to tabulation listing of superelevated curves and Standard Road Plans for additional requirements through superelevated curves.

② Refer to typical 7136 for "Type 'A' Granular Surfaced Shoulders".

③ Quantity includes 7.22 gals. for placement of both widening units. Quantity is estmated for 2 applications for widening units and 2 applications for surface/binder courses.

④ Quantity is for placement of both widening units.

⑤ Refer to typical 2210M-2 on sheet B.02 for station 602+40 (OR) to station 604+10 (OR) and station 638+00 (OR) to station 642+00 (Surv).

⑥ Taper from 24' to 31' B-B from station 647+22.5 (Surv) to station 647+75 (Surv).

DESIGN RATES	
ITEM	RATE
Surface Course	145 lbs./cu.ft
Binder Course	145 lbs./cu.ft
Tack Coat	0.05 gal./sq.yd.
Base (Class 1)	145 lbs./cu.ft

Note: See appropriate details and tabulations for additional information.

TABLE OF DESIGN QUANTITIES (Per Station)

LOCATION		DIMENSIONS					TRENCH EXCAVATION	TACK COAT	ASPHALT CEMENT	ASPHALT CEMENT CONCRETE Tons		
ROAD IDENTIFICATION	STATION TO STATION	F	G	D	H	W	Cu.Yds. ④	Gallons ③	Tons	SURFACE	BINDER	BASE
IA. 149	121+90.00 (Surv) to 153+00.00 (OR)	1.5"	1.5"	24'	8"	3.25'	16.05	34.44	4.47	21.86	22.09	31.43
IA. 149	220+00.00 (OR) to 246+02.19 (OR)	1.5"	1.5"	24'	8"	3.25'	16.05	34.44	4.47	21.86	22.09	31.43
IA. 149	587+50.00 (OR) to 602+40.00 (OR)	1.5"	1.5"	24'	8"	3.25'	16.05	34.44	4.47	21.86	22.09	31.43
⑤ IA. 149	604+10.00 (OR) to 638+00.00 (Surv)	1.5"	1.5"	24'	8"	3.25'	16.05	34.44	4.47	21.86	22.09	31.43
⑤⑥ IA. 149	642+00.00 (Surv) to 647+75.00 (S)	1.5"	1.5"	24'	8"	3.25'	16.05	34.44	4.47	21.86	22.09	31.43

TYPICAL CROSS SECTION ACC WIDENING AND RESURFACING

FOR INFORMATION ONLY
PROJECT # STP-149-1(50)--2C-54

2210M-1
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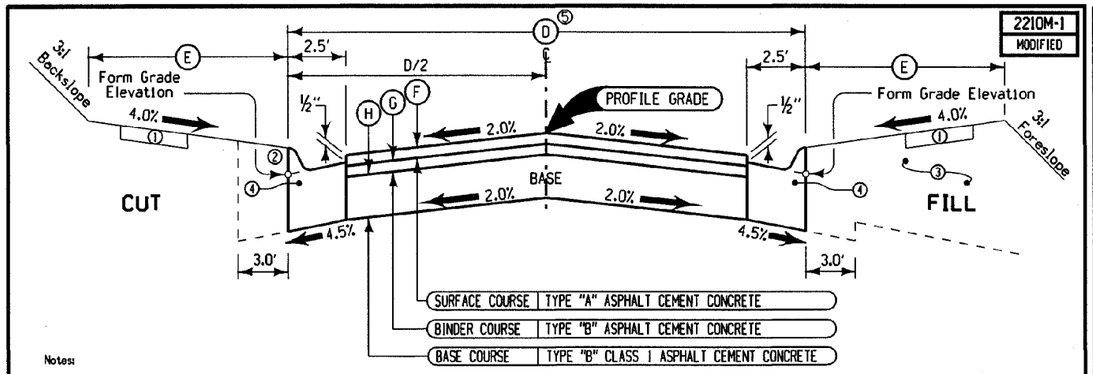

Notes:

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

① Refer to other drawings for details of shoulder and possible sidewalk construction
② Excavate and backfill 3.0'
③ Backfill
④ See Typical 6129M for curb and gutter details
⑤ Taper from 31' B-B to 25' B-B Sta. 654+35 to Sta. 654+80
⑥ Tack Coat is esimated for 2 applications for base and 2 applications for surface/binder courses.

TYPICAL CROSS SECTION
2 LANE ACC PAVEMENT
WITH 2.5' CURB AND GUTTER

DESIGN RATES	
ITEM	RATE
Surface Course	145 lbs./cu.ft
Binder Course	145 lbs./cu.ft
Tack Coat	0.05 gal./sq.yd.
Base (Class 1)	145 lbs./cu.ft

TABLE OF DESIGN QUANTITIES — Per Station

LOCATION			(F)	(G)	(H)	(D)	(E)	TACK COAT	ASPHALT CEMENT	ASPHALT CEMENT CONCRETE Tons		
ROAD IDENTIFICATION	STATION TO STATION		Inches	Inches	Inches	Feet	Feet	Gallons ⑥	Tons	SURFACE	BINDER	BASE
IA. 149	647+75.00 (Surv)	654+80.00 (Surv)	1.5"	1.5"	8"	31'	8'	57.78	10.31	23.57	23.57	125.67
Meadow Brook Lane	1649+68.85 (Surv)	1650+18.85 (Surv)	1.5"	1.5"	8"	25'	6'	44.44	7.93	18.13	18.13	96.67

2210M-2
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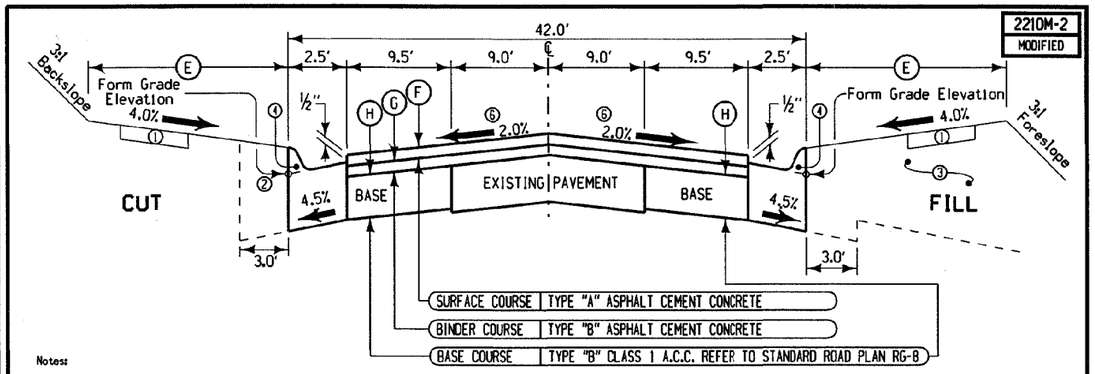

Notes:

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

① Refer to other drawings for details of shoulder and possible sidewalk construction
② Excavate and backfill 3.0'
③ Backfill
④ See Typical 6129M for curb and gutter details
⑤ Tack Coat is esimated for 2 applications for base and 2 applications for surface/binder courses.
⑥ 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.

TYPICAL CROSS SECTION
2 LANE ACC WIDENING AND RESURFACING
WITH PAVED SHOULDER
AND 2.5' CURB AND GUTTER

DESIGN RATES	
ITEM	RATE
Surface Course	145 lbs./cu.ft
Binder Course	145 lbs./cu.ft
Tack Coat	0.05 gal./sq.yd.
Base (Class 1)	145 lbs./cu.ft

TABLE OF DESIGN QUANTITIES — Per Station

LOCATION			SIDE	(F)	(G)	(H)	(E)	TACK COAT	ASPHALT CEMENT	ASPHALT CEMENT CONCRETE Tons		
ROAD IDENTIFICATION	STATION TO STATION			Inches	Inches	Inches	Feet	Gallons ⑤	Tons	SURFACE	BINDER	BASE
IA. 149	602+40.00 (OR)	604+10.00 (OR)	Lt.	1.5"	1.5"	8"	8'	51.67	6.70	33.55	33.55	45.92
IA. 149	638+00.00 (Surv)	642+00.00 (Surv)	Both	1.5"	1.5"	8"	8'	62.23	9.46	33.55	33.55	91.84

FOR INFORMATION ONLY
PROJECT # STP-149-1(50)--2C-54

2602M-2
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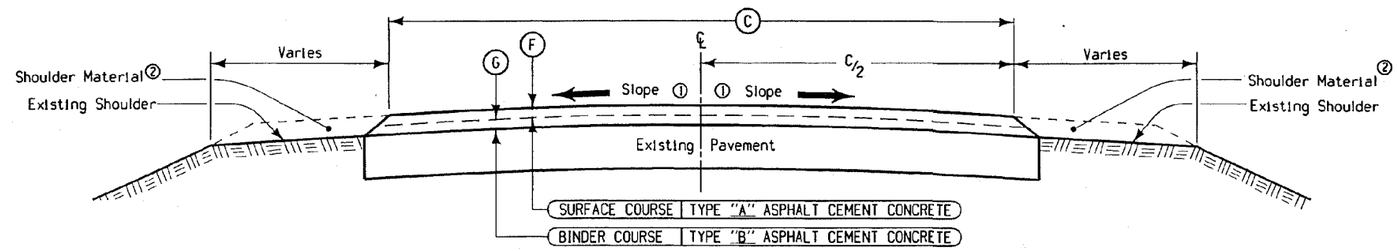

Notes:

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.

Refer to tabulation listing of superelevated curves and Standard Road Plans for additional requirements through superelevated curves.

② Refer to typical 7136 for "Type 'A' Granular Surfaced Shoulders".

③ Tack Coat estimated for 2 applications.

④ Includes runout (see typical 7308 for details).

DESIGN RATES	
ITEM	RATE
Surface Course	145 lbs./cu.ft
Binder Course	145 lbs./cu.ft
Tack Coat	0.05 gal./sq.yd.

TABLE OF DESIGN QUANTITIES Per Station

LOCATION			(F)	(G)	(C)	TACK COAT	ASPHALT CEMENT	ASPHALT CEMENT CONCRETE Tons	
ROAD IDENTIFICATION	STATION TO STATION		Inches	Inches	Feet	Gallons ③	Tons	SURFACE	BINDER
IA. 149	114+47.90 (Surv)	121+90.00 (Surv)	1.5"	1.5"	24'	27.22	2.58	21.86	22.09
④ IA. 149	580+75.00 (OR)	587+50.00 (OR)	1.5"	1.5"	24'	27.22	2.58	21.86	22.09

TYPICAL CROSS SECTION ACC RESURFACING

7111M
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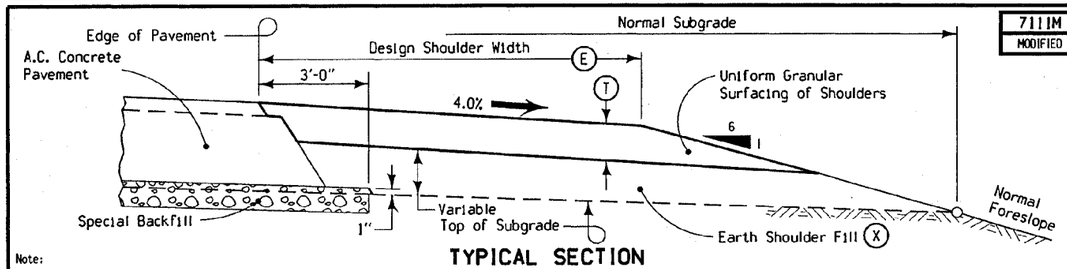


TYPICAL SECTION TYPE 'A' GRANULAR SHOULDER Adjacent to ACC Pavement

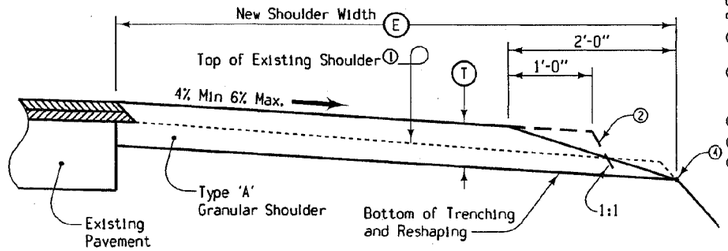
Note:
Earth Shoulder fill requires approximately (X) cubic yards of excavation, including 60% for shrinkage, per station.
* One shoulder per station.

See Standard Road Plan RJ-260 for construction requirements.

① Equations: Sta. 277+03.50 (OR BCK.) = Sta. 276+94.77 (OR AHD.)
Sta. 521+23.65 (OR BCK.) = Sta. 520+47.65 (OR AHD.)

LOCATION			(E)	(T)	SIDE	*(X)
ROAD IDENTIFICATION	STATION TO STATION		Feet	Inches		Cu. Yds.
IA. 149	153+00.00 (OR)	220+00.00 (OR)	8	6	BOTH	25.82
IA. 149	① 246+02.86 (OR)	324+00.00 (SURV)	8	6	BOTH	25.82
IA. 149	① 331+50.00 (SURV)	570+02.25 (OR)	8	6	BOTH	25.82
G48	1118+50.00	1125+23.84 (OR)	6	6	BOTH	22.76
V56	1522+51.14	1526+50.00	6	6	BOTH	22.76

7136
10-28-97



Notes:
Quantities have been determined on the basis of a design density of 145 lbs. per cubic foot.

① Existing shoulder to be excavated away to the dimensions shown. Paid for as "Trenching and Reshaping".

② Place and compact material to the dashed lines; then blade and shape to foreslope that portion above the solid line in the outer 2 feet and roll with loaded truck tire.

③ Tons per side per station.

④ New shoulder-foreslope intersection point.

⑤ Paved shoulders with curb will be constructed at the following stations: 602+40 to 604+10 left and 638+00 to 642+00 left and right. "Trenching and Reshaping" is not bid in these areas bid but is included in Class 10 Excavation. See typical 2210M-2 for additional information. Taper from 24' to 31' B-B from sta. 647+22.5 to sta. 647+75.

LOCATION				TONS	(T)	(E)
ROAD IDENTIFICATION	STATION TO STATION		SIDE	③	Inches	Feet
IA 149	114+47.90 (SURV)	153+00.00 (OR)	BOTH	31.8	6	10
IA 149	220+00.00 (OR)	246+02.19 (OR)	BOTH	31.8	6	10
⑤ IA 149	580+75.00 (OR)	647+75.00 (SURV)	BOTH	31.8	6	10

TYPICAL SECTION FOR TYPE 'A' GRANULAR SHOULDER

ADJACENT TO ASPHALT CEMENT CONCRETE RESURFACING

FOR INFORMATION ONLY
PROJECT # STP-149-1(50)--2C-54

100-1A
07-15-97

ESTIMATED PROJECT QUANTITIES
(1 DIVISION PROJECT)

Item No.	Item Code	Item	Unit	Total	As Built Qty.
1	2101-0850001	CLEARING AND GRUBBING	ACRE	10.9	
2	2101-0850002	CLEARING AND GRUBBING	UNIT	115	
3	2121-7425020	GRANULAR SHOULDERS, TYPE B	TON	840.1	
4	2212-0475095	CLEANING AND PREPARATION OF BASE	MILE	0.6	
5	2212-5070310	PATCHES, FULL-DEPTH REPAIR	SY	78.3	
6	2212-5070330	PATCHES BY COUNT (REPAIR)	EACH	3	
7	2214-5145150	PAVEMENT SCARIFICATION	SY	8,630.9	
8	2303-1033504	HOT MIX ASPHALT STANDARD TRAFFIC, SURFACE COURSE, 1/2 IN. MIX,	TON	952.80	
		FRICTION L-4			
9	2303-1258283	ASPHALT BINDER, PG 58-28S, STANDARD TRAFFIC	TON	57.17	
10	2303-6911000	HOT MIX ASPHALT PAVEMENT SAMPLES	LS	1.00	
11	2319-3000101	STRIP SLURRY TREATMENT COARSE AGGREGATE	TON	1,314.0	
12	2319-3000200	SURFACE PREPARATION FOR STRIP SLURRY TREATMENT	MILE	18.7	
13	2319-4000000	ASPHALT EMULSION FOR SLURRY LEVELING, SLURRY WEDGE, AND SLURRY	GAL	43,284.0	
		TREATMENT			
14	2402-2720100	EXCAVATION, CLASS 20, FOR ROADWAY PIPE CULVERT	CY	5.0	
15	2416-0101036	REMOVE AND REINSTALL CONCRETE PIPE APRONS LESS THAN OR EQUAL TO 36	EACH	1	
		IN.			
16	2416-1541036	REMOVE AND REINSTALL RIGID PIPE CULVERT LESS THAN OR EQUAL TO 36 IN.	LF	12	
17	2507-3250005	ENGINEERING FABRIC	SY	11.7	
18	2507-8029000	EROSION STONE	TON	5.7	
19	2526-8285000	CONSTRUCTION SURVEY	LS	1.00	
20	2527-9263109	PAINTED PAVEMENT MARKING, WATERBORNE OR SOLVENT-BASED	STA	1,355.18	
21	2528-8445110	TRAFFIC CONTROL	LS	1.00	
22	2528-8445113	FLAGGERS	EACH	See Proposal	
23	2528-8445115	PILOT CARS	EACH	See Proposal	
24	2529-2242320	CT JOINT	EACH	2	
25	2529-5070110	PATCHES, FULL-DEPTH FINISH, BY AREA	SY	172.5	
26	2529-5070120	PATCHES, FULL-DEPTH FINISH, BY COUNT	EACH	8	
27	2533-4980005	MOBILIZATION	LS	1.00	
28	2590-0000020	PROJECT MANAGEMENT	LS	1.00	
29	2602-0000020	SILT FENCE	LF	18.8	
30	2602-0000050	SILT BASINS	EACH	2	
31	2602-0000101	MAINTENANCE OF SILT FENCE OR SILT FENCE FOR DITCH CHECK	LF	1.9	
32	2602-0010010	MOBILIZATIONS, EROSION CONTROL	EACH	1	
33	2602-0010020	MOBILIZATIONS, EMERGENCY EROSION CONTROL	EACH	1	

100-26
10-15-13

INCIDENTAL ITEMS

Special or unique items where method of measurement / basis of payment is not indicated in the specifications or other contract documents.

No.	Incidental Item	Unit	Quantity	Incidental To		Remarks
				Item Code	Item	
1	Rural Seeding	Acre	0	2533-4980005	Mobilization	232-3A
2	Native Grass Seeding	Acre	0	2533-4980005	Mobilization	232-3C, 3R_Culv
3	Erosion Control, Stabilizing Seed	Acre	0	2533-4980005	Mobilization	232-11, 3R_Culv
4	Connected Pipe Joint	Each	3	2416-1541036	Remove and Reinstall Culv.	Tab 3R-Culv

100-1D
10-18-05

PROJECT DESCRIPTION

This project is for the HMA resurfacing with milling of IA 149 at various spot locations in Keokuk County from IA 78 to 0.25 miles South of W. Kelly St. in Sigourney. This project also includes strip slurry treatment of wheel tracks, clearing and grubbing and pavement markings.

105-4
10-18-11

STANDARD ROAD PLANS

The following Standard Road Plans apply to construction work on this project.

Number	Date	Title
TC-214	Modified	Lane Closure with Flaggers and Rumble Strips for use with Pilot Car
EC-201	10-18-16	Silt Fence
EC-301	10-18-16	Rock Erosion Control (REC)
EW-403	04-18-17	Temporary Erosion Control Measures
PM-110	04-16-13	Line Types
PM-420	04-19-11	Two-Lane Roadway with no Turn Lanes (One-Way Stop Condition)
PM-520	04-19-11	Two-Lane Roadway with no Turn Lanes (Two-Way Stop Condition)
PM-521	04-19-11	Two-Lane Roadway with Right Turn Lanes
PR-102	04-21-15	Full Depth PCC Patch without Dowels
PR-202	10-21-14	Notches for Resurfacing (with or without Runout)
PV-101	04-19-16	Joints
PV-202	04-16-13	Hot Mix Asphalt Resurfacing
SI-881	10-18-16	Special Signs for Workzones
TC-1	04-16-13	Work Not Affecting Traffic (Two-Lane or Multi-Lane)
TC-202	04-21-15	Work Within 15 ft of Traveled Way
TC-212	04-16-13	Spot Location Lane Closure with Flaggers
TC-213	04-17-12	Lane Closure with Flaggers
TC-233	04-18-17	Pavement Marking Operations Two-Lane
TC-234	04-18-17	Strip Sealing Operations
TC-282	04-19-11	Uneven Lanes
TC-283	10-18-11	Surveying Operations

ESTIMATE REFERENCE INFORMATION

Item No.	Item Code	Description
1	2101-0850001	**CLEARING AND GRUBBING**
2	2101-0850002	**CLEARING AND GRUBBING**
		See Tab 110-17, and note 232-10, for locations and information.
		The Restrictions on cut trees are:
		Provide clearing of trees, cut stumps only, but no grubbing of stumps as noted in Tab 110-17.
		All other locations on this project, the trees may be cleared and grubbed.
-	-	-
3	2121-7425020	**GRANULAR SHOULDERS, TYPE B**
		See Typical 7135, Sheet B.1 for locations and details.
		Quantity increased by 20% due to degradation of shoulder cross-slope.
-	-	-
4	2212-0475095	**CLEANING AND PREPARATION OF BASE**
		See Typical 2618 Sheet B.1 locations and details.
-	-	-
5	2212-5070310	**PATCHES, FULL-DEPTH REPAIR**
6	2212-5070330	**PATCHES BY COUNT (REPAIR)**
		See Repair Patch Tab 102-6C for locations and information.
		Quantities increased by 5% for irregularities.
-	-	-
7	2214-5145150	**PAVEMENT SCARIFICATION**
		See Typical 2618 sheet B.1 for locations and details.
		See Tab 102-16 for locations and additional information.
-	-	-
8	2303-1033504	**HOT MIX ASPHALT STANDARD TRAFFIC, SURFACE COURSE, 1/2 IN. MIX, FRICTION L-4**
9	2303-1258283	**ASPHALT BINDER, PG 58-28S, STANDARD TRAFFIC**
		See Typical 2618 sheet for locations and details.
		Quantities increased by 5% for irregularities.
-	-	-
10	2303-6911000	**HOT MIX ASPHALT PAVEMENT SAMPLES**
		As per current Standard Specifications and Road Standards.
-	-	-
11	2319-3000101	**STRIP SLURRY TREATMENT COARSE AGGREGATE**
12	2319-3000200	**SURFACE PREPARATION FOR STRIP SLURRY TREATMENT**
13	2319-4000000	**ASPHALT EMULSION FOR SLURRY LEVELING, SLURRY WEDGE, AND SLURRY TREATMENT**
		Items are for placement of a two course strip slurry within the
		inside and outside wheel tracks of both the eastbound and westbound
		lanes. Aggregate quantity for the first course within the wheel
		track is estimated at a rate of 20 lbs. per square yard and
		aggregate for the second course within the wheel track is also
		estimated at 20 lbs. per square yard. The first course shall cure
		under traffic for at least 24 hours before the second course is placed.
		Refer to Tab SST-1 for additional information and locations.
		Asphalt emulsion is estimated at a rate of 14% by weight of coarse
		aggregate, which includes the conversion factor of 8.5 lbs. of
		aggregate per gallon of emulsion.
-	-	-
14	2402-2720100	**EXCAVATION, CLASS 20, FOR ROADWAY PIPE CULVERT**
15	2416-0101036	**REMOVE AND REINSTALL CONCRETE PIPE APRONS LESS THAN OR EQUAL TO 36 IN.**
16	2416-1541036	**REMOVE AND REINSTALL RIGID PIPE CULVERT LESS THAN OR EQUAL TO 36 IN.**
		See Tab. 3R-CULV for locations and information.
		See Tab. 100-26 for incidental seeding.
-	-	-
17	2507-3250005	**ENGINEERING FABRIC**
18	2507-8029000	**EROSION STONE**
		See Tab 100-23 and Std. Rd. Plan EC-301 for locations and information.
		Includes 5% for irregularities.
-	-	-
19	2526-8285000	**CONSTRUCTION SURVEY**
		The preservation and referencing of existing Control Points, as indicated by
		article 2526.03, A, 10. HMA Overlays, will not be required by the Contractor.
		The resetting of Control Points after the work is complete, as part of this article,
		also will not be required by the Contractor.
		The District Land Surveyor will reset any land corner monuments or their associated
		permanent reference markers, as a result of their discovery during the progress of
		the project work.
		All other survey necessary for construction of the project, as provided by
		Section 2526 Construction Survey" will be required. The Contractor shall be responsible
		for maintaining the location of the roadway centerline.
-	-	-

100-4A
10-29-02

ESTIMATE REFERENCE INFORMATION

Item No.	Item Code	Description
20	2527-9263109	**PAINTED PAVEMENT MARKING, WATERBORNE OR SOLVENT-BASED**
		See Tab 108-22 for information and locations.
		Painted pavement markings shall be provided for 11 ft. lanes in mainline sections.
-	-	-
21	2528-8445110	**TRAFFIC CONTROL**
		As per current Standard Specifications and Road Plans.
		See Tab 108-23A, Sheet J.1 for additional information and staging notes.
-	-	-
22	2528-8445113	**FLAGGERS**
23	2528-8445115	**PILOT CARS**
		As per current Standard Specifications and Road Plans.
-	-	-
24	2529-2242320	**CT JOINT**
		See Repair Patch Tab 102-6C Repair and Finish Patch Tab 102-6C Finish
		for locations and information.
-	-	-
25	2529-5070110	**PATCHES, FULL-DEPTH FINISH, BY AREA**
26	2529-5070120	**PATCHES, FULL-DEPTH FINISH, BY COUNT**
		See Finish Patch Tab 102-6C for locations and information.
		Quantities increased by 5% for irregularities.
-	-	-
27	2533-4980005	**MOBILIZATION**
		Preparing the seedbed and furnishing and applying seed and mulch is incidental to mobilization and will not be
		paid for separately. See Standard Note 232-3A, 232-3C, 232-11 and Tab 100-26 for Incidental Items.
-	-	-
28	2590-0000020	**PROJECT MANAGEMENT**
		See Supplemental Specifications.
-	-	-
29	2602-0000020	**SILT FENCE**
		See Tab 100-17 for information and locations.
		The tabulation includes estimated locations for placement
		of silt fence to address erosion to be encountered
		during construction. Verify the specific locations
		with the Engineer prior to beginning placement.
		Bid item includes 25% additional quantity for field
		adjustments and replacements.
		Also see note 232-3A, 232-3C, 232-11 and Tab 100-26 for
		seeding of disturbed areas.
-	-	-
30	2602-0000050	**SILT BASINS**
		See Tab 100-14 for information and locations.
		The tabulation includes estimated locations for placement
		of silt basins to address erosion to be encountered
		during construction. Verify the specific locations
		with the Engineer prior to beginning placement.
		Bid item includes 100% additional quantity for field
		adjustments and maintenance.
-	-	-
31	2602-0000101	**MAINTENANCE OF SILT FENCE OR SILT FENCE FOR DITCH CHECK**
		This item is for the clean out and repair of silt fence.
		Estimated at 10% of silt fence quantity.
-	-	-
32	2602-0010010	**MOBILIZATIONS, EROSION CONTROL**
33	2602-0010020	**MOBILIZATIONS, EMERGENCY EROSION CONTROL**
		As per current Standard Specifications and Road Plans.
-	-	-

232-3A
10-20-15

EROSION CONTROL (RURAL SEEDING)

Following the completion of work in a disturbed area, place seed, fertilizer, and mulch on the disturbed area lying 8 feet adjacent to shoulder and median as follows:

Use seed mix and fertilizer meeting the requirements of Article 2601.03,C,3 and Section 4169 of the Standard Specifications.

Use mulch meeting the requirements of Articles 2601.03,E,2,a and 4169.07,A of the Standard Specifications.

Preparing the seedbed and furnishing and applying seed, fertilizer, and mulch is incidental to mobilization and will not be paid for separately.

232-10
04-18-17

EMERALD ASH BORER

Any living, dead, cut or fallen material of the ash (Fraxinus spp.) including trees, nursery stock, logs, firewood, stumps, roots, branches, and composted or uncomposted ash chips can be freely moved within the yellow areas of the most recent Federal EAB Quarantine & Authorized Transit.

https://www.aphis.usda.gov/plant_health/plant_pest_info/emerald_ash_b/downloads/eab_quarantine_map.pdf.

Obtain appropriate Compliance Agreements from USDA APHIS PPQ prior to moving any of the above listed ash articles to areas outside the yellow zone on the map.

For questions, concerns, and general assistance, contact:

USDA APHIS PPQ, Iowa office, 515-414-3295

Or

Iowa Department of Agriculture & Land Stewardship
515-725-1470
Entomology@IowaAgriculture.gov

232-3C
10-20-15

EROSION CONTROL (NATIVE GRASS SEEDING)

Following the completion of work in a disturbed area, place seed and mulch on the disturbed area lying 8 feet or more beyond the shoulder as follows:

SEED MIX:

Big bluestem (Andropogon geradii)	6 lbs. PLS/Acre (7.0 kg/ha)
Indiangrass (Sorghastrum nutans)	6 lbs. PLS/Acre (7.0 kg/ha)
Little bluestem (Schizachyrium scoparium)	6 lbs. PLS/Acre (7.0 kg/ha)
Partridge Pea (Chamaecrista fasciculata)	4 lbs. PLS/Acre (4.5 kg/ha)
Sideoats grama (Bouteloua curtipendula)	4 lbs. PLS/Acre (4.5 kg/ha)
Canada wildrye (Elymus canadensis)	2 lbs. PLS/Acre (2.2 kg/ha)
Switchgrass (Panicum virgatum)	1 lbs. PLS/Acre (1.1 kg/ha)
Oats (Avena sativa)	32 lbs./Acre (36.0 kg/ha)

Furnish Big bluestem, Indiangrass, Canada wildrye and Little bluestem that is debearded or equal to facilitate the application of seed.

Furnish seed certified as Source Identified Class (Yellow Tag) Source G0-Iowa. Oats are excluded from this requirement.

Use seed meeting requirements of Article 4169.02 of the Standard Specifications.

Use mulch meeting the requirements of Articles 2601.03,E,2,a and 4169.07,A of the Standard Specifications.

Preparing the seedbed and furnishing and applying seed and mulch is incidental to mobilization and will not be paid for separately.

232-11
10-20-15

EROSION CONTROL (STABILIZING CROP SEEDING)

Following the completion of work in a disturbed area, place stabilizing crop, fertilizer, and mulch on the disturbed area as follows:

Use seed mix and fertilizer meeting the requirements of Article 2601.03,C,1 and Section 4169 of the Standard Specifications.

Use mulch meeting the requirements of Articles 2601.03,E,2,a and 4169.07,A of the Standard Specifications.

Preparing the seedbed and furnishing and applying seed, fertilizer, and mulch is incidental to mobilization and will not be paid for separately.

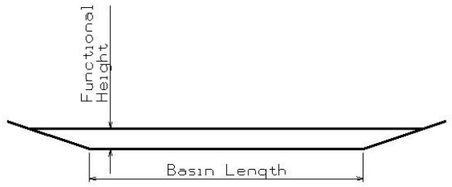
CLEARING AND GRUBBING

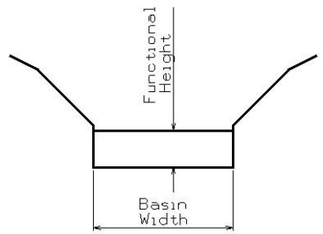
Location		Work and Material Type	Trees, Stumps, and Logs and Down Timber Material Diameters												All Other Materials		Estimated Quantities			Remarks
Station to Station or Ref. Loc. Sign to Ref. Loc. Sign or Description	Direction of Travel		3"-6"	>6"-9"	>9"-12"	>12"-15"	>15"-18"	>18"-24"	>24"-30"	>30"-36"	>36"-42"	>42"-48"	>48"-60"	>60"-72"	>72"	Length	Width	Units	Area	Herbicide Application	
																FT	FT	Units	Acres	Each	
271+50	NB	Trees - Clearing and Grubbing							1									29.0			
272+10	NB	Trees - Clearing and Grubbing		2			2	1										56.8			
281+60 to 289+54	NB	Trees - Clearing and Grubbing														794.0	50.0		0.9		
305+50 to 306+98	NB	Trees - Clearing														148.0	30.0		0.1		See Note 1
312+20 to 314+30	NB	Trees - Clearing														210.0	40.0		0.2		See Note 1
316+35 to 324+25	NB	Trees - Clearing														790.0	40.0		0.7		See Note 1
329+00 to 337+40	NB	Trees - Clearing														840.0	40.0		0.8		See Note 1
360+13 to 368+20	NB	Trees - Clearing and Grubbing														807.0	30.0		0.6		
419+10 to 420+75	NB	Trees - Clearing and Grubbing														165.0	20.0		0.1		
424+00 to 440+80	NB	Trees - Clearing and Grubbing														1680.0	20.0		0.8		
470+00 to 473+40	NB	Trees - Clearing and Grubbing														340.0	50.0		0.4		
564+50 to 567+30	NB	Trees - Clearing and Grubbing														280.0	20.0		0.1		
567+30 to 570+10	NB	Trees - Clearing														280.0	20.0		0.1		See Note 1
570+10 to 573+25	NB	Trees - Clearing														315.0	30.0		0.2		See Note 1
544+80	NB	Trees - Clearing and Grubbing							1									29.0			
268+25 to 271+50	SB	Trees - Clearing and Grubbing														325.0	20.0		0.1		
274+80 to 279+55	SB	Trees - Clearing and Grubbing														475.0	30.0		0.3		
279+55 to 281+50	SB	Trees - Clearing														195.0	30.0		0.1		See Note 1
281+50 to 283+40	SB	Trees - Clearing and Grubbing														190.0	30.0		0.1		
288+30 to 291+25	SB	Trees - Clearing and Grubbing														295.0	50.0		0.3		
473+85 to 482+20	SB	Trees - Clearing and Grubbing														835.0	40.0		0.8		
489+75 to 496+10	SB	Trees - Clearing and Grubbing														635.0	20.0		0.3		
496+80 to 497+80	SB	Trees - Clearing and Grubbing														100.0	60.0		0.1		
497+80 to 499+40	SB	Trees - Clearing														160.0	60.0		0.2		See Note 1
499+40 to 510+14	SB	Trees - Clearing and Grubbing														1074.0	60.0		1.5		
559+90 to 567+30	SB	Trees - Clearing and Grubbing														740.0	50.0		0.8		
567+30 to 573+50	SB	Trees - Clearing														620.0	50.0		0.7		See Note 1
590+00 to 596+10	SB	Trees - Clearing														610.0	40.0		0.6		See Note 1
Totals																		114.8	10.9		
		Note 1: Wetland tree clearing in woodlands only, 3.6 acres, is part of clearing and grubbing bid item. See Clearing and Grubbing Bid Item Reference Note.																			

100-14
10-18-16

SILT BASINS

Possible Standard: EW-403





* The functional height used in the volume equation is 95% of effective height. Effective height is 3 feet as shown in EW-403.
* Volume equation: (0.5*Length*(Width*Height+Width*(Height-Length*Avg%Slope))

Basin No.	Location		Bid Items		Stormwater Storage Volume Summary					Remarks
	Station	Side	Installation	Removal	Basin Width	Basin Length	Height	Avg. % Slope	Volume*	
			EACH	EACH	FT	FT	FT		CF	
1	527+00.00	RT	1		10.0	50.0	2.85		1425.0	See Tab 3R_CULV

100-17
04-20-10

TABULATION OF SILT FENCES

Refer to EC-201

Location			Length	Remarks
Begin Station	End Station	Side	LF	
527+00.00		RT	15.0	See Tab 3R_CULV

100-23
04-21-15

ROCK EROSION CONTROL

Refer to EC-301

Location				L	W	Rock Erosion Control (REC)					Material Bid Quantities			Remarks
Road Identification	Begin Station	End Station	Side			Type 1	Type 2	Type 3	Type 4	Type 5	Erosion Stone	Class E Revetment	Eng. Fabric	
			Lt./Rt.	FT	FT	Rock Ditch Check	Rock Ditch	Rock Flume	Rock Splash Basin	Rock Slope Protection	TON	TON	SY	
IA 149, two 6' extensions on right	527+00.00		Rt.	10	3		2				7.2		15.6	Quantities doubled for two sides of pipe See Tab 3R_CULV
Right Side, size outlet 5' wide by 10' l														
IA 92, MP 39.26, 24" Crossroad pipe Example from Previous project	245+95		Rt.	15	3		1				5.4		11.7	West direction

3R-CULV
Special

DRAINAGE STRUCTURE REPAIR WORK

* Not a bid item
(1) UNCL = Unclassified Pipe CMP = Corrugated Metal Pipe RCP = Reinforced Concrete Pipe LCP = Arch or Elliptical Low Clearance Pipe SARC = Steel Arch Pipe

No.	Location	Size	Kind Of Pipe (1)	Length New Const.		Connected Pipe Joint* (DR-121, DR-122)	New Apron		Flow Line Elevations		Remove and Reinstall Pipe Culvert (Linear Feet)				Remove and Reinstall Apron (Each)				Class 20 Excavation		6" Erosion Stone		Granular Backfill		Remarks
				Lin. Ft.			Each				Left Side		Right Side		Left Side		Right Side		CY		TON		TON		
		IN		Lt.	Rt.	Type	Lt.	Rt.	Lt.	Rt.	≤ 36"	>36"	≤ 36"	>36"	≤ 36"	>36"	≤ 36"	>36"	Lt.	Rt.	Lt.	Rt.	Lt.	Rt.	
1	527+00.0	36	RCP			3.0							12				1			5					Remove and reinstall one apron and two 6' extensions that have dropped on the right See Tab 100-23 for Erosion Stone

FILE NO.	ENGLISH	DESIGN TEAM Van Dyke\Phillips\Fiedler	KEOKUK COUNTY	PROJECT NUMBER STPN-149-1(79)--2J-54	SHEET NUMBER C.5

EXISTING PAVEMENT

No.	Location					Year	Type	Project Number	Surface		Base		Subbase		Removal		Coarse Aggregate			Reinforcement	Remarks
	County	Route	Dir. of Travel	Begin Ref. Loc. Sign	End Ref. Loc. Sign				Type	Depth IN	Type	Depth IN	Type	Depth IN	Type	Depth IN	Source	Type	Durability Class	Type	
	54	149	1	22.26	22.99	1999		STP-149-1(50)--2C-54	AAC	1.5	BAC	1.5					DOUDS MINE	C.LST.			
						1964	V	FN-331*<1>	AAC	2							OLLIE	C.LST.			
						1933		FA-331	PC7	7							LINWOOD	C.LST.	I		ED'VLE GR.
	54	149	1	22.99	24.26	1999		STP-149-1(50)--2C-54	AAC	1.5	BAC	1.5	BAC	8			DOUDS MINE	C.LST.			
	54	149	1	24.26	24.75	1999		STP-149-1(50)--2C-54	AAC	1.5	BAC	1.5					DOUDS MINE	C.LST.			
						1964	V	FN-331*<1>	AAC	2							OLLIE	C.LST.			
						1933		FA-331	PC7	7							LINWOOD	C.LST.	I		ED'VLE GR.
	54	149	1	24.75	31.00	1999		STP-149-1(50)--2C-54	AAC	1.5	BAC	1.5	BAC	8			DOUDS MINE	C.LST.			
	54	149	1	31.00	31.85	1999		STP-149-1(50)--2C-54	AAC	1.5	BAC	1.5					DOUDS MINE	C.LST.			
						1964	V	FN-331*<1>	AAC	2							OLLIE	C.LST.			
						1933		FA-331	PC7	7							LINWOOD	C.LST.	I		ED'VLE GR.=2
	54	149	1	31.85	32.52	1999		STP-149-1(50)--2C-54	AAC	1.5	BAC	1.5					DOUDS MINE	C.LST.			
						1964	V	FN-331*<1>	AAC	2							OLLIE	C.LST.			VAR. LOC.
						1933		FA-331	PC7	7							LINWOOD	C.LST.	I		ED'VLE GR.=2

FULL-DEPTH REPAIR PATCHES

Possible Standards: PR-101, PR-102, PR-103, PR-104, PR-105 and PR-140.

Count	Location: Station	Location: Reference Location Sign	Location: Lane	Dimension: Length	Dimension: Width	Dimension: Patch Thickness	PCC Patches: With Dowels PR-103	PCC Patches: Without Dowels PR-102	PCC Patches: C R C PR-104	PCC Patches: Ramp with Dowels PR-105	HMA Patches	Composite HMA	Subbase Patches PR-140	Subbase Patch w/ 'EF' Joint PR-101	Patch Subdrain PR-101 or PR-140	'CD' Joints	'CT' Joints	'EF' Joints PR-101	Anchor Lugs Removal	Remarks
			L, R, or B	FT	FT	IN	SY	SY	SY	SY	SY	TON	SY	SY	No.	No.	No.	No.	No.	
1	331+10.00		R	40.0	12.0	12.0		53.3									1			Field verify actual location at north side of South Skunk River bridge
2	589+74.00		B	8.0	12.0	12.0		21.3												Patch falls within HMA mill and fill location 587+50 to 594+20.
3	Totals - Repair Patches							74.6									1			

FULL-DEPTH FINISH PATCHES

Possible Standards: PR-101, PR-102, PR-103, PR-104, PR-105 and PR-140.

Count	Location: Station	Location: Reference Location Sign	Location: Lane	Dimension: Length	Dimension: Width	Dimension: Patch Thickness	PCC Patches: With Dowels PR-103	PCC Patches: Without Dowels PR-102	PCC Patches: C R C PR-104	PCC Patches: Ramp with Dowels PR-105	HMA Patches	Composite HMA	Subbase Patches PR-140	Subbase Patch w/ 'EF' Joint PR-101	Patch Subdrain PR-101 or PR-140	'CD' Joints	'CT' Joints	'EF' Joints PR-101	Anchor Lugs Removal	Remarks
			L, R, or B	FT	FT	IN	SY	SY	SY	SY	SY	TON	SY	SY	No.	No.	No.	No.	No.	
2	220+00.00		B	8.0	12.0	12.0		21.3												
2	246+00.00		B	8.0	12.0	11.0		21.3												
2	615+40.00		B	6.0	12.0	12.0		16.0												
1	616+20.00		L	8.0	12.0	12.0		10.7												
1	640+40.00		L	45.0	19.0	12.0		95.0									1			with curb
8	Totals - Finish Patches							164.3									1			

102-16
10-21-14

NOTCHES AND RUNOUTS FOR RESURFACING

Refer to PR-201 and PR-202.

(1) Bid item. Applies only to Types 'N1' and 'N3' on PR-202. Refer to 100-25 for remaining values.

Location Station	Type of Notch or Runout	(S) IN	(I) IN	(DI) IN	(L) FT	(M) IN	Pavement (1) Scarification SY	Remarks
121+40.00	Type 'N2'	2.0				2.0		Northbound lane only
123+55.00	Type 'N2'	2.0				2.0		Northbound lane only
143+30.00	Type 'N2'	2.0				2.0		Both lanes
153+05.00	Type 'N2'	2.0				2.0		Both lanes
203+25.00	Type 'N1'	2.5			25.0	1.5	66.7	Culvert dip location, Runout Ratio 10 ft/in
203+75.00	Type 'N1'	2.5			25.0	1.5	66.7	Culvert dip location, Runout Ratio 10 ft/in
324+30.00	Type 'N2'	2.0				2.0		South Skunk river bridge approach, verify butt joint
325+14.00	Type 'N2'	2.0				2.0		South Skunk river bridge approach
330+30.00	Type 'N2'	2.0				2.0		South Skunk river bridge approach
331+50.00	Type 'N2'	2.0				2.0		South Skunk river bridge approach, verify butt joint
339+70.00	Type 'N2'	2.0				2.0		
342+00.00	Type 'N2'	2.0				2.0		
398+30.00	Type 'N2'	2.0				2.0		
401+75.00	Type 'N2'	2.0				2.0		
472+10.00	Type 'N2'	2.0				2.0		
473+50.00	Type 'N2'	2.0				2.0		
498+65.00	Type 'N1'	2.5			25.0	1.5	66.7	Culvert dip location, Runout Ratio 10 ft/in
499+15.00	Type 'N1'	2.5			25.0	1.5	66.7	Culvert dip location, Runout Ratio 10 ft/in
545+45.00	Type 'N1'	2.5			25.0	1.5	66.7	Culvert dip location, Runout Ratio 10 ft/in
545+95.00	Type 'N1'	2.5			25.0	1.5	66.7	Culvert dip location, Runout Ratio 10 ft/in
553+45.00	Type 'N1'	2.5			25.0	1.5	66.7	Culvert dip location, Runout Ratio 10 ft/in
553+95.00	Type 'N1'	2.5			25.0	1.5	66.7	Culvert dip location, Runout Ratio 10 ft/in
587+50.00	Type 'N2'	2.0				2.0		
594+20.00	Type 'N2'	2.0				2.0		
646+20.00	Type 'N2'	2.0				2.0		
647+75.00	Type 'N2'	2.0				2.0		
Totals							533.6	

108-22
04-16-13

PAVEMENT MARKING LINE TYPES

See PM-110

*BCY4 - Place on the same side of the roadway to match existing markings near the project.

**NPY4 - For estimating purposes only. No Passing Zone Lines will be located in the field.

***MNY4 - Factor of 1.00 as value includes number of 4-inch passes to cover median nose area.

BCY4: Broken Centerline (Yellow) @ 0.25 DCY4: Double Centerline (Yellow) @ 2.00 NPY4: No Passing Zone Line (Yellow) @ 1.25 BLW4: Broken Lane Line (White) @ 0.25 ELW4: Edge Line Right (White) @ 1.00

ELY4: Edge Line Left (Yellow) @ 1.00 SLW4: Solid Lane Line (White) @ 1.00

Location								Length by Line Type (Unfactored)													Remarks
Road ID	Station to Station		Dir. of Travel	Marking Type	Side L	Side C	Side R	BCY4* STA	DCY4 STA	NPY4** STA	BLW4 STA	ELW4 STA	ELY4 STA	SLW4 STA	STA	STA	STA	STA	STA	STA	STA	
IA 149	115+74.00	647+75.00	BOTH	Waterborne/Solvent Paint	X	X	X	411.05	40.22	81.58		1065.70		4.30								
EQUATION:	246+02.19 BK	246+02.86 AH																				
EQUATION:	277+03.50 BK	276+94.77 AH																				
EQUATION:	521+23.65 BK	520+47.65 AH																				
				Factored Total: Waterborne/Solvent Paint				102.76	80.44	101.98	-	1065.70	-	4.30	-	-	-	-	-	-	-	-	
				Bid Quantity: Painted Pavement Markings, Waterborne or Solvent-Based							1355.18											

FILE NO.	ENGLISH	DESIGN TEAM Van Dyke\Phillips\Fiedler	KEOKUK COUNTY	PROJECT NUMBER STPN-149-1(79)--2J-54	SHEET NUMBER C.7

TABULATION OF STRIP SLURRY

Location					Dimensions				Estimated Quantities			
No of Courses	Station to Station		Lane	In Out	Length x Width (Feet)			Area (SY)	Lane Miles	Tons	Gallons	Remarks
North Bound Lanes												
2	115+74.00	121+40.00	NB	In	566.0	x	3.0	377.3	0.1	3.8	125.2	Area computes for 2 passes in wheel tracks
2	115+74.00	121+40.00	NB	Out	566.0	x	3.0	377.3		3.8	125.2	Area computes for 2 passes in wheel tracks
2	123+55.00	143+30.00	NB	In	1975.0	x	3.0	1316.7	0.4	13.2	434.8	Area computes for 2 passes in wheel tracks
2	123+55.00	143+30.00	NB	Out	1975.0	x	3.0	1316.7		13.2	434.8	Area computes for 2 passes in wheel tracks
2	153+05.00	203+25.00	NB	In	5020.0	x	3.0	3346.7	1.0	33.5	1103.5	Area computes for 2 passes in wheel tracks
2	153+05.00	203+25.00	NB	Out	5020.0	x	3.0	3346.7		33.5	1103.5	Area computes for 2 passes in wheel tracks
2	203+75.00	246+02.19	NB	In	4227.2	x	3.0	2818.1	0.8	28.2	928.9	Area computes for 2 passes in wheel tracks
2	203+75.00	246+02.19	NB	Out	4227.2	x	3.0	2818.1		28.2	928.9	Area computes for 2 passes in wheel tracks
2	246+02.86	277+03.50	NB	In	3100.6	x	3.0	2067.1	0.6	20.7	681.9	Area computes for 2 passes in wheel tracks
2	246+02.86	277+03.50	NB	Out	3100.6	x	3.0	2067.1		20.7	681.9	Area computes for 2 passes in wheel tracks
2	276+94.77	324+30.00	NB	In	4735.2	x	3.0	3156.8	0.9	31.6	1040.9	Area computes for 2 passes in wheel tracks
2	276+94.77	324+30.00	NB	Out	4735.2	x	3.0	3156.8		31.6	1040.9	Area computes for 2 passes in wheel tracks
2	331+50.00	339+70.00	NB	In	820.0	x	3.0	546.7	0.2	5.5	181.2	Area computes for 2 passes in wheel tracks
2	331+50.00	339+70.00	NB	Out	820.0	x	3.0	546.7		5.5	181.2	Area computes for 2 passes in wheel tracks
2	342+00.00	398+30.00	NB	In	5630.0	x	3.0	3753.3	1.1	37.5	1235.3	Area computes for 2 passes in wheel tracks
2	342+00.00	398+30.00	NB	Out	5630.0	x	3.0	3753.3		37.5	1235.3	Area computes for 2 passes in wheel tracks
2	401+75.00	472+10.00	NB	In	7035.0	x	3.0	4690.0	1.3	46.9	1544.9	Area computes for 2 passes in wheel tracks
2	401+75.00	472+10.00	NB	Out	7035.0	x	3.0	4690.0		46.9	1544.9	Area computes for 2 passes in wheel tracks
2	473+50.00	498+65.00	NB	In	2515.0	x	3.0	1676.7	0.5	16.8	553.4	Area computes for 2 passes in wheel tracks
2	473+50.00	498+65.00	NB	Out	2515.0	x	3.0	1676.7		16.8	553.4	Area computes for 2 passes in wheel tracks
2	499+15.00	521+23.65	NB	In	2208.7	x	3.0	1472.4	0.4	14.7	484.2	Area computes for 2 passes in wheel tracks
2	499+15.00	521+23.65	NB	Out	2208.7	x	3.0	1472.4		14.7	484.2	Area computes for 2 passes in wheel tracks
2	520+47.65	545+45.00	NB	In	2497.4	x	3.0	1664.9	0.5	16.6	546.8	Area computes for 2 passes in wheel tracks
2	520+47.65	545+45.00	NB	Out	2497.4	x	3.0	1664.9		16.6	546.8	Area computes for 2 passes in wheel tracks
2	545+95.00	553+45.00	NB	In	750.0	x	3.0	500.0	0.1	5.0	164.7	Area computes for 2 passes in wheel tracks
2	545+95.00	553+45.00	NB	Out	750.0	x	3.0	500.0		5.0	164.7	Area computes for 2 passes in wheel tracks
2	553+95.00	573+44.11	NB	In	1949.1	x	3.0	1299.4	0.4	13.0	428.2	Area computes for 2 passes in wheel tracks
2	553+95.00	573+44.11	NB	Out	1949.1	x	3.0	1299.4		13.0	428.2	Area computes for 2 passes in wheel tracks
2	577+34.39	587+50.00	NB	In	1015.6	x	3.0	677.1	0.2	6.8	224.0	Area computes for 2 passes in wheel tracks
2	577+34.39	587+50.00	NB	Out	1015.6	x	3.0	677.1		6.8	224.0	Area computes for 2 passes in wheel tracks
2	594+20.00	646+20.00	NB	In	5200.0	x	3.0	3466.7	1.0	34.7	1143.1	Area computes for 2 passes in wheel tracks
2	594+20.00	646+20.00	NB	Out	5200.0	x	3.0	3466.7		34.7	1143.1	Area computes for 2 passes in wheel tracks
South Bound Lanes												
2	115+74.00	121+40.00	SB	In	566.0	x	3.0	377.3	0.1	3.8	125.2	Area computes for 2 passes in wheel tracks
2	115+74.00	121+40.00	SB	Out	566.0	x	3.0	377.3		3.8	125.2	Area computes for 2 passes in wheel tracks
2	123+55.00	143+30.00	SB	In	1975.0	x	3.0	1316.7	0.4	13.2	434.8	Area computes for 2 passes in wheel tracks
2	123+55.00	143+30.00	SB	Out	1975.0	x	3.0	1316.7		13.2	434.8	Area computes for 2 passes in wheel tracks
2	153+05.00	203+25.00	SB	In	5020.0	x	3.0	3346.7	1.0	33.5	1103.5	Area computes for 2 passes in wheel tracks
2	153+05.00	203+25.00	SB	Out	5020.0	x	3.0	3346.7		33.5	1103.5	Area computes for 2 passes in wheel tracks
2	203+75.00	246+02.19	SB	In	4227.2	x	3.0	2818.1	0.8	28.2	928.9	Area computes for 2 passes in wheel tracks
2	203+75.00	246+02.19	SB	Out	4227.2	x	3.0	2818.1		28.2	928.9	Area computes for 2 passes in wheel tracks
2	246+02.86	277+03.50	SB	In	3100.6	x	3.0	2067.1	0.6	20.7	681.9	Area computes for 2 passes in wheel tracks
2	246+02.86	277+03.50	SB	Out	3100.6	x	3.0	2067.1		20.7	681.9	Area computes for 2 passes in wheel tracks
2	276+94.77	324+30.00	SB	In	4735.2	x	3.0	3156.8	0.9	31.6	1040.9	Area computes for 2 passes in wheel tracks
2	276+94.77	324+30.00	SB	Out	4735.2	x	3.0	3156.8		31.6	1040.9	Area computes for 2 passes in wheel tracks
2	331+50.00	339+70.00	SB	In	820.0	x	3.0	546.7	0.2	5.5	181.2	Area computes for 2 passes in wheel tracks
2	331+50.00	339+70.00	SB	Out	820.0	x	3.0	546.7		5.5	181.2	Area computes for 2 passes in wheel tracks
2	342+00.00	398+30.00	SB	In	5630.0	x	3.0	3753.3	1.1	37.5	1235.3	Area computes for 2 passes in wheel tracks
2	342+00.00	398+30.00	SB	Out	5630.0	x	3.0	3753.3		37.5	1235.3	Area computes for 2 passes in wheel tracks
2	401+75.00	472+10.00	SB	In	7035.0	x	3.0	4690.0	1.3	46.9	1544.9	Area computes for 2 passes in wheel tracks
2	401+75.00	472+10.00	SB	Out	7035.0	x	3.0	4690.0		46.9	1544.9	Area computes for 2 passes in wheel tracks
2	473+50.00	498+65.00	SB	In	2515.0	x	3.0	1676.7	0.5	16.8	553.4	Area computes for 2 passes in wheel tracks
2	473+50.00	498+65.00	SB	Out	2515.0	x	3.0	1676.7		16.8	553.4	Area computes for 2 passes in wheel tracks
2	499+15.00	521+23.65	SB	In	2208.7	x	3.0	1472.4	0.4	14.7	484.2	Area computes for 2 passes in wheel tracks
2	499+15.00	521+23.65	SB	Out	2208.7	x	3.0	1472.4		14.7	484.2	Area computes for 2 passes in wheel tracks
2	520+47.65	545+45.00	SB	In	2497.4	x	3.0	1664.9	0.5	16.6	546.8	Area computes for 2 passes in wheel tracks
2	520+47.65	545+45.00	SB	Out	2497.4	x	3.0	1664.9		16.6	546.8	Area computes for 2 passes in wheel tracks
2	545+95.00	553+45.00	SB	In	750.0	x	3.0	500.0	0.1	5.0	164.7	Area computes for 2 passes in wheel tracks
2	545+95.00	553+45.00	SB	Out	750.0	x	3.0	500.0		5.0	164.7	Area computes for 2 passes in wheel tracks
2	553+95.00	573+44.11	SB	In	1949.1	x	3.0	1299.4	0.4	13.0	428.2	Area computes for 2 passes in wheel tracks
2	553+95.00	573+44.11	SB	Out	1949.1	x	3.0	1299.4		13.0	428.2	Area computes for 2 passes in wheel tracks
2	577+34.39	587+50.00	SB	In	1015.6	x	3.0	677.1	0.2	6.8	224.0	Area computes for 2 passes in wheel tracks
2	577+34.39	587+50.00	SB	Out	1015.6	x	3.0	677.1		6.8	224.0	Area computes for 2 passes in wheel tracks
2	594+20.00	646+20.00	SB	In	5200.0	x	3.0	3466.7	1.0	34.7	1143.1	Area computes for 2 passes in wheel tracks
2	594+20.00	646+20.00	SB	Out	5200.0	x	3.0	3466.7		34.7	1143.1	Area computes for 2 passes in wheel tracks
	Totals								18.7	1314.0	43284.0	

108-23A
08-01-08

TRAFFIC CONTROL PLAN

Through traffic will be maintained at all times.

108-26A
08-01-08

STAGING NOTES

Suggested order of work performed:

1. Pipe repairs
2. Full depth patching
3. HMA spot milling and overlays
4. Strip seal operations

108-25
10-21-14

511 TRAVEL RESTRICTIONS

Route	Direction	County	Location Description	Feature Crossed	Object Type	Maint. Bridge No., Structure ID, or FHWA No.	Type of Restriction	Existing Measurement	Construction Measurement	Construction Measurement as Signed	Projected As Built Measurement	Remarks
IA 149	NB/SB	Keokuk	From IA 78 to 0.25 mi S of W Kelly St in Sigourney	No width restrictions expected.								
			(Various Locations)									
			Alternating lane closures within the project limits due to pavement patching, HMA overlay and strip slurry seal of the NB/SB wheel tracks.									

111-01
04-17-12

COORDINATED OPERATIONS

Other work in progress during the same period of time will include the construction of the projects listed. Coordinate operations with those of other contractors working within the same area.

Project	Type of Work
STPN-149-1(77)--2J-54	HMA Resurfacing with Milling
0.25 miles S. of W. Kelly St.	to West Jct. IA 92 in Sigourney