A d d e n d u m

Iowa Department of Transportation
Office of Contracts

Date of Letting: April 16, 2013
Date of Addendum: April 5, 2013

B.O.	Proposal ID	Proposal Work Type	County	Project Number	Addendum
109	78-0292-078	PCC PAVEMENT - GRADE & REPLACE	POTTAWATTAMIE	IMX-029-2(78)44--02-78	16APR109.A02

Notice: Only the bid proposal holders receive this addendum and responsibility for notifying any potential subcontractors or suppliers remains with the proposal holder.

Make the following changes to the plan:

Replace plan sheets B.4, C.1, C.2, C.3, C.4, C.5, C.7, C.8, C.11, C.19, V.1 and V.4 with attached plan sheets B.4, C.1, C.2, C.3, C.4, C.5, C.7, C.8, C.11, C.19, V.1 and V.4.

Make the following change to plan sheet C.3:

For Item Code 2105-8425005 TOPSOIL, FURNISH AND SPREAD add the following Estimate Reference Information:

Topsoil computed based on area disturbed from edge of paved outer shoulders to slope intercepts and from edge of paved median shoulder (SB) to edge of paved median shoulder (NB).

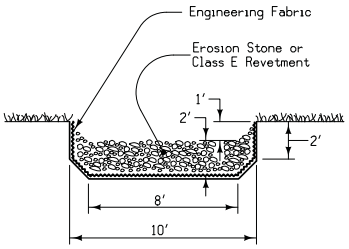
For Item Code 2123-7450000 SHOULDER CONSTRUCTION, EARTH add the following Estimate Reference Information:

The top 6” of Earth Shoulder Construction material is paid for as Topsoil, Furnish and Spread.

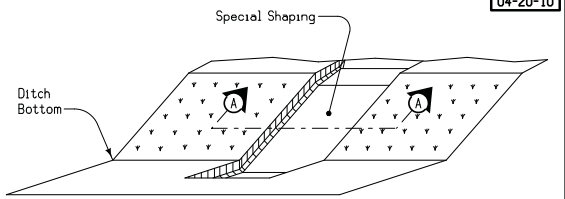
The following shall be included in the plan set:

Station 60+20 = M.P. 44.74 (+/-)
Station 176+65 = M.P. 46.95 (+/-)

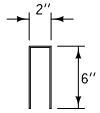
4403
04-20-10



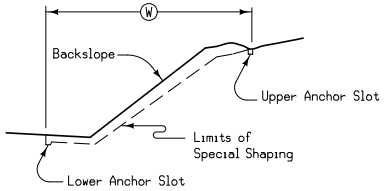
Section A-A



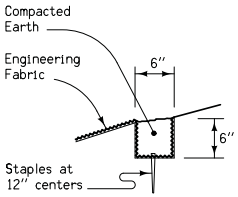
Isometric View



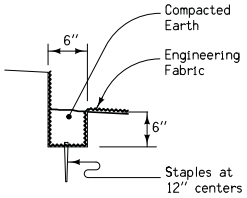
Staple
(No. 11 wire)



Typical Section



Upper Anchor Slot



Lower Anchor Slot

ROCK FLUME

Refer to Tabulation 100-23 for additional information.

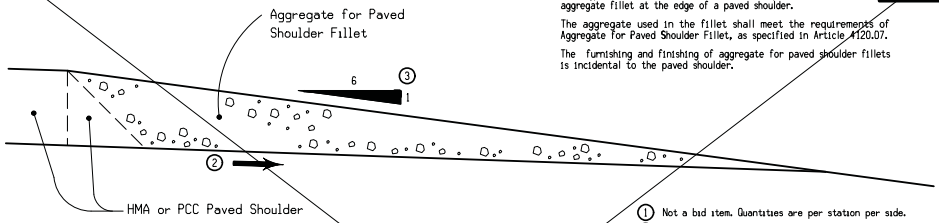
7145
04-15-03

Notes:

This typical illustrates the construction requirements for an aggregate fillet at the edge of a paved shoulder.

The aggregate used in the fillet shall meet the requirements of Aggregate for Paved Shoulder Fillet, as specified in Article 4120.07.

The furnishing and finishing of aggregate for paved shoulder fillets is incidental to the paved shoulder.

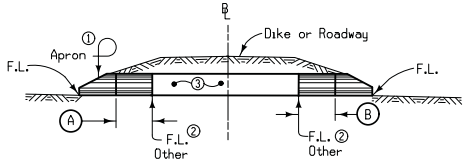


1. Not a bid item. Quantities are per station per side.
2. Match slope of under side of shoulder pavement.
3. 6:1 Slope minimum

LOCATION				QUANTITIES 1	
ROAD IDENTIFICATION	STATION TO STATION		SIDE	AGGREGATE FOR PAVED SHOULDER FILLET	
				PCC Tons	HMA Tons
I-29 SB	60+20	77+43.5	LT	13.37	---
I-29 SB	79+98.9	82+13.6	LT	15	15.68
I-29 SB	82+13.6	106+66.8	LT	13.37	---
I-29 SB	106+66.8	110+62.4	LT	15	15.68
I-29 SB	110+62.4	167+07.5	LT	13.37	---
I-29 SB	170+12.5	172+81.1	LT	15	15.68
I-29 SB	172+81.1	176+65	LT	13.37	---
I-29 SB	62+67.5	77+43.5	RT	15	15.68
I-29 SB	79+98.9	167+07.7	RT	15	15.68
I-29 SB	170+12.3	176+65.0	RT	15	15.68
I-29 NB	62+63.6	77+43.4	LT	15	15.68
I-29 NB	79+98.9	166+30.3	LT	15	15.68
I-29 NB	169+34.6	176+65.0	LT	15	15.68
I-29 NB	60+20	75+28.6	RT	13.37	---
I-29 NB	75+28.6	77+43.3	RT	15	15.68
I-29 NB	79+98.8	103+36.9	RT	13.37	---
I-29 NB	103+36.9	107+22.0	RT	15	15.68
I-29 NB	107+22.0	161+11.5	RT	13.37	---
I-29 NB	161+11.5	165+95.9	RT	15	15.68
I-29 NB	169+34.6	176+65.0	RT	13.37	---

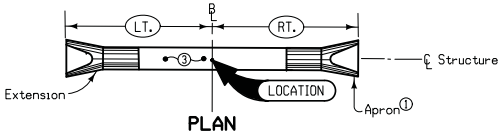
AGGREGATE
FOR PAVED
SHOULDER FILLET

1301
10-03-00



SECTION

A+B =Length



PLAN

Notes:

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

Extension shall be on line of existing structure to Lt., Rt. or both as specified. Adaptors may be required, see Standard Road Plan RF-2.

Refer to tabular listing and other plans for additional information.

1. See Standard Road Plan RF-3 for concrete, RF-5 for metal.
2. Optional type "D" section only when specified in tabulation.
3. Existing structure.

PIPE EXTENSION

Road Design Detail 7145 deleted from Final Plans.
Earth Fill to be used in lieu of Granular Shoulder Fillet.
Top 6' of Earth Shoulder Fill is Topsoil and included in Topsoil Quantities.

100-1D
10-18-05

PROJECT DESCRIPTION

This project includes the complete reconstruction of both NB and SB I-29 from Sta. 60+20 to Sta. 176+65. The existing roadway will be replaced with new PCC pavement. The outside shoulder will be constructed full depth and 12' wide, and paid for as concrete pavement. All shoulders and pavement north of the BNRR Bridge at Sta. 168+21 will be placed full depth to address staging on future projects. The full depth shoulders will be placed and paid for as PCC Pavement.
The inside shoulder at all other locations will be alternative pavement HMA or PCC. Median drains will be extended in the median to accommodate the new typical section.
The new roadway will be 2' wider than the existing typical section, and it will have flatter slopes. Guardrail will be updated throughout the project. High-Tension Cable Guardrail will be installed throughout the project in the median.

This project will be completed in two stages, SB lanes first and NB lanes second. Traffic will run in a two-lane, two-way operation in the lanes not being constructed. A new median crossover will be constructed at the north end of the project, an existing median crossover will be Used-As-Constructed at the south end of the project.

All median and side slopes will be stripped at the completion of the each stage and seeded with Stabilizing Seed Crop.

100-1C
04-17-12

ESTIMATED PROJECT QUANTITIES
(UP TO A 5 DIVISION PROJECT)

Division 1: Roadway Items
Division 2: Bridge Items (Refer to Sheets V.1 and V.4)
Division 3: Alternate AA Option 1
Division 4: Alternate AA Option 2
Division 5: Alternate BB Option 1

Item No.	Item Code	Item	Unit	Quantities										
				Estimated						As Built				
				Division 1	Division 2	Division 3	Division 4	Division 5	Total	Division 1	Division 2	Division 3	Division 4	Division 5
1	2102-0425071	SPECIAL BACKFILL	CY	35166										
2	2102-2710070	EXCAVATION, CLASS 10, ROADWAY AND BORROW	CY	86774										
3	2102-2713070	EXCAVATION, CLASS 13, ROADWAY AND BORROW	CY	685										
4	2105-8425005	TOPSOIL, FURNISH AND SPREAD	CY	18384										
5	2111-8174100	GRANULAR SUBBASE	SY	104450										
6	2121-7425020	GRANULAR SHOULDERS, TYPE B	TON	215										
7	2122-5190501	PAVED SHOULDER, PORTLAND CEMENT CONCRETE (PAVED SHOULDER PANEL FOR BRIDGE END DRAIN)	SY	251.5										
8	2123-7450000	SHOULDER CONSTRUCTION, EARTH	STA	443.75										
9	2301-0690200	BRIDGE APPROACH, RK-20	SY	1060.3										
10	2301-1004110	STANDARD OR SLIP-FORM PORTLAND CEMENT CONCRETE PAVEMENT, QM-C, CLASS 3I DURABILITY, 11 IN.	SY	89175.3										
11	2301-9090000	QUALITY MANAGEMENT - CONCRETE (QM-C)	CY	27678										
12	2304-0100000	DETOUR PAVEMENT	SY	2939										
13	2312-8260250	GRANULAR SURFACING ON ROAD, CRUSHED STONE	TON	25										
14	2412-0000100	LONGITUDINAL GROOVING IN CONCRETE	SY	1112.4										
15	2416-0100024	APRONS, CONCRETE, 24 IN. DIA.	EACH	5										
16	2416-0100048	APRONS, CONCRETE, 48 IN. DIA.	EACH	1										
17	2416-1180024	CULVERT, CONCRETE ROADWAY PIPE, 24 IN. DIA.	LF	20										
18	2416-1180048	CULVERT, CONCRETE ROADWAY PIPE, 48 IN. DIA.	LF	4										
19	2417-2307036	DRAIN, CORRUGATED METAL SLOTTED PIPE, 36 IN., W/6 IN. GRATE	LF	116										
20	2417-5895015	BEVELED PIPE AND GUARD, 15 INCH	EACH	2										
21	2422-1720000	UNCLASSIFIED PIPE CULVERT, ENTRANCE, 15 IN. DIA.	LF	268										
22	2502-6745952	REMOVAL OF SUBDRAIN	LF	1370										
23	2502-8212204	SUBDRAIN, PERFORATED PLASTIC PIPE, 4 IN. DIA.	LF	23639										
24	2502-8220196	SUBDRAIN OUTLET, RF-19E	EACH	102										
25	2503-0500400	BRIDGE END DRAIN, RF-40	EACH	10										
26	2505-4008120	REMOVAL OF STEEL BEAM GUARDRAIL	LF	3527										
27	2505-4008300	STEEL BEAM GUARDRAIL	LF	2181.3										
28	2505-4008400	STEEL BEAM GUARDRAIL BARRIER TRANSITION SECTION	EACH	6										
29	2505-4021010	STEEL BEAM GUARDRAIL END ANCHOR, BOLTED	EACH	8										
30	2505-4021020	STEEL BEAM GUARDRAIL END ANCHOR, W-BEAM	EACH	2										
31	2505-4021700	STEEL BEAM GUARDRAIL END TERMINAL	EACH	10										
32	2505-6000111	HIGH TENSION CABLE GUARDRAIL	LF	9838										
33	2505-6000121	HIGH TENSION CABLE GUARDRAIL, END ANCHOR	EACH	8										
34	2505-6000131	HIGH TENSION CABLE GUARDRAIL, SPARE PARTS KIT	EACH	8										
35	2510-6745850	REMOVAL OF PAVEMENT	SY	100917										
36	2518-0470005	CROSSOVER BARRICADE	EACH	1										
37	2518-6765001	REMOVE AND REINSTALL CROSSOVER BARRICADES	EACH	1										
38	2518-6910000	SAFETY CLOSURE	EACH	4										
39	2524-6765014	REMOVE AND REINSTALL MILEPOST MARKERS	EACH	2										
40	2524-6765015	REMOVE AND REINSTALL DELINEATOR POSTS	EACH	40										
41	2524-9089110	DELINEATOR RIGID - TYPE IA	EACH	42										
42	2524-9210000	MILEPOST MARKERS	EACH	2										
43	2527-9263109	PAINTED PAVEMENT MARKING, WATERBORNE OR SOLVENT-BASED	STA	1366.9										
44	2527-9263131	WET RETROREFLECTIVE REMOVABLE TAPE MARKINGS	STA	106.4										
45	2527-9263137	PAINTED SYMBOLS AND LEGENDS, WATERBORNE OR SOLVENT-BASED	EACH	16										
46	2527-9263180	PAVEMENT MARKINGS REMOVED	STA	1405.84										
47	2527-9263190	SYMBOLS AND LEGENDS REMOVED	EACH	16										
48	2528-4983200	MONITORING WITH INCIDENT RESPONSE	CDAY	BY CONTRACTS										
49	2528-8400048	TEMPORARY BARRIER RAIL	LF	360										
50	2528-8400157	TEMPORARY FLOODLIGHTING LUMINAIRE	EACH	4										
51	2528-8445110	TRAFFIC CONTROL	LS	1										
52	2533-4980005	MOBILIZATION	LS	1										
53	2548-0000200	MILLED SHOULDER RUMBLE STRIPS, PCC SURFACE	STA	236.79										
54	2551-0000110	TEMPORARY CRASH CUSHION	EACH	5										
55	2601-2634100	MULCHING	ACRE	33.63										
56	2601-2638352	SLOPE PROTECTION, WOOD EXCELSIOR MAT	SQ	1005										
57	2601-2642100	STABILIZE CROP - SEED+FERTILIZE	ACRE	33.63										

ESTIMATED PROJECT QUANTITIES
(UP TO A 5 DIVISION PROJECT)

Division 1: Roadway Items
Division 2: Bridge Items (Refer to Sheets V.1 and V.4)
Division 3: Alternate AA Option 1
Division 4: Alternate AA Option 2
Division 5: Alternate BB Option 1

Item No.	Item Code	Item	Unit	Quantities										
				Estimated						As Built				
				Division 1	Division 2	Division 3	Division 4	Division 5	Total	Division 1	Division 2	Division 3	Division 4	Division 5
58	2601-2643110	WATERING FOR SOD, SPECIAL DITCH CONTROL, OF SLOPE PROTECTION	MGAL	201										
59	2601-2643300	MOBILIZATIONS FOR WATERING	EACH	3										
60	2602-0000010	SILT FENCE	LF	8775										
61	2602-0000030	SILT FENCE FOR DITCH CHECKS	LF	780										
62	2602-0000050	SILT BASINS	EACH	10										
63	2602-0000071	REMOVAL OF SILT FENCE OR SILT FENCE FOR DITCH CHECKS	LF	960										
64	2602-0000101	MAINTENANCE OF SILT FENCE OR SILT FENCE FOR DITCH CHECK	LF	960										
65	2602-0000312	PERIMETER AND SLOPE SEDIMENT CONTROL DEVICE, 12 IN. DIA.	LF	960										
66	2602-0000320	PERIMETER AND SLOPE SEDIMENT CONTROL DEVICE, 20 IN. DIA.	LF	960										
67	2602-0010010	MOBILIZATIONS, EROSION CONTROL	EACH	1										
68	2602-0010020	MOBILIZATIONS, EMERGENCY EROSION CONTROL	EACH	1										
		ALTERNATE AA OPTION 1												
69	2102-0425071	SPECIAL BACKFILL	CY			3623.4								
70	2122-5190007	PAVED SHOULDER, P.C. CONCRETE, 7 IN.	SY			14525.7								
71	2548-0000200	MILLED SHOULDER RUMBLE STRIPS, PCC SURFACE	STA			207.42								
		ALTERNATE AA OPTION 2												
72	2102-0425071	SPECIAL BACKFILL	CY				3152.9							
73	2122-5500080	PAVED SHOULDER, HOT MIX ASPHALT MIXTURE, 8 IN.	SY				14525.7							
74	2548-0000100	MILLED SHOULDER RUMBLE STRIPS, HMA SURFACE	STA				207.42							
75	2548-0000110	ASPHALT EMULSION FOR FOG SEAL (SHOULDER RUMBLE STRIPS)	GAL				224.7							
76	2303-6911000	HOT MIX ASPHALT PAVEMENT SAMPLES	LS				1							
		ALTERNATE BB OPTION 1												
77	2526-8285000	CONSTRUCTION SURVEY	LS					1						

ESTIMATED PROJECT QUANTITIES
(UP TO A 5 DIVISION PROJECT)

Division 6: Alternate BB Option 2
Division 7: Non-Participating Items

Item No.	Item Code	Item	Unit	Quantities										
				Estimated						As Built				
				Division 6	Division 7	Division 8	Division 9	Division 10	Total	Division 1	Division 2	Division 3	Division 4	Division 5
		ALTERNATE BB OPTION 2												
78	2301-9090100	PCC PAVING 3-D MACHINE CONTROL	LS	1										
79	2526-8285000	CONSTRUCTION SURVEY	LS	1										
80	2526-8286000	GPS MACHINE CONTROL GRADING	LS	1										
		NON-PARTICIPATING ITEMS												
81	2555-0000010	DELIVER AND STOCKPILE SALVAGE MATERIALS	LS		1									

ESTIMATE REFERENCE INFORMATION

Item No.	Item Code	Description
1	2102-0425071	SPECIAL BACKFILL
		REFER TO TYPICAL 4D_GRADE ON SHEET B.1 AND TYPICAL ON SHEET B.2 FOR LOCATIONS AND DETAILS OF CONSTRUCTION.
		REFER TO TAB 112-9 ON SHEETS C.17 AND C.18 FOR LOCATIONS.
		CONTRACTOR MAY RECYCLE EXISTING PAVEMENT TO USE AS SPECIAL BACKFILL IN ACCORDANCE WITH DOT MATERIAL
		REQUIREMENTS.
2	2102-2710070	EXCAVATION, CLASS 10, ROADWAY AND BORROW
		TEMPLATE QUANTITIES INCLUDE SPECIAL SHAPING AT GUARDRAIL LOCATIONS.
		REFER TO TAB 107-29 SHEETS T.1 - T.4 FOR DETAILED CUTS AND FILLS.
		REFER TO TYPICAL 4D_GRADE ON SHEET B.1 FOR DETAILS OF CONSTRUCTION.
		REFER TO STANDARD ROAD PLANS EW-301, RL-2A, RL-9, AND RL-12 FOR ADDITIONAL DETAILS.
		OVERHAUL WILL NOT BE MEASURED FOR PAYMENT ON THIS PROJECT, BUT SHALL BE CONSIDERED INCIDENTAL TO THE
		ROADWAY EXCAVATION ON THIS PROJECT.
		THE EXISTING PAVEMENT REMOVAL VOLUME HAS BEEN DEDUCTED FORM THIS QUANTITY.
		A SHRINKAGE FACTOR OF 30% HAS BEEN APPLIED TO THE CLASS 10 FILL VOLUMES.
		REFER TO TAB 103-7 ON SHEET C.7.
		THIS PROJECT INCLUDES 86,774 CY OF CUT AND 5,441 CY OF ADJUSTED FILL. THERE WILL BE APPROXIMATELY 81,333 CY
		OF WASTE ON THIS PROJECT.
3	2102-2713070	EXCAVATION, CLASS 13, ROADWAY AND BORROW
		REFER TO TAB 112-8 ON SHEET C.8 FOR LOCATIONS.
		REFER TO STANDARD ROAD PLAN PV-500 FOR DETAILS OF CONSTRUCTION.
4	2105-8425005	TOPSOIL, FURNISH AND SPREAD
		REFER TO TAB 103-4 ON SHEET C.20. A SHRINKAGE ADJUSTMENT OF 40% HAS BEEN APPLIED TO THE TOPSOIL.
		AVERAGE DEPTH OF TOPSOIL WILL BE 6 INCHES.
5	2111-8174100	GRANULAR SUBBASE
		REFER TO TYPICAL 4DP ON SHEET B.2 FOR LOCATIONS AND DETAILS OF CONSTRUCTION.
6	2121-7425020	GRANULAR SHOULDERS, TYPE B
		REFER TO TAB 112-8 ON SHEET C.8 FOR LOCATIONS.
		REFER TO STANDARD ROAD PLAN PV-500 FOR DETAILS OF CONSTRUCTION.
7	2122-5190501	PAVED SHOULDER, PORTLAND CEMENT CONCRETE (PAVED SHOULDER PANEL FOR BRIDGE END DRAIN)
		REFER TO TAB 104-8A ON SHEET C.12 FOR LOCATIONS. REFER TO TAB 100-27 ON SHEET C.7 FOR SMOOTHNESS AND TEXTURE.
		REFER TO STANDARD ROAD PLANS RF-40, PV-12, PV-101, PV-102 AND RK-20 FOR DETAILS OF CONSTRUCTION.
8	2123-7450000	SHOULDER CONSTRUCTION, EARTH
		REFER TO TAB 112-9 ON SHEETS C.17 AND C.18 FOR LOCATIONS.
9	2301-0690200	BRIDGE APPROACH, RK-20
		REFER TO TAB 112-6 ON SHEET C.12 FOR LOCATIONS.
		REFER TO STANDARD ROAD PLANS RK-20, PV-12, PV-101 AND PV-102 FOR DETAILS OF CONSTRUCTION.
10	2301-1004110	STANDARD OR SLIP-FORM PORTLAND CEMENT CONCRETE PAVEMENT, QM-C, CLASS 3I DURABILITY, 11 IN.
		REFER TO TYPICALS 4DP AND 4_P_FULLPCC ON SHEETS B.2 AND B.3 FOR DETAILS. FULL DEPTH SHOULDER TO BE
		PAID AS PCC PAVEMENT.
		REFER TO TAB 100-24 ON SHEET C.10 FOR LOCATIONS.
		REFER TO STANDARD ROAD PLANS PV-12, PV-101 AND PV-102 FOR ADDITIONAL DETAILS.
11	2301-9090000	QUALITY MANAGEMENT - CONCRETE (QM-C)
12	2304-0100000	DETOUR PAVEMENT
		REFER TO TAB 112-8 ON SHEET C.8 FOR LOCATIONS.
		REFER TO STANDARD ROAD PLAN PV-500 FOR DETAILS OF CONSTRUCTION.
		DETOUR PAVEMENT TO BE USED TO REPLACE SEGMENTS OF CROSSOVER AT STA. 60+20 TO ACCOMMODATE S/F PAVING.
13	2312-8260250	GRANULAR SURFACING ON ROAD, CRUSHED STONE
		USE TO DRESS THE MAINTENANCE CROSS-OVER AT STA. 150+40.
14	2412-0000100	LONGITUDINAL GROOVING IN CONCRETE
		REFER TO TAB 100-28 ON SHEET C.7.
15	2416-0100024	APRONS, CONCRETE, 24 IN. DIA.
16	2416-0100048	APRONS, CONCRETE, 48 IN. DIA.
17	2416-1180024	CULVERT, CONCRETE ROADWAY PIPE, 24 IN. DIA.
18	2416-1180048	CULVERT, CONCRETE ROADWAY PIPE, 48 IN. DIA.
		REFER TO TAB 104-3 ON SHEET C.11 FOR LOCATIONS.
		REFER TO TYPICAL 1301 ON SHEET B.4 AND STANDARD ROAD PLANS RF-2, RF-3, RF-14, RF-26, RF-30A, RF-30C AND RF-31
		FOR DETAILS OF CONSTRUCTION AND ADDITIONAL INFORMATION.
19	2417-2307036	DRAIN, CORRUGATED METAL SLOTTED PIPE, 36 IN., W/6 IN. GRATE
20	2417-5895015	BEVELED PIPE AND GUARD, 15 INCH
		REFER TO TAB 112-8 ON SHEET C.8 FOR LOCATIONS.
		REFER TO STANDARD ROAD PLANS PV-500, RF-27 AND RF-45 FOR DETAILS OF CONSTRUCTION.
21	2422-1720000	UNCLASSIFIED PIPE CULVERT, ENTRANCE, 15 IN. DIA.
		REFER TO TAB 112-8 ON SHEET C.8 FOR LOCATIONS.
		REFER TO STANDARD ROAD PLANS PV-500, RF-27 AND RF-45 FOR DETAILS OF CONSTRUCTION.
		DESCRIPTION:
		CONSTRUCT AND INSTALL ENTRANCE CULVERT FOR WHICH INSIDE DIMESIONS AND LENGTH ARE AS NOTED IN PLANS.
		THE SELECTION OF PIPE OF A TYPE PERMITTED BY SECTION 2422 OF THE SPECIFICATIONS.
		REFER TO ARTICLE 2416.01 OF THE SPECIFICATIONS FOR DEFINITIONS OF ENTRANCE CULVERTS.

100-4A
10-29-02

ESTIMATE REFERENCE INFORMATION

Item No.	Item Code	Description
		SELECT THE TYPE OF PIPE CULVERT FOR UNCLASSIFIED ENTRANCE PIPE FROM TABLE 2422.02-2 IN THE SPECIFICATIONS.
		REFER TO 2422.03 FOR METHODS OF CONSTRUCTION.
		REFER TO 2422.04 FOR METHOD OF MEASUREMENT.
		REFER TO 3422.05 FOR BASIS OF PAYMENT.
22	2502-6745952	REMOVAL OF SUBDRAIN
		MEASUREMENT FOR THIS ITEM WILL BE BASED ON LINEAR FEET OF EXISTING SUBDRAIN REMOVED, FROM END OF
		OUTLET TO END OF RUN.
		BASIS OF PAYMENT SHALL BE FULL COMPENSATION FOR TRENCHING AND BACKFILLING NECESSARY TO REMOVE THE SUBDRAIN
		AND RESTORE THE SUBGRADE TO STABIL CONDITION. IT SHALL INCLUDE ALL LABOR, EQUIPMENT AND TOOLS NECESSARY TO
		COMPLETE THE WORK. PAYMENT INCLUDES DISPOSAL OF THE SUBDRAIN AND ITS APPURTENANCES.
23	2502-8212204	SUBDRAIN, PERFORATED PLASTIC PIPE, 4 IN. DIA.
24	2502-8220196	SUBDRAIN OUTLET, RF-19E
		REFER TO TAB 104-9 ON SHEETS C.13 AND C.14 FOR LOCATIONS.
		REFER TO STANDARD ROAD PLANS RF-19C AND RF-19E FOR DETAILS OF CONSTRUCTION.
		REFER TO TYPICALS ON SHEET B.2 FOR LOCATIONS.
25	2503-0500400	BRIDGE END DRAIN, RF-40
		REFER TO TAB 104-8A ON SHEET C.12 FOR LOCATIONS.
		REFER TO STANDARD ROAD PLAN RF-40.
26	2505-4008120	REMOVAL OF STEEL BEAM GUARDRAIL
		REFER TO TAB 110-7A ON SHEET C.12 FOR LOCATIONS.
		REFER TO TAB 110-13 ON SHEET C.7 FOR DETAILS OF SALVAGED GUARDRAIL.
27	2505-4008300	STEEL BEAM GUARDRAIL
28	2505-4008400	STEEL BEAM GUARDRAIL BARRIER TRANSITION SECTION
29	2505-4021010	STEEL BEAM GUARDRAIL END ANCHOR, BOLTED
30	2505-4021020	STEEL BEAM GUARDRAIL END ANCHOR, W-BEAM
31	2505-4021700	STEEL BEAM GUARDRAIL END TERMINAL
		REFER TO TABS 108-8A MOD AND 108-8C ON SHEET C.11 FOR LOCATIONS.
		REFER TO TAB 107-23 ON SHEET C.19 FOR GRADING LOCATIONS.
		REFER TO STANDARD ROAD PLANS BA-200, 201, 202, 203, 205, 250 AND 251; AND SI-211 FOR DETAILS OF CONSTRUCTION.
		REFER TO TAB EW-301 FOR DETAILS OF GRADING BEHEIND GUARDRAIL.
32	2505-6000111	HIGH TENSION CABLE GUARDRAIL
33	2505-6000121	HIGH TENSION CABLE GUARDRAIL, END ANCHOR
34	2505-6000131	HIGH TENSION CABLE GUARDRAIL, SPARE PARTS KIT
		REFER TO TAB 108-9A ON SHEET C.12 FOR LOCATIONS.
		REFER TO TAB 107-24 ON SHEET C.20 FOR GRADING LOCATIONS.
		REFER TO STANDARD ROAD PLAN BA-351 AND RL-12 FOR DETAILS OF CONSTRUCTION.
35	2510-6745850	REMOVAL OF PAVEMENT
		REFER TO TABS 102-5 ON SHEET C.7 AND 110-1 AND 112-8 ON SHEET C.8 FOR DETAILS OF EXISTING PAVEMENT AND
		REMOVAL LOCATIONS.
36	2518-0470005	CROSSOVER BARRICADE
37	2518-6765001	REMOVE AND REINSTALL CROSSOVER BARRICADES
		REFER TO DETAIL SHEET 540-13 ON SHEET U.1 FOR DETAILS OF CONSTRUCTION.
		REMOVE AND REINSTALL CROSSOVER BARRICADE AT STA. 60+20; INSTALL CROSSOVER BARRICADE AT STA. 210+84 AT
		COMPLETION OF PROJECT.
38	2518-6910000	SAFETY CLOSURE
		REFER TO TAB 108-13A ON SHEET C.7 FOR LOCATIONS.
		REFER TO STANDARD ROAD PLAN TC-61 FOR DETAILS OF CONSTRUCTION.
39	2524-6765014	REMOVE AND REINSTALL MILEPOST MARKERS
40	2524-6765015	REMOVE AND REINSTALL DELINEATOR POSTS
		REFER TO TAB HGM-S1 ON SHEET N.1 FOR LOCATIONS AND DETAILS.
		REFER TO STANDARD ROAD PLANS SI-171 AND SI-172 FOR ADDITIONAL DETAILS.
		MEASUREMENT FOR THIS ITEM WILL BE FOR EACH DELINEATOR OR MILEPOST MARKER THAT IS REMOVED, STORED BY THE
		CONTRACTOR AND REINSTALLED AT ITS ORIGINAL LOCATION.
		BASIS OF PAYMENT WILL INCLUDE ALL MATERIALS, TOOLS, EQUIPMENT AND LABOR NECESSARY TO REMOVE EACH SIGN WITHOUT
		DAMAGING, STORING IN A SAFE LOCATION AND REINSTALLING WITHOUT DAMAGE.
		ANY MILEPOST SIGNS, DELINEATORS OR THEIR RESPECTIVE POSTS WHICH ARE DAMAGED AS A RESULT OF THE CONTRACTORS
		OPERATIONS, SHALL BE REPLACED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
41	2524-9089110	DELINEATOR RIGID - TYPE IA
42	2524-9210000	MILEPOST MARKERS
		REFER TO TAB HGM-S1 ON SHEET N.1 FOR LOCATIONS AND DETAILS.
		REFER TO STANDARD ROAD PLANS SI-171 AND SI-172 FOR ADDITIONAL DETAILS.
		AT LOCATIONS WHERE DELINEATORS ARE NOTED FOR REMOVAL AND REPLACEMENT WITH A NEW DELINEATOR, THE COST OF
		REMOVAL AND DISPOSAL SHALL BE CONSIDERED INCIDENTAL TO THE NEW DELINEATOR.
43	2527-9263109	PAINTED PAVEMENT MARKING, WATERBORNE OR SOLVENT-BASED
		REFER TO TAB 108-22 ON SHEETS C.15 AND C.16 FOR LOCATIONS. REFER TO STANDARD ROAD PLAN PM-110 FOR
		ADDITIONAL INFORMATION.
44	2527-9263131	WET RETROREFLECTIVE REMOVABLE TAPE MARKINGS
		REFER TO TAB 108-22 ON SHEETS C.15 AND C.16 FOR LOCATIONS. REFER TO STANDARD ROAD PLANS PM-110 AND TC-61
		FOR ADDITIONAL INFORMATION.
45	2527-9263137	PAINTED SYMBOLS AND LEGENDS, WATERBORNE OR SOLVENT-BASED

ESTIMATE REFERENCE INFORMATION

Item No.	Item Code	Description
		REFER TO TAB 108-29 ON SHEET C.16 FOR LOCATIONS. REFER TO STANDARD ROAD PLAN PM-110 FOR ADDITIONAL INFORMATION.
46	2527-9263180	PAVEMENT MARKINGS REMOVED
		REFER TO TAB 108-22 ON SHEETS C.15 AND C.16 FOR LOCATIONS.
47	2527-9263190	SYMBOLS AND LEGENDS REMOVED
		REFER TO TAB 108-29 ON SHEET C.16 FOR LOCATIONS.
48	2528-4983200	MONITORING WITH INCIDENT RESPONSE
49	2528-8400048	TEMPORARY BARRIER RAIL
		REFER TO TAB 108-33 ON SHEET C.7 FOR LOCATIONS.
		REFER TO STANDARD ROAD PLANS BA-401 AND TC-61 FOR ADDITIONAL DETAILS.
50	2528-8400157	TEMPORARY FLOODLIGHTING LUMINAIRE
		REFER TO TAB 108-27 ON SHEET C.5 FOR LOCATIONS.
		REFER TO STANDARD ROAD PLAN TC-61 FOR ADDITIONAL DETAILS.
51	2528-8445110	TRAFFIC CONTROL
		REFER TO 108-23A ON SHEET J.1 FOR DETAILS.
		REFER TO STANDARD ROAD PLANS TC-1, TC-61, TC-402, TC-414, TC-420, TC-432 AND TC-433 FOR ADDITIONAL INFORMATION.
52	2533-4980005	MOBILIZATION
53	2548-0000200	MILLED SHOULDER RUMBLE STRIPS, PCC SURFACE
		REFER TO TAB 112-10 ON SHEET C.19 FOR LOCATIONS. REFER TO STANDARD ROAD PLAN PV-12 FOR DETAILS
		OF CONSTRUCTION.
54	2551-0000110	TEMPORARY CRASH CUSHION
		REFER TO TAB 108-30 ON SHEET C.8 FOR LOCATIONS. REFER TO STANDARD ROAD PLAN BA-500 AND TC-61 FOR ADDITIONAL
		DETAILS OF CONSTRUCTION.
55	2601-2634100	MULCHING
		ALL DISTURBED AREAS SHALL BE SEEDED AND MULCHED AT THE CONCLUSION OF EACH STAGE.
56	2601-2638352	SLOPE PROTECTION, WOOD EXCELSIOR MAT
		REFER TO TAB 100-22 ON SHEET C.9 FOR LOCATIONS. REFER TO STANDARD ROAD PLAN EC101 AND EC-103 FOR DETAILS
		OF CONSTRUCTION.
57	2601-2642100	STABILIZE CROP - SEED+FERTILIZE
		ALL DISTURBED AREAS SHALL BE SEEDED AND MULCHED AT THE CONCLUSION OF EACH STAGE.
58	2601-2643110	WATERING FOR SOD, SPECIAL DITCH CONTROL, OF SLOPE PROTECTION
		ESTIMATED AT 50 GALLONS PER SQUARE OF MAT.
59	2601-2643300	MOBILIZATIONS FOR WATERING
		ASSUME 3 MOBILIZATIONS FOR EACH OF TWO STAGES.
60	2602-0000010	SILT FENCE
		REFER TO TAB 100-17 ON SHEET C.9 FOR LOCATIONS. 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.
61	2602-0000030	SILT FENCE FOR DITCH CHECKS
		REFER TO TAB 100-18 ON SHEET C.9 FOR LOCATIONS. INCLUDES ESTIMATED LOCATIONS FOR PLACEMENT OF SILT FENCE
		FOR DITCH CHECKS 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.
62	2602-0000050	SILT BASINS
		REFER TO TAB 100-14 ON SHEET C.9 FOR LOCATIONS. 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.
63	2602-0000071	REMOVAL OF SILT FENCE OR SILT FENCE FOR DITCH CHECKS
		THIS ITEM IS INCLUCED FOR SILT FENCE AND SILT FENCE FOR DITCH CHECK REMOVAL REQUIRED FOR STAGING REASONS,
		REMOVAL TO ALLOW FOR REPLACEMENT (REPALCEMENT TO BE PAID SEPERATELY), OR FOR AREAS THAT HAVE ACHIEVED 70%
		PERMANENT GROWTH.
64	2602-0000101	MAINTENANCE OF SILT FENCE OR SILT FENCE FOR DITCH CHECK
		THIS ITEM IS INCLUDED FOR CLEAN-OUT AND REPAIR OF THE SILT FENCE AND SILT FENCE FOR DITCH CHECKS
		DURING THE GRADING PROJECT.
65	2602-0000312	PERIMETER AND SLOPE SEDIMENT CONTROL DEVICE, 12 IN. DIA.
66	2602-0000320	PERIMETER AND SLOPE SEDIMENT CONTROL DEVICE, 20 IN. DIA.
		TO BE USED AS DIRECTED BY THE ENGINEER OR AS RECOMMENDED BY THE CONTRACTOR.
67	2602-0010010	MOBILIZATIONS, EROSION CONTROL
68	2602-0010020	MOBILIZATIONS, EMERGENCY EROSION CONTROL
		ALTERNATE AA OPTION 1

ESTIMATE REFERENCE INFORMATION

Item No.	Item Code	Description
69	2102-0425070	SPECIAL BACKFILL
70	2122-5190007	PAVED SHOULDER, P.C. CONCRETE, 7 IN.
71	2548-0000200	MILLED SHOULDER RUMBLE STRIPS, PCC SURFACE
		REFER TO TABS 112-9 ON SHEETS C.17 AND C.18 AND 112-10 ON SHEET C.19 FOR LOCATIONS.
		REFER TO STANDARD ROAD PLANS PV-12 AND PV-101 FOR DETAILS. REFER TO TYPICALS ON SHEET B.2.
		CONTRACTOR MAY RECYCLE EXISTING PAVEMENT TO USE AS SPECIAL BACKFILL IN ACCORDANCE WITH DOT MATERIAL
		REQUIREMENTS.
		ALTERNATE AA OPTION 2
72	2102-0425070	SPECIAL BACKFILL
73	2122-5500080	PAVED SHOULDER, HOT MIX ASPHALT MIXTURE, 8 IN.
74	2548-0000100	MILLED SHOULDER RUMBLE STRIPS, HMA SURFACE
75	2548-0000110	ASPHALT EMULSION FOR FOG SEAL (SHOULDER RUMBLE STRIPS)
76	2303-6911000	HOT MIX ASPHALT PAVEMENT SAMPLES
		REFER TO TABS 112-9 ON SHEETS C.17 AND C.18 AND 112-10 ON SHEET C.19 FOR LOCATIONS.
		REFER TO STANDARD ROAD PLANS PV-12 AND PV-101 FOR DETAILS. REFER TO TYPICALS ON SHEET B.2.
		CONTRACTOR MAY RECYCLE EXISTING PAVEMENT TO USE AS SPECIAL BACKFILL IN ACCORDANCE WITH DOT MATERIAL
		REQUIREMENTS.
		PAY QUANTITY IS BASED ON THE UNDILUTED RATE OF ASPHALT EMULSION. TABULATION QUANTITY ON TAB 112-10 ON SHEET 19
		IS BASED ON THE DILUTED APPLICATION RATE.
		ALTERNATE BB OPTION 1
77	2526-8285000	CONSTRUCTION SURVEY
		ALTERNATE BB OPTION 2
78	2301-9090100	PCC PAVING 3-D MACHINE CONTROL
79	2526-8285000	CONSTRUCTION SURVEY
80	2526-8286000	GPS MACHINE CONTROL GRADING
		NON-PARTICIPATING ITEMS
81	2555-0000010	DELIVER AND STOCKPILE SALVAGE MATERIALS
		REFER TO TAB 110-13 ON SHEET C.7 FOR ADDITIONAL INFORMATION.

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10-18-11

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105-4
10-18-11

STANDARD ROAD PLANS

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

Number	Date	Title
BA-200	10-18-11	Steel Beam Guardrail Components
BA-201	10-19-10	Steel Beam Guardrail Barrier Transition Section
BA-202	10-18-11	Steel Beam Guardrail Bolted End Anchor
BA-203	10-18-11	Steel Beam Guardrail W-Beam End Anchor
BA-205	10-18-11	Steel Beam Guardrail End Terminal
BA-250	10-18-11	Steel Beam Guardrail Installation at Concrete Barrier or Bridge End Post
BA-251	10-18-11	Steel Beam Guardrail Installation at Side Obstacle (Two-Way Protection)
BA-351	04-20-10	High Tension Cable Guardrail
BA-401	04-16-13	Temporary Barrier Rail (Precast Concrete)
BA-500	04-20-10	Temporary Crash Cushions Sand Barrel
EC-101	04-20-10	Wood Excelsior Mat for Ditch Protection
EC-103	04-20-10	Wood Excelsior Mat for Slope Protection
EC-201	04-20-10	Silt Fence
EC-204	10-16-12	Perimeter and Slope Sediment Control Devices
EW-301	04-19-11	Guardrail Grading
PM-110	04-16-13	Line Types
PM-111	10-16-12	Symbols and Legends
PV-12	04-17-12	Milled Shoulder Rumble Strips
PV-101	04-17-12	Joints
PV-102	04-16-13	PCC Curb Details
PV-500	04-16-13	Median Crossover (50' Median)
RF-2	10-18-11	Construction of Type "C" Concrete Adaptors for Pipe Culvert Connections
RF-3	10-18-11	Concrete Aprons
RF-14	04-16-13	Connected Pipe Joints
RF-19C	10-16-12	Subdrains (Longitudinal)
RF-19E	10-16-12	Outlets for Longitudinal, Transverse and Backslope Subdrains
RF-26	10-16-12	Pipe Apron Guard
RF-27	10-19-10	Beveled Pipe and Guard
RF-30A	10-19-10	Culvert (Bedding and Backfill)
RF-30C	04-16-13	Pipe Culvert (Installation Details)
RF-31	03-28-95	Depth of Cover Tables for Concrete Pipe
RF-40	04-16-13	Rock Flume for Bridge End Drain
RF-45	10-19-10	Slotted Drain for Median Crossovers
RK-20	04-16-13	Double Reinforced 12" Approach
RL-2A	10-18-05	Details of Embankment Subgrade Treatment, Moisture Density Control & Special Compaction
RL-9	04-20-10	Temporary Erosion Control Measures
RL-12	04-20-10	Special Shaping for High Tension Cable Guardrail at Median Obstacles
RM-48	10-16-12	Temporary Floodlighting
SI-171	10-20-09	Reference Posts
SI-172	10-18-11	Delineators
SI-211	10-19-10	Object Marker and Delineator Placement with Guardrail
TC-1	04-16-13	Work Not Affecting Traffic (Two-Lane or Multi-Lane)
TC-61	10-16-12	Two-Lane, Two-Way Operation
TC-402	04-16-13	Shoulder Closure (Multi-Lane)
TC-418	10-16-12	Lane Closure on Divided Highway
TC-420	04-17-12	Lane Closure at Ramps
TC-432	04-16-13	Shoulder Rumble Strip Operations
TC-433	04-16-13	Pavement Marking Operations

254-1
10-02-01

INCIDENT MANAGEMENT

An incident management plan, provided by the District Office, will be discussed at the pre-construction conference.

262-6
10-18-05

UTILITIES (NOT A POINT 25 PROJECT)

This is NOT a POINT 25 project and is not subject to the provisions of IAC 761-115.25.

108-27
10-16-12

TEMPORARY FLOODLIGHTING LUMINAIRES

No.	Location Station	Offset	Number Lumin.	Remarks
1	59+39.7	53' LT	1	CROSSOVER STAGE 1B
2	211+69.4	53' LT	1	CROSSOVER STAGE 1B
3	59+39.7	53' RT	1	CROSSOVER STAGE 2B
4	211+69.4	53' RT	1	CROSSOVER STAGE 2B

100-26
08-01-08

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	Quantity	Incidental To		Remarks
	PIPE APRON GUARD	5	2416-0100024	APRONS, CONCRETE, 24 IN. DIA.	
	ADAPTERS - RF-2	5	2416-1180024	CULVERT, CONCRETE RDWY PIPE, 24 IN. DIA.	
		1	2416-1180048	CULVERT, CONCRETE RDWY PIPE, 48 IN. DIA.	
	PIPE JOINT CONNECTORS	5	2416-0100024	APRONS, CONCRETE, 24 IN. DIA.	
		1	2416-0100048	APRONS, CONCRETE, 48 IN. DIA.	

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102-5
10-16-12

EXISTING PAVEMENT

No.	Location					Year	Type	Project Number	Surface		Base		Subbase		Removal		Coarse Aggregate			Reinforcement	Remarks
	County	Route	Dir. of Travel	Begin Milepost	End Milepost				Type	Depth IN	Type	Depth IN	Type	Depth IN	Type	Depth IN	Source	Type	Durability Class	Type	
	POTTAWATTAMIE	I-29	SB	43.63	46.83	1989		IR-29-2(33)44	ACC	4							SHAFFTON	DOLOMITE			
	POTTAWATTAMIE	I-29	SB	43.63	46.83	1969		I-IG-29-2(9)43--04-65	PCC	8	ATB	4					WEEPING WATER	C. LST.	I		CRC
	POTTAWATTAMIE	I-29	SB	46.83	48.03	2005		MP-29-4(703)47--76-78	AAC	2											
	POTTAWATTAMIE	I-29	SB	46.83	48.03	1985		IR-29-1(29)25	AAC	1.5	1.5						DELL RAPIDS	QUARTZ			
	POTTAWATTAMIE	I-29	SB	46.83	48.03	1969		I-IG-29-2(7)49--04-78	PCC	8	ATB	4					WEEPING WATER	C. LST.	I		CRC
	POTTAWATTAMIE	I-29	NB	43.63	44.9	2009		IMX-029-2(65)38--02-65	PCC	9	HMA	1			SCR	4					WHITETOPPING
	POTTAWATTAMIE	I-29	NB	43.63	44.9	1989		IR-29-2(33)44	AAC	4							SHAFFTON	DOLOMITE			
	POTTAWATTAMIE	I-29	NB	43.63	44.9	1969		I-IG-29-2(9)43--04-65	PCC	8	ATB	4					WEEPING WATER	C. LST.	I		CRC
	POTTAWATTAMIE	I-29	NB	44.9	46.83	1989		IR-29-2(33)44	ACC	4							SHAFFTON	DOLOMITE			
	POTTAWATTAMIE	I-29	NB	44.9	46.83	1969		I-IG-29-2(9)43--04-65	PCC	8	ATB	4					WEEPING WATER	C. LST.	I		CRC
	POTTAWATTAMIE	I-29	NB	46.83	48.03	1985		IR-29-1(29)25	ACC	4							SHAFFTON	DOLOMITE			
	POTTAWATTAMIE	I-29	NB	46.83	48.03	1969		I-IG-29-2(7)43--04-65	PCC	8	ATB	4					WEEPING WATER	C. LST.	I		CRC

103-7
08-01-08

SHRINKAGE DATA

Material	%	Remarks
Class 10	30%	
Topsoil	40%	

100-28
10-19-10

LONGITUDINAL GROOVING

Location	Total SY	Remarks
78+61.00	277.0	Pony Cr. Br. SB S. Approach
78+61.00	279.4	Pony Cr. Br. SB N. Approach
78+61.00	279.0	Pony Cr. Br. NB S. Approach
78+61.00	277.0	Pony Cr. Br. NB N. Approach

100-27
10-20-09

PAVEMENT SMOOTHNESS + PCC TEXTURE

Road Identification	Begin Station	End Station	Proposed Posted Speed			Remarks
			35 or less	40 - 45	over 45	
I-29 Southbound	60+20.00	77+83.65			X	MAINLINE
I-29 Southbound	60+20.00	77+43.48			X	OUTSIDE SHOULDER
I-29 Southbound	79+58.70	166+59.85			X	MAINLINE
I-29 Southbound	79+98.88	167+07.36			X	OUTSIDE SHOULDER
I-29 Southbound	170+60.21	176+65.00			X	MAINLINE
I-29 Southbound	170+12.50	176+65.00			X	OUTSIDE SHOULDER
I-29 Northbound	60+20.00	77+82.9			X	MAINLINE
I-29 Northbound	60+20.00	77+43.40			X	OUTSIDE SHOULDER
I-29 Northbound	79+59.40	165+84.95			X	MAINLINE
I-29 Northbound	79+98.90	166+30.08			X	OUTSIDE SHOULDER
I-29 Northbound	169+84.62	176+65.00			X	MAINLINE
I-29 Northbound	169+34.56	176+65.00			X	OUTSIDE SHOULDER

108-13A
08-01-08

SAFETY CLOSURES

Refer to Section 2518 of the Standard Specifications

Station	Closure Type		Remarks
	Road Qty.	Hazard Qty.	
STAGE 1B			
60+19.20	1		SB CONSTRUCTION
210+85.10	1		SB CONSTRUCTION
STAGE 2B			
60+13.00	1		NB CONSTRUCTION
210+85.10	1		NB CONSTRUCTION

108-33
04-16-13

TEMPORARY BARRIER RAIL

Refer to BA-400 and BA-401

* Not a bid item. Anchorage requirements are based on TBR locations shown in the plans. TBR alignments that vary from what is shown in the plans may result in additional TBR sections requiring anchorage.

No.	Station to Station		Length	(Select One)		Anchored*	Remarks
			LF	Steel BA-400	Concrete BA-401	(Y/N)	
1	58+60.90	60+38.30	180.0		X	No	CROSSOVER STAGE 1B
2	210+71.90	212+49.30	180.0		X	No	CROSSOVER STAGE 2B

110-13
04-20-10

DELIVERY AND STOCKPILING

Item Description	Quantity	Units	Delivery Location	Contact Name & Number	Remarks
GUARDRAIL, POSTS AND HARDWARE	550	LF	CB MAINT. GARAGE	DICK MATTOX - 712-366-0332	SB STA. 162+16 TO STA. 167+66
GUARDRAIL, POSTS AND HARDWARE	250	LF	CB MAINT. GARAGE	DICK MATTOX - 712-366-0332	SB STA. 170+02 TO STA. 172+46
GUARDRAIL, POSTS AND HARDWARE	225	LF	CB MAINT. GARAGE	DICK MATTOX - 712-366-0332	SB STA. 170+05 TO STA. 172+24
GUARDRAIL, POSTS AND HARDWARE	513	LF	CB MAINT. GARAGE	DICK MATTOX - 712-366-0332	NB STA. 161+34 TO STA. 167+47
GUARDRAIL, POSTS AND HARDWARE	238	LF	CB MAINT. GARAGE	DICK MATTOX - 712-366-0332	NB STA. 164+03 TO STA. 166+39

108-30
04-16-13

CRASH CUSHIONS

* Bid Item
(1) Lane(s) to which the installation is adjacent.
(2) Complete this section when using the Temporary Crash Cushion bid item and Earthwork is needed for Sand Barrel placement. Refer to BA-500

No.	Direction of Traffic (1)	Location Station	Side	Obstacle Width	Crash Cushion (Select One)*					Sand Barrel Details (2)					Earthwork*		Spare Parts Kit (Select One)*		Obstacle Description	Remarks
					Temporary	Temporary Redirective	Temporary Severe Use	Permanent	Permanent Severe Use	V Length	W Length	X Length	Y Length	Z Length	Excavation Class 10	Embankment in Place	Permanent	Permanent Severe Use		
				FT						FT	FT	FT	FT	FT	CY	CY	EACH	EACH		
1	SB	60+38.30	LT	1.88	X					25.20		N/A							STAGE 1B	
2	SB	169+34.60	RT	1.90	X					3.80		9.05							STAGE 1B	
3	NB	77+83.70	RT	1.90	X					4.10		9.35							STAGE 2B	
4	NB	167+26.10	RT	1.90	X					4.00		9.26							STAGE 2B	
5	NB	210+71.90	RT	1.90	X					25.40		N/A							STAGE 2B	

112-8
10-16-12

MEDIAN CROSSOVERS

Refer to PV-500 Series.

* Not a bid item

Road Ident.	Location Station	Standard Road Plan	Detour Pavement	Special Backfill	Granular Shoulder	Embankment in Place	Class 10 Excavation	Class 13 Excavation	Removal of Pavement	Saw Cut*	15" Unclassified Roadway Pipe	36" CMP Slotted Drain/ 6" Grate	Beveled Pipe and Guard	Remarks
		No.	SY	TON	TON	CY	CY	CY	SY	LF	LF	LF	No.	
I-29 SB	60+25.40	PV-500	125.5	0.0	0.0				125.5					REM. 3' WIDTH OF EX. X-OVER TO ACCOMMODATE
														PAVING & REPLACE
I-29 NB	60+25.00	PV-500	118.1	0.0	0.0				118.1					REM. 3' WIDTH OF EX. X-OVER TO ACCOMMODATE
														PAVING & REPLACE
I-29	210+84.40	PV-500	2695.0	1265.0	215.0	---	---	685.0	1098.5	24.0	268.0	116.0	2	

110-1
04-16-13

REMOVAL OF PAVEMENT

Refer to Tabulation 102-5

* Not a Bid Item

Begin Station	End Station	Side	Pavement Type	Area	Saw Cut*	Remarks
				SY	LF	
60+20.00	77+83.50	Both	HMA/PCC	7837.8	294.6	SB ML & SHOULDERS; REFER TO TAB 112-8 FOR ADD. REM.
79+58.75	161+99.40	Both	HMA/PCC	36625.1	40.0	SB ML & SHOULDERS
161+99.40	166+59.90	Both	HMA/PCC	2338.3	24.0	SB ML & SHOULDERS
166+60.10	167+07.40	Rt.	HMA/PCC	74.1	58.0	SB SHOULDER
166+59.70	167+07.70	Lt.	HMA/PCC	38.4	54.0	SB SHOULDER
170+12.50	170+31.60	Rt.	HMA/PCC	23.1	29.9	SB SHOULDER
170+31.60	170+59.60	Rt.	HMA/PCC	37.6	28.1	SB SHOULDER
169+93.80	170+58.70	Lt.	HMA/PCC	51.9	72.7	SB SHOULDER
170+59.60	172+44.20	Both	HMA/PCC	1007.1	24.0	SB ML & SHOULDERS
172+44.20	176+65.00	Both	HMA/PCC	1870.2	41.2	SB ML & SHOULDERS
60+20.00	77+13.90	Both	HMA/PCC	7528.4	287.9	NB ML & SHOULDERS; REFER TO TAB 112-8 FOR ADD. REM.
77+13.90	77+83.40	Both	HMA/PCC	310.4	40.2	NB ML & SHOULDERS
79+58.70	161+11.40	Both	HMA/PCC	36234.2	40.0	NB ML & SHOULDERS
161+11.40	165+85.00	Both	HMA/PCC	2368.0	24.0	NB ML & SHOULDERS
165+85.00	166+30.20	Lt.	HMA/PCC	37.7	52.0	NB SHOULDER
165+85.00	166+30.20	Rt.	HMA/PCC	61.3	56.2	NB SHOULDER
169+34.50	169+84.80	Lt.	HMA/PCC	43.0	56.3	NB SHOULDER
169+34.50	169+84.80	Rt.	HMA/PCC	65.4	61.1	NB SHOULDER
169+84.80	176+65.00	Both	HMA/PCC	3023.1	66.0	NB ML & SHOULDERS

104-3
10-16-12

DRAINAGE STRUCTURE BY ROAD CONTRACTOR

Length of unclassified pipe calculated is based on using Reinforced Concrete Pipe.
* 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

Drainage Area	Location	Type	Size	Kind Of Pipe (1)	Length New Const.	Bedding Class	Design Cover (H)	Camber* (RF-30B)	Apron No.		Apron Guard* (RF-26)	Elbow* (RF-13)	Diaphragm* (RF-7)	Tee Section* (RF-21)	"D" Section* (RF-13)	Reducer*	Adaptors* (RF-2)		Connected Pipe Joint* (RF-44)	4" Perforated Subdrain*	Flow Line Elevations				Dimensions Lin. Ft. Total		Dimensions Lin. Ft. Extensions		Skew Ahead Degrees		Dike				Class 20	Flowable Mortar	Floodable* Backfill	Porous* Backfill	Flooded Backfill	Remarks
																															Rt. / Lt.	Location Station	Top Elevation	Type			(A)	(B)	(A+B)	
ACRE			IN		LF		FT	FT	IN	OUT	No.	No.	No.	No.	No.	No.	Type	No.	Type	FT	Lt.	Rt.	Other	Other	Lt.	Rt.	Lt.	Rt.	Lt.	Rt.	Lt.				CY	CY	CY	CY	CY	
MED.	63+00.00	1301	24	RCP	4	C	---	---	1		1						C-1	1	3							33.3		4.0												SB
MED.	94+00.00	1301	24	RCP	4	C	---	---	1		1						C-1	1	3			972.88				33.0		4.0												SB
SIDE	107+86.00	1301	48	RCP	4	C	---	---		1	---						C-1	1	3			964.27			61.0															
MED.	117+00.00	1301	24	RCP	4	C	---	---	1		1						C-1	1	3		972.93					32.0	4.0	4.0												
MED.	139+50.00	1301	24	RCP	4	C	---	---	1		1						C-1	1	3		973.15					32.0	4.0													
MED.	150+75.00	1301	24	RCP	4	C	---	---	1		1						C-1	1	3																					

108-8A
MOD

STEEL BEAM GUARDRAIL AT CONCRETE BARRIER OR BRIDGE END POST

Refer to BA-200, BA-201, BA-202, BA-205, BA-250, SI-172, SI-173 and SI-211. (1) See Standards for list of materials.

Location Station			Layout Lengths					Delineators and Object Markers					Bid Items (1)						Remarks
			VT1	VF	VT2	NOTE 2 VF2	ET Terminal	Type	Delineator Type 1	Object Marker Type 2	Object Marker Type 3		End Anchor Bolted	Barrier Transition Section	Steel Beam Guardrail	End Terminal Standard	End Terminal Flared for Cable Connection	Adapter	
											OM-3L	OM-3R	BA-202	BA-201	BA-200	BA-205	BA-206	BA-210	
No.	Station	Offset	LF	LF	LF	LF	LF		White No.	No.	No.	No.	Type	No.	LF	No.	No.	No.	
	STAGE 1																		
1	79+64.14	-59.3	40.625	50.00	87.50		50.0			2		1	B	1	150.0	1			
2	79+64.14	-18.7	40.625	25.00	175.00		50.0			2	1		B	1	212.5	1			
3	169+66.05	-18.9	28.125	37.50	62.50	37.50	50.0			2	1		A-UAC	0	137.5	1			UAC BTS; NOTE 2 & 3
4	170+06.48	-59.7	28.125	25.00	62.50	50.00	50.0			2		1	A	1	137.5	1			NOTE 2
	STAGE 2																		
5	77+78.00	18.7	40.625	25.00	162.50		50.0			2	1		B	1	200.0	1			
6	77+78.00	59.3	40.625	50.00	87.50		50.0			2		1	B	1	150.0	1			
7	166+36.00	59.3	28.125	37.50	387.50		50.0			2		1	A	1	425.0	1			
8	166+76.12	18.6	240.625	0.00	0.00		50.0			2	1		A-UAC	0	206.3	1			UAC BTS & 6.25 LF; NOTE 3 & 4

NOTE 2 VF2 REFERS TO ADDITIONAL FLARED INSTALLATION FOLLOWING THE VT2 TANGENT INSTALLATION.
NOTE 3 USE AS CONSTRUCTED THE EXISTING BA-201 AND BA-202 SECTIONS AT THIS LOCATION.
NOTE 4 USE AS CONSTRUCTED AN ADDITIONAL 6.25 LF OF EXISTING GUARDRAIL ADJACENT TO BTS AT THIS LOCATION.

108-8C
10-18-11

STEEL BEAM GUARDRAIL FOR SIDE OBSTACLE (ONE-WAY PROTECTION)

(1) Lane(s) to which the obstacle is adjacent.
(2) See Standards for list of materials. Refer to BA-200, BA-201, BA-203, BA-205, BA-206, BA-252, SI-172, SI-173, and SI-211

Location							Layout Lengths							Delineators and Object Markers					Bid Items (2)					Remarks
							Approach Side (A)				Trailing Side				Delineator Type 1	Object Marker Type 2	Object Marker Type 3				End Terminal Standard	End Terminal Flared for Cable Connection	Adapter	
No.	Direction of Traffic (1)	Side O= Outside M= Median	Station	Offset	O_L	D_O	ET Terminal	$VT2_A$	VF_A	$VT1_A$	$VT1_T$	EA 9.375'	Culvert Spanning	Type			OM-3L	OM-3R	Steel Beam Guardrail BA-200	W-Beam End Anchor BA-203	BA-205	BA-206	BA-210	
					FT	FT	LF	LF	LF	LF	LF	LF			White No.	No.	No.	No.	LF	No.	No.	No.	No.	
			STAGE 1																					
1	SB	O	107+21.46	-80.4	19.0	17.0	50.0	0.00	0.00	268.75	25.00	9.375							287.5	1	1			1
			STAGE 2																					
2	NB	O	106+65.34	80.4	19.0	17.0	50.0	0.00	0.00	256.25	25.00	9.375							275.0	1	1			2

NOTE 1 - GUARDRAIL PROTECTING BRIDGE PIER AND BRIDGE EMBANKMENT.
NOTE 2 - GUARDRAIL PROTECTING BRIDGE PIER, BRIDGE EMBANKMENT AND THE ITS SIGN STANDARD.

112-10
04-19-11

MILLED RUMBLE STRIPS

See PV-12 and PV-13.

* Calculated at 18" width for Shoulder.

Location						Fog Seal* (Milled Rumble Strip)	Effective Shoulder Width			Remarks
Road Identification	Station to Station		Length PCC	Length HMA	Type (Centerline, Rt or Lt Shoulder	Shoulder	PCC Paved	HMA Paved	Granular\ Earth	
			STA	STA		GAL	FT	FT	FT	
I-29 SB - OUTSIDE SHOULDER	60+20.00	60+40.00	0.20		Left Shoulder	0.0				
I-29 SB - OUTSIDE SHOULDER	60+40.00	77+23.50	16.84		Left Shoulder	0.0				
I-29 SB - OUTSIDE SHOULDER	80+18.70	167+06.30	86.88		Left Shoulder	0.0				
I-29 SB - OUTSIDE SHOULDER	167+06.30	176+65.00	9.59		Left Shoulder	0.0				
I-29 NB - OUTSIDE SHOULDER	60+20.00	60+40.00	0.20		Right Shoulder	0.0				
I-29 NB - OUTSIDE SHOULDER	60+40.00	77+23.30	16.83		Right Shoulder	0.0				
I-29 NB - OUTSIDE SHOULDER	80+18.80	165+87.10	85.68		Right Shoulder	0.0				
I-29 NB - OUTSIDE SHOULDER	169+46.30	176+65.00	7.19		Right Shoulder	0.0				
I-29 SB - INSIDE SHOULDER	60+20.00	77+43.50	17.24	17.24	Right Shoulder	37.3				
I-29 SB - INSIDE SHOULDER	79+98.90	166+65.90	86.67	86.67	Right Shoulder	187.8				
I-29 SB - INSIDE SHOULDER	170+15.10	176+65.00	6.50		Right Shoulder	0.0				
I-29 NB - INSIDE SHOULDER	60+20.00	77+43.50	17.24	17.24	Left Shoulder	37.3				
I-29 NB - INSIDE SHOULDER	79+98.90	166+27.30	86.28	86.28	Left Shoulder	186.9				
I-29 NB - INSIDE SHOULDER	169+76.40	176+65.00	6.89		Left Shoulder	0.0				

107-23
10-18-11

GRADING FOR GUARDRAIL INSTALLATIONS

(1) Lane(s) to which the installation is adjacent.

Refer to EW-301

Location				Foreslope at Guardrail	Dimensions (Feet)									Earthwork		Remarks
No.	(1) Direction of Traffic	Station	Side		X1	Y1	X2	Y2	X3	Y3	X4	Y4	Z	Excavation Class 10	Embankment In Place	
														CY	CY	
	SB	79+62.97	RT	4:1	38.0	5.0	87.7	10.0	175.2	10.0	225.4	12.0	65.0	Incl. in EW		
	SB	79+62.97	LT	6:1	38.0	9.0	62.9	11.5	237.9	11.5	288.0	14.0	72.0	Incl. in EW		
	SB	107+21.46	RT	4:1	268.8	10.0	-	-	-	-	318.9	12.0	65.0	Incl. in EW		UNDER OVERPASS (PIER)
	SB	170+06.48	RT	4:1	52.4	6.0	114.9	6.0	164.4	11.0	214.6	13.0	69.0	Incl. in EW		
	SB	169+66.05	LT	6:1	64.8	8.5	127.3	8.5	164.6	12.3	214.8	15.0	76.0	Incl. in EW		
	NB	77+76.00	RT	4:1	38.0	5.0	87.8	10.0	175.3	10.0	225.4	13.0	69.0	Incl. in EW		
	NB	77+76.00	LT	6:1	38.0	5.0	62.9	5.5	225.4	5.5	275.6	8.0	50.0	Incl. in EW		
	NB	104+93.02	RT	4:1	256.3	10.0	-	-	-	-	306.4	13.0	69.0	Incl. in EW		UNDER OVERPASS (PIER)
	NB	166+83.12	LT	6:1	247.0	5.0	-	-	-	-	297.2	6.0	43.0	Incl. in EW		
	NB	166+36.0	RT	4:1	27.5	5.0	64.8	7.0	452.3	9.0	502.5	11.0	61.0	Incl. in EW		

ESTIMATED BRIDGE REPAIR QUANTITIES

ITEM NO.	ITEM CODE	ITEM	UNIT	TOTAL	AS BUILT QUANTITY
1	2401-6745636	REMOVAL OF EXISTING HANDRAIL AND END POSTS	LS	1	
2	2414-6431100	RETROFIT CONCRETE BARRIER RAILING	LF	380	
3	2499-0800000	PAVING NOTCH REPLACEMENT	LF	80	

NOTE: THE ROADWAY WILL BE CLOSED TO THRU TRAFFIC. REFER TO THE TRAFFIC CONTROL PLAN ON THE ROAD PLAN IN THESE PLANS.

ESTIMATE REFERENCE INFORMATION

ITEM NO.	ITEM CODE	DESCRIPTION
1	2401-6745636	REMOVAL OF EXISTING HANDRAIL AND END POSTS - -
2	2414-6431100	RETROFIT CONCRETE BARRIER RAILING INCLUDES FURNISHING AND INSTALLING 1" DIAMETER PLASTIC CONDUIT. INCLUDES 24.5 CY OF CLASS C OR CLASS BR STRUCTURAL CONCRETE AND 4,151 LBS OF GRADE 60 EPOXY COATED REINFORCING STEEL. IF PLACEMENT OF CONCRETE IS DONE BY THE SLIPFORMING METHOD, CLASS BR CONCRETE IS REQUIRED. CAST-IN-PLACE BARRIER RAILS SHALL USE CLASS C MIX. PRICE BID FOR THIS ITEM SHALL INCLUDE THE COST OF CAST-IN-PLACE FORMS IF REQUIRED FOR PLACEMENT OF THE CONCRETE.
3	2499-0800000	PAVING NOTCH REPLACEMENT INCLUDES 5.6 CY OF STRUCTURAL CONCRETE CLASS C, 1,280 LBS OF EPOXY-COATED REINFORCING STEEL, EXCAVATION, REMOVING AND DISPOSING OF EXISTING PAVING NOTCH AND CONCRETE REMOVED TO FORM THE SHEAR KEYWAYS, DRILLING HOLES FOR THE DOWEL BARS, AND POLYMER GROUT MATERIAL.

GENERAL NOTES:

THIS DESIGN IS FOR REPAIRS TO THE EXISTING 172'-2 X 40'-0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE WITH A 0° SKEW ON I-29 OVER PONY CREEK. COPIES OF ORIGINAL DESIGN PLANS WILL BE MADE AVAILABLE TO THE CONTRACTOR. CONTACT THE OFFICE OF CONTRACTS - HIGHWAY DIVISION - IOWA D.O.T. - AMES.

THE REPAIRS SHALL CONSIST OF REPLACING THE PAVING NOTCHES AT BOTH ENDS OF THE BRIDGE AND REMOVING THE EXISTING RAILING AND REPLACING IT WITH NEW CAST-IN-PLACE CONCRETE BARRIER RAILING.

CONSTRUCTION SHALL BE DONE IN STAGES WITH AT LEAST ON LANE OF TRAFFIC MAINTAINED AT ALL TIMES IN ACCORDANCE WITH "TRAFFIC CONTROL PLAN" NOTE.

MINIMUM CLEAR DISTANCE FROM FACE OF CONCRETE TO NEAR REINFORCING BAR IS TO BE 2" UNLESS OTHERWISE NOTED OR SHOWN.

THE PERMISSIBLE CONSTRUCTION JOINTS ARE TO BE PLACED BETWEEN VERTICAL BARS AT A MINIMUM SPACING OF 20 FEET. CONSTRUCTION JOINT CONTACT SURFACES ARE TO BE COATED WITH AN APPROVED BOND BREAKER.

ALL DIMENSIONS AND DETAILS SHOWN IN THESE PLANS PERTINENT TO NEW CONSTRUCTION IN RELATION TO EXISTING PORTIONS OF THE STRUCTURE SHALL BE VERIFIED IN THE FIELD BY THE BRIDGE CONTRACTOR BEFORE STARTING CONSTRUCTION.

FAINT LINES ON PLANS INDICATE THE EXISTING STRUCTURE.

THESE BRIDGE PLANS LABEL ALL REINFORCING STEEL WITH ENGLISH NOTATION (5a1 IS $\frac{5}{8}$ INCH DIAMETER BAR). ENGLISH REINFORCING STEEL RECEIVED IN THE FIELD MAY DISPLAY THE FOLLOWING "BAR DESIGNATION". THE "BAR DESIGNATION" IS THE STAMPED IMPRESSION ON THE REINFORCING BARS, AND IS EQUIVALENT TO THE BAR DIAMETER IN MILLIMETERS.

ENGLISH SIZE	3	4	5	6	7	8	9	10	11
BAR DESIGNATION	10	13	16	19	22	25	29	32	36

COST OF JOINT SEALER AND BOND BREAKER SHALL BE CONSIDERED INCIDENTAL TO OTHER CONSTRUCTION.

THE RETROFIT BARRIER RAIL IS TO BE BID ON A LINEAL FOOT BASIS MEASURED FROM END TO END OF RAIL. THE NUMBER OF LINEAL FEET OF RETROFIT BARRIER RAIL INSTALLED WILL BE PAID FOR AT THE CONTRACT PRICE PER LINEAL FOOT BASED ON PLAN QUANTITIES. PRICE BID FOR RETROFIT CONCRETE BARRIER RAILING SHALL BE FULL COMPENSATION FOR FURNISHING ALL MATERIAL (INCLUDING REINF. STEEL AND 1"Φ PLASTIC CONDUIT) PLUS ALL OF THE EQUIPMENT AND LABOR REQUIRED TO ERECT THE RAIL IN ACCORDANCE WITH THESE PLANS AND CURRENT SPECIFICATIONS.

ALL RETROFIT BARRIER RAIL CONCRETE IS TO BE EITHER CLASS BR MIX OR CLASS C MIX.

CLASS BR CONCRETE SHALL BE USED FOR THE SLIP FORMING METHOD.

CLASS C CONCRETE SHALL BE USED FOR THE CAST-IN-PLACE METHOD. THE PRICE BID FOR THE CAST-IN-PLACE METHOD SHALL INCLUDE THE FORMWORK.

ALL REINFORCING STEEL IS TO BE GRADE 60 AND EPOXY COATED.

THE JOINT SEALER SHALL BE LIGHT GRAY NONSAG LATEX CAULKING SEALER MARKETED FOR OUTDOOR USE. NO TESTING OR CERTIFICATION IS REQUIRED.

THE PRICE BID FOR "REMOVAL OF EXISTING HANDRAIL AND END POSTS" SHALL INCLUDE ALL COSTS ASSOCIATED WITH DISMANTLING THE EXISTING HANDRAIL (APPROX. 352 L.F. AND 42 POSTS). THE RAILS AND POSTS ARE TO BECOME THE PROPERTY OF THE CONTRACTOR AND REMOVED FROM THE SITE BY THE CONTRACTOR. THE BID ITEM SHALL ALSO INCLUDE ALL COSTS ASSOCIATED WITH THE REMOVAL OF THE EXISTING CONCRETE END POSTS AND THE CUTTING OFF AND PAINTING OF THE EXISTING RAIL POST ANCHOR BOLTS IF REQUIRED.

ANY REMOVALS REQUIRED SHALL BE IN ACCORDANCE WITH SECTION 2401, OF THE STANDARD SPECIFICATIONS. ANY DAMAGE TO OTHER PORTIONS OF THE EXISTING STRUCTURE NOT NOTED FOR REMOVAL SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE REPAIRED BY THE CONTRACTOR AT NO COST TO THE STATE.

EXISTING BRIDGE RAIL IS NOT TO BE REMOVED UNTIL AUTHORIZED BY THE ENGINEER.

DIMENSIONS SHOWN ON THESE PLANS ARE BASED ON DESIGN PLANS (ORIGINAL DESIGN NO. 1466)

UTILITY COMPANIES WHOSE FACILITIES ARE SHOWN ON THESE PLANS OR KNOWN TO BE WITHIN THE CONSTRUCTION LIMITS SHALL BE NOTIFIED BY THE BRIDGE CONTRACTOR OF THE STARTING DATE.

STRUCTURAL DESIGN

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

Signature: Stephen W. Moffitt — Date: 12/28/12

Printed or Typed Name: Stephen W. Moffitt

My license renewal date is December 31, 2013

Pages or sheets covered by this seal: SHEETS V.1 THRU V.3

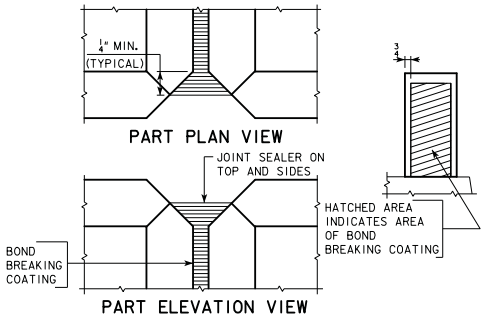
LICENSED PROFESSIONAL ENGINEER Stephen W. Moffitt 13124 IOWA

BARRIER RAIL DOWEL SETTING NOTE :

THE 6c1 AND 6c2 BARS SHALL BE SET AS DOWELS IN DRILLED HOLES. HOLES ARE TO BE 10" DEEP. THE DOWELS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. EITHER OF THE FOLLOWING SYSTEMS MAY BE USED AS A BONDING AGENT FOR VERTICAL DOWELS, BUT ONLY SYSTEM "A" MAY BE USED FOR HORIZONTAL DOWELS:

A. POLYMER GROUT SYSTEM SHALL BE IN ACCORDANCE WITH ARTICLE 2301.03, E, OF THE STANDARD SPECIFICATIONS.
B. HYDRAULIC CEMENT GROUT SYSTEMS. DRILLED HOLES ARE TO BE $2\frac{1}{2}$ TIMES THE DOWEL DIAMETER AND ARE TO BE BLOWN CLEAN WITH COMPRESSED AIR IMMEDIATELY PRIOR TO PLACING GROUT. THE HYDRAULIC CEMENT GROUT SHALL BE ONE OF THOSE APPROVED IN MATERIALS I.M. 491.13 AND SHALL BE USED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

NOTE A: SEE SECTION A-A ON BARRIER RAIL LAYOUT SHEET V.2.
ON EACH RAIL OF BRIDGE, DIMENSION "X" SHALL BE A MINIMUM OF 1" AND A MAXIMUM OF 3", BUT MUST BE CONSTANT FOR FULL LENGTH OF BRIDGE, HOWEVER APPROXIMATELY 10 LINEAR FEET AT EITHER END OF STANDARD RAIL SECTION SHALL BE TRANSITIONED TO 2" AT END SECTION AS SHOWN.



RETROFIT BARRIER RAIL JOINT DETAILS

SPECIFICATIONS:

DESIGN: AASHTO SERIES OF 2002.
CONSTRUCTION: IOWA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION, SERIES 2012, PLUS APPLICABLE GENERAL SUPPLEMENTAL SPECIFICATIONS, DEVELOPMENTAL SPECIFICATIONS, SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS SHALL APPLY TO CONSTRUCTION WORK ON THIS PROJECT.

DESIGN STRESSES:

DESIGN STRESSES FOR THE FOLLOWING MATERIALS ARE IN ACCORDANCE WITH THE AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, SERIES OF 2002.
REINFORCING STEEL IN ACCORDANCE WITH SECTION 8, GRADE 60.
CONCRETE IN ACCORDANCE WITH SECTION 8, f'c = 4.0 KSI.

CONCRETE PLACEMENT SUMMARY

SECTION	TOTAL
STANDARD SECTION 350'-4 AT 0.06 CU. YDS. PER LIN. FT	21.0
END SECTIONS 4 AT 0.87 CU. YDS. PER SECTION	3.5
TOTAL (CU. YDS.)	24.5

REVISED 4/4/13: REVISED SECTION AND MAINTENANCE NUMBER

LOCATION

I-29 OVER PONY CREEK
T 74 N R 43 W
SECTION ~~29~~ 30
LEWIS TOWNSHIP
LATITUDE: 41.18180603
LONGITUDE: -95.82368618
POTTAWATTAMIE COUNTY
MAINTENANCE NO. ~~7844 BL029 (SBL)~~ 7845. IL029 (SBL)
FHWA NO. 044560 (SBL)

DESIGN HISTORY AT THIS SITE

DES. NO.	TYPE OF WORK
1466	ORIGINAL DESIGN
778	DECK OVERLAY
813	PAVING NOTCH AND RETROFIT RAIL

DESIGN FOR REPAIRS TO A 0° SKEW

172'-2 X 40'-0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

51'-7 END SPANS — 69'-0 INTERIOR SPAN

QUANTITIES AND GENERAL NOTES

STA. 78+61 — JANUARY, 2013

POTTAWATTAMIE COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 1 OF 3 — FILE NO. 30836 — DESIGN NO. 813

REVISED: APRIL 4, 2013

DESIGN TEAM hgm	RETROFIT BARRIER RAIL DETAILS	MODIFIED STANDARD SHEET 1031T	POTTAWATTAMIE COUNTY	PROJECT NUMBER IMX-029-2(78)44--02-78	SHEET NUMBER V.1

4/4/2013 jlk Z:\Projects\780290103-I29 Rail Retro\dgn\78029078_813.brg

ESTIMATED BRIDGE REPAIR QUANTITIES

ITEM NO.	ITEM CODE	ITEM	UNIT	TOTAL	AS BUILT QUANTITY
1	2401-6745636	REMOVAL OF EXISTING HANDRAIL AND END POSTS	LS	1	
2	2414-6431100	RETROFIT CONCRETE BARRIER RAILING	LF	380	
3	2499-0800000	PAVING NOTCH REPLACEMENT	LF	80	

ESTIMATE REFERENCE INFORMATION

ITEM NO.	ITEM CODE	DESCRIPTION
1	2401-6745636	REMOVAL OF EXISTING HANDRAIL AND END POSTS - -
2	2414-6431100	RETROFIT CONCRETE BARRIER RAILING INCLUDES FURNISHING AND INSTALLING 1" DIAMETER PLASTIC CONDUIT. INCLUDES 24.5 CY OF CLASS C OR CLASS BR STRUCTURAL CONCRETE AND 4,151 LBS OF GRADE 60 EPOXY COATED REINFORCING STEEL. IF PLACEMENT OF CONCRETE IS DONE BY THE SLIPFORMING METHOD, CLASS BR CONCRETE IS REQUIRED. CAST-IN-PLACE BARRIER RAILS SHALL USE CLASS C MIX. PRICE BID FOR THIS ITEM SHALL INCLUDE THE COST OF CAST-IN-PLACE FORMS IF REQUIRED FOR PLACEMENT OF THE CONCRETE.
3	2499-0800000	PAVING NOTCH REPLACEMENT INCLUDES 5.6 CY OF STRUCTURAL CONCRETE CLASS C, 1,280 LBS OF EPOXY-COATED REINFORCING STEEL, EXCAVATION, REMOVING AND DISPOSING OF EXISTING PAVING NOTCH AND CONCRETE REMOVED TO FORM THE SHEAR KEYWAYS, DRILLING HOLES FOR THE DOWEL BARS, AND POLYMER GROUT MATERIAL.

NOTE: THE ROADWAY WILL BE CLOSED TO THRU TRAFFIC. REFER TO THE TRAFFIC CONTROL PLAN ON THE ROAD PLAN IN THESE PLANS.

GENERAL NOTES:

THIS DESIGN IS FOR REPAIRS TO THE EXISTING 172'-2 X 40'-0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE WITH A 0° SKEW ON I-29 OVER PONY CREEK. COPIES OF ORIGINAL DESIGN PLANS WILL BE MADE AVAILABLE TO THE CONTRACTOR. CONTACT THE OFFICE OF CONTRACTS - HIGHWAY DIVISION - IOWA D.O.T. - AMES.

THE REPAIRS SHALL CONSIST OF REPLACING THE PAVING NOTCHES AT BOTH ENDS OF THE BRIDGE AND REMOVING THE EXISTING RAILING AND REPLACING IT WITH NEW CAST-IN-PLACE CONCRETE BARRIER RAILING.

CONSTRUCTION SHALL BE DONE IN STAGES WITH AT LEAST ON LANE OF TRAFFIC MAINTAINED AT ALL TIMES IN ACCORDANCE WITH "TRAFFIC CONTROL PLAN" NOTE.

MINIMUM CLEAR DISTANCE FROM FACE OF CONCRETE TO NEAR REINFORCING BAR IS TO BE 2" UNLESS OTHERWISE NOTED OR SHOWN.

THE PERMISSIBLE CONSTRUCTION JOINTS ARE TO BE PLACED BETWEEN VERTICAL BARS AT A MINIMUM SPACING OF 20 FEET. CONSTRUCTION JOINT CONTACT SURFACES ARE TO BE COATED WITH AN APPROVED BOND BREAKER.

ALL DIMENSIONS AND DETAILS SHOWN IN THESE PLANS PERTINENT TO NEW CONSTRUCTION IN RELATION TO EXISTING PORTIONS OF THE STRUCTURE SHALL BE VERIFIED IN THE FIELD BY THE BRIDGE CONTRACTOR BEFORE STARTING CONSTRUCTION.

FAINT LINES ON PLANS INDICATE THE EXISTING STRUCTURE.

THESE BRIDGE PLANS LABEL ALL REINFORCING STEEL WITH ENGLISH NOTATION (501 IS $\frac{5}{8}$ INCH DIAMETER BAR). ENGLISH REINFORCING STEEL RECEIVED IN THE FIELD MAY DISPLAY THE FOLLOWING "BAR DESIGNATION". THE "BAR DESIGNATION" IS THE STAMPED IMPRESSION ON THE REINFORCING BARS, AND IS EQUIVALENT TO THE BAR DIAMETER IN MILLIMETERS.

ENGLISH SIZE	3	4	5	6	7	8	9	10	11
BAR DESIGNATION	10	13	16	19	22	25	29	32	36

COST OF JOINT SEALER AND BOND BREAKER SHALL BE CONSIDERED INCIDENTAL TO OTHER CONSTRUCTION.

THE RETROFIT BARRIER RAIL IS TO BE BID ON A LINEAL FOOT BASIS MEASURED FROM END TO END OF RAIL. THE NUMBER OF LINEAL FEET OF RETROFIT BARRIER RAIL INSTALLED WILL BE PAID FOR AT THE CONTRACT PRICE PER LINEAL FOOT BASED ON PLAN QUANTITIES. PRICE BID FOR RETROFIT CONCRETE BARRIER RAILING SHALL BE FULL COMPENSATION FOR FURNISHING ALL MATERIAL (INCLUDING REINF. STEEL AND 1"Φ PLASTIC CONDUIT) PLUS ALL OF THE EQUIPMENT AND LABOR REQUIRED TO ERECT THE RAIL IN ACCORDANCE WITH THESE PLANS AND CURRENT SPECIFICATIONS.

ALL RETROFIT BARRIER RAIL CONCRETE IS TO BE EITHER CLASS BR MIX OR CLASS C MIX.

CLASS BR CONCRETE SHALL BE USED FOR THE SLIP FORMING METHOD.

CLASS C CONCRETE SHALL BE USED FOR THE CAST-IN-PLACE METHOD. THE PRICE BID FOR THE CAST-IN-PLACE METHOD SHALL INCLUDE THE FORMWORK.

ALL REINFORCING STEEL IS TO BE GRADE 60 AND EPOXY COATED.

THE JOINT SEALER SHALL BE LIGHT GRAY NONSAG LATEX CAULKING SEALER MARKETED FOR OUTDOOR USE. NO TESTING OR CERTIFICATION IS REQUIRED.

THE PRICE BID FOR "REMOVAL OF EXISTING HANDRAIL AND END POSTS" SHALL INCLUDE ALL COSTS ASSOCIATED WITH DISMANTLING THE EXISTING HANDRAIL (APPROX. 352 L.F. AND 42 POSTS). THE RAILS AND POSTS ARE TO BECOME THE PROPERTY OF THE CONTRACTOR AND REMOVED FROM THE SITE BY THE CONTRACTOR. THE BID ITEM SHALL ALSO INCLUDE ALL COSTS ASSOCIATED WITH THE REMOVAL OF THE EXISTING CONCRETE END POSTS AND THE CUTTING OFF AND PAINTING OF THE EXISTING RAIL POST ANCHOR BOLTS IF REQUIRED.

ANY REMOVALS REQUIRED SHALL BE IN ACCORDANCE WITH SECTION 2401, OF THE STANDARD SPECIFICATIONS. ANY DAMAGE TO OTHER PORTIONS OF THE EXISTING STRUCTURE NOT NOTED FOR REMOVAL SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE REPAIRED BY THE CONTRACTOR AT NO COST TO THE STATE.

EXISTING BRIDGE RAIL IS NOT TO BE REMOVED UNTIL AUTHORIZED BY THE ENGINEER.

DIMENSIONS SHOWN ON THESE PLANS ARE BASED ON DESIGN PLANS (ORIGINAL DESIGN NO. 1466)

UTILITY COMPANIES WHOSE FACILITIES ARE SHOWN ON THESE PLANS OR KNOWN TO BE WITHIN THE CONSTRUCTION LIMITS SHALL BE NOTIFIED BY THE BRIDGE CONTRACTOR OF THE STARTING DATE.

STRUCTURAL DESIGN

LICENSED PROFESSIONAL ENGINEER Stephen W. Moffitt 13124 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: Stephen W. Moffitt — Date: 12/28/12

Printed or Typed Name: Stephen W. Moffitt

My license renewal date is December 31, 2013

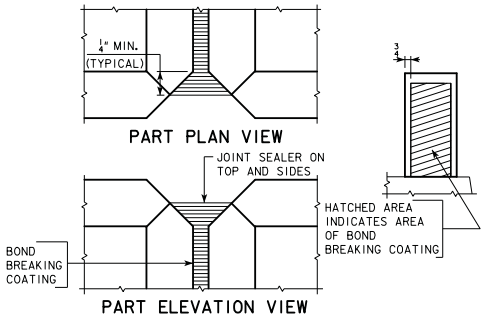
Pages or sheets covered by this seal: SHEETS V.4 THRU V.6

BARRIER RAIL DOWEL SETTING NOTE :

THE 6c1 AND 6c2 BARS SHALL BE SET AS DOWELS IN DRILLED HOLES. HOLES ARE TO BE 10" DEEP. THE DOWELS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. EITHER OF THE FOLLOWING SYSTEMS MAY BE USED AS A BONDING AGENT FOR VERTICAL DOWELS, BUT ONLY SYSTEM "A" MAY BE USED FOR HORIZONTAL DOWELS:

A. POLYMER GROUT SYSTEM SHALL BE IN ACCORDANCE WITH ARTICLE 2301.03, E, OF THE STANDARD SPECIFICATIONS.
B. HYDRAULIC CEMENT GROUT SYSTEMS. DRILLED HOLES ARE TO BE $2\frac{1}{2}$ TIMES THE DOWEL DIAMETER AND ARE TO BE BLOWN CLEAN WITH COMPRESSED AIR IMMEDIATELY PRIOR TO PLACING GROUT. THE HYDRAULIC CEMENT GROUT SHALL BE ONE OF THOSE APPROVED IN MATERIALS I.M. 491.13 AND SHALL BE USED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

NOTE A: SEE SECTION A-A ON BARRIER RAIL LAYOUT SHEET V.2. ON EACH RAIL OF BRIDGE, DIMENSION "X" SHALL BE A MINIMUM OF 1" AND A MAXIMUM OF 3", BUT MUST BE CONSTANT FOR FULL LENGTH OF BRIDGE, HOWEVER APPROXIMATELY 10 LINEAR FEET AT EITHER END OF STANDARD RAIL SECTION SHALL BE TRANSITIONED TO 2" AT END SECTION AS SHOWN.



RETROFIT BARRIER RAIL JOINT DETAILS

SPECIFICATIONS:

DESIGN: AASHTO SERIES OF 2002.
CONSTRUCTION: IOWA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION, SERIES 2012, PLUS APPLICABLE GENERAL SUPPLEMENTAL SPECIFICATIONS, DEVELOPMENTAL SPECIFICATIONS, SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS SHALL APPLY TO CONSTRUCTION WORK ON THIS PROJECT.

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